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COAXIAL DUMP RAMJET COMBUSTOR COMBUSTION INSTABILITIES

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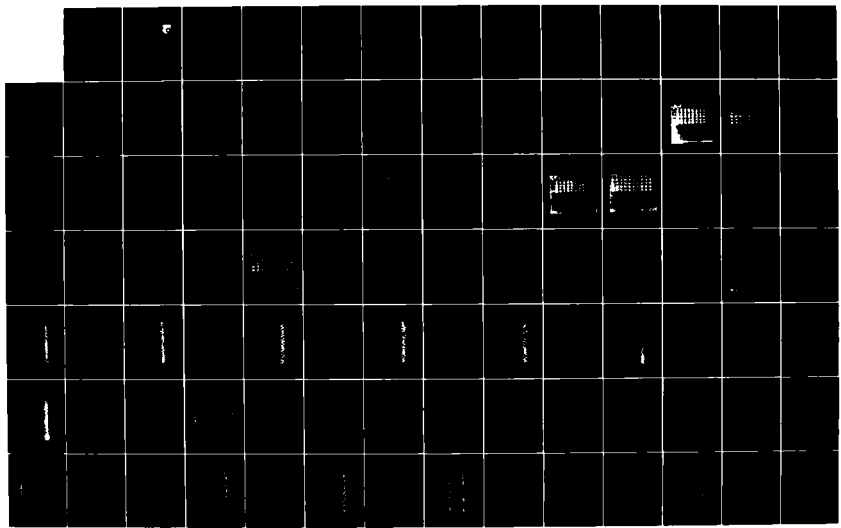
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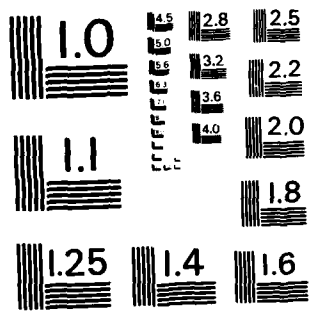
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AFWAL-TR-81-2047
Part I



COAXIAL DUMP RAMJET COMBUSTOR
COMBUSTION INSTABILITIES

PART I. PARAMETRIC TEST DATA

D. L. Davis

July 1981

Interim Report for Period February 1979 - March 1980

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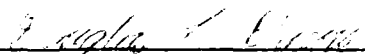
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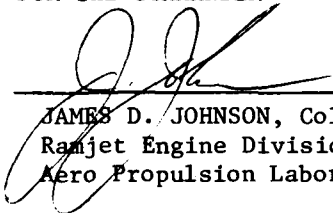


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1. REPORT NUMBER AFWAL-TR-81-2047, Part I	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) COAXIAL DUMP RAMJET COMBUSTOR COMBUSTION INSTABILITIES Part I - Parametric Test Data	5. TYPE OF REPORT & PERIOD COVERED Interim Report for Period February 1979 - March 1980	6. PERFORMING ORG. REPORT NUMBER
		8. CONTRACT OR GRANT NUMBER(s)
7. AUTHOR(s) Mr. D. L. Davis	9. PERFORMING ORGANIZATION NAME AND ADDRESS Aero Propulsion Laboratory (AFWAL/PORT) Air Force Wright Aeronautical Laboratories (AFSC) Wright-Patterson AFB, Ohio	
11. CONTROLLING OFFICE NAME AND ADDRESS Aero Propulsion Laboratory (AFWAL/PO) Air Force Wright Aeronautical Laboratories (AFSC) Wright-Patterson AFB, Ohio	10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS 2308-S1-01	
	12. REPORT DATE July 1981	13. NUMBER OF PAGES 329
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)	15. SECURITY CLASS. (of this report) UNCLASSIFIED	
	15a. DECLASSIFICATION/DOWNGRADING SCHEDULE	
16. DISTRIBUTION STATEMENT (of this Report) Approved for Public Release, Distribution Unlimited.		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Combustion Instability, Ramjet Combustors, RMS Pressure		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This report contains Combustion Instability Data for Coaxial Dump Ramjet Combustors. The data includes pressure vs. time, RMS pressure spectrums, peak and broadband RMS pressures, and related steady state performance data. Analysis and interpretation of the data are reserved for future reports. Also included is a description of RMS pressure and its relation to wave shape.		

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Part I

FOREWORD

This report was prepared by D. L. Davis of the Ramjet Technology Branch, Ramjet Engine Division, Aero Propulsion Laboratory, Air Force Wright Aeronautical Laboratories (AFWAL/PORT), Wright-Patterson Air Force Base, Ohio 45433. The work was accomplished under Task 2308S1, "Ramjet Research".

The report covers work performed from February 1979 to March 1980.

The author wishes to thank Dr. Roger R. Craig, Kenneth G. Schwartzkopf, Parker L. Buckley, Capt B. Obleski, Robert Schelenz and Steve Campbell for their support of this effort.

This report is Part I of a two part series on Ramjet Combustion Instabilities. Part II will contain additional data on other Ramjet configurations with some analysis of the data.

This report was submitted for publication by the author in April 1981.

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SECTION I
INTRODUCTION

Under certain operating conditions and with certain engine configurations, there have been adverse interactions between the ramjet combustor and inlet caused by combustion instabilities occurring in the ramjet combustor. In order to provide a data base for guidance in avoiding combustion instabilities, a series of parametric tests of coaxial dump combustors was conducted at the Air Force Wright Aeronautical Laboratories, Aero Propulsion Laboratory, Ramjet Engine Division. This report summarizes the data from these tests. Analysis and interpretation of the data is reserved for future reports.

SECTION II
PARAMETRIC VARIATIONS

The conditions tested included variations in fuel to air ratio, type of fuel injection, air inlet temperature, air flow rate (combustion chamber pressure), nozzle area ratio, length to diameter ratio (L/D) of the combustor, type of flameholder, inlet diameter, and combustion chamber diameter.

For each combustion chamber diameter, inlet diameter, flameholder, and type of fuel injection, a baseline condition was chosen from which other variations were tested. For the baseline condition, the inlet air temperature was 1000°R ($T_{T0}=1000^\circ$), the mass flow was set to obtain a chamber pressure times diameter product of 200 PSI*inches ($P^*D=200$ lbs/in), the nozzle throat area was 50% of the combustion chamber cross sectional area ($A^*/A_3=.5$) and the combustion chamber length to diameter ratio was three (L/D=3).

All of the parametric variations for this series of tests are indicated in Table 1.

TABLE 1
COMBUSTION INSTABILITY PARAMETRICS

COMBUSTION CHAMBER DIAMETERS (D3)	INLET DIAMETERS (D2)	FLAME HOLDERS	OTHER VARIATIONS	FUEL INJECTORS	FUEL TO AIR RATIO
12 in.	.67*D3	NONE	BASELINE	TUBE WALL	.065 to .025
8 in.	.59*D3	.25Y	$T_{To} = 750^{\circ}$	UNIFORM	in .005 steps
6 in.	.5*D3	.35Y	$T_{To} = 1250^{\circ}$		and with no fuel
			PD=120 PSI*in.		
			$A^*/A_3 = .4$		
			$A^*/A_3 = .6$		

SECTION III

HARDWARE

All testing was conducted at Wright-Patterson AFB, Building 18C, Room 18 on the Ramjet Engine Division's Thrust Stand. Test air was supplied by the Aero Propulsion Laboratory's DeLaval and Ingersoll-Rand Compressors. The air, after passing through an orifice flowmeter, enters the thrust stand through twelve flex hoses. The air was then heated with oxygen replenishment in a modified J85 combustion chamber using ethylene for fuel. A tubular flow straightener and the uniform fuel injectors were located downstream of the vitiator in a six inch pipe section. The inlet and combustion chamber were then fastened to the six inch pipe. A water cooled sonic nozzle was attached to the combustor and inserted into the exhaustor (see Figure 1). Kistler Model 202A5 high frequency piezoelectric transducers were mounted on the inlet, the combustor and fuel manifold (see Figure 2). The charge from the Kistler transducers was converted to voltage with Kistler Model 587D couplers and then recorded on an Ampex F1300, 14 track FM tape recorder. After testing, the tape was played back into a Nicolet 660A FFT for spectral analysis.

The two types of fuel injectors used were uniform injectors and tube injectors. The uniform fuel injectors consist of eight tubes with multiple openings to provide a uniform distribution of fuel. The uniform injectors are located far upstream of the combustor to allow total vaporization of the fuel. The tube fuel injectors consist of tubes with an orifice located on the end pointing normal to the inlet centerline and the end is mounted flush with the inlet wall (see Figure 4). The orifice was sized to obtain a fuel penetration proportional to the inlet diameter at the dump plane (see Table 2).

The flameholders for these tests were of the 'Y' configuration and had blockage areas of 25% and 35% of the inlet area. Dimensions of the flameholders can be found in Table 3.

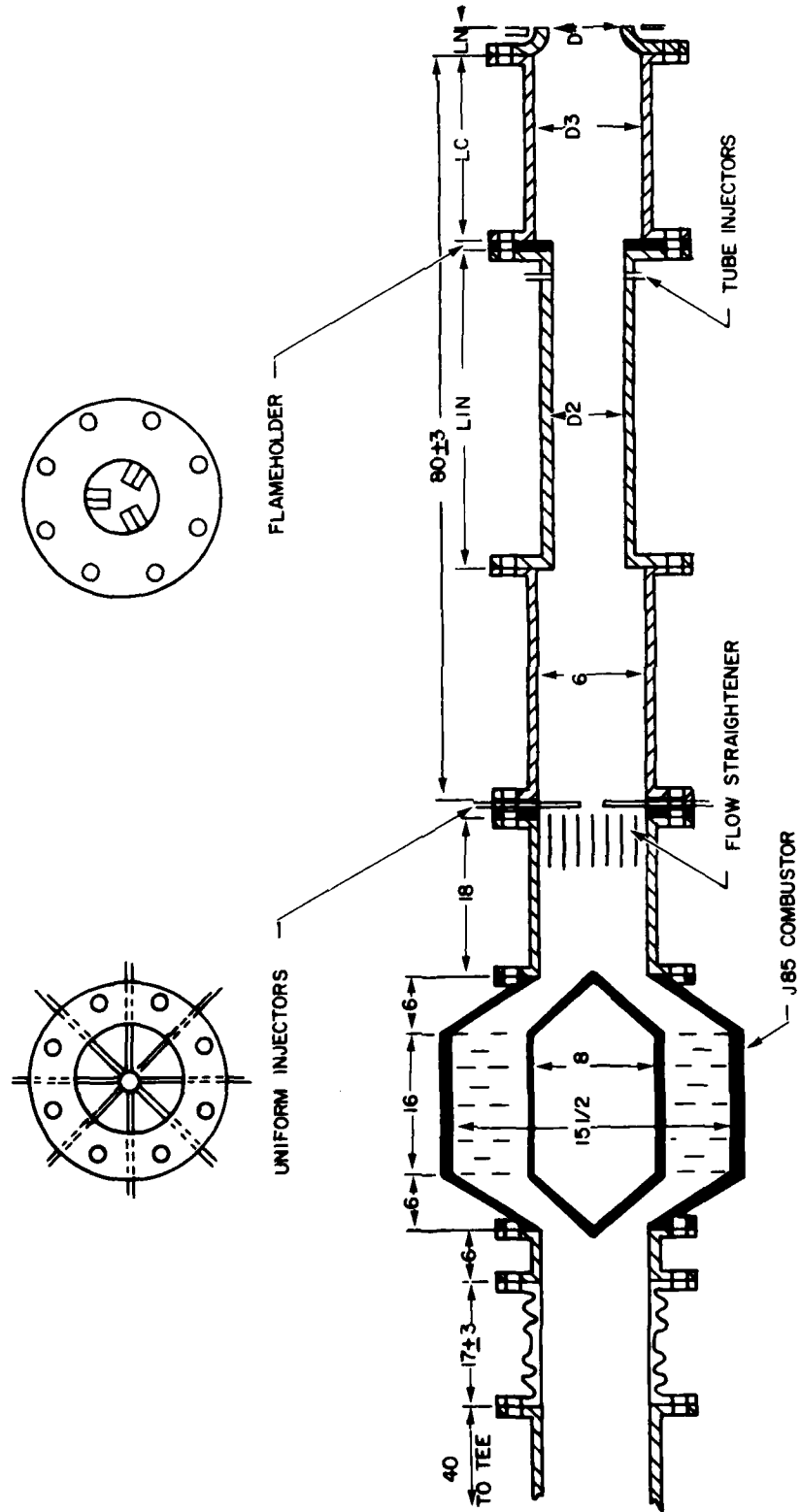


Figure 1. Thrust Stand Hardware

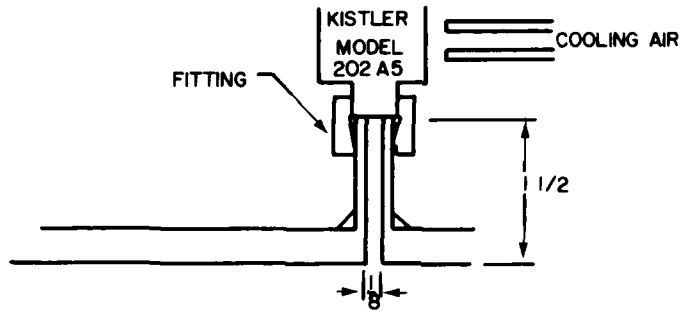


Figure 2. Kistler Installation

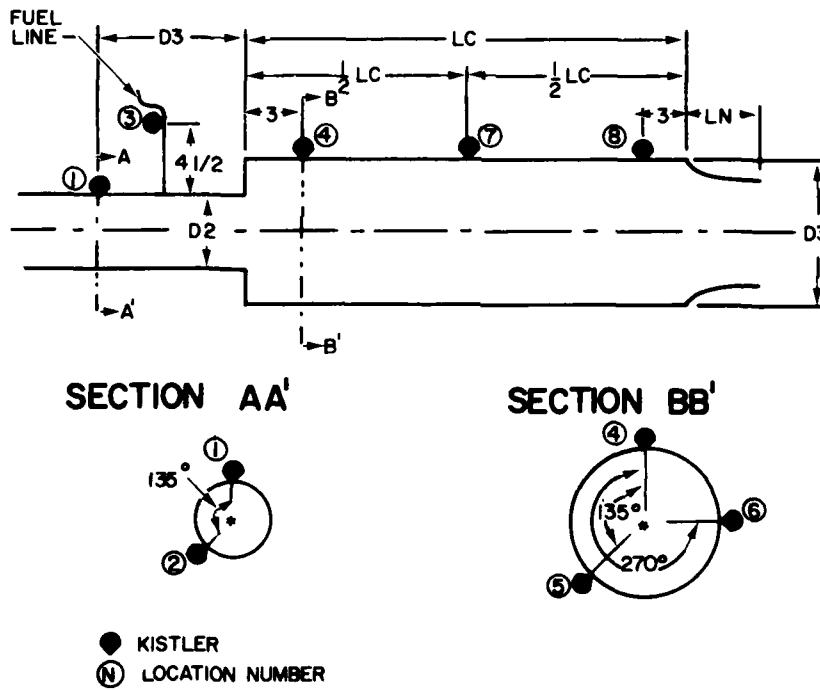


Figure 3. Pressure Transducer Locations

TABLE 2
FUEL INJECTOR AND INLET DIMENSIONS

all dimensions in inches

D3	D2	LIN	d_f	d_u
6.	3.	36.	.046	4.0
6.	3.5	36.	.052	4.0
6.	4.	36.	.059	4.25
8.	4.	24.	.052	4.5
8.	4.75	24.	.059	4.25
8.	5.375	24.	.068	4.5
12.	6.	36.	.059	4.75
12.	7.	36.	.068	4.5
12.	8.	16. to 23.	.077	4.5

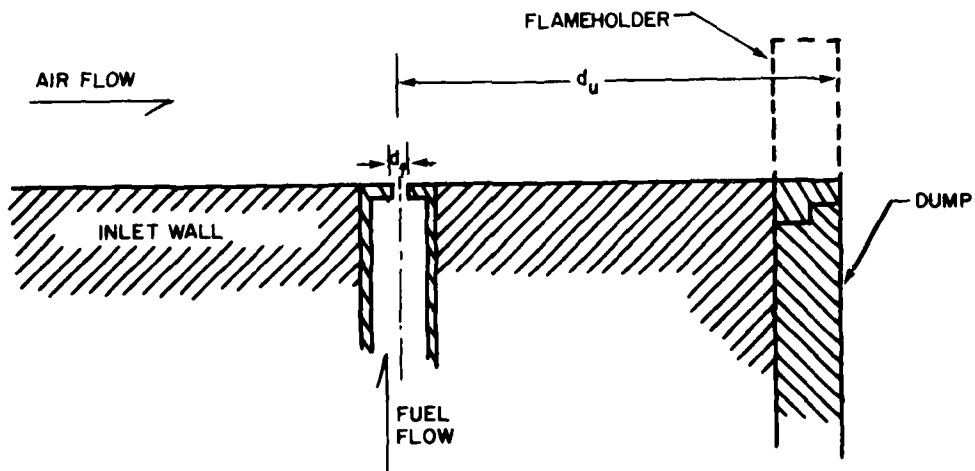
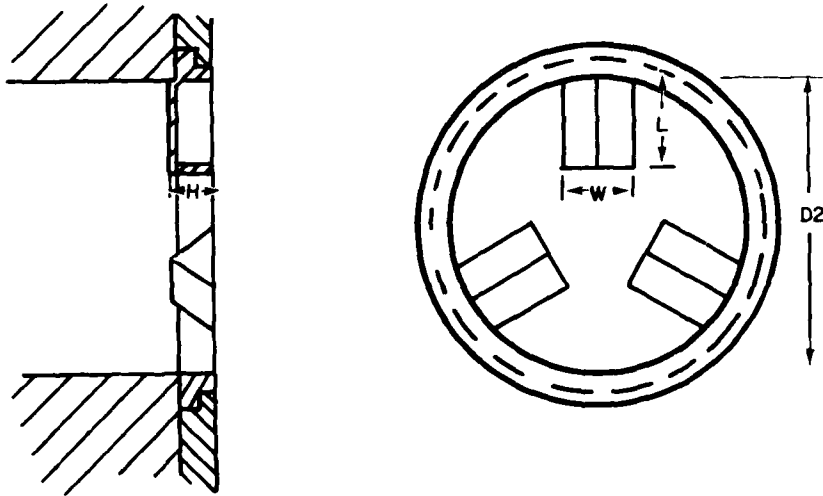


Figure 4. Orifice Fuel Injector

TABLE 3
FLAME HOLDER DIMENSIONS



<u>D3</u> (in)	<u>D2</u> (in)	<u>BLOCKAGE</u> (%)	<u>W</u> (in)	<u>L</u> (in)	<u>H</u> (in)
6.	3.	25	.64	.94	.27
6.	3.	35	.64	1.27	.27
6.	3.5	25	.75	1.07	.40
6.	3.5	35	.75	1.50	.40
6.	4.	25	.87	1.20	.49
6.	4.	35	.88	1.70	.50
8.	4.	25	.84	1.28	.44
8.	4.	35	.84	1.80	.45
8.	4.75	25	1.13	1.35	.70
8.	4.75	35	1.13	1.85	.70
8.	5.375	25	1.26	1.50	.81
8.	5.375	35	1.26	2.13	.83
12.	6.	25	1.26	1.90	.80
12.	6.	35	1.27	2.65	.90
12.	7.	25	1.64	2.00	1.10
12.	7.	35	1.65	2.80	1.15
12.	8.	25	1.75	2.45	1.24
12.	8.	35	1.75	3.28	1.24

SECTION IV

OSCILLOGRAPHS AND PERFORMANCE DATA

This section contains graphic combustion instability data as it appears on the Nicolet 660A along with the steady state performance data for eight files. The data were taken from eight files with an eight inch diameter combustor, 24 inches long, with a 4.75 inch diameter inlet and includes files with no flameholder and the .25Y flameholder, uniform and .059 orifice wall fuel injectors, and variations from the baseline of 750°R inlet air temperature and nozzle area ratio of 40%.

The performance data for each file is presented in two sets. One set contains the raw data and the other set contains the reduced data.

The instability data is presented in two oscillographs for each record. The unsteady pressure, as a function of time, is presented in one oscillograph with the instant spectrum (Fourier Transform or RMS Spectrum) in the other oscillograph. The scale on the oscillographs is in PSI and RMS-PSI, respectively.

A description of RMS pressure can be found in the Appendix and a description of the terms used in this section precedes the data.

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Part I

1. TERMS IN REDUCED DATA LISTINGS

WD6 - Air flow thru 6" line, lb/sec
TT5I - Ideal total temp. of ramjet, °R
WDØ2 - Oxygen makeup for vitiating heater J-85, lb/sec
WD2 - Backside heater flow, N/A

WA3 - Air flow thru 3" line to thrust stand, lb/sec
TT5-F - Ramjet total temperature computed from thrust, °R
WDFJ85 - C₂H₄ flow to J-85, lb/sec
QDØTT - Heat loss to water cooled nozzle and combustor, BTU/sec

WF - JP-4 fuel flow to ramjet, lb/sec
TT5-P5 - Ramjet total temperature computer from combustor wall
press, °R
J85F/A - f/a of vitiator
EFFJ85 - combustion efficiency of J-85

F/A - Ramjet fuel-air
ETAC-F - Ramjet Combustion efficiency from thrust
ETAC-J85 - corrected for J-85 inefficiency
ETACC-J85 - corrected for J-85 and water cooling

TTO-R - Thermocouple measurement of J-85 temp., °R
TMAX - computed ideal J-85 temp., °R
ETAC-P5 - Ramjet combustion efficiency computed from comb. static
pressure
ETACC-P5 - corrected for J-85 and water cooling

P5 - Combustor static pressure, Psia
F6 - 10% of this number is subtracted from thrust
EQUIV RATIO - f/a over f/a stoichiometric
MEX - Exit Mach number of nozzle

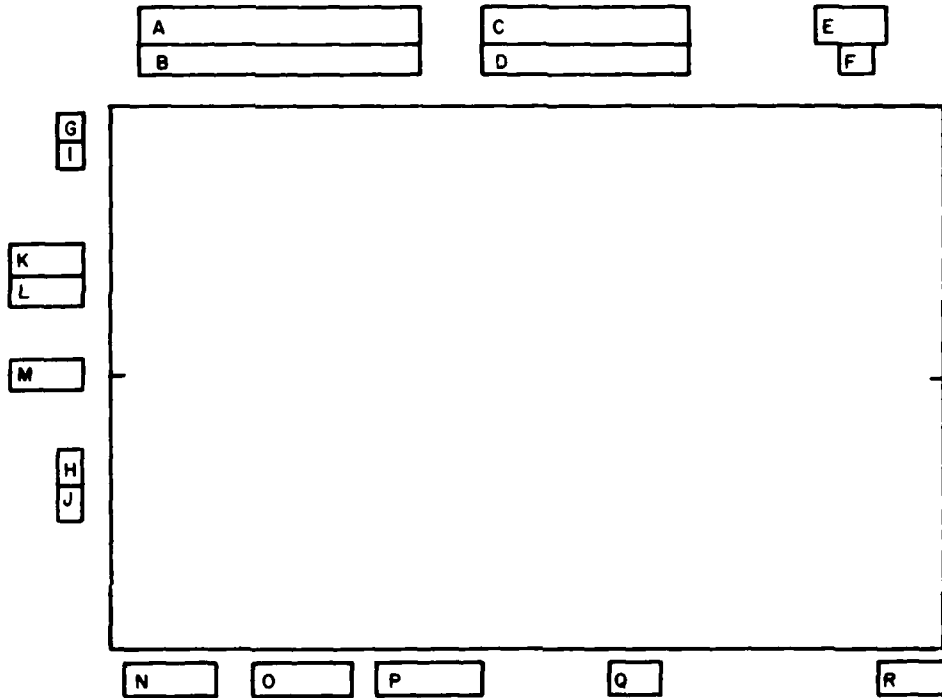
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Part I

- PT2C - Inlet total pressure calculated from P static inlet (Psi) and M2C
- M2C - Inlet Mach number from mass flow, total temp. and static pressure
- PEX - Exhauster pressure Psia
- E26 - A blow out parameter
- PT5C - Combustor total pressure computed from TT5-F, air flow, & A* with $C_D = 1$
- PT5/PT2 - PT5C/PT2C
- SAM/T1**.5 - $Sa^*/\sqrt{T_{T0}}$ & $Sa^* = \frac{\text{vacuum thrust}}{\text{Airflow}}$

2. TERMS IN RAW DATA LISTINGS

- DPEX - (Ambient-exhaust) pressure, psi
- DP3 - ΔP across sharp edged orifice (3" dia.), psi
- DP6 - ΔP across 6" orifice, psi
- F - Load cell reading, lbs
- PAMB - Ambient pressure, psia
- PCI - Chamber static pressure, psia
- PC2H4 - C_2H_4 pressure, psia
- PO2 - O_2 pressure, psia
- PSI - Inlet static pressure upstream of fuel injector, psia
- PS6 - A static pressure used to compute F6, psia
- P3 - Pressure upstream of 3" orifice plate, psia
- P6 - Pressure upstream of 6" orifice plate, psia
- Pnnmm - Chamber static pressure nnn° from the top of the chamber and mm inches from the dump, psia
- TC2H4 - C_2H_4 temp., °R
- TIME - Absolute time of day - seconds
- TI000, TI090, TI270 - J-85 outlet temp., °R at 0°, 90°, and 270°
- TNIN - Nozzle inlet water temp., °R
- TNOUT - Nozzle outlet water temp., °R
- T02 - O_2 temp., °R
- T3 - Air temp. at 3" orifice plate, °R
- T4 - Air temp. upstream of J-85
- T6 - Air temp. at 6" orifice plate, °R
- Tnnmm - Chamber thermocouple at nnn° and mm", °R
- WFH - Fuel flow to ramjet, lb/sec
- WH20 - Nozzle water flow, lb/sec
- WJ85 - C_2H_4 flow to J-85 - ACFM
- W02 - O_2 flow, Hz from vortex shedding flow meter
- <****> - Blank

3. DESCRIPTION OF OSCILLOGRAPHS



- A - ENTRY FIELD - FIRST 6 DIGITS - DATE DATA WAS RECORDED (MONTH/DAY/YEAR)
 - NEXT 2 DIGITS - TRANSDUCER LOCATION NUMBER
 - 1 = D3 BEFORE DUMP (D3 = 8")
 - 4 = 3" AFTER DUMP
 - NEXT 2 DIGITS - FILE OF DATA
 - EXPONENT - RECORD OF DATA
- B - BLANK
- C - ORDINATE TOP OF SCALE FOR TOP GRAPH - E = PSI
- D - ORDINATE TOP OF SCALE FOR BOTTOM GRAPH - E = PSI
- E - TYPE OF ORDINATE AXIS - VLN = VOLTS LINEAR
- F - SIGNAL TYPE - C = CONTINUOUS
- G - TOP GRAPH - A = CHANNEL A
- H - BOTTOM GRAPH - B = CHANNEL B

Figure 5. Location of Oscillograph Description Fields

AFWAL-TR-81-2047
Part I

I & J* - GRAPH COMPONENT - R = REAL

M = MAGNITUDE

K - TYPE OF AVERAGING - NOT USED

L - NUMBER OF AVERAGES - NOT USED

M - PLOT TITLE - IT = INSTANT TIME

IS = INSTANT SPECTRUM

N - INPUT MAXIMUM VOLTAGE FOR CH. A - T = TEST

A = AC

D = DC

O - INPUT MAXIMUM VOLTAGE FOR CH. B

P - TRIGGER LEVEL - FRACTION OF MAX. VOLTAGE FOR CH. SPECIFIED

Q - UNITS OF ABSCISSA

R - MAGNITUDE OF ABSCISSA

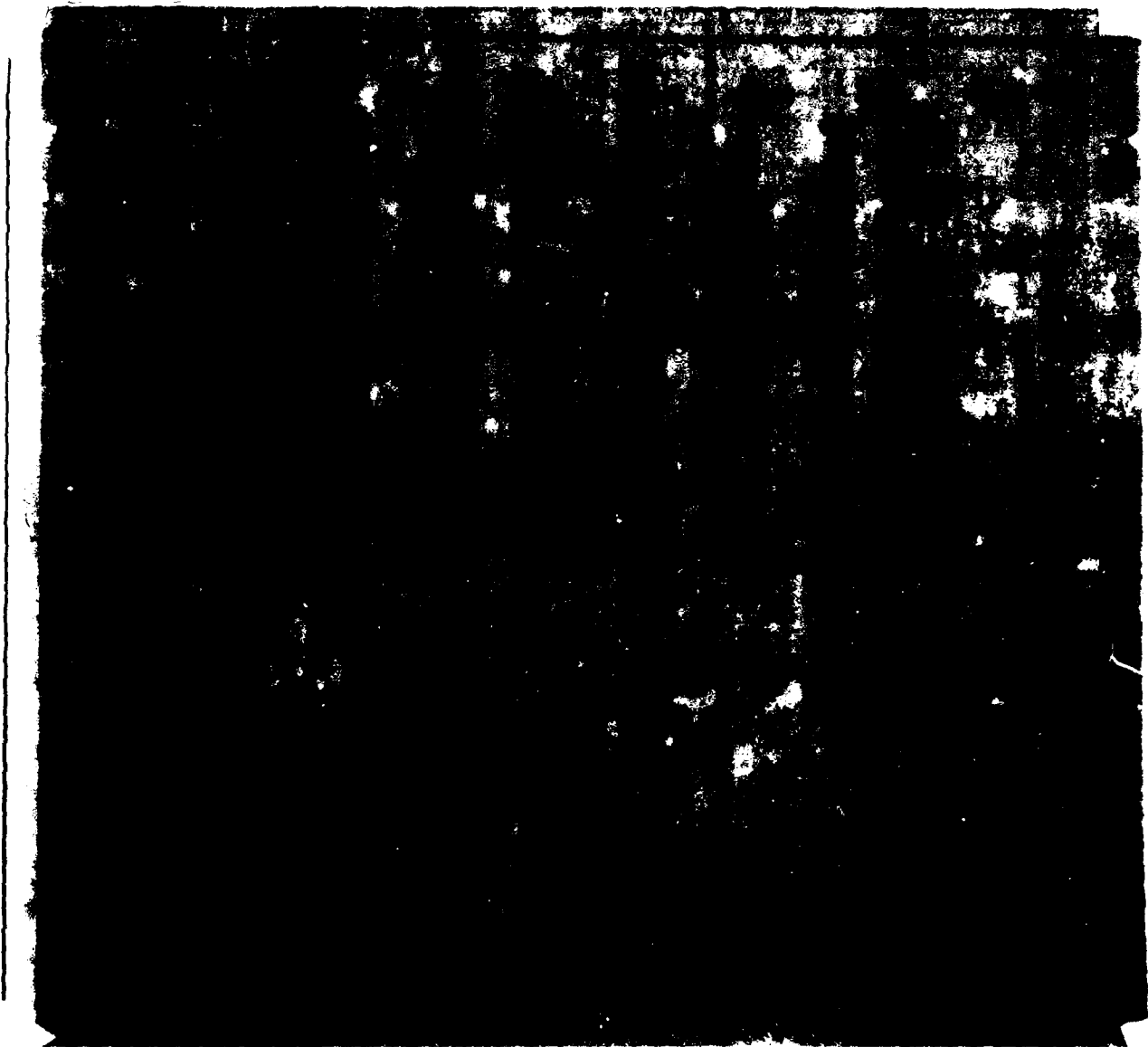
*NOTE - FOR 'M' ZERO IS AT BOTTOM OF EACH GRAPH AND FOR 'R' ZERO IS ON
THE MIDDLE OF THE ORDINATE OF EACH GRAPH

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Part I

4. DATA LISTINGS AND OSCILLOGRAPHS

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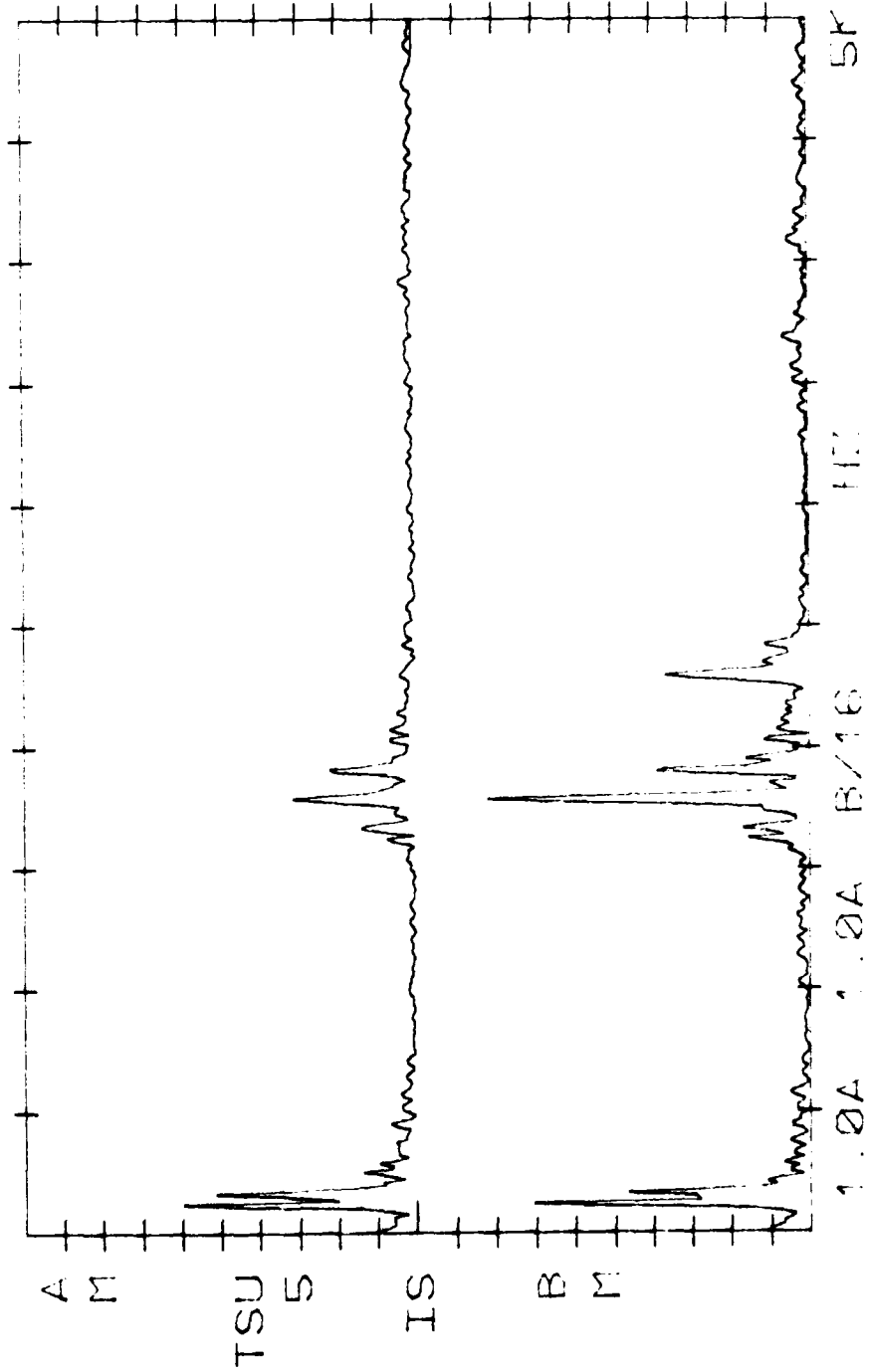
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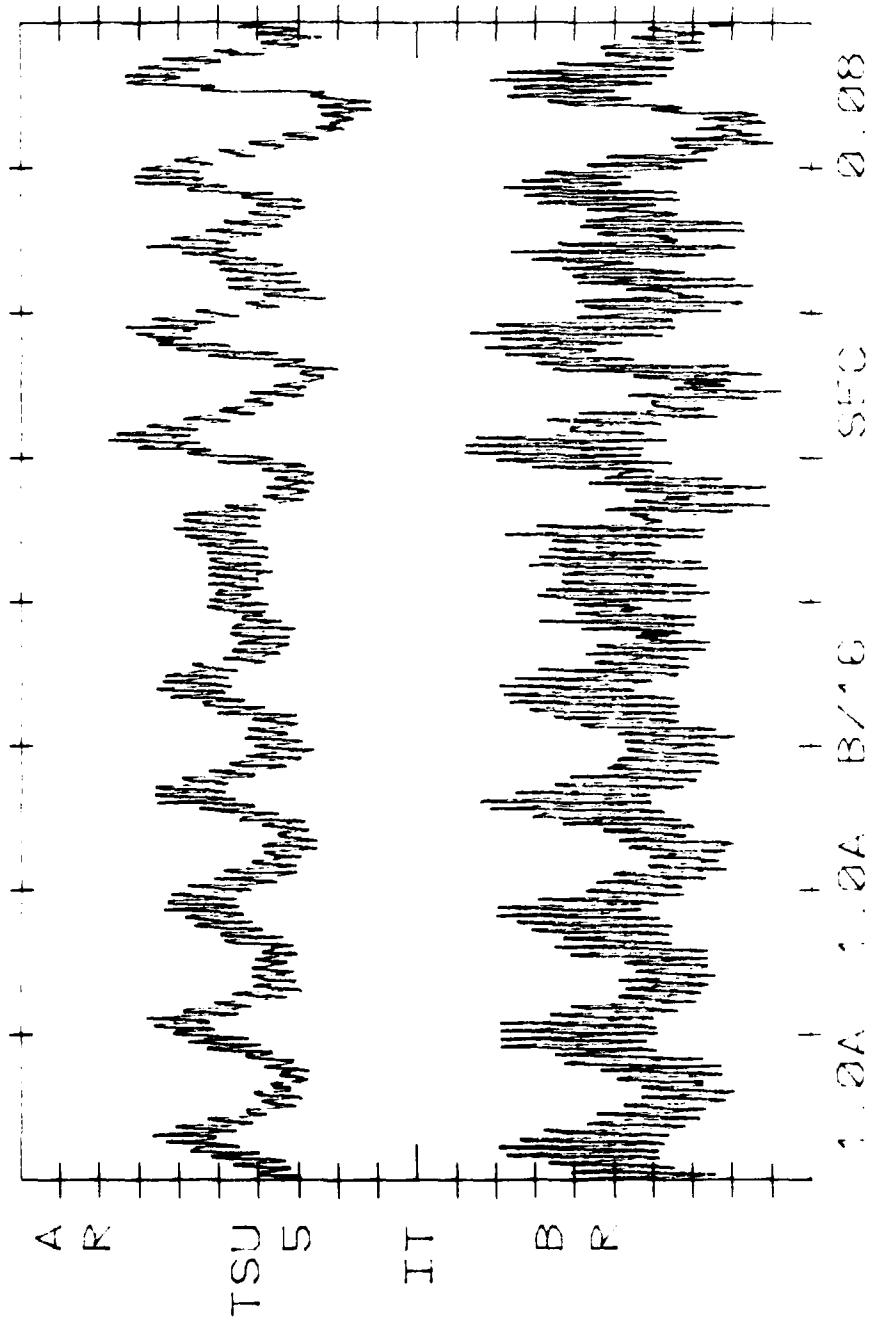
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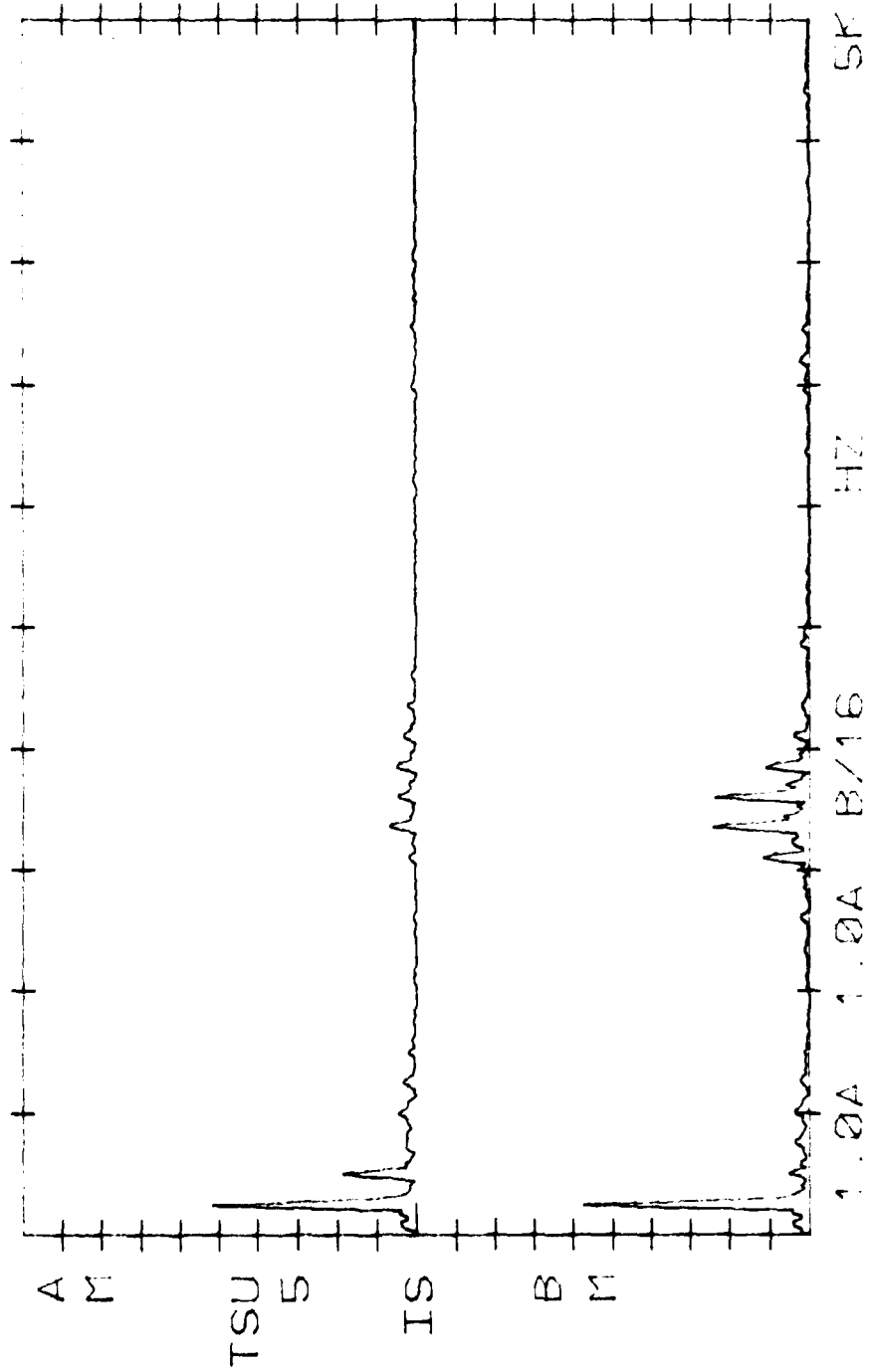
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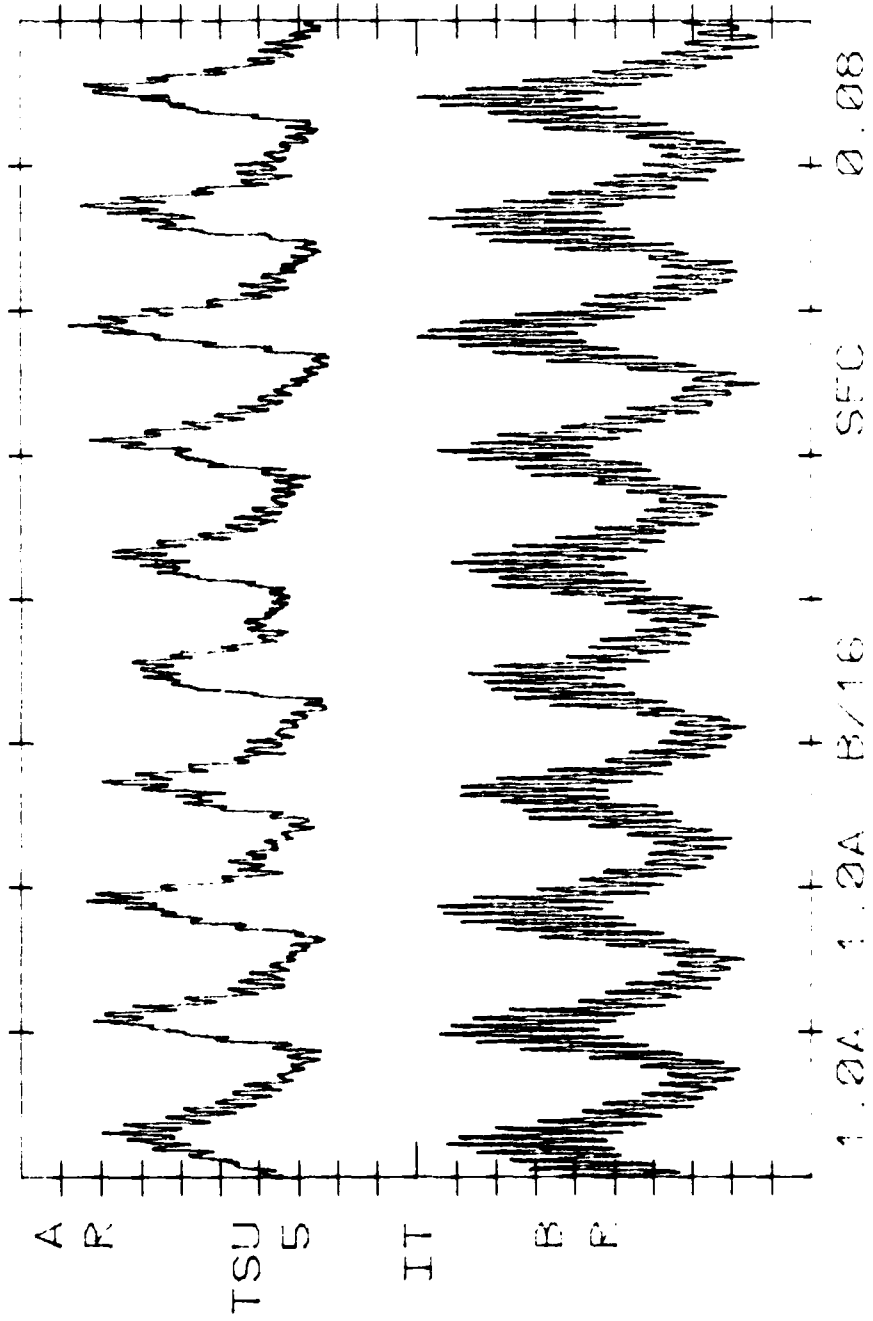
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10.0+00 E C



06201791442+03 5.00+00 E VLN
5.00+00 E C



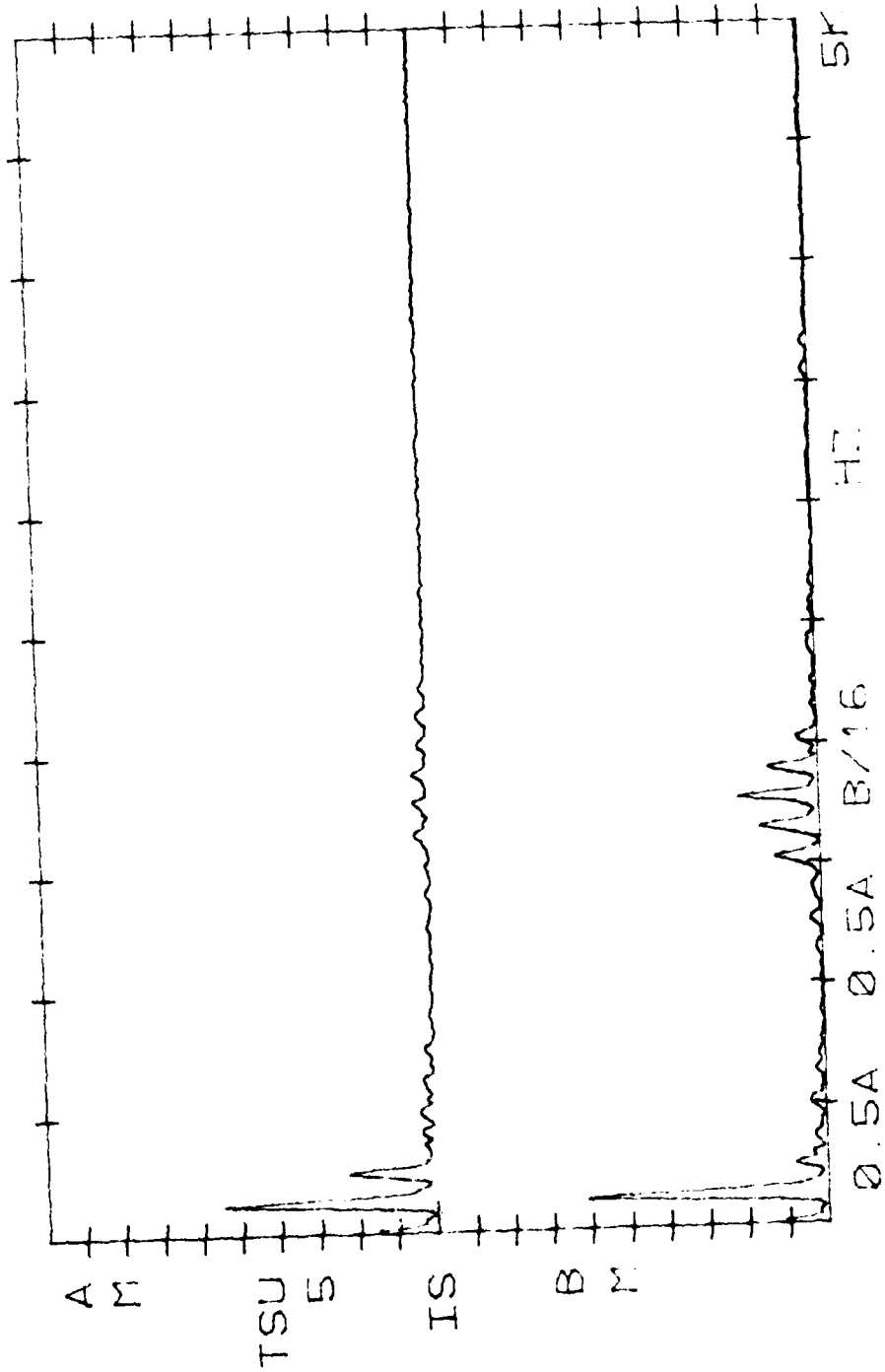
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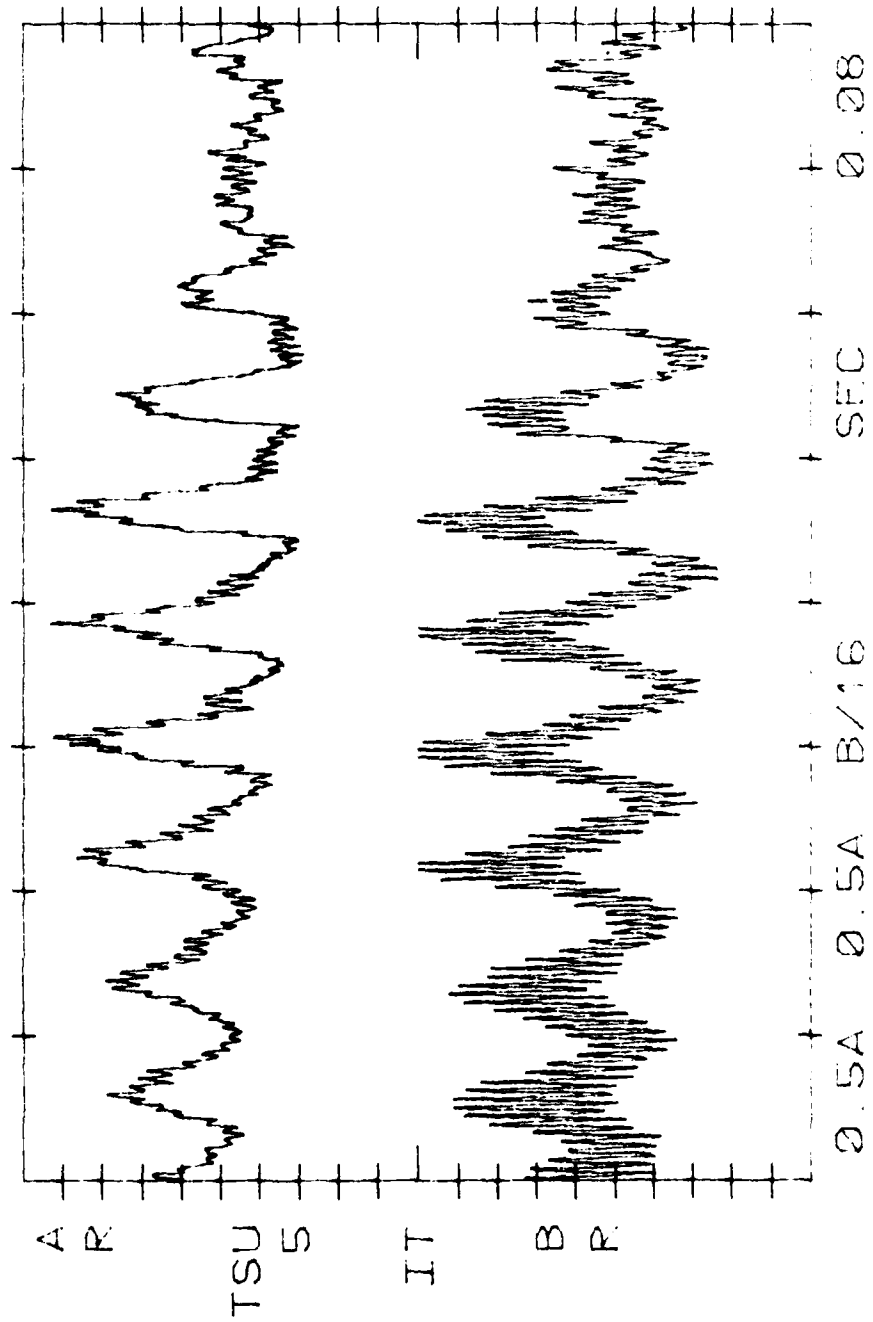
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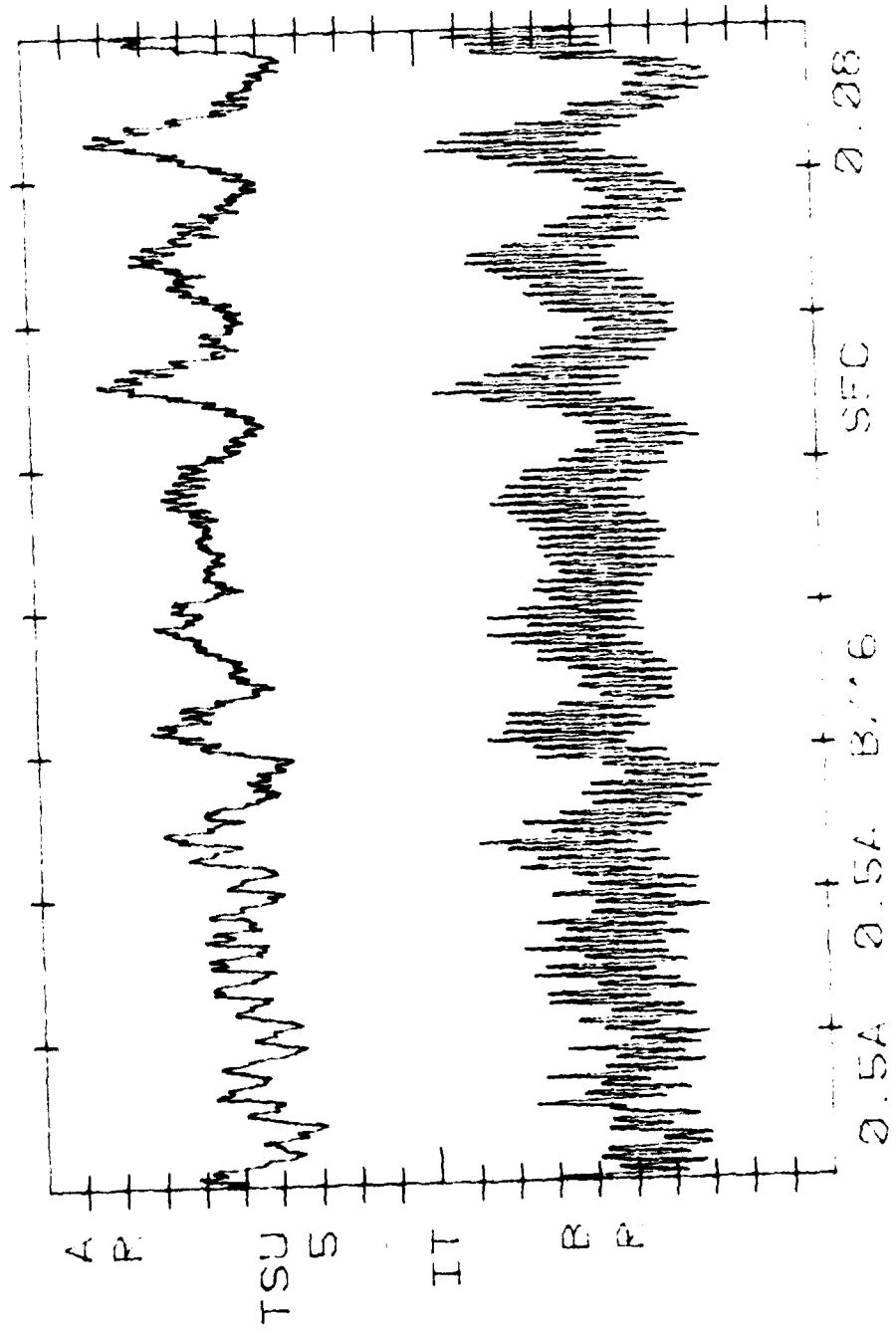
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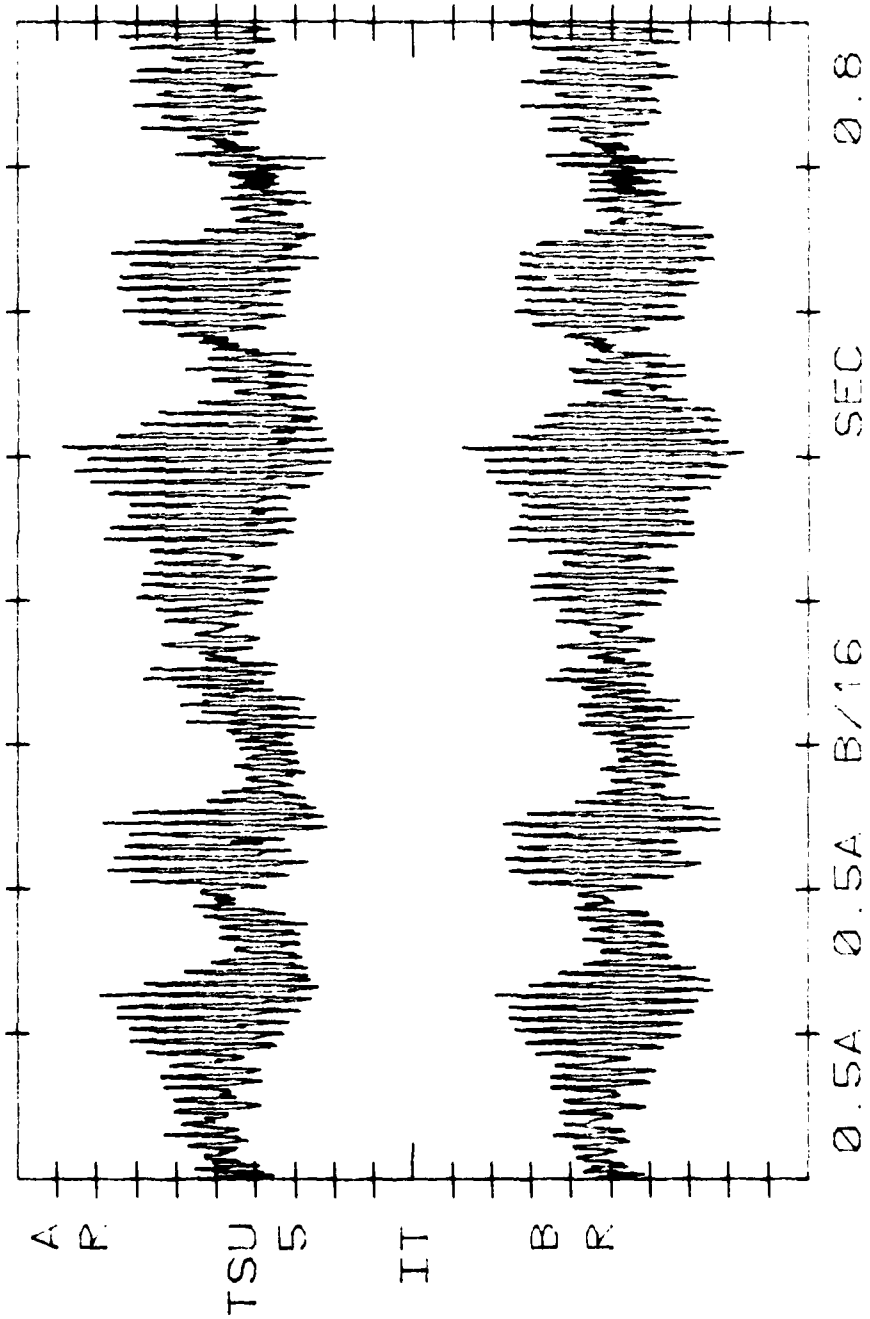
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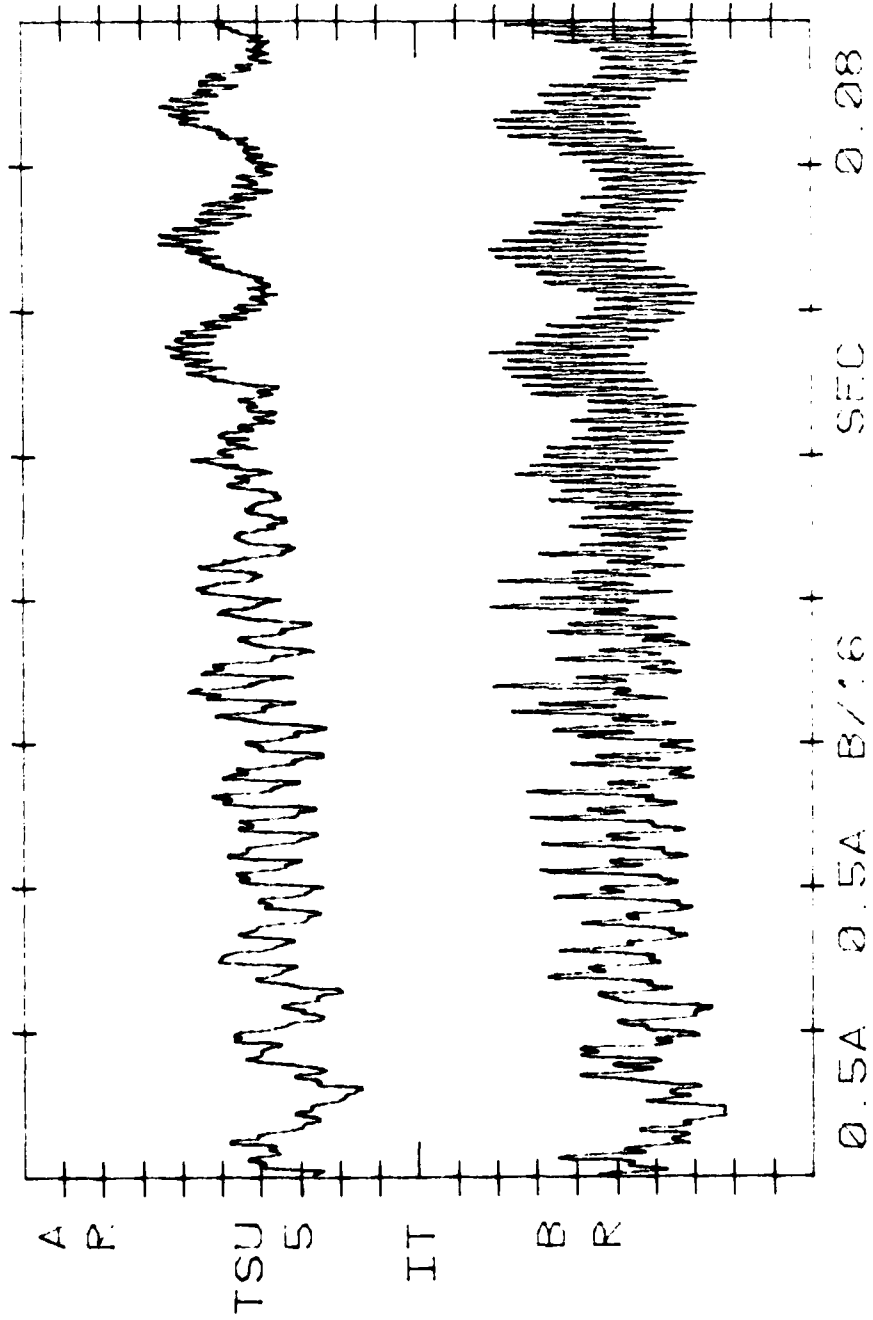
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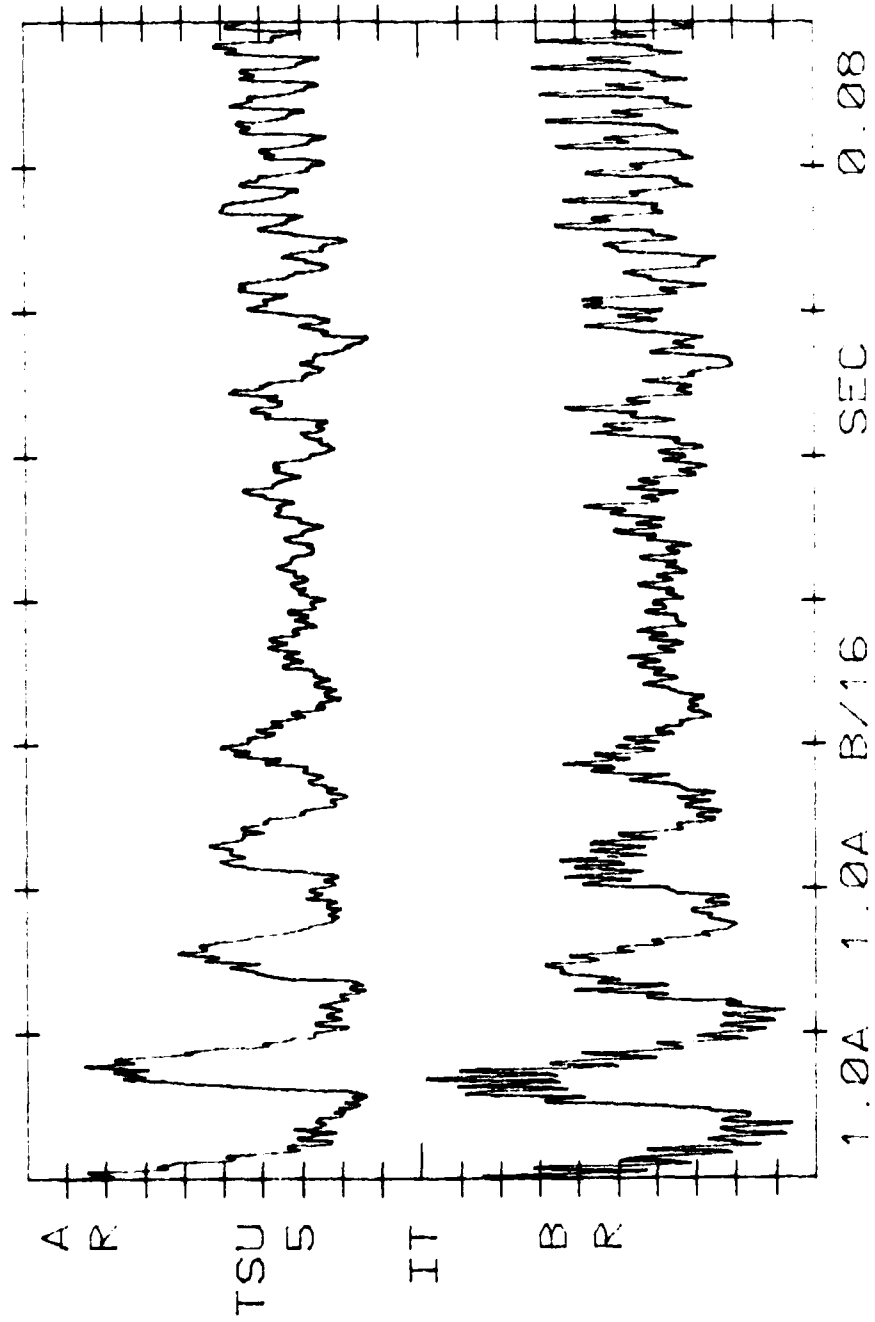
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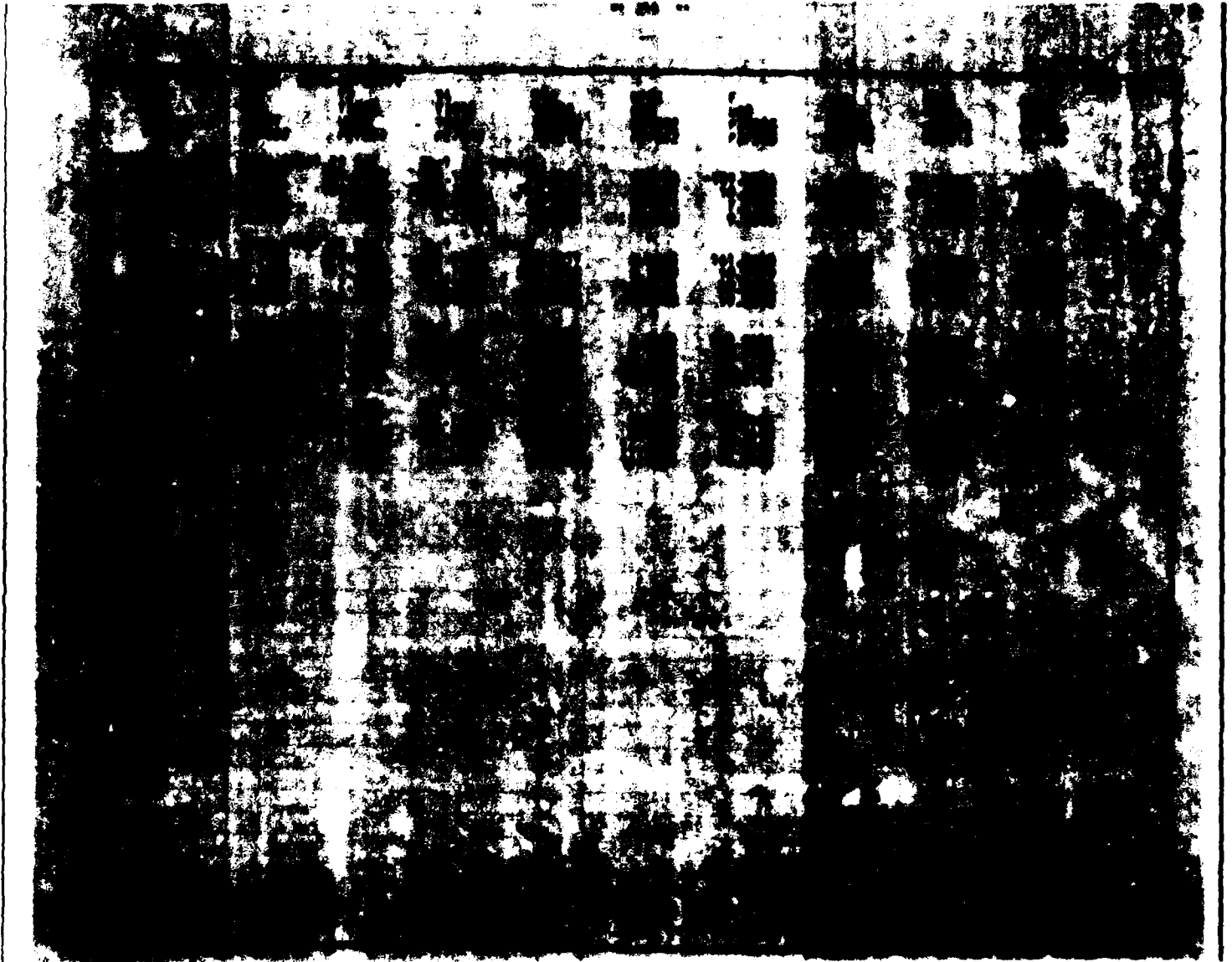
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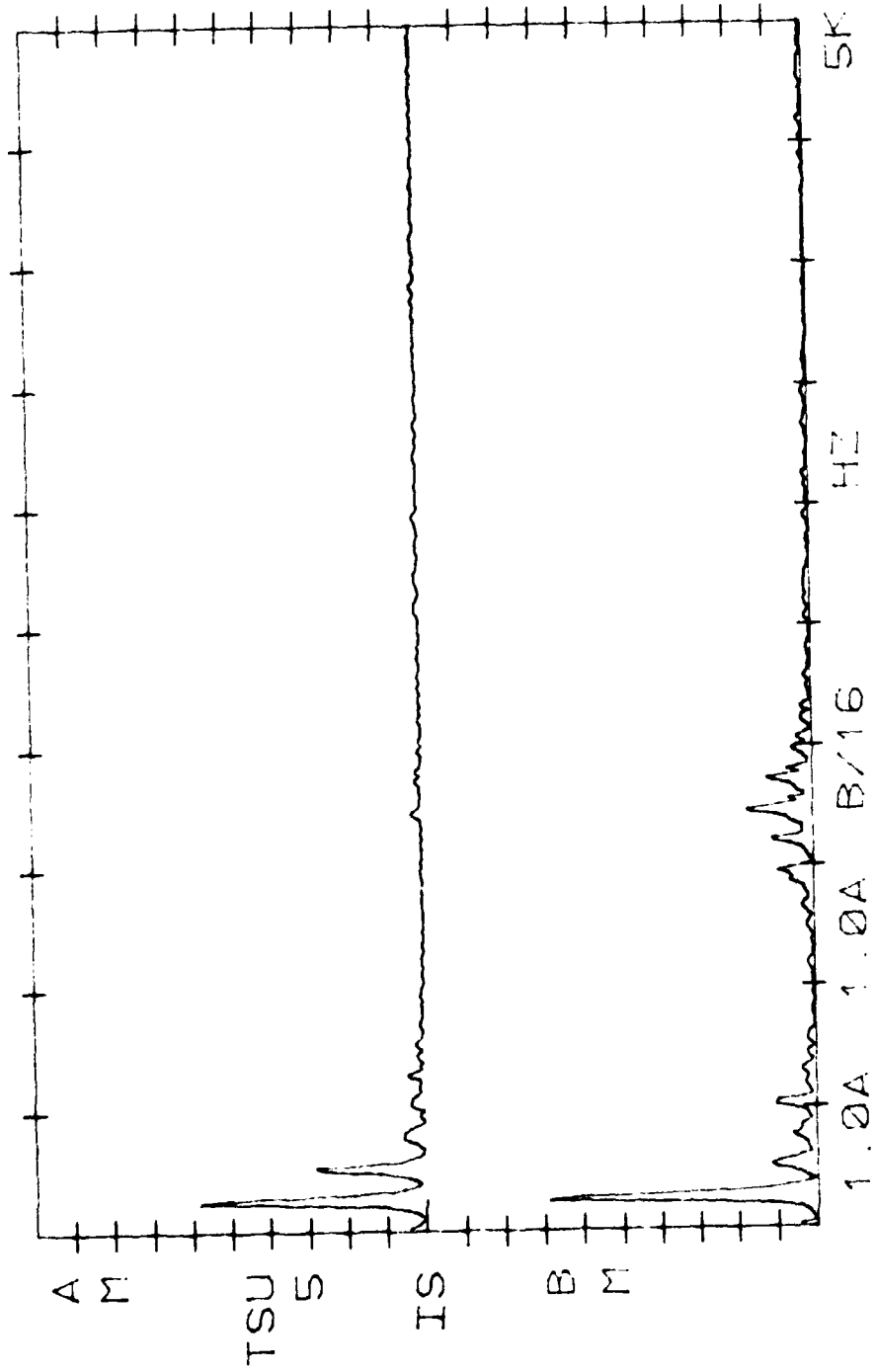
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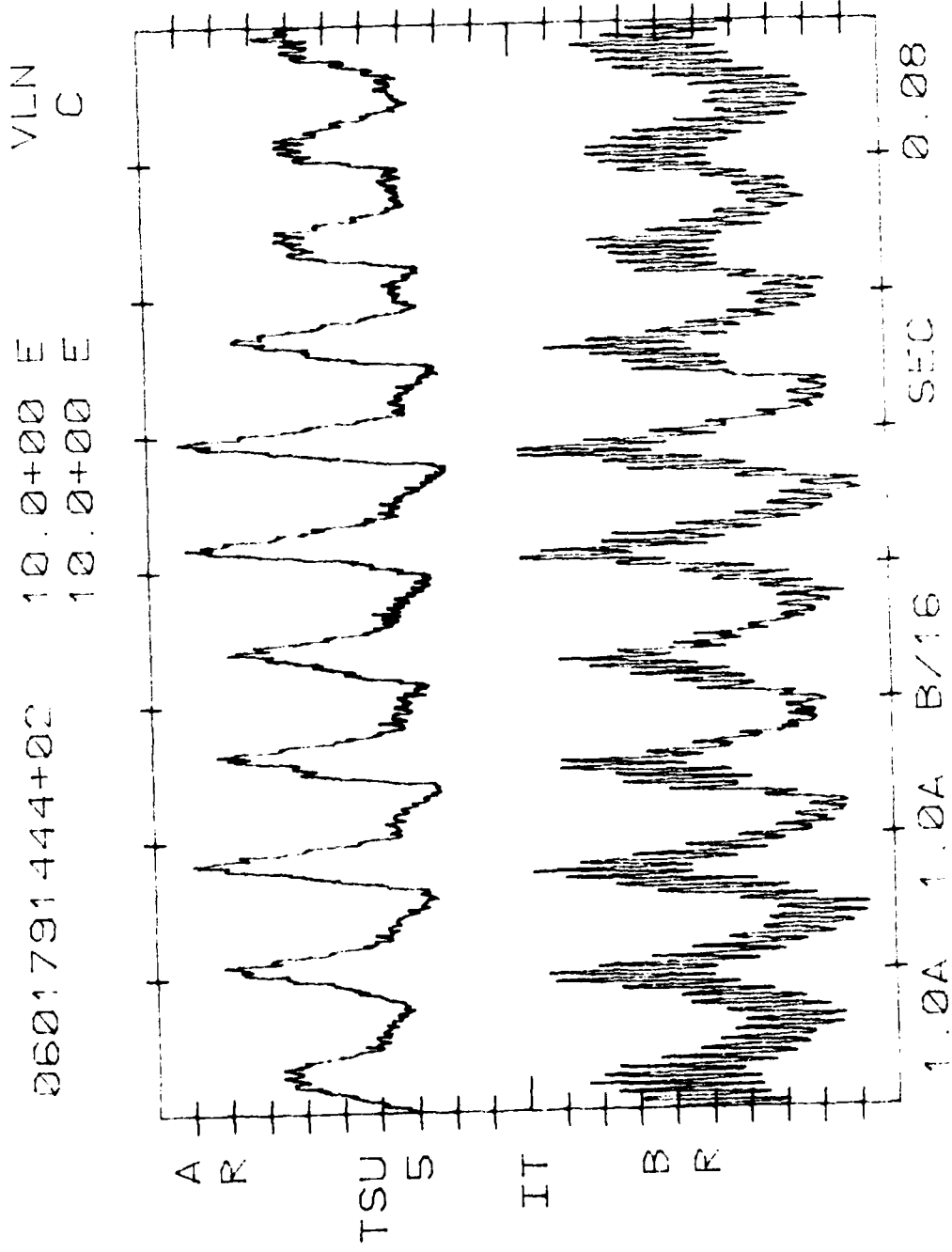
The central portion of the page is dominated by a large, dark, and highly textured rectangular area. This area is almost entirely black with significant white speckling and noise, which completely obscures any text or data that might have been present. The only legible text in this section is the header "REDUCED DATA LISTING" located at the top center of this dark region.

RAW DATA LISTING

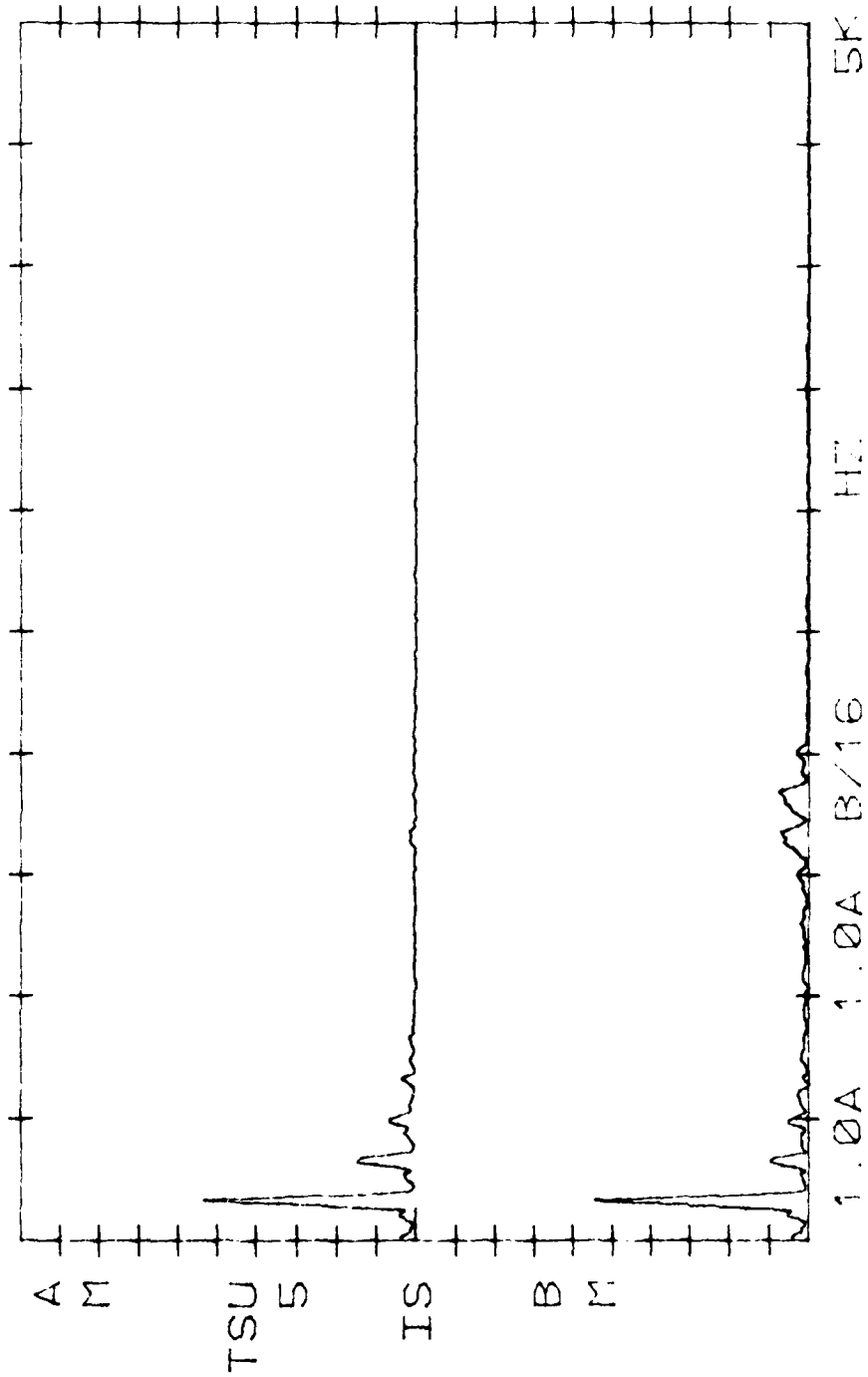
The data listing area is almost entirely obscured by a dense, dark, and noisy pattern, likely due to severe degradation or redaction of the original document. No individual data points or column headers are legible.

0601791444+02 5.00+00 E VLN
5.00+00 E C





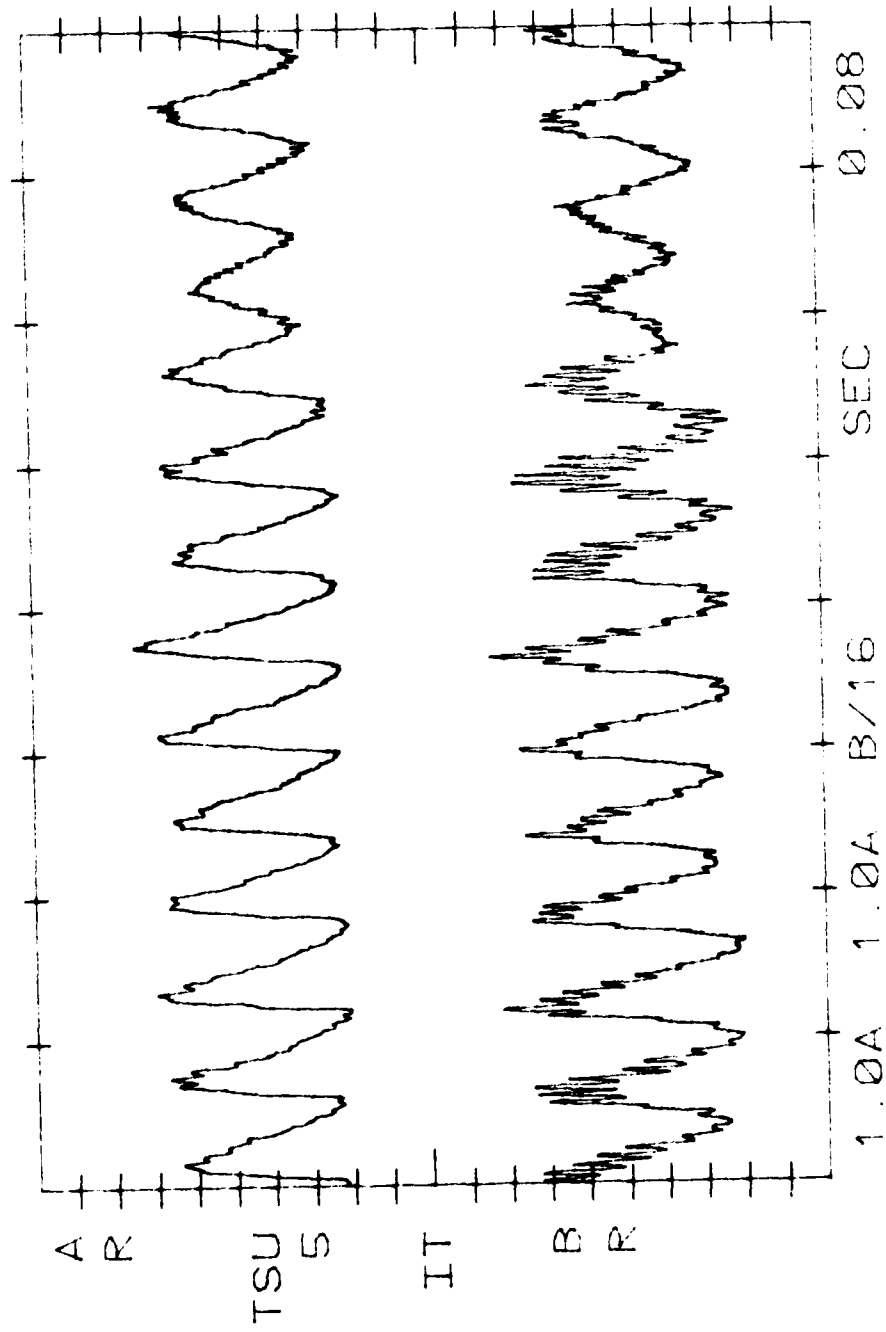
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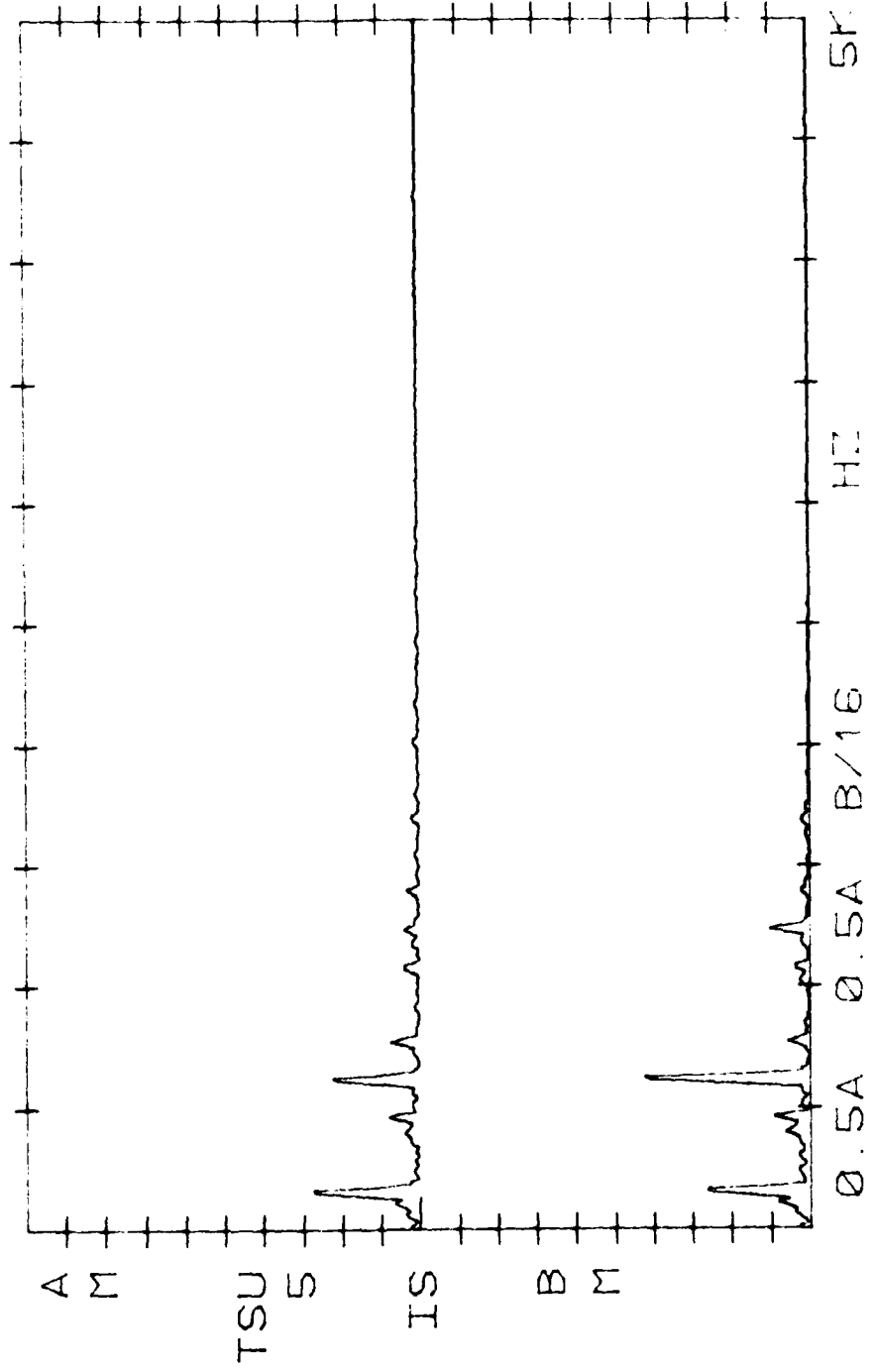
VLN
C

10.0+00 E
10.0+00 E

0601791444+03



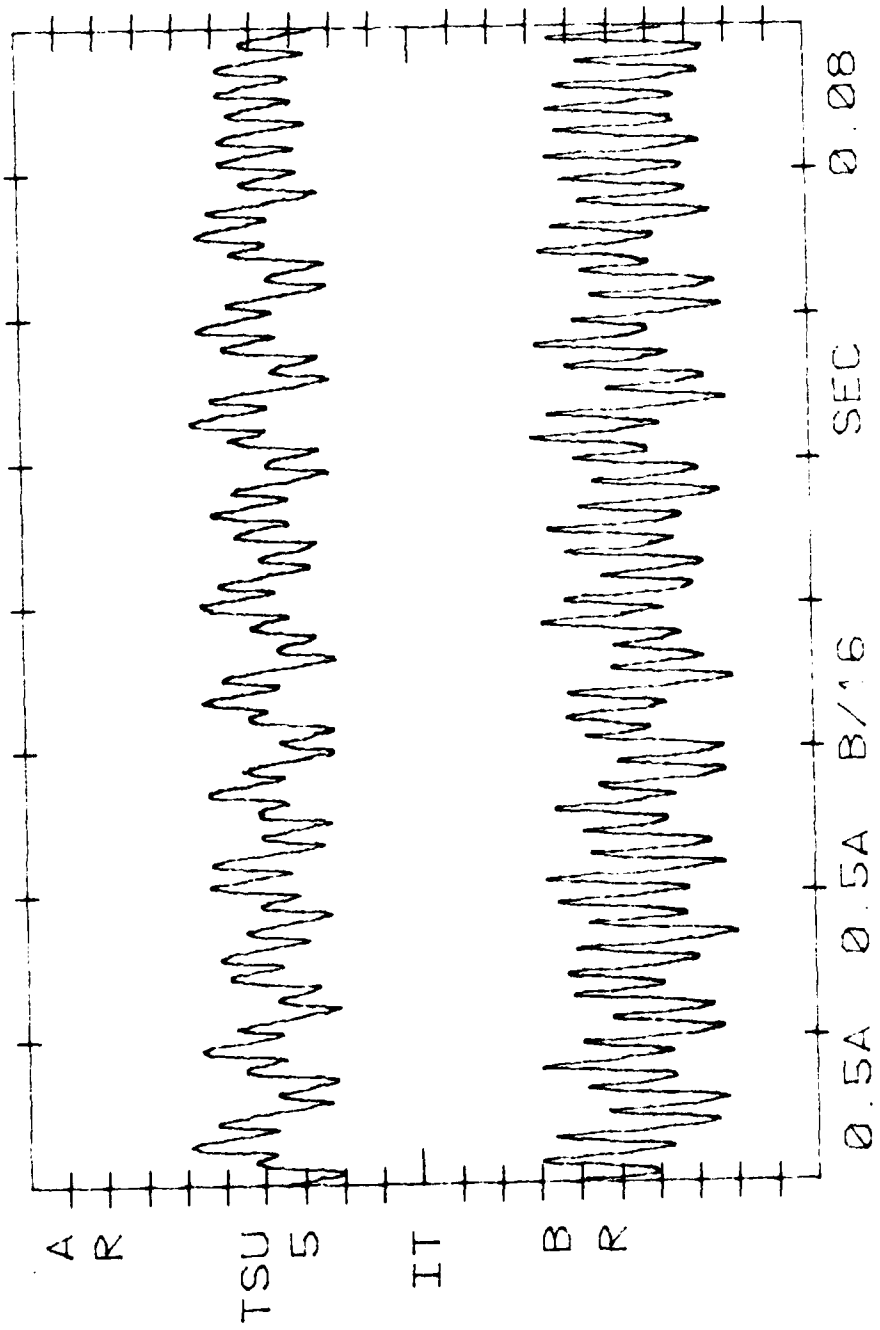
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2.00+00 E C
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VLN
C

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REDUCED DATA LISTING

.. J01 ..

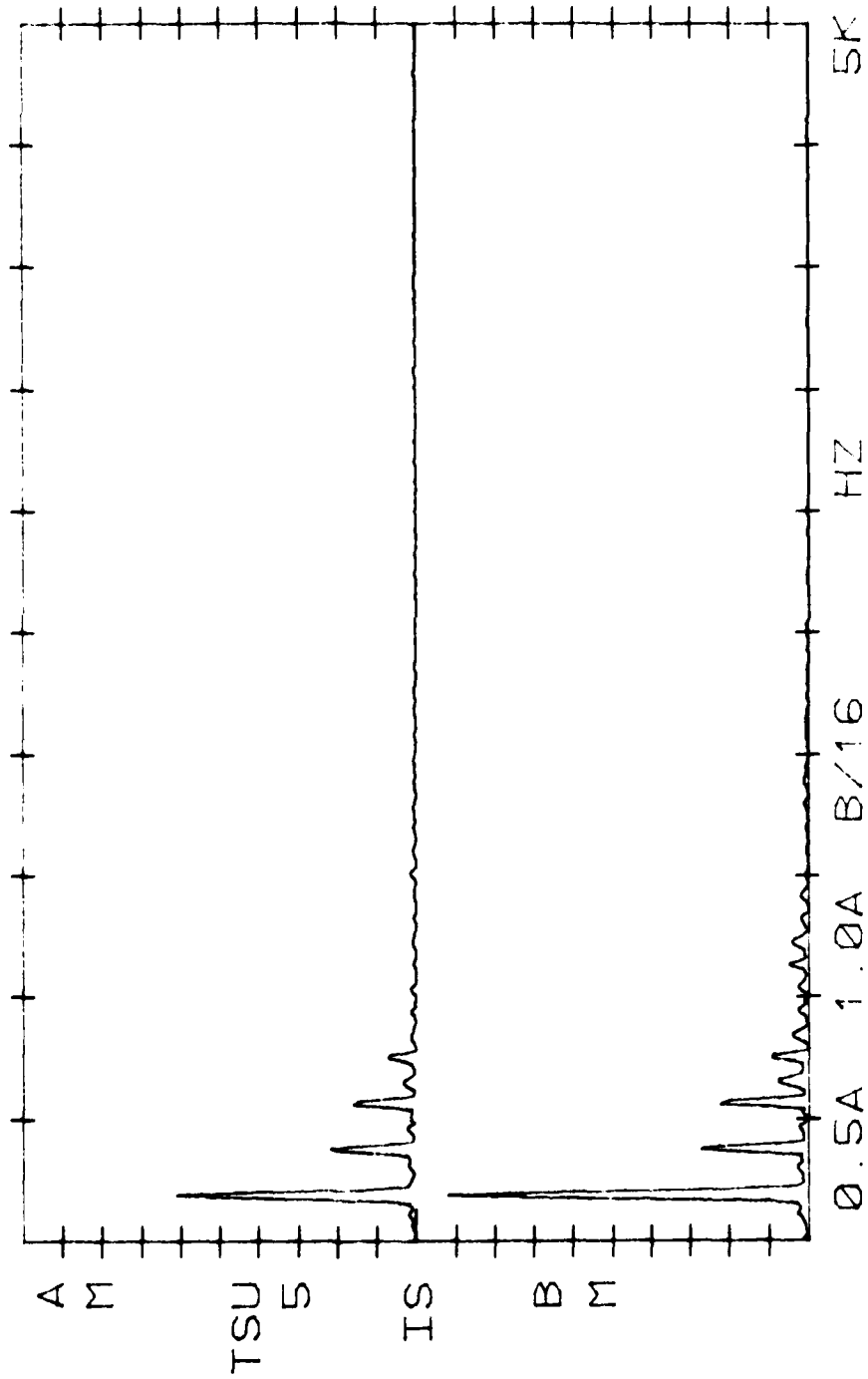
FILE- 6 TIME-10:52:26 DATE-06/12/79 PAGE 18

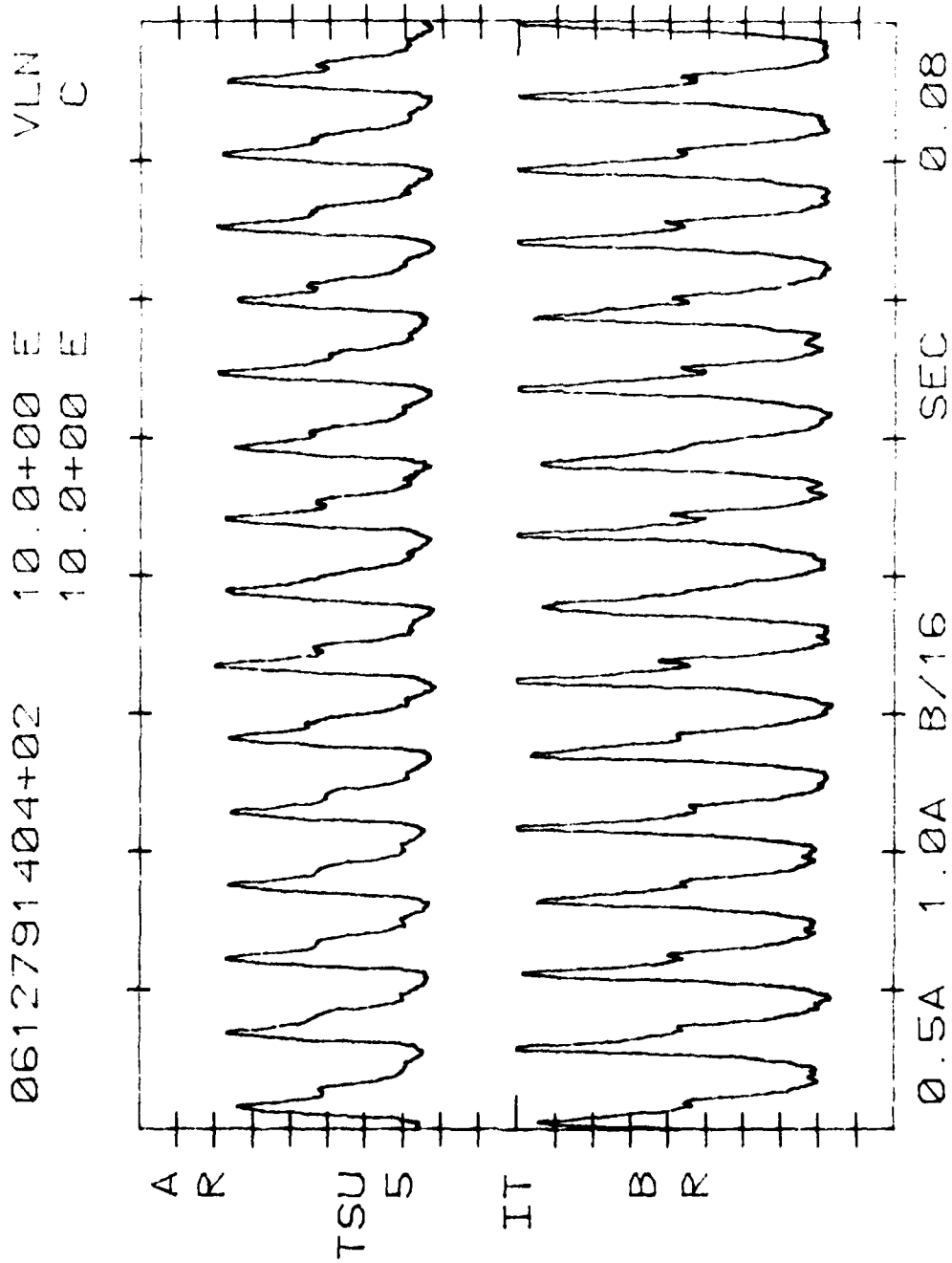
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TIME	T751	T75-F	T75-PS	ETAC-F	TMAX	F6	M2C	PT5/PT2
	WD02	WDFJ85	J85F/A	ETAC-J85	ETACC-PS	EQIV RATIO	PER	SAN/71**5
	WD2	WDPTT	EFFJ85	ETACC-J85	ETACC-PS	MEX	E26	
39240.74	0.0000	5.4896	0.0011	0.0000	754.9263	11.0433	22.1889	11.5511
	872.9246	766.0664	773.0518	0.0000	750.7224	35.8986	0.4887	0.2206
	0.0287	0.0114	0.0021	0.0000	0.0000	0.0000	4.9670	2.4050
	0.0000	-0.3236	1.0235	0.0000	0.0000	1.0000	4.7360	
39272.17	0.0000	5.5214	0.3525	0.0631	745.1802	25.8588	31.5374	26.2595
	4080.1333	3274.2002	3473.7861	0.7583	756.8667	28.8080	0.3161	0.8326
	0.0000	0.0118	0.0021	0.7584	0.8182	0.9329	3.3206	5.4083
	0.0000	4.7237	0.9368	0.7604	0.8203	1.0000	2.2125	
39282.77	0.0000	5.4897	0.3347	0.0589	754.4399	25.1103	30.7129	25.4772
	3941.1975	3142.3447	3362.3876	0.7503	760.2378	29.0264	0.3234	0.8188
	0.0000	0.0120	0.0022	0.7493	0.8128	0.8711	3.3913	5.2333
	0.0000	5.1388	0.9702	0.7539	0.8162	1.0000	2.3075	
39293.13	0.0000	5.4892	0.3044	0.0554	756.8584	24.3134	29.9968	24.7095
	3841.1744	3204.8233	3209.0781	0.7342	758.7397	29.3460	0.3334	0.8239
	0.0000	0.0118	0.0021	0.7339	0.7931	0.8200	3.3672	5.1119
	0.0000	4.4350	0.9899	0.7380	0.7969	1.0000	2.4119	

RAW DATA LISTING

.. FOR ..

061279:404+02 5.00+00 E VLN
 5.00+00 E C

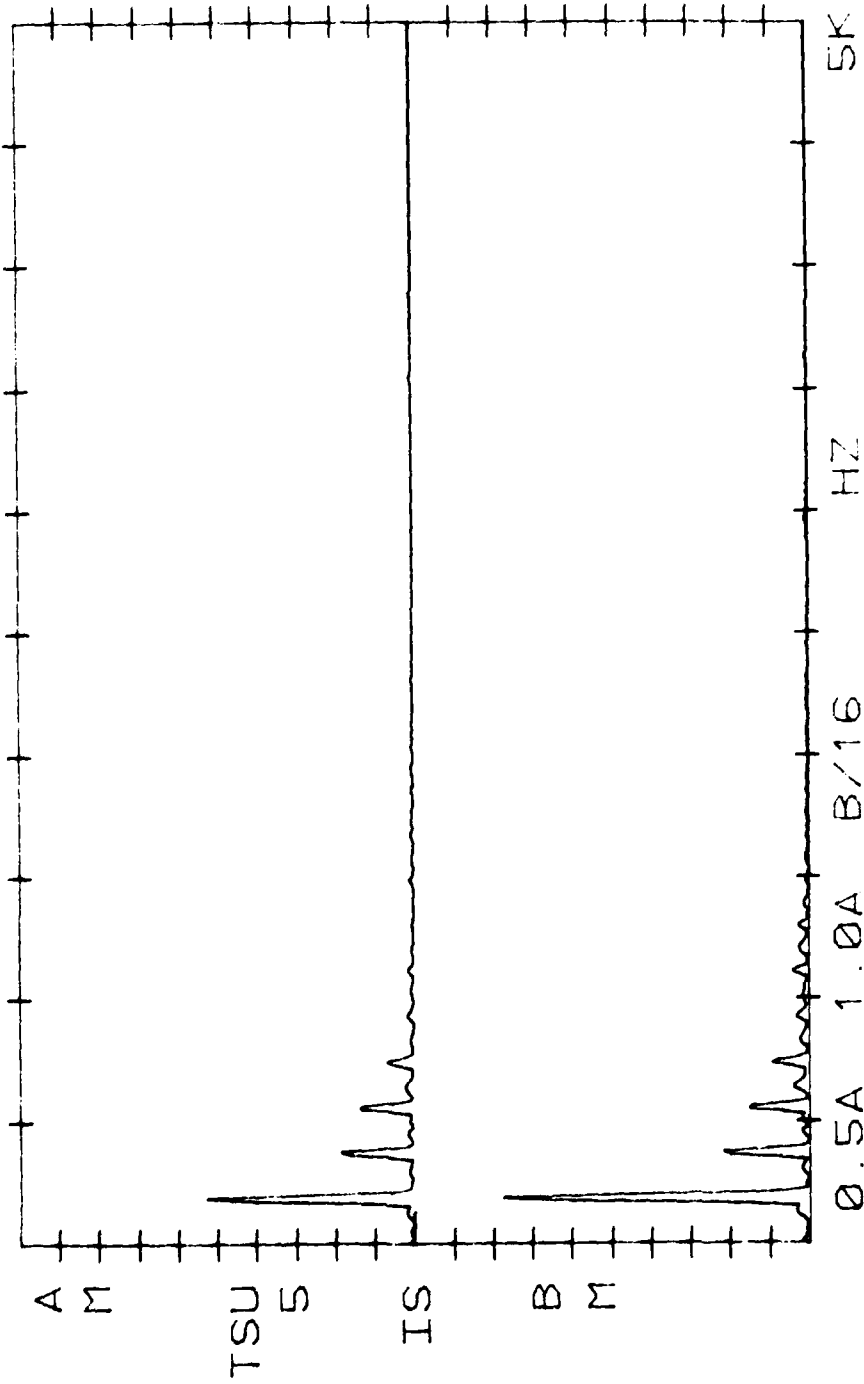




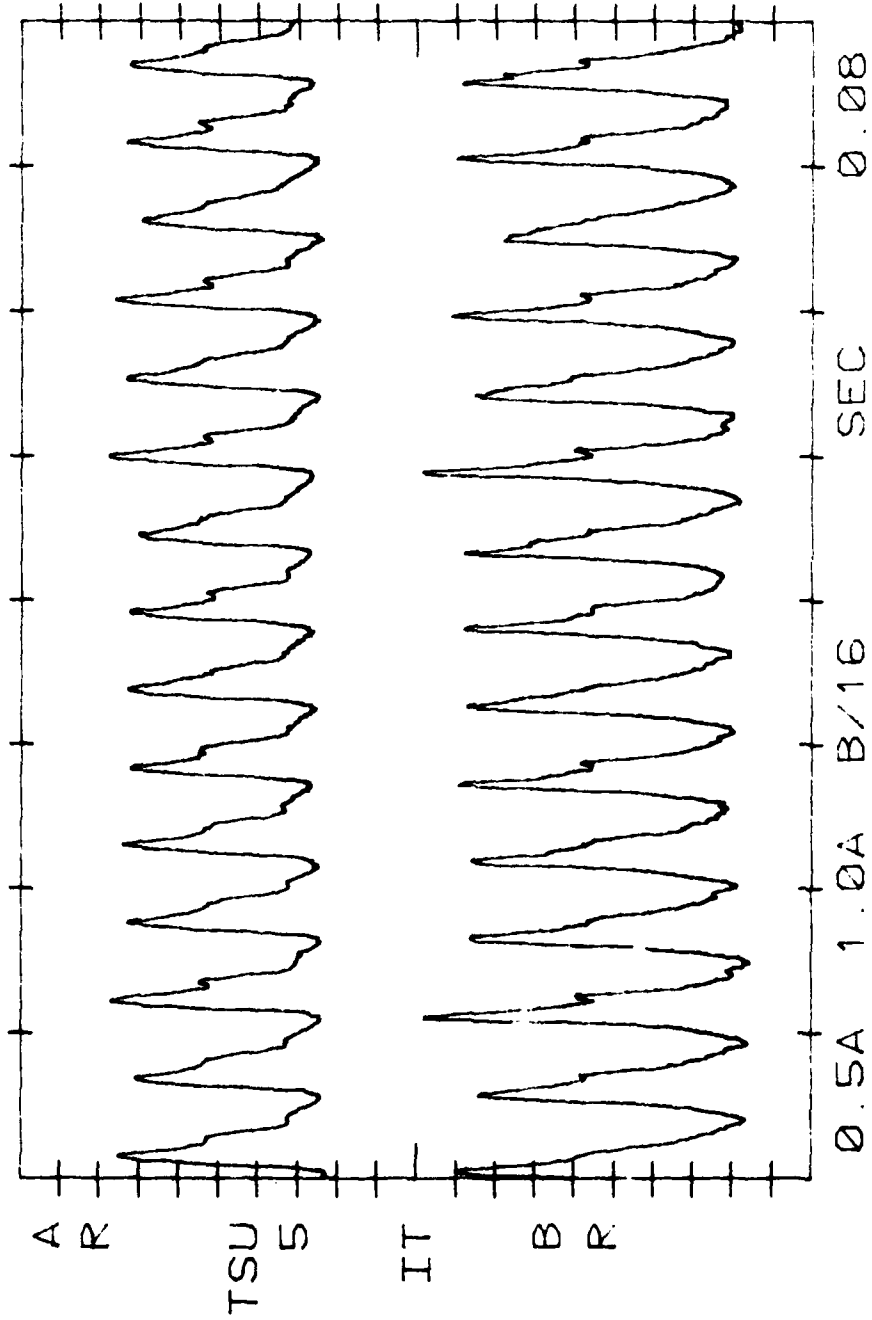
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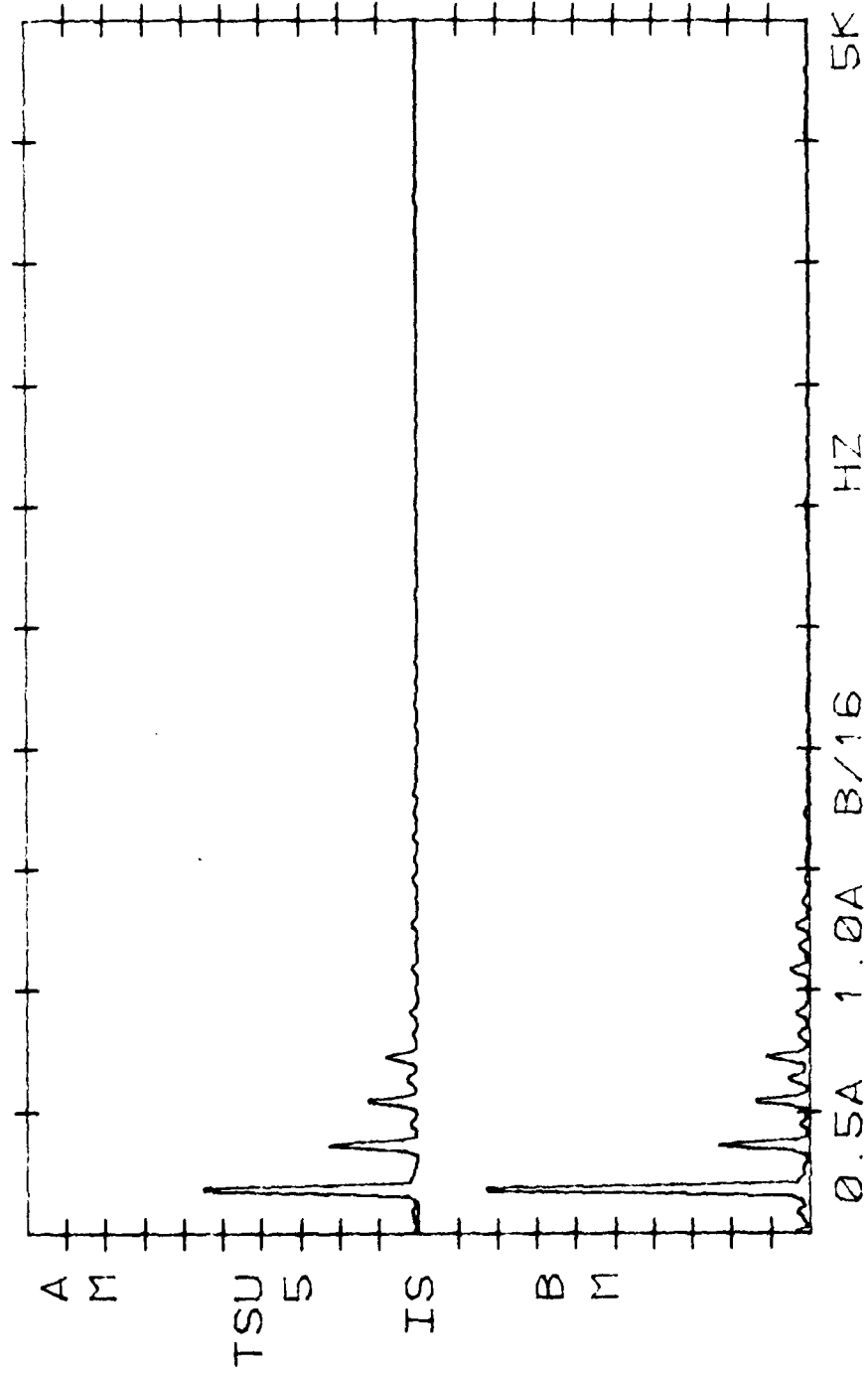
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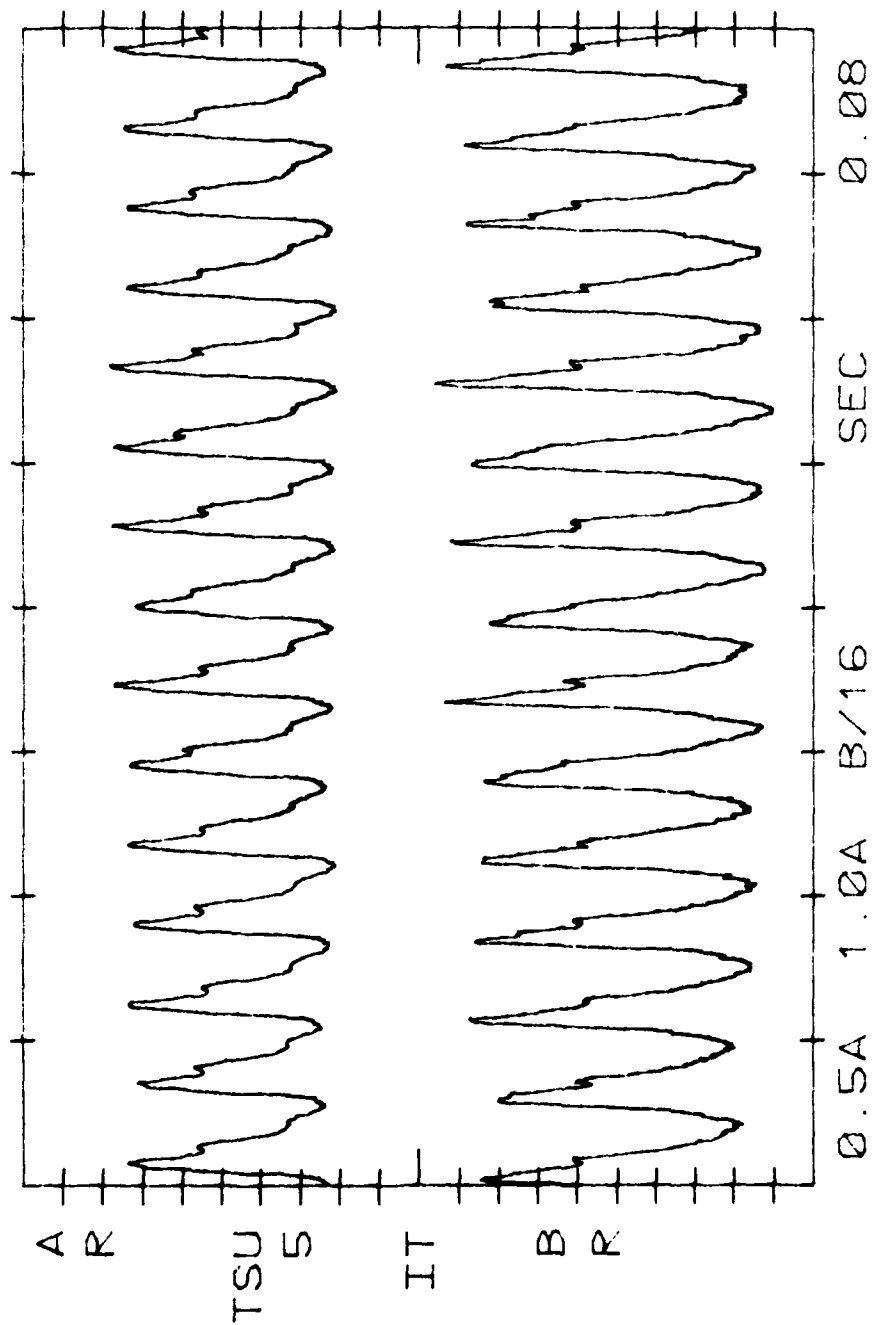
0612791404+03 10.0+00 E VLN
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0612791404+04 . 10.0+00 E VLN
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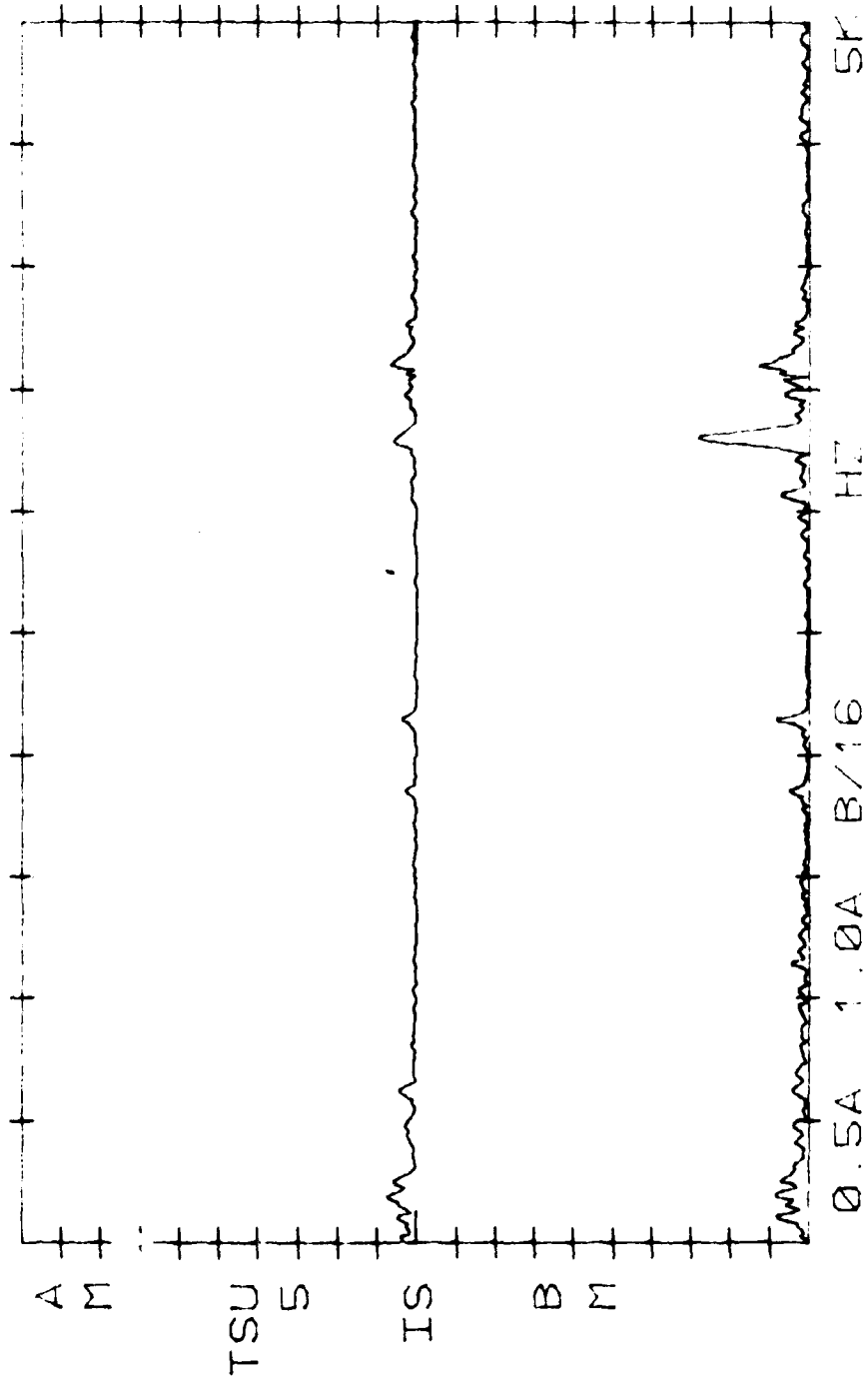


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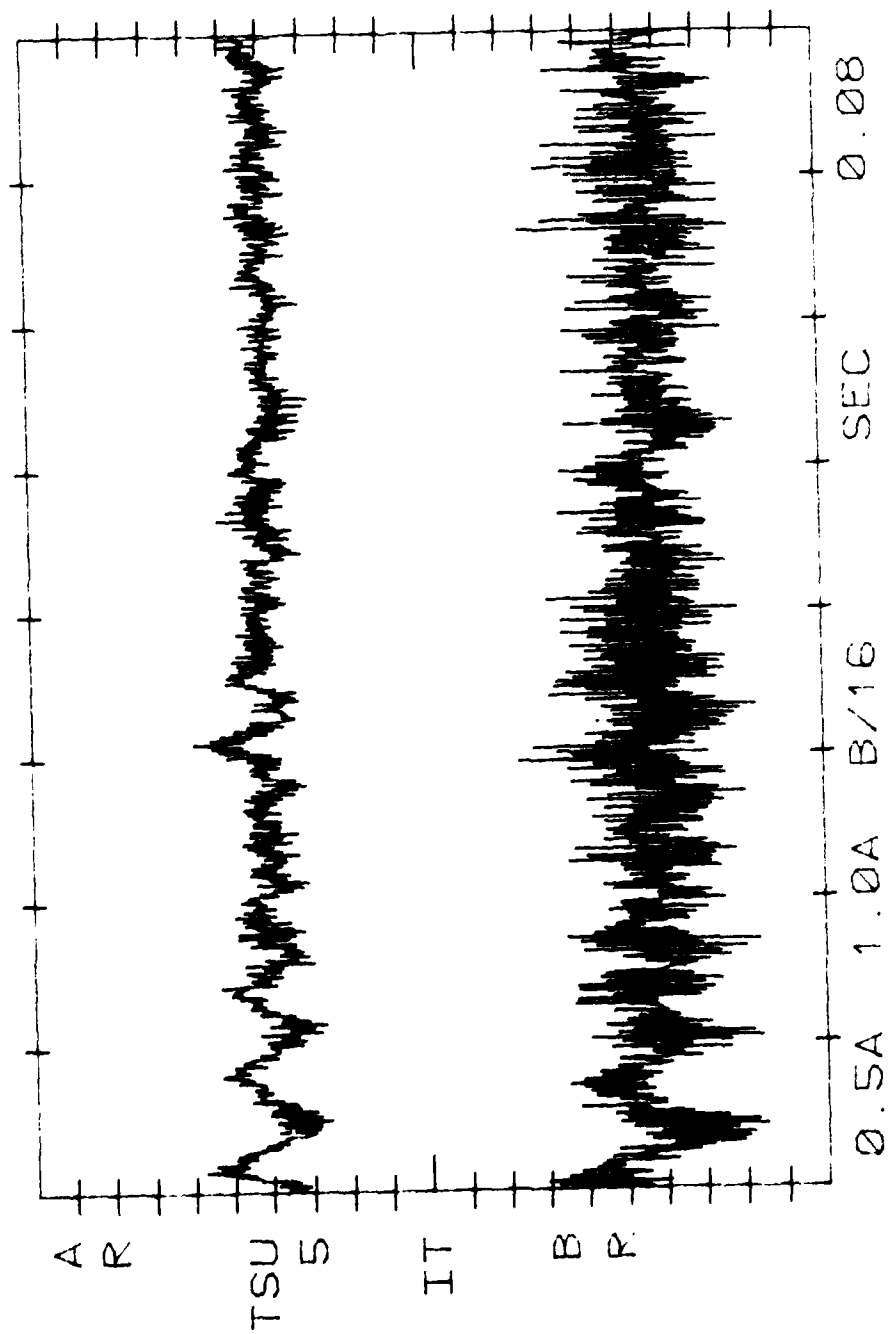
** JUN **

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182	P02	T1000	T1090	T1270	W02	TC2M4	PC2M4	P27005	WJ85	
*****	TUNNT	WNO	TMIN	P27000	P27002	P27003	P27004	P27005	P27006	
P27007	P27008	P27009	P27010	P27011	P27012	P27013	P27014	P27015	*****	
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247.8420	194.7096	761.8118	2488.9385	757.1458	0.0013		526.8874	143.0577	0.0822	
249.2248	516.4143	2.9064	517.0061	7.3423	7.3255	7.8765	8.4521	9.0044	9.1829	
252.2907	9.9874	10.3440	10.4961	10.6372	10.7798	10.8272	11.0083	11.1782	14.5993	
RECORD: 2	TIME: 30395.21 SEC	ID: 1	NUM: 0							
248.1858	7.3482	579.4738	572.3640	20.9951	9.0319	269.1295	23.2893	14.3858	34.6275	
249.2159	194.7096	757.8350	2488.0484	753.8953	0.3454		527.0745	141.4615	0.0911	
252.2907	522.2907	2.8951	517.9302	23.8444	23.1413	23.2518	23.3051	23.4901	23.4023	
253.2907	23.2907	23.3503	23.2668	23.2420	23.2283	23.1493	23.1966	23.5070	14.7901	
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249.2159	194.7096	757.8350	2488.0484	753.8953	0.3454		527.0745	141.4615	0.0911	
252.2907	522.2907	2.8951	517.9302	23.8444	23.1413	23.2518	23.3051	23.4901	23.4023	
253.2907	23.2907	23.3503	23.2668	23.2420	23.2283	23.1493	23.1966	23.5070	14.7901	
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249.2159	194.7096	757.8350	2488.0484	753.8953	0.3454		527.0745	141.4615	0.0911	
252.2907	522.2907	2.8951	517.9302	23.8444	23.1413	23.2518	23.3051	23.4901	23.4023	
253.2907	23.2907	23.3503	23.2668	23.2420	23.2283	23.1493	23.1966	23.5070	14.7901	
RECORD: 5	TIME: 30426.78 SEC	ID: 1	NUM: 0							
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249.2159	194.7096	757.8350	2488.0484	753.8953	0.3454		527.0745	141.4615	0.0911	
252.2907	522.2907	2.8951	517.9302	23.8444	23.1413	23.2518	23.3051	23.4901	23.4023	
253.2907	23.2907	23.3503	23.2668	23.2420	23.2283	23.1493	23.1966	23.5070	14.7901	
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249.2159	194.7096	757.8350	2488.0484	753.8953	0.3454		527.0745	141.4615	0.0911	
252.2907	522.2907	2.8951	517.9302	23.8444	23.1413	23.2518	23.3051	23.4901	23.4023	
253.2907	23.2907	23.3503	23.2668	23.2420	23.2283	23.1493	23.1966	23.5070	14.7901	
RECORD: 7	TIME: 30501.26 SEC	ID: 1	NUM: 0							
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249.2159	194.7096	757.8350	2488.0484	753.8953	0.3454		527.0745	141.4615	0.0911	
252.2907	522.2907	2.8951	517.9302	23.8444	23.1413	23.2518	23.3051	23.4901	23.4023	
253.2907	23.2907	23.3503	23.2668	23.2420	23.2283	23.1493	23.1966	23.5070	14.7901	
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249.2159	194.7096	757.8350	2488.0484	753.8953	0.3454		527.0745	141.4615	0.0911	
252.2907	522.2907	2.8951	517.9302	23.8444	23.1413	23.2518	23.3051	23.4901	23.4023	
253.2907	23.2907	23.3503	23.2668	23.2420	23.2283	23.1493	23.1966	23.5070	14.7901	
RECORD: 9	TIME: 30522.09 SEC	ID: 1	NUM: 0							
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249.2159	194.7096	757.8350	2488.0484	753.8953	0.3454		527.0745	141.4615	0.0911	
252.2907	522.2907	2.8951	517.9302	23.8444	23.1413	23.2518	23.3051	23.4901	23.4023	
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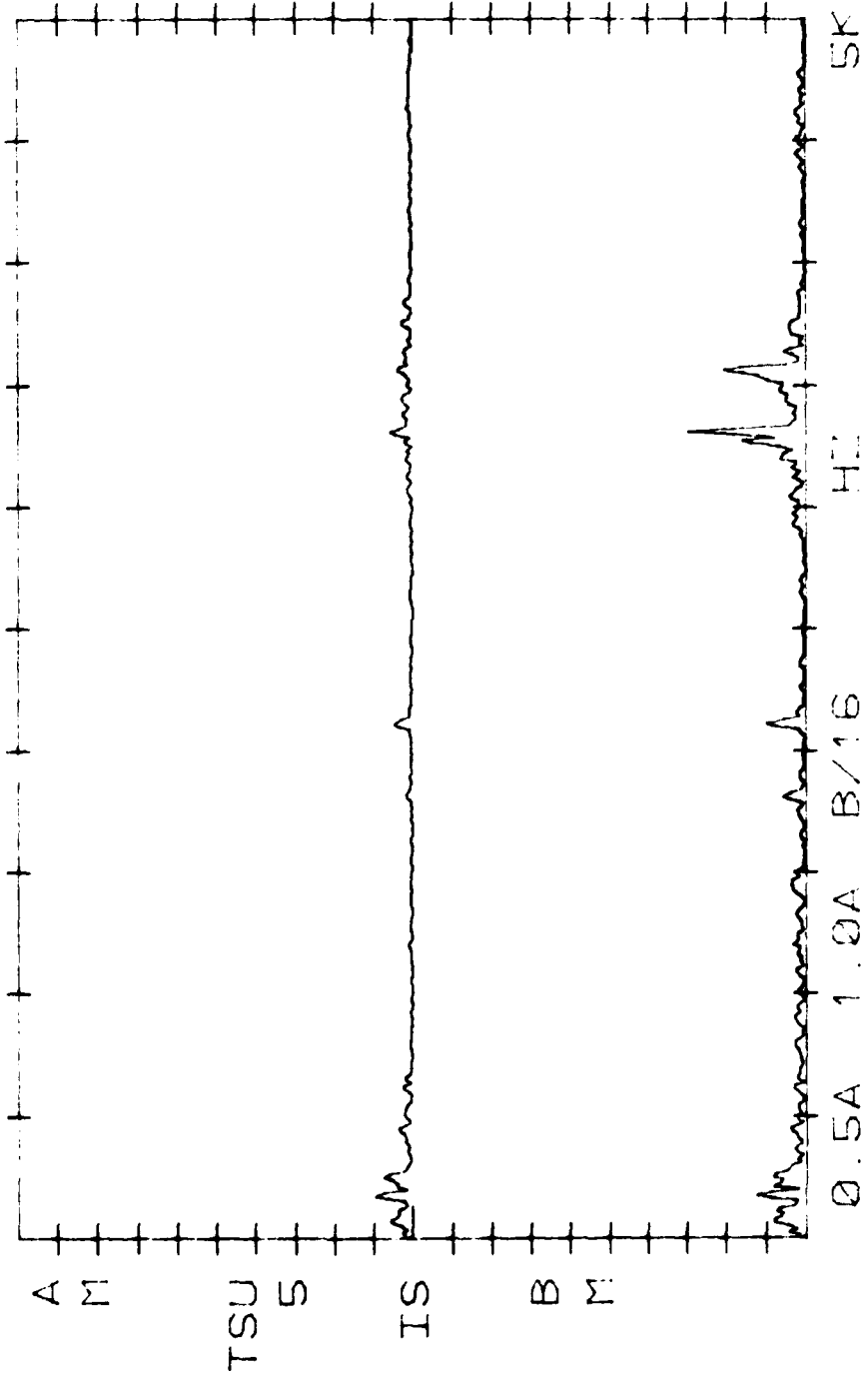
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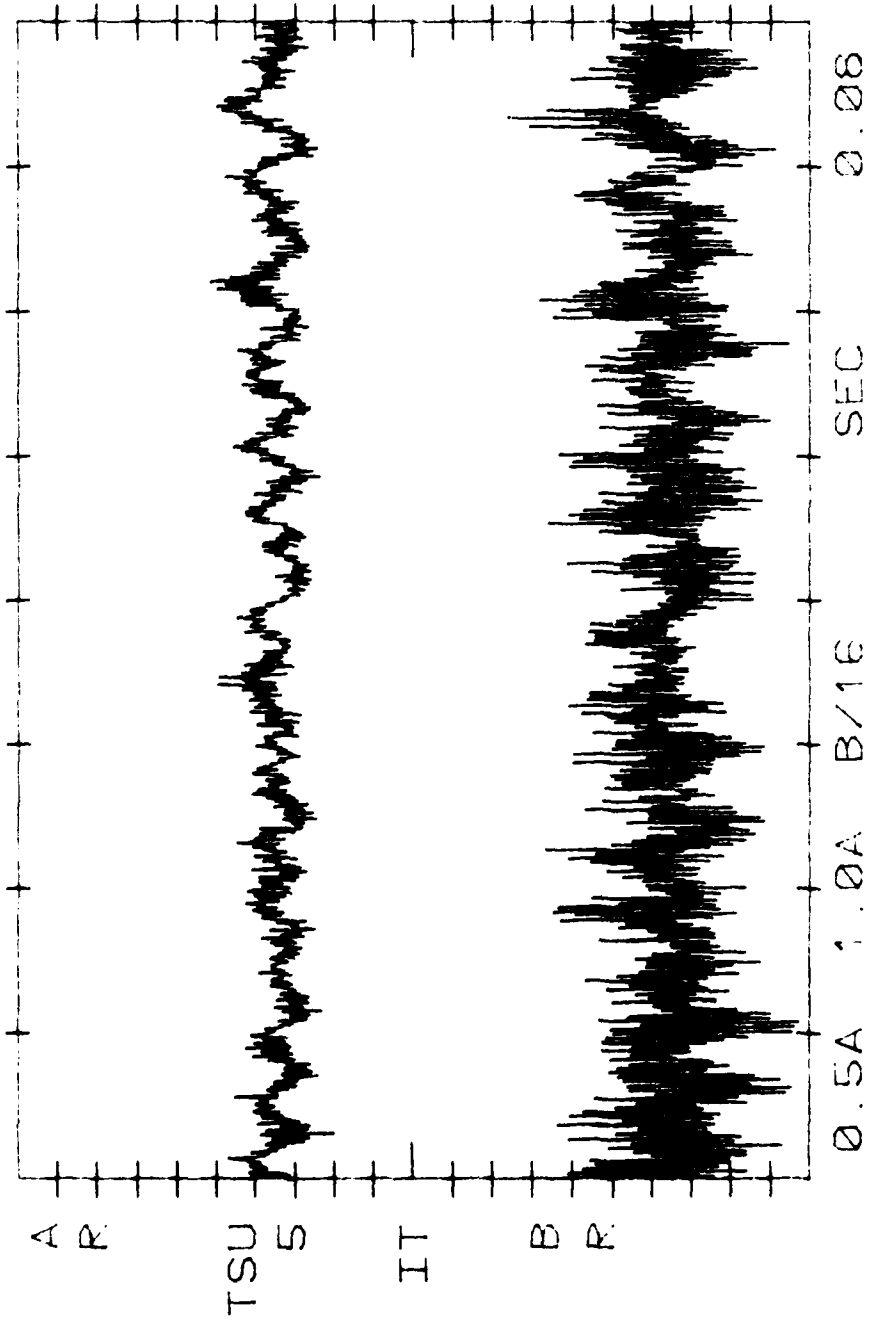
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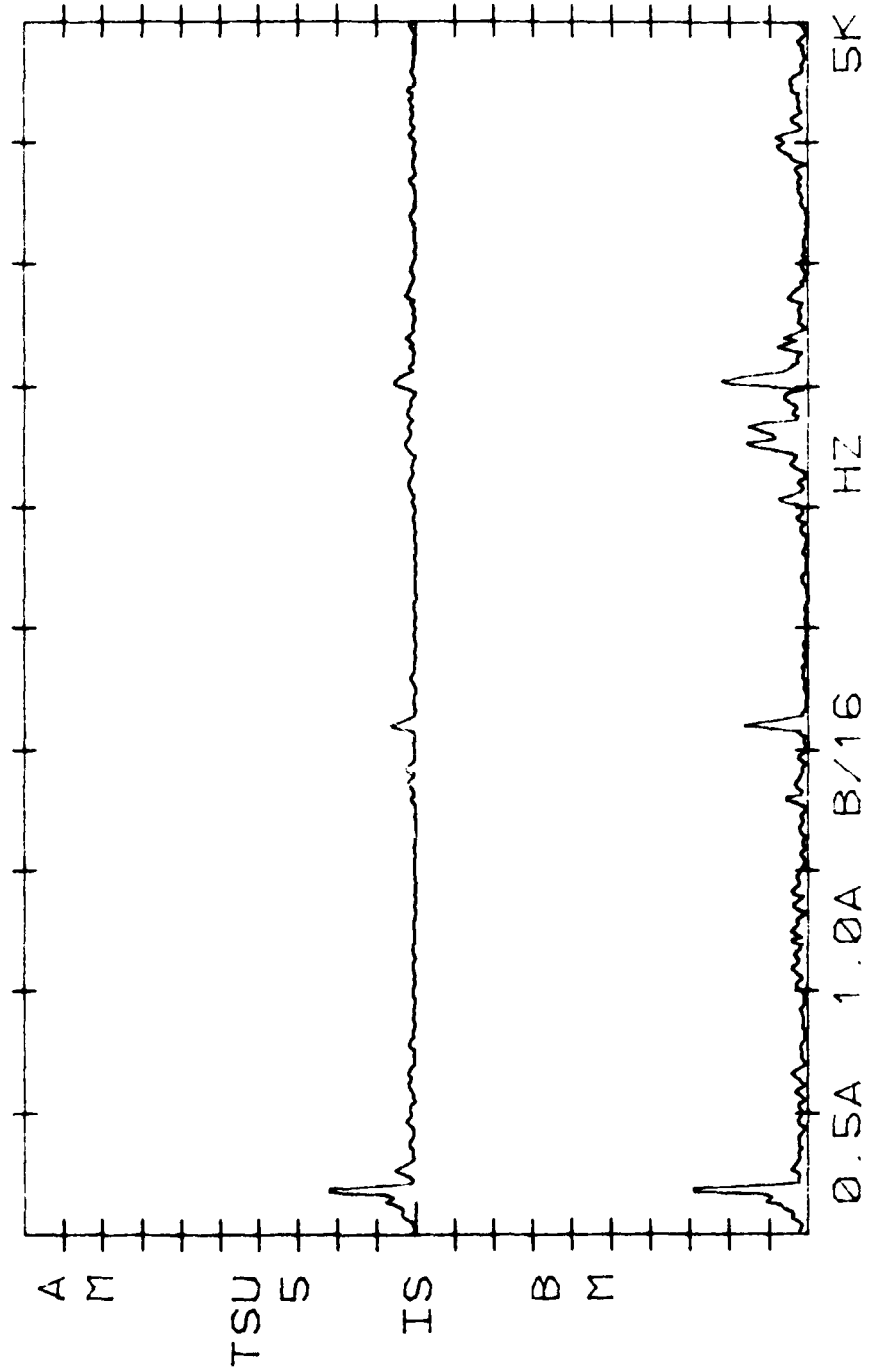
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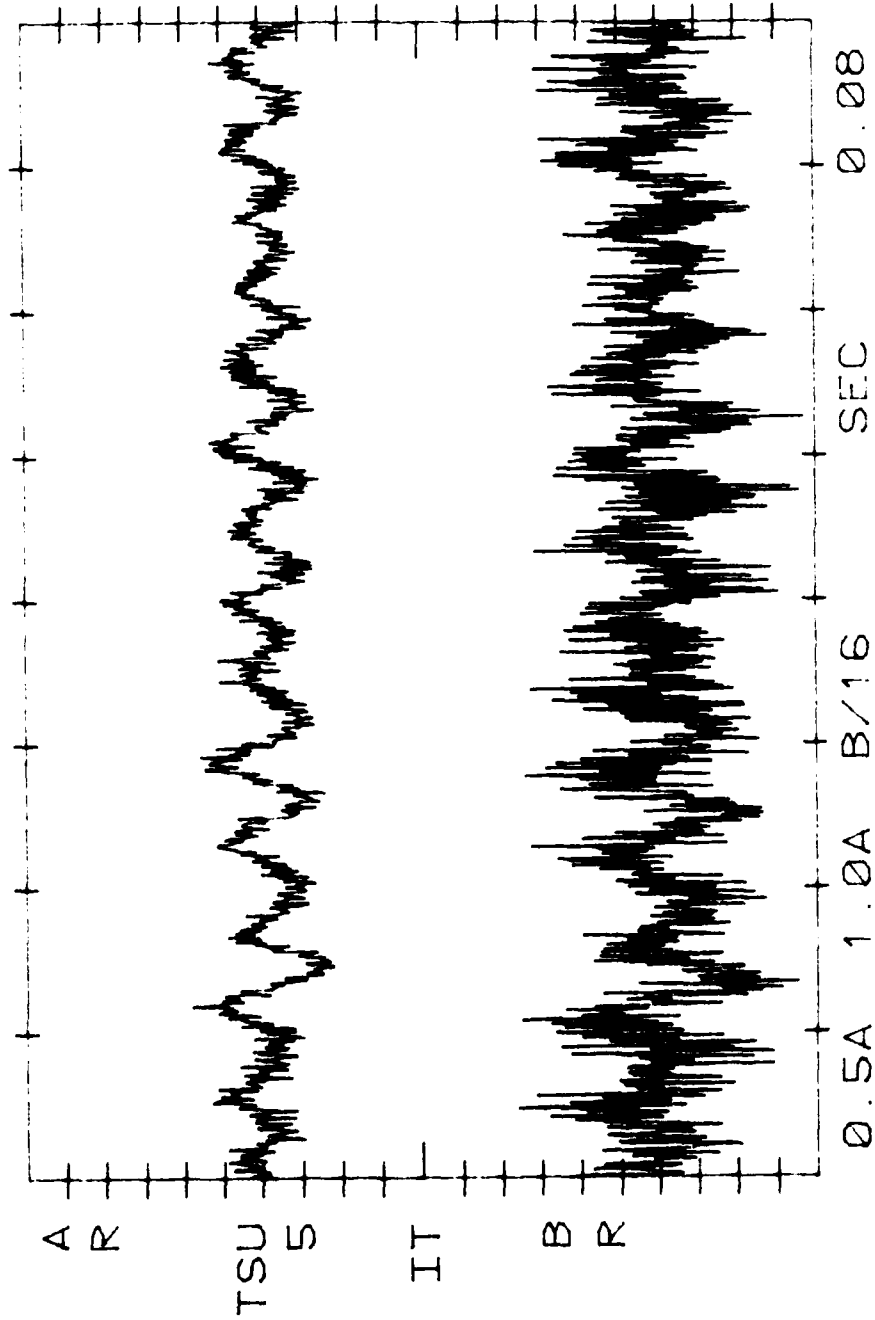
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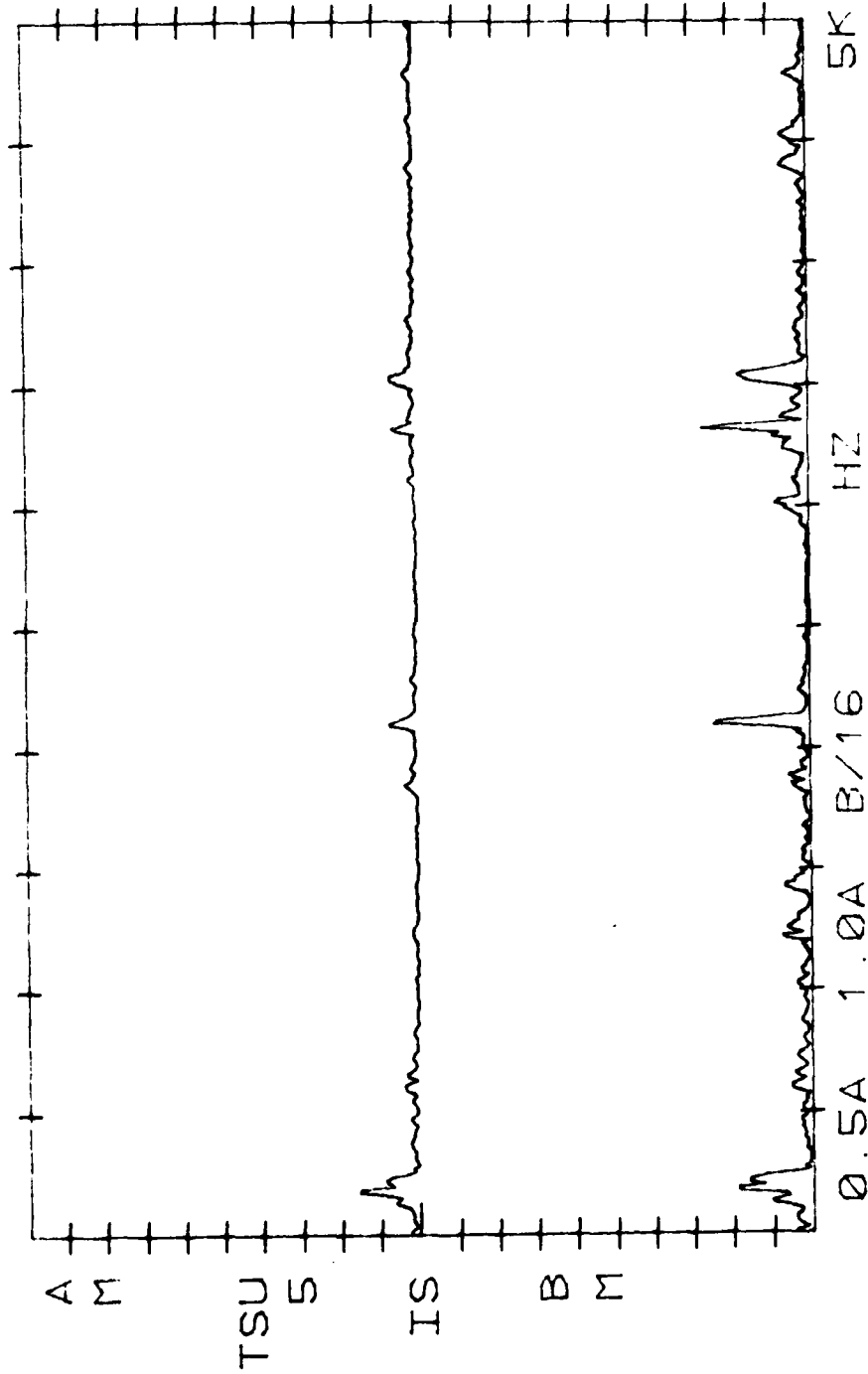
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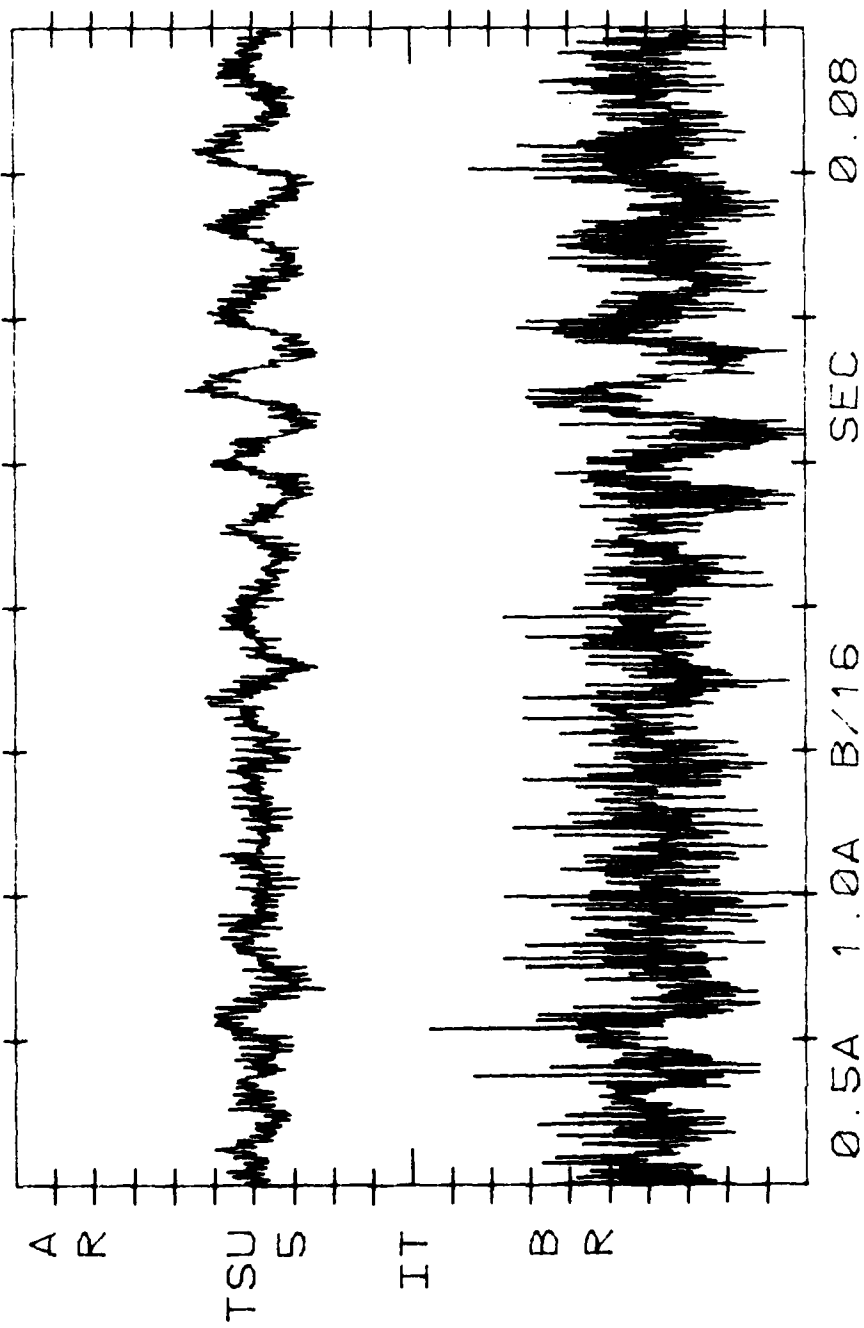
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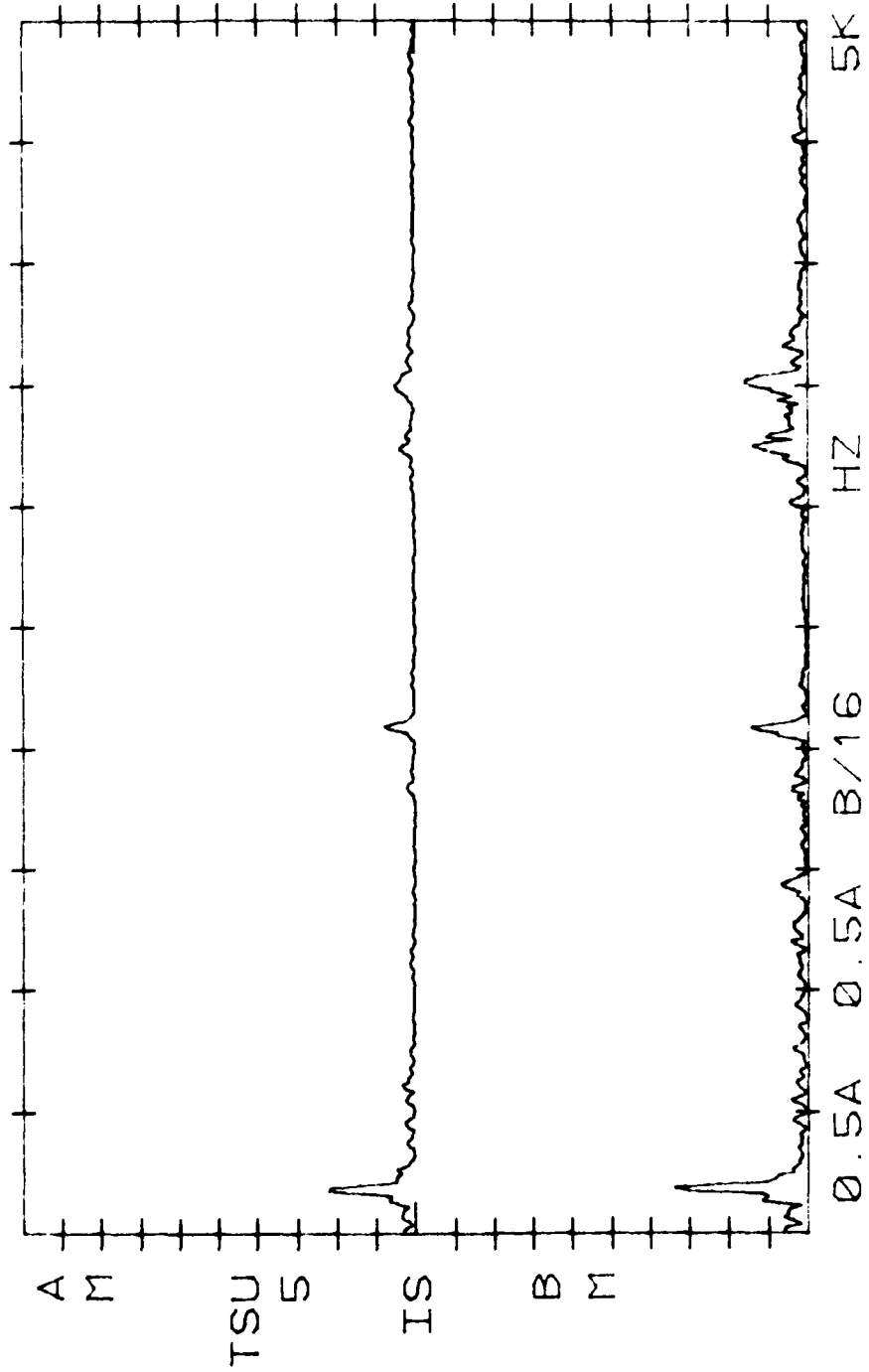
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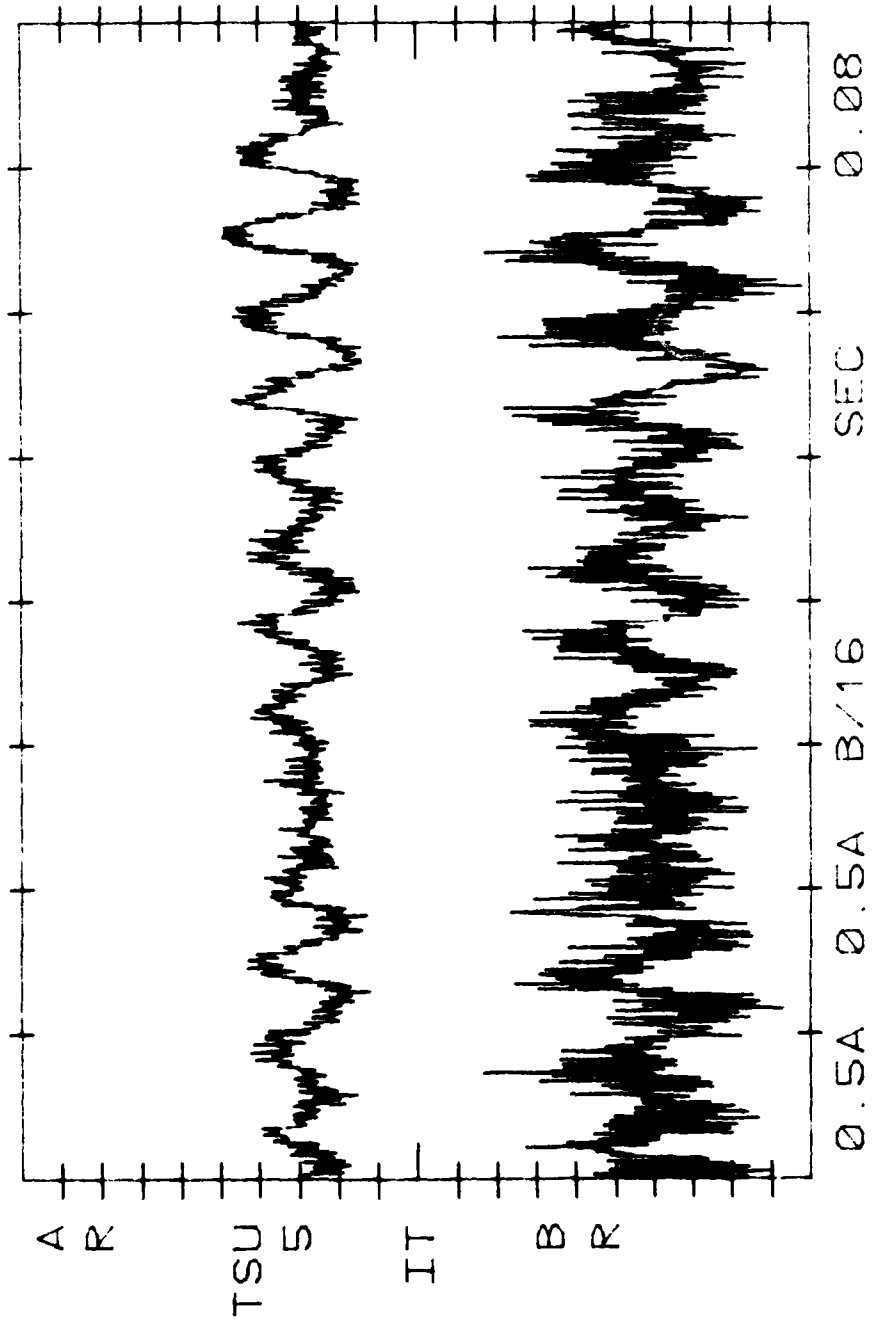
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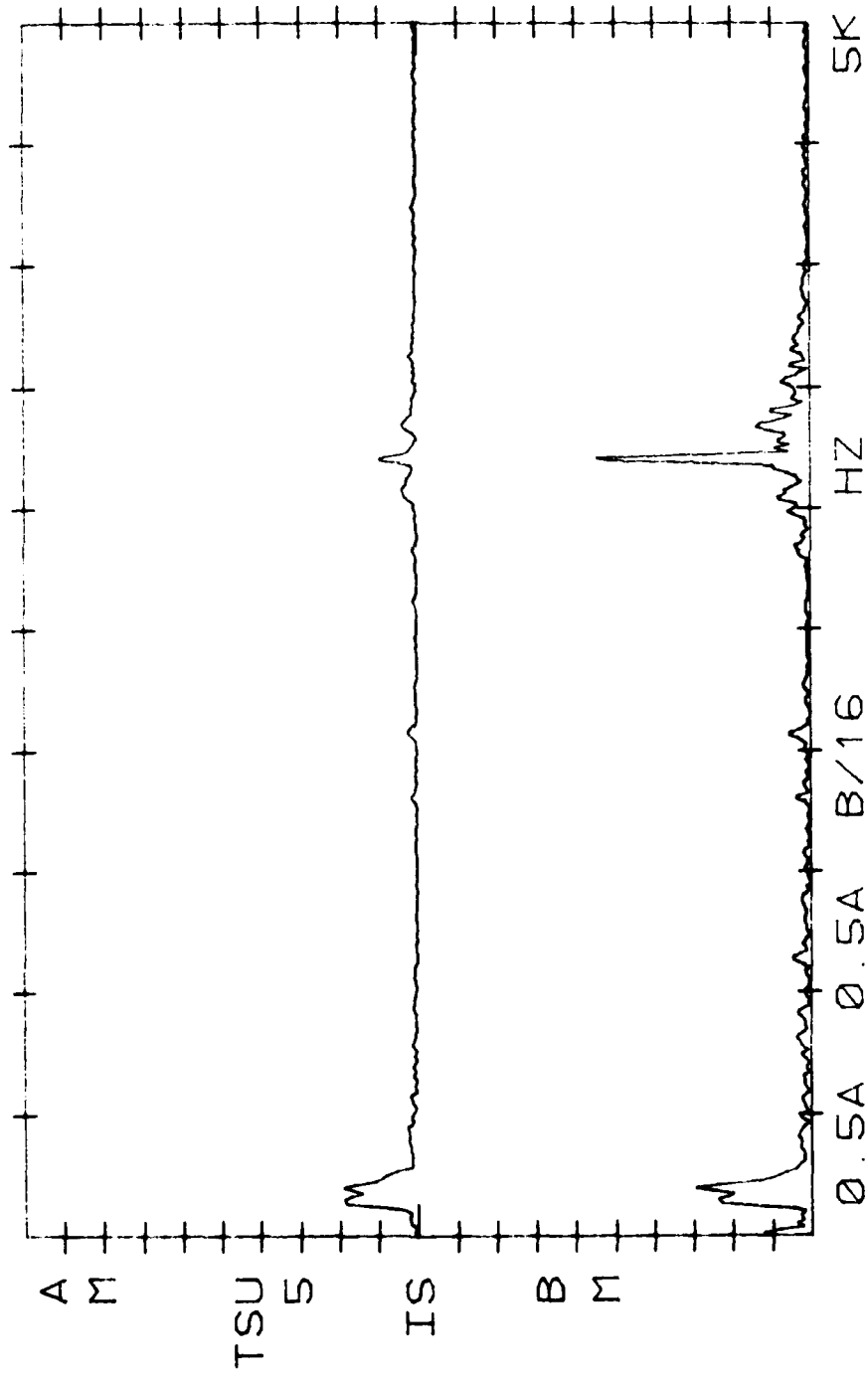
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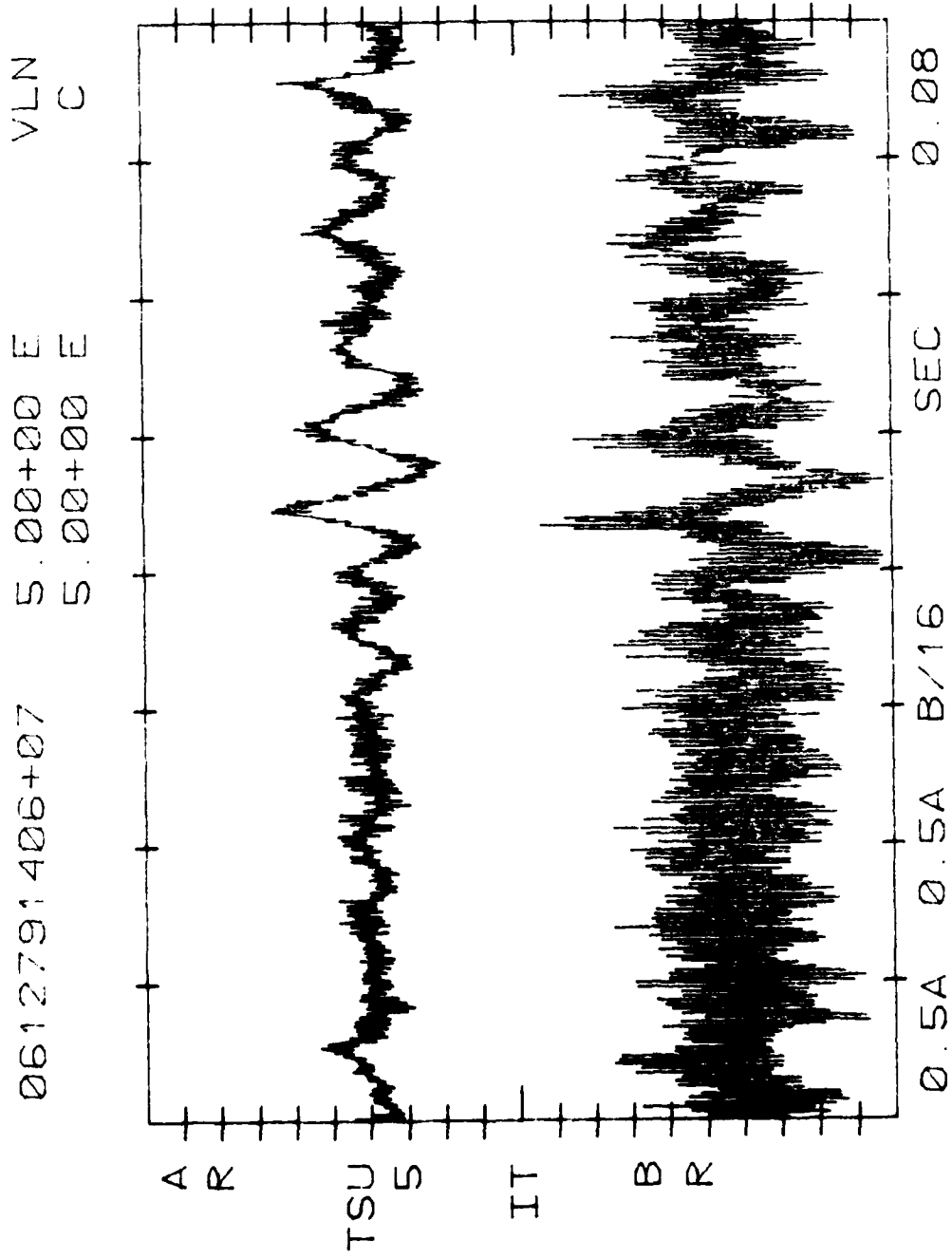


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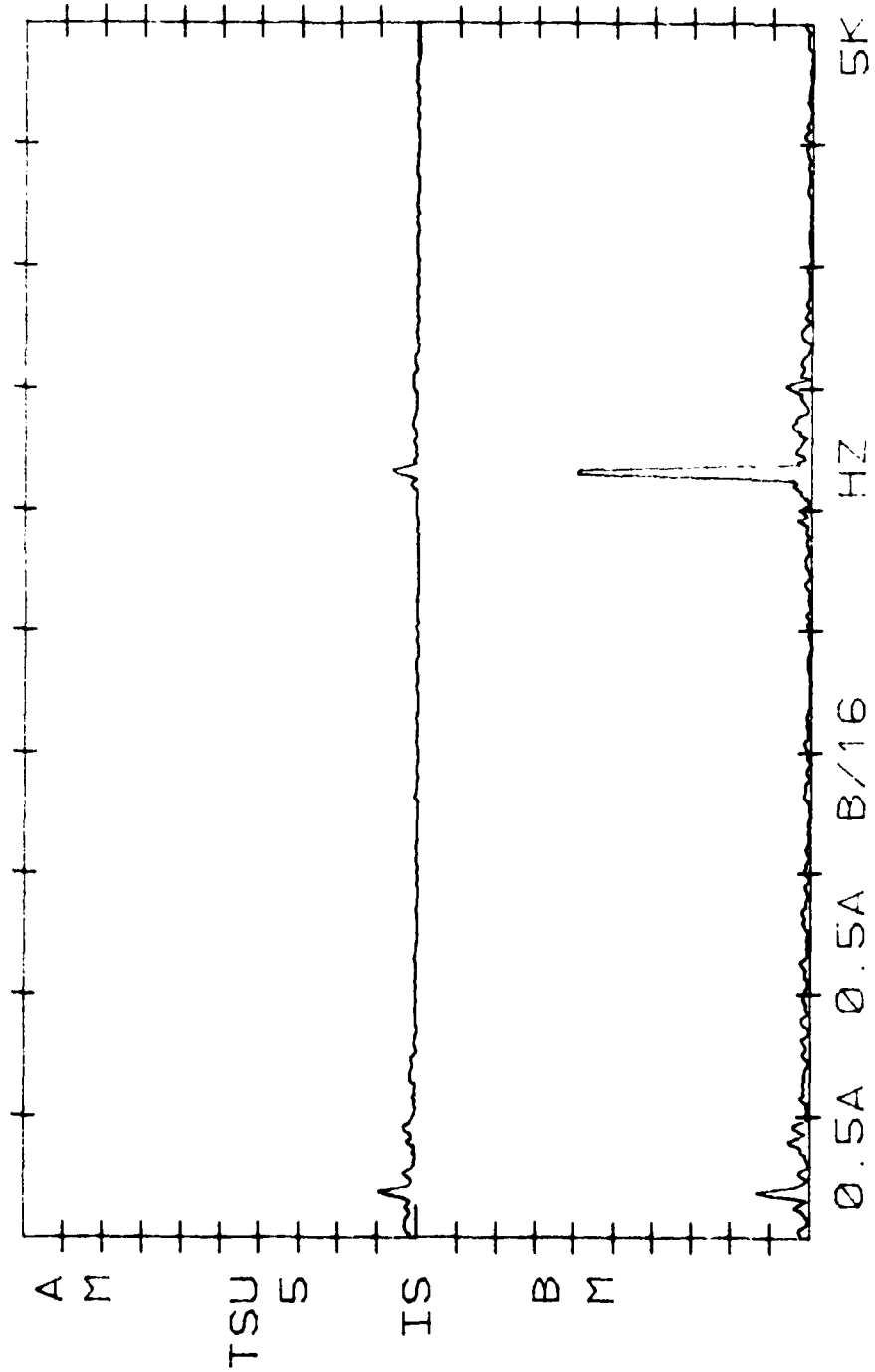


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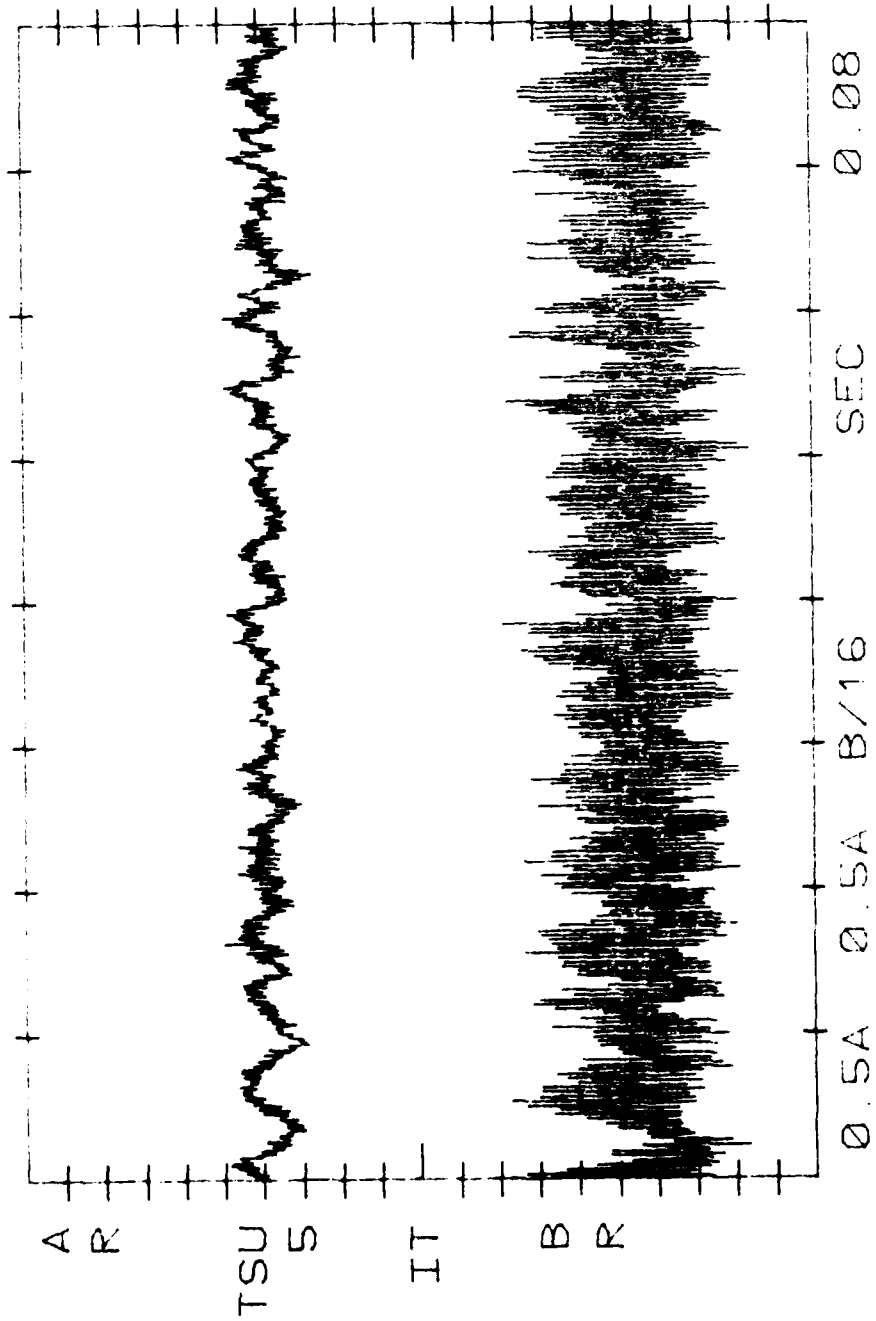




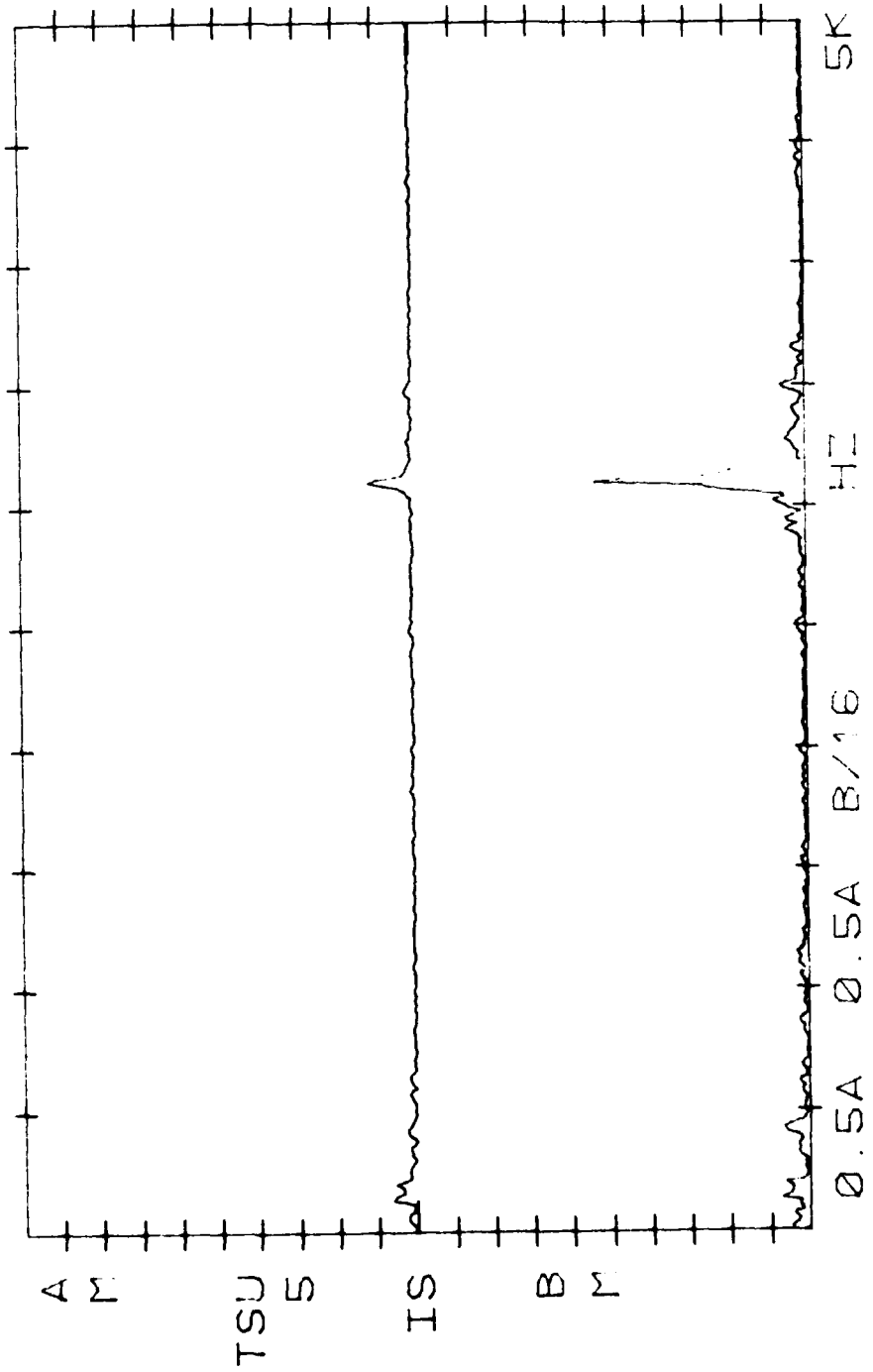
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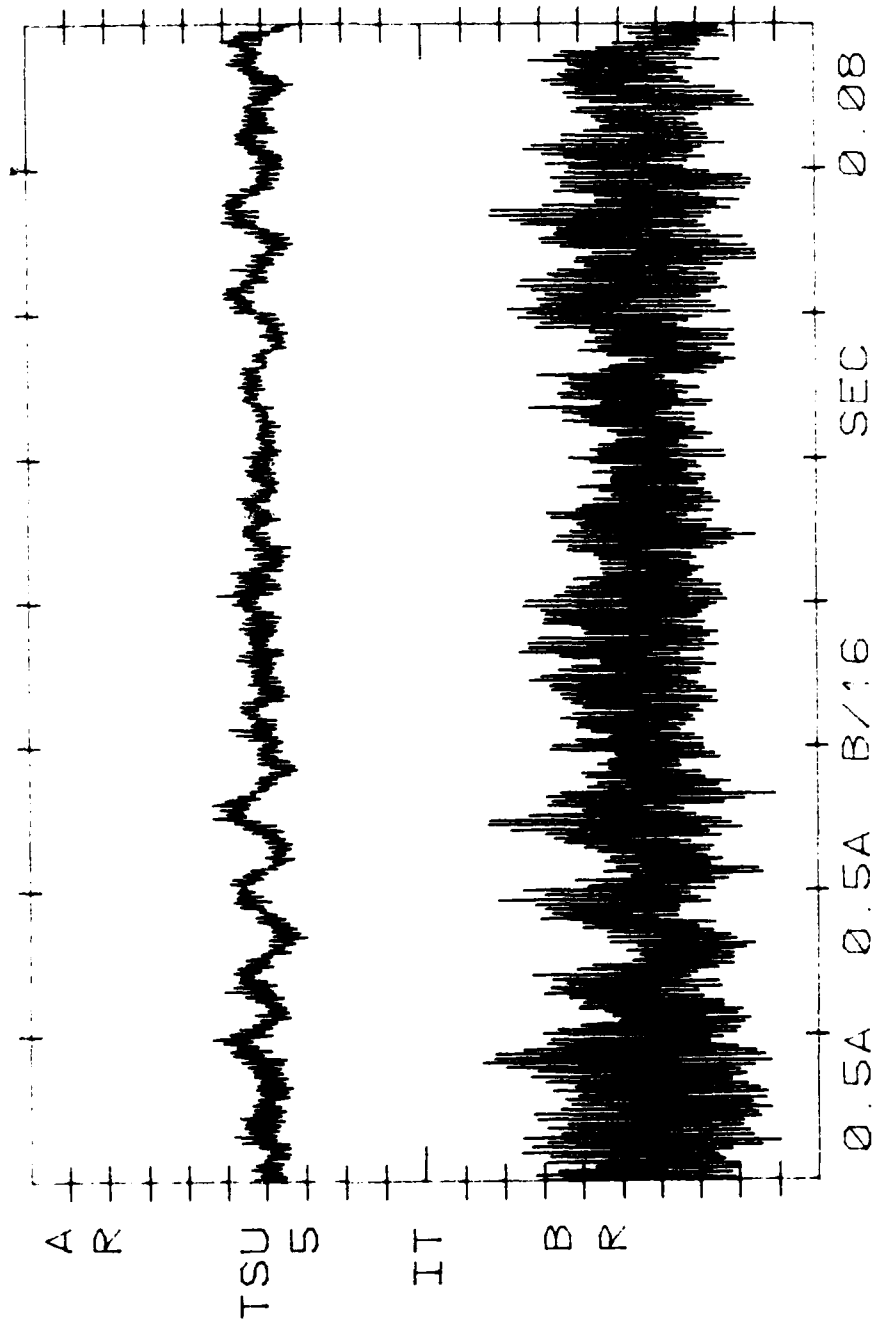
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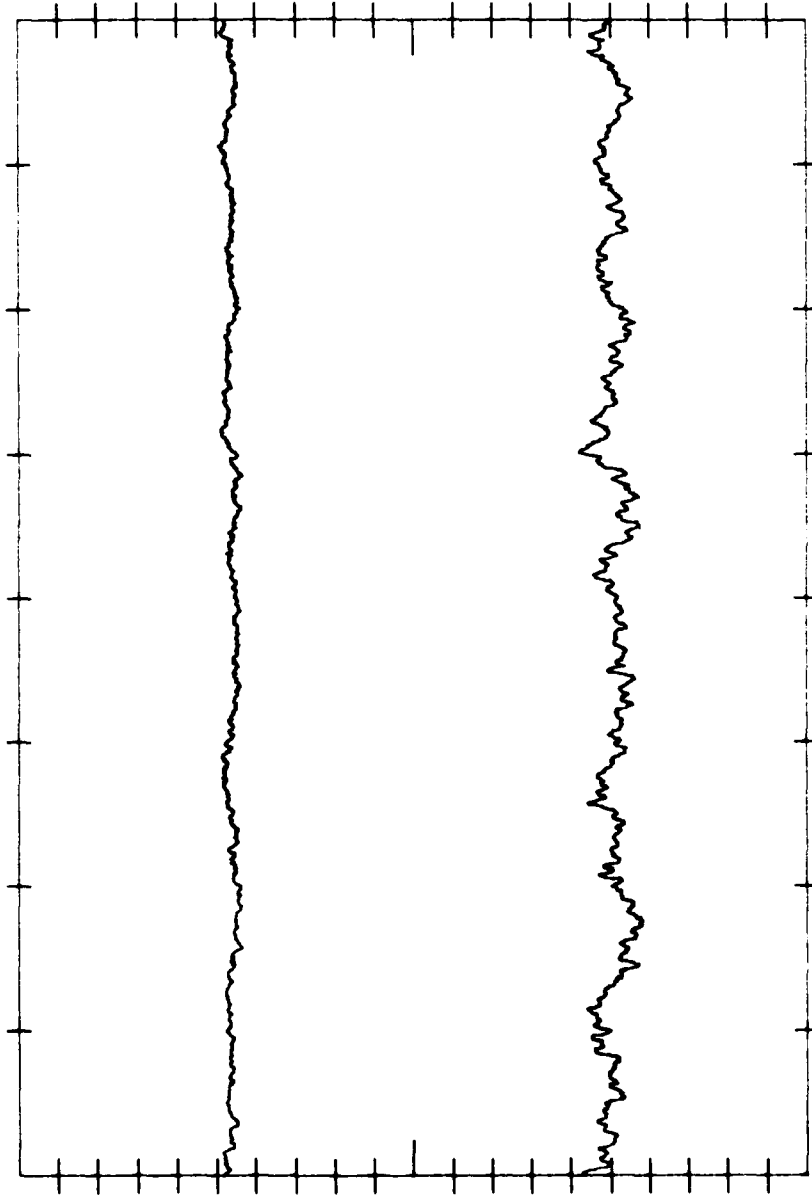
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0612791406+10
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REDUCED DATA LISTING

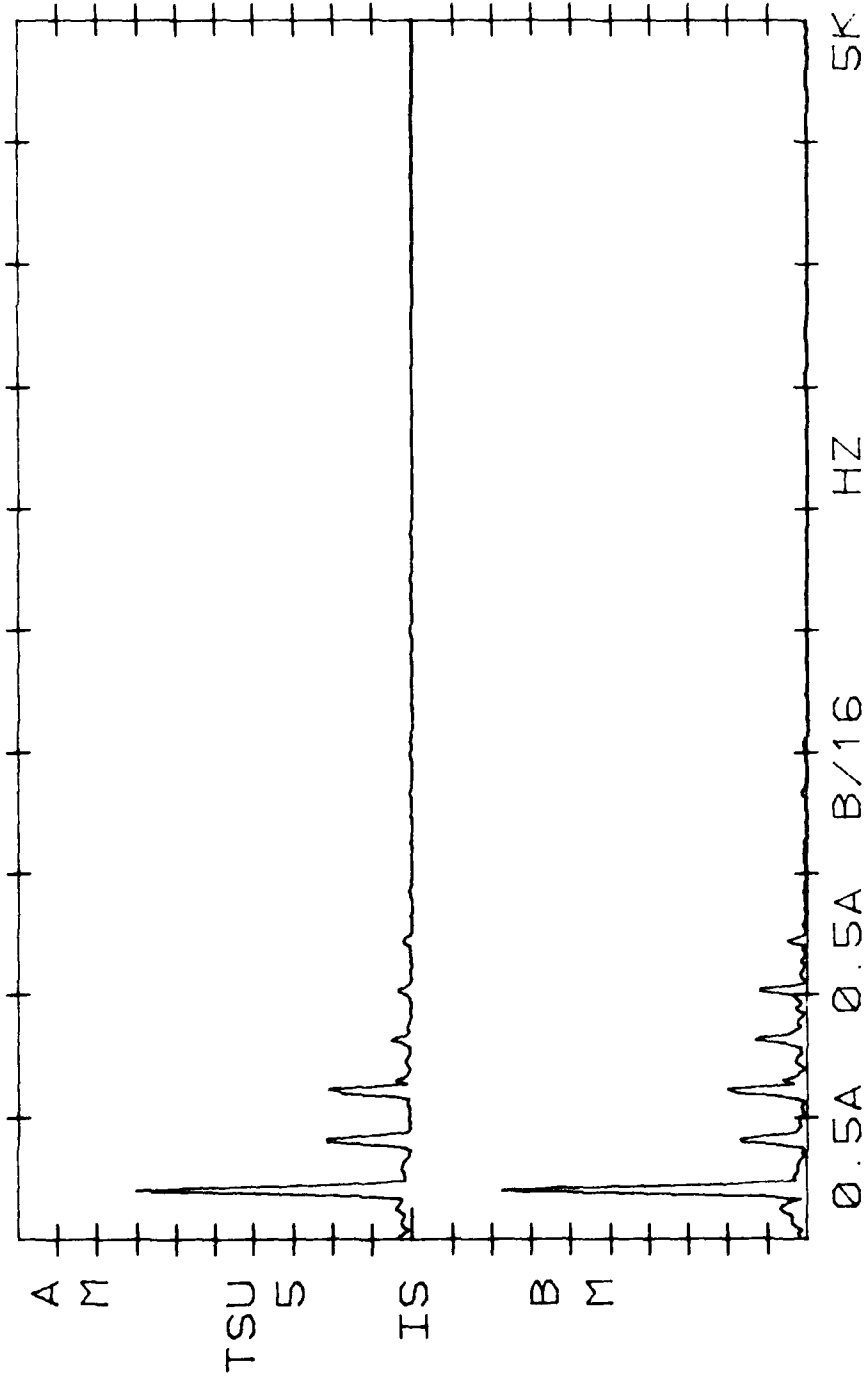
PAGE 61

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34475.54	100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
34475.56	400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
34475.58	400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
34475.60	373	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
34475.62	373	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
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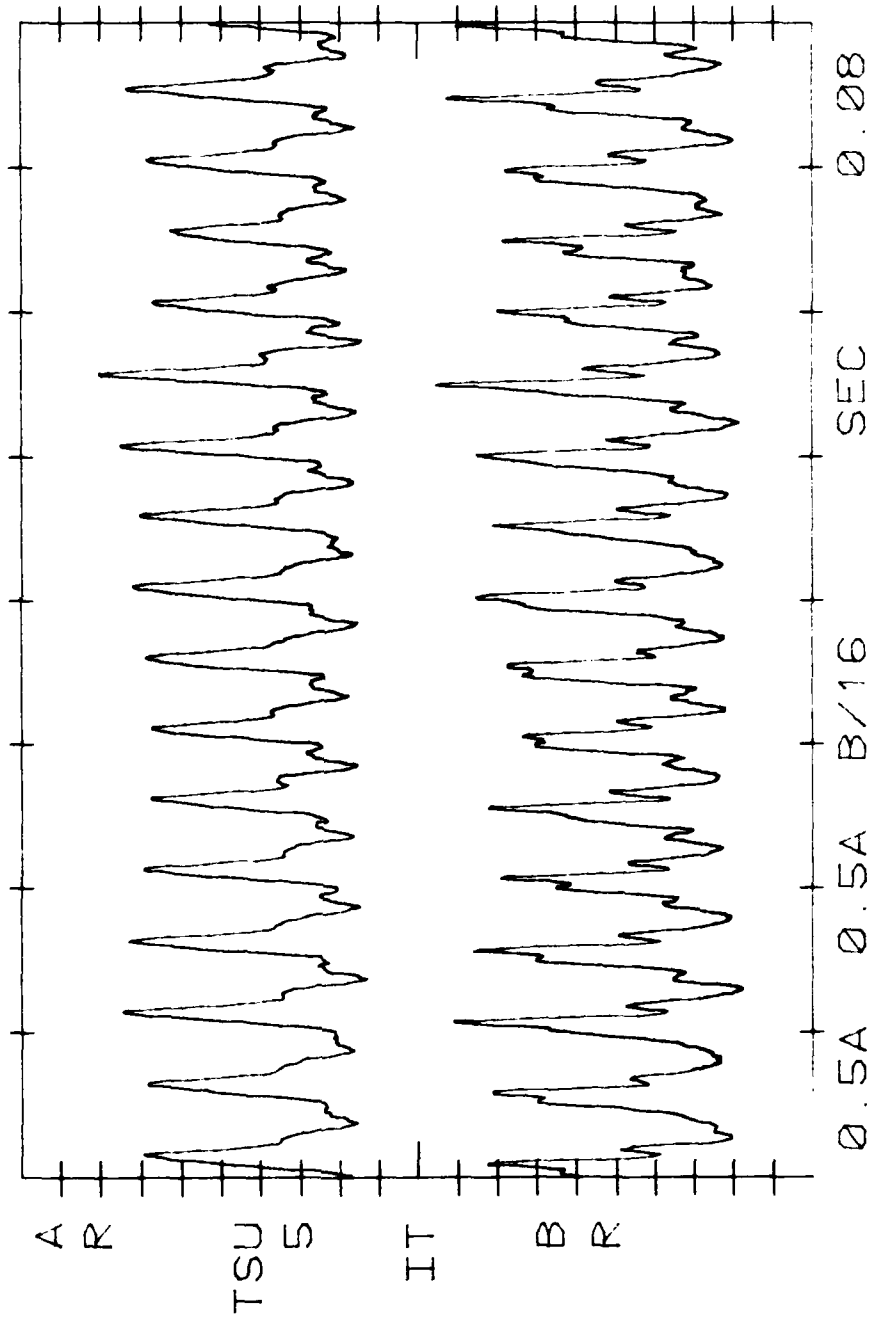
RAW DATA LISTING

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02	02	73	73	T1000	T1000	T1000	W02	TC04	PC04	MS4	
027007	027008	027009	027010	027011	027012	027013	027014	027015	027016	027016	
1	TIME: 04375.54 SEC	101	101	101	101	101	101	101	101	101	
2	TIME: 04413.90 SEC	101	101	101	101	101	101	101	101	101	
3	TIME: 04434.14 SEC	101	101	101	101	101	101	101	101	101	
4	TIME: 04434.50 SEC	101	101	101	101	101	101	101	101	101	
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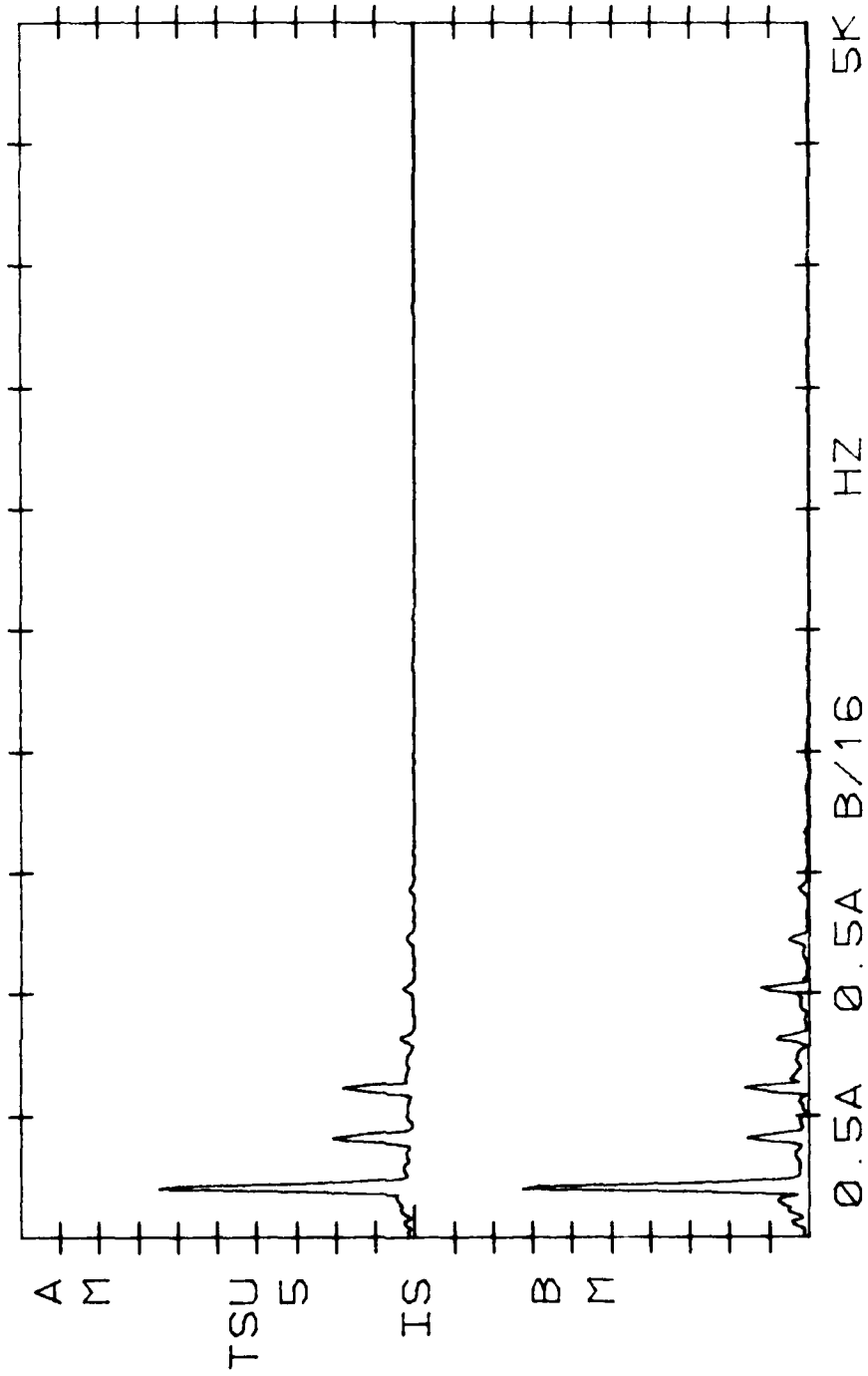
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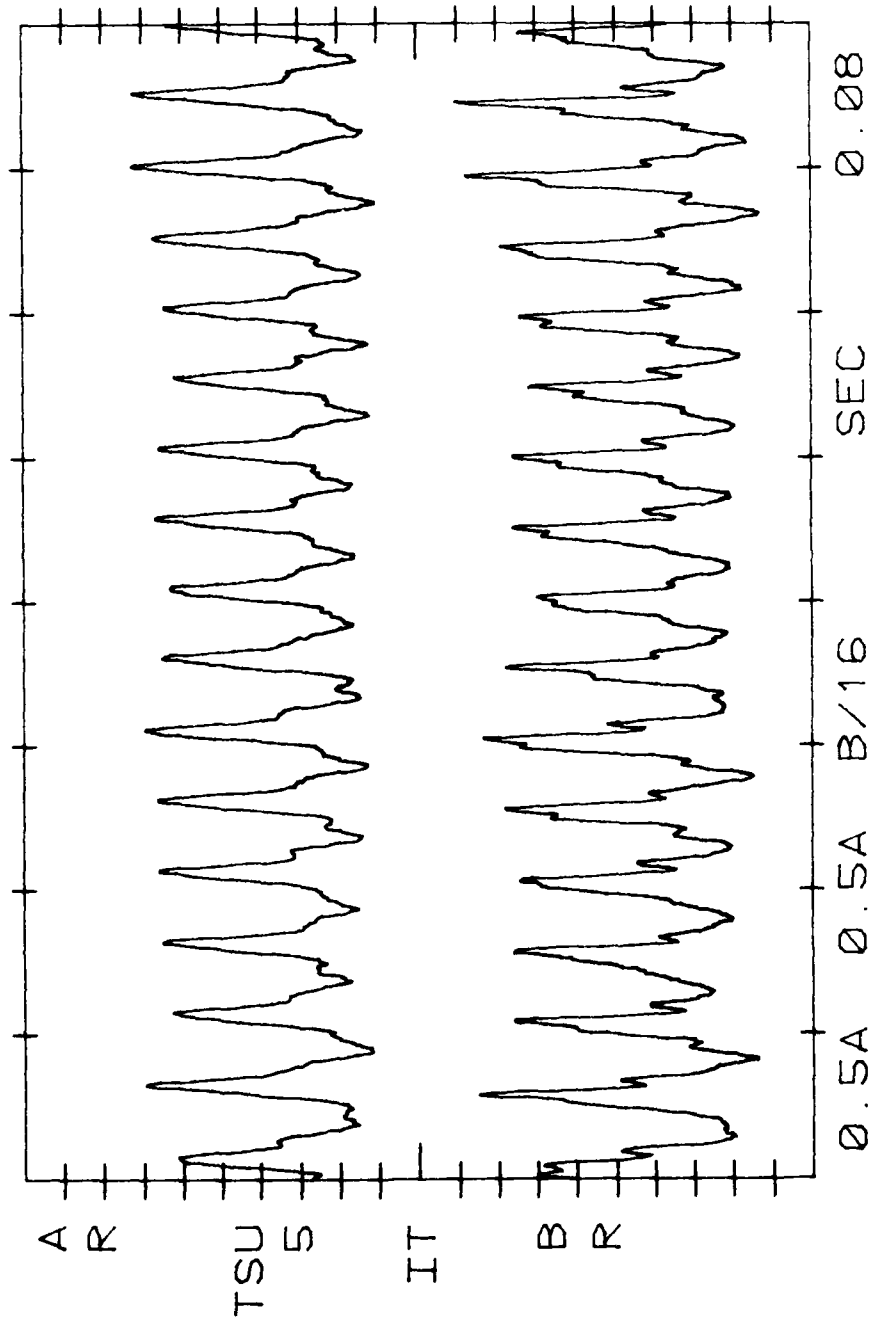
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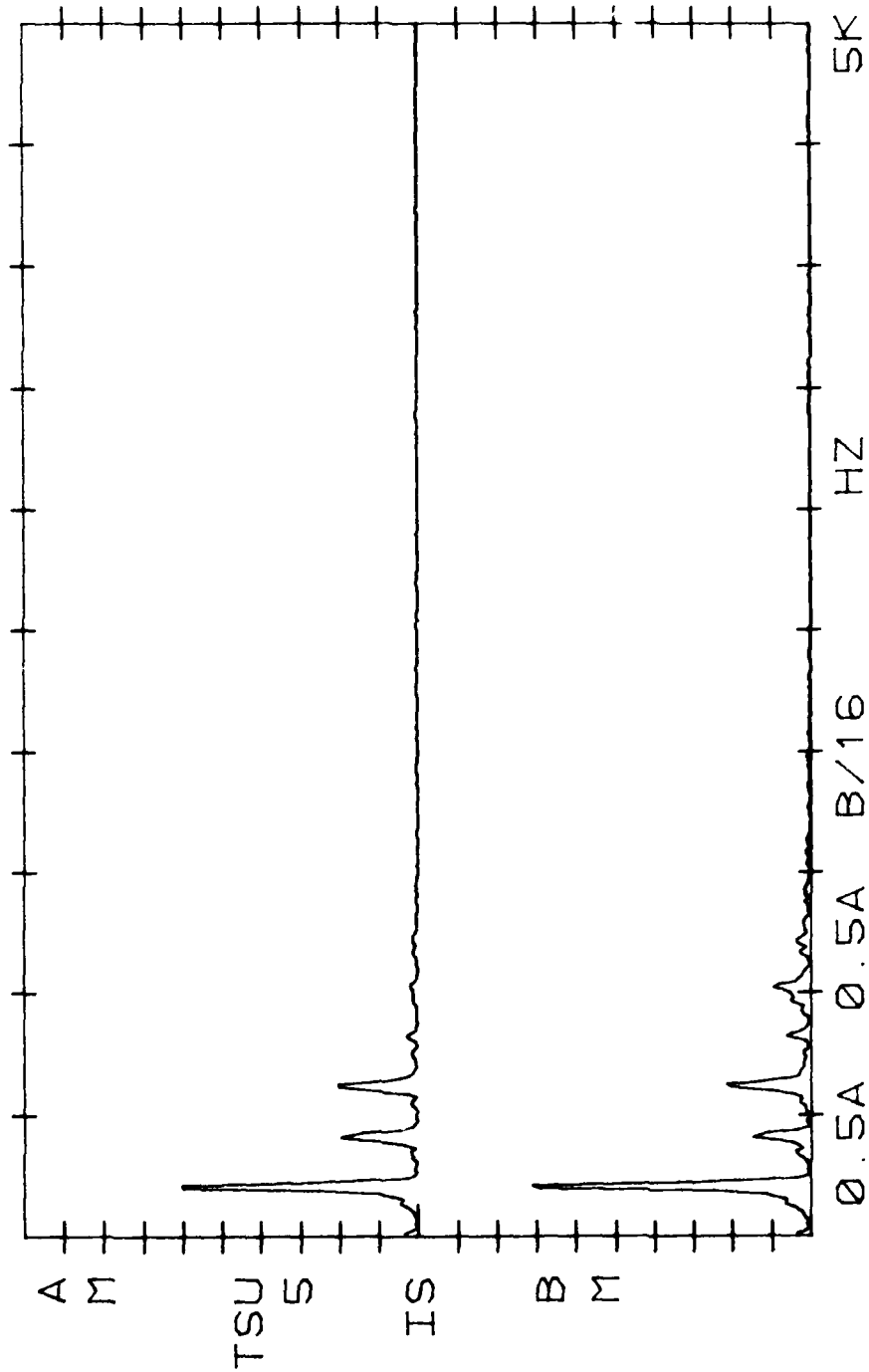
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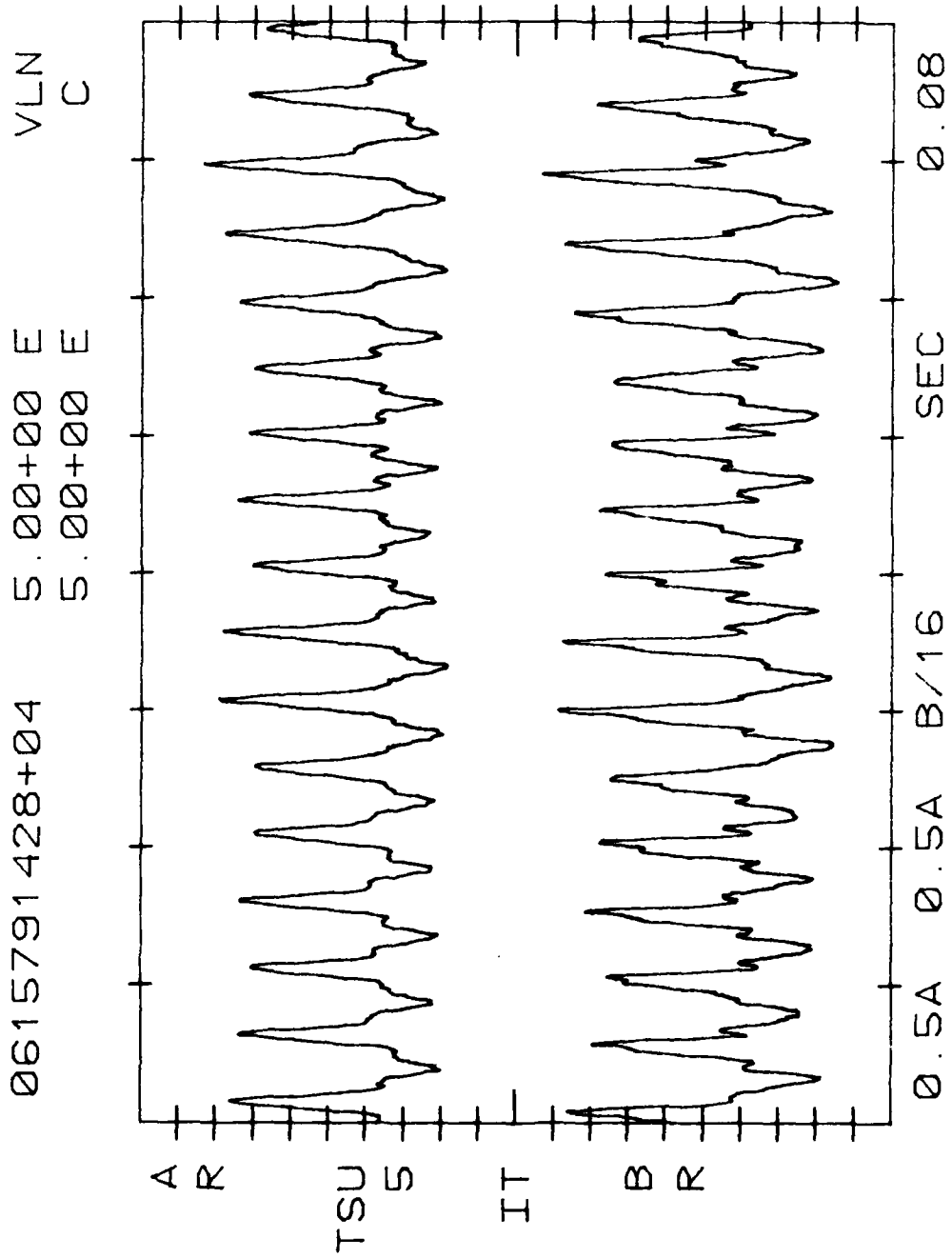


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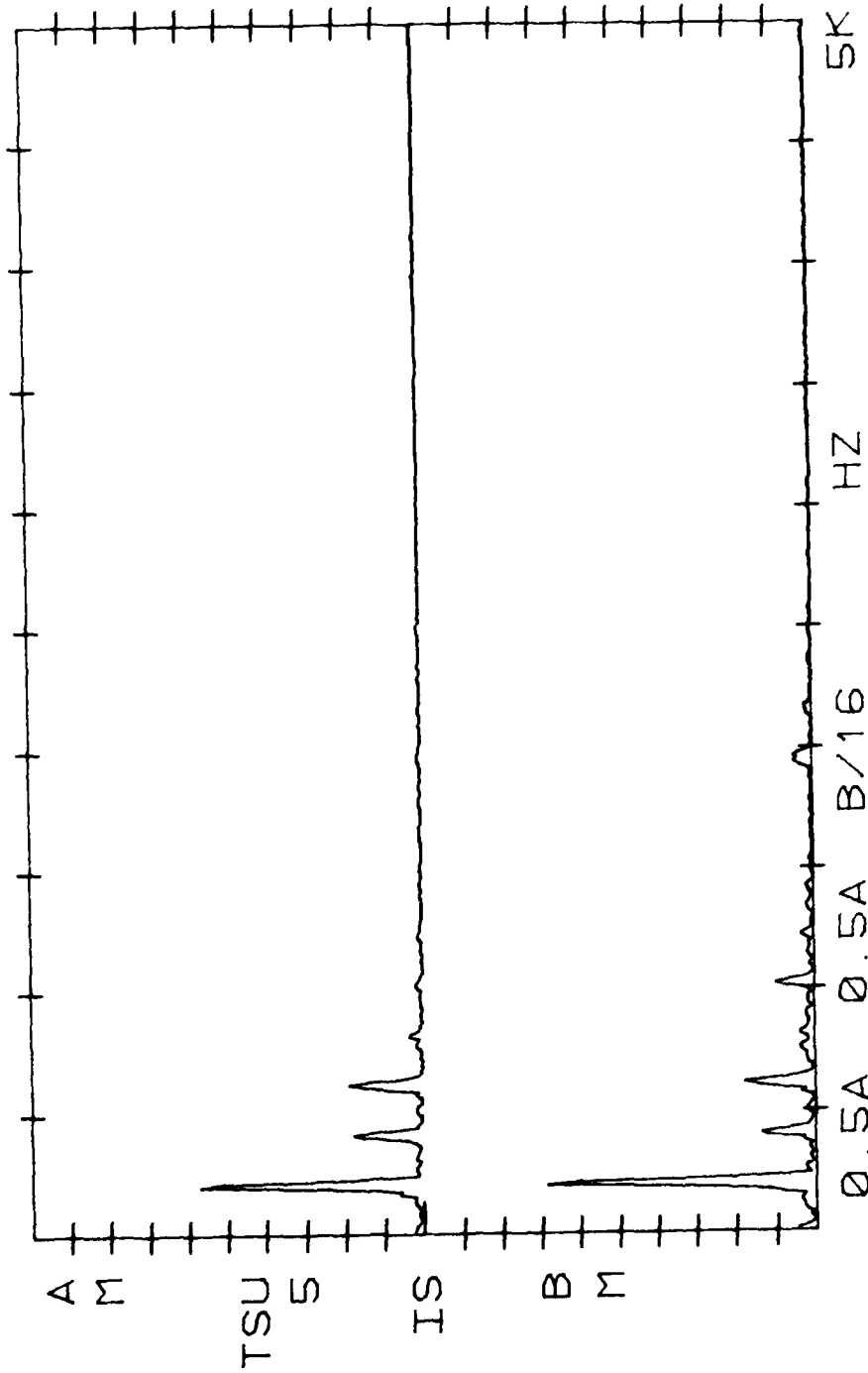


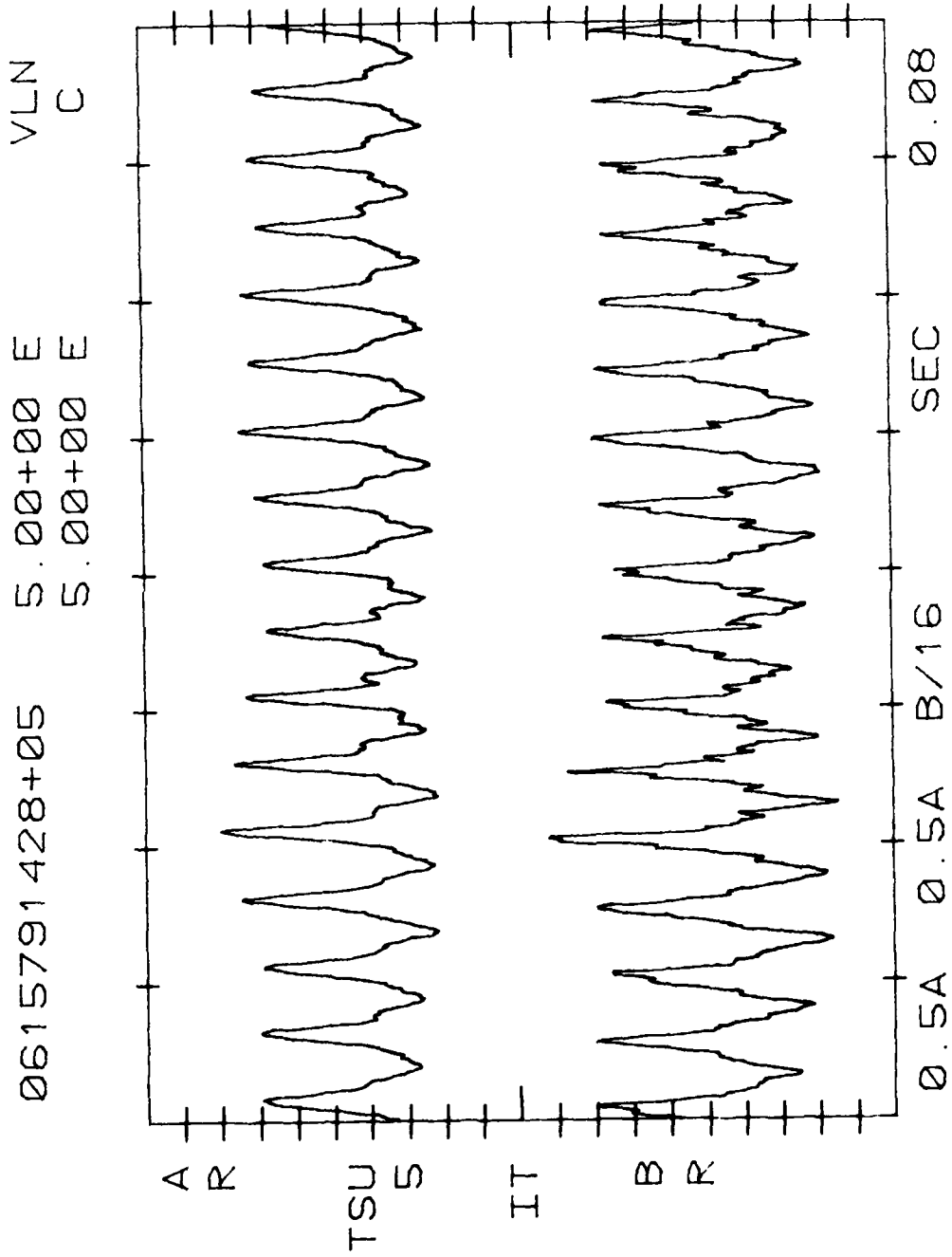


VLN
C

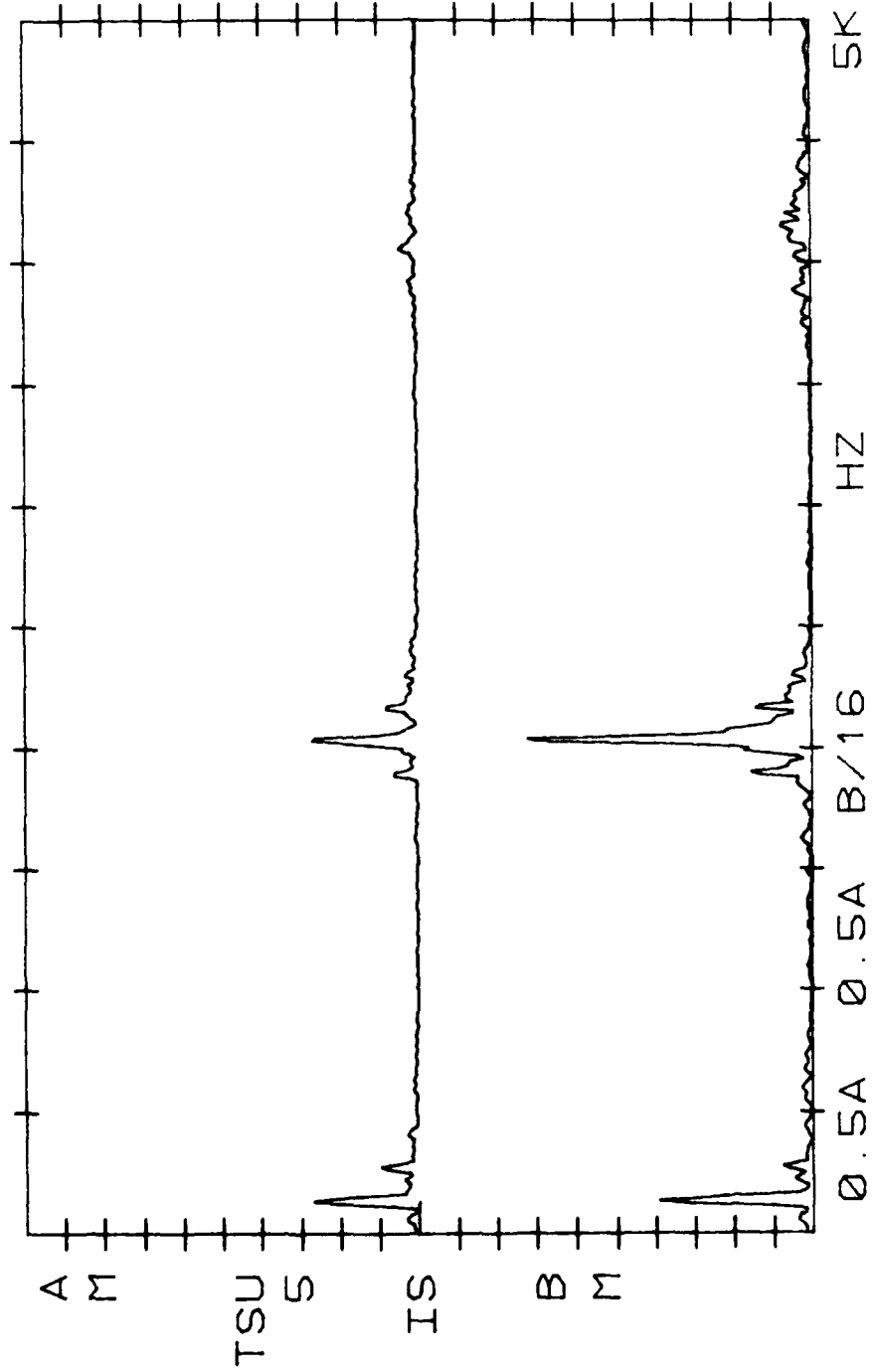
2.00+00 E
2.00+00 E

0615791428+05

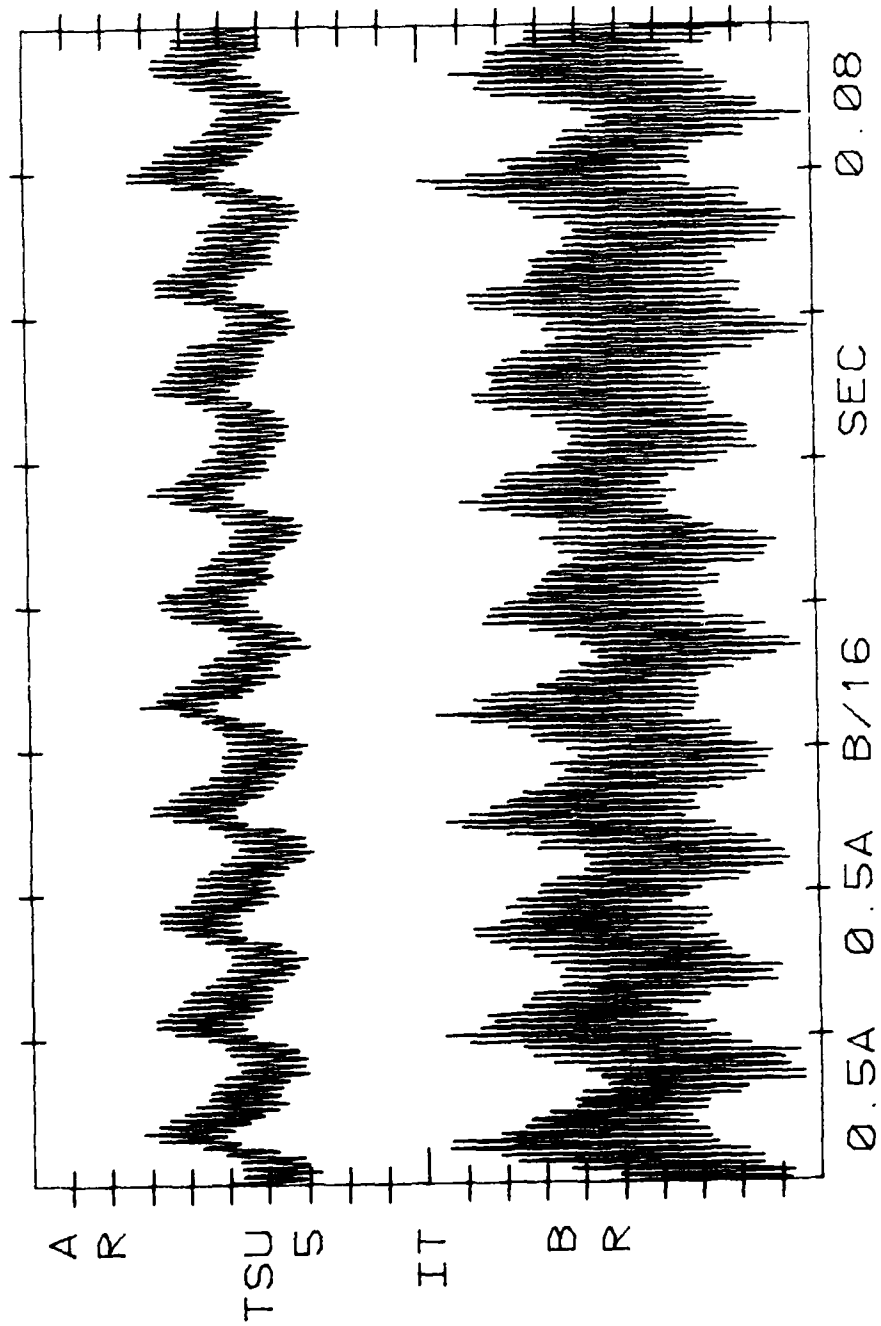




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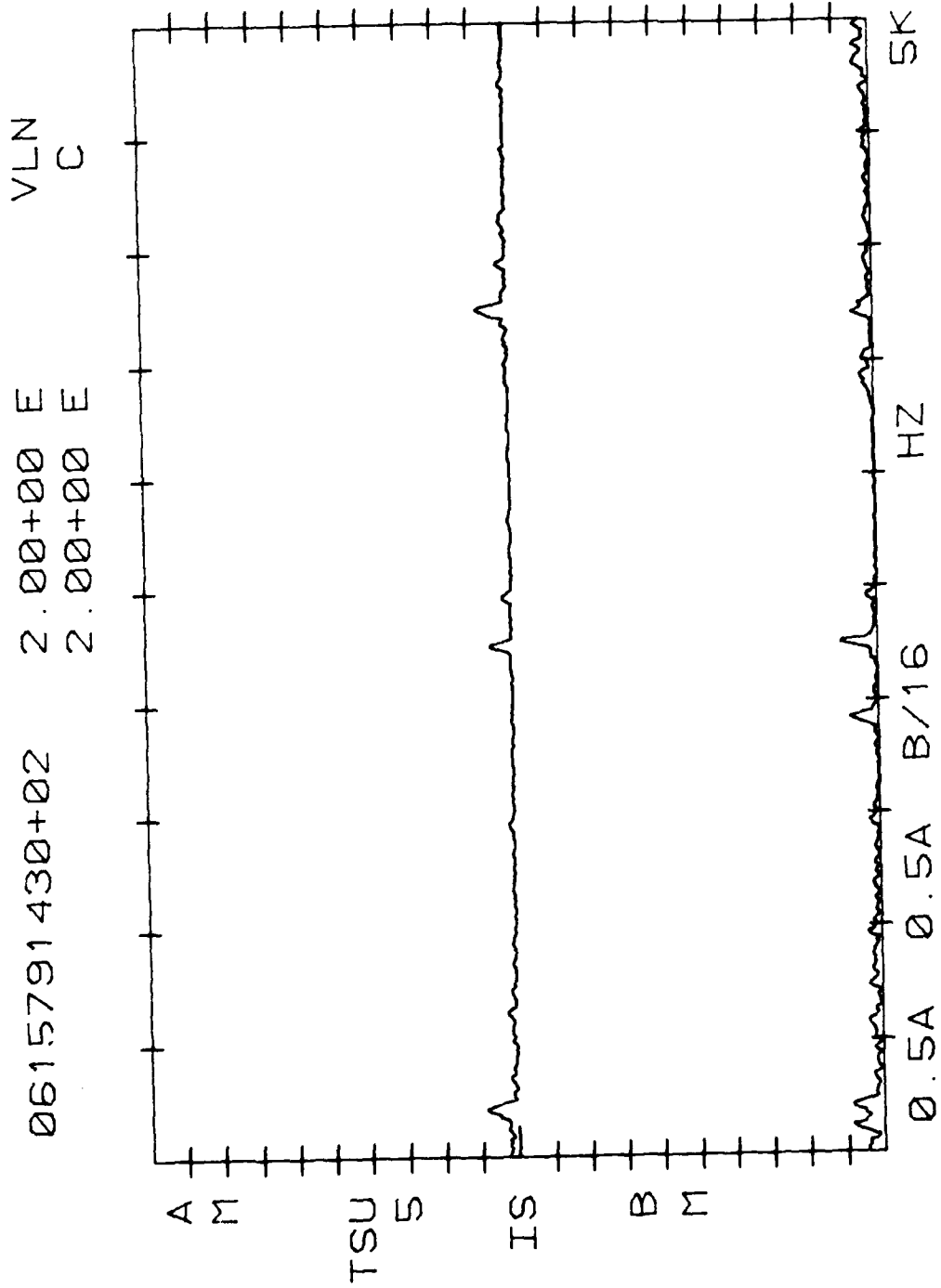


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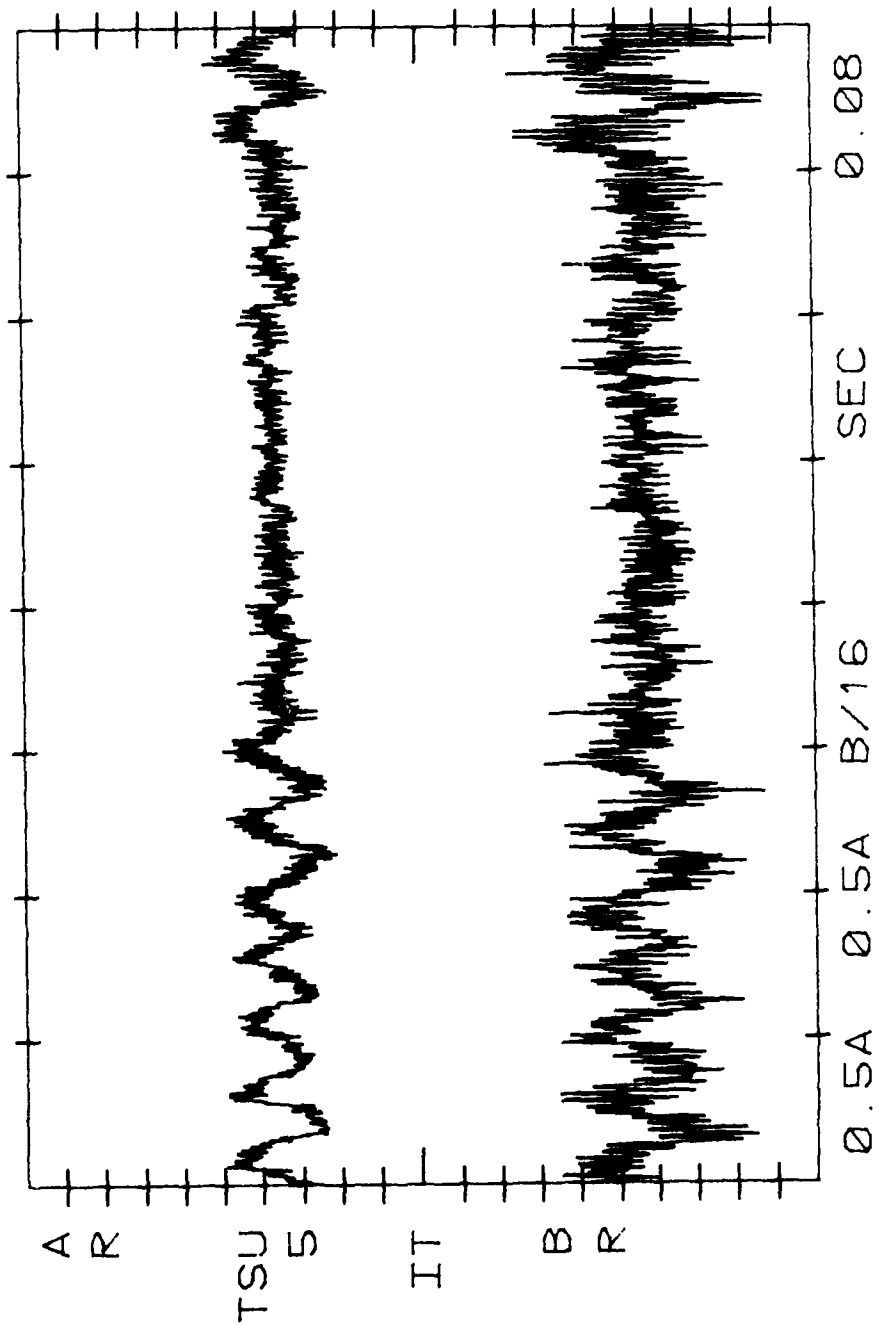


RAW DATA LISTING

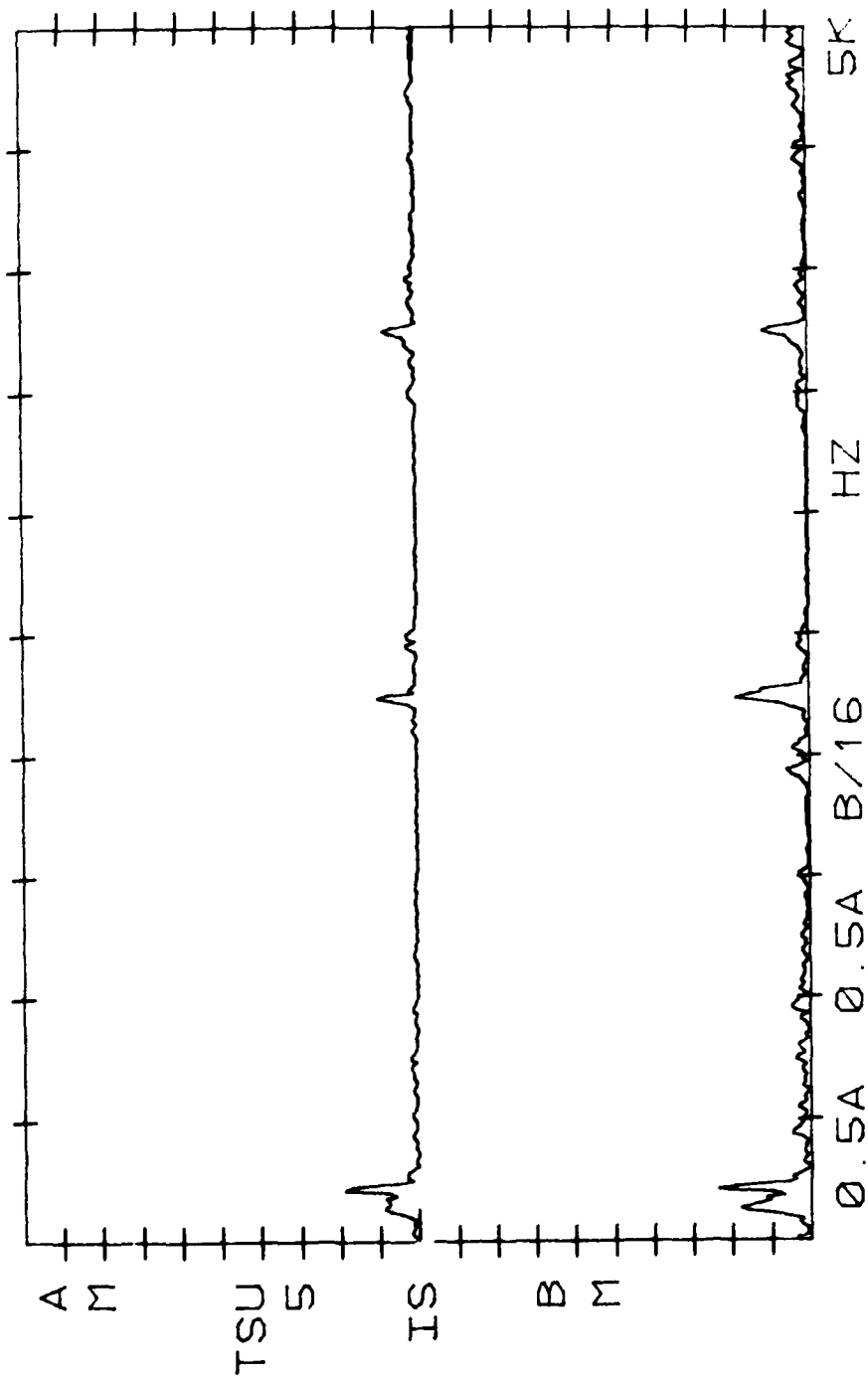
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P27007	P27008	P27009	P27010	P27011	P27012	P27013	P27014	P27015	P27006		>>>>>
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173-3112	209-8440	1001-3481	4939-4309	1019-3486	0-0011	21-3365	533-8327	155-0547	1-7970		
-54-2939	512-8912	3-2729	517-2402	9-8167	9-9496	11-1911	11-1527	11-3137	11-2911		
24-4168	12-8437	12-3261	12-4357	12-4710	12-5711	12-6265	12-7114	12-8745	14-0178		
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173-3112	209-8440	1010-6199	4924-2547	1026-2183	0-2848	214-6118	25-2449	14-4510	33-3591		
-54-2939	512-8912	3-2729	517-2402	9-8167	9-9496	11-1911	11-1527	11-3137	11-2911		
24-4168	12-8437	12-3261	12-4357	12-4710	12-5711	12-6265	12-7114	12-8745	14-0178		
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173-3112	209-8440	1013-8339	4918-1660	1030-7217	0-8084	209-4974	25-0450	14-4515	33-1262		
-54-2939	512-8912	3-2729	517-2402	9-8167	9-9496	11-1911	11-1527	11-3137	11-2911		
24-4168	12-8437	12-3261	12-4357	12-4710	12-5711	12-6265	12-7114	12-8745	14-0178		
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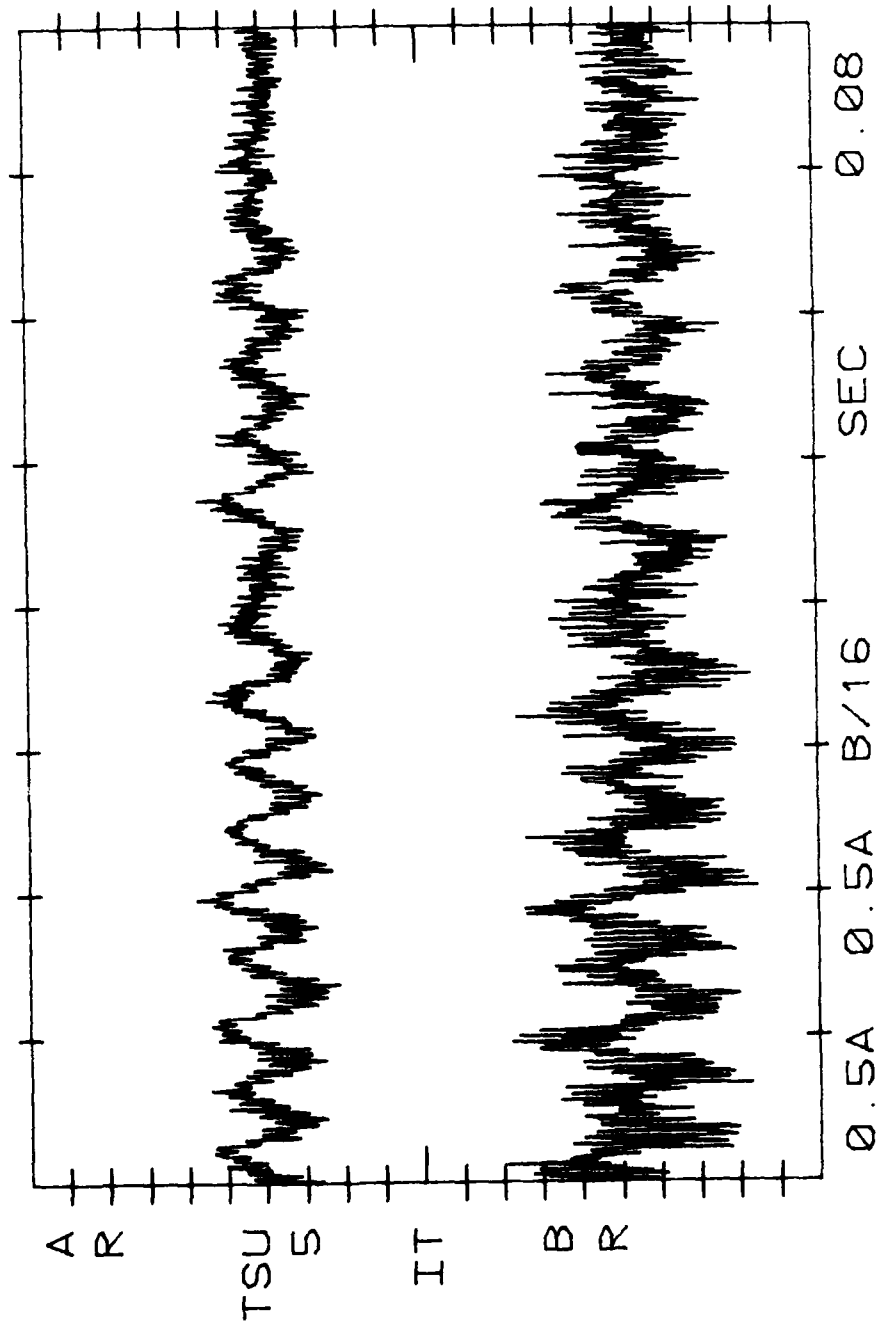
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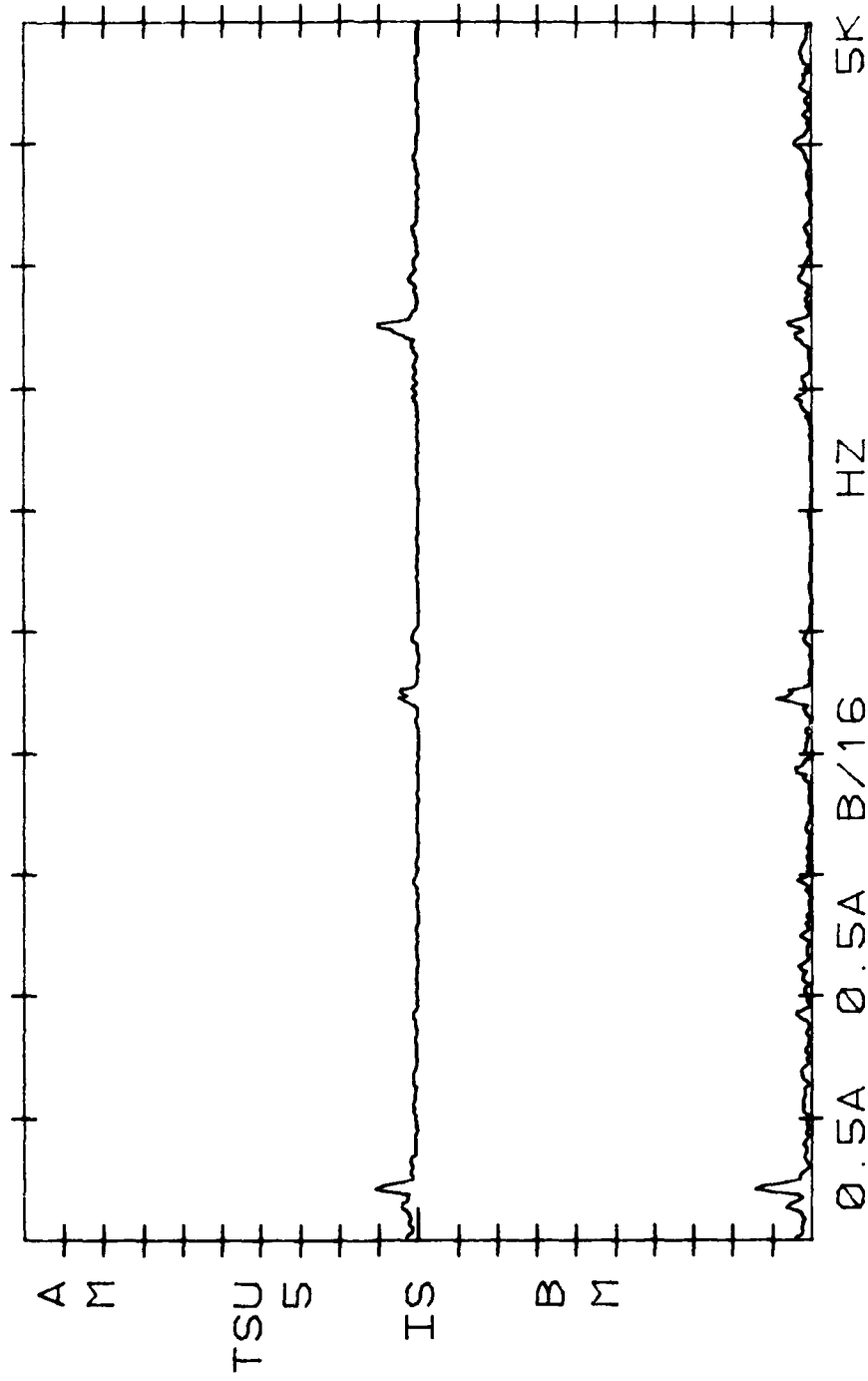
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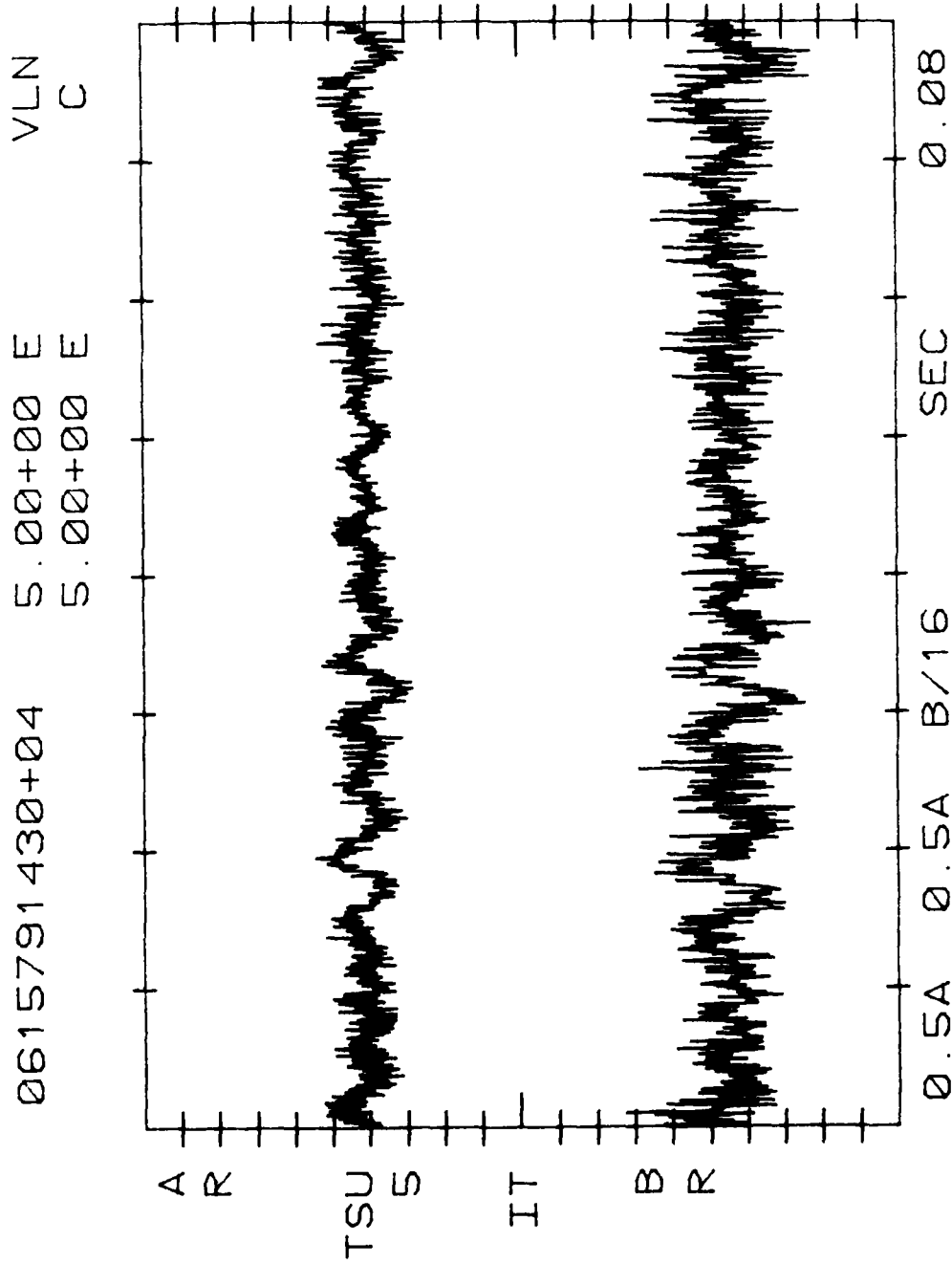


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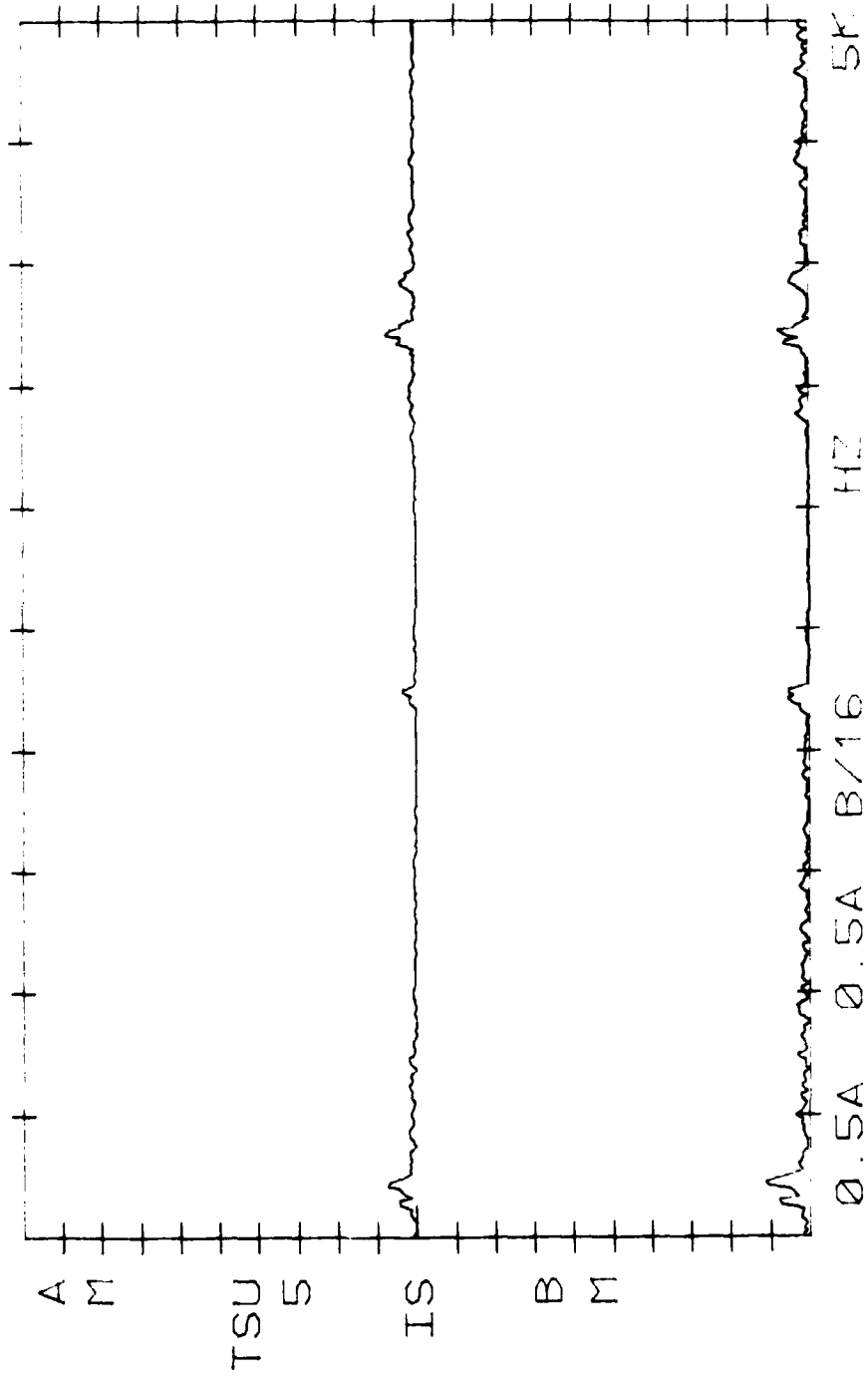


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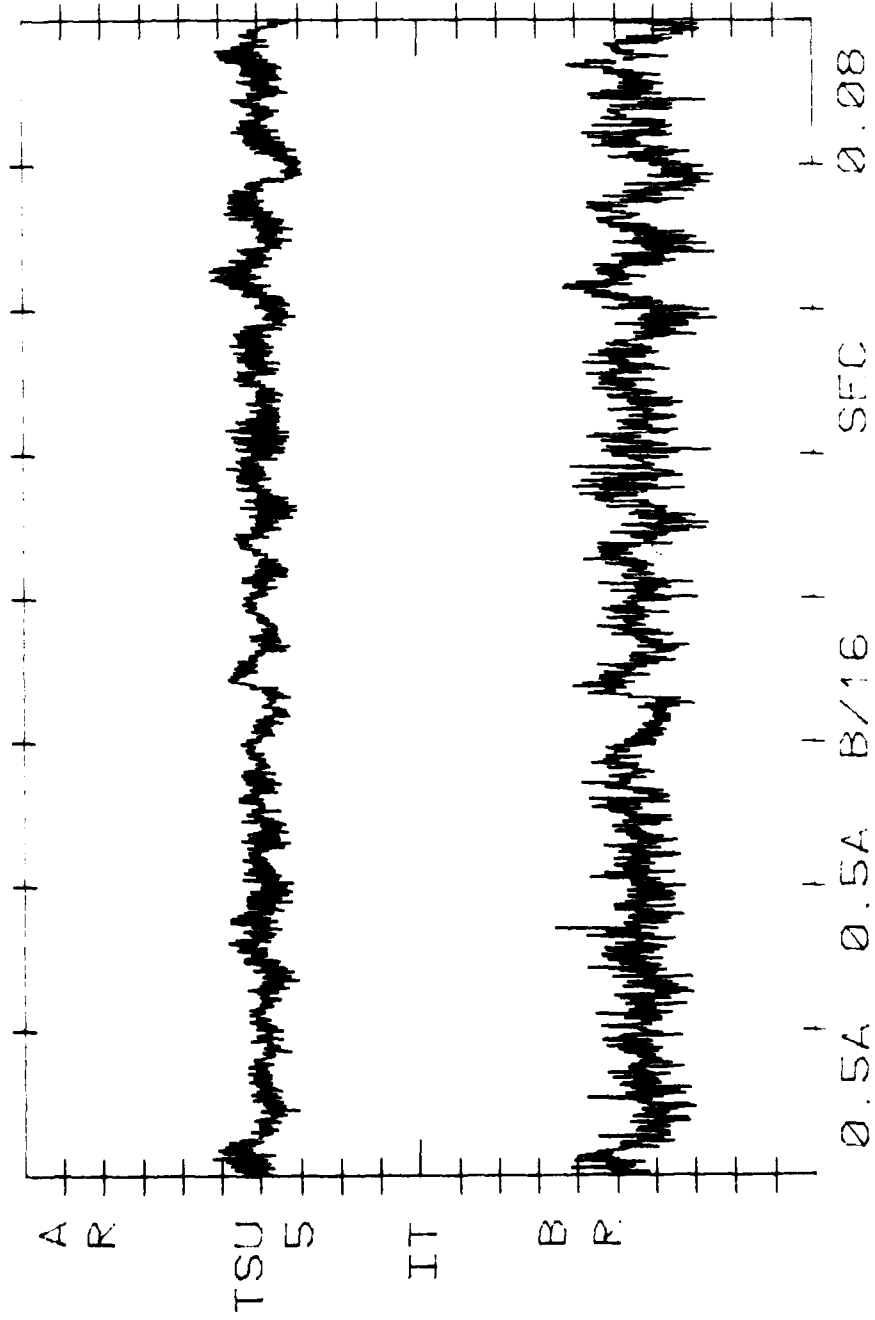




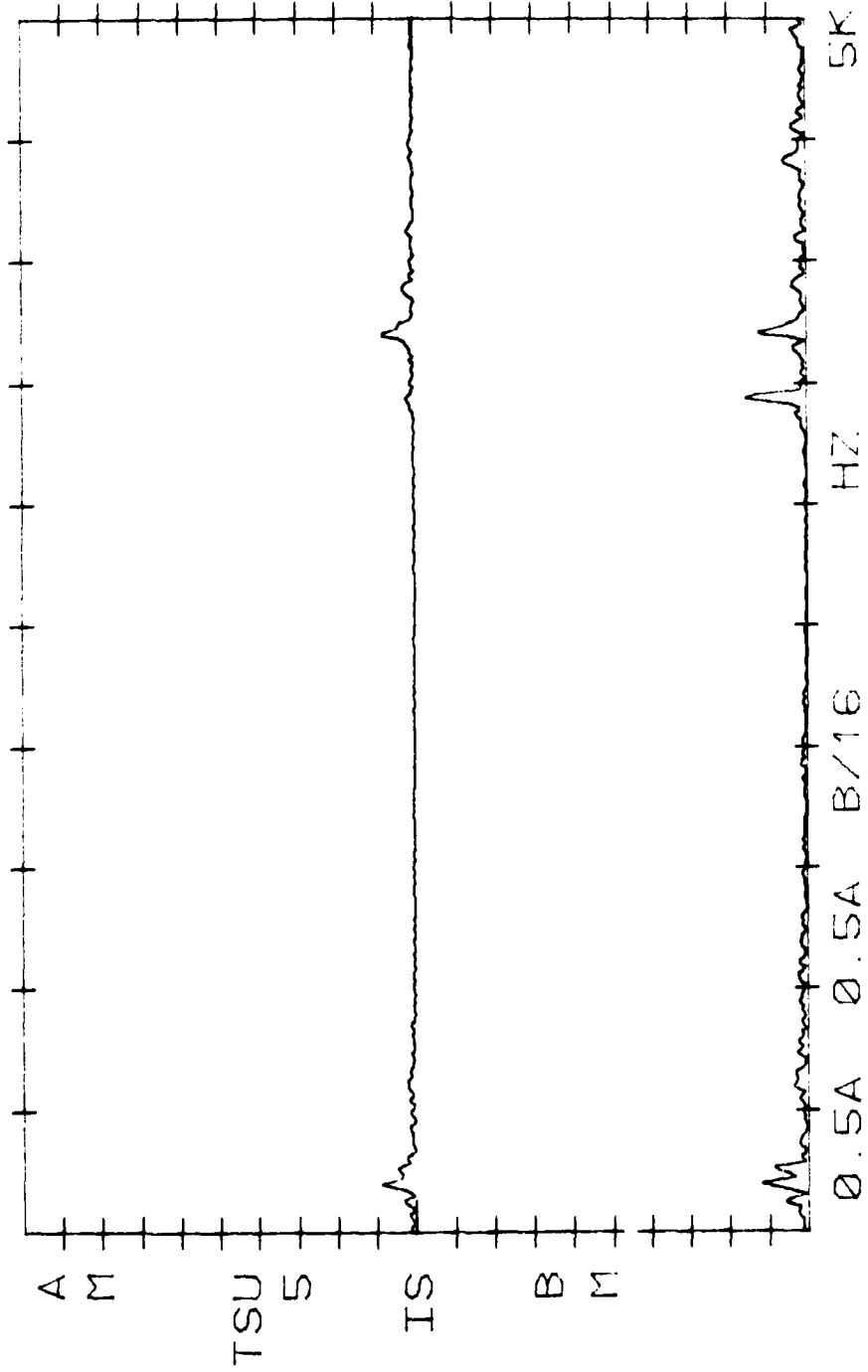
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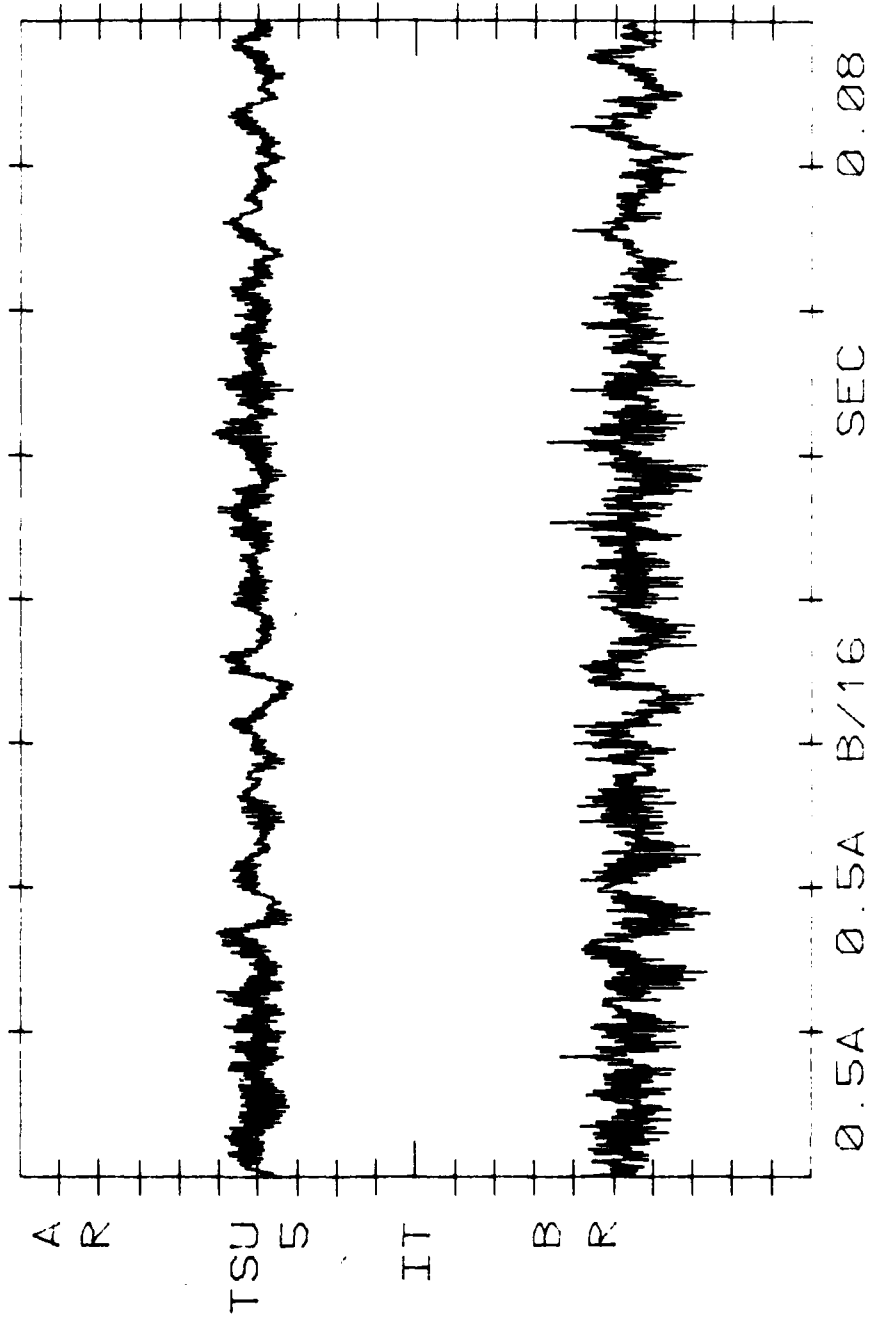
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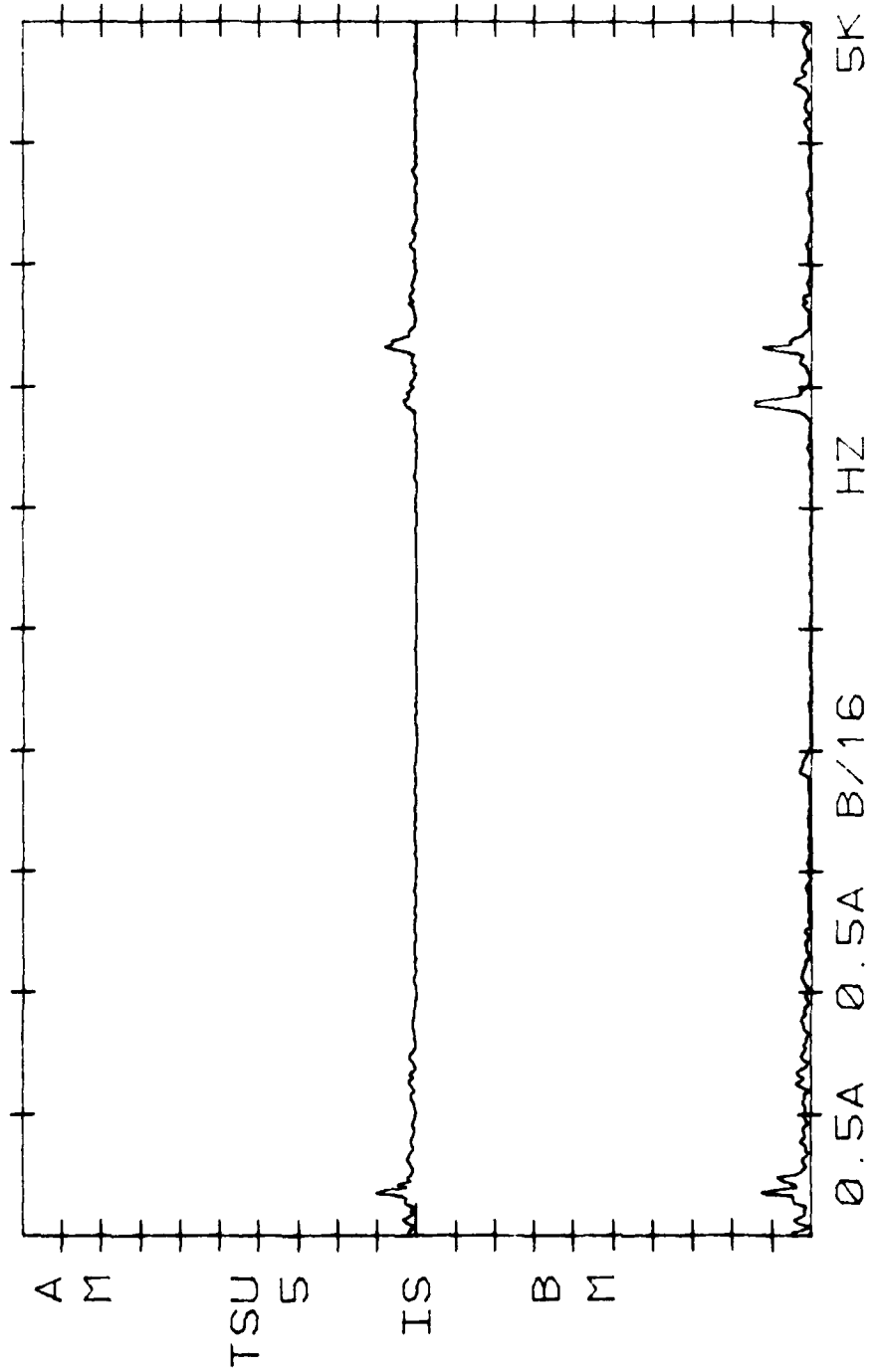
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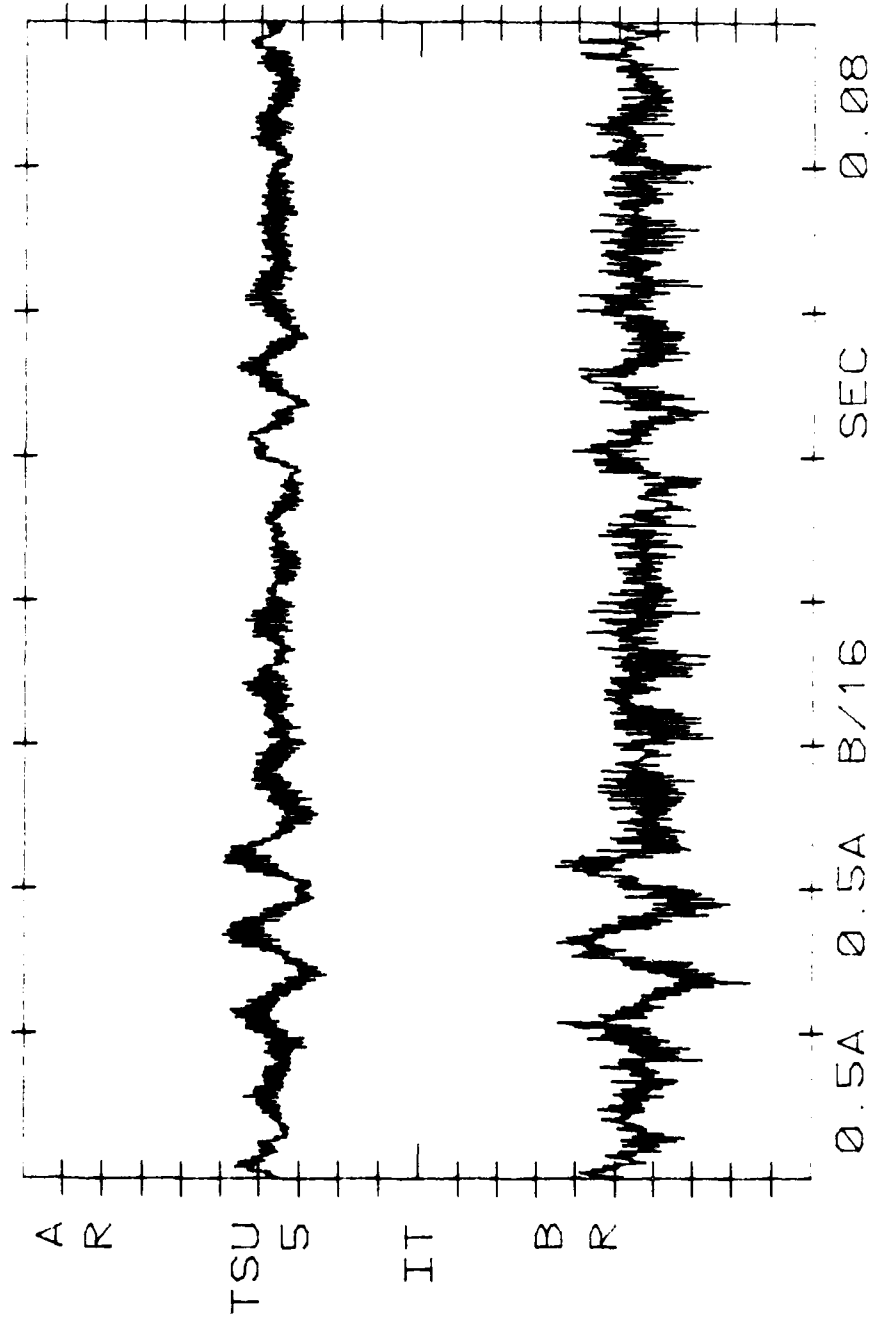
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0615791 430+07 2.00+00 E VLN
2.00+00 E C



0615791430+07 5.00+00 E VLN
 5.00+00 E C



AD-A111 355

COAXIAL DUMP RAMJET COMBUSTOR COMBUSTION INSTABILITIES
PART I PARAMETRIC..(U) AIR FORCE WRIGHT AERONAUTICAL
LABS WRIGHT-PATTERSON AFB OH D L DAVIS JUL 81

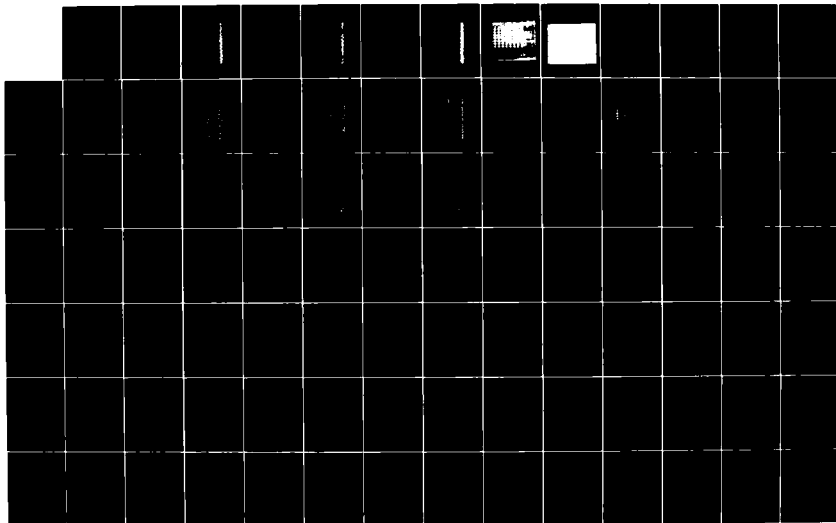
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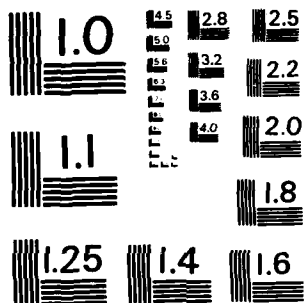
UNCLASSIFIED

AFWAL-TR-81-2047-PT-1

F/O 21/5

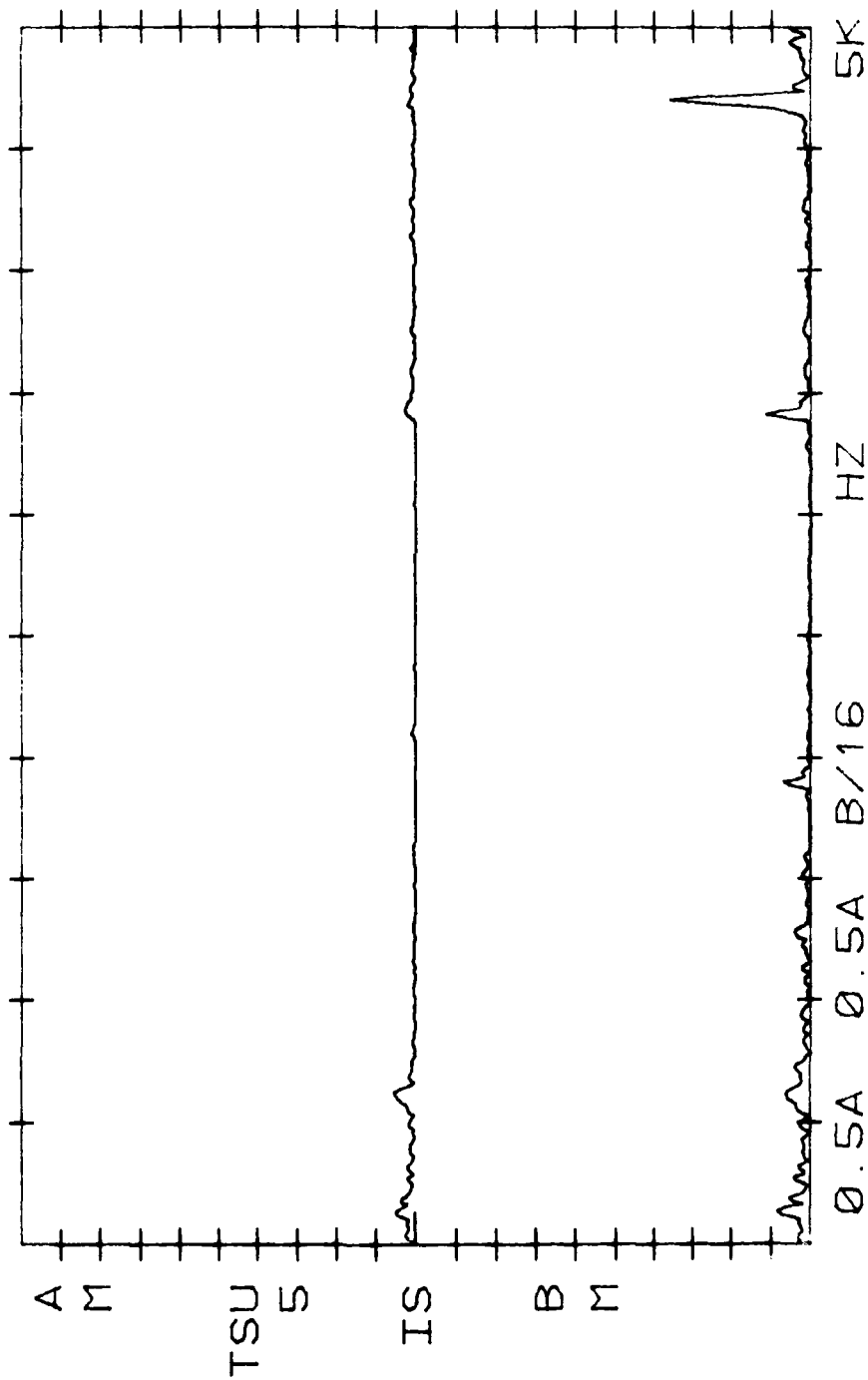
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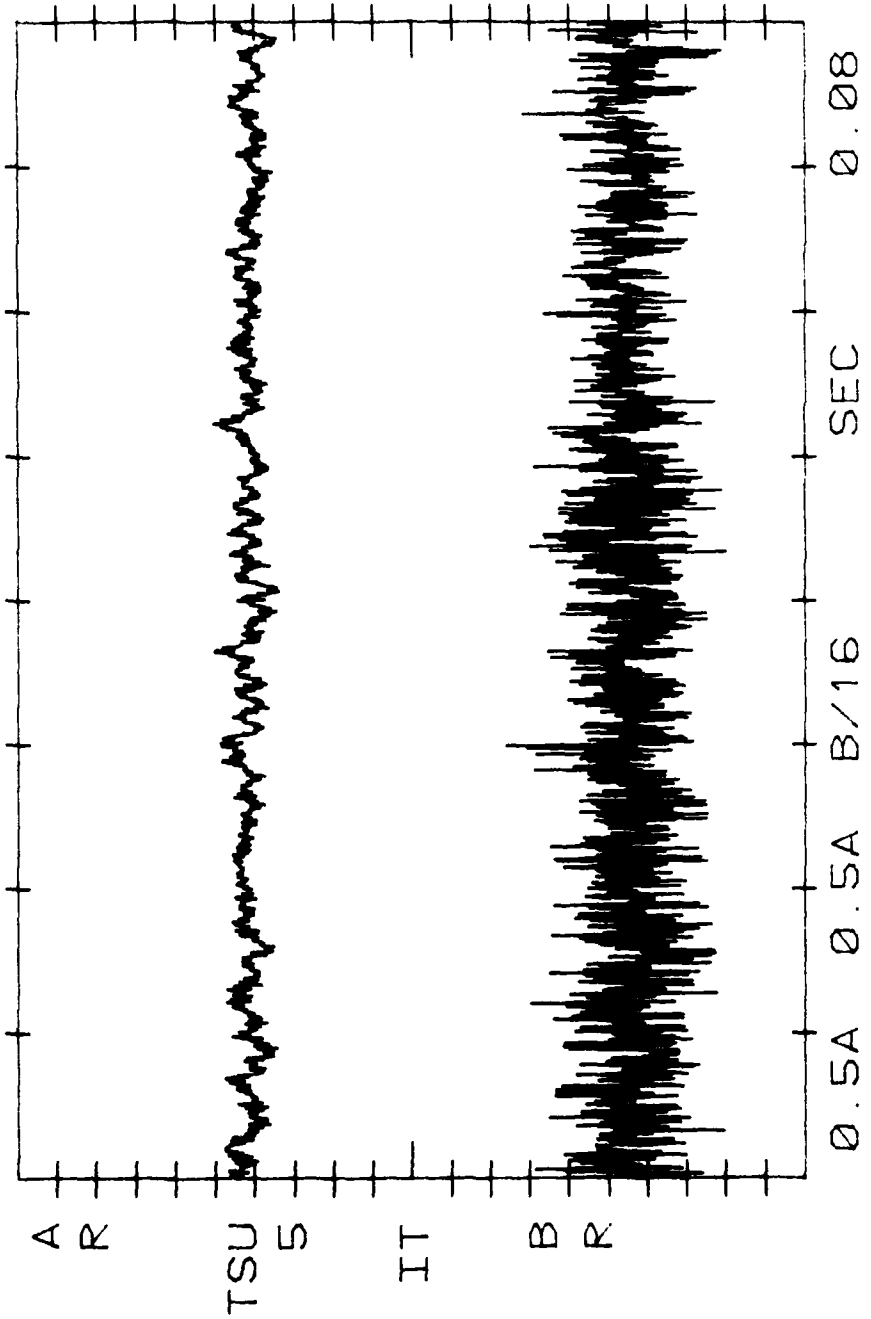


MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

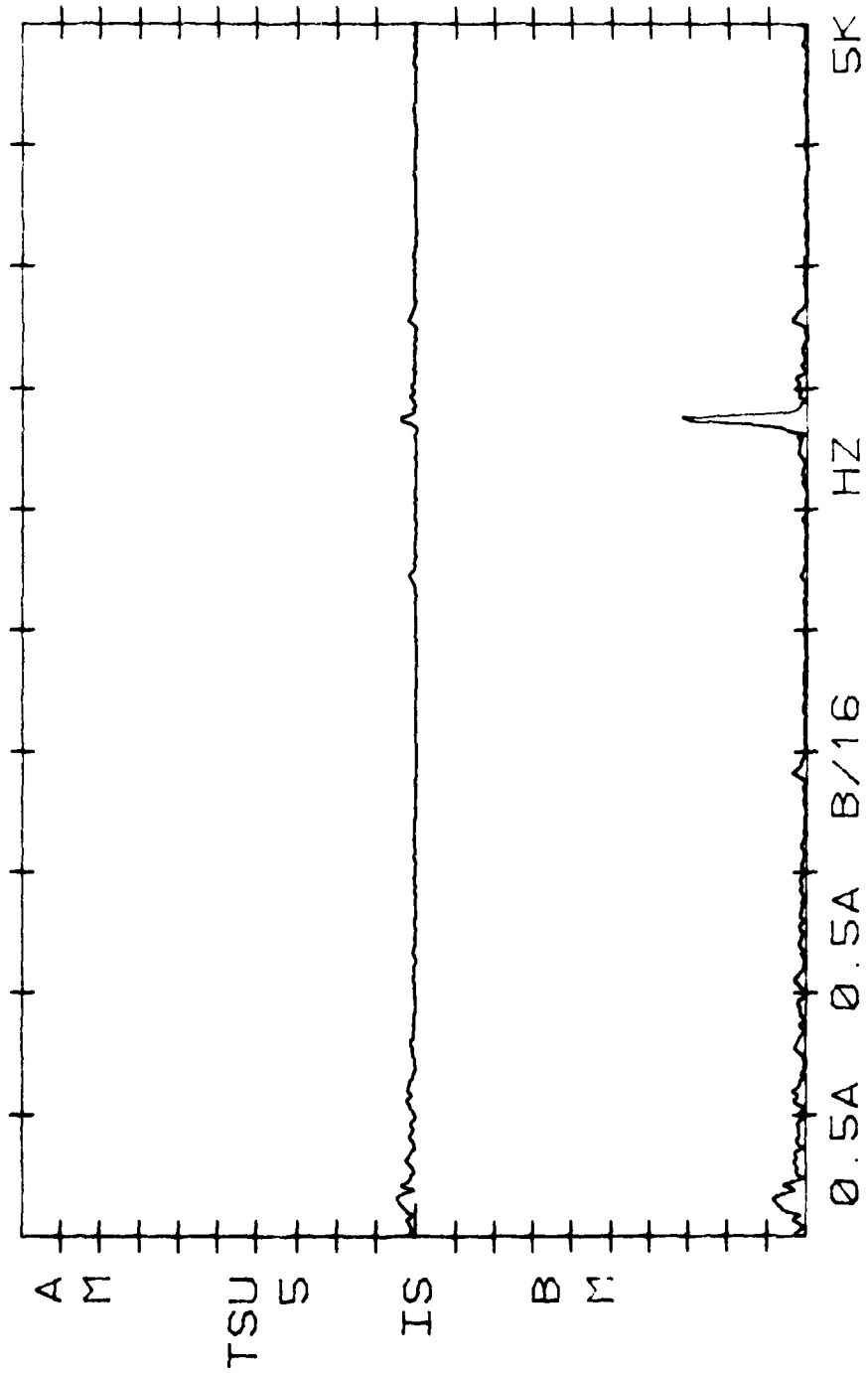
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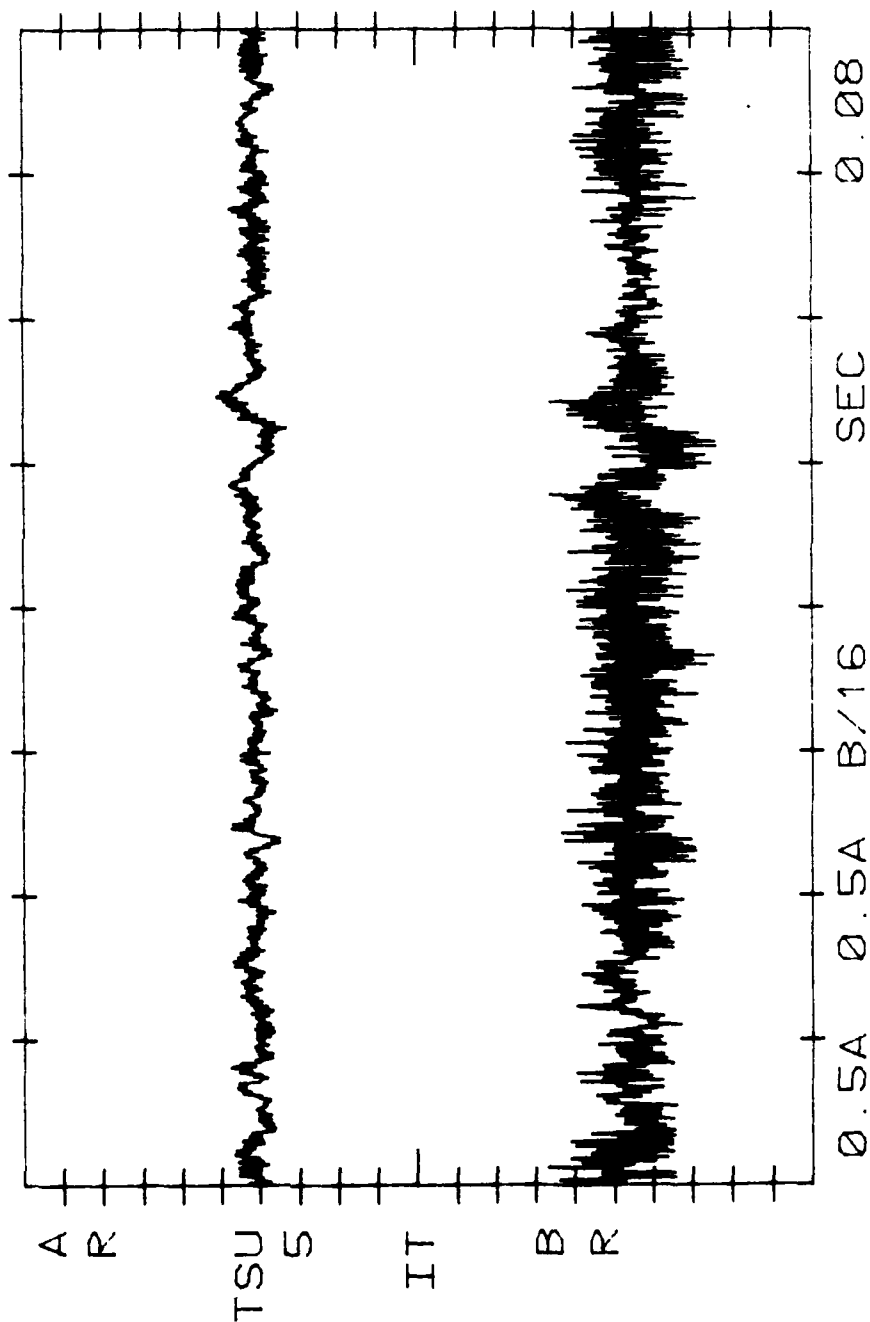
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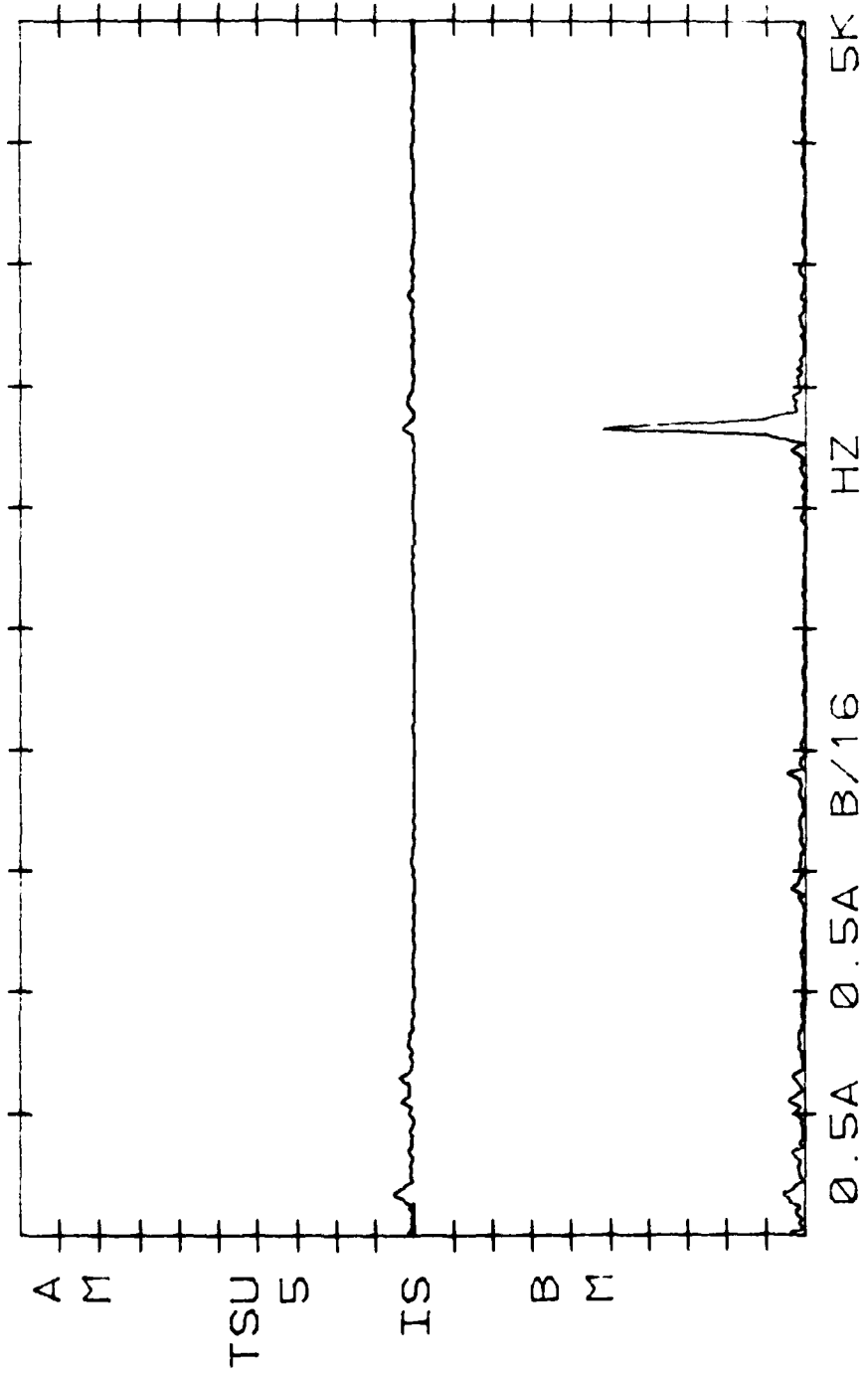
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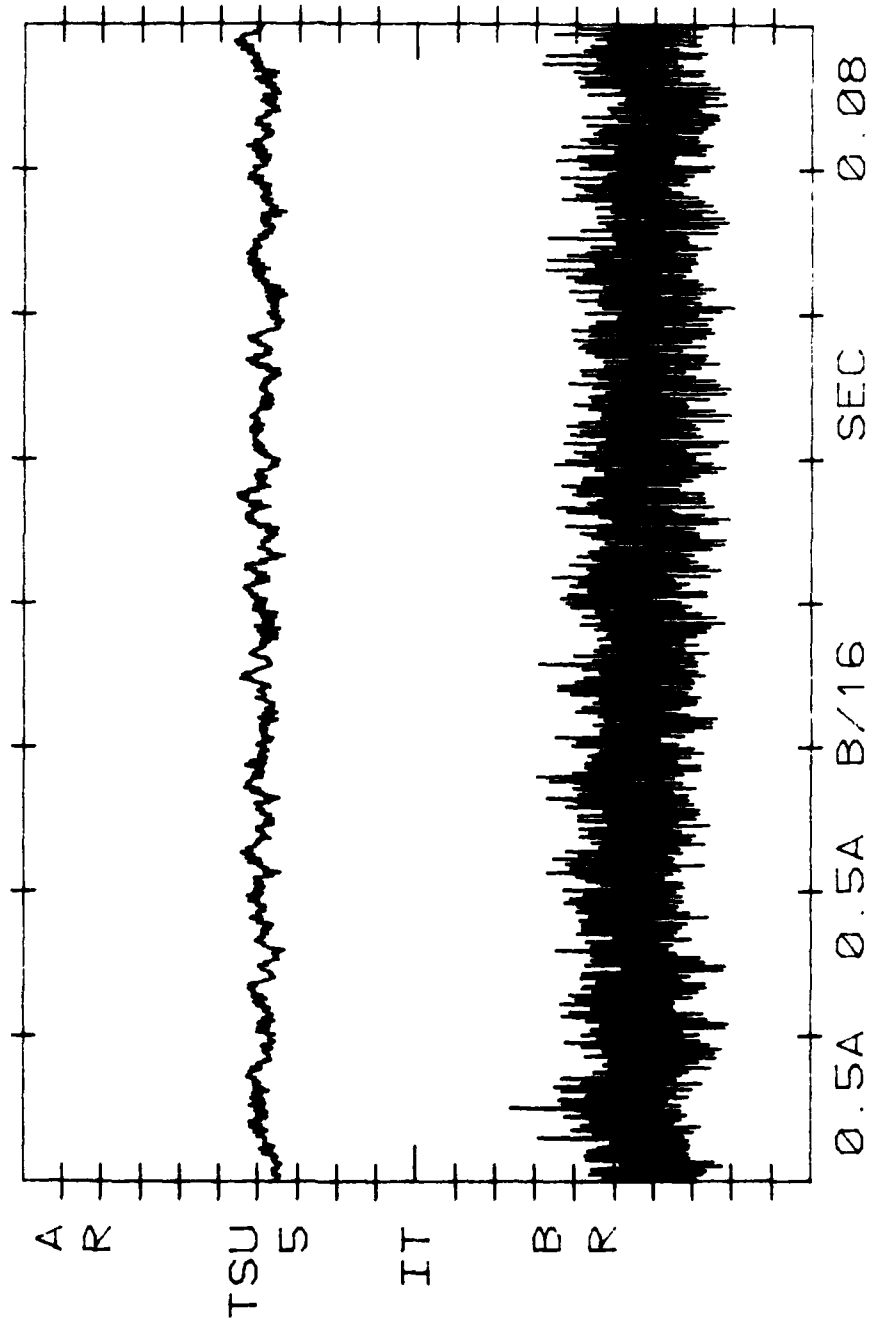
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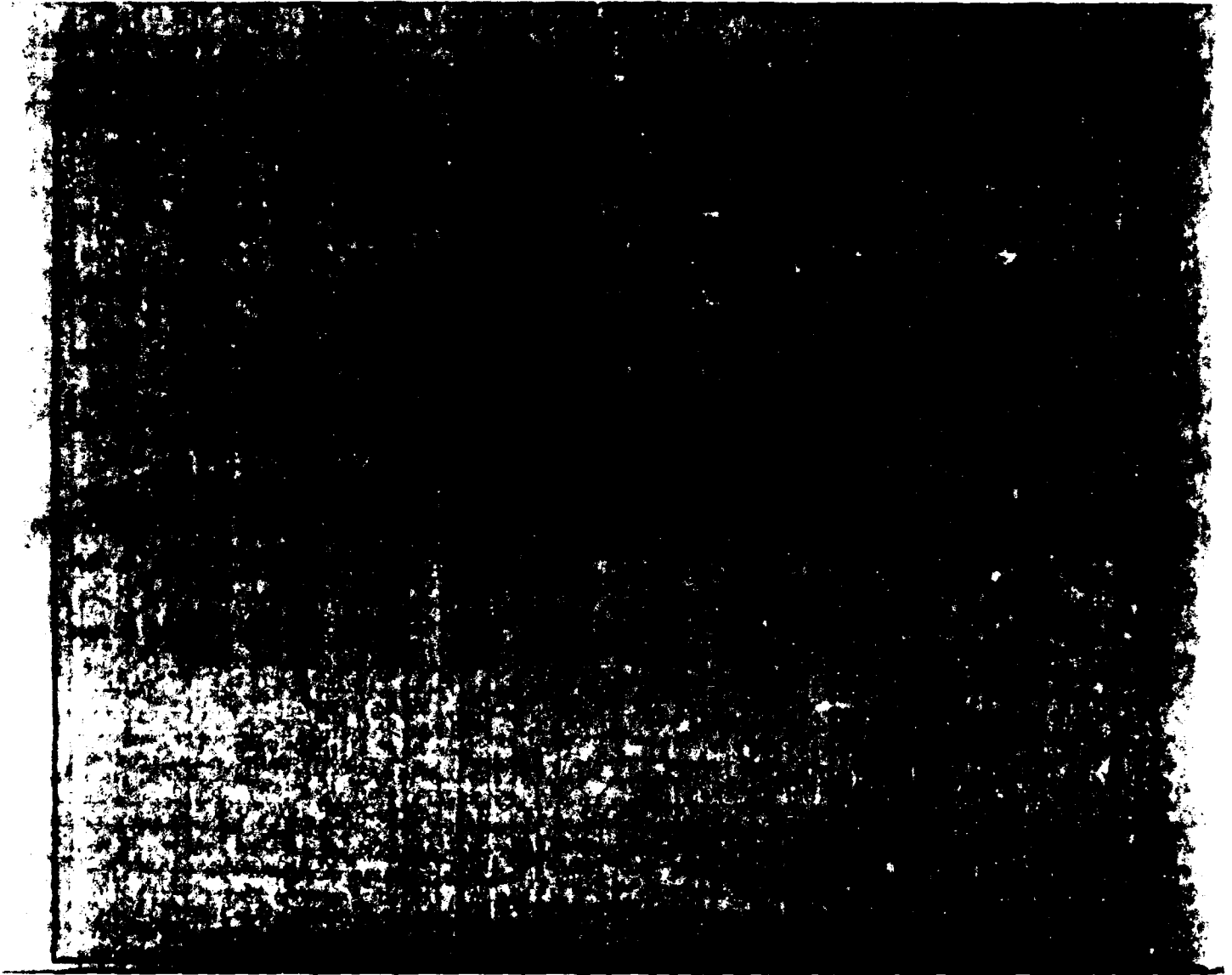
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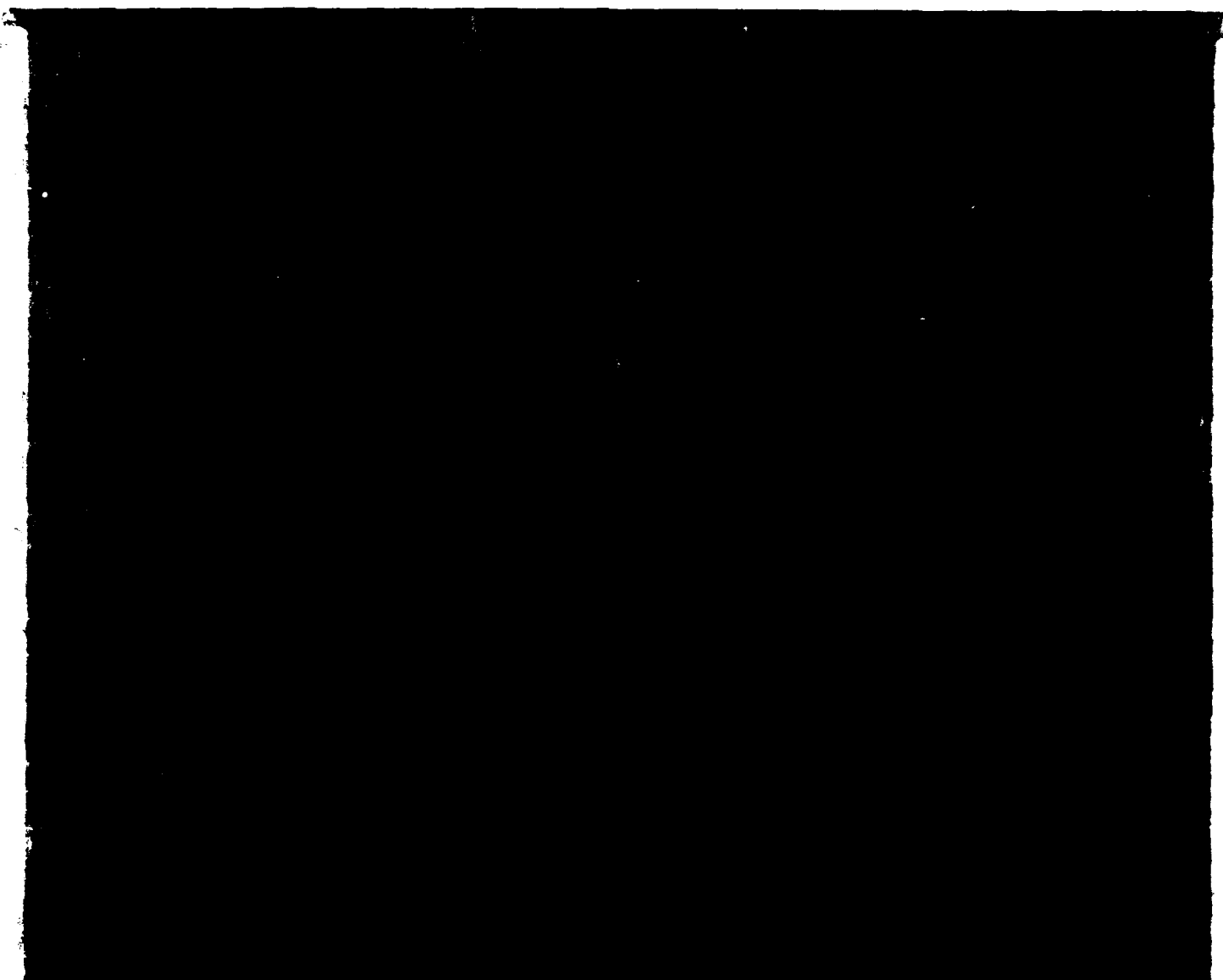


AFWAL-TR-81-2047
Part I

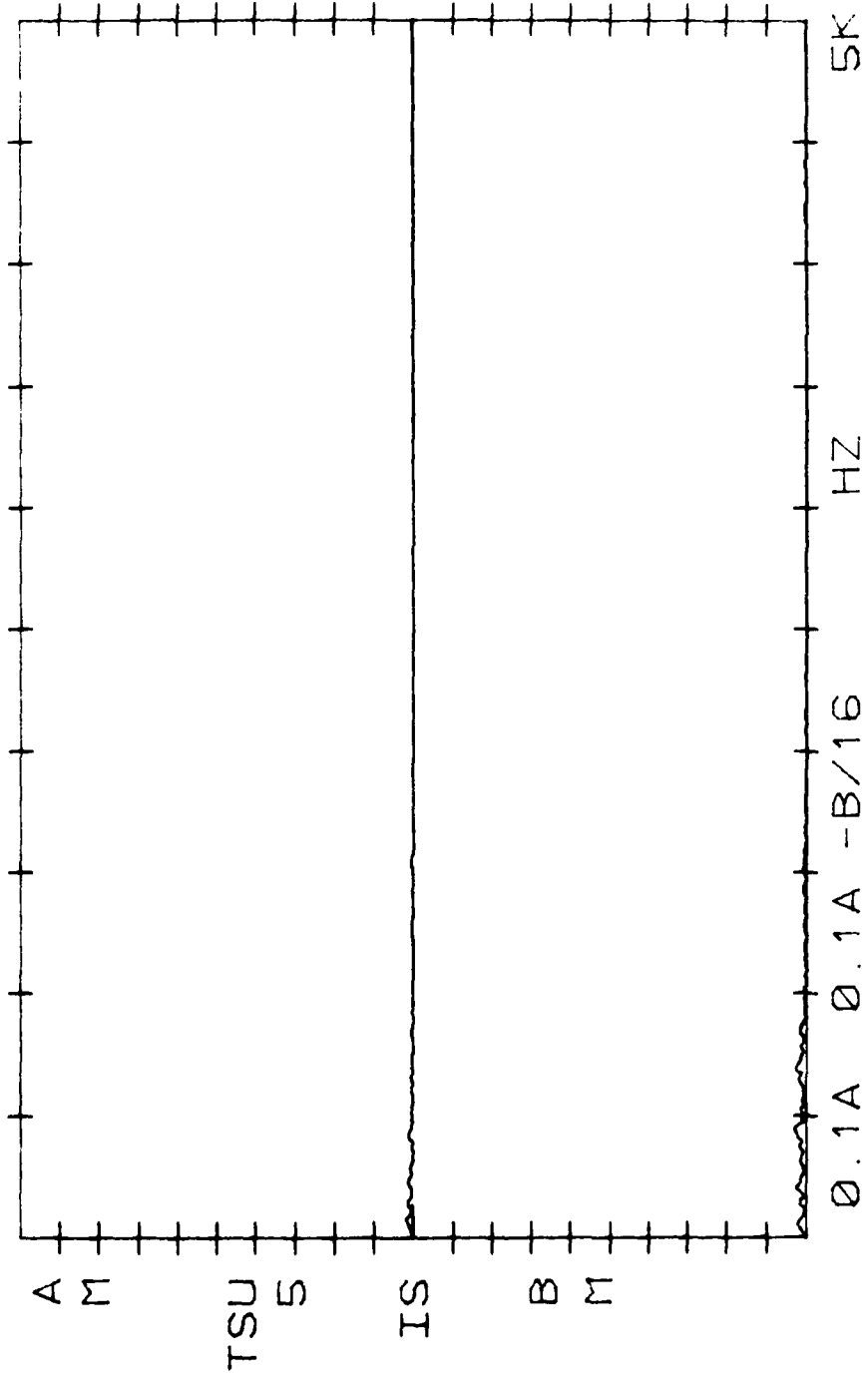


AFWAL-TR-81-2047
Part I

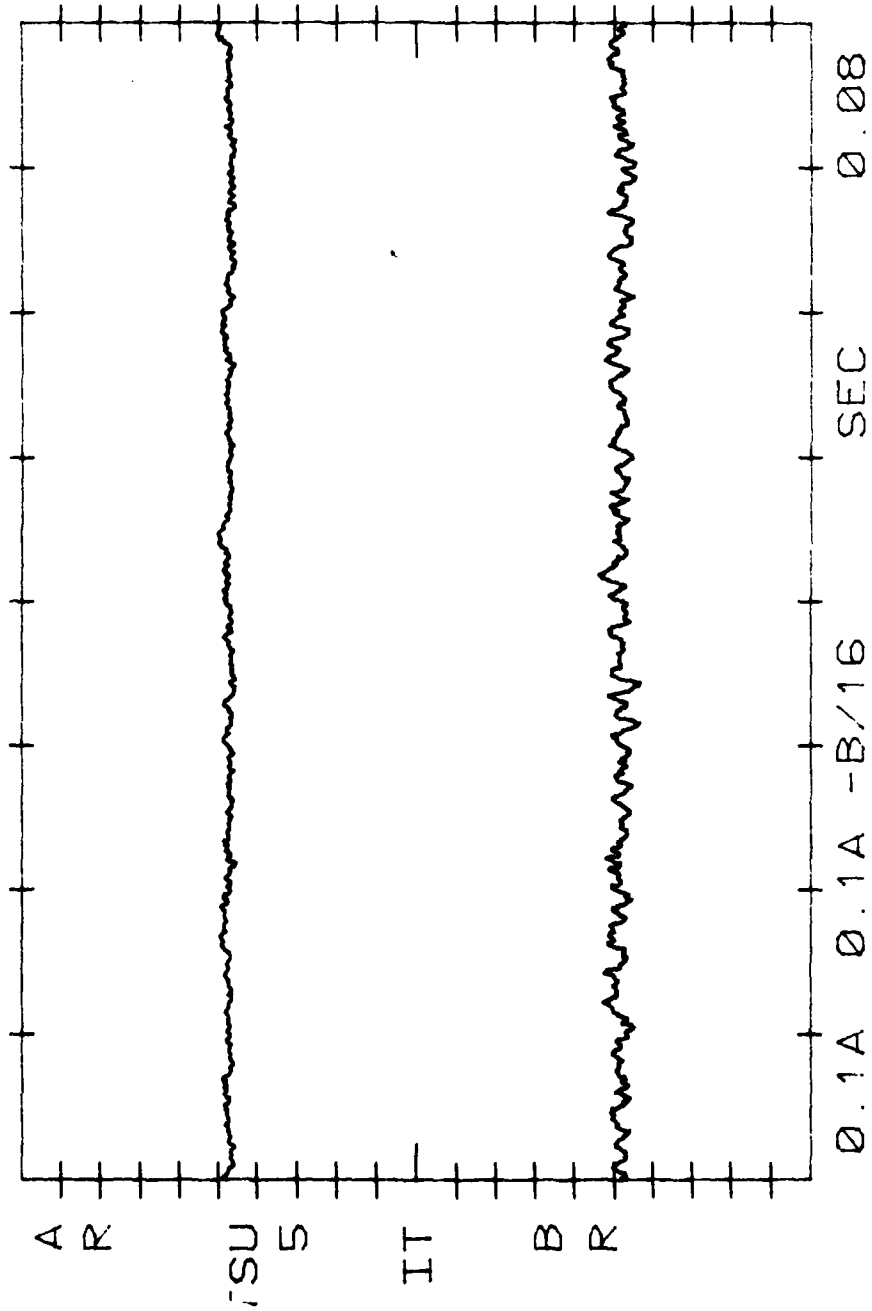
RAW DATA LISTING



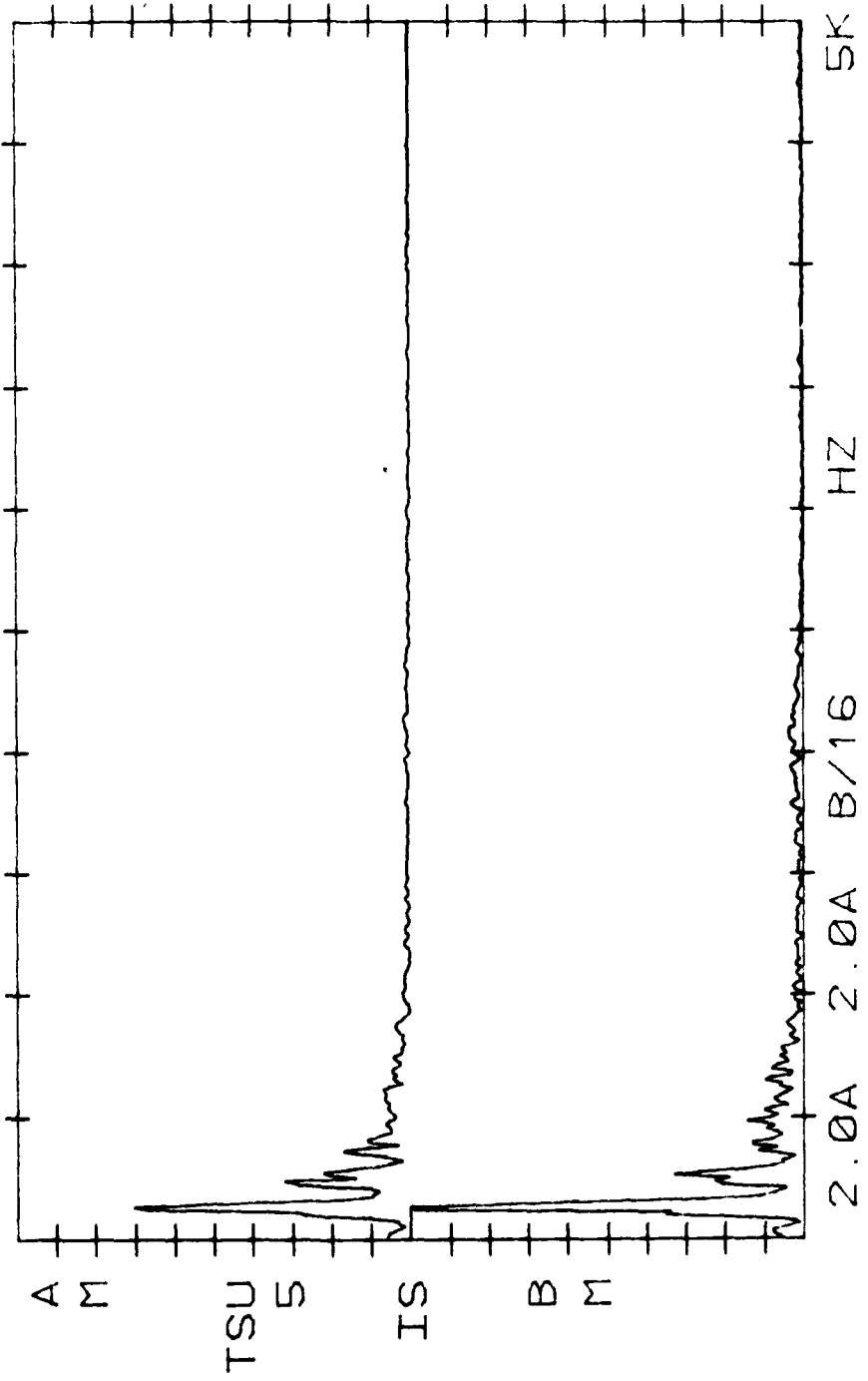
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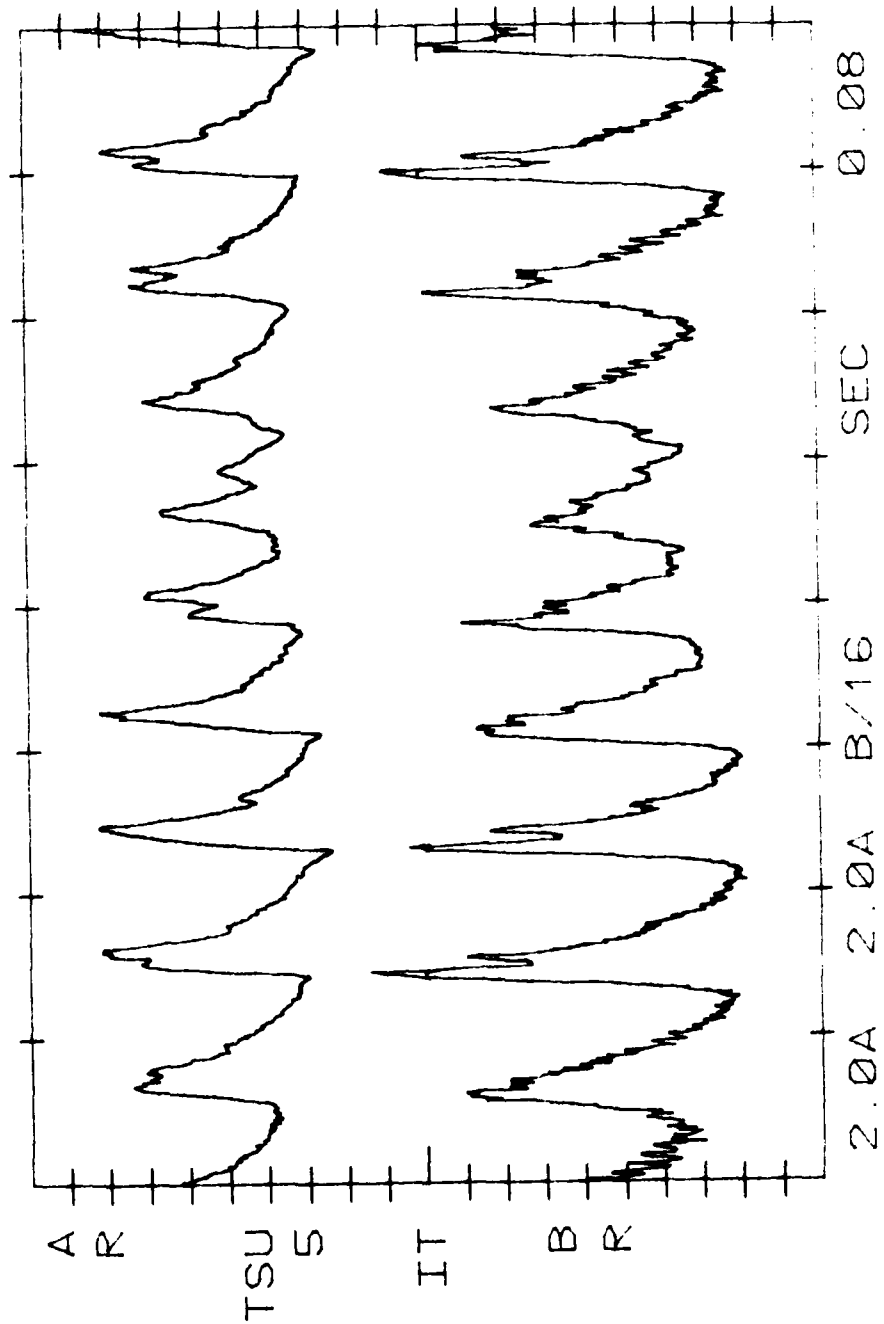
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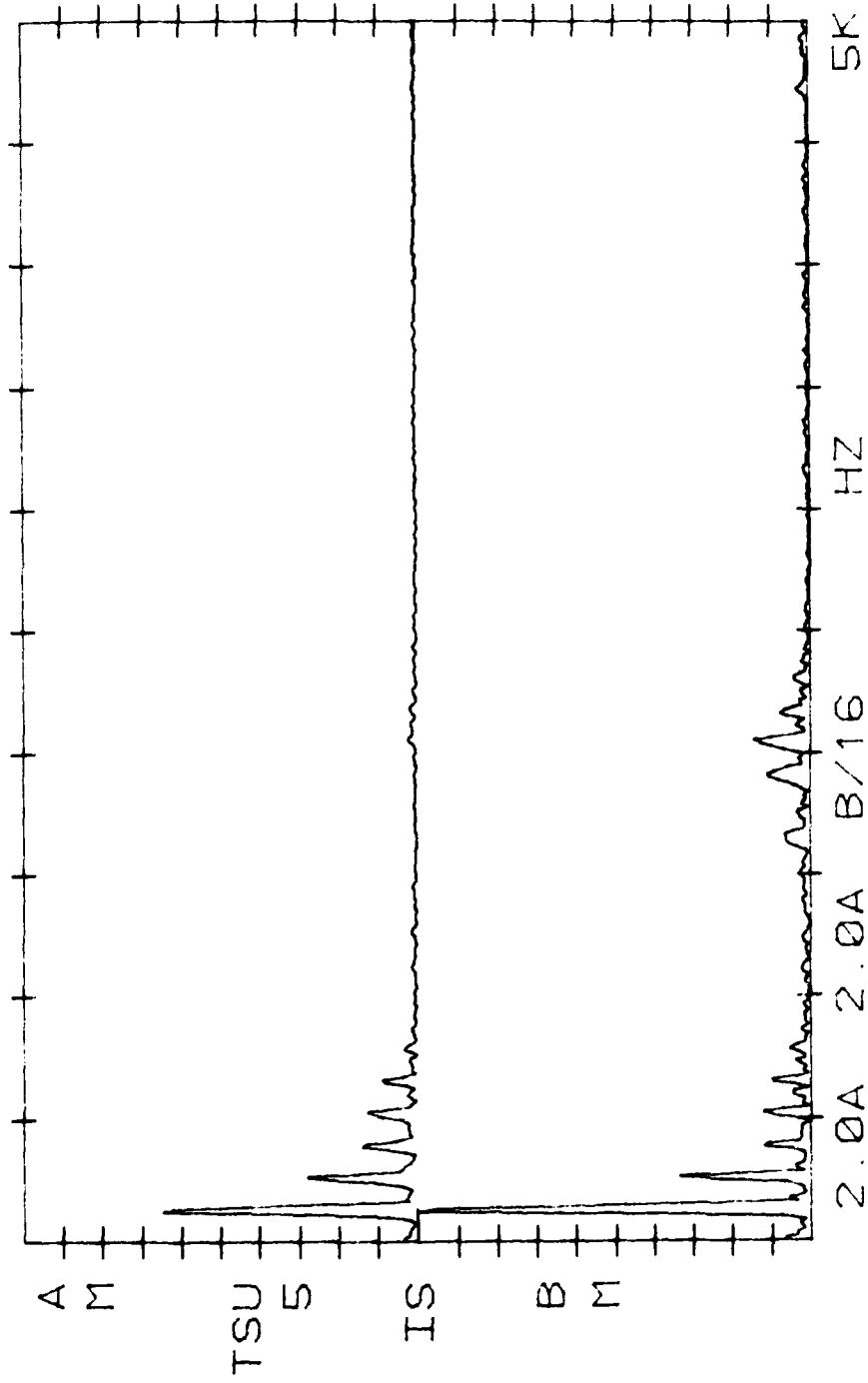
VLN
C

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20.0+00 E

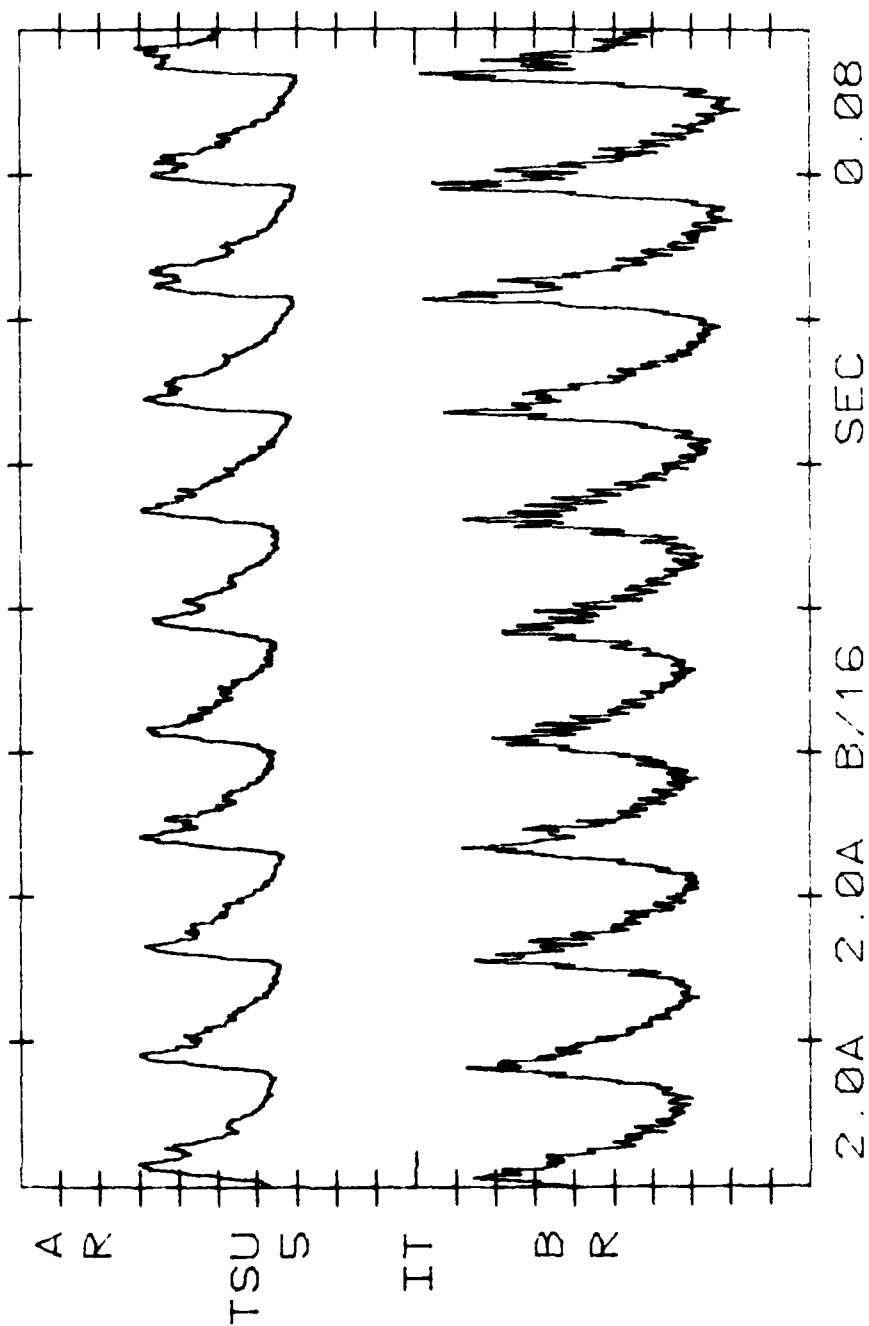
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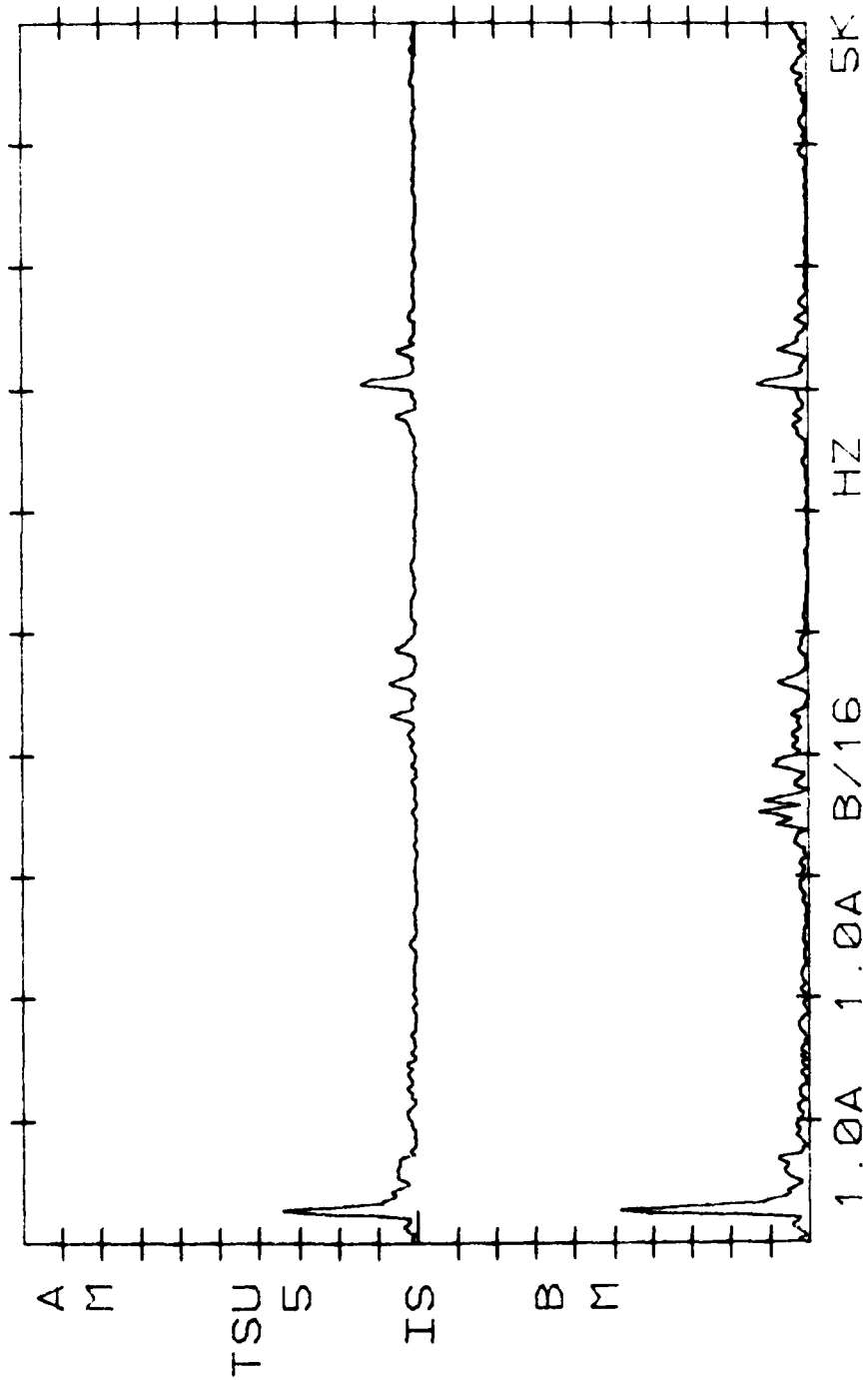
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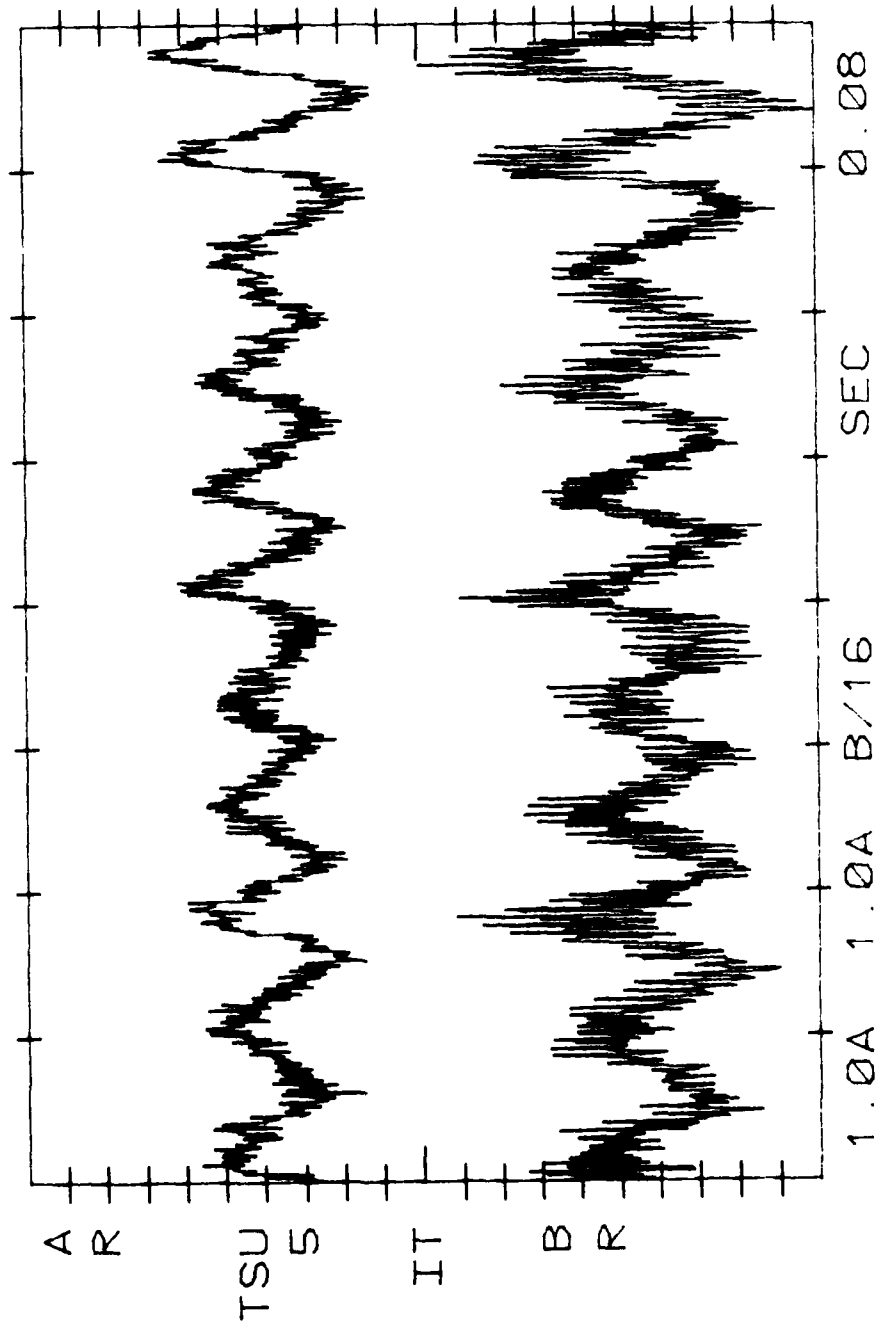
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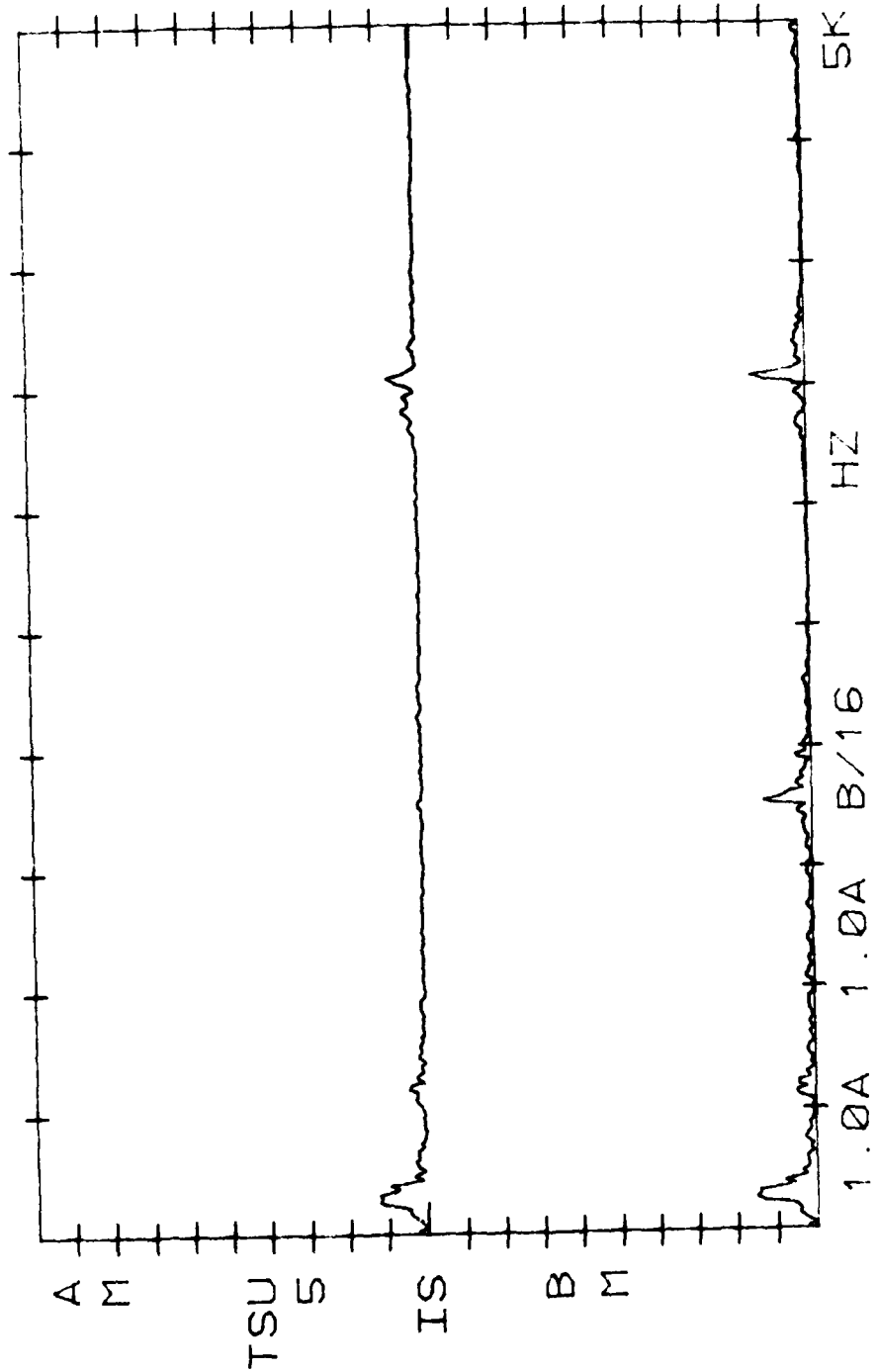
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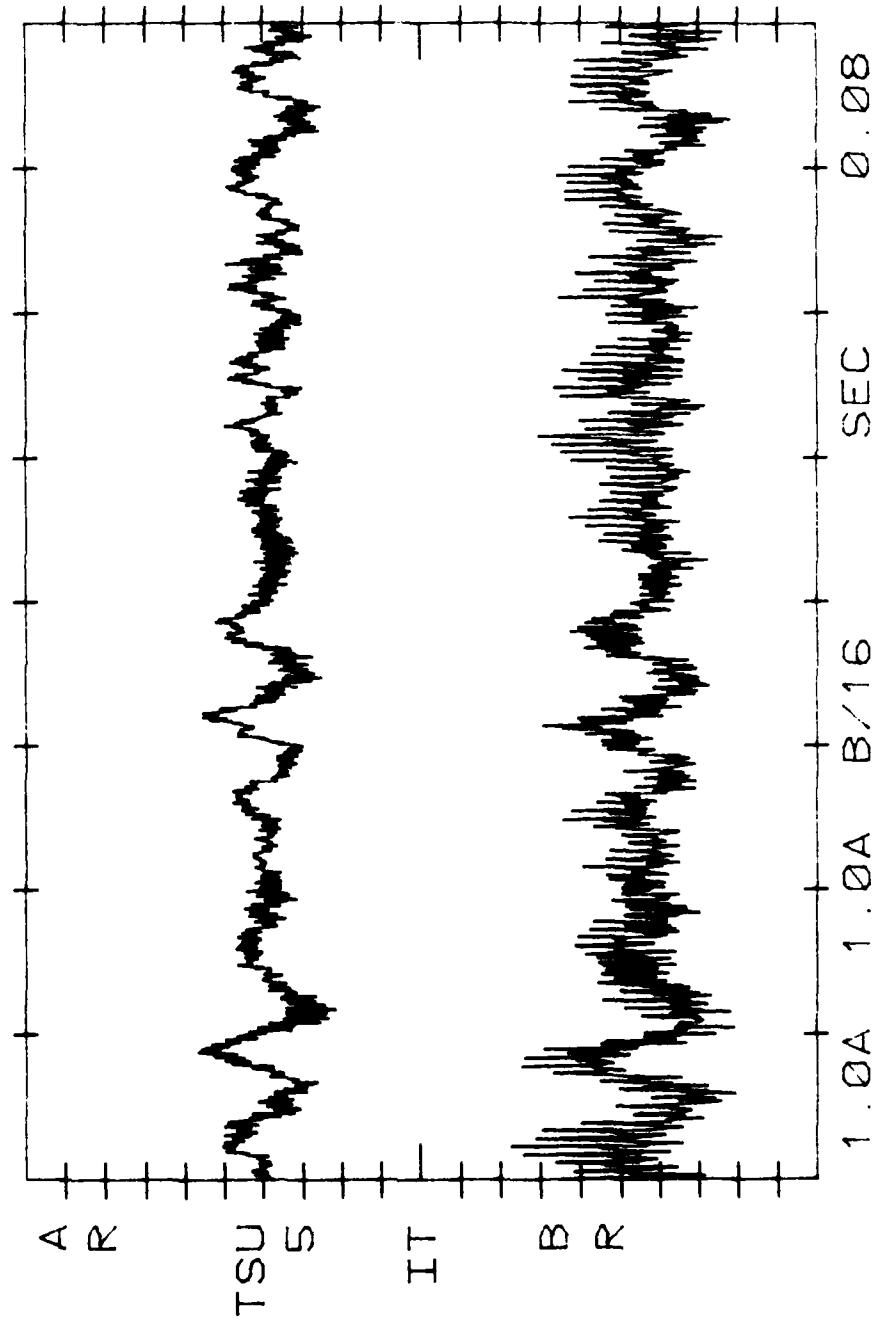
VLN
C

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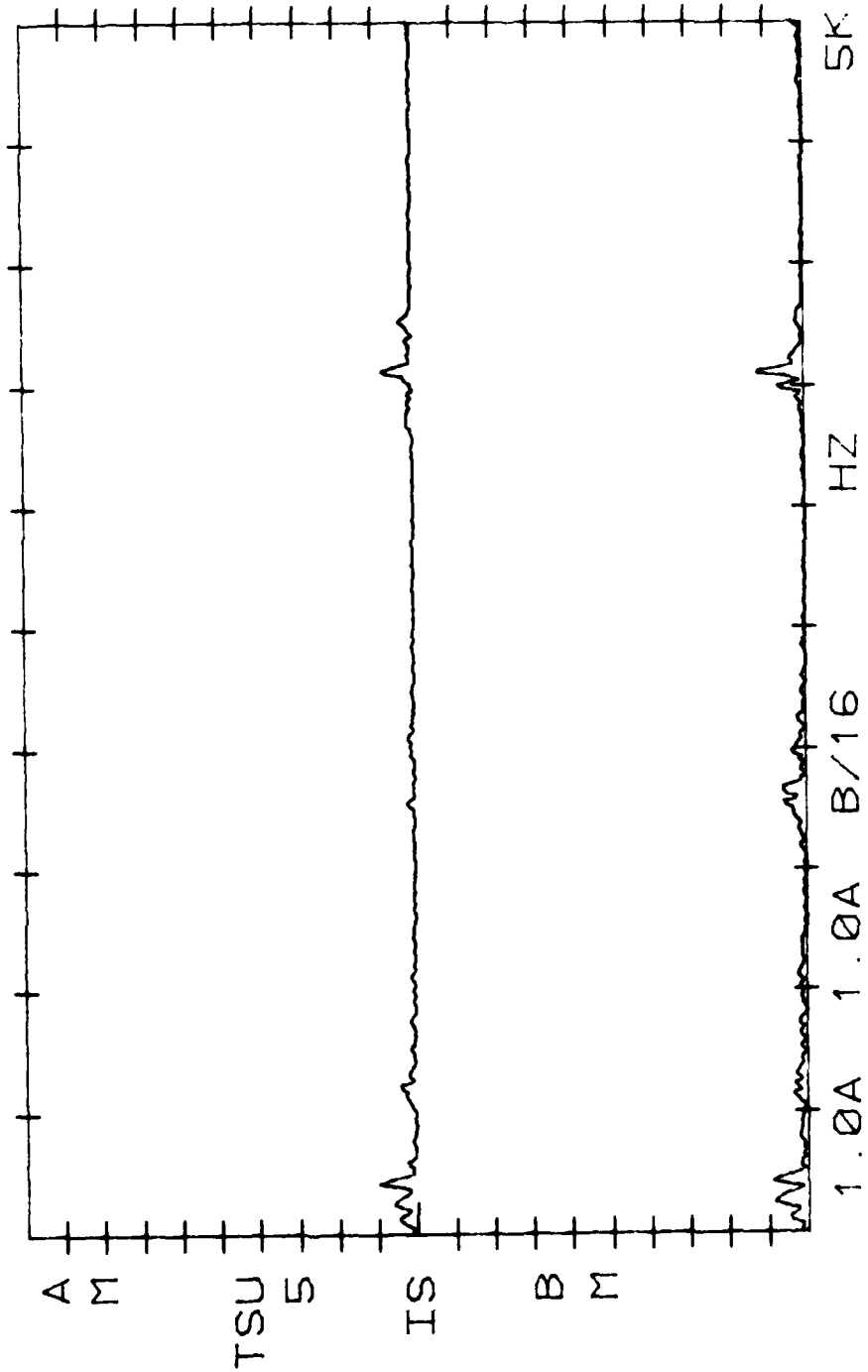
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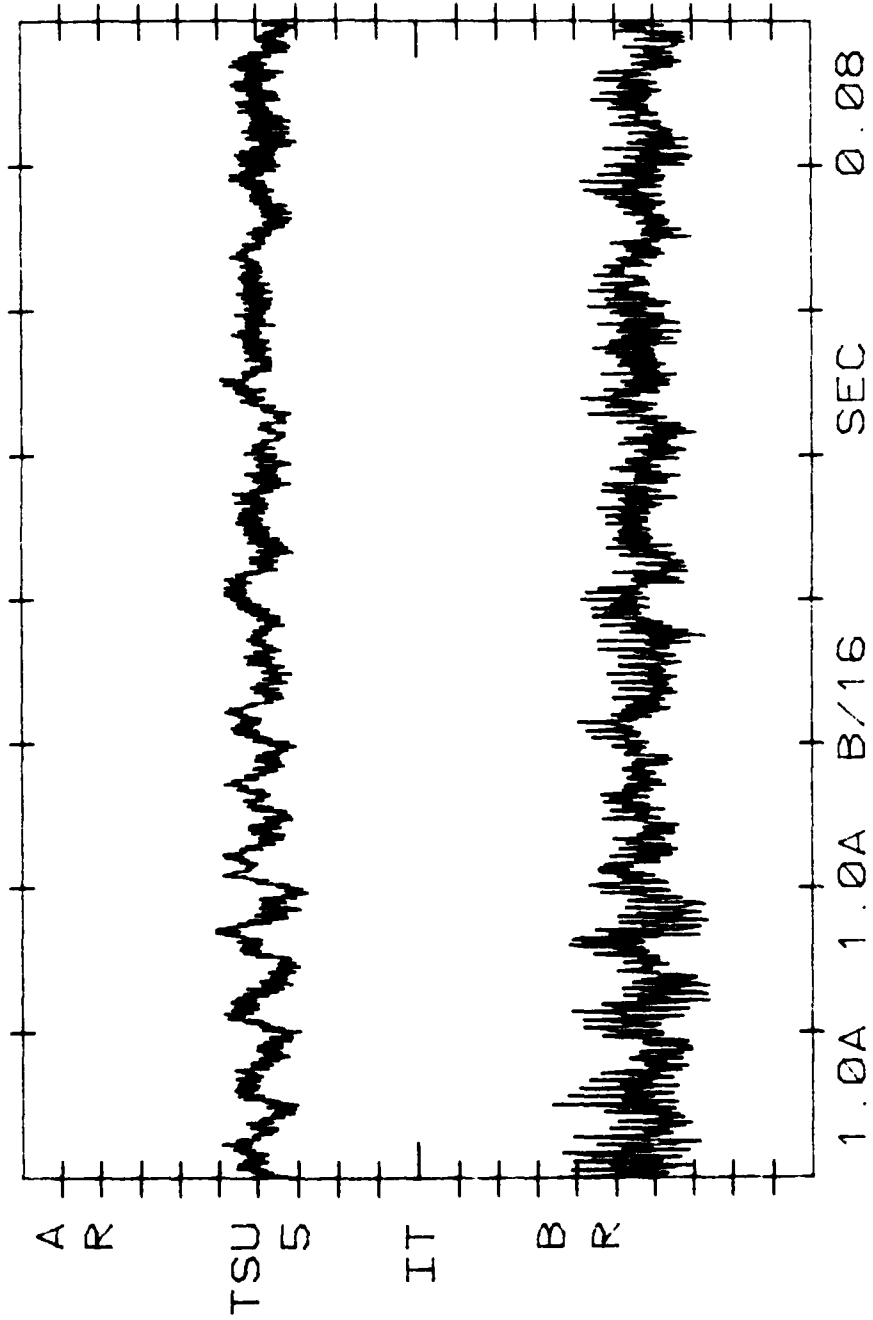
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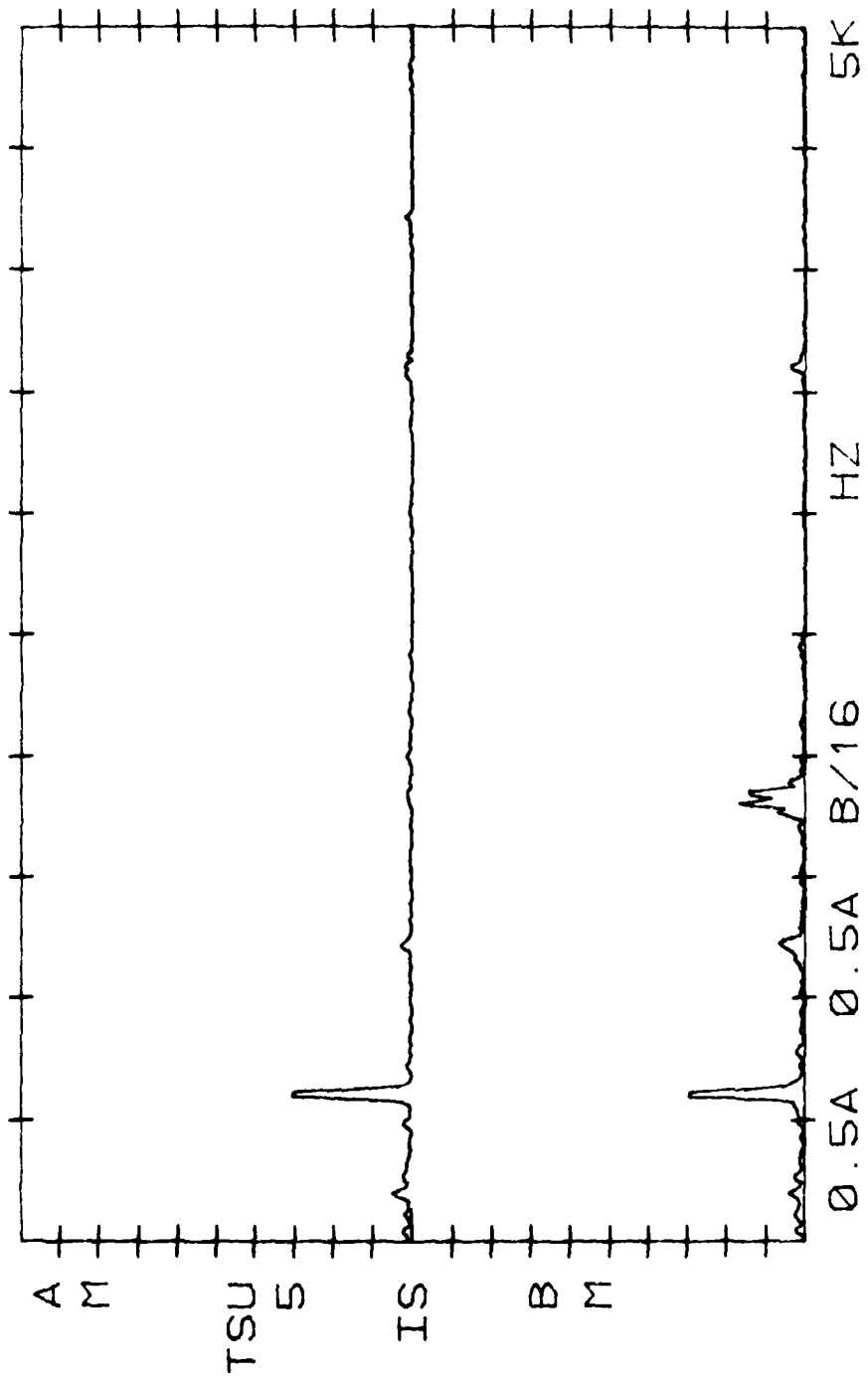
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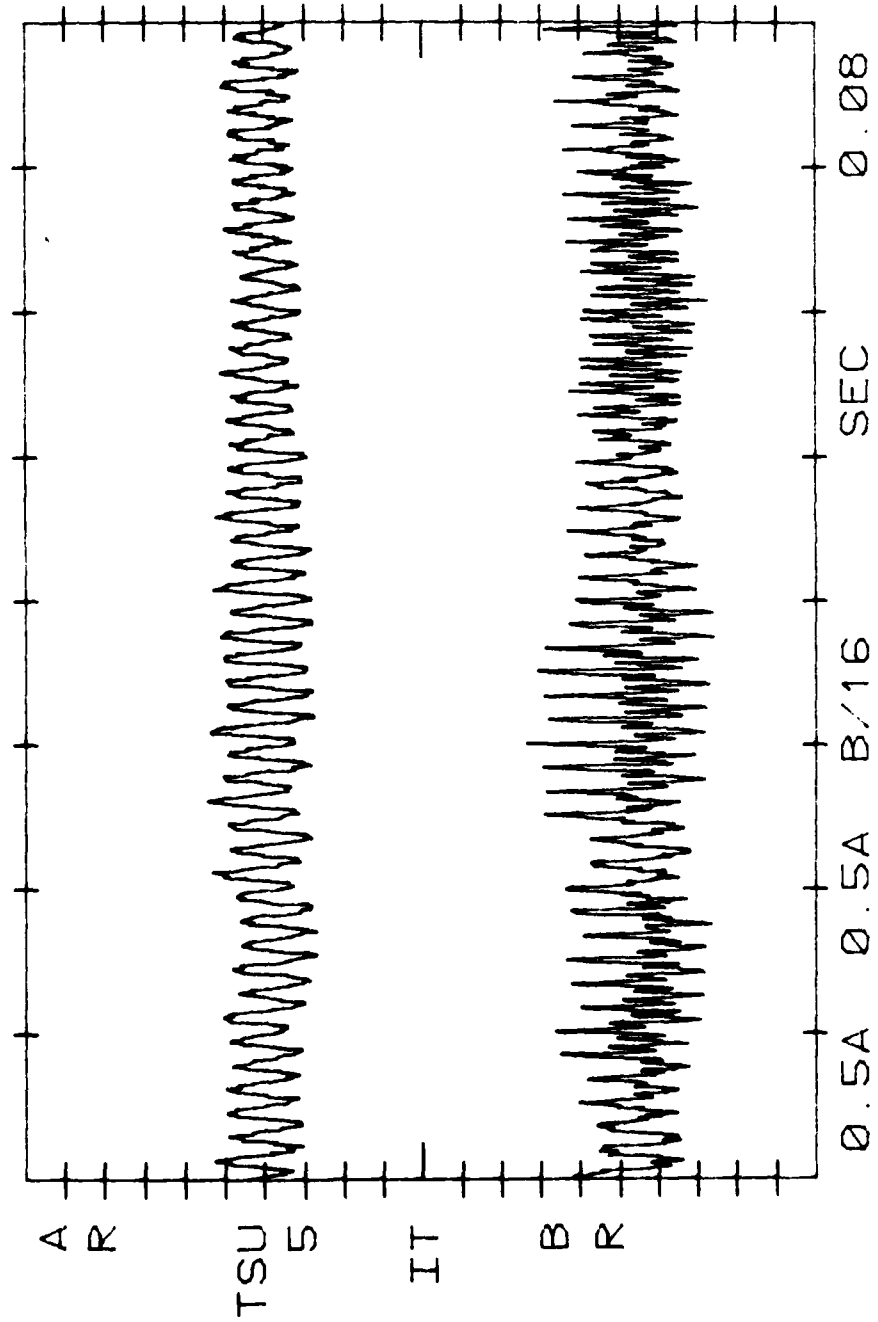
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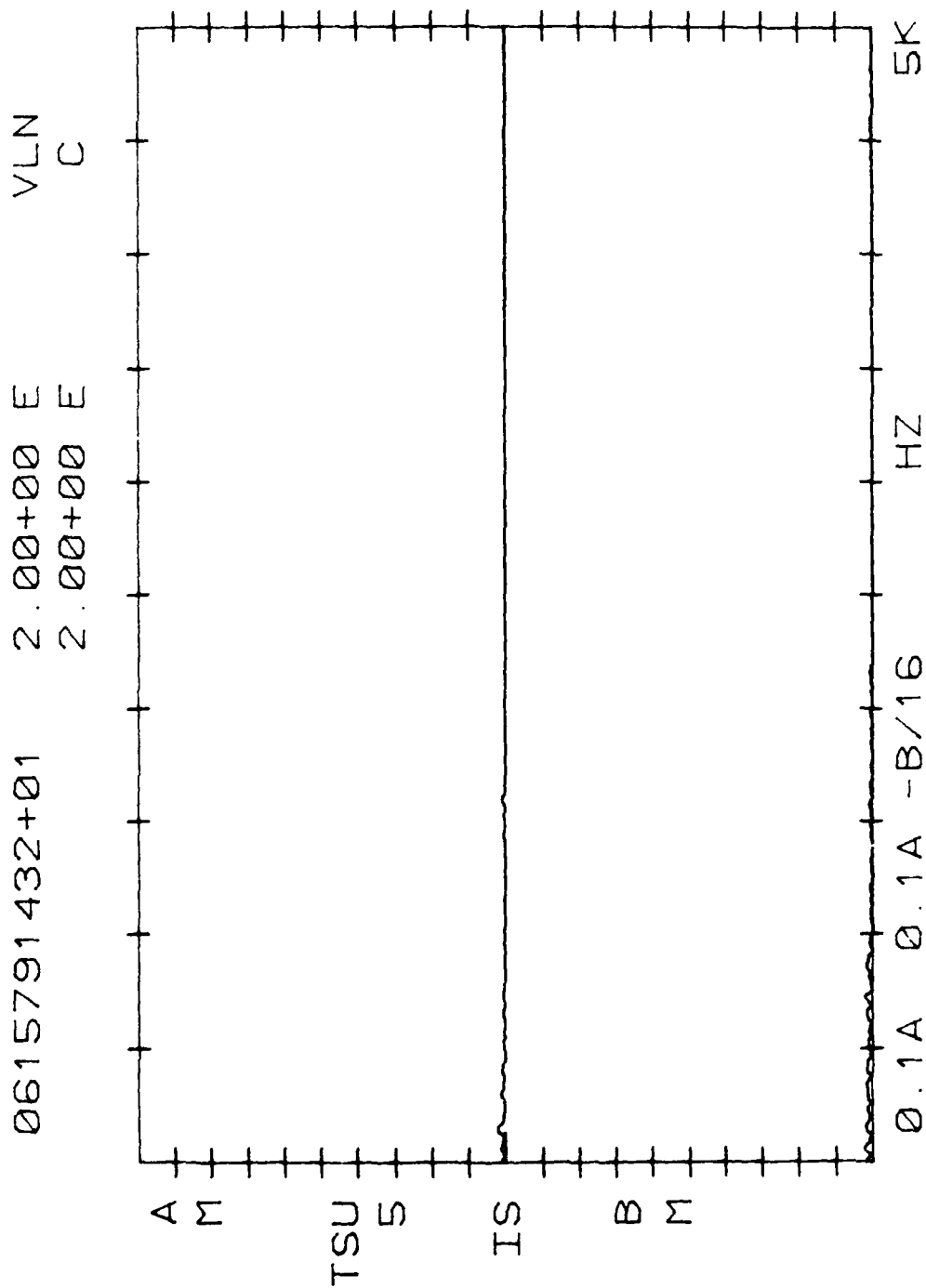


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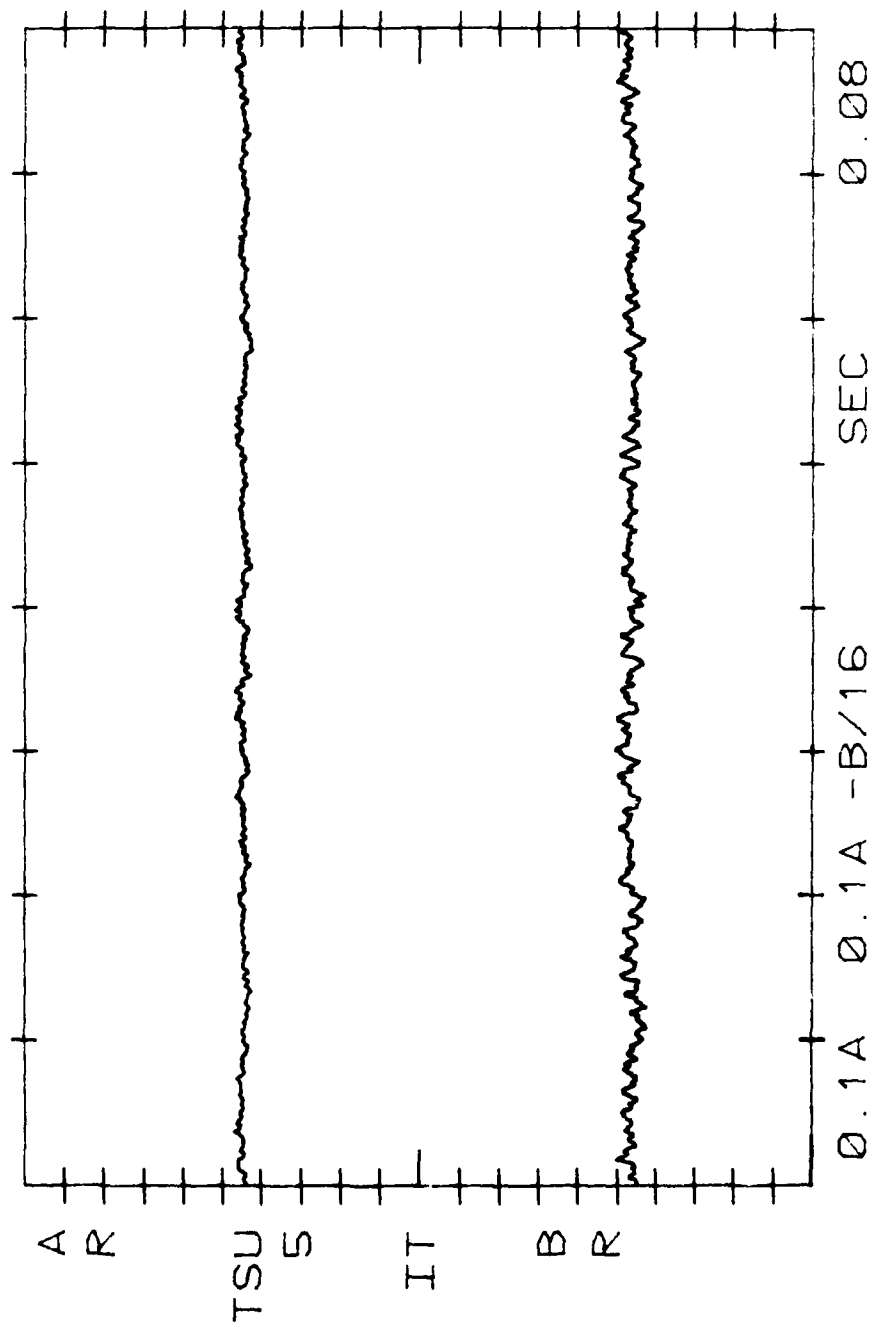


RAW DATA LISTING

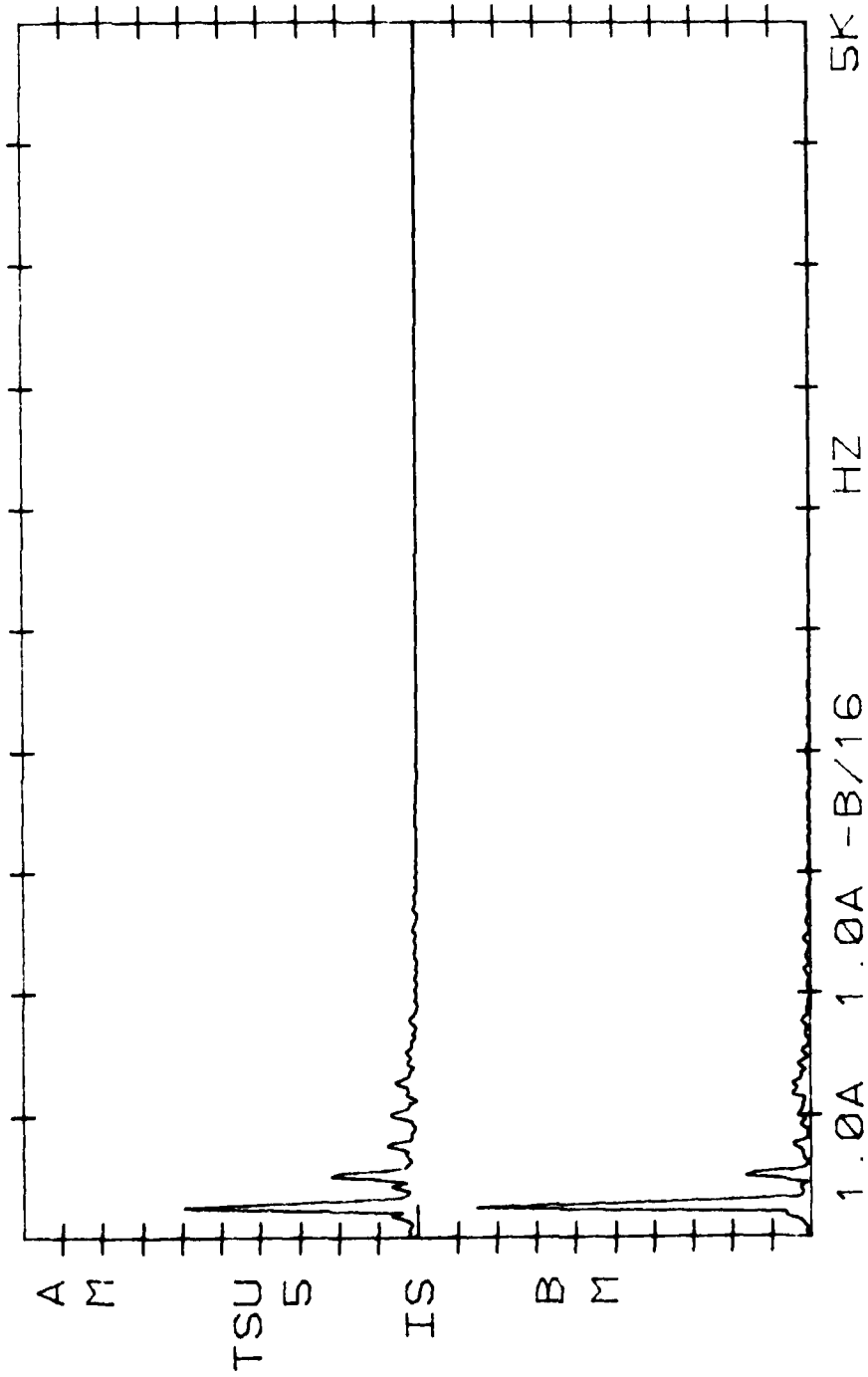
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TIME	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9
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TIME: 04430.06 SEC	100.1821	100.1821	100.1821	100.1821	100.1821	100.1821	100.1821	100.1821	100.1821
TIME: 04450.20 SEC	100.1821	100.1821	100.1821	100.1821	100.1821	100.1821	100.1821	100.1821	100.1821
TIME: 04460.61 SEC	100.1821	100.1821	100.1821	100.1821	100.1821	100.1821	100.1821	100.1821	100.1821
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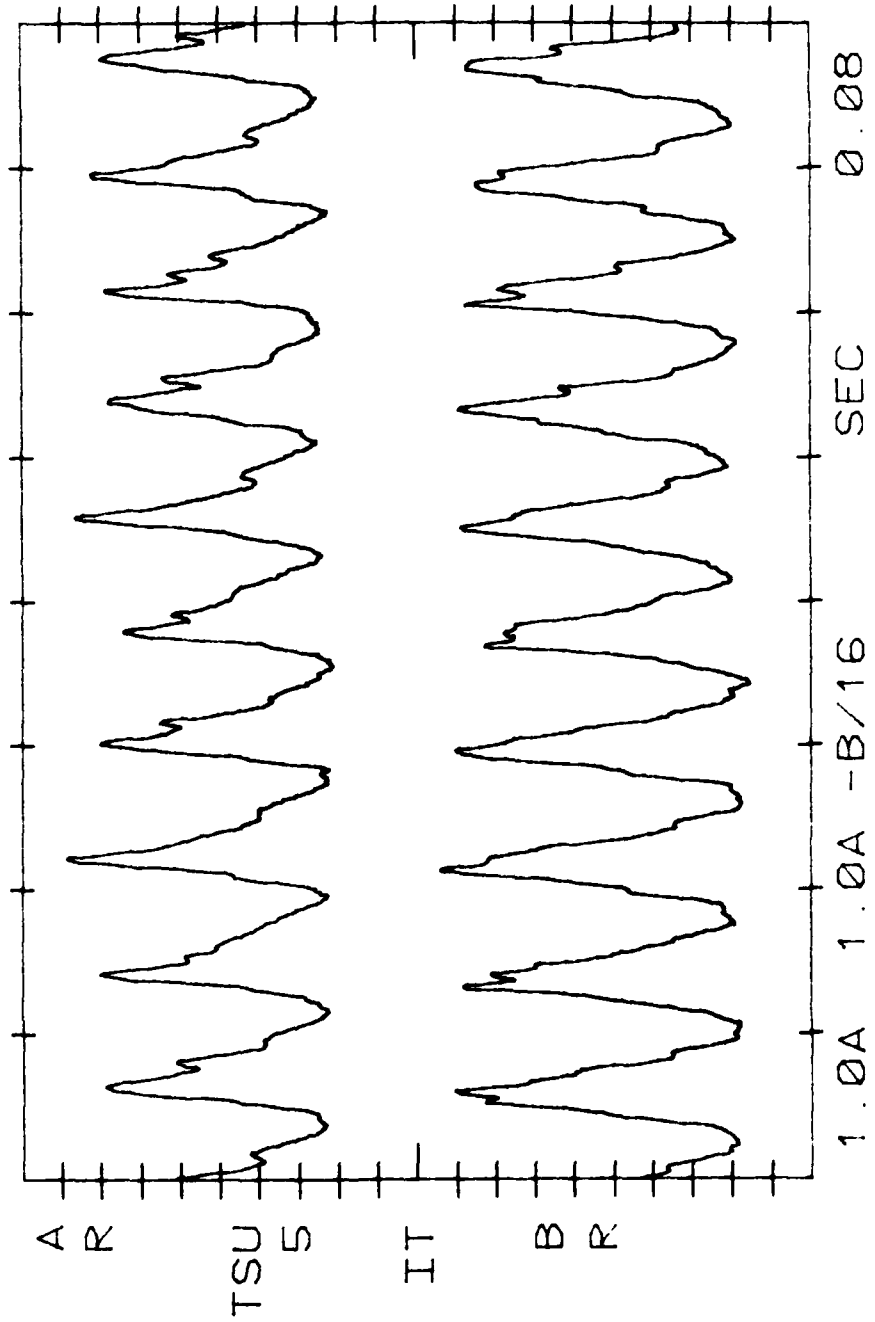
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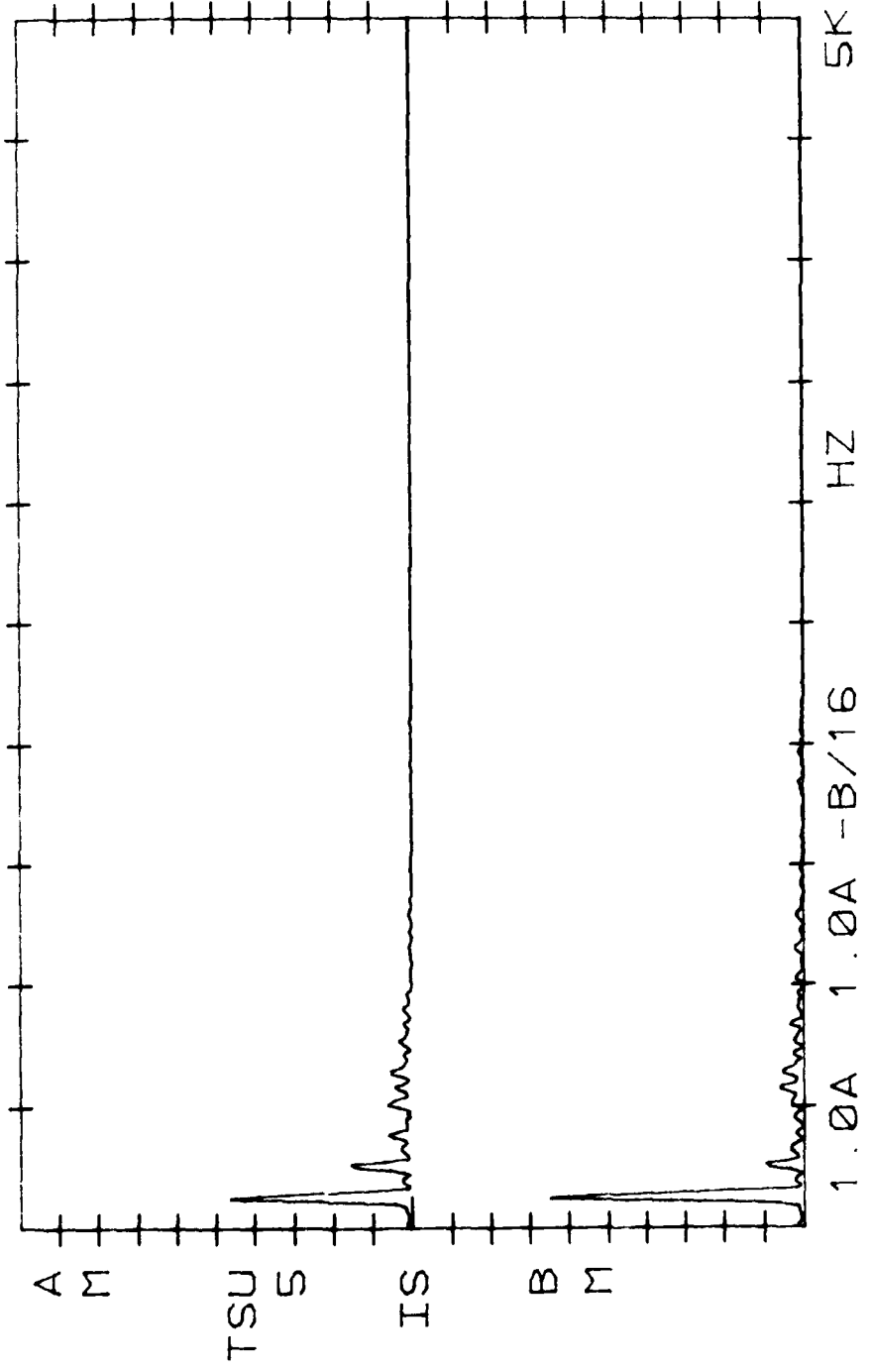
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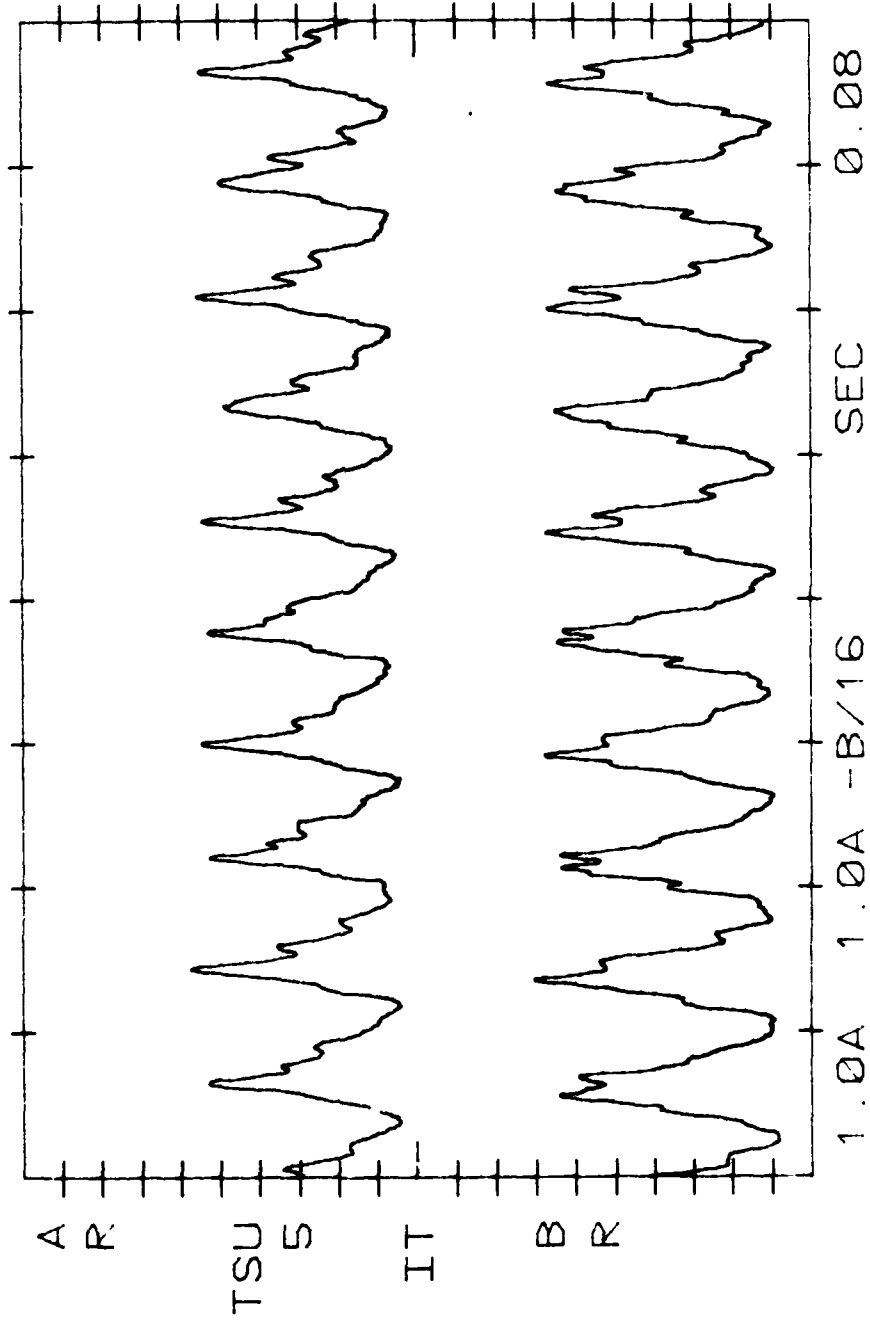
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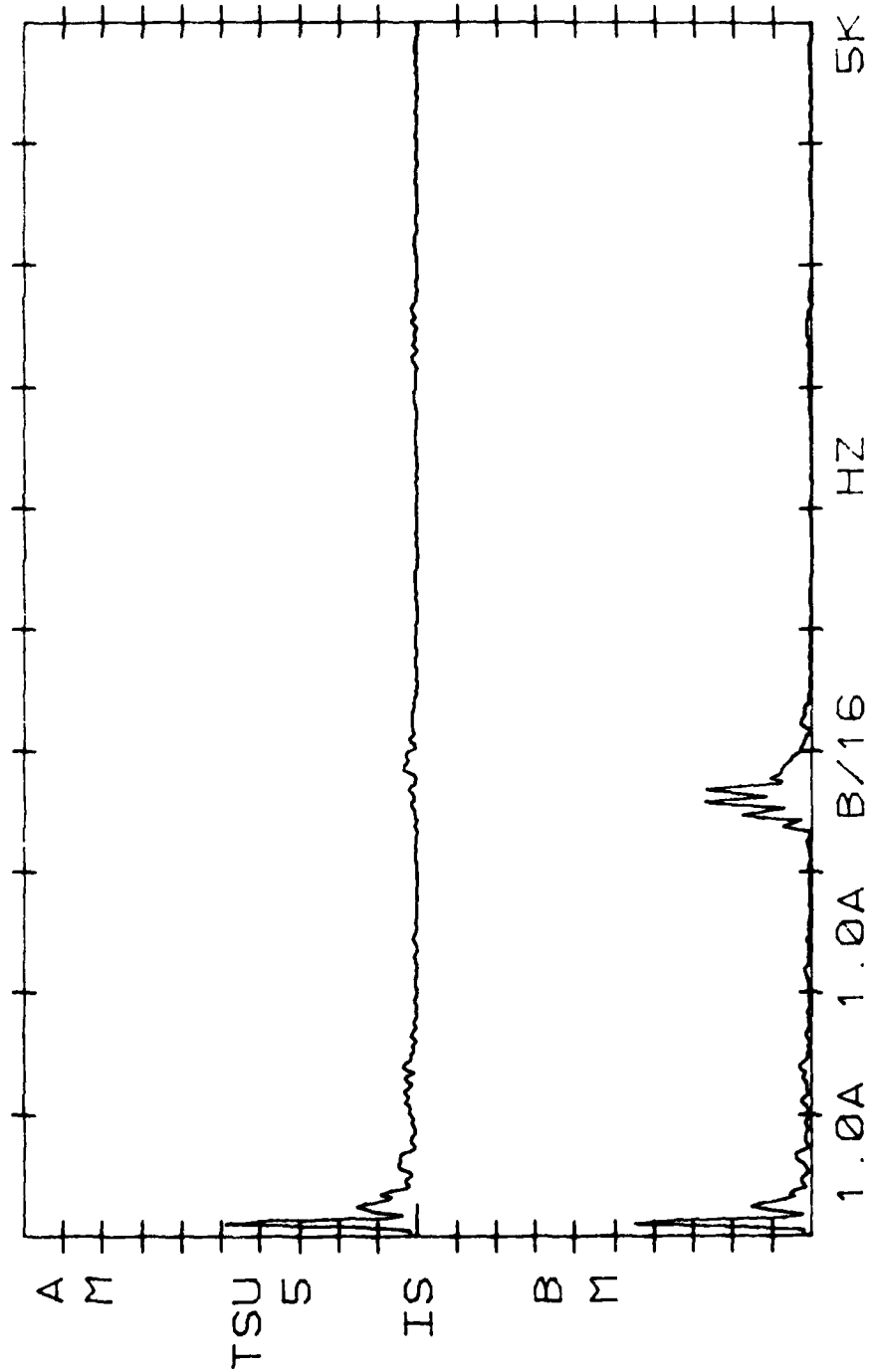
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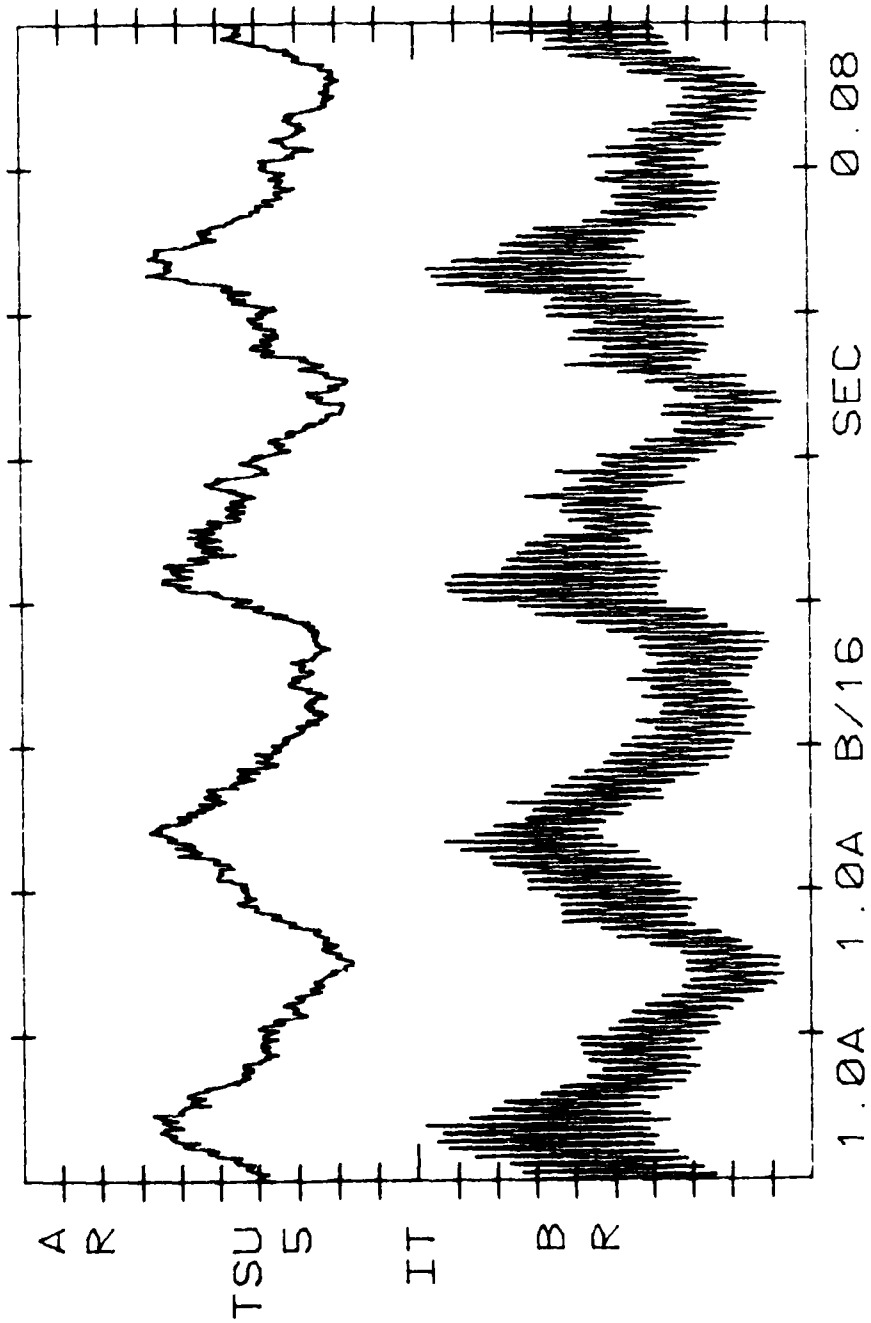
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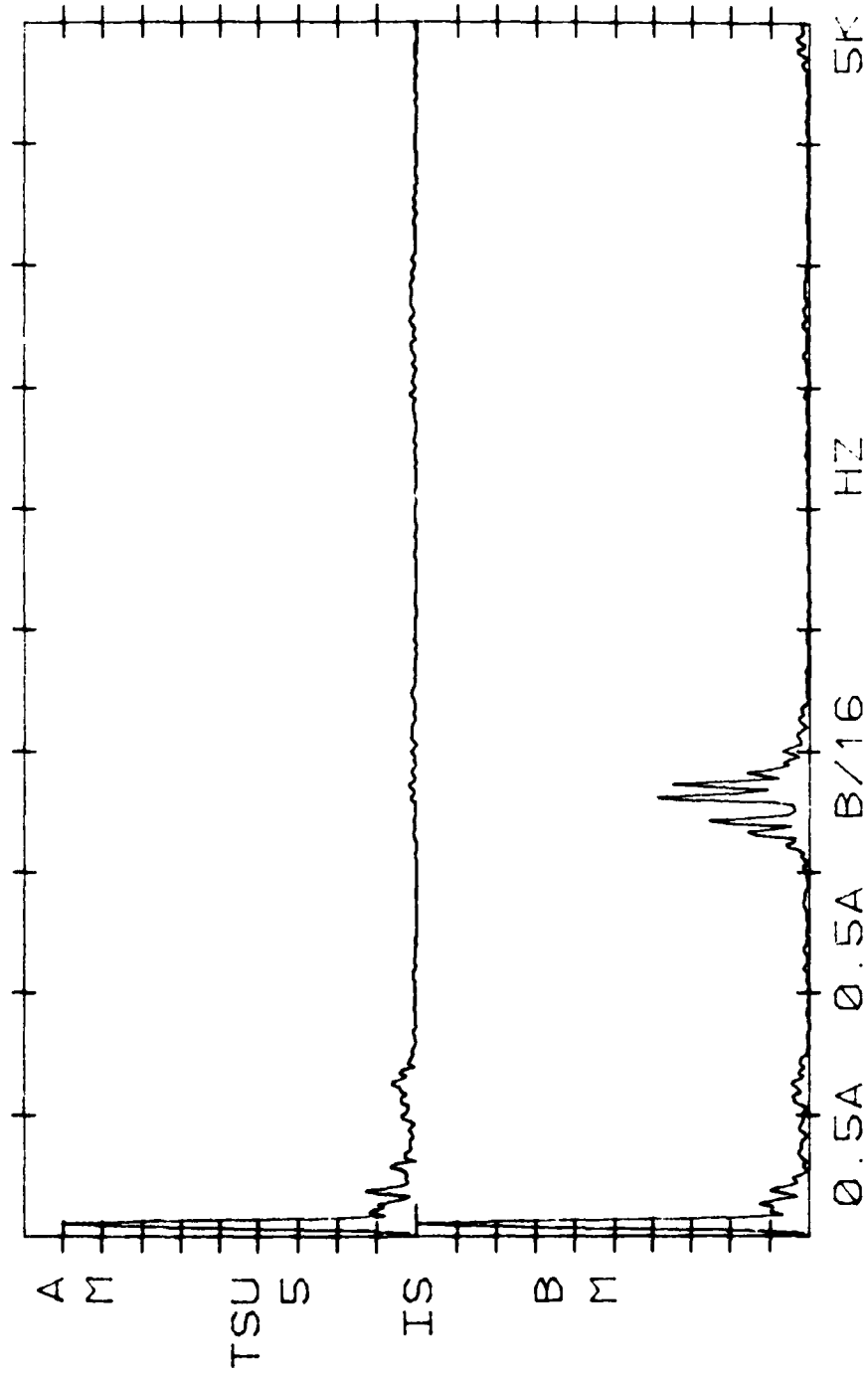
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2.00+00 E C
2.50+00 E



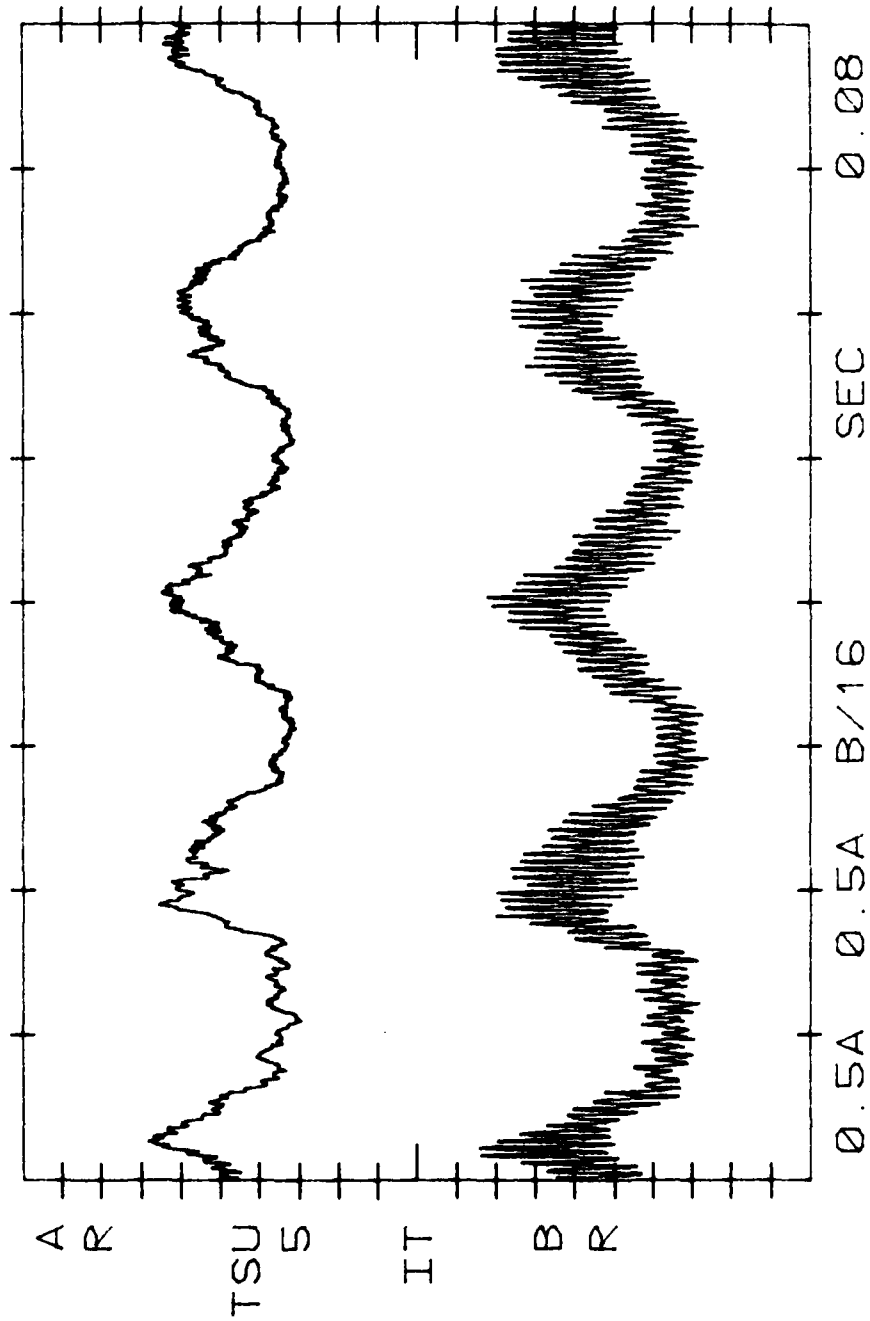
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5.00+00 E C



0615791432+05 2.00+00 E VLN
 2.00+00 E C



0615791 432+05 10.0+00 E VLN
10.0+00 E C



AFWAL-TR-81-2047
Part I

SECTION V
DATA LISTINGS

RMS spectrum peak values of pressure amplitude and phase angle at the frequency of the peaks was recorded for all cases throughout the parametrics where a peak in RMS pressure at less than 500 Hz was noticed. Some steady state data is included for each file where an instability of less than 500 Hz was noticed.

Following the data with a 500 Hz maximum frequency is a section with data up to 10,000 Hz for selected files with an eight inch diameter combustor. The selected files include all files with uniform injectors and no flameholder and all files with a 4.75 in. diameter inlet with no flameholder or a 25% Y type flameholder. The 10,000 Hz data also includes broadband RMS pressure values for quick instability amplitude comparisons.

1. DESCRIPTION OF DATA LISTINGS

FIRST LINE OF FILE

FIRST DATA LISTING PHRASE	-	CHAMBER DIAMETER
'6 IN. CHAMB.'	-	6. inch chamber diameter, D3=6."
'8 IN. CHAMB.'	-	8. inch chamber diameter, D3=8."
'12 IN. CHAMB.'	-	12. inch chamber diameter, D3=12."
SECOND DATA LISTING PHRASE	-	INLET DIAMETER
'3 IN. INLET'	-	3. inch inlet diameter, D2=3."
'3.5 INLET'	-	3.5 inch inlet diameter, D2=3.5"
'4 IN. INLET'	-	4. inch inlet diameter, D2=4."
'4.75 INLET'	-	4.75 inch inlet diameter, D2=4.75"
'5.375 INLET'	-	5.375 inch inlet diameter, D2=5.375"
'6 IN. INLET'	-	6. inch inlet diameter, D2=6."
'7 IN. INLET'	-	7. inch inlet diameter, D2=7."
'8 IN. INLET'	-	8. inch inlet diameter, D2=8."
THIRD DATA LISTING PHRASE	-	FLAMEHOLDER
'NO F.HOLD.'	-	no flameholding blockage at dump
'.25Y F.H.'	-	a 'Y' (see Table 3) configuration flameholder with 25% of inlet area blockage located at the dump plane
'.35Y F.H.'	-	a 'Y' configuration flameholder (see Table 3) with 35% of inlet area blockage located at the dump plane

- FOURTH DATA LISTING PHRASE - VARIATION FROM BASELINE CONDITION
- 'BASELINE' - The condition for each inlet, flameholder combination from which parametric variations were made. For the baseline, the inlet air total temperature was set at 1000°R, the mass flow was set to obtain a chamber pressure times diameter product of 200 PSIA*inches (mass flow equals 4 lbs/sec for D3=6.", 5.55 lbs/sec for D3=8.", and 8.33 lbs/sec for D3=12."), the nozzle throat area was 50% of the chamber area ($A^*/A_5=.5$), and the chamber length to diameter ratio was three ($L/D=3.0$).
- 'TTO-750R' - the inlet air total temperature was set to 750°R
- 'TTO-1250R' - the inlet air total temperature was set to 1250°R
- 'LOW FLOW' - the chamber pressure times diameter product was reduced to 120 PSIA*inches giving mass flows of 2.49 lbs/sec, 3.33 lbs/sec, and 5 lbs/sec for chamber diameters of 6 in., 8 in., and 12 in., respectively
- '40% NOZ.' - Nozzle throat area equals 40% of chamber area ($A^*/A_5=.4$). Mass flow was adjusted to 3.24 lbs/sec, 4.44 lbs/sec, and 6.66 lbs/sec for chamber diameters of 6 in., 8 in., and 12 in., respectively, to maintain baseline chamber pressure.
- '60% NOZ.' - Nozzle throat area equaled 60% of chamber area ($A^*/A_5=.6$). Mass flow was adjusted to 4.86 lbs/sec, 6.66 lbs/sec, and 10. lbs/sec for chamber diameters of 6, 8, and 12 in., respectively, to maintain baseline chamber pressure.
- 'L/D=1.5' - chamber length was reduced to 1.5 times the chamber diameter
- FIFTH DATA LISTING PHRASE - FUEL INJECTION TYPE
- 'UNIF. INJ.' - uniform or midstream fuel injection far upstream of the combustor to obtain a uniform fuel distribution at the dump plane
- 'TUBE INJ.' - orifice fuel injectors (see Figure 4) located flush with the inlet wall. The injector orifice diameter was adjusted to obtain a designated percentage of inlet diameter fuel penetration (see Table 2).

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NUMBERED LINES - PERFORMANCE DATA

Each number starts a new record of information. A record consists of data from one fuel air ratio for the conditions of the file heading. There may also be a record with no fuel and a record with no fuel and ambient inlet air temperature.

- 'F/A' - fuel to air ratio of the record. The fuel used was JP4 which has a stoichiometric F/A of .0676.
- 'ETAC' - the temperature rise combustion efficiency in percent of the ramjet combustor calculated from thrust measurements
- 'TT5F' - combustion chamber exhaust gasses total temperature (^{OR}) calculated from thrust measurements
- 'PT5/PT2' - percent of total pressure recovered after the dump
- 'M2' - Mach number of the air in the inlet
- 'PSI' - static pressure in the inlet in PSIA
- 'PCI' - static pressure at aft of combustion chamber in PSIA

- 'AT' LINES - BROADBAND RMS PRESSURES

The number following 'AT' is the location number (see Figure 3) where the following broadband RMS pressures were measured.

- 'RMS12' - the RMS pressure in PSI of all variations in pressure of from 25 to 100 Hz from 25 to 75 Hz and from 12 to 50 Hz for 6, 8 and 12 in. diameter combustors, respectively
- 'RMS23' - the RMS pressure in PSI of all pressure variations from 100 to 1600 Hz, from 75 to 1200 Hz, and from 50 to 800 Hz for 6, 8 and 12 in. diameter combustors, respectively
- 'RMS34' - the RMS pressure in PSI of all pressure variations from 1600 to 10,000 Hz, from 1200 to 7500 Hz and from 800 to 5,000 Hz for 6, 8 and 12 in. diameter combustors, respectively

NOTE - Total RMS pressure = $[(RMS12)^2 + (RMS23)^2 + (RMS34)^2]^{1/2}$

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FREQUENCY LINES

- XXX. HZ - Frequency of a peak amplitude of RMS pressure. Note: For data with a 500 Hz maximum frequency, resolution bandwidth was 1.25 Hz while for a maximum frequency of 10,000 Hz, the resolution bandwidth was 25. Hz.
- A(n) - the magnitude of the RMS pressure in RMS-PSI at frequency specified at the beginning of the line at location number n (see Figure 3.)
- PHASE (n m) - the phase angle difference of the pressure oscillations from location n to location m at the frequency specified

For example, if the unstable pressure at location n is $X_n(t) = B \sin(\omega t + \phi_n)$, and the unstable pressure at location m is $X_m(t) = C \sin(\omega t + \phi_m)$, then theⁿ frequency line would be

$$\left\{ \frac{\omega}{2\pi} \right\} \text{ HZ} \quad A(n) = \left\{ \frac{B}{\sqrt{2}} \right\} \text{ RMSPSI}, \quad A(m) = \left\{ \frac{C}{\sqrt{2}} \right\} \text{ RMSPSI}$$

$$\text{PHASE (n m)} = \left\{ \phi_m - \phi_n \right\} \text{ DEG.}$$

where brackets indicate numerical values.

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2. DATA LISTINGS

- a. Low Frequency Combustion Instabilities for a Six Inch Diameter Chamber

6IN.CHAMB.	3IN. INLET	NU F=0.010	TIJ=125K	USE INJ.	M2	PSI	PCI
1	F/A = 0.0000	ETAC = 6.0	TIJF = 1222.	P15/P12 = 40.8	M2 = .715	PSI = 22.22	PCI = 15.48
2	F/A = 0.0094	ETAC = 7.0	TIJF = 3659.	P15/P12 = 79.1	M2 = .607	PSI = 33.97	PCI = 33.99
	203.8MHz	At / I = .4944-1.5P51	At / H = 1.0-2.0K-3P51				
3	F/A = 0.030	ETAC = 7.0	TIJF = 3638.	P15/P12 = 79.0	M2 = .619	PSI = 33.30	PCI = 33.71
4	F/A = 0.073	ETAC = 7.0	TIJF = 3527.	P15/P12 = 79.4	M2 = .634	PSI = 32.38	PCI = 33.16
5	F/A = 0.0722	ETAC = 8.0	TIJF = 3496.	P15/P12 = 78.8	M2 = .659	PSI = 31.87	PCI = 32.69
6	F/A = 0.0433	ETAC = 9.0	TIJF = 3209.	P15/P12 = 77.6	M2 = .664	PSI = 30.80	PCI = 32.14
7	F/A = 0.0401	ETAC = 9.1	TIJF = 3031.	P15/P12 = 77.0	M2 = .717	PSI = 29.67	PCI = 31.13
8	F/A = 0.0351	ETAC = 7.0	TIJF = 2669.	P15/P12 = 73.9	M2 = .776	PSI = 26.52	PCI = 27.32
9	F/A = 0.0289	ETAC = 7.0	TIJF = 2470.	P15/P12 = 71.5	M2 = .848	PSI = 24.56	PCI = 25.39
10	F/A = 0.0252	ETAC = 6.9	TIJF = 2307.	P15/P12 = 67.4	M2 = .873	PSI = 23.91	PCI = 24.30

0 IN. CHAMB.	3 IN. INLET	NO F. HJED.	LIN. FLOW	FUSE INJ.	MZ	PSI	PCI
1	F/A = .0665	E/TAC = 96.5	IFDF = 2915.	PTB/PTZ = 77.8	MZ = .577	PSI = 19.36	PCI = 19.11
2	F/A = .0594	E/TAC = 95.7	IFDF = 3028.	PTB/PTZ = 78.4	MZ = .587	PSI = 19.74	PCI = 19.47
3	F/A = .0546	E/TAC = 70.5	IFDF = 3067.	PTB/PTZ = 70.5	MZ = .583	PSI = 19.84	PCI = 19.49
4	F/A = .0494	E/TAC = 71.3	IFDF = 3070.	PTB/PTZ = 70.6	MZ = .594	PSI = 19.44	PCI = 19.31
5	F/A = .0455	E/TAC = 77.1	IFDF = 3000.	PTB/PTZ = 70.2	MZ = .607	PSI = 19.14	PCI = 19.20
6	F/A = .0415	E/TAC = 81.1	IFDF = 2467.	PTB/PTZ = 70.3	MZ = .611	PSI = 16.55	PCI = 16.51
7	F/A = .0391	E/TAC = 66.2	IFDF = 2311.	PTB/PTZ = 74.2	MZ = .728	PSI = 15.67	PCI = 15.54
8	F/A = .0313	E/TAC = 59.7	IFDF = 2142.	PTB/PTZ = 74.7	MZ = .709	PSI = 14.64	PCI = 14.71
9	F/A = .0250	E/TAC = 63.2	IFDF = 1974.	PTB/PTZ = 70.7	MZ = .813	PSI = 13.90	PCI = 13.67

GIN. CHAMB.	JIN. INLET	NO F. INLET	40% M2	TUBE INJ.	M2	PSI	PCI
1	F/A = .0000	EIAC = 6.0	ITDF = 423.	PI5/PI2 = 60.7	M2 = .904	PSI = 16.11	PCI = 16.43
2	F/A = .0042	EIAC = 6.97	ITDF = 3225.	PI5/PI2 = 79.8	M2 = .402	PSI = 36.26	PCI = 35.08
	205.0HZ	AI 71 = 7.74KMSPS1	AI 81 = 5.84KMSPS1				
	410.0HZ	AI 71 = 3.00KMSPS1	AI 81 = 1.04KMSPS1				
3	F/A = .0082	EIAC = 73.0	ITDF = 3225.	PI5/PI2 = 80.0	M2 = .406	PSI = 37.23	PCI = 35.09
	208.0HZ	AI 71 = 1.23KMSPS1	AI 81 = 0.35KMSPS1				
	417.5HZ	AI 71 = 1.43KMSPS1	AI 81 = 7.07KMSPS1				
4	F/A = .0538	EIAC = 74.4	ITDF = 3145.	PI5/PI2 = 81.3	M2 = .422	PSI = 36.46	PCI = 34.55
	211.3HZ	AI 71 = 2.12KMSPS1	AI 81 = 5.84KMSPS1				
	422.5HZ	AI 71 = 0.41KMSPS1	AI 81 = 1.15KMSPS1				
5	F/A = .0499	EIAC = 76.1	ITDF = 3094.	PI5/PI2 = 82.2	M2 = .441	PSI = 35.44	PCI = 34.34
	215.0HZ	AI 71 = 1.17KMSPS1	AI 81 = 4.07KMSPS1				
	430.0HZ	AI 71 = .14KMSPS1	AI 81 = .73KMSPS1				
	215.0HZ	AI 11 = 3.90KMSPS1	AI 61 = 2.27KMSPS1				
	430.0HZ	AI 11 = 1.03KMSPS1	AI 61 = 1.32KMSPS1				
6	F/A = .0429	EIAC = 77.7	ITDF = 2914.	PI5/PI2 = 83.0	M2 = .473	PSI = 32.84	PCI = 33.35
7	F/A = .0418	EIAC = 78.0	ITDF = 2911.	PI5/PI2 = 83.0	M2 = .482	PSI = 31.49	PCI = 31.83
8	F/A = .0346	EIAC = 79.4	ITDF = 2654.	PI5/PI2 = 83.3	M2 = .519	PSI = 29.35	PCI = 30.27
9	F/A = .0310	EIAC = 79.2	ITDF = 2497.	PI5/PI2 = 83.0	M2 = .544	PSI = 28.05	PCI = 29.03
10	F/A = .0264	EIAC = 77.8	ITDF = 2264.	PI5/PI2 = 82.1	M2 = .581	PSI = 20.36	PCI = 27.27
11	F/A = .0651	EIAC = 71.2	ITDF = 3294.	PI5/PI2 = 80.4	M2 = .409	PSI = 37.44	PCI = 34.40
	205.0HZ	AI 41 = 1.40KMSPS1	AI 61 = 7.30KMSPS1				
	410.0HZ	AI 41 = .52KMSPS1	AI 61 = 2.14KMSPS1				
12	F/A = .0591	EIAC = 75.0	ITDF = 3324.	PI5/PI2 = 82.0	M2 = .415	PSI = 36.52	PCI = 34.21
	208.0HZ	AI 41 = 1.62KMSPS1	AI 61 = 0.35KMSPS1				
	417.5HZ	AI 41 = .46KMSPS1	AI 61 = 1.71KMSPS1				
13	F/A = .0551	EIAC = 76.1	ITDF = 3254.	PI5/PI2 = 82.4	M2 = .429	PSI = 35.41	PCI = 33.58
	212.5HZ	AI 41 = 1.29KMSPS1	AI 61 = 0.74KMSPS1				
	425.0HZ	AI 41 = .42KMSPS1	AI 61 = 1.52KMSPS1				
14	F/A = .0514	EIAC = 77.0	ITDF = 3210.	PI5/PI2 = 83.3	M2 = .445	PSI = 34.24	PCI = 33.17
	213.0HZ	AI 41 = 1.09KMSPS1	AI 61 = 4.07KMSPS1				
	427.5HZ	AI 41 = 1.62KMSPS1	AI 61 = 1.02KMSPS1				
15	F/A = .0438	EIAC = 74.1	ITDF = 3007.	PI5/PI2 = 84.6	M2 = .482	PSI = 31.69	PCI = 32.25

6IN. CHAMB.	3IN. INLET	NO F. MDLU.	40% VUZ.	TUSE INJ.	M2	PSI	PCI
1	F/A=0.0000	ETAC= 0.0	ITDF= 521.	PT5/PT2= 61.9	M2= .906	PSI= 11.81	PCI= 10.91
2	F/A=0.0000	ETAC= 0.0	ITDF= 371.	PT5/PT2= 61.1	M2= .926	PSI= 12.92	PCI= 14.85
3	F/A= .0053	ETAC= 70.7	ITDF= 328.	PT5/PT2= 83.6	M2= .433	PSI= 34.75	PCI= 31.22
	209.MZ	AI 4)= 7.6727MSPSI,	AI 8)= 6.3344MSPSI,	PHASE(4 8)=		14.50EG.	
	410.MZ	AI 4)= 2.3428MSPSI,	AI 8)= 1.4938MSPSI,	PHASE(4 8)=		13.40EG.	PCI= 31.72
	410.MZ	ETAC= 74.4	ITDF= 3346.	PT5/PT2= 44.7	M2= .442	PSI= 34.65	
4	F/A= .0014	ETAC= 7.0339MSPSI,	AI 8)= 6.0374MSPSI,	PHASE(4 8)=		17.00EG.	
	214.MZ	AI 4)= 2.0044MSPSI,	AI 8)= 1.5078MSPSI,	PHASE(4 8)=		5.30EG.	PCI= 31.20
	429.MZ	ETAC= 74.4	ITDF= 3180.	PT5/PT2= 37.0	M2= .404	PSI= 33.14	
5	F/A= .00243	ETAC= 74.4	ITDF= 3180.	PT5/PT2= 37.0	M2= .404	PSI= 33.14	
	214.MZ	AI 4)= 2.5448MSPSI,	AI 8)= 4.7628MSPSI,	PHASE(4 8)=		14.00EG.	
	429.MZ	AI 4)= 1.0498MSPSI,	AI 8)= 1.0058MSPSI,	PHASE(4 8)=		-1.10EG.	PCI= 31.11
	429.MZ	ETAC= 76.0	ITDF= 3120.	PT5/PT2= 40.0	M2= .442	PSI= 32.20	
6	F/A= .00208	ETAC= 76.0	ITDF= 3120.	PT5/PT2= 40.0	M2= .442	PSI= 32.20	
	216.MZ	AI 4)= 4.7318MSPSI,	AI 8)= 4.0749MSPSI,	PHASE(4 8)=		14.10EG.	
	433.MZ	AI 4)= 1.1200MSPSI,	AI 8)= 0.7398MSPSI,	PHASE(4 8)=		-5.10EG.	PCI= 30.96
7	F/A= .0463	ETAC= 76.1	ITDF= 3007.	PT5/PT2= 37.3	M2= .200	PSI= 30.61	
8	F/A= .0400	ETAC= 75.0	ITDF= 2800.	PT5/PT2= 65.7	M2= .255	PSI= 29.42	
9	F/A= .0340	ETAC= 76.0	ITDF= 2600.	PT5/PT2= 80.1	M2= .265	PSI= 27.35	
10	F/A= .0300	ETAC= 76.5	ITDF= 2400.	PT5/PT2= 85.3	M2= .273	PSI= 25.74	
11	F/A= .0244	ETAC= 60.5	ITDF= 1945.	PT5/PT2= 83.0	M2= .702	PSI= 21.78	

GEN. CHAM.	3-5 INLET	NO F. MOLD.	BASELINE	UNIF. INJ.	M2	PSI	PCI
1	F/A = 0.0000	ETAC = 0.0	ITDF = 950.	PT5/PT2 = 03.9	M2 = .791	PSI = 17.15	PCI = 13.63
2	F/A = .0050	ETAC = 59.0	ITDF = 3204.	PT5/PT2 = 87.2	M2 = .416	PSI = 33.94	PCI = 32.80
	208.0HZ	AC 11 = 2.020KMSPSI,	AC 41 = 2.020KMSPSI,	PHASE 1 41 =		67.90EG.	
	208.0HZ	AC 41 = 2.020KMSPSI,	AC 81 = 2.020KMSPSI,	PHASE 4 81 =		14.20EG.	
	208.0HZ	AC 71 = 2.020KMSPSI,	AC 81 = 2.020KMSPSI,	PHASE 7 81 =		3.70EG.	
	414.0HZ	AC 11 = 0.505KMSPSI,	AC 41 = 0.505KMSPSI,	PHASE 1 41 =		94.60EG.	
	414.0HZ	AC 41 = 0.505KMSPSI,	AC 81 = 0.505KMSPSI,	PHASE 4 81 =		20.40EG.	
	414.0HZ	AC 71 = 0.505KMSPSI,	AC 81 = 0.505KMSPSI,	PHASE 7 81 =		-43.60EG.	
3	F/A = .0603	ETAC = 71.9	ITDF = 3246.	PT5/PT2 = 87.2	M2 = .421	PSI = 33.38	PCI = 32.59
	205.0HZ	AC 11 = 1.010KMSPSI,	AC 41 = 1.010KMSPSI,	PHASE 1 41 =		04.30EG.	
	205.0HZ	AC 41 = 0.974KMSPSI,	AC 81 = 0.974KMSPSI,	PHASE 4 81 =		13.70EG.	
	205.0HZ	AC 71 = 0.920KMSPSI,	AC 81 = 0.920KMSPSI,	PHASE 7 81 =		4.20EG.	
4	F/A = .0558	ETAC = 76.1	ITDF = 3270.	PT5/PT2 = 87.0	M2 = .424	PSI = 33.31	PCI = 32.57
5	F/A = .0510	ETAC = 73.1	ITDF = 3060.	PT5/PT2 = 86.9	M2 = .441	PSI = 31.98	PCI = 31.24
6	F/A = .0443	ETAC = 66.3	ITDF = 2680.	PT5/PT2 = 82.7	M2 = .478	PSI = 29.34	PCI = 28.25
7	F/A = .0414	ETAC = 55.2	ITDF = 2324.	PT5/PT2 = 84.3	M2 = .510	PSI = 27.04	PCI = 26.37

6 IN. CHAM.	3.5 INLET	NO F. HOLD.	BASELINE	TUBE INJ.	PCI
1	F/A = .0000	ETAC = 0.0	TTDF = 969.	PT5/PT2 = 63.9	PSI = 17.21
2	F/A = .0009	ETAC = 6.4	TTDF = 3040.	PT5/PT2 = 83.6	PSI = 34.06
	200.0HZ	AT 1) = 2.7648MSPSI,	AT 4) = 6.4748MSPSI,	PHASE (1 4) = 24.20EG.	
	200.0HZ	AT 4) = 2.7408MSPSI,	AT 8) = 4.7008MSPSI,	PHASE (4 8) = 23.60EG.	
	400.0HZ	AT 1) = 1.9008MSPSI,	AT 4) = 1.5388MSPSI,	PHASE (1 4) = 101.40EG.	
	400.0HZ	AT 4) = 1.4728MSPSI,	AT 8) = 1.3808MSPSI,	PHASE (4 8) = 12.20EG.	
	400.0HZ	AT 8) = 1.0008MSPSI,	AT 12) = 1.1488MSPSI,		
3	F/A = .0063	ETAC = 67.3	TTDF = 3027.	PT5/PT2 = 81.6	PSI = 34.69
	209.0HZ	AT 1) = 2.8738MSPSI,	AT 4) = 7.0148MSPSI,	PHASE (1 4) = 60.30EG.	
	209.0HZ	AT 4) = 7.5958MSPSI,	AT 8) = 2.7368MSPSI,	PHASE (4 8) = 23.90EG.	
	214.0HZ	ETAC = 69.1	TTDF = 2966.	PT5/PT2 = 81.0	PSI = 33.93
	214.0HZ	AT 1) = 2.9778MSPSI,	AT 4) = 7.0438MSPSI,	PHASE (1 4) = 60.80EG.	
	214.0HZ	AT 4) = 6.8278MSPSI,	AT 8) = 5.3328MSPSI,	PHASE (4 8) = 21.80EG.	
	426.0HZ	AT 1) = 2.5948MSPSI,	AT 4) = 2.4408MSPSI,	PHASE (1 4) = 6.80EG.	
	426.0HZ	AT 4) = 2.6068MSPSI,	AT 8) = 2.4008MSPSI,	PHASE (4 8) = 109.90EG.	
	426.0HZ	AT 8) = 2.3428MSPSI,	AT 12) = 1.1178MSPSI,	PHASE (4 8) = 13.40EG.	
	426.0HZ	AT 12) = 1.8808MSPSI,	AT 16) = 1.2748MSPSI,		
5	F/A = .0446	ETAC = 71.5	TTDF = 2830.	PT5/PT2 = 63.7	PSI = 31.67
	216.0HZ	AT 1) = 4.2778MSPSI,	AT 4) = 5.4068MSPSI,	PHASE (1 4) = 67.50EG.	
	216.0HZ	AT 4) = 5.4408MSPSI,	AT 8) = 4.7318MSPSI,	PHASE (4 8) = 18.00EG.	
	433.0HZ	AT 1) = 1.6648MSPSI,	AT 4) = 1.3258MSPSI,	PHASE (1 4) = 122.90EG.	
	433.0HZ	AT 4) = 1.4278MSPSI,	AT 8) = 1.1748MSPSI,	PHASE (4 8) = -9.60EG.	
	433.0HZ	AT 8) = 1.2798MSPSI,	AT 12) = 1.0748MSPSI,		
	433.0HZ	AT 12) = 1.0748MSPSI,	AT 16) = 1.0748MSPSI,		
6	F/A = .0415	ETAC = 71.0	TTDF = 2722.	PT5/PT2 = 83.9	PSI = 30.40
	216.0HZ	AT 1) = 4.1618MSPSI,	AT 4) = 4.0328MSPSI,	PHASE (1 4) = 64.10EG.	
	216.0HZ	AT 4) = 4.7318MSPSI,	AT 8) = 3.7088MSPSI,	PHASE (4 8) = 17.90EG.	
	433.0HZ	AT 1) = 1.3468MSPSI,	AT 4) = 1.0278MSPSI,	PHASE (1 4) = 5.60EG.	
	433.0HZ	AT 4) = 1.0458MSPSI,	AT 8) = 1.0338MSPSI,	PHASE (4 8) = -12.70EG.	
	433.0HZ	AT 8) = 1.0458MSPSI,	AT 12) = 1.0458MSPSI,		
7	F/A = .0355	ETAC = 74.2	TTDF = 2588.	PT5/PT2 = 85.1	PSI = 28.56
8	F/A = .0300	ETAC = 73.3	TTDF = 2361.	PT5/PT2 = 84.5	PSI = 26.63
9	F/A = .0201	ETAC = 24.4	TTDF = 1453.	PT5/PT2 = 83.4	PSI = 23.21

QIN-CHARM.	3-2 INLET	NO F-MOLD.	ETAC = 750K	UNIF. INJ.	MZ =	PSI =	PCI =
1	F/A = 0.6000	ETAC = 6.0	IT5F = 732.	PI5/PI2 = 64.3	MZ = .786	PSI = 14.90	PCI = 11.94
2	F/A = .0003	ETAC = 42.8	IT5F = 2208.	PI5/PI2 = 86.4	MZ = .442	PSI = 27.61	PCI = 26.72
	180.0M2	AT 10 = 1.034KMSPSI	AT 41 = 1.007KMSPSI				
	358.9M2	AT 11 = .553KMSPSI	AT 41 = .144KMSPSI				
3	F/A = .0001	ETAC = 43.3	IT5F = 2160.	PI5/PI2 = 86.0	MZ = .471	PSI = 27.16	PCI = 26.29
	181.3M2	AT 11 = 1.467KMSPSI	AT 41 = 1.091KMSPSI				
	181.5M2	AT 71 = 1.177KMSPSI	AT 81 = 1.002KMSPSI				
4	F/A = .0529	ETAC = 40.0	IT5F = 2001.	PI5/PI2 = 85.7	MZ = .477	PSI = 25.49	PCI = 24.79
5	F/A = .0477	ETAC = 18.9	IT5F = 1407.	PI5/PI2 = 81.5	MZ = .651	PSI = 18.34	PCI = 17.98
6	F/A = .0454	ETAC = 19.5	IT5F = 1176.	PI5/PI2 = 79.9	MZ = .700	PSI = 17.03	PCI = 16.60

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6IN.CHAMB.	3.5 INLET	NO F.HOLD.	TTC=750K	TUBE INJ.	PCI=
1	F/A = .0418 175.0HZ	ETAC = 48.0 AI 7) = 3.221KMSPSI,	TI5F = 1963. AI 8) =	PTD/PT2 = 83.3 2.743KMSPSI, PHASE(7 8) =	23.96
2	F/A = .0434 179.0HZ	ETAC = 55.7 AI 7) = 2.256KMSPSI,	TI5F = 1971. AI 8) =	PTD/PT2 = 84.0 1.726KMSPSI, PHASE(7 8) =	23.84
3	F/A = .0299 183.0HZ	ETAC = 56.3 AI 7) = .219KMSPSI,	TI5F = 1817. AI 8) =	PTD/PT2 = 84.3 .427KMSPSI, PHASE(7 8) =	22.68
4	F/A = .0257 183.0HZ	ETAC = 53.5 AI 7) =	TI5F = 1648. AI 8) =	PTD/PT2 = 83.4 M2 = .555	20.87

GIN. CHAR.3	3-5 INLET	NU F. MULO.	ITD=125K	TUBE INJ.	M2 =	PSI =	PCI =
1	F/A = 0.0000	ETAC = 6.00	ITDF = 1187.	PT5/PT2 = 63.0	M2 = .790	PSI = 19.34	PCI = 15.54
2	F/A = 0.0003	ETAC = 6.00	ITDF = 1187.	PT5/PT2 = 63.0	M2 = .404	PSI = 34.46	PCI = 32.81
3	F/A = 0.0600	ETAC = 7.00	ITDF = 3296.	PT5/PT2 = 65.3	M2 = .402	PSI = 34.28	PCI = 32.46
4	F/A = 0.0744	ETAC = 7.14	ITDF = 3320.	PT5/PT2 = 65.2	M2 = .474	PSI = 33.84	PCI = 32.11
5	F/A = 0.0722	ETAC = 7.27	ITDF = 3242.	PT5/PT2 = 65.2	M2 = .480	PSI = 33.24	PCI = 31.54
6	F/A = 0.0443	ETAC = 7.49	ITDF = 3094.	PT5/PT2 = 65.1	M2 = .500	PSI = 31.95	PCI = 30.61
7	F/A = 0.0404	ETAC = 7.60	ITDF = 3004.	PT5/PT2 = 64.3	M2 = .512	PSI = 31.12	PCI = 29.90
8	F/A = 0.0353	ETAC = 7.81	ITDF = 2810.	PT5/PT2 = 64.0	M2 = .540	PSI = 27.49	PCI = 28.68
9	F/A = 0.0300	ETAC = 7.81	ITDF = 2613.	PT5/PT2 = 64.0	M2 = .564	PSI = 27.64	PCI = 27.56
10	F/A = 0.0258	ETAC = 8.04	ITDF = 2261.	PT5/PT2 = 62.0	M2 = .631	PSI = 25.15	PCI = 24.74

6IN.CHAMd.	3.5 INLET	NO F.MULU.	LUM FLUX	TUNE INJ.	M2	PSI	PCI
1	F/A = .0584 E/A = .0540	E/FAC = 26.4 E/FAC = 24.7	TTDF = 1501. TTDF = 1802.	PTD/PTZ = 81.2 PTD/PTZ = 81.6	M2 = .502 M2 = .578	PSI = 14.65 PSI = 14.89	PCI = 14.60 PCI = 14.79
2	F/A = .0584 E/A = .0540	E/FAC = 26.4 E/FAC = 24.7	TTDF = 1501. TTDF = 1802.	PTD/PTZ = 81.2 PTD/PTZ = 81.6	M2 = .502 M2 = .578	PSI = 14.65 PSI = 14.89	PCI = 14.60 PCI = 14.79
3	F/A = .0584 E/A = .0540	E/FAC = 26.4 E/FAC = 24.7	TTDF = 1501. TTDF = 1802.	PTD/PTZ = 81.2 PTD/PTZ = 81.6	M2 = .502 M2 = .578	PSI = 14.65 PSI = 14.89	PCI = 14.60 PCI = 14.79
4	F/A = .0584 E/A = .0540	E/FAC = 26.4 E/FAC = 24.7	TTDF = 1501. TTDF = 1802.	PTD/PTZ = 81.2 PTD/PTZ = 81.6	M2 = .502 M2 = .578	PSI = 14.65 PSI = 14.89	PCI = 14.60 PCI = 14.79
5	F/A = .0584 E/A = .0540	E/FAC = 26.4 E/FAC = 24.7	TTDF = 1501. TTDF = 1802.	PTD/PTZ = 81.2 PTD/PTZ = 81.6	M2 = .502 M2 = .578	PSI = 14.65 PSI = 14.89	PCI = 14.60 PCI = 14.79
6	F/A = .0584 E/A = .0540	E/FAC = 26.4 E/FAC = 24.7	TTDF = 1501. TTDF = 1802.	PTD/PTZ = 81.2 PTD/PTZ = 81.6	M2 = .502 M2 = .578	PSI = 14.65 PSI = 14.89	PCI = 14.60 PCI = 14.79
7	F/A = .0584 E/A = .0540	E/FAC = 26.4 E/FAC = 24.7	TTDF = 1501. TTDF = 1802.	PTD/PTZ = 81.2 PTD/PTZ = 81.6	M2 = .502 M2 = .578	PSI = 14.65 PSI = 14.89	PCI = 14.60 PCI = 14.79
8	F/A = .0584 E/A = .0540	E/FAC = 26.4 E/FAC = 24.7	TTDF = 1501. TTDF = 1802.	PTD/PTZ = 81.2 PTD/PTZ = 81.6	M2 = .502 M2 = .578	PSI = 14.65 PSI = 14.89	PCI = 14.60 PCI = 14.79

6IN.CHAMP.	3-5 INLET	MD F. BUILD.	40% NUZ.	UNIT. INJ.	M2 =	PSI =	PCI =
1	F/A = 0.0000	ETAC = 0.00	IT5F = 977.	PTD/PT2 = 70.3	M2 = .736	PSI = 15.24	PCI = 15.67
2	F/A = 0.0006	ETAC = 61.2	IT5F = 2792.	PTD/PT2 = 89.1	M2 = .343	PSI = 33.80	PCI = 32.01
	AC9.MZ	AI 4) = 1.0144KMSPSI,	AI 8) = 1.0508KMSPSI,	PHASE(4 8) =		3.40UEG.	
	219.MZ	AI 4) = 3.9144KMSPSI,	AI 8) = 3.4938KMSPSI,	PHASE(4 8) =		10.30UEG.	
3	F/A = .0003	ETAC = 65.4	IT5F = 3040.	PTD/PT2 = 89.2	M2 = .343	PSI = 33.51	PCI = 31.85
	185.MZ	AI 4) = 1.0737KMSPSI,	AI 8) = 1.0308KMSPSI,	PHASE(4 8) =		16.80UEG.	
4	F/A = .0058	ETAC = 57.9	IT5F = 2729.	PTD/PT2 = 88.7	M2 = .367	PSI = 31.53	PCI = 29.98
	185.MZ	AI 4) = 2.7166KMSPSI,	AI 8) = 2.3788KMSPSI,	PHASE(4 8) =		14.00UEG.	
5	F/A = .0016	ETAC = 53.3	IT5F = 2520.	PTD/PT2 = 88.6	M2 = .390	PSI = 29.64	PCI = 28.63
	175.MZ	AI 4) = 2.0052KMSPSI,	AI 8) = 1.7724KMSPSI,	PHASE(4 8) =		20.40UEG.	
6	F/A = .0034	ETAC = 54.3	IT5F = 2369.	PTD/PT2 = 88.7	M2 = .411	PSI = 28.35	PCI = 27.46
	203.MZ	AI 4) = 1.0877KMSPSI,	AI 8) = 1.0208KMSPSI,	PHASE(4 8) =		21.10UEG.	

ITEM	DESCRIPTION	QTY	UNIT	PRICE	TOTAL	PSI	PCI
1	11.07	11.08
2	15.10	15.09
3	33.71	32.00
4	11.10	30.76
5	15.20	30.55
6	9.30	29.98
7	31.91	27.88
8	17.95	28.58
9	31.27	28.55
10	17.50	27.00
11	27.72	25.27

AFWAL-TR-81-2047
Part I

oIN•CHAR#	J.D. INCT	30° INCT	0° INCT	90° INCT	180° INCT	270° INCT	PCI
1	FAA=0000	EIAC= 50	IFDE= 471	PIA/PIC= 73.3	MZ= .753	PSI= 21.14	PCI= 11.92
2	FAA= 0073	EIAC= 60.1	IFDE= 523.1	PIA/PIC= 76.7	MZ= .613	PSI= 27.47	PCI= 25.77
3	FAA= 0023	EIAC= 61.9	IFDE= 277.4	PIA/PIC= 75.4	MZ= .537	PSI= 31.61	PCI= 24.02
4	FAA= 200.42	AI 41= 200.42	AI 31= 1.036	AI 21= 1.036	AI 11= 1.036	PSI= 31.67	PCI= 28.88
5	FAA= 0000	EIAC= 50	IFDE= 471	PIA/PIC= 73.3	MZ= .753	PSI= 21.14	PCI= 11.92
6	FAA= 0038	EIAC= 75.8	IFDE= 239.0	PIA/PIC= 80.7	MZ= .531	PSI= 32.11	PCI= 29.38
7	FAA= 0049	EIAC= 77.9	IFDE= 247.0	PIA/PIC= 80.3	MZ= .543	PSI= 31.42	PCI= 29.04
8	FAA= 0027	EIAC= 78.0	IFDE= 252.0	PIA/PIC= 77.3	MZ= .580	PSI= 29.91	PCI= 27.18
9	FAA= 0057	EIAC= 74.0	IFDE= 203.4	PIA/PIC= 77.7	MZ= .654	PSI= 24.30	PCI= 22.58
				PIA/PIC= 75.1	MZ= .727	PSI= 22.45	PCI= 20.82

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Part I

GIN. CHARG.	3-D INCT	80 F. HULL	LAJ=1.0	TUBE INJ.	MZ	PSI	PCI
1	F/A=0.000 E/A=0.000	E/A=0.000 E/A=0.000	IPD=1030	PTD/PIZ= 62.9	MZ= .734	PSI= 17.31	PCI= 8.56
2	F/A=0.042 E/A=0.042	E/A=0.042 E/A=0.042	IPD=2410	PTD/PIZ= 83.4	MZ= .499	PSI= 23.22	PCI= 26.36
3	F/A=0.091 E/A=0.091	E/A=0.091 E/A=0.091	IPD=2380	PTD/PIZ= 83.2	MZ= .534	PSI= 20.41	PCI= 25.05
5	F/A=0.311 E/A=0.311	E/A=0.311 E/A=0.311	IPD=1879	PTD/PIZ= 64.9	MZ= .609	PSI= 26.99	PCI= 22.11
6	F/A=0.262 E/A=0.262	E/A=0.262 E/A=0.262	IPD=1910	PTD/PIZ= 82.0	MZ= .637	PSI= 21.73	PCI= 20.85

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Part I

614. CHANNEL	3.0 INCH	2.0 INCH	1.0 INCH	0.5 INCH	0.25 INCH	0.125 INCH	MZ	PSI	PCI
1	F/A = 0.000	F/A = 0.000	F/A = 0.000	F/A = 0.000	F/A = 0.000	F/A = 0.000	MZ = 0.457	PSI = 17.53	PCI = 11.87
2	F/A = 0.000	F/A = 0.000	F/A = 0.000	F/A = 0.000	F/A = 0.000	F/A = 0.000	MZ = 0.457	PSI = 24.45	PCI = 16.38
3	F/A = 0.000	F/A = 0.000	F/A = 0.000	F/A = 0.000	F/A = 0.000	F/A = 0.000	MZ = 0.281	PSI = 41.23	PCI = 36.82
4	F/A = 0.000	F/A = 0.000	F/A = 0.000	F/A = 0.000	F/A = 0.000	F/A = 0.000	MZ = 0.280	PSI = 43.53	PCI = 36.06
5	F/A = 0.000	F/A = 0.000	F/A = 0.000	F/A = 0.000	F/A = 0.000	F/A = 0.000	MZ = 0.301	PSI = 38.28	PCI = 35.19
6	F/A = 0.000	F/A = 0.000	F/A = 0.000	F/A = 0.000	F/A = 0.000	F/A = 0.000	MZ = 0.302	PSI = 37.48	PCI = 34.00
7	F/A = 0.000	F/A = 0.000	F/A = 0.000	F/A = 0.000	F/A = 0.000	F/A = 0.000	MZ = 0.317	PSI = 36.24	PCI = 32.04
							MZ = 0.301	PSI = 17.3050	
							MZ = 0.302	PSI = 19.3056	
							MZ = 0.317	PSI = 17.3050	

AFWAL-TR-81-2047
Part I

SIN. CHAN.	IN. I. I. I.	IN. I. I. I.	IN. I. I. I.	IN. I. I. I.	IN. I. I. I.	IN. I. I. I.	IN. I. I. I.	IN. I. I. I.	IN. I. I. I.	IN. I. I. I.	IN. I. I. I.	IN. I. I. I.	IN. I. I. I.	IN. I. I. I.
1	F/A= 20.29	F/A= 20.29	F/A= 20.29	F/A= 20.29	F/A= 20.29	F/A= 20.29	F/A= 20.29	F/A= 20.29	F/A= 20.29	F/A= 20.29	F/A= 20.29	F/A= 20.29	F/A= 20.29	F/A= 20.29
2	F/A= 20.32	F/A= 20.32	F/A= 20.32	F/A= 20.32	F/A= 20.32	F/A= 20.32	F/A= 20.32	F/A= 20.32	F/A= 20.32	F/A= 20.32	F/A= 20.32	F/A= 20.32	F/A= 20.32	F/A= 20.32
3	F/A= 19.93	F/A= 19.93	F/A= 19.93	F/A= 19.93	F/A= 19.93	F/A= 19.93	F/A= 19.93	F/A= 19.93	F/A= 19.93	F/A= 19.93	F/A= 19.93	F/A= 19.93	F/A= 19.93	F/A= 19.93
4	F/A= 19.98	F/A= 19.98	F/A= 19.98	F/A= 19.98	F/A= 19.98	F/A= 19.98	F/A= 19.98	F/A= 19.98	F/A= 19.98	F/A= 19.98	F/A= 19.98	F/A= 19.98	F/A= 19.98	F/A= 19.98
5	F/A= 19.20	F/A= 19.20	F/A= 19.20	F/A= 19.20	F/A= 19.20	F/A= 19.20	F/A= 19.20	F/A= 19.20	F/A= 19.20	F/A= 19.20	F/A= 19.20	F/A= 19.20	F/A= 19.20	F/A= 19.20
6	F/A= 18.51	F/A= 18.51	F/A= 18.51	F/A= 18.51	F/A= 18.51	F/A= 18.51	F/A= 18.51	F/A= 18.51	F/A= 18.51	F/A= 18.51	F/A= 18.51	F/A= 18.51	F/A= 18.51	F/A= 18.51
7	F/A= 17.62	F/A= 17.62	F/A= 17.62	F/A= 17.62	F/A= 17.62	F/A= 17.62	F/A= 17.62	F/A= 17.62	F/A= 17.62	F/A= 17.62	F/A= 17.62	F/A= 17.62	F/A= 17.62	F/A= 17.62
8	F/A= 17.03	F/A= 17.03	F/A= 17.03	F/A= 17.03	F/A= 17.03	F/A= 17.03	F/A= 17.03	F/A= 17.03	F/A= 17.03	F/A= 17.03	F/A= 17.03	F/A= 17.03	F/A= 17.03	F/A= 17.03
9	F/A= 13.41	F/A= 13.41	F/A= 13.41	F/A= 13.41	F/A= 13.41	F/A= 13.41	F/A= 13.41	F/A= 13.41	F/A= 13.41	F/A= 13.41	F/A= 13.41	F/A= 13.41	F/A= 13.41	F/A= 13.41
10	F/A= 9.84	F/A= 9.84	F/A= 9.84	F/A= 9.84	F/A= 9.84	F/A= 9.84	F/A= 9.84	F/A= 9.84	F/A= 9.84	F/A= 9.84	F/A= 9.84	F/A= 9.84	F/A= 9.84	F/A= 9.84

LINE NUMBER	LINE LABEL	NO	UNIT	DESCRIPTION	UNIT PRICE	QUANTITY	TOTAL PRICE	PERCENT
1	F/A=30000	1	100	PHASE 1	300.00	1	300.00	PCI= 11.14
2	F/A=30000	2	100	PHASE 2	300.00	1	300.00	PCI= 15.36
3	F/A=30000	3	100	PHASE 3	300.00	1	300.00	PCI= 29.64
4	F/A=30000	4	100	PHASE 4	300.00	1	300.00	PCI= 30.59
5	F/A=30000	5	100	PHASE 5	300.00	1	300.00	PCI= 29.16
6	F/A=30000	6	100	PHASE 6	300.00	1	300.00	PCI= 15.35
7	F/A=30000	7	100	PHASE 7	300.00	1	300.00	PCI= 30.20
8	F/A=30000	8	100	PHASE 8	300.00	1	300.00	PCI= 29.30
9	F/A=30000	9	100	PHASE 9	300.00	1	300.00	PCI= 27.15
10	F/A=30000	10	100	PHASE 10	300.00	1	300.00	PCI= 27.69

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Part I

BIN. CHARG.	SEN. TUBET	CO. CHARGE	BASELINE	TIME INJ.	MZ	PSI	PCI
1	F/A=00000	F/TAC=00	TIME= 220.	P12/P12= 31.0	MZ= .719	PSI= 13.39	PCI= 10.99
2	F/A=00000	F/TAC= 0.0	TIME= 270.	P12/P12= 31.7	MZ= .734	PSI= 14.31	PCI= 15.20
3	F/A= 00000	F/TAC= 30.0	TIME= 1940.	P12/P12= 39.1	MZ= .930	PSI= 25.22	PCI= 24.73
4	F/A= 00000	F/TAC= 30.0	TIME= 1900.	P12/P12= 37.2	MZ= .949	PSI= 24.61	PCI= 24.21
5	F/A= 00012	F/TAC= 30.0	TIME= 1410.	P12/P12= 39.7	MZ= .942	PSI= 24.79	PCI= 24.22
6	F/A= 00495	F/TAC= 30.0	TIME= 2350.	P12/P12= 30.0	MZ= .376	PSI= 27.72	PCI= 26.76
	L/0002	M/012	TIME= 1000.	PHASE1 4 01=	PHASE1 4 01=	PHASE1 4 01=	
	00000	00000	TIME= 000.	PHASE1 4 01=	PHASE1 4 01=	PHASE1 4 01=	
	00000	00000	TIME= 2470.	PHASE1 4 01=	PHASE1 4 01=	PHASE1 4 01=	
7	F/A= 00007	F/TAC= 0.0	TIME= 2470.	P12/P12= 39.7	MZ= .369	PSI= 23.70	PCI= 27.06
	L/0002	M/012	TIME= 000.	PHASE1 4 01=	PHASE1 4 01=	PHASE1 4 01=	
	00000	00000	TIME= 2420.	PHASE1 4 01=	PHASE1 4 01=	PHASE1 4 01=	
8	F/A= 00007	F/TAC= 37.0	TIME= 2420.	P12/P12= 39.0	MZ= .391	PSI= 24.01	PCI= 26.51
9	F/A= 00007	F/TAC= 71.0	TIME= 2329.	P12/P12= 39.9	MZ= .403	PSI= 27.06	PCI= 25.48
10	F/A= 00007	F/TAC= 70.0	TIME= 2300.	P12/P12= 30.7	MZ= .413	PSI= 26.92	PCI= 25.15

AFWAL-TR-81-2047
Part I

SIN. CHARS.	WAVE LENGTH	WAVE CEN.	HEIGHT	LOSS	MZ	PSI	PCI
1	F/A = 0.001	WAVE CEN.	HEIGHT	LOSS	MZ = .702	PSI = 12.99	PCI = 13.35
2	F/A = 0.001	WAVE CEN.	HEIGHT	LOSS	MZ = .493	PSI = 19.74	PCI = 19.62
3	F/A = 0.001	WAVE CEN.	HEIGHT	LOSS	MZ = .403	PSI = 19.77	PCI = 19.63
4	F/A = 0.001	WAVE CEN.	HEIGHT	LOSS	MZ = .497	PSI = 19.61	PCI = 19.66
5	F/A = 0.001	WAVE CEN.	HEIGHT	LOSS	MZ = .401	PSI = 20.94	PCI = 19.85
6	F/A = 0.001	WAVE CEN.	HEIGHT	LOSS	MZ = .431	PSI = 21.10	PCI = 20.76
7	F/A = 0.001	WAVE CEN.	HEIGHT	LOSS	MZ = .415	PSI = 22.15	PCI = 21.61
8	F/A = 0.001	WAVE CEN.	HEIGHT	LOSS	MZ = .407	PSI = 22.52	PCI = 21.78
9	F/A = 0.001	WAVE CEN.	HEIGHT	LOSS	MZ = .425	PSI = 21.74	PCI = 21.04
10	F/A = 0.001	WAVE CEN.	HEIGHT	LOSS	MZ = .430	PSI = 21.19	PCI = 20.36
	F/A = 0.001	WAVE CEN.	HEIGHT	LOSS	MZ = .430	PSI = 19.5015	

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Part I

6IN. CHAM.	4IN. I.D.ET	7/8IN. M.D.ET	11/16IN. I.D.	1/2IN. I.D.	1/4IN. I.D.	1/8IN. I.D.	1/16IN. I.D.	1/32IN. I.D.	1/64IN. I.D.
1	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000
2	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000
3	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000
4	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000
5	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000
6	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000
7	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000	F/A = 1.0000 F/A = 1.0000

AFWAL-TR-81-2047
Part 1

BIN. NAME	WAVELENGTH	MODE	TIME	PHASE	PSI	M2	PSI	PCI
1	FVA=0.0000	SIAC= 0.0	IFB= 1225	PHASE= 31.1	M2= .716	PSI= 10.95	PCI= 17.62	
2	FVA= 0.0030	SIAC= 0.0	IFB= 2700	PHASE= 20.3	M2= .902	PSI= 30.65	PCI= 30.13	
3	FVA= 0.0060	SIAC= 0.0	IFB= 2711	PHASE= 20.7	M2= .867	PSI= 31.56	PCI= 30.71	
4	FVA= 0.0090	SIAC= 0.0	IFB= 3700	PHASE= 20.4	M2= .833	PSI= 32.22	PCI= 30.90	
5	FVA= 0.0120	SIAC= 0.0	IFB= 3700	PHASE= 20.4	M2= .833	PSI= 32.22	PCI= 30.90	
6	FVA= 0.0150	SIAC= 0.0	IFB= 3700	PHASE= 20.4	M2= .833	PSI= 32.22	PCI= 30.90	
7	FVA= 0.0180	SIAC= 0.0	IFB= 3700	PHASE= 20.4	M2= .833	PSI= 32.22	PCI= 30.90	
8	FVA= 0.0210	SIAC= 0.0	IFB= 3700	PHASE= 20.4	M2= .833	PSI= 32.22	PCI= 30.90	
9	FVA= 0.0240	SIAC= 0.0	IFB= 3700	PHASE= 20.4	M2= .833	PSI= 32.22	PCI= 30.90	
10	FVA= 0.0270	SIAC= 0.0	IFB= 3700	PHASE= 20.4	M2= .833	PSI= 32.22	PCI= 30.90	

AFWAL-TR-81-2047
Part I

GIN. CHAR.	MIN. INCT	DEL FAMILIAR	MIN. INCT	DEL FAMILIAR	UNIT. INCT.	M2 =	M2 =	PSI =	PSI =	PCI =
1	F/A=0.0000	ITAC=0.00	ITAC=0.00	ITAC=0.00	F/D/P12=0.00	M2=0.00	M2=0.00	PSI=11.29	PSI=11.29	PCI=12.02
2	F/A=0.0000	ITAC=0.00	ITAC=0.00	ITAC=0.00	F/D/P12=0.00	M2=0.00	M2=0.00	PSI=15.07	PSI=15.07	PCI=16.07
3	F/A=0.0075	ITAC=1.00	ITAC=1.00	ITAC=1.00	F/D/P12=0.00	M2=0.00	M2=0.00	PSI=32.87	PSI=32.87	PCI=32.60
	120.0HZ	AC 41=0.0000	ITAC=0.00	ITAC=0.00	F/D/P12=0.00	M2=0.00	M2=0.00	PSI=0.0000	PSI=0.0000	
	240.0HZ	AC 41=0.0000	ITAC=0.00	ITAC=0.00	F/D/P12=0.00	M2=0.00	M2=0.00	PSI=0.0000	PSI=0.0000	
4	F/A=0.0000	ITAC=0.00	ITAC=0.00	ITAC=0.00	F/D/P12=0.00	M2=0.00	M2=0.00	PSI=31.10	PSI=31.10	PCI=30.93
	120.0HZ	AC 41=0.0000	ITAC=0.00	ITAC=0.00	F/D/P12=0.00	M2=0.00	M2=0.00	PSI=0.0000	PSI=0.0000	
	240.0HZ	AC 41=0.0000	ITAC=0.00	ITAC=0.00	F/D/P12=0.00	M2=0.00	M2=0.00	PSI=0.0000	PSI=0.0000	
5	F/A=0.0200	ITAC=0.00	ITAC=0.00	ITAC=0.00	F/D/P12=0.00	M2=0.00	M2=0.00	PSI=30.44	PSI=30.44	PCI=29.85
	120.0HZ	AC 41=0.0000	ITAC=0.00	ITAC=0.00	F/D/P12=0.00	M2=0.00	M2=0.00	PSI=0.0000	PSI=0.0000	
	240.0HZ	AC 41=0.0000	ITAC=0.00	ITAC=0.00	F/D/P12=0.00	M2=0.00	M2=0.00	PSI=0.0000	PSI=0.0000	
6	F/A=0.0312	ITAC=0.00	ITAC=0.00	ITAC=0.00	F/D/P12=0.00	M2=0.00	M2=0.00	PSI=27.91	PSI=27.91	PCI=27.00
	120.0HZ	AC 41=0.0000	ITAC=0.00	ITAC=0.00	F/D/P12=0.00	M2=0.00	M2=0.00	PSI=0.0000	PSI=0.0000	
	240.0HZ	AC 41=0.0000	ITAC=0.00	ITAC=0.00	F/D/P12=0.00	M2=0.00	M2=0.00	PSI=0.0000	PSI=0.0000	
	181.0HZ	AC 41=1.8750	ITAC=1.00	ITAC=1.00	F/D/P12=0.00	M2=0.00	M2=0.00	PSI=13.0000	PSI=13.0000	

AFWAL-TR-81-2047
Part I

STATION	TYPE	TIME	PHASE	AMPLITUDE	PERIOD	PHASE	AMPLITUDE	PERIOD	PHASE	AMPLITUDE	PERIOD
1	FAA	0.43	FAA	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43
2	FAA	0.43	FAA	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43
3	FAA	0.43	FAA	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43
4	FAA	0.43	FAA	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43
5	FAA	0.43	FAA	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43

AFWAL-TR-81-2047
Part I

01IN,CMAM,1.	41E, ECU, I	60E, ECU, O	50E, ECU, I	00E, ECU, O	00E, ECU, I	00E, ECU, O	00E, ECU, I	00E, ECU, O	00E, ECU, I	00E, ECU, O	00E, ECU, I	00E, ECU, O	00E, ECU, I	00E, ECU, O	00E, ECU, I	00E, ECU, O	00E, ECU, I	00E, ECU, O	00E, ECU, I	00E, ECU, O	
1	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000
2	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000
3	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000
4	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000
5	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000	41A=000000

AFWAL-TR-81-2047
Part I

GENC-NAME	41% FUEL	22% FUEL	11% FUEL	JUST FUEL	MZ	PSI	PCI
1	P/A = 172.02 T/AC = 42.0 M = 5.37 SPS1 = 1933	11% FUEL T/AC = 42.0 M = 5.37 SPS1 = 1933	11% FUEL T/AC = 42.0 M = 5.37 SPS1 = 1933	MZ/P12 = 4.00 P12/P12 = 4.12 PHASE1 = 18.4066	MZ = 4.27 MZ = 4.27 MZ = 4.27 MZ = 4.27	PSI = 28.01 PSI = 28.03 PSI = 27.28 PSI = 24.84 PSI = 23.20 PSI = 20.00 PSI = 20.10	PCI = 24.62 PCI = 24.36 PCI = 23.82 PCI = 21.35 PCI = 19.34 PCI = 14.27 PCI = 14.16
2	P/A = 172.02 T/AC = 42.0 M = 5.37 SPS1 = 1933	11% FUEL T/AC = 42.0 M = 5.37 SPS1 = 1933	11% FUEL T/AC = 42.0 M = 5.37 SPS1 = 1933	MZ/P12 = 4.00 P12/P12 = 4.12 PHASE1 = 18.4066	MZ = 4.27 MZ = 4.27 MZ = 4.27 MZ = 4.27	PSI = 28.01 PSI = 28.03 PSI = 27.28 PSI = 24.84 PSI = 23.20 PSI = 20.00 PSI = 20.10	PCI = 24.62 PCI = 24.36 PCI = 23.82 PCI = 21.35 PCI = 19.34 PCI = 14.27 PCI = 14.16
3	P/A = 172.02 T/AC = 42.0 M = 5.37 SPS1 = 1933	11% FUEL T/AC = 42.0 M = 5.37 SPS1 = 1933	11% FUEL T/AC = 42.0 M = 5.37 SPS1 = 1933	MZ/P12 = 4.00 P12/P12 = 4.12 PHASE1 = 18.4066	MZ = 4.27 MZ = 4.27 MZ = 4.27 MZ = 4.27	PSI = 28.01 PSI = 28.03 PSI = 27.28 PSI = 24.84 PSI = 23.20 PSI = 20.00 PSI = 20.10	PCI = 24.62 PCI = 24.36 PCI = 23.82 PCI = 21.35 PCI = 19.34 PCI = 14.27 PCI = 14.16
4	P/A = 172.02 T/AC = 42.0 M = 5.37 SPS1 = 1933	11% FUEL T/AC = 42.0 M = 5.37 SPS1 = 1933	11% FUEL T/AC = 42.0 M = 5.37 SPS1 = 1933	MZ/P12 = 4.00 P12/P12 = 4.12 PHASE1 = 18.4066	MZ = 4.27 MZ = 4.27 MZ = 4.27 MZ = 4.27	PSI = 28.01 PSI = 28.03 PSI = 27.28 PSI = 24.84 PSI = 23.20 PSI = 20.00 PSI = 20.10	PCI = 24.62 PCI = 24.36 PCI = 23.82 PCI = 21.35 PCI = 19.34 PCI = 14.27 PCI = 14.16
5	P/A = 172.02 T/AC = 42.0 M = 5.37 SPS1 = 1933	11% FUEL T/AC = 42.0 M = 5.37 SPS1 = 1933	11% FUEL T/AC = 42.0 M = 5.37 SPS1 = 1933	MZ/P12 = 4.00 P12/P12 = 4.12 PHASE1 = 18.4066	MZ = 4.27 MZ = 4.27 MZ = 4.27 MZ = 4.27	PSI = 28.01 PSI = 28.03 PSI = 27.28 PSI = 24.84 PSI = 23.20 PSI = 20.00 PSI = 20.10	PCI = 24.62 PCI = 24.36 PCI = 23.82 PCI = 21.35 PCI = 19.34 PCI = 14.27 PCI = 14.16
6	P/A = 172.02 T/AC = 42.0 M = 5.37 SPS1 = 1933	11% FUEL T/AC = 42.0 M = 5.37 SPS1 = 1933	11% FUEL T/AC = 42.0 M = 5.37 SPS1 = 1933	MZ/P12 = 4.00 P12/P12 = 4.12 PHASE1 = 18.4066	MZ = 4.27 MZ = 4.27 MZ = 4.27 MZ = 4.27	PSI = 28.01 PSI = 28.03 PSI = 27.28 PSI = 24.84 PSI = 23.20 PSI = 20.00 PSI = 20.10	PCI = 24.62 PCI = 24.36 PCI = 23.82 PCI = 21.35 PCI = 19.34 PCI = 14.27 PCI = 14.16
7	P/A = 172.02 T/AC = 42.0 M = 5.37 SPS1 = 1933	11% FUEL T/AC = 42.0 M = 5.37 SPS1 = 1933	11% FUEL T/AC = 42.0 M = 5.37 SPS1 = 1933	MZ/P12 = 4.00 P12/P12 = 4.12 PHASE1 = 18.4066	MZ = 4.27 MZ = 4.27 MZ = 4.27 MZ = 4.27	PSI = 28.01 PSI = 28.03 PSI = 27.28 PSI = 24.84 PSI = 23.20 PSI = 20.00 PSI = 20.10	PCI = 24.62 PCI = 24.36 PCI = 23.82 PCI = 21.35 PCI = 19.34 PCI = 14.27 PCI = 14.16

SLV. CHAR. No.	4th. INLET	2nd. INLET	1st. INLET	DIFF. INLET	M2	PS1	PCI
1	44A= 0000 44B= 0000 44C= 0000	44D= 0000 44E= 0000 44F= 0000	44G= 0000 44H= 0000 44I= 0000	44J= 0000 44K= 0000 44L= 0000	M2= 0000 M2= 0000 M2= 0000	PS1= 0000 PS1= 0000 PS1= 0000	PCI= 0000 PCI= 0000 PCI= 0000
2	44A= 0000 44B= 0000 44C= 0000	44D= 0000 44E= 0000 44F= 0000	44G= 0000 44H= 0000 44I= 0000	44J= 0000 44K= 0000 44L= 0000	M2= 0000 M2= 0000 M2= 0000	PS1= 0000 PS1= 0000 PS1= 0000	PCI= 0000 PCI= 0000 PCI= 0000
3	44A= 0000 44B= 0000 44C= 0000	44D= 0000 44E= 0000 44F= 0000	44G= 0000 44H= 0000 44I= 0000	44J= 0000 44K= 0000 44L= 0000	M2= 0000 M2= 0000 M2= 0000	PS1= 0000 PS1= 0000 PS1= 0000	PCI= 0000 PCI= 0000 PCI= 0000
4	44A= 0000 44B= 0000 44C= 0000	44D= 0000 44E= 0000 44F= 0000	44G= 0000 44H= 0000 44I= 0000	44J= 0000 44K= 0000 44L= 0000	M2= 0000 M2= 0000 M2= 0000	PS1= 0000 PS1= 0000 PS1= 0000	PCI= 0000 PCI= 0000 PCI= 0000
5	44A= 0000 44B= 0000 44C= 0000	44D= 0000 44E= 0000 44F= 0000	44G= 0000 44H= 0000 44I= 0000	44J= 0000 44K= 0000 44L= 0000	M2= 0000 M2= 0000 M2= 0000	PS1= 0000 PS1= 0000 PS1= 0000	PCI= 0000 PCI= 0000 PCI= 0000

AFWAL-TR-81-2047
Part I

0IN,CHAMs.	419. PHIL	220Y. EAM.	220Y. E206	PHS. P12.	M2.	P51.	PCI.
1	F/A=0.0011	F/A=0.0011	F/A=0.0011	P15/P12= 03.6	M2= 0.73	P51= 13.09	PCI= 9.89
2	F/A= 0.0011	F/A= 0.0011	F/A= 0.0011	P15/P12= 31.8	M2= 0.30	P51= 20.63	PCI= 17.60
	20.60MZ	AC 91= 0.0200	PHS1= 0.01	PHS1= 0.01	PHS1= 0.01	43.7200	
	4.00MZ	AC 91= 0.0200	PHS1= 0.01	PHS1= 0.01	PHS1= 0.01	41.7000	
3	F/A= 0.0011	F/A= 0.0011	F/A= 0.0011	P15/P12= 30.0	M2= 0.31	P51= 20.63	PCI= 17.21
	20.60MZ	AC 91= 0.0200	PHS1= 0.01	PHS1= 0.01	PHS1= 0.01	43.7200	
	4.00MZ	AC 91= 0.0200	PHS1= 0.01	PHS1= 0.01	PHS1= 0.01	41.7000	
4	F/A= 0.0011	F/A= 0.0011	F/A= 0.0011	P15/P12= 30.0	M2= 0.34	P51= 19.03	PCI= 16.60
5	F/A= 0.0011	F/A= 0.0011	F/A= 0.0011	P15/P12= 31.8	M2= 0.37	P51= 17.23	PCI= 15.80
6	F/A= 0.0011	F/A= 0.0011	F/A= 0.0011	P15/P12= 30.0	M2= 0.30	P51= 17.00	PCI= 15.19
7	F/A= 0.0011	F/A= 0.0011	F/A= 0.0011	P15/P12= 31.8	M2= 0.30	P51= 16.37	PCI= 13.61

AFWAL-TR-81-2047
Part I

6IN.CM4M4. 4PI. 1.181T .007 TAB. 4 S. 3006. 9215.130. 9215.130. PCI= 16.78
 1 P/A= 3.5533 I/AC= 3.0 I/F= 393. P1/P12= 70.3 P1/P12= 17.90 PSI= 39.62
 2 P/A= 3.5533 I/AC= 3.0 I/F= 370. P1/P12= 66.1 P1/P12= 11.70 PSI= 39.62
 2.010Z AC 91= 7.00000PSI AC 91= 3.178800001 PHASE(4 0)= 11.70 6.
 430.30Z AC 91= 1.72100PSI AC 91= 0.999000001
 3 P/A= 3.5533 I/AC= 3.0 I/F= 370. P1/P12= 66.1 P1/P12= 17.90 PSI= 34.00
 2.100Z AC 91= 7.00000PSI AC 91= 2.920000001 PHASE(4 0)= 12.50 6.
 430.30Z AC 91= 1.72100PSI AC 91= 0.999000001
 4 P/A= 3.5533 I/AC= 3.0 I/F= 370. P1/P12= 66.1 P1/P12= 17.90 PSI= 37.77
 2.010Z AC 91= 7.00000PSI AC 91= 3.000000001 PHASE(4 0)= 12.23 6.
 430.30Z AC 91= 1.72100PSI AC 91= 0.999000001
 5 P/A= 3.5533 I/AC= 3.0 I/F= 370. P1/P12= 66.1 P1/P12= 17.90 PSI= 37.77
 2.100Z AC 91= 7.00000PSI AC 91= 3.000000001 PHASE(4 0)= 13.90 6.
 430.30Z AC 91= 1.72100PSI AC 91= 0.999000001

AFWAL-TR-81-2047
Part I

GEN. CHARG.	SIN. INLET	200Y P.W.	90% SUZE	UNIT INJ.	M2	PSI	PCI
1	F/A=0.0000	ETAC= 0.0	TIPE= 330.	P157P12= 52.9	M2= .490	PSI= 19.57	PCI= 10.79
2	F/A=0.0000	ETAC= 0.0	TIPE= 749.	P157P12= 22.5	M2= .481	PSI= 27.20	PCI= 14.87
3	F/A= .0020	ETAC= 1.07	TIPE= 3645.	P157P12= 32.7	M2= .320	PSI= 40.26	PCI= 34.28
4	F/A= 275.MZ	AT 91= 3.930 MSPSI, AT 81= 1.220 MSPSI, PHASE1 4 81= 21.6DEG.	TIPE= 3497.	P157P12= 42.0	M2= .336	PSI= 39.39	PCI= 33.64
5	F/A= 276.MZ	AT 91= 3.273 MSPSI, AT 81= 1.003 MSPSI, PHASE1 4 81= 23.9036.	TIPE= 3499.	P157P12= 42.4	M2= .341	PSI= 33.85	PCI= 33.24
6	F/A= .0044	ETAC= 0.40	TIPE= 3499.	P157P12= 42.4	M2= .341	PSI= 33.85	PCI= 33.24
7	F/A= 280.MZ	AT 91= .016 MSPSI, AT 81= .274 MSPSI, PHASE1 4 81= 15.6036.	TIPE= 3283.	P157P12= 0.13	M2= .344	PSI= 37.41	PCI= 32.01
8	F/A= .0000	ETAC= 0.0	TIPE= 3283.	P157P12= 0.13	M2= .344	PSI= 37.41	PCI= 32.01
9	F/A= 285.MZ	AT 91= .703 MSPSI, AT 81= .247 MSPSI, PHASE1 4 81= 17.7036.	TIPE= 3497.	P157P12= 42.0	M2= .336	PSI= 39.39	PCI= 33.64

Run	CHANN	Time	INLET	3BY	4.00	ASSEMBLY	TOUR	INJ.	PCI
1	F/A=0.0000	25.00	UAC= 0.00	UAF= 0.00	UAF= 0.00	UAF= 0.00	UAF= 0.00	UAF= 0.00	PCI= 12.12
2	F/A=0.0000	25.00	UAC= 0.00	UAF= 0.00	UAF= 0.00	UAF= 0.00	UAF= 0.00	UAF= 0.00	PCI= 16.13
3	F/A=0.0000	25.00	UAC= 0.00	UAF= 0.00	UAF= 0.00	UAF= 0.00	UAF= 0.00	UAF= 0.00	PCI= 31.33
4	F/A=0.0000	25.00	UAC= 0.00	UAF= 0.00	UAF= 0.00	UAF= 0.00	UAF= 0.00	UAF= 0.00	PCI= 31.27
5	F/A=0.0000	25.00	UAC= 0.00	UAF= 0.00	UAF= 0.00	UAF= 0.00	UAF= 0.00	UAF= 0.00	PCI= 30.96
6	F/A=0.0000	25.00	UAC= 0.00	UAF= 0.00	UAF= 0.00	UAF= 0.00	UAF= 0.00	UAF= 0.00	PCI= 36.56
7	F/A=0.0000	25.00	UAC= 0.00	UAF= 0.00	UAF= 0.00	UAF= 0.00	UAF= 0.00	UAF= 0.00	PCI= 29.74
8	F/A=0.0000	25.00	UAC= 0.00	UAF= 0.00	UAF= 0.00	UAF= 0.00	UAF= 0.00	UAF= 0.00	PCI= 28.67
9	F/A=0.0000	25.00	UAC= 0.00	UAF= 0.00	UAF= 0.00	UAF= 0.00	UAF= 0.00	UAF= 0.00	PCI= 28.59
10	F/A=0.0000	25.00	UAC= 0.00	UAF= 0.00	UAF= 0.00	UAF= 0.00	UAF= 0.00	UAF= 0.00	PCI= 27.62
11	F/A=0.0000	25.00	UAC= 0.00	UAF= 0.00	UAF= 0.00	UAF= 0.00	UAF= 0.00	UAF= 0.00	PCI= 25.76

AFWAL-TR-81-2047
Part I

0IN.CHANN.	4IN. INLET	0BY 4.0.	ITC=7.0K	0.14.14J.		
1	17A= 1.0000	ETAC= 0.0	ITSI= 720.	PTDPTZ= 54.4	M2= .393	PSI= 23.89
2	17A= 1.0041	ETAC= 0.0	ITSE= 2.070.	PTDPTZ= 42.7	M2= .264	PSI= 35.91
	19.0HZ	AT 4)= .161KSPSI,	AT 8)= 1.000KSPSI,	PHASE(4 8)=		14.0DEG.
	19.0HZ	AT 4)= .050KSPSI,	AT 8)= .040KSPSI,	PHASE(4 8)=		23.10LU.
3	17A= 1.0000	ETAC= 0.0	ITSI= 2.077.	PTDPTZ= 83.3	M2= .260	PSI= 35.48
4	17A= 1.0000	ETAC= 0.0	ITSI= 2.094.	PTDPTZ= 82.7	M2= .276	PSI= 34.13
	19.0HZ	AT 4)= .161KSPSI,	AT 8)= .040KSPSI,	PHASE(4 8)=		11.10LU.
5	17A= 1.0000	ETAC= 0.0	ITSE= 2.077.	PTDPTZ= 81.0	M2= .297	PSI= 32.04
	20.0HZ	AT 4)= .161KSPSI,	AT 8)= .040KSPSI,	PHASE(4 8)=		9.0DEG.

PCI= 13.92
PCI= 30.64

PCI= 30.59
PCI= 29.28

PCI= 27.17

WING COMMANDER	WING	UNIT	ADJUTANT	JOY	FAV.	IN	FLY	INJ.	M2	PSI	PCI
1	F/A	0000	UAC	000	UAC	1120	793	P/D/P/12 = 22.0	M2 = .392	PSI = 16.73	PCI = 10.01
2	F/A	0001	UAC	000	UAC	1120	793	P/D/P/12 = 22.16	M2 = .296	PSI = 22.16	PCI = 18.18
3	F/A	0002	UAC	000	UAC	1120	793	PHASEC 4 B1 = 20.0000	M2 = .303	PSI = 21.87	PCI = 16.17
4	F/A	0003	UAC	000	UAC	1120	793	PHASEC 4 B1 = 21.0000	M2 = .393	PSI = 21.41	PCI = 17.88
5	F/A	0004	UAC	000	UAC	1120	793	PHASEC 4 B1 = 21.1000	M2 = .323	PSI = 20.69	PCI = 17.14
6	F/A	0005	UAC	000	UAC	1120	793	PHASEC 4 B1 = 21.2000	M2 = .337	PSI = 17.75	PCI = 16.09
7	F/A	0006	UAC	000	UAC	1120	793	PHASEC 4 B1 = 21.3000	M2 = .347	PSI = 16.84	PCI = 15.02
8	F/A	0007	UAC	000	UAC	1120	793	PHASEC 4 B1 = 21.4000	M2 = .362	PSI = 16.06	PCI = 13.89
9	F/A	0008	UAC	000	UAC	1120	793	PHASEC 4 B1 = 21.5000	M2 = .337	PSI = 16.84	PCI = 16.13

QIM. C. 1000.	QIM. LABEL	QIM. FORM.	QIM. QTY.	QIM. UNIT.	QIM. PRICE	QIM. QTY.	QIM. PRICE	QIM. QTY.	QIM. PRICE	QIM. QTY.	QIM. PRICE	QIM. QTY.	QIM. PRICE
1	F/A=0.000	1/AU= 1.0	1100 = 5000	1100 = 5000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2	F/A=0.000	1/AU= 1.0	1100 = 5000	1100 = 5000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3	F/A=0.000	1/AU= 1.0	1100 = 5000	1100 = 5000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4	F/A=0.000	1/AU= 1.0	1100 = 5000	1100 = 5000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5	F/A=0.000	1/AU= 1.0	1100 = 5000	1100 = 5000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
6	F/A=0.000	1/AU= 1.0	1100 = 5000	1100 = 5000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
7	F/A=0.000	1/AU= 1.0	1100 = 5000	1100 = 5000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

6 IN. CHAR. WAVE LENGTH	DRY FORM	FORM 149	PCI
1 F/A = 3.5007	F/A = 3.5007	PI/P/PIZ = 57.62	PSI = 42.87
2 F/A = 3.5007	F/A = 3.5007	PI/P/PIZ = 55.5	PSI = 37.95
		PHASE(4, 0) =	14.0206
3 F/A = 3.5007	F/A = 3.5007	PI/P/PIZ = 55.3	PSI = 37.67
		PHASE(4, 0) =	15.0206
4 F/A = 3.5043	F/A = 3.5043	PI/P/PIZ = 55.3	PSI = 37.34
		PHASE(4, 0) =	17.0206
5 F/A = 3.5052	F/A = 3.5052	PI/P/PIZ = 55.0	PSI = 37.13
		PHASE(4, 0) =	18.0206
6 F/A = 3.5053	F/A = 3.5053	PI/P/PIZ = 55.2	PSI = 37.05
		PHASE(4, 0) =	22.0206
7 F/A = 3.5057	F/A = 3.5057	PI/P/PIZ = 56.0	PSI = 37.11
		PHASE(4, 0) =	22.0206
8 F/A = 3.5045	F/A = 3.5045	PI/P/PIZ = 55.2	PSI = 33.89
		PHASE(4, 0) =	17.0206
9 F/A = 3.5029	F/A = 3.5029	PI/P/PIZ = 54.0	PSI = 32.27
10 F/A = 3.5027	F/A = 3.5027	PI/P/PIZ = 54.1	PSI = 31.27

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AFMNL-TR-81-2047
Part I

b. Low Frequency Combustion Instabilities for an Eight Inch
Diameter Combustion Chamber

8IN. CHAMB.	AIN.	INLET	NO F. HOLD.	BASELINE	TUBE INJ.	M2	PSI	PCI
1	F/A=0.0000	ETAC=0.0	TI5F=529.	PT5/PT2=48.0	M2=.729	PSI=13.85	PCI=17.33	
2	F/A=0.0000	ETAC=0.0	TI5F=992.	PT5/PT2=46.4	M2=.742	PSI=19.68	PCI=10.12	
3	F/A=.0618	ETAC=79.4	TI5F=3503.	PT5/PT2=79.1	M2=.525	PSI=28.36	PCI=25.77	
	201.0HZ	AI 1)=1.352RMSPSI,	AI 4)=1.516RMSPSI,	PHASE(1 4)=66.8DEG.				
	201.0HZ	AI 4)=1.504RMSPSI,	AI 8)=1.216RMSPSI,	PHASE(4 8)=14.1DEG.				
	201.0HZ	AI 7)=1.241RMSPSI,	AI 8)=1.293RMSPSI,	PHASE(7 8)=3.5DEG.				
	157.0HZ	AI 1)=.422RMSPSI,	AI 4)=.549RMSPSI,	PHASE(1 4)=46.6DEG.				
	157.0HZ	AI 4)=.482RMSPSI,	AI 8)=.415RMSPSI,	PHASE(4 8)=10.5DEG.				
	157.0HZ	AI 7)=.411RMSPSI,	AI 8)=.422RMSPSI,	PHASE(7 8)=1.6DEG.				
4	F/A=.0599	ETAC=79.8	TI5F=3472.	PT5/PT2=79.1	M2=.528	PSI=28.09	PCI=25.60	
	204.0HZ	AI 1)=1.362RMSPSI,	AI 4)=1.587RMSPSI,	PHASE(1 4)=69.2DEG.				
	204.0HZ	AI 4)=1.618RMSPSI,	AI 8)=1.336RMSPSI,	PHASE(4 8)=15.8DEG.				
	204.0HZ	AI 7)=1.250RMSPSI,	AI 8)=1.307RMSPSI,	PHASE(7 8)=3.4DEG.				
	200.0HZ	AI 1)=1.039RMSPSI,	AI 4)=1.244RMSPSI,	PHASE(1 4)=65.5DEG.				
	200.0HZ	AI 4)=1.170RMSPSI,	AI 8)=.955RMSPSI,	PHASE(4 8)=14.0DEG.				
	200.0HZ	AI 7)=.985RMSPSI,	AI 8)=1.022RMSPSI,	PHASE(7 8)=4.2DEG.				
5	F/A=.0541	ETAC=81.1	TI5F=3371.	PT5/PT2=78.7	M2=.546	PSI=27.34	PCI=25.11	
	206.0HZ	AI 1)=1.926RMSPSI,	AI 4)=2.327RMSPSI,	PHASE(4 8)=16.0DEG.				
	206.0HZ	AI 4)=2.265RMSPSI,	AI 8)=1.957RMSPSI,	PHASE(8 1)=5.2DEG.				
	206.0HZ	AI 7)=1.926RMSPSI,	AI 8)=2.003RMSPSI,	PHASE(7 8)=5.2DEG.				
6	F/A=.0500	ETAC=81.6	TI5F=3260.	PT5/PT2=76.1	M2=.558	PSI=26.60	PCI=24.50	
7	F/A=.0440	ETAC=82.4	TI5F=3087.	PT5/PT2=77.5	M2=.585	PSI=25.37	PCI=23.44	
8	F/A=.0408	ETAC=82.8	TI5F=2977.	PT5/PT2=76.9	M2=.600	PSI=24.68	PCI=22.73	
9	F/A=.0360	ETAC=69.5	TI5F=2501.	PT5/PT2=73.3	M2=.653	PSI=22.58	PCI=19.98	
10	F/A=.0311	ETAC=66.8	TI5F=2269.	PT5/PT2=71.3	M2=.685	PSI=21.38	PCI=18.12	
11	F/A=.0245	ETAC=65.2	TI5F=2007.	PT5/PT2=67.7	M2=.717	PSI=20.45	PCI=16.07	

BIN. CHARG.	IN. INLET	NO F. HOLD.	TT0=750R	UNIF. INJ.	M2=	PSI=	PCI=
1	F/A=0.0000	ETAC= 0.0	TT5F= 782.	PT5/PT2= 47.4	M2= .729	PSI= 17.15	PCI= 18.82
2	F/A= .0635	ETAC= 64.7	TT5F= 2909.	PT5/PT2= 81.3	M2= .508	PSI= 25.25	PCI= 24.02
3	F/A= .0574	ETAC= 86.6	TT5F= 3490.	PT5/PT2= 83.4	M2= .465	PSI= 27.78	PCI= 26.12
4	F/A= .0564	ETAC= 87.4	TT5F= 3485.	.658RMSPSI, PHASE(1 4)=		68.9DEG.	
5	F/A= .0532	ETAC= 87.3	TT5F= 3382.	.650RMSPSI, PHASE(7 8)=		12.9DEG.	PCI= 26.02
6	F/A= .0500	ETAC= 70.2	TT5F= 2777.	PT5/PT2= 83.2	M2= .464	PSI= 27.75	
				.522RMSPSI, PHASE(1 4)=		69.2DEG.	
				.527RMSPSI, PHASE(7 8)=		12.9DEG.	PCI= 25.48
				PT5/PT2= 82.8	M2= .474	PSI= 27.15	
				.598RMSPSI, PHASE(1 4)=		67.7DEG.	
				.556RMSPSI, PHASE(7 8)=		16.1DEG.	
				PT5/PT2= 79.6	M2= .523	PSI= 24.98	PCI= 22.97
				1.088RMSPSI, PHASE(1 4)=		69.8DEG.	
				1.034RMSPSI, PHASE(7 8)=		13.7DEG.	

8IN. CHAMB.	4IN. INLET	NO F-HOLD.	TI0=750R	TUBE INJ.	M2=	PSI=	PCI=
1.	F/A=0.0000	ETAC= 0.0	TT5F= 778.	PT5/PT2= 47.3	M2= .736	PSI= 17.04	PCI= 6.72
2.	F/A= .0545	ETAC= 69.2	TT5F= 2865.	PT5/PT2= 79.5	M2= .505	PSI= 25.35	PCI= 22.79
	158.HZ	AI 1)= 2.589RMSPSI,	AI 4)= 3.400RMSPSI,	PHASE(1 4)=		60.8DEG.	
	158.HZ	AI 7)= 2.990RMSPSI,	AI 8)= 2.928RMSPSI,	PHASE(7 8)=		6.70DEG.	
3.	F/A= .0490	ETAC= 72.7	TT5F= 2814.	PT5/PT2= 79.2	M2= .512	PSI= 25.00	PCI= 22.52
	176.HZ	AI 1)= 2.404RMSPSI,	AI 4)= 3.113RMSPSI,	PHASE(1 4)=		73.10DEG.	
	176.HZ	AI 4)= 2.944RMSPSI,	AI 8)= 2.558RMSPSI,	PHASE(4 8)=		12.50DEG.	
	176.HZ	AI 7)= 2.604RMSPSI,	AI 8)= 2.620RMSPSI,	PHASE(7 8)=		9.40DEG.	
4.	F/A= .0452	ETAC= 74.0	TT5F= 2730.	PT5/PT2= 78.9	M2= .526	PSI= 24.34	PCI= 22.05
	180.HZ	AI 1)= .760RMSPSI,	AI 4)= .963RMSPSI,	PHASE(1 4)=		78.30DEG.	
	180.HZ	AI 4)= .988RMSPSI,	AI 8)= .894RMSPSI,	PHASE(4 8)=		13.20DEG.	
	180.HZ	AI 7)= .832RMSPSI,	AI 8)= .858RMSPSI,	PHASE(7 8)=		8.80DEG.	
	189.HZ	AI 1)= 1.324RMSPSI,	AI 4)= 1.711RMSPSI,	PHASE(1 4)=		79.30DEG.	
	189.HZ	AI 4)= 1.664RMSPSI,	AI 8)= 1.512RMSPSI,	PHASE(4 8)=		14.70DEG.	
	189.HZ	AI 7)= 1.295RMSPSI,	AI 8)= 1.376RMSPSI,	PHASE(7 8)=		10.30DEG.	
5.	F/A= .0409	ETAC= 77.0	TT5F= 2661.	PT5/PT2= 78.9	M2= .542	PSI= 23.68	PCI= 21.82
6.	F/A= .0355	ETAC= 57.1	TT5F= 2008.	PT5/PT2= 74.2	M2= .628	PSI= 20.25	PCI= 17.72
7.	F/A= .0304	ETAC= 59.0	TT5F= 1888.	PT5/PT2= 72.9	M2= .651	PSI= 19.55	PCI= 16.85
8.	F/A= .0247	ETAC= 69.2	TT5F= 1862.	PT5/PT2= 72.2	M2= .659	PSI= 19.24	PCI= 16.64

8IN. CHAM8.	4IN. INLET	NO F. HOLD.	LOW FLOW	TUBE INJ.	M2	PSI	PCI
1	F/A=0.0000	ETAC= 0.0	TT5F= 996.	PT5/PT2= 47.2	M2= .754	PSI= 11.49	PCI= 16.06
2	F/A= .0560	ETAC= 77.3	TT5F= 3294.	PT5/PT2= 78.6	M2= .548	PSI= 16.21	PCI= 14.88
	181.0HZ	AT 1)= .635RMSPSI,	AT 4)= .872RMSPSI,	PHASE 1 4)=		66.9DEG.	
	181.0HZ	AT 4)= .772RMSPSI,	AT 8)= .572RMSPSI,	PHASE 4 8)=		13.2DEG.	
	181.0HZ	AT 7)= .707RMSPSI,	AT 8)= .653RMSPSI,	PHASE 7 8)=		4.60DEG.	
3	F/A= .0498	ETAC= 77.2	TT5F= 3125.	PT5/PT2= 77.7	M2= .569	PSI= 15.63	PCI= 14.55
	203.0HZ	AT 1)= .971RMSPSI,	AT 4)= 1.170RMSPSI,	PHASE 1 4)=		80.6DEG.	
	203.0HZ	AT 4)= .948RMSPSI,	AT 8)= .771RMSPSI,	PHASE 4 8)=		17.2DEG.	
	203.0HZ	AT 7)= 1.019RMSPSI,	AT 8)= 1.019RMSPSI,	PHASE 7 8)=		6.5DEG.	
4	F/A= .0474	ETAC= 77.9	TT5F= 3072.	PT5/PT2= 77.8	M2= .581	PSI= 15.31	PCI= 14.19
5	F/A= .0413	ETAC= 79.9	TT5F= 2917.	PT5/PT2= 76.8	M2= .605	PSI= 14.66	PCI= 13.52
6	F/A= .0358	ETAC= 64.5	TT5F= 2380.	PT5/PT2= 72.7	M2= .668	PSI= 13.22	PCI= 11.94
7	F/A= .0322	ETAC= 63.1	TT5F= 2240.	PT5/PT2= 71.1	M2= .692	PSI= 12.75	PCI= 10.91
8	F/A= .0258	ETAC= 62.1	TT5F= 2000.	PT5/PT2= 68.1	M2= .721	PSI= 12.17	PCI= 9.77

8IN-CHAMB.	4IN. INLET	NO F. HOLO.	40Z NOZ.	TUBE INJ.	M2 =	PSI =	PCI =
1	F/A = 0.0000	ETAC = 0.0	TT5F = 941.	PT5/PT2 = 58.3	M2 = .790	PSI = 14.66	PCI = 11.25
2	F/A = .0658	ETAC = 71.4	TT5F = 3303.	PT5/PT2 = 85.7	M2 = .443	PSI = 26.63	PCI = 25.09
	127.HZ	AC 1) = 3.283RMSPSI,	AC 4) = 5.748RMSPSI,	PHASE(1 4) =	45.60DEG.		
	127.HZ	AC 4) = 5.671RMSPSI,	AC 8) = 5.086RMSPSI,	PHASE(4 8) =	9.70DEG.		
	125.HZ	AC 1) = .812RMSPSI,	AC 4) = 1.213RMSPSI,	PHASE(1 4) =	84.40DEG.		
	254.HZ	AC 4) = 1.695RMSPSI,	AC 8) = 1.296RMSPSI,	PHASE(4 8) =	-12.00DEG.		
3	F/A = .0610	ETAC = 76.7	TT5F = 3402.	PT5/PT2 = 86.3	M2 = .447	PSI = 26.74	PCI = 25.29
	140.HZ	AC 1) = 1.123RMSPSI,	AC 4) = 1.603RMSPSI,	PHASE(1 4) =	36.70DEG.		
	140.HZ	AC 4) = 1.572RMSPSI,	AC 8) = 1.416RMSPSI,	PHASE(4 8) =	5.00DEG.		
4	F/A = .0561	ETAC = 76.2	TT5F = 3281.	PT5/PT2 = 85.5	M2 = .498	PSI = 26.18	PCI = 24.80
	191.HZ	AC 1) = 1.140RMSPSI,	AC 4) = 1.245RMSPSI,	PHASE(1 4) =	54.50DEG.		
	191.HZ	AC 4) = 1.191RMSPSI,	AC 8) = .957RMSPSI,	PHASE(4 8) =	10.90DEG.		
	186.HZ	AC 1) = .721RMSPSI,	AC 4) = .777RMSPSI,	PHASE(1 4) =	52.90DEG.		
	186.HZ	AC 4) = .788RMSPSI,	AC 8) = .647RMSPSI,	PHASE(4 8) =	8.00DEG.		
5	F/A = .0508	ETAC = 74.5	TT5F = 3096.	PT5/PT2 = 85.0	M2 = .477	PSI = 25.12	PCI = 23.97
	201.HZ	AC 1) = .817RMSPSI,	AC 4) = .821RMSPSI,	PHASE(1 4) =	63.10DEG.		
	201.HZ	AC 4) = .829RMSPSI,	AC 8) = .720RMSPSI,	PHASE(4 8) =	13.40DEG.		
6	F/A = .0457	ETAC = 74.5	TT5F = 2945.	PT5/PT2 = 84.6	M2 = .495	PSI = 24.04	PCI = 23.12
	211.0HZ	AC 1) = .354RMSPSI,	AC 4) = .370RMSPSI,				
	211.HZ	AC 4) = .401RMSPSI,	AC 8) = .382RMSPSI,	PHASE(4 8) =	10.90DEG.		
7	F/A = .0426	ETAC = 73.4	TT5F = 2802.	PT5/PT2 = 84.2	M2 = .508	PSI = 23.20	PCI = 22.42
	213.HZ	AC 1) = .677RMSPSI,	AC 4) = .721RMSPSI,	PHASE(1 4) =	86.50DEG.		
	213.HZ	AC 4) = .712RMSPSI,	AC 8) = .670RMSPSI,	PHASE(4 8) =	12.20DEG.		
8	F/A = .0362	ETAC = 75.1	TT5F = 2620.	PT5/PT2 = 83.7	M2 = .536	PSI = 21.96	PCI = 21.33
9	F/A = .0318	ETAC = 75.7	TT5F = 2459.	PT5/PT2 = 83.0	M2 = .558	PSI = 20.99	PCI = 20.45
10	F/A = .0268	ETAC = 61.9	TT5F = 2033.	PT5/PT2 = 80.6	M2 = .636	PSI = 18.35	PCI = 17.51

8IN-CHAMB.	4IN. INLET	NO F.HOLD.	60% NOZ.	TUBE INJ.	M2 =	PSI =	PCI =
1	F/A=0.0000	ETAC= 0.0	TT5F= 980.	PT5/PT2= 39.6	M2 = .793	PSI = 22.03	PCI = 10.34
2	F/A= .0597	ETAC= 73.9	TT5F= 3293.	PT5/PT2= 71.7	M2 = .644	PSI = 27.55	PCI = 24.15
	199.HZ	AI 1)= .590MSPSI,	AI 4)= 1.003RMSPSI,	PHASE(1 4)= 104.0DEG.			
	189.HZ	AI 4)= .888MSPSI,	AI 8)= .589RMSPSI,	PHASE(4 8)= 12.7DEG.			
		AI 1)= .542RMSPSI,	AI 4)= .989RMSPSI,	PHASE(1 4)= 101.0DEG.			
3	F/A= .0522	ETAC= 71.5	TT5F= 3047.	PT5/PT2= 70.5	M2 = .686	PSI = 25.91	PCI = 22.9B
4	F/A= .0487	ETAC= 72.3	TT5F= 2972.	PT5/PT2= 70.0	M2 = .698	PSI = 25.20	PCI = 22.23
5	F/A= .0458	ETAC= 68.4	TT5F= 2787.	PT5/PT2= 68.7	M2 = .727	PSI = 24.11	PCI = 21.14
6	F/A= .0395	ETAC= 64.4	TT5F= 2499.	PT5/PT2= 65.6	M2 = .759	PSI = 23.15	PCI = 19.27
7	F/A= .0357	ETAC= 58.8	TT5F= 2262.	PT5/PT2= 62.5	M2 = .772	PSI = 22.78	PCI = 17.83
8	F/A= .0309	ETAC= 61.4	TT5F= 2160.	PT5/PT2= 61.0	M2 = .774	PSI = 22.37	PCI = 16.91
9	F/A= .0262	ETAC= 61.6	TT5F= 2007.	PT5/PT2= 58.6	M2 = .780	PSI = 22.33	PCI = 15.78

8 IN. CHAMB.	9 IN. INLET	NO F. HOLD.	L/D=1.5	UNIF. INJ.	M2	PSI	PCI
1	F/A=0.0000	ETAC= 0.0	TT5F= 570.	PT5/PT2= 47.0	M2= .704	PSI= 15.02	PCI= 5.12
2	F/A=0.0000	ETAC= 0.0	TT5F= 976.	PT5/PT2= 45.7	M2= .728	PSI= 20.56	PCI= 6.83
3	F/A= .0647	ETAC= 12.1	TT5F= 1383.	PT5/PT2= 57.0	M2= .695	PSI= 21.77	PCI= 10.81
	75.HZ AC 1)	.029RMSPSI, A(4)		.610RMSPSI, PHASE(1 4)		66.6DEG.	
	75.HZ AC 4)	.613RMSPSI, A(8)		.583RMSPSI, PHASE(4 8)		2.4DEG.	
	75.HZ AC 7)	.838RMSPSI, A(8)		.743RMSPSI, PHASE(7 8)		3.70EG.	
4	F/A= .0594	ETAC= 9.6	TT5F= 1296.	PT5/PT2= 54.7	M2= .700	PSI= 21.66	PCI= 8.97
5	F/A= .0553	ETAC= 9.3	TT5F= 1279.	PT5/PT2= 54.1	M2= .703	PSI= 21.59	PCI= 8.75
6	F/A= .0487	ETAC= 8.9	TT5F= 1242.	PT5/PT2= 53.0	M2= .704	PSI= 21.53	PCI= 8.30

BIN CHAMB.	4.75 INLET	NO F. HOLD.	BASELINE	UNIF. INJ.	PSI	PCI
1	F/A = 0.0000	ETAC = 0.0	TI5F = 986.	PT5/PT2 = 68.4	M2 = .860	PSI = 11.85
2	F/A = .0643	ETAC = 58.1	TI5F = 2867.	PT5/PT2 = 87.8	M2 = .439	PSI = 24.26
	55-HZ	AI 1) = .113RMSPSI,	AI 4) =	.106RMSPSI,	PHASE(1 4) =	21.1DEG.
	55-HZ	AI 4) = .116RMSPSI,	AI 8) =	.097RMSPSI,	PHASE(4 8) =	.7DEG.
	55-HZ	AI 7) = .092RMSPSI,	AI 8) =	.091RMSPSI,	PHASE(7 8) =	1.6DEG.
3	F/A = .0580	ETAC = 36.7	TI5F = 2119.	PT5/PT2 = 86.5	M2 = .538	PSI = 19.76
4	F/A = .0536	ETAC = 31.4	TI5F = 1917.	PT5/PT2 = 86.1	M2 = .584	PSI = 18.06
5	F/A = .0488	ETAC = 28.6	TI5F = 1784.	PT5/PT2 = 85.6	M2 = .621	PSI = 16.88
	464-HZ	AI 1) = .126RMSPSI,	AI 4) =	.179RMSPSI,	PHASE(1 4) =	-100.0DEG.
	464-HZ	AI 4) = .183RMSPSI,	AI 8) =	.089RMSPSI,	PHASE(4 8) =	127.0DEG.
	464-HZ	AI 7) = .074RMSPSI,	AI 8) =	.089RMSPSI,	PHASE(7 8) =	-175.0DEG.
6	F/A = .0446	ETAC = 28.9	TI5F = 1742.	PT5/PT2 = 85.3	M2 = .637	PSI = 16.52
	458-HZ	AI 1) = .399RMSPSI,	AI 4) =	.586RMSPSI,	PHASE(1 4) =	-94.0DEG.
	458-HZ	AI 4) = .630RMSPSI,	AI 8) =	.305RMSPSI,	PHASE(4 8) =	113.0DEG.
	458-HZ	AI 7) = .207RMSPSI,	AI 8) =	.299RMSPSI,	PHASE(7 8) =	-179.0DEG.
7	F/A = .0401	ETAC = 28.8	TI5F = 1680.	PT5/PT2 = 84.7	M2 = .656	PSI = 15.98
	447-HZ	AI 1) = .214RMSPSI,	AI 4) =	.319RMSPSI,	PHASE(1 4) =	-91.0DEG.
	447-HZ	AI 4) = .333RMSPSI,	AI 8) =	.156RMSPSI,	PHASE(4 8) =	90.8DEG.
	447-HZ	AI 7) = .111RMSPSI,	AI 8) =	.166RMSPSI,	PHASE(7 8) =	174.0DEG.

8IN. CHAMB.	4.75 INLET	NO F. HOLD.	BASELINE	TUBE INJ.	M2	PSI	PCI
1	F/A=0.0000	ETAC= 0.0	TT5F= 557.	PT5/PT2= 69.3	M2= .841	PSI= 8.77	PCI= 8.33
2	F/A=0.0000	ETAC= 0.0	TT5F= 975.	PT5/PT2= 68.0	M2= .858	PSI= 11.86	PCI= 11.09
3	F/A= .0511	ETAC= 71.2	TT5F= 2992.	PT5/PT2= 89.3	M2= .438	PSI= 24.17	PCI= 23.46
	133.HZ	AI 1)= .008RMSPSI,	AI 4)= 5.024KMSPSI,	PHASE(1 4)=		-75.0DEG.	
	133.HZ	AI 4)= 5.024RMSPSI,	AI 8)= 4.223RMSPSI,	PHASE(4 8)=		12.10EG.	
	133.HZ	AI 7)= 3.945RMSPSI,	AI 8)= 4.130RMSPSI,	PHASE(7 8)=		1.3DEG.	
	136.HZ	AI 1)= .012RMSPSI,	AI 4)= 2.111RMSPSI,	PHASE(1 4)=		-65.0DEG.	
4	F/A= .0447	ETAC= 75.7	TT5F= 2936.	PT5/PT2= 88.1	M2= .444	PSI= 23.95	PCI= 23.04
	136.HZ	AI 4)= 1.988RMSPSI,	AI 8)= 1.772RMSPSI,	PHASE(4 8)=		5.9DEG.	
	136.HZ	AI 7)= 1.541RMSPSI,	AI 8)= 1.695RMSPSI,	PHASE(7 8)=		-4DEG.	
5	F/A= .0399	ETAC= 77.1	TT5F= 2804.	PT5/PT2= 87.4	M2= .458	PSI= 23.42	PCI= 22.49
	140.HZ	AI 1)= .002RMSPSI,	AI 4)= 3.76RMSPSI,	PHASE(1 4)=		-91.0DEG.	
	140.HZ	AI 4)= .353RMSPSI,	AI 8)= 3.19RMSPSI,	PHASE(4 8)=		1.6DEG.	
	140.HZ	AI 7)= .240RMSPSI,	AI 8)= 2.70RMSPSI,	PHASE(7 8)=		-1.10EG.	
	200.HZ	AI 1)= .006RMSPSI,	AI 4)= 4.42RMSPSI,	PHASE(1 4)=		-30.0DEG.	
	200.HZ	AI 4)= .404RMSPSI,	AI 8)= 3.21RMSPSI,	PHASE(4 8)=		7.70EG.	
	200.HZ	AI 7)= .256RMSPSI,	AI 8)= 2.90RMSPSI,	PHASE(7 8)=		3.5DEG.	
6	F/A= .0344	ETAC= 77.3	TT5F= 2600.	PT5/PT2= 87.0	M2= .484	PSI= 22.14	PCI= 21.40
	210.HZ	AI 4)= .002RMSPSI,	AI 8)= 2.05RMSPSI,	PHASE(4 8)=		40.4DEG.	
	210.HZ	AI 7)= .186RMSPSI,	AI 8)= 2.14RMSPSI,	PHASE(7 8)=		9.3DEG.	
7	F/A= .0350	ETAC= 76.2	TT5F= 2603.	PT5/PT2= 86.6	M2= .480	PSI= 22.15	PCI= 21.33
	207.HZ	AI 1)= .464RMSPSI,	AI 4)= 3.99RMSPSI,	PHASE(1 4)=		81.6DEG.	
	207.HZ	AI 4)= .202RMSPSI,	AI 8)= 1.80RMSPSI,	PHASE(4 8)=		9.5DEG.	
	207.HZ	AI 7)= .153RMSPSI,	AI 8)= 1.77RMSPSI,	PHASE(7 8)=		7.4DEG.	
8	F/A= .0309	ETAC= 76.3	TT5F= 2437.	PT5/PT2= 86.8	M2= .505	PSI= 20.98	PCI= 20.39
	207.HZ	AI 1)= .202RMSPSI,	AI 4)= 1.60RMSPSI,	PHASE(1 4)=		81.2DEG.	
	207.HZ	AI 4)= .137RMSPSI,	AI 8)= 1.37RMSPSI,	PHASE(4 8)=		20.6DEG.	
	207.HZ	AI 7)= .074RMSPSI,	AI 8)= .094RMSPSI,	PHASE(7 8)=		13.2DEG.	
9	F/A= .0240	ETAC= 61.1	TT5F= 1924.	PT5/PT2= 85.8	M2= .609	PSI= 17.45	PCI= 17.51
	194.HZ	AI 1)= .233RMSPSI,	AI 4)= 2.27RMSPSI,	PHASE(1 4)=		105.0DEG.	
	194.HZ	AI 4)= .145RMSPSI,	AI 8)= 1.09RMSPSI,	PHASE(4 8)=		19.6DEG.	

8 IN. CHAMB. 4.75 INLET, NO F. HULD. TT0=750R
1 F/A=0.0000 ETAC= 0.0 TT5F= 745.
2 F/A= .0654 ETAC= 78.1 TT5F= 3402.
123.HZ AC 1)= .690RMSPSI, AC 4)= .780RMSPSI, PHASE(1 4)= 37.1DEG.
123.HZ AC 4)= .951RMSPSI, AC 8)= 1.037RMSPSI, PHASE(4 8)= 7.0DEG.
123.HZ AC 7)= .982RMSPSI, AC 8)= 1.017RMSPSI, PHASE(7 8)= 1.1DEG.
171.HZ AC 1)= 1.057RMSPSI, AC 4)= .767RMSPSI, PHASE(1 4)= 56.3DEG.
171.HZ AC 4)= .456RMSPSI, AC 8)= .476RMSPSI, PHASE(4 8)= 13.6DEG.
171.HZ AC 7)= .465RMSPSI, AC 8)= .487RMSPSI, PHASE(7 8)= 5.7DEG.
3 F/A= .0584 ETAC= 59.3 TT5F= 2650.
125.HZ AC 1)= 1.430RMSPSI, AC 4)= 1.664RMSPSI, PHASE(1 4)= 39.2DEG.
125.HZ AC 4)= 1.772RMSPSI, AC 8)= 1.819RMSPSI, PHASE(4 8)= 8.7DEG.
125.HZ AC 7)= 1.726RMSPSI, AC 8)= 1.788RMSPSI, PHASE(7 8)= 4.4DEG.
250.HZ AC 1)= .530RMSPSI, AC 4)= .186RMSPSI, PHASE(1 4)= 90.5DEG.
4 F/A= .0537 ETAC= 49.6 TT5F= 2257.
5 F/A= .0496 ETAC= 2.3 TT5F= 826.
UNIF. INJ. M2= .840 PSI= 10.54 PCI= 9.88
PT5/PT2= 68.4 M2= .341 PSI= 27.24 PCI= 26.07
PT5/PT2= 90.1 PHASE(1 4)= 37.1DEG.
PT5/PT2= 90.6 M2= .405 PSI= 22.90
PT5/PT2= 87.7 M2= .433 PSI= 21.46 PCI= 20.89
PT5/PT2= 70.2 M2= .839 PSI= 10.49 PCI= 9.99

8IN. CHAMB.	4.75 INLET	NO F. HOLD.	TTD=750R	TUBE INJ.	PSI=	PCI=
1	F/A=0.0000	ETAC= 0.0	TT5F= 746.	PT5/PT2= 68.7	M2= .851	PSI= 10.28
2	F/A= .0349	ETAC= 69.3	TT5F= 2250.	PT5/PT2= 88.3	M2= .446	PSI= 20.56
	131.HZ	AI 1)= 1.254RMSPSI,	AI 4)= 1.530RMSPSI,	PHASE(1 4)=		47.5DEG.
	131.HZ	AI 4)= 1.726RMSPSI,	AI 8)= 1.603RMSPSI,	PHASE(4 8)=		6.8DEG.
	131.HZ	AI 7)= 1.603RMSPSI,	AI 8)= 1.603RMSPSI,	PHASE(7 8)=		2.0DEG.
3	F/A= .0304	ETAC= 65.4	TT5F= 2007.	PT5/PT2= 87.4	M2= .480	PSI= 19.09
	169.HZ	AI 1)= 2.296RMSPSI,	AI 4)= 2.404RMSPSI,	PHASE(1 4)=		75.0DEG.
	169.HZ	AI 4)= 2.235RMSPSI,	AI 8)= 1.896RMSPSI,	PHASE(4 8)=		13.0DEG.
	169.HZ	AI 7)= 2.034RMSPSI,	AI 8)= 2.050RMSPSI,	PHASE(7 8)=		7.2DEG.
4	F/A= .0249	ETAC= 60.2	TT5F= 1722.	PT5/PT2= 86.7	M2= .538	PSI= 17.07
	163.HZ	AI 4)= .190RMSPSI,	AI 8)= .148RMSPSI,	PHASE(4 8)=		17.0DEG.
	163.HZ	AI 7)= .149RMSPSI,	AI 8)= .140RMSPSI,	PHASE(7 8)=		12.5DEG.

8IN-CHAMB.	4.75 INLET	NO F. HULD.	TTD=1250R	TUBE INJ.	M2	PSI	PCI
1	F/A=0.0000	ETAC= 0.0	TT5F= 1263.	PT5/PT2= 68.5	M2= .851	PSI= 13.63	PCI= 12.77
2	F/A= .0654	ETAC= 71.9	TT5F= 3458.	PT5/PT2= 89.0	M2= .453	PSI= 26.41	PCI= 25.87
	135.HZ	AI 1)= 1.741RMSPSI,	A(4)= 2.250RMSPSI,	PHASE(1 4)=		6.8DEG.	
	135.HZ	AI 4)= 2.651RMSPSI,	A(8)= 2.327RMSPSI,	PHASE(4 8)=		31.9DEG.	
	135.HZ	AI 7)= 2.589RMSPSI,	A(8)= 2.435RMSPSI,	PHASE(7 8)=		2.2DEG.	
3	F/A= .0589	ETAC= 73.0	TT5F= 3396.	PT5/PT2= 88.3	M2= .461	PSI= 26.23	PCI= 25.51
	135.HZ	AI 7)= 1.242RMSPSI,	A(8)= 1.234RMSPSI,	PHASE(7 8)=		2.2DEG.	
4	F/A= .0542	ETAC= 74.2	TT5F= 3333.	PT5/PT2= 87.3	M2= .464	PSI= 25.94	PCI= 25.10
5	F/A= .0490	ETAC= 75.7	TT5F= 3228.	PT5/PT2= 87.3	M2= .473	PSI= 25.35	PCI= 24.51
	138.HZ	AI 7)= .908RMSPSI,	A(8)= .923RMSPSI,	PHASE(7 8)=		2.30EG.	
6	F/A= .0449	ETAC= 76.5	TT5F= 3144.	PT5/PT2= 87.2	M2= .489	PSI= 24.57	PCI= 23.89
7	F/A= .0408	ETAC= 76.0	TT5F= 2991.	PT5/PT2= 86.8	M2= .505	PSI= 23.64	PCI= 22.96
8	F/A= .0351	ETAC= 76.2	TT5F= 2797.	PT5/PT2= 86.7	M2= .535	PSI= 22.21	PCI= 22.03
1	F/A=0.0000	ETAC= 0.0	TT5F= 612.	PT5/PT2= 72.2	M2= .757	PSI= 9.62	PCI= 9.05
2	F/A=0.0000	ETAC= 0.0	TT5F= 546.	PT5/PT2= 69.3	M2= .834	PSI= 8.60	PCI= 8.07
3	F/A=0.0000	ETAC= 0.0	TT5F= 1205.	PT5/PT2= 67.6	M2= .862	PSI= 13.30	PCI= 12.30
4	F/A= .0639	ETAC= 72.6	TT5F= 3457.	PT5/PT2= 89.2	M2= .455	PSI= 26.13	PCI= 25.64
	135.HZ	AI 1)= 3.128RMSPSI,	A(4)= 4.454RMSPSI,	PHASE(1 4)=		50.5DEG.	
	135.HZ	AI 4)= 4.192RMSPSI,	A(8)= 3.144RMSPSI,	PHASE(4 8)=		11.6DEG.	
	135.HZ	AI 7)= 3.483RMSPSI,	A(8)= 3.313RMSPSI,	PHASE(7 8)=		.50EG.	
5	F/A= .0563	ETAC= 73.2	TT5F= 3345.	PT5/PT2= 87.4	M2= .464	PSI= 25.94	PCI= 25.07
6	F/A= .0525	ETAC= 74.6	TT5F= 3300.	PT5/PT2= 87.7	M2= .470	PSI= 25.50	PCI= 24.60
7	F/A= .0503	ETAC= 75.0	TT5F= 3255.	PT5/PT2= 87.2	M2= .472	PSI= 25.34	PCI= 24.54
8	F/A= .0444	ETAC= 76.2	TT5F= 3123.	PT5/PT2= 86.9	M2= .491	PSI= 24.34	PCI= 23.67
9	F/A= .0418	ETAC= 77.2	TT5F= 3059.	PT5/PT2= 87.0	M2= .500	PSI= 23.80	PCI= 23.27
10	F/A= .0359	ETAC= 77.5	TT5F= 2859.	PT5/PT2= 86.7	M2= .528	PSI= 22.56	PCI= 22.28
11	F/A= .0299	ETAC= 78.8	TT5F= 2656.	PT5/PT2= 86.9	M2= .569	PSI= 21.06	PCI= 21.18
12	F/A= .0236	ETAC= 71.6	TT5F= 2268.	PT5/PT2= 86.2	M2= .637	PSI= 18.57	PCI= 18.83

BIN. CHARG.	4.75 INLET	NO F. HOLD.	LOW FLOW	UNIF. INJ.	M2=	PSI=	PCI=
1	F/A=0.0000 ETAC= 0.0 TT5F= 975.	ETAC= 0.0 TT5F= 2663.	TT5F= 975.	PT5/PT2= 68.2 PT5/PT2= 87.7	M2= .855 M2= .459	PSI= 7.17 PSI= 13.96	PCI= 6.90 PCI= 13.85
2	F/A= .0654 191. HZ A(1)= 191. HZ A(7)=	ETAC= 51.8 A(1)= A(7)= ETAC= 42.3 A(1)= A(7)=	TT5F= 2663. A(4)= A(8)= TT5F= 2317. A(4)= A(8)=	.118MSPSI, PHASE(1 4)= .116MSPSI, PHASE(7 8)= PT5/PT2= 84.7 M2= .527 PSI= 12.09	77.60 DEG. 12.00 DEG.		PCI= 12.28
3	F/A= .0610 448. HZ A(1)= 449. HZ A(1)= 449. HZ A(7)=	ETAC= 42.3 A(1)= A(7)= ETAC= 29.1 A(1)= A(7)= ETAC= 28.2 A(1)= A(7)=	TT5F= 2317. A(4)= A(8)= TT5F= 1860. A(4)= A(8)= TT5F= 1785. A(4)= A(8)=	.145MSPSI, PHASE(1 4)= PT5/PT2= 86.0 M2= .594 PSI= 10.65 .370MSPSI, PHASE(1 4)= PT5/PT2= 85.4 M2= .617 PSI= 10.26 .148MSPSI, PHASE(7 8)= PT5/PT2= 85.4 M2= .617 PSI= 10.26	-140.0 DEG. -120.0 DEG. 121.0 DEG.		PCI= 10.85
4	F/A= .0503 448. HZ A(1)= 448. HZ A(7)=	ETAC= 28.2 A(1)= A(7)= ETAC= 26.5 A(1)= A(7)=	TT5F= 1785. A(4)= A(8)= TT5F= 1676. A(4)= A(8)=	.502MSPSI, PHASE(1 4)= PT5/PT2= 84.6 M2= .651 PSI= 9.67 .219MSPSI, PHASE(7 8)= PT5/PT2= 84.6 M2= .651 PSI= 9.67	-110.0 DEG. 111.0 DEG.		PCI= 10.48
5	F/A= .0444 445. HZ A(1)= 445. HZ A(7)=	ETAC= 26.5 A(1)= A(7)= ETAC= 26.5 A(1)= A(7)=	TT5F= 1676. A(4)= A(8)= TT5F= 1676. A(4)= A(8)=	.285MSPSI, PHASE(1 4)= PT5/PT2= 84.6 M2= .651 PSI= 9.67 .145MSPSI, PHASE(7 8)= PT5/PT2= 84.6 M2= .651 PSI= 9.67	-90.0 DEG. 91.70 DEG.		PCI= 10.00
6	F/A= .0444 445. HZ A(1)= 445. HZ A(7)=	ETAC= 26.5 A(1)= A(7)= ETAC= 26.5 A(1)= A(7)=	TT5F= 1676. A(4)= A(8)= TT5F= 1676. A(4)= A(8)=	.285MSPSI, PHASE(1 4)= PT5/PT2= 84.6 M2= .651 PSI= 9.67 .145MSPSI, PHASE(7 8)= PT5/PT2= 84.6 M2= .651 PSI= 9.67	-90.0 DEG. 91.70 DEG.		PCI= 10.00

WIN-CHAMB.	4.75 INLET	NO F-HOLD.	LOW FLOW	TUBE INJ.	M2	PSI	PCI
1	F/A=0.0000	ETAC= 0.0	TT5F= 998.	PT5/PT2= 69.3	M2= .854	PSI= 7.16	PCI= 6.95
2	F/A= .0470	ETAC= 66.6	TT5F= 2757.	PT5/PT2= 88.4	M2= .462	PSI= 13.80	PCI= 13.49
	124.MZ	AI 1)= 2.204RMSPSI,	AI 4)= 3.021RMSPSI,	PHASE(1 4)=		52.1DEG.	
	124.MZ	AI 4)= 2.820RMSPSI,	AI 8)= 2.235RMSPSI,	PHASE(4 8)=		11.4DEG.	
	124.MZ	AI 7)= 2.358RMSPSI,	AI 8)= 2.219RMSPSI,	PHASE(7 8)=		3.8DEG.	
	140.MZ	AI 1)= .741RMSPSI,	AI 4)= .687RMSPSI,	PHASE(1 4)=		106.0DEG.	
	140.MZ	AI 7)= .505RMSPSI,	AI 8)= .401RMSPSI,	PHASE(7 8)=		-18.0DEG.	
	249.MZ	AI 1)= .297RMSPSI,	AI 4)= .341RMSPSI,	PHASE(1 4)=		42.8DEG.	
3	F/A= .0390	ETAC= 74.2	TT5F= 2699.	PT5/PT2= 87.3	M2= .468	PSI= 13.71	PCI= 13.29
4	F/A= .0348	ETAC= 76.8	TT5F= 2604.	PT5/PT2= 87.3	M2= .483	PSI= 13.27	PCI= 12.89
5	F/A= .0312	ETAC= 76.7	TT5F= 2455.	PT5/PT2= 87.2	M2= .504	PSI= 12.65	PCI= 12.36
6	F/A= .0245	ETAC= 81.2	TT5F= 2242.	PT5/PT2= 87.2	M2= .545	PSI= 11.64	PCI= 11.65

8 IN. CHAMB.	4.75 INLET	NO F. HOLD.	40Z NOZ.	UNIF. INJ.	PSI =	PCI =
1	F/A = 0.0000	ETAC = 0.0	TT5F = 952.	PT5/PT2 = 81.7	10.68	11.95
2	F/A = .0648	ETAC = 58.5	TT5F = 2865.	PT5/PT2 = 42.2	24.24	24.23
	127. HZ	AC 1) = 2.712 RMSPSI,	AC 4) = 3.776 RMSPSI,	PHASE (1 4) =	44.3DEG.	
	127. HZ	AC 4) = 3.729 RMSPSI,	AC 8) = 3.699 RMSPSI,	PHASE (4 8) =	9.5DEG.	
	254. HZ	AC 1) = 1.117 RMSPSI,	AC 4) = .784 RMSPSI,	PHASE (1 4) =	56.3DEG.	
	254. HZ	AC 4) = .784 RMSPSI,	AC 8) = .509 RMSPSI,	PHASE (4 8) =	25.6DEG.	
3	F/A = .0597	ETAC = 54.8	TT5F = 2683.	PT5/PT2 = 91.1	23.44	23.35
	129. HZ	AC 1) = 2.235 RMSPSI,	AC 4) = 3.021 RMSPSI,	PHASE (1 4) =	44.2DEG.	
	129. HZ	AC 4) = 2.959 RMSPSI,	AC 8) = 2.882 RMSPSI,	PHASE (4 8) =	9.9DEG.	
	258. HZ	AC 1) = .744 RMSPSI,	AC 4) = .441 RMSPSI,	PHASE (1 4) =	58.8DEG.	
	258. HZ	AC 4) = .430 RMSPSI,	AC 8) = .285 RMSPSI,	PHASE (4 8) =	32.2DEG.	
4	F/A = .0547	ETAC = 57.3	TT5F = 2690.	PT5/PT2 = 91.4	23.31	23.31
	50. HZ	AC 1) = 1.022 RMSPSI,	AC 4) = 1.108 RMSPSI,	PHASE (1 4) =	12.4DEG.	
	50. HZ	AC 4) = 1.094 RMSPSI,	AC 8) = 1.025 RMSPSI,	PHASE (4 8) =	4.6DEG.	
5	F/A = .0498	ETAC = 57.8	TT5F = 2601.	PT5/PT2 = 91.6	22.62	22.60
	51. HZ	AC 1) = 1.711 RMSPSI,	AC 4) = 1.849 RMSPSI,	PHASE (1 4) =	13.3DEG.	
	51. HZ	AC 4) = 1.819 RMSPSI,	AC 8) = 1.711 RMSPSI,	PHASE (4 8) =	4.1DEG.	

8 IN-CHARB.	4.75 INLET	NO F. HOLD.	40Z NOZ.	TUBE INJ.	M2	PSI	PCI
1	F/A = 0.0000	ETAC = 0.0	TI5F = 931.	PT5/PT2 = 81.0	M2 = .780	PSI = 10.56	PCI = 11.83
2	F/A = .0513	ETAC = 69.4	TI5F = 2949.	PT5/PT2 = 93.7	M2 = .357	PSI = 23.81	PCI = 23.54
	110. HZ	AC 1) = 1.911RMSPSI,	AC 4) = 2.759RMSPSI,	PHASE(1 4) =		42.5DEG.	
	110. HZ	AC 4) = 2.635RMSPSI,	AC 8) = 2.481RMSPSI,	PHASE(4 8) =		10.7DEG.	
	126. HZ	AC 1) = 2.897RMSPSI,	AC 4) = 4.361RMSPSI,	PHASE(1 4) =		47.1DEG.	
	126. HZ	AC 4) = 4.438RMSPSI,	AC 8) = 4.176RMSPSI,	PHASE(4 8) =		11.9DEG.	
3	F/A = .0447	ETAC = 74.1	TI5F = 2899.	PT5/PT2 = 93.5	M2 = .368	PSI = 23.42	PCI = 23.04
	131. HZ	AC 1) = 3.360RMSPSI,	AC 4) = 5.147RMSPSI,	PHASE(1 4) =		50.6DEG.	
	131. HZ	AC 4) = 5.070RMSPSI,	AC 8) = 4.854RMSPSI,	PHASE(4 8) =		9.9DEG.	
	263. HZ	AC 1) = 1.176RMSPSI,	AC 4) = 1.649RMSPSI,	PHASE(1 4) =		79.0DEG.	
	263. HZ	AC 4) = 1.587RMSPSI,	AC 8) = 1.227RMSPSI,	PHASE(4 8) =		-12.0DEG.	
4	F/A = .0410	ETAC = 71.9	TI5F = 2727.	PT5/PT2 = 91.6	M2 = .375	PSI = 22.97	PCI = 22.55
	134. HZ	AC 1) = .747RMSPSI,	AC 4) = 1.013RMSPSI,	PHASE(1 4) =		40.9DEG.	
	134. HZ	AC 4) = .732RMSPSI,	AC 8) = .709RMSPSI,	PHASE(4 8) =		5.7DEG.	
5	F/A = .0346	ETAC = 71.0	TI5F = 2684.	PT5/PT2 = 91.0	M2 = .398	PSI = 21.65	PCI = 21.31
6	F/A = .0310	ETAC = 71.7	TI5F = 2354.	PT5/PT2 = 90.9	M2 = .409	PSI = 20.86	PCI = 20.56
7	F/A = .0254	ETAC = 70.8	TI5F = 2116.	PT5/PT2 = 90.9	M2 = .441	PSI = 19.33	PCI = 19.24

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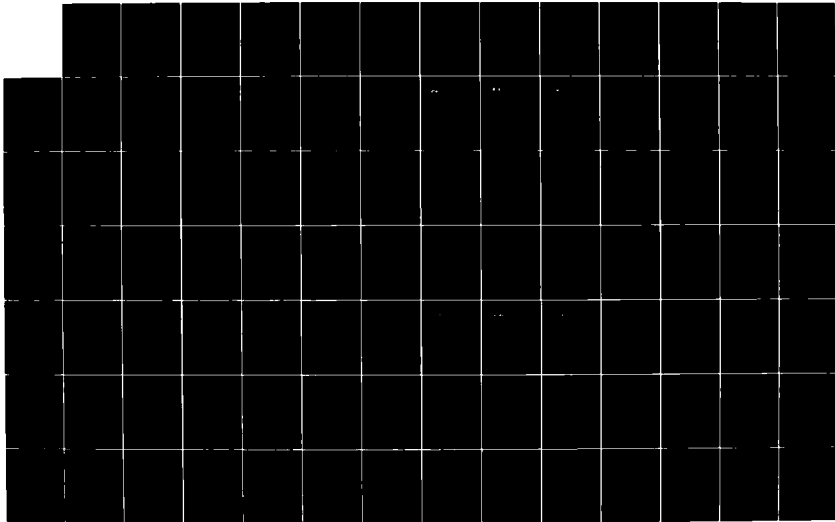
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PART I PARAMETRIC..(U) AIR FORCE WRIGHT AERONAUTICAL
LABS WRIGHT-PATTERSON AFB OH D L DAVIS JUL 81
AFWL-TR-81-2047-PT-1

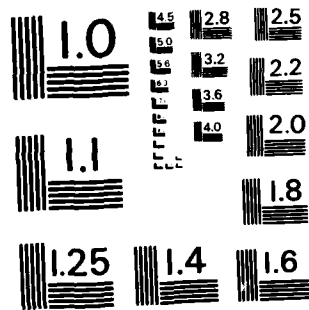
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MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS - 1963 - A

MIN. CHARG.	4.75 INLET	NO F-HOLD.	60Z NDZ.	TUBE INJ.					
1	F/A=0.0000	ETAC= 0.0	TT5F= 988.	PT5/PT2= 54.9	M2= .860	PSI= 14.30	PCI= 9.59		
2	F/A= .0502	ETAC= 69.1	TT5F= 2925.	PT5/PT2= 84.0	M2= .535	PSI= 23.86	PCI= 22.79		
	130.HZ	AT 1)= 1.803RMSPSI,	AT 4)= 2.959RMSPSI,	PHASE(1 4)=		53.1DEG.			
	130.HZ	AT 4)= 1.834RMSPSI,	AT 8)= 1.379RMSPSI,	PHASE(4 8)=		11.8DEG.			
3	F/A= .0434	ETAC= 76.9	TT5F= 2924.	PT5/PT2= 83.3	M2= .532	PSI= 23.99	PCI= 22.20		
	196.HZ	AT 1)= 2.142RMSPSI,	AT 4)= 2.420RMSPSI,	PHASE(1 4)=		74.4DEG.			
	196.HZ	AT 4)= 2.358RMSPSI,	AT 8)= 1.957RMSPSI,	PHASE(4 8)=		15.6DEG.			
4	F/A= .0398	ETAC= 76.8	TT5F= 2796.	PT5/PT2= 82.6	M2= .549	PSI= 23.20	PCI= 21.62		
	201.HZ	AT 1)= 1.973RMSPSI,	AT 4)= 2.235RMSPSI,	PHASE(1 4)=		81.4DEG.			
	201.HZ	AT 4)= 2.158RMSPSI,	AT 8)= 1.880RMSPSI,	PHASE(4 8)=		16.6DEG.			
5	F/A= .0362	ETAC= 75.3	TT5F= 2627.	PT5/PT2= 82.2	M2= .574	PSI= 22.17	PCI= 20.93		
	203.HZ	AT 1)= 1.276RMSPSI,	AT 4)= 1.472RMSPSI,	PHASE(1 4)=		93.3DEG.			
	203.HZ	AT 4)= 1.422RMSPSI,	AT 8)= 1.236RMSPSI,	PHASE(4 8)=		16.4DEG.			
6	F/A= .0289	ETAC= 69.4	TT5F= 2237.	PT5/PT2= 81.3	M2= .658	PSI= 19.13	PCI= 18.88		
7	F/A= .0261	ETAC= 67.1	TT5F= 2095.	PT5/PT2= 80.3	M2= .694	PSI= 18.09	PCI= 17.94		

8IN. CHAMB.	4.75 INLET	NO F. HOLD.	L/D=1.5	TUBE INJ.	PCI=
1	F/A=0.0000	ETAC=0.0	TT5F= 988.	PT5/PT2= 69.0	PCI= 6.71
2	F/A= .0450	ETAC= 47.0	TT5F= 2210.	PT5/PT2= 84.0	PCI= 20.32
	124.0HZ	AI 1)= .479RMSPSI,	AI 4)=	.519RMSPSI,	PSI= 11.89
	124.0HZ	AI 4)= .342RMSPSI,	AI 8)=	.324RMSPSI,	PSI= 20.76
	124.0HZ	AI 7)= .530RMSPSI,	AI 8)=	.490RMSPSI,	PSI= 11.40DEG.
3	F/A= .0407	ETAC= 51.7	TT5F= 2230.	PT5/PT2= 84.6	PCI= 20.38
	191.0HZ	AI 1)= .949RMSPSI,	AI 4)=	1.019RMSPSI,	PSI= 20.73
	191.0HZ	AI 4)= .482RMSPSI,	AI 8)=	.430RMSPSI,	PSI= 74.40DEG.
	191.0HZ	AI 7)= 1.063RMSPSI,	AI 8)=	.943RMSPSI,	PSI= 10.00DEG.
4	F/A= .0347	ETAC= 53.4	TT5F= 2121.	PT5/PT2= 84.7	PCI= 19.49
	201.0HZ	AI 1)= .393RMSPSI,	AI 4)=	.456RMSPSI,	PSI= 19.69
	201.0HZ	AI 7)= .330RMSPSI,	AI 8)=	.293RMSPSI,	PSI= 73.30DEG.
5	F/A= .0310	ETAC= 40.1	TT5F= 1767.	PT5/PT2= 84.0	PCI= 16.66
6	F/A= .0254	ETAC= 45.2	TT5F= 1719.	PT5/PT2= 83.8	PCI= 16.09
					PSI= 16.22

8IN. CHAMB.	4.75 INLET	.25Y F.H.	BASELINE	TUBE INJ.	M2	PSI	PCI
1	F/A=0.0000	ETAC= 0.0	TI5F= 567.	PT5/PT2= 52.0	M2= .482	PSI= 15.91	PCI= 19.13
2	F/A=0.0000	ETAC= 0.0	TI5F= 987.	PT5/PT2= 51.4	M2= .492	PSI= 21.63	PCI= 12.31
3	F/A= .0657	ETAC= 73.5	TI5F= 3378.	PT5/PT2= 81.5	M2= .358	PSI= 29.79	PCI= 25.01
4	F/A= .221.HZ	AI 1)= .396RMSPSI,	AI 4)= .683RMSPSI,	PHASE(1 4)=		84.3DEG.	
5	F/A= .221.HZ	AI 4)= .734RMSPSI,	AI 8)= .647RMSPSI,	PHASE(4 8)=		17.6DEG.	
6	F/A= .221.HZ	AI 7)= .692RMSPSI,	AI 8)= .684RMSPSI,	PHASE(7 8)=		16.4DEG.	
7	F/A= .0585	ETAC= 74.1	TI5F= 3272.	PT5/PT2= 81.0	M2= .368	PSI= 29.18	PCI= 24.81
8	F/A= .226.HZ	AI 4)= .314RMSPSI,	AI 8)= .267RMSPSI,	PHASE(4 8)=		19.5DEG.	
9	F/A= .0532	ETAC= 76.8	TI5F= 3222.	PT5/PT2= 80.6	M2= .371	PSI= 29.00	PCI= 24.61
10	F/A= .0483	ETAC= 78.9	TI5F= 3139.	PT5/PT2= 80.2	M2= .377	PSI= 28.61	PCI= 24.26
11	F/A= .0439	ETAC= 81.7	TI5F= 3060.	PT5/PT2= 74.9	M2= .384	PSI= 28.15	PCI= 23.79
12	F/A= .0419	ETAC= 80.4	TI5F= 2960.	PT5/PT2= 79.0	M2= .389	PSI= 27.37	PCI= 23.01
13	F/A= .0349	ETAC= 84.6	TI5F= 2776.	PT5/PT2= 78.0	M2= .402	PSI= 26.55	PCI= 22.10
14	F/A= .0301	ETAC= 86.8	TI5F= 2610.	PT5/PT2= 77.0	M2= .415	PSI= 25.92	PCI= 21.36
15	F/A= .0242	ETAC= 88.2	TI5F= 2349.	PT5/PT2= 75.1	M2= .435	PSI= 24.68	PCI= 20.14

8IN-CHAM. 4.75 INLET .25Y F.H. TT0-750R UNIF-INJ. PCI= 21.04
 1 F/A=0.0000 ETAC= 0.0 TT5F= 766. PT5/PT2= 52.1 M2= .487 PSI= 18.89 PCI= 25.86
 2 F/A= .0631 ETAC= 75.8 TT5F= 3274. PT5/PT2= 83.3 M2= .316 PSI= 29.44 PCI= 25.86
 189.MZ AC 1)= 2.820RMSPSI, AC 4)= 4.130RMSPSI, PHASE(1 4)= 76.30DEG.
 189.MZ AC 4)= 4.223RMSPSI, AC 8)= 4.192RMSPSI, PHASE(4 8)= 16.50DEG.
 189.MZ AC 7)= 4.007RMSPSI, AC 8)= 4.161RMSPSI, PHASE(7 8)= 5.80DEG.
 377.MZ AC 1)= .962RMSPSI, AC 4)= 1.153RMSPSI, PHASE(1 4)= 152.00DEG.
 377.MZ AC 4)= 1.224RMSPSI, AC 8)= .603RMSPSI, PHASE(4 8)= 49.60DEG.
 377.MZ AC 7)= 1.056RMSPSI, AC 8)= .592RMSPSI, PHASE(7 8)= 42.50DEG.
 F/A= .0589 ETAC= 75.0 TT5F= 3162. PT5/PT2= 83.0 M2= .325 PSI= 28.55 PCI= 25.11
 185.MZ AC 1)= 2.461RMSPSI, AC 4)= 3.560RMSPSI, PHASE(1 4)= 74.50DEG.
 185.MZ AC 4)= 3.745RMSPSI, AC 8)= 3.637RMSPSI, PHASE(4 8)= 18.00DEG.
 185.MZ AC 7)= 3.390RMSPSI, AC 8)= 3.514RMSPSI, PHASE(7 8)= 8.00DEG.
 371.MZ AC 1)= .971RMSPSI, AC 4)= 1.074RMSPSI, PHASE(1 4)= 152.00DEG.
 371.MZ AC 4)= 1.029RMSPSI, AC 8)= .459RMSPSI, PHASE(4 8)= 47.70DEG.
 371.MZ AC 7)= 1.003RMSPSI, AC 8)= .499RMSPSI, PHASE(7 8)= 42.00DEG.
 F/A= .0554 ETAC= 73.4 TT5F= 3027. PT5/PT2= 82.4 M2= .333 PSI= 27.79 PCI= 24.31
 183.MZ AC 1)= 2.805RMSPSI, AC 4)= 4.007RMSPSI, PHASE(1 4)= 71.80DEG.
 183.MZ AC 4)= 3.914RMSPSI, AC 8)= 3.729RMSPSI, PHASE(4 8)= 17.90DEG.
 183.MZ AC 7)= 3.637RMSPSI, AC 8)= 3.760RMSPSI, PHASE(7 8)= 9.10DEG.
 365.MZ AC 1)= 1.056RMSPSI, AC 4)= 1.037RMSPSI, PHASE(1 4)= 146.00DEG.
 365.MZ AC 4)= .977RMSPSI, AC 8)= .467RMSPSI, PHASE(4 8)= 40.30DEG.
 365.MZ AC 7)= .972RMSPSI, AC 8)= .476RMSPSI, PHASE(7 8)= 33.50DEG.

8 IN. CHAND.	4.75 INLET	.25Y F.H.	LOW FLDW	UNIF. INJ.	M2	PSI	PCI
1	F/A=0.0000	ETAC= 0.0	TT5F= 1009.	PT5/PT2= 52.0	M2= .492	PSI= 13.02	PCI= 7.65
2	F/A= .0655	ETAC= 81.9	TT5F= 3637.	PT5/PT2= 83.0	M2= .349	PSI= 18.55	PCI= 16.25
3	F/A= .0615	ETAC= 83.0	TT5F= 3596.	PT5/PT2= 82.7	M2= .351	PSI= 18.32	PCI= 16.05
4	F/A= .0561	ETAC= 84.5	TT5F= 3517.	.539RMSPSI, PHASE(1 4)=		81.4DEG.	
5	F/A= .0509	ETAC= 84.3	TT5F= 3362.	.473RMSPSI, PHASE(4 8)=		19.1DEG.	
6	F/A= .0448	ETAC= 80.0	TT5F= 3035.	.448RMSPSI, PHASE(7 8)=		5.30EG.	
7	F/A= .0387	ETAC= 74.9	TT5F= 2749.	PT5/PT2= 82.5	M2= .358	PSI= 17.98	PCI= 15.69
8	F/A= .0326	ETAC= 70.8	TT5F= 2482.	PT5/PT2= 81.7	M2= .368	PSI= 17.53	PCI= 15.32
9	F/A= .0265	ETAC= 66.7	TT5F= 2215.	.574RMSPSI, PHASE(1 4)=		77.9DEG.	
10	F/A= .0204	ETAC= 62.6	TT5F= 1948.	.478RMSPSI, PHASE(4 8)=		21.0DEG.	
11	F/A= .0143	ETAC= 58.5	TT5F= 1681.	.495RMSPSI, PHASE(7 8)=		7.1UEG.	
12	F/A= .0082	ETAC= 54.4	TT5F= 1414.	PT5/PT2= 79.9	M2= .381	PSI= 16.77	PCI= 14.35
13	F/A= .0021	ETAC= 50.3	TT5F= 1147.	1.942RMSPSI, PHASE(1 4)=		67.0DEG.	
14	F/A= .0000	ETAC= 46.2	TT5F= 880.	1.205RMSPSI, PHASE(4 8)=		18.0UEG.	
15	F/A= .0000	ETAC= 42.1	TT5F= 613.	1.254RMSPSI, PHASE(7 8)=		8.70EG.	

8IN. CHARG.	4.75 INLET	.25Y F.M.	40Z NOZ.	UNIF. INJ.	M2 =	PSI =	PCI =
1	F/A=0.0000	ETAC= 0.0	TTSF= 931.	PT5/PT2= 62.7	M2= .492	PSI= 17.29	PCI= 12.50
2	F/A= .0642	ETAC= 85.3	TTSF= 3737.	PT5/PT2= 88.3	M2= .285	PSI= 30.22	PCI= 28.07
	203-MZ	AI 1)= 1.385RMSPSI,	AI 4)= 1.504RMSPSI,	PHASE(1 4)=		62.6DEG.	
	203-MZ	AI 4)= 1.498RMSPSI,	AI 8)= 1.372RMSPSI,	PHASE(4 8)=		19.0DEG.	
	F/A= .0595	ETAC= 85.9	TTSF= 3656.	PT5/PT2= 88.2	M2= .291	PSI= 29.65	PCI= 27.57
	204-MZ	AI 1)= 1.254RMSPSI,	AI 4)= 1.392RMSPSI,	PHASE(1 4)=		64.8DEG.	
	204-MZ	AI 4)= 1.413RMSPSI,	AI 8)= 1.284RMSPSI,	PHASE(4 8)=		20.0DEG.	
	F/A= .0544	ETAC= 85.3	TTSF= 3507.	PT5/PT2= 87.5	M2= .299	PSI= 28.95	PCI= 26.82
	205-MZ	AI 1)= 1.259RMSPSI,	AI 4)= 1.418RMSPSI,	PHASE(1 4)=		66.4DEG.	
	205-MZ	AI 4)= 1.452RMSPSI,	AI 8)= 1.293RMSPSI,	PHASE(4 8)=		20.7DEG.	
	F/A= .0490	ETAC= 86.3	TTSF= 3364.	PT5/PT2= 87.3	M2= .307	PSI= 28.11	PCI= 26.00
	203-MZ	AI 1)= 1.009RMSPSI,	AI 4)= 1.182RMSPSI,	PHASE(1 4)=		63.3DEG.	
	203-MZ	AI 4)= 1.179RMSPSI,	AI 8)= .985RMSPSI,	PHASE(4 8)=		20.5DEG.	
	F/A= .0456	ETAC= 91.2	TTSF= 3371.	PT5/PT2= 86.7	M2= .306	PSI= 28.28	PCI= 25.60
	136-MZ	AI 1)= 1.310RMSPSI,	AI 4)= 1.865RMSPSI,	PHASE(1 4)=		19.7DEG.	
	136-MZ	AI 4)= 1.865RMSPSI,	AI 8)= 2.188RMSPSI,	PHASE(4 8)=		8.7DEG.	
	273-MZ	AI 1)= .558RMSPSI,	AI 4)= .447RMSPSI,	PHASE(1 4)=		72.0DEG.	
	273-MZ	AI 4)= .453RMSPSI,	AI 8)= .338RMSPSI,	PHASE(4 8)=		11.4DEG.	

01N-CHANG 5-3751NLET ND F-MULD TT0=750R UNIF-INJ
 1 F/A=0.0000 ETAC= 0.0 TT5F= 751. PT5/PT2= 84.9 M2= .753 PSI= 9.22 PCI=10.40
 2 F/A= .0647 ETAC= 48.5 TT5F= 2394. PT5/PT2= 90.5 M2= .321 PSI= 22.78 PCI= 22.09
 3 F/A= .121 ETAC= 48.5 TT5F= 2394.595RMSPSI, PHASE(1 4)= 37.70DEG.
 4 F/A= .121 ETAC= 50.5 TT5F= 2405.578RMSPSI, PHASE(4 8)= 5.80DEG.
 5 F/A= .117 ETAC= 50.5 TT5F= 2405. PT5/PT2= 90.7 M2= .322 PSI= 22.68 PCI= 21.96
 6 F/A= .117 ETAC= 43.8 TT5F= 2115.858RMSPSI, PHASE(1 4)= 38.20DEG.
 7 F/A= .0554 ETAC= 43.8 TT5F= 2115.840RMSPSI, PHASE(4 8)= 8.00DEG.
 8 F/A= .125 ETAC= 43.8 TT5F= 2115. PT5/PT2= 90.7 M2= .350 PSI= 20.90 PCI= 20.36
 9 F/A= .125 ETAC= 39.2 TT5F= 1901.957RMSPSI, PHASE(1 4)= 38.50DEG.
 0 F/A= .0506 ETAC= 39.2 TT5F= 1901.726RMSPSI, PHASE(4 8)= 9.40DEG.
 1 F/A= .125 ETAC= 39.2 TT5F= 1901. PT5/PT2= 91.1 M2= .377 PSI= 19.32 PCI= 18.98
 2 F/A= .125 ETAC= 39.2 TT5F= 1901.335RMSPSI, PHASE(1 4)= 41.30DEG.
 3 F/A= .0647 ETAC= 48.5 TT5F= 2394.213RMSPSI, PHASE(4 8)= 10.40DEG.
 4 F/A= .0647 ETAC= 48.5 TT5F= 2394.806RMSPSI, PHASE(1 4)= 40.80DEG.

8IN-CHAMB. 5.375INLET NO F-HOLD. T70=750R TUBE INJ. PCI=10.38
1 F/A=0.0000 ETAC= 0.0 TT5F= 751. PT5/PT2= 85.3 M2= .752 PSI= 9.18 PCI= 10.38
2 F/A= .0250 ETAC= 69.9 TT5F= 1879. PT5/PT2= 90.3 M2= .385 PSI= 18.87 PCI= 18.10
129.HZ A(1)= .775RMSPSI, A(4)= .945RMSPSI, PHASE(1 4)= 34.4DEG.
129.HZ A(4)= 1.117RMSPSI, A(8)= 1.093RMSPSI, PHASE(4 8)= 7.4DEG.

8IN. CHAM. 5.375IN. L.E.T. NO F. HOLD. T70=1250R. TUBE INJ.
 1. F/A=0.0000 ETAC= 0.0 TT5F= 1233. PT5/PT2= 84.8 PSI= 11.91 PCI= 13.46
 2. F/A= .0534 ETAC= 68.1 TT5F= 3141. PT5/PT2= 91.7 PSI= 25.07 PCI= 24.53
 3. F/A= .124 HZ AC 1J= 1.373RMS PSI, A1 4J= 1.618RMS PSI, PHASE(1 4J)= 33.7DEG. M2= .763
 4. F/A= .0498 ETAC= 68.7 TT5F= 3086. PT5/PT2= 91.4 PSI= 24.58 PCI= 23.53
 5. F/A= .0457 ETAC= 68.8 TT5F= 2965. PT5/PT2= 90.8 M2= .389 PSI= 24.18 PCI= 23.58
 6. F/A= .0343 ETAC= 71.5 TT5F= 2911. PT5/PT2= 90.8 M2= .397 PSI= 23.89 PCI= 23.08
 7. F/A= .0347 ETAC= 74.9 TT5F= 2758. PT5/PT2= 90.7 M2= .413 PSI= 22.93 PCI= 22.51
 8. F/A= .0310 ETAC= 75.0 TT5F= 2619. PT5/PT2= 90.6 M2= .428 PSI= 22.11 PCI= 21.60
 9. F/A= .0254 ETAC= 74.5 TT5F= 2387. PT5/PT2= 90.7 M2= .457 PSI= 20.38 PCI= 20.04

8IN.CHAMB.	5.375INLET	NO F-HOLD.	LOW FLOW.	UNIF. INJ.	PSI	PCI
1	F/A=0.0000	ETAC= 0.0	TT5F= 94.3.	PT5/PT2= 83.7	M2= .784	PSI= 6.11
2	F/A= .0660	ETAC= 46.6	TT5F= 2505.	PT5/PT2= 90.5	M2= .366	PSI= 13.82
3	F/A= .0617	ETAC= 45.5	TT5F= 2423.	PT5/PT2= 90.6	M2= .375	PSI= 13.38
4	F/A= .0568	ETAC= 63.4	TT5F= 2902.	PT5/PT2= 91.2	M2= .341	PSI= 14.82
5	F/A= .139.HZ	AI 1)= .855RMSPSI,	AI 4)= 1.040RMSPSI,	PHASE(1 4)=	29.6DEG.	PCI= 14.28
6	F/A= .139.HZ	AI 4)= 1.296RMSPSI,	AI 8)= 1.367RMSPSI,	PHASE(4 8)=	11.70EG.	PCI= 13.98
7	F/A= .0519	ETAC= 63.1	TT5F= 2790.	PT5/PT2= 91.3	M2= .351	PSI= 14.37
8	F/A= .140.HZ	AI 1)= .542RMSPSI,	AI 4)= .647RMSPSI,	PHASE(1 4)=	28.2DEG.	PCI= 13.98
9	F/A= .140.HZ	AI 4)= .606RMSPSI,	AI 8)= .657RMSPSI,	PHASE(4 8)=	13.40EG.	PCI= 13.98

8IN. CHAMB. 5.375INLET NO F.HOLD. 40Z NOZ. UNIF. INJ. PCI=23.10

1. F/A = .0648 ETAC = 50.3 TT5F = 2408. PT5/PT2 = 93.7 M2 = .285 PSI = 23.46
 124.HZ AT 1) = 2.635RMSPSI, AT 4) = 3.683RMSPSI, PHASE(1 4) = 42.80DEG.
 124.HZ AT 4) = 3.637RMSPSI, AT 8) = 3.868RMSPSI, PHASE(4 8) = 10.40DEG.
 124.HZ AT 7) = 3.807RMSPSI, AT 8) = 3.868RMSPSI, PHASE(7 8) = 3.90DEG.
 247.HZ AT 1) = .649RMSPSI, AT 4) = .826RMSPSI, PHASE(1 4) = 43.10DEG.
 247.HZ AT 4) = .849RMSPSI, AT 8) = .603RMSPSI, PHASE(4 8) = 22.80DEG.
 247.HZ AT 7) = .601RMSPSI, AT 8) = .579RMSPSI, PHASE(7 8) = 22.40DEG.
 F/A = .0601 ETAC = 49.0 TT5F = 2517. PT5/PT2 = 93.6 M2 = .295 PSI = 22.82 PCI=22.55
 126.HZ AT 1) = 2.450RMSPSI, AT 4) = 3.483RMSPSI, PHASE(1 4) = 43.40DEG.
 126.HZ AT 7) = 3.560RMSPSI, AT 8) = 3.652RMSPSI, PHASE(7 8) = 5.20DEG.
 126.HZ AT 4) = 3.452RMSPSI, AT 8) = 3.668RMSPSI, PHASE(4 8) = 10.70DEG.
 251.HZ AT 1) = .706RMSPSI, AT 4) = .794RMSPSI, PHASE(1 4) = 48.80DEG.
 251.HZ AT 4) = .781RMSPSI, AT 8) = .544RMSPSI, PHASE(4 8) = 25.60DEG.
 251.HZ AT 7) = .629RMSPSI, AT 8) = .553RMSPSI, PHASE(7 8) = 26.60DEG.
 F/A = .0546 ETAC = 46.9 TT5F = 2382. PT5/PT2 = 93.4 M2 = .307 PSI = 22.15 PCI=21.88
 127.HZ AT 1) = 2.019RMSPSI, AT 4) = 2.805RMSPSI, PHASE(1 4) = 41.40DEG.
 127.HZ AT 4) = 2.913RMSPSI, AT 8) = 2.959RMSPSI, PHASE(4 8) = 10.80DEG.
 127.HZ AT 7) = 2.928RMSPSI, AT 8) = 2.990RMSPSI, PHASE(7 8) = 4.90DEG.
 256.HZ AT 1) = .603RMSPSI, AT 4) = .648RMSPSI, PHASE(1 4) = 50.60DEG.
 256.HZ AT 4) = .616RMSPSI, AT 8) = .416RMSPSI, PHASE(4 8) = 31.80DEG.
 256.HZ AT 7) = .425RMSPSI, AT 8) = .374RMSPSI, PHASE(7 8) = 27.50DEG.
 F/A = .0498 ETAC = 48.8 TT5F = 2354. PT5/PT2 = 93.6 M2 = .311 PSI = 21.86 PCI=21.56
 130.HZ AT 1) = 1.680RMSPSI, AT 4) = 2.358RMSPSI, PHASE(1 4) = 41.10DEG.
 130.HZ AT 4) = 2.373RMSPSI, AT 8) = 2.497RMSPSI, PHASE(4 8) = 10.90DEG.
 130.HZ AT 7) = 2.574RMSPSI, AT 8) = 2.604RMSPSI, PHASE(7 8) = 4.70DEG.

8 IN. CHARG.	5-375 INLET	NO F. HULD.	40% NOZ.	TUBE INJ.	M2	PSI	PCI
1	F/A = 0.0000	ETAC = 0.0	TT5F = 909.	PT5/PT2 = 89.6	M2 = .592	PSI = 11.13	PCI = 12.17
2	F/A = .0421	ETAC = 64.8	TT5F = 2577.	PT5/PT2 = 95.2	M2 = .302	PSI = 22.36	PCI = 22.13
	121. HZ	AC 1) = 2.604	AC 4) = 3.406	PHASE (1 4) =		41.2 DEG.	
	121. HZ	AC 4) = 3.483	AC 8) = 3.390	PHASE (4 8) =		12.9 DEG.	
	121. HZ	AC 7) = 3.514	AC 8) = 3.375	PHASE (7 8) =		3.9 DEG.	
3	F/A = .0357	ETAC = 73.7	TT5F = 2580.	PT5/PT2 = 93.4	M2 = .300	PSI = 22.63	PCI = 21.98
	124. HZ	AC 1) = 1.011	AC 4) = 1.295	PHASE (1 4) =		39.3 DEG.	
	124. HZ	AC 4) = 1.271	AC 6) = 1.310	PHASE (4 6) =		11.0 DEG.	
	124. HZ	AC 7) = 1.279	AC 8) = 1.258	PHASE (7 8) =		4.2 DEG.	
4	F/A = .0317	ETAC = 73.7	TT5F = 2437.	PT5/PT2 = 93.2	M2 = .312	PSI = 21.81	PCI = 21.34
	123. HZ	AC 1) = .256	AC 4) = .314	PHASE (1 4) =		36.9 DEG.	
	123. HZ	AC 4) = .325	AC 8) = .334	PHASE (4 8) =		14.4 DEG.	
	123. HZ	AC 7) = .478	AC 8) = .359	PHASE (7 8) =		-10.0 DEG.	
5	F/A = .0263	ETAC = 70.4	TT5F = 2161.	PT5/PT2 = 92.9	M2 = .335	PSI = 20.20	PCI = 19.78

8IN. CHAMB.	5.375INLET	NO F. HULD.	60% NDZ.	UNIF. INJ.	M2	PSI	PCI
1	F/A=0.0000	ETAC= 0.0	TT5F= 52.9	PT5/PT2= 73.2	M2= .824	PSI= 8.17	PCI= 7.70
2	F/A=0.0000	ETAC= 0.0	TT5F= 95.0	PT5/PT2= 71.8	M2= .849	PSI= 11.28	PCI= 10.53
3	F/A= .0647	ETAC= 77.7	TT5F= 351.2	PT5/PT2= 88.3	M2= .360	PSI= 28.12	PCI= 26.29
4	F/A= .0618	ETAC= 79.4	TT5F= 351.1	PT5/PT2= 88.3	M2= .360	PSI= 28.05	PCI= 26.16
	199.0HZ	AT 1)= 1.429RMSPSI,	AT 4)= 1.057RMSPSI,	PHASE(1 4)=		73.1DEG.	
	199.0HZ	AT 4)= 1.013RMSPSI,	AT 8)= 1.131RMSPSI,	PHASE(4 8)=		24.7DEG.	
	199.0HZ	AT 7)= 1.211RMSPSI,	AT 8)= 1.211RMSPSI,	PHASE(7 8)=		9.3DEG.	
5	F/A= .0557	ETAC= 81.7	TT5F= 343.1	PT5/PT2= 88.6	M2= .367	PSI= 27.54	PCI= 25.75
	63.0HZ	AT 1)= .532RMSPSI,	AT 4)= .564RMSPSI,	PHASE(1 4)=		19.4DEG.	
	63.0HZ	AT 4)= .572RMSPSI,	AT 8)= .490RMSPSI,	PHASE(4 8)=		8.1DEG.	
	63.0HZ	AT 7)= .529RMSPSI,	AT 8)= .462RMSPSI,	PHASE(7 8)=		6.0DEG.	
6	F/A= .0484	ETAC= 73.9	TT5F= 300.8	PT5/PT2= 87.8	M2= .401	PSI= 25.35	PCI= 23.86
	180.0HZ	AT 1)= 1.130RMSPSI,	AT 4)= 1.256RMSPSI,	PHASE(1 4)=		70.2DEG.	
	180.0HZ	AT 4)= 1.268RMSPSI,	AT 8)= 1.177RMSPSI,	PHASE(4 8)=		32.2DEG.	
	180.00HZ	AT 7)= 1.131RMSPSI,	AT 8)= 1.099RMSPSI,	PHASE(7 8)=			
7	F/A= .0454	ETAC= 47.1	TT5F= 221.9	PT5/PT2= 87.6	M2= .491	PSI= 20.27	PCI= 19.69

MIN. CHAMP.	5.375 INLET	NO F. HOLD.	60% NOZ.	TUBE INJ.	M2 = .843	PSI = 11.34	PCI = 10.78
11	F/A = 0.0000	ETAC = 0.0	TT5F = 982.	PT5/PT2 = 72.4	M2 = .562	PSI = 17.64	PCI = 17.61
12	F/A = .0516	ETAC = 26.8	TT5F = 1770.	.590RMSPSI, PHASE (1 4) =		38.30EG.	
13	F/A = .0464	ETAC = 32.3	TT5F = 1860.	.450RMSPSI, PHASE (7 8) =		7.30EG.	PCI = 17.96
14	F/A = .0413	ETAC = 62.5	TT5F = 2510.	.553RMSPSI, PHASE (1 4) =		171.00EG.	
15	F/A = .0352	ETAC = 74.4	TT5F = 2577.	.324RMSPSI, PHASE (4 8) =		150.00EG.	
16	F/A = .0308	ETAC = 74.4	TT5F = 2402.	.353RMSPSI			PCI = 21.15
17	F/A = .0265	ETAC = 73.7	TT5F = 2220.	.75/PT2 = 87.4	M2 = .455	PSI = 22.07	
18	F/A = .0220	ETAC = 73.7	TT5F = 2220.	1.258RMSPSI, PHASE (1 4) =		38.10EG.	
19	F/A = .0175	ETAC = 73.7	TT5F = 2220.	1.156RMSPSI, PHASE (4 8) =		17.40EG.	
20	F/A = .0130	ETAC = 73.7	TT5F = 2220.	1.136RMSPSI			PCI = 21.21
21	F/A = .0085	ETAC = 73.7	TT5F = 2220.	.PT5/PT2 = 87.3	M2 = .450	PSI = 22.51	
22	F/A = .0040	ETAC = 73.7	TT5F = 2220.	.464RMSPSI, PHASE (1 4) =		31.40EG.	
23	F/A = .0000	ETAC = 73.7	TT5F = 2220.	.396RMSPSI, PHASE (4 8) =		13.70EG.	
24	F/A = .0000	ETAC = 73.7	TT5F = 2220.	.428RMSPSI			PCI = 20.41
25	F/A = .0000	ETAC = 73.7	TT5F = 2220.	.PT5/PT2 = 86.8	M2 = .469	PSI = 21.56	
26	F/A = .0000	ETAC = 73.7	TT5F = 2220.	.317RMSPSI, PHASE (1 4) =		56.00EG.	
27	F/A = .0000	ETAC = 73.7	TT5F = 2220.	.379RMSPSI			PCI = 19.19
28	F/A = .0000	ETAC = 73.7	TT5F = 2220.	.PT5/PT2 = 86.7	M2 = .498	PSI = 20.12	
29	F/A = .0000	ETAC = 73.7	TT5F = 2220.	.774RMSPSI, PHASE (1 4) =		69.70EG.	
30	F/A = .0000	ETAC = 73.7	TT5F = 2220.	.518RMSPSI, PHASE (4 8) =		23.50EG.	
31	F/A = .0000	ETAC = 73.7	TT5F = 2220.	.610RMSPSI, PHASE (7 8) =		9.70EG.	

8IN-CHARB.	5-375INLET	NO F.MULD.	L/D=1.5	UNIF-INJ.				
1	F/A=0.0000	ETAC=0.0	TT5F= 965.	PT5/PT2= 84.6	M2= .779	PSI= 10.29	PCI= 9.99	
2	F/A= .0661	ETAC= 12.0	TT5F= 1389.	PT5/PT2= 88.5	M2= .535	PSI= 15.54	PCI= 15.34	
	304.HZ	AT 1)=	.202RMSPSI, AT 4)=	.248RMSPSI, PHASE(1 4)=	143.0DEG.			
	304.HZ	AT 7)=	.140RMSPSI, AT 8)=	.109RMSPSI, PHASE(7 8)=	15.1DEG.			
3	F/A= .0611	ETAC= 11.3	TT5F= 1359.	PT5/PT2= 88.6	M2= .552	PSI= 15.05	PCI= 14.85	
	304.HZ	AT 1)=	.108RMSPSI, AT 4)=	.139RMSPSI, PHASE(1 4)=	145.0DEG.			
	304.HZ	AT 7)=	.143RMSPSI, AT 8)=	.108RMSPSI, PHASE(7 8)=	16.6DEG.			
4	F/A= .0553	ETAC= 11.0	TT5F= 1333.	PT5/PT2= 88.5	M2= .566	PSI= 14.68	PCI= 14.49	
	300.HZ	AT 1)=	.157RMSPSI, AT 4)=	.205RMSPSI, PHASE(1 4)=	143.0DEG.			
	300.HZ	AT 7)=	.191RMSPSI, AT 8)=	.143RMSPSI, PHASE(7 8)=	14.7DEG.			
5	F/A= .0508	ETAC= 11.3	TT5F= 1321.	PT5/PT2= 88.6	M2= .574	PSI= 14.31	PCI= 14.13	
	301.HZ	AT 1)=	.157RMSPSI, AT 4)=	.210RMSPSI, PHASE(1 4)=	147.0DEG.			
	301.HZ	AT 7)=	.248RMSPSI, AT 8)=	.180RMSPSI, PHASE(7 8)=	18.2DEG.			
6	F/A= .0452	ETAC= 11.7	TT5F= 1302.	PT5/PT2= 88.5	M2= .584	PSI= 14.13	PCI= 14.06	
	290.HZ	AT 1)=	.082RMSPSI, AT 4)=	.113RMSPSI, PHASE(1 4)=	141.0DEG.			
	290.HZ	AT 7)=	.179RMSPSI, AT 8)=	.125RMSPSI, PHASE(7 8)=	16.8DEG.			
7	F/A= .0402	ETAC= 9.7	TT5F= 1228.	PT5/PT2= 87.7	M2= .614	PSI= 13.41	PCI= 13.34	

BIN. CHANN.	5-375INLET	.25Y F.H.	BASELINE	UNIF. INJ.	PCI
1	F/A = .0636	ETAC = 80.6	TTSF = 3573.	PT5/PT2 = 87.3	PCI = 27.46
	190.HZ	AT 1) = 1.199RMSPSI,	AT 4) = 1.492RMSPSI,	PHASE(1 4) =	PSI = 30.00
	190.HZ	AT 4) = 1.557RMSPSI,	AT 8) = 1.438RMSPSI,	PHASE(4 8) =	51.9DEG.
2	F/A = .0598	ETAC = 79.7	TTSF = 3472.	PT5/PT2 = 87.0	PCI = 26.88
	190.HZ	AT 1) = 1.486RMSPSI,	AT 4) = 1.896RMSPSI,	PHASE(1 4) =	53.6DEG.
	190.HZ	AT 4) = 1.757RMSPSI,	AT 8) = 1.618RMSPSI,	PHASE(4 8) =	21.5DEG.
3	F/A = .0532	ETAC = 77.3	TTSF = 3231.	PT5/PT2 = 86.6	PCI = 25.61
	196.HZ	AT 1) = 1.372RMSPSI,	AT 4) = 1.788RMSPSI,	PHASE(1 4) =	57.2DEG.
	196.HZ	AT 4) = 1.911RMSPSI,	AT 8) = 1.803RMSPSI,	PHASE(4 8) =	23.8DEG.
4	F/A = .0500	ETAC = 77.0	TTSF = 3135.	PT5/PT2 = 86.3	PCI = 25.04
	196.HZ	AT 1) = 1.618RMSPSI,	AT 4) = 2.188RMSPSI,	PHASE(1 4) =	58.8DEG.
	196.HZ	AT 4) = 2.173RMSPSI,	AT 8) = 2.003RMSPSI,	PHASE(4 8) =	23.9DEG.
5	F/A = .0455	ETAC = 75.5	TTSF = 2952.	PT5/PT2 = 85.8	PCI = 24.09
	193.HZ	AT 1) = 1.572RMSPSI,	AT 4) = 2.281RMSPSI,	PHASE(1 4) =	56.7DEG.
	193.HZ	AT 4) = 2.327RMSPSI,	AT 8) = 1.988RMSPSI,	PHASE(4 8) =	23.1DEG.

81N-CHAMB.	5.375INLET	.25V F.H.	IT0=750R	UNIF-INJ.	PS1= 14.90	PCI= 11.07
1	F/A=0.0000	ETAC= 0.0	TT5F= 751.	PT5/PT2= 65.2	PS1= 28.26	PCI= 25.85
2	F/A= .0643	ETAC= 72.3	TT5F= 3180.	PT5/PT2= 87.5	PS1= 59.3DEG.	
	176.HZ	AI 1)= .616RMSPSI, AI 4)= .680RMSPSI,	AI 4)= .579RMSPSI,	PHASE(1 4)=	PS1= 27.38	PCI= 25.15
	176.HZ	AI 4)= .499RMSPSI, AI 8)= .579RMSPSI,	AI 8)= .579RMSPSI,	PHASE(4 8)=	PS1= 25.99	PCI= 23.63
3	F/A= .0606	ETAC= 71.3	TT5F= 3080.	PT5/PT2= 87.6	PS1= 25.99	PCI= 23.63
	124.HZ	AI 1)= 1.143RMSPSI, AI 4)= 2.050RMSPSI,	AI 4)= 2.050RMSPSI,	PHASE(1 4)=	PS1= 27.0DEG.	
	124.HZ	AI 4)= 1.911RMSPSI, AI 8)= 1.926RMSPSI,	AI 8)= 1.926RMSPSI,	PHASE(4 8)=	PS1= 10.10EG.	
	160.HZ	AI 1)= 1.402RMSPSI, AI 4)= 1.726RMSPSI,	AI 4)= 1.726RMSPSI,	PHASE(1 4)=	PS1= 43.9DEG.	
	160.HZ	AI 4)= 1.880RMSPSI, AI 8)= 1.819RMSPSI,	AI 8)= 1.819RMSPSI,	PHASE(4 8)=	PS1= 14.80EG.	
4	F/A= .0550	ETAC= 67.1	TT5F= 2821.	PT5/PT2= 87.1	PS1= 25.99	PCI= 23.63
	124.HZ	AI 1)= 1.772RMSPSI, AI 4)= 3.298RMSPSI,	AI 4)= 3.298RMSPSI,	PHASE(1 4)=	PS1= 27.0DEG.	
	124.HZ	AI 4)= 3.021RMSPSI, AI 8)= 3.005RMSPSI,	AI 8)= 3.005RMSPSI,	PHASE(4 8)=	PS1= 10.10EG.	
	159.HZ	AI 1)= 1.988RMSPSI, AI 4)= 2.743RMSPSI,	AI 4)= 2.743RMSPSI,	PHASE(1 4)=	PS1= 43.7DEG.	
	159.HZ	AI 4)= 3.267RMSPSI, AI 8)= 3.128RMSPSI,	AI 8)= 3.128RMSPSI,	PHASE(4 8)=	PS1= 13.9DEG.	

BIN-CHANG. 5.375INLET .25Y F.H. LOW FLOW
 1 F/A=0.0000 ETAC= 0.0 TT5F= 938. UNIF.INJ. PCI= 7.47
 2 F/A= .0641 ETAC= 74.0 TT5F= 3340. PT5/PT2= 64.5 M2= .493 PSI= 10.11
 189.HZ AI 1)= 1.191RMSPSI, AI 4)= 1.557RMSPSI, PHASE(1 4)= 17.3 M2= .289 PSI= 17.20
 189.HZ AI 4)= 1.541RMSPSI, AI 8)= 1.444RMSPSI, PHASE(4 8)= 54.5DEG.
 3 F/A= .0609 ETAC= 74.8 TT5F= 3322. PT5/PT2= 87.1 M2= .294 PSI= 17.07
 190.HZ AI 1)= 1.188RMSPSI, AI 4)= 1.572RMSPSI, PHASE(1 4)= 54.4DEG.
 190.HZ AI 4)= 1.381RMSPSI, AI 8)= 1.256RMSPSI, PHASE(4 8)= 20.3DEG.
 4 F/A= .0564 ETAC= 73.4 TT5F= 3195. PT5/PT2= 86.5 M2= .303 PSI= 16.74
 193.HZ AI 1)= 1.117RMSPSI, AI 4)= 1.530RMSPSI, PHASE(1 4)= 55.0DEG.
 193.HZ AI 4)= 1.603RMSPSI, AI 8)= 1.455RMSPSI, PHASE(4 8)= 21.1DEG.
 5 F/A= .0525 ETAC= 71.5 TT5F= 3046. PT5/PT2= 86.1 M2= .311 PSI= 16.23
 190.HZ AI 1)= 1.094RMSPSI, AI 4)= 1.541RMSPSI, PHASE(1 4)= 55.4DEG.
 190.HZ AI 4)= 1.557RMSPSI, AI 8)= 1.375RMSPSI, PHASE(4 8)= 21.8DEG.

81N-CHAM8. 5-375INLET .25Y F.H. 40Z NOZ. UNIF. INJ. PCI= 12.61
133.HZ AI 1) ETAC= 0.0 TT5F= 913. PT5/PT2= 75.7 M2= .463 PSI= 14.48 PCI= 12.61
133.HZ AI 4) ETAC= 80.9 TT5F= 3604. PT5/PT2= 91.0 M2= .231 PSI= 29.24 PCI= 27.65
135.HZ AI 1) .314RMSPSI, AI 4) .583RMSPSI, PHASE(1 4)= 23.70DEG.
135.HZ AI 4) .573RMSPSI, AI 8) .623RMSPSI, PHASE(4 8)= 7.9DEG.
135.HZ AI 7) .638RMSPSI, AI 8) .626RMSPSI, PHASE(7 8)= .8DEG.
3 F/A .0600 ETAC= 79.6 TT5F= 3472. PT5/PT2= 91.2 M2= .238 PSI= 28.35 PCI= 26.55
133.HZ AI 1) 1.447RMSPSI, AI 4) 2.743RMSPSI, PHASE(1 4)= 26.50DEG.
133.HZ AI 4) 2.712RMSPSI, AI 8) 2.882RMSPSI, PHASE(4 8)= 10.6DEG.
133.HZ AI 7) 2.959RMSPSI, AI 8) 2.866RMSPSI, PHASE(7 8)= 2.70DEG.
264.HZ AI 1) .390RMSPSI, AI 4) .542RMSPSI, PHASE(1 4)= 44.50DEG.
264.HZ AI 4) .549RMSPSI, AI 8) .305RMSPSI, PHASE(4 8)= 23.6DEG.
264.HZ AI 7) .424RMSPSI, AI 8) .304RMSPSI, PHASE(7 8)= 26.0DEG.
F/A .0548 ETAC= 80.0 TT5F= 3357. PT5/PT2= 91.3 M2= .244 PSI= 27.55 PCI= 26.01
133.HZ AI 1) 1.618RMSPSI, AI 4) 3.051RMSPSI, PHASE(1 4)= 26.60DEG.
133.HZ AI 4) 3.159RMSPSI, AI 8) 3.313RMSPSI, PHASE(4 8)= 10.60DEG.
133.HZ AI 7) 3.421RMSPSI, AI 8) 3.298RMSPSI, PHASE(7 8)= 2.90DEG.
5 F/A .0508 ETAC= 79.7 TT5F= 3232. PT5/PT2= 91.3 M2= .250 PSI= 26.82 PCI= 25.27
134.HZ AI 1) 1.926RMSPSI, AI 4) 3.606RMSPSI, PHASE(1 4)= 26.70DEG.
134.HZ AI 4) 3.591RMSPSI, AI 8) 3.699RMSPSI, PHASE(4 8)= 10.6DEG.
134.HZ AI 7) 3.776RMSPSI, AI 8) 3.637RMSPSI, PHASE(7 8)= 3.20DEG.
266.HZ AI 1) .638RMSPSI, AI 4) .791RMSPSI, PHASE(1 4)= 49.30DEG.
266.HZ AI 4) .792RMSPSI, AI 8) .458RMSPSI, PHASE(4 8)= 12.70DEG.
266.HZ AI 7) .650RMSPSI, AI 8) .467RMSPSI, PHASE(7 8)= 16.00DEG.

81N CHANG	15.3751INLET	.25Y F.M.	.40X NOZ.	TUBE INJ.	M2	PSI	PCI
1	F/A=0.0000	ETAC=0.0	TTSF=949.	PT5/PT2=76.5	M2=.455	PSI=14.65	PCI=12.02
2	F/A=.0642	ETAC=53.1	TTSF=2705.	PT5/PT2=89.5	M2=.269	PSI=25.07	PCI=23.42
3	F/A=.0605	ETAC=55.0	TTSF=2713.	PT5/PT2=89.6	M2=.269	PSI=25.04	PCI=23.43
4	F/A=.0555	ETAC=58.7	TTSF=2747.	PT5/PT2=89.6	M2=.270	PSI=24.97	PCI=23.43
5	F/A=.0503	ETAC=62.1	TTSF=2735.	PT5/PT2=89.3	M2=.271	PSI=24.90	PCI=23.43
6	F/A=.0471	ETAC=69.4	TTSF=2839.	PT5/PT2=89.8	M2=.266	PSI=25.17	PCI=23.43
7	F/A=.0422	ETAC=72.5	TTSF=2773.	PT5/PT2=89.7	M2=.271	PSI=24.72	PCI=22.02
8	F/A=.0366	ETAC=73.9	TTSF=2606.	PT5/PT2=89.1	M2=.281	PSI=24.03	PCI=22.26
9	F/A=.0310	ETAC=76.5	TTSF=2450.	PT5/PT2=88.8	M2=.293	PSI=23.11	PCI=21.58
10	F/A=.0258	ETAC=80.4	TTSF=2304.	PT5/PT2=88.5	M2=.306	PSI=22.42	PCI=20.81

81N CHANG	15.3751INLET	.25Y F.M.	.40X NOZ.	TUBE INJ.	M2	PSI	PCI
1	F/A=0.0000	ETAC=0.0	TTSF=949.	PT5/PT2=76.5	M2=.455	PSI=14.65	PCI=12.02
2	F/A=.0642	ETAC=53.1	TTSF=2705.	PT5/PT2=89.5	M2=.269	PSI=25.07	PCI=23.42
3	F/A=.0605	ETAC=55.0	TTSF=2713.	PT5/PT2=89.6	M2=.269	PSI=25.04	PCI=23.43
4	F/A=.0555	ETAC=58.7	TTSF=2747.	PT5/PT2=89.6	M2=.270	PSI=24.97	PCI=23.43
5	F/A=.0503	ETAC=62.1	TTSF=2735.	PT5/PT2=89.3	M2=.271	PSI=24.90	PCI=23.43
6	F/A=.0471	ETAC=69.4	TTSF=2839.	PT5/PT2=89.8	M2=.266	PSI=25.17	PCI=23.43
7	F/A=.0422	ETAC=72.5	TTSF=2773.	PT5/PT2=89.7	M2=.271	PSI=24.72	PCI=22.02
8	F/A=.0366	ETAC=73.9	TTSF=2606.	PT5/PT2=89.1	M2=.281	PSI=24.03	PCI=22.26
9	F/A=.0310	ETAC=76.5	TTSF=2450.	PT5/PT2=88.8	M2=.293	PSI=23.11	PCI=21.58
10	F/A=.0258	ETAC=80.4	TTSF=2304.	PT5/PT2=88.5	M2=.306	PSI=22.42	PCI=20.81

BIN-CHAMB.	F/A	F/M	60Z NOZ.	UNIF. INJ.	PSI	PCI
1	5.375 INLET	.251	F.M.	PT5/PT2= 54.4	M2= .488	20.39
1	0.0000	0.0	TT5F= 977.	PT5/PT2= 83.4	M2= .328	30.69
2	0.0650	80.8	TT5F= 3608.	.524RMSPSI, AL 4)		80.0DEG.
	217.0Z	AL 1)		.599RMSPSI, AL 8)		13.6DEG.
	217.0Z	AL 4)		.493RMSPSI, AL 8)		3.1DEG.
	217.0Z	AL 7)		PT5/PT2= 83.1	M2= .334	30.26
3	0.614	80.7	TT5F= 3544.	.741RMSPSI, AL 4)		81.3DEG.
	216.0Z	AL 1)		.714RMSPSI, AL 8)		14.2DEG.
	216.0Z	AL 4)		.697RMSPSI, AL 8)		5.0DEG.
	216.0Z	AL 7)		PT5/PT2= 82.7	M2= .342	29.38
4	0.0563	80.0	TT5F= 3399.	.314RMSPSI, AL 4)		84.0DEG.
	216.0Z	AL 1)		.203RMSPSI, AL 8)		3.9DEG.
	216.0Z	AL 7)		PT5/PT2= 82.0	M2= .352	28.45
5	0.0505	78.6	TT5F= 3192.	.376RMSPSI, AL 4)		80.1DEG.
	213.0Z	AL 1)		.228RMSPSI, AL 8)		4.6DEG.
	213.0Z	AL 7)		PT5/PT2= 81.5	M2= .361	27.85
6	0.0470	78.4	TT5F= 3081.	1.006RMSPSI, AL 4)		79.8DEG.
	210.0Z	AL 1)		1.002RMSPSI, AL 8)		21.8DEG.
	210.0Z	AL 4)		1.022RMSPSI, AL 8)		6.9DEG.
	210.0Z	AL 7)				

0 IN. CHANG.	5.375 INLET	25Y F.H.	L/D=1.5	UNIF. INJ.				
1	F/A=0.0000	ETAC=0.0	TI5F=954.	PT5/PT2=64.4	M2=.485	PSI=17.17	PCI=11.94	
2	F/A=.0651	ETAC=49.4	TI5F=2596.	PT5/PT2=83.5	M2=.327	PSI=25.84	PCI=23.21	
	273.HZ	AI 1)=	.413RMSPSI,	PHASE(1 4)=		97.4DEG.		
	273.HZ	AI 4)=	.641RMSPSI,	PHASE(4 8)=		5.1DEG.		
	273.HZ	AI 7)=	.595RMSPSI,	PHASE(7 8)=		-4.0DEG.		
3	F/A=.0613	ETAC=49.6	TI5F=2556.	PT5/PT2=83.4	M2=.331	PSI=25.58	PCI=23.01	
	270.HZ	AI 1)=	.299RMSPSI,	PHASE(1 4)=		100.0DEG.		
	270.HZ	AI 4)=	.395RMSPSI,	PHASE(4 8)=		6.1DEG.		
	270.HZ	AI 7)=	.405RMSPSI,	PHASE(7 8)=		.3DEG.		
	277.HZ	AI 1)=	.153RMSPSI,	PHASE(1 4)=		96.8DEG.		
	277.HZ	AI 4)=	.401RMSPSI,	PHASE(4 8)=		7.7DEG.		
	277.HZ	AI 7)=	.527RMSPSI,	PHASE(7 8)=		1.0DEG.		
4	F/A=.0553	ETAC=41.7	TI5F=2230.	PT5/PT2=82.5	M2=.355	PSI=23.63	PCI=21.27	
5	F/A=.0497	ETAC=47.6	TI5F=2314.	PT5/PT2=82.3	M2=.350	PSI=24.09	PCI=21.49	
	275.HZ	AI 1)=	.754RMSPSI,	PHASE(1 4)=		100.0DEG.		
	275.HZ	AI 4)=	.248RMSPSI,	PHASE(4 8)=		10.0DEG.		
	275.HZ	AI 7)=	1.335RMSPSI,	PHASE(7 8)=		6.0DEG.		
6	F/A=.0442	ETAC=41.9	TI5F=2060.	PT5/PT2=81.5	M2=.373	PSI=22.58	PCI=19.76	
	245.HZ	AI 1)=	.393RMSPSI,	PHASE(1 4)=		79.7DEG.		
	245.HZ	AI 4)=	.612RMSPSI,	PHASE(4 8)=		-19.0DEG.		
	245.HZ	AI 7)=	.438RMSPSI,	PHASE(7 8)=		-19.0DEG.		

8 IN. CHARG.	5.375 INLET	.35Y F.M.	40Z NOZ.	TUBE INJ.	M2	PSI	PCI
1	F/A=0.0000	ETAC= 0.0	TI5F= 522.	PT5/PT2= 67.3	M2= .386	PSI= 12.49	PCI= 9.46
2	F/A=0.0000	ETAC= 0.0	TI5F= 934.	PT5/PT2= 68.0	M2= .397	PSI= 16.66	PCI= 12.62
3	F/A=0.0000	ETAC= 0.0	TI5F= 933.	PT5/PT2= 68.0	M2= .396	PSI= 17.03	PCI= 12.95
4	F/A=.0653	ETAC= 71.5	TI5F= 3312.	PT5/PT2= 88.2	M2= .235	PSI= 28.79	PCI= 26.06
5	F/A=.0603	ETAC= 74.2	TI5F= 3313.	PT5/PT2= 88.1	M2= .236	PSI= 28.66	PCI= 25.93
6	F/A=.0555	ETAC= 77.1	TI5F= 3293.	PT5/PT2= 88.0	M2= .238	PSI= 28.43	PCI= 25.71
7	F/A=.0502	ETAC= 73.7	TI5F= 3046.	PT5/PT2= 86.6	M2= .245	PSI= 27.45	PCI= 24.83
8	F/A=.0460	ETAC= 75.2	TI5F= 2957.	PT5/PT2= 86.3	M2= .248	PSI= 27.00	PCI= 24.31
9	F/A=.0418	ETAC= 78.5	TI5F= 2899.	PT5/PT2= 86.6	M2= .254	PSI= 26.41	PCI= 23.82
10	F/A=.0357	ETAC= 78.1	TI5F= 2665.	PT5/PT2= 86.0	M2= .267	PSI= 25.16	PCI= 22.62
11	F/A=.0315	ETAC= 83.6	TI5F= 2604.	PT5/PT2= 85.4	M2= .271	PSI= 24.88	PCI= 21.99
12	F/A=.0264	ETAC= 82.9	TI5F= 2368.	PT5/PT2= 84.3	M2= .284	PSI= 23.75	PCI= 20.80

BIN-CHAMB.	5.375INLET	.35Y F.H.	60Z NOZ.	TUBE INJ.	M2	PSI	PCI
1	F/A=0.0000	ETAC= 0.0	TT5F= 978.	PT5/PT2= 46.9	M2= .402	PSI= 24.92	PCI= 12.40
2	F/A= .0657	ETAC= 70.2	TT5F= 3274.	PT5/PT2= 77.1	M2= .319	PSI= 31.56	PCI= 24.89
	196.HZ	AI 1)= .435RMSPSI,	AI 4)= .875RMSPSI,	PHASE(1 4)=		65.0DEG.	
	196.HZ	AI 4)= .834RMSPSI,	AI 8)= .578RMSPSI,	PHASE(4 8)=		23.7DEG.	
3	F/A= .0609	ETAC= 72.0	TT5F= 3255.	PT5/PT2= 77.0	M2= .322	PSI= 31.29	PCI= 24.83
	200.HZ	AI 1)= .526RMSPSI,	AI 4)= 1.054RMSPSI,	PHASE(1 4)=		66.50EG.	
	200.HZ	AI 4)= 1.014RMSPSI,	AI 8)= .707RMSPSI,	PHASE(4 8)=		22.9DEG.	
	206.HZ	AI 1)= .425RMSPSI,	AI 4)= .915RMSPSI,	PHASE(1 4)=		68.50EG.	
	206.HZ	AI 4)= .892RMSPSI,	AI 8)= .642RMSPSI,	PHASE(4 8)=		20.5DEG.	
4	F/A= .0560	ETAC= 73.8	TT5F= 3213.	PT5/PT2= 76.7	M2= .327	PSI= 30.94	PCI= 24.55
	204.HZ	AI 1)= .277RMSPSI,	AI 4)= .590RMSPSI,	PHASE(1 4)=		69.0DEG.	
	204.HZ	AI 4)= .669RMSPSI,	AI 8)= .504RMSPSI,	PHASE(4 8)=		23.4DEG.	
5	F/A= .0509	ETAC= 76.0	TT5F= 3140.	PT5/PT2= 76.4	M2= .330	PSI= 30.58	PCI= 24.17
	204.HZ	AI 1)= .234RMSPSI,	AI 4)= .482RMSPSI,	PHASE(1 4)=		64.8DEG.	
6	F/A= .0464	ETAC= 76.7	TT5F= 3008.	PT5/PT2= 75.5	M2= .337	PSI= 29.94	PCI= 23.46
7	F/A= .0397	ETAC= 69.7	TT5F= 2626.	PT5/PT2= 73.2	M2= .355	PSI= 28.40	PCI= 21.97
8	F/A= .0358	ETAC= 85.6	TT5F= 2836.	PT5/PT2= 73.9	M2= .344	PSI= 24.34	PCI= 22.25
9	F/A= .0302	ETAC= 82.6	TT5F= 2532.	PT5/PT2= 72.0	M2= .360	PSI= 28.06	PCI= 20.90
10	F/A= .0271	ETAC= 42.3	TT5F= 1718.	PT5/PT2= 63.2	M2= .394	PSI= 25.54	PCI= 17.56

8IN.CHAMB.	5.375INLET	.35Y F.H.	L/D=1.5	UNIF.INJ.	M2=	PSI=	PCI=
1	F/A=0.0000	ETAC= 0.0	TT5F= 972.	PT5/PT2= 55.8	M2= .399	PSI= 21.37	PCI= 12.17
2	F/A= .0639	ETAC= 80.3	TT5F= 3574.	PT5/PT2= 83.2	M2= .269	PSI= 32.09	PCI= 28.06
3	F/A= .0592	ETAC= 77.3	TT5F= 3390.	PT5/PT2= 82.7	M2= .279	PSI= 30.89	PCI= 26.90
4	F/A= .0538	ETAC= 73.4	TT5F= 3143.	PT5/PT2= 81.8	M2= .290	PSI= 29.67	PCI= 25.61
5	F/A= .0490	ETAC= 73.1	TT5F= 3003.	PT5/PT2= 81.2	M2= .296	PSI= 29.14	PCI= 24.95
6	F/A= .0449	ETAC= 70.7	TT5F= 2816.	PT5/PT2= 80.0	M2= .304	PSI= 28.43	PCI= 24.27
	277.HZ A(1)=	.464RMSPSI, A(4)=	.780RMSPSI, PHASE(1 4)=			80.5UEG.	
	277.HZ A(4)=	.769RMSPSI, A(8)=	.593RMSPSI, PHASE(4 8)=			-1.3UEG.	
	277.HZ A(7)=	.678RMSPSI, A(8)=	.513RMSPSI, PHASE(7 8)=			-8.5UEG.	

AFMAL-TR-81-2047
Part I

c. Low Frequency Combustion Instabilities for a Twelve Inch
Diameter Combustion Chamber

12IN.CHAMB	GIN. INLET	NO F. HULD.	BASELINE	UNIF. INJ.	M2	PSI	PCI
1	F/A=0.0000	ETAC= 0.0	TT5F= 988.	PT5/PT2= 49.3	M2= .868	PSI= 10.70	PCI= 6.67
2	F/A= .0662	ETAC= 34.1	TT5F= 2099.	PT5/PT2= 73.7	M2= .744	PSI= 12.98	PCI= 12.48
3	F/A= .0615	ETAC= 34.1	TT5F= 2065.	PT5/PT2= 73.5	M2= .763	PSI= 12.65	PCI= 12.17
4	F/A= .0543	ETAC= 31.4	TT5F= 1917.	PT5/PT2= 71.8	M2= .816	PSI= 11.77	PCI= 11.32
5	F/A= .0493	ETAC= 33.7	TT5F= 1920.	.119RMSPSI, PHASE(4 8)= -152.4DEG.	M2= .812	PSI= 11.85	PCI= 11.49
6	F/A= .0446	ETAC= 41.6	TT5F= 2064.	PT5/PT2= 71.5	M2= .754	PSI= 12.85	PCI= 12.35
7	F/A= .0412	ETAC= 40.2	TT5F= 1961.	.472RMSPSI, PHASE(4 8)= -155.2DEG.	M2= .777	PSI= 12.41	PCI= 11.99
	346.HZ	AT(4)= .522RMSPSI, AT(8)=		.624RMSPSI, PHASE(4 8)= -166.0DEG.			
				PT5/PT2= 70.6			
				.339RMSPSI, PHASE(4 8)= -173.5DEG.			

12IN.CHAMB	6IN. INLET	NO F. HULD.	BASELINE	TUBE INJ.	M2	PSI	PCI
1	F/A=0.0000	ETAC= 0.0	TT5F= 963.	PT5/PT2= 47.9	M2= .839	PSI= 11.40	PCI= 6.72
2	F/A= .0657	ETAC= 70.2	TT5F= 3265.	PT5/PT2= 79.7	M2= .960	PSI= 17.75	PCI= 16.77
3	F/A= .0590	ETAC= 75.3	TT5F= 3311.	PT5/PT2= 79.2	M2= .554	PSI= 17.94	PCI= 17.07
4	F/A= .0542	ETAC= 75.8	TT5F= 3213.	PT5/PT2= 79.0	M2= .570	PSI= 17.40	PCI= 16.73
5	F/A= .0485	ETAC= 74.8	TT5F= 3020.	PT5/PT2= 78.7	M2= .598	PSI= 16.45	PCI= 15.94
6	F/A= .0456	ETAC= 75.2	TT5F= 2942.	PT5/PT2= 78.2	M2= .610	PSI= 16.15	PCI= 15.70
7	F/A= .0400	ETAC= 61.1	TT5F= 2426.	PT5/PT2= 75.1	M2= .691	PSI= 14.13	PCI= 13.47
	368.HZ	AI 4)= .717RMSPSI,	PHASE(4 8)=				
8	F/A= .0361	ETAC= 63.9	TT5F= 2368.	PT5/PT2= 74.8	M2= .707	PSI= 13.76	PCI= 13.20
9	F/A= .0317	ETAC= 61.5	TT5F= 2180.	PT5/PT2= 72.8	M2= .744	PSI= 13.02	PCI= 12.28
10	F/A= .0258	ETAC= 59.6	TT5F= 1954.	PT5/PT2= 69.9	M2= .792	PSI= 12.18	PCI= 11.09

12IN-CHAMB	6IN. INLET	NO F-HOLD.	TT0=750K	UNIF. INJ.					
1	F/A=0.0000	ETAC= 0.0	TT5F= 760.	PT5/PT2= 49.1	M2= .829	PSI= 9.68	PCI= 5.70		
2	F/A= .0655	ETAC= 30.7	TT5F= 1780.	PT5/PT2= 75.6	M2= .685	PSI= 12.30	PCI= 11.86		
3	F/A= .0610	ETAC= 31.3	TT5F= 1770.	.390RMSPSI, PHASE(4 8)= -171.0DEG.	M2= .693	PSI= 12.15	PCI= 11.69		
4	F/A= .0546	ETAC= 31.9	TT5F= 1723.	.563RMSPSI, PHASE(4 8)= -170.0DEG.	M2= .706	PSI= 11.92	PCI= 11.45		
5	F/A= .0506	ETAC= 31.2	TT5F= 1659.	.620RMSPSI, PHASE(4 8)= -172.0DEG.	M2= .723	PSI= 11.58	PCI= 11.06		
6	F/A= .0460	ETAC= 28.2	TT5F= 1513.	.264RMSPSI, PHASE(4 8)= -174.4DEG.	M2= .766	PSI= 10.88	PCI= 10.42		
	310.HZ	ETAC= 41)= .478RMSPSI, AT 8)=		.248RMSPSI, PHASE(4 8)= 176.90DEG.					

12IN.CHAMB	6IN. INLET	NO F. HULD.	TT0=750R	TUBE INJ.	M2=	PSI=	PCI=
1	F/A=0.0000 ETAC= 0.0	TT5F= 758.	PT5/PT2= 49.0	M2= .832	PSI= 9.90	PCI= 5.84	
2	F/A= .0659 ETAC= 62.1	TT5F= 2850.	PT5/PT2= 81.1	M2= .514	PSI= 16.68	PCI= 15.90	
3	F/A= .0591 ETAC= 64.7	TT5F= 2826.	PT5/PT2= 81.0	M2= .521	PSI= 16.46	PCI= 15.67	
4	F/A= .0547 ETAC= 65.9	TT5F= 2768.	PT5/PT2= 80.8	M2= .531	PSI= 16.14	PCI= 15.42	
5	F/A= .0496 ETAC= 65.1	TT5F= 2614.	PT5/PT2= 80.0	M2= .551	PSI= 15.93	PCI= 14.79	
6	F/A= .0455 ETAC= 67.1	TT5F= 2551.	PT5/PT2= 79.7	M2= .561	PSI= 15.24	PCI= 14.70	
7	F/A= .0409 ETAC= 70.1	TT5F= 2480.	PT5/PT2= 79.1	M2= .572	PSI= 14.90	PCI= 14.29	
8	F/A= .0361 ETAC= 71.2	TT5F= 2332.	PT5/PT2= 78.0	M2= .593	PSI= 14.33	PCI= 13.66	
9	F/A= .0313 ETAC= 52.0	TT5F= 1771.	PT5/PT2= 73.6	M2= .700	PSI= 11.99	PCI= 11.13	
10	F/A= .0261 ETAC= 60.4	TT5F= 1760.	PT5/PT2= 73.5	M2= .710	PSI= 11.81	PCI= 11.19	

12IN.CHAMB	6IN. INLET	NO F-HOLD.	LOW FLOW	UNIF. INJ.	M2	PSI	PCI
1	F/A=0.0000	ETAC= 0.0	IT5F= 1057.	PT5/PT2= 51.5	M2= .840	PSI= 6.92	PCI= 4.44
2	F/A= .0636	ETAC= 36.4	IT5F= 2146.	PT5/PT2= 74.2	M2= .738	PSI= 8.02	PCI= 7.63
	373.HZ	AI 4)= .518RMSPSI,	AI 8)= .376RMSPSI,	PHASE(4 8)= -155.6DEG.			
3	F/A= .0590	ETAC= 37.9	IT5F= 2146.	PT5/PT2= 74.3	M2= .738	PSI= 7.96	PCI= 7.59
	370.HZ	AI 4)= .547RMSPSI,	AI 8)= .399RMSPSI,	PHASE(4 8)= -159.6DEG.			
4	F/A= .0527	ETAC= 40.8	IT5F= 2160.	PT5/PT2= 73.9	M2= .739	PSI= 8.00	PCI= 7.63
	361.HZ	AI 4)= .570RMSPSI,	AI 8)= .392RMSPSI,	PHASE(4 8)= -162.1DEG.			
5	F/A= .0495	ETAC= 41.4	IT5F= 2132.	PT5/PT2= 73.3	M2= .747	PSI= 7.90	PCI= 7.54
	354.HZ	AI 4)= .601RMSPSI,	AI 8)= .408RMSPSI,	PHASE(4 8)= -168.6DEG.			
6	F/A= .0442	ETAC= 36.0	IT5F= 1907.	PT5/PT2= 70.5	M2= .797	PSI= 7.34	PCI= 6.99
	348.HZ	AI 4)= .296RMSPSI,	AI 8)= .185RMSPSI,	PHASE(4 8)= -178.2DEG.			

12IN.CHAMB	GIN. INLET	NO F.HOLD.	LOW FLOW	TUBE INJ.	PCI=
1	F/A=0.0000	ETAC= 0.0	TT5F= 1062.	PT5/PT2= 51.4	4.44
2	F/A= .0640	ETAC= 71.9	TT5F= 3277.	PT5/PT2= 78.8	10.21
	96.HZ	A(4)= 1.557RMSPSI,	A(8)=	1.046RMSPSI, PHASE(4 8)=	
3	F/A= .0589	ETAC= 75.2	TT5F= 3291.	PT5/PT2= 80.0	10.18
	106.HZ	A(4)= .462RMSPSI,	A(8)=	.351RMSPSI, PHASE(4 8)=	
4	F/A= .0533	ETAC= 79.0	TT5F= 3269.	PT5/PT2= 74.6	10.05
5	F/A= .0494	ETAC= 74.1	TT5F= 3158.	PT5/PT2= 74.4	9.85
6	F/A= .0450	ETAC= 76.3	TT5F= 2943.	PT5/PT2= 78.8	9.43
7	F/A= .0407	ETAC= 59.8	TT5F= 2407.	PT5/PT2= 75.5	7.99
	363.HZ	A(4)= .570RMSPSI,	A(8)=	.364RMSPSI, PHASE(4 8)=	
8	F/A= .0348	ETAC= 61.0	TT5F= 2262.	PT5/PT2= 74.1	7.62
	373.HZ	A(4)= .478RMSPSI,	A(8)=	.313RMSPSI, PHASE(4 8)=	
9	F/A= .0356	ETAC= 60.1	TT5F= 2266.	PT5/PT2= 74.1	7.62
	370.HZ	A(4)= .490RMSPSI,	A(8)=	.321RMSPSI, PHASE(4 8)=	
10	F/A= .0310	ETAC= 61.0	TT5F= 2148.	PT5/PT2= 72.8	7.23
11	F/A= .0260	ETAC= 64.5	TT5F= 2041.	PT5/PT2= 71.2	6.90

12IN-CHAMB	7IN. INLET	NO F. MULU.	BASELINE	UNIF. INJ.	M2	PSI	PCI
1	F/A = .0577	ETAC = -1.7	TT5F = 957.	PT5/PT2 = 57.1	M2 = 1.496	PSI = 4.20	PCI = 6.96
2	F/A = .0656	ETAC = 84.3	TT5F = 3720.	PT5/PT2 = 89.4	M2 = .391	PSI = 18.83	PCI = 18.42
	109.HZ	A(4) = 1.308RMSPSI.	A(8) = 1.392RMSPSI.	PHASE(4 8) = 18.4DEG.			
	108.HZ	A(7) = 1.293RMSPSI.	A(8) = 1.432RMSPSI.	PHASE(7 8) = 8.1DEG.			
3	F/A = .0609	ETAC = 88.5	TT5F = 3764.	PT5/PT2 = 89.4	M2 = .390	PSI = 18.90	PCI = 18.50
4	F/A = .0548	ETAC = 87.2	TT5F = 3561.	PT5/PT2 = 89.3	M2 = .407	PSI = 18.14	PCI = 17.80
5	F/A = .0503	ETAC = 80.3	TT5F = 3229.	PT5/PT2 = 88.5	M2 = .433	PSI = 16.97	PCI = 16.67
6	F/A = .0446	ETAC = 85.9	TT5F = 3188.	PT5/PT2 = 88.0	M2 = .438	PSI = 16.85	PCI = 16.42
7	F/A = .0402	ETAC = 70.5	TT5F = 2650.	PT5/PT2 = 86.7	M2 = .491	PSI = 15.00	PCI = 14.75

12IN.CHAMB	7IN. INLET	NO F-HULD.	BASELINE	TUBE INJ.	PSI=	PCI=
1	F/A=0.0000	ETAC= 0.0	TT5F= 977.	PT5/PT2= 58.0	M2=1.470	PSI= 4.30
2	F/A= .0603	ETAC= 71.0	TT5F= 3205.	PT5/PT2= 87.3	M2= .425	PSI= 17.47
	113.HZ	AT 1)= 1.405RMSPSI,	AT 4)= 1.834RMSPSI,	PHASE(1 4)=		50.3DEG.
	113.HZ	AT 4)= 1.803RMSPSI,	AT 8)= 1.536RMSPSI,	PHASE(4 8)=		16.9DEG.
	113.HZ	AT 7)= 1.557RMSPSI,	AT 8)= 1.557RMSPSI,	PHASE(7 8)=		2.8DEG.
3	F/A= .0556	ETAC= 72.7	TT5F= 3158.	PT5/PT2= 88.0	M2= .437	PSI= 16.94
	113.HZ	AT 1)= 1.305RMSPSI,	AT 4)= 1.711RMSPSI,	PHASE(1 4)=		50.2DEG.
	111.HZ	AT 4)= 1.459RMSPSI,	AT 8)= 1.262RMSPSI,	PHASE(4 8)=		17.9DEG.
	111.HZ	AT 7)= 1.305RMSPSI,	AT 8)= 1.364RMSPSI,	PHASE(7 8)=		3.4DEG.
	223.HZ	AT 1)= .601RMSPSI,	AT 4)= .485RMSPSI,	PHASE(1 4)=		81.8DEG.
	223.HZ	AT 4)= .479RMSPSI,	AT 8)= .257RMSPSI,	PHASE(4 8)=		-18.7DEG.
	223.HZ	AT 7)= .388RMSPSI,	AT 8)= .265RMSPSI,	PHASE(7 8)=		-17.1DEG.
4	F/A= .0499	ETAC= 73.3	TT5F= 3031.	PT5/PT2= 87.5	M2= .449	PSI= 16.43
	116.HZ	AT 1)= .484RMSPSI,	AT 4)= .526RMSPSI,	PHASE(1 4)=		48.1DEG.
	116.HZ	AT 4)= .620RMSPSI,	AT 8)= .573RMSPSI,	PHASE(4 8)=		16.4DEG.
	116.HZ	AT 7)= .530RMSPSI,	AT 8)= .579RMSPSI,	PHASE(7 8)=		8.5DEG.
5	F/A= .0449	ETAC= 74.0	TT5F= 2891.	PT5/PT2= 87.2	M2= .463	PSI= 15.85
	118.HZ	AT 1)= .174RMSPSI,	AT 4)= .233RMSPSI,	PHASE(1 4)=		46.9DEG.
	117.5HZ	AT 4)= .248RMSPSI,	AT 8)= .223RMSPSI,	PHASE(4 8)=		14.6DEG.
	118.HZ	AT 7)= .223RMSPSI,	AT 8)= .213RMSPSI,	PHASE(7 8)=		15.13
6	F/A= .0406	ETAC= 73.1	TT5F= 2733.	PT5/PT2= 87.0	M2= .484	PSI= 14.67
7	F/A= .0360	ETAC= 73.5	TT5F= 2572.	PT5/PT2= 86.6	M2= .503	PSI= 14.24
8	F/A= .0309	ETAC= 74.8	TT5F= 2414.	PT5/PT2= 86.7	M2= .537	PSI= 13.60
9	F/A= .0252	ETAC= 68.8	TT5F= 2082.	PT5/PT2= 86.9	M2= .609	PSI= 11.84

12IN.CHAMB	7IN. INLET	NO F. HOLD.	TTO=750K	TUBE INJ.	PSI=	PCI=
1	F/A=0.0000	ETAC= 0.0	TT5F= 774.	PT5/PT2= 60.2	M2=1.456	PCI= 6.13
2	F/A= .0408	ETAC= 66.4	TT5F= 2391.	PT5/PT2= 87.3	M2= .439	PCI= 13.77
	103.HZ	AL 4)= 2.712RMSPSI,	AL 8)= 2.389RMSPSI,	PHASE1 4 8)=	13.6DEG.	
	205.HZ	AL 4)= .775RMSPSI,	AL 8)= .402RMSPSI,	PHASE1 4 8)=	-2.30EG.	
3	F/A= .0362	ETAC= 59.5	TT5F= 2080.	PT5/PT2= 86.3	M2= .479	PCI= 12.56
	99.HZ	AL 4)= 2.928RMSPSI,	AL 8)= 2.558RMSPSI,	PHASE1 4 8)=	16.1DEG.	
	198.HZ	AL 4)= 1.005RMSPSI,	AL 8)= .432RMSPSI,	PHASE1 4 8)=	14.6DEG.	
4	F/A= .0317	ETAC= 58.2	TT5F= 1909.	PT5/PT2= 86.5	M2= .513	PCI= 11.95
	103.HZ	AL 4)= 1.819RMSPSI,	AL 8)= 1.572RMSPSI,	PHASE1 4 8)=	13.50EG.	
	204.HZ	AL 4)= .364RMSPSI,	AL 8)= .162RMSPSI,	PHASE1 4 8)=	7.8DEG.	
5	F/A= .0256	ETAC= 71.0	TT5F= 1914.	PT5/PT2= 87.5	M2= .523	PCI= 12.02

12IN.CHARB	7IN. INLET	NO F.HOLD.	T10-1250R	UNIF. INJ.	M2=	PSI=	PCI=
1	F/A=0.0000	ETAC= 0.0	TT5F= 1210.	PT5/PT2= 55.9	M2=1.525	PSI= 4.60	PCI= 7.48
2	F/A= .0643	ETAC= 83.4	TT5F= 3781.	PT5/PT2= 89.0	M2= .442	PSI= 18.89	PCI= 18.80
	114.HZ	Al 4)= 1.942RMSPSI,	Al 8)= 1.772RMSPSI,	PHASE(4 8)=		15.6DEG.	
	229.HZ	Al 4)= .347RMSPSI,	Al 8)= .183RMSPSI,	PHASE(4 8)=		52.6DEG.	
3	F/A= .0602	ETAC= 81.6	TT5F= 3654.	PT5/PT2= 88.5	M2= .451	PSI= 18.43	PCI= 18.3
	114.HZ	Al 4)= 1.330RMSPSI,	Al 8)= 1.194RMSPSI,	PHASE(4 8)=		17.3DEG.	
4	F/A= .0555	ETAC= 88.2	TT5F= 3742.	PT5/PT2= 88.6	M2= .449	PSI= 18.32	PCI= 18.12
5	F/A= .0509	ETAC= 87.4	TT5F= 3595.	PT5/PT2= 88.2	M2= .465	PSI= 17.69	PCI= 17.51
6	F/A= .0555	ETAC= 85.3	TT5F= 3371.	PT5/PT2= 87.5	M2= .487	PSI= 17.02	PCI= 16.79
7	F/A= .0409	ETAC= 84.3	TT5F= 3176.	PT5/PT2= 87.6	M2= .510	PSI= 16.14	PCI= 16.11
8	F/A= .0360	ETAC= 80.9	TT5F= 2919.	PT5/PT2= 87.8	M2= .552	PSI= 14.90	PCI= 15.27

LINE-CHARB	7IN. INLET	NO F-HULO.	LOW FLOW	TUBE INJ.	PSI	PCI
1	F/A=0.0000	ETAC= 0.0	TT5F= 1033.	PT5/PT2= 58.5	M2=1.518	2.49
	F/A= .0464	ETAC= 69.7	TT5F= 2856.	PT5/PT2= 86.1	M2= .462	9.62
2	F/A= .0464	AI 4)= 2.127RMSPSI,	AI 8)= 1.572RMSPSI,	PHASE(4 8)= 14.4DEG.	PSI= 14.4DEG.	
	F/A= .0461	ETAC= 70.6	TT5F= 2837.	PT5/PT2= 86.3	M2= .462	9.63
3	F/A= .0461	AI 4)= 2.096RMSPSI,	AI 8)= 1.618RMSPSI,	PHASE(4 8)= 15.2DEG.	PSI= 15.2DEG.	
	F/A= .0407	ETAC= 72.8	TT5F= 2721.	PT5/PT2= 87.5	M2= .486	9.10
4	F/A= .0407	AI 4)= 1.429RMSPSI,	AI 8)= 1.162RMSPSI,	PHASE(4 8)= 14.7DEG.	PSI= 14.7DEG.	
	F/A= .0358	ETAC= 73.4	TT5F= 2562.	PT5/PT2= 87.7	M2= .514	8.61
5	F/A= .0314	ETAC= 75.9	TT5F= 2443.	PT5/PT2= 88.1	M2= .537	8.17
6	F/A= .0260	ETAC= 78.7	TT5F= 2266.	PT5/PT2= 88.9	M2= .584	7.48
7						

12IN.CHAMB	7IN. INLET	NO F. HULD.	40Z MUX.	UNIF.-INJ.	M2=	PSI=	PCI=
1	F/A=0.0000	ETAC= 0.0	TT5F= 1019.	PT5/PT2= 75.2	M2=1.445	PSI= 3.49	PCI= 8.27
2	F/A= .0659	ETAC= 82.0	TT5F= 3626.	PT5/PT2= 91.6	M2= .315	PSI= 18.84	PCI= 18.67
	99.HZ A1 1)=	.354RMSPSI, A1 4)=		.249RMSPSI,	PHASE(1 4)=	49.4DEG.	
	99.HZ A1 4)=	.302RMSPSI, A1 8)=		.328RMSPSI,	PHASE(4 8)=	19.2DEG.	
	99.HZ A1 7)=	.284RMSPSI, A1 8)=		.328RMSPSI,	PHASE(7 8)=	7.6DEG.	
3	F/A= .0599	ETAC= 75.8	TT5F= 3343.	PT5/PT2= 91.2	M2= .332	PSI= 17.80	PCI= 17.70
	99.HZ A1 1)=	.395RMSPSI, A1 4)=		.253RMSPSI,	PHASE(1 4)=	51.7DEG.	
	99.HZ A1 4)=	.302RMSPSI, A1 8)=		.316RMSPSI,	PHASE(4 8)=	20.4DEG.	
	98.HZ A1 7)=	.196RMSPSI, A1 8)=		.227RMSPSI,	PHASE(7 8)=	10.2DEG.	
4	F/A= .0548	ETAC= 67.7	TT5F= 2987.	PT5/PT2= 90.7	M2= .356	PSI= 16.58	PCI= 16.54
5	F/A= .0503	ETAC= 65.8	TT5F= 2828.	PT5/PT2= 91.1	M2= .372	PSI= 15.85	PCI= 15.83
6	F/A= .0453	ETAC= 92.0	TT5F= 3375.	PT5/PT2= 92.1	M2= .340	PSI= 17.46	PCI= 17.15
7	F/A= .0402	E=C= 85.9	TT5F= 3019.	PT5/PT2= 91.2	M2= .362	PSI= 16.30	PCI= 16.08

12IN.CHAMB	7IN. INLET	NO F.HULL.	40Z NUZ.	TUBE INJ.	M2=	PSI=	PCI=
1	F/A=.0000	ETAC= 0.0	TT5F= 973.	P15/PT2= 72.8	M2= 1.461	PSI= 3.47	PCI= 8.08
2	F/A=.0642	ETAC= 73.0	TT5F= 3334.	P15/PT2= 91.5	M2= .334	PSI= 17.89	PCI= 17.34
	110.HZ	At 1)= .442RMSPSI, At 4)= .632RMSPSI, PHASE(1 4)= 47.60DEG.					
	111.HZ	At 1)= .701RMSPSI, At 8)= .638RMSPSI, PHASE(4 8)= 19.50DEG.					
	111.HZ	At 7)= .607RMSPSI, At 8)= .590RMSPSI, PHASE(7 8)= 6.70DEG.					
	119.HZ	At 1)= .541RMSPSI, At 4)= .476RMSPSI, PHASE(1 4)= 48.20DEG.					
	119.HZ	At 4)= .482RMSPSI, At 8)= .487RMSPSI, PHASE(4 8)= 24.00DEG.					
3	F/A=.0608	ETAC= 72.9	TT5F= 3273.	P15/PT2= 91.2	M2= .337	PSI= 17.65	PCI= 17.16
	113.HZ	At 4)= .644RMSPSI, At 8)= .590RMSPSI, PHASE(4 8)= 20.80DEG.					
	113.HZ	At 7)= .567RMSPSI, At 8)= .603RMSPSI, PHASE(7 8)= 9.60DEG.					
	116.HZ	At 1)= .495RMSPSI, At 4)= .530RMSPSI, PHASE(1 4)= 45.90DEG.					
	119.HZ	At 4)= .439RMSPSI, At 8)= .433RMSPSI, PHASE(4 8)= 22.90DEG.					
	119.HZ	At 7)= .385RMSPSI, At 8)= .427RMSPSI, PHASE(7 8)= 14.30DEG.					
4	F/A=.0551	ETAC= 71.6	TT5F= 3110.	P15/PT2= 91.2	M2= .349	PSI= 16.98	PCI= 16.61
	114.HZ	At 1)= .741RMSPSI, At 4)= .814RMSPSI, PHASE(1 4)= 46.70DEG.					
	113.HZ	At 4)= .482RMSPSI, At 8)= .478RMSPSI, PHASE(4 8)= 22.30DEG.					
	113.HZ	At 7)= .493RMSPSI, At 8)= .513RMSPSI, PHASE(7 8)= 10.60DEG.					
	116.HZ	At 4)= .290RMSPSI, At 8)= .293RMSPSI, PHASE(4 8)= 23.50DEG.					
	116.HZ	At 7)= .185RMSPSI, At 8)= .198RMSPSI, PHASE(7 8)= 6.50DEG.					
5	F/A=.0500	ETAC= 70.2	TT5F= 2946.	P15/PT2= 91.0	M2= .364	PSI= 16.33	PCI= 16.03
	111.HZ	At 1)= .268RMSPSI, At 4)= .279RMSPSI, PHASE(1 4)= 44.90DEG.					
	110.HZ	At 4)= .274RMSPSI, At 8)= .270RMSPSI, PHASE(4 8)= 21.40DEG.					
	110.HZ	At 7)= .193RMSPSI, At 8)= .217RMSPSI, PHASE(7 8)= 9.90DEG.					
	115.HZ	At 1)= .310RMSPSI, At 4)= .327RMSPSI, PHASE(1 4)= 45.60DEG.					
	116.HZ	At 4)= .339RMSPSI, At 8)= .358RMSPSI, PHASE(4 8)= 20.60DEG.					
	116.HZ	At 7)= .308RMSPSI, At 8)= .351RMSPSI, PHASE(7 8)= 9.00DEG.					
6	F/A=.0453	ETAC= 70.7	TT5F= 2821.	P15/PT2= 90.8	M2= .374	PSI= 15.83	PCI= 15.60
	113.HZ	At 1)= .339RMSPSI, At 4)= .358RMSPSI, PHASE(1 4)= 47.10DEG.					
	113.HZ	At 4)= .373RMSPSI, At 8)= .384RMSPSI, PHASE(4 8)= 19.20DEG.					
	113.HZ	At 7)= .362RMSPSI, At 8)= .405RMSPSI, PHASE(7 8)= 8.80DEG.					
	119.HZ	At 1)= .134RMSPSI, At 4)= .156RMSPSI, PHASE(1 4)= 47.30DEG.					
	119.HZ	At 4)= .162RMSPSI, At 8)= .171RMSPSI, PHASE(4 8)= 17.30DEG.					
	119.HZ	At 7)= .154RMSPSI, At 8)= .176RMSPSI, PHASE(7 8)= 8.80DEG.					
7	F/A=.0416	ETAC= 71.5	TT5F= 2725.	P15/PT2= 90.7	M2= .383	PSI= 15.40	PCI= 15.19
	111.HZ	At 1)= .233RMSPSI, At 4)= .268RMSPSI, PHASE(1 4)= 45.50DEG.					
	111.HZ	At 4)= .259RMSPSI, At 8)= .253RMSPSI, PHASE(4 8)= 17.00DEG.					
	111.HZ	At 7)= .233RMSPSI, At 8)= .267RMSPSI, PHASE(7 8)= 10.50DEG.					
	119.HZ	At 1)= .120RMSPSI, At 4)= .136RMSPSI, PHASE(1 4)= 48.10DEG.					
	119.HZ	At 4)= .165RMSPSI, At 8)= .162RMSPSI, PHASE(4 8)= 19.90DEG.					
	119.HZ	At 7)= .136RMSPSI, At 8)= .162RMSPSI, PHASE(7 8)= 9.60DEG.					
8	F/A=.0362	ETAC= 72.6	TT5F= 2562.	P15/PT2= 90.5	M2= .399	PSI= 14.74	PCI= 14.54
	403.HZ	At 1)= .324RMSPSI, At 4)= .257RMSPSI, PHASE(1 4)= 153.80DEG.					
	401.HZ	At 4)= .364RMSPSI, At 8)= .374RMSPSI, PHASE(4 8)= -144.60DEG.					
	401.HZ	At 7)= .040RMSPSI, At 8)= .274RMSPSI, PHASE(7 8)= 142.80DEG.					
9	F/A=.0309	ETAC= 72.4	TT5F= 2362.	P15/PT2= 90.1	M2= .421	PSI= 13.97	PCI= 13.80
	404.HZ	At 1)= .447RMSPSI, At 4)= .350RMSPSI, PHASE(1 4)= 168.60DEG.					
	404.HZ	At 4)= .470RMSPSI, At 8)= .467RMSPSI, PHASE(4 8)= -151.90DEG.					
	403.HZ	At 7)= .100RMSPSI, At 8)= .507RMSPSI, PHASE(7 8)= 155.00DEG.					
10	F/A=.0264	ETAC= 73.1	TT5F= 2191.	P15/PT2= 90.1	M2= .444	PSI= 13.20	PCI= 13.15
	408.HZ	At 1)= .173RMSPSI, At 4)= .146RMSPSI, PHASE(1 4)= -175.20DEG.					
	409.HZ	At 4)= .129RMSPSI, At 8)= .125RMSPSI, PHASE(4 8)= -153.20DEG.					
	409.HZ	At 7)= .017RMSPSI, At 8)= .120RMSPSI, PHASE(7 8)= 170.10DEG.					

L2IN-CHARB	7IN. INLET	NO F. HULD.	60% NOZ.	UNIF. INJ.	PT5/PT2	M2	PSI	PCI
1	F/A=0.0000	ETAC= 0.0	TT5F= 563.	PT5/PT2= 60.1	M2=1.439	PSI= 3.64	PCI= 7.25	
2	F/A=0.0000	ETAC= 0.0	TT5F= 1042.	PT5/PT2= 51.2	M2=1.460	PSI= 5.21	PCI= 7.49	
3	F/A= .0662	ETAC= 89.7	TT5F= 3900.	PT5/PT2= 85.9	M2= .449	PSI= 19.41	PCI= 18.00	
4	F/A= .0600	ETAC= 86.4	TT5F= 3674.	PT5/PT2= 84.2	M2= .463	PSI= 18.99	PCI= 17.69	
5	F/A= .0554	ETAC= 84.6	TT5F= 3499.	PT5/PT2= 84.5	M2= .485	PSI= 18.21	PCI= 16.68	
6	F/A= .0510	ETAC= 79.9	TT5F= 3238.	PT5/PT2= 83.2	M2= .507	PSI= 17.47	PCI= 16.90	
7	F/A= .0449	ETAC= 75.4	TT5F= 2931.	PT5/PT2= 84.9	M2= .573	PSI= 15.22	PCI= 15.45	
8	F/A= .0398	ETAC= 67.6	TT5F= 2574.	PT5/PT2= 80.5	M2= .592	PSI= 14.87	PCI= 14.05	

AC 1) = .008RMSPSI, AC 4) = .558RMSPSI, PHASE(1 4) = -71.5DEG.

12IN-CHAMB	-7IN. INLET	NO F-HOLD.	L/D=1.5	UNIF. INJ.			
1	F/A=0.0000	ETAC= 0.0	TT5F= 1060.	PT5/PT2= 61.1	M2=1.439	PSI= 4.43	PCI= 4.44
2	F/A= .0655	ETAC= 24.0	TT5F= 1771.	PT5/PT2= 83.7	M2= .619	PSI= 11.73	PCI= 11.89
				.509RMSPSI, PHASE(4 8)=		5.7DEG.	
3	F/A= .0618	ETAC= 23.4	TT5F= 1736.	PT5/PT2= 83.5	M2= .633	PSI= 11.43	PCI= 11.51
4	F/A= .0546	ETAC= 25.6	TT5F= 1753.	PT5/PT2= 83.5	M2= .636	PSI= 11.37	PCI= 11.48
5	F/A= .0486	ETAC= 28.6	TT5F= 1779.	PT5/PT2= 83.6	M2= .635	PSI= 11.40	PCI= 11.55
6	F/A= .0485	ETAC= 28.4	TT5F= 1769.	PT5/PT2= 83.6	M2= .637	PSI= 11.38	PCI= 11.57
7	F/A= .0444	ETAC= 31.3	TT5F= 1797.	PT5/PT2= 83.5	M2= .632	PSI= 11.49	PCI= 11.83
8	F/A= .0400	ETAC= 32.7	TT5F= 1768.	PT5/PT2= 82.6	M2= .634	PSI= 11.45	PCI= 11.76

12IN.CHARG	7IN. INLET	.25Y F.H.	TTD=75OR	UNIF. INJ.	M2=	PSI=	PCI=
1	F/A=0.0000	ETAC= 0.0	TT5F= 758.	PT5/PT2= 49.5	M2= .479	PSI= 13.22	PCI= 17.37
2	F/A= .0653	ETAC= 83.0	TT5F= 3555.	PT5/PT2= 82.4	M2= .310	PSI= 20.70	PCI= 18.00
	118.HZ	AT 4)= 3.128RMSPSI,	AT 8)= 2.990RMSPSI,	PHASE(4 8)=		11.0DEG.	
	236.HZ	AT 4)= .929RMSPSI,	AT 8)= .532RMSPSI,	PHASE(4 8)=		38.2DEG.	
3	F/A= .0604	ETAC= 81.6	TT5F= 3405.	PT5/PT2= 82.1	M2= .320	PSI= 20.13	PCI= 17.46
	116.HZ	AT 4)= 3.113RMSPSI,	AT 8)= 2.913RMSPSI,	PHASE(4 8)=		11.2DEG.	
	233.HZ	AT 4)= .804RMSPSI,	AT 8)= .444RMSPSI,	PHASE(4 8)=		39.8DEG.	
	F/A= .0557	ETAC= 79.7	TT5F= 3225.	PT5/PT2= 81.5	M2= .329	PSI= 19.50	PCI= 16.85
	116.HZ	AT 4)= 2.851RMSPSI,	AT 8)= 2.620RMSPSI,	PHASE(4 8)=		11.6DEG.	
	233.HZ	AT 4)= .677RMSPSI,	AT 8)= .374RMSPSI,	PHASE(4 8)=		41.1DEG.	
	348.HZ	AT 4)= .432RMSPSI,	AT 8)= .133RMSPSI,	PHASE(4 8)=		176.3DEG.	
5	F/A= .0506	ETAC= 75.7	TT5F= 2950.	PT5/PT2= 80.2	M2= .342	PSI= 18.76	PCI= 16.00
	114.HZ	AT 4)= 3.036RMSPSI,	AT 8)= 2.712RMSPSI,	PHASE(4 8)=		12.2DEG.	
	228.HZ	AT 4)= .846RMSPSI,	AT 8)= .450RMSPSI,	PHASE(4 8)=		33.3DEG.	
	341.HZ	AT 4)= .512RMSPSI,	AT 8)= .122RMSPSI,	PHASE(4 8)=		-160.6DEG.	

12IN. CHARG	7IN. INLET	.35Y F.M.	T10-750R	TUBE INJ.	M2	PSI	PCI
1	F/A=0.0000	ETAC= 0.0	TT5F= 249.	PT5/PT2= 42.8	M2= .397	PSI= 15.81	PCI= 7.35
2	F/A= .0651	ETAC= 78.0	TT5F= 3375.	PT5/PT2= 77.9	M2= .298	PSI= 21.27	PCI= 16.65
3	F/A= .121.MZ	A(4)= 1.453RMSPSI,	1.120KMSPSI,	PHASE(4 8)= 12.4DEG.	M2= .302	PSI= 21.05	PCI= 16.40
4	F/A= .0589	ETAC= 81.7	TT5F= 3361.	PT5/PT2= 78.2	M2= .306	PSI= 20.83	PCI= 16.30
5	F/A= .0558	ETAC= 83.1	TT5F= 3323.	PT5/PT2= 78.2	M2= .310	PSI= 20.39	PCI= 16.22
6	F/A= .0506	ETAC= 83.8	TT5F= 3178.	PT5/PT2= 77.3	M2= .314	PSI= 20.07	PCI= 15.96
7	F/A= .0472	ETAC= 85.1	TT5F= 3084.	PT5/PT2= 77.0	M2= .324	PSI= 19.49	PCI= 15.47
8	F/A= .0424	ETAC= 85.2	TT5F= 2906.	PT5/PT2= 75.9	M2= .339	PSI= 18.78	PCI= 14.50
9	F/A= .0355	ETAC= 83.4	TT5F= 2564.	PT5/PT2= 73.5	M2= .349	PSI= 18.25	PCI= 13.72
10	F/A= .0313	ETAC= 82.6	TT5F= 2366.	PT5/PT2= 72.1	M2= .391	PSI= 16.16	PCI= 9.64
11	F/A= .0265	ETAC= 27.4	TT5F= 1199.	PT5/PT2= 54.5			

12IN.CHAMB	8IN.TIMLET	NO F-HOLD	BASELINE	TUBE INJ.	PSI	PCI
1	F/A=0.0000	ETAC=0.0	TT5F= 975.	PT5/PT2= 77.1	M2=1.430	PCI= 17.84
2	F/A=0.0652	ETAC= 73.2	TT5F= 3352.	PT5/PT2= 93.4	M2= .322	PCI= 17.11
3	F/A=0.0994	ETAC= 73.2	TT5F= 3352.	.680RMSPSI, PHASE1 4 8)=	11.6DEG.	
4	F/A=0.1064	ETAC= 75.9	TT5F= 3374.	.621RMSPSI, PHASE1 4 8)=	7.6DEG.	
5	F/A=0.1014	ETAC= 75.9	TT5F= 3374.	PT5/PT2= 93.5	M2= .323	PCI= 17.10
6	F/A=0.1114	ETAC= 76.5	TT5F= 3248.	.604RMSPSI, PHASE1 4 8)=	9.2DEG.	
7	F/A=0.1104	ETAC= 76.5	TT5F= 3248.	.492RMSPSI, PHASE1 4 8)=	10.5DEG.	
8	F/A=0.1054	ETAC= 76.4	TT5F= 3134.	PT5/PT2= 93.4	M2= .333	PCI= 16.33
9	F/A=0.1057	ETAC= 76.4	TT5F= 3134.	.435RMSPSI, PHASE1 4 8)=	6.1DEG.	
10	F/A=0.0470	ETAC= 76.1	TT5F= 3014.	PT5/PT2= 93.3	M2= .341	PCI= 16.17
11	F/A=0.0401	ETAC= 76.4	TT5F= 2791.	PT5/PT2= 93.2	M2= .351	PCI= 15.84
12	F/A=0.0361	ETAC= 76.4	TT5F= 2644.	PT5/PT2= 93.0	M2= .371	PCI= 15.10
13	F/A=0.0308	ETAC= 73.7	TT5F= 2386.	PT5/PT2= 92.7	M2= .385	PCI= 14.61
14	F/A=0.0259	ETAC= 72.4	TT5F= 2171.	PT5/PT2= 93.0	M2= .412	PCI= 13.70
15					M2= .443	PCI= 12.78

12IN. CHAMB. BIN. INLET NO F-HOLD. T10=750R UNIF. INJ. PT5/PT2= 79.4 M2=1.432 PSI= 2.93 PCI= 7.03
1 F/A=0.0000 ETAC= 0.0 TT5F= 76%. PT5/PT2= 93.8 M2= .291 PSI= 16.76 PCI= 16.21
2 F/A=0.0497 ETAC= 83.5 TT5F= 3146. .706RMSPSI, A(8)= .146RMSPSI, PHASE(4 8)= 15.5DEG.
3 90.HZ. A(4)= .670RMSPSI, A(8)= .188RMSPSI, PHASE(4 8)= 14.6DEG.
4 73.HZ. A(4)= .188RMSPSI, A(8)= .146RMSPSI, PHASE(4 8)= 14.6DEG.

	8IN. INLET	NO F-HOLD.	TT0=750R	TUBE INJ.			
1	F/A = .0402	ETAC = 67.7	TT5F = 2400.	PT5/PT2 = 92.9	M2 = .342	PSI = 14.25	PCI = 13.86
	96.HZ	A(4) = .535RMSPSI, A(8) =	.485RMSPSI, PHASE(4 8) =			9.7DEG.	
	104.HZ	A(4) = .681RMSPSI, A(8) =	.658RMSPSI, PHASE(4 8) =			8.80DEG.	
2	F/A = .0361	ETAC = 69.3	TT5F = 2295.	PT5/PT2 = 92.8	M2 = .352	PSI = 13.83	PCI = 13.46
	100.HZ	A(4) = .515RMSPSI, A(8) =	.487RMSPSI, PHASE(4 8) =			10.20DEG.	
	106.HZ	A(4) = .350RMSPSI, A(8) =	.327RMSPSI, PHASE(4 8) =			9.50DEG.	
3	F/A = .0307	ETAC = 68.1	TT5F = 2066.	PT5/PT2 = 92.7	M2 = .377	PSI = 12.88	PCI = 12.64
4	F/A = .0261	ETAC = 65.8	TT5F = 1851.	PT5/PT2 = 92.6	M2 = .405	PSI = 11.92	PCI = 11.85

L2IN-CHARB	8IN. INLET	NO F-HULD.	TT0-1250R	UNIF. INJ.	M2-1.452	PSI=	PCI=
1	F/A=0.0000	ETAC= 0.0	TT5F= 1244.	PT5/PT2= 76.8	M2= .330	PSI= 3.79	PCI= 9.10
2	F/A= .0649	ETAC= 92.6	TT5F= 4074.	PT5/PT2= 95.4	M2= .329	PSI= 19.40	PCI= 19.35
3	F/A= .0614	ETAC= 92.6	TT5F= 4013.	PT5/PT2= 93.7	PHASE(4 8)=	PSI= 19.53	PCI= 19.16
		AI (4)= .603RMSPSI,	AI (8)=	.413RMSPSI,	PHASE(4 8)=	5.0DEG.	
		AI (4)= .821RMSPSI,	AI (8)=	.808RMSPSI,	PHASE(4 8)=	9.0DEG.	PCI= 18.55
4	F/A= .0552	ETAC= 93.0	TT5F= 3876.	PT5/PT2= 93.6	M2= .334	PSI= 18.91	
		AI (4)= .428RMSPSI,	AI (8)=	.539RMSPSI,	PHASE(4 8)=	26.10EG.	
5	F/A= .0503	ETAC= 93.2	TT5F= 3735.	PT5/PT2= 94.3	M2= .354	PSI= 18.14	PCI= 17.99
6	F/A= .0457	ETAC= 93.6	TT5F= 3582.	PT5/PT2= 94.7	M2= .367	PSI= 17.41	PCI= 17.38
7	F/A= .0413	ETAC= 91.6	TT5F= 3363.	PT5/PT2= 95.6	M2= .389	PSI= 16.41	PCI= 16.73
8	F/A= .0366	ETAC= 89.9	TT5F= 3131.	PT5/PT2= 96.1	M2= .412	PSI= 15.39	PCI= 15.94

12IN. CHAMB	8IN. INLET	NO F. HOLD.	LOW FLOW	UNIF. INJ.	M2	PSI	PCI
1	F/A=0.0000	ETAC= 0.0	TT5F= 1002.	PT5/PT2= 76.4	M2= 1.482	PSI= 1.96	PCI= 4.84
2	F/A= .0637	ETAC= 78.5	TT5F= 3485.	PT5/PT2= 93.9	M2= .316	PSI= 10.94	PCI= 10.74
	75.4HZ	AI 4)= 1.040RMSPSI,	AI 8)= .784RMSPSI,	PHASE(4 8)= 7.2DEG.			
	135.4HZ	AI 4)= .228RMSPSI,	AI 8)= .216RMSPSI,	PHASE(4 8)= 8.9DEG.			
	150.4HZ	AI 4)= .191RMSPSI,	AI 8)= .240RMSPSI,	PHASE(4 8)= --.90DEG.			
3	F/A= .0582	ETAC= 84.0	TT5F= 3542.	PT5/PT2= 92.9	M2= .310	PSI= 11.14	PCI= 10.82
4	F/A= .0541	ETAC= 81.2	TT5F= 3352.	PT5/PT2= 92.6	M2= .322	PSI= 10.73	PCI= 10.44
5	F/A= .0488	ETAC= 74.9	TT5F= 3031.	PT5/PT2= 93.1	M2= .347	PSI= 9.93	PCI= 9.73
6	F/A= .0462	ETAC= 70.0	TT5F= 2825.	PT5/PT2= 93.6	M2= .367	PSI= 9.43	PCI= 9.32
7	F/A= .0404	ETAC= 57.9	TT5F= 2361.	PT5/PT2= 95.1	M2= .421	PSI= 8.12	PCI= 8.28

12IN.CHAMB	8IN. INLET	NO F. HOLD.	LOM FLOW	TUBE INJ.	M2	PSI	PCI
1	F/A = .0498 90.MZ AI 4) = .251KMSPSI, AI 8) = 101.MZ AI 4) = .253RMSPSI, AI 8) =	ETAC = 70.8 ETAC = 71.7	TT5F = 2945. TT5F = 2839.	PT5/PT2 = 93.8 .191RMSPSI, PHASE(4 8) = .207RMSPSI, PHASE(4 8) =	M2 = .357 M2 = .367	PSI = 9.67 6.1DEG. 8.1DEG.	PCI = 9.44 9.21 8.93
2	F/A = .0453	ETAC = 73.0	TT5F = 2741.	PT5/PT2 = 94.2	M2 = .394	PSI = 8.74	PCI = 8.66
3	F/A = .0412	ETAC = 73.8	TT5F = 2590.	PT5/PT2 = 93.8	M2 = .412	PSI = 8.34	PCI = 8.32
4	F/A = .0363	ETAC = 75.1	TT5F = 2420.	PT5/PT2 = 93.7	M2 = .439	PSI = 7.81	PCI = 7.87
5	F/A = .0312	ETAC = 74.6	TT5F = 2213.				
6	F/A = .0262						

12IN.CHAMB	8IN. INLET	NO F-HOLD.	40% NDZ.	UNIF. INJ.	M2=	PSI=	PCI=
1	F/A=0.0000	ETAC= 0.0	TT5F= 995.	PT5/PT2= 96.6	M2= .635	PSI= 6.96	PCI= 8.51
2	F/A= .0546	ETAC= 89.8	TT5F= 3639.	PT5/PT2= 94.7	M2= .246	PSI= 18.53	PCI= 18.12
3	F/A= .0497	ETAC= 89.4	TT5F= 3470.	1.382RMSPSI, PHASE(4 8)=	M2= .257	PSI= 17.79	PCI= 17.46
4	F/A= .0466	ETAC= 87.7	TT5F= 3307.	1.190RMSPSI, PHASE(4 8)=	M2= .266	PSI= 17.18	PCI= 17.00
5	F/A= .0430	ETAC= 87.5	TT5F= 3167.	1.011RMSPSI, PHASE(4 8)=	M2= .272	PSI= 16.66	PCI= 16.50
6	F/A= .0367	ETAC= 47.4	TT5F= 2023.	.220RMSPSI, PHASE(4 8)=	M2= .353	PSI= 12.75	PCI= 12.93

12IN.CHAMB	8IN. INLET	NO F. HULD.	40Z NOZ.	TUBE INJ.	PCI=	
1	F/A=0.0000 109.HZ F/A= .0650 106.HZ F/A= .0608 105.HZ F/A= .0569 110.HZ F/A= .0517 111.HZ F/A= .0448 108.HZ F/A= .0411 108.HZ F/A= .0355 113.HZ F/A= .0308 10	ETAC= 0.0 A(4)= .072RMSPSI, A(8)= ETAC= 75.9 A(4)= 1.054RMSPSI, A(8)= ETAC= 76.8 A(4)= .951RMSPSI, A(8)= ETAC= 76.2 A(4)= 1.068RMSPSI, A(8)= ETAC= 75.9 A(4)= .359RMSPSI, A(8)= ETAC= 75.3 A(4)= .291RMSPSI, A(8)= ETAC= 75.9 A(4)= .359RMSPSI, A(8)= ETAC= 75.0 A(4)= .108RMSPSI, A(8)= ETAC= 74.1 A(4)= .137RMSPSI, A(8)= ETAC= 74.0	TT5F= 959. TT5F= 3442. TT5F= 3393. TT5F= 3291. TT5F= 3150. TT5F= 2922. TT5F= 2807. TT5F= 2591. TT5F= 2386. TT5F= 2179.	PT5/PT2= 93.9 M2= .625 PHASE(4 8)= 124.6DEG. PT5/PT2= 95.5 M2= .295 PHASE(4 8)= 12.0DEG. PT5/PT2= 95.5 M2= .298 PHASE(4 8)= 13.6DEG. PT5/PT2= 95.2 M2= .262 PHASE(4 8)= 15.0DEG. PT5/PT2= 95.0 M2= .270 PHASE(4 8)= 16.4DEG. PT5/PT2= 94.8 M2= .283 PHASE(4 8)= 15.1DEG. PT5/PT2= 94.8 M2= .290 PHASE(4 8)= 14.2DEG. PT5/PT2= 94.8 M2= .290 PHASE(4 8)= 15.8DEG. PT5/PT2= 94.5 M2= .306 PHASE(4 8)= 18.8DEG. PT5/PT2= 94.5 M2= .322 PHASE(4 8)= 15.2DEG. PT5/PT2= 94.5 M2= .342 PHASE(4 8)= 14.11	PSI= 7.10 PSI= 18.03 PSI= 17.77 PSI= 17.40 PSI= 16.89 PSI= 16.10 PSI= 15.64 PSI= 14.86 PSI= 14.11 PSI= 13.29	8.44 17.69 17.46 17.09 16.59 15.85 15.40 14.67 14.00 13.29

12IN. CHAMB	8IN. INLET	NO F. HULD.	L/D=1.5	UNIF. INJ.	PSI=	PCI=	
1	F/A=0.0000	ETAC= 0.0	TT5F= 1003.	PT5/PT2= 79.2	M2=1.407	PSI= 3.49	PCI= 4.61
2	F/A=0.0000	ETAC= 0.0	TT5F= 1008.	PT5/PT2= 79.4	M2=1.410	PSI= 3.47	PCI= 4.60
3	F/A= .0595	ETAC= 63.4	TT5F= 2951.	PT5/PT2= 90.7	M2= .340	PSI= 16.75	PCI= 16.42
4	F/A= .0539	ETAC= 68.4	TT5F= 2988.	1.664RMSPSI, PHASE(4 8)=	17.70EG.		
	176.HZ	AI 4)=	AI 8)=	PT5/PT2= 91.6	M2= .342	PSI= 16.54	PCI= 16.17
	176.HZ	AI 4)=	AI 8)=	1.741RMSPSI, PHASE(4 8)=	20.3DEG.		
5	F/A= .0508	ETAC= 63.4	TT5F= 2771.	PT5/PT2= 91.4	M2= .359	PSI= 15.70	PCI= 15.65
6	F/A= .0458	ETAC= 55.6	TT5F= 2442.	.872RMSPSI, PHASE(4 8)=	22.40EG.		
	183.HZ	AI 4)=	AI 8)=	PT5/PT2= 91.4	M2= .391	PSI= 14.43	PCI= 14.25
7	F/A= .0410	ETAC= 43.7	TT5F= 2047.	.291RMSPSI, PHASE(4 8)=	30.4DEG.		
	183.HZ	AI 4)=	AI 8)=	PT5/PT2= 90.5	M2= .437	PSI= 12.88	PCI= 13.21

12IN-CHAMB	8IN. INLET	NO F-HOLD.	L/D=1.5	TUBE INJ.	M2=	PSI=	PCI=
1	F/A=0.0000	ETAC= 0.0	TT5F= 981.	PT5/PT2= 77.8	M2=1.418	PSI= 3.46	PCI= 4.57
2	F/A= .0529	ETAC= 54.3	TT5F= 2556.	PT5/PT2= 91.7	M2= .378	PSI= 14.87	PCI= 14.79
3	F/A= .0490	ETAC= 54.9	TT5F= 2493.	.980RMSPSI, PHASE(4 8)=	M2= .385	PSI= 14.63	PCI= 14.56
4	F/A= .0450	ETAC= 57.4	TT5F= 2467.	PT5/PT2= 91.6	M2= .390	PSI= 14.42	PCI= 14.37
5	F/A= .0415	ETAC= 58.5	TT5F= 2408.	1.105RMSPSI, PHASE(4 8)=	M2= .399	PSI= 14.14	PCI= 14.11
6	F/A= .0359	ETAC= 61.7	TT5F= 2322.	PT5/PT2= 91.9	M2= .411	PSI= 13.69	PCI= 13.78
7	F/A= .0310	ETAC= 63.4	TT5F= 2197.	1.122RMSPSI, PHASE(4 8)=	M2= .427	PSI= 13.19	PCI= 13.40
8	F/A= .0268	ETAC= 64.1	TT5F= 2069.	.980RMSPSI, PHASE(4 8)=	M2= .448	PSI= 12.52	PCI= 12.77
				PT5/PT2= 91.5	M2= .448	PSI= 12.52	PCI= 12.77
				1.487RMSPSI, PHASE(4 8)=	M2= .448	PSI= 12.52	PCI= 12.77
				PT5/PT2= 91.9	M2= .448	PSI= 12.52	PCI= 12.77
				1.139RMSPSI, PHASE(4 8)=	M2= .448	PSI= 12.52	PCI= 12.77
				PT5/PT2= 91.5	M2= .448	PSI= 12.52	PCI= 12.77
				.351RMSPSI, PHASE(4 8)=	M2= .448	PSI= 12.52	PCI= 12.77
				PT5/PT2= 91.5	M2= .448	PSI= 12.52	PCI= 12.77
				.279RMSPSI, PHASE(4 8)=	M2= .448	PSI= 12.52	PCI= 12.77
				PT5/PT2= 91.6	M2= .448	PSI= 12.52	PCI= 12.77

12IN. CHAMB	GIN	INLET	.25Y F.H.	BASELINE	UNIF. INJ.	M2	PSI	PCI
1	F/A = 0.0000	ETAC = 0.0	TT5F = 990.	PT5/PT2 = 71.4	M2 = .561	PSI = 9.87	PCI = 8.45	
2	F/A = .0657	ETAC = 92.9	TT5F = 4000.	PT5/PT2 = 89.8	M2 = .275	PSI = 20.64	PCI = 18.93	
3	F/A = .0610	ETAC = 93.1	TT5F = 3909.	PT5/PT2 = 89.3	M2 = .280	PSI = 20.37	PCI = 18.56	
4	F/A = .0558	ETAC = 93.2	TT5F = 3770.	PT5/PT2 = 89.2	M2 = .287	PSI = 19.81	PCI = 18.09	
5	F/A = .0495	ETAC = 92.6	TT5F = 3544.	PT5/PT2 = 88.4	M2 = .297	PSI = 19.08	PCI = 17.43	
6	F/A = .0453	ETAC = 86.7	TT5F = 3233.	PT5/PT2 = 87.8	M2 = .314	PSI = 18.09	PCI = 16.60	
7	F/A = .0395	ETAC = 1.4	TT5F = 1033.	PT5/PT2 = 71.3	M2 = .537	PSI = 10.37	PCI = 8.93	

136.0HZ AI 4J = 1.557RMSPSI, AI 8J = 1.262RMSPSI, PHASE(4 8) = 13.00DEG.

12IN. CHAMB 9IN. INLET .25Y F.H. T10=750R UNIF. INJ.
 1 F/A=0.0000 ETAC= 0.0 TT5F= 751. PT5/PT2= 71.3 PSI= 8.75 PCI= 17.35
 2 F/A= .0657 ETAC= 84.4 TT5F= 3609. PT5/PT2= 89.9 M2= .251 PSI= 19.46 PCI= 17.59
 126.HZ A1 41= 4.084RMSPSI, A1 81= 3.807RMSPSI, PHASE(4 8)= 360.0DEG.
 253.HZ A1 41= 1.139RMSPSI, A1 81= .723RMSPSI, PHASE(4 8)= 6.7DEG.
 378.HZ A1 41= 1.278RMSPSI, A1 81= .472RMSPSI, PHASE(4 8)= 167.9DEG.
 3 F/A= .0619 ETAC= 82.2 TT5F= 3458. PT5/PT2= 89.5 M2= .259 PSI= 18.95 PCI= 17.11
 125.HZ A1 41= 3.745RMSPSI, A1 81= 3.498RMSPSI, PHASE(4 8)= 1.2DEG.
 249.HZ A1 41= 1.117RMSPSI, A1 81= .754RMSPSI, PHASE(4 8)= 11.0DEG.
 374.HZ A1 41= 1.301RMSPSI, A1 81= .515RMSPSI, PHASE(4 8)= 170.8DEG.
 4 F/A= .0563 ETAC= 79.6 TT5F= 3235. PT5/PT2= 89.1 M2= .269 PSI= 18.17 PCI= 16.38
 121.HZ A1 41= 3.452RMSPSI, A1 81= 3.236RMSPSI, PHASE(4 8)= 4.0DEG.
 241.HZ A1 41= 1.073RMSPSI, A1 81= .758RMSPSI, PHASE(4 8)= 20.1DEG.
 363.HZ A1 41= 1.274RMSPSI, A1 81= .475RMSPSI, PHASE(4 8)= 178.9DEG.
 483.HZ A1 41= .613RMSPSI, A1 81= .439RMSPSI, PHASE(4 8)= 177.3DEG.
 5 F/A= .0518 ETAC= 74.7 TT5F= 2956. PT5/PT2= 88.2 M2= .282 PSI= 17.32 PCI= 15.59
 114.HZ A1 41= 3.313RMSPSI, A1 81= 3.067RMSPSI, PHASE(4 8)= 9.6DEG.
 226.HZ A1 41= .922RMSPSI, A1 81= .544RMSPSI, PHASE(4 8)= 28.1DEG.
 340.HZ A1 41= .772RMSPSI, A1 81= .233RMSPSI, PHASE(4 8)= -162.2DEG.
 454.HZ A1 41= .410RMSPSI, A1 81= .225RMSPSI, PHASE(4 8)= -171.9DEG.

12IN.CHAMB. 8IN. INLET .25Y F.M. TTU=750R TUBE INJ. PSI= 8.66 PCI= 17.57
1 F/A=0.0000 ETAC= 0.0 TT5F= 771. PT5/PT2= 72.5 M2= .554 PSI= 8.66 PCI= 17.57
2 F/A= .0666 ETAC= 65.6 TT5F= 2979. PT5/PT2= 87.7 M2= .273 PSI= 17.96 PCI= 16.13
108.HZ AL 4)= 2.543RMSPSI, AC 8)= 2.219RMSPSI, PHASE(4 8)= 13.30DEG.
214.HZ AL 4)= .751RMSPSI, AC 8)= .299RMSPSI, PHASE(4 8)= 40.00DEG.
321.HZ AL 4)= .470RMSPSI, AC 8)= .194RMSPSI, PHASE(4 8)= -171.30DEG.
428.HZ AL 4)= .370RMSPSI, AC 8)= .259RMSPSI, PHASE(4 8)= -173.60DEG.
F/A= .0609 ETAC= 67.1 TT5F= 2936. PT5/PT2= 87.6 M2= .277 PSI= 17.64 PCI= 15.90
106.HZ AL 4)= 2.420RMSPSI, AC 8)= 2.096RMSPSI, PHASE(4 8)= 13.40DEG.
211.HZ AL 4)= .552RMSPSI, AC 8)= .228RMSPSI, PHASE(4 8)= 41.90DEG.
F/A= .0555 ETAC= 68.4 TT5F= 2862. PT5/PT2= 87.3 M2= .282 PSI= 17.36 PCI= 15.59
104.HZ AL 4)= 2.789RMSPSI, AC 8)= 2.358RMSPSI, PHASE(4 8)= 14.10DEG.
209.HZ AL 4)= .718RMSPSI, AC 8)= .304RMSPSI, PHASE(4 8)= 47.40DEG.
F/A= .0499 ETAC= 67.7 TT5F= 2697. PT5/PT2= 86.6 M2= .291 PSI= 16.80 PCI= 15.03
104.HZ AL 4)= 2.435RMSPSI, AC 8)= 2.034RMSPSI, PHASE(4 8)= 14.70DEG.
206.HZ AL 4)= .589RMSPSI, AC 8)= .250RMSPSI, PHASE(4 8)= 50.40DEG.

12IN. CHARG. BIN.	INLET	.25Y F.M.	LOW FLOW	UNIF. INJ.	M2	PSI	PCI
1	F/A=0.0000	ETAC=0.0	TT5F=1019	PT5/PT2=71.3	M2=.528	PSI=6.32	PCI=15.30
2	F/A=.0640	ETAC=86.8	TT5F=3751	PT5/PT2=88.7	M2=.282	PSI=12.20	PCI=11.19
3	F/A=.165	ETAC=87.2	TT5F=3668	.996RMSPSI, PHASE(4,8)	M2=.286	PSI=11.80	PCI=10.97
4	F/A=.0593	ETAC=86.9	TT5F=3530	PT5/PT2=88.4	M2=.294	PSI=12.40	PCI=10.77
5	F/A=.0544	ETAC=86.7	TT5F=3411	.937RMSPSI, PHASE(4,8)	M2=.300	PSI=11.67	PCI=10.51
6	F/A=.0508	ETAC=85.4	TT5F=3232	PT5/PT2=87.8	M2=.309	PSI=11.36	PCI=10.31
7	F/A=.0465	ETAC=85.4	TT5F=3232	.840RMSPSI, PHASE(4,8)	M2=.309	PSI=11.05	PCI=10.11
8	F/A=.130	ETAC=87.2	TT5F=3232	PT5/PT2=87.1	M2=.309	PSI=11.05	PCI=10.11
9	F/A=.130	ETAC=87.2	TT5F=3232	.653RMSPSI, PHASE(4,8)	M2=.309	PSI=11.05	PCI=10.11

12IN. CHAMBER INLET .25Y F.H. 40Z NOZ. UNIF. INJ.
 1 F/A= 9.0000 ETAC= 0.0 TT5F= 951. PT5/PT2= 81.9 M2= .511 PSI= 8.80 PCI= 18.50
 2 F/A= .0651 ETAC= 90.0 TT5F= 3896. PT5/PT2= 91.9 M2= .226 PSI= 20.41 PCI= 18.94
 3 F/A= .134 MZ AL 4) = 2.913RMSPSI, AL 8) = 2.805RMSPSI, PHASE(4 8) = 6.3DEG.
 4 F/A= .268 MZ AL 4) = .635RMSPSI, AL 8) = .584RMSPSI, PHASE(4 8) = 20.6DEG.
 5 F/A= .401 MZ AL 4) = .556RMSPSI, AL 8) = .336RMSPSI, PHASE(4 8) = 145.5DEG.
 6 F/A= .0602 ETAC= 89.9 TT5F= 3793. PT5/PT2= 92.0 M2= .231 PSI= 19.92 PCI= 18.63
 7 F/A= .133 MZ AL 4) = 2.759RMSPSI, AL 8) = 2.651RMSPSI, PHASE(4 8) = 7.3DEG.
 8 F/A= .265 MZ AL 4) = .613RMSPSI, AL 8) = .564RMSPSI, PHASE(4 8) = 26.6DEG.
 9 F/A= .398 MZ AL 4) = .623RMSPSI, AL 8) = .399RMSPSI, PHASE(4 8) = 155.7DEG.
 10 F/A= .0555 ETAC= 90.0 TT5F= 3670. PT5/PT2= 92.2 M2= .238 PSI= 19.35 PCI= 18.16
 11 F/A= .131 MZ AL 4) = 2.358RMSPSI, AL 8) = 2.250RMSPSI, PHASE(4 8) = 9.0DEG.
 12 F/A= .261 MZ AL 4) = .590RMSPSI, AL 8) = .504RMSPSI, PHASE(4 8) = 37.5DEG.
 13 F/A= .393 MZ AL 4) = .599RMSPSI, AL 8) = .370RMSPSI, PHASE(4 8) = 159.6DEG.
 14 F/A= .0501 ETAC= 88.3 TT5F= 3448. PT5/PT2= 92.0 M2= .247 PSI= 18.57 PCI= 17.50
 15 F/A= .128 MZ AL 4) = 2.235RMSPSI, AL 8) = 2.142RMSPSI, PHASE(4 8) = 10.6DEG.
 16 F/A= .252 MZ AL 4) = .522RMSPSI, AL 8) = .399RMSPSI, PHASE(4 8) = 54.9DEG.
 17 F/A= .383 MZ AL 4) = .530RMSPSI, AL 8) = .328RMSPSI, PHASE(4 8) = 167.0DEG.
 18 F/A= .0462 ETAC= 86.7 TT5F= 3267. PT5/PT2= 91.6 M2= .256 PSI= 17.92 PCI= 16.95
 19 F/A= .124 MZ AL 4) = 2.065RMSPSI, AL 8) = 1.942RMSPSI, PHASE(4 8) = 11.9DEG.
 20 F/A= .248 MZ AL 4) = .475RMSPSI, AL 8) = .307RMSPSI, PHASE(4 8) = 61.1DEG.
 21 F/A= .370 MZ AL 4) = .418RMSPSI, AL 8) = .225RMSPSI, PHASE(4 8) = 165.1DEG.

12IN-CHARB 6IN-IMLET .257 F.H. L/D=1.5 UNIF-INJ. PSI= 10.14 PCI= 18.18
 1 F/A=0.0000 ETAC= 0.0 TTSF= 950. PT5/PT2= 69.1 M2= .551 PSI= 19.51 PCI= 17.22
 2 F/A= .0693 ETAC= 73.5 TTSF= 3366. PT5/PT2= 85.5 M2= .292 PSI= 12.7DEG. PCI= 16.75
 3 F/A= .0611 ETAC= 70.6 TTSF= 3202. PT5/PT2= 85.1 M2= .300 PSI= 14.8DEG. PCI= 16.08
 4 F/A= .0556 ETAC= 66.9 TTSF= 2981. PT5/PT2= 84.8 M2= .313 PSI= 23.0DEG. PCI= 15.48
 5 F/A= .0509 ETAC= 63.9 TTSF= 2785. PT5/PT2= 84.4 M2= .326 PSI= 15.50DEG. PCI= 16.79
 6 F/A= .0450 ETAC= 66.5 TTSF= 3217. PT5/PT2= 86.8 M2= .311 PSI= 22.2DEG. PCI= 16.79
 7 F/A= .0411 ETAC= 66.9 TTSF= 2981. PT5/PT2= 84.8 M2= .313 PSI= 23.0DEG. PCI= 15.48
 8 F/A= .0372 ETAC= 63.9 TTSF= 2785. PT5/PT2= 84.4 M2= .326 PSI= 15.50DEG. PCI= 16.79
 9 F/A= .0333 ETAC= 66.5 TTSF= 3217. PT5/PT2= 86.8 M2= .311 PSI= 22.2DEG. PCI= 16.79
 10 F/A= .0294 ETAC= 66.9 TTSF= 2981. PT5/PT2= 84.8 M2= .313 PSI= 23.0DEG. PCI= 15.48
 11 F/A= .0255 ETAC= 63.9 TTSF= 2785. PT5/PT2= 84.4 M2= .326 PSI= 15.50DEG. PCI= 16.79
 12 F/A= .0216 ETAC= 66.5 TTSF= 3217. PT5/PT2= 86.8 M2= .311 PSI= 22.2DEG. PCI= 16.79
 13 F/A= .0177 ETAC= 66.9 TTSF= 2981. PT5/PT2= 84.8 M2= .313 PSI= 23.0DEG. PCI= 15.48
 14 F/A= .0138 ETAC= 63.9 TTSF= 2785. PT5/PT2= 84.4 M2= .326 PSI= 15.50DEG. PCI= 16.79
 15 F/A= .0099 ETAC= 66.5 TTSF= 3217. PT5/PT2= 86.8 M2= .311 PSI= 22.2DEG. PCI= 16.79
 16 F/A= .0060 ETAC= 66.9 TTSF= 2981. PT5/PT2= 84.8 M2= .313 PSI= 23.0DEG. PCI= 15.48
 17 F/A= .0021 ETAC= 63.9 TTSF= 2785. PT5/PT2= 84.4 M2= .326 PSI= 15.50DEG. PCI= 16.79
 18 F/A= .0000 ETAC= 66.5 TTSF= 3217. PT5/PT2= 86.8 M2= .311 PSI= 22.2DEG. PCI= 16.79

LINE	CHARACTER	UNIT	VALUE	UNIT	VALUE	UNIT	VALUE	UNIT	VALUE					
1218	CHARGE	INLET	.257NF	H	L/D=1.5	TUBE	INJ.							
1219	F/A	0636	ETAC	51.2	TT5F	2626.	PT5/PT2	84.2	M2	.333	PSI	17.10	PCI	15.60
1220	F/A	174	MZ	AL	41	.791RMSPSI	AL	81	.604RMSPSI	PHASE	4	81	15.4DEG.	
1221	F/A	180	MZ	AL	41	.549RMSPSI	AL	81	.399RMSPSI	PHASE	4	81	15.0DEG.	
1222	F/A	0592	ETAC	54.3	TT5F	2666.	PT5/PT2	84.5	M2	.333	PSI	17.07	PCI	15.60
1223	F/A	171	MZ	AL	41	.983RMSPSI	AL	81	.743RMSPSI	PHASE	4	81	15.9DEG.	
1224	F/A	176	MZ	AL	41	.829RMSPSI	AL	81	.606RMSPSI	PHASE	4	81	16.1DEG.	
1225	F/A	0543	ETAC	57.5	TT5F	2680.	PT5/PT2	84.5	M2	.334	PSI	16.99	PCI	15.31
1226	F/A	178	MZ	AL	41	.390RMSPSI	AL	81	.305RMSPSI	PHASE	4	81	17.9DEG.	
1227	F/A	185	MZ	AL	41	.378RMSPSI	AL	81	.293RMSPSI	PHASE	4	81	18.2DEG.	
1228	F/A	0491	ETAC	59.6	TT5F	2648.	PT5/PT2	84.4	M2	.338	PSI	16.83	PCI	15.15
1229	F/A	180	MZ	AL	41	.498RMSPSI	AL	81	.368RMSPSI	PHASE	4	81	13.0DEG.	
1230	F/A	0458	ETAC	61.7	TT5F	2602.	PT5/PT2	84.3	M2	.342	PSI	16.55	PCI	14.90
1231	F/A	181	MZ	AL	41	.361RMSPSI	AL	81	.288RMSPSI	PHASE	4	81	13.0DEG.	
1232	F/A	0411	ETAC	65.6	TT5F	2572.	PT5/PT2	84.3	M2	.347	PSI	16.36	PCI	14.65
1233	F/A	0363	ETAC	68.6	TT5F	2488.	PT5/PT2	84.2	M2	.356	PSI	15.87	PCI	14.14
1234	F/A	0317	ETAC	70.3	TT5F	2357.	PT5/PT2	83.7	M2	.367	PSI	15.41	PCI	13.65
1235	F/A	0249	ETAC	72.1	TT5F	2126.	PT5/PT2	83.2	M2	.391	PSI	14.43	PCI	12.85

12IN-CHAMBER-6IN-INLET	.35V F.M.	T70-750R	UNIF-INJ.						
F/A=0-0000	ETAC=0.0	TI5F=1732	PT5/PT2=55.6	M2=.399	PSI=12.15	PCI=7.50			
F/A=.0648	ETAC=92.2	TI5F=3851	PT5/PT2=86.4	M2=.230	PSI=21.50	PCI=18.70			
F/A=.0607	ETAC=92.6	TI5F=3765	PT5/PT2=86.1	M2=.233	PSI=21.19	PCI=18.70			
F/A=.0545	ETAC=92.7	TI5F=3582	PT5/PT2=85.7	M2=.241	PSI=20.50	PCI=17.70			
F/A=.0504	ETAC=89.2	TI5F=3336	PT5/PT2=84.7	M2=.250	PSI=19.78	PCI=17.70			
F/A=.0431	AL=1	972RMSPSI	AL=81	937RMSPSI	PHASE(4 8)=10.8DEG.				
F/A=.0439	ETAC=9.2	TI5F=993	PT5/PT2=60.4	M2=.368	PSI=13.36	PCI=9.70			

AFML-TR-81-2047
Part I

d. All Combustion Instabilities for Selected Test of an
Eight Inch Diameter Combustion Chamber

BIN. CHARG.	WIN. INLET	NO F. MBLG.	TT	750K	UNIF. INJ.	M2	PSI	PCI
1	F/A=0.0000	ITAC= 0.0	IT5F= 782.	PT5/PT2= 47.4	M2= .727	PSI= 17.15	PCI= 8.82	
2	F/A= .0635	ITAC= 54.7	IT5F= 2409.	PT5/PT2= 41.3	M2= .508	PSI= 25.25	PCI= 24.02	
	AT 4	RMS12= .153	RMS23= .371	RMS34= 1.140	AT 8	RMS12= .149	RMS23= .366	RMS34= .233
	100.0Z	AT 4)	.1502RMSPSI,	AT 8)	PHASE 4 8)	4.8DEG.		
	200.0Z	AT 4)	.1558RMSPSI,	AT 8)	PHASE 4 8)	19.6DEG.		
	650.0Z	AT 4)	.1538RMSPSI,	AT 8)	PHASE 4 8)	-158.1DEG.		
	1850.0Z	AT 4)	1.080RMSPSI,	AT 8)	PHASE 4 8)	35.7DEG.		
	3700.0Z	AT 4)	.1234RMSPSI,	AT 8)	PHASE 4 8)	3.6DEG.		
	5550.0Z	AT 4)	.1072RMSPSI,	AT 8)	PHASE 4 8)	39.3DEG.		
3	F/A= .0574	ETAC= 96.6	IT5F= 3490.	PT5/PT2= 83.4	M2= .467	PSI= 27.78	PCI= 26.12	
	AT 4	RMS12= .186	RMS23= .909	RMS34= 3.050	AT 8	RMS12= .185	RMS23= .911	RMS34= .838
	175.0Z	AT 4)	.711RMSPSI,	AT 8)	PHASE 4 8)	23.9DEG.		
	400.0Z	AT 4)	.1518RMSPSI,	AT 8)	PHASE 4 8)	103.2DEG.		
	650.0Z	AT 4)	.0962RMSPSI,	AT 8)	PHASE 4 8)	-155.7DEG.		
	800.0Z	AT 4)	.1098RMSPSI,	AT 8)	PHASE 4 8)	-132.7DEG.		
	1650.0Z	AT 4)	.3048RMSPSI,	AT 8)	PHASE 4 8)	85.7DEG.		
	2025.0Z	AT 4)	2.550RMSPSI,	AT 8)	PHASE 4 8)	-63.9DEG.		
	2250.0Z	AT 4)	.4478RMSPSI,	AT 8)	PHASE 4 8)	133.5DEG.		
	3675.0Z	AT 4)	.4478RMSPSI,	AT 8)	PHASE 4 8)	159.7DEG.		
	4100.0Z	AT 4)	.1692RMSPSI,	AT 8)	PHASE 4 8)	107.4DEG.		
	4500.0Z	AT 4)	.2778RMSPSI,	AT 8)	PHASE 4 8)	22.5DEG.		
	5525.0Z	AT 4)	.2338RMSPSI,	AT 8)	PHASE 4 8)	31.7DEG.		
4	F/A= .0564	ETAC= 97.4	IT5F= 3485.	PT5/PT2= 83.2	M2= .464	PSI= 27.75	PCI= 26.02	
	AT 4	RMS12= .306	RMS23= .725	RMS34= 2.640	AT 8	RMS12= .200	RMS23= .712	RMS34= .753
	175.0Z	AT 4)	.5888RMSPSI,	AT 8)	PHASE 4 8)	22.5DEG.		
	1650.0Z	AT 4)	.2448RMSPSI,	AT 8)	PHASE 4 8)	84.3DEG.		
	1850.0Z	AT 4)	2.380RMSPSI,	AT 8)	PHASE 4 8)	-108.2DEG.		
	2025.0Z	AT 4)	.3828RMSPSI,	AT 8)	PHASE 4 8)	133.6DEG.		
	2275.0Z	AT 4)	.3848RMSPSI,	AT 8)	PHASE 4 8)	-108.7DEG.		
	3700.0Z	AT 4)	.2798RMSPSI,	AT 8)	PHASE 4 8)	120.3DEG.		
	4125.0Z	AT 4)	.0998RMSPSI,	AT 8)	PHASE 4 8)	24.0DEG.		
	4550.0Z	AT 4)	.1628RMSPSI,	AT 8)	PHASE 4 8)	66.4DEG.		
	5575.0Z	AT 4)	.3368RMSPSI,	AT 8)	PHASE 4 8)	122.2DEG.		
5	F/A= .0532	ETAC= 47.3	IT5F= 3382.	PT5/PT2= 82.8	M2= .474	PSI= 27.15	PCI= 25.48	
	AT 4	RMS12= .296	RMS23= .806	RMS34= 2.780	AT 8	RMS12= .195	RMS23= .900	RMS34= .796
	200.0Z	AT 4)	.6588RMSPSI,	AT 8)	PHASE 4 8)	76.6DEG.		
	1650.0Z	AT 4)	.2728RMSPSI,	AT 8)	PHASE 4 8)	61.5DEG.		
	1850.0Z	AT 4)	2.310RMSPSI,	AT 8)	PHASE 4 8)	141.6DEG.		
	2025.0Z	AT 4)	.3838RMSPSI,	AT 8)	PHASE 4 8)	122.1DEG.		
	2250.0Z	AT 4)	.2268RMSPSI,	AT 8)	PHASE 4 8)	173.4DEG.		
	3675.0Z	AT 4)	.2948RMSPSI,	AT 8)	PHASE 4 8)	102.1DEG.		
	4075.0Z	AT 4)	.1508RMSPSI,	AT 8)	PHASE 4 8)	22.0DEG.		
	4500.0Z	AT 4)	.1638RMSPSI,	AT 8)	PHASE 4 8)	78.3DEG.		
	5500.0Z	AT 4)	.2688RMSPSI,	AT 8)	PHASE 4 8)	112.9DEG.		
6	F/A= .0500	ETAC= 70.2	IT5F= 2777.	PT5/PT2= 79.6	M2= .523	PSI= 24.58	PCI= 22.97	
	AT 4	RMS12= .235	RMS23= 2.340	RMS34= 2.550	AT 8	RMS12= .212	RMS23= 2.010	RMS34= 1.090
	175.0Z	AT 4)	2.150RMSPSI,	AT 8)	PHASE 4 8)	17.9DEG.		
	350.0Z	AT 4)	.4438RMSPSI,	AT 8)	PHASE 4 8)	2.3DEG.		
	1550.0Z	AT 4)	.5728RMSPSI,	AT 8)	PHASE 4 8)	17.5DEG.		
	1725.0Z	AT 4)	1.1258RMSPSI,	AT 8)	PHASE 4 8)	10.1DEG.		
	1800.0Z	AT 4)	1.440RMSPSI,	AT 8)	PHASE 4 8)	31.0DEG.		
	1900.0Z	AT 4)	.7688RMSPSI,	AT 8)	PHASE 4 8)	11.5DEG.		
	2050.0Z	AT 4)	.3538RMSPSI,	AT 8)	PHASE 4 8)	164.5DEG.		
	2175.0Z	AT 4)	.1998RMSPSI,	AT 8)	PHASE 4 8)	159.1DEG.		
	3600.0Z	AT 4)	.2148RMSPSI,	AT 8)	PHASE 4 8)	40.6DEG.		

BIN-CHAMB.	4IN. INLET	NO F. HOLD.	TTD=1250.	INIF. INJ.	M2 =	749	PSI =	21.90	PCI =	11.14
1	F/A=0.0000	ETAC= 0.0	TT5F= 1236.	PT5/PT2= 46.5	M2 =	616	PSI =	27.12	PCI =	25.14
2	F/A= .0620	ETAC= 71.4	TT5F= 3396.	PT5/PT2= 76.5	AT 8	RMS12=	.200,	RMS23=	.355,	RMS34= .088
	50.HZ	AT 4)	RMS23= .452,	RMS34=	PHASE(4 8)=	1.6DEG.				
	600.HZ	AT 4)	.233RMSPSI,	AT 8)	PHASE(4 8)=	-161.9DEG.				
	825.HZ	AT 4)	.134RMSPSI,	AT 8)	PHASE(4 8)=	-156.5DEG.				
	1500.HZ	AT 4)	.050RMSPSI,	AT 8)	PHASE(4 8)=	-1.7DEG.				
3	F/A= .0600	ETAC= 66.5	TT5F= 3222.	PT5/PT2= 75.3	M2 =	635	PSI =	26.33	PCI =	24.21
	100.HZ	AT 4)	RMS23= .346,	RMS34=	AT 8	RMS12=	.192,	RMS23=	.693,	RMS34= .076
	600.HZ	AT 4)	.145RMSPSI,	AT 8)	PHASE(4 8)=	.7DEG.				
	800.HZ	AT 4)	.090RMSPSI,	AT 8)	PHASE(4 8)=	-150.0DEG.				
	900.HZ	AT 4)	.107RMSPSI,	AT 8)	PHASE(4 8)=	-168.6DEG.				
4	F/A= .0545	ETAC= 55.0	TT5F= 2800.	PT5/PT2= 72.3	M2 =	685	PSI =	24.18	PCI =	21.33
	100.HZ	AT 4)	RMS23= .322,	RMS34=	AT 8	RMS12=	.160,	RMS23=	.262,	RMS34= .080
	625.HZ	AT 4)	.176RMSPSI,	AT 8)	PHASE(4 8)=	-148.2DEG.				
	950.HZ	AT 4)	.087RMSPSI,	AT 8)	PHASE(4 8)=	96.7DEG.				
5	F/A= .0497	ETAC= 50.9	TT5F= 2604.	PT5/PT2= 70.4	M2 =	708	PSI =	23.38	PCI =	20.01
	100.HZ	AT 4)	RMS23= .293,	RMS34=	AT 8	RMS12=	.109,	RMS23=	.266,	RMS34= .076
	650.HZ	AT 4)	.132RMSPSI,	AT 8)	PHASE(4 8)=	.4DEG.				
	625.HZ	AT 4)	.078RMSPSI,	AT 8)	PHASE(4 8)=	-161.1DEG.				
	925.HZ	AT 4)	.089RMSPSI,	AT 8)	PHASE(4 8)=	-92.6DEG.				
	1050.HZ	AT 4)	.039RMSPSI,	AT 8)	PHASE(4 8)=	116.6DEG.				
6	F/A= .0450	ETAC= 52.0	TT5F= 2532.	PT5/PT2= 69.6	M2 =	712	PSI =	23.15	PCI =	19.83
	100.HZ	AT 4)	RMS23= .323,	RMS34=	AT 8	RMS12=	.229,	RMS23=	.307,	RMS34= .093
	625.HZ	AT 4)	.078RMSPSI,	AT 8)	PHASE(4 8)=	6.0DEG.				
	925.HZ	AT 4)	.089RMSPSI,	AT 8)	PHASE(4 8)=	-170.9DEG.				
	1075.HZ	AT 4)	.032RMSPSI,	AT 8)	PHASE(4 8)=	96.1DEG.				
7	F/A= .0410	ETAC= 56.5	TT5F= 2553.	PT5/PT2= 69.3	M2 =	711	PSI =	23.19	PCI =	19.99
	100.HZ	AT 4)	RMS23= .373,	RMS34=	AT 8	RMS12=	.229,	RMS23=	.381,	RMS34= .110
	600.HZ	AT 4)	.207RMSPSI,	AT 8)	PHASE(4 8)=	6.0DEG.				
	925.HZ	AT 4)	.091RMSPSI,	AT 8)	PHASE(4 8)=	-119.3DEG.				
	1075.HZ	AT 4)	.032RMSPSI,	AT 8)	PHASE(4 8)=	96.1DEG.				
8	F/A= .0352	ETAC= 60.7	TT5F= 2494.	PT5/PT2= 68.2	M2 =	717	PSI =	22.99	PCI =	19.92
	100.HZ	AT 4)	RMS23= .544,	RMS34=	AT 8	RMS12=	.428,	RMS23=	.478,	RMS34= .191
	175.HZ	AT 4)	.241RMSPSI,	AT 8)	PHASE(4 8)=	27.4DEG.				
	575.HZ	AT 4)	.192RMSPSI,	AT 8)	PHASE(4 8)=	178.7DEG.				

8 IN. CHAMB.	4 IN. INLET	NO F. HULL	-0" FLOW	UMIF INJ.	M2	PSI	PCI
1	F/A=0.0000 RMS12= .0651	ETAC= 0.0 RMS23= .303	TT5F= 1021. TT5F= 2400.	PT5/PT2= 47.4 PT5/PT2= 71.0	M2= .746 M2= .623	PSI= 11.61 PSI= 13.57	PCI= 6.08 PCI= 12.26
2	AT 4 RMS12= .225.MZ 575.MZ	ETAC= 43.8 RMS23= .074 RMS34= .226	TT5F= 303. TT5F= 2309.	AT B RMS12= .061 RMS23= .161 RMS34= .067	AT B RMS12= .107 RMS23= .22.10DEG. RMS34= .162.00DEG.	PSI= 11.49 RMS34= .061	PCI= .245 RMS34= .052
3	F/A= .0617 RMS12= .095 575.MZ	ETAC= 41.9 RMS23= .573 RMS34= .503	TT5F= 573. TT5F= 2186.	AT B RMS12= .062 RMS23= .306 RMS34= .062	AT B RMS12= .088 RMS23= .159 RMS34= .37.60DEG.	PSI= 13.00 RMS23= .414 RMS34= .061	PCI= 11.49 RMS34= .061
4	F/A= .0567 RMS12= .129 575.MZ	ETAC= 39.6 RMS23= .371 RMS34= .344	TT5F= 371. TT5F= 2066.	AT B RMS12= .073 RMS23= .237 RMS34= .084	AT B RMS12= .083 RMS23= .120 RMS34= .167	PSI= 12.78 RMS23= .285 RMS34= .060	PCI= 11.14 RMS34= .060
5	F/A= .0498 RMS12= .170 50.MZ	ETAC= 38.4 RMS23= .377 RMS34= .151	TT5F= 2066. TT5F= 1981.	AT B RMS12= .084 RMS23= .151 RMS34= .217	AT B RMS12= .703 RMS23= .167 RMS34= .3.50DEG.	PSI= 12.38 RMS23= .299 RMS34= .067	PCI= 10.57 RMS34= .067
6	F/A= .0451 RMS12= .164 550.MZ	ETAC= 38.4 RMS23= .364 RMS34= .277	TT5F= 1981. TT5F= 1049.	AT B RMS12= .077 RMS23= .201 RMS34= .083	AT B RMS12= .713 RMS23= .140 RMS34= .176	PSI= 12.20 RMS23= .270 RMS34= .086	PCI= 10.28 RMS34= .086
7	F/A= .0404 RMS12= .072 575.MZ	ETAC= 2.0 RMS23= .111 RMS34= .083	TT5F= 1049. TT5F= 111.	AT B RMS12= .083 RMS23= .079 RMS34= .134	AT B RMS12= .735 RMS23= .11.73 RMS34= .079	PSI= 11.73 RMS23= .208 RMS34= .134	PCI= 6.29 RMS34= .134

BIN.CHARG.	4IN. INLET	NO F. HOLD.	40Z NOZ.	UNIF. INJ.	PSI	PCI	RMS23	RMS34
1	F/A=0.0000	ETAC=0.0	TI5F= .983	PT5/P12= 3.1	M2= .792	PCI= 14.58	PSI= 14.58	PCI= 11.34
	AT 4 RMS12=	.070, RMS23=	.197, RMS34=	.116 AT 8 RMS12=	.082, RMS23=	.373, RMS34=	.147	
2	F/A=.0662	ETAC=74.0	TI5F= 356.4	PT5/P12= 87.0	M2= .431	PCI= 27.52	PSI= 27.52	PCI= 26.96
	AT 4 RMS12=	.189, RMS23=	1.710, RMS34=	.211 AT 8 RMS12=	.164, RMS23=	1.390, RMS34=	.292	
3	F/A=.0611	ETAC=70.6	TI5F= 320.0	PT5/P12= 85.7	M2= .462	PCI= 25.69	PSI= 25.69	PCI= 25.21
	AT 4 RMS12=	.321, RMS23=	1.030, RMS34=	.131 AT 8 RMS12=	.292, RMS23=	.551, RMS34=	.099	
4	F/A=.0564	ETAC=72.4	TI5F= 263.0	PT5/P12= 84.0	M2= .522	PCI= 22.68	PSI= 22.68	PCI= 22.22
	AT 4 RMS12=	.282, RMS23=	.346, RMS34=	.071 AT 8 RMS12=	.263, RMS23=	.291, RMS34=	.062	
5	F/A=.0515	ETAC=74.3	TI5F= 305.8	PT5/P12= 85.5	M2= .481	PCI= 24.68	PSI= 24.68	PCI= 24.28
	AT 4 RMS12=	.268, RMS23=	.364, RMS34=	1.410 AT 8 RMS12=	.254, RMS23=	.336, RMS34=	.576	
6	F/A=.0462	ETAC=74.3	TI5F= 294.8	PT5/P12= 84.7	M2= .494	PCI= 23.49	PSI= 23.49	PCI= 23.07
	AT 4 RMS12=	.138, RMS23=	.366, RMS34=	2.080 AT 8 RMS12=	.147, RMS23=	.357, RMS34=	.707	
7	F/A=.0417	ETAC=58.9	TI5F= 267.2	PT5/P12= 83.6	M2= .524	PCI= 22.63	PSI= 22.63	PCI= 22.02
	AT 4 RMS12=	.234, RMS23=	.362, RMS34=	2.160 AT 8 RMS12=	.163, RMS23=	.296, RMS34=	.961	
1	F/A=0.0000	ETAC=0.0	TI5F= .983	PT5/P12= 3.1	M2= .792	PCI= 14.58	PSI= 14.58	PCI= 11.34
	AT 4 RMS12=	.070, RMS23=	.197, RMS34=	.116 AT 8 RMS12=	.082, RMS23=	.373, RMS34=	.147	
2	F/A=.0662	ETAC=74.0	TI5F= 356.4	PT5/P12= 87.0	M2= .431	PCI= 27.52	PSI= 27.52	PCI= 26.96
	AT 4 RMS12=	.189, RMS23=	1.710, RMS34=	.211 AT 8 RMS12=	.164, RMS23=	1.390, RMS34=	.292	
3	F/A=.0611	ETAC=70.6	TI5F= 320.0	PT5/P12= 85.7	M2= .462	PCI= 25.69	PSI= 25.69	PCI= 25.21
	AT 4 RMS12=	.321, RMS23=	1.030, RMS34=	.131 AT 8 RMS12=	.292, RMS23=	.551, RMS34=	.099	
4	F/A=.0564	ETAC=72.4	TI5F= 263.0	PT5/P12= 84.0	M2= .522	PCI= 22.68	PSI= 22.68	PCI= 22.22
	AT 4 RMS12=	.282, RMS23=	.346, RMS34=	.071 AT 8 RMS12=	.263, RMS23=	.291, RMS34=	.062	
5	F/A=.0515	ETAC=74.3	TI5F= 305.8	PT5/P12= 85.5	M2= .481	PCI= 24.68	PSI= 24.68	PCI= 24.28
	AT 4 RMS12=	.268, RMS23=	.364, RMS34=	1.410 AT 8 RMS12=	.254, RMS23=	.336, RMS34=	.576	
6	F/A=.0462	ETAC=74.3	TI5F= 294.8	PT5/P12= 84.7	M2= .494	PCI= 23.49	PSI= 23.49	PCI= 23.07
	AT 4 RMS12=	.138, RMS23=	.366, RMS34=	2.080 AT 8 RMS12=	.147, RMS23=	.357, RMS34=	.707	
7	F/A=.0417	ETAC=58.9	TI5F= 267.2	PT5/P12= 83.6	M2= .524	PCI= 22.63	PSI= 22.63	PCI= 22.02
	AT 4 RMS12=	.234, RMS23=	.362, RMS34=	2.160 AT 8 RMS12=	.163, RMS23=	.296, RMS34=	.961	

BIN-CHAMB.	4IN. INLET	NO F. HOLD.	50% NOZ.	UNIT-INJ.	M2 =	792	PSI =	21.84	PCI =	10.15
1	F/A=0.0000	ETAC= 0.0	TT5F= 954.	PT5/PT2= 39.2	M2=	.792	PSI =	21.84	PCI =	10.15
2	F/A= .0648	ETAC= 30.1	TT5F= 1968.	PT5/PT2= 60.1	M2=	.776	PSI =	22.36	PCI =	15.84
	AT 4	RMS12= .381,	RMS23= .351,	RMS34= .146	AT 8	RMS12= .401,	RMS23= .401,	RMS34= .115		
		50.0HZ AT 4)= .387RMSPSI,	AT 8)= .404RMSPSI,	PHASE(4 8)= 8.9DEG.						
		625.0HZ AT 4)= .126RMSPSI,	AT 8)= .087RMSPSI,	PHASE(4 8)= -158.1DEG.						
		1800.0HZ AT 4)= .061RMSPSI,	AT 8)= .052RMSPSI,	PHASE(4 8)= 119.5DEG.						
3	F/A= .0601	ETAC= 31.8	TT5F= 1987.	PT5/PT2= 60.2	M2=	.778	PSI =	22.44	PCI =	16.00
	AT 4	RMS12= .253,	RMS23= .321,	RMS34= .159	AT 8	RMS12= .259,	RMS23= .259,	RMS34= .118		
		200.0HZ AT 4)= .118RMSPSI,	AT 8)= .092RMSPSI,	PHASE(4 8)= 17.6DEG.						
		625.0HZ AT 4)= .132RMSPSI,	AT 8)= .109RMSPSI,	PHASE(4 8)= -168.1DEG.						
		1800.0HZ AT 4)= .078RMSPSI,	AT 8)= .064RMSPSI,	PHASE(4 8)= 122.5DEG.						
4	F/A= .0542	ETAC= 34.9	TT5F= 2023.	PT5/PT2= 60.4	M2=	.780	PSI =	22.45	PCI =	16.51
	AT 4	RMS12= .289,	RMS23= .406,	RMS34= .168	AT 8	RMS12= .308,	RMS23= .308,	RMS34= .132		
		50.0HZ AT 4)= .285RMSPSI,	AT 8)= .307RMSPSI,	PHASE(4 8)= 6.9DEG.						
		225.0HZ AT 4)= .138RMSPSI,	AT 8)= .078RMSPSI,	PHASE(4 8)= 38.5DEG.						
		600.0HZ AT 4)= .136RMSPSI,	AT 8)= .100RMSPSI,	PHASE(4 8)= -167.0DEG.						
		1775.0HZ AT 4)= .094RMSPSI,	AT 8)= .083RMSPSI,	PHASE(4 8)= 123.2DEG.						
5	F/A= .0500	ETAC= 37.7	TT5F= 2044.	PT5/PT2= 60.6	M2=	.780	PSI =	22.28	PCI =	16.76
	AT 4	RMS12= .340,	RMS23= .477,	RMS34= .192	AT 8	RMS12= .377,	RMS23= .377,	RMS34= .181		
		50.0HZ AT 4)= .320RMSPSI,	AT 8)= .348RMSPSI,	PHASE(4 8)= 9.3DEG.						
		225.0HZ AT 4)= .277RMSPSI,	AT 8)= .169RMSPSI,	PHASE(4 8)= 41.9DEG.						
		625.0HZ AT 4)= .123RMSPSI,	AT 8)= .080RMSPSI,	PHASE(4 8)= -174.4DEG.						
		1750.0HZ AT 4)= .115RMSPSI,	AT 8)= .116RMSPSI,	PHASE(4 8)= 120.6DEG.						
		1950.0HZ AT 4)= .027RMSPSI,	AT 8)= .070RMSPSI,	PHASE(4 8)= -112.7DEG.						
6	F/A= .0450	ETAC= 42.4	TT5F= 2090.	PT5/PT2= 61.0	M2=	.761	PSI =	22.20	PCI =	17.36
	AT 4	RMS12= .463,	RMS23= .871,	RMS34= .218	AT 8	RMS12= .438,	RMS23= .438,	RMS34= .204		
		50.0HZ AT 4)= .429RMSPSI,	AT 8)= .404RMSPSI,	PHASE(4 8)= 5.5DEG.						
		200.0HZ AT 4)= .592RMSPSI,	AT 8)= .399RMSPSI,	PHASE(4 8)= 36.4DEG.						
		575.0HZ AT 4)= .233RMSPSI,	AT 8)= .127RMSPSI,	PHASE(4 8)= -176.2DEG.						
		1725.0HZ AT 4)= .125RMSPSI,	AT 8)= .118RMSPSI,	PHASE(4 8)= 122.5DEG.						
		1925.0HZ AT 4)= .030RMSPSI,	AT 8)= .037RMSPSI,	PHASE(4 8)= -109.1DEG.						

1	BIN.CHARG.	AIN. INLET	NO F.HOLD.	L/D=1.5	UNIF.INJ.	M2=	PSI=	PCI=	5.12	.082
	F/A=0.0000	ETAC=0.0	TT5F=570.	PT5/PT2=47.0	AT 8	RMS12=	15.02	203,	RMS34=	
	AT 4	RMS12=	.062, RMS23=	.057	AT 8	RMS12=	.099, RMS23=	203,	RMS34=	.082
2	F/A=0.0000	ETAC=0.0	TT5F=976.	PT5/PT2=45.7	AT 8	RMS12=	20.56	PCI=	6.83	.104
	AT 4	RMS12=	.064, RMS23=	.077	AT 8	RMS12=	.049, RMS23=	.248,	RMS34=	.104
3	F/A=0.0647	ETAC=12.1	TT5F=1383.	PT5/PT2=57.0	AT 8	RMS12=	21.77	PCI=	10.61	.136
	AT 4	RMS12=	.791, RMS23=	.116	AT 8	RMS12=	.758, RMS23=	.728,	RMS34=	.136
	75.HZ	AT 4)	.782RMSPSI, AT 8)	.757RMSPSI, PHASE(4 8)			.706G.			
4	F/A=0.0594	ETAC=9.6	TT5F=1296.	PT5/PT2=54.7	AT 8	RMS12=	21.66	PCI=	8.97	.139
	AT 4	RMS12=	.814, RMS23=	.107	AT 8	RMS12=	.768, RMS23=	.722,	RMS34=	.139
	75.HZ	AT 4)	.778RMSPSI, AT 8)	.734RMSPSI, PHASE(4 8)			.8DEG.			
5	F/A=0.0553	ETAC=9.3	TT5F=1279.	PT5/PT2=54.1	AT 8	RMS12=	21.59	PCI=	8.75	.093
	AT 4	RMS12=	.077, RMS23=	.068	AT 8	RMS12=	.098, RMS23=	.171,	RMS34=	.093
6	F/A=0.0487	ETAC=8.9	TT5F=1242.	PT5/PT2=53.0	AT 8	RMS12=	21.53	PCI=	8.30	.132
	AT 4	RMS12=	.047RMSPSI, AT 8)	.072RMSPSI, PHASE(4 8)			.56.2DEG.			
	1625.HZ	AT 4)	.080, RMS23=	.080	AT 8	RMS12=	.087, RMS23=	.190,	RMS34=	.132

8IN.CHAMB.	4.75 INLET	NO F.HOLD.	BASELINE	UNIF.INJ.	M2	PSI	PCI
1	F/A=0.0000	ETAC= 0.0	TT5F= 986.	PT5/PT2= 88.4	M2= .860	PSI= 11.80	PCI= 11.20
2	F/A= .0643	ETAC= 58.1	TT5F= 2867.	PT5/PT2= 87.8	M2= .440	PSI= 24.30	PCI= 23.90
	AT 4	RMS12= .141, RMS23= .260, RMS34= .105RMSPSI, PHASE(4 8)= 15.5DEG.		AT 8	RMS12= .125, RMS23= .233, RMS34= .122		
		175.HZ AT 4)= .124RMSPSI, AT 8)= .134RMSPSI, PHASE(4 8)= -158.2DEG.					
		625.HZ AT 4)= .150RMSPSI, AT 8)= .037RMSPSI, PHASE(4 8)= 64.6DEG.					
3	F/A= .0580	ETAC= 36.7	TT5F= 2119.	PT5/PT2= 86.5	M2= .540	PSI= 19.80	PCI= 19.90
	AT 4	RMS12= .110, RMS23= .329, RMS34= .103RMSPSI, PHASE(4 8)= 31.8DEG.		AT 8	RMS12= .098, RMS23= .288, RMS34= .084		
		200.HZ AT 4)= .120RMSPSI, AT 8)= .228RMSPSI, PHASE(4 8)= -164.8DEG.					
		650.HZ AT 4)= .249RMSPSI, AT 8)= .070		AT 8	RMS12= .091, RMS23= .18.10		PCI= 18.20
4	F/A= .0536	ETAC= 31.4	TT5F= 1917.	PT5/PT2= 86.1	M2= .580	PSI= 18.10	PCI= 18.20
	AT 4	RMS12= .095, RMS23= .290, RMS34= .127RMSPSI, PHASE(4 8)= 26.7DEG.		AT 8	RMS12= .091, RMS23= .226, RMS34= .088		
		175.HZ AT 4)= .173RMSPSI, AT 8)= .037RMSPSI, PHASE(4 8)= -173.5DEG.					
		450.HZ AT 4)= .098RMSPSI, AT 8)= .108RMSPSI, PHASE(4 8)= -164.9DEG.					
5	F/A= .0488	ETAC= 28.6	TT5F= 1784.	PT5/PT2= 85.6	M2= .620	PSI= 16.90	PCI= 17.20
	AT 4	RMS12= .101, RMS23= .376, RMS34= .090		AT 8	RMS12= .097, RMS23= .237, RMS34= .088		
		175.HZ AT 4)= .101RMSPSI, AT 8)= .074RMSPSI, PHASE(4 8)= 27.1DEG.					
		475.HZ AT 4)= .309RMSPSI, AT 8)= .153RMSPSI, PHASE(4 8)= -172.5DEG.					
6	F/A= .0446	ETAC= 28.9	TT5F= 1742.	PT5/PT2= 85.3	M2= .640	PSI= 16.50	PCI= 16.90
	AT 4	RMS12= .101, RMS23= .637, RMS34= .108		AT 8	RMS12= .093, RMS23= .379, RMS34= .144		
		175.HZ AT 4)= .263RMSPSI, AT 8)= .171RMSPSI, PHASE(4 8)= 25.2DEG.					
		450.HZ AT 4)= .510RMSPSI, AT 8)= .268RMSPSI, PHASE(4 8)= 178.5DEG.					
7	F/A= .0401	ETAC= 28.8	TT5F= 1680.	PT5/PT2= 84.7	M2= .660	PSI= 16.00	PCI= 16.50
	AT 4	RMS12= .195, RMS23= .598, RMS34= .163		AT 8	RMS12= .184, RMS23= .352, RMS34= .124		
		450.HZ AT 4)= .470RMSPSI, AT 8)= .247RMSPSI, PHASE(4 8)= 167.0DEG.					

81M-CHAMB.	4.75 INLET	NO F. HLD.	TT0=750R	UNIF. INJ.					
1	F/A=0.0000	ETAC= 0.0	TT5F= 744.	PT5/PT2= 69.4	M2= .840	PSI= 10.50	PCI= 9.88		
2	F/A= .0654	ETAC= 78.1	TT5F= 3402.	PT5/PT2= 90.1	M2= .340	PSI= 27.20	PCI= 26.10		
	AT 4	RMS12= .230,	RMS23= 1.720,	RMS34= 2.130	AT 8	RMS12= .201,	RMS23= 1.790,	RMS34= .664	
		125.MZ AT 4)= 1.450RMSPSI,	AT 8)= 1.520RMSPSI,	PHASE(4 8)= 8.2DEG.					
		1775.MZ AT 4)= 1.320RMSPSI,	AT 8)= .137RMSPSI,	PHASE(4 8)= 12.2DEG.					
		2300.MZ AT 4)= .497RMSPSI,	AT 8)= .245RMSPSI,	PHASE(4 8)= -80.4DEG.					
3	F/A= .0584	ETAC= 59.3	TT5F= 2650.	PT5/PT2= 90.6	M2= .410	PSI= 22.90	PCI= 22.50		
	AT 4	RMS12= .183,	RMS23= 1.770,	RMS34= 1.920	AT 8	RMS12= .181,	RMS23= 1.550,	RMS34= .496	
		125.MZ AT 4)= 1.680RMSPSI,	AT 8)= 1.780RMSPSI,	PHASE(4 8)= 9.7DEG.					
		550.MZ AT 4)= .495RMSPSI,	AT 8)= .481RMSPSI,	PHASE(4 8)= -164.4DEG.					
		1675.MZ AT 4)= 1.190RMSPSI,	AT 8)= .194RMSPSI,	PHASE(4 8)= 16.6DEG.					
	AT 4	RMS12= .251,	RMS23= 1.550,	RMS34= 1.200	AT 6	RMS12= .261,	RMS23= 1.500,	RMS34= .840	
		125.MZ AT 4)= 1.030RMSPSI,	AT 6)= 1.050RMSPSI,	PHASE(4 6)= .3DEG.					
		550.MZ AT 4)= .993RMSPSI,	AT 6)= 1.050RMSPSI,	PHASE(4 6)= -1.8DEG.					
		1075.MZ AT 4)= .282RMSPSI,	AT 6)= .299RMSPSI,	PHASE(4 6)= -56.9DEG.					
		1725.MZ AT 4)= .608RMSPSI,	AT 6)= .431RMSPSI,	PHASE(4 6)= 172.4DEG.					
		1600.MZ AT 4)= .473RMSPSI,	AT 6)= .304RMSPSI,	PHASE(4 6)= 174.8DEG.					
		1825.MZ AT 4)= .462RMSPSI,	AT 6)= .309RMSPSI,	PHASE(4 6)= 162.3DEG.					
4	F/A= .0537	ETAC= 49.6	TT5F= 2257.	PT5/PT2= 87.7	M2= .430	PSI= 21.50	PCI= 20.90		
	AT 4	RMS12= .269,	RMS23= 1.140,	RMS34= 1.150	AT 8	RMS12= .260,	RMS23= 1.050,	RMS34= .394	
		150.MZ AT 4)= .538RMSPSI,	AT 8)= .414RMSPSI,	PHASE(4 8)= 18.5DEG.					
		550.MZ AT 4)= .867RMSPSI,	AT 8)= .852RMSPSI,	PHASE(4 8)= -158.7DEG.					
		1100.MZ AT 4)= .195RMSPSI,	AT 8)= .142RMSPSI,	PHASE(4 8)= 63.1DEG.					
		1650.MZ AT 4)= .727RMSPSI,	AT 8)= .167RMSPSI,	PHASE(4 8)= 40.0DEG.					

BIN. CHARG.	4.75 INLET	NO F. MULD.	ITO=1250R	UNIF. INJ.	PCI=	RMS34=		
1	F/A=0.0000	ETAC= 0.0	TT5F= 1225.	PT5/PT2= 68.2	M2= .859	PSI= 13.32		
2	F/A= .0654	ETAC= 70.9	TT5F= 3436.	PT5/PT2= 88.3	M2= .455	PSI= 26.30		
	AT 4	RMS23= .078,	RMS23= .217,	RMS34= .908	AT 8	RMS12= .075,	RMS23= .203,	RMS34= .140
		AT 4)= .107RMSPSI,	AT 8)= .093RMSPSI,	PHASE(4 8)= 11.50DEG.				
		AT 4)= .787RMSPSI,	AT 8)= .064RMSPSI,	PHASE(4 8)= 55.0DEG.				
3	F/A= .0600	ETAC= 73.0	TT5F= 3418.	PT5/PT2= 88.4	M2= .460	PSI= 26.10		
	AT 4	RMS12= .156,	RMS23= .216,	RMS34= 1.390	AT 8	RMS12= .157,	RMS23= .219,	RMS34= .248
		AT 4)= .124RMSPSI,	AT 8)= .122RMSPSI,	PHASE(4 8)= 28.1DEG.				
		AT 4)= 1.090RMSPSI,	AT 8)= .124RMSPSI,	PHASE(4 8)= 47.3DEG.				
4	F/A= .0552	ETAC= 74.3	TT5F= 3357.	PT5/PT2= 88.4	M2= .468	PSI= 25.79		
	AT 4	RMS12= .200,	RMS23= .255,	RMS34= 1.350	AT 8	RMS12= .121,	RMS23= .247,	RMS34= .322
		AT 4)= .919RMSPSI,	AT 8)= .136RMSPSI,	PHASE(4 8)= 47.0DEG.				
		AT 4)= .241RMSPSI,	AT 8)= .117RMSPSI,	PHASE(4 8)= -98.1DEG.				
		AT 4)= .176RMSPSI,	AT 8)= .161RMSPSI,	PHASE(4 8)= 29.1DEG.				
5	F/A= .0497	ETAC= 73.7	TT5F= 3205.	PT5/PT2= 87.8	M2= .483	PSI= 24.78		
	AT 4	RMS12= .216,	RMS23= .257,	RMS34= 1.930	AT 8	RMS12= .091,	RMS23= .236,	RMS34= .437
		AT 4)= .159RMSPSI,	AT 8)= .142RMSPSI,	PHASE(4 8)= 28.50DEG.				
		AT 4)= 1.510RMSPSI,	AT 8)= .200RMSPSI,	PHASE(4 8)= 53.00DEG.				
		AT 4)= .245RMSPSI,	AT 8)= .171RMSPSI,	PHASE(4 8)= -151.00DEG.				
6	F/A= .0439	ETAC= 68.7	TT5F= 2926.	PT5/PT2= 87.2	M2= .519	PSI= 23.02		
	AT 4	RMS12= .158,	RMS23= .282,	RMS34= 1.930	AT 8	RMS12= .124,	RMS23= .274,	RMS34= .712
		AT 4)= 1.510RMSPSI,	AT 8)= .234RMSPSI,	PHASE(4 8)= 65.70DEG.				
		AT 4)= .353RMSPSI,	AT 8)= .372RMSPSI,	PHASE(4 8)= -123.70DEG.				
		AT 4)= .267RMSPSI,	AT 8)= .141RMSPSI,	PHASE(4 8)= 167.8DEG.				
7	F/A= .0410	ETAC= 67.9	TT5F= 2811.	PT5/PT2= 86.8	M2= .529	PSI= 22.52		
	AT 4	RMS12= .120,	RMS23= .258,	RMS34= 1.820	AT 8	RMS12= .091,	RMS23= .234,	RMS34= .917
		AT 4)= 1.430RMSPSI,	AT 8)= .280RMSPSI,	PHASE(4 8)= 70.70DEG.				
		AT 4)= .471RMSPSI,	AT 8)= .591RMSPSI,	PHASE(4 8)= -123.70DEG.				
		AT 4)= .191RMSPSI,	AT 8)= .111RMSPSI,	PHASE(4 8)= 179.2DEG.				
		AT 4)= .281RMSPSI,	AT 8)= .136RMSPSI,	PHASE(4 8)= -46.0DEG.				
8	F/A= .0352	ETAC= 66.4	TT5F= 2599.	PT5/PT2= 85.8	M2= .556	PSI= 21.22		
	AT 4	RMS12= .145,	RMS23= .321,	RMS34= 2.120	AT 8	RMS12= .083,	RMS23= .268,	RMS34= 1.110
		AT 4)= 1.650RMSPSI,	AT 8)= .378RMSPSI,	PHASE(4 8)= 64.00DEG.				
		AT 4)= .554RMSPSI,	AT 8)= .806RMSPSI,	PHASE(4 8)= -132.70DEG.				
		AT 4)= .313RMSPSI,	AT 8)= .122RMSPSI,	PHASE(4 8)= 157.70DEG.				
		AT 4)= .194RMSPSI,	AT 8)= .156RMSPSI,	PHASE(4 8)= -55.90DEG.				

8IN.CHAMB.	4.75 INLET	NO F.MOLD.	LUM FLOW	UNIF.INJ.	PT5/PT2	M2	PT5	PT5/PT2	PCI
1	F/A=0.0000	ETAC=0.0	TT5F=975.	PT5/PT2=68.2	M2=.850	PT5=7.17	PT5/PT2=68.2	PCI=6.90	
2	F/A=.0654	ETAC=51.4	TT5F=2663.	PT5/PT2=87.7	M2=.460	PT5=14.00	PT5/PT2=87.7	PCI=13.80	
	AT 4	RMS12=.043,	RMS23=.244,	RMS34=.584	AT 8	RMS12=.041,	RMS23=.041,	RMS34=.136	
	200.HZ	AT 4)=.169RMSPSI,	AT 8)=.154RMSPSI,	PHASE(4 8)=27.0DEG.	PHASE(4 8)=27.0DEG.				
	625.HZ	AT 4)=.124RMSPSI,	AT 8)=.158RMSPSI,	PHASE(4 8)=155.2DEG.	PHASE(4 8)=155.2DEG.				
	1800.HZ	AT 4)=.510RMSPSI,	AT 8)=.084RMSPSI,	PHASE(4 8)=35.8DEG.	PHASE(4 8)=35.8DEG.				
3	F/A=.0610	ETAC=42.3	TT5F=2317.	PT5/PT2=89.7	M2=.530	PT5=12.10	PT5/PT2=89.7	PCI=12.30	
	AT 4	RMS12=.074,	RMS23=.353,	RMS34=.078	AT 8	RMS12=.070,	RMS23=.070,	RMS34=.079	
	175.HZ	AT 4)=.126RMSPSI,	AT 8)=.093RMSPSI,	PHASE(4 8)=21.0DEG.	PHASE(4 8)=21.0DEG.				
	450.HZ	AT 4)=.259RMSPSI,	AT 8)=.118RMSPSI,	PHASE(4 8)=172.4DEG.	PHASE(4 8)=172.4DEG.				
	675.HZ	AT 4)=.165RMSPSI,	AT 8)=.175RMSPSI,	PHASE(4 8)=170.8DEG.	PHASE(4 8)=170.8DEG.				
4	F/A=.0554	ETAC=29.1	TT5F=1860.	PT5/PT2=85.9	M2=.590	PT5=10.70	PT5/PT2=85.9	PCI=10.90	
	AT 4	RMS12=.129,	RMS23=.578,	RMS34=.118	AT 8	RMS12=.126,	RMS23=.126,	RMS34=.095	
	175.HZ	AT 4)=.158RMSPSI,	AT 8)=.117RMSPSI,	PHASE(4 8)=23.9DEG.	PHASE(4 8)=23.9DEG.				
	450.HZ	AT 4)=.516RMSPSI,	AT 8)=.234RMSPSI,	PHASE(4 8)=168.9DEG.	PHASE(4 8)=168.9DEG.				
	650.HZ	AT 4)=.112RMSPSI,	AT 8)=.138RMSPSI,	PHASE(4 8)=172.2DEG.	PHASE(4 8)=172.2DEG.				
5	F/A=.0503	ETAC=28.2	TT5F=1785.	PT5/PT2=85.4	M2=.620	PT5=10.30	PT5/PT2=85.4	PCI=10.50	
	AT 4	RMS12=.068,	RMS23=.625,	RMS34=.111	AT 8	RMS12=.064,	RMS23=.064,	RMS34=.121	
	175.HZ	AT 4)=.173RMSPSI,	AT 8)=.124RMSPSI,	PHASE(4 8)=22.7DEG.	PHASE(4 8)=22.7DEG.				
	450.HZ	AT 4)=.560RMSPSI,	AT 8)=.268RMSPSI,	PHASE(4 8)=170.8DEG.	PHASE(4 8)=170.8DEG.				
	650.HZ	AT 4)=.072RMSPSI,	AT 8)=.090RMSPSI,	PHASE(4 8)=161.9DEG.	PHASE(4 8)=161.9DEG.				
6	F/A=.0444	ETAC=26.5	TT5F=1676.	PT5/PT2=84.6	M2=.650	PT5=9.67	PT5/PT2=84.6	PCI=10.00	
	AT 4	RMS12=.103,	RMS23=.376,	RMS34=.100	AT 8	RMS12=.093,	RMS23=.093,	RMS34=.098	
	150.HZ	AT 4)=.114RMSPSI,	AT 8)=.082RMSPSI,	PHASE(4 8)=27.2DEG.	PHASE(4 8)=27.2DEG.				
	450.HZ	AT 4)=.312RMSPSI,	AT 8)=.147RMSPSI,	PHASE(4 8)=160.3DEG.	PHASE(4 8)=160.3DEG.				
	675.HZ	AT 4)=.054RMSPSI,	AT 8)=.067RMSPSI,	PHASE(4 8)=166.7DEG.	PHASE(4 8)=166.7DEG.				

8IN.CHAMB.	4.75 INLET	NU F.HOLD.	40% NOZ.	UNIF.INJ.	M2	PSI	PCI
1	F/A=0.0000	ETAC= 0.0	TT5F= 952.	PT5/PT2= 81.7	M2= .768	PSI= 10.70	PCI= 11.90
AT 4	RMS12= .028	RMS23= .134	RMS34= 952.	AT 8	RMS12= .078	RMS23= .281	RMS34= .076
F/A= .0648	ETAC= 58.5	TT5F= 2865.	PT5/PT2= 92.2	M2= .349	PSI= 24.20	PCI= 24.20	
AT 4	RMS12= .192	RMS23= 4.180	RMS34= .196	AT 8	RMS12= .209	RMS23= 4.050	RMS34= .126
125.MZ	AT 4)= 4.070RMSPSI,	AT 8)= 3.990RMSPSI,	PHASE1 4 8)= 9.4DEG.				
250.MZ	AT 4)= .762RMSPSI,	AT 8)= .505RMSPSI,	PHASE1 4 8)= 26.1DEG.				
625.MZ	AT 4)= .293RMSPSI,	AT 8)= .259RMSPSI,	PHASE1 4 8)= 176.9DEG.				
F/A= .0597	ETAC= 54.7	TT5F= 2683.	PT5/PT2= 91.1	M2= .363	PSI= 23.50	PCI= 23.40	
AT 4	RMS12= .233	RMS23= 3.060	RMS34= .159	AT 8	RMS12= .244	RMS23= 2.950	RMS34= .128
125.MZ	AT 4)= 2.920RMSPSI,	AT 8)= 2.830RMSPSI,	PHASE1 4 8)= 10.1DEG.				
250.MZ	AT 4)= .403RMSPSI,	AT 8)= .277RMSPSI,	PHASE1 4 8)= 31.4DEG.				
575.MZ	AT 4)= .254RMSPSI,	AT 8)= .213RMSPSI,	PHASE1 4 8)= 169.9DEG.				
700.MZ	AT 4)= .226RMSPSI,	AT 8)= .310RMSPSI,	PHASE1 4 8)= 176.5DEG.				
F/A= .0547	ETAC= 57.3	TT5F= 2690.	PT5/PT2= 91.4	M2= .370	PSI= 23.30	PCI= 0.00	
AT 4	RMS12= .865	RMS23= .671	RMS34= 1.070	AT 8	RMS12= .776	RMS23= .656	RMS34= .315
50.MZ	AT 4)= .997RMSPSI,	AT 8)= .901RMSPSI,	PHASE1 4 8)= 5.8DEG.				
700.MZ	AT 4)= .072RMSPSI,	AT 8)= .102RMSPSI,	PHASE1 4 8)= 158.1DEG.				
1750.MZ	AT 4)= .441RMSPSI,	AT 8)= .170RMSPSI,	PHASE1 4 8)= 30.4DEG.				
1850.MZ	AT 4)= .647RMSPSI,	AT 8)= .074RMSPSI,	PHASE1 4 8)= 36.4DEG.				
F/A= .0498	ETAC= 57.8	TT5F= 2601.	PT5/PT2= 91.6	M2= .381	PSI= 22.60	PCI= 22.60	
AT 4	RMS12= 1.230	RMS23= 1.090	RMS34= 1.390	AT 8	RMS12= 1.140	RMS23= .989	RMS34= .594
50.MZ	AT 4)= 1.400RMSPSI,	AT 8)= 1.300RMSPSI,	PHASE1 4 8)= 5.3DEG.				
1700.MZ	AT 4)= .477RMSPSI,	AT 8)= .222RMSPSI,	PHASE1 4 8)= 22.0DEG.				
1825.MZ	AT 4)= .732RMSPSI,	AT 8)= .213RMSPSI,	PHASE1 4 8)= 2.0DEG.				

MIN.CHAMB.	4.75 INLET	NO F.HULD.	50Z NOZ.	UNIF.INJ.	PSI	PCI	RMS34
1	F/A=0.0000 AT 4 RMS12=	ETAC= 0.0 RMS23=	TT5F= 574. RMS34=	PT5/PT2= 58.3 M2= .826 AT 8 RMS12=	10.80 146, RMS23=	.271, RMS34=	7.27 .096
2	F/A=0.0000 AT 4 RMS12=	ETAC= 0.0 RMS23=	TT5F= 986. RMS34=	PT5/PT2= 56.9 M2= .851 AT 8 RMS12=	14.38 120, RMS23=	.371, RMS34=	9.62 .143
3	F/A=0.0000 AT 4 RMS12=	ETAC= 0.0 RMS23=	TT5F= 975. RMS34=	PT5/PT2= 56.6 M2= .853 AT 8 RMS12=	14.35 18.96 RMS23=	.253, RMS34=	9.60 .064
4	F/A= .0647 AT 4 RMS12=	ETAC= 33.9 RMS23=	TT5F= 2091. RMS34=	PT5/PT2= 81.5 M2= .662 AT 8 RMS12=	18.96 169, RMS23=	.253, RMS34=	18.92 .064
5	F/A= .0602 AT 4 RMS12=	ETAC= 32.1 RMS23=	TT5F= 2004. RMS34=	PT5/PT2= 80.8 M2= .688 AT 8 RMS12=	18.24 152, RMS23=	.210, RMS34=	18.23 .074
6	F/A= .0549 AT 4 RMS12=	ETAC= 25.6 RMS23=	TT5F= 1757. RMS34=	PT5/PT2= 78.7 M2= .768 AT 8 RMS12=	16.18 230, RMS23=	.351, RMS34=	16.14 .106
7	F/A= .0499 AT 4 RMS12=	ETAC= 26.4 RMS23=	TT5F= 1734. RMS34=	PT5/PT2= 78.1 M2= .777 AT 8 RMS12=	15.97 199, RMS23=	.629, RMS34=	15.89 .086
8	F/A= .0463 AT 4 RMS12=	ETAC= 56.1 RMS23=	TT5F= 2477. RMS34=	PT5/PT2= 82.4 M2= .598 AT 8 RMS12=	21.24 149, RMS23=	.322, RMS34=	20.78 .800

RIM-CHAMB.		4.75 INLET		NO F. HOLD.		L/D=1.5		UNIF. INJ.	
1	F/A=0.0000	ETAC= 0.0	TT5F= 986.	PT5/PT2= 68.7	M2= .863	PSI= 11.74	PCI= 6.64		
	AT 4	RMS12= .042	RMS23= .077	RMS34= .049	RMS12= .079	RMS23= .079	RMS34= .083		
2	F/A= .0655	ETAC= 17.3	TT5F= 1550.	PT5/PT2= 83.8	M2= .661	PSI= 15.84	PCI= 15.80		
	AT 4	RMS12= .115	RMS23= .137	RMS34= .307	RMS12= .131	RMS23= .131	RMS34= .284		
3	F/A= .0621	ETAC= 17.5	TT5F= 1557.	PT5/PT2= 83.9	M2= .671	PSI= 15.51	PCI= 15.50		
	AT 4	RMS12= .166	RMS23= .187	RMS34= .243	RMS12= .171	RMS23= .171	RMS34= .273		
	50.0HZ	AT 4)	.163RMSPSI,	AT 8)	.170RMSPSI,	4.1DEG.			
	375.0HZ	AT 4)	.087RMSPSI,	AT 8)	.056RMSPSI,	12.5DEG.			
4	F/A= .0545	ETAC= 19.1	TT5F= 1559.	PT5/PT2= 83.8	M2= .675	PSI= 15.40	PCI= 15.44		
	AT 4	RMS12= .149	RMS23= .156	RMS34= .398	RMS12= .169	RMS23= .169	RMS34= .380		
	1725.0HZ	AT 4)	.375RMSPSI,	AT 8)	.360RMSPSI,	21.5DEG.			
5	F/A= .0474	ETAC= 21.9	TT5F= 1585.	PT5/PT2= 83.6	M2= .669	PSI= 15.60	PCI= 15.71		
	AT 4	RMS12= .131	RMS23= .152	RMS34= .546	RMS12= .134	RMS23= .134	RMS34= .495		
	1700.0HZ	AT 4)	.486RMSPSI,	AT 8)	.440RMSPSI,	14.3DEG.			
6	F/A= .0410	ETAC= 28.3	TT5F= 1674.	PT5/PT2= 83.6	M2= .637	PSI= 16.32	PCI= 16.45		
	AT 4	RMS12= .091	RMS23= .134	RMS34= 1.100	RMS12= .092	RMS23= .092	RMS34= 1.030		
	1675.0HZ	AT 4)	.860RMSPSI,	AT 8)	.856RMSPSI,	7.8DEG.			
	3325.0HZ	AT 4)	.133RMSPSI,	AT 8)	.049RMSPSI,	-45.2DEG.			
	5000.0HZ	AT 4)	.153RMSPSI,	AT 8)	.071RMSPSI,	-165.3DEG.			

BIN-CHAMB.	4.75 INLET	NO F. HD-LD.	BASELINE	TUBE INJ.	M2 =	PCI =	RMS23 =	RMS34 =
1	F/A = 0.0000	ETAC = 0.0	TT5F = 557.	PT5/PT2 = 67.3	M2 = 8.60	PCI = 8.77	RMS23 =	RMS34 = 8.33
2	F/A = 0.0000	ETAC = 0.0	TT5F = 975.	PT5/PT2 = 68.0	M2 = 8.60	PCI = 11.90	RMS23 =	RMS34 = 11.10
AT 4	RMS12 = .064	RMS23 = .185	RMS34 =	AT 8	RMS12 = .085	RMS23 = .357	RMS34 =	.238
AT 4	RMS12 = .064	RMS23 = .185	RMS34 =	AT 8	RMS12 = .085	RMS23 = .357	RMS34 =	.238
3	F/A = .0311	ETAC = 71.2	TT5F = 2942.	PT5/PT2 = 89.3	M2 = 4.40	PCI = 24.20	RMS23 =	RMS34 = 23.50
AT 4	RMS12 = 1.090	RMS23 = 7.120	RMS34 = 1.290	AT 8	RMS12 = .841	PCI = 5.620	RMS23 =	RMS34 = .789
AT 4	RMS12 = 1.090	RMS23 = 7.120	RMS34 = 1.290	AT 8	RMS12 = .841	PCI = 5.620	RMS23 =	RMS34 = .789
4	F/A = .0447	ETAC = 75.7	TT5F = 2939.	PT5/PT2 = 88.1	M2 = 4.40	PCI = 24.00	RMS23 =	RMS34 = 23.00
AT 4	RMS12 = .197	RMS23 = 2.040	RMS34 = 1.810	AT 8	RMS12 = .185	PCI = 1.890	RMS23 =	RMS34 = .625
AT 4	RMS12 = .197	RMS23 = 2.040	RMS34 = 1.810	AT 8	RMS12 = .185	PCI = 1.890	RMS23 =	RMS34 = .625
5	F/A = .0399	ETAC = 77.1	TT5F = 2804.	PT5/PT2 = 87.5	M2 = 4.40	PCI = 23.40	RMS23 =	RMS34 = 22.50
AT 4	RMS12 = .148	RMS23 = .979	RMS34 =	AT 8	RMS12 = .136	PCI = 8.27	RMS23 =	RMS34 = .376
AT 4	RMS12 = .148	RMS23 = .979	RMS34 =	AT 8	RMS12 = .136	PCI = 8.27	RMS23 =	RMS34 = .376
6	F/A = .0344	ETAC = 77.3	TT5F = 2600.	PT5/PT2 = 87.0	M2 = 4.84	PCI = 22.10	RMS23 =	RMS34 = 21.40
AT 5	RMS12 = .407	RMS23 = .327	RMS34 = 2.140	AT 6	RMS12 = .123	PCI = 2.99	RMS23 =	RMS34 = 2.840
AT 5	RMS12 = .407	RMS23 = .327	RMS34 = 2.140	AT 6	RMS12 = .123	PCI = 2.99	RMS23 =	RMS34 = 2.840
7	F/A = .0350	ETAC = 76.2	TT5F = 2603.	PT5/PT2 = 86.6	M2 = 4.80	PCI = 22.20	RMS23 =	RMS34 = 21.30
AT 5	RMS12 = .361	RMS23 = .367	RMS34 = 2.030	AT 6	RMS12 = .100	PCI = .437	RMS23 =	RMS34 = 2.720
AT 5	RMS12 = .361	RMS23 = .367	RMS34 = 2.030	AT 6	RMS12 = .100	PCI = .437	RMS23 =	RMS34 = 2.720
8	F/A = .0309	ETAC = 76.3	TT5F = 2437.	PT5/PT2 = 86.8	M2 = 5.05	PCI = 20.40	RMS23 =	RMS34 = 20.350
AT 5	RMS12 = .483	RMS23 = .362	RMS34 = 1.860	AT 6	RMS12 = .097	PCI = .300	RMS23 =	RMS34 = 2.350
AT 5	RMS12 = .483	RMS23 = .362	RMS34 = 1.860	AT 6	RMS12 = .097	PCI = .300	RMS23 =	RMS34 = 2.350
9	F/A = .0240	ETAC = 31.1	TT5F = 1929.	PT5/PT2 = 85.8	M2 = 6.09	PCI = 17.50	RMS23 =	RMS34 = 17.50
AT 5	RMS12 = .088	RMS23 = .306	RMS34 =	AT 6	RMS12 = .100	PCI = .384	RMS23 =	RMS34 = .143
AT 5	RMS12 = .088	RMS23 = .306	RMS34 =	AT 6	RMS12 = .100	PCI = .384	RMS23 =	RMS34 = .143
AT 4	RMS12 = .091	RMS23 = .493	RMS34 =	AT 8	RMS12 = .085	PCI = .362	RMS23 =	RMS34 = .148
AT 4	RMS12 = .091	RMS23 = .493	RMS34 =	AT 8	RMS12 = .085	PCI = .362	RMS23 =	RMS34 = .148
AT 4	RMS12 = .091	RMS23 = .493	RMS34 =	AT 8	RMS12 = .085	PCI = .362	RMS23 =	RMS34 = .148

8IN.CHAMB.		4.75 INLET		NO F.HULD.		TTO=750K		TUBE INJ.					
1	F/A=0.0000	ETAC= 0.0	TT5F= 740.	PT5/PT2= 68.7	M2= .051	PSI= 10.30	PCI= 9.81						
2	F/A= .0349	ETAC= 69.3	TT5F= 2250.	PT5/PT2= 40.3	M2= .450	PSI= 20.60	PCI= 19.90						
	AT 4	RMS12= .274,	RMS23= 2.370,	RMS34= 1.460	AT 8	RMS12= .275,	RMS23= 2.110,	RMS34= .555					
		125.HZ	AT 4)= 2.030RMSPSI,	AT 8)= 1.420RMSPSI,	PHASE(4 8)= 7.3DEG.								
		1600.HZ	AT 4)= .659RMSPSI,	AT 8)= .200RMSPSI,	PHASE(4 8)= 14.3DEG.								
		1725.HZ	AT 4)= .684RMSPSI,	AT 8)= .156RMSPSI,	PHASE(4 8)= 64.9DEG.								
3	F/A= .0304	ETAC= 65.4	TT5F= 2007.	PT5/PT2= 87.4	M2= .480	PSI= 19.10	PCI= 18.40						
	AT 4	RMS12= .170,	RMS23= 2.790,	RMS34= 1.010	AT 8	RMS12= .134,	RMS23= 2.330,	RMS34= .605					
		175.HZ	AT 4)= 2.590RMSPSI,	AT 8)= 2.230RMSPSI,	PHASE(4 8)= 14.2DEG.								
		350.HZ	AT 4)= .628RMSPSI,	AT 8)= .266RMSPSI,	PHASE(4 8)= -7.7DEG.								
		1650.HZ	AT 4)= .466RMSPSI,	AT 8)= .202RMSPSI,	PHASE(4 8)= -26.4DEG.								
		1825.HZ	AT 4)= .549RMSPSI,	AT 8)= .243RMSPSI,	PHASE(4 8)= 49.7DEG.								
4	F/A= .0249	ETAC= 60.2	TT5F= 1722.	PT5/PT2= 86.7	M2= .540	PSI= 17.10	PCI= 17.00						
	AT 4	RMS12= .093,	RMS23= 1.050,	RMS34= .296	AT 8	RMS12= .077,	RMS23= 1.090,	RMS34= .230					
		150.HZ	AT 4)= .209RMSPSI,	AT 8)= .176RMSPSI,	PHASE(4 8)= 15.7DEG.								
		625.HZ	AT 4)= .971RMSPSI,	AT 8)= 1.030RMSPSI,	PHASE(4 8)= -165.6DEG.								
		1225.HZ	AT 4)= .238RMSPSI,	AT 8)= .179RMSPSI,	PHASE(4 8)= 25.3DEG.								

BIN. CHARG.	4.75 INLET	NO F. HOLD.	IT0=1250K	TURB INJ.	M2= .850	PSI= 13.60	PCI= 12.80
1	F/A= .0000	ETAC= 0.0	IT5F= 1253.	PT5/PT2= 80.5	M2= .450	PSI= 26.40	PCI= 25.90
2	F/A= .0654	ETAC= 71.9	IT5F= 3458.	PT5/PT2= 89.0	M2= .608	RMS23= 4.600	RMS34= .957
	AT 4	RMS12= 1.660	RMS23= 5.933	RMS34= 3.160	AT 8	RMS12= 17.3DEG.	
		125.0HZ	AT 4)= 4.630KMSPSI,	AT 8)= 3.770KMSPSI,	PHASE1 4 8)=	-24.1DEG.	
		250.0HZ	AT 4)= 1.250KMSPSI,	AT 8)= .910KMSPSI,	PHASE1 4 8)=		
3	F/A= .0589	ETAC= 73.0	IT5F= 3396.	PT5/PT2= 80.3	M2= .460	PSI= 26.20	PCI= 25.50
	AT 5	RMS12= .559	RMS23= 2.360	RMS34= 1.720	AT 8	RMS12= .218	RMS23= 2.550
		125.0HZ	AT 5)= 1.990KMSPSI,	AT 8)= 2.000KMSPSI,	PHASE1 5 8)=	-3.0DEG.	
		1825.0HZ	AT 5)= 1.170KMSPSI,	AT 8)= 1.500KMSPSI,	PHASE1 5 8)=	172.0DEG.	
4	F/A= .0542	ETAC= 74.2	IT5F= 3333.	PT5/PT2= 87.3	M2= .460	PSI= 25.90	PCI= 25.10
	AT 5	RMS12= .667	RMS23= .644	RMS34= 2.740	AT 6	RMS12= .225	RMS23= .667
		225.0HZ	AT 5)= .403KMSPSI,	AT 6)= .400KMSPSI,	PHASE1 5 6)=	-18.4DEG.	
		1850.0HZ	AT 5)= 2.410KMSPSI,	AT 6)= 2.450KMSPSI,	PHASE1 5 6)=	164.0DEG.	
5	F/A= .0490	ETAC= 75.7	IT5F= 3226.	PT5/PT2= 87.3	M2= .470	PSI= 25.40	PCI= 24.10
	AT 5	RMS12= 1.300	RMS23= .547	RMS34= 2.860	AT 6	RMS12= .097	RMS23= .477
		175.0HZ	AT 5)= .212KMSPSI,	AT 6)= .272KMSPSI,	PHASE1 5 6)=	-26.1DEG.	
		1875.0HZ	AT 5)= 2.600KMSPSI,	AT 6)= 2.770KMSPSI,	PHASE1 5 6)=	161.7DEG.	
6	F/A= .0449	ETAC= 76.5	IT5F= 3144.	PT5/PT2= 87.2	M2= .490	PSI= 24.60	PCI= 23.90
	AT 5	RMS12= 1.220	RMS23= .533	RMS34= 2.730	AT 6	RMS12= .165	RMS23= .408
		1900.0HZ	AT 5)= 2.600KMSPSI,	AT 6)= 2.780KMSPSI,	PHASE1 5 6)=	158.1DEG.	
		3800.0HZ	AT 5)= .444KMSPSI,	AT 6)= .403KMSPSI,	PHASE1 5 6)=	-37.0DEG.	
7	F/A= .0408	ETAC= 76.1	IT5F= 2991.	PT5/PT2= 80.8	M2= .700	PSI= 23.60	PCI= 23.00
	AT 4	RMS12= .169	RMS23= .417	RMS34= 1.560	AT 8	RMS12= .094	RMS23= .432
		225.0HZ	AT 4)= .264KMSPSI,	AT 8)= .253KMSPSI,	PHASE1 4 8)=	8.50DEG.	
		1900.0HZ	AT 4)= 1.370KMSPSI,	AT 8)= 1.450KMSPSI,	PHASE1 4 8)=	100.1DEG.	
		225.0HZ	AT 4)= .124	RMS23= .422	RMS34= .733	AT 8	RMS12= .103
		1903.0HZ	AT 4)= .201KMSPSI,	AT 8)= .173KMSPSI,	PHASE1 4 8)=	7.10DEG.	
		225.0HZ	AT 4)= .622KMSPSI,	AT 8)= .544KMSPSI,	PHASE1 4 8)=	98.4DEG.	
8	F/A= .0351	ETAC= 76.2	IT5F= 2797.	PT5/PT2= 86.7	M2= .540	PSI= 22.20	PCI= 22.00
	AT 4	RMS12= .136	RMS23= .350	RMS34= 1.220	AT 8	RMS12= .061	RMS23= .334
		225.0HZ	AT 4)= .174KMSPSI,	AT 8)= .172KMSPSI,	PHASE1 4 8)=	10.00DEG.	
		1925.0HZ	AT 4)= .907KMSPSI,	AT 8)= 1.070KMSPSI,	PHASE1 4 8)=	103.2DEG.	

REN.CHAMB.	4.75 INLET	NO F. MULLO.	TT2=1250R	TURB INJ.	M2= .757	PSI=	PCI=	9.05
1	F/A=0.0000	ETAC= 0.0	TT2F= 612	PT5/PT2= 72.2	AT 8 RMS12= .091	RMS23=	.284	RMS34= .068
	AT 4 RMS12=	.042	RMS23=	.135	RMS34=	.261		
	625.4HZ	AT 4)=	.030RMSPSI,	PHASE(4 8)=	-119.30DEG.			
2	F/A=0.0000	ETAC= 0.0	TT2F= 540	PT5/PT2= 69.3	M2= .834	PSI= 9.60	PCI= 8.07	
3	F/A=0.0000	ETAC= 0.0	TT2F= 1205	PT5/PT2= 67.6	M2= .862	PSI= 13.30	PCI= 12.30	
4	F/A= .0639	ETAC= 72.6	TT2F= 3451	PT5/PT2= 89.2	M2= .425	PSI= 26.10	PCI= 25.60	
	AT 4 RMS12=	.576	RMS23= 6.113	RMS34= 1.050	AT 8 RMS12=	.470	RMS23=	4.430
	125.4HZ	AT 4)=	5.280RMSPSI,	PHASE(4 8)=	11.70DEG.			
	275.4HZ	AT 4)=	1.340RMSPSI,	PHASE(4 8)=	-26.70DEG.			
5	F/A= .0363	ETAC= 73.2	TT2F= 3345	PT5/PT2= 87.9	M2= .464	PSI= 25.90	PCI= 25.10	
	AT 4 RMS12=	.261	RMS23= 1.977	RMS34= 1.700	AT 8 RMS12=	.169	RMS23=	1.480
	1825.4HZ	AT 4)=	1.600RMSPSI,	PHASE(4 8)=	8.00DEG.			
	2275.4HZ	AT 4)=	.972RMSPSI,	PHASE(4 8)=	-95.70DEG.			
6	F/A= .0525	ETAC= 74.6	TT2F= 3300	PT5/PT2= 87.7	M2= .470	PSI= 25.50	PCI= 24.60	
	AT 4 RMS12=	.165	RMS23= .817	RMS34= 1.440	AT 8 RMS12=	.128	RMS23=	.691
	150.4HZ	AT 4)=	.579RMSPSI,	PHASE(4 8)=	4.60DEG.			
	1850.4HZ	AT 4)=	.397RMSPSI,	PHASE(4 8)=	43.60DEG.			
	2325.4HZ	AT 4)=	.303RMSPSI,	PHASE(4 8)=	-115.40DEG.			
	5575.4HZ	AT 4)=	.321RMSPSI,	PHASE(4 8)=	-125.80DEG.			
7	F/A= .0503	ETAC= 75.1	TT2F= 3255	PT5/PT2= 86.2	M2= .472	PSI= 25.30	PCI= 24.50	
	AT 4 RMS12=	.282	RMS23= .740	RMS34= 2.170	AT 8 RMS12=	.128	RMS23=	.705
	150.4HZ	AT 4)=	.574RMSPSI,	PHASE(4 8)=	-1.0DEG.			
	1875.4HZ	AT 4)=	1.81RMSPSI,	PHASE(4 8)=	55.80DEG.			
	2325.4HZ	AT 4)=	.052RMSPSI,	PHASE(4 8)=	-96.30DEG.			
	5600.4HZ	AT 4)=	.273RMSPSI,	PHASE(4 8)=	-132.20DEG.			
8	F/A= .0444	ETAC= 76.2	TT2F= 3123	PT5/PT2= 86.9	M2= .491	PSI= 24.30	PCI= 23.70	
	AT 4 RMS12=	.277	RMS23= .429	RMS34= 2.400	AT 8 RMS12=	.084	RMS23=	.441
	175.4HZ	AT 4)=	.249RMSPSI,	PHASE(4 8)=	2.90DEG.			
	1900.4HZ	AT 4)=	2.070RMSPSI,	PHASE(4 8)=	59.20DEG.			
	3775.4HZ	AT 4)=	.098RMSPSI,	PHASE(4 8)=	-113.90DEG.			
	5675.4HZ	AT 4)=	.316RMSPSI,	PHASE(4 8)=	141.00DEG.			
9	F/A= .0418	ETAC= 77.2	TT2F= 3059	PT5/PT2= 87.0	M2= .506	PSI= 23.80	PCI= 23.30	
	AT 4 RMS12=	.232	RMS23= .324	RMS34= 2.400	AT 8 RMS12=	.123	RMS23=	.341
	225.4HZ	AT 4)=	.140RMSPSI,	PHASE(4 8)=	16.90DEG.			
	525.4HZ	AT 4)=	.134RMSPSI,	PHASE(4 8)=	-81.00DEG.			
	1900.4HZ	AT 4)=	2.300RMSPSI,	PHASE(4 8)=	55.30DEG.			
10	F/A= .0359	ETAC= 77.5	TT2F= 2859	PT5/PT2= 86.7	M2= .528	PSI= 22.60	PCI= 22.30	
	AT 4 RMS12=	.160	RMS23= .313	RMS34= 1.870	AT 8 RMS12=	.116	RMS23=	.340
	150.4HZ	AT 4)=	.094RMSPSI,	PHASE(4 8)=	2.40DEG.			
	250.4HZ	AT 4)=	.114RMSPSI,	PHASE(4 8)=	15.20DEG.			
	1925.4HZ	AT 4)=	1.590RMSPSI,	PHASE(4 8)=	65.30DEG.			
	3825.4HZ	AT 4)=	.120RMSPSI,	PHASE(4 8)=	-126.90DEG.			
11	F/A= .0299	ETAC= 78.8	TT2F= 2696	PT5/PT2= 86.9	M2= .569	PSI= 21.10	PCI= 21.20	
	AT 4 RMS12=	.065	RMS23= .247	RMS34= .980	AT 8 RMS12=	.058	RMS23=	.276
	150.4HZ	AT 4)=	.100RMSPSI,	PHASE(4 8)=	13.30DEG.			
	225.4HZ	AT 4)=	.048RMSPSI,	PHASE(4 8)=	16.30DEG.			
	700.4HZ	AT 4)=	.082RMSPSI,	PHASE(4 8)=	-109.60DEG.			
	1925.4HZ	AT 4)=	.902RMSPSI,	PHASE(4 8)=	55.30DEG.			
	3850.4HZ	AT 4)=	.108RMSPSI,	PHASE(4 8)=	126.60DEG.			
12	F/A= .0236	ETAC= 71.7	TT2F= 2268	PT5/PT2= 86.2	M2= .637	PSI= 18.60	PCI= 18.80	
	AT 4 RMS12=	.093	RMS23= .289	RMS34= .101	AT 8 RMS12=	.089	RMS23=	.242
	225.4HZ	AT 4)=	.145RMSPSI,	PHASE(4 8)=	14.40DEG.			
	1850.4HZ	AT 4)=	.075RMSPSI,	PHASE(4 8)=	102.30DEG.			

BIN. CHAMB.	4.75 INLET	NO F. MULD.	LOW FLOW	TUBE INJ.	PSI	PCI	RMS34	
1	F/A=0.0000	ETAC= 0.0	TT5F= 998.	PT5/PT2= 69.3	M2= .450	7.16	6.95	
2	F/A= .0470	ETAC= 56.6	TT5F= 2757.	PT5/PT2= 88.4	M2= .460	13.80	13.50	
	AT 4	RMS12= .401,	RMS23= 3.530,	RMS34= .739	AT 8	RMS12= .271,	RMS23= 2.750,	RMS34= .334
	125.0HZ	AT 4)= .3340RMSPSI,	AT 8)= 2.600RMSPSI,	PHASE(4 8)= 12.0DEG.				
	250.0HZ	AT 4)= .782RMSPSI,	AT 8)= .562RMSPSI,	PHASE(4 8)= -28.9DEG.				
3	F/A= .0390	ETAC= 74.2	TT5F= 2699.	PT5/PT2= 87.3	M2= .470	13.70	13.30	
	AT 4	RMS12= .116,	RMS23= .592,	RMS34= .547	AT 8	RMS12= .116,	RMS23= .500,	RMS34= .223
	150.0HZ	AT 4)= .474RMSPSI,	AT 8)= .398RMSPSI,	PHASE(4 8)= 4.50DEG.				
	1725.0HZ	AT 4)= .335RMSPSI,	AT 8)= .034RMSPSI,	PHASE(4 8)= 67.30DEG.				
4	F/A= .0348	ETAC= 76.8	TT5F= 2604.	PT5/PT2= 87.3	M2= .480	13.30	12.90	
	AT 4	RMS12= .097,	RMS23= .391,	RMS34= .538	AT 8	RMS12= .107,	RMS23= .333,	RMS34= .215
	1725.0HZ	AT 4)= .262RMSPSI,	AT 8)= .215RMSPSI,	PHASE(4 8)= 6.20DEG.				
	700.0HZ	AT 4)= .352RMSPSI,	AT 8)= .072RMSPSI,	PHASE(4 8)= 58.70DEG.				
5	F/A= .0312	ETAC= 76.7	TT5F= 2455.	PT5/PT2= 87.2	M2= .500	12.70	12.40	
	AT 4	RMS12= .079,	RMS23= .323,	RMS34= .404	AT 8	RMS12= .080,	RMS23= .273,	RMS34= .195
	200.0HZ	AT 4)= .237RMSPSI,	AT 8)= .184RMSPSI,	PHASE(4 8)= 9.4DEG.				
	1750.0HZ	AT 4)= .246RMSPSI,	AT 8)= .037RMSPSI,	PHASE(4 8)= 65.8DEG.				
6	F/A= .0245	ETAC= 81.2	TT5F= 2242.	PT5/PT2= 87.2	M2= .540	11.60	11.60	
	AT 4	RMS12= .076,	RMS23= .642,	RMS34= .133	AT 8	RMS12= .070,	RMS23= .350,	RMS34= .122
	175.0HZ	AT 4)= .151RMSPSI,	AT 8)= .111RMSPSI,	PHASE(4 8)= 16.0DEG.				
	450.0HZ	AT 4)= .583RMSPSI,	AT 8)= .285RMSPSI,	PHASE(4 8)= 156.4DEG.				
	700.0HZ	AT 4)= .059RMSPSI,	AT 8)= .076RMSPSI,	PHASE(4 8)= -170.0DEG.				
	900.0HZ	AT 4)= .089RMSPSI,	AT 8)= .090RMSPSI,	PHASE(4 8)= 38.2DEG.				

8 IN. CHAMB.	4.75 INLET	NO F. HOLD.	40% MOZ.	TUBE INJ.	PSI	PCI		
1	F/A = 0.0000	ETAC = 0.0	TT5F = 931.	PT5/PT2 = 81.0	M2 = .780	PSI = 10.60	PCI = 11.80	
	AT 4	RMS12 = .065,	RMS23 = .135,	RMS34 = .075	AT 8	RMS12 = .063,	RMS23 = .138,	RMS34 = .071
	700.HZ	AT 4) = .051RMSPSI,	AT 8) = .142RMSPSI,	PHASE (4 8) = 155.30 DEG.				
	F/A = .0513	ETAC = 69.4	TT5F = 2949.	PT5/PT2 = 93.7	M2 = .357	PSI = 23.80	PCI = 23.50	
2	AT 4	RMS12 = 1.400,	RMS23 = 7.930,	RMS34 = 1.220	AT 8	RMS12 = 1.420,	RMS23 = 7.040,	RMS34 = .633
	125.HZ	AT 4) = 6.510RMSPSI,	AT 8) = 6.030RMSPSI,	PHASE (4 8) = 12.80 DEG.				
	225.HZ	AT 4) = 2.500RMSPSI,	AT 8) = 1.830RMSPSI,	PHASE (4 8) = -.90 DEG.				
	350.HZ	AT 4) = 1.310RMSPSI,	AT 8) = 1.010RMSPSI,	PHASE (4 8) = -28.00 DEG.				
	F/A = .0497	ETAC = 74.1	TT5F = 2899.	PT5/PT2 = 93.5	M2 = .368	PSI = 23.40	PCI = 23.00	
3	AT 4	RMS12 = .337,	RMS23 = 5.400,	RMS34 = 1.600	AT 8	RMS12 = .340,	RMS23 = 5.050,	RMS34 = .544
	125.HZ	AT 4) = 4.930RMSPSI,	AT 8) = 4.680RMSPSI,	PHASE (4 8) = 9.90 DEG.				
	275.HZ	AT 4) = 1.420RMSPSI,	AT 8) = 1.10RMSPSI,	PHASE (4 8) = -12.10 DEG.				
	400.HZ	AT 4) = .596RMSPSI,	AT 8) = .601RMSPSI,	PHASE (4 8) = -30.90 DEG.				
	1925.HZ	AT 4) = .630RMSPSI,	AT 8) = .628RMSPSI,	PHASE (4 8) = 43.30 DEG.				
	2050.HZ	AT 4) = .662RMSPSI,	AT 8) = .662RMSPSI,	PHASE (4 8) = 108.50 DEG.				
	F/A = .0410	ETAC = 71.9	TT5F = 2727.	PT5/PT2 = 91.6	M2 = .375	PSI = 23.00	PCI = 22.50	
4	AT 4	RMS12 = .183,	RMS23 = 1.150,	RMS34 = 1.010	AT 8	RMS12 = .193,	RMS23 = 1.100,	RMS34 = .581
	125.HZ	AT 4) = 1.100RMSPSI,	AT 8) = 1.030RMSPSI,	PHASE (4 8) = 7.00 DEG.				
	1775.HZ	AT 4) = .505RMSPSI,	AT 8) = .574RMSPSI,	PHASE (4 8) = 46.00 DEG.				
	2300.HZ	AT 4) = .159RMSPSI,	AT 8) = .157RMSPSI,	PHASE (4 8) = -109.90 DEG.				
	F/A = .0346	ETAC = 71.0	TT5F = 2484.	PT5/PT2 = 91.0	M2 = .397	PSI = 21.70	PCI = 21.30	
5	AT 4	RMS12 = .079,	RMS23 = .511,	RMS34 = .622	AT 8	RMS12 = .077,	RMS23 = .500,	RMS34 = .291
	150.HZ	AT 4) = .420RMSPSI,	AT 8) = .394RMSPSI,	PHASE (4 8) = 7.40 DEG.				
	1775.HZ	AT 4) = .293RMSPSI,	AT 8) = .063RMSPSI,	PHASE (4 8) = 59.80 DEG.				
	1975.HZ	AT 4) = .134RMSPSI,	AT 8) = .020RMSPSI,	PHASE (4 8) = 168.20 DEG.				
	3525.HZ	AT 4) = .259RMSPSI,	AT 8) = .042RMSPSI,	PHASE (4 8) = 79.40 DEG.				
	F/A = .0310	ETAC = 71.7	TT5F = 2354.	PT5/PT2 = 90.9	M2 = .409	PSI = 20.90	PCI = 20.60	
6	AT 4	RMS12 = .093,	RMS23 = .423,	RMS34 = .507	AT 8	RMS12 = .090,	RMS23 = .422,	RMS34 = .296
	200.HZ	AT 4) = .280RMSPSI,	AT 8) = .276RMSPSI,	PHASE (4 8) = 14.30 DEG.				
	600.HZ	AT 4) = .114RMSPSI,	AT 8) = .124RMSPSI,	PHASE (4 8) = -151.50 DEG.				
	1775.HZ	AT 4) = .115RMSPSI,	AT 8) = .020RMSPSI,	PHASE (4 8) = 26.00 DEG.				
	3550.HZ	AT 4) = .241RMSPSI,	AT 8) = .062RMSPSI,	PHASE (4 8) = 66.30 DEG.				
	3775.HZ	AT 4) = .062RMSPSI,	AT 8) = .150RMSPSI,	PHASE (4 8) = 61.00 DEG.				
	F/A = .0254	ETAC = 70.8	TT5F = 2116.	PT5/PT2 = 90.9	M2 = .441	PSI = 19.30	PCI = 19.20	
7	AT 4	RMS12 = .095,	RMS23 = .747,	RMS34 = .519	AT 8	RMS12 = .078,	RMS23 = .840,	RMS34 = .253
	200.HZ	AT 4) = .125RMSPSI,	AT 8) = .121RMSPSI,	PHASE (4 8) = 16.00 DEG.				
	600.HZ	AT 4) = .731RMSPSI,	AT 8) = .743RMSPSI,	PHASE (4 8) = -169.80 DEG.				
	1200.HZ	AT 4) = .155RMSPSI,	AT 8) = .042RMSPSI,	PHASE (4 8) = 38.80 DEG.				
	1825.HZ	AT 4) = .351RMSPSI,	AT 8) = .144RMSPSI,	PHASE (4 8) = 22.90 DEG.				
	3600.HZ	AT 4) = .084RMSPSI,	AT 8) = .054RMSPSI,	PHASE (4 8) = -163.90 DEG.				

8 IN. CHAMB.		4.75 INLET		NO F. HULD.		50Z NOZ.		TUBE INJ.	
1	F/A=0.0000	ETAC= 0.0	TT5F= 988.	PT5/PT2= 56.9	M2= .860	PSI= 14.30	PCI= 9.59		
	AT 4	RMS12= .155,	RMS23= .176,	RMS34= .149	AT 8	RMS12= .139,	RMS23= .304,	RMS34= .170	
	F/A= .0502	ETAC= 69.1	TT5F= 2925.	PT5/PT2= 84.0	M2= .535	PSI= 23.90	PCI= 22.80		
2	AT 4	RMS12= .573,	RMS23= 3.753,	RMS34= 1.540	AT 8	RMS12= .400,	RMS23= 2.650,	RMS34= .726	
		125.HZ	AT 4)= 3.220RMSPSI,	AT 8)= 2.290RMSPSI,	PHASE(4 8)= 10.6DEG.				
		1625.HZ	AT 4)= .727RMSPSI,	AT 8)= .091RMSPSI,	PHASE(4 8)= 141.HDEG.				
		2075.HZ	AT 4)= .085RMSPSI,	AT 8)= .296RMSPSI,	PHASE(4 8)= -.2DEG.				
3	F/A= .0434	ETAC= 76.9	TT5F= 2924.	PT5/PT2= 83.3	M2= .532	PSI= 24.00	PCI= 22.50		
	AT 4	RMS12= .099,	RMS23= 1.553,	RMS34= 1.520	AT 8	RMS12= .068,	RMS23= 1.290,	RMS34= .412	
		200.HZ	AT 4)= 1.330RMSPSI,	AT 8)= 1.110RMSPSI,	PHASE(4 8)= 15.30DEG.				
		375.HZ	AT 4)= .341RMSPSI,	AT 8)= .258RMSPSI,	PHASE(4 8)= -53.30DEG.				
		1500.HZ	AT 4)= .400RMSPSI,	AT 8)= .061RMSPSI,	PHASE(4 8)= 36.90DEG.				
		1675.HZ	AT 4)= .926RMSPSI,	AT 8)= .132RMSPSI,	PHASE(4 8)= 51.10DEG.				
		1875.HZ	AT 4)= .736RMSPSI,	AT 8)= .130RMSPSI,	PHASE(4 8)= 174.70DEG.				
4	F/A= .0398	ETAC= 76.7	TT5F= 2796.	PT5/PT2= 82.6	M2= .549	PSI= 23.20	PCI= 21.80		
	AT 4	RMS12= .172,	RMS23= 2.540,	RMS34= 3.010	AT 8	RMS12= .079,	RMS23= 2.190,	RMS34= .710	
		200.HZ	AT 4)= 2.380RMSPSI,	AT 8)= 2.070RMSPSI,	PHASE(4 8)= 17.90DEG.				
		400.HZ	AT 4)= .615RMSPSI,	AT 8)= .433RMSPSI,	PHASE(4 8)= -54.20DEG.				
		1725.HZ	AT 4)= 1.990RMSPSI,	AT 8)= .274RMSPSI,	PHASE(4 8)= 43.60DEG.				
		1900.HZ	AT 4)= 1.270RMSPSI,	AT 8)= .265RMSPSI,	PHASE(4 8)= 141.20DEG.				
5	F/A= .0362	ETAC= 75.3	TT5F= 2627.	PT5/PT2= 82.2	M2= .574	PSI= 22.20	PCI= 20.90		
	AT 4	RMS12= .184,	RMS23= 1.770,	RMS34= 2.240	AT 8	RMS12= .124,	RMS23= 1.530,	RMS34= .540	
		200.HZ	AT 4)= 1.650RMSPSI,	AT 8)= 1.440RMSPSI,	PHASE(4 8)= 16.90DEG.				
		400.HZ	AT 4)= .364RMSPSI,	AT 8)= .262RMSPSI,	PHASE(4 8)= -52.60DEG.				
		1725.HZ	AT 4)= 1.760RMSPSI,	AT 8)= .206RMSPSI,	PHASE(4 8)= 52.30DEG.				
		1925.HZ	AT 4)= .813RMSPSI,	AT 8)= .213RMSPSI,	PHASE(4 8)= 155.20DEG.				
6	F/A= .0789	ETAC= 69.4	TT5F= 2237.	PT5/PT2= 81.3	M2= .658	PSI= 19.10	PCI= 18.90		
	AT 4	RMS12= .094,	RMS23= .271,	RMS34= .673	AT 8	RMS12= .093,	RMS23= .239,	RMS34= .212	
		1800.HZ	AT 4)= .145RMSPSI,	AT 8)= .118RMSPSI,	PHASE(4 8)= 17.10DEG.				
		200.HZ	AT 4)= .621RMSPSI,	AT 8)= .174RMSPSI,	PHASE(4 8)= 90.20DEG.				
7	F/A= .0261	ETAC= 57.1	TT5F= 2095.	PT5/PT2= 80.3	M2= .694	PSI= 18.10	PCI= 17.90		
	AT 4	RMS12= .097,	RMS23= .275,	RMS34= .348	AT 8	RMS12= .093,	RMS23= .240,	RMS34= .165	
		225.HZ	AT 4)= .121RMSPSI,	AT 8)= .094RMSPSI,	PHASE(4 8)= 20.70DEG.				
		1775.HZ	AT 4)= .303RMSPSI,	AT 8)= .126RMSPSI,	PHASE(4 8)= 112.40DEG.				

8 IN. CHAMB.		4.75 INLET		NO F-HOLD.		L/D=1.5		TUBE INJ.	
1	F/A=0.0000	ETAC= 0.0	TT5F= 998.	PT5/PT2= 68.4	M2= .857	PSI= 11.90	PCI= 6.71	PT5/PT2= 68.4	PSI= 11.90
AT 4	RMS12= .044,	RMS23= .113,	RMS34= 2.210,	AT 8	RMS12= .086,	RMS23= .274,	RMS34= 1.170,	AT 8	RMS12= .086,
F/A= .0450	ETAC= 47.0	TT5F= 2210.	PT5/PT2= 84.0	M2= .509	PSI= 20.80	PCI= 20.30	PT5/PT2= 84.0	PSI= 20.80	
AT 4	RMS12= .338,	RMS23= 1.310,	RMS34= 2.400	AT 8	RMS12= .274,	RMS23= 1.170,	RMS34= 1.790	AT 8	RMS12= .274,
125.0 HZ	AT 4)= .965RMSPSI,	AT 8)= .888RMSPSI,	PHASE(4 8)= 9.5DEG.	AT 8	RMS12= .274,	RMS23= 1.170,	RMS34= 1.790	AT 8	RMS12= .274,
1650.0 HZ	AT 4)= 1.820RMSPSI,	AT 8)= 1.430RMSPSI,	PHASE(4 8)= 2.1DEG.	AT 8	RMS12= .274,	RMS23= 1.170,	RMS34= 1.790	AT 8	RMS12= .274,
F/A= .0407	ETAC= 51.7	TT5F= 2230.	PT5/PT2= 84.6	M2= .513	PSI= 20.70	PCI= 20.40	PT5/PT2= 84.6	PSI= 20.70	
AT 4	RMS12= .184,	RMS23= 1.150,	RMS34= 2.100	AT 8	RMS12= .134,	RMS23= 1.020,	RMS34= 1.540	AT 8	RMS12= .134,
200.0 HZ	AT 4)= .918RMSPSI,	AT 8)= .804RMSPSI,	PHASE(4 8)= 10.6DEG.	AT 8	RMS12= .134,	RMS23= 1.020,	RMS34= 1.540	AT 8	RMS12= .134,
1675.0 HZ	AT 4)= 1.830RMSPSI,	AT 8)= 1.380RMSPSI,	PHASE(4 8)= -2.7DEG.	AT 8	RMS12= .134,	RMS23= 1.020,	RMS34= 1.540	AT 8	RMS12= .134,
F/A= .0347	ETAC= 53.4	TT5F= 2121.	PT5/PT2= 84.7	M2= .542	PSI= 19.70	PCI= 19.50	PT5/PT2= 84.7	PSI= 19.70	
AT 4	RMS12= .254,	RMS23= .754,	RMS34= 2.090	AT 8	RMS12= .107,	RMS23= .671,	RMS34= 1.440	AT 8	RMS12= .107,
200.0 HZ	AT 4)= .564RMSPSI,	AT 8)= .505RMSPSI,	PHASE(4 8)= 10.0DEG.	AT 8	RMS12= .107,	RMS23= .671,	RMS34= 1.440	AT 8	RMS12= .107,
1725.0 HZ	AT 4)= 1.800RMSPSI,	AT 8)= 1.280RMSPSI,	PHASE(4 8)= -2.0DEG.	AT 8	RMS12= .107,	RMS23= .671,	RMS34= 1.440	AT 8	RMS12= .107,
F/A= .0310	ETAC= 40.1	TT5F= 1767.	PT5/PT2= 84.0	M2= .627	PSI= 15.80	PCI= 16.70	PT5/PT2= 84.0	PSI= 15.80	
AT 4	RMS12= .168,	RMS23= .249,	RMS34= .602	AT 8	RMS12= .170,	RMS23= .260,	RMS34= .508	AT 8	RMS12= .170,
1750.0 HZ	AT 4)= .554RMSPSI,	AT 8)= .467RMSPSI,	PHASE(4 8)= 12.5DEG.	AT 8	RMS12= .170,	RMS23= .260,	RMS34= .508	AT 8	RMS12= .170,
F/A= .0254	ETAC= 45.2	TT5F= 1719.	PT5/PT2= 83.7	M2= .644	PSI= 16.20	PCI= 16.10	PT5/PT2= 83.7	PSI= 16.20	
AT 4	RMS12= .088,	RMS23= .198,	RMS34= .526	AT 8	RMS12= .094,	RMS23= .193,	RMS34= .456	AT 8	RMS12= .094,
1775.0 HZ	AT 4)= .463RMSPSI,	AT 8)= .402RMSPSI,	PHASE(4 8)= 19.6DEG.	AT 8	RMS12= .094,	RMS23= .193,	RMS34= .456	AT 8	RMS12= .094,

IN-CHAMB.	4.75 INLET	25Y F.M.	BASELINE	UNIF. INJ.	M2	PSI	PCI
1	F/A=0.0000	ETAC= 0.0	TT5F= 999	PT5/PT2= 51.9	M2= .474	PSI= 21.51	PCI= 12.70
2	F/A=.0055	ETAC= 89.7	TT5F= 3911	PT5/PT2= 83.5	M2= .334	PSI= 32.07	PCI= 27.87
	AT 4	RMS12= .254	RMS23= .409	AT 8	RMS12= .214	RMS23= .467	RMS34= .528
	225-MZ	AT 4)= .191RMSPSI,	AT 8)= .205RMSPSI,	PHASE(4 8)=	10.6DEG.		
	2075-MZ	AT 4)= .402RMSPSI,	AT 8)= .047RMSPSI,	PHASE(4 8)=	87.2DEG.		
	4600-MZ	AT 4)= .478RMSPSI,	AT 8)= .171RMSPSI,	PHASE(4 8)=	-18.8DEG.		
	4925-MZ	AT 4)= .443RMSPSI,	AT 8)= .036RMSPSI,	PHASE(4 8)=	-167.2DEG.		
3	F/A=.0580	ETAC= 84.6	TT5F= 3589	PT5/PT2= 82.6	M2= .354	PSI= 30.39	PCI= 26.60
	AT 4	RMS12= .256	RMS23= .244	AT 8	RMS12= .229	RMS23= .231	RMS34= .224
	275-MZ	AT 4)= .114RMSPSI,	AT 8)= .107RMSPSI,	PHASE(4 8)=	28.6DEG.		
	3875-MZ	AT 4)= .236RMSPSI,	AT 8)= .133RMSPSI,	PHASE(4 8)=	-79.8DEG.		
4	F/A=.0538	ETAC= 85.0	TT5F= 3477	PT5/PT2= 82.2	M2= .361	PSI= 29.89	PCI= 26.12
	AT 4	RMS12= .086	RMS23= .274	AT 8	RMS12= .081	RMS23= .256	RMS34= .228
	200-MZ	AT 4)= .145RMSPSI,	AT 8)= .124RMSPSI,	PHASE(4 8)=	12.9DEG.		
	3475-MZ	AT 4)= .345RMSPSI,	AT 8)= .008RMSPSI,	PHASE(4 8)=	-103.3DEG.		
	3775-MZ	AT 4)= .355RMSPSI,	AT 8)= .158RMSPSI,	PHASE(4 8)=	-90.1DEG.		
5	F/A=.0500	ETAC= 86.1	TT5F= 3392	PT5/PT2= 81.7	M2= .366	PSI= 29.27	PCI= 25.48
	AT 4	RMS12= .103	RMS23= .259	AT 8	RMS12= .081	RMS23= .237	RMS34= .278
	225-MZ	AT 4)= .107RMSPSI,	AT 8)= .103RMSPSI,	PHASE(4 8)=	10.5DEG.		
	3425-MZ	AT 4)= .152RMSPSI,	AT 8)= .009RMSPSI,	PHASE(4 8)=	-82.8DEG.		
	3725-MZ	AT 4)= .437RMSPSI,	AT 8)= .226RMSPSI,	PHASE(4 8)=	-81.1DEG.		
6	F/A=.0449	ETAC= 80.1	TT5F= 3053	PT5/PT2= 79.7	M2= .361	PSI= 28.21	PCI= 23.80
	AT 4	RMS12= .123	RMS23= .648	AT 8	RMS12= .089	RMS23= .527	RMS34= .610
	225-MZ	AT 4)= .506RMSPSI,	AT 8)= .414RMSPSI,	PHASE(4 8)=	12.5DEG.		
	3425-MZ	AT 4)= .511RMSPSI,	AT 8)= .042RMSPSI,	PHASE(4 8)=	-163.8DEG.		
	3700-MZ	AT 4)= .411RMSPSI,	AT 8)= .369RMSPSI,	PHASE(4 8)=	-74.4DEG.		
7	F/A=.0450	ETAC= 75.2	TT5F= 3430	PT5/PT2= 81.0	M2= .358	PSI= 29.92	PCI= 25.54
	AT 4	RMS12= .223	RMS23= .302	AT 8	RMS12= .137	RMS23= .345	RMS34= .649
	2050-MZ	AT 4)= .1940RMSPSI,	AT 8)= .624RMSPSI,	PHASE(4 8)=	75.0DEG.		
	4075-MZ	AT 4)= .725RMSPSI,	AT 8)= .134RMSPSI,	PHASE(4 8)=	90.0DEG.		
	6125-MZ	AT 4)= .293RMSPSI,	AT 8)= .165RMSPSI,	PHASE(4 8)=	-81.2DEG.		

8IN.CHAMB. 4.75 INLET .25Y F.H. T10=750R UNIF-INJ. PCI= 11.00
 1 F/A=0.0000 ETAC= 0.0 TT5F= 766. PT5/PT2= 52.1 M2= .487 PSI= 18.90 PCI= 11.00
 2 F/A= .0631 ETAC= 75.8 TT5F= 3274. PT5/PT2= 83.3 M2= .316 PSI= 29.40 PCI= 25.90
 AT 4 RMS12= .189, RMS23= 4.740, RMS34= .682 AT 8 RMS12= .154, RMS23= 4.420, RMS34= .549
 200.HZ AT 4)= 4.000RMSPSI, AT 8)= 3.750RMSPSI, PHASE(4 8)= 17.0DEG.
 375.HZ AT 4)= 1.320RMSPSI, AT 8)= .650RMSPSI, PHASE(4 8)= 50.8DEG.
 575.HZ AT 4)= 1.070RMSPSI, AT 8)= .553RMSPSI, PHASE(4 8)= -172.9DEG.
 3 F/A= .0589 ETAC= 75.0 TT5F= 3162. PT5/PT2= 82.9 M2= .325 PSI= 28.60 PCI= 25.10
 AT 4 RMS12= .238, RMS23= 4.290, RMS34= .625 AT 8 RMS12= .191, RMS23= 3.940, RMS34= .508
 175.HZ AT 4)= 3.680RMSPSI, AT 8)= 3.560RMSPSI, PHASE(4 8)= 18.5DEG.
 375.HZ AT 4)= 1.160RMSPSI, AT 8)= .524RMSPSI, PHASE(4 8)= 49.5DEG.
 550.HZ AT 4)= .860RMSPSI, AT 8)= .450RMSPSI, PHASE(4 8)= -172.8DEG.
 750.HZ AT 4)= .494RMSPSI, AT 8)= .340RMSPSI, PHASE(4 8)= -175.6DEG.
 4 F/A= .0554 ETAC= 73.4 TT5F= 3027. PT5/PT2= 82.4 M2= .333 PSI= 27.80 PCI= 24.30
 AT 4 RMS12= .235, RMS23= 4.320, RMS34= .537 AT 8 RMS12= .200, RMS23= 3.930, RMS34= .379
 175.HZ AT 4)= 3.910RMSPSI, AT 8)= 3.700RMSPSI, PHASE(4 8)= 18.9DEG.
 375.HZ AT 4)= 1.020RMSPSI, AT 8)= .462RMSPSI, PHASE(4 8)= 43.3DEG.
 550.HZ AT 4)= .771RMSPSI, AT 8)= .447RMSPSI, PHASE(4 8)= -174.5DEG.
 725.HZ AT 4)= .484RMSPSI, AT 8)= .355RMSPSI, PHASE(4 8)= -173.6DEG.

BIN.CHAMP. 1	4.75 INLET F/A	.25 F.O.H. ETAC	TTO=1250K TT5F	UNIF.INJ. PT5/PT2	M2	.357 RMS12	PSI	33.76 RMS23	PCI	28.81 RMS34	.780
1	150.HZ	.151	.319	.969	.136	-.4.0DEG.					
	275.HZ	.149	.313	.125	-.5DEG.						
	675.HZ	.111	.310	.014	28.4DEG.						
	2250.HZ	.143	.310	.251	-81.7DEG.						
	4900.HZ	.178	.310	.558	-161.6DEG.						
	9775.HZ	.195	.310	.181	.090						
	3700.HZ	.149	.310	.089	27.8DEG.						
2	300.HZ	.144	.310	.167	-.5DEG.						
	2175.HZ	.174	.310	.014	28.4DEG.						
	2500.HZ	.178	.310	.251	-81.7DEG.						
	5100.HZ	.164	.310	.558	-161.6DEG.						
	9775.HZ	.195	.310	.181	.090						
	3700.HZ	.149	.310	.089	27.8DEG.						
	3950.HZ	.094	.310	.169	-76.3DEG.						
3	2050.HZ	.101	.330	.274	.106						
	3950.HZ	.117	.330	.027	92.1DEG.						
	5800.HZ	.239	.330	.151	-69.6DEG.						
	9775.HZ	.191	.330	.621	30.07						
	3700.HZ	.149	.330	.060	104						
	1975.HZ	.149	.330	.060	87.1DEG.						
	3775.HZ	.246	.330	.251	-76.0DEG.						
4	2050.HZ	.101	.330	.274	.106						
	3950.HZ	.117	.330	.027	92.1DEG.						
	5800.HZ	.239	.330	.151	-69.6DEG.						
	9775.HZ	.191	.330	.621	30.07						
	3700.HZ	.149	.330	.060	104						
	1975.HZ	.149	.330	.060	87.1DEG.						
	3775.HZ	.246	.330	.251	-76.0DEG.						
5	2050.HZ	.101	.330	.274	.106						
	3950.HZ	.117	.330	.027	92.1DEG.						
	5800.HZ	.239	.330	.151	-69.6DEG.						
	9775.HZ	.191	.330	.621	30.07						
	3700.HZ	.149	.330	.060	104						
	1975.HZ	.149	.330	.060	87.1DEG.						
	3775.HZ	.246	.330	.251	-76.0DEG.						
6	2050.HZ	.101	.330	.274	.106						
	3950.HZ	.117	.330	.027	92.1DEG.						
	5800.HZ	.239	.330	.151	-69.6DEG.						
	9775.HZ	.191	.330	.621	30.07						
	3700.HZ	.149	.330	.060	104						
	1975.HZ	.149	.330	.060	87.1DEG.						
	3775.HZ	.246	.330	.251	-76.0DEG.						

8IN.CHAMB.	4.75 INLET	.25Y F.M.	LOW FLOW	UNIF.INJ.	M2	PSI	PCI
1	F/A=0.0000	ETAC= 0.0	TT5F= 1108.	PT5/PT2= 52.0	M2= .492	PSI= 16.80	PCI= 14.30
2	F/A= .0655	ETAC= 81.9	TT5F= 3637.	PT5/PT2= 82.4	M2= .349	PSI= 13.00	PCI= 7.65
	AT 4	RMS12= .106,	RMS23= .175,	AT 8	RMS12= .094,	RMS23= .157,	RMS34= .110
	200.MZ	AT 4)= .087RMSPSI,	AT 8)= .088RMSPSI,	PHASE(4 8)=	16.7DEG.		
	3900.MZ	AT 4)= .099RMSPSI,	AT 8)= .087RMSPSI,	PHASE(4 8)=	-65.7DEG.		
3	F/A= .0615	ETAC= 83.0	TT5F= 3596.	PT5/PT2= 82.7	M2= .351	PSI= 18.50	PCI= 16.30
	AT 4	RMS12= .074,	RMS23= .468,	AT 8	RMS12= .043,	RMS23= .413,	RMS34= .067
	225.MZ	AT 4)= .419RMSPSI,	AT 8)= .372RMSPSI,	PHASE(4 8)=	16.9DEG.		
	3850.MZ	AT 4)= .041RMSPSI,	AT 8)= .038RMSPSI,	PHASE(4 8)=	-76.9DEG.		
4	F/A= .0561	ETAC= 84.5	TT5F= 3517.	PT5/PT2= 82.5	M2= .358	PSI= 18.30	PCI= 16.00
	AT 4	RMS12= .046,	RMS23= .226,	AT 8	RMS12= .033,	RMS23= .195,	RMS34= .108
	225.MZ	AT 4)= .176RMSPSI,	AT 8)= .162RMSPSI,	PHASE(4 8)=	10.5DEG.		
	3775.MZ	AT 4)= .147RMSPSI,	AT 8)= .043RMSPSI,	PHASE(4 8)=	-56.3DEG.		
5	F/A= .0509	ETAC= 84.3	TT5F= 3362.	PT5/PT2= 81.7	M2= .358	PSI= 18.00	PCI= 15.70
	AT 4	RMS12= .051,	RMS23= .876,	AT 8	RMS12= .050,	RMS23= .701,	RMS34= .048
	200.MZ	AT 4)= .801RMSPSI,	AT 8)= .648RMSPSI,	PHASE(4 8)=	20.6DEG.		
	3650.MZ	AT 4)= .040RMSPSI,	AT 8)= .022RMSPSI,	PHASE(4 8)=	-58.2DEG.		
6	F/A= .0448	ETAC= 80.0	TT5F= 3035.	PT5/PT2= 74.4	M2= .381	PSI= 17.50	PCI= 15.30
	AT 4	RMS12= .163,	RMS23= 2.120,	AT 8	RMS12= .123,	RMS23= 1.560,	RMS34= .076
	200.MZ	AT 4)= 1.956RMSPSI,	AT 8)= 1.460RMSPSI,	PHASE(4 8)=	18.5DEG.		
	400.MZ	AT 4)= .475RMSPSI,	AT 8)= .118RMSPSI,	PHASE(4 8)=	18.30DEG.		

8IN.CHAMB. 4.75 INLET .25Y F.H. 40% NOZ. UNIF-INJ.												
1	F/A=0.0000	ETAC= 0.0	TT5F= 931.	PT5/PT2= 32.7	M2= .492	PSI= 17.30	PCI= 12.60					
2	F/A= .0642	ETAC= 85.3	TT5F= 3737.	PT5/PT2= 88.3	M2= .285	PSI= 30.20	PCI= 28.10					
	AT 4	RMS12= .084,	RMS23= 1.710,	RMS34= .152	AT 8	RMS12= .084,	RMS23= 1.600,	RMS34= .108				
	200.MZ	AT 4)= 1.510RMSPSI,	AT 8)= 1.340RMSPSI,	PHASE(4 8)= 19.5DEG.								
	400.MZ	AT 4)= .357RMSPSI,	AT 8)= .161RMSPSI,	PHASE(4 8)= 94.0DEG.								
	600.MZ	AT 4)= .361RMSPSI,	AT 8)= .311RMSPSI,	PHASE(4 8)= 167.4DEG.								
3	F/A= .0595	ETAC= 85.7	TT5F= 3658.	PT5/PT2= 88.2	M2= .291	PSI= 29.70	PCI= 27.50					
	AT 4	RMS12= .103,	RMS23= 1.610,	RMS34= .132	AT 8	RMS12= .087,	RMS23= 1.500,	RMS34= .103				
	200.MZ	AT 4)= 1.440RMSPSI,	AT 8)= 1.320RMSPSI,	PHASE(4 8)= 21.1DEG.								
	400.MZ	AT 4)= .285RMSPSI,	AT 8)= .129RMSPSI,	PHASE(4 8)= 101.6DEG.								
	625.MZ	AT 4)= .369RMSPSI,	AT 8)= .317RMSPSI,	PHASE(4 8)= 176.9DEG.								
4	F/A= .0544	ETAC= 85.3	TT5F= *****	PT5/PT2= 87.5	M2= .299	PSI= 29.00	PCI= 26.80					
	AT 4	RMS12= .096,	RMS23= 1.690,	RMS34= .124	AT 8	RMS12= .107,	RMS23= 1.520,	RMS34= .100				
	200.MZ	AT 4)= 1.540RMSPSI,	AT 8)= 1.390RMSPSI,	PHASE(4 8)= 21.2DEG.								
	400.MZ	AT 4)= .298RMSPSI,	AT 8)= .133RMSPSI,	PHASE(4 8)= 120.4DEG.								
	625.MZ	AT 4)= .412RMSPSI,	AT 8)= .365RMSPSI,	PHASE(4 8)= -173.4DEG.								
5	F/A= .0490	ETAC= 86.3	TT5F= 3364.	PT5/PT2= 87.3	M2= .307	PSI= 28.10	PCI= 26.00					
	AT 4	RMS12= .091,	RMS23= 1.460,	RMS34= .165	AT 8	RMS12= .069,	RMS23= 1.220,	RMS34= .080				
	200.MZ	AT 4)= 1.360RMSPSI,	AT 8)= 1.130RMSPSI,	PHASE(4 8)= 21.4DEG.								
	400.MZ	AT 4)= .242RMSPSI,	AT 8)= .113RMSPSI,	PHASE(4 8)= 115.2DEG.								
	600.MZ	AT 4)= .273RMSPSI,	AT 8)= .264RMSPSI,	PHASE(4 8)= -161.5DEG.								
6	F/A= .0456	ETAC= 91.2	TT5F= 3371.	PT5/PT2= 86.7	M2= .306	PSI= 28.30	PCI= 25.60					
	AT 4	RMS12= .250,	RMS23= 1.610,	RMS34= 3.570	AT 8	RMS12= .236,	RMS23= 1.490,	RMS34= .865				
	125.MZ	AT 4)= 1.430RMSPSI,	AT 8)= 1.640RMSPSI,	PHASE(4 8)= 9.7DEG.								
	2025.MZ	AT 4)= 2.770RMSPSI,	AT 8)= .360RMSPSI,	PHASE(4 8)= 119.6DEG.								

8IN.CHAMB.	4.75 INLET	25Y F.O.H.	50% NOZ.	UNIF.INJ.	M2	PSI	PCI
1	F/A=0.0000	ETAC= 0.0	TT5F= 977.	PT5/PT2= 42.9	M2= .497	PSI= 25.87	PCI= 11.75
	AT 4	RMS12= .054,	RMS23= .215,	RMS34= .209	AT 8	RMS12= .093,	RMS23= .307,
2	F/A= .0656	ETAC= 85.9	TT5F= 3787.	PT5/PT2= 77.8	M2= .392	PSI= 32.93	PCI= 27.09
	AT 4	RMS12= .167,	RMS23= .345,	RMS34= .967	AT 8	RMS12= .106,	RMS23= .281,
3	F/A= .0602	ETAC= 87.1	TT5F= 3712.	PT5/PT2= 77.3	M2= .396	PSI= 32.53	PCI= 26.65
	AT 4	RMS12= .170,	RMS23= .310,	RMS34= .429	AT 8	RMS12= .114,	RMS23= .223,
4	F/A= .0545	ETAC= 85.7	TT5F= 3522.	PT5/PT2= 76.0	M2= .407	PSI= 31.72	PCI= 25.71
	AT 4	RMS12= .137,	RMS23= .361,	RMS34= .704	AT 8	RMS12= .135,	RMS23= .270,
5	F/A= .0505	ETAC= 84.4	TT5F= 3363.	PT5/PT2= 75.0	M2= .416	PSI= 31.12	PCI= 25.02
	AT 4	RMS12= .110,	RMS23= .401,	RMS34= 1.150	AT 8	RMS12= .102,	RMS23= .289,

REN. CHAMB.	4.75 INLET	.25Y F.O.H.	BASELINE	TUBE INJ.	PSI	PCI	RMS34	
1	F/A=0.0000	ETAC= 0.0	TI5F= 567.	PT5/PT2= 52.0	M2= .440	PSI= 15.90	PCI= 9.13	
2	F/A=0.0000	ETAC= 0.0	TI5F= 1105.	PT5/PT2= 51.4	M2= .490	PSI= 21.60	PCI= 12.30	
3	F/A=.0657	ETAC= 73.5	TI5F= 3378.	PT5/PT2= 81.5	M2= .360	PSI= 15.90	PCI= 9.13	
	AT 4	RMS12= .129,	RMS23= 1.080,	RMS34= 1.040	AT 8	RMS12= .092,	RMS23= .923,	RMS34= 1.010
	225.HZ	AT 4)= .958RMSPSI,	AT 8)= .830RMSPSI,	PHASE(4 8)= 18.2DEG.				
	1975.HZ	AT 4)= .259RMSPSI,	AT 8)= .034RMSPSI,	PHASE(4 8)= -150.0DEG.				
	2250.HZ	AT 4)= .545RMSPSI,	AT 8)= .645RMSPSI,	PHASE(4 8)= -95.0DEG.				
	2475.HZ	AT 4)= .049RMSPSI,	AT 8)= .334RMSPSI,	PHASE(4 8)= 177.40DEG.				
	4575.HZ	AT 4)= .385RMSPSI,	AT 8)= .163RMSPSI,	PHASE(4 8)= 92.2DEG.				
4	F/A=.0985	ETAC= 74.1	TI5F= 3272.	PT5/PT2= 81.0	M2= .370	PSI= 29.20	PCI= 24.80	
	AT 4	RMS12= .071,	RMS23= .595,	RMS34= 1.060	AT 8	RMS12= .049,	RMS23= .434,	RMS34= .797
	225.HZ	AT 4)= .332RMSPSI,	AT 8)= .240RMSPSI,	PHASE(4 8)= 19.1DEG.				
	2250.HZ	AT 4)= .437RMSPSI,	AT 8)= .529RMSPSI,	PHASE(4 8)= -69.4DEG.				
	3725.HZ	AT 4)= .495RMSPSI,	AT 8)= .220RMSPSI,	PHASE(4 8)= -65.8DEG.				
5	F/A=.0532	ETAC= 76.8	TI5F= 3222.	PT5/PT2= 60.6	M2= .371	PSI= 24.00	PCI= 24.60	
	AT 4	RMS12= .107,	RMS23= .463,	RMS34= 1.030	AT 8	RMS12= .094,	RMS23= .393,	RMS34= .679
	225.HZ	AT 4)= .276RMSPSI,	AT 8)= .247RMSPSI,	PHASE(4 8)= 11.70DEG.				
	3725.HZ	AT 4)= .579RMSPSI,	AT 8)= .369RMSPSI,	PHASE(4 8)= -73.30DEG.				
6	F/A=.0483	ETAC= 78.9	TI5F= 3139.	PT5/PT2= 80.2	M2= .377	PSI= 28.60	PCI= 24.30	
	AT 4	RMS12= .132,	RMS23= .527,	RMS34= 1.030	AT 8	RMS12= .114,	RMS23= .441,	RMS34= .640
	225.HZ	AT 4)= .345RMSPSI,	AT 8)= .279RMSPSI,	PHASE(4 8)= 17.80DEG.				
	3425.HZ	AT 4)= .339RMSPSI,	AT 8)= .036RMSPSI,	PHASE(4 8)= 75.40DEG.				
	3725.HZ	AT 4)= .550RMSPSI,	AT 8)= .351RMSPSI,	PHASE(4 8)= -82.70DEG.				
7	F/A=.0439	ETAC= 81.7	TI5F= 3060.	PT5/PT2= 79.9	M2= .383	PSI= 28.70	PCI= 23.80	
	AT 4	RMS12= .106,	RMS23= .432,	RMS34= 1.140	AT 8	RMS12= .100,	RMS23= .432,	RMS34= .495
	225.HZ	AT 4)= .298RMSPSI,	AT 8)= .258RMSPSI,	PHASE(4 8)= 16.50DEG.				
	3425.HZ	AT 4)= .569RMSPSI,	AT 8)= .033RMSPSI,	PHASE(4 8)= 41.60DEG.				
	3700.HZ	AT 4)= .546RMSPSI,	AT 8)= .266RMSPSI,	PHASE(4 8)= -99.00DEG.				
8	F/A=.0419	ETAC= 80.4	TI5F= 2960.	PT5/PT2= 79.0	M2= .389	PSI= 27.40	PCI= 23.00	
	AT 4	RMS12= .130,	RMS23= .582,	RMS34= .967	AT 8	RMS12= .107,	RMS23= .448,	RMS34= .419
	225.HZ	AT 4)= .377RMSPSI,	AT 8)= .316RMSPSI,	PHASE(4 8)= 19.2DEG.				
	3400.HZ	AT 4)= .479RMSPSI,	AT 8)= .022RMSPSI,	PHASE(4 8)= -170.0DEG.				
	3675.HZ	AT 4)= .447RMSPSI,	AT 8)= .257RMSPSI,	PHASE(4 8)= -71.80DEG.				
9	F/A=.0349	ETAC= 84.6	TI5F= 2776.	PT5/PT2= 78.1	M2= .402	PSI= 26.60	PCI= 22.10	
	AT 4	RMS12= .057,	RMS23= .381,	RMS34= 1.120	AT 8	RMS12= .068,	RMS23= .344,	RMS34= .302
	200.HZ	AT 4)= .188RMSPSI,	AT 8)= .162RMSPSI,	PHASE(4 8)= 9.50DEG.				
	3350.HZ	AT 4)= .914RMSPSI,	AT 8)= .092RMSPSI,	PHASE(4 8)= 149.00DEG.				
10	F/A=.0301	ETAC= 86.8	TI5F= 2610.	PT5/PT2= 77.0	M2= .415	PSI= 25.90	PCI= 21.40	
11	F/A=.0242	ETAC= 88.3	TI5F= 2349.	PT5/PT2= 75.1	M2= .435	PSI= 24.70	PCI= 20.10	
	200.HZ	AT 4)= .217RMSPSI,	AT 8)= .151RMSPSI,	PHASE(4 8)= 16.70DEG.				
	3250.HZ	AT 4)= .875RMSPSI,	AT 8)= .396RMSPSI,	PHASE(4 8)= 128.10DEG.				

DIN-CHAMB.	4.75 INLET	.25Y F.O.M.	TTJ=75OR	TUSE INJ.	M2		PSI	PCI
					AT 4	AT 8		
1	F/A=0.0000	ETAC=0.0	TT5F=777.	PT5/PT2= 52.1	M2= .490	PSI= 18.67	PCI= 11.15	
2	F/A= .0658	ETAC= 50.1	TT5F= 2797.	PT5/PT2= 52.1	M2= .345	PSI= 27.00	PCI= 23.29	
	AT 4	RMS12= .090,	RMS23= .428,	RMS34= .715	AT 8	RMS12= .078,	RMS23= .393,	RMS34= .636
	200.HZ	AT 4)= .252KMSPSI,	AT 8)= .228KMSPSI,	PHASE(4 8)=	8.80DEG.			
	2125.HZ	AT 4)= .289KMSPSI,	AT 8)= .404KMSPSI,	PHASE(4 8)=	-127.60DEG.			
	3275.HZ	AT 4)= .457KMSPSI,	AT 8)= .637KMSPSI,	PHASE(4 8)=	115.50DEG.			
	3575.HZ	AT 4)= .284KMSPSI,	AT 8)= .173KMSPSI,	PHASE(4 8)=	-65.70DEG.			
	3725.HZ	AT 4)= .125KMSPSI,	AT 8)= .232KMSPSI,	PHASE(4 8)=	86.60DEG.			
3	F/A= .0594	ETAC= 52.0	TT5F= 2754.	PT5/PT2= 81.7	M2= .348	PSI= 26.71	PCI= 22.97	
	AT 4	RMS12= .103,	RMS23= .528,	RMS34= 1.090	AT 8	RMS12= .092,	RMS23= .488,	RMS34= .796
	200.HZ	AT 4)= .355KMSPSI,	AT 8)= .326KMSPSI,	PHASE(4 8)=	16.30DEG.			
	1200.HZ	AT 4)= .206KMSPSI,	AT 8)= .024KMSPSI,	PHASE(4 8)=	-51.20DEG.			
	2100.HZ	AT 4)= .415KMSPSI,	AT 8)= .562KMSPSI,	PHASE(4 8)=	-123.60DEG.			
	3300.HZ	AT 4)= .470KMSPSI,	AT 8)= .036KMSPSI,	PHASE(4 8)=	128.70DEG.			
	3550.HZ	AT 4)= .290KMSPSI,	AT 8)= .149KMSPSI,	PHASE(4 8)=	-67.40DEG.			
	3700.HZ	AT 4)= .128KMSPSI,	AT 8)= .178KMSPSI,	PHASE(4 8)=	97.10DEG.			
4	F/A= .0550	ETAC= 65.2	TT5F= 2762.	PT5/PT2= 81.8	M2= .350	PSI= 26.63	PCI= 22.91	
	AT 4	RMS12= .130,	RMS23= .562,	RMS34= 1.130	AT 8	RMS12= .092,	RMS23= .569,	RMS34= .731
	200.HZ	AT 4)= .381KMSPSI,	AT 8)= .374KMSPSI,	PHASE(4 8)=	15.50DEG.			
	2100.HZ	AT 4)= .356KMSPSI,	AT 8)= .474KMSPSI,	PHASE(4 8)=	-125.80DEG.			
	3325.HZ	AT 4)= .411KMSPSI,	AT 8)= .029KMSPSI,	PHASE(4 8)=	111.50DEG.			
	3550.HZ	AT 4)= .465KMSPSI,	AT 8)= .211KMSPSI,	PHASE(4 8)=	-59.10DEG.			
	3725.HZ	AT 4)= .119KMSPSI,	AT 8)= .133KMSPSI,	PHASE(4 8)=	122.00DEG.			
5	F/A= .0505	ETAC= 70.0	TT5F= 2788.	PT5/PT2= 81.8	M2= .350	PSI= 26.62	PCI= 22.89	
	AT 4	RMS12= .137,	RMS23= .726,	RMS34= 1.240	AT 8	RMS12= .100,	RMS23= .666,	RMS34= .800
	175.HZ	AT 4)= .583KMSPSI,	AT 8)= .028KMSPSI,	PHASE(4 8)=	16.90DEG.			
	2100.HZ	AT 4)= .402KMSPSI,	AT 8)= .529KMSPSI,	PHASE(4 8)=	-128.70DEG.			
	3275.HZ	AT 4)= .558KMSPSI,	AT 8)= .034KMSPSI,	PHASE(4 8)=	143.30DEG.			
	3675.HZ	AT 4)= .118KMSPSI,	AT 8)= .204KMSPSI,	PHASE(4 8)=	125.20DEG.			
6	F/A= .0460	ETAC= 74.5	TT5F= 2706.	PT5/PT2= 81.1	M2= .355	PSI= 26.23	PCI= 22.40	
	AT 4	RMS12= .146,	RMS23= .571,	RMS34= 1.160	AT 8	RMS12= .135,	RMS23= .508,	RMS34= .791
	175.HZ	AT 4)= .346KMSPSI,	AT 8)= .303KMSPSI,	PHASE(4 8)=	15.60DEG.			
	2075.HZ	AT 4)= .350KMSPSI,	AT 8)= .571KMSPSI,	PHASE(4 8)=	-127.50DEG.			
	3200.HZ	AT 4)= .596KMSPSI,	AT 8)= .073KMSPSI,	PHASE(4 8)=	129.90DEG.			
	3500.HZ	AT 4)= .369KMSPSI,	AT 8)= .165KMSPSI,	PHASE(4 8)=	-60.80DEG.			
	3675.HZ	AT 4)= .168KMSPSI,	AT 8)= .177KMSPSI,	PHASE(4 8)=	11.10DEG.			
7	F/A= .0415	ETAC= 77.1	TT5F= 2697.	PT5/PT2= 81.0	M2= .358	PSI= 25.78	PCI= 22.05	
	AT 4	RMS12= .127,	RMS23= .655,	RMS34= 1.240	AT 8	RMS12= .098,	RMS23= .631,	RMS34= .623
	200.HZ	AT 4)= .396KMSPSI,	AT 8)= .361KMSPSI,	PHASE(4 8)=	11.10DEG.			
	2075.HZ	AT 4)= .215KMSPSI,	AT 8)= .375KMSPSI,	PHASE(4 8)=	-132.00DEG.			
	3225.HZ	AT 4)= .931KMSPSI,	AT 8)= .068KMSPSI,	PHASE(4 8)=	128.00DEG.			
8	F/A= .0351	ETAC= 78.8	TT5F= 2472.	PT5/PT2= 79.7	M2= .372	PSI= 24.82	PCI= 21.05	
	AT 4	RMS12= .102,	RMS23= .374,	RMS34= 1.340	AT 8	RMS12= .084,	RMS23= .342,	RMS34= .408
	175.HZ	AT 4)= .210KMSPSI,	AT 8)= .197KMSPSI,	PHASE(4 8)=	14.20DEG.			
	3150.HZ	AT 4)= .130KMSPSI,	AT 8)= .213KMSPSI,	PHASE(4 8)=	114.50DEG.			
	6300.HZ	AT 4)= .405KMSPSI,	AT 8)= .073KMSPSI,	PHASE(4 8)=	-79.60DEG.			
9	F/A= .0305	ETAC= 80.8	TT5F= 2311.	PT5/PT2= 78.7	M2= .385	PSI= 24.03	PCI= 20.26	
	AT 4	RMS12= .103,	RMS23= .488,	RMS34= 1.590	AT 8	RMS12= .093,	RMS23= .400,	RMS34= .527
	175.HZ	AT 4)= .383KMSPSI,	AT 8)= .284KMSPSI,	PHASE(4 8)=	18.00DEG.			
	3100.HZ	AT 4)= .150KMSPSI,	AT 8)= .238KMSPSI,	PHASE(4 8)=	103.80DEG.			
10	F/A= .0242	ETAC= 88.4	TT5F= 1367.	PT5/PT2= 81.6	M2= .465	PSI= 19.84	PCI= 15.33	
	AT 4	RMS12= .153,	RMS23= .175,	RMS34= .096	AT 8	RMS12= .119,	RMS23= .175,	RMS34= .122
	400.HZ	AT 4)= .060KMSPSI,	AT 8)= .073KMSPSI,	PHASE(4 8)=	179.80DEG.			

BIN	CHAMB.	4.75 INLET	.25 F.A.	IT0=1250R	TU0F INJ.	M2=	PSI=	PCI=
1	F/A=0.000	ETAC= 0.0	T15F= 1219.	PT5/PT2= 51.7	M2= .494	PSI= 24.14	PCI= 13.96	
2	F/A= .0661	ETAC= 77.0	T15F= 3623.	PT5/PT2= 74.8	M2= .362	PSI= 31.30	PCI= 26.43	
	AT 4	RMS23= .102,	RMS23= .423,	AT 8	RMS12= .070,	RMS23= .327,	RMS34= .797	
		3925.HZ	AT 4)= .590KMSPSI,	PHASE1 4 8)=	-76.1DEG.			
3	F/A= .0595	ETAC= 79.8	T15F= 3604.	PT5/PT2= 74.6	M2= .387	PSI= 31.13	PCI= 26.23	
	AT 4	RMS12= .049,	RMS23= .379,	AT 8	RMS12= .041,	RMS23= .308,	RMS34= .705	
		3525.HZ	AT 4)= .279KMSPSI,	PHASE1 4 8)=	92.2DEG.			
		3950.HZ	AT 4)= .692KMSPSI,	PHASE1 4 8)=	-78.4DEG.			
4	F/A= .0542	ETAC= 81.5	T15F= 3524.	PT5/PT2= 73.4	M2= .342	PSI= 30.75	PCI= 25.93	
	AT 4	RMS23= .085,	RMS23= .343,	AT 8	RMS12= .059,	RMS23= .294,	RMS34= .670	
		250.HZ	AT 4)= .143KMSPSI,	PHASE1 4 8)=	4.7DEG.			
		3550.HZ	AT 4)= .270KMSPSI,	PHASE1 4 8)=	8.7DEG.			
		3950.HZ	AT 4)= .620KMSPSI,	PHASE1 4 8)=	-82.9DEG.			
		7900.HZ	AT 4)= .244KMSPSI,	PHASE1 4 8)=	86.1DEG.			
5	F/A= .0503	ETAC= 81.8	T15F= 3429.	PT5/PT2= 78.7	M2= .347	PSI= 30.26	PCI= 25.30	
	AT 4	RMS12= .110,	RMS23= .468,	AT 8	RMS12= .090,	RMS23= .369,	RMS34= .724	
		3550.HZ	AT 4)= .456KMSPSI,	PHASE1 4 8)=	13.8DEG.			
		3925.HZ	AT 4)= .585KMSPSI,	PHASE1 4 8)=	-92.7DEG.			
		7850.HZ	AT 4)= .148KMSPSI,	PHASE1 4 8)=	49.3DEG.			
6	F/A= .0445	ETAC= 84.2	T15F= 3314.	PT5/PT2= 78.2	M2= .407	PSI= 29.65	PCI= 24.75	
	AT 4	RMS12= .102,	RMS23= .427,	AT 8	RMS12= .094,	RMS23= .328,	RMS34= .528	
		225.HZ	AT 4)= .194KMSPSI,	PHASE1 4 8)=	8.3DEG.			
		3600.HZ	AT 4)= .565KMSPSI,	PHASE1 4 8)=	69.7DEG.			
		3850.HZ	AT 4)= .306KMSPSI,	PHASE1 4 8)=	-78.8DEG.			
7	F/A= .0413	ETAC= 85.9	T15F= 3236.	PT5/PT2= 77.7	M2= .412	PSI= 29.10	PCI= 24.24	
	AT 4	RMS12= .096,	RMS23= .372,	AT 8	RMS12= .062,	RMS23= .332,	RMS34= .536	
		150.HZ	AT 4)= .169KMSPSI,	PHASE1 4 8)=	12.8DEG.			
		3800.HZ	AT 4)= .180KMSPSI,	PHASE1 4 8)=	-80.9DEG.			
		4925.HZ	AT 4)= .501KMSPSI,	PHASE1 4 8)=	-106.5DEG.			
8	F/A= .0357	ETAC= 87.0	T15F= 3023.	PT5/PT2= 76.5	M2= .423	PSI= 28.27	PCI= 23.26	
	AT 4	RMS12= .091,	RMS23= .302,	AT 8	RMS12= .117,	RMS23= .294,	RMS34= .479	
		4925.HZ	AT 4)= .392KMSPSI,	PHASE1 4 8)=	-83.6DEG.			
		4950.HZ	AT 4)= .415KMSPSI,	PHASE1 4 8)=	-99.6DEG.			
		9875.HZ	AT 4)= .366KMSPSI,	PHASE1 4 8)=	176.3DEG.			
9	F/A= .0306	ETAC= 88.8	T15F= 2862.	PT5/PT2= 75.2	M2= .436	PSI= 27.64	PCI= 22.55	
	AT 4	RMS12= .118,	RMS23= .324,	AT 8	RMS12= .099,	RMS23= .269,	RMS34= .563	
		225.HZ	AT 4)= .151KMSPSI,	PHASE1 4 8)=	16.1DEG.			
		3575.HZ	AT 4)= .104KMSPSI,	PHASE1 4 8)=	137.4DEG.			
		4975.HZ	AT 4)= .417KMSPSI,	PHASE1 4 8)=	-173.3DEG.			
		9900.HZ	AT 4)= .238KMSPSI,	PHASE1 4 8)=	-44.3DEG.			
10	F/A= .0237	ETAC= 91.1	T15F= 2560.	PT5/PT2= 73.1	M2= .476	PSI= 26.40	PCI= 21.14	
	AT 4	RMS12= .091,	RMS23= .413,	AT 8	RMS12= .062,	RMS23= .221,	RMS34= .463	
		175.HZ	AT 4)= .155KMSPSI,	PHASE1 4 8)=	8.3DEG.			
		3400.HZ	AT 4)= .594KMSPSI,	PHASE1 4 8)=	113.0DEG.			

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COAXIAL DUMP RAMJET COMBUSTOR COMBUSTION INSTABILITIES

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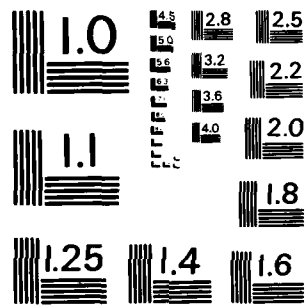
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MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

BIN-CHAMB.	4.75 INLEI	2.2Y F.H.	LUM FLOW	TUBE INJ.	M2 =	PSI =	PCI =	
1	F/A=0.0000	ETAC= 0.0	TT5F= 1027.	PT5/PT2= 54.8	M2= .493	PSI= 12.91	PCI= 7.66	
2	F/A= .0653	ETAC= 7.41	TT5F= 3378.	PT5/PT2= 81.5	M2= .358	PSI= 17.95	PCI= 14.94	
	AT 4	RMS12= .098,	RMS23= .559,	RMS34= .603	AT 8	RMS12= .091,	RMS23= .445,	RMS34= .825
	225.4Z	AT 4)= .436RMSPSI,	AT 8)= .368RMSPSI,	PHASE1 4 8)= 21.10DEG.				
	2225.4Z	AT 4)= .549RMSPSI,	AT 8)= .507RMSPSI,	PHASE1 4 8)= -68.3DEG.				
	2425.4Z	AT 4)= .028RMSPSI,	AT 8)= .217RMSPSI,	PHASE1 4 8)= 101.9DEG.				
	4525.4Z	AT 4)= .210RMSPSI,	AT 8)= .153RMSPSI,	PHASE1 4 8)= 109.9DEG.				
3	F/A= .0619	ETAC= 72.9	TT5F= 3292.	PT5/PT2= 81.2	M2= .365	PSI= 17.64	PCI= 14.90	
	AT 4	RMS12= .079,	RMS23= .492,	RMS34= .595	AT 8	RMS12= .046,	RMS23= .387,	RMS34= .665
	225.4Z	AT 4)= .386RMSPSI,	AT 8)= .316RMSPSI,	PHASE1 4 8)= 16.9DEG.				
	2225.4Z	AT 4)= .367RMSPSI,	AT 8)= .517RMSPSI,	PHASE1 4 8)= -60.4DEG.				
	4450.4Z	AT 4)= .222RMSPSI,	AT 8)= .114RMSPSI,	PHASE1 4 8)= 52.2DEG.				
4	F/A= .0559	ETAC= 71.8	TT5F= 3138.	PT5/PT2= 80.6	M2= .377	PSI= 17.11	PCI= 14.59	
	AT 4	RMS12= .082,	RMS23= .287,	RMS34= .400	AT 8	RMS12= .074,	RMS23= .222,	RMS34= .375
	225.4Z	AT 4)= .170RMSPSI,	AT 8)= .139RMSPSI,	PHASE1 4 8)= 23.7DEG.				
	2175.4Z	AT 4)= .202RMSPSI,	AT 8)= .291RMSPSI,	PHASE1 4 8)= -90.2DEG.				
	3600.4Z	AT 4)= .155RMSPSI,	AT 8)= .065RMSPSI,	PHASE1 4 8)= -32.4DEG.				
	3800.4Z	AT 4)= .051RMSPSI,	AT 8)= .045RMSPSI,	PHASE1 4 8)= 121.8DEG.				
	5750.4Z	AT 4)= .136RMSPSI,	AT 8)= .071RMSPSI,	PHASE1 4 8)= 176.6DEG.				
5	F/A= .0503	ETAC= 75.5	TT5F= 3101.	PT5/PT2= 80.2	M2= .379	PSI= 16.99	PCI= 14.39	
	AT 4	RMS12= .136,	RMS23= .354,	RMS34= .518	AT 8	RMS12= .119,	RMS23= .289,	RMS34= .282
	225.4Z	AT 4)= .256RMSPSI,	AT 8)= .195RMSPSI,	PHASE1 4 8)= 19.9DEG.				
	3350.4Z	AT 4)= .229RMSPSI,	AT 8)= .018RMSPSI,	PHASE1 4 8)= -156.6DEG.				
	3625.4Z	AT 4)= .296RMSPSI,	AT 8)= .152RMSPSI,	PHASE1 4 8)= -88.1DEG.				
6	F/A= .0452	ETAC= 77.4	TT5F= 2995.	PT5/PT2= 79.7	M2= .387	PSI= 16.64	PCI= 14.04	
	AT 4	RMS12= .112,	RMS23= .407,	RMS34= .429	AT 8	RMS12= .075,	RMS23= .316,	RMS34= .224
	200.4Z	AT 4)= .324RMSPSI,	AT 8)= .249RMSPSI,	PHASE1 4 8)= 18.8DEG.				
	3375.4Z	AT 4)= .129RMSPSI,	AT 8)= .012RMSPSI,	PHASE1 4 8)= -106.8DEG.				
	3600.4Z	AT 4)= .289RMSPSI,	AT 8)= .131RMSPSI,	PHASE1 4 8)= -32.2DEG.				
7	F/A= .0388	ETAC= 78.6	TT5F= 2796.	PT5/PT2= 78.5	M2= .400	PSI= 16.08	PCI= 13.54	
	AT 4	RMS12= .056,	RMS23= .243,	RMS34= .433	AT 8	RMS12= .061,	RMS23= .201,	RMS34= .239
	200.4Z	AT 4)= .112RMSPSI,	AT 8)= .044RMSPSI,	PHASE1 4 8)= 21.6DEG.				
	500.4Z	AT 4)= .083RMSPSI,	AT 8)= .080RMSPSI,	PHASE1 4 8)= -172.1DEG.				
	4600.4Z	AT 4)= .328RMSPSI,	AT 8)= .051RMSPSI,	PHASE1 4 8)= 49.3DEG.				
8	F/A= .0351	ETAC= 80.8	TT5F= 2698.	PT5/PT2= 77.9	M2= .407	PSI= 15.81	PCI= 13.25	
	AT 4	RMS12= .044,	RMS23= .250,	RMS34= .398	AT 8	RMS12= .064,	RMS23= .204,	RMS34= .270
	150.4Z	AT 4)= .129RMSPSI,	AT 8)= .098RMSPSI,	PHASE1 4 8)= 21.2DEG.				
	475.4Z	AT 4)= .097RMSPSI,	AT 8)= .073RMSPSI,	PHASE1 4 8)= 167.3DEG.				
	4575.4Z	AT 4)= .301RMSPSI,	AT 8)= .070RMSPSI,	PHASE1 4 8)= 59.1DEG.				
9	F/A= .0307	ETAC= 86.7	TT5F= 2626.	PT5/PT2= 77.4	M2= .413	PSI= 15.60	PCI= 12.93	
	AT 4	RMS12= .087,	RMS23= .247,	RMS34= .912	AT 8	RMS12= .103,	RMS23= .214,	RMS34= .184
	150.4Z	AT 4)= .117RMSPSI,	AT 8)= .098RMSPSI,	PHASE1 4 8)= 2.2DEG.				
	3275.4Z	AT 4)= .698RMSPSI,	AT 8)= .062RMSPSI,	PHASE1 4 8)= 151.3DEG.				
	6550.4Z	AT 4)= .273RMSPSI,	AT 8)= .062RMSPSI,	PHASE1 4 8)= -68.4DEG.				
10	F/A= .0244	ETAC= 90.5	TT5F= 2383.	PT5/PT2= 75.5	M2= .430	PSI= 14.91	PCI= 12.16	
	AT 4	RMS12= .173,	RMS23= .237,	RMS34= .487	AT 8	RMS12= .163,	RMS23= .208,	RMS34= .272
	175.4Z	AT 4)= .112RMSPSI,	AT 8)= .083RMSPSI,	PHASE1 4 8)= 6.7DEG.				
	3175.4Z	AT 4)= .357RMSPSI,	AT 8)= .166RMSPSI,	PHASE1 4 8)= 133.0DEG.				

BIN. CHAMB.	4.75 INLET	.25Y F.H.	40% NOZ.	TUBE INJ.	M2 =	PSI =	PCI =
1	F/A = 0.0000	ETAC = 0.0	TT5F = 961.	PT5/PT2 = 63.4	M2 = .491	PSI = 17.34	PCI = 12.72
2	F/A = .0642	ETAC = 69.7	TT5F = 3242.	PT5/PT2 = 86.7	M2 = .308	PSI = 28.05	PCI = 25.26
	AT %	RMS12 = .092, RMS23 = .734, RMS34 =		1.020	AT 8	RMS12 = .065, RMS23 =	.844
	225.0-MZ	AT 4) = .555RMSPSI, AT 8) =		.521RMSPSI, PHASE(4 8) =		21.60DEG.	
	1950.0-MZ	AT 4) = .473RMSPSI, AT 8) =		.017RMSPSI, PHASE(4 8) =		178.0DEG.	
	2275.0-MZ	AT 4) = .479RMSPSI, AT 8) =		.617RMSPSI, PHASE(4 8) =		-108.10DEG.	
	2500.0-MZ	AT 4) = .068RMSPSI, AT 8) =		.245RMSPSI, PHASE(4 8) =		59.20DEG.	
3	F/A = .0598	ETAC = 71.1	TT5F = 3210.	PT5/PT2 = 86.6	M2 = .312	PSI = 27.75	PCI = 25.05
	AT %	RMS12 = .160, RMS23 = .713, RMS34 =		.919	AT 8	RMS12 = .173, RMS23 =	.769
	225.0-MZ	AT 4) = .572RMSPSI, AT 8) =		.543RMSPSI, PHASE(4 8) =		20.00DEG.	
	1950.0-MZ	AT 4) = .257RMSPSI, AT 8) =		.026RMSPSI, PHASE(4 8) =		-154.10DEG.	
	2275.0-MZ	AT 4) = .444RMSPSI, AT 8) =		.493RMSPSI, PHASE(4 8) =		-81.90DEG.	
	2475.0-MZ	AT 4) = .067RMSPSI, AT 8) =		.249RMSPSI, PHASE(4 8) =		69.00DEG.	
4	F/A = .0547	ETAC = 73.8	TT5F = 3179.	PT5/PT2 = 86.6	M2 = .315	PSI = 27.50	PCI = 24.87
	AT %	RMS12 = .146, RMS23 = .492, RMS34 =		.797	AT 8	RMS12 = .130, RMS23 =	.664
	200.0-MZ	AT 4) = .284RMSPSI, AT 8) =		.213RMSPSI, PHASE(4 8) =		18.40DEG.	
	1925.0-MZ	AT 4) = .098RMSPSI, AT 8) =		.017RMSPSI, PHASE(4 8) =		105.60DEG.	
	2250.0-MZ	AT 4) = .285RMSPSI, AT 8) =		.453RMSPSI, PHASE(4 8) =		-117.40DEG.	
	2450.0-MZ	AT 4) = .041RMSPSI, AT 8) =		.094RMSPSI, PHASE(4 8) =		50.10DEG.	
	3475.0-MZ	AT 4) = .091RMSPSI, AT 8) =		.016RMSPSI, PHASE(4 8) =		76.40DEG.	
	3725.0-MZ	AT 4) = .151RMSPSI, AT 8) =		.114RMSPSI, PHASE(4 8) =		-77.30DEG.	
	3975.0-MZ	AT 4) = .045RMSPSI, AT 8) =		.183RMSPSI, PHASE(4 8) =		31.30DEG.	
	5950.0-MZ	AT 4) = .274RMSPSI, AT 8) =		.044RMSPSI, PHASE(4 8) =		51.90DEG.	
5	F/A = .0501	ETAC = 76.1	TT5F = 3125.	PT5/PT2 = 86.3	M2 = .319	PSI = 27.19	PCI = 24.71
	AT %	RMS12 = .101, RMS23 = .484, RMS34 =		.705	AT 8	RMS12 = .095, RMS23 =	.527
	150.0-MZ	AT 4) = .293RMSPSI, AT 8) =		.257RMSPSI, PHASE(4 8) =		5.70DEG.	
	2250.0-MZ	AT 4) = .156RMSPSI, AT 8) =		.214RMSPSI, PHASE(4 8) =		-100.80DEG.	
	3750.0-MZ	AT 4) = .212RMSPSI, AT 8) =		.114RMSPSI, PHASE(4 8) =		-119.60DEG.	
	3925.0-MZ	AT 4) = .083RMSPSI, AT 8) =		.255RMSPSI, PHASE(4 8) =		39.70DEG.	
6	F/A = .0446	ETAC = 79.2	TT5F = 3034.	PT5/PT2 = 86.0	M2 = .326	PSI = 26.64	PCI = 24.16
	AT %	RMS12 = .100, RMS23 = .494, RMS34 =		.633	AT 8	RMS12 = .099, RMS23 =	.490
	150.0-MZ	AT 4) = .274RMSPSI, AT 8) =		.236RMSPSI, PHASE(4 8) =		10.40DEG.	
	600.0-MZ	AT 4) = .137RMSPSI, AT 8) =		.122RMSPSI, PHASE(4 8) =		-159.50DEG.	
	3450.0-MZ	AT 4) = .221RMSPSI, AT 8) =		.017RMSPSI, PHASE(4 8) =		-63.70DEG.	
	3700.0-MZ	AT 4) = .350RMSPSI, AT 8) =		.258RMSPSI, PHASE(4 8) =		-93.70DEG.	
	3875.0-MZ	AT 4) = .048RMSPSI, AT 8) =		.180RMSPSI, PHASE(4 8) =		58.50DEG.	
7	F/A = .0411	ETAC = 79.7	TT5F = 2911.	PT5/PT2 = 85.5	M2 = .331	PSI = 26.05	PCI = 23.54
	AT %	RMS12 = .175, RMS23 = .482, RMS34 =		.607	AT 8	RMS12 = .156, RMS23 =	.403
	200.0-MZ	AT 4) = .297RMSPSI, AT 8) =		.241RMSPSI, PHASE(4 8) =		10.90DEG.	
	3425.0-MZ	AT 4) = .290RMSPSI, AT 8) =		.010RMSPSI, PHASE(4 8) =		49.40DEG.	
	3675.0-MZ	AT 4) = .198RMSPSI, AT 8) =		.193RMSPSI, PHASE(4 8) =		-90.00DEG.	
	3875.0-MZ	AT 4) = .042RMSPSI, AT 8) =		.144RMSPSI, PHASE(4 8) =		70.20DEG.	
8	F/A = .0339	ETAC = 83.3	TT5F = 2699.	PT5/PT2 = 84.7	M2 = .345	PSI = 24.93	PCI = 22.46
	AT %	RMS12 = .062, RMS23 = .398, RMS34 =		.842	AT 8	RMS12 = .062, RMS23 =	.422
	150.0-MZ	AT 4) = .226RMSPSI, AT 8) =		.210RMSPSI, PHASE(4 8) =		9.60DEG.	
	1250.0-MZ	AT 4) = .139RMSPSI, AT 8) =		.029RMSPSI, PHASE(4 8) =		5.30DEG.	
	3425.0-MZ	AT 4) = .174RMSPSI, AT 8) =		.035RMSPSI, PHASE(4 8) =		76.30DEG.	
	4675.0-MZ	AT 4) = .547RMSPSI, AT 8) =		.172RMSPSI, PHASE(4 8) =		35.60DEG.	
9	F/A = .0309	ETAC = 87.3	TT5F = 2648.	PT5/PT2 = 84.4	M2 = .349	PSI = 24.57	PCI = 22.17
	AT %	RMS12 = .072, RMS23 = .380, RMS34 =		.919	AT 8	RMS12 = .065, RMS23 =	.293
	150.0-MZ	AT 4) = .222RMSPSI, AT 8) =		.195RMSPSI, PHASE(4 8) =		10.30DEG.	
	3375.0-MZ	AT 4) = .588RMSPSI, AT 8) =		.065RMSPSI, PHASE(4 8) =		131.70DEG.	
	6725.0-MZ	AT 4) = .309RMSPSI, AT 8) =		.061RMSPSI, PHASE(4 8) =		94.90DEG.	
10	F/A = .0250	ETAC = 87.3	TT5F = 2376.	PT5/PT2 = 83.1	M2 = .371	PSI = 23.28	PCI = 20.71
	AT %	RMS12 = .095, RMS23 = .248, RMS34 =		1.230	AT 8	RMS12 = .108, RMS23 =	.445
	3225.0-MZ	AT 4) = .945RMSPSI, AT 8) =		.276RMSPSI, PHASE(4 8) =		49.20DEG.	
	6625.0-MZ	AT 4) = .349RMSPSI, AT 8) =		.112RMSPSI, PHASE(4 8) =		175.70DEG.	

BIN. CHARG.	4.75 INLET	.25Y F.M.	50Z NOZ.	TUBE INJ.	M2	PSI	RMS23	PCI
1	F/A = 0.0000	ETAC = 0.0	TT5F = 938.	PT5/PT2 = 42.4	M2 = .496	PSI = 25.59	RMS23 = .309,	PCI = 11.47
	AT 4	RMS12 = .084,	RMS23 = .229,	AT 8	RMS12 = .080,	RMS23 = .309,	RMS34 = .139	
2	F/A = .0648	ETAC = 74.6	TT5F = 3398.	PT5/PT2 = 75.0	M2 = .402	PSI = 31.77	PCI = 24.15	
	AT 4	RMS12 = .185,	RMS23 = 1.000,	AT 8	RMS12 = .113,	RMS23 = .682,	RMS34 = 1.340	
	AT 4	RMS12 = .250,MZ	AT 4) = .757RMSPSI,	PHASE(4 8) = 17.6DEG.				
	AT 4	RMS12 = .2250,MZ	AT 4) = .981RMSPSI,	PHASE(4 8) = -82.2DEG.				
	AT 4	RMS12 = .4475,MZ	AT 4) = .206RMSPSI,	PHASE(4 8) = -12.3DEG.				
3	F/A = .0590	ETAC = 71.6	TT5F = 3203.	PT5/PT2 = 74.2	M2 = .417	PSI = 30.80	PCI = 24.16	
	AT 4	RMS12 = .181,	RMS23 = .582,	AT 8	RMS12 = .157,	RMS23 = .459,	RMS34 = .576	
	AT 4	RMS12 = .200,MZ	AT 4) = .355RMSPSI,	PHASE(4 8) = 22.7DEG.				
	AT 4	RMS12 = .3375,MZ	AT 4) = .501RMSPSI,	PHASE(4 8) = -16.5ODEG.				
	AT 4	RMS12 = .3600,MZ	AT 4) = .460RMSPSI,	PHASE(4 8) = 53.2DEG.				
	AT 4	RMS12 = .3650,MZ	AT 4) = .204RMSPSI,	PHASE(4 8) = 14.6DEG.				
	AT 4	RMS12 = .6725,MZ	AT 4) = .364RMSPSI,	PHASE(4 8) = 148.9DEG.				
4	F/A = .0491	ETAC = 78.8	TT5F = 3158.	PT5/PT2 = 73.7	M2 = .422	PSI = 30.47	PCI = 23.66	
	AT 4	RMS12 = .142,	RMS23 = .547,	AT 8	RMS12 = .118,	RMS23 = .412,	RMS34 = .566	
	AT 4	RMS12 = .200,MZ	AT 4) = .257RMSPSI,	PHASE(4 8) = 29.4ODEG.				
	AT 4	RMS12 = .3425,MZ	AT 4) = .580RMSPSI,	PHASE(4 8) = -148.1DEG.				
	AT 4	RMS12 = .3625,MZ	AT 4) = .384RMSPSI,	PHASE(4 8) = -42.2ODEG.				
5	F/A = .0519	ETAC = 76.0	TT5F = 3166.	PT5/PT2 = 73.6	M2 = .421	PSI = 30.27	PCI = 23.59	
	AT 4	RMS12 = .158,	RMS23 = .512,	AT 8	RMS12 = .153,	RMS23 = .428,	RMS34 = .510	
	AT 4	RMS12 = .200,MZ	AT 4) = .236RMSPSI,	PHASE(4 8) = 21.9ODEG.				
	AT 4	RMS12 = .3425,MZ	AT 4) = .919RMSPSI,	PHASE(4 8) = -171.4ODEG.				
	AT 4	RMS12 = .3600,MZ	AT 4) = .463RMSPSI,	PHASE(4 8) = -26.6ODEG.				
	AT 4	RMS12 = .6775,MZ	AT 4) = .444RMSPSI,	PHASE(4 8) = 16.53DEG.				
	AT 4	RMS12 = .6850,MZ	AT 4) = .386RMSPSI,	PHASE(4 8) = 14.56DEG.				
	AT 4	RMS12 = .7075,MZ	AT 4) = .350RMSPSI,	PHASE(4 8) = 18.9ODEG.				
6	F/A = .0466	ETAC = 79.1	TT5F = 3094.	PT5/PT2 = 73.2	M2 = .429	PSI = 29.96	PCI = 23.30	
	AT 4	RMS12 = .177,	RMS23 = .482,	AT 8	RMS12 = .131,	RMS23 = .393,	RMS34 = .542	
	AT 4	RMS12 = .175,MZ	AT 4) = .229RMSPSI,	PHASE(4 8) = 10.7DEG.				
	AT 4	RMS12 = .3475,MZ	AT 4) = .682RMSPSI,	PHASE(4 8) = -171.2DEG.				
	AT 4	RMS12 = .3625,MZ	AT 4) = .101RMSPSI,	PHASE(4 8) = -34.8DEG.				
7	F/A = .0407	ETAC = 82.8	TT5F = 2976.	PT5/PT2 = 72.3	M2 = .436	PSI = 29.16	PCI = 22.41	
	AT 4	RMS12 = .148,	RMS23 = .456,	AT 8	RMS12 = .103,	RMS23 = .351,	RMS34 = .436	
	AT 4	RMS12 = .3400,MZ	AT 4) = .593RMSPSI,	PHASE(4 8) = 160.6DEG.				
	AT 4	RMS12 = .3575,MZ	AT 4) = .259RMSPSI,	PHASE(4 8) = -37.2DEG.				
	AT 4	RMS12 = .6725,MZ	AT 4) = .691RMSPSI,	PHASE(4 8) = -170.9DEG.				
8	F/A = .0354	ETAC = 85.7	TT5F = 2823.	PT5/PT2 = 71.1	M2 = .446	PSI = 28.66	PCI = 21.73	
	AT 4	RMS12 = .141,	RMS23 = .551,	AT 8	RMS12 = .056,	RMS23 = .374,	RMS34 = .394	
	AT 4	RMS12 = .1425,MZ	AT 4) = .283RMSPSI,	PHASE(4 8) = 11.9ODEG.				
	AT 4	RMS12 = .3300,MZ	AT 4) = .590RMSPSI,	PHASE(4 8) = 170.1DEG.				
	AT 4	RMS12 = .3400,MZ	AT 4) = .470RMSPSI,	PHASE(4 8) = 164.6DEG.				
	AT 4	RMS12 = .6650,MZ	AT 4) = .855RMSPSI,	PHASE(4 8) = -116.3ODEG.				
9	F/A = .0315	ETAC = 86.0	TT5F = 2776.	PT5/PT2 = 69.6	M2 = .454	PSI = 28.10	PCI = 21.00	
	AT 4	RMS12 = .166,	RMS23 = .428,	AT 8	RMS12 = .080,	RMS23 = .312,	RMS34 = .474	
	AT 4	RMS12 = .175,MZ	AT 4) = .168RMSPSI,	PHASE(4 8) = 13.9ODEG.				
	AT 4	RMS12 = .1850,MZ	AT 4) = .173RMSPSI,	PHASE(4 8) = 61.2ODEG.				
	AT 4	RMS12 = .3300,MZ	AT 4) = .219RMSPSI,	PHASE(4 8) = 103.0ODEG.				
	AT 4	RMS12 = .3300,MZ	AT 4) = .883RMSPSI,	PHASE(4 8) = 148.7DFG.				
	AT 4	RMS12 = .5175,MZ	AT 4) = .260RMSPSI,	PHASE(4 8) = 175.6DEG.				
	AT 4	RMS12 = .6650,MZ	AT 4) = .306RMSPSI,	PHASE(4 8) = 166.1DEG.				
10	F/A = .0255	ETAC = 55.9	TT5F = 1698.	PT5/PT2 = 61.4	M2 = .449	PSI = 26.23	PCI = 17.76	
	AT 4	RMS12 = .257,	RMS23 = .391,	AT 8	RMS12 = .216,	RMS23 = .305,	RMS34 = .127	
	AT 4	RMS12 = .175,MZ	AT 4) = .142RMSPSI,	PHASE(4 8) = 22.3ODEG.				

8IN.CHAMB.		4.75 INLET		25Y F.M.		L/D=1.5		UNIF.INJ.		PT5/PT2= 50.5		M2= .694		PSI= 21.53		PCI= 11.23						
1	F/A=0.0000	ETAC= 0.0	TTSF= 943.	AT 4	RMS12= .107,	RMS23= .271,	RMS34= .443.	PT5/PT2= 50.5	AT 8	RMS12= .145,	RMS23= .207,	RMS34= .376,	PT5/PT2= 78.1	AT 8	RMS12= .091,	RMS23= .27.91	PT5/PT2= 78.1	AT 8	RMS12= .091,	RMS23= .340,	RMS34= .229	
2	F/A=.0642	ETAC= 55.4	TTSF= 2777.	AT 4	RMS12= .092,	RMS23= .333,	RMS34= .512.	PT5/PT2= 78.1	AT 8	RMS12= .152,	RMS23= .20.2DEG.	RMS34= .340.	PT5/PT2= 78.1	AT 8	RMS12= .091,	RMS23= .27.91	PT5/PT2= 78.1	AT 8	RMS12= .091,	RMS23= .340,	RMS34= .229	
				AT 4)	.146RMSPSI,	AT 8)	.085RMSPSI,	PHASE1 4 8)	.103RMSPSI,	PHASE1 4 8)	.091,	PHASE1 4 8)	.103RMSPSI,	PHASE1 4 8)	.091,	PHASE1 4 8)	.103RMSPSI,	PHASE1 4 8)	.091,	PHASE1 4 8)	.091,	PHASE1 4 8)
				AT 4)	.108RMSPSI,	AT 8)	.070RMSPSI,	PHASE1 4 8)	.085RMSPSI,	PHASE1 4 8)	.091,	PHASE1 4 8)	.085RMSPSI,	PHASE1 4 8)	.091,	PHASE1 4 8)	.085RMSPSI,	PHASE1 4 8)	.091,	PHASE1 4 8)	.091,	PHASE1 4 8)
				AT 4)	.101RMSPSI,	AT 8)	.070RMSPSI,	PHASE1 4 8)	.085RMSPSI,	PHASE1 4 8)	.091,	PHASE1 4 8)	.085RMSPSI,	PHASE1 4 8)	.091,	PHASE1 4 8)	.085RMSPSI,	PHASE1 4 8)	.091,	PHASE1 4 8)	.091,	PHASE1 4 8)
				AT 4)	.053RMSPSI,	AT 8)	.053RMSPSI,	PHASE1 4 8)	.053RMSPSI,	PHASE1 4 8)	.053,	PHASE1 4 8)	.053RMSPSI,	PHASE1 4 8)	.053,	PHASE1 4 8)	.053RMSPSI,	PHASE1 4 8)	.053,	PHASE1 4 8)	.053,	PHASE1 4 8)
3	F/A=.0601	ETAC= 53.4	TTSF= 2628.	AT 4	RMS12= .080,	RMS23= .280,	RMS34= .465.	PT5/PT2= 77.4	AT 8	RMS12= .165,	RMS23= .080,	RMS34= .291,	PT5/PT2= 77.4	AT 8	RMS12= .080,	RMS23= .27.19	PT5/PT2= 77.4	AT 8	RMS12= .080,	RMS23= .291,	RMS34= .204	
				AT 4)	.122RMSPSI,	AT 8)	.074RMSPSI,	PHASE1 4 8)	.105RMSPSI,	PHASE1 4 8)	.3DEG.	PHASE1 4 8)	.105RMSPSI,	PHASE1 4 8)	.3DEG.	PHASE1 4 8)	.105RMSPSI,	PHASE1 4 8)	.3DEG.	PHASE1 4 8)	.3DEG.	PHASE1 4 8)
				AT 4)	.098RMSPSI,	AT 8)	.093RMSPSI,	PHASE1 4 8)	.074RMSPSI,	PHASE1 4 8)	.17.3DEG.	PHASE1 4 8)	.074RMSPSI,	PHASE1 4 8)	.17.3DEG.	PHASE1 4 8)	.074RMSPSI,	PHASE1 4 8)	.17.3DEG.	PHASE1 4 8)	.17.3DEG.	PHASE1 4 8)
				AT 4)	.040RMSPSI,	AT 8)	.040RMSPSI,	PHASE1 4 8)	.093RMSPSI,	PHASE1 4 8)	.156.1DEG.	PHASE1 4 8)	.093RMSPSI,	PHASE1 4 8)	.156.1DEG.	PHASE1 4 8)	.093RMSPSI,	PHASE1 4 8)	.156.1DEG.	PHASE1 4 8)	.156.1DEG.	PHASE1 4 8)
4	F/A=.0541	ETAC= 55.2	TTSF= 2615.	AT 4	RMS12= .116,	RMS23= .328,	RMS34= .512.	PT5/PT2= 77.0	AT 8	RMS12= .242,	RMS23= .098,	RMS34= .358,	PT5/PT2= 77.0	AT 8	RMS12= .098,	RMS23= .26.98	PT5/PT2= 77.0	AT 8	RMS12= .098,	RMS23= .358,	RMS34= .285	
				AT 4)	.151RMSPSI,	AT 8)	.093RMSPSI,	PHASE1 4 8)	.136RMSPSI,	PHASE1 4 8)	.15.5DEG.	PHASE1 4 8)	.136RMSPSI,	PHASE1 4 8)	.15.5DEG.	PHASE1 4 8)	.136RMSPSI,	PHASE1 4 8)	.15.5DEG.	PHASE1 4 8)	.15.5DEG.	PHASE1 4 8)
				AT 4)	.153RMSPSI,	AT 8)	.093RMSPSI,	PHASE1 4 8)	.153RMSPSI,	PHASE1 4 8)	.19.9DEG.	PHASE1 4 8)	.153RMSPSI,	PHASE1 4 8)	.19.9DEG.	PHASE1 4 8)	.153RMSPSI,	PHASE1 4 8)	.19.9DEG.	PHASE1 4 8)	.19.9DEG.	PHASE1 4 8)
				AT 4)	.104RMSPSI,	AT 8)	.104RMSPSI,	PHASE1 4 8)	.191RMSPSI,	PHASE1 4 8)	.161.8DEG.	PHASE1 4 8)	.191RMSPSI,	PHASE1 4 8)	.161.8DEG.	PHASE1 4 8)	.191RMSPSI,	PHASE1 4 8)	.161.8DEG.	PHASE1 4 8)	.161.8DEG.	PHASE1 4 8)
5	F/A=.0592	ETAC= 59.4	TTSF= 2632.	AT 4	RMS12= .126,	RMS23= .342,	RMS34= .512.	PT5/PT2= 77.0	AT 8	RMS12= .960,	RMS23= .151,	RMS34= .334,	PT5/PT2= 77.0	AT 8	RMS12= .151,	RMS23= .26.97	PT5/PT2= 77.0	AT 8	RMS12= .151,	RMS23= .334,	RMS34= .454	
				AT 4)	.162RMSPSI,	AT 8)	.069RMSPSI,	PHASE1 4 8)	.124RMSPSI,	PHASE1 4 8)	.3.4DEG.	PHASE1 4 8)	.124RMSPSI,	PHASE1 4 8)	.3.4DEG.	PHASE1 4 8)	.124RMSPSI,	PHASE1 4 8)	.3.4DEG.	PHASE1 4 8)	.3.4DEG.	PHASE1 4 8)
				AT 4)	.154RMSPSI,	AT 8)	.069RMSPSI,	PHASE1 4 8)	.154RMSPSI,	PHASE1 4 8)	.47.8DEG.	PHASE1 4 8)	.154RMSPSI,	PHASE1 4 8)	.47.8DEG.	PHASE1 4 8)	.154RMSPSI,	PHASE1 4 8)	.47.8DEG.	PHASE1 4 8)	.47.8DEG.	PHASE1 4 8)
				AT 4)	.210RMSPSI,	AT 8)	.043RMSPSI,	PHASE1 4 8)	.043RMSPSI,	PHASE1 4 8)	.22.4DEG.	PHASE1 4 8)	.043RMSPSI,	PHASE1 4 8)	.22.4DEG.	PHASE1 4 8)	.043RMSPSI,	PHASE1 4 8)	.22.4DEG.	PHASE1 4 8)	.22.4DEG.	PHASE1 4 8)
				AT 4)	.451RMSPSI,	AT 8)	.198RMSPSI,	PHASE1 4 8)	.198RMSPSI,	PHASE1 4 8)	.36.9DEG.	PHASE1 4 8)	.198RMSPSI,	PHASE1 4 8)	.36.9DEG.	PHASE1 4 8)	.198RMSPSI,	PHASE1 4 8)	.36.9DEG.	PHASE1 4 8)	.36.9DEG.	PHASE1 4 8)
				AT 4)	.079RMSPSI,	AT 8)	.156RMSPSI,	PHASE1 4 8)	.079RMSPSI,	PHASE1 4 8)	.171.2DEG.	PHASE1 4 8)	.079RMSPSI,	PHASE1 4 8)	.171.2DEG.	PHASE1 4 8)	.079RMSPSI,	PHASE1 4 8)	.171.2DEG.	PHASE1 4 8)	.171.2DEG.	PHASE1 4 8)
				AT 4)	.182RMSPSI,	AT 8)	.088RMSPSI,	PHASE1 4 8)	.182RMSPSI,	PHASE1 4 8)	.50.8DEG.	PHASE1 4 8)	.182RMSPSI,	PHASE1 4 8)	.50.8DEG.	PHASE1 4 8)	.182RMSPSI,	PHASE1 4 8)	.50.8DEG.	PHASE1 4 8)	.50.8DEG.	PHASE1 4 8)
				AT 4)	.183RMSPSI,	AT 8)	.037RMSPSI,	PHASE1 4 8)	.183RMSPSI,	PHASE1 4 8)	.57.6DEG.	PHASE1 4 8)	.183RMSPSI,	PHASE1 4 8)	.57.6DEG.	PHASE1 4 8)	.183RMSPSI,	PHASE1 4 8)	.57.6DEG.	PHASE1 4 8)	.57.6DEG.	PHASE1 4 8)
				AT 4)	.291RMSPSI,	AT 8)	.063RMSPSI,	PHASE1 4 8)	.291RMSPSI,	PHASE1 4 8)	.120.4DEG.	PHASE1 4 8)	.291RMSPSI,	PHASE1 4 8)	.120.4DEG.	PHASE1 4 8)	.291RMSPSI,	PHASE1 4 8)	.120.4DEG.	PHASE1 4 8)	.120.4DEG.	PHASE1 4 8)
6	F/A=.0542	ETAC= 58.3	TTSF= 2480.	AT 4	RMS12= .152,	RMS23= .407,	RMS34= .625.	PT5/PT2= 76.0	AT 8	RMS12= .140,	RMS23= .113,	RMS34= .412,	PT5/PT2= 76.0	AT 8	RMS12= .113,	RMS23= .26.21	PT5/PT2= 76.0	AT 8	RMS12= .113,	RMS23= .412,	RMS34= .625	
				AT 4)	.196RMSPSI,	AT 8)	.175RMSPSI,	PHASE1 4 8)	.175RMSPSI,	PHASE1 4 8)	.5.7DEG.	PHASE1 4 8)	.175RMSPSI,	PHASE1 4 8)	.5.7DEG.	PHASE1 4 8)	.175RMSPSI,	PHASE1 4 8)	.5.7DEG.	PHASE1 4 8)	.5.7DEG.	PHASE1 4 8)
				AT 4)	.228RMSPSI,	AT 8)	.119RMSPSI,	PHASE1 4 8)	.228RMSPSI,	PHASE1 4 8)	.9.6DEG.	PHASE1 4 8)	.228RMSPSI,	PHASE1 4 8)	.9.6DEG.	PHASE1 4 8)	.228RMSPSI,	PHASE1 4 8)	.9.6DEG.	PHASE1 4 8)	.9.6DEG.	PHASE1 4 8)
				AT 4)	.464RMSPSI,	AT 8)	.239RMSPSI,	PHASE1 4 8)	.464RMSPSI,	PHASE1 4 8)	.22.8DEG.	PHASE1 4 8)	.464RMSPSI,	PHASE1 4 8)	.22.8DEG.	PHASE1 4 8)	.464RMSPSI,	PHASE1 4 8)	.22.8DEG.	PHASE1 4 8)	.22.8DEG.	PHASE1 4 8)
				AT 4)	.431RMSPSI,	AT 8)	.235RMSPSI,	PHASE1 4 8)	.431RMSPSI,	PHASE1 4 8)	.32.5DEG.	PHASE1 4 8)	.431RMSPSI,	PHASE1 4 8)	.32.5DEG.	PHASE1 4 8)	.431RMSPSI,	PHASE1 4 8)	.32.5DEG.	PHASE1 4 8)	.32.5DEG.	PHASE1 4 8)
				AT 4)	.162RMSPSI,	AT 8)	.196RMSPSI,	PHASE1 4 8)	.162RMSPSI,	PHASE1 4 8)	.32.9DEG.	PHASE1 4 8)	.162RMSPSI,	PHASE1 4 8)	.32.9DEG.	PHASE1 4 8)	.162RMSPSI,	PHASE1 4 8)	.32.9DEG.	PHASE1 4 8)	.32.9DEG.	PHASE1 4 8)
				AT 4)	.364RMSPSI,	AT 8)	.042RMSPSI,	PHASE1 4 8)	.364RMSPSI,	PHASE1 4 8)	.51.1DEG.	PHASE1 4 8)	.364RMSPSI,	PHASE1 4 8)	.51.1DEG.	PHASE1 4 8)	.364RMSPSI,	PHASE1 4 8)	.51.1DEG.	PHASE1 4 8)	.51.1DEG.	PHASE1 4 8)
				AT 4)	.187RMSPSI,	AT 8)	.037RMSPSI,	PHASE1 4 8)	.187RMSPSI,	PHASE1 4 8)	.98.8DEG.	PHASE1 4 8)	.187RMSPSI,	PHASE1 4 8)	.98.8DEG.	PHASE1 4 8)	.187RMSPSI,	PHASE1 4 8)	.98.8DEG.	PHASE1 4 8)	.98.8DEG.	PHASE1 4 8)

8 IN. CHAMB.	4.75 INLET	2.25 F.M.	L/D=1.5	UNIF. INJ.	M2	PSI	PCI
1	F/A = 0.0000	ETAC = 0.0	TI5F = 943.	PT5/PT2 = 50.5	M2 = .494	PSI = 21.53	PCI = 11.23
	AT 4 RMS12 = .111	RMS23 = .298	RMS34 = .277	AT 8 RMS12 = .149	M2 = .387	RMS23 = .368	RMS34 = .187
2	F/A = .0642	ETAC = 55.4	TI5F = 2777.	PT5/PT2 = 78.1	M2 = .387	PSI = 27.91	PCI = 24.08
	AT 4 RMS12 = .072	RMS23 = .369	RMS34 = .369	AT 8 RMS12 = .172	M2 = .387	RMS23 = .324	RMS34 = .224
	275-MZ AT 4) = .184	RMSPSI, AT 8) = .083	RMSPSI, AT 8) = .083	PHASE1 4 8) = 53.0DEG.			
	325-MZ AT 4) = .161	RMSPSI, AT 8) = .143	RMSPSI, AT 8) = .143	PHASE1 4 8) = 6.6DEG.			
	3600-MZ AT 4) = .116	RMSPSI, AT 8) = .075	RMSPSI, AT 8) = .075	PHASE1 4 8) = 11.8DEG.			
	3900-MZ AT 4) = .052	RMSPSI, AT 8) = .146	RMSPSI, AT 8) = .146	PHASE1 4 8) = 155.8DEG.			
3	F/A = .0601	ETAC = 53.4	TI5F = 2658.	PT5/PT2 = 77.4	M2 = .396	PSI = 27.19	PCI = 23.25
	AT 4 RMS12 = .080	RMS23 = .285	RMS34 = .285	AT 8 RMS12 = .174	M2 = .396	RMS23 = .304	RMS34 = .210
	275-MZ AT 4) = .108	RMSPSI, AT 8) = .103	RMSPSI, AT 8) = .103	PHASE1 4 8) = -14.7DEG.			
	325-MZ AT 4) = .118	RMSPSI, AT 8) = .095	RMSPSI, AT 8) = .095	PHASE1 4 8) = 6.6DEG.			
	3600-MZ AT 4) = .102	RMSPSI, AT 8) = .073	RMSPSI, AT 8) = .073	PHASE1 4 8) = 12.5DEG.			
	3850-MZ AT 4) = .048	RMSPSI, AT 8) = .124	RMSPSI, AT 8) = .124	PHASE1 4 8) = 157.5DEG.			
4	F/A = .0541	ETAC = 55.2	TI5F = 2615.	PT5/PT2 = 77.0	M2 = .400	PSI = 26.98	PCI = 23.03
	AT 4 RMS12 = .098	RMS23 = .329	RMS34 = .329	AT 8 RMS12 = .212	M2 = .400	RMS23 = .363	RMS34 = .248
	225-MZ AT 4) = .073	RMSPSI, AT 8) = .116	RMSPSI, AT 8) = .116	PHASE1 4 8) = -89.9DEG.			
	325-MZ AT 4) = .163	RMSPSI, AT 8) = .123	RMSPSI, AT 8) = .123	PHASE1 4 8) = 13.0DEG.			
	3525-MZ AT 4) = .132	RMSPSI, AT 8) = .074	RMSPSI, AT 8) = .074	PHASE1 4 8) = 15.5DEG.			
	3750-MZ AT 4) = .092	RMSPSI, AT 8) = .159	RMSPSI, AT 8) = .159	PHASE1 4 8) = 146.9DEG.			
5	F/A = .0492	ETAC = 59.4	TI5F = 2632.	PT5/PT2 = 77.0	M2 = .402	PSI = 26.97	PCI = 22.77
	AT 4 RMS12 = .119	RMS23 = .334	RMS34 = .334	AT 8 RMS12 = .954	M2 = .402	RMS23 = .344	RMS34 = .423
	300-MZ AT 4) = .155	RMSPSI, AT 8) = .111	RMSPSI, AT 8) = .111	PHASE1 4 8) = -9.9DEG.			
	1950-MZ AT 4) = .131	RMSPSI, AT 8) = .075	RMSPSI, AT 8) = .075	PHASE1 4 8) = 15.9DEG.			
	3425-MZ AT 4) = .445	RMSPSI, AT 8) = .165	RMSPSI, AT 8) = .165	PHASE1 4 8) = 41.5DEG.			
	3800-MZ AT 4) = .050	RMSPSI, AT 8) = .131	RMSPSI, AT 8) = .131	PHASE1 4 8) = 174.5DEG.			
	5000-MZ AT 4) = .147	RMSPSI, AT 8) = .064	RMSPSI, AT 8) = .064	PHASE1 4 8) = -45.8DEG.			
	5425-MZ AT 4) = .130	RMSPSI, AT 8) = .032	RMSPSI, AT 8) = .032	PHASE1 4 8) = 82.4DEG.			
	6850-MZ AT 4) = .260	RMSPSI, AT 8) = .057	RMSPSI, AT 8) = .057	PHASE1 4 8) = 96.7DEG.			
6	F/A = .0442	ETAC = 58.3	TI5F = 2480.	PT5/PT2 = 76.6	M2 = .413	PSI = 26.21	PCI = 21.90
	AT 4 RMS12 = .062	RMS23 = .367	RMS34 = .367	AT 8 RMS12 = 1.220	M2 = .413	RMS23 = .360	RMS34 = .604
	1475-MZ AT 4) = .250	RMSPSI, AT 8) = .101	RMSPSI, AT 8) = .101	PHASE1 4 8) = 12.7DEG.			
	1875-MZ AT 4) = .484	RMSPSI, AT 8) = .277	RMSPSI, AT 8) = .277	PHASE1 4 8) = 24.7DEG.			
	3375-MZ AT 4) = .494	RMSPSI, AT 8) = .261	RMSPSI, AT 8) = .261	PHASE1 4 8) = 35.0DEG.			
	4850-MZ AT 4) = .164	RMSPSI, AT 8) = .203	RMSPSI, AT 8) = .203	PHASE1 4 8) = -29.3DEG.			
	5275-MZ AT 4) = .454	RMSPSI, AT 8) = .072	RMSPSI, AT 8) = .072	PHASE1 4 8) = 55.3DEG.			
	6675-MZ AT 4) = .250	RMSPSI, AT 8) = .033	RMSPSI, AT 8) = .033	PHASE1 4 8) = 106.1DEG.			

8 IN. CHAMB.	4.75 INLET	25Y F.M.	L/J=1.5	TUBE INJ.	PCI	RMS34
1	F/A=0.0000 AT 4 RMS12=	ETAC=0.0 RMS23=	TT5F=968. RMS34=	PT5/PT2=51.4 AT 8 RMS12=	21.66 RMS23=	11.52 RMS34=
2	F/A=-0.0655 AT 4 RMS12=	ETAC=31.8 RMS23=	TT5F=2035. RMS34=	PT5/PT2=72.7 AT 8 RMS12=	114. RMS23=	20.05 RMS34=
3	F/A=-0.0610 AT 4 RMS12=	ETAC=32.6 RMS23=	TT5F=2029. RMS34=	PT5/PT2=72.5 AT 8 RMS12=	092. RMS23=	19.94 RMS34=
4	F/A=0.0552 AT 4 RMS12=	ETAC=33.6 RMS23=	TT5F=1994. RMS34=	PT5/PT2=72.1 AT 8 RMS12=	113. RMS23=	19.66 RMS34=
5	F/A=0.0500 AT 4 RMS12=	ETAC=35.4 RMS23=	TT5F=1977. RMS34=	PT5/PT2=72.0 AT 8 RMS12=	119. RMS23=	19.42 RMS34=
6	F/A=-0.0444 AT 4 RMS12=	ETAC=50.8 RMS23=	TT5F=2295. RMS34=	PT5/PT2=74.4 AT 8 RMS12=	107. RMS23=	20.83 RMS34=
7	F/A=0.0404 AT 4 RMS12=	ETAC=55.4 RMS23=	TT5F=2311. RMS34=	PT5/PT2=74.3 AT 8 RMS12=	125. RMS23=	20.72 RMS34=
8	F/A=-0.0344 AT 4 RMS12=	ETAC=61.9 RMS23=	TT5F=2278. RMS34=	PT5/PT2=74.1 AT 8 RMS12=	133. RMS23=	20.47 RMS34=
9	F/A=-0.0314 AT 4 RMS12=	ETAC=64.7 RMS23=	TT5F=2221. RMS34=	PT5/PT2=73.6 AT 8 RMS12=	179. RMS23=	20.05 RMS34=
10	F/A=-0.0247 AT 4 RMS12=	ETAC=69.7 RMS23=	TT5F=2081. RMS34=	PT5/PT2=72.2 AT 8 RMS12=	163. RMS23=	18.87 RMS34=

BIN. CHAMB.	5.375INLET	NO F. HULD.	BASELINE	UNIF. INJ.	M2 =	PSI =	PCI =	RMS34 =
1	F/A = .0690	ETAC = 49.4	TT5F = 2610.	PT5/PT2 = 90.6	AT 8	PSI = 23.34	PCI = 22.93	
	RMS12 = .113	RMS23 = .244	RMS34 = .566	AT 8	RMS12 = .094	RMS23 = .249	RMS34 = .105	
	125.0HZ AT 4) = .196RMSPSI, AT 8) = .180RMSPSI, PHASE(4 8) = 11.80DEG.							
	725.0HZ AT 4) = .063RMSPSI, AT 8) = .107RMSPSI, PHASE(4 8) = -16.49DEG.							
	1750.0HZ AT 4) = .784RMSPSI, AT 8) = .091RMSPSI, PHASE(4 8) = 39.2DEG.							
2	F/A = .0579	ETAC = 52.4	TT5F = 2619.	PT5/PT2 = 90.5	M2 = .362	PSI = 23.28	PCI = 22.69	
	RMS12 = .190	RMS23 = .409	RMS34 = 1.010	AT 8	RMS12 = .164	RMS23 = .421	RMS34 = .166	
	100.0HZ AT 4) = .151RMSPSI, AT 8) = .127RMSPSI, PHASE(4 8) = 13.6DEG.							
	550.0HZ AT 4) = .277RMSPSI, AT 8) = .317RMSPSI, PHASE(4 8) = -16.40DEG.							
	1750.0HZ AT 4) = .617RMSPSI, AT 8) = .100RMSPSI, PHASE(4 8) = 53.10DEG.							
3	F/A = .0543	ETAC = 78.1	TT5F = 3295.	PT5/PT2 = 91.5	M2 = .320	PSI = 26.50	PCI = 25.64	
	RMS12 = .337	RMS23 = 2.960	RMS34 = 2.130	AT 8	RMS12 = .325	RMS23 = 3.090	RMS34 = .690	
	150.0HZ AT 4) = 2.710RMSPSI, AT 8) = 2.870RMSPSI, PHASE(4 8) = 10.7DEG.							
	275.0HZ AT 4) = .318RMSPSI, AT 8) = .212RMSPSI, PHASE(4 8) = 42.7DEG.							
	1750.0HZ AT 4) = 1.190RMSPSI, AT 8) = .219RMSPSI, PHASE(4 8) = -2.7DEG.							
	2025.0HZ AT 4) = .959RMSPSI, AT 8) = .234RMSPSI, PHASE(4 8) = 55.30DEG.							
	5375.0HZ AT 4) = .447RMSPSI, AT 8) = .193RMSPSI, PHASE(4 8) = 90.5DEG.							
4	F/A = .0591	ETAC = 76.1	TT5F = 3090.	PT5/PT2 = 91.5	M2 = .334	PSI = 25.13	PCI = 24.31	
	RMS12 = .732	RMS23 = 2.610	RMS34 = 2.200	AT 8	RMS12 = .654	RMS23 = 2.570	RMS34 = .764	
	150.0HZ AT 4) = 2.220RMSPSI, AT 8) = 2.270RMSPSI, PHASE(4 8) = 10.4DEG.							
	350.0HZ AT 4) = .322RMSPSI, AT 8) = .204RMSPSI, PHASE(4 8) = 44.7DEG.							
	1675.0HZ AT 4) = .662RMSPSI, AT 8) = .217RMSPSI, PHASE(4 8) = 18.1DEG.							
	1800.0HZ AT 4) = 1.000RMSPSI, AT 8) = .225RMSPSI, PHASE(4 8) = 23.1DEG.							
	1925.0HZ AT 4) = .677RMSPSI, AT 8) = .209RMSPSI, PHASE(4 8) = 57.00DEG.							

8IN-CHAMB.	5.375INLET	NO F. HULD.	FTO=750K	UNIF-INJ.	PCI=	RMS23=	RMS34=
1	F/A=0.0000	ETAC= 0.0	TT5F= 791.	PT5/PT2= 84.7	9.22	10.40	
	AT 4	RMS12= .048,	RMS23= .112,	RMS34= .064	RMS23= .053,	RMS34= .221,	RMS34= .061
	F/A=.0647	ETAC= 48.5	TT5F= 2394.	PT5/PT2= 40.5	22.78	22.09	
2	AT 4	RMS12= .145,	RMS23= 1.190,	RMS34= .407	9.22	10.40	
	125-HZ	AT 4)	547RMSPSI,	AT 8)	PT5/PT2= 40.5	PT5/PT2= 40.5	PT5/PT2= 40.5
	650-HZ	AT 4)	519RMSPSI,	AT 8)	PT5/PT2= 40.5	PT5/PT2= 40.5	PT5/PT2= 40.5
	1025-HZ	AT 4)	122RMSPSI,	AT 8)	PT5/PT2= 40.5	PT5/PT2= 40.5	PT5/PT2= 40.5
	1275-HZ	AT 4)	115RMSPSI,	AT 8)	PT5/PT2= 40.5	PT5/PT2= 40.5	PT5/PT2= 40.5
	1675-HZ	AT 4)	734RMSPSI,	AT 8)	PT5/PT2= 40.5	PT5/PT2= 40.5	PT5/PT2= 40.5
3	F/A=.0604	ETAC= 50.5	TT5F= 2405.	PT5/PT2= 40.7	22.68	21.98	
	AT 4	RMS12= .237,	RMS23= 1.670,	RMS34= .217	RMS23= 1.650,	RMS34= .279	
	125-HZ	AT 4)	828RMSPSI,	AT 8)	PT5/PT2= 40.7	PT5/PT2= 40.7	PT5/PT2= 40.7
	500-HZ	AT 4)	315RMSPSI,	AT 8)	PT5/PT2= 40.7	PT5/PT2= 40.7	PT5/PT2= 40.7
	625-HZ	AT 4)	1.320RMSPSI,	AT 8)	PT5/PT2= 40.7	PT5/PT2= 40.7	PT5/PT2= 40.7
	1125-HZ	AT 4)	149RMSPSI,	AT 8)	PT5/PT2= 40.7	PT5/PT2= 40.7	PT5/PT2= 40.7
	1250-HZ	AT 4)	172RMSPSI,	AT 8)	PT5/PT2= 40.7	PT5/PT2= 40.7	PT5/PT2= 40.7
4	F/A=.0554	ETAC= 43.8	TT5F= 2115.	PT5/PT2= 40.7	20.90	20.36	
	AT 4	RMS12= .196,	RMS23= 2.890,	RMS34= .059	RMS23= 2.780,	RMS34= .372	
	125-HZ	AT 4)	2.700RMSPSI,	AT 8)	PT5/PT2= 40.7	PT5/PT2= 40.7	PT5/PT2= 40.7
	275-HZ	AT 4)	294RMSPSI,	AT 8)	PT5/PT2= 40.7	PT5/PT2= 40.7	PT5/PT2= 40.7
	500-HZ	AT 4)	587RMSPSI,	AT 8)	PT5/PT2= 40.7	PT5/PT2= 40.7	PT5/PT2= 40.7
	625-HZ	AT 4)	385RMSPSI,	AT 8)	PT5/PT2= 40.7	PT5/PT2= 40.7	PT5/PT2= 40.7
	1575-HZ	AT 4)	430RMSPSI,	AT 8)	PT5/PT2= 40.7	PT5/PT2= 40.7	PT5/PT2= 40.7
	1700-HZ	AT 4)	345RMSPSI,	AT 8)	PT5/PT2= 40.7	PT5/PT2= 40.7	PT5/PT2= 40.7
5	F/A=.0506	ETAC= 39.2	TT5F= 1901.	PT5/PT2= 41.1	19.32	18.98	
	AT 4	RMS12= .761,	RMS23= 1.750,	RMS34= .392	RMS23= 1.560,	RMS34= .145	
	112-HZ	AT 4)	1.130RMSPSI,	AT 8)	PT5/PT2= 41.1	PT5/PT2= 41.1	PT5/PT2= 41.1
	475-HZ	AT 4)	933RMSPSI,	AT 8)	PT5/PT2= 41.1	PT5/PT2= 41.1	PT5/PT2= 41.1
	575-HZ	AT 4)	326RMSPSI,	AT 8)	PT5/PT2= 41.1	PT5/PT2= 41.1	PT5/PT2= 41.1
	950-HZ	AT 4)	203RMSPSI,	AT 8)	PT5/PT2= 41.1	PT5/PT2= 41.1	PT5/PT2= 41.1
	1525-HZ	AT 4)	246RMSPSI,	AT 8)	PT5/PT2= 41.1	PT5/PT2= 41.1	PT5/PT2= 41.1

8IN.CHAMB.	5.375INLET	NU F.MULU.	TTJ=1250K	UNIF.INJ.	PT5/PT2= 84.6	M2= .768	PSI= 11.80	PCI= 13.37
1	F/A=0.0000	ETAC= 0.5	TT5F= 1227.	PT5/PT2= 84.6	AT 8	RMS12= .049,	RMS23= .303,	RMS34= .100
	AT 4	RMS12= .076,	RMS23= .163,	RMS34= .073				
2	F/A= .0651	ETAC= 76.2	TT5F= 3587.	PT5/PT2= 91.2	AT 8	RMS12= .090,	RMS23= .210,	RMS34= .245
	AT 4	RMS12= .288,	RMS23= .224,	RMS34= 2.230				
	125.HZ	AT 4)	.137RMSPSI,	AT 8)	.126KMSPSI,	PHASE(4 8)=	19.50DEG.	
	1900.HZ	AT 4)	1.590RMSPSI,	AT 8)	109RMSPSI,	PHASE(4 8)=	25.90DEG.	
	3775.HZ	AT 4)	2.804RMSPSI,	AT 8)	2.23RMSPSI,	PHASE(4 8)=	-59.00DEG.	
	5675.HZ	AT 4)	3.404RMSPSI,	AT 8)	2.28RMSPSI,	PHASE(4 8)=	53.70DEG.	
	5925.HZ	AT 4)	2.36RMSPSI,	AT 8)	2.25RMSPSI,	PHASE(4 8)=	11.40DEG.	
3	F/A= .0610	ETAC= 77.3	TT5F= 3565.	PT5/PT2= 91.3	AT 8	RMS12= .096,	RMS23= .249,	RMS34= .251
	AT 4	RMS12= .332,	RMS23= .257,	RMS34= 2.000				
	125.HZ	AT 4)	1.57RMSPSI,	AT 8)	1.58RMSPSI,	PHASE(4 8)=	16.30DEG.	
	1875.HZ	AT 4)	1.370RMSPSI,	AT 8)	1.10KMSPSI,	PHASE(4 8)=	47.10DEG.	
	3775.HZ	AT 4)	2.02RMSPSI,	AT 8)	1.35KMSPSI,	PHASE(4 8)=	176.90DEG.	
	5600.HZ	AT 4)	2.90RMSPSI,	AT 8)	0.62RMSPSI,	PHASE(4 8)=	-111.90DEG.	
4	F/A= .0545	ETAC= 74.1	TT5F= 3349.	PT5/PT2= 91.1	AT 8	RMS12= .096,	RMS23= .278,	RMS34= .354
	AT 4	RMS12= .127,	RMS23= .278,	RMS34= 2.190				
	100.HZ	AT 4)	1.53RMSPSI,	AT 8)	1.39RMSPSI,	PHASE(4 8)=	17.60DEG.	
	200.HZ	AT 4)	1.54RMSPSI,	AT 8)	1.45KMSPSI,	PHASE(4 8)=	25.60DEG.	
	1850.HZ	AT 4)	2.010RMSPSI,	AT 8)	1.75KMSPSI,	PHASE(4 8)=	33.70DEG.	
	2050.HZ	AT 4)	1.20RMSPSI,	AT 8)	0.60KMSPSI,	PHASE(4 8)=	104.90DEG.	
	3725.HZ	AT 4)	1.55RMSPSI,	AT 8)	0.21RMSPSI,	PHASE(4 8)=	-67.10DEG.	
	5550.HZ	AT 4)	3.11RMSPSI,	AT 8)	1.90RMSPSI,	PHASE(4 8)=	-121.30DEG.	
	5750.HZ	AT 4)	1.57RMSPSI,	AT 8)	0.26RMSPSI,	PHASE(4 8)=	143.90DEG.	
5	F/A= .0489	ETAC= 80.4	TT5F= 3360.	PT5/PT2= 91.3	AT 8	RMS12= .086,	RMS23= .314,	RMS34= .428
	AT 4	RMS12= .194,	RMS23= .279,	RMS34= 2.620				
	125.HZ	AT 4)	2.00RMSPSI,	AT 8)	2.24RMSPSI,	PHASE(4 8)=	19.60DEG.	
	1850.HZ	AT 4)	2.480RMSPSI,	AT 8)	1.95KMSPSI,	PHASE(4 8)=	51.40DEG.	
	3650.HZ	AT 4)	1.95RMSPSI,	AT 8)	0.69RMSPSI,	PHASE(4 8)=	-87.40DEG.	
	5650.HZ	AT 4)	2.52RMSPSI,	AT 8)	0.60RMSPSI,	PHASE(4 8)=	-155.20DEG.	
6	F/A= .0462	ETAC= 81.5	TT5F= 3307.	PT5/PT2= 91.3	AT 8	RMS12= .086,	RMS23= .407,	RMS34= .430
	AT 4	RMS12= .130,	RMS23= .403,	RMS34= 2.560				
	125.HZ	AT 4)	3.12RMSPSI,	AT 8)	3.18RMSPSI,	PHASE(4 8)=	18.00DEG.	
	1850.HZ	AT 4)	2.280RMSPSI,	AT 8)	2.04RMSPSI,	PHASE(4 8)=	57.40DEG.	
	3675.HZ	AT 4)	1.77RMSPSI,	AT 8)	1.04RMSPSI,	PHASE(4 8)=	-88.90DEG.	
	5525.HZ	AT 4)	1.85RMSPSI,	AT 8)	1.77RMSPSI,	PHASE(4 8)=	115.60DEG.	
	5600.HZ	AT 4)	3.40RMSPSI,	AT 8)	0.98RMSPSI,	PHASE(4 8)=	-152.30DEG.	
7	F/A= .0409	ETAC= 75.7	TT5F= 2942.	PT5/PT2= 91.1	AT 8	RMS12= .091,	RMS23= .411,	RMS34= 1.240
	AT 4	RMS12= .242,	RMS23= .497,	RMS34= 2.450				
	75.HZ	AT 4)	2.39RMSPSI,	AT 8)	1.61RMSPSI,	PHASE(4 8)=	10DEG.	
	200.HZ	AT 4)	2.67RMSPSI,	AT 8)	2.19KMSPSI,	PHASE(4 8)=	28.10DEG.	
	1875.HZ	AT 4)	1.960RMSPSI,	AT 8)	2.46RMSPSI,	PHASE(4 8)=	40.50DEG.	
	2100.HZ	AT 4)	0.63RMSPSI,	AT 8)	0.72RMSPSI,	PHASE(4 8)=	122.70DEG.	
	3775.HZ	AT 4)	2.87RMSPSI,	AT 8)	0.28RMSPSI,	PHASE(4 8)=	-104.60DEG.	
	5725.HZ	AT 4)	3.92RMSPSI,	AT 8)	0.54RMSPSI,	PHASE(4 8)=	158.70DEG.	
	5850.HZ	AT 4)	3.44RMSPSI,	AT 8)	0.64RMSPSI,	PHASE(4 8)=	53.90DEG.	
8	F/A= .0355	ETAC= 68.1	TT5F= 2647.	PT5/PT2= 90.8	AT 8	RMS12= .084,	RMS23= .324,	RMS34= 1.140
	AT 4	RMS12= .129,	RMS23= .406,	RMS34= 2.660				
	175.HZ	AT 4)	2.89RMSPSI,	AT 8)	1.66KMSPSI,	PHASE(4 8)=	40.20DEG.	
	1725.HZ	AT 4)	4.58RMSPSI,	AT 8)	1.73RMSPSI,	PHASE(4 8)=	73.10DEG.	
	1850.HZ	AT 4)	1.840RMSPSI,	AT 8)	0.76RMSPSI,	PHASE(4 8)=	52.40DEG.	
	2025.HZ	AT 4)	2.88RMSPSI,	AT 8)	0.70RMSPSI,	PHASE(4 8)=	-44.80DEG.	
	3750.HZ	AT 4)	3.78RMSPSI,	AT 8)	0.49RMSPSI,	PHASE(4 8)=	17.10DEG.	
	5625.HZ	AT 4)	5.79RMSPSI,	AT 8)	0.64RMSPSI,	PHASE(4 8)=	176.70DEG.	
	5750.HZ	AT 4)	5.02RMSPSI,	AT 8)	0.81RMSPSI,	PHASE(4 8)=	150.20DEG.	

81N-CHAMB.		5.375INLET		NO F. MULD.		LUM FLOW		UNIF. INJ.		M2 = .784		PCI = 6.96	
1		F/A=0.0000		ETAC= 0.0		TTSF= 943.		PT5/PT2= 83.7		AT 8 RMS12=		6.11 PSI=	
AT 4	RMS12=	.028	RMS23=	.085	RMS34=	.047	AT 8	RMS12=	.045	RMS23=	.142	RMS34=	.059
F/A=	.0660	ETAC=	46.6	TTSF=	2505.	PT5/PT2=	90.5	M2=	.366	PSI=	13.82	PCI=	13.44
AT 4	RMS12=	.075	RMS23=	.141	RMS34=	.631	AT 8	RMS12=	.074	RMS23=	.150	RMS34=	.100
125.MZ	AT 4)=	.079RMSPSI,	AT 8)=	.081RMSPSI,	PHASE(4 8)=	10.6DEG.							
550.MZ	AT 4)=	.032RMSPSI,	AT 8)=	.038RMSPSI,	PHASE(4 8)=	-176.4DEG.							
725.MZ	AT 4)=	.035RMSPSI,	AT 8)=	.077RMSPSI,	PHASE(4 8)=	-152.7DEG.							
1725.MZ	AT 4)=	.531RMSPSI,	AT 8)=	.058RMSPSI,	PHASE(4 8)=	45.2DEG.							
3450.MZ	AT 4)=	.049RMSPSI,	AT 8)=	.003RMSPSI,	PHASE(4 8)=	-145.9DEG.							
F/A=	.0617	ETAC=	45.5	TTSF=	2423.	PT5/PT2=	90.6	M2=	.375	PSI=	13.38	PCI=	13.04
AT 4	RMS12=	.134	RMS23=	.256	RMS34=	.626	AT 8	RMS12=	.107	RMS23=	.271	RMS34=	.105
125.MZ	AT 4)=	.108RMSPSI,	AT 8)=	.111RMSPSI,	PHASE(4 8)=	13.7DEG.							
575.MZ	AT 4)=	.183RMSPSI,	AT 8)=	.204RMSPSI,	PHASE(4 8)=	-163.8DEG.							
1700.MZ	AT 4)=	.528RMSPSI,	AT 8)=	.070RMSPSI,	PHASE(4 8)=	65.3DEG.							
F/A=	.0568	ETAC=	63.4	TTSF=	2902.	PT5/PT2=	91.2	M2=	.341	PSI=	14.82	PCI=	14.38
AT 4	RMS12=	.169	RMS23=	1.230	RMS34=	.894	AT 8	RMS12=	.145	RMS23=	1.250	RMS34=	.309
150.MZ	AT 4)=	1.110RMSPSI,	AT 8)=	1.140RMSPSI,	PHASE(4 8)=	11.1DEG.							
275.MZ	AT 4)=	.135RMSPSI,	AT 8)=	.074RMSPSI,	PHASE(4 8)=	51.2DEG.							
1700.MZ	AT 4)=	.514RMSPSI,	AT 8)=	.135RMSPSI,	PHASE(4 8)=	21.0DEG.							
1825.MZ	AT 4)=	.331RMSPSI,	AT 8)=	.111RMSPSI,	PHASE(4 8)=	80.9DEG.							
F/A=	.0519	ETAC=	63.1	TTSF=	2790.	PT5/PT2=	91.3	M2=	.351	PSI=	14.37	PCI=	13.98
AT 4	RMS12=	.192	RMS23=	1.000	RMS34=	1.190	AT 8	RMS12=	.188	RMS23=	1.040	RMS34=	.357
150.MZ	AT 4)=	.895RMSPSI,	AT 8)=	.943RMSPSI,	PHASE(4 8)=	13.6DEG.							
300.MZ	AT 4)=	.132RMSPSI,	AT 8)=	.075RMSPSI,	PHASE(4 8)=	41.5DEG.							
1700.MZ	AT 4)=	.815RMSPSI,	AT 8)=	.140RMSPSI,	PHASE(4 8)=	23.3DEG.							
1850.MZ	AT 4)=	.343RMSPSI,	AT 8)=	.118RMSPSI,	PHASE(4 8)=	69.9DEG.							

8IN.CHARR.	5.375INLET	NO F.HOLD.	40% NOZ.	JMIF.INJ.	PCI	RMS23	RMS34
1	F/A=0.0000	ETAC=0.0	TT5F=1017.	PT5/PT2=90.7	11.92	12.87	.077
	AT 4	RMS12=.053,	RMS23=.159,	AT 8	RMS12=.029,	RMS23=.155,	RMS34=.077
		RMS23=.159,	RMS34=.2930.	M2=.273	PSI=24.51	PCI=24.24	
2	F/A=.0660	ETAC=54.5	TT5F=2930.	PT5/PT2=94.9	11.0DEG.	12.1.8DEG.	.217
	AT 4	RMS12=.427,	RMS23=4.050,	AT 8	RMS12=.395,	RMS23=4.070,	RMS34=.217
		RMS23=4.050,	RMS34=4.510RMSPSI,	PHASE(4 8)=	11.0DEG.		
	125.HZ	AT 4)=	4.000RMSPSI,	PHASE(4 8)=	11.0DEG.		
	250.HZ	AT 4)=	1.040RMSPSI,	PHASE(4 8)=	28.5DEG.		
	375.HZ	AT 4)=	.494RMSPSI,	PHASE(4 8)=	121.8DEG.		
	500.HZ	AT 4)=	.394RMSPSI,	PHASE(4 8)=	147.5DEG.		
	625.HZ	AT 4)=	.523RMSPSI,	PHASE(4 8)=	174.5DEG.		
	750.HZ	AT 4)=	.310RMSPSI,	PHASE(4 8)=	178.9DEG.		
3	F/A=.0616	ETAC=57.5	TT5F=2815.	PT5/PT2=94.1	23.93	23.63	.273
	AT 4	RMS12=.234,	RMS23=3.890,	AT 8	RMS12=.260,	RMS23=3.960,	RMS34=.273
		RMS23=3.890,	RMS34=3.850RMSPSI,	PHASE(4 8)=	12.10DEG.		
	125.HZ	AT 4)=	3.700RMSPSI,	PHASE(4 8)=	25.6DEG.		
	250.HZ	AT 4)=	.819RMSPSI,	PHASE(4 8)=	119.8DEG.		
	375.HZ	AT 4)=	.366RMSPSI,	PHASE(4 8)=	131.1DEG.		
	525.HZ	AT 4)=	.318RMSPSI,	PHASE(4 8)=	176.7DEG.		
	650.HZ	AT 4)=	.379RMSPSI,	PHASE(4 8)=			
4	F/A=.0560	ETAC=52.9	TT5F=2587.	PT5/PT2=93.9	22.60	22.34	.214
	AT 4	RMS12=.180,	RMS23=2.980,	AT 8	RMS12=.249,	RMS23=3.010,	RMS34=.214
		RMS23=2.980,	RMS34=2.910RMSPSI,	PHASE(4 8)=	13.7DEG.		
	125.HZ	AT 4)=	2.820RMSPSI,	PHASE(4 8)=	34.0DEG.		
	250.HZ	AT 4)=	.523RMSPSI,	PHASE(4 8)=	164.2DEG.		
	400.HZ	AT 4)=	.323RMSPSI,	PHASE(4 8)=	161.4DEG.		
	525.HZ	AT 4)=	.235RMSPSI,	PHASE(4 8)=	175.0DEG.		
	650.HZ	AT 4)=	.264RMSPSI,	PHASE(4 8)=	-194.9DEG.		
	775.HZ	AT 4)=	.213RMSPSI,	PHASE(4 8)=			
5	F/A=.0504	ETAC=49.0	TT5F=2359.	PT5/PT2=93.7	21.78	21.57	.234
	AT 4	RMS12=.226,	RMS23=3.310,	AT 8	RMS12=.295,	RMS23=3.330,	RMS34=.234
		RMS23=3.310,	RMS34=3.140RMSPSI,	PHASE(4 8)=	13.2DEG.		
	125.HZ	AT 4)=	3.070RMSPSI,	PHASE(4 8)=	35.5DEG.		
	275.HZ	AT 4)=	.641RMSPSI,	PHASE(4 8)=	163.7DEG.		
	400.HZ	AT 4)=	.328RMSPSI,	PHASE(4 8)=	177.6DEG.		
	525.HZ	AT 4)=	.283RMSPSI,	PHASE(4 8)=	176.9DEG.		
	650.HZ	AT 4)=	.314RMSPSI,	PHASE(4 8)=	-5.6DEG.		
	1275.HZ	AT 4)=	.190RMSPSI,	PHASE(4 8)=	25.3DEG.		
	1875.HZ	AT 4)=	.130RMSPSI,	PHASE(4 8)=	63.1DEG.		
	2000.HZ	AT 4)=	.061RMSPSI,	PHASE(4 8)=			
6	F/A=.0469	ETAC=53.8	TT5F=2423.	PT5/PT2=94.8	21.66	21.47	.533
	AT 4	RMS12=.703,	RMS23=2.150,	AT 8	RMS12=.557,	RMS23=2.060,	RMS34=.533
		RMS23=2.150,	RMS34=1.070	PHASE(4 8)=	14.4DEG.		
	125.HZ	AT 4)=	1.800RMSPSI,	PHASE(4 8)=	14.30DEG.		
	250.HZ	AT 4)=	.294RMSPSI,	PHASE(4 8)=	-191.3DEG.		
	475.HZ	AT 4)=	.327RMSPSI,	PHASE(4 8)=	179.8DEG.		
	575.HZ	AT 4)=	.301RMSPSI,	PHASE(4 8)=	22.3DEG.		
	1600.HZ	AT 4)=	.473RMSPSI,	PHASE(4 8)=	40.10DEG.		
	1750.HZ	AT 4)=	.506RMSPSI,	PHASE(4 8)=			
1	F/A=.0648	ETAC=50.3	TT5F=2608.	PT5/PT2=93.7	23.46	23.10	
2	F/A=.0601	ETAC=49.0	TT5F=2517.	PT5/PT2=93.6	22.95	22.62	
3	F/A=.0546	ETAC=46.9	TT5F=2382.	PT5/PT2=93.4	22.15	21.88	
4	F/A=.0498	ETAC=48.8	TT5F=2354.	PT5/PT2=93.6	21.86	21.56	

BIN. CHAMB.	5-375 INLET	NO F. HULL	60% NOZ.	UNIF. INJ.	AT 8		AT 8		AT 8		AT 8		AT 8		AT 8						
					F/A	RMS12	ETAC	TFSF	RMS23	ETAC	TFSF	RMS34	ETAC	TFSF	PCI	RMS34	ETAC	TFSF	PCI	RMS34	
1	F/A=0.0000	0.73	RMS23=	0.221	TFSF=	924	RMS34=	0.84	AT 8	RMS12=	0.824	AT 8	RMS23=	0.17	AT 8	PCI=	7.70				
	AT 4	RMS12=	0.73	RMS23=	0.221	TFSF=	924	RMS34=	0.84	AT 8	RMS12=	0.824	AT 8	RMS23=	0.17	AT 8	PCI=	7.70			
	F/A=0.0000	0.73	RMS23=	0.221	TFSF=	950	RMS34=	0.84	AT 8	RMS12=	0.849	AT 8	RMS23=	0.110	AT 8	PCI=	10.53				
	AT 4	RMS12=	0.73	RMS23=	0.221	TFSF=	950	RMS34=	0.84	AT 8	RMS12=	0.849	AT 8	RMS23=	0.110	AT 8	PCI=	10.53			
	F/A=0.0000	0.73	RMS23=	0.303	TFSF=	950	RMS34=	0.84	AT 8	RMS12=	0.849	AT 8	RMS23=	0.143	AT 8	PCI=	0.307	RMS34=	0.240		
2	175-MZ	AC 4)	RMS12=	0.138	RMS23=	0.303	TFSF=	950	RMS34=	0.84	AT 8	RMS12=	0.849	AT 8	RMS23=	0.143	AT 8	PCI=	0.307	RMS34=	0.240
	1800-MZ	AC 4)	RMS12=	0.164	RMS23=	0.303	TFSF=	950	RMS34=	0.84	AT 8	RMS12=	0.849	AT 8	RMS23=	0.143	AT 8	PCI=	0.307	RMS34=	0.240
	3575-MZ	AC 4)	RMS12=	0.112	RMS23=	0.303	TFSF=	950	RMS34=	0.84	AT 8	RMS12=	0.849	AT 8	RMS23=	0.143	AT 8	PCI=	0.307	RMS34=	0.240
	5375-MZ	AC 4)	RMS12=	0.139	RMS23=	0.303	TFSF=	950	RMS34=	0.84	AT 8	RMS12=	0.849	AT 8	RMS23=	0.143	AT 8	PCI=	0.307	RMS34=	0.240
	5875-MZ	AC 4)	RMS12=	0.139	RMS23=	0.303	TFSF=	950	RMS34=	0.84	AT 8	RMS12=	0.849	AT 8	RMS23=	0.143	AT 8	PCI=	0.307	RMS34=	0.240
3	7175-MZ	AC 4)	RMS12=	0.226	RMS23=	0.303	TFSF=	950	RMS34=	0.84	AT 8	RMS12=	0.849	AT 8	RMS23=	0.143	AT 8	PCI=	0.307	RMS34=	0.240
	F/A=0.0647	ETAC=	77.7	TFSF=	3512	RMS34=	0.84	AT 8	RMS12=	0.849	AT 8	RMS23=	0.143	AT 8	PCI=	26.29	RMS34=	0.233			
	AT 4	RMS12=	0.113	RMS23=	0.357	TFSF=	3512	RMS34=	0.84	AT 8	RMS12=	0.849	AT 8	RMS23=	0.104	AT 8	PCI=	0.420	RMS34=	0.233	
	200-MZ	AC 4)	RMS12=	0.238	RMS23=	0.357	TFSF=	3512	RMS34=	0.84	AT 8	RMS12=	0.849	AT 8	RMS23=	0.104	AT 8	PCI=	0.420	RMS34=	0.233
	1775-MZ	AC 4)	RMS12=	0.104	RMS23=	0.357	TFSF=	3512	RMS34=	0.84	AT 8	RMS12=	0.849	AT 8	RMS23=	0.104	AT 8	PCI=	0.420	RMS34=	0.233
4	3550-MZ	AC 4)	RMS12=	0.172	RMS23=	0.357	TFSF=	3512	RMS34=	0.84	AT 8	RMS12=	0.849	AT 8	RMS23=	0.104	AT 8	PCI=	0.420	RMS34=	0.233
	5325-MZ	AC 4)	RMS12=	0.658	RMS23=	0.357	TFSF=	3512	RMS34=	0.84	AT 8	RMS12=	0.849	AT 8	RMS23=	0.104	AT 8	PCI=	0.420	RMS34=	0.233
	7100-MZ	AC 4)	RMS12=	0.297	RMS23=	0.357	TFSF=	3512	RMS34=	0.84	AT 8	RMS12=	0.849	AT 8	RMS23=	0.104	AT 8	PCI=	0.420	RMS34=	0.233
	F/A=0.0618	ETAC=	79.4	TFSF=	3911	RMS34=	0.84	AT 8	RMS12=	0.849	AT 8	RMS23=	0.104	AT 8	PCI=	26.16	RMS34=	0.552			
	AT 4	RMS12=	0.135	RMS23=	1.310	TFSF=	3911	RMS34=	0.84	AT 8	RMS12=	0.849	AT 8	RMS23=	0.096	AT 8	PCI=	1.420	RMS34=	0.552	
5	200-MZ	AC 4)	RMS12=	0.180	RMS23=	1.310	TFSF=	3911	RMS34=	0.84	AT 8	RMS12=	0.849	AT 8	RMS23=	0.096	AT 8	PCI=	1.420	RMS34=	0.552
	400-MZ	AC 4)	RMS12=	0.182	RMS23=	1.310	TFSF=	3911	RMS34=	0.84	AT 8	RMS12=	0.849	AT 8	RMS23=	0.096	AT 8	PCI=	1.420	RMS34=	0.552
	600-MZ	AC 4)	RMS12=	0.097	RMS23=	1.310	TFSF=	3911	RMS34=	0.84	AT 8	RMS12=	0.849	AT 8	RMS23=	0.096	AT 8	PCI=	1.420	RMS34=	0.552
	1550-MZ	AC 4)	RMS12=	0.559	RMS23=	1.310	TFSF=	3911	RMS34=	0.84	AT 8	RMS12=	0.849	AT 8	RMS23=	0.096	AT 8	PCI=	1.420	RMS34=	0.552
	1750-MZ	AC 4)	RMS12=	0.120	RMS23=	1.310	TFSF=	3911	RMS34=	0.84	AT 8	RMS12=	0.849	AT 8	RMS23=	0.096	AT 8	PCI=	1.420	RMS34=	0.552
6	1950-MZ	AC 4)	RMS12=	0.522	RMS23=	1.310	TFSF=	3911	RMS34=	0.84	AT 8	RMS12=	0.849	AT 8	RMS23=	0.096	AT 8	PCI=	1.420	RMS34=	0.552
	2150-MZ	AC 4)	RMS12=	0.186	RMS23=	1.310	TFSF=	3911	RMS34=	0.84	AT 8	RMS12=	0.849	AT 8	RMS23=	0.096	AT 8	PCI=	1.420	RMS34=	0.552
	3500-MZ	AC 4)	RMS12=	0.180	RMS23=	1.310	TFSF=	3911	RMS34=	0.84	AT 8	RMS12=	0.849	AT 8	RMS23=	0.096	AT 8	PCI=	1.420	RMS34=	0.552
	5250-MZ	AC 4)	RMS12=	0.663	RMS23=	1.310	TFSF=	3911	RMS34=	0.84	AT 8	RMS12=	0.849	AT 8	RMS23=	0.096	AT 8	PCI=	1.420	RMS34=	0.552
	F/A=0.0557	ETAC=	81.7	TFSF=	3431	RMS34=	0.84	AT 8	RMS12=	0.849	AT 8	RMS23=	0.096	AT 8	PCI=	25.75	RMS34=	0.524			
7	50-MZ	AC 4)	RMS12=	0.452	RMS23=	0.573	TFSF=	3431	RMS34=	0.84	AT 8	RMS12=	0.849	AT 8	RMS23=	0.400	AT 8	PCI=	0.566	RMS34=	0.524
	175-MZ	AC 4)	RMS12=	0.375	RMS23=	0.573	TFSF=	3431	RMS34=	0.84	AT 8	RMS12=	0.849	AT 8	RMS23=	0.400	AT 8	PCI=	0.566	RMS34=	0.524
	1700-MZ	AC 4)	RMS12=	0.610	RMS23=	0.573	TFSF=	3431	RMS34=	0.84	AT 8	RMS12=	0.849	AT 8	RMS23=	0.400	AT 8	PCI=	0.566	RMS34=	0.524
	3425-MZ	AC 4)	RMS12=	0.165	RMS23=	0.573	TFSF=	3431	RMS34=	0.84	AT 8	RMS12=	0.849	AT 8	RMS23=	0.400	AT 8	PCI=	0.566	RMS34=	0.524
	4950-MZ	AC 4)	RMS12=	0.292	RMS23=	0.573	TFSF=	3431	RMS34=	0.84	AT 8	RMS12=	0.849	AT 8	RMS23=	0.400	AT 8	PCI=	0.566	RMS34=	0.524
8	5050-MZ	AC 4)	RMS12=	0.260	RMS23=	0.573	TFSF=	3431	RMS34=	0.84	AT 8	RMS12=	0.849	AT 8	RMS23=	0.400	AT 8	PCI=	0.566	RMS34=	0.524
	5125-MZ	AC 4)	RMS12=	0.479	RMS23=	0.573	TFSF=	3431	RMS34=	0.84	AT 8	RMS12=	0.849	AT 8	RMS23=	0.400	AT 8	PCI=	0.566	RMS34=	0.524
	F/A=0.0484	ETAC=	73.9	TFSF=	3004	RMS34=	0.84	AT 8	RMS12=	0.849	AT 8	RMS23=	0.400	AT 8	PCI=	23.86	RMS34=	0.744			
	AT 4	RMS12=	0.128	RMS23=	1.030	TFSF=	3004	RMS34=	0.84	AT 8	RMS12=	0.849	AT 8	RMS23=	0.131	AT 8	PCI=	1.240	RMS34=	0.744	
	175-MZ	AC 4)	RMS12=	0.162	RMS23=	1.030	TFSF=	3004	RMS34=	0.84	AT 8	RMS12=	0.849	AT 8	RMS23=	0.131	AT 8	PCI=	1.240	RMS34=	0.744
9	375-MZ	AC 4)	RMS12=	0.093	RMS23=	1.030	TFSF=	3004	RMS34=	0.84	AT 8	RMS12=	0.849	AT 8	RMS23=	0.131	AT 8	PCI=	1.240	RMS34=	0.744
	550-MZ	AC 4)	RMS12=	0.093	RMS23=	1.030	TFSF=	3004	RMS34=	0.84	AT 8	RMS12=	0.849	AT 8	RMS23=	0.131	AT 8	PCI=	1.240	RMS34=	0.744
	600-MZ	AC 4)	RMS12=	0.093	RMS23=	1.030	TFSF=	3004	RMS34=	0.84	AT 8	RMS12=	0.849	AT 8	RMS23=	0.131	AT 8	PCI=	1.240	RMS34=	0.744
	1450-MZ	AC 4)	RMS12=	0.322	RMS23=	1.030	TFSF=	3004	RMS34=	0.84	AT 8	RMS12=	0.849	AT 8	RMS23=	0.131	AT 8	PCI=	1.240	RMS34=	0.744
	1625-MZ	AC 4)	RMS12=	0.420	RMS23=	1.030	TFSF=	3004	RMS34=	0.84	AT 8	RMS12=	0.849	AT 8	RMS23=	0.131	AT 8	PCI=	1.240	RMS34=	0.744
10	1800-MZ	AC 4)	RMS12=	0.367	RMS23=	1.030	TFSF=	3004	RMS34=	0.84	AT 8	RMS12=	0.849	AT 8	RMS23=	0.131	AT 8	PCI=	1.240	RMS34=	0.744
	1975-MZ	AC 4)	RMS12=	0.146	RMS23=	1.030	TFSF=	3004	RMS34=	0.84	AT 8	RMS12=	0.849	AT 8	RMS23=	0.131	AT 8	PCI=	1.240	RMS34=	0.744
	3275-MZ	AC 4)	RMS12=	0.140	RMS23=	1.030	TFSF=	3004	RMS34=	0.84	AT 8	RMS12=	0.849	AT 8	RMS23=	0.131	AT 8	PCI=	1.240	RMS34=	0.744
	F/A=0.0454	ETAC=	47.1	TFSF=	2214	RMS34=	0.84	AT 8	RMS12=	0.849	AT 8	RMS23=	0.131	AT 8	PCI=	23.27	RMS34=	19.69			
	AT 4	RMS12=	0.135	RMS23=	1.310	TFSF=	2214	RMS34=	0.84	AT 8	RMS12=	0.849	AT 8	RMS23=	0.096	AT 8	PCI=	1.420	RMS34=	0.552	

BIN. CHARG.	5-375INLET	ND F. HOUJL.	-/D=1.5	UNIF. INJ.	PT5/PT2=	84.6	M2=	.779	PSI=	10.29	PCI=	9.99
1	F/A=0.0000	ETAC=0.0	TT5F= .965	PT5/PT2=	84.6	M2=	.779	PSI=	10.29	PCI=	9.99	
	AT 4	RMS12= .030, RMS23= .114, RMS34= .1389		AT 8	RMS12= .094, RMS23= .250, RMS34= .093							
2	F/A= .0661	ETAC= 12.0	TT5F= 1.389	PT5/PT2=	80.5	M2=	.535	PSI=	15.54	PCI=	15.34	
	AT 4	RMS12= .073, RMS23= .359, RMS34= .300		AT 8	RMS12= .083, RMS23= .067, RMS34= .057							
	300.MZ	AT 4)= .332RMSPSI, AT 8)= .235RMSPSI, PHASE(4 8)= 11.30DEG.										
	775.MZ	AT 4)= .044RMSPSI, AT 8)= .027RMSPSI, PHASE(4 8)= 73.9DEG.										
3	F/A= .0611	ETAC= 11.3	TT5F= 1.359	PT5/PT2=	84.6	M2=	.552	PSI=	15.05	PCI=	14.85	
	AT 4	RMS12= .089, RMS23= .336, RMS34= .300		AT 8	RMS12= .097, RMS23= .239, RMS34= .064							
	300.MZ	AT 4)= .301RMSPSI, AT 8)= .198RMSPSI, PHASE(4 8)= 11.5DEG.										
	775.MZ	AT 4)= .041RMSPSI, AT 8)= .029RMSPSI, PHASE(4 8)= 70.1DEG.										
4	F/A= .0553	ETAC= 11.0	TT5F= 1.333	PT5/PT2=	84.5	M2=	.566	PSI=	14.68	PCI=	14.49	
	AT 4	RMS12= .085, RMS23= .304, RMS34= .300		AT 8	RMS12= .095, RMS23= .206, RMS34= .097							
	300.MZ	AT 4)= .280RMSPSI, AT 8)= .176RMSPSI, PHASE(4 8)= 6.8DEG.										
	1525.MZ	AT 4)= .070RMSPSI, AT 8)= .068RMSPSI, PHASE(4 8)= 5.6DEG.										
5	F/A= .0508	ETAC= 11.3	TT5F= 1.321	PT5/PT2=	84.6	M2=	.574	PSI=	14.31	PCI=	14.13	
	AT 4	RMS12= .069, RMS23= .430, RMS34= .300		AT 8	RMS12= .085, RMS23= .308, RMS34= .131							
	300.MZ	AT 4)= .398RMSPSI, AT 8)= .261RMSPSI, PHASE(4 8)= 12.5DEG.										
	750.MZ	AT 4)= .047RMSPSI, AT 8)= .044RMSPSI, PHASE(4 8)= 71.2DEG.										
	1525.MZ	AT 4)= .088RMSPSI, AT 8)= .073RMSPSI, PHASE(4 8)= 4.1DEG.										
6	F/A= .0452	ETAC= 11.7	TT5F= 1.302	PT5/PT2=	84.5	M2=	.584	PSI=	14.13	PCI=	14.06	
	AT 4	RMS12= .138, RMS23= .261, RMS34= .300		AT 8	RMS12= .146, RMS23= .231, RMS34= .159							
	300.MZ	AT 4)= .121RMSPSI, AT 8)= .129RMSPSI, PHASE(4 8)= 3.8DEG.										
	750.MZ	AT 4)= .037RMSPSI, AT 8)= .055RMSPSI, PHASE(4 8)= 86.9DEG.										
	1550.MZ	AT 4)= .111RMSPSI, AT 8)= .122RMSPSI, PHASE(4 8)= 10.9DEG.										
7	F/A= .0402	ETAC= 9.7	TT5F= 1.228	PT5/PT2=	87.7	M2=	.614	PSI=	13.41	PCI=	13.34	
	AT 4	RMS12= .208, RMS23= .152, RMS34= .177		AT 8	RMS12= .230, RMS23= .204, RMS34= .290							
	1475.MZ	AT 4)= .177RMSPSI, AT 8)= .240RMSPSI, PHASE(4 8)= 15.9DEG.										

SECTION VI

SUMMARY TABLES FOR LOW FREQUENCY COMBUSTION INSTABILITY

To summarize the data, tables were made that contained a space for every file tested. If a file had a combustion instability of less than 500 Hz, some data from the record with the largest amplitude instability was recorded in the space for that file. Blank spaces indicate that no instability of less than 500 Hz was observed for that file.

1. DESCRIPTION OF DATA IN THE SUMMARY CHARTS

'D2'	=	Inlet diameter in inches
'F.H.'	=	Flameholder
'Orn Tube Inj'	=	Diameter of orifice in the tube wall fuel injectors in inches
'FREQ'	=	Frequency of the peak amplitude of RMS pressure. Resolution bandwidth is 1.25 Hz.
'AMPL(4/8)'	=	The RMS pressure density of the oscillation at 4 (3 inches after dump on the top of the combustor) and at 8 (3 inches before the nozzle)
'PHASE'	=	The phase angle difference of the pressure oscillation from location 4 to location 8
'TT5 _F '	=	Total temperature of the gasses as they leave the combustor, OR
'f/a'	=	Fuel air ratio where the highest amplitude combustion instability was observed for that file.
'NOZ'	=	A*/A3, the ratio of the nozzle throat area to the combustion chamber area
'w _a '	=	The air mass flow entering the combustor
'T _{T0} '	=	The total temperature of the air entering the combustor
'LC'	=	The length of the combustor in inches

AFMAL-TR-81-2047
Part I

2. SUMMARY CHARTS

TABLE 4
6 INCH CHAMBER, COMBUSTION INSTABILITY PARAMETERS, MAXIMUM RUMBLE (L.T. 500 Hz) CONDITIONS

UNIF. INJ. BASELINE CONDITIONS - NO2=50%, TT0=1000°R, Wa=4.0 lbs/sec, LC=18 in.													
		NO2=40%		TT0=750°R		BASELINE		TT0=1250°R		NO2=60%			
		Wa=3.24 lbs/sec		Wa=4.0 lbs/sec		Wa=4.0 lbs/sec		Wa=4.86 lbs/sec		Wa=4.86 lbs/sec			
D2	F.H.	FREQ	AMPL (4/8)	PHASE, TT5F	f/a	FREQ	AMPL (4/8)	PHASE, TT5F	f/a	FREQ	AMPL (4/8)	PHASE, TT5F	f/a
4.0 in.	NONE		3.43/1.79	5.6°	3029		203.75	2.23/2.30	1.72/1.79				
				.0675			20.4°	2956	22.5°	3396			
							.0664		.0648				
4.0 in.	.25Y	FREQ	221.25				228.75			228.75			275
		AMPL (4/8)	4.72/2.06				4.10/3.78			2.79/.798			2.55/.810
		PHASE, TT5F	11.7°	3761			13.1°	3651		16.8°	3415		21.6°
		f/a	.0626				.0666			.0636			.0650
4.0 in.	.35Y	FREQ	222.5		197.5								
		AMPL (4/8)	3.26/2.56		2.70/1.10								
		PHASE, TT5F	13.6°	3805	14.6°	2855							
		f/a	.0646		.0641								
3.5 in.	NONE	FREQ	218.75		180		207.5						
		AMPL (4/8)	2.54/2.26		1.03/-		1.55/1.46						
		PHASE, TT5F	18.3°	2992	-	2208	14.2°	3264					
		f/a	.0666		.0668		.0658						
3.5 in.	.25Y	FREQ	307.5		202.5								
		AMPL (4/8)	.872/.682		-/3.53								
		PHASE, TT5F	19.3°	3431	-	3403							
		f/a	.0514		.0515								
3.5 in.	.35Y	FREQ											
		AMPL (4/8)											
		PHASE, TT5F											
		f/a											
3.0 in.	NONE	FREQ											
		AMPL (4/8)											
		PHASE, TT5F											
		f/a											
3.0 in.	.25Y	FREQ											
		AMPL (4/8)											
		PHASE, TT5F											
		f/a											
3.0 in.	.35Y	FREQ											
		AMPL (4/8)											
		PHASE, TT5F											
		f/a											
* DATA DID NOT RECORD													
** CONDITION DID NOT LIGHT													

GENERAL PURPOSE WORKSHEET (10" x 8") PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE. AFSC FORM 41 185b JUL 61

TABLE 5
6 INCH CHAMBER, COMBUSTION INSTABILITY PARAMETERS, MAXIMUM RUMBLE (L.T. 500 Hz) CONDITIONS

TUBE WALL INJ.									
BASELINE CONDITIONS - NOZ=50%, TT ₀ =1000°R, W _a =4 lbs/sec, LC=18 in.									
D2	F.H.	NOZ=40%	TT ₀ =750°R	BASELINE	TT ₀ =1250°R	W _a =2.49	LC=9 in.	NOZ=60%	W _a =4.86 lbs/sec
		W _a =3.24 lb/sec				lbs/sec			
4.0 in.	NONE	FREQ	170	170	136.25				
		AMPL (4/8)	1.55/.635	1.11/.773	2.28/1.83				
.059 Tube Inj		PHASE, TT5F	22.2° 2089	19.0° 2471	11.4° 2971				
		f/a	.0256	.0407	.0582				
4.0 in.	.25Y	FREQ	208.75	220	202.5				
		AMPL (4/8)	2.70/1.30	3.63/3.13	1.83/.515				
.059 Tube Inj		PHASE, TT5F	21.3° 2804	18.4° 1991	16.8° 2988				
		f/a	.0423	.0548	.0452				
4.0 in.	.35Y	FREQ	210	220	206.25				
		AMPL (4/8)	3.26/2.04	3.86/1.99	1.99/.422				
.059 Tube Inj		PHASE, TT5F	15.5° 3204	20.3° 3103	20.0° 3796				
		f/a	.0583	.0634	.0641				
3.5 in.	NONE	FREQ	188.75	208.75	221.25		233.75	220	
		AMPL (4/8)	3.43/2.77	4.93/3.85	-/1.87		.542/.457	2.27/1.52	
.052 Tube Inj		PHASE, TT5F	18.2° 2987	19.6° 3008	- 3328		8.4° 2385	22.3° 2794	
		f/a	.0548	.0563	.0600		.0364	.0496	
3.5 in.	.25Y	FREQ	197.5						
		AMPL (4/8)	-/1.84						
.052 Tube Inj		PHASE, TT5F	- 2790						
		f/a	.0511						
3.5 in.	.35Y	FREQ				225			
		AMPL (4/8)				.633/.514			
.052 Tube Inj		PHASE, TT5F				24.4° 1951			
		f/a				.0449			
3.0 in.	NONE	FREQ	208.75	197.5	203.75	205	**		
		AMPL (4/8)	-/4.14	2.9/2.49	-/1.925	-/1.565			
.046 Tube Inj		PHASE, TT5F	- 3224	- 2572	- 3283	- 3649			
		f/a	.0582	.0593	.0694	.0546			
3.0 in.	.25Y	FREQ							
		AMPL (4/8)							
.046 Tube Inj		PHASE, TT5F							
		f/a							
3.0 in.	.35Y	FREQ							
		AMPL (4/8)							
.046 Tube Inj		PHASE, TT5F							
		f/a							
* DATA DID NOT RECORD									
** CONDITION DID NOT LIGHT									

TABLE 6
8 INCH CHAMBER, COMBUSTION INSTABILITY PARAMETERS MAXIMUM RUMBLE (L.T. 500 Hz) CONDITIONS

UNIF. INJ.		BASELINE CONDITIONS-N0Z=50%, TT0=1000°R, W _a =5.55 lbs/sec, L _C =24 in.		BASELINE		TT0=1250°R		W _a =3.33 lb/sec		L _C =12 in.		N0Z=60% W _a =6.66 lb/sec					
D2	F.H.	N0Z=40% W _a =4.44 lb/sec	TT0=750°R	BASELINE	TT0=1250°R	W _a =3.33 lb/sec	L _C =12 in.	N0Z=60% W _a =6.66 lb/sec	D2	F.H.	N0Z=40% W _a =4.44 lb/sec	TT0=750°R	BASELINE	TT0=1250°R	W _a =3.33 lb/sec	L _C =12 in.	N0Z=60% W _a =6.66 lb/sec
5.375 in.	NONE	126.25	125	141.25	180	138.75	180	180	5.375 in.	NONE	126.25	125	141.25	180	138.75	180	180
	.25Y AMPL (4/8)	2.24/2.38	1.13/1.12	1.80/1.93	32.2°	.84/1.887	3008	.823/.764		.25Y AMPL (4/8)	2.24/2.38	1.13/1.12	1.80/1.93	32.2°	.84/1.887	3008	.823/.764
	PHASE, TT5F	10.7° 2531	9.4° 2115	10.5° 3295		11.7° 2902		32.2° 3008		PHASE, TT5F	10.7° 2531	9.4° 2115	10.5° 3295		11.7° 2902		32.2° 3008
	f/a	.0603	.0554	.0543		.0568		.0484		f/a	.0603	.0554	.0543		.0568		.0484
5.375 in.	FREQ	133.75	158.75	192.5	210	192.5	210	210	5.375 in.	FREQ	133.75	158.75	192.5	210	192.5	210	210
	.25Y AMPL (4/8)	2.33/2.40	2.12/2.03	1.51/1.29	21.8°	1.04/.944	3081	.668/.650		.25Y AMPL (4/8)	2.33/2.40	2.12/2.03	1.51/1.29	21.8°	1.04/.944	3081	.668/.650
	PHASE, TT5F	10.6° 3251	13.9° 2821	23.1° 2952		21.1° 3195		21.8° 3081		PHASE, TT5F	10.6° 3251	13.9° 2821	23.1° 2952		21.1° 3195		21.8° 3081
	f/a	.0510	.0550	.0455		.0564		.0470		f/a	.0510	.0550	.0455		.0564		.0470
5.375 in.	FREQ								5.375 in.	FREQ							
	.35Y AMPL (4/8)									.35Y AMPL (4/8)							
	PHASE, TT5F									PHASE, TT5F							
	f/a									f/a							
4.75 in.	NONE	126.5	125	158.75	180	158.75	180	180	4.75 in.	NONE	126.5	125	158.75	180	158.75	180	180
	.25Y AMPL (4/8)	2.42/2.40	1.15/1.18	.409/.194		.409/.194				.25Y AMPL (4/8)	2.42/2.40	1.15/1.18	.409/.194		.409/.194		
	PHASE, TT5F	9.5° 2865	8.7° 2650	-179.1° 1742		-179.1° 1742				PHASE, TT5F	9.5° 2865	8.7° 2650	-179.1° 1742		-179.1° 1742		
	f/a	.0648	.0584	.0446		.0446				f/a	.0648	.0584	.0446		.0446		
4.75 in.	FREQ	136.25	188.75	197.5		197.5			4.75 in.	FREQ	136.25	188.75	197.5		197.5		
	.25Y AMPL (4/8)	1.21/1.42	2.74/2.72	1.07/1.782		1.07/1.782				.25Y AMPL (4/8)	1.21/1.42	2.74/2.72	1.07/1.782		1.07/1.782		
	PHASE, TT5F	8.7° 3371	16.5° 3274	18.0° 3362		18.0° 3362				PHASE, TT5F	8.7° 3371	16.5° 3274	18.0° 3362		18.0° 3362		
	f/a	.0456	.0631	.0448		.0448				f/a	.0456	.0631	.0448		.0448		
4.75 in.	FREQ								4.75 in.	FREQ							
	.35Y AMPL (4/8)									.35Y AMPL (4/8)							
	PHASE, TT5F									PHASE, TT5F							
	f/a									f/a							
4.00 in.	NONE								4.00 in.	NONE							
	.25Y AMPL (4/8)									.25Y AMPL (4/8)							
	PHASE, TT5F									PHASE, TT5F							
	f/a									f/a							
4.00 in.	FREQ								4.00 in.	FREQ							
	.25Y AMPL (4/8)									.25Y AMPL (4/8)							
	PHASE, TT5F									PHASE, TT5F							
	f/a									f/a							
4.00 in.	FREQ								4.00 in.	FREQ							
	.35Y AMPL (4/8)									.35Y AMPL (4/8)							
	PHASE, TT5F									PHASE, TT5F							
	f/a									f/a							

GENERAL PURPOSE WORKSHEET (10-5 X 8") PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE.

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TABLE 7
8 INCH CHAMBER, COMBUSTION INSTABILITY PARAMETERS MAXIMUM RUMBLE (L.T. 500 Hz) CONDITIONS

WALL INJ		BASELINE CONDITIONS-NOZ=50%, T ₁₀ =1000°R,		BASELINE		T ₁₀ =1250°R		T ₁₀ =750°R		W _a =5.55 lb/sec, L _c =24 in.		NOZ=60%	
		NOZ=40%		W _a =4.44 lbs/sec		T ₁₀ =1250°R		T ₁₀ =750°R		W _a =3.33 lbs/sec L _c =12 in.		NOZ=60%	
5.375 in.	FREQ AMPL (4/8)	121.25 2.26/2.20	128.75 .725/.709	128.75 .725/.709	123.75 .938/.795	123.75 .938/.795	123.75 .938/.795	123.75 .938/.795	123.75 .938/.795	123.75 .938/.795	127.5 .865/.750	127.5 .865/.750	127.5 .865/.750
.068 Tube Inj	PHASE, T _{15F} f/a	12.9° .0427	7.4° .0250	7.4° .0250	14.6° .0534	14.6° .0534	14.6° .0534	14.6° .0534	14.6° .0534	14.6° .0534	17.4° .0413	17.4° .0413	17.4° .0413
5.375 in.	FREQ AMPL (4/8)	133.75 3.10/3.02	14.3 2856	133.75 3.10/3.02	133.75 3.24/3.00	133.75 3.24/3.00	133.75 3.24/3.00	133.75 3.24/3.00	133.75 3.24/3.00	133.75 3.24/3.00	200	200	200
.068 Tube Inj	PHASE, T _{15F} f/a	14.3 .0473	14.3 .0473	14.3 .0473	16.2° 3065	16.2° 3065	16.2° 3065	16.2° 3065	16.2° 3065	16.2° 3065	22.9° 3255	22.9° 3255	22.9° 3255
5.375 in.	FREQ AMPL (4/8)	131.25 3.29/3.15	168.75 1.45/1.23	131.25 3.29/3.15	131.25 3.29/3.15	131.25 3.29/3.15	131.25 3.29/3.15	131.25 3.29/3.15	131.25 3.29/3.15	131.25 3.29/3.15	190	190	190
.068 Tube Inj	PHASE, T _{15F} f/a	9.9° .0504	13° 2007	9.9° .0504	12.1° 2992	12.1° 2992	12.1° 2992	12.1° 2992	12.1° 2992	12.1° 2992	10.0°	10.0°	10.0°
4.75 in.	FREQ AMPL (4/8)	9.9° 2899	13° 2007	9.9° 2899	13° 2007	13° 2007	13° 2007	13° 2007	13° 2007	13° 2007	11.4° 2757	11.4° 2757	11.4° 2757
.059 Tube Inj	PHASE, T _{15F} f/a	9.9° .0447	13° 2007	9.9° .0447	13° 2007	13° 2007	13° 2007	13° 2007	13° 2007	13° 2007	10.0° .0407	10.0° .0407	10.0° .0407
4.75 in.	FREQ AMPL (4/8)	221.25 .476/.420	17.6° 3378	221.25 .476/.420	17.6° 3378	17.6° 3378	17.6° 3378	17.6° 3378	17.6° 3378	17.6° 3378	17.6° 3378	17.6° 3378	17.6° 3378
.059 Tube Inj	PHASE, T _{15F} f/a	17.6° .0657	17.6° 3378	17.6° .0657	17.6° 3378	17.6° 3378	17.6° 3378	17.6° 3378	17.6° 3378	17.6° 3378	17.6° 3378	17.6° 3378	17.6° 3378
4.75 in.	FREQ AMPL (4/8)	127.5 3.68/3.30	176.25 1.91/1.66	127.5 3.68/3.30	127.5 3.68/3.30	127.5 3.68/3.30	127.5 3.68/3.30	127.5 3.68/3.30	127.5 3.68/3.30	127.5 3.68/3.30	202.5	202.5	202.5
.059 Tube Inj	PHASE, T _{15F} f/a	9.7° .0658	12.5° 2814	9.7° .0658	12.5° 2814	12.5° 2814	12.5° 2814	12.5° 2814	12.5° 2814	12.5° 2814	17.2° 3125	17.2° 3125	17.2° 3125
4.0 in.	FREQ AMPL (4/8)	127.5 3.68/3.30	176.25 1.91/1.66	127.5 3.68/3.30	127.5 3.68/3.30	127.5 3.68/3.30	127.5 3.68/3.30	127.5 3.68/3.30	127.5 3.68/3.30	127.5 3.68/3.30	17.2° 3125	17.2° 3125	17.2° 3125
.052 Tube Inj	PHASE, T _{15F} f/a	9.7° .0658	12.5° 2814	9.7° .0658	12.5° 2814	12.5° 2814	12.5° 2814	12.5° 2814	12.5° 2814	12.5° 2814	17.2° 3125	17.2° 3125	17.2° 3125
4.0 in.	FREQ AMPL (4/8)	127.5 3.68/3.30	176.25 1.91/1.66	127.5 3.68/3.30	127.5 3.68/3.30	127.5 3.68/3.30	127.5 3.68/3.30	127.5 3.68/3.30	127.5 3.68/3.30	127.5 3.68/3.30	17.2° 3125	17.2° 3125	17.2° 3125
.052 Tube Inj	PHASE, T _{15F} f/a	9.7° .0658	12.5° 2814	9.7° .0658	12.5° 2814	12.5° 2814	12.5° 2814	12.5° 2814	12.5° 2814	12.5° 2814	17.2° 3125	17.2° 3125	17.2° 3125
4.0 in.	FREQ AMPL (4/8)	127.5 3.68/3.30	176.25 1.91/1.66	127.5 3.68/3.30	127.5 3.68/3.30	127.5 3.68/3.30	127.5 3.68/3.30	127.5 3.68/3.30	127.5 3.68/3.30	127.5 3.68/3.30	17.2° 3125	17.2° 3125	17.2° 3125
.052 Tube Inj	PHASE, T _{15F} f/a	9.7° .0658	12.5° 2814	9.7° .0658	12.5° 2814	12.5° 2814	12.5° 2814	12.5° 2814	12.5° 2814	12.5° 2814	17.2° 3125	17.2° 3125	17.2° 3125

AFSC FORM 185 b JUL 61 GENERAL PURPOSE WORKSHEET (10" X 8") PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE.

TABLE 8
12 INCH CHAMBER, COMBUSTION INSTABILITY PARAMETERS, MAXIMUM RUMBLE (L.T. 500 HZ) CONDITIONS

TUBE WALL INJ.		NOZ=50%, $T_{T0}=1000^{\circ}R$, $\dot{W}_a=8.33$ lbs/sec, LC=36 in.		BASELINE		$T_{T0}=1250^{\circ}R$		$\dot{W}_a=5$ lbs/sec, LC=18 in.		NOZ=60%	
D2	F.H.	$\dot{W}_a=6.66$ lbs/sec	$T_{T0}=750^{\circ}R$	$T_{T0}=1000^{\circ}R$	$T_{T0}=1250^{\circ}R$	$\dot{W}_a=5$ lbs/sec	LC=18 in.	$\dot{W}_a=10$ lbs/sec			
8 in.	NONE	110.0	103.75	98.75	98.75	101.25	182.5				
	AMPL (4/8)	.693/.709	.442/.427	.536/.441		.166/.134	1.20/.965				
.077 Tube Inj	PHASE, T_{T5F}	15.0° 3291	8.8° 2400	11.6° 3352		8.1° 2945	20.9° 2523				
	f/a	.0569	.0402	.0652		.0498	.0415				
8 in.	FREQ	107.5	107.5	112.25		126.25	121.25				
	AMPL (4/8)	1.65/1.44	1.65/1.44	1.90/1.66		.242/.193	.638/.482				
.077 Tube Inj	PHASE, T_{T5F}	13.3° 2979	13.3° 2979	16.1° 2080		11.7°	15.9° 2666				
	f/a	.0666	.0666	.0642		.0592					
8 in.	FREQ	111.25	98.75	111.25		97.5					
	AMPL (4/8)	.455/.410	1.90/1.66	1.17/1.997		1.38/1.02					
.077 Tube Inj	PHASE, T_{T5F}	19.5° 3334	16.1° 2080	16.9° 3205		14.4° 2826					
	f/a	.0642	.0362	.0603		.0464					
7 in.	FREQ	110	110	110							
	AMPL (4/8)	1.02/.836	1.02/.836	1.02/.836							
.068 Tube Inj	PHASE, T_{T5F}	11.3° 2883	11.3° 2883	11.3° 2883							
	f/a	.0644	.0644	.0644							
7 in.	FREQ	121.25	121.25	121.25	*						
	AMPL (4/8)	.943/.727	.943/.727	.943/.727							
.068 Tube Inj	PHASE, T_{T5F}	12.4° 3375	12.4° 3375	12.4° 3375							
	f/a	.0651	.0651	.0651							
6 in.	FREQ	340	340	376.25		95					
	AMPL (4/8)	.561/.336	.561/.336	.465/.293		.985/.67					
.059 Tube Inj	PHASE, T_{T5F}	175.8° 1771	175.8° 1771	179.3° 2426		9.4° 3277					
	f/a	.0313	.0313	.0400		.0640					
6 in.	FREQ										
	AMPL (4/8)										
.059 Tube Inj	PHASE, T_{T5F}										
	f/a										
6 in.	FREQ										
	AMPL (4/8)										
.059 Tube Inj	PHASE, T_{T5F}										
	f/a										
* DATA NOT RECORDED											

AFSC FORM 185 b JUL 61 GENERAL PURPOSE WORKSHEET (20.1" X 8") PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE.

TABLE 9
12 INCH CHAMBER, COMBUSTION INSTABILITY PARAMETERS, MAXIMUM RUMBLE (L.T. 500 Hz) CONDITIONS

UNIF. INJ. BASELINE CONDITION - NOZ=50%, $T_{T0}=1000^{\circ}R$, $\dot{W}_a=8.33$ lbs/sec, $LC=36$ in.									
D2	F.H.	NOZ=40% $\dot{W}_a=6.66$ lbs/sec	$T_{T0}=750^{\circ}R$	BASELINE	$T_{T0}=1250^{\circ}R$	$\dot{W}_a=5$ lbs/sec	$LC=18$ in.	NOZ=60% $\dot{W}_a=10$ lbs/sec	
8 in.	FREQ	113.75	90		172.5	75.0	176.25		
	AMPL (4/8)	.773/.897	.435/.458		.533/.524	.675/.509	1.23/1.13		
	PHASE, TT5F f/a	21.2° 3639 .0546	15.5° 3146 .0497		9.0° 4013 .0614	7.2° 3485 .0637	20.3° 2988 .0539		
8 in.	FREQ	133.75	126.25	136.25	141.25	197.5	197.5		
	AMPL (4/8)	1.89/1.82	2.65/2.47	1.01/.819	1.04/.933	2.31/1.98	14.8° 3202		
	PHASE, TT5F f/a	6.3° 3896 .0651	0.0° 3609 .0657	13.0° 3233 .0453		10.1°			
8 in.	FREQ		121.25						
	AMPL (4/8)		2.10/1.98						
7 in.	FREQ	98.75	90	108.75	113.75	7.5	7.5	97.5	
	AMPL (4/8)	.196/.213	1.80/1.76	.849/.903	1.26/1.15	.388/.330	.360/-		
	PHASE, TT5F f/a	19.2° 3656 .0659	13.7° 2812 .0653	18.4° 3720 .0656	15.6° 3781 .0632	5.7° 1771		2573	
7 in.	FREQ		117.5						
	AMPL (4/8)		2.03/1.94						
7 in.	FREQ		11.0° 3535						
	PHASE, TT5F f/a		.0653						
6 in.	FREQ	321	321	355	353.75				
	AMPL (4/8)	.615/.346	.591/.404		.390/.285				
	PHASE, TT5F f/a	-174.4° 1655 .0506	-166° 2064 .0456		-168.4° 2132				
6 in.	FREQ								
	AMPL (4/8)								
6 in.	FREQ								
	PHASE, TT5F f/a								
6 in.	FREQ								
	AMPL (4/8)								
6 in.	FREQ								
	PHASE, TT5F f/a								

AFSC FORM 785b JUL 61 GENERAL PURPOSE WORKSHEET (10.2 X 8.2) PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE.

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SECTION VII

CONCLUSION

This report is meant only to present data in a timely manner so that interested parties can try to analyze the data to reach their own conclusions. Further testing and data reduction is in progress and, when completed, will be included in a report with analysis of Ramjet Combustion Instabilities.

APPENDIX
RMS PRESSURE

The RMS pressure is the square root of the time average of the square of the pressure or

$$\text{RMS Pressure} = \left[\int_0^{T_0} \frac{(P(t))^2}{T_0} dt \right]^{1/2} \quad (1)$$

where $P(t)$ is the instantaneous pressure, t is time and T_0 is the time over which the RMS is taken.

For any periodic wave shape, the RMS value is proportional to the peak to peak value provided that the center pressure is zero.

For a sine wave, the instantaneous pressure is given by

$$P(t) = \frac{P_{T0}P}{2} \text{SIN}(w*t) \quad (2)$$

where $P_{T0}P$ is the peak to peak pressure and w is the frequency. By substituting Equation 2 into Equation 1 with integral limits at one cycle (RMS integrated over one cycle equals RMS integrated from zero to infinity).

$$\text{RMS} = \left[\int_0^{2\pi/w} \left(\frac{P_{T0}P}{2} \text{sin}(w*t) \right)^2 dt / (2\pi/w) \right]^{1/2}$$

and solving

$$\text{RMS} = \frac{P_{T0}P}{2} \left[\int_0^{2\pi} \text{sin}^2(w*t) dt \frac{w}{2\pi} \right]^{1/2}$$

$$\text{RMS} = \frac{P_{T0}P}{2} \left[\left(\frac{2\pi}{2w} \right) \left(\frac{w}{2\pi} \right) \right]^{1/2}$$

$$\text{RMS} = \frac{P_{TO}P}{2} \left(\frac{1}{2} \right)^{\frac{1}{2}} \quad (3)$$

The proportional constant is obtained.

Similarly, it can be shown that for a ramp wave*

$$\text{RMS} = \frac{P_{TO}P}{2} \left(\frac{1}{3} \right)^{\frac{1}{2}} \quad (4)$$

and for a square wave

$$\text{RMS} = \frac{P_{TO}P}{2} \quad (5)$$

The RMS spectrum is the RMS pressure of contiguous frequency bands and can be obtained with digital or analog electronics, or the RMS spectrum is a series of RMS values of sine waves that, when added together in the proper phase, will yield the input time history. The RMS spectrum is proportional to the Fourier Transform of a time domain function.

Some examples of input signals and their corresponding RMS spectrums are in Figures A-1 to A-12.

*a ramp wave is any wave shape consisting of only linear variations from zero to peak; i.e.,



The RMS spectrum is the square root of the power spectrum. The total power over a broad range of frequencies can be obtained by summing the power of all the contiguous frequency bands within the range of frequencies desired, or

$$\text{TOTAL POWER} \left| \begin{array}{l} \text{FREQ 1} \\ \text{FREQ 2} \end{array} \right. = \sum_{\text{FREQ 1}}^{\text{FREQ 2}} \text{POWER.} \quad (6)$$

Then substituting RMS^2 for power yields

$$\text{TOTAL RMS} \left| \begin{array}{l} \text{FREQ 1} \\ \text{FREQ 2} \end{array} \right. = \left[\sum_{\text{FREQ 1}}^{\text{FREQ 2}} (\text{RMS})^2 \right]^{1/2} \quad (7)$$

Therefore, the broadband RMS can be calculated from the narrow band RMS values. Table A-1 shows total (broadband) and harmonic RMS for different wave shapes and for white binary noise.

In noise spectral analysis, the frequency bandwidth that a noise sample was divided into could lead to misinterpretation of data because for noise, the wider the bandwidth, the higher the amplitude of the power per band. Therefore, the noise measurement industry standardized to the power spectral density for presenting spectral noise data. The power spectral density is the power spectrum amplitude normalized to an equivalent value as if the bandwidth was one hertz.

The problem with the density normalization is that it must assure a flat profile across each frequency band and if there is a strong frequency peak within the bandwidth, which is usually the case for combustion instabilities, then normalization will average the peak over the bandwidth. The end result is that the wider the bandwidth the smaller a discrete peak would appear to be after normalization. Whether density normalization is used or not, presentation of spectral data must include the bandwidth the data was reduced into.

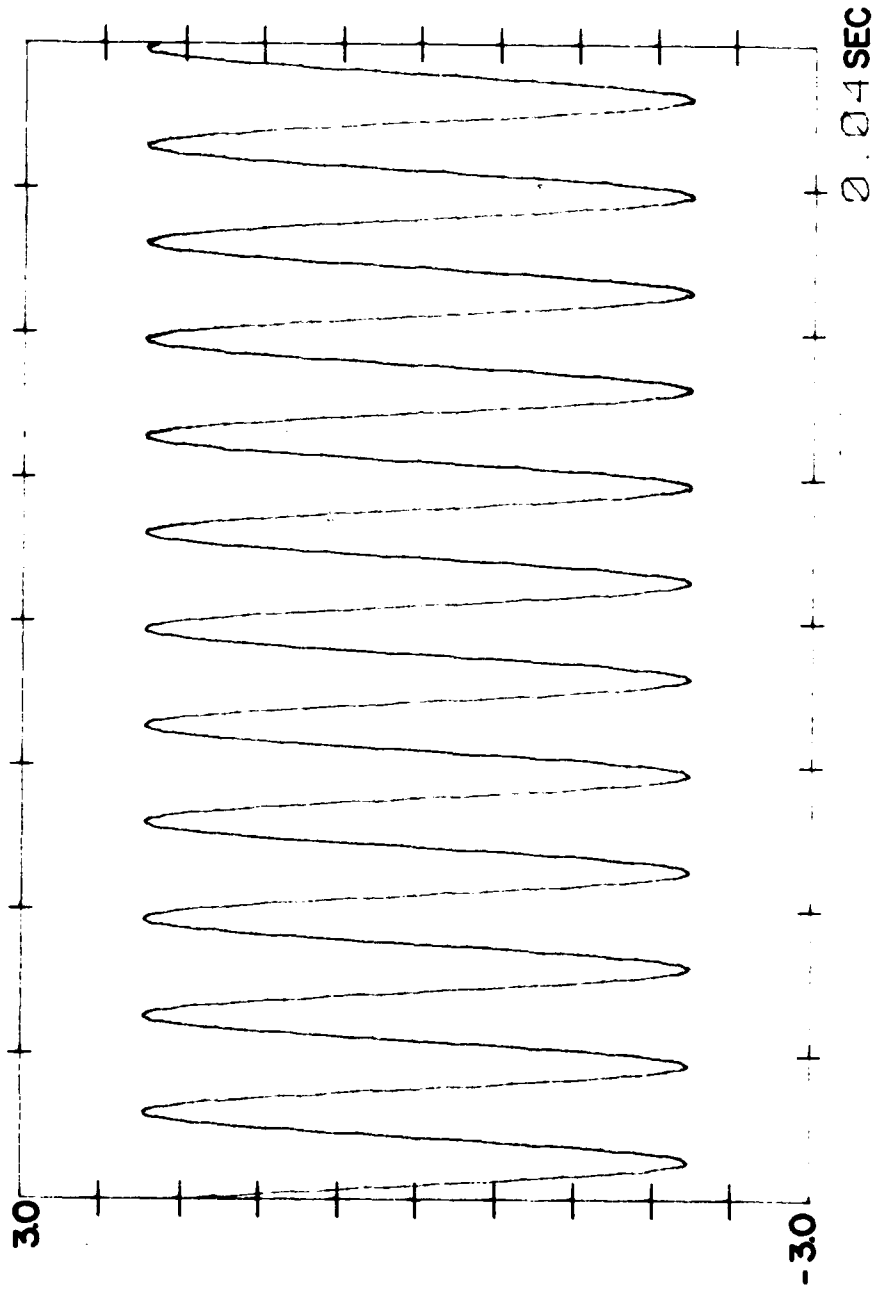


Figure A-1. 300 Hz Sine Wave

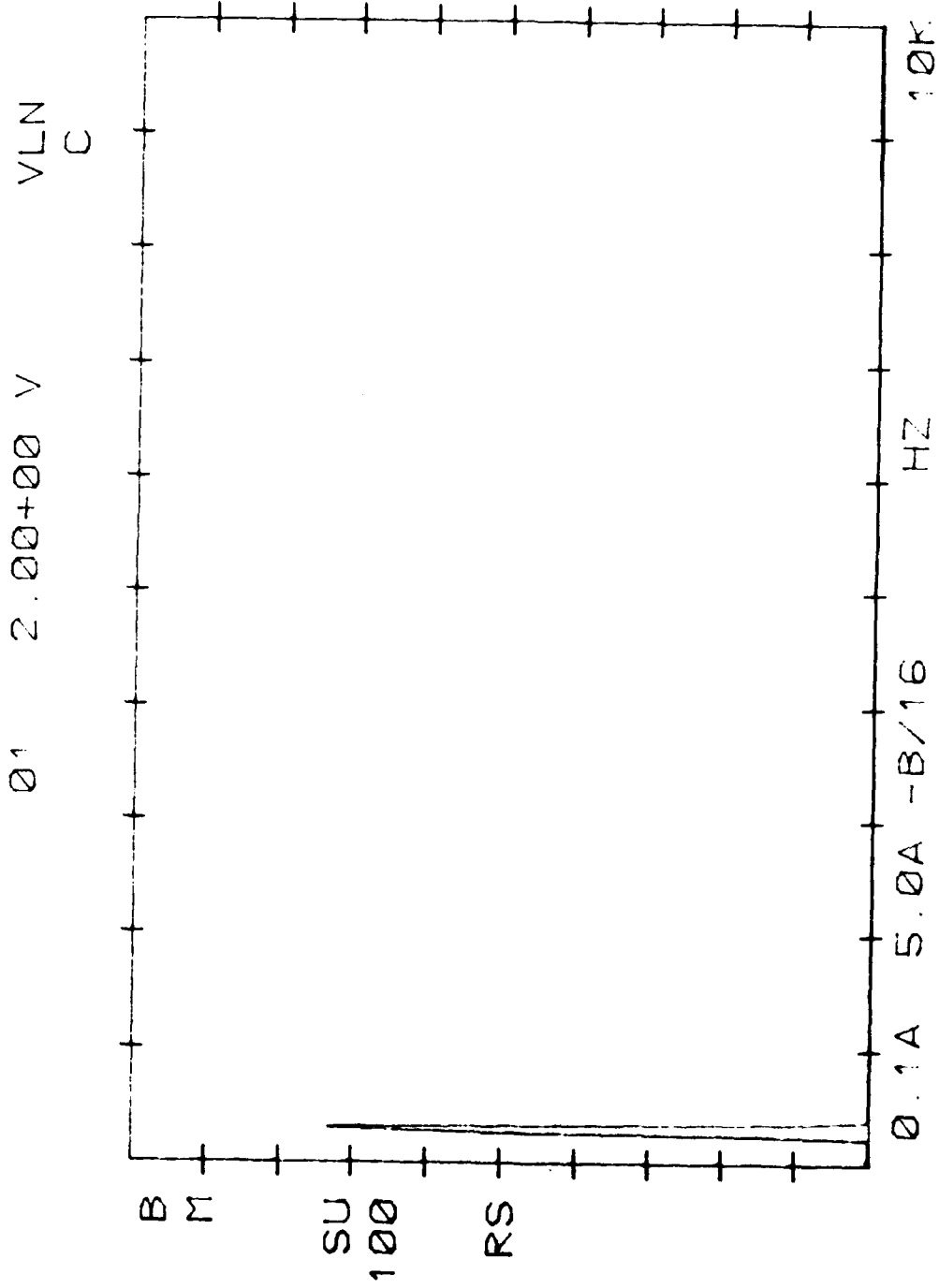


Figure A-2. RMS Spectrum of a Sine Wave

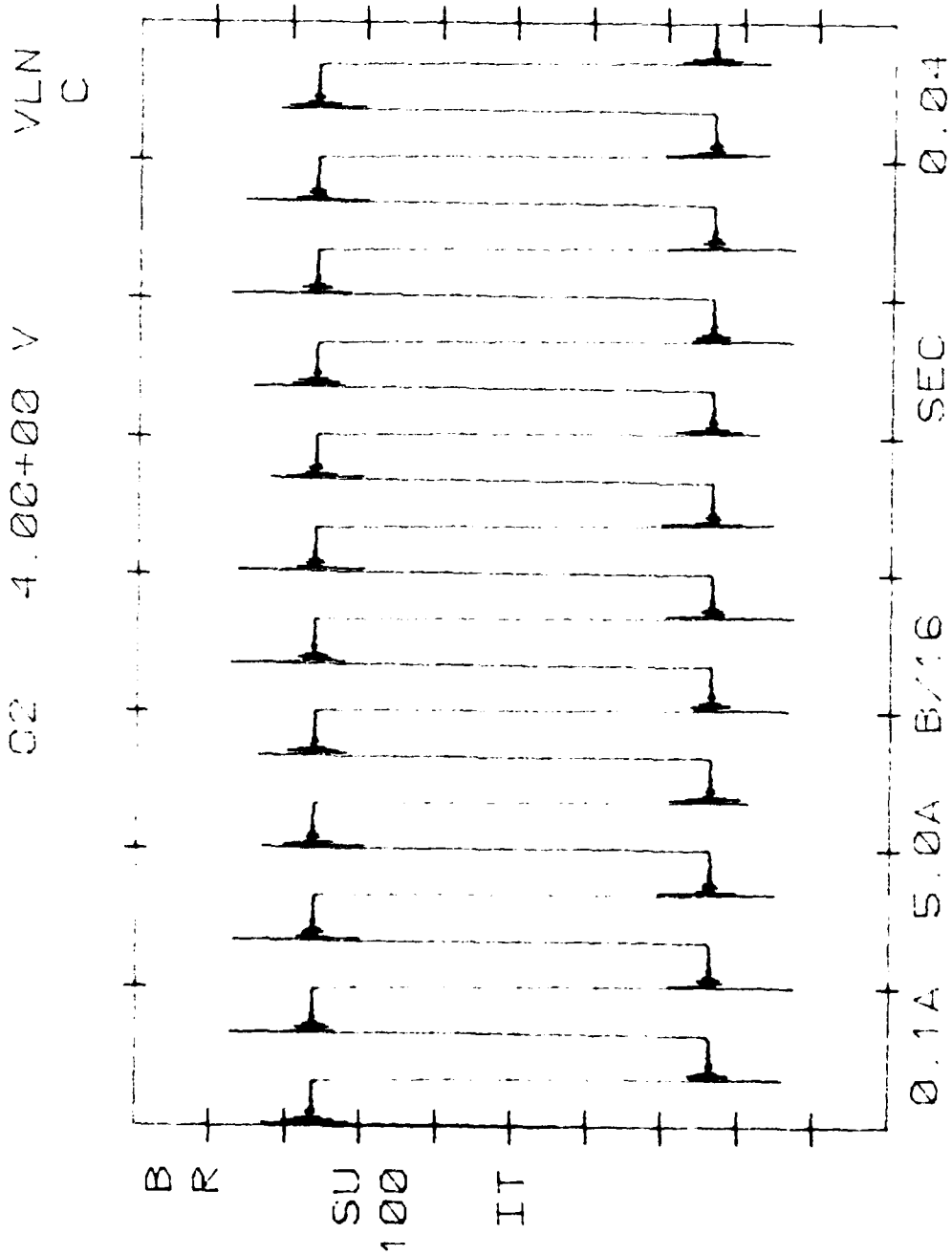


Figure A-3. 300 Hz Square Wave

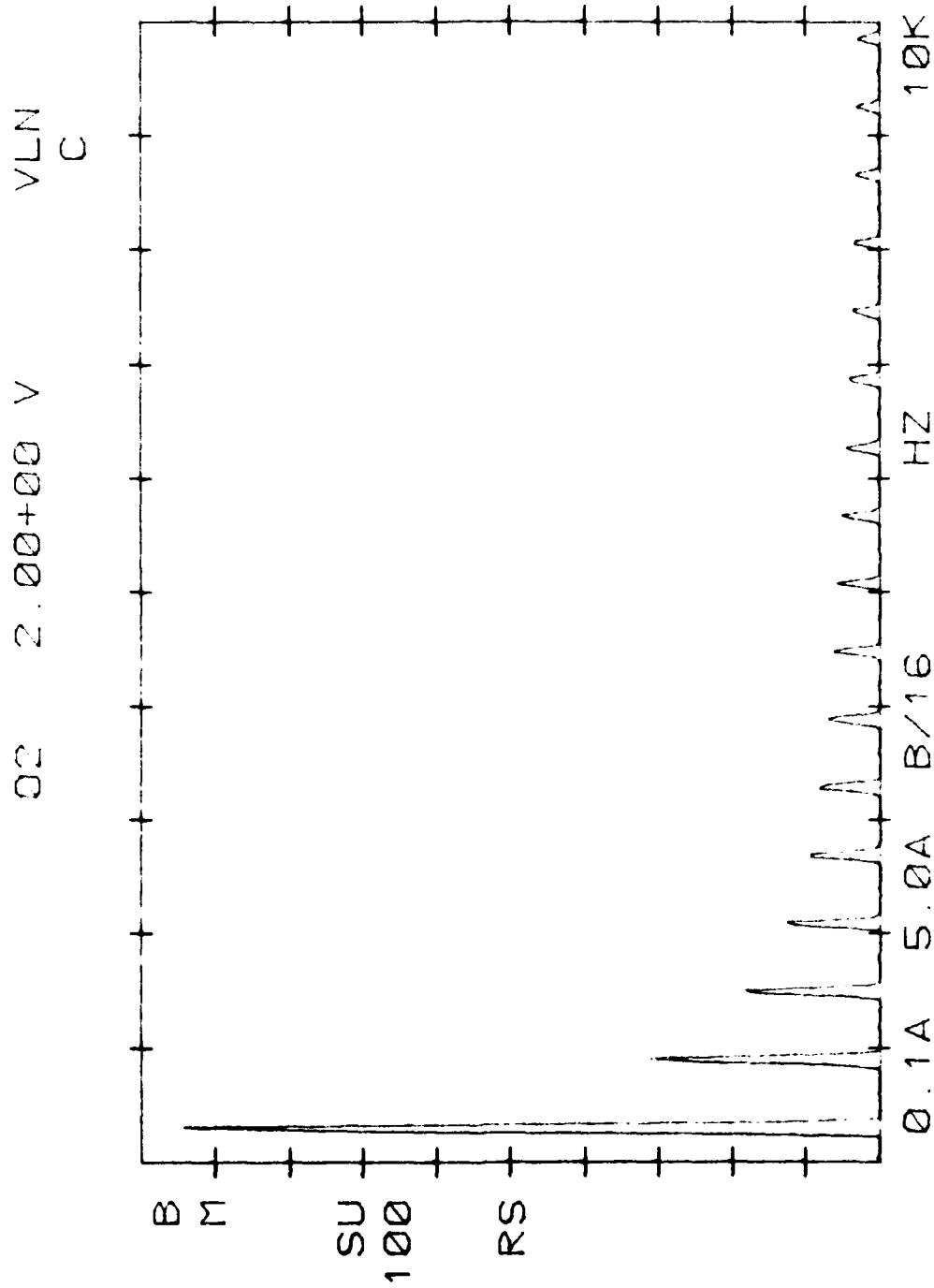


Figure A-4. RMS Spectrum of a Square Wave

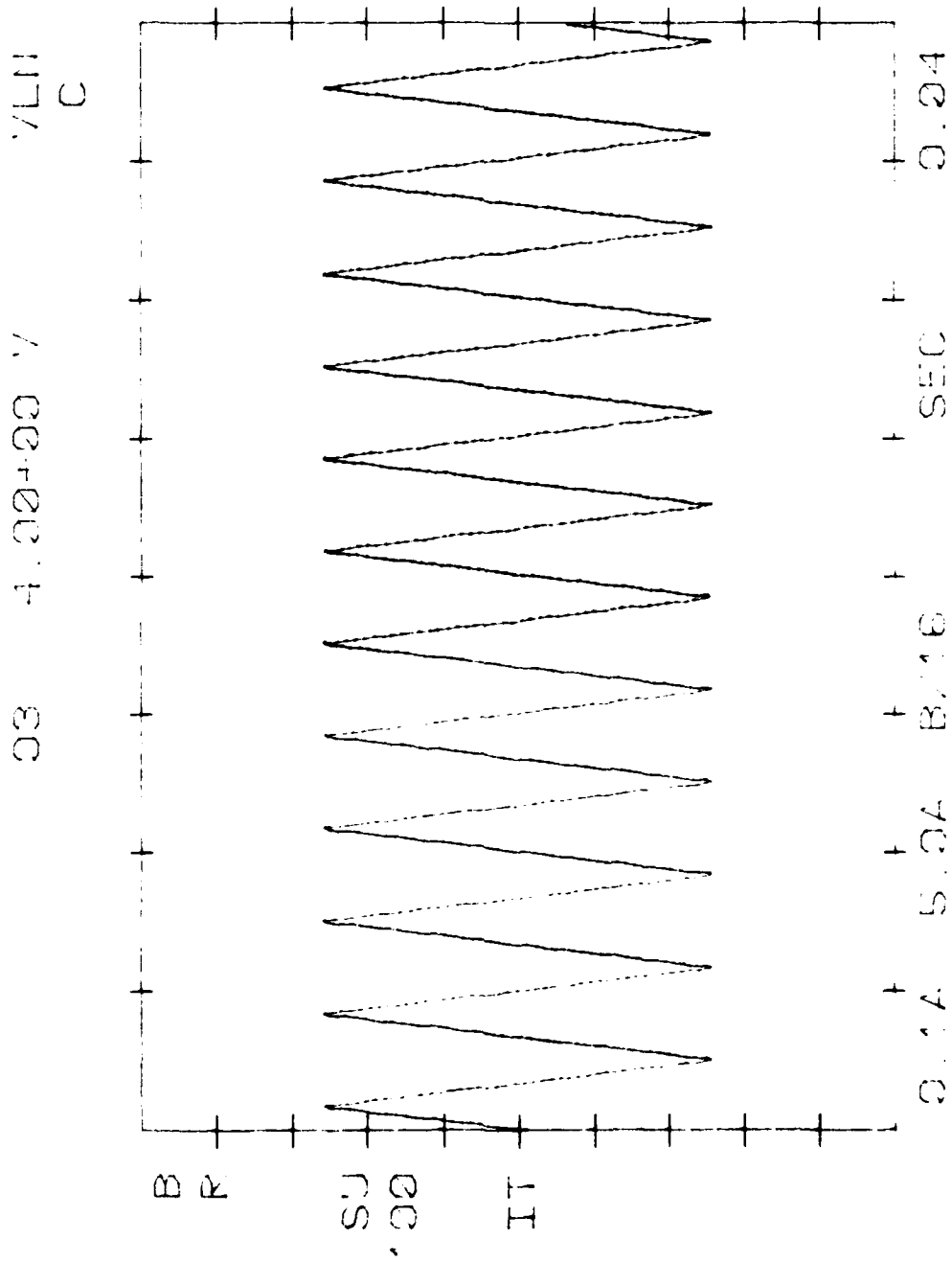


Figure A-5. 300 Hz Triangle Wave

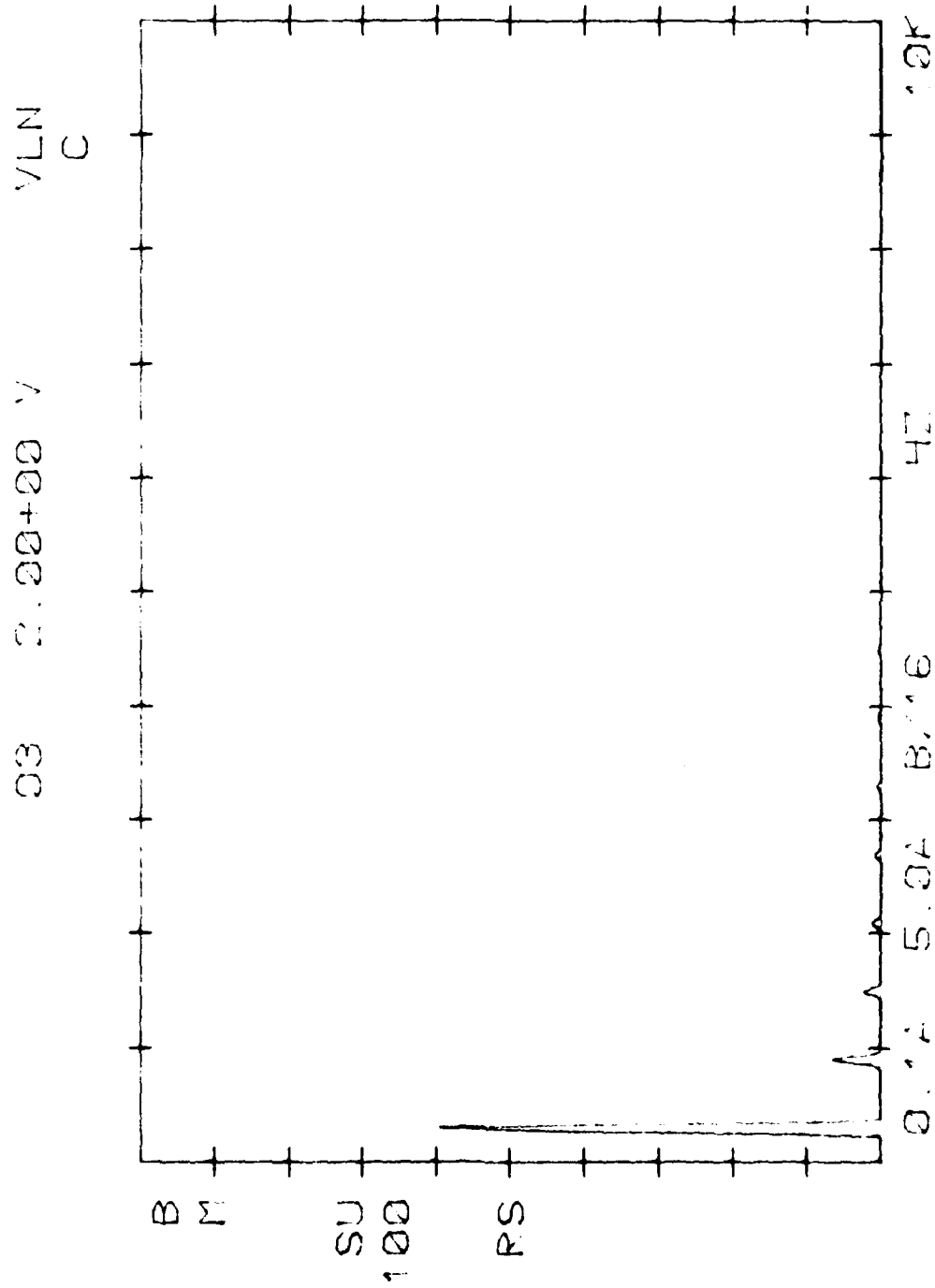


Figure A-6. RMS Spectrum of a Triangle Wave

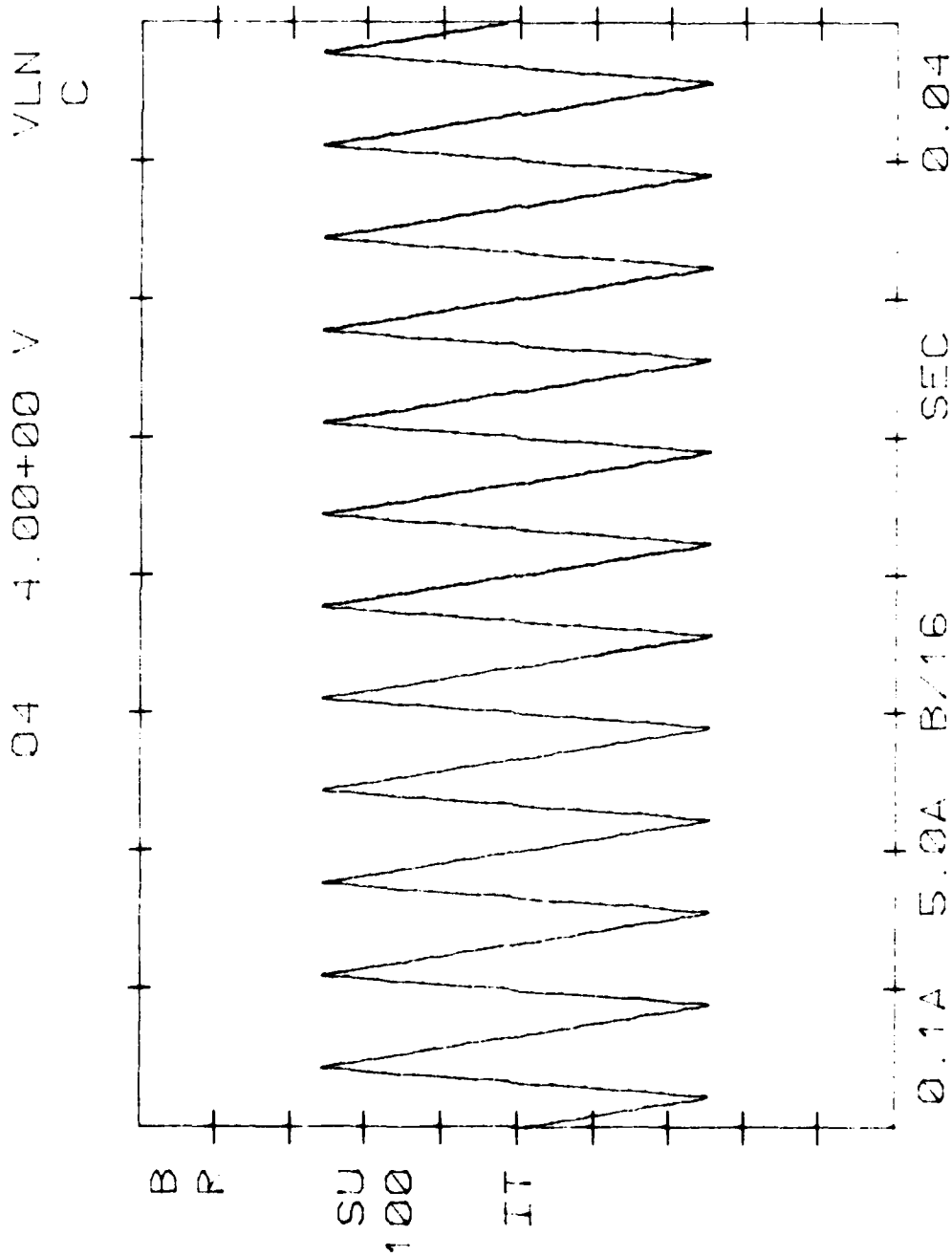


Figure A-7. Uneven 300 Hz Triangle Wave

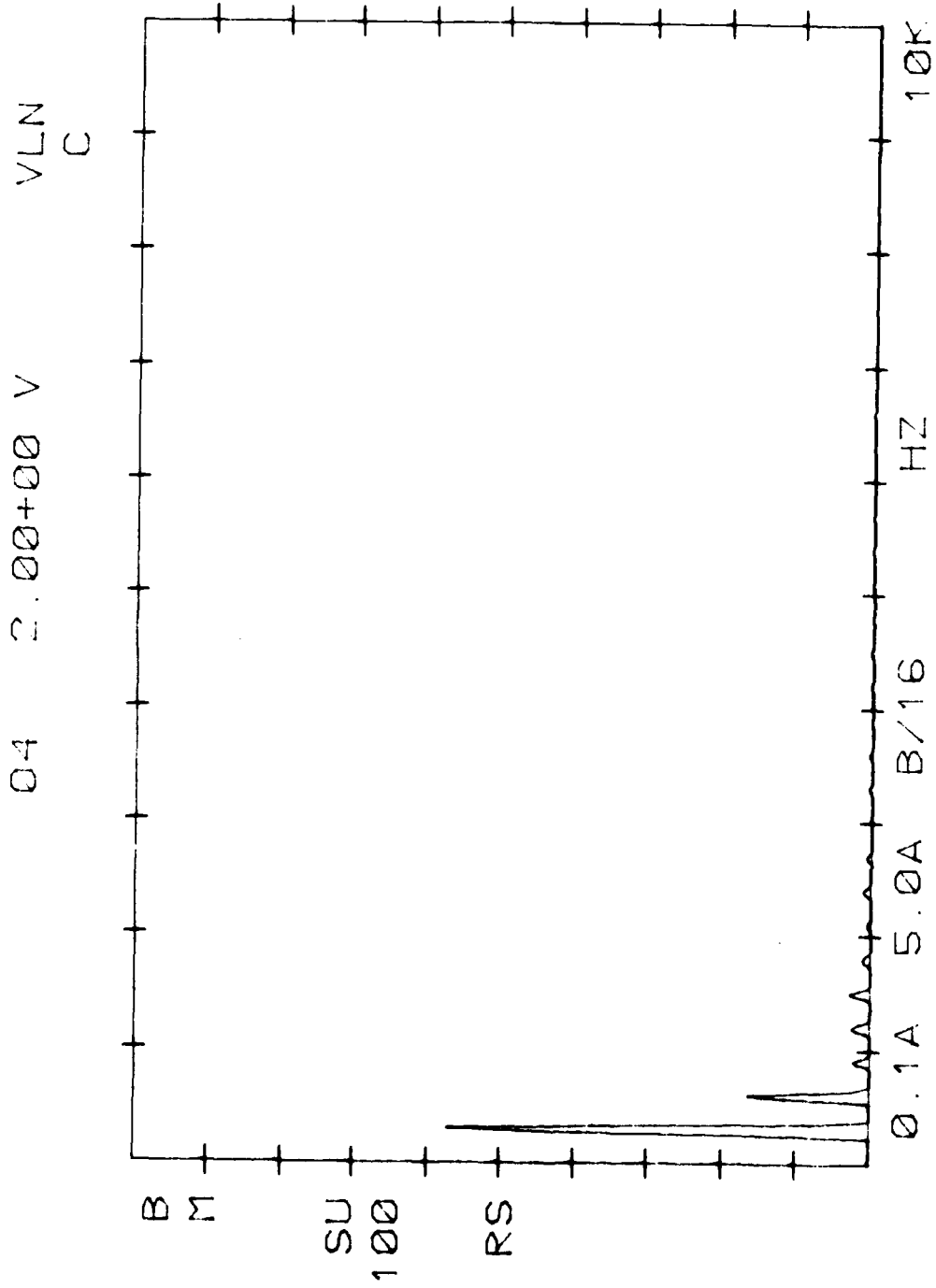


Figure A-8. RMS Spectrum of an Uneven Triangle Wave

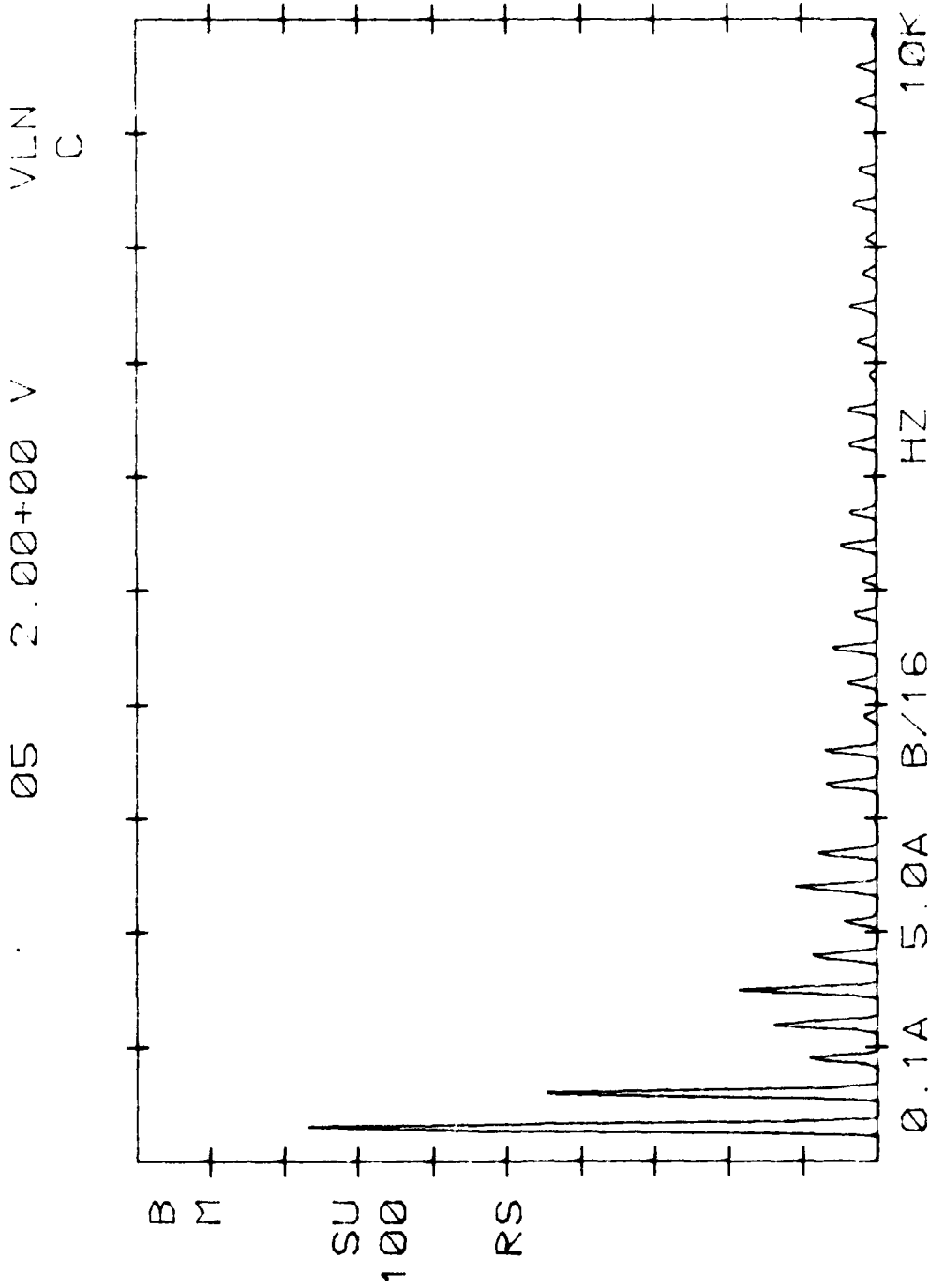


Figure A-10. RMS Spectrum of an Uneven Square Wave

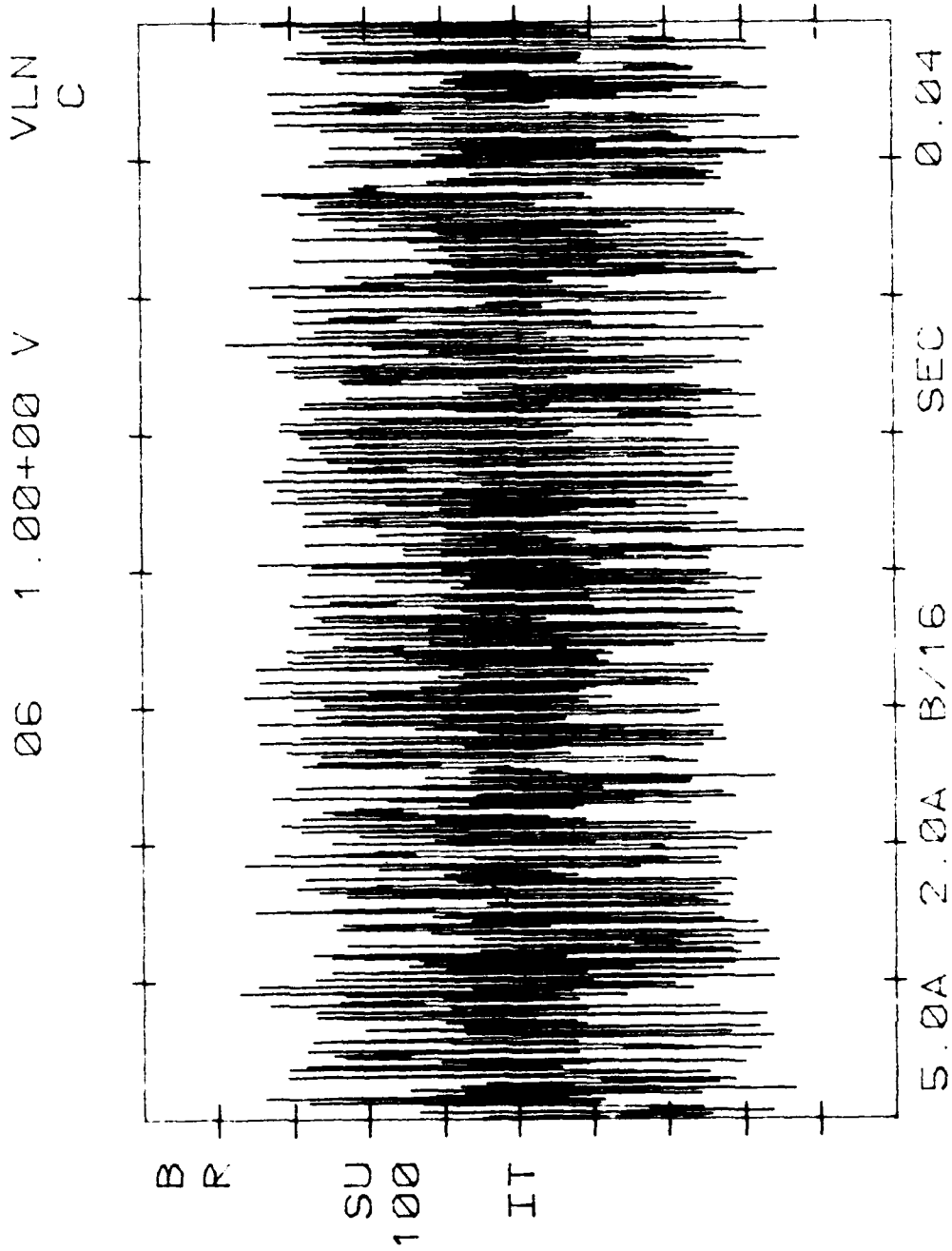


Figure A-11. White Noise

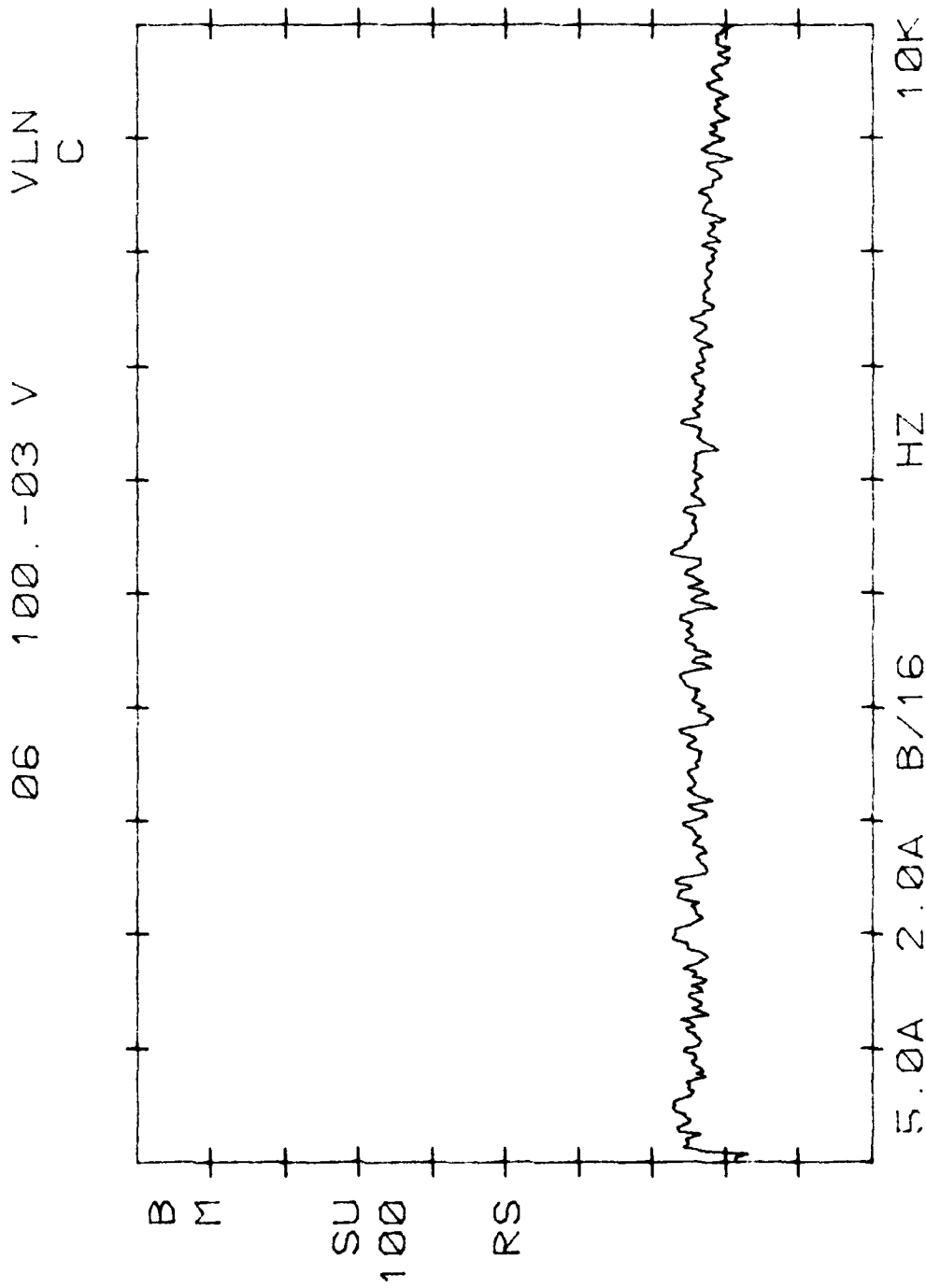


Figure A-12. RMS Spectrum of White Noise

TABLE A-1
RMS VALUES FOR DIFFERENT WAVE SHAPES

300 HZ	1ST HARM.	2ND HARM.	3RD HARM.	4TH HARM.	5TH HARM.	TOTAL RMS	P _{TO}	P _{TOP}	TOTAL RMS
SINE WAVE									
1KHZ FULL SCALE	1.41	.002	.002	NA	NA	1.47	4.13		2.81
10KHZ FULL SCALE	1.47	.002	.004	.001	.002	1.47	4.14		2.82
SQUARE WAVE									
1KHZ F.S.	1.74	.003	.635	NA	NA	2.01	4.67		2.32
10KHZ F.S.	1.89	.002	.623	.002	.366	2.09	4.21*		2.01
UNEVEN** SQ. WAVE							5.93		2.84
1KHZ F.S.	1.50	.849	.194	NA	NA	1.81	5.70		3.15
10KHZ F.S.	1.54	.896	.187	.283	.375	1.92	4.22*		2.20
RAMP WAVE							5.92		3.08
1KHZ F.S.	1.12	.002	.140	NA	NA	1.20	3.67		3.06
10KHZ F.S.	1.19	.001	.133	.001	.047	1.21	4.10		3.39
1KHZ F.S.	1.12	.319	.041	NA	NA	1.20	3.60		3.00
10KHZ F.S.	1.15	.335	.047	.053	.057	1.20	4.09		3.41
BINARY NOISE				RMS (N=5) TOTAL RMS	TS TOTAL RMS	N=100 TOTAL RMS			
1KHZ F.S.				.338	.329	.335	1.4		4.18
10KHZ F.S.				.337	.344	.339	1.23		3.63

*EXCLUDING THE TRANSIENT PEAKS
**-.001 SEC RISE OR POS TIME AND .002315 SEC FALL OR NEG TIME

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