# STATISTICAL CHARACTERIZATION AND MODELLING OF WAVY LIQUID FILMS IN VERTICAL TWO-PHASE FLOW

A Dissertation

Presented to

the Faculty of the Department of Chemical Engineering University of Houston

In Partial Fulfillment of the Requirements for the Degree Doctor of Philosophy in Chemical Engineering

by

Kuang-Juh Chu August, 1973

#### ACKNOWLEDGEMENTS

The research project described in this thesis was carried with help from various persons and organization. The author would like to express his sincere gratitute to:

- Dr. A. E. Dukler for his invaluable guidance and constant encouragement during the course of this study;
- U. S. Department of Interior, Office of Saline Water, for their support under Grant no. 667;
- Dr. M. G. Hubbard for his encouragement to take this research project;
- Mr. W. N. Chen for his assistance in constructing the experimental apparatus, running the computer program, and plotting the graph;
- Dr. A. J. Seriff for his valuable suggestion about the signal analysis;
- Dr. P. Hutchinson for his valuable suggestion about the stochastic differential equation;
- Dr. F. L. Worley Jr. for his valuable suggestion about the experimental apparatus;
- Dr. R. L. Motard for his help in formulating the digilization procedures;
- Dr. D. Webb for his valuable suggestion about the film thickness measurements;

- Mr. Mike Smith for his designing and building the various electronic circuits;
- Mr. Roy Priest for his careful machining of the experimental apparatus;
- The Engineer System Simulation Laboratory and their staff for providing the computer facilities and debugging the computer program;
- Mr. C. Y. Chang and Mr. Charles Huang for their assistance in preparing the graph:

Finally, the author wishes to express deepest appreciation to his wife, Stella for her patience and encouragement throughout the project, and also for her careful punching, the data card(and typing the manuscript.

# STATISTICAL CHARACTERIZATION AND MODELLING OF WAVY LIQUID FILMS IN VERTICAL TWO-PHASE FLOW

An Abstract of a Dissertation

Presented to

the Faculty of the Department of Chemical Engineering University of Houston

In Partial Fulfillment

of the Requirements for the Degree Doctor of Philosophy in Chemical Engineering

> by Kuang-Juh Chu August, 1973

#### ABSTRACT

The motion of a wavy liquid thin film falling under the action of gravity and of a co-current gas flow, was investigated in a 2" diameter channel for a wide range of liquid and gas flow rates. The Reynolds number for the liquid phase was varied from 200 to 7500 and for the gas phase, from 0 to 113000. Since the nature of all processes observed in such a system are "random", it was necessary to use statistical means to describe this random wave process.

By the use of a number of techniques for time series analysis, a broad range of information on the characteristics of the waves was extracted from the film thickness data. The existence of three distinct classes of waves was established from this analysis, each with their characteristic dimensions (amplitude, shape, base length and separation distance) and celerity. One type is the small waves moving on the substrate; a second is the large wave structure and a third type are small waves moving on these large waves. Detailed statistical data were developed including probability density and moments for the amplitude, location of maximum, minimum, separation time, base dimension, shape and celerity for each class. The variation of these statistical properties with liquid and gas rates and with location down the tube were established. Joint probability densities for certain important properties were also obtained. In order to develop much of this information, several new techniques of extracting the relevant data from the signals had to be developed involving special processing of the time series analysis and detailed interpretation of the stochastic process, h(t).

A new technique for simultaneous measurement of local pressure and film thickness was developed. By measuring the spectral density of the wall pressure fluctuations and cross density between the pressure and film thickness definitive information on the gas-liquid interaction was obtained.

These data were used to determine the distribution of liquid flow between waves and substrate and, for the first time, it is possible to understand the local flows in a wavy system such as this. The data also permitted definitive tests of existing theories. All were shown to be inadequate for both large and small waves.

New theoretical approaches were developed to explain the process of wave motion. These included (1) introducing white noise perturbations into the equations of motion and (2) extending a theory originally proposed by Telles in which a shot noise model is assumed for the wave motion. In particular, this extension is shown to be the only theoretical description of wave motion that describes large wave behavior.

## TABLE OF CONTENTS

-

.

CHAPTER		PAGE	
I.	INTRODUCTION	l	
II.	PREVIOUS STUDIES		
	1. Introduction	5	
	2. Theoretical Analysis	5	
	2-1. Smooth film model	6	
	2-2. Wavy flow by stability consideration.	8	
	2-3. Wavy flow by integral methods	12	
	2-4. Statistical models of wavy flow	16	
	3. Experimental Measurements	17	
	3-1. Film properties	19	
	3-2. Wave properties	20	
III.	DESCRIPTION OF THE EXPERIMENTAL EQUIPMENT AND		
	TECHNIQUES	21	
	1. Introduction	21	
	2. General Flow System	22	
	2-1. Liquid-gas inlet system	22	
	2-2. Liquid-gas separation system	24	
	2-3. Test section	27	
	2-4. Film thickness measurement station	27	
	3. Experimental Technique	31	
	3-1. Instantaneous film thickness	31	
	3-2. Instantaneous pressure fluctuation		
	and pressure drop	43	

	PAGE
3-3. Entrainment measurement	46
3-4. Flow meter	46
IV. EXPERIMENTAL DATA: ENTRAINMENT, PRESSURE,	
PRESSURE DROP AND FILM THICKNESS	•• 49
1. Introduction	49
2. Entrainment	51
3. Pressure Drop	51
4. Moment and Probability Density Analysis	
of Film Thickness	•• 54
4-1. Moment and probability function	
analysis	•• 54
4-2. Moments of film thickness	•• 57
4-3. Probability function of film	
thickness	63
5. Spectral and Correlation Analysis of	
Film Thickness	69
5-1. Spectral and correlation analysis	69
5-2. Spectra and cross-spectra of film	
thickness	72
5-3. Correlation function of film	
thickness	87
6. Spectra of Wall Pressure Fluctuation an	d
Cross-Spectra of Wall Pressure and Film	
Thickness	•• 98

.

.

•

vii

PAGE	

,

V.	EXPERIMENTAL DATA: WAVE STRUCTURE	106
	1. Introduction	106
	2. Method of Analysis of Wave Structure	109
	3. Statistics of the Large Waves	114
	3-1. Amplitude domain	114
	3-2. Time domain	118
	3-3. Joint histogram	127
	4. Statistics of Small Waves on Substrate .	136
	4-1. Amplitude domain	136
	4-2. Time domain	141
	5. Statistics of Small Waves on Large Waves	148
	5-1. Amplitude domain	148
	5-2. Time domain	148
VI.	INTERPRETATION OF EXPERIMENTAL DATA AND	
	SPECULATIONS ON THE PROCESS OF WAVE	
	STRUCTURE	155
	1. Introduction	155
	2. Wave Velocity and Wave Length	155
	2-1. Wave velocity and wave length of	
	large waves	155
	2-2. Nonlinearity of phase spectra	157
	2-3. Secondary large wave velocity	164
-	2-4. Wave velocity and wave length of	
	small waves	169

•

D٨	c	5
TU	u.	Ľ.

	3.	Spectra and Correlation of Film	
		Thickness	173
		3-1. Modal frequency, mean period, and	
		mean base length	176
		3-2. Cross correlation and coherency	
		function	183
		3-3. Equilibrium range of spectrum	188
	4.	Periphery Effect	194
	5.	Length Effect	199
		5-1. Film properties	199
		5-2. Wave properties	201
	6.	Wave Structure	211
		6-1. Substrate structure	216
		6-2. Large wave structure	222
	7.	Interfacial Shear Stress Due to Waves .	234
		7-1. Wave stress analysis	234
		7-2. Wave stress data and drag	
		coefficient	238
VII.	TH	EORETICAL CONSIDERATIONS	244
	1.	Introduction	244
	2.	Random Wave Model	244
		2-1. Formulation of the problem	245
		2-2. Solution of the linear equation	250
		2-3. Spectral density function of $7(t)$ .	255

•

.

ix

	PAGE
2-4. Formulation of nonlinear part	
of equation	257
3. Extension of Telles' Model	261
3-1. Coefficient of the Gram-Charlier	
series for an isolated wave	263
3-2. Solution of an isolated wave	269
4. Substrate Flow and Closure of the	
Liquid Flow Rate	275
4-1. Velocity profiles for the film	
thickness h(t)	277
4-2. Substrate flow	<b>2</b> 80
4-3. Closure of the liquid flow rate	<b>2</b> 81
5. Comparison of Existing Theories and Data	283
5-1. Selection of parameters for	
comparison	<b>2</b> 86
5-2. Comparison of theories with data	287
5-3. Shallow water theory and falling	
film	291
VIII. CONCLUSIONS AND RECOMMENDATION	298
1. Wave Structure Characterization	<b>2</b> 98
2. Wave Structure Analysis	302
BIBLIOGRAPHY	306
NOMENCLATURE	315
APPENDIX A: COMPUTER PROGRAM	322
APPENDIX B: ERROR ANALYSIS	357

	PAGE
1. Measurement Error	357
1-1. The measurement of the film	
thickness	357
1-2. The measurement of the wall pressure	
fluctuation	<b>3</b> 58
2. Statistical Error	359
2-1. Sampling the random data	359
2-2. Estimation of mean and variance	360
2-3. Estimation of the probability	
density function	360
2-4. Estimation of the correlation	
function	361
2-5. Estimation of the spectral density	
function	361
APPENDIX C: STATISTICAL DATA OF FILM THICKNESS	367
APPENDIX D: STSTISTICAL DATA OF WAVE PROPERTIES .	453
APPENDIX E: DERIVATION OF RANDOM WAVE MODEL	474
1. Tick's Random Waves Model	474
2. Transformation of the Set of Equation	
(VII-27) $\sim$ (VII-33) into the Set of	
Equation (VII-34) $\sim$ (VII-38)	476
3. The Solution of $\Psi$ (t,y) in Equation	
(VII-43)	477

•

-

.

·

.

.

,

,

4. Formulation of the Nonlinear	PAGE
Solutions	479
APPENDIX F: DERIVATION OF EXTENSION OF TELLES'	
MODEL	482
1. Derivation in Section 3-1 of Chapter	
VII (Horton's Method)	482
2. Telles' Solution	483
3. Present Solution	483

. .

## LIST OF FIGURES

.

.

•

•

FIGURE		PAGE
III-l.	General Flow System	23
III-2.	Liquid-Gas Inlet Device	25
III-3.	Liquid-Gas Separation Device	26
III-4.	Two Feet Test Section	28
III-5.	Support of Test Section	29
<b>III-6.</b>	Measuring Station	30
III-7.	Calibration System	36
III <b>-</b> 8.	Calibration Curve	38
III-9.	Conductivity Monitoring Circuit Diagram	40
III-10.	Function of the Conductivity Monitoring	
	Circuit	41
III-11.	Calibration Curve of the Conductivity	
	Monitoring System	42
III <b>-1</b> 2.	Procedure of the Data Recording and	
	Storage	44
III <b>-</b> 13.	Function of Pressure Transducer and	
	Auxiliary Units	47
IV-1.	Entrainment	52
IV-2.	Pressure Drop	53
IV-3.	Comparison of Mean Film Thickness	58
IV-4.	Mean Film Thickness	59
IV-5.	Second Central Moment of Film Thickness	60

ти 6	Thind Control Moment of Film Thighners	PAGE
10-0.	Third Central Moment of Film Inickness	01
IV-7.	Fourth Central Moment of Film Thickness	62
IV-8.	Probability Densities of Film Thickness	64
IV-9.	Ibid	65
IV-10.	Ibid	66
IV-11.	Ibid	67
IV-12.	Ibid	68
IV-13.	Sp <sup>°</sup> ctral Densities	73
IV-14.	Ibid	74
IV-15.	Ibid	75
IV-16.	Ibid	76
IV-17.	Ibid	77
IV-18.	Ibid	78
IV-19.	Ibid	79
IV-20.	Ibid	80
IV-21.	Phase Spectra	82
IV-22.	Ibid	83
IV-23.	Ibid	84
IV-24.	Spectral Densities	85
IV-25.	Ibid	86
IV-26.	Representation of Covariance Functions	88
IV-27.	Covariance Functions	89
IV-28.	Ibid	90
IV-29.	Ibid	91

F	×Α	G	F
	-	ч.	1.1

IV-30.	Ibid	92
IV-31.	Ibid	93
IV-32.	Ibid	94
IV-33.	Ibid	95
IV-34.	Ibid	96
IV-35.	Spectra of Pressure Fluctuations	99
IV-36.	Ibid	100
IV-37.	Ibid	101
IV-38.	Ibid	102
IV-39.	Ibid	103
IV-40.	Ibid	104
V-l.	Time Traces of Wave Profiles	107
V-2.	Ibid	108
V-3.	Wave Parameters	110
v-4.	Identification of Waves	111
V-5.	The Mean and Standard Deviation of Wave	
	Amplitude of the Large Waves	115
<b>v-6.</b>	The Mean and Standard Deviation of Wave	
	Maximum of the Large Waves	116
V-7.	The Mean and Standard Deviation of Wave	
	Minimum of the Large Waves	117
v-8.	Histogram of Wave Amplitude of the Large	
	Waves	119
v-9.	Ibid	120

	PAGE
V-10. Ibid	121
V-11. Ibid	122
V-12. Ibid	123
V-13. The Mean and Standard Deviation of Wave	
Base of the Large Waves	124
V-14. The Mean and Standard Deviation of Wave	
Separation of the Large Waves	125
V-15. Wave Frequency and $\langle \mathtt{T}_{\mathrm{bk}}  angle$ / ( $\mathtt{T}_{\mathrm{fn}}$ ) of the	
. Large Waves	126
V-16. Histogram of Wave Base of the Large Waves	s 128
V-17. Ibid	129
V-18. Ibid	130
V-19. Histogram of Wave Separation of the Large	9
Waves	131
V-20. Ibid	132
V-21. Ibid	134
V-22. Joint Probability of the Wave Separation	
and Wave Maximum of the Large Waves	. 137
V-23. The Mean and Standard Deviation of Wave	
Amplitude of the Small Waves	. 138
V-24. The Mean and Standard Deviation of Wave	
Maximum of the Small Waves	. 139
V-25. The Mean and Standard Deviation of Wave	
Minimum of the Small Waves	. 140

xvi

V-26.	Histogram of Wave Amplitude of the Small	
	Waves	142
V-27.	Ibid	143
V-28.	The Mean and Standard Deviation of Wave	
	Base of the Small Waves	144
V-29.	The Wave Frequency and $\langle \mathtt{T}_{bk}  angle  /  \langle \mathtt{T}_{fn}  angle$ of	
	the Small Waves	145
V-30.	Histogram of Wave Base of the Small Waves	146
V-31.	Ibid	147
·v-32.	The Mean and Standard Deviation of the	
	Small Waves on Large Waves	149
V-33.	Histogram of Wave Amplitude of the Small	
	Waves on Large Waves	150
<b>V-</b> 34∙	Ibid	151
<b>V-</b> 35∙	Ibid	152
<b>V-36.</b>	The Mean and Standard Deviation of Wave	
	Base of the Small Waves on Large Waves	153
VI-l.	Comparison of Wave Velocity	158
VI-2.	Wave Velocity	159
VI-3.	Wave Length of the Large Waves	160
VI-4.	Phase Spectrum	163
VI-5.	Subtraction of Two Signals	165
VI-6.	Comparison of C and C' on Phase Spectra .	168
VI-7.	Phase Spectra	171

•

VI-8.	Parameters of Spectrum and Covariance	176
VI-9.	Modal Frequency	177
VI-10.	Modal Frequency and Mean Period	179
VI-11.	New Large Wave Separation T'sep	180
VI-12.	Joint Probability Densities	181
VI-13.	Modal Frequency and Wave Frequency	182
VI-14.	Mean Base Time and Wave Base	184
VI-15.	Unsymmetrical $C_{12}(7)$	185
VI-16.	Scatter Diagram of Sample of Bivariate	
	Normal Random Variable	187
VI-17.	Correlation Coefficient at $\mathbf{T}_{1}$	189
VI-18.	Coherency Spectra	190
VI-19.	Configuration of the Conductivity Probe	195
VI-20.	Covariance Functions	197
VI-21.	Ibid	198
VI-22.	Wave Around the Periphery	199
VI-23.	Length Effect on Mean Film Thickness	200
VI-24.	Length Effect on Second Central Moment	202
VI-25.	Length Effect on Wave Velocity	204
VI-26.	Amplitude of the Small Waves	<b>2</b> 06
VI-27.	Amplitude of the Large Waves	207
VI-28.	Frequency of the Small Waves	209
VI-29.	Frequency of the Large Waves	210
VI-30.	Base of the Small Waves	212

VI-31.	Separation Time of the Large Waves	213
VI-32.	$\langle T_{bk} \rangle / \langle T_{fn} \rangle$ of the Small Waves	214
VI-33.	$\langle T_{bk} \rangle / \langle T_{fn} \rangle$ of the large waves	215
VI-34.	Definition of Substrate in the Previous	
	Studies	216
VI-35.	Wave Structure and Probability Density of	
	Film Thickness	218
VI-36.	Estimation of the Probability Density	
	Function of Substrate	<b>2</b> 19
VI-37.	Fraction of Substrate	223
VI-38.	Substrate Structure	224
. VI-39.	Large Wave Structure	226
VI-40.	Amplitude Structure	227
VI-41.	Poisson's Arrival Time	231
VI-42.	Ibid	232
VII-1.	Configuration of Flow Field	246
VII-2.	Theoretical Spectrum $\widetilde{S}^{(1)}(f)$	<b>2</b> 58
VII-3.	Subtraction of Periodic Component	266
VII-4.	Comparison of $\widetilde{C}(\mathcal{J})$ $\widetilde{C}_{p}(\mathcal{J})$ And $\overset{\sim}{\underset{n=0}{\underset{n=0}{\overset{\sim}{\underset{n=0}{\overset{\sim}{\underset{n=0}{\overset{\sim}{\underset{n=0}{\overset{\sim}{\underset{n=0}{\overset{\sim}{\underset{n=0}{\overset{\sim}{\underset{n=0}{\overset{\sim}{\underset{n=0}{\overset{\sim}{\underset{n=0}{\overset{\sim}{\underset{n=0}{\overset{\sim}{\underset{n=0}{\overset{\sim}{\underset{n=0}{\overset{\sim}{\underset{n=0}{\overset{\sim}{\underset{n=0}{\overset{\sim}{\underset{n=0}{\overset{\sim}{\underset{n=0}{\overset{\sim}{\underset{n=0}{\overset{n}{\underset{n=0}{\overset{n}{\atopn}{\underset{n=0}{\underset{n=0}{\overset{n}{\atopn}{\underset{n}}{\underset{n}}{\underset{n}}{\underset{n}}{\underset{n}}{\underset{n}}{}}}}}}}}$	<b>2</b> 68
VII-5.	Comparison of Experimental Data and	
	Theoretical Prediction for Wave Velocity .	276
VII-6.	Dimensionless Film Thickness $N_{\mathrm{T}}$	285
VII-7.	Wave Frequency	288
VII-8.	Dimensionless Wave Velocity	289

.

		PAGE
VII-9.	Dimensionless Wave Length	290
VII-10.	Dimensionless Wave Amplitude	292
VII-11.	Dimensionless Goren's Correlation Farameters	293
VIII-l.	Summary of Time Series Analysis	299
B-1.	Statistical Error of the Probability Density	362
B-2.	Confidence Limit for Power Spectrum	366

.

.

## LIST OF TABLES

.

TABLE		PAGE
II-l.	Previous Experimental Techniques	18
III-1.	Probe Calibration Plugs	35
III-2.	Characteristics of Pressure Transducer	45
IV-1.	Air Flow Rate and Air Reynolds Number	50
IV-2.	Water Flow Rate and WaterReynolds Number .	50
IV-3.	Film Thickness Measuring Station and	
	Location	50
IV-4.	Pressure Measuring Station and Location	51
VI-1.	Properties of Secondary Waves	167
VI-2.	Wave Velocity and Wave Length of Small	
	Waves	172
VI-3.	Slope of Film Thickness Spectra in the	
	High Frequency Range	193
VI-4.	Amplification Factor $A_p$	<b>20</b> 8
VI-5.	Number of waves	217
VI-6.	Comparison of Various Terms in Form Drag at	
	W <sub>G</sub> = 0.1436 (1b/sec)	238
VI-7.	Wall Stress, Form Drag and Drag Coefficient	240
VII-1.	Coefficient of the Gram-Charlier Series for	
	an Isolated Wave at $W_G = 0.0(1b/sec)$	269

		PAGE
VII-2.	Comparison of Average Reynolds Number	279
VII-3.	Ibid	279
VII-4.	Closure of Liquid Flow Rate	282
VII-5.	Ibid	282
VII-6.	Shallow Water Parameter	<b>29</b> 6
C-1.	Moments of Film Thickness	368
C-2.	Probability Density Function of Film	
	Thickness	371
. <b>C-</b> 3.	Auto Spectra, Cross Spectra, and Coherency	
	Spectra	378
C-4.	Phase Spectra	391
C-5.	Auto and Cross Covariance Function	396
D <b>-1.</b>	Mean and Standard Deviation of Wave	
	Parameters of the Large Waves	454
D-2.	Mean and Standard Deviation of Wave	
	Parameter of the Small Waves	458
D-3.	Mean and Standard Deviation of Wave	
	Parameter of the Small Waves on Large	,
	Waves	462
D-4.	Histogram of Wave Parameters of the Large	
	Waves	463
D-5.	Histogram of Wave Parameters of the Small	
	Waves	471
D-6.	Histogram of Wave Parameters of the Small	
	Waves on Large Waves	473

•

### CHAPTER I

#### INTRODUCTION

The flow of thin films of liquid over a solid surface with and without gas flow has been observed in numerous engineering processes in the field of petroleum, chemical, nuclear and power industries. The significance of film flow in the above processes lies in the fact that higher heat and mass transport rates are caused by the presence of the liquid interface itself.

The influence on the transport processes by this free liquid surface is due to the waves which are generated on the interface by response to external Description of the free surface waves disturbances. present as an important, difficult, and challenging problem in the field of applied mathematics and practical engineering. The classical wave theory occupied the efforts of many great mathematicians such as G. Green, G. Airy, G. Stokes, Lord Rayleigh etc., Their works are well presented in many books by Stoker (S-7). Lamb (L-1 ), and Kinsman (K-4). Usually their approaches describe the wave motion on the free surface as periodic. But in the real world one often discovers that the classical theory is inadequate for many wave phenomenon on the free liquid surface such as ocean waves and wavy flow in

two-phase flow. Once Lord Rayleigh took a look at ocean waves and remarked "the basic law of the seaway is the apparent lack of any law".

An adequate theory of stochastic processes is a quite recent development carried out by a number of men. Among the most important contributors are Khintchine, Kolmogorov, Levy, Tukey, Rice, and Slutsky. This advanced mathematics first appeared in the field of turbulence and communication theory. Pierson (P-7) was the first oceanographer who applied the results developed for noise in electronic circuits to problems in ocean gravity waves. He brought together four major concepts which were necessary before the modern approach to wave could take form:

- (a) The conviction that the problem of bringing law to the confusion of the ocean wave, in its essence, was a statistical problem.
- (b) The realization that even under the new formulation the motion must still obey the classical equations (Navier Stokes equations).
- (c) The identification of the energy spectrum as the ordering and governing principle in the apparent confusion.
- (d) The conception that the space-time function describing a given sea state must have a certain multivariate probability structure.

Since Pierson's four concepts, one discovers a viewpoint from which the chaotic appearance of the ocean waves reveals a kind of order.

The existence of certain random aspects of the waves motion on falling film was discovered by Dukler (D-9), "'cks (W-4), Telles (T-2), and Webb (W-2). But the nature of this random process is still not well defined. Waves on the falling film present a more difficult problem than ocean waves for the following reasons:

- (a) The waves of the falling film appear strongly non-Gaussian in nature which prevents one from using certain statistical transformation possible for ocean waves.
- (b) The external force acting on the waves in the direction of propagation is not only due to the gas phase velocity but also due to the gravitational force.
- (c) Since the waves appear on the very thin film the viscous forces also are important and the potential function can not be applied as in the ocean waves system.
- (d) The velocity field is impossible to measure.

The purpose of this work is to study certain statistical properties associated with instantaneous film thickness and wave structure, to examine the question of the characteristics of this random wave system in search of a more fundamental basis on which to build stochastic models for the waves and to investigate analytically various approaches to obtain a more fundamental understanding of this complex wavy velocit; field.

#### CHAPTER II

#### PREVIOUS STUDIES

#### 1. INTRODUCTION

A general review of the two-phase flow in conduits was published by Dukler and Wicks (D-7) in 1963, and a detailed survey of film flow in particular was presented by Fulford (F-1) in 1964. Recently a detailed discussion of modelling of the wavy gas-liquid interface was given by Dukler (D-3), and a comprehensive survey of annular two-phase flow was also given by Hewitt and Hall-Taylor (H-7). A detailed review and discussion of important theoretical progress and experimental measurements in vertical wavy falling film with and without gas flow will be given in the following section, particularly the publications after 1965.

### 2. <u>THEORETICAL ANALYSIS</u>

All the theoretical analysis for a falling film start with the equation of continuity and the equations of motion for a two dimensional system as follows:

$$U_x + V_y = 0 - - - - - - - - - - - - - (II - 1)$$

$$u_{z} + u_{u_{x}} + V_{u_{y}} = g - \frac{1}{2} P_{x} + \nu (u_{xx} + u_{yy}) - - - (II - 2)$$

$$\Lambda^{r} + \Lambda \Lambda^{x} + \Lambda \Lambda^{f} = -\frac{1}{b} b^{g} + \Lambda (\Lambda^{xx} + \Lambda^{fg}) - - - - - (\Pi - 3)$$

Boundary conditions of this falling film system are: no slip condition at wall, normal stress and shear stress at interface, and the kinematic boundary condition. These boundary conditions are expressed in the following five equations:

$$u = 0$$
 or  $y = 0 - - - - - - (II - 4)$ 

$$P = 2u \left\{ \frac{u_x h_x^2 - (u_y + V_y) h_x + V_y}{(1 + h_x^2)} \right\} + \left\{ \frac{h_x x}{(1 + h_x^2)^2} \right\} \quad \text{at } y = h - --(II - 6)$$

$$2(V_{y}-u_{x})h_{x} + (V_{x}+u_{y})(i-h_{x}) = 0 \qquad \text{at } y=h---(II-7)$$

$$V = h_t + uh_x \qquad \qquad at y = h - - - (II - 8)$$

A complete solution of this set of nonlinear partial differential equations with nonlinear boundary conditions is impossible to obtain. Only partial information can be developed and this only when suitable simplifications are made.

#### 2-1. SMOOTH FILM MODEL

The first two important theoretical studies of vertical film flow were done by Hopf (H-9) in 1910 and Nusselt (N-2) in 1928. They considered that the flow is a steady, uniform smooth film and is controlled by gravitational and viscous force only. The equations and the boundary conditions can be simplified by the above assumption as

$$\lambda \frac{qA_{r}}{q,n} + d = 0 - - - - - - - - - - (\overline{1} - d)$$

u = 0 at y = 0 - - - - (II - 10)

$$\frac{du}{dy} = 0 \qquad \qquad at \ y = f_{1} - - - - (II - II)$$

The solution is the famous parabolic velocity distribution

$$u = \frac{1}{2} (\pi_{y} - \frac{1}{2}) - - - - - - - (I-12)$$

Since that work there are many extentions of this famous result for different geometry and by adding different correction terms. The most important and significant work in this smooth film approach was developed by Dukler (D-4, D-8). He considered a turbulent liquid film with and without interfacial shear due to the action of co-current gas flow. The basic equation was obtained by a force balance among gravitational force, viscous force, Reynolds stress and interface shear stress.

$$\frac{d}{dy}\left\{\left(-u+\varepsilon, \beta_{L}\right)\frac{du}{dy}\right\} - \frac{3\varepsilon}{dp} + \left(\beta_{L} - \beta_{q}\right)\beta = 0 - - - - \left(\overline{u} - B\right)$$

The numerical solution of this equation was presented in terms of two parameters: the liquid Reynolds number and a dimensionless pressure drop parameter. The approach was also extended by Dukler (D-5, D-6) in a heat transfer design problem.

The main defect of this type of approach arises from the fact that the film is not smooth at all except near the region of entrance and very small liquid flow rates. Experimental evidence shows that the transport rate is controlled by the rough surface due to the waves. Recently, Wicks (W-4) extended Dukler's turbulent smooth film model by introducing a discontinuity in the stress at the gasliquid interface to take care of the effect of interactions between the gas flow and the surface wave. To accomplish that, he assumed that one can neglect the effect of the wave disturbance in the continuous liquid phase below the waves and the gas phase. The studies by Worley (W-5) would tend to indicate that this assumption is valid on the gas phase, but on the liquid phase there might persist a significant effect all the way to the wall. 2-2. WAVY FLOW BY STABILITY CONSIDERATION

The first series of rigorous formulations of the stability of a liquid film flowing down an inclined plane were presented by Yih (Y-1, Y-2) and Benjamin (B-3). Their

basic approach can be stated as below:

- (a) The primary flow obeys the Nusselt equations(II-9), (II-10) and (II-11)
- (b) A sinusoidal disturbance on the velocity field and pressure is assumed, and the form of disturbance is expressed by means of a Fourier series

$$\psi = \phi_{1}(y) \exp\{i N_{W}(x-ct)\} - - - - (II-14)$$

$$P' = \phi_2(y) \exp \{i N_W(x - ct)\} - - - - (I-15)$$

(c) Assuming the disturbances are small, the equations (II-1) through (II-8) can be linearized and simplified. The well-known Orr-Sommerfeld equations results.

$$\phi, "'' - 2N_{W} \phi, " + N_{W} \phi, = iN_{W} R_{e} \left\{ (U-C)(\phi, -N_{W} \phi,) - U'' \phi, \right\} - - (II-16)$$

where  $N_{W}$  is a dimensionless wave number

C is a complex wave velocity

Their results can be summarized by the statement that the flow is unstable for all Reynolds numbers. The wave velocity is obtained as three times the average velocity calculated from Nusselts equations. This analytical solution for infinitesimal disturbances has done much to improve an understanding of the instability of this flow, but their results are limited to flows of low ReynoldS number or very low Weber number and therefore are not of great practical interest.

The direct numerical integrations of the Orr-Summerfeld Equation by Whitaker (W-3), permitted extension of results to higher Reynolds numbers. Anshus and Goren (A-3) obtained an approximate solutions by replacing the x directions velocity by its values at the free surface, and their results agreed well with that of Whitaker. Recently, Anshus (A-1) solved the Asymptotic Solution of the Orr-Summerfeld Equation, and Krantz and Goren (K-7) used a polynominal equation in y for the velocity profile to integrate the equation of motions and reduced the differential equations to the algebraic equation for the wave number Nw. All these three results predict that the wave velocity and the wave length is a function of Reynolds number, and the dimensionless wave velocity ( $C/\bar{u}$ ) is always less than or equal to three.

The above linear stability theory can only predict the initial growth of an unstable infinitesimal disturbance breaking down once the disturbance becomes too large. To take account of initially finite disturbance and to predict equilibrium amplitude when disturbance grows to finite size, a nonlinear stability theory was developed. In 1965, Anshus (A-2) applied Stuart's (S-8) and Watson's (W-1) nonlinear stability theory of parallel flow to derive a

amplitude equation for the case of falling film. The usual form of amplitude equation is

 $\frac{dA^2}{dt} = \Re_1 A^2 + \Re_2 A^4 - - - - - - - (\Pi - I^7)$ where  $\Re_1$  and  $\Re_2$  are functions of wave number N<sub>W</sub>, wave velocity C and Reynolds number Re. The equilibrium a. plitude of the wave was obtained directly by letting  $\frac{-dA^2}{dt} = 0$ . Recently Lin (L-4, L-5, L-6) has applied the amplitude expansion technique proposed by Reynolds and Potter (R-1), who extended and modified the method of Stuart and Watson, to study the nonlinear stability of a falling film. His results show that the wave velocity of long waves increase with the amplitude. But for the waves with relatively short wave length, the wave velocity decreases as the amplitudes increase. A result particularly important to this study is the discovery that the solution is able to give a wave profile and to predict a wave velocity greater than three times the average film velocity.

In parallel to the above work which applies Stuart and Watson's method, Mei (M-2) and Benny (B-4) presented another approach to treat nonlinear waves on thin films. Their approach is a systematic direct expansion of equations of motions and boundary conditions by a suitable dimensionless small parameter. However, the effect of surface tension is neglected in their nonlinear analysis, and con-

sequently they were unable to obtain a finite equilibrium amplitude. Nakaya and Takaki (N-1) used similar expansions as Mei and retained the surface tension term. A equilibrium amplitude was then obtained. This clearly indicated that surface tension does have a stabilizing effect on finite-amplitude waves. Recently Gjevik (G-2) extended Benney's method to include the effect of surface tension. Hin results is similar to Lin's prediction. Krantz and Goren (K-6) also used Benney's expansion method to show that equilibrium amplitude for most highly amplified waves is a function of a single dimensionless group  $G = R_e We^{\frac{K}{2}}$  the asymptotic solution of equilibrium amplitude for the case of  $G \ll 1$  and  $G \gg 1$  was solved by Javdani and Goren (J-1).

2-3. WAVY FLOW BY INTEGRAL METHODS

Three approaches which have been followed in the search for periodic solutions of the integral momentum equations to characterize the wavy interface will be briefly discussed in this section.

(i) Kapitza's method

This approach was first suggested by Kapitza (K-2). The main idea of his approach can be summarized as follows:

(a) The x-direction equation (II-2) is integrated over the film thickness, and  $P_{\infty}$  term is

evaluated from boundary condition (II-6) which introduces the surface tension force with equations.

(b) Assuming the profile of the free surface moves without changing in form with a constant wave velocity, it is possible to integrate the kinematic boundary condition (II-8) and to relate the instantaneous film thickness and instantaneous velocity to the mean film thickness and mean velocity as

 $f_{1}(c-\bar{u}) = f_{0}(c-u_{0}) - - - - - (II-18)$ 

(c) By assuming the velocity profile to be everywhere parabolic, scaled by the instantaneous film thickness (which is related to the mean film thickness by  $\pi = \pi_o (i+\gamma)$ ), the partial differential equation obtained from (a) can be reduced to a ordinary differential equation in terms of  $\gamma$ .

The solution is obtained by seaking the condition at which a steady periodic solution exists. The linear theory of Kapitza which considers only the first harmonic in the  $\gamma$  expansion, predicts the wave velocity and the wave length. Kapitza's nonlinear theory retains two harmonics but produce an unknow wave amplitude which is
dependent on mean film thickness  $f_{0}$ . A minimization principle which has yet to be validated, was used to minimize  $f_{0}$ . This nonlinear theory gives not only the wave velocity and the wave length but also the wave amplitude.

There have been numerous studies based on the modification of Kapitza's method. Among those the most significant extension on no gas flow are Shkadov (S-2), Lee (L-2), Byatt-Smith (B-9), Rushton and Davies (R-3), Gollan and Sideman (G-3), Massot, Irari, and Lightfoot (M-1), and Levich (L-3). The extension for the case where the free surface was exposed to the shear due to a gas flow was also done by Semenov (S-1) and Wicks (W-4). The solution obtained from this integral method agree reasonably well with that of stability method. However this method is simpler.

(ii) Ruckenstein's method

In 1968, an interesting work was done by Berbente and Ruckenstein (B-9). They used the Kapitza's type equations. As in the procedure of Kapitza, a velocity distribution is assumed, but in their case the velocity is described by a power series in  $\gamma$  up to the 6th degree, the coefficient of each term depending on a single variable  $\propto$ 

$$\frac{U}{U_{o}} = \frac{3}{2} \sum_{n=0}^{6} Q_{n} \left(\frac{f_{-}}{f_{o}}\right)^{n} - - - - - (II - 19)$$

$$\frac{V}{u_{o}} = \frac{3}{2} \sum_{n=0}^{6} b_{n} \left(\frac{-E-Y}{E_{o}}\right)^{6} - - - - - - - - (I-20)$$
where  $Q_{n} = Q_{n} (x')$ 
 $b_{n} = b_{n} (x')$ 
 $x' = x - Ct$ 

The velocity is no longer parabolic and local accelerations in the waves can be accommodated. Substituting  $\delta$  these relations for velocity into the equations of motion and the continuity equation, a set of nonlinear differential equations in terms of  $\eta$ ,  $\Omega_n$  and  $b_n$  are obtained. By making the Fourier series expansion and linearization, the equations are reduced to a set of algebraic equations. The absence of one relationship makes a closed form solution impossible. A correlation between amplitude and a dimensionless group was made on Kapitza's data to make up one more relationship. The solution are close to Shkadov's results.

(iii) Dressler's method

A discontinous type solution for roll waves which is widely used in open channel flow, was first proposed by Dressler (D-2) in nearly horizontal channels and was modified by Brock (B-7) to include small channel angles. The approach is to apply the integral momentum equation to give the shape of the back of the single wave and a shock condition to the front. Recently Miya, Woodmansee, and

Hanratty (M-3) extended this roll waves model to the case where waves driven by the interfacial shear caused by gas flow in horizontal channel. The applicability of this roll wave model to vertical falling films have been explored in this laboratory.

# 2 4. STATISTICAL MODELS OF WAVY FLOW

Statistical models have been developed for gravity waves on the ocean under the condition of inviscid flow by Kampe ' de Ferriet (K-1), Tick (T-4), Fhillips (P-6) and Hasselmann (H-2). But the only random wave model for a falling film was done by Telles (T-2, T-3). Telles assumed that the separation distance of waves is a shot noise processes and a single wave can be represented by the Gram-Charlier series. The theory of shot noise processes which was developed by Rice (R-2), enables him to extract the Gram-Charlier coefficients from statistical data of film thickness such as moments. The equation of motion for an isolated wave represented by Gram-Charlier series was solved by quasi-linearization. The results give the liquid velocity profile and wave velocity for this isolated. wave.

Telles's method is not a rigorous statistical approach. However it gives us a promising method to handle such a difficult phenomenon.

#### 3. EXPERIMENTAL MEASUREMENTS

In the early stage of falling film study the experimental work was concentrated on measuring the mean film thickness. The experimental determination of parameters charactering the interfacial wavy structure is extremely dificult especially in the region far from the entrance or at high liquid flow rates. This is clearly indicated by the fact that the number of systematic experimental studies published in last ten years is much less than that of theoretical investigations. Some of the experimental investigations published are either qualitative or unreliable. Since the waves are moving at least in the two dimensions,  $\Sigma$  and  $\Sigma$  , it is ideal to have a measuring system which can simutaneously record the instantaneous film thickness at multiple position along the test tube. In order to reach the above goal, only the method of light absorption and conductivity probe are suitable at present time.

The following discussion will be based only on the important recent experimental investigation by Greenberg (G-4), Charvonia (C-1), Stainthorp, Allen and Batt (S-3, S-4, S-5), Portalski and Clegg (P-10, P-11), Tailby and Portalski (T-1), Hewitt et al (H-1, G-1, H-2, H-7), Webb (W-2), Wicks (W-4), and Telles and Dukler (T-3). Table II-1 gives the outline of the ex-

perimental techniques used in these studies.

# TABLE II-1

.

•

# PREVIOUS EXPERIMENTAL TECHNIQUES

					. مطالبين ويستريب في يومنين متبعد منها بوسي ب	
Investigator	Measuring Probe	Test Section	no. of Probes	Gas Effect Re <sub>G</sub>	Liquid Effect ReL	Length Effect
Greenberg and Charvonia	light absorption	2.5"I.D. tube 2.38' length	l	5x10 <sup>4</sup> - 3x10 <sup>4</sup> -	17- 1780	
Stainthorp Allen and Batt	light absorption	1.36"I.D. tube 2.49' length	l and 2	5x10 <sup>3</sup> - 4.6x10 <sup>4</sup>	20 <b>-</b> 200	2"-12"
Portalski Allen and Clegg	light absorption	21"wide 7'length	1		10- 700	4"-10"
Wicks, Telles and Dukler	conduc- tivity probe	6"wide 18'length	2	2.7x10 <sup>4</sup> - 5.7x10 <sup>4</sup>	1000 <b>-</b> 5000	
Hewitt and Webb	conduc- tivity probe	l.5"I.D. tube 50'length	2	3.5x104 8.2x104	400 <b>-</b> 4200	6'-50'

#### 3-1. FILM PROPERTIES

Measurements considering the film as a random process :is a relatively recent development. Mean film thickness was measured in all of the studies described in Table II-1. The first important statistical measurement of film thickness was done by Charvonia. He used analog methods to construct a type of wave frequency - amplitude spectrum ( in terms of standard statistical terminology this was a form of probability density function of the film thickness). Useful information was not obtained. however because of lack of other wave structure measurement and the difficulty in assigning the statistical meaning to such curves. Wicks used a similar technique to obtain the probability distribution function of film thickness. The probability distribution function is an integral function of the probability density function. It naturally contains less information. The spectral density and cross spectral density of film thickness were first measured by Telles using a wave form analyzer. Unfortunately the recording voltage which was used to obtain the spectral function is a nonlinear function of film thickness. Hence only part of the useful information can be extracted. Webb (W-2) recently repeated Wicks and Telles's measurement in a circular tube.

#### 3-2. WAVE PROPERTIES

The characteristic of a fluctuation disturbance, or wave is described by Stainthorp et al (S-3, S-5) and Portalski et al (P-10, T-1) in terms of wave amplitude, wave velocity, wave length and wave frequency. Only the mean value of those quantities based on the arithmetic average of observation of less than 100 waves was presented. The statistical error in those mean value measurement is large. The first accurate measurement on wave velocity was from the phase spectrum by Telles. The same principle was applied by Webb using cross correlation. The only statistical function describing the variation in wave velocity was obtained by Webb. A method was used to obtain the probability density function of the wave velocity by measuring the time displacement of corresponding waves on a wave trace. It is doubtless that the result suffers a large error due to the difficulty of identifying the wave at two positions along the time. Lack of statistical description of the wave is obvious. Since the wave on the falling film is an unsymmetrical non sinusoidal type, using only the above four quantities to describe the wave is unsuitable and incomplete.

# CHAPTER III

# DESCRIPTION OF THE EXPERIMENTAL

#### EQUIPMENTS AND TECHNIQUES

#### 1. INTRODUCTION

The equipment used in this study was designed primarily to measure the interfacial structure of water-air film flow under the following considerations:

- . (a) The flow channel should be sufficiently long to permit fully developed wavy flow to occur over an appreciable length of test section.
  - (b) The cross section of the flow channel should be symmetrical in order to avoid corner effect which occurred in Wicks' (W-4) and Telles' (T-3) study due to their use of a rectangular channel.
  - (c) The inside wall of the test section should be sufficiently smooth and uniform to prevent disturbing the wave structure.
  - (d) Multiple measuring stations along the length and, multiple probes along the periphery must be available to allow for a study of wave structure along the length and the periphery.
  - (e) The entire test section should be substantially

#### free from external vibration.

In an attempt to satisfy these conditions, the following flow system was constructed.

#### 2. GENERAL FLOW SYSTEM

The flow system consisted of a 14 ft long test section, a - ft long air-water injection section, a 2 ft long airwater separation section and four measuring stations. The whole system was mounted between two 3/4 inch plywood sheets on a 25 ft by 5 ft by 2 ft unistrut structure. A complete schematic flow diagram of the apparatus is given in Fig. III-1. The detailed structure of each section is described as follow:

# 2-1. LIQUID-GAS INLET SYSTEM

The liquid-gas inlet system consisted of a 12 inch long by 8 inch I. D. cylindrical tank to hold a constant. level of water. Water flows down into a vertical 2 inch I. D. 1/4 inch wall pipe which is set inside the cylinder. Air is injected from the top of the cylinder into the 2 inch water outlet pipe by a 2.00 inch I. D. 1/4 inch wall pipe with a smooth knife outside edge, which can be adjusted to maintain a suitable gap to allow the water smoothly flowing down the pipe without forming a jet. A small tubing is also connected from the air inlet to the cylinder to equalize the pressure. A detailed sketch of the system



Fig. III-1. GENERAL FLOW SYSTEM

is shown in Fig. III-2. All the connections from this inlet system to the main air line and water line are flexible tygon tubing so that it can be adjusted to be perfectly horizontal and also insulate the test section from external vibration. This system was constructed of Plexiglass.

2-2. LIQUID-GAS SEPARATION SYSTEM

The liquid-gas separation system consisted of two units . First is an annular slot removal unit to separate water in the film flow from the central air flow. Second is a commercial Peerless Vane type line separation to remove the water entrainment in the air. A detailed description of the annular slot removal device is given in Fig. III-3. This device consisted of 1 ft x 1 ft x 1 1/2ft Plexiglass box which maintained a constant level of water by a valve. Connection pipe from the test section was expanded from 2" I. D. to 5" I. D. inside the box to allow the film flow spread to the box. The gas core was removed by a 1.75 inch I. D. Plexiglass inside the box with a 2 inch I. D. circular knife edge section on the top which can be traversed into the expansion section. All connections from this devicewere also tygon tubing. The Peerless Vane type line separation have extremely low pressure drop from 2" - 6" of water and 100% removal of all entrained droplets 8 - 10 microns and larger.



Fig. III-2. LIQUID-GAS INLET DEVICE



Fig. III-3. LIQUID-GAS SEPARATION DEVICE

# 2-3. TEST SECTION

The test section consisted of 4 lengths of 2" I. D. Flexiglass pipe with lengths of 1 ft, 2 ft, 4 ft, and 6 ft. A typical 2' section is shown in Fig. III-4. Each section was constructed from a number of 1 ft long pipes which were individually machined to have exactly 2" I. D. and 2.45" O. D. with error less than 0.001" and two flanges with an interlocking "O" ring. Sepcial care was taken on the flanges to match the measuring block housing to the adjacent test section. A special supporting ring for the test section was also designed to support the weight of the test section and to keep a perfect alignment of the test section with the vertical. Fig. III-5 shows one of the supporting ring.

# 2-4. FILM THICKNESS MEASUREMENT STATION

There are four measuring stations, each housed between two adjacent test sections. Therefore the separation distance between the measuring stations were 13.936 inch, 25.936 inch and 49.936 inch. Each individual measurement station consisted of four pairs of conductivity probes for film thickness and four pressure channels to the pressure transducer adapter. A detailed sketch of this system is given in Fig. III-6. The design of the probe housing was such that four film thickness probe pairs



Fig. III-4. TWO FEET TEST SECTION



Fig. III-5. SUPPORT OF TEST SECTION



Fig. III-6. MEASURING STATION

were arranged perpendicularly to each other around the periphery of the flow tube. The associated pressure tapping was situated between the components of the probe pairs.

The film thickness conductivity probes were of a similar geometry to that used extensively in this laboratory by Wicks (W-4), Telles (T-2) and in England by Webb (W-2) for the study of film thickness. The electrodes were made of silver foil, 0.002" in thickness, and were cast into an Aralite housing. The silver foil electrode pairs were 0.2 inch apart and parallel and their width being 3/4 inch. The main feature of the design of the probe housing was the pressure and film thickness were measured at a single point.

# 3. EXPERIMENTAL TECHNIQUE

The purpose of the following paragraph is to discuss all the electronic equipment used in this study, various calibration methods applied for different measurements and the form of data stored for the statistical analysis. 3-1. INSTANTANEOUS FILM THICKNESS

The method of measuring instantaneous film thickness is based on the fact that the conductance of a liquid film depends on the liquid film thickness and the specific conductivity of the liquid. This method has been discussed

and analyzed in detail by Wicks (W-4) and Webb (W-2). The system used in this study has similar probe as Wicks (W-4), Telles (T-2), and Webb (W-2), but includes a different calibration system and a new design of four channel simultaneous conductivity monitoring circuits. For convenience the method used here is described under the following subheadings:

(i) Conductivity Probe

The silver electrodes used as a conductivity probe in this study showed a unstable reading of conductivity for a constant liquid film thickness. This phenomenon also happened in Webb's (W-2) study. This difficulty was overcome by platinizing a thin layer of platinum black onto the silver probe surface. Platinizing solution was obtained from Leeds and Northrup Co. ( L&N part Std. 1192-3). An auxiliary chemically pure platinum is also needed for platinization. The platinization procedure is briefly described as follow:

- (a) Immerse the silver conductivity probe and the auxiliary platinum electrode in the platinizing solution.
- (b) Connect the negative terminal of a 3 V. battery to both leadwire of the conductivity cell, and then connect the positive terminal of the battery

to the auxiliary electrode for approximate 30 second.

(c) During the platinizing operation, stir the solution gently.

A detailed procedure of platinization is given in Leeds & Northrup's Directions for used in their electrolytic conductivity cell.

(ii) Celibration of the Conductivity Probe

As mentioned above, the thickness of liquid film is related to the conductance of the liquid film. The conductance of the liquid film will vary with the specific conductivity of the liquid which is a function of temperature and salinity. Therefore in order to avoid making a calibration curve for various temperatures and salinity, calibrations were carried out for liquid film thickness vs. cell constant which is independent of temperature and salinity. The definition of cell constant for a conductivity probe at given film thickness is

$$K_{cc} = \frac{L_{mg}}{A_{meq}} - - - - (III-1)$$

where

 $K_{cc}$  = value of cell constant in cm<sup>-1</sup>.  $L_{mg}$  = mean length of the conducting path between the cell electrodes

Amea = mean effective cross-sectional area of the conducting path between the electrodes

The factors  $L_{m\ell}$  and  $A_{mea}$  take into consideration not only physical dimensions but also the shape of vessel in which the electrodes are mounted and the nature of electrode surface. Therefore the values of  $L_{m\ell}$  and  $A_{mea}$  can not be easily measured by machanical means, but the value of  $K_{cc}$  can be readily determined by an auxiliary standard conductivity cell with a known  $K_{cc}$  value as reference cell. Since the measured conductance of electrolyte from a conductivity cell can be described as the following equation:

$$K_{cc} = \frac{G_s}{G_m} - - - - - - - - (II-2)$$

where

G<sub>S</sub> = specific conductance of electrolyte
 in mhos/cm at solution temperature
G<sub>m</sub> = measured conductance of electrolyte
 in mhos

Applied equation (III-2) to a standard reference cell, we can determine the specific conductance of the liquid  $G_s$ . Then applied the same equation on the unknown cell we can determine the cell constant by equation (III-3)

$$K_{ccu} = \frac{G_{ms}}{G_{mu}} \times c_{cs} - - - - - - (II - 3)$$

$$K_{ccu} = unknown cell constant$$

$$K_{ccs} = cell constant of a standard$$

$$conductivity cell$$

where

- G<sub>mu</sub> = measured conductance of electrolyte from unknown cell
- G<sub>ms</sub> = measured conductance of electrolyte from standard conductivity cell

The main features of this calibration system is given in Fig. III-7. A series of plugs of various diameters used to set up film of different thickness is given in Table III-1. Water was continuously pumped through the calibration block in order to eliminate air bubbles during the measurement of the conductance. Special care was also taken in housing the plug and the conductivity probe to reduce the error.

#### TABLE III-1

Probe	Cali	bration	Plugs

Plug No.	Diameter (inch)	Film Thickness (inch)	Plug No.	Diameter (inch)	Film Thickness (inch)
1	1.990	0.005	10	1.701	0.1495
2	1.980	0.010	11	1.651	0.1745
3	1.9694	0.0153	12	1.600	0.2000
4	1.951	0.0245	13	1.5504	0.2248
5	1.93	0.035	14	1.4504	0.2748
6	1.901	0.0495	15	1.400	0.300
7	1.8504	0.0748	16	1.301	0.3495
8	1.8014	0.0993	17	1.201	0.3995
9	1.751	0.1245	18	1.00	0.500



Fig. III-7. CALIBRATION SYSTEM

.

The procedure of the calibration method can be described as the following steps:

- (a) Set up a known film thickness by the plug at the conductivity probe to be calibrated.
- (b) Record the conductance from the conductivity probe by a Leeds & Northrup's Conductivity Bridge.
- (c) Measure the conductance from a standard Leeds &
   Northrup's Conductivity Cell with cell constant
   Kcc = 0.1 in the same liquid.
- (d) Calculate the cell constant for the given film thickness by equation (III-3).
- (e) Rotate the plug and repeat the above processes. After several rotation, the average cell constant were used for the given film thickness.
- (f) Set up another film thickness by changing another plug and repeat the above procedures.

The final calibration curve  $K_{CC}$  vs. film thickness for conductivity probe is given in Fig. III-8.

(iii) Conductivity Monitoring Circuit

In the design of the conductivity monitoring circuit, an A. C. voltage with 1 KC frequency and constant amplitude was applied to the electrodes. Then the signal from the conductivity probe will also be an A. C. signal with 1 KC frequency and amplitude varying with the liquid film thick-





ness. The above 1 KC signal becomes a D. C. signal after passing through a linear full wave rectifier and two 1 KC low pass filters. The detailed circuit diagram is shown in Fig. III-9, and the function of this circuit will be illustrated in Fig. III-10. The above 1 KC osicillator can be set at any amplitude  $\leq 12.00$  A. C. voltage and a offset was also used to set D. C. output. The main characteristics of this circuit system are output D. C. voltage from  $\pm 1.2v$ -1.2v corresponding with the variation of the resistance  $4 \text{ K} \ \Omega \ \sim 300 \text{ k} \ \Omega$  (conductance  $3.7 \text{ xlo}^{-6}$  mhos  $\sim 2.50 \text{ xlo}^{-4}$ mhos) and a frequency response around 100 K Hz.

 (iv) Calibration of the Conductivity Monitoring Circuit The calibration of the conductivity monitoring circuit
 was done by a standard decade resistor box. Fig. III-ll
 shows several calibration curves for different A. C.
 amplitudes from oscillator.

(v) Data Recording and Storage

The final four channel D.C. voltage signals which proportion to the liquid film thickness were recorded on a 7 track Ampex tape recorder with speed of 3 3/4 inch per second. Then the D. C. voltage signals were reproduced on IEM 360-44 Analog - to - Digital converter and went through the above two calibration curves with the aid of the specific conductivity of the water. The D. C. voltage



Fig. III-9. CONDUCTIVITY MONITORING CIRCUIT DIAGRAM

41 :



Fig. III-10. FUNCTION OF THE CONDUCTIVITY MONITORING CIRCUIT



Fig. III-11. CALIBRATION CURVE OF THE CONDUCTIVITY MONITORING SYSTEM

-

signal was transfered into the actual film thickness in digital form and was stored in magnetic tape. The detailed procedure is shown in Fig.III-12. The Hybrid Computer program to perform the above task is given in Appendix A. 3-2. INSTANTANEOUS PRESSURE FLUCTUATION AND PRESSURES DROP

The purpose of measuring the instantaneous pressure is to detect the pressure fluctuations that occurs as a result of local variations of film thickness. Only the studies by Telles (T-2) and Webb (W-2) have tried to make such measurements. Both fail to produce useful information concerning the pressure fluctuation actually due to the local wave motion.

There are two main difficulties in making such a measurement. First is the pressure of large sound wave type of fluctuations generated from outside of the flow system especially at the outlet. These fluctuations interfere with the observed pressure. Second, the pressure transducer used for such measurement needs to satisfy two requirements; high resolution at low absolute pressure and high frequency response. Low-pressure transducers usually have very low frequency response.

The sound wave type of pressure fluctuation was reduced to the minimum by using special tubing to insulate



Fig. III-12. PROCEDURE OF THE DATA RECORDING AND STORAGE

the external system from the main flow channel. Outlet pulsations were eliminated by keeping a constant level of water in the liquid-gas separation tank as mentioned in Section 2. The pressure transducer found to be suitable was a DISA pu2a low pressure transducer of the capacitive type. The pressure to be measured acts on a diaphragm which forms one plate of a capacitor. As a result the capacitance varies with the pressure. The main characteristics of this pressure transducer for different thickness of diaphragms used in this study are given in Table III-2.

# TABLE III-2

Diaphragm Thickness, mm	0.12	0.14	0.16	0.20
Pressure Range, psi	0.85	1.42	2.13	4.27
Diaphragm Resonance Water 20 °c KHz	1.4	1.7	2.1	2.9
Channel Resonance Water 20°c KHz	0.083	0.11	0.13	0.18
Damping Ratio Water 20°c		0.01		

#### CHARACTERISTICS OF PRESSURE TRANSDUCER

Several auxiliary units: tuning plug, Oscillator and Reactance converter, from DISA were also used in order to transfer the response from the pressure transducer to a D. C. voltage variation. The functions of all these units and of the Resonant circuit for pressure transducer are shown in Fig. III-13. The pressure transducer was calibrated with each diaphragm with a manometer under static pressure conditions in the flow channel.

Recording and storage system for the instantaneous pressure data were the same as that for the instantaneous film thickness except in the case of pressure measurement the calibration curve is simply a single linear curve.

The data of pressure drop was obtained by taking the difference of the mean value of time average pressure at two different positions.

#### 3-3. ENTRAINMENT MEASUREMENT

The liquid phase and the air phase were separated by the annular slot removal unit which was described in section 2-2. Then the liquid content in the air phase was extracted from the air by a Peerless Vane type separator. The water was timed as it flowed into a graduated cylinder.

# 3-4. FLOW METER

Two Safequard Rotameters were used to measure the liquid flow rates. The Rotameters were calibrated by a



Fig. III-13. FUNCTION OF PRESSURE TRANSDUCER AND AUXILIARY UNITS

weighting tank and a stop watch. The air flow rate was measured by using an orifice runs and manometer. The above orifice plates were carefully calibrated by a Rockwell low pressure flow prover.

Errors due to the measuring technique for each measured quantity described in this chapter will be discussed carefully in Appendex B.

#### CHAPTER IV

# EXPERIMENTAL DATA: ENTRAINMENT, PRESSURE, PRESSURE DROP AND FILM THICKNESS

# 1. INTRODUCTION

In this chapter the experimental data is presented in a summarized form. The original data are filed in data books at Chemical Engineering Department of the University of Houston. Methods of data processing associated with statistical data are also described in this chapter.

The experimental data which describe some overall features of the system are the following:

- (a) Entrainment rate
- (b) Pressure drop
- (c) Central moments of film thickness
- (d) Probability density functions of film thickness
- (e) Spectral density and cross-spectral density functionsof film thickness
- (f) Phase spectra of film thickness
- (g) Auto covariance and cross-covariance functions of film thickness
- (h) Spectra of wall pressure fluctuation and crossspectra between pressure and film thickness

The matrix of operating conditions consisted of five
air flow rates and ten water flow rates. Data were collected at four film thickness measuring stations and two pressure measuring stations. These conditions are tabulated in Table IV-1. Table IV-2, Table IV-3, and Table IV-4.

## TABLE IV-1

AIR FLOW RATE AND AIR REYNOLDS NO.

W <sub>G</sub> (1b/sec)	0.0	0.045	0.0976	0.1436	0.1742
ReG	0.0	4,214	62,650	92,860	113,550

## TABLE IV-2

WATER FLOW RATE AND WATER REYNOLDS NO.

W <sub>G</sub> (lb/sec)	0.016	0.028	0.044	0.08	0.126
Rezle ?	211	367	572	1,016	1,605
W <sub>L</sub> (lb/sec)	0.18	0.24	0.35	0.47	0,585
ReL	2,299	3,151	4,572	6,109	7,560

(R<sub>eL</sub> including entrainment rate)

# TABLE IV-3

FILM THICKNESS MEASURING STATIONS AND LOCATIONS

CELL NO.	C4	<sup>A</sup> 3	Bl	D <sub>2</sub>	
DISTANCE FROM INLET (ft )	6.2	10.4	12.5	13.7	

## TABLE IV-4

# PRESSURE MEASURING STATIONS AND POSITIONS

PRESSURE TRANSDUCER NO.	P2	Pl
DISTANCE FROM INLET (ft)	12.5	13.7

#### 2. ENTRAINMENT

The method of entrainment measurements described in the last chapter offered some difficulties in the low flow rate region because it was difficult to adjust slot gap for the low flow rate. Moeck (M-4), Hewitt (H-8) and Webb (W-2) have discussed the relative advantage of different methods. There is no very satisfactory measuring method available at present due to large fluctuations in the amplitude of the waves. In this study the width of slot gap was adjusted by the maximum film thickness as measured from probability density function. Because of the uncertainty, liquid entrainment rates should be considered as approximate values. The mass rate of entrainment is shown in Fig. IV-1. The result shows an increase of entrainment rate with both gas and liquid flow rates.

#### 3. <u>PRESSURE DROP</u>

Pressure gradient measurements are shown in Fig. IV-2, plotted versus air flow rate at various value of water flow



Fig. IV-1. ENTRAINMENT



Fig. IV-2. PRESSURE DROP

rate. The results show a trend typical of all twophase pressure drop measurements. As either the liquid or gas rate increases, they cause increased pressure gradient. The results also are in a good agreement with data of Chien and Ibele (C-3 ) who studied the flow in a 2" diameter tube.

# 4. MOMENT AND PROBABILITY DENSITY ANALYSIS OF FILM THICKNESS

In this section the method of computing moments and probability density by digital means is described briefly. Moments and probability density of film thickness are shown in graphical form.

4-1. MOMENT AND PROBABILITY FUNCTION ANALYSIS

The definition of the first four central moments and probability functions of film thickness  $\hat{h}(t)$  are given in the following equations:

$$\begin{split} \widetilde{F}(\pi) &= \widetilde{P}\left\{\widehat{\pi}(t) \leqslant \widehat{\pi}\right\} - - - - - - (\underline{\mathbb{V}}_{-1}) \\ \widetilde{F}(\pi) &= \frac{d\widetilde{F}}{d\widehat{\pi}} - - - - (\underline{\mathbb{V}}_{-2}) \\ \langle \widehat{\pi}(t) \rangle &= \int_{-\infty}^{+\infty} \widehat{\pi} \widehat{F}(\pi) d\widehat{\pi} - - - - (\underline{\mathbb{V}}_{-2}) \\ \widetilde{C}_{2} &= \langle \left\{\widehat{\pi}(t) - \langle \widehat{\pi}(t) \rangle\right\}^{2} \right\} \\ &= \int_{-\infty}^{+\infty} \left\{\widehat{\pi}(t) - \langle \widehat{\pi}(t) \rangle\right\}^{2} \widehat{F}(\pi) d\widehat{\pi} - - - (\underline{\mathbb{V}}_{-4}) \end{split}$$

$$\widehat{C}_{3} = \langle \{\widehat{\pi}(t) - \langle \widehat{\pi}(t) \rangle \}^{3} \rangle$$
  
= 
$$\int_{-\infty}^{\infty} \{\widehat{\pi}(t) - \langle \widehat{\pi}(t) \rangle \}^{3} \widehat{f}(\widehat{\pi}) d\widehat{\pi} - - - - (\underline{W} - 5)$$

.

$$\widetilde{C}_{4} = \langle \{ \widehat{h}(t) - \langle \widehat{h}(t) \rangle \}^{4} \rangle$$

$$= \int_{-\infty}^{+\infty} \{ \widehat{h}(t) - \langle \widehat{h}(t) \rangle \}^{4} \widehat{f}(\widehat{h}) d\widehat{h} - - - (\Pi - 6)$$

where  

$$\widetilde{F}$$
 is the probability distribution function  
 $\widetilde{f}$  is the probability density function  
 $\langle h(t) \rangle$  is the mean of film thickness  $h(t)$   
 $\widetilde{C}_2$ ,  $\widetilde{C}_3$ ,  $\widetilde{C}_4$  are second, third, fourth central moments  
 $\wedge$  is a random variable  
 $\langle \rangle$  is an expected value  
 $\sim$  represents statistical quantities  
 $\widetilde{F}$  is the probability of the event

The digital computer algorithm for calculating the mean and the second, third, and fourth central moments is as follows:

$$\langle \hat{h}(t) \rangle = \frac{1}{n} \sum_{i=1}^{n} \hat{h}_{i} - - - - - - (II-7)$$

$$\hat{C}_{2} = \frac{1}{n} \sum_{i=1}^{n} \hat{F}_{i}^{2} - - - - - - - - - (\mathbf{W} - 8)$$

$$\widetilde{C}_{4} = \frac{1}{n} \sum_{i=1}^{n} \widetilde{h}_{i}^{\prime 4} - - - - - (II-10)$$

$$h_{i} = \widehat{h} (\tau_{o} + (i-1)\Delta I) \quad i = 1, \dots, n$$

$$\tau_{o} \quad is \quad orb_{i} \operatorname{Trary} \quad \operatorname{Time} .$$

$$\Delta I \quad is \quad sompling \quad in \operatorname{Terval} .$$

$$\widehat{h}_{i} = \widehat{h}_{i} - \langle \widehat{h}_{i}(I) \rangle \quad i = 1, \dots, n$$

An estimate of probability function can be obtained from the following procedure:

(a) Select a probability interval

where

where

$$\Delta \hat{\pi} = \frac{\hat{h}_a - \hat{h}_b}{K} - - - - - - - (\Pi - \Pi)$$

$$\hat{h}_a \text{ and } \hat{h}_b \text{ are such that } \hat{h}_a < \hat{\pi}(t) < \hat{h}_b.$$

K is the number of probability intervals.

(b) Scan the data  $f_{i}$ ,  $i=1, \dots, n$  through the K class of probability intervals to find

 $N_{j} = \left\{ No. \text{ of } f_{L} \text{ Such That } d_{j-1} < x \leq d_{j} \right\} \quad j=1, \dots, K \cdots (IZ-IZ)$ where  $d_{j} = f_{0} + j \Delta f_{L} \quad , \quad j=1, \dots, K$ (c) Then the probability density and distribution

will be obtained by the following equations:

 $\widehat{f}_{i} = \left(\frac{N_{i}}{n}\right) \frac{1}{\Delta \widehat{h}} \qquad i = 1, \dots, K - - - - - (\mathbb{I} - 13)$   $\widehat{F}_{i} = \frac{1}{n} \stackrel{i}{\stackrel{j}{\stackrel{k}{=}} N_{i} \qquad i = 1, \dots, K - - - - (\mathbb{I} - 14)$ 

The actual calculation variables were selected as follows:

sampling frequency = 500 samples per sec record length = 10 sec (5000 samples) per

#### computer run

no. of runs per calculation = 20

probability interval

0.001 in. for  $h(t) \leq 0.05$  in. 0.005 in. for 0.05 in  $\langle h(t) \rangle \leq 0.1$  in. 0.025 in. for 0.1 in  $\langle h(t) \rangle \leq 0.2$  in. 0.05 in. for 0.2 in  $\langle h(t) \rangle \leq 0.4$  in.

The computer programs to calculate the above quantities are given in Appendix A, and the statistical errors of estimation are given in Appendix B.

4-2. MOMENTS OF FILM THICKNESS

The mean film thickness measured at the  $D_2$  and  $B_1$  cells in this work are compared with results given by Telles (T-2) and Webb (W-2) in Fig. IV-3. The results show good agreement.

The mean film thickness  $\langle h(t) \rangle$ , the second, third and fourth central moments  $\widetilde{C}_2$ ,  $\widetilde{C}_3$ ,  $\widetilde{C}_4$  at D<sub>2</sub> cell are plotted in Fig. IV-4, Fig. IV-5, Fig. IV-6 and Fig. IV-7.

The data shows the mean film thickness and the central moments are monotonically increasing functions of liquid rate and decreasing functions of gas rate except at low gas rate. The unusual type of data at low gas rate are also shown in Telles' and Webb's work. The data also shows a value of  $\widetilde{C_3}$  which is significant compared with  $\widetilde{C_2}$  and  $\widetilde{C_4}$ . This implies a strong non normal probability distribution for film thickness. The numerical values of



Fig. IV-3. COMPARISON OF MEAN FILM THICKNESS



Fig. IV-4. MEAN FILM THICKNESS



Fig. IV-5. SECOND CENTRAL MOMENT OF FILM THICKNESS





Fig. IV-6. THIRD CENTRAL MOMENT OF FILM THICKNESS



Fig. IV-7. FOURTH CENTRAL MOMENT OF FILM THICKNESS

•

of  $\langle h(\pm) \rangle$ ,  $\widetilde{C}_2$ ,  $\widetilde{C}_3$ ,  $\widetilde{C}_4$  including the measurements made at B<sub>1</sub>, A<sub>3</sub> and C<sub>4</sub> cells are tabulated in Appendix C. 4-3. PROBABILITY FUNCTION OF FILM THICKNESS

The probability density of film thickness h(t) are presented in Fig. IV-8 through Fig. IV-12, and the numerical values are tabulated in Appendix C. Direct measurement of this quantity has never before been reported. The probability distribution functions of h(t), which contain less information on the wave structure are filed in the data books. In these figures the following phenomema are observed:

(a) A very large maximum is always present which has a value below the expected value of film thickness,  $\langle h(t) \rangle$ .

(b) In the neighborhood of this maximum the distribution is very narrow.

(c) The probability density in the region  $\Re > \langle \Re \rangle$  is spread over a wide range and its slope is small.

(d) The maximum peak values increase with gas flow rate and decrease with liquid flow rate. The spread of the curve shows a reverse effect.

These observations are of extreme importance in the interpretation of the results, which follow in subsequent section.



Fig. IV-8. PROBABILITY DENSITIES OF FILM THICKNESS









Fig. IV-11. PROBABILITY DENSITIES OF FILM THICKNESS



#### 5. SPECTPAL AND CORRELATION ANALYSIS OF FILM THICKNESS

Spectral and correlation analyses are widely used to study time series. Geophysicists, in particular, have extracted much useful information about ocean waves with this powerful tool. There are only two previous studies of unis nature for vertical wavy flow; those by Telles (T-2)and Webb (W-2). Both investigators analyzed the voltage signal which is a nonlinear function of the actual film thickness. This shortcoming is corrected in this study. 5-1. SPECTRAL AND CORRELATION ANALYSIS

Assuming the film thickness  $h_1(t)$  and  $h_2(t)$  are stationary processes, the definition of spectral density and correlation functions are given as follows:

$$\widehat{R}_{11}(J) = \langle \widehat{h}_{1}(t+J) \widehat{h}_{1}(t) \rangle - - - - - - (II-15)$$

$$\widehat{R}_{12}(J) = \langle \widehat{h}_{1}(t+J) \widehat{h}_{2}(t) \rangle - - - - - (II-16)$$

$$\widehat{S}_{11}'(f) = \int_{\infty}^{+\infty} e^{-i2\pi f J} \widehat{R}_{11}'(J) dJ - - - - (II-17)$$

$$\widehat{S}_{12}'(f) = \int_{-\infty}^{+\infty} e^{-i2\pi f J} \widehat{R}_{12}'(J) dJ - - - - (II-18)$$

where

 $h_{l}(t)$  is the film thickness time series at position l

 $h_2(t)$  is the film thickness time series at position 2  $\widetilde{R}_{11}(\zeta)$  is autocorrelation function of  $\widehat{R}_1(t)$ 

$$\widetilde{R}_{12}(J)$$
 is cross correlation function of  
 $R_1(t)$  and  $R_2(t)$   
 $\widetilde{S}_{11}(f)$  is power spectrum function of  $R_1(t)$   
 $\widetilde{S}_{12}(f)$  is cross power spectrum function of  
 $R_1(t)$  and  $R_2(t)$ 

Since  $h_1(t)$  and  $h_2(t)$  contain a D.C. level, the power spectrum density function will show a strong Delta function type of peak at zero frequency, therefore it is desirable to operate on the mean free quantities  $h'_1(t)$  and  $h'_2(t)$ 

$$\begin{split} & \widetilde{C}_{11}(31 = \langle \widehat{h}_{11}^{\prime}(t+3) \widehat{h}_{11}^{\prime}(t) \rangle - - - - - (\Pi - 19) \\ & \widetilde{C}_{12}(31 = \langle \widehat{h}_{11}^{\prime}(t+3) \widehat{h}_{21}^{\prime}(t) \rangle - - - - - (\Pi - 20) \\ & \widetilde{S}_{11}(f) = \int_{-\infty}^{+\infty} e^{-i2\pi f \cdot J} \widehat{C}_{11}(3) d \cdot J - - - - (\Pi - 21) \\ & \widetilde{S}_{12}(f) = \int_{-\infty}^{+\infty} e^{-i2\pi f \cdot J} \widehat{C}_{12}(3) d \cdot J - - - - (\Pi - 22) \end{split}$$

where

$$h_1'(t) = h_1(t) - \langle h_1(t) \rangle$$

$$h_2'(t) = h_2(t) - \langle h_2(t) \rangle$$

$$\widetilde{C_{11}}(J) \text{ is called auto-covariance function}$$

$$\widetilde{C_{12}}(J) \text{ is called cross-covariance function}$$

The important properties which were used in the actual computation are given as follows:

(a) 
$$\tilde{C}(J) = \int_{-\infty}^{+\infty} \tilde{S}(f) e^{-i2\pi f J} df - - - - (II-23)$$

(b) 
$$\int_{\infty}^{\infty} S_{ii}^{\infty}(f) df = C_{ii}(0) = C_{e}^{\infty} \ge C_{ii}(3) - - -(M-24)$$

- (c) if h(t) is real, then  $C_{11}(J)$  is real and
  - even, therefore  $S_{11}(f)$  is also real and even
- (d)  $S_{12}(f)$  is complex, hence  $C_{12}(z)$  is not

necessary a symmetrical function

The detailed derivation of those properties are given in Papoulis (P-1, P-2).

Since  $S_{1,2}(f)$  is complex, we can further define

where

$$\widetilde{S}_{i2}(f) = \widehat{\Lambda}_{i}(f) + i \widetilde{Q}(f) - - - - (\mathbb{I} - 25)$$

$$\widetilde{S}_{A}(f) = (\widehat{\Lambda}_{i}^{2}(f) + \widehat{Q}_{i}^{2}(f)) - - - - (\mathbb{I} - 26)$$

$$\widetilde{\Theta}(f) = - \tan^{-1} - \widehat{Q}(f) - - - - - (\mathbb{I} - 27)$$

$$\widetilde{\Lambda}_{i}(f) \text{ is called co-spectrum}$$

$$\widetilde{Q}(f) \text{ is called quadrature spectrum}$$

$$\widetilde{S}_{A}(f) \text{ is amplitude spectrum}$$

$$\widetilde{\Theta}(f) \text{ is phase spectrum}$$

It is very reasonable to assume the processes of film thickness is ergodic (time averages equal to ensemble averages).

This assumption allows us to evaluate the correlation and spectral function by the following time average equations:

$$\widehat{C}_{II}(J) = \lim_{T \to \infty} \frac{1}{2T} \int_{-T}^{+T} \widehat{R}'_{I}(t+J) \, \widehat{h}'_{I}(t) \, dt = - - \cdot (II-28)$$

$$\widetilde{C}_{12}(7) = \frac{l \cdot m}{T \to \infty} \frac{l}{2T} \int_{-T} \widetilde{R}_{1}(t+3) \widetilde{R}_{2}(t) dt - - - (II - 29)$$

$$\widetilde{S}_{II}(f) = \lim_{T \to \infty} \frac{1}{2T} \left| \int_{-T}^{+T} \widetilde{h}_{I}(t) e^{-i2\pi f t} dt \right|^{2} - - - - (II-30)$$

-----

$$\widetilde{S}_{12}(f) = \lim_{T \to \infty} \frac{1}{2T} \left\{ \int_{-T}^{T} \widetilde{h}_{i}(t) e^{-i2\pi f t} dt \right\} \left\{ \int_{-T}^{T} \widetilde{h}_{i}(t) e^{-i2\pi f t} dt \right\}^{T} - (\underline{\mathcal{W}} - 3\mathbf{1})$$

-where \* is the complex conjugate

The proof of those four equations equivalent to equations (IV-19), (IV-20), (IV-21), and (IV-22) is given in Papoulis (P-1).

Since the powerful tool of Fast Fourier Transform is available, the calculation of the above quantities can be rapidly executed on the digital computer.  $C_{11}(\zeta)$  and  $\widetilde{C_{12}(\zeta)}$  are calculated by equation (IV-23) using the Fourier Transform of the spectrum. The digital calculation parameters for this work were chosen as follows:

> sampling frequency = 250 samples per sec sample length = 2048 samples per run no. of repeated runs per condition = 20 no. of points averaged in the frequency domain = 4

The computer program for estimating power spectrum and correlation is given in Appendix A. Statistical errors are analyzed in Appendix B.

# 5-2. SPECTRA AND CROSS-SPECTRA OF FILM THICKNESS

All the spectral data presented in this study are  $\sim \sim \sim (1)$ normalized value which is  $S_{11}(f)/C_2$  for auto spectrum and  $S_{12}(f)/\left\{ \begin{array}{cc} \sim (1) & \sim (2) \\ C_2 & C_2 \end{array} \right\}_2^{1/2}$  for cross spectrum.  $C_2$ and  $C_2^{(2)}$  are the second central moments of  $h_1(t)$  and  $h_2(t)$ ,





50.0

•



50.0

----





Fig. IV-17. SPECTRAL DENSITIES



.



• 14



which are given in Appendix C. The spectral densities of film thickness measured at  $B_1$  and at  $D_2$  and the amplitude spectral densities between them are plotted in Fig. IV-13 through Fig. IV-20. The phase spectra between  $B_1$  and  $D_2$ are shown in Fig. IV-21 through Fig. IV-23. The tables of these numerical values are in Appendix C. A few typical examples of the spectral density of film thickness at  $A_3$ and at  $C_4$  are plotted in Fig. VI-24 through Fig. IV-25. The complete data sets are in the data books.

One can observe the following facts from those spectral data.

(a) In most of the conditions the spectra shows a maximum value at a frequency which is called modal frequency  $f_m$ .

(b) The modal frequency increases with the gas rate and liquid rate except at the low liquid rates.

(c) For the liquid rate below 0.044 lb/sec there is suggestion of a double peak structure especially in cross amplitude spectrum. The low frequency peak increases with the liquid rate while the high frequency peak indicates the reverse effect.

(d) The increase of gas rate tends to increase the spread of the spectral curves in the neighborhood of the modal peak, and the increase of liquid rate gives the reverse



Fig. IV-21. PHASE SPECTRA



Fig. IV-22. PHASE SPFCTRA



Fig. IV-23. PHASE SPECTRA

Ŀ



50.0


50.0

effect.

(e) On the low frequency side, the cross amplitude spectrum is almost identical with the auto spectral density from each of the two cells. As the frequency increases the cross amplitude spectrum will increase the departure from the auto spectra.

(d) The phase spectra shows a straight line in the low frequenc<sup>--</sup> range. In the higher range the slope of the phase spectra gives a higher value than that of low frequency range.

# 5-3. CORRELATION FUNCTION OF FILM THICKNESS

The correlation contains the same information as the spectral function in another form. But some of the information is easier to extract in this time domain than from an analysis in the frequency domain. The autocovariance and cross-covariance functions of film thickness at  $D_2$  and at  $B_1$ , which are normalized by second central moment as the spectra, are plotted in Fig. IV-27 through Fig. IV-34. Since the auto-covariance function is symmetrical about  $\Im = 0$ , and the main lobe of the cross-covariance function is located at  $\Im, > 0$  and unsymmetrical about  $\Im$ , as given in Fig. IV-26 (a), it is convenient to present the auto-covariance function  $\widehat{C(\Im)}$  for  $\Im \ge 0$  and the cross-covariance function  $\widehat{C(\Im)}$ , it is convenient to present the auto-covariance function  $\widehat{C(\Im)}$  for  $\Im \ge 0$  and the cross-covariance function  $\widehat{C(\Im)}$ , for  $\Im \ge 0$  and the cross-covariance function  $\widehat{C(\Im)}$ , for  $\Im \ge 0$  and the cross-covariance function  $\widehat{C(\Im)}$ , for  $\Im \ge 0$  and the cross-covariance function  $\widehat{C(\Im)}$ , by shifting time coordinate as  $\widehat{C(\Im(\Im'+\Im_1)}$ , then folding  $\widehat{C(\Im'+\Im_1)}$  for  $\Im'_{\pi}$ ,  $\leqslant o$  to

 $J' + J_{,>}0$  as shown in Fig. IV-26(b). Those values are also tabulated in Appendix C. Those functions of film thickness at A<sub>3</sub> and at C<sub>4</sub> are filed in the data books.



Fig. IV-26. REPRESENTATION OF COVARIANCE FUNCTION



\_\_\_\_















Observing from those function, one can see the following facts:

(a) Time lag from origin to secondary peak of the auto-covariance, which is related to the period of the periodical process, first increases with liquid rate than Cocreases with the liquid rate. There is a transition region around  $W_L=0.044$  which shows a very small secondary peak.

(b) The amplitude of the main peak of cross-covariance  $\widetilde{C_{12}}(\mathcal{J}_1)$  increases with liquid flow rate. Its shape is almost identical with that of auto-covariance except in the neighborhood of zero time lag and small liquid rates. This suggests that the shape of the individual large wave is almost unchanged from  $B_1$  to  $D_2$  station except in the region of small liquid rates, and the shape of small wave changes from  $B_1$  to  $D_2$  station.

(c) Cross-covariance  $C_{12}(7)$  shows some unsymmetrical properties around 3=3, at which  $C_{12}(3, )$  is maximum as shown in previous Fig. IV-26 (a). This might suggest that a secondary wave moving with different wave velocity exists.

(d) The time lag value 3, which is the travel time between two stations for a large wave increases with liquid rate and decreases with gas rate.

(e) The location of the minimum value of auto-covariance, which is related to the width of the large wave, increases and then decreases with the liquid rate.

The detailed discussion of the physical meaning of the above covariance functions will be given later.

# 6. <u>SPECTRA OF WALL PRESSURE FLUCTUATION AND CROSS - SPECTRA</u> OF WALL PRESSURE AND FILM THICKNESS.

The auto spectral and cross spectral density of wall pressure fluctuations around the mean are calculated in the same way as for film thickness. These results, all normalized by the total power or cross power, are plotted in Fig. IV-35 through Fig. IV-40 along with the film amplitude spectrum. The numerical value and the correlation functions are filed in data book. A vertical line appears on some pairs of data points of the pressure and cross spectrum. This indicates that a strong narrow spectral peak appears at a frequency between these two data points. These spectral spikes are attributed to the low frequency vibration of the system. With the spikes removed the pressure spectral density is similar to that of Telles' measurement and shows a multiple peak structure. A weak correspondence between pressure and film thickness can be observed but a strong correspondence of certain feature of the cross spectrum and film thickness does exist. The most important



Fig. IV-35. SPECTRA OF PRESSURE FLUCTUATIONS



Fig. IV-36. SPECTRA OF PRESSURE FLUCTUATIONS



Fig. IV-37. SPECTRA OF FRESSURE FLUCTUATIONS

L .

ĩ



Fig. IV-38. SPECTRA OF PRESSURE FLUCTUATIONS



Fig. IV-39. SPECTRA OF PRESSURE FLUCTUATIONS

1\_



Fig. IV-40. SPECTRA OF PRESSURE FLUCTUATIONS

fact is that there exists a two peak structures in the crossspectral density function and the main lobe of the crossspectra corresponds very well to the spectra of film thickness.

.

### CHAPTER V

## EXPERIMENTAL DATA: WAVE STRUCTURE

#### 1. INTRODUCTION

This chapter discusses the methods used to process the time series analysis of film thickness to obtain the statistics of the wave motion and presents the basic data to illustrate trends. Full data was filed in the data book. The numerical values of the data used in this chapter appear in Appendix D. An interpretation of these data is undertaken in Chapter VI. All previous measurements which have been reported on wave properties treat waves on falling films as sinusoidal, and such a wave can be completely specified by three parameters: wave amplitude A, and two of the three parameters wave length,  $\gamma$ , wave period, T, and wave velocity, C. But it is now clear that sinusoidal waves never occur on a falling film. The technique used in all previous measurements to obtain sinusoidal wave parameters involved measurements from either photographs or instantaneous trace of film thickness. The results involve large uncertainties. Some typical wave traces obtained in this study are shown in Fig. V-1 and Fig V-2. One can observe the following phenomena:

(a) There are approximately three type of waves: large waves, small wave trains which sit on the substrate,



Fig. V-1. TIME TRACES OF WAVE PROFILES







Fig. V-2. TIME TRACES OF WAVE PROFILES

small waves which ride on the large waves.

- (b) The wave front is steeper than the wave back.
- (c) There is a random nature associated with the wave amplitude and the wave separation between two waves.

In the following section the waves are considered as nonsymmetrical and measured in terms of two groups of parameters: one set measured in the time scale to characterize the base dimensiones of the wave and one set measured in length scale to characterize amplitude. A length scale for the base can be obtained as soon as the wave velocity, C, is known and this will be discussed in the next chapter. Since the waves on a falling film are both non sinusoidal and non-periodic, the statistical properties of the wave parameters must be obtained to adequately describe the waves. These data and their development from the time series analysis of film thickness are discusses here.

## 2. METHOD\_OF\_ANALYSIS OF WAVE STRUCTURE

It is the objective of the data processing scheme to extract the statistics of seven parameters describing the random waves: wave amplitude, A, time for passage of base of the wave,  $T_{bs}$ , time between successive waves,  $T_{sep}$ , time for passage of wave front,  $T_{fn}$ , time for passage of back of the wave,  $T_{bk}$ , the film thickness at the minimum of the wave,  $h_{min}$ , and the film thickness at the maximum of the wave,  $h_{max}$ . These terms are defined in the sketch in Fig. V-3. Noting

that because the minimum film thickness in front and in back of a waves are not necessary the same, the definition of wave



Fig. V-3 WAVE PARAMETERS

amplitude is arbitrarily defined as:

$$A = f_{max} - \frac{(f_{m,n} + f_{m,n})}{2} - - - (Y - 1)$$

The relation among the time scale parameters can be described by

$$T_{bs} = T_{fn} + T_{bk}$$
 ------ (V-2)  
 $T_{sep} = T_{fn} + T_{fn}$  ------ (V-3)

In the subsequent section, it is convenient to call the above seven parameters as, A the wave amplitude,  $h_{max}$ the wave maximum,  $h_{min}$  the wave minimum,  $T_{sep}$  the wave separation,  $T_{bs}$  the wave base,  $T_{fn}$  the wave front, and  $T_{bk}$ the wave back.

The existence of a small and a separate large wave is discussed above. Because the physics controlling each of these types are likely to be quite different, it is important to calculate the statistics of each type separately so that models can be built for each class of wave. In order to reach this goal using the digital computer, it is necessary to establish the creteria for identifying small and large The word, "large waves", implies that one see a waves. large fluctuation about the undisturbed level or mean values. Hence it is natural to use a change across the mean film thickness to identify the presence of a large wave. These types of waves are identified with the following creteria (see Fig. V-4)



#### Fig. V-4 IDENTIFICATION OF WAVES

- (a) A large wave exists if an excursion in film thickness is found such that  $h_{max} > \langle h \rangle$  and  $h_{min}$ ,  $h_{min}' \langle \langle h \rangle$
- (b) A small wave exists on the substrate if for that excursion, h<sub>max</sub>, h<sub>min</sub>, h<sub>min</sub> < <h>
- (c) A small wave exists on large wave if  $h_{max} > \langle h \rangle$ and (i)  $h_{min} \langle \langle h \rangle$ ,  $h_{min} \langle \langle h \rangle$ (ii)  $h_{min} \langle \langle h \rangle$ ,  $h_{min} \rangle \langle h \rangle$ or (iii)  $h_{min} \rangle \langle h \rangle$ ,  $h_{min} \rangle \langle h \rangle$ where  $h_{min}$  is wave minimum at front  $h_{min}$  is wave minumum at back

The calculation of the statistical properties of the above seven parameters are illustrated by the following steps:

(a) Given a time series of film thickness  $h_{(t)} = h_i$  i=1,---, n with time interval  $\Delta t$ 

(b) Search for relative maximum and minimum

of film thickness by  

$$h_{\min}^{(i)} = h_i$$
, if  $h_{i-1} > h_i < h_{i+1}$   
 $h_{\max}^{(i)} = h_k$ , if  $h_{k-1} < h_k > h_{k+1}$   
 $h_{\min}^{(i+1)} = h_k$ , if  $h_{k-1} > h_k < h_{k-1}$   
where  $i < k < k$   
and calculate the time interval between  
successive  $h_{\min}$  and  $h_{\max}$  by

 $T_{fn}^{(i)} = (k-i) \Delta t$  $T_{bk}^{(i)} = (k-k) \Delta t$ 

- (c) Repeat the above process to form a sequence  $h_{\min}^{(Y)}$ ,  $T_{fn}^{(j)}$ ,  $h_{\max}^{(Y)}$ ,  $T_{bk}^{(j)}$ , j=1,---,m
- (d) Separate the above sequence into three subsequences by the above criteria given in Fig. V-4 as:  $h_{min}^{(i)}, T_{fn}^{(j_1)}, h_{max}^{(j_1)}, T_{bk}^{(j_1)}, j_1 = 1, \dots, m_1$  for small wave  $h_{min}^{(j_2)}, T_{fn}^{(j_2)}, h_{max}^{(j_2)}, T_{bk}^{(j_2)}, j_2 = 1, \dots, m_2$  for small wave on large wave  $h_{min}^{(j_3)}, T_{fn}^{(j_3)}, h_{max}^{(j_3)}, T_{bk}^{(j_3)}, j_3 = 1, \dots, m_3$  for large wave (e) Calculate  $A^{(j_1)}, T_{bs}^{(j_2)}, T_{sep}^{(j_1)}$  for  $j_1 = 1, \dots, m_1$ and i = 1, 2, 3 by equation (V-1), (V-2) and (V-3). for i = 3, if there are small waves on substrate between two successive large waves then equation (V-3) will be modified as  $T_{sep}^{(j_3)} = T_{fn}^{(j_3)} + T_{fn}^{(j_3)+1} + \sum_{j_1=1}^{(j_2)} T_{bs}^{(j_1)}$
- (f) Calculate mean, variance and histogram of the above seven paramters  $A_{i}^{(j_{1})}$ ,  $h_{max}^{(j_{1})}$ ,  $h_{min}^{(j_{1})}$ ,  $T_{bs}^{(j_{1})}$ ,  $T_{sep}^{(j_{1})}$ ,  $T_{fn}^{(j_{1})}$  and  $T_{bk}^{(j_{1})}$  for i=1,2,3 by the method given in the previous Chapter IV

The computer program to do the above calculation is given in Appendix A.

## 3. STATISTICS OF THE LARGE WAVES

The statistics of the large waves measured at  $D_2$  cell will be presented in graphical form. These statistics are discussed in the following three categories:

### 3-1 AMPLITUDE DOMAIN

In the amplitude domain, the mean and standard deviation of wave amplitude, wave maximum, and wave minimum of the large waves are given in Fig. V-5, Fig. V-6 and Fig. V-7. The trend of these data indicated that the value of these parameters related to amplitude (A,  $h_{max}$ ,  $h_{min}$ ) increase with liquid flow rate and decrease with gas flow rate except the condition at  $W_G$ = 0.045 lb/sec. The standard deviation of wave amplitude  $\widetilde{W}_{amp}$  is roughly equal to the standard deviation of wave maximum  $\widetilde{W}_{max}$  and the standard deviation of wave minimum  $\widetilde{W}_{min}$  is much smaller than either of these. This suggests that the substrate height is quite constant. So variation in amplitude must be directly equivalent to variation in wave maximum  $h_{max}$ .

The histogram of the above three wave parameters have been calculated. The histogram of wave minimum of the large waves has a narrow band distribution which can be well described by its mean and standard deviation. The histogram of wave maximum of the large waves corresponds well to that of wave amplitude. Hence only the histogram of wave



Fig. V-5. THE MEAN AND STANDARD DEVIATION OF WAVE AMPLITUDE OF THE LARGE WAVE



FIG. V-6. THE MEAN AND STANDARD DEVIATION OF WAVE MAXIMUM OF THE LARGE WAVES

· · ·



FIG. V-7. THE MEAN AND STANDARD DEVIATION OF WAVE MINIMUM OF THE LARGE WAVES

amplitude of the large wave is shown in Fig. V-8 through Fig. V-12. In these graphs, N<sub>L</sub> is the total number of the large waves used in the histogram. The general features of these curves for the large wave are as follows: At low liquid rateS the amplitude histogram shows a single peak; At intermedate rates there are two very well defined peaks and at still higher rate three characteristic wave size are indicated by three peaks at the histogram. Thus there appears to be three characteristics type of large waves at higher flow rateS.

#### 3-2 <u>Time Domain</u>

In the time domain, the mean and standard deviation of wave base and wave separation of the large waves are given in Fig. V-13 and Fig. V-14. The wave front and the wave back are related to the wave base by equation (V-2). The ratio of  $\langle T_{bk} \rangle / \langle T_{fn} \rangle$  and the wave frequency which is related to the time scale by equation (V-4), are shown in Fig. V-15.

$$f_{\chi} = \frac{1}{\langle T_{Sep} \rangle} - - - - \langle V - 4 \rangle$$

Where  $f_{\ell}$  is the wave frequency of the large waves.

The trend of the wave base and the wave separation of the large waves show that the values increase with liquid flow rate up to  $W_L \approx 0.08$  lb/sec then decrease with liquid flow rate. At all liquid rates increasing the gas rate causes these



FIG. V-8. HISTOGRAM OF WAVE AMPLITUDE OF THE LARGE WAVES



FIG. V-9. HISTOGRAM OF WAVE AMPLITUDE OF THE LARGE WAVES



FIG. V-10. HISTOGRAM OF WAVE AMPLITUDE OF THE LARGE WAVES


FIG. V-11. HISTOGRAM OF WAVE AMPLITUDE OF THE LARGE WAVES



· . .

FIG. V-12. HISTOGRAM OF WAVE AMPLITUDE OF THE LARGE WAVES



FIG. V-13. THE MEAN AND STANDARD DEVIATION OF WAVE BASE OF THE LARGE WAVES



FIG. V-14. THE MEAN AND STANDARD DEVIATION OF WAVE SEPARATION OF THE LARGE WAVES



FIG. V-15. THE WAVE FREQUENCY AND (Tox) /(Trn) OF THE LARGE WAVES

.26

parameters to decrease. This suggests an important transition at  $W_L \simeq 0.08$  lb/sec and the observation is substantiated by other measurements. The effect of the liquid flow rate on the ratio of  $\langle T_{bk} \rangle \langle T_{fn} \rangle$  is similar and also shows a transition at  $W_L \simeq 0.08$  lb/sec, but the effect of the gas flow rate is different. The value of  $\langle T_{bk} \rangle \langle \langle T_{fn} \rangle$  first increases then decreases with gas flow rate. The most important feature of the ratio of  $\langle T_{bk} \rangle / \langle T_{fn} \rangle$  is that the large wave rapidly become non-symmetrical as the liquid flow rate increase above very small values.

The histogram of the wave base for the large waves are plotted in Fig. V-16 through Fig V-16. These curves appear to have a single peak unsymmetrical distribution. Considering the fact that we observe several characteristic wave amplitudes, the fact that all these waves have the only one characteristic base time seems remarkable. The histogram of the wave separation of the large waves are shown in Fig. V-19, Fig. V-20 and Fig. V-21. They appear to be of a multiple peak structure with the modal value of the largest peak being independent of liquid rate for each gas rate.

3-3. JOINT HISTOGRAM

In the previous two sections, the detailed structure of the wave parameters of the large waves were explored. Naturally, the next equation is, "what is the statistical .



Tos (pac)

FIG. V-16. HISTOGRAM OF WAVE BASE OF THE LAPGE WAVES



Tbs (pec)

FIG. V-17. HISTOGRAM OF WAVE BASE OF THE LARGE WAVES



Tbs ( Rec)

FIG. V-18. HISTOGRAM OF WAVE BASE OF THE LARGE WAVES



FIG. V-19. HISTOGRAM OF WAVE SEPARATION OF THE LARGE WAVES



FIG. V-20 (a) HISTOGRAM OF WAVE SEPARATION OF THE LARGE WAVES



FIG. V-20 (b) HISTOGRAM OF WAVE SEPARATION OF THE LARGE WAVES



FIG. V-21. HISTOGRAM OF WAVE SEPARATION OF THE LARGE WAVES

relation between them for the large waves?" In the time domain. a large wave separation is usually associated with large wave base, wave front, and wave back, since they are related by equation V-2 and V-3. In the amplitude domain, the minimum,  $\boldsymbol{h}_{\!\!\boldsymbol{m}}^{},$  of a large wave possesses a very narrow a\_stribution. Hence the wave maximum and the wave amplitude are approximately related by equation V-1 with a constant wave minimum. Therefore the only unknown relationship is the joint statistical properties between the wave parameter in the time and amplitude domains. The wave separation and the wave maximum of large wave are used to study their joint histogram. The definition of joint histogram is given as:  $\widetilde{H}(\widehat{h}_{max}, T_{sep}) = N_{L} \cdot \widetilde{P}\left\{\widehat{h}_{max}^{(1)} < \widehat{h}_{max} < \widehat{h}_{max}^{(2)}, T_{sep}^{(1)} < \widehat{T}_{sep} < T_{sep}^{(1)} \right\} - - - (I-5)$ 

where

hmax	=	hmax	-	$\frac{\Delta h_{max}}{2}$
h <sub>max</sub>	=	h <sub>max</sub>	+	$\frac{\Delta h_{max}}{2}$
u) T <sub>sep</sub>	=	${}^{\mathrm{T}}$ sep	-	$\frac{\Delta T_{sep}}{2}$
لای Tsep	H	Tsep	+	$\frac{\Delta T_{sep}}{2}$

 $\triangle$  h<sub>max</sub> is the probability interval for wave maximum  $\Delta T_{sep}$  is the probability interval for wave separation  ${\tt N}_{\rm L}$  is the total number of the large waves

The full result is tabulated in Appendix D. The numbers appearing in the table in Appendix D are the number of

waves in that corresponding probability interval. In this section, the typical joint histogram of the wave maximum and the wave separation are presented in the form of the probability of the wave separation at various wave maximum as in Fig. V-22. The data show that the modal of the wave separation given a wave maximum,  $h_{max}$ , is approximately proportional to that given wave maximum. The above implies that the smaller wave maximum is associated with the smaller wave separation and the large wave maximum is associated with the large wave separation. They also show multiple modal values in these two dimensional domains.

# 4. STATISTICS OF SMALL WAVES ON SUBSTRATE

In this section, the statistics of the small waves on the substrate are presented in a similar way as the large waves.

# 4-1. AMPLITUDE DOMAIN

The mean value and standard deviation of wave amplitude, wave maximum, and wave minimum of the small waves are given in Fig. V-23 through Fig. V-25. The general trend of these data is similar to the large waves. But the order of  $\langle A \rangle$ and  $\langle h_{max} \rangle$  of the small waves is smaller. Aside from difference in order of  $\langle A \rangle$  and  $\langle h_{max} \rangle$ , small and large waves differ



FIG. V-22. JOINT PROPABILITY OF WAVE SEPARATION AND WAVE MAXIMUM OF THE LARGE WAVES



FIG. V-23. THE MEAN AND STANDARD DEVIATION OF WAVE AMPLITUDE OF THE SMALL WAVES

**1**38

. . . . . ....



FIG., V-24. THE MEAN AND STANDARD DEVIATION OF WAVE MAXIMUM OF THE SMALL WAVES



FIG. V-25. THE MEAN AND STANDARD DEVIATION OF WAVE MINIMUM OF THE SMALL WAVES

in an important way as indicated by the values of  $\widetilde{\Upsilon}$ . For the small waves, the standard deviation of wave maximum,  $\widetilde{\mathbb{C}}_{\max}$ , is about equal to the standard deviation of wave minimum,  $\widetilde{\mathbb{C}}_{\min}$ , and the standard deviation of wave amplitudes  $\widetilde{\mathbb{C}}_{\operatorname{Amp}}$ is much smaller than  $\widehat{\mathbb{O}}_{\max}$  and  $\widetilde{\mathbb{C}}_{\min}$ . This suggests that the small waves are very uniform in size and that any variations in h<sub>min</sub> is reflected immediately in a variation of h<sub>max</sub>.

The histogram of wave amplitude of the small waves are given in Fig. V-26 and Fig. V-27. The general features of these data show that a single narrow peak characterizes the distribution for small waves on the substrate for all liquid and gas rates.

# 4-2. TIME DOMAIN

The mean value and standard deviation of wave base for the small waves are plotted in Fig.V-28. The wave frequency of the small waves is given as:

$$f_{s} = \frac{1}{\langle T_{bs} \rangle} - \frac{1}{\langle T_{bs} \rangle} - \frac{1}{\langle T_{bs} \rangle}$$

The data of the wave frequency  $f_s$  and the ratio of  $\langle T_{bk} \rangle \langle T_{bs} \rangle$ is shown in Fig. V-29. The trend of these data is similar to that of the large wave except the peak value of the ratio  $\langle T_{bk} \rangle \langle T_{bs} \rangle$  occurs at  $W_L=0.35$  lb/sec. The histogram of wave base of the small waves is also shown in Fig. V-30 and Fig. V-31. They show



FIG. V-26. HISTOGRAM OF WAVE AMPLITUDE OF THE SMALL WAVES



FIG. V-27. HISTOGRAM OF WAVE AMPLITUDE OF THE SMALL WAVE

No. of Nauro



FIG. V-28. THE MEAN AND STANDARD DEVIATION OF WAVE BASE OF THE SMALL WAVES

 ††T



FIG. V-29. THE WAVE FREQUENCY AND  $\langle T_{bk} \rangle / \langle T_{fn} \rangle$  OF THE SMALL WAVES



Tos (pec)

FIG. V-30. HISTOGRAM OF WAVE BASE OF THE SMALL WAVES



FIG. V-31. HISTOGRAM OF WAVE BASE OF THE SMALL WAVES

a usual single narrow peak distribution for all liquid and gas rates.

#### 5. STATISTICS OF SMALL WAVES ON LARGE WAVES

Based on the above mentioned criteria in Section 2 small waves on large waves will include not only the small waves riding on the large waves but also some of the large waves travelling very close to each other. Only the data on the wave amplitude and the wave base will be used in this section to illustrate the general features of this type of waves.

#### 5-1. AMPLITUDE DOMAIN

The mean value and standard deviation of wave amplitude of the small waves on large waves is given in Fig. V-32. The trend of these data shows a similar effect of gas and liquid flow rates as the large waves and the small waves. The order of magnitude of these data is between that of the large waves and the small waves. The histogram of wave amplitude of the small waves on large wave is shown in Fig. V-33 through Fig. V-35. These curves shows a single or a double peak on the main lobe and with a smaller side lobe.

## 5-2. TIME DOMAIN

The mean value and standard deviation of wave base of the small waves on large wave is shown in Fig. V-37. The



FIG. V-32. THE MEAN AND STANDARD DEVIATION OF WAVE AMFLITUDE OF THE SMALL WAVES ON LARGE WAVES

· · · · · · · · ·



FIG. V-33. HISTOGRAM OF WAVE AMPLITUDE OF THE SMALL WAVES ON LARGE WAVES



FIG. V-34. HISTOGRAM OF WAVE AMPLITUDE OF THE SMALL WAVES ON LARGE WAVES



FIG. V-35. HISTOGRAM OF WAVE AMPLITUDE OF THE SMALL WAVES ON LARGE WAVES



FIG. V-36. THE MEAN AND STANDARD DEVIATION OF WAVE BASE OF THE SMALL WAVES ON LARGE WAVES

ير ف trend of these data is similar to that of the large waves and the small waves, and their order of magnitude is between the two of them. The histogram of wave base of the small wave on large wave is a usual single narrow peak distribution and will not be shown here.

#### CHAPTER VI

# INTERPRETATION OF EXPERIMENTAL DATA AND SPECULATIONS ON THE PROCESS OF WAVE MOTION

11 \*

## 1. INTRODUCTION

The statistical data presented in the last two chapters give only part of the useful information available. The structure of the processes can not be completely described from the time series data without special processing. In this chapter, further information is extracted from the data by various techniques using assumptions and speculations about the processes. Hopefully a more complete description of the structure of the processes can thus be defined.

# 2. WAVE VELOCITY AND WAVE LENGTH

One of the most important wave parameter which is not directly obtainable from the time series analysis is the wave velocity. In this section, this parameter will be obtained for both the large and small waves by various methods. Webb (W-2) measured a probability density function for the wave velocity. Telles (T-2) obtained a linear phase spectrum which implies a constant wave velocity. There is an obvious conflict in the results between these two reports. This paradox is examined here. Telles assumed that film thickness time series measured at two position are two stationary stochastic processes such that

$$f_{1}'(t) = f_{1}'(t - \frac{x}{c})$$
 at  $x = 0 - - - - - - (\underline{\Pi} - 1)$   
 $f_{1}'(t) = f_{1}'(t - \frac{x}{c})$  at  $x = 1 - - - - - - (\underline{\Pi} - 2)$ 

where l is separation distance between two positions. Then from equations (IV-20) and (IV-21), one can obtain

$$\widehat{C}_{12}(J) = \langle \widehat{h}'(t+J) \widehat{h}'(t-\frac{l}{C}) \rangle 
= \widehat{C}_{11}(J+\frac{l}{C}) - - - - - - - - (\Im - 3) 
\widehat{S}_{12}(f) = \int_{\infty}^{T^{\infty}} e^{-\iota 2\pi f J} \widehat{C}_{11}(J+\frac{l}{C}) dJ 
= e^{+\iota^{2\pi} f \frac{l}{C}} \widehat{S}_{11}(f) - - - - - (\Im - 4)$$

Comparing the above equation (VI-4) with equation (IV-25),  $\vdots$  it is clear that

$$\widehat{\Delta} (f) = \cos 2\pi f \frac{2}{C} \, \widehat{S}_{11}^{11} \, (f) = --- \, (\overline{\mathbf{u}} - 5)$$
$$\widehat{\mathbb{Q}} (f) = \sin 2\pi f \frac{2}{C} \, \widehat{S}_{11}^{11} \, (f) = --- \, (\overline{\mathbf{u}} - 6)$$

The phase spectrum from equation (IV-27) becomes

$$\widehat{\Theta}(f) = 2\pi f \frac{l}{c} - - - - - - - (\underline{u} - 7)$$

The equation implies that the slope of phase spectrum is equal to the ratio of separation distance and wave velocity. The wave velocity, C, can also be obtained from cross covariance as Webb showed. One important property of autocovariance is shown in equation (IV-24)

$$\widetilde{C}_{ii}(0) \gg \widetilde{C}_{ii}(3)$$
 for all 3

From equation (IV-24) and equation (VI-3), one obtains

 $\widetilde{C_{12}} \left(-\frac{g}{C}\right) \ge \widetilde{C_{12}}(J)$  for all J = ---  $(M^{-r_1})$ The meaning of equation (VI-7) is that the maximum of cross-covariance is at the time lag  $J = -\frac{g}{C}$ . Therefore the wave velocity can be directly obtained from the location of the maximum of the cross-covariance.

The wave velocity was obtained from both the phase spectrum and the cross-covariance for a gas flow rate,  $W_G=0.0$  lb/sec. These are compared with Telles' and Webb's data in Fig. VI-1 and show good agreement. Although both methods are equivalent, the method of cross-covariance depends on locating a single maximum point. Hence if the time lag interval is large or the separation distance between two measuring stations is large the method is subject to large error. The wave velocity for all gas flow rates and liquid flow rates is given in Fig. VI-2. These data show the usual trend of increasing velocity with both gas and liquid rates. The wave length of large wave which is defined by

 $\langle \rangle = C \langle T_{sep} \rangle$  was calculated and plotted in Fig. VI-3.

## 2-2. NONLINEARITY OF PHASE SPECTRA

In the present study, the data of phase spectra as given in Chapter IV show a departure from the constant slope above a frequency of about 10 cps. This did not appear




O Present data from cross correlation

W<sub>G</sub>=0.0 lb/sec





Fig. VI-2. WAVE VELOCITY



Fig. VI-3. WAVE LENGTH OF THE LARGE WAVES

in Telles' data. But if his data is carefully reexamined, one would find that he only presented the data possessing a constant slope and neglected the data above that region. In this section, we will discuss the possible reason for this phenomena. One reasonable assumption is that the process  $\hat{h}(t)$  contains two components,  $\hat{h}_A(t)$  and  $\hat{h}_B(t)$ .  $\hat{h}_A(t)$  is moving at constant velocity C, i.e.  $\hat{h}_A(t) =$  $\hat{h}_A(t) (\frac{-x}{c} + t)$  while  $\hat{h}_B(t)$  is a unknown process. We further assume  $\hat{h}_A$  can be approximated by a fourier sine series. Then at two measuring locations, 1 and 2, the observed signals would be

$$\hat{h}_{1}(t) = \hat{h}_{A}(t - \frac{x}{c}) + \hat{h}_{B}(t) \text{ at } x = 0 - --(VI-8)$$

$$\hat{h}_{2}(t) = \hat{h}_{A}(t - \frac{x}{c}) + \hat{h}_{B}(t) \text{ at } x = 0 - --(VI-9)$$

$$h_{A}(t - \frac{x}{c}) = \sum_{k=1}^{n} \hat{a}_{j} \sin \frac{2}{T_{j}} (t - \frac{x}{c}) - ---(VI-10)$$
while  $T_{j} = jT_{1}$ 

Now assume  $\hat{h}_{A}(t)$  and  $\hat{h}_{B}(t)$  are uncorrelated, and  $h_{A}(t)$  and  $\hat{h}_{B}(t)$  have zero mean.

Then the cross spectrum is

$$\widetilde{S}_{12}(\omega) = \sum_{j=1}^{n} \frac{\alpha_j^2}{2} \pi \cos j \omega_1 \frac{\varrho}{c} \delta(j \omega_1 - \omega) + i \sum_{j=1}^{n} \frac{\alpha_j^2}{2} \pi \sin j \omega_1 \frac{\varrho}{c}(j \omega_1 - \omega) + i \sum_{j=1}^{n} \frac{\alpha_j^2}{2} \pi \sin j \omega_1 \frac{\varrho}{c}(j \omega_1 - \omega) + i \sum_{j=1}^{n} \frac{\alpha_j^2}{2} \pi \sin j \omega_1 \frac{\varrho}{c}(j \omega_1 - \omega) + i \sum_{j=1}^{n} \frac{\alpha_j^2}{2} \pi \sin j \omega_1 \frac{\varrho}{c}(j \omega_1 - \omega) + i \sum_{j=1}^{n} \frac{\alpha_j^2}{2} \pi \sin j \omega_1 \frac{\varrho}{c}(j \omega_1 - \omega) + i \sum_{j=1}^{n} \frac{\alpha_j^2}{2} \pi \sin j \omega_1 \frac{\varrho}{c}(j \omega_1 - \omega) + i \sum_{j=1}^{n} \frac{\alpha_j^2}{2} \pi \sin j \omega_1 \frac{\varrho}{c}(j \omega_1 - \omega) + i \sum_{j=1}^{n} \frac{\alpha_j^2}{2} \pi \sin j \omega_1 \frac{\varrho}{c}(j \omega_1 - \omega) + i \sum_{j=1}^{n} \frac{\alpha_j^2}{2} \pi \sin j \omega_1 \frac{\varrho}{c}(j \omega_1 - \omega) + i \sum_{j=1}^{n} \frac{\alpha_j^2}{2} \pi \sin j \omega_1 \frac{\varrho}{c}(j \omega_1 - \omega) + i \sum_{j=1}^{n} \frac{\alpha_j^2}{2} \pi \sin j \omega_1 \frac{\varrho}{c}(j \omega_1 - \omega) + i \sum_{j=1}^{n} \frac{\alpha_j^2}{2} \pi \sin j \omega_1 \frac{\varrho}{c}(j \omega_1 - \omega) + i \sum_{j=1}^{n} \frac{\alpha_j^2}{2} \pi \sin j \omega_1 \frac{\varrho}{c}(j \omega_1 - \omega) + i \sum_{j=1}^{n} \frac{\alpha_j^2}{2} \pi \sin j \omega_1 \frac{\varrho}{c}(j \omega_1 - \omega) + i \sum_{j=1}^{n} \frac{\alpha_j^2}{2} \pi \sin j \omega_1 \frac{\varrho}{c}(j \omega_1 - \omega) + i \sum_{j=1}^{n} \frac{\alpha_j^2}{2} \pi \sin j \omega_1 \frac{\varrho}{c}(j \omega_1 - \omega) + i \sum_{j=1}^{n} \frac{\alpha_j^2}{2} \pi \sin j \omega_1 \frac{\varrho}{c}(j \omega_1 - \omega) + i \sum_{j=1}^{n} \frac{\alpha_j^2}{2} \pi \sin j \omega_1 \frac{\varrho}{c}(j \omega_1 - \omega) + i \sum_{j=1}^{n} \frac{\alpha_j^2}{2} \pi \sin j \omega_1 \frac{\varrho}{c}(j \omega_1 - \omega) + i \sum_{j=1}^{n} \frac{\alpha_j^2}{2} \pi \sin j \omega_1 \frac{\varrho}{c}(j \omega_1 - \omega) + i \sum_{j=1}^{n} \frac{\alpha_j^2}{2} \pi \sin j \omega_1 \frac{\varrho}{c}(j \omega_1 - \omega) + i \sum_{j=1}^{n} \frac{\alpha_j^2}{2} \pi \sin j \omega_1 \frac{\varrho}{c}(j \omega_1 - \omega) + i \sum_{j=1}^{n} \frac{\alpha_j^2}{2} \pi \sin j \omega_1 \frac{\varrho}{c}(j \omega_1 - \omega) + i \sum_{j=1}^{n} \frac{\alpha_j^2}{2} \pi \sin j \omega_1 \frac{\varrho}{c}(j \omega_1 - \omega) + i \sum_{j=1}^{n} \frac{\alpha_j^2}{2} \pi \sin j \omega_1 \frac{\varrho}{c}(j \omega_1 - \omega) + i \sum_{j=1}^{n} \frac{\alpha_j^2}{2} \pi \sin j \omega_1 \frac{\varrho}{c}(j \omega_1 - \omega) + i \sum_{j=1}^{n} \frac{\alpha_j^2}{2} \pi \sin j \omega_1 \frac{\varrho}{c}(j \omega_1 - \omega) + i \sum_{j=1}^{n} \frac{\alpha_j^2}{2} \pi \sin j \omega_1 \frac{\varrho}{c}(j \omega_1 - \omega) + i \sum_{j=1}^{n} \frac{\alpha_j^2}{2} \pi \sin j \omega_1 \frac{\varrho}{c}(j \omega_1 - \omega) + i \sum_{j=1}^{n} \frac{\alpha_j^2}{2} \pi \sin j \omega_1 \frac{\varrho}{c}(j \omega_1 - \omega) + i \sum_{j=1}^{n} \frac{\alpha_j^2}{2} \pi \sin j \omega_1 \frac{\varrho}{c}(j \omega_1 - \omega) + i \sum_{j=1}^{n} \frac{\alpha_j^2}{2} \pi \sin j \omega_1 \frac{\varrho}{c}(j \omega_1 - \omega) + i \sum_{j=1}^{n} \frac{\alpha_j^2}{2} \pi \sin j \omega_1 \frac{\varrho}{c}(j \omega_1 - \omega) + i \sum_{j=1}^{n} \frac{\alpha_j^2}{2} \pi \sin j \omega_1 \frac{\omega}{c}(j \omega_1 - \omega) + i \sum_{j=1}^{n} \frac{\alpha_j^2}{2} \pi \cos j \omega_$$

 $\omega$  is angular frequency

δ is Delta function  

$$ω_i = \frac{2\pi}{T_i}$$
  
 $ω_j = \frac{2\pi}{T_j} = jω_i$ 

Suppose the real and imaginary part of  $\widetilde{S}_{BB}(\omega)$  are also represented by the delta function as

$$\tilde{S}_{BB}(\omega) = \sum_{j=1}^{n} b_{j}^{2} \delta(j\omega_{j}-\omega) + i \sum_{j=1}^{n} c_{j}^{2} \delta(j\omega_{j}-\omega) - - - (II-12)$$

then

$$\widetilde{S}_{12}(\omega) = \sum_{\substack{k=1\\j=1}}^{n} \left\{ \frac{\alpha_{j}^{2}}{2} \pi \cos k \omega_{1} \frac{k}{c} + b_{j}^{2} \right\} \delta(j \omega_{1} - \omega) + c \sum_{\substack{k=1\\j=1}}^{n} \left\{ \frac{\alpha_{j}^{2}}{2} \pi S_{1} \pi \sum_{j=1}^{n} (k - b_{j}^{2}) \right\} \delta(j \omega_{1} - \omega) - - (\mathbf{I} - \mathbf{I} - \mathbf{I}$$

Hence the phase spectrum is

$$\widetilde{\Theta}_{12}(\omega) = \tan^{-1} \frac{\sum_{j=1}^{n} \left\{ \frac{\alpha_{j}^{2}}{2} \pi \cos j \omega_{1} \frac{Q}{C} + b_{j}^{2} \right\} \delta(j \omega_{1} - \omega)}{\sum_{j=1}^{n} \left\{ \frac{\alpha_{j}^{2}}{2} \pi \sin j \omega_{1} \frac{Q}{C} + C_{j}^{2} \right\} \delta(j \omega_{1} - \omega)} - - (II - 14)$$

Equation (VI-14) indicates that the phase spectrum will be affected by the energy contained in the unknown processes  $b_j^2$  and  $c_j^2$ .

Suppose

a) 
$$w = 0 \sim n_1 w_1$$
  $n_1 < n_1$   
 $\frac{\alpha_1^2}{2} \pi >> b_1^2$ ,  $\frac{\alpha_1^2}{2} \pi >> C_1^2$   
and  
 $j w_1 \frac{k}{C} \neq m \frac{\pi}{2}$   $m = 1, 2, ---$ 

then

(

$$\widetilde{\Theta}_{12}(\omega) \simeq j_{\omega_1} \frac{Q}{C} \quad j=1,\cdots,n_1-\cdots-(\underline{M}-15)$$

where

(b) 
$$W = (n_1 + 1) W_1 \sim n_2 W_1$$
  $n_2 < n_2$   
 $\frac{\alpha_1^2}{2} \pi \simeq b_1^2 \quad \frac{\alpha_2^2}{2} \pi \simeq c_1^2$ 

then  $\widetilde{\Theta}_{12}$  will not be on the same slope.

(c) 
$$w = (n_2 + 1) w_1 \sim n w_1$$
  
$$\frac{\alpha_i^2}{2} \pi << b_i^2, \quad \frac{\alpha_i^2}{2} \pi << C_i^2$$

then

$$\hat{\Theta}_{12}(w_1) = \tan^{-1}\left(\frac{b_1^2}{C_1^2}\right) \qquad j = n_2 \tau_1, \dots, n = --(II - 16)$$

This implies that the phase is controlled by the unknown process. The above result is illustrated in Fig. VI-4. This is precisely the appearance of all the phase angle data.



FIG. VI-4 PHASE SPECTRUM

### 2-3. SECONDARY LARGE WAVE VELOCITY

From the above analysis, it is clear that the nonlinearity of the phase spectrum is due to the processes containing a component which is not moving at the primary wave velocity C. The next step is to find the component which is moving at a velocity C', different from C and determine its value. Numerous techniques to obtain the wave velocity for different components have been pointed out by Seriff (S-q). One of the most powerful methods is the two dimensional spectrum which is used by geophysicists and oceanographers. In the present study, only four unequal spacing probe were employed. This is too few measurements to apply two dimensional Fourier Transform techniques. The method used in this section involves the subtraction of two signals measured at the two stations.

Consider that the process  $\hat{h}_B$  in equations (VI-8) and (VI-9) is moving at velocity C', then

 $\hat{f}_{1}(t) = \hat{f}_{A}(t) + \hat{f}_{B}(t) \quad \text{at } x = 0 - - - (\underline{T} - 17)$   $\hat{f}_{1}(t) = \hat{f}_{A}(t - J_{1}) + \hat{f}_{B}(t - J_{2}) \quad \text{at } x = 1 - - - (\underline{T} - 18)$ where  $J_{1} = \frac{2}{c} \quad \text{and} \quad J_{2} = \frac{2}{c}$ 

The above two relations are shown schematically in Fig. VI-5.



FIG. VI-5. SUBTRACTION: OF TWO SIGNALS

Shift  $\hat{h}_2(t)$  by time J, then subtract two signals, we obtain a new signal  $\hat{h}_3(t)$  as:

$$\hat{h}_{3}(t) = \hat{h}_{1}(t) - \hat{h}_{2}(t + 3) = \hat{h}_{B}(t) - \hat{h}_{B}(t + 3) - 3 = 0$$

The covariance of  $\hat{h}_3(t)$  becomes

$$\widetilde{c_{33}}(7) = \langle \widehat{h_3}(t+7) \widehat{h_3}(t) \rangle$$
  
= 2  $\widetilde{c_{BB}}(7) - \widetilde{c_{BB}}(7-7, +7, -7)$   
-  $\widetilde{c_{BB}}(7+7, -7, -7)$  --(VI-20)

Equation (VI-20) shows that  $\widetilde{C_{33}}$  (3) has one positive peak at  $\mathcal{I} = 0$  and two negative peaks one at  $\mathcal{I} = \mathcal{I}_1 - \mathcal{I}_2$  and one at  $\mathcal{I} = \mathcal{I}_2 - \mathcal{I}_1$ . Since  $\mathcal{I}_1$  is a known quantity, from the location of negative peaks of  $\widetilde{C}_{33}(\mathcal{J})$  one can obtain

$$c' = \frac{\varrho}{\tau' + \tau_1} \qquad ----- (VI-21)$$

where  $J' = J_2 - J_1 = location$  of negative peak

The above discussion neglects the change in amplitude between  $\hat{h_1}(t)$  and  $\hat{h_2}(t)$ . Actual data show this is not neglig ible. In order to compensate for this amplification factor,  $A_f$ , one considers

$$\hat{f}_{2}(t) = \frac{1}{A_{f}} \hat{f}_{A}(t-3) + \frac{1}{A_{f}} \hat{f}_{B}(t-3) - - (II - 22)$$

The amplification factor can be obtained from the covariance function  $\widetilde{C_{11}}(\mathcal{I})$ ,  $\widetilde{C_{22}}(\mathcal{I})$  and  $\widetilde{C_{12}}(\mathcal{I}+\mathcal{I}_1)$ by the following three equations:

$$\widetilde{C_{11}}(\mathcal{I}) = \widetilde{C_{AA}}(\mathcal{I}) + \widetilde{C_{BB}}(\mathcal{I}) - \dots - (VI-23)$$

$$\widetilde{C_{22}}(\mathcal{I}) = \frac{1}{A_{f}^{2}} (\widetilde{C_{AA}}(\mathcal{I}) + \widetilde{C_{BB}}(\mathcal{I})) - (VI-24)$$

$$\widetilde{C_{12}}(\mathcal{I}+\mathcal{I}) = \frac{1}{A_{f}} (\widetilde{C_{AA}}(\mathcal{I}) + \widetilde{C_{BB}}(\mathcal{I}+\mathcal{I},-\mathcal{I}))$$

$$= \frac{1}{A_{f}} (\widetilde{C_{AA}}(\mathcal{I}) + \widetilde{C_{BB}}(\mathcal{I})) - (VI-25)$$
ion (VI-20), the spectral density of  $h_{p}(t)$  can

From equation (VI-20), the spectral density of  $h_B(t)$  can also be obtained

$$\widetilde{S}_{BB}(\omega) = \frac{1}{2} \frac{1}{1 - c_{00}\omega [\tau_{2} - \tau_{1}]} \widetilde{S}_{33}(\omega) - - - (II - 26)$$

Since the subtraction process is not perfect, the  $\widetilde{C_{33}}(3)$  contains not only the information on  $\widehat{h}_B(t)$ , but also the residues of  $\widehat{h}_A(t)$  and the component which is not moving at either C or C'. This effect can be found from the quantity  $F_n >> 0$ .

$$\overline{F}_{n} = \widetilde{C}_{33}(0) - 2\widetilde{C}_{33}(3, -3_{2}) - - - - (II - 27)$$

In order to extract the power spectral density containing only  $\hat{h}_{B}$ , one modifies equation (VI-26) into

$$\widehat{S}_{BB}(\omega) = \frac{1}{2} \frac{\widehat{S}_{33}(\omega) - A_n(\omega)}{1 - c\omega_0 \omega [\tau_2 - \tau_1]} - - - - (II - 28)$$

$$A_n(\omega) = \frac{\pi F_n}{1 - c\omega_0 \omega [\tau_2 - \tau_1]} - - - - - - - (II - 29)$$

where  $f_c$  is folding frequency of  $S_{33}(\omega)$ 

Equation (VI-29) implies that the noise component  $F_N$ is uniformly distributed in  $\widetilde{S_{33}}(\omega)$  (white noise assumption). The calculated values of C' obtained from the above procedures are compared with the primary wave velocity in Table VI-1.

W <sub>L</sub> (lb/sec)	С	с'	f <sub>m</sub>	f <sup>(B)</sup> m	s <sub>11</sub> (f <sub>m</sub> )	S <sub>BB</sub> (f <sup>(9)</sup> <sub>m</sub> )
0.016	1.50	1.41	0.671	4.578	0.043	0.019
0.044	4.09	<sup>.</sup> 3.41	1.648	4.089	0.0546	0.0076
0.126	5.01	4.21	3.601	6.042	0.1013	0.0062
0.24	5.58	4.76	4.089	6.531	0.0619	0.01012
0.35	6.91	5.69	3.601	7.507	0.0649	0.00721
0.585	8.30	6.75	5.066	6.531	0.0642	0.00352

TABLE VI-1. PROPERTIES OF SECONDARY WAVES

 $W_{C} = 0.0 \text{ lb/sec}$ 

In Table VI-1,  $f_m$ ,  $f_m^{(3)}$  are the modal frequency of  $S_{11}(f)$ and  $S_{BB}(f)$  respectively. The corresponding slope of phase spectra for C' is also plotted in Fig. VI-6 with the actual data. From the frequency band of the corresponding slope of phase spectra for C', it is obvious that the wave velocity





Fig. VI-6. COMPARISON OF C AND C' ON PHASE SPECTRA

which has thus been obtained is for a secondary large wave. 2-4. WAVE VELOCITY AND WAVE LENGTH OF SMALL WAVES

One very important result of the previous section is that the local slope of the phase spectrum evaluated at certain frequency is related to the wave velocity of the wave having that frequency. This can also be derived analytically. Assuming  $\hat{h}_B(t)$  in equation(VI-8) and (VI-9) to be represented by a Fourier sine series with a wave velocity C'.

$$\hat{f}_{B}(\tau - \frac{x}{c'}) = \sum_{i=k}^{m} b_{i} \sin \frac{2\pi}{T_{i}} (\tau - \frac{x}{c'}) - - - - (\pi - 30)$$

$$i \leq k \leq n \leq m$$

where

'then the equation (VI-14) becomes

$$\widehat{\Theta}_{12}(\omega) = \tan^{-1} \frac{\left\{ \sum_{j=1}^{n} \frac{\alpha_{j}}{2} \pi \sin_{j} \omega_{j} \frac{\lambda}{C} + \sum_{j=k-2}^{m} \frac{b_{j}^{2}}{2} \pi \sin_{j} \omega_{j} \frac{\lambda}{C} \right\} \delta(j\omega_{j}-\omega)}{\left\{ \sum_{j=1}^{n} \frac{\alpha_{j}^{2}}{2} \pi \cos_{j} \omega_{j} \frac{\lambda}{C} + \sum_{j=k-2}^{m} \frac{b_{j}^{2}}{2} \pi \cos_{j} \omega_{j} \frac{\lambda}{C} \right\} \delta(j\omega_{j}-\omega)} - -(\underline{\Psi}-3)$$

similarly the result will be

$$\widetilde{\Theta}_{12}(\omega) = j \omega_1 \frac{2}{C} \quad \text{for } j = 1, \dots, \text{ } \mathbf{k} - 1 - - - - (\mathbf{I} - 32)$$

$$\widetilde{\Theta}_{12}(\omega) = j \omega_1 \frac{2}{C}, \quad \text{for } j = n + 1, \dots, m - - - - (\mathbf{I} - 33)$$

Based on the above result, one would ask whether a constant slope of phase spectrum can be found in the frequency range for small waves. If so, the wave velocity of small wave,  $C_s$ , can be extracted. The data of phase spectrum in the range of small wave frequencies shows another slope. But the data are inconsistent and fluctuate widely in this region. This is probably due to the fact that the primary

velocity of the small and large waves are very different and the digitizing interval used for the small phase angle of the large waves is not suitable for the large phase angle associated with the small waves. A technique is available to eliminate the effect of the primary waves on the signals for the small waves at the two positions.

$$\hat{\hat{\pi}}_{1}(t) = \sum_{j=1}^{n} \alpha_{j} \sin \frac{2\pi}{T_{j}} t + \sum_{j=k}^{m} b_{j} \sin \frac{2\pi}{T_{j}} t \quad \text{at } x = 0$$

$$\hat{\hat{\pi}}_{2}(t) = \sum_{j=1}^{n} \alpha_{j} \sin \frac{2\pi}{T_{j}} (t - \frac{2}{C}) + \sum_{j=k}^{m} b_{j} \sin \frac{2\pi}{T_{j}} (t - \frac{2}{C_{3}}) \quad \text{at } x = 2$$

Now shift  $\hat{h}_{1}(\tau)$  by  $J_{1} = \frac{Q}{C}$ 

 $\hat{f}_{3}(t) = \hat{f}_{1}(t+\zeta_{1}) = \sum_{j=1}^{n} \alpha_{j} \sin \frac{2\pi}{T_{j}} \left(t - \frac{\ell}{C} + \zeta_{j}\right) + \sum_{j=k}^{m} b_{j} \sin \frac{2\pi}{T_{j}} \left(t - \frac{\ell}{C_{j}} + \zeta_{j}\right) - - \left(\overline{\mathfrak{A}} - 34\right)$ The phase spectrum will be

$$\widehat{\Theta}_{13}(\omega) = \tan^{-1} \frac{\left\{\sum_{j=1}^{n} \frac{\alpha_{j}^{2}}{2} \pi \sin_{j} \omega_{1} \left(\frac{\alpha}{C} - \tau_{1}\right) + \sum_{j=2}^{m} \frac{b_{j}^{2}}{2} \pi \cos_{j} \omega_{1} \left(\frac{\alpha}{C} - \tau_{1}\right)\right\} \delta(j\omega_{1} - \omega)}{\left\{\sum_{j=1}^{n} \frac{\alpha_{j}^{2}}{2} \pi \cos_{j} \omega_{1} \left(\frac{\alpha}{C} - \tau_{1}\right) + \sum_{j=2}^{m} \frac{b_{j}^{2}}{2} \pi \cos_{j} \omega_{1} \left(\frac{\alpha}{C} - \tau_{1}\right)\right\} \delta(j\omega_{1} - \omega)} - - \left(\overline{\mathbf{U}} - 35\right)$$

Since  $\frac{Q}{C} - \zeta_1 = 0$  equation (VI-35) becomes

$$\widehat{\Theta}_{13}(\omega) = \begin{cases} 0 & \text{for } b=1, \dots, k-1 \\ 0 & \text{if } a_{\delta}^{2} >> b_{\delta}^{2} & \text{for } j=k, \dots, n \\ \frac{1}{2}\omega_{1}(\frac{k}{C_{5}}-J_{1}) & \text{if } a_{\delta}^{2} << b_{\delta}^{2} & \text{for } j=k, \dots, n \\ \frac{1}{2}\omega_{1}(\frac{k}{C_{5}}-J_{1}) & \text{if } a_{\delta}^{2} << b_{\delta}^{2} & \text{for } j=k, \dots, n \end{cases}$$

A typical phase spectrum obtained by the above method is shown in Fig. VI-7. The wave velocity,  $C_s$ , is thus extracted from the above curve and the wave length $\lambda$  calculated from  $C_s \langle T_{bs} \rangle$ . Results for the small waves are tabulated in Table VI-2.





Fig. VI-7. PHASE SPECTRA

	$W_{\rm G} = 0.0$	) lb/sec	W <sub>G</sub> = 0.1436 lb/sec		
W <sub>L</sub> (lb/sec)	C <sub>s</sub> (ft/se	ec) 入(ft)	C <sub>s</sub> (ft/se	c) 入 (ft)	
0.016	0.74	0.0209	0.903	0.0107	
:0.028	1.19	0.0438	1.17	0.0175	
0.044	1.39	0.0585	1.25	0.0408	
0.08	1.405	0.0630	1.41	0.0455	
0.126	1.410	0.0585	1.412	0.0470	
0.18	1.46	0.0545	2.15	0.0680	
0.24	1.63	0.0575	2.18	0.0667	
0.35	2.02	0.0608	2.29	0.0610	
0.47	2.10	0.0585	2.38	0.0567	
0.585	2.39	0.0580	3.00	0.0655	

## TABLE VI-2. WAVE VELOCITY AND WAVE LENGTH OF SMALL WAVES

### 3. SPECTRA AND CORRELATION OF FILM THICKNESS

In this section, the important properties of spectral density and correlation function of film thickness and its physical meaning will be explored. Telles considered a periodic sine wave process with random phase  $\alpha SIN (2\pi)$   $f_m t + \hat{\Theta}$ ) to study the power spectrum of film thickness. Since the spectral density of the above process is a Delta function, he concluded that the modal frequency is the most commonly found frequency of the waves. From this the average wave separation distance and time was calculated.

In this work the wave separation and the wave amplitude of large waves are shown to have a wide distribution. Thus, Telles' argument is not valid. One would expect a more general analysis could be done.

Consider h(t) a stochastic process as follow:

 $\hat{\mathbf{H}}(t) = \alpha \operatorname{Sin}(2\pi \hat{\mathbf{f}}t + \hat{\Theta}) - - - - - - - - - (\underline{\mathbf{U}} - 37)$ where  $\hat{\mathbf{f}}, \hat{\Theta}$  are two independent random variables.  $\hat{\mathbf{f}}$  has a even probability density function, while  $\hat{\Theta}$  is a uniform distribution function.

The auto-correlation function and the spectral density function of this process will be

$$\widehat{\mathcal{R}}(\tau) = \frac{\alpha^{2}}{2} \int_{-\infty}^{+\infty} \widehat{f}(f) + \widehat{f}(-f) \Big\{ - - - - - - (\overline{\mathbf{X}} - 38) \Big\}$$

Hence if the amplitude of the waves is the same, the modal frequency  $f_m$  is related to the modal value of the probability density function of wave frequency ( or wave separation). The wave amplitude posesses a widely spread density function so it is necessary to consider this effect too. Consider  $\hat{h}(t)$  as another stochastics process...

$$\hat{f}(t) = \sum_{j=1}^{n} \hat{a}_{j} \sin 2\pi f_{j} t - - - (II-40)$$

where  $\hat{A}_j$  is an independent random variable associated a frequency  $f_{i}$ ,

The result of this process is

$$\widetilde{S}(t) = \sum_{j=1}^{n} \langle \widetilde{\sigma}_{j}^{2} \rangle \left\{ S(t-t_{j}) + S(t+t_{j}) \right\} - - (\overline{\pi} - 41)$$

This result shows clearly that the maximum peak of S(f) will be located at  $f_m$  such that  $\langle \hat{\alpha}_m^2 \rangle \geqslant \langle \hat{\alpha}_j^2 \rangle$  for j = 1, ---, n and the secondary peak of R (3) is at position  $J_m$  such that  $f_m J_m = 1$ .

There are two special cases in the above equations (VI-38), (VI-39), (VI-41) and (VI-42).

(a) if 
$$\hat{f}(f) = \delta(f - f_R)$$
 and  $\langle \hat{\alpha}_R^2 \rangle \gg \langle \hat{\alpha}_j^2 \rangle$   
For  $j \neq R$   
then  
 $\hat{R}(3) = \alpha^2 \cos 2\pi f_R$   
 $\hat{S}(f) = \alpha^2 \delta(f - f_R)$   $f > 0$ 

This is the case corresponding to Telles' consideration (b) if  $\hat{f}(f) = 1$  or  $\langle \hat{\alpha}_{\vec{k}}^2 \rangle = \langle \hat{\alpha}_{\vec{k}}^2 \rangle - \hat{f}_{or}$   $\hat{f}_{\vec{k}} = 1, \dots, n$ then  $\hat{\kappa}(3) = \alpha^2 \delta(3)$  $\hat{S}(f) = \alpha^2$ 

This result is a so called "white noise" process. The actual data for film thickness show that the result is somewhat between the above two special cases. Comparing with other wave data such as wind waves, the spectral density of film thickness shows a much wider spread with frequency, while the periodicity of the correlation is much weaker. In order to have more specific understanding of these statistical functions and their relation to the wave paramter, one would study the following quantities:  $f_m$ ,  $J_m$ ,  $J_m$ ,  $J_m$ ,  $\gamma$ 

 $\widetilde{C}(\mathfrak{I}_m)$ ,  $\widetilde{C}_{\mathfrak{l}_2}(\mathfrak{I},\mathfrak{l})$ , and  $S_{eq}$  as shown in Fig. VI-8.





(b) Auto Covariance



FIG. VI-8. PARAMETERS OF SPECTRUM AND COVARIANCE 3-1. MODAL FREQUENCY, MEAN PERIOD, AND MEAN BASE LENGTH

The modal frequency,  $f_m$ , defined above at condition  $W_G = 0.0$  lb/sec is compared with the data of Telles and Webb in Fig. VI-9. The trend shows fair agreement. The modal frequency of spectrum and cross spectrum are usually the same. A double peak structure in cross spectrum and sometime also in auto spectrum appears in the range of small liquid flow rates. In the above figure, if the data suggest a



Fig. VI-9. MODAL FREQUENCY

double peak structure, the secondary peak will be represented by  $f_m^*$ . As mentioned above, if the processes contain a periodic component strong enough to show a peak, then the correlation function  $\widetilde{C}(\Im)$  will show a secondary peak at the mean period  $\Im_m$  such that  $- f_m \Im_m = \mathbb{N}$ . Therefore the data of  $\frac{1}{\Im_m}$  and  $f_m$  should correspond. In Fig. VI-10, the data of  $\frac{1}{\Im_m}$  and  $f_m$  vs.  $W_L$  are plotted for the gas flow rate  $W_G = 0.0$  lb/sec and  $W_G = 0.1436$  lb/sec. The relationship of  $- f_m \Im_m = 1$  is confirmed.

Since the modal frequency  $f_m$  or the mean period  $\exists w$ is related to not only the wave frequency but also the wave amplitude, it is necessary to find out what wave amplitude or wave maximum is associated with this modal frequency. The mean value of wave frequency,  $f_{\chi}$ , for the large wave (defined in the previous chapter by  $h_{max} \leq db$ ) is much larger than the modal frequency,  $f_m$ , except at small flow rates. It is also impossible to find a wave separation,  $T_{sep}$ , to correspond to  $f_m$  in the joint histogram of  $T_{sep}$  vs.  $h_{max}$ . This is probably due to the fact that some of the large wave maximum,  $h_{max}$ , are not large enough to produce a positive component in the correlation at  $J = T_{sep}$ . Hence we need to discriminate some of the large waves having a smaller  $h_{max}$ . Redefine a new large wave separation  $T_{sep}^{\prime}$  based on  $h_{max} > 2 < h$  as the following Fig. VI-11.



Fig. VI-10. MODAL FREQUENCY AND MEAN PERIOD



# FIG. VI-11. NEW LARGE WAVE SEPARATION T'sep

A typical joint probability of  $h_{max} > 2 < h > and T_{sep}$ is given in Fig. VI-12. The distributions show a single modal value with wide spread in the two dimensional domains. This indicate that the correlation function will have a weak periodical component at the modal value roughly equal to  $\langle T_{sep}^{\prime} \rangle$ . The mean value of this new wave frequency  $f_{\chi}^{\prime} = \frac{1}{\langle T_{sep} \rangle}$  and  $f_{\chi}$  vs.  $f_{m}$  is plotted in Fig. VI-13. The results of  $f_{\chi}^{\prime}$  show a fair agreement with  $f_{m}$  except the small liquid rates at which transition occurs. The value of  $f_{\chi}^{\prime}$  is a little higher than that of  $f_{m}$  in general. This





is reasonable because the coupling of two large waves is treated as a large single wave in the actual calculating process of correlation function.

Another important quantity which can be extracted from the correlation function is the mean base time,  $\Im_{\min}$ . This mean base is well correlated with large wave base  $\langle T_{bs} \rangle$ as shown in Fig. VI-14. The reason is clear from the meaning of a correlation function. Some of the data have a large deviation. This is due to the difficulty in locating the minimum value of  $\widetilde{C}(\Im)$ , when  $\widetilde{C}(\Im)$  had value near  $\widetilde{C}(\Im_{\min})$ .

The intensity of periodical component can be represented by  $\widetilde{C(J_m)}$ . The value of  $\widetilde{C(J_m)}$  is usually in the range of 0.01 ~ 0.08 which is very weak periodicity. 3-2. CROSS CORRELATION AND COHERENCY FUNCTION.

The cross covariance function of film thickness  $C_{12}(7)$ which is presented as  $\widetilde{C_{12}}(7-7,)$  in Chapter IV, is approximately the same as  $\widetilde{C_{11}}(7)$  and  $\widetilde{C_{12}}(7)$  except for the maximum value  $\widetilde{C_{12}}(7, )$ . This implies that the important features of the wave processes,  $\hat{h}(t,\chi)$ , between measuring stations, 1 and 2, are approximately unchanged. These features include, for example, the number of large waves, the relative wave maximum, the relative position of large waves etc. The cross covariance function shows an unsymmetrical shape about its maximum value,  $\widetilde{C_{12}}(7,)$ as given in Chapter IV. This unsymmetrical properties can be



Fig. VI-14. MEAN BASE TIME AND WAVE BASE

explained from the idea developed earlier that two distinct waves move with two different velocities given in equation VI-8), (VI-9), (VI-10). and (VI-30). Then the cross covariance of  $\hat{h_1}(t)$  and  $\hat{h_2}(t)$  will be

$$\widetilde{C}_{12}(3) = \sum_{j=1}^{n} \frac{\alpha_{j}^{2}}{2} \cos \omega_{j}(3 - \frac{\beta}{2}) + \sum_{j=1}^{m} \frac{b_{j}^{2}}{2} \cos \omega_{j}(3 - \frac{\beta}{2}) - (\Pi - \frac{\beta}{3})$$

$$\hat{C}_{A}(3) = \sum_{j=1}^{n} \frac{\alpha_{j}^{2}}{2} \cos \omega_{j}^{2} (3 - \frac{Q}{C}) - - - (\Pi - 44)$$

$$\hat{C}_{B}(3) = \sum_{j=0}^{m} \frac{b_{j}^{2}}{2} \cos \omega_{j}^{2} (3 - \frac{Q}{C}) - - - (\Pi - 45)$$

The above  $\widetilde{C_A}(\mathcal{J})$  and  $\widetilde{C_B}(\mathcal{J})$  are symmetrical about  $\mathcal{J} = \frac{Q}{C}$ and  $\mathcal{J} = \frac{Q}{C}$ , respectively. But the summation of these two is obvious not symmetrical about  $\mathcal{J} = \frac{Q}{C}$ . In studying the wave velocity, one knows that C' is smaller than C and  $b_j^2$  is also smaller than  $a_j^2$ . Then the typical shape for  $\widetilde{C_{12}}(\mathcal{J})$ will be given as shown in Fig. VI-15.



Fig. VI-15. UNSYMMETRICAL  $\widetilde{C}_{12}$  (J)

The reasons for the normalized maximum values of  $C_{12}(5)$ at 3, being less than 1, might be the loss of identity of some of the small waves, small change in shape of some of the large waves, and different amplifications of different waves as they pass between the two measuring stations. Suppose  $\hat{h}_1(\tau-3, )$  and  $\hat{h}_2(t)$  are normal processes if  $C_{12}(3, ) = 0.0$ , then given a value of  $h_2(t_1)$ , the value of  $h_1(\tau_1-3, )$  will be normally distributed as in Fig. VI-16. The value  $C_{12}(5, ) = 0.5$  and  $C_{12}(5, ) = 0.9$  are also given in the same figure. Hence given a larger value of  $h_2(t)$ at  $t = t_1$ , the probability of having a larger value of  $h_1(t_1 - 3, )$  is higher, if  $C_{12}(5, )$  is larger. Therefore the quantity  $C_{12}(5, )$  represents a measurement of the relative magnitude of  $h_1(t - 3)$  and  $h_2(t)$ .





Fig. VI-16. SCATTER DIAGRAMS OF SAMPLES OF BIVARIATE NORMAL RANDOM VARIABLE

The experimental data of  $\widetilde{C_{12}}(5, )$  for conditions of various flow rates are given in Fig. VI-17. The data show an increasing value with liquid rates in general. The value of  $\widetilde{C_{12}}(5, )$  is around 0.5 - 0.7 for the high liquid rates. This suggests that the large waves move down stream without loss of identity and energy.

Another important paramter which can be obtained from the cross-spectral density function  $\widetilde{S}_{12}(f)$  is called the coherency spectrum  $\widetilde{K}_{12}(f)$  defined as follow:

$$\widehat{\kappa}_{12}(f) = \frac{1 \widehat{S}_{12}(f)!^2}{\widehat{S}_{11}(f) \cdot \widehat{S}_{12}(f)} - - - - - - (\mathbf{X} - 46)$$

The physical meaning of this quantity as suggested by Jenkins (J-2) and Box and Jenkins (B-u), is like a correlation coefficient at each frequency f. Some of the coherency spectral density function are presented in Fig. VI-18. It is clearly indicated that the modal frequency of the spectrum does not correspond to the modal frequency of the coherency spectrum for the low liquid rates. This suggests that only the very low frequency wave components move down stream without losing their identity and energy for the low liquid rates.

#### 3-3. THE EQUILIBRIUM RANGE OF SPECTRUM

An argument similar to Kolmogorov's analysis in turbulence was proposed by Phillips (P-4, P-5) for the



Fig. VI-17. CORRELATION COEFFICIENT AT  $\mathcal{J}_1$ 



Fig. VI-18. COHERENCY SPECTRA

- -

shape of a spectrum of ocean waves. However, the physical mechanism that maintains the equilibrium range in the wave spectrum is completely different from the mechanism found in turbulence. A well developed sea is covered by waves of all possible lengths shorter than some largest . uve length, each one of which is in the state of breaking. Breaking occurs because local accelerations at the sharp crest of the wave exceed the acceleration of gravity and this process that controls the wave shape and thus the spectrum at high frequency. Consequently, the basic hypothesis of Phillips' work is that there exists an equilibrim range of large wave frequencies in the spectrum, determined entirely by the physical parameters (gravity) that govern the continuity of wave surface. Dimensional analysis shows that the equilibrium spectrum has the form

 $\widehat{S}(f) = dc g^2 f^{-5} - - - - - - - - (\underline{x} - 47)$ where  $d_c$  is a constant

There have been numerous efforts trying to verify the above equation by Burling (B-8), Kinsman (K-3), Hess, Hidy and Plate (H-4), Hidy and Plate (H-5, H-6) and Plate (P-8, P-9). Burling's data show a -5.5 power law. Kinsman's data give a -4.5 power law. While Hess, Hidy and Plate's measurements show a very good -5.0 power dependence at high frequencies. On the whole the validity

of the equation (VI-47) appears to be well confirmed. However, some wave spectral data have been obtained showing the -5.0 rule at high frequencies without the appearance of white caps which represent the occurrance of breaking waves. Thus, the breaking process is probably not the only mechanism contributing to a limiting spectral shape. Equilibrium in the high frequency range may also be associated with the appearance of capillary waves. Hicks (H-13) has suggested that the spectrum for "pure" capillary waves, which should depend only on the Kinematic surface tension and frequency, can be described as:

where

 $\widetilde{S}(f) = d_c' \mathcal{F}^3 f^{-\gamma_3} - - - - - - - - (\mathbb{I} - 48)$   $d_c' \text{ is a constant}$   $\mathcal{F} = \frac{\mathcal{O}}{\mathcal{F}}$   $\mathcal{O} \text{ is surface tension}$ 

𝔥 is density

However, no wind wave data have given direct verification for the above  $-\frac{7}{3}$  power law. But the highest frequency of ocean wave spectrum is only about 13 cps, and the frequency range of capillary wave is usually around 10 cps - 100 cps.

In the present studies, the validity of the above two equations for the waves on the falling film will be examined. The data of spectrum slope  $S_{eq}$  was obtained from the log-log plots of spectra given in Chapter IV. Results are tabulated in Table VI-3.

TAELE VI-3. SLOPE OF FILM THICKNESS SPECTRA IN THE HIGH FREQUENCY RANGE.

W <sub>G</sub> (1b/sec)	0.0	0.045	0.0976	0.1436	0.1742
W <sub>L</sub> (lb/sec)		s	ee		<b>6</b>
0.016	-2.94	-3.89	-4.28	-3.89	
0.028	-2.99	-3.60	-3.90	-4.00	-3.67
0.044	-2.77	-3.42	-3.30	-3.67	-3.74
0.08	-2.846	-3.36	-3.86	-3.73	-3.63
0.126	-2.855	-3.48	-3.62	-3.63	-3.67
0.18	-2.846	-3.69	-3.62	-3.89	-3.62
0.24	-2.840	-3.60	-3.80	-3.89	-3.77
0.35	-2.846	-3.69	-3.72	-3.65	-3.64
0.47	-2.846	-3.69	-3.52	-3.79	-3.64
0.585	-2.846	-3.69	-3.42	-3.72	-3.64
1	1				1

The above data for  $S_{eq}$  show approximately a -3.0 power law for no gas flow and a -4.0 power law for gas flow for all liquid flow rates. This result is between the rules described by the above two equations (VI-47) and (VI-48). The reasons for  $S_{eq}$  of falling films not following
Phillips' law or Hicks' law can be summarized as:

- (a) The range of frequencies from which S<sub>eq</sub> was obtained are about 15 cps - 80 cps in the present study. This is the range in which surface tension forces become important.
- (b) The gravitational force acts along the direction of wave propagation. Therefore all sizes of waves are under the influence of gravity. Hence the gravitational force is also important for the capillary waves on the falling film.

One would therefore expect that the result would be some what between -5.0 power law and  $-\frac{7}{3}$  power law. This is actually what is observed. Since both gravity and surface tension are important for the equilibrium subrange of spectrum, one would obtain the following equations by dimensional analysis

 $\tilde{S}(f) = dc'' g^{\frac{1}{2}} + \frac{1}{2} f^{-3}$  for no gao flow - - - (II-49)  $\tilde{S}(f) = dc''' g^{\frac{5}{4}} + \frac{1}{4} f^{-4}$  for no gao flow - - - (II-50)

where  $\chi_c''$  and  $\chi_c'''$  are constants.

## 4. PERIPHERY EFFECT.

The waves on the falling film are considered as a two dimensional motion in most of the theoretical analyses. The velocity of this two dimensional assumption will be tested in this section by the use of the correlation function. Consider two stationary processes  $\hat{h}'_1(x,z_1,\tau)$  and  $\hat{h}'_2(x,z_2,\tau)$  at same location x, but different peripheral positions  $z_1$  and  $z_2$ . The auto-covariance and cross-covariance of  $\hat{h}'_1$  and  $\hat{h}'_2$  are

$$\widetilde{C_{11}}(T) = \langle \widehat{\pi}_{1}^{\prime}(x, Z_{1}, t+T) \widehat{\pi}_{1}^{\prime}(x, Z_{1}, t) \rangle - - - (\Pi - 51)$$

$$\widetilde{C_{12}}(T) = \langle \widehat{\pi}_{2}^{\prime}(x, Z_{2}, t+T) \widehat{\pi}_{1}^{\prime}(x, Z_{2}, t) \rangle - - - (\Pi - 52)$$

$$\widetilde{C_{12}}(T) = \langle \widehat{\pi}_{1}^{\prime}(x, Z_{1}, t+T) \widehat{\pi}_{2}^{\prime}(x, Z_{2}, t) \rangle - - - (\Pi - 53)$$

Suppose  $\hat{h}_1$  and  $\hat{h}_2$  are two-dimensional, i.e. independent of  $\mathbb{Z}$  direction, then

$$\hat{f}_{1}(x, z_{1}, t) = \hat{f}_{2}(x, z_{1}, t) = \hat{f}_{1}(x, t) - - - (II - 54)$$

The relation of auto-covariance and cross-covariance becomes

$$\widetilde{C}_{11}(3) = \widetilde{C}_{22}(3) = \widetilde{C}_{12}(3) - - - - - (\pi - 55)$$

Hence the two-dimensionality of the waves structure can be tested by equation (VI-55).

Four conductivity probes were inserted 90 degree apart around the periphery at each of two locations, B and D.B and D are separated by 1.161 ft. The sketch in Fig. VI-19 identifies particular probe at these two locations.



Fig. VI-19. CONFIGURATION OF THE CONDUCTIVITY PROBE

 $D_2$  and  $B_1$  cells are on the same vertical line. The data of  $\widetilde{C_{11}}(J)$ ,  $\widetilde{C_{22}}(J)$ , and  $\widetilde{C_{12}}(J)$  are given in Figs. VI-20 and VI-21. The results can be summarized as :

(a) Cross-covariance  $\widetilde{C_{12}}(7)$  is approximately same as auto-covariance  $\widetilde{C_{11}}(7)$  and  $\widetilde{C_{22}}(7)$  except in the neighborhood of 3 = 0. This implies that the relative wave structure are two-dimensional, i. e. The waves are approximately a ring wave.

(b) The difference between cross-covariance and autocovariance is probably due to the fact that the small waves are loosing their identity and the shape of the large waves are not identical around the periphery. Hence the large waves are approximately two dimensional and the small waves are probably three dimensional.

(c) A small time shift exists at the peak of  $C_{12}(7)$ , and  $C_{12}(0)$  of  $D_2$ ,  $D_4$  pair is smaller than that of  $D_2$ ,  $D_1$ pair. The above fact shows that a very weak threedimensionality also exists for the large waves.

On the whole, the two dimensional assumption for the large waves is a good approximation. The wave around the periphery can be clearly demonstrated in Fig. VI-22.





86T



FIG. VI-22. WAVE AROUND THE PERIPHERY

5. LENGTH EFFECT

In this section, the effect of length on properties of film thickness and wave structure will be examined. 5-1. FILM PROPERTIES

The mean film thickness  $\langle h \rangle$  measured at various positions along the test section are given in Fig. VI-23. Although the variation of the mean thickness along the length is small, the data show a definite trend which indicates a decrease in



Fig. VI-23. LENGTH EFFECT ON MEAN FILM THICKNESS

the mean film thickness with increasing distance from the inlet except low liquid rates. The second central moments of film thickness  $C_2$  are also plotted in Fig. VI-24. There is an increase in the values of the second moment with length up to 12' and then a decrease in that with length 1. om 12' for no gas flow. This suggests that the waves amplify and then decay. At low liquid rates the data with gas flow show the same trends as without gas flow. At high liquid rates it shows a decrease in the value of moment with length. This indicates that the waves decay along the length. The probability density functions for film thickness at various positions which are given in Chapter IV, show a difficult structure at cell  $C_{\mu}$ .

The modal frequency given in Chapter IV decreases with increasing distance from the inlet. The normalized spectral densities of film thickness given in Chapter IV, are approximately the same for  $D_2$ ,  $B_1$  and  $A_3$  cells. But the spectral density of the film thickness measured at  $C_4$  contains less energy in the low frequency range than that measured at  $D_2$ ,  $B_1$  and  $A_3$  cells. This implies that the large waves coalesce as they move down the length of the tube. 5-2. WAVE FROPERTIES

The effect of length on the wave velocity, amplitude, frequency and the ratio of the length of the wave back to



the wave front is presented in this section.

(i) The wave velocity

The wave velocity calculated from equation (VI-7) at various positions along the tube are plotted in Fig. VI-25. The solid vertical lines represent the position of the probe. The data indicate that the wave velocity increases with the distance from inlet. If the velocity is not a constant value, then equations (VI-3), (VI-4) and (VI-7) need to be modified. Let the wave velocity at position  $x^{(1)}$  and position  $x^{(2)}$  be  $C^{(1)}$  and  $C^{(2)}$  respectively

then equations (VI-1) and (VI-2) become

$$f_{1}'(\tau) = f_{1}'(\tau - \frac{x^{(0)}}{c^{(0)}}) \quad \text{at } x = x^{(0)} - - - - - (\underline{\mathbf{I}} - 56)$$

$$-f_{2}'(\tau) = f_{1}'(\tau - \frac{x^{(0)}}{c^{(0)}}) \quad \text{at } x = x^{(0)} - - - - (\underline{\mathbf{I}} - 57)$$

hence equations (VI-3) and (VI-4) become

$$\widehat{C}_{12}(J) = \widehat{C}_{11}(J + \frac{\chi^{(2)}}{c^{(2)}} - \frac{\chi^{(0)}}{c^{(0)}}) - - - - (II - 58)$$

$$\widehat{S}_{12}(f) = e^{+i2\pi} f(\frac{\chi^{(2)}}{c^{(0)}} - \frac{\chi^{(0)}}{c^{(0)}}) \widehat{S}_{11}(f) - - - (II - 57)$$

The phase spectrum will be

$$\widetilde{\Theta}_{12}(f) = 2\pi f \left( \frac{x^{(2)}}{c^{(2)}} - \frac{x^{(0)}}{c^{(0)}} \right) - - - - (\overline{u} - 6\sigma)$$

Let the conductivity cells,  $C_4$ ,  $A_3$ ,  $B_1$  and  $D_2$  be located at positions  $\chi^{(1)}$ ,  $\chi^{(2)}$ ,  $\chi^{(3)}$  and  $\chi^{(4)}$ , and the wave velocity at those positions are  $C^{(1)}$ ,  $C^{(2)}$ ,  $C^{(3)}$ and  $C^{(4)}$  respectively.



Similarly, the phase spectrum equations will be

$$\widetilde{\Theta}_{23}(f) = 2\pi f \left( \frac{\chi^{(3)}}{C^{(3)}} - \frac{\chi^{(2)}}{C^{(3)}} \right) - - - - (\mathbf{I} - GI)$$

$$\widetilde{\Theta}_{24}(f) = 2\pi f \left( \frac{\chi^{(4)}}{C^{(4)}} - \frac{\chi^{(3)}}{C^{(3)}} \right) - - - - (\mathbf{I} - G2)$$

The above equations (VI-60), (VI-61) and (VI-62) contain four unknowns. If the position  $\chi^{(1)}$  is set to be zero, then the wave velocity can be solved except  $C^{(1)}$ . The values of  $C^{(2)}$ ,  $C^{(3)}$  and  $C^{(4)}$  are also plotted as the short solid horizontal lines in the above Fig. VI-25. On the whole, the assumption of the constant velocity is not a bad approximation except in the neighborhood of the wave inception.

## (ii) The wave amplitude

The length effect on the wave amplitude for the large and small waves are given in Fig. VI-26. and Fig. VI-27. The wave amplitude for the small waves is independent of length except at high liquid rates. This might suggest that the small waves are at an equilibrium state. At high liquid rates the data for wave amplitude of the small wave show considerable scatter. The wave amplitude of the large waves for the case of no gas flow, first grows with the length and then decays. For the case of gas flow, the mean wave amplitude of the large wave decreases with length except at low liquid rates. This indicates that the large waves grows over the distance from the inlet less than 6 ft for



۲, ,



gas flow.

Assuming a linear relation between the four positions, the amplification factor ( or growth rate )  ${\rm A}_{\rm p}$  can be calculated as follows:

The values of  $A_p$  are given in Table VI-4.

TABLE VI-4.	AMPLIFICATION	FACTOR	Ap
-------------	---------------	--------	----

	$W_{\rm G} = 0$	W <sub>G</sub> = 0.0 lb/sec			W <sub>G</sub> = 0.1436 lb/sec		
×(ft)	8.3'	11.45'	13.1'	8.3'	11.45'	13.1'	
W <sub>L</sub> (lb/sec)			– A <sub>P</sub> (1/	inch) x l	0 <sup>3<sup>·</sup></sup>		
0.016	+4.7	-4.28	+11.65	+1.74	-3.36	+6.25	
0.044	+5.63	+1.04	- 8.8	+2.13	+1.14	-27.0	
0.126	+11.1	-0.25	-2.65	-3.91	+2.22	-26.9	
0.24	+12.65	-4.48	-7.85	-0.06	-3.28	-18.4	
0.35	+2.47	-3.81	-0.52	-2.53	-5.02	-17.6	
0.585	+3.7	-7.2	-4.62	-4.76	-6.0	-13.1	

(iii) The wave frequency, wave base and wave separation The wave frequency for both the large waves and small waves: obtained at various positions are given in Fig. VI-28 and Fig. VI-29. The small wave frequency for the case of



Fig. VI-28. FREQUENCY OF THE SMALL WAVES

•

. .



Fig. VI-29. FREQUENCY OF THE LARGE WAVES

. .

• • • • •

no gas flow suggests a small decreasing value with the length. While for the case of gas flow, they are quite constant except at the lowest liquid rates.

The large waves at the condition of no gas flow show a rapidly decreasing frequency with distance from inlet. This suggests wave coalescence. On the other hand, the wave frequency for large waves with gas flow does not show such a trend. This might suggest that the shear due to the gas flow trends to break the large waves and to generate enough new waves on the interface to compensate for those lost by coalescence. The wave base for the small waves and the wave separation for the large waves show the reverse effect of the wave frequency. These are plotted in Fig. VI-30 and Fig. VI-31.

(iv) The ratio of the wave back to the wave front

The ratio of the wave back to the wave front  $\langle T_{bk} \rangle / \langle T_{fn} \rangle$ for both small waves and large waves are given in Figs. VI-32 and VI-33. For the case of no gas flow, there is no definite trend appearing in the data. For the case of gas flow, the data for the small waves show a decreasing value with the length except at the low liquid rates, while the data of the large waves suggest a constant value at each liquid rate.

## 6. WAVE STRUCTURE

The experimental data for the wave parameters as presented in Chapter V and the discussions in the previous section allows







Fig. VI-31. SEPARATION TIME OF THE LARGE WAVES



214

. ...



S

one to summarize the wave structure. Furthermore the relation between the wave structure and the probability density of film thickness will also be explored. 6-1. SUBSTRATE STRUCTURE

In all previous studies the substrate thickness,  $h_s'$ , was defined such that  $\widetilde{P}\{\widehat{h}(t) \in \widehat{h} \in \widehat{F}_s'\} = 0$  and  $\widetilde{P}\{\widehat{h}(t) \in \widehat{h} > \widehat{h}_s'\} \neq 0$ The relation of this  $h_s'$  to the probability density function  $\widetilde{f}(F)$  and the probability distribution are shown as follows:



FIG. VI-34. DEFINITION OF SUBSTRATE IN THE PREVIOUS STUDIES.

The value of h<sub>s</sub>' calculated this way is strongly depending on the probability intervals chosen in the measurement technique. The physical meaning of this assumption is that there is a smooth continuous sublayer of liquid film between two consecutive wave crests. But the data in this study show that there are small waves sitting on the substrate, and the number of small waves are not small as seen from the data in Table VI-5. Hence the above definitions are not suitable.

	W <sub>G</sub> =0.0 lb/sec(in 171 sec)			W <sub>G</sub> =0.14361b/sec(in 180 sec)			
WL (lb/sec)	small wave	small wave on large wave	large wave	small wave	small wave on large wave	large wave	
0.044	1254	486	1423	2940	178,	1402	
0.126	1502	782	1071	2363	397	1634	
0.35	2228	931	1503	2434	647	1903	
						ļ	

TABLE VI-5. NUMBER OF WAVES

The substrate in the present study will be defined as the portion of film thickness,  $h_s$ , which is occupied by small waves under the mean film thickness (h). Since the amplitude of small waves fluctuates within a narrow range, the contribution due to  $h_s(t)$  on the probability density function of h(t) will show a modal peak around the mean value of  $\langle h_s \rangle$ . This relation can be easily demonstrated by Fig. VI-35. It is clear that the probability density function  $\widehat{f(h_s)}$  can be obtained by conditional sampling only the data of  $h_s$ . In order to avoid the above tedious conditional sampling calculation, one can roughly estimate the probability density function  $\widehat{f(h_s)}$  from



Fig. VI-35. WAVE STRUCTURE AND FROBABILITY DENSITY OF FILM THICKNESS

the probability density of film thickness f(h). Since the wave amplitude of the small waves is quite small, its wave slope in the time domain should be quite linear over most of the range. Then the probability density function of  $h_s$  should be approximately symmetrical around  $\langle h_s \rangle$  which is roughly equal to the modal value of f(h). Based on the above assumption, the probability density function of substrate  $f(h_s)$  can be approximately extracted from f(h) by the following procedures.

(a) The probability density function  $\widetilde{f(h)}$  can be represented as the curve a b c d e f g h i j k in Fig. VI-36.



Fig. VI-36. ESTIMATION OF THE PROBABILITY DENSITY FUNCTION OF SUBSTRATE

- (b) Since  $f(h_s)$  is symmetrical about  $\langle h_s \rangle$  in the neighborhood of  $\langle h_s \rangle$  and the  $\langle h_s \rangle$  is approximately equal the modal value e of f(h), then one would obtain the point f, g, h, for the substrate by setting them equal to d, c, b.
- (c) Taking the difference between pairs of (f, f'),
  (g, g') and (h, h'), one would obtain the curve f",
  g", h" for large waves.
- (d) Interpolating the curve f", g", h" to point a, one would obtain the curve b", c", d" and e" for the large waves, and subtracting the above value from b, c, d, e, one obtains the curve b', c', d' and e' for the substrate.
- (e) Hence we decompose the probability density f(h) into two curves. One curve a, b', c', d', e', f', g', h' represent the substrate and another curve a, b", c", d", e", f", g", h", i, j, krepresents the density for large waves. Call the above two curves CV<sub>s</sub> and CV<sub>w</sub> respectively.

From the above separation processes, one would obtain:

$$F_{s} = \int \widehat{cv_{s}} df_{s} - - - - - (II - 64)$$

$$F_{w} = \int \widehat{cv_{w}} df_{s} - - - - (II - 65)$$

$$\widehat{f}(f_{s}) = \widehat{cv_{s}}/F_{s} - - - - (II - 66)$$

$$\frac{f}{f}(t, x) = \frac{c}{v} \sqrt{F_w} - - - - - \frac{c}{2} - \frac{c}{v}$$

where

 $F_s$  = the time fraction occupied by substrate  $F_w$  = the time fraction occupied by large waves  $\widehat{f(h_w)}$  = the probability density function of the film thickness during passage of large waves and the small waves on the large

## waves.

Fut the time fraction  $F_s$  can also obtained from measurement of the wave base of the small waves and the wave separation of the large waves as follows:

$$T_{S} = \sum_{j=1}^{N_{S}} T_{bs_{i}} = N_{S} \cdot \langle T_{bs} \rangle - - - (II - 68)$$

$$T = \sum_{j=1}^{N_{L}} T_{sep_{L}} = N_{L} \cdot \langle T_{sep} \rangle - - - (II - 69)$$

$$F_{S} = \frac{T_{S}}{T} - - - - (II - 69)$$

$$\overline{F}_{W} = 1 - \overline{F}_{S} - \dots - \dots - \dots - (\overline{M} - \overline{N})$$

where

 $T_s$  = total time occupied by substrate  $T_{bsi}$  = the wave base of small waves  $N_s$  = total number of small waves  $T_{sepi}$  = the wave separation of large waves  $N_L$  = total number of large waves

This provides a check for the probability density function of substrate  $\widetilde{f(h_S)}$  obtained from equation (VI-66). The data

of  $F_s$  obtained from both equations (VI-64) and (VI-70) are given in Fig. VI-37. They agree reasonably well except at very low liquid rates. At very low liquid rates the estimation of the normalized  $f(h_s)$  should not have a large error because the density has a very narrow distribution. The mean values of the substrate( $h_s$ ), are plotted with the expected values of( $h_{max}$ ) and( $h_{min}$ ) for the small waves in Fig. VI-38. The data of  $\langle h_s \rangle$  are bounded by  $\langle h_{max} \rangle$  and( $h_{min} \rangle$ , but they are close to the values of  $\langle h_{min} \rangle$  than that of( $h_{max}^{>}$ .

The small waves on the substrate have a very narrow distributions for the probability density of the wave parameters such as amplitude, base, wave front and wave back. Its wave velocity,  $C_s$ , is much lower than that of the large waves. This might suggest that there exist only a single mode of waves on the substrate. The probability density function of the wave maximum and the wave minimum for the small waves have much wider spread than that of wave amplitude. This indicates that although only a single mode of small wave is on the substrate, its relative position from the wall is affected by the large waves which exist in its neighborhood.

6-2. LARGE WAVE STRUCTURE

The relative relation between the large wave parameters  $\langle h_{max} \rangle$ ,  $\langle h_{min} \rangle$  and the mean film thickness  $\langle h \rangle$  are given in



Fig. VI-37. FRACTION OF SUBSTRATE



6-11-

Fig. VI-39. The mean film thickness  $\langle h \rangle$  is well bounded by the mean maximum and the mean minimum of the large waves, and the ratio of  $\langle \langle h_{max} \rangle - \langle h \rangle \rangle to \langle \langle h \rangle - \langle h_{min} \rangle$  are approximately three to four except at very low liquid rates. The wave amplitude of the large waves  $\langle A \rangle$ , two times standard  $\alpha$  viation of the film thickness  $2 \widetilde{\sigma}_{g}$ , and  $2 \widetilde{\sigma}_{W}$  which is obtained from  $\widetilde{f}(h_{W})$  are plotted in Fig. VI-40. The trend of  $2 \widetilde{\sigma}_{h}$  and  $2 \widetilde{\sigma}_{W}$  correspond well to that of  $\langle A \rangle$ . Although the values  $2 \widetilde{\sigma}_{h}$  are smaller than the actual wave amplitude  $\langle A \rangle$ , it is not a bad first approximation for the wave amplitude. Twice the standard deviation has been used in previous studies when the actual data of wave amplitude was not measured.

The histogram function of the large waves presented in Chapter V shows certain trends of the data which will now be examined.

Since the histogram of wave maximum corresponds well to that of wave amplitude, the discussion below will base on the histogram of wave amplitude.

(a) Single mode region

A single modal peak on the wave amplitude histogram shows around A=0.0" - 0.01" for low liquid rates  $W_L = 0.0161$ ~ 0.044 lb/sec. The position of the modal peak decreases with the gas flow. A transition to the condition of a second





rodal peak above 0.01" berins to occur at  $W_L = 0.044$  lb/sec

(b) Double mode region

As the liquid rate increases, a clearly observable double modal peak appears on the histogram. The first modal peak is located in the same range as the single mode peak discussed above. The second modal peak shows in the region  $A = 0.02" \sim 0.04"$ . The range of liquid rate are 0.08 lb/sec  $\sim 0.18$  lb/sec for W<sub>G</sub> = 0.0 and 0.08 lb/sec  $\sim 0.24$  lb/sec. for W<sub>G</sub> = 0.1436. Another transition appears to exist near the highest liquid rate.<sup>14</sup> At this condition, a relatively small peak starts to appear for A=0.04".

(c) Triple mode region

As the liquid rate further increases, another strong modal peak appears at the position about A =  $0.05" \sim 0.06"$ , while the other two peaks remain approximately at the same positions. The range of liquid flow rate is 0.24 lb/sec  $\sim$ 0.35 lb/sec for W<sub>G</sub> = 0.0 lb/sec and 0.35 lb/sec  $\sim 0.47$  lb/sec. for W<sub>G</sub> = 0.1436 lb/sec.

(d) Another double modal region

As the liquid rate increases above 0.35 lb/sec for no gas flow and above 0.47 lb/sec for gas flow the modal peak located about A = 0.02"  $\sim 0.04$ " disappears, and the structure becomes a double modal peak again.

In the time domain, the wave base histogram exhibits

a unique type of distribution. A clearly defined single structure exists. Hence the properties of the base can be well described by the mean value and the variance which are given in Chapter V. On the other hand, the histogram of the wave separation shows quite a different character which will be discussed as follows:

(a) For the case of no gas flow, a modal value appears around the value  $T_{sep} = 0.075$  sec, and a narrow band distribution exists in the neighborhood of this peak value. There also appears two side lobes around this modal peak. The side lobe located below the modal peak suggests a very weak peak exists around  $T_{sep} = 0.035$  sec. The side lobe above the modal peak first increases in width and magnitude with liquid rate until a peak value of  $T_{sep} = 0.15$  sec. Then the spread of this side lobe decreases with liquid rate and the peak disappears.

(b) For the case of gas flow  $W_G = 0.1436$  lb/sec, a single modal peak exists at very low liquid rates. The suggestion of a multiple peak structure emerges for the liquid rates 0.044 lb/sec ~ 0.08 lb/sec. As the liquid rate increases, the spread of the curve decreases and a clearly double modal peak structure is formed for the liquid rates above 0.126 lb/sec.
A very common stochastic processes is the Foisson Frocesses (Random point in time) which occurs in many physical situations. The number of random points K between time  $t_1$  and  $t_2$  are given as Poisson distribution.

 $\widehat{P}\left\{\kappa \ (t_1, t_2)\right\} = e^{-\Im t} \frac{(\Im t)^{\kappa}}{\kappa_1} - - - (\Im - \Im t)$ And the separation time  $T_{sep}$  between the random points are described by the following equation:

 $\hat{f}(\tau_{sep}) = \Im e^{-\Im \tau_{sep}} \cup (\tau_{sep}) - - - - (\Im - \Im)$ where  $\Im$  is the number of Random point per sec.

U(3) is the unit step function. The detailed description of the Foisson Processes and the proof of the equation (VI-72) and (VI-73) is given in Papoulis (P-1). The comparison between equation (VI-73) and the large wave separation distribution are given in Fig. VI-41 and Fig. VI-42. The difference in these figures are expected, because the wave processes possess a finite wave base which is not negligible compared to the wave separation.

In the last chapter, a weak proportionality between the wave maximum and the wave separation was found from the joint histogram of them, and in this chapter,  $T'_{sep}$ which the wave separation between two consecutive large waves with  $h_{max}$  > 24h is much larger than the value of  $T_{sep}$  was also found. In the wave velocity analysis, the





<sup>¢-15 232</sup> 

N

fact that the wave velocity depends on the wave frequency is also established. On the whole the following conclusions are obtained for large waves.

(a) There exists three characteristic wave sizes for the large waves on falling films. In the most range of liquid flow rates, there are only approximately two characteristic wave sizes for the large waves.

(b) The wave with larger amplitude is associated with the larger wave separation. This implies that if a very large wave passes by, the chance to have another very large wave in a short time is very small.

(c) The above suggests that the large waves actually carry most of the mass. Therefore whenever a very large wave occurs, there is not enough mass left to generate another very large wave.

(d) Since the wave frequency is inversely proportional to the wave separation; the larger waves generally move with larger velocity. From the location of a  $\langle h \rangle$  on the wave maximum histogram, it seems that the large waves with the larger characteristics wave size move with the primary velocity C and control the statistical of film thickness such as  $f_m$ ,  $J_m$ .

The above qualitative picture confirms the Krantz and Goren's recent report (k-5) in which a bimodal waves with distinct wave velocities was found by artifical generation of waves.

#### -7. INTERFACIAL SHEAR STRESS DUE TO WAVES

The first study of the interactions between gas and liquid on the falling film was done by Wicks (W-4) in this laboratory. He found that there must exist a form drag on the wave in order to predict the air flow rate based on the smooth film model. He obtained an indirect estimate of the drag coefficent. The direct measurement of this form drag presents a very difficult problem even for ocean waves and 'laboratory wind waves. In this section, the form drag is extracted from the simultaneous measurement of pressure fluctuation and film thickess on falling film.

#### 7-1. WAVE STRESS ANALYSIS

The X direction component of the force per unit area exerted on an instantaneous wave is

where  $\frac{\overline{F_{X}(\tau)}}{A_{L}} = \frac{1}{2L} \int_{L}^{\tau L} p(x, \tau, \tau) \frac{\partial F_{L}(x, \tau)}{\partial x} dx - - (\overline{u} - \tau 4)$   $A_{L}$  is projected wave area on x - coordinate  $2_{T_{L}}$  is wave length

 $P(x, \pi, t)$  is surface pressure on wave. From the equation, one can evaluate the time average form drag around the waves.

$$J_{FD} = \left\langle \frac{F_{x}(t)}{A_{L}} \right\rangle$$
  
=  $\lim_{T \to \infty} \frac{1}{2T} \int_{-T}^{TT} \frac{1}{2L} \int_{-L}^{+L} F(x, F, t) \frac{dF(x, t)}{dx} dx dt - - (II-II5)$ 

Interchange the integration and equation becomes

$$J_{FD} = \frac{1}{2L} \int_{-L}^{+L} \left\{ \frac{\mathcal{L}_{im}}{T_{\to\infty}} \frac{1}{2T} \int_{-T}^{+T} P(x, T, T) \frac{df_i(x, L)}{dx} dt \right\} dx - - - (\underline{x} - 1 - 16)$$

Assuming the waves are moving without changing shape at constant velocity C, then the independent variable  $\propto$ and t will reduce only to t, and the equation becomes

$$J_{Fb} = \left(-\frac{L}{c}\right) \left\{ \begin{array}{c} \mathcal{R}_{m} \\ T \end{array} \right\}_{T} \int_{T} \left[ P\left(\mathcal{R}_{T} \right) \frac{d\mathcal{R}_{T}(t)}{dt} \right]_{T} - - - \left( \underline{\mathcal{U}} - \underline{\mathcal{U}}_{T}\right) \right]_{T}$$

If the simultaneous time series p(h,t) and  $\frac{d h(t)}{dt}$  are available, the above equation provides the information on the form drag around the waves. Since the available time series is h(t) instead of  $\frac{dt}{dt}$ , the differentiation of time series will usually introduce a large error. Let  $-\dot{K}(t) = \frac{dK(t)}{dt}$ , then the equation (VI-77) is actually a crosscorrelation between  $\dot{h}(t)$  and p(h,t) at time lag zero.

$$\Im_{FD} = -\frac{1}{L} \stackrel{\sim}{R}_{p \ddagger} (o) - - - - - (37-12)$$

·but

$$\hat{R}_{p\hat{R}}(0) = -\frac{d\hat{R}_{p\hat{R}}(0)}{dJ} = -\frac{d\hat{C}_{p\hat{R}}(0)}{dJ} - -(\underline{I} - \underline{I} - \underline{I} - \underline{I})$$

The proof of equation (VI-79) is given in Fapoulis (P-1). Substitute equations (VI-79), (IV-23) and (IV-25) into equation (VT-78) to obtain

 $J_{FD} = -\frac{2\pi}{c} \int_{\infty}^{+\infty} f \widehat{Q}_{p\pi}(f) df - - - - (\pi - 80)$ where  $\widetilde{Q}_{p\pi}(f)$  is quadrature spectrum of p(h,t) and h(t)

Since the liquid film is so thin, it is very plausible to assume that the wall pressure p(0, t) is identical to the pressure on the wave surface. But in order to make sure of the above assumption the following calculation is made. Consider y-direction momentum equation (II-3) and assume waves are moving at constant velocity C, then integrate the equation from y = 0 to y = h

$$P(T,T) = P(T,0) + S \int_{0}^{T} \left(\frac{U}{c^{2}} - i\right) V_{z} dy - S \int_{0}^{T} V_{z} \frac{\partial V}{\partial y} dy - \frac{1}{2} - \frac{1}{2} - \frac{1}{2} \int_{0}^{T} \left(-\frac{1}{c^{2}} - \frac{\partial^{2} V}{\partial x^{2}} + \frac{\partial^{2} V}{\partial y^{2}}\right) dy - \frac{1}{2} - \frac{1}$$

A preliminary test by given a wave shape h(t) and various velocity profile shows that the viscous terms

$$p(t, h) = p(t, 0) + S \int_{0}^{h} \left( \frac{U}{C} - 1 \right) U_{t} dy - \frac{P U^{2}(t, h)}{2} - - - (II - 82)$$

Make a Taylor series expansion of U and  $V_t$  about y = h

$$U_{\tau}(\tau_{j}, \tau_{j}) = U_{\tau}(\tau_{j}, \tau_{j}) + U_{\tau_{j}}(\tau_{j}, \tau_{j}) + (\tau_{j} - \tau_{j}) + \cdots - (\Pi - 83)$$
$$U_{\tau_{j}}(\tau_{j}, \tau_{j}) = U_{\tau}(\tau_{j}, \tau_{j}) + U_{\tau_{j}}(\tau_{j}, \tau_{j}) \cdot (\tau_{j} - \tau_{j}) + \cdots - (\Pi - 84)$$

and retain only the first term

$$P(t, h) = P(t, 0) + g\left(\frac{u(t, h)}{c} - 1\right) U_{t}(t, h) h - g \frac{u'(t, h)}{2} - - - (g - g - g)$$

From the kinematic condition and assuming u(1, f) is small the equation becomes

$$(t, \pi) = (t, 0) - g\left(1 - \frac{u(t, \pi)}{c}\right)^{2} \frac{d^{2}\pi}{dt^{2}} \pi - \frac{g}{2} \left\{1 - \frac{u(t, \pi)}{c}\right\}^{2} \left(\frac{d\pi}{dt}\right)^{2} - - (\pi - 8\epsilon)$$

Now let assume u(t,h) is a very weak function of t and h such that  $u(t,h) \simeq \text{const.}$ 

Hence

$$\frac{1}{T \to \infty} \frac{1}{T} \int_{-T}^{+T} P(\tau, \overline{h}) \frac{d\overline{h}}{d\tau} d\tau = P_A - \left\{ i - \frac{u(\tau, \overline{t})}{C} \right\}^2 P_B - \left\{ i - \frac{u(\tau, \overline{t})}{C} \right\}^2 P_c - - (\overline{\tau} - \varepsilon \tau)$$

where

$$P_{A} = \lim_{T \to \infty} \frac{1}{2T} \int_{-T}^{+T} P(t,t_{1}) \frac{dt_{1}}{dt} dt.$$

$$P_{B} = \lim_{T \to \infty} \frac{1}{2T} \int_{-T}^{+T} \frac{d^{2}L}{dt^{2}} f_{1} \frac{df_{1}}{dt} dt.$$

$$P_{c} = \lim_{T \to \infty} \frac{1}{2T} \int_{-T}^{+T} \left(\frac{dL}{dt}\right)^{2} \frac{dt_{1}}{dt} dt.$$

A direct calculation of terms  $P_A$ ,  $P_B$  and  $P_C$  from time series p(t,0) and h(t) shows that  $P_A$  terms is much greater than terms  $P_B$  and  $P_C$ . Typical values of  $P_A$ ,  $P_B$ and  $P_C$  are given in Table VI-6.

## TAPLE VI-6. COMTAPISON OF VARIOUS TERM IN FORM LEAG AT $W_{G} = 0.1436$

M <sub>L</sub> (lb/sec)	PA	P <sub>P</sub>	P <sub>C</sub>
0.126	-0.246x10 <sup>-1</sup>	-0.25x10 <sup>-2</sup>	+0.734x10-3
0.24	$-0.347 \times 10^{-1}$	-0.68x10 <sup>-2</sup>	+0.163x10 <sup>-2</sup>
0.35	-0.603x10 <sup>-1</sup>	-0.11x10 <sup>-1</sup>	+0.22x10 <sup>-2</sup>

Furthermore the value (  $1 - \frac{U(t,2)}{C}$  is much less than 1. Therefore one can say

$$\lim_{T\to\infty} \frac{1}{2T} \int_{-T}^{+T} P(t, t) \frac{dt}{dt} dt = \lim_{T\to\infty} \frac{1}{2T} \int_{-T}^{+T} P(t, 0) \frac{dt}{dt} dt = --(\underline{X} - 88)$$

Hence the quardrature spectrum  $\widetilde{Q}_{P-\mathcal{R}}$  can be approximated from the wall pressure p(t,0) and film thickness h(t).

#### 7-2. WAVE STRESS DATA AND DRAG COEFFICIENT

The drag coefficient of the wave is defined as:

where  $C_{D} = \frac{J_{FD} A_{W}}{A_{P} f_{A} M_{V}^{2}} - (M - 89)$   $A_{W} \text{ is projected area of wave on the y-plane}$   $\pi D \langle X \rangle$   $A_{P} \text{ is projected area of wave on the x-plane}$   $\pi D \langle A \rangle$   $U_{R} \text{ is the relative velocity of gas phase to}$ wave at interface  $U_{C} - C$ .

### $\gamma_{\mathbf{Q}}$ is the density of the gas

In the above equation, the values of  $\langle \rangle \rangle$  and  $\langle A \rangle$ are obtained from the characteristic wave length and the characteristic wave amplitude of the large waves. Since the gas phase Reynolds number is very high, it is reasonable to use the average gas velocity for U<sub>G</sub>. The equation (VI-90) becomes

$$C_{D} = \frac{J_{FD}}{\langle A \rangle} \cdot \frac{g_{e} (U_{e} - C)^{2}}{2g_{c}} - - - \langle \mathbf{I} - 90 \rangle$$

The values of wall stress  $\mathcal{J}_{w}$  from pressure drop, form drag  $\mathcal{J}_{FD}$  from equation (VI-80) and drag coefficient  $C_{D}$  from equation (VI-90) are given in Table VI-7.

The data show that the form drag is only 2.0-4.0% of the wall stress. It is obvious that the form drag will not affect the mean velocity profile in the gas phase too much. The present data of the drag coefficient is about the same order magnitude. As that of Wicks' work. But lack of data for  $\langle A \rangle$  and  $\langle \rangle \rangle$  in Wicks' work lead him to assume  $\langle A \rangle / \langle \rangle \rangle = 1$ , the measurement in this study shows the value of  $\langle A \rangle / \langle \rangle \rangle = 0.002 - 0.004$ . Hence the drag coefficient obtained by this study will be two order magnitude smaller than that of Wicks' study provided the same value of  $\langle A \rangle / \langle \rangle \rangle$  was used.

There are two possible reasons for the above inconsistence between Wicks' estimations and the experimental

W <sub>G</sub> (lh/sec)	WL (lb/sec)	$J_{W} = \frac{1}{4} \frac{dP}{dL}$ (1bf/ft <sup>2</sup> )	J <sub>FD</sub> (lbf/ft <sup>2</sup> )	]=p/3** (%)	с <sub>р</sub>
0.0976	0.24	0.0752	0.0018	2.4	0.176
	0.35	0.0985	0.00254	2.58	0.26
	0.585	0.142	0.00217	1.53	0.20
0.1436	0.126	0.111	0.00259	2.33	0.156
	0.24	0.152	0.00436	2.87	0.232
	0.35	0.176	0.0068	3.86	0.332
	0.585	0.249	0.00798	3.21	0.356
0.1742	0.126	0.182	0.00372	2.05	0.197
	0.24	0.249	0.00548	2.20	0.232
	0.35	0.273	0.00714	2.61	0.252
	0.585	0.380	0.00934	2.46	0.310

•

TAPLE VI-7. WALL STRESS, FORM DRAG AND DRAG COEFFICIENT

.

data in this study.

(a) The validity of the velocity profile in Wick's work

Wicks integrated Dukler's turbulent velocity profile from the wall to the liquid interface to obtain the interface velocity  $U_1$  and the interface shear  $J_{i_1}$ . Assuming various  $J_{i_1}$  at interface, he integrated the velocity profile for the gas phase to match the known gas flow rate by using  $U_1$  as gas velocity at interface. Then the form drag will be

(b) The content of information from the wall pressure fluctuation

A similar technique used in this study was recently used

By Dobson (D-1) to measure the drag of wind waves. The other measurements of wave drag of the ocean wave and the laboratory wind wave were obtained from the velocity profile of the wind above the wave such as Plate, Chang, and Hidy (P-8), Chang, Plate and Hidy (C-2), Wu (W-8) and stewart (S-6). The value of the drag coefficient from their reports is close to the value obtained from this study, but none of their data showed the high drag coefficient as Wicks' work. There is much spectulation about wind-wave interactions. One of the most interesting works was done by Wu (W-6, W-7, W-9). He proposed that there exists a region such that the air separation from waves is developed due to the form drag provided by small capillary waves rather than large gravity waves. In this region, the small capillary waves move much slower than the large waves. Hence the slope of the small waves is much steeper than that of the large waves. Therefore many of small air separations will occur on the lee of small waves. This is also the case of falling film in which the value of  $\langle A \rangle \langle \lambda \rangle$  for small waves is around 0.03 - 0.07 and for large waves is around 0.003 - 0.004. Furthermore the number of small waves is 1.5 - 2 times the number of large waves from

the wave traces. But the small waves are strongly three dimensional, and the large waves are strongly two dimensional. Therefore the ratio of the number of the small waves to that of the large waves per unit area will be around 5 - 8. Unfortunately the pressure sensor used in this study was unable to pick up all the pressure fluctuation due to the small waves. This can be easily seen from the energy contain of the  $\widetilde{\Theta}_{PL}(f)$ in the frequency range of the small waves. The complete picture of gas-liquid interaction can only be obtained if the simultaneous measurement of the gas velocity field is available.

#### CHAPTER VII

#### THEORETICAL CONSIDERATIONS

#### 1. <u>INTRODUCTI</u>CN

In the preceeding three chapters, data describing the the characteristic on the falling film with and without gas flow show that the process is indeed a stochastic one. But earlier theoretical work described in Chapter III assumed a deterministic analysis except for Telles' model.

Any attempt to predict complete characteristics of the falling film is doomed to failure from this evidence. The stochastics approach recommended in this chapter is only one possible way to practically predict ibehavior of such a complicated system. The goal of these approaches is to give a more fundamental understanding and to provide an extension of the stochastic approach to this complex wavy flow.

#### 2. RANDOM WAVE MODEL

In general the linear and non-linear theories of the wavy liquid film discussed in Chapter III, considered the wave motion as:

 $Th(t) = A \sin 2\pi f_1 t - - - - - - (\underline{\pi}_1 - 1)$ under the above consideration, the spectral density function and the auto-correlation function will be:

$$\hat{S}(f) = A^2 S (f - f_1) - - - - - - - (m - 3)$$

$$\hat{R}(J) = A^2 \cos_2 \pi f_1 J - - - - - - - - (m - 3)$$

The delta function for the spectrum and the cosine function for the correlation as shown above are not observed from the e.perimental data.

In 1959, Tick (T-4) proposed a random model for gravity waves on the ocean. The main concept of this model is that a stochastic input is given to the velocity field and this is used to find the spectral density function of the free surface. A summary of Tick's method is given in Appendix E. A similar principle will be used here for falling films to obtain a non-delta function spectrum for the wave surface h(t).

#### 2-1. FORMULATION OF THE PROBLEM

For two dimensional flow of an incompressible fluid, the Nusselt equation is assumed to describe the primary flow. Refer to Fig. VII-1.

 $g_{3} + 2 \frac{dU_{i}^{2}}{dy} = 0 - - - - - - - (II-4)$ 

The boundary conditions are

$$U_1 = 0$$
 or  $y_1 = h_0 - - - - - (\overline{y_1} - 5)$ 

$$\frac{dU_i}{dy} = 0 \qquad \text{at } y_i = f_i - - - - (\overline{XI} - 6)$$



. This undisturbed primary flow will give the parabolic velocity profile and the mean velocity as:

$$U_{n}(y) = \frac{2\pi}{2y} (\pi^{2}_{n} - y^{2}_{n}) - - - - (m - 7)
 U_{n} = \frac{2\pi^{2}_{n}}{3y} - - - - (m - 8)
 F_{n} \text{ is the mean film thickness}$$

where

 $\mathbf{U}_{o}$  is the mean velocity

Furthermore if one defines the Reynolds number and Froude number as follow:

$$R_{e} = \frac{4U_{o}f_{o}}{\nu} - - - (II-9)$$

$$F_{r} = \frac{U_{o}}{(qf_{o})^{V_{s}}} - - - - (II-10)$$

The primary flow will give

$$12 F_r^2 = R_e - - - - - - - - - - - - (\underline{W}_r - 11)$$

Now consider the disturbed flow field as described by the following set of equations and boundary conditions.

$$\frac{\partial u_{1}}{\partial x_{1}} + u_{1} \frac{\partial v_{1}}{\partial x_{1}} + v_{1} \frac{\partial v_{1}}{\partial u_{1}} = -\frac{1}{1} \frac{\partial p_{1}}{\partial p_{1}} + v_{1} \left(\frac{\partial v_{1}}{\partial x_{1}} + \frac{\partial v_{1}}{\partial u_{1}}\right) + ---\left(\overline{u_{1}}-12\right)$$

The no-slip boundary condition at solid wall gives  $u_1 = 0$   $v_1 = 0$  $v_2 = \pi$ .  $- - - - - (\underline{III} - 13)$ 

The stress and kinematic boundary conditions at free surface are

$$\begin{array}{c} \frac{\partial v_{i}}{\partial x_{i}} + \frac{\partial v_{i}}{\partial y_{i}} = 0 \\ - P_{i} + 2M \frac{\partial v_{i}}{\partial y_{i}} + C \frac{\partial x_{i}}{\partial x_{i}} = 0 \\ \frac{\partial x_{i}}{\partial x_{i}} + \frac{\partial y_{i}}{\partial x_{i}} = 0 \end{array} \right\} \quad \text{or} \quad J = F - - - - (II - 14)$$

The following three manipulations will be done on the above equations and boundary conditions.

(a) Introduce dimensionless groups

 $(u, v, v) = (u, v, v, v, v) / v_{0}$   $(x, y, v) = (x, y, v) / k_{0}$   $P = P / g v_{0}^{2}$   $\tau = \tau_{1} v_{0} / k_{0}$ 

(b) Define the perturbation quantities for the primary flow field

$$\begin{array}{c} u = \nabla (\mathcal{X}) + u' \\ \nabla = \nabla' \\ P = P' \end{array} \end{array}$$

(c) Introduce the stream function

$$u' = \Psi_{z} \qquad \Big\} - - - - (\overline{M} - 17)$$

$$v' = -\Psi_{x} \qquad \Big\}$$

By substituting equations (VII-4), (VII-5), (VII-6), (VII-11), (VII-15), (VII-16) and (VII-17) into equations (VII-12), (VII-13) and (VII-14), one obtains

$$\psi_{3x} + (\upsilon + \psi_{3}) \psi_{3x} - (\upsilon_{3} + \psi_{3y}) \psi_{x} = -p'_{x} + \frac{4}{k_{e}} (\psi_{3xx} + \psi_{3y}) \\ - \psi_{xt} - (\upsilon + \psi_{3}) \psi_{xx} + \psi_{x} \psi_{xy} = -p'_{y} - \frac{4}{k_{e}} (\psi_{xxx} + \psi_{xyy}) \\ \end{bmatrix} - - - (\Xi - 18)$$

Boundary conditions

$$\Psi_{z=0}$$
 }  $T_{z=1} - - - - - (\underline{T}_{-19})$   
 $\Psi_{x=0}$ 

$$\begin{array}{c}
 & U_{3} + \Psi_{3} - \Psi_{xx} = 0 \\
- P' - \frac{8}{Re} \Psi_{xy} + \frac{1}{Ke} \eta_{xx} = 0 \\
\eta_{\pm} + (U + \Psi_{3}) \eta_{x} + \Psi_{x} = 0
\end{array}$$

where  $W_e = \frac{\Gamma h_o U_o^2}{\sigma}$  is a surface tension parameter called Weber number.

The above equations present two difficulties; one is that the motion is unsteady, the other one is that the free surface boundary condition is evaluated at the unknown surface  $i_i$ . In order to avoid the above difficulties, the following steps are taken:

(a) Assuming the motion is the form of a progressing wave.

$$\begin{array}{c}
\Psi'(x, y, t) = \Psi(t - \frac{z}{c}, y) \\
P'(x, y, t) = P'(t - \frac{z}{c}, y) \\
\eta(x, t) = \eta(t - \frac{z}{c})
\end{array}$$

A time scale is used instead of the usual length scale so that the final form of the spectrum of  $\eta$  is deduced in frequency space rather than in wave number space.

(b) Make the Taylor expansion about y = 0 on the following variables:

$$\Psi(t, 3) = \Psi(t, 0) + \Psi_{3}(t, 0) 3 + \Psi_{33}(0) \frac{3^{2}}{2^{2}} + \dots$$

$$\Psi(t, 3) = P'(t, 0) + P'_{3}(t, 0) 3 + P'_{33}(t, 0) \frac{3^{2}}{2^{2}} + \dots$$

$$\int (II-22)$$

Substitute equation (VII-21) into equations (VII-18), (VII-19) and (VII-20), and also substitute equation (VII-22) into equation (VII-20). Furthermore the assumption that the surface velocity dominates the motion, first suggested by Anshus (A-2, A-3) is also applied to the basic equation (VII-18). This enables one to use  $\mathbf{U}(0)$  and  $\mathbf{U}_{y}(0)$  instead of  $\mathbf{U}(y)$  and  $\mathbf{U}_{y}(y)$ . Hence the above set of equations and boundary conditions become

$$\frac{1}{C} P_{L}' + \frac{4}{k_{c}} \left\{ \frac{1}{C^{2}} \Psi_{3\tau L} + \Psi_{3\gamma\gamma\gamma} \right\} + \left\{ \frac{3}{2} \frac{1}{C} - 1 \right\} \Psi_{3L}$$

$$= \frac{1}{C} \left\{ \Psi_{3\tau\gamma} \Psi_{\tau} - \Psi_{3\tau} \Psi_{3\tau} \right\}$$

$$= \frac{1}{C} \left\{ \Psi_{\tau\gamma\gamma} \Psi_{\tau} - \Psi_{3\tau} \Psi_{3\tau} \right\}$$

$$= \frac{1}{C^{2}} \left\{ \Psi_{\tau} \Psi_{\tau\gamma\gamma} + \Psi_{\tau\gamma\gamma} \right\} + \frac{1}{C} \left\{ \frac{3}{2} \frac{1}{C} - 1 \right\} \Psi_{\tau\tau}$$

$$= \frac{1}{C^{2}} \left\{ \Psi_{\tau} \Psi_{\tau\gamma\gamma} - \Psi_{\tau\gamma} \Psi_{\tau\tau} \right\}$$

.

And the boundary conditions are

•

The above equations and boundary conditions are written in such form that the linear terms are on the left hand side and the nonlinear terms are on the right hand side. 2-2. SOLUTION OF THE LINEAR EQUATION

Separate the solution in the manner similar to Tick

$$\mathcal{N}(t) = \mathcal{N}_{(1)}(t, \beta) + \mathcal{N}_{(2)}(t, \beta) + \mathcal$$

where the quantities  $\psi^{-(1)}$ ,  $p^{(1)}$  and  $\chi^{(1)}$  are solutions of the linear part of the above equations (VII-23), (VII-24), and (VII-25). The quantities  $\psi^{-(2)}$ ,  $p^{(2)}$  and  $\chi^{(2)}$  are the small correction on the linear part of solutions due to the nonlinear terms.

Consider only the linear part of the equations (VII-23), (VII-24) and (VII-25). The equations become

$$-\frac{R_{c}}{4} C P_{1}^{(0)} + \frac{1}{C^{2}} \Psi_{111}^{(0)} + \Psi_{13}^{(0)} + \frac{R_{c}}{4} (\frac{3}{2} \frac{1}{C} - 1) \Psi_{31}^{(0)} = 0 - - - (II - 27)$$

$$-\frac{R_{c}}{4} C P_{1}^{(0)} + \frac{1}{C^{2}} \Psi_{111}^{(0)} + \Psi_{13}^{(0)} + \frac{R_{c}}{4} (\frac{3}{2} \frac{1}{C} - 1) \Psi_{11}^{(0)} = 0 - - - (II - 28)$$

The boundary conditions are:

$$\Psi_{\tau}^{(0)} = 0$$
 }  $\nabla_{\tau} \gamma = 1$    
  $\Psi_{\tau}^{(0)} = 0$  }  $\nabla_{\tau} \gamma = 1$    
  $\nabla_{\tau} \gamma = 1$    
  $\nabla_{\tau} \gamma = 0$  ...  $\nabla_{\tau} \gamma = 1$    
  $\nabla_{\tau} \gamma = 0$  ...  $\nabla_{\tau} \gamma = 0$  .

Eliminating the variables  $P^{(1)}$  and  $\gamma_{1}^{(1)}$  in the above equations (VII-27) through (VII-33), one obtains

$$\left(\Psi_{337}^{(0)}+\frac{2}{C^{2}}\Psi_{er37}^{(0)}+\frac{1}{C^{4}}\Psi_{errE}^{(0)}+\frac{R_{e}}{4}\left(\frac{3}{2}\frac{1}{C}-1\right)\right)$$

$$\left(\Psi_{337}^{(0)}+\frac{1}{C^{2}}\Psi_{errE}^{(0)}\right)+\frac{3}{4}\frac{R_{e}}{C}\Psi_{E}^{(0)}=0 ---\left(\Pi-34\right)$$

The boundary conditions are:

١

$$\Psi_{t}^{(0)} = 0 \qquad \begin{cases} ---- & --- & (II - 35) \\ \alpha & \gamma = 1 \\ --- & --- & (II - 36) \end{cases}$$

and

Now let  $\psi^{(1)}$  be a stochastic process, thus the generalized Fourier Transform of  $\psi^{(1)}$  exists and the form  $\hat{\psi}^{(1)}$  can be expressed as:

$$\hat{\Psi}^{(1)}(t,\gamma) = \int_{0}^{\infty} e^{+i\omega t} d\hat{G}_{1}(\omega,\gamma) - - - - (\Pi - 39)$$

where  $\omega = \frac{2\pi f_{R}}{U_{o}}$  is a dimensionless angular frequency.

By substituting equation (VII-39) into equation (VII-34), the basic equation becomes a fourth order ordinary differential equation in y at given  $\omega$  as:

$$(D_1^4 + K_1 D_1^2 + K_2) dG_1(w, y) = 0 - - - - (D - 40)$$

where

$$D_{1} = \frac{\partial}{\partial y_{-}}$$

$$K_{1} = i \frac{R_{0}}{4} \left(\frac{3}{2} \frac{1}{c} - 1\right) - 2 \frac{\omega^{2}}{c^{2}}$$

$$K_{2} = \frac{\omega^{4}}{c^{4}} - i \frac{R_{0}}{4} \left(\frac{3}{2} \frac{1}{c} - 1\right) + i 3 \frac{R_{0}}{4} \frac{\omega}{c}$$

The form of the solution  $dG_1(\omega,y)$  can be written as:

$$d\hat{q}_{1}(\omega,\gamma) = e^{\alpha_{1}\gamma_{-}}d\hat{A}_{1}(\omega) + e^{\alpha_{2}\gamma_{-}}d\hat{A}_{2}(\omega) + e^{\alpha_{3}\gamma_{-}}d\hat{A}_{3}(\omega) + e^{\alpha_{4}\gamma_{-}}d\hat{A}_{4}(\omega) - - - - - - - - (II-41)$$

where

$$Q_{1}(\omega) = \left(\frac{-K_{1} + \sqrt{K_{1}^{2} - 4K_{2}}}{2}\right)$$

$$Q_{2}(\omega) = \left(\frac{-K_{1} - \sqrt{K_{1}^{2} - 4K_{2}}}{2}\right)$$

$$Q_{3}(\omega) = -\left(\frac{-K_{1} + \sqrt{K_{1}^{2} - 4K_{2}}}{2}\right)^{X_{2}}$$

$$Q_{4}(w) = -\left(\frac{-K_{1} - \sqrt{K_{1}^{2} - 4K_{2}}}{2}\right)^{2}$$

.

By substituting equations (VII-39) and (VII-41) into the boundary conditions (VII-35), (VII-36), and (VII-37), one can solve the quantities  $dA_1(\omega)$ ,  $dA_2(\omega)$  and  $dA_3(\omega)$  in terms  $dA_4(\omega)$  as:

$$d\hat{G}_{1}(\omega,\gamma) = F^{(1)}(R_{e},C,\omega,\gamma) d\hat{G}(\omega) - - - - (101-42)$$

where

$$\begin{split} d\hat{q}(\omega) &= d\hat{A}_{q}(\omega) \\ & \overline{F}^{(i)}(\varrho_{c}, c, \omega, \gamma) = \overline{Fl}_{3} e^{\alpha_{i}Y_{+}} \overline{FL}_{2} e^{\alpha_{2}Y_{+}} \overline{FL}_{1} e^{\alpha_{3}Y_{+}} e^{\alpha_{4}Y_{+}} \\ \overline{FL}_{1}(\alpha_{i}, \alpha_{i}, \alpha_{3}, \alpha_{4}, \omega) &= -\overline{FD}(\alpha_{4}, \omega) / \overline{FD}(\alpha_{3}, \omega) \\ \overline{FL}_{2}(\alpha_{i}, \alpha_{i}, \alpha_{3}, \alpha_{4}, \omega) &= \left\{ -\overline{FB}(\alpha_{3}, \omega) \cdot \overline{FL}_{1} - \overline{FB}(\alpha_{4}, \omega) \right\} \\ & / \overline{FB}(\alpha_{2}, \omega) \\ \overline{FB}(\alpha_{2}, \omega) \\ \overline{FL}_{3}(\alpha_{i}, \alpha_{i}, \alpha_{3}, \alpha_{4}, \omega) &= \left\{ -\overline{FL}_{1} e^{\alpha_{3}} - \overline{FL}_{2} e^{\alpha_{2}} - e^{\alpha_{4}} \right\} e^{-\alpha_{1}} \\ \overline{FA}(\alpha_{j}, \omega) &= i \left\{ 3 \frac{\omega}{c} + \left( \frac{3}{2} \frac{1}{c} - 1 \right) \omega \alpha_{j}^{2} + \left( \frac{3}{2} \frac{1}{c} - 1 \right) \frac{\omega^{3}}{c^{2}} \right\} \quad j = i_{j} 2_{j} 3_{j} 4 \\ \overline{FB}(\alpha_{j}, \omega) &= (\alpha_{i} - \alpha_{j}) e^{\alpha_{j}} \qquad j = 2_{j} 3_{j} 4 \\ \overline{FD}(\alpha_{j}, \omega) &= \overline{FA}(\alpha_{i}, \omega) \overline{FB}(\alpha_{j}, \omega) - \overline{FB}(\alpha_{2}, \omega) \overline{FC}(\alpha_{j}, \omega) \\ y &= 2_{j} 3_{j} 4 \end{split}$$

Hence the linear part of stream function will be

$$\hat{\psi}_{n}(t,\lambda) = \int_{+\infty}^{+\infty} e^{+i\omega t} E_{n}(e^{-i\omega \lambda}) q_{n}(m) - - (21-13)$$

Substituting the above equation (VII-43) into the last boundary condition (VII-38), one obtains the closure for the wave velocity C.

The linear solution for the surface  $\eta$  can be obtained from equation (VII-31) as:

$$\hat{\gamma}^{(i)}(t) = \int_{-\infty}^{+\infty} e^{+i\omega t} H^{(i)}(R_{e_j}, C_j, \omega) dG(\omega) - - - - (\underline{\mathbf{I}} - 45)$$

where

$$H^{(1)}(Re, C, \omega) = \frac{1}{3} \left\{ F_{33}^{(0)}(Re, C, \omega, o) + \frac{\omega^2}{C^2} F^{(0)}(Re, C, \omega, o) \right\}$$

2-3. SPECTRAL DENSITY FUNCTION OF  $\gamma^{(1)}(t)$ 

In the above section, the random process  $dG(\omega)$  is the differential of one dimensional random process of uncorrelated increments which have the properties.

$$\langle d\hat{q}(\omega_1) d\hat{q}(\omega_2) \rangle = \begin{cases} 2\pi \hat{S}(\omega) d\omega & if \quad \omega = \omega_1 = \omega_2 \\ & - - - (\underline{u} - 46) \end{cases}$$

By the definition, the auto-correlation of  $\hat{\eta}^{(1)}(t)$  will be

$$\widehat{R}^{(1)}(3) = \langle \eta^{(1)}(1+3)\eta^{(1)}(1+3) - - - - - - (31-47) \rangle$$

and, it is also related to the spectrum of  $\hat{\gamma}^{(1)}(t)$  by

$$\tilde{R}^{(1)}(\tilde{J}) = \frac{1}{2\pi} \int_{-\infty}^{+\infty} e^{+i\omega \tilde{J}} \tilde{S}^{(1)}(\omega) d\omega - - - - (MI - 48)$$

Substituting equations (VII-45) and (VII-46) into equation (VII-47), one obtains the auto-correlation as

$$\widehat{R}^{(1)}(3) = 2\pi \int_{-\infty}^{\infty} e^{i\omega 3} H^{(1)}(R_{e}, C, \omega) H^{(1)}(R_{e}, C, \omega) \widehat{S}(\omega) d\omega - - - (\Pi - 49)$$

By comparing equation (VII-49) with equation (VII-48), the spectrum of  $\hat{\eta}^{(1)}(t)$  is seen to be

$$\widetilde{S}^{(1)}(\omega) = (2\pi)^{*} H^{(1)}(R_{e_{j}}C_{j}\omega) H^{(1)}(R_{e_{j}}C_{j}\omega) \widetilde{S}(\omega) - - - (\underline{\Pi}-50)$$

There is no restriction of the above process  $S(\omega)$ . In the present case, the white noise process which is the most common random process occuring in many physical phenomena, is used. The spectrum  $\widetilde{S}(\omega)$  of the white noise process is.

 $\hat{S}(\omega) = 1$  - - - - - - - (Th-51) The value of C in the above equation can be introduced in two different ways. One is to use the experimental value C. The experimental dimensionless C is very close to the value of the most rapidly amplified wave from the stability theory if the primary flow is assumed to satisfy the Nusselt equation. In this case, equation (VII-44) is discarded. Another way is to solve C from the equation (VII-44). The spectrum  $\hat{S}^{(1)}(\omega)$  of  $\hat{\gamma}^{(1)}(t)$  is almost identical from the above two different inputs of C. This confirms, the prediction from the stability theory that the most rapidly amplified waves control the surface.

The spectrum  $\hat{S}^{(1)}(\omega)$  of  $\hat{\eta}^{(1)}(t)$  calculated at two different flow rates is shown in Fig. VII-2. The shape of the spectrum is qualitatively similar to that of the experimental one. But the modal frequency is much higher than the experimental value and the slope of the equilbrium range - 2 is a little lower than the experimental value. The trend of the modal frequency which increases with flow rate is the same as that of the experimental data. 2-4. FORMULATION OF NONLINEAR PART OF THE EQUATION

Since the linear part of the solutions  $\hat{\psi}^{(1)}$ ,  $\hat{\gamma}^{(')}$ , and  $\hat{P}^{(')}$ statisfies the equations (VII-27) through (VII-33), the nonlinear part of equation can be obtained by substituting



FIG. VII-2. THEORETICAL SPECTRUM  $\widehat{s}^{(1)}(f)$ 

equation (VII-26) into the equations (VII-23) through (VII-25) as follows:

$$\frac{1}{C} P_{t}^{(2)} + \frac{4}{R_{c}} \left\{ \frac{1}{C^{2}} \Psi_{jtt}^{(2)} + \Psi_{jtt}^{(2)} \right\} + \left\{ \frac{3}{2} \frac{1}{C} - 1 \right\} \Psi_{jt}^{(2)} = \frac{1}{C} \left\{ \Psi_{jt}^{(0)} \Psi_{tt}^{(0)} - \Psi_{tt}^{(0)} \Psi_{jt}^{(0)} \right\} \\ - \left\{ \Psi_{jt}^{(0)} \Psi_{tt}^{(0)} - \Psi_{ttt}^{(0)} \Psi_{jtt}^{(0)} \right\} + \frac{1}{C} \left\{ \frac{3}{2} \frac{1}{C} - 1 \right\} \Psi_{ttt}^{(2)} = \frac{1}{C^{2}} \left\{ \Psi_{tt}^{(0)} \Psi_{ttt}^{(0)} - \Psi_{ttt}^{(0)} \Psi_{jtt}^{(0)} \right\} + \frac{1}{C} \left\{ \frac{3}{2} \frac{1}{C} - 1 \right\} \Psi_{ttt}^{(2)} = \frac{1}{C^{2}} \left\{ \Psi_{tt}^{(0)} \Psi_{ttt}^{(0)} - \Psi_{ttt}^{(0)} \Psi_{ttt}^{(0)} \right\}$$

The boundary conditions are

•

. ·

$$\psi_{(2)}^{2} = 0 \qquad \left\{ \begin{array}{c} \alpha \tau & \gamma = 1 \\ \psi_{(2)}^{2} = 0 \end{array} \right\} \quad \alpha \tau \quad \gamma = 1 \\ \left\{ \begin{array}{c} \alpha \tau & \gamma = 1 \\ \varphi = 1 \end{array} \right\} \quad \alpha \tau \quad \gamma = 1 \\ \left\{ \begin{array}{c} \alpha \tau & \gamma = 1 \\ \varphi = 1 \end{array} \right\} \quad \alpha \tau \quad \gamma = 1 \\ \left\{ \begin{array}{c} \alpha \tau & \gamma = 1 \\ \varphi = 1 \end{array} \right\} \quad \alpha \tau \quad \gamma = 1 \\ \left\{ \begin{array}{c} \alpha \tau & \gamma = 1 \\ \varphi = 1 \end{array} \right\} \quad \alpha \tau \quad \gamma = 1 \\ \left\{ \begin{array}{c} \alpha \tau & \gamma = 1 \\ \varphi = 1 \end{array} \right\} \quad \alpha \tau \quad \gamma = 1 \\ \left\{ \begin{array}{c} \alpha \tau & \gamma = 1 \\ \varphi = 1 \end{array} \right\} \quad \alpha \tau \quad \gamma = 1 \\ \left\{ \begin{array}{c} \alpha \tau & \gamma = 1 \\ \varphi = 1 \end{array} \right\} \quad \alpha \tau \quad \gamma = 1 \\ \left\{ \begin{array}{c} \alpha \tau & \gamma = 1 \\ \varphi = 1 \end{array} \right\} \quad \alpha \tau \quad \gamma = 1 \\ \left\{ \begin{array}{c} \alpha \tau & \gamma = 1 \\ \varphi = 1 \end{array} \right\} \quad \alpha \tau \quad \gamma = 1 \\ \left\{ \begin{array}{c} \alpha \tau & \gamma = 1 \\ \varphi = 1 \end{array} \right\} \quad \alpha \tau \quad \gamma = 1 \\ \left\{ \begin{array}{c} \alpha \tau & \gamma = 1 \\ \varphi = 1 \end{array} \right\} \quad \alpha \tau \quad \gamma = 1 \\ \left\{ \begin{array}{c} \alpha \tau & \gamma = 1 \\ \varphi = 1 \end{array} \right\} \quad \alpha \tau \quad \gamma = 1 \\ \left\{ \begin{array}{c} \alpha \tau & \gamma = 1 \\ \varphi = 1 \end{array} \right\} \quad \alpha \tau \quad \gamma = 1 \\ \left\{ \begin{array}{c} \alpha \tau & \gamma = 1 \\ \varphi = 1 \end{array} \right\} \quad \alpha \tau \quad \gamma = 1 \\ \left\{ \begin{array}{c} \alpha \tau & \gamma = 1 \\ \varphi = 1 \end{array} \right\} \quad \alpha \tau \quad \gamma = 1 \\ \left\{ \begin{array}{c} \alpha \tau & \gamma = 1 \\ \varphi = 1 \end{array} \right\} \quad \alpha \tau \quad \gamma = 1 \\ \left\{ \begin{array}{c} \alpha \tau & \gamma = 1 \\ \varphi = 1 \end{array} \right\} \quad \alpha \tau \quad \gamma = 1 \\ \left\{ \begin{array}{c} \alpha \tau & \gamma = 1 \\ \varphi = 1 \end{array} \right\} \quad \alpha \tau \quad \gamma = 1 \\ \left\{ \begin{array}{c} \alpha \tau & \gamma = 1 \\ \varphi = 1 \end{array} \right\} \quad \alpha \tau \quad \gamma = 1 \\ \left\{ \begin{array}{c} \alpha \tau & \gamma = 1 \\ \varphi = 1 \end{array} \right\} \quad \alpha \tau \quad \gamma = 1 \\ \left\{ \begin{array}{c} \alpha \tau & \gamma = 1 \\ \varphi = 1 \end{array} \right\} \quad \alpha \tau \quad \gamma = 1 \\ \left\{ \begin{array}{c} \alpha \tau & \gamma = 1 \\ \varphi = 1 \end{array} \right\} \quad \alpha \tau \quad \gamma = 1 \\ \left\{ \begin{array}{c} \alpha \tau & \gamma = 1 \\ \varphi = 1 \end{array} \right\} \quad \alpha \tau \quad \gamma = 1 \\ \left\{ \begin{array}{c} \alpha \tau & \gamma = 1 \\ \varphi = 1 \end{array} \right\} \quad \alpha \tau \quad \gamma = 1 \\ \left\{ \begin{array}{c} \alpha \tau & \gamma = 1 \\ \varphi = 1 \end{array} \right\} \quad \alpha \tau \quad \gamma = 1 \\ \left\{ \begin{array}{c} \alpha \tau & \gamma = 1 \\ \varphi = 1 \end{array} \right\} \quad \alpha \tau \quad \gamma = 1 \\ \left\{ \begin{array}{c} \alpha \tau & \gamma = 1 \\ \varphi = 1 \end{array} \right\} \quad \alpha \tau \quad \gamma = 1 \\ \left\{ \begin{array}{c} \alpha \tau & \gamma = 1 \\ \varphi = 1 \end{array} \right\} \quad \gamma = 1 \\ \left\{ \begin{array}{c} \alpha \tau & \gamma = 1 \\ \varphi = 1 \end{array} \right\} \quad \alpha \tau \quad \gamma = 1 \\ \left\{ \begin{array}{c} \alpha \tau & \gamma = 1 \\ \varphi = 1 \end{array} \right\} \quad \alpha \tau \quad \gamma = 1 \\ \left\{ \begin{array}{c} \alpha \tau & \gamma = 1 \\ \varphi = 1 \end{array} \right\} \quad \alpha \tau \quad \gamma = 1 \\ \left\{ \begin{array}{c} \alpha \tau & \gamma = 1 \\ \varphi = 1 \end{array} \right\} \quad \gamma = 1 \\ \left\{ \begin{array}{c} \alpha \tau & \gamma = 1 \\ \left\{ \begin{array}{c} \alpha \tau & \gamma = 1 \\ \varphi = 1 \end{array} \right\} \quad \gamma = 1 \\ \left\{ \begin{array}{c} \alpha \tau & \gamma = 1 \\ \varphi = 1 \end{array} \right\} \quad \gamma = 1 \\ \left\{ \begin{array}[c] \alpha \tau & \gamma = 1 \\ \varphi = 1 \end{array} \right\} \quad \gamma = 1 \\ \left\{ \begin{array}[c] \alpha \tau & \gamma = 1 \\ \left\{ \begin{array}[c] \alpha \tau & \gamma = 1 \\ \varphi = 1 \end{array} \right\} \quad \gamma = 1 \\ \left\{ \begin{array}[c] \alpha \tau & \gamma = 1 \\ \varphi = 1 \end{array} \right\} \quad \gamma = 1 \\ \left\{ \begin{array}[c] \alpha \tau & \gamma = 1 \\ \varphi = 1 \end{array} \right\} \quad \gamma = 1 \\ \left\{ \begin{array}[c] \alpha \tau & \gamma = 1 \\ \left\{ \begin{array}[c] \alpha \tau & \gamma = 1 \\ \left\{ \left\{ \begin{array}[c] \alpha \tau & \gamma = 1 \\ \left\{ \begin{array}[c] \alpha \tau & \gamma = 1 \\ \left\{ \left\{ \left\{ \left\{ \left\{ \left\{$$

$$(1 - \frac{3}{2} \frac{1}{c}) \mathcal{J}_{E}^{(0)} - \frac{1}{c} \mathcal{M}_{E}^{(0)} = \frac{1}{c} (\mathcal{M}_{E}^{(0)} \mathcal{J}_{E}^{(1)} - \mathcal{M}_{E}^{(0)} \mathcal{J}_{E}^{(1)})$$

$$(1 - \frac{3}{2} \frac{1}{c}) \mathcal{J}_{E}^{(0)} - \frac{1}{c} \mathcal{M}_{E}^{(0)} = \frac{1}{c^{2}} (\mathcal{M}_{E}^{(0)} \mathcal{J}_{E}^{(1)} - \mathcal{M}_{E}^{(0)} \mathcal{J}_{E}^{(1)})$$

$$(1 - \frac{3}{c} \frac{1}{c}) \mathcal{J}_{E}^{(0)} - \frac{1}{c} \mathcal{M}_{E}^{(0)} = \frac{1}{c^{2}} (\mathcal{M}_{E}^{(1)} \mathcal{J}_{E}^{(1)} - \mathcal{M}_{E}^{(0)} \mathcal{J}_{E}^{(1)})$$

$$(1 - \frac{3}{c} \frac{1}{c}) \mathcal{J}_{E}^{(0)} - \frac{1}{c} \mathcal{M}_{E}^{(1)} = \frac{1}{c^{2}} (\mathcal{M}_{E}^{(1)} \mathcal{J}_{E}^{(1)} - \mathcal{M}_{E}^{(1)} \mathcal{J}_{E}^{(1)})$$

$$(1 - \frac{3}{c} \frac{1}{c}) \mathcal{J}_{E}^{(0)} - \frac{1}{c} \mathcal{M}_{E}^{(1)} = \frac{1}{c^{2}} (\mathcal{M}_{E}^{(1)} \mathcal{J}_{E}^{(1)} - \mathcal{M}_{E}^{(1)} \mathcal{J}_{E}^{(1)})$$

$$(1 - \frac{3}{c} \frac{1}{c}) \mathcal{J}_{E}^{(1)} - \frac{1}{c} \mathcal{M}_{E}^{(1)} = \frac{1}{c^{2}} (\mathcal{M}_{E}^{(1)} \mathcal{J}_{E}^{(1)} - \mathcal{M}_{E}^{(1)} \mathcal{J}_{E}^{(1)})$$

$$(1 - \frac{3}{c} \frac{1}{c}) \mathcal{J}_{E}^{(1)} - \frac{1}{c} \mathcal{M}_{E}^{(1)} = \frac{1}{c^{2}} (\mathcal{M}_{E}^{(1)} \mathcal{J}_{E}^{(1)} - \mathcal{M}_{E}^{(1)} \mathcal{J}_{E}^{(1)})$$

$$(1 - \frac{3}{c} \frac{1}{c}) \mathcal{J}_{E}^{(1)} - \frac{1}{c} \mathcal{M}_{E}^{(1)} = \frac{1}{c^{2}} (\mathcal{M}_{E}^{(1)} \mathcal{J}_{E}^{(1)} - \mathcal{M}_{E}^{(1)} \mathcal{J}_{E}^{(1)})$$

$$(1 - \frac{3}{c} \frac{1}{c}) \mathcal{J}_{E}^{(1)} - \frac{1}{c} \mathcal{M}_{E}^{(1)} = \frac{1}{c^{2}} (\mathcal{M}_{E}^{(1)} \mathcal{J}_{E}^{(1)} - \mathcal{M}_{E}^{(1)} \mathcal{J}_{E}^{(1)})$$

$$(1 - \frac{3}{c} \frac{1}{c}) \mathcal{J}_{E}^{(1)} - \frac{1}{c} \mathcal{M}_{E}^{(1)} = \frac{1}{c^{2}} (\mathcal{M}_{E}^{(1)} \mathcal{J}_{E}^{(1)} - \mathcal{M}_{E}^{(1)} \mathcal{J}_{E}^{(1)})$$

$$(1 - \frac{3}{c} \frac{1}{c}) \mathcal{J}_{E}^{(1)} \mathcal{J}_{E}^{(1)} + \frac{1}{c} \mathcal{M}_{E}^{(1)} \mathcal{J}_{E}^{(1)} + \frac{1}{c} \mathcal{J}_{E}^{(1)} + \frac{1}{c} \mathcal{J}_{E}^{(1)} \mathcal{J}_{E}^{(1)} + \frac{1}{c} \mathcal{J}_{E}^{(1)} \mathcal{J}_{E}^{(1)} + \frac{1}{c} \mathcal{J}_{E}^{(1)} + \frac{1$$

.

The solution can be assumed in the similar manner as

$$\hat{\Psi}^{(2)}(\tau,\gamma) = \int \int e^{\iota(\omega)\tau\omega')\tau} F^{(2)}(\mathcal{R}_{e,C},\omega,\omega',\gamma) d\hat{G}(\omega)d\hat{G}(\omega) - (\underline{\pi}-\underline{\psi})$$

The above unknown  $F^{(2)}(R_{P}, C, \omega, \omega', \mathcal{F})$  can be solved numerically. But in order to evaluate the higher moments  $\langle a\hat{G}(\omega_1) a\hat{G}(\omega_2) a\hat{G}(\omega_3) a\hat{G}(\omega_4) \rangle$  and  $\langle a\hat{G}(\omega_1) a\hat{G}(\omega_2) \rangle$  $dG(\omega_3)$  which are related to the nonlinear part of spectrum, one would assume that the process is such that it is possible to decompose the higher moments to the lower moments such as for a Gaussians in Tick's work. Then it is very obvious that the nonlinear part of spectrum will generate a small secondary peak on the higher frequency side of the linear part of spectrum as shown in Tick's result. Since the modal frequency of the linear part of spectrum is already much higher than the experimental one. It is apparent that the nonlinear part of spectrum deduced from the above method does not cause better agreement with Therefore the numerical solution of nonlinear spectrum data. was not attemped in this study. But the formulation of the nonlinear part of the spectrum is given in Appendix E., and the detailed derivation on the linear part of spectrum is given in Appendix E. The computer program used to evaluate the linear solution is given in Appendix A.

#### 3. EXTENSION OF TELLES' MODEL

The fundamental theory of the shot noise process has been well developed by Rice (R-2) in early 1944. Assuming the stochastic time series of the shot noise processes represented by a Gram-Charlier series, Horton (H-10, H-11, H-12) was able to extract the shape of individual single eventS from the experimental auto correlation function by using the Rice's theory. As mentioned in Chapter II, Telles (T-2, T-3) used Horton's method to obtain the coefficients of the Gram-Charlier series for a single large waves. Then the equations of motion for an isolated large waves were solved to give the velocity profile and the wave velocity by a quasi-linerization procedure. But the prediction of the wave velocity by Telles is far from the experimental value. This is probably due to the following reasons:

(a) Telles used the second and third central moments to solve the coefficients of the Gram-Charlier series for the isolated wave instead of using the auto-correlation which was not available from his measurements. But the second central moment contains all of the fluctuations due to small waves, large waves and noise. Thus it contains less information about the wave shape. Furthermore the reliability of the measurement of the third central moment is small.

(b) Telles applied quasi-linearization to the equation of motion, but not to the nonlinear kinematic conditions. The principle which enable him to solve the nonlinear boundary condition, is not clearly pointed out in Telles' work. The Gram-Charlier series is a set of orthogonal functions as follows:

$$Z_{j}(x) = \frac{(-1)}{\sqrt{2\pi}} H_{j}(x) \exp\left\{-\frac{x}{2}\right\} - - - - (\overline{M} - 56)$$
  
where  $H_{j}(x)$  is a Hermite polynominal.

The properties of the Hermite polynominal given as:

$$H_{j+k}(x_{1}+x_{2}) = 2 \sum_{k=0}^{j+k} \left(\frac{j+k}{k}\right) H_{j}(x_{1}h\overline{z}) H_{j}(x_{2}h\overline{z}) - - - (\overline{z}-57)$$

and the properties between  $Z_j$  and  $H_k$ 

$$\int_{-\infty}^{\infty} Z_{j}(x) H_{k}(x) dx = (-1)^{k} J_{j}^{k} \delta_{ik} - - - (\underline{M} - 58)$$

where

$$\delta_{i}\pi = \begin{cases} 1 & i \leq i \leq k \\ 0 & i \leq i \leq k \end{cases}$$

make it possible to decompose the differential equations into a set of algebraic equations which is solvable. This is very similar to the principle which is used to solve the nonlinear equation in tubulence by the Wiener-Hermite expansion. Although there exists a distinct difference between the two techniques. It is obvious that the same procedure can be applied not only on the nonlinear kinematic boundary condition but also to the equations of motion.

(c) Furthermore, the quasi-linearization is an iteration process. Only the first iteration, for which the quasi-linearization gives a linear equation in  $Z_j$ , was solved by Telles. If one proceeds into the higher iteration, the equation will again contain the nonlinear term  $Z_j Z_k$ . Hence the advantage in using the quasi-inearization is lost in the second iteration.

Based on the above considerations, the modification of the Horton's method to use the more reliable experimental data on the auto covariance function from this work, and the extension of Telles' idea to higher order approximation without quasi-linearization are presented in the following section. The Horton's method and the Telles' model is given in detail in Appendix F.

# 3-1. COEFFICIENTS OF THE GRAM-CHARLIER SERIES FOR AN ISOLATED WAVE

Assuming the wave processes is a shot noise process as

$$\hat{f}_{(t)} = m_{L} + \sum_{k=-\infty}^{+\infty} m(t - \hat{t}_{k}) - - - - - - (\underline{M} - 59)$$

and each individual identical wave m(t) above the substrate  $m_L$  can be represented by the Gram-Charlier series as

$$m(t) = \sum_{j=0}^{n} m_j Z_{j}(\xi) - - - - - (\underline{M} - 60)$$

where mj is the coefficient of the Gram-Charlier series.

$$\frac{\pm}{T} = \mathcal{E}$$

.

•

T is the unspecified duration time of the wave. The mean and auto covariance function of h(t) will be

$$\langle \hat{\pi}(t) \rangle = m_{L} + fTm_{o} - - - - - (m_{-61})$$

$$\widehat{C}(J) = \langle \widehat{\pi}(\tau+J) \widehat{\pi}(\tau) \rangle - \langle \widehat{\pi}(\tau) \rangle$$
$$= \sum_{j \in \mathbb{Q}} (-j)^{j} m'_{j} m'_{k} Z^{i+j} (J'_{j}) - - - (\underline{\pi} - 62)$$

where f is the average number of wave which arrive per sec.

$$m_{j}^{\prime} = (f \tau 2^{-j} / \sqrt{2})^{j} m_{j}^{\prime}$$
$$J^{\prime} = \frac{J}{T}$$

The auto-covariance function can also be expressed by the Gram-Charlier series as

$$\widetilde{C}(7) = \sum_{p=0}^{\infty} d_{2p} Z_{2p} \left(\frac{3}{\sqrt{2}}\right) - - - - (II-63)$$

Given an experimental  $C(\gamma)$ , one could evaluate the coefficient  $d_{2p}$  by

$$d_{2p} = \frac{1}{h^{2}} \int_{-\infty}^{+\infty} \left\{ \widetilde{C}(3'T) - \widetilde{C}(\infty) \right\} H_{2p}(3'T) d3' - (\overline{M} - 64)$$

In the above equation,  $\left\{ \widetilde{C}(3'T) - \widetilde{C}(\infty) \right\}$  is used instead of

C(3T) because only part of C(3T) data is used to calculate the above integral. A periodicity exists due to the large waves which have  $h_{max} > 2 \langle h \rangle$ . One would ask what is auto covariance function if the wave process is a shot Since it depends on the wave shape, the auto noise one? covariance estimated from the average wave shape measured, will probably have the shape as shown in Fig. VII-3 (a). It will have a small negative peak at the average wave  $\langle T_{bs} \rangle$ , and it will approach zero at the average wave base separation  $\langle T_{sep} \rangle$ . But the actual auto covariance function always looks as shown in Fig. VII-3 (b). Italways shows a large negative peak and a small secondary positive lobe. Since the secondary positive lobe represents a non-shot noise process, it is desirable to subtract the periodic component  $C_p(\mathcal{J})$ . The subtraction procedure is shown in Figs. VII-3 (c) and (d). Hence the coefficient is actually calculated by

 $d_{2p} = \frac{1}{\sqrt{2} (2p)!} \int_{-\infty}^{+\infty} \left\{ \widetilde{C}(3'T) - \widetilde{C_{p}}(3'T) \right\} H_{2p} (3'\sqrt{2}) d3' - - - (\overline{M} - 65)$


FIG. VII-3. SUBSTRACTION OF PERIODIC COMPONENT

A similar principle as Telles and Horton employed is used here to determine the unspecified time constant T. The criterion is that the constant T is obtained when the right hand side of equation (VII-63) gives the best fit of the experimental value  $\widetilde{C}(3)$  for 3 > 0. A typical curve of auto covariance function calculated from the above equations (VII-65) and (VII-63) is shown in Fig. VII-4. The fit is fairly good except at 3 > 0 where the noise and small waves also contribute a large amount of energy. Comparing equations (VII-63) and (VII-62), one is able to obtain the coefficient  $m_0$ ,  $m_1$ ,  $m_2$  --- from the  $d_0$ ,  $d_2$ ,  $d_4$  --- as

For practical reason, consider only two terms in auto covariance, then

$$d_0 = m_0^2$$
 } - - - - - (M-67)

In the above equation (VII-67), one assume that  $m_2$  and  $m_3$  are much smaller than  $m_0$  and  $m_1$ . The values of  $m_L$ ,  $m_0$ , and  $m_1$  for a single isolated wave at various flow rates calculated from equations (VII-67) and (VII-61) are tabulated in Table VII-1.



## TABLE VII-1

COEFFICIENT OF THE GRAM-CHARLIER SERIES FOR AN ISOLATED WAVE AT  $W_G = 0.0 \text{ lb/sec}$ 

W <sub>L</sub> (1b/se	ec) T(sec)	m <sub>L</sub> (in)	m <sub>0</sub> (in)	m <sub>l</sub> (in)
۰.016	0.019	0.0042	0.0028	0.0063
0.044	0.026	0.0058	0.0133	0.0181
0.08	0.044	0.0081	0.0112	0.0218
0.18	0.027	0.0130	0.0192	0.0624
0.47	0.028	0.0238	0.0278	0.0771
	······································			

Increasing the number of terms in  $m_i$  for an isolated wave will introduce additional difficulty, because a given set of  $d_i$  from the experimental  $\widetilde{C}(\zeta)$  will not always give a set of  $m_i$  as the solution of equation (VII-66). 3-2. SOLUTION FOR AN ISOLATED WAVE

A single wave event in the above shot noise process will be

$$T_{L}(t) = m_{L} + m(t)$$

$$= m_{L} + \sum_{i=0}^{n} m_{i} Z_{i}(s) - - - - - - (III - 68)$$

One try to answer the following question " if this single wave event obeys the equation of motion, what will be the wave velocity and the velocity profile of this wave?"

.

The basic equations and boundary conditions which used in this study are the same as that in Telles' work; the ydirection motion and the pressure terms are neglected, the normal stress condition and the term  $\frac{\partial V}{\partial x}$  in shear stress condition at surface are also neglected. By using the stream inction and the dimensionless group given in equation (VII-69),

$$(x, z, \eta) = (x_{1}, z_{1}, \pi) / x_{0}$$

$$(\eta_{1}, \eta_{0}, \eta_{1}, \dots) = (m_{1}, m_{0}, m_{1}, \dots) / x_{0}$$

$$\psi = \psi_{1} / \mu$$

$$\psi (x_{1}, z_{1}, \gamma) = \psi (x - cz, \gamma)$$

$$\eta (x_{1}, z_{1}) = \eta (x - cz, \gamma)$$

$$\chi_{0} = c\tau$$

the set of equations (VII-12), (VII-13) and (VII-14) in which the coordinate  $y_1$  is in the reverse direction, become

$$\Psi_{3,3,7} + G' + (s - \Psi_{7}) \Psi_{x,7} + \Psi_{x} \Psi_{3,7} = 0 - - (III - 10)$$

The boundary conditions are

where

$$C_{i} = \frac{\gamma_{i}}{cx^{o}}$$

and

$$\eta(x) = \eta_{L} + \sum_{i=0}^{n} \eta_{i} Z_{i}(x) - - - - - (II-\eta_{3})$$

is a known given wave surface of isolated wave. Let assume the stream function  $\psi^-$  can also be expressed in terms of Gram-Charlie. series as:

$$\psi(x, y) = f_{1}(y) + \sum_{i=0}^{n} f_{i}(y) Z_{i}(x) - - - (\underline{M} - 74)$$

Substituting equations (VII-73) and (VII-74) into the equations (VII-70), (VII-71) and (VII-71), and also using the basic properties of the Gram-Charlier series

$$Z_{in}(x) = \frac{d}{dx} Z_{i}(x) - - - - - (\Pi - 15)$$

the set of equations become

$$\{f_{n}''' + G'\} + \{f_{0}'''\}_{Z_{0}} + \sum_{i=1}^{n} \{f_{i}'' + Sf_{i-1} - f_{n}f_{i-1} + f_{n}''f_{i-1}\}_{Z_{i}}$$
  
-  $\sum_{i=0}^{n} f_{i}'Z_{i} \sum_{i=0}^{n} f_{i}'Z_{i+1} + \sum_{i=0}^{n} f_{i}Z_{i+1} \sum_{i=0}^{n} f_{i}'Z_{i} = 0 - - - (MI - 76)$ 

The boundary conditions are

$$\sum_{i=0}^{n} f_{i} Z_{i+1} = 0$$

$$f_{i}' + \sum_{i=0}^{n} f_{i}' Z_{i} = 0$$

$$a_{T} J = 0 - - - (II - 77)$$

$$f_{i}'' + \sum_{i=0}^{n} f_{i}' Z_{i} = 0$$

$$a_{T} J = \gamma - - - (II - 78)$$

$$\sum_{i=0}^{n} f_{i} Z_{i+1} = (S - f_{i}' - \sum_{i=0}^{n} f_{i}' Z_{i}) \sum_{i=0}^{n} \gamma_{i} Z_{i+1} \text{ ar } J = \gamma - - (II - 79)$$

Since as  $\chi \to \pm \infty$  , the function  $Z_1 \longrightarrow 0$  the above set of equations reduces

$$f_{L}^{"'} + G = 0$$

$$f_{L}^{'} = 0 \quad \text{at} \quad J = 0$$

$$f_{L}^{"} = 0 \quad \text{at} \quad J = \eta_{L}$$

Therefore one obtains

$$f_{L}(z) = G'(\frac{\pi}{2} + z^2 - \frac{1}{L}z^3) - - - - (\pi - 8i)$$
  
The function  $z_1(x)$  is a function of  $x$ . Hence the  
boundary condition at  $y = 0$  will lead to

$$\begin{array}{c}
f_i = 0 \\
f_i' = 0
\end{array}$$

$$\begin{array}{c}
i = 0, -- - , n
\end{array}$$

Then the form of the function  $f_1$  can be assumed as

$$f(x) = \sum_{k=0}^{\infty} q'_{k} + \frac{1}{2} - - - - - - - (M - 85)$$

Multiply the Hermite function  ${\rm H}_k$  on equation (VII-76) and integrated over  $\chi$  , this will produce n\*1 equations

$$f_{e}^{"'} = \int_{-\infty}^{+\infty} \left\{ \sum_{i=0}^{n} f_{i} Z_{i} \sum_{i=0}^{n} f_{i}^{'} Z_{i+1} - \sum_{i=0}^{n} f_{i}^{'} Z_{i} \sum_{i=0}^{n} f_{i}^{'} Z_{i} \right\} H_{e} dX$$

$$f_{k}^{"'} + S f_{k-1}^{'} - f_{i}^{'} f_{k-1}^{'} + f_{i}^{"} f_{k-1} =$$

$$(-i)^{k} \int_{-\infty}^{+\infty} \left\{ \sum_{i=0}^{n} f_{i}^{'} Z_{i} \sum_{i=0}^{n} f_{i}^{'} Z_{i+1} - \sum_{$$

By substituting equation (VII-82) into equation (VII-83) and collecting terms in y, the solution for the unknown coefficient  $d_{i_k}$  will be

where G and  $\eta_{L}$  are known value known value

The similar processes (multiplying  $H_k$  and integrating over  $\propto$  ) are applied on equation (VII-78),

$$(-1)^{k} G' \eta_{k} = \int_{-\infty}^{+\infty} \left\{ \sum_{i=0}^{n} f_{i}' Z_{i} \right\} H_{k} dx$$
  
 $-k = 0, \dots, n - - - - - - - - (M-85)$ 

this will generate another n+l equations and

$$d_{10} = d_{10} \{ S, G', \eta_{L}, \eta_{0}, ---, \eta_{n} \} \ (=0, ..., n) --- (\underline{m} - 86)$$

the kinematic condition (VII-79) is also treated in the same way, the equation will be

$$S \eta_{R} = (-1)^{R} \int_{\infty}^{+\infty} \left\{ \sum_{i=0}^{n} f_{i} Z_{i+1} + (f_{i} + \sum_{i=0}^{n} f_{i} Z_{i}) \sum_{i=0}^{n} \eta_{i} Z_{i+1} \right\} \cdot H_{RH} dX$$

 $k = 0, \dots, n-1 - - - - - (m - 27)$ This will eliminate another nunknowns and give

$$S = S \{G', \eta_{L}, \eta_{0}, \eta_{1}\} \} - - - - - - - - - (\Pi - 88)$$
  
$$\eta_{i} = \eta_{i} \{G', \eta_{L}, \eta_{0}, \eta_{1}\} \}$$

In the practical calculation, equations (VII-73) and (VII-

74) are truncated as:

$$\chi(x) = \chi_{L} + \chi_{0} z_{0} + \chi_{1} z_{1}$$

$$\Psi(x, y_{2}) = f_{L}(y_{2}) + f_{0}(y_{2}) z_{0} + f_{1}(y_{2}) z_{1}$$

$$= - - - - (\underline{\pi} - \delta q)$$

(i) if the  $f_i(y)$  are truncated up to  $y^2$  terms as

$$f_i = d_{i0} \gamma^2 \qquad i = 0, 1 - - - - - (M - 90)$$

the solution will be

$$S = G'(\eta_{1}^{2} + \frac{\eta_{0}^{2}}{6\pi \sqrt{3}} + \frac{\eta_{1}^{2}}{6\pi \sqrt{3}} + \frac{\eta_{0}\eta_{1}}{2\sqrt{\pi}}) - - - - (\pi - - - (\pi - - -))$$

(ii) if the  $f_i(y)$  are truncated up to  $y^4$  terms as

$$f_i = d_i \circ y^2 + d_i y^3 + d_i y^4$$
  $i = o, 1 - - - - (III - 92)$ 

the result will be given as

$$G' f_{0} = d_{00} \left\{ 2 - \left( \frac{\eta_{L}}{2\sqrt{\eta_{1}}} + \frac{\eta_{D}}{3\pi\sqrt{3}} \right) S f_{1} \right\}$$
$$- G' f_{1} = -2d_{10} + Sd_{00} \left\{ \eta_{L}^{2} + \frac{\eta_{0}^{2}}{6\pi\sqrt{3}} + \frac{\eta_{L}^{2}}{6\pi\sqrt{3}} + \frac{\eta_{L}\eta_{0}}{2\sqrt{\pi}} \right\}$$

$$-ST_{0} = -d_{00} \left\{ \eta_{1}^{2} + \frac{\eta_{1}\eta_{0}}{\eta_{1}} + \frac{\eta_{2}^{2}}{2\pi h^{2}} + \frac{\eta_{1}^{2}}{\kappa \eta_{1}^{2}} \right\} - d_{10} \frac{\eta_{0}\eta_{1}}{3\pi h^{2}} + --(II - 93) \\ + G_{1}'\eta_{0} \left\{ \frac{\eta_{2}^{2}}{12\pi h^{2}} + \frac{\eta_{1}^{2}}{12\pi h^{2}} - \frac{\eta_{2}^{2}}{2} \right\} + Sd_{00}\eta_{0} \left\{ \frac{\eta_{1}^{2}\eta_{1}}{6\pi h^{2}} + \frac{32\pi h^{2}\eta_{1}}{32\pi h^{2}\eta_{1}} \right\} - -(II - 93)$$

1.9 detailed derivation of the above equations are given in Appendix F.

The solution obtained from equations (VII-91) and (VII-93) are compared with Telles' prediction and experimental data in Fig. VII-5. Since Telles only used one term in the Gram-Charlier series and velocity profile up to  $y^2$  term, the present prediction from equation (VII-91) which used two terms in the Gram-Charlier series, seems to improve the result a little but not enough to be close to the experimental data. The result from equation (VII-93) which used two terms in the Gram-Charliers series and velocity up to  $y^4$  terms, bring the prediction value much close to the experimental value, but the curve seem to oscilate around the experimental value.

# 4. SUBSTRATE FLOW AND CLOSURE OF THE LIQUID FLOW RATE

In the previous chapters, the probability density function of film thickness  $\tilde{f}_{\hat{h}}(h)$ , substrate  $\tilde{f}_{\hat{h}s}(h)$ , and large waves  $\tilde{f}_{\hat{h}_w}(h)$  are presented. Suppose the velocity profiles at each h value are known, then the flow rate or

PREDICTION FOR WAVE VELOCITY

FIG. VII-5. COMPARISON OF EXPERIMENTAL DATA AND THEORETICAL



the Reynolds number of this flow can be calculated from the above probability density functions. Since the total flow rate and the Reynolds numberare known for any one condition, this permits one to check the validity of velocity profiles which have been assumed to exist in films but never been measured.

4-1. VELOCITY PROFILES FOR THE FILM THICKNESS h(t)

Only two velocity profiles have been used on falling liquid films. These are the Nusselt's laminar velocity profile and the Dukler's turbulent velocity profile as shown in the following two equations:

$$u(y) = \frac{f_{1}g_{2}}{m_{L}} \left\{ \pi_{y} - \frac{x^{2}}{2} \right\} - - - - - (\mathbf{I} - \mathbf{P} + \mathbf{P})$$

$$J_{L} = \frac{1}{g_{C}} (m_{L} + \varepsilon_{1}g_{L}) \frac{du}{dy}$$

$$\varepsilon_{1} = n_{1}^{2} u_{y} (1 - e^{-\frac{n^{2}u_{y}}{p_{L}}}) \quad \Im^{T} \leq 2\varepsilon$$

$$\varepsilon_{2} = n_{2} \left(\frac{du}{dy}\right)^{3} / \left(\frac{d^{2}u}{dy^{2}}\right)^{2} \qquad \Im^{T} > 2\varepsilon$$

where  $n_1$  and  $n_2$  are numerical constants

$$J^{\dagger} = \frac{U_{*} \rho_{L} \gamma_{L}}{M_{L}}$$

$$U^{*} = \sqrt{\frac{J_{W} q}{\beta_{L}}}$$

$$J_{W} = J_{L} + F_{L} \rho_{L}$$

$$= (g_{q} - \frac{dp}{dL}) + F_{L} \rho_{L}$$

Now let's assume the velocity profile of the whole wavy surface h can be described by the above two equations and scaled by the instantaneous film thickness h(t), the definition of the Reynolds number is given in the following equation:

$$P_{e_{L}} = \frac{4W_{L}}{\pi D M_{L}}$$

$$= \frac{4\Gamma_{L}}{M_{L}} - - - (M - - - (M - 96))$$

The average Reynolds number can be calculated from

$$\langle Re_L \rangle = \frac{4.0 \, \text{PL}}{M_L} \int_{-\infty}^{+\infty} \left\{ \int_{0}^{\infty} (u_1 v_2) dv_2 \right\} \hat{f}_{\hat{\pi}}(\pi) d\pi - - - (\underline{T} u_1 - 9.7)$$

The average Reynold number obtained from the above equations (VII-94), (VII-95) and (VII-97) for various liquid rates with and without gas flow are compared with the experimental value in Table VII-2 and Table VII-3. In those tables,  $\langle \operatorname{Re}_{L}^{(k)} \rangle$  referred the average Reynolds number calculated from equations (VII-94) and (VII-97), and  $\langle \operatorname{Re}_{L} \rangle$  referred the average Reynolds number calculated from equations (VII-95) and (VII-97). In Table VII-3, the Reynolds number ReL' is defined as

$$R_{c_{\perp}} = \frac{4 (W_{\perp} - ENT)}{\pi D \mathcal{U}}$$

where

ENT = entrainment rate.

From these tables, the average Reynolds number calculated from the laminar parabolic velocity profile failed to match the experimental value. On the other hand, the average Reynolds number calculated from the Dukler's turbulent velocity gives

# TABLE VII-2

COMPARISON OF AVERAGE REYNOLDS NUMBER AT

W<sub>G</sub>=0.0 lb/sec

WL	0.016	0.028	0.044	0.08	0.126
${\tt Re}_{L}$	211.0	367	572	1016	1605
(Q) <b>∢</b> Re	44.7	146.6	426.6	1050.8	2249.5
⟨ReL	44.5	139.4	383.5	944.5	1844.3
WL	0.18	0.24	0.35	0.47	0.585
ReL	2299.0	3151	4572	6109	7560
(Re	3865.6	5100.3	11402.0	23389	24417.0
۲Re <sub>L</sub>	2485.5	3098.0	4410.0	6146.3	6970.5

# TABLE VII-3

# COMPARISON OF AVERAGE REYNOLDS NUMBER AT $W_G=0.1436$ lb/sec

WL	0.016	0.044	0.126	0.24	0.35	0.585
${\tt Re}_{L}$	230.0	589.0	1568.0	2898	4134	6759
⟨ReĿ	99.8	474.2	936.3	1908	2789.6	4219.4
ReL	230.0	589.0	1520.0	2730	3760	1000

fair agreement with the experimental Reynolds number on the large liquid rates with gas flow, but fail to show good agreement with gas flow. On the whole, both laminar and Dukler's velocity profiles are not suitable for all ranges of flow rate. The disagreement is due to the fact that the velocity distribution used in the above parallel flow ignores .ccelleration term.

#### 4-2. SUBSTRATE FLOW

Two velocity profiles based on the smooth film model are not able to be applied to the whole wavy surface. Since the wave amplitude on the substrate is very small, the substrate between two large waves can be considered to be in a parallel flow. Hence the above two velocity profiles should be valid on the substrate. The average Reynold number on the substrate can be obtained

$$\widetilde{\mathcal{R}}_{eLS} = \frac{40}{42} \int_{-\infty}^{+\infty} \left\{ \int_{0}^{\pi} u(y) dy \right\} \widetilde{f}_{hs}(\pi) d\pi - - (\overline{\mathbf{M}} - 98)$$

and the fraction of mass flow rate on the substrate can be calculated from

 $\overline{F}_{ms} = \frac{R_{e_{LS}} \cdot \overline{F}_{S}}{R_{e_{L}}} - - - - - - - - - (\overline{M} - 99)$ where  $F_{s}$  is the time fraction of the substrate from equation
(VI-70)

The values of  $Re_{LS}$  and  $F_{mS}$  with and without gas flow are given in Table VII-4 and Table VII-5. The values of  $R_{e_{LS}}$  for no gas flow calculated from the Nusselt's laminar velocity profile and Dukler's turbulent velocity profiles are very close. Only the values of  $\text{Re}_{\text{LS}}$  obtained from parabolic velocity profile for no gas flow are given in the Table. Although the time fraction of the substrate is 30 % to 50 % as given in the previous chapter, the mass fraction of input liquid flowing in the substrate is only 2 % to 8 % for no gas flow and 5 % to 20 % for gas flow. 4-3. CLOSURE OF THE LIQUID FLOW RATE

In the entrance region, the wave amplitude is smaller as compared with the mean film thickness. Only very small disturbances due to the wave motion exist on the velocity field in the liquid. Hence the wave and the mass of liquid are moving with distinct velocities. As both travelling downward, they eventually arrive at a nearly equilibrium state such that the wave amplitude is very large, the wave contains most of the liquid mass, and both the wave and the liquid mass under the wave are moving at almost same speed. Therefore the whole lump of liquid moves at the wave velocity. This is very similar to slug flow phenomena in a horizontal pipe. If the above speculation is true, one could evaluate the average mass of liquid carried by the wave as:

$$\langle \Gamma_{L_{W}} \rangle = \zeta \sum_{\infty}^{\infty} \left\{ \int_{\alpha}^{\pi} \alpha(\beta) d\beta \right\} + \int_{\widehat{\mathcal{H}}_{W}}^{\infty} \langle \pi \rangle d\beta + \int_{\alpha}^{\infty} \langle \pi \rangle d\beta + \int_{\alpha}$$

CLOSURE OF LIQUID FLOW RATE AT  $W_G = 0.0 \text{ lb/sec}$ 

W <sub>L</sub> (1b/sec)	0.016	0.028	0.044	0.08	0.126
ReL	211.0	367	572	1016	1605
R <sub>eLs</sub>	12.7	52.9	55.1	67.3	86.8
F <sub>ms</sub>	0.017	0.048	0.039	0.028	0.019
$R_{e}L_{W}$	292.5	726.1	1502.4	2172.0	2969.4
(ReL)	215.5	501.0	909.7	1296.2	1930.8
WL	0.18	0.24	0.35	0.47	0.585
ReL	2299	31.51	4572	6109	7560
$R_{e_{LS}}$	108.0	168.9	472.0	1017.6	1292.0
F <sub>ms</sub>	0.016	0.016	0.041	0.072	0.079
Re <sub>Lw</sub>	3586.4	4378.5	7463.7	10384	12580
(ReI) (c)	238888	3114.2	4665.2	6316.3	7373.3
	4				

TABLE VII-5

CLOSURE OF LIQUID FLOW RATE AT  $W_G = 0.1436$  lb/sec

W <sub>L</sub> (1b/sec)	0.016	0.044	0.126	0.24	0.35	0.585
Re <b>l</b> '	230	589.0	1520.0	2730	3700	6000.0
ReLs	76.7	325.8	412.2	849.2	1409.0	1580.0
F <sub>ms</sub>	0.056	0.275	0.107	0.134	0.157	0.106
Re <sub>Lw</sub>	177.1	1284.6	2489.1	4027.0	5493.6	8832.5
(Rel)	153.4	761.7	1462.0	2565. <b>0</b>	3766.4	5683.0

Then the closure of the flow rate and the Reynolds number: (w, v) = (w, v) = (w, v)

< ReLVI > = - XX TW>

$$\langle W_L \rangle = \langle W_{L_n} \rangle F_s + \langle W_{L_N} \rangle F_W$$

$$\langle R_{e_L} \rangle = \langle R_{e_Ls} \rangle F_s + \langle R_{e_LN} \rangle F_W$$

$$- - - (\underline{\mathbf{II}} - 101)$$

where

The values of  $\langle \operatorname{Re}_{LW} \rangle_{\gamma} \langle \operatorname{Re}_{L} \rangle^{c^{c^{c}}}$  and  $\langle \operatorname{Re}_{L} \rangle$  are given in Tables VII-4 and VII-5. The result shows reasonable agreement with the experimental Reynolds number. Some of data in which a higher value  $c/\cup_{\circ} \geq 2$  exists at flow rate  $W_{L} \simeq 0.044$  lb/sec will give a higher Reynolds number. This indicates that the wave and the liquid mass under the wave are still not quite moving at same speed at those flow rates and measuring positions. Therefore the assumption  $\cup(\gamma) = \mathbb{C}$  gives a large error on the closure of liquid flow rate at this condition. On the whole, this suggests that the actual velocity might be flatter than the turbulent velocity profile.

## 5. COMPARISON OF EXISTING THEORIES AND DATA

The average substrate Reynolds number obtained in the previous section from the probability density function now makes it possible to compare small wave data with the available theory. In the past, comparison between theoretical prediction and experimental data was very difficult due to the following two reasons.

(a) All theories except Telles', involve quantities

which are normalized by the average velocity  $\langle u \rangle$ . The average velocity in the film is defined as follows and thus depends on the velocity profile, a distribution which can not be measured.

$$\overline{u} = \frac{1}{\pi} \int_{0}^{\pi} u(y) dy \qquad \Big\} = - - - - (\underline{u}) - (\underline{v}) - (\underline{v})$$

(b) The theories derived from stability consideration and from integral methods, except that of Ruckenstein's, assume the average velocity  $\langle u \rangle = u_o$ , while  $u_o$  is the mean velocity as given by the Nusselt's equation. If this is the case, then the following relationship between the mean film thickness and the Reynolds number follows:

 $N_{T} = \left(\frac{3}{4}\right)^{3} \mathcal{R}_{e_{L}}^{Y_{3}} - - - - - - - - - - (\mathbb{E}^{-103})$ where  $N_{T} = \langle \pi \rangle \left(\frac{9}{\gamma}\right)^{3}$  is called Nusselt number Unfortunately, the above assumption does not hold especially while large waves are present as shown in Fig. VII-6. In this figure, experimental data are compared with the prediction of the Nusselt equation and also with Dukler's turbulent velocity destribution in which  $\beta = \frac{\Gamma + \gamma \gamma^{N_{3}}}{2\gamma \gamma^{N_{3}}}$ and  $\Gamma = \frac{\gamma_{n} \frac{3}{4} - \frac{d\rho}{dL}}{\gamma_{n} \frac{3}{2}}$ , are dimensionless pressure drop parameters. Hence the dimensionless quantities involing  $\langle u \rangle$ calculated from the Nusselt or Dukler's theory is inadequate for comparison with theory.





FIG. VII-6. DIMENSIONLESS FILM THICKNESS  $N_{T}$ 

# 5-1. SELECTION OF FARAMETERS FOR COMPARISON

In order to compare with the theory, one define a new average velocity  $\langle u \rangle$  such that the following equation holds

$$R_{c_{L}} = \frac{4 \langle E \rangle \langle u \rangle}{\gamma} - - - - - - - (TI - 10q)$$

then the parameter can be comparied with theory are

$$W_{e} = \frac{\langle u \rangle \langle \hat{\kappa} \rangle}{\chi} \quad We ber number$$

$$W_{\lambda} = \frac{\lambda}{2W} \sqrt{\frac{3L}{V^{-}}} \quad dimensionless wave length$$

$$\omega = \frac{C}{\langle u \rangle'} \quad dimensionless wave velocity$$

$$\simeq A_{ee} = \frac{\langle A \rangle}{\langle \hat{\kappa} \rangle} \quad dimensionless amplitude$$

 $G^* = 0.108 R_e^2 We$  Goren's dimensionless group  $f_{(cps)}$  dimensional wave frequency

The above parameters apply both small and large waves. In the case of the small waves, the substrate Reynolds number ReLs is used in equation (VII-104). A subscript S will designate small waves since the small wave data is quite close to the Nusselts equation (parabolic velocity profile). Then the deviation of  $\langle u_s \rangle$  from  $\langle u_s \rangle$  can be estimated by  $\frac{\langle u \rangle}{\langle u_s \rangle} = \frac{\langle \tau_s \rangle^2 + \tilde{U}_{hs}^2}{\langle \tau_s \rangle^2} = 1 + \frac{\tilde{U}_{hs}^2}{\langle \tau_s \rangle^2} - - - - - (M-105)$ .since  $\tilde{U}_{\taus}^2 \langle \langle \tau_s \rangle^2$ , the approximation for the small waves is reasonable. In the case of the large waves, the

velocity profile is unknown. The validity of the equation (VII-104) can not be justified. But the input liquid Reynolds number, Re<sub>L</sub>, based on the total input flow rate is used for correlating the large waves.

# 5-2. COMPARISON OF THEORIES WITH DATA

Comparison of theories with data for no gas flow is shown in Fig. VII-7 through Fig. VII-10. The theory of extension of Telles' model is inadequate to compare with data and other theories.

(a) In Fig. VII-7, the frequency data are plotted against the Reynolds number. Four typical theories and the present theory on the random wave model all fail to give reasonable modal frequency for the large waves. The reason might be due to the fact that the governing equations for primary flow is assumed to be the Nusselt equation. Many other theories, which have been presented but not plotted on the graph, present values falling between the Kapitza's theory and Rushton's theory. All the theoretical predictions agree much closer with the small wave data than the large wave especially Ruckensten's theory. The velocity profile of the Ruckensten's theory is assumed a 6th degree polynomial of y with unknown coefficients. He used Kapitza's experimental data on amplitude to determine one coefficient. Hence we expect a good agreement of his theory with Kapitza's theory.

(b) In Fig. VII-8 and Fig. VII-9 the dimensionless wave velocity  $\measuredangle$  and the dimensionless wave length  $N_{\nearrow}$  vs. Weber number are plotted. The large wave data do not agree with existing theories at all. The small wave data for wave length



FIG. VIT-7. WAVE FREQUENCY



FIG. VII-8. DIMENSIONLESS WAVE VELOCITY



FIG. VII-9. DIMENSIONLESS WAVE LENGTH

is in the range of Kapitza's data but also in poor agreement with theory. The wave velocity data of the small wave is much higher than the value d = 3 from all the theory for the small Weber number. But as mentioned in Chapter II, Lin (L-4, L-5, L-6) recently predicted the wave velocity d > 3based on the nonlinear stability theory.

(c) In Fig. VII-10, the half dimensionless wave amplitude  $A_{eq}$  is plotted vs. the Reynolds number. The data for the small wave shows a constant value 0.14 which is smaller than all the theories. While the data for the large waves show much higher values than most of the theory except Anshus' theory. In Fig. VII-11, the data of  $A_{eq}$  is plotted vs. the correlation parameter  $G^+$  proposed by Goren. The correlation is obviously not suitable for either the small and large waves.

# 5-3. SHALLOW WATER THEORY AND THE FALLING FILM

From the above comparison, it seems that all the theories except that of Telles' are not valid for describing the large waves on the falling film. In this section, the relative importance of the various terms in the equation of motion will be examined by the shallow water theory. The result should give a clear picture of the equation which should be used for the primary flow. The basic assumption of shallow water theory is that the depth of water is small compared with some



FIG. VII-10. DIMENSIONLESS WAVE AMFLITUDE



FIG. VII-11. GOPEN'S CORRELATION PARAMETERS

other significant length, such as wave length. In this theory it is not necessary to assume that the displacement and slope of the water surface are small.

Start with the basic equation (VII-12) and the boundary condition equations (VII-13) and (VII-14), and introduce the following dimensionless variables.

$$u = u_{1} / \langle u_{3} \rangle$$

$$V = V_{1} / \left\{ \frac{\langle \pi_{3} \rangle}{\langle x_{3} \rangle} \langle u_{3} \rangle \right\}$$

$$\eta = \pi / \langle \pi_{3} \rangle$$

$$P = P_{1} / g \langle u_{3} \rangle$$

$$x = x_{1} / \langle x_{3} \rangle$$

$$\exists = \exists_{1} / \langle \pi_{3} \rangle$$

$$\tau = \tau_{1} / \left\{ \frac{\langle \lambda \rangle}{\langle u_{3}} \right\}$$

where

. <\u03c6

The equations become

$$U_{x} + U_{y} = 0$$

$$E \left\{ U_{t} + UU_{x} + UU_{y} + P_{x} \right\} = \frac{Q \langle F \rangle}{\langle u \rangle^{2}} + \frac{A}{Re_{L}} \left\{ e^{2} U_{xx} + U_{yy} \right\} - - \left( \Pi - 107 \right)$$

$$E^{2} \left\{ U_{t} + UU_{x} + UU_{y} \right\} = -P_{y} + \frac{A}{Re_{L}} \left\{ e^{2} U_{xx} + U_{yy} \right\}$$

$$(a) (b) (c)$$

The boundary conditions are

$$\begin{array}{c} u = 0 \\ \varepsilon v = 0 \end{array} \right\} \stackrel{\text{at}}{=} 1 - - - - - - (\underline{\mathbb{I}} - 1 - \varepsilon \varepsilon)$$

$$\frac{4}{R_{eL}} \left\{ u_{3} + e^{2} \nabla x \right\} = 0$$

$$-p + \frac{8}{R_{eL}} \left\{ v_{3} + \frac{1}{W_{e}} e^{2} \eta_{xx} = 0 \right\} \quad \text{at } y = \eta - - - \left( \Pi - 1e^{\eta} \right)$$

$$E \left\{ \eta_{z} + u \eta_{x} - \nabla \right\} = 0 \quad (a) (b) (c)$$

$$E \left\{ -\frac{\langle \Phi \rangle}{2} \text{ is shallow water parameter} \right\}$$

where

 $c = \frac{1}{\sqrt{2}}$  is shallow water parameter

From equation (VII-107) (b), it is clearly indicated that the primary flow can be described by the Nusselt's equation, only if the following condition holds

— — — (亚-110) value of  $\varepsilon$ for both large and small waves at  $W_G = 0.0$  lb/sec. In most of the condition, the above equation (VII-110) does not hold except for the small waves at low Reynolds number. Hence it is obvious that the theory is unable to predict what one observes on the falling film and it is only good for the very small Reynolds number flow or the entrance region where  $\langle N \rightarrow \infty \rangle$  Since the ratio of  $\frac{-f_{1,0}}{R_{e_1}}$  to  $\mathcal{E}$  of the small waves is large than that of the large waves, and the variation of h<sub>s</sub> is much smaller than h, the data for the small waves is naturally much closer to the theoretical prediction compared to the data of the large wave. From the above expansion, one can also validate the approximation of  $p_y = 0$  from the equation (VII-107)(C). If  $\frac{4.0}{ReL} \simeq \epsilon$ , then the basic equation will be

$$u_{r+uu_{\chi}} + vv_{\chi} + P_{\chi} = \frac{3}{2} \frac{3}{2} \frac{3}{2} + u_{\chi}^{2} - - - - - (\overline{m} - 11)$$

ReL	<u>X.0</u> Rel	٤	Reis	4.0 Rels	3
211	0.019	0.00262	12.7	0.315	0.014
367	0.0109	0.00294	52.9	0.0757	0.0105
572	0.0070	0.00144	55.1	0.0728	0.00796
1016	0.00394	0.00115	67.3	0.0595	0.00792
1605	0.00249	0.00136	86.8	0.0462	0.00925
<b>2</b> 299	0.00174	0.00173	108.0	0.0371	0.0105
31 51	0.00127	0.00226	168.9	0.0238	0.0113
4572	0.00088	0.00238	472.0	0.0085	0.015
6109	0.000655	0.00246	1017.6	0.00393	0.02
7560	0.00053	0.00267	1292.0	0.00310	0.0224

.

TABLE VII-6 SHALLOW WATER PARAMETER

This is the same equation used by Telles and Ruckenstein. In the case of Telles' model,  $p_{y} = 0$  is assumed. The limitation of their model is due to the assumption of the stochastic processes for the Telles' case and the linearization procedures for the Ruckensten's case.

# CHAPTER VIII

## CONCLUSIONS AND RECOMMENDATIONS

## 1. WAVE STRUCTURE CHARACTERIZATION

In this study an attempt was made to describe the surface waves occuring on a falling film by statistical means. The Reynolds number for the liquid phase varied from 200 to 7,500 and for the co-current gas phase from 0 to 113,000. The statistical method is one which considers the instantaneous film thickness, h(t), measured at several stations to be represented by a time series which is stationary. This time series was processed by different techniques to extract a variety of information to characterize the wave structure as shown in the schematic diagram of Fig. VIII-1.

As shown in Fig. VIII-1, the processes applied to the time series to extract the information are described as follows:

- (a) Process A is a standard time series analysis for film thickness.
- (b) Process B uses the mean film thickness <h> as a criterion to classify the waves into three groups; large waves, small waves moving on the substrate, and small waves travelling on the large waves. The statistics of a series of parameters characterizing



Fig. VIII-1 Summary of Time Series Analysis

the waves are then calculated from the film thickness data.

- (c) Process C calculates the phase spectrum using a special technique of time shifting to extract the celerity of the small waves.
- (d) Process D calculate the auto covariance function using a technique of time shifting and subtraction of two simultaneous time series. This makes the the calculation of a secondary wave possible.
- (e) Process E integrates the quadrature spectrum between film thickness and wall pressure fluctuation and provides information about the drag coefficient around the waves.

These analyses resulted in the following conclusions: (a) Three distinct types of waves were clearly iden-

tified; large waves, small waves moving on the substrate and small waves travelling on the large waves. The large waves and the small waves on the substrate move at distinctly different velocities and the wave properties are each characterized by their own probability densities. The small waves on large waves include two types of wave motion: the large waves couple closely together, and the small waves riding on top of the large waves.

Therefore the statistics of this type of wave appear to be a mixture of the statistics of both large waves and the small waves.

- (b) At low liquid rates, the large waves display an amplitude distribution with a single mode located at 0.01" - 0.02". But as the liquid rate is increased, a bimodal wave amplitude structure appears with one mode located as before at 0.010" - 0.020" and a second group of waves with amplitude at 0.04" - 0.05" or 0.05" - 0.06". But it is of interest that over this entire range of liquid rate the wave base exhibits a single modal distribution. A weak relation between the wave amplitude and the wave separation distance was also established. Under conditions where a bimodal distribution of amplitude exists, the large amplitude waves appear to be weakly periodic while the waves of smaller amplitude are more random nature. This suggests that the waves of smaller amplitude might be a shot noise type process.
- (c) In the case of small waves, a single mode of narrow distribution exists for all wave parameters at all flow conditions.
- (d) The large waves show a strong two dimensionality and slowly changing properties along the length.This is caused by the change in the wave amplitude,
the wave separation and the wave velocity. Growth rate constants were also determined for the large waves. The small waves show a strong three dimensionality and an equilibrium state for all the wave parameters along the length of the test section.

- (e) The relationship between the large wave parameters;  $T^{*}_{sep}$ ,  $T_{bs}$ ,  $\widetilde{\mathcal{C}}_{Amp}$  and the statistical parameters of film thickness;  $f_{m}$ ,  $\mathcal{T}_{m}$ ,  $C_{2}$ ,  $\mathcal{T}_{min}$  were established.
- (f) The existence of a single constant slope in the high frequency range of the power spectrum was clearly established at all gas and liquid rates. This suggests that an equilibrium subrange of the spectrum exists in the wave process. The detailed physical meaning is not clear at this moment.
- (g) Cross correlation between pressure and the amplitude of wave permits the shear to be calculated. It is clear that the contribution of large waves to the measured pressure drop and added shear in two phase flow is less than 10%. One then concludes that the small wave structure is the cause for the observed

high rate of momentum transfer when waves are present. To expand this study, the following areas of investigation are recommended:

- (a) Using a large number measuring stations with short spacing along the length obtain simultaneous film thickness time series in a multiple channel system. This measurement permits one to perform a two dimensional Fourier analysis and to extract the precise wave velocity for each different wave component.
- (b) Determine the small wave spectrum by conditional sampling on the substrate.
- (c) Calculate the drag force from the experimental measurement of the gas velocity field over the wave.

## 2. WAVE STRUCTURE ANALYSIS

Two detailed random wave models have been developed for the primary wavy flow on falling films. The first model uses a white-noise input on the velocity field. Its purpose is to generate a non delta function type of the spectrum which is observed experimentally. The second model is based on the extension of Telles' shot noise process, and its purpose is to predict the wave velocity the wave shapes and the velocity profile. The probability density of film thickness was separated into two parts; one for large waves and one for substrate. This enable one to calculate substrate flow rate and large wave flow rate. These analyses resulted in the following conclusions:

- (a) The white noise model is successful in producing a non-delta function type of spectrum, although the solution is only good for very small Reynolds number or in the entrance region. The technique should be useful in the future studies.
- (b) The present extension on Telles' model gives much more successful result than the Telles' original model.
- (c) It was possible for the first time to determine the fraction of liquid flowing in the substrate and that in waves. Although at any point the substrate exists for above 50% of the time; less than 10% of the liquid flow there. The velocity and Reynolds number of substrate flow was evaluated along with the characters of waves on the substrate.
- (d) The Reynolds number of flows on the large waves was determined by wave velocity and it suggests that extremely high liquid rates exist there. For example at a liquid input Reynolds number of 2300, the expected value of the Reynolds number of the large waves can be as high as 3600. Individual wave Reynolds number can be substantially higher.
- (e) The substrate moves at low Reynolds number. So it is possible for the first time to test many theories for wave motion of low Reynolds number. All existing

theories are inadequate.

- (f) No existing theories describe the large wave properties with any degree of accuracy.
- (g) Extension of the Telles method has some good possibilities for the large waves.

The recommended areas for expanding the present analytical study are as follows:

- (a) Extend the random wave model to the turbulent velocity profile which is more suitable for the higher Reynolds number flows.
- (b) Modify the Rice shot-noise process for the case of random wave amplitude such that

 $\hat{T}(t) = \sum_{k=0}^{+\infty} \hat{a}_k m (t - \hat{\tau}_k)$ 

and also to the case where the duration of wave pulses are not much smaller than the wave separation.

- (c) Investigate the available velocity profiles for the large waves to give reasonable closure on the liquid flow rate.
- (d) Extend the flow rate closure analysis to the gas phase.
- (e) Extend Telles' model for the case of gas flow.

BIBLIOGRAPHY

.

## BIBLIOGRAPHY

- A-1 Anshus, B. E. "On the Asymptotic Solution to the Falling Film Stability Problem". Ind. Eng. Chem. Fundam. <u>11</u>, 502 (1972).
- A-2 Anshus, B. E. "Finite Amplitude Wavy Flow on a Thin Film on a Vertical Wall". Ph. D. Dissertation, Univ. of California, Berkeley (1965).
- A-3 Anshus, B. E. and Goren, S. L. "A Method of Getting Approximate Solutions to the Orr-Sommerfeld Equation for Flow on a Vertical Wall". A. I. Ch. E. J. <u>12</u>, 1004 (1966).
- B-1 Bendat, J. S. and Piersol, A. G. "Measurement and Analysis of Random Data". John Wiley and Son, N. Y. (1966).
- B-2 Bendat, J. S. "principles and Applications of Random Noise Theory". John Wiley and Son, N. Y. (1958).
- B-3 Benjamin, T. B. "Wave Formation in Laminar Flow down an Inclined Plane". J. Fluid Mech. <u>2</u>, 554 (1957).
- B-4 Benney, D. J. "Long Waves on Liquid Films". J. Fluid Mech. and Phys. <u>45</u>, 150 (1966).
- B-5 Bevington, P. R. "Data Reduction and Error Analysis for the Physical Sciences". McGraw-Hill Co. N. Y. (1969).
- B-6 Blackman, R. B. and Tukey, J. W. "The Measurement of Power Spectra". Dover, N. Y. (1958).
- B-7 Brock, R. R. "Periodic Permanent Roll Waves". J. Hyd. Div. ASCE, <u>96</u>, No. HY12, 7764 (1970).
- B-8 Burling, R. W. "The Spectrum of Waves at Short Fetches". Dentschen Hydrogr. Zeitschrift, <u>12</u>, 45 (1959).
- B-9 Byatt-Smith, John G. B. "Waves on a Thin Film of Viscous Liquid". A. I. Ch. E. J. <u>17</u>, 557 (1971).
- B-10 Berbente, C. P. and Ruckenstein, E. "Hydrodynamics of Wave Flow". A. I. Ch. E. J. <u>14</u>, 774 (1968).

- B-11 Box, G. and Jenkins, G. M. "Time Series Analysis Forcasting and Control". Hodden-day, San Francisco, (1970).
- C-1 Charnovia, D. A. "A Study of the Mean Film Thickness of Liquid Films and Surface Characteristics in Annular Two-Phase Flow in Vertical Pipe". Purdue Univ. Lafayette, Indiana, Jet Propulsion Lab. Rept. J-59-1 (1959).
- C-2 Chang, P. C., Plate, E. J. and Hidy, G. M. "Turbulent Air Flow over the Dominant Component of Wind-Generated Water Waves". J. Fluid Mech. <u>47</u>, 183 (1971).
- C-3 Chien, S. F. and Ibele, W. "Pressure Drop and Liquid Film Thickness of Two-Phase Annular and Annular-Mist Flow". Tran. A.S.M.E. J. Heat Transfer Paper No. 62-WA-170 (1963).
- D-1 Dobson, F. W. "Measurements of Atomspheric Pressure on Wind-generated Sea Waves". J. of Fluid Mech. <u>48</u>, 91 (1971).
- D-2 Dressler, R. F. "Roll Waves in Inclined Open Channel". Comm. Pure and Appl. Math. 2, 149 (1949).
- D-3 Dukler, A. E. "Characterization, Effects and Modelling of the Wavy Gas-Liquid Interface". Progress in Heat and Mass Transfer, <u>6</u>, 207 (1972).
- D-4 Dukler, A. E. and Bergelin, O. P. "Charactristics of Flow in Falling Liquid Films". Chem. Eng. Prog. <u>48</u>, 557 (1952).
- D-5 Dukler, A. E. "Dynamics of Vertical Falling Film System". Chem. Eng. Prog. <u>55</u>, 62 (1959).
- D-6 Dukler, A. E. "Fluid Mechanics and Heat Transfer in Vertical Falling-Film Systems". Chem. Eng. Prog. Symp. Ser. <u>56</u>, 1 (1960).
- D-7 Dukler, A. E. and Wicks, M. "Gas-Liquid Flow in Conduits". in Modern Chemical Engineering. Reinhold Publishing Corp. N. Y. (1961).
- D-8 Dukler, A. E. "Hydrodynamics of Liquid Films in Single and Two-Phase Flow". Ph. D. Dissertation, Univ. of Delaware (1951).

- D-9 Dukler, A. E. "Studies of Interfacial Structure Its Motion and Influence". 11th Advanced Seminar A. I. Ch. E. (1968).
- F-1 Fulford, G. D. "The Flow of Liquids in Thin Film". in Advances in Chemical Engineering Vol. 5. Academic Press, N. Y. (1964).
- G-1 Gill, L. E., Hewitt, G. F. and Lacey, P. M. C. "Sampling Probe Studies of the Gas Core in Annular Two-Phase Flow". Chem. Eng. Sci. <u>19</u>, 665 (1964).
- G-2 Gjevik, B. "Occurrence of Finite-Amplitude Surface Waves on Falling Liquid Film". Phys. Fluids <u>13</u>, 1918 (1970).
- G-3 Gollan, A. and Sideman, S. "On the Wave Characteristics of Falling Films". A. I. Ch. E. J. <u>15</u>, 301 (1969).
- G-4 Greenberg, A. B. "The Mechanics of Film Flow on a Vertical Surface". Ph. D. Dissertation, Furdue Univ. (1956).
- H-1 Hall Taylor, N. S. and Nedderman, R. M. "The Coalescence of Disturbance Waves in Annular Two-Phase Flow". Chem. Eng. Sci. 23, 551 (1968).
- H-2 Hall Taylor, N. S., Hewitt, G. F. and Lacey, P. M. C. "The Motion and Frequency of Large Waves in Annular Two-Phase Flow of Air Water Mixtures". Chem. Eng. Sci. <u>18</u>, 537 (1963).
- H-3 Hasselmann, K. "On the Non-linear Energy Transfer in a Gravity Wave Spectrum, Part 1. General Theory". J. Fluid Mech. <u>12</u>, 481 (1962).
- H-4 Hess, G. D., Hidy, G. M. and Plate, E. J. "Comparison between Wind Waves at Sea and in the Laboratory". J. Marine Res. <u>27</u>, 216 (1969).
- H-5 Hidy, G. M. and Plate, E. J. "Frequency Spectrum of Wind-generated Waves". Phys. of Fluids, <u>8</u>, 1387 (1965).
- H-6 Hidy, G. M. and Plate, E. J. "Wind Action on Water Studying in a Laboratory Channel". J. Fluid Mech. <u>26</u>, 651 (1966).

- H-7 Hewitt, G. F. and Hall-Taylor, N. S. "Annular Two-Phase Flow". Pergamon Press, Oxford (1970).
- H-8 Hewitt, G. F. "Photographic and Entrainment Studies in Two-Fhase Flow Systems". A.E.R.E. Report 4683, Harwell (1964).
- H-9. Hopf, L. Ann. Physik (4), 32, 777 (1910).
- H-10 Horton, C. W. "The Structure of the Noise Background of a Seismogram". Geophysics 20, 565 (1955).
- H-ll Horton, C. W. "The Structure of the Noise Background of a Seismogram II". Geophysics 22, 261 (1957).
- H-12 Horton, C. W. "Representation of Noise by Gram-Charlier Series". J. Applied Phy. <u>27</u>, 350 (1956).
- H-13 Hicks, B. L. "Estimation of the Spectrum Function for Small Wind Wave". in Ocean Wave Spectra Prentice-Hall, New Jersey (1963).
- I-1 Ishihara, T. Y. Iwagak and Iwasa, Y. Trans. Am. Soc. Civil Eng., 126, 548 (1961).
- J-1 Javdami, K. and Goren, S. L. "Finite-Amplitude Wavy Flow on Thin Films". Inter. Sym. Two-Phase System. Haifa, Isreal (1971).
- J-2 Jenkins, G. M. and Watts, D. G. "Spectral Analysis and Its Application". Hodden-day, San Francisco (1969).
- K-1 Kampe de Ferriet. "Random Solution of Partial Differential Equations". Proc. 3rd Symp. on Math. Statistical and Probability, Berkeley, <u>3</u>, 199 (1955).
- K-2 Kapitza, P. L. "Wave Flow of Thin Layers of a Viscous. Fluid". Collected Papers of P. L. Kapitza, MacMillan, N. Y. (1964).
- K-3 Kinsman, B. "Surface Waves at Short Fetches and Low Wind Speeds - a Field Study". Chesapeake Bay Institute, Tech. Rep. XIX Ref 60-1, 581 (1960).
- K-4 Kinsman, B. "Wind Waves". Prentice-Hall, Inc. N. J. (1965).
- K-5 Krantz, W. B. and Goren, S. L. "Bimodal Wave Formation on Thin Liquid Films down a Plate". A. I. Ch. E. J. <u>17</u>, 494 (1971).

- K-6 Krantz, W. B. and Goren, S. L. "Finite Amplitude, Long Waves on Liquid Films Flowing down a Plane". Ind. Eng. Chem. Fundam. 9, 107 (1970).
- K-7 Krantz, W. B. and Goren, S. L. "Stability of Thin Liquid Films Flowing down a Plane". Ind. Eng. Chem. Foundam. <u>10</u>, 91 (1971).
- L-1 Lamb, H. "Hydrodynamics". 6th ed. Dover, N. Y. (1932).
- L-2 Lee. J. "Kapitza's Method of Film Flow Description". Chem. Eng. Sci. <u>24</u>, 1309 (1969).
- L-3 Levich, V. G. "Physicochemical Hydrodynamics". Prentice-Hall, N. J. (1962).
- L-4 Lin, S. P. "Finite Amplitude Stability of a Contaninated Liquid Film". Inter. Sym. Two-Phase Sys. Haifa, Isreal (1971).
- L-5 Lin, S. P. "Finite Amplitude Stability of a Parallel Flow with a Free Surface". J. Fluid Mech. <u>36</u>, 113 (1969).
- L-6 Lin, S. P. "Profile and Speed of Finite Amplitude Waves in a Falling Liquid Layer". Fhys. Fluids <u>14</u>, 263 (1971).
  - M-l Massot, C, Irani, F. and Lightfoot, E. N. "Modified Description of Wave Motion in a Falling Film". A. I. Ch. E. J. <u>12</u>, 445 (1966).
  - M-2 Mei, C. C. "Nonlinear Gravity Waves in a Thin Sheet of Viscous Fluid". J. Math. and Phys. <u>45</u>, 266 (1966).
  - M-3 Miya, M., Woodmansee, D. E. and Hanratty, T. J. "A Model for Roll Waves in Gas-Liquid Flow". Chem. Eng. Sci. <u>26</u>, 1915 (1972).
  - M-4 Moeck, E. O. "Measurement of Liquid Film Flow and Wall Shear Stress in Two-Phase Flow". ASME/A. I. Ch. E. Heat Transfer Conf. 34 (1969).
  - N-l Nakaya, C. and Takaki, R. "Non-linear Stability of Liquid Flow down an Inclined Plane". J. Phys. Soc. Japan 23, 638 (1967).
  - N-2 Nusselt, W. Ver. Deut. Ingr. Z. <u>60</u>, 543 (1916).

- P-1 Papoulis, A. "Probability, Random Variable and Stochastics Process". McGraw-Hill, N. Y. (1965).
- P-2 Papoulis, A. "The Fourier Integral and Its Applications". McGraw-Hill, N. Y. (1962).
- P-3 Phillips, O. M. "On the Dynamics of Unsteady Gravity Waves of Finite Amplitude, Part 2. Local Properties of a Random Wave Field". J. Fluid Mech. <u>11</u>, 143 (1961).
- P-4 Phillips, O. M. "The Dynamics of the Upper Ocean". Cambridge University Press (1966).
- P-5 Phillips, O. M. "The Equilibrium Range in the Spectrum of Wind-Generated Waves". J. Fluid Mech. <u>4</u>, 426 (1958).
- P-6 Phillips, O. M. "On the Dynamics of Unsteady Gravity Waves of Finite Amplitude, Part 1. The Elementary Interactions". J. Fluid Mech. 2, 193 (1960).
- P-7 Pierson, W. J. "Wind Generated Gravity Waves" in Advances in Geophysics, Vol. 2, Academic Press, N. Y. (1955).
- P-8 Plate, E. J. and Cheng, P. and Hidy, G. M. "Experiments on the Generation of Small Water Waves by Wind". J. Fluid Mech. <u>35</u>, 625 (1969).
- P-9 Plate, E. J. "Limitations of Spectral Analysis in the Study of Wind-Generated Water Surface Waves". Inter. Sym. on Stochastic Hydraulics (1971).
- P-10 Fortalski, S. and Clegg, A. J. "An Experimental Study of Wave Inception on Falling Liquid Films". Chem. Eng. Sci. <u>27</u>, 1257 (1972).
- P-11 Portalski, S. and Clegg, A. J. "Interfacial Area Increase in Rippled Film Flow on Wett Wall Columns". Chem. Eng. Sci. <u>26</u>, 773 (1971).
- R-1. Reynold, W. C. and Potter, M. C. "Finite Amplitude Instability of Parallel Shear Flows". J. Fluid Mech. 27, 465 (1967).

- R-2 Rice, S. O. "Mathematical Analysis of Random Noise". Bell System Tech. J. <u>23</u>, 282 (1944), <u>24</u>, 46 (1945).
- R-3 Rushton, E. and Davis, G. A. "linear Analysis of Liquid Film Flow". A. I. Ch. E. J. <u>17</u>, 671 (1971).
- S-1 Semenov, P. A., Zh. Tekhn. Fiz. 20, 980 (1950)
- S-2 Shkadov, V. Ya. "Wave Flow Regimes of a Thin Layer of Viscous Fluid Subject to Gravity". Izv. Akad. Nauk Ser. Mekh. Zhidk. i Gaza <u>1</u>, 43 (1967).
- S-3 Stainthorp, F. P. and Allen, J. M. "The Development of Ripples on the Surface of a Liquid Flowing inside a Vertical Tube". Trans. Instn. Chem. Eng. 43, T85 (1965).
- S-4 Stainthorp, F. P. and Batt, R. S. "The Effect of Co-Current and Counter-Current air Flow on the Wave Properties of Falling Liquid Films". Trans. Inst. Chem. Eng. <u>45</u>, T372 (1967).
- S-5 Stainthorp, F. P. and Batt, R. S. "The Wave Properties of Falling Liquid Film with Counter-Current Air Flow". Sym. on Two-Phase Flow. Univ. of Exeter <u>2</u>, B301 (1965).
- S-6 Stewart, R. H. "Laboratory Studies of the Velocity Field over Deep-Water Waves". J. Fluid Mech. <u>42</u>, 733 (1970).
- S-7 Stoker, J. J. "Water Waves". Interscience Publishers, N. Y. (1957).
- S-8 Stuart, J. T. "On the Non-linear Mechanics of Wave Disturbances in Stable and Unstable Parallel Flows". Part 1, J. Fluid Mech. 9, 353 (1960).
- S-9 Seriff, A. J. "Personal Communication". Sept 1972.
- T-1 Tailby, S. R. and Portalski, S. "The Deination of the Wave Length on a Vertical Film of Lie Flowing down a Hydrodynamically Smooth Plate". Trans, Instn Chem. Eng. <u>40</u>, 114 (1962).
- T-2 Telles, A. S. "Liquid Film Characteristics in Vertical Two-Phase Flow". Ph. D. Dissertation, Univ. of Houston, (1968).

- T-3 Telles, A. S. and Dukler, A. E. "Statistical Characteristics of Thin, Vertical Wavy Liquid Films". Ind. Eng. Chem. Fundam. 2, 412 (1970).
- T-4 Tick, L. J. "A Non-linear Random Model of Gravity Waves I". J. Math. & Mech. <u>8</u>, 643 (1959).
- W-l Watson, J. "On the Non-linear Mechanics of Wave Disturbance in Stable and Unstable Parallel Flows". Part II, J. Fluid Mech. <u>9</u>, 371 (1960).
- W-2 Webb, D. "Two-Phase Flow Phenomena". Ph. D. Dissertation, Univ. of Cambridge (1970).
- W-3 Whitaker, S. "Effect of Surface Active Agents on the Stability of Falling Films". Ind. Eng. Chem. Fundam. <u>3</u>, 132 (1964).
- W-4 Wicks, M. "Liquid Film Structure and Drop Size Distribution in Two-Phase Flow". Ph. D. Dissertation, Univ. of Houston (1967).
- W-5 Worley, F. "A Study of Roughness Effects in Turbulent Flow". Ph. D. Dissertation, Univ. of Houston (1965).
- W-6 Wu, J. "A Criterion for Determining Air-Flow Seperation from Wind Waves". Tellus, <u>21</u>, 707 (1969).
- W-7 Wu, J. "Froude Number Scaling of Wind-Stress Coefficients". J. of the Atmo. Sci. <u>26</u>, 408 (1969).
- W-8 Wu, J. "Laboratory of Wind-Wave Interactions". J. Fluid Mech. <u>34</u>, 91 (1968).
- W-9 Wu, J. "Wind-Wave Interactions". Phy. of Fluid <u>13</u>, 1926 (1970).
- Y-1 Yih, C. S. "Stability of Liquid Flow down an Inclined Plane". Phys. of Fluids, <u>6</u>, 321 (1963).
- Y-2 Yih, C. S. "Stability of Parallel Laminar Flow with a Free Surface". Proc. 2nd U. S. Congr. Appl. Mech. 623 (1954).

A = Wave amplitude (ft).

 $A_{eg}$  = Dimensionless wave amplitude.

 $A_{\rm F}$  = Amplification factor ( 1/in ).

 $Q_n =$ Coefficient of Ruckensten's velocity profile.

 $\dot{A}_{we\bar{q}}$  Mean effective cross-sectional area ( cm ).

 $A_{\rm P}=\pi$  D < A> (  ${\rm ft}^2$  ).

 $A_w = \pi D \langle \rangle$  (  $ft^2$  ).

 $b_n =$  Coefficient of Ruckensten's velocity profile.

C = wave velocity ( ft/sec ).

C' = Secondary wave velocity ( ft/sec ).

 $C_s = Small wave velocity ( ft/sec ).$ 

 $C_{\rm D} = {\rm Drag}$  coefficient.

 $\widetilde{C_2}$  = Second central moment.

 $\widetilde{C}_{3}$  = Third central moment.

 $\widetilde{C}_{q}$  = Fourth central moment.

 $\widetilde{C}(\zeta)$ = Covariance function.

 $\square$  = Diameter of test section (ft).

di = Coefficient of the Gram-Charlier series on correlation function.

 $\overline{EN}$  = entrainments rate ( lb/sec ).

 $\frac{2}{F}$  = Probability distribution function.

 $\overline{F}_{x}$  = Force per unit area due to pressure fluctuations (lbf/ft<sup>2</sup>).  $\overline{F}_{mS}$ = Mass fraction of substrate  $\overline{F}_{S}$  = Time fraction of the small waves on substrate.  $\overline{F}_{W}$  = Time fraction of the large waves.  $\overline{F_r}$  = Froude number. f = Frequency ( cps ).  $\widehat{+}$  = Probability density function.  $f_{i}$  = Coefficient of the Gram-Charlier series on stream function.  $f_{l}$  = Large wave frequency ( cps ).  $f_{2}^{\prime}$  = Large wave frequency of  $h_{max} > 2 < h > (cps)$ .  $f_m = Modal frequency (cps).$  $f'_m$  = Secondary modal frequency (cps).  $f_s = Small wave frequency (cps).$  $G = R_0 W_0^{\gamma_2}$  $G^{*}$  = Goren dimensionless group.

G' = Dimensionless gravity field intensity.

 $G_s =$ Specific conductance ( mhos/cm ).

 $G_{m} = Conductance (mhos).$ 

 $G_{ms}$  = Conductance of electrolyte from standard cemm (mohs).

Gmu= Conductance of electrolyte from unknown cell (mhos).

- $\mathcal{F} = \text{Gravitational force (ft/sec}^2).$
- $H_i$  = Hermite polynomials.
- $\widetilde{H}$  = histogram.
- -h = Film thickness (in).
- The = Mean film thickness (in).
- Thmay= Wave maximum (in).
- Timin= Wave minimum (in).
- Ths = Substrate film thickness (in).
- $i = \sqrt{-1}$
- $\widetilde{\kappa}(f)$  = Coherency spectrum.
- $K_{cc} = Cell constant (1/cm).$
- Kccu = Unknown cell constant (1/cm).
- Kccs = Cell constant of standard cell (1/cm).
- $L_{me}$  = Mean length between conductivity cell electrode (cm).
- L = Distance (ft).
- m, = Coefficient of the Gram-Charlier series on wave shape.
- $N_{L}$  = Total number of large waves.
- $N_{SL}$  = Total number of small waves on large waves.
- $N_S$  = Total number of small waves on substrate.

 $N_W = Dimensionless$  wave number.

 $N_{\lambda}$  = Dimensionless wave length.

 $N_T = Nusselt number.$ 

- P = Pressure (lbf/ft<sup>2</sup>).
- $\stackrel{\sim}{p}$  = Probability of event.
- $\widehat{\mathbb{Q}}(\mathfrak{f})=$  Quadrature spectrum.

 $\widehat{R}^{(n)}$  = Correlation function.

- $\Upsilon$  = Radius of test section (ft).
- $Re_L$  = Liquid Reynold number.

 $Re_{G}$  = Gas Reynold number.

S = Telles' dimensionless wave velocity.

Sifi= spectrum.

 $\widehat{S}_{A}(f)$  = Cross amplitude spectrum.

 $S_{e_k^e}$  = Slope of spectrum in equilibrium range.

 $\overline{1}$  = Time scale (sec).

 $T_{bs} = Wave base (sec).$ 

 $T_{fn} = Wave front (sec).$ 

 $T_{bK}$  = Wave back (sec).

 $\neg \overline{J_{5ep}} =$  Wave separation (sec).

 $\overline{1_{sep}}$  = Wave separation of  $h_{max} > 2 < h >$  (sec).

 $\tau, \tau_i$  = Time coordinate (sec).

$$u, u_i = x$$
 directional velocity (ft/sec).

 $u_{\rm b}$  = Mean velocity (ft/sec).

 $\overline{u}$  = Local average velocity (ft/sec).

 $\mathbb{T}$  = Velocity of primary flow (ft/sec).

 $U_R$  = Relative wave velocity (ft/sec).

 $U_{q}$  = Average gas velocity (ft/sec).

 $U_*$  = Friction velocity (ft/sec).

: V = y - directional velocity (ft/sec).

We = Weber number.

 $W_{L}$  = Liquid flow rate (lb/sec).

 $W_{G} = Gas flow rate (lb/sec).$ 

 $\chi, \chi_i$  = Coordinate direction (ft).

 $\widehat{\mathcal{T}}_{\circ}$  = Length scale.

 $\exists_i, \exists_i = \text{Coordinate direction (ft).}$ 

 $a^{\dagger}$  = Dimensionless distance.

 $Z_i$  = Functions of the Gram-Charlier series.

Z = Coordinate direction.

 $\propto$  = Dimensionless wave velocity.

 $\mathscr{A}_{i_{\mathcal{F}}}$  = Constant of velocity coefficient.

- $|\beta$  = Pressure drop parameter.
- $T_L$  = Mass flow rate (lb/ft-sec).
- $\mathcal{V}$  = Kinematic surface tension (ft<sup>2</sup>/sec).
- $\delta$  = Delta function.
- $\mathcal{E}$  = Shallow wave parameter.
- $\mathcal{E}_{i} = \text{Eddy viscosity (ft}^{2}/\text{sec}).$
- $\gamma$  = Dimensionless film thickness.
- $\widetilde{\Theta}$  = Phase spectrum.

 $-\lambda$  = Co-spectrum.

> = Wave length (ft).

ン = Viscosity (lb/ft sec).

- $\mathcal{V}$  = Kinematic viscosity (ft<sup>2</sup>/sec).
- $S = \text{Density (lb/ft}^3).$
- $\mathbb{C}$  = Surface tension (dyne/cm<sup>2</sup>).
- $\widetilde{\mathbb{C}}$  = Standard deviation.
- $\mathcal{T}$  = Time lag (sec).
- $\mathcal{T}'$  = Dimensionless time lag.
- $\mathcal{T}_{i} = \text{Interface shear (lbf/ft}^{2}).$

 $\mathcal{T}_{FD}$ = Form drag (lbf/ft<sup>2</sup>).

 $J_W = Wall shear stress (lbf/ft<sup>2</sup>).$ 

 $J_1$  = Time lag of maximum value of cross covariance (sec).  $J_{min}$  = Mean base time (sec).  $J_m$  = Mean period (sec).

 $\Phi_{i} = \frac{1}{2}$  dependent function of stream function.

4 = 2 dependent function of stream function.

 $\Psi$  = Stream function.

 $\omega$  = Angular frequency (rad./sec).

## SUBSCRIPT AND SUPERSCRIPT

S - Small wave on substrate.

1 - Large waves.

÷

SL - Small waves on large waves.

W - Large waves including small waves riding on it.

 $\sim$  - Statistical quantity.

∧ - Random variables.

 $\langle \rangle$  - Expected value.

APPENDIX A

•

COMPUTER FROGRAM

.

.

```
Frogram no. 1
```

```
Hybrid program for converting continuous analog voltage
                                                                             323
signal into digital time series of film thickness.
      TWO CHANGEL DIGITIZING PROGRAM
С
С
      REAL+9 CCW4D(2), RCBAU(4), FSAVE(4)
      INTEGER#2 LOCAD(05044)
      DIMENSION X(02522), Y(02522), RTSAVE(61), CELL(2), 2X(2, 20), ZY(2, 20),
     1CIR(2), TM(2), AP(2), ICOC(2), IX(72), IY(72)
С
С
      NP=05040
С
      LOCAD(1)=1
      KCCN=0
      KKK = 2
      WRITE (15,200)
 1
      FORMAT ("TYPE NO. OF SAMPLES-15 05040 ")
 200
      KC0V=KC0U+1
      READ (15,100) NP
      FORMAT (15)
 100
      READ (5,401) WL, WG, TEPL, YEPG, VCPL, VCPG, COFA, COFB, TN
      FGRMAT (6F10.5,344)
 401
      READ (5,402) MM, ISS, IT, XMU, YMU
       FORMAT (213, 16, F10.1, F10.1)
 402
        READ (5,405) VAX, VPX, VACX, VBDX
       READ (5,406) VAY, VDY, VADY, VBDY
         FORMAT (4F10.5)
 406
       WRITE (6,494) VAX, VHX, VADX, VHDX
      WRITE (5,494) VAY, VEY, VADY, VEDY
      FURMAT (/,10X, 'REFERENCE VOLTAGE ',/,10X,' VA = ',F10.5,5X,' VB =
 494
     1',F10.5,5X, VAD = ',F10.5,5X, VBD = ',F10.5)
      REL=(4.0*hL*6.0)/(3.14159*0.000672*VCPL)
       REG= (4.0++G+6.0)/(3.14159+0.000672+VCPG)
       IREL=INT(REL)
       IREG=INT(REG)
       N=NP/2
       WRITE (6,321) N,WL,WG
      FORMAT (10X, 'NG. OF POINTS PER SAMPLE = ', 15, //, 10X, 'WATER FLOW RA
 321
      1TE = ', F10.5, 'LB/SEC', 5X, 'AIR FLOw RATE = ', F10.5, 'LB/SEC', //)
       WRITE (6,404) TN, COFA, COFB
        FORMAT (1CX, 'TAPE NO = ', A4, 5X, 'CONFIGURATION = ', 2A4, //)
 404
       WRITE (6,405) REL,REG
       FORMAT (10X, WATER REYNOLD NO. = ", E11.4,10X," AIR REYNOLD NO. =
 405
    · 1 ',E11.4,//)
       WRITE (6,414) TEPL, TEPG, VCPL, VCPG
       FORMAT (10X, 'TEPL = ', F10.5, 5X, 'TEPG = ', F10.5, 5X, 'VCPL = ', F10.5
 414
      1,5X, VCPG = ', F10.5,//)
       FIT=FLOAT(IT)
       FN=FLCAT(N)
       T=FN/FIT
       WRITE (6,403) ISS, IT, T
       FORMAT (10X, NO. OF POINTS FOR AVERAGING = 1,13,5X, SAMPLING FREQU
 403
      1ENCY = ', 16, ' CPS', //, 10X, 'SAMPLING LENGTH = ', F10.5, ' SEC', //)
       WRITE(6,107) XMU,YMU
        FORMAT(10X, * XMU = *, F10.1, 10X, *YMU = *, F10.1,/)
  107
       CALL READAD (CCWAD, NP, 3, LUCAD)
       CALL FROBSU (ROBAD, 28, COWAD)
       DO 911 I=1.2
       READ (5,912) CELL(I), CIR(I), TM(I), AP(I)
       wRITE (6,915) CELL(I),CIR(I),AP(I),TM(I)
       IF (AP(I).LT.0.0) GO TO 301
       ICOC(I) = 1
       GO TO 302
       ICGC(I) = 0
  301
       kRITE (6,117)
  117
       FORMAT (10X, *$$$$$$$$$$$$$$
       DO 303 J=1,20
       Z \times (I, J) = G \cdot O
  303
       ZY(I, J) = 0.0
        GC TO 119
  302
        CONTINUE
       DO 913 J=1,20,5
       KK = J + 4
  913
       READ (5,914) (ZX(1,K),ZY(1,K),K=J,KK)
  912
       FORMAT (A2,A2,A4,F10.5)
  914
       FORMAT (LOF8.3)
  119
        WRITE (6,118) ICOC(I)
         FORMAT (lox, ICOC = I, I2)
  118
      CUNTINUE
  911
```

WRITE (6,304) (ICOC(I), I=1,2) 2 FORMAT (5X, 'ICCC(1) =', 11, 5X, 'ICOC(2) = ', 11,/) 304 WRITE (6,915) (CELL(1),CIR(1),AP(1),TM(1),I=1,2) FORMAT (\* CELL 10. = ', A2,5%, \*CIPCUIT NO. = ', A2,5%, \* AMP OF CA 324 915 IRRIER = ',F10.5,5%,\*TAPE NO. = ',A4,//) DO 916 I=1,20 WRITE (6,917) (ZX(J,1),ZY(J,1),J=1,2) 916 FURMAT (5X, 12X = 1, F10. >, 2X, 12Y = 1, F10.5, 2X, 12X = 1, F10.5, 2X, 12Y = 1, 917 1F10.5) VVXY=0.0 VVYY=0.0VVXX=0.0 0.0=XXXVV VVYYY=0.0 VVXXXX=0.0 VVYYYY=0.0 YMM=0.0 XMM=C.0 NN=0 С INPUT CONDITION ON DIGITAL TAPE С С WRITE (1,501) KCCN, N, MM, XMU, YMU, WL, WG, IREL, IREG, TEPL, TEPG, TN, IT, 1CELL(1), CFLL(2) FURMAT (12,15,12,2F10.1,2F8.4,217,2F10.3,A4,16,A2,A2) 501 IF (KKK.EQ.2) GO TO 21 VADX=VVADX VACY=VVADY VBCX=VVBDX VBDY=VVBDY GD TO 22 CONTINUE 21 · DO 151 1J=1,2 VVA=C.0 -----VVB=0.0 DO 152 IK=1,5 CALL FRIID (RCBAD, IRET) CALL FCHECK (RCBAD, IRET, 1) DO 153 I=1,N J = N - I + 1Y(J)=LOCAD(2\*J+1)/81.91 X(J) = L(ICAD(2\*J)/81.91Y(J)=Y(J)/100.0 X(J) = X(J) / 100.0Y(J) = -Y(J)X(1) = -X(1)VB = VB + Y(J)153 VA=VA+X(J)VA=VA/EN VB=VE/FN 152 VVB=VV3+VB VVA=VVA/5.0 VVB=VVB/5.0 IF (IJ.EQ.1) GO TO 154 VBCX=VVA VBCY=VVB VVBDX=VBDX VVBDY=VBDY GD TO 155 154 VADX=VVA VACY=VVB VVADX=VADXVVADY=VADY PAUSE IMOUNT ANALOG TAPE REF! 155 151 CENTINUE WRITE (6,494) VAX,VBX,VADX,VBDX 22 WRITE (6,494) VAY, VBY, VADY, VBDY 20 CONTINUE CALL FRTIO (RCBAD, IRET) CALL FCHECK (RC8\*D, IRET, 1) DO 10 I=1,N J = N - I + 1Y(J)=LOCAD(2\*J+1)/81.91 X(J)=LOCAD(2\*J)/81.91 Y(J) = (-Y(J)) / 100.0X(J) = (-X(J))/100.0Y(J) = VBY + (Y(J) - VBDY) + (VAY - VBY) / (VADY - VBDY)X(J) = VBX + (X(J) - VBDX) \* (VAX - VBX) / (VADX - VBDX)10 XM=0.0 YM=0.0 UU 30 LL=1,2 DO 999 L=1,N -----

		IF (LL.E0.2) GD TO 913	3
		S=X(L) TELICOC(LL),EC.O) GO ID 305	
		60 TO 919	
	305	C=S	325
	018	GU 10 920 S=¥(1)	
	110	IF (ICOC(LL).EQ.C) GO TO 306	
		GU TO 919	
	306		
	919	1F (S.LE.ZX(LL,1)) GU TO 901	
		GD TC 902	
	901	C=2Y(LL,1)	
	407	FORMAT $(1X, L^+)$	
		GO TO 920	
	902	1F (S.GE.ZX(LL,20)) GU TO 903	
	903	C=ZY(LL,20)	
		WRITE (6,408)	
	408	FORMAT (1X, "H*")	
	904	IF (S.GF.ZX(LL,18)) GO TO 931	
		IF (S.GE.ZX(LL,16)) GU TO 905	
		IF (S.GE.ZX(LL,13)) GO TO 907	
		IF (S.GE.ZX(LL,7)) GU TU 909	
		IF (S.GE.2X(LL,4)) GD TO 910	
<b></b>		GB TC 906	
	910	I Z =4	
		122=7	
	909	12=7	
•		122=10	· · · · · · · · · · · · · · · · · · ·
	000	GO TO 906	
	900	122=10	·
		GO TO 905	
	907	IZ=13	
		GO TO 906	
	905	12=16	
	•	122=18 GO TO 906	· · · · · · · · · · · · · · · · · · ·
	931	IZ=18	
	004	122=20	
	900	$DD 40 I=1Z \cdot IZZ$	
		$Z \times I = Z \times (LL + I)$	
		P=1.0	
		IF (I.EQ.J) GC TC 50	
		ZXJ=ZX(LL,J)	
•		$A = (S - Z \times J) / (Z \times I - Z \times J)$ $P = P \pm \Lambda$	
• •	50	CONTINUE	· · · · · · · · · · · · ·
		B = P * Z Y (LL, I)	
	40	CONTINUÉ	· ····· · · · · · · · · · · · · · · ·
	920	IF(LL.EQ.2) GO TO 921	
		X(L)=C	· · · · · · · · · · · · · · · · · · ·
		CO TO 999	
	921	Y(L)=C	···· · · · · · · · · · · · · · · · · ·
	000		
	30	CONTINUE	· · ·
•		XM=XM/FN	· · · · · · · · · · · ·
- ·		¥M=YX/FN VXY=C.0	
		VYY=C.0	
		VXX=0.0	
		VXXX=0.0 VYYY=0.0	······································
		VXXXX=0.0	
- · ·		VYYYY=0.0	
		DU 666 I=I,N VX=X(I)-XM	
	<b>.</b> .	VY=Y(I)-YM	•

	VX2=VX*VX VY2=VY+VY	٤
	VXX=VXX+VX2	
	VXY=VXY+VX*VY	326
	VX3=VX2*VX	<i></i>
	VY3=VY2*VY	
	V X X X = V X X X + V X 3 V Y Y Y = V Y Y + V Y 3	
	VXXXX=VXXX+VX3«VX	· · ·
56	VYYYY=VYYYY+VY3*VY	
	VXX=VXX/FN	
	VXXX=VXXX/FN	
	VYYY=VYYY/FN	wing ing to the second second second
	VXXXX=VXXXX/FN	
	VYYYY=VYYYY/EN WRITE (A.665) XH.YM.VXX.VYY.VXY	
65	FURMAT $(2X, *XM = *, E11.4, 2X, *YM = *, E$	11.4,2X, VXX = ',E11.4,2X, VY
·	1Y = ',E11.4,2X,'VXY = ',E11.4)	
	KRITE (6,667) VXXX,VYYY,VXXXX,VYYY	
61	- FURMAT(2X;'VXXX =';EII.4;2X;'VYYY = ' 1.1VYYYY = 1.F11.4)	,EII.4,2/, V///// = ',EII.4,2/
	VVXY=VVXY+VXY	
	V V X X = V V X X + V X X	-
	VVYY=VVYY+VYY	
	V Y X X X = V Y X X X Y X X X V Y Y Y = V Y Y Y + V Y Y Y	
	V	
	VVYYY= VVYYY+ VYYY	· ·
	YMM=YMM+YM WRITE (6.300) (X(1).Y(1).1=1.5)	
	WRITE (6,300) (X(1),Y(1),I=2516,2520)	
00	FORMAT(2X,10(F8.5,2X))	· ·
	STORE DATA INTO DIGITAL TAPE	
502	FORMAT(2F8.5,7811.4)	
	DO 503 1=1,35	
	KK = (1-1) * 72	,
	DU 904 J=1,72 II=KK+1	
	X(II)=X(1I)*XMU	··· ·· · · · · · · · · · · · · · · · ·
•	Y(II)=Y(II) *YMU	
	$I \times (J) = I \times T (X (II))$	
)4	1Y(J)=[x (Y(1])) WRITE(1,505) (IY(1),1=) 72)	
	WRITE(1,505) (IY(J), $J=1.72$ )	
05	FORMAT(7215)	
03	CONTINUE	
	LE UNN (LI(MM)) GO TÚ 20 EMN=ELDAT(MM)	
	WRITE(6,201) MM	······································
201	FURMAT (20X, 'NU.OF SAMPLE =', 15,//)	•
	VVXY=VVXY/FMM	
	VVXXX=VVXXX/FMM	
-	VVYYY=VVYYY/FMM	
	VVXXXX=VVXXXX/FNM	
	VVYYYY=VVYYY/FMM YMM-YYM/EMM	
	YMM=YMM/FMM	
	WRITE (6,665) XMM, YMM, VVXX, VVYY, VVXY	
	WRITE(6,657) VVXXX,VVYYY,VVXXXX,VVYYY	(Y •
• •	SVAT=SUKI(VVXYZ) WRITE (6.868) VVXYZ-SVXY	
68	FORMAT (5x, * VVXX.VVYY = ',E11.4,5X,	SVXY = ",E11.4)
	WRITE (6,656) CELL(1),CIR(1),CELL(2),	C1R(2)
<b>5</b> 6	FURMAT (10X, 'X CHANNEL = ', $A_2, A_2, //, 1$	10X, Y CHANNEL = $1, A2, A2, 1/1$
	WKIFE(I,506) XMM,YMM,VVXX,VVYY,VVXY,V 1VVXY2,SVXY	/ V X X X 9 V V Y Y Y 9 V V X X X X 9 V V Y Y Y 9
506	FURMAT(2F8.5,9E11.4)	
	PAUSE MUUNT ANALUG TAPE!	
	WRITE (15,507)	

.

•

```
FORMAT (*TYPE KKK-11 O=CONTINUE OR 1=STUP OR 2=CHANGE TAPE*)
   507
        READ (15,508) KKK
        FORMAT(II)
   508
        IF (KKK.EQ.0) GO TO 1
                                                                                 327
        1F (KKK.EQ.2) CO TO 1
        ENCEILE 1
        REWIND 1
        READ (1,501) KCGN,NI,MM,XPU,YPU,WL,NG,IREL,IREG,TEPL,TEPG,TN,IT,
       1CELL(1), CELL(2)
        WRITE (6,101) KCON, N, MM, XMU, YMU, WL, WG, IREL, IREG, TEPL, TEPG, TN, 11,
      - ICFLL(1), CFLL(2)
       FORMAT(1H1,10X, KCO' = ',12,5X, NT = ',15,5X, MM = ',12,/,
   101
       110X_{*}X''U = *_{*}F10_{*}1_{*}5X_{*}YMU = *_{*}F10_{*}1_{*}/_{*}
       210X_{1}^{1}hL = \frac{1}{5}F8.45X_{1}^{1}hG = \frac{1}{5}F8.47_{1}
       310X, 'IREL =', 17, 5X, 'IREG = ', 17, /,
       410X, 'TEPL = ', F10.3, 5X, 'TEPG = ', F10.3, /,
       510X, TN = 1, A4, 5X, TT = 1, 16, 7,
       610X, ** CELL = ', A2, 5X, *Y CELL = *, A2, //)
        DO 219 L=1,MM
        READ (1,502) XM,YM,VXX,VYY,VXY,VXXX,VYYY,VXXXX,VYYY

        KRITE
        (6,665)
        XM,YM,VXX,VYY,VXY

        WRITE
        (6,667)
        VXXX,VYYY,VXXXX,VYYYY

 1 -
         DO 102 [=1,35
        KK=(I−1)*72
         READ (1,505) (1X(J), J=1,72)
        READ (1,505) (1Y(J), J=1,72)
         DO 103 J=1,72
         II = KX + J
         X(II) = FLUAT(IX(J))/XMU
   103
        Y(II)=FL0//(IY(J))/YMU
        CONTINUE
   102
         WRITE (0, 300) (X(1), Y(1), I=1, 5)
         WRITE(6,300) (X(I),Y(I),I=2516,2520)
  219
        CONTINUE
         READ (1,506) XMM,YMM,VVXX,VVYY,VVXY,VVXXX,VVYYY,VVXXX,VVYYY,
        1 V V X Y 2, S V X Y
         WRITE (6,665) XMM, YMM, VVXX, VVYY, VVXY
         WRITE(6,667) VVXXX,VVYYY,VVXXXX,VVYYY
         WRITE (6,868) VVXY2,SVXY
         STOP
   . . . . .
         END
Program no. 2
  Hybrid program for calculating moments, histogram, pro-
  bability density function, and probability distribution
  function of film thickness.
  С
       - PROBABILITY FUNCTION OF WAVE
  С
  С
         REAL*8 CCWAD(2), RCBAD(4), FSAVE(4)
         INTEGER*2 LOCAD(10000)
         DIMENSION X(05000),RISAVE(61),H(71),B(71),FF(71),PF(71),PFF(71),
        1PH(71),XI(6),ZX(20),ZY(20)
         EQUIVALENCE (X(1), LOCAD(2))
         LOCAD(1)=0
         WRITE (15,200)
         FORMAT ('TYPE NO. OF SAMPLES-15 05000 ')
   200
  С
  С
         N=05000
  C.
         READ (15,100) N
         FORMAT (15)
    100
         REAL (5,4J1) WL,WS,TEPL,TEPG,VCPL,VCPG,COFA,COFB,TN
         FORMAT (6F10.5,3A4)
    401
         REL=(4.0*wL*6.0)/(3.14159*0.0000672*VCPL)
         REG=(4.0*W3*6.0)/(3.14159*0.000672*VCPG)
         WRITE (6,231) N, WL, WU
         FORMAT (10%, 'NU. OF POINTS PER SAMPLE = ', 15, //, 10%, 'WATER FLOW RA
    231
        1TE = ',F10.5,'LP/SEC',5X,'AIR FLUW RATE = ',F10.5,'LB/SEC',//)
         WRITE (5,405) REL,REG
         FORMAT (10x, * WATER REYNOLD NO. = *, E11.4, 10X, * AIR REYNOLD NO. =
    405
         1 ",Ell.4,//)
         WRITE (6,414) TEPL, TEPG, VCPL, VCPG
           FORMAT (10X, 'TEPL = ', F10.5, 5X, 'TEPG = ', F10.5, 5X, 'VCPL = ', F10.5
    414
        1,5X, VCPG = ',F10.5,//)
          WRITE (6,404) TN,COFA,COFB
           FORMAT (10X, 'TAPE NO = ', A4, 5X, 'CONFIGURATION = ', 2A4, //)
    404
```

```
CALL READAD (CCWAD, N, LU, LUGAD)
٩
                                                                                                l
      CALL FROBSU (ROBAD, 28, COWAD)
      READ (5,402) M, MY, IT
 402
      FCRMAT (213,16)
        READ (5,405) VA,VB,VAD,VBD
                                                                                328
         EDPMAT (4F10.5)
 406
      WRITE (6,494) VA,VB,VAD,VBD
      FORMAT (/,10x, 'REFERENCE VOLTAGE ',/,10x, ' VA = ',F10.5,5X, ' VB =
 494
      1*,F1C.5,5X,*VAD = *,F10.5,5X,*V30 = *,F10.5)
      WRITE (6,423) M.IT
 403 FORMAT (10X, NO. OF PROBABILITY INTERVALS = +,13,5X, *SAMPLING FREQ
     1UEACY = ',16, ' CPS',//)
      READ (5,912) CELL, CIR, TN, AP
 912
      FORMAT (A2, A2, A4, F10.5)
      WRITE (6,915) CELL, CIR, AP, TN
 915
      FORMAT (' CELL NO. = ', A2,5X, 'CIRCUIT NO. = ',A2,5X, ' AMP DE CA
     1RRIER = ', F10.5, 5X, 'TAPE NO. = ', A4,//)
      DO 913 I=1,20,5
      KK = I + 4
 913
         READ (5,914) (ZX(J),ZY(J),J=I,KK)
 914
      FORMAT (10E9.3)
      DO 916 I=1,20
 916
      hRITE (5,14) ZX(I), ZY(I)
      FORMAT (2X, 1ZX = 1, F10.5, 2X, 1, ZY = 1, F10.5)
  4
      XI(1)=(0.05-0.0)/50.0
      XI(2)=(0.1-J.05)/10.0
      XI(3)=(0.2-3.1)/4.0
      XI(4) = (0.4 - 0.2)/4.0
      XI(5)=(0.5-0.4)/1.0
                                     · · · · · · · ·
                                                  - -
                                                           - ... ... . . . . . . . .
                                                                                           ----
      XI(d) = (1.0 - 0.5)/1.0
                                                                       -----
                                                                                          . .
      DO 800 I=1,50
      FI=FLCAT(I)
 800
      B(I)=(FI-0.5)*XI(1)
      DO 803 I=1,10
      FI=FLOAT(I)
      11=1+50
 803
       B(II)=0.05+(FI-0.5)*XI(2)
      DO 801 I=1,4
      FI=FLCAT(1)
       II=I+60
       B(11)=0.1+(FI-0.5)*XI(3)
 103
      DO 802 I=1,4
      FI=FLUAT (I)
       1I=I+64
 802
       B(II)=0.2+(FI-0.5)*XI(4)
       B(69) = 0.45
      B(70)=0.75
      DO 30 I=1,M
      PH(I)=0.0
      PFF(I)=0.0
 30
      NN=0
 20
      CONTINUE
      CALL FRIID (RCBAD, IRET)
      CALL FCHECK (RCBAD, IRET, 1)
      DO 10 I=1,N
      J=1-I+1
       X(J) = LGCAD (J+1)/81.91
      X(J)=X(J)/190.0
 10
      X(J) = VC + (X(J) - VED) + (VA - VB) / (VAD - VBD)
      DO 999 L=1,%
      S = X(L)
       IF (S.LE.ZX(1))
                           GO TO 901
      GO TO 902
 901
      C=ZY(1)
      WRITE (6,407)
 407
       FORMAT (1X, "L*")
      GO TO 31
 902
       IF (S.GE.ZX(20)) GD TO 903
      GO TO 904
 903
      C = ZY(20)
      WRITE (6,408)
 408
       FORMAT (IX, "H*")
      GO TC 31
. 904
       IF (S.GE.ZX(18)) GC TO 911
       IF (S.GE.ZX(16)) GD TU 905
      IF (S.GE.ZX(13)) GD TO 907
      IF (S.GE.ZX(10)) GO TO 908
      IF (S.GE.ZX(7)) GO TO 909
IF (S.GE.ZX(4)) GO TO 910
      12=1
      122=4
```

```
GO TO 906
 911
        IZ=18
       172=20
 906
       C=0.0
       DO 40 1=12+122
       ZXI = ZX(I)
       P=1.0
       DO 50 J=12+122
                                                                                  329
       IF (I.EQ.J) GO TO 50
       2XJ = ZX(J)
       A=(S-2XJ)/(ZXI-2XJ)
       P = P \neq \Delta
  50
       CONTINUE
       BB=P*ZY(I)
       C=C+88
 40
        CO-111:UE
 31
       X(L) = C
 999
       CONTINUE
       CALL PROB (N,X,H,FF,M,XI)
       DO 41 I=1,M
        PH(I)=PH(I)+H(I)
 41
       PFF(1)=PFF(1)+FF(1)
        NN=NN+1
       IF (INN.LT.MA) GO TO 20
       FMM=FLOAT(MM)
       DG 51 I=1,M
       PH(I)=PH(I)/FMM
 51
       PFF(I)=PFF(I)/FMM
       WRITE(6,201) MM
  201 FORMAT (20X, 'NO.OF SAMPLE =', 15, //, 20X, 'PROBABILITY DENSITY AND DI.
      ISTRIBUTION ,//)
       DO 70 1=1,50
 70
        PF(I) = PH(I) / XI(I)
       00 73 I=1,10
       II=I+5C
 73
       PF(II) = PH(II) / XI(2)
         DO 71 I=1,4
        II = I + 60
        PF(II)=PH(II)/X1(3)
 71
       00 72 [=1,4
        II = I + 64
 72
        PF (1I) = PH(1I) / XI(4)
       PF(69)=PH(69)/XI(5)
       PF(70)=PH(70)/XI(5)
       XM=0.0
       DO 81 I=1.M
 81
        XM = XK + PH(I) \Rightarrow B(I)
       C1=0.0
       C2=0.0
       C3=C.U
       C4 = 0.0
        00 80 I=1,M
        C1 = C1 + PH(I) \neq (B(I) - XM)
        C2=C2+PH(I)+(B(I)-XM)++2
        C3=C3+PH(I)*(B(I)-XM)**3
        C4=C4+PH([)*(8(])~XM)**4
 80
       WRITE (6,123) XM ,C1,C2,C3,C4
 123
      FORMAT (10X, 'MEAN=', F9.5, 2X, 'IST CENTRAL MOMENT=', F9.5, //,
      110X, 12ND CENTRAL HOMENT = 1, E9.3,2X, 13RD CENTRAL MOMENT= 1, E9.3,//,
210X, 14TH CENTRAL MOMENT= 1, E9.3,/)
       WRITE (6,222)
 222
       FORMAT (20X, PROBABILITY DENSITY 1, //, 10X, FILM THICKNESS, BX, ****
      1*HISTOGRAM+++**',5X,'++**DISTRIBUTION++**',5X,'++++*DENSITY++++*')
       DU 333 I=1,M
 333
       WRITE (6,444) B(1),PH(1),PFF(1),PF(1)
.444 FORMAT(10X, 'B(1) = ', F10. >, 5X, 'H(1) = ', F10. 5, 5X, 'FF(1) = ', F10. 5,
      15X, F(1) = F_1G_5
      • WRITE (6,101)
 101
       FORMAT (1H1,10X, "HISTOGRAM")
        CALL PLOT (8, PH, M)
       WRITE (6,102)
        FURMAT (1H1,1CX, *PROBABILITY DENSITY *)
. 102
       CALL PLOT (B, PF, M)
       WRITE (6,103)
 103
        FORMAT (1H1, 10X, PROBABILITY DISTRIBUTION *)
       CALL PLOT (3, PFF, M)
       IREL=14T(REL)
       IREG=INT(REG)
        DO 601 I=1,2
       11=1+(1-1)*35
       12=35+(1-1)*35
```

WRITE (5+6UZ) FORMAT (1H1,/////////) 602 WRITE (6,603) WL, WL, WL, WG, WG, WG 603 FURMAT (1X, '| WL (LB/SEC)', 3('|', F7, 4), '|', /, 1X, '|WG (LB/SEC)', 3('| 1+, [7,4], []) 330 WRITE (6,603) IREL, IREL, IREL, IREG, IREG, IREG FURMAT (1x, 1 REL. NO. 1,3(11,17),11,1X,11 REG. NO. 1.3(1). .608 117), ()) WRITE (6,604) TEPL, TEPL, TEPL, TEPG, TEPG, TEPG FURMAT (1X, 1 TL ( ), 3(11, F7.3), 1, , , 1X, 1 TG ( 604 )1,3(1 1', -7.3), - | + } WRITE (6,605) TN, TN, TN, CELL, CELL, CELL 605 FURMAT (1X, '|RUN NC. = ',3('| ',A4,2X), '|',/,1X, '|CELL NU. = ',3( ۰, 111 2 A2,3X), '|',/,1X,'| FILM |',23X,'|',/,1X,'| 3ST. | DIST. | DENS. |',/,1X,'| ( INCHES) |',23X,'|') |',23X,'|',/,1X,'| THICKNESS | HI CO 606 J=11,12 606 WRITE (6,607) 8(J), PH(J), PFF(J), PF(J) FURMAT (1X, 1 | , F10.5, 1 | , F7.4, 1 | , F7.4, 1 | , F7.2, 1 | ) 607 601 CONTINUE STOP END SUBROUTINE PROB(N, X, H, FF, M, XI) DIMENSION X(N), H(M), FF(M), XI(5) DO 46 I=1,M 40 H(I)=0.0 XMAX = X(1)X M I' = X (1)DO 50 I=1,N IF (X(I).GT.XMAX) XMAX=X(I) IF (X(I).LT.XMIN) XMIN=X(I) IF (X(I).LT.0.05) G0 TO 51 IF (X(I).LT.0.1) GO TO 71 IF (X(I).LT.0.2) GO TO 52 IF (X(I).LT.0.4) GO TO 53 IF (X(1).LT.0.5) GO TO 54 J=70 GO TO 57 51 A=(X(I)/0.05)\*50.0  $J=INT(\Lambda)+1$ GO TO 57  $A = ((X(1) - 0.05) / (0.1 - 0.05)) + 10.0^{\circ}$ 71 J=5C+1+1T(A)+1 GO TO 57 52 A = ((X(I) - 0.1)/(0.2 - 0.1)) \* 4.0J=60+141(A)+1 GO TO 57 A=((X(1)-0.2)/(0.4-0.2))\*4.0 53 J=64+11T(A)+1GO TO 57 54 . J=69 -----57 H(J) = H(J) + 1.050 CONTINUE FN = FLOAT(N)DO 60 I=1,M 60 H(I)=H(I)/FN DO 70 I=1,M FF(I)=0.0 DO 86 J=1,I 68 FF(I)=FF(I)+H(J)70 CUNTINUE WRITE (6,555) FF(M), XMAX, XMIN 555 FORMAT (10X, ' SUMMATION OF PH = ', F12.5, 5X, 'XMAX = ', F10.5, 5X, 'XM 1IN = ',F10.5RETURN END SUBROUTINE PLOT (X, Y, M) DATA BLANK, ANG, BNG /1H ,1H\*, 1H./ DIMENSION X(M), Y(M), BUT(101), YPR(11) YMIN=Y(1) YMAX=Y(1)DO 11 I=2,M IF (YMAX .GE. Y(I)) GO TO 21 YMAX = Y(I)IF ( YMIN 21 .GE. Y(I)) YMIN = Y(I)11 CONTINUE YSCAL = (YMAX - YMIN )/ 100. YPR(1) = YMINDO 70 KN=1,9 YPR(KN+1) = YPR(KN) + YSCAL\* 10.0 70 YPR(11) = YMAXWRITE (6,200) ( YPR(1), I=1,11) XPR = X(1)

```
DO 20 1X=1,101,10
 20
     OUT(IX) = UNG
     JP = INT(((Y(1) - YMIN)/YSCAE) + 1.0)
     DUT (JP) = ANG
      WRITE (0,100) XPR , (OUT(12),12=1,101)
 100 FORMAT (F12.5,5X,101A1)
     NH=N-2
     00 36 1=1,NN
     XPR = X(I+1)
     DO 40 IX=2,100
 40
     OUT(IX) = BLANK
     OUT(1)= 8.4G
     OUT (101) = 8NG
     JP= INT(((Y(I+1)-YMIN)/YSCAL)+1.0)
     GUT(JP) = ANG
     WRITE (6,100) XPR, (OUT(12), 12=1,101)
 36
     CONT THUE
     XPR= X(Y)
     DO 50 IX=1,101
 50
     OUT(IX) = BLAAK
    · DO 60 IX=1,101,10
 60
    OUT(IX) = 60G
     JP = (((Y(M) - YMIN)/YSCAL) + 1.0)
     OUT(JP) = AUG
     WRITE (6,100) XPR, (OUT(12), IZ=1,101)
     WRITE (6,20) ( YPR(I),1=1,11)
200
     FORMAT (/,8X,11(E9.3,1/*))
     RETURN
     END
```

-----

. ...

Program no. 3

```
Digital program for calculating auto spectrum, cross
amplitude spectrum, phase spectrum, auto covariance
and cross covariance of two simultaneous time series.
C.
      CROSS AND AUTO POWER DIGITAL PROGRAM
С
С
      DIMENSIGN X(U2520),Y(02520),IX(72),IY(72),CELL(2),DATX(2,1260),
      1DATY(2,1260),NX(1),NY(1),PR(1J25),PI(1025),PX(1025),PY(1025),
     2FR(256), TR(5U0), 4M(256), PS(256), PPX(256), PPY(256)
      EQUIVALENCE (X(1), DATX(1,1))
       EQUIVALENCE (Y(1), DATY(1,1))
      READ (5,100) N, ISS, ICS, ICE
 100
      FURMAT (15,13,12,12)
 1
      READ (1,501) KCON,NT,MM,XMU,YMU,WL,WG,IREL,IREG,TEPL,TEPG,TN,IT,
     1CELL(1), CELL(2)
      FORMAT (12,15,12,2F1C.1,2F3.4,217,2F1C.3,A4,16,A2,A2)
 501
      WRITE (6,101) KCON, NT, MM, XMU, YMU, WL, WG, IREL, IREG, TEPL, TEPG, TN, IT,
      1CELL(1), CELL(2)
      FORMAT(1H1,1uX, *KCON = *,12,5X, *NT = *,15,5X, *MM = *,12,/,
 101
      110X_{1}^{*}X^{\mu}U = !_{1}F10_{1}^{*}_{1}5X_{1}^{*}Y^{\mu}U = !_{1}F10_{1}^{*}_{1}/_{1}
     210X, WL = ", F8.4, 5%, WG = ", F8.4, /,
     310X, 'IREL =', I7, 5X, 'IREG = ', 17, /,
     410X, 'TEPL = ', F1U.3, 5X, 'TEPG = ', F10.3,/,
     510X, 'TN = ', A4, 5X, 'IF = ', I6, /,
     610X, *X CELL = *, A2, 5X, *Y CELL = *, A2, //)
      M=N/2
      NX(1) = N
      NY(1)=4
      FIT=FLOAT(IT)
      FN=FLOAT(N)
      T=EN/FIT
      WRITE(6,104) N, ICS, ICE
 104
      FORMAT (10X, 'NG. OF POINTS PER SAMPLE = ', 15, 5X, 'ICS = ', 12, 5X, 'IC
     1E = ", I2, /)
      WRITE (6,105) ISS, IT, T
 105
      FORMAT (10X, NO. OF POINTS FOR AVERAGING = ', I3, 5X, 'SAMPLING FREQU
      1ENCY = ', 16, ' CPS', //, 10X, 'SAMPLING LENGTH = ', F10.5, ' SEC', //)
      M\Lambda = M + 1
      DO 31 I=1,MA
      PR(1)=0.0
      PI(I)=0.0
      PX(1)=0.0
 31
      PY(I)=0.0
      IF (ICS.LQ.KCON) GO TO 106
      ICON=0
      GO TO 107
```

101	1011140E	
	READ (1.502) XM.YM.VXX.VYY.VXY.VXXX.VYYY.VXXXX.VYYYY	
502	FORMAT(2F2.5,7E11.4)	
	IF (ICON.E0.1) 30 TU 801	
	DO 862 1=1,70	332
802	REND (1, 303)	
. 803	PUKMAE (1X) CO TO 210	
861	0010217	
001	WRITE (6,667) VXXX.VYYY.VXXX.VYYY	
665	FURMAL (2X, 'XM = ', $L11.4, 2X, 'YM = ', E11.4, 2X, 'VXX = ', E11.4, 2X, 'VY$	
	$1Y = {,F11.4,2X,YXY} = {,F11.4}$	
667	FORMAT(2X, *VXXX = *, E11.4, 2X, *VYYY = *, E11.4, 2X, *VXXXX = *, E11.4, 2X	
	1, VYYYY = 1, 11.4	
	DU 102 I=1,35	
	KK = (1 + 1) + (2) P(A(1) + (1 + 1) + (1 + 1) + (2)	
٠	READ (1.505) (1Y(J), J=1.72)	
505	FURMAT (/215)	
	UD 1(3 J=1,72	
	II=KK+J	
	X(II)=FLOAT(IX(J))/XMU	
103	Y(11) = FL(3) (1Y(3))/YR(3)	
102	$V_{2} = V_{1} = V_{2} = V_{2$	
	WRITE(6, 300) (X(1), Y(1), 1=2516, 2520)	
300	FORMAT(2X,1C(F5.5,2X))	
	00 138 1=1,4	
	X(I) = X(I) + X = X	
108	Y(1)=Y(1)=YN CONTINUE	
100	$CALL  FCUR2  (\mathbf{X}, \mathbf{U}\mathbf{X}, 1, -1, 0)$	•
	CALL FOUR2 (Y, NY, 1, -1, C)	
·	DO 41 I=1,MA	
	DATX(1,1)=DATX(1,1)/FIT	
	DATY(1, I) = DATY(1, I)/FIT	
	DATY(2,1) = DATY(2,1)/FIT	
	SAVE A= (D4TX(1,1) + D4TY(1,1) + D4TX(2,1) + D4TY(2,1))/T	
	SAVEB=(DATY(1,1)*DATX(2,1)-DATX(1,1)*DATY(2,1))/T	
	SAVEC=(DATX(1,1)*DATX(1,1)+DATX(2,1)*DATX(2,1))/1 SAVEC=(DATX(1,1)*DATX(1,1)+DATX(2,1)*DATX(2,1))/1	
	PX(T) = PX(T) + SAVEC	
•	PY(I)=PY(I)+SAVED	
	PR(I)=PR(I)+SAVEA	
	PI(I) = PI(I) + SAVEB	
41		
217	READ (1.506) XMM.YAM.VVXX.VVYY.VVXY.VVXXX.VVYYY.VVXXXX.VVYYY.	
	1VVXY2, SVXY	
506	FORMAT(2F8.5,9E11.4)	•
	WRITE (6,665) XMM,YMM,VVXX,VVYY,VVXY	
	WRITELOJOR(I) = VVRAAJVYTTTT	
668	FURMAT $(5X, 1, VVXX, VVYY) = 1, E11.4, 5X, 1, SVXY = 1, E11.4$	
	FMM=FLOAT(MM)	
201	KRITE(6,201) MM	
. 201	L FURMAT (20X, 'NU-UF SAMPLE =',15,//)	
	10 - 51 = 1.84	
	PR(I)=PR(I)/FMM	
	PI(I)=PI(I)/FMM	
••	$PX(I) = PX(I) / F^{W}$	
61		
71	M2=N-1	
	SUM= (PR(1)+PR(M))/2.J	
	SUPX = (PX(1) + PX(Y))/2.0	
	SUMY=(PY(1)+PY(M))/2.0	
	STINX=STINX+DX(T)	
	SUMY=SUMY+PY(I)	
45	SUM=SUM+PR(I)	
	SUM=2.0+SUM/T	
	SUPX=2.6#SUMX/T	
	SUMT=2+U+SUMT/1 ₩2115 [6,55]SUM.SUMY.SUMV	
	AMO=SQRT(PR(1)+P2(1)+P1(1))	
	PSO=ATAN(PI(1)/PR(1))	

•

•

. **.** 

•

.

· · ·

•

.

L

÷

•

•

•.

.

PYO=PY(1)PK=3.14159265 ISSS=N/ISS WRITE (6,111) ISSS FORMAT (10X, 1 1555 = 1,13,/) 111 FISS=FLOAT(ISS) 00 63 J=1, ISSS  $IA = ISS \neq (J-1) + 1$ 333 114=1SS#J AMA=0.0 AMD=C.0 PSD=0.0 PSX=0.0 PSY=0.0 DB 64 1=14,11A AMA=AFA+SORT(PR(I)\*PR(I)+PI(I)\*PI(I))AMD=AMD+PR(1) PSD=PSO+PI(I)PSX=PSX+PX(I) PSY=PSY+PY(I) 64 CONT INUE SAVEA=AND/FISS SAVE8=PS0/FISS  $\Lambda M(J) = \Delta M \Delta / FISS$ PPX(J)=PSX/FISS PPY(J)=PSY/F1SS IF(SAVE8) 810,820,830 810 IF (SAVEA) 840,850,860 IF (SAVEA) 875,880,850 820 IF (SAVEA) 390,811,360 830 PHZ=ATAN(SAVeB/SAVEA)-PK 840 GU TU 022 PHZ=-PK/2.0 850 GO TO 322 PHZ=ATAN(SAVEB/SAVEA) 860 GO TU 822 870 PHZ=-PK CO TO 822 880 PHZ=J+0 GO TU 822 890 PHZ=ATAR(SAVEB/SAVEA)+PK GO TO 822 PHZ=PK/2.0 811 PS(J) = PHZ822 63 CONTINUE PXC=PXC/VVXX PYO=PYU/VVYY AMD = AMO/SVXYAM(1) = AM(1)/SVXY• . PPX(1) = PPX(1) / VVXXPPY(1) = PPY(1) / VVYYFR(1)=((FLOAT(ISS)-1.0)/2.0)/T DO 65 I=2,ISSS AM(I) = AM(I) / SVXYPPX(I) = PPX(I) / vvXX**PPY(I)=PPY(I)/VYY** · `65 FR(I)=FR(1-1)+((FLUAT(ISS))/T) FORMAT (/, 10X, ' SUN OF POWER (SVXY) = ', E12.5, /, 10X, ' SUM OF POWE 55 1R (VVXX) = ',E12.5,/,10X,' SUM OF POWER (VVYY) = ',E12.5,/) DO 415 1=2,ISSS 11=1555-1+1 12=11+1 FR(12)=FR(11) PPX(I2)=PPX(I1) **PPY(I2)=PPY(I1)** AM(I2) = AM(I1)415 PS(12)=PS(11) FR(1)=0.0 AM(1)=AMO PS(1)=PS0 PPX(1)=PX0 PPY(1) = PYOWRITE (6,203) Y POWE 203 FURMAT(/,2(1X, "FREQ.(CPS) PHASE AMPLITUDE X POWER 1R (),/) WRITE (6,202) (FR(I),PS(I),AM(I),PPX(I),PPY(I),I=1,ISSS) FURMAT (2(1X, F10.4,4(1X,E10.3))) 202 CALL PLOT (FR, AM, PPX, PPY, 55) CALL PLOT (FR, PS, PS, PS, 55) DU 52 I=1,MA DATX(1,I) = PR(1) \* FIT

DATY(1,I)=DATX(1,I)UATY(2,1)=-UATX(2,1) 52 CONTINUE CALL FOUR2 (X; vX; 1; 1; -1) CALL FOUP2 (Y, AY, 1, 1, -1) TT=1.0/FIT TR(1)=0.0 334 PR(1)=X(1)/F: PI(1)=Y(1)/68 PR(1)=PR(1)/SVXY PI(1) = PI(1) / SVXYDO 53 1=2.M FFI=FLUAT(I) PR(I) = (X(I)/FN) \* (T/(T-FFI\*TT))P1(1)=(Y(1) /FL)\*(T/(T-FE1\*TT)) PR(I)=PR(I)/SVXY PI(I)=PI(I)/SVXY 53 CONTINUE DO 57 I=2,500 TR(I) = TR(I-1) + TT57· CONTINUE DO 56 I=1,MA  $DATX(1,I) = PX(I) \neq FIT$ DATX(2,I)=C.C\*FIT  $DATY(1,I) = PY(I) \neq FIT$ 56 DATY(2,1)=0.L#FIT CALL FOUR2 (X, NX, 1, 1, -1) CALL FOUR2 (Y, NY, 1, 1, -1)  $PX(1) = X(1)/F_{i}$ PY(1)=Y(1)/Fix PPPX=PX(1)PPPY=PY(1)PX(1) = PX(1)/PPFXPY(1)=PY(1)/PPPY DO 58 I=2,M FFI=FLOAT(I) PX(I) = (X(I)/FN) \* (T/(T-FFI\*TT))PY(I) = (Y(I) / FX) \* (T/(T - FFI \* TT))PX(I) = PX(I) / PPPX53  $PA(I) = bA(I) \setminus bbbA$ WRITE (6,101) KCON,NI,MM,XMU,YMU,WL,WG,IREL,IREG,TEPL,TEPG,TN,IT, 1CELL(1), CELL(2) WRITE (6,55) SVXY, PPPX, PPPY WRIT: (6,204) FORMAT (/,2(1X, 'TIME (SEC) 204 X LAG Y X LEAD Y X AUTO. Y AY 110. '),/) WRITE (6,202) (TR(I),PR(I),PI(I),PX(I),PY(I),I=1,500) CALL PLOT(TR, PR, PX, PY, ISSS) CALL PLOT(TR, PI, PX, PY, ISSS) ITTT=ISSS/45 DD 610 K=1,2 DO 631 I=1,ITTT 11=1+(1-1)+45 12=45+(I-1)+45 WRITE (6,602) 602 FORMAT (1H1,///) WRITE (6,603) KL, WL, WG, WG 603 FORMAT (1x,2('|hL (Lb/SEC)|',2x,F11.4,3x),1x,'|',/,1x,2('|WG (LB/S 1EC) | \*,2X,F11.4,3X),1X,\*[\*) WRITE (6,608) IREL, IREL, IREG, IREG 608 FORMAT (1X,2('| REL. NO. |',2X,111,3X),1X,'|',/,1X,2('| REG. NO. |',2X,I11,3X),1X,'|') 1 WRITE (6,604) TEPL, TEPL, TEPG, TEPG 604 FORMAT (1X,2("|TL ( ) | ', 2X, F11.3, 3X), 1X, '| ', /, 1X, 2('| TG ( 1 ) | ', 2X, F11.3, 3X), 1X, ' | ') wRITE (6,605) TN,TN,CELL(1),CELL(1),CELL(2),CELL(2) 605 FURMAT (1X,2(\*|RUN NU. = ]\*,6X,A4,6X),1X,\*|\*,/,1X,2(\*|X CELL NO. 1 \* ,7X, 42, 7X), 1X, \* | \*, /, 1X, 2(\* | Y CELL NO. [\*, 7X, A2, 7X), 1X, \* | \*) IF (K.EQ.1) GO TO 611 WRITE (6,612) VVXX,VVXX,VVYY,VVYY FORMAT (1X,2(') VVXX = [',2X,E11.4,3X),1X,'[',/,1X,2('] VVYY = 612 1',2X,E11.4,3X),1X,'|',/,1X,'|TIME (SEC) |X AUTO.1Y AUTO. 1','F 2REC. (CPS) X PUWER Y PUWER [1] 00 613 J=[1,12 613 wRITE (6,614) TR(J),PX(J),PY(J),FR(J),PPX(J),PPY(J) FORMAT (1x, '|', F10.5, ' |', F7.4, '|', F7.4, ' |', F10.3, ' |', F8.5, '|', F 614 18.5, 11) GO TO 601 611 WRITE (6,609) SVXY, SVXY

!\*,2X,E11.4,3X),1X,'|',/,1X,'|TIME (SEC) FORMAT (1X, 2(!) SvXY =609 1 IX LAG YIX LEAD YI\*, \*FPEQ. (CPS)| PHASE [APPLITUDE]\*) DD 635 J=11+12 wRITE (6,607) FM(J),PR(J),PI(J),FR(J),PS(J),AM(J) 626 FORPAT (1X, 1 | , E10.5, 1 | , E7.4, 1 | , E7.4, 1 | , E10.3, 1 | , E7.4, 1 | , E 607 335 19.6 , 1 1) CONTINUE 6.11 CONTINUE 610 IF (ICC.LO.KCCN) GO TO 109 ICS=1CS+1 GO TU 1 109 REWIND 1 STOP Fist. FF2 SUBROUTINE FOURZ (DATA, N, NDIM, ISIGH, IFORM) 1 CUCLEY-TUKEY FAST FUURIER TRANSFORM IN USASI BASIC FORTRAN. FF2 2 С FF2 3 MULTI-DIMENSIONAL TRANSFORM, EACH DIMENSION A POWER OF TWO. С EE 2 4 С COMPLEX OR REAL DATA. TRANSFURM(K1,K2,...) = SUM(DATA(J1,J2,...)\*FXP(ISIGN\*2\*PI\*SQRT(-1)FF2) č 5 \*((J1-1)\*(K1-1)/!(1)+(J2-1)\*(K2-1)/N(2)+...))), SUMMED FOR ALL FF2 С 6 J1 AND K1 FROM 1 TO N(1), J2 AND K2 FROM 1 TO N(2), FF2 7 С FF2 ETC. FOR ALL NDIM SUBSCRIPTS. NDIM MUST BE POSITIVE AND 8 С EACH N(IDIM) MUST BE A POWER OF TWO. ISIGN IS +1 DR -1. FF2 g С LET NTOT = N(1)\*N(2)\*...\*N(ND(M). THEN A -1 TRANSFORM С FF2 10 FULLOWED BY A +1 GNE (UR VICE VERSA) RETURNS NTOT FF2 11 С TIMES THE URIGINAL DATA. IFORM = 1, 0 OR -1, AS DATA 1S COMPLEX, REAL OR THE FIRST HALF OF A COMPLEX ARRAY. TRANSFORM FF2 12 С FF2 13 С VALUES ARE RETURNED TO ARRAY DATA. THEY ARE COMPLEX, REAL OR THE FIRST HALF OF A COMPLEX ARRAY, AS IFORM = 1, -1 or 0. FF2 14 С C FF2 15 THE TRANSFORM OF A REAL ARRAY (IFURM = 0) DIMENSIONED N(1) BY N(2)FF2 С 16 BY ... WILL HE REFURNED IN THE SAME ARRAY, NEW CONSIDERED TO FF2 17 С BE CUMPLEX OF DIMENSIONS N(1)/2+1 BY N(2) BY .... NUTE THAT IF FF2 18 С IFORM = 0 OR -1, N(1) MUST BE EVEN, AND ENCUGH ROOM MUST BE FF2 RESERVED. THE MISSING VALUES MAY BE OBTAINED BY COMPLEX CONJUGA- FF2 19 С 20 .С TION. THE REVEPSE TRANSFORMATION, OF A HALF COMPLEX ARRAY DIMEN- FF2 21 С SIDNED N(1)/2+1 BY N(2) BY ..., IS ACCOMPLISHED BY SETTING IFORM FF2 22 С IN THE N ARRAY, N(1) MUST BE THE TRUE N(1), NGT N(1)/2+1. FF2 23 С TO -1. THE TRANSFORM WILL BE REAL AND RETURNED TO THE INPUT APRAY. FF2 С 24 RUNNING TIME IS PROPORTIONAL TO NICT#LOG2(NIGT), RATHER THAN FF2 25 С THE NAIVE NTGT##2. FURTHERMORE, LESS ERROR IS BUILT UP. FF2 26 С WRITTEN BY NURMAN BRENNER OF MIT LINCOLN LABORATORY, JANUARY 1969.FF2 27 С SEE-- JEEE AUDIO TRANSACTIONS (JUNE 1967), SPECIAL ISSUE ON FFT. FF2 28 £. FF2 29 DIMENSION DATA(1), N(1) FE2 30 NTOT = 1FF2 31 DO 10 IDIM=1,NDIM FF2 32 NTOT=NTOT\*N(IDIM) 10 FF2 33 IF (IFCRM) 70,20,20 FF2 NREM=NTOT 34 23 FF2 35 DO 60 IDIM=1,NDIM FF2 36 NREM=NREM/N(IDIM) FF2 37 NPREV=NIUT/(N(IDIM)\*NREM) FF2 38 NCURR=N(IDIM) FF2 39 1F (IDIM-1+1F0RM) 30,30,40 FF2 40 30 NCURR=NCURR/2 CALL BITRV (CATA, NPREV, NCURR, NREM) FF2 41 40 CALL COCE2 (DATA, NPREV, NCURR, NREM, ISIGN) FF2 42 IF (IDIM-1+IFOR\*) 50,50,60 FF2 43 FF2 44 50 CALL FIXEL (DATA, W(1), WREM, ISIGN, (FORM) FF2 45 NTCT=(NT0T/N(1))\*(N(1)/2+1) FF2 46 CONTINUE 60 FF2 47 RETURN NTCT=(NTOT/N(1))\*(N(1)/2+1) FF2 48 70 FF2 49 NREM=1 FF2 50 DO 100 JDIM=1,NDIM IDIM=40IM+1-JDIA FF2 51 FF2 52 NCURR=N(IDIM) FF2 53 IF (IDIM-1) 80,80,90 FF2 54 36 NCURRENCURR/2 CALL FIXEL (DATA, N(1), NEEN, ISIGN, IFORM) FF2 55 NTCT=NTOT/(0(1)/2+1)\*N(1) FF2 56 57 FF2 NPREV=NTOT/(N(IDIM)\*NREM) 96 FF2 58 CALL BITRV (DATA, NPREV, NCURR, NREM) CALL CUUL2 (DATA, NPREV, NCURR, NREM, ISIGN) FF2 59 FF2 60 160 HREM=NREM#N(IDIM) FF2 61 RETUR'N FF2 62-END

	SUBREUTINE BITRY (DATA, NPR(V, N, NREM)	BIT	1	
C C	SHUFFLE THE DATA BY UTT REVERSAL.	BIT	2	•
C C	COMPLEX DATA	BIT	4	001
Č	EXCHANGE DATA(J1, J4REV, J5) WITH DATA(J1, J4, J5) FUR ALL J1 FROM 1	8 I T	5	336
C	10 NPREV, ALL J4 FRUM 1 TO N (WHICH MUST BE A POWER OF TWO), AND	BIT	6	
с Г	ALL JS FRUM I TO DREM. JARLY-I IS THE BIT REVERSAL UP J4-1. E.U. SUPPOSE $y = 32$ . THEN FOR $44-1 = 10011$ . $4486V-1 = 11001$ . $170$ .	BIT	1 8	
č	PIMENSIUN DATA(1)	BIT	ÿ	
	1PC=2	BIT	10	
	191=190*19ReV	BIT	11	•
	124=12174 TPS=TP4AAJREM	BIT	12	
	14REV=1	BIT	14	
С	14REV = 1+(J4REV-1)*1P1	811	15	
c	$00 \ 60 \ 14 = 1, 194, 191$	BII	16	
C	IF (I4-I4REV) 10,30,30	BIT	18	
1 Ú	11MAX=14+101-10C	BIT	19	•_
c .	DO 20 $11 = 14, 11 \text{MAX}, 190$	BIT	20	
C	11 = 1+(31-1)+(0+(3+-1)+(1+1)) $10 \ge 15=11+195+194$	BIT	22	
С	I5 = 1 + (J1 - 1) + IP0 + (J4 - 1) + IP1 + (J5 - 1) + IP4	BIT	23	
•	15REV=14%EV+15-14	BIT	24	
C	15REV = 1+(J1-1)*1P0+(J4REV-1)*1P1+(JD-1)*1P4 TEMP9-(ATA(1))	BIT	25	
	IEVPI=C41A(15+1)	BIT	27	
	DATA(15)=DATA(15REV)	BIT	28	
	DATA(15+1)=DATA(15(EV+1) (ATA(1506W)=TEVD2	BIT	29	
20	DATA(ISREV+1)=TEMPI	BIT	31 .	
C	ADD UNE WITH DOWNWARD CARRY TO THE HIGH ORDER BIT OF J4REV-1.	BIT	32	
30 °	1P2=1P4/2	BIT	33	
40 50	148EV=142FV-1927 00,00,00 148EV=143EV-192	BIT	35	
-•	IP2=IP2/2	BIT	36	
	IF (IP2-IP1) 60,40,40	BIT	37	
60	IAXEV=IAXEV+IPZ RETURM	BIT	20 39	
	END	BIT	4 G	
	SUBROUTINE COUL2 (DATA, NPREV, N, NREM, ISISN).	CO2	1	
C	DISCRETE FOURIER TRANSFORM OF LENGTH N. IN-PLACE COOLEY-TUKEY	CO2	2	
C C	ALGORITHM, BIT-REVERSED TO AURMAL URDER, SANCE-TOKET PHASE SHIFTS. DIMEMSION DATA(NPREV.N.NREM)	CD2	2 4	
č	COMPLEX DATA	C02	5	
C	DATA(J1,K4,J5) = SUM(DATA(J1,J4,J5)*EXP(ISIGA*2*PI*I*(J4-1)*	CO 2	6	
r ·	$(K4 \rightarrow 1)/N)$ , SUMMED GVER J4 = 1 IU N FUR ALL JI FRUM I TO NPREV, K4 EROM I TO N AND IS FROM I TO NREM. IN MUST BE A POWER OF TWO.	CU2	8	
č	METHODLET IPREV TAKE THE VALUES 1, 2 OR 4, 4 OR 8,, N/16,	C02	9	
C	N/4, N. THE CHOICE BETWEEN 2 OR 4, ETC., DEPENDS ON WHETHER N IS	CO 2	10	
C C	A POWER OF FOUR. DEFINE IFACT = 2 OR 4, THE NEXT FACTOR THAT	CO2	11	
č	DIMENSION DATA(NPREV, IPREV, IFACT, IREM, NREM)	CU2	13	
C	CUMPLEX DATA	CO2	14	
C	DATA(J1, J2, K3, J4, J5) = SUM(DATA(J1, J2, J3, J4, J5) *EXP(ISIGN*2*PI*I*I*)	CO2	15	
c	TO IFACT FOR ALL J1 FROM 1 TO NPREV, J2 FROM 1 TO IPREV, K3 FROM	C02	17	
Ċ	1 TO IFACT, J4 FROM 1 TO IREM AND J5 FROM 1 TO NREM. THIS IS	C02	18	
C	A PHASE-SHIFTED DISCRETE FOURIER TRANSFORM OF LENGTH IFACT.	CO2	19	
c	ING BY TWOS. DATA MUST BE BIT-REVERSED INITIALLY.	CO2	21	
Ċ	IT IS NOT NECESSARY TO REWRITE THIS SUBROUTINE INTO COMPLEX	C02	22	
C	NOTATION SO LONG AS THE FORTRAN COMPILER USED STORES REAL AND	CU2	23	
C C	THAGH,ART PARTS IN ADJACENT STURAGE LUCATIONS. IT MUST ALSO STORE ARRAYS WITH THE FIRST SUBSCRIPT INCREASING FASTEST.	CD2	29	
•	DIMENSION DATA(1)	C02	26	
	TWOPI=6.2831853072#FLOAT(ISIGN)	C 0 2	27	
	190=2 191-193*1095V	CO2	28 29	
	IP4=IPI=IPI	C02	30	
	1P5=1P4*0REM	CO 2	31	
r	1P2=1P1 1P2=1P1*1PP(0)	CO2	32	
L L	NPART=N	CO2	33 34	
10	IF ('4PART-2) 60,30,20	C02	35	
20	NPART=NPART/4	CU2	36	
C	GU TU TU DO A FOURTER TRANSFORM OF LENGTH THO	C02	51 38	
30	IF (IP2-IP4) 4(,160,160	CUZ	39	
40	IP3=IP2*2	CO2	40	
C	193=192*1FACT Du 50 11=1.191.190	CO2	41 42	
	00 20 11 11 11 11 10 · · · · ·	UU2	46	

C	11 = 1+(J1+1)+1PJ 00 5/ 15=11-165-193	CU2	43	
C.	$\frac{1}{16} = \frac{1}{1} + \frac{1}{1} - \frac{1}{1} + \frac{1}{1} + \frac{1}{1} - \frac{1}{1} + \frac{1}{1} + \frac{1}{1} - \frac{1}{1} + 1$	CO2	44	
v	13A=15	602	46	
	138=134+102	CO2	47	337
С	[3 = 1+(J1-1)+(P0+(J2-1)+(P1+(J3-1)+(P2+(J4-1)+(P3+(J5-1)+(P4-1)+(P3+(J5-1)+(P4-1)+(	CU2	48	
	TEMPREDATA(I3B)	CU2	49	
	ILMP1#JAIA1130#1} NATA(I3R)=0ATA(I3A)=TEM02	002	50	
	DATA(133+1)=DATA(13A+1)-IEMPI	CO2	52	
•	DATA(13A) = DATA(13A) + TEMPR	C 0 2	53	
50	DATA (13A+1)=DATA(13A+1)+TEMPI	C02	54	
	192=193	C02	55	
С	DO A FOURIER TRANSFORM OF LENGTH FOUR (FROM BIT REVERSED ORDER)	C 0 2	56	
60	IF (1P2-1P4) 7C,160,160	C02	57	
70	1P3 = 1P2 * 4	C02	58	
r r	COMPLET THREE WE AND WE IN DOUBLE PRECISION. LE AVAILABLE.	C02	60	
	THETA=TWOPI/FLUAT(IP3/IP1)	<b>C</b> 02	61	
	SINTH=SIN(THETA/2.)	C02	62	
	WSTPR=-2.*SINTH*SINTH	<b>C</b> 02	63	
	WSTPI=SI: (THETA)	CU2	64	
		C02	65	
•	W1=0. DO 150 12-1.102.101	CO2	67	
C.	12 = 1 + (12 - 1) + [P]	C02	68	
v	IF (12-1) 90,90,80	<b>C</b> 02	69	
80	h2R=hR+hR+hI+hI	<b>C</b> 02	70	
	W21=2.*wR*N1	C02	71	
	W3R=w2R*wR-w2I*WI	C02	72	
0.2	W31=k2R*k1+W21*WR *	CO2	13	
90	11MAX=12+1P1-1P0 D0 140 11=12.11MAX.100	CO2	75	
C.	11 = 1 + (J1 - 1) + 1P(+ (J2 - 1)) + [P]	C02	76	
Ŭ	DO 140 I5=I1, IP5, IP3	C02	77	
С	15 = 1+(J1-1)*1PO+(J2-1)*IP1+(J4-1)*IP3+(J5-1)*IP4	<b>C</b> 02	78	
	134=15	C02	79	
	138=13A+1P2	CO2	80	
	130=130+122	0.02	82	
c .	13 = 1 + (J1 - 1) + 1P0 + (J2 - 1) + 1P1 + (J3 - 1) + 1P2 + (J4 - 1) + 1P3 + (J5 - 1) + 1P4	CD2	83	
•	IF (12-1) 110,110,100	C02	84	
С	APPLY THE PHASE SHIFT FACTORS	<b>C</b> 02	85	
100	TEPPR=DATA(136)	COS	86	
	DATA(13B) = a23 * DATA(13B) - W21* DATA(13B+1)	C02	87	
	UAIA(138+1)=x2*+UAIA(130+1)+W21*120*K TENDR-DATA(13C)	CU2 CD2	80 80	
	DATA([3C)=wR*DATA([3C)-w1*DATA([3C+1))	C02	90	
	DATA(I3C+1)=WR*DATA(I3C+1)+WI*TEMPR	.002	91	
	TEMPR=DATA(I3D)	<b>C</b> O 2	92	
	DATA(I3D) = h3R + DATA(I3D) - h3I + DATA(I3D+1)	CO2	93	
	DATA(130+1)=K3K*UATA(130+1)+K31*(EMPR *	CU2	94	
110	10K=0A1A(13A)+0A1A(130) TOT=DATA(13A+1)+DATA(13B+1)	CO2	90	
•	T1R=CATA(13A)-UATA(13B)	<b>C</b> 02	97	
	$T_{1}I=CATA(13A+1)-CATA(13B+1)$	C02	98	
	T2R=DATA(I3C)+CATA(I3D)	<b>C</b> 02	99	
	T2I=CATA(I3C+1)+DATA(I3D+1)	C02	100	
	T3R=DATA(13C)-DATA(13D)	C02	101	
	3 =UA A\  3U+1)=UA A\  3U+1) DATA/ 3X\-TAU+170	C02	102	
	DATA(I3A+1)=TCI+T2I	C02	104	
	$DATA(I3C) = T_{U}R - I_{2}R$	CO 2	105	
	DATA(13C+1)=TC1-T21	C02	106	
	IF (ISIGN) 120,120,130	C02	107	
120	13R=-13R	CO2	108	
130 -	131131 DATA(138)=T13-T31	CD2	110	
100	DATA(138+1)=T11+T3R	C02	11)	
•	DATA(13D)=T1R+T31	CU2	112	
140	DATA(13D+1) = T11 - T3R	C02	113	
	TEMPR=WR	C02	114	
100	WR≈WSIPR*TEMPR-WSTPI*WI+TEMPR	CU2	115	
120	WI=W5+784W1+W517141EM7X+W1 107-103	C02	116	
•	GI TU 60	C02	118	
- 160	RETURN	C02	119	
	END	<b>C</b> 02	120	-

.

·

•

'-
С	FOR IFIRE = C, CUNVERT THE TRANSFORM OF A COUBLED-UP REAL ARRAY,	FIX	· ,
Ċ	CONSTRURED COMPLEX, INTO ITS TRUE TRANSFORM. SUPPLY CALLY THE	FIX 1	3
C	FIRST HALF OF THE COMPLEX TRANSFORM, AS THE SECOND HALF HAS		338
L C	OF THE TRUE TRANSFORM INTO THE TRANSFORM OF A DOUBLED-UP REAL	FIX (	5
č	ARRAY. N MUST BE EVEN.	FIX	7
C	USING COMPLEX NOTATION AND SUBSCRIPTS STARTING AT ZERC, THE	FIX D	3
C C	TRANSFORMATION IS== DIMENSION CATA(1.1978)	FIX 1	<b>,</b>
c	ZSTP = EXP(ISIG'' + 2*P1*1/4)	FIX 1	l
Č	DU 10 12=6, NREM-1	FIX 12	2
C	DATA(C, 12) = CONJ(DATA(0, 12))*(1+1)	FIX 1:	3 V
C C	DU_1C_11=1+7/4 7 = (1+(2+TED2N+1)+T+7STP++T1)/2	FIX 1	5
č	IICNJ = h/2 - II	FIX 10	5
Ċ	DIF = DAT4(11, 12) - CUNJ(DATA(11CNJ, 12))	FIX 1	7
C	$T[MP] = Z \neq C[F]$	FIX 10	5 9
C 10	DATA(IICRJ,I2) = (DATA(IICRJ,I2)+CONJ(TEMP))+(1+IFGRM)	F1X 2	5
Ċ	IF II=IICHJ, THE CALCULATION FOR THAT VALUE COLLAPSES INTO	FIX 2	1
C	A SIMPLE CONJUCATION OF DATA(11,12).	FIX 22	2
	DIMENSION DATA(1) TLCP1=6.283135307*Ft0AT(ISTGN)	FIX 2	4
	IPC=2	FIX 2	5
	IP1=IP3*(N/2)	FIX 2	5
	1P2=1P1#NRLM	FIX Z	/ R
C	PACK THE REAL INPUT VALUES (TWO PER COLUMN)	FIX 2	9
10	J1=IP1+1	FIX 3	0
	DATA(2) = DATA(J1)	FIX 3	1 2
20	IF (AREM-1) 70,70,20 J]=J]+JPO	FIX 3	3
20	I2MIN=IPi+1	FIX 3	4
	DO 6C 12=12MIN, IP2, IP1	FIX 3	5
	DATA(12)=DATA(J1)	FIX 3	7
	IF (N-2) 50,50,30	FIX 3	8
3ú	11MIN=12+100	FIX 3	9
	11MAX=12+121-120 DD AG 11-12MI/ 11MAX-120	FIX 4	1
	DATA(11)=DATA(J1)	FIX 4	2
	DATA(11+1)=DATA(J1+1)	FIX 4	3
4Û	J1=J1+IPO	FIX 4	4 5
		FIX 4	6
70	DU 30 12=1,1P2,1P1	FIX 4	7
	TEMPR=DATA(12)	FIX 4	8
86	DAIA(12) = UAIA(12) + UAIA(12+1)	FIX 5	0
00	IF (N-2) 200,200,90	FIX 5	1
90	THETA=TWOPI/FLCAT(N)	FIX 5	2
	SINTH=SIN(THEIA/2.)		4
	ZSTPI=Z.*SININ*SININ ZSTPI=SIN(THETA)	FIX 5	5
	ZR=(1,-ZSTPI)/2.	FIX 5	6
	Z1=(1.+ZSTPR)/2.	FIX 5	7
100	IF (IFURM) 190,110,110 70-1 _70	FIX 5	3 9
100	ZI = -ZI	FIX 6	0
110	$I1MIN=IP_0+1$	FIX 6	1
	11MAX=190*(N/4)+1 DO 100 11-11MIN 11MAY-190	FIX 6	3
	DO 18C $I_2=I_1, I_{P2}, I_{P1}$	FIX 6	4
	$12 \text{CNJ} = 1 P_{2} # (1./2+1) - 2 # 11 + 12$	FIX 6	5
. 120	IF (12-12CNJ) 150,120,120 IF (1516,N+(2+16,020+1)) 130,160,160	FIX C	7
13.)	LATA(12+1) = -DATA(12+1)	FIX 6	8
140	IF (IFORM) 170,190,180	FIX 6	9
. 15ú	DIFR=DATA(12)-DATA(12CNJ)	FIX 7	0
	D1F1=UA1A(12+1)+UA1A(12UNJ+17 TEMPR=D1F2+/R+D1F1+71	FIX 7	2
	TEMP1=DIFR*Z1+DIFI*ZR	FIX 7	3
	DATA(12)=DATA(12)-TEMPR	FIX 7	4
	DATA(12+1)=DATA(12+1)-TEMPI DATA(12CN-1)+CATA(12CN-1)+TEMPR	FIX 7	ر اد
	DATA(I2CNJ+1)=DATA(I2CNJ+1)-TEMPI	FIX 7	7
	IF (IFURM) 160,180,130	FIX 7	8
160		F1X 7	<b>9</b>
170	DATA(12) = DATA(12) + UATA(12)	FIX 8	1.
- · ·		•	
•	and the second		
			•

•

```
DATA(12+1)=DATA(12+1)+DATA(12+1)
                                                                              FIX
                                                                                   82
                                                                              FIX
                                                                                          1'
                                                                                   83
     CONTINUL
 631
                                                                              FIX
                                                                                   84
      TEMPR=ZR-.5
                                                                                        339
      ZR=ZSTPR#TEMPR-ZSTP1#Z1+ZR
                                                                              FIX
                                                                                   85
                                                                              FIX
                                                                                   86
      ZI=ZSTPR+7I+ZS1P1+TL'IPR+ZI
 195
      RECURSION SAVES TIME, AT A SLIGHT LUSS IN ACCURACY.
                                                              IF AVAILABLE, FIX
                                                                                   87
С
                                                                                   88
                                                                              FIX
С
      USE LOUBLE PRECISION TO COMPUTE ZR AND ZI.
                                                                              FIX
                                                                                   89
      IF (IFDRM) 270,210,210
 200
      UNPACK THE REAL FRADSFORM VALUES (THO PER COLUMN)
С
                                                                              FIX
                                                                                   90
                                                                              FIX
                                                                                   91
      12=192+1
 210
                                                                              FIX
                                                                                   92
      11=12
                                                                              FIX
                                                                                   93
      J1=IPC*(N/2+1)*NREM+1
                                                                              FIX
                                                                                  .94
      GU TE 250
                                                                              F1X
                                                                                   95
      DATA(J1)=DATA(I1)
 220
                                                                              FIX
                                                                                   96
      DATA(J1+1) = (1ATA(I1+1))
                                                                              FIX
                                                                                   97
      11=11-190
                                                                              FIX
                                                                                   98
      J1=J1-IPJ
      IF (12-11) 220,240,240
                                                                              FIX
                                                                                   99
 230
                                                                              FIX 100
      DATA(J1)=DATA(I1)
 240
                                                                              FIX 101
      DATA(J1+1)=0.
                                                                              FIX 102
 250
      12=12-191
                                                                              FIX 103
      J1=J1-1PJ
                                                                              F1X 104
      DATA(J1)=DATA(I2+1)
                                                                              FIX 105
      DATA(J1+1)=0.
                                                                              FIX 106
      11=11+120
                                                                              FIX 107
      J1=J1-IP-
                                                                              FIX 108
      IF (12-1) 260,260,230
                                                                              FIX 109
      DATA(2)=3.
 260
                                                                              FIX 110
 270
      RETURN
                                                                              FIX 111-
      END
     "SUBROUTINE PLCT (X, Y, Z, W, M)
    DATA BLANK, ANG, BNG, CNG, DNG, ENG, FNG/IH , 1H*, 1H., 1H:, 1H+, 1HX, 1HY/
      DIMENSION X(M), Y(M), OUT(101), YPR(11),Z(M),W(M)
      YMIN=Y(1)
      YMAX=Y(1)
      00 11 I=2,M
       IF (YMAX .GE. Y(I)) GO TO 21
      YMAX = Y(I)
  21
       IF ( YMIN
                  .GE. Y(I)) YMIN = Y(I)
  11
      CONTINUE
      DO 13 I=1,M
       IF (YMAX.GE.Z(I)) GO TO 22
       Y \mathbb{M} A X = Z (I)
       IF (YMAX.GE.W(I)) GO TO 23
 22
       YMAX = W(1)
       IF (YMIN.LE.Z(I)) GO TO 24
 23
       YMIN=Z(I)
       IF (YMIN.GE.W(I)) YMIN=W(I)
 24
 13
       CONT INUE
       YSCAL = (YMAX - YMIN )/ 100.
       IF (YMIN.LT.G.C) GO TO 102
       MIN=Ü
       GO TO 103
 102
      MIN=1
      WRITE (6,101)
 103
  101 FORMAT (1H1)
       YPR(1) = YMIN
       DO 70 KN=1,9
       YPR(KN+1) = YPR(KN) + YSCAL* 10.0
   76
       YPR(11) = YMAX
       WRITE (6,200) ( YPR(I),I=1,11)
       IF (MIN.EQ.1) IP=INT(((0.0+YMIN)/YSCAL)+1.C)
       XPR = X(1)
       DO 10 IX=1,101
       OUT(IX) = HLANK
   10
       DO 20 IX=1,101,10
   20
       BUT(IX) = ENG
       IF (MIN.EQ.1) CUT(IP)=CNG
       JP = INT(((Y(1) - YMIN)/YSCAL) + 1.0)
       KP = INT(((Z(1) - YMIN)/YSCAL) + 1.0)
       LP = INT(((W(1) - YMIN)/YSCAL) + 1.0)
       OUT(KP)=ENG
       DUT(LP)=FNG
       OUT (JP) = ANG
        WRITE (6,100) XPR , (OUT(12),12=1,101)
   100 FORMAT (1X, F8.3, 4X, 101A1)
       NN=M-2
       DO 30 I=1,NN
       XPR = X(1+1)
      .00 4C 1X=2,100
       OUT(IX) = BLASK
   40
       FI=FLUAT(1)/10.0
```

```
11F=1/10
       FJ=FLOAT(IIF)
       IF (FI.NE.FJ) GO TO 104
       DU 12 IX=1,101,10
  12
       OUT (IX) = O^{1}G
                                                                                 340
       DUT(1) = BNG
  104
       BUT (101) = 84G
       IF (MIN.EC.1) CUT(IP)=CNG
       JP= INT(((Y(1+))-YMIN)/MSCAL)+1.0)
       KP= INT(((2(1+1)-YMIN)/YSCAL)+1.0)
       LP = HAT(((W(I+1)-Y)(I))/YSCAL)+1.0)
       OUT(KP)=ENG
       OUT (LP)=FNG
       OUT(JP)= ANG
       WRITE (6,100) XPR, (OUT(IZ), IZ=1,101)
       CONTINUE
   30
       XPR = X(M)
       DO 50 IX=1,101
   50
       CUT(IX) = BLANK
       DO 60 [X=1,101,10
       OUT(IX) = BiaG
   60
       IF (MIN.LO.1) CUT(IP)=CNG
       JP = INT(((Y(t) - YKIN)/YSCAL) + 1.0)
       KP = INT(((Z(M) - Y((I_N))/YSCAL) + 1.0))
       LP = INT(((W(M) - YMIN)/YSCAL) + 1.0)
       OUT(KP)=C G
       OUT (LP) = FNG
       OUT(JP)= ANG
       WRITE (6,100) XPR, (OUT(IZ),IZ=1,101)
WRITE (6,200) ( YPR(I),I=1,11)
       FORMAT (/,8X,11(E9.3,* *))
  200
       RETURN
       ENC
Program no. 4
  Digital program for extracting a sequences of wave
  minimum, wave front time, wave maximum, and wave back
  time from the time series of film thickness.
 C
       CONSTRUCT TIME SERIES OF MIN FRONT MAX LEE MIN
 С
 С
       CIMENSION 12(2,2520),11X(72),11Y(72),CELL(2),IW(2,108C),IM(2),
      11TP(50), ICV(2,270)
       READ(5,100) ISE, ISD, ICS, ICE
       FORMAT (213,212)
  100
       WRITE (6;200) ISF, ISD, ICS, ICE
       FURMAT (1CX, 'ISF = ', I3, 2X, 'ISD = ', I3, 2X, 'ICS = ', I2, 2X, 'ICE = ',
  200
      1121
       KPCC=0
       READ (1,501) KCCN,NT,MM,XMU,YMU,WL,KG,IREL, IREG, TEPL, TEPG, TN, IT,
  1
      1CELL(1), CELL(2)
       FORMAT (12,15,12,2F10.1,2F8.4,217,2F10.3,A4,16,A2,A2)
  501
        WPITE (3,101) KCCN, NT, MM, XMU, YAU, WL, WG, IREL, IREG, TEPL, TEPG, TN, 1T,
      1CELL(1), CFLL(2)
       FORMAT(1H1,10X,*KCCN = ',12,5X,*NT = ',15,5X,*MM = ',12,/,
  101
       11CX, *XNU = *,F10.1,5X,*YMU = *,F10.1,/,
      210X, WU = ", F8.4, 5X, MWG = ", F8.4,/,
      31CX, 'IPEL =', I7, 5X, 'IREG = ', I7,/,
       41CX, 'TEPL = ', F1C. 3, 5X, 'TEPG = ', F10.3,/,
       510X, TII = 1, A4, 5X, TIT = 1, I6, /,
       610X, 'X CELL = ', A2, 5X, 'Y CELL = ', A2,//)
        FIT=FLCAT(IT)
        FNT=FLOAT(NT)
        T=FNT/FIT
        WRITE(6,104) NT, ICS, ICE
       FORMAT (10X, 'NC. OF POINTS PER SAMPLE = ', 15, 5X, 'ICS = ', 12, 5X, 'IC
  104
       1E = !, E2, /)
        WRITE (6,105) ISF, ISD, IT, T
       FORMAT (10X, ' ISF = ', I3, 5X, ' ISD = ', I3, 5X, 'SAMPLING FREQUENCY =
  105
       1', IE, ' CPS', //, 10X, 'SAMPLING LENGTH = ', F10.5,' SEC ',//)
        IF (ICS.EC.KCON) GO TO 106
        ICCN=C
        GO TO 107
  106
         1005=1
        KNCC=KLCC+1
        MSL=NT-1SF
        NS=108C-ISD
        WRITE (2,501) +NCO, HT, MM, XMU, YMU, WL, WG, IREL, IREG, TEPL, TEPG, TN, IT,
```

1.0

		1CELL(1),CEVL(2)	
	107	CGNTGUT	12
		DE VDE EFFRE DE VDE EFFRE	
	502	FORPAT(253.5,7011.4)	
		IF (ICUM.EC.1) CO TO 801 341	
		$00 \ 202 \ 1=1,70$	
	1 8C2	(FAD (1, -C3) FEDAAT (1)	
	205		
	801	KRITE (A.A65) XM, YM, VXX, VYY, VXY	
		KRITE (5,667) VXXX,VYYY,VXXX,VYYYY	
	665	$FCRMAT \{2X_{1}, YX' = 1, C11.4, 2X_{1}, YX' = 1, C11.4, 2X_{1}, YXX = 1, E11.4, 2X_{1}, YX' = 1, C11.4, CX' $	
	667	$F(2) = \frac{1}{2} + \frac{1}{2}$	
	0.77	1, *VYYYY = *, E11.4	
		CO 1(2 I=1,35	
		KK = (1-1) + 72	
	• •	$\frac{READ}{(1,505)} = (11X(0), 0=1,72)$	
	505	FORMAT (/215)	
		DO 103 J=1,72	
			•
		[X=(FLLAT(IIX(J))/XMU)≉1000.0 ° TX=(FLCAT(IIX(J))/XMU)≉1000.0 °	
		17(1.11)=1FIX(1X)*100	
	103	17(2, 1!) = 1F1X(TY) + 1C0	
	102	CONTINUE	
		$\frac{1}{2} \left\{ \frac{1}{2} \left\{ \frac{1}{2} \left\{ \frac{1}{2} \right\} \right\} \left\{ \frac{1}{2} \left\{ \frac{1}{2} \right\} \left\{ \frac{1}{2} \left\{ \frac{1}{2} \right\} \right\} \left\{ \frac{1}{2} \left\{ \frac{1}{2} \right\} \left\{ \frac{1}{2} \left\{ \frac{1}{2} \right\} \right\} \left\{ \frac{1}{2} \left\{ \frac{1}{2} \left\{ \frac{1}{2} \left\{ \frac{1}{2} \right\} \right\} \left\{ \frac{1}{2} \left\{ \frac{1}{2} \left\{ \frac{1}{2} \left\{ \frac{1}{2} \right\} \right\} \left\{ \frac{1}{2} \left\{ $	
	300	FORMAT (2X+10(15+2X))	
	c		
	C	CONSTRUCT TIME SERIES	
	C	V11_V1**V11	
		XU=XV*XVU YU=XV*XVU	
		IM(1)=IfIX(XU)	
	•	IM(2)=IFIX(YU)	
		DD 110 I=1,2	-
		15=1 1(=)	
	12	IF (12(1,1C).LT.IM(1)) GC TO 11	
•		IC=IC+1	
	11	IB = IA + I	
		IF(IZ(I,I4).LT.IZ(I,IC)) GD TO 993	
	996		•
	COR	60 10 11 15 (17(1.14)-17(1.16)) 25.997.996	
	997	IC=IC+1	
		IA=IC+1	
		I = I + I	
	25	IF (IX(1)10/11/10/1 20)99()990 IF (IS_CT_MS) (CO TO 3)3	
	;	IF (IZ(I,IA).GE.IM(I)) GD TO 995	
		15S=1	
		1W(1,1S)=12(1,1A)	
	15	1C=IC+1	
	•••	IA = IC + 1	
		$IB = I\Delta + 1$	
		INS=INS+I In 11711 INN OT 1711 ICNN CO TO 205	
		GO TO 15	
	995	IF (17(1,1A)-17(1,18)) 15,994,27	
	<del>9</del> 94	IC = IC + 1	•
		IWS=IWS+1	
•		IF (12(1,14)-12(1,16)) 15,994,27	
	27	IF (155.E0.1) GO TC 771	
		GU TU 772 TE LIZII IN IT INIIN CO TO 773	
	111	IC = IC + I	
		GO TO 11	
	773	ISS=C	
	772	15=15+1	
		1S=1S+1	
	-	Iw(1, 1S) = IZ(1, 1A)	

·

```
188=0
                                                                                                  30
 28
        10=10+1
       IA = IC + I
       13 = 10 + 1
       I = S = I + S + 1
       IF (IZ(1,1A).LT.IZ(1,IC)) CO TU 993
                                                                               342
       GO TC 23
 973
       IF (I7(I,1A)-17(1,18)) 29,992,28
 992
       IC = IC + 1
       IA=JU+1
       18=14+1
       IWS = IWS + 1
       IF (IZ(1, JA)-IZ(I, IB)) 29,992,28
 29
       1S = 1S + 1
       Ik(1, 15) = Ik5
       IP = IS - 1
        15=15+1
       1w(1, 15) = 17(1, 15)
       IF (1V(1,15).GT.IP(1).OR.IW(1,1P).GT.IM(1)) CU TO 131
        IF (IS.GT.MS) GC TU 313
       IF (14.GT.#SL) GC TC 13
       TF (IS.CT.1670) GO TO 132
 131
       IWS=C
       GO TE 15
 132
       WRITE(6,133)
 133
       FURNAT(LOX, " LAST WAVE IS NOT SMALL WAVE ")
 313
       CONTINUE
       115 = 15
 13
       NWS=(ITS-1)/4
       IS=IS+1
       00 1CP J=IS,1080
 108
       I \vdash (I,J) = C
       WRITE (6,201) IM(I), ITS, NUS
 201 FORMAT (10X, 'IN = ', 15, 5%, 'ITS = ', 15, 5%, 'NWS = ', 15)
       WRITE (6,300) (IW(I,J),J=1,IC)
С
       IDENTIFY THE LAVES
С
С
          1 : SMALL HAVE
С
          2 : SMALL WAVE ON LARCE WAVE
С
          3 : LAPGE WAVE
С
       10=1
 414
        IY=3+(ID-1)#4
       IY1 = IY - 2
:
        1Y2 = 1Y + 2
       IF (IV(I,IY).LT.IM(I).AND.IW(I,IY1).LT.IM(I).AND.IW(I,IY2).LT.IM(I
    1)) GC TC 32
       IF (IW(I,IY).GE.IM(I).AND.IW(I,IY1).LT.IM(I).AND.IW(I,IY2).LT.IM(I
      1)) GC TC 33
       IF (IW(I,IY).ST.IM(I).AND.IW(I,IY1).LT.IM(I).AND.IW(I,IY2).GE.IM(I
      1)) GC TC 34
       IDW(I,ID)=0
       WRITE (6,812)
       FORMAT (ICX, 'IUK. EQ.ZERO')
· 818
       GO TC 393
 32
       ICW(I, HD)=1
        GC TC 393
 33
       IDW(I,IE)=3
       GU TU 393
 34
       108=1
       ITP(ICP) = Ik(I,IY)
 35
       1CP = ILP + 1
       ID=IC+1
       IY = 3 + (ID - 1) \neq 4
       IY2 = IY + 2
       ITF(ICP) = IW(I, IY)
       IF (IW(I, IY2).GE.IM(I)) GO TO 35
       IWX = ITP(1)
       60 36 J=2, ICP
       IF (ITP(J).GT.IWX) IWX=ITP(J)
 36
       CONTINUE
       IICP=0
       DC 373 J=1,1DP
       IF (ITF(J).EQ.IKX) GD TO 38
 384
       II=IC-IUP+J
       IDh(1, II) = 2
       60 TC 373
 38
       IF (IICP.FC.1) CO TO 384
       11=10-10P+J
       10k(1,11)=3
       IICP=1
```

```
)
                                                                                      )
                                                                                                 ز
       CUNTINUE
 373
 393
        10 = 10 + 1
       LE (IE.GT.NES) GO TO 41
       GG 1C 414
                                                                               343 .
 . 41
       CONTINUE
       DO 112 J=I0,270
       ICW(1,J)=0
  112
       WRITE (6,300) (IDW(1,1D), ID=1,10)
       WRITE (2,584) IM(I), ETS, NWS
  504
      -FORMAT (315)
       EG 113 J=1,15
       KK=(J-1)*72
       CO 111 K=1,72
       II=KK+K
       11>(k)=1k(1,11)
 - 111
       WRITE (2,505) (11X(K),K=1,72)
       COLTINUE
  113
        kRITE (2,507) (10k(1,10),10=1,135)
        WRITE (2,507) (IDW(I,ID), ID=136,270)
  507
       FORMAT (13511)
       CONTINUE
  110
  219
       CONTINUE
        READ (1,506) XMM, YMM, VVXX, VVYY, VVXY, VVXXX, VVYYY, VVXXXX, VVYYY,
       IVVXY2,SVXY
       FORMAT(2F8.5, 0E11.4)
  506
        WRITE (6,665) XMM,YAM,VVXX,VVYY,VVXY
        FRITE(6,667) VVXXX,VVYYY,VVXXXX,VVYYYY
        WRITE (6,868) VVXY2.SVXY
        FOPMAR (5X, ' VVXX.VVYY = ',E11.4,5X, ' SVXY = ',E11.4)
  868
        1F (ICON.EC.0) SC TO 1
      . IF (ICE.EQ.KCCH) GU TO 109
        105=105+1
        GC 1C 1
  109
       ENDEILE 2
        REWIND 2
        PENIND 1
                       KCCN, NT, MM, XMU, YMU, WL, WG, IREL, IREG, TEPL, TEPG, TN, IT,
        READ (2,501)
       1CELL(1), CELL(2)
        WRITE (6,101) KCOM, NT, MM, XMU, YMU, WL, NG, IREL, IREG, TEPL, TEPG, TN, IT,
       1CELL(1),CELL(2)
        DG 904 I=1,2
              (2,504) IN(I), INS, NES
        REAU
        WRITE (6,201) IM(I), ITS, WWS
        DD 805 J=1,15
        KK=(J-1)*72
        READ (2,505) (IIX(K),K=1,72)
        DO 806 L=1,72
        II=KK+L
  806
        I \times (I, II) = II \times (L)
  805
        CONTINUE
        hRITE (6,300) (Iw(I,J),J=1,10)
              (2,507) (ICW(I,ID),ID=1,135)
(2,507) (IC+(1,ID),IC=136,270)
        READ
        FEAD
        WRITE (6,300) (10W(1,10),10=1,10)
  804
        CONTINUE
        DO 333 I=1,54
        I1 = 1 + (I - 1) + 2C
        12 = 1 + 1 + 20
        WRITE(6,334) (IW(1,J),J=11,12)
        FORMAT(1X,2115)
   334
        I3 = 1+(I-1)*5
        I4 = I \neq 5
        WRITE(5+335)(ICW(1+J)+J=I3+I4)
   333
        FORMAT(11X, 15, 4(15X, 15))
   335
        STCP
        FNC
Program no. 5
  Digital program for calculating mean, standard deviation,
  and wave parameters in amplitude domain.
        WAVE PROPERTIES PROGRAM NO. 1
  С
  С
        DIMENSION IIX(72),CELL(2),IW(2,1030),IM(2),IDW(2,270),XYMU(2),
        1 WSS(3,270), WSL(3,270), WLL(3,270),WI(80), WT(3,80), WMM(3),
        2NWS(2), PSS(2,3,80), PSL(2,3,80), PLL(2,3,80), WMSS(2,3), WMSL(2,3),
       3WMLL(2,3),NSS(2),NSL(2),NLL(2),XI(6),P(2,3,30),NOTWS(2),
        4WDSS(2,3), WDSL(2,3), WDLL(2,3), WSD(3)
        READ (5,100) ICS, ICE
   100
        FORMAT (212)
                        KCON,NT,MM,XMU,YMU,WL,WG,IREL,IREG,TEPL,TEPG,TN,IT,
        READ (1,501)
   1
```

CELL(1), CELL(2)

```
101' FORMAT(IH1,10X,*KCON = *,12,5X,*NT = *,15,5X,*MM = *,12,/,
     110X, *XMU = *, F10.1, 5X, *YMU = *, F10.1, /,
     210X, WL = ', F8.4, 5X, WG = ', F8.4,/,
     310X, *IREL =*+17+5X+*IREG = *+17+/+
     410X, 'IEPL = ', F10.3, 5X, 'TEPG = ', F10.3,/,
                                                                                  344
     510X_{1}TN = 1, A4, 5X, TT = 1, I6, /,
     610X, 1X CELL = ', A2, 5X, 'Y CELL = ', A2, //)
      FIT=FLOAT(IT)
      FNT=FLOAT(NI)
      T=FNT/FIT
      WRITE(6,104) NT, ICS,ICE
      FORMAT (10x, 'ND. OF POINTS PER SAMPLE = ', 15, 5X, 'ICS = ', 12, 5X, 'IC
 104
     1E = !, I2, /)
       WRITE (6,105) ICS, ICE, IT, T
      FORMAT (10X, ' ICS = ', I3, 5X, ' ICE = ', I3, 5X, 'SAMPLING FRECUENCY =
 105
      1',16,' CPS',//,10X,'SAMPLING LENGTH = ',F10.5,' SEC ',//)
       IF (ICS.EQ.KCON) GO TO 106
       ICON=0
       GO TO 107
        ICON=1
 106
        CONTINUE
 107
:
       M=80
÷
       XI(1) = (0.02 - 0.0)/20.0
       XI(2)=(0.12-0.02)/50.0
       XI(3) = (0.2 - 0.12)/4.0
       XI(4) = (0.4 - 0.2)/4.0
       XI(5) = (0.5 - 0.4)/1.0
       XI(3) = (1.0 - 0.5)/1.0
       DO 150 I=1,20
       FI=FLOAT(1)
       I I = I
       WI(II)=(FI-0.5)*XI(1)
  150
       DO 151 I=1,50
       FI=FLOAT(I)
       II = I + 20
       WI(II) = (FI - 0.5) * XI(2) + 0.02
  151
       DD 152 I=1+4
       FI=FLOAT(I)
       II = I + 70
       WI(II) = (FI - 0.5) * XI(3) + 0.12
  152
        DO 153 I=1,4
        FI=FLCAT(I)
        II = I + 74
        WI(II) = (FI - 0.5) * XI(4) + 0.2
  153
        WI(79)=0.45
        WI(80)=0.75
        WRITE (6,196) (WI(I),I=1,80)
        DO 130 I=1,2
        NSS(I)=0
- 1
        NSL(I)=0
        NLL(I)=0
        DO 131 J=1,3
        WMSS([,J)=0.0
        WMSL(I,J)=0.0
        WMLL(1,J)=0.0
        WDSS(I,J) = 0.0
        WDSL(I,J) = 0.0
        WDLL(I,J) = 0.0
        DO 132 K=1,M
        PSS(I, J,K)=0.0
        PSL(I,J,K)=0.0
        PLL(I+J+K)=0.0
   132
        CONTINUE
   131
        CONTINUE
   130
        XYMU(1) = XMU
        XYMU(2) = YMU
        FMM=FLOAT(MM)
        DO 219 L=1,MM
        DD 804 I=1,2
        READ (1,504) IM(I), ITS, NWS(I)
         IF (ICON.EQ.1) GO TO 801
         DO 802 J=1,15
   802
        READ (1,803)
        FORMAT (1X)
  , 803
         GO TO 807
         WRITE (6,201) IM(I), ITS, NWS(I)
  .801
         DO 805 J=1,15
  1
         KK=(J-1)*72
         READ (1,505) (IIX(K),K=1,72)
         DO 806 K=1,72
         II=KK+K
```

```
806
      IW(I,II) = IIX(K)
      CONTINUE
                                                                                         1.1
 805
      WRITE (5,300) (IW(1,J),J=1,10)
             (1,507) (IDN(1,ID),ID=1,135)
 807
      READ
      READ
            (1,507) (IDw(1,10),1D=136,270)
      WRITE (6,300) (IDW(1,ID),ID=1,10)
                                                                               345
 804
      CONTINUE
 505
      FORMAT (7215)
      FORMAT (2X, 10(15, 2X))
 300
      FURMAT (10X, 'IM = ', 15, 5X, 'ITS = ', 15, 5X, 'NWS = ', 15)
 201
      FORMAT (315)
 504
 507
      FORMAT (13511)
С
С
      CAL. PROB. OF AMPLITUDE, MAX. AND MIN.
С
      IF (ICON.E0.0) GO TO 219
      DO 102 I=1,2
      NTS=NWS(I)
      NWSS=0
      NWSL=0
      NWLL=0
      DO 103 J=1.NTS
      IF (IDW (I,J).E0.3) GO TO 124
       IF (IDW(I,J).EQ.2) GO TO 125
      [A=1+(J-1)*4
      IC=3+(J-1)*4
      IB=1+J*4
      NWSS=NWSS+1
       ITW = IW(I, IA) + IW(I, IB)
      AVMI=FLOAT'ITW)/(XYMU(I)*2.0)
         WSS(3,NWSS)=FLOAT(IW(I,IB))/XYMU(I)
         WSS(2,NWSS)=FLOAT(IW(I,IC))/XYMU(I)
         WSS(1,NWSS) = WSS(2,NWSS)-AVMI
      GO TO 103
 124
      .IF=.1
1
       JB = J
       1A=1+(J-1)*4
       IB=1+J*4
       LWMI=IW(I,IA)
       LWM2 = IW(I, IB)
 112
       JF=JF-1
       IF(IDW(I, JF).NE.2) GD TO 111
       IB=1+JF*4
       IF (IW(I,IB).LT.IM(I)) GO TO 111
       IA=1+(JF-1)*4
       LWM1=IW(I,1')
      GO TO 112
       JB=JB+1
 111
                   5.2 GO TO 108
       IF(IDW(I,J"
       IA=1+(JB-1
       IF (IW(I, IA).LT.IM(I)) GO TO 108
       IB=1+J8*4
       LWM2=IW(I,IB)
       GO TO 111
 108
       NWEL=NWEE+1
       IC=3+(J-1)*4
       ITW=LWM2+LWM1
       AVMI=FLOAT(ITw)/(XYMU(I)*2.0)
         WLL(3,NWLL)=FLOAT(LWM2)/XYMU(I)
         WLL(2,NWLL)=FLOAT(IW(I,IC))/XYMU(I)
         WLL(1,NWLL) = WLL(2,NWLL)-AVMI
       GO TO 103
       [A=1+(J-1)*4
  125
       18 = 1 + J \neq 4
       IC=3+(J-1)*4
       NWSL=NWSL+1
       ITW=IW(I,IA)+IW(I,IB)
       AVMI=FLOAT(ITW)/(XYMU(I)*2.0)
         WSL(3, NWSL)=FLOAT(IW(I,IB))/XYMU(I)
         WSL(2, NWSL)=FLOAT(IW(I,IC))/XYMU(I)
         WSL(1,NWSL) = WSL(2,NWSL)-AVMI
  103
       CONTINUE
       IF (L.EQ.1) GO TO 198
       GO TO 199
  198
       WRITE (6,196) ((WSS (K,J),K=1,3), J=1,NWSS)
       FORMAT (1X,10(F10.5,1X))
  196
       WRITE (6,136) ((WSL(K,J),K=1,3),J=1,NWSL)
                    ) ((WLL(K,J),K=1,3),J=1,NWLL)
       WRITE (6,
       WRITE (6
                    % {WI(J),J=1,80}
  199
       CONTINUE
       NSS(I)=te
                     11WSS
```

```
NSL(I)=NSL(I)+NWSL
      NLL(I)=NLL(I)+NXLL
      WRITE (6,303) NSS(1), NSL(1), NLL(1)
      FORMAT (10X,3(16,2X))
 303
      CALL PROBINWSS, WSS, WT, XI, M, WMM, WSD)
      DO 133 J=1,3
                                                                               346
      WMSS(I,J)=WMSS(I,J)+ WMM(J)
      WDSS(I,J) = WDSS(I,J) + WSD(J)
      DO 134 K=1,M
      PSS(I,J,K) = PSS(I,J,K) + WT(J,K)
 134
 133
      CONTINUE
       CALL PROB (NWSL, WSL, WT, XI, M, WMM, WSD)
      DO 135 J=1,3
      WMSL(I,J)=WMSL(I,J)+ WMM(J)
       WDSL(I,J) = WDSL(I,J) + WSD(J)
      DO 136 K=1,M
      PSL(I,J,K) = PSL(I,J,K) + kT(J,K)
 136
 135
      CONTINUE
       CALL PROB(NWLL, WLL, WT, XI, M, WMM, WSD)
       DO 137 J=1,3
       WMLL(I,J)=WMLL(I,J)+ WMM(J)
       WDLL(I,J) = WDLL(I,J) + WSD(J)
       DO 138 K=1,M
      PLL(I,J,K) = PLL(I,J,K) + WT(J,K)
· 138
 137
        CONTINUE
 102
        CONTINUE
 219
       CONTINUE
       IF (ICON.E0.0) GO TO 1
       DO 139 I=1,2
       DO 140 J=1.3
       WDSS(I,J)=WDSS(I,J)/FMM
       WDSL(I,J)=WDSL(I,J)/FMM
       WDLL(I,J)=WDLL(I,J)/FMM
       WDSS(I,J)=SQRT(WDSS(I,J))
       wDSL(I,J)=SQRT(WDSL(I,J))
       WDLL(I,J)=SORT(WDLL(I,J))
       WMSS(I,J)=WMSS(I,J)/FMM
       WMSL(I,J)=WMSL(I,J)/FMM
       WMLL(I,J)=WMLL(I,J)/FMM
 140
 139
        CONTINUE
       WRITE (6,101) KCON, NT, MM, XMU, YMU, WL, WG, IREL, IREG, TEPL, TEPG, TN, IT,
      1CELL(1), CFLU(2)
       WRITE (6,114)
 114
       FORMAT (10X, ***** HISTOGRAM ******)
       WRITE (6,115) (NSS(1), I=1,2)
       FORMAT (10X, **** NO. OF SMALL WAVES = *, 15, * * *, 15, *
                                                                  ****)
 115
       WRITE (6,126)
 126
       FORMAT (10X, ***
                         AMPLITUDE ***** MAXIMUM
                                                       *****
                                                                 MINIMUM
                                                                           * * *
      1*")
       WRITE (6,116) ((WMSS(I,J),I=1,2),J=1,3)
      FURMAT (3X, *MEAN = *, 6(2X, F7, 4))
 116
       WRITE(6,601) ((WDSS(I,J),I=1,2),J=1,3)
       FORMAT (3X, S.D. = 1, 6(2X, F7.4))
  601
       DO 117 I=1,M
       WRITE (6,118) WI(I), ((PSS(J,K,I), J=1,2), K=1,3)
  117
 118
      FORMAT (3X, F7.4, 6(2X, F7.0))
       WRITE (6,101) KCON, NT, MM, XMU, YMU, WL, WG, IREL, IREG, TEPL, TEPG, TN, IT,
      1CELL(1),CELL(2)
       WRITE (6,114)
       WRITE (6,119) (NSL(I), [=1,2)
      FORMAT (10X, **** NO. OF SMALL WAVES ON LARGE WAVES ≠ *, 15, * *, 15
  119
            ****)
      1,'
       WRITE (6,126)
       WRITE (6,116) ((WMSL(I,J),I=1,2),J=1,3)
       WRITE(6,601) ((WDSL(I,J),I=1,2),J=1,3)
       DO 120 I=1,M
      WRITE (6,118) WI(I),((PSL(J,K,I),J=1,2),K=1,3)
  120
       WRITE (6,101) KCON, NT, MM, XMU, YMU, WL, WG, IREL, IREG, TEPL, TEPG, TN, IT,
      1CELL(1),CELL(2)
       WRITE (6,114)
       WRITE (6,121) (NLL(I), I=1,2)
       FORMAT (10X, **** NO. OF LARGE WAVES = *, 15, * * *, 15, *
                                                                    ***!}
  121
       WRITE (6,126)
       WRITE (6,116) ((WMLL(1,J),I=1,2),J=1,3)
       WRITE (6,601) ((WDLL(I,J),I=1,2),J=1,3)
       DO 122 I=1,M
       WRITE (6,118) WI(I), ((PLL(J,K,I), J=1,2), K=1,3)
  122
       DO 606 J=1,2
       NOTWS(J) = NLL(J) + NSL(J) + NSS(J)
       DO 607 K=1,3
       DO 608 I=1,M
```

2 -

···· ·· ·

```
608
        P(J,K,I)=PSS(J,K,I)+PS1(J,K,I)+PLL(J,K,I)
                                                                                        25
   607
        CONTINUE
        CONT INUE
   606
        WRITE (6,101) KCON, NT, MM, XMU, YMU, WL, WG, IREL, IREG, TEPL, TEPG, TN, IT,
                                                                                    347
       1CELL(1), CELL(2)
        WRITE (6,609) (NOTWS(1),1=1,2)
        FORMAT (10X, **** NU. OF TOTAL WAVES =*, 15, * * *, 15,*
                                                                     * * * * 1 )
   609
        WRITE (6,126)
        DD 610 I=1,M
        WRITE (6,118) WI(1), ((P(J,K,1),J=1,2),K=1,3)
   610
         IF (ICE.EQ.KCON) GO TO 109
        1CS=1CS+1
        GO TO 1
   109
        REWIND 1
        STOP
        END
        SUBROUTINE PROB(N,X,WT,XI,M,WMM,WSD)
        DIMENSION
                     X(3,N), WT(3,M),XI(6), WMM(3),WSD(3)
        DO 42 J=1,3
        DO 43 K=1,M
   43
          WT (J,K)=0.0
        WSD(J)=0.0
   42
          WMM(J)=0.0
        DO 41 J=1,3
        D0 40 K=1,N
  1
          WMM(J) = WMM(J) + X(J,K)
        IF(X(J.K).LE.0.02) GO TO 45
        IF(X(J,K).LE.0.12) GO TO 46
        IF(X(J,K).LE.0.20) GO TO 47
        IF(X(J,K).LE.0.40) 60 TO 48
        IF(X(J,K).LE.0.50) GO TO 49
        JJ=80
        GO TO 44
   45
        XMIN=0.0
        XMAX=0.02
        FM=20.0
        A = (( X(J,K) - XMIN) / (XMAX - XMIN)) * FM
        JJ=IFIX(A)+1
 1
        GO TO 44
   46
        XMIN=0.02
        XMAX=0.12
        FM=50.0
        A = \{ ( X(J,K) - XMIN) / (XMAX - XMIN) \} \neq FM \}
        JJ=IFIX(A)+21
        GO TO 44
   47
        XMIN=0.12
        XMAX=0.2
        FM=4.0
        A=((
              X(J,K)-XMIN)/(XMAX-XMIN))*FM
        JJ=IFIX(A)+71
        GO TO 44
   48
        XMIN=0.2
        XMAX=0.4
        FM=4.0
        A=((X(J,K)-XMIN)/(XMAX-XMIN))*FM
        JJ=IF[X(A)+75
        GO TO 44
   49
        JJ=79
          WT(J,JJ) = WT(J,JJ)+1.0
   44
   40
        CONTINUE
          WMM(J) =
                   WMM(J)/FLOAT(N)
        CONTINUE
   41
        DO 51 J=1,3
        DO 50 K=1,N
   50
       : WSD(J)=WSD(J)+(X(J,K)-WMM(J))*(X(J,K)-WMM(J))
        WSD(J)=WSD(J)/FLOAT(N)
        CONTINUE
   51
        RETURN
        END
Frogram no. 6
  Digital program for calculating mean, standard deviation,
 and wave parameters in time domain.
 С
  С
        WAVE PROPERTIES PROGRAM NO. 2
 С
        DIMERSION HIX(72), CELL(2), IW(2, 1080), IM(2), IFW(2, 270), XYMU(2),
       1 hSS(4,270), FSL(4,270), HLL(4,270),WI(75), WT(4,95), WMM(4),
       2NWS(2),PSS(2,4,95),PSL(2,4,95),PLL(2,4,95),WESS(2,4) +WMSL(2,4),
       3WMLL(2,4), NSS(2), NSL(2), HLL(2), P(2,4,48), MOTHS(2)
```

```
READ (5+100) ICS+ICE
                                                                                        28
102
    - FURMAT (212)
                    KCCY, AT, MM, XMU, YMU, WL, WG, IREL, IPEG, TEPL, TEPG, TN, IT,
     READ (1+521)
1
                                                                                348
    1CELL(1),CELL(2)
    FORMAL (12,15,17,2E1).1,2E8.4,217,2E10.3,A4,16,A2,A2)
50 E
     WRITE (6,101) KCOG, NT, MM, XMU, YKU, WE, WE, IREL, IREG, TEPL, TEPG, TN, IT,
    10ELL(1),0ELL(2)
    FORMAT(1):1,10X, 'KCOU = ',12,5X, 'HT = ',15,5X, 'MM = ',12,/,
101
    110X,*XMU = *,F10.1,5X,*YMU = *,F10.1,/,
    217X, 14E = 1, F2.4, 5X, 18G = 1, F8.4, /
    31CX. 1102L = 1,17,5X, 17EG = 1,17./.
    410X, TEPL = ', F10.3, x, TEPG = ', F10.3,/,
    510X, IT = 1, A4, 5X, IT = 1, 16, /,
    611X, 14 CELL = 1, 42, 5X, 1Y CELL = 1, 42, //)
     FIT=FLCAl(IT)
     ENT=FLOAT(NT)
     T=FixT/FIT
     WAITE(6,104) RT, ICS,ICE
    FORMAT (10X, NO. OF POINTS PER SAMPLE = 1,15,5X, 1CS = 1,12,5X, 1C
104
    1 = 1, 12, /
     WRITE (6,105) ICS, ICE, IT, T
     FOR AT (10X, 1 10S = 1,13,5X, 1 10E = 1,13,5X, 1SAMPLING FREQUENCY =
105
    1', 14, ' CPS', //, 10X, 'SAMPLI (G LENGTH = ', F10.5, ' SEC ',//)
     IF (ICS.FU.KCC%) GD TO 106
     100№≠0
     GC TC 107
      1024=1
106
107
      CONTINUE
     M = 4.9
     00 130 1=1+2
     MSS(I)=C
     NSL(I)=0
     NLL(I)=0
     10 131 J=1,4
      WMSS([,J)=0.0
     WMSL(I,J)=0.0
      WMLL(1,J)=0.0
      DO 132 K=1,*
      PSS(1,J,K)=0.0
      PSL(1,J,K)=0.0
132
      PEL(I,J,K)=0.0
      CONTINUE
131
     CONTINUE
130
      XYMU(1)=XMU
      XYYU(2) = YFU
      FRM=FLOAT(NM)
                                                              . .....
                                                                      -- ------
      DU 219 L=1,MM
      DO SC4 1=1,2
      READ (1,504) IN(I), ITS, NWS(I)
      IF (ICCN.EC.1) GD TD 801
      CC 802 J=1,15
      READ (1,803)
 862
                                                                 · · -
      FOPMAT (1X)
 803
      60 TC 207
      WRITE (6,201) IM(I), ITS, NWS(I)
 801
     - DO 805 J=1,15
      KK=(J-1)#72
      READ (1,305) (IIX(K),K=1,72)
      DO 806 K=1,72
      II=KK+K
      IV(I,II) = IIX(K)
 805
      CONT DAVE
 805
      WRITE (6,300) (IW(I,J),J=1,10)
            (1,507) (IDW(1,ID),ID=1,135)
 807
      READ
             (1,507) (IDw(I,ID),ID=136,270)
      READ
      WRITE (6,300) (IDW(1,ID), ID=1,10)
 804
      CONTINUE
      FORMAT (7215)
 505
 300
      FURMAT (2X,10(15,2X))
       FORMAT (10X, 'IM = ', 15, 5X, 'ITS = ', 15, 5X, 'NWS = ', 15)
 201
      FORMAT (315)
 504
 557
      FURMAT (13511)
С
       CAL. PROR. OF FRONT, BACK, BASE, AND SEPERATION
С
С
       IF (ICON.FO.0) GD TO 219
       DO 102 I=1,2
       NTS=NWS([]
       NWSS=0
       NWSL=0
       NWLL=0
```

DO 1C3 J÷1,6TS IF (10% (1,J).E0.3) 30 TO 124 27 IF (ISA(I+J)+20+2) 50 TO 125 11=7+(J-1)×4 IC=2+3:4 18=J\*4 11655=1655+1 349 ITW= [ W ( [, IC ) + ] W ( I, IR ) WSS(4, SwSS)=FLEAT(Ix(I,IA))/FIT WS5(3,3655)=FLPAT(18(1,18))/FIT NSS(2, MMSS)=NSS(4, IMSS)+WSS(3, MWSS) WSS(1,NESS)=FLOAT(IIE)/FLT GC TC 1C3 124 JF = JJS=J [A=2+(J-1)\*4 IR=J#4 ITW1=Iv(I,IA) · • <del>...</del> · · · · . . . . ITw2=14(1,18) --<u>.</u> --- -112 JF=JF-1 IF(IEV(I,JF).NE-2) GO-TO 111 110=1+JF#4 IF (IN(1,118).LT.IM(I)) GO TO 111 IA=2+(JF-1)\*4 18=JF\*4 ۰... 1Tk1 = 1Tk1 + IW(1, IA) + IW(1, IE)GU FC 112 111 J = JF + LIF(ICW(I,J3).NE.2) GO TO 108 IIA=1+(JB-1)+4 . • • • . . . -: . IF (IG(I,IIA).LT.IM(I)) GD TO 108 IA=2+(Jc+1)\*4 . . 18=14#4 •  $ITh2=ITh2+In(I,I\Delta)+Ih(I,IB)$ GU TC 111 . 108 JS=JB 1783=1162 ITW3=ITW2 IF(IUW(I,JS).EC.3.UR.IDW(I,JS).EC.0) GO TU 110 IA=2+(JS-1)\*4 I3=JS#4 149 ·13=JS#4 ITW3=ITW3+IW(I,IA)+IW(I,IB)JS=JS+1 GO TO 14) 110 IA=2+(JS-1)#4  $ITW^{2} = IT_{x}^{2} + I_{x}(I, IA)$ an an an an an ag . NWLL=NWLL+1 WLL(4, WWLL)=FLCAT(ITW1)/FIT WLL(3,NWLL)=FL04T(ITW2)/FIT WEL(2, WWLE) = WEL(4, WWLE) + WEL(3, WWLE) a second WLL(1, MWLL)=FLCAT(ITW3)/FIT -----GO TC 103 -125 [A=2+(J-1)\*4 I3=J≠4 \_\_\_ IC=2+J\*4 المراجبة المناصبة بتلاحم فيقته والاسترام والانتقار والمراجب والمراجب والمراجب NWSL=NWSL+1 ITk=IW(I,IC)+IW(I,I3) WSL(4, NWSL)===LCAT(1W(1, IA))/FIT . . . . . . . · · · WSL(3,..WSL)=FLOAT(IW(I,IR))/FIT WSL(2,\*\*\*SL)=WSL(4, VHSL)+HSL(3, NHSL) WSL(1,\*\*&SL)=FLCAT(ITW)/FIT 103 CONTINUE IF (L.EG.1) GG TO 193 • - · GP TC 199 WRITE (6,196) ((WSS (K,J),K=1,4), J=1,NWSS) 193 . . . . . 196 WRITE (6,196) ((WSE(K,J),K=1,4),J=1,NWSE) • • • • • • WRITE (6,196) ((WLL(K,J),K=1,4),J=1,WWLL) 199 CONTINUE NSS(1)=NSS(1)+NWSS MSL(I)=MSL(I)+NWSL · ··· · NEL(1)=NEL(1)+GWEE WRITE (6,303) (ISS(1), NSL(1), NLL(1) وراجا ومحافظ المستحد فالمادين الأنجا 303 FORMAT (10X,3(16,2X)) CALL PROB (NWSS, WSS, WT, WI, M, WMM) 00 133 J=1+4 WMSS(I+J)=WMSS(I+J)+ WMM(J) DO 134 K=1,M -134 PSS(I,J,K)=PSS(I,J,K)+ WT(J,K)CONTINUE 133 CALL PROB INWSL.WSL.WT.WI.N.WMM) . . . . . . . . . 00 135 J=1,4

VMSL(1,J) = MMSL(1,J) + MMN(J)PO 136 K=1,0 136 PSE(1,J,K) = PSE(1,J,K) + WT(J,K)20 135 CONTINUE CALL PROF (NALL, WEL, WT, WI, M, WMM) 00 137 J=1.4 WPLL(I,J) = WMLL(I,J) + WMM(J)00 138 K=1+M 350 133 PLL(I,J,F)=PLL(I,J,K)+ WT(J,K).131 - 001 T 1 10 E 102 . CONTPUE 219 CONTLADE IF (ICPA.EQ.0) GO TO 1 PO 139 I=1,2 DO 140 J=1,4  $\mathbb{R}^{MSS}(I_{+}J) = \mathbb{G}^{SS}(I_{+}J)/FMM$ WMSL(I,J)=WPSL(I,J)/FMM 140 ANTE(1,J)=WAFF(1,J)/ENM 139 CONTINUE WRITE (6,101) & CUN, NT, MM, XMU, YMU, WL, WG, IREL, IREG, TEPL, TEPG, TN, IT, 1CELL(1), CELL(2) KRITE (6,114) EG9Mal (10X, \*\*\*\*\* HISTOGRAM \*\*\*\*\*\*) 114 4.81TF (0,115) (HSS(I),I=1,2) FORMAT (1(X, \*\*\*\* NG. OF SMALL WAVES = ', 15, \* \*, 15, \* \*\*\*\*) 115 WRITE (6,125) 126 'l\*\*\*\*\* FRC(T \*\*\*\*\*) \*RITE (6,116) ((\*MSS(I,J),I=1,2),J=1,4) 116 FORMAT (3X, MEAN = (38, 67, 4))DO 117 I=1,M 117 WRITE (6,11:) WI(I), ((PSS(J,K,I), J=1,2), K=1,4) 118 FORMAT (3X, F7.4, 8(2X, F7.6)) DO 601 J=1,2 HRITE (7,602) WG,WL,CELL(J) - - .. 602 FORMAT (2F1(.5, 42) 601 WRITE (7,603) ((PSS(J,K,I),I=1,M), K=1,4) FORMAT (16F5.C) 603 WRITE (6,101) RCON, NT, MM, XMU, YMU, WL, WG, IREL, IREG, TEPL, TEPG, TN, IT, ICFLL(1),CELL(2) WRITE (5,114) WRITE (6,119) (NSL(1),I=1,2) FORMAT (10X, ++++ 10. OF SMALL WAVES ON LARGE WAVES = +,15, \* \*,15 119 1, 1 **☆☆**↓ } WRITE (6,126) WRITE (6,115) ((WHSE(I,J),I=1,2),J=1,4) DO 120 I=1,M 120 WRITE (6,118) WI(I), ((PSL(J,K,I),J=1,2), K=1,4) DG 604 J=1,2 FRITE (7,602) KS, WL, CELL(J) WRITE (7.603) ((PSL(J,K,I),I=1,M),K=1,4) 604 WRITE (6,101) KCGN, NT, MN, XMU, YMU, WL, WG, IREL, IREG, TEPL, TEPG, TN, IT, 1CELL(1),CELL(2) WRITE (0,114) WRITE (6,121) (HLL(I), I=1,2) FORMAT (10X, \*\*\*\* ND. OF LARGE WAVES = ', 15, \* \* ', 15, \* \*\*\*\*) 121 WRITE (6,126) WRITE (6,116) ((WMEL(I,J),I=1,2),J=1,4) 66 122 I=1,M WRITE (6,119) WI(I),((PLE(J,K,I),J=1,2),K=1,4) 122 DU 605 J=1,2 WRITE (7,602) NG,WE,CELL(J) NRITE (7,603) ((PLL(J,K,1),I=1,M),K=1,4) 605 CO 606 J=1,2 MOTWS(J) = MEL(J) + MSL(J) + MSS(J)· · • • · 00 607 K=1,4 00 608 I=1,M 608 P(J,K,T) = PSS(J,K,T) + PSL(J,K,T) + PLL(J,K,T)**607** CONTINUE 606 CONTINUE WRITE (6,101) KCON,NT,MM,XMU,YMU,WL,WG,IREL,IREG,TEPL,TEPG,TN,IT, 10ELL(1),0ELL(2) WRITE (6+609) (NOTWS(I)+I=1+2) FGPMAT (10X, \*\*\*\* NO. OF TOTAL WAVES =\*, I5, \* \* ', I5, \* \*\*\*\*) 609 WRITE (6,126) \$ 00 610 I=1,M 610 WRITE (6,118) WI(I), ((P(J,K,I),J=1,2),K=1,4) -----DO 611 J=1,2 - -. ٠.

1 WRIIE (7,602) WG+VL,CELL(J) WRITE (7,603) ((P(J,E,I),I=1,K),K=1,4) 611 29 1F (101.10.KCGN) GO TU 109 105=105+1 60 TC 1 351 109 PENINU 1 ł STCP EMD. SUPRELTINE PROFINEX, WT, WI, M, WMM) DIMERSIGN  $X(4, i)_{i} = hT(4, B)_{i} KT(B)_{i} = wBB(4)$ XMIN=0.0 XMAX=0.95 . FM=FLGAT(M) **.** . . . XI = (XPAX - XMIN)/FM00 42 J=1,4 DO 43 K=1,# 43 WI(J,F)=0.0 +42 WMM(J)=0.0 .... 00 41 J=1,4 • • II = CDO 40 K=1,N  $\mathcal{U}^{k}\mathcal{U}\left(J\right) = -\mathcal{U}^{k}\mathcal{U}\left(J\right) + -\mathcal{X}\left(J,K\right)$  $A = ( \{ X (J, K) - X M M \} / (X M A X - X M M \}) \neq FM$ ۰. JJ=IF1X(A)+1IF (JJ.LE.") GD TD 44 II = II + 1JJ=<sup>№</sup> 44 hT(J,JJ) = HT(J,JJ)+1.040 CONTINUE IF (11.50.0) GD TU 46 . . . . . . . . . WRITE (6,45) J,II 45 FURMAT (10X, '\*\*\* J = ', 11, ' NO. OF LAVES OUT OF RANGE = ', 15, '\*\*') 46 WMM(J) = WMM(J)/FLOAT(N)41 CONTINUE DG 90-I=1,M FI=FLOAT(I) لوالا والمحمد والالالم متعقد فستنف فتعربه محادات %I(I)=%∦I.J+(FI-C.5)\*XI 90 RETURN END . . . . Program no. 7 Digital program for calculating joint histogram of wave maximum and wave separation of the large waves. С С WAVE PROPERTIES PROGRAM ND. 3 С DIMENSION IIX(72), CELL(2), IW(2, 1080), IM(2), IDW(2, 270), XYMU(2), WI(4) 10),WII(24),W(2,270),JWT(40,24),NWS(2),XI(6),JP(2,43,24),NLL(2), 2H2(2,270),NLL2(2),JP2(2,40,24) READ (5,100) ICS, ICE 100 FORMAT (212) READ (1,501) KCON, NT, MM, XMU, YMU, WL, WG, IREL, IREG, TEPL, TEPG, TN, IT, 1 1CELL(1), CELL(2) . . . . . . FORMAT (12,15,12,2F10.1,2F8.4,217,2F10.3,A4,16,A2,A2) 501 WRITE (6,101) KCON, NT, MM, XMU, YMU, WL, WG, IREL, IREG, TEPL, TEPG, TN, IT, 1CELL(1), CELL(2) 101 FORMAT(1H1,10X,\*KCON = \*,12,5X,\*NT = \*,15,5X,\*MM = \*,12,/, 110X, 'XMU = ', F10.1, 5X, 'YMU = ', F10.1,/, 210X, WL = ', F8.4, 5X, WG = ', F8.4,/, 310X, 'IREL =', I7, 5X, 'IREG = ', I7, /, 410X, 'TEPL = ', F10.3, 5X, 'TEPG = ', F10.3,/, 510X, TN = ', A4, 5X, TT = ', I6, /, 610X, 'X CELL = ', A2, 5X, 'Y CELL = ', A2, //) FIT=FLOAT(IT) FNT=FLOAT(NT) T=FNT/FIT WRITE(6,104) NT, ICS,ICE FORMAT (10X, NO. OF PDINTS PER SAMPLE = ', I5, 5X, ICS = ', I2, 5X, IC 104  $1E = {, I2, /}$ WRITE (6,105) ICS, ICE, IT, T FORMAT (10X, 1CS = ', 13, 5X, ' ICE = ', 13, 5X, 'SAMPLING FREQUENCY = 105 1', I6, ' CPS', //, IOX, 'SAMPLING LENGTH = ', F10.5, ' SEC ',//) IF (ICS.EQ.KCON) GO TO 106 ICON=0 GO TU 107 106 ICON=1 107 CONTINUE M=40 XI(1) = (0.12 - 0.0)/30.0XI(2)=(0.2-0.12)/4.0

X1(3) = (0.4 - 0.2)/4.033 XI(4) = (0.5 - 0.4)/1.0X1(5)=(1.0-0.5)/1.0 DO 150 I=1,30 FI=FLOAT(I) .352 II = I150 WI(II) = (FI - 0.5) \* XI(1)DO'151 I=1,4 FI=FLOAT(1) 11=1+30 151 WI(II) = (FI - 0.5) \* XI(2) + 0.12DO 152 I=1,4 FI=FLOAT(I) II=I+34 WI(II) = (FI - 0.5) \* XI(3) + 0.2152 WI(39)=0.45 WI(40)=0.75 N=24 XI(6) = (0.96 - 0.0)/24 - 0DO 153 I=1,N FI=FLOAT(I) I I = I 153 WII(II) = (FI - 0.5) \* XI(6)DO 130 I=1,2 NLL(1)=0NLL2(I)=0DO 131 J=1,M DO 132 K=1,N JP2(I, J, K) = 0132 JP(I,J,K)=0131 CONTINUE CONTINUE 130 XYHU(1) = XHUXYMU(2)=YMUFMM=FLOAT(MM) DO 219 L=1,MM DO 804 I=1,2 (1,504) IM(I), ITS, NWS(I) READ IF (ICON.EQ.1) GO TO 801 DO 802 J=1,15 802 READ (1,803) FORMAT (1X) 803 GO TO 807 WRITE (6,201) IM(I), ITS, NWS(I) 801 DO 805 J=1,15 KK=(J-1)\*72 READ (1,505) (IIX(K),K=1,72) DO 806 K=1,72 II=KK+K 806 IW(1,II) = IIX(K)CONTINUE 805 WRITE (6,300) (IW(I,J),J=1,10) -(1,507) (IDW(I,ID),ID=1,135) 807 READ READ (1,507) (IDW(I,ID),ID=136,270) WRITE (6,300) (IDW(I,ID),ID=1,10) 804 CONTINUE 505 FORMAT (7215) 300 FORMAT (2X, 10(15, 2X)) FORMAT (10X, 'IN = ', 15, 5X, 'ITS = ', 15, 5X, 'NWS = ', 15) 201 FORMAT (315) 504 FORMAT (13511) 507 С Ċ CAL. JOINT PROB. OF MAX. AND SEPERATION C IF (ICON.EQ.0) GO TO 219 DD 102 I=1,2 NTS=NWS(I) NWLL=0 DO 103 J=1,NTS . . IF(IDW(I,J).EQ.3) GO TO 124 GO TO 103 JS=J 124 IB=J\*4 ITW3 = IW(I, IB)111 JS=JS+1 IF(IDW(I,JS).EQ.3.OR.IDW(I,JS).EQ.0) GO TO 110 IA=2+(JS-1)\*4 18=JS\*4 ITW3=ITW3+IW(I,IA)+IW(I,IB)GO TO 111 110 IA=2+(JS-1)\*4

```
ITW3=ITW3+IW(I,IA)
                                                                                    31
     1C=3+(J-1)*4
     NWLL=NWLL+1
     W(1,NWLL)=FLOAT(IW(1,IC))/XYMU(I)
     W(2, NKLL)=FLOAT(ITW3)/FIT
     CONTINUE
103
                                                                         353
     NLL(I)=NLL(I)+NWLL
     IF (L.EQ.05) KRITE (6,777)
     CALL PROBJ (NWLL,W,JWT,M,N)
     IF (L.EQ.05) WRITE (6,777)
     777
     DO 133 J=1,M
     DO 134 K=1,N
     JP(I,J,K) = JP(I,J,K) + JWT(J,K)
134
     CONTINUE
133
     XYM2=2.C*FLDAT(IM(1))/XYMU(I)
     NWLL2=0
     DU 400 J=1,NKLL
     IF (W(1,J).GE.XYM2) GD TD 401
     GD TD 400
401
     JS=J
     NWLL2=NWLL2+1
     W2(1,NWLL2)=W(1,J)
     W2(2,NWLL2)=W(2,J)
     JS=JS+1
402
      IF (W(1,JS).GE.XYM2) GD TD 400
     W2(2,NWLL2)=W2(2,NWLL2)+W(2,JS)
      GO TO 402
     CONTINUE
400
      NLL2(I)=NLL2(I)+NWLL2
      IF (L.EQ.09) WRITE (6,777)
      CALL PROBJ (NWLL2, W2, JWT, M, N)
      IF (L.EQ.09) WRITE (6,777)
      DO 403 J=1,M
      DO 404 K=1,N
      JP2(I,J,K) = JP2(I,J,K)+JWT(J,K)
 404
      CONTINUE
 403
      WRITE (6,303) NLL(I), NLL2(I)
                                                                     FORMAT(10X, 'NLL=', 16,5X, 'NLL2 = ',16)
 303
                                                                       . .
      CONTINUE
 102
  219 CONTINUE
      IF (ICON.EQ.0) GD TO 1
      DO 135 I=1,2
      WRITE (6,101) KCON, NT, MM, XMU, YMU, WL, WG, IREL, IREG, TEPL, TEPG, TN, IT,
     1CELL(1),CELL(2)
      WRITE (6,114) CELL(I),NLL(I)
                                                      AND NLL = ", 16,"
      FORMAT (10X, *****JDINT HISTOGRAM OF *, A2,*
 114
     1*****')
      WRITE (6,115)
      FORMAT(/, 1X, WAVE MAX ", 24("
                                       ++),/)
 115
      DO 136 J=1,M
      WRITE (6,116) WI(J),(JP(I,J,K),K=1,N)
 136
      FORMAT(1X,F8.5,1X,2414)
 116
      N1=N-1
      WRITE (6,117) (WII(J), J=1, N1, 2)
                           1,12(F6.3, +1))
      FORMAT (/, WAVE
 117
      WRITE (6,118) (WII(J), J=2, N, 2)
                              ', 12(F6.3, ' +'))
      FORMAT ( SEPARATION
 118
      CONTINUE
 135
       DO 405 I=1,2
       WRITE (6,101) KCON, NT, MM, XMU, YMU, WL, WG, IREL, IREG, TEPL, TEPG, TN, IT,
      1CELL(1),CELL(2)
       WRITE (6,406) CELL(I),NLL2(I)
       FORMAT (10X, ***** JDINT HISTOGRAM DF *, A2, *
                                                      AND
                                                           NLL2= ',I6,'
  406
      1*****")
       WRITE (6,115)
       DO 407 J=1,M
       WRITE(6,116) WI(J),(JP2(I,J,K),K=1,N)
  407
       WRITE (6,117) (WII(J),J=1,N1,2)
       WRITE (6,118) (WII(J),J=2,N,2)
  405
        CONTINUE
       IF (ICE.EQ.KCON) GO TO 109
       ICS = ICS + 1
       GO TO 1
       REWIND 1
  109
       STOP
       END
```

DIMENSION W(2,NW), JWT(M,N) DO 42 J=1,M 32 00 43 K=1,N 43 JWT(J,K)=042 CONTINUE 354 DO 40 I=1,NW IF(W(1, I).LE.0.12) GO TO 45 IF(W(1, I).LE.0.20) GD TO 46 IF(W(1,1).LE.0.40) GO TO 47 IF(W(1,I).LE.0.50) GO TO 48 JJ=40 GO TO 44 45 XMIN=0.0 XMAX=0.12 FM=30.0 A = ((W(1,I) - XMIN) / (XMAX - XMIN)) \* FMJJ=IFIX(A)+1GO TO 44 46 XMIN=0.12 XMAX=0.2 FM=4.0 A = ((W(1, I) - XMIN) / (XMAX - XMIN)) \* FMJJ=IFIX(A)+31GO TO 44 47 XMIN=0.4 XMAX=0.2 FM=4.D A=((W(1,I)-XMIN)/(XMAX-XMIN))\*FM . . -JJ=IFIX(A)+35 GO TO 44 48 JJ=39 XMIN=0.0 44 XMAX=0.96 FN=FLDAT(N) A = ((W(2,I) - XMIN) / (XMAX - XMIN)) \* FNKK=IFIX(A)+1IF(KK.LE.N) GO TO 49 KK=N 49 JWT(JJ,KK) = JWT(JJ,KK)+140 CONTINUE RETURN END Program no. 8 Digital program for estimating the linear part of power spectrum by the White Noise input. С С LINEAR POWER SPECTRUM AND CONS. C . С DIMENSION W(550), S1(550) COMPLEX CGF(556) COMPLEX CG,CS,CRE, WP,CG0,CG1,CG2,COR,DF0C,F0C1,F0C,F00,F01,F02, 1F03, F04, RAT, CW, AC, SC, ACC, H1, H1C, F1C, SCP, AI, A, AR COMPLEX FL1, FL2, FL3, A1, A2, A3, A4 С INPUT DATA 1 READ(5,100,END=99) REL,C,ARD,XNU,HM,HH,ZI 100 FORMAT(3F10.3,4E11.4) VCPL=XNU=4R0/0.000672 wL=REL\*3.14159\*0.C00672/(6.C\*4.0) Q=(RcL+XQU)/4.0 . . . UM=Q#12.07HM CM=C/UM WRITE (6,200) WL, REL, C, C, VCPL, HM, HH, XNU, UM, CM 200 FORMAT (1H1,//,10X, \*\*\*\* INPUT CONDITION \*\*\*\*,//, 11CX, 'WL = ', F1C.5, ' LB/SEC', 5x, ' REL= ', F1G..., 8X, ' Q = ', F10.5, ' F 2T2/SEC ',/,10X,' C = ',F10.5,' FT/SEC',3X,' VCPL = ',F10.5, 3' CP ',3X,' HM = ',F10.5,' IN ',/,1CX,'HH = ',E11.4,' IN2 ', 45X, \* XNU = ',E10.3, \* FT2/SEC',1X, 'UM = ',F10.5,1X, 'CM = ',F10.5) RE=0/XNU HO=((3.0\*XNU\*Q)/32.2)\*\*(1.0/3.0) H0I=H0#12.0 . ... • . · · · · · · · U0=Q/H0 C=C/UO CC=C-1.5 S=ZI/(RE\*\*(5.0/3.0)) WRITE (6,300) HO, HUI, UD, C, CC, RE, ZI, S FORMAT (//,1)X, \*\*\*\* NUSSELT CONSTANT \*\*\*\*,//, 300 110X, + HO = +,E11.4, + FT +,3X, +HOI = +,E11.4, + IN +,3X, + UO = +, IF10.5, FT/SEC',/10X, DIMENSIUNLESS C = ', F10.5, 3X, RELATIVE CC = 2',F10.5,5X,'RE = ',F10.5,/,10X,'ZI = ',F10.3,5X,'S = ',F10.5,//)

```
READ (5,400) W(1),DN,N
                                                                                       33
 400
      FURMAT (2F1(.5,15)
      CG=CMPLX(C,J.C)
      CS=CMPLX(S,C.U)
      CRE=CMPLK(RE,0.0)
                                                                            355
      EPS=6.1E-04
      WRITE (6,500)
 500 FURMAT(1X, 'FREQ. (CPS) WDL WAVE NU. CONST. C
                                                           AFOC',7X,'S1',10
     1X. *S1P*./)
      DO 10 1=1,N
      WDL=W(I)*H0/UC
      WP=CMPLX(HOL, J.J)
      CW=WP/CMPLX(C+C+O)
      CWR=REAL(Cw)
С
      SET INITIAL PUBHT
      CALL FLINE (CG ,CS,CRE,CW,FOC,FO1,FO2,FO3,FL1,FL2,FL3,A1,A2,A3,
     1A4; FOC, DFOC)
      CGF(I)=CG
      COR=FOC/UFOC
      AFOC = CA85 (FOC)
      AC=CMPLX(3.0,0.0)
      H1=(F02+CW*CW*F00)/AC
      H1C=CONJG(H1)
      CP=(2.0*3.14159)**2
      SC = H1 + H1C
      S1(1)=CP#REAL(SC)
      ACC=CG-CMPLX(1.5,0.0)
      FIC=CONJG(FOD)
      SCP=FO0#F1C
      RACC=ACC*CONJG(ACC)
      S1P=REAL(SCP)*CP/RACC
      WRITE (6,600) W(I), WDL, CWR, C, AFOC, S1(1), S1P
 603
      FORMAT(1X,F10.1,F6.2,E10.3,F10.5,E10.3,2E11.4)
      W(I+1)=W(I)+DW
 16
      SUM=(S1(1)+S1(14))/2.J
      M=N-1
      DU 20 1=2,M
 20
      SUM=SUM+S1(I)
      SUM=2.0+SUM+DW+HO/UD
      DO 30 I=1,N
      $1(I)=$1(1)/$UM
 30
      WRITE (6,700) SUM
     FORMAT(//,1CX, 'NORMALIZED SPECTRUM INPUT WHITE NOISE ',/,10X, 'SUM
 700
     1= ',E11.4,/,1X,5(' ***([)** **S1([)** '))
      WRITE (6,80C) (W(I),S1(I),I=1,N)
      FORMAT (1X,5(F10.1,E11.4))
 60D
      GO TO 1
 99.
      STOP
      END
       SUBROUTINE FLINE (CG,CS,CRE,CW,FO0,F01,F02,FU3,FL1,FL2,FL3,A1,A2,
      1A3,A4,FUC,DFUC)
      COMPLEX CK1,CK2,CK3,CK4,CK5,CK6,41,A2,A3,A4,CFA1,CFA2,CFA3,CFA4,
      1CFB2,CFB3,CFB4,CFC2,CFC3,CFC4,CFD3,CFD4,FL1,FL2,FL3,FL2A,FL2B,
      2FL2C,FL3A,FL3B,FL3C,AW,ACC,AW1,AC,CFA,A+CFB,CFC,FA,FB,FC,FD,CG,CS,
      3CRE, NP, F00, F01, F02, F03, F04, F0C, CW, AI, AWW, AWWW, ACG, AC2, AC4,
      40CK1, DCK2, D41, C42, D43, D44, DF4, D4, DF8, DFC, CDFA, DFD, CDF8, CDFC, DFA1,
      5DFA2, DFA3, DFA4, DF82, DF83, DF84, DFC2, DFC3, DFC4, DFD3, DFD4, DFL1, DFL2,
      6DFL3, DF00, DF01, DF03, DF0C
       FA(AW1,AW,AC,ACC,A)=AW1*(AC-ACC*(A*A+AW))
       FB(A1, A) = (A1 - A) \neq CEXP(A)
       FC(A,A1,CFA1,CFA) = (CFA1*CEXP(A)) - (CFA*CEXP(A1))
       FD(CFC2,CF8,CF82,CFC)=CFC2*CF8-CF82*CFC
       DFA(AW1,AW,ACC,4C2,A,DA)=-AW1*(A*A+AW+ACC*AC2*A*DA)
       DFB(DA1, DA, A, CFB) = (DA1-DA) * CEXP(A) + CFB*DA
       DFC(DFA1,CFA1,CDFA,CFA,A,DA,A1,DA1)=UFA1*CEXP(A)+CFA1*CEXP(A)*DA-
      1CDFA*CFXP(A1)-CFA*CEXP(A1)*DA1
       DFD(CFC2,CDF3,DFC2,CFB,DFB2,CFC,CFB2,CDFC)=CFC2*CDFB+DFC2*CFB-DFB2
      1#CFC-CF82#CDFC
C '
       CALCULATE FOUR ROOT OF REDUCED EQUATION
       ACC=CG-CMPLX(1.5,0.0)
       AI=CMPLX(0.0,1.0)
       AC=CMPLX(3.0,0.0)
       AW=CW*CW
       AW1 = AI \neq CW
       AWW=AW+CW
       AWWH=AWW*CW
       AC2=CMPLX(2.0,0.0)
       AC4=CMPLX(4.0,0.0)
       CK1=-A1*CRE*ACC*CW-AW*AC2
       CK2=AWWW+AW1*CRE*(ACC*AW+AC)
       CK3=CK1*CK1-AC4*CK2
       CK4=CSQRI(CK3)
```

CK5=(-CK1+CK4)/AC2 26 CK6=(-CK1-CK4)/4C2 A1=CSORI(CK5) A3=-A1 A2=CSORT(CK6) A4=-A2 356 DCK1=-AW1#CRE DCK2=AI\*CRE\*AWW DA1=(+UCK1+((CK1\*DCK1-AC2\*DCK2)/CK4))/(AC4\*A1) DA2=(-DCK1+((CK1\*DCL1+AC2\*DCK2)/CK4))/(AC4\*A2) DA3=-DA1 DA4 = -DA2CALCULATE FUNCTION F1(C,RE,W,O) CFA1=FA(AW1,AW,AC,ACC,A1) CFA2=FA(AW1, AW, AC, ALC, A2) CFA3=FA(AW1,Ak,AC,ACC,A3) CFA4=FA(AW1,AW,AC,ACC,A4) UFA1=UFA(AN1, AW, ACC, AC2, 41, DA1) DFA2=DFA(AW1,Aw,ACC,AC2,A2,DA2) DFA3=DFA(AW1,AW,ACC,ACZ,A3,DA3) DFA4=DFA(AW1,AW,ACC,AC2,A4,DA4) CFB2=FB(A1,A2) CFB3=FB(A1, A3) CFB4=FB(A1,A4)DFB2=DFB(DA1, DA2, A2, CFB2) DFB3=DFE(DA1,DA3,A3,CF83) DFB4=DFB(DA1,DA4,A4,CFB4) CFC2=FC(A2,A1,CFA1,CFA2) CFC3=FC(A3,A1,CFA1,CFA3) CFC4=FC(A4,A1,CFA1,CFA4) DFC2=UFC(DFA1,CFA1,DFA2,CFA2,A2,DA2,A1,DA1) DFC3=DFC(DFA1,CFA1,DFA3,CFA3,A3,DA3,A1,DA1) DFC4=DFC(DFA1,CFA1,DFA4,CFA4,A4,DA4,A1,DA1) CFD3=FD(CFC2,CF53,CF32,CFC3) CFD4=FD(CFC2,CFB4,CFB2,CFC4) DFD3=DFD(CFC2,CF83,DFC2,CFB3,DF82,CFC3,CFB2,DFC3) DFD4=DFD(CFC2,CFB4,DFC2,CFB4,DFB2,CFC4,CFB2,DFC4) FL1=-(CF04/CF03) DFL1=(-FL1\*DFD3-DFD4)/CFD3 FL2A=-CF83\*FL1 FL28=-CF84 FL2C=FL2A+FL2B FL2=FL2C/CFB2 DFL2=-(FL1\*DFB3+CFB3\*DFL1+DFB3+FL2\*DFB2)/DFB2 FL3A=(-FL2)\*CEXP(A2) FL3B=(-FL1)\*CEXP(A3)  $FL3C = -C \in XP(A4)$ FL3=(FL3A+FL3B+FL3C)/CEXP(A1) DFL3=(-(CEXP(A2)\*(DFL2+FL2\*DA2)+CEXP(A3)\*(DFL1+FL1\*DA3)+CEXP(A4)\* 1DA4)/CEXP(A1))-FL3\*DA1 F00=FL3+FL2+FL1+(1.0,0.0) DF00=DFL3+DFL2+DFL1 F01=A1\*FL3+A2\*FL2+A3\*FL1+A4 .. . .... DF01=FL3+DA1+FL2+DA2+FL1+DA3+DA4+A1+DFL3+A2+CFL2+A3+DFL1 F02=A1\*A1\*FL3+A2\*A2\*FL2+A3\*A3\*FL1+A4\*A4 F03=(A1\*\*3)\*FL3+(A2\*\*3)\*FL2+(A3\*\*3)\*FL1+A4\*\*3 DF03=AC+(A1\*A1\*DA1\*FL3+A2\*A2\*DA2\*FL2+A3\*A3\*DA3\*FL1+A4\*A4\*DA4)+(A1\* 1\*3)\*0FL3+(A2\*\*3)\*0FL2+(A3\*\*3)\*0FL1 FC4=(A1\*\*4)\*FL3+(A2\*\*4)\*FL2+(A3\*\*4)\*FL1+A4\*\*4 FOC=ACC\*(AC\*AI\*AW\*F01-F03)+Aw1\*CR:\*ACC\*ACC\*F01+AI\*CRE\*CS\*AWW\*F00 DFOC=AC\*41\*AW\*(FO1+ACC\*DFO1)-(FO3+ACC\*DFO3)+AW1\*CRE\*ACC\*(AC2\*FO1+ 1ACC\*DFU1)+A1\*CRE\*CS\*ANN\*DFD0 RETURN END

С

## AFPENDIX B

### ERROR ANALYSIS

#### 1. MEASUREMENT ERROR

In this section, the error due to the measurement of the film thickness and the pressure fluctuation is examined carefully in order to make sure that the experimental result presented in this study is reliable. 1-1. THE MEASUREMENT OF THE FILM THICKNESS

The error of the film thickness data is contributed from either the conductivity monitoring circuit, or the Ampex tapes recorder, or the Hybrid computer, or the calibration technique as follows:

(a) The conductivity monitoring circuit is designed such that the fluctuation voltages is less than  $\pm 2 \text{ mv}$ with negligible D. C. drift and the frequency respond is good up to 100 cps. The random error due to this circuit on film thickness will be negligible less than  $\pm 0.0001$ "

(b) The Ampex tape recorder is used at speed of  $3 -\frac{3}{4}$ ips. At this speed, the frequency response is good up to 1250 cps and the noise will be around RMS 10 mv. Hence the error from the tape recorder will be around 10.0002" film thickness.

(c) The error due to the sumer and the A-D converter is negligible compared to that of the tape recorder.

(d) The accuracy of the calibration is limited by the calibration plug which can be accurately adjusted to 0.0005". But the error due to the calibration will be a systematic one which is always be the same for the same calibration unless recalibrate the cell.

The other error due to temperature and salinty will be considerably small, since the compensation of these factors were done by standard cell. The error band of the film thickness data is approximately |0.0005" | from the above consideration. It will increase slightly for the higher film thickness measurement due to the non-linearity of the calibration curve.

1-2. THE MEASUREMENT OF THE WALL PRESSURE FLUCTUATION

The main error of the pressure fluctuation measurement is due to the pressure transducer and the calibration of the transducer. The main character of the pressure transducer has been given in Chapter III. The non-linearity of the transducer can be fully compensated by means of the Reactance converter, while the hystersis is not measurably small. Hence the error of the transducer is mainly due to the zero shift and sensitivity shift which is about 0.05%. The above error is around 0.001 psi if 0.16mm diaphragm is used. This error can be further reduced by maintaining the temperature of the transducer constant. The calibration of the transducer was done by the manometer. If the fluid in the manometer is water, one can calibrate up to 0.003 psi. The approximated estimation of pressure fluctuation done by Webb is around 0.007 psi - 0.1 psi for a single large wave. One would expect the present measuring system is well enough to pick up the wall fluctuation due to the large wave.

### 2. STATISTICAL ERROR

In this study, the various statistical parameters have been estimated by the digital process. The error associated with those estimation is briefly discussed in this section. The detailed discussion of the statistical error estimation is referred to Bendat (B-1, B-2), Blackman and Tukey (B-6), and Bevington (B-5).

## 2-1. SAMPLING THE RANDOM DATA

Suppose a random time series record  $\hat{\times}$  (t) exists only for the time interval 0 to T Sec, and suppose also that its Fouriers Transform  $\hat{\mathbb{X}}(f)$  exists only in a frequency interval from -B to B cps. The fundamental frequency increament 1/T is called a Nyquist co-interval, and the fundamental time increment 1/2B is called a Nyquist interval. Then the of discrate samples required to describe  $\hat{\mathbb{X}}(t)$  is

n = 2BT - - - - - - - - (B-1)The n=2BT discrete samples will be statistically

independent samples for the case of bandwidth limited Gaussian white noise. For the digital process, if the sampling time interval is  $\Delta t$  sec, then the useful data will be from 0 to  $1/2 \Delta t$  cps. The cutoff frequency  $f_c = \frac{1}{2\Delta t}$  is known as the Nyquist frequency, and  $1/\Delta t$  is the sampling frequency. The choice of  $\Delta t$  must be small enough so that aliasing will not be a problem.

2-2. ESTIMATION OF MEAN AND VARIANCE

The normalized standard error for a mean value estimate  $\hat{\mathcal{L}}_{x}$  from a sample  $\hat{\mathcal{T}}(t)$  with a true mean value  $\mathcal{L}_{x} \neq 0$  and standard deviation  $\mathcal{T}_{x}$  is

$$\varepsilon = \frac{S.d.(\tilde{u}_{X})}{u_{X}} \simeq \frac{1}{h^{2}BT} \left( \frac{T_{X}}{u_{X}} \right) = - - - (B-2)$$

where s.d. is the standard deviation The normalized standard error for a variance estimate  $\hat{\sigma}_{\chi^2}$  from a sampling record  $\hat{\chi}(t)$  with a true rms value of  $q_{\chi}$ is

$$\varepsilon = \frac{S.d.\left\{\hat{V}_{x}^{*}\right\}}{V_{x}^{*}} \simeq \frac{1}{\sqrt{BT}} - - - - (B-3)$$

In this study, the estimation of mean and variance for the case of film thickness will be  $2BT = 2048 \times 20 = 40,960$ and for the case of wave parameters will be

 $2BT = 1000 \sim 2000$ 

2-3. ESTIMATION OF THE PROBABILITY DENSITY FUNCTION

A reasonable approximation of the normalized standard error for the first order probability density function  $\hat{\widetilde{f}}^{(\alpha)}$ 

from a sample record  $\hat{\chi}^{(t)}$  with a true probability density of

is 
$$e = \frac{S.d.\{\hat{f}(x)\}}{\hat{f}(x)} \simeq \frac{1}{\sqrt{2}ETW\hat{f}(x)} - - - (B-f)$$

where W is the probability interval

The equation (B-4) is plotted in Fig. B-1 with various values of  $\tilde{f}(x)$ . In the case of the film thickness, the value of WBT is 50 - 1220 in various ranges. In the case of the wave parameters, the value of WBT is about 5 in the amplitude domain and 10 in the time domain.

## 2-4. ESTIMATION OF THE CORRELATION FUNCTION

The normalized standard error for an auto-covariance function estimate  $\widehat{C}_{xx}(\zeta)$  from a sample record  $\hat{x}(t)$ with a true auto-covariance function  $\widehat{C}_{xx}(\zeta)$  is

$$e = \frac{S.d.\{\hat{C}_{xx}(3)\}}{\hat{C}_{xx}(3)} \simeq \frac{1}{\sqrt{2BT}} \left(1 + \frac{\hat{C}_{xx}(b)}{\hat{C}_{xx}(3)}\right)^{2} - - - (B-5)$$

similarly, the normalized standard error for an cross-covariance is  $\sim \sim \sim$ 

$$\epsilon = \frac{S.d.\left\{\widehat{C}_{xy}(3)\right\}}{\widehat{C}_{xy}(3)} \simeq \frac{1}{\sqrt{2BT}}\left(1 + \frac{\widehat{C}_{xx}(0)\widehat{C}_{yy}(0)}{\widehat{C}_{xy}^{2}(3)}\right) - - - (B-\epsilon)$$

. In the present study, the value of 2BT covariance is

 $2BT = 20 \times 2048 = 40,960$ 

2-5. ESTIMATION OF THE SPECTRAL DENSITY FUNCTION

The problem involving estimation of the spectral density function is more complicate than other statistical parameters. The main considerations for the power spectrum estimation are





FIG. B-1. STATISTICAL EPPOP OF THE PROFABILITY DEWSITY

as follows:

(a) Nyquist frequency: the Nyquist frequency given as  $f_c = \frac{1}{2\Delta t}$  is sometime called the folding frequency. If fc is small and  $\hat{\chi}(t)$  contains energy in the frequency range  $f \ge f_c$ , then the power spectrum of  $f \ge f_c$  will be folded back into the region  $0 \le f \le f_c$ . This problem is usually called the aliasing problem. There are two ways to avoid the above phenomena. One is to use low-pass filter, another one is to use a small sampling interval  $\Delta t$ . In this study the latter way is chosen to avoid this problem. The criteria to determine the fc is to select fc to be two times greater than the maximum frequency of interest fm. In this study fm  $\simeq 30$  cps - 40 cps the fc is selected at 125 cps.

(b) Spectral window: this problem comes from only the finite length of information used to get the Fourier Transformation. Let consider  $\widetilde{C}(\mathfrak{Z})$  is an auto-covariance function and  $\widetilde{C}(\mathfrak{Z})$  is only a finite portion of  $\widetilde{C}(\mathfrak{Z})$  as

 $\widetilde{c'(3)} = \widetilde{D}_i(3) \widetilde{c'(3)} - - - - - - - (B-7)$ where Di(3) is a lag window. Then the spectrum of  $\widetilde{c(3)}$  will be

$$\widetilde{S}'(f) = Q_i(f) \cdot \widetilde{S}(f) - - - - (B-8)$$
  
where Qi(f) is called a spectral window

Qi  $\longleftrightarrow$  Di is a Fourier Transform paie S(f) is the spectrum from  $\widetilde{C}(\zeta)$ 

is a convolution operation

The problem is that when the  $D_i(\mathcal{J})$  is a rectangular window, then

 $\bigcirc_{c}(f) = \frac{T S_{in} \pi fT}{\pi fT} - - - - - (B-9)$ if  $T \rightarrow \infty$ ,  $\bigcirc_{c}(f) = \bigcup_{i}(f)$ . The problem comes from where the T is finite and not large. Then there will be a trains of side lobe at each  $f = \frac{1}{T}$  for estimation of  $\widetilde{S}(f)$ . In general a non rectangular lag window such as Hanning given in equation (B-10) is used to correct the above problem.

 $D_{t} = \frac{1}{2} \left( 1 - \cos \frac{2\pi t}{T} \right) - - - - - - (B - 10)$ For the digital processes, a smoothing processes which is equilent to the Hanning lag window can be directly applied to the spectrum as:

$$\hat{S}'(f_{k}) = 0.25 \, \hat{S}'(f_{k-1}) + 0.5 \, \hat{S}'(f_{k}) + 0.25 \, \hat{S}'(f_{k+1}) - - - (B-11)$$

In this study, the rectangular window was used on the data  $\hat{\mathbf{x}}(t)$  and the estimation of the spectrum is

$$\widehat{S}(f) = \lim_{T \to \infty} \frac{1}{T} \left| \int_{-T}^{+T} P_i(t) \times (t) e^{-i2\pi f t} \frac{1}{dt} \right|^2 - - (B-i2)$$

where  $p_1(t)$  is a data window. Then the lag window will be

$$\Im(13) = \frac{1}{7} \int_{-7}^{77} P_{1}(3) P_{1}(3+3) d3 = \begin{cases} 1 - \frac{3}{7} & 3>0 \\ 1 + \frac{3}{7} & 3<0 \end{cases} - - - (B-B)$$

 $D_i(\mathcal{I})$  is a triangular lag window, and the spectral window  $Q_i(\mathcal{I})$  corresponding to this  $D_i(\mathcal{I})$  gives a very small side lobe as given in many references.

(c) Error estimation

The normalized standard error for a power spectral density function estimate  $\hat{S}(f)$  from a sample record  $\hat{\chi}(t)$  with a true

power spectral density function  $\widetilde{S}(f)$  is

$$\mathbf{E} = \frac{\mathbf{S.d.} \{\hat{\mathbf{S}}(f)\}}{\mathbf{S}(f)} \simeq \frac{1}{\sqrt{B_{eT}}} - - - - - - - (B - 14)$$

where B<sub>e</sub> is the equivalent ideal bandwidth in cps of the narrow bandwidth resolution filter.

In general, one use the confidence limits for a spectral estimate  $\hat{S}(f)$  corresponding to a level of confidence  $\alpha$  as

 $\hat{S}(f) \xrightarrow{df(n)}{\chi^2(i-\frac{\alpha}{2})} \leqslant \hat{S}(f) \leqslant \hat{S}(f) \xrightarrow{df(n)}{\chi^2(\frac{\alpha}{2})} - - - - (B-15)$ where  $\chi^2/df(n)$  is Chi-square with n degree freedom The equation (B-15) is plotted in Fig. B-2. In the case of the present study,  $n = 2 \times 4 \times 20 = 160$ .

All the statistical parameters described in the above section 2 are reproducable for different sample of time series at same flow rate.



APPENDIX C

.

# STATISTICAL DATA OF FILM THICKNESS

•

.

367

.

MEAN FILM THICKNESS AT D2 Chain

SECOND CENTRAL MOMENT. AT D2 CELL

/			0.0001	0.1404	0 2 10/0			~ ~		A	A	0.051-
W <sub>G</sub> (1b/sec)	0.0	0.045 4.≅	0.0976	0.1436	0.1742		WG(1b/sec)	0.0	0.045	0.0976	0.1436	0.1742
W <sub>L</sub> (1b/sec)	~~~~~	<h>x 10</h>	<sup>3</sup> (inch)				WL(lb/sec)	****	ĉ x 10	<sup>6</sup> (inch) -		
0.016 57.0	4.85	3.53	3.38	2.72	2.84		0.016	2.29	1.33	0.63	0.30	0.17
0.028 😔	7.29	5.52	5.40	4.34	3.51		0.028	4.95	2.26	1.51	0.81	0.54
0.044	8.49	6.38	6.53	5.04	3.86		0.044	22.7	11.09	11.13	8.94	5.52
0.08 -	10.6	8.03	7.89	6.58	5.24		0.08	57 5	33.0	38.75	22.91	14.44
0.126	13.4	9.97	10.1	8.39	7.11		0.126 .	205.0	57.12	70.64	41.44	30.18
0.18	15.4	11.65	11.42	9.61	8.65		0.18	135.0	74.45	89.53	56.54	45.31
0.24	18.0	13.82	13.49	11.47	10.41	•	0.24	164.0	96.20	126.8	83.51	64.79
0.35	23.0	17.55	17.10	14.58	13.32		0.35	286.0	135.8	195.6	125.3	94.83
0.47 6 15	27.0	20.28	20.53	17.88	16.15		0.47	374.0	164.2	254.7	168.8	119.1
0.585 = 4	30.5	23.0	23.19	20.53	17.97	:	0.585	444.0	226.4	295.1	197.4	130.7
W <sub>G</sub> (1b/sec)	· · ·							•				
W <sub>G</sub> (1b/sec)	~ ^											
-	0.0	0.045	0.0976	0.1436	5 0.174	2	W <sub>G</sub> (lb/sec)	0.0	0.045	0.097	6 0.14	+36 0.174
WL(lb/sec)	0.0	0.045 C <sub>3</sub> x 1	0.0976 .0 <sup>8</sup> (inch)-	0.1436	5 0.174	2	W <sub>G</sub> (lb/sec) W <sub>L</sub> (lb/sec)	0.0	0.045	0.097 .0 <sup>10</sup> (inch	6 0.1 <sup>1</sup>	+36 0.174
W <sub>L</sub> (1b/sec) 0.016	0.0 	0.045 $\widetilde{c_3} \times 1$ 0.14	0.0976 .0 <sup>8</sup> (1nch) 0.031	0.1436	5 0.174 0.003	·2 - 7	W <sub>G</sub> (1b/sec) W <sub>L</sub> (1b/sec) 0.016	0.0	0.045 Ĉ <sub>4</sub> x 1 0.058	0.097 0 <sup>10</sup> (inch 0.012	6 0.1 <sup>4</sup> )	+36 0.174 026 0.001
WL(1b/sec) 0.016 0.028	0.0  0.34 1.33	0.045 $\widetilde{C_3} \times 1$ 0.14 0.21	0.0976 .0 <sup>8</sup> (1nch) 0.031 0.12	0.1436 0.006 0.039	0.174 0.003 0.057	-	W <sub>G</sub> (1b/sec) W <sub>L</sub> (1b/sec) 0.016 0.028	0.0  0.182 1.59	0.045 $\widetilde{C}_{4} \times 1$ 0.058 0.16	0.097 0 <sup>10</sup> (inch 0.012 0.077	6 0.1 <sup>4</sup> ) 0.00 0.02	+36 0.174 026 0.001 21 0.060
WL(1b/sec) 0.016 0.028 0.044	0.0  0.34 1.33 34.4	$0.045$ $\widehat{C_3} \times 1$ $0.14$ $0.21$ $12.03$	0.0976 .0 <sup>8</sup> (1nch) 0.031 0.12 14.33	0.1436 0.006 0.039 12.29	0.174 0.003 0.057 5.893	2	W <sub>G</sub> (1b/sec) W <sub>L</sub> (1b/sec) 0.016 0.028 0.044	0.0  0.182 1.59 100.0	$\begin{array}{c} 0.045 \\ \hline \\ \hline \\ \hline \\ \hline \\ \hline \\ \hline \\ 0.058 \\ 0.16 \\ 23.79 \end{array}$	0.097 0 <sup>10</sup> (inch 0.012 0.077 30.47	6 0.14 ) 0.00 0.02 23.44	+36 0.174 026 0.001 21 0.060 5 8.773
WL(1b/sec) 0.016 0.028 0.044 0.08	0.0  0.34 1.33 34.4 109.0	$0.045$ $\widehat{C_3} \times 1$ $0.14$ $0.21$ $12.03$ $46.99$	0.0976 .0 <sup>8</sup> (1nch). 0.031 0.12 14.33 77.11	0.1436 0.006 0.039 12.29 32.89	0.174 0.003 0.057 5.893 17.03	2	W <sub>G</sub> (1b/sec) W <sub>L</sub> (1b/sec) 0.016 0.028 0.044 0.08	0.0  0.182 1.59 100.0 379.0	0.045 $\overline{c_4} \times 1$ 0.058 0.16 23.79 112.6	0.097 0 <sup>10</sup> (inch 0.012 0.077 30.47 215.9	6 0.14 ) 0.00 0.02 23.44 67.24	+36 0.174 026 0.001 21 0.060 5 8.773 4 28.97
WL(1b/sec) 0.016 0.028 0.044 0.08 0.126	0.0  0.34 1.33 34.4 109.0 217.0	$0.045$ $\widehat{C_3} \times 1$ $0.14$ $0.21$ $12.03$ $46.99$ $80.69$	0.0976 .0 <sup>8</sup> (1nch). 0.031 0.12 14.33 77.11 161.2	0.1436 0.006 0.039 12.29 32.89 70.86	0.174 0.003 0.057 5.893 17.03 45.84	2	W <sub>G</sub> (lb/sec) W <sub>L</sub> (lb/sec) 0.016 0.028 0.044 0.08 0.126	0.0  0.182 1.59 100.0 379.0 900.0	0.045 $C_4 = 1$ 0.058 0.16 23.79 112.6 209.7	0.097 0 <sup>10</sup> (inch 0.012 0.077 30.47 215.9 554.8	6 0.14 ) 0.00 23.44 67.24 178.3	+36 0.174 026 0.001 21 0.060 5 8.773 4 28.97 101.1
WL(1b/sec) 0.016 0.028 0.044 0.08 0.126 0.18	0.0  0.34 1.33 34.4 109.0 217.0 293.0	$0.045$ $\widehat{C_3} \times 1$ $0.14$ $0.21$ $12.03$ $46.99$ $80.69$ $101.1$	0.0976 0.0 <sup>8</sup> (1nch) 0.031 0.12 14.33 77.11 161.2 213.9	0.1436 0.006 0.039 12.29 32.89 70.86 110.5	0.174 0.003 0.057 5.893 17.03 45.84 77.98	2	W <sub>G</sub> (1b/sec) W <sub>L</sub> (1b/sec) 0.016 0.028 0.044 0.08 0.126 0.18	0.0 0.182 1.59 100.0 379.0 900.0 1360.0	0.045 $C_4 = 1$ 0.058 0.16 23.79 112.6 209.7 280.9	0.097 0 <sup>10</sup> (inch 0.012 0.077 30.47 215.9 554.8 788.9	6 0.14 ) 0.00 23.44 67.24 178.3 326.7	+36 0.174 026 0.001 21 0.060 5 8.773 4 28.97 101.1 198.2
WL(1b/sec) 0.016 0.028 0.044 0.08 0.126 0.18 0.24	0.0  0.34 1.33 34.4 109.0 217.0 293.0 367.0	$0.045$ $\widehat{c_3} \times 1$ $0.14$ $0.21$ $12.03$ $46.99$ $80.69$ $101.1$ $137.3$	0.0976 0.0 <sup>8</sup> (1nch) 0.031 0.12 14.33 77.11 161.2 213.9 356.2	0.1436 0.006 0.039 12.29 32.89 70.86 110.5 185.5	0.174 0.003 0.057 5.893 17.03 45.84 77.98 121.5	-2	W <sub>G</sub> (1b/sec) W <sub>L</sub> (1b/sec) 0.016 0.028 0.044 0.08 0.126 0.18 0.24	0.0 0.182 1.59 100.0 379.0 900.0 1360.0 1790.0	$\begin{array}{c} 0.045 \\ \hline 0.058 \\ 0.16 \\ 23.79 \\ 112.6 \\ 209.7 \\ 280.9 \\ 448.7 \end{array}$	0.097 0 <sup>10</sup> (1nch 0.012 0.077 30.47 215.9 554.8 788.9 1570.0	6 0.14 ) 0.00 23.49 67.24 178.3 326.7 654.0	+36 0.174 026 0.001 21 0.060 5 8.773 4 28.97 101.1 198.2 357.7
WL(1b/sec) 0.016 0.028 0.044 0.08 0.126 0.18 0.24 0.35	0.0  0.34 1.33 34.4 109.0 217.0 293.0 367.0 869.0	$0.045$ $\widehat{c_3} \times 1$ $0.14$ $0.21$ $12.03$ $46.99$ $80.69$ $101.1$ $137.3$ $236.6$	0.0976 0.0 <sup>8</sup> (1nch) 0.031 0.12 14.33 77.11 161.2 213.9 356.2 588.9	0.1436 0.006 0.039 12.29 32.89 70.86 110.5 185.5 292.3	0.174 0.003 0.057 5.893 17.03 45.84 77.98 121.5 177.2	-2	W <sub>G</sub> (1b/sec) W <sub>L</sub> (1b/sec) 0.016 0.028 0.044 0.08 0.126 0.18 0.24 0.35	0.0 0.182 1.59 100.0 379.0 900.0 1360.0 1790.0 5110.0	0.045 C4 x J 0.058 0.16 23.79 112.6 209.7 280.9 448.7 952.8	0.097 0 <sup>10</sup> (inch 0.012 0.077 30.47 215.9 554.8 788.9 1570.0 2869.0	6 0.14 )	+36 0.174 026 0.001 21 0.060 5 8.773 4 28.97 101.1 198.2 357.7 593.5
WL(1b/sec) 0.016 0.028 0.044 0.08 0.126 0.18 0.24 0.35 0.47	0.0  0.34 1.33 34.4 109.0 217.0 293.0 367.0 869.0 1210.0	0.045 $C_3 \times 1$ 0.14 0.21 12.03 46.99 80.69 101.1 137.3 236.6 313.0	0.0976 0 <sup>8</sup> (1nch) 0.031 0.12 14.33 77.11 161.2 213.9 356.2 588.9 751.3	0.1436 0.006 0.039 12.29 32.89 70.86 110.5 185.5 292.3 403.3	0.174 0.003 0.057 5.893 17.03 45.84 77.98 121.5 177.2 222.7	.2	W <sub>G</sub> (1b/sec) W <sub>L</sub> (1b/sec) 0.016 0.028 0.044 0.08 0.126 0.18 0.24 0.35 0.47	0.0 0.182 1.59 100.0 379.0 900.0 1360.0 1790.0 5110.0 7740.0	$0.045$ $C_4 \times 1$ $0.058$ $0.16$ $23.79$ $112.6$ $209.7$ $280.9$ $448.7$ $952.8$ $1370.0$	0.097 0.010 (inch 0.012 0.077 30.47 215.9 554.8 788.9 1570.0 2869.0 3817.0	6 0.14 )	+36 0.174 026 0.001 21 0.060 5 8.773 28.97 101.1 198.2 357.7 593.5 832.0

۰.

MEAN FILM THICKNESS AT B1 CELL

.

SECOND CENTRAL MOMENT AT B1 CELL

W <sub>G</sub> (lb/sec)	0.0	0.045	0.0976	0.1436	0.1742	
W <sub>L</sub> (lb/sec)		<h>x 10</h>	3 (inch)			
0.016	4.76	3.86	3.44	3.11	2.64	
0.028	7.20	5.95	5.24	4.49	3.98	
0.044	8.62	7.19	6.73	5.21	4.50	
0.08	11.2	9.49	8.57	6.90	6.22	
0.126	14.5	12.19	11.20	9.09	8.25	
0.18	16.8	14.27	12.75	10.64	9.81	
0.24	19.9	17.27	15.35	13.22	11.97	
0.35	25.8	22.29	19.93	17.14	16.00	
0.47	30.3	26.01	24.21	21.16	19.26	
0.585	34.9	29.42	27.49 ,	24.63	23.35	

W <sub>G</sub> (lb/sec)	0.0	0.045	0.0976	0.1436	0.1742	
W <sub>L</sub> (lb/sec)		ĉ <sub>2</sub> x	10 <sup>6</sup> (inch	)		
0.016	1.83	1.28	0.49	0.23	0.85	
0.0.028	5.17	2.49	1.35	0.70	0.56	
0.044	27.6	16.22	15.25	13.41	10.17	
0.08	68.6	54.56	60.66	38.05	28.67	
0.126	129.0	95.86	108.5	69.60	55.82	
0.18	165.0	127.2	137.4	91.36	80.06	
0.24	196.0	163.3	188.7	141.2	114.3	
0.35	305.0	227.0	277.5	198.8	168.5	
0.47	402.0	268.1	364.4	251.4	197.1	
0.585	.470.0	337•9	412.5	294.3	249.6	

۰.,

.

MEAN FILM THICKNESS AT A3 CELL

$W_G(lb/sec)$ 0.00.0450.09760.14360.174 $W_L(lb/sec)$ (h)x 10 <sup>3</sup> (1nch)0.0164.744.453.743.333.290.0448.488.097.225.745.380.12613.913.011.329.768.97	
$W_L$ (1b/sec)	W <sub>G</sub> (lb/sec)
0.0164.744.453.743.333.290.0448.488.097.225.745.380.12613.913.011.329.768.97	W <sub>L</sub> (1b/sec)
0.0448.488.097.225.745.380.12613.913.011.329.768.97	0.016
0.126 13.9 13.0 11.32 9.76 8.97	0.044
	0.126
0.24 19.4 18.6 15.84 13.55 12.69	0.24
0.35 25.1 24.48 20.53 17.65 16.91	0.35
0.585 34.9 33.2 28.12 25.63 23.66	0.585

SECOND CENTPAL MOMENT AT A3 CELL

W <sub>G</sub> (lb/sec)	0.0	0.045	0.0976	0.1436	0.1742
W <sub>L</sub> (1b/sec)	~~~~	ĉ <sub>2</sub> x	10 <sup>6</sup> (inch	)	
0.016	2.10	1.83	0.61	0.27	0.19
0.044	23.6	15.76	11.60	12.49	11.66
0.126	120.0	111.1	103.7	68.93	57.83
0.24	213.0	220.5	226.3	155.4	137.1
0.35	361.0	346.7	343.2	250.4	224.6
0.585	472.0	611.7	529.9	388.5	330.7

MEAN FILM THICKNESS AT C4 CELL

SECOND CENTRAL MOMENT AT  $C_4$  CELL

W <sub>G</sub> (10/sec)	0.0	0.045	0.0976	0.1436	0.1742	
W <sub>L</sub> (15/sec)		<h>x 10</h>	) <sup>3</sup> (inch)			
0.016	4.26	3.95	3.41	2.87	2.82	
0.044	7•95	7•59	7.06	5.88	5.25	
0.126	14.0	13.37	12.44	9.81	8.81	
0.24	20.3	19.80	16.06	13.73	12.73	
0.35	26.0	24.5	20.96	17.78	16.76	
0.585	35.73	33.73	29.87	26.34	23.51	

W <sub>G</sub> (1b/sec)	0.0	0.045	0.0976	5 0.1436	0.1742
W <sub>L</sub> (1b/sec)		c <sub>2</sub> x	10 <sup>6</sup> (inc)	1)	
0.016	1.36	1.36	0.50	0.23	0.15
0.044	13.4	7.6	4.59	9.74	10.12
0.126	55.7	61.71	96.08	68.89	59.05
0.24	80.4	107.2	183.1	137.4	125.1
0.35	262.0	287.6	293.6	244.0	201.4
0.585	479.0	410.1	577•3	448.9	312.3

			•						•			
	WL (LB/SEC)]	2.0160	0.01601	0.0160	0.0160	0.0160	0.0280	0.0280	0.0280	0.02801	0.04401	
	WG (LB/SEC)	0.0 1	0.04501	0.0976	0.1436	0.1742	.0.0 I	.0.0	0.0	0.0	0.1742	
	I REL. NO.	211	2111	228	229	2241	367	367	367	367	545	
	REG. ND.	0	288371	62650	92859	112711		0	0	01	112711	
	TL ( °F )	80.0001	80.1001	86.6001	87.050	85.000	79.600	79.600	79.600	79.600	75.150	
	TG ( °F )	73.000	71.000	70.0001	69.500	69.000	73.0001	73.000	73.000	73.000	69.0001	
	RUN ND. =	005A	012A	009A	008A	0104	0058	0058	0058	0058	0100	
	CELL NO. = 1	D2 1	D2 1	D2	D2	D2	D2	B1	C4	A3	02 1	
	I FILM I	1	- 1	i	- i		1	1		, i		
	THICKNESS I	DENS. I	DENS- (	DENS.	DENS.	DENS.	DENS 1	DENS.	DENS.	DENS.	DENS.	
	( INCHES) [	i		1		1	1	· ·				
	0.00050 1	0.01	0-291	0.01	0-0	2.86	0.0	0.0	0.0	0.0	0.01	
	0.00150 1	0.01	10,281	31.321	76.15	634.79	0.0	0.0	0.0	0.0	13.07	
	0.00250 1	17.571	433.701	409.061	611.901	359.371	0.0	0.01	0.24	0.01	340.251	
	0.00350 1	348,211	261.951	393.581	292.611	2,981	16.241	21.01	56.47	30.801	417.331	
	0.00450 1	237.601	163,851	142.451	19.261	0.01	118.821	130.69	173.32	155.731	128-081	
	0.00550	152.931	87.711	22.441	0.081	0.0	172.411	189.37	231.22	189.71	34.051	
	0.00650	121.991	30,991	1.131	0.0	0.0	184.93	211.56	225.521	184.43	15.001	
	0.00750	70.961	4-931	0.021	0.0	0.0	171.181	168.431	151.01	156.401	9,121	
	0.00850	28.271	0.301	0.01		0.0	132.871	109.621	78.98	114.091	6.791	
	0.00950	9. 481	0.0.1	0.01	0.0	0.01	90.561	67.93	40.27	72.601	5.67	
t	0.01050	2.23	0.01	0.01	0.0	0.01	53.941	40.511	20.59	43.271	4.361	
	0.01150	0.481	0.0	0.01		0.0	27.791	24.191	10.65	24.511	3.871	
	0.01250	0.08	0.01	0.0	0.0	0.01	14.641	14.68	5.84	12.69	3.54	
i	0.01350	0.01	0.0 1	0.0			7.151	8.521	2.98	5.951	3.321	
j	0.01450		0.01	0.01	0.0	0.01	3.78	4.85	1.621	3.901	2.74	
j	0.01550	0.0	0.01	0.01	0.0	0.01	1.721	2.97	0.58	2.271	2.631	
1	0.01650	0.01	0.01	0.0	0.01	0.0	1.131	1.77	0.351	1.24	2.221	
	0.01750	0.01	0.0	0.01	0.01	0.01	0.811	1-091	0.17	0.871	1.79	
	0.01850	0.01	0.01	0.01	0.01	0.01	0.511	0.67	0.12	0.46	1.781	
1	0.01950	0.0	0.01	0.01	0.0	0.0	0.471	0.46	0.05	0.28	1.081	
1	0.02050	0.0	0.01	0.01	0.01	0.01	0.251	0.40	0.02	0.12	1.031	
-	0.02150	0.01	0.0	0.01	0.0	0.01	0.201	0.33	0.0	0.18	0.79	
1	0.02250	0.0	0.0 1	0.01	0.01	0.0 1	0.201	0.231	0.0 1	0.12	0.57	
	0.02350	0.0	0.0 1	0.0	0.0	0.01	0.10!	0.18	0.0	0.091	0.331	
1	0.02450	0.01	0.01	0.01	0.01	0.01	0.111	0.16	0.0	0.071	0.181	
1	0.02550	0.0 1	0.01	0.01	0.0 1	0.0 1	0.091	0.11	0.0	0.071	0.171	
	0.02650	0.01	0.01	0.01	0.01	0.01	0.051	0.031	0.01	0.061	0.081	
1	0.02750 1	0.01	0.0	0.01	0.01	0.0	0.031	0-11	0.0	0.031	0.09	
1	0.02850	0.0 1	0.01	. 0.0 1	0.0 1	0.01	0.01	0.03	0.01	0.0	0.041	
Ì	0.02950	0.0 È	0.01	0.01	0.01	0.0 i	0.01	0.01	0.0 1	0.0	0.031	
1	0.03050	0.0 F	0.0 1	0.0 i	0.0 i	0.01	0.021	0.011	0.0	0.01	0.01	
1	0.03150 İ	0.01	0.01	0.01	0.01	0.0 1	0.0 T	0.011	. 0.01	0.01	0.01	
i	0.03250 1	0.01	0.0 i	0.01	0.01	0.01	0.01	0.031	0.0	0.0	0.01	
	0.03350	0.0 Î.	0.01	0.0 İ	0.01	0.01	0.01	0.0	0.0 1	0.0	0.0	
1	0.03450	0.01	.0.0 I	0.01	0.01	0.0	0.0	0.0 1	0.0	0.021	0.0	

## TAPLE C-2 (continued)

	WL (LB/SEC)]	0.0440	0.04401	0.04401	0.04401	0.1260	0.1250	ļ.,
1	WG (LB/SEC)]	0.0 i	0.04501	0.0976	0.1436	0.U I	0.0450	ĺ
1	REL. ND. 1	572	5611	565	589	1605	1542	1
1	REG. ND.	0	29798	62438	91867	0	28798	
	TL ( °F- )	78.9001	77.406	78.0001	81.2501	77.3001	74.200	i .
1	TG (°₽ )	73.000	72.000	72.0001	72.000	73.0001	<u>_72.5</u> CC	1
	RUN NO. =	005C	0120	0090	0080	0056	0125	•
1	CELL NO. =	D2 [	2	02 1	D2 1	ניב ו	D2	ł
	FILM	_		0546		DENC 1	DENC	ł
	THICKNESS I	DENS.	UENS.	UENS. I	UENS.	100434 1	0545.	1
	( INCHES)					0 0		1
	0.00050	0.0	0.0	0.01		0.0		1 †
	0.00150	0.0		11 04	0.001	0.0	0.0	1
		0.04	10.27	121 001	326 301	2,92	68 50	1
		19.10	142+44    22/ 51	266 631	347 201	44-28	180.43	i
		112.69	234.51	204+451	140 57	134.96	163.41	1
		100+24	191.091	144.58	48.95	142.75	100.41	1
		101.52		80 80	21 47	106.43	67.65	í
		- LDL+47	57 21	45.201	12.81	72.05	51.46	1
		71 00	27.001	25.191	8.731	53.96	38.54	1
		52 51	1 22 74	16.89	6.73	40.53	32.48	i
		34.96		12.381	4.791	34.43	27.99	i
		24.63	10.33	8.541	4.301	24.47	23.80	i
		17.65	7.25	5.921	3.661	26.14	22.04	I
•	0.01450	14.15	5.781	4.351	3.321	23.39	19.85	J
		11.08	4.43	3.981	2.67	20.94	17.82	Ī
	0.01650	9.02	3.79	3.481	2.371	19.47	15,77	L
		7.74	3.281	2.261	1.76	17.40	15.10	Ī
	0.01850	5.93	2.52	2.11	2.03	16.96	1 13.71	1
	0.01950	5.10	2.38	1.72	1.69	15.80	13.28	1
	1 0.02050	4.33	1.73	1.65	1.61	14.45	11.55	1
	0.02150	3.73	1.66	1.48	1.62	13.72	10.39	1
	0.02250	3.44	1.35	1.34	1.28	13.03	10.01	1
	0.02350	3.30	1.29	1.03	1.22	13.03	9.33	1
	0.02450	2.13	1.07	0.83	0.91	11.21	9.74	1
	0.02550	2.40	0.90	0.76	0.831	11.36	8.14	1
	0.02650	1.92	0.74	1.06	0.84	10.83	7.44	1
•	0.02750	1.71	0.51	0.60	0.60	9.68	6.55	ł.
	0.02850	1.23	[	0.72	0.65	9.54	5.65	ļ
	0.02950	1.30	0.27	0.67	0.34	8.30	4.78	1
	0.03050	1.09	0.35	0.46	0.20	7.15	4.50	ļ
	0.03150	1.06	0.33	0.54	0.20	7.65	4.38	1
	0.03250	0.77	0.18	0.43	0.15		4.25	†
	0.03350	0.90	0.12	0.33	0.08		1 3.02	1
	0.03450	0.78	-0.19	0.28	0.10	6.57	2.97	]
	0.03550			0.19		5 03	2.28	<u>.</u>
	0.03650					1 4 32	s 1+72	
						1 3.83	1.34	4
		1 0.33		0.06		3.47	1.20	2 T 2 E
		1 0 10	1 0.05			2.55	1 0 70	ц 1
						2.45		) [ 
	1 0.04150		0.02	0.03	0.01	1.96	0.53	
	0.04350	0.13	1 0.03	0.0	0.0	1.80		
	0-04450	0.11	0.02	0.0	0.0	1.61	0.23	51
	0.04550	0.17	i c.o	0.01	1 0.0	1.48	1 0.29	
	0.04650	1 5.07	1 0.02	0.01	1 0.0	1.33	1 C.23	มี
	0.04750	0.14	1	0.01	0.0	1.31	1 0.16	51
	0.04850	0.05	. 0.0	0.0	0.0	1 1.02	.0.12	21
	0.04950	0.05	10.0_	0.0	0.0	0.99	0.11	L
	0.05250	0.04	0.0	0.00	0.0	0.74	0.07	11
	0.05750	0.02	LQ_Q	0.0	0.0	0.33	0.02	긴 -
	0.06250	0.02	0.0	0.0	1 0.0		0.00	)
	0.06750	0.02	0.0	1 0.0	1 0.0	0.11	0.0	Ļ
	0.07250	0.01	0.0		0.0		0.0	!
	0.07750	1 0.01	0.0	j 0.0	0.0		0.0	Ļ
	0.08250	1 0.0					0.0	ļ
	1 0.08750	1 0.00				1 0.03	<u> </u>	-
	0.09250						C.O	1
•							2.0	4
			1 0.0			1 0.00		1
	1 U.13/3U		1 0.0				<u>i 0.0</u>	
	1 0.10200	1 0.0	1 0.0	1 0.0	0.0	0.0		
		0_0	0.0	0.0	0.0	0.0	1 0.0	-
	0.27500	0.0	0.0	0_0	1 0.0	1 0.0	1	:

# TABLE C-2 (continuei)

I	WL (LB/SEC)]	0.12601	0.1260	0.12601	0.2400	0.24001	0.2400
ļ	WG (LB/SEC)	0.0976	0.14361	0.1742	0.0	0.0450	28421
ļ	REL. NO. I	1518	15671	1120681	31511	29011	62650
1	KEG NU (	73.000	75.4501	72.3001	79.6501	73.2501	71.7001
i		71.500	71.0001	68.0001	75.0001	72.0001	70.0001
i	RUN NO. = 1	009E 1	008E	010E	006H	0125	0096
İ	CELL NO. =	D2	D2	D2	D2		D2
I	FILM	1	1			05110	DENS
ļ	THICKNESS	DENS.	DENS.	DENS. I	DENS.	<u> </u>	
	0 00050			0.0	0.0	0.0	0.0
1	0.00150	0.01	0.281	0.061	0.0	0.0 1	0.0 1
i	0.00250	1.99	9.591	24.821	0.0	0.051	0.041
Ì	0.00350	31.97	82.32	193.24	0.30	11.19	5.00
1	0.00450	154-07	200-15	256.27	15.12	<u></u>	43.521
	0.00550	210.18	211.49	172.291	50.49	113.21	137.861
	0.00650	1 103+001	138+371	92.421	74.88	84.72	126.63
1		63.21	50.12	36.961	70.85	67.52	101.06
Ì	0.00950	42.96	33.991	26.34	61.86	53.61	76.92
j	0.01050	31.94	24.291	18.39	.52.09	46.42	55.37
ļ	0.01150	23-221	18.871	14.36	45.65	39.91	40.301
	0.01250	18.13	14.62	10.991	39.99	34.03	26.11
	0.01350	1 14.85	11.691	8.571	31.26	1 30.421	19.78
		1 12+401	9.81	6.761	28.58	24.16	15.891
	0.01650	9.77	8.46	5.95	26.69	21.85	14.991
	0.01750	8.94	6.54	5.71	25.42	19.26	12.64
	0.01850	1 7.13	6.281	5.801	23.48	17.83	11.49
	0.01950	6.66	5.751	5.11	21.29	17.32	10.051
	0.02050	6.61	5.611	5.13	20.82	16.54	8.121
		1 5 141	5-09	4.901	18.27	1 14.67	7.491
	0.02250	1 5,561	4.881	4.57	17.89	14.09	6.961
	0.02450	5.31	5.021	4.331	16.60	13.22	6.65
	0.02550	4.59	4.951	4.33	15.33	1 12.41	6.08
	0.02650	4.52	4.621	4.03	14.69	12.26	5 721
	0.02750	4.14	3.11	3+61	13.11		5-89
	0.02850	4.33	3.33	2.56	12.05	3.09	5.62
		4.201	3-69	2.48	12.20	9.66	5.041
	0.03150	3.71	3.871	1.69	11.54	8.95	5-281
	0.03250	4.361	3.33	1.58	11.65	3.49	5.21
	0.03350	4.17	3.12	1.48	11.52	8.63	1 5.051 5.241
	0.03450	3.74	2.911	0.86	9.94	1	1 5 051
	0.03550	3.3/1	2.01	0.10	9./1	6.24	4.92
	0.03750	1 2.87	1.33	0.33	1 0.91	1 5.54	4.131
	0.03850	2.55	0.97	0.16	6.50	4.53	4.13
	0.03950	2.28	0.72	0.20	5.85	3.61	1 3.74
	0.04050	1 1.94	0.59	0.10	5.22	2.87	3.261
	0.04150	1.86	0.37	0.06	4.90	2.60	1 2.76
	1. 0.04250	1 1 34		0.04	1 4.32		2.52
	0.04450	1.12	0.16	0.02	1 3.44	1.6*	2.71
	0.04550	0.88	0.28	0.01	3.24	1.34	1.95
	0.04650	0.86	0.08	0.02	1 2.62	2 1-33	2.06
	0.04750	1 0.85	80.0	0.0	2.73	1 - 13	
	0.04850	0.53			1 2.23	0.43	
		1 0.39			1 1.03	0.24	0.77
	0.05750	1 0.21	0.01	0.0	1 1.1	0.25	0.97
	0.06250	0.13	1 0.0	0.0	1 1.18	0.12	1 1.11
	0.06750	0.03	0.0	0.0	1 1.08	311	0.79
	0.07250	0.01	0.0	0.0	1 0.60	0.0	1 0.04
	0.07750				1 0.24		
	1 0.08250 1 0.08750				1 0.0	6 0.0	0.00
	1 - 0.09250	0.0	0.0	0.0	0.0	21 0.0	<b>0.</b> 00
	0.09750	0.0	0.0	0.0	0.0	210.0	1 0.0
	0.11250	0.0	0.0	0.0	1 0.0	0.0	1 0.0
	0.13750	1 0.0	1 0.0	0.0	1 0.0	L0.0	
	0.16250			1 0.0	0.0		1 /0.0
	U-18750				1 0.0	0.0	1 0.0
	0.22700				1 0.0	0.0	1 0.0
## TAPLE C-2 (continued)

t

1	WE (LB/SEC)  WG (LB/SEC)	0.24001	0.2400	0.3500	0.35001	0.35001	0.3500	
1	REL NU. I	92178	113551	45721	29798	631491	929121	
1	TL ( °F )]	73.150	69.750	79.250	72.9501	71.050	71.500	
	$TG ( \circ - ) $	008G 1	0106	0066	012H	009H 1	008H	
i	CELL NO. =	D2	D2	D2	<u> </u>	D2	D2	
	FILM   THICKNESS	DENS.	DENS.	DENS.	DENS.	DENS.	DENS.	
1	( INCHES)	0 0 1	0.0	0.0		0.0	0.01	
	0.00150	0.021	0.0	0.0	0.01	0.0	0.04	
1	0.00250	2.38	0.51	0.0	<u>· 0.01</u>	0.11	0.43	
		22.81	110.12	2.35	15.94	11.66	36.01	
	0.00550	146.381	158.96	13.00	39.38	42.26	75.00	
1	0.00650	144.30	148.32	27.33	54.07	74.21	101.24	
1		87.65	23.44	50.07	74.47	98.55	95.06	
	0.00950	64.48	61.69	53.71	69.57	88.721	80.50	
	0.01050	45.96	44.02	56.29	60.52	72.01	64.83	
	0.01250	26.821	25.82	51.59	47.25	48.48	42.09	
	0.01350	21.36	19.19	48.14	40.75	40.13	35.96	
1	0.01450	17.13	15.99	41.86	34.46	34-871	26.69	i I
		13.831	11.001	38.06	27.75	23.77	20.18	
ļ	0.01750	10.86	9.93	31.61	24.45	19.36	17.64	ļ
	0.01850	8.75	8.40	28.72	21.86	17.49	14.18	1
		9.01    7.32	6-81	23.82	19.83	13.76	11.99	Ì
	0.02150	7.37	6.45	21.48	17.57	12.00	10.35	ļ
	0.02250	6.15	5.84	19.23	16.27	11.14	9.59	
	0.02350	5.91	5.58	19-29	16.78	9.71	9.38	1
	0.02550	5.39	5.60	16.11	14.88	8.75	7.59	ļ
	0.02650	5.25	5.59	15.52	14.37	8.07	7.33	ļ
	0.02750	5.10	5.93	14.66		7.38	7.14	ł
		5.15	4.05	13.72	9.92	7.13	6.00	i
	0.03050	4.27	4.72	12.80	1 10.63	0.52	6.34	ļ
,	0.03150	4.34	4.72	12.22	11.16	6-27	6.34	
		5.09	5.47	11.55	10.90	6.15	5.56	i
	0.03450	5.06	5.59	11.52	10.00	. 6•45	5.91	ļ
	0.03550	4.07	4.46	9.83	9.14	5.98	5.21	ļ
		3.95	3.37	9.05   8.35	8.32 <sup>.</sup>	5.38	5.33	1
	0.03850	3.48	3.03	7.94	6.97	4.95	5.02	i
	0.03950	3.15	2.14	6.71	5.55	4.44	4.72	ļ
		3.06	1.80	6.71 6.70	1 5.60	3.80	4.59	ł
	0.04150	2.13	1.44	5.61	4.49	3.40	3.91	i
	0.04350	2.43	1.13	5.13	4.05	3.38	3.94	ļ
	0.04450	2.04	0.84	5.24	3.39	3.13	3.12	1
	0.04650	1.05	0.46	4.32	3.49	3.05	3.22	i
	0.04750	1.26	0.45	4.35	2.30	2.29	2.65	ļ
			0.25	1 3.81	1 2.55	2.12	1.50	1
	0.05250	0.48	0.10	1.68	0.98	1.35	1.02	i
	0.05750	0.37	0.08	1.95	1.03	1.65	0.98	ļ
			0.01	2.85	80.0	2.23	0.91	l F
	0.07250	0.03	0.00	2.46	0.14	1.15	0.18	i
	0.07750	0.00	0.0	1.46	0.02	0.36	0.04	ļ
			0.0	1 0.79		0.03	0.00	F 1
	0.09250	0.0	0.0	0.33	0.00	0.01	0.0	i
	0.09750	0.0	0.0	0.20	0.0	0.00	0.0	ļ
	0.11250	0.0	0.0					1
•	0.16250		0.0	0.00	0.0	0.0	0.0	i
	0.18750	0.0	0.0	0.0	0.0	0.0	0.0	ļ
	0.22500	0.0	0.0	0.0	0.0			ł
	1 0.27500 1 0.32500					0.0	0.0	1
	0.37500	0.0	0.0	0.0	<u>c.o</u>	0.0	0.0	İ
	0.45000	0.0	·· 0.0	0.0	0.0	0.0	0.0	1
	I U. /5000	i 0.0	i u∎u i	i U.D	. U.U.U		. V.U	٤.

## TAILE C-2 (continuea)

WI   W   I   T   T   R   C	L (LB/SEC)  G (LB/SEC)  REL. NO.   REG. NO.   L ( °; )  G ( °; )  UN NO. =   ELL NO. =	0.3500 0.1742 3997 113551 69.000 65.000 010H C2	0.5850 0.0 7560 01 78.400 75.000 006E D2	0.58501 <u>0.04501</u> 70161 <u>288041</u> 72.6501 71.5001 012J D2	0.5850  0.0976  6790  63257  70.200  68.200  009J D2	0.5850  0.1436  6758  33177  69.850  67.500  008J D2	0.5850 0.1742 6577 113551 67.850 65.000 010J D2	
1	FILM   THICKNESS	DENS. I	DENS.	DENS.	DENS.	DENS.	DENS.	
i 1 1	( INCHES)   0.00050   0.00150	0.0		<u>· 0.0  </u> 0.0		0.0	0.0	
	0.00250	4.91	0.0	0.041	0.0	0.35	0.46 5.80	
1	0.00450	37.721 90.051	0.091_	3.20	5.63	14.68	21.98	
1	0.00650	110.67	1•54[_ 4•49]	22.69	29.42	47.47	61.40	
i	• 0.00850	97.05	10.871	36.14	43.61	57.46	70•81  72•78	
1	0.00950	65.73	28.79[	57.581	61.331	66.371	67.63	
ļ	0.01150	50.22	37.57	58.041	58.12	54.35	56.87	
i	0.01350	33.331	40.471	50.651	53.72	48.34	50.10 43.80	
	0.01450	26.57	41.36	42.04	48.201	39.541	36.65	
i	0.01650	18.50	39.77	37.191	38.61	34.32	32.501 28.341	
1	0.01750	15.27	37.781	34.651	29.91	27.681	25.791	
į.	0.01950	12.20	33.45	27.411	27.621	26.11	23.14	
	0.02050	11•57    9•76	28.63	25.05	23.17	20.861	19.06	
į	0.02250	9.53	27.03	23.35	20.14	19.01	17.651	
1	0.02350	8.56	25.44	20.03	16.20	16.05	15.14	
1	0.02550	8 • 15	22.25	19.12	16.061	14.801	12.79	
I	0.02050	7.53	19.95	17.48	13.12	13.04	12.00	
1	0.02850	6.95	19.18	12.95	12.231	9.70	9.42	
l	0.03050	4.97	16.581	13.82	10.71	9.12	8.72	
ł	0.03150	5.94	16.68	13.051	9.85	9.99	10.32	
i	0.03350	6.97	16.58	12.88	9.45	9.08	10.17	
	0.03450	7.44 7.16	13,951	12.27	8.30	8.33	9.201	
į	0.03650	6.61	11.33	10.14	7.32	8.14	8.621	
1	0.03750	5.09	10.00	8.74	6.43	6.82	7.98	
ļ	0.03950	4.91	8-64	7.64	6•06 5•63	5.87	7.01r 6.19	
	0.04050	3.61	7.16	6.77	4.86	5+62	6.25	
1	0.04250	3.14	7.03	6.65	5+22 4-78	5.07	4.53	
i	0.04450	1.93	6.44	5.52	4.36	4.34	4.46	
	0.04550 0.04650	2.04	5.24	<u> </u>	4.50	4.62	3.47	
į	0.04750	1.38	5.52	5.04	1 3.92 1 3.67	4.55	2.97	
	0.04850 0.04950	0.83	3.15	3.68	2.35	2.99	1.88	
ļ	0.05250	0.44	2,24	1.93	1 2.59	1.90	1.10	
l	0.05750	0.20	3.95	3.42	3.71	2.78	0.82	
	0.06750	0.08	4.80    4.51	<u>3.95</u> 1.58	] 4.79 ] 3.47	1 2.56	0.06	
i	0.07750	0.00	3.39	0.22	1.44	0.34		
	0.08250		1.85	0.02	0.46	1 0.00	0.0	
i	0.09250	0.0	1.40	0.0		1 0.01		
	0.09750 0.11250		0.37	0.0		0.0	0.0	
į	0.13750	0.0	0.04	0.0				
• 1	0.16250 0.18750	1 0.0 1 0.0	0.00	0.0	0.0	0.0	.0.0	
ļ	0.22500	+ 0.0				1 0.0		
	0.32500	0.0	0.0	0.0	1 0.0	0.0	0.0	
1	0.37500	0.0					0.0	
j	0.75,000	1 0.0	0.0	0.0	0.0	1 0.0	0.01	

•	WE (LB/SEC)	1 0.03001	0.0800	0.0800	0.0800	0.1800	0.1800
	REL. NO.	1 1016	1016	1016	1016	1 0.0 1 2299	2299
	REG.ND. TI (°₽ )	1 0 1 77.1001	. 0	77.100	0	77.504	: . 01
1	ITG (°F)	73.000	73.0001	73.000	73.000	73.000	73.000
, •	IRUN ND. = ICFLL ND. = 1	1 005D 1 1 02 1	0050   81	005D   43	005D C4	005F	005F     81
	FILM					52	
	( INCHESS	DENS.   	DENS.	DENS.	DENS.	DENS.	DENS.
	0.00050	0.01	0.0	0.0	0.0	0.0	0.0
	0.00250		0.01	0.0	0.0	0.0 C.0	
	0.00350	12.92	13.02	14.05	12.17	1.24	0.54
	0.00450	168.57	118.24	165.09	122.21	100.38	32•271 106•791
	0.00650	144.96	142.89	127.09	118.75	119.59	116.88
	0.00850	75.89	63.75	71.97	74.95	95.09 69.08	58.95
• • •	0.00950	59.18	46.97	53.09	58-29	53.15	47.32
	0.01150	* 35.18	30.95	34.80	41.17	38.67	34.50
	0.01250	29.73	26.01	29.23	35.39	32.55	29.89
	0.01450	· 20.01	19.06	20.94	27.48	25.38	25.01
	0.01550	17.53	18.04	19.62	24.03	21.65	22.57
	0.01750	13.86	15.44	15.51	18.95	- 19.44	20.85
	0.01850	11.98	13.98	13.47	18.05	18.39	18.79
	0.02050	11.21	11.81	10.75	12.27	16.56	17.34
	0.02150 0.02250	10.16	12.09	9.551 9.801	10.31	15.89	17.41
·	0.02350	7.92	9.73	8.48	7.60	13.84	16.18
1	0.02450	7.11	9.32	7.09	6.591 5.331	13.50	15.18
1	0.02650	5.76	7.63	6.47	5.041	11.98	14.58
1	0.02850	4.95	6.85	5.401	4.43	12•791	14.16
.1	0.02950	4.13	5.56	4.58	2.82	11.01	11.89
1	0.03050	3.85	4.67	3.64	2.71	8•14  8•39	9.96
1	0:03250	3.15	3.861	3.44	1.88	8.45	9.891
	0.03450	2.70	2.80	2.66	1.63	8.53	8.771
· •. •	0.03550	2.60	2.261	1.40	1.36	7.76	6.44
	0.03750	1.48	2.041	1.30	1.29	6.51 5.95	6.36 6.901
1	0.03850	1.44	2.11	1.79	0.96	5.78	6.58
ļ	0.04050	1.06	1.97	1.92	0-85	4.61	6.991
1	0.04150	1.00	1.65	1.31	0.59	3.78	6.301
	0.04350	0.58	1.26	1.01	0.30	2.98	5.791
	0.04450	0.66	0.92	0.75	0.20	2.87	4.51
, 1	0.04650	C.51	0.64	0.41	0.21	2.44	3.02
.	0.04750	0.39	0.56	0.34	0.14	2.31	3.07
į	0.04950	0.49	0.47	0.33	0.12	1.26	2.04
	0.05250	0.19	0.30	0.19	0.05	0.99	1.68
Ì	0.06250	0.071	0.061	0.071	0.021	0.621	0.43
	0.07250	0.021	0.02	0.05	0.01	0.46	0.26
	0.07750	0.021	0.00	0.02	0.0	Ŭ.22	0.15
	0.08250	0.011	0.011	0.0	0.0	C.15  0.08	0.07  0.081
1	0.09250	0.001	0.00	0.0	0.0	0.051	0.031
, i	0.11250	0.001	0.00	. 0.0	0.0	0.05	0.02
	0.13750	0.0	0.0	0.0	0.0	0.30	0.00
·· . 1	0.18750	0.0	0.0 1		· 0.0 ·		0.0   0.0
ł	0.22500	0.01	0.01	0.0 1	0.0	0.01	0.001
i	0+32500 [	0.0	0.0 1		0.0	0.0	0.0   0.0
1	0.37500	0.01	0.01	0.0	0.0	0.0.1	0.01
i	0.75000	0.0	0.0	0.0	0.0	0.0	0.01

## TABLE C-2 (continued)

	1				•			
	WL (LB/SEC)	0.1800	0.1800	0.47001	0.47001	0.4700	0.4700	• •
•••	[WG (LB/SEC)]	0.0	0.0	0.0 1	0.0 1	0.0	0.0	i ·
	REL. NO.	2299	22991	6043	60431	60431	6043	377
	REG. ND.		10	01	01	01	0	
		77.0001	77.0001	78.000	78.0001	78.000	78.000	
	1 RIIN NO. = 1	005E	0056	73.0001 006tt	13.0001	006F ~	0065	
	ICELL NO. =	A3	C4 1	000F -1	B1 1	Δ3 Ι	C4	
	I FILM .		i	02			0.	
	THICKNESS	DENS. 1	DENS. 1	DENS.	DENS.	DENS.	DENS.	
	( INCHES)	1	1	1	i		,	
	0.00050	0.0	0.0	0.0	0.0	0.0 1	0.0	
	0.00150	0.0	0.0	0.0	0.0 1	0.0 [	0.0	
	0.00250	0.0	0.01	0.0	0.0	0.0	0.0	
•		52.10	1.021	0.01	0.0		0.01	
•		112.55	7.42	0.021	0.031	2.74	1.67	
	0.00650	110.03	20.71	6.431	4.791	9.48	5.85	
•	0.00750	81.37	33.371	14.86	11.23	17.60	12.13	
	0.00850	62.06	43.20	24.221	16.95	23.321	17.91	
•	0.00950	48.03	51.02	33.94	22.28	27.43	23.38	
		40.701	58.49	41.27	· 26.13	34.96	29.58	
		31.78		48.721	28.53	39.27	24 12	
•		28.151	73.78	48.03	30.451	41.031	35.54	
	0.01450	25.57	71.491	45.791	34.07	38.68	35.77	
	0.01550	23.73	67.74	40.151	32.811	37.451	36.96	
••••	0.01650	22.23	61.00	37.221	33.21	34.251	38.65	· · ·
	0.01750	20.53	57.41	34.281	31.19	33.05	37.34	
	0.01850	18.04	51.66	33.77	31.27	30.62	37.61	
	0.01950	17.53	41.99	29.99	30.401	29.06	31.99	
		16 52	33+411	27.971	29.50	27.03	28+491	
•		15.69	22.85	20.10	29.12	22 621	20.10	
	0.02350	14.12	19.181	22.841	20.01	22.23	27.64	• • •
	0.02450	13.90	17.36	21.07	26.04	21.12	20.85	
•	0.02550	13.671	14.47	20.681	23.71	13.441	19.51	
	0.02650	12.30	11.98	19.85	23.081	18.75	18.32	
	0.02750	11.74	10.28	19.00	21.38	17.87	16.94	
		11.441	8.83	17-081	20.33	16.87	16.86	<i>.</i> .
		9.77	6.77	12.481	18.93	16+00}	14 551	
		9.581	5.461	14.061	15 241	12.591	14.591	
	0.03250	8.64	4.66	13.81	14.76	13.671	14.01	
	0.03350	. 8.23	4.59	14.251	13.39	13.14	13.09	
	0.03450 I	7.35	3,651	13.33	13.09	12.19	13.68	
	0.03550	6.30	3.31	12.55	10.44	10.47	11.60	
	0.03650	6.40	2.95	11.351	10.51	11.03	11.85	
		5.861	2.501	10+661	12.071	10.171	12.74	
		5 17	2.021	8.561	12.031	10.521	12.86	
•	0.04050	4.98	1.961	7.881	12.981	10 121	12.691	
	0.04150	4.41	1.77	7.221	12.361	9.37	11.991	
· · · ·	0.04250	4.06	1.23	6.261	11.66	8.361	11.41	• • • •
_	0.04350	3.49	0.87	5.91	10.72	8.23	10.30	
	0.04450	3.50	0.86	5,761	10.42	6.991	10.53	
		3.26	0.651	2.28	8.46	7.04	9-29	
	0.04750	2.001	0.38	4.771	8.28	6.941	8.54	
	0.04850	2.15	0.451	4.41	6.651	5.971	7.931	
•	0.04950	2.25	0.321	3.361	6.571	5.48	7.32	
	0.05250	1.39	0.16	2.92	11.06	2.48	4.84	•
	0.05750	0.30	0.071	3.17	2.861	0.811	4.48	
	0.06250	0.35	0.051	3-22	2.221	0.901	4.30	
		0.43	0.011	2.83	1+81	1.06	3.63	
		1.02		2.311	1 • 70.1	5.23	2.92	,
		0.07	0.001	1.82	1.751	12.58	2 • 1 2 1	
	0.08750	0.05	0.01	1.551	1.641	0.831	1.291	
•	0.09250	0.02	0.00	1.19	1.65	0.531	1.00	
	0.09750	0.03	0.0 1	0.85	2.03	0.531	1.20	
1	0.11250	0.01	0.0	0.27	0.351	0.46	0.34	
	0.13750	0.00	0.0	0.20	0.11	0.27	0.08	
• •		0.0		0.021	0.00	0.13	0.03	
•	0.22500			0.001	0.07	0.06	0.01	
	0.27500		· 0.0 1	0.0	0_0 1	0.03	0.01	
	0.32500	0.0	0.01	0.0	0.0	0.0 1	0.0	•
	0,37500	0.0	0.0 İ	0.0	0.01	0.01	0.0	
	0.45000	0.0	.0.0	0.0	0.0	0.0.	0.0	
	0.75000	1 0.0	0.01	0.0	0.01	· 0.0 I	· 0.0 I	

.

.

. .

. . . .

.

. .

• •

. .

•

.

•

÷

\* \* \* \* \*

\* \* \* \*

AUTO SFECTRA, CROSS SPECTPA, AND CCHERENCY SFECTRA

								378
WG(LB/SEC)	0.0	0.0	0.0	· ·	0.0	0.0	0.0	•
WL(LB/SEC)	0.0160	0.0160	0.0160		0.0280	0.0280	0.0280	
CELL	81	C2	CROSS C	OHERENCY	81	D2	CROSS C	OHERENCY
FREG.(CPS)	***** NU	RMALIZED	VALUE **	***	**** il0i	RMALIZED	VALUE #*	* * *
0.18	C.0127	0.0166	0.0111	0.5893	0.0094	0.0113	0.0073	0.5011
0,67	0.0149	0.0193	0.0127	0.5594	0.0207	0.0228	0.0167	0.5906
1.16	0.0158	0.0190	0.0116	0.4508	0.0273	0.0260	0.0197	0.5446
1.65	0.0171	.0.0213	0.0102	0.2866	0.0238	0.0247	0.0126	0.2706
2.14	0.0131	0.0200	0.0095	0.2474	0.0230	0.0235	0.0096	0.1716
2.63	2050.0	0.0198	0.0087	0.1908	0.0264	0.0235	0.0132	0.2825
3.11	0.0206	0.0174	0.0055	0.0859	0.0252	0.0227	0.0076	0.1022
3.60	0.0216	0.0213	0.0079	0.1348	0.0231	0.0283	0.0111	0.1543
• 4.09	0.0241	0.0262	0.0084	0.1128	0.0323	0.0289	0.0054	0.0315
4.58	C.0363	C.0319	0.0119	0.1216	0.0350	0.0227	0.0064	0.0520
5.07	0.0391	0.0321	0.0143	0.1630	0.0338	0.9260	0.0063	0.0449
5.55	0.0409	C.C453	0.0181	0.1766	0.0309	0.0304	0.0055	0.0327
6.53	0.0435	0.0412	0.0137	6.1047	0.0341	0.0427	0.0084	0.0489
. 7.51	0.0357	0.0424	0.0097	0.0617	0.0276	0.0340	0.0056	0.0334
8.48	0.0459	0.0375	0.0092	0.0490	0.0285	C.0292	0.0061	0.0459
9.46	0.0323	0.0311	0.0073	0.0527	0.0262	0.0322	0.0048	0.0275
11.41	0.0246	0.0217	0.0033	0.0210	0.0255	C.C252	0.0055	0.0469.
13.37	0.0157	0.0179	0.0027	0.0256	0.0181	0.0169	0.0031	0.0308
15.81	0.0135	0.0120	0.0020	0.0238	0.0111	0.0126	0.0026	0.0467
18.25	0.0083	0.0036	0.0014	0.0250	0.0094	0.0025	0.0021	0.0479
22.64	0.0005	6.0040	0.0009	0.3375	0.0059	0.0056	0.0009	0.0235
25.08	0.0034	0.0031	0.0007	0.0409	0.0043	0.0035	0.0006	0.0266
27.53	0.0026	0.0022	0.0004	0.0283	0.0026	0.0031	0.0007	0.0565
30.46	6.0019	0.0012	0.0003	0.0337	0.0020	0.0021	0.0004	0.0336
34.85	0.0010	0.0009	0.0001	0.0183	C.0013	0.0014	0.0003	0.0518
43.22	0.0006	0.0006	0.0001	0.0241	0.0009	0.0008	0.0001	0.0292
50.48	C+0002	0.0002	0.0000	0.0106	0.0004	0.0003	0.0001	0.0907
60.24	0.0002	0.0002	0.0001	0.3268	0.0002	0.0002	0.0000	0.0455
70.01	0.0002	0.0003	C.0002	0.6984	0.0002	0.0003	0.0002	0.4654
80.26	0.0000	C.0000	0.0	J.O	6.0001	0.0000	0.0000	0.0417
	•	• •				: •	•	
•	·	• •	-			: •	•	•
WGIERZSEC)	6.0	0.0			0.0	0.0		
WG(LB/SEC) WL(LB/SEC)	6.0 C.0440	0.0	0.0 0.0440		0.0 0.0500	0.0	0.0 0.0800	
WG(LB/SEC) WL(LB/SEC) CELL	6.0 C.0440 B1	0.0 C.C440	0.0 0.0440 CR055 CC		0.0 0.0800 B1	0.0 0.0800 D2	0.0 0.0800 CROSS C	OHERENCY
WG(LB/SEC) WL(LB/SEC) CELL FREG.(CPS)	6.0 C.C440 B1	0.C C.C440 C2 RMALIZED	0.0 0.0440 CRUSS C( VALUE ###	DHERENCY	C.O O.OSCO B1 ***** NO	0.0 0.0800 D2 RMALIZED	0.0 0.0800 CROSS C VALUE **	OHERENCY ***
WG(LB/SEC) WL(LB/SEC) CELL FREG.(CPS) 0.18	C.C C.C440 B1 ***** 10	0.0 C.C440 C2 RMALIZED 0.0123	0.0 0.0440 CRUSS C( VALUE ## 0.0034	DHERENCY	C.O O.O5CO Bl ***** NO 0.0046	0.0 0.0800 D2 RMALIZED 0.0060	0.0 0.0800 CROSS C VALUE ** 0.0030	OHERENCY *** 0.3275
WG(LB/SEC) WL(LB/SEC) CELL FREG.(CPS) 0.18 0.67	C.C C.C440 B1 ***** NO 0.C102 0.C267	0.0 C.C440 C2 RMALIZED 0.0123 0.0310	0.0 0.0440 CRUSS C( VALUE ## 0.0034 0.0251	DHERENCY *** 0.5456 0.7570	0.0 0.0500 Bl ***** N0 0.0046 0.0135	0.0 0.0800 D2 RMALIZED 0.0060 0.0163	0.0 0.0800 CROSS C VALUE ** 0.0030 0.0123	OHERENCY *** 0.3275 0.6805
WG(LB/SEC) WL(LB/SEC) CELL FREG.(CPS) 0.18 0.67 1.16	6.0 C.0440 B1 ***** NO 0.0102 0.0267 0.0391	0.0 C.C440 C2 RMALIZED 0.0123 0.0310 0.0459	0.0 0.0440 CRUSS CC VALUE *** 0.0034 0.0251 0.0351	DHERENCY *** 0.5456 0.757C 0.7241	C.O 0.0500 Bl ***** NUf 0.0046 0.0135 0.0254	0.0 0.0800 D2 RMALIZED 0.0060 0.0163 0.0291	0.0 0.0800 CROSS C VALUE ** 0.0030 0.0123 0.0243	OHERENCY *** 0.3275 0.6805 0.7980
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65	6.0 C.0440 B1 ***** NO 0.0102 0.0267 0.0391 0.0546	0.0 C.C440 D2 RMALIZED 0.0123 0.0310 0.0459 0.0586	0.0 0.0440 CRUSS CC VALUE *** 0.0034 0.0251 0.0351 0.0334	DHERENCY *** 0.5456 0.7570 0.7241 0.7311	C.O 0.0500 B1 ***** N0; 0.0046 0.0135 0.0254 C.0408	0.0 0.0800 D2 RMALIZED 0.0060 0.0163 0.0291 0.0242	0.0 0.0800 CROSS C VALUE ** 0.0030 0.0123 0.0243 0.0376	OHERENCY *** 0.3275 0.6805 0.7980 0.7835
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14	6.0 C.0440 B1 ***** NO 0.0102 0.0267 0.0391 0.0546 0.0542	0.0 C.C440 D2 RMALIZED 0.0123 0.0310 0.0459 0.0586 0.0586	0.0 0.0440 CRUSS CC VALUE *** 0.0034 0.0251 0.0351 0.0434 0.0381	DHERENCY *** 0.5456 0.7570 0.7241 0.7311 0.5643	C.O 0.0500 B1 ***** NO; 0.0046 0.0135 0.0254 C.0408 0.0449	0.0 0.0800 D2 RMALIZED 0.0060 0.0163 0.0291 0.0442 0.0445	0.0 0.0800 CROSS C VALUE ** 0.0030 0.0123 0.0243 0.0376 0.0399	OHERENCY *** 0.3275 0.6805 0.7980 0.7835 0.7788
WG(LB/SEC) KL(LB/SEC) CELL FREG.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63	G.C C.C440 B1 ***** ND 0.C102 0.C267 0.0391 0.0546 0.0542 0.0457	0.0 C.C440 C2 RMALIZED 0.0123 0.0310 0.0459 0.0586 0.0474 0.C460	0.0 0.0440 CRUSS CC VALUE *** 0.0034 0.0251 0.0351 0.0434 0.0381 C.0330	DHERENCY *** 0.5456 0.757C 0.7241 0.7311 0.5643 0.5175	0.0 0.0500 B1 ***** N07 0.0046 0.0135 0.0254 C.0408 0.0449 0.0533	0.0 0.0800 D2 RMALIZED 0.0060 0.0163 0.0291 0.0442 0.0445 0.0484	0.0 0.0800 CRDSS C VALUE ** 0.0030 0.0123 0.0123 0.0243 0.0376 0.0399 0.C429	OHERENCY *** 0.3275 0.6805 0.7980 0.7835 0.7835 0.7778 0.7125
WG(LB/SEC) KL(LB/SEC) CELL FREC.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11	G.C C.C440 B1 ***** NO 0.C102 0.C267 0.0391 0.0546 0.0546 0.0542 0.0457 C.C412	0.0 C.C440 C2 RMALIZED 0.0123 0.0310 0.0459 0.0586 0.0474 0.C460 0.0455	0.0 0.0440 CRUSS CC VALUE *** 0.0034 0.0251 0.0351 0.0434 0.0381 C.0330 0.0302	DHERENCY *** 0.5456 0.757C 0.7241 0.7311 0.5643 0.5175 0.4876	0.0 0.0500 B1 ***** N07 0.0046 0.0135 0.0254 C.0408 0.0449 0.0533 0.0629	0.0 0.0800 D2 RMALIZED 0.0060 0.0163 0.0291 0.0442 0.0455 0.0484 0.0615	0.0 0.0800 CROSS C VALUE ** 0.0030 0.0123 0.0243 0.0243 0.0376 0.0399 0.C429 0.0507	OHERENCY *** 0.3275 0.6805 0.7980 0.7835 0.7835 0.7125 0.6649
WG(LB/SEC) KL(LB/SEC) CELL FREC.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60	G.0 C.0440 B1 ***** NO 0.0102 0.0267 0.0391 0.0546 0.0546 0.05542 0.0457 C.0412 0.0414	0.0 C.C440 C2 RMALIZED 0.0123 0.0310 0.0459 0.0586 0.0474 0.C460 0.0455 0.0416	0.0 0.0440 CRUSS CC VALUE *** 0.0034 0.0251 0.0351 0.0434 0.0381 C.0330 0.0302 0.0259	DHERENCY *** 0.5456 0.757C 0.7241 0.7311 0.5643 0.5175 0.4876 0.3890	C.O O.O500 B1 ***** N07 0.0046 0.0135 0.0254 C.0408 0.0449 0.0533 0.0629 0.0590	0.0 0.0800 D2 RMALIZED 0.0060 0.0163 0.0291 0.0442 0.0455 0.0484 0.0615 0.0529	0.0 0.0800 CROSS C VALUE ** 0.0030 0.0123 0.0243 0.0243 0.0376 0.0399 0.C429 0.0507 C.0442	OHERENCY *** 0.3275 0.6805 0.7980 0.7835 0.7835 0.7125 0.6649 0.6275
WG(LB/SEC) WL(LB/SEC) CELL FREC.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09	G.C C.0440 B1 ***** NO 0.C102 0.C267 0.0391 0.0546 0.0546 0.0542 0.0457 C.0412 0.0414 C.0513	0.0 C.C440 D2 RMALIZED 0.0123 0.0310 0.0459 0.0586 0.0459 0.0474 0.0460 0.0455 0.0416 0.0416 0.0480	0.0 0.0440 CRUSS CC VALUE *** 0.0034 0.0251 0.0361 0.0434 0.0381 C.0330 0.0302 0.0259 0.0274	DHERENCY *** 0.5456 0.757C 0.7241 0.7311 0.5643 0.5175 0.4876 0.3890 0.3842	C.O O.O500 B1 ***** NO 0.0046 O.0135 O.0254 C.0408 O.0449 C.0533 O.0629 O.0590 O.0590 O.0470	0.0 0.0800 D2 RMALIZED 0.0060 0.0163 0.0291 0.0442 0.0455 0.0484 0.0615 0.0529 0.0509	0.0 0.0800 CROSS C VALUE ** 0.0030 0.0123 0.0243 0.0243 0.0345	OHERENCY *** 0.3275 0.6805 0.7980 0.7835 0.7778 0.7125 0.6649 0.6275 0.4994
WG(LB/SEC) WL(LB/SEC) CELL FREG.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58	G.C C.0440 B1 ***** MO 0.C102 0.C267 0.0391 0.0546 0.0546 0.0542 0.0457 C.0412 0.0414 C.0513 0.0348	0.0 C.C440 D2 RMALIZED 0.0123 0.0310 0.0459 0.0586 0.0474 0.0460 0.0455 0.0416 0.0455 0.0416 0.0380 0.0396	0.0 0.0440 CRUSS CC VALUE *** 0.0034 0.0251 0.0361 0.0434 0.0381 C.0330 0.0302 0.0259 0.0274 0.0213	DHERENCY *** 0.5456 0.757C 0.7241 0.7311 0.5643 0.5175 0.4876 0.3890 0.3842 0.3293	0.0 0.0500 B1 ***** N07 0.0046 0.0135 0.0254 C.0408 0.0449 0.0533 0.0629 0.0590 0.0590 0.0470 0.0427	0.0 0.0800 D2 RMALIZED 0.0060 0.0163 0.0291 0.0455 0.0484 0.0615 0.0529 0.0509 0.0509 0.0509	0.0 0.0800 CROSS C VALUE ** 0.0030 0.0123 0.0243 0.0243 0.0345 0.0507 C.0442 0.0345 0.0256	OHERENCY *** 0.3275 0.6805 0.7980 0.7835 0.7778 0.7125 0.6649 0.6275 0.4994 0.4133
WG(LB/SEC) WL(LB/SEC) CELL FREC.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07	G.C C.0440 B1 ***** M0 0.C102 0.C267 0.0391 0.0546 0.0542 0.0457 C.0412 0.0414 C.0513 0.0348 0.0348	0.C C.C440 D2 RMALIZED 0.0123 0.0310 0.0459 0.0586 0.0474 0.C460 0.C455 0.C416 0.C455 0.C416 0.0331	0.0 0.0440 CRUSS CC VALUE *** 0.0034 0.0251 0.0361 0.0434 0.0381 C.0330 0.0302 0.0302 0.0259 0.0274 0.0213 0.0145	DHERENCY *** C.5456 0.757C 0.7241 0.7311 0.5643 0.5175 0.4876 0.3890 0.3842 0.3293 0.1815	0.0 0.0500 B1 ***** N07 0.0046 0.0135 0.0254 C.0408 0.0449 0.0533 0.0629 0.0590 0.0590 0.0470 0.0427 0.0535	0.0 0.0800 D2 RMALIZED 0.0060 0.0163 0.0291 0.0455 0.0455 0.0484 0.0615 0.0529 0.0529 0.0509 0.0559 0.0559 0.0509 0.0509 0.0509 0.0559 0.0559 0.0509 0.0509 0.0509 0.0559 0.05431 0.0559 0.0559 0.05431 0.0559 0.0559 0.05431 0.0559 0.05431 0.0559 0.05431 0.0559 0.05431 0.05431 0.0559 0.05431 0.05451 0.05451 0.05451 0.05451 0.05451 0.05451 0.05451 0.05451 0.05451 0.05451 0.05529 0.05451 0.05451 0.05451 0.05451 0.05529 0.05451 0.05551 0.05551 0.05551 0.05551 0.05551 0.05551 0.05555 0.055555 0.055555 0.05555555555	0.0 0.0800 CROSS C VALUE ** 0.0030 0.0123 0.0243 0.0243 0.0376 0.0399 0.C429 0.0507 C.0442 0.0345 0.0256 0.0346	OHERENCY *** 0.3275 0.6805 0.7980 0.7835 0.7778 0.7125 0.6649 0.6275 0.4994 0.4133 0.5207
WG(LB/SEC) KL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55	G.C C.C440 B1 ***** M0 0.C102 0.C267 0.0391 0.0546 0.0542 0.0457 C.C412 0.0414 C.0513 0.0348 0.0348 0.0325	0.C C.C440 C2 RMALIZED 0.0123 0.0310 0.0459 0.0586 0.0474 0.C460 0.C460 0.C455 0.C416 0.0455 0.C416 0.0380 0.0331 0.0331 0.0302	0.0 0.0440 CRUSS CC VALUE *** 0.0034 0.0251 0.0361 0.0434 0.0381 C.0330 0.0302 0.0259 0.0274 0.0213 0.0145 0.0134	DHERENCY *** C.5456 0.757C 0.7241 0.7311 0.5643 0.5175 0.4876 0.3890 0.3842 0.3293 0.1815 0.1837	0.0 0.0500 B1 ***** N07 0.0046 0.0135 0.0254 C.0408 0.0449 0.0533 0.0629 0.0590 0.0590 0.0470 0.0427 0.0535 0.0422	0.0 0.0800 D2 RMALIZED 0.0060 0.0163 0.0291 0.0455 0.0455 0.0484 0.0615 0.0529 0.0529 0.0509 0.0559 0.0509 0.00431 0.00463 0.00463	0.0 0.0800 CROSS C VALUE ** 0.0030 0.0123 0.0243 0.0376 0.0399 0.C429 0.0507 C.0442 0.0345 0.0256 0.0345 0.0346 0.0303	OHERENCY *** 0.3275 0.6805 0.7980 0.7835 0.7778 0.7125 0.6649 0.6275 0.4994 0.4133 0.5207 0.4656
WG(LB/SEC) KL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53	G.G C.C440 B1 ***** NO 0.C102 0.C267 0.0391 0.0546 0.0546 0.0542 0.0457 C.C412 0.0414 C.0513 0.C348 0.0348 0.0348 0.0325 0.C298	0.C C.C440 C2 RMALIZED 0.0123 0.0310 0.0459 0.0586 0.0474 0.C460 0.C455 0.C416 0.0455 0.C416 0.0396 0.0331 0.0331 0.0331 0.0332 0.0268	0.0 0.0440 CRUSS CC VALUE *** 0.0034 0.0251 0.0351 0.0434 0.0381 C.0330 0.0302 0.03259 0.0274 0.0213 0.0145 0.0134 0.0083	DHERENCY *** C.5456 0.757C 0.7241 0.7311 0.5643 0.5175 0.4876 0.3890 0.3842 0.3293 0.1815 0.1837 0.0861	C.C 0.0500 B1 ***** N07 0.0046 0.0135 0.0254 C.0408 0.0449 0.0533 0.0629 0.0590 0.0590 0.05470 0.0427 0.0535 0.0422 0.0307	0.0 0.0800 D2 RMALIZED 0.0660 0.0163 0.0291 0.0442 0.0455 0.0455 0.0484 0.0615 0.0529 0.05500 0.0550 0.0550 0.0550 0.05500 0.05500 0.05500 0.05500	0.0 0.0800 CROSS C VALUE ** 0.0030 0.0123 0.0243 0.0376 0.0399 0.0429 0.0507 C.0442 0.0345 0.0256 0.0345 0.0345 0.0345 0.0323 0.0140	OHERENCY *** 0.3275 0.6805 0.7980 0.7835 0.7778 0.7125 0.6649 0.6275 0.4994 0.4133 0.5207 0.4656 0.1918
WG(LB/SEC) WL(LB/SEC) CELL FREG.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51	C.C C.C440 B1 ***** NO 0.C102 0.C267 0.0391 0.0546 0.0542 0.0457 C.C412 0.0414 C.0513 0.C348 0.0348 0.0348 0.0348 0.0325 0.C298 C.C229	0.C C.C440 C2 RMALIZED 0.0123 0.0310 0.0459 0.0586 0.0474 0.C460 0.0455 0.C416 0.0380 0.0331 0.0331 0.0331 0.032 0.0263 0.0236	0.0 0.0440 CROSS CC VALUE *** 0.00341 0.0251 0.0351 0.0351 0.0351 0.0351 0.0351 0.0351 0.0351 0.0351 0.0302 0.0274 0.0274 0.0213 0.0145 0.0134 0.0083 0.0059	DHERENCY *** C.5456 O.757C O.7241 O.7311 O.5643 O.5175 O.4876 O.3890 O.3842 O.3293 O.1815 O.1837 O.0861 O.0653	C.C 0.0500 B1 ***** N07 0.0046 0.0135 0.0254 C.0408 0.0449 0.0533 0.0629 0.0590 0.0590 0.05470 0.0427 0.0535 0.0422 0.0307 0.0255	0.0 0.0800 D2 MALIZED 0.0C60 0.0163 0.0291 0.0442 0.0455 0.0455 0.0529 0.0529 0.0529 0.0529 0.0529 0.0529 0.0529 0.0529 0.0529 0.0529 0.0529 0.0431 0.0463 0.0350 0.0247	0.0 0.0800 CROSS C VALUE ** 0.0030 0.0123 0.0243 0.0376 0.0399 0.C429 0.0507 C.0442 0.0345 0.0345 0.0345 0.0345 0.03256 0.0325 0.0345 0.0325 0.0325 0.0345 0.0325 0.0325 0.0345 0.0325 0.0345 0.0325 0.0325 0.0345 0.0325 0.0325 0.0345 0.0325 0.0345 0.0325 0.0325 0.0345 0.0325 0.0325 0.0345 0.0325 0.0325 0.0345 0.0325 0.0345 0.0325 0.0325 0.0345 0.0325 0.0325 0.0345 0.0325 0.0325 0.0325 0.0345 0.0325 0.0325 0.0325 0.0345 0.0325 0.0125 0.0255 0.0325 0.0125 0.0255 0.0325 0.0255 0.0325 0.0125 0.0255 0.0325 0.012	OHERENCY *** 0.3275 0.6805 0.7980 0.7835 0.7778 0.7125 0.6649 0.6275 0.4994 0.4133 0.5207 0.4656 0.1918 0.2120
WG(LB/SEC) KL(LB/SEC) CELL FREG.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48	C.C C.C440 B1 ***** NO 0.C102 0.C267 0.0391 0.0546 0.0542 0.0457 C.C412 0.0414 C.0513 0.0348 0.0348 0.0348 0.0348 0.0348 0.0348 0.0348 0.0348 0.0348 0.0348	0.0 C.C440 D2 RMALIZED 0.0123 0.0310 0.0459 0.0556 0.0459 0.0455 0.04460 0.0455 0.04460 0.0455 0.04460 0.0455 0.0446 0.0455 0.0455 0.0416 0.0302 0.0331 0.0302 0.0268 0.0236 0.0213	0.0 0.0440 CRUSS CC VALUE *** 0.0034 0.0251 0.0351 0.0434 0.0381 C.0330 0.0302 0.0259 0.0274 0.0213 0.0145 0.0134 0.0083 0.0059 0.0059 0.0080	DHERENCY *** C.5456 0.757C 0.7241 0.7311' 0.5643 0.5175 0.4876 0.3890 0.3842 0.3293 0.1815 0.1837 0.0861 0.0653 0.1466	C.C 0.0500 B1 ***** N07 0.0046 0.0135 0.0254 C.0408 0.0449 0.0533 0.0629 0.0590 0.05470 0.0535 0.0427 0.0535 0.0422 0.0307 0.0255 0.0226	0.0 0.0800 D2 RMALIZED 0.0C60 0.0291 0.0442 0.0455 0.0484 0.0615 0.0529 0.0509 0.0509 0.0509 0.0509 0.0350 0.0463 0.0463 0.0350 0.0247 0.0226	0.0 0.0800 CROSS C VALUE ** 0.0030 0.0123 0.0243 0.0376 0.0399 0.C429 0.0507 C.0442 0.0345 0.0256 0.0345 0.0325 0.0325 0.0325 0.0325 0.0325 0.0325 0.0325 0.0325 0.0325 0.0325 0.0325 0.0325 0.0325 0.0325 0.0345 0.0325 0.0325 0.0345 0.0345 0.0345 0.0345 0.0345 0.0345 0.0345 0.0345 0.0345 0.0557 0.0557 0.0557 0.0557 0.0557 0.0557 0.0557 0.0557 0.0557 0.0557 0.0557 0.0557 0.0557 0.0557 0.0345 0.0557 0.0345 0.0345 0.0557 0.0345 0.0345 0.0557 0.0345 0.0345 0.0345 0.0557 0.0345 0.0345 0.0345 0.0557 0.0345 0.0345 0.0345 0.0557 0.0345 0.0345 0.0345 0.0557 0.0345 0.0345 0.0345 0.0345 0.0345 0.0557 0.0345 0.0345 0.0345 0.0345 0.0345 0.0345 0.0345 0.0345 0.0345 0.0345 0.0345 0.0345 0.0355 0.0345 0.0355 0.0355 0.0345 0.0355 0.0355 0.0355 0.0345 0.0355 0.0355 0.0355 0.0355 0.0355 0.0355 0.0355 0.0355 0.0355 0.0355 0.0355 0.0355 0.0355 0.0355 0.0355 0.0355 0.0355 0.0557 0.0557 0.0557 0.0555 0.0355 0.0355 0.0355 0.0557 0.0557 0.0557 0.0555 0.0355 0.0557 0.05777 0.05777 0.05777 0.05777 0.05777 0.05777 0.05777 0.05777	OHERENCY *** 0.3275 0.6805 0.7980 0.7835 0.7778 0.7125 0.6649 0.6275 0.4994 0.4133 0.5207 0.4656 0.1918 0.2120 0.0880
WG(LB/SEC) KL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46	C.C C.C440 B1 ***** NO 0.C102 0.C267 0.0391 0.0546 0.0542 0.0457 C.C412 0.0414 C.0513 0.0348 0.0348 0.0348 0.0348 0.0348 0.0325 0.C298 C.C229 0.0199 0.0212	0.0 C.C440 C2 RMALIZED 0.0123 0.0310 0.0459 0.0586 0.0459 0.0455 0.0474 0.0460 0.0455 0.0416 0.0396 0.0396 0.0396 0.03931 0.0392 0.0263 0.0236 0.0213 0.0213 0.0213	0.0 0.0440 CRUSS CC VALUE *** 0.0034 0.0251 0.0351 0.0434 0.0381 0.0302 0.0259 0.0274 0.0213 0.0145 0.0145 0.0134 0.0083 0.0059 0.0059 0.0059 0.0059 0.0054	DHERENCY *** C.5456 0.757C 0.7241 0.7311' 0.5643 0.5175 0.4876 0.3890 0.3842 0.3293 0.1815 0.1837 0.0861 0.0653 0.1466 C.055C	C.C 0.0500 B1 **** N07 0.0046 0.0135 0.0254 C.0408 0.0449 0.0533 0.0629 0.0590 0.05470 0.0535 0.0427 0.0535 0.0427 0.0535 0.0422 0.0307 0.0255 0.0226 0.0141	0.0 0.0800 D2 RMALIZED 0.0C60 0.0291 0.0442 0.0455 0.0484 0.0615 0.0529 0.0509 0.0509 0.0509 0.0509 0.0509 0.0431 0.0463 0.0350 0.0247 0.0226 0.0185	0.0 0.0800 CROSS C VALUE ** 0.0030 0.0123 0.0243 0.0376 0.0399 0.0243 0.0376 0.0399 0.0429 0.0507 C.0442 0.0345 0.0345 0.0346 0.0346 0.0346 0.0346 0.0346 0.0346 0.0346 0.0346 0.0346 0.0346 0.0346 0.0346 0.0346 0.0346 0.0346 0.0346 0.0346 0.0346 0.0346 0.0345 0.0557 0.0557 0.0557 0.0557 0.0557 0.0557 0.0557 0.0557 0.0345 0.0345 0.0345 0.0557 0.0557 0.0345 0.0345 0.0345 0.0557 0.0345 0.0345 0.0345 0.0557 0.0345 0.0345 0.0345 0.0557 0.0345 0.0345 0.0345 0.0557 0.0345 0.0345 0.0345 0.0557 0.0345 0.0345 0.0557 0.0345 0.0345 0.0345 0.0557 0.0345 0.0345 0.0345 0.0557 0.0345 0.0345 0.0345 0.0345 0.0557 0.0346 0.0345 0.0345 0.0345 0.0345 0.0345 0.0345 0.0345 0.0345 0.0345 0.0346 0.0365 0.0346 0.0363 0.0140 0.0567 0.0346 0.0363 0.0140 0.0567 0.0345 0.0365 0.0346 0.0140 0.0067	OHERENCY *** 0.3275 0.6805 0.7980 0.7835 0.7125 0.6649 0.6275 0.4994 0.4133 0.5207 0.4656 0.1918 0.2120 0.0880 0.0702
WG(LB/SEC) KL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41	C.C C.C440 B1 ***** NO 0.C102 0.C267 0.0391 0.0546 0.0542 0.0457 C.C412 0.0414 C.0513 0.C348 0.030199 0.0212 0.00130	0.0 C.C440 C2 RMALIZED 0.0123 0.0310 0.0459 0.0586 0.0474 0.C460 0.0455 0.C416 0.0455 0.C416 0.0331 0.0336 0.0331 0.03331 0.0263 0.0263 0.0213 0.0213 0.0213 0.0213	0.0 0.0440 CRUSS CC VALUE *** 0.0034 0.0251 0.0351 0.0434 0.0381 0.0302 0.0259 0.0274 0.0213 0.0145 0.0134 0.0083 0.0059 0.0059 0.0059 0.0059 0.0059 0.0059	DHERENCY *** C.5456 0.757C 0.7241 0.7311' 0.5643 0.5175 0.4876 0.3890 0.3842 0.3293 0.1815 0.1837 0.0653 0.1466 0.055C 0.0706	C.C O.O500 B1 **** N07 O.0046 O.0135 O.0254 C.0408 O.0449 O.0533 O.0629 O.0590 O.0427 O.0535 O.0427 O.0535 O.0427 O.0535 O.0427 O.0535 O.0427 O.0535 O.0422 O.0307 O.0255 O.0226 O.0141 O.0135	0.0 0.0800 D2 RMALIZED 0.0C60 0.0163 0.0291 0.0442 0.0455 0.0455 0.0484 0.0615 0.0529 0.0509 0.0509 0.0509 0.0509 0.0509 0.0350 0.0247 0.0226 0.0185 0.0162	0.0 0.0800 CRDSS C VALUE ** 0.0030 0.0123 0.0243 0.0376 0.0399 0.0429 0.0507 C.0442 0.0345 0.0256 0.0346 0.0243 0.0256 0.0246 0.0346 0.0243 0.0243 0.0243 0.0243 0.0243 0.0243 0.0243 0.0243 0.0243 0.0243 0.0243 0.0243 0.0243 0.0243 0.0243 0.0243 0.0024	OHERENCY *** 0.3275 0.6805 0.7980 0.7835 0.7778 0.7125 0.6649 0.6275 0.4994 0.4133 0.5207 0.4656 0.1918 0.2120 0.0880 0.0702 0.0269
WG(LB/SEC) KL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37	C.C C.C440 B1 ***** NO 0.C102 0.C267 0.0391 0.0546 0.0542 0.0457 C.C412 0.0414 C.0513 0.C348 0.0348 0.0348 0.0348 0.0348 0.0348 0.0348 0.0325 0.C298 C.C298 C.C299 0.C199 0.0212 0.0130 0.0119	0.0 C.C440 D2 RMALIZED 0.0123 0.0310 0.0459 0.0586 0.0474 0.0460 0.0455 0.0416 0.0455 0.0416 0.0331 0.0331 0.0331 0.0331 0.0268 0.0236 0.0213 0.0213 0.0118	0.0 0.0440 CRUSS CO VALUE *** 0.0034 0.0251 0.0351 0.0434 0.0381 0.0302 0.0259 0.0274 0.0213 0.0145 0.0134 0.0083 0.0059 0.05	DHERENCY *** C.5456 0.757C 0.7241 0.5643 0.5175 0.4876 0.3890 0.3842 0.3293 0.1815 0.1837 0.0653 0.1466 0.055C 0.0706 0.0290	C.C O.O500 B1 ***** NOF O.0046 O.0135 O.0254 C.0408 O.0449 O.0533 O.0629 O.0590 O.0427 O.0535 O.0427 O.0535 O.0427 O.0535 O.0427 O.0535 O.0427 O.0535 O.0422 O.0307 O.0255 O.0225 O.0225 O.0141 O.0135 O.C093	0.0 0.0800 D2 RMALIZED 0.0C60 0.0C163 0.0291 0.0442 0.0455 0.0445 0.0455 0.0484 0.0615 0.0529 0.0507 0.0247 0.0247 0.0226 0.0185 0.0162 0.0115	0.0 0.0800 CRDSS C VALUE ** 0.0030 0.0123 0.0243 0.0376 0.0399 0.0429 0.0507 C.0442 0.0345 0.0256 0.0346 0.0346 0.0303 0.0140 0.0115 0.0067 0.0067 0.0024 0.0023	OHERENCY *** 0.3275 0.6805 0.7980 0.7835 0.7778 0.7125 0.6649 0.6275 0.4994 0.4133 0.5207 0.4656 0.1918 0.2120 0.0880 0.0702 0.0269 0.1033
WG(LB/SEC) KL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81	C.C C.C440 B1 ***** NO 0.C102 0.C267 0.0391 0.0546 0.0542 0.0457 C.C412 0.0414 C.0513 0.C348 0.0249 0.0249 0.0248 0.0248 0.0248 0.0348 0.0348 0.0249 0.0249 0.0248 0.0259 0.0248 0.0249 0.0248 0.004888 0.004888 0.004888 0.004888 0.0048888 0.0048888888888	0.0 C.C440 C2 RMALIZED 0.0123 0.0310 0.0459 0.0586 0.0474 0.0460 0.0455 0.0416 0.0331 0.0331 0.0331 0.0331 0.0331 0.0268 0.0236 0.0213 0.0268 0.0215 0.0215 0.0118 0.0385	0.0 0.0440 CRUSS CO VALUE *** 0.0034 0.0251 0.0361 0.0434 0.0381 0.0302 0.0259 0.0274 0.0213 0.0145 0.0134 0.0083 0.0259 0.0274 0.0213 0.0145 0.0134 0.0083 0.0059 0.0059 0.0020	DHERENCY *** C.5456 0.757C 0.7241 0.5643 0.5175 0.4876 0.3890 0.3842 0.3293 0.1815 0.1837 0.0861 0.0653 0.1466 0.055C 0.0706 0.0290 0.5586	C.O 0.0500 B1 ***** N05 0.0254 C.0408 0.0449 0.0533 0.0629 0.0590 0.0449 0.0533 0.0629 0.0590 0.0427 0.0535 0.0427 0.0535 0.0427 0.0535 0.0427 0.0535 0.0422 0.0307 0.0255 0.0058 0.	0.0 0.0800 D2 RMALIZED 0.0C60 0.0C163 0.0291 0.0442 0.0442 0.0455 0.0442 0.0455 0.0484 0.0615 0.0529 0.0507 0.0247 0.0256 0.0247 0.0256 0.0247 0.0247 0.0256 0.0247 0.0256 0.0247 0.0256 0.0247 0.0256 0.0247 0.0256 0.0247 0.0256 0.0247 0.0256 0.0247 0.0256 0.0257 0.0256 0.0257 0.0256 0.0257 0.0256 0.0257 0.0256 0.	0.0 0.0800 CRDSS C VALUE ** 0.0030 0.0123 0.0243 0.0376 0.0399 0.0429 0.0507 C.0442 0.0345 0.0256 0.0346 0.0346 0.0346 0.0346 0.0346 0.0346 0.0346 0.0115 0.0667 0.0647 0.0643 0.0624 0.0633 C.0620	OHERENCY *** 0.3275 0.6805 0.7980 0.7835 0.7778 0.7125 0.6649 0.6275 0.4994 0.4133 0.5207 0.4656 0.1918 0.2120 0.0880 0.0702 0.0269 0.1033 0.0631
WG(LB/SEC) KL(LB/SEC) CELL FREG.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25	C.C C.C440 B1 ***** NO 0.C102 0.C267 0.0391 0.0546 0.0542 0.0457 C.C412 0.0414 C.0513 0.C348 0.0348 0.0348 0.0348 0.0348 0.0348 0.0348 0.0348 0.0348 0.0348 0.0348 0.0348 0.0298 C.C298 C.C298 C.C298 0.0199 0.0212 0.0130 0.0119 0.0083 0.0053	0.C C.C440 C2 RMALIZED 0.0123 0.0310 0.0459 0.0586 0.0474 0.C460 0.0455 0.C416 C.0380 0.0331 0.0331 0.0331 0.0331 0.0331 0.0268 0.C218 0.C218 0.C218 0.C218 0.C151 0.0118 0.0385 0.0077	0.0 0.0440 CRUSS CO VALUE *** 0.0034 0.0251 0.0361 0.0434 0.0381 C.0330 0.0302 0.0259 0.0274 0.0213 0.0145 0.0134 0.0083 0.0659 0.0659 0.0680 0.059 0.0680 0.0020 0.0020 0.0020 0.0012	DHERENCY *** C.5456 0.757C 0.7241 0.5175 0.4876 0.3890 0.3842 0.3293 0.1815 0.1837 0.0861 0.0653 0.1466 C.055C 0.0706 0.0290 0.5586 0.9332	C.C O.0500 B1 ***** N05 O.046 O.0135 O.0254 C.0408 O.0449 O.0533 O.0629 O.0590 O.0427 O.0590 O.0427 O.0535 O.0422 O.0590 O.0427 O.0535 O.0422 O.0595 O.0422 O.0535 O.0422 O.0535 O.0422 O.0535 O.0422 O.0535 O.0422 O.0535 O.0422 O.0535 O.0422 O.0535 O.0422 O.0535 O.0422 O.0535 O.0425 O.0425 O.0425 O.0425 O.0425 O.0425 O.0425 O.0425 O.0425 O.0425 O.0425 O.0425 O.0427 O.0535 O.0422 O.0535 O.0422 O.0535 O.0422 O.0535 O.0422 O.0535 O.0422 O.0535 O.0422 O.0535 O.0425 O.0425 O.0425 O.0425 O.0425 O.0427 O.0425 O.0255 O.0225 O.0255 O.0	0.0 0.0800 D2 RMALIZED 0.0C60 0.0C163 0.0291 0.0442 0.0442 0.0445 0.0445 0.0445 0.0529 0.0507 0.0247 0.0226 0.0185 0.0162 0.0162 0.015 0.0058	0.0 0.0800 CRDSS C VALUE ** 0.0030 0.0123 0.0243 0.0376 0.0399 0.0429 0.0507 C.0442 0.0345 0.0256 0.0346 0.0346 0.0346 0.0346 0.0346 0.0346 0.0140 0.0115 0.0667 0.0024 0.0023 0.0020 0.0020	OHERENCY *** 0.3275 0.6805 0.7980 0.7835 0.7778 0.7125 0.6649 0.6275 0.4994 0.4133 0.5207 0.4656 0.1918 0.2120 0.0880 0.0702 0.0269 0.1033 0.0631 0.1099
WG(LB/SEC) KL(LB/SEC) CELL FREG.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64	G.C C.C440 B1 ***** NO 0.C102 0.C267 0.0391 0.0546 0.0542 0.0457 C.C412 0.0414 C.0513 0.C348 0.02513 0.02598 0.02598 0.02598 0.02598 0.02598 0.02598 0.02512 0.00199 0.0212	0.C C.C440 C2 RMALIZED 0.0123 0.0310 0.0459 0.0586 0.0474 0.C460 0.0455 0.C416 C.0380 0.0331 0.0395 0.0236 0.0236 0.C213 0.0268 0.C216 0.C151 0.0118 0.0385 0.0077 0.0C47	0.0 0.0440 CRUSS CO VALUE *** 0.0034 0.0251 0.0351 0.0434 0.0381 C.0330 0.0302 0.0259 0.0274 0.0213 0.0145 0.0134 0.0083 0.0659 0.0659 0.0680 0.059 0.0680 0.059 0.0680 0.059 0.0680 0.059 0.0680 0.0659 0.0600 0.06000 0.06000 0.06000 0.06000 0.06000 0.06000 0.06000 0.06000 0.06000 0.06000 0.060000 0.06000 0.06000 0.06000 0	DHERENCY *** C.5456 0.757C 0.7241 0.5175 0.4876 0.3890 0.3842 0.3293 0.1815 0.1837 0.0861 0.0653 0.1466 C.055C 0.0706 0.0290 0.5586 0.0332 0.0200	C.C O.0500 B1 ***** N07 O.0046 O.0135 O.0254 C.0408 O.0449 O.0533 O.0629 O.0590 O.0427 O.0590 O.0427 O.0535 O.0422 O.0535 O.0422 O.0427 O.0535 O.0422 O.0427 O.0555 O.0255 O.0056 O.	0.0 0.0800 D2 CMALIZED 0.0060 0.0163 0.0291 0.0442 0.0445 0.0445 0.0445 0.0445 0.0455 0.0529 0.0509 0.0509 0.0247 0.0226 0.0185 0.0162 0.0185 0.0162 0.0115 0.0058 0.0036	0.0 0.0800 CRDSS C VALUE ** 0.0030 0.0123 0.0243 0.0376 0.0399 0.0429 0.0507 C.0442 0.0345 0.0256 0.0346 0.0346 0.0346 0.0346 0.0346 0.0346 0.0346 0.0346 0.0346 0.0256 0.0256 0.0243 0.0243 0.0224 0.0233 0.0220 0.020 0.0208 0.0258 0.0345 0.0345 0.0345 0.0345 0.0345 0.0345 0.0256 0.0346 0.0256 0.0243 0.0256 0.0346 0.0258	OHERENCY *** 0.3275 0.6805 0.7980 0.7835 0.7778 0.7125 0.6649 0.6275 0.4994 0.4133 0.5207 0.4656 0.1918 0.2120 0.0880 0.0702 0.0269 0.1033 0.0631 0.1099 0.0415
WG(LB/SEC) KL(LB/SEC) CELL FREG.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.08	G.C C.C440 B1 ***** NO 0.C102 0.C267 0.0391 0.0546 0.0542 0.0457 C.0412 0.0414 C.0513 0.0348 0.0259 0.0259 0.0259 0.0259 0.0259 0.0259 0.0259 0.0259 0.0259 0.0259 0.0212 0.0130 0.0348 0.0348 0.0348 0.0348 0.0348 0.0348 0.0348 0.0348 0.0259 0.0229 0.0212 0.0130 0.0019 0.00053 0.00053 0.00053 0.00053	0.0 C.C440 C2 RMALIZED 0.0123 0.0310 0.0459 0.0586 0.0474 0.0460 0.0455 0.0416 0.0331 0.0331 0.0331 0.0331 0.0331 0.0268 0.0236 0.0218 0.0218 0.0218 0.0218 0.0118 0.0385 0.0077 0.0047 0.0035	0.0 0.0440 CRUSS CO VALUE *** 0.0034 0.0251 0.0361 0.0434 0.0381 C.0330 0.0302 0.0259 0.0274 0.0213 0.0145 0.0134 0.0083 0.0059 0.0020 0.00	DHERENCY *** C.5456 0.757C 0.7241 0.5643 0.5175 0.4876 0.3890 0.3842 0.3293 0.1815 0.1837 0.0861 0.0653 0.1466 C.055C 0.0706 0.0290 0.0586 0.0332 0.0200 0.0295	0.0 0.0500 B1 ***** N07 0.0046 0.0135 0.0254 0.0254 0.0449 0.0533 0.0629 0.0590 0.0449 0.0590 0.0427 0.0590 0.0427 0.0535 0.0422 0.0422 0.0307 0.0255 0.0225 0.0225 0.0225 0.0041 0.0041 0.0023	0.0 0.0800 D2 RMALIZED 0.0C60 0.0C163 0.0291 0.0442 0.0442 0.0455 0.0445 0.0445 0.0529 0.0529 0.0529 0.0529 0.0247 0.0246 0.0185 0.0145 0.0145 0.0145 0.0145 0.0145 0.0145 0.0247 0.026 0.0145 0.026 0.0145 0.0247 0.026 0.0145 0.026 0.0247 0.026 0.0145 0.0247 0.026 0.0163 0.0247 0.026 0.0163 0.0247 0.026 0.0163 0.0247 0.026 0.0163 0.0247 0.026 0.0163 0.0247 0.026 0.0163 0.0247 0.026 0.0163 0.0247 0.026 0.0163 0.0247 0.026 0.0163 0.0247 0.026 0.0163 0.0247 0.026 0.0163 0.0247 0.026 0.026 0.0247 0.026 0.0162 0.0058 0.0036	0.0 0.0800 CRDSS C VALUE ** 0.0030 0.0123 0.0243 0.0376 0.0399 0.C429 0.0507 C.0442 0.0345 0.0256 0.0345 0.0042 0.0042 0.0057 0.0345 0.0345 0.0042 0.0042 0.0057 0.0042 0.0057 0.0042 0.0057 0.0042 0.0057 0.0042 0.0057	OHERENCY *** 0.3275 0.6805 0.7980 0.7835 0.7778 0.7125 0.6649 0.6275 0.4994 0.4133 0.5207 0.4656 0.1918 0.2120 0.0880 0.0702 0.0269 0.1033 0.0631 0.1099 0.0415 0.0234
WG(LB/SEC) KL(LB/SEC) CELL FREG.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.08 27.53	G.C C.C440 B1 ***** NO 0.C102 0.C267 0.0391 0.0546 0.0542 0.0457 C.0412 0.0414 C.0513 0.C348 0.0348 0.0348 0.0348 0.0348 0.0348 0.0348 0.0348 0.0348 0.0348 0.0348 0.0329 0.C298 C.C299 0.0199 0.0212 0.0130 0.0119 0.0083 0.0053 0.0046 0.C033 C.C020	0.0 C.C440 C2 RMALIZED 0.0123 0.0310 0.0459 0.0586 0.0474 0.0460 0.0455 0.0416 0.0455 0.0416 0.0331 0.0302 0.0268 0.0236 0.0213 0.0218 0.0218 0.0385 0.0077 0.0047 0.0028 0.0028	0.0 0.0440 CRUSS CO VALUE *** 0.0034 0.0251 0.0361 0.0434 0.0381 C.0330 0.0302 0.0259 0.0274 0.0213 0.0145 0.0145 0.0145 0.0133 0.0083 0.0059 0.0080 0.0059 0.0020 0.0020 0.0020 0.0020 0.0020 0.0020 0.0020 0.0020 0.0006 0.0006	DHERENCY *** C.5456 0.757C 0.7241 0.5643 0.5175 0.4876 0.3890 0.3842 0.3293 0.1815 0.1837 0.0861 0.0653 0.1466 C.055C 0.0706 0.0290 0.5586 0.0332 0.0295 0.0485	0.0 0.0500 B1 ***** N07 0.0046 0.0135 0.0254 C.0408 0.0449 0.0533 0.0629 0.0590 0.0449 0.0590 0.0427 0.0535 0.0422 0.0307 0.0255 0.0422 0.0307 0.0255 0.0226 0.0141 0.0135 0.0086 C.0062 0.0041 0.0028 0.0027	0.0 0.0800 D2 RMALIZED 0.0060 0.0163 0.0291 0.0442 0.0455 0.0494 0.0455 0.0484 0.0615 0.0529 0.0529 0.0509 0.0529 0.0509 0.0247 0.0226 0.0185 0.0145 0.0145 0.0115 0.0247 0.0268 0.0115 0.0268 0.0236 0.0236 0.0236	0.0 0.0800 CRDSS C VALUE ** 0.0030 0.0123 0.0243 0.0376 0.0399 0.C429 0.0507 C.0442 C.0345 0.0256 0.0345 0.0256 0.0345 0.0256 0.0345 0.0256 0.024 0.0067 0.0020 0.0020 0.0008 0.0005 0.0005 0.0005	OHERENCY *** 0.3275 0.6805 0.7980 0.7835 0.7778 0.7125 0.6649 0.6275 0.4994 0.4133 0.5207 0.4656 0.1918 0.2120 0.0880 0.6702 0.0269 0.1033 0.0631 0.1099 0.0415 0.0234 0.0275
WG(LB/SEC) KL(LB/SEC) CELL FREC.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.08 27.53 30.46 2.65 2.55 2.65 2.65 2.65 2.65 2.65 3.65 2.65 3.65 3.65 3.65 3.65 3.75 3.65 3.75	G.C C.C440 B1 ***** NO 0.C102 0.C267 0.0391 0.0546 0.0542 0.0457 C.0412 0.0414 C.0513 0.C348 0.0348 0.0348 0.0348 0.0348 0.0348 0.0348 0.0348 0.0348 0.0348 0.0348 0.0348 0.03298 C.C298 C.C299 0.0199 0.0212 0.0130 0.0119 0.0083 0.0053 0.0046 0.C033 C.C026 0.0055	0.0 C.C440 C2 RMALIZED 0.0123 0.0310 0.0459 0.0586 0.0474 0.0460 0.0455 0.0416 0.0455 0.0416 0.0331 0.0396 0.0331 0.0396 0.0236 0.0236 0.0213 0.0268 0.0213 0.0118 0.0385 0.0077 0.0047 0.0028 0.0235 0.028 0.0219	0.0 0.0440 CRUSS CO VALUE *** 0.0034 0.0251 0.0361 0.0434 0.0381 C.0330 0.0302 0.0259 0.0274 0.0213 0.0145 0.0145 0.0145 0.0134 0.0083 0.0059 0.0020 0.0006 0.0006 0.0005	DHERENCY *** C.5456 0.757C 0.7241 0.5643 0.5175 0.4876 0.3890 0.3842 0.3293 0.1815 0.1837 0.0861 0.0653 0.1466 C.055C 0.0706 0.0290 0.5586 0.0332 0.0295 0.0485 0.0312 0.0312	0.0 0.0500 B1 ***** N07 0.0046 0.0135 0.0254 C.0408 0.0449 0.0533 0.0629 0.0590 0.0449 0.0533 0.0629 0.0590 0.0427 0.0535 0.0422 0.0307 0.0255 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0041 0.0028 0.0022 0.0017 0.0021 0.0021 0.0028 0.0021 0.0021 0.0028 0.0021 0.0021 0.0028 0.0021 0.0021 0.0021 0.0028 0.0021 0.0021 0.0021 0.0028 0.0021 0.0021 0.0028 0.0021 0.0021 0.0028 0.0021 0.0021 0.0028 0.0021 0.0021 0.0028 0.0021 0.0021 0.0028 0.0021 0.0021 0.0021 0.0021 0.0021 0.0021 0.0021 0.0021 0.0021 0.0025 0.0021 0.0014 0.0021 0.0021 0.0014 0.0021 0.0014 0.0021 0.0014 0.	0.0 0.0800 D2 RMALIZED 0.0060 0.0163 0.0291 0.0442 0.0455 0.0494 0.0455 0.0529 0.0529 0.0509 0.0529 0.0509 0.0245 0.0431 0.0463 0.0245 0.0245 0.0245 0.0245 0.0245 0.0245 0.0245 0.0245 0.0245 0.0245 0.0258 0.0115 0.0036 0.0036 0.0038 0.0	0.0 0.0800 CRDSS C VALUE ** 0.0030 0.0123 0.0243 0.0376 0.0399 0.C429 0.0507 C.0442 C.0345 0.0256 0.0345 0.0256 0.0345 0.0256 0.0345 0.0256 0.0067 0.0020 0.0020 0.0020 0.0008 0.0005 0.0005 0.0005 0.0003 0.0003	OHERENCY *** 0.3275 0.6805 0.7980 0.7835 0.7778 0.7125 0.6649 0.6275 0.4994 0.4133 0.5207 0.4656 0.1918 0.2120 0.0880 0.2120 0.0880 0.2120 0.0880 0.2120 0.0269 0.1033 0.0631 0.1099 0.0415 0.0234 0.0234 0.0333 0.0333
WG(LB/SEC) KL(LB/SEC) CELL FREG.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.08 27.53 30.46 34.85 60.22	G.G C.C440 B1 ***** NO 0.C102 0.C267 0.0391 0.0546 0.0542 0.0457 C.C412 0.0414 C.0513 0.C348 0.0348 0.0348 0.0348 0.0348 0.0348 0.0348 0.0348 0.0348 0.0348 0.0348 0.0298 C.C298	0.C C.C440 C2 RMALIZED 0.0123 0.0310 0.0459 0.0586 0.0474 0.C460 0.C455 0.C416 C.0385 0.0331 C.0302 0.0268 0.0236 0.0213 7.0166 0.0118 0.0385 0.0213 7.0165 0.0118 0.0385 0.0277 0.0C47 0.0C47 0.0C47 0.0C47	0.0 0.0440 CRUSS CO VALUE *** 0.0034 0.0251 0.0361 0.0434 0.0381 C.0330 0.0302 0.0259 0.0274 0.0213 0.0145 0.0134 0.0083 0.0059 0.0020 0.0020 0.0020 0.0020 0.0020 0.0020 0.0020 0.0020 0.0006 0.0006 0.0006 0.0005 0.0006 0.0005 0.0006 0.0005 0.0005 0.0006 0.0005 0.0006 0.0005 0.005 0.000	DHERENCY *** C.5456 0.757C 0.7241 0.5643 0.5175 0.4876 0.3890 0.3842 0.3293 0.1815 0.1837 0.0861 0.0653 0.1466 0.055C 0.0706 0.0290 0.0586 0.0332 0.0290 0.0586 0.0332 0.0295 0.0485 0.0312 0.0187	C.C 0.0500 B1 ***** N07 0.0046 0.0135 0.0254 C.0408 0.0449 0.0533 0.0629 0.0590 0.0590 0.0590 0.0590 0.0535 0.0427 0.0535 0.0427 0.0535 0.0427 0.0535 0.0422 0.0307 0.0255 0.0225 0.0241 0.0041 0.0028 0.0022 0.0014 0.0068	0.0 0.0800 D2 MALIZED 0.0C60 0.0163 0.0291 0.0442 0.0455 0.0455 0.0455 0.0529 0.0529 0.0529 0.0529 0.0247 0.0226 0.0185 0.0162 0.0185 0.0162 0.0155 0.0058 0.05	0.0 0.0800 CRDSS C VALUE ** 0.0030 0.0123 0.0243 0.0399 0.C429 0.0507 C.0442 0.0345 0.0256 0.0345 0.0256 0.0345 0.0256 0.0345 0.0256 0.0345 0.0256 0.0345 0.0256 0.0345 0.0256 0.020 0.0020 0.0020 0.0020 0.0008 0.0005 0.0005 0.0003 0.0000 0.0003 0.0000 0.0003 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000000	OHERENCY *** 0.3275 0.6805 0.7980 0.7835 0.7778 0.7125 0.6649 0.6275 0.4994 0.4133 0.5207 0.4656 0.1918 0.2120 0.0880 0.2120 0.04656 0.1918 0.2120 0.0880 0.0702 0.0269 0.1033 0.0631 0.1099 0.0415 0.0234 0.0234 0.0333 0.0700
WG(LB/SEC) WL(LB/SEC) CELL FREG.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.08 27.53 30.46 34.85 40.22 50.48	G.G C.C440 B1 ***** NO 0.C102 0.C267 0.0391 0.0546 0.0542 0.0457 C.C412 0.0414 C.0513 0.0348 0.0348 0.0348 0.0348 0.0348 0.0348 0.0348 0.0348 0.0348 0.0348 0.0348 0.0348 0.0298 C.C296 C.C298	0.C C.C440 C2 RMALIZED 0.0123 0.0310 0.0459 0.0586 0.0474 0.C460 0.0455 0.C416 C.0385 0.0331 0.0331 0.0331 0.0331 0.0331 0.0268 0.0236 0.0213 7.0166 0.0118 0.0385 0.0213 7.0166 0.0118 0.0385 0.0077 0.0C47 0.0C47 0.0C47 0.0C47 0.0C47 0.0C47 0.0C47 0.0C47 0.0C47 0.0C47	0.0 0.0440 CROSS CO VALUE *** 0.00341 0.0251 0.0351 0.0351 0.0351 0.0351 0.0351 0.0351 0.0351 0.0351 0.0351 0.0351 0.0322 0.0274 0.0274 0.0213 0.0145 0.0134 0.0083 0.0059 0.00059 0.00059 0.00059 0.00059 0.00000 0.000000 0.000000 0.000000 0.00000000	DHERENCY *** C.5456 0.757C 0.7241 0.7311 0.5643 0.5175 0.4876 0.3890 0.3842 0.3293 0.1815 0.1837 0.0861 0.0653 0.1466 C.055C 0.0706 0.0290 0.0295 0.0295 0.0295 0.0295 0.0295 0.0295 0.0295 0.0295 0.0295 0.0295 0.0295 0.0295 0.0295 0.0295 0.0295	0.0 0.0500 B1 ***** N07 0.0046 0.0135 0.0254 C.0408 0.0449 0.0533 0.0629 0.0590 0.0590 0.0590 0.0590 0.0535 0.0422 0.0535 0.0422 0.0307 0.0255 0.0225 0.0225 0.0225 0.0225 0.0041 0.0022 0.0017 0.0022 0.0017 0.0014 0.0022 0.0017 0.0022 0.0017 0.0022 0.0022 0.0017 0.0022 0.0017 0.0022 0.0022 0.0017 0.0022 0.0022 0.0022 0.0017 0.0014 0.0022 0.0022 0.0017 0.0022 0.0022 0.0017 0.0022 0.0022 0.0022 0.0017 0.0022 0.0022 0.0022 0.0022 0.0022 0.0022 0.0017 0.0022 0.	0.0 0.0800 D2 MALIZED 0.0C60 0.0163 0.0291 0.0442 0.0455 0.0455 0.0484 0.0615 0.0529 0.0529 0.0350 0.0247 0.0226 0.0185 0.0162 0.0185 0.0018 0.0058 0.00	0.0 0.0800 CRDSS C VALUE ** 0.0030 0.0123 0.0243 0.0243 0.0376 0.0399 0.C429 0.0507 C.0442 C.0345 0.0345 0.0345 0.0345 0.0345 0.0345 0.0345 0.0345 0.0345 0.0345 0.0345 0.0345 0.0345 0.0345 0.0346 0.0325 0.0067 0.0067 0.0020 0.0020 0.0020 0.0005 0.0005 0.0005 0.0003 0.0005	OHERENCY *** 0.3275 0.6805 0.7980 0.7835 0.7778 0.7125 0.6649 0.6275 0.4994 0.4133 0.5207 0.4656 0.1918 0.2120 0.4656 0.1918 0.2120 0.0880 0.2120 0.0880 0.2120 0.0880 0.2120 0.0269 0.1033 0.0631 0.1099 0.0415 0.0234 0.0234 0.0333 0.0700 0.0306 0.0306
WG(LB/SEC) WL(LB/SEC) CELL FREG.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.08 27.53 30.46 34.85 40.22 5C.48 6C.24	G.G C.C440 B1 ***** NO 0.C102 0.C267 0.0391 0.0546 0.0542 0.0457 C.C412 0.0414 C.0513 0.C348 0.0348 0.0348 0.0348 0.0348 0.0348 0.0348 0.0348 0.0348 0.0348 0.0348 0.0298 C.C298 C.C298 C.C298 C.C298 C.C298 0.0199 0.0212 0.0130 0.0119 0.0083 0.0053 0.0046 0.C033 C.C026 0.C020 0.C015 0.0C11 0.0C06	0.C C.C440 C2 RMALIZED 0.0123 0.0310 0.0459 0.0586 0.0459 0.0459 0.0455 0.0455 0.0455 0.0455 0.0455 0.0455 0.0455 0.0455 0.0247 0.0268 0.0236 0.0268 0.0218 0.0268 0.0218 0.0285 0.0028 0.0028 0.0028 0.0019 0.0018 0.0008 0.0	0.0 0.0440 CRUSS CC VALUE *** 0.00341 0.0251 0.0351 0.0351 0.0351 0.0351 0.0351 0.0351 0.0351 0.0351 0.0351 0.0351 0.0351 0.0355 0.0274 0.0213 0.0274 0.0083 0.0059 0.00059 0.000	DHERENCY *** C.5456 0.757C 0.7241 0.7311 0.5643 0.5175 0.4876 0.3890 0.3842 0.3293 0.1815 0.1837 0.0861 0.0653 0.1466 0.055C 0.0706 0.0290 0.0295 0.0485 0.0295 0.0485 0.0295 0.0485 0.0312 0.0187 0.0376 C.0616	0.0 0.0500 B1 ***** N07 0.0046 0.0135 0.0254 0.0449 0.0533 0.0629 0.0530 0.0535 0.0427 0.0047 0.0047 0.0046 0.0041 0.0058 0.0007 0.0007 0.0007 0.0006 0.	0.0 0.0800 D2 MALIZED 0.0C60 0.0163 0.0291 0.0442 0.0455 0.0455 0.0455 0.0529 0.0529 0.0529 0.0529 0.0431 0.0463 0.0247 0.0226 0.0185 0.0165 0.0185 0.0018 0.0023 0.0018 0.0018 0.0012 0.0018 0.0012 0.0003 0.00	0.0 0.0800 CRDSS C VALUE ** 0.0030 0.0123 0.0243 0.0376 0.0399 0.0429 0.0507 0.0442 0.0345 0.0345 0.0345 0.0345 0.0345 0.0345 0.0345 0.0345 0.0345 0.0345 0.0346 0.033 0.0140 0.0140 0.0140 0.015 0.0067 0.0020 0.0008 0.0020 0.0008 0.0005 0.0005 0.0005 0.0005 0.0003	OHERENCY *** 0.3275 0.6805 0.7980 0.7835 0.7778 0.7125 0.6649 0.6275 0.4994 0.4133 0.5207 0.4656 0.1918 0.2120 0.0880 0.2120 0.0880 0.2120 0.0880 0.2120 0.0269 0.1033 0.0269 0.1033 0.0234 0.0234 0.0234
WG(LB/SEC) KL(LB/SEC) CELL FREG.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.08 27.53 30.46 34.85 40.22 5C.48 6C.24 70.01	C.C C.C440 B1 ***** NO 0.C102 0.C267 0.0391 0.0546 0.0542 0.0457 C.C412 0.0414 C.0513 0.0348 0.0348 0.0348 0.0348 0.0348 0.0348 0.0325 0.C298 C.C298	0.C C.C440 C2 RMALIZED 0.0123 0.0310 0.0459 0.0586 0.0459 0.0455 0.0474 0.0460 0.0455 0.0416 0.0385 0.0331 C.0302 0.0263 0.0236 0.0213 0.0268 0.0218 0.0258 0.0218 0.0218 0.0258 0.0218 0.0218 0.0218 0.0258 0.0218 0.0218 0.0258 0.0218 0.0258 0.0218 0.0258 0.0218 0.0258 0.0218 0.0258 0.0218 0.0258 0.0018 0.0018 0.0028	0.0 0.0440 CRUSS CC VALUE *** 0.0034 0.0251 0.0351 0.0351 0.0351 0.0361 0.0362 0.0274 0.0213 0.0145 0.0134 0.0083 0.0059 0.0059 0.0059 0.0059 0.0059 0.0059 0.0059 0.0059 0.0059 0.0059 0.0059 0.0001 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0001 0.0001 0.0001 0.0001 0.0001	DHERENCY *** C.5456 0.757C 0.7241 0.7311' 0.5643 0.5175 0.4876 0.3890 0.3842 0.3293 0.1815 0.1837 0.0861 0.0653 0.1466 0.0290 0.0290 0.0295 0.0295 0.0485 0.0312 0.0376 0.0214	0.0 0.0500 B1 ***** N07 0.0046 0.0135 0.0254 0.0449 0.0533 0.0629 0.0530 0.0535 0.0427 0.0535 0.0427 0.0535 0.0427 0.0535 0.0427 0.0535 0.0422 0.0307 0.0255 0.0225 0.0225 0.0225 0.0041 0.0062 0.0041 0.0062 0.0041 0.0028 0.0022 0.0014 0.0003 0.0003 0.0002 0.0003 0.0002	0.0 0.0800 D2 MALIZED 0.0C60 0.0163 0.0291 0.0442 0.0455 0.0455 0.0529 0.0529 0.0529 0.0529 0.0529 0.0529 0.0431 0.0463 0.0247 0.0226 0.0185 0.0162 0.0185 0.0162 0.0185 0.0162 0.0185 0.0036 0.0036 0.0038 0.0023 0.0018 0.0023 0.0018 0.0023 0.0018 0.0023 0.0023 0.0018 0.0023 0.0023 0.0023 0.0023 0.0023 0.0023 0.0023 0.0023 0.0023 0.0023 0.0020 0.0023 0.00	0.0 0.0800 CRDSS C VALUE ** 0.0030 0.0123 0.0243 0.0376 0.0399 0.C429 0.0507 C.0442 0.0345 0.0256 0.0345 0.0325 0.0140 0.0140 0.0115 0.0667 0.0643 0.0224 0.0023 0.0020 0.0008 0.0005 0.0005 0.0005 0.0005 0.0003 0.0003 0.0000 0.0000	OHERENCY *** 0.3275 0.6805 0.7980 0.7835 0.7778 0.7125 0.6649 0.6275 0.4994 0.4133 0.5207 0.4656 0.1918 0.2120 0.0880 0.2120 0.0880 0.2120 0.0880 0.2120 0.0880 0.2120 0.0880 0.2120 0.0880 0.2120 0.0234 0.0451 0.0234 0.0470 0.0333 0.0700 0.0306 0.0301 0.0472
WG(LB/SEC) KL(LB/SEC) CELL FREG.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.08 27.53 30.46 34.85 40.22 5C.48 6G.24 70.01 80.26	C.C C.C440 B1 ***** NO 0.C102 0.C267 0.0391 0.0546 0.0542 0.0457 C.C412 0.0414 C.0513 0.0348 0.0348 0.0348 0.0348 0.0348 0.0348 0.0325 0.C298 C.C298	0.C C.C440 C2 RMALIZED 0.0123 0.0310 0.0459 0.0586 0.0459 0.0455 0.0474 0.0460 0.0455 0.0416 0.0385 0.0331 C.0302 0.0268 0.0236 0.0213 0.0268 0.0218 0.0218 0.0218 0.0218 0.0218 0.0218 0.0218 0.0218 0.0219 0.0019 0.0019 0.0019 0.0019 0.0002 0.0002 0.0002	0.0 0.0440 CRUSS CC VALUE *** 0.0034 0.0251 0.0351 0.0351 0.0361 0.0381 0.0302 0.0259 0.0274 0.0213 0.0145 0.0134 0.0083 0.0059 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.000000 0.00000000	DHERENCY *** C.5456 0.757C 0.7241 0.7311' 0.5643 0.5175 0.4876 0.3890 0.3842 0.3293 0.1815 0.1837 0.0861 0.0653 0.1466 0.055C 0.0706 0.0290 0.5586 0.0332 0.0295 0.0485 0.0312 0.0312 0.0187 0.0376 0.0290 0.0714 0.0290	0.0 0.0500 B1 ***** N07 0.0046 0.0135 0.0254 0.0449 0.0533 0.0629 0.0590 0.05470 0.0535 0.0427 0.0535 0.0427 0.0535 0.0427 0.0535 0.0427 0.0535 0.0255 0.0225 0.0225 0.0225 0.0225 0.0225 0.0041 0.0036 0.0002 0.0001 0.0005 0.005 0.05	0.0 0.0800 D2 MALIZED 0.0C60 0.0291 0.0442 0.0455 0.0455 0.0529 0.0529 0.0529 0.0529 0.0529 0.0529 0.0247 0.0247 0.0226 0.0185 0.0162 0.0185 0.0162 0.0185 0.0162 0.0185 0.0162 0.0185 0.0023 0.0023 0.0023 0.0023 0.0023 0.0023 0.0023 0.0023 0.0023 0.0023 0.0023 0.0023 0.0023 0.0023 0.0023 0.0020 0.0023 0.0020 0.0023 0.0020 0.0023 0.0020 0.0020 0.0020 0.0023 0.0023 0.0020 0.0020 0.0023 0.0020 0.0020 0.0023 0.0023 0.0023 0.0023 0.0023 0.0023 0.0020 0.0023 0.00	0.0 0.0800 CROSS C VALUE ** 0.0030 0.0123 0.0243 0.0376 0.0399 0.0429 0.0507 0.0442 0.0345 0.0256 0.0345 0.0256 0.0346 0.0303 0.0140 0.015 0.0067 0.0067 0.0020 0.0020 0.0020 0.0020 0.0005	OHERENCY *** 0.3275 0.6805 0.7980 0.7835 0.7778 0.7125 0.6649 0.6275 0.4994 0.4133 0.5207 0.4656 0.1918 0.2120 0.0880 0.2120 0.0880 0.2120 0.0880 0.2120 0.0880 0.2120 0.0880 0.2120 0.0880 0.2120 0.0880 0.0702 0.0234 0.0415 0.0234 0.0470 0.0333 0.0700 0.0306 0.0301 0.0331 0.0682 0.0

. . .

\*\*\*\*

: TAPLE C-3 (continued)

-

\*\*\*\*

270

								217
KG(LBZSEC)	0.0	0.0	0.0	•	0.0	0.0	0.0	
WL(L8/SEC)	0.1260	0.1260	0.1260		0.1800	0.1800	0.1800	
CELL	81	02	CPOSS C	OHERENCY	81	C2	CROSS C	OHFRENCY
FREQ.(CPS)	**** 10	RMALIZED	VALUE **	***	***** NOI	RMALIZED	VALUE **	* * *
0.18	0.0033	0.0045	0.0025	0.4372	0.0036	0.0044	0.0026	0.4347
0.67	0.0069	0.0036	0.0059	0.5821	0.0070	0.0030	0.0061	0.6723
1.16	0.0145	0.0174	0.0138	0.7560	0.0091	0.0115	0.0082	0.6433
1.65	0.0203	C.0211	0.0184	C.7887	0.0140	0.0149	0.0119	0.6798
2.14	0.0338	0.0330	.0.0296	0.7861	0.0193	0.0237	0.0186	0.7524
2.63	0.0438	0.0473	0.0403	0.7864	0.0310	0.0300	0.0263	0.7425
3.11	0.0516	0.0469	0.0428	0.7560	0.0413	0.0400	0.0352	0.7413
3.60	0.1013	0.0978	0.0936	0.8846	0.0619	0.0611	0.0552	0.8039
4.09	0.0627	0.0575	0.0522	0.7565	0.0654	0.0578	0.0547	0.7922
4.54	0.0575	0.0436	0.5432	0.7191	0.0709	0.0290	0.0632	0.8153
5.07	0.0521	0.0528	0.0386	0.5420	0.0770	0.00077	0.0384	0.1092
2.22 4.52	0.0338	0.0345	0.0234	0.4677	0.0397	0.0427	0.03/9	0.6027
7 51	0.0234	0.0373	0.0149	0.3730	0 0/40	0.0270	0.0121	0.1707
1.51	0.0295	0.0275	0.0148	0.2095	0.0209	0 0 2 2 0	0.0134	0.2469
. 0.45	0.0189	0.0125	0.0071	0.1450	0.0203	0.0213	0.0130	0 2390
11 41	0.0163	0.0124	0.0071	0.0717	0.0145	0.0166	0 0054	0 1220
13.37	0.0110	0.0111	0.0001	0.0717	0.0111	0.0129	0.0028	0.0545
15.81	0.0077	0.0082	0.0018	0.0530	0.0081	0.0118	0.0025	0.0667
18.25	0.0059	0.0060	0.0012	0.0393	0.0085	0.0075	0.0621	0.0710
22.64	0.0037	0.0035	0.0002	0.0048	0.0036	0.0045	0.0006	0.0224
25.08	0.0023	0.0032	0.0006	0.0486	0.0032	0.0030	0.0005	0.0418
27.53	0.0018	0.0021	0.0004	0.0362	0.0020	0.0026	0.0002	0.0082
30.46	0.0017	0.0018	0.0003	0.0283	0.0619	0.0020	0.0003	0.0234
34.85	0.0010	0.0013	0.0002	0.0193	0.0012	0.0014	0.0002	0.0349
40.22	0.0006	0.0008	0.0001	0.0389	0.0006	0.0009	0.0002	0.0603
50.48	0.0003	0.0003	0.0000	C.0289	0.0003	0.0005	0.0001	0.0694
60.24	0.0001	0.0001	0.0000	0.0500	0.0001	0.0002	0.0000	0.0926
70.01	0.0001	0.0001	0.0000	0.0833	0.0001	0.0001	0.0000	0.0865
80.26	0.0000	0.0000	0.0	0.0	0.0000	0.0001	0.0	0.0
							•	
				1			•	
	•			1				
RG(LB/SEC)	0.0	0.0	0.0		0.0	0.0	C.O	
WG(LB/SEC) WL(LB/SEC)	0.0	0.C 0.2400	0.0		0.0 0.3500	0.0 0.3500	0.0 0.3500	
WG(LB/SEC) WL(LB/SEC) CELL EREC (CPS)	0.0 0.2400 B1	0.0 0.2400 C2	0.0 0.2400 CRUSS C	OHERENCY	0.0 0.3500 B1	0.0 0.3500 D2	C.0 0.3500 CR0SS C	OHERENCY
WG(LB/SEC) WL(LB/SEC) CELL FREC.(CPS)	0.0 0.2400 B1 ***** 10 0.0042	0.C U.2400 C2 PMALIZED 0.0042	0.0 0.2400 CRUSS C VALUE **	0HERENCY	0.0 0.3500 B1 ***** NO: 0.0042	0.0 0.3500 D2 RMALIZED 0.0041	C.O 0.3500 CROSS C VALUE **	0+ERENCY
kG(LB/SEC) kL(LB/SEC) CELL FREC.(CPS) 0.18 0.67	0.0 0.2400 81 ***** 10 0.0042 0.0042	0.0 U.2400 C2 PMALIZED 0.0342	0.0 0.2400 CRUSS C VALUE ** 0.0031	0HERENCY *** 0.5270	0.0 0.3500 B1 ***** NO: 0.0042 0.0053	0.0 0.3500 D2 RMALIZED 0.0041 0.0043	C.O 0.3500 CRUSS C VALUE ** 0.0031 0.0036	0HERENCY *** 0.5732
WG(LB/SEC) WL(LB/SEC) CELL FREC.(CPS) 0.18 0.67 1.16	0.0 0.2400 B1 ***** 10 0.0042 0.0070 0.0113	0.C U.2400 D2 PMALIZED 0.CU42 C.DU66 D.CU12	0.0 0.2400 CRUSS C VALUE ** 0.0031 0.0055 0.0055	0HERENCY *** 0.5270 0.6628 0.7148	0.0 0.3500 B1 ***** NO: 0.0042 0.0053 0.0101	0.0 0.3500 D2 MALIZED 0.0041 0.0043 0.0043	C.0 0.3500 CRUSS C VALUE ** 0.0031 0.0036 0.0081	DHERENCY *** 0.5732 0.5680 0.7192
WG(LB/SEC) WL(LB/SEC) CELL FREC.(CPS) 0.18 0.67 1.16 1.65	0.0 0.2400 81 ***** 10 0.0042 0.0070 0.0113 0.0138	0.C U.2400 C2 PMALIZED 0.C042 C.0066 0.C112 0.C138	0.0 0.2400 CRUSS C VALUE ** 0.0031 0.0055 0.0055	0HERENCY *** 0.5270 0.6628 0.6148 0.6361	0.0 0.3500 B1 ***** N0: 0.0042 0.0053 0.0101 0.0156	0.0 0.3500 D2 RMALIZED 0.0041 0.0043 0.0043 0.0042 0.0143	C.0 0.3500 CROSS C VALUE ** 0.0031 0.0036 0.0081 0.0129	DHERENCY *** 0.5732 0.5680 0.7192 0.7486
WG(LB/SEC) WL(LB/SEC) CELL FREC.(CPS) 0.18 0.67 1.16 1.65 2.14	0.0 0.2400 81 ***** 10 0.0042 0.0070 0.0113 0.0138 0.0163	0.C U.2400 C2 PMALIZED 0.C042 C.0066 0.C112 0.C112 0.C138 0.0171	0.0 0.2400 CRUSS C VALUE ** 0.0031 0.0055 0.0095 0.0100 0.0134	0HERENCY *** 0.5270 0.6628 0.7148 0.6361 0.6361	0.0 0.3500 B1 ***** N0: 0.0042 0.0053 0.0101 0.0156 0.0222	0.0 0.3500 D2 RMALIZED 0.0041 0.0043 0.0043 0.0043 0.0043 0.0043	C.0 0.3500 CRUSS C VALUE ** 0.0031 0.0036 0.0081 0.0129 C.0199	DHERENCY *** 0.5732 0.5680 0.7192 0.7486 0.7754
WG(LB/SEC) WL(LB/SEC) CELL FREC.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63	0.0 0.2400 81 ***** 10 0.0042 0.0070 0.0113 0.0138 0.0163 0.0179	0.C U.2400 C2 PMALIZED 0.C042 C.0066 0.C112 0.C112 0.C138 0.0171 0.0230	0.0 0.2400 CRUSS C VALUE ** 0.0031 0.0055 0.0095 0.0110 0.0134 0.0159	OHERENCY *** 0.5270 0.6628 0.7148 0.6361 0.6157	0.0 0.3500 B1 ***** N0: 0.0042 0.0053 0.0101 0.0156 0.0222 0.0330	0.0 0.3500 D2 RMALIZED 0.0041 0.0043 0.0043 0.0043 0.0043 0.0043 0.0043 0.0043 0.0043 0.0230	C.0 0.3500 CRUSS C VALUE ** 0.0031 0.0036 0.00281 0.0129 0.0199 0.0261	DHERENCY *** 0.55732 0.5680 0.7192 0.7486 0.7764 0.7137
WG(LB/SEC) WL(LB/SEC) CELL FREC.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11	0.0 0.2400 81 ***** 10 0.0042 0.0070 0.0113 0.0138 0.0138 0.0163 0.0179 0.0225	0.C U.2400 C2 PMALIZED 0.C042 C.0066 0.C112 0.C138 0.C138 0.0171 0.0230 0.0266	0.0 0.2400 CRUSS C VALUE ** 0.0031 0.0055 0.010 0.0134 0.0159 0.0199	0HERENCY *** 0.5270 0.6628 0.7148 0.6361 0.6199 0.6157 0.6614	0.0 0.3500 B1 ***** N0: 0.0042 0.0053 0.0101 0.0156 0.0222 0.0330 0.0371	0.0 0.3500 D2 RMALIZED 0.0041 0.0043 0.0043 0.0041 0.0230 0.0289 0.0289 0.0417	C.0 0.3500 CRUSS C VALUE ** 0.0036 0.0081 0.0129 0.0199 0.0261 0.0354	DHERENCY *** 0.55732 0.5680 0.7192 0.7486 0.7764 0.7137 0.8117
WG(LB/SEC) WL(LB/SEC) CELL FREC.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60	0.0 0.2400 B1 ***** 10 0.0042 0.0070 0.0113 0.0138 0.0138 0.0163 0.0179 0.0225 0.0536	0.C U.2400 C2 PMALIZED 0.C042 C.0066 0.C112 0.C138 0.C138 0.0171 0.0230 0.0266 0.0562	0.0 0.2400 CRUSS C VALUE ** 0.0031 0.0055 0.010 0.0134 0.0159 0.0199 0.0493	0HERENCY *** 0.5270 0.6628 0.7148 0.6361 0.6199 0.6157 0.6614 0.8064	0.0 0.3500 B1 ***** NO: 0.0042 0.0053 0.0101 0.0156 0.0222 0.0330 0.0371 0.0649	0.0 0.3500 D2 RMALIZED 0.0041 0.0043 0.0043 0.0041 0.0230 0.0289 0.0417 0.0624	C.0 0.3500 CR(ISS C VALUE ** 0.0031 0.0036 0.0129 0.0129 0.0129 0.0199 0.0261 0.0354 0.0595	OHERENCY *** 0.55732 0.5680 0.7192 0.7486 0.7764 0.7137 0.8117 0.8741
WG(LB/SEC) WL(LB/SEC) CELL FREC.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09	0.0 0.2400 B1 ***** 10 0.0042 0.0070 0.0113 0.0138 0.0138 0.0168 0.0179 0.0225 0.0536 0.0579	0.C U.2400 C2 PMALIZED 0.C042 C.0066 0.C112 0.C138 0.0171 0.0230 0.0266 0.C562 0.0652	0.0 0.2400 CRUSS C VALUE ** 0.0031 0.0055 0.0110 0.0134 0.0159 0.0199 0.0493 0.0547	OHERENCY *** 0.5270 0.6628 0.7148 0.6361 0.6199 0.6157 0.6614 0.8064 0.7932	0.0 0.3500 B1 ***** NO: 0.0042 0.0053 0.0156 0.0222 0.0330 0.0371 0.0649 0.0544	0.0 0.3500 D2 RMALIZED 0.0041 0.0043 0.0043 0.0043 0.0143 0.0289 0.0289 0.0417 0.0624 0.0556	C.0 0.3500 CR(ISS C VALUE ** 0.0036 0.0081 0.0129 0.0129 0.0129 0.0129 0.0129 0.0129 0.01595 0.0595 0.0489	OHERENCY *** 0.5732 0.5680 0.7192 0.7486 0.7764 0.7764 0.7137 0.8117 0.8741 0.7914
WG(LB/SEC) WL(LB/SEC) CELL FREC.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58	0.0 0.2400 B1 ***** 10 0.0042 0.0070 0.0113 0.0138 0.0163 0.0163 0.0179 0.0225 0.0536 0.0579 0.0619	0.C U.2400 C2 PMALIZED 0.C042 C.0066 C.C112 0.C138 0.0171 0.0266 0.0266 0.C562 0.0652 C.0519	0.0 0.2400 CRUSS C VALUE ** 0.0031 0.0055 0.0110 0.0134 0.0159 0.0199 0.0493 0.0547 0.0489	OHERENCY *** 0.5270 0.6628 0.7148 0.6361 0.6199 0.6157 0.6614 0.8064 0.7932 0.7418	0.0 0.3500 B1 ***** NO: 0.0042 0.0053 0.0156 0.0222 0.0330 0.0371 0.0649 0.0544 0.0535	0.0 0.3500 D2 RMALIZED 0.0041 0.0043 0.0043 0.0043 0.0230 0.0289 0.0417 0.0624 0.0556 0.0455	C.0 0.3500 CRUSS C VALUE ** 0.0036 0.0081 0.0129 0.0129 0.0129 0.0129 0.0261 0.0354 0.0595 0.0489 0.0434	OHERENCY *** 0.5732 0.5680 0.7192 0.7486 0.7764 0.7764 0.7137 0.8117 0.8741 0.8741 0.7914 0.7737
<pre>KG(LB/SEC) KL(LB/SEC) CELL FREC.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07</pre>	0.0 0.2400 B1 ***** 10 0.0042 0.0070 0.0113 0.0138 0.0163 0.0163 0.0163 0.0163 0.0225 0.0536 0.0579 0.0619 0.0566	0.C U.2400 C2 PMALIZED 0.C042 C.0066 C.C112 0.C138 0.0171 0.0266 0.C562 0.0652 C.0519 0.C467	0.0 0.2400 CRUSS C VALUE ** 0.0031 0.0055 0.0110 0.0134 0.0159 0.0199 0.0493 0.0493 0.0498 0.0449 0.0448 0.0414	OHERENCY *** 0.5270 0.6628 0.7148 0.6361 0.6199 0.6157 0.6614 0.8064 0.7932 0.7418 0.6463	0.0 0.3500 B1 ***** N0: 0.0042 0.0053 0.0156 0.0222 0.0371 0.0649 0.0544 0.0535 0.0507	9.0 0.3500 D2 RMALIZED 0.0041 0.0043 0.0043 0.0043 0.0230 0.0289 0.0417 0.0624 0.0556 0.0465 0.0464	C.0 0.3500 CRISS C VALUE ** 0.0031 0.0036 0.0129 0.0129 0.0129 0.0129 0.0129 0.0129 0.0129 0.0129 0.0129 0.0129 0.0129 0.0129 0.0129 0.0129 0.0261 0.0595 0.0489 0.0434 0.0420	OHERENCY *** 0.5732 0.5680 0.7192 0.7486 0.7764 0.7764 0.7137 0.8117 0.8741 0.8741 0.77914 0.7737 0.7496
<pre>WG(LB/SEC) WL(LB/SEC) CELL FREC.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55</pre>	0.0 0.2400 B1 ***** 10 0.0042 0.0070 0.0113 0.0138 0.0163 0.0163 0.0163 0.0163 0.0225 0.0536 0.0579 0.0619 0.0566 0.0571	0.C 0.2400 C2 PMALIZED 0.C042 C.0066 0.C112 0.C138 0.0171 0.0266 0.C562 0.0652 0.0652 0.0519 0.C467 0.0538	0.0 0.2400 CRUSS C VALUE ** 0.0031 0.0055 0.0110 0.0134 0.0159 0.0199 0.0493 0.0493 0.0493 0.0443 0.0448 0.0414 0.0436	OHERENCY *** 0.5270 0.6628 0.7148 0.6361 0.6157 0.6614 0.8064 0.7932 0.7418 0.6463 0.6206	0.0 0.3500 B1 ***** N0: 0.0042 0.0053 0.0156 0.0222 0.0371 0.0649 0.0544 0.0535 0.0507 0.0409	0.0 0.3500 D2 RMALIZED 0.0041 0.0043 0.0043 0.0043 0.0230 0.0289 0.0417 0.0624 0.0556 0.0455 0.0464 0.0363	C.0 0.3500 CRUSS C VALUE ** 0.0036 0.0029 0.0129 0.0129 0.0129 0.0129 0.0129 0.0261 0.0595 0.0489 0.0434 0.0420 0.0303	OHERENCY *** 0.5732 0.5680 0.7192 0.7486 0.7764 0.7764 0.7137 0.8117 0.8117 0.8741 0.7914 0.7737 0.7496 0.6195
<pre>kG(LB/SEC) kL(LB/SEC) cELL FREC.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53</pre>	0.0 0.2400 B1 ***** 10 0.0070 0.0113 0.0138 0.0163 0.0163 0.0179 0.0225 0.0536 0.0579 0.0619 0.0566 0.0571 0.0452	0.C 0.2400 C2 PMALIZED 0.C042 C.0066 0.C112 0.C138 0.0171 0.0230 0.0266 0.C562 0.0652 C.0519 0.C467 0.0398	0.0 0.2400 CRUSS C VALUE ** 0.0031 0.0055 0.0010 0.0134 0.0159 0.0199 0.0199 0.0493 0.0493 0.0493 0.0448 0.0414 0.0436 0.0265	OHERENCY *** 0.5270 0.6628 0.7148 0.6361 0.6199 0.6157 0.6614 0.8064 0.7932 6.7418 0.6469 0.6206 0.3893	0.0 0.3500 B1 ***** NO: 0.0042 0.0753 0.0101 0.0156 0.0222 0.0371 0.0649 0.0544 0.0535 0.0507 0.0409 0.0409 0.0469	0.0 0.3500 D2 MALIZED 0.0041 0.0043 0.0043 0.00230 0.0289 0.0143 0.0230 0.0289 0.0417 0.0624 0.0556 0.0465 0.0464 0.0363 0.0413	C.0 0.3500 CRUSS C VALUE ** 0.0031 0.0036 0.00281 0.0129 0.0129 0.0129 0.0129 0.0261 0.0354 0.0595 0.0489 C.0489 C.0420 C.0303 0.0333	OHERENCY *** 0.55732 0.5680 0.7192 0.7436 0.7764 0.7137 0.8741 0.8741 0.7914 0.77914 0.77914 0.77496 0.6195 0.5761
<pre>kG(LB/SEC) kL(LB/SEC) cELL FREC.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51</pre>	0.0 0.2400 B1 ***** 10 0.0070 0.0113 0.0138 0.0163 0.0163 0.0179 0.0225 0.0536 0.0579 0.0619 0.0566 0.0571 0.0452 0.0381	0.C U.2400 D2 PMALIZED 0.C042 C.0066 C.C112 0.C138 0.0171 0.0266 C.C562 0.0652 0.0652 0.06519 0.C467 0.7538 0.0393 0.C317	0.0 0.2400 CRUSS C VALUE ** 0.0031 0.0055 0.0075 0.0110 0.0134 0.0159 0.0199 0.0493 0.0493 0.0448 0.0448 0.0414 0.0436 0.0265 0.0208	OHERENCY *** 0.5270 0.6628 0.7148 0.6361 0.6199 0.6157 0.6614 0.8064 0.7932 0.7418 0.6468 0.6206 0.3893 0.3569	0.0 0.3500 B1 ***** NO: 0.0042 0.0753 0.0101 0.0156 0.0222 0.0330 0.0371 0.0649 0.0544 0.0545 0.0535 0.0507 0.0409 0.0409	0.0 0.3500 D2 MALIZED 0.0041 0.0043 0.0043 0.00230 0.0289 0.0143 0.0230 0.0289 0.0417 0.0624 0.0556 0.0464 0.0363 0.0413 0.0314	C.0 0.3500 CRUSS C VALUE ** 0.0031 0.0036 0.0129 0.0129 0.0129 0.0129 0.0261 0.0354 0.0595 0.0489 C.0489 C.0489 C.0483 0.0420 C.0303 0.0333 0.0220	OHERENCY *** 0.5732 0.5680 0.7192 0.7436 0.7764 0.7137 0.8117 0.8741 0.7914 0.77914 0.7797 0.7496 0.6195 0.5761 0.5761 0.3772
<pre>kG(LB/SEC) kL(LB/SEC) cELL FREC.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48</pre>	0.0 0.2400 B1 ***** 10 0.0042 0.0070 0.0113 0.0138 0.0163 0.0163 0.0179 0.0225 0.0536 0.0579 0.0619 0.0566 0.0571 0.0452 0.0381 0.0279	0.C U.2400 C2 PMALIZED 0.C042 C.0066 C.0112 C.0138 0.0171 0.0266 C.0562 0.0652 C.0519 0.C467 0.0538 0.0398 0.C317 0.7236	0.0 0.2400 CRUSS C VALUE ** 0.0031 0.0055 0.0095 0.0110 0.0134 0.0159 0.0199 0.0493 5.0547 0.0488 0.0414 0.0486 0.0414 0.0436 0.0265 0.0208 0.0123	OHERENCY *** 0.5270 0.6628 0.7148 0.6361 0.6199 0.6157 0.6614 0.8064 0.7932 0.7418 0.6469 0.6206 0.3893 0.3569 0.2281	0.0 0.3500 B1 ***** NO: 0.0042 0.0753 0.0101 0.0156 0.0222 0.0330 0.0371 0.0649 0.0544 0.0535 0.0507 0.0409 0.0409 0.0306	0.0 0.3500 D2 RMALIZED 0.0041 0.0043 0.00230 0.0289 0.0289 0.0417 0.0624 0.0556 0.0464 0.0363 0.0413 0.0314 0.0278	C.0 0.3500 CRUSS C VALUE ** 0.0031 0.0036 0.0129 0.0129 0.0129 0.0129 0.0261 0.0354 0.0595 C.0489 C.0489 C.0489 C.0489 C.0434 C.0420 C.3033 0.0220 0.0182	OHERENCY *** 0.5732 0.5680 0.7192 0.7486 0.7764 0.7137 0.8117 0.8117 0.8741 0.7914 0.77914 0.77914 0.77914 0.7797 0.7496 0.6195 0.5761 0.5761 0.3772 0.3900
<pre>kG(LB/SEC) kL(LB/SEC) cELL FREC.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46</pre>	0.0 0.2400 B1 ***** 10 0.0042 0.0070 0.0113 0.0138 0.0163 0.0163 0.0179 0.0225 0.0536 0.0579 0.0619 0.0566 0.0571 0.0452 0.0381 0.0279 0.0227	0.C U.2400 C2 PMALIZED 0.C042 C.0066 0.C112 C.C138 0.0171 0.2230 0.0266 0.C562 0.0652 0.0652 0.0652 0.0652 0.0467 0.0538 0.0398 0.0398 0.0317 0.7236 0.0257	0.0 0.2400 CRUSS C VALUE ** 0.0031 0.0055 0.0095 0.0110 0.0134 0.0159 0.0199 0.0493 0.0493 0.0547 0.0488 0.0414 0.0436 0.0265 0.0208 0.0123 0.0125	OHERENCY *** 0.5270 0.6628 0.7148 0.6361 0.6199 0.6157 0.6614 0.8064 0.7932 0.7418 0.6463 0.6206 0.3893 0.3569 0.2281 0.2684	0.0 0.3500 B1 ***** NO: 0.0042 0.0753 0.0101 0.0156 0.0222 0.0330 0.0371 0.0649 0.0544 0.0535 0.0507 0.0409 0.0409 0.0409 0.0409 0.0306 0.0233	0.0 0.3500 D2 MALIZED 0.0041 0.0043 0.00230 0.0289 0.0143 0.0289 0.0417 0.0624 0.0556 0.0455 0.0464 0.0363 0.0413 0.0314 0.0278 0.0201	C.0 0.3500 CRUSS C VALUE ** 0.0031 0.0036 0.00281 0.0129 0.0129 0.0129 0.0261 0.0354 0.0595 C.0489 C.0489 C.0434 C.0434 C.0433 0.0434 C.0433 0.0333 0.0220 0.0182 0.0121	OHERENCY *** 0.55732 0.5680 0.7192 0.7496 0.7754 0.7137 0.8117 0.8741 0.77914 0.77914 0.7737 0.7796 0.6195 0.5761 0.3772 0.3900 0.3143
<pre>kG(LB/SEC) kL(LB/SEC) CELL FREC.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41</pre>	0.0 0.2400 B1 ***** 10 0.0042 0.0070 0.0113 0.0138 0.0163 0.0163 0.0179 0.0225 0.0536 0.0579 0.0619 0.0566 0.0571 0.0452 0.0381 0.0279 0.0227 0.02170	0.C U.2400 C2 0.C042 0.C042 0.C042 0.C138 0.C112 0.C138 0.C171 0.C266 0.C562 0.C652 0.C652 0.C467 0.C538 0.C317 0.C467 0.C317 0.C317 0.C257 0.C257 0.C165	0.0 0.2400 CRUSS C VALUE ** 0.0031 0.0055 0.010 0.0134 0.0159 0.0199 0.0199 0.0493 C.0547 0.0488 0.0414 0.0436 0.0414 0.0265 0.0208 0.0123 C.0125 0.0052	OHERENCY *** 0.5270 0.6628 0.7148 0.6361 0.6199 0.6157 0.6614 0.8064 0.7932 0.7418 0.6469 0.6206 0.3893 0.3569 0.2281 0.2684 0.984	0.0 0.3500 B1 ***** NO: 0.0042 0.0053 0.0101 0.0156 0.0222 0.0330 0.0371 0.0649 0.0544 0.0535 0.0507 0.0409 0.0409 0.0409 0.0409 0.0409 0.0409 0.0306 0.0233 0.0154	0.0 0.3500 D2 MALIZED 0.0041 0.0043 0.00230 0.0289 0.0143 0.0289 0.0289 0.0417 0.0624 0.0556 0.0455 0.0464 0.0555 0.0464 0.0314 0.0278 0.0201 0.0163	C.0 0.3500 CRUSS C VALUE ** 0.0031 0.0036 0.0029 0.0129 0.0129 0.0129 0.0261 0.0354 0.0595 C.0489 C.0434 0.0434 C.0433 0.0434 0.0434 0.0433 0.0333 0.0220 0.0182 0.0182 0.0121 C.9067	OHERENCY *** 0.55732 0.5680 0.7192 0.7496 0.7764 0.7137 0.8117 0.8741 0.77914 0.77914 0.77914 0.7737 0.7496 0.6195 0.5761 6.3772 0.3900 0.3143 0.1816
<pre>kG(LB/SEC) kL(LB/SEC) cELL FREC.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37</pre>	0.0 0.2400 B1 ***** 10 0.0042 0.0070 0.0113 0.0138 0.0163 0.0163 0.0179 0.0225 0.0536 0.0579 0.0619 0.0566 0.0571 0.0452 0.0381 0.0279 0.0227 0.0227 0.0170 0.0143	0.C U.2400 C2 PMALIZED 0.C042 C.0066 0.C112 C.C138 0.0171 0.0266 0.C562 0.0652 0.0652 0.0652 0.0652 0.0519 0.C467 0.0538 0.0398 0.C317 0.0236 0.0257 0.0165 0.C165 0.C165	0.0 0.2400 CRUSS C VALUE ** 0.0031 0.0055 0.010 0.0134 0.0159 0.0199 0.0493 0.0493 0.0444 0.0448 0.0414 0.0436 0.0414 0.0436 0.0414 0.0265 0.0208 0.0123 0.0125 0.0052 0.0038	OHERENCY *** 0.5270 0.6628 0.7148 0.6361 0.6199 0.6157 0.6614 0.8064 0.7932 0.7418 0.6469 0.6206 0.3893 0.3569 0.2281 0.2684 0.984 0.0590	0.0 0.3500 B1 ***** NO: 0.0042 0.0053 0.0101 0.0156 0.0222 0.0330 0.0371 0.0649 0.0545 0.0507 0.0409 0.0409 0.0409 0.0409 0.0409 0.0409 0.0409 0.0409 0.0409 0.0409 0.05154 0.0154 0.0154	0.0 0.3500 D2 MALIZED 0.0041 0.0043 0.0043 0.0230 0.0289 0.0417 0.0624 0.0556 0.0455 0.0464 0.0555 0.0464 0.0314 0.0278 0.0201 0.0163 0.0144	C.0 0.3500 CRUSS C VALUE ** 0.0031 0.0036 0.0129 0.0129 0.0129 0.0261 0.0354 0.0595 C.0489 C.0434 0.0434 C.0439 C.0434 0.0434 0.0433 0.0333 0.0220 0.0182 0.025 0.055	OHERENCY *** 0.55732 0.5680 0.7192 0.7496 0.7764 0.7137 0.8117 0.8741 0.77914 0.77914 0.77914 0.77914 0.7737 0.7496 0.6195 0.5761 0.3772 0.3900 0.3143 0.1816 0.1839
<pre>kG(LB/SEC) kL(LB/SEC) CELL FREC.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81</pre>	0.0 0.2400 B1 ***** 10 0.0042 0.0070 0.0113 0.0138 0.0163 0.0163 0.0179 0.0225 0.0536 0.0579 0.0566 0.0571 0.0566 0.0571 0.0452 0.0381 0.0279 0.0227 0.0170 0.0143 0.0143 0.0143	0.C U.2400 D2 0.C042 0.C042 0.C042 0.C138 0.C112 0.C138 0.C171 0.C266 0.C562 0.C652 0.C652 0.C467 0.C538 0.C317 0.C365 0.C317 0.C257 0.C168 0.C098	0.0 0.24C0 CRUSS C VALUE ** 0.0031 0.0055 0.010 0.0134 0.0159 0.0199 0.0493 0.0493 0.0547 0.0488 0.0414 0.0436 0.0265 0.0208 0.0123 0.0125 0.0208 0.0125 0.0052 0.0038 0.0018	OHERENCY *** 0.5270 0.6628 0.7148 0.6361 0.6199 0.6157 0.6614 0.8064 0.7932 0.7418 0.6469 0.6206 0.3893 0.6206 0.3893 0.3569 0.2281 0.2684 0.0984 0.0590 0.0313	0.0 0.3500 B1 ***** NO2 0.0042 0.0053 0.0101 0.0156 0.0222 0.0330 0.0371 0.0649 0.0544 0.0535 0.0507 0.0409 0.0409 0.0409 0.0409 0.0409 0.0409 0.0409 0.0409 0.0409 0.0409 0.05154 0.0154 0.0163 0.0105	0.0 0.3500 D2 MALIZED 0.0041 0.0043 0.0043 0.0230 0.0289 0.0417 0.0624 0.0556 0.0455 0.0464 0.0556 0.0464 0.0363 0.0413 0.0314 0.0278 0.0201 0.0163 0.0144 0.0111	C.0 0.3500 CRUSS C VALUE ** 0.0031 0.0036 0.0029 0.0129 0.0129 0.0129 0.0261 0.0354 0.0595 C.0489 C.0436 C.0430 C.0430 C.0430 C.0430 C.0430 C.0439 C.0430 C.0575 C.0489 C.0439 C.0220 C.0575 C.0482 C.0575 C.0482 C.0575 C.0482 C.0575 C.0575 C.0575 C.0575 C.0575 C.0575 C.0575 C.0575 C.0575 C.0575 C.0575 C.0575 C.05555 C.05555 C.05555 C.05555 C.05555 C.05555 C.05555 C.05555	OHERENCY *** 0.5732 0.5680 0.7192 0.7436 0.7754 0.7137 0.8117 0.8741 0.7731 0.7914 0.7737 0.7496 0.6195 0.5761 0.3772 0.3900 0.3143 0.1816 0.1839 0.0401
<pre>kG(LB/SEC) kL(LB/SEC) CELL FREC.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25</pre>	0.0 0.2400 B1 ***** 10 0.0042 0.0070 0.0113 0.0138 0.0163 0.0163 0.0179 0.0225 0.0536 0.0579 0.0566 0.0571 0.0452 0.0381 0.0279 0.0227 0.0227 0.0170 0.0143 0.0143 0.0157 0.0257	0.C 0.2400 C2 PMALIZED 0.0042 0.0042 0.0138 0.0171 0.0266 0.0562 0.0652 0.0652 0.0652 0.0467 0.0538 0.0317 0.0257 0.0257 0.0165 0.0165 0.0168 0.0098 0.0070	0.0 0.24C0 CRUSS C VALUE ** 0.0031 0.0055 0.0095 0.0199 0.0134 0.0159 0.0199 0.0493 0.0547 0.0488 0.0414 0.0265 0.0208 0.0123 0.0125 0.0052 0.0038 0.0011	OHERENCY *** 0.5270 0.6628 0.7148 0.6361 0.6199 0.6157 0.6614 0.8064 0.7932 0.7418 0.6469 0.6206 0.3893 0.6206 0.3893 0.62081 0.2684 0.0590 0.0313 0.0280	0.0 0.3500 B1 ***** NO: 0.0042 0.0053 0.0101 0.0156 0.0222 0.0330 0.0371 0.0649 0.0544 0.0535 0.0507 0.0409 0.0409 0.0409 0.0409 0.0409 0.0409 0.0409 0.0409 0.0409 0.0409 0.0409 0.0409 0.0409 0.05154 0.0154 0.0163 0.0105 0.0055	0.0 0.3500 D2 MALIZED 0.0041 0.0043 0.0043 0.0230 0.0289 0.0417 0.0624 0.0556 0.0445 0.0464 0.0556 0.0464 0.0363 0.0278 0.0201 0.0163 0.0144 0.0111 0.0075	C.0 O.3500 CRUSS C VALUE ** O.0031 O.0036 O.0029 C.0199 O.0261 O.0354 O.0595 C.0489 C.0434 O.0429 C.0434 O.0429 C.0303 O.0489 C.0439 C.0439 C.0439 C.0439 C.0439 C.0439 C.0439 C.0439 C.0439 C.0439 C.0439 C.0439 C.0439 C.0439 C.0439 C.0439 C.0439 C.0430 C.0220 O.0182 O.0121 C.0220 O.022 O.022 O.022 O.022 O.0220 C.0200 C.	OHERENCY *** 0.5732 0.5680 0.7192 0.7436 0.7754 0.7137 0.8117 0.8741 0.7737 0.7496 0.6195 0.5761 6.3772 0.3900 0.3143 0.1816 0.1839 0.0401 0.0740
<pre>kG(LB/SEC) kL(LB/SEC) CELL FREC.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.00</pre>	0.0 0.2400 B1 ***** 10 0.0042 0.0070 0.0113 0.0138 0.0163 0.0163 0.0179 0.0225 0.0536 0.0579 0.0566 0.0571 0.0257 0.0225 0.0581 0.0279 0.0227 0.0143 0.0143 0.0143 0.0143 0.0169 0.0057 0.0057 0.0057 0.0057	0.C 0.2400 C2 PMALIZED 0.0042 0.0042 0.012 0.0138 0.0171 0.2230 0.0266 0.0562 0.0652 0.0652 0.0652 0.0519 0.0467 0.0538 0.0317 0.7236 0.0257 0.0165 0.017 0.0266 0.0257 0.0265 0.0257 0.0265 0.0257 0.0265 0.0257 0.0265 0.0257 0.0265 0.0257 0.0265 0.0257 0.0265 0.0257 0.0265 0.0257 0.0265 0.0257 0.0265 0.0257 0.0265 0.0257 0.0265 0.0257 0.0265 0.0257 0.0265 0.0257 0.0057 0.005	0.0 0.24C0 CRUSS C VALUE ** 0.0031 0.0055 0.0095 0.0199 0.0199 0.0199 0.0493 0.0547 0.0488 0.0414 0.0265 0.0208 0.0123 0.0125 0.0052 0.0038 0.0011 0.0011 0.0011	OHERENCY *** 0.5270 0.6628 0.7148 0.6361 0.6199 0.6157 0.6614 0.8064 0.7932 0.7418 0.6469 0.6268 0.3893 0.62684 0.2281 0.2684 0.0590 0.0313 0.0280 0.0772	0.0 0.3500 B1 ***** NO: 0.0042 0.0053 0.0101 0.0156 0.0222 0.0330 0.0371 0.0649 0.0544 0.0544 0.0544 0.0535 0.0507 0.0409 0.0409 0.0409 0.0409 0.0409 0.0409 0.0409 0.0409 0.0409 0.0409 0.0409 0.0409 0.0409 0.0409 0.05154 0.0154 0.0163 0.0105 0.0062 0.00527	0.0 0.3500 D2 MALIZED 0.0041 0.0C43 0.0C32 0.0289 0.0289 0.0289 0.0289 0.0289 0.0289 0.0289 0.0289 0.0289 0.0289 0.0264 0.0556 0.0464 0.0278 0.0201 0.0218 0.0201 0.0163 0.0144 0.0275 0.0047	C.0 0.3500 CRUSS C VALUE ** 0.0031 0.0036 0.0029 0.0129 0.0129 0.0261 0.0354 0.0595 0.0489 C.0434 0.0595 0.0489 C.0434 0.0595 0.0489 C.0434 0.0220 0.0182 0.0121 0.0220 0.0182 0.0121 0.0220 0.0200 0.0000 0.0000 0.0000 0.00000 0.00000000	OHERENCY *** 0.5732 0.5680 0.7192 0.7486 0.7754 0.7137 0.8117 0.8741 0.77914 0.7737 0.7496 0.6195 0.5761 0.3772 0.3900 0.3143 0.1816 0.1839 0.0401 0.0740 0.0310
<pre>kG(LB/SEC) kL(LB/SEC) CELL FREC.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.03</pre>	0.0 0.2400 B1 ***** 100 0.0042 0.0070 0.0113 0.0138 0.0163 0.0163 0.0179 0.0225 0.0536 0.0579 0.0566 0.0571 0.0452 0.0381 0.0279 0.0227 0.0170 0.0452 0.0381 0.0279 0.0227 0.0170 0.0143 0.0279 0.0227 0.0257 0.0566 0.0571 0.0257 0.0571 0.0227 0.0257 0.0257 0.0571 0.0257 0.0257 0.0257 0.0257 0.0257 0.0257 0.0257 0.0279 0.0257 0.0257 0.0279 0.0257 0.0279 0.0257 0.0279 0.0277 0.	0.C 0.2400 C2 PMALIZED 0.0042 0.0042 0.0112 0.0112 0.0171 0.0266 0.0562 0.0652 0.0652 0.0652 0.0519 0.0467 0.0398 0.0398 0.0257 0.0165 0.00098 0.00070 0	0.0 0.24C0 CRUSS C VALUE ** 0.0031 0.0055 0.0095 0.0199 0.0134 0.0159 0.0199 0.0493 0.0547 0.0488 0.0414 0.0265 0.0208 0.0125 0.0052 0.0038 0.0011 0.0011 0.0011 0.0014	0HERENCY *** 0.5270 0.6628 0.7148 0.6361 0.6199 0.6157 0.6614 0.8064 0.7932 0.7418 0.6469 0.6206 0.3893 0.6208 0.62081 0.2281 0.2684 0.0590 0.0313 0.0280 0.0199	0.0 0.3500 B1 ***** NO: 0.0042 0.0053 0.0101 0.0156 0.0222 0.0330 0.0371 0.0649 0.0544 0.0544 0.0544 0.0544 0.0544 0.0507 0.0409 0.0507 0.0409 0.0409 0.0409 0.0507 0.0409 0.0409 0.0409 0.0409 0.0507 0.0409 0.0055 0.0055 0.00507 0.0055 0.00507 0.0055	0.0 0.3500 D2 MALIZED 0.0041 0.0C43 0.0C43 0.0230 0.0289 0.0417 0.0624 0.0556 0.0455 0.0464 0.0556 0.0464 0.0278 0.0201 0.0163 0.0144 0.0275 0.0047 0.0047 0.0036	C.0 0.3500 CRUSS C VALUE ** 0.0031 0.0036 0.0036 0.0029 0.0129 0.0129 0.0261 0.0354 0.0595 0.0489 C.0434 0.0595 0.0489 C.0434 0.0595 0.0489 C.0434 0.0595 0.0489 C.0434 0.0595 0.0489 0.0220 0.0121 0.0220 0.0182 0.0121 0.0220 0.0220 0.022 0.0058 0.0022 0.0059 0.0059 0.0058 0.0022 0.0058 0.0059 0.0058 0.0059 0.0058 0.0059 0.0058 0.0058 0.0059 0.0058 0.0059 0.0059 0.0058 0.0059 0.0058 0.0059 0.0058 0.0059 0.0059 0.0058 0.0059 0.0059 0.0058 0.0059 0.0059 0.0058 0.0059 0.0059 0.0059 0.0058 0.0059	OHERENCY *** 0.5732 0.5680 0.7192 0.7486 0.7754 0.7137 0.8117 0.8741 0.7714 0.77914 0.7737 0.7496 0.6195 0.5761 0.3772 0.3900 0.3143 0.1816 0.1839 0.0401 0.0740 0.0137 0.0137
<pre>kG(LB/SEC) kL(LB/SEC) CELL FREC.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.03 27.53 3.64</pre>	0.0 0.2400 B1 ***** 10 0.0042 0.0070 0.0113 0.0138 0.0163 0.0163 0.0163 0.0163 0.0179 0.0225 0.0536 0.0579 0.0566 0.0571 0.0279 0.0227 0.0170 0.0143 0.0143 0.0143 0.0169 0.0277 0.0123 0.0125 0.0027 0.0125 0.0027 0.0125 0.0027 0.0127 0.027 0.0127 0.025 0.0576 0.0577 0.0277 0.0277 0.0257 0.0577 0.0257 0.0277 0.0257 0.0577 0.0257 0.0277 0.0257 0.0577 0.0257 0.0277 0.0257 0.0277 0.0257 0.0277 0.0257 0.0277 0.0257 0.0277 0.00777 0.00777 0.00777 0.00777 0.00777 0.00777 0.00777 0.0077	0.C 0.2400 C2 PMALIZED 0.0042 0.0042 0.0042 0.0112 0.0138 0.0171 0.0266 0.0562 0.0652 0.0652 0.0652 0.0519 0.0467 0.0398 0.0398 0.0398 0.0257 0.0165 0.0170 0.0165 0.0005 0.0	0.0 0.24C0 CRUSS C VALUE ** 0.0031 0.0055 0.0095 0.0110 0.0134 0.0159 0.0199 0.0493 0.0414 0.0265 0.02488 0.0414 0.0265 0.0208 0.0125 0.0052 0.0052 0.0038 0.0011 0.0011 0.0011 0.0004 0.0004	OHERENCY *** 0.5270 0.6628 0.7148 0.6361 0.6199 0.6157 0.6614 0.8064 0.7932 6.7418 0.6463 0.6206 0.3893 0.62684 0.62684 0.0984 0.0590 0.0313 0.0280 0.0313 0.0280 0.0772 0.0199 0.0246	0.0 0.3500 B1 ***** NO: 0.0042 0.0053 0.0101 0.0156 0.0222 0.0330 0.0371 0.0649 0.0544 0.0544 0.0544 0.0544 0.0535 0.0507 0.0409 0.0409 0.0409 0.0409 0.0409 0.0409 0.0409 0.0409 0.0233 0.0154 0.0154 0.0163 0.0155 0.0052 0.0037 0.00252 0.0037	0.0 0.3500 D2 RMALIZED 0.0041 0.0043 0.0043 0.0230 0.0289 0.0417 0.0624 0.0556 0.0417 0.0624 0.0556 0.0464 0.0278 0.0201 0.0163 0.0144 0.0278 0.0201 0.0163 0.0144 0.0144 0.0111 0.0075 0.0047 0.0047 0.0047 0.0047	C.0 0.3500 CRUSS C VALUE ** 0.0036 0.0036 0.0036 0.0029 0.0129 0.0129 0.0261 0.0354 0.0595 0.0489 C.0434 0.0595 0.0489 C.0434 0.0595 0.0489 C.0434 0.0220 0.0182 0.0121 C.0022 0.0182 0.0121 C.0066 0.0022 0.0065 0.0005 0.005	CHERENCY *** 0.5732 0.5680 0.7192 0.7486 0.7754 0.7137 0.8117 0.8741 0.7737 0.7496 0.6195 0.5761 0.5761 0.3772 0.3900 0.3143 0.1816 0.1339 0.0401 0.0740 0.0310 0.0187 0.0802 0.0612
<pre>WG(LB/SEC) WL(LB/SEC) CELL FREC.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.03 27.53 3Cc.46 34.85</pre>	0.0 0.2400 B1 ***** 10 0.0042 0.0070 0.0113 0.0138 0.0163 0.0163 0.0163 0.0163 0.0179 0.0225 0.0536 0.0579 0.0576 0.0452 0.0576 0.0279 0.0227 0.0170 0.0143 0.0143 0.0143 0.0169 0.0257 0.0057 0.0	0.C 0.2400 C2 PMALIZED 0.0042 0.0042 0.0042 0.0112 0.0138 0.0171 0.0266 0.0562 0.0652 0.0652 0.0652 0.0398 0.0398 0.0398 0.0257 0.0165 0.0170 0.0165 0.0170 0.0170 0.0265 0.0257 0.0165 0.0165 0.0170 0.0165 0.0170 0.0170 0.0170 0.0265 0.0257 0.0165 0.0170 0.0170 0.0170 0.0265 0.0257 0.0165 0.0170 0.0170 0.0170 0.0265 0.0170 0.0265 0.0170 0.0257 0.0165 0.0170 0.0170 0.0165 0.0170 0.0170 0.0170 0.0170 0.0170 0.0165 0.0170 0.0170 0.0165 0.0170 0.0170 0.0165 0.0170 0.0170 0.0165 0.0170 0.0170 0.0022 0.00000 0.0000 0.0000 0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.000000 0.00000000	0.0 0.24C0 CRUSS C VALUE ** 0.0031 0.0055 0.0095 0.0110 0.0134 0.0159 0.0199 0.0493 0.0414 0.0488 0.0414 0.0265 0.0208 0.0123 0.0125 0.0208 0.0125 0.0052 0.0038 0.0011 0.0011 0.0011 0.0004 0.0004 0.0004	OHERENCY *** 0.5270 0.6628 0.7148 0.6361 0.6157 0.6614 0.8064 0.7932 0.7418 0.6453 0.6206 0.3893 0.569 0.2281 0.2684 0.984 0.0590 0.0313 0.0280 0.0313 0.0280 0.0772 0.0199 0.0246 0.0503	0.0 0.3500 B1 ***** NO: 0.0042 0.0053 0.0101 0.0156 0.0222 0.0330 0.0371 0.0649 0.0544 0.0544 0.0535 0.0507 0.0409 0.0409 0.0409 0.0409 0.0409 0.0409 0.0409 0.0409 0.0409 0.0306 0.02233 0.0154 0.0154 0.0155 0.0052 0.0052 0.0037 0.0025 0.0014 0.0054 0.0055 0.0055 0.00154 0.00154 0.0055 0.00154 0.00154 0.0055 0.00154 0.00154 0.0055 0.00154 0.00156 0.00156 0.00156 0.00156 0.00156 0.00156 0.00156 0.00156	0.0 0.3500 D2 RMALIZED 0.0041 0.0043 0.0043 0.0230 0.0289 0.0417 0.0624 0.0556 0.0417 0.0624 0.0556 0.0463 0.0211 0.0211 0.0163 0.0144 0.0275 0.0047 0.0047 0.0047 0.0047 0.0047 0.0047 0.0047 0.0047 0.0047 0.0047 0.0047 0.0047 0.0047 0.0047 0.0047 0.0047 0.0047 0.0041 0.0041 0.0144 0.0147 0.0201 0.0144 0.0144 0.0144 0.0278 0.0201 0.0144 0.0144 0.0144 0.0278 0.0201 0.0144 0.0275 0.0144 0.0201 0.0144 0.0275 0.0047 0.0024 0.0144 0.0144 0.0275 0.0047 0.0024 0.0144 0.0144 0.0275 0.0047 0.0024 0.0144 0.0275 0.0047 0.0024 0.0024 0.0024 0.0026 0.0047 0.0024 0.0024 0.0024 0.0026 0.0	C.0 0.3500 CRUSS C VALUE ** 0.0036 0.0036 0.0036 0.0029 C.0199 0.0261 0.0354 0.0595 C.0489 C.0434 0.0595 C.0489 C.0434 0.0595 C.0489 C.0434 0.0220 0.0182 0.0121 C.066 0.0022 0.0066 0.0005 0.0005 0.0007 0.0064 0.0007 0.0064	CHERENCY *** 0.5732 0.5680 0.7192 0.7486 0.7754 0.7137 0.8117 0.8741 0.7714 0.7737 0.7496 0.6195 0.5761 0.5761 0.3772 0.3900 0.3143 0.1816 0.1339 0.0401 0.0740 0.0310 0.0187 0.0802 0.0671
<pre>WG(LB/SEC) WL(LB/SEC) CELL FREC.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.03 27.53 3C.46 34.85 4C 22</pre>	0.0 0.2400 B1 ***** 10 0.0042 0.0070 0.0113 0.0138 0.0163 0.0163 0.0163 0.0163 0.0179 0.0225 0.0536 0.0579 0.0619 0.0566 0.0571 0.0452 0.0452 0.0452 0.0452 0.0452 0.0279 0.0279 0.0279 0.0279 0.0257 0.0143 0.0143 0.0143 0.0169 0.0257 0.0057 0.0257 0.0057 0.0	0.C 0.2400 C2 PMALIZED 0.0042 0.0042 0.0042 0.0042 0.0171 0.0230 0.0266 0.0562 0.0652 0.0652 0.0519 0.0467 0.0538 0.0398 0.0398 0.0398 0.0257 0.0165 0.0170 0.0265 0.0165 0.00098 0.00098 0.00008 0.0008	0.0 0.2400 CRUSS C VALUE ** 0.0031 0.0055 0.0095 0.0110 0.0134 0.0159 0.0199 0.0493 0.0547 0.0488 0.0414 0.0265 0.0208 0.0123 0.0125 0.0208 0.0123 0.0125 0.0052 0.0038 0.011 0.0052 0.0038 0.011 0.0052 0.0038 0.0011 0.0052 0.0038 0.0011 0.0052 0.0038 0.0011 0.0052 0.0038 0.0011 0.0052 0.0038 0.0011 0.0052 0.0038 0.0011 0.0052 0.0038 0.0011 0.0052 0.0038 0.0011 0.0052 0.0038 0.0012 0.0052 0.0038 0.0011 0.0052 0.0038 0.0012 0.0052 0.0038 0.0011 0.0052 0.0038 0.0052 0.0038 0.0011 0.0052 0.0038 0.0052 0.0038 0.0052 0.0038 0.0052 0.0038 0.0052 0.0038 0.0052 0.0038 0.0052 0.0038 0.0052 0.0038 0.0052 0.0038 0.0052 0.0038 0.0052 0.0038 0.0052 0.0038 0.0052 0.0038 0.0052 0.0038 0.0052 0.0038 0.0052 0.0038 0.0052 0.0038 0.0052 0.0054 0.0052 0.0052 0.0052 0.0052 0.0052 0.0052 0.0052 0.0052 0.0054 0.0054 0.0054 0.0054 0.0055	OHERENCY *** 0.5270 0.6628 0.7148 0.6361 0.6157 0.6614 0.8064 0.7932 0.7418 0.6469 0.66157 0.6614 0.3893 0.3569 0.2281 0.2281 0.2281 0.2281 0.2281 0.2281 0.2281 0.2281 0.0590 0.0313 0.0590 0.0313 0.0280 0.0772 0.0199 0.0246 0.0508 0.0273 0.0273	0.0 0.3500 B1 ***** NO: 0.0042 0.0053 0.0101 0.0156 0.0222 0.0330 0.0371 0.0649 0.0544 0.0544 0.0544 0.0535 0.0507 0.0409 0.0520 0.0052 0.0052 0.0052 0.0055 0.0015 0.0055 0.	0.0 0.3500 D2 RMALIZED 0.0041 0.0043 0.0243 0.0230 0.0289 0.0417 0.0624 0.0556 0.0455 0.0464 0.0556 0.0464 0.0314 0.0278 0.0201 0.0163 0.0144 0.015 0.0015 0.0022	C.0 0.3500 CRUSS C VALUE ** 0.0036 0.0036 0.0036 0.0029 0.0129 0.0129 0.0261 0.0354 0.0595 0.0489 C.0434 0.0595 0.0489 C.0434 0.0595 0.0489 C.0434 0.0220 0.0182 0.0121 C.066 0.0022 0.0066 0.0005 0.0005 0.0004 0.0004	OHERENCY *** 0.5732 0.5680 0.7192 0.7486 0.7754 0.7137 0.8117 0.8741 0.7714 0.77914 0.77914 0.77914 0.77914 0.77914 0.77916 0.5761 0.5761 0.3772 0.3900 0.3143 0.1816 0.1339 0.0401 0.0740 0.0310 0.0187 0.0802 0.0671 0.0591 0.0455
<pre>WG(LB/SEC) WL(LB/SEC) CELL FREC.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.03 27.53 3C.46 34.85</pre>	0.0 0.2400 B1 ***** 10 0.0042 0.0070 0.0113 0.0138 0.0163 0.0163 0.0163 0.0179 0.0225 0.0536 0.0579 0.0619 0.0566 0.0571 0.0452 0.0381 0.0279 0.0227 0.0170 0.0143 0.0103 0.0010 0.0010 0.0010 0.0010 0.0010 0.0010 0.0010 0.0010 0.0010 0.0010 0.00010 0.00010 0.0003 0.00003 0.00000000 0.0000000000	0.C 0.2400 C2 PMALIZED 0.0042 0.0042 0.0042 0.0042 0.0112 0.0138 0.0171 0.0266 0.0562 0.0652 0.0652 0.0467 0.0257 0.0266 0.0257 0.0257 0.0165 0.0165 0.0165 0.0165 0.0257 0.0165 0.00098 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.000000 0.00000000	0.0 0.2400 CRUSS C VALUE ** 0.0031 0.0055 0.0095 0.0110 0.0134 0.0134 0.0139 0.0199 0.0493 0.0414 0.0488 0.0414 0.0265 0.0208 0.0123 0.0123 0.0123 0.0123 0.0208 0.0123 0.0125 0.0052 0.0038 0.011 0.0052 0.0038 0.0011 0.0052 0.0038 0.0011 0.0052 0.0038 0.0011 0.0052 0.0038 0.0011 0.0052 0.0038 0.0011 0.0052 0.0038 0.0011 0.0052 0.0038 0.0011 0.0052 0.0052 0.0038 0.0011 0.0052 0.0052 0.0038 0.0011 0.0052 0.0052 0.0038 0.0011 0.0055 0.0052 0.0052 0.0038 0.0011 0.0055	OHERENCY *** 0.5270 0.6628 0.7148 0.6361 0.6157 0.6614 0.8064 0.7932 0.7418 0.6469 0.6206 0.3893 0.6206 0.3893 0.6206 0.3893 0.6206 0.3893 0.6281 0.6281 0.0590 0.0313 0.0590 0.0313 0.0280 0.0772 0.0199 0.0246 0.0508 0.0273 0.0390 0.0472	0.0 0.3500 B1 ***** NO: 0.0042 0.0053 0.0101 0.0156 0.0222 0.0330 0.0371 0.0649 0.0544 0.0544 0.0544 0.0544 0.0535 0.0507 0.0409 0.0520 0.0052 0.0052 0.0014 0.0052 0.0014 0.0052 0.0014 0.0052 0.0014 0.0052 0.0014 0.0052 0.0052 0.0014 0.0055 0.0055 0.0055 0.0005 0.0055 0.	0.0 0.3500 D2 RMALIZED 0.0041 0.0043 0.0243 0.0230 0.0289 0.0417 0.0624 0.0556 0.0455 0.0464 0.0556 0.0464 0.0314 0.0278 0.0201 0.0163 0.0144 0.0144 0.0111 0.0075 0.0047 0.0036 0.0036 0.0092 0.0015 0.0009 0.0009	C.0 0.3500 CR0SS C VALUE ** 0.0036 0.0036 0.0036 0.0029 0.0129 0.0129 0.0261 0.0354 0.0595 0.0489 0.0434 0.0595 0.0489 0.0434 0.0595 0.0489 0.0220 0.0182 0.0182 0.0182 0.0182 0.0182 0.0121 C.0667 0.0666 0.0622 0.0667 0.0666 0.0609 0.0607 0.0604 0.0603 0.0001 0.0600	OHERENCY *** 0.5732 0.5680 0.7192 0.7486 0.7754 0.7137 0.8117 0.8741 0.7714 0.7737 0.7496 0.6195 0.5761 0.3772 0.3900 0.3143 0.1816 0.1839 0.0401 0.0740 0.0310 0.0187 0.0802 0.0671 0.0591 0.0326
<pre>kG(LB/SEC) kL(LB/SEC) cELL FREC.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.03 27.53 3C.46 34.85 4C.22 5C.48 60_24</pre>	0.0 0.2400 B1 ***** 100 0.0070 0.0113 0.0138 0.0163 0.0179 0.0225 0.0536 0.0579 0.0619 0.0566 0.0571 0.0452 0.0381 0.0279 0.0227 0.0143 0.0143 0.0143 0.0143 0.0143 0.0157 0.0257 0.0577 0.0143 0.0057 0.0057 0.0057 0.00143 0.0057 0.0057 0.0057 0.0057 0.00143 0.0057	0.C U.2400 D2 0.C042 C.0066 C.C112 C.C138 O.C171 D.2230 D.0266 C.C562 C.0562 D.0256 C.C562 C.05519 D.0266 C.C562 C.05519 D.026519 D.0257 C.0165 D.0165 D.0257 C.0165 D.0257 D.0165 D.0165 D.0165 D.01555 D.01555 D.01555 D.01555 D.015555 D.0155555 D.01555555555555555555555555555555555555	0.0 0.24C0 CRUSS C VALUE ** 0.0031 0.0055 0.0095 0.0110 0.0134 0.0139 0.0199 0.0493 0.0547 0.0488 0.0414 0.0265 0.0208 0.0123 0.0125 0.0208 0.0123 0.0125 0.0052 0.0038 0.0111 0.0052 0.0038 0.0111 0.0052 0.0038 0.0011 0.0011 0.0011 0.0004 0.0005 0.0002 0.0002	OHERENCY *** 0.5270 0.6628 0.7148 0.6361 0.6199 0.6157 0.6614 0.8064 0.7932 0.7418 0.6468 0.6206 0.3893 0.3569 0.2281 0.2684 0.0984 0.0590 0.0313 0.0280 0.0772 0.0199 0.0246 0.0508 0.0273 0.0390 0.6673 0.0391	0.0 0.3500 B1 ***** NO: 0.0042 0.0753 0.0101 0.0156 0.0222 0.0330 0.0371 0.0649 0.0544 0.0544 0.0535 0.0507 0.0409 0.0409 0.0409 0.0409 0.0409 0.0409 0.0409 0.0409 0.0409 0.0409 0.0507 0.0016 0.0222 0.0000 0.0507 0.00000 0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.000000 0.000000 0.000000 0.00000000	0.0 0.3500 D2 MALIZED 0.0041 0.0043 0.0243 0.0230 0.0289 0.0143 0.0230 0.0289 0.0417 0.0624 0.0556 0.0464 0.0363 0.0413 0.0278 0.0201 0.0163 0.0144 0.0144 0.0144 0.0144 0.0144 0.0144 0.0144 0.0275 0.0047 0.0040 0.0047 0.0040 0.0047 0.0040 0.0047 0.0040 0.0047 0.0040 0.0047 0.0040 0.0047 0.0007 0.00	C.0 0.3500 CRUSS C VALUE ** 0.0031 0.0036 0.0129 0.0129 0.0129 0.0261 0.0354 0.0595 0.0489 C.0489 C.0489 C.0489 C.0303 0.0333 0.0220 0.0182 0.0121 C.066 0.0022 0.0005 0.0005 0.0005 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0005 0.0001 0.0001 0.0001 0.0005 0.0001 0.0001 0.0001 0.0005 0.0001 0.0001 0.0005 0.0001 0.0005 0.0001 0.0001 0.0005 0.0005 0.0001 0.0005 0.0005 0.0000 0.0005	OHERENCY *** 0.5732 0.5680 0.7192 0.7486 0.7764 0.7137 0.8741 0.7914 0.7914 0.7914 0.7914 0.77916 0.6195 0.5761 0.3772 0.3900 0.3143 0.1816 0.1839 0.0310 0.0310 0.0137 0.0802 0.0671 0.0591 0.0456 0.0214
kG(LB/SEC)         cELL         FREC.(CPS)         0.18         0.67         1.16         1.65         2.14         2.63         3.11         3.60         4.09         4.58         5.07         5.55         6.53         7.51         8.48         9.46         11.41         13.37         15.81         18.25         22.64         25.03         27.53         3C.46         34.85         4C.22         50.48         60.24         70.01	0.0 0.2400 B1 ***** 100 0.0042 0.0070 0.0113 0.0138 0.0163 0.0179 0.0225 0.0536 0.0579 0.0619 0.0566 0.0571 0.0452 0.0381 0.0279 0.0227 0.0179 0.0227 0.0173 0.0143 0.0143 0.0143 0.0143 0.0143 0.0143 0.0143 0.0143 0.0143 0.0143 0.0143 0.0143 0.0143 0.0143 0.0279 0.0257 0.0257 0.0257 0.0257 0.0143 0.0143 0.0169 0.00143 0.0003 0.0003 0.0003 0.0003 0.0001	0.C U.2400 D2 0.C042 C.0066 C.0112 C.0138 0.0171 0.0230 0.0266 C.0562 0.0652 0.0652 0.0652 0.0652 0.0467 0.0538 0.0398 0.0317 0.0257 0.0165 0.0165 0.0168 0.0098 0.0098 0.0070 C.0048 0.0025 0.0022 0.0025 0.0022 0.0025 0.0022 0.0024 0.0024 0.0022 0.0024 0.0024 0.0024 0.0022 0.0024 0.0022 0.0024 0.0024 0.0022 0.0024 0.0022 0.0024 0.0022 0.0024 0.0022 0.0024 0.0024 0.0022 0.0024 0.0022 0.0024 0.0024 0.0022 0.0024 0.0022 0.0024 0.0024 0.0022 0.0024 0.0024 0.0022 0.0024 0.0022 0.0024 0.0022 0.0022 0.0024 0.0022 0.0026 0.00257 0.0026 0.0022 0.0026 0.0026 0.00257 0.0026 0.0022 0.0026 0.0026 0.00257 0.0026 0.0022	0.0 0.2400 CRUSS C VALUE ** 0.0031 0.0055 0.0095 0.0110 0.0134 0.0159 0.0199 0.0493 0.0479 0.0488 0.0414 0.0488 0.0414 0.0265 0.0208 0.0123 0.0255 0.0208 0.0123 0.0125 0.0252 0.0052 0.0038 0.0110 0.0052 0.0052 0.0038 0.0110 0.0052 0.0052 0.0038 0.0110 0.0052 0.0052 0.0052 0.0011 0.0052 0.0052 0.0052 0.0011 0.0055 0.0011 0.0052 0.0052 0.0011 0.0052 0.0052 0.0011 0.0055 0.0011 0.0052 0.0052 0.0011 0.0052 0.0011 0.0052 0.0052 0.0011 0.0052 0.0052 0.0052 0.0011 0.0055 0.0052 0.0052 0.0011 0.0055 0.0052 0.0052 0.0052 0.0052 0.0011 0.0052 0.0052 0.0052 0.0052 0.0011 0.0052	OHERENCY *** 0.5270 0.6628 0.7148 0.6361 0.6199 0.6157 0.6614 0.8064 0.7932 0.7418 0.6469 0.6206 0.3893 0.3569 0.2281 0.2684 0.0984 0.0590 0.0313 0.0280 0.0772 0.0199 0.0246 0.0508 0.0273 0.0390 0.6673 0.0281 0.0281 0.0281 0.0282 0.0282 0.0284 0.0282	0.0 0.3500 B1 ***** NO: 0.0042 0.0753 0.0101 0.0156 0.0222 0.0330 0.0371 0.0649 0.0544 0.0535 0.0507 0.0409 0.0409 0.0409 0.0409 0.0409 0.0409 0.0409 0.0409 0.0409 0.0546 0.0223 0.0154 0.0105 0.00052 0.0052 0.0014 0.0011 0.0005 0.0001	0.0 0.3500 D2 RMALIZED 0.0041 0.0043 0.0230 0.0289 0.0289 0.0289 0.0289 0.0289 0.0289 0.0289 0.0289 0.0289 0.0289 0.02656 0.0464 0.0363 0.0278 0.0201 0.0163 0.0144 0.0278 0.0201 0.0144 0.0278 0.0201 0.0144 0.0278 0.0201 0.0144 0.0278 0.0201 0.0144 0.0278 0.0201 0.0144 0.0278 0.0201 0.0144 0.0278 0.0201 0.0144 0.0278 0.0201 0.0144 0.0278 0.0201 0.0144 0.0278 0.0201 0.0144 0.0278 0.0201 0.0144 0.0278 0.0201 0.0144 0.0278 0.0201 0.0144 0.0278 0.0201 0.0144 0.0278 0.0201 0.0144 0.0200 0.0201 0.0201 0.0201 0.0201 0.0201 0.0201 0.0201 0.0201 0.0201 0.0201 0.0201 0.0201 0.0201 0.0200 0.0200 0.00000 0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.0000000 0.000000 0.0000000 0.00000000	C.0 0.3500 CRUSS C VALUE ** 0.0031 0.0036 0.0129 0.0129 0.0129 0.0261 0.0354 0.0595 0.0489 C.0489 C.0489 C.0489 C.0489 C.0489 C.0489 C.0489 C.0489 C.0220 0.0182 0.0121 C.066 0.0222 0.0182 0.0121 C.066 0.0022 0.0005 0.0005 0.0005 0.0005 0.0001 0.0003 C.0001 0.0000	OHERENCY *** 0.5732 0.5680 0.7192 0.7486 0.7764 0.7137 0.8741 0.7914 0.7737 0.7496 0.6195 0.5761 0.5761 0.3772 0.3900 0.3143 0.1816 0.1339 0.0401 0.0740 0.0310 0.0187 0.0310 0.0187 0.0591 0.0456 0.0326 0.0214 0.0662

•

;

•

\*\*\*\*

WG(LB/SEC)	0.0	0.0	0.0		0.0	0.0	0.0	
WEILB/SEC)	0.4700	0.4700	0.4700		0.5850	0.5350	0.5850	
CELL	61	C2	CRUSS CI	JHERENCY	81	D2	CROSS C	OHERENCY
FREQ.(CPS)	***** 110	RMALIZED	VALUE **	• <del>•</del> • • •	***** NO	RMALIZED	VALUE **	***
0.18	0.0074	0.0069	0.0063	0.7916	0.0038	0.0032	0.0028	0.6627
. 0.67	0.0055	0.2055	0.0044	0.6517	0.0052	0.0047	0.0042	0.7229
1+16	0.0096	0.0684	C.0078	0.7671	0.0116	0.0116	0.0000	0.1855
1.00	0.0133	9.0143	0.0121	0.7771	0.0191	0.0225	0.0100	0.0222
2.414	0.0263	0 0204	0.0108	0.8058	0.0242	0.0256	0.0216	0 7542
3.11	0.0305	0.0312	0.0281	0.8275	0.0306	0.0370	0.0310	0.8508
3.60	0.0593	0.0556	0.0543	0.8319	0.0535	0.0563	0.0524	0.9087
4.09	0.0638	0.0591	0.0570	0.8508	0.0560	0.0557	0.0524	0.8805
4.58	0.0717	0.0591	0.0593	0.3302	0.0570	0.0553	0.0524	0.8697
5.07	0.0603	0.0567	0.0522	0.7966	0.0642	0.0590	0.0564	0.8388
5.55	0.0500	0.0424	0.0394	0.7312	0.0427	0.0391	0.0348	0.7287
· ^• 53	0.0377	0.0350	0.0290	0.6375	0.0334	0.0324	0.0282	0.6407
7.51	0.0329	0.0312	0.0275	0.4920	C.0326	0.0293	0.0238	0.5902
8.48	0.0245	0.0301	0.0193	0.5029	0.0277	0.0315	0.0220	0.5544
9.46	0.0223	0.0210	0.0123	0.3205	0.0258	0.0287	0.0202	0.5299
11.41	0.0176	0.0124	0.0101	0.3145	0.0205	0.0137	0.0132	0.4531
1.2+27	0.0118	0.0130	0.0053	9.1826	0.0114	0 0102	0.004	0 2033
19.01	0.0166	0.00109	0.0037	0.1420	0.0071	0.0102	0.0041	0.2381
22.64	0.0000	0.0053	0.0014	0.0300	0.0045	1.0047	0.0012	0.0671
25.08	0.0028	0.0031	0.00014	0.0710	0.0031	0.0037	C.0010	0.0826
27.53	0.0022	0.0028	0.0004	0.0275	0.0023	0.0023	0.0004	0.0288
30.46	0.0018	0.0020	0.0003	0.0241	0.0020	9.0014	0.0063	0.0232
. 34.85	0.0012	0.0014	0.0003	0.0466	C.COll	0.0012	0.0003	0.0595
40.22	0.0005	0.0007	0.0001	0.0413	0.0003	0.0005	0.0001	0.0253
· 5C.48	0.0002	0.0004	0.0001	0.0561	0.0002	0.0003	0.000	0.0323
60.24	0.0001	0.0002	0.0000	0.0407	0.0001	0.0005	0.0000	0.0364
70.01	0.0001	0.0001	0.0000	0.0769	0.0001	0.0002	0.0000	0.1634
80.26	0.0000	0.0001	0.0000	0.0333	0.0000	0.0000	0.0	0.0
		-						
WG(LB/SEC)	0.0450	0.0450	0.0450		0.0450	0.0450	0.0450	
WG(LB/SEC) WL(LB/SEC)	0.0450 0.0160	0.0450	0.0450		0.0450 0.0280	0.0450 0.0280	0.0450	
WG(LB/SEC) _ WL(LB/SEC) _ CELL	0.0450 0.0163 Bl	0.0450 0.0160 D2	0.0450 0.0160 CROSS CI	DHERENCY	0.0450 0.0280 B1	0.0450 0.0280 D2	0.0450 0.0280 CROSS C	DHERENCY
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS)	0.0450 0.0163 B1 ***** N3	0.0450 0.0160 D2 RMALIZED	0.0450 0.0160 CROSS CI VALUE ***	DHERENCY ***	0.0450 0.0280 B1 ***** \0	0.0450 0.0280 D2 RMALIZED	0.0450 0.0280 CROSS C VALUE **	DHERENCY ***
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18	0.0450 0.0160 Bl ***** \0 0.0074	0.0450 0.0160 D2 RMALIZED 0.0087	0.0450 0.0160 CROSS CI VALUE *** 0.0049	DHERENCY *** 0.3682	0.0450 0.0280 Bl ***** \0 0.0074	0.0450 0.0280 D2 RMALIZED 0.0090	0.0450 0.0280 CROSS C VALUE ** 0.0055	DHERENCY *** 0.4456
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67	0.0450 0.0163 B1 ***** \03 0.0074 0.0121	0.0450 0.0160 D2 RMALIZED 0.0087 0.0104	0.0450 0.0160 CROSS CI VALUE *** 0.0049 0.0082	DHERENCY *** 0.3682 0.5384	0.0450 0.0280 Bl ***** \0 0.0074 0.0144	0.0450 0.0280 D2 RMALIZED 0.0090 0.0163	0.0450 0.0280 CROSS C VALUE ** 0.0055 0.0114	DHERENCY *** 0.4456 0.5518
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16	0.0450 0.0160 Bl ***** \0 0.0074 0.0121 0.0139	0.0450 0.0160 D2 RMALIZED 0.0087 0.0104 0.0135	0.0450 0.0160 CROSS CI VALUE *** 0.0049 0.0082 0.0093	DHERENCY *** 0.3682 0.5384 0.4616	0.0450 0.0280 B1 ***** \0 0.0074 0.0144 0.0124	0.0450 0.0280 D2 RMALIZED 0.0090 0.0163 0.0125	0.0450 0.0280 CRDSS C VALUE ** 0.0055 0.0114 0.0092	DHERENCY *** 0.4456 0.5518 0.5462
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65	0.0450 0.0160 B1 ***** N0 0.0074 0.0121 0.0139 0.0171	0.0450 0.0160 D2 RMALIZED 0.0087 0.0104 0.0135 0.0181	0.0450 0.0160 CROSS CI VALUE *** 0.0049 0.0082 0.0093 0.0117	DHERENCY *** 0.3682 0.5384 0.4616 0.4438	0.0450 0.0280 B1 ***** \0 0.0074 0.0144 0.0124 0.0163	0.0450 0.0280 D2 RMALIZED 0.0090 0.0163 0.0125 0.0172	0.0450 0.0280 CROSS C VALUE ** 0.0055 0.0114 0.0092 0.0115	DHERENCY *** 0.4456 0.5518 0.5462 0.4752
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14	0.0450 0.0160 B1 ***** N0 0.0074 0.0121 0.0139 0.0171 0.0158	0.0450 0.0160 D2 RMALIZED 0.0087 0.0104 0.0135 0.0181 0.0175	0.0450 0.0160 CROSS CI VALUE *** 0.0049 0.0082 0.0093 0.0117 0.0101	DHERENCY *** 0.3682 0.5384 0.4616 0.4438 0.3657	0.0450 0.0280 B1 ***** \0 0.0074 0.0144 0.0124 0.0163 0.0145	0.0450 0.0280 D2 RMALIZED 0.0090 0.0163 0.0125 0.0172 0.0159	0.0450 0.0280 CROSS C VALUE ** 0.0055 0.0114 0.0092 0.0115 0.0080	DHERENCY *** 0.4456 0.5518 0.5462 0.4752 0.2758
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63	0.0450 0.0160 Bl ***** N9 0.0074 0.0121 0.0139 0.0171 0.0158 0.0189	0.0450 0.0160 D2 RMALIZED 0.0087 0.0104 0.0135 0.0181 0.0175 0.0199	0.0450 0.0160 CROSS CI VALUE *** 0.0049 0.0082 0.0093 0.0117 0.0101 0.0093	DHERENCY *** 0.3682 0.5384 0.4616 0.4438 0.3657 0.2279	0.0450 0.0280 B1 ***** \0 0.0074 0.0144 0.0124 0.0163 0.0145 0.0159	0.0450 0.0280 D2 RMALIZED 0.0090 0.0163 0.0125 0.0172 0.0157 0.0157	0.0450 0.0280 CROSS C VALUE ** 0.0055 0.0114 0.0092 0.0115 0.0080 0.0105	OHERENCY *** 0.4456 0.5518 0.5462 0.4752 0.2758 0.2714 0.2714
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.61	0.0450 0.0160 B1 ***** N9 0.0074 0.0121 0.0139 0.0171 0.0158 0.0189 0.0189 0.0226	0.0450 0.0163 D2 RMALIZED 0.0087 0.0104 0.0135 0.0181 0.0175 0.0199 0.0176	0.0450 0.0160 CROSS CI VALUE *** 0.0049 0.0082 0.0093 0.0117 0.0101 0.0093 0.0078	DHERENCY *** 0.3682 0.5384 0.4616 0.4438 0.3657 0.2279 0.1739	0.0450 0.0280 B1 ***** \0 0.0074 0.0144 0.0124 0.0163 0.0145 0.0159 0.0230 0.0156	0.0450 D2 RMALIZED 0.0090 0.0163 0.0125 0.0172 0.0159 0.0257 0.0157 0.0178	0.0450 0.0280 CROSS C VALUE ** 0.0055 0.0114 0.0092 0.0115 0.0080 0.0105 0.0099	OHERENCY *** 0.4456 0.5518 0.5462 0.4752 0.2758 0.2714 0.2745 0.2628
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09	0.0450 0.0160 B1 ***** N9 0.0074 0.0121 0.0139 0.0171 0.0189 0.0189 0.0199 0.0226	0.0450 0.0160 D2 RMALIZED 0.0087 0.0104 0.0135 0.0181 0.0175 0.0199 0.0176 0.0194 0.0256	0.0450 0.0160 CROSS CI VALUE *** 0.0049 0.0082 0.0093 0.0117 0.0101 0.0093 0.0078 0.0102	DHERENCY *** 0.3682 0.5384 0.4616 0.4438 0.3657 0.2279 0.1739 0.2361 (.1913	0.0450 0.0280 B1 ***** \0 0.0074 0.0144 0.0124 0.0163 0.0145 0.0159 0.0230 0.0156 0.0212	0.0450 0.0280 D2 RMALIZED 0.0090 0.0163 0.0125 0.0172 0.0157 0.0157 0.0178 0.0201	0.0450 0.0280 CRDSS C VALUE ** 0.0055 0.0114 0.0092 0.0115 0.0080 0.0105 0.0089 0.0085 0.0085	DHERENCY *** 0.4456 0.5518 0.5462 0.4752 0.2758 0.2714 0.2745 0.2628 0.957
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09	0.0450 0.0160 B1 ***** N9 0.0074 0.0121 0.0139 0.0171 0.0189 0.0189 0.0199 0.0226 0.0196 0.0245	0.0450 0.0160 D2 RMALIZED 0.0087 0.0104 0.0135 0.0181 0.0175 0.0199 0.0176 0.0194 0.0256 0.0258	0.0450 0.0160 CROSS CI VALUE *** 0.0049 0.0082 0.0093 0.0117 0.0101 0.0093 0.0102 0.0078 0.0102	DHERENCY *** 0.3682 0.5384 0.4616 0.4438 0.3657 0.2279 0.1739 0.2361 0.1913 0.2268	0.0450 0.0280 B1 ***** \0 0.0074 0.0144 0.0124 0.0163 0.0145 0.0159 0.0230 0.0156 0.0212 0.0230	0.0450 0.0280 D2 RMALIZED 0.0090 0.0163 0.0125 0.0172 0.0157 0.0157 0.0157 0.0157 0.0178 0.0201 0.0239	0.0450 0.0280 CRDSS C VALUE ** 0.0055 0.0114 0.0092 0.0115 0.0080 0.0105 0.0089 0.0085 0.0085 0.0084 0.0082	DHERENCY *** 0.4456 0.5518 0.5462 0.4752 0.2758 0.2714 0.2745 0.2628 0.0957 0.1006
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07	0.0450 0.0160 B1 ***** N9 0.0074 0.0121 0.0139 0.0171 0.0158 0.0189 0.0199 0.0226 0.0196 0.0246 0.0313	0.0450 0.0160 D2 RMALIZED 0.0087 0.0104 0.0135 0.0181 0.0175 0.0199 0.0176 0.0194 0.0256 0.0258 0.0260	0.0450 0.0160 CROSS CI VALUE *** 0.0049 0.0082 0.0093 0.0117 0.0101 0.0098 0.0102 0.0098 0.0120 0.0102	DHERENCY *** 0.3682 0.5384 0.4616 0.4438 0.3657 0.2279 0.1739 0.2361 0.1913 0.2268 0.1284	0.0450 0.0280 B1 ***** \0 0.0074 0.0144 0.0124 0.0163 0.0145 0.0159 0.0230 0.0156 0.0212 0.0230 0.0254	0.0450 0.0280 D2 RMALIZED 0.0090 0.0163 0.0125 0.0172 0.0157 0.0157 0.0157 0.0157 0.0178 0.0201 0.0239 0.0257	0.0450 0.0280 CRDSS C VALUE ** 0.0055 0.0114 0.0092 0.0115 0.0080 0.0105 0.0080 0.0105 0.0085 0.0085 0.0085 0.0082 0.0092	OHERENCY *** 0.4456 0.5518 0.5462 0.4752 0.2758 0.2714 0.2745 0.2628 0.0957 0.1006 0.1291
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55	0.0450 0.0160 B1 ***** N3 0.0074 0.0121 0.0139 0.0171 0.0158 0.0189 0.0199 0.0226 0.0196 0.0245 0.0313 0.0243	0.0450 0.0160 D2 RMALIZED 0.0087 0.0104 0.0135 0.0181 0.0175 0.0199 0.0176 0.0194 0.0256 0.0258 0.0260 0.0264	0.0450 0.0160 CROSS CI VALUE *** 0.0049 0.0082 0.0093 0.0117 0.0101 0.0098 0.0102 0.0078 0.0102 0.0098 0.0120 0.0102 0.0089	DHERENCY *** 0.3682 0.5384 0.4616 0.4438 0.3657 0.2279 0.1739 0.2361 0.1913 0.2268 0.1284 0.1246	0.0450 0.0280 B1 ***** \0 0.0074 0.0144 0.0163 0.0145 0.0159 0.0230 0.0156 0.0212 0.0230 0.0254 0.0231	0.0450 0.0280 D2 RMALIZED 0.0090 0.0163 0.0125 0.0172 0.0159 0.0257 0.0177 0.0178 0.0201 0.0239 0.0257 0.0295	0.0450 0.0280 CRDSS C VALUE ** 0.0055 0.0114 0.0092 0.0115 0.0080 0.0105 0.0085 0.0085 0.0085 0.0085 0.0082 0.0092 0.0102	OHERENCY *** 0.4456 0.5518 0.5462 0.4752 0.2758 0.2714 0.2745 0.2628 0.0957 0.1006 0.1291 0.1069
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53	0.0450 0.0160 B1 ***** N9 0.0074 0.0121 0.0139 0.0171 0.0158 0.0189 0.0199 0.0226 0.0196 0.0246 0.0313 0.0243 0.0328	0.0450 0.0163 D2 RMALIZED 0.0087 0.0104 0.0135 0.0181 0.0175 0.0199 0.0176 0.0194 0.0256 0.0258 0.0260 0.0264 0.0334	0.0450 0.0160 CROSS CI VALUE *** 0.0049 0.0082 0.0093 0.0117 0.0101 0.0098 0.0102 0.0098 0.0102 0.0089 0.0060	DHERENCY *** 0.3682 0.5384 0.4616 0.4438 0.3657 0.2279 0.1739 0.2361 0.1913 0.2268 0.1284 0.1246 0.0332	0.0450 0.0280 B1 ***** \0 0.0074 0.0144 0.0124 0.0163 0.0145 0.0159 0.0230 0.0156 0.0212 0.0230 0.0254 0.0230 0.0254 0.0331 0.0308	0.0450 D2 RMALIZED 0.0090 0.0163 0.0125 0.0172 0.0157 0.0257 0.0157 0.0257 0.0257 0.0201 0.0239 0.0257 0.0295 0.0274	0.0450 0.0280 CRDSS C VALUE ** 0.0055 0.0114 0.0092 0.0115 0.0080 0.0105 0.0085 0.0085 0.0085 0.0085 0.0082 0.0092 0.0102 0.0102 0.0041	DHERENCY *** 0.4456 0.5518 0.55462 0.4752 0.2758 0.2714 0.2745 0.2628 0.0957 0.1006 0.1291 0.1069 0.0200
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51	0.0450 0.0160 B1 ***** N9 0.0074 0.0121 0.0139 0.0171 0.0189 0.0189 0.0199 0.0226 0.0196 0.0226 0.0196 0.0245 0.0313 0.0243 0.0328 0.0383	0.0450 0.0160 D2 RMALIZED 0.0087 0.0104 0.0135 0.0181 0.0175 0.0199 0.0176 0.0194 0.0256 0.0258 0.0260 0.0264 0.0334 0.0394	0.0450 0.0160 CROSS CI VALUE *** 0.0049 0.0082 0.0093 0.0117 0.0101 0.0098 0.0102 0.0098 0.0102 0.0102 0.0102 0.0102 0.0089 0.0060 0.0120	DHERENCY *** 0.3682 0.5384 0.4616 0.4438 0.3657 0.2279 0.1739 0.2361 0.1913 0.2268 0.1284 0.1246 0.0332 0.0959	0.0450 0.0280 B1 ***** \0 0.0074 0.0144 0.0124 0.0163 0.0145 0.0159 0.0230 0.0156 0.0212 0.0230 0.0254 0.0231 0.0254 0.0331 0.0308 0.0417	0.0450 0.0280 D2 RMALIZED 0.0090 0.0163 0.0125 0.0172 0.0157 0.0257 0.0257 0.0257 0.0201 0.0201 0.0239 0.0257 0.0295 0.0274 0.0391	0.0450 0.0280 CRDSS C VALUE ** 0.0055 0.0114 0.0092 0.0115 0.0080 0.0105 0.0080 0.0105 0.0085 0.0085 0.0085 0.0082 0.0092 0.0102 0.0102 0.0041 0.0080	DHERENCY *** 0.4456 0.5518 0.55462 0.4752 0.2758 0.2714 0.2745 0.2628 0.0957 0.1006 0.1291 0.1069 0.0200 0.0389
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48	0.0450 0.0160 B1 ***** N9 0.0074 0.0121 0.0139 0.0171 0.0158 0.0189 0.0199 0.0226 0.0196 0.0226 0.0196 0.0245 0.0313 0.0243 0.0328 0.0383 0.0456	0.0450 0.0163 D2 RMALIZED 0.0087 0.0104 0.0135 0.0181 0.0175 0.0199 0.0176 0.0194 0.0256 0.0258 0.0260 0.0264 0.0334 0.0394 0.0393	0.0450 0.0160 CROSS CI VALUE *** 0.0049 0.0082 0.0093 0.0117 0.0101 0.0093 0.0102 0.0078 0.0102 0.0098 0.0102 0.0102 0.0089 0.0060 0.0120 0.0083	DHERENCY *** 0.3682 0.5384 0.4616 0.4438 0.3657 0.2279 0.1739 0.2361 0.1913 0.2268 0.1284 0.1246 0.0332 0.0959 0.0434	0.0450 0.0280 B1 ***** \0 0.0074 0.0144 0.0124 0.0163 0.0145 0.0159 0.0230 0.0156 0.0212 0.0230 0.0254 0.0230 0.0254 0.0231 0.0308 0.0319	0.0450 0.0280 D2 RMALIZED 0.0090 0.0163 0.0125 0.0172 0.0157 0.0257 0.0257 0.0257 0.0201 0.0239 0.0257 0.0295 0.0274 0.0391 0.0306	0.0450 0.0280 CRDSS C VALUE ** 0.0055 0.0114 0.0092 0.0115 0.0080 0.0105 0.0085 0.0085 0.0085 0.0085 0.0085 0.0082 0.0092 0.0102 0.0102 0.0041 0.0080 0.0057	DHERENCY *** 0.4456 0.5518 0.55462 0.4752 0.2758 0.2714 0.2745 0.2628 0.0957 0.1006 0.1291 0.1069 0.0200 0.0389 0.0329
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46	0.0450 0.0163 B1 ***** N3 0.0074 0.0121 0.0139 0.0171 0.0158 0.0189 0.0199 0.0226 0.0196 0.0246 0.0313 0.0243 0.0328 0.0383 0.0456 0.0354	0.0450 0.0160 D2 RMALIZED 0.0087 0.0104 0.0135 0.0181 0.0175 0.0199 0.0176 0.0194 0.0256 0.0258 0.0260 0.0264 0.0334 0.0393 0.0290	0.0450 0.0160 CROSS CI VALUE *** 0.0049 0.0082 0.0093 0.0117 0.0101 0.0093 0.0102 0.0078 0.0102 0.0102 0.0102 0.0102 0.0089 0.0060 0.0120 0.0083 0.0067	DHERENCY *** 0.3682 0.5384 0.4616 0.4438 0.3657 0.2279 0.1739 0.2361 0.1913 0.2268 0.1284 0.1246 0.0332 0.0959 0.0434 0.0436	0.0450 0.0280 B1 ***** \0 0.0074 0.0144 0.0124 0.0163 0.0145 0.0159 0.0230 0.0156 0.0212 0.0230 0.0254 0.0230 0.0254 0.0331 0.0308 0.0417 0.0319 0.0283	0.0450 0.0280 D2 RMALIZED 0.0090 0.0163 0.0125 0.0172 0.0157 0.0257 0.0257 0.0257 0.0257 0.0201 0.0239 0.0257 0.0295 0.0274 0.0391 0.0306 0.0365	0.0450 0.0280 CRDSS C VALUE ** 0.0055 0.0114 0.0092 0.0115 0.0080 0.0105 0.0085 0.0085 0.0085 0.0085 0.0082 0.0092 0.0102 0.0092 0.0102 0.0041 0.0080 0.0057 0.0053	DHERENCY *** 0.4456 0.5518 0.55462 0.4752 0.2758 0.2714 0.2745 0.2628 0.0957 0.1006 0.1291 0.1069 0.0200 0.0389 0.0329 0.0268
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41	0.0450 0.0163 B1 ***** N3 0.0074 0.0121 0.0139 0.0171 0.0189 0.0199 0.0226 0.0196 0.0245 0.0313 0.0243 0.0328 0.0383 0.0456 0.0354 0.0366	0.0450 0.0160 D2 RMALIZED 0.0087 0.0104 0.0135 0.0181 0.0175 0.0199 0.0176 0.0194 0.0256 0.0258 0.0260 0.0258 0.0264 0.0334 0.0394 0.0393 0.0290 0.0236	0.0450 0.0160 CROSS CI VALUE *** 0.0049 0.0082 0.0093 0.0117 0.0101 0.0098 0.0102 0.0078 0.0102 0.0102 0.0102 0.0102 0.0089 0.0060 0.0120 0.0083 0.0067 0.0033	DHERENCY *** 0.3682 0.5384 0.4616 0.4438 0.3657 0.2279 0.1739 0.2361 0.1913 0.2268 0.1284 0.1284 0.1284 0.1284 0.1284 0.0332 0.0959 0.0434 0.0436 0.0158	0.0450 0.0280 B1 ***** \0 0.0074 0.0144 0.0124 0.0163 0.0145 0.0159 0.0230 0.0156 0.0212 0.0230 0.0254 0.0233 0.0254 0.0331 0.0308 0.0217 0.0283 0.0227 0.0171	0.0450 0.0280 D2 RMALIZED 0.0090 0.0163 0.0125 0.0172 0.0157 0.0157 0.0257 0.0257 0.0257 0.0274 0.0295 0.0295 0.0274 0.0391 0.0306 0.0365 0.0267 0.0267	0.0450 0.0280 CRDSS C VALUE ** 0.0055 0.0114 0.0092 0.0115 0.0080 0.0105 0.0085 0.0085 0.0085 0.0082 0.0092 0.0102 0.0102 0.0092 0.0102 0.0041 0.0080 0.0057 0.0053 0.0036	DHERENCY *** 0.4456 0.5518 0.55462 0.4752 0.2758 0.2714 0.2745 0.2628 0.0957 0.1006 0.1291 0.1069 0.0200 0.0389 0.0329 0.0268 0.0213 0.0213
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37	0.0450 0.0163 B1 ***** N3 0.0074 0.0121 0.0139 0.0171 0.0158 0.0189 0.0199 0.0226 0.0196 0.0245 0.0313 0.0243 0.0328 0.0383 0.0456 0.0354 0.0354 0.0196 0.0196	0.0450 0.0160 D2 RMALIZED 0.0087 0.0104 0.0135 0.0181 0.0175 0.0199 0.0176 0.0194 0.0256 0.0258 0.0260 0.0258 0.0264 0.0334 0.0394 0.0393 0.0290 0.0235 0.0184	0.0450 0.0160 CROSS CI VALUE *** 0.0049 0.0082 0.0093 0.0117 0.0101 0.0078 0.0102 0.0078 0.0102 0.0089 0.0060 0.0120 0.0089 0.0060 0.0120 0.0083 0.0067 0.0034 0.0026	DHERENCY *** 0.3682 0.5384 0.4616 0.4438 0.3657 0.2279 0.1739 0.2361 0.1913 0.2268 0.1284 0.1284 0.1246 0.0332 0.0959 0.0434 0.0436 0.0158 0.0190	0.0450 0.0280 B1 ***** \0 0.0074 0.0144 0.0124 0.0163 0.0145 0.0159 0.0230 0.0156 0.0212 0.0230 0.0254 0.0230 0.0254 0.0331 0.0308 0.0217 0.0283 0.0227 0.0171 0.0140	0.0450 0.0280 D2 RMALIZED 0.0090 0.0163 0.0125 0.0172 0.0157 0.0257 0.0257 0.0257 0.0274 0.0295 0.0295 0.0274 0.0391 0.0306 0.0365 0.0267 0.0190 0.0190	0.0450 0.0280 CRDSS C VALUE ** 0.0055 0.0114 0.0092 0.0115 0.0080 0.0105 0.0085 0.0085 0.0085 0.0085 0.0082 0.0092 0.0102 0.0092 0.0102 0.0092 0.0102 0.0041 0.0080 0.0057 0.0053 0.0036 0.0028	DHERENCY *** 0.4456 0.5518 0.5518 0.5462 0.2758 0.2714 0.2745 0.2628 0.0957 0.1006 0.1291 0.1069 0.0200 0.0389 0.0329 0.0268 0.0213 0.0261
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25	0.0450 0.0163 B1 ***** N3 0.0074 0.0121 0.0139 0.0171 0.0158 0.0189 0.0199 0.0226 0.0196 0.0245 0.0313 0.0243 0.0328 0.0383 0.0456 0.0354 0.0354 0.0136 0.0255	0.0450 0.0163 D2 RMALIZED 0.0087 0.0104 0.0135 0.0181 0.0175 0.0199 0.0176 0.0194 0.0256 0.0258 0.0258 0.0260 0.0258 0.0264 0.0334 0.0393 0.0290 0.0236 0.0184 0.0142 0.0072	0.0450 0.0160 CROSS CI VALUE *** 0.0049 0.0082 0.0093 0.0117 0.0101 0.0078 0.0102 0.0078 0.0102 0.0089 0.0060 0.0120 0.0089 0.0060 0.0120 0.0088 0.0067 0.0038 0.0026 0.0020	DHERENCY *** 0.3682 0.5384 0.4616 0.4438 0.3657 0.2279 0.1739 0.2361 0.1913 0.2268 0.1284 0.1284 0.1284 0.1284 0.1284 0.0332 0.0359 0.0434 0.0436 0.0158 0.0190 0.0204	0.0450 0.0280 B1 ***** \0 0.0074 0.0144 0.0124 0.0163 0.0145 0.0159 0.0230 0.0156 0.0212 0.0230 0.0254 0.0230 0.0254 0.0233 0.0254 0.0331 0.0308 0.02417 0.0283 0.0227 0.0171 0.0140 0.0091	0.0450 0.0280 D2 RMALIZED 0.0090 0.0163 0.0125 0.0172 0.0159 0.0257 0.0257 0.0277 0.0277 0.0295 0.0295 0.0274 0.0391 0.0306 0.0365 0.0267 0.0190 0.0137	0.0450 0.0280 CRDSS C VALUE ** 0.0055 0.0114 0.0092 0.0115 0.0080 0.0105 0.0085 0.0085 0.0085 0.0085 0.0085 0.0082 0.0092 0.0102 0.0092 0.0102 0.0057 0.0053 0.0036 0.0028 0.0024	DHERENCY *** 0.4456 0.5518 0.55462 0.4752 0.2758 0.2714 0.2745 0.2628 0.0957 0.1006 0.1291 0.1069 0.0200 0.0389 0.0329 0.0268 0.0213 0.0242 0.0351 0.0423
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64	0.0450 0.0163 B1 ***** N0 0.0074 0.0121 0.0139 0.0171 0.0158 0.0189 0.0199 0.0226 0.0196 0.0245 0.0313 0.0243 0.0328 0.0328 0.0328 0.0354 0.0354 0.0354 0.0136 0.0196 0.0196 0.0136 0.0195 0.0095 0.0043	0.0450 0.0160 D2 RMALIZED 0.0087 0.0104 0.0135 0.0135 0.0175 0.0175 0.0199 0.0176 0.0194 0.0258 0.0258 0.0264 0.0334 0.0394 0.0393 0.0290 0.0236 0.0142 0.0078 0.0050	0.0450 0.0160 CROSS CI VALUE *** 0.0049 0.0082 0.0093 0.0117 0.0101 0.0078 0.0102 0.0078 0.0102 0.0089 0.0102 0.0089 0.0060 0.0120 0.0083 0.0067 0.0038 0.0025 0.0025 0.0011	DHERENCY *** 0.3682 0.5384 0.4616 0.4438 0.3657 0.2279 0.1739 0.2361 0.1913 0.2268 0.1284 0.1284 0.1246 0.0332 0.0959 0.0436 0.0158 0.0190 0.0204 0.0885 0.0449	0.0450 0.0280 B1 ***** \0 0.0074 0.0144 0.0124 0.0163 0.0145 0.0159 0.0230 0.0156 0.0212 0.0230 0.0254 0.0230 0.0254 0.0233 0.0254 0.0331 0.0308 0.02417 0.0319 0.0283 0.0227 0.0171 0.0140 0.0091 0.0062	0.0450 0.0280 D2 RMALIZED 0.0090 0.0163 0.0125 0.0172 0.0157 0.0257 0.0257 0.0277 0.0277 0.0295 0.0295 0.0274 0.0391 0.0306 0.0365 0.0267 0.0190 0.0137 0.0155	0.0450 0.0280 CRDSS C VALUE ** 0.0055 0.0114 0.0092 0.0115 0.0080 0.0105 0.0080 0.0085 0.0085 0.0085 0.0085 0.0082 0.0092 0.0102 0.0092 0.0102 0.0057 0.0053 0.0036 0.0028 0.0028 0.0024 0.0023 0.0024	OHERENCY *** 0.4456 0.5518 0.55462 0.4752 0.2758 0.2714 0.2745 0.2628 0.0957 0.1006 0.1291 0.1069 0.0200 0.0389 0.0268 0.0213 0.0242 0.0351 0.0423 0.0639
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.08	0.0450 0.0163 B1 ***** N0 0.0074 0.0121 0.0139 0.0171 0.0158 0.0189 0.0199 0.0226 0.0196 0.0243 0.0328 0.0328 0.0328 0.0328 0.0328 0.0354 0.0354 0.0354 0.0196 0.0196 0.0196 0.0196 0.0195 0.0043 0.0043	0.0450 0.0160 D2 RMALIZED 0.0087 0.0104 0.0135 0.0135 0.0175 0.0175 0.0199 0.0176 0.0176 0.0194 0.0256 0.0258 0.0258 0.0260 0.0264 0.0394 0.0394 0.0394 0.0394 0.0394 0.0394 0.0394 0.0394 0.0394 0.0290 0.0236 0.0184 0.0142 0.0078 0.0050 0.0050	0.0450 0.0160 CROSS CI VALUE *** 0.0049 0.0082 0.0093 0.0117 0.0101 0.0098 0.0102 0.0098 0.0102 0.0089 0.0120 0.0089 0.0060 0.0120 0.0089 0.0025 0.0025 0.0011 0.0088	DHERENCY *** 0.3682 0.5384 0.4616 0.4438 0.3657 0.2279 0.1739 0.2361 0.1284 0.1284 0.1284 0.1286 0.1284 0.1286 0.1284 0.1286 0.0332 0.0959 0.0434 0.0436 0.0158 0.0190 0.0204 0.0385 0.0468 0.0575	0.0450 0.0280 81 ***** \U 0.0074 0.0144 0.0124 0.0163 0.0145 0.0159 0.0230 0.0156 0.0212 0.0230 0.0254 0.0230 0.0254 0.0331 0.0308 0.0217 0.0319 0.0283 0.0227 0.0171 0.0140 0.0091 0.0062 0.0047	0.0450 0.0280 D2 RMALIZED 0.0090 0.0163 0.0125 0.0172 0.0157 0.0257 0.0257 0.0277 0.0255 0.0274 0.0306 0.0365 0.0267 0.0190 0.0137 0.0055 0.0055 0.0047	0.0450 0.0280 CROSS C VALUE ** 0.0055 0.0114 0.0092 0.0115 0.0080 0.0105 0.0089 0.0085 0.0064 0.0085 0.0064 0.0092 0.0102 0.0092 0.0053 0.0053 0.0053 0.0028 0.0024 0.0023 0.0023 0.0011	DHERENCY *** 0.4456 0.5518 0.5518 0.5762 0.2758 0.2714 0.2745 0.2628 0.0957 0.1006 0.1291 0.1069 0.0200 0.0389 0.0229 0.0268 0.0213 0.0242 0.0351 0.0423 0.0542
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 2.64 25.08 27.53	0.0450 0.0163 B1 ***** N0 0.0074 0.0121 0.0139 0.0171 0.0158 0.0189 0.0199 0.0226 0.0196 0.0245 0.0313 0.0243 0.0354 0.0354 0.0354 0.0354 0.0354 0.0354 0.0196 0.0245 0.0354 0.0196 0.0196 0.0196 0.0245 0.0354 0.0196 0.0196 0.0196 0.0245 0.0354 0.0196 0.0196 0.0196 0.0245 0.0354 0.0196 0.0196 0.0196 0.0245 0.0354 0.0196 0.0196 0.0196 0.0245 0.0354 0.0196 0.0196 0.0196 0.0245 0.0354 0.0196 0.0196 0.0196 0.0245 0.0354 0.0196 0.0196 0.0196 0.0245 0.0354 0.0196 0.0196 0.0196 0.0245 0.0196 0.0196 0.0245 0.0354 0.0196 0.00196 0.00197 0.00197 0.00197 0.00196	0.0450 0.0160 D2 RMALIZED 0.0087 0.0104 0.0135 0.0135 0.0175 0.0175 0.0199 0.0176 0.0176 0.0194 0.0256 0.0258 0.0264 0.0394 0.0394 0.0394 0.0394 0.0394 0.0394 0.0394 0.0394 0.0394 0.0394 0.0394 0.0394 0.0394 0.0394 0.0394 0.0290 0.0236 0.0142 0.0078 0.0067 0.0067 0.0290 0.0290 0.0290 0.0290 0.0290 0.0290 0.0290 0.0290 0.0290 0.0290 0.0050	0.0450 0.0160 CROSS CI VALUE *** 0.0049 0.0082 0.0093 0.0117 0.0101 0.0093 0.0078 0.0102 0.0098 0.0102 0.0089 0.0120 0.0089 0.0060 0.0120 0.0089 0.0025 0.0025 0.001 0.0008 0.0008 0.0007	DHERENCY *** 0.3682 0.5384 0.4616 0.4438 0.3657 0.2279 0.1739 0.2361 0.1284 0.1284 0.1284 0.1284 0.1284 0.1284 0.1284 0.0332 0.0959 0.0434 0.0436 0.0158 0.0190 0.0204 0.0385 0.0468 0.0705	0.0450 0.0280 81 ***** \U 0.0074 0.0144 0.0124 0.0163 0.0159 0.0230 0.0156 0.0212 0.0230 0.0254 0.0230 0.0254 0.0311 0.0319 0.0283 0.0227 0.0171 0.0140 0.0091 0.0062 0.0047 0.0032	0.0450 0.0280 D2 RMALIZED 0.0090 0.0163 0.0125 0.0172 0.0157 0.0257 0.0257 0.0257 0.0274 0.0295 0.0274 0.0306 0.0365 0.0267 0.0190 0.0137 0.0055 0.0047 0.0033	0.0450 0.0280 CROSS C VALUE ** 0.0055 0.0114 0.0092 0.0115 0.0080 0.0105 0.0089 0.0085 0.0064 0.0082 0.0092 0.0085 0.0064 0.0092 0.0102 0.0053 0.0053 0.0053 0.0024 0.0023 0.0023 0.0011 0.0002	DHERENCY *** 0.4456 0.5518 0.5462 0.2758 0.2714 0.2745 0.2628 0.0957 0.1006 0.1291 0.1069 0.0200 0.0389 0.0329 0.0268 0.0213 0.0268 0.0213 0.0242 0.0351 0.0423 0.0639 0.0542 0.0035
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 2.64 25.08 27.53 30.46	0.0450 0.0163 B1 ***** N0 0.0074 0.0121 0.0139 0.0171 0.0158 0.0189 0.0199 0.0226 0.0196 0.0245 0.0313 0.0243 0.0354 0.0354 0.0354 0.0354 0.0354 0.0354 0.0196 0.0228 0.0354 0.0196 0.0196 0.0196 0.0245 0.0354 0.0196 0.0196 0.0196 0.0245 0.0354 0.0196 0.0196 0.0196 0.0245 0.0354 0.0196 0.0196 0.0196 0.0245 0.0354 0.0196 0.0196 0.0196 0.0245 0.0354 0.0196 0.0196 0.0196 0.0245 0.0354 0.0196 0.0196 0.0245 0.0196 0.0245 0.0354 0.0196 0.0196 0.0196 0.0245 0.0354 0.0035 0.0043 0.0043 0.005	0.0450 0.0160 D2 RMALIZED 0.0087 0.0104 0.0135 0.0135 0.0175 0.0199 0.0176 0.0194 0.0256 0.0258 0.0264 0.0394 0.0394 0.0394 0.0394 0.0394 0.0394 0.0394 0.0394 0.0394 0.0394 0.0394 0.0394 0.0394 0.0290 0.0236 0.0142 0.0078 0.0067 0.0067 0.0142 0.0290 0.0236 0.0142 0.0290 0.0290 0.029 0.0029 0.0029	0.0450 0.0160 CROSS CI VALUE *** 0.0049 0.0082 0.0093 0.0117 0.0101 0.0093 0.0078 0.0102 0.0098 0.0102 0.0089 0.0120 0.0089 0.0060 0.0120 0.0089 0.0089 0.0025 0.0025 0.0011 0.0008 0.0025 0.0011 0.0008 0.0025 0.0018 0.0025 0.0018 0.0025 0.0018 0.0025 0.0018 0.0025 0.0018 0.0025 0.0018 0.0025 0.0018 0.0025 0.0018 0.0025 0.0018 0.0025 0.0018 0.0025 0.0018 0.0025 0.0018 0.0025 0.0018 0.0025 0.0025 0.0008 0.0025 0.0008 0.0008 0.0008 0.0008 0.0008 0.0008 0.0008 0.0008 0.0008 0.0008 0.0008 0.0008 0.0025 0.0008 0.0008 0.0025 0.0008 0.0025 0.0008 0.0025 0.0008 0.0025 0.0025 0.0008 0.0008 0.0008 0.00025 0.0008	DHERENCY *** 0.3682 0.5384 0.4616 0.4438 0.3657 0.2279 0.1739 0.2361 0.1284 0.1284 0.1284 0.1284 0.1284 0.1284 0.1284 0.1284 0.1284 0.1284 0.1284 0.1284 0.1284 0.1284 0.1284 0.1284 0.1285 0.0436 0.0158 0.0190 0.0204 0.0385 0.0468 0.0705 0.0445	0.0450 0.0280 81 ***** \U 0.0074 0.0144 0.0124 0.0163 0.0159 0.0230 0.0156 0.0212 0.0230 0.0254 0.0230 0.0254 0.0230 0.0254 0.0311 0.0319 0.0283 0.0227 0.0171 0.0140 0.0091 0.0062 0.0047 0.0032 0.0028	0.0450 0.0280 D2 RMALIZED 0.0090 0.0163 0.0125 0.0172 0.0157 0.0257 0.0257 0.0257 0.0257 0.0274 0.0295 0.0274 0.0306 0.0365 0.0267 0.0190 0.0137 0.0055 0.0047 0.0033 0.0021	0.0450 0.0280 CROSS C VALUE ** 0.0055 0.0114 0.0092 0.0115 0.0080 0.0105 0.0085 0.0064 0.0085 0.0064 0.0082 0.0092 0.0102 0.0092 0.0102 0.0053 0.0053 0.0053 0.0053 0.0024 0.0023 0.0024 0.0023 0.0011 0.0002 0.0001	DHERENCY *** 0.4456 0.5518 0.5462 0.2758 0.2714 0.2745 0.2628 0.0957 0.1006 0.1291 0.1069 0.0200 0.0389 0.0329 0.0268 0.0213 0.0268 0.0213 0.0242 0.0351 0.0423 0.0639 0.035 0.0301
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.08 27.53 30.46 34.85	0.0450 0.0163 B1 ***** N0 0.0074 0.0121 0.0139 0.0171 0.0158 0.0189 0.0199 0.0226 0.0196 0.0245 0.0328 0.0328 0.0328 0.0328 0.0328 0.0354 0.0354 0.0354 0.0196 0.0196 0.0196 0.0196 0.0354 0.0354 0.0354 0.0354 0.0354 0.0354 0.0354 0.0354 0.0354 0.0355 0.00555 0.00555 0.005555 0.0055555555555555555555555555555555	0.0450 0.0163 D2 RMALIZED 0.0087 0.0104 0.0135 0.0135 0.0175 0.0199 0.0176 0.0194 0.0256 0.0258 0.0264 0.0394 0.0394 0.0394 0.0394 0.0394 0.0394 0.0394 0.0394 0.0394 0.0394 0.0394 0.0394 0.0394 0.0394 0.0394 0.0256 0.0256 0.0258 0.0264 0.0394 0.0394 0.0394 0.0394 0.0394 0.0394 0.0394 0.0394 0.0394 0.0290 0.0235 0.014	0.0450 0.0160 CROSS CI VALUE *** 0.0049 0.0082 0.0093 0.0117 0.0101 0.0098 0.0102 0.0098 0.0102 0.0089 0.0120 0.0120 0.0089 0.0060 0.0120 0.0083 0.0067 0.0034 0.0026 0.0025 0.0011 0.0025 0.0011 0.0008 0.0025 0.0017 0.0008	DHERENCY *** 0.3682 0.5384 0.4616 0.4438 0.3657 0.2279 0.1739 0.2361 0.1284 0.1284 0.1284 0.1284 0.1284 0.1284 0.1284 0.1284 0.1284 0.1284 0.1284 0.1284 0.1284 0.1285 0.0436 0.0158 0.0190 0.0204 0.0385 0.0468 0.0705 0.0445 0.0447	0.0450 0.0280 81 ***** \U 0.0074 0.0144 0.0124 0.0163 0.0159 0.0230 0.0156 0.0212 0.0230 0.0254 0.0212 0.0230 0.0254 0.0331 0.0225 0.0227 0.0171 0.0283 0.0227 0.0171 0.0091 0.0062 0.0047 0.0032 0.0014	0.0450 0.0280 D2 RMALIZED 0.0090 0.0163 0.0125 0.0172 0.0157 0.0257 0.0257 0.0257 0.0257 0.0267 0.0306 0.0365 0.0267 0.0190 0.0137 0.0055 0.0055 0.0047 0.0033 0.0021 0.0016	0.0450 0.0280 CROSS C VALUE ** 0.0055 0.0114 0.0092 0.0115 0.0080 0.0105 0.0064 0.0085 0.0064 0.0082 0.0092 0.0102 0.0092 0.0102 0.0053 0.0053 0.0053 0.0053 0.0024 0.0023 0.0023 0.0021 0.0023 0.0011 0.0002 0.0001	DHERENCY *** 0.4456 0.5518 0.5462 0.2758 0.2714 0.2745 0.2628 0.0957 0.1006 0.1291 0.1069 0.0200 0.0389 0.0329 0.0268 0.0213 0.0242 0.0351 0.0423 0.0639 0.035 0.0301 0.0719
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.08 27.53 30.46 34.85 40.22	0.0450 0.0163 B1 ***** N0 0.0074 0.0121 0.0139 0.0171 0.0158 0.0189 0.0199 0.0226 0.0196 0.0246 0.0313 0.0243 0.0328 0.0328 0.0328 0.0328 0.0328 0.0354 0.0354 0.0354 0.0196 0.0196 0.0196 0.0196 0.0196 0.0196 0.0196 0.0196 0.0196 0.0196 0.0196 0.0196 0.0196 0.0196 0.0196 0.0196 0.0245 0.0354 0.0196 0.0196 0.0196 0.0196 0.0245 0.0354 0.0196 0.0196 0.0196 0.0245 0.0354 0.0196 0.0196 0.0196 0.0196 0.0245 0.0354 0.0196 0.0196 0.0196 0.0196 0.0245 0.0196 0.0245 0.0354 0.0196 0.0196 0.0196 0.0245 0.0354 0.0196 0.0196 0.0196 0.0245 0.0354 0.0196 0.0196 0.0196 0.0245 0.0354 0.0196 0.0196 0.0196 0.0245 0.0354 0.0196 0.0196 0.0196 0.0245 0.0354 0.0196 0.0196 0.0196 0.0245 0.0354 0.0196 0.0196 0.0196 0.0245 0.0354 0.0196 0.0196 0.0196 0.0245 0.0354 0.0196 0.0196 0.0196 0.0196 0.0245 0.0354 0.0196 0.00196 0.00195 0.00195 0.0027 0.0018 0.0012 0.0018 0.0012	0.0450 0.0163 D2 RMALIZED 0.0087 0.0104 0.0135 0.0135 0.0175 0.0199 0.0176 0.0194 0.0256 0.0258 0.0264 0.0394 0.0394 0.0394 0.0393 0.0290 0.0235 0.0142 0.0029	0.0450 0.0160 CROSS CI VALUE *** 0.0049 0.0082 0.0093 0.0117 0.0101 0.0098 0.0102 0.0098 0.0102 0.0088 0.0120 0.0120 0.0089 0.0060 0.0120 0.0083 0.0067 0.0034 0.0025 0.0011 0.0025 0.0011 0.0025 0.0011 0.0008 0.0025 0.0011 0.0008 0.0025 0.0011 0.0008 0.0025 0.0011 0.0008 0.0025 0.0011 0.0008 0.0025 0.0011 0.0008 0.0025 0.0011 0.0008 0	DHERENCY *** 0.3682 0.5384 0.4616 0.4438 0.4438 0.2279 0.1739 0.2361 0.1284 0.1284 0.1284 0.1284 0.1284 0.1284 0.1284 0.1284 0.1284 0.1284 0.0332 0.03959 0.0436 0.0158 0.0190 0.0204 0.0385 0.04468 0.0575 0.0445 0.0447 0.0712	0.0450 0.0280 81 ***** \U 0.0074 0.0144 0.0124 0.0163 0.0145 0.0159 0.0230 0.0256 0.0212 0.0230 0.0256 0.0212 0.0230 0.0254 0.0331 0.0283 0.0227 0.0171 0.0140 0.0091 0.0062 0.0047 0.0032 0.0014 0.0011	0.0450 0.0280 D2 RMALIZED 0.0090 0.0163 0.0125 0.0172 0.0157 0.0257 0.0257 0.0257 0.0257 0.0267 0.0295 0.0274 0.0306 0.0365 0.0267 0.0190 0.0190 0.0137 0.0055 0.0055 0.0047 0.0033 0.0021 0.0016 0.0009	0.0450 0.0280 CROSS C VALUE ** 0.0055 0.0114 0.0092 0.0115 0.0080 0.0105 0.0064 0.0085 0.0064 0.0085 0.0064 0.0082 0.0092 0.0102 0.0102 0.0053 0.0053 0.0053 0.0053 0.0028 0.0028 0.0023 0.0023 0.0011 0.0002 0.0015	DHERENCY *** 0.4456 0.5518 0.5462 0.2758 0.2758 0.2714 0.2745 0.2628 0.0957 0.1006 0.1291 0.1069 0.0200 0.0389 0.0329 0.0268 0.0213 0.0242 0.0351 0.0423 0.0639 0.035 0.0301 0.0719 0.0269
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.08 27.53 30.46 34.85 40.22 50.48	0.0450 0.0163 B1 ***** N0 0.0074 0.0121 0.0139 0.0171 0.0158 0.0189 0.0199 0.0226 0.0196 0.0246 0.0313 0.0243 0.0328 0.0328 0.0328 0.0328 0.0328 0.0354 0.0354 0.0354 0.0196 0.0196 0.0196 0.0196 0.0196 0.0196 0.0354 0.0354 0.0196 0.0196 0.0196 0.0196 0.0245 0.0354 0.0354 0.0196 0.0196 0.0196 0.0245 0.0354 0.0354 0.0196 0.0196 0.0196 0.0196 0.0245 0.0354 0.0196 0.0196 0.0245 0.0354 0.0196 0.0196 0.0196 0.0245 0.0354 0.0196 0.0196 0.0196 0.0245 0.0354 0.0196 0.0196 0.0196 0.0245 0.0354 0.0196 0.0196 0.0196 0.0245 0.0354 0.0196 0.0196 0.0245 0.0196 0.0245 0.0354 0.0196 0.0196 0.0196 0.0245 0.0354 0.0196 0.0196 0.0245 0.0196 0.0245 0.0196 0.0245 0.0196 0.0245 0.0196 0.0245 0.0196 0.0245 0.0196 0.0245 0.0196 0.0245 0.0196 0.0245 0.0196 0.0245 0.0196 0.0245 0.0196 0.0196 0.0245 0.0196 0.0196 0.0245 0.0196 0.0196 0.0196 0.0196 0.0196 0.0196 0.0196 0.0196 0.0196 0.0196 0.0196 0.0196 0.0196 0.0196 0.0196 0.0196 0.0196 0.0196 0.00195 0.0027 0.0018 0.0012 0.0012 0.0012 0.0027 0.0018 0.0012 0.0002	0.0450 0.0163 D2 RMALIZED 0.0087 0.0104 0.0135 0.0135 0.0175 0.0199 0.0176 0.0194 0.0256 0.0258 0.0264 0.0394 0.0394 0.0393 0.0290 0.0235 0.0142 0.0029 0.0029 0.0029 0.0029 0.0023 0.0029	0.0450 0.0160 CROSS CI VALUE *** 0.0049 0.0082 0.0093 0.0117 0.0101 0.0098 0.0102 0.0098 0.0102 0.0088 0.0120 0.0120 0.0089 0.0060 0.0120 0.0083 0.0067 0.0034 0.0025 0.0011 0.0008 0.0025 0.0011 0.0008 0.0002 0.0002 0.0001	DHERENCY *** 0.3682 0.5384 0.4616 0.4438 0.4438 0.2279 0.1739 0.2361 0.1284 0.1284 0.1284 0.1284 0.1284 0.1284 0.1284 0.0332 0.0332 0.0434 0.0436 0.0158 0.0190 0.0204 0.0385 0.0448 0.0575 0.0445 0.0447 0.0712 0.0720	0.0450 0.0280 B1 ***** \U 0.0074 0.0144 0.0124 0.0163 0.0159 0.0230 0.0156 0.0212 0.0230 0.0256 0.0212 0.0230 0.0254 0.0331 0.0227 0.0319 0.0283 0.0227 0.0171 0.0140 0.0091 0.0062 0.0047 0.0032 0.0014 0.0011 0.0004	0.0450 0.0280 D2 RMALIZED 0.0090 0.0163 0.0125 0.0172 0.0159 0.0257 0.0257 0.0257 0.0257 0.0257 0.0257 0.0295 0.0274 0.0391 0.0306 0.0267 0.0190 0.0137 0.0055 0.0047 0.0033 0.0021 0.0016 0.0009 0.0003	0.0450 0.0280 CROSS C VALUE ** 0.0055 0.0114 0.0092 0.0115 0.0080 0.0105 0.0064 0.0085 0.0064 0.0085 0.0064 0.0082 0.0092 0.0102 0.0102 0.0057 0.0053 0.0053 0.0053 0.0028 0.0028 0.0028 0.0023 0.0023 0.0023 0.0015 0.0011	DHERENCY *** 0.4456 0.5518 0.5462 0.2758 0.2714 0.2745 0.2628 0.0957 0.1006 0.1291 0.1069 0.0200 0.0389 0.0329 0.0268 0.0213 0.0242 0.0351 0.0423 0.0639 0.0242 0.0351 0.0423 0.0639 0.0542 0.0351 0.0351 0.0719 0.0269 0.0296
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.08 27.53 30.46 34.85 40.22 50.48 6G.24	0.0450 0.0163 B1 ***** N0 0.0074 0.0121 0.0139 0.0171 0.0158 0.0189 0.0199 0.0226 0.0196 0.0246 0.0196 0.0243 0.0328 0.0328 0.0328 0.0328 0.0328 0.0354 0.0354 0.0354 0.0196 0.0196 0.0196 0.0196 0.0354 0.0354 0.0354 0.0196 0.0196 0.0196 0.0196 0.0245 0.0354 0.0354 0.0196 0.0196 0.0245 0.0354 0.0354 0.0196 0.0196 0.0245 0.0354 0.0354 0.0196 0.0196 0.0245 0.0354 0.0354 0.0196 0.0196 0.0245 0.0196 0.0245 0.0354 0.0196 0.0196 0.0245 0.0196 0.0245 0.0354 0.0196 0.0196 0.0196 0.0245 0.0354 0.0196 0.0196 0.0245 0.0354 0.0196 0.0196 0.0245 0.0196 0.0245 0.0354 0.0196 0.0196 0.0245 0.0354 0.0196 0.0196 0.0196 0.0245 0.0354 0.0196 0.0196 0.0196 0.0245 0.0354 0.0196 0.0196 0.0196 0.0245 0.0196 0.0245 0.0196 0.0245 0.0196 0.0245 0.0196 0.0245 0.0196 0.0245 0.0196 0.0245 0.0196 0.0245 0.0196 0.0196 0.0245 0.0196 0.0196 0.0196 0.0196 0.0196 0.0196 0.0196 0.0196 0.0196 0.0196 0.0196 0.0196 0.0196 0.0196 0.0196 0.0196 0.0196 0.00195 0.0027 0.0018 0.0012 0.0002 0.0002 0.0002 0.0002 0.0001 0.0002	0.0450 0.0163 D2 RMALIZED 0.0087 0.0104 0.0135 0.0135 0.0175 0.0199 0.0176 0.0194 0.0256 0.0258 0.0264 0.0394 0.0394 0.0393 0.0290 0.0235 0.0142 0.0078 0.0029 0.00029 0.000020 0.00020 0.00020 0.00020 0.000	0.0450 0.0160 CROSS CI VALUE *** 0.0049 0.0082 0.0093 0.0117 0.0101 0.0093 0.0078 0.0102 0.0098 0.0102 0.0089 0.0102 0.0089 0.0120 0.0102 0.0089 0.0120 0.0089 0.0067 0.0038 0.0025 0.0011 0.0008 0.0002 0.0002 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001	DHERENCY *** 0.3682 0.5384 0.4616 0.4438 0.2279 0.1739 0.2361 0.1284 0.1284 0.1284 0.1284 0.1284 0.1284 0.1284 0.0332 0.0332 0.0434 0.0436 0.0158 0.0190 0.0204 0.0885 0.0445 0.0445 0.0447 0.0712 0.0720 0.1039	0.0450 0.0280 B1 ***** \U 0.0074 0.0144 0.0124 0.0163 0.0159 0.0230 0.0156 0.0212 0.0230 0.0256 0.0212 0.0230 0.0254 0.0311 0.0283 0.0227 0.0171 0.0140 0.0091 0.0062 0.0047 0.0032 0.0014 0.0011 0.0004 0.0002	0.0450 0.0280 D2 RMALIZED 0.0090 0.0163 0.0125 0.0172 0.0159 0.0257 0.0257 0.0257 0.0257 0.0257 0.0239 0.0257 0.0295 0.0274 0.0306 0.0365 0.0267 0.0190 0.0137 0.0055 0.0047 0.0033 0.0055 0.0047 0.0033 0.0021 0.0016 0.0009 0.0003 0.0003	0.0450 0.0280 CROSS C VALUE ** 0.0055 0.0114 0.0092 0.0115 0.0080 0.0105 0.0064 0.0085 0.0064 0.0085 0.0064 0.0082 0.0092 0.0102 0.0102 0.0057 0.0053 0.0053 0.0053 0.0028 0.0028 0.0028 0.0023 0.0023 0.0023 0.0015 0.0011 0.0002 0.0001 0.0001 0.0000	DHERENCY *** 0.4456 0.5518 0.5462 0.2758 0.2714 0.2745 0.2628 0.0957 0.1006 0.1291 0.1069 0.0200 0.0389 0.0329 0.0268 0.0213 0.0242 0.0351 0.0423 0.0542 0.0351 0.0423 0.0351 0.0423 0.0351 0.0423 0.0351 0.0423 0.0242 0.0351 0.0423 0.0242 0.0351 0.0423 0.0242 0.0351 0.0423 0.0242 0.0351 0.0242 0.0351 0.0423 0.0242 0.0351 0.0242 0.0351 0.0423 0.0242 0.0351 0.0423 0.0443 0.0423 0.0445
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.08 27.53 30.46 34.85 40.22 50.48 6G.24 70.01	0.0450 0.0163 B1 ***** N0 0.0074 0.0121 0.0139 0.0171 0.0158 0.0189 0.0199 0.0226 0.0196 0.0246 0.0196 0.0243 0.0328 0.0328 0.0328 0.0328 0.0328 0.0354 0.0354 0.0354 0.0196 0.0196 0.0196 0.0196 0.0354 0.0354 0.0354 0.0196 0.0196 0.0196 0.0245 0.0354 0.0354 0.0196 0.0196 0.0245 0.0354 0.0354 0.0196 0.0196 0.0245 0.0354 0.0354 0.0196 0.0196 0.0245 0.0354 0.0354 0.0196 0.0196 0.0245 0.0354 0.0196 0.0196 0.0245 0.0196 0.0245 0.0354 0.0196 0.0196 0.0196 0.0245 0.0354 0.0196 0.0196 0.0245 0.0196 0.0245 0.0354 0.0196 0.0196 0.0245 0.0196 0.0245 0.0354 0.0196 0.0196 0.0196 0.0245 0.0354 0.0196 0.0196 0.0196 0.0245 0.0354 0.0196 0.0196 0.0245 0.0196 0.0245 0.0196 0.0245 0.0196 0.0245 0.0196 0.0245 0.0354 0.0243 0.0043 0.0043 0.0043 0.0027 0.0012 0.0012 0.0012 0.0043 0.0027 0.0012 0.0012 0.0012 0.0012 0.0027 0.0012 0.0002	0.0450 0.0163 D2 RMALIZED 0.0087 0.0104 0.0135 0.0135 0.0175 0.0199 0.0176 0.0194 0.0256 0.0258 0.0264 0.0394 0.0393 0.0290 0.0235 0.0142 0.0078 0.0029 0.0029 0.0029 0.0023 0.0029 0.0002 0.0001	0.0450 0.0160 CROSS CI VALUE *** 0.0049 0.0082 0.0093 0.0117 0.0101 0.0093 0.0078 0.0102 0.0098 0.0102 0.0089 0.0102 0.0089 0.0120 0.0120 0.0089 0.0120 0.0089 0.0067 0.0034 0.0025 0.0011 0.0003 0.0025 0.0011 0.0003 0.0002 0.0001 0.0000 0.0000 0.0000 0.0000	DHERENCY *** 0.3682 0.5384 0.4616 0.4438 0.2279 0.1739 0.2361 0.1284 0.1284 0.1284 0.1284 0.1284 0.1284 0.1284 0.0332 0.0332 0.0434 0.0436 0.0158 0.0190 0.0204 0.0885 0.0445 0.0445 0.0447 0.0712 0.0720 0.1039 0.6278	0.0450 0.0280 B1 ***** \U 0.0074 0.0144 0.0124 0.0163 0.0159 0.0230 0.0156 0.0212 0.0230 0.0256 0.0212 0.0230 0.0254 0.0311 0.0283 0.0227 0.0171 0.0140 0.0091 0.0062 0.0047 0.0032 U.0028 0.0014 0.0011 0.0004 0.0011 0.0004 0.0002 0.0001	0.0450 0.0280 D2 RMALIZED 0.0090 0.0163 0.0125 0.0172 0.0157 0.0257 0.0257 0.0257 0.0257 0.0257 0.0239 0.0257 0.0295 0.0274 0.0306 0.0365 0.0267 0.0190 0.0119 0.0137 0.0055 0.0047 0.0033 0.0055 0.0047 0.0033 0.0051 0.0016 0.0009 0.0003 0.0003 0.0003	0.0450 0.0280 CROSS C VALUE ** 0.0055 0.0114 0.0092 0.0115 0.0080 0.0105 0.0085 0.0064 0.0085 0.0064 0.0085 0.0064 0.0092 0.0102 0.0102 0.0102 0.0053 0.0053 0.0053 0.0053 0.0028 0.0028 0.0023 0.0023 0.0023 0.0015 0.0011 0.0002 0.0001 0.0001 0.0000 0.0000 0.0000	DHERENCY *** 0.4456 0.5518 0.5462 0.2758 0.2714 0.2745 0.2628 0.0957 0.1006 0.1291 0.1069 0.0200 0.0389 0.0329 0.0268 0.0213 0.0268 0.0213 0.0242 0.0351 0.0423 0.0269 0.0269 0.0296 0.0296 0.0296 0.0423 0.0455

۰.

\* \* \* \*

TAELE C-3 (continued)

\*\*\*\*4

								0.00
WG(LB/SEC)	0.0450	0.0450	0.0450		0.0450	0.0450	0.0450	381
WI (I B/SEC)	0.0440	0.0440	0 0440		0.0800	0.0800	0.0800	
CE11	D1	000440	000000		A1	n2	1 22000	DUEDENCY
	D1	02	CK032 C	JHERENCY				UNEKENGT
FREQUILPSI	***** \	RMALIZED	VALUE ¥≉	* * *	***** 401	RMALIZED	VALUE ##	***
0.18	0.0091	0.0150	0.0089	0.5874	0.0055	0.0073	0.0042	0.4382
0.67	0.0248	0.0310	0.0237	0.7282	0.0146	0.0202	0.0144	0.7073
1.16	0.0469	0.0458	0.0407	0.7715	0.0352	0.0375	0.0330	0.8260
. 1.65	0.0504	0.0530	0.0425	0.6768	0.0439	0.0468	0.0412	0.8275
2 14	60402	0 0353	0 0 2 2 7	0 6074	0.0514	0.0555	0.0483	0.8174
2 4 2 7	0 0(20	0.0555	0 0 2 2 7	0.0074	0 0499	0.0540	0 0403	0.0174
. 2.03	0.0430	0.0443	0.0321	0.5518	0.0400	0.0540	0.0434	0.7(/2
3.11	0.0501	0.0466	0.0340	0.4959	0.0031	0.0597	0.0540	0.1663
3.60	0.0356	0.0402	0.0223	0.3638	0.0554	0.0557	0.0459	0.6818
4.09	0.0402	0.0342	0.0212	0.3279	0.0460	0.0438	0.0321	0.5126
4.58	0.0398	0.0446	0.0229	0.2950	0.0454	0.0452	0.0325	0.5173
5.07	0.0322	0.0309	0.0152	0 2325	0.0328	0.0332	0.0201	6.3708
5 5 5	0.0212	0 0365	0.0127	0.1419	0.0504	0.0458	0.0338	0 4959
1.57	0.0303	0.0305	0.0127	0.1410	0.0200	0.0221	0.0303	0.4300
0.53	0.0302	0.0293	0.0121	0.1662	0.0299	0.0331	0.0201	0.4101
7.51	0.0234	0.0228	0.0073	0.1001	0.0261	0.0203	0.0099	0.1833
8.43	0.0254	0.0230	0.0038	0.0244	0.0217	0.0269	0.0104	0.1840
9.45	0.0179	0.0168	0.0043	0.0625	0.0197	0.0221	0.0093	0.1976
11.41	0.0146	0.0173	0.0029	0.0331	0.0185	0.0141	0.0038	0.0543
12 27	0 0121	0 0120	0.0025	0.0000	0.0102	A 0.00	0 0018	0 0329
15.01	6 0121	0.0120	0.0000	0.0040	0 0001	0.0000	0 0020	0.0553
12.81	0.0117	0.0103	0.0016	0.0206	0.0051	0.00039	0.0020	0.0552
18.25	0.0071	0.0069	0.0016	0.0532	0.0065	0.0065	0.0011	0.0268
22.64	0.0052	0.0045	0.0011	0.0513	0.0036	0.0038	0.0009	0.0553
25.03	0.0033	0.0033	0.0006	0.0319	6.0027	0.0027	0.0006	0.0478
27.53	0.0027	0.0032	0.0008	0.0706	0.0028	0.0022	0.0005	0.0344
30.46	6.0020	0.0024	0.0005	0.0516	0.0019	0.0016	0.0003	0.0382
34.85	0.0013	0.0013	0.0003	0.0204	0.0011	0 0011	0 0003	0 0750
	0.0013	0.0013	0.0002	0.0204	0.00011	1100.0	0.0000	0.0109
40.22	0.0008	0.0007	0.0001	0.0291	0.0007	0.0007	0.0002	0.0509
. 50.48	0.0004	0.0004	0.0000	0.0173	0.0003	0.0003	0.0000	0.0299
60.24	0.0002	0.0002	0.000	0.0189	0.0002	0.0001	0.0000	0.0672
• 70.01	0.0001	0.0001	0.0000	0.0364	0.0001	0.0001	0.0000	0.0238
80.26	0.0000	0.0000	0.0	0.0	0.0000	0.0000	0.0	0.0
				1	•			
				t i				
	0.0(50	0 0450	0.0460		0.0450	0.0450	0.0450	
WG(LB/SEC)	0.0450	0.0450	0.0450		0.0450	0.0450	0.0450	
WG(LB/SEC) WL(LB/SEC)	0.0450 0.1260	0.0450 0.1260	0.0450 <sup>-</sup> 0.1260	1 2	0.0450 0.1800	0.0450	0.0450 0.1800	
WG(LB/SEC) WL(LB/SEC) CELL	0.0450 0.1260 B1	0.0450 0.1260 D2	0.0450 <sup>-</sup> 0.1260 CROSS C(	DHERENCY	0.0450 0.1800 B1	0.0450 0.1800 D2	0.0450 0.1800 CRUSS C	OHERENCY
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS)	0.0450 0.1260 B1 ***** NU	0.0450 0.1260 D2 RMALIZED	0.0450 0.1260 CROSS C( VALUE ***	DHERENCY ***	0.0450 0.1800 B1 ***** ND	0.0450 0.1800 D2 RMALIZED	0.0450 0.1800 CRUSS C VALUE **	OHERENCY ***
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18	0.0450 0.1260 B1 ***** NU 0.0041	0.0450 0.1260 D2 RMALIZED 0.0045	0.0450 0.1260 CROSS C( VALUE *** 0.0032	DHERENCY *** 0.5732	0.0450 0.1800 B1 ***** ND 0.0039	0.0450 0.1800 D2 RMALIZED 0.0042	0.0450 0.1800 CRUSS C VALUE ** 0.0027	OHERENCY *** 0.4395
. WG(LB/SEC) . WL(LB/SEC) . CELL . FREQ.(CPS) . C.18 . 0.67	0.0450 0.1260 B1 ***** NU 0.0041 0.0070	0.0450 0.1260 D2 RMALIZED 0.0045 0.0093	0.0450 0.1260 CROSS C( VALUE *** 0.0032 0.0067	DHERENCY *** 0.5732	0.0450 0.1800 B1 ***** ND 0.0039 0.0070	0.0450 0.1800 D2 RMALIZED 0.0042 0.0069	0.0450 0.1800 CRUSS C VALUE ** 0.0027 0.0067	OHERENCY *** 0.4395 0.7242
. WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18 0.67 1.16	0.0450 0.1260 B1 ***** NU 0.0041 0.0070	0.0450 0.1260 D2 RMALIZED 0.0045 0.0093 0.2186	0.0450 0.1260 CROSS C( VALUE *** 0.0032 0.0067 0.0151	DHERENCY *** 0.5732 0.6794 0.7524	0.0450 0.1800 B1 ***** ND1 0.0039 0.0670 0.0118	0.0450 0.1800 D2 RMALIZED 0.0042 0.0069 0.0137	0.0450 0.1800 CRUSS C VALUE ** 0.0027 0.0067 0.0109	OHERENCY *** 0.4395 0.7242 0.7371
. WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18 0.67 1.16	0.0450 0.1260 B1 ***** NU 0.0041 0.0070 0.0165	0.0450 0.1260 D2 RMALIZED 0.0045 0.0093 0.0184	0.0450 0.1260 CROSS C( VALUE *** 0.0032 0.0067 0.0151	DHERENCY *** 0.5732 0.6794 0.7524	0.0450 0.1800 B1 ***** ND 0.0039 0.0070 0.0118	0.0450 0.1800 D2 RMALIZED 0.0042 0.0069 0.0137	0.0450 0.1800 CRUSS C VALUE ** 0.0027 0.0067 0.0109	OHERENCY *** 0.4395 0.7242 0.7371 0.7324
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18 0.67 1.16 1.65	0.0450 0.1260 B1 ***** NU 0.0041 0.0070 0.0165 U.0237	0.0450 0.1260 D2 RMALIZED 0.0045 0.0093 0.0184 0.0233	0.0450 0.1260 CROSS CC VALUE *** 0.0032 0.0067 0.0151 0.0205	DHERENCY *** 0.5732 0.6794 0.7524 0.7600	0.0450 0.1800 B1 ***** ND 0.0039 0.0070 0.0118 0.0198	0.0450 0.1800 D2 RMALIZED 0.0042 0.0069 0.0137 0.0220	0.0450 0.1800 CRUSS C VALUE ** 0.0027 0.0067 0.0109 0.0186	OHERENCY *** 0.4395 0.7242 0.7371 0.7929
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18 0.67 1.16 1.65 2.14	0.0450 0.1260 B1 ***** NU 0.0041 0.0070 0.0165 U.0237 0.0318	0.0450 0.1260 D2 RMALIZED 0.0045 0.0093 0.0184 0.0233 0.0360	0.0450 0.1260 CROSS CC VALUE *** 0.0032 0.0067 0.0151 0.0205 0.0302	DHERENCY *** 0.5732 0.6794 0.7524 0.7600 0.7971	0.0450 0.1800 B1 ***** ND 0.0039 0.0070 0.0118 0.0198 0.0198 0.0197	0.0450 0.1800 D2 RMALIZED 0.0042 0.0069 0.0137 0.0220 0.0244	0.0450 0.1800 CRUSS C VALUE ** 0.0027 0.0067 0.0109 0.0186 0.0187	OHERENCY *** 0.4395 0.7242 0.7371 0.7929 0.7290
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.67 1.16 1.65 2.14 2.63	0.0450 0.1260 B1 ***** NJ 0.0041 0.0073 0.0165 0.0237 0.0318 0.0453	0.0450 0.1260 D2 RMALIZED 0.0045 0.0093 0.0184 0.0233 0.0360 0.0502	0.0450 0.1260 CROSS C( VALUE *** 0.0032 0.0067 0.0151 0.0205 0.0302 0.0432	DHERENCY *** 0.5732 0.6794 0.7524 0.7600 0.7971 0.8253	0.0450 0.1800 B1 ***** ND 0.0039 0.0670 0.0118 0.0198 0.0197 0.0299	0.0450 0.1800 D2 RMALIZED 0.0042 0.0069 0.0137 0.0220 0.0244 0.0333	0.0450 0.1800 CRUSS C VALUE ** 0.0027 0.0067 0.0109 0.0186 0.0187 0.0271	OHERENCY *** 0.4395 0.7242 0.7371 0.7929 0.7290 0.7391
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18 0.67 1.16 1.65 2.14 2.63 3.11	0.0450 0.1260 B1 ***** NJ 0.0041 0.0073 0.0165 0.0237 0.0318 0.0453 0.0546	0.0450 0.1260 D2 RMALIZED 0.0045 0.0093 0.0184 0.0233 0.0360 0.0360 0.0593	0.0450 0.1260 CROSS C( VALUE *** 0.0032 0.0067 0.0151 0.0205 0.0302 0.0432 0.0514	DHERENCY *** 0.5732 0.6794 0.7524 0.7524 0.7600 0.7971 0.8253 0.8150	0.0450 0.1800 B1 ***** NDF 0.0039 0.0070 0.0118 0.0198 0.0197 0.0299 0.0409	0.0450 0.1800 D2 RMALIZED 0.0042 0.0069 0.0137 0.0220 0.0244 0.0333 0.0451	0.0450 0.1800 CRUSS C VALUE ** 0.0027 0.0067 0.0109 0.0186 0.0187 0.0271 0.0384	OHERENCY *** 0.4395 0.7242 0.7371 0.7329 0.7290 0.7391 0.7996
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60	0.0450 0.1260 B1 ***** NJ 0.0041 0.0073 0.0165 0.0237 0.0318 0.0455 0.0546 0.0697	0.0450 0.1260 D2 RMALIZED 0.0045 0.0093 0.0184 0.0233 0.0360 0.0360 0.0593 0.0638	0.0450 0.1260 CROSS C0 VALUE *** 0.0032 0.0067 0.0151 0.0205 0.0302 0.0432 0.0514 0.0603	DHERENCY *** 0.5732 0.6794 0.7524 0.7600 0.7971 0.8253 0.8150 0.8183	0.0450 0.1800 B1 ***** ND 0.0039 0.0070 0.0118 0.0198 0.0197 0.0299 0.0409 0.0589	0.0450 0.1800 D2 RMALIZED 0.0042 0.0069 0.0137 0.0220 0.0244 0.0333 0.0451 0.0632	0.0450 0.1800 CRUSS C VALUE ** 0.0027 0.0109 0.0186 0.0187 0.0271 0.0384 0.0555	OHERENCY *** 0.4395 0.7242 0.7371 0.7929 0.7290 0.7391 0.7996 0.8268
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09	0.0450 0.1260 B1 ***** NU 0.0041 0.0070 0.0165 0.0237 0.0318 0.0450 0.0546 0.0697 0.0650	0.0450 0.1260 D2 RMALIZED 0.0045 0.0093 0.0184 0.0233 0.0360 0.0502 0.0502 0.0593 0.0638 0.0577	0.0450 0.1260 CROSS C0 VALUE *** 0.0032 0.0067 0.0151 0.0205 0.0302 0.0432 0.0514 0.0603 0.0542	DHERENCY *** 0.5732 0.6794 0.7524 0.7600 0.7971 0.8253 0.8150 0.8183 0.7841	0.0450 0.1800 B1 ***** ND 0.0039 0.0070 0.0118 0.0198 0.0197 0.0299 0.0409 0.0589 0.0697	0.0450 0.1800 D2 RMALIZED 0.0042 0.0069 0.0137 0.0220 0.0244 0.0333 0.0451 0.0632 0.0626	0.0450 0.1800 CRUSS C VALUE ** 0.0027 0.0067 0.0109 0.0186 0.0187 0.0271 0.0384 0.0555 0.0579	OHERENCY *** 0.4395 0.7242 0.7371 0.7929 0.7290 0.7391 0.7391 0.7996 0.8268 0.7683
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58	0.0450 0.1260 B1 ***** NU 0.0041 0.0070 0.0165 0.0237 0.0318 0.0450 0.0546 0.0697 0.0650 0.0517	0.0450 0.1260 D2 RMALIZED 0.0045 0.0093 0.0184 0.0233 0.0360 0.0502 0.0593 0.0638 0.0577 0.0490	0.0450 0.1260 CROSS C0 VALUE *** 0.0032 0.0067 0.0151 0.0205 0.0302 0.0432 0.0514 0.0603 0.0542 0.0542 0.0430	DHERENCY *** 0.5732 0.6794 0.7524 0.7600 0.7971 0.8253 0.8150 0.8183 0.7841 0.7301	0.0450 0.1800 B1 ***** ND 0.0039 0.0070 0.0118 0.0198 0.0197 0.0299 0.0409 0.0409 0.0589 0.0697 0.0674	0.0450 0.1800 D2 RMALIZED 0.0042 0.0069 0.0137 0.0220 0.0244 0.0333 0.0244 0.0333 0.0451 0.0625 0.0626 0.0643	0.0450 0.1800 CRUSS C VALUE ** 0.0027 0.0067 0.0109 0.0186 0.0187 0.0271 0.0384 0.0555 0.0579 0.0594	OHERENCY *** 0.4395 0.7242 0.7371 0.7929 0.7290 0.7391 0.7391 0.7996 0.8268 0.7683 0.8149
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07	0.0450 0.1260 B1 ***** NJ 0.0041 0.0070 0.0165 0.0237 0.0318 0.0450 0.0546 0.0697 0.0650 0.0517 0.0523	0.0450 0.1260 D2 RMALIZED 0.0045 0.0093 0.0184 0.0233 0.0360 0.0502 0.0593 0.0638 0.0577 0.0468	0.0450 0.1260 CROSS C( VALUE *** 0.0032 0.0067 0.0151 0.0205 0.0302 0.0432 0.0514 0.0603 0.0542 0.0430 0.0430	DHERENCY *** 0.5732 0.6794 0.7524 0.7600 0.7971 0.8253 0.8150 0.8183 0.7841 0.7301 0.6731	0.0450 0.1800 B1 ***** ND1 0.0039 0.0670 0.0118 0.0198 0.0197 0.0299 0.0409 0.0589 0.0589 0.0697 0.0674 0.0613	0.0450 0.1800 D2 RMALIZED 0.0042 0.0069 0.0137 0.0220 0.0244 0.0333 0.0451 0.0632 0.0643 0.0643 0.0562	0.0450 0.1800 CRUSS C VALUE ** 0.0027 0.0067 0.0109 0.0186 0.0187 0.0271 0.0384 0.0555 0.0579 0.0594 0.0488	OHERENCY *** 0.4395 0.7242 D.7371 0.7929 0.7290 0.7391 0.7996 0.8268 0.7683 0.8149 0.8149 0.6923
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55	0.0450 0.1260 B1 ***** NJ 0.0041 0.0073 0.0165 0.0237 0.0318 0.0453 0.0546 0.0697 0.0650 0.0517 0.0523 0.0476	0.0450 0.1260 D2 RMALIZED 0.0045 0.0093 0.0184 0.0233 0.0360 0.0502 0.0593 0.0638 0.0577 0.0490 0.0468 0.0436	0.0450 0.1260 CROSS C0 VALUE *** 0.0032 0.0067 0.0151 0.0205 0.0302 0.0432 0.0514 0.0603 0.0542 0.0430 0.0430	DHERENCY *** 0.5732 0.6794 0.7524 0.7600 0.7971 0.8253 0.8150 0.8183 0.7841 0.7301 0.6731 0.574	0.0450 0.1800 B1 ***** NDF 0.0039 0.0070 0.0118 0.0198 0.0197 0.0299 0.0409 0.0589 0.0697 0.0674 0.0613 0.0482	0.0450 0.1800 D2 RMALIZED 0.0042 0.0069 0.0137 0.0220 0.0244 0.0333 0.0451 0.0632 0.0643 0.0643 0.0643	0.0450 0.1800 CRUSS C VALUE ** 0.0027 0.0067 0.0109 0.0186 0.0187 0.0271 0.0384 0.0555 0.0579 0.0594 0.0488 0.0374	OHERENCY *** 0.4395 0.7242 0.7242 0.7391 0.7990 0.7391 0.7996 0.8268 0.7683 0.8149 0.6923 0.6029
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55	0.0450 0.1260 B1 ***** NJ 0.0041 0.0070 0.0165 0.0237 0.0318 0.0450 0.0546 0.0697 0.0650 0.0517 0.0523 0.0476	0.0450 0.1260 D2 RMALIZED 0.0045 0.0093 0.0184 0.0233 0.0360 0.0502 0.0593 0.0638 0.0577 0.0490 0.0448 0.0434	0.0450 0.1260 CROSS C0 VALUE *** 0.0032 0.0067 0.0151 0.0205 0.0302 0.0432 0.0514 0.0603 0.0542 0.0430 0.0430 0.0406 0.0330	DHERENCY *** 0.5732 0.6794 0.7524 0.7600 0.7971 0.8253 0.8150 0.8183 0.7841 0.7301 0.6731 0.5276	0.0450 0.1800 B1 ***** NDF 0.0039 0.0070 0.0118 0.0198 0.0197 0.0299 0.0409 0.0589 0.0697 0.0674 0.0613 0.0482	0.0450 0.1800 D2 RMALIZED 0.0042 0.0069 0.0137 0.0220 0.0244 0.0333 0.0451 0.0632 0.0626 0.0643 0.0562 0.0481 0.0321	0.0450 0.1800 CRUSS C VALUE ** 0.0027 0.0109 0.0186 0.0187 0.0271 0.0384 0.0555 0.0579 0.0594 0.0488 0.0374	OHERENCY *** 0.4395 0.7242 0.7371 0.7929 0.7290 0.7391 0.7996 0.8268 0.7683 0.8149 C.6923 0.6029 0.4381
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53	0.0450 0.1260 B1 ***** NJ 0.0041 0.0070 0.0165 0.0237 0.0318 0.0450 0.0546 0.0697 0.0650 0.0517 0.0523 0.0476 0.0423	0.0450 0.1260 D2 RMALIZED 0.0045 0.0093 0.0184 0.0233 0.0233 0.0360 0.0593 0.0638 0.0577 0.0490 0.0434 0.0434 0.0434 0.0346	0.0450 0.1260 CROSS C0 VALUE *** 0.0032 0.0067 0.0151 0.0205 0.0302 0.0432 0.0514 0.0603 0.0542 0.0430 0.0542 0.0430 0.0406 0.0330 0.0276	DHERENCY *** 0.5732 0.6794 0.7524 0.7600 0.7971 0.8253 0.8150 0.8183 0.7841 0.7301 0.6731 0.5276 0.5197	0.0450 0.1800 B1 ***** ND 0.0039 0.0070 0.0118 0.0198 0.0197 0.0299 0.0409 0.0589 0.0697 0.0674 0.0613 0.0482 0.0396 0.0310	0.0450 0.1800 D2 RMALIZED 0.0042 0.0069 0.0137 0.0220 0.0244 0.0333 0.0451 0.0632 0.0626 0.0643 0.0562 0.0481 0.0321	0.0450 0.1800 CRUSS C VALUE ** 0.0027 0.0109 0.0186 0.0187 0.0271 0.0384 0.0555 0.0579 0.0594 0.0488 0.0374 0.0236	OHERENCY *** 0.4395 0.7242 0.7371 0.7290 0.7391 0.7996 0.8268 0.7683 0.8149 0.6923 0.6029 0.4381 0.202
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51	0.0450 0.1260 B1 ***** NJ 0.0041 0.0075 0.0237 0.0318 0.0455 0.0546 0.0697 0.0650 0.0517 0.0523 0.0476 0.0423 0.0311	0.0450 0.1260 D2 RMALIZED 0.0045 0.0093 0.0184 0.0233 0.0360 0.0502 0.0593 0.0638 0.0577 0.0490 0.0434 0.0434 0.0323	0.0450 0.1260 CROSS C0 VALUE *** 0.0032 0.0067 0.0151 0.0205 0.0302 0.0432 0.0514 0.0603 0.0542 0.0542 0.0430 0.0542 0.0430 0.0542 0.0430 0.0542 0.0430 0.0542 0.0430 0.0542 0.0430 0.0542 0.0430 0.0542 0.0430 0.0542 0.0430 0.0542 0.0430 0.0542 0.0430 0.0542 0.0430 0.0542 0.05276 0.0207 0.05276 0.0207	DHERENCY *** 0.5732 0.6794 0.7524 0.7600 0.7971 0.8253 0.8150 0.8183 0.7841 0.7301 0.6731 0.5276 0.5197 0.4290	0.0450 0.1800 B1 ***** ND 0.0039 0.0070 0.0118 0.0198 0.0197 0.0299 0.0409 0.0409 0.0589 0.0697 0.0674 0.0613 0.0482 0.0396 0.0319	0.0450 0.1800 D2 RMALIZED 0.0042 0.0069 0.0137 0.0220 0.0244 0.0333 0.0451 0.0632 0.0643 0.0643 0.0562 0.0481 0.0321 0.0305	0.0450 0.1800 CRUSS C VALUE ** 0.0027 0.0067 0.0109 0.0186 0.0187 0.0271 0.0384 0.0555 0.0579 0.0594 0.0488 0.0374 0.0236 0.0193	OHERENCY *** 0.4395 0.7242 0.7371 0.7929 0.7290 0.7391 0.7996 0.8268 0.7683 0.8149 0.6923 0.6029 0.4381 0.3829
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48	0.0450 0.1260 B1 ***** NJ 0.0041 0.0073 0.0165 0.0237 0.0318 0.0455 0.0546 0.0697 0.0650 0.0517 0.0523 0.0476 0.0423 0.0311 0.0220	0.0450 0.1260 D2 RMALIZED 0.0045 0.0093 0.0184 0.0233 0.0360 0.0593 0.0638 0.0577 0.0490 0.0648 0.0434 0.0323 0.0323 0.0248	0.0450 0.1260 CROSS C0 VALUE *** 0.0032 0.0067 0.0151 0.0205 0.0302 0.0432 0.0514 0.0603 0.0542 0.0430 0.0406 0.0330 0.0276 0.0207 0.0118	DHERENCY *** 0.5732 0.6794 0.7524 0.7600 0.7971 0.8253 0.8150 0.8183 0.7841 0.7301 0.6731 0.6731 0.5276 0.5197 0.4290 0.2563	0.0450 0.1800 B1 ***** ND1 0.0039 0.0670 0.0118 0.0198 0.0198 0.0197 0.0299 0.0409 0.0589 0.0674 0.0674 0.0613 0.0613 0.0482 0.0396 0.0319 0.0321	0.0450 0.1800 D2 RMALIZED 0.0069 0.0137 0.0220 0.0244 0.0333 0.0451 0.0632 0.0643 0.0562 0.0643 0.0562 0.0481 0.0321 0.0305 0.0286	0.0450 0.1800 CRUSS C VALUE ** 0.0027 0.0067 0.0109 0.0186 0.0187 0.0271 0.0384 0.0555 0.0579 0.0594 0.0594 0.0488 0.0374 0.0236 0.0193 0.0194	OHERENCY *** 0.4395 0.7242 J.7371 0.7929 0.7290 0.7391 0.7996 0.8268 0.7683 0.8149 0.6029 0.4381 0.3829 0.4097
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46	0.0450 0.1260 B1 ***** NJ 0.0041 0.0073 0.0165 0.0237 0.0318 0.0450 0.0546 0.0697 0.0650 0.0517 0.0523 0.0476 0.0423 0.0476 0.0423 0.0311 0.0220 0.0219	0.0450 0.1260 D2 RMALIZED 0.0045 0.0093 0.0184 0.0233 0.0360 0.0593 0.0638 0.0577 0.0490 0.0648 0.0577 0.0490 0.0448 0.0434 0.0434 0.0323 0.0248 0.0185	0.0450 0.1260 CROSS C0 VALUE *** 0.0032 0.0067 0.0151 0.0205 0.0302 0.0432 0.0514 0.0603 0.0542 0.0430 0.0542 0.0430 0.0430 0.0430 0.0430 0.0276 0.0207 0.0118 0.0085	DHERENCY *** 0.5732 0.6794 0.7524 0.7600 0.7971 0.8253 0.8150 0.8183 0.7841 0.7301 0.6731 0.6731 0.5276 0.5197 0.4290 0.2563 0.1782	0.0450 0.1800 B1 ***** NDF 0.0039 0.0070 0.0118 0.0198 0.0197 0.0299 0.0409 0.0589 0.0697 0.0613 0.0482 0.0319 0.0319 0.0321 0.0201	0.0450 0.1800 D2 RMALIZED 0.0069 0.0137 0.0220 0.0244 0.0333 0.0451 0.0632 0.0626 0.0643 0.0562 0.0481 0.0305 0.0286 0.0196	0.0450 0.1800 CRUSS C VALUE ** 0.0027 0.0109 0.0186 0.0187 0.0271 0.0384 0.0555 0.0579 0.0594 0.0488 0.0374 0.0236 0.0193 0.0194 0.0094	OHERENCY *** 0.4395 0.7242 0.7371 0.7929 0.7290 0.7391 0.7996 0.8268 0.7683 0.8149 0.6023 0.6029 0.4381 0.3829 0.4097 0.2247
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41	0.0450 0.1260 B1 ***** NJ 0.0041 0.0070 0.0165 0.0237 0.0318 0.0450 0.0546 0.0697 0.0650 0.0517 0.0523 0.0476 0.0423 0.0473 0.0423 0.0473 0.0423 0.0423 0.0220 0.0219 0.0118	0.0450 0.1260 D2 RMALIZED 0.0045 0.0093 0.0184 0.0233 0.0360 0.0593 0.0638 0.0577 0.0490 0.0448 0.0434 0.0323 0.0248 0.0248 0.0185 0.0164	0.0450 0.1260 CROSS C0 VALUE *** 0.0032 0.0067 0.0151 0.0205 0.0302 0.0432 0.0514 0.0603 0.0542 0.0430 0.0406 0.0330 0.05276 0.05276 0.0542 0.0430 0.0542 0.0430 0.0542 0.0430 0.0542 0.0430 0.0542 0.0430 0.0542 0.0540 0.0540 0.0330 0.05276 0.0207 0.0330 0.05276 0.0207 0.0302 0.0432 0.0542 0.0430 0.0542 0.0543 0.0542 0.0543 0.0542 0.0543 0.0542 0.0543 0.05276 0.0207 0.0303 0.05276 0.0207 0.0303 0.05276 0.0207 0.03118 0.0053 0.0207 0.03148 0.0003 0.0003 0.0003 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00000 0.00000 0.00000 0.000000 0.000000 0.00000000	DHERENCY *** 0.5732 0.6794 0.7524 0.7600 0.7971 0.8253 0.8150 0.8183 0.7841 0.7301 0.6731 0.5276 0.5197 0.4290 0.2563 0.1782 0.0589	0.0450 0.1800 B1 ***** ND1 0.0039 0.0070 0.0118 0.0198 0.0197 0.0299 0.0409 0.0589 0.0697 0.0674 0.0613 0.0482 0.0319 0.0321 0.0201 0.0201 0.0201 0.0201 0.0201	0.0450 0.1800 D2 RMALIZED 0.0042 0.0069 0.0137 0.0220 0.0244 0.0333 0.0451 0.0632 0.0626 0.0643 0.0562 0.0643 0.0562 0.0481 0.0321 0.0305 0.0286 0.0143	0.0450 0.1800 CRUSS C VALUE ** 0.0027 0.0109 0.0186 0.0187 0.0271 0.0384 0.0255 0.0579 0.0594 0.0594 0.0488 0.0374 0.0236 0.0193 0.0194 0.0029	OHERENCY *** 0.4395 0.7242 0.7371 0.7929 0.7290 0.7391 0.7996 0.8268 0.7683 0.8149 C.6923 0.6029 0.4381 0.3829 0.4097 0.2247 0.0414
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37	0.0450 0.1260 B1 ***** NJ 0.0041 0.0070 0.0165 0.0237 0.0318 0.0450 0.0546 0.0697 0.0650 0.0517 0.0523 0.0476 0.0423 0.0476 0.0423 0.0476 0.0423 0.0219 0.0219 0.0101	0.0450 0.1260 D2 RMALIZED 0.0045 0.0093 0.0184 0.0233 0.0360 0.0502 0.0593 0.0638 0.0577 0.0490 0.0434 0.0434 0.0323 0.0248 0.0185 0.0185 0.0164	0.0450 0.1260 CROSS C0 VALUE *** 0.0032 0.0067 0.0151 0.0205 0.0302 0.0432 0.0514 0.0603 0.0542 0.0430 0.0542 0.0430 0.0542 0.0430 0.0542 0.0430 0.0276 0.0207 0.0118 0.0035 0.0038	DHERENCY *** 0.5732 0.6794 0.7524 0.7600 0.7971 0.8253 0.8183 0.7841 0.7301 0.6731 0.5276 0.5197 0.4290 0.2563 0.1782 0.0360	0.0450 0.1800 B1 ***** ND1 0.0039 0.0070 0.0118 0.0198 0.0197 0.0299 0.0409 0.0589 0.0697 0.0674 0.0613 0.0482 0.0396 0.0319 0.0321 0.0201 0.0145	0.0450 0.1800 D2 RMALIZED 0.0042 0.0069 0.0137 0.0220 0.0244 0.0333 0.0451 0.0632 0.0626 0.0643 0.0562 0.0643 0.0562 0.0481 0.0321 0.0305 0.0286 0.0196 0.0121	0.0450 0.1800 CRUSS C VALUE ** 0.0027 0.0109 0.0186 0.0187 0.0271 0.0384 0.0555 0.0579 0.0594 0.0488 0.0374 0.0236 0.0193 0.0194 0.0029 0.0029	OHERENCY *** 0.4395 0.7242 0.7371 0.7929 0.7290 0.7391 0.7996 0.8268 0.7683 0.8149 0.6029 0.4381 0.3829 0.4097 0.2247 0.0686
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37	0.0450 0.1260 B1 ***** NJ 0.0041 0.0070 0.0165 0.0237 0.0318 0.0450 0.0546 0.0697 0.0650 0.0517 0.0523 0.0476 0.0423 0.0476 0.0423 0.0476 0.0423 0.0311 0.0220 0.0219 0.0118 0.0101	0.0450 0.1260 D2 RMALIZED 0.0045 0.0093 0.0184 0.0233 0.0360 0.0502 0.0593 0.0638 0.0577 0.0490 0.0448 0.0434 0.0323 0.0248 0.0185 0.0164 0.0096 0.0076	0.0450 0.1260 CROSS C0 VALUE *** 0.0032 0.0067 0.0151 0.0205 0.0302 0.0432 0.0514 0.0603 0.0542 0.0430 0.0542 0.0430 0.0542 0.0430 0.0276 0.0207 0.0118 0.0085 0.0018 0.0021	DHERENCY *** 0.5732 0.6794 0.7524 0.7600 0.7971 0.8253 0.8150 0.8183 0.7841 0.7301 0.6731 0.5276 0.5197 0.4290 0.2563 0.1782 0.0589 0.0340 0.0340	0.0450 0.1800 B1 ***** ND1 0.0039 0.0070 0.0118 0.0198 0.0197 0.0299 0.0409 0.0589 0.0697 0.0674 0.0613 0.0482 0.0396 0.0319 0.0321 0.0201 0.0145 0.0037	0.0450 0.1800 D2 RMALIZED 0.0042 0.0069 0.0137 0.0220 0.0244 0.0333 0.0451 0.0632 0.0643 0.0643 0.0562 0.0643 0.0562 0.0481 0.0305 0.0286 0.0196 0.0143 0.0143 0.0121 0.0075	0.0450 0.1800 CRUSS C VALUE ** 0.0027 0.0067 0.0109 0.0186 0.0187 0.0271 0.0384 0.0555 0.0579 0.0594 0.0594 0.0594 0.0236 0.0193 0.011	OHERENCY *** 0.4395 0.7242 0.7371 0.7929 0.7290 0.7391 0.7391 0.7996 0.8268 0.7683 0.8149 0.6029 0.4381 0.3829 0.4097 0.2247 0.0414 0.0686 0.0195
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81	0.0450 0.1260 B1 ***** NJ 0.0041 0.0073 0.0165 0.0237 0.0318 0.0455 0.0546 0.0697 0.0650 0.0517 0.0523 0.0476 0.0423 0.0311 0.0220 0.0219 0.0118 0.0101 0.0100	0.0450 0.1260 D2 RMALIZED 0.0045 0.0093 0.0184 0.0233 0.0360 0.0593 0.0638 0.0577 0.0490 0.0638 0.0577 0.0490 0.0648 0.0434 0.0323 0.0248 0.0185 0.0164 0.0096 0.0074	0.0450 0.1260 CROSS C0 VALUE *** 0.0032 0.0067 0.0151 0.0205 0.0302 0.0432 0.0514 0.0603 0.0542 0.0430 0.0542 0.0430 0.0542 0.0430 0.0542 0.0430 0.0542 0.0430 0.0542 0.0430 0.0542 0.0430 0.0542 0.0430 0.0542 0.0430 0.0542 0.0430 0.0542 0.0430 0.0542 0.0430 0.0542 0.0430 0.0542 0.0430 0.0542 0.0430 0.0542 0.0430 0.0542 0.0430 0.0542 0.0430 0.0430 0.0542 0.0542 0.0542 0.0540 0.0207 0.0207 0.0118 0.00207 0.0034 0.0034 0.0034 0.0030 0.0207 0.0118 0.0003 0.0034 0.0003 0.00207 0.0018 0.0003 0.0018	DHERENCY *** 0.5732 0.6794 0.7524 0.7524 0.7600 0.7971 0.8253 0.8150 0.8183 0.7841 0.7301 0.6731 0.5276 0.5197 0.4290 0.2563 0.1782 0.0589 0.0340 0.525	0.0450 0.1800 B1 ***** ND1 0.0039 0.0070 0.0118 0.0198 0.0197 0.0299 0.0409 0.0589 0.0674 0.0613 0.0482 0.0396 0.0319 0.0321 0.0201 0.0146 0.0145 0.0037	0.0450 0.1800 D2 RMALIZED 0.0042 0.0069 0.0137 0.0220 0.0244 0.0333 0.0451 0.0632 0.0643 0.0643 0.0562 0.0481 0.0321 0.0305 0.0286 0.0196 0.0143 0.0121 0.075	0.0450 0.1800 CRUSS C VALUE ** 0.0027 0.0067 0.0109 0.0186 0.0187 0.0271 0.0384 0.0271 0.0384 0.0555 0.0579 0.0594 0.0594 0.0236 0.0193 0.0194 0.0029 0.0035 0.0011	OHERENCY *** 0.4395 0.7242 J.7371 0.7290 0.7290 0.7391 0.7996 0.8268 0.7683 0.8149 0.6029 0.4381 0.3829 0.4097 0.2247 0.0414 0.0686 0.0195 0.0195
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25	0.0450 0.1260 B1 ***** NJ 0.0041 0.0073 0.0165 0.0237 0.0318 0.0450 0.0546 0.0697 0.0650 0.0517 0.0523 0.0476 0.0423 0.0476 0.0423 0.0476 0.0423 0.0311 0.0220 0.0219 0.0118 0.0101 0.0103 0.0055	0.0450 0.1260 D2 RMALIZED 0.0045 0.0093 0.0184 0.0233 0.0360 0.0593 0.0638 0.0577 0.0490 0.0638 0.0577 0.0490 0.0448 0.0434 0.0434 0.0248 0.0248 0.0185 0.0164 0.0096 0.0074 0.0063	0.0450 0.1260 CROSS C0 VALUE *** 0.0032 0.0067 0.0151 0.0205 0.0302 0.0432 0.0514 0.0603 0.0542 0.0430 0.0542 0.05276 0.00207 0.0034 0.0021	DHERENCY *** 0.5732 0.6794 0.7524 0.7600 0.7971 0.8253 0.8150 0.8183 0.7841 0.7301 0.6731 0.5276 0.5197 0.4290 0.2563 0.1782 0.0589 0.0340 0.0567 0.1035	0.0450 0.1800 B1 ***** ND1 0.0039 0.0070 0.0118 0.0198 0.0197 0.0299 0.0409 0.0589 0.0697 0.0674 0.0613 0.0482 0.0396 0.0319 0.0319 0.0321 0.0201 0.0145 0.0087 0.0087 0.0057	0.0450 0.1800 D2 RMALIZED 0.0069 0.0137 0.0220 0.0244 0.0333 0.0451 0.0632 0.0643 0.0662 0.0643 0.0562 0.0481 0.0305 0.0286 0.0196 0.0143 0.0121 0.0075 0.0055	0.0450 0.1800 CRUSS C VALUE ** 0.0027 0.0109 0.0186 0.0187 0.0271 0.0384 0.0555 0.0579 0.0594 0.0488 0.0374 0.0236 0.0193 0.0194 0.0029 0.0035 0.0011 0.0011	OHERENCY *** 0.4395 0.7242 0.7371 0.7929 0.7290 0.7391 0.7996 0.8268 0.7683 0.8149 0.6029 0.4381 0.3829 0.4097 0.2247 0.0414 0.0686 0.0195 0.0433
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64	0.0450 0.1260 B1 ***** NJ 0.0041 0.0070 0.0165 0.0237 0.0318 0.0450 0.0546 0.0697 0.0650 0.0517 0.0523 0.0476 0.0423 0.0476 0.0423 0.0476 0.0423 0.0476 0.0423 0.0219 0.0055 0.00311 0.0055 0.00311 0.0055 0.0031 0.0055 0.0031 0.0031 0.0055 0.0055	0.0450 0.1260 D2 RMALIZED 0.0045 0.0093 0.0184 0.0233 0.0360 0.0593 0.0638 0.0577 0.0490 0.0448 0.0434 0.0323 0.0248 0.0185 0.0164 0.0096 0.0074 0.0063 0.0036	0.0450 0.1260 CROSS C0 VALUE *** 0.0032 0.0067 0.0151 0.0205 0.0302 0.0432 0.0514 0.0603 0.0542 0.0430 0.05276 0.0207 0.02118 0.0207 0.0118 0.0021 0.0018 0.0021 0.0019 0.0006	DHERENCY *** 0.5732 0.6794 0.7524 0.7600 0.7971 0.8253 0.8150 0.8183 0.7841 0.7301 0.6731 0.5276 0.5197 0.4290 0.2563 0.1782 0.0589 0.0350 0.0350	0.0450 0.1800 B1 ***** ND1 0.0039 0.0070 0.0198 0.0198 0.0197 0.0299 0.0409 0.0299 0.0409 0.0589 0.0697 0.0674 0.0613 0.0482 0.0319 0.0319 0.0321 0.0201 0.0145 0.0037 0.0059 0.0034	0.0450 0.1800 D2 RMALIZED 0.0042 0.0069 0.0137 0.0220 0.0244 0.0333 0.0451 0.0632 0.0626 0.0643 0.0562 0.0643 0.0562 0.0481 0.0321 0.0305 0.0286 0.0195 0.0143 0.0121 0.0075 0.0050 0.0042	0.0450 0.1800 CRUSS C VALUE ** 0.0027 0.0109 0.0186 0.0187 0.0271 0.0384 0.0271 0.0384 0.0555 0.0579 0.0594 0.0594 0.0594 0.0594 0.0236 0.0193 0.0193 0.0194 0.0029 0.0035 0.0011 0.0011 0.0016	OHERENCY *** 0.4395 0.7242 0.7371 0.7929 0.7290 0.7391 0.7996 0.8268 0.7683 0.8149 0.6029 0.4381 0.3829 0.4097 0.2247 0.0414 0.0686 0.0195 0.0433 0.0296
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.08	0.0450 0.1260 B1 ***** NJ 0.0041 0.0070 0.0165 0.0237 0.0546 0.0450 0.0546 0.0697 0.0650 0.0517 0.0523 0.0476 0.0423 0.0476 0.0423 0.0219 0.0219 0.0118 0.0101 0.0100 0.0055 0.0031 0.0024	0.0450 0.1260 D2 RMALIZED 0.0045 0.0093 0.0184 0.0233 0.0233 0.0360 0.0593 0.0638 0.0577 0.0490 0.0434 0.0577 0.0490 0.0446 0.0323 0.0248 0.0185 0.0185 0.0185 0.0164 0.0096 0.0074 0.0063 0.0028	0.0450 0.1260 CROSS C0 VALUE *** 0.0032 0.0067 0.0151 0.0205 0.0302 0.0432 0.0514 0.0603 0.0542 0.0430 0.0542 0.0543 0.0542 0.0543 0.0542 0.0543 0.0542 0.0543 0.0542 0.0543 0.0542 0.0543 0.0542 0.0543 0.0542 0.0543 0.0542 0.0543 0.0542 0.0543 0.0542 0.0543 0.0542 0.0543 0.0542 0.0543 0.0542 0.0543 0.0542 0.0543 0.0542 0.0543 0.0543 0.0542 0.0543 0.0543 0.0543 0.0543 0.0543 0.0543 0.0543 0.0543 0.0543 0.0543 0.0543 0.0543 0.0543 0.0545 0.0034 0.0018 0.0021 0.0006 0	DHERENCY *** 0.5732 0.6794 0.7524 0.7600 0.7971 0.8253 0.8183 0.7841 0.7301 0.6731 0.5276 0.5197 0.4290 0.2563 0.1782 0.0350 0.0350 0.0179	0.0450 0.1800 B1 ***** NO 0.0039 0.0070 0.0118 0.0198 0.0197 0.0299 0.0409 0.0589 0.0697 0.0674 0.0613 0.0482 0.0396 0.0319 0.0321 0.0201 0.0145 0.0037 0.0059 0.0034 0.0024	0.0450 0.1800 D2 RMALIZED 0.0042 0.0069 0.0137 0.0220 0.0244 0.0333 0.0451 0.0632 0.0626 0.0643 0.0562 0.0643 0.0562 0.0481 0.0321 0.0305 0.0286 0.0196 0.0143 0.0121 0.0075 0.0050 0.0042 0.0027	0.0450 0.1800 CRUSS C VALUE ** 0.0027 0.0109 0.0186 0.0187 0.0271 0.0384 0.0555 0.0579 0.0594 0.0594 0.0594 0.0594 0.0594 0.0193 0.0193 0.0194 0.0094 0.0029 0.0035 0.0011 0.0011 0.0006 0.0006	OHERENCY *** 0.4395 0.7242 0.7371 0.7290 0.7290 0.7391 0.7996 0.8268 0.7683 0.8149 0.6029 0.4381 0.3829 0.4097 0.2247 0.04381 0.0686 0.0195 0.0433 0.0296 0.0551
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.08 27.53	0.0450 0.1260 B1 ***** NJ 0.0041 0.0073 0.0165 0.0237 0.0318 0.0455 0.0546 0.0697 0.0650 0.0517 0.0523 0.0476 0.0423 0.0311 0.0220 0.0219 0.0118 0.0101 0.0105 0.0055 0.0031 0.0024 0.0019	0.0450 0.1260 D2 RMALIZED 0.0045 0.0093 0.0184 0.0233 0.0360 0.0593 0.0638 0.0577 0.0490 0.0638 0.0434 0.0323 0.0248 0.0185 0.0164 0.0096 0.0074 0.0074 0.0063 0.0028 0.0021	0.0450 0.1260 CROSS C0 VALUE *** 0.0032 0.0067 0.0151 0.0205 0.0302 0.0432 0.0432 0.0514 0.0603 0.0542 0.0430 0.0406 0.0330 0.0276 0.0207 0.0118 0.0207 0.0211 0.0021 0.0003 0.0004	DHERENCY *** 0.5732 0.6794 0.7524 0.7600 0.7971 0.8253 0.8150 0.8183 0.7841 0.7301 0.6731 0.5276 0.5197 0.4290 0.2563 0.1782 0.0589 0.0350 0.0350 0.0179 0.0442	0.0450 0.1800 B1 ***** ND1 0.0039 0.0070 0.0118 0.0198 0.0197 0.0299 0.0409 0.0589 0.0674 0.0613 0.0613 0.0482 0.0396 0.0319 0.0321 0.0201 0.0146 0.0145 0.0037 0.0059 0.0034 0.0024 0.0017	0.0450 0.1800 D2 RMALIZED 0.0042 0.0069 0.0137 0.0220 0.0244 0.0333 0.0451 0.0632 0.0643 0.0643 0.0645 0.0643 0.0645 0.0643 0.0562 0.0481 0.0305 0.0286 0.0196 0.0143 0.0143 0.0121 0.0075 0.0050 0.0042 0.0027 0.0022	0.0450 0.1800 CRUSS C VALUE ** 0.0027 0.0067 0.0109 0.0186 0.0187 0.0271 0.0384 0.0555 0.0579 0.0594 0.0594 0.0594 0.0594 0.0236 0.0193 0.0194 0.0029 0.0035 0.0011 0.0011 0.0011	OHERENCY *** 0.4395 0.7242 J.7371 0.7290 0.7290 0.7391 0.7996 0.8268 0.7683 0.8149 0.6029 0.4381 0.3829 0.4097 0.2247 0.0414 0.0686 0.0195 0.0433 0.0296 0.0355
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.08 27.53 30.46	0.0450 0.1260 B1 ***** NJ 0.0041 0.0073 0.0165 0.0237 0.0318 0.0450 0.0546 0.0697 0.0650 0.0517 0.0523 0.0476 0.0423 0.0311 0.0220 0.0219 0.0118 0.0101 0.0055 0.0031 0.0024 0.0019 0.0014	0.0450 0.1260 D2 RMALIZED 0.0045 0.0093 0.0184 0.0233 0.0360 0.0593 0.0638 0.0577 0.0490 0.0468 0.0434 0.0434 0.0434 0.0248 0.0185 0.0164 0.0074 0.0063 0.0028 0.0021 0.0016	0.0450 0.1260 CROSS C0 VALUE *** 0.0032 0.0067 0.0151 0.0205 0.0302 0.0432 0.0514 0.0603 0.0542 0.0430 0.0430 0.0430 0.0430 0.0430 0.0430 0.0430 0.0276 0.0207 0.0118 0.0021 0.0018 0.0021 0.0018 0.0021 0.0018 0.0021 0.0003 0.0004 0.0003	DHERENCY *** 0.5732 0.6794 0.7524 0.7524 0.7600 0.7971 0.8253 0.8150 0.8183 0.7841 0.7301 0.6731 0.5276 0.5197 0.4290 0.2563 0.1782 0.0589 0.0350 0.0179 0.0442 0.0367	0.0450 0.1800 B1 ***** ND1 0.0039 0.0070 0.0118 0.0198 0.0197 0.0299 0.0409 0.0589 0.0677 0.0674 0.0613 0.0482 0.0396 0.0319 0.0321 0.0201 0.0037 0.0037 0.0034 0.0034 0.0024 0.0017 0.0015	0.0450 0.1800 D2 RMALIZED 0.0069 0.0137 0.0220 0.0244 0.0333 0.0451 0.0632 0.0626 0.0643 0.0562 0.0481 0.0305 0.0286 0.0196 0.0143 0.0121 0.0075 0.0050 0.0042 0.0027 0.0022 0.0016	0.0450 0.1800 CRUSS C VALUE ** 0.0027 0.0109 0.0186 0.0187 0.0271 0.0384 0.0271 0.0384 0.0555 0.0579 0.0594 0.0488 0.0374 0.0236 0.0193 0.0194 0.0029 0.0035 0.0011 0.0016 0.0006 0.0004 0.0003	OHERENCY *** 0.4395 0.7242 J.7371 0.7929 0.7290 0.7391 0.7996 0.8268 0.7683 0.8149 0.6029 0.4381 0.3829 0.4097 0.2247 0.0414 0.0686 0.0195 0.0433 0.0296 0.0355 0.0370
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.08 27.53 30.46 34.85	0.0450 0.1260 B1 ***** NJ 0.0041 0.0073 0.0165 0.0237 0.0318 0.0450 0.0546 0.0697 0.0650 0.0517 0.0523 0.0476 0.0476 0.0423 0.0476 0.0423 0.0476 0.0423 0.0476 0.0219 0.0118 0.0103 0.0024 0.0031 0.0031 0.0031 0.0055 0.0031	0.0450 0.1260 D2 RMALIZED 0.0045 0.0093 0.0184 0.0233 0.0360 0.0593 0.0638 0.0577 0.0490 0.0638 0.0248 0.0185 0.0164 0.0028 0.0021 0.0011	0.0450 0.1260 CROSS C0 VALUE *** 0.0032 0.0067 0.0151 0.0205 0.0302 0.0432 0.0514 0.0603 0.0542 0.0430 0.0542 0.0430 0.0542 0.0430 0.0542 0.0430 0.0542 0.0430 0.0276 0.0207 0.0118 0.0021 0.0018 0.0003 0.0003 0.0003 0.0003 0.0003	DHERENCY *** 0.5732 0.6794 0.7524 0.7600 0.7971 0.8253 0.8150 0.8183 0.7841 0.7301 0.6731 0.5276 0.5197 0.4290 0.2563 0.1782 0.0589 0.0350 0.01597 0.0350 0.0179 0.6442 0.0367 0.0147	0.0450 0.1800 B1 ***** NDF 0.0039 0.0070 0.0118 0.0198 0.0197 0.0299 0.0409 0.0589 0.0697 0.0674 0.0613 0.0482 0.0319 0.0319 0.0319 0.0321 0.0201 0.0145 0.0037 0.0059 0.0034 0.0024 0.0017 0.0015 0.009	0.0450 0.1800 D2 RMALIZED 0.0042 0.0069 0.0137 0.0220 0.0244 0.0333 0.0451 0.0632 0.0626 0.0643 0.0562 0.0643 0.0562 0.0481 0.0321 0.0305 0.0286 0.0195 0.0143 0.0121 0.0075 0.0050 0.0042 0.0027 0.0022 0.0016 0.0010	0.0450 0.1800 CRUSS C VALUE ** 0.0027 0.0109 0.0186 0.0187 0.0271 0.0384 0.0255 0.0579 0.0594 0.0594 0.0594 0.0594 0.0594 0.0594 0.0236 0.0193 0.0193 0.0193 0.0193 0.0193 0.0194 0.0029 0.0035 0.0011 0.0006 0.0004 0.0003 0.0002	OHERENCY *** 0.4395 0.7242 0.7371 0.7929 0.7290 0.7391 0.7996 0.8268 0.7683 0.8149 0.6029 0.4381 0.3829 0.4097 0.2247 0.0414 0.0686 0.0195 0.0433 0.0296 0.0355 0.0370 0.0268
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.08 27.53 30.46 34.85 40.22	0.0450 0.1260 B1 ***** NJ 0.0041 0.0073 0.0165 0.0237 0.0318 0.0453 0.0453 0.0455 0.0546 0.0697 0.0650 0.0517 0.0523 0.0476 0.0423 0.0476 0.0423 0.0476 0.0423 0.0476 0.0423 0.0219 0.0118 0.0101 0.0024 0.0014 0.0014 0.009 0.0004	0.0450 0.1260 D2 RMALIZED 0.0045 0.0093 0.0184 0.0233 0.0360 0.0593 0.0638 0.0577 0.0490 0.0448 0.0434 0.0323 0.0248 0.0185 0.0164 0.0074 0.0063 0.0028 0.0028 0.0021 0.0016 0.0011 0.0077	0.0450 0.1260 CROSS C0 VALUE *** 0.0032 0.0067 0.0151 0.0205 0.0302 0.0432 0.0514 0.0603 0.0542 0.0430 0.0542 0.0430 0.0542 0.0430 0.0542 0.0430 0.0542 0.0430 0.0276 0.0207 0.0118 0.0021 0.0018 0.0003 0.0004 0.0003 0.0004	DHERENCY *** 0.5732 0.6794 0.7524 0.7600 0.7971 0.8253 0.8183 0.7841 0.7301 0.6731 0.5276 0.5197 0.4290 0.2563 0.1782 0.0589 0.0350 0.0350 0.0179 0.6442 0.0367 0.0147 0.0147 0.0147	0.0450 0.1800 B1 ***** N05 0.0039 0.0070 0.0118 0.0198 0.0197 0.0299 0.0409 0.0589 0.0697 0.0674 0.0613 0.0482 0.0319 0.0321 0.0221 0.0221 0.0145 0.0037 0.0059 0.0034 0.0024 0.0017 0.0015 0.009 0.0065	0.0450 0.1800 D2 RMALIZED 0.0042 0.0069 0.0137 0.0220 0.0244 0.0333 0.0451 0.0632 0.0626 0.0643 0.0562 0.0643 0.0562 0.0481 0.0321 0.0305 0.0286 0.0143 0.0121 0.0075 0.0050 0.0042 0.0027 0.0022 0.0016 0.0016	0.0450 0.1800 CRUSS C VALUE ** 0.0027 0.0109 0.0186 0.0187 0.0271 0.0384 0.0271 0.0384 0.0271 0.0384 0.0271 0.0384 0.0271 0.0384 0.0271 0.0384 0.0271 0.0384 0.0271 0.0384 0.0271 0.0384 0.0271 0.0384 0.0271 0.0384 0.0271 0.0384 0.0271 0.0384 0.0271 0.0384 0.0271 0.0384 0.0271 0.0394 0.0236 0.0193 0.0194 0.0029 0.0035 0.0011 0.0006 0.0006 0.0004 0.0003 0.0002	OHERENCY *** 0.4395 0.7242 0.7371 0.7929 0.7290 0.7391 0.7996 0.8268 0.7683 0.8149 0.6029 0.4381 0.3829 0.4097 0.2247 0.0414 0.0686 0.0195 0.0413 0.0296 0.0355 0.0370 0.0268 0.0424
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 27.53 30.46 34.85 40.22 5.64	0.0450 0.1260 B1 ***** NJ 0.0041 0.0070 0.0165 0.0237 0.0318 0.0450 0.0546 0.0697 0.0650 0.0517 0.0523 0.0476 0.0423 0.0476 0.0423 0.0476 0.0423 0.0476 0.0423 0.0219 0.0111 0.0101 0.0055 0.0031 0.0024 0.0014 0.0009 0.0014	0.0450 0.1260 D2 RMALIZED 0.0045 0.0093 0.0184 0.0233 0.0233 0.0593 0.0638 0.0577 0.0490 0.0446 0.0593 0.0648 0.0434 0.0323 0.0248 0.0185 0.0185 0.0164 0.0096 0.0028 0.0028 0.0021 0.0016 0.0017 0.0007	0.0450 0.1260 CROSS C0 VALUE *** 0.0032 0.0067 0.0151 0.0205 0.0302 0.0432 0.0514 0.0603 0.0542 0.0430 0.0542 0.0542 0.0430 0.0542 0.0542 0.0542 0.0430 0.0542 0.0542 0.0542 0.0430 0.0542 0.0542 0.0542 0.0542 0.0542 0.0540 0.0542 0.0540 0.0542 0.0540 0.0542 0.0540 0.0542 0.0540 0.0540 0.0540 0.0540 0.0540 0.0540 0.0540 0.0540 0.0540 0.0540 0.0540 0.0540 0.0540 0.0540 0.0540 0.0540 0.0542 0.0540 0.0540 0.0542 0.0540 0.0542 0.000 0.0542 0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.000000 0.00000000	DHERENCY *** 0.5732 0.6794 0.7524 0.7600 0.7971 0.8253 0.8183 0.7841 0.7301 0.6731 0.5276 0.5197 0.4290 0.2563 0.1782 0.0350 0.0350 0.0350 0.0179 0.0442 0.0367 0.0147 0.0253	0.0450 0.1800 B1 ***** NO 0.0039 0.0070 0.0118 0.0198 0.0197 0.0299 0.0409 0.0589 0.0697 0.0674 0.0613 0.0482 0.0396 0.0319 0.0321 0.0201 0.0145 0.0037 0.0059 0.0034 0.0024 0.0015 0.0005 0.0005 0.0005 0.0005 0.0005	0.0450 0.1800 D2 RMALIZED 0.0042 0.0069 0.0137 0.0220 0.0244 0.0333 0.0451 0.0632 0.0626 0.0643 0.0562 0.0643 0.0562 0.0481 0.0321 0.0305 0.0286 0.0196 0.0143 0.0121 0.0075 0.0050 0.0042 0.0050 0.0042 0.0027 0.0022 0.0016 0.0010	0.0450 0.1800 CRUSS C VALUE ** 0.0027 0.0109 0.0186 0.0187 0.0271 0.0384 0.0271 0.0384 0.0555 0.0579 0.0594 0.0594 0.0594 0.0594 0.0594 0.0594 0.0235 0.0193 0.0194 0.0029 0.0029 0.0035 0.0011 0.0006 0.0004 0.0002 0.0002 0.0002 0.0002	OHERENCY *** 0.4395 0.7242 0.7371 0.7290 0.7290 0.7290 0.7391 0.7996 0.8268 0.7683 0.8149 0.6029 0.4381 0.3829 0.4097 0.2247 0.0414 0.0686 0.0195 0.0433 0.0296 0.0551 0.0355 0.0370 0.0268 0.0426 0.0457
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.08 27.53 30.46 34.85 40.22 50.48	0.0450 0.1260 B1 ***** NJ 0.0041 0.0073 0.0165 0.0237 0.0318 0.0455 0.0546 0.0697 0.0650 0.0517 0.0523 0.0476 0.0423 0.0311 0.0220 0.0219 0.0118 0.0101 0.0105 0.0055 0.0031 0.0224 0.0014 0.009 0.0006 0.0033	0.0450 0.1260 D2 RMALIZED 0.0045 0.0093 0.0184 0.0233 0.0360 0.0593 0.0638 0.0577 0.0490 0.0468 0.0450 0.0468 0.0446 0.0434 0.0323 0.0248 0.0185 0.0164 0.0076 0.0076 0.0028 0.0021 0.0016 0.0011 0.0007 0.0003	0.0450 0.1260 CROSS C0 VALUE *** 0.0032 0.0067 0.0151 0.0205 0.0302 0.0432 0.0514 0.0603 0.0542 0.0430 0.0207 0.0118 0.0021 0.0018 0.0001 0.0001 0.0000	DHERENCY *** 0.5732 0.6794 0.7524 0.7524 0.7524 0.7523 0.8150 0.8183 0.7841 0.7301 0.6731 0.5276 0.5197 0.4290 0.2563 0.1782 0.0589 0.0340 0.5567 0.0350 0.0179 0.6442 0.0367 0.0147 0.0253 0.0192	0.0450 0.1800 B1 ***** ND1 0.0039 0.0070 0.0118 0.0198 0.0197 0.0299 0.0409 0.0589 0.0674 0.0613 0.0674 0.0613 0.0482 0.0396 0.0319 0.0321 0.0201 0.0037 0.0037 0.0037 0.0034 0.0034 0.0024 0.0017 0.0015 0.0005 0.0005 0.0005 0.0005 0.0005	0.0450 0.1800 D2 RMALIZED 0.0042 0.0069 0.0137 0.0220 0.0244 0.0333 0.0451 0.0632 0.0643 0.0643 0.0562 0.0481 0.0321 0.0305 0.0286 0.0196 0.0143 0.0121 0.0075 0.0050 0.0042 0.0050 0.0022 0.0016 0.0003	0.0450 0.1800 CRUSS C VALUE ** 0.0027 0.0109 0.0186 0.0187 0.0271 0.0384 0.0271 0.0384 0.0555 0.0579 0.0594 0.0594 0.0236 0.0193 0.0193 0.0194 0.0029 0.0035 0.0011 0.0006 0.0	OHERENCY *** 0.4395 0.7242 0.7371 0.7290 0.7290 0.7391 0.7996 0.8268 0.7683 0.8149 0.6029 0.4381 0.3829 0.4097 0.2247 0.0414 0.0686 0.0195 0.0433 0.0296 0.0355 0.0370 0.0268 0.0268 0.0276
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.08 27.53 30.46 34.85 40.22 50.48 60.24	0.0450 0.1260 B1 ***** NJ 0.0041 0.0073 0.0165 0.0237 0.0318 0.0450 0.0546 0.0697 0.0650 0.0517 0.0523 0.0476 0.0423 0.0311 0.0220 0.0219 0.0118 0.0101 0.0031 0.0024 0.0031 0.0024 0.0031 0.0024 0.0014 0.0004 0.0004 0.0004 0.0014 0.0004 0.0004 0.0004 0.0024 0.0014 0.0004 0.0004 0.0004 0.0024 0.0014 0.0004 0.0004 0.0004 0.0004 0.0004 0.0004 0.0004 0.0004 0.0004 0.0004 0.0004 0.0004 0.0004 0.0004 0.0004 0.0000 0.0004 0.0004 0.0004 0.0004 0.0000 0.0004 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.000000 0.00000000	0.0450 0.1260 D2 RMALIZED 0.0045 0.0093 0.0184 0.0233 0.0360 0.0593 0.0638 0.0577 0.0490 0.0448 0.0444 0.0434 0.0434 0.0248 0.0185 0.0164 0.0028 0.0028 0.0021 0.0016	0.0450 0.1260 CROSS C0 VALUE *** 0.0032 0.0067 0.0151 0.0205 0.0302 0.0432 0.0514 0.0603 0.0542 0.0430 0.0406 0.0330 0.0276 0.0207 0.0118 0.0021 0.0018 0.0021 0.001 0.0003 0.0001 0.0000 0.0000	DHERENCY *** 0.5732 0.6794 0.7524 0.7524 0.7600 0.7971 0.8253 0.8150 0.8183 0.7841 0.7301 0.6731 0.5276 0.5197 0.4290 0.2563 0.1782 0.0589 0.0350 0.0179 0.0442 0.0357 0.0147 0.0253 0.0192 0.0462	0.0450 0.1800 B1 ***** ND1 0.0039 0.0070 0.0118 0.0198 0.0197 0.0299 0.0409 0.0589 0.0697 0.0674 0.0613 0.0482 0.0319 0.0319 0.0321 0.0201 0.0037 0.0037 0.0037 0.0037 0.0039 0.0037 0.0039 0.0037 0.0037 0.0037 0.0037 0.0037 0.0037 0.0037 0.0037 0.0037 0.0037 0.0037 0.0037 0.0037 0.0037 0.0037 0.0037 0.0037 0.0037 0.0037 0.0039 0.0037 0.0039 0.0037 0.0039 0.0037 0.0039 0.0037 0.0039 0.0037 0.0039 0.0037 0.0039 0.0037 0.0037 0.0039 0.0037 0.0037 0.0039 0.0037 0.0039 0.0039 0.0039 0.0037 0.0039 0.00039 0.00009 0.0000000000	0.0450 0.1800 D2 RMALIZED 0.0042 0.0069 0.0137 0.0220 0.0244 0.0333 0.0451 0.0632 0.0643 0.0643 0.0562 0.0481 0.0305 0.0286 0.0196 0.0143 0.0121 0.0075 0.0050 0.0042 0.0052 0.0042 0.0052 0.0052 0.0050 0.0042 0.0052 0.0050 0.0052 0.0055 0.0052 0.0050 0.0052 0.0050 0.0052 0.0052 0.0050 0.0052 0.0050 0.0052 0.0050 0.0052 0.0050 0.0052 0.0050 0.0052 0.0050 0.0052 0.0050 0.0050 0.0052 0.0050	0.0450 0.1800 CRUSS C VALUE ** 0.0027 0.0109 0.0186 0.0187 0.0271 0.0384 0.0555 0.0579 0.0594 0.0488 0.0374 0.0236 0.0193 0.0193 0.0194 0.0029 0.0035 0.0011 0.0006 0.0002 0.0001 0.0001 0.0001 0.0001 0.0000	OHERENCY *** 0.4395 0.7242 0.7371 0.7929 0.7290 0.7391 0.7996 0.8268 0.7683 0.8149 0.6023 0.6029 0.4381 0.3829 0.4097 0.2247 0.0414 0.0686 0.0195 0.0433 0.0296 0.0370 0.0268 0.0256
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.08 27.53 30.46 34.85 40.22 50.48 60.24 70.01	0.0450 0.1260 B1 ***** NJ 0.0041 0.0073 0.0165 0.0237 0.0318 0.0450 0.0546 0.0697 0.0650 0.0517 0.0523 0.0476 0.0423 0.0476 0.0423 0.0476 0.0423 0.0476 0.0423 0.0219 0.0118 0.0101 0.0024 0.0014 0.0001 0.0001	0.0450 0.1260 D2 RMALIZED 0.0045 0.0093 0.0184 0.0233 0.0360 0.0593 0.0638 0.0577 0.0490 0.0448 0.0444 0.0444 0.0248 0.0248 0.0185 0.0164 0.0021 0.0016 0.0011 0.0001 0.0001	0.0450 0.1260 CROSS C0 VALUE *** 0.0032 0.0067 0.0151 0.0205 0.0302 0.0432 0.0514 0.0603 0.0542 0.0430 0.0542 0.0430 0.0542 0.0430 0.0276 0.0207 0.0118 0.0021 0.0018 0.0003 0.0004 0.0003 0.0001 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.000000 0.000000 0.00000000	DHERENCY *** 0.5732 0.6794 0.7524 0.7600 0.7971 0.8253 0.8150 0.8183 0.7841 0.7301 0.6731 0.5276 0.5197 0.4290 0.2563 0.1782 0.0589 0.0350 0.0179 0.0442 0.0357 0.0177 0.0253 0.0192 0.0462 0.0238	0.0450 0.1800 B1 ***** ND1 0.0039 0.0070 0.0198 0.0198 0.0197 0.0299 0.0409 0.0589 0.0697 0.0674 0.0613 0.0482 0.0319 0.0319 0.0319 0.0321 0.0201 0.0059 0.0034 0.0059 0.0059 0.0005 0.0005 0.0002 0.0001 0.0001	0.0450 0.1800 D2 RMALIZED 0.0042 0.0069 0.0137 0.0220 0.0244 0.0333 0.0451 0.0632 0.0626 0.0643 0.0562 0.0643 0.0562 0.0481 0.0321 0.0321 0.0305 0.0286 0.0195 0.0286 0.0143 0.0121 0.0075 0.0050 0.0042 0.0022 0.0022 0.0022 0.0016 0.0001 0.0001 0.0001	0.0450 0.1800 CRUSS C VALUE ** 0.0027 0.0109 0.0186 0.0187 0.0271 0.0384 0.0271 0.0384 0.0271 0.0384 0.0271 0.0384 0.0271 0.0384 0.0271 0.0384 0.0271 0.0384 0.0271 0.0374 0.0236 0.0193 0.0193 0.0194 0.0029 0.0035 0.0011 0.0004 0.0002 0.0001 0.0001 0.0000 0.0000	OHERENCY *** 0.4395 0.7242 0.7371 0.7929 0.7290 0.7391 0.7996 0.8268 0.7683 0.8149 0.6029 0.4381 0.3829 0.4097 0.2247 0.0414 0.0686 0.0195 0.0433 0.0296 C.0551 0.0355 0.0370 0.0268 0.0426 0.0256 0.0256 0.0179
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.08 27.53 30.46 34.85 40.22 50.48 60.24 70.01 80.26	0.0450 0.1260 B1 ***** NJ 0.0041 0.0073 0.0165 0.0237 0.0546 0.0450 0.0546 0.0697 0.0650 0.0517 0.0523 0.0476 0.0423 0.0476 0.0423 0.0219 0.0118 0.0101 0.0103 0.0225 0.0031 0.0224 0.014 0.0019 0.001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001	0.0450 0.1260 D2 RMALIZED 0.0045 0.0093 0.0184 0.0233 0.0360 0.0593 0.0638 0.0577 0.0490 0.0468 0.0434 0.0323 0.0248 0.0185 0.0164 0.00248 0.0185 0.0164 0.0074 0.0063 0.0028 0.0028 0.0021 0.0016 0.0011 0.0001 0.0001 0.0001	0.0450 0.1260 CROSS C0 VALUE *** 0.0032 0.0067 0.0151 0.0205 0.0302 0.0432 0.0514 0.0603 0.0542 0.0430 0.0542 0.0430 0.0542 0.0430 0.0542 0.0430 0.0542 0.0430 0.0276 0.0207 0.0118 0.0021 0.0018 0.0003 0.0004 0.0003 0.0004 0.0001 0.0001 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000	DHERENCY *** 0.5732 0.6794 0.7524 0.7600 0.7971 0.8253 0.8183 0.7841 0.7301 0.6731 0.5276 0.5197 0.4290 0.2563 0.1782 0.0589 0.0350 0.0179 0.0350 0.0179 0.6442 0.0367 0.0147 0.0253 0.0192 0.6238 0.0	0.0450 0.1800 B1 ***** N01 0.0039 0.0070 0.0118 0.0198 0.0197 0.0299 0.0409 0.0589 0.0697 0.0674 0.0613 0.0482 0.0319 0.0321 0.0201 0.0017 0.0015 0.0001 0.0001 0.0001 0.0000	0.0450 0.1800 D2 RMALIZED 0.0042 0.0069 0.0137 0.0220 0.0244 0.0333 0.0451 0.0632 0.0626 0.0643 0.0562 0.0643 0.0562 0.0481 0.0321 0.0325 0.0286 0.0143 0.0121 0.0075 0.0050 0.0042 0.0027 0.0022 0.0016 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001	0.0450 0.1800 CRUSS C VALUE ** 0.0027 0.0109 0.0186 0.0187 0.0271 0.0384 0.0271 0.0384 0.0555 0.0579 0.0594 0.0594 0.0594 0.0594 0.0236 0.0193 0.0193 0.0193 0.0193 0.0194 0.0029 0.0035 0.0011 0.0006 0.0001 0.0001 0.0001 0.0000 0.0000 0.0000 0.0000 0.0000	OHERENCY *** 0.4395 0.7242 0.7371 0.7990 0.7290 0.7391 0.7996 0.8268 0.7683 0.8149 0.6023 0.6029 0.4381 0.3829 0.4097 0.2247 0.0414 0.0686 0.0195 0.0413 0.0256 0.0355 0.0370 0.0268 0.0256 0.0256 0.0179 0.0
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.08 27.53 30.46 34.85 40.22 50.48 60.24 70.01 80.26	0.0450 0.1260 B1 ***** NJ 0.0041 0.0073 0.0165 0.0237 0.0318 0.0455 0.0546 0.0697 0.0650 0.0517 0.0523 0.0476 0.0423 0.0311 0.0220 0.0219 0.0118 0.0101 0.0055 0.0031 0.0024 0.0014 0.0001 0.0000	0.0450 0.1260 D2 RMALIZED 0.0045 0.0093 0.0184 0.0233 0.0360 0.0593 0.0638 0.0577 0.0490 0.0638 0.0434 0.0323 0.0248 0.0185 0.0164 0.0028 0.0021 0.0016 0.0011 0.0001 0.0001 0.0001	0.0450 0.1260 CROSS C0 VALUE *** 0.0032 0.0667 0.0151 0.0205 0.0302 0.0432 0.0514 0.0603 0.0542 0.0430 0.0430 0.0430 0.0542 0.0430 0.0406 0.0207 0.0118 0.0207 0.0211 0.0001 0.0001 0.0001 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.000000 0.00000000	DHERENCY *** 0.5732 0.6794 0.7524 0.7600 0.7971 0.8253 0.8183 0.7841 0.7301 0.6731 0.5276 0.5197 0.4290 0.2563 0.1782 0.0589 0.0567 0.1035 0.0350 0.0179 0.6442 0.0367 0.0147 0.0253 0.0192 0.6238 0.0	0.0450 0.1800 B1 ***** ND1 0.0039 0.0070 0.0118 0.0198 0.0197 0.0299 0.0409 0.0589 0.0674 0.0613 0.0674 0.0613 0.0482 0.0396 0.0319 0.0321 0.0201 0.0037 0.0034 0.0059 0.0034 0.0024 0.0017 0.0015 0.0009 0.0005 0.0001 0.0000	0.0450 0.1800 D2 RMALIZED 0.0042 0.0069 0.0137 0.0220 0.0244 0.0333 0.0451 0.0626 0.0626 0.0643 0.0562 0.0626 0.0643 0.0562 0.0643 0.0562 0.0286 0.0196 0.0143 0.0121 0.0075 0.0050 0.0042 0.0050 0.0042 0.0027 0.0022 0.0016 0.0010 0.0001 0.0001 0.0000	0.0450 0.1800 CRUSS C VALUE ** 0.0027 0.0109 0.0186 0.0187 0.0271 0.0384 0.0555 0.0579 0.0594 0.0594 0.0594 0.0594 0.0235 0.0579 0.0594 0.0236 0.0193 0.0194 0.0029 0.0029 0.0005 0.0001 0.0001 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.000000 0.00000000	OHERENCY *** 0.4395 0.7242 J.7371 0.7290 0.7290 0.7391 0.7996 0.8268 0.7683 0.8149 0.6029 0.4381 0.3829 0.4097 0.2247 0.0414 0.0686 0.0195 0.0256 0.0370 0.0268 0.0256 0.0256 0.0179 0.0

WG(LB/SEC	) 0.0450	0.0450	0.0450		0.0450	0.0450	0.0450	
_ WL(LB/SEC	0.2400	0.2400	0.2400	•	0.3500	0.3500	0.3500	
CELL	81	02	CROSS C	UHERENCY	81	D2	CROSS C	OHERENCY
FREQ.(CPS	) ****	ORMALIZED	VALUE **	<i><b><b>¢ ¢ ¢ ¢</b></b></i>	**** NU	RMALIZED	VALUE **	***
0.1	8 0.0036	0.0041	0.0026	0.4422	0.0041	0.0045	0.0031	0.5328
0.6	7 0.0074	0.0080	0.0061	0.6335	0.0085	0.0068	0.0055	0.6895
1.1	6 0.0109	0.0128	0.0104	3.7708	0.0081	0.0082	0.0065	0.6459
1.6	5 6.0181	0.0192	0.0165	0.7860	0.0131	0.0141	0.0116	0.7277
2.1	4 0.0177	0.0197	0.0152	0.6646	0.0170	0.0197	0.0158	0.7464
2.6	0.0272	0.0273	0.0215	0.6288	0.0247	0.0273	0.0208	0.6436
3•1	0.0408	0.0404	0.0355	0.7644	0.0600	0.0355	0.0315	0.1560
2.0	0 0.0404	0.0449	0.0402	0.7067	0.0574	0.0522	0.0403	0.1153
4.5	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.0445	0.0502	0 7/15	0.0756	0.0737	0.0495	0.0551
···· · · · · · · · · · · · · · · · · ·	0.0003	0.0630	0.0565	0 7229	0.0628	0.0552	0.0515	0.7665
5.5	5 0.0503	0.0538	0.0400	0.5921	0.0427	0.0372	0.0333	0.6970
6.5	3 0.0510	0.0440	0.0354	0.5581	0.0389	0.0386	0.0290	0.5586
7.5	0.0327	0.0337	0.0214	0.4165	0.0319	0.0332	0.0213	0.4265
8.4	8 Ú.0314	0.0296	0.0166	0.2976	0.0219	0.0207	0.0107	0.2544
9.4	6 0.0280	0.0240	0.0150	0.3350	0.0239	0.0206	0.0116	0.2724
11.4	1 0.0179	0.0177	0.0074	0.1723	0.0195	0.0210	0.0096	0.2239
13.3	7 0.0140	0.0109	0.0034	0.0761	0.0128	0.0160	0.0048	0.1121
15.8	1 0.0094	0.0086	0.0014	0.0247	0.0086	0.0079	0.0024	0.0861
. 18.2	5 0.0073	0.0066	0.0019	0.0757	0.00,62	0.0072	0.0012	0.0337
22.6	4 0.0040	0.0039	0.0010	0.0705	0.0040	0.0040	0.0010	0.0627
25.0	3 0.0026	0.0032	0.0007	0.0659	0.0031	0.0038	0.0004	0.0165
27.5	3 0.0020	0.0026	0.0004	0.0360	0.0014	0.0022	0.0004	0.0419
30.4	6 0.0014	0.0018	0.0003	0.0468	0.0017	0.0015	0.0003	0.0462
34.8	5 0.0009	0.0010	0.0002	0.0488	0.0010	0.0013	0.0001	0.0177
40 <b>.</b> 2	2 0.0006	0.0007	0.0001	0.0406	0.0005	0.0006	0.0001	0.0154
50 <b>•</b> 4	8 0.0003	0.0003	0.000	0.0308	0.0002	0.0003	0.0000	0.0336
60.2	4 0.0001	0.0001	0.0000	0.0303	0.0001	0.0001	0.0000	0.0280
. 70.0	1 0.0001	0.0001	0.0000	0.0298	0.0001	0.0001	0.0000	0.0185
80.2	6 0.0000	0.0000	_ 0.0	<b>0.0</b>		0.0000	0.0	0.0
				1				
WG(LB/SEC	) 0,0450	0.0450	0.0450	i 1	0.0450	0.0450	0.0450	
WG(LB/SEC WL(LB/SEC	) 0.0450	0.0450	0.0450		0.0450 0.5850	0.0450 0.5850	0.0450 0.5850	
WG(LB/SEC WL(LB/SEC CELL	) 0.0450 ) 0.4700 B1	0.0450 0.4700 D2	0.0450 0.4700 CROSS CI	HERENCY	0.0450 0.5850 81	0.0450 0.5850 D2	0.0450 0.5850 CROSS C	OHERENCY
WG(LB/SEC WL(LB/SEC CELL FREQ.(CPS	) 0.0450 ) 0.4700 B1 ) ***** \(	0.0450 0.4700 D2 DRMALIZED	0.0450 0.4700 CROSS CO VALUE ***	DHERENCY	0.0450 0.5850 B1 ***** ND	0.0450 0.5850 D2 RMALIZED	0.0450 0.5850 CRDSS C VALUE **	OHERENCY ***
WG(LB/SEC WL(LB/SEC CELL FREQ.(CPS 0.1	) 0.0450 ) 0.4700 B1 ) ***** \( 8 0.0043	0.0450 0.4700 D2 DRMALIZED 0.0046	0.0450 0.4700 CROSS CC VALUE *** 0.0038	DHERENCY *** 0.7307	0.0450 0.5850 81 ***** ND 0.0051	0.0450 0.5850 D2 RMALIZED 0.0049	0.0450 0.5850 CRDSS C VALUE ** 0.0041	OHERENCY *** 0.6659
WG(LB/SEC WL(LB/SEC CELL FREQ.(CPS 0.1 0.6	) 0.0450 ) 0.4700 B1 ) ***** \( 8 0.0043 7 0.0055	0.0450 0.4700 D2 DRMALIZED 0.0046 0.0061	0.0450 0.4700 CROSS CO VALUE *** 0.0038 0.0048	DHERENCY *** 0.7307 0.6844	0.0450 0.5850 Bl ***** ND 0.0051 0.0047	0.0450 0.5850 D2 RMALIZED 0.0049 0.0045	0.0450 0.5850 CRDSS C VALUE ** 0.0041 0.0036	DHERENCY *** 0.6659 0.6161
WG(LB/SEC WL(LB/SEC CELL FREQ.(CPS 0.1 0.6 1.1	) 0.0450 ) 0.4703 B1 ) ***** N( 0.0043 7 0.0055 6 0.0085	0.0450 0.4700 D2 DRMALIZED 0.0046 0.0061 0.0086	0.0450 0.4700 CROSS CC VALUE *** 0.0038 0.0048 0.0075	DHERENCY *** 0.7307 0.6844 0.7613	0.0450 0.5850 81 ***** ND 0.0051 0.0047 0.0077	0.0450 0.5850 D2 RMALIZED 0.0049 0.0045 0.0066	0.0450 0.5850 CRDSS C VALUE ** 0.0041 0.0036 0.0060	DHERENCY *** 0.6659 0.6161 0.7041
WG(LB/SEC WL(LB/SEC CELL FREQ.(CPS 0.1 0.6 1.1	) 0.0450 ) 0.4700 B1 ) ***** N( 0.0043 7 0.0055 6 0.0085 5 0.0127	0.0450 0.4700 D2 DRMALIZED 0.0046 0.0061 0.0086 C.0122	0.0450 0.4700 CROSS CC VALUE *** 0.0038 0.0048 0.0075 0.0107	DHERENCY *** 0.7307 0.6844 0.7613 0.7487	0.0450 0.5850 81 ***** ND 0.0051 0.0047 0.0077 0.0120	0.0450 0.5850 D2 RMALIZED 0.0049 0.0045 0.0045 0.0066 0.0137	0.0450 0.5850 CRDSS C VALUE ** 0.0041 0.0036 0.0060 0.0111	OHERENCY *** 0.6659 0.6161 0.7041 0.7471
WG(LB/SEC WL(LB/SEC CELL FREQ.(CPS 0.1 0.6 1.1 1.6 2.1	) 0.0450 ) 0.4700 B1 ) ***** N( 0.0043 7 0.0055 6 0.0085 5 0.0127 4 0.0176	0.0450 0.4700 D2 DRMALIZED 0.0046 0.0061 0.0086 C.0122 0.0213	0.0450 0.4700 CROSS CC VALUE *** 0.0038 0.0048 0.0075 0.0107 0.0171	DHERENCY *** 0.7307 0.6844 0.7613 0.7487 0.7850	0.0450 0.5850 81 ***** ND 0.0051 0.0047 0.0047 0.0077 0.0120 0.0145	0.0450 0.5850 D2 RMALIZED 0.0049 0.0045 0.0045 0.0045 0.0137 0.0158	0.0450 0.5850 CRDSS C VALUE ** 0.0041 0.0036 0.0060 0.0111 0.0132	DHERENCY *** 0.6659 0.6161 0.7041 0.7471 0.7561
WG(LB/SEC WL(LB/SEC CELL FREQ.(CPS 0.1 0.6 1.1 1.6 2.1 2.6	) 0.0450 ) 0.4700 B1 ) ***** N( 0.0043 7 0.0055 6 0.0085 5 0.0127 4 0.0176 3 0.0205	0.0450 0.4700 D2 DRMALIZED 0.0046 0.0061 0.0086 C.0122 0.0213 0.C261	0.0450 0.4700 CROSS CC VALUE *** 0.0038 0.0048 0.0075 0.0107 0.0171 0.0204	DHERENCY *** 0.7307 0.6844 0.7613 0.7487 0.7850 0.7752	0.0450 0.5850 81 ***** ND 0.0051 0.0047 0.0047 0.0077 0.0120 0.0145 0.0213	0.0450 D2 RMALIZED 0.0049 0.0045 0.0045 0.0045 0.0137 0.0158 0.0209	0.0450 0.5850 CRDSS C VALUE ** 0.0041 0.0036 0.0060 0.0111 0.0132 0.0184	DHERENCY *** 0.6659 0.6161 0.7041 0.7471 0.7561 0.7625
WG(LB/SEC WL(LB/SEC CELL FREQ.(CPS 0.1 0.6 1.1 1.6 2.1 2.6 3.1	) 0.0450 ) 0.4700 B1 ) ***** N( 0.0043 7 0.0055 6 0.0085 5 0.0127 4 0.0176 3 0.0206 1 0.0371 0.0371	0.0450 0.4700 D2 DRMALIZED 0.0046 0.0061 0.0086 C.0122 0.0213 0.C261 0.0393	0.0450 0.4700 CROSS CC VALUE *** 0.0038 0.0048 0.0075 0.0107 0.0171 0.0204 0.0350	DHERENCY *** 0.7307 0.6844 0.7613 0.7487 0.7850 0.7752 0.8387 0.8387	0.0450 0.5850 81 ***** ND 0.0051 0.0047 0.0047 0.0077 0.0120 0.0145 0.0213 0.0325 0.0626	0.0450 D2 RMALIZED 0.0649 0.0045 0.0045 0.0045 0.0137 0.0158 0.0209 0.0378	0.0450 0.5850 CRDSS C VALUE ** 0.0041 0.0036 0.0060 0.0111 0.0132 0.0184 0.0315	DHERENCY *** 0.6659 0.6161 0.7041 0.7471 0.7561 0.7625 0.8071
WG(LB/SEC WL(LB/SEC CELL FREQ.(CPS 0.1 0.6 1.1 1.6 2.1 2.6 3.1 3.6	<pre>) 0.0450 ) 0.4700 B1 ) ***** \( 8 0.0043 7 0.0055 6 0.0085 5 0.0127 4 0.0176 3 0.0206 1 0.0371 0 0.0425 0 0.045</pre>	0.0450 0.4700 D2 DRMALIZED 0.0046 0.0061 0.0086 C.0122 0.0213 0.C261 0.0393 0.0458 0.0458	0.0450 0.4700 CROSS CC VALUE *** 0.0038 0.0048 0.0075 0.0107 0.0171 0.0204 0.0350 0.0395	DHERENCY *** 0.7307 0.6844 0.7613 0.7487 0.7850 0.7752 0.8387 0.8395	0.0450 0.5850 81 ***** ND 0.0051 0.0047 0.0047 0.0047 0.0120 0.0145 0.0213 0.0325 0.0424 0.0475	0.0450 D2 RMALIZED 0.0649 0.0045 0.0045 0.0045 0.0137 0.0158 0.0209 0.0378 0.0378 0.0511 0.0479	0.0450 0.5850 CRDSS C VALUE ** 0.0041 0.0036 0.0060 0.0111 0.0132 0.0184 0.0315 0.0428	DHERENCY *** 0.6659 0.6161 0.7041 0.7471 0.7561 0.7625 0.8071 0.8458
WG(LB/SEC WL(LB/SEC CELL FREQ.(CPS 0.1 0.6 1.1 1.6 2.1 2.6 3.1 3.6 4.0	) 0.0450 ) 0.4700 B1 ) ***** N( 0.0043 7 0.0056 6 0.0085 5 0.0127 4 0.0176 3 0.0206 1 0.0371 0 0.0485 9 0.0485	0.0450 0.4700 D2 DRMALIZED 0.0046 0.0061 0.0086 C.0122 0.0213 0.C261 0.0393 0.0458 0.0558	0.0450 0.4700 CROSS CC VALUE *** 0.0038 0.0048 0.0075 0.0107 0.0171 0.0204 0.0350 0.0395 0.0463 0.0463	DHERENCY *** 0.7307 0.6844 0.7613 0.7487 0.7850 0.7752 0.8387 0.8395 0.8377 0.8377	0.0450 0.5850 81 ***** ND 0.0051 0.0047 0.0047 0.0077 0.0120 0.0145 0.0213 0.0325 0.0424 0.0475 0.0455	0.0450 0.5850 D2 RMALIZED 0.0049 0.0045 0.0045 0.0045 0.0137 0.0158 0.0209 0.0378 0.0211 0.0479 0.0661	0.0450 0.5850 CRDSS C VALUE ** 0.0041 0.0036 0.0060 0.0111 0.0132 0.0184 0.0315 0.0428 0.0428	DHERENCY *** 0.6659 0.6161 0.7041 0.7471 0.7561 0.7625 0.8071 0.8458 0.8571
WG(LB/SEC WL(LB/SEC CELL FREQ.(CPS 0.1 0.6 1.1 1.6 2.1 2.6 3.1 3.6 4.0	<ul> <li>) 0.0450</li> <li>) 0.4700</li> <li>B1</li> <li>) ***** N(</li> <li>0.0043</li> <li>7 0.0056</li> <li>0.0085</li> <li>0.00176</li> <li>0.00206</li> <li>1 0.0371</li> <li>0.00485</li> <li>9 0.0485</li> <li>8 0.0548</li> <li>7 0.0718</li> </ul>	0.0450 0.4700 D2 DRMALIZED 0.0046 0.0061 0.0086 C.0122 0.0213 0.C261 0.0393 0.0458 0.0528 0.0555 0.0635	0.0450 0.4700 CROSS CC VALUE *** 0.0038 0.0048 0.0075 0.0107 0.0171 0.0204 0.0350 0.0395 0.0463 0.0497 0.0616	DHERENCY *** 0.7307 0.6844 0.7613 0.7487 0.7850 0.7752 0.8387 0.8395 0.8377 0.8133 0.8133	0.0450 0.5850 B1 ***** ND 0.0051 0.0047 0.0047 0.0047 0.0120 0.0145 0.0213 0.0325 0.0424 0.0475 0.0655 0.0563	0.0450 0.5850 D2 RMALIZED 0.0049 0.0045 0.0045 0.0045 0.0137 0.0158 0.0209 0.0378 0.0209 0.0378 0.0511 0.0479 0.0661 0.0534	0.0450 0.5850 CRDSS C VALUE ** 0.0041 0.0036 0.0060 0.0111 0.0132 0.0184 0.0315 0.0428 0.0428 0.0442 0.0614	DHERENCY *** 0.6659 0.6161 0.7041 0.7471 0.7561 0.7625 0.8071 0.8458 0.8571 0.8705 0.8541
WG(LB/SEC WL(LB/SEC CELL FREQ.(CPS 0.1 0.6 1.1 1.6 2.1 2.6 3.1 3.6 4.0 5.0 5.0	<pre>) 0.0450 ) 0.4700 B1 ) ***** \( 3 0.0043 7 0.0056 6 0.0085 5 0.0127 4 0.0176 3 0.0206 1 0.0371 0 0.0425 9 0.0485 8 0.0548 7 0.0713 5 0.0548</pre>	0.0450 0.4700 D2 DRMALIZED 0.0046 0.0086 0.0122 0.0213 0.0261 0.0393 0.0458 0.0528 0.0555 0.0637 0.0465	0.0450 0.4700 CROSS CO VALUE *** 0.0038 0.0048 0.0075 0.0107 0.0171 0.0204 0.0350 0.0350 0.0463 0.0497 0.0616 0.0463	DHERENCY *** 0.7307 0.6844 0.7613 0.7487 0.7850 0.7752 0.8387 0.8395 0.8377 0.8133 0.8133 0.7668	0.0450 0.5850 B1 ***** ND 0.0051 0.0047 0.0047 0.0120 0.0145 0.0213 0.0325 0.0424 0.0475 0.0655 0.0563 0.0564	0.0450 D2 RMALIZED 0.0649 0.0045 0.0045 0.0045 0.0137 0.0158 0.0209 0.0378 0.0511 0.0479 0.0661 0.0534 0.0472	0.0450 0.5850 CRDSS C VALUE ** 0.0041 0.0036 0.0060 0.0111 0.0132 0.0184 0.01315 0.0428 0.0442 0.0614 0.0507 0.0459	OHERENCY *** 0.6659 0.6161 0.7041 0.7471 0.7561 0.7625 0.8071 0.8458 0.8571 0.8705 0.8541 0.7916
WG(LB/SEC WL(LB/SEC CELL FREQ.(CPS 0.1 0.6 1.1 1.6 2.1 2.6 3.1 3.6 4.0 5.0 5.5 6.5	<pre>) 0.0450 ) 0.4700 B1 ) ***** \( 3 0.0043 7 0.0056 6 0.0085 5 0.0127 4 0.0176 3 0.0206 1 0.0371 0 0.0425 9 0.0485 8 0.0548 7 0.0713 5 0.0542 3 0.0387</pre>	0.0450 0.4700 D2 DRMALIZED 0.0046 0.0061 0.0086 C.0122 0.0213 0.C261 0.0393 0.0458 0.0528 0.0555 0.0637 0.0466 0.0426	0.0450 0.4700 CROSS CO VALUE *** 0.0038 0.0048 0.0075 0.0107 0.0171 0.0204 0.0350 0.0463 0.0497 0.0616 0.0440 0.0332	DHERENCY *** 0.7307 0.6844 0.7613 0.7487 0.7850 0.7752 0.8387 0.8395 0.8377 0.8133 0.8133 0.8339 0.7668 0.6707	0.0450 0.5850 B1 ***** ND 0.0051 0.0047 0.0047 0.0120 0.0145 0.0213 0.0325 0.0424 0.0475 0.0655 0.0563 0.0564 0.0389	0.0450 D2 RMALIZED 0.0649 0.0045 0.0045 0.0045 0.0137 0.0158 0.0209 0.0378 0.0511 0.0479 0.0661 0.0534 0.0472 0.0360	0.0450 0.5850 CRDSS C VALUE ** 0.0041 0.0036 0.0060 0.0111 0.0132 0.0184 0.0135 0.0428 0.0442 0.0614 0.0507 0.0459 0.0310	OHERENCY *** 0.6659 0.6161 0.7041 0.7561 0.7561 0.7625 0.8071 0.8458 0.8571 0.8705 0.8541 0.7916 0.6850
WG(LB/SEC WL(LB/SEC CELL FREQ.(CPS 0.1 0.6 1.1 1.6 2.1 2.6 3.1 3.6 4.0 5.0 5.5 6.5 7.5	<pre>) 0.0450 ) 0.4700 B1 ) ***** \( 3 0.0043 7 0.0056 6 0.0085 5 0.0127 4 0.0176 3 0.0206 1 0.0371 0 0.0485 8 0.0548 7 0.0713 5 0.0542 3 0.0387 1 0.0324</pre>	0.0450 0.4700 D2 DRMALIZED 0.0046 0.0046 0.0086 0.0122 0.0213 0.0228 0.0393 0.0458 0.0528 0.0555 0.0637 0.0466 0.0426	0.0450 0.4700 CROSS CO VALUE *** 0.0038 0.0048 0.0075 0.0107 0.0171 0.0204 0.0350 0.0463 0.0463 0.0463 0.0440 0.0332 0.0210	DHERENCY *** 0.7307 0.6844 0.7613 0.7487 0.7850 0.7752 0.8387 0.8395 0.8375 0.8133 0.8133 0.8339 0.7668 0.6707 0.5251	0.0450 0.5850 B1 ***** ND 0.0051 0.0047 0.0047 0.0120 0.0145 0.0213 0.0325 0.0424 0.0475 0.0655 0.0563 0.0564 0.0389 0.0279	0.0450 D2 RMALIZED 0.0649 0.0045 0.0045 0.0045 0.0137 0.0158 0.0209 0.0378 0.0511 0.0479 0.0661 0.0534 0.0472 0.0360 0.0273	0.0450 0.5850 CRDSS C VALUE ** 0.0041 0.0036 0.0060 0.0111 0.0132 0.0184 0.0315 0.0428 0.0442 0.0614 0.0507 0.0459 0.0310 0.0203	OHERENCY *** 0.6659 0.6161 0.7041 0.7561 0.7625 0.8071 0.8458 0.8571 0.8705 0.8541 0.7916 0.6850 0.6850 0.5377
WG(LB/SEC WL(LB/SEC CELL FREQ.(CPS 0.1 0.6 1.1 2.6 3.1 3.6 4.0 4.5 5.0 5.5 6.5 7.5 8.4	<pre>) 0.0450 ) 0.4700 B1 ) ***** \( 3 0.0043 7 0.0055 6 0.0085 5 0.0127 4 0.0127 4 0.0127 3 0.0206 1 0.0371 0 0.0425 9 0.0485 8 0.0548 7 0.0713 5 0.0542 3 0.0387 1 0.0324 8 0.0328</pre>	0.0450 0.4700 D2 DRMALIZED 0.0046 0.0086 0.0122 0.0213 0.0228 0.0528 0.0555 0.0637 0.0456 0.0426 0.0258 0.0258	0.0450 0.4700 CROSS C1 VALUE **: 0.0038 0.0075 0.0107 0.0171 0.0204 0.0350 0.0395 0.0463 0.0497 0.0616 0.04497 0.0616 0.0449 0.0332 0.0215	DHERENCY *** 0.7307 0.6844 0.7613 0.7487 0.7850 0.7752 0.8387 0.8395 0.8377 0.8133 0.8339 0.7668 0.6707 0.5251 0.4907	0.0450 0.5850 B1 ***** ND 0.0051 0.0047 0.0047 0.0120 0.0145 0.0213 0.0325 0.0424 0.0475 0.0475 0.0655 0.0563 0.0563 0.0564 0.0389 0.0279 0.0346	0.0450 D2 RMALIZED 0.0049 0.0045 0.0045 0.0137 0.0158 0.0209 0.0378 0.0511 0.0479 0.0661 0.0534 0.0472 0.0661 0.0534 0.0472 0.0360 0.0273 0.0317	0.0450 0.5850 CRDSS C VALUE ** 0.0041 0.0036 0.0060 0.0111 0.0132 0.0184 0.0315 0.0428 0.0442 0.0614 0.0507 0.0459 0.0459 0.0310 0.0203 0.0248	OHERENCY *** 0.6659 0.6161 0.7041 0.7561 0.7625 0.8071 0.8458 0.8571 0.8705 0.8541 0.7916 0.6850 0.6377 0.5608
WG(LB/SEC WL(LB/SEC CELL FREQ.(CPS 0.1 0.6 1.1 2.6 3.1 3.6 4.0 4.5 5.0 5.5 6.5 7.5 8.4 9.4	<ul> <li>) 0.0450</li> <li>) 0.4700</li> <li>B1</li> <li>) ***** N(</li> <li>0.0043</li> <li>7 0.0056</li> <li>0.0085</li> <li>0.0127</li> <li>4 0.0127</li> <li>4 0.0127</li> <li>4 0.0127</li> <li>3 0.0206</li> <li>1 0.0371</li> <li>0.0485</li> <li>8 0.0548</li> <li>7 0.0713</li> <li>5 0.0542</li> <li>3 0.0387</li> <li>1 0.0324</li> <li>8 0.0328</li> <li>6 0.0253</li> </ul>	0.0450 0.4700 D2 DRMALIZED 0.0046 0.0086 0.0122 0.0213 0.0261 0.0393 0.0458 0.0528 0.0555 0.0637 0.0466 0.0268 0.0268 0.0265	0.0450 0.4700 CROSS C1 VALUE **: 0.0038 0.0075 0.0107 0.0171 0.0204 0.0350 0.0395 0.0463 0.0497 0.0616 0.04497 0.0616 0.04497 0.0332 0.0215 0.0215 0.0162	DHERENCY *** 0.7307 0.6844 0.7613 0.7487 0.7850 0.7752 0.8387 0.8395 0.8377 0.8133 0.8339 0.7668 0.6707 0.5251 0.4907 0.3919	0.0450 0.5850 B1 ***** ND 0.0051 0.0047 0.0120 0.0145 0.0213 0.0225 0.0424 0.0475 0.0655 0.0563 0.0563 0.0563 0.0563 0.0563 0.0563 0.0563 0.0563 0.0279 0.0346 0.0237	0.0450 D2 RMALIZED 0.0049 0.0045 0.0045 0.0137 0.0158 0.0209 0.0378 0.0511 0.0479 0.0661 0.0534 0.0472 0.0661 0.0534 0.0472 0.0661 0.0273 0.0317 0.0256	0.0450 0.5850 CRDSS C VALUE ** 0.0041 0.0036 0.0060 0.0111 0.0132 0.0184 0.0315 0.0428 0.0442 0.0442 0.0614 0.0507 0.0459 0.0310 0.0203 0.0248 0.0161	DHERENCY *** 0.6659 0.6161 0.7041 0.7561 0.7625 0.8071 0.8458 0.8571 0.8705 0.8541 0.7916 0.6850 0.6850 0.5508 0.4302
WG(LB/SEC WL(LB/SEC CELL FREQ.(CPS 0.1 0.6 1.1 2.6 2.1 2.6 3.1 3.6 4.0 4.5 5.0 5.5 6.5 7.5 8.4 9.4 11.4	<pre>) 0.0450 ) 0.4700 B1 ) ***** \( 3 0.0043 7 0.0055 6 0.0085 5 0.0127 4 0.0127 4 0.0174 3 0.0206 1 0.0371 0 0.0425 9 0.0485 8 0.0548 7 0.0548 7 0.0548 7 0.0324 8 0.0328 6 0.0253 1 0.0178</pre>	0.0450 0.4700 D2 DRMALIZED 0.0046 0.0061 0.0086 0.0122 0.0213 0.0261 0.0393 0.0458 0.0528 0.0555 0.0637 0.0466 0.0258 0.0268 0.0268 0.0265 0.0144	0.0450 0.4700 CROSS C1 VALUE **: 0.0038 0.0048 0.0075 0.0171 0.0204 0.0350 0.0395 0.0463 0.0497 0.0616 0.0449 0.0332 0.0210 0.0215 0.0162 0.0094	DHERENCY *** 0.7307 0.6844 0.7613 0.7487 0.7752 0.8395 0.8395 0.8377 0.8133 0.8339 0.7668 0.6707 0.5251 0.4907 0.3919 0.3454	0.0450 0.5850 B1 ***** ND 0.0051 0.0047 0.0047 0.0120 0.0145 0.0213 0.0213 0.0225 0.0424 0.0475 0.0655 0.0563 0.0563 0.0563 0.0563 0.0563 0.0563 0.0563 0.0563 0.0279 0.0389 0.0279 0.0346 0.0237 0.0203	0.0450 0.5850 D2 RMALIZED 0.0049 0.0045 0.0045 0.0137 0.0158 0.0209 0.0378 0.0511 0.0479 0.0661 0.0534 0.0472 0.0661 0.0534 0.0472 0.0661 0.0534 0.0472 0.0661 0.0534 0.0472 0.0661 0.0534 0.0273 0.0256 0.0317	0.0450 0.5850 CRDSS C VALUE ** 0.0041 0.0036 0.0111 0.0132 0.0184 0.0315 0.0428 0.0442 0.0614 0.0507 0.0459 0.0310 0.0203 0.0248 0.0161 0.0122	DHERENCY *** 0.6659 0.6161 0.7041 0.7471 0.7561 0.7625 0.8071 0.8458 0.8571 0.8705 0.8541 0.7916 0.6850 0.5377 0.5608 0.4302 0.3904
WG(LB/SEC WL(LB/SEC CELL FREQ.(CPS 0.1 0.6 1.1 2.6 3.1 3.6 3.1 3.6 4.0 4.5 5.0 5.5 6.5 7.5 8.4 9.4 11.4 13.3	<ul> <li>) 0.0450</li> <li>) 0.4700</li> <li>B1</li> <li>) ***** N(0</li> <li>0.0043</li> <li>7 0.0055</li> <li>6 0.0085</li> <li>5 0.0127</li> <li>4 0.0176</li> <li>3 0.0206</li> <li>1 0.0371</li> <li>0 0.0425</li> <li>9 0.0485</li> <li>8 0.0548</li> <li>7 0.0542</li> <li>3 0.0324</li> <li>8 0.0254</li> <li>8 0.0328</li> <li>1 0.0324</li> <li>8 0.0253</li> <li>1 0.0178</li> <li>7 0.0122</li> </ul>	0.0450 0.4700 D2 DRMALIZED 0.0046 0.0061 0.0086 0.0122 0.0213 0.0261 0.0393 0.0458 0.0528 0.0555 0.0637 0.0466 0.0426 0.0258 0.0258 0.0258 0.0258 0.0265 0.0265 0.0265	0.0450 0.4700 CROSS C1 VALUE **: 0.0038 0.0048 0.0075 0.0167 0.0171 0.0204 0.0350 0.0395 0.0463 0.0497 0.0616 0.0440 0.0332 0.0215 0.0215 0.0162 0.0094 0.0068	DHERENCY *** 0.7307 0.6844 0.7613 0.7487 0.7850 0.7752 0.8395 0.8395 0.8377 0.8133 0.8339 0.7668 0.6707 0.5251 0.4907 0.3919 0.3454 0.2354	0.0450 0.5850 B1 ***** ND 0.0051 0.0047 0.0047 0.0120 0.0145 0.0213 0.0225 0.0424 0.0475 0.0655 0.0563 0.0563 0.0564 0.0389 0.0279 0.0346 0.0237 0.0203 0.0137	0.0450 0.5850 D2 RMALIZED 0.0049 0.0045 0.0045 0.0045 0.0137 0.0158 0.0209 0.0378 0.0511 0.0479 0.0661 0.0534 0.0472 0.03661 0.0534 0.0472 0.0360 0.0273 0.0273 0.0256 0.0188 0.0144	0.0450 0.5850 CRDSS C VALUE ** 0.0041 0.0036 0.0111 0.0132 0.0184 0.0315 0.0428 0.0442 0.0442 0.0614 0.0507 0.0459 0.0310 0.0203 0.0248 0.0161 0.0122 0.0083	DHERENCY *** 0.6659 0.6161 0.7041 0.7471 0.7625 0.8071 0.8458 0.8571 0.8705 0.8541 0.7916 0.6850 0.5377 0.5608 0.4302 0.3904 0.3459
WG(LB/SEC WL(LB/SEC CELL FREQ.(CPS 0.1 0.6 1.1 2.6 3.1 3.6 3.1 3.6 4.0 4.5 5.0 5.5 6.5 7.5 4. 8.4 9.4 11.4 13.3 15.8	<ul> <li>) 0.0450</li> <li>) 0.4700</li> <li>B1</li> <li>) ***** N(0</li> <li>0.0043</li> <li>7 0.0056</li> <li>6 0.0085</li> <li>5 0.0127</li> <li>4 0.0176</li> <li>3 0.0206</li> <li>1 0.0371</li> <li>0 0.0485</li> <li>8 0.0548</li> <li>7 0.01405</li> <li>9 0.0485</li> <li>8 0.0548</li> <li>7 0.0542</li> <li>3 0.0387</li> <li>1 0.0324</li> <li>8 0.0254</li> <li>8 0.0254</li> <li>1 0.0324</li> <li>8 0.0254</li> <li>1 0.0328</li> <li>1 0.0328</li> <li>1 0.0178</li> <li>7 0.0122</li> <li>1 0.0097</li> </ul>	0.0450 0.4700 D2 DRMALIZED 0.0046 0.0061 0.0086 0.0122 0.0213 0.0261 0.0393 0.0458 0.0528 0.0555 0.0637 0.0466 0.0426 0.0258 0.0268 0.0268 0.0265 0.0288 0.0265 0.0144 0.0101	0.0450 0.4700 CROSS C1 VALUE **: 0.0038 0.0075 0.0167 0.0171 0.0204 0.0350 0.0350 0.0463 0.0497 0.0616 0.0440 0.0332 0.0215 0.0215 0.0162 0.0094 0.0068 0.0040	DHERENCY *** 0.7307 0.6844 0.7613 0.7487 0.7850 0.7752 0.8387 0.8395 0.8377 0.8133 0.8339 0.7668 0.6707 0.5251 0.4907 0.3919 0.3454 0.2354 0.1604	0.0450 0.5850 B1 ***** ND 0.0051 0.0047 0.0047 0.0145 0.0145 0.0213 0.0225 0.0424 0.0475 0.0655 0.0563 0.0563 0.0564 0.0389 0.0279 0.0346 0.0237 0.0203 0.0137 0.0103	0.0450 0.5850 D2 RMALIZED 0.0049 0.0045 0.0045 0.0045 0.0137 0.0158 0.0209 0.0378 0.0511 0.0479 0.0661 0.0534 0.0472 0.0360 0.0273 0.0317 0.0256 0.0188 0.0144 0.0112	0.0450 0.5850 CRDSS C VALUE ** 0.0041 0.0036 0.0060 0.0111 0.0132 0.0184 0.0315 0.0428 0.0442 0.0442 0.0614 0.0507 0.0459 0.0310 0.0203 0.0248 0.0161 0.0122 0.0083 0.0047	DHERENCY *** 0.6659 0.6161 0.7041 0.7471 0.7561 0.7625 0.8071 0.8458 0.8571 0.8705 0.8541 0.7916 0.6850 0.5377 0.5608 0.4302 0.3904 0.3459 0.1958
WG(LB/SEC WL(LB/SEC CELL FREQ.(CPS 0.1 0.6 1.1 2.6 3.1 2.6 3.1 3.6 4.0 5.5 5.0 5.5 6.5 7.5 8.4 9.4 11.4 13.3 15.8 18.2	<ul> <li>) 0.0450</li> <li>) 0.4700</li> <li>B1</li> <li>) ***** N(0</li> <li>0.0043</li> <li>7 0.0056</li> <li>6 0.0085</li> <li>5 0.0127</li> <li>4 0.0176</li> <li>3 0.0206</li> <li>1 0.0371</li> <li>0 0.0405</li> <li>8 0.0548</li> <li>7 0.0173</li> <li>5 0.0542</li> <li>3 0.0387</li> <li>1 0.0324</li> <li>8 0.0253</li> <li>1 0.0178</li> <li>7 0.0122</li> <li>1 0.0097</li> <li>5 0.0083</li> </ul>	0.0450 0.4700 D2 DRMALIZED 0.0046 0.0061 0.0086 0.0122 0.0213 0.0261 0.0393 0.0458 0.0528 0.0555 0.0637 0.0466 0.0426 0.0258 0.0265 0.0288 0.0265 0.0288 0.0265 0.0144 0.0164 0.0101 0.0087	0.0450 0.4700 CROSS CO VALUE *** 0.0038 0.0048 0.0075 0.0167 0.0171 0.0204 0.0350 0.0463 0.0497 0.0616 0.0440 0.0332 0.0210 0.0215 0.015 0.015 0.0162 0.0094 0.0068 0.0040 0.0025	DHERENCY *** 0.7307 0.6844 0.7613 0.7487 0.7850 0.7752 0.8387 0.8395 0.8377 0.8133 0.8339 0.7668 0.6707 0.5251 0.4907 0.3919 0.3454 0.2354 0.1604 0.0881	0.0450 0.5850 B1 ***** ND 0.0051 0.0047 0.0047 0.0120 0.0145 0.0213 0.0225 0.0424 0.0475 0.0655 0.0563 0.0564 0.0389 0.0279 0.0346 0.0237 0.0203 0.0137 0.0103 0.0076	0.0453 0.5850 D2 RMALIZED 0.0049 0.0045 0.0045 0.0045 0.0137 0.0158 0.0209 0.0378 0.0511 0.0479 0.0661 0.0534 0.0472 0.0360 0.0273 0.0317 0.0256 0.0188 0.0144 0.0112 0.0091	0.0450 0.5850 CRDSS C VALUE ** 0.0041 0.0036 0.0111 0.0132 0.0184 0.0315 0.0428 0.0442 0.0442 0.0614 0.0507 0.0459 0.0310 0.0203 0.0248 0.0161 0.0122 0.0083 0.0047 0.0036	DHERENCY *** 0.6659 0.6161 0.7041 0.7471 0.7561 0.7625 0.8071 0.8458 0.8571 0.8705 0.8541 0.7916 0.6850 0.5377 0.5608 0.4302 0.3904 0.3459 0.1958 0.1869
WG(LB/SEC WL(LB/SEC CELL FREQ.(CPS 0.1 0.6 1.1 2.6 3.1 2.6 3.1 3.6 4.0 4.5 5.0 5.5 6.5 7.5 8.4 9.4 11.4 13.3 15.8 18.2 22.6	<ul> <li>) 0.0450</li> <li>) 0.4700</li> <li>B1</li> <li>) ***** N(0</li> <li>0.0043</li> <li>7 0.0056</li> <li>6 0.0085</li> <li>5 0.0127</li> <li>4 0.0176</li> <li>3 0.0206</li> <li>1 0.0371</li> <li>0 0.0425</li> <li>9 0.0485</li> <li>8 0.0548</li> <li>7 0.0173</li> <li>5 0.0542</li> <li>3 0.0387</li> <li>1 0.0324</li> <li>8 0.0253</li> <li>1 0.0178</li> <li>7 0.0122</li> <li>1 0.0097</li> <li>5 0.0083</li> <li>4 0.0045</li> </ul>	0.0450 0.4700 D2 DR MALIZED 0.0046 0.0061 0.0086 0.0122 0.0213 0.0261 0.0393 0.0458 0.0555 0.0637 0.0466 0.0426 0.0258 0.0268 0.0268 0.0268 0.0265 0.0144 0.0265 0.0144 0.0164 0.0161 0.0087 0.0039	0.0450 0.4700 CROSS C1 VALUE *** 0.0038 0.0048 0.0075 0.0167 0.0171 0.0204 0.0350 0.0463 0.0497 0.0616 0.0440 0.0332 0.0215 0.0215 0.011	DHERENCY *** 0.7307 0.6844 0.7613 0.7487 0.7850 0.7752 0.8387 0.8395 0.8377 0.8133 0.8339 0.7668 0.6707 0.5251 0.4907 0.3919 0.3454 0.2354 0.2354 0.1604 0.0881 0.0747	0.0450 0.5850 B1 ***** ND 0.0051 0.0047 0.0047 0.0120 0.0145 0.0213 0.0225 0.0424 0.0475 0.0655 0.0563 0.0564 0.0389 0.0237 0.0203 0.0237 0.0203 0.0137 0.0103 0.0076 C.0038	0.0453 0.5850 D2 RMALIZED 0.0049 0.0045 0.0045 0.0045 0.0137 0.0158 0.0209 0.0378 0.0511 0.0479 0.0661 0.0534 0.0472 0.0661 0.0534 0.0472 0.0360 0.0273 0.0317 0.0256 0.0188 0.0144 0.0112 0.0091 0.0040	0.0450 0.5850 CRDSS C VALUE ** 0.0041 0.0036 0.0060 0.0111 0.0132 0.0184 0.0315 0.0428 0.0442 0.0442 0.0614 0.0507 0.0459 0.0310 0.0203 0.0248 0.0161 0.0122 0.0083 0.0047 0.0036 0.0010	DHERENCY *** 0.6659 0.6161 0.7041 0.7471 0.7561 0.7625 0.8071 0.8458 0.8571 0.8705 0.8541 0.7916 0.6850 0.5377 0.5608 0.4302 0.3904 0.3459 0.1958 0.1869 0.0597
WG(LB/SEC WL(LB/SEC CELL FREQ.(CPS 0.1 0.6 1.1 2.6 3.1 3.6 3.1 3.6 5.5 6.5 7.5 6.5 7.5 8.4 9.4 11.4 13.3 15.8 18.2 22.6 25.0	<ul> <li>) 0.0450</li> <li>) 0.4700</li> <li>B1</li> <li>) ***** N(0</li> <li>0.0043</li> <li>7 0.0056</li> <li>6 0.0085</li> <li>5 0.0127</li> <li>4 0.0176</li> <li>3 0.0206</li> <li>1 0.0371</li> <li>0 0.0485</li> <li>8 0.0548</li> <li>7 0.0173</li> <li>5 0.0542</li> <li>3 0.0387</li> <li>1 0.0324</li> <li>8 0.0253</li> <li>1 0.0178</li> <li>7 0.0122</li> <li>1 0.0097</li> <li>5 0.0083</li> <li>4 0.0045</li> <li>8 0.0026</li> </ul>	0.0450 0.4700 D2 DR MALIZED 0.0046 0.0061 0.0086 0.0122 0.0213 0.0261 0.0393 0.0458 0.0555 0.0637 0.0466 0.0426 0.0258 0.0265 0.0258 0.0265 0.0258 0.0265 0.0258 0.0265 0.0267 0.0267 0.0267 0.0267 0.0039 0.0037 0.0039 0.0037 0.0037 0.0039 0.0037	0.0450 0.4700 CROSS CO VALUE *** 0.0038 0.0048 0.0075 0.0167 0.0171 0.0204 0.0350 0.0463 0.0497 0.0616 0.0440 0.0332 0.0210 0.0215 0.0162 0.0040 0.0068 0.0040 0.0025 0.0011 0.0006	DHERENCY *** 0.7307 0.6844 0.7613 0.7487 0.7850 0.7752 0.8387 0.8395 0.8377 0.8133 0.8339 0.7668 0.6707 0.5251 0.4907 0.3919 0.3454 0.2354 0.1604 0.0881 0.0747 0.0375	0.0450 0.5850 B1 ***** ND 0.0051 0.0047 0.0047 0.0120 0.0145 0.0213 0.0225 0.0424 0.0475 0.0655 0.0563 0.0564 0.0389 0.0279 0.0346 0.0237 0.0203 0.0137 0.0103 0.0076 C.0038 0.0031	0.0453 0.5850 D2 RMALIZED 0.0049 0.0045 0.0045 0.0045 0.0137 0.0158 0.0209 0.0378 0.0511 0.0479 0.0661 0.0534 0.0472 0.0360 0.0273 0.0317 0.0256 0.0188 0.0144 0.0112 0.0091 0.0036	0.0450 0.5850 CRDSS C VALUE ** 0.0041 0.0036 0.0060 0.0111 0.0132 0.0184 0.0315 0.0428 0.0442 0.0442 0.0614 0.0507 0.0459 0.0310 0.0203 0.0248 0.0161 0.0122 0.0083 0.0047 0.0036 0.0010 0.0009	DHERENCY *** 0.6659 0.6161 0.7041 0.7471 0.7561 0.8458 0.8571 0.8705 0.8541 0.8705 0.8541 0.7916 0.6850 0.5377 0.5608 0.4302 0.3904 0.3459 0.1958 0.1869 0.0597 0.0749
WG(LB/SEC WL(LB/SEC CELL FREQ.(CPS 0.1 0.6 1.1 2.6 3.1 3.6 3.1 3.6 5.5 6.5 7.5 5.0 5.5 6.5 7.5 8.4 11.4 13.3 15.8 18.2 22.6 25.0 27.5	<ul> <li>) 0.0450</li> <li>) 0.4700</li> <li>B1</li> <li>) ***** N(0</li> <li>0.0043</li> <li>7 0.0056</li> <li>6 0.0085</li> <li>5 0.0127</li> <li>4 0.0176</li> <li>3 0.0206</li> <li>1 0.0371</li> <li>0.0405</li> <li>8 0.0548</li> <li>7 0.0122</li> <li>3 0.0387</li> <li>1 0.0324</li> <li>8 0.0253</li> <li>1 0.0178</li> <li>0.0172</li> <li>1 0.0122</li> <li>1 0.0097</li> <li>5 0.0083</li> <li>4 0.0045</li> <li>8 0.0026</li> <li>3 0.0029</li> <li>4 0.0129</li> </ul>	0.0450 0.4700 D2 DR MALIZED 0.0046 0.0086 0.0122 0.0213 0.0261 0.0393 0.0458 0.0555 0.0637 0.0466 0.0426 0.0258 0.0257 0.0257 0.0257 0.0257 0.0257 0.0257 0.0257 0.0257 0.0039 0.0037 0.0037 0.0027 0.0037 0.0027 0.0027 0.0027 0.0027	0.0450 0.4700 CROSS CO VALUE *** 0.0038 0.0048 0.0075 0.0107 0.0171 0.0204 0.0350 0.0395 0.0463 0.0497 0.0616 0.0440 0.0332 0.0210 0.0215 0.0162 0.0040 0.0068 0.0040 0.0025 0.0011 0.0006	DHERENCY *** 0.7307 0.6844 0.7613 0.7487 0.7850 0.7752 0.8387 0.8395 0.8377 0.8133 0.8339 0.7668 0.6707 0.5251 0.4907 0.3919 0.3454 0.2354 0.1604 0.0881 0.0747 0.0375 0.0252	0.0450 0.5850 B1 ***** ND 0.0051 0.0047 0.0047 0.0120 0.0145 0.0213 0.0325 0.0424 0.0475 0.0655 0.0563 0.0564 0.0389 0.0279 0.0346 0.0237 0.0203 0.0237 0.0203 0.0137 0.0103 0.0076 C.0038 0.0031 0.0031 0.0031	0.0453 0.5850 D2 RMALIZED 0.0049 0.0045 0.0045 0.0045 0.0137 0.0158 0.0209 0.0378 0.0511 0.0479 0.0661 0.0534 0.0472 0.0661 0.0534 0.0472 0.0360 0.0273 0.0188 0.0144 0.0112 0.0091 0.0036 0.0022	0.0450 0.5850 CRDSS C VALUE ** 0.0041 0.0036 0.0060 0.0111 0.0132 0.0184 0.0315 0.0428 0.0442 0.0442 0.0614 0.0507 0.0459 0.0310 0.0248 0.00248 0.00248 0.0047 0.0009 0.0009 0.0009 0.0009	DHERENCY *** 0.6659 0.6161 0.7041 0.7471 0.7561 0.7625 0.8071 0.8458 0.8571 0.8705 0.8541 0.7916 0.6850 0.5377 0.5608 0.4302 0.3904 0.3459 0.1958 0.1869 0.0597 0.0749 0.0424
WG(LB/SEC WL(LB/SEC CELL FREQ.(CPS 0.1 0.6 1.1 2.6 3.1 3.6 3.1 3.6 5.5 6.5 7.5 6.5 7.5 8.4 11.4 13.3 15.8 18.2 22.6 25.0 27.5 30.4	<ul> <li>) 0.0450</li> <li>) 0.4700</li> <li>B1</li> <li>) ***** N(0</li> <li>0.0043</li> <li>7 0.0056</li> <li>6 0.0085</li> <li>5 0.0127</li> <li>4 0.0176</li> <li>3 0.0206</li> <li>1 0.0371</li> <li>0.0405</li> <li>8 0.0548</li> <li>7 0.0122</li> <li>1 0.0324</li> <li>8 0.0253</li> <li>1 0.0178</li> <li>1 0.0172</li> <li>1 0.0097</li> <li>5 0.0083</li> <li>4 0.0045</li> <li>8 0.0026</li> <li>3 0.0029</li> <li>6 0.0019</li> <li>5 0.0019</li> <li>5 0.0019</li> <li>5 0.0019</li> <li>5 0.0019</li> <li>5 0.0019</li> </ul>	0.0450 0.4700 D2 DR MALIZED 0.0046 0.0061 0.0086 0.0122 0.0213 0.0261 0.0393 0.0458 0.0555 0.0637 0.0466 0.0258 0.0267 0.0039 0.0037 0.0027 0.0019	0.0450 0.4700 CROSS C0 VALUE *** 0.0038 0.0048 0.0075 0.0107 0.0171 0.0204 0.0350 0.0395 0.0463 0.0497 0.0616 0.0440 0.0332 0.0210 0.0215 0.0162 0.0215 0.0162 0.0068 0.0040 0.0025 0.0011 0.0006 0.0004 0.0005	DHERENCY *** 0.7307 0.6844 0.7613 0.7487 0.7850 0.7752 0.8387 0.8339 0.8339 0.7668 0.6707 0.5251 0.4907 0.3919 0.3454 0.2354 0.1604 0.0881 0.0747 0.0375 0.0252 0.0327	0.0450 0.5850 B1 ***** ND 0.0051 0.0047 0.0047 0.0120 0.0145 0.0213 0.0325 0.0424 0.0475 0.0655 0.0563 0.0564 0.0389 0.0279 0.0346 0.0237 0.0237 0.0203 0.0237 0.0203 0.0237 0.0203 0.0137 0.0103 0.0075 C.0038 0.0019 0.0019 0.0017 0.0019	0.0453 0.5850 D2 RMALIZED 0.0049 0.0045 0.0045 0.0045 0.0045 0.0137 0.0158 0.0209 0.0378 0.0511 0.0479 0.0661 0.0534 0.0472 0.0360 0.0273 0.0178 0.0144 0.0112 0.0091 0.0040 0.0022 0.0017	0.0450 0.5850 CRDSS C VALUE ** 0.0041 0.0036 0.0060 0.0111 0.0132 0.0184 0.0315 0.0428 0.0442 0.0442 0.0614 0.0507 0.0459 0.0310 0.0248 0.0248 0.0161 0.0122 0.0083 0.0047 0.0083 0.0047 0.0036 0.0010 0.0009 0.0004 0.0009	DHERENCY *** 0.6659 0.6161 0.7041 0.7471 0.7561 0.7625 0.8071 0.8458 0.8571 0.8705 0.8541 0.7916 0.6850 0.5377 0.5608 0.4302 0.3904 0.3459 0.1958 0.1869 0.0597 0.0749 0.0424 0.0585
WG(LB/SEC WL(LB/SEC CELL FREQ.(CPS 0.1 0.6 1.1 2.6 3.1 3.6 3.1 3.6 4.0 4.5 5.0 5.5 6.5 7.5 8.4 11.4 13.3 15.8 18.2 22.6 25.0 27.5 30.4 34.8	<ul> <li>) 0.0450</li> <li>) 0.4700</li> <li>B1</li> <li>) ***** N(</li> <li>0.0043</li> <li>7 0.0056</li> <li>0.00127</li> <li>4 0.0176</li> <li>0.0206</li> <li>1 0.0371</li> <li>0.0405</li> <li>0.0405</li> <li>0.0542</li> <li>0.0542</li> <li>0.0387</li> <li>1 0.0324</li> <li>0.0328</li> <li>0.0253</li> <li>1 0.0178</li> <li>7 0.0122</li> <li>1 0.0097</li> <li>5 0.0025</li> <li>3 0.0029</li> <li>6 0.0019</li> <li>5 0.0012</li> <li>2 0.0012</li> </ul>	0.0450 0.4700 D2 DR MALIZED 0.0046 0.0086 0.0086 0.0122 0.0213 0.0261 0.0393 0.0458 0.0555 0.0637 0.0466 0.0258 0.0268 0.0268 0.0268 0.0268 0.0268 0.0268 0.0268 0.0265 0.0144 0.0101 0.0087 0.0039 0.0037 0.0027 0.0019 0.0013	0.0450 0.4700 CROSS C0 VALUE *** 0.0038 0.0048 0.0075 0.01071 0.0204 0.0350 0.0463 0.0497 0.0616 0.0440 0.0332 0.0215 0.0162 0.0040 0.0068 0.0040 0.0025 0.0011 0.0006 0.0003 0.0003	DHERENCY *** 0.7307 0.6844 0.7613 0.7487 0.7850 0.7752 0.8387 0.8339 0.8339 0.8339 0.8339 0.7668 0.6707 0.5251 0.4907 0.3919 0.3454 0.64907 0.3919 0.3454 0.1604 0.0881 0.0747 0.0375 0.0252 0.0327 0.0780	0.0450 0.5850 B1 ***** ND 0.0051 0.0047 0.0047 0.0120 0.0145 0.0213 0.0325 0.0424 0.0475 0.0655 0.0563 0.0564 0.0237 0.0237 0.0237 0.0237 0.0237 0.0237 0.0237 0.0237 0.0237 0.0203 0.0137 0.0103 0.0019 0.0017 0.0019 0.0017 0.0015	0.0453 0.5850 D2 RMAL I Z ED 0.0049 0.0045 0.0045 0.0045 0.0045 0.0137 0.0158 0.0209 0.0378 0.0511 0.0479 0.0661 0.0534 0.0472 0.0360 0.0273 0.017 0.0056 0.012 0.0091 0.0040 0.0022 0.0017 0.0011	0.0450 0.5850 CRDSS C VALUE ** 0.0041 0.0036 0.0060 0.0111 0.0132 0.0184 0.0315 0.0428 0.0442 0.0442 0.0614 0.0507 0.0459 0.0310 0.0248 0.0161 0.0122 0.0083 0.0047 0.0083 0.0047 0.0036 0.0010 0.0009 0.0004 0.0	DHERENCY *** 0.6659 0.6161 0.7041 0.7471 0.7561 0.7625 0.8071 0.8458 0.8571 0.8705 0.8541 0.7916 0.6850 0.5377 0.5608 0.4302 0.3904 0.3459 0.1958 0.1869 0.0597 0.0749 0.0424 0.0589 0.0310
WG(LB/SEC WL(LB/SEC CELL FREQ.(CPS 0.1 0.6 1.1 2.6 3.1 3.6 3.1 3.6 4.0 4.5 5.0 5.5 6.5 7.5 8.4 11.4 13.3 15.8 18.2 22.6 25.0 27.5 30.4 34.8 40.2	<ul> <li>) 0.0450</li> <li>) 0.4700</li> <li>B1</li> <li>) ***** N(</li> <li>0.0043</li> <li>7 0.0056</li> <li>6 0.0085</li> <li>5 0.0127</li> <li>4 0.0176</li> <li>3 0.0206</li> <li>1 0.0371</li> <li>0.0405</li> <li>8 0.0548</li> <li>7 0.0122</li> <li>3 0.0387</li> <li>1 0.0324</li> <li>8 0.0328</li> <li>6 0.0253</li> <li>1 0.0178</li> <li>7 0.0122</li> <li>1 0.0097</li> <li>5 0.0025</li> <li>3 0.0029</li> <li>6 0.0019</li> <li>5 0.0012</li> <li>2 0.0005</li> </ul>	0.0450 0.4700 D2 DR MALIZED 0.0046 0.0086 0.0086 0.0122 0.0213 0.0261 0.0393 0.0458 0.0555 0.0637 0.0466 0.0426 0.0258 0.0258 0.0258 0.0258 0.0268 0.0257 0.0144 0.0258 0.0267 0.0144 0.0101 0.0027 0.0019 0.0013 0.0003	0.0450 0.4700 CROSS C0 VALUE *** 0.0038 0.0048 0.0075 0.01071 0.0204 0.0350 0.0463 0.0497 0.0616 0.0440 0.0332 0.0210 0.0215 0.0162 0.0040 0.0025 0.0040 0.0068 0.0040 0.0025 0.0011 0.0006 0.0003 0.0003 0.0003	DHERENCY *** 0.7307 0.6844 0.7613 0.7487 0.7850 0.7752 0.8387 0.8339 0.8339 0.8339 0.8339 0.7668 0.6707 0.5251 0.4907 0.3919 0.3454 0.1604 0.0881 0.0747 0.0375 0.0252 0.0327 0.0780 0.0780 0.0333	0.0450 0.5850 B1 ***** ND 0.0051 0.0047 0.0047 0.0120 0.0145 0.0213 0.0325 0.0424 0.0475 0.0655 0.0563 0.0564 0.0237 0.0237 0.0237 0.0237 0.0237 0.0237 0.0237 0.0237 0.0237 0.0237 0.0103 0.0279 0.0346 0.0237 0.0203 0.02137 0.0103 0.0279 0.0346 0.0237 0.0203 0.02137 0.0103 0.02137 0.0103 0.02137 0.0103 0.02137 0.0103 0.02137 0.0103 0.02137 0.0103 0.02137 0.0103 0.02137 0.0103 0.0203 0.0203 0.0203 0.0203 0.0203 0.0203 0.0203 0.0203 0.0203 0.0203 0.0203 0.0203 0.0203 0.0203 0.00145 0.0205 0.0213 0.0213 0.0255 0.0564 0.02137 0.0203 0.02137 0.0203 0.0203 0.0203 0.00103 0.0005 0	0.0453 0.5850 D2 RMALIZED 0.0049 0.0045 0.0045 0.0045 0.0045 0.0137 0.0158 0.0209 0.0378 0.0511 0.0479 0.0661 0.0534 0.0472 0.0661 0.0534 0.0472 0.0661 0.0534 0.0273 0.0317 0.0256 0.0188 0.0144 0.0112 0.0091 0.0040 0.0036 0.0022 0.0017 0.0011 0.0017	0.0450 0.5850 CRDSS C VALUE ** 0.0041 0.0036 0.0060 0.0111 0.0132 0.0184 0.0315 0.0428 0.0442 0.0442 0.0614 0.0507 0.0459 0.0310 0.0248 0.0161 0.0122 0.0083 0.0047 0.0083 0.0047 0.0009 0.0004 0.0002 0.0001 0.0001 0.0001	DHERENCY *** 0.6659 0.6161 0.7041 0.7471 0.7561 0.7625 0.8071 0.8458 0.8571 0.8705 0.8541 0.7916 0.6850 0.5377 0.5608 0.4302 0.3904 0.3459 0.1958 0.1869 0.0597 0.0749 0.0424 0.0589 0.0310 0.0490 0.0743
WG(LB/SEC WL(LB/SEC CELL FREQ.(CPS 0.1 0.6 1.1 2.6 3.1 3.6 4.0 4.5 5.0 5.5 6.5 7.5 8.4 11.4 13.3 15.8 18.2 22.6 25.0 27.5 30.4 34.8 40.2	<ul> <li>) 0.0450</li> <li>) 0.4700</li> <li>B1</li> <li>) ***** N(</li> <li>0.0043</li> <li>7 0.0056</li> <li>6 0.0085</li> <li>5 0.0127</li> <li>4 0.0176</li> <li>3 0.0206</li> <li>1 0.0371</li> <li>0 0.0405</li> <li>8 0.0548</li> <li>7 0.0122</li> <li>3 0.0387</li> <li>1 0.0324</li> <li>8 0.0328</li> <li>6 0.0253</li> <li>1 0.0178</li> <li>7 0.0122</li> <li>1 0.0025</li> <li>3 0.0029</li> <li>6 0.0019</li> <li>5 0.0012</li> <li>2 0.0005</li> <li>8 0.0003</li> <li>4 0.0034</li> </ul>	0.0450 0.4700 D2 DR MALIZED 0.0046 0.0086 0.0122 0.0213 0.0261 0.0393 0.0458 0.0555 0.0637 0.0466 0.0426 0.0258 0.0268 0.0268 0.0268 0.0268 0.0265 0.0144 0.0101 0.0087 0.0039 0.0037 0.0027 0.0019 0.0013 0.0008 0.0003 0.0003	0.0450 0.4700 CROSS C0 VALUE *** 0.0038 0.0048 0.0075 0.01071 0.0204 0.0350 0.0463 0.0497 0.0616 0.0440 0.0332 0.0210 0.0215 0.0162 0.0040 0.0025 0.0011 0.0006 0.0003 0.0003 0.0003 0.0000	DHERENCY *** 0.7307 0.6844 0.7613 0.7487 0.7850 0.7752 0.8387 0.8339 0.8339 0.8339 0.8339 0.7668 0.6707 0.5251 0.4907 0.3919 0.3454 0.64907 0.3919 0.3454 0.1604 0.0881 0.0747 0.0375 0.0252 0.0327 0.0780 0.0538 0.0332 0.0332	0.0450 0.5850 B1 ***** ND 0.0051 0.0047 0.0047 0.0120 0.0145 0.0213 0.0325 0.0424 0.0475 0.0655 0.0563 0.0564 0.0237 0.0237 0.0237 0.0237 0.0237 0.0237 0.0237 0.0237 0.0237 0.0103 0.0237 0.0103 0.0213 0.0213 0.0217 0.0103 0.0010 0.0019 0.0017 0.0010 0.0002 0.0002 0.0002	0.0453 0.5850 D2 RMALIZED 0.0049 0.0045 0.0045 0.0045 0.0045 0.0137 0.0158 0.0209 0.0378 0.0511 0.0479 0.0661 0.0534 0.0472 0.0661 0.0534 0.0472 0.0661 0.0534 0.0273 0.0317 0.0256 0.0188 0.0144 0.0112 0.0091 0.0040 0.0036 0.0022 0.0017 0.0003	0.0450 0.5850 CRDSS C VALUE ** 0.0041 0.0036 0.0060 0.0111 0.0132 0.0184 0.0315 0.0428 0.0428 0.0442 0.0614 0.0507 0.0459 0.0310 0.0248 0.0161 0.0122 0.0083 0.0047 0.0083 0.0047 0.0008 0.0001 0.0002 0.0001 0.0001 0.0001	DHERENCY *** 0.6659 0.6161 0.7041 0.7471 0.7561 0.7625 0.8071 0.8458 0.8571 0.8705 0.8541 0.7916 0.6850 0.5377 0.5608 0.4302 0.3904 0.3459 0.1958 0.1869 0.0597 0.0749 0.0424 0.0589 0.0310 0.0490 0.0741 0.0467
WG(LB/SEC WL(LB/SEC CELL FREQ.(CPS 0.1 0.6 1.1 2.6 3.1 3.6 4.0 4.5 5.0 5.5 6.5 7.5 8.4 11.4 13.3 15.8 18.2 22.6 25.0 27.5 30.4 34.8 40.2 25.0 27.5 30.4	<ul> <li>) 0.0450</li> <li>) 0.4700</li> <li>B1</li> <li>) ***** N(</li> <li>0.0043</li> <li>7 0.0056</li> <li>6 0.0085</li> <li>5 0.0127</li> <li>4 0.0176</li> <li>3 0.0206</li> <li>1 0.0371</li> <li>0.0405</li> <li>8 0.0548</li> <li>7 0.0122</li> <li>3 0.0387</li> <li>1 0.0324</li> <li>8 0.0324</li> <li>8 0.0325</li> <li>1 0.0178</li> <li>7 0.0122</li> <li>1 0.0025</li> <li>3 0.0025</li> <li>3 0.0025</li> <li>3 0.0025</li> <li>3 0.0025</li> <li>3 0.0029</li> <li>6 0.0019</li> <li>5 0.0012</li> <li>2 0.0005</li> <li>8 0.0003</li> <li>4 0.0001</li> <li>1 0.0011</li> </ul>	0.0450 0.4700 D2 DR MALIZED 0.0046 0.0061 0.0086 0.0122 0.0213 0.0261 0.0393 0.0458 0.0555 0.0637 0.0466 0.0426 0.0258 0.0268 0.0268 0.0268 0.0265 0.0144 0.0101 0.0087 0.0037 0.0037 0.0037 0.0027 0.0019 0.0013 0.0001 0.0001	0.0450 0.4700 CROSS C0 VALUE *** 0.0038 0.0048 0.0075 0.0107 0.0171 0.0204 0.0350 0.0463 0.0497 0.0616 0.0440 0.0332 0.0210 0.0215 0.0162 0.0040 0.0025 0.0011 0.0006 0.0003 0.0003 0.0000 0.0000	DHERENCY *** 0.7307 0.6844 0.7613 0.7487 0.7850 0.7752 0.8387 0.8339 0.8339 0.8339 0.8339 0.7668 0.6707 0.5251 0.4907 0.3919 0.3454 0.64907 0.3919 0.3454 0.1604 0.0881 0.0747 0.0375 0.0252 0.0327 0.0780 0.0538 0.0332 0.0238 0.0238 0.028	0.0450 0.5850 81 ***** ND 0.0051 0.0047 0.0047 0.0120 0.0145 0.0213 0.0325 0.0424 0.0475 0.0655 0.0563 0.0564 0.0237 0.0237 0.0237 0.0237 0.0237 0.0237 0.0237 0.0237 0.0237 0.0237 0.0237 0.0203 0.0279 0.0346 0.0237 0.0237 0.0203 0.0213 0.0213 0.0279 0.0346 0.0237 0.0203 0.0213 0.0213 0.0213 0.0279 0.0346 0.0237 0.0203 0.0213 0.0213 0.0213 0.0217 0.0103 0.0010 0.0011 0.0005 0.0001	0.0453 0.5850 D2 RMALIZED 0.0049 0.0045 0.0045 0.0045 0.00511 0.0479 0.0661 0.0534 0.0472 0.0661 0.0534 0.0472 0.0661 0.0534 0.0472 0.0661 0.0534 0.0273 0.0256 0.017 0.0051 0.0001 0.0001 0.0001	0.0450 0.5850 CRDSS C VALUE ** 0.0041 0.0036 0.0060 0.0111 0.0132 0.0184 0.0315 0.0428 0.0428 0.0442 0.0614 0.0507 0.0459 0.0310 0.0248 0.0161 0.0122 0.0083 0.0248 0.0161 0.00248 0.0047 0.0036 0.0001 0.0001 0.0001 0.0001 0.0000	DHERENCY *** 0.6659 0.6161 0.7041 0.7471 0.7561 0.7625 0.8071 0.8458 0.8571 0.8705 0.8541 0.7916 0.6850 0.5377 0.5608 0.4302 0.3904 0.3459 0.1958 0.1869 0.0597 0.0749 0.0424 0.0589 0.0310 0.0490 0.0741 0.0462 0.0208
WG(LB/SEC WL(LB/SEC CELL FREQ.(CPS 0.1 0.6 1.1 2.6 3.1 3.6 4.0 4.5 5.0 5.5 6.5 7.5 8.4 11.4 13.3 15.8 18.2 22.6 25.0 27.5 30.4 34.8 40.2 25.0 27.5 30.4 34.8	<ul> <li>) 0.0450</li> <li>) 0.4700</li> <li>B1</li> <li>) ***** N(</li> <li>0.0043</li> <li>7 0.0056</li> <li>6 0.0085</li> <li>5 0.0127</li> <li>4 0.0176</li> <li>3 0.0206</li> <li>1 0.0371</li> <li>0.0405</li> <li>8 0.0548</li> <li>7 0.0122</li> <li>3 0.0387</li> <li>1 0.0324</li> <li>8 0.0328</li> <li>6 0.0253</li> <li>1 0.0178</li> <li>7 0.0122</li> <li>1 0.0026</li> <li>3 0.024</li> <li>8 0.0324</li> <li>8 0.0324</li> <li>8 0.0324</li> <li>8 0.0325</li> <li>1 0.0178</li> <li>7 0.0122</li> <li>1 0.0097</li> <li>5 0.0025</li> <li>3 0.0029</li> <li>6 0.0019</li> <li>5 0.0019</li> <li>5 0.0019</li> <li>5 0.0019</li> <li>5 0.0019</li> <li>5 0.0012</li> <li>2 0.0005</li> <li>8 0.0003</li> <li>4 0.0001</li> <li>1 0.0001</li> <li>1 0.0001</li> <li>1 0.0001</li> </ul>	0.0450 0.4700 D2 DR MALIZED 0.0046 0.0086 0.0086 0.0122 0.0213 0.0261 0.0393 0.0458 0.0555 0.0637 0.0466 0.0426 0.0258 0.0268 0.0268 0.0268 0.0268 0.0265 0.0144 0.0101 0.0087 0.0039 0.0037 0.0027 0.0039 0.0037 0.0027 0.0019 0.0013 0.0001 0.0001 0.0001 0.0001 0.0001	0.0450 0.4700 CROSS C0 VALUE *** 0.0038 0.0048 0.0075 0.01071 0.0204 0.0350 0.0463 0.0497 0.0616 0.0440 0.0332 0.0210 0.0215 0.0162 0.0040 0.0025 0.0011 0.0006 0.0003 0.0003 0.0000 0.0000 0.0000	DHERENCY *** 0.7307 0.6844 0.7613 0.7487 0.7850 0.7752 0.8387 0.8339 0.8339 0.7668 0.6707 0.5251 0.4907 0.3919 0.3454 0.1604 0.0881 0.0747 0.0375 0.0252 0.0327 0.0780 0.0538 0.0332 0.0238 0.0208 0.0417	0.0450 0.5850 B1 ***** ND 0.0051 0.0047 0.0047 0.0120 0.0145 0.0213 0.0325 0.0424 0.0475 0.0655 0.0563 0.0564 0.0237 0.0237 0.0346 0.0237 0.0237 0.0237 0.0237 0.0237 0.0103 0.0237 0.0103 0.0237 0.0103 0.0213 0.0213 0.0279 0.0346 0.0237 0.02137 0.0103 0.02137 0.0103 0.02137 0.0103 0.02137 0.0103 0.02137 0.0103 0.02137 0.0103 0.02137 0.0103 0.0203 0.00103 0.0001 0.0001 0.0001 0.0001 0.0001 0.0000 0.0001 0.0001 0.0000 0.0001 0.00000 0.000000 0.000000 0.00000000	0.0453 0.5850 D2 RMALIZED 0.0049 0.0045 0.0045 0.0045 0.0137 0.0158 0.0209 0.0378 0.0511 0.0479 0.0661 0.0534 0.0472 0.0661 0.0534 0.0472 0.0661 0.0273 0.0317 0.0256 0.0188 0.0144 0.0112 0.0091 0.0040 0.0036 0.0022 0.0017 0.0001 0.0001 0.0001 0.0001	0.0450 0.5850 CRDSS C VALUE ** 0.0041 0.0036 0.0060 0.0111 0.0132 0.0184 0.0315 0.0428 0.0442 0.0442 0.0442 0.0459 0.0310 0.0248 0.0459 0.0310 0.0248 0.0161 0.0122 0.0083 0.0047 0.0083 0.0047 0.0009 0.0004 0.0001 0.0001 0.0001 0.0000 0.0000 0.0000 0.0000 0.0000	DHERENCY *** 0.6659 0.6161 0.7041 0.7471 0.7561 0.7625 0.8071 0.8458 0.8571 0.8705 0.8541 0.7916 0.6850 0.5377 0.5608 0.4302 0.3904 0.3459 0.1958 0.1869 0.0597 0.0749 0.0424 0.0589 0.0310 0.0490 0.0741 0.0462 0.0208 0.0
WG(LB/SEC WL(LB/SEC CELL FREQ.(CPS 0.1 0.6 1.1 2.6 3.1 3.6 4.0 4.5 5.0 5.5 6.5 7.5 8.4 11.4 13.3 15.8 18.2 22.6 25.0 27.5 30.4 34.8 40.2 25.0 27.5 30.4 34.8 40.2 25.0 27.5 30.4 34.8	<ul> <li>) 0.0450</li> <li>) 0.4700</li> <li>B1</li> <li>) ***** N(</li> <li>0.0043</li> <li>7 0.0056</li> <li>6 0.0085</li> <li>5 0.0127</li> <li>4 0.0176</li> <li>3 0.0206</li> <li>1 0.0371</li> <li>0.0405</li> <li>8 0.0548</li> <li>7 0.0122</li> <li>1 0.0324</li> <li>8 0.0387</li> <li>1 0.0324</li> <li>8 0.0328</li> <li>6 0.0253</li> <li>1 0.0178</li> <li>7 0.0122</li> <li>1 0.0097</li> <li>5 0.0025</li> <li>3 0.0029</li> <li>6 0.0019</li> <li>5 0.0012</li> <li>2 0.0005</li> <li>8 0.0003</li> <li>4 0.0001</li> <li>2 0.0005</li> </ul>	0.0450 0.4700 D2 DR MALIZED 0.0046 0.0086 0.0086 0.0122 0.0213 0.0261 0.0393 0.0458 0.0555 0.0637 0.0466 0.0456 0.0426 0.0258 0.0268 0.0268 0.0268 0.0268 0.0265 0.0144 0.0101 0.0087 0.0039 0.0037 0.0027 0.0039 0.0037 0.0027 0.0019 0.0013 0.0001 0.0001 0.0001	0.0450 0.4700 CROSS C0 VALUE *** 0.0038 0.0048 0.0075 0.0107 0.0171 0.0204 0.0350 0.0463 0.0497 0.0616 0.0440 0.0332 0.0210 0.0215 0.0162 0.0040 0.0025 0.0011 0.0006 0.0003 0.0003 0.0000 0.0000 0.0000	DHERENCY *** 0.7307 0.6844 0.7613 0.7487 0.7850 0.7752 0.8387 0.8133 0.8339 0.7668 0.6707 0.5251 0.4907 0.3919 0.3454 0.1604 0.0881 0.0747 0.0375 0.0252 0.0327 0.0780 0.0538 0.0332 0.0238 0.02417	0.0450 0.5850 B1 ***** ND 0.0051 0.0047 0.0047 0.0120 0.0145 0.0213 0.0325 0.0424 0.0475 0.0655 0.0563 0.0564 0.0237 0.0237 0.0237 0.0237 0.0237 0.0237 0.0237 0.0237 0.0237 0.0237 0.0237 0.0237 0.0237 0.0237 0.0203 0.0279 0.0346 0.0237 0.0237 0.0203 0.0213 0.0213 0.0279 0.0346 0.0237 0.0203 0.0213 0.0213 0.0213 0.0279 0.0346 0.0237 0.0213 0.0213 0.0213 0.0279 0.0346 0.0237 0.0203 0.0213 0.0213 0.0213 0.0213 0.0213 0.0213 0.0213 0.0213 0.0255 0.0564 0.0237 0.0203 0.0213 0.0213 0.0213 0.0213 0.0213 0.0217 0.0365 0.0213 0.0203 0.0203 0.0203 0.0103 0.00103 0.0010 0.0010 0.0010 0.0010 0.0010 0.0010 0.0010 0.0010 0.0010 0.0010 0.0010 0.0001	0.0453 0.5850 D2 RMAL I Z ED 0.0049 0.0045 0.0045 0.0137 0.0158 0.0209 0.0378 0.0511 0.0479 0.0661 0.0534 0.0479 0.0661 0.0534 0.0472 0.0360 0.0273 0.0317 0.0256 0.017 0.0051 0.0001 0.0001 0.0001 0.0001	0.0450 0.5850 CRDSS C VALUE ** 0.0041 0.0036 0.0060 0.0111 0.0132 0.0184 0.0315 0.0428 0.0442 0.0442 0.0442 0.0442 0.0459 0.0310 0.0248 0.0459 0.0310 0.0248 0.0161 0.0122 0.083 0.0248 0.0161 0.0102 0.0083 0.0047 0.0008 0.0001 0.0002 0.0001 0.0001 0.0000 0.0000 0.0000 0.0000 0.0000	DHERENCY *** 0.6659 0.6161 0.7041 0.7471 0.7561 0.7625 0.8071 0.8458 0.8571 0.8705 0.8541 0.7916 0.6850 0.5377 0.5608 0.4302 0.3904 0.3459 0.1958 0.1869 0.0597 0.0749 0.0424 0.0589 0.0310 0.0462 0.0208 0.0
WG(LB/SEC WL(LB/SEC CELL FREQ.(CPS 0.1 0.6 1.1 2.6 3.1 3.6 4.0 4.5 5.0 5.5 6.5 7.5 8.4 11.4 13.4 13.4 13.4 13.5 8 18.2 22.6 25.0 27.5 30.4 34.8 40.2 25.0 27.5 30.4 34.8 40.2 25.0 27.5 30.4 34.8 40.2 25.0 27.5 30.4 34.8 40.2 25.0 27.5 30.4 34.8 40.2 25.0 27.5 30.4 34.8 40.2 25.0 27.5 30.4 34.8 40.2 25.0 27.5 30.4 34.8 40.2 25.0 27.5 30.4 34.8 40.2 25.0 27.5 30.4 34.8 40.2 25.0 27.5 30.4 34.8 40.2 25.0 27.5 30.4 34.8 40.2 25.0 27.5 30.4 34.8 40.2 25.0 27.5 30.4 34.8 40.2 25.0 27.5 30.4 34.8 40.2 25.0 27.5 30.4 34.8 40.2 25.0 27.5 30.4 34.8 40.2 25.0 27.5 30.4 34.8 40.2 25.0 27.5 30.4 34.8 40.2 25.0 27.5 30.4 34.8 25.0 27.5 30.4 34.8 40.2 25.0 27.5 30.4 34.8 40.2 25.0 27.5 30.4 34.8 40.2 25.0 27.5 30.4 34.8 40.2 25.0 27.5 30.4 34.8 40.2 25.0 27.5 30.4 34.8 40.2 25.0 27.5 30.4 34.8 40.2 25.0 27.5 30.4 34.8 40.2 25.0 27.5 30.4 34.8 4 34.8 25.0 27.5 30.4 34.8 25.0 27.5 30.4 34.8 25.0 27.5 30.4 34.8 25.0 27.5 30.4 25.0 27.5 30.4 25.0 27.5 30.4 25.0 27.5 30.4 25.0 27.5 27.5 30.4 25.0 27.5 27.5 27.5 27.5 20.4 27.5 27.5 27.5 27.5 27.5 27.5 20.4 27.5 27.5 27.5 20.4 27.5 27.5 20.4 27.5 20.4 27.5 27.5 20.4 27.5 20.4 27.5 20.4 27.5 20.4 27.5 20.4 27.5 20.4 27.5 20.4 27.5 27.5 27.5 27.5 27.5 27.5 27.5 27.5	<ul> <li>) 0.0450</li> <li>) 0.4700</li> <li>B1</li> <li>) ***** N(</li> <li>0.0043</li> <li>7 0.0056</li> <li>0.0026</li> <li>0.0206</li> <li>1 0.0274</li> <li>0.0206</li> <li>1 0.0276</li> <li>1 0.0324</li> <li>0.0542</li> <li>1 0.0324</li> <li>0.0324</li> <li>0.0025</li> <li>0.0025</li> <li>0.0029</li> <li>0.0012</li> <li>0.0005</li> <li>0.0003</li> <li>4 0.0001</li> <li>0.0000</li> <li>0.0000</li> </ul>	0.0450 0.4700 D2 DR MALIZED 0.0046 0.0086 0.0086 0.0122 0.0213 0.0261 0.0393 0.0458 0.0555 0.0458 0.0555 0.0637 0.0466 0.0258 0.0268 0.0268 0.0268 0.0268 0.0265 0.0144 0.0101 0.0087 0.0039 0.0037 0.0027 0.0039 0.0037 0.0027 0.0019 0.0013 0.0001 0.0001 0.0001	0.0450 0.4700 CROSS C0 VALUE *** 0.0038 0.0048 0.0075 0.0107 0.0171 0.0204 0.0350 0.0463 0.0497 0.0616 0.0440 0.0332 0.0210 0.0215 0.0162 0.0040 0.0025 0.0011 0.0068 0.0040 0.0025 0.0011 0.0006 0.0003 0.0003 0.0000 0.0000 0.0000	DHERENCY *** 0.7307 0.6844 0.7613 0.7487 0.7850 0.7752 0.8387 0.8133 0.8339 0.7668 0.6707 0.5251 0.4907 0.3919 0.3454 0.1604 0.0881 0.0747 0.0375 0.0252 0.0327 0.0780 0.0538 0.0332 0.0238 0.02417	0.0450 0.5850 B1 ***** ND 0.0051 0.0047 0.0047 0.0120 0.0145 0.0213 0.0325 0.0424 0.0475 0.0655 0.0563 0.0564 0.0237 0.0237 0.0237 0.0237 0.0237 0.0237 0.0237 0.0237 0.0237 0.0237 0.0237 0.0237 0.0237 0.0237 0.0203 0.0279 0.0346 0.0237 0.0203 0.0279 0.0346 0.0237 0.0203 0.0213 0.0213 0.0279 0.0346 0.0237 0.0203 0.02137 0.0103 0.02137 0.0103 0.0010 0.0010 0.0010 0.0005 0.0001 0.0001 0.0000	0.0453 0.5850 D2 RMALIZED 0.0049 0.0045 0.0045 0.0137 0.0158 0.0209 0.0378 0.0511 0.0479 0.0661 0.0534 0.0479 0.0661 0.0534 0.0472 0.0360 0.0273 0.0317 0.0256 0.017 0.0051 0.0001 0.0001 0.0001 0.0001	0.0450 0.5850 CRDSS C VALUE ** 0.0041 0.0036 0.0060 0.0111 0.0132 0.0184 0.0315 0.0428 0.0442 0.0442 0.0442 0.0442 0.0459 0.0310 0.0248 0.0459 0.0310 0.0248 0.0161 0.0122 0.083 0.0248 0.0047 0.0083 0.0047 0.0009 0.0004 0.0001 0.0001 0.0001 0.0001 0.0000 0.0001 0.0000 0.0000 0.0000	DHERENCY *** 0.6659 0.6161 0.7041 0.7471 0.7561 0.7625 0.8071 0.8458 0.8571 0.8705 0.8541 0.7916 0.6850 0.5377 0.5608 0.4302 0.3904 0.3459 0.1958 0.1869 0.0597 0.0749 0.0424 0.0589 0.0310 0.0490 0.0741 0.0462 0.0208 0.0

				,				
WU(LB/SEC)	5.0976	0.0976	0.0976		0.0975	0.0976	0.0976	
WILLE/SEC)	1.016	5-6160	3.(16)		0.0283	0.0200	0.0280	
C ( 1 )	01	02	000000000		0.020.	0.0200	0.0200	
	01	02		UNENERGT.	81	02	CRUSS C	UNERENCY
FRED.ICP21	**** //	RMALIZED	VALUE FF	5 <b>7 ¥</b>	***** NOP	RHALIZED	VALUE **	***
U.18	0.0037	0.0037	0.0018	<b>U</b> •2288	0.0107	0.0044	0.0029	0.1766
0.67	0.0041	0.0041	0.0023	0.3213	0500.0	0.0076	0.0049	0.3922
1.15	N. 0.007	0.0072	0.0646	6.4325	6 0168	0.0112	1.0082	0.5569
1 65	0 0004	0.01	0 0 3 5 9	0 4194	0.0100	0 012	0 0 0 0 0 0	0 6622
2.14	0.00094	0.0115	0.0057	C 2077	0.0129	0+0150	0.0005	0.4022
2.14	0.0095	0.0115	0.0007	0.2911	v.0131	0.0178	5.0133	0.5516
2.63	0.0137	0.0166	0.0097	J-4165	0.0204	0.0185	0.0131	0.4555
3.11	0.0121	0.0120	0.0068	0.3164	<b>0.0208</b>	0.0204	0.0138	0.4512
3.60	0.0104	0.0106	0.0046	ú.1949	0.0214	0.0227	0.0112	0.2578
4.09	0.0168	0.0103	0.0026	0.0601	0.0269	0.0264	0.0150	0.3165
4.58	0.0161	0.0135	0.0037	0.0648	0.02.02	6 2214	0.00120	0 1207
5 07	0.0101	0.0100	0.0001	0.0040	0.0203	0.0210	0.0075	0.1297
2+07	0.0154	0.0129	0.0040	0.1001	0.0263	0.0213	0.0138	0.2000
ちょうう	0.0123	0.0144	6.0049	0.1375	0.0265	0.0230	0.0106	0.1865
6.53	Ú.0167	0.0178	0.0045	0.0075	0.0275	0.0235	0.0069	0.0732
1.51	0.0180	0.0169	0.0045	0.0630	0.0223	0.0260	0.0057	0.0569
8.48	0.0161	0.0216	0.0033	9.0323	0.6245	0.0251	0.0042	0.0282
0 4 6	0 0222	0 0215	0 0052	0.0368	0.0222	0.0202	0.0045	0.0402
11 ()	0.0222	0.0215		0.0205	0.0222	0.0232	0.0005	0.0003
. 11.41	0.0201	0.0200	0.0047	0.0527	0.0195	0.0201	0.0033	0.0271
13.37	0.0201	9.0232	0.0641	0.0368	0.0236	0.0199	0.0046	0.0449
15.81	0.0234	0.0223	0.0055	0.0582	0.0131	0.0150	0.0022	0.0252
18.25	0.0185	0.0174	0.0034	0.0364	0.0153	0.0122	0.0623	0.0280
22.64	6.0119	0.0081	0.0018	0.0323	0101	0 0105	0 0018	6 6317
25 09	0 0101	0 0076	0.0010	0513	0.0101	0.0103	0.0010	0.00011
27.00	0.0091	0.0010	0.0019	0 0 0 2 2 0	0.0089	0.0059	0.0015	0.0488
21.00	0.0003	0.0052	0.0009	0.0250	0.0053	0.0649	0.0009	0.0368
30.46	0.0034	0.0042	0.0007	0.0373	0.0034	0.0039	0.0069	0.0671
34.85	6.0031	0.0026	0.0008	0.0772	0.0025	0.0023	0.0004	0.0317
40.22	0.0318	0.0016	0.0003	0.0394	0.0017	0.0015	0.0002	0.0207
51.48	6.0006	0.0.004	0.0001	0.0435	6 0007	0.0006	0.0002	0.0993
	0 00 37	0 0008	0.0006	0 5176	0.0007	0.00007	0.0002	0.0000
70.01	0.0007	0.0.21	0.0010	0 9244	0.0007	0.0007	0.0004	0.2803
70.01	0.0017	0.0021	0.0010	0.0544	0.0012	0.0013	0.0011	0.7858
80.26	0.0001	0.0301	9.0000	0.0317	6.0001	0.0001	0.0000	6.0400
	•	•						
				ł				
			•	1				
WG(LB/SEC)	0.0976	6.0976	0.0976	ľ	0.0976	5-0976	0.0976	
WG(LB/SEC)	0.0976	0.0976 0.0440	0.0976 0.0440	2. 	0.0976	0.0976	0.0976	
WG(LB/SEC) WL(LB/SEC)	0.0976 0.0440 81	0.0976 0.0440 D2	0.0976 0.0440 CBDSS CI		0.0976 0.0800	0.0976 0.0800	. 0.0976 0.0300	ПНЕРЕМ <b>ГУ</b>
WG(LB/SEC) WL(LB/SEC) CELL	0.0976 0.0440 B1	G.0976 0.0440 D2	0.0976 0.0440 CROSS C(	DHERENCY	0.0976 0.0800 B1	0.0976 0.0800 D2	0.0976 0.0300 CROSS C	OHERENCY
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS)	0.0976 0.0440 B1 ***** NO	0.0976 0.0440 D2 RMALIZED	0.0976 0.0440 CROSS C( VALUE ***	DHERENCY	0.0976 0.0800 81 ***** NOF	0.0976 0.0800 D2 RMALIZED	0.0976 0.0300 CROSS C VALUE **	OHERENCY
WG(LB/SEC) WL(LB/SEC) CELL FREO.(CPS) 0.1B	0.0976 0.0440 B1 ***** NO 0.0111	6.0976 0.0440 D2 RMALIZED 0.0155	0.0976 0.0440 CROSS C( VALUE *** 0.0106	DHERENCY *** C•6480	0.0976 0.0800 81 ***** NOF 0.0030	0.0976 0.0800 D2 RMALIZED 0.0032	0.0976 0.0300 CROSS C VALUE ** 0.0019	OHERENCY *** C.3816
WG(LB/SEC) WL(LB/SEC) CELL FREO.(CPS) 0.1B 0.67	0.0976 0.0440 B1 ***** NO 0.0111 0.0266	G.0976 O.0440 D2 RMALIZED O.0155 O.0348	0.0976 0.0440 CROSS C( VALUE *** 0.0106 0.0269	DHERENCY *** C.6480 D.7794	0.0976 0.0800 81 ***** NOF 0.0030 0.0103	0.0976 0.0800 D2 RMALIZED 0.0032 0.0125	. 0.0976 0.0300 CROSS C VALUE ** 0.0019 0.0095	OHERENCY *** 0.3816 0.6970
WG(LB/SEC) WL(LB/SEC) CELL FREO.(CPS) 0.18 0.67 1.16	0.0976 0.0440 B1 ***** NO 0.0111 0.0266 0.0434	C.0976 O.0440 D2 RMALIZED O.0155 O.0348 O.0440	0.0976 0.0440 CROSS C( VALUE *** 0.0106 0.0269 0.0396	DHERENCY *** C.6480 D.7794 O.8230	0.0976 0.0800 81 ***** NOF 0.0033 0.0103 0.0103	0.0976 0.0800 D2 RMALIZED 0.0032 0.0125 0.0147	0.0976 0.0300 CROSS C VALUE ** 0.0019 0.0095 0.0123	DHERENCY *** C.3816 O.6970 C.7104
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65	0.0976 0.0440 B1 ***** NO 0.0111 0.0266 0.0434 0.0398	G.0976 O.0440 D2 RMALIZED O.0155 O.0348 O.0440 G.0434	0.0976 0.0440 CROSS CO VALUE *** 0.0106 0.0269 0.0396 0.0353	DHERENCY *** C.6480 0.7794 0.8230 C.7218	0.0976 0.0800 81 ***** NOF 0.0033 0.0103 0.0103 0.3145 0.0201	0.0976 0.0800 D2 RMALIZED 0.0032 0.0125 0.0147 0.0205	0.0976 0.0300 CROSS C VALUE ** 0.0019 0.0095 0.0123 0.0174	OHERENCY *** C•3816 O•6970 C•7104 O•7354
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.1B 0.67 1.16 1.65 2.14	0.0976 0.0440 B1 ***** NO 0.0111 0.0266 0.0434 0.0398 0.0314	C.0976 O.0440 D2 RMALIZED O.0155 O.0348 O.0440 C.0434	0.0976 0.0440 CROSS CO VALUE *** 0.0106 0.0269 0.0353 0.0353 0.0259	DHERENCY *** C.6480 D.7794 O.8230 C.7218 D.6418	0.0976 0.0800 81 ***** NOF 0.0033 0.0103 0.0103 0.0145 0.0201	0.0976 0.0800 D2 RMALIZED 0.0032 0.0125 0.0147 C.0205	0.0976 0.0300 CROSS C VALUE ** 0.0019 0.0095 0.0123 0.0174	OHERENCY *** 0.6970 0.7104 0.7354 0.6967
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63	0.0976 0.0440 B1 ***** NO 0.0111 0.0266 0.0434 0.0398 0.0314	C.0976 O.0440 D2 RMALIZED O.0155 O.0348 O.0440 C.0434 C.0432 O.0372	0.0976 0.0440 CROSS C( VALUE *** 0.0106 0.0269 0.0396 0.0353 0.0259	DHERENCY *** C.6480 0.7794 0.8230 C.7218 0.6418 0.6418	0.0976 0.0800 81 ***** NOF 0.0030 0.0103 0.0103 0.0145 0.0201 0.0201	0.0976 0.0800 D2 RMALIZED 0.0032 0.0125 0.0147 C.0205 0.2239	0.0976 0.0300 CROSS C VALUE ** 0.0019 0.0095 0.0123 0.0174 0.0197	OHERENCY *** 0.6970 0.7104 0.7354 0.6967
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63	0.0976 0.0440 B1 ***** NO 0.0111 0.0266 0.0434 0.0398 0.0314 0.0351	6.0976 0.0440 D2 RMALIZED 0.0155 0.0348 0.0440 0.0440 0.0332 0.0372	0.0976 0.0440 CROSS C( VALUE *** 0.0106 0.0269 0.0396 0.0353 0.0259 0.0259	DHERENCY *** C.6480 0.7794 0.8230 C.7218 0.6418 0.6418 0.4963	0.0976 0.0800 81 ***** NOF 0.0033 0.0103 0.0103 0.0145 0.0201 5.0233 0.0265	0.0976 0.0800 D2 RMALIZED 0.0032 0.0125 0.0147 C.0205 0.0239 0.0244	0.0976 0.0300 CROSS C VALUE ** 0.0095 0.0123 0.0174 0.0197 0.0208	DHERENCY *** 0.3816 0.6970 0.7104 0.7354 0.6967 0.6652
WG(LB/SEC) WL(LB/SEC) CELL FREO.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11	0.0976 0.0440 B1 ***** NO 0.0111 0.0266 0.0434 0.0398 0.0314 0.0351 0.0346	C.0976 O.0440 D2 RMALIZED O.0155 O.0348 O.0440 C.0434 C.0332 O.0372 O.0352	0.0976 0.0440 CROSS C( VALUE *** 0.0106 0.0269 0.0396 0.0353 0.0259 0.0255 0.0263	DHERENCY *** C.6480 0.7794 0.8230 C.7218 0.6418 0.6418 0.4963 C.5687	0.0976 0.0800 81 ***** NOF 0.0033 0.0103 0.0103 0.0145 0.0201 0.0233 0.0265 0.0367	0.0976 0.0800 D2 RMALIZED 0.0125 0.0147 C.0205 0.0239 0.0244 0.0340	0.0976 0.0300 CRDSS C VALUE ** 0.0019 0.0095 0.0123 0.0174 0.0197 0.0208 0.0308	DHERENCY *** C.3816 0.6970 C.7104 0.7354 0.6967 0.6652 0.7609
WG(LB/SEC) WL(LB/SEC) CELL FRE0.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.6J	0.0976 0.0440 B1 ***** NO 0.0111 0.0266 0.0434 0.0398 0.0314 0.0351 0.0346 0.0342	6.0976 0.0440 D2 RMALIZED 0.0155 0.0348 0.0440 0.0344 0.0332 0.0372 0.0352 0.0354	0.0976 0.0440 CROSS CO VALUE *** 0.0106 0.0269 0.0396 0.0353 0.0259 0.0255 0.0263 0.0244	DHERENCY *** C.6480 D.7794 O.8230 C.7213 O.6418 O.6418 O.6418 O.64963 C.5687 G.4916	0.0976 0.0800 81 ***** NOF 0.0033 0.0103 0.0145 0.0201 0.0233 0.0265 0.0367 0.0340	0.0976 0.0800 D2 RMALIZED 0.0032 0.0125 0.0147 C.0205 0.0247 0.0244 0.0340 0.0327	0.0976 0.0300 CRDSS C VALUE ** 0.0095 0.0095 0.0174 0.0197 0.0208 0.0308 0.0284	DHERENCY *** C.3816 O.6970 C.7104 O.7354 O.6967 O.6652 O.7609 C.7276
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09	C.0976 C.0440 B1 ***** NO 0.0111 O.0266 C.0434 O.0398 O.C314 C.0351 C.0346 C.0342 O.0343	C.0976 O.0440 D2 RMALIZED O.0155 O.0348 O.0440 C.0434 O.0332 O.0372 O.0352 U.0354 U.0330	0.0976 0.0440 CROSS C( VALUE *** 0.0106 0.0269 0.0396 0.0353 0.0259 0.0255 0.0263 0.0244 0.0225	DHERENCY *** C.6480 0.7794 0.8230 C.7213 0.6418 0.4485 0.5687 S.4916 0.4485	0.0976 0.6800 81 ***** NOF 0.0030 0.0103 0.0145 0.0201 0.0235 0.0265 0.0367 0.0340 0.0310	0.0976 0.0800 D2 MALIZED 0.0125 0.0147 C.0205 0.0249 0.0244 0.0327 0.0300	0.0976 0.0300 CROSS C VALUE ** 0.0019 0.0095 0.0123 0.0174 0.0197 0.0208 0.0284 0.0233	OHERENCY *** C.3816 O.6970 C.7104 O.7354 O.6967 O.6652 O.7609 C.7276 O.5632
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.6 4.09 4.58	0.0976 0.0440 B1 ***** NO 0.0111 0.0266 0.0434 0.0398 0.0314 0.0351 0.0346 0.0342 0.0343 0.0308	C.0976 O.0440 D2 RMALIZED O.0155 O.0348 O.0440 C.0440 C.0440 C.0440 C.0440 O.032 O.0372 O.0372 U.0354 U.0330 O.0269	0.0976 0.0440 CROSS C( VALUE *** 0.0106 0.0269 0.0396 0.0353 0.0255 0.0255 0.0263 0.0225 0.0225 0.0225 0.0168	DHERENCY *** C.6480 0.7794 0.8230 C.7218 0.6418 0.4963 C.5687 C.4916 0.4485 0.3416	0.0976 0.0800 81 ***** NOF 0.0030 0.0103 0.0145 0.0201 0.0233 0.0265 0.0340 0.0310 0.0318	0.0976 0.0800 D2 RMALIZED 0.0125 0.0147 C.0205 0.0239 0.0244 0.0340 0.0327 0.0300 0.0253	0.0976 0.0300 CROSS C VALUE ** 0.0019 0.0095 0.0123 0.0174 0.0197 0.0208 0.0208 0.0284 0.0233 0.0211	OHERENCY *** C.3816 O.6970 C.7104 O.7354 O.6967 O.6652 O.7652 O.7276 O.5632 O.5514
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07	0.0976 0.0440 B1 ***** NO 0.0111 0.0266 0.0434 0.0398 0.0314 0.0351 0.0346 0.0342 0.0342 0.0343 0.0308 0.0308 0.0292	6.0976 0.0440 D2 RMALIZED 0.0155 0.0348 0.0440 0.0344 0.0332 0.0352 0.0352 0.0354 0.0354 0.036 0.0269 0.0300	0.0976 0.0440 CROSS C( VALUE *** 0.0106 0.0269 0.0396 0.0353 0.0259 0.0255 0.0263 0.0255 0.0263 0.0244 0.0225 0.0168 0.0139	DHERENCY *** C.6480 0.7794 0.8230 C.7218 0.6418 0.6418 0.4963 C.5687 C.4916 0.4485 0.3416 C.2278	0.0976 0.0800 81 ***** NOF 0.0033 0.0103 0.0103 0.0145 0.0201 5.0233 0.0265 0.0367 0.0340 0.0310 0.0318 0.0283	0.0976 0.0800 D2 RMALIZED 0.0125 0.0147 C.0205 0.0239 0.0244 0.0340 0.0327 0.0300 0.0253 0.0253	0.0976 0.0300 CROSS C VALUE ** 0.0095 0.0123 0.0174 0.0197 0.0208 0.0308 0.0284 0.0284 0.0233 0.0211 0.0218	OHERENCY *** 0.3816 0.6970 0.7104 0.7354 0.6652 0.7609 0.7276 0.5632 0.5514 0.5501
WG(LB/SEC) WL(LB/SEC) CELL FREO.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55	0.0976 0.0440 B1 ***** NO 0.0111 0.0266 0.0434 0.0398 0.0314 0.0351 0.0346 0.0342 0.0343 0.0308 0.0292 0.0256	C.0976 O.0440 D2 RMALIZED O.0155 O.0348 O.0440 C.0434 C.0332 O.0372 O.0352 U.0354 U.0334 O.0354 O.0369 O.0296	0.0976 0.0440 CROSS C( VALUE *** 0.0106 0.0269 0.0396 0.0353 0.0259 0.0255 0.0263 0.0263 0.0244 0.0225 0.0126	DHERENCY *** C.6480 0.7794 0.8230 C.7218 0.6418 0.6418 0.4963 0.5687 5.4916 0.4485 0.3416 C.2278 0.2087	0.0976 0.0800 81 ***** NOF 0.0030 0.0103 0.0103 0.0145 0.0201 0.0233 0.0265 0.0367 0.0340 0.0310 0.0318 0.02818 0.0207	0.0976 0.0800 D2 RMALIZED 0.0125 0.0147 C.0205 0.0239 0.0244 0.0340 0.0327 0.0300 0.0253 0.0306	0.0976 0.0300 CRDSS C VALUE ** 0.0019 0.0095 0.0123 0.0174 0.0197 0.0208 0.0308 0.0284 0.0233 C.0211 0.C218	DHERENCY *** 0.3816 0.6970 0.7104 0.7354 0.6652 0.6652 0.7609 0.7276 0.5632 0.5514 0.5501
WG(LB/SEC) WL(LB/SEC) CELL FREO.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.6 4.09 4.58 5.07 5.55	0.0976 0.0440 B1 ***** NO 0.0111 0.0266 0.0434 0.0398 0.0314 0.0351 0.0346 0.0346 0.0345 0.0348 0.0308 0.0308 0.0252	C.0976 O.0440 D2 RMALIZED O.0155 O.0348 O.0440 C.0434 C.0332 O.0372 O.0352 U.0354 U.0330 O.0269 O.0300 C.0296	0.0976 0.0440 CROSS CO VALUE *** 0.0106 0.0269 0.0396 0.0259 0.0255 0.0263 0.0225 0.0263 0.0244 0.0225 0.0168 0.0139 0.0126	DHERENCY *** C.6480 0.7794 0.8230 C.7213 0.6418 0.5687 0.5687 0.4963 0.5687 0.4916 0.4485 0.3416 C.2278 0.2087 C.2021	0.0976 0.6800 81 ***** NOF 0.0033 0.0103 0.0145 0.0201 0.0265 0.0265 0.0367 0.0340 0.0313 0.0318 0.0283 0.0297	0.0976 0.0800 D2 C.6032 0.0125 0.0147 C.0205 0.3239 0.0244 0.0340 0.0327 0.0300 0.0253 0.0306 0.0313	0.0976 0.0300 CROSS C VALUE ** 0.0019 0.0095 0.0174 0.0174 0.0197 0.0208 0.0234 0.0233 0.0211 0.0218 0.0234	OHERENCY *** C.3816 0.6970 C.7104 0.7354 0.6967 0.6652 0.7609 C.7276 0.5632 0.5514 0.5501 0.5518
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53	0.0976 0.0440 B1 ***** NO 0.0111 0.0266 0.0434 0.0398 0.0314 0.0351 0.0346 0.0346 0.0343 0.0308 0.0308 0.0256 0.0256 0.0256	C.0976 O.0440 D2 RMALIZED O.0155 O.0348 O.0440 C.0434 C.0332 O.0352 U.0354 U.0330 O.0269 O.0300 O.0296 C.0248	0.0976 0.0440 CROSS C( VALUE *** 0.0106 0.0269 0.0353 0.0255 0.0255 0.0263 0.0225 0.0263 0.0244 0.0225 0.0168 0.0139 0.0126 0.0072	DHERENCY *** C.6480 0.7794 0.8230 C.7213 0.6418 0.4963 0.5687 5.4916 0.4485 0.3416 C.2278 0.2087 C.0921	0.0976 0.0800 81 ***** NOF 0.0030 0.0103 0.0145 0.0201 0.0233 0.0265 0.0367 0.0340 0.0310 0.0318 0.0283 0.0297 0.0273	0.0976 0.0800 D2 RMALIZED 0.0125 0.0147 C.0205 0.0224 0.0340 0.0327 0.0300 0.0253 0.0306 0.0313 0.0300	0.0976 0.0300 CRDSS C VALUE ** 0.0019 0.0095 0.0123 0.0174 0.0197 0.0208 0.0238 0.0284 0.0233 0.0211 0.0218 0.0234 0.0189	OHERENCY *** C.3816 O.6970 C.7104 O.7354 O.6967 O.6652 O.7609 C.7276 O.5632 O.5514 O.5501 O.5518 O.5518 O.5518
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51	0.0976 0.0440 81 ***** NO 0.0111 0.0266 0.0434 0.0398 0.0314 0.0351 0.0346 0.0342 0.0343 0.0308 0.0255 0.0225 0.0225	C.0976 O.0440 D2 RMALIZED O.0155 O.0348 O.0440 C.0332 O.0372 O.0352 U.0354 U.0330 C.0269 O.0300 O.0296 O.0248 O.0248 O.0248 O.0242	0.0976 0.0440 CROSS C( VALUE *** 0.0106 0.0269 0.0396 0.0259 0.0255 0.0263 0.0225 0.0263 0.0225 0.0263 0.0225 0.0268 0.0139 0.0126 0.0126 0.0072 C.0102	DHERENCY *** C.6480 0.7794 0.8230 C.7218 0.6418 0.4963 C.5687 G.4916 0.4485 0.3416 C.2278 0.2087 C.0921 0.1890	0.0976 0.0800 81 ***** NOF 0.0030 0.0103 0.0103 0.0145 0.0201 5.0233 0.0265 0.0367 0.0340 0.0310 0.0318 0.0283 0.0297 0.0273 0.0273 0.0248	0.0976 0.0800 D2 RMALIZED 0.0125 0.0147 C.0205 0.0239 0.0244 0.0340 0.0327 0.0300 0.0253 0.0306 0.0313 0.0300 C.0248	0.0976 0.0300 CRDSS C VALUE ** 0.0019 0.0095 0.0123 0.0174 0.0197 0.0208 0.0308 0.0284 0.0233 0.0211 0.0218 0.0234 0.0234 0.0189 0.0138	OHERENCY *** C.3816 O.6970 C.7104 O.7354 O.6652 O.7609 C.7276 O.5632 O.5514 O.5501 O.55918 O.4371 O.3079
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48	0.0976 0.0440 B1 ***** NO 0.0111 0.0266 0.0434 0.0398 0.0314 0.0351 0.0346 0.0342 0.0343 0.0343 0.0308 0.0256 0.0225 0.0229 0.0187	G.0976 O.0440 D2 RMALIZED O.0155 O.0348 O.0440 G.0332 O.0352 O.0352 U.0354 O.0354 O.0352 O.0354 O.0330 O.0269 O.0296 O.0248 D.0242 O.0215	0.0976 0.0440 CROSS C( VALUE *** 0.0106 0.0269 0.0353 0.0259 0.0255 0.0263 0.0225 0.0263 0.0225 0.0263 0.0126 0.0126 0.0126 0.0126 0.0072 C.0102 0.0063	DHERENCY *** C.6480 0.7794 0.8230 C.7213 0.6418 0.4485 0.3416 0.4485 0.3416 C.2278 0.2087 C.0921 0.1890 C.C981	0.0976 0.0800 81 ***** NOF 0.0033 0.0103 0.0103 0.0145 0.0201 5.0233 0.0265 0.0367 0.0340 0.0310 0.0318 0.0283 0.0297 0.0273 0.0248 0.0248 0.0237	0.0976 0.0800 D2 RMALIZED 0.0125 0.0147 C.0205 0.0239 0.0244 0.0340 0.0327 0.0300 0.0253 0.0300 0.0313 0.0300 C.0248 0.0184	0.0976 0.0300 CROSS C VALUE ** 0.0095 0.0123 0.0174 0.0197 0.0208 0.0234 0.0233 0.0211 0.0218 0.0234 0.0234 0.0189 0.0189 0.0138 0.0085	DHERENCY *** C.3816 0.6970 C.7104 0.7354 0.6652 0.7609 C.7276 0.5632 0.5514 0.5513 0.5518 0.4371 0.3079 0.1658
WG(LB/SEC) WL(LB/SEC) CELL FREO.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46	C.0976 C.0440 B1 ***** NO 0.0111 0.0266 C.0434 C.0348 C.0348 C.0314 C.0351 C.0346 C.0345 C.0345 C.0345 C.0345 C.0345 C.0308 C.C252 O.0256 C.0225 U.0229 O.0187 C.0220	C.0976 O.0440 D2 RMALIZED O.0155 O.0348 O.0440 C.0434 C.0332 O.0352 O.0352 U.0354 O.0354 O.0354 O.0354 O.0354 O.0269 O.0300 O.0296 O.0248 O.0248 O.0242 O.0215 O.0178	0.0976 0.0440 CROSS CO VALUE *** 0.0106 0.0269 0.0396 0.0353 0.0255 0.0263 0.0225 0.0263 0.0244 0.0225 0.0168 0.0139 0.0126 0.0168 0.0139 0.0126 0.0072 C.0102 0.0263 0.0253	DHERENCY *** C.6480 0.7794 0.8230 C.7213 0.6418 0.5687 C.4916 0.4485 0.3416 C.2278 0.2087 C.0921 0.1890 C.C981 0.0707	0.0976 0.0800 81 ***** NOF 0.0033 0.0103 0.0103 0.02145 0.0201 0.0245 0.0340 0.0313 0.0313 0.0318 0.0243 0.0297 0.0273 0.0273 0.0243 0.0214	0.0976 0.0800 D2 MALIZED 0.0125 0.0147 C.0205 0.0249 0.0340 0.0340 0.0327 0.0300 0.0253 0.0306 0.0313 0.0300 C.0248 0.0184 0.0234	0.0976 0.0300 CROSS C VALUE ** 0.0019 0.0095 0.0123 0.0174 0.0197 0.0208 0.0234 0.0233 0.0284 0.0233 0.0211 0.0218 0.0234 0.0234 0.0189 0.0189 0.0085 0.0091	OHERENCY *** C.3816 0.6970 C.7104 0.7354 0.6967 0.6652 0.7609 C.7276 0.5632 0.5514 0.5501 0.5518 0.4371 0.3079 0.1658 0.1671
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.65 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41	0.0976 0.0440 81 ***** NO 0.0111 0.0266 0.0434 0.0398 0.0314 0.0351 0.0346 0.0346 0.0346 0.0343 0.0308 0.0256 0.0225 0.0225 0.0225 0.0229 0.0187 0.0220 0.0136	C.0976 O.0440 D2 RMALIZED O.0155 O.0348 O.0440 C.0434 C.0332 O.0352 U.0354 U.0330 O.0269 O.0300 C.0248 O.0248 O.0248 O.0248 O.0248 O.0245 O.0215 O.0140	0.0976 0.0440 CROSS C( VALUE *** 0.0106 0.0269 0.0353 0.0255 0.0255 0.0263 0.0225 0.0263 0.0244 0.0225 0.0168 0.0139 0.0126 0.0072 C.0102 0.0063 0.0053 0.0032	DHERENCY *** C.6480 0.7794 0.8230 C.7213 0.6418 0.4968 0.4968 0.4968 0.4916 0.4485 0.3416 C.2278 0.2087 C.0921 0.1890 C.0981 0.0707 0.0523	0.0976 0.6800 81 ***** NOF 0.0030 0.0103 0.0145 0.0201 0.0265 0.0367 0.0340 0.0310 0.0310 0.0318 0.0283 0.0297 0.0273 0.0248 0.0248 0.0237 0.0213	0.0976 0.0800 D2 RMALIZED 0.0125 0.0147 C.0205 0.0239 0.0244 0.0327 0.0300 0.0253 0.0306 0.0313 0.0300 C.0248 0.0184 0.0184	0.0976 0.0300 CROSS C VALUE ** 0.0019 0.0095 0.0123 0.0174 0.0208 0.0233 0.0284 0.0233 0.0284 0.0233 0.0211 0.0218 0.0234 0.0189 0.0138 0.0085 0.0091 0.0064	OHERENCY *** C.3816 O.6970 C.7104 O.7354 O.6967 O.6652 O.7669 C.7276 O.5632 O.5514 O.5501 O.55918 O.4371 O.3079 O.1658 O.1671 O.1671 O.1204
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37	0.0976 0.0445 B1 ***** NO 0.0111 0.0266 0.0434 0.0398 0.0314 0.0351 0.0346 0.0342 0.0342 0.0343 0.0343 0.0308 0.0225 0.0225 0.0225 0.0229 0.0187 0.0220 0.0136 0.0135	C.0976 O.0440 D2 RMALIZED O.0155 O.0348 O.0440 C.0440 C.0440 C.0440 C.0440 C.0332 O.0372 O.0352 U.0354 U.0330 O.0269 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0240 C.0101	0.0976 0.0440 CROSS C( VALUE *** 0.0106 0.0269 0.0396 0.0255 0.0255 0.0263 0.0225 0.0263 0.0225 0.0168 0.0126 0.0168 0.0139 0.0126 0.0072 C.0102 0.0063 0.0053 0.0032	DHERENCY *** C.6480 0.7794 0.8230 C.7218 0.6418 0.4963 C.5687 C.4916 0.4485 0.3416 C.2278 0.2087 C.0921 0.1890 C.C981 0.0707 0.0523 0.0992	0.0976 0.0800 81 ***** NOF 0.0030 0.0103 0.0103 0.0145 0.0201 0.0233 0.0265 0.0340 0.0310 0.0310 0.0318 0.0297 0.0273 0.0248 0.0297 0.0273 0.0248 0.0297 0.0273 0.0248 0.0297	0.0976 0.0800 D2 RMALIZED 0.0125 0.0147 C.0205 0.0239 0.0244 0.0340 0.0327 0.0300 0.0253 0.0306 0.0313 0.0300 C.0248 0.0184 0.0184 0.0177	0.0976 0.0300 CROSS C VALUE ** 0.0019 0.0095 0.0123 0.0174 0.0208 0.0208 0.0233 0.0284 0.0233 0.0284 0.0233 0.0284 0.0233 0.0284 0.0234 0.0234 0.0189 0.0188 0.0085 0.0091 0.0064	OHERENCY *** C.3816 0.6970 C.7104 0.7354 0.6967 0.6652 0.7609 C.7276 0.5632 0.5514 0.5514 0.5514 0.5511 0.5518 0.4371 0.3079 0.1658 0.1671 0.1204
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37	0.0976 0.0440 81 ***** NO 0.0111 0.0266 0.0434 0.0398 0.0314 0.0351 0.0346 0.0342 0.0342 0.0343 0.0308 0.0256 0.0255 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0220 0.0187 0.0220 0.0135	C.0976 O.0440 D2 RMALIZED O.0155 O.0348 O.0440 C.0332 O.0372 O.0352 U.0354 O.0352 U.0354 O.0354 O.0269 O.0208 O.0249 O.0296 O.0215 O.0315 O.0315 O.0354 O.0354 O.0354 O.0355 O.0555 O.0555 O.0355 O.05	0.0976 0.0440 CROSS C( VALUE *** 0.0106 0.0269 0.0353 0.0259 0.0255 0.0263 0.0244 0.0225 0.0263 0.0244 0.0225 0.0263 0.0126 0.0168 0.0139 0.0126 0.0072 C.0102 0.0063 0.0053 0.0032 0.0032	DHERENCY *** C.6480 0.7794 0.8230 C.7218 0.6418 0.4963 0.5687 0.4968 0.4968 0.4968 0.4968 0.4968 0.4485 0.3416 C.2278 0.2087 C.0921 0.1890 C.0981 0.0707 0.0523 0.0992 0.0326	0.0976 0.0800 B1 ***** NOF 0.0033 0.0103 0.0103 0.0145 0.0201 5.0233 0.0265 0.0340 0.0313 0.0318 0.0263 0.0313 0.0318 0.0283 0.0297 0.0273 0.0273 0.0248 0.0237 0.0214 0.0193 0.0130	0.0976 0.0800 D2 RMALIZED 0.0125 0.0147 C.0205 0.0239 0.0244 0.0340 0.0327 0.0300 0.0253 0.0306 0.0313 0.0300 C.0248 0.0184 0.0184 0.0234 0.0177 0.0154	0.0976 0.0300 CROSS C VALUE ** 0.0019 0.0095 0.0123 0.0174 0.0197 0.0208 0.0233 0.0284 0.0233 0.0284 0.0233 0.0211 0.0218 0.0234 0.0189 0.0189 0.0138 0.0085 0.0091 0.0064 0.0034	OHERENCY *** C.3816 0.6970 C.7104 0.7354 0.6967 0.6652 0.7609 C.7276 0.5632 0.5514 0.5501 0.5918 0.4371 0.3079 0.1658 0.1671 0.1204 0.0586 0.0587 0.1204
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81	0.0976 0.0440 B1 ***** NO 0.0111 0.0266 0.0434 0.0398 0.0314 0.0351 0.0346 0.0342 0.0343 0.0343 0.0308 0.0256 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0136 0.0135 0.0083	G.0976 O.0440 D2 RMALIZED O.0155 O.0348 O.0440 G.0332 O.0352 O.0352 O.0354 O.0354 O.0354 O.0354 O.0269 O.0248 D.0248 D.0248 D.0242 O.0215 O.0178 C.0140 C.0101 O.0111	0.0976 0.0440 CROSS C( VALUE *** 0.0106 0.0269 0.0353 0.0259 0.0255 0.0263 0.0244 0.0225 0.0263 0.0126 0.0168 0.0139 0.0126 0.0126 0.0072 C.0102 0.0063 0.0053 0.0032 0.0032 0.0013	DHERENCY *** C.6480 0.7794 0.8230 C.7218 0.6418 0.4485 0.3416 C.2278 0.2087 C.0921 0.1890 C.0981 0.0707 0.0523 0.0992 0.0334	0.0976 0.0800 81 ***** NOF 0.0033 0.0103 0.0103 0.0145 0.0201 5.0233 0.0265 0.0340 0.0313 0.0245 0.0243 0.0273 0.0248 0.0297 0.0273 0.0248 0.0297 0.0273 0.0248 0.0237 0.0248 0.0215	0.0976 0.0800 D2 RMALIZED 0.0125 0.0147 C.0205 0.0239 0.0244 0.0340 0.0327 0.0300 0.0253 0.0300 0.0253 0.0300 C.0248 0.0131 0.0300 C.0248 0.0184 0.0184 0.0177 0.0154 0.0105	0.0976 0.0300 CROSS C VALUE ** 0.0095 0.0123 0.0174 0.0197 0.0208 0.0234 0.0233 0.0233 0.0211 0.0234 0.0234 0.0189 0.0189 0.0138 0.0085 0.0091 0.0064 0.0034 0.0021	OHERENCY *** C.3816 0.6970 C.7104 0.7354 0.6652 0.7609 C.7276 0.5632 0.5501 0.5501 0.55918 0.4371 0.3079 0.1658 0.1671 0.1204 0.0586 0.0367
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25	0.0976 0.0440 B1 ***** NO 0.0111 0.0266 0.0434 0.0398 0.0314 0.0351 0.0346 0.0346 0.0342 0.0343 0.0308 0.0255 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0255 0.0225 0.0187 0.0187 0.0136 0.0135 0.0083 0.0085	C.0976 O.0440 D2 RMALIZED O.0155 O.0348 O.0440 C.0434 O.0332 O.0352 O.0352 O.0354 O.0354 O.0354 O.0249 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0215 O.0140 C.0111 O.0111 O.0079	0.0976 0.0440 CROSS CO VALUE *** 0.0106 0.0269 0.0353 0.0259 0.0255 0.0263 0.0244 0.0225 0.0168 0.0139 0.0126 0.0072 0.0168 0.017 0.0032 0.0032 0.0032 0.0017	DHERENCY *** C.6480 0.7794 0.8230 C.7213 0.6418 0.4968 0.5687 C.4916 0.4485 0.3416 C.2278 0.2087 C.0921 0.1890 C.C981 0.0707 0.0523 0.0992 0.0334 0.0448	0.0976 0.6800 81 ***** NOF 0.0033 0.0103 0.0103 0.0201 0.0265 0.0265 0.0340 0.0313 0.0313 0.0283 0.0297 0.0273	0.0976 0.0800 D2 MALIZED 0.0125 0.0147 C.0205 0.0239 0.0244 0.0340 0.0327 0.0300 0.0253 0.0306 0.0313 0.0300 C.0248 0.0177 0.0154 0.0195 0.0092	0.0976 0.0300 CROSS C VALUE ** 0.0019 0.0095 0.0123 0.0174 0.0197 0.0208 0.0234 0.0233 0.0211 0.0218 0.0234 0.0234 0.0234 0.0139 0.0138 0.0085 0.0091 0.0064 0.0034 0.0034	OHERENCY *** C.3816 0.6970 C.7104 0.7354 0.6967 0.6652 0.7609 C.7276 0.5632 0.5514 0.5501 0.5518 0.4371 0.3079 0.1658 0.1671 0.1204 0.0586 0.0367 0.0941
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64	C.0976 C.0440 B1 ***** NO 0.0111 0.0266 C.0434 C.0398 O.C314 C.0351 C.0346 C.0346 C.0346 C.0342 C.0343 C.0308 C.C292 O.0256 C.0225 U.C229 O.0187 C.0220 C.0187 C.0220 C.0136 C.0135 D.0083 C.0085 U.0064	C.0976 O.0440 D2 RMALIZED O.0155 O.0348 O.0440 C.0434 C.0332 O.0352 U.0354 U.0330 O.0269 O.0300 C.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0245 O.0178 C.0140 C.0111 O.0111 O.0079 O.0065	0.0976 0.0440 CROSS C( VALUE *** 0.0106 0.0269 0.0353 0.0255 0.0255 0.0263 0.0255 0.0263 0.0244 0.0225 0.0168 0.0139 0.0126 0.0072 0.0162 0.0053 0.0053 0.0032 0.0032 0.0032 0.0018 0.0011	DHERENCY *** C.6480 0.7794 0.8230 C.7213 0.6418 0.4963 0.5687 0.4916 0.4485 0.3416 C.2278 0.2087 C.0921 0.1890 C.0981 0.0707 0.0523 0.0992 0.0334 0.0448 0.0314	0.0976 0.0800 81 ***** NOF 0.0030 0.0103 0.0103 0.0145 0.0201 0.0235 0.0265 0.0367 0.0340 0.0310 0.0310 0.0318 0.0297 0.0273 0.0273 0.0248 0.0297 0.0273 0.0248 0.0237 0.0248 0.0237 0.0214 0.0115 0.0103 0.0103 0.0103 0.0103 0.0103	0.0976 0.0800 D2 RMALIZED 0.0125 0.0147 C.0205 0.0224 0.0324 0.0327 0.0300 0.0253 0.0306 0.0313 0.0300 C.0248 0.0184 0.0184 0.0184 0.0177 0.0154 0.0105 0.0092 0.006	0.0976 0.0300 CRDSS C VALUE ** 0.0019 0.0095 0.0123 0.0174 0.0208 0.0233 0.0284 0.0233 0.0284 0.0233 0.0284 0.0233 0.0211 0.0234 0.0189 0.0189 0.0185 0.0091 0.0064 0.0034 0.0021 0.0030 0.0011	OHERENCY *** C.3816 O.6970 C.7104 O.7354 O.6967 O.6652 O.7609 C.7276 O.5632 O.5514 O.5501 O.55918 O.4371 O.3079 O.1658 O.1671 J.1204 O.0586 O.0367 O.0941 O.0229
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.08	0.0976 0.0445 B1 ***** NO 0.0111 0.0266 0.0434 0.0398 0.0314 0.0351 0.0346 0.0342 0.0342 0.0343 0.0342 0.0256 0.0225 0.0255 0.0083 0.0085 0.0055	C.0976 O.0440 D2 RMALIZED O.0155 O.0348 O.0440 C.0440 C.0440 C.0440 C.0440 C.0322 O.0372 O.0352 U.0354 U.0330 C.0269 O.0300 O.0296 O.0248 O.02	0.0976 0.0440 CROSS C( VALUE *** 0.0106 0.0269 0.0396 0.0253 0.0255 0.0263 0.0225 0.0263 0.0225 0.0263 0.0225 0.0168 0.0139 0.0126 0.0072 C.0102 0.0063 0.0053 0.0053 0.0032 0.0018 0.0017 0.0011 0.0011	DHERENCY *** C.6480 0.7794 0.8230 C.7218 0.6418 0.4963 C.5687 G.4916 0.4485 0.3416 C.2278 0.2087 C.0921 0.1890 C.C981 0.0707 0.3523 0.0992 0.0334 0.0448 0.0314 0.0369	0.0976 0.0800 B1 ***** NOF 0.0030 0.0103 0.0103 0.0145 0.0201 0.0201 0.0233 0.0265 0.0340 0.0310 0.0310 0.0313 0.0243 0.0297 0.0273 0.0248 0.0297 0.0273 0.0248 0.0297 0.0273 0.0248 0.0297 0.0273 0.0248 0.0297 0.0273 0.0214 0.0193 0.0115 0.0103 0.0103 0.0175 0.0103	0.0976 0.0800 D2 RMALIZED 0.0125 0.0147 C.0205 0.0239 0.0244 0.0340 0.0327 0.0300 0.0253 0.0306 0.0313 0.0300 C.0248 0.0184 0.0184 0.0177 0.0154 0.0155 0.0092 0.0066 0.0058	0.0976 0.0300 CRDSS C VALUE ** 0.0019 0.0095 0.0123 0.0174 0.0208 0.0233 0.0284 0.0233 0.0284 0.0233 0.0284 0.0233 0.0284 0.0233 0.0211 0.0085 0.0034 0.0034 0.0034 0.0034	OHERENCY *** C.3816 0.6970 C.7104 0.7354 0.6967 0.6652 0.7276 0.5632 0.5514 0.55918 0.4371 0.3079 0.1658 0.1671 0.1204 0.0586 0.0367 0.0941 0.229 0.0302
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.08 27.53	0.0976 0.0440 81 ***** NO 0.0111 0.0266 0.0434 0.0398 0.0314 0.0351 0.0346 0.0342 0.0342 0.0342 0.0343 0.0308 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0236 0.0136 0.0135 0.0085 0.0085 0.0055 0.00556 0.00556	C.0976 O.0440 D2 RMALIZED O.0155 O.0348 O.0440 C.0332 O.0372 O.0352 O.0352 O.0354 O.0354 O.0354 O.0269 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0215 O.0140 C.0101 O.0111 O.0111 O.019 O.0065 O.0048 O.0048 O.0048 O.0048	0.0976 0.0440 CROSS C( VALUE *** 0.0106 0.0269 0.0396 0.0255 0.0263 0.0255 0.0263 0.0244 0.0225 0.0263 0.0244 0.0225 0.0263 0.0139 0.0126 0.0053 0.0053 0.0053 0.0053 0.0053 0.0053 0.0017 0.0011 0.0010 0.0007	DHERENCY *** C.6480 0.7794 0.8230 C.7218 0.6418 0.4963 0.5687 0.4968 0.3416 C.2278 0.2087 C.0921 0.1890 C.2981 0.0707 0.0523 0.0992 0.0334 0.0448 0.0314 0.0369 0.0332	0.0976 0.0800 B1 ***** NOF 0.0030 0.0103 0.0103 0.0145 0.0201 5.0233 0.0265 0.0340 0.0310 0.0310 0.0318 0.0243 0.0273 0.0273 0.0273 0.0273 0.0273 0.02748 0.0297 0.0273 0.0248 0.0297 0.0273 0.0214 0.0193 0.0115 0.0103 0.0155 0.01052 0.0052 0.0052	0.0976 0.0800 D2 RMALIZED 0.0125 0.0147 C.0205 0.0239 0.0244 0.0340 0.0327 0.0300 0.0253 0.0306 0.0313 0.0300 C.0248 0.0184 0.0234 0.0177 0.0154 0.0195 0.0092 0.0058 0.0058 0.0058 0.0058	0.0976 0.0300 CROSS C VALUE ** 0.0019 0.0095 0.0123 0.0174 0.0197 0.0208 0.0233 0.0284 0.0233 0.0284 0.0233 0.0284 0.0233 0.0211 0.0035 0.0034 0.0034 0.0034 0.0031 0.0010 0.0012	OHERENCY *** C.3816 0.6970 C.7104 0.7354 0.6967 0.6652 0.7609 C.7276 0.5632 0.5514 0.5501 0.5918 0.4371 0.3079 0.1658 0.1671 0.1204 0.0586 0.0367 0.0941 0.6229 0.0302 0.0360
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.09 27.53 30.46	0.0976 0.0440 B1 ***** NO 0.0111 0.0266 0.0434 0.0398 0.0314 0.0351 0.0346 0.0345 0.0345 0.0345 0.0225 0.0256 0.0225 0.0233	C.0976 O.0440 D2 RMALIZED O.0155 O.0348 O.0440 C.0434 C.0332 O.0352 O.0352 O.0354 O.0354 O.0354 O.0354 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0215 O.0140 C.0111 O.0111 O.0111 O.0111 O.0155 O.0048 O.0042 O.0043	0.0976 0.0440 CROSS CO VALUE *** 0.0106 0.0269 0.0353 0.0255 0.0263 0.0255 0.0263 0.0244 0.0225 0.0168 0.0139 0.0126 0.0072 0.0063 0.0032 0.0032 0.0032 0.0011 0.0011 0.0011 0.0007 0.0003	DHERENCY *** C.6480 0.7794 0.8230 0.7213 0.6418 0.4685 0.3416 0.4485 0.3416 C.2278 0.2087 C.0921 0.1890 C.0981 0.0707 0.0523 0.0992 0.0334 0.0448 0.0314 0.0369 0.0317	0.0976 0.0800 81 ***** NOF 0.0030 0.0103 0.0103 0.0201 0.0233 0.0265 0.0340 0.0310 0.0310 0.0318 0.0283 0.0297 0.0273 0.0273 0.0273 0.0273 0.0243 0.0214 0.0193 0.015 0.0103 0.015 0.0103 0.0052 0.0052 0.0052	0.0976 0.0800 D2 C.6032 0.0125 0.0147 C.0205 0.0244 0.0327 0.0300 0.0253 0.0300 0.0253 0.0306 0.0313 0.0300 C.0248 0.0177 0.0154 0.0155 0.0092 0.0092 0.0058 0.0058 0.0051	0.0976 0.0300 CROSS C VALUE ** 0.0019 0.0095 0.0123 0.0174 0.0197 0.0208 0.0233 0.0284 0.0233 0.0284 0.0233 0.0284 0.0233 0.0211 0.0085 0.0085 0.0091 0.0064 0.0034 0.0030 0.0011 0.0010 0.0012	OHERENCY *** C.3816 0.6970 C.7104 0.7354 0.6967 0.6652 0.7609 C.7276 0.5632 0.5514 0.5501 0.5518 0.4371 0.3079 0.1658 0.1671 0.1204 0.0586 0.0367 0.0367 0.0302 0.0302 0.0302
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.65 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.08 27.53 30.46	0.0976 0.0440 B1 ***** NO 0.0111 0.0266 0.0434 0.0398 0.0314 0.0351 0.0346 0.0346 0.0346 0.0343 0.0308 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0256 0.0136 0.0135 0.0083 0.0085 0.0085 0.0064 0.0056 0.0033 0.0033 0.0033	C.0976 O.0440 D2 RMALIZED O.0155 O.0348 O.0440 C.0434 C.0332 O.0352 O.0354 O.0354 O.0354 O.0354 O.0354 O.0354 O.0269 O.0300 C.0248 O.0248 O.0248 O.0248 O.0248 O.0245 O.0140 C.0101 O.0111 O.0111 O.0179 O.0065 O.0048 O.0042 O.0042 O.0073	0.0976 0.0440 CROSS C( VALUE *** 0.0106 0.0269 0.0353 0.0259 0.0255 0.0263 0.0255 0.0263 0.0244 0.0225 0.0168 0.0139 0.0126 0.0072 0.0163 0.0053 0.0032 0.00032 0.0003 0.0	DHERENCY *** C.6480 0.7794 0.8230 C.7213 0.6418 0.4968 C.5687 0.4916 0.4485 0.3416 C.2278 0.2087 C.0921 0.1890 C.0981 0.0707 0.0523 0.0992 0.0334 0.0448 0.0314 0.0369 0.0332 0.0117 C.0117	0.0976 0.0800 81 ***** NOF 0.0030 0.0103 0.0103 0.0145 0.0201 0.0265 0.0265 0.0340 0.0310 0.0310 0.0310 0.0318 0.0297 0.0273 0.0273 0.0248 0.0297 0.0273 0.0248 0.0297 0.0273 0.0248 0.02115 0.0103 0.0103 0.0103 0.0105 0.0103 0.0105 0.0103 0.0105 0.0103 0.0105 0.0103 0.0105 0.0103 0.0105 0.0105 0.0105 0.0052 0.0052 0.0030	0.0976 0.0800 D2 MALIZED 0.0125 0.0147 C.0205 0.0239 0.0244 0.0340 0.0327 0.0300 0.0253 0.0306 0.0313 0.0300 C.0248 0.0184 0.0184 0.0184 0.0184 0.0184 0.0184 0.0184 0.0184 0.0184 0.0185 0.0092 0.0092 0.0066 0.0058 0.0061 0.0057	0.0976 0.0300 CROSS C VALUE ** 0.0019 0.0095 0.0123 0.0174 0.0208 0.0233 0.0284 0.0233 0.0284 0.0233 0.0211 0.0218 0.0234 0.0189 0.0138 0.0085 0.0091 0.0064 0.0034 0.0034 0.0021 0.0064 0.0010 0.0012 0.0062	OHERENCY *** C.3816 0.6970 C.7104 0.7354 0.6967 0.6652 0.7609 C.7276 0.5632 0.5514 0.5501 0.5518 0.4371 0.3079 0.1658 0.1671 0.1204 0.0586 0.0367 0.0367 0.0322 0.0302 0.0360 C.0223 0.0230
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.08 27.53 30.46 34.85	0.0976 0.0440 0.0111 0.0266 0.0434 0.0398 0.0314 0.0351 0.0346 0.0346 0.0346 0.0346 0.0346 0.0308 0.0225 0.0256 0.0136 0.0105 0.0083 0.0085 0.0033 0.0025	C.0976 O.0440 D2 RMALIZED O.0155 O.0348 O.0440 C.0440 C.0440 C.0440 C.0432 O.0372 O.0352 U.0354 U.0330 O.0269 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0215 O.0140 C.0111 O.0179 O.0065 O.0048 O.0042 O.0041 C.0021	0.0976 0.0440 CROSS C( VALUE *** 0.0106 0.0269 0.0396 0.0255 0.0255 0.0255 0.0263 0.0225 0.0168 0.0126 0.0267 0.0168 0.0139 0.0126 0.0672 C.0102 0.0053 0.0032 0.0032 0.0018 0.0017 0.0011 0.0017 0.0011 0.0007 0.0003 0.0007 0.0003 0.0007 0.0003 0.0007 0.0003 0.0007 0.0003 0.0007 0.0003 0.0007 0.0003 0.0007 0.0003 0.0007 0.0003 0.0007 0.0003 0.0007 0.0003 0.0007 0.0003 0.0007 0.0003 0.0007 0.0003 0.0007 0.0003 0.0007 0.0003 0.0007 0.0003 0.0007 0.0007 0.0003 0.0007 0	DHERENCY *** C.6480 0.7794 0.8230 C.7213 0.6418 0.4963 C.5687 C.4916 0.4485 0.3416 C.2278 0.2087 C.0921 0.1890 C.0981 0.0707 0.0523 0.0334 0.0448 0.0314 0.0369 0.0332 0.0117 C.0060	0.0976 0.0800 81 ***** NOF 0.0030 0.0103 0.0103 0.0145 0.0201 0.0233 0.0265 0.0340 0.0310 0.0310 0.0318 0.0248 0.0273 0.0273 0.0273 0.0273 0.0273 0.0248 0.0297 0.0273 0.0248 0.0237 0.0214 0.0115 0.0103 0.0115 0.0103 0.0115 0.0103 0.015 0.0103 0.015 0.0103 0.015 0.0103 0.015 0.0103 0.0105 0.0103 0.0105 0.0103 0.0105 0.0103 0.0105 0.0103 0.0103 0.0103 0.0105 0.0103 0.0103 0.0103 0.0103 0.0103 0.0103 0.0103 0.0103 0.0103 0.0103 0.0103 0.0103 0.0103 0.0103 0.0103 0.0248 0.0248 0.0214 0.0103 0.0275 0.0103 0.0103 0.0103 0.0248 0.0248 0.0103 0.0105 0.0103 0.0275 0.0275 0.0103 0.0105 0.0103 0.0275 0.0015 0.0103 0.0105 0.0275 0.0103 0.0105 0.0105 0.0105 0.0275 0.0015 0.0103 0.0105 0.0105 0.0105 0.0105 0.0105 0.0105 0.0105 0.0105 0.0105 0.0105 0.0105 0.0105 0.0105 0.0105 0.0105 0.0105 0.0105 0.0105 0.0105 0.0052 0.0	0.0976 0.0800 D2 RMALIZED 0.0125 0.0147 C.0205 0.0239 0.0244 0.0340 0.0327 0.0300 0.0253 0.0306 0.0313 0.0300 C.0248 0.0184 0.0184 0.0177 0.0154 0.0105 0.0092 0.0066 0.0058 0.0061 0.0043 0.0027	0.0976 0.0300 CRDSS C VALUE ** 0.0019 0.0095 0.0123 0.0174 0.0208 0.0233 0.0284 0.0233 0.0284 0.0233 0.0284 0.0233 0.0211 0.0234 0.0189 0.0189 0.0189 0.0189 0.0034 0.0035 0.0091 0.0064 0.0037 0.0030 0.0012 0.0066 0.5007	OHERENCY *** C.3816 0.6970 C.7104 0.7354 0.6967 0.6652 0.7276 0.5632 0.5514 0.5501 0.5518 0.4371 0.3079 0.1658 0.1671 0.1204 0.0586 0.0367 0.0941 0.0229 0.0302 0.0360 0.0223 0.6600
WG(LB/SEC) WL(LB/SEC) CELL FRE0.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.08 27.53 30.46 34.85 40.22	0.0976 0.0445 0.0111 0.0266 0.0434 0.0398 0.0314 0.0351 0.0346 0.0342 0.0342 0.0342 0.0325 0.0255 0.0225 0.0255 0.0083 0.0085 0.0085 0.00556 0.0033 0.0023 0.0018	C.0976 O.0440 D2 RMALIZED O.0155 O.0348 O.0440 C.0332 O.0372 O.0352 U.0354 U.0330 C.0269 O.0300 C.0269 O.0300 C.0269 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0211 O.0111 O.0079 O.0065 O.0048 O.0041 O.0021 O.0013	0.0976 0.0440 CROSS C( VALUE *** 0.0106 0.0269 0.0396 0.0255 0.0263 0.0255 0.0263 0.0225 0.0263 0.0225 0.0168 0.0126 0.0072 C.0102 0.00672 C.0102 0.0063 0.0053 0.0032 0.0032 0.0011 0.0011 0.0017 0.0011 0.0002 0.0002 0.0002	DHERENCY *** C.6480 0.7794 0.8230 C.7218 0.6418 0.4963 C.5687 G.4916 0.4485 0.3416 C.2278 0.2087 C.0921 0.1890 C.0981 0.0707 0.0523 0.0992 0.0334 0.0448 0.0314 0.0369 0.0332 0.0117 0.0060 0.0212	0.0976 0.0800 B1 ***** NOF 0.0030 0.0103 0.0103 0.0145 0.0201 5.0201 5.0233 0.0265 0.0340 0.0310 0.0310 0.0318 0.0297 0.0273 0.0273 0.0248 0.0297 0.0273 0.0248 0.0297 0.0273 0.0248 0.0214 0.0193 0.0105 0.0105 0.0105 0.0105 0.0075 0.0075 0.0036 0.0036 0.0035	0.0976 0.0800 D2 MALIZED 0.0125 0.0147 C.0205 0.0239 0.0244 0.0340 0.0327 0.0300 0.0253 0.0306 0.0313 0.0300 C.0248 0.0184 0.0184 0.0177 0.0155 0.0092 0.0066 0.0558 0.0561 0.0558	0.0976 0.0300 CRDSS C VALUE ** 0.0019 0.0095 0.0123 0.0174 0.0208 0.0233 0.0284 0.0233 0.0284 0.0233 0.0211 0.0218 0.0234 0.0189 0.0189 0.0189 0.0035 0.0091 0.0064 0.0030 0.0011 0.0010 0.0012 0.0066 0.5007 0.0003	OHERENCY *** C.3816 0.6970 C.7104 0.7354 0.6967 0.6652 0.7609 C.7276 0.5632 0.5514 0.55918 0.4371 0.3079 0.1658 0.1671 0.1204 0.0368 0.0367 0.0367 0.0302 0.0302 0.0360 0.0223 0.6600 0.0169
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.08 27.53 30.46 34.85 40.22 50.48	0.0976 0.0440 B1 ***** NO 0.0111 0.0266 0.0434 0.0398 0.0314 0.0351 0.0346 0.0345 0.0345 0.0225 0.0256 0.0225 0.0256 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0256 0.0136 0.0105 0.0083 0.0085 0.0085 0.0064 0.0033 0.0023 0.0023 0.0018 0.0018 0.0033 0.0023 0.0018 0.0018 0.0033 0.0023 0.0018 0.0018 0.0018 0.0018 0.0018 0.0018 0.0018 0.0023 0.0023 0.0018 0.0018 0.0023 0.0023 0.0018 0.0018 0.0023 0.0023 0.0023 0.0018 0.0023 0.0025 0.0055 0.0025 0.0055	C.0976 O.0440 D2 RMALIZED O.0155 O.0348 O.0440 C.0434 C.0332 O.0352 O.0352 O.0354 O.0354 O.0354 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0248 O.0215 O.0140 C.0111 O.0111 O.0079 O.0065 O.0042 O.0031 O.0006	0.0976 0.0440 CROSS CO VALUE *** 0.0106 0.0269 0.0396 0.0255 0.0263 0.0255 0.0263 0.0225 0.0168 0.0126 0.0168 0.0139 0.0126 0.0072 0.0063 0.0032 0.0011 0.0011 0.0011 0.0017 0.0011 0.0002 0.0002 0.0002 0.0002 0.0002	DHERENCY *** C.6480 0.7794 0.8230 0.7213 0.6418 0.4648 0.5687 0.4916 0.4485 0.3416 C.2278 0.2087 C.0921 0.1890 C.0981 0.0707 0.0523 0.0992 0.0334 0.0448 0.0314 0.0369 0.0332 0.0117 0.0560 0.0212 C.0872	0.0976 0.0800 81 ***** NOF 0.0030 0.0103 0.0103 0.0201 0.0235 0.0265 0.0265 0.0340 0.0310 0.0310 0.0313 0.0283 0.0297 0.0273 0.0273 0.0273 0.0273 0.0273 0.0273 0.0275 0.0103 0.0103 0.015 0.0103 0.015 0.0103 0.015 0.0103 0.0052 0.0030 0.0025 0.0038	0.0976 0.0800 D2 C.6032 0.0125 0.0147 C.0205 0.0244 0.0327 0.0300 0.0253 0.0300 0.0253 0.0300 0.0253 0.0300 0.0253 0.0300 0.0253 0.0300 0.0253 0.0300 0.0248 0.0177 0.0154 0.0155 0.0092 0.0066 0.0058 0.0061 0.0057 0.0017 0.0012	0.0976 0.0300 CROSS C VALUE ** 0.0019 0.0095 0.0123 0.0174 0.0197 0.0208 0.0234 0.0233 0.0284 0.0233 0.0284 0.0233 0.0284 0.0233 0.0211 0.0218 0.0085 0.0091 0.0064 0.0034 0.0034 0.0030 0.0011 0.0012 0.0066 0.5007 0.0003 0.0601	OHERENCY *** C.3816 0.6970 C.7104 0.7354 0.6967 0.6652 0.7609 C.7276 0.5632 0.5514 0.5501 0.5918 0.4371 0.3079 0.1658 0.1671 0.1204 0.0586 0.0367 0.0367 0.0367 0.0360 0.0223 0.0360 0.0223 0.0360 0.0169 0.0063
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.65 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.08 27.53 30.46 34.85 40.22 56.48 60.24	0.0976 0.0440 B1 ***** NO 0.0111 0.0266 0.0434 0.0398 0.0314 0.0351 0.0346 0.0346 0.0346 0.0348 0.0308 0.0225 0.0256 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0255 0.0083 0.0085 0.0085 0.0064 0.0055 0.0023 0.0023 0.0018 0.0023 0.0018 0.0023 0.0025	C.0976 O.0440 D2 RMALIZED O.0155 O.0348 O.0440 C.0434 C.0332 O.0352 O.0354 O.0354 O.0354 O.0330 O.0269 O.0330 O.0269 O.0330 O.0269 O.0248 O.0248 O.0248 O.0248 O.0248 O.0245 O.0140 C.0111 O.0111 O.0111 O.0155 O.0048 O.0048 O.0048 O.0048 O.0048 O.0048 O.0048 O.0048 O.0048 O.0048 O.0048 O.0048 O.0048 O.0048 O.0048 O.0048 O.0048 O.0045	0.0976 0.0440 CROSS C( VALUE *** 0.0106 0.0269 0.0353 0.0259 0.0255 0.0263 0.0255 0.0263 0.0244 0.0225 0.0168 0.0126 0.0072 0.0168 0.0126 0.0072 0.0063 0.0032 0.0032 0.0032 0.0032 0.0032 0.0011 0.0011 0.0011 0.0012 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002	DHERENCY *** C.6480 0.7794 0.8230 C.7213 0.6418 0.4968 C.5687 0.4916 0.4485 0.3416 C.2278 0.2087 C.0921 0.1890 C.0981 0.0707 0.0523 0.0992 0.0334 0.0448 0.0314 0.0369 0.0332 0.0117 C.0672 0.0851	0.0976 0.0800 81 ***** NOF 0.0030 0.0103 0.0103 0.0145 0.0201 0.0265 0.0265 0.0265 0.0340 0.0310 0.0310 0.0310 0.0313 0.0283 0.0297 0.0273 0.0273 0.0273 0.0273 0.0248 0.0297 0.0273 0.0248 0.02115 0.0103 0.0115 0.0103 0.0115 0.0103 0.0115 0.0103 0.0115 0.0103 0.015 0.0036 0.0025 0.0008 0.0005	0.0976 0.0800 D2 C.6032 0.0125 0.0147 C.0205 0.0239 0.0244 0.0327 0.0300 0.0253 0.0306 0.0313 0.0300 C.0248 0.0184 0.0184 0.0184 0.0184 0.0184 0.0184 0.0184 0.0184 0.0185 0.0092 0.0058 0.0092 0.0066	0.0976 0.0300 CROSS C VALUE ** 0.0019 0.0095 0.0123 0.0174 0.0208 0.0284 0.0233 0.0211 0.0218 0.0284 0.0233 0.0211 0.0234 0.0234 0.0234 0.0234 0.0234 0.0234 0.0234 0.0085 0.0085 0.0091 0.0064 0.0030 0.0011 0.0010 0.0012 0.0007 0.0003 0.0001 0.0001	OHERENCY *** C.3816 0.6970 C.7104 0.7354 0.6967 0.6652 0.7609 C.7276 0.5632 0.5514 0.5501 0.5518 0.4371 0.3079 0.1658 0.4371 0.3079 0.1658 0.4371 0.1204 0.0586 0.0367 0.0941 0.6229 0.0302 0.0302 0.0360 0.0223 0.6600 0.0169 0.0063 0.0459
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.08 27.53 30.46 34.85 40.22 50.48 60.24 70.01	0.0976 0.0440 B1 ***** NO 0.0111 0.0266 0.0434 0.0398 0.0314 0.0351 0.0346 0.0346 0.0346 0.0346 0.0346 0.0346 0.0325 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0220 0.0187 0.0220 0.0183 0.0083 0.0085 0.0083 0.0085 0.0064 0.0055 0.0023 0.0023 0.0023 0.0023 0.0023 0.0023 0.0025 0.005	C.0976 O.0440 D2 RMALIZED O.0155 O.0348 O.0440 C.0440 C.0440 C.0440 C.0432 O.0372 O.0352 U.0354 U.0330 O.0269 O.0248 O.0111 O.0111 O.0013 O.0065 O.0005 C.0005	0.0976 0.0440 CROSS C( VALUE *** 0.0106 0.0269 0.0353 0.0255 0.0255 0.0263 0.0225 0.0168 0.0126 0.0244 0.0225 0.0168 0.0126 0.0672 C.0102 0.0053 0.0032 0.0032 0.0032 0.0011 0.0011 0.0017 0.0011 0.0007 0.0002 0.0002 0.0002 0.0002 0.0002 0.0002	DHERENCY *** C.6480 0.7794 0.8230 C.7213 0.6418 0.4963 0.4963 0.4963 0.4963 0.4916 0.4485 0.3416 C.2278 0.2087 C.0921 0.1890 C.0981 0.0340 0.0342 0.0314 0.0369 0.0332 0.0117 0.0060 0.0212 C.0871 0.02851 0.2844	0.0976 0.0800 81 ***** N07 0.0030 0.0103 0.0103 0.0145 0.0201 0.0245 0.0340 0.0310 0.0310 0.0318 0.0265 0.0340 0.0310 0.0318 0.0283 0.0297 0.0273 0.0273 0.0248 0.0297 0.0273 0.0248 0.0214 0.0115 0.0103 0.0115 0.0103 0.0115 0.0103 0.0115 0.0103 0.0115 0.0103 0.0115 0.0103 0.0115 0.0103 0.0115 0.0103 0.0105 0.0036 0.0036 0.0035 0.0005 0.0005 0.0005 0.0005	0.0976 0.0800 D2 MALIZED 0.0125 0.0147 C.0205 0.0239 0.0244 0.0340 0.0327 0.0300 0.0253 0.0306 0.0313 0.0300 C.0248 0.0184 0.0131 0.0300 C.0248 0.0184 0.0177 0.0155 0.0092 0.0066 0.0058 0.0058 0.0061 0.0058	0.0976 0.0300 CRDSS C VALUE ** 0.0019 0.0095 0.0123 0.0174 0.0208 0.0233 0.0284 0.0233 0.0284 0.0233 0.0284 0.0233 0.0285 0.0284 0.0233 0.0285 0.0285 0.0285 0.0285 0.0285 0.0285 0.0285 0.0285 0.0285 0.0285 0.0285 0.0291 0.0066 0.0001 0.0001 0.0001	OHERENCY *** C.3816 0.6970 C.7104 0.7354 0.6967 0.6652 0.7276 0.5632 0.5514 0.5501 0.5501 0.5514 0.5501 0.5501 0.5501 0.5514 0.5501 0.5501 0.5501 0.5514 0.5501 0.5501 0.5514 0.5501 0.5501 0.5514 0.5501 0.5501 0.5514 0.5501 0.5501 0.5514 0.5501 0.5514 0.5501 0.5501 0.5514 0.5501 0.5501 0.5514 0.5501 0.5501 0.5528 0.1671 0.5229 0.0302 0.0302 0.0360 0.0223 0.0660 0.0169 0.0063 0.0065 0.0065 0.0065 0.0065 0.0065 0.0065 0.0065 0.0065 0.0065
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.08 27.53 30.46 34.85 40.22 56.48 60.24 70.01 80.26	0.0976 0.0445 B1 ***** NO 0.0111 0.0266 0.0434 0.0398 0.0314 0.0351 0.0346 0.0342 0.0342 0.0343 0.0308 0.0225 0.0255 0.0085 0.0085 0.0065 0.0033 0.0055 0.0055 0.0023 0.0018 0.0007 0.0005	6.0976 0.0440 D2 RMALIZED 0.0155 0.0348 0.0440 0.0322 0.0372 0.0352 0.0354 0.0352 0.0354 0.0269 0.0300 0.0296 0.0248 0.0217 0.0010 0.0019 0.0005 0.00000000000000000000000000000	0.0976 0.0440 CROSS C( VALUE *** 0.0106 0.0269 0.0396 0.0255 0.0255 0.0255 0.0263 0.0225 0.0168 0.0126 0.0072 C.0102 0.0062 0.0032 0.0032 0.0032 0.0032 0.0011 0.0017 0.0011 0.0017 0.0011 0.0002 0	DHERENCY *** C.6480 0.7794 0.8230 C.7218 0.6418 0.4963 C.5687 C.4916 0.4485 0.3416 C.2278 0.2087 C.0921 0.1890 C.0981 0.0707 0.0523 0.0334 0.0314 0.0369 0.0314 0.0369 0.0314 0.0369 0.0314 0.0369 0.0332 0.0117 C.0060 0.0212 C.0851 0.2851 0.0923 0.0923 0.0923 0.0093	0.0976 0.0800 B1 ***** N07 0.0030 0.0103 0.0103 0.0145 0.0201 0.0233 0.0265 0.0340 0.0310 0.0310 0.0310 0.0310 0.0313 0.0248 0.0297 0.0273 0.0248 0.0248 0.0297 0.0273 0.0248 0.0214 0.0214 0.0193 0.0115 0.0103 0.0105 0.0004 0.0005 0.0004	0.0976 0.0800 D2 MALIZED 0.0125 0.0147 C.0205 0.0239 0.0244 0.0340 0.0327 0.0300 0.0253 0.0306 0.0313 0.0300 C.0248 0.0184 0.0177 0.0154 0.0105 0.0092 0.0066 0.0058 0.0061 0.0058 0.0061 0.0058	0.0976 0.0300 CROSS C VALUE ** 0.0019 0.0095 0.0123 0.0174 0.0208 0.0233 0.0284 0.0233 0.0284 0.0233 0.0284 0.0233 0.0284 0.0233 0.0284 0.0233 0.0284 0.0233 0.0284 0.0233 0.0284 0.0233 0.0211 0.0065 0.0034 0.0034 0.0034 0.0034 0.0034 0.0034 0.0034 0.0034 0.0012 0.0066 0.5007 0.0003 0.0601 0.0001 0.0001	OHERENCY *** C.3816 0.6970 C.7104 0.7354 0.6967 0.6652 0.7276 0.5632 0.5514 0.5514 0.5501 0.5918 0.4371 0.3079 0.1658 0.1671 0.1204 0.0386 0.0367 0.0367 0.0360 0.0223 0.0360 0.0223 0.0600 0.0269 0.0063 0.0459 0.0063 0.0693 0.0281

-----

- -

\* \* \* \* 1

•\_

.

•

.

•

.:

. ;

•••

.'

TAPLE C-3 (continued)

\*\*\*\*

								<u> </u>
WGTER/SECT	0.0976	0.0976	0.0976	•	0.0976	0.0976	0.0976	
WILLB/SEC1	0.1260	0.1260	0.1260		0.1800	0.1800	0.1800	
	81	02	002200		011000	02	02055 0	HERENCY
		RAL 1760		***				***
FALQ+10PSI		A 0:22	0.0011	0.2673	- ***** XUA		0 0010	0.2478
0.13	0.0020	0.0022	0.0011	0.2013	0.0015		0.0010	0.5325
0.07	0.0048	0.0054	0.0055	0.0092	0.0041	0.0041	0.0000	0 6360
1.16	0.0376	0.0076	0.0062	6.0088	0.0010	0.0.83	0.0051	
1.65	0.0098	0.0108	0.0082	0.6325	0.0120	0.0114	0.0096	0.6822
2.14	0.0157	0.0169	0.0138	Ú.7127	0.0148	<b>9.01</b> 56	0.0125	0.6763
2.63	0.0195	0.0197	0.0169	0.7436	0.0160	0.0153	0.0125	0.6395
3.11	0.0231	0.3203	0.0183	J.7129	0.0182	0.0200	0.0151	0.6293
3.6.	0.0258	0.0262	0.0214	6.6785	0.0248	0.0227	0.0195	0.6726
4.09	0.0317	0.9367	0.0285	0.6988	0.0335	0.0305	0.0275	0.7388
4 5 3	0 0379	0.0396	6.0334	0.7415	. 0. 0349	0.0328	0.0298	0.7751
	0.0352	0 0325	0 (257	0.7171	0.0355	0.0355	0.0307	0.7465
5.55	0.0307	0.0204	0.0286	0.6709	0.0221	0.0201	0. 7248	0.6600
5.55	0.0397	0.0294	0.0200	0.0103	0.0321	0.0291	0.0193	0.5149
6.53	0.0235	0.0234	0.0199	0.4.004	0.0314	0.0231	0.0193	0.5133
7.51	0.0283	0.0262	0.0185	0.4002	0.0345	0.0211	0.0221	
8.48	0.0234	0.0235	0.0145	0.3835	0.0277	0.0205	0.0169	0.5037
9.45	0.0240	0.0240	0.0145	0.3714	0 <b>.</b> 0229	0.0206	0.0133	0.3785
11.41	0.0174	0.0191	0.0084	0.2149	0.0168	J.0175	0.0079	0.2152
13.37	0.0179	0.0137	0.0055	0.1241	0.0170	0.0172	0.0085	0.2465
15.81	0.0122	0.0119	0.0032	0.0697	0.0127	0.0136	0.0046	0.1225
18,25	0.0113	0.0113	0.0023	0.0423	6.0119	0.0096	0.0033	0.0989
. 27 66	0.0083	0.0087	0.0621	0.0637	6 6671	0.0077	0.0022	Ũ.Ü884
· · · · · · · · · · · · · · · · · · ·	0.00666	0 0055	0.0010	0.0270	6.035	0.0062	0.0012	0.0450
22.00	0.0004	0.0060	0.00010	0.0276	0.0000	0.0062	0.0010	0.0329
21.00	0.0051	0.0049	0.0007	0.0200	0.0048	0.0000	0.0010	0.0411
30.46	0.0037	0.0035	0.0005	0.0208	0.0030	0.0042	0.0007	0.0411
34.85	0.0025	0.0025	0.0003	0.0151	0.0033	0.0030	0.0007	0.0402
4(.22	0.0016	0.0023	0.0002	0.0175	0.0918	0.0618	0.0002	0.0196
50.48	0.0009	0.0010	0.0002	6.0417	0.0008	0.0008	0.0001	0.0225
60 <b>.</b> 24	6.0004	ú.0006	0.0001	0.0434	0.0005	0.0005	0.0001	0.0133
70.01	0.0003	0.0004	0.0001	0.0556	0.0003	0.0004	0.0001	0.1851
80.25	0.0001	0.0002	0.0000	0.0179	0.0001	0.0001	0.0000	0.0400
· •· · · ·	····	• • •						
					•			
WG(LB/SEC)	C 0074	0.007		•				
	0.0970	0.0976	6.0976		0.0976	0.0976	0.0976	
WE (LEZSEC)	0.0975 0.2400	0.0976	C.C976 0.2400		0.0976 0.3500	0.0976	0.0976	
WL(LE/SEC)	0.2400 BI	0.0976 0.2400 D2	C.C976 0.2400 CROSS C	DHERENCY	0.0976 0.3500 81	0.0976 0.3500 D2	0.0976 0.3500 CRDSS 0	OHERENCY
WL(LE/SEC) CELL EREO.(CPS)	0.2403 B1	0.0975 0.2400 D2 RMAL175D	C.C976 C.2400 CROSS C VALUE **	DHERENCY	0.0976 0.3500 81	0.0976 0.3500 D2	0.0976 0.3500 CROSS 0	OHERENCY
WL(LE/SEC) CELL FREQ.(CPS)	6.0978 6.2400 81 ***** NO	0.0975 0.2400 D2 RMALIZED	C.C976 C.2400 CROSS C VALUE **: 0.0011	DHERENCY ***	0.0976 0.3500 B1 ***** NO	0.0976 0.3500 D2 RMALIZED	0.0976 0.3500 CROSS VALUE **	OHERENCY
WL(LE/SEC) CELL FREQ.(CPS) 0.18	6.0975 6.2463 B1 \$**** N01 0.0021	0.0976 0.2400 D2 RMALIZED 0.0021	C.C976 C.2400 CRUSS CI VALUE ** C.0011	DHERENCY *** 0.2782	0.0976 0.3500 B1 ***** NO 0.0024	0.0976 0.3500 D2 RMALIZED 0.0022	0.0976 0.3500 CROSS VALUE ** 0.0012	OHERENCY *** 0.2845
WL(LE/SEC) CELL FREQ.(CPS) 0.18 C.67	0.0978 0.2400 B1 ***** NOI 0.0021 0.0043	0.0975 0.2400 D2 RMALIZED 0.0021 0.0043	C.C976 O.2400 CROSS CI VALUE ** C.OC11 D.OC31	DHERENCY *** C.2782 C.5417	0.0976 0.3500 B1 ***** NO 0.0024 0.0048	0.0976 0.3500 D2 RMALIZED 0.0022 0.0046	0.0976 0.3500 CROSS 0 VALUE ## 0.0012 0.0034	OHERENCY *** 0.2845 0.5319
WL(LE/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16	5.2403 B1 ***** N01 0.0021 0.0043 0.0077	0.0975 0.2400 D2 RMALIZED 0.0021 0.0043 0.0077	C.C976 O.2400 CRDSS CI VALUE ** C.OC11 D.OC31 O.C664	DHERENCY *** C.2782 C.5417 D.6961	0.0976 0.3500 B1 ***** NO 0.0024 0.0048 0.0048 0.0048	0.0976 0.3500 D2 RMALIZED 0.0022 0.0046 0.0080	0.0976 0.3500 CROSS VALUE ** 0.0012 0.0034 0.0060	DHERENCY *** 0.2845 0.5319 0.6014
WL(LE/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65	0.0978 0.2400 B1 ***** NOI 0.0021 0.0043 0.0077 0.0129	0.0975 0.2400 D2 RMALIZED 0.0021 0.0043 0.0077 0.0112	C.C976 O.2400 CRDSS CI VALUE ** C.OC11 D.OC31 O.CC64 O.01C0	DHERENCY *** C.2782 C.5417 D.6961 D.6961	0.0976 0.3500 B1 ***** NO 0.0024 0.0048 0.0048 0.0075 0.0111	0.0976 0.3500 D2 RMALIZED 0.0022 0.0046 0.0080 0.0126	0.0976 0.3500 CROSS C VALUE ** 0.0012 0.0034 0.0060 0.0101	DHERENCY *** 0.2845 0.5319 0.6014 0.7285
WL(LE/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14	0.0978 0.2460 B1 ***** NOI 0.0021 0.0043 0.0077 0.0129 0.0188	0.0975 0.2400 D2 RMALIZED 0.0021 0.0043 0.0077 0.0112 0.0112 0.0183	C.C976 0.2400 CRDSS CI VALUE ** C.OCC11 0.0C31 0.CC64 0.01C0 0.C159	DHERENCY *** C.2782 C.5417 D.6961 D.6941 C.7379	0.0976 0.3500 B1 ***** NO 0.0024 0.0048 0.0048 0.0075 0.0111 0.0167	0.0976 0.3500 D2 RMALIZED 0.0022 0.0046 0.0080 0.0126 0.0173	0.0976 0.3500 CROSS C VALUE ** 0.0012 0.0034 0.0060 0.0161 0.0154	OHERENCY 
WL(LE/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63	0.0978 0.2460 B1 ***** NOI 0.0021 0.0043 0.0043 0.0043 0.0129 0.6188 0.0198	0.0975 0.2400 D2 RMALIZED 0.0021 0.0043 0.0077 0.0112 0.0112 0.0183 0.0211	C.C976 0.2400 CRDSS CI VALUE ** 0.0C11 0.0C31 0.CC64 0.01C0 0.0159 0.0171	DHERENCY *** C.2782 C.5417 D.6961 D.6941 C.7379 D.6962	0.0976 0.3500 81 ***** NO 0.0024 0.0024 0.00248 0.00248 0.0075 0.0111 0.0167 0.0184	0.0976 0.3500 D2 RMALIZED 0.0022 0.0046 0.0080 0.0126 0.0173 0.9201	0.0976 0.3500 CROSS VALUE ** 0.0012 0.0034 0.0060 0.0101 0.0154 0.0165	DHERENCY 0.2845 0.5319 0.6014 0.7295 0.8148 0.7420
WL(LE/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11	C.0978 G.2463 B1 ***** NOI 0.0021 0.0043 0.0077 0.0129 0.0188 0.0198 0.0274	0.0975 0.2400 D2 RMALIZED 0.0021 0.0043 0.0077 0.0112 0.0112 0.0183 0.0211 0.0261	C.C976 0.2400 CROSS CI VALUE ** 0.0C11 0.0C31 0.CC64 0.01C0 0.0159 0.0171 0.0232	DHERENCY *** C.2782 C.5417 D.6961 D.6941 C.7379 D.6962 D.7515	0.0976 0.3500 B1 ***** NO 0.0024 0.0048 0.0075 0.0111 0.0167 0.0184 0.0248	0.0976 0.3500 D2 RMALIZED 0.0022 0.0046 0.0080 0.0126 0.0173 0.0201 0.0254	0.0976 0.3500 CRDSS VALUE ** 0.0012 0.0034 0.0060 0.0161 0.0154 0.0165 0.0221	OHERENCY **** 0.2845 0.5319 0.6014 0.7295 0.8148 0.7420 0.7745
WL (LE/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60	C.0978 G.2403 B1 ***** NOI 0.0021 0.0043 0.0077 C.3129 0.0188 0.0193 0.0274 0.0301	0.0975 0.2400 D2 RMALIZED 0.0021 0.0043 0.0077 0.0112 0.0112 0.0183 0.0211 0.0293	C.C976 O.2400 CRUSS CI VALUE ** C.OC11 O.CC31 O.CC64 O.O1C0 O.O159 O.O171 O.U232 O.O266	DHERENCY *** 0.2782 0.5417 0.6961 0.6941 0.6941 0.7379 0.6962 0.7515 0.7909	0.0976 0.3500 B1 ***** NO 0.0024 0.0024 0.0024 0.0024 0.0011 0.0167 0.0184 0.0248 0.0248 0.0313	0.0976 0.3500 D2 RMALIZED 0.0022 0.0046 0.0080 0.0126 0.0173 0.0201 0.0254 0.0321	0.0976 0.3500 CRDSS C VALUE ** 0.0012 0.0034 0.0060 0.0161 0.0154 0.0165 0.0221 0.0288	DHERENCY **** 0.2845 0.5319 0.6014 0.7285 0.8148 0.7420 0.7745 0.8217
WL (LE/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09	6.0978 6.2403 B1 ***** NOI 0.0021 0.0043 0.0043 0.0129 0.0188 0.0198 0.0274 0.0301 0.0297	0.0975 0.2400 D2 MALIZED 0.0021 0.0043 0.0077 0.0112 0.0112 0.0211 0.0293 0.0234	C.C976 O.2400 CRUSS CI VALUE ** 0.0011 0.0031 0.0031 0.0159 0.0159 0.0171 0.0232 0.0266 C.0268	DHERENCY *** 0.2782 0.5417 0.6961 0.6941 0.7379 0.6962 0.7515 0.7909 0.7245	0.0976 0.3500 B1 ***** NO 0.0024 0.0024 0.0024 0.0024 0.0111 0.0167 0.0184 0.0248 0.0248 0.0313 0.0319	0.0976 0.3500 D2 RMALIZED 0.0022 0.0046 0.0126 0.0126 0.0173 0.0201 0.0254 0.0321 0.0345	0.0976 0.3500 CRDSS C VALUE ** 0.0012 0.0034 0.0060 0.0101 0.0154 0.0165 0.0221 0.0288 C.0295	DHERENCY **** 0.2845 0.5319 0.6014 0.7295 0.8148 0.7420 0.7745 C.8217 0.7897
WL (LE/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58	0.0975 0.2400 B1 ***** NOI 0.0021 0.0043 0.0027 0.0129 0.0188 0.0193 0.0274 0.0301 0.0297 0.0345	0.0975 0.2400 D2 RMALIZED 0.0021 0.0043 0.0077 0.0112 0.0112 0.0211 0.0293 0.0334 0.0347	C.C976 O.2400 CROSS CI VALUE ** 0.0011 0.0031 0.0064 0.0100 0.0159 0.0171 0.0232 0.0266 C.0268 0.0307	DHERENCY *** 0.2782 0.5417 0.6961 0.6961 0.6941 0.6962 0.7515 0.7909 0.7245 0.7863	0.0976 0.3500 B1 ***** ND 0.0024 0.0024 0.0024 0.0024 0.0024 0.0111 0.0167 0.0184 0.0248 0.0248 0.0313 0.0297	0.0976 0.3500 D2 RMALIZED 0.0022 0.0046 0.0080 0.0126 0.0173 0.0201 0.0254 0.0345 0.0300	0.0976 0.3500 CRDSS C VALUE ** 0.0012 0.0034 0.0060 0.0154 0.0155 0.0221 0.0288 C.0295 0.0252	DHERENCY **** 0.2845 0.5319 0.6014 0.7285 0.8148 0.7420 0.7745 C.8217 0.7897 0.7126
WL (LE/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07	6.0978 6.2460 B1 ***** NOI 0.0021 0.0043 0.0077 0.0129 0.0188 0.0198 0.0274 0.0301 0.0297 0.0345 0.0290	0.0975 0.2400 D2 MALIZED 0.0021 0.0043 0.0077 0.0112 0.0112 0.0112 0.0113 0.0211 0.0293 0.0334 0.0347 0.0293	C.C976 0.2400 CRDSS CI VALUE ** C.OC11 0.0C31 0.C664 0.01C0 0.0159 C.O171 0.U232 0.0266 C.0268 C.0268 0.0307 0.0246	DHERENCY *** C.2782 C.5417 D.6961 D.6961 G.7379 D.6962 O.7515 O.7909 D.7245 G.7863 D.6990	0.0976 0.3500 B1 ***** NO 0.0024 0.0024 0.0024 0.0024 0.0024 0.0024 0.0011 0.0167 0.0184 0.0248 0.0313 0.0297 0.0297 0.0287	0.0976 0.3500 D2 RMALIZED 0.0022 0.0046 0.0080 0.0126 0.0173 0.0201 0.0254 0.0254 0.0320 0.0345 0.0300 0.0379	0.0976 0.3500 CROSS C VALUE ** 0.0012 0.0034 0.0101 0.0154 0.0165 0.0221 0.0288 C.0295 0.0252 0.0252	OHERENCY .*** 0.2845 0.5319 0.6014 0.7285 0.8148 0.7420 0.7745 0.8217 0.7827 0.7126 0.7056
WL (LE/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55	6.0978 6.2463 B1 ***** NOI 0.0021 0.0043 0.0077 0.0129 0.0198 0.0198 0.0274 0.0301 0.0345 0.0290 0.0288	0.0976 0.2400 D2 MALIZED 0.0021 0.0043 0.0077 0.0112 0.0112 0.0183 0.0211 0.0293 0.0334 0.0293 0.0293 0.0293	C.C976 0.2400 CRDSS CI VALUE ** 0.0C11 0.0C31 0.CC64 0.01C0 0.0159 0.0171 0.U232 0.0266 C.0268 0.0307 0.0246	DHERENCY *** C.2782 C.5417 D.6961 O.6941 G.7379 D.6962 O.7515 O.7909 D.7245 G.7863 D.6990 G.6492	0.0976 0.3500 B1 ***** NO 0.0024 0.0024 0.0028 0.0075 0.0111 0.0167 0.0184 0.0248 0.0313 0.0313 0.0297 0.0387	0.0976 0.3500 D2 RMALIZED 0.0022 0.0046 0.0080 0.0173 0.0201 0.0254 0.0254 0.0345 0.0345 0.0300 0.0379 0.0344	0.0976 0.3500 CROSS 0.0012 0.0034 0.0060 0.0101 0.0154 0.0165 0.0221 0.0288 C.0295 0.0252 0.0252 0.02296	DHERENCY 0.2845 0.5319 0.6014 0.7235 0.8148 0.7420 0.7745 0.8217 0.7897 0.7126 0.7056 0.6976
WL (LE/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55	6.0978 6.2463 B1 ***** NOI 0.0021 0.0043 0.0129 0.0198 0.0198 0.0274 0.0301 0.0245 0.0288 0.0294	0.0975 0.2400 D2 MALIZED 0.0021 0.0043 0.0077 0.0112 0.0183 0.0211 0.0298 0.0334 0.0298 0.0347 0.0298 0.0347	C.C976 0.2400 CRUSS CI VALUE ** 0.0C11 0.0C31 0.CC64 0.01C0 0.0159 0.0171 0.0232 0.0266 C.0268 0.0307 0.0246 0.0240 0.0208	DHERENCY *** C.2782 C.5417 D.6961 D.6941 C.7379 D.6962 D.7515 O.7909 D.7245 C.7863 D.6990 D.6492 C.5649	0.0976 0.3500 B1 ***** NO 0.0024 0.0048 0.0048 0.0075 0.0111 0.0167 0.0184 0.0248 0.0313 0.0297 0.0387 0.0366 0.0337	0.0976 0.3500 D2 RMALIZED 0.0022 0.0046 0.0080 0.0126 0.0173 0.0201 0.0254 0.0321 0.0345 0.0300 0.0379 0.0344 0.0384	0.0976 0.3500 CRDSS C VALUE ** 0.0012 0.0034 0.0060 0.0161 0.0154 0.0165 0.0221 0.0288 C.0295 0.0252 0.0252 0.0250	DHERENCY 0.2845 0.5319 0.6014 0.7295 0.8148 0.7420 0.7745 C.8217 0.7897 0.7126 0.6976 0.6552
WL (LE/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51	6.0978 6.2463 B1 ***** NOI 0.0021 0.0043 0.0077 0.0129 0.0188 0.0198 0.0274 0.0301 0.0297 0.0345 0.0296 0.0298 0.0293	0.0975 0.2400 D2 MALIZED 0.0021 0.0043 0.0077 0.0112 0.0112 0.0183 0.0211 0.0298 0.0334 0.0298 0.0334 0.0293 0.0307 0.0261 0.0261	C.C976 0.2400 CRUSS CI VALUE ** 0.0C11 0.0C31 0.CC64 0.01C0 0.0159 0.0171 0.0232 0.0266 C.0268 0.0307 0.0246 0.0240 0.0203 0	DHERENCY *** 0.2782 0.5417 0.6961 0.6941 0.6962 0.7515 0.7909 0.7245 0.7863 0.6990 0.6492 0.5649 0.4917	0.0976 0.3500 B1 ***** NO 0.0024 0.0024 0.0024 0.0025 0.0111 0.0167 0.0184 0.0248 0.0313 0.0313 0.0297 0.0387 0.0366 0.0337	0.0976 0.3500 D2 RMALIZED 0.0022 0.0046 0.0080 0.0126 0.0173 0.0201 0.0254 0.0321 0.0345 0.0300 0.0379 0.0345 0.0300 0.0379 0.0345	0.0976 0.3500 CRDSS C VALUE ** 0.0012 0.0034 0.0060 0.0161 0.0154 0.0165 0.0221 0.0288 C.0295 0.0252 0.0252 0.0250 0.0250	DHERENCY **** 0.2845 0.5319 0.6014 0.7285 0.8148 0.7420 0.7745 0.8217 0.7745 0.8217 0.7897 0.7126 0.6976 0.6552 0.6279
WL (LE/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51	0.0975 0.2460 B1 ***** NOI 0.0021 0.0043 0.0077 0.0129 0.0188 0.0198 0.0274 0.0301 0.0297 0.0345 0.0295 0.0295 0.0298 0.0294 0.0233 0.0233	0.0975 0.2400 D2 MALIZED 0.0021 0.0043 0.0077 0.0112 0.0112 0.0112 0.0298 0.0211 0.0298 0.0334 0.0347 0.0298 0.0307 0.0261 0.0284	C.C976 0.2400 CRUSS CI VALUE ** 0.0C11 0.CC64 0.01C0 0.0159 0.0171 0.U232 0.0266 C.0268 0.0307 0.0246 0.0240 0.0203 0.0199 0.0129	DHERENCY *** 0.5417 0.6961 0.6941 0.6941 0.7379 0.6962 0.7515 0.7909 0.7245 0.7863 0.6990 0.6492 0.5640 0.4917	0.0976 0.3500 B1 ***** NO 0.0024 0.0024 0.0024 0.0024 0.0025 0.0111 0.0167 0.0184 0.0248 0.0313 0.0297 0.0297 0.0387 0.0366 0.0337 0.0281 0.0281	0.0976 0.3500 D2 RMALIZED 0.0022 0.0046 0.0080 0.0126 0.0126 0.0123 0.0201 0.0254 0.0321 0.0345 0.0300 0.0379 0.0344 0.0284 0.0284 0.0284	0.0976 0.3500 CRDSS C VALUE ** 0.0012 0.0034 0.0060 0.0101 0.0165 0.0221 0.0288 C.0295 0.0252 0.0252 0.0252 0.0252 0.0250 0.0250 0.0215	DHERENCY **** 0.2845 0.5319 0.6014 0.7285 0.8148 0.7420 0.7745 0.8217 0.7897 0.7126 0.6976 0.6552 0.6279 0.6219
WL (LE/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.43	6.0978 6.2463 B1 ***** NOI 0.0021 0.0043 0.00277 0.0129 0.0198 0.0274 0.0301 0.0297 0.0345 0.0295 0.0288 0.0294 0.0233 0.0229	0.0975 0.2400 D2 MALIZED 0.0021 0.0043 0.0077 0.0112 0.0112 0.0112 0.0298 0.0298 0.0298 0.0307 0.0298 0.0307 0.0293 0.0307 0.0261 0.0284 0.02317	C.C976 O.2400 CRUSS CI VALUE ** 0.0011 0.0031 0.0031 0.0159 0.0171 0.0232 0.0266 C.0268 0.0307 0.0246 0.0246 0.0240 0.0240 0.0240 0.0240 0.0240	DHERENCY *** C.2782 C.5417 D.6961 D.6961 G.7379 D.6962 D.7515 O.7909 D.7245 G.7863 D.6990 D.6492 G.5649 O.4917 O.3412	0.0976 0.3500 B1 ***** NO 0.0024 0.0024 0.0024 0.0024 0.0025 0.0111 0.0167 0.0184 0.0248 0.0248 0.0297 0.0297 0.0387 0.0366 0.0337 0.0281 0.0275	0.0976 0.3500 D2 RMALIZED 0.0022 0.0046 0.0080 0.0126 0.0173 0.0201 0.0254 0.0345 0.0300 0.0379 0.0344 0.0284 0.0263 0.0262	0.0976 0.3500 CRDSS C VALUE ** 0.0012 0.0034 0.0060 0.0101 0.0155 0.0221 0.0288 C.0295 0.0252 0.0252 0.0252 0.0250 0.0250 0.0215 0.0179	OHERENCY .*** 0.2845 0.5319 0.6014 0.7285 0.8148 0.7420 0.7745 0.8217 0.7725 0.7056 0.6976 0.6552 0.6279 0.4439 0.2715
WL (LE/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46	6.0978 6.2463 B1 ***** NOI 0.0021 0.0043 0.0043 0.0129 0.0198 0.0297 0.0301 0.0297 0.0345 0.0297 0.0345 0.0296 0.0288 0.0294 0.0233 0.0229 0.0255	0.0975 0.240C D2 MALIZED 0.0021 0.0043 0.0077 0.0112 0.0112 0.0112 0.0113 0.0293 0.0293 0.0293 0.0293 0.0293 0.0293 0.0293 0.0293 0.0293 0.0293 0.0293 0.0293 0.02237	C.C976 0.2400 CRDSS CI VALUE ** 0.0C11 0.0C31 0.C664 0.01C0 0.0159 0.0171 0.0232 0.0266 C.0268 0.0307 0.0246 0.0240 0.0246 0.0240 0.0246 0.0246 0.0246 0.0246 0.0246 0.0246 0.0246 0.0246	DHERENCY *** C.2782 C.5417 O.6961 O.6961 O.6962 O.7515 O.7909 O.7245 O.7863 O.7863 O.63900 C.6492 O.5649 O.4917 O.3412 O.4126	0.0976 0.3500 B1 ***** NO 0.0024 0.0024 0.0024 0.0024 0.0024 0.0025 0.0111 0.0167 0.0184 0.0248 0.0248 0.0297 0.0297 0.0366 0.0337 0.0281 0.0275 0.0232	0.0976 0.3500 D2 RMALIZED 0.0022 0.0046 0.0080 0.0173 0.0201 0.0254 0.0201 0.0254 0.0345 0.0345 0.0345 0.0345 0.0344 0.0284 0.0284 0.0284 0.0262 0.0214	0.0976 0.3500 CROSS 0.0012 0.0012 0.0034 0.0060 0.0154 0.0154 0.0155 0.0221 0.0288 C.0295 0.0252 0.0252 0.0252 0.0250 0.0250 0.0250 0.0215 0.0179 0.0136	OHERENCY 
WL (LE/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41	6.0978 6.2463 B1 ***** NOI 0.0021 0.0043 0.0129 0.0198 0.0198 0.0274 0.0345 0.0297 0.0345 0.0290 0.0288 0.0294 0.0233 0.0229 0.0250 0.0227	0.0975 0.2400 D2 MALIZED 0.0021 0.0043 0.0077 0.0112 0.0112 0.0183 0.0211 0.0298 0.0347 0.0298 0.0347 0.0298 0.0307 0.0261 0.0284 0.0231 0.0237 0.0205	C.C976 0.2400 CRDSS CI VALUE ** C.OC11 0.0C31 0.CC64 0.01C0 0.0159 0.0171 0.0232 0.0266 C.0268 0.0307 0.0246 0.0240 0.0240 0.0240 0.0240 0.0240 0.0240 0.0246 0.0199 0.0134 0.0156 0.0119	DHERENCY *** C.2782 C.5417 O.6961 O.6941 G.7379 O.6962 O.7515 O.7909 O.7245 G.7863 O.7863 O.6492 C.5649 O.6492 C.5649 O.4917 O.3412 O.4126 G.3004	0.0976 0.3500 B1 ***** NO 0.0024 0.0048 0.0075 0.0111 0.0167 0.0184 0.0248 0.0248 0.02313 0.0297 0.0366 0.0337 0.0387 0.0281 0.0275 0.0232 0.0232 0.0212	0.0976 0.3500 D2 RMALIZED 0.0022 0.0046 0.0080 0.0126 0.0173 0.0201 0.0254 0.0345 0.0345 0.0345 0.0365 0.0379 0.0344 0.0284 0.0284 0.0284 0.0262 0.0214 0.0212	0.0976 0.3500 CRDSS C VALUE ** 0.0012 0.0034 0.0060 0.0161 0.0154 0.0165 0.0221 0.0288 C.0295 0.0252 0.0252 0.0252 0.0215 0.0215 0.0179 0.0136 0.0122	DHERENCY 0.2845 0.5319 0.6014 0.7285 0.8148 0.7420 0.7745 0.8217 0.7126 0.7056 0.6976 0.6552 0.6279 0.4439 0.3751 0.3308
WL (LE/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37	6.0978 6.2463 B1 ***** NOI 0.0021 0.0043 0.0129 0.0198 0.0198 0.0274 0.0345 0.0297 0.0345 0.0295 0.0288 0.0294 0.0233 0.0229 0.0255 0.0227 0.0156	0.0975 0.2400 D2 MALIZED 0.0021 0.0043 0.0077 0.0112 0.0183 0.0211 0.0298 0.0347 0.0298 0.0347 0.0298 0.0347 0.0298 0.0293 0.0261 0.0284 0.0231 0.0237 0.0208 0.0237 0.0208 0.0192	C.C976 0.2400 CRUSS CI VALUE ** C.OC11 0.0C31 0.CC64 0.01C0 0.0159 0.0171 0.0232 0.0266 C.0268 0.0307 0.0246 0.0246 0.0246 0.0246 0.0228 0.0246 0.0228 0.0199 0.0134 0.0156 0.0119 0.0082	DHERENCY *** 0.5417 0.6961 0.6941 0.6941 0.7379 0.6962 0.7515 0.7909 0.7245 0.7863 0.6390 0.6492 0.6492 0.5649 0.4917 0.3412 0.4126 0.3004 0.2226	0.0976 0.3500 B1 ***** NO 0.0024 0.0048 0.0075 0.0111 0.0167 0.0184 0.0248 0.0313 0.0297 0.0387 0.0281 0.0275 0.0232 0.0212 0.0212 0.0212	0.0976 0.3500 D2 RMALIZED 0.0022 0.0046 0.0080 0.0126 0.0201 0.0201 0.0254 0.0300 0.0345 0.0300 0.0345 0.0300 0.0345 0.0345 0.0345 0.0345 0.0345 0.0262 0.0214 0.0212 0.0148	0.0976 0.3500 CRDSS C VALUE ** 0.0012 0.0034 0.0060 0.0161 0.0154 0.0165 0.0221 0.0288 C.0295 0.0252 0.0252 0.0252 0.0250 0.0215 0.0215 0.0179 0.0136 0.0122 0.0071	DHERENCY 0.2845 0.5319 0.6014 0.7295 0.8148 0.7420 0.7745 0.8217 0.7126 0.7056 0.6552 0.6279 0.4439 0.3751 0.3308 0.1844
WL (LE/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81	6.0978 6.2463 B1 ***** NOI 0.0021 0.0043 0.0077 0.0129 0.0188 0.0198 0.0274 0.0301 0.0245 0.0297 0.0345 0.0295 0.0288 0.0298 0.0288 0.0293 0.0229 0.0255 0.0227 0.0156 0.0125	0.0975 0.2400 D2 MALIZED 0.0021 0.0023 0.0112 0.0112 0.0183 0.0211 0.0298 0.0334 0.0298 0.0334 0.0298 0.0347 0.0298 0.0307 0.0298 0.0307 0.0298 0.0297 0.0284 0.0231 0.0237 0.0228 0.0128	C.C976 0.2400 CRUSS CI VALUE ** 0.0C11 0.0C31 0.CC64 0.01C0 0.0159 0.0171 0.0232 0.0266 C.0268 0.0307 0.0246 0.0228 0.0199 0.0134 0.0156 0.0119 0.0082 0.0082 0.0082 0.0082	DHERENCY *** 0.2782 0.5417 0.6961 0.6941 0.7379 0.6962 0.7515 0.7909 0.7245 0.7863 0.6390 0.6492 0.6492 0.5649 0.4917 0.3412 0.4126 0.3004 0.2226 0.0865	0.0976 0.3500 B1 ***** NO 0.0024 0.0C48 0.0C48 0.0C48 0.0111 0.0167 0.0184 0.0248 0.0313 0.0297 0.0387 0.0387 0.0387 0.0387 0.0387 0.0387 0.0387 0.0387 0.0232 0.0212 0.0212 0.0132 0.0135	0.0976 0.3500 D2 RMALIZED 0.0022 0.0046 0.0080 0.0126 0.0173 0.0201 0.0254 0.0321 0.0345 0.0345 0.0345 0.0345 0.0345 0.0345 0.0345 0.0345 0.0345 0.0345 0.0345 0.0345 0.0345 0.0345 0.0345 0.0284 0.0212 0.0214 0.0214 0.0214 0.0214 0.0214 0.0214 0.0214 0.0214	0.0976 0.3500 CRDSS C VALUE ** 0.0012 0.0034 0.0060 0.0161 0.0154 0.0165 0.0221 0.0288 C.0295 0.0252 0.0252 0.0252 0.0250 0.0215 0.0179 0.0136 0.0136 0.0122 0.0071 0.0050	DHERENCY 0.2845 0.5319 0.6014 0.7295 0.8148 0.7420 0.7745 0.8217 0.7745 0.8217 0.7126 0.6976 0.6552 0.6279 0.4439 0.3751 0.3308 0.1844 0.1422
WL (LE/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25	C.0978 G.2463 B1 ***** NOI D.0021 U.0043 O.0129 O.0129 O.0188 O.0198 G.0274 U.0301 U.0297 O.0345 C.0295 O.0288 O.0294 O.0288 O.0294 O.0288 O.0294 O.0283 O.0229 O.0225 O.0227 O.0156 U.0125 O.0125	0.0975 0.2400 D2 MALIZED 0.0021 0.0043 0.0077 0.0112 0.0112 0.0183 0.0211 0.0298 0.0334 0.0298 0.0334 0.0298 0.0334 0.0298 0.0298 0.0208 0.0261 0.0284 0.0237 0.0261 0.0237 0.0208 0.0237 0.0208 0.0192 0.0128 0.0197	C.C976 0.2400 CRUSS CI VALUE **: C.OC11 0.0C31 0.CC64 0.0159 0.0171 0.U232 0.0266 C.0268 0.0307 0.0246 0.0246 0.0246 0.0246 0.0246 0.0246 0.02203 0.0199 0.0134 0.0156 0.0119 0.0082 0.0038	DHERENCY *** 0.2782 0.5417 0.6961 0.6941 0.6962 0.7515 0.7909 0.7245 0.7863 0.6990 0.6492 0.5649 0.4917 0.3412 0.4126 0.3004 0.2226 0.0865 0.1063	0.0976 0.3500 B1 ***** NO 0.0024 0.0024 0.0024 0.0024 0.0024 0.0024 0.0024 0.0024 0.0011 0.0167 0.0184 0.0248 0.0313 0.0297 0.0387 0.0386 0.0337 0.0281 0.0275 0.0232 0.0212 0.0135 0.0044	0.0976 0.3500 D2 RMALIZED 0.0022 0.0046 0.0080 0.0126 C.0126 C.0173 0.0201 0.0254 0.0201 0.0254 0.0345 0.0300 0.0379 0.0344 0.0284 C.0263 0.0262 0.0212 0.0212 0.0214 0.0212 0.0148 0.0130 0.0098	0.0976 0.3500 CRDSS C VALUE ** 0.0012 0.0034 0.0060 0.0161 0.0165 0.0221 0.0288 C.0295 0.0252 0.0252 0.0252 0.0250 0.0250 0.0215 0.0215 0.0179 0.0136 0.0122 0.0071 0.0050 0.0033	DHERENCY .2845 0.5319 0.6014 0.7285 0.8148 0.7420 0.7745 0.8217 0.7745 0.7897 0.7126 0.6976 0.6552 0.6279 0.4439 0.3751 0.3308 0.1844 0.1422 0.1166
WL (LE/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64	6.0978 6.2463 B1 ***** NOI 0.0021 0.0043 0.00377 0.0129 0.0188 0.0198 0.0274 0.0301 0.0297 0.0345 0.0297 0.0345 0.0295 0.0288 0.0294 0.0288 0.0294 0.0288 0.0294 0.0223 0.0229 0.0255 0.0125 0.0125 0.0067	0.0975 0.240C D2 MALIZED 0.0021 0.0043 0.0077 0.0112 0.0112 0.0112 0.0113 0.0293 0.0293 0.0293 0.0293 0.0293 0.0293 0.0293 0.0293 0.0293 0.0293 0.0293 0.0293 0.0293 0.0293 0.0297 0.0237 0.0237 0.0237 0.0237 0.0237 0.0237 0.0237 0.0192 0.0192 0.0192	C.C976 0.2400 CRDSS CI VALUE ** C.OC11 0.0C31 0.C664 0.01C0 0.0159 C.O171 0.U232 0.0266 C.0268 C.0268 C.0268 0.0307 0.0246 0.0240 0.0240 0.0240 0.0246 0.0240 0.0246 0.0199 0.0134 0.0156 0.01199 0.0038 0.0038 0.0038 0.0016	DHERENCY *** C.2782 C.5417 U.6961 U.6961 U.6962 U.7515 U.7909 U.7245 U.7863 U.6390 U.6492 U.5649 U.4126 U.4126 U.4126 U.4126 U.4126 U.404917 U.4126 U.4026 U.4026 U.4065 U.0505	0.0976 0.3500 B1 ***** NO 0.0024 0.0024 0.0024 0.0024 0.0024 0.0025 0.0111 0.0167 0.0184 0.0248 0.0248 0.0297 0.0297 0.0387 0.0387 0.0386 0.0337 0.0281 0.0275 0.0232 0.0212 0.0135 0.0294 0.0248 0.0248 0.0248 0.0297	0.0976 0.3500 D2 RMALIZED 0.0022 0.0046 0.0080 0.0173 0.0201 0.0201 0.0254 0.0201 0.0345 0.0345 0.0360 0.0379 0.0344 0.0284 0.0284 0.0284 0.0284 0.0284 0.0262 0.0214 0.0212 0.0148 0.0130 0.0098 0.0098 0.0098 0.0098	0.0976 0.3500 CRDSS C VALUE ** 0.0012 0.0034 0.0060 0.0101 0.0155 0.0221 0.0288 C.0295 0.0252 0.0252 0.0252 0.0250 0.0250 0.0215 0.0179 0.0136 0.0122 0.0071 0.0050 0.0033 0.0017	OHERENCY **** 0.2845 0.5319 0.6014 0.7285 0.8148 0.7420 0.7745 0.8217 0.7126 0.7056 0.6976 0.6552 0.6279 0.4439 0.3308 0.1344 0.1422 0.1166 0.0784
WL (LE/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64	6.0978 6.2463 B1 ***** NOI 0.0021 0.0043 0.0043 0.0043 0.0129 0.0188 0.0198 0.0297 0.0301 0.0297 0.0345 0.0295 0.0229 0.0229 0.0229 0.0250 0.0227 0.0125 0.0125 0.0067 0.0061	0.0975 0.2400 D2 MALIZED 0.0021 0.0043 0.0077 0.0112 0.0112 0.0183 0.0211 0.0293 0.0293 0.0293 0.0293 0.0293 0.0293 0.0293 0.0293 0.0293 0.0229 0.0229 0.0237 0.0229 0.0128 0.0128 0.0128 0.0127 0.0128	C.C976 0.2400 CRDSS CI VALUE ** C.OC11 0.0C31 0.CC64 0.01C0 0.0159 0.0171 0.0232 0.0266 C.0268 0.0307 0.0246 0.0240 0.0240 0.0246 0.0240 0.0246 0.02134 0.0156 0.0119	DHERENCY *** C.2782 C.5417 D.6961 D.6961 D.6941 C.7379 D.6962 D.7515 D.7909 D.7245 C.7863 D.6390 D.6492 C.5649 D.4917 D.3412 C.4126 C.3004 D.2226 D.1063 C.0505 C.0799	0.0976 0.3500 B1 ***** NO 0.0024 0.0024 0.0024 0.0024 0.0024 0.0025 0.0111 0.0167 0.0184 0.0248 0.0248 0.0248 0.0297 0.0387 0.0386 0.0386 0.0337 0.0386 0.0387 0.0387 0.0387 0.0387 0.0281 0.0275 0.0232 0.0212 0.0135 0.051	0.0976 0.3500 D2 RMALIZED 0.0022 0.0046 0.0080 0.0173 0.0201 0.0254 0.0201 0.0254 0.0345 0.0345 0.0345 0.0345 0.0344 0.0284 0.0284 0.0284 0.0284 0.0284 0.0262 0.0214 0.0212 0.0148 0.0130 0.0398 0.0098 0.0098	0.0976 0.3500 CROSS 0.0012 0.0034 0.0060 0.0161 0.0154 0.0165 0.0221 0.0288 C.0295 0.0252 0.0252 0.0252 0.0250 0.0250 0.0250 0.0250 0.0250 0.0250 0.0250 0.0250 0.0250 0.0215 0.0179 0.0136 0.0017 0.0033 0.0017	DHERENCY 0.2845 0.5319 0.6014 0.7285 0.8148 0.7420 0.7745 0.8217 0.7126 0.6976 0.6552 0.6279 0.4439 0.3308 0.1344 0.1422 0.1166 0.0784 0.0573
WL (LE/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.08 27.53	6.0978 6.2463 B1 ***** NOI 0.0021 0.0043 0.0043 0.0129 0.0198 0.0274 0.0301 0.0245 0.0290 0.0288 0.0290 0.0288 0.0294 0.0233 0.0229 0.0250 0.0227 0.0156 0.0125 0.0061 0.0651	0.0975 0.2400 D2 MALIZED 0.0021 0.0043 0.0077 0.0112 0.0183 0.0211 0.0293 0.0293 0.0347 0.0293 0.0347 0.0293 0.0347 0.0293 0.0261 0.0261 0.0237 0.0261 0.0237 0.0261 0.0237 0.0261 0.0237 0.0261 0.0275 0.0192 0.0192 0.0197 0.0175 0.0160 0.0197	C.C976 0.2400 CRDSS CI VALUE ** C.OC11 0.0C31 0.CC64 0.01C0 0.0159 0.0171 0.0232 0.0266 C.0268 0.0307 0.0246 0.0240 0.0240 0.0240 0.0240 0.0240 0.0240 0.0246 0.0156 0.0119 0.0082 C.5036 0.0038 0.0016 0.0017	DHERENCY *** C.2782 C.5417 D.6961 D.6961 C.7379 D.6962 D.7515 D.7909 D.7245 C.7863 D.6990 C.6492 C.5649 C.5649 C.5649 C.5649 C.5649 C.5649 C.5649 C.5649 C.2226 C.0865 D.1063 C.0505 D.1063 C.0799 D.6403	0.0976 0.3500 B1 ***** NO 0.0024 0.0024 0.0024 0.0024 0.0024 0.00111 0.0167 0.0184 0.0248 0.0248 0.02313 0.0297 0.0366 0.0237 0.0387 0.0232 0.0232 0.0232 0.0212 0.0357 0.00517	0.0976 0.3500 D2 RMALIZED 0.0022 0.0046 0.0080 0.0126 0.0173 0.0201 0.0254 0.0254 0.0345 0.0345 0.0345 0.0345 0.0345 0.0344 0.0284 0.0262 0.0214 0.0284 0.0262 0.0214 0.0214 0.0214 0.0214 0.0298 0.0262 0.0214 0.0214 0.0298 0.0262 0.0214 0.0298 0.0262 0.0214 0.0298 0.0262 0.0214 0.0298 0.0262 0.0214 0.0298 0.0262 0.0214 0.0298 0.0262 0.0214 0.0298 0.0262 0.0214 0.0298 0.0262 0.0214 0.0298 0.0098 0.0098 0.0062 0.0062 0.0062	0.0976 0.3500 CRDSS C VALUE ** 0.0012 0.0034 0.0164 0.0165 0.0221 0.0288 C.0295 0.0252 0.0252 0.0252 0.0252 0.0255 0.0215 0.0215 0.0179 0.0136 0.0133 0.0013 0.0017 0.0014 0.0033	DHERENCY 0.2845 0.5319 0.6014 0.7285 0.8148 0.7420 0.7745 0.8217 0.7126 0.7056 0.6552 0.6279 0.4439 0.3751 0.3308 0.1844 0.1422 0.1166 0.0784 0.0573 0.333
WL (LE/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.08 27.53	6.0978 6.2463 B1 ***** NOI 0.0021 0.0043 0.0077 0.0129 0.0198 0.0274 0.0301 0.0297 0.0345 0.0296 0.0294 0.0288 0.0294 0.0288 0.0294 0.0227 0.0227 0.0156 0.0125 0.0067 0.0051 0.0036	0.0975 0.2400 D2 MALIZED 0.0021 0.0023 0.0112 0.0112 0.0183 0.0211 0.0298 0.0347 0.0298 0.0347 0.0298 0.0347 0.0298 0.0241 0.0261 0.0284 0.0231 0.0261 0.0284 0.0237 0.0261 0.0284 0.0297 0.0128 0.0192 0.0192 0.0192 0.0192 0.0192 0.0192	C.C976 0.2400 CRUSS CI VALUE ** 0.0C11 0.0C31 0.CC64 0.01C0 0.0159 0.0171 0.0232 0.0266 C.0268 0.0307 0.0246 0.0228 0.0246 0.0228 0.0246 0.0228 0.0199 0.0134 0.0156 0.0119 0.0082 C.5036 0.0038 0.0016 0.0017 0.0009	DHERENCY *** 0.2782 0.5417 0.6961 0.6941 0.7379 0.6962 0.7515 0.7909 0.7245 0.7863 0.6390 0.6492 0.5649 0.4917 0.3412 0.4126 0.3004 0.2226 0.0865 0.1063 0.0505 0.0799 0.0403 0.0345	0.0976 0.3500 B1 ***** NO 0.0024 0.0024 0.0024 0.0025 0.0111 0.0167 0.0184 0.0248 0.0313 0.0297 0.0387 0.0387 0.0387 0.0387 0.0387 0.0281 0.0275 0.0232 0.0212 0.0232 0.0212 0.0135 0.0037 0.0051 0.0037	0.0976 0.3500 D2 RMALIZED 0.0022 0.0046 0.0080 0.0126 0.0173 0.0201 0.0254 0.0201 0.0254 0.0345 0.0300 0.0345 0.0300 0.0345 0.0300 0.0345 0.0300 0.0345 0.0262 0.0214 0.0212 0.0148 0.0130 0.0298 0.0130 0.0098 0.0062 0.0063 0.0063 0.0063	0.0976 0.3500 CRDSS C VALUE ** 0.0012 0.0034 0.0060 0.0161 0.0154 0.0155 0.0221 0.0288 C.0295 0.0252 0.0252 0.0252 0.0250 0.0250 0.0215 0.0179 0.0136 0.0179 0.0136 0.0033 0.0017 0.0014	DHERENCY 0.2845 0.5319 0.6014 0.7295 0.8148 0.7420 0.7745 0.8217 0.7126 0.7056 0.6976 0.6976 0.6552 0.6279 0.4439 0.3751 0.3308 0.1844 0.1422 0.1166 0.0784 0.0573 0.0333 0.0412
WL (LE/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.53 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.08 27.53 30.46	6.0978 6.2463 B1 ***** NOI 9.0021 0.0043 0.0027 0.0129 0.0188 0.0198 0.0274 0.0301 0.0297 0.0345 0.0297 0.0345 0.0296 0.0288 0.0294 0.0288 0.0294 0.0288 0.0294 0.0233 0.0225 0.0227 0.0156 0.0125 0.0061 0.0051 0.0036	0.0976 0.2400 D2 MALIZED 0.0021 0.0023 0.0077 0.0112 0.0183 0.0211 0.0298 0.0307 0.0298 0.0334 0.0347 0.0298 0.0334 0.0298 0.0307 0.0261 0.0284 0.0237 0.0261 0.0237 0.0225 0.0192 0.0128 0.0197 0.0128 0.0197 0.0128 0.0197	C.C976 0.2400 CRUSS CI VALUE ** 0.0C11 0.0C31 0.CC64 0.01C0 0.0159 0.0171 0.0232 0.0266 C.0268 0.0307 0.0246 0.0246 0.0246 0.0240 0.0228 0.0199 0.0134 0.0156 0.0119 0.0082 0.0038 0.0016 0.0017 0.0009 0.0C07	DHERENCY *** 0.2782 0.5417 0.6961 0.6941 0.7379 0.6962 0.7515 0.7909 0.7245 0.7863 0.6390 0.6492 0.5649 0.4917 0.3412 0.4126 0.3004 0.2226 0.0865 0.1063 0.0505 0.0799 0.6403 0.0345 0.0345	0.0976 0.3500 B1 ***** ND 0.0024 0.0024 0.0024 0.0024 0.0024 0.0024 0.0024 0.0011 0.0167 0.0184 0.0248 0.0313 0.0297 0.0387 0.0387 0.0387 0.0387 0.0387 0.0387 0.0387 0.0387 0.0297 0.0387 0.0297 0.0232 0.0212 0.0212 0.0212 0.0232 0.0212 0.0235 0.0037 0.0062 0.0051 0.0037 0.0037	0.0976 0.3500 D2 RMALIZED 0.0022 0.0046 0.0080 0.0126 0.0173 0.0201 0.0254 0.0201 0.0254 0.0345 0.0300 0.0345 0.0300 0.0345 0.0345 0.0300 0.0345 0.0284 0.0284 0.0284 0.0284 0.0284 0.0284 0.0212 0.0148 0.0212 0.0148 0.0130 0.0298 0.0062 0.0063 0.0067 0.0063	0.0976 0.3500 CRDSS C VALUE ** 0.0012 0.0034 0.0060 0.0161 0.0154 0.0165 0.0221 0.0288 C.0295 0.0252 0.0252 0.0255 0.0255 0.0215 0.0215 0.0215 0.0179 0.0136 0.0171 0.0033 0.0017 0.0014 0.0033 0.0077	DHERENCY **** 0.2845 0.5319 0.6014 0.7295 0.8148 0.7420 0.7745 0.8217 0.7745 0.8217 0.7745 0.6976 0.6552 0.6279 0.4439 0.3751 0.3308 0.1844 0.1422 0.1166 0.0784 0.0573 0.0333 0.0412 0.6277
WL (LE/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.08 27.53 30.46 34.85	6.0978 6.2463 B1 ***** NOI 0.0021 0.0043 0.0027 0.0129 0.0198 0.0274 0.0301 0.0297 0.0345 0.0297 0.0345 0.0296 0.0288 0.0294 0.0233 0.0229 0.0227 0.0156 0.0125 0.0125 0.0067 0.00251 0.0025	0.0976 0.2400 D2 MALIZED 0.0021 0.0021 0.0043 0.0077 0.0112 0.0112 0.0112 0.0298 0.0298 0.0298 0.0298 0.0298 0.0298 0.0298 0.0298 0.0298 0.0298 0.0207 0.0261 0.0284 0.0237 0.0261 0.0237 0.0261 0.0237 0.0261 0.0237 0.0128 0.0192 0.0192 0.0192 0.0192	C.C976 0.2400 CRDSS CI VALUE ** C.OC11 0.0C31 0.C664 0.0160 0.0159 C.O171 0.U232 0.0266 C.O268 C.O268 0.0307 0.0246 0.0240 0.0246 0.0240 0.02208 0.0199 0.0134 0.0156 0.01199 0.0082 C.5036 0.0038 0.0016 0.0017 0.0009 0.0007 0.0002	DHERENCY *** C.2782 C.5417 D.6961 D.6961 D.6962 D.7515 O.7909 D.7245 C.7863 D.6390 D.6492 D.5649 D.4126 C.3004 O.4226 C.0865 D.1063 C.0505 D.0799 D.C403 C.0345 D.0355 D.0355	0.0976 0.3500 B1 ***** ND 0.0024 0.0024 0.0024 0.0024 0.0024 0.00111 0.0167 0.0184 0.0248 0.0313 0.0297 0.0387 0.0387 0.0387 0.0387 0.0387 0.0387 0.0387 0.0387 0.0297 0.0387 0.0297 0.0387 0.0297	0.0976 0.3500 D2 RMALIZED 0.0022 0.0046 0.0026 0.0126 0.0126 0.0126 0.0201 0.0201 0.0254 0.0201 0.0345 0.0300 0.0345 0.0300 0.0345 0.0300 0.0345 0.0300 0.0344 0.0284 0.0262 0.0262 0.0212 0.0148 0.0130 0.0098 0.0063 0.0063 0.0064 0.0063 0.0064 0.0063 0.0063 0.0064 0.0063 0.0063 0.0064 0.0063 0.0063 0.0064 0.0063 0.0063 0.0064 0.0063 0.0063 0.0064 0.0063 0.0064 0.0063 0.0063 0.0063 0.0063 0.0063 0.0063 0.0063 0.0063 0.0063 0.0063 0.0063 0.0063 0.0063 0.0064 0.0065 0.005	0.0976 0.3500 CRDSS C VALUE ** 0.0012 0.0034 0.0060 0.0161 0.0154 0.0165 0.0221 0.0288 C.0295 0.0252 0.0252 0.0252 0.0250 0.0255 0.0255 0.0255 0.0255 0.0255 0.0255 0.0255 0.0250 0.0217 0.00136 0.0017 0.0136 0.0050 0.0017 0.0033 0.0017 0.0033 0.0017 0.0014 0.0003 0.0007 0.0003 0.0007 0.0003 0.0007 0.0003 0.0007 0.0003 0.0007 0.0003 0.0007 0.0003 0.0007 0.0003 0.0007 0.0003 0.0007 0.0003 0.0007 0.0003 0.0007 0.0003 0.0007 0.0003 0.0007 0.0003 0.0003 0.0007 0.0003 0.0003 0.0003 0.0003 0.0003 0.0003 0.0003 0.0007 0.0003 0.00003 0.00003 0.00005 0.00005 0.00005 0.0005 0.0005 0.000	OHERENCY **** 0.2845 0.5319 0.6014 0.7285 0.8148 0.7420 0.7745 0.8217 0.7745 0.6976 0.6552 0.6279 0.4439 0.3751 0.3308 0.1844 0.1422 0.1166 0.0573 0.0333 0.0412 0.0697 0.2321 0.3328 0.0412 0.0697 0.2321
WL (LE/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.08 27.53 30.46 34.85 40.22	6.0978 6.2463 B1 ***** NOI 0.0021 0.0043 0.00129 0.0129 0.0129 0.0274 0.0301 0.0297 0.0345 0.0297 0.0245 0.0296 0.0288 0.0294 0.0233 0.0229 0.0255 0.0125 0.0125 0.0125 0.0125 0.0125 0.0125 0.0125 0.0125 0.0125 0.0125 0.0125 0.0125 0.0125 0.0125 0.0125 0.0125 0.0125 0.0125 0.0125 0.0067 0.0061 0.0036 0.0025 0.021	0.0975 0.240C D2 MALIZED 0.0021 0.0021 0.0112 0.0112 0.0112 0.0112 0.0293	C.C976 0.2400 CRDSS C VALUE ** 0.0C11 0.0C31 0.C664 0.0160 0.0159 0.0171 0.0232 0.0266 C.0268 0.0307 0.0246 0.0240 0.0246 0.0240 0.0246 0.0038 0.0038 0.00038 0.00038 0.00038 0.00038 0.00038 0.00038 0.00038 0.00038 0.0005 0.000	DHERENCY *** C.2782 C.5417 D.6961 D.6961 D.6941 C.7379 D.6962 D.7515 D.7909 D.7245 C.7863 D.6390 C.6492 C.5649 D.4917 D.3412 C.4126 C.3004 D.2226 C.0865 D.1063 C.0505 D.0505 D.0	0.0976 0.3500 B1 ***** NO 0.0024 0.0024 0.0024 0.0024 0.0024 0.0024 0.0024 0.0111 0.0167 0.0184 0.0248 0.0248 0.0297 0.0297 0.0387 0.0366 0.0337 0.0281 0.0275 0.0232 0.0212 0.0135 0.0048 0.0051 0.0051 0.0026 0.0015	0.0976 0.3500 D2 RMALIZED 0.0022 0.0046 0.0080 0.0126 0.0173 0.0201 0.0254 0.0201 0.0254 0.0345 0.0345 0.0345 0.0345 0.0284 0.0212 0.0148 0.0130 0.0262 0.0214 0.0212 0.0148 0.0130 0.0098 0.0062 0.0063 0.0063 0.0062 0.0063 0.0063 0.0062 0.0063 0.0065 0.0065 0.0065 0.0065 0.0026 0.0062	0.0976 0.3500 CROSS 0.0012 0.0012 0.0034 0.0060 0.0154 0.0154 0.0155 0.0221 0.0288 C.0295 0.0252 0.0252 0.0250 0.0250 0.0250 0.0250 0.0250 0.0255 0.0071 0.0053 0.0053 0.0077 0.0053 0.0077 0.0053 0.0077 0.0053 0.0077 0.0007	OHERENCY 
WL (LE/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.08 27.53 30.46 34.85 40.22 5J.48	6.0978 6.2463 B1 ***** NOI 0.0021 0.0043 0.0043 0.0129 0.0129 0.0188 0.0198 0.0297 0.0301 0.0297 0.0345 0.0297 0.0345 0.0297 0.0288 0.0290 0.0288 0.0294 0.0233 0.0229 0.0250 0.0250 0.0125 0.00125 0.0061 0.0036 0.0025 0.005	0.0975 0.2400 D2 MALIZED 0.0021 0.0021 0.0112 0.0112 0.0112 0.0133 0.0211 0.0293	C.C976 0.2400 CRDSS CI VALUE ** C.OC11 0.0C31 0.CC64 0.01C0 0.0159 0.0171 0.U232 0.0266 C.0268 0.0307 0.0240 0.0240 0.0240 0.0228 0.0199 0.0134 0.0156 0.0179 0.0038 0.0018 0.0038 0.0017 0.0009 0.0C67 0.0002 0.0002 0.0002	DHERENCY *** C.2782 C.5417 D.6961 D.6961 G.7379 D.6962 D.7515 D.7909 D.7245 G.7863 D.66990 C.6492 C.5642 O.4917 D.3412 G.4126 C.3004 O.2226 C.0865 D.1063 C.0505 C.0799 D.C403 D.0345 D.0090 D.0115 D.2283	0.0976 0.3500 B1 ***** NO 0.0024 0.0024 0.0024 0.0024 0.0024 0.0024 0.0018 0.0111 0.0167 0.0184 0.0248 0.0248 0.0248 0.0297 0.0387 0.0365 0.00212 0.0135 0.0051 0.0051 0.0026 0.0015 0.0006	0.0976 0.3500 D2 RMALIZED 0.0022 0.0046 0.0080 0.0126 0.0173 0.0201 0.6254 0.0345 0.0345 0.0345 0.0345 0.0379 0.0344 0.0284 0.0284 0.0212 0.0214 0.0212 0.0214 0.0212 0.0214 0.0212 0.0214 0.0212 0.0262 0.0214 0.0212 0.0262 0.0262 0.0262 0.0262 0.0063 0.0062 0.0063 0.00647 0.0063 0.00647	0.0976 0.3500 CROSS 0.0012 0.0034 0.0034 0.0165 0.0251 0.0288 C.0295 0.0252 0.0252 0.0252 0.0250 0.0014 0.0003 0.0014 0.0003	DHERENCY 0.2845 0.5319 0.6014 0.7295 0.8148 0.7420 0.7745 0.8217 0.7126 0.7056 0.6976 0.6552 0.6279 0.4439 0.3751 0.3308 0.1844 0.1422 0.1166 0.0573 0.0573 0.0333 . 0.0412 0.0697 0.0331 0.0278
WL (LE/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.08 27.53 30.46 34.85 40.22 5J.48 60.24	6.0978 6.2463 B1 ***** NOI 0.0021 0.0043 0.0043 0.0129 0.0129 0.0188 0.0198 0.0274 0.0301 0.0345 0.0290 0.0288 0.0290 0.0288 0.0294 0.0288 0.0294 0.0288 0.0294 0.0288 0.0295 0.0227 0.0125 0.0125 0.0125 0.0067 0.0067 0.0067 0.0067 0.0036 0.0025 0.005 0.0025 0.0025 0.0025 0.005 0.0025 0.0025 0.0025 0.005	0.0975 0.2400 D2 MALIZED 0.0021 0.00221 0.0043 0.0077 0.0112 0.0183 0.0211 0.0293 0.025 0.0192 0.0197 0.0128 0.0197 0.0128 0.0197 0.025 0.0040 0.0025 0.0040 0.0025 0.0010 0.0025	C.C976 0.2400 CRDSS CI VALUE ** C.OC11 0.0C31 0.CC64 0.01C0 0.0159 0.0171 0.0232 0.0266 C.0268 0.0307 0.0246 0.0240 0.0240 0.0240 0.0240 0.0240 0.0240 0.0246 0.0240 0.0240 0.0246 0.0156 0.0119 0.0082 C.0038 0.0018 0.0017 0.0009 0.0007 0.0002 0.0002 0.0002 0.0001	DHERENCY *** C.2782 C.5417 D.6961 D.6941 G.7379 D.6962 D.7245 D.7909 D.7245 G.7863 D.6990 G.6492 C.5649 C.5	0.0976 0.3500 B1 ***** NO 0.0024 0.0024 0.0024 0.0024 0.0024 0.0024 0.0024 0.0011 0.0167 0.0184 0.0248 0.0248 0.0297 0.0387 0.0366 0.0337 0.0387 0.0232 0.00212 0.0051 0.0032 0.0025 0.0025 0.0025 0.0025 0.0032 0.0025 0.0032 0.0025 0.0032 0.0025 0.00026 0.00026 0.000	0.0976 0.3500 D2 RMALIZED 0.0022 0.0046 0.0080 0.0126 0.0173 0.0201 0.0254 0.0254 0.0345 0.0300 0.0379 0.0345 0.0362 0.0262 0.0214 0.0212 0.0284 0.0284 0.0284 0.0262 0.0214 0.0212 0.0130 0.0262 0.0214 0.0212 0.0262 0.0262 0.0214 0.0212 0.0262 0.0063 0.0063 0.0063 0.0058	0.0976 0.3500 CRDSS C VALUE ** 0.0012 0.0034 0.0154 0.0154 0.0155 0.0221 0.0288 C.0295 0.0252 0.0252 0.0255 0.0215 0.0179 0.0136 0.0179 0.0136 0.0179 0.0135 0.0033 0.0017 0.0003 0.0001 0.0001 0.0011	DHERENCY 0.2845 0.5319 0.6014 0.7285 0.8148 0.7420 0.7745 0.8217 0.7126 0.7056 0.6976 0.6552 0.6279 0.4439 0.3751 0.3308 0.1844 0.1422 0.1166 0.0784 0.0573 0.0333 0.0412 0.0697 0.0331 0.0278 0.0862
WL (LE/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.08 27.53 30.46 34.85 40.22 5J.48 60.24 70.01	6.0978 6.2463 B1 ***** NOI 0.0021 0.0043 0.0077 0.0129 0.0198 0.0274 0.0345 0.0297 0.0345 0.0297 0.0345 0.0290 0.0288 0.0294 0.0233 0.0229 0.0255 0.0227 0.0156 0.0125 0.0125 0.0061 0.0051 0.005 0.005 0.0005 0.0003	0.0975 0.2400 D2 MALIZED 0.0021 0.0023 0.0077 0.0112 0.0183 0.0211 0.0298 0.0347 0.0298 0.0347 0.0298 0.0347 0.0298 0.0231 0.0261 0.0237 0.0261 0.0237 0.0261 0.0237 0.0261 0.0237 0.0261 0.02128 0.0192 0.0193 0.0203 0.00293 0.00200 0.00200 0.00200 0.00000 0.00000 0.00000 0.00000000	C.C976 0.2400 CRUSS CI VALUE ** 0.0C11 0.0C31 0.CC64 0.01C0 0.0159 0.0171 0.0232 0.0266 C.0268 0.0307 0.0246 0.0246 0.0246 0.0228 0.0246 0.0228 0.0246 0.0228 0.0246 0.0228 0.0246 0.0228 0.0199 0.0134 0.0156 0.0119 0.0082 C.5036 0.0038 0.0017 0.0002 0.0007 0.0002 0.0002 0.0002 0.0002 0.0002	DHERENCY *** 0.2782 0.5417 0.6961 0.6941 0.6941 0.7379 0.6962 0.7515 0.7909 0.7245 0.7863 0.6390 0.6492 0.6492 0.6492 0.5649 0.4917 0.3412 0.4126 0.3004 0.2226 0.0865 0.1063 0.0505 0.0799 0.6403 0.0505 0.0799 0.6403 0.0345 0.0090 0.0115 0.0283 0.0209 0.1235	0.0976 0.3500 B1 ***** NO 0.0024 0.0024 0.0024 0.0025 0.0111 0.0167 0.0184 0.0248 0.0184 0.0248 0.0248 0.0297 0.0387 0.0387 0.0387 0.0387 0.0387 0.0281 0.0275 0.0281 0.0262 0.0051 0.0026 0.0006	0.0976 0.3500 D2 RMALIZED 0.0022 0.0046 0.0080 0.0126 0.0254 0.0201 0.0254 0.0345 0.0300 0.0345 0.0300 0.0345 0.0300 0.0345 0.0300 0.0345 0.0262 0.0214 0.0212 0.0148 0.0130 0.0262 0.0130 0.0262 0.0148 0.0130 0.0262 0.0214 0.0212 0.0148 0.0212 0.0248 0.0262 0.0214 0.0212 0.0248 0.0262 0.0262 0.0214 0.0212 0.0248 0.0262 0.0214 0.0212 0.0248 0.0262 0.0063 0.0063 0.0062 0.0063 0.0062 0.0063 0.0062 0.0063 0.0062 0.005 0.0005 0.0005 0.0005 0.0005 0.0005 0.0005 0.0005 0.0005 0.0005	0.0976 0.3500 CRDSS C VALUE ** 0.0012 0.0034 0.0060 0.0161 0.0154 0.0155 0.0221 0.0288 C.0295 0.0252 0.0252 0.0252 0.0255 0.0055 0.00179 0.00136 0.0003 0.0003 0.0007 0.0003 0.0007 0.0003 0.0007 0.0003 0.0007	DHERENCY 0.2845 0.5319 0.6014 0.7295 0.8148 0.7420 0.7745 0.8217 0.7126 0.7056 0.6552 0.6279 0.4439 0.3751 0.3308 0.1844 0.1422 0.1166 0.0784 0.0573 0.0331 0.0278 0.0822 0.1183
WL (LE/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.53 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.08 27.53 30.46 34.85 40.22 5J.48 60.24 70.01 80.26	6.0978 6.2463 B1 ***** NOI 9.0021 0.0043 0.0027 0.0129 0.0188 0.0198 0.0274 0.0301 0.0297 0.0345 0.0297 0.0345 0.0296 0.0288 0.0294 0.0288 0.0294 0.0288 0.0294 0.0288 0.0295 0.0227 0.0156 0.0227 0.0156 0.0125 0.0067 0.0061 0.0025 0.0025 0.0025 0.0005 0.0005 0.0001	0.0975 0.2400 D2 MALIZED 0.0021 0.0021 0.0112 0.0112 0.0183 0.0211 0.0298 0.0347 0.0298 0.0347 0.0298 0.0347 0.0298 0.0347 0.0298 0.0298 0.0284 0.0281 0.0284 0.0281 0.0284 0.0281 0.0285 0.0128 0.0128 0.0128 0.0127 0.0128 0.0128 0.0128 0.0127 0.0128 0.0128 0.0127 0.0128 0.0127 0.0128 0.0127 0.0128 0.0127 0.0128 0.0128 0.0127 0.0128 0.0112 0.0128 0.0128 0.0112 0.0298 0.0028 0.0025 0.0000 0.0025 0.00000 0.00000 0.0000000000	C.C976 0.2400 CRUSS CI VALUE ** 0.0C11 0.0C31 0.CC64 0.01C0 0.0159 0.0171 0.0232 0.0266 C.0268 0.0307 0.0246 0.0228 0.0246 0.0228 0.0246 0.0228 0.0246 0.0228 0.0199 0.0134 0.0156 0.0199 0.0134 0.0156 0.0119 0.0082 C.5036 0.0038 0.0017 0.0002 0.0007 0.0002 0.0002 0.0002 0.0002 0.0002	DHERENCY *** 0.2782 0.5417 0.6961 0.6941 0.7379 0.6962 0.7515 0.7909 0.7245 0.7863 0.6390 0.6492 0.5649 0.4917 0.3412 0.4126 0.3004 0.2226 0.0865 0.1063 0.0205 0.0345 0.0345 0.0345 0.0209 0.1235 0.0171	0.0976 0.3500 B1 ***** ND 0.0024 0.0024 0.0024 0.0024 0.0011 0.0167 0.0184 0.0248 0.0184 0.0248 0.0313 0.0297 0.0387 0.0387 0.0387 0.0387 0.0387 0.0387 0.0387 0.0387 0.0297 0.0387 0.0297 0.0387 0.0297 0.0387 0.0297 0.0297 0.0232 0.0212 0.0212 0.0212 0.0212 0.0212 0.0251 0.0051 0.0025 0.0025 0.0025 0.0025 0.0025 0.0025 0.0026 0.0004 0.0004 0.0001	0.0976 0.3500 D2 RMALIZED 0.0022 0.0046 0.0080 0.0126 0.0254 0.0221 0.0254 0.0345 0.0345 0.0300 0.0345 0.0300 0.0345 0.0345 0.0345 0.0284 0.0286 0.0262 0.0262 0.0214 0.0288 0.0262 0.0214 0.0284 0.0286 0.0262 0.0262 0.0214 0.0286 0.0262 0.0214 0.0286 0.0262 0.0214 0.0286 0.0262 0.0214 0.0286 0.0262 0.0214 0.0284 0.0284 0.0284 0.0284 0.0284 0.0262 0.0214 0.0298 0.0063 0.0063 0.0063 0.0063 0.0063 0.0063 0.0063 0.0063 0.0063 0.0063 0.0063 0.0063 0.0063 0.0063 0.0063 0.0063 0.0063 0.0008 0.0063 0.0063 0.0063 0.0008 0.0008 0.0063 0.0008	0.0976 0.3500 CRDSS C VALUE ** 0.0012 0.0034 0.0060 0.0161 0.0154 0.0155 0.0221 0.0288 C.0295 0.0252 0.0252 0.0252 0.0250 0.0215 0.0215 0.0215 0.0215 0.0215 0.0215 0.0215 0.0179 0.0136 0.017 0.0013 0.0017 0.0014 0.0003 0.0001 0.0001 0.0001 0.0001 0.0001	DHERENCY 0.2845 0.5319 0.6014 0.7295 0.8148 0.7420 0.7745 0.8217 0.7126 0.7056 0.6976 0.6552 0.6279 0.4439 0.3751 0.3308 0.1844 0.1422 0.1166 0.0784 0.0573 0.0331 0.0278 0.0862 0.1183 0.0077

- - --

.

28/1

.

,

.

.

.

.

.

WJ(LB/SEC)	<b>∂.</b> 0975	0.0976	0.0976	•	0.0976	0.0976	0.0976	
WE (LB/SEC)	0.4700	0.4700	0.4700		0.5350	0.5450	0.5850	
CELL	B1	D2	10 22090	HEDENCY		0.0000		
CELL .	101	02		INCKENUT	81	02	CRUSS C	JHENENUT
FREQ.ICPSJ	***** RU	RMALIZED	VALUE ***	***	***** NCF	AMALIZED	VALUE ##	¥ <del>7</del> <del>7</del>
0.18	0.0015	0.0020	0.0009	0.3022	6.0026	0.3029	0.0017	0.3994
0.57	0.0029	0.0033	0.0021	C.4323	0.0046	0.0039	0.0031	0.5355
1.16	6.0.52	0.0068	0.0047	0.6115	6 0632	0.0076	0.0063	0.6519
1 65	011	0 0130	0 0100	0 7844	0.0032	0.0121	0.0104	0 7090
2.17	0.0110	0.0150	0.0104	0 1044	0.0117	0.0151	0.0104	0.1000
2.14	0.0138	0.0147	0.0124	0.7580	0.0164	0.0154	0.0143	0.8032
2.63	0.0205	0.0207	0.0177	0.7414	0.0213	0.0230	0.0200	0.8159
3.11	Ú.0267	0.0289	0.0249	0.8006	0.0271	J.0278	0.0248	0.8159
3.60	0.0284	0.0321	0.0274	0.8232	0.0358	0.0352	0.0324	0.8315
4.09	6-0312	0.0247	Ū. (1272	0.7957	( 1)452	0 0619	0. 1403	6.8571
A 59	6 6636	0 0201	0 0370	0 2251	0.0472	0.0417	0.0754	0.0071
7.00	0.0424	0.0351	0.0370	0.0201	0.0385	0.0407	0.0354	0.1911
2.01	0.0325	0.0347	0+0291	0.7503	0.0413	0.0434	0.0383	0.0194
5.55	6.0382	0.0413	0.0354	0.7934	0.0378	0.0378	0.0322	0.7263
6.53	0.0377	0.0302	0.0287	0.7240	0.0303	0.0353	0.0278	0.7116
7.51	û.0345	0.0327	0.0209	0.6395	0.0212	0.0260	0.0202	0.5756
8.48	6.0265	0.0308	0.0218	0.5932	7 0231	0 1243	0.0177	0.5594
0.44	0 0262	0.0220	C 0140	0 5042	0.0201	0.0240	0.0101	0.5/55
9.40	0.0292	0.0220	0.0100	0.0005	0.0298	0.0248	0.0201	0.5455
11-41	0.0205	0.0193	0.0131	0.4351	0.0185	0.0129	0.0093	0.3630
13.37	0.0156	0.0173	0.0081	0.2456	0.0165	0.0149	0.0084	0.2910
15.81	0.0134	0.0169	0.0083	0.3052	0.0122	0.0138	0.0063	0.2357
18.25	0.0099	0.0077	0.0026	0.0878	0.0091	0.0093	0.0028	0.0898
22.64	0.0363	0.0080	0.0023	0.1035	0.0051	0.0652	0.0010	3. 5361
26.00	0.00000	0.00044	6.0023	0 0(0)	0.0001	0.0020	0.0015	2.1200
29.00	0.0000	0.0040	0.0013	0.0392	0.0047	0.0048	0.0015	0.1099
21.53	0.0040	0.0046	0.0008	0.0366	6.0031	0.0039	0.0006	0.0264
3(•45	0.0025	0.0031	0.0008	0.0779	0.0024	0.0031	0.0007	0.0635
34.85	0.0019	0.0025	0.0004	0.0370	0.0015	0.0019	0.0003	0.0364
40.22	0.0013	0.0014	0.0002	0.0215	0.0011	0.0011	0.0003	0.0693
50.48	6. ປີນີ້ນີ້ອີ	0.0007	0.0001	0.0320	0.0004	2.0006	0.0601	0.0390
60.26	0.0003	0 0004	0.0000	0 0141	0.0007	0.0000	0.0001	0.0427
- 70 01	0.0000	0.0004	0.0000	6 2002	0.0002	0.0003	0.0001	0.0021
10.01	0.0002	0.0000	0.0001	0.5000	0+0002	0.0003	0.0001	0.2401
80.26	C+0001	0.0001	0.0000	0.0085	6.0001	0.0001	0.0000	0.0331
•				:				
. WG(LB/SEC)	ū.1435	0.1436	0.1436		0.1436	0.1436	0.1436	
WG(LB/SEC)	0.1435 0.0160	0.1436	0.1436 0.0160		0.1436 0.0280	0.1436 0.0280	0.1436 0.0260	
WG(LB/SEC) WL(LB/SEC)	€.1435 €.0160 B1	0.1436 0.0160 D2	0.1436 0.0160	HERENCY	0.1436 0.0280 B1	0.1436 0.0280	0.1436 0.0260	OHERENCY
WG(LB/SEC) WL(LB/SEC) CELL	0.1435 0.0160 B1	0.1436 0.0160 D2	0.1436 0.0160 CROSS CC	HERENCY	0.1436 0.0280 B1	0.1436 0.0280 D2	0.1436 0.0260 CROSS C	DHERENCY
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS)	0.1435 0.0160 B1 ***** NO	0.1436 0.0160 D2 RMALIZED	0.1436 0.0160 CROSS CC VALUE ***	HERENCY	0.1436 0.0280 B1 ***** NOI	0.1436 0.0280 D2 RMALIZED	0.1436 0.0260 CROSS C VALUE **	DHERENCY
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.13	0.0071	0.1436 0.0160 D2 RMALIZED 0.0072	0.1436 0.0160 CROSS CC VALUE *** 0.0040	HERENCY	0.1436 0.0280 B1 ***** N0i 0.0070	0.1436 0.0280 D2 RMALIZED 0.0371	0.1436 0.0260 CROSS C VALUE ** 0.0050	DHERENCY *** 0.4957
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18 C.67	0.1433 0.0160 B1 ***** NO 0.0071 0.0056	0.1435 0.0160 D2 RMALIZED 0.0072 0.0061	0.1436 0.0160 CROSS CC VALUE *** 0.0040 0.0020	0.3130 0.1190	0.1436 0.0280 B1 ***** NOI 0.0070 0.0079	0.1436 0.0280 D2 RMALIZED 0.0071 0.0075	0.1436 0.0280 CROSS C VALUE ** 0.0050 0.0054	DHERENCY *** 0.4957 0.4896
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18 C.67 1.16	C.1433 C.0160 B1 ***** Ň0 C.0∪71 O.0∪56 U.0045	0.1435 0.0160 D2 RMALIZED 0.0072 0.0061 0.0046	0.1436 0.0160 CROSS CC VALUE *** 0.0040 0.0020 0.0024	DHERENCY *** 0.3130 0.1190 0.2801	0.1436 0.0280 B1 ***** NOI 0.0070 0.0079 0.0079	0.1436 0.0280 D2 RMALIZED 0.0371 0.0075 0.0082	0.1436 0.0260 CROSS C VALUE ** 0.0050 0.0054 0.0054	DHERENCY *** 0.4957 0.4896 J.4952
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18 C.67 1.16 1.65	C.1435 C.0160 B1 ***** NO C.0C71 O.0C56 C.0C45 C.0C39	0.1436 0.0160 D2 RMALIZED 0.0072 0.0061 0.0046 0.0048	0.1436 0.0160 CROSS CC VALUE *** 0.0040 0.0020 0.0024 0.0022	DHERENCY 0.3130 0.1190 0.2801 0.2491	0.1436 0.0280 B1 ***** NOI 0.0070 0.0079 0.0079 0.0091 0.0091 0.0123	0.1436 0.0280 D2 RMALIZED 0.0071 0.0075 0.0082 0.0120	0.1436 0.0260 CROSS C VALUE ** 0.0050 0.0054 0.0054 0.0056	DHERENCY *** 0.4957 0.4896 0.4952 0.4989
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.13 C.67 1.16 1.65 2.14	C.1435 C.0160 B1 ***** NO C.0C71 O.0055 C.0039 C.0053	0.1436 0.0160 D2 RMALIZED 0.0072 0.00661 0.0046 0.0048 0.0062	0.1436 0.0160 CROSS CC VALUE *** 0.0040 0.0020 0.0024 0.0022 0.0022	DHERENCY ** 0.3130 0.1190 0.2801 0.2491 0.1339	0.1436 0.0280 B1 ***** NOI 0.0070 0.0079 0.0079 0.0091 0.00291 0.0123 0.0144	0.1436 0.0280 D2 RMALIZED 0.0071 0.0075 0.0082 0.0120 0.0158	0.1436 0.0260 CROSS C VALUE ** 0.0050 0.0054 0.0054 0.0061 0.0086 0.00114	DHERENCY *** 0.4957 0.4896 0.4952 0.4989 0.5729
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18 C.67 1.16 1.65 2.14 2.63	C.1435 C.0160 B1 ***** ND C.0C71 O.0056 U.0045 C.0033 C.0053 C.0053	0.1436 0.0160 D2 RMALIZED 0.0072 0.0061 0.0046 0.0048 0.0048 0.0062	0.1436 0.0160 CROSS CC VALUE *** 0.0040 0.0020 0.0024 0.0022 0.0022 0.0023	DHERENCY ** 0.3130 0.1190 0.2801 0.2491 0.1339 0.5483	0.1436 0.0280 B1 ***** NOI 0.0070 0.0079 0.0079 0.0091 0.0123 0.0123	0.1436 0.0280 D2 RMALIZED 0.0071 0.0075 0.0082 0.0120 0.0120 0.0158	0.1436 0.0260 CROSS C VALUE ** 0.0050 0.0054 0.0054 0.0056 0.0086 0.0114	DHERENCY *** 0.4957 0.4896 0.4952 0.4989 0.5729 0.5781
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.10 C.67 1.10 1.65 2.14 2.63	0.1435 0.0160 81 ***** NO 0.0071 0.0056 0.0055 0.0053 0.0138 0.0138	0.1436 0.0160 D2 RMALIZED 0.0072 0.0061 0.0046 0.0048 0.0062 0.0133	0.1436 0.0160 CROSS CC VALUE *** 0.0040 0.0020 0.0024 0.0022 0.0021 0.0029 0.0019	DHERENCY 0.3130 0.1190 0.2801 0.2491 0.1339 0.5483 0.1521	0.1436 0.0280 B1 ***** NOI 0.0070 0.0079 0.0079 0.0091 0.0123 0.0123 0.0144 0.0215 (.0122	0.1436 0.0280 D2 RMALIZED 0.0071 0.0075 0.0082 0.0120 0.0120 0.0158 0.0225	0.1436 0.0260 CROSS C VALUE ** 0.0050 0.0054 0.0054 0.0066 0.0164	DHERENCY *** 0.4957 0.4896 0.4952 0.4989 0.5729 0.5585
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18 C.18 C.67 1.16 1.65 2.14 2.63 3.11	C.1435 C.0160 B1 ***** NO 0.0071 0.0055 C.0039 C.0053 0.0108 C.0046	0.1436 0.5160 D2 MALIZED 0.0072 0.00661 0.0046 0.0048 0.0062 0.0133 0.0049	0.1436 0.0160 CROSS CC VALUE *** 0.0040 0.0020 0.0024 0.0022 0.0021 0.0029 0.0018	DHERENCY •** 0.3130 0.1190 0.2801 0.2491 0.1339 0.5483 0.1521 0.1521	0.1436 0.0280 B1 ***** NOI 0.0073 0.0079 0.00591 0.0123 0.0144 0.0215 0.0192	0.1436 0.0280 D2 RMALIZED 0.0071 0.0075 0.0082 0.0120 0.0120 0.0158 0.0225 0.0201	0.1436 0.0260 CROSS C VALUE ** 0.0050 0.0054 0.0054 0.0056 0.0114 0.0164 C.0124	DHERENCY *** 0.4957 0.4896 0.4952 0.4989 0.5729 0.5581 0.4005
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18 C.67 1.16 1.65 2.14 2.63 3.11 3.60	C.1435 C.0160 B1 ***** NDF 0.0071 0.0055 C.0039 C.0053 0.0108 C.0045 C.0053	0.1436 0.5160 D2 RMALIZED 0.0072 0.0061 0.0046 0.0048 0.0062 0.0133 0.0049 0.0045	0.1436 0.0160 CROSS CC VALUE *** 0.0040 0.0020 0.0024 0.0022 0.0021 0.0089 0.0018 0.0015	0+ERENCY ** 0.3130 0.1190 0.2801 0.2491 0.1339 0.5483 0.1521 0.1253	0.1436 0.0280 B1 ***** NOi 0.0070 0.0079 0.00591 0.0123 0.0123 0.0144 0.0215 0.0192 0.0157	0.1436 0.0280 D2 RMALIZED 0.0071 0.0075 0.0082 0.0120 0.0159 0.0225 0.0201 0.0172	0.1436 0.0260 CROSS C VALUE ** 0.0050 0.0054 0.0086 0.0164 0.0164 0.0164 0.0182	DHERENCY *** 0.4957 0.4896 0.4952 0.4989 0.5729 0.5581 0.4005 0.2464
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.13 C.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09	C.1435 C.0160 B1 ***** NOF 0.0071 0.0055 C.0039 C.0053 0.0138 C.0053 C.0053 C.0053 C.0053 C.0053 C.0053 C.0053 C.0053 C.0053	0.1436 0.0160 D2 RMALIZED 0.0072 0.0061 0.0046 0.0048 0.0048 0.0062 0.0133 0.0049 0.0045 0.0052	0.1436 0.0160 CROSS CC VALUE *** 0.0040 0.0020 0.0024 0.0022 0.0021 0.0029 0.0018 0.0015 0.0019	DHERENCY *** 0.3130 0.1190 0.2801 0.2491 0.1339 0.5483 0.1521 0.1253 0.1428	0.1436 0.0280 B1 ***** NOI 0.0070 0.0079 0.007577 0.007577 0.00757 0.007577 0.0	0.1436 0.0280 D2 RMALIZED 0.0071 0.0075 0.0082 0.0120 0.0125 0.0225 0.0201 0.0172 0.0212	0.1436 0.0260 CROSS C VALUE ** 0.0050 0.0054 0.0064 0.0164 0.0164 0.0164 0.0164 0.0082 0.0085	DHERENCY *** 0.4957 0.4896 0.4952 0.4989 0.5729 0.5581 0.4005 0.2464 0.2057
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18 C.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58	C.1435 C.0160 B1 ***** NDF O.0C71 O.0556 U.0045 C.0039 C.0053 C.0053 C.0053 C.0053 C.0053 C.0048 C.0043 C.0051 D.0047	0.1436 0.0160 D2 RMALIZED 0.0072 0.0061 0.0046 0.0048 0.0048 0.0048 0.0133 0.0049 0.0045 0.0052 0.0052 0.0067	0.1436 0.0160 CROSS CC VALUE *** 0.0040 0.0024 0.0024 0.0022 0.0021 0.0029 0.0018 0.0015 0.0015 0.0019 0.0024	DHERENCY • ** 0.3130 0.1190 0.2801 0.2491 0.1339 0.5483 0.1521 0.1253 0.1428 0.1771	0.1436 0.0280 B1 ***** NOI 0.0070 0.0079 0.0079 0.0079 0.0091 0.0123 0.0123 0.0124 0.0125 0.0192 0.0157 0.0165 0.0201	0.1436 0.0280 D2 RMALIZED 0.0071 0.0075 0.0082 0.0120 0.0120 0.0125 0.0225 0.0225 0.0201 0.0172 0.0212 0.0203	0.1436 0.0260 CROSS C VALUE ** 0.0050 0.0054 0.0086 0.0114 0.0164 0.0124 0.0082 C.0085 0.0091	DHERENCY *** 0.4957 0.4896 0.4952 0.4989 0.5729 0.5581 0.40057 0.2464 0.2057 0.2055
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18 C.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07	C.1435 C.0160 B1 ***** NOF 0.0071 0.0055 C.0039 C.0053 0.0138 C.0045 C.0045 C.0053 0.0138 C.0045 C.0045 C.0047 0.0047 0.0047	0.1436 0.0160 D2 MALIZED 0.0072 0.0061 0.0046 0.0048 0.0062 0.0133 0.0049 0.0045 0.0052 0.0067 0.0064	0.1436 0.0160 CROSS CC VALUE *** 0.0040 0.0020 0.0024 0.0022 0.0021 0.0029 0.0018 0.0015 0.0015 0.0015 0.0015 0.0024 0.0023	DHERENCY 	0.1436 0.0280 B1 ***** NOI 0.0073 0.0073 0.0079 0.0079 0.0079 0.0079 0.0073 0.0123 0.0144 0.0215 0.0192 0.0157 0.0165 0.0201 0.0201 0.0214	0.1436 0.0280 D2 RMALIZED 0.0071 0.0075 0.0082 0.0120 0.0158 0.0225 0.0201 0.0172 0.0212 0.0212 0.0203 0.0170	0.1436 0.0260 CROSS C VALUE ** 0.0050 0.0054 0.0054 0.0086 0.0114 0.0164 C.0124 0.0082 C.0085 0.0074	DHERENCY *** 0.4957 0.4896 0.4952 0.4989 0.5729 0.5581 0.4005 0.2464 0.2057 0.2036 0.1521
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18 C.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55	C.1435 C.0160 B1 ***** N07 0.0071 0.0055 C.0039 C.0053 0.0138 C.0043 C.0043 C.0043 C.0043 C.0047 O.0047 O.0044	0.1436 0.0160 D2 MALIZED 0.0072 0.0061 0.0046 0.0048 0.0048 0.0062 0.0133 0.0049 0.0045 0.0052 0.0067 0.0064	0.1436 0.0160 CROSS CC VALUE *** 0.0040 0.0022 0.0024 0.0022 0.0021 0.0089 0.0018 0.0015 0.0015 0.0015 0.0016	DHERENCY ** 0.3130 0.1190 0.2801 0.2491 0.1339 0.5483 0.1521 0.1253 0.1428 0.1771 0.1096 0.1035	0.1436 0.0280 B1 ***** NOi 0.0079 0.0079 0.00591 0.0123 0.0144 0.0215 0.0157 0.0157 0.0165 0.0201 0.0214 0.0255	0.1436 0.0280 D2 RMALIZED 0.0071 0.0075 0.0082 0.0120 0.0120 0.0158 0.0225 0.0201 0.0172 0.0212 0.0203 0.0170 0.0170	0.1436 0.0260 CROSS C VALUE ** 0.0050 0.0054 0.0054 0.0056 0.0014 0.0068 C.0082 C.0082 C.0085 0.6091 0.0074	DHERENCY *** 0.4957 0.4896 0.4952 0.4989 0.5729 0.5581 0.4005 0.2464 0.2057 0.2030 0.1521 0.1810
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18 C.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55	C.1435 C.0160 B1 ***** NDF 0.0071 0.0055 C.0039 C.0053 0.0158 C.0045 C.0053 0.0158 C.0043 C.0043 C.0051 0.0047 0.0047 0.0047	0.1436 0.0160 D2 RMALIZED 0.0072 0.0061 0.0046 0.0048 0.0062 0.0133 0.0049 0.0045 0.0052 0.0064 0.0058 0.0058	0.1436 0.0160 CROSS CC VALUE *** 0.0040 0.0024 0.0022 0.0021 0.0022 0.0021 0.0029 0.0018 0.0015 0.0015 0.0015 0.0016	DHERENCY ** 0.3130 0.1190 0.2801 0.2491 0.1339 0.5483 0.1521 0.1253 0.1428 0.1771 0.1035 0.0389	0.1436 0.0280 B1 ***** NOi 0.0070 0.0079 0.0079 0.00591 0.0123 0.0144 0.0215 0.0192 0.0157 0.0165 0.0201 0.0214 0.0255 0.0214	0.1436 0.0280 D2 MALIZED 0.0071 0.0075 0.0082 0.0120 0.0158 0.0225 0.0201 0.0172 0.0212 0.0203 0.0170 0.0203 0.0170 0.0209	0.1436 0.0260 CROSS C VALUE ** 0.0050 0.0054 0.0086 0.0114 0.0164 0.0164 0.0164 0.0185 0.0082 C.0085 0.0091 0.0074 0.0098	DHERENCY *** 0.4957 0.4896 0.4952 0.4989 0.5729 0.5581 0.4005 0.2464 0.2057 0.2030 0.1521 0.1810 0.1810
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.13 C.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53	C.1435 C.0160 B1 ***** NOF 0.0071 0.0055 C.0039 C.0053 0.0138 C.0053 0.0138 C.0051 0.0043 C.0051 0.0047 0.0047 0.0044 C.0062	0.1436 0.0160 D2 RMALIZED 0.0061 0.0046 0.0048 0.0048 0.0048 0.0049 0.0045 0.0052 0.0067 0.0064 0.0058 0.0058	0.1436 0.0160 CROSS CC VALUE *** 0.0040 0.0020 0.0024 0.0022 0.0021 0.0029 0.0018 0.0015 0.0015 0.0015 0.0015 0.0016 0.0023 0.0016	DHERENCY *** 0.3130 0.1190 0.2801 0.2491 0.1339 0.5483 0.1521 0.1253 0.1253 0.1428 0.1771 0.1096 0.1035 0.0389 0.0389	0.1436 0.0280 B1 ***** NOI 0.0070 0.0079 0.0091 0.0123 0.0123 0.0123 0.0123 0.0125 0.0192 0.0157 0.0165 0.0201 0.0214 0.0255 0.0214	0.1436 0.0280 D2 RMALIZED 0.0071 0.0075 0.0082 0.0120 0.0120 0.0175 0.0201 0.0172 0.0212 0.0201 0.0172 0.0212 0.0203 0.0170 0.0209 0.0240	0.1436 0.0260 CROSS C VALUE ** 0.0050 0.0054 0.0056 0.0086 0.0114 0.0164 0.0164 0.0164 0.0164 0.0082 C.0085 0.0091 0.0074 0.0098 C.0083	DHERENCY *** 0.4957 0.4896 0.49952 0.4989 0.5729 0.5581 0.4005 0.2464 0.2057 0.2035 0.1521 0.1810 0.1329
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18 C.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51	C.1435 C.0160 B1 ***** NOF 0.0071 0.0055 C.0039 C.0053 0.0138 C.0045 C.0048 C.0053 C.0048 C.0051 0.0047 0.0047 0.0044 C.0062 C.0068	0.1436 0.0160 D2 MALIZED 0.0061 0.0046 0.0048 0.0062 0.0133 0.0049 0.0045 0.0052 0.0064 0.0058 0.0064 0.0058 0.0064	0.1436 0.0160 CROSS CC VALUE *** 0.0040 0.0024 0.0022 0.0021 0.0029 0.0018 0.0015 0.0015 0.0015 0.0015 0.0015 0.0016 0.0023 0.0016	DHERENCY . 3130 . 1190 0.2801 0.2491 0.1339 0.5483 0.1521 0.1253 0.1428 0.1771 0.1096 0.1035 0.0389 0.0384	0.1436 0.0280 B1 ***** NOI 0.0079 0.0079 0.0079 0.0079 0.00123 0.0123 0.0123 0.0125 0.0192 0.0157 0.0165 0.0201 0.0214 0.0255 0.0214 0.0255 0.0214 0.0255	0.1436 0.0280 D2 RMALIZED 0.0071 0.0075 0.0082 0.0120 0.0158 0.0225 0.0201 0.0172 0.0212 0.0212 0.0212 0.0212 0.0203 0.0170 0.0209 0.0240 0.0240 0.0186	0.1436 0.0260 CROSS C VALUE ** 0.0050 0.0054 0.0054 0.0086 0.0114 0.0164 C.0124 0.0082 C.0085 0.0074 0.0098 0.0098 0.0098 0.0098 0.0098 0.0098 0.0098	DHERENCY *** 0.4957 0.4896 0.4952 0.4989 0.5729 0.5581 0.4005 0.2464 0.2057 0.2035 0.1521 0.1810 0.1329 0.0566
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18 C.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.43	C.1435 C.0160 B1 ***** NO 0.0071 0.0055 C.0039 C.0053 0.0138 C.0043 C.0043 C.0043 C.0043 C.0043 C.0047 O.0047 C.0044 C.0062 C.0068 U.0060	0.1436 0.5160 D2 MALIZED 0.0072 0.0061 0.0046 0.0048 0.0045 0.0049 0.0049 0.0045 0.0052 0.0067 0.0064 0.0058 0.0064 0.0068	0.1436 0.0160 CROSS CC VALUE *** 0.0040 0.0020 0.0024 0.0022 0.0021 0.0029 0.0018 0.0015 0.0015 0.0019 0.0024 0.0023 0.0016 0.0012 0.0013 0.0013	DHERENCY 	0.1436 0.0280 B1 ***** NOI 0.0070 0.0079 0.0091 0.0123 0.0144 0.0215 0.0192 0.0157 0.0165 0.0201 0.0215 0.0214 0.0255 0.0215 0.0251 0.0215 0.0215 0.0215 0.0215 0.0215 0.0215 0.0215 0.0215 0.0215 0.0215 0.0215 0.0215 0.0215 0.0214 0.0215 0.0215 0.0214 0.0215 0.0215 0.0214 0.0215 0.0215 0.0214 0.0215 0.0215 0.0214 0.0215 0.0215 0.0214 0.0215 0.0215 0.0214 0.0215 0.0214 0.0215 0.0214 0.0215 0.0214 0.0215 0.0214 0.0215 0.0214 0.0215 0.0214 0.0215 0.0214 0.0215 0.0214 0.0215 0.0214 0.0215 0.0214 0.0215 0.0214 0.0215 0.0214 0.0214 0.0215 0.0214 0.0215 0.0214 0.0215 0.0214 0.0215 0.0214 0.0215 0.0214 0.0215 0.0214 0.0215 0.0214 0.0215 0.0214 0.0214 0.0215 0.0214 0.0214 0.0215 0.0214 0.0214 0.0215 0.0214 0.0160 0.0191	0.1436 0.0280 D2 RMALIZED 0.0071 0.0075 0.0082 0.0120 0.0158 0.0225 0.0201 0.0172 0.0212 0.0203 0.0172 0.0203 0.0170 0.0209 0.0240 0.0186 0.0191	0.1436 0.0260 CROSS C VALUE ** 0.0050 0.0054 0.0054 0.0086 0.0114 0.0164 0.0164 0.0164 0.0124 0.0082 C.0085 0.6091 0.0074 0.00598 C.00593 0.0074	DHERENCY *** 0.4957 0.4896 0.4952 0.4989 0.5729 0.5581 0.4005 0.2464 0.2057 0.2464 0.2036 0.1521 0.1810 0.1829 0.0566 0.0437
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18 C.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.43 9.46	C.1435 C.0160 B1 ***** NDF 0.0071 0.0055 C.0039 C.0053 0.0138 C.0045 C.0053 0.0138 C.0043 C.0043 C.0043 C.0051 0.0047 0.0047 0.0044 C.0062 C.0068 U.0060 D.0078	0.1436 0.0160 D2 RMALIZED 0.0061 0.0046 0.0048 0.0062 0.0133 0.0049 0.0045 0.0052 0.0067 0.0064 0.0058 0.0058 0.0068 0.0081 0.0084	0.1436 0.0160 CROSS CC VALUE *** 0.0040 0.0020 0.0024 0.0022 0.0021 0.0089 0.0018 0.0015 0.0015 0.0015 0.0015 0.0016 0.0016 0.0012 0.0013 0.0013 0.0013 0.0013	DHERENCY ** 0.3130 0.1190 0.2801 0.2491 0.1339 0.5483 0.1521 0.1253 0.1428 0.1771 0.1035 0.0389 0.0384 0.0366 0.0363	0.1436 0.0280 B1 ***** NOI 0.0070 0.0079 0.00391 0.0123 0.0144 0.0215 0.0157 0.0157 0.0166 0.0201 0.0255 0.0214 0.0255 0.0214 0.0255 0.0214 0.0255 0.0214 0.0255 0.0214 0.0255 0.0214 0.0255 0.0214 0.0255 0.0217	0.1436 0.0280 D2 MALIZED 0.0071 0.0075 0.0082 0.0120 0.0158 0.0225 0.0201 0.0172 0.0212 0.0203 0.0170 0.0209 0.0240 0.0186 0.0191 0.0205	0.1436 0.0260 CROSS C VALUE ** 0.0050 0.0054 0.0086 0.0114 0.0164 C.0124 0.0082 C.0085 0.0091 0.0074 0.0098 0.0098 0.0098 0.0098 0.0098	DHERENCY *** 0.4957 0.4896 0.4952 0.4989 0.5729 0.5581 0.4005 0.2464 0.2057 0.2057 0.2035 0.1521 0.1810 0.1829 0.0566 0.0437 0.0256
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18 C.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.43 9.46 11.41	C.1435 C.0160 B1 ***** NDF 0.0071 0.0055 C.0039 C.0053 0.0158 C.0045 C.0053 0.0158 C.0047 0.0047 0.0047 0.0047 0.0047 0.0047 C.0062 C.0068 U.0060 0.0078 0.0091	0.1436 0.0160 D2 RMALIZED 0.0072 0.0061 0.0046 0.0048 0.0062 0.0133 0.0049 0.0045 0.0052 0.0067 0.0064 0.0058 0.0068 0.00681 0.0084 0.0111	0.1436 0.0160 CROSS CC VALUE *** 0.0040 0.0024 0.0022 0.0021 0.0029 0.0018 0.0015 0.0015 0.0015 0.0016 0.0016 0.0016 0.0013 0.0013 0.0013 0.0013 0.0013 0.0013 0.0015	DHERENCY ** 0.3130 0.1190 0.2801 0.2491 0.1339 0.5483 0.1521 0.1253 0.1428 0.1771 0.1096 0.1035 0.0389 0.0384 0.0366 0.0363 0.0493	0.1436 0.0280 B1 ***** NOi 0.0070 0.0079 0.0079 0.0079 0.0079 0.0123 0.0123 0.0144 0.0215 0.0157 0.0165 0.0201 0.0255 0.0214 0.0255 0.02160 0.0191 0.0177 0.0185	0.1436 0.0280 D2 MALIZED 0.0071 0.0075 0.0082 0.0120 0.0158 0.0225 0.0201 0.0172 0.0212 0.0203 0.0170 0.0203 0.0170 0.02040 0.0186 0.0191 0.0205 0.0209	0.1436 0.0260 CROSS C VALUE ** 0.0050 0.0054 0.0086 0.0114 0.0164 0.0164 0.0164 0.0164 0.0082 C.0085 0.0091 0.0074 0.0098 0.0098 0.0098 0.0098 0.0040 0.0033	DHERENCY *** 0.4896 0.4896 0.4952 0.4989 0.5729 0.5581 0.4005 0.2464 0.2057 0.2057 0.2035 0.1521 0.1810 0.1829 0.0566 0.0282
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.13 C.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.43 9.46 11.41 13.37	C.1435 C.0160 B1 ***** NOF 0.0071 0.0055 C.0039 C.0053 0.0138 C.0045 C.0053 0.0138 C.0044 0.0043 C.0051 0.0047 0.0044 C.0062 C.3068 U.0068 U.0068 0.0078 0.0091 C.0138	0.1436 0.0160 D2 RMALIZED 0.0072 0.0061 0.0046 0.0048 0.0048 0.0048 0.0049 0.0045 0.0052 0.0067 0.0064 0.0058 0.0066 0.0068 0.0081 0.0081 0.0084	0.1436 0.0160 CROSS CC VALUE *** 0.0040 0.0020 0.0024 0.0022 0.0021 0.0028 0.0018 0.0015 0.0018 0.0015 0.0018 0.0015 0.0016 0.0023 0.0016 0.0012 0.0013 0.0013 0.0013 0.0013 0.0013 0.0013	DHERENCY 	0.1436 0.0280 B1 ***** NOI 0.0070 0.0079 0.0099 0.0099 0.0099 0.0099 0.0123 0.0123 0.0123 0.0123 0.0192 0.0157 0.0165 0.0214 0.0255 0.0214 0.0255 0.0214 0.0255 0.0214 0.0160 0.0197 0.0185 0.0133	0.1436 0.0280 D2 RMALIZED 0.0071 0.0075 0.0082 0.0120 0.0120 0.0175 0.0225 0.0201 0.0172 0.0212 0.0203 0.0170 0.0209 0.0240 0.0186 0.0191 0.0205 0.0209 0.0222	0.1436 0.0260 CROSS C VALUE ** 0.0050 0.0054 0.0056 0.0086 0.0114 0.0164 C.0124 0.0082 C.0085 0.0091 0.0074 0.0098 C.0085 0.0098 C.0085 0.0098 0.0041	DHERENCY *** 0.4957 0.4896 0.4952 0.4989 0.5729 0.5581 0.40057 0.2464 0.2057 0.2036 0.1521 0.1810 0.1521 0.1810 0.0576 0.0282 0.0576
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18 C	C.1435 C.0160 B1 ***** NOF 0.0071 0.0055 C.0039 C.0053 0.0138 C.0045 C.0045 C.0053 0.0138 C.0046 0.0043 C.0047 0.0047 0.0044 C.0062 C.3068 U.0060 0.0078 0.0091 0.0138 0.023	0.1436 0.0160 D2 MALIZED 0.0072 0.0061 0.0046 0.0048 0.0062 0.0133 0.0049 0.0045 0.0052 0.0067 0.0064 0.0058 0.0064 0.0058 0.0064 0.0058 0.0064 0.0058 0.0064 0.0058 0.0064	0.1436 0.0160 CROSS CC VALUE *** 0.0040 0.0020 0.0024 0.0022 0.0021 0.0029 0.0018 0.0015 0.0019 0.0023 0.0016 0.0016 0.0016 0.0013 0.0013 0.0013 0.0013 0.0022 0.0026	DHERENCY 	0.1436 0.0280 B1 ***** NOI 0.0079 0.0079 0.0079 0.0091 0.0123 0.0144 0.0215 0.0144 0.0215 0.0157 0.0165 0.0201 0.0255 0.0214 0.0255 0.0214 0.0255 0.0214 0.0255 0.0214 0.0255 0.0214 0.0255 0.0214 0.0255 0.0217 0.0183 0.0183 0.0183	0.1436 0.0280 D2 MALIZED 0.0071 0.0075 0.0082 0.0120 0.0175 0.0205 0.0201 0.0172 0.0209 0.0209 0.0240 0.0170 0.0209 0.0240 0.0191 0.0205 0.0209 0.0222 0.02171	0.1436 0.0260 CROSS C VALUE ** 0.0050 0.0054 0.0054 0.0082 0.0082 C.0085 0.0091 0.0098 0.0098 0.0098 0.0098 0.0098 0.0098 0.0098 0.0098 0.0098 0.0098 0.0098 0.0098 0.0098 0.0098 0.0054 0.0056	DHERENCY *** 0.4957 0.4896 0.4952 0.4989 0.5729 0.5581 0.4005 0.2464 0.2057 0.2035 0.1521 0.1810 0.1521 0.1810 0.1522 0.0566 0.0282 0.0282 0.0576 0.1142
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18 C.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.43 9.46 11.41 13.37 15.81	C.1435 C.0160 B1 ***** NO 0.0071 0.0055 C.0039 C.0053 0.0138 C.0043 C.0043 C.0043 C.0043 C.0047 O.0047 O.0044 C.0062 C.3068 U.0060 D.0078 O.0091 C.0138 D.0203	0.1436 0.0160 D2 MALIZED 0.0072 0.0061 0.0046 0.0048 0.0048 0.0049 0.0045 0.0052 0.0067 0.0067 0.0064 0.0058 0.0064 0.0068 0.00681 0.0081 0.0084 0.00111 0.0152 0.0198	0.1436 0.0160 CROSS CC VALUE *** 0.0040 0.0020 0.0024 0.0022 0.0021 0.0029 0.0018 0.0015 0.0015 0.0015 0.0012 0.0012 0.0012 0.0013 0.0016 0.0012 0.0013 0.0013 0.0015 0.0012 0.0013 0.0016 0.0012	DHERENCY 	0.1436 0.0280 B1 ***** NOI 0.0079 0.0079 0.00591 0.0123 0.0144 0.0215 0.0125 0.0157 0.0165 0.0201 0.0255 0.0214 0.0255 0.0214 0.0255 0.0255 0.0255 0.0140 0.0191 0.0185 0.0133 0.0153 0.0153	0.1436 0.0280 D2 RMALIZED 0.0071 0.0075 0.0082 0.0120 0.0120 0.0175 0.0201 0.0172 0.0203 0.0170 0.0203 0.0170 0.0209 0.0240 0.0191 0.0205 0.0209 0.0222 0.0171	0.1436 0.0260 CROSS C VALUE ** 0.0050 0.0054 0.0066 0.0114 0.0164 C.0124 0.0082 C.0085 0.0091 0.0074 0.0074 0.0098 C.0098 C.0098 0.0098 C.0093 0.0041 0.0054	DHERENCY *** 0.4957 0.4896 0.4952 0.4989 0.5729 0.5581 0.4005 0.2464 0.2057 0.2521 0.1810 0.1329 0.0566 0.0437 0.0282 0.0576 0.1122
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18 C.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.43 9.46 11.41 13.37 15.81 18.25	C.1435 C.0160 B1 ***** NDF 0.0071 0.0055 C.0039 C.0053 0.0138 C.0045 C.0053 0.0138 C.0043 C.0043 C.0047 0.0047 0.0044 C.0062 C.0068 U.0062 C.0068 U.0068 U.0078 0.0078 0.0078 0.0091 C.0138 0.0203 0.0189	0.1436 0.5160 D2 RMALIZED 0.0072 0.0061 0.0046 0.0048 0.0048 0.0049 0.0049 0.0049 0.0049 0.0049 0.0052 0.0067 0.0064 0.0058 0.0064 0.0058 0.0068 0.0068 0.00681 0.0084 0.0111 0.0152 0.0198 0.0224	0.1436 0.0160 CROSS CC VALUE *** 0.0040 0.0020 0.0024 0.0022 0.0021 0.0029 0.0018 0.0015 0.0015 0.0015 0.0016 0.0016 0.0016 0.0016 0.0016 0.0013 0.0013 0.0013 0.0013 0.0013 0.0013 0.0013 0.0013 0.0015 0.0022 0.0036 0.0046 0.0050	DHERENCY 	0.1436 0.0280 B1 ***** NOI 0.0070 0.0079 0.00591 0.0123 0.0144 0.0215 0.0125 0.0157 0.0166 0.0201 0.0255 0.0214 0.0255 0.0214 0.0255 0.0214 0.0255 0.0214 0.0255 0.0191 0.0191 0.0177 0.0185 0.0133 0.0150 0.0121	0.1436 0.0280 D2 RMALIZED 0.0071 0.0075 0.0082 0.0120 0.0158 0.0225 0.0201 0.0172 0.0212 0.0203 0.0170 0.0209 0.0226 0.0191 0.0205 0.0209 0.0222 0.0171 0.0140	0.1436 0.0260 CROSS C VALUE ** 0.0050 0.0054 0.0086 0.0114 0.0164 C.0124 0.0082 C.0085 0.0091 0.0074 0.0098 0.0098 0.0098 0.0098 0.0098 0.0098 0.0098 0.0098 0.0041 0.0054 0.0054 0.0020	DHERENCY *** 0.4957 0.4896 0.4952 0.4989 0.5729 0.5581 0.4005 0.2464 0.2057 0.2030 0.1521 0.1820 0.0566 0.0437 0.0282 0.0576 0.1142 0.0245
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.13 C.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.43 9.46 11.41 13.37 15.81 18.25 22.64	C.1435 C.0160 B1 ***** NDF 0.0071 0.0055 C.0039 C.0053 0.0158 C.0045 C.0053 0.0158 C.0047 0.0047 0.0047 0.0047 0.0047 C.0062 C.0068 0.0062 C.0068 0.0060 0.0078 0.0091 0.0138 0.0203 0.0189 C.0217	0.1436 0.5160 D2 RMALIZED 0.0072 0.0061 0.0046 0.0048 0.0048 0.0049 0.0045 0.0052 0.0052 0.0064 0.0058 0.0064 0.0058 0.0064 0.0058 0.0068 0.0068 0.0068 0.0081 0.0084 0.0111 0.0152 0.0198 0.0224 0.0175	0.1436 0.0160 CROSS CC VALUE *** 0.0040 0.0024 0.0022 0.0021 0.0029 0.0018 0.0015 0.0018 0.0015 0.0019 0.0024 0.0023 0.0016 0.0016 0.0012 0.0013 0.0016 0.0013 0.0013 0.0013 0.0013 0.0013 0.0013 0.0013 0.0022 0.0036 0.0046 0.0050 0.0033	DHERENCY 	0.1436 0.0280 B1 ***** NOI 0.0070 0.0079 0.0079 0.0079 0.0079 0.0079 0.0123 0.0144 0.0215 0.0192 0.0157 0.0166 0.0201 0.0255 0.0214 0.0255 0.0214 0.0255 0.0214 0.0255 0.0214 0.0191 0.0177 0.0185 0.0133 0.0150 0.0121 0.0104	0.1436 0.0280 D2 MALIZED 0.0071 0.0075 0.0082 0.0120 0.0175 0.0225 0.0201 0.0172 0.0212 0.0203 0.0170 0.0209 0.0240 0.0186 0.0191 0.0205 0.0209 0.0222 0.0209 0.0222 0.0171 0.0140 0.0106	0.1436 0.0260 CROSS C VALUE ** 0.0050 0.0054 0.0086 0.0114 0.0164 0.0164 0.0164 0.0164 0.0082 C.0085 0.0091 0.0074 0.0098 0.0093 0.0091	DHERENCY *** 0.4957 0.4896 0.4989 0.5729 0.5581 0.4057 0.2464 0.2057 0.2035 0.1521 0.1810 0.1521 0.1810 0.0257 0.0282 0.0576 0.1142 0.0245 0.0205
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18 C.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.43 9.46 11.41 13.37 15.81 18.25 22.64 25.03	C.1435 C.0160 B1 ***** NOF 0.0071 0.0055 C.0039 C.0053 0.0138 C.0045 C.0053 0.0138 C.0044 0.0043 C.0051 0.0047 0.0047 0.0044 C.0062 C.0068 U.0060 D.0078 0.0051 0.0138 0.0203 0.0189 C.0217 0.0144	0.1436 0.5160 D2 G.0072 0.0061 0.0046 0.0048 0.0048 0.0048 0.0048 0.0045 0.0045 0.0045 0.0045 0.0052 0.0064 0.0058 0.0058 0.0064 0.0058 0.0064 0.00580 0.00580 0.00580 0.00580 0.00580000000000	0.1436 0.0160 CROSS CC VALUE *** 0.0040 0.0020 0.0024 0.0022 0.0021 0.0089 0.0015 0.0015 0.0015 0.0015 0.0016 0.0012 0.0016 0.0013 0.0016 0.0013 0.0013 0.0013 0.0015 0.0016 0.0016 0.0016 0.0016 0.0016 0.0016 0.0016 0.0016 0.0016 0.0016 0.0016 0.0015 0.0016 0.0016 0.0015 0.0016 0.0015 0.0016 0.0015 0.0016 0.0016 0.0015 0.0016 0.0015 0.0016 0.0016 0.0015 0.0016 0.0015 0.0016 0.0015 0.0016 0.0016 0.0015 0.0016 0.0015 0.0016 0.0015 0.0016 0.0015 0.0016 0.0015 0.0016 0.0016 0.0015 0.0016 0.0015 0.0016 0.0015 0.0016 0.0016 0.0016 0.0016 0.0016 0.0016 0.0016 0.0016 0.0016 0.0016 0.0016 0.0016 0.0016 0.0016 0.0013 0.0013 0.0013 0.0013 0.0013 0.0013 0.0013 0.0013 0.0013 0.0013 0.0013 0.0013 0.0013 0.0022 0.0022 0.0023 0.0016 0.0023 0.0013 0.0013 0.0023 0.0013 0.0025 0.0025 0.0025 0.0025 0.0025 0.0025 0	DHERENCY . 3130 . 1190 0.2801 0.2491 0.1339 0.5483 0.1521 0.1253 0.1428 0.1771 0.1096 0.1035 0.0389 0.0384 0.0366 0.0363 0.0493 0.0635 0.0536 0.0536 0.0591 0.292 0.0281	0.1436 0.0280 B1 ***** NOI 0.0079 0.0079 0.0079 0.0091 0.0123 0.0144 0.0215 0.0125 0.0157 0.0165 0.0201 0.0191 0.0185 0.0123 0.0121 0.0104 0.0091	0.1436 0.0280 D2 MALIZED 0.0071 0.0075 0.0082 0.0120 0.0158 0.0225 0.0201 0.0172 0.0212 0.0203 0.0170 0.0209 0.02240 0.0186 0.0191 0.0205 0.0209 0.0222 0.0171 0.0209 0.0222 0.0171 0.0205	0.1436 0.0260 CROSS C VALUE ** 0.0050 0.0054 0.0054 0.0082 0.0082 C.0085 0.0091 0.0074 0.0098 0.0098 0.0098 0.0098 0.0098 0.0098 0.0098 0.0098 0.0098 0.0098 0.0098 0.0098 0.0098 0.0098 0.0098 0.0098 0.0098 0.0059 0.0054 0.0054 0.0054 0.0055 0.0055 0.0055 0.0055 0.0055 0.0055 0.0025	DHERENCY *** 0.4957 0.4896 5.4952 0.4989 0.5729 0.5581 0.4005 0.2064 0.2057 0.2035 0.1521 0.1810 0.1521 0.1810 0.0566 0.0437 0.0282 0.0576 0.0282 0.0576 0.1142 0.0245 0.0205 0.0257 0.0255
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18 C.18 C.18 C.18 C.18 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.43 9.46 11.41 13.37 15.81 18.25 22.64 25.03 27.53	C.1435 C.0160 B1 ***** NO 0.0071 0.0055 C.0039 C.0053 0.0138 C.0045 C.0053 0.0138 C.0043 C.0043 C.0043 C.0043 C.0047 O.0044 C.0062 C.3068 U.0060 0.0078 0.0091 0.0138 0.0203 0.0189 C.0217 0.0144 0.0129	0.1436 0.5160 D2 MALIZED 0.0072 0.0061 0.0046 0.0048 0.0045 0.0045 0.0045 0.0055 0.0067 0.0064 0.0058 0.0058 0.0052 0.0052 0.00580000000000	0.1436 0.0160 CROSS CC VALUE *** 0.0040 0.0020 0.0024 0.0022 0.0021 0.0029 0.0018 0.0015 0.0018 0.0015 0.0019 0.0024 0.0023 0.0016 0.0012 0.0013 0.0013 0.0013 0.0013 0.0013 0.0022 0.0036 0.0046 0.0046 0.0046 0.0046 0.0050 0.0033 0.0023 0.0023	DHERENCY 	0.1436 0.0280 B1 ***** NOI 0.0073 0.0079 0.0091 0.0123 0.0144 0.0215 0.0192 0.0157 0.0165 0.0201 0.0255 0.0214 0.0255 0.0214 0.0255 0.0214 0.0255 0.0214 0.0160 0.0191 0.0185 0.0133 0.0153 0.0121 0.0104 0.0091 0.0064	0.1436 0.0280 D2 MALIZED 0.0071 0.0075 0.0082 0.0120 0.0120 0.0172 0.0205 0.0201 0.0172 0.0203 0.0203 0.0209 0.0220 0.0209 0.0220 0.0209 0.0220 0.0209 0.0222 0.0171 0.0209 0.0222 0.0171 0.0205 0.0209 0.0225 0.0209 0.0225 0.0209 0.0225 0.0209 0.0225 0.0209 0.0225 0.0209 0.0225 0.0209 0.0225 0.0209 0.0225 0.0209 0.0225 0.0209 0.0225 0.0209 0.0225	0.1436 0.0260 CROSS C VALUE ** 0.0050 0.0054 0.0054 0.0066 0.0114 0.0164 0.0164 0.0164 0.0124 0.0082 C.0085 0.6091 0.0074 0.0098 C.0033 0.0041 0.0054 0.0033 0.0041 0.0054 0.0025 0.0015 0.0025 0.0013	DHERENCY *** 0.4957 0.4896 0.4952 0.4989 0.5729 0.5581 0.4005 0.2464 0.2057 0.2036 0.1521 0.1810 0.1521 0.1810 0.0282 0.0576 0.0282 0.0576 0.1142 0.0205 0.0255 0.0255 0.0256 0.0255
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18 C.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.43 9.46 11.41 13.37 15.81 18.25 22.64 25.03 27.53 30.46	C.1435 C.0160 B1 ***** NOF 0.0071 0.0055 0.0045 C.0039 C.0053 0.0138 C.0043 C.0043 C.0043 C.0043 C.0047 0.0047 C.0062 C.0068 U.0060 0.0078 0.0058 0.0058 0.00591 C.0138 0.0203 0.0189 C.0217 0.0144 0.0129 0.0399	0.1436 0.0160 D2 MALIZED 0.0061 0.0046 0.0048 0.0048 0.0048 0.0049 0.0049 0.0049 0.0045 0.0052 0.0067 0.0064 0.0058 0.0065 0.0064 0.0058 0.00681 0.0081 0.0081 0.0081 0.0084 0.0111 0.0152 0.0198 0.0224 0.0128 0.0102 0.0099	0.1436 0.0160 CROSS CC VALUE *** 0.0040 0.0020 0.0024 0.0022 0.0021 0.0029 0.0018 0.0015 0.0015 0.0015 0.0012 0.0024 0.0012 0.0013 0.0013 0.0013 0.0013 0.0013 0.0013 0.0013 0.0022 0.0036 0.0046 0.0050 0.0033 0.0023 0.0023 0.0020 0.0011	DHERENCY ** 0.3130 0.1190 0.2801 0.2491 0.1339 0.5483 0.1521 0.1253 0.1428 0.1035 0.0389 0.0384 0.0366 0.0635 0.0536 0.0536 0.0536 0.0536 0.0536 0.05391 0.2922 0.0281 0.0309 0.0128	0.1436 0.0280 B1 ***** NOI 0.0079 0.0079 0.0051 0.0123 0.0144 0.0215 0.0157 0.0157 0.0166 0.0201 0.0255 0.0191 0.0185 0.0133 0.0150 0.0121 0.0164 0.0064 0.0055	0.1436 0.0280 D2 MALIZED 0.0071 0.0075 0.0082 0.0120 0.0120 0.0120 0.0175 0.0201 0.0172 0.0203 0.0170 0.0203 0.0170 0.0209 0.0222 0.0191 0.0205 0.0209 0.0222 0.0171 0.0140 0.0106 0.0076 0.0051	0.1436 0.0260 CROSS C VALUE ** 0.0050 0.0054 0.0056 0.0056 0.0056 0.0014 0.0068 C.0085 0.0098 0.0098 0.0098 0.0098 0.0098 0.0098 0.0098 0.0041 0.0054 0.0054 0.0025 0.0025 0.0015 0.0025	DHERENCY *** 0.4957 0.4896 0.4952 0.4989 0.5729 0.5581 0.4005 0.2464 0.2057 0.2036 0.1521 0.1810 0.1329 0.0566 0.0437 0.0256 0.0282 0.0576 0.1142 0.0265 0.0205 0.0205 0.0205 0.0205 0.0205 0.0205 0.0205 0.0205 0.0205 0.0215 0.0205 0.0205 0.0205 0.0215 0.0205 0.0205 0.0215 0.0205 0.0215 0.0205 0.0205 0.0255
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18 C.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.43 9.46 11.41 13.37 15.81 18.25 22.64 25.03 27.53 3(.46)	C.1435 C.0160 B1 ***** NDF 0.0071 0.0055 C.0039 C.0053 0.0108 C.0045 C.0053 0.0108 C.0043 C.0043 C.0043 C.0043 C.0044 C.0062 C.0068 U.0062 C.0068 U.0078 C.0044 C.0068 U.0078 C.0044 C.00691 C.0138 D.0203 O.0189 C.0217 O.0144 O.0129 O.0099 O.0061	0.1436 0.0160 D2 RMALIZED 0.0061 0.0046 0.0048 0.0048 0.0049 0.0049 0.0045 0.0052 0.0064 0.0058 0.0064 0.0058 0.0064 0.0058 0.0064 0.0058 0.00681 0.0084 0.0111 0.0152 0.0198 0.0224 0.0128 0.0102 0.0099 0.0052	0.1436 0.0160 CROSS CC VALUE *** 0.0040 0.0020 0.0024 0.0022 0.0021 0.0029 0.0018 0.0015 0.0015 0.0016 0.0016 0.0016 0.0013 0.0016 0.0013 0.0013 0.0013 0.0013 0.0022 0.0036 0.0046 0.0046 0.0050 0.0033 0.0023 0.0020 0.0011 0.0029	DHERENCY ** 0.3130 0.1190 0.2801 0.2491 0.1339 0.5483 0.1521 0.1253 0.1428 0.1771 0.1096 0.1035 0.0389 0.0384 0.0366 0.0363 0.0493 0.0635 0.0536 0.0591 0.3292 0.0281 0.0284	0.1436 0.0280 B1 ***** NOI 0.0070 0.0079 0.00391 0.0123 0.0144 0.0215 0.0125 0.0157 0.0166 0.0201 0.0255 0.0214 0.0255 0.0214 0.0255 0.0191 0.0185 0.0133 0.0150 0.0121 0.0104 0.0055 0.0037	0.1436 0.0280 D2 MALIZED 0.0071 0.0075 0.0082 0.0120 0.0158 0.0225 0.0201 0.0172 0.0212 0.0203 0.0209 0.0240 0.0209 0.0220 0.0229 0.0220 0.0209 0.0222 0.0171 0.0205 0.0209 0.0222 0.0171 0.0205 0.0209 0.0222 0.0171 0.0205 0.0209 0.0222 0.0171 0.0205 0.0209 0.0222 0.0171 0.0205 0.0209 0.0225	0.1436 0.0260 CROSS C VALUE ** 0.0050 0.0054 0.0086 0.0114 0.0164 C.0124 0.0082 C.0085 0.0091 0.0074 0.0098 0.0098 0.0098 0.0098 0.0098 0.0098 0.0098 0.0098 0.0098 0.0009 0.0005 0.0015 0.0013 0.0009 0.0010	DHERENCY *** 0.4957 0.4896 0.4952 0.4989 0.5729 0.5581 0.4005 0.2464 0.2057 0.2057 0.2030 0.1521 0.1829 0.0566 0.0437 0.0282 0.0576 0.1142 0.0205 0.2455 0.0205 0.0285 0.0205 0.0285 0.0205 0.0285 0.0205 0.0285 0.0205 0.0285 0.0205 0.0285
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.167 C.167 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.43 9.46 11.41 13.37 15.81 18.25 22.64 25.03 27.53 30.46 34.85 2.14 25.03 27.53 30.46 34.85 2.15 2.16 2.55 2.55 2.55 2.55 2.56 2.57 3.57 2.57 3.57 5.5	C.1435 C.0160 B1 ***** NOF 0.0071 0.0055 C.0039 C.0053 0.0138 C.0045 C.0053 0.0138 C.0046 0.0047 0.0047 0.0047 0.0044 C.0062 C.0068 U.0062 C.0068 U.0051 0.0047 0.0044 C.0062 C.0068 U.0056 0.0073 0.0051 0.0051 0.0051 0.0051 0.0051 0.0051 0.0051 0.0056 0.0053 0.0057 0.0044 C.0062 C.0068 U.0056 0.0053 0.0056 0.0051 0.0056 0.0057 0.0056 0.0057 0.0056 0.0057 0.0056 0.0057 0.0056 0.0057 0.0056 0.00570000000000	0.1436 0.0160 D2 G.0072 0.0061 0.0046 0.0048 0.0048 0.0048 0.0048 0.0045 0.0045 0.0045 0.0045 0.0052 0.0064 0.0058 0.0058 0.0064 0.0058 0.0058 0.0064 0.0058 0.0059 0.00580 0.00580 0.00580 0.00580 0.00580000000000	0.1436 0.0160 CROSS CC VALUE *** 0.0040 0.0024 0.0022 0.0021 0.0029 0.0015 0.0015 0.0015 0.0016 0.0016 0.0016 0.0016 0.0012 0.0016 0.0016 0.0016 0.0016 0.0016 0.0016 0.0016 0.0016 0.0016 0.0016 0.0016 0.0016 0.0016 0.0015 0.0016 0.0015 0.0016 0.0015 0.0016 0.0015 0.0016 0.0015 0.0016 0.0015 0.0016 0.0015 0.0016 0.0015 0.0016 0.0015 0.0016 0.0016 0.0015 0.0015 0.0016 0.0016 0.0015 0.0016 0.0015 0.0016 0.0015 0.0016 0.0015 0.0016 0.0015 0.0016 0.0015 0.0016 0.0015 0.0016 0.0015 0.0016 0.0015 0.0016 0.0015 0.0016 0.0016 0.0015 0.0016 0.0012 0.0022 0.0022 0.0023 0.0026 0.0026 0.0026 0.0016 0.0012 0.0022 0.0022 0.0026 0.0022 0.0026 0.0022 0.0026 0.0022 0.0026 0.0006 0	DHERENCY . 3130 . 1190 0.2801 0.2491 0.1339 0.5483 0.1521 0.1253 0.1428 0.1771 0.1096 0.1035 0.0389 0.0384 0.0363 0.0493 0.0635 0.0536 0.0536 0.0591 0.3292 0.0281 0.286 0.0286 0.0286	0.1436 0.0280 B1 ***** NOI 0.0070 0.0079 0.0079 0.0099 0.0099 0.0123 0.0144 0.0215 0.0192 0.0157 0.0165 0.0201 0.0255 0.0214 0.0255 0.0214 0.0255 0.0133 0.0150 0.0164 0.0064 0.0055 0.0037	0.1436 0.0280 D2 MALIZED 0.0071 0.0075 0.0082 0.0120 0.0175 0.0205 0.0201 0.0172 0.0212 0.0209 0.0220 0.0209 0.0240 0.0170 0.0209 0.0220 0.0209 0.0220 0.0209 0.0222 0.0171 0.0205 0.0209 0.0222 0.0171 0.0140 0.0106 0.0051 0.0051 0.0051 0.0051	0.1436 0.0260 CROSS C VALUE ** 0.0050 0.0054 0.0054 0.0082 0.0082 0.0082 0.0082 0.0085 0.0098 0.0098 0.0098 0.0098 0.0098 0.0098 0.0098 0.0098 0.0098 0.0041 0.0054 0.0055 0.0015 0.0025 0.0013 0.0099 0.0019 0.0099 0.0019	DHERENCY *** 0.4957 0.4896 5.4952 0.4989 0.5729 0.5581 0.4005 0.2464 0.2057 0.2035 0.1521 0.1810 0.1521 0.1810 0.0576 0.02437 0.0256 0.02437 0.0256 0.0257 0.0282 0.0276 0.1142 0.0245 0.0205 0.0257 0.025
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18		0.1436 0.0160 D2 MALIZED 0.0061 0.0046 0.0048 0.0048 0.0049 0.0049 0.0049 0.0049 0.0049 0.0049 0.0049 0.0052 0.0064 0.0058 0.0064 0.0058 0.0064 0.0058 0.0064 0.0058 0.0064 0.0058 0.0064 0.0058 0.0064 0.0058 0.0064 0.0058 0.0064 0.0058 0.0064 0.0058 0.0064 0.0058 0.0064 0.0058 0.0064 0.0058 0.0064 0.0058 0.0064 0.0058 0.0064 0.0058 0.0064 0.0058	0.1436 0.0160 CROSS CC VALUE *** 0.0040 0.0020 0.0024 0.0022 0.0021 0.0029 0.0018 0.0015 0.0019 0.0024 0.0015 0.0016 0.0012 0.0016 0.0012 0.0013 0.0013 0.0013 0.0013 0.0022 0.0036 0.0046 0.0046 0.0046 0.0046 0.0046 0.0050 0.0023 0.0023 0.0023 0.0023 0.0023 0.0023 0.0023 0.0023	DHERENCY . 3130 C.1190 0.2801 0.2491 0.1339 0.5483 0.1521 0.1253 0.1428 0.1771 0.1096 0.1035 0.0389 0.0384 0.0366 0.03635 0.0591 0.0281 0.0281 0.0281 0.0286 0.0360	0.1436 0.0280 B1 ***** NOI 0.0073 0.0579 0.0091 0.0123 0.0144 0.0215 0.0192 0.0157 0.0165 0.0261 0.0255 0.0214 0.0255 0.0214 0.0255 0.0133 0.0153 0.0121 0.0121 0.0123 0.0121 0.0124 0.0055 0.0037 0.00324	0.1436 0.0280 D2 MALIZED 0.0071 0.0075 0.0082 0.0120 0.0175 0.0225 0.0201 0.0172 0.0212 0.0203 0.0272 0.0209 0.0229 0.0229 0.0229 0.0229 0.0229 0.0229 0.0229 0.0229 0.0229 0.0229 0.0229 0.0229 0.0229 0.0229 0.0229 0.0225 0.0171 0.0140 0.0171 0.0140 0.0166 0.0576 0.0051 0.0037 0.0025	0.1436 0.0260 CROSS C VALUE ** 0.0050 0.0054 0.0054 0.0064 0.0164 0.0164 0.0164 0.0164 0.0082 0.0082 0.0085 0.0098 0.0098 0.0098 0.0041 0.0054 0.0054 0.0054 0.0054 0.0054 0.0054 0.0054 0.0054 0.0054 0.0054 0.0054 0.0054 0.0054 0.0054 0.0054 0.0054 0.0054 0.0058 0.0058 0.0058 0.0058 0.0058 0.0058 0.0058 0.0058 0.0058 0.0058 0.0058 0.0058 0.0059 0.0054 0.0054 0.0054 0.0058 0.0058 0.0058 0.0058 0.0058 0.0058 0.0058 0.0058 0.0058 0.0058 0.0058 0.0059 0.0058 0.0058 0.0059 0.0054 0.0059 0.0059 0.0054 0.0059 0.0059 0.0054 0.0059 0.0054 0.0054 0.0059 0.0054 0.0055 0.0025 0.0013 0.0059 0.0059 0.0025 0.0025 0.0013 0.0054 0.0054 0.0054 0.0054 0.0054 0.0055 0.0025 0.0013 0.0054 0.0054 0.0054 0.0054 0.0055 0.0013 0.0054 0.0054 0.0055 0.0013 0.0054 0.0054 0.0054 0.0055 0.0013 0.0054 0.0054 0.0054 0.0055 0.0013 0.0054 0.0054 0.0055 0.0	DHERENCY *** 0.4957 0.4896 0.4952 0.4989 0.5729 0.5581 0.4005 0.2464 0.2057 0.2035 0.1521 0.1810 0.1521 0.1810 0.0576 0.0282 0.0576 0.0282 0.0576 0.1142 0.0205
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18	$     \begin{array}{c}       0.1435 \\       0.0160 \\       B1 \\       **** N07 \\       0.0071 \\       0.0045 \\       0.0045 \\       0.0053 \\       0.0053 \\       0.0138 \\       0.0043 \\       0.0043 \\       0.0047 \\       0.004$	0.1436 0.0160 D2 MALIZED 0.0072 0.0061 0.0046 0.0048 0.0048 0.0049 0.0045 0.0052 0.0067 0.0064 0.0058 0.0067 0.0064 0.0068 0.00681 0.0081 0.0084 0.0111 0.0152 0.0198 0.0224 0.0198 0.0224 0.0128 0.0099 0.0052 0.0034 0.0010	0.1436 0.0160 CROSS CC VALUE *** 0.0040 0.0020 0.0024 0.0022 0.0021 0.0029 0.0018 0.0015 0.0015 0.0015 0.0012 0.0012 0.0013 0.0016 0.0012 0.0013 0.0013 0.0013 0.0013 0.0022 0.0036 0.0046 0.0046 0.0046 0.0050 0.0033 0.0023 0.0020 0.0011 0.0009 0.0007 0.0003	DHERENCY 	0.1436 0.0280 B1 ***** NOI 0.0079 0.0079 0.0059 0.0123 0.0144 0.0215 0.0125 0.0157 0.0165 0.0261 0.0255 0.0177 0.0185 0.0133 0.0150 0.0121 0.0104 0.0055 0.0037 0.0013 0.0013	0.1436 0.0280 D2 MALIZED 0.0071 0.0075 0.0082 0.0120 0.0120 0.0158 0.0225 0.0201 0.0172 0.0203 0.0170 0.0209 0.0240 0.0186 0.0191 0.0205 0.0209 0.0222 0.0171 0.0140 0.0166 0.0051 0.0051 0.0051 0.0055 0.0068	0.1436 0.0260 CROSS C VALUE ** 0.0050 0.0254 0.0361 0.0686 0.0114 0.0164 C.0124 0.0082 C.0685 0.6091 0.0074 0.0074 0.0074 0.0074 0.0074 0.0074 0.0074 0.0033 0.0041 0.0050 0.0015 0.0025 0.0015 0.0025 0.0015 0.0025 0.0015 0.0025 0.0015 0.0025 0.0015 0.0025 0.0015 0.0025 0.0015 0.0025 0.0015 0.0025 0.0015 0.0025 0.0015 0.0025 0.0015 0.0025 0.0015 0.0025 0.0015 0.0025 0.0015 0.0025 0.0015 0.0025 0.0015 0.0025 0.0015 0.0025 0.0015 0.0025 0.0025 0.0025 0.0025 0.0050 0.00010 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000000	DHERENCY *** 0.4957 0.4896 0.4952 0.4989 0.5729 0.5581 0.4005 0.2464 0.2057 0.2036 0.1521 0.1810 0.1810 0.1329 0.0566 0.0437 0.0282 0.0576 0.1142 0.0255 0.0285
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18 C.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.43 9.46 11.41 13.37 15.81 18.25 22.64 25.03 27.53 30.46 34.85 46.22 50.48 60.24	$     \begin{array}{c}       0.1435 \\       0.0160 \\       81 \\       **** NO7 \\       0.0071 \\       0.0053 \\       0.0051 \\       0.0058 \\       0.0053 \\       0.0189 \\       0.0203 \\       0.0189 \\       0.0203 \\       0.0189 \\       0.0217 \\       0.0149 \\       0.0129 \\       0.0055 \\       0.0055 \\       0.0055 \\       0.0055 \\       0.005   \end{array} $	0.1436 0.0160 D2 RMALIZED 0.0061 0.0046 0.0048 0.0048 0.0048 0.0049 0.0049 0.0049 0.0049 0.0049 0.0049 0.0049 0.0049 0.0052 0.0064 0.0058 0.0064 0.0058 0.0064 0.0058 0.00681 0.00681 0.0052 0.0128 0.0128 0.0128 0.0128 0.0010 0.0099 0.0052 0.0034 0.0010 0.0007	0.1436 0.0160 CROSS CC VALUE *** 0.0040 0.0020 0.0024 0.0022 0.0021 0.0089 0.0018 0.0015 0.0015 0.0016 0.0016 0.0016 0.0012 0.0024 0.0024 0.0024 0.0016 0.0016 0.0013 0.0022 0.0036 0.0046 0.0046 0.0033 0.0020 0.0033 0.0020 0.0011 0.0003 0.0003 0.0003	DHERENCY 	0.1436 0.0280 B1 ***** NOI 0.0070 0.0079 0.0051 0.0123 0.0144 0.0215 0.0123 0.0144 0.0215 0.0157 0.0166 0.0201 0.0214 0.0255 0.0133 0.0150 0.0121 0.0104 0.0055 0.0037 0.0055 0.0013 0.0055	0.1436 0.0280 D2 MALIZED 0.0071 0.0075 0.0082 0.0120 0.0120 0.0175 0.0225 0.0201 0.0172 0.0212 0.0203 0.0170 0.0209 0.0225 0.0209 0.0222 0.0171 0.0205 0.0209 0.0222 0.0171 0.0140 0.0106 0.0051 0.0051 0.0051 0.0058 0.00068 0.00068	0.1436 0.0260 CROSS C VALUE ** 0.0050 0.0054 0.0086 0.0114 0.0164 C.0124 0.0082 C.0085 0.0098 0.0098 0.0098 0.0098 0.0098 0.0098 0.0098 0.0098 0.0098 0.0098 0.0098 0.0098 0.0098 0.0054 0.0054 0.0055 0.0013 0.0004 0.0004 0.0004 0.0004 0.0004 0.0004 0.0001 0.0001 0.0001	DHERENCY *** 0.4957 0.4896 0.4952 0.4989 0.5729 0.5581 0.4005 0.2464 0.2057 0.2035 0.1521 0.1521 0.1521 0.0576 0.0282 0.0576 0.0282 0.0576 0.1142 0.0205 0.0285 0.0205 0.0285 0.0205 0.0515 0.0351
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18 C.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.43 9.46 11.41 13.37 15.81 18.25 22.64 25.03 27.53 30.46 34.85 46.22 50.48 60.24 70.01	C.1435 C.0160 B1 ***** NDF 0.0071 0.0055 C.0039 C.0053 0.0108 C.0045 C.0053 0.0108 C.0046 0.0047 0.0047 0.0047 0.0047 0.0047 0.0047 0.0047 0.0047 0.0047 0.0062 C.0068 0.00691 0.00691 0.0138 0.0203 0.0189 C.0217 0.0144 0.0129 0.0061 0.0040 U.0015 0.0005 0.005 0	0.1436 0.0160 D2 RMALIZED 0.0072 0.0061 0.0046 0.0048 0.0048 0.0049 0.0049 0.0049 0.0049 0.0049 0.0049 0.0052 0.0067 0.0064 0.0058 0.0058 0.0058 0.0058 0.0058 0.0058 0.0058 0.0011 0.0128 0.0128 0.0128 0.0128 0.0052 0.0034 0.0010 0.0052	0.1436 0.0160 CROSS CC VALUE *** 0.0040 0.0020 0.0024 0.0022 0.0021 0.0029 0.0018 0.0015 0.0018 0.0015 0.0019 0.0024 0.0016 0.0016 0.0013 0.0013 0.0016 0.0013 0.0013 0.0022 0.0036 0.0046 0.0046 0.0050 0.0033 0.0023 0.0023 0.0023 0.0021 0.0007 0.0003 0.0007	DHERENCY 	0.1436 0.0280 B1 ***** NOI 0.0070 0.0079 0.0079 0.0079 0.0079 0.0123 0.0144 0.0215 0.0125 0.0157 0.0166 0.0201 0.0160 0.0191 0.0160 0.0191 0.0185 0.0133 0.0150 0.0121 0.0104 0.0064 0.0055 0.0037 0.0005 0.0003	0.1436 0.0280 D2 MALIZED 0.0071 0.0075 0.0082 0.0120 0.0158 0.0225 0.0201 0.0172 0.0212 0.0203 0.0270 0.0209 0.0240 0.0170 0.0205 0.0209 0.0222 0.0171 0.0205 0.0209 0.0222 0.0171 0.0205 0.0209 0.0222 0.0171 0.0205 0.0209 0.0225 0.0205 0.0055	0.1436 0.0260 CROSS C VALUE ** 0.0050 0.0054 0.0086 0.0114 0.0164 0.0164 0.0082 C.0085 0.0091 0.0074 0.0098 0.0098 0.0098 0.0098 0.0098 0.0098 0.0098 0.0033 0.0041 0.0054 0.0055 0.0015 0.0025 0.0015 0.0009 0.0	DHERENCY *** 0.4957 0.4896 0.4989 0.5729 0.5581 0.4005 0.2464 0.2057 0.2035 0.1521 0.1810 0.1521 0.1521 0.1521 0.1521 0.0257 0.0256 0.0245 0.0276 0.0205 0.0205 0.0205 0.0215 0.0295 0.0292 0.0315 0.0308
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) C.18 C.18 C.18 C.18 C.167 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.43 9.46 11.41 13.37 15.81 18.25 22.64 25.03 27.53 30.46 34.85 46.22 50.48 60.24 70.01 80.26	$     \begin{array}{c}       0.1435 \\       0.0160 \\       81 \\       **** NOI       0.0071 \\       0.0055 \\       0.0053 \\       0.0053 \\       0.0053 \\       0.0053 \\       0.0053 \\       0.0053 \\       0.0053 \\       0.0044 \\       0.0045 \\       0.0047 \\       0.0047 \\       0.0047 \\       0.0047 \\       0.0047 \\       0.0047 \\       0.0047 \\       0.0047 \\       0.0047 \\       0.0047 \\       0.0047 \\       0.0047 \\       0.0047 \\       0.0047 \\       0.0047 \\       0.0047 \\       0.0047 \\       0.0047 \\       0.0044 \\       0.002 \\       0.0044 \\       0.0047 \\       0.0044 \\       0.0047 \\       0.0044 \\       0.0047 \\       0.0044 \\       0.0047 \\       0.0044 \\       0.0047 \\       0.0044 \\       0.0044 \\       0.0044 \\       0.0044 \\       0.0050 \\       0.005 \\       0.0002 \\     \end{array} $	0.1436 0.0160 D2 G.0072 0.0061 0.0046 0.0048 0.0048 0.0048 0.0048 0.0049 0.0045 0.0045 0.0045 0.0052 0.0064 0.0058 0.0064 0.0058 0.0064 0.0058 0.0064 0.0058 0.0064 0.0011 0.0152 0.0198 0.0224 0.0128 0.0128 0.0128 0.0128 0.0102 0.0034	0.1436 0.0160 CROSS CC VALUE *** 0.0040 0.0020 0.0024 0.0022 0.0021 0.0029 0.0018 0.0015 0.0019 0.0024 0.0016 0.0016 0.0016 0.0016 0.0013 0.0013 0.0022 0.0036 0.0046 0.0046 0.0050 0.0033 0.0023 0.0023 0.0023 0.0023 0.0020 0.0011 0.0009 0.0007 0.0003 0.0001 0.0001 0.0001 0.0001	DHERENCY 	0.1436 0.0280 B1 ***** NOI 0.0073 0.0079 0.0079 0.0091 0.0123 0.0144 0.0215 0.0125 0.0157 0.0165 0.0201 0.0185 0.0133 0.0160 0.0121 0.0185 0.0133 0.0155 0.0133 0.0155 0.0133 0.0121 0.0104 0.0091 0.0064 0.0055 0.0037 0.003 0.0003 0.0001	0.1436 0.0280 D2 MALIZED 0.0071 0.0075 0.0082 0.0120 0.0175 0.0205 0.0201 0.0172 0.0212 0.0209 0.0220 0.0209 0.0220 0.0209 0.0220 0.0170 0.0209 0.0220 0.0209 0.0220 0.0171 0.0205 0.0209 0.0222 0.0171 0.0140 0.0106 0.0051 0.0051 0.0051 0.0051 0.0051 0.0051 0.0051 0.0051 0.0055 0.0058 0.00051	0.1436 0.0260 CROSS C VALUE ** 0.0050 0.0054 0.0054 0.0082 C.0085 0.0082 C.0085 0.0098 0.0098 0.0098 0.0098 0.0098 0.0041 0.0054 0.0041 0.0054 0.0055 0.0041 0.0055 0.0015 0.0025 0.0013 0.0009 0.0001 0.0001 0.0000	DHERENCY *** 0.4957 0.4896 5.4952 0.4989 0.5729 0.5581 0.4005 0.2464 0.2057 0.2036 0.1521 0.1810 0.1521 0.1521 0.1521 0.0282 0.0282 0.0286 0.0282 0.0285 0.0205 0.0295 0.0295 0.0315 0.0308 0.0205

•

. **...** 

•

.

.

								386
WG(LB/SEC)	0.1435	0.1436	0.1436		0.1436	0.1436	0.1436	<b>)</b>
WL(LB/SEC)	<b>0.044</b> 0	0.0440	0.0440	•	0.0800	0.0800	0.000	
CELL	81	D2	CROSS CO	HERENCY	В1	D2	CROSS CO	DHERENCY
FREQ.(CPS)	***** \{\}}	REALIZED		₩ • E203	**** NOA	MALIZED	VALUE ***	***
V+15 6 47	0.0395	0.0019	0.0175	0.7699	0.0014 0.0029	0.0018	0.0004	0.3.178
1.15	0.0215	0.0217	0.0206	0.7907	0.0029	1.0.55	0.0010	2.5540
1.65	0.0267	0.0289	0.0231	0.6384	0.0089	0.0100	0.0073	0.5924
2.14	0.0248	0.0259	0.0206	J.6612	0.0123	0.0141	0.0111	0.6845
2.63	0.0246	0.0291	0.0201	0.5670	0.0160	0.0151	5.0128	Ů•675Ů
3.11	0.0227	0.0278	0.0182	0.5240	C.0175	0.0214	0.0157	0.6576
3.60	0.0248	0.0252	0.0174	0.4861	0.0211	0.0220	0.0185	0.6956
· 4.09	0.0200	0.0280	0.0164	0.4456	0252	0.0293	0.176	6. 6147
5.07	0.0242	0.0263	0.0157	0.3864	0.0204	0.0240	0.0175	0.5139
5.55	0.0231	0.0241	0.0140	0.3507	0.0223	0.0254	0.0188	0.6237
6.53	0.0205	0.0241	0.0118	0.2819	0.0212	0.0254	0.6173	6.5565
7.51	0.0202	0.0193	0.0094	0.2291	6.0236	0.0230	G.J158	0.4632
8.48	0.0165	0.0202	0.0068	0.1403	5.0221	0.0200	0.0128	0.3731
9.45	0.0165	0.0157	0.0057	0.1169	0.0175	0.0194	0.0112	8066.0
11+41	0.0142	0.0126	0.001	0.0959	0.0204	0.0222	0.0106	0.1571
15.81	0.0145	0.0118	0.0029	0.0478	(.0119	0.0116	0.0029	0.0613
18.25	0.0085	0.0098	0.0017	0.0352	6.0095	0.0131	0.0031	0.0752
22.64	i.0064	J.0077	0.0013	0.6364	0.0073	0.0073	0.0018	0.0600
~ 25.08	0.0059	0.0075	0.0007	0.0127	450¢0	0.0074	0.0018	0.0543
27.53	C.0059	0.0051	0.0015	0.0729	0.0009	0.0076	0.0016	C.0467
30.45	0.0053	0.0056	0.0008	0.0210	0.0051	0.0049	0.0010	0.0536
24+80 40-22	0.0040	0.0038	0.0005	0.0121	0.0039	0.0039	0.0009	0.0796
50.48	0.0017	0.0015	0.0003	0.0294	U.CC18	0.0017	0.0004	0.0598
60.24	0.0010	0.0009	0.0002	0.0469	0.0009	0.0010	0.0002	0.0353
70.01	0.0005	0.0005	0.0001	0.0385	0.0007	0.0006	0.0001	0.0481
80.26	0.0003	0.0003	0.0001	0.0452	0.0004	0.0003	0.0001	0.0389
	•			• •	•			
• • • •	•			•	•			
WG(LB/SEC)	0.1436	0.1436	0.1436	4 <del>1</del>	0.1436	0.1436	0.1436	
WG(LB/SEC) WL(LB/SEC)	0.1436 0.1260	0.1436 0.1260	0.1436 0.1260	* ;	0.1436 0.1800	0.1436 0.1800	0.1436 0.1800	
WG(LB/SEC) WL(LB/SEC) CELL	0.1436 0.1260 81	0.1436 0.1260 D2	0.1436 0.1260 CROSS CO	DHERENCY	0.1436 0.1800 B1	0.1436 0.1800 D2	0.1436 0.1800 CROSS C	DHERENCY
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS)	0.1436 0.1260 81 ***** NO	0.1436 0.1260 D2 RMALIZED	0.1436 0.1260 CROSS CC VALUE ***	DHERENCY	0.1436 0.1800 B1 ***** NO!	0.1436 0.1800 D2 RMALIZED	0.1436 0.1800 CROSS CO VALUE **	DHERENCY
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67	0.1436 0.1260 81 ***** NO 0.0015 0.0032	0.1436 0.1260 D2 RMALIZED 0.0019 0.0042	0.1436 0.1260 CROSS CC VALUE *** 0.0007 0.0007	DHERENCY *** 0.1791 0.4592	0.1436 0.1800 E1 ***** N05 0.0018	0.1436 0.1800 D2 RMALIZED 0.0019 0.0038	0.1436 0.1800 CROSS CO VALUE ** 0.0006 0.0018	DHERENCY *** 0.1035 0.2756
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67	0.1436 0.1260 B1 ***** NO 0.0015 0.0032 0.0054	0.1436 0.1280 D2 RMALIZED 0.0019 0.0042 0.0055	0.1436 0.1260 CROSS CC VALUE *** 0.0007 0.0025 0.0028	DHERENCY *** 0.1791 0.4592 0.4716	0.1436 0.1800 E1 ***** N05 0.0018 0.0031 0.0031	0.1436 0.1800 D2 RMALIZED 0.0019 0.0038 0.00361	0.1436 0.1800 CROSS CO VALUE ** 0.0006 0.0018 0.0039	DHERENCY *** 0.1035 0.2756 0.4639
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.12 1.65	0.1436 0.1260 B1 ***** NO 0.0015 0.0032 0.0054 0.0054	0.1436 0.1280 D2 RMALIZED 0.0019 0.0042 0.0055 0.0083	0.1436 0.1260 CROSS CC VALUE *** 0.0007 0.0025 0.0025 0.0038 0.0059	DHERENCY *** 0.1791 0.4592 0.4716 0.5454	0.1436 0.1800 E1 ***** N0! 0.0C18 0.0C31 0.0C53 0.0C67	0.1436 0.1800 D2 RMALIZED 0.0019 0.0038 0.0061 0.0061 0.0099	0.1436 0.1800 CROSS C1 VALUE ** 0.0006 0.0018 0.0039 0.0072	DHERENCY *** 0.1035 0.2756 0.4639 0.6101
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.12 1.65 2.14	0.1436 0.1260 B1 ***** NO 0.0015 0.0032 0.0054 0.0075 0.0079	0.1436 0.1280 D2 RMALIZED 0.0019 0.0042 0.0055 0.0083 0.0105	0.1436 0.1260 CROSS CO VALUE *** 0.0007 0.0025 0.0038 0.0059 0.0067	DHERENCY *** 0.1791 0.4592 0.4716 0.5454 0.5454	0.1436 0.1800 E1 ***** N09 0.0018 0.0031 0.0053 0.0067 0.0123	0.1436 0.1800 D2 RMALIZED 0.0019 0.0038 0.00361 0.0061 0.0009 0.0109	0.1436 0.1800 CROSS C1 VALUE ** 0.6006 0.0618 0.0039 0.0072 0.6090	DHERENCY *** 0.1035 0.2756 0.4639 0.6101 0.6076
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.12 1.65 2.14 2.63	0.1436 0.1260 B1 ***** NO 0.0015 0.0032 0.0054 0.0075 0.0079 0.0148	0.1436 0.1260 D2 RMALIZED 0.0019 0.0042 0.0055 0.0083 0.0155 0.0155	0.1436 0.1260 CROSS CO VALUE *** 0.0007 0.0025 0.0038 0.0059 0.0067 0.0123	DHERENCY *** 0.1791 0.4592 0.4716 0.5454 0.5406 0.6632	0.1436 0.1800 E1 ***** NOF 0.0018 0.0031 0.0053 0.0067 0.0123 0.0165	0.1436 0.1800 D2 RMALIZED 0.0019 0.0038 0.0038 0.0061 0.00261 0.0109 0.0109	0.1436 0.1800 CROSS C1 VALUE ** 0.0006 0.0018 0.0039 0.0072 0.0090 0.0143	DHERENCY *** 0.1035 0.2756 0.4639 0.6101 0.6076 0.6692
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.1a 1.65 2.14 2.63 3.11	0.1436 0.1260 B1 **** NO 0.0015 0.0032 0.0054 0.0075 0.0079 0.0148 0.0167 0.0167	0.1436 0.1280 D2 RMALIZED 0.0019 0.0042 0.0055 0.0083 0.0155 0.0155 0.0200	0.1436 0.1260 CROSS CO VALUE *** 0.0007 0.0025 0.0038 0.0059 0.0067 0.0123 0.0147	DHERENCY *** 0.1791 0.4592 0.4716 0.5454 0.5454 0.5406 0.6632 0.5970 0.642	0.1436 0.1800 E1 ***** NO! 0.0018 0.0031 0.0053 0.0067 0.0123 0.0165 0.0165 0.0169	0.1436 0.1800 D2 RMALIZED 0.0019 0.0038 0.0061 0.0038 0.0061 0.0109 0.0109 0.0184 0.0179	0.1436 0.1800 CROSS C1 VALUE ** 0.0006 0.0018 0.0039 0.0072 0.0090 0.0143 0.0143	DHERENCY *** 0.1035 0.2756 0.4639 0.6101 0.6076 0.6692 0.7162
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.1a 1.65 2.14 2.63 3.11 3.60 6.00	0.1436 0.1260 B1 ***** NO 0.0015 0.0032 0.0054 0.0075 0.0079 0.0148 0.0167 0.0197	0.1436 0.1280 D2 RMALIZED 0.0019 0.0042 0.0055 0.0055 0.0083 0.0155 0.0200 0.0226 0.0245	0.1436 0.1260 CROSS CO VALUE *** 0.00025 0.0025 0.0038 0.0059 0.0067 0.0123 0.0141 0.0167 0.01279	DHERENCY *** 0.1791 0.4592 0.4716 0.5454 0.5454 0.5406 0.6632 0.5970 0.6363 0.6649	0.1436 0.1800 E1 ***** NO! 0.0018 0.0031 0.0053 0.0067 0.0123 0.0165 0.0165 0.0169 0.0239	0.1436 0.1800 D2 RMALIZED 0.0019 0.0038 0.0061 0.0059 0.0109 0.0109 0.0184 0.0179 0.0293	0.1436 0.1800 CROSS C1 VALUE ** 0.6066 0.0618 0.0039 0.0072 0.6090 0.0143 C.6147 0.6220	DHERENCY *** 0.1035 0.2756 0.4639 0.6101 0.6076 0.6692 0.7162 0.6950 0.7501
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.1a 1.65 2.14 2.63 3.11 3.60 4.09	0.1436 0.1260 B1 ***** NO 0.0015 0.0032 0.0054 0.0075 0.0079 0.0148 0.0167 0.0197 0.0197 0.0240	0.1436 0.1280 D2 RMALIZED 0.0019 0.0042 0.0055 0.0083 0.0155 0.0155 0.0200 0.0226 0.0226 0.0261	0.1436 0.1260 CROSS CO VALUE *** 0.00025 0.0025 0.0038 0.0059 0.0067 0.0123 0.0141 0.0167 0.0179 0.0179 0.0210	DHERENCY *** 0.1791 0.4592 0.4716 0.5454 0.5454 0.5456 0.6632 0.5970 0.6368 0.6649 0.7065	0.1436 0.1800 E1 ***** NO! 0.0031 0.0053 0.0067 0.0123 C.0165 0.0165 0.0169 U.0239 0.0265 0.0259	0.1436 0.1800 D2 MALIZED 0.0019 0.0038 0.0061 0.0109 0.0109 0.0184 0.0179 0.0293 0.0293 0.0267 0.0237	0.1436 0.1800 CROSS C1 VALUE ** 0.6066 0.0618 0.0639 0.0072 0.6090 0.0143 0.6147 0.6220 0.6230 0.6230	DHERENCY *** 0.1035 0.2756 0.4639 0.6101 0.6076 0.6692 0.7162 0.6950 0.7501 0.6472
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.13 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07	0.1436 0.1260 B1 ***** NO 0.0032 0.0054 0.0075 0.0075 0.0148 0.0167 0.0194 0.0197 0.0197 0.0240 0.0232	0.1436 0.1280 D2 RMALIZED 0.0019 0.0042 0.0055 0.0055 0.0055 0.0155 0.0205 0.0226 0.0245 0.0261 0.0245	0.1436 0.1260 CROSS CO VALUE *** 0.00025 0.0025 0.0038 0.0059 0.0067 0.0123 0.0141 0.0167 0.0179 0.0210 0.0210 0.0195	DHERENCY *** 0.1791 0.4592 0.4716 0.5454 0.5454 0.5456 0.6632 0.5970 0.6368 0.6649 0.7065 0.6732	0.1436 0.1800 E1 ***** NOS 0.0031 0.0053 0.0067 0.0123 0.0165 0.0165 0.0169 0.0265 0.0259 0.0259	0.1436 0.1800 D2 MALIZED 0.0019 0.0038 0.0061 0.0109 0.0109 0.0184 0.0179 0.0293 0.0293 0.025	0.1436 0.1800 CROSS C1 VALUE ** 0.6066 0.0618 0.0639 0.0072 0.6090 0.0143 0.6147 0.6220 0.6230 0.0199 0.0219	DHERENCY *** 0.1035 0.2756 0.4639 0.6101 0.6076 0.6692 0.7162 0.6950 0.7501 0.6472 0.6736
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.13 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55	0.1436 0.1260 B1 ***** NO 0.0015 0.0032 0.0054 0.0075 0.0079 0.0148 0.0197 0.0197 0.0197 0.0197 0.0232 0.0232 0.0336	0.1436 0.1280 D2 RMALIZED 0.0019 0.0042 0.0055 0.0055 0.0055 0.0155 0.0215 0.0226 0.0245 0.0245 0.0244 0.0342	0.1436 0.1260 CROSS CO VALUE *** 0.00025 0.0025 0.0038 0.0059 0.0067 0.0123 0.0141 0.0167 0.0179 0.0210 0.0288	DHERENCY *** 0.1791 0.4592 0.4716 0.5454 0.5454 0.5456 0.6632 0.6368 0.6368 0.6649 0.7065 0.6732 0.7230	0.1436 0.1800 E1 ***** N05 0.0031 0.0053 0.0067 0.0123 0.0165 0.0165 0.0169 0.0265 0.0265 0.0259 0.0259 0.0246	0.1436 0.1800 D2 MALIZED 0.0019 0.0038 0.0061 0.0109 0.0109 0.0184 0.0179 0.0293 0.0293 0.0267 0.0237 0.0275 0.0264	0.1436 0.1800 CROSS C1 VALUE ** 0.6066 0.0618 0.0039 0.0072 0.6090 0.0143 0.6147 0.6220 0.6230 0.0199 0.0219 0.0207	DHERENCY *** 0.1035 0.2756 0.4639 0.6101 0.6076 0.6692 0.7162 0.6950 0.7501 0.6472 0.6736 0.6612
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.13 1.65 2.14 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53	0.1436 0.1260 B1 ***** NO 0.0015 0.0032 0.0054 0.0079 0.0148 0.0197 0.0197 0.0197 0.0197 0.0240 0.0240 0.0232 0.0336 0.0247	0.1436 0.1280 D2 RMALIZED 0.0019 0.0042 0.0055 0.0055 0.0055 0.0155 0.0255 0.0226 0.0245 0.0245 0.0261 0.0246 0.0246 0.0230	0.1436 0.1260 CROSS CO VALUE *** 0.0007 0.0025 0.0038 0.0059 0.0067 0.0123 0.0141 0.0167 0.0179 0.0210 0.0195 0.0268 0.0176	DHERENCY *** 0.1791 0.4592 0.4716 0.5454 0.5454 0.5456 0.6632 0.6368 0.6649 0.7065 0.6649 0.7065 0.6732 0.7230 0.5449	0.1436 0.1800 E1 ***** N05 0.0031 0.0053 0.0067 0.0123 0.0165 0.0165 0.0165 0.0239 0.0265 0.0259 0.0259 0.0246 0.0246	0.1436 0.1800 D2 MALIZED 0.0019 0.0038 0.0061 0.0099 0.0109 0.0184 0.0179 0.0293 0.0267 0.0237 0.0275 0.0264 0.0264	0.1436 0.1800 CROSS C1 VALUE ** 0.6006 0.0618 0.0039 0.0072 0.6090 0.0143 0.6147 0.6220 0.6230 0.0199 0.0219 0.0207 0.0197	DHERENCY *** 0.1035 0.2756 0.4639 0.6101 0.6076 0.6692 0.7162 0.6950 0.7501 0.6472 0.6736 0.6612 0.5884
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.13 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51	0.1436 0.1260 B1 ***** NO 0.0015 0.0032 0.0054 0.0079 0.0148 0.0197 0.0197 0.0197 0.0197 0.0240 0.0232 0.0336 0.0249 0.0249	0.1436 0.1280 D2 RMALIZED 0.0019 0.0042 0.0055 0.0055 0.0055 0.0155 0.0255 0.0245 0.0245 0.0245 0.0261 0.0246 0.0245	0.1436 0.1260 CROSS CO VALUE *** 0.0007 0.0025 0.0038 0.0059 0.0067 0.0123 0.0141 0.0167 0.0179 0.0210 0.0195 0.0268 0.0176 0.0182	DHERENCY *** 0.1791 0.4592 0.4716 0.5454 0.5454 0.5456 0.6632 0.6368 0.6649 0.7065 0.6649 0.7065 0.6732 0.7230 0.5449 0.5279	0.1436 0.1800 E1 ***** N05 0.0031 0.0053 0.0067 0.0123 0.0165 0.0165 0.0165 0.0265 0.0259 0.0259 0.0259 0.0246 0.0247 0.0297	0.1436 0.1800 D2 MALIZED 0.0019 0.0038 0.0061 0.0099 0.0109 0.0109 0.0184 0.0179 0.0293 0.0267 0.0237 0.0275 0.0264 0.0258	0.1436 0.1800 CROSS C1 VALUE ** 0.6006 0.0618 0.0039 0.0072 0.6090 0.0143 0.6147 0.6220 0.6230 0.0199 0.0219 0.0219 0.0207 0.0207 0.0209	DHERENCY *** 0.1035 0.2756 0.4639 0.6101 0.6076 0.6692 0.7162 0.6950 0.7501 0.6472 0.6736 0.6612 0.5884 0.5683
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.52 7.51 8.48	0.1436 0.1260 B1 **** NO 0.0015 0.0032 0.0054 0.0079 0.0148 0.0197 0.0197 0.0197 0.0197 0.0240 0.0232 0.0336 0.0249 0.0216	0.1436 0.1280 D2 RMALIZED 0.0019 0.0042 0.0055 0.0055 0.0055 0.0155 0.0255 0.0245 0.0245 0.0261 0.0246 0.0245 0.0245 0.0253 0.0210	0.1436 0.1260 CROSS CO VALUE *** 0.0007 0.0025 0.0038 0.0059 0.0067 0.0123 0.0141 0.0167 0.0179 0.0288 0.0176 0.0182 0.0167	DHERENCY *** 0.1791 0.4592 0.4716 0.5454 0.5454 0.5456 0.6632 0.6368 0.6649 0.7065 0.6649 0.7065 0.6732 0.7230 0.5279 0.5279 0.3800 0.6231	0.1436 0.1800 E1 ***** N05 0.0031 0.0053 0.0067 0.0123 0.0165 0.0165 0.0165 0.0265 0.0259 0.0259 0.02259 0.0246 0.0247 0.0227 0.0220	0.1436 0.1800 D2 MALIZED 0.0019 0.0038 0.0061 0.0099 0.0109 0.0109 0.0179 0.0293 0.0267 0.0237 0.0275 0.0264 0.0258 0.0258 0.0244	0.1436 0.1800 CROSS C1 VALUE ** 0.6006 0.0618 0.0039 0.0072 0.6090 0.0143 0.6147 0.6220 0.6230 0.0199 0.0219 0.0219 0.0207 0.0207 0.0197 0.6209 0.0159	DHERENCY *** 0.1035 0.2756 0.4639 0.6101 0.6076 0.6692 0.7501 0.6950 0.7501 0.6472 0.6736 0.6612 0.5884 0.5683 0.4724
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.52 7.51 8.48	0.1436 0.1260 B1 **** NO 0.0015 0.0032 0.0054 0.0079 0.0148 0.0197 0.0197 0.0197 0.0197 0.0240 0.0232 0.0249 0.0249 0.0216 0.0238 0.0238	0.1436 0.1280 D2 RMALIZED 0.0019 0.0042 0.0055 0.0055 0.0055 0.0155 0.0255 0.0226 0.0245 0.0245 0.0245 0.0245 0.0245 0.0253 0.0210 0.0214	0.1436 0.1260 CROSS CO VALUE *** 0.0007 0.0025 0.0038 0.0059 0.0067 0.0123 0.0141 0.0167 0.0179 0.0268 0.0176 0.0182 0.0148 0.0086	DHERENCY *** 0.1791 0.4592 0.4716 0.5454 0.5454 0.5456 0.6632 0.5970 0.6368 0.6649 0.7065 0.6649 0.7065 0.6732 0.7230 0.5279 0.5279 0.5279 0.5279 0.5289	0.1436 0.1800 E1 ***** N05 0.0031 0.0053 0.0067 0.0123 0.0165 0.0165 0.0165 0.0265 0.0259 0.0259 0.0259 0.0246 0.0247 0.0227 0.0220 0.0217	0.1436 0.1800 D2 MALIZED 0.0019 0.0038 0.0061 0.0099 0.0109 0.0184 0.0179 0.0293 0.0267 0.0237 0.0275 0.0264 0.0258 0.0264 0.0258 0.0244 0.0200 0.0186	0.1436 0.1800 CROSS C1 VALUE ** 0.6006 0.0618 0.0039 0.0072 0.6090 0.0143 0.6147 0.6220 0.6230 0.0199 0.0219 0.0219 0.0207 0.0197 0.6209 0.0135 0.0039	DHERENCY *** 0.1035 0.2756 0.4639 0.6101 0.6076 0.6692 0.7501 0.6472 0.67501 0.6472 0.6736 0.6612 0.5884 0.5683 0.4724 0.4187 0.2763
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.13 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.59 6.52 7.51 8.48 9.46 11.41 13.37	0.1436 0.1260 B1 ***** NO 0.0032 0.0032 0.0075 0.0075 0.0079 0.0148 0.0194 0.0197 0.0240 0.0232 0.0240 0.0240 0.0240 0.0249 0.0216 0.0216 0.0218 0.0218 0.0218	0.1436 0.1280 D2 RMALIZED 0.0019 0.0042 0.0055 0.0055 0.0155 0.0155 0.0255 0.0245 0.0245 0.0245 0.0245 0.0245 0.0253 0.0210 0.0218 0.0214 0.0214 0.0214	0.1436 0.1260 CROSS CI VALUE *** 0.0007 0.0025 0.0038 0.0059 0.0067 0.0123 0.0141 0.0167 0.0179 0.0210 0.0195 0.0288 0.0176 0.0182 0.0182 0.0184 0.0184 0.0086 0.0086 0.0086	DHERENCY *** 0.1791 0.4592 0.4716 0.5454 0.5454 0.5454 0.5454 0.5454 0.6632 0.5970 0.6368 0.6649 0.7065 0.6732 0.7230 0.5449 0.5279 0.3800 0.5279 0.3800 0.4231 0.1889 0.2098	0.1436 0.1800 E1 ***** N05 0.0031 0.0053 0.0067 0.0123 0.0165 0.0165 0.0165 0.0265 0.0259 0.0259 0.0259 0.0246 0.0247 0.0220 0.0220 0.0217 0.0195	0.1436 0.1800 D2 MALIZED 0.0019 0.0038 0.0061 0.0038 0.0061 0.0179 0.0186 0.0275 0.0267 0.0237 0.0275 0.0264 0.0258 0.0264 0.0258 0.0264 0.0258 0.0264 0.0258 0.0264 0.0258	0.1436 0.1800 CROSS CI VALUE ** 0.6006 0.0618 0.0039 0.0072 0.6090 0.0143 0.6147 0.6220 0.6230 0.0199 0.0219 0.0219 0.0219 0.0207 0.0197 0.6209 0.0159 0.0135 0.0099 0.0135	DHERENCY *** 0.1035 0.2756 0.4639 0.6101 0.6076 0.6692 0.7501 0.6472 0.6736 0.6612 0.5884 0.5683 0.4724 0.4187 0.2763 0.2841
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81	0.1436 0.1260 B1 ***** N0 0.0032 0.0054 0.0075 0.0079 0.0148 0.0197 0.0194 0.0197 0.0240 0.0232 0.0336 0.0247 0.0249 0.0238 0.0248 0.0248 0.0238 0.0258	0.1436 0.1280 D2 RMALIZED 0.0042 0.0055 0.0083 0.0105 0.0083 0.0105 0.0226 0.0226 0.0226 0.0226 0.0245 0.0245 0.0245 0.0210 0.0218 0.0214 0.0214 0.0214 0.0214 0.0214	0.1436 0.1260 CROSS CO VALUE *** 0.0007 0.0025 0.0038 0.0059 0.0059 0.0067 0.0123 0.0141 0.0141 0.0167 0.0141 0.0167 0.01288 0.0268 0.0179 0.0288 0.0179 0.0288 0.0182 0.0182 0.0148 0.0086 0.0086 0.0045	DHERENCY *** 0.1791 0.4592 0.4716 0.5454 0.5454 0.5454 0.5454 0.5454 0.5454 0.5454 0.5454 0.5454 0.5454 0.56732 0.7230 0.55449 0.5279 0.5249 0.5279 0.3800 0.4231 0.1889 0.2098 0.1188	0.1436 0.1800 E1 ***** N05 0.0031 0.0031 0.0053 0.0067 0.0123 0.0165 0.0165 0.0165 0.0265 0.0259 0.0246 0.0246 0.0246 0.0247 0.0297 0.0220 0.0217 0.0195 0.0143	0.1436 0.1800 D2 MALIZED 0.0019 0.0038 0.0061 C.0099 0.0109 0.0109 0.0184 0.0179 0.0293 0.0267 0.0275 0.0264 0.0266 0.0258 0.0264 0.0258 0.0244 0.0200 0.0185 0.0112	0.1436 0.1800 CROSS C1 VALUE ** 0.6006 0.0618 0.0039 0.0072 0.6090 0.0143 0.6147 0.6220 0.6230 0.0143 0.6147 0.6220 0.6230 0.0199 0.0219 0.0207 0.0207 0.0197 0.0209 0.0159 0.0135 0.0099 0.0101 0.0056	DHERENCY *** 0.1035 C.2756 C.4639 O.6101 0.6076 C.6692 0.7162 0.6950 C.7501 0.6472 0.6736 0.6612 0.5884 0.6612 0.5884 0.4724 0.4187 0.2763 0.2841 0.1948
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.55 8.48 9.46 11.41 13.37 15.81 18.25	0.1436 0.1260 B1 ***** NO 0.0032 0.0054 0.0075 0.0079 0.0148 0.0197 0.0194 0.0197 0.0249 0.0232 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0248 0.0249 0.0248 0.0248 0.0249 0.0249 0.0238 0.0249 0.0238 0.0249 0.0238 0.0249 0.0238 0.0249 0.0238 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0238 0.0249 0.0238 0.0249 0.0249 0.0238 0.0249 0.0238 0.0249 0.0238 0.0249 0.0238 0.0249 0.0238 0.0249 0.0238 0.0249 0.0238 0.0238 0.0249 0.0238 0.0238 0.0249 0.0249 0.0238 0.0249 0.0249 0.0238 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0238 0.0249 0.0249 0.0238 0.0249 0.0249 0.0228 0.0249 0.0249 0.0228 0.0249 0.0228 0.0288 0.0288 0.0288 0.0288 0.0288 0.0288 0.0288 0.0288 0.0288 0.0288 0.0288 0.0288 0.0288 0.0288 0.0288 0.0288 0.02888 0.02888 0.02888 0.02888 0.02888 0.02888 0.02888 0.02888	0.1436 0.1280 D2 RMALIZED 0.0019 0.0042 0.0055 0.0083 0.0155 0.0200 0.0226 0.0245 0.0245 0.0245 0.0245 0.0244 0.0253 0.0253 0.0216 0.0218 0.0214 0.0214 0.0111	0.1436 0.1260 CROSS CO VALUE *** 0.0007 0.0025 0.0025 0.0059 0.0059 0.0059 0.0067 0.0123 0.0141 0.0141 0.0141 0.0167 0.0126 0.0268 0.0176 0.0182 0.0148 0.0148 0.0086 0.0086 0.0045 0.0029	DHERENCY *** 0.1791 0.4592 0.4716 0.5454 0.5454 0.5406 0.6632 0.5970 0.6368 0.6649 0.7065 0.7230 0.5279 0.5279 0.3800 0.4231 0.1889 0.2098 0.1188 0.2098	0.1436 0.1800 E1 ***** N05 0.0031 0.0031 0.0053 0.0067 0.0123 0.0165 0.0165 0.0165 0.0246 0.0246 0.0246 0.0247 0.0220 0.0220 0.0217 0.0220 0.0217 0.0195 0.0143 0.0107	0.1436 0.1800 D2 MALIZED 0.0019 0.0038 0.0061 C.0099 0.0109 0.0184 0.0179 0.0293 0.0267 0.0275 0.0264 0.0266 0.0258 0.0264 0.0260 0.0185 0.0112 0.0107	0.1436 0.1800 CROSS C1 VALUE ** 0.6006 0.0618 0.0039 0.0143 0.6147 0.6220 0.6230 0.0143 0.6230 0.0199 0.0219 0.0207 0.0207 0.0207 0.0209 0.0159 0.0135 0.0099 0.0135 0.0099 0.0101 0.0056 0.0017	DHERENCY *** 0.1035 C.2756 C.4639 0.6101 0.6076 0.6692 0.7162 0.6950 0.7501 0.6472 0.6736 0.6612 0.5884 0.5884 0.5683 0.4724 0.4187 0.2763 0.2841 0.1943 0.0256
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.55 8.48 11.41 13.37 15.81 18.25	0.1436 0.1260 B1 ***** NO 0.0032 0.0054 0.0075 0.0075 0.0148 0.0197 0.0197 0.0197 0.0249 0.0232 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0238 0.0249 0.0238 0.0249 0.0238 0.0249 0.0238 0.0249 0.0216 0.0238 0.0150 0.0278	0.1436 0.1280 D2 RMALIZED 0.0019 0.0042 0.0055 0.0083 0.0155 0.0200 0.0226 0.0245 0.0245 0.0245 0.0245 0.0245 0.0242 0.0253 0.0210 0.0218 0.0214 0.0214 0.0113 0.0111 0.0101	0.1436 0.1260 CROSS CO VALUE *** 0.0007 0.0025 0.0038 0.0059 0.0067 0.0123 0.0141 0.0141 0.0167 0.0167 0.0167 0.0179 0.0268 0.0176 0.0182 0.0148 0.0148 0.0148 0.0086 0.0086 0.0045 0.0029 0.0020	DHERENCY *** 0.1791 0.4592 0.4716 0.5454 0.5454 0.5406 0.6632 0.5970 0.6368 0.6649 0.7065 0.7230 0.5279 0.5279 0.3800 0.4231 0.1889 0.2098 0.1188 0.2098 0.1188 0.2098	0.1436 0.1800 E1 ***** N05 0.0031 0.0031 0.0053 0.0067 0.0123 0.0165 0.0165 0.0165 0.02465 0.02467 0.0226 0.0226 0.0227 0.0226 0.0227 0.0227 0.0220 0.0217 0.0227 0.0217 0.0195 0.0143 0.0107 0.0083	0.1436 0.1800 D2 MALIZED 0.0019 0.0038 0.0061 C.0099 0.0109 0.0109 0.0184 0.0179 0.0293 0.0267 0.0275 0.0264 0.0266 0.0258 0.0264 0.0266 0.0258 0.0264 0.0200 0.0185 0.0112 0.0107 0.0087	0.1436 0.1800 CROSS C1 VALUE ** 0.6006 0.0618 0.0039 0.0143 0.6147 0.6220 0.6230 0.0143 0.6147 0.6220 0.6230 0.0199 0.0219 0.0219 0.0209 0.0135 0.0099 0.0135 0.0099 0.0101 0.0056 0.0017 0.0620	DHERENCY *** 0.1035 C.2756 C.4639 0.6101 0.6076 0.6692 0.7162 0.6950 0.7501 0.6472 0.6736 0.6612 0.5884 0.5683 0.4724 0.4187 0.2763 0.2841 0.1943 C.0256 0.0566
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.53 7.55 8.48 11.41 13.37 15.81 18.25 2.64 25.06	0.1436 0.1260 B1 ***** NO 0.0015 0.0032 0.0054 0.0075 0.0079 0.0148 0.0197 0.0194 0.0197 0.0240 0.0232 0.0336 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0238 0.0249 0.0238 0.0249 0.0238 0.0249 0.0216 0.0238 0.0278 0.0150 0.0150 0.0150 0.0178 0.0178	0.1436 0.1280 D2 RMALIZED 0.0019 0.0042 0.0055 0.0083 0.0155 0.0200 0.0226 0.0245 0.0245 0.0245 0.0245 0.0245 0.0246 0.0253 0.0253 0.0210 0.0253 0.0212 0.0218 0.0214 0.0113 0.0111 0.0111 0.0078	0.1436 0.1260 CROSS CO VALUE *** 0.0007 0.0025 0.0038 0.0059 0.0067 0.0123 0.0141 0.0167 0.0167 0.0167 0.0167 0.0182 0.0179 0.0288 0.0176 0.0182 0.0182 0.0148 0.0086 0.0086 0.0086 0.0029 0.0029 0.0029 0.0029 0.0029	DHERENCY *** 0.1791 0.4592 0.4716 0.5454 0.5454 0.5454 0.5454 0.6632 0.5970 0.6368 0.6649 0.7065 0.6732 0.7230 0.5279 0.3800 0.4231 0.1889 0.2098 0.1188 0.2098 0.1188 0.2098 0.1188 0.2098	0.1436 0.1800 B1 ***** N05 0.0031 0.0031 0.0053 0.0067 0.0123 0.0165 0.0165 0.0165 0.0265 0.0259 0.0247 0.0220 0.0220 0.0220 0.0227 0.0220 0.0227 0.0220 0.0217 0.0220 0.0217 0.0195 0.0143 0.0107 0.0083 0.0062	0.1436 0.1800 D2 MALIZED 0.0019 0.0038 0.00361 0.0039 0.0109 0.0109 0.0184 0.0275 0.0264 0.0275 0.0264 0.0258 0.0266 0.0258 0.0266 0.0258 0.0264 0.0258 0.0264 0.0258 0.0264 0.0258 0.0264 0.0258 0.0264 0.0258 0.0264 0.0258 0.0264 0.0258 0.0264 0.0258 0.0264 0.0258 0.0264 0.0258 0.0264 0.0258 0.0264 0.0258 0.0264 0.0258 0.0264 0.0258 0.0264 0.0258 0.0264 0.0258 0.0264 0.0258 0.0264 0.0258 0.0266 0.0258 0.0264 0.0258 0.0266 0.0258 0.0266 0.0258 0.0266 0.0258 0.0266 0.0258 0.0266 0.0258 0.0266 0.0258 0.0266 0.0266 0.0258 0.0266 0.0266 0.0267 0.0267 0.0267 0.0267 0.0267 0.0267 0.0267 0.0267 0.0267 0.0267 0.0267 0.0267 0.0267 0.0267 0.0267 0.0267 0.0266 0.0267 0.0267 0.0266 0.0267 0.0266 0.0266 0.0266 0.0267 0.0266 0.0000000000	0.1436 0.1800 CROSS C1 VALUE ** 0.6006 0.0618 0.0039 0.0143 0.6147 0.6220 0.6230 0.0143 0.6230 0.0143 0.0219 0.0219 0.0220 0.0159 0.0159 0.0135 0.0099 0.0135 0.0099 0.0135 0.0099 0.0101 0.0056 0.0017 0.0620 0.0012	DHERENCY *** 0.1035 C.2756 C.4639 0.6101 0.6076 0.6692 0.7162 0.6950 0.7501 0.6472 0.6736 0.6612 0.5884 0.5683 0.4724 0.4187 0.2763 0.2841 0.1948 C.0256 0.0329 0.027
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.13 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.57 6.53 7.55 8.48 11.41 13.37 15.81 18.25 .22.64 25.08	0.1436 0.1260 B1 ***** NO 0.0015 0.0032 0.0054 0.0075 0.0079 0.0148 0.0194 0.0197 0.0194 0.0197 0.0240 0.0232 0.0336 0.0240 0.0238 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0238 0.0249 0.0249 0.0249 0.0238 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0216 0.0278 0.0150 0.0150 0.0178 0.0079	0.1436 0.1280 D2 RMALIZED 0.0019 0.0042 0.0055 0.0083 0.0155 0.0200 0.0226 0.0245 0.0245 0.0245 0.0245 0.0246 0.0246 0.0253 0.0210 0.0253 0.0212 0.0218 0.0214 0.0214 0.0113 0.0111 0.0111 0.0078 0.0049 0.0049	0.1436 0.1260 CROSS CO VALUE *** 0.0007 0.0025 0.0038 0.0059 0.0067 0.0123 0.0141 0.0141 0.0167 0.0141 0.0167 0.0179 0.0288 0.0176 0.0288 0.0178 0.0182 0.0182 0.0182 0.0148 0.0086 0.0086 0.0086 0.0029 0.0029 0.0029 0.0029 0.0029 0.0029 0.0029 0.0029 0.0029 0.0029 0.0029 0.0029 0.0029	DHERENCY *** 0.1791 0.4592 0.4716 0.5454 0.5454 0.5454 0.5456 0.6632 0.5970 0.6368 0.6649 0.7230 0.5279 0.3800 0.4231 0.1889 0.2098 0.1188 0.2098 0.1188 0.2098 0.1188 0.2098 0.1188 0.2098	0.1436 0.1800 B1 ***** N05 0.0031 0.0031 0.0053 0.0067 0.0123 0.0165 0.0165 0.0165 0.0265 0.0259 0.0246 0.0247 0.0220 0.0220 0.0227 0.0220 0.0227 0.0220 0.0217 0.0220 0.0217 0.0195 0.0143 0.0167 0.0083 0.0062 0.0062 0.0065	0.1436 0.1800 D2 MALIZED 0.0019 0.0038 0.0061 0.0038 0.0061 0.019 0.0109 0.0109 0.0184 0.0275 0.0264 0.0275 0.0264 0.0258 0.0264 0.0258 0.0264 0.0258 0.0264 0.0258 0.0264 0.0258 0.0264 0.0258 0.0264 0.0266 0.012 0.0185 0.012 0.0185 0.012 0.0185 0.012 0.0185 0.012 0.0185	0.1436 0.1800 CROSS C1 VALUE ** 0.6006 0.0618 0.0039 0.0143 0.6147 0.6220 0.6230 0.0143 0.6247 0.6220 0.6230 0.0199 0.0219 0.0219 0.0209 0.0159 0.0135 0.0099 0.0135 0.0099 0.0101 0.0056 0.0017 0.0620 0.0012 0.0012 0.0018	DHERENCY *** 0.1035 C.2756 C.4639 0.6101 0.6076 0.6692 0.7162 0.6950 0.7501 0.6472 0.6736 0.6612 0.5884 0.5683 0.4724 0.4187 0.2763 0.2841 0.1948 C.0256 0.0329 0.0497 0.6360
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.12 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 7.55 8.48 9.46 11.41 13.37 15.81 18.25 2.64 25.08 27.53 3.64 8.48	0.1436 0.1260 B1 ***** NO 0.0032 0.0054 0.0075 0.0079 0.0194 0.0197 0.0194 0.0197 0.0240 0.0232 0.0326 0.0236 0.0238 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0238 0.0238 0.0249 0.0238 0.0150 0.0124 0.0150 0.0178 0.0178 0.0178 0.0178 0.0178 0.0178 0.0178 0.0178 0.0150 0.0151 0.0079	0.1436 0.1280 D2 RMALIZED 0.0019 0.0042 0.0055 0.0083 0.0155 0.0200 0.0226 0.0245 0.0245 0.0245 0.0245 0.0245 0.0245 0.0245 0.0245 0.0221 0.0218 0.0214 0.0214 0.0113 0.0111 0.0111 0.0078 0.0049 0.0048 0.0034	0.1436 0.1260 CROSS CO VALUE *** 0.0007 0.0025 0.0038 0.0059 0.0067 0.0123 0.0141 0.0141 0.0167 0.0141 0.0167 0.0179 0.0268 0.0176 0.0288 0.0176 0.0182 0.0182 0.0148 0.0086 0.0086 0.0086 0.0086 0.0029 0.0025 0.0038 0.0038 0.0059 0.00123 0.0141 0.0141 0.0167 0.0123 0.0141 0.0167 0.0258 0.00182 0.0148 0.00182 0.00148 0.00167 0.0123 0.0159 0.0025 0.0025 0.0025 0.0025 0.00123 0.0141 0.0126 0.0125 0.0025 0.0025 0.0025 0.0025 0.00167 0.0123 0.0141 0.0167 0.0125 0.0125 0.00182 0.00148 0.0026 0.0026 0.0026 0.00162 0.0020 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000000	DHERENCY *** 0.1791 0.4592 0.4716 0.5454 0.5454 0.5454 0.5454 0.5454 0.6632 0.5970 0.6363 0.6649 0.7230 0.5279 0.5279 0.5279 0.5279 0.5279 0.5279 0.5279 0.5279 0.5279 0.5279 0.5279 0.5279 0.5279 0.5279 0.5279 0.5279 0.5279 0.5261 0.0231 0.0231 0.0235	0.1436 0.1800 E1 ***** N05 0.0031 0.0031 0.0053 0.0067 0.0123 0.0165 0.0165 0.0165 0.0265 0.0259 0.0246 0.0247 0.0220 0.0220 0.0227 0.0220 0.0227 0.0220 0.0247 0.0220 0.0257 0.0220 0.0247 0.0220 0.0247 0.0220 0.0247 0.0220 0.0247 0.0220 0.0257 0.0247 0.0220 0.0247 0.0220 0.0247 0.0220 0.0247 0.0220 0.0247 0.0247 0.0257 0.0257 0.0257 0.0220 0.0257 0.0083 0.0062 0.0035 0.0035	0.1436 0.1800 D2 MALIZED 0.0019 0.0038 0.0061 0.0038 0.0061 0.0109 0.0109 0.0184 0.0293 0.0293 0.0264 0.0258 0.0264 0.0258 0.0264 0.0258 0.0264 0.0258 0.0244 0.0200 0.0112 0.0185 0.0112 0.0185 0.0112 0.0185 0.0112 0.0185 0.0112	0.1436 0.1800 CROSS C1 VALUE ** 0.6006 0.0618 0.0039 0.0143 0.6147 0.6220 0.6230 0.0143 0.6247 0.6220 0.6230 0.0197 0.0219 0.0219 0.0219 0.0219 0.0209 0.0159 0.0135 0.0099 0.0155 0.0017 0.0620 0.0012 0.0018 0.0008	DHERENCY *** 0.1035 C.2756 C.4639 0.6101 0.6076 0.6692 0.7162 0.6950 0.7501 0.6472 0.6472 0.6472 0.6583 0.4724 0.4187 0.2763 0.2841 0.1948 C.0256 0.0329 0.0497 0.C360 0.0254
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.12 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 7.55 8.48 9.46 11.41 13.37 15.81 18.22 .22.64 25.08 27.53 30.46 34.85	0.1436 0.1260 B1 ***** NO 0.0032 0.0054 0.0075 0.0075 0.0194 0.0197 0.0197 0.0240 0.0232 0.0326 0.0238 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0249 0.0238 0.0238 0.0150 0.0124 0.0150 0.0178 0.0178 0.0178 0.0178 0.0178 0.0078 0.0079	0.1436 0.1280 D2 RMALIZED 0.0019 0.0042 0.0055 0.0083 0.0155 0.0200 0.0226 0.0245 0.0245 0.0245 0.0245 0.0245 0.0245 0.0245 0.0221 0.0214 0.0214 0.0113 0.0111 0.0111 0.0013 0.0049 0.0048 0.0034 0.0022	0.1436 0.1260 CROSS CO VALUE *** 0.0007 0.0025 0.0038 0.0059 0.0067 0.0123 0.0141 0.0141 0.0167 0.0141 0.0167 0.0179 0.0218 0.0195 0.0086 0.0086 0.0086 0.0086 0.0086 0.0085 0.0029 0.0025 0.0029 0.0025 0.0029 0.0025 0.0029 0.0025 0.0029 0.0025 0.0029 0.0025 0.0029 0.0025 0.0029 0.0025 0.0029 0.0025 0.0029 0.0025 0.0029 0.0025 0.0029 0.0025 0.005	DHERENCY *** 0.1791 0.4592 0.4716 0.5454 0.5454 0.5454 0.5454 0.6632 0.5970 0.6363 0.6649 0.7065 0.6732 0.7230 0.5279 0.5279 0.5279 0.5249 0.5279 0.5249 0.5279 0.3800 0.4231 0.1889 0.2098 0.1188 0.0488 0.0231 0.0231 0.056C 0.0235 0.0489	0.1436 0.1800 E1 ***** N05 0.0031 0.0053 0.0067 0.0123 0.0165 0.0165 0.0169 0.0239 0.0265 0.0259 0.0247 0.0220 0.0247 0.0220 0.0247 0.0220 0.0247 0.0220 0.0247 0.0220 0.0247 0.0220 0.0247 0.0220 0.0247 0.0220 0.0247 0.0220 0.0247 0.0220 0.0247 0.0220 0.0247 0.0220 0.0247 0.0220 0.0247 0.0220 0.025 0.0083 0.0083 0.0062 0.0085 0.0035 0.0035 0.0025	0.1436 0.1800 D2 MALIZED 0.0019 0.0038 0.0061 0.0038 0.0061 0.0109 0.0184 0.0179 0.0293 0.0263 0.0265 0.0264 0.0258 0.0244 0.0200 0.0112 0.0185 0.0112 0.0185 0.0112 0.0185 0.0112 0.0185 0.0112 0.0070 0.0066 0.0049 0.0041 0.0028	0.1436 0.1800 CROSS CI VALUE ** 0.6006 0.0618 0.0039 0.0143 0.6147 0.6220 0.6230 0.0143 0.6230 0.0143 0.0219 0.0219 0.0219 0.0219 0.0219 0.0209 0.0159 0.0135 0.00197 0.0209 0.0156 0.0015 0.0012 0.0012 0.0012 0.0008 0.0008	DHERENCY *** 0.1035 C.2756 C.4639 C.6101 0.6076 C.6692 0.7162 0.6950 0.7501 0.6472 0.6472 0.6472 0.5884 0.5683 0.4724 0.4187 0.2763 0.2841 0.1948 C.0256 0.0329 C.0497 0.C360 0.0254 0.0119
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.12 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07 5.55 6.52 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.06	0.1436 0.1260 B1 ***** NO 0.0032 0.0054 0.0075 0.0075 0.0194 0.0197 0.0197 0.0240 0.0232 0.0326 0.0232 0.0326 0.0240 0.0240 0.0240 0.0240 0.0240 0.0240 0.0240 0.0240 0.0240 0.0240 0.0240 0.0238 0.0238 0.0124 0.0150 0.0124 0.0150 0.0124 0.0178 0.0176 0.0176 0.0236 0.0238 0.0124 0.0150 0.0124 0.0124 0.0150 0.0124 0.00124 0.00124 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.000000 0.0000000 0.00000000	0.1436 0.1280 D2 RMALIZED 0.0319 0.0042 0.0055 0.0083 0.0155 0.0200 0.0226 0.0245 0.0245 0.0245 0.0245 0.0245 0.0245 0.0245 0.0223 0.0210 0.0218 0.0214 0.0214 0.0113 0.0111 0.0011 0.0078 0.0049 0.0049 0.0049 0.0048 0.0022 0.0013	0.1436 0.1260 CROSS CO VALUE *** 0.00025 0.0025 0.0025 0.0038 0.0059 0.0067 0.0123 0.0141 0.0141 0.0167 0.0179 0.0210 0.0195 0.0288 0.0176 0.0182 0.0148 0.0182 0.0148 0.0086 0.0086 0.0086 0.0086 0.0085 0.0029 0.0029 0.0029 0.0029 0.0029 0.0029 0.0029 0.0029 0.0029 0.0029 0.0029 0.0029 0.0029 0.0029 0.005 0.0	DHERENCY *** 0.1791 0.4592 0.4716 0.5454 0.5454 0.5454 0.5454 0.5454 0.6632 0.5970 0.6363 0.6649 0.7230 0.5279 0.3800 0.5249 0.5279 0.3800 0.5249 0.5279 0.3800 0.4231 0.1889 0.2098 0.1188 0.0298 0.1188 0.0298 0.1188 0.0298 0.1188 0.0298 0.1188 0.0298 0.1188 0.0298 0.0231 0.056C 0.0235 0.0489 0.0326	0.1436 0.1800 E1 ***** N05 0.0031 0.0053 0.0067 0.0123 0.0165 0.0165 0.0169 0.0239 0.0265 0.0259 0.0247 0.0220 0.0247 0.0227 0.0220 0.0247 0.0251 0.0255 0.0257 0.0255 0.0257 0.0247 0.0247 0.0247 0.0247 0.0257 0.0065 0.0065 0.0055 0.0035 0.0055	0.1436 0.1800 D2 MALIZED 0.0019 0.0038 0.0061 0.0038 0.0061 0.0109 0.0109 0.0109 0.0184 0.0293 0.0263 0.0263 0.0264 0.0258 0.0244 0.0200 0.0112 0.0185 0.0112 0.0185 0.0112 0.0185 0.0112 0.0070 0.0066 0.0049 0.0041 0.0028 0.0013	0.1436 0.1800 CROSS CI VALUE ** 0.6006 0.0618 0.0039 0.0143 0.6147 0.6220 0.6230 0.0143 0.6147 0.6220 0.6230 0.0197 0.0219 0.0219 0.0219 0.0219 0.0219 0.0219 0.0209 0.0159 0.0135 0.0099 0.0135 0.0099 0.0135 0.0012 0.0012 0.0012 0.0012 0.0008 0.0008 0.0003 0.0003 0.0003	DHERENCY *** 0.1035 C.2756 C.4639 0.6101 0.6076 C.6692 0.7162 0.6950 0.7501 0.6472 0.6472 0.6472 0.5884 0.5683 0.4724 0.4187 0.2763 0.2841 0.1943 C.0256 0.0256 0.0256 0.0254 0.0119 0.0326
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.12 1.65 2.14 2.63 3.11 3.60 4.58 5.57 6.52 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 34.85 40.22 50.46 34.85 40.22 50.46 34.85 40.22 50.46 34.85 40.22 50.46 34.85 40.22 50.46 34.85 40.22 50.46 34.85 40.22 50.46 34.85 40.22 50.46 50.24 50.46 50.24 50.46 50.24 50.46 50.24 50.46 50	0.1436 0.1260 B1 ***** NO 0.0032 0.0054 0.0075 0.0075 0.0194 0.0197 0.0240 0.0240 0.0232 0.0326 0.0232 0.0326 0.0240 0.0240 0.0240 0.0240 0.0240 0.0240 0.0240 0.0240 0.0240 0.0240 0.0238 0.0248 0.0248 0.0124 0.0150 0.0124 0.0150 0.0124 0.0178 0.0124 0.0178 0.0124 0.0150 0.0124 0.0178 0.0078 0.0076 0.0076 0.0076 0.0076 0.0051 0.0024 0.0051 0.0024 0.0051 0.0008	0.1436 0.1280 D2 RMALIZED 0.0019 0.0042 0.0055 0.0083 0.0155 0.0200 0.0226 0.0245 0.0245 0.0245 0.0245 0.0245 0.0245 0.0245 0.0228 0.0210 0.0218 0.0214 0.0214 0.0214 0.0214 0.0113 0.0111 0.0018 0.0049 0.0049 0.0048 0.0022 0.0013 0.0008	0.1436 0.1260 CROSS CO VALUE *** 0.00025 0.0025 0.0038 0.0059 0.0067 0.0123 0.0141 0.0141 0.0167 0.0129 0.0210 0.0176 0.0288 0.0176 0.0288 0.0176 0.0288 0.0176 0.0288 0.0176 0.0182 0.0182 0.0148 0.0086 0.0086 0.0086 0.0086 0.0086 0.0086 0.0029 0.0029 0.0029 0.0029 0.0029 0.0029 0.0029 0.0029 0.0029 0.0029 0.0029 0.0029 0.0029 0.0029 0.0029 0.0029 0.0029 0.005 0.	DHERENCY *** 0.1791 0.4592 0.4716 0.5454 0.5454 0.5454 0.5454 0.5454 0.6632 0.5970 0.6363 0.6649 0.7230 0.5279 0.3800 0.5249 0.5279 0.3800 0.5249 0.5279 0.3800 0.4231 0.1889 0.2098 0.1188 0.01889 0.2098 0.1188 0.0298 0.1188 0.0298 0.1188 0.0231 0.056C 0.0235 0.0489 0.0326 0.0776	0.1436 0.1800 E1 ***** N05 0.0031 0.0053 0.0067 0.0123 0.0165 0.0165 0.0169 0.0239 0.0265 0.0259 0.0246 0.0247 0.0220 0.0247 0.0220 0.0247 0.0220 0.0247 0.0220 0.0247 0.0220 0.0247 0.0220 0.0247 0.0220 0.0247 0.0220 0.0247 0.0220 0.0247 0.0220 0.0247 0.0220 0.0247 0.0220 0.0247 0.0220 0.025 0.0048 0.0068 0.0068 0.0068 0.0068 0.0068 0.0035 0.0025 0.0035	0.1436 0.1800 D2 MALIZED 0.0019 0.0038 0.0061 0.0038 0.0061 0.0109 0.0109 0.0109 0.0109 0.0293 0.0267 0.0275 0.0264 0.0258 0.0244 0.0200 0.0112 0.0185 0.0112 0.0185 0.0112 0.0185 0.0112 0.0185 0.0112 0.0070 0.00687 0.0041 0.0028 0.0041 0.0028 0.0006	0.1436 0.1800 CROSS CI VALUE ** 0.6006 0.0618 0.0039 0.0143 0.6147 0.6220 0.6230 0.0143 0.6147 0.6220 0.6230 0.0197 0.6219 0.0219 0.0219 0.0219 0.0219 0.0207 0.0207 0.0209 0.0155 0.0099 0.0135 0.0099 0.0135 0.0012 0.0015 0.0015 0.0015 0.0003 0.0003 0.0002 0.0003 0.0002 0.0003	DHERENCY *** 0.1035 C.2756 C.4639 0.6101 0.6076 C.6692 0.7162 0.6950 0.7501 0.6472 0.6472 0.6472 0.5884 0.5683 0.4724 0.4187 0.2763 0.2841 0.1943 C.0256 0.0566 0.0556
WG(LB/SEC) WL(LB/SEC) CELL FREQ.(CPS) 0.18 0.67 1.13 1.65 2.14 2.63 3.11 3.60 4.58 5.07 5.55 6.52 7.51 8.48 9.46 11.41 13.37 15.81 18.25 .22.64 25.08 27.53 30.46 34.85 40.22 50.46	0.1436 0.1260 B1 ***** NO 0.0015 0.0032 0.0054 0.0075 0.0079 0.0194 0.0197 0.0240 0.0240 0.0240 0.0238 0.0240 0.0226 0.0238 0.0249 0.0226 0.0238 0.0249 0.0226 0.0238 0.0249 0.0226 0.0238 0.0249 0.0226 0.0238 0.0249 0.0226 0.0238 0.0249 0.0226 0.0238 0.0276 0.0276 0.0276 0.0276 0.0150 0.0150 0.0176 0.0078 0.0078 0.0076 0.0076 0.0051 0.0008 0.0008 0.0008	0.1436 0.1280 D2 RMALIZED 0.0019 0.0042 0.0055 0.0083 0.0155 0.0226 0.0226 0.0226 0.0245 0.0245 0.0245 0.0245 0.0245 0.0245 0.0228 0.0210 0.0218 0.0214 0.0218 0.0214 0.0214 0.0214 0.0214 0.0214 0.0113 0.0111 0.0018 0.0049 0.0049 0.0048 0.0058 0.0058 0.0058 0.0058 0.0058 0.0058 0.0058	0.1436 0.1260 CROSS CO VALUE *** 0.00025 0.0025 0.0025 0.0025 0.0025 0.0025 0.0025 0.0025 0.0025 0.0025 0.0123 0.0141 0.0141 0.0141 0.0141 0.0179 0.0210 0.0179 0.0288 0.0176 0.0182 0.0182 0.0182 0.0148 0.0086 0.0288 0.0178 0.0182 0.0148 0.0086 0.0262 0.0029 0.0029 0.0029 0.0029 0.0029 0.0029 0.0029 0.0029 0.0029 0.0029 0.0025 0.0029 0.0025 0.0029 0.0025 0.0029 0.0025 0.0029 0.0029 0.0029 0.0029 0.0029 0.0029 0.0029 0.0029 0.0029 0.0029 0.0029 0.0029 0.0029 0.0029 0.0020 0.0028 0.0028 0.0182 0.0029 0.0025 0.0028 0.0182 0.0025 0.0029 0.0028 0.0182 0.0029 0.0029 0.0028 0.0029 0.0028 0.0028 0.0029 0.0028 0.0029 0.0028 0.0029	DHERENCY *** 0.1791 0.4592 0.4716 0.5454 0.5454 0.5454 0.5454 0.5456 0.6632 0.5970 0.6363 0.6649 0.7230 0.5279 0.3800 0.5279 0.3800 0.5279 0.3800 0.5279 0.3800 0.5249 0.5279 0.3800 0.4231 0.1889 0.2098 0.1188 0.01889 0.2098 0.1188 0.0231 0.056C 0.0235 0.0489 0.0326 0.0776 0.0432	0.1436 0.1800 B1 ***** N05 0.0031 0.0053 0.0053 0.0067 0.0123 0.0165 0.0165 0.0165 0.0239 0.0265 0.0259 0.0246 0.0246 0.0247 0.0043 0.0035 0.0035 0.0025 0.0044	0.1436 0.1800 D2 MALIZED 0.0019 0.0038 0.0061 0.0038 0.0061 0.0109 0.0109 0.0109 0.0109 0.0293 0.0267 0.0275 0.0264 0.0266 0.0258 0.0244 0.0200 0.0112 0.0185 0.0112 0.0185 0.0112 0.0185 0.0112 0.0185 0.0112 0.0070 0.0066 0.0049 0.0041 0.0028 0.0006 0.0006 0.0006	0.1436 0.1800 CROSS CI VALUE ** 0.6006 0.0618 0.0039 0.0143 0.6147 0.6220 0.6230 0.0143 0.6219 0.0219 0.0219 0.0219 0.0207 0.0207 0.0207 0.0207 0.0159 0.0159 0.0155 0.0099 0.0156 0.0012 0.0056 0.0012 0.0056 0.0003 0.0050 0.0003 0.00601 0.0001	DHERENCY *** D.1035 C.2756 C.4639 O.6101 D.6076 C.6692 D.7162 D.6950 U.7501 D.6472 D.6736 O.6612 D.5884 D.5683 D.4724 D.4187 D.2763 D.2841 D.1943 C.0256 D.0566 D.05566 D.05566 D.05566 D.05566 D.05566 D.05566 D.05566 D.05566 D.05566 D.05566 D.05566 D.05566 D.0254 D.02556 D.02556 D

. . .

• •

									· · ·
NGLE	B/SEC)	6.1436	0.1436	0.1436		0.1436	0.1436	0.1436	
WL(L	B/SEC)	0.2400	(.2400	6.2400		0.3500	0.3500	0.3500	
C I	FII	81	D2	CROSS CO	THERENCY	61	02	CROSS CI	HERENCY
EDEN	10051	***** \ ()D		VALUE ###	***	*****			***
FACQ	• (CF37	- + + + + - 13 Ur	NHALILLU D. D. D.	- ALUC + M		+++++ NOR		ALOL II	0 10 20
	0.10	0.0019	0.0020	J.0311	0.2421;	0.0018	0-0019	0.0006	0.1020
	C•67	0.0033	0.0038	0.0020	0.3372	0.0031	0.037	0.0018	5.2910
	1.15	6.0048	0.0063	0.0041	6.5578	0.0051	ë <b>.</b> 0∿58	0.0040	0.5272
	1.65	0.0105	0.0112	0.0093	0.7251	0.0079	0.0083	0.0065	0.6534
	2.14	0.0133	0.0157	0.0120	0.6925	0.0137	0.0120	0.0109	0.7237
	2.63	0.0165	0.0186	0.0147	0.7026	0 0187	6.6189	0.0161	0.7321
	2.05	6427	0.0260	0.0254	0 7702	( ( ) ) (	5 0100	0.0165	0 7974
	2.11	0.0221	0.0240	0.0200	0.1193	0.0100	0.0192	0.0155	0.7(77
	3.6.	0.0295	0.0214	0.0253	0.7903	0.0213	0.0197	0.0179	0.7055
	4.09	C.0250	0.0256	0.9209	0.6822	ú.0274	0.0285	0.0255	0.1969
	4.58	0.0287	J.0267	0.0231	0.6948	0.0351	0.0356	0.0320	0.8201
	5.07	0.0301	0.0327	0.0257	0.6736	0.0405	0.0354	0.0330	C.7546
	5.55	0.0322	0.0324	0.0263	0.6891	0.0357	0.0353	0.0321	0.7939
	6.53	0-0325	0.0316	0.0270	6.7119	0.6329	0.0253	0.0242	0.7056
	7 51	0 0279	0.0280	0.0215	0.5932	0 0271	0.0286	0.0229	0.6748
		0.0217	0.0200	2 2121	5077	0.0211	0.0200	6 0200	0.5950
-	8.43	0.0200	0.0230	0.0191	0.3770	0.0271	0.0270	0.0209	0.5933
	9.46	0.0245	0.0219	0.0142	0.3110	0.0283	0.0212	0.0214	0.5962
	11.41	0.0180	0.0190	0.0117	0.4010	č.0221	0.0208	0.0145	0.4582
	13.37	0.0183	0.0158	0.0088	0.2708	0.0162	0.0158	0.0092	0.3331
	15.81	0.0145	0.0131	0.0063	0.2057	0.0159	0.0163	0.0087	0.2908
	18.25	0.0131	0.0110	0.0040	0.1082	0.0094	0.0105	0.0041	0.1715
	22.64	0.0087	0.0107	0.0027	0.0805	0.0177	0.0082	0.0027	0.1159
	25 00	0 0044	0.0055	0.0007	0.0147	0.0044	0.0002	0.0019	0.0729
	27.50		0.0053	0.0001	0.0516	0.0004		0.0010	0 0 1 2 7
	21.000	0.0057	0.0000	0.0012	0.0513	0.0056	0.0052	0.0011	0.0444
	30+45	0.0043	0.0045	0.0011	0.0513	0.0034	0.0041	0.0007	0.0379
	34.85	u.0u29	0.0035	0.0006	0.0403	<b>0.003</b> €	0.0034	0.0008	0.0650
	40.22	C.Oul8	0.0021	0.0004	0.0397	6.0018	0.0024	0.0004	0.0394
	50.48	6.0009	0.0014	0.0002	0.0420	6.0010	0.0011	0.0052	0.0341
	60.24	0.0004	0.0005	0.0001	0.0335	0.0004	0.0005	0.0001	0.0237
	70.01	0.0003	0.0003	0.0001	0.0769	- 0.0002	0.0003	0.0000	0.0113
	80.26	0.0001	0.0002	0.0000	0.0107	0.0001	0.0002	0.0000	0.0121
WG(L	8/SEC)	6.1436	0.1436	0.1436	ŀ	0.1436	0.1436	0.1436	-
WG(L WL(L	8/SEC) B/SEC)	6.1436 6.4700	0.1436	0.1436 0.4700		0.1436	0.1436 0.5850	0.1436	-
WG(L WL(L C	8/SEC) B/SEC) ELL	6.1436 6.4700 B1	0.1436 0.4700 D2	0.1436 0.4700 CROSS CH	OHERENCY	0.1436 0.5850 B1	0.1436 0.5850 D2	0.1436 0.5850 CROSS C	OHERENCY
WG(L WL(L C Freq	8/SEC) B/SEC) ELL •(CPS)	6.1436 6.4700 Bl ***** NO	0.1436 0.4700 D2 RMALIZED	0.1436 0.4700 CROSS CU VALUE **	OHERENCY	0.1436 0.5850 B1 **** ND	0.1436 0.5850 D2 RMALIZED	0.1436 0.5850 CRUSS C VALUE **	OHERENCY
WG(L WL(L C Freq	8/SEC) B/SEC) ELL .(CPS) 0.18	6.1436 6.4700 Bl ***** NO: 0.3015	0.1436 0.4700 D2 RMALIZED 0.0015	0.1436 0.4700 CROSS CI VALUE *** 0.0007	OHERENCY *** C.1795	0.1436 0.5850 B1 ***** ND C.0C23	0.1436 0.5850 D2 RMALIZED 0.0022	0.1436 0.5850 CRUSS C VALUE ** 0.0011	DHERENCY *** 0•2266
WG(L WL(L C Freq	8/SEC) B/SEC) ELL •(CPS) U-18 0.67	6.1436 6.4700 Bl ***** NO 0.0015 0.0037	0.1436 0.4700 D2 RMALIZED 0.0015 0.0034	0.1436 0.4700 CROSS CI VALUE ** 0.0037 0.0022	OHERENCY *** C.1795 C.3797	0.1436 0.5850 B1 ***** ND C.0C23 0.0036	0.1436 0.5850 D2 RMALIZED 0.0022 0.0034	0.1436 0.5850 CRUSS C VALUE ** 0.0011 0.0020	0HERENCY *** 0•2266 0•3362
WĠ(L WL(L C Freq	8/SEC) B/SEC) ELL •(CPS) U-18 U-18 U-67 1.10	C.1436 C.4700 Bl ***** NO U.3015 O.0037 Ù.0056	0.1436 0.4700 D2 RMALIZED 0.0016 0.0034 0.0064	0.1436 0.4700 CROSS CI VALUE ** 0.0007 0.0022 0.0045	OHERENCY *** C.1795 C.3797 O.5715	0.1436 0.5850 B1 ***** ND C.0C23 0.0036 0.0053	0.1436 0.5850 D2 RMALIZED 0.0022 0.0034 0.0058	0.1436 0.5850 CRUSS C VALUE ** 0.0011 0.0020 0.0C41	DHERENCY *** 0.2266 0.3362 0.5418
WG(L WL(L C Freq	8/SEC) B/SEC) ELL •(CPS) 0.18 0.67 1.10 1.65	C.1436 C.4700 Bl ***** NO U.3015 O.0037 U.0056 O.0074	0.1436 0.4700 D2 RMALIZED 0.0015 0.0034 0.0064 0.0076	0.1436 0.4700 CROSS CI VALUE ** 0.0007 0.0022 0.0045 0.0058	OHERENCY *** 0.3797 0.5715 0.5940	0.1436 0.5850 B1 ***** ND C.0C23 0.0036 0.0053 C.0092	0.1436 0.5850 D2 RMALIZED 0.0022 0.0034 0.0058 0.0082	0.1436 0.5850 CRUSS C VALUE ** 0.0011 0.0020 0.0C41 0.0070	DHERENCY *** 0.2266 0.3362 0.5418 0.5506
WG(L WL(L C Freq	8/SEC) B/SEC) ELL .(CPS) U.18 0.67 1.10 1.65 2.14	C.1436 C.4700 Bl ****** NO U.3C15 O.C037 U.0056 O.0074 C.0124	0.1436 0.4700 D2 RMALIZED 0.0015 0.0034 0.0064 0.0076 0.0113	0.1436 0.4700 CROSS CI VALUE ** 0.0037 0.0022 0.0045 0.0058 0.0101	OHERENCY *** 0.3797 0.5715 0.5940 0.7296	0.1436 0.5850 B1 ***** ND C.0C23 0.0036 0.0053 C.0092 0.0111	0.1436 0.5850 D2 RMALIZED 0.0022 0.0034 0.0058 0.0058 0.0082 0.0099	0.1436 0.5850 CRUSS C VALUE ** 0.0011 0.0020 0.0C41 0.0070 0.0070 0.0090	0HERENCY **** 0.2266 0.3362 0.5418 0.5508 0.5508 0.7354
WG(L WL(L C FREQ	8/SEC) B/SEC) ELL •(CPS) 0.18 0.67 1.10 1.65 2.14 2.63	6.1436 6.4700 B1 ***** N0 0.0015 0.0037 0.0056 0.0074 6.0124 0.0185	0.1436 0.4700 D2 RMALIZED 0.0016 0.0034 0.0064 0.0076 0.0113 0.0188	0.1436 0.4700 CROSS CI VALUE ** 0.0037 0.0022 0.0045 0.0058 0.0160	DHERENCY *** 0.1795 0.5715 0.5715 0.5940 0.7296 0.7321	0.1436 0.5850 B1 ***** ND C.0C23 0.0036 0.0353 C.0092 0.0111 C.0124	0.1436 0.5850 D2 RMALIZED 0.0022 0.0034 0.0058 0.0082 0.0099 0.00120	0.1436 0.5850 CRUSS C VALUE ** 0.0011 0.0020 0.0C41 0.0070 0.0090 0.0094	DHERENCY **** 0.2266 0.3362 0.5418 0.5506 0.7354 0.5877
WG(L WL(L C FREQ	8/SEC) B/SEC) ELL •(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11	C.1436 C.4700 B1 ***** NO U.JC15 O.C037 U.0056 O.0074 C.0124 O.0185 C.U232	0.1436 0.4700 D2 RMALIZED 0.0016 0.0034 0.0064 0.0076 0.0113 0.0188 0.0210	0.1436 0.4700 CROSS CI VALUE ** 0.0037 0.0022 0.0045 0.0058 0.0158 0.0160 0.0198	OHERENCY *** 0.3797 0.5715 0.5940 0.7296 0.7321 0.6033	0.1436 0.5850 B1 ***** ND C.0C23 0.0036 0.0353 C.0092 0.0111 C.0124 0.C186	0.1436 0.5850 D2 RMALIZED 0.0022 0.0034 0.0058 0.0082 0.0082 0.0099 0.0120 0.0200	0.1436 0.5850 CRUSS C VALUE ** 0.0011 0.0020 0.00241 0.0070 0.0090 0.0094 0.0171	DHERENCY **** 0.2266 0.3362 0.5418 0.5506 0.7354 0.5877 0.7857
WG(L WL(L C Freq	8/SEC) B/SEC) ELL •(CPS) 0.18 0.67 1.10 1.65 2.14 2.63 3.11 3.65	C.1436 C.4700 B1 ***** NO U.3015 O.0037 U.0056 C.0074 C.0124 C.0124 C.0125 C.0232 C.0278	0.1436 0.4700 D2 RMALIZED 0.0015 0.0034 0.0064 0.0076 0.0113 0.0188 0.0210 0.0291	0.1436 0.4700 CROSS CI VALUE ** 0.0037 0.0022 0.0045 0.0058 0.0160 0.0198 0.0254	OHERENCY *** C.1795 C.3797 O.5715 C.5940 O.7296 O.7296 O.7321 U.6033 O.7989	0.1436 0.5850 B1 ***** ND C.0C23 0.0036 U.0353 C.0092 U.0111 C.0124 0.C186 U.0244	0.1436 0.5850 D2 RMALIZED 0.0022 0.0034 0.0058 0.0082 0.0099 0.0120 0.0120 0.0262	0.1436 0.5850 CRUSS C VALUE ** 0.0011 0.0020 0.0041 0.0070 0.0090 0.0094 0.0171 0.0218	DHERENCY **** 0.2266 0.3362 0.5418 0.5506 0.7354 0.5877 0.7857 0.8047
WG(L WL(L C FREQ	8/SEC) B/SEC) ELL •(CPS) 0.18 0.67 1.10 1.65 2.14 2.63 3.11 3.60 4.09	6.1436 0.4700 B1 ***** NO 0.0015 0.0037 0.0056 0.0074 0.0124 0.0185 0.0278 0.0278 0.0278	0.1436 0.4700 D2 RMALIZED 0.0016 0.0034 0.0064 C.0076 C.0113 0.0188 0.0210 C.0291 0.0298	0.1436 0.4700 CROSS CI VALUE ** 0.0037 0.0022 0.0045 0.0058 0.0160 0.0198 0.0254 0.0268	OHERENCY *** 0.3797 0.5715 0.5940 0.7296 0.7321 0.6033 0.7989 0.7975	0.1436 0.5850 B1 ***** ND C.0C23 0.0036 0.0053 C.0092 0.0111 C.0124 0.0126 0.0244 C.0326	0.1436 0.5850 D2 RMALIZED 0.0022 0.0034 0.0058 0.0082 0.0099 0.0120 0.0200 0.0242 0.0317	0.1436 0.5850 CRUSS C VALUE ** 0.0011 0.0020 0.00241 0.0070 0.0090 0.0094 0.0171 0.0218 0.6277	DHERENCY **** 0.2266 0.3362 0.5418 0.5548 0.5546 0.7354 0.5877 0.8047 0.2894
WG(L WL(L C FREQ	8/SEC) B/SEC) ELL •(CPS) 0.18 0.67 1.10 1.65 2.14 2.63 3.11 3.63 4.09 4.59	C.1436 C.4700 B1 ***** NO U.3015 O.0037 U.0056 O.0074 C.0124 O.0185 C.0232 C.0278 C.0278 C.0313	0.1436 0.4700 D2 RMALIZED 0.0016 0.0034 0.0064 0.0076 0.0113 0.0188 0.0210 0.0291 0.0298	0.1436 0.4700 CROSS CI VALUE ** 0.0007 0.0022 0.0045 0.0058 0.0160 0.0198 0.0254 0.0254 0.0268 0.0275	OHERENCY *** 0.3797 0.5715 0.5940 0.7296 0.7321 0.6033 0.7989 0.7975 0.8223	0.1436 0.5850 B1 ***** ND C.0C23 0.0036 0.0053 C.0092 0.0111 C.0124 0.0126 0.0244 C.0306 (.0306	0.1436 0.5850 D2 RMALIZED 0.0022 0.0034 0.0058 0.0082 0.0099 0.0120 0.0242 0.0242 0.0317 0.0317	0.1436 0.5850 CRUSS C VALUE ** 0.0011 0.0020 0.00241 0.0070 0.0090 0.0094 0.0171 0.0218 0.0277 0.0265	DHERENCY **** 0.2266 0.3362 0.5418 0.5506 0.7354 0.5877 0.8047 0.7894 0.7851
WG(L WL(L FREQ	8/SEC) B/SEC) ELL •(CPS) 0.18 0.67 1.10 1.65 2.14 2.63 3.11 3.63 4.09 4.58	6.1436 6.4700 B1 ***** NO 0.0037 0.0056 0.0074 0.0124 0.0185 0.0232 6.0278 C.0302 0.0311 0.0311	0.1436 0.4700 D2 RMALIZED 0.0016 0.0034 0.0064 0.0076 0.0113 0.0188 0.0291 0.0291 0.0293 0.0295	0.1436 0.4700 CROSS CI VALUE ** 0.0037 0.0022 0.0045 0.0058 0.0101 0.0160 0.0198 0.0254 0.0268 C.0275 C.0291	OHERENCY *** 0.1795 0.5715 0.5940 0.7296 0.7321 0.6033 0.7989 0.7975 0.8223 C 7864	0.1436 0.5850 B1 ***** ND C.0C23 0.0036 0.0353 C.0092 0.0111 C.0124 0.0186 0.0244 C.0306 C.0300	0.1436 0.5850 D2 RMALIZED 0.0022 0.0034 0.0058 0.0082 0.0099 0.0120 0.0209 0.0120 0.0242 0.0242 0.0317 0.0297	0.1436 0.5850 CRUSS C VALUE ** 0.0011 0.0020 0.00241 0.0070 0.0090 0.0094 0.0171 0.0218 0.6277 0.0265	0HERENCY **** 0.2266 0.3362 0.5418 0.5506 0.7354 0.5877 0.7857 0.8047 0.7891 0.7851
WG(L WL(L C FREQ	8/SEC) B/SEC) ELL •(CPS) 0.67 1.10 1.65 2.14 2.63 3.11 3.60 4.09 4.58 5.07	6.1436 0.4700 B1 ***** NO 0.0037 0.0056 0.0074 0.0124 0.0185 0.0232 0.0278 0.0302 0.0311 0.0314 0.036	0.1436 0.4700 D2 RMALIZED 0.0016 0.0034 0.0064 0.0076 0.0113 0.0188 0.0210 0.0291 0.0298 0.0295 0.0342	0.1436 0.4700 CROSS CU VALUE **: 0.0037 0.0022 0.0045 0.0058 0.0101 0.0160 0.0198 0.0254 0.0268 C.0275 C.0291	OHERENCY *** 0.1795 0.5715 0.5940 0.7296 0.7321 0.6033 0.7989 0.7975 0.8223 C.7864 C.7864	0.1436 0.5850 B1 ***** ND C.0C23 0.0036 0.0353 C.0092 0.011 C.0124 0.0124 0.0124 0.0124 0.0124 0.0244 C.0306 0.0356	0.1436 0.5850 D2 RMALIZED 0.0022 0.0034 0.0058 0.0082 0.0099 0.0120 0.0242 0.0242 0.0242 0.0317 0.0297 0.0317	0.1436 0.5850 CRUSS C VALUE ** 0.0011 0.0020 0.0C41 0.0070 0.0090 0.0094 0.0171 0.0218 0.0277 0.0265 0.0325	DHERENCY **** 0.2266 0.3362 0.5418 0.5506 0.7354 0.5877 0.7357 0.8047 0.7894 0.7891 0.7900
WG(L WL(L C FREQ	8/SEC) B/SEC) ELL •(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.11 3.63 4.09 4.58 5.07 5.55	C.1436 C.4700 B1 ***** NO U.J015 O.0037 U.0056 O.0074 C.0124 O.0185 C.0232 C.0278 C.0278 C.0278 C.0302 O.0311 O.C314 O.0350	0.1436 0.4700 D2 RMALIZED 0.0016 0.0034 0.0064 0.0076 0.0113 0.0188 0.0210 0.0291 0.0298 0.0295 0.0342 0.0342	0.1436 0.4700 CROSS CI VALUE ** 0.0037 0.0022 0.0045 0.0058 0.0101 0.0160 0.0198 0.0254 0.0268 C.0275 C.0291 0.0296	OHERENCY *** C.1795 C.3797 O.5715 C.5940 O.7296 O.7321 O.6033 O.7989 O.7975 O.8223 C.7864 C.7784	0.1436 0.5850 B1 ***** ND C.0023 0.0036 0.0053 C.0092 0.0111 C.0124 0.0124 0.0124 0.0124 0.0124 0.0124 0.0124 0.0124 0.0124 0.0126 0.0244 C.0305 0.0356 0.0404	0.1436 0.5850 D2 RMALIZED 0.0022 0.0034 0.0058 0.0058 0.00582 0.0099 0.0120 0.0209 0.0120 0.0242 0.0217 0.0297 0.0317 0.0297 0.0317	0.1436 0.5850 CRUSS C VALUE ** 0.0011 0.0020 0.00241 0.0070 0.0090 0.0094 0.0171 0.0218 0.0277 0.0265 0.6325 0.0374	DHERENCY ++++ 0.2266 0.3362 0.5418 0.55418 0.55418 0.7354 0.7354 0.7357 0.8047 0.7894 0.7851 0.7900 0.8251
WG(L WL(L C FREQ	8/SEC) B/SEC) ELL •(CPS) 0.18 0.67 1.10 1.65 2.14 2.63 3.11 3.65 4.09 4.58 5.07 5.55 6.53	C.1436 C.4700 B1 ***** NO U.JC15 O.C037 U.0056 O.0074 C.0124 O.0185 C.U232 C.U278 C.U278 C.U278 C.0302 O.0311 O.C314 O.0350 O.0385	0.1436 0.4700 D2 RMALIZED 0.0016 0.0034 0.0064 0.0076 0.0113 0.0188 0.0210 0.0291 0.0298 0.0295 0.0342 0.0342 0.0344	0.1436 0.4700 CROSS CI VALUE ** 0.0037 0.0022 0.0045 0.0058 0.0160 0.0198 0.0254 0.0268 C.0275 C.0291 0.0296 0.0296 0.0311	OHERENCY *** C.1795 C.3797 O.5715 C.5940 O.7296 O.7321 O.6033 O.7989 O.7975 O.8223 C.7864 C.7784 O.7224	0.1436 0.5850 B1 ***** ND C.0C23 0.0036 0.0353 C.0092 0.0111 C.0124 0.0126 0.0126 0.0244 C.0305 0.0356 0.0356 0.0404 0.0285	0.1436 0.5850 D2 RMALIZED 0.0022 0.0034 0.0058 0.0082 0.0099 0.0120 0.0209 0.0120 0.0242 0.0242 0.0317 0.0297 0.0317 0.0297 0.0315 C.0419 0.0286	0.1436 0.5850 CRUSS C VALUE ** 0.0011 0.0020 0.00241 0.0070 0.0090 0.0094 0.0171 0.0218 0.0277 0.0265 0.0325 0.0374 0.0234	DHERENCY **** 0.2266 0.3362 0.5418 0.5506 0.7354 0.5877 0.7857 0.8047 0.7854 0.7851 0.7900 0.8251 0.6855
WG(L WL(L C FREQ	8/SEC) B/SEC) ELL •(CPS) 0.18 0.67 1.10 1.65 2.14 2.63 3.11 3.65 4.09 4.58 5.07 5.55 6.53 7.51	C.1436 C.4700 B1 ***** NO U.3015 O.0037 U.0056 C.0074 C.0124 O.0185 C.0232 C.0278 C.0302 C.0311 O.C314 O.0350 O.0388 O.0295	0.1436 0.4700 D2 RMALIZED 0.0015 0.0034 0.0064 0.0113 0.0118 0.0210 0.0291 0.0298 0.0295 0.0342 0.0342 0.0344 0.0278	0.1436 0.4700 CROSS CI VALUE ** 0.0037 0.0022 0.0045 0.0160 0.0160 0.0198 0.0254 0.0268 C.0275 C.0291 0.0296 0.0311 C.0225	OHERENCY *** C.1795 C.3797 O.5715 C.5940 O.7296 O.7296 O.7321 O.6033 O.7989 O.7975 O.8223 C.7864 O.7784 O.7224 O.6136	0.1436 0.5850 B1 ***** ND C.0C23 0.0036 U.0353 C.0092 U.0111 C.0124 0.0124 0.0124 C.0244 C.0306 C.0244 C.0306 C.0330 0.0356 U.0404 C.028J C.0372	0.1436 0.5850 D2 RMALIZED 0.0022 0.0034 0.0058 0.0082 0.0099 0.0120 0.0120 0.0242 0.0242 0.0317 0.0297 0.0317 0.0297 0.0315 C.0419 0.0286 C.0305	0.1436 0.5850 CRUSS C VALUE ** 0.0011 0.0020 0.00241 0.0070 0.0094 0.0171 0.0218 0.6277 0.0265 0.6325 0.0374 0.0234 0.0287	DHERENCY **** 0.2266 0.3362 0.5418 0.5506 0.7354 0.7354 0.7857 0.8047 0.7894 0.7894 0.7851 0.7900 0.8251 0.6855 0.7247
WG(L WL(L FREQ	8/SEC) B/SEC) ELL •(CPS) •(	C.1436 C.4700 B1 ***** NO U.3015 O.0037 U.0056 C.0074 C.0124 C.0124 C.0124 C.0125 C.0278 C.0278 C.0278 C.0302 C.0311 O.C314 O.0350 O.0388 O.0295 O.0261	0.1436 0.4700 D2 RMALIZED 0.0016 0.0034 0.0064 0.0113 0.0188 0.0210 0.0291 0.0298 0.0295 0.0342 0.0342 0.0344 0.0278 0.0278 0.0273	0.1436 0.4700 CROSS CI VALUE ** 0.0037 0.0022 0.0045 0.0160 0.0160 0.0198 0.0254 0.0268 C.0275 C.0291 0.0296 0.0311 0.0225 0.0216	OHERENCY *** C.1795 C.3797 O.5715 C.5940 O.7296 O.7321 O.6033 O.7989 O.7975 O.8223 C.7864 C.7784 O.7224 O.6136 C.6543	0.1436 0.5850 B1 ***** ND C.0C23 0.0036 U.0353 C.0092 U.0111 C.0124 0.0124 0.0124 C.0305 U.0305 C.0305 U.03056 U.03056 U.03056 U.03056 U.03056 U.03056 U.0404 C.0280 C.0372 D.0269	0.1436 0.5850 D2 RMALIZED 0.0022 0.0034 0.0058 0.0082 0.0099 0.0120 0.0242 0.0242 0.0317 0.0297 0.0375 C.0419 0.0286 C.0305 0.0267	0.1436 0.5850 CRUSS C VALUE ** 0.0011 0.0020 0.00241 0.0070 0.0094 0.0171 0.0218 0.0277 0.0265 0.0325 0.0374 0.0234 0.0234 0.0287 0.0206	DHERENCY **** 0.2266 0.3362 0.5418 0.5506 0.7354 0.5877 0.8047 0.7894 0.7894 0.7891 0.7851 0.8251 0.6855 0.7247 0.5908
WG(L WL(L C FREQ	8/SEC) B/SEC) ELL •(CPS) 0.67 1.10 1.65 2.14 2.63 3.11 3.6 4.09 4.58 5.07 5.55 6.53 7.51 8.45 9.46	C.1436 C.4700 B1 ***** NO U.JC15 O.0037 U.0056 O.0074 C.0124 O.0185 C.0232 C.0278 C.0278 C.0302 C.0311 O.C314 O.0350 O.0388 C.0295 O.0261 O.0261 O.0296	0.1436 0.4700 D2 RMALIZED 0.0015 0.0034 0.0064 0.0064 0.0076 0.0113 0.0188 0.0210 0.0291 0.0298 0.0242 0.0342 0.0344 0.0278 0.0278 0.0236	0.1436 0.4700 CROSS CU VALUE **: 0.0037 0.0022 0.0045 0.0058 0.0160 0.0198 0.0254 0.0268 C.0275 C.0291 0.0291 0.0296 0.0311 C.0225 0.0216 0.0203	OHERENCY *** C.1795 C.5715 C.5940 O.7296 O.7321 O.6033 O.7989 O.7975 O.8223 C.7864 O.7224 O.7224 O.7224 O.6136 C.6543 O.5879	0.1436 0.5850 B1 ***** ND C.0C23 0.0036 0.0353 C.0092 0.0111 C.0124 0.0124 0.0126 0.0244 C.0306 C.0305 C.0306 C.0305 0.0356 0.0404 C.0280 0.0372 0.0269 C.C244	0.1436 0.5850 D2 RMALIZED 0.0022 0.0034 0.0058 0.0058 0.0099 0.0120 0.0242 0.0242 0.0242 0.0317 0.0297 0.0317 0.0297 0.0317 0.0297 0.0317 0.0297 0.0267 0.0267 0.0273	0.1436 0.5850 CRUSS C VALUE ** 0.0011 0.0020 0.0041 0.0070 0.0090 0.0094 0.0171 0.0218 0.0277 0.0265 0.0374 0.0234 0.0234 0.0234 0.0234 0.0234	DHERENCY ++++ 0.2266 0.3362 0.5418 0.5506 0.7354 0.5877 0.8047 0.7854 0.7854 0.7851 0.6855 0.7247 0.5908 0.5404
WG(L WL(L C FREQ	8/SEC) B/SEC) ELL •(CPS) 0.18 0.67 1.165 2.63 3.11 3.65 2.63 3.11 3.65 4.09 4.58 5.07 5.55 6.53 7.51 8.45 9.46 11.41	C.1436 C.4700 B1 ***** NO U.J015 O.0037 U.0056 O.0074 C.0124 O.0185 C.0232 C.0278 C.0278 C.0302 C.0311 O.C314 O.0350 O.0388 O.0295 C.0251 O.C296 C.0229	0.1436 0.4700 D2 RMALIZED 0.0016 0.0034 0.0064 0.0076 0.0113 0.0188 0.0210 0.0298 0.0295 0.0342 0.0342 0.0342 0.0344 0.0278 0.0278 0.0236 0.0205	0.1436 0.4700 CROSS CI VALUE **: 0.0037 0.0022 0.0045 0.0058 0.0101 0.0160 0.0198 0.0254 0.0268 C.0275 C.0291 0.0296 0.0216 0.0215 0.0216	OHERENCY *** C.1795 C.5715 C.5940 O.7296 O.7321 O.6033 O.7989 O.7975 O.8223 C.7864 O.7784 O.7224 O.6136 C.6543 O.5873 O.5213	0.1436 0.5850 B1 ***** ND C.0C23 0.0036 0.0353 C.0092 0.011 C.0124 0.0124 0.0124 0.0124 0.0124 0.0124 0.0244 C.0306 0.0305 0.0356 0.0404 0.0280 0.0372 0.0269 C.0244 0.0230	0.1436 0.5850 D2 RMALIZED 0.0022 0.0034 0.0058 0.0082 0.0099 0.0120 0.0242 0.0242 0.0217 0.0297 0.0317 0.0297 0.0317 0.0297 0.0305 0.0267 0.0273 0.0199	0.1436 0.5850 CRUSS C VALUE ** 0.0011 0.0020 0.0C41 0.0070 0.0090 0.0094 0.0171 0.0218 0.0277 0.0265 0.0374 0.0234 0.0234 0.0234 0.0234 0.0206 0.0140	DHERENCY ++++ 0.2266 0.3362 0.5418 0.55418 0.55418 0.55877 0.5877 0.7354 0.7354 0.7851 0.7851 0.6855 0.7245 0.5908 0.5908 0.5404 0.4285
WG(L WL(L C FREQ	8/SEC) B/SEC) ELL •(CPS) 0.18 0.67 1.16 1.65 2.14 2.63 3.61 3.65 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37	C.1436 C.4700 B1 ***** NO U.J015 O.C037 U.0056 O.0074 C.0124 O.0185 C.U232 C.U232 C.0278 C.0278 C.0278 C.0278 C.0302 O.0311 O.C314 C.0350 O.0388 O.0295 O.0261 O.C296 C.0229 C.0193	0.1436 0.4700 D2 RMALIZED 0.0016 0.0034 0.0064 0.0076 0.0113 0.0188 0.0210 0.0298 0.0295 0.0342 0.0342 0.0342 0.0342 0.0342 0.0342 0.0342 0.0342 0.0342 0.0342 0.0278 0.0278 0.0236 0.025 0.0177	0.1436 0.4700 CROSS CI VALUE ** 0.0037 0.0022 0.0045 0.0058 0.0160 0.0198 0.0254 0.0268 C.0275 C.0291 0.0296 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0225 0.0216 0.0203 0.0156 0.0112	OHERENCY *** C.1795 C.3797 O.5715 C.5940 O.7296 O.7321 O.6033 O.7989 O.7975 O.8223 C.7864 C.7784 O.6136 C.6543 O.6136 C.6543 O.5878 O.5213 O.3682	0.1436 0.5850 B1 ***** ND C.0023 0.0036 0.0053 C.0092 0.0111 C.0124 0.0124 0.0124 0.0124 0.0124 0.0124 0.0124 0.0244 C.0305 0.0356 0.0356 0.0404 C.0280 0.0372 0.0269 C.0244 C.0230 0.0189	0.1436 0.5850 D2 RMALIZED 0.0022 0.0034 0.0058 0.0082 0.0099 0.0120 0.0209 0.0120 0.0242 0.0217 0.0297 0.0317 0.0297 0.0317 0.0297 0.0242 0.0305 0.0267 0.0273 0.0199 0.0173	0.1436 0.5850 CRUSS C VALUE ** 0.0011 0.0020 0.00241 0.0070 0.0090 0.0094 0.0171 0.0218 0.0277 0.0265 0.0325 0.0374 0.0234 0.0234 0.0234 0.0234 0.0234 0.0234 0.0234 0.0206 0.0190 0.0140 0.0113	DHERENCY 0.2266 0.3362 0.5418 0.55418 0.55418 0.55877 0.7354 0.7354 0.7354 0.7851 0.7851 0.6855 0.7247 0.5908 0.55404 0.5908 0.5404 0.4280 0.3917
WG(L WL(L FREQ	8/SEC) B/SEC) ELL •(CPS) 0.18 0.67 1.10 1.65 2.14 2.63 3.61 3.65 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81	C.1436 C.4700 B1 ***** NO U.JC15 O.C037 U.0056 O.0074 C.0124 O.0185 C.U232 C.U278 C.U278 C.U278 C.U278 C.U278 C.U278 C.U278 C.U278 C.U278 C.U278 C.U278 C.U278 C.U278 C.U285 C.U285 C.U295 C.U296 C.U293 C.U193 O.U129	0.1436 0.4700 D2 RMALIZED 0.0016 0.0034 0.0064 0.0076 0.0113 0.0188 0.0291 0.0298 0.0295 0.0342 0.0295 0.0342 0.0344 0.0278 0.0273 0.0236 0.0205 0.0205 0.02177 0.0160	0.1436 0.4700 CROSS CI VALUE ** 0.0037 0.0022 0.0045 0.0058 0.0101 0.0160 0.0198 0.0254 0.0268 C.0275 C.0291 0.0296 0.0296 0.0216 0.0225 0.0216 0.0203 0.0112 0.0083	OHERENCY *** C.1795 C.3797 O.5715 C.5940 O.7296 O.7296 O.7321 U.6033 O.7989 O.7975 O.8223 C.7864 C.7784 O.6136 C.6543 O.5213 O.5213 O.3682 C.3383	0.1436 0.5850 B1 ***** ND C.0C23 0.0036 0.0353 C.0092 0.0111 C.0124 0.C186 C.0244 C.0306 0.0305 0.0356 0.0404 C.0285 C.0244 C.0285 C.0244 C.0285 C.0244 C.0285 C.0244 C.0285 C.0244 C.0285 C.0244 C.0285 C.0245 C.0255 C.0245 C.0255 C.05555 C.05555 C.05555 C.05555 C.05555 C.05555 C.05555 C.05555 C.0	0.1436 0.5850 D2 RMALIZED 0.0022 0.0034 0.0058 0.0082 0.0029 0.0120 0.0209 0.0120 0.0242 0.0317 0.0297 0.0242 0.0317 0.0297 0.0247 0.0267 0.0267 0.0267 0.0273 0.0199 0.0173 0.0147	0.1436 0.5850 CRUSS C VALUE ** 0.0011 0.0020 0.00241 0.0070 0.0090 0.0094 0.0171 0.0218 0.0277 0.0265 0.0325 0.0374 0.0234 0.0234 0.0234 0.0234 0.0234 0.0234 0.0234 0.0234 0.0190 0.0140 0.0113 0.0079	DHERENCY 0.2266 0.3362 0.5418 0.55418 0.55418 0.55877 0.7354 0.7354 0.7357 0.8047 0.7894 0.7851 0.6855 0.7247 0.5908 0.5404 0.4280 0.3917 0.2685
WG(L WL(L FREQ	8/SEC) B/SEC) ELL •(CPS) 0.18 0.67 1.10 1.65 2.14 2.63 3.11 3.65 4.58 5.07 5.55 6.53 7.51 8.43 9.46 11.41 13.37 15.81 18.25	C.1436 C.4700 B1 ***** NO U.JC15 O.C037 U.0056 O.0074 C.0124 O.0185 C.U232 C.U278 C.U278 C.0302 O.0311 O.C314 O.0350 O.0388 C.0295 O.0251 O.C296 C.0296 C.0193 O.0129 U.0093	0.1436 0.4700 D2 RMALIZED 0.0016 0.0034 0.0064 0.0076 0.0113 0.0188 0.0210 0.0298 0.0295 0.0342 0.0295 0.0342 0.0344 0.0278 0.0278 0.0278 0.0273 0.0236 0.0225 0.02177 0.0160 0.0093	0.1436 0.4700 CROSS CI VALUE ** 0.0037 0.0022 0.0045 0.0160 0.0198 0.0254 0.0268 C.0275 0.0291 0.0296 0.0216 0.0216 0.0203 0.0156 0.0112 0.0083 0.0041	OHERENCY *** C.1795 C.3797 O.5715 C.5940 O.7321 O.6033 O.7989 D.7975 O.8223 C.7864 O.7784 O.6136 C.6543 O.5878 O.5213 O.5213 O.3682 C.3383 O.1974	0.1436 0.5850 B1 ***** ND C.0C23 0.0036 0.0353 C.0092 0.0111 C.0124 0.0126 0.0244 C.0306 C.0306 C.0306 C.03056 C.03056 C.03056 C.03056 C.0404 C.0280 C.0356 C.0244 C.0280 C.0269 C.0244 C.0280 C.0269 C.0244	0.1436 0.5850 D2 RMALIZED 0.0022 0.0034 0.0058 0.0082 0.0099 0.0120 0.0209 0.0120 0.0242 0.0317 0.0297 0.0317 0.0297 0.0317 0.0297 0.0267 0.0267 0.0267 0.0267 0.0273 0.0199 0.0173 0.0147 0.0105	0.1436 0.5850 CRUSS C VALUE ** 0.0011 0.0020 0.00241 0.0070 0.0090 0.0094 0.0171 0.0218 0.0277 0.0265 0.0325 0.0374 0.0234 0.0234 0.0234 0.0234 0.0234 0.0234 0.0234 0.0234 0.0234 0.02190 0.0140 0.0113 0.0079 0.0064	DHERENCY ++++ 0.2266 0.3362 0.5418 0.5548 0.57354 0.57354 0.5877 0.7857 0.8047 0.7854 0.7851 0.6855 0.7247 0.5908 0.5404 0.4280 0.3917 0.2685 0.3609
WG(L WL(L FREQ	8/SEC) B/SEC) ELL •(CPS) 0.18 0.67 1.10 1.65 2.14 2.63 3.11 3.65 4.58 5.07 5.55 6.53 7.51 8.43 9.46 11.41 13.37 15.81 18.25 22.64	C.1436 C.4700 B1 ***** NO U.3015 O.0037 U.0056 O.0074 C.0124 O.0185 C.0232 C.0278 C.0302 C.0311 O.C314 O.0350 O.0388 O.0295 O.0251 O.0261 O.0229 C.0193 O.0129 C.0193 O.0129 C.0093 O.0069	0.1436 0.4700 D2 RMALIZED 0.0015 0.0034 0.0064 0.0113 0.0188 0.0210 0.0291 0.0298 0.0295 0.0342 0.0342 0.0344 0.0278 0.0278 0.0278 0.0235 0.0225 0.0344 0.0278 0.0225 0.0177 0.0160 0.0093 0.0076	0.1436 0.4700 CROSS CI VALUE ** 0.0037 0.0022 0.0045 0.0160 0.0160 0.0198 0.0254 0.0268 C.0275 C.0291 0.0296 0.0216 0.0296 0.0216 0.0215 0.0216 0.0112 0.0083 0.012	OHERENCY *** C.1795 C.3797 O.5715 C.5940 O.7296 O.7321 O.6033 O.7989 O.7975 O.8223 C.7864 O.7784 O.6136 C.6543 O.5213 O.3682 G.3383 O.1974 O.0936	0.1436 0.5850 B1 ***** ND C.0C23 0.0036 0.0353 C.0092 0.0111 C.0124 0.0124 0.0244 C.0244 C.0306 0.0330 0.0356 0.0404 0.0280 0.0372 0.0269 C.0244 0.0269 C.0244 0.0269 C.0244 0.0269 C.0244 0.0269 C.0244 0.0269 C.0253	0.1436 0.5850 D2 RMALIZED 0.0022 0.0034 0.0058 0.0058 0.0099 0.0120 0.0242 0.0242 0.0242 0.0242 0.0247 0.0297 0.0297 0.0317 0.0297 0.0267 0.0267 0.0273 0.0199 0.0173 0.0173 0.0170 0.0170	0.1436 0.5850 CRUSS C VALUE ** 0.0011 0.0020 0.0024 0.0070 0.0094 0.0171 0.0218 0.0277 0.0265 0.0325 0.0374 0.0237 0.0265 0.0265 0.0265 0.0270 0.0265 0.0270 0.0265 0.0270 0.0265 0.0270 0.0265 0.0270 0.0265 0.0270 0.0265 0.0277 0.0265 0.0274 0.0277 0.0265 0.0277 0.0265 0.0274 0.0274 0.0277 0.0265 0.0274 0.0274 0.0277 0.0265 0.0274 0.0274 0.0277 0.0265 0.0274 0.0274 0.0277 0.0265 0.0274 0.0274 0.0274 0.0274 0.0274 0.0274 0.0275 0.0274 0.0277 0.0274 0.0274 0.02770 0.0274 0.02770 0.02770 0.02770 0.02770 0.02770 0.02770 0.02770 0.02770 0.02770 0.02770 0.02770 0.007700 0.007700 0.007700000000	DHERENCY **** 0.2266 0.3362 0.5418 0.5506 0.5506 0.7354 0.5877 0.8047 0.7851 0.7851 0.7851 0.7851 0.6855 0.7247 0.5908 0.5404 0.4280 0.3917 0.2685 0.3617 0.2685 0.3917 0.2685 0.3617 0.2685 0.3917 0.2685 0.3917 0.2685 0.3917 0.2685 0.3617 0.2685 0.3917 0.2685 0.3757 0.3917
WG(L WL(L FREQ	8/SEC) B/SEC) ELL •(CPS) 0.18 0.67 1.165 2.63 3.61 2.63 3.61 3.65 5.55 6.553 7.51 8.45 9.46 11.41 13.37 15.81 18.25 22.63 3.11 18.25 22.63 3.11 1.15 1.55 1.15 1.15 1.55 1.15 1.55 1.15 1.55	6.1436 0.4700 B1 ***** NO 0.0037 0.0056 0.0074 0.0124 0.0185 0.0232 0.0278 0.0278 0.0311 0.0314 0.0350 0.0388 0.0295 0.0261 0.0296 0.0229 0.0295 0.0251 0.0296 0.0295 0.0295 0.0263 0.0093 0.0069 0.0063	0.1436 0.4700 D2 RKALIZED 0.0015 0.0034 0.0064 0.0076 0.0113 0.0188 0.0210 0.0291 0.0298 0.0295 0.0342 0.0342 0.0278 0.0278 0.0278 0.0278 0.0275 0.0275 0.02177 0.0160 0.0093 0.0076 0.0071	0.1436 0.4700 CROSS CU VALUE **: 0.0037 0.0022 0.0045 0.0058 0.0160 0.0198 0.0254 0.0268 C.0275 C.0291 0.0296 0.0216 0.0216 0.0203 0.0112 0.0083 0.0013	OHERENCY *** C.1795 C.5715 C.5940 O.7296 O.7296 O.7321 O.6033 O.7989 O.7975 O.8223 C.7864 O.7725 O.8223 C.7864 O.7224 O.6136 C.6543 O.5878 O.5213 O.5213 O.3682 C.3383 O.1974 O.0936 O.0446	0.1436 0.5850 B1 ***** ND C.0C23 0.0036 0.0353 C.0092 0.0111 C.0124 0.0124 0.0126 0.0244 C.0306 C.0244 C.0306 C.0306 C.0305 C.0356 C.0404 C.0280 C.0372 D.0269 C.0244 C.0230 C.0269 C.0244 C.0230 C.0269 C.0244 C.0230 C.0269 C.0259 C.0110 C.0554	0.1436 0.5850 D2 RMALIZED 0.0022 0.0034 0.0058 0.0058 0.0059 0.0120 0.0209 0.0120 0.0242 0.0217 0.0297 0.0242 0.0317 0.0297 0.0247 0.0267 0.0267 0.0273 0.0173 0.0147 0.0165 0.0070 0.0054	0.1436 0.5850 CRUSS C VALUE ** 0.0011 0.0020 0.00241 0.0070 0.0090 0.0094 0.0171 0.0218 0.0277 0.0265 0.0325 0.0374 0.0287 0.0265 0.0374 0.0287 0.02090 0.0290 0.0000 0.0000 0.0000000000	DHERENCY ++++ 0.2266 0.3362 0.5418 0.5506 0.7354 0.5877 0.7857 0.8047 0.7854 0.7851 0.6855 0.7247 0.6855 0.7247 0.5908 0.5404 0.4285 0.3917 0.2685 0.3609 0.1264
WG(L WL(L FREQ	8/SEC) B/SEC) ELL •(CPS) 0.18 0.67 1.165 2.165 2.163 3.11 3.60 4.09 4.58 5.07 5.553 7.51 8.45 9.466 11.41 13.37 15.81 18.25 22.64 3.752	6.1436 0.4700 B1 ***** NO 0.0037 0.0056 0.0074 0.0124 0.0185 0.0232 0.0278 0.0278 0.0302 0.0311 0.0314 0.0350 0.0388 0.0295 0.0251 0.0296 0.0295 0.0052 0.0055	0.1436 0.4700 D2 RMALIZED 0.0016 0.0034 0.0064 0.0076 0.0113 0.0188 0.0210 0.0298 0.0298 0.0295 0.0342 0.0342 0.0344 0.0278 0.0236 0.0225 0.0236 0.0225 0.02177 0.0236 0.0293 0.0076	0.1436 0.4700 CROSS CI VALUE ** 0.CCJ7 0.0C22 0.0C45 0.0058 0.0101 0.0160 0.0198 0.0254 0.0268 C.0275 C.0291 0.0296 0.0216 0.0216 0.0215 0.0216 0.0112 0.0083 0.0112 0.0083 0.0013 0.0007	OHERENCY *** C.1795 C.5715 C.5940 O.7296 O.7321 O.6033 O.7989 O.7975 O.8223 C.7864 O.7784 O.6136 C.6543 O.5879 O.5213 O.5213 O.3682 C.3383 O.1974 C.0936 C.0446 O.0202	0.1436 0.5850 B1 ***** ND C.0C23 0.0036 0.0353 C.0092 0.0111 C.0124 0.0124 0.0124 0.0124 0.0124 0.0244 C.0306 0.0300 0.0356 0.0404 0.0280 0.0372 0.0269 C.0244 0.0230 0.0269 C.0244 0.0230 0.0159 C.0110 C.0053 0.0053 0.0053	0.1436 0.5850 D2 RMALIZED 0.0022 0.0034 0.0058 0.0058 0.0082 0.0099 0.0120 0.0242 0.0242 0.0217 0.0297 0.0242 0.0317 0.0297 0.0247 0.0286 0.0267 0.0273 0.0173 0.0173 0.0173 0.0175 0.0175 0.0175 0.0070 0.0054	0.1436 0.5850 CRUSS C VALUE ** 0.0011 0.0020 0.0C41 0.0070 0.0090 0.0094 0.0171 0.0218 0.0277 0.0265 0.0374 0.0234 0.0234 0.0234 0.0234 0.0234 0.0206 0.0190 0.0140 0.0113 0.0079 0.0064 0.0022 0.0023	DHERENCY 0.2266 0.3362 0.5418 0.55418 0.55418 0.55418 0.57354 0.5877 0.7857 0.8047 0.7851 0.7851 0.6855 0.7247 0.5908 0.5908 0.5908 0.5404 0.5908 0.5404 0.4285 0.3617 0.2685 0.3609 0.1264 0.1764 0.1764
WG(L WL(L C FREQ	8/SEC) B/SEC) ELL •(CPS) 0.18 0.67 1.16 2.14 2.63 3.61 3.65 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.03 27.54	C.1436 C.4700 B1 ***** NO U.J015 O.0037 U.0056 O.0074 C.0124 O.0185 C.0232 C.0278 C.0278 C.0278 C.0278 C.0278 C.0302 O.0311 O.C314 O.0350 O.0388 O.0295 C.0295 C.0296 C.0193 O.0229 C.0193 O.0129 U.0093 C.0069 U.0052 O.0052 O.0052	0.1436 0.4700 D2 RMALIZED 0.0016 0.0034 0.0064 0.0076 0.0113 0.0188 0.0210 0.0291 0.0298 0.0295 0.0342 0.0342 0.0342 0.0342 0.0342 0.0342 0.0273 0.0236 0.0225 0.0177 0.0160 0.0293 0.0076 0.0078	0.1436 0.4700 CROSS CI VALUE ** 0.0037 0.0022 0.0045 0.0058 0.0160 0.0198 0.0254 0.0268 C.0275 C.0291 0.0296 0.0211 0.0225 0.0216 0.0212 0.0112 0.0013 0.0011 0.0022 0.0013 0.0007 0.0006	OHERENCY *** C.1795 C.3797 O.5715 C.5940 O.7296 O.7321 O.6033 O.7989 D.7975 O.8223 C.7864 C.7784 O.6136 C.6136 C.6136 O.6136 C.6136 C.6136 O.5878 O.5213 O.3682 C.3383 O.1974 C.0936 C.0446 C.0202 O.0350	0.1436 0.5850 B1 ***** ND C.0023 0.0036 0.0053 C.0092 0.0111 C.0124 0.0124 0.0124 0.0124 0.0124 0.0124 0.0244 C.0305 0.0356 0.0300 0.0356 0.0404 C.0280 0.0372 0.0269 C.0244 0.0230 0.0159 C.0110 0.0053 0.0054 C.0035	0.1436 0.5850 D2 RMALIZED 0.0022 0.0034 0.0058 0.0058 0.0029 0.0120 0.0242 0.0242 0.0217 0.0297 0.0247 0.0297 0.0247 0.0297 0.0273 0.0267 0.0273 0.0199 0.0173 0.0195 0.0054 0.0055	0.1436 0.5850 CRUSS C VALUE #* 0.0011 0.0020 0.00241 0.0070 0.0090 0.0094 0.0171 0.0218 0.0277 0.0265 0.0374 0.0234 0.0234 0.0235 0.0374 0.0236 0.0235 0.0140 0.0140 0.0140 0.0140 0.0140 0.0140 0.0140 0.0140 0.0140 0.0140 0.0140 0.0140 0.0265	DHERENCY 0.2266 0.3362 0.5418 0.55418 0.55418 0.5577 0.7354 0.7354 0.7354 0.7354 0.7851 0.7851 0.7851 0.6855 0.7247 0.5908 0.5908 0.5404 0.4280 0.5908 0.5404 0.4280 0.5908 0.5404 0.4280 0.5908 0.5404 0.1264 0.1264 0.1574 0.2075
WG(L WL(L FREQ	8/SEC) B/SEC) ELL •(CPS) 0.18 0.67 1.16 2.14 2.63 3.61 4.09 4.58 5.07 5.55 6.53 7.51 8.48 9.46 11.3.37 15.81 18.25 22.64 25.08 27.53 30.46 1.65 22.64 25.08 27.53 30.46 2.53 30.46 2.53 30.46 2.53 30.46 2.53 30.46 2.53 30.46 2.53 30.46 2.53 30.46 2.53 30.46 2.53 30.46 2.53 30.46 2.53 30.46 2.53 30.46 2.53 30.46 2.55 30.46 2.55 30.46 2.55 30.46 2.55 30.46 2.55 30.46 2.55 30.46 2.55 30.46 2.55 30.46 2.55 30.46 2.55 30.46 2.55 30.46 2.55 30.46 2.55 30.46 2.55 30.46 2.55 30.46 2.55 30.46 2.55 30.46 2.55 3.55	C.1436 C.4700 B1 ***** NO U.J015 O.0037 U.0056 O.0074 C.0124 O.0185 C.U232 C.U193 O.U29 C.U193 O.U29 C.U193 O.U29 C.U193 O.U29 C.U193 O.U29 C.U193 O.U29 C.U193 O.U29 C.U193 O.U29 C.U193 C.U292 C.U193 C.U292 C.U193 C.U292 C.U193 C.U292 C.U193 C.U292 C.U193 C.U292 C.U193 C.U292 C.U193 C.U292 C.U193 C.U292 C.U193 C.U292 C.U193 C.U292 C.U193 C.U292 C.U193 C.U292 C.U193 C.U292 C.U293 C.U29	0.1436 0.4700 D2 RMALIZED 0.0016 0.0034 0.0064 0.0076 0.0113 0.0188 0.0210 0.0298 0.0295 0.0342 0.0342 0.0342 0.0344 0.0278 0.0236 0.0236 0.025 0.0177 0.0160 0.0093 0.0076 0.0093 0.0076 0.0077	0.1436 0.4700 CROSS CI VALUE ** 0.0037 0.0022 0.0045 0.0058 0.0160 0.0198 0.0254 0.0268 C.0275 C.0291 0.0296 0.0215 0.0225 0.0215 0.0215 0.0212 0.0213 0.0212 0.0112 0.0013 0.0007 0.0006	OHERENCY *** C.1795 C.3797 O.5715 C.5940 O.7296 O.7296 O.7321 U.6033 O.7989 O.7975 O.8223 C.7864 C.7784 O.6136 C.6543 O.5878 C.5213 O.3682 C.3383 O.1974 U.0936 C.0446 C.0202 O.0350	0.1436 0.5850 B1 ***** ND C.0023 0.0036 0.0353 C.0092 0.0111 C.0124 0.0124 0.0124 0.0124 0.0124 0.0244 C.0305 0.0305 0.0356 0.0404 C.0280 0.0356 0.0249 C.0244 C.0280 0.0356 0.0269 C.0244 C.0230 0.0269 C.0244 C.0230 0.0253 0.0254 C.0035 C.0035	0.1436 0.5850 D2 RMALIZED 0.0022 0.0034 0.0058 0.0082 0.0082 0.0082 0.0299 0.0120 0.0242 0.0212 0.0242 0.0317 0.0297 0.0297 0.0297 0.0297 0.0275 0.0267 0.0267 0.0267 0.0267 0.0267 0.0267 0.0273 0.0199 0.0173 0.0199 0.0173 0.0199 0.0173 0.0199 0.0173 0.0199 0.0173 0.0199 0.0173 0.0267 0.0273 0.0199 0.0120 0.0270 0.0270 0.0273 0.0270 0.0270 0.0273 0.0270 0.0270 0.0273 0.0270 0.0054 0.0040	0.1436 0.5850 CRUSS C VALUE #* 0.0011 0.0020 0.00241 0.0070 0.0090 0.0094 0.0171 0.0218 0.0277 0.0265 0.0325 0.0374 0.0234 0.0234 0.0234 0.0234 0.0140 0.0140 0.0140 0.0140 0.0140 0.0140 0.0140 0.0140 0.0140 0.0140 0.0140 0.015 0.0005 0.0005	DHERENCY 0.2266 0.3362 0.5418 0.55418 0.55418 0.55877 0.7354 0.7354 0.7357 0.8047 0.7851 0.7851 0.6855 0.7247 0.5908 0.5404 0.5267 0.5908 0.5404 0.5267 0.5908 0.5404 0.5267 0.5908 0.5404 0.5267 0.5268 0.5267 0.5267 0.5268 0.5267 0.52688 0.52688 0.52688 0.52688 0.52688 0.52688 0.52688 0.52688 0.52688888 0.5268888 0.52688888888888888888888888888888
WG(L WL(L FREQ	8/SEC) B/SEC) ELL •(CPS) 0.18 0.67 1.10 1.65 2.14 2.63 3.65 3.65 5.55 6.53 7.51 8.48 9.46 11.41 13.81 18.25 22.64 25.03 30.46 34.85 27.53 30.46 34.85 37.55 30.46 34.85 37.55 30.46 34.85 37.55 30.46 34.85 37.55 30.46 34.85 37.55 30.46 34.85 37.55 30.46 34.85 37.55 30.46 34.85 37.55 30.46 34.85 37.55 30.46 34.85 37.55 30.46 34.85 37.55 30.46 34.85 34.85 34.85 34.85 34.85 34.85 34.85 34.85 34.85 34.85 34.85 35.55	C.1436 C.4700 B1 ***** NO U.JC15 O.C037 U.0056 O.0074 C.0124 O.0185 C.U232 C.U278 C.U232 C.U278 C.U279 C.U295 C.U205 C.U2	0.1436 0.4700 D2 RMALIZED 0.0016 0.0034 0.0064 0.0076 0.0113 0.0188 0.0210 0.0291 0.0298 0.0295 0.0342 0.0295 0.0342 0.0344 0.0278 0.0273 0.0236 0.0273 0.0236 0.0275 0.0177 0.0160 0.0093 0.0076 0.0077 0.0057 0.0037 0.0037	0.1436 0.4700 CROSS CI VALUE ** 0.0037 0.0022 0.0045 0.0160 0.0198 0.0254 0.0268 C.0275 0.0291 0.0296 0.0296 0.0216 0.0203 0.0112 0.0203 0.0156 0.0112 0.0023 0.0156 0.0112 0.0023 0.0013 0.0007 0.0006 0.0005	OHERENCY *** C.1795 C.3797 O.5715 C.5940 O.7296 O.7296 O.7321 O.6033 O.7989 O.7975 O.8223 C.7864 O.7784 O.6136 C.6543 O.5213 O.5213 O.5213 O.3682 C.3383 O.1974 O.0936 C.0202 O.0350 C.0350 C.0359	0.1436 0.5850 B1 ***** ND C.0C23 0.0036 0.00353 C.0092 0.0111 C.0124 0.0186 0.0244 C.0305 0.0356 0.0404 C.0280 0.0356 0.0404 C.0280 0.0356 0.0244 C.0280 0.0356 0.0244 0.0280 0.0269 C.0244 0.0280 0.0253 0.0253 0.0054 C.0035 0.0054 0.0035 0.0035 0.0054 0.0035 0.0035 0.0054 0.0035 0.0054 0.0035 0.0054 0.0035 0.0054 0.0035 0.0054 0.0035 0.0054 0.0035 0.0054 0.0035 0.0054 0.0035 0.0054 0.0035 0.0054 0.0035 0.0054 0.0035 0.0054 0.0035 0.0054 0.0035 0.0054 0.0035 0.0054 0.0035 0.0054 0.0035 0.0054 0.0055	0.1436 0.5850 D2 RMALIZED 0.0022 0.0034 0.0058 0.0082 0.0082 0.0099 0.0120 0.0209 0.0209 0.0242 0.0217 0.0297 0.0273 0.0175 0.0074 0.00554 0.00554 0.00554 0.00554 0.00554 0.00555555 0.005555555555555555555555	0.1436 0.5850 CRUSS C VALUE ** 0.0011 0.0020 0.00241 0.0070 0.0090 0.0094 0.0171 0.0218 0.0277 0.0265 0.0325 0.0374 0.0234 0.0234 0.0234 0.0113 0.0079 0.0064 0.0122 0.0023 0.0015 0.0007 0.0007	DHERENCY 0.2266 0.3362 0.5418 0.55418 0.55418 0.55877 0.7354 0.7354 0.7357 0.8047 0.7894 0.7851 0.6855 0.7247 0.5908 0.5404 0.42800 0.42800 0.42800 0.42800 0.42800 0.42800 0.42800 0.42800 0.42800 0.42800 0.42800 0.42800 0.42800 0.42800 0.42800 0.42800 0.42800 0.428000 0.428000 0.428000 0.42800000000000000000000000000000000000
WG(L WL(L FREQ	8/SEC) B/SEC) ELL •(CPS) 0.18 0.67 1.10 1.65 2.14 2.63 3.11 3.65 4.58 5.55 6.53 7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.03 30.46 34.85 40.22 5.55 30.46 34.85 40.22 5.55 30.46 34.85 40.22 5.55 30.46 34.85 40.22 5.55 30.46 34.85 40.22 5.55 30.46	C.1436 C.4700 B1 ***** NO U.JC15 O.C037 U.0056 O.0074 C.0124 O.0185 C.U232 C.U278 C.U278 C.U278 C.0302 O.0311 O.C314 O.0350 O.0388 C.0295 O.0251 O.C296 C.0193 O.0129 U.0093 O.0129 U.0093 O.0129 U.00252 O.0025 O.0055 O.0	0.1436 0.4700 D2 RMALIZED 0.0016 0.0034 0.0064 0.0076 0.0113 0.0188 0.0210 0.0291 0.0298 0.0295 0.0342 0.0342 0.0342 0.0344 0.0278 0.0278 0.0275 0.0275 0.0277 0.0018	0.1436 0.4700 CROSS CI VALUE ** 9.CC07 0.CC22 0.0C45 9.0058 0.0160 0.0198 0.0254 0.0268 C.0275 0.0291 0.0296 0.0216 0.0203 0.0112 0.0203 0.0112 0.0225 0.0112 0.0203 0.0112 0.0063 0.0007 0.0006 0.0005 0.0005	OHERENCY *** C.1795 C.3797 O.5715 C.5940 O.7321 O.6033 O.7989 O.7975 O.8223 C.7864 O.7784 O.7224 O.6136 C.6543 O.5213 O.5878 O.5213 O.5213 O.3682 C.3883 O.1974 C.0936 C.0446 O.0202 O.0350 C.0359 O.0282	0.1436 0.5850 B1 ***** ND C.0C23 0.0036 0.0353 C.0092 0.0111 C.0124 0.0186 0.0244 C.0305 C.0244 C.0305 C.0244 C.0305 C.0404 C.0305 C.0244 C.0280 C.0269 C.C244 C.0280 C.0269 C.C244 C.0280 C.0189 C.0189 C.0159 C.0110 C.0053 C.0035 C.0035 C.0035 C.0024 C.0035 C.0024 C.0035 C.0024 C.0035 C.0024 C.0035 C.0024 C.0035 C.0024 C.0035 C.0024 C.0035 C.0024 C.0035 C.0024 C.0035 C.0024 C.0035 C.0024 C.0035 C.0024 C.0035 C.0035 C.0035 C.0035 C.0035 C.0035 C.0035 C.0035 C.0035 C.0035 C.0035 C.0035 C.0024 C.0035 C.0035 C.0035 C.0035 C.0035 C.0024 C.0035 C.0035 C.0024 C.0035 C.0055 C.00	0.1436 0.5850 D2 RMALIZED 0.0022 0.0034 0.0058 0.0058 0.0099 0.0120 0.0242 0.0242 0.0242 0.0242 0.0247 0.0297 0.0297 0.0247 0.0297 0.0267 0.0267 0.0267 0.0273 0.0199 0.0173 0.0199 0.0173 0.0199 0.0173 0.0147 0.0254 0.0055 0.0267 0.0273 0.0175 0.0267 0.0273 0.0175 0.0267 0.0257 0.0267 0.0275 0.0267 0.0257 0.0267 0.0275 0.0267 0.0273 0.0199 0.0175 0.0275 0.0267 0.0275 0.0267 0.0273 0.0199 0.0175 0.0275 0.0267 0.0275 0.0267 0.0275 0.0275 0.0275 0.0267 0.0275 0.0267 0.0275 0.0070 0.0054 0.0054 0.0054 0.0054 0.0054 0.0054 0.0054 0.0054 0.0054 0.0054 0.0057 0.0054 0.0054 0.0057	0.1436 0.5850 CRUSS C VALUE ** 0.0011 0.0020 0.0041 0.0070 0.0094 0.0171 0.0218 0.0277 0.0265 0.0325 0.0325 0.0374 0.0234 0.0234 0.0234 0.0234 0.0234 0.0234 0.0234 0.0113 0.0079 0.0064 0.0022 0.0023 0.0015 0.0007 0.0007	DHERENCY **** 0.2266 0.3362 0.5418 0.5508 0.5508 0.5877 0.7857 0.8047 0.7854 0.7851 0.7851 0.6855 0.7247 0.5908 0.5404 0.4280 0.3917 0.2685 0.3268 0.3609 0.1264 0.1574 0.0307 0.0808 0.061574
WG(L WL(L C FREQ	8/SEC) B/SEC) ELL • (CPS) 0.18 0.67 1.165 2.63 3.65 2.63 3.65 3.65 5.55 6.553 7.55 8.48 9.46 11.41 13.37 15.81 18.25 22.63 30.46 34.85 22.63 30.46 34.85 22.63 30.46 30.45 22.63 30.45 22.63 30.45 22.63 30.45 22.63 3.45 2.65 3.45 2.55 3.45 2.63 3.45 2.65 3.45 2.63 3.45 2.65 3.45 2.65 3.45 2.63 3.45 2.63 3.45 2.63 3.45 2.63 3.45 2.63 3.45 2.63 3.45 2.63 3.45 2.63 3.45 2.63 3.45 2.63 3.45 2.55 3.	6.1436 0.4700 B1 ***** NO 0.0037 0.0056 0.0074 0.0124 0.0185 0.0232 0.0278 0.0278 0.0311 0.0314 0.0350 0.0288 0.0295 0.0261 0.0296 0.0295 0.0251 0.0296 0.0295 0.0261 0.0296 0.0295 0.0261 0.0296 0.0295 0.0261 0.0296 0.0295 0.0261 0.0296 0.0295 0.0261 0.0296 0.0295 0.0261 0.0296 0.0295 0.0261 0.0295 0.0263 0.0129 0.0069 0.0056 0.0025 0.0025 0.0025 0.0056 0.0073 0.0029 0.0029 0.0056 0.0073 0.0029 0.0029 0.0029 0.0056 0.0069 0.0069 0.0069 0.0069 0.0069 0.0069 0.0069 0.0069 0.0069 0.0055 0.0055 0.0056 0.0073 0.0029 0.0029 0.0056 0.0029 0.0055 0.0029 0.0029 0.0029 0.0052	0.1436 0.4700 D2 RMALIZED 0.0015 0.0034 0.0064 0.0064 0.0076 0.0113 0.0188 0.0210 0.0291 0.0298 0.0295 0.0342 0.0242 0.0242 0.0278 0.0236 0.0275 0.02177 0.0160 0.0093 0.0076 0.0050 0.0018 0.0009	0.1436 0.4700 CROSS CU VALUE **: 0.CCJ7 0.0C22 0.0C45 0.0058 0.0101 0.0160 0.0198 0.0254 0.0268 C.0275 0.0291 0.0296 0.0216 0.0203 0.0112 0.0023 0.0156 0.0112 0.0083 0.0012 0.0007 0.0006 0.0005 0.0005 0.0005	OHERENCY *** C.1795 C.5715 C.5940 O.7296 O.7296 O.7321 O.6033 O.7989 O.7975 O.8223 C.7864 O.7724 O.6136 C.6543 O.5878 O.5213 O.3682 C.3383 O.1974 O.0936 C.0350 C.0350 O.0282 O.0282 O.0689 O.0689	0.1436 0.5850 B1 ***** ND C.0C23 0.0036 0.0353 C.0092 0.0111 C.0124 0.0124 0.0124 0.0124 0.0244 C.0306 0.0306 0.0306 0.0306 0.0306 0.0404 0.0280 0.0372 0.0269 C.0244 0.0230 0.0159 C.0110 0.0053 0.0059 C.0110 0.0053 0.0059 C.0155 C.0006	0.1436 0.5850 D2 RMALIZED 0.0022 0.0034 0.0058 0.0058 0.0099 0.0120 0.0242 0.0242 0.0242 0.0242 0.0242 0.0247 0.0297 0.0275 0.0267 0.0273 0.0173 0.0173 0.0147 0.0165 0.0040 0.0040 0.0040 0.0042 0.0058	0.1436 0.5850 CRUSS C VALUE ** 0.0011 0.0020 0.0041 0.0070 0.0090 0.0094 0.0171 0.0218 0.6277 0.0265 0.6325 0.0374 0.0234 0.0234 0.0234 0.0234 0.0234 0.0234 0.0234 0.0213 0.0079 0.0064 0.0022 0.0023	OHERENCY **** 0.2266 0.3362 0.5418 0.5506 0.5418 0.5507 0.5877 0.7857 0.8047 0.7854 0.7854 0.7851 0.7908 0.7247 0.5908 0.5404 0.4280 0.3917 0.26855 0.3609 0.1264 0.1264 0.1264 0.1264 0.1264 0.1264 0.1264 0.1264 0.1264 0.1264 0.1264 0.1264 0.0265 0.026
WG(L WL(L C FREQ	8/SEC) B/SEC) ELL • (CPS) 0.18 0.67 1.165 2.63 3.11 3.609 4.58 7.51 8.45 9.46 11.65 22.63 3.11 3.609 4.58 7.553 8.45 9.46 11.65 22.64 8.25 0.67 5.553 1.8 22.64 8.25 25.053 30.485 22.64 8.25 25.053 30.485 20.67 5.553 1.8 2.66 3.12 1.5 2.66 3.12 1.5 2.66 3.12 1.5 2.66 3.11 1.5 2.65 3.12 1.5 2.65 3.12 1.5 2.65 3.12 1.5 2.65 3.12 1.5 2.65 3.12 1.5 2.65 3.12 1.5 5.553 1.8 2.66 3.12 1.5 2.66 3.12 1.5 2.65 3.15 2.65 3.15 2.65 3.45 2.66 3.15 2.65 3.15 1.5 2.66 3.15 2.65 3.555 3.45 2.66 3.15 2.66 3.15 2.65 3.15 2.65 3.555 3.555 3.555 3.65 2.555 3.5555 3.5555 3.555 3.5555 3.5555 3.5555 3.5555 3.5555	6.1436 0.4700 B1 ***** NO 0.0037 0.0056 0.0074 0.0124 0.0185 0.0232 0.0278 0.0278 0.0302 0.0311 0.0314 0.0350 0.0350 0.0295 0.0251 0.0296 0.0295 0.0251 0.0296 0.0295 0.0129 0.0129 0.0129 0.0069 0.0069 0.0063 0.0065 0.0074 0.0056 0.0056 0.0078 0.0056 0.0056 0.0078 0.0056 0.0056 0.0056 0.0055 0.0025 0.0025 0.0065 0.0055 0.0065 0.0065 0.0055 0.0055 0.0055 0.0065 0.0055	0.1436 0.4700 D2 RMALIZED 0.0016 0.0034 0.0064 0.0076 0.0113 0.0188 0.0210 0.0291 0.0298 0.0295 0.0342 0.0342 0.0342 0.0344 0.0278 0.0278 0.0236 0.0275 0.02177 0.0160 0.0093 0.0071 0.0050 0.0037 0.0050	0.1436 0.4700 CROSS CI VALUE ** 0.CCJ7 0.0C22 0.0C45 0.0058 0.0101 0.0160 0.0198 0.0254 0.0268 C.0275 C.0291 0.0296 0.0216 0.0216 0.0216 0.0216 0.0112 0.025 0.0112 0.025 0.0112 0.0013 0.0007 0.0006 0.0005 0.0005 0.0002 0.0002 0.0002	OHERENCY *** C.1795 C.5715 C.5940 O.7296 O.7296 O.7321 O.6033 O.7989 O.7975 O.8223 C.7864 O.7784 O.7725 O.8223 C.7864 O.7725 O.8223 C.7864 O.7295 O.8223 C.7864 O.7295 O.8223 C.7864 O.7224 O.6136 C.6543 O.5213 O.5213 O.5213 O.5213 O.5213 O.3682 C.3383 O.1974 O.0936 C.0202 O.0350 C.0359 O.0282 O.0282 O.0689 O.0555	0.1436 0.5850 B1 ***** ND C.0C23 0.0036 0.0353 C.0092 0.0111 C.0124 0.0124 0.0124 0.0124 0.0244 C.0306 0.0356 0.0404 0.0280 0.0356 0.0244 0.0280 0.0372 0.0269 C.0244 0.0230 0.0159 C.0110 0.0053 0.0053 0.0053 0.0054 0.0035 0.0024 0.0035 0.0024 0.0035 0.0024 0.0035	0.1436 0.5850 D2 RMALIZED 0.0022 0.0034 0.0058 0.0058 0.0029 0.0120 0.0242 0.0242 0.02120 0.0242 0.0317 0.0297 0.0242 0.0317 0.0297 0.0242 0.0317 0.0297 0.0242 0.0241 0.0267 0.0273 0.0173 0.0147 0.0155 0.005	0.1436 0.5850 CRUSS C VALUE ** 0.0011 0.0020 0.0041 0.0090 0.0094 0.0171 0.0218 0.0277 0.0265 0.0374 0.0265 0.0374 0.0287 0.0265 0.0374 0.0287 0.0265 0.0374 0.0287 0.0265 0.0374 0.0287 0.0265 0.0113 0.0079 0.0064 0.0022 0.0023 0.0015 0.0007 0.0007 0.0004 0.0001 0.0001 0.0001	DHERENCY 0.2266 0.3362 0.5418 0.5508 0.5508 0.5877 0.7354 0.5877 0.7857 0.8047 0.7851 0.7900 0.8251 0.6855 0.7247 0.5908 0.5404 0.4280 0.3917 0.2685 0.3609 0.1264 0.1764 0.1764 0.1764 0.1764 0.0307 0.0808 0.0615 0.0245 0.0595
WG(L WL(L C FREQ	8/SEC) B/SEC) ELL • (CPS) 0.18 0.67 1.165 2.163 3.61 3.62 4.09 4.58 7.51 8.463 1.65 2.63 3.11 3.65 4.09 4.58 7.553 1.555 3.15 8.456 1.65 22.64 3.141 1.5.81 1.5.81 1.5.81 1.5.81 1.5.82 2.63 3.5.55 3.5.55 3.5.55 2.64 3.5.56 3.5.65 3.5.65 3.5.65 3.5.55 3.5.65 3.5.55 3.	6.1436 0.4700 B1 ***** NO 0.0037 0.0056 0.0074 0.0124 0.0185 0.0232 0.0278 0.0278 0.0302 0.0311 0.0314 0.0350 0.0388 0.0295 0.0261 0.0295 0.0252 0.0129 0.0129 0.0129 0.0129 0.0129 0.0129 0.0129 0.0129 0.0125 0.0023 0.0052 0.0023 0.0052 0.0023 0.0052 0.0023 0.0052 0.0023 0.0052 0.0023 0.0052 0.0023 0.0052 0.0023 0.0052 0.0023 0.0052 0.0023 0.0052 0.0052 0.0052 0.0052 0.0052 0.0052 0.0052 0.0052 0.0052 0.0055 0.0055 0.0055 0.0055 0.0055 0.0055 0.0055 0.0055 0.0055 0.0055 0.0056 0.0052 0.0055	0.1436 0.4700 D2 RMALIZED 0.0016 0.0034 0.0064 0.0076 0.0113 0.0188 0.0210 0.0298 0.0295 0.0342 0.0342 0.0342 0.0344 0.0278 0.0236 0.0205 0.0177 0.0236 0.0205 0.0177 0.0160 0.0093 0.0076 0.0071 0.0056 0.0037 0.0057 0.0018 0.0009 0.0004 0.0009	0.1436 0.4700 CROSS CI VALUE ** 0.CCJ7 0.0C22 0.0C45 0.0058 0.0160 0.0198 0.0254 0.0268 C.0275 C.0291 0.0296 0.0216 0.0216 0.0112 0.0216 0.0112 0.0156 0.0112 0.0013 0.0007 0.0006 0.0005 0.0005	OHERENCY *** C.1795 C.5715 C.5940 O.7296 O.7321 O.6033 O.7989 O.7975 O.8223 C.7864 O.7784 O.6136 C.6543 O.5879 O.5213 O.3682 C.3383 O.1974 C.0936 C.0446 O.0202 O.0350 C.0417	0.1436 0.5850 B1 ***** ND C.0C23 0.0036 0.0353 C.0092 0.0111 C.0124 0.0124 0.0124 0.0124 0.0124 0.0244 C.0306 0.0300 0.0356 0.0404 0.0230 0.0356 0.0244 0.0230 0.0159 C.0110 0.0053 0.0024 0.0035 0.0024 0.0035 0.0024 0.0035 0.0024	0.1436 0.5850 D2 RMALIZED 0.0022 0.0034 0.0058 0.0082 0.0082 0.0099 0.0120 0.0242 0.0242 0.0317 0.0297 0.0242 0.0317 0.0297 0.0242 0.0317 0.0297 0.0242 0.0305 0.0267 0.0273 0.0199 0.0173 0.0173 0.0147 0.0165 0.0054 0.0054 0.0058 0.0005 0.0005 0.0005	0.1436 0.5850 CRUSS C VALUE ** 0.0011 0.0020 0.0C41 0.0070 0.0090 0.0094 0.0171 0.0218 0.0277 0.0265 0.0374 0.0234 0.0234 0.0234 0.0234 0.0234 0.0234 0.0234 0.0234 0.0234 0.0234 0.0234 0.0206 0.013 0.0013 0.0079 0.0064 0.0021 0.0007	DHERENCY 0.2266 0.3362 0.5418 0.55418 0.55418 0.55418 0.57354 0.5877 0.7857 0.8047 0.7851 0.7851 0.6855 0.7247 0.5908 0.5908 0.5908 0.5404 0.5908 0.5404 0.5908 0.5404 0.5908 0.5459 0.5459 0.5599

. . . .

;

.

\*\*\*\*

.

.

.

									388
WGELE	B/SEC)	C.1742	0.1742	0.1742		0.1742	0.1742	0.1742	
WL(LE	S/SEC)	0.0160	0.0160	.0.0160		0.0283	0.0280	0.0280	
CE	ELL	81	D2	CRUSS CC	INERENCY	81	02	CROSS CO	DHERENCY
FREQ	(CPS)	***** 107	CHALIZED	VALUE ***	***	**** /()R	MALIZED	VALUE ***	***
	0.18	0.0051	0.0114	0.0032	0.1775	0.0241	0.0222	0.0196	0.7216
•	0.67	0.0071	0.0102	0.0023	0.1074	0.0315	0.0254	0.0246	6.1548
	1.15	0.0051	J.UU73		0.0775	0.0250	0.0176	0.0141	0.4547
	1+00	0.0052	0.0163	0.0019	0.0775	0.0164	0.0100	0.0002	0 2012
•	2.14	0.0049	0.0005	0.000	1 2765	0.0102	0.0119	0.0002	0.2010
	2.00	0.0052	0.0100	0.00031	0.0587	0.0170	9410.0	0.0061	0.1472
	2.6)	0.0092	0.0045	0.0012	0.0313	0.0165	0.0145	0.0063	0.1659
	4.64	0.0043	0.0047	0.0007	0.0257	0.0139	0.0157	0.0076	0.1928
	4.58	0.0(48	0.0052	6.6017	0.1205	0.0142	0.0175	0.0059	0.1405
	5.07	0.0053	6.0112	0.0011	0.0212	0.0180	0.0208	0.0069	0.1279
	5.55	0.0051	0.0054	0.0011	0.0453	0.0179	0.0155	0.0054	0.1046
	6.53	6.0049	<b>U.</b> J058	0.0010	0.0329	0.0143	0.0188	0.0048	0.0859
	7.51	0.0050	0.0070	0.0323	0.1132	0.0213	0.0155	0.0045	0.0534
•	8.48	6.0053	0.0060	0.0011	0.0362	0.0171	0.0152	0.0023	0.0212
	9.40	6.0043	0.0(61	0.0013	0.0611	0.0151	0.0186	0.0047	0.0774
	11.41	0.0046	0.0053	0.0011	0.0540	U.0145	0.0142	0.0028	0.0374
	13.37	0.0050	0.0067	0.0010	0.0280	ũ.0178	0.0153	0.0021	0.0156
	15.81	6.0044	C.0035	0.0010	0.0272	0.0116	0.0134	0.0018	0.0202
	18.25	0.0050	0.0096	0.0013	0.0361	0.0093	0.0095	0.0025	0.0687
	22.64	0.0065	0.0130	0.0014	0.0218	0.0073	0.0093	0.0014	0.0286
	25.08	0.0072	0.0167	0.0025	0.0520	0.0094	0.0084	0.0027	0.0314
	21.53	0.0071	0.0102	0.0010	0.0323	0.0080	0.0055	0.0012	0.044
	30.40	0.0072	0.0122	0.0017	0.0323	0.0057	0.0068	0.0013	0.0464
	24.87		0.0103	0.0015	0.0135	0.0047	0.0.133	0.0005	0.0269
	90+22 50 AB	0.0045	0.0017	0.0000	0.1442	0.0033	0.0014	0.0003	0.0359
-	60 24	0.0047	0.0015	0.0010	0.0920	. 0 0011	0.0009	0.0003	0.0424
	70.01	0.0039	0.0009	0.0004	0.0475	0.00011	0.0005	0.0001	0.0319
• .	80.25	0.0044	0.0008	0.0005	0.0584	0.0003	0.0002	0.0000	0.0135
					1				
WG(LI	B/SEC)	ŭ.1742	0.1742	0.1742		0.1742	0.1742	0.1742	•
WL(LI	B/SEC)	C.0440	0.0440	0.0440		0.0800	0.080.0	0.0800	_
C .	ELL	81	D2	CROSS CO	JHERENCY	81	D2	CROSS CO	DHERENCY
FREQ	. (CPS)	***** NU!	CELLED	VALUE ***	0 7709	**** \0	RMALIZED	VALUE **	***
	0.10	0.0031	0.0106	0.0020	0.6716	C.CO15	0.0019	0.0006	0.1448
	1 1 4	0.0121	0.0136	0.0095	0.5559	0.0028		0.0018	0 2411
	1.45	0.0174	0.0191	0.0148	0.6568	0.0042	0.0091	0.0028	0.5784
	2.14	0.0215	0.0247	0.0188	0.6677	0.0071	0.0106	0.0067	0.5388
	2.63	0.0261	0.0302	0.0234	0.6955	0.0125	0.0131	0.0091	0.5098
•	3.11	0.0235	0.0276	0.0223	0.7630	0.0132	0.0178	0.0124	0.6522
	3.60	0.0223	0.0229	0.0181	Ü.6391	0.0186	0.0219	0.0163	0.6503
<b>~</b> .	4.09	0.0202	0.0195	0.0157	0.6272	0.0197	0.0226	0.0172	0.6672
	4.58	0.0226	0.0230	0.0176	6.5960	0.0224	0.0200	0.0169	0.6377
•	5.07	0.0191	0.0215	0.0151	0.5545	0.0243	0.0258	0.0210	0.7045
	5.55	0.0207	0.0249	0.0131	0.6313	0.0209	0.0244	0.0177	0.6192
	6.53	Ů•Ů227	J.0209	0.0159	0.5333	0.0218	0.0197	0.0162	0.6112
	~ ~ ~ ~ ~	<u> </u>	0 0 0 0	0 6133	D 5134	0 0100	A A 1 A A	0.0127	0.4350
	1.21	0.0193	0.0194	0.0133		0.0155	0.0199	0.0121	
	8.48	0.0195	0.0194	0.0122	û.4246	0.0217	0.0199	0.0145	0.4863
	8.48 9.46	0.0195 0.0195 0.0129	0.0194 0.0179 0.0137	0.0122	0.4246 0.2888	0.0217 0.0190	0.0199 0.0198 0.0176	0.0121 0.0145 0.0114	0.4863 0.3864
	7.51 8.48 9.46 11.41	0.0195 0.0195 0.0129 0.0185	0.0179 0.0179 0.0137 0.0174	0.0122 0.0071 0.0097	0.2888 0.2954	0.0138 0.0217 0.0190 0.0176	0.0199 0.0198 0.0176 0.0174	0.0121 0.0145 0.0114 0.0103	0.4863 0.3864 0.3440
	8.48 9.46 11.41 13.37	0.0193 0.0195 0.0129 0.0185 0.0149	0.0194 0.0179 0.0137 0.0174 0.0110	0.0155 0.0122 0.0071 0.0097 0.0043	0.4246 0.2888 0.2954 0.1108	0.0138 0.0217 0.0190 0.0176 0.0129	0.0199 0.0198 0.0176 0.0174 0.0147	0.0121 0.0145 0.0114 0.0103 0.0063	0.4863 0.3864 0.3440 0.2092
·	7.51 8.48 9.46 11.41 13.37 15.81	0.0193 0.0195 0.0129 0.0185 0.0149 0.0113	0.0194 0.0179 0.0137 0.0174 0.0110 0.0130	0.0155 0.0122 0.0071 0.0097 0.0043 0.0056	0.4246 0.2888 0.2954 0.1108 0.2155	0.0138 0.0217 0.0190 0.0176 0.0129 0.0117	0.0199 0.0198 0.0176 0.0174 0.0147 0.0155	0.0145 0.0114 0.0103 0.0063 0.0053	0.4863 0.3864 0.3440 0.2092 0.1564
	7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.44	0.0193 0.0195 0.0129 0.0185 0.0149 0.0149 0.0113 0.0103	0.0194 0.0179 0.0137 0.0174 0.0110 0.0130 0.0093	0.0122 0.0071 0.0097 0.0043 0.0056 0.0026	0.4246 0.2888 0.2954 0.1108 0.2155 0.0699	0.0138 0.0217 0.0190 0.0176 0.0129 0.0117 0.0091 0.0091	0.0199 0.0198 0.0176 0.0174 0.0147 0.0155 0.0103	0.0145 0.0114 0.0103 0.0063 0.0053 0.0028	0.4863 0.3864 0.3440 0.2092 0.1564 0.0824 0.0568
	8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.08	0.0193 0.0195 0.0129 0.0185 0.0149 0.0149 0.0149 0.0103 0.0038 0.0074	0.0194 0.0179 0.0137 0.0174 0.0110 0.0130 0.0093 0.0064 0.0076	0.0122 0.0071 0.0097 0.0043 0.0056 0.0026 0.0016 0.0014	0.4246 0.2888 0.2954 0.1108 0.2155 0.6699 0.0436	0.0138 0.0217 0.0190 0.0176 0.0129 0.0117 0.0091 0.0091	0.0199 0.0198 0.0176 0.0174 0.0147 0.0155 0.0103 0.0096	0.0145 0.0114 0.0103 0.0063 0.0053 0.0028 0.0022	0.4863 0.3864 0.3440 0.2092 0.1564 0.0824 0.0548 0.0571
	7.51 8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.08 27.53	0.0193 0.0195 0.0129 0.0185 0.0149 0.0149 0.0149 0.0103 0.0038 0.0074 0.0058	0.0194 0.0179 0.0137 0.0174 0.0110 0.0130 0.0093 0.0064 0.0070	0.0122 0.0071 0.0097 0.0043 0.0056 0.0026 0.0016 0.0014 0.0019	0.4246 0.2888 0.2954 0.1108 0.2155 0.6699 0.0436 0.0341 0.0210	0.0138 0.0217 0.0190 0.0176 0.0129 0.0117 0.0091 0.0091 0.0091	0.0199 0.0198 0.0176 0.0174 0.0147 0.0155 0.0103 0.0096 0.0067	0.0145 0.0114 0.0103 0.0063 0.0053 0.0028 0.0022 0.0019 0.0018	0.4863 0.3864 0.3440 0.2092 0.1564 0.0824 0.0548 0.0571 0.0703
	8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.08 27.53 30.46	0.0193 0.0195 0.0129 0.0185 0.0149 0.0149 0.0103 0.0103 0.0038 0.0074 0.0058 0.0062	0.0194 0.0179 0.0137 0.0174 0.0110 0.0130 0.0093 0.0064 0.0070 0.0051	0.0122 0.0071 0.0097 0.0043 0.0056 0.0026 0.0016 0.0014 0.0009 0.0010	0.4246 0.2888 0.2954 0.1108 0.2155 0.6699 0.0436 0.0341 0.0210 0.6293	0.0138 0.0217 0.0190 0.0176 0.0129 0.0117 0.0091 0.0091 0.0091 0.0068 0.0668	0.0199 0.0198 0.0176 0.0174 0.0147 0.0155 0.0103 0.0096 0.0067 0.0052	0.0145 0.0114 0.0103 0.0063 0.0053 0.0053 0.0022 0.0019 0.0019 0.0018	0.4863 0.3864 0.3440 0.2092 0.1564 0.0824 0.0548 0.0571 0.0703 0.0300
· -· ·	8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.08 27.53 30.46 34.85	0.0193 0.0195 0.0129 0.0185 0.0149 0.0149 0.013 0.013 0.0038 0.0074 0.0058 0.0062 0.0062	0.0194 0.0179 0.0137 0.0174 0.0110 0.0130 0.0093 0.0064 0.0070 0.0051 0.0040	0.0122 0.0071 0.0097 0.0043 0.0056 0.0026 0.0016 0.0014 0.0010 0.0010 0.0010	0.4246 0.2888 0.2954 0.1108 0.2155 0.0699 0.0436 0.0341 0.0210 0.0293 0.0560	0.0138 0.0217 0.0190 0.0176 0.0129 0.0117 0.0091 0.0091 0.0091 0.0068 0.0066 0.0062	0.0199 0.0193 0.0176 0.0174 0.0147 0.0155 0.0103 0.0096 0.0067 0.0052 0.0052	0.0145 0.0114 0.0103 0.0063 0.0053 0.0028 0.0022 0.0019 0.0010 0.0010	0.4863 0.3864 0.3440 0.2092 0.1564 0.0824 0.0548 0.0571 0.0703 0.0300 0.0141
· -· ·	8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.08 27.53 30.46 34.85 40.22	0.0193 0.0195 0.0129 0.0185 0.0149 0.013 0.0103 0.0038 0.0074 0.0058 0.0062 0.0062 0.0046 0.0037	0.0194 0.0179 0.0137 0.0110 0.0130 0.0093 0.0064 0.0070 0.0051 0.0051 0.00524	0.0122 0.0071 0.0043 0.0056 0.0026 0.0016 0.0014 0.0010 0.0010 0.0010 0.0010	0.24246 0.2888 0.2954 0.1108 0.2155 0.0699 0.0436 0.0341 0.0210 0.0293 0.0560 0.0520	0.0138 0.0217 0.0190 0.0176 0.0129 0.0117 0.0091 0.0091 0.0091 0.0063 0.0062 0.0062 0.0035	0.0199 0.0198 0.0176 0.0174 0.0147 0.0155 0.0103 0.0096 0.0067 0.0052 0.0052 0.0047 0.0031	0.0145 0.0114 0.0103 0.0063 0.0053 0.0028 0.0022 0.0019 0.0010 0.0010 0.0006 0.0005	0.4863 0.3864 0.2092 0.1564 0.0824 0.0548 0.0571 0.0703 0.0300 0.0141 0.0225
· · ·	8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.08 27.53 30.46 34.85 40.22 50.48	0.0195 0.0195 0.0129 0.0185 0.0149 0.0103 0.0088 0.0074 0.0058 0.0062 0.0062 0.00637 0.00537 0.0019	0.0194 0.0179 0.0137 0.0174 0.0110 0.0130 0.0093 0.0064 0.0070 0.0071 0.0051 0.00524 0.0020	0.0122 0.0071 0.0043 0.0056 0.0026 0.0016 0.0014 0.0010 0.0010 0.0010 0.0010 0.0010	0.24246 0.2888 0.2954 0.1108 0.2155 0.0699 0.0436 0.0341 0.0210 0.0293 0.0560 0.0520 0.0610	6.0138 6.0217 C.0190 0.0176 0.0129 0.0117 0.0091 0.0091 0.0068 0.0068 0.0062 0.0035 0.0035 0.0020	0.0199 0.0198 0.0176 0.0174 0.0147 0.0155 0.0103 0.0096 0.0067 0.0070 0.0052 0.0047 0.0031 0.0018	0.0145 0.0114 0.0103 0.0063 0.0053 0.0028 0.0022 0.0019 0.0010 0.00010 0.0005 0.0005 0.0005	0.4863 0.3864 0.2092 0.1564 0.0824 0.0548 0.0571 0.0703 0.0300 0.0141 0.0225 0.0322
· · ·	8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.08 27.53 30.46 34.85 40.22 50.48 60.24	0.0195 0.0195 0.0129 0.0185 0.0149 0.0103 0.0088 0.0074 0.0058 0.0062 0.0062 0.0062 0.00637 0.0019 0.0013	0.0194 0.0179 0.0177 0.0174 0.0110 0.0130 0.0093 0.0064 0.0070 0.0051 0.0051 0.0020 0.0020 0.0010	0.0122 0.0071 0.0071 0.0043 0.0056 0.0026 0.0014 0.0014 0.0019 0.0010 0.0010 0.0010 0.0010 0.0007 0.0005 0.0002	0.24246 0.2888 0.2954 0.1103 0.2155 0.0699 0.0436 0.0341 0.0210 0.0293 0.0560 0.0520 0.0610 0.0610 0.0429	6.0118 6.0217 C.0190 0.0176 0.0129 0.0117 0.0091 0.0091 0.0068 0.0062 0.0062 0.0062 0.0035 0.0020 0.0012	0.0199 0.0198 0.0176 0.0174 0.0147 0.0155 0.0103 0.0096 0.0067 0.0052 0.0047 0.0052 0.0047 0.0018 0.0018	0.0145 0.0114 0.0103 0.0063 0.0053 0.0022 0.0019 0.0019 0.0010 0.0006 0.0005 0.0005 0.0005	0.4863 0.3864 0.2092 0.1564 0.0824 0.0548 0.0571 0.0703 0.0300 0.0141 0.0225 0.0322 0.0264
·· ··	8.48 9.46 11.41 13.37 15.81 18.25 22.64 25.08 27.53 30.46 34.85 40.22 50.48 60.24 70.01	0.0193 0.0195 0.0129 0.0185 0.0149 0.0103 0.0088 0.0074 0.0058 0.0062 0.0062 0.0062 0.00637 0.0019 0.0013 0.0008	0.0194 0.0179 0.0174 0.0110 0.0130 0.0093 0.0064 0.0070 0.0051 0.0051 0.0020 0.0020 0.0010 0.0006	0.0122 0.0071 0.0071 0.0043 0.0056 0.0026 0.0014 0.0014 0.0019 0.0010 0.0010 0.0010 0.0010 0.0007 0.0005 0.0002 0.0002	0.2424 0.4246 0.2888 0.2954 0.1103 0.2155 0.0699 0.0436 0.0341 0.0213 0.0293 0.0560 0.0520 0.0610 0.0429 0.0725	6.0138 6.0217 C.0190 0.0176 0.0129 0.0117 0.0091 0.0091 0.0068 0.0062 0.0062 0.0062 0.0035 0.0020 0.0012 0.0037	0.0199 0.0198 0.0176 0.0174 0.0147 0.0155 0.0103 0.0096 0.0067 0.0052 0.0047 0.0031 0.0018 0.0011 0.0007	0.0145 0.0114 0.0103 0.0063 0.0053 0.0022 0.0019 0.0019 0.0010 0.0006 0.0005 0.0005 0.0005 0.0002 0.0002	0.4863 0.3864 0.3440 0.2092 0.1564 0.0824 0.0548 0.0571 0.0703 0.0300 0.0141 0.0225 0.0322 0.0264 0.0573

. . .

. .

• •

TAPLE C-3 (continued)

\*\*\*\*\*

	•					~· ·		389
WG(1BZSEC)	0.1742	0.1742	0.1742		0.1742	0.1742	0.1742	
WE (LB/SEC)	0.1260	0.1260	0.1260	-	0.1800	0.1800	0.1860	
CELL	B1	D2	CRUSS CO	HERENCY	81	D2	CROSS	OHERENCY
FREQ.(CPS)	**** NU	RMALIZED	VALUE ***	***	***** \()F	MALIZED	VALUE **	***
C.18	0.0013	0.0013	0.0004	0.1037	0.0018	0.0015	0.0005	0.0946
0.67	0.0032	0.0037	0.0620	0.3561	0.0036	0.0036	0.0020	0.2945
1.15	0.0050	0.0053	0.0035	0.4721	0.0049	0.0040	0.0029	0.4141
1.65	0.0079	0.0086	0.0067	0.6520	0.0081	0.0082	0.0064	0.6113
2.14	0.0102	0.0114	0.0089	0.6782	0.0107	0.0115	0.0089	0.6469
2.63	0.0097	0.0103	0.0077	0.5884	0.0141	0.0153	0.0117	0.6398
3.11	6.0183	0.0187	0.0156	0.7125	0.0139	0.0165	0.0128	0.7083
3.60	0.0183	0.0186	0.0146	0.6283	0.0186	0.0206	0.0169	0.7454
4,09	C.0193	0.0217	0.0177	0.7265	0.0246	0.0272	0.0219	0.7128
4.58	0.0212	0.0235	0.0190	6.7233	Ũ.0234	0.0223	0.0199	0.7554
5.07	0.0244	0.0215	0.0197	0.7405	0.0287	0.0312	0.0257	0.7398
2.22	0.0205	0.0247	0.0167	0.6095	0.0257	0.0242	0.0214	0.7352
0.00	6 0233	0.0255	0.0109	0.0143	0.0243	0.0231	0.0190	0.6413
5 4 P	0.0221	0.0237	0.0162	0.5197	0.0215	0.0244	0.0202	0.0004
9.46	0.0215	0.0204	0.0146	0.4838	0 0242	0.0244	0.0100	0.4393
11.41	6.0191	0.0197	0.0127	0.4286	0.0195	0.0213	0.0132	0.4437
13.37	0.0204	0.0166	0.0104	0.3171	6.0143	0.0142	0.0086	0.3614
15.81	0.0113	0.0132	0.0049	0.1610	0.0146	0.0152	0.0071	0.2295
18.25	0.0109	0.0102	0.0023	0.0470	0.0126	0.0127	0.0052	0.1694
22.64	0.0094	0.0102	0.0012	0.0163	0.0074	0.0097	0.0019	0.0517
25.08	0.0084	0.0074	0.0020	0.0671	0.0087	0.0070	0.0023	0.0870
27.53	0.0064	0.0069	0.0016	0.0582	0.0053	0.0057	0.0013	0.0554
30.46	C.0056	0.0052	0.0012	0.0518	0.0044	0.0051	0.0008	0.0263
34.85	0.0042	0.0038	0.0009	0.0520	0.0039	0.0048	0.0007	0.0298
40.22	0.0033	0.0033	0.0009	0.0678	0.0029	0.0029	0.0003	0.0101
50.48	0.0015	0.0015	0.0003	0.0491	0.0015	0.0017	0.0003	0.0333
60.24	0.0012	0.0010	0.0003	0.0652	0.0006	0.0009	0.0001	0.0365
70.01	0.0005	0.0003	0.0001	0.0223	0.0005	0.0005	0.0000	0.0116
50.20	.0.0000	040000	0.0000	0.0225	0.0002	0.0005	0.0000	0.0229
NCH R/SEC)	0.1742	0.1742	0-1742		0.1742	0.1742	0.1742	
WILLB/SEC)	0.2400	0.2400	0.2400		0.3500	0.3500	0.3500	
CELL	B1	D2	CROSS CI	DHERENCY	B1	D2	CROSS C	OHERENCY
FREQ.(CPS)	***** NC	RMALIZED	VALUE **	***	**** NO	RMALIZED	VALUE **	* * * *
0.18	0.0016	. 0.0016	0.0006	0.1551	0.0014	0.0020	0.0005	0.0769
0.67	0.0029	0.0031	0.0016	0.2810	0.0025	0.0031	0.0016	0.3171
1.16	0.0042	0.0048	0.0034	0.5758	0.0042	0.0043	0.0027	0.3939
1.65	0.0074	0.0083	0.0063	0.6394	0.0058	0.0061	0.0039	0.4439
2.14	0.0096	0.0119	0.0091	0.7207	0.0059	0.0073	0.0050	0.5750
2.63	0.0125	0.0131	0.0108	0.7116	0.0119	0.0112	0.0093	0.6483
3.11	0.0149	0.0143	0.0125	0.7338	0.0143	0.0148	0.0124	0 0000
3.60	0.0213	0.0230	0.0198	0.7610	0.0242	0.0201	0.0173	0.7401
4.09	0.0209	0.0230	0.0221	0.7279	0.0203	0.0254	0.0216	0.7442
4.00	0.0264	0.0256	0.0220	0.7489	0.0245	0.0311	0.0278	0.7598
5 55	0.0233	0.0301	0.0288	0.8102	0.0296	0.0293	0.0261	0.7847
6.53	0.0255	0.0249	0.0209	0.6877	6.0316	0.0333	0.0286	0.7764
7,51	0.0253	0.0263	0.0218	0.7140	0.0279	0.0293	0.0236	0.6822
8.48	0.0267	0.0251	0.0198	0.5864	0.0241	0.0238	0.0190	0.6293
9.46	0.0249	0.0232	0.0186	0.5973.	0.0247	0.0242	0.0191	0.6087
11.41	6.0204	0.0199	0.0154	0.5802	0.0183	. 0.0179	0.0126	0.4880
13.37	0.0158	0.0166	0.0103	0.4089	0.0158	0.0176	0.0114	0.4679
15.81	0.0132	0.0153	0.0079	0.3094	0.0128	0.0117	0.0076	0.3867
18.25	0.0119	0.0111	0.0057	0.2494	0.0151	0.0110	0.0073	0.3241
22.64	0.0090	0.0074	0.0023	0.0821	0.0077	0.0087	0.0034	0.1689
25.08	0.0077	0.0066	0.0022	0.0955	0.0667	0.0072	0.0018	0.0654
27.53	0.0062	0.0056	0.0015	0.0659	0.0055	0.0055	0.0018	0.1020
30.46	0.0051	0.0047	0.0011		0.0038	0.0046	0.0009	0.0420
34.85	0.0047	0.0042	0.0010	0-0444	0.0035	0.0032	0-0005	0.0407
40+22 50-29	0.0024	0-0024	0-0002	0.0201	0.0024	0-0023	0.0003	0_0501
····· 60.24	0.00012	0,0006	0.0002	0.0510	0.0010	0.0006	0.0001	0.0130
70.01	0.0003	0.0004	0.0000	0.0189	0.0003	0.0004	0.0000	0.0149
80.26	0.0002	0.0002	0.0000	0.0453	0.0002	0.0003	0.0000	0.0481

.

\*\*\*\*

1

TAELE C-3 (continued)

:

.

\*\*\*\*

WG(LB/SEC)	0.1742	0.1742	0.1742		0.1742	0.1742	0.1742	
WL(LB/SEC)	0.4700	0.4700	0.4700		0.5850	0.5850	0.5850	
CELL	B1	D2	CROSS (	COHERENCY	81	D2	CROSS C	OHERENCY
FREQ.(CPS)	**** NO	RMALIZED	VALUE **	****	**** NO	RMALIZED	VALUE **	***
0.18	0.0017	0.0018	0.0009	0.2663	0.0019	0.0019	0.0009	0.2022
0.67	0.0027	0.0028	0.0014	0.2746	0.0030	0.0032	0.0017	0.3157
1.16	0.0044	0.0042	0.0032	0.5399	0.0037	0.0038	0.0024	0.4076
1.65	0.0052	0.0060	0.0045	0.6516	0.0049	0.0065	0.0043	0.5848
2.14	0.0087	0.0084	0.0067	0.6164	0.0057	0.0060	0.0042	0.5194
2.63	0.0126	0.0120	0.0097	0.6257	0.0100	0.0097	0.0080	0.6678
3.11	0.0132	0.0140	0.0114	0.7072	0.0116	<b>0.0144</b>	0.0109	0.7155
3 <b>.</b> 6℃	0.0193	0.0208	0.0175	0.7629	0.0160	0.0165	0.0143	0.7804
4.09	0.0202	0.0208	0.0176	0.7377	0.0154	0.0162	0.0130	0.6796
4.58	0.0251	0.0246	0.0224	0.8179	0.0226	0.0246	0.0210	0.7935
5.07	0.0309	0.0306	0.0270	0.7749	0.0303	0.0309	0.0277	0.8166
5.55	0.0028	0.0285	0.0250	7.8916	0.0267	0.0257	0.0229	0.7630
6.53	0.0358	0.0373	0.0031	0.0073	0.0358	0.0403	0.0340	0.8028
7.51	0.0273	0.0238	0.0209	0.6715	0.0288	0.0300	0.0250	0.7215
8.48	0.0320	0.0304	0.0250	0.6432	0.0308	0.0282	0.0250	0.7188
9.46	0.0278	0.0252	0.0220	0.6896	0.0280	0.0263	0.0210	0.5969
11.41	0.0226	0.0225	0.0167	0.5492	0.0251	0.0207	0.0167	0.5385
13.37	0.0208	0.0201	0.0137	0.4472	0.0170	0.0180	0.0106	0.3644
15.81	0.0132	0.0132	0.0073	0.3060	0.0141	0.0162	0.0102	0.4512
18.25	0.0115	0.0102	0.0062	0.3249,	0.0125	0.0135	0.0081	0.3912
22.64	0.0071	0.0089	0.0027	0.1173	0.0085	0.0084	0.0032	0.1471
25.08	0.0064	0.0068	0.0025	0.1462	0.0067	0.0071	0.0032	0.2143
27.53	0.0052	0.0054	0.0013	0.0602	0.0056	0.0055	0.0020	0.1268
30.46	0.0055	0.0046	0.0018	0.1342	0.0041	0.0044	0.0013	0.0963
34.85	0.0025	0.0034	0.0006	0.0464	0.0032	0.0028	0.0006	0.0367
40.22	0.0017	0.0027	0.0004	0.0319	0.0021	0.0020	0.0004	0.0297
50.48	0.0011	0.0012	0.0001	0.0172	0.0010	0.0010	0.0002	0.0292
60.24	0.0005	0.0006	0.0001	0.0166	0.0004	0.0005	0.0001	0.0494
70.01	0.0003	0.0004	0.0001	0.0478	0.0003	0.0003	0.0001	0.0563
86.26	0.0002	0.0002	0.0000	0.0217	0.0002	0.0002	0.0000	0.0268

L

PHASE SPECTRA

-1-

\*\*\*\*

<b>*</b> *	* *	*
------------	-----	---

HGUR/SEC	) 0.0	0.0	0.0	0.0	0.0	0.0	0-0	0.0	0.0	0.0	
WILLB/SEC	) 0.0160	0.0280	0.0440	0.0800	0.1260	0,1800	0.2400	0.3500	0.4700	0.5850	
CELL	8102	B1D2	8102	P1D2	8102	B1D2	B1D2	6102	8102	B1C2	
FREC. (CPS	) ***** PHA:	SE IN RAD	IANS ***	**** PHA	SE IN RAD	IANS ***	***** PHA	SE IN RAD	IANS ****	*	
C.1	8 1.33	, 0.94	0.85	6.62	C.56	0.52	0.45	0.32	0.26	0.20	
1.1	6 5.59	2.93	2.17	2.00	1.92	1.77	1.71	1.43	1.28	1.05	
2.1	4 10.44	5.33	3.87	3.31	3.06	3.02	2.70	2.22	1.99	1.76	
3.1	1 14.88	7.60	5.62	4.99	4.60	4.28	4.00	3.13	2.95	2.58	
4.0	9 19.65	9.95	7.30	6.60	6.01	5.74	5.21	4.26	3.82	3.53	
5.0	1 24.40	15.44	9.19	8.26	7.43	7.21	6.67	5.43	4.81	4.51	
6.0	4 29.95	18.28	11.13	9.77	8.72	8.74	8.04	6.52	5.93	5.34	
7.0	2 34.43	21.20	12.84	11.10	10.37	16.00	9.27	7.72	6.96	6.27	
8.0	0 40.21	23.88	13.91	12.92	11.75	11.39.	10.76	8.62	7.78	6.98	
8.9	7 43.72	23.79	15.20	14.40	13.30	12.52	11.66	9.54	8.30	7.76	
9.9	5 44.21	26.13	17.37	14.94	14.70	13.73	12.75	10 <b>.</b> 4,8	9.71	8.82	
10.9	2 48.59	32.47	18.49.	16.70	15.62	15.05	14.45	11.65	10.38	9.54	
11.9	0 50.45	36.12	20.55	22.39	16.96	15.93	15.65	12.65	11.35	10.37	
12.8	8 48.84	39.14	22.62	26.27	18.61	17.85	16.42	13.77	12.10	11.17	
13.8	5 48.37	46.57	25.16	33.99	·19.17	19.62	17.54	14.25	12.99	12.20	
14.8	3 53.07	50.95	26.96	31.21	21.64	19.37	20.49	15.76	14.11	12.77	
15.8	1 51.94	59.23	27.97	36.06	22.87	22.50	29.04	16.74	15.26	13.52	
16.7	\$ 50.35	66+15	32.91	43.32	28.56	30.52	33.64	17.81	15.96	14.55	
17.7	6 48.40	70.40	32.35	44.16	32.68	36.99	35.17	18.55	15.81	15.27	
18.7	4 51.68	69.62	34 . 39	42.25	31.53	37.83	39.50	20.25	17.63	10.00	
19.7	1 50.10	12.00	34+10	45.40	35.43	41.11	47.79	20.54	10.72	17.04	
20.6	9 59+12	14+24	28.1.2	48.84	40.23	47.10	49.490 EE 9E	21.02	17.12	10 15	
21.0	7 01+19 A AC 01	17.14	57.01	45.90	42.689	55.07	55.25	22.03	27 01	19.70	
22.0	4 02∙čL 2 42 04	04.00 96.05	41.00	57.5	40.07	20.12	50.45	24.01	27.87	19.87	
23.5	2 02+CU 0 43 33	57 69	47.41	21.03	55 73	42 90	66 90	27.07	30-07	20.75	
24.0	0 02+33 7 68-36	90 51	44.83	61.47	50.45	66.40	71.43	30.12	37.00	22.57	
26.5	5 68.03	21.19	48.89	68.79	61.77	72.23	75.27	33.75	37.15	22.81	
27.5	3 72.61	93.63	52.25	69.75	64.77	72.34	76.10	33.07	43.92	29.82	· •
28.5	0 74.65	92.43	57.37	70.03	68.94	75.76	80.42	41.41	45.33	30.08	
29.4	8 73.37	56.01	62.03	72.35	75.18	79.47	83.11	42.64	49.29	32.35	、
30.4	6 76.11	100.87	69.97	77.29	79.14	83.59	83.59	43.07	55.47	32.58	
31.4	3 76.90	101.76	76.51	82.53	85.06	84.75	87.90	44.32	59.06	33.52	
32.4	1 80.34	107.13	78.59	89.48	86.18	89.69.	91.83	46.52	62.83	40.83	• •
33.3	9 82.73	110.81	83.C4	91.14	94.26	95.34	54.92	49.39	65.48	42.33	
34.3	6 88.08	113.76	84.90	\$7.21	99.21	102.17	97.38	54.73	71.35	48.33	
35.3	4 94.29	119.01	88.66	101.93	98.19	106.60	105.64	54.94	74.94	50.22	
36.3	2 98.00	125.46	92.79	109.57	100.26	105.11	111.18	59.37	77.64	55.69	
37.2	9 100.66	127.06	96.59	117.05	103.09	111.75	117.59	63.70	77.88	56.91	-
38.2	7 100.72	1 2 . 47	97.69	121.28	110.91	. 110.89	118.92	66.64	81.29	59.09	

		-	•									
	WG(LB/SEC)	0.0976	0.0976	0.0976	0.0976	0.0976	0.0976	0.0976	0.0976	0.0976	0.0976	
	WL(LB/SEC)	Ŭ.0160	0.0280	0.0440	0.0800	0.1260	0.1800	0.2400	0.3500	0.4700	0.5850	
	CELL	B1D2	B1D2	81D2 ·	B1D2	B1D2	B102	B1D2	<b>B1</b> D2	B1D2	B102	
	FREQ.(CPS)	**** PHAS	SE IN RAD	IANS ***	**** PHAS	E IN RADI	ANS ***	**** PHAS	E IN RAD	LANS *****	•	
	0.18	0.69	0.24	0.43	0.53	0.53	0.57	0.45	1.89	0.10	0.24	
	1.15	5.47	3.28	1.90	1.75	1.59	1.45	1.29	1.16	C.98	0.94	
	2.14	9.95	5.97	3.31	2.93	2.66	2.51	2.31	1.89	1.71	1.67	
	3.11	14.11	8.87	4.91	4.27	3.79	3.59	3.21	2.72	2.50	2.35	
	4.09	19.18	11.60	6.68	5.74	5.00	4.65	4.14	3.61	3.41	3.10	
	5.07	23.25	14.44	8.44	6.99	6.27	5.91	5.33	4.64	4.19	3.91	
	6.04	27.51	17.54	9.79	8.18	7.43	6.97	6.38	5.57	5.17	4.68	
	7.02	32.55	20.84	10.63	9.66	8.73	8.30	7.45	6.57	5.84	5.53	
	8.00	36.58	23.46	12.77.	10.87	9.77	9.36	8.45	7.53	6.78	6.27	
	8.97	42.41	24.88	14.48	12.34	11.07	10.59	9.45	8.28	7.65	7.08	
	9.95	46.14	26.94	15.62	13.45	12.02	11.73	10.51	9.30	8.30	7.68	
	10.92	45.62	31.87	17.08	15.04	13.23	12.71	11.55 .	10.10	9.27	8.57	
	11.90	49.77	33.46	19.65	16.17	14.80	14.01	12.59	10.74	10.16	9.38	
	12.88	56.71	39.34	. 23.69	17.22	15.84	14.89	13.54	11.92	10.93	10.12	
	13.85	56.41	. 45.59	29.44	18:34	16.87	16.13	14.52	12.95	11.98	11.06	
	14.83	60.83	49.99	29.37	20.27	18.54	17.52	15.45	13.92	12.66	11.94	
	15.81	64.77	50.84	31.35	22.49	19.13	.18.88	16.47	15.14	13.60	12.61	
	- 16.78	67.50	52.74	38.89	22.32	20.12	19.55	17.37	21.27	14.25	13.32	
	17.76	67.95	50.89	47.63	28.39	22.27	20.71	19.19	23.57	15.01	14.20	
	18.74	68.54	58.27	47.70	33.10	23.28	21.72	19.90	26.25	15.91	14.87	
	19.71	72.22	63.66	51.41	31.83	23.96	23.17	19.23	25.06	16.90	15.38	
	20.69	75.37	65.46	51.90	34.94	25.25	25.68	21.22	30.08	18.08	16.54	
	21.67	76.97	68.05	53.75	37.54	25.33	24.48	23.11	35.48	18.59	17.60	
	22.64	78.57	71.36	54.99	39.98	28.04	27.36	23.70	39.91	19.13	17.85	
	23.62	82.56	78.73	62.32	42.36	29.15	28.64	23.66	39.72	20.52	18.55	
	24.60	83.56	82.28	64.11	45.84	30.96	27.24	27.04	41.06	20.77	19.86	
	25.57	82.36	86.35	67.54	50.08	32.95	29.74	30.51	41.44	21.11	20.23	
	26.55	89.27	92.95	69.94	54.73	38.03	31.80	32.62	42.13	22.48	21.41	
	27.53	89 <b>.</b> 35	97.83	77.32	59.74	38.33	32.65	38.82	43.79	23.17	23.21	
	28.50	95.48	99.59	75.28	68.64	43.57	33.59	41.67	44.90	24.27	23.79	
	29.48	99.91	100.05	76.48	71.35	48.33	36.27	43.89	45.63	26.31	24.39	
	3146	104.23	100.31	80.35	73.65	47.96	41.04	44.65	49.63	26.50	24.67	,
	31.43	110.69	105.16	87.35	77.33	54.35	49.94	51.51	53.76	26.31	25.75	
-	32.41	118.25	108.59	90.18	78.75	58.24	52.45	59.29	54.34	27.23	32.11	
	33.39	123.85	109.29	90.54	82.23	62.53	57.42	60.91	54.90	34.94	35.45	
	34.36	124.61	113.79	93.04	88.92	67.13	60.66	65.06	60.33	37.04	38.91	
	35.34	125.19	117.50	93.56	88.96	68.42	59.87	69.06	63.87	42.27	41.46	
	36.32	125.22	119.62	95.47	91.14	75.00	62.94	73.05	64.00	44.00	44.03	
	37.29	126.43	123.89	102.06	96.48	74.19	62.76	76.52	65.60	45.77	46.76	
	38.27	127.18	123.91	105.32	99.48	79.82	65.32	77.28	66.45	44.49	50.55	
				:	-							

	WG(LB/SEC)	0.0450	0.0450	0.0450	0.0450	0.0450	0.0450	0.0450	0.0450	0.0450	0.0450
	WL(LB/SEC)	0.0160	0.0280	0.0440	0.0800	0.1260	0.1800	0.2400	0.3500	0.4700	0.5850
	CELL	B1D2	B1D2	B1D2	B1D2	B1D2	8102	B1D2	B1D2	B1D2	B1D2
	FREQ.(CPS)	**** PHAS	E IN RAD	IANS ***	**** PHA:	SE IN RAD	IANS ***	**** PHAS	SE IN RADI	ANS ****	k
	0.18	1.21	0.81	0.64	0.42	0.45	0.34	0.33	r.37	0.33	0.29
	1.16	5.39	3.14	2.07	1.87	1.76	1.60	1.57	1.43	1.26	1.20
-	214	9.59	6.15	3.82	3.25	3.05	3.00	2.65	2.25	2.08	1.89
÷	3.11	14.17	8.73	5.44	4.64	4.32	4.24	3.78	3.22	3.00	2.70
÷	4.09	18.28	12.07	7.19	6.41	5.85	5.58	5.09	4.38	3.92	3.64
•	5.07	22.47	14.01	9.00	7.87	7.49	6.88	6.46	5.58	4.94	4.55
	6.04	27.86	17.66	10.35	9.25	8.76	8.45	7.88	6.68	6.02	5.52
	7.02	32.48	22.10	11.96	10.84	10.26	9.76	9.13	7.66	6.91	6.50
	00.5	37.92	25.28	14.23	12.13	11.36	11.12	10.07	8.90	7.65	7.25
	8.97	41.04	29.80	15.47	13.20	12.97	12.25	11.58	9.85	8.79	8.07
÷	9.95	47.98	30.58	17.01	15.10	14.44	13.78	12.67	10.94	9.65	8.91
	10.92	51.93	30.71	20.57	16.33	15.64	14.64	13.47	11.72	10.63	9.75
	11.90	58.93	38.20	28.46	17.22	16.87	16.46	15.19	12.84	11.39	10.73
	12.88	66.50	41.54	33.75	20.26	17.91	17.43	16.14	13.86	12.37	11.48
۰.	13.85	69.63	44.22	38.00	24.02	19.23	18.41	18.37	14.77	13.36	12.53
۰	14.83	67.85	47.14	_45.34	23.40	21.09	20.42	19.34	15.62	14.33	13.23
	15.81	70.63	50.80	46.69	23.54	23.46	21.59	20.61	17.27	15.39	14.01
	16.78	69.37	58.22	52.27	26.17	29.58	24.17	20.55	17.74	16.25	14.82
	17.76	69.71	63.25	60.93	29.52	30.93	30.40	23.41	19.13	17.11	15.92
	18.74	73.76	69.08	68.85	33.40	31.03	31.05	30.40	21.88	17.81	16.42
:	. 19.71	79.87	70.26	71.20	31.35	38.86	32.47	30.79	21.23	19.00	18.06
-	20.69	84.54	75.30	71.86	36.53	39.90	30.37	35.45	21.24	19.00	18.14
	21.67	85.31	79.80	73.37	38.84	42.30	32.80	38.97	23.55	20.53	19.39
	22.64	85.77	79.06	78.91	41.73	44.20	39.15	42.11	24.16	20.81	18.85
	23.62	88.44	86.40	88.51	48.42	52.59	46.43	42.82	26.07	22.60	20.88
	24.60	96.43	91.72	91.49	48.10	55.26	54.02	41.32	28.29	23.01	22.03
:-	. 25.57	105.19	93.54	92.97	20.42	60.51	62.20	41.85	29.24	29.58	22.14
	- 20.55	110.31	96.54	98.79	64.52	62.15	70 01	43.24	31.19	30.81	. 23.29
	21.00	111 56	101.58	101.18	65 00	74 09	74 09	40.00	20.42	28.42	23.23
	20.00	111.00	107.98	100.82	60 87	77 05	79.00	40 22	27.75	40.03	24.92
	29.43	110 07	110.91	104.07	68 25	11.05	01 00	45 43	20.00	44.10	27.01
	31 43	110.62	120 51	100.42	71.43	82.36	80 61	66.65	38 41	40.33	21.07
•	32 41	118 42	120.01	112 44	73.21	84 86	80 60	68 66	A1 00	40+21	• 21 • 20
-	. 22.71	110.45	120.05	112.444	76 76	04.00	07.00	69.97	48.08	40.20	20.00
	36 36	110.97	129.90	112.41	77.15	90.01	92.01	77.28	50.97	47.77 57 19	36 28
	25 24	110 84	120 20	122 20	81 42	00 5/	93417	85.80	59.56	57 21	20 14
	22+24	119 64	131 88	130 40	84.90	102.46	101-80	88.07	64.42	63 65	27+14 61.60
	37.29	119.25	134.30	132.36	90-86	108.43	106.54	88.51	67.75	66.45	45.40
	38.27	119.34	137.89	134.29	94.14	112.34	105.56	92.76	68.46	67.66	46.89
	30421								000.00	000	10.03

WG(LB/SEC)	0.1436 0.0160	0.1436	0.1436	0.1436	0.1436	0.1436	0.1436	0.1436	0.1436	0.1436
CELL	8102	8102	8102	6102	0107	0.1000	9100	8102	8102	B102
ESED. (CPS)	***** 040	SE IN RAD	IANS ***					E IN RAD	***** 2MA	UIUZ
0.18	0.47	0.43	0.47	ግግግግ 2043		(1.30	0.06	0.13	0.41	0.21
1.16	5.61	3.61	1.64	1 54	1 49	1 3 มี	1.16	0.90	0.93	0.80
2.14	10.18	6.05	2.89	2 6 2	2 25	2 31	2.05	1.82	1.61	1.54
3.11	13.52	8.77	4.28	3 96	3.40	3.16	2.76	2.65	2.41	2.18
4.09	18.31	11.47	5.57	5.0	4.35	4.16	3.83	3.35	2.95	2.89
5.07	24.58	14.76	6.69	6.49	5.63	5.18	4.63	4.12	3,93	3.55
6.04	26.84	17.31	8.01	7 73	6.71	6.21	5 63	5.12	4.69	4.41
7.02	36.97	20.57	9.25	8.86	7.83	7.20	5.50	5.88	5.34	5.11
8.00	31.60	22.87	10.51	10.24	8.91	8.15	7.55	6.69	6.06	5.88
8.97	34.55	28.90	11.82	11.69	10.02	9.16	8-28	7.46	6.80	6.60
9.95	38.08	32.74	12.68	12.90	11.37	10,18	9,53	8.27	7.64	7.37
10.92	45.54	40.43	14.29	13.88	12.45	11.28	10.24	9.08	8.39	7.91
11.90	47.85	42.12	15.53	15.14	13.54	11.95	11.15	9.80	9.20	8.64
12.88	53.18	44.81	16.78	16.65	14.23	13.09	12.07	10.76	10.19	9.52
13.85	59.00	45.22	17.15	17.82	15.59	14.10	13.01	11.54	10.69	10.16
14.83	64.27	53.25	18.97	18,80	16.36	15.39	14.07	12.58	11.41	10.92
15.81	68.35	56.51	20.70	- 19,98	17.41	16.10	14.79	13.22	12.39	11.67
16.78	7.3.85	59.34	22.27	21.60	18.62	17.06	15.76	14.32	12.93	12.52
17.76	75.38	63.07	28.59	22.53	19.66	17.92	16.79	15.04	14.17	13.11
18.74	77.05	65.52	31.71	24.87	21.00	19.47	17.76	15.59	14.53	13.84
19.71	79.18	68.98	31.99	27.18	21.26	22.01	18.03	16.57	15.16	14.59
20.69	82.77	72.70	37.36	32.56	27.83	21.37	19.53	17.47	16.37	15.27
21.67	83.09	78.64	42.60	33.61	30.66	21.47	20.33	18.20	16.94	16.19
22.64	82.16	84.57	42.38	36.04	33.45	22.34	20.53	19.39	17.19	16.64
23.62	83.27	83.54	44.53	37.40	38.46	28.18	22.19	19.39	18.73	17.21
24.63	88.24	85.77	46.75	37.37	40.60	30.06	23.62	20.66	19.34	18.14
25.57	93.66	92.28	49.56	37.28	41.35	32.97	24.31	21.63	20.75	18.94
26.55	94.03	93.08	49.67	40.36	42.55	33.86	24.29	22.32	21.62	19.55
27.53	98.15	95.43	50.51	41.71	47.18	38.52	27.13	22.75	21.54	20.06
28.5	105.14	99.35	56.26	50.90	50.64	46.24	26.09	23.18	21.33	21.41
29.48	107.43	102.12	57.21	50.48	50.09	49.12	32.44	24.67	24.05	22.89
30.46	110.26	102.03	64.72	55.16	55.04	56.93	36.27	25.29	23.37	27.35
31.43	114.66	106.09	68.11	57.28	55.90	61.28	37.30	27.02	25.36	29.45
32.41	118.48	106.75	69.52	63.87	65.58	63.50	39.96	27.32	31.36	31.29
33.39	121.15	110.99	75.16	69.87	68.85	64.16	39.24	28.12	32.42	30.93
° 34 <b>.</b> 36	123.88	113.01	79.88	75.12	72.61	67.85	44.10	28.48	32.07	31.87
35.34	130.19	113.46	79.58	78.28	79.27	71.52	44.15	30.98	33.82	32.42
36.32	132.05	121.29	85.11	81.03	84.03	73.84	48.47	33.64	34.83	38.24
37.29	138.76	127.10	90.24	84.03	85.78	77.53	54.01	41.07	40.69	40.44
38.27	138.42	126.46	91.86	86.77	93.46	82.90	58.74	50.56	42.34	39.92

	WG(LB/SEC)	0.1742	0.1742	0.1742	0.1742	0.1742	0.1742	0.1742	0.1742	0.1742	0.1742		
	WL(LB/SEC)	0.0160	0.0280	0.0440	0.080.0	0.1260	0.1800	0.2400	0.3500	0.4700	0.5850	•	
	CELL	B1D2	B1D2	<b>B1</b> D2	B102	B1D2	B102	B1D2	8102	B1D2	B1D2		
	FREQ.(CPS)	**** PHA:	SE IN RADI	[ANS ***	**** PHA	SE IN RAD	IANS ***	**** PHA	SE IN RAD	[ANS ****		•	
	0.18	0.51	0.53	0.47	0.43	0.39	0.56	0.70	0.55	0.54	-0.08		
	1.10	5.87	2.68	1.47	1.58	1.26	1.25	1.10	0.99	0.75	0.69		
	2.14	7.16	5.42	2.69	2.52	2.17	2.01	1.85	1.61	1.55	1.59		
	3.11	6.13	8.45	3.87	3.56	3.14	2.96	2.68	2.48	2.16	2.05		
	4.09	7.79	11.52	5.07	4.68	4.02	3.81	3.53	3.20	2.89	2.75		
	5.07	6.85	14.59	6.23	5.80	4.96	4.70	4.39	3.93	3.55	3.47		
•	6.04	7.27	17.43	7.50	6.93	6.13	5.65	5.22	4.80	4.40	4.14		
•	7.02	6.42	19.94	8.83	8.16	7.06	6.53	6.05	5.58	5.14	4.85	:	•
;	6.00	7.87	22.49	10.02	9.18	8.05	7.51	7.01	6.48	5.81	5.60		
	8.97	14.15	24.19	11.12	10.31	9.18	8.28	7.79	7.03	6.73	6.41		
:	9.95	13.20	29.31	12.41	11.59	10-06	9.36	8.66	7.90	7.33	7.06		
	10.92	13.49	32.96	13.62	12.60	11.14	10,18	9.36	8.64	8.10	7.63		
	11.90	15.04	35.78	14.58	13.65	12.09	11.08	10.32	9.63	8.68	8.35		
	12.88	18.65	35.76	. 15.79	14.79	13.01	12.12	11.22	10.28	9.57	8.90		
	13.85	19.21	. 42.20	17.27	15.83	13.90	12.95	11.48	11.10	10.23	9.69	•	
	14.83	20.15	45-91	18.09	16.86	14.64	13.86	12.88	11.79	10.84	10.37	• •	
	15-81	21.47	51.64	19.60	18.09	15.87	14.70	13.61	12.67	11.80	11.10		
•	16.78	25.87	59.62	20.82	18 93	16 45	15.52	14.56	13.43	12.52	11.65	•	
	17.76	28.28	56.88	21.67	20.56	18 15	16.59	15 62	14 34	13 09	12.43		
•	18.74	33,36	57.74	23.47	20.00	10.15	17.51	16.30	14.86	13.93	13.21	•	
	19.71	• 40.36	59 43	22.03	21 • 20	19.76	10 45	17 24	15.75	14.42	13.81	• i	
•	20.60	40.00	60 96	25 60	22.44	19.77	10 59	18 01	16 40	15.45	14.62		
	21.67	71.077	62 00	20.00	20.10	17.11	17.00	10+01	17 65	12 75	14.02		
•	21.01	45.07	66 20	20.00	24.80	21.04	20.23	10+21	10 24	10.23	12+11	• •	
÷		40.00	71 60	20+11	22.43	22.09	20.49	17.47	10.00	10.02	16.01		
•	21.02	40-20	71.00	29.19	20.47	24.08	22+24	20.03	10.90	17.00	10.44		
:	24.03	21.17	11.90	30.54	32.33	24.14	23.32	21.22	19.07	10 02	17.00		
	20.01	20.24	02 • 12	32.50	31.12	24.93	23.93	22+21	20.42	10.72	10 37		
	20.00		07.41	21.41	41.05	20.04	24.12	22.00	22.00	20 20	10.34	•	
••	21.23	64.04	94.02	21.09	42.98	20.04	20.20	23.90	22 • 28	20.20	20 22	-:	
•	20.01	76 51	74.41	27.21	42.12	29.41	20.00	24•24 35 56	27.43	21.00	20.22		
	27.48	13.74	71.20	42.01	48+47 70 01	34.00	21.03	27.27	23.19	21.00	21.00	•	
1		07 05	100.45	42.30	47.71	40.24	21.04	20.04	22.13	23.10	21.00		
	51.43	01.00	107 22	43.14	20.22	41 . 70	24.41	21.04	24.90	23.11	22+21		
	32.41	72.57	100.10	42.10	04.90	43.70	30.20	20.01	22.93	24+44	22.04		
	22.37	90.0Z	108-18	40.50	70.04	44.11	1 30 00	34.31	21.10	24.17	22.73		
	34.30	102.31	101.30	40.17	13.50	48.69	59.03	34.55	28.82	20.19	24.00		
	35.34	109.23	112.22	22.84	83.38	51.19	44.97	43.08	- 30.01	20.92	24.51		
	30.32	115.04	111.36	22.01	90.11	48.51	40.15	44.59	41.75	21.93	20.01	.'	
	37-29	117+04	124.57	56.77	96.39	54.10	49.30	45.09	43.04	21.46	22.45		
:	36.27	122.11	125.22	55.76	95.47	62.26	47.62	46.10	43.83	27.39	27.22		
							-						$\omega$
•							1						2
·													. v
							1						

**.**. -

•

!

· .

										<b>•</b> <i>(</i>	0.0	0.0	• • •
WGILB/	(SEC)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0440	. 0.0440	0.0440
WLILB/	SECT	0.0160	0.0160	9.0160	0.0160	0.0280	0.0280	0.0280	0.0280	0+0440	0.0440	140	0.0440
	.L	U1	02	LAG	LEAD	81	02	LAG	LEAD	· ••••••••••••••••••••••••••••••••••••			LENU
TIMETS	FC)	***** NU	IRMALIZED	VALUE #*	· · · · · · · · · · · · · · · · · · ·	***** NU	IRMALIZED	VALUE **	~ ~ ~ ~	1 0000	I COLO	VALUE **	· · · · · · · · · · · · · · · · · · ·
0.	0000	1.0000	1.0000	0.1692	0.1692	1.0000	1.0000	0.0948	0.0948	0 7775	1.0000	0.3001	0.3495
0.	0080	0.8037	0.8164	0.1672	0.1619	0.7695	0.7873	0.0930	0.0940	0 5270	0 6033	0.3355	0.3075
0.	0160	0.4608	0.4826	0.1573	0.1409	0.4239	0.4318	0.0862	0.0881	0.3607	0.7571	0.2059	0 2027
<b>U</b> .	0240	0.1752	0.1913	0.1410	0.1105	0.1059	0.1584	0.0761	0.0830	0 2246	0.7203	0 2562	0 2509
0.	0320	-0.0180	-0.0093	0.1171	0.0821	0.0077	-0.0119	0.0639	0.0767	0 1453	0 1490	0 2200	0.2016
0.	0400	-0.1345	-0.1278	0.0872	0.0603	-0.10742	-0.1369	0.0450	0.0704	0.0475	0.0422	0 1862	C 1551
0.	0480	-0.1923	-0.1848	0.0487	0.0432	-0.1054	-0.1300	0.0225	0.0194	0.063-	0.0522	0 1632	0.1163
0.	0300	-0.2078	-0.1977	0.0097	0.0288	-0.0046	-0.1059	-0.0166	0.0771	0.0126	0 0 2 3 3	0 1 2 3 ()	0.0800
0.	0040	-0.1416	-0.1614	-0.0221	0.0221	-0.0773	-0.10+8	-0.0140	0.0777	-0.0120	0.00255	0.0934	0.0510
0.	6000	-0.1324	-0.1003	-0.0573	0.0144	-0.0596		-0.023	0 0775	-0.0327	-0.0125	0.0646	0.0250
0.	0860	-0.0853	-0.1095	-0.0548	0.0136	-0.0203	-0.0296	-0.0293	0.0796	-0.0493	-0.0231	0.0335	0.0051
с. С.	0960	-0.0051	-0.0356	-0.0637	0.0131	-0.0385	-0.0134	-0.0273	0.0100	-0.0603	-0.0314	0.0151	-0-0081
0.	1040	-0.0295	-0.0048	-0.0564	0.0144	-0.0370	0.0003	-0.0262	0.0910	-0.0661	-0.0389	-0.0041	-0.0163
0.	1120	-0.0063	0.0193	-0.0420	0.0188	~0.0352	0.0125	-0.0291	0.0931	-0.0692	-0.0449	-0.0185	-0.0252
0.	1200	0.0126	0.0331	-0.0206	0.0240	-0.0279	0.0188	-0.0326	0.0896	-0.0109	-0.0485	-0.0285	-0.0368
0.	1280	0.0236	0.0396	0.0055	0.0219	-0.0170	0.0207	-0.0339	0.0840	-0.0697	-0.0515	-0.0353	-0.0479
0.	1360	0.0245	0.0422	0.0306	0.0148	-0.0081	0.0197	-0.0281	0.0790	-0.0572	-0.0549	-0.0397	-0.0587
с.	1440	0.0226	0.0441	0.0528	0.0092	0.0005	0.0193	-0.0138	0.0683	-0.0663	-0.0556	-0.0442	-0.0631
0.	1520	0.0222	0.0429	0.0704	0.0044	0.0042	0.0188	0.0017	0.0514	-0.0673	-0.0556	-0.0475	-0.0640
0.	1600	0.0239	0.0417	0.0820	0.0023	0.0022	0.0157	C.0146	0.0351	-0.0651	-0.0543	-0.0523	-0.0635
Ο.	1680	0.0266	0.0399	0.0888	0.0023	-0.0028	0.0092	0.0213	0.0262	-0.0646	-0.0515	-0.0527	-0.0641
0.	1760	0.0273	0.0333	0.0863	0.0031	-0.0070	-0.0008	0.0256	0.0209	-0.0640	-0.0501	-0.0509	-0.0639
с.	1840	0.0275	0.0229	0.0745	-0.0001	-0.0075	-0.0133	0.0262	0.0180	-0.0631	-0.0526	-0.0497	-0.0599
Ο.	1920	0.0225	0.0192	0.0571	-0.0022	-0.0052	-0.0253	0.0220	0.0141	-0.0537	-0.0590	-0.0508	-0.0537
с.	2000	C.0151	0.0031	0.0378	-0.0042	-0.0019	-0.0323	0.0156	0.0057	-0.0515	-0.0596	-0.0498	-0.0458
0.	2080	0.0090	0.0003	0.0185	-0.0045	-0.0003	-0.0316	0.0127	-0.0032	-0.0489	-0.0565	-0.0485	-0.0409
0.	2160	0.0070	-0.0010	0.0007	-0.0024	-0.0005	-0.0240	0.0102	-0.0087	-0.0501	-0.0536	-0.0468	-0.0356
0.	2240	0.0648	-0.0086	-0.0114	-0.0008	-0.0056	-0.0192	0.0047	-0.0140	-0.0517	-0.0515	-0.0475	-0.0357
0.	2320	0.0017	-0.0163	-0.0212	-0.0002	-0.0123	-0.0188	0.0014	-0.0183	-0.0512	-0.0496	-0.0505	-0.0317
0.	2400	-0.0053	-0.0205	-0.0295	0.0010	-0.0171	-0.0193	-0.0006	-0.0203	-0.0478	-0.0496	-0.0549	-0.0248
0.	2480	-0.0144	-0.0193	-0.0367	0.0044	-0.0180	-0.0179	-0.0026	-0.0202	-0.0445	-0.0497	~0.0572	-0+0290
0.	2560	-0.0212	-0.0148	-0.0340	0.0067	-0.0140	-0.0123	-0.0059	-0.0150	-0.0426	-0.0490	-0.0543	-0.1298
0.	2640	-0.0246	-0.0114	-0.0243	0.0073	-0.0042	-0.0063	-0.0071	-0.0084	-0.0445	-0.0483	-0.0529	-0.0283
0.	2720	-0.0268	-0.0098	-0.0155	0.0050	0.0628	-0.0057	-0.0135	-0.0006	-0.0468	-9.0432	-0.0000	-0.0270
<u>0</u> .	2900	-0.0283	-0.0125	-0.0154	-0.0006	0.0021	-0.0030	-0.0215	0.0051	-0.0466	-0.0443	-0.0471	-0.0312
0.	2580	-0.0247	-0.0149	-0.0186	-0.0090	-0.0069	0.0064	-0.0251	0.0094	-0.0433	-0.052(	-0.0392	-0.0400
0.	2950	-0.0194	-0.01/1	-0.0183	-0.0206	-0.0201	0.0147	-0.0254	0.0082	-0.0410	-0.0526	-0.0303	-0.0479
0.	3040	-0.0157	-0.0155	-0.0147	-0.0296	-0.0264	0.0159	-0.0202	-0.0027	-0.0405	-0.0517	-0.0393	-0.0498
0.	3120	-0.0127	-0.0080	-0.0098	-0.0283	-0.0278	0.0102	-0.0119	-0.0179	-0.0411	-U.U48Z	-0.0388	-0.0487

i.

1

ι

WG(LB/SEC)	. 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WL(LB/SEC)	0030.0	0.0800	0.0800	0.0800	0.1260	0.1250	0.1260	0.1260	0.1800	0.1800	0.1800	0.1800
CELL	81	C2	LAG	LEAD	81	D2	LAG	LEAD .	81	C2	LAG	LEAD
TIME(SEC)	**** N(	RMALIZED	VALUE **	****	***** N(	DRMALIZED	VALUE **	***	***** ()(	RMALTZED	VALUE **	***
0.0	1.0000	1.0000	0.4602	0.4602	1.0000	1.0000	0.5659	0.5659	1.0000	1.0000	0.5537	0.5537
0.0080	0.8283	0.8177	0.4516	0.4434	0.8436	0.8233	0.5468	0.5400	0.8252	0.3013	0.5281	0.5272
0.(160	0.5714	0.5574	0.4216	C.4C46	0.5944	0.5622	0.4878	0.4711	0.5542	0.5144	0.4618	0.4549
0.0240	0.3698	0.3586	0.3720	0.3515	0.3817	0.3573	0.4050	0.3714	C.3296	0.2964	0.3682	0.3466
0.0320	0.2250	0.2177	0.3099	0.2791	0.2144	0.2648	0.3152	0.2584	0.1582	0.1413	0.2640	0.2225
0.0400	0.1202	0.1160	0.2437	0.1938	0.0857	0.0898	0.2238	0.1504	0.0303	0.0290	0.1613	0.1037
0.0480	6.0432	0.0432	0.1746	0.1119	-0.0692	0.0022	0.1296	0.0525	-0.0631	-0.0548	0.0629	0.0011
0.0560	-0.0176	-0.0091	0.1078	0.0414	-0.0731	-0.0639	0.0412	-1.0277	-0.1310	-0.1168	-0.0273	-0.0304
0.0540	-0.0643	-0.0476	0.0513	-0.0134	-0.1297	-0.1141	-0.0352	-0.0859	-0.1821	-0.1623	-0.1078	-0.1380
0.0720	-0.0957	-0.0752	0.0043	-0.0526	-0.1662	-0.1498	-0.0980	-C.1277	-0.2207	-0.1940	-0.1741	-0.1735
0.0800	-0.1165	-0.0940	-0.0340	-0.0767	-0.1902	-0.1738	-0.1469	-0.1558	-0.2473	-0.2119	-0.2187	-0.1935
0.0880	-0.1306	-0.1077	-0.0641	-0.0903	-0.2063	-0.1904	-0.1829	-0.1725	-0.2614	-0.2200	-0.2450	-0.2012
0.0960	-0.1404	-0.1174	-0.0960	-0.0985	-0.2143	-0.1983	-0.2052	-0.1800	-0.2040	-0.2201	-0.2590	-0.1982
0.1040	-0.1452	-0.1233	-0.1127	-0.1027	-0.2150	-0.1982	-0.2168	-0.1809	-0.2554	-0.2134	-0.2609	-0.1900
0.1120	-0.1440	-0.1241	-0.1276	-0.1045	-0.2131	-0.1922	-0.2187	-9.1777	-0.2355	-0.1989	-0.2517	-0.1771
0.1200	-0.1428	-0.1225	-0.1367	-0.1044	-0.2077	-0.1819	-0.2117	-0.1731	-0.2075	-0.1765	-0.2306	-0.1610
0.1280	-0.1396	-0.1183	-0.1401	-0.1011	-6.2008	-0.1700	-0.2004	-0.1681	-0.1769	-0.1505	-0.1994	-0.1432
0.1360	-0.1346	-0.1143	-0.1380	-0.0963	-0.1900	-0.1571	-0.1880	$-0.1599^{!}$	-0.1463	-0.1240	-0.1624	-0.1263
6.1445	-9.1275	-0.1105	-0.1315	-0.0907	-0.1754	-0.1425	-0.1737	-0.1488	-0.1117	-0.0949	-0.1239	-0.1076
0.1520	-0.1189	-0.1042	-0.1224	-0.0837	-0.1572	-0.1274	+0.1572	-0.1348,	-0.0737	-0.0776	-0.0857	-0.0855
0.1600	-0.1070	-0.0950	-0.1134	-0.0754	-0.1356	-0.1136	-0.1412	-0.1188	-0.0366	-0.0540	-0.0478	-0.002
0.1680	-0.0930	-0.0835	-0.1053	-0.0671	-0.1142	-0.1007	-0.1236	-0.1026	-0.0049	-0.0294	-0.0126	-0.0324
0.1760	-0.0802	-0.0717	-0.0970	-0.0615	-0.0912	-0.0878	-0.1005	-0.0892	0.0204	-0.0061	0.0189	-0.0050
0.1846	-0.0693	-0.0627	-0.0872	-0.0568	-0.0687	-0.0747	-0.0734	-0.0756	0.0427	0.0125	0.0460	C.0156
0.1920	-0.0589	-0.0576	-0.0757	-0.0534	-0.0456	-0.0595	-7.0462	-0.0574	0.0617	0.0266	0.0696	0.0289
0.2000	-0.0508	-0.0545	-0.0618	-0.0496	-0.0227	-0.0409	-0.0138	-0.0370	0.0787	0.0414	0.0897	0.0386
0.2080	-0.0477	-0.0517	-0.0454	-0.0487	-0.0002	-0.0198	0.(040	-0.0201	0.0893	0.0575	0.1007	0.0440
0.2160	-0.0457	-0.0474	-0.0319	-0.0504	0.0223	0.0013	0.0198	-0.0068	0.0909	0.0679	0.1047	0.0479
0.2240	-0.0427	-0.0445	-0.0231	-0.0525	0.0420	0.0191	0.0304	0.0076	0.0832	0.0708	0.1042	0.0499
0.2320	-0.0367	-0.0407	-0.0189	-0.0546	0.0553	0.0330	0.0425	0.0243	0.0695	0.0697	0.0961	0.0488
0.2400	-0.0332	-0.0353	-0.0160	-0.0533;	0.0011	0.0429	0.0559	0.0385	0.0534	0.0656	0.0830	0.0440
0.2480	-0.0278	-0.0313	-0.0121	-0.0507	0.0652	0.0479	0.0641	0.0502	0.0370	0.0543	0.0652	0.0377
0.2560	-0.0230	-0.0305	-0.0075	-0.0498	0.0076	0.0475	0.0678	0.0569	0.0242	0.0350	0.0431	0.0301
0.2640	-0.0196	-0.0298	-0.0062	-0.0505	0.0637	0.0442	0.0647	0.0614	0.0145	0.0124	0.0192	0.0205
0.2725	-0.0157	-0.0278	-0.0084	-0.0493	0.0579	0.0394	0.0589	0.0610	0.0030	-0.0056	-0.0038	0.0131
0.2800	-0.0148	-C.0235	-0.0122	-0.0444	0.0530	0.0335	0.0525	0.0556	-0.0087	-0.0138	-0.0220	0.0029
0.2880	-0.0174	-0.0131	-0.0137	-0.0353	0.0491	0.0330	0.0481	0.0469	-0.0185	-0.0238	-0.0328	-0.0103
0.2960	-0.0203	-0.0165	-0.0141	-0.0247	0.0430	0.0353	0.0463	0.0382	-0.0273	-0.0210	-0.0371	-0.0224
0.3040	-0.0209	-0.0176	-0.0173	-0.0149i	0.0345	0.0367	0.0474	0.0297:	-0.0351	-0.0184	-0.0364	-0.0274
0.3120	-0.0191	-0.0167	-0.0219	-0.0073	0.0266	0.0386	0.0486	0.0239	-0.0393	-0.0138	-0.0335	-0.0251
				•				•				

· · · · · · · ·

• • ••

<u>.</u>.....

,

...**.** 

.

														÷
	WG(LBZSEC)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0-0	0.0	0.0	0.0	0.0	
. •	WL(LB/SEC)	0.2400	0.2400	0.2400	0.2400	0.3500	0.3500	0.3500	0.3500	0.4700	0.4700	0.4700	0.4700	
·	CELL	81	D2	LAG	LEAD	81	D2	LAG	LEAD	B1	D2	LAG	LEAD	
	TIME(SEC)	**** NC	ORMALIZED	VALUE **	***	**** NC	RMALIZED	VALUE **	***	**** NC	RMALIZED	VALUE **	***	
	<b>C</b> .O	1.0000	1.0000	0.5005	0.5005	1.0000	1.0000	0.5910	0.5910	1.0000	1.0000	0.6601	0.6601	
	0.0080	0.8153	0.7863	0.4725	Ú•4835	0.8165	0.7910	0.5607	0.5425	0.8230	0.8030	0.6013	0.6193	
•	0.0160	0.5215	6.4780	0.4044	0.4224	0.5179	0.4771	0.4719	0.4226	0.5289	0.4933	0.4722	0-4901	
	0.0240	0.2785	0.2491	0.3122	C.3251	0.2754	0.2400	0.3517	0.2745	0.2849	0.2518	0.3210	0.3211	
	0.0320	0.0960	0.0928	0.2062	0.2023	0.1039	0.0514	0.2214	0.1382	0.1120	0.0892	0.1812	0.1608	
	0.0400	-0.0377	-0.0155	0.1006	0.0774	-0.0150	-0.0224	0.1012	0.0301	-0.0000	-0.0200	0.0637	0.0391	
:	0.0483	-0.1307	-0.0905	0.0043	-0.0277	-0.0973	-0.0899	0.0063	-0.0471	-0.0940	-0.0902	-0.0308	-0.0424	
1	0.0560	-0.1884	-0.1412	-0.0766	-0.1014	-0.1508	-0.1308	-0.0550	-0.0959	-0.1517	-0.1354	-0.1053	-0.0969	
;	0.0540	-0.2207	-0.1777	-0.1422	-0.1449	-0.1808	-0.1547	-0+1194	-0.1238	-0.1875	-0.1662	-0.1588	-0.1143	
	0.0720	-0.2304	-0.2026	-0.1918	-0.1561	-0.1940	-0.17631	-0.1586	-0.1372	-0.2086	-0.1363	-0.1943	-0.1982	
	0.0800	-0.2207	-0.2149	-0.2721	-0.1673	-0.1970	-0.1702	-0.1070	-0.1423	-0.2201	-0.1074	-0.2205	-0.1722	
	0.0000	-0.2307	-0.2143	-0 2262	-0.1613	-0.1979	-0.1746	-0.2029	-0.1377	-0.2227	-0.1914	-0 2295	-0.1729	
1	0.1060	-0.20240	-0.1913	-0.2343	-0.1499	-0.1785	-0.1639	-0.2038	-0.1319	-0.2180	-0.1806	-0.2183	-0.1641	
i.	6.1120	-0.2024	-0.1723	-0 2042	-0 1348	-0.1618	-0.1455	-0.1962	-0.1268	-0.1908	-0.1637	-0.2008	-0.1549	
, -	0.1200	-0.1413	-0.1487	-0.1789	-0.1159	-0.1394	-0.1287	-0.1786	-0.1183	+0.1693	-0.1447	-0.1772	-0.1438	
	0.1280	-0.1045	-0.1217	-0.1478	-0.0963	-0.1156	-0.1136	-0.1534	-0.1036	-0.1444	-0.1265	-0.1499	-0.1316	
•	0.1360	-0.0683	-0.0934	-0.1134	-0.0780	-0.0929	-0.1040	-0.1282	-0.2822	-0.1193	-0.1093	-0.1229	-2.1167	
•	0.1440	-0.0359	-0.0660	-0.0763	-0.0612	-0.0762	-0.0249	-0.1084	-0.0784	-0.0948	-0.0917	-0.0935	-0.0989	
i	0.1520	-(	-0.0420	-9.0371	-0.0428	-0.0651	-0.0846	-0.0906	-0.0725	-0.0696	-0.0747	-0.0508	-0.0765	
•	0.1600	0.0176	-0.0202	0.0003	-0.0222	-0.0565	-0.0726	-0.0724	-0.0676	-0.0416	-0.0562	-0.0310	-0.0532	
	· · 0.1680	0.0394	-0.0029	0.0336	-0.0054	-0.0454	-0.0610	-0.0522	-0.0594	-0.0129	-0.0361	-0.0084	-0.0302	
	0.1760	0.0576	0.0111	0.0619	0.0048	-0.0326	-0.0507	-0.0314	-0.0525	0.0111	-0.0168	0.0134	-0.0103	
	C.1840	0.0695	0.0277	0.0800	0.0113	-0.0212	-0.0388	-0.0101	-0.0457	0.0300	0.0028	0.0382	0.0033	
	0.1920	0.0696	0.0458	0.0903	0.0171	-0.0140	-0.0241	0.0097	-0.0342	0.0456	0.0238	0.0586	0.0121	
	0.2000	0.0605	0.0562	0.0964	0.0244	-0.0071	+0.0095	0.0268	-0.0196	0.0587	0.0431	0.0722	0.0216	
	0.2080	0.0503	0.0575	0.0950	C.0310	0.0025	0.0044	0.0409	-0.0055	0.0668	0.0542	0.0781	0.0327	
	0.2160	0.0434	0.0539	0.0895	0.0337	0.0133	0.0173	0.0528	0.0069	0.0695	0.0578	0.0737	0.0445	
	0.2240	0.0389	0.0453	n.0834	0.0359	0.0231	0.0253	0.0584	0.0168	0.0596	0.0537	0.0659	0.0536	
	0.2320	0.0346	0.0407	0.0730	0.0397	0.0299	0.0327	0.0047	0.0216	0.0705	0.0512	0.0649	0.0590	
	0.2400	0.0290	1.021	0.0325	0.0406	0.0341	0.0399	0.0450	0.0241	0.0727	0.0402	0.0610	0.0025	
۱.	0.2440	0.0237	0.0227	0.0150	0 0306	0.0339	0.0440	0.0360	0.0207	0.0702	0.0502	0.0009	0.0627	
	- 0.2500	0.0172	0.0207	0.0020	0.0220	0.0360	0.0301	0 0443	0.0327	0.0102	0.0207	0.0541	0.0557	
	0 2720	0.0105	0.0152	0.0009	0.00128	0.0390	0.0373	0.05091	0.0322	0.0570	0.0140	0.0429	0.0337	
	0 2900	0.0040	0.0100	0 0072	0.00000		0.0379	0 0480	0.0320	0.0751	0.0221	0.0307	0.0261	
	0.2000 C 2880	-0.0034	0.0195	0.0018	0.0024	0.0507	0.0383	0.0411	0.0360	0.0231	0.0119	0.0176	0.0081	
	0.2960	-0.0088	0.0197	-0.00040	0.0100	0.0454	0.0378	0.0366	0.0356	-0.0030	0.0003	0.0002	-0.0077	
	0.3040	+0.0130	0.0186	-0.0266	0.0148	0.0339	0.0351	0.0295	0.0285	-0.0217	-0.0132	-0.0189	-0.0210	
	0.3120	-0.0166	0.0120	-0.0257	0.0124	0.0184	0.0277	0.0215	0.0186	-0.0334	-0.0269	-0.0341	-0.0304	
		000100	0.2120	040291										

	WG(L8/SEC)	0.0	0.0	0.0	0.0	0.0450	0.0450	0.0450	0.0450	0.0450	0.0450	0.0450	0.0450
	WL(LB/SEC)	0.5850	0.5850	0.5850	0.5850	0.0160	0.0160	0.0160	0.0160	0.0280	0.0280	0.0280	0.0280
	CELL	81	02	LAG	LEAD .	B1	D2	LAG	LEAD	81	D2	LAG	LEAD
•	TIME(SEC)	***** \(	IRMALIZED	VALUE **	***	**** NO	RMALIZED	•VALUE **	***	**** N()	RMALIZED	VALUE **	***
	0.0	1.0000	1.0000	0.6796	0.6796	1.0000	1.0000	0.1444	0.1444	1.0000	1.0000	0.1074	0.1074
	0.0080	0.8109	0.8062	0.6099	0.6333	0.7810	0.7782	0.1402	0.1376	0.7436	0.7549	0.1044	0.1005
	0.0160	0.5007	0.4979	0.4630	U•4899	0.4071	0.3998	0.1249	0.1255	0.3511	0.3570	0.0973	0.0866
-	0.0240	0.2491	0.2464	0.2965	0.3074	0.1057	0.0986	0.1031	0.1128	0.0647	0.0598	0.0933	0.0716
	0.0320	0.0763	0.0753	0.1475	0.1393	-0.0893	-0.0947	0.0761	0.0983	-0.0953	-0.1060	0.0911	0.0598
•	0.0400	-0.0400	-0.0361	0.0271	0.0130	-0.1939	-0.1961	0.0445	0.0797	-û.1623	-0.1685	0.0870	0.0488
:	0.0480	-0.1181	-0.1058	-0.0630	-0.0704	-0.2265	-0.2228	0.0098	0.0613	-0.1760	-0.1667	0.0814	0.0328
	0.0560	-0.1690	-0.1476	-0.1265	-0.1213	-0.2096	-0.2017	-0.0230	0.0492	-0.1613	-0.1369	0.0772	0.0166
	0.0640	-0.1990	-0.1731	-0.1702	-0.1513	-0.1660	-0.1594	-0.0485	0.0444	-0.1317	-0.1040	0.0737	0.0084
•	0.0720	-0.2121	-0.1832	-0.1965	-0.1662	-0.1152	-0.1122	-0.6637	0+0380	-0.0937	-0.0782	0.0676	0.0074
•	0.0800	-0.2134	-0.1939	-0.2100	-0.1716	-0.0593	-0.0648	-0.0664	0.0265	-0.0683	-0.0546	0.0578	0.0050
·	0.0880	-0.2065	-0.1933	-0.2127	-0.1714	-0.0322	-0.0210	-0.0561	0.0115	-0.0446	-0.0302	0.0419	-0.0013
	0.0960	-0.1961	-0.1394	-0.2100	-0.1697	-0.0055	0.0120	-0.0341	-0.0027	-0.0253	-0.0074	0.0183	-0.0086
	0.1040	-0.1662	-0.1321	-0.2052	-0.1642	0.0142	0.0291	-0.0074	-0.0123	-0.0089	0.0079	-0.0061	-0.0117
	0.1120	-0.1762	-0.1733	-0.1952	-0.1505	U.0266	0.0293	0.0156	-0.0185	0.0051	0.0138	-0.0200	-0.0110
	0.1200	-0.1596	-0.1613	-0.1831	-0.1319	0.0272	0.0167	0.0307	-0.0212	0.0131	0.0127	-0.0248	-0.0062
	0.1280	-0.1361	-0.1461	-0.1658	-0.1115	0.0189	0.0026	0.0372	-0.0194	0.0142	0.0117	-0.0285	0.0025
•	0.1360	-0.1110	-0.1249	-0.1468	-0.0909	6.0111	-0.0071	0.0373	-0.0135	0.0129	0.0120	-0.0367	0.0048
	0.1440	-0.03666	-0.1004	-0.1097	-0.0731	0.0008	-0.0115	0.0323	-0.0082	0.0122	0.0097	-0.0362	0.0044
	0.1520	-0.0617	-0.0754	-0.0758	-0.0607	6.0017	-0.0107	0.0226	-0.0083	0.0124	0.0017	-0.0312	0.0037
	0.1600	-0.0346	-0.0533	-0.0445	-0.0417	-0.0685	-0.0092	0.0103	-0.0138	0.0130	-0.0085	-0.0304	0.0010
	0.1680	-0.0072	-0.0309	-0.0176	-0.0186	-0.0202	-0.0099	-0.0039	-0.0185	0.0080	-0.0152	-0.0262	-0.0068
	0.1760	0.0191	-0.0108	0.0082	0.0026	-0.0269	-0.0148	-0.0145	-0.0198	0.0005	-0.0153	-0.0156	-0.0146
•	0.1840	0.0406	0.0035	0.0296	C.0159	-0.0258	-0.0205	-0.0143	-0.0221	-0.0043	-0.0098	0.0001	-0.0165
	0.1920	0.0554	0.0165	0.044)	9.6220	-0.0253	-0.0251	-0:JU44	-0.0273	-0.0116	-0.0052	0.0146	-0.0130
•	0.2000	0.0599	0.0302	0.0564	0.0244	-0.0141	-0.0270	0.0084	-0.0307	-0.0183	-0.0028	0.0256	-0.0042
	0.2080	0.0547	0.0417	0.0685	0.0251	-0.0085	-0.0226	0.0187	-0.0272	-0.0202	0.0011	0.0310	0.0029
	0.2150	0.0501	0.0510	0.0834	0.0268	-0.0047	-0.0097	0.0232	-0.0208	-0.0185	0.0034	0.0308	0.0043
. <b>.</b> .	0.2240	0.0473	0.0582	0.0885	0.0294	-0.0047	0.0055	0.0266	-0.0164	-0.0123	0.0016	0.0279	0.0014
	0.2320	0.0457	0.0628	0.0906	0.0319	-0.0034	6.0128	0.0136	-0.0103	-0.0005	-0.0031	0.0278	-0.0016
•	0.2400	0.0450	0.0586	0.0802	0.0348	-0.0009	0.0135	0.0037	-9.0023	0.0116	-0.0119	0.0257	-0.0032
	0.2480	0.0408	0.0453	0.0599	0.0367	-0.0018	0.0130	-0.0055	0.0039	0.0168	-0.0235	0.0132	-0.0046
	0.2560	0.0315	0.0331	0.0383	0.0338	-0.0052	0.0114	-0.0097	0.0058	0.0143	-0.0309	-0.0099	-0.0059
	0.2640	0.0197	0.0207	0.0205	0.0255	-0.0074	0.0050	-0.0016	0.0056	0.0098	-0.0273	-0.0285	-0.0107
<b></b>	0.2720	0.0067	0.0122	0.0089	0.0145	-0.0085	-0.0061	-0.0252	0.0048	0.0033	-0.0169	-0.0344	-0.0186
	0.7800	-0.0049	0.0023	0.0010	0.0031	-0.0102	-0.0152	-0.0326	0.0029	-0.0048	-0.0083	-0.0323	-0.0240
	0.2890	-0.0106	-0.0082	-0.0068	-0.0053	-0.0133	-0.0195	-0.0347	-0.0001	-0.0098	-0.0079	-0.0267	-0.0249
-	0.2960	-0.0126	-0.0157	-0.0131	-0.0126	-0.0155	-0.0215	-3.0314	-0.0024	-0.0146	-0.0123	-0.0192	-0.0197
	0.3040	-0.0154	-0.0157	-0.0155	-0.0191	-0.0122	-0.0221	-0.0218	0.0	-0.0175	-0.0179	-0.0142	-0.0089
•	0.3120	-0.0170	-0.0099	-0.0162	-0.0231	-0.0061	-0.0232	-0.0114	0.0032	-0.0187	-0.0193	-0.0141	0.0044

----

.

- -

٠

399

**.** .

WG(LB/SEC)	0.0450	U.0450	0.0450	0.0450	0.0450	0.0450	0.0450	0.0450	0.0450	0.0450	0.0450	0.0450
WL(LB/SEC)	0.0440	0.0440	0.0440	0.0440	0.0800	0.0800	0.0800	0.0800	0.1260	0.1260	0.1260	0.1260
CELL	81	D2	LAG	LEAD	81	D2	LAG	LEAD	B1	D2	LAG	LEAD
TIME(SEC)	**** NU	IRMALIZED	VALUE **	***	**** N[]	IRMALIZED	VALUE **	***	**** NO	IRMALIZED	VALUE **	***
0.1	1.0000	1.0000	0.3627	0.3627	1.0000	1.0000	0.5190	0.5190	1.0000	1.0000	0.5831	0.5881
0.080	0.8005	0.7988	0.3543	0.3518	6.8267	0.8294	0.4966	<b>0.5101</b>	0.8387	0.8335	0.5634	0.5611
0.0160	0.5221	0.5191	0.3429	0.3218	0.5679	0.5763	0.4457	0.4649	0.5746	0.5703	0.4997	0•4856
0.0240	0.3286	0.3276	0.3197	0.2811	0.3694	0.3839	0.3756	0.3960	0.3526	0.3541	0.4124	0.3779
0.0320	0.2372	0.2034	0.2789	0.2254	0.2295	0.2470	0.2998	.0.3130	0.1873	3.1927	0.3686	0.2557
6.1400	9.1291	0.1206	0.2367	0.1762	6.1311	0.1481	0.2284	0.2291	0.0672	0.0723	0.1993	0.1335
0+0480	C.0756	0.0659	0.1946	0.1343	C+C589	0.0750	0.1604	0.1512	-0.0194	-0.0169	0.0979	0.0282
6. 56)	6.0349	0.0283	0.1521	0.0912	0.0546	0.0203	0.0971	0.0813	-0.0830	-0.0782	0.0104	-0.0501
6+(640	0.0043	0.0042	0.1124	6.0497	-0.0347	-0.0227	0.0399	0.0205	-0.1304	-0.1199	-0.0607	-0.1008
6.0723	-0.0197	-0.0141	0.0800	0.0177	-0.0643	-0.0558	-0.0070	-0.0278	-0.1658	-0.1472	-0.1140	-0.1309
0.0800	-0.0372	-0.0286	0.0557	-0.0048	-0.0861	-0.0765	-0.0402	-0.0593	-0.1898	-0.1631	-0.1501	-0.1485
0.889	-0.0476	-3.3377	0.0374	-0.0218	-0.1011	-0.0869	-0.0615	-C.Ŭ752	-0.2017	-0.1701	-0.1757	-0.1573
0.0960	-0.0527	-0.0409	0.0235	-3.0333	-0.1115	-0.0913	-0.0774	-0.0839	-0.2041	-0.1697	-0.1927	-0.1592
0.1040	-0.0539	-0.0417	0.0133	-0.0387	-0.1193	-0.0954	-0.6886	-0.0887	-0.2038	-0.1679	-0.2013	-0.1570
0.1120	-0.0538	-0.0445	.0.00.62	-0.0442	-0.1250	-0.1007	-0.3957	-0.0892	-0.1926	-0.1672	-0.2028	-0.1512
0.1200	-0.0309	-0.0461	0.0037	-0.0488	-0.1268	-0.1059	-0.1040	-0.0882	-0.1796	-0.1631	-0.1970	-0.1415
0.1280	-0.0477	-0.0432	-0.0013	-0.0501	-0.1229	-0.1380	-0.1130	-0.0893	-0.1632	-0.1538	-0.1838	-0.1323
0.1369	-0.0481	-0.9402	-0.0096	-0.0481	-0.1148	-0.1096	-0.1172	-0.0945	-0.1457	-0.1412	-0.1677	-0.1236
0.1440	-0.0510	-0.0399	-0.0178	-0.0457	-0.1072	-0.1089	-0.1141	-0.1006	-0.1297	-0.1284	-0.1506	-0.1143
0.1523	+0.0345	-0.0391	-0.0236	-0.0436	-0.1035	-0.1037	-0.1083	-0.1035	-0.1130	-0.1136	-0.1324	-0.1012
0.1600	-0.0563	-0.0360	-0.0304	-0.0422	-0.1006	-0.0989	-0.1013	-0.0993	-0.0945	-0.0975	-0.1137	-0.0848
0.1683	-9.0556	-0.0341	-0.0348	-0.0411	-0.0957	-0.0958	-0.0924	-0.0901	-0.0755	-0.0812	-0.0947	-0.0702
0.1760	-0.0552	-0.0327	-0.0354	-0.0431	-0.0895	-0.0913	-0.0855	-0.0796	-0.0557	-0.0674	-0.0760	-0.0576
0.1843	-0.0572	-0.0301	-0.0341	-0.0455	-0.0325	-0.0860	-0.0817	-0.0724	-0.0363	-0.0580	-0.0578	-0.0467
0.1921	-0.05.08	-0.0298	-0.0357	-0.0460	-5.0761	-0.0801	-0.0813	-0.0692	-0.0226	-0.0495	-0.0405	-6.0394
0.2000	-0.0519	-0.0330	-0.0368	-0.0465	-0.0695	-0.0739	-0.0810	-0.0712	-0.0155	-0.0414	-0.0249	-0.0383
0.2080	-0.0590	-0.0356	-0.0378	-0.0483	-0.0623	-0.0664	-0.0795	-0.0742	-0.0106	-0.0345	-0.0097	-0.0356
0.2160	-0.0564	-0.0363	-0.0402	-0.0494	-0.0596	-0.0606	-0.0766	-0.0746	-0.0038	-0.0290	0.0046	~0.0291
0.2240	-0.0519	-0.0373	-0.0433	-0.0490	-0.0602	-0.0578	-0.0689	-0.0733	0.0047	-0.0227	0.0145	-0.0218
0.2323	-0.0456	-0.0368	-0.0471	-0.0456	-0.0000	-0.0567	-0.0589	-0.0697	0.0118	-0.0145	0.0189	-0.0170
0.2400	-0.0419	-0.0347	-0.(497	-0.0421	-0.0506	-0.0545	-0.0503	-0.0617	0.0151	-0.0034	0.0254	-0-0159
0.2480	-0.0411	-6.0356	-0.0507	-0.0415	-0.0510	-0.0533	-0.0441	-0.0547	0.0142	0.0062	0.0358	-0.0165
0.256	-0.0415	-0.0393	-0.0498	-0.6400	-0.0438	-0.0528	-0.0406	-0.0512	0.0111	0.0139	0.0454	-0.0127
0.2640	-0.0442	-0.0433	-0.0437	-0.0387	-0.0343	-0.0524	-0.0389	-0.0488	0.0086	0.0208	0.0480	-0.0040
0.2720	-0.0504	-0.0441	-0.0349	-0.0383	-0.0264	-0.0439	-0.0355	-0.0455	0.0097	0.0233	0.0426	0.0080
C-280G	-0.0554	-0.0413	-0.0288	-0.0383	-0.0201	-0.0410	-0.0255	-0.0450	0.0150	0.0232	0.0356	0.0200
0.2880	-0.0576	-0.0385	-0.0310	-0.0353	-0.0165	-0.0348	-0.0093	-0.0464	C.0196	0.0234	0.0303	0.0283
0.2966	-0.0576	-0.0360	-0.0378	-0.0325	-0.0151	-0.0294	0.0054	-0.0446	0.0238	C.0210	0.0235	0.0305
0.3040	-0.0563	-0.0319	-0.0394	-0.0316	-0.0154	-0.0222	0.0145	-0.0396	0.0255	0.0161	0.0193	0.0267
0.3120	-0.0528	-0.0305	-0.0385	-0.0318	-0.0154	-0.0160	0.0173	-0.0307	0.0258	0.0139	0.0191	0.0233

hi Lu	G(LB/SEC)	0.0450	0.0450	0.0450	0.0450	0.0450	0.0450	0.0450	0.0450	0.0450	0.0450	0.0450	0.0450
. "	CFIL	81	D2	1 4 6	1 540	R1	0.2400	1 AG		R1	D2	1 4 6	
۲	TME(SEC)	***** NO	RMALTZED		***	****	RMAL TZED		LL/10	***** NO		VALUE **	***
•	6.0	1.0000	1.0000	0.5904	0.5904	1.0000	1.0000	0.5777	0.5777	1.0000	1.0000	0.5983	0.5983
	0_0380	0.8397	0.8285	0.5588	0.5695	0.8311	0.8150	0.5383	0.5559	0.8235	0.8041	0.5712	0.5477
	0.0160	0.5731	0.5582	0.4753	0.5009	0.55.6	0.5216	0.4473	0.4731	0.5293	0.4980	0.4740	0.4338
·	6.0240	0.3415	0.3353	0.3593	0.3916	0.3070	0.2924	0.3249	0.3462	0.2811	0.2554	0.3429	0.2829
	0.0320	6.1007	0.1706	0.2350	0.2614	0.1212	0.1081	0.1963	0.2049	0.0975	0.0854	0.2087	0.1320
	0.0320	0.0222	0.0484	0.1157	0.1326	-0.0147	-0.0148	0.0767	0-0746	-0.0314	-0.0305	0.0890	0.0083
	0.0480	-0.0817	-0.0451	0.0093	0.0225	-0.1136	-0.0981	-0.0280	-0.0294	-0-1166	-0.1076	-0.0080	-0.0775
;	6.056	-0.1529	-0.1147	-0.0770	-0.0616	-0.1824	-0.1543	-0.1115	-0.1019	-0.1721	-0-1566	-0.0843	-0.1298
	6640	-0.1977	-0.1634	-0.1423	-0.1195	-0.2252	-0.1917	-0.1736	-0.1465	-0.2066	-0.1832	-0.1432	-0.1586
•	0.0720	-0.2254	-0-1956	-0.1896	-0.1557	-0.2443	-0.2112	-0.2146	-0.1689	-0.2256	-0.1931	-0.1851	-0.1719
·	0.0800	-0.2422	-0.2140	-0.2210	-0.1763	-0.2427	-0.2153	-0.2351	-0.1716	-6.2313	-0.1953	-0.2116	-0.1764
	0.038)	-0.2445	-0.2212	-0.2369	-0.1863	-0.2302	-0.2065	-0.2369	-0.1617	-0.2271	-0.1947	-0.2245	-0.1746
	0.0960	-0.2349	-0.2195	-0.2402	-0.1881	-0.2125	-0.1920	-0.2264	-0.1482	-0.2165	-0.1912	-0.2257	-C.1692
	0.1040	-0.2173	-0.2.91	-0.2330	-0.1816	-0.1903	-0-1772	-0.2088	-0.1337	-0.2013	-0.1809	-0.2170	-0.1603
	6.112.	-0.1954	-0.1916	-0,2148	-0.1675	-0.1618	-0.1579	-0.1862	-0.1166	-0.1810	-0.1630	-0.1997	-0.1472
	0.1200	-0.1696	-0.1722	-0.1887	-0.1510	-0.1285	-0.1313	-0.1577	-0.0976	-0.1560	-0.1436	-0.1749	-0.1326
	0.1280	-0.1498	-0.1511	-0.1596	-0.1357	-0.0955	-0.1013	-0.1239	-0.0816	-0.1313	-0.1234	-0.1455	-0.1137
	6.1360	-0.1130	-0.1283	-0.1294	-0.1212	-0.0677	-0.0744	-0.0895	-0.0698	-0.1063	-0.1007	-0.1152	-0.0886
1	0.1440	-0.0876	-0.1068	-0.0983	-0.1061	-0.0464	-0.0506	-0.0581	-0.0598	-0.0794	-0.0754	-0.0864	-0.0624
1	0.1523	-0.0054	-0.0536	-0.0686	-0.0885	-0.0281	-0.0282	-0.0286	-0.0497	-0.0513	-0.0510	-0.0589	-0.0402
1	0.1600	-0.0456	-0.0524	-0.0416	-0.0693	-0.0126	-0.0080	-0.0008	-0.0372	-0.0225	-0.0313	-0.0307	-0.0214
:	.0.1680	-0.C216	-0.0359	-0.0184	-0.0530	-0.0010	0.0081	0.0249	-0.0217	0.0051	-0.0175	-0.0030	-0.0009
1	0.1760	-0.0127	-0.0133	0.0016	-0.0410	0.0112	0.0206	0.0459	-0.0071	0.0293	-0.0058	0.0213	0.0195
÷	0.1649	0.0021	0.0050	0.0228	-0.0287	0.0229	0.0300	0.0608	0.0025	0.0491	0.0100	0.0400	0.0348
	6.1920	0.0201	9.0177	0.0441	-0.0128	0.0325	0.0346	0.0714	0.0078	0.0627	0.0267	0.0533	0.0441
	0.2000	0.0394	0.0272	0.0609	0.0058	0.0387	0.0343	0.0796	0.0096	0.0698	0.03.98	0.0631	6.0449
•	Ú.208J	C.0548	0.0335	0.0746	0.0253	0.0418	0.0311	0.0824	0.0069	0.0721	0.0479	0.0731	0.0436
	6.2160	0.0650	0.0378	0.0806	0.0419	0.0402	0.0270	0.0760	0.0017	0.0690	0.0509	0.0786	0.0429
	0.2240	0.0694	0.0405	0.0774	0.0525	0.0324	0.0206	0.0615	-0.0025	0.0621	0.0489	0.0749	0.0396
:	0.2320	0.0596	0.0400	0.0708	0.0560	0.0218	0.0149	0.0427	-0.0052	0.0522	0.0453	0.0688	0.0324
	0.2400	6.0647	0.0375	0.0615	0.0524	0.0128	0.0094	0.0251	-0.0031	0.0359	0.0417	0.0614	0.0227
,	0.2480	0.0530	0.0331	0.0508	0.0439	C.Cu62	0.0021	0.0085	0.0026	0.0216	0.0365	0.0535	0.0132
	0.2560	0.0396	0.0274	0.0378	0.0341	-0.0001	-0.0068	-0.0076	0.0063	0.0152	0.0309	0.0462	0.0058
	0.2640	0.0263	0.0210	0.0221	0.0247	-0.0065	-0.0155	-0.0247	0.0037	0.0144	0.0277	0.0395	-0.0017
	0.2720	0.0135	0.0147	0.0064	0.0155	-0.0125	-0.0222	-0.0374	-0.0005	0.0129	0.0243	0.0322	-0.0097
•	(.280J	0.0027	0.0101	-0.0086	0.0076	-0.0159	-0.0255	-0.0413	0.0006	0.0043	0.0180	0.0223	-0.0148
	<b>0</b> .2880	-0.0052	0.0072	-0.0196	0.0006	-0.0156	-0.0248	-0.0385	0.0032	-0.0080	0.0076	0.0085	-0.0161
•	L.2960	-0.0124	0.0053	-0.0239	-0.0035	-0.0140	-0.0220	-0.0313	0.0037	-0.0191	-0.0050	-0.0061	-0.0180
	0.3040	-0.0166	0.0001	-0.0238	-0.0033	-0.0126	-0.0197	-0.0226	0.0037	-0.0267	-0.0183	-0.0206	-0.0205
	0.3120	-0.0200	-0.0694	-0.0232	-0.0039	-0.0112	-0.0144	-0.0140	0.0029	-0.0323	-0.0312	-0.0332	-0.0242
!													

•

. . .

10h

WG(L6/SEC)	0.0450	0.0450	0.0450	0.0450	0.0450	0.0450	0.0450	0.0450	0.0976	0.0976	0.0976	0.0976
WL(LD/SEC)	0.4700	0.4700	0.4700	0.4700	0.5850	0.5850	0.5850	0.5850	0.0160	0.0160	0.0160	0.0160
CELL	B1	D2	LAG	LEAD	81	D2	LAG	LEAD	B1 -	D <b>2</b>	LAG	LEAD
TIME(SEC)	**** NC	RMALIZED	VALUE **	***	**** N(	RMALIZED	VALUE **	***	**** NC	RMALIZED	VALUE **	***
0.0	1.0000	1.0000	0.6621	0.6621	1.0000	1.0000	0.6953	0.6953	1.0000	1.0000	0.0827	0.0827
0.0080	0.8210	0.8057	0.6335	0.5807	0.8251	0.8072	0.6140	0.6565	0.6224	0.6331	0.0760	0.0709
0.0160	0.5168	0.4984	0.5230	0.4187	0.5202	0.4973	0.4587	0.5092	0.0924	0.1123	0.0688	0.0588
6.0240	0.2586	0.2558	0.3712	0.2399	0.2534	0.2464	0.2846	0.3166	-0.1832	-0.1881	0.0581	0.0487
0.0320	0.0741	0.0886	0.2141	0.0877	0.0025	0.0718	0.1260	0.1394	-0.2394	-0.2535	0.0387	0.0468
0.0400	-6.0529	-0.0252	0.0778	-0.0232	-0.0653	-0.0466	-0.0040	0.0045	-0.1939	-0.1980	0.0174	0.0369
0.0480	-0.1368	-0.1035	-0.3282	-6.6977	-0.1473	-0.1243	-0.1004	-0.0381	-0.1123	-0.1045	-0.0079	0.0255
6.6560	-0.1902	-0.1562	-0.1046	-0.1449	-0.1986	-0.1742	-0.1651	-0.1471	-0.0389	-0.0235	-0.0117	0.0222
0.0640	-0.2187	-0.1891	-0.1574	-0.1734	-0.2294	-0.2041	-0.2062	-0.1809	0.0041	0.0156	-0.0163	0.0188
0.0720	-0.2303	-0.2062	-0.1918	-0.1890	-0.2429	-0.2168.	-0.2264	-0.1964	0.0231	0.0248	-0.0093	0.0202
0.3800	-0.2308	-0.2123	-0.2118	-0.1926	-0.2404	-0.2162	-0.2284	-0.1988	0.0199	0.0067	-0.0085	0.0110
0.683.0	-0.2245	-0.2096	-0.2210	-0.1341	-0.2254	-0.2079	-0.2197	-0.1937	0.0048	-0.0697	-0.0013	0.0015
0.0960	-0.2104	-0.1991	-0.2232	-0.1708	-0.2027	-0.1912	-0.2026	-0.1821	-0.0182	-0.0179	0.0052	-0.0104
0.1040	-0.1887	-0.1837	-0.2165	-0.1557	-0.1753	-0.1670	-0.1805	-0.1619	-0.0313	-0.0177	0.0131	-0.0162
0.1120	-0.1623	-0.1638	-0.1980	-0.1373	-0.1463	-0.1410	-0.1574	-0.1362	-0.0286	-0.0136	0.0140	-0.0170
0.1200	-0.1324	-0.1422	-0.1721	-0.1149	-0.1167	-0.1166	-0.1334	-0.1100	-0.0263	-0.0123	0.0104	-0.0171
0.1280	-0.1016	-0,1173	-0.1432	-0.0916	-0.0893	-0.0991	-0.1098	-0.0889	-0.0230	-0.0152	0.0095	-0.0047
6.1360	-0.0720	-0.0922	-0.1119	-0.0680	-0.0670	-0.0902	-0.0896	-0.0754	-0.0217	-0.0258	-0.0023	-0.0073
0.1440	-0.0440	-0.0692	-0.0178	-0.0433	-0.0485	-0.0850	-0.0681	-0.0653	-0.0129	-0.0203	-0.0163	-0.0073
C.1520	-0.0175	-0.0475	-0.0466	-0.0213	-0.0298	-0.0770	-0.0433	-0.0558	-0.0103	-0.0164	-0.0290	-0.0162
0.1600	0.0045	-0.0283	-0.0216	-0.0078	-0.0101	-0.0613	-0.0168	-0.0431	-0.0082	-0.0090	-0.0279	-0.0147
0.1680	0.0236	-0.0123	0.0031	0.0017	0.0097	-0.0373	0.0090	-0.0286	-0.0051	-0.0004	-0.0192	-0.0151
0.1760	6.0387	0.0018	0.0297	0.0100	0.0253	-0.0093	0.0317	-0.0090	-0.0021	-0.0602	-0.0094	-0.0112
0.1840	0.0467	0.0158	0.0532	0.0158	0.0416	0.0152	0.0500	0.0136	6.0038	0.0005	-0.0009	-0.0102
0.1920	0.0471	0.0307	0.0709	0.0178	0.0577	0.0351	0.0659	0.0314	-0.0014	-0.0102	-0.0040	-0.3064
6.2000	0.0455	0.0449	0.0795	0.0202	0.0692	0.0536	0.0789	0.0447	-0.0052	-0.0148	-0.0035	-0.0017
0.2080	0.0458	0.0544	0.0806	0.0236	0.0735	0.0674	0.0857	0.0529	-0.0184	-0.0278	-0.0099	-0.0089
0.2160	0.0456	0.0542	0.0761	0.0228	6.0692	0.0729	0.0814	0.0552	-0.0223	-0.0208	-0.0123	-0.0124
0.2243	0.0422	0.0459	0.0681	0.0196	0.0567	0.0697	0.0703	0.0547	-0.0256	-0.0188	-0.0204	-0.0214
0.2320	0.0345	0.0339	0.0581	0.0172	0.0416	0.0610	0.0576	0.0498	-0.0075	-0.0164	-0.0230	-0.0218
0.2400	0.0250	0.0229	0.0468	0.0145	0.0259	0.0438	0.0426	0.0407	0.0101	-0.0207	-0.0150	-C.0208
0.2480	0.0191	0.0146	0.0326	0.0090	0.0115	0.0377	0.0289	0.0280	0.0115	-0.0231	-0.0100	-0.0155
0.2560	0.0144	0.0073	0.0154	0.0038	0.0023	0.0285	0.0182	0.0175	0.0029	-0.0179	0.0	-0.0076
0.2640	0.0048	-0.0002	-0.0019	0.0023	-0.0030	0.0199	0.0054	0.0113	-0.0068	-0.0109	-0.0048	-0.0095
0.2720	-0.0091	-0.0069	-0.0161	0.0032	-6.0100	0.0123	-0.0081	0.0046	-0.0033	0.0004	-0.0025	-0.0080
0.2900	-0.0220	-0.0100	-0.6235	0.0020	-0.0191	0.0037	-0.0170	-0.0034	-0.0077	-0.0004	-0.0101	-0.0101
0.2880	-0.0291	-0.0074	-0.0269	-0.0019	-0.0254	-0.0075	-0.0229	-0.0119	-0.0165	-0.0032	-0.0111	-0.0057
9.2950	-0.0330	-0.0018	-0.0292	-0.0054	-0.0275	-0.0177	-0.0274	-0.0174	-0.0246	-0.0182	-0.0207	-0.0018
0.3040	-0.0341	0.0011	-0.0366	-0.0064	-0.0272	-0.0210	-0.0291	-0.0205	-0.0120	-0.0295	-0.0246	0.0054
0.3120	-0.0302	0.0025	-0.0277	-0.0074	-0.0249	_0.0200	-0.0266	-0.0189	0.0036	-0.0242	-0.0198	0.0125

**.**. . .

.

÷

402

. . . . . .

WGILB/SEC)	0.0976	0.0976	0.0976	0.0976	0.0098	0.0976	0.0976	0.0976	0.0976	0.0976	0.0976	0.0976
WL(LB/SEC)	0.0280	0.0280	0.0280	0.0280	0.0440	0.0440	0.0440	0.0440	0.0800	0.0800	0.0800	0.0800
CELL	B1	02	LAG	LEAD	B1	D2	ŁAG	LEAD	61	D2	LAG	LEAD
TIME(SEC)	**** NŪ	RMALIZED	VALUE **	***	***** NC	IRMALIZED	VALUE **	***	**** NO	RMALIZED	VALUE **	* * *
0.0	1.0000	1.0000	0.1443	0.1443	1.0000	1.0000	0.3649	0.3649	1.0000	1.0000	0.3792	0.3792
0.0080	0.6637	C.6769	0.1370	0.1410	0.7172	0.7217	0.3428	0.3517	0.6613	0.6459	0.3627	0.3634
0.0160	0.2452	0.2461	0.1210	0.1362	0.4064	0.4141	0.3006	0.3171	0.3031	. 0.2973	0.3110	0.3022
0.0240	0.0208	0.0029	0.1072	0.1174	0.2338	0.2499	0.2593	0.2757	0.1175	0.1230	0.2326	0.2113
0.0320	-0.0691	-0.0890	0.0911	0.0945	0.1418	0.1614	0.2171	0.2287	0.0258	0.0332	0.1502	0.1242
0.0400	-0.0983	-0.1171	0.0715	0.0756	0.0863	0.1038	0.1752	0.1824	-0.0226	-0.0157	0.0865	0.0513
0.(480	-0.0988	-0.1206	0.0362	0.0631	0.0457	0.0675	0.1406	0.1335	-0.0515	-0.0433	0.0376	-0.0073
0.7563	-0.0011	-0.1110	0.0118	0.0468	6.0173	0.0443	0.1067	0.0944	-0.0657	-0.0617	-0.0008	-0.0420
0.0640	-0.0792	-0.0897	-0.0095	0.0243	-0.0014	0.0234	0.0762	0.0590	-0.0734	-0.0727	-0.0316	-0.0568
0.0720	-0.0619	-0.0621	-0.0256	0.0039	-0.0150	0.0077	0.0541	0.0326	-0.0769	-0.0778	-0.0533	-0.0642
0.0803	-0.0518	-0.0499	-0.0408	-0.0097	-0.0229	-0.0028	0.0378	0.0183	-0.0761	-0.0827	-0.0666	-0.0677
0.6880	-0.0468	-0.0488	-0.0531	-0.0111	-0.C258	-0.0087	0.0268	0.0074	-0.0739	-0.0833	-0.0708	-0.0691
0.0960	-0.0454	-0.0496	-0.0662	-0.0136	-0.0273	-0.0114	0.0168	-0.0031	-0.0734	-0.0786	-0.0690	-0.0708
. 0.1040	-0.0409	-0.0416	-0.0762	-0.0115	-6.0274	-0.0114	0.0063	-0.0073	-0.0728	-0.0725	-0.0661	-0.0729
0.1126	-0.0320	-0.0295	-0.0712	-0.0104	-0.0309	0.0121	-0.0014	-0.0074	-0.0702	-0.0664	-0.0638	-0.0704
0.1200	-0.0258	-0.0197	-0.0720	-0.0075	-0.0324	-0.0153	-0.0062	-0.0087	-0.0688	-0.0622	-0.0630	-0.0627
0.1283	-0.0210	-0.0166	-0.0567	-0.0059	-0.0333	-0.0152	-0.0129	-0.0112	-0.0684	-0.0592	-0.0622	-0.0595
0.1350	-0.0199	-0.0257	-0.0423	-0.0125	-0.0339	-0.0150	-0.0198	-0.0145	-0.0665	-0.0501	-0.0593	-0.0570
0.1440	-0.0143	-0.0317	-0.0235	-0.0157	-0.0291	-0.0171	-0.0228	-0.0168	-0.0534	-0.0383	-0.0513	-0.0503
0.1520	-0.0030	-0.0339	-0.0082	-0.0292	-ù.0264	-0.0213	-0.0253	-0.0246	-0.0496	-0.0345	-0.0434	-0.0461
0.1600	-0.0031	-0.0258	-0.0046	-0.0368	-0.0257	-0.0260	-0.0270	-0.0302	-0.0502	-0.0313	-0.0394	-0.0355
0-1680	-0.0027	-0.0133	0.0050	-0.0442	-0.0284	-0.0284	-0.0318	-0.0324	-0.0504	-0.0280	-0.0356	-0.0246
0.1760	-0.0148	-0.0101	0.0136	-0.0349	-0.0296	-0.0274	-0.0311	-0.0321	-0.0420	-0.0271	-0.0302	-0.0242
0.1846	-0.0201	-0.0182	0.0253	-0.0252	-0.0254	-0.0250	-0.0265	-0.0281	-0.0354	-0.0247	-0.0249	-0.0276
0.1925	-0.0230	-0.0268	0.0259	-0.0141	-0.0215	-0.0235	-0.0202	-0.0265	-0.0304	-0.0242	-0.0178	-0.0248
0.2000	-0.0104	-0.0134	0.0166	-0.0091	-0.0169	-0.0204	-0.0147	-0.0248	-0.0196	-0.0224	-0.0105	-0.0195
0.2080	0.0009	-0.0037	-0.0003	-0.0125	-0.0189	-0.0215	-0.0125	-0.0213	-0.0154	-0.0244	-0.0132	-0.0188
0.2160	0.0115	0.0075	-0.0209	-0.0114	-0.0237	-0.0209	-0.0105	-0.0206	-0.0133	-0.0251	-0.0268	-0.0228
0.2240	0.0048	0.0067	-0.0332	-0.0106	-0.0284	-0.0222	-0.0076	-0.0209	-0.0101	-0.0237	-0.0308	-0.0275
6.2320	-0.0005	0.0025	-0.0360	-0.0041	-0.0270	-0.0213	-0.0025	+0.0255	-0.0131	-0.0189	-0.0214	-0.0214
0.2400	-0.0079	-0.0049	-0.0298	-0.0042	-0.0274	-0.0176	0.0009	-0.0279	-0.0125	-0.0154	-0.0058	-0.0145
0.2480	-0.0120	-0.0097	-0.0310	-0.0042	-0.0259	-0+0149	-0.0005	-0.0288	-0.0016	-0.0110	-0.0039	-0.0112
0.2569	-0.0051	-0.0128	-0.0192	-0.0037	-0.0237	-0.0152	-0.0004	-0.0285	0.0035	-0.0117	-0.0104	-0.0119
0.2040	0.0010	-0.0146	-0.0005	-0.0040	-0.0216	-0.0175	-0.0016	-0.0022	-0.0036	-0.0216	-0.0101	-0.0129
0.2720	0.0000	-0.0128	0.0094	-0.0083	-0.0222	-0.0175	-0.0010	-0.0003	-0.0118	-0.0243	-0.0043	-0.0162
0.2800	0.0029	-0.0133	0.0083	-0.0118	-0.0273	-0.0228	-0.0076	-0.0022	-0.0181	-0.0161	-0.0004	-0.0173
0.2880	-0.0034	-0.0037	~0.0014	-0.0118	-0.0207	-0.0270	-0.0172		-0.0195	-0.0095	0.0020	-0.0078
0+2960	-0.0110	0.0086	-0.0139	-0.0149	-0.0202	-0.0319	-0.0227		-0.0105	-0.0015	0.0035	-0.0038
0.3040	-0.0083	0.0145	-0.0197	-0.0118	-0.0203	-0.0375	-0.0293		-0.0096	0.0036	0.0026	-0.0044
0.3120	0.0004	0.0089	-0.0087	-0.0079	-0.0209	-0.0325	-0.0281	-0.0049	-0.0038	0.0084	-0.0003	-0.0035

·**·** ·

. . .

----

٠

WG(LB/SEC)	0.0976	0.0976	0.0976	0.0976	0.0976	0.0976	0.0976	0.0976	0.0976	0.0976	0.0976	0.0976
WL(LB/SEC)	0.1260	0.1260	0.1260	0.1260	0.1800	0.1800	0.1800	0.1800	0.2400	0.2400	0.2400	0.2400
CELL	81	D2	LAG	LEAD	B1	D2	LAG	LEAD	81 .	D2	LAG	LEAD
TIME(SEC)	**** N(	RMALIZED	VALUE **	***	**** NO	RMALIZED	VALUE **	***	**** NO	RMALIZED	VALUE **	***
0.0	1.0000	1.0000	0.4573	0.4573	1.0000	1.0000	0.4821	0.4821	1.0000	1.0000	0.5038	0.5038
0.0080	0.6649	0.6373	0.4178	0.4149	0.6690	0.6402	0.4158	0.4425	0.6759	0.6508	0.4433	0.4606
0.0160	0.2887	0.2636	0.3154	0.3099	0.2399	0.2615	0.2769	0.3289	0.3001	0.2833	0.3129	0.3366
0.0240	0.0786	0.0724	0.1836	0.1811	0.0745	0.0607	0.1341	0.1995	0.0818	0.0827	0.1702	0.1911
0.0320	-0.0289	-0.0235	0.0731	0.0707	-0.0383	-0.0385	0.0261	0.0787	-0.0339	-0.0203	0.0530	0.0658
0.0400	-0.0872	-0.0733	-0.6107	-0.0122	-0.0988	-0.0915	-0.0493	-0.0087	-0.0965	-0.0727	-0.0318	-0.0186
0.048)	-0.1193	-0.0990	-0.C648	-0.0648	-0.1331	-0.1198	-0.0993	-0.0668	-0.1259	-0.1028	-0.0840	-0.0014
0.0560	-0.1341	-0.1123	-0.0946	-0.0941	-0.1521	-0.1315	-0.1290	-0.1005	-0.1328	-0.1208	-0.1132	-0.0806
0.0640	-0.1357	-0.1186	-0.1106	-0.1073	-0.1557	-0.1351	-0.1465	-0.1134	-0.1277	-0.1298	-0.1258	-0.0899
0.0720	-0.1307	-0.1202	-0.1196	-0.1129	-0.1498	-0.1318	-0.1473	-0.1098	-0.1158	-0.1303	-0.1273	-0.0971
0.0800	-0.1217	-0.1153	-0.1208	-0.1075	-0.1388	-0.1209	-0.1342	-0.1049	-0.1673	-0.1210	-0.1224	-0.0959
0.0880	-0.1135	-0.1075	-0.1159	-0.0981	-0.1269	-0.1075	-0.1155	-ú.1000	-0.1010	-0.1020	-0.1093	-0.0904
0.0960	-0.1075	-0.0994	-0.1085	-0.0904	-0.1077	-0.0921	-0.0997	-0.0857	-0.0877	-0.0860	-0.0919	-0.0797
Ũ.104Ĵ	-0.1013	-0.0903	-0.1004	-0.0842	-0.0760	-0.0757	-0.0803	-0.0694	-0.0753	-0.0766	-0.0734	-0.ü745
0.1120	-0.0905	-0.0798	-0.0884	-0.0746	-0.0485	-0.0643	-0.0597	-0.0566	-0.0650	-0.0676	-0.0704	-0.0773
0.1200	-0.0762	-0.0673	-0.0691	-0.0624	-0.0350	-0.0557	-0.0482	-0.0459	-0.0576	-0.0640	-0.0601	-0.0736
6.1280	-0.0587	-0.0585	-0.0490	-0.0533	-0.0292	-0.0462	-0.0361	-0.0418	-0.0518	-0.0638	-0.0532	-0.0633
0.1360	-0.0393	-0.0573	-0.0415	-0.0433	-0.0250	-0.0359	-0.0215	-0.0454	-0.0436	-0.0631	-0.0491	-0.0505
0.1440	-0.0197	-0.0511	-0.0362	-0.0325	-0.0137	-0.0268	-0.0074	-0.0393	-0.0314	-0.0499	-0.0445	-0.0395
G.152J	-0.0043	-0.0342	-0.0220	-0.0278	-0.0092	-0.0141	0.0051	-û.0294	-0.0274	-0.0354	-0.0359	-0.0321
0.1600	-0.0010	-0.0208	-0.0024	-0.0251	-0.0153	0.0037	0.0115	-0.0201	-0.0176	-0.0300	-0.0199	-0.0251
0.1683	-0.0065	-0.0125	0.0130	-0.0181	-0.0190	0.0131	0.0119	-0.0076	-0.0152	-0.0287	-0.0042	-0.0145
0.1760	-0.0102	-0.0060	0.0207	-0.0183	-0.0109	0.0126	0.0136	0.0050	-0.0200	-0.0189	0.0085	-0.0113
0.1840	-0.0070	0.0013	0.0153	-0.0142	0.0058	0.0091	0.0221	0.0126	-0.0241	-0.0080	0.0090	-0.0204
0.1923	-0.0009	0.0031	0.0095	-0.0036	0.0111	0.0084	0.0206	0.0143	-0.0231	-0.0035	0.0024	-0.0236
0.2005	0.0331	0.0070	0.0071	0.0086	0.0127	0.0070	0.0161	0.0099	-0.0223	0.0018	-0.0050	-0.0218
0.2090	0.0143	0.0214	0.0111	0.0131	0.0163	0.0059	0.0186	0.0089	-0.0155	0.0039	-0.0064	-0.0176
0.2160	0.0171	0.0320	0.0195	0.0130	0.0190	0.0033	0.0156	0.0092	-0.0085	0.0019	0.0010	-0.0118
0.2240	0.0174	0.0275	0.0197	0.0093	0.0142	-0.0015	0.0126	0.0000	-0.0058	0.0022	0.0045	-0.0092
0.2320	0.0146	0.0190	0.0152	0.0083	0.0041	-0.0051	0.0073	0.0035	-0.0054	0.0054	0.0094	-0.0070
0.2409	0.0045	0.0115	0.0106	0.0094	-0.0025	-0.0056	-0.0022	-0.0020	-0.0023	0.0037	0.0096	-0.0029
0.2400	-0.0.01	0.0164	0.0073	0.0071	-0.0058	0.0	-0.0067	-0.0039	0.0018	0.00057	-0.0008	-0.0004
0.2000	0.0024	0.0159	0.0086	0.0045	-0.0054	0.0009	-0.0037	-0.0106	0.0000	-0.0003	-0.0039	0.0046
0.2733	0.0014	0.0040	0.0102	-0.0017	-0.0065	-0.0041	-0.0018	-0.0168	0.0076	-0.0005	-0.0019	0.0115
0 2800	-0.0101		-0.0036	-0.0095	-0.0018	-0.0075	-0.0046	-0.0128	0.0078	-0.0075	0.0040	0.0127
0.2000			-0.0142		0.00004	-0.0081			0.0112	0.0027	0.0040	0.0070
0.2000	-0.0101		-0.0149	-0.0148	0.00088		-0.0093		0.0004	0.0007	0.0007	
0.2900			-0.0234	-0.0034		-0.0048	-0.0127	0.0054	0.0024	0.0020	0.0090	-0.0013
0.3130		-0.0128	-0.0218	0.0001	-0.0042	-0.0106	-0.0127		-0.0026	-0.0014	0.0001	
0.5120	-0.0125	-0.0133	-0.0200	0.0002	-0.0130	-0.0100	-0+0138	-0.0037	-0.0024	-0.0010	0.0030	-0.0011

•••

·· -

· · · · ·

••

•

•

**.** .

WG(LB/SEC)	0.0975	0.0976	0.0976	0.0976	0.0976	0.0976	0.0976	0.0976	0.0976	0.0976	0.0976	0.0976
WL(LB/SEC.)	0.3500	0.3500	0.3500	0.3500	0.4700	0.4700	0.4700	0.4700	0.5850	0.5850	0.5850	0.5850
CELL	81	D2	LAG	LEAD	81	D2	LAG	LEAD	B1 -	D2	LAG	LEAD
TIME(SEC)	**** N()	RMALIZED	VALUE **	***	**** NO	RMALIZED	VALUE **	***	**** NC	RMALIZED	VALUE **	***
0.0	1.00000	1.0000	0.5345	0.5345	1.0000	1.0000	0.6022	0.6022	1.0000	1.0000	0.6332	0.6332
0.0080	0.7010	0.6792	0.4785	0.4738	0.7271	0.7013	0.5244	0.5436	0.7497	0.7337	0.5345	0.5890
0.0160	0.3266	0.3063	0.3372	0.3393	0.3538	0.3329	0.3501	C.3899	0.3904	0.3778	0.3369	0.4433
0.0240	0.0995	0.0914	0.1775	0.1966	0.1062	0.1051	0.1626	0.2159	0.1348	0.1378	0.1367	0.2688
0.0320	-0.0283	-0.0234	0.0440	0.0781	-C.0378	-0.0213	0.0101	0.0721	-0.0159	0.0023	-0.0058	0.1188
0.1400	-0.0997	-0.0834	-0.0445	-0.0080	-0.1188	-0.0913	-0.0891	-0.0264	-0.0988	-0.0753	-0.0910	0.0110
0.048)	-0.1314	-0.1107	-0.0986	-0.0605	-0.1614	-0.1303	-0.1450	-0.0855	-4.1373	-0.1197	-0.1382	-0.0564
0.3560	-0.1435	-0.1196	-0.1260	-0.0847	-0.1789	-0.1465	-0.1709	-0.1172	-0.1562	-0.1457	-0.1619	-0.0954
0.0640	-0.1458	-0.1227	-0.1384	-0.0952	-0.1820	-0.1487	-0.1759	-0.1301	-0.1616	-0.1611	-0.1688	-0.1164
0.0720	-0.1403	-C.1213	-0.1452	-0.1020	-0.1737	-0.1457	-0.1704	-0.1324	-0.1584	-0.1656	-0.1645	-0.1269
0.0800	-0.1342	-0.1181	-0.1442	-0.1038	-0.1574	-0.1414	-0.1577	-0.1265	-ŭ.1479	-0.1621	-0.1559	-0.1296
0.0880	-0.1298	-0.1122	-0.1368	-0.1007	-0.1358	-0.1349	-0.1419	-0.1167	-0.1326	-0.1527	-0.1458	-0.1233
0.0460	-0.1211	-0.1042	-0.1219	-0.0952	-0.1143	-0.1235	-0.1267	-0.1050	-0.1186	-0.1378	-0.1366	-0.1086
6.1040	-0.1659	-0.0976	-0.1043	-0.0879	-0.0935	-0.1089	-0.1077	-0.0897	-0.1092	-0.1198	-0.1254	-0.0956
0.1120	-0.0817	-0.0897	-0.0876	-0.0801	-0.0725	-0.0929	-0.0875	-0.0727	-0.1020	-0.1025	-0.1126	-0.0873
0.1200	-0.0610	-0.0825	-0.0705	-0.0640	-0.0535	-0.0715	-0.0668	-0.0564	-0.0929	-0.0895	-0.1007	-0.0846
0.1280	-0.0464	-0.0750	-0.0541	-0.0525	-0.0396	-0.0455	-0.0459	-0.0422	-0.0830	-0.0771	-0.0861	-0.0795
0.1360	-0.0321	-0.0593	-0.0370	-0.0444	-0.0339	-0.0293	-0.0292	-0.0354	-0.0733	-0.0638	-0.0624	-0.0738
0.1440	-0.0191	-0.0383	-0.0227	-0.0381	-0.0276	-0.0247	-0.0212	-0.0394	-0.0571	-0.0465	-0.0358	-0.0632
0.1520	-0.0118	-0.0235	-0.0099	-0.0316	-0.0216	-0.0276	-0.0122	-0.0360	-0.0377	-0.0309	-0.0140	-C.0484
0.1600	-0.0031	-0.0126	0.0028	-0.0244	-Ú.0135	-0.0269	-0.0068	-0.0250	-0.0170	-0.0157	0.0051	-0.0326
0.1680	0.0042	-0.0065	0.0115	-0.0163	-0.0026	-0.0177	-0.0005	-0.0184	-0.0018	-0.0053	0.0152	-0.0235
0.1760	0.0053	-0.0037	0.0102	-0.0120	0.0038	-0.0107	0.0078	-0.0125	0.0035	-0.0006	0.0209	-0.0209
6.1840	0.0043	-0.0031	0.0073	-0.0133	0.0031	-0.0098	0.0114	-0.0057	0.0030	0.0044	0.0267	-0.0174
0.1920	0.0001	0.0010	0.0087	-C.0109	0.0021	-0.0090	0.0129	-0.0008	0.0035	0.0102	0.0268	-0.0092
0.2000	-0.0:74	0.0047	0.0121	-0.0056	0.0028	-0.0017	0.0113	0.0003	0.0051	0.0181	0.0223	-0.0016
C.2090	-0.0082	0.0048	0.0116	-0.0070	0.0021	0.0029	0.0094	0.0003	0.0089	0.0220	0.0175	0.0012
0.2160	-0.0027	-0.0017	0.0043	-0.0115	0.0004	0.0054	0.0074	-0.0029	0.0186	0.0234	0.0201	0.0061
0.2240	-0.0017	-0.0061	-0.0008	-0.0149	-0.0020	0.0041	0.0015	-0.0033	0.0310	0.0180	0.0266	0.0152
0.2320	-0.0043	-0.0009	-0.0023	-0.0131	-0.0048	0.0033	-0.0020	-0.0007	6.0390	0.0089	0.0297	0.0232
0.2400	-0.0071	0.0040	0.0021	-0.0078	-0.0060	0.0093	0.0	-0.0001	0.0367	0.0055	0.0296	0.0252
0.2480	-0.0065	0.0044	0.0052	-0.0056	-0.0045	0.0198	0.0055	-0.0008	0.0241	0.0062	0.0227	0.0197
0.2560	-0.0028	-0.0006	-0.0016	-0.0042	-0.0059	0.0219	0.0146	0.0016	0.0097	0.0053	0.0129	0.0115
0.2540	0.0025	-0.0047	-0.0070	0.0004	-0.0046	0.0106	0.0160	-0.0017	-0.0015	-0.0015	-0.0002	0.0031
0.2720	0.0041	-0.0016	-0.0053	0.0034	-0.0002	-0.0035	0.0071	-0.0071	-0.0053	-0.0077	-0.0093	-0.0012
0.2800	0.0015	-0.0026	-0.0037	0.0105	0.0023	-0.0164	-0.0065	-0.0112	-0.0033	-0.0100	-0.0080	-0.0006
0.2880	-0.0010	-0.0014	0.0004	0.0046	0.0011	-0.0225	-0.0214	-0.0129	0.0016	-0.0005	-0.0012	-0.0008
0.2960	-0.0061	-0.0012	0.0013	-0.0014	-0.0010	-0.0238	-0.0234	-0.0105	0.0045	0.0087	-0.0021	-0.0008
0.3040	-0.0064	-0.0026	-0.0027	-0.0083	-0.0006	-0.0200	-0.0132	-0.0052	0.0030	0.0118	-0.0048	0.0035
0.3120	-0.0045	-0.0002	-0.0031	-0.0064	0.0039	-0.0032	-0.0070	0.0060	-0.0053	0.0115	-0.0072	0.0061

.

,

**.** .

•

. . ..

· · · · · · · · · · · · · · ·

•

•

• •

·

- --

405

.

٠

WG(LB/SEC)	.0.1436	0.1436	0.1436	0.1436	0.1436	0.1436	0.1436	0.1436	0.1436	0.1436	0.1436	0.1436
WL(L8/SEC)	0.0160	0.0160	0.0160	0.0160	0.0280	0.0280	0.0280	0.0280	0.0440	0.0440	0.0440	0.0440
CELL	61	D2	LAG	LEAD	B1	D2	LAG	LEAD	B1	D2	LAG	LEAD
TIME(SFC)	**** NO	RMALIZED	VALUE **	***	**** ND	RMALIZED	VALUE **	***	**** NO	RMALIZED	VALUE **	* * *
0.ü	1.0000	1.0000	0.0497	0.0497	1.0000	1.0000	0.1303	0.1303	1.0000	1.0000	0.3201	0.3201
0.0080	0.3857	0.3997	0.0466	0.0368	0.5715	0.5913	0.1194	0.1251	0.5545	0.5902	0.3143	0.3024
0.0160	-0.2422	-0.2050	0.0279	0.0224	0.1370	0.1429	0.1106	0.1102	0.2231	0.2679	0.2697	0.2430
0.0240	-0.2920	-0.2861	0.0109	0.0226	-0.0110	-0.0313	0.1023	0.0941	0.0956	0.1350	0.2000	0.1709
0.0320	-0.1136	-0.1279	0.0019	0.0348	-0.0528	-0.0778	0.0897	0.0837	0.0422	0.0723	0.1325	0.1016
0.40	6.0376	0.0218	-0.0035	0.0396	-0.0754	-0.0839	0.0752	0.0768	0.0137	0.0372	0.0998	0.0445
0.0480	C-0842	0.0877	-0.0130	0.0344	-0.0778	-0.0693	0.0519	0.0652	-0.0028	0.0137	0.0839	0.0084
0.0560	0.0520	0.0614	-0.0146	0.0248	-0.0642	-0.0540	0.0227	0.0456	-0.0103	-0.0014	0.0662	-0.0104
0.0640	0.0070	0.0115	-0-00066	0.0144	-0.0597	-0.0450	-0.0038	0.0217	-0.0155	-0.0134	0.0506	-0.0176
0. 7/0	-0.0142	-0.0096	0.0043	-0.0003	-0.0487	-0.0381	-0.0233	0.0101	-0.0250	-0.0155	0.0367	-0.0213
0.0800	-0.0129	-0.0083	0.0210	-0-0032	-0.0388	-0.0383	-0.0375	0.0021	-0.0292	-0.0175	0.0303	-0.0231
0.0880	-0.0040	-0.0098	0.0350	0.0018	-0.0426	-0.0367	-0.0461	-0.0108	-0.0266	-0.0265	0.0266	-0.0245
0.1960	-0.0086	-0.0105	0.0253	0.0088	-0.0434	-0.0330	-0.0476	-0.0221	-0.0302	-0.0329	0.0189	-0.0261
0.1040	-0.0130	-0.0101	0.0060	0.0084	-0.0418	-0.0290	-0.0477	-0.0178	-0.0296	-0.0376	0.0021	-0.0274
0.1120	-0.0115	-0.0100	-0.0025	-0.0028	-0.0353	-0.0266	-0.0522	-0.0059	-0.0297	-0.0369	-0.0109	-0.0289
0.12.00	-0.0028	0.0018	-0-0136	-0.0112	-0.0183	-0.0279	-0.0558	-0.0045	-0.0332	-0.0325	-0.0189	-0.0308
0.1280	0.0120	0.0082	-0.0183	-0.0167	-0.0096	-0.0320	-0.0488	-0.0030	-0.0326	-0.0253	-0.0239	-0.0253
0.1360	0.0084	-0.0046	-0.0039	+0.0213	-0.0197	-0.0299	-0.0388	-0.0022	-0.0275	-0.0221	-0.0223	-0.0195
0.1440	-0.0066	-0.0153	0.0256	-0.0235	-0.(268	-0.0169	-0.0239	-0.0052	-0.0269	-0.0223	-0.0140	-0.0242
0.1520	-0.0095	-0.0110	0.0488	-0.0182	-0.6217	-0.0133	-0.0056	-0.0692	-0-0220	-0-0223	-0.0162	-0.0259
0.1600	0.0012	-0.0019	0.0357	-0.0126	-0.0097	-0.0180	0.0121	-0.0129	-0.0168	-0.0216	-0.0202	-0.6208
0.1683	0.0026	0.0063	0.0016	-0.0128	0.0004	-0.0248	0.0207	-0.0232	-0.0131	-0.0210	-0.0149	-0.0152
0-1760	-0.00009	0.0027	-0.0016	-0.0140	0.0028	-0.0289	0.0164	-0.0296	-0.0131	-0.0243	-0.0096	-0.0152
0.1840	0.0015	0.0050	-0.0020	-0.0095	0.0090	-0.0307	0.0066	-0.0204	-0.0107	-0.0251	-0.0054	-0.0165
0.1920	0.0103	0-0122	0.0076	0.0011	0.0087	-0.0225	-0.0065	-0.0124	-0.0127	-0.0216	-0.0067	-0.0178
0.2000	0.0098	0.0042	0.0081	0.0070	-0.0052	-0.0079	-0.0167	-0.0130	-0.0182	-0.0140	-0.0089	-0.0110
0.2080	0.0078	-0.0042	-0.0062	0.0079	-0.0151	-0.0006	-0.0257	-0.0176	-0.0191	-0.0271	-0.0110	-0.0081
0.2160	0.0126	0.0002	-0.0075	0.0107	-0.0138	-0.0011	-0.0268	-0.0203	-0.0180	-0.0261	-0.0154	-0.0128
0.2240	0.0055	6.0063	-0.0043	0.0036	-0.0154	-0.0057	-0.0245	-0.0176	-0.0200	-0.0192	-0.0182	-0.0155
0.2320	-0.0105	0.0053	-0.0007	0.0001	-0.0109	-0.0077	-0.0175	-0.0191	-0.0225	-0.0115	-0.0239	-0.0157
0.2400	-0.0069	0.0040	-0.0026	0.0100	-0.0125	-0.0086	-0.0123	-0.0208	-0.0183	-0.0096	-0.0240	-0.0161
0.2480	0.0085	-0.0004	-0.4193	0.0163	-0.0227	-0.0112	-0.0072	-0.0253	-0.0151	-0.0091	-0.0174	-0.0128
0.2560	0.0066	-0.0083	-0.0199	0.0137	-0.0282	-0.0197	-0.0042	-0.0261	-0.0052	-0.0139	-0.0100	-0.0167
0.2640	-0.0059	-0.0148	-0.0067	0.0089	-0.0302	-0.0167	-0.0010	-0.0200	-0.0033	-0.0209	-0.0074	-0.0191
0.2720	-0.0095	-0.0210	-0.0064	0.0011	-0.0185	-0.0041	0.0028	-0.0136	-0.0145	-0.0195	-0.0062	-0.0193
6.2800	-0.0011	-0.0150	-0.0186	0.0095	-0.0039	-0.0002	0.0079	-0.0061	-0.0206	-0.0181	-0.0118	-0.0221
0.2880	0.0002	-0.0052	-0.0173	0.0191	-0.0004	-0.0011	0.0146	-0.0059	-0.0160	-0.0210	-0.0126	-0.0258
0.2960	-0.0086	-0.0022	-0.0062	0.0129	-0.0047	0.0034	0.0149	-0.0055	-0.0154	-0.0232	-0.0081	-0.0215
0_3040	-0.0152	-0-0054	0.0014	-0.0028	-0.0045	0.0121	0.0103	0.0012	-0.0272	-0.0202	-0.0101	-0.0201
		0 - 0 0 - 1	000011	000020								

. \_ \_\_ . \_ . . .

•

•

. ..

. . I

WG(LB/SEC)	0.1436	0.1436	0.1436	0.1436	0.1436	0.1436	0.1436	0.1436	0.1436	0.1436	0.1436	0.1436
WLILB/SECI	0.0800	0.0800	0.0800	0.0800	0.1260	0.1260	0.1260	0.1260	0.1800	0.1800	0.1800	0.1800
GELL TTHEACTON	01 *****			LEAU	51			LEAU	61			LEAU
TIME(SEC)	1 00 22	RMALIZED	VALUE **	***	***** NU	IRMALIZED	VALUE **	***	***** NL	MALIZED	VALUE ##	***
0.0003	1.0000	1.0000	0.3700	0.3/00	1.0000	1.0000	0.3887	0.3887	1.0000	1.0000	0.4369	0.4309
0.0085	0.5085	0.5288	0.3322	0.3453	0.5488	0.5570	0.3265	0.3658	0.5889	0.5825	0.4089	0.3030
0.0160	0.1415	0.1708	0.2368	0.2496	0.1564	0+1813	6.2104	0.2780	0.1995	0.2021	0.3001	0.2285
0.0240	0.0026	0.0235	0.1177	0.1352	-0.0102	0.0229	0.0929	0.1572	0.0108	0.0327	0.1677	0.0922
0.0320	-0.0561	-0.0447	0.0155	0.0476	-0.0787	-0.0504	-0.0059	0.0458	-0.0090	-0.0455	0.0470	-0.0080
0.400	-0.0340	-0.0770	-0.0443	-0.0200	-0.1397	-0.0926	-0.0676	-0.0228	-0.1073	-0.0853	-0.0365	-0.0624
0.048.0	-0.0986	-0.0385	-0.0755	-0.0561	-0.1173	-0.1160	-0.1029	-0.0597	-0.1250	-0.1054	-0.0817	-0.0837
0.0565	-0.0976	-0.0920	-0.0913	-0.0684	-0.1167	-0.1250	-0.1191	-0.0771	-0.1250	-0.1154	-0.1025	-0.0947
0.0640	-0.0853	-0.0930	-0.0900	-0.0767	-0.1689	-0.1213	-0.1247	-0.0806	-0.1120	-0.1157	-0.1112	-0.0942
0.0720	-0.0734	-0.0892	-0.0871	-0.0761	-0.1011	-0.1078	-0.1196	-0.0805	-0.0975	-0.1093	-0.1086	-0.0947
0.0800	-0.0718	-0.0790	-0.0870	-0.0698	-0.0912	-0.0878	-0.1032	-0.0799	-0.0874	-0.1039	-0.0964	-0.0915
0.0880	-0.0719	-0.0791	-0.0735	-0.0603	-0.0790	-0.0700	-0.0878	-0.0759	-0.0808	-0.0948	-0.0879	-0.0776
0.0950	-0.0621	-0.0765	-0.0616	-0.0578	-0.0615	-0.0639	-0.0642	-0.0683	-0.0705	-0.0827	-0.0826	-0.0607
0.1040	-0.0455	-0.0605	-0.0536	-0.0536	-0.0469	-0.0577	-0.0398	-0.0558	-0.0630	-0.0665	-0.0714	-0.0520
0.1120	-0.0340	-0.0505	-0.0418	-0.0516	-0.0393	-0.0510	-0.0280	-0.0461	-0.0514	-0.0566	-0.0565	-0.0457
0.1233	-0.0366	-0.0458	-0.0371	-0.0496	-0.0337	-0.0445	-0.0204	-0.0441	-0.0406	-0.0523	-0.0423	-0.0386
0.1280	-0.0416	-0.0429	-0.0331	-0.0379	-0.0263	-0.0411	-0.0228	-0.0491	-0.0316	-0.0435	-0.0295	-0.0332
0.1360	-0.0349	-0.0401	-0.0241	-0.0346	-Ú.Ú274	-0.0408	-0.0231	-0.0467	-0.0212	-0.0279	-C.0204	-0.0260
0.1440	-0.0302	-0.0353	-0.0165	-0.0364	-0.0272	-0.0412	-0.0182	-0.0331	-0.0153	-0.0136	-0.0192	-0.0231
0.1520	-0.(263	-0.C288	-0.0175	-0.0343	-0.0203	-0.0287	-0.0097	-0.0168	-0.0206	-0.0082	-0.0116	-0.0243
0.1600	-0.0207	-0.0204	-0.0207	-0.0173	-0.0085	-0.0082	0.0086	-0.0037	-J.0225	-0.0099	-0.0094	-0.0211
0.1690	-0.0210	-0.0130	-0.0106	-0.0106	0.0049	0.0055	0.0126	0.0011	-0.0195	-0.0125	-0.0130	-0.0160
0.1760	-0.0113	-0.0637	0.0077	-0.0105	0.0122	0.0067	0.0150	0.0002	-0.0173	-0.0169	-0.0164	-0.0096
0.1840	-0.0002	-0.0046	0.0094	-0.0112	0.0153	0.0109	0.0205	-0.0028	-0.0132	-0.0221	-0.0205	-0.0088
0.1920	-0.0082	-0.0076	-0.0143	-0.0096	0.0108	0.0103	0.0172	-0.0073	-ù.0169	-0.0238	-0.0240	-0.0159
0.2000	-0.0215	-0.0105	-0.0294	-J.0080	0.0015	-0.0012	0.0198	-0.0054	-0.0177	-0.0193	-0.0244	-0.0254
0.2080	-0.0184	-0.0163	-0.0233	-0.0139	-0.0036	-0.0033	0.0159	0.0015	-0.0134	-0.0106	-0.0143	-0.0230
0.2160	-0.0116	-0.0104	-0.0069	-0.0121	-0.0ú32	0.0004	0.0122	0.0008	-0.0027	0.0026	0.0065	-0.0095
0.2240	-0.0037	-0.0065	0.076	-0.0159	-0.0008	-0.0621	0.0127	-0.0018	0.0042	0.0041	0.0213	0.0102
0.2320	-0.0011	-0.0049	0.0138	-0.0189	0.0630	0.0003	0.0151	-0.0054	0.0100	0.0048	0.0193	0.0167
0.2400	0.0052	-0.0039	0.0097	-0.0091	0.0102	0.0056	0.0005	-0.0065	Ú∎0175	0.0037	0.0161	0.0157
6.2480	C.0085	0.0110	0.0136	-0.005ú	0.0065	0.0045	-0.0158	0.0012	0.0179	0.0635	0.0126	0.0110
_ 0.2560	0.0111	0.0187	0.0224	-0.0030	-0.0007	0.0001	-0.0250	0.0049	0.0154	0.0045	0.0072	0.0041
0.2640	0.0112	0.0160	0.0196	-0.0020	-0.0054	0.0051	-0.0217	0.0013	0.0185	0.0082	0.0097	0.0030
0.2726	0.0118	0.0177	0.0058	0.0099	-0.0107	0.0080	-0.0075	0.0048	0.0178	0.0171	0.0216	0.0022
0.2800	0.0063	0.0155	-0.0092	0.0219	-0.0149	0.0001	-0.0002	0.0005	0.0062	0.0217	0.0236	0.0039
0.2830	0.0015	0.0040	-0.0121	0.0238	-0.0101	0.0019	0.0013	-0.0063	-0.0039	0.0174	0.0153	0.0067
0.2960	-0.0035	-0.0065	-0.0167	0.0163	-0.0143	0.0026	0.0037	-0.0081	-0.0087	0.0107	0.0040	0.0042
0.3040	-0.0057	-0.0152	-0.0086	0.0070	-0.0144	-0.0014	0.0015	-0.0018	-0.0108	-0.0006	0.0024	0.0022
0.3120	-0.0100	-0.0128	-0.0066	-0.0079	-0.0051	-0.0078	-0.0090	-0.0024	-0.0105	-0.0078	-0.0048	-0.0045

-----

. .

WG(L8/SEC).	0.1436	0.1436	0.1436	0.1436	0.1436	0.1436	0.1436	0.1436	0.1436	0.1436	0.1436	0.1436
WL(LB/SEC)	0.2400	0.2400	0.2400	0.2400	0.3500	0.3500	0.3500	0.3500	0.4700	0.4700	0.4700	0.4700
UELL TIMULEECY	BL *****			LEAD	81			LEAU	81	02		LEAU
I IMEISEUI	****** \U	IRMALIZED			*****	RMALIZED	VALUE **	***	***** NU	RMALIZED		***
0.0	1.0000	1.0000	0.4985	0.4985	1.0000	1.0000	0.5815	0.5815	1.0000	1.0000	0.6107	0+6107
	0.0270	0.0101	0.4001	0.3750	0.0024	0.0420	0.3493	0.4735	0.0000	0.5589	0.2071	0.7547
0.0260	0.0400	0.2349	0.1524	0.1209	0.0522	0.2902	0.3463	0 1147	0.0607	0.0407	0.0056	0.1472
0 0320	+0.0551	-0.0397	0.0262	0.0179	-0.0582	-0.0527	-0.0031	-0.0056	-0 0579	-0.0512	-0.0396	0.1072
0.0400	-0.0982	-0.0767	-0 0452	-0.0491	-0.0508	-0.0327	-0.0031	-0.0769	-0.1240	-0.1063	-0.0390	-0.0521
0.0480	-0.1157	-0.0101	-0.0452	-0.0788	-0.1170	-0.1312	-0.1220	-0.1144	-0.1505	-0.1371	-0.1343	-0.1009
0.0560	-0.1220	-0-1116	-0.1114	-0.0925	-0.1302	-0.1437	-0.1349	-0.1273	-0.1591	-0.1487	-0.1416	-0.1202
0.0640	-0.1185	-0.1165	-0.1175	-0.1008	-0.1455	-0.1422	-0.1367	-0.1267	-0.1579	-0.1480	-0.1426	-0.1276
0.0720	-0.1176	-0.1176	-0.1155	-0.0940	-0.1345	-0.1318	-0-1325	-0.1227	-0.1522	-0.1435	-0.1377	-0.1311
0.0820	-0.1174	-0.1111	-0.1132	-0.0851	-0.1272	-0.1224	-0.1265	-0.1154	-0.1355	-0.1357	-0.1303	-0.1254
0.0880	-0.1094	-0.0967	-0.1124	-0.0818	-0.1244	-0.1099	-0.1190	-0.1069	-0.1126	-0.1214	-0.1203	-0.1109
0.0960	-0.0971	-0.0876	-0.1057	-0.0767	-0.1164	-0.0969	-0.1115	-0.0927	-0.0941	-0.1056	-0.1100	-0.0982
0.1040	-0.0808	-0.0818	-0.0860	-0.0671	-0.1005	-0.0853	-0.1019	-0.0774	-0.0829	-0.0907	-0.0999	-0.0852
0.1120	-0.0673	-0.0660	-0.0678	-0.0610	-0.0805.	-0.0725	-0.0850	-0.0615	-0.0746	-0.0760	-0.0861	-0.0689
0.1200	-0.0531	-0.0522	-0.0574	-0.0553	-0.0603	-0.0590	-0.0606	-0.0496	-0.0649	-0.0568	-0.0665	-0.0556
0.1280	-0.0409	-0.0451	-0.0408	-0.0516	-0.0381	-0.0427	-0.0391	-0.0412	-0.0518	-0.0386	-0.0444	-0.0448
0.1360	-0.0324	-0.0388	-0.0215	-0.0473	-0.0208	-0.0254	-0.0217	-0.0359	-6.0381	-0.0233	-0.0279	-0.0322
0.1440	-0.0286	-0.0344	-0.0116	-0.0346	-0.0105	-0.0151	-0.0085	-0.0321	-0.0223	-0.0145	-0.0174	-0.0157
0.1520	-0.0208	-0.0273	-0.0110	-0.0278	-0.0031	-0.0153	-0.0036	-0.0265	-0.0095	-0.0100	-0.0068	-0.0050
0.1600	-0.0072	-0.0125	-0.0035	-0.0203	0.0023	-0.0167	0.0005	-0.0196	0.0009	-0.0031	0.0058	-0.0049
0.1680	-0.0006	0.0013	0.0043	-0.0060	0.0105	-0.0124	0.0076	-0.0106	0.0126	0.0060	0.0169	-0.0073
0.1760	-0.0040	0.0101	0.0020	0.0016	0.0213	-0.0059	0.0205	0.0056	0.0198	0.0070	0.0221	-0.0076
0.1840	-0.0075	0.0026	-0.0038	-0.0035	0.0237	00037	0.0273	0.0137	0.0126	0.0	0.0203	-0.0056
5.1925	-0.0090	-0.0108	-0.0071	-0.0092	0.0203	0.0221	0.0261	0.0175	-0.0024	-0.0036	0.0170	-0.0069
0.2000	-0.0145	-0.0163	-0.0068	-0.0151	0.0197	0.0409	0.0255	0.0227	-0.0093	-0.0065	0.0155	-0.0077
0.2080	-0.0046	-0.0100	-0.0026	-0.0153	0.0206	0.0389	0.0228	0.0244	-0.0062	-0.0064	0.0077	-0.0049
0.2100		0.0026	0.0005	-0.0104	0.0146	0.0267	0.00130	0.0190	-0.0065	-0.0091	-0.0036	-0.0051
0+2240	0.0110	0.0082		-0.0038	-0.0041	0.0080	0.0077	0.0102	-0.0081	-0.0059		
0.2404	-0.0112	-0.0044	-0.0072	-0.0013	-0.0001	0.0012		-0.0021	-0.0091	0.0000		
0.2480	-0.0012	-0.0187	-0.0023	-0.0012	-0.0003 -0.0038	-0.0045	0.0033	-0.0008		0.0121	-0.0028	-0.00112
0.2560	-0.0096	-0.0186	-0.0108	-0.0055	-0.0069	-0.0095	-0.0055	-0.0036		0.0109	-0.0013	0.0033
0.2560	-0.0075	-0.0125	-0.0115		-0.0106	-0.0192		-0.00066	0.0003	0.0056	0.0048	0.0072
0.2720	-0.0084	-0.0124	-0.0129	-0.0003	-0.0152	-0.0258	-0.0271	-0.00000	0.0005	0.0012	0.0063	0.0172
0.2800	-0-0059	-0.0165	-0.0086	-0.0081	-0.0225	-0.0235	-0.0302	-0.0113	0.0135	-0.0032	-0.0003	0.0098
0,288	0-0000	-0.0129	0.0000	-0.0102	-0.0244	-0.0225	-0.0297	-0.0162	0.0120	-0.0025	-0.0003	0.0069
ú.2960	0.0042	0.0058	0.0119	-0.0102	-0.0289	-0-0199	-0.0306	-0.0169	0.0097	0.0029	0.0072	0.0090
0.3040	0.0100	0-0150	0.0117	-0.0057	-0.0271	-0.0190	-0.0299	-0.0167	0.0128	0.0112	0.0117	0.0080
0.3120	0.0132	0.0006	0 0071	0 0019	-0 0234	-0.0150	-0.0250	-0.0132	0.0177	0.0172	0.0094	0.0094

h	G(LB/SEC)	0.1436	0.1436	0.1436	0.1436	0.1742	0.1742	0.1742	0.1742	0.1742	0.1742	0.1742	0.1742
h	L(LB/SEC)	° 0.5850	0.5850	0.5850	0.5850	0.0160	0.0160	0.0160	0.0160	0.0280	0.0280	0.0280	0.0280
	CELL	B1	D2	LAG	LEAD	81	D2	LAG	LEAD	81	D2	LAG	LEAD
TIME(SEC)		***** NORMALIZED		VALUE ****		***** NORMALIZED		VALUE ****		***** NORMALIZED		VALUE *****	
	C _ C	1.000)	1.0000	0.6260	0.6260	1.0000	1.0600	0.0275	0.0275	1.0000	1.0000	0.1435	0.1435
	0.0080	0.6907	0.6066	0.5563	0.5117	0.0228	0.2153	0.0154	0.0115	0.5137	0.5156	0.1312	0.1372
	0.0160	0.3027	0.2831	0.3436	0.3132	-0.0474	-0.2621	0.0098	0.0136	0.1475	0.1180	0.1123	0.1261
	0.0240	0.0621	0.0562	0.1247	0.1257	-0.0087	-0.0642	0.0043	0.0112	0.0595	0.0248	0.0989	0.1194
	0.0320	-0.0695	-0.0667	-0.0301	-0.0058	0.0185	0.1202	0.0100	0.0090	0.0385	0.0026	0.0805	0.1169
	0.0400	-0.1389	-0.1305	-0.1161	-0.0806	0.0102	0.0829	0.0013	0.0141	0.0213	-0.0185	0.0521	0.1066
	0.0480	-6.1705	-0.1555	-0.1594	-0.1195	J.0357	0.0159	-0.0083	0.0111	0.0083	-0.0149	0.0199	0.0934
	0.0560	-0.1782	-Ú.1646	-0.1766	-0.1377	-0.0018	-0.0120	-0.0005	0.0019	0.0027	-0.0074	0.0034	0.0859
	0.0640	-Ú.1718	-0.1650	-0.1761	-0.1423	0.0007	0.0040	0.0051	0.0054	0.0116	-0.0002	0.0029	0.0748
	0.0720	-0.1502	-0.1560	-0.1635	-0.1359	0.0003	0.0253	0.0037	0.0011	0.0233	0.0033	0.0005	0.0622
-	0.0803	-0.1404	-0.1367	-0.1460	-0.1235	0.0.12	0.0158	0.0157	-0.0074	6.0271	0.0142	-0.0058	0.0500
	0.0880	-0.1216	-0.1150	-0.1296	-0.1051	0.0004	-0.0015	0.0040	-0.0008	0.0333	0.0181	-0.0083	0.0508
	0.0960	-(.1020	-0.1006	-0.1156	-0.0866	0.0062	-0.0040	-0.0044	0.0132	0.0333	0.0195	-0.0023	0.0535
	0.1040	- <i>ú</i> .0789	-0.0843	-0.0964	-0.0655	0.0018	-0.0043	0.0019	-0.0001	0.0285	0.0125	0.0051	0.0443
	0.1120	-ú.0537	-0.0615	-0.0706	-0.0405	-0.0045	-0.0076	0.0175	-0.0117	0.0245	0.0019	0.0100	0.0378
	0.1200	-0.0359	-0.0428	-0.0469	-0.0288	-0.0022	-0.0050	0.0224	-0.0138	0.0156	0.0067	0.0124	0.0488
	0.1285	-0.0202	-0.0338	-0.0249	-0.0268	0.0063	0.0028	0.0098	0.0008	0.0099	0.0188	0.0149	0.0585
	0.1360	-0.0097	-0.0238	-0.0100	-0.0260	0.0019	0.0110	-0.0006	0.0102	0.0174	0.0249	0.0065	0.0595
	0.1440	-0.0052	-0.0148	0.0047	-0.0254	0.0036	0.0055	0.0126	-0.0067	0.0294	0.0245	-0.0039	0.0614
	6.1520	-0.0065	-0.0052	0.0215	-0.0214	0.0017	-0.0087	0.0046	0.0029	0.0315	0.0237	0.0026	0.0549
	0.1605	-0.0026	0.0019	0.0275	-0.0128	0.0028	-0.0065	0.0026	0.0101	0.0330	0.0234	0.0146	0.0488
	0.1690	0.0079	0.0094	0.0231	-0.0020	0.0046	0.0071	-0.0013	0.0095	0.0254	0.0216	0.0154	0.0517
,	0.1760	C.0146	0.0102	0.0216	0.0067	0.0011	0.0107	0.0106	0.0064	0.0148	0.0182	0.0161	0.0527
	0.1840	0.0205	0.0067	0.0163	0.0130	0.0004	0.0126	0.0221	0.0061	0.0121	0.0255	0.0227	0.0549
	6.1920	0.0192	C+04948	6.0117	0.0087	6.0	0.0035	0.0014	0.0052	0.0173	0.0344	0.0271	0.0523
	0.2000	0.0108	0.0202	0.0121	0.0036	0.0008	-0.0015	0.0005	0.0074	0.0184	0.0403	0.0202	0.0356
	0.2080	0.0022	0.0266	0.0164	0.0086	-0.0017	0.0139	6.0212	0.0093	0.0169	0.0355	0.0184	0.0182
	0.2160	0.0032	0.0330	0.0188	0.0157	-0.0018	0.0187	0.0254	0.0039	0.0187	0.0284	0.0191	0.0198
	0.2240	0.0164	0.0311	0.0201	0.0224	-0.0013	0.0136	-0.0025	0.0017	0.0166	0.0145	0.0121	0.0281
	0.2320	0.9233	0.0270	0.0272	0.0250	0.0018	0.0050	-0.0191	0.0156	0.0197	0.0055	0.0049	0.0377
	0.2400	6.0209	0.0240	0.0294	0.0166	0.0055	-0.0044	-0.0039	0.0124	0.0242	0.0073	-0.0019	0.0364
	0.2480	0.0107	0.0184	0.0256	0.0050	0.0009	-0.0041	0.0161	0.0022	0.0256	0.0100	-0.0082	0.0302
	0.2560	-0.0014	0.0114	0.0164	-0.0005	-0.0048	-0.0068	-0.0057	0.0033	0.0150	0.0124	-0.0022	0.0264
	0.2640	-0.0067	-0.0024	0.0056	-0.0016	-0.0012	-0.0130	-0.0158	0.0081	0.0074	0.0028	-0.0018	0.0244
	0.2720	-0.0084	-0.0202	-0.0115	-0.0021	-0.0048	-0.0119	-0.0098	-0.0027	0.0113	-0.0085	0.0069	0.0372
	0.2800	-0.0115	-0.0318	-0.0248		-0.0048	0.0049	-0.0106	0.0149	0.0069	-0.0035	0.01/3	0.0550
	0.2890	-0.0166	-0.0357	-0.0294	-0.0197	-0.0002	0.0060	-0.0118	0.0167	0.010	0.0085	0.0132	0.0340
	0.2950	-0.0249	-0.0332	-0.0364	-0.0251	0.0009	-0.0108	-0.0142	0.0095	0.0130	0.0109	0.0044	0.0299
	0.3040	-0.0290	-0.02/1	-0.0411	-0.0212	-0.0012	-0.0188	-0.0116	0.0004	0.0116	0.0189	0.0021	0.0290
	0.3120	-0.0266	-0.0149	-0.0341	-0.01//	0.0036	-0.0039	-0.0039	0.0037	0.0107	0.0152	-0.0002	0.0252

. . ..

!

.....

.

409

· ... .....

د
•	WG(LB/SEC) WL(LB/SEC)	0.1742	0.1742	0.1742	0.1742 0.0440	0.1742	0.1742	0.1742	0.1742	0.1742	0.1742	0.1742	0.1742
	CELL	81	02	LAG	LEAD	81	D2	LAG	LEAD	B1	D2	LAG	LEAD
	TIME(SEC)	**** NO	RMALIZED	VALUE **	***	***** NC	RMALIZED	VALUE **	***	***** NO	RMALIZED	VALUE **	***
	0.0	1.0000	1.0000	0.3902	0.3902	1.0000	1.0000	0.3746	0.3746	1.0000	1.0000	0.4152	0.4152
	0.0080	0.4637	0.5160	0.3472	0.3592	0.4545	0.4809	0.3116	0.3391	0.5092	0.5141	0.3647	0.3737
•	0.0160	0.1623	0.2034	0.2703	0.2315	0.1046	0.1386	0.2010	0.2428	0.1245	0.1463	0.2419	0.2265
	0.0240	6.0603	0.0909	0.1668	0.1269	-0.0130	0.0097	0.0894	0.1069	-0.0169	0.0001	0.1045	0.0756
•	0.0320	0.0151	0.0333	0.0779	0.0626	-0.0626	-0.0470	-0.0014	0.0003	-0.0721	-0.0621	0.0039	-0.0180
	0.0409	-0.0109	-0.0034	0.0273	0.0098	-0.0876	-0.0754	-0.0540	-0.0571	-0.0987	-0.0906	-0.0577	-0.0621
•	0.0483	-0.0294	-0.0295	-0.0021	-0.0198	-0.1018	-0.0889	-0.0808	-0.0769	-0.1068	-0.1045	-0.0936	-0.0783
	0.0560	-0.0394	-0.0391	-9.0163	-0.0347	-0.1020	-0.0935	-0.0937	-0.0785	-0.1062	-0.1093	-0.1059	-0.0865
	0.0040	-0.0420	-0.0392	-0.0254	-0.0408	-0.1048	-0.0967	-0.0921	-0.0733	-0.1010	-0.1084	-0.1074	-0.0900
	6.0720	-0.0402	-0.0392	-0.0277	-0.0394	-0.0859	-0.0942	-C.0833	-0.0700	-0.0958	-0.0976	-0.1018	-0.0783
•	0.600	-0.0389	-0.0414	-0.0272	-0.0408	-0.0707	-0.0864	-0.0824	-0.0740	-0.0831	-0.0837	-0.0987	-0.0635
	6.0880	-0.0411	-0.0428	-0.0336	-0.0415	-ú.0574	-0.0174	-0.0752	-0.0677	-0.0663	-0.0740	-0.0814	-0.0560
	0.0960	-0.0406	-0.0430	-0.0423	-0.0406	-0.0470	-0.0657	-0.0590	-0.0587	-0.0544	-0.0613	-0.0697	-0.0542
	0.1040	-0.0398	-0.0426	-0.0467	-0.0423	-0.0455	-0.0534	-0.0440	-0.0492	-0.0379	-0.0609	-0.0487	-0.0524
	0.1120	-0.0449	-0.0400	-0.0452	-0.0403	-0.0421	-0.0387	-0.0365	-0.0413	-0.0326	-0.0494	-0.0307	-0.0488
	0.1200	-0.0419	-0.0395	-0.0346	-0.0337	-0.0443	-0.0337	-0.0350	-0.0418	-0.0270	-0.0334	-0.0224	-0.0431
	0.1280	-0.0379	-0.0401	-0.0252	-0.0380	-0.0397	-0.0336	-0.0243	-0.0428	-0.0279	-0.0214	-0.0217	-0.0352
	0.136)	-0.0341	-0.0399	-0.0225	-0.0438	-0.0232	-0.0352	-0.0116	-0.0358	-0.0249	-0.0136	-0.0122	-0.0244
	L.1440	-0.0333	-0.0423	-0.0236	-0.0403	-0.0168	-0.0262	-0.0090	-0.0237	-0.0208	-0.0111	0.0018	-0.0156
	0.1525	-0.0335	-0.0385	-0.0307	-0.0401	-0.0103	-0.0230	-0.0123	-0.0088	-0.0145	-0.0085	0.0031	-0.0058
	0.1600	-0.0331	-0.0314	-0.0296	-0.0396	-0.0082	-0.0161	-0.0055	-0.0082	-0.0130	-0.0007	-0.0027	0.0042
	C.1680	-0.0353	-0.0288	-0.0311	-0.0370	-0.0061	-0.0671	0.0022	-0.0045	-0.0115	0.0016	-0.0053	-0.0022
•	0.1760	-0.0338	-0.0239	-0.0268	-0.0295	-0.3038	0.0022	0.0034	0.0020	-0.0049	-0.0043	0.0021	-0.0117
	0.1840	-0.0305	-0.0227	-0.0228	-0.0294	-0.0027	0.0064	0.0011	0.0011	0.0	-0.0030	0.0103	-0.0110
	6.1920	-0.0261	-0.0293	-0.0246	-0.0272	0.0081	0.0008	0.0013	-0.0044	0.0060	0.0014	0.0129	-0.0382
	C - 2001)	-0.0290	-0.0327	-0.0294	-0.0304	0.0123	-0.0100	6.0067	-0.0002	0.0065	0.0006	0.0080	-0.0066
	6.2080	-0.0341	-0.0435	-0.0270	-0.0354	0.0111	-0.0049	0.0122	0.0017	0.0029	-0.0029	0.0039	0.0021
	0.2160	-0.0371	-0.0486	-0.0301	-0.0422	0.0078	0.0014	0.0157	0.0070	0.0036	0.0	0.0058	0.0041
	0.2240	-0.0303	-0.0414	-0.0250	-0.0350	0.0100	0.0042	0.0085	0.0169	0.0037	-0.0044	0.0026	-0.0062
	u-232J	-0.0262	-0.0343	-0.0246	-0.0258	0.0133	0.0046	0.0028	0.0031	0.0014	-0.0102	-0.0003	-0.0075
	0.2405	-0.0240	-0.0266	-0.0296	-0.0235	0.0179	0.0028	0.0047	-0.0009	-0.0019	-0.0112	-0.0062	0.0011
	0.2430	-0.0197	-0.0237	-0.0264	-0.0150	0.0098	0.0043	0.0044	0.0042	-0.0030	-0.0078	-0.0155	0.0017
	. 0.2569	-0.0169	-0.0181	-0.0118	-0.0101	0.0011	0.0092	0.0037	0.0117	-0.0055	-0.0001	-0.0132	0.0011
	6.2640	-0.0035	-0.0137	-0.0040	-0.0122	-0.0037	0.0071	0.0003	0.0071	-0.0081	0.0054	-0.0071	0.0020
	0.2720	0.0097	-0.0114	0.0047	-0.0076	-0.0065	0.0043	0.0037	-0.0003	-0.0025	0.0034	-0.0036	0.0089
	0.2800	-0.0028	-0.0132	0.0025	-0.0081	-0.0031	0.0031	0.0068	-0.0048	0.00.33	0.0022	-0.0080	-0.0003
	0.2880	-0.0125	-0.0121	0.0026	-0.0138		0.0001		0.0026	0.0062	0.0011	0.0004	-0.0030
	0.2960	-0.0089	-0.0073	0.0021	-0.0109		0.0119			0.0069	0.0018	-0.0023	-0.0013
	0.3040	-0.0038	-0.0121	-0.0092	-0.0076	-0.0148	0.0041	-0.0116	-0.0084	0.0030	-0.0003	-0.0033	-0.0013
	0.3120	-0.0124	-0.0087	-0.0114	-0.0079	-0.0059	-0.0110	-0.0070	-0.0093	-0.0027	-0.0026	-0.0093	0.0019

······

••

;

· -----

:

t

...

.

450

•

WG(LB/SEC)	0.1742	0.1742	0.1742	0.1742	0.1742	0.1742	0.1742	0.1742	0.1742	0.1742	0.1742	0.1742
WL(LB/SEC)	0.1300	0.1800	0.1800	0.1800	0.2400	0.2400	0.2400	0.2400	0.3500	0.3500	0.3500	0.3500
CELL	81	D2	LAG	LEAD	81	D2	LAG	LEAD	81	D2	LAG	LEAD
TIME(SEC)	**** N(	DRMALIZED	VALUE **	***	***** NC	DRMALIZED	VALUE **	****	**** N(	DRMALIZED	VALUE **	***
0.0	1.0000	1.0000	0.5127	0.5127	1.0000	1.0000	0.5621	0.5621	1.0000	1.0000	0.6001	0.6001
0.0080	6.5524	0.5485	0.4398	0.4095	0.5849	0.5826	0.5056	0.4247	0.6107	0.5964	0.4691	0.4915
0.0160	0.1632	0.1665	0.2657	0.2229	0.1854	0.1898	0.3075	0.2101	<b>0.2</b> 044	0.1932	0.2223	0.2694
0.0240	-0.0043	0.0069	0.1035	0.0606	0.0035	0.0124	0.1180	0.0411	0.0013	-0.0027	0.0298	0.0839
0 <b>.</b> u320	-0.0765	-0.0650	-0.0109	-0.0361	-0.0763	-0.0719	-0.0089	-0.0505	-0.0946	-0.0408	-0.0780	-0.0294
0.0400	-0.1078	-0.0999	-0.0749	-0.0831	-0.1161	-0.1104	-0.0769	-0.0965	-0.1410	-0.1296	-0.1279	-0.0873
Ŭ <b>₊</b> ∩48€	-0.1181	-0.1120	-0.1017	-0.0993	0.1327	-0.1243	-0.1133	-0.1148	-0.1555	-0.1439	-0.1463	-0.1153
0.0560	-0.1184	-0.1128	-0.1083	-0.1060	-0.1342	-0.1213	-0.1265	-0.1172	-0.1533	-0.1464	-0.1461	-0.1259
0.0640	-0.1161	-0.1382	-0.1070	-0.1018	-0.1294	-0.1162	-0.1237	-0.1115	-0.1497	-0.1427	-0.1393	-0.1253
0.C720	-0.1052	-0.1026	-0.0988	-0.0915	-0.1241	-0.1106	-0.1149	-0.1009	-0.1380	-0.1304	-0.1319	-0.1174
0.0800	-0.0872	-0.0948	-0.0891	-0.0836	-0.1122	-0.1036	-0.1100	-0.0925	-0.1199	-0.1131	-0.1174	-0.1041
0.0880	-0.0745	-0.0821	-0.0823	-0.0742	-0.1011	-0.0975	-0.1028	-0.6863	-0.1009	-0.0924	-0.0965	-0.0857
0.0960	-0.0600	-0.0667	-0.0759	-0.0640	-0.0917	-0.0893	-0.0926	-0.0768	-0.0752	-0.0775	-0.0752	-0.0715
0.1040	-0.0500	-0.0547	-0.0591	-0.0537	-0.0737	-0.0770	-0.0779	-0.0585	-0.0561	-0.0661	-0.0569	-0.0623
0.1120	-0.0443	-0.0445	-0.0373	-0.0474	-0.0488	-0.0658	-0.0603	-0.0495	-0.0413	-0.0522	-0.0415	-0.0524
0.1200	-0.0369	-0.0398	-0.0329	-0.0402	-0.0283	-0.0461	-0.0444	-0.0447	-0.0317	-0.0323	-0.0256	-0.0376
0.1280	-0.0303	-0.0349	-0.0330	-0.0313	-0.0160	-0.0292	-0.0271	-0.0286	-0.0236	-0.0138	-0.0088	-0.0255
10.1365	-0.0233	-0.0296	-0.0275	-0.0238	-0.0082	-0.0171	-0.0132	-0.0117	-0.0097	-0.0058	0.0026	-0.0225
0 - 1440	-0.0187	-0.0283	-0.0180	-0.0187	-0.0004	-0.0114	-0.0032	-0.0078	0.0021	0.0009	0.0127	-0.0170
; Ú.1520	-0.0123	-0.0249	-0.0113	-0.0218	0.0055	-0.0040	0.0037	-0.0013	0.0074	0.0142	0.0184	-0.0050
0.1600	-0.0034	-0.0212	-0.0070	-0.0186	0.0577	0.051	0.0189	-0.0007	0.0053	0.0207	0.0205	0.0097
. 0.1630	-0.0058	-0.0171	-0.0061	-0.0131	0.0168	0.0162	0.0306	0.0064	C.0017	0.0141	0.0159	0.0090
. 0.176J	-0.0005	-0.0133	-0.0039	-0.0044	0.0165	0.0203	0.0247	0.0083	0.0037	0.0143	0.0152	0.0046
0.1840	0.0114	-0.0074	0.3043	0.0034	0.0068	0,0169	0.0170	0.0055	0.0048	0.0115	0.0159	0.0021
0.1923	0.0146	0.0044	0.0107	0.0064	-0.0034	.0.0067	0.0039	0.0037	0.0056	0.0043	0.0078	0.0010
0.2003	0.0119	0.0137	0.0111	C.0110	-0.0035	0.0012	-0.0033	0.0037	C.0122	0.0011	-0.0056	0.0077
0.2080	0.0032	0.0134	0.0180	0.0117	-0.0016	-0.0008	-0.0034	0.0032	0.0152	0.0043	-0.0017	0.0173
0.2160	0.0065	0.0111	0.0213	0.0083	0.0103	-0.0099	-0.0005	-0.0014	0.0091	0.0087	0.0072	0.0180
6.2240	0.0130	0.0104	0.0189	-0.0012	C.0134	-0.0109	0.0054	-0.0044	Ŭ•01Ŭ3	0.0117	0.0074	0.0117
i 0.2320	0.0042	0.0098	0.0089	0.0027	0.0000	-0.0004	0.0056	-0.0031	0.0153	0.0168	0.0035	0.0133
i 0∙5400	-0.0070	0.0042	-0.0021	-0.0007	0.0046	0.0110	0.0036	0.0003	0.0131	0.0136	0.0072	0.0181
: 0.2480	-0.0105	-0.0015	-0.0100	-0.0066	0.0011	0.0116	0.0047	-0.0011	0.0029	0.0010	0.0078	0.0121
0.256J	-0.0160	-0.0045	-0.0178	-0.0082	C.0C01	0.0063	0.0037	-0.0049	-0.0082	-0.0072	0.0010	0.0034
. 0.2640	-0.0102	-0.0008	-0.0176	-0.0023	-0.0132	-0.0015	-0.0009	-0.0129	-0.0087	-0.0047	-0.0015	-0.0091
0.2720	0.0010	0.0020	-0.0090	0.0071	-0.0252	-0.0102	-0.0099	-0.0165	-0.0003	-0.0095	0.0035	-0.0155
0.2800	0.0110	0.0041	0.0022	0.0123	-0.0240	-0.0185	-0.0218	-0.0074	0.0072	-0.0150	<b>-0.</b> 0008	-0.0142
0.2880	0.0033	0.0027	0.0004	0.0109	-0.0189	-0.0159	-0.0237	-0.0079	0.0076	-0.0088	-0.0036	-0.0069
0.2960	-0.0044	-0.0072	-0.0070	0.0351	-0.0163	-0.0121	-0.0143	-0.0121	-0.0009	-0.0009	0.0003	0.0032
0.3040	-0.0084	-0.0110	-0.0106	-0.0031	-0.0132	-0.0090	-0.0054	-0.0108	-0.0106	-0.0009	-0.0044	0.0040
0.3120	-0.0109	-0.0083	-0.0074	-0.0118	-0.0008	-0.0040	0.0063	-0.0072	-0.0124	-0.0092	-0.0076	-0.0003

.

	WG'(LB/SEC)	0.1742	0.1742	0.1742	0.1742	0.1742	0.1742	0.1742	0.1742
•	WL(LB/SEC)	0.4700	0.4700	0.4700	0.4700	0.5850	0.5850	0.5850	0.5850
	CELL	81	D2	LAG	LEAD	81	D2	LAG	LEAD
	TIME(SEC)	**** NO	RMALIZED	VALUE **	***	**** NÜ	RMALIZED	VALUE **	***
	0.0	1.0000	1.0000	0.6000	0.6000.	1.0000	1.0000	0.6366	0.6306
	0.0080	0.6107	0.6006	0.5168	0.4586	0.6279	0.6224	0.4878	0.5184
	0.0160	0.2146	0.1992	0.2831	0.2370	0.2083	0.2077	0.2278	0.2691
÷	0.0240	0.0042	-0.0038	0.0684	0.0603	-0.0190	-0.0206	0.0114	0.0660
	0.0320	-0.1003	-0.0978	-0.0605	-0.0464	-0.1305	-0.1281	-0.1087	-0.0567
·	0.340)	-0.1467	-0.1350	-0.1198	-0.1010	-0.1792	-0.1613	-0.1529	-0.1166
·	0.0480	-0.1651	-0.1440	-0.1444	-0.1227	-0.1937	-0.1678	-0.1644	-0.1404
:	0.0560	-0.1680	-0.1484	-0.1546	-0.1286	-0.1880	-0.1641	-0.1688	-0.1460
	0.0640	-0.1572	-0.1437	-0.1536	-0.1280	-0.1685	-0.1542	-0.1638	-0.1379
	0.0720	-0.1442	-0.1316	-0.1473	-0.1185	-0.1353	-0.1354	-0.1443	-0.1231
	0.0800	-0.1227	-0.1142	-0.1338	-0.0935	-0.1008	-0.1116	-0.1215	-0.1015
	0.0883	-0.0922	-0.0910	-0.1053	-0.0683	-0.0/41	-0.0912	-0.0932	-0.0797
٠	0.0960	-0.0618	-0.0717	-0.0786	-0.0534	-0.0507	-0.0691	-0.0662	-0.0606
	0.1040	-0.0424	-0,0549	-0.0563	-0.0473	-0.0346	-0.0512	-0.0424	-0.0456
	0.1120	-0.0358	-0.0417	-0.0418	-0.0406	-0.0229	-0.0324	-0.0189	-0.0288
	0.1200	-0.0264	-0.0272	-0.0251	-0.0317	-0.0057	-0.0099	0.0001	-0.0140
:	0.1280	-0.0173	-0.0184	-0.0106	-0.0280	0.0057	0.0060	0.0151	-0.0026
i	0.1360	-0.0063	-0.0110	0.0091	-0.0250	0.0117	0.0168	0.0270	0.0014
1	0.144)	0.0047	-0.0028	0.0227	-0.ü152	0.0174	0.0230	0.0328	0.0059
1	0.1523	0.0176	-0.0041	0.0232	0.0006	0.0229	0.0281	0.0366	0.0169
1	6.1690	0.0219	0.0013	0.0237	0.0101	0.0272	0.0315	0.0384	0.0282
Ĺ	0.1680	U.0165	0.0127	0.0267	0.0128	0.0294	0.0296	0.0317	0.0304
-11	0.1760	0.0109	0.0158	0.0191	0.0062	0.0242	0.0206	0.0180	0.0238
÷	0.1540	0.0645	0.0108	0.0158	0.0021	0.0111	0.0103	0.0031	0.0139
	0.192'.	-0.0007	0.0125	0.0094	0.0005	-0.0007	-0.0037	-0.0072	0.0010
i	0.2000	-0.0013	0.0146	0.0085	0.0048	-0.0056	-0.0146	-0.0095	-0.0106
!	0.2080	0.0018	0.0106	0.0076	0.0116	-0.0072	-0.0169	-0.0085	-0.0146
	0.2160	0.0037	0.0072	-0.0050	0.0138	-0.0139	-0.0149	-0.0110	-0.0177
	0.2240	0.0063	0.0036	-0.0073	0.0069	-0.0169	-0.0092	-0.0158	-0.0169
	0.2320	0.0	0.0032	-0.0007	0.0058	-0.0104	-0.0022	-0.0094	-0.0120
	0.2400	-0.0025	0.0038	0.0044	0.0050	-0.0053	-0.0006	0.0019	-0.0057
	0.2480	-0.0027	-0.0019	0.0058	-0.0019	0.0025	-0.0023	0.0102	0.0004
	0.2000	0.0044	-0.0051	-0.0043		0.0100	0.0055	0.0117	0.0044
	0.2720	0.0001	-0.0032	-0.0074	-0.0019	0.0131	0.0104	0.0079	0.0097
i	0.2720	-0.0156	-0.0133	-0.0189	-0.0001	0.0100	0.0049	0.0055	0.0120
	0.2800	-0.0208	-0.0160	-0.0200	-0.0029	0.0013	0.0033	0.0060	0.0067
•	0.2880	-0.0142		-0.0237	-0.0092	-0.0032	0.0051	0.0035	0.0024
•	0.2963	-0.0051	-0.0016	-0.0136	-0.0081		0.0040	-0.0083	
	0.3040	0.0017	0.0043	0.0005	-0.0101	-0.0003	-0.0038	-0+0043	-0.0008
1	0.3120	0.0092	0.0020	0.0138	-0.0013	-0.0070	-0.0113	-0.0051	-0.0034

. .

APPENDIX D

STATISTICAL DATA OF WAVE PROPERTIES

WAVE AN	MPLITUDE OF	THE LARGE	WAVES A	T D <sub>2</sub> CELL	. S	TAN DAR D	AMPLITUDE	AT D <sub>2</sub> CEI	LI WAVE	
0.0	0.045	0.0976	0.1436	0.1742	$W_{-}(lb/sec)$	0.0	0.045	0.0976	0.1436	0.1742

0.0015

0.0028

0.0092

0.0179

0.0232

0.0255

0.0273

0.0117

0.0147

0.0163

0.0186

0.0188

0.0210

0.0219

0.0224

0.0155

0.0174

0.0188

0.0188

W <sub>G</sub> (lb/sec)	0.0	0.045	0.0976	0.1436	0.1742	W <sub>G</sub> (lb/sec)
W <sub>L</sub> (lb/sec)		A (1	nch)		**	W <sub>L</sub> (lb/sec)
0.016	0.0040	0.0030		0.0012	0.0009	0.016
0.028	0.0051	0.0035		0.0019	0.0015	0.028
0.044	0.0099	0.0069	0.0069	0.0082	0.0049	0.044
0.08	0.0206	0.0157	0.0209	0.0166	0.0130	0.08
0.126	0.0293	0.0219	0.0283	0.0199	0.0162	0.126
0.18	0.0323	0.0241	0.0299	0.0205	0.0177	0.18
0.24	0.0312	0.0262	0.0326	0.0235	0.0204	0:24
0.35	0.0416	0.0291	0.0362	0.0265	0.0231	0.35
0.47	0.0468	0.0300	0.0386	0.0296	0.0254	0.47
0.585	0.0495	0.0350	0.0387	0.0314	0.0257	0.585
W <sub>G</sub> (lb/sec)	0.0	0.045	0.0976	0.1436	0.1742	W <sub>G</sub> (1b/sec)
W <sub>L</sub> (1b/sec)	******	h <sub>max</sub>	(inch)		·	W <sub>L</sub> (1b/sec)
0.016	0.0072	0.0052		0.0034	0.0033	0.016
0.028	0.0102	0.0073		0.0054	0.0043	0,028
0.044	0.0155	0.0111	0.0115	0.0115	0.0071	0.044
0.08	0.0269	0.0205	0.0257	0.0204	0.0160 ·	. 0.08
0.126	0.0366	0.0272	0.0341	0.0248.	0.0203	0.126
0.18	0.0405	0.0301	0.0365	0.0262	0.0228	0.18
0.24	0.0407	0.0335	0.0405	0.0302	0.0265	0.24
0.35	0.0553	0.0395	0.0462	0.0350	0.0307	0.35
0.47	0.0635	0.0429	0.0507	0.0399	0.0347	0.47
0.585	0.0690	0.0497	0.0527	0.0437	0.0362	0.585

.....

• •

•08	0.0140	0.0108	3 0.0133	0.0091	0.0073
.126	0.016	7 0.0108	3 0.0143	0.0112	<b>0.</b> 0097
.18	0.018	2 0.011	<b>0.</b> 0158	0.0133	0.0117
:24	0.019	0.012	5 0.0194	0.0155	0.0130
• 35	0.024	7 0.0158	0.0216	0.0176	0.0139
•47	0.027	3 0.0178	3 0.0226	0.0191	0.0149
•585	0.029	0.0204	+ 0.0232	0.0194	0.0144
	STAN DARD	DEVIATION MAXIMUM A	OF THE L	ARGE WAVE	
b/sec)	0.0	0.045	0.0976	0.1436	0.1742
b <b>/sec)</b>	******	max	(inch)		
016	0.0014	0.0010		0.0006	0.0004
028	. 0,0025	0.0013		0.0008	0.0007
544	0.0093	0.0065	0.0073 ·	0.0084	0.0057
08	0.0137	0.0107	0.0129	0.0091	0.0070
126	0.0160	0.0104	0.0137	0.0111	0.0095
18	0.0172	0.0105	0.0152	0.0133	0.0115

(inch)

\_ \_ ~ ~ \_ \_ \_

-----

0.0075

amp

0.0011

0.0016

0.0065

-----

0.0004

0.0008

0.0057

0.0006

0.0009

0.0081

.

454

0.0128

0.0137

0.0146

0.0140

WAVE MINIMUM OF THE LARGE WAVES AT D<sub>2</sub> CELL

•

MINIMUM OF D2 CELL

ليهجد المتجر النقاط بقدة معت الكذائة فعجمه اطتبعها	فالكرين استحاذ السالين القصير بإغال					- ;						
W <sub>G</sub> (1b/sec)	0.0	0.045	0.0976	0.1436	0.1742	41	W <sub>G</sub> (1b/sec)	0.0	0.045	0.0976	0.1436	0.1742
W <sub>L</sub> (lb/sec)		h <sub>min</sub>	(inch) -		*		W,(lb/sec)		π.n	(inch)		
0.016	0.0032	0.0022		0.0022	0.0024	•	0.016	0.0006	0.0005		0.0005	0.0003
0.028	0.0051	0.0038		0.0035	0.0028	ı	0.028	0.0012	0.0009		0.0006	0.0004
0.044	0.0057	0.0043	0.0046	0.0034	0.0023		0.044	0.0014	0.0011	0.0010	0.0008	0.0005
0.08	0.0064	0.0049	0.0049	0.0040	0.0031		0.08	0.0019	0.0015	0.0012	0.0010	0.0010
0.126	0.0074	0.0054	0.0060	0.0051	0.0042		0.126	0.0028	0.0020	0.0018	0.0015	0.0013
0.18	0.0084	0.0061	0.0069	0.0058	0.0052	ı	0.18	0.0034	0.0025	0.0021	0.0017	0.0016
0.24	0.0098	0.0075	0.0083	0.0070	0.0063		0.24	0.0041	0.0030	0.0026	0.0022	0.0020
0.35	0.0144	0.0110	0.0107	0.0090	0.0080.		0.35	0.0051	0.0036	0.0033	0.0029	0.0026
0.47	0.0179	0.0138	0.0131	0.0110	0.0098		0.47	0.0058	0.0040	0.0038	0.0034	0.0031
0.585	0.0212	0.0158	0.0152	0.0131	0.0110		0,585	0.0060	0.0046	0.0045	0.0042	0.0035
	WAVE BA	SE OF THE	LARGE WAY	VES AT D2	CELL	J		STAND	ARD DEVIA BASE	TION OF T AT D <sub>2</sub> CELI	HE LARGE V L	WAVE
W <sub>G</sub> (lb/sec)	0.0	0.045	0.0976	0.1436	0.1742				0 olur	0.0004		• • • • • • • •
W <sub>L</sub> (lb/sec)		T <sub>bs</sub>	(sec)		***		W <sub>G</sub> (1D/sec)	0.0	0.045	0.0976	0.1436	0.1742
0.016	0.0973	0.0804	******	0.0304	0.0246		W <sub>L</sub> (1b/sec)		bs	(sec)		
0.028	0.0717	0.0634	0.0513	0.0383	0.0324		0.016	0.0453	0.0396		0.0142	0.0102
0.044	0.0872	0.0784	0.0657	0.0595	0.0497		0.028	0.0309	0.0278	0.0225	0.0191	0.0164
0.08	0.1061	0.1028	0.0793	0.0680	0.0603	1	0.044	0.0470	0.0422	0.0363	0.0295	0.0266
0.126	0.1085	0.1086	0.0757	0.0610	0.0541		0.08	0.0509	0.0508	0.0331	0.0279	0.0243
0.18	0.1009	0.1050	0.0698	0.0551	0.0509		0.126	0.0476	0.0443	0.0291	0.0255	0.0228
0.24	0.0858	0.0936	0.0627	0.0520	0.0482	•	0.18	0.0453	0.0434	0.0276	0.0236	0.0218
0.35	0.0733	0.0763	0.0553	0.0471	0.0452		0.24	0.0398	0.0393	0.0262	0.0242	0.0203
0.47	0.0697	0.0669	0.0513	0.0454	0.0427		0.35	0.0345	0.0335	0.0242	0,0225	0.0188
0.585	0.0654	0.0658	0.0503	0.0438	0.0423		0.47	0.0316	0.0328	0.0227	0.0222	0.0179
							0.585	0.0314	0.0320	0.0237	0.0220	0.0185

WAVE SEPARATION OF THE LARGE WAVES AT D2 CELL

.

٢

.......

W <sub>G</sub> (lb/sec)	0.0	0.045	0.0976	0.1436	0.1742
W <sub>L</sub> (lb/sec)		- T <sub>sep</sub>	(sec)		
0.016	0.1031	0.0886		0.0362	0.0293
0.028 .	0.0833	0.0722	0.0648	0.0468	0.0401
0.044	0.1222	0.1185	0.1121	0.1365	0.0775
0.08	0.1677	0.1810	0.1606	0.1247	0.1142
0.126	0.1641	0.1689	0.1387	0.1081	0.0957
0.18	0.1433	0.1514	0.1252	0.0955	0.0853
0.24	0.1191	0.1312	0.1130	0.0901	0.0821
0.35	0.1167	0.1177	0.1004	0.0796	0.0717
0.47	0.1198	0.1096	0.0936	0.0746	0.0662
0.585	0.1159	0.1109	0.0910	0.0724	0.0635
<u></u>	OF T	HE LARGE	WAVES AT	D <sub>2</sub> CELL	0.1540
W <sub>G</sub> (lb/sec)	0.0	0.045	0.0976	0.1436	0.1742
W <sub>L</sub> (lb/sec)		T <sub>bk</sub>	/ T <sub>fn</sub>		
0.016	1.84	1.83		1.14	1.12
0.028	1.60	1.535	1.48	1.215	1.22
0.044	1.835	1.84	1.81	2.09	1.94
0.08	2.065	2.05	2.21	2.72	2.49
0.126	2.030	2.06	2.50	2.30	2.15
0.18	1.995	2.07	2.39	2.20	2.10
0.24	1.88	1.945	2.17	1.98	1.91
0.35	1.715	1.76	1.88	1.74	1.825
0.47	1.60	1.54	1.82	1.72	1.70
0.585	1.555	1.53	1.71	1.65	1.67

STANDARD DEVIATION OF THE LARGE WAVE SEPARATION AT D<sub>2</sub> CELL

W <sub>G</sub> (lb/sec)	0.0	0.045	0.0976	0.1430	5 0 <b>.1742</b>
W <sub>L</sub> (1b/sec)		- sep	(sec)		
0.016	0.0502	0.0483		0.018	L 0.0134
0.028	0.0422	0,0368	0.0365	0.0250	0.0211
0.044	0.0867	0.0913	0.0967	0.1189	9 0.0605
0.08	0.1095	0.1268	0.1009	0.071	7 0.0699
0.126.	0.0935	0.0949	0.0744	0.062	4 0.0573
0.18	0.0787	0.0815	0.0679	0.0579	9 0.0528
0.24	0.0669	0.0697	0.0688	0.056	L 0.0492
0.35	0.0678	0.0655	0.0592	0.048	9 0.0411
0.47	0.0698	0.0656	0.0574	0.044	0.0372
0.585	0.0688	0.0658	0.0537	0.042	4 0.0345
		-			
W	AVE FREQU	JENCY OF	THE LARG	E WAVES	AT D <sub>2</sub> CELL
W W <sub>G</sub> (lb/sec)	AVE FREQU	0.045	0.0976	E WAVES	AT D <sub>2</sub> CELL
W W <sub>C</sub> (lb/sec) W <sub>L</sub> (lb/sec)	0.0	0.045	0.0976 cps)	E WAVES	AT D <sub>2</sub> CELL
W W <sub>G</sub> (lb/sec) W <sub>L</sub> (lb/sec) 0.016	0.0 	0.045 f ( 11.3	0.0976 cps)	E WAVES 0.1436 27.6	AT D <sub>2</sub> CELL 0.1742 34.1
W W <sub>G</sub> (lb/sec) W <sub>L</sub> (lb/sec) 0.016 0.028	0.0  9.7 12.0	0.045 f ( 11.3 13.85	0.0976 cps) 15.4	E WAVES 0.1436 27.6 21.4	AT D <sub>2</sub> CELL 0.1742 34.1 24.9
W W <sub>G</sub> (lb/sec) W <sub>L</sub> (lb/sec) 0.016 0.028 0.044	0.0 9.7 12.0 8.2	0.045 f ( 11.3 13.85 8.43	THE LARG 0.0976 cps) 15.4 8.91	e waves 0.1436 27.6 21.4 7.32	AT D <sub>2</sub> CELL 0.1742 34.1 24.9 12.9
W W <sub>G</sub> (lb/sec) W <sub>L</sub> (lb/sec) 0.016 0.028 0.044 0.08	0.0 9.7 12.0 8.2 5.97	0.045 f ( 11.3 13.85 8.43 5.52	THE LARG 0.0976 (cps) 15.4 8.91 6.23	e waves 0.1436 27.6 21.4 7.32 8.00	AT D <sub>2</sub> CELL 0.1742 34.1 24.9 12.9 8.77
W W <sub>G</sub> (lb/sec) W <sub>L</sub> (lb/sec) 0.016 0.028 0.028 0.044 0.08 0.126	0.0 9.7 12.0 8.2 5.97 6.10	0.045 f ( 11.3 13.85 8.43 5.52 5.92	THE LARG 0.0976 (cps) 15.4 8.91 6.23 7.20	E WAVES 0.1436 27.6 21.4 7.32 8.00 9.25	AT D <sub>2</sub> CELL 0.1742 34.1 24.9 12.9 8.77 10.45
W W <sub>G</sub> (lb/sec) W <sub>L</sub> (lb/sec) 0.016 0.028 0.028 0.044 0.08 0.126 0.18	0.0 9.7 12.0 8.2 5.97 6.10 6.97	0.045 f ( 11.3 13.85 8.43 5.52 5.92 6.6	THE LARG 0.0976 (cps) 15.4 8.91 6.23 7.20 7.97	E WAVES 0.1436 27.6 21.4 7.32 8.00 9.25 10.48	AT D <sub>2</sub> CELL 0.1742 34.1 24.9 12.9 8.77 10.45 11.70
W W <sub>G</sub> (lb/sec) W <sub>L</sub> (lb/sec) 0.016 0.028 0.028 0.044 0.08 0.126 0.18 0.24	0.0 9.7 12.0 8.2 5.97 6.10 6.97 8.40	0.045 f ( 11.3 13.85 8.43 5.52 5.92 6.6 7.62	THE LARG 0.0976 (cps) 15.4 8.91 6.23 7.20 7.97 8.85	E WAVES 0.1436 27.6 21.4 7.32 8.00 9.25 10.48 11.10	AT D <sub>2</sub> CELL 0.1742 34.1 24.9 12.9 8.77 10.45 11.70 12.20
W W <sub>G</sub> (1b/sec) W <sub>L</sub> (1b/sec) 0.016 0.028 0.028 0.044 0.08 0.126 0.18 0.24 0.35	0.0 9.7 12.0 8.2 5.97 6.10 6.97 8.40 8.56	0.045 0.045 11.3 13.85 8.43 5.52 5.92 6.6 7.62 8.50	THE LARG 0.0976 cps) 15.4 8.91 6.23 7.20 7.97 8.85 9.95	E WAVES 0.1436 27.6 21.4 7.32 8.00 9.25 10.48 11.10 12.55	AT D <sub>2</sub> CELL 0.1742 34.1 24.9 12.9 8.77 10.45 11.70 12.20 13.95
W W <sub>G</sub> (lb/sec) W <sub>L</sub> (lb/sec) 0.016 0.028 0.044 0.08 0.126 0.18 0.24 0.35 0.47	0.0 9.7 12.0 8.2 5.97 6.10 6.97 8.40 8.56 8.35	0.045 0.045 11.3 13.85 8.43 5.52 5.92 6.6 7.62 8.50 9.13	THE LARG 0.0976 cps) 15.4 8.91 6.23 7.20 7.97 8.85 9.95 10.7	E WAVES 0.1436 27.6 21.4 7.32 8.00 9.25 10.48 11.10 12.55 13.44	AT D <sub>2</sub> CELL 0.1742 34.1 24.9 12.9 8.77 10.45 11.70 12.20 13.95 15.10

# WAVE AMPLITUDE OF THE LARGE WAVE

AT B1, A3 AND C4 CELL

WAVE SEPARATION OF THE LARGE WAVE

AT B1. A3 AND C4 CELL

W <sub>G</sub> (lb/sec)		0.0			0	.143	5
CELL NO.	B <sub>1</sub>	<sup>A</sup> 3	$c_4$	<sup>B</sup> 1	A	3	c <sub>4</sub>
W <sub>L</sub> (lb/sec)			- A (ind	ch)			
0.016	0.0034	0.0038	0.0030	0.0011	0.0	012	0.0011
0.044	0.0112	0.0109	0.0082	0.0120	0.0	089	0.0080
0.126	0.0304	0.0306	0.0173	0.0268	0.0	253	0.0258
0.24	0.0348	0.0391	0.0203	0.0304	0.0	331	0.0332
0.35	0.0413	0.0456	0.0403	0.0339	0.0	386	0.0438
0.585	0.0528	0.0637	0.0529	0.0376	0.0	439	0.0558
	- WAV)	E FREQUEN AT B <sub>1</sub> .	ICY OF TH. A3 AND	E LARGE C <sub>4</sub> CELL	WAVE		
W <sub>c</sub> (1b/sec)	- WAV)	E FREQUEN AT B <sub>1</sub> . 0.0	ICY OF TH	E LARGE C <sub>4</sub> CELL	WAVE	36	
W <sub>G</sub> (1b/sec) CELL NO.	- WAV) B <sub>1</sub>	E FREQUEN AT B <sub>1</sub> . 0.0 A <sub>3</sub> C <sub>4</sub>	A AND	E LARGE C <sub>4</sub> CELL	WAVE 0.143 <sup>A</sup> 3	36 с <sub>4</sub>	
W <sub>C</sub> (1b/sec) CELL NO. W <sub>L</sub> (1b/sec)	- wav) B <sub>1</sub>	E FREQUEN AT B <sub>1</sub> . 0.0 A <sub>3</sub> C <sub>4</sub>	ACY OF TH A3 AND f (c	E LARGE C <sub>4</sub> CELL B <sub>1</sub> ps)	WAVE 0.143 A3	36 с <sub>4</sub>	
W <sub>G</sub> (lb/sec) CELL NO. W <sub>L</sub> (lb/sec) 0.016	- WAV) B <sub>1</sub> 10.42	E FREQUEN AT B <sub>1</sub> , 0.0 A <sub>3</sub> C <sub>4</sub> 9.8 10.	ICY OF TH A <sub>3</sub> AND f (c 22	E LARGE C <sub>4</sub> CELL B <sub>1</sub> ps) 26.3 2	wave 0.143 <sup>A</sup> 3 5.4	36 C <sub>4</sub> 25.8	
W <sub>C</sub> (1b/sec) CELL NO. W <sub>L</sub> (1b/sec) 0.016 0.044	B <sub>1</sub> 10.42 8.10	E FREQUEN AT $B_1$ . 0.0 $A_3$ $C_4$ 9.8 10. 8.37 10.	ICY OF TH. A AND - f (c 22	E LARGE C <sub>4</sub> CELL B <sub>1</sub> ps) 26.3 2 5.95	wAVE 0.143 A 3 5.4 9.0	36 C <sub>4</sub> 25.8 9.1	
W <sub>G</sub> (1b/sec) CELL NO. W <sub>L</sub> (1b/sec) 0.016 0.044 0.126	- WAV) B <sub>1</sub> 10.42 8.10 6.40	E FREQUEN AT B <sub>1</sub> , 0.0 A <sub>3</sub> C <sub>4</sub> 9.8 10. 8.37 10. 7.08 11.	ICY OF TH A <sub>3</sub> AND f (c 22 20 18	E LARGE C <sub>4</sub> CELL B <sub>1</sub> ps) 26.3 2 5.95 8.95 1	wAVE 0.143 A 3 5.4 9.0 0.1	36 C <sub>4</sub> 25.8 9.1 11.5	 ? 7
W <sub>G</sub> (1b/sec) CELL NO. W <sub>L</sub> (1b/sec) 0.016 0.044 0.126 0.24	B <sub>1</sub> 10.42 8.10 6.40 8.67	E FREQUEN AT $B_1$ . 0.0 $A_3$ $C_4$ 9.8 10. 8.37 10. 7.08 11. 9.33 14.	ICY OF TH A <sub>3</sub> AND - f (c 22 20 18 30	E LARGE C <sub>4</sub> CELL B <sub>1</sub> ps) 26.3 2 5.95 8.95 1 11.08 1	WAVE 0.143 A 3 5.4 9.0 0.1 1.8	36 C <sub>4</sub> 25.8 9.1 11.5 12.6	7
W <sub>G</sub> (1b/sec) CELL NO. W <sub>L</sub> (1b/sec) 0.016 0.044 0.126 0.24 0.35	B <sub>1</sub> 10.42 8.10 6.40 8.67 8.90	E FREQUEN AT B <sub>1</sub> . 0.0 A <sub>3</sub> C <sub>4</sub> 9.8 10. 8.37 10. 7.08 11. 9.33 14. 9.80 12.	ICY OF TH A <sub>3</sub> AND f (c 22 20 18 30 12	E LARGE C4 CELL B1 ps) 26.3 2 5.95 8.95 1 11.08 1 12.20 1	WAVE 0.143 A 3 5.4 9.0 0.1 1.8 2.85	25.8 9.1 11.5 12.6 12.5	 7 7 8

NI.

W <sub>G</sub> (lb/sec	)	0.0			0,143	36
CELL NO.	B <sub>1</sub>	<sup>A</sup> 3	с <sub>4</sub>	B <sub>1</sub>	<sup>A</sup> 3	c <sub>4</sub>
W <sub>L</sub> (lb/sec	)		<sup>T</sup> se	p (sec)		
0.016	0.0959	0,1021	0.0977	0.038	0.0394	0.0387
0.044	0.1236	0.1195	0.0982	0.1682	0.1111	0.1091
0.126	0.1560	0.1412	0.0895	0.1116	0.0991	0.0864
0.24	0.1153	0,1071	0.0699	0.0903	0.0850	0.0793
0.35	0.1122	0.1019	0.0824	0.0821	0.0778	0.0795
0.585	0.1154	0.1076	0.0878	0.0731	0.0735	0.0772
10 1 1			<b>VALEN TELE WA</b>	IVE FROND	OF THE	LARGE WAVE
Wallh/see		AT E	$A_1$ , $A_3$ ANI	CVE FRONT	OF THE	LARGE WAVE
W <sub>G</sub> (1b/sec		AT E	$31, A_3$ ANI	CVE FRONT	OF THE 0.14	JARGE WAVE
W <sub>G</sub> (1b/sec CELL NO.		AT E	$\frac{10 \text{ WA}}{0}$	D C <sub>4</sub> CELL	0.14	C <sub>4</sub>
W <sub>G</sub> (lb/sec CELL NO. W <sub>L</sub> (lb/sec	B <sub>1</sub>	AT E	$\begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \end{array} $	$\frac{B_1}{B_k} = \frac{B_1}{T_f}$	0.14; A3	C <sub>4</sub>
W <sub>G</sub> (lb/sec CELL NO. W <sub>L</sub> (lb/sec 0.016	B <sub>1</sub> .) 	AT E AT E 0. 4. 5. 2.0	$C_4$	$\frac{B_1}{B_k} / \frac{T_f}{1.15}$	0.14 A n 1.155	LARGE WAVE 36 C <sub>4</sub> 1.140
W <sub>G</sub> (1b/sec CELL NO. W <sub>L</sub> (1b/sec 0.016 0.044	B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub>	AT E AT E 0. 4 35 2.0 4 1.9	$\begin{array}{c} \begin{array}{c} & & & \\ & & \\ & & \\ & & \\ & & \\ & & \\ $	$\frac{B_1}{B_1}$	0.14 A 1.155 2.01	LARGE WAVE 36 C <sub>4</sub> 1.140 1.890
W <sub>G</sub> (1b/sec CELL NO. W <sub>L</sub> (1b/sec 0.016 0.044 0.126	B <sub>1</sub> ) 1.8 1.9 2.0	AT E AT E 0. 4 5 2.0 4 1.9 2.1	$\begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \\ \\ \\ \\ \\ \end{array} \end{array}, \begin{array}{c} \\ \\ \\ \end{array} \end{array}, \begin{array}{c} \\ \\ \\ \\ \\ \end{array} \end{array}, \begin{array}{c} \\ \\ \\ \\ \\ \\ \end{array} \\ \\ \\ \\ \\ \\ \\ \end{array} \\ \\ \\ \\ $	$B_{1}$ $B_{1}$ $B_{1}$ $ME FRONT$ $B_{1}$ $ME from T_{f}$ $B_{1}$ $ME from T_{f}$ $B_{1}$ $C_{1}$ $C_{2}$ $C$	0.14 A 1.155 2.01 2.40	LARGE WAVE 36 C <sub>4</sub> 1.140 1.890 2.48
W <sub>G</sub> (lb/sec CELL NO. W <sub>L</sub> (lb/sec 0.016 0.044 0.126 0.24	B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> B <sub>1</sub> C <sub>2</sub> C <sub>2</sub>	AT E AT E 0. A <sub>3</sub> 5 2.0 4 1.9 9 1.9	$\begin{array}{c} \begin{array}{c} & & & \\ & & $	$     B_{1}     C_{4} CELL     B_{1}     C_{5}     C_{1} CELL     C_{4}     CELL     C_{4}     CELL     C_{5}     C$	0.14 0.14 A 1.155 2.01 2.40 1.96	LARGE WAVE C4 1.140 1.890 2.48 2.07
W <sub>G</sub> (lb/sec CELL NO. W <sub>L</sub> (lb/sec 0.016 0.044 0.126 0.24 0.35	B1 	AT E AT E 0. 4 5 2.0 4 1.9 73 2.1 9 1.9 65 1.6	ACK 10 WA 31, A3 ANI 0 C4 Tt 6 1.63 1.94 8 1.72 5 1.56 7 1.81	$     B_{1}     C_{4} CELL     B_{1}     C_{4} CELL     CELL     C_{4} CELL     CELL     C_{4} CELL     CELL     C_{4} CELL     C_{4} CELL  $	OF THE 0.14; A3 1.155 2.01 2.40 1.96 1.72	LARGE WAVE C4 1.140 1.890 2.48 2.07 1.79

WAVE AMPLITUDE OF THE SMALL WAVES AT  $\mathrm{D}_2$  Cell

DIVINDUUD		*******	• • •		•~ •		···
	AM PL	ITUDE	AT	<sup>D</sup> 2	CEI	LL	

W <sub>G</sub> (lb/sec)	0.0	0.045	0.0976	0.1436	0.1742	W <sub>G</sub> (lb/sec)	0.0
W <sub>L</sub> (lb/sec)		A (in	ch)			.W <sub>L</sub> (1b/sec)	
0.016	0.0010	0.0010		0.0003	0.0003	0.016	0.0001
0.028	0.0016	0.0013		0.0005	0.0004	0.028	0.0007
0.044	0.0018	0.0016	0.0016	0.0014	0.0011	0.044	0.0009
0.08	0.0021	0.0018	0.0016	0.0015	0.0014	0.08	0.0012
0.126	0.0021	0.0017	0,0018	0.0018	0.0016 1	0.126	0.0012
0.18	0.0023	0.0018	0.0020	0.0020	0.0019	0.18	0.0014
0.24	0.0026	0.0021	0.0024	0.0027	0.0023	0.24	0.0018
0.35	0.0034	0.0028	0.0034	0.0031	0.0030	• 0.35	0.0023
0.47	0.0040	0.0033	0.0041	0.0038	0.0036	0.47	0.0026
0.585	0.0045	0.0037	0.0048	0.0045	0.0039	0.585	0.0028

WAVE MAXIMUM OF THE SMALL WAVES AT  $\mathrm{D}_{\mathbf{2}}$  Cell

٠.

W <sub>G</sub> (1b/sec)	0.0	0.045	0.0976	0,1436	0.1742
WL(lb/sec)		- h <sub>max</sub> (	(inch)	*****	
0.016	0.0036	0.0029		0.0024	0.0026
0.028	0.0063	0.0047		0.0038	0.0031
0.044	0.0066	0.0051	0.0053	0.0043	0.0030
0.08	0.0073	0.0056	0.0056	0.0048	0.0039
0.126	0.0080	0.0060	0.0067	0.0060	0.0051
0.18	0.0090	0.0066	0. 075	0.0068	0.0061
0.24	0.0106	0.0081	0.0090	0.0082	0.0075
0.35	0.0149	0.0115	0.0118	0.0104	0.0096
0.47	0.0176	0.0139	0.0141	0.0127	0.0117
0.585	0.0205	0.0154	0.0162	0.0148	0.0128

W <sub>G</sub> (lb/sec)	0.0	0.045	0.0976	0.1436	0.1742
W <sub>L</sub> (lb/sec)		amp (in	ch)		
0.016	0.0001	0.0002		0.0000	0.0001
0.028	0.0007	0.0005	****	0.0002	0.0002
0.044	0.0009	0.0007	0.0006	0.0006	0.0002
0,08	0.0012	0.0009	0.0007	0.0006	0.0005
0.126	0.0012	0.0009	0.0008	0.0008	0.0007
0.18	0.0014	0.0010	0.0010	0.0010	0.0008
0.24	0.0018	0.0013	0.0014	0.0013	0.0012
0.35	0.0023	0.0016	0.0020	0.0018	0.0016
0.47	0.0026	0.0020	0.0025	0.0022	0.0020
0.585	0.0028	0.0023	0.0028	0.0026	0.0022

# STANDARD DEVIATION OF THE SMALL WAVE. MAXIMUM AT D<sub>2</sub> CELL

W <sub>G</sub> (lb/sec)	0.0	0.045	0.0976	0.1436	0.1742	
W <sub>L</sub> (lb/sec)		max	(inch)			•.
0.016	0.0005	0.0003		0.0003	0.0002	
0.028	0.0009	0.0006		0.0005	0.0003	
0.044	0.0011	0.0008	0.0007	0.0006	0.0001	
0.08	0.0016	0.0011	0.0009	0.0008	0.0007	
0,126	0.0021	0.0015	0.0014	0.0012	0.0010	
0.18	0.0027	0.0019	0.0017	0.0014	0.0012	
0.24	0.0035	0.0025	0.0022	0.0018	0.0017	
0.35	0.0046	0.0032	0.0029	0.0024	0.0022	
0.47	0.0053	0.0038	0.0035	0.0028	0.0026	
0.585	0.0058	0.0043	0.0039	0.0035	0.0029	

· )

WAVE MINIMUM OF THE SMALL WAVES AT  $\mathrm{D}_{\mathbf{2}}$  CELL

•

MINIMUM AT D<sub>2</sub> CELL

W <sub>G</sub> (lb/sec)	0.0	0.045	0.0976	0.1436	0.1742	W <sub>G</sub> (lb/sec)	0.0	0.045	0.0976	0.1436	0.1742
W <sub>L</sub> (lb/sec)		h <sub>min</sub>	(inch)			W <sub>L</sub> (lb/sec)		min	(inch)		
0.016	0.0026	0.0019		0.0021	0.0023	0.016	0.0005	0.0003		0.0005	0.0002
0.028	0.0046	0.0033		0.0035	0.0027	0.028	0.0010	0.0007		0.0005	0.0003
0.044	0.0047	0.0034	0.0037	0:0028	0.0019	0.044	0.0011	0.0008	0.0007	0.0006	0.0003
0.08	0.0052	0.0038	0.0039	0.0032	0.0025	0.08	0.0014	0.0010	0.0008	0.0007	0.0006
0.126	0.0058	0.0042	0.0048	0.0041	0.0034 y	0.126	0.0018	0.0013	0.0012	0.0010	0.0009
0.18	0.0066	0.0047	0.0054	0.0047	0.0042	0.18	0.0023	0.0015	0.0014	0.0012	0.0010
0.24	0.0076	0.0057	0.0063 ·	0.0056	0.0050	0.24	0.0030	0.0020	0.0017	0.0015	0.0014
0.35	0.0109	0.0083	0.0079	0.0069	0.0063	0.35	0.0039	0.0028	0.0023	0.0020	0.0018
0.47	0.0129	0.0100	0.0094	0.0083	0.0077	0.47	0.0045	0.0033	0.0027	0.0024	0.0022
0.585	0.0153	0.0111	0.0108	0.0097	0.0084	0.585	0.0051	0.0035	0.0032	0.0029	0.0024
	WAVE PASI	E OF THE S	MALL WAVES	AT D <sub>2</sub> CEL	L		STAN DA	RD DEVIAT BASE A	T D <sub>2</sub> CELL	,	AVL.
W <sub>G</sub> (1b/sec)	0.0	0.045	0.0976	0.1436	0.1742	W <sub>c</sub> (lb/sec)	0.0	0.045	0.0976	0.1436	0.1742
W <sub>L</sub> (1b/sec)		T <sub>bs</sub> (	sec)					- (	- )	-	
0.016	0.0282	0.0350		0.0119	0.0119	W <sub>L</sub> (10/sec)		- bs (se	c)	••••••••	
0.028	0.0368	0.0314	0.0279	0.0150	0.0140	0.016	0.0266	0.0278		0.0042	0.0049
0.044	0.0421	0.0393	0.0336	0.0326	0.0276	0.028	0.0217	0.0188	0.0146	0.0078	0.0061
0.08	0.0447	0.0418	0.0333	0.0323	0.0312 ,	0.044	0.0256	0.0232	0.0175	• 0.0177	0.0148
0.126	0.0412	0.0394	0.0325	0.0333	0.0302	0.08	0.0252	0.0234	0.0175	0.0184	0.0169
0.18	0.0373	0.0384	0.0329	0.0317	0.0288	0.126	0.0230	0.0226	0.0179	0.0186	0.0158
0.24	0.0353	0.0362	0.0334	0.0306	0.0276	0.18	0.0221	0.0219	0.0180	0.0179	0.0148
0.35	0.0301	0.0323	0.0304	0.0266	0.0248	0.24	0.0208	0.0217	0.0182	0.0174	0.0139
0.47	0.0278	0.0286	0.0268	0.0238	0.0222	0.35	0.0178	0.0191	0.0163	0.0150	0.0118
0.585	0.0243	0.0261	0.0246	. 0.0218	0.0212	0.47	0.0165	0.0170	0.0138	0.0131	0.0106
	-					0.585	0.0144	0.0154	0.0126	0.0118	0.0097

# WAVE FREQUENCY OF THE SMALL WAVES AT $\mathbf{D_2}$ CELL

# RATIO OF WAVE BACK TO WAVE FRONT

OF THE SMALL WAVES AT  $D_2$  CELL

W <sub>G</sub> (1b/sec)	0.0	0.045	0.0976	0.1436	0.1742
W <sub>L</sub> (lb/sec)		- f (c	ps)		
0.016	35.4	28.6		84.0	84.0
0.028	27.2	31.8	35.8	66.6	71.5
0.044	23.75	26.1	29.8	30.6	36.2
0.08	22.4	23.9	30.0	31.0	32.0
0.126	24.3	25.2	30.8	30.0	33.1
0.18	26.8	26.0	30.4	31.5	34•7
0.24	28.3	27.6	29.9	32.6	36.2
0.35	33.2	31.0	32.9	37.6	40.3
0.47	36.0	35.0	37•3	42.0	45.0
0.585	41.2	38.3	40.6	45.8	47.2

W <sub>G</sub> (lb/sec)	0.0	0.045	0.0976	0.1436	0.1742
W <sub>L</sub> (lb/sec)	~ ~ ~ ~ ~ ~ ~ ~	T <sub>bk</sub>	/ T <sub>fn</sub>		
0.016	1.34	1.63		1.015	0.985
0.028	1.42	1.275	1.18	1.055	1.015
0.044	1.45	1.31	1.255	1.190	1.09
0.08	1.48	1.415	1.33	1.400	1.26
0.126	1.57	1.575	1.54	1.520	1.505
0.18	1.645	1.58	1.67	1.565	1.505
0.24	1.87	1.76	1.715	1.595	1.59
0.35	1.74	1.88	1.815	1.69	1.67
0.47	1.70	1.78	1.69	1.645	1.58
0.585	1.64	1.67	1.63	1.595	1.525

.;

ł

ĩ

:

WAVE AMPLITUDE OF THE SMALL WAVE

AT B1. A3 and C4 CELL

W <sub>G</sub> (lb/sec)		0.0			0.143	6
CFLL NO.	B <sub>1</sub>	<sup>A</sup> 3	c <sub>4</sub>	B <sub>1</sub>	<sup>A</sup> 3	$c_4$
W <sub>L</sub> (lb/sec)			A	(inch) -		
0.016	0.001	0.0010	0.0011	0.0003	0.0003	0.0003
0.044	0.0018	0.0018	0.0016	0.0014	0.0014	0.0014
0.126	0.0023	0.0021	0.0023	0.0018	0.0019	0.0018
0.24	0.003	0.0030	0.0030	0.0027	0.0028	0.0026
0.35	0.0039	0.0040	0.0039	0.0038	0.0039	0.0037
0.585	0.0050	0.0052	0.0043	0.0052	0.0056	0.0053

WAVE FREQUENCY OF THE SMALL WAVE AT B<sub>1</sub>, A<sub>3</sub> AND C<sub>4</sub> CELL

W <sub>G</sub> (1b/sec)		0.0			0.14	36
CELL NO.	B <sub>1</sub>	^A3	c <sub>4</sub>	B <sub>1</sub>	Aз	$c_4$
W <sub>L</sub> (lb/sec)				f (cps)		
0.016	27.0	28.7	25.8	76.3	72.0	66.7
0.044	23.2	23.1	25.6	28.6	30.8	30.8
0.126	24.7	25.0	32.6	30.0	30.7	31.4
0.24	30.6	30.8	42.5	34.2	34.0	34.8
0.35	35.0	34.6	39.9	38.5	39.2	39.2
0.585	42.7	42.7	46.7	49.7	48.3	48.8

# WAVE BASE OF THE SMALL WAVE

AT B1. A3 AND C4 CELL

W <sub>G</sub> (lb/sec	;)	0.0			0.1436			
CELL NO.	B <sub>1</sub>	<sup>A</sup> 3	c <sub>4</sub>	B <sub>1</sub>	<sup>А</sup> з	C <sub>4</sub>		
W <sub>L</sub> (lb/sec	;)		T	bs (sec)				
0.016	0.0370	0.0348	0.0388	0.0131	0.0139	0.0150		
0.044	0.0430	0.0432	0.0390	0.0350	0.0324	0.0324		
0,126	0.0404	0.0399	0.0307	0.0333	0.0326	0.0318		
0.24	0.0327	0.0325	0.0235	0.0292	·0.0294	0.0287		
0.35	0.0286	0.0289	0.0251	0.0260	0.0255	0.0255		
0.585	0.0234	0.0234	0.0214	0.0201	0.0207	0.0205		

RATIO OF WAVE BACK TO WAVE FRONT OF THE SMALL WAVE AT  $B_1$ ,  $A_3$  AND  $C_4$  CELL

B <sub>1</sub>	۵					
	<u>``3</u>	$c_4$	B <sub>1</sub>	<sup>A</sup> 3	с <sub>4</sub>	
	) MA AN MIN AN AN AN AN AN	T <sub>bk</sub>	′ <sup>T</sup> fn			
.60	1.54	1.34	1.03	1.00	1.00	
.530	1.53	1.45	1.32	1.235	1.25	
.605	1.585	1.57	1.64	1.63	1.77	
.76	1.85	1.34	1.73	1.70	1.96	
•75	1.83	1.73	1.74	1.74	2.00	94
• 54	1.60	1.71	1.51	1.62	1.72	Ĩ.
	60 530 605 76 75 54	60 1.54 530 1.53 605 1.585 76 1.85 75 1.83 54 1.60	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	TopologicalTemTem $1.60$ $1.54$ $1.34$ $1.03$ $1.53$ $1.45$ $1.32$ $1.605$ $1.585$ $1.57$ $1.64$ $1.65$ $1.34$ $1.73$ $1.75$ $1.83$ $1.73$ $1.74$ $.54$ $1.60$ $1.71$ $1.51$	$T_{bk}$ $T_{fn}$ .601.541.341.031.00.5301.531.451.321.235.6051.5851.571.641.63.761.851.341.731.70.751.831.731.741.74.541.601.711.511.62	Tow<

#### WAVE AMPLITUDE OF THE SMALL WAVES ON LARGE WAVES

AT D2 CELL

А

0.045

0.0020

0.0021

0.0035

0.0062

0.0072

0.0083

0.0088

0.0090

0.0099

0.0108

٠

0.016

0.029

0.044

0.08

0.126

0.18

0.24

0.35

0.47

0.585

W<sub>G</sub>(1b/sec) 0.0

W<sub>L</sub>(lb/sec) -----

0.0021

0.0029

0.0051

0.0074

0.0090

0.0101

0.0100

0.0133

0.0155

0.0166

STANDARD	DEVIATION	$\mathbf{OF}$	THE	SMALL	WAVE	AMPLITUDE

0.0976	0.1436	0.1742		1	W <sub>G</sub> (1b/sec	) 0.0	0.045	0.0976	0.1436	0.1742	
				:	W <sub>L</sub> (lb/sec	)		- AMP E	CELL		
	0.0006	0.0005		ı	0.016	0.0009	0.0003		0.0002	0.0002	
	0.0009	0.0007	•		0.028	0.0013	0.0007		0.0005	0.0004	
0.0035	0.0035	0.0027			0.044	0.0036	0.0023	0.0022	0.0024	0.0015	
0.0062	0.0049	0.0042			0.08	0.0050	0.0038	0.0044	0.0035	0.0023	
0.0082	0.0062	0.0054			0.126	0.0059	0.0044	0.0051	0.0047	0.0036	
0.0087	0.0069	0.0060		I	0.18°°°.	0.0065	0.0049	0.0054	0.0048	0.0042	
0.0094	0.0082	0.0073			0.24	0.0070	0.0052	0.0059	0.0058	0.0045	
0.0111	0.0094	0.0090	•••	ı.	0.35	0.0103	0.0057	0.0076	0.0060	0.0055	
0.0121	0.0104	0.0097			0.47	0.0116	0.0068	0.0080	0.0069	0.0055	
0.0132	0.0111	0.0100		•	0.585	0.0122	0.0076	0.0090	0.0074	0.0055	
LL WAVES	ON LARGE	WAVES	·····		S	TANDARD	DEVIATION ON L	OF THE SN ARGE WAVE.	ALL WAVE	PASE ON	
.0976 0	.1436 0.	1742	- ,		W <sub>G</sub> (lb/sec)	0.0	0.045	0.0976	0.1436	0.1742	-
E T. bs	D <sub>2</sub> CELL				W <sub>L</sub> (1h/sec)			bs D <sub>2</sub> (	CELL		
0	.0167 0.	0144			0.016	0.0378			0.0087	0.0059	
.0404 0	.0203 0.	0188		•	0.028	0.0256	0.0221	0.0170	0.0104	0.0080	
.0411 0	.0416 0.	0424	1		0.044	0.0344	0.0311	0.0213	0.0213	0.0184	
.0430 0	.0441 0.	0381			0.08	0.0351	0.0326	0.0224	0.0240	0.0193.	
.0407 0	.0360 0.	0325			D.126	0.0320	0.0312	0.0233	0.0204	0.0171	
	-	000 5	1		0.18	0.0316	0.0302	0.0212	0.0183	0.0154	

•

:

WAVE BASE OF THE SMALL WAVE AT D2 CELL

W <sub>G</sub> (lb/sec)	0.0	0.045	0.0976	0.1436	0.1742
W <sub>L</sub> (1b/sec)	******	- WAVE P	ASE T <sub>hs</sub>	D <sub>2</sub> CEL	L
0.016	0.0653	0.0642		0.0167	0.0144
0.028	0.0485	0.0426	0.0404	0.0203	0.0188
0.044	0.0528	0.0496	0.0411	0.0416	0.0424
0.08	0.0514	0.0515	0.0430	0.0441	0.0381
0.126	0.0447	0.0472	0.0407	0.0360	0.0325
0.18	0.0446	0.0446	0.0369	0.0302	0.0295
0.24	0.0374	0.0389	0.0299	0.0265	0.0266
0.35	0.0309	0.0308	0.0250	0.0232	0.0239
0.1:7	0.0295	0.0286	0.0268	0.0221	0.0226
0.595	0.0275	0.0269	0.0216	0.0218	0.0221

W (1h/sec)	0.0	0.045	0.0976	0.1436	0.1742	
"G(10) 8007			0.0710	0.14,00	0.11+2	
$W_{L}(1b/sec)$	****		bs D2	CELL		
0.016	0.0378			0.0087	0.0059	
0.028	0.0256	0.0221	0.0170	0.0104	0.0080	
0.044	0.0344	0.0311	0.0213	0.0213	0.0184	
0.08	0.0351	0.0326	0.0224	0.0240	0.0193.	
D.126	0.0320	0.0312	0.0233	0.0204	0.0171	
0.18	0.0316	0.0302	0.0212	0.0183	0.0154	
0.24	0.0262	0.0262	0.0173	0.0171	0.0137	204
0.35	0.0196	0.0197	0.0138	0.0135	0.0120	
0.47	0.0167	0.0170	0.0138	0.0120	0.0100	
0,585	0.0161	0.0160	0.0102	0.0114	0.0103	

-5 AMPLITUDE OF SMALL WAVE ON LARGE WAVE

WG(LB/SEC)	0.1436	0.1436.	0.1436	0.1436	0.1436	0.1436	0.1436	0.1436	0.1436	0.1436
WL(LB/SEC)	0.0160	0.0280	0.0440	0.080.0	0.1260	0.1800	0.2400	0.3500	0.4700	0.5850
CELL	D2	D2	D2	D2	D2	02	D2	D2	D2	02
FLIM(INCH)	**** ND.	OFWAVE	PER INTERVAL	**** NO.	OF WAVE	PER INTERVAL	**** NO.	OF WAVE	PER INTER	
0.0005	633.	638.	8.	2.	6.	2.	24.	19.	20.	18.
0.0015	39.	327.	46.	27.	23.	32.	112.	70.	57.	49.
0.025	0-	15.	37.	37.	38.	39.	111.	106.	21.	74.
0.035	0.	0.	45.	61.	85.	100.	112.	134	145.	130.
0.0045	0.	0.	10.	29.	70.	74.	82.	. 49	131.	104.
0.0045	0	0.	10.	13.	30.	43.	47	74	93.	96.
0.0055	0	0	10.	16.	37.	56.	30.	41	53.	80.
0.0005	<b>0</b> •	0.	2	6.	20.	23.	20.	22		30
0.0026	0.	0.	J• 4	12.	20.	27.	10	22	-71.+ 20	24
0.0005	<b>0</b> • .	0.	<b>4</b> • 1		16	26	10•	10	14	24.
0.0095	0.	0.	1.	2	12	17	2.	10.	10.	10.
0.0105	0.	0.	1.	2.	12.4	12	2.	13.	10.	16
0.0115	0.	0.	0.	2.	1.	12.	¥•	0.	4.	12.
0.0125	0-	0.	1.	0.	0 • /	19.	0.	8.	. 11.	(•
0.0135	0.	0.	0.		4.	4.	2.	3.	5.	3.
0.145	0.	0.	.1.	· .	4.	3.	4.	5.	5.	6.
0.0155	U.	. 0 •	0.	. 1.	. 2.	0.	. 3.	4.	2.	<u>&gt;</u> •
0.0165	0.	0.	0.		2.	2.	3.	0.	8.	5.
0.0175	0.	0.	1.	0.	2.	5.	1.	0.	3.	2.
0.6185	0.	0.	0.	<b>C</b> •	1.	3.	• 0.	1.	0.	0.
0.0195	0.	С.	0.	. 0.	3.	3.	0.	1.	3.	2.
0.(210	0 <b>.</b> .	0.	0.	2.	3.	4.	0.	1.	1.	0.
0.1230	0.	0.	0.	1.	6.	3.	0.	0.	0.	4.
• 0.0250	· 0.	0.	0.	<b>G</b> .	5.	6.	0.	0.	0.	1.
0.0270	0.	0.	C .	с.	0.	2.	0.	0.	1.	1.
0.6290	0.	0.	0.	0.	0.	1.	0.	0.	1.	2.
0.0310	0.	Ο.	0.	· 0.	0.	0.	0.	0.	0.	0.
0.0330	υ.	0.	6.	Ú.	0.	C •	0.	0.	0.	1.
0+(-350	0.	0.	Ο.	0.	0.	0.	υ.	0.	0.	0.
0.0370	0.	с.	0.	0.	0.	0.	0.	0.	0.	0.
0.0390	с.	0.	6.	0.	0.	0.	0.	0.	0.	0.
0.041)	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.0430	0.	0.	С.	0.	0.	0.	0.	0.	0.	0.
0.0450	с.	0.	С.	. 0.	0.	0.	0.	0.	0.	0.
0.0470	0.	0.	0.	0.	0.	υ.	0.	0.	0.	0.
0.0490	С.	0.	0.	C.	0.	0.	0.	0.	0.	0.
0.0510	6.	ί.	σ.	0.	0.	0.	0.	0.	0.	0.
0.0530	0.	Ο.	Ο.	0.	Ο.	• 0•	0.	0.	0.	0.
0.0550	G.	0.	Ú.	G.	0.	0.	0.	0.	0.	0.
0.0570	0.	0.	Q.	0.	0.	0.	0.	0.	0.	0.
0.1590	υ.	0.	0.	Ú.	0.	G .	0.	0.	0.	0.
0.0610	0.	0.	0.	0.	0.	0.	Ċ.	0.	G.	0.
0.0630	0.	0.	Ċ.	О.	0.	0.	0.	0.	0.	0.
0.(650	Ō.	0.	ċ.	0.	0.	۰ 0.	0.	0.	0.	0.
0.6670	<u> </u>	0-	Č.	0.	0.	0.	0.	0-	0.	0.
0-0590	ð.	0.	0.	0.	0.	0.	ŏ.	0.	0.	0
0.0710	0.	0.	0.	0.	0.	Ŭ.	0.	0.	0_	0.
0.0730	<b>с.</b>	ð.	Č.	<b>0</b> .	0.	0.	0.	ñ.	0_	0-
0-0750	0.	0 • 0 •	Ŭ.	0.	0.	0.	0.	0.	õ.	0.
0.0770	0.	0.	0.	0.	ö.	0.	0.	0.	0.	0.
0.0770	· ·	0.	0 •	ů.	0.	0	<b>○</b> •	0.	ו	<u>,</u>
0+0190	V •	<b>v</b> •	V •	V •	v •	<b>v</b> •	V.	V•	V•	U •

AMPLITUDE OF LARGE WAVE

·

.

.

.

.

---- -

. -

. ..

.

• .•

WG(LB/SEC)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WL(LB/SEC)	0.0160	0.0280	0.0440	0.0800	0.1260	0.1800	0.2400	0.3500	0.4700	0.5850
CELL	D2	D2	D2	D2	D2	D2	D2	D2	D2	D2
FLIM(INCH)	**** NO.	OF WAVE	PER INTERVAL	**** NO•	OF WAVE	PER INTERVAL	**** NO.	OF WAVE	PER INTER	/AL ****
0.0005	0.	38.	0.	21.	13.	19.	17.	8.	3.	4.
0.0015	267.	151.	101.	70.	27.	23.	38.	24.	17.	23.
0.0025	247.	296.	74.	81.	49.	32:	22.	38.	41.	34.
0.0035	426-	405-	215.	86.	42.	41.	57.	48.	50.	40.
0 0045	350.	287.	112.	44.	37.	36.	52.	67.	52.	30.
0.0055	262.	260.	141.	53.	35.	44.	53.	59.	48.	57.
0.0065	77.	319.	156.	41.	27.	38.	48.	48.	61	45
0.0005	20	132	68	54.	30.	49.	30.	51	40	22
0.00075	20.	114	79.	53.	30.	31.	51	43	40+	30
0.0005	7.	22	25	29.	25.	17.	34		40.	37.
0.0095	1.	. 54.	55	56.	39.	42.	24.	21.	20.	20.
0.0105	0.	30.	22.	55	40.	36.	57.	40.	20.	31.
0.0115	0.	10+	22 +	50	40.	40	40.	42.	34.	21.
0.0125	0.	20.	34.	53	52		27.	28.	25.	16.
0.0135	0.	9.	23.	51.	70	52	51.	43.	15.	12.
0.0145	0.	4.	10.	52+	10.	23• 42	84.	25.	28.	14.
0.0155	0.	. 5.	. 32.	5U• ·	01.	02.		- 16.	25.	15.
0.0165	0.	1.	16.	24.	29• 52	10.	57.	22.	20.	12.
0.0175	0.	4.	27.	29.	22.	01.	60.	20.	13.	13.
0.0185	0.	3.	20.	30.	39.	48.	49.	24.	14.	16.
0.0195	0.	0.	10.	19.	40.	42.	40-	10.	14.	16.
0.0210	0.	5.	28.	13.	33.	41.	• 37.	24.	19.	11.
0.0230	0.	0.	34.	14.	. 38.	23.	23.	22.	. 23.	22.
0.0250	0.	0.	21.	12.	35.	24.	25.	26.	20.	22.
0.0270	υ.	0.	14.	6.	24.	28.	26.	35.	32.	32.
0.0290	0.	0.	19.	2.	. 18.	33.	30.	38.	26.	25.
0.0310	0.	0.	18.	4.	16.	28.	30.	49.	36.	25.
0.0330	0.	0.	13.	4.	18.	33.	36.	46.	44.	42.
0.0350	0.	0.	12.	5.	8.	27.	42.	51.	. 38.	. 33.
0.0370	0.	0.	7	. 4.	7.	19.	33.	63.	54.	39.
0.0390	0.	0.	8.	3.	8.	21.	26.	52.	40.	45.
0.0410	0.	0.	2.	6.	7.	13.	29.	50.	44.	30.
0.0430	0.	0.	5.	4.	9.	20.	31.	48.	48.	49.
0.0450	0.	0.	1.	2.	4.	9.	. 22.	49.	42.	35.
0.0470	0.	0.	2.		. 3.	8.	. 15.		. 32.	23.
0.0490	0.	0.	1.	1.	6.	7.	. 15.	41.	55.	47.
0.0510	0.	0.	1.	1.	3.	7.	9.	22.	22.	33.
0.0530	0.	0.	0.	0.	6.	5.	11.	25.	44.	35.
0.0550	0.	0.	0.	0.	4.	1.	3.	23.	23.	27.
0.0570	õ.	ō.	0.	0.	2.	0.	2.	20.	31.	29
0-0590	0.	0.	1	1.	0.	6.	4.	14-	24.	33.
0 0410	Δ. Δ.	0.	1	1	4.	1.	2.	14	25.	22
0.0630	0.	0.	1	1.	1.	9.	3.	17.	28	22.
0.0450	М	· · · ·	0_	0_	1_	· · · ]_	1.	2	20	. ور <u>م</u> 14
0.0470	<b>0</b> •	0.	0.	0.	ô.	1.	L.		14	10.
0.0500	<b>0</b>	0 • 0	1.	0.	0.	1.	0.	7 a 5	17	21
0.0710	0.	0.	1 • 0	Ő.	0-	0.	<b>0</b>	). 5	12.	~
0.0710	V.	<b>U</b> •	0	∩.	, V+ 1	3	<b>V</b> •	2.		11. ·
0.0730	<b>0</b> •	<b>.</b>	<b>U</b> •	V• ^	· ·	1	0.	0.	10.	14.
0.0750	Ŭ•	0.	<b>V</b> •	v• ∧	0. 0	0	0.	5.	9.	15.
0.0770	0.	0.	<b>V</b> •	0	0.	0	. <b>Q</b> •	4.	6.	4.
0.0790	0.	0.	C.	<b>U</b> •	V.	U •	0.	3.	6.	10.

AMPLITUDE OF LARGE WAVE

•

.

٠

.

WJ(LB/SEC)	0.1436	0.1436.	0.1436	0.1436	0.1436	0.1436	0.1436	0.1436	0.1436	0.1436
WL(LB/SEC)	0.0160	0.0280	0.0440	0.0800	0.1260	0.1800	0.2400	0.3500	0.4700	0.5850
CELL	D2	D2	D2	D2	D2	D2 ·	D2	D2	U2	D2
FLIM(INCH)	***** :10.	OF WAVE	PER INTERVAL	**** NO•	OF WAVE	PER INTERVAL	***** NO.	OF WAVE	PER INTER	<b>VAL ****</b>
0.0010	2661.	1569.	409.	66.	38.	33.	26.	11.	4.	5.
0.0030	240.	965.	486.	236.	188.	185.	118.	60.	49.	44.
0.(050	0.	41.	42.	40.	132.	206.	170.	145.	67.	50.
0.0075	0.	1.	30.	22.	74.	153.	192.	176.	138.	114.
0.0090	• 0.	0.	20.	13.	31.	67.	130.	147.	143.	123.
0.0110	6.	0.	34.	28.	19.	38.	14.	118.	133.	121.
0.0130	0.	0.	44.	· 31.	29.	29.	. 39.	84.	106.	99.
6.0150	<b>U</b> .	0.	42.	84.	25.	13.	30.	42.	80.	80.
0.0170	0.	0.	64.	122.	57.	25.	20-	49.	67.	63.
6.0190	<b>U</b> •	0.	54.	151.	68.	29.	24.	20.	33.	42.
0.0210	0.	0.	65.	209.	97.	72•	. 21.	<u>33</u> .	31.	42.
0.0230	0.	<b>9</b> •	30.	133.	101.	-18	37.	18.	29.	36.
0.0200	0.	0.	41.	98.	142.	104.	40. 0.1	24.	24.	24.
0.0270	0.	0.	19.	61	101.	142+	120	24.	28.	21.
0.0290	0.	0.		24	103.	13/*	119	02.	24.	36.
0.(330	0.	. 0.	0. 2	20.	122.0	107.	110.	91 e 74	55.	33.
0.0350	0.	0.	2.	· · · ·	21	109.	105.	10.	74	38. 20
0(37)	0.	0	1	2	25	. 15.	100	100	70. 50	30. 45
0.0390	о. С.	0.	<u>.</u>	3.	12.	44	97.	95.	55	43.
0.(41)	<b>с.</b>	· 0.	· 0 -	0.	8.	10.	57.	58.	46	41.
0.0430	· 0 •	0.	0. 0.	0.	6.	18.	29.	36.	404	20
0.0450	0.	0.	С.	. 0.	· 4.	12.	14.	38.	53.	55
0.(470	0.	0.	0.	0.	4.	10.	32.	44.	43.	89.
0.1490	0.	0.	0.	0.	4.	7.	17.	50.	82.	80.
0.510	0.	<u>.</u>	0.	0.	ρ.	5.	28.	52.	82.	79.
0.(530	0.	0.	0.	0.	Û.	7.	. 14.	44.	64.	80.
0.0550	ΰ.	0.	0.	0.	0.	4.	19.	37.	67.	77.
0.(570	0.	0.	0.	0.	Ο.	0.	13.	30.	51.	59.
0.(590	0.	0.	0.	0.	0.	1.	9.	39.	46.	48.
0.3610	Ο.	0.	0.	Ú.	0.	3.	8.	15.	32.	53.
0.0635	0.	0.	0.	0.	0.	1.	6.	10.	26.	24.
0.0650	Ú.	0.	0.	0.	0.	0.	0.	4.	12.	11.
0.0670	0.	0.	0.	0.	0.	0.	0.	1.	9.	5.
0.0690	0.	0.	0.	0.	0.	0.	1.	3.	3.	6.
0.0710	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
C.0730	0.	0.	0.	0.	0.	· · · ·	0.	0.	2.	0.
0.0750	0.	0.	0.	0.	0.	0.	· · ·	0.	0.	0.
0.2770	J.	0.	0.	C •	0.	С.	0.	0.	0.	0.
0.0790	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.0810	<b>0</b> •	0.	0.	0.	0.	0.	· 0.	0.	0.	0.
0.0830	<b>U</b> .	0.	0.	0.	<b>U</b> •	, U.	0.	0.	С.	0.
0.0850	0.	0.	0.	<b>0</b> •	<b>U</b> .	0.	0.	0.	0.	0.
0.0870	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.0890	<b>U</b> .	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.0910	0.	. 0.	0.		0.	0.	. <u>V</u> .	0.	0.	0.
0.0930	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.0950	0.	0.	0.	. U.	<b>0</b> .	U.		0.	0.	0.
0.0975	<b>0</b> .	0.	U•	<b>U</b> •	U.	0.	<b>U</b> •	0.	<u>.</u>	0.
0.0990	υ.	υ.	U .	U.	υ.	U.	U•	<b>Q</b> •	0.	0.

:

*.* 

MAXIMUM OF LARGE WAVE

WG(LB/SEC)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WL(LB/SEC)	0.0160	0.0280	0.0440	0.0800	0.1260	0.1800	0.2400	0.3500	0.4700	0.5850
CELL	D2	02	D2	D2	D2	D2	02	D2	02	D2
FLIM(INCH)	**** NO.	OF WAVE	PER INTERVAL	***** NO.	OF WAVE	PER INTERVAL	***** NO.	OFWAVE	PER INTER	VAL *****
C.0005	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.0015	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.0025	0.	0.	0.	0.	0.	0	0.	0.	0.	0.
0.0035	0.	0.	0.	0.	0.	0.	0.		0.	0.
0.0045	244.	0.	0.	0.	0.	0.	0	0.	0	0.
0.0055	292.	0.	0.	168.	0.	0.	0.	0.	0	0.
0.0065	458	0.	0.	87.	. 9 4	0.	0.	0.	0.	0
0.0075	380.	546	0	42.	64	72	0.	0.	0.	0.
0.0085	203.	478	344	48.	35	50	<u> </u>	0.	0.	0.
0.0095	60	202	202	21	27.		57.	0.	0.	0.
0 0105	14	274.	203.	51• 40	21.		22.	0.	0.	0.
0.0115	17.	204.	100	47.	34.	4/• .	(5.	0.	0.	0.
0.0125	2.0	120+	109.	00.	20.	37.	65.	48.	0.	<b>U</b> •
0.0125	1.	110.	80.	44.	20.	30.	46.	122.	0.	0.
0.0155	0.	03.	51.	22.	32.	39.	46.	79.	52.	0.
0.0145	0.	23.	36.	01.	434	43.	46.	60.	115.	0.
0.0155	0.	25.	41.	22.	34.	30.	39.	57.	69.	87.
0.0105	0.	15.	33.	48.	58.	48.	, 51.	40.	56.	107.
0.0175	0.	12.	36.	<b>5</b> 5•	(1.	12.	68.	52.	43.	77.
0.0185	0.	7.	26.	46.	62.	77.	73.	36.	35.	37.
0.0195	0.	0.	0.	34.	70.	63.	74.	36.	28.	35.
0.0210	0.	9.	47.	36.	58.	55.	82.	37.	30.	19.
0.0230	0.	6.	41.	22.	41.	67.	51.	24.	28.	23.
0.0250	0.	5.	36.	26.	53.	48.	45.	23.	21.	23.
0.0270	0.	2.	31.	13.	27.	56.	57.	38.	25.	21.
0.0290	0.	0.	31.	12.	36.	34.	45.	17.	18.	12.
0.0310	· 0.	0.	22.	14.	32.	30.	26.	15.	9.	4.
0.0330	0.	0.	16.	6.	25.	24.	21.	16.	14.	10.
0.0350	0.	. 0.	17.	<b>5</b> .	31.	29.	. 19.	23.	18.	- 13.
0.0370	0.	0.	17.	2.	13.	30.	24.	30.	23.	8.
0.0390	0.	0.	12.	3.	14.	30.	28.	23.	12.	16.
0.0410	0.	0.	11.	5.	10.	24.	36.	32.	22.	19.
0.0430	0.	0.	10.	4.	12.	37.	51.	55.	31.	28.
0.0450	0.	0.	4.	2.	3.	11.	21.	27.	14.	16.
0.0470	0.	. 0.	2.	3.	8.	24.	46.	59.	52.	25.
0.0490	0.	0.	5.	7.	8.	16.	25.	61.	48.	29.
0.0510	0.	0.	1.	2.	· 8.	13.	35.	56.	45.	39.
0.0530	0.	0.	2.	0.	4.	9.	32.	90.	71.	72.
0.0550	0.	0.	2.	0.	2.	4.	11.	42 -	24.	25.
0.0570	0.	0.	0.	2.	7.	8.	14.	28.	52.	35.
0.0590	0.	0.	0.	0.	4.	6.	10.	42.	42.	37.
0.0610	0.	0.	0.	0.	4.	5.	15-	40.	47.	50.
0.0630	0.	0.	Č.	0.	4.	2.	3.	37.	34.	41.
0.0650	0.	0.	1.	2.	2.	4	7.	31.	73.	57.
0.0670	0.	0.	1.	0.	2.	3.	τ• Σ	0	22.	10
0.0690	0.	0-	1.	1.	2-	5	5_	31.	43.	65.
0.0710	0.	Ő.	<b>1</b> •	<u> </u>	1.	4.	1	16	 26	27
0.0730	0.	0.	0.	0.	<u> </u>	т. Т.		2	20.	18.
0-0750	0.	0.	· · ·	. 0	<b>.</b>	1	1	20	7. 37	43
0.0770	0• 0	0	L •		0.	1.	1.	20+	57.	4J• 4
0.0790	0.	0.	0.	v. A		1.0	Ų•	0.	10.	0.
0+0770	V.	V.	0.	0.	1•	1.	1.	· 10•	28.	55.

۰.

and and the second second second second second second second second second second second second second second s

MAXIMUM OF LARGE WAVE

•

•

WU(LB/SEC)	0.1436	0.1436	0.1436	0.1436	0.1436	0.1436	0.1436	0.1436	0.1436	0.1436
WEILB/SEUI	0.0100	0.0200	n2	0.0300	0.1200	0.1000	0.2400	0,000	0.4700	0.5850
	して またがたた NO		DED INTERVAL			DED INTERVAL	· UZ		050 INTE	UZ
	+++++ NU+		PER INIENTAL	0		D.	***** NU•		PEK INTE	(VAL ******
0.0010	2710	0.	0.	0.	0	0	0.	0.	0.	0.
0.005	2710.	2000	793.	0 •	0.	0.	0.	0.	0.	0.
0.0050	191.	2090.	126	207	0.	0	0.	0.	0.	0.
0.0070	0.	717.	36	501.	222	275	0.	0.	0.	0.
0.0345	0.		23.	15	164	249.	257.	0.	0.	0.
0.0110	0	0.	24.	15.	34.	97.	2010	0.	0.	0.
0.0155	0.	0.	39.	27.	21.	53.	125	360		0.
0.0195	0	0.	49.	55-	23.	24.	80-	209	155.	0.
0 0190	0.	0.	22.	43.	12.	17.	24.	62.	147.	0.
0.021/	0.	0.	59.	120.	36.	7.	29.	90	218	181
0.0230	0.	ů.	57.	165.	61.	22.	20.	59.	132	222
0.0250	0.	0.	64.	182.	95.	34.	20.	42.	97.	147.
· 0.0270	0.	Ö.	41.	154.	99.	82.	26.	30.	53.	94.
0.0290	0.	0.	38.	112.	127.	83.	24.	16.	31.	71.
0.0310	Ŭ.	0.	17.	69.	167.	111.	43.	19.	31.	56.
0.0330	0.	0.	7.	48.	174.	150.	74.	25.	24.	35.
0.0350	0.	0.	5.	28.	131.	138.	115.	23.	21.	29.
0.0379	Ú.	0.	1.	15.	103.	139.	123.	48.	21.	21.
0.0390	ð.	0.	0.	6.	45.	104.	131.	81.	30.	18.
0.0410	0.	0.	1.	1.	28.	64.	102.	88.	35.	19.
0.043)	0.	0.	υ.	4.	23.	70.	94.	97.	43.	25.
0.0450	Ō.	0.	0.	. 0.	8.	40.	93.	91.	63.	46.
0.0470	0.	0.	0.	0.	7.	13.	66.	109.	64.	43.
0.0490	0.	С.	0.	. 0.	5.	22.	46.	70.	75.	54.
0.0510	0.	0.	0.	0.	3.	9.	17.	37.	32.	29.
0.0530	· 0.	0.	0.	Ŭ.	3.	10.	26.	39.	43.	47.
0.0550	Э.	0.	0.	0.	3.	10.	21.	46.	. 43.	39.
0.0570	0.	0.	0.	· 0.	0.	3.	-23.	47.	59.	55.
0.0590	0.	0.	0.	0.	0.	5.	22.	44.	59.	56.
0.0610	0.	0.	0.	0.	0.	4.	13.	43.	84.	82.
0.0630	0.	С.	0.	0.	0.	1.	22.	64.	103.	126.
Ű.(650	0.	0.	0.	0.	0.	0.	3.	17.	37.	47.
0.0670	0.	0.	0.	Q.	0.	3.	13.	43.	67.	83.
0.0630	0.	0.	0.	0.	0.	1.	9.	20.	52.	75.
6.0710	0.	0.	0.	0.	0.	• 0•	• 0.	8.	38.	70.
0.0730	0.	0.	0.	0.	0.	0.	0.	7.	25.	54.
0.0750	Q •	0.	0.	Q .	0.	0.	0.	1.	8.	5.
0.3775	U •	0.	0.	. C.	0.	0.	1.	1.	7.	9.
0.0790	U.	0.	0.	0.	0.	0.	0.	Ο.	3.	11.
0.0810	0.	0.	0.	0.	0.	0.	0.	Ο.	1.	4.
0.0830	0 <b>.</b>	0.	0.	0.	0.	<b>Q</b> •	0.	0.	1.	0.
0.0850	0.1	0.	0.	0.	0.	0.	0.	0.	1.	0.
0.0370	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.0390	ε.	с.	Q.	0.	0.	ι.	0.	0.	0.	0.
0.0910	0.	0.	0.	0.	0.	0.	. 0.	0.	Û.	0.
0.0930	0.	0.	0.	0.	0.	0.	0.	0.	Ű.	0.
0.0950	0.	0.	0.	0.	0.	Ū.	0.	0.	0.	0.
0.0970	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.0990	Ο.	0.	0.	0.	0.	0.	0.	0.	0.	0.

467

.

• 4

## \*\*\*\* HISTOGRAM \*\*\*\*\*

.

## SEPARATION OF LARGE WAVE

WG(L8/SEC) WL(L8/SEC)	0.0	0.0	0.0	. 0.0 0.0800	0.0 0.1260	0.0 0.1800	0.0	0.0 0.3500	0.C 0.4700	0.0 0.5850
CELL	U+0100	r2	D2	02	C2	D2	D2	D2	02	D2
TIME(SEC)	した 森太太太太子 いり。		PER INTERVAL	**** NO.	OF WAVE	PER INTERVAL	**** NU.	UF WAVE	PER INTER	<b>RVAL</b> ****
6.0100	41-	59.	49.	10.	21.	22.	39.	31.	50.	51.
0.0300	104	268.	136.	67.	62.	88.	118.	142.	121.	142•
0.0500	175	321.	156.	76.	58.	84.	154.	109.	148-	124.
0.0700	303.	534	211.	117.	124.	134.	230.	225.	203.	208.
0.0900	272.	356	187.	101.	82.	114.	153.	176.	164.	148.
0.1100	243.	250.	135.	83.	76.	92.	139.	141.	135.	141.
0.1300	182.	153.	114.	73.	77.	108.	141.	121.	118.	103.
0.1500	119.	51.	89.	72.	78.	111.	123.	119.	100.	100.
0.1700	95.	53.	70.	71.	73.	108.	. 93.	111.	101.	82.
0.1900	47.	26.	46.	52.	68.	.87.	92.	82.	94.	
0.2100	35.	11.	53.	59.	58.	70.	67.	66+	66.	68.
6-2300	21.	5.	40.	33.	63.	5C.	55.	51.	36.	50.
0.2500	9.	7.	25.	43.	50.	66.	23.	29.	38.	28.
0.2700	3.	1.	-30.	32.	43.	41.	; 21.	17.	24 •	22 •
0.2900	3.	1.	17.	26.	39.	17.	<u>1</u> 0.	13.	12.	3.
0.3100	2.	0.	14.	25.	34•	12.	3.	. 5.	7.	<u>6.</u>
0.3300	0.	ċ.	14.	23.	29.	. 12.	્ <sup>.</sup> 8.	5.	2.	3.
0.3500	0.	0.	9.	16.	16.	4.		Z •	0.	0.
6.3700	: 0.	0.	4.	9.	8.	6.	0.	2.	1.	<b>0</b> •
0.3904	0.	1.	8.	18.	6.	4.	1.	0.	1.	1.
Ú.4100		с.	4.	9.	2.	0.	J.	Ç.	0.	0.
· 0.4300	0.	۰.	4.	8.	2.	C.	Ú•	0.	0.	0.
0.4500	0.	Ċ.	0.	5.	0.	0.	Ç .	<u>.</u> .	0.	0.
0.4700	0.	0.	0.	5.	1.	e.	0.	1	<u>.</u>	0.
0.490%	0.	0.	2.	1.	· 0.	0.	0.	9.	U.	0.
0.3100	с.	0.	2.	4.	0.	0.	<del>ان</del> -	C •		0.
0.5300	0.	С.	2.	3.		0.	<b>U</b> •			· · ·
0.5500	0.	0.	. 0.	2.	0.	0.		0.	- 0.	
6.5700	0.	0.	<u> </u>	· · ·	0.	0.	9.		0	. 0
0.5900	0.	0.	0.	1.	C •	· •	. 0.	0.	. 0.	0.
0.5100	0.	0.	0.	Ų.	0.	0.	0.	0.	· · ·	0
0.6300	Q.	с.	1.	1.	0.		<b>U</b> •	Ú.	0 •	0
C+6500	Ο.	0.	0.	0.	0.	0.	· · ·	0.	C •	0.
C-6700	. 0.	0.	с.	0.	. 0.	0.		· 0	0. C	0
0.6900	. 0.	0.	0.	0.	0.	· 0	<b>0.</b>		0.	0.
0.7100	· 0.	0.	0.	0.	0.	0.	. 0.	0.		0.
0.7300	0.	0.	0.	0.	0.	c ·	0.		с.• б	0.
0.7500	0.	0.	0.	0.	· · ·	0		U •	0 ·	0.
0.7790	0.	С.	C.	0.	· · ·	с.		0 • 0	0	0.
0.7900	Q.	0.	С.	0.	0	0		0.	0.	0.
0.8100	. 0.	. 0.	0.	0.	0.	· · ·	·0•	· · ·	1) -	0.
0.8300	Ο.	0.	. 0	0.	0.	C •			0.	0.
0.8500	0.	0.	С.	U •	· ·	0.	0 • ^	0.	0 • 0	0.
0.2700	Ο.	0.	C.	0.	0 • ^	0.	U.	0.	0.	0.
0.4900	0.	0.	с.	0.	0.	0	U• 6	··•	0 • 6	0.
0.9100	0.	<b>۰</b>	0.	0 • ^	. 0.	0	V •		0 • 0	··· 0.
0.9300	0.	0.	0.	. U•	0.	0.	U• 0	· · ·	0.	. 0.
0.9500	0.	0.	0.	. U•	Ú.	<b>U</b> • .	U.	V•	- 0•	•

SEPARATION OF LARGE WAVE

WOLLD ASTON	6 1/24		0 1/26	0.1436	0.1436	0.1436	0.1436	0.1436	0.1436	0.1436
WG(LB/SEC/	0.1435	0.1436	0.0440	0.0800	0.1260	0.1800	0.2400	0.3500	0.4700	0.5850
WEILB/SECT	0.0100	0.0280	0.0440	D2	D2	D2	D2	D2	D2	D2
	UZ			***** NO.	OF WAVE	PER INTERVAL	**** NO•	OF WAVE	PER INTE	<b>₹VAL ***</b> **
110013667	57C	0F #AVE	PER INTERVAL	40.	58.	73.	106.	115.	131.	123.
0.0100	272.	273-	2/2	125.	226.	313.	341.	408.	399.	430.
0.0500	1343+	1022.	2430	128.	148.	232.	257.	287.	298.	280.
0.0500	007.	010.	1/4•	175.	207.	270.	297.	335.	380.	351.
0.0705	212.	422.	170+	143.	212.	208.	229.	239.	226.	244 •
0.0900	1(+	138.	118.	155.	165.	202.	179.	191.	169.	170.
0.1100	3.	24.	67.	132.	152.	152.	151.	133.	133.	118.
0.1309	0.	12.	61.	101.	126.	136.	126.	103.	83.	72.
0.1500	0.	10.	02.	95.	116.	94.	91.	55.	46.	37.
0.1700	0.	0.	49.	101.	81.	59.	67.	39.	25.	18.
0.1900	0.	Ţ.	44.	64.	61.	41.	40.	21.	11.	8.
0.2100	<b>0</b> .	0.	28.	48.	39.	25.	20.	12.	1.	2.
0.2300	<i>u</i> •	0.	34.	45.	23.	22.	16.	6.	0.	0.
0-2500	0.	0.	21.	25.	12.	7.	2.	1.	0.	0.
0.2700	Ú.	0.	11.	13.	5.	5.	1.	0.	1.	0.
0.290.	0.	<b>Q</b> .	20.	7.	3.	1.	ī.	0.	0.	0.
0.3100	0.	0.	11.	6.	0.	Ŭ.	υ.	0.	0.	· · 0.
0.3300	0.	0.	15.	4.	0.	<b>0</b> .	1.	0.	0.	0.
0.3500	C -	0.	12.	3.	0.	Ú.	0.	0.	0.	0.
0.3705	0.	0.	(•	0.	0.	0.	Ú.	0.	0.	0.
0.3900	0.	0.	4 • 1 7	0.	0.	0.	0.	Ο.	G.	0.
0.4100	• 0•	0.	17.	0.	ō.	0.	Ü.	0.	0.	0.
0.4303	<b>0</b> •	0.	14.	0.	0.	0.	Ū.	0.	0.	0.
0.4500	<b>U.</b>	0.	3+ 7	0.	Ŭ.	0.	0.	0.	0.	0.
0.4705	0.	0.	<b>I</b> •	Ú.	0.	0.	0.	0.	0.	0.
0.4901		U •	0. F	Ö.	0.	0.	0.	0.	0.	0.
0.5100	0.	U.	2.	0.	0.	0.	0.	0.	0.	0.
0.5300	0.	0.	1.	υ.	0.	0.	0.	0.	Û.	0.
0.5500	0.	0.	2.	Ο.	0.	Ú.	0.	0.	0.	0.
0.5700	0.	0.	2.	0.	0.	0.	υ.	0.	0.	0.
0.5700	0.	0.	1.•	0.	0.	с.	0.	0.	0.	0.
0.6100	0.	0.	2.*	0.	0.	· 0.	0.	0.	0.	0.
0.6300	0.	<b>U</b> .	1.	0.	0.	0.	0.	0.	0.	0.
0.0500	0.	0.	2	· 0.	0.	0.	· 0.	0.	0.	0.
0.6700	0.	0.	<u>د</u> •	· 0.	0.	0.	0.	0.	0.	0.
0.5900	U.	0.	2•	0.	• 0.	0.	· 0.	0.	0.	0.
0.7100	0.	0.	1 • D	0.	0.	0.	0.	0.	0.	0.
0.7300	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
J-7500		U •	4.	· 0.	0.	0.	0.	0.	0.	0.
0.7700	Ų•	v•	0.	0.	0.	0.	0.	0.	6.	0.
0.1900	<b>U</b> •	0.	0.	0.	с.	0.	0.	0.	0.	0.
0.8100	J.	Ų.	U •	0.	0.	0.	0.	0.	0.	0.
0.8300	0.	C•	1.	0.	0.	ò.	Ö.	0.	0.	0.
0.850	<b>P</b> •	<b>U</b> .	U.	õ.	Ū.	0.	0.	0.	0.	0.
0.9700	0.	0.	0.	0 <b>.</b>	0.	0.	õ.	0.	0.	0.
0.390.	0.	<i>L</i> .	U•	0.	0.	0.	0.	0.	0.	0.
0.9100	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.9300	<b>0</b> .	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.950'	0.	0.	U .					-		

#### \*\*\*\*\* HISTOGRAM \*\*\*\*\*

#### BASE OF LARGE WAVE

.

. '

WG(LB/SEC)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WL(LR/SEC)	0.0160	0.0280	0.0440	0.0000	0.1200	n2	002400	010,000	n2	0.000
	C2	C2	D2	***** NO.	DE WAVE	PER INTERVAL	***** 110.	UF WAVE	PER INTE	RVAL *****
	***** NU•	UF WAVE	PER INTERVAL	13.	15.	32.	57.	73.		111.
	20.	44.	より。 157	72.	79.	79.	131.	194.	199.	181.
0.0500	191	543	121.0	127.	109.	138.	224.	318.	216.	313.
0.0700	356.	635	21.2+	173.	138.	179.	340.	381.	383.	380.
0.0900	335-	320-	218.	156.	148.	211.	269.	258.	275.	210.
0.1100	234	180	128.	156.	165.	174.	214.	147.	136.	106.
0.1300	167.	94	109.	119.	168.	173.	122.	78.	42.	35.
0.1500	114.	36.	75.	90.	112.	102.	65.	33.	25.	9.
0.1700	61.	10.	42.	54.	69.	68.	. 23.	14.	4.	3.
C.1900	33.	6.	28.	40.	39.	33.	25.	4.	1.	1.
0.2100	14.	2.	18.	22.	18.	13.	9.	3.	0.	0.
0.2300	13.	с.	14.	15.	8.	6.	2.	0 <b>.</b>	С.	0.
0.2500	6.	1.	3.	3.	3.	2.	0.	О.	۰.	0.
0.2700	6.	0.	1.	4.	1.	C •	0.	0.	0.	0.
0.2900	1.	0.	2.	1.	0.	0.	0.	0.	υ.	Ũ•
0.3100	0.	0.	0.	0.	0.	. 0.	G •	Ç.	e .	0.
0.3300	1.	C.	1.	. 0.	0.	С.	Ç.	с.	Ċ•	0.
0.3500	0.	0.	Ο.	0.	0.	·U•	0.	e. 6	<b>U</b> .	0.
0.3700	0.	0.	С.	Ú.	Q.	0.	1. •	<u>.</u>	<u>د</u> .	C.
0.3900	0.	0.	0.	U .	0.	U.	0.	() •	0.	0.
0.4100	0.	0.	0.	0.	0.	v.	\U. • ()	U •	U	0.
0.4300	0.	0.	0.	0.	0.	. 0.		0.	U •	V•
0.4500	ŋ.	Ο.	0.	0.	0.	•		· ·	Ų.	<b>.</b> .
WG(LB/SEC)	0.1436	0.1436	0.1436	0.1436	0.1436	0.1436	0.1436	0.1436	0.1436	0.1436
WL(LB/SEC)	0.0160	0.0280	0.0440	0.0800	0.1260	0.1860	0.2400	0.3500	0.4700	0.5850
CELL	D2	D2	02	02	D2	02	02	02	D2	D2
TINE(SEC)	***** NO.	OF WAVE	PER INTERVAL	**** NO•	OF WAVE	PER INTERVAL	**** NO•	OF WAVE	PER INTER	VAL *****
0.0107	762.	396.	82.	33.	48.	94.	148.	218.	267.	314.
0.0300	1624.	1293.	388.	204.	342.	461.	548.	632.	614.	572.
0.0501	455.	609.	390.	387.	496.	602.	642.	615.	593.	598.
0.070)	57.	204.	282.	399.	428.	454.	379.	356.	333.	284.
0.0900	.د	57.	130 •	231.	216.	171.	146.	93.	75.	73.
0.1100	0.	12.	11.	101-	14.	41.	4/-	26.	17.	10.
0.130	0.	1 • 2	29.	5/+	21.	12.	11.	4.	4.	2.
0.1000	0.	1 • 0	4.	10.	1.	Z•	2.	1.	0.	0.
0.100	0	0.	···	<b>5</b>	2.	0.	1.	0.	0.	0.
0.2100	U •	0.	1.	0.	0.	0		0.	0.	0.
0.2300	0.	0.	0.	0.	0.	0.	0.	0.	0.	0
0.2500	0.	0.	0.	· 0.	0.	0.	0.	0	0.	0
0.2700	0.	Ű.	0.	0.	0.	· • 0.	ŏ.	0.	0.	0.
0.2900	0.	0.	0.	0.	Ő.	Ú.	0.	ů.	0.	0.
0.310^	0.	Č.	0.	Ú.,	0.	Ű.	0.	Ŏ-	0-	0.
0.3300	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.3500	Ŭ.	Š.	0.	Õ.	õ.	0.	0.	ŏ.	0.	0-
0.3700	0.	0.	0.	0.	0.	0.	<u>0</u> .	õ.	0.	0-
0.3900	0.	<b>0</b> • .	0.	0.	0.	0.	0.	0.	C •	0.
								-	-	

TAPLE D-5

HISTOGRAM OF WAVE PARAMETERS OF THE SMALL WAVES

· .

	AMI	PLITUDE OF	SMALL WA	VE		AM	PLITUDE OF	SMALL WA	VE	
:	10110100	0.0	<u> </u>			WG(LB/SEC)	0.1436	0.1436	0.1436	•
•	WGILB/SEG/	0.01(0	0.0280	0.040		WI (18/SEC)	0.0160	0.0280	0.0440	
	WLILD/SEC/	0.0100	0.0200	0.0440		CELL	D2	D2	D2	
		UZ . 2424242 ND.		DER INTER	VA: *****	FLIM(INCH)	**** ND.	OF WAVE	PER INTER	VAL *****
	0.0005	401	130.	209.		0.0005	1463.	1421.	1204.	
	0.0005		495.	708-		0.0015	0.	84.	1486.	
	0.0025	0.	65-	200-		0.0025	0.	0.	250.	
•	0.0025	0	29.	117.		0.0035	υ.	0.	υ.	
	0.0045	0.	1.	20.	· ·	0.0045	0.	0.	0.	
	0.0055	0.	0.	201		0.0055	Û.	0.	ί.	
	WELLBISEEN	0.0	0.0	0.0		WG(LB/SEC)	0.1436	0.1436	0.1436	-
	WI (IB/SEC)	0-0800	0.1260	0,1800		WL(L8/SEC)	0.0800	0.1260	0.1800	۱ ب
	CELL	02	n2	02		CELL	D2	D2	02	
	FLIM(INCH)	**** ND_	DE WAVE	PER INTER	VAL *****	FLIM(INCH)	**** ND•	OF WAVE	PER INTER	<b>VAL ****</b> *'
	0.0005	202-	223.	234		0.0005	841.	410.	332.	
	0 0015	779.	745.	669.		0.6015	1433.	1372.	1305.	
	0.0025	247.	234-	228-		0.0025	247.	369.	386.	
	0.0035	177.	201.	178-		0.0035	10.	190.	317.	
	0.0045	59.	53.	75.		0.0045	0.	22.	41.	
	0.0055	28.	22.	33.		0.0055	0.	0.	17.	
	0.0065		21.	17.		0.0065	0.	0.	0.	•
	0.0075	0.	3.	8.		0.0075	0.	Ο.	0.	
	0.0085	0.	0.	10.		0.0083	0.	0.	0.	
•	0.0095	0.	0.	0.		0.0095	0.	0.	0.	0 1/0/
	WOULB/SEC1	0.0	0.0	0.0	0.0	WG(LB/SEC)	0.1436	0.1436	0.1436	0.1436
	WILLB/SEC)	0.2400	0.3500	0.4700	0.5850	WL(LB/SEC)	0.2400	0.3500	0.4700	0.5850
	CELL	02	C2	D2	D2	CELL	D2	02		UZ
	ELIM(INCH)	**** NO.	OFWAVE	PER INTER	RVAL *****	FLIM(INCH)	***** NU	UF WAVE	PER INTE	KVAL *****
	0.0005	165.	159.	123.	106.	0.0005	240.	100	100.	62.
	0.0015	552.	669.	629.	562.	0.0015	1075.	100.	2020	441+
	0.0025	230.	359.	413.	381.	0.0025	439.	413.	257.	550.
	0.0035	198.	411.	485.	517.	0.0035	446.	230.	409.	400+
	0.0045	96.	199.	248.	319.	0.0045	118.	257.	218.	299.
	0.0055	60.	126.	192.	236.	0.0055	18.	121.	101.	210.
	0.0065	37.	155.	232.	303.	0.0055	31.	122.	100+	240+
	0.0075	19.	46.	81.	132.	0.0075	· 0.	47.	8U. 71	122.
	0.0085	12.	52.	116.	108.	0.0085	0.	20.	11.	
	0.0025	4.	18.	34.	57.	0.0095	0.		21.	40.
	0.0105	3.	18.	33.	48.	0.0105	0.	0.	2	12.
	0.0115	0.	4.	15.	32.	0.0115	0.	0.		19
	0.0125	0.	9.	15.	20.	0.0125	0.	۰ ۲	0	4.
	0.0135	0.	2.	6.	14.	0.0133	0.	0.	0.	· · ·
	0.0145	Ō.	0.	8.	6.	0.0145	0.	0.	0.	0.
	0.0155	0.	1.	4.	11.	0.01/5	0.	0.	V •	0.
	0.0165	0.	0.	0.	4.	0.0105	0.	0.	0.	0.
	0.0175	0.	0.	1.	2.	0.0175	0.	0.	<b>.</b>	0
	0.0185	0.	0.	0.	0.	0.0185	U.	υ.	V+	V•

471

•

TAPLE D-5 (continued)

BASE OF SMALL WAVE

1

.

BASE OF SMALL WAVE

	WG ( LB / SEC )	0.0	0.0	0.0		WG(LB/SEC)	C•1436	0.1436	0.1436	
	WI (LA/SEC)	6.0160	0.0280	0.0440		WL(LB/SEC)	0.0160	0.0280	0.0440	;
	CELL	67	C2	02	•	CELL	D2	D2	D2	
•	TINEISECS	***** NO.	NE WAVE	PER INTERV	/1 ****	TIME(SFC)	***** NO.	OF WAVE	PER INTERVA	*****
	0.0100	233.	197.	309.		0.0100	1396.	1233.	809.	
	0.0300	97.	265.	362.		0.0300	67.	270.	1366.	
	0.0500	41.	156.	336.		0.0500	0.	2.	585.	
•	0.0700	28.	84.	167.		0.0700	0.	0.	147.	
·	0.0900	<b>2</b> 0 <b>.</b>	13.	56.	,	0.0900	0.	0.	28.	
·	0 1100	5	4	22.		0.1100	0.	0.	5.	
	0 1300	2.		7.	•	0.1300	0.	0.	0.	
	0.1500	2.	1.	0.		0.1500	0.	0.	0.	
	0 1700	1	0	1		0.170)	0.	0.	0.	
	0.1900	0.	0.	0.		0.1900	Û.	0.	0.	
•	0.2100	. 1.	0.	0.		0.2100	0.	0.	0.	
	0 2300	0.	0.	0.		0.2300	0.	0.	0.	
	WG(IE/SEC)	0.0	6.0	C-0		WG(LB/SEC)	C.1436	0.1436	0.1436	•
	WL(LB/SEC)	0.0800	0.1260	0.1900		WL(LB/SEC)	0.0800	0.1260	0.1800	
	CELL	C2	C2	02		CELL	02	D2	D2	
	TIME(SEC)	***** NO.	OF NAVE P	PER INTERV	ΔL ****	TIME(SEC)	***** NO.	OF WAVE	PER INTERVAL	*****
	0.0100	273.	316.	380.		0.0100	755.	686.	784.	
	0.0300	505.	514.	547.		0.0300	1164.	1044.	1042.	
	0.0000	371.	388.	320 •		0.0500	412.	446.	428.	
	C.C700	225.	215.	150.		0.0700	147.	156.	121.	
	0.0900	94.	51.	42.		0.0900	25.	27.	21.	
	0.1100	22.	16.	12.		0.1100	٤.	4.	1.	
. • <b>*</b>	0.1300	11.	1.	1.		0.1300	1.	0.	1.	
	0.1500	0.	1.	с.		0.1500	1.	0.	0.	
	0.1700	G .	0.	С.		0.1709	Q.	0.	υ.	
	NG(LB/SEC)	0.0	0.0	0.0	0.0	WG(LB/SEC)	0.1436	0.1436	0.1436 0	•1436
	WL(L0/SEC)	0+2400	0.3500	0.4700	0.5850	WL(LB/SEC)	0.2400	0.3500	0.4700 0	•5850
	. CELL	D2	D2	D2	D2 ·	CELL	D2	D2	U2	D2
	TIME(SEC)	**** 110	D. OF WAVE	E PER INTE	RVAL ****	TIME(SEC)	**** NC•	OF WAVE	PER INTERVA	L *****
•	0.0100	407.	819.	1123.	1488 .	0.0100	840.	1073.	1210.	1423.
	0.0300	0 603.	968.	1095.	1081.	0.0300	1088.	1038.	986•	939.
·	0.0500	277.	316.	321.	241.	0.0500	396.	273.	176.	99.
	0.0700	126.	101.	75.	45.	0.0700	97.	52.	14.	7.
	C.C90C	27.	18.	19.	3.	, 0.0900	<u>ِ</u> 20۰	1.	0.	0.
	0.1100	) 7.	6.	1.	0.	0.1100	4.	0.	0.	0.
	0.1300	0.	0.	0.	0.	0.1300	0.	0.	0.	0.
	0.1500	; 2.	U.	0.	U •	0.1500	0.	0.	0.	0.
	0.1700	, 0.	0.	0.	U •	0.1700	0.	0.	0.	0.

#### \*\*\*\*\* HISTOGRAM \*\*\*\*\*

•

· •

AMPLITUDE OF SMALL WAVE ON LARGE WAVE

WG(LB/SEC)	0.0	0.0	0.0	. 0.0	0.0	0.0	0.0	0.0	0.0	0.0
WL(LB/SEC)	0.0160	0.0280	0.0440	0.0800	0.1250	0.1800	0.2400	0.3500	0.4700	0.5850
CELL	D2	02	D2	D 2	D2	D2	D2	D2	D2	D2
FLIM(INCH)	**** ND•	OF WAVE	PER INTER	VAL ***** NO.	OF WAVE	PER INTERVAL	**** NO.	OF WAVE	PER INTER	VAL *****
0.0005	21.	5.	19.	16.	21.	12.	80.	49.	29.	26.
0.0015	143.	86.	80.	63.	77.	68.	115.	98.	96.	66.
0.0025	61.	67.	64.	44.	48.	47.	89.	98.	76.	70.
0.0035	26.	114.	102.	75.	62.	66.	88.	95.	89.	75.
0.0045	1.	16.	57.	46.	45.	38.	95.	104.	103.	72.
0.0055	2.	5.	25.	46.	31.	40.	101.	99.	79.	69.
0.0065	0.	6.	44.	56.	66.	57.	82.	70.	71.	53.
0.0075	0.	0.	18.	35.	29.	42.	68.	47.	49.	53.
0.0085	0.	1.	29.	35.	41.	63.	75.	37.	40.	40.
0.0095	с.	0.	8.	29.	. 37.		23.	31.	27.	31.
0.0105	0.	2.	13.	38.	53.	60.	29.	28.	31.	21.
0.0115	0.	0.	4.	23.	·. 27.	28.	18.	27.	22.	34.
0.0125	0.	0.	9.	29.	56.	52.	15.	22.	24.	21.
0.0135	0.	0.	0.	8.	27.	24.	6.	27.	38.	28.
0.0145	0.	Ο.	3.	11.	27.	22.	7.	20.	26.	19
0.0155	0.	0.	4.	17.	. 33.	39.	2.	21.	28.	22.
0.0165	0.	0.	2.	9.	18.	28.	2.	12.	21.	. 17.
0.0175	0.	0.	1.	7.	30.	30.	1.	11.	12.	17.
0.0185	0.	0.	0.	5.	10.	15.	3.	9.	19.	16.
0.0195	0.	0.	1.	2.	12.	11.	1.	6.	13.	16.
0.0210	0.	0.	1.	2.	19.	27.	0.	4.	7.	8.
G.G230	0.	0.	1.		6.	25	· 0•	4.	8.	9.
0.0250	0.	0.	0.	0.	3.	9.	0.	4.	6.	9.
0.0270	0.	0.	0.	2.	0.	4.	1.	2.	9.	6.
0,6290	0.	0.	1.	1.	• 2•	2.	0.	2.	1.	1.
0.0310	. 0.	0.	0.	0.	2.	3.	0.	1.	2.	3.
0.0330	С.	0.	0.	• 0.	0.	2.	. 0.	0.	3.	0.
0.0350	0.	с.	0.	. 0.	0.		0.	1.	0.	. 1
0.0370	0.	0.	0.	0.	0.	0.	. 0.	1.	1.	0
0.0390	0.	0.	0.	0.	. 0.	1.	. 0.	0.	0.	2.
0.0410	0.	0.	0.	0.	• 0.	0.	0.	1.	0.	0.
0.0430	0.	e.	0.	0.	0.	0.	0.	0.	0.	1.
0.0450	0.	0.	0.	<b>U.</b>	0.	0.	0.	0.	0.	0.
0.0470	0.	0.	0.	0.	. 0.	0	0.	0.	0.	0.
0.0490	0.	0.	0.	0.	0.	U• .	0.	0.	0.	0.
0.0510	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.0530	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.0550	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
0.0570	0.	0.	0.	U•	0.	0.	: 0.	0.	0.	0.
0.0590	0.	0.	<b>.</b>	- 0.	0.	0.	0.	0.	0.	0.
0.0610	0.	0.	0.	0.	υ.	0.	0.	0.	0.	0.
0.0530	0.	0.	0.	0.	0.	. 0.	0.	0.	0.	0.
0.0650	0.	0.	<i>u</i> .	U•	0.	0.	0.	0.	0.	0.
0.0670	0.	0.	0.	U•	0.	0.	0.	0.	0.	0.
0.0690	0.	0.	0.	0.	0.	0.	. <u>0</u> .	0.	0.	0.
0.0710	0.	0.	0.	0.	υ.	U.	0.	0.	. 0.	. 0.
0.0730	0.	0.	0.	<b>0</b> .	Ŭ•	0.	0.	0.	0.	0.
0.0750	0.	0.	0.	0.	<b>U</b> .	<b>U</b> • .	0.	0.	0.	0.
0.0770	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.0790	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

473

:.

#### APPENDIX E

#### DERIVATION OF RANDOM WAVE MODEL

## 1. TICK'S RANDOM WAVE MODEL

Considering the gravity waves of the infinite crested in the infinite depth, the equations of motion for an irrotational fluid are

$$\phi^{xx} + \phi^{44} = 0 - - - - - - - - - - - - - - (E-1)$$

 $5 \rightarrow 1 \pm 2 (\Psi_x + \Phi_y)$ The boundary conditions are

¢y → o as	у —⊷ ∞	—————(E-3)
$\eta_{\tau} + \phi_{\chi} \eta_{\chi} = \phi_{\gamma}$	at y=n	(E-4)
0=0	α1 f=J	(E-5)

where  $\phi(x,y,t)$  is a velocity potential.

Assuming the  $\varphi$  and  $\gamma$  are stationary random processes and can be separated as

$$\eta = \eta^{(1)} + \eta^{(2)} \} - - - - - - - - - - - (E-C)$$

where  $\phi^{(\prime)}$  and  $\eta^{(\prime)}$  are the solution of the linear approximation of the equation, and  $\phi^{(2)}$  and  $\eta^{(2)}$  are the nonlinear correction terms on the solution.

The solution of linear approximation will be  

$$\phi^{(1)} = \int_{-\infty}^{+\infty} e^{i(1\omega_1\omega_X/g - \omega_E)} e^{-\omega^2 f/g} df(\omega)$$

$$\int_{-\infty}^{(1)} = \int_{-\infty}^{+\infty} -i \frac{\omega}{g} e^{i(1\omega_1\omega_X/g - \omega_E)} df(\omega)$$

$$\int_{-\infty}^{+\infty} -i \frac{\omega}{g} e^{i(1\omega_1\omega_X/g - \omega_E)} df(\omega)$$

۶

where  $d\hat{\zeta}(\omega)$  has the following properties

$$\langle d\hat{\varsigma}(\omega) d\hat{\varsigma}(\omega) \rangle = \begin{cases} \hat{\varsigma}(\omega) d\omega & \text{if } \omega = \omega' - - (E-\delta) \\ 0 & \text{if } \omega = \omega' \end{cases}$$

The linear part of spectrum will be

$$S^{(\prime)}(\omega) = -\frac{\omega^2}{3} \widetilde{S}(\omega)$$

.

And the nonlinear solutions are

$$\Phi^{(2)} = 2i \int_{-\infty}^{+\infty+\infty} e^{\left\{(|\omega|w+|w'|w'\right)\frac{x}{2} - (w+w')\pm\right\}} G(w,w') d\widehat{\xi}(w) - (E-\widehat{i})$$
where  $G(w,w') = \frac{w(ww'-|ww'|)}{(w+w')^2 - |w|w+|w|w'|}$ 

wl

$$\chi^{(2)} = \frac{1}{2} \int_{-\infty}^{\infty} \int_{-\infty}^{\infty} e^{i\left\{(|w|w+|w'|w')\frac{x}{2} - (w+w')t\right\}} H(w,w') d\hat{g}(w) d\hat{g}(w)}$$

$$H(w,w') d\hat{g}(w) d\hat{g}(w) d\hat{g}(w)$$

where

$$H(\omega, \omega') = 2F(\omega, \omega') - \frac{1}{2}\omega\omega' + \frac{1}{2}|\omega\omega'| - \omega^{2}$$

$$F(\omega, \omega') = -iG(\omega, \omega')(\omega + \omega')$$

Under the assumption of the Gaussiam processes the nonlinear part of spectrum are

$$S^{(2)}(w) = \frac{1}{2^{2}} \int_{-\infty}^{\infty} K(\lambda, w) S^{(1)}(w - \lambda) S^{(1)}(\lambda) d\lambda - - - (E - 11)$$

where

$$H(\lambda,\omega) = H^{2}(\lambda,\omega-\lambda) + H(\lambda,\omega-\lambda) H(\omega-\lambda,\lambda)$$

## 2. TRANSFORMATION OF THE SET OF EQUATIONS (VII-27) ~ (VII-

33) INTO THE SET OF EQUATIONS (VII-34)  $\sim$  (VII-38)

By differentiating equation (VII-27) with respect to and differentiating equation (VII-28) with respect to t, the equations become

 $\frac{R_{e}}{4} - \frac{1}{C} P_{ty}^{(i)} + \frac{1}{C^{2}} \Psi_{yytt}^{(i)} + \frac{1}{V} \Psi_{yytt}^{(i)} + \frac{R_{e}}{4} \left(\frac{3}{2} - 1\right) \Psi_{yyt}^{(i)} = 0 - - - (E - 12)$ 

$$-\frac{Re}{4}\frac{1}{C}P_{ty}^{(0)} + \frac{1}{C^{2}}\Psi_{tttt}^{(0)} + \Psi_{tty}^{(0)} + \frac{Re}{4}(\frac{3}{2}\frac{1}{C}-1)\Psi_{ttt}^{(0)} = 0 - - - (E-13)$$

The above equation (E-13) times the factor  $\frac{1}{C}$  and add to equation (E-12), the result will be the basic equation (VII-34).

For the boundary conditions at y = 0, differentiating the equations (VII-31) and (VII-32) with respect to t, one obtains

$$-3\eta_{t}^{(0)} + \Psi_{33t}^{(0)} - \frac{1}{C^{2}}\Psi_{ttt}^{(0)} = 0 - - - - - - (E-14)$$

$$-P_{t}^{(0)} + \frac{8}{R_{c}C} \Psi_{tt}^{(0)} + \frac{1}{W_{e}C^{2}} \chi_{tt}^{(0)} = 0 - - - - - (E-15)$$

Substituting the equation (VII-27) into equation (E-15), the equation becomes

$$\frac{3}{C^{2}} \Psi_{tty}^{(0)} + \Psi_{3s}^{(0)} + \frac{R_{e}}{7} \left(\frac{3}{2}\frac{1}{C} - 1\right) \Psi_{3t}^{(0)} + \frac{R_{e}}{7} \frac{1}{le} \frac{1}{C^{3}} \chi_{ttt}^{(0)} = 0 - - - (E - 16)$$

Now let's make the following addition and subtraction.

(a) 
$$(\frac{3}{2}\frac{1}{c}-1) \cdot e_{q} \cdot (E-14) - 3 \cdot e_{q} \cdot (II - 33)$$
,  
one obtains equation (VII-37).

(b) 
$$\frac{R_c}{4} \cdot \frac{1}{R_c} \cdot \frac{1}{C^3} \times \frac{3^2}{2t^2} = e_{1}^{2} (\Pi - 33) + (\frac{3}{2} \frac{1}{c} - 1) \times e_{1}^{2} (E - 16),$$

one obtains equation (VII-38).

# 3. THE SOLUTION OF $\hat{\Psi}(\bar{\tau}, \gamma)$ IN EQUATION (VII-43)

By substituting equations (VII-39) and (VII-41) into the equations (VII-35), (VII-36) and (VII-37), one obtains the following three equations:

$$e^{\alpha_{1}}d\hat{A}_{1} + e^{\alpha_{2}}d\hat{A}_{2} + e^{\alpha_{3}}d\hat{A}_{3} + e^{\alpha_{4}}d\hat{A}_{4} = 0 - - - (E - 17)$$

$$\alpha_{1}e^{\alpha_{1}}d\hat{A}_{1} + \alpha_{2}e^{\alpha_{2}}d\hat{A}_{2} + \alpha_{3}e^{\alpha_{3}}d\hat{A}_{3} + \alpha_{4}e^{\alpha_{4}}d\hat{A}_{4} = 0 - - - (E - 18)$$

$$FA(\alpha_1,\omega) d\hat{A}_1 + FA(\alpha_2,\omega) d\hat{A}_2 + FA(\alpha_3,\omega) d\hat{A}_3$$

$$+ FA(\alpha_4,\omega) d\hat{A}_4 = 0 - - - - - - - (E-19)$$

where 
$$FA(a_{j}, \omega) = i \left\{ 3 \frac{\omega}{c} + (\frac{3}{2} \frac{1}{c} - 1) \omega a_{j}^{2} + (\frac{3}{2} \frac{1}{c} - 1) \frac{\omega^{3}}{c^{2}} \right\} = 1, \dots, 1$$

Eliminating the terms  $d\hat{A}_{\lambda}$  from the above three equations, the set of equations become

$$FB(\alpha_{2},\omega) d\hat{A}_{2} + FB(\alpha_{3},\omega) d\hat{A}_{3} + FB(\alpha_{4},\omega) d\hat{A}_{q} = 0 - - - (E-20)$$

$$FC(\alpha_{2},\omega) d\hat{A}_{2} + FC(\alpha_{3},\omega) d\hat{A}_{3} + FC(\alpha_{3},\omega) d\hat{A}_{q} = 0 - - - (E-21)$$

 $FB(a_{j}, w) = (a_{i} - a_{j})e^{a_{j}} \qquad j = 2, 3, 7$   $FC(a_{j}, w) = FA(a_{i}, w)e^{a_{j}} - FA(a_{j}, w)e^{a_{j}} \qquad j = 2, 3, 7$ 

'where

478

One further eliminates the  $\mathrm{dA}_2$  from the above two equations, the result becomes

$$d\hat{A}_3 = FL_1(\alpha_1, \alpha_2, \alpha_3, \alpha_4, \omega) d\hat{G}(\omega) - - - - (E-22)$$

where

$$d\hat{G}(\omega) = d\hat{A}_{f}(\omega)$$

$$= -\frac{Fb(\alpha_{f_{1}}\omega)}{FD(\alpha_{s_{1}}\omega)}$$

$$= -\frac{Fb(\alpha_{f_{1}}\omega)}{FD(\alpha_{s_{1}}\omega)}$$

$$= Fc(\alpha_{s_{1}}\omega) = Fc(\alpha_{s_{1}}\omega) + FB(\alpha_{s_{1}}\omega) - FB(\alpha_{s_{1}}\omega).$$

$$= Fc(\alpha_{f_{1}}\omega) + FB(\alpha_{s_{1}}\omega) - FB(\alpha_{s_{1}}\omega).$$

Substituting the equation (E-22) into equation (E-20), one obtains

$$d\hat{A}_{2} = FL_{2}(\alpha_{1}, \alpha_{2}, \alpha_{3}, \alpha_{4}, \omega) d\hat{Q}(\omega) - - - (E-23)$$

where

$$FL_2 (a_1, a_2, a_3, a_4, w) = \left\{ -FB(a_3, w) \cdot FL_1(a_1, a_2, a_3, a_4, w) - FB(a_4, w) \right\} / FB(a_2, w)$$

Substituting again the equations (E-22) and (E-23) into equation (E-17), one has

$$d\hat{A}_{1} = FL_{3}(\alpha_{1}, \alpha_{2}, \alpha_{3}, \alpha_{4}, \omega) d\hat{q}(\omega) - - - (E-24)$$

where

$$FL_{3}(\alpha_{1},\alpha_{2},\alpha_{3},\alpha_{4},\omega) = \left\{-FL_{1}(\alpha_{1},\alpha_{2},\alpha_{3},\alpha_{4},\omega)e^{\alpha_{3}}-FL_{2}(\alpha_{1},\alpha_{2},\alpha_{3},\alpha_{4},\omega)-e^{\alpha_{4}}\right\}e^{-\alpha_{1}}$$

Substituting equations (E-22), (E-23), and (E-24) back into equation (VII-41), one will have the equation (VII-42)

# 4. FORMULATION OF THE NONLINEAR SOLUTION

In the boundary condition (VII-54), the term  $p_y^{(1)}$  can be obtained from equation (VII-28) as

$$P_{\lambda}^{(\prime)} = \int_{-\infty}^{+\infty} e^{i\omega E} B^{(\prime)} (R_{e}, C, w, \gamma) d\hat{q}(w) - - - (E-25)$$

where

$$B^{(\prime)}(R_{e}, C, \omega, \beta) = \left\{ \frac{4(i\omega)^{3}}{R_{e}C^{3}} F^{(\prime)} + \frac{4(i\omega)}{R_{e}C} F^{(\prime)}_{\beta\beta} + \frac{(i\omega)^{2}}{C} (\frac{3}{2}\frac{1}{C}-1) F^{(\prime)} \right\}$$
  
the solution  $\hat{\gamma}^{(*)}$  can be expressed as

$$\hat{\chi}^{(1)}(E) = \int_{-\infty}^{+\infty} \int_{-\infty}^{\infty} e^{i(\omega+\omega)E} H^{(2)}(\operatorname{Re}_{\mathcal{C}},\omega,\omega) \, d\hat{G}(\omega) \, d\hat{G}(\omega) - - - (E-26)$$

where

$$H^{(2)}(R_{e}, C, \omega, \omega') = -\frac{1}{3} \left\{ \left( F_{33}^{(2)}(R_{e}, C, \omega, \omega', o) + \frac{(\omega + \omega')^{2}}{C^{2}} \right)^{2} + F_{333}^{(2)}(R_{e}, C, \omega, \omega) + \frac{\omega^{2}}{C^{2}} + F_{3}^{(0)}(R_{e}, C, \omega, \omega) + \frac{\omega^{2}}{C^{2}} + \frac$$

The process to eliminate  $\bigwedge^{(\mu)}$  and  $\stackrel{(\mu)}{P}{}^{(\mu)}$  in the set of equations can be done in the similar manner as the linear part of solution. The set of equations (VII-53), (VII-54) and (VII-55) become

$$F_{333}^{(n)} + \frac{2c^{2}(\omega+\omega')^{2}}{c^{2}} F_{33}^{(n)} + \frac{c^{4}(\omega+\omega')^{4}}{c^{4}} F_{3}^{(n)} + \frac{Re}{4} \left(\frac{3}{2}\frac{1}{c^{-1}}\right) \left\{ i(\omega+\omega') + \frac{1}{c^{2}}\frac{1}{c^{2}}\frac{1}{c^{2}}\right\} + \frac{3Pe(\omega+\omega')}{4c} + \frac{1}{c^{2}}\frac{1}{c^{2}}\frac{1}{c^{2}}\left\{ F_{333}^{(n)} + \frac{1}{c^{2}}\frac{1}{c^{2}}F_{3}^{(n)}\right\} - \frac{1}{c^{2}}\left\{ F_{333}^{(n)} + \frac{1}{c^{2}}\frac{1}{c^{2}}F_{33}^{(n)}\right\} - \frac{1}{c^{2}}\left\{ F_{333}^{(n)} + \frac{1}{c^{2}}\frac{1}{c^{2}}F_{33}^{(n)}\right\} - \frac{1}{c^{2}}F_{33}^{(n)} + \frac{1}{c^{2}}\frac{1}{c^{2}}F_{33}^{(n)} 

Boundary conditions are

$$\begin{array}{c} F^{(0)} = 0 \\ F^{(0)} = 0 \\ F^{(0)} = 0 \\ F^{(0)} = 0 \\ F^{(0)} = 0 \\ F^{(0)} = 0 \\ F^{(0)} = 0 \\ F^{(0)} = 0 \\ F^{(0)} = \frac{P_{0}}{P_{0}} + \frac{F^{(0)}}{P_{0}} + \frac{P_{0}}{P_{0}} \left(\frac{2}{2}\frac{1}{C}-1\right) \left((\omega+\omega') + \frac{P_{0}}{P_{0}} + \frac{R_{0}}{R_{0}}\left(\frac{3}{2}\frac{\omega}{W_{0}}\right)^{\frac{3}{2}} \right) \\ H^{(2)} = \frac{P_{0}}{4C} \left\{ (\omega B^{(0)} - \frac{8\omega'}{R_{0}C} + \frac{\omega}{W_{0}}\right\} + \frac{P_{0}}{4C} \left\{ B^{(0)} - \frac{8\omega}{R_{0}C} + \frac{\omega}{W_{0}}\right\} \\ (\omega' H^{(0)} + \frac{P_{0}}{4C} + \frac{F^{(0)}}{W_{0}} \left(\frac{2}{W_{0}} + \frac{P_{0}}{W_{0}}\right) + \frac{P_{0}}{4C} \left\{ B^{(0)} - \frac{8\omega}{R_{0}C} + \frac{\omega}{W_{0}}\right\} \\ (\omega' H^{(0)} + \frac{P_{0}}{4C} + \frac{F^{(0)}}{W_{0}} \left(\frac{2}{W_{0}} + \frac{P_{0}}{W_{0}}\right) + \frac{P_{0}}{C} \left(\frac{2}{W_{0}} + \frac{P_{0}}{W_{0}}\right) \\ (\omega' H^{(0)} + \frac{P_{0}}{4C} + \frac{1}{2}\right) + \frac{P_{0}}{C} - \frac{1}{C} \left\{ F^{(0)}_{W_{0}} \left(\omega' H^{(0)} + \frac{1}{2}\right) \right\} \\ (\omega F^{(0)}_{W_{0}} + \frac{W_{0}}{W_{0}}\right\} \quad \text{at} \quad y = 0 - - - (E-31)$$

The above set of equations is a fourth order complex linear ordinary differential equation with four linear boundary conditions. The function  $\overline{r}^{(a)}$ can be solved at least by numerical method.

The auto-correlation of  $\chi^{(1)}$  will be

$$\hat{R}^{(k)}(3) = \langle \hat{\eta}^{(k)}_{(t+3)} \hat{\eta}^{(k)}_{(t+3)} - (w_{3}+w_{4})t \rangle \\ = \int \int \int e^{i(w_{1}+w_{2})(t+3) - (w_{3}+w_{4})t} H^{(k)} H^{(k)}_{(t+3)} \\ \langle d\hat{q}^{(w_{1})} d\hat{q}^{(w_{2})} d\hat{q}^{(w_{3})} d\hat{q}^{(w_{3})} \rangle - - - (E-32)$$

Under the assumption of Gaussian processes, one can evaluate the above fourth moment of  $dG(\omega)$  as:

$$\langle d\hat{G}(w_1) d\hat{G}(w_2) d\hat{G}^{\dagger}(w_3) d\hat{G}^{\dagger}(w_4) \rangle$$
  
=  $\langle d\hat{G}(w_1) d\hat{G}(w_2) \rangle \langle d\hat{G}^{\dagger}(w_3) d\hat{G}^{\dagger}(w_4) \rangle$   
 $\neg \langle d\hat{G}(w_1) d\hat{G}^{\dagger}(w_3) \rangle \langle d\hat{G}(w_2) d\hat{G}^{\dagger}(w_3) \rangle$   
 $\neg \langle d\hat{G}(w_1) d\hat{G}(w_2) \rangle \langle d\hat{G}(w_2) d\hat{G}^{\dagger}(w_3) \rangle = - - (E-33)$ 

and, the spectrum of  $\hat{\eta}^{(2)}(\tau)$  can also be obtained in the similar way as the linear solution, once the auto-correlation  $\widehat{R}^{(2)}(\zeta)$  is evaluated.

By the properties of the Gaussian processes, the autocorrelation and the spectrum of

$$\hat{\gamma}(t) = \hat{\gamma}^{(\prime)}(t) + \hat{\gamma}^{(c)}_{(t)}$$

will be

$$\hat{R}(3) = \hat{R}^{(0)}(3) + \hat{R}^{(2)}(3) - - - - (E-34)$$

$$\hat{S}^{(1)}(1) = \hat{S}^{(0)}(1) + \hat{S}^{(2)}(1) - - - (E-35)$$

#### APPENDIX F

DERIVATION OF EXTENSION OF TELLES MODEL

# 1. <u>DERIVATION IN SECTION 3-1 OF CHAPTER VII (HORTON'S</u> METHOD).

For a shot -noise process

$$\langle \hat{\mathbf{h}}(t) - \mathbf{m}_L \rangle = f \int_{\infty}^{+\infty} \mathbf{m}(t) dt$$
  
=  $f T \mathbf{m}_0 - - - - - - (F-1)$ 

$$\langle \hat{\pi}(t+3) \hat{\pi}(t) \rangle = \langle \sum_{n=0}^{\infty} m(t+3-\hat{\tau}_{k}) \sum_{n=0}^{\infty} m(t-\hat{\tau}_{k}) \rangle + 2fTm_{o}m_{L}$$
  
+  $m_{L}^{2}$   
=  $f \sum_{n=0}^{\infty} m(t+3)m(t)dt + (fTm_{o})^{2} + 2fTm_{o}m_{L} + m_{L}^{2}$   
- - - - (F-2)

$$f_{j,k}^{+\infty} m(t+3)m(t)dt = \sum_{j,k}^{\infty} (-1) m_j m_k z^{(r+1)} (\frac{3}{N^2}) - - - (F-3)$$

From the above three equations, the equations(VII-61) and (VII-62) directly follow. The equation (VII-66) is equivalent to the following p+1 equations

$$d_{0} = m_{0}^{2}$$

$$d_{2} = 2 m_{0}^{2} m_{1}^{2} - m_{1}^{2}$$

$$d_{4} = 2 m_{0}^{2} m_{1}^{2} - 2 m_{1}^{2} m_{3}^{2} + m_{2}^{2}$$

$$d_{4} = 2 m_{0}^{2} m_{1}^{2} - 2 m_{1}^{2} m_{3}^{2} + 2 m_{2}^{2} m_{4}^{2} - m_{3}^{2}$$

$$d_{4} = 2 m_{0}^{2} m_{1}^{2} - 2 m_{1}^{2} m_{5}^{2} + 2 m_{2}^{2} m_{4}^{2} - m_{3}^{2}$$

- - -

The above set of equations are nonlinear equations. It is obvious that the higher order approximation will give a trimendous difficulty to solve  $m_0$ ,  $m_1$ , -----  $m_{2p}$ . Assuming  $m_2' = m_3' = m_4' = ----- \simeq 0$ , the equation (VII-67) is obtained from equation (F-5).

# 2. <u>TELLES' SOLUTION</u>

As mentioned in Chapter VII, Telles applied the quasilinearization on the equation of motion of the first iteration. The solution was obtained based on the following equations.

$$\begin{aligned} \gamma(x) &= \gamma_{L} + \gamma_{b} z_{0} - - - (F-6) \\ &= \varphi(x,y) = f_{L} + \frac{d_{0}}{2}y^{2} z_{L} - - - (F-7) \\ \text{His results are} \\ &= \varphi(\gamma_{b}) - - - (F-8) \\ &= \varphi(\gamma_{L} + \frac{\eta_{0}\eta_{L}}{2\sqrt{\eta_{1}}} + \frac{\eta_{0}^{2}}{2\sqrt{\eta_{1}}} \Big\} - - - (F-9) \\ 3. \quad \underline{PRESENT SOLUTION}
\end{aligned}$$

Given the equation (VII-88), the equation (VII-83)

. ....

$$f_{0}''' = \int_{\infty}^{+\infty} Q H_{0} dx$$

$$f_{1}''' + S f_{0}' - f_{1}' f_{0}' + f_{1}'' f_{0} = -\int_{-\infty}^{+\infty} Q H_{1} dx$$

$$Q = \left\{ + f_{0}'^{2} - f_{0} f_{0}'' \right\} Z_{0} Z_{1} + \left\{ f_{0}' f_{1}' - f_{0} f_{1}'' \right\} Z_{1}^{2}$$

$$i \text{ since } \int_{-\infty}^{+\infty} Z_{0} Z_{1} H_{0} dx = 0$$

$$\int_{-\infty}^{+\infty} Z_{0} Z_{1} H_{0} dx = -\frac{1}{4 h_{1}}$$

$$\int_{-\infty}^{+\infty} Z_{0} Z_{1} H_{1} dx = -\frac{1}{4 h_{1}}$$

$$\int_{-\infty}^{+\infty} Z_{0} Z_{1} H_{1} dx = 0$$

$$\int_{-\infty}^{+\infty} Z_{1}^{2} H_{1} dx = 0$$

the above equations become

$$\left\{ t'_{i,+} + 2t'_{0} - t'_{1} + t'_{0} + t'_{0} + \frac{1}{7} \left\{ t'_{0} + t'_{0} - t'_{0} \right\} = 0$$

$$\left\{ t'_{i,+} + 2t'_{0} - t'_{0} + t'_{0} + t'_{0} + \frac{1}{7} \left\{ t'_{0} + t'_{0} - t'_{0} \right\} = 0$$

and, the equation (VII-84) will be the set of equations as

$$d_{01} = 0 \qquad d_{11} = 0$$

$$d_{02} = 0 \qquad d_{12} = -\frac{d_{00}}{12}S$$

$$d_{03} = \frac{1}{1200}d_{10} \qquad d_{13} = \frac{d_{00}}{60}\left\{\frac{\theta}{\eta_{1}t} + \frac{d_{00}}{2t\pi}\right\}$$

$$d_{04} = 0 \qquad d_{17} = -\frac{d_{00}}{5040}S$$

$$d_{17} = -\frac{d_{00}}{5040}S$$

$$d_{17} = -\frac{d_{00}}{5040}S$$

The equations (VII-85) and (VII-86) become

$$G_{\eta_{o}} = \int_{-\infty}^{+\infty} f_{o}''(\eta) Z_{o} H_{o} d\chi + \int_{-\infty}^{+\infty} f_{i}''(\eta) Z_{i} H_{o} d\chi \\ -G_{\eta_{i}} = \int_{-\infty}^{+\infty} f_{o}''(\eta) Z_{o} H_{i} d\chi + \int_{-\infty}^{+\infty} f_{i}''(\eta) Z_{i} H_{i} d\chi \\ -S_{\eta_{o}} = \int_{-\infty}^{+\infty} \left\{ f_{o}(\eta) + f_{i}'(\eta) \eta_{o} + f_{o}'(\eta) \eta_{o} + f_{i}'(\eta) \eta_{o} \right\} Z_{i} H_{i} d\chi$$

(i) If equation (VII-90) is assumed and

.• ¢

$$\int_{-\infty}^{+\infty} Z_{0}^{*} Z_{1} H_{1} dx = -\frac{1}{4\pi H_{3}}$$

$$\int_{-\infty}^{\infty} Z_{1}^{*} H_{1} dx = -\frac{1}{4\pi H_{3}}$$

$$\int_{-\infty}^{\infty} Z_{1} Z_{1} H_{1} dx = -\frac{1}{4\pi H_{3}}$$

$$\int_{-\infty}^{\infty} Z_{1}^{*} H_{1} dx = 0$$

$$\int_{-\infty}^{\infty} Z_{0}^{*} Z_{1}^{*} H_{1} dx = 0$$

the above equation (F-12) will give

.

$$Gh_{i} = 2d_{i0} \qquad \Big\} - - - (F-ib)$$

$$Gh_{i} = 2d_{i0} \qquad \Big\}$$

. and equation (VII-91)

. . . .

(ii) If equation (VII-92) is assumed and

$$\int_{-\infty}^{+\infty} \overline{z_{o}^{2}} \overline{z_{1}} H_{o} dx = \int \overline{z_{1}^{3}} H_{o} dx = 0$$

$$\int_{-\infty}^{+\infty} \overline{z_{o}} \overline{z_{1}^{3}} H_{o} dx = \frac{1}{4\pi \sqrt{3}}$$

$$\int_{-\infty}^{+\infty} \overline{z_{o}} \overline{z_{1}^{3}} H_{1} dx = -\frac{3}{64\pi \sqrt{2\pi}}$$

$$\int_{-\infty}^{+\infty} \overline{z_{o}^{2}} \overline{z_{1}^{3}} H_{1} dx = -\frac{3}{100\pi^{2} \sqrt{5}}$$

$$\int_{-\infty}^{+\infty} \overline{z_{0}^{2}} \overline{z_{1}^{3}} H_{1} dx = -\frac{3}{100\pi^{2} \sqrt{5}}$$

$$\int_{-\infty}^{+\infty} \overline{z_{0}^{2}} \overline{z_{1}^{2}} H_{1} dx = \int \overline{z_{0}^{3}} \overline{z_{1}^{4}} H_{1} dx = 0$$

$$\int_{-\infty}^{+\infty} \overline{z_{0}^{4}} \overline{z_{1}^{4}} H_{1} dx = \int \overline{z_{0}^{3}} \overline{z_{1}^{4}} H_{1} dx = 0$$

The equation (VII-93) is followed from the above equations.

•