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FIRST ARTICLE TEST REPORT ON TWO SUCCESSIVE DETECTION LOG VIDEO AMPLIFIER (SDLVA) MODEL NUMBER SDLVA-0120-70

FOR

PLANAR MONOLITHICS INDUSTRIES
7311-G GROVE ROAD
FREDERICK, MD 21701

PREPARED BY _____
ENVIRONMENTAL ENGINEERING

APPROVED BY _____
ENVIRONMENTAL MANAGER

Test Report Number C03622

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TEST SUMMARY PAGE

PURPOSE OF TEST:

To determine the ability of the unit under test to withstand expected natural and dynamic stresses and to ensure that performance degradation or malfunctions will not be produced by the service environment.

MANUFACTURER:

Planar Monolithics Industries
7311-G Grove Road
Frederick, MD 21701

MANUFACTURER'S TYPE OR MODEL NUMBER:

Successive Detection Log Video Amplifier. Part Number SDLVA-0120-70

DRAWINGS, SPECIFICATIONS OR EXHIBIT:

Purchase Order Number 512520, Source Control Drawing Number 136079

QUANTITY OF ITEMS TESTED:

Two Units, S/N's SDL51022 and SDL51030

SECURITY CLASSIFICATION OF TEST ITEMS:

None Specified

DATE TEST COMPLETED:

01/06/96

TEST CONDUCTED BY

Litton/Amecom
5115 Calvert Road
College Park, MD 20740

DISPOSITION OF SPECIMENS:

Returned to Planar Monolithics Industries

ABSTRACT:

First Article testing was successfully completed on two Successive Detection Log Video Amplifiers. Environmental Testing consisted of Altitude, Vibration, Shock and Humidity. There was no structural damage or other anomalies as a result of the exposures. The assemblies were returned to Planar Monolithics Industries for further evaluation.

1.0 SUMMARY

1.1 Certification

This test report certifies that the specimens identified in paragraph 1.2 were subjected to the First Article tests specified in Planar Monolithics Industries Purchase Order Number 512520.

1.2 Unit Under Test

Two Successive Detection Log Video Amplifiers, P/N 40742-250F

1.3 Overall Test Results

No anomalies were noted as a result of the environmental exposures.

2.0 GENERAL

2.1 Calibration

All test equipment was calibrated to standards that are traceable to the National Institute of Standards Technology (NIST). The test equipment had sufficient remaining calibration interval to complete the testing involved without re-calibration.

2.2 Standard Laboratory Ambient Test Conditions

The following conditions were used to establish normal performance characteristics under standard conditions:

Temperature:	25° +/- 5°C (77° +/- 9°F)
Relative Humidity:	80% or less
Barometric Pressure:	Local Prevailing

2.3 Test Condition Tolerances

The following control tolerances were used for test control:

DYNAMICALLY INDUCED ENVIRONMENTS

The vibration control system is equipped with over acceleration and loss of signal protection. Proper operation of these devices was demonstrated at 20% above the test tolerance and loss of signal 6 dB below the test tolerance subsequent to the start of testing.

Frequency	+/- 2% or +/- 2Hz (Whichever was greater)
Amplitude	+/- 10%
Time Duration	+/- 5%

NATURAL ENVIRONMENTS

Temperature	+/- 2° C
Humidity	+ 5% -0%
Altitude	+/- 5% (feet)

2.4 Test Fixture (Vibration and Shock)

The units under test were mounted to a cube which was in turn mounted to the vibration shaker head. The input control accelerometer was mounted on the test fixture as close as possible to the unit mounting point. Both units were mounted to the machine at the same time in different axes. At the completion of each axis the units were rotated 90° until each unit was exposed to shock and vibration in each of the three mutually perpendicular axes. No special fixturing was required for the Natural Environments.

2.5 List of Environmental Test Equipment

The following list of test equipment was utilized in the implementation of the tests described herein:

Instrument	Manufacturer	Model No.	S/N	Cal Due date
Vibration Exciter	Ling Elect.	A340	57	N/A
Vibration Amplifier	Ling Elect.	8072B-72	218	N/A
Charge Amplifier System	Trig Tek	4114	240	08/31/95
Vibration Control System	Spectral Dynamics	1500	1047	12/02/95
Accelerometer	Endevco	2213E	PE69	05/22/96
Altitude Chamber	Conrad	F127705705	7277	11/10/96
Humidity Chamber	Thermotron	FM35CHM	219301	04/28/96

3.0 APPLICABLE DOCUMENTS

Purchase Order - 512520

SCD 136079 - Test Procedure supplied by Planar Monolithics Ind.

MIL-STD-45662A - Calibration System Requirements

MIL-STD-202F - Test Methods for Electronic and Electrical Component Parts

4.0 TEST PROCEDURE

4.1 General

4.1.1 Purpose

The First Article testing was conducted to determine if the units under test were constructed to withstand expected natural and dynamic stresses produced by the service environment.

4.2 First Article Tests

4.2.1 General

The First Article testing consisted of Altitude, Sinusoidal Vibration, Shock and Humidity in accordance with Source Control Drawing Number 136079, Paragraph 3.4.2 thru 3.4.5 and 4.3.1 and MIL-STD-202F

4.2.2 Altitude

The Altitude test was performed in accordance with MIL-STD-202F, Method 105C, Condition B except that the maximum altitude was limited to 10,000 feet and the test items were non-operating.

The test assemblies were place into the altitude chamber and the pressure was then reduced to 10,000 feet. The altitude was maintained at 10,000 feet for a period of 45 minutes, a sufficient time to allow all entrapped air in the chamber to escape. After the 45 minutes elapsed the chamber was again returned to sea level.

Upon completion of the altitude test the test assemblies were given to a representative of Planar Monolithics Ind. for electrical evaluation.

No anomalies were noted as a result of the altitude exposure.

4.2.3 Vibration

The vibration test was performed in accordance with MIL-STD-202F, Method 204D, Test Condition B except the maximum "g" level attained was limited to 10 g peak.

The test items were mounted to the test fixture, identified in paragraph 2.4 of this report, and subjected to the test profile of Table 1 for a period of 240 minutes per axis. Each vibration sweep from 10Hz to 2000 Hz and return was traversed in 20 minutes. The test items were subjected to 12 such sweeps in each of the three axes.

TABLE 1

Frequency Hz	*Amplitude*
10 to 70	0.06" DA
70 to 2000	10 g

Vibration Profile

Upon completion of the vibration test in the first axis the test assemblies were rotated 90° and the test was repeated. The testing was repeated in each of the three mutually perpendicular axes for a total of 12 hours of vibration.

4.2.4 Shock

The Shock test was performed in accordance with MIL-STD-202F, Method 213B, Test Condition B except the maximum "g" level was limited to 30 g and the duration was extended to 11 milliseconds.

At the end of each vibration axis and prior to changing axes the shock test was performed. The test assemblies were subjected to 3 shocks in each direction of each axis in each of the three mutually perpendicular axes for a total of 18 shocks. Each shock was half sine, 30 g, 11 ms.

Upon completion of vibration and shock tests the test assemblies were given to a representative of Planar Monolithics Industries for electrical testing.

No anomalies were noted as a result of the vibration and shock tests.

4.2.5 Humidity

The Humidity test was performed in accordance with MIL-STD-202F, Method 103B, Test Condition B except 95% RH.

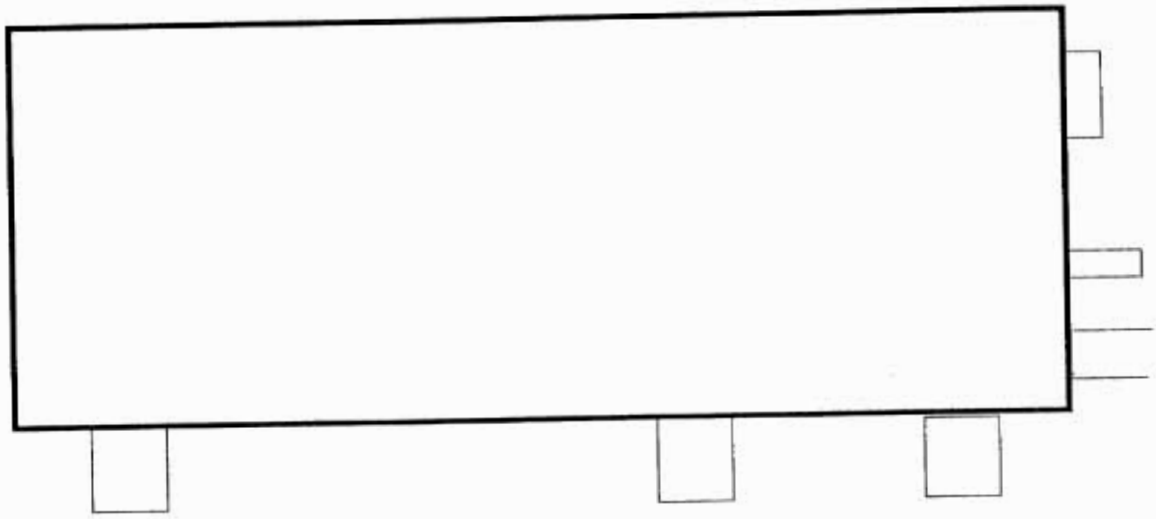
The test assemblies were placed into the humidity chamber and subjected to a 24 hour drying cycle a 40°C and a humidity of less than 50%. At the completion of the drying cycle the humidity was increased to 95% and 40°C. These conditions were maintained for a period of 96 hours.

Upon completion of the humidity test the test assemblies were given to a representative of Planar Monolithics Ind. for electrical evaluation.

No anomalies were noted as a result of the humidity exposure.

4.2.6 Overall Test Results

No anomalies were noted during or after any of the environmental test detailed in this test report.



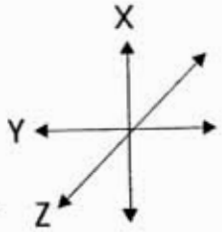


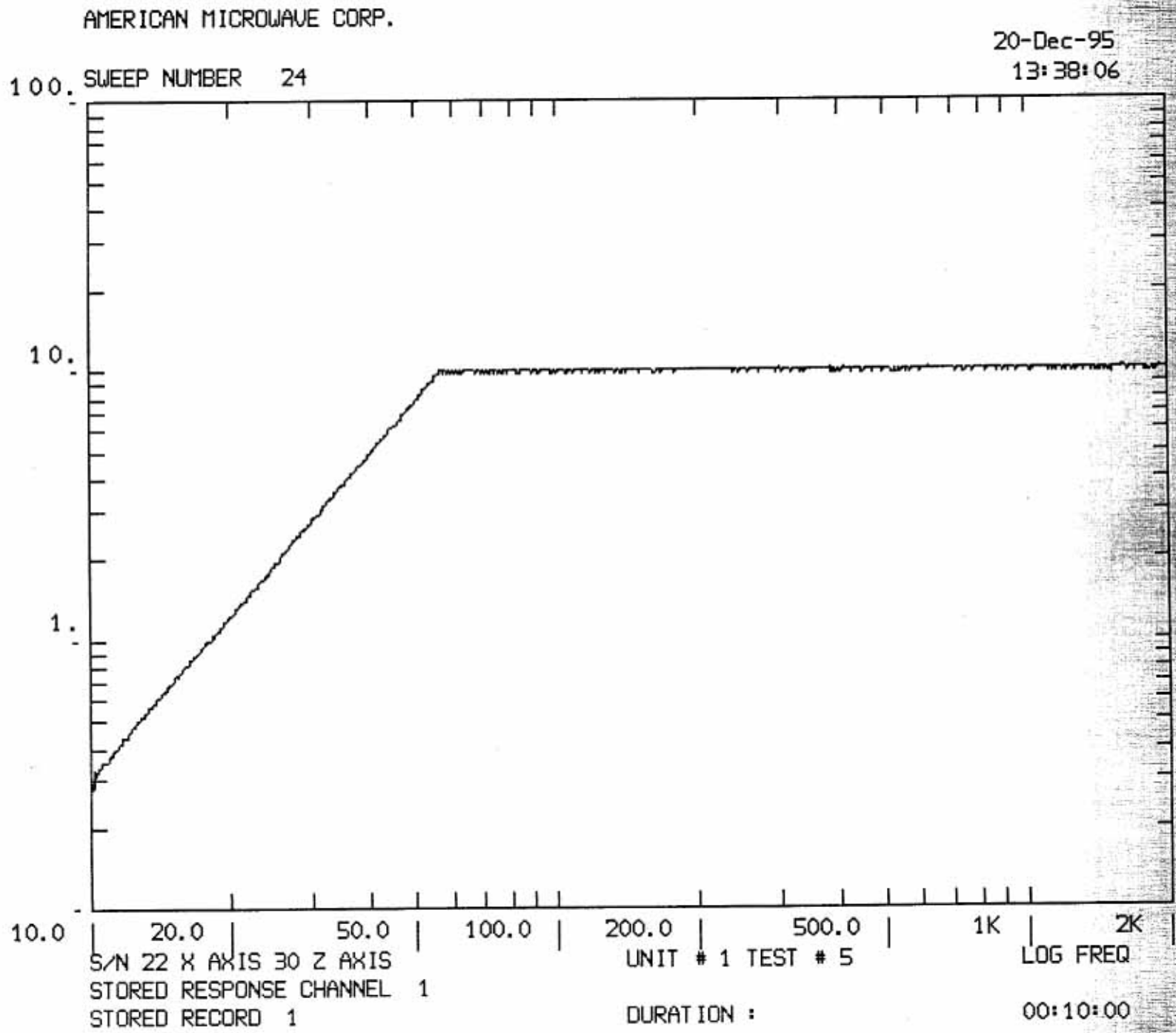
Figure 1

AXIS DEFINITION

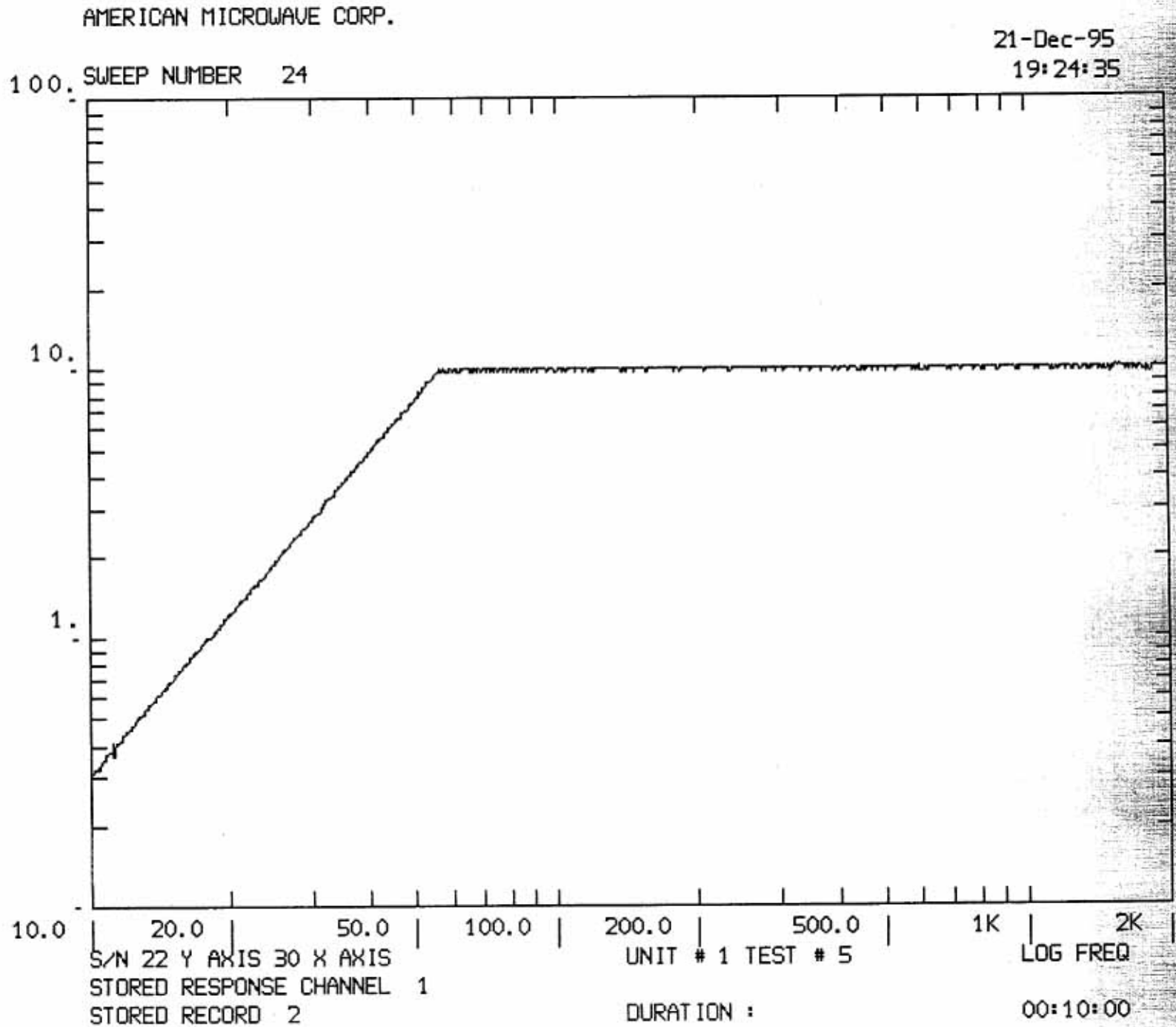
Appendix 1

Vibration Input Curves

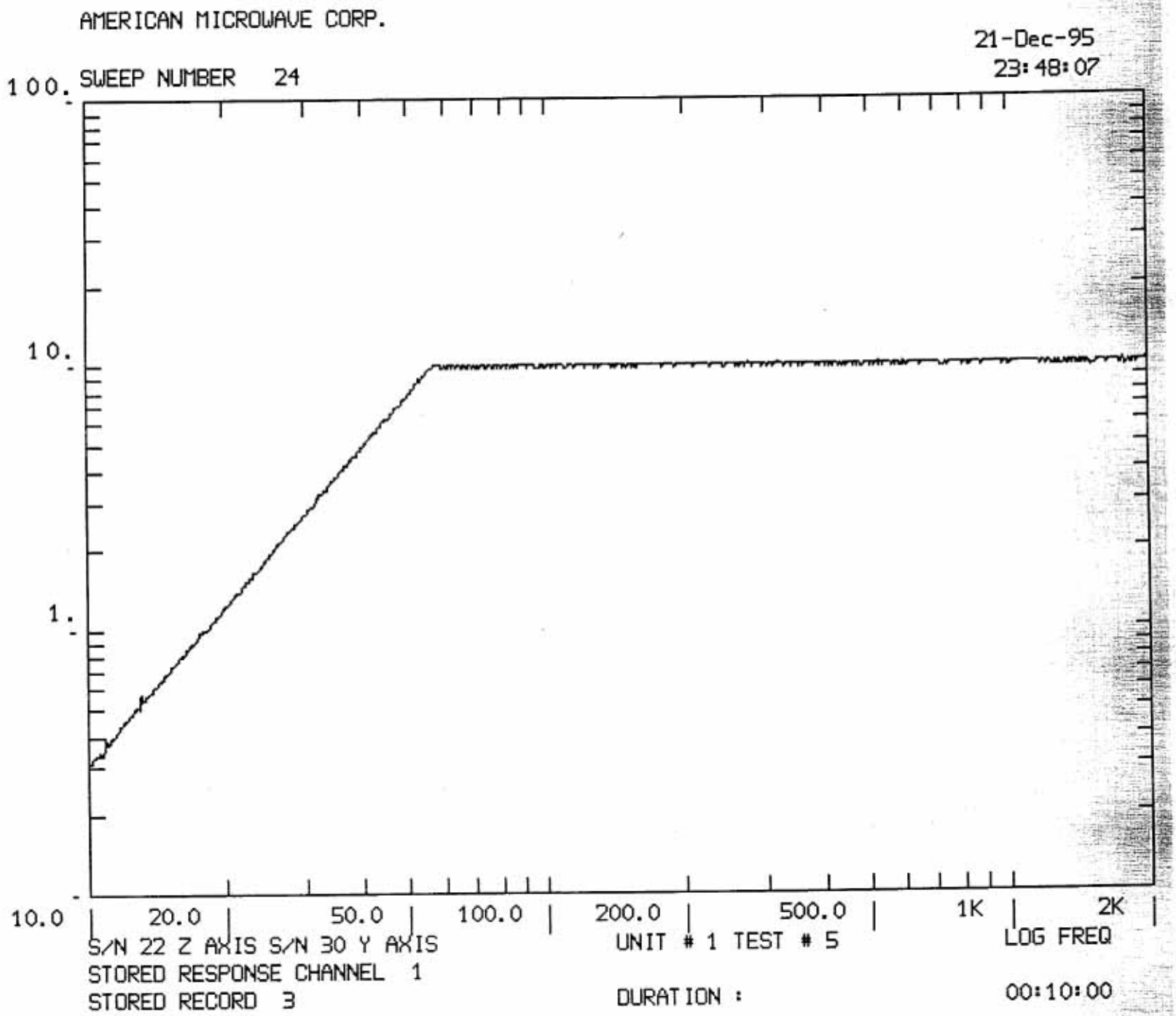
G


AMERICAN MICROWAVE CORP.
20-Dec-95
13:38:06
SWEEP NUMBER 24
100.
10.
1.
10.0
20.0
50.0
100.0
200.0
500.0
1K
2K
S/N 22 X AXIS 30 Z AXIS
STORED RESPONSE CHANNEL 1
STORED RECORD 1
UNIT # 1 TEST # 5
LOG FREQ
DURATION :
00:10:00

G


AMERICAN MICROWAVE CORP.
21-Dec-95
19:24:35
SWEEP NUMBER 24
100.
10.
1.
10.0
20.0
50.0
100.0
200.0
500.0
1K
2K
S/N 22 Y AXIS 30 X AXIS
STORED RESPONSE CHANNEL 1
STORED RECORD 2
UNIT # 1 TEST # 5
LOG FREQ
DURATION :
00:10:00

G


AMERICAN MICROWAVE CORP.
21-Dec-95
23:48:07
SWEEP NUMBER 24
100.
10.
1.
10.0
20.0
50.0
100.0
200.0
500.0
1K
2K
S/N 22 Z AXIS S/N 30 Y AXIS
STORED RESPONSE CHANNEL 1
STORED RECORD 3
UNIT # 1 TEST # 5
LOG FREQ
DURATION :
00:10:00

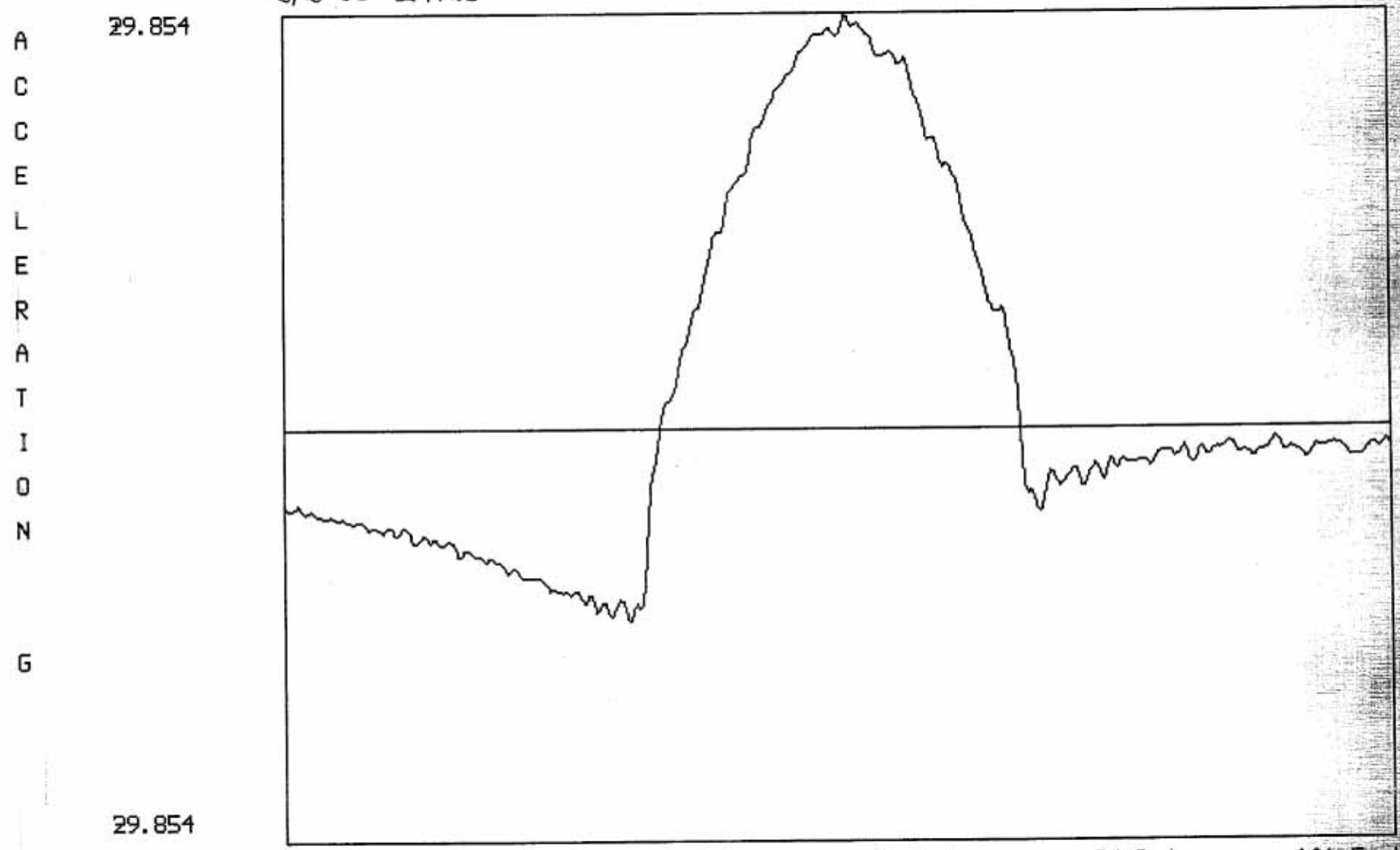
Appendix 2

Shock Input Curves

810C PROCEDURE

S/N 22 X AXIS
S/N 30 Z AXIS

21-Dec-95
14:47:57

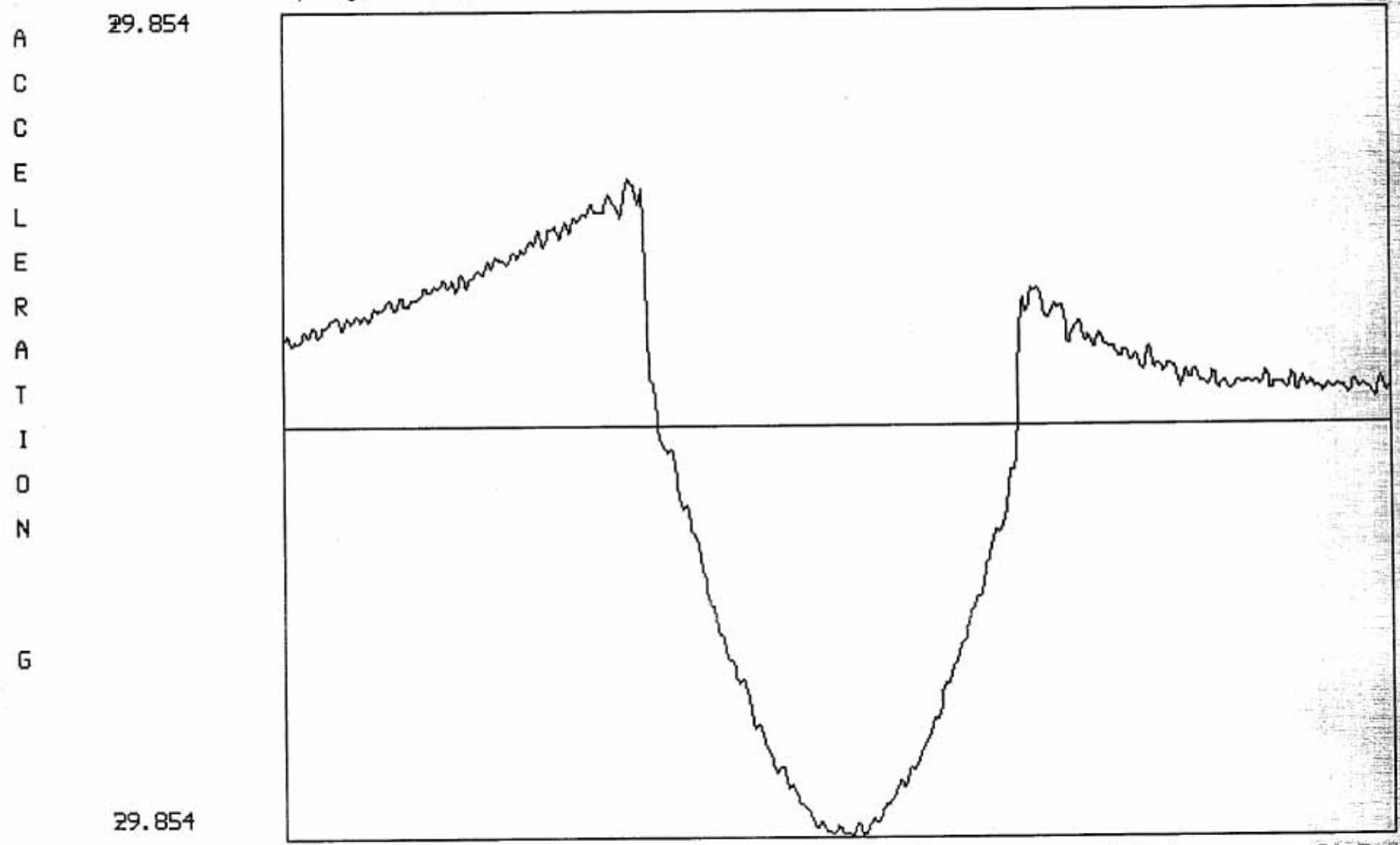


DEFAULT TEST DEFINITION
LAST RESPONSE WAVEFORM
PEAK G 29.854

UNIT # 1, TEST # 2
3000 Hz RANGE
PULSE DURATION 10.683

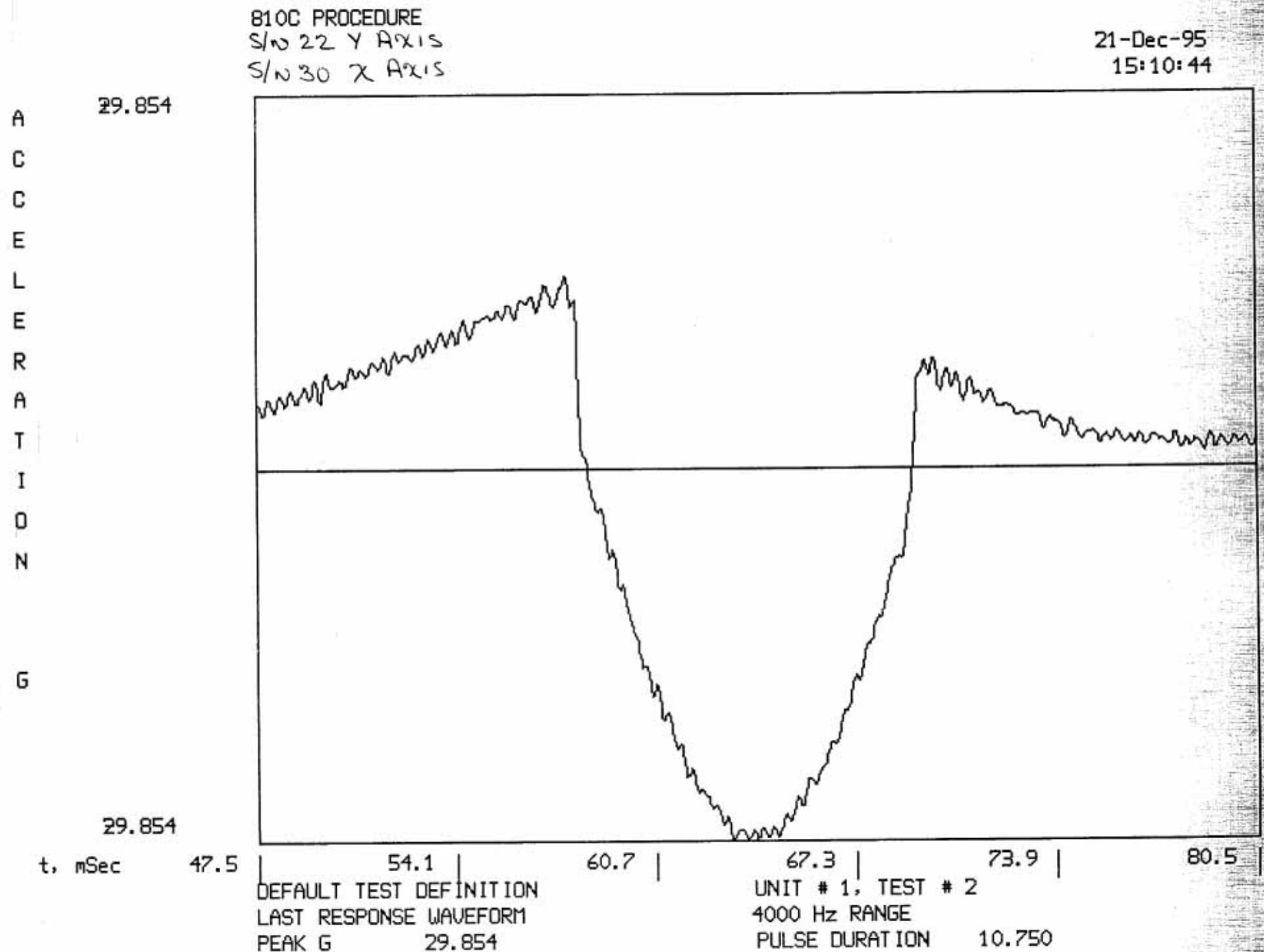
810C PROCEDURE
S/N 22 X AXIS
S/N 30 Z AXIS

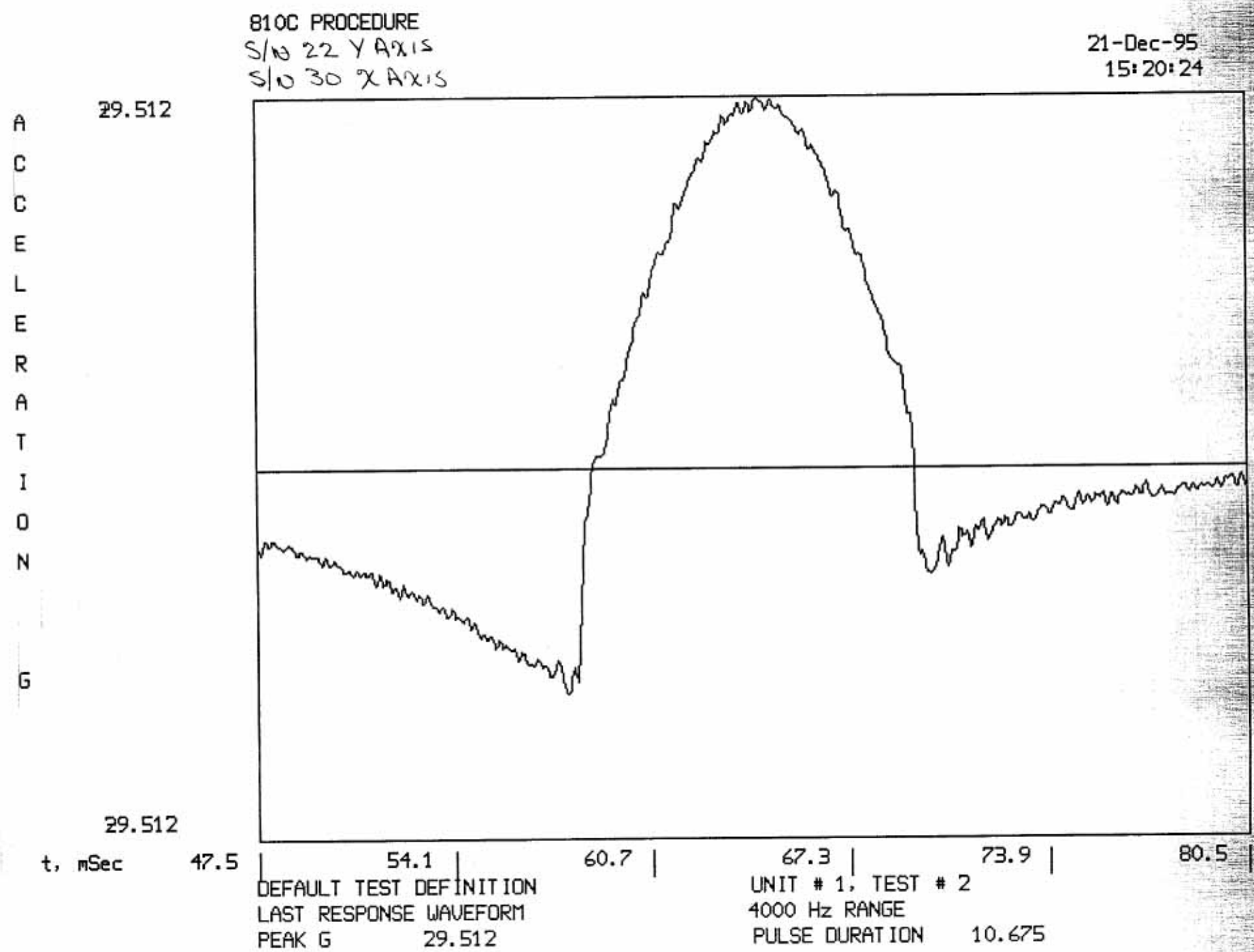
21-Dec-95
15:00:25

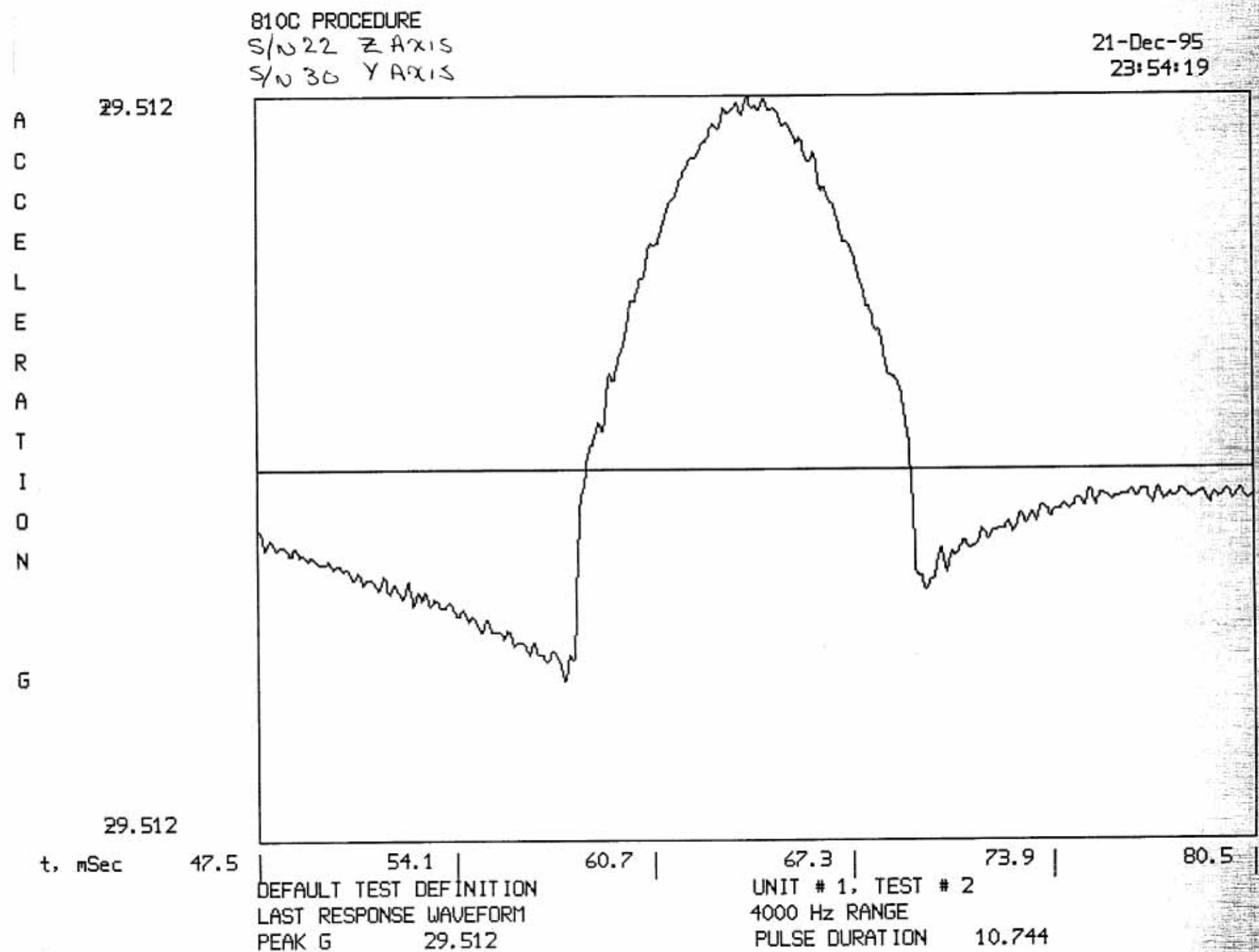


DEFAULT TEST DEFINITION
LAST RESPONSE WAVEFORM
PEAK G 29.854

UNIT # 1, TEST # 2
4000 Hz RANGE
PULSE DURATION 10.706

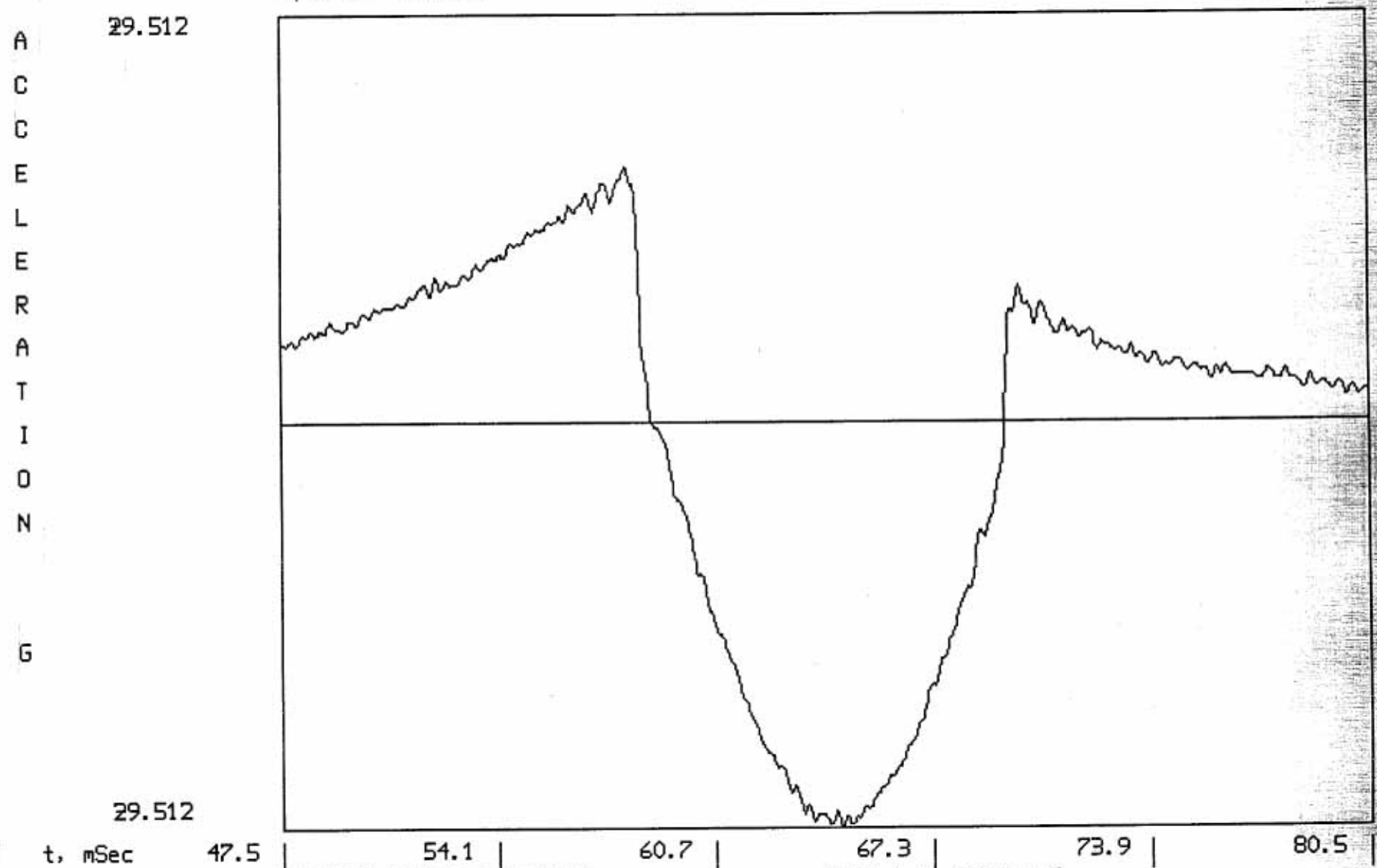

810C PROCEDURE
S/N 22 Y AXIS
S/N 30 X AXIS
21-Dec-95
15:10:44
29.854
ACCELERATION G
29.854
t, mSec
47.5
54.1
60.7
67.3
73.9
80.5
DEFAULT TEST DEFINITION
LAST RESPONSE WAVEFORM
PEAK G 29.854
UNIT # 1, TEST # 2
4000 Hz RANGE
PULSE DURATION 10.750


810C PROCEDURE
S/N 22 Y AXIS
S/N 30 X AXIS
21-Dec-95
15:20:24
29.512
ACCELERATION G
29.512
t, mSec
47.5
54.1
60.7
67.3
73.9
80.5
DEFAULT TEST DEFINITION
LAST RESPONSE WAVEFORM
PEAK G 29.512
UNIT # 1, TEST # 2
4000 Hz RANGE
PULSE DURATION 10.675


810C PROCEDURE
S/N 22 Z AXIS
S/N 30 Y AXIS
21-Dec-95
23:54:19
29.512
ACCELERATION G
29.512
t, mSec
47.5
54.1
60.7
67.3
73.9
80.5
DEFAULT TEST DEFINITION
LAST RESPONSE WAVEFORM
PEAK G 29.512
UNIT # 1, TEST # 2
4000 Hz RANGE
PULSE DURATION 10.744

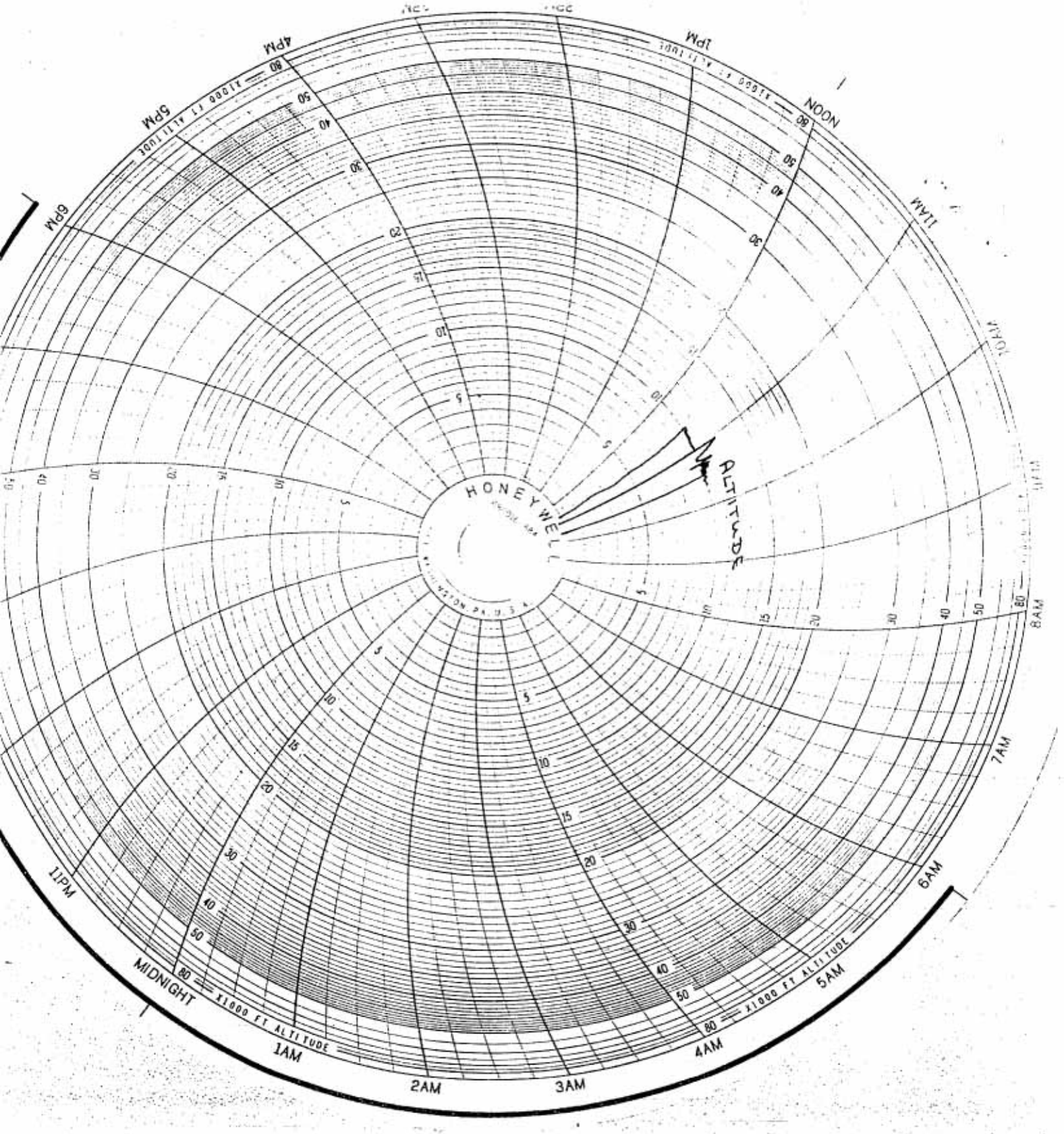
810C PROCEDURE
S/N 22 Z AXIS
S/N 30 Y AXIS

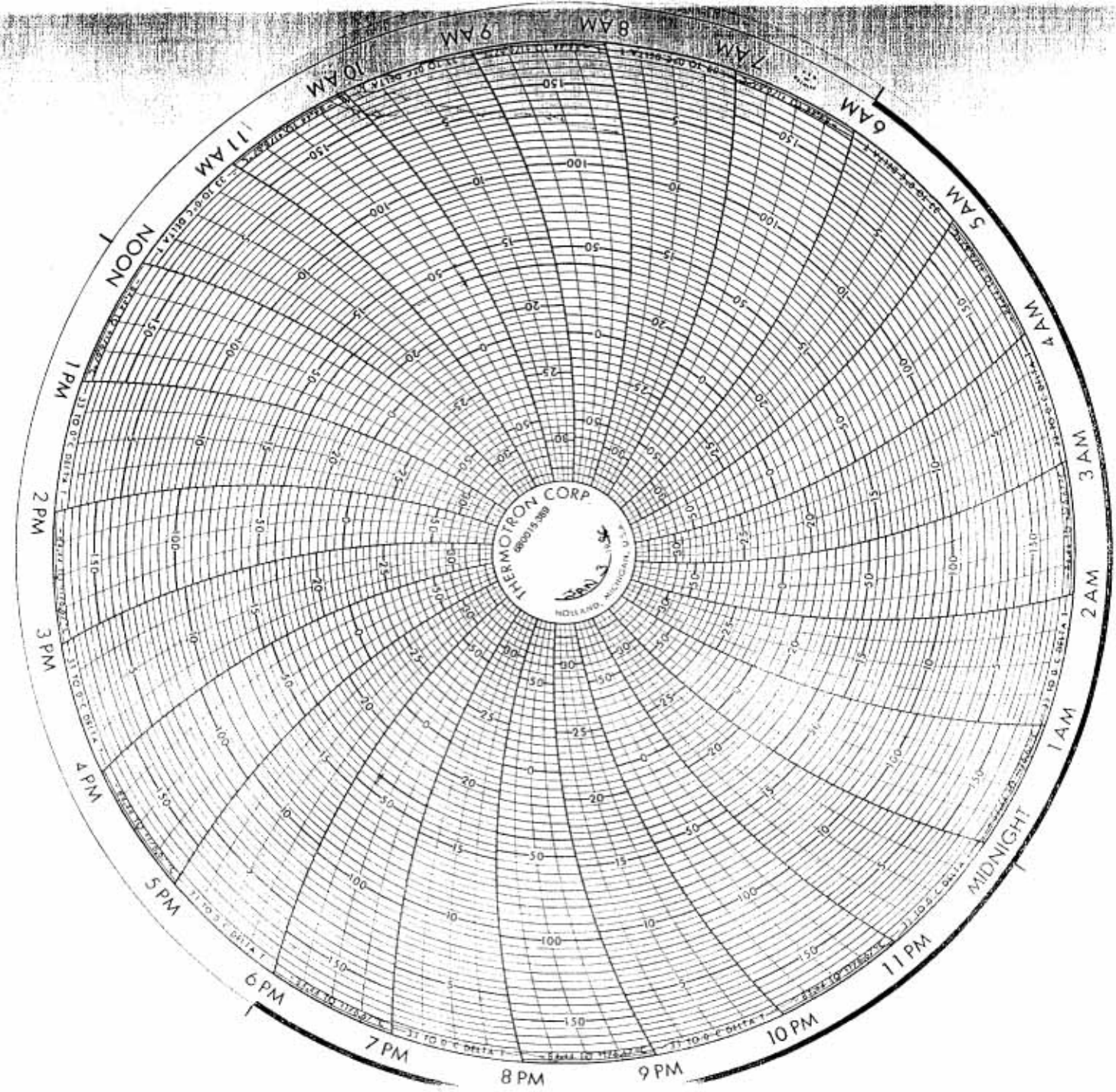
21-Dec-95
23:59:27

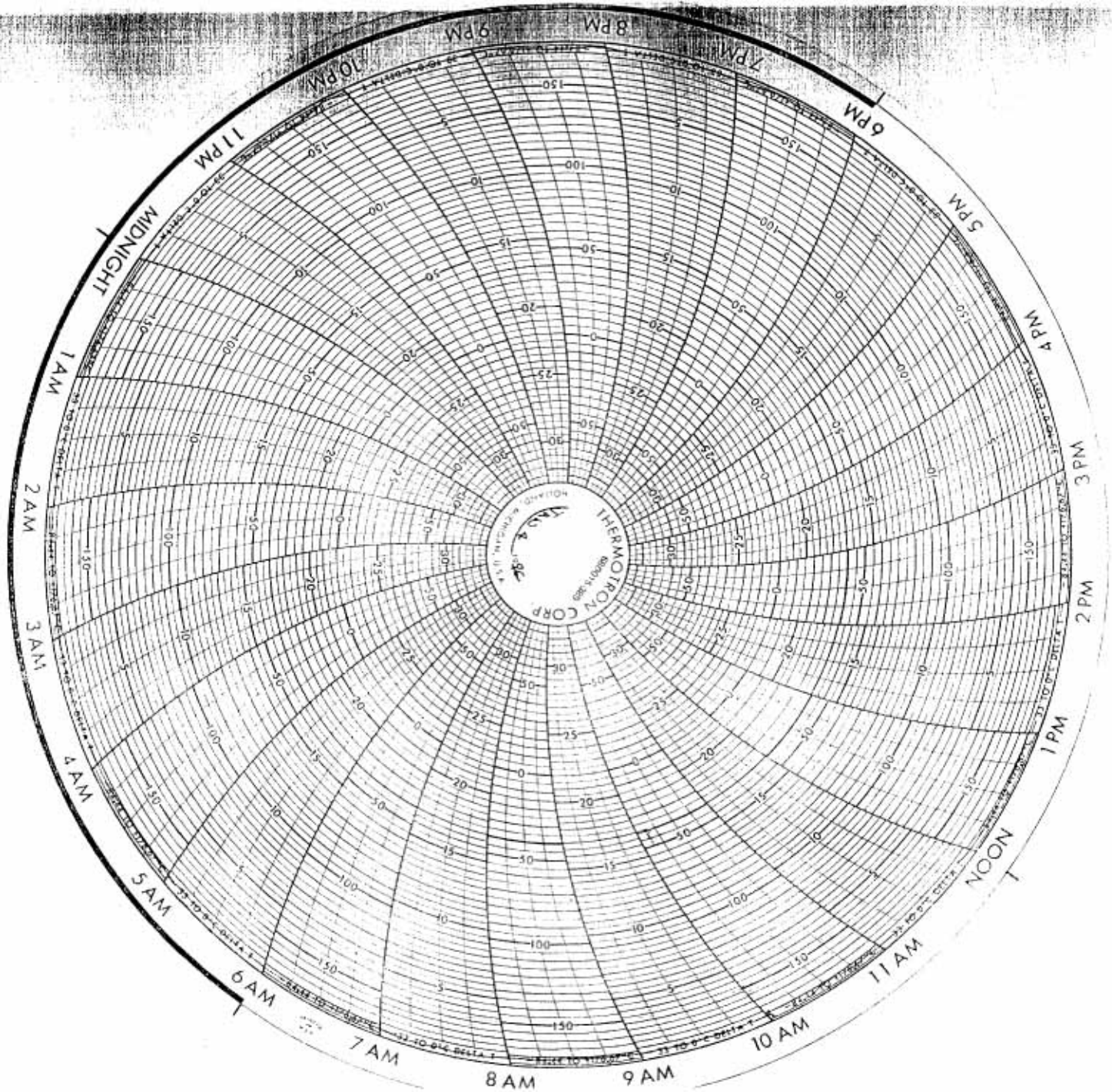


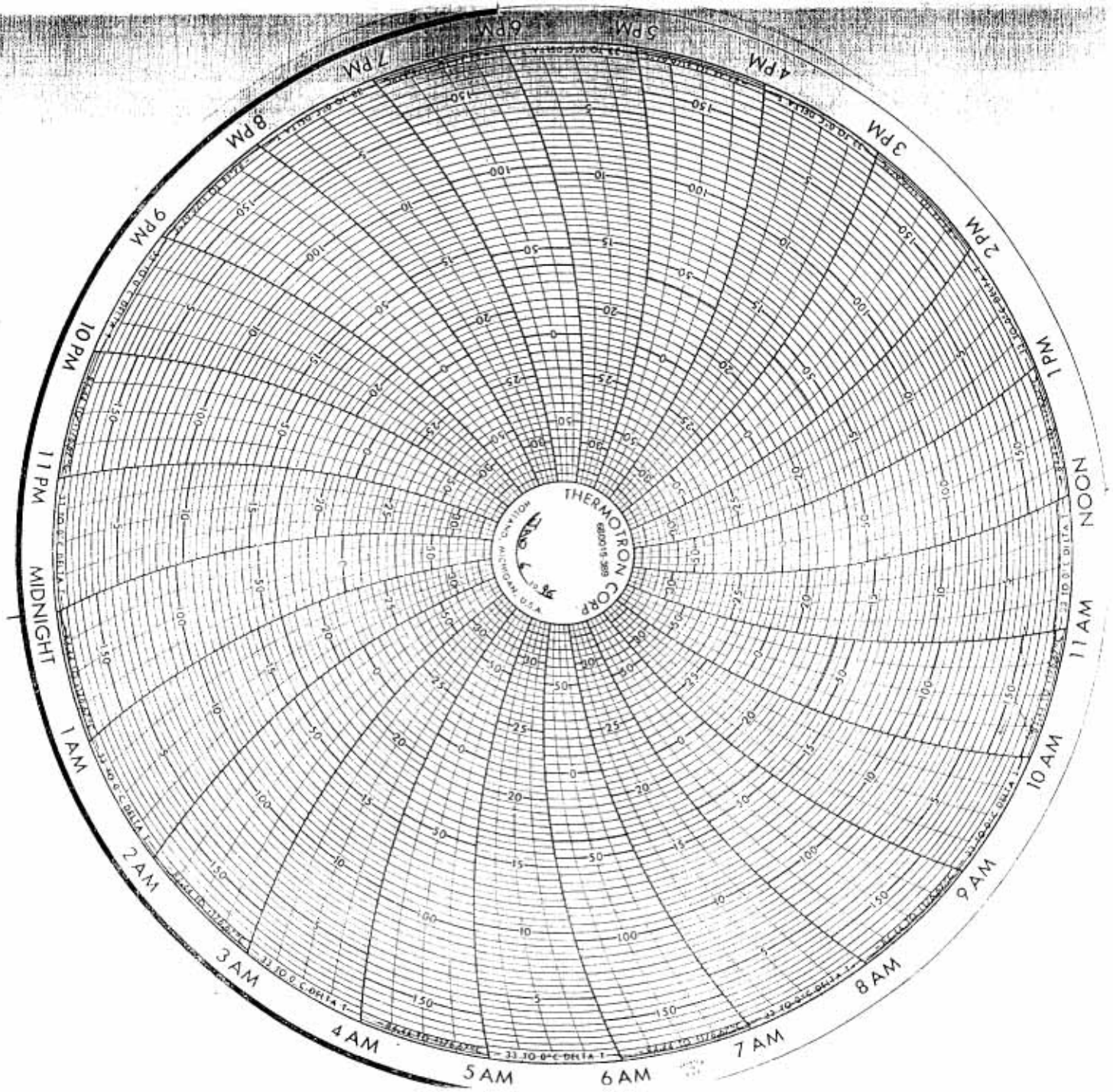
DEFAULT TEST DEFINITION
LAST RESPONSE WAVEFORM
PEAK G 29.512

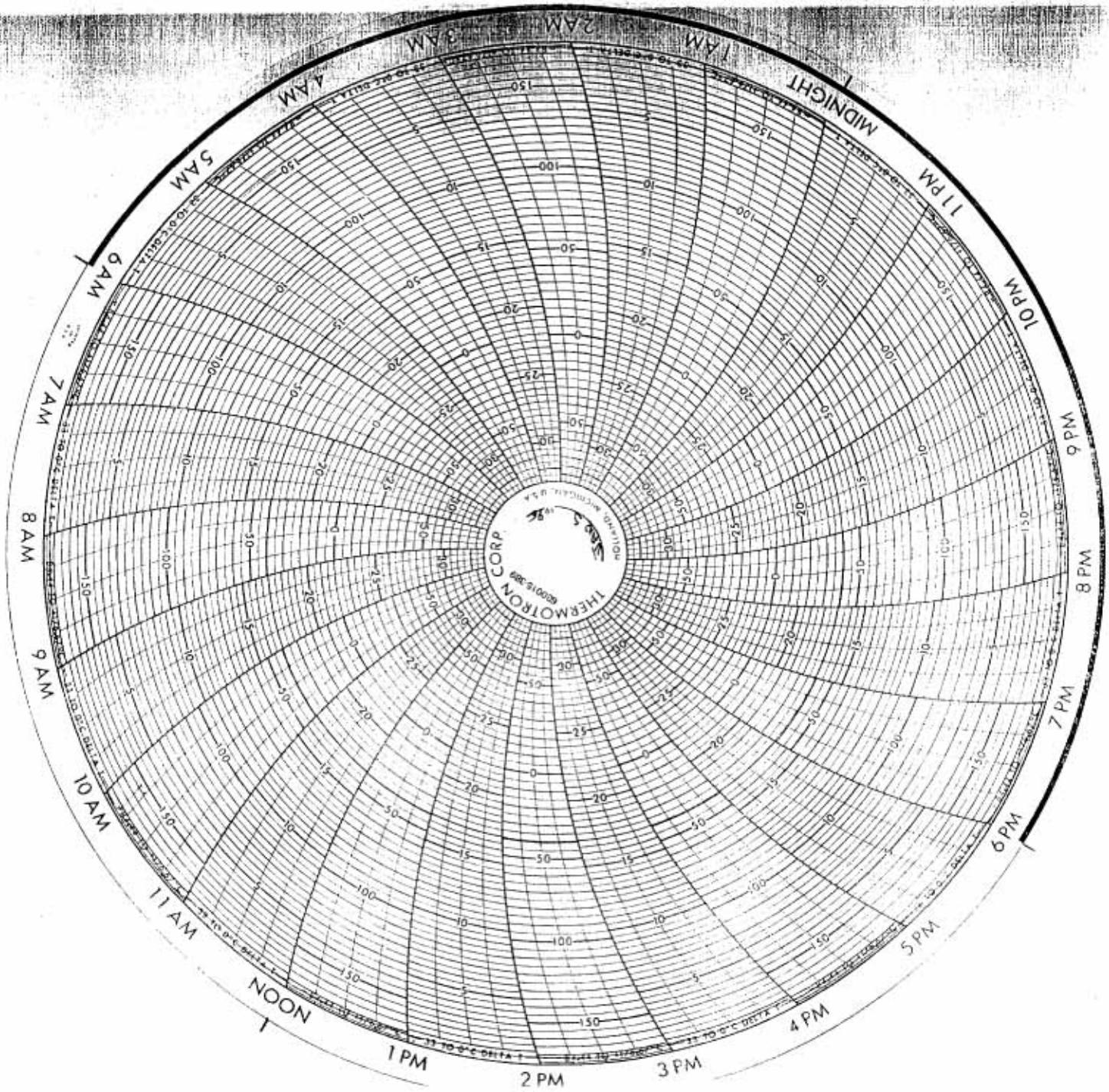
UNIT # 1, TEST # 2
4000 Hz RANGE
PULSE DURATION 10.656


HONEYWELL
ALTITUDE
NOON
1PM
2PM
3PM
4PM
5PM
6PM
11AM
10AM
9AM
8AM
7AM
6AM
5AM
4AM
3AM
2AM
1AM
MIDNIGHT
11PM
10PM
9PM
8PM
7PM
X1000 FT ALTITUDE


THERMOTRON CORP
HOLLAND, MICHIGAN, U.S.A.
6 AM
7 AM
8 AM
9 AM
10 AM
11 AM
NOON
1 PM
2 PM
3 PM
4 PM
5 PM
6 PM
7 PM
8 PM
9 PM
10 PM
11 PM
MIDNIGHT
1 AM
2 AM
3 AM
4 AM
5 AM


6 PM
7 PM
8 PM
9 PM
10 PM
11 PM
MIDNIGHT
1 AM
2 AM
3 AM
4 AM
5 AM
6 AM
7 AM
8 AM
9 AM
10 AM
11 AM
NOON
1 PM
2 PM
3 PM
4 PM
5 PM
THERMOTRON CORP.


NOON
1 PM
2 PM
3 PM
4 PM
5 PM
6 PM
7 PM
8 PM
9 PM
10 PM
11 PM
MIDNIGHT
1 AM
2 AM
3 AM
4 AM
5 AM
6 AM
7 AM
8 AM
9 AM
10 AM
11 AM
THERMOTRON CORP
HOLLAND, MICHIGAN, U.S.A.


MIDNIGHT
1 AM
2 AM
3 AM
4 AM
5 AM
6 AM
7 AM
8 AM
9 AM
10 AM
11 AM
NOON
1 PM
2 PM
3 PM
4 PM
5 PM
6 PM
7 PM
8 PM
9 PM
10 PM
11 PM
THERMOTRON CORP