Report 11360
December 1998

Integrated Advanced Microwave Sounding Unit-A (AMSU-A)

Performance Verification Report

METSAT Phase Locked Oscillator Assembly,

P/N 1348360-1, S/N's F07 and F08

Contract No. NAS 5-32314
CDRL 208

Submitted to:

National Aeronautics and Space Administration
Goddard Space Flight Center
Greenbelt, Maryland 20771

Submitted by:

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1100 West Hollyvale Street
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Report 11360
December 1998

AMSU-A VERIFICATION TEST REPORT

METSAT PHASE LOCKED OSCILLATOR ASSEMBLY

TEST ITEM:
AMSU-A PHASE LOCKED OSCILLATOR ASSEMBLY
P/N 1348360-1
SERIAL NUMBERS F07, F08

PREPARED FOR

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
GODDARD SPACE FLIGHT CENTER
GREENBELT, MARYLAND 20771

PREPARED BY

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AZUSA, CALIFORNIA 91702-0296

1.0 SUMMARY

Two Flight Model AMSU-A Phase Locked Oscillators (P/N 1348360-1, S/N F07 and F08) have been tested per AES Test Procedure AE-26758 Rev. B, which include full functional testing, vibration testing, thermal testing, and AM/FM Noise testing. Both assemblies satisfactorily passed all performance requirements of the AE-26633 Product Specification.

During the thermal cycling of both units, spurs developed 1 MHz from the carrier when the units were cold, and TARs were written to document the anomaly. The symptoms observed in both cases were consistent with inadequate tuning. The units were successfully re-tuned. In the case of F08, re-tuning required a design change which allowed a greater range of possible values for tuning resisters. Both units completed thermal cycling without further delay.

2.0 REQUIREMENTS

The acceptance test procedure AE-26758B consists of tests designed to show compliance of the Phase Locked Oscillator with all requirements stated in the PLO Product Specification AE-26633. The tests reported herein demonstrate the acceptability of the AMSU-A PLO assemblies S/N's F07 and F08, and therefore compatibility with the AMSU-A Receiver Assembly.

3.0 RESULTS

The results of the required tests are presented in the following section as test data. As indicated on the test data sheets, all measured data passed all requirements.

4.0 TEST DATA

A summary of the test data is provided at the start of each of the following sections, and raw data, reproduced as recorded, accompanies. The following table provides a concise summary of each unit's performance ability.

The remainder of this report contains the raw data taken during the tests of the two flight PLOs. The data is arranged by the following segmentation:

Section 1A:	Initial Functional Testing - F07
1B:	Initial Functional Testing - F08
Section 2A:	Acceptance Level Vibration - F07
2B:	Acceptance Level Vibration - F08
Section 3A:	Frequency and Power Hysteresis - F07
3B:	Frequency and Power Hysteresis - F08
Section 4A:	EMI/RE02 Testing - F07 (not required)
4B:	EMI/RE02 Testing - F08 (not required)
Section 5A:	Final Functional Testing - F07
5B:	Final Functional Testing - F08
Section 6A:	AM/FM Noise Levels - F07
6B:	AM/FM Noise Levels - F08
Section 7:	PLO As-Built F07 and F08

Section 1A: Initial Functional Testing - F07

This section contains the results of a full functional test over temperature taken before PLO F07 endured thermal cycling. All tests passed.

Summary of Test Results for AMSU-A Phase Locked Oscillator Testing
Serial Numbers F07 and F08

Paragraph	Description	Requirements	F07	F08
3.2.1.1	Input Voltage and Current	600 mA max, +15V 100 mA max, -15V	499 mA for +15V, 67 mA for -15V	542 mA for +15V, 66 mA for -15V
3.2.1.2	Operating Temperature	+1°C to 44°C	-23°C to +60°C	-1°C to 60°C
3.2.1.3	Start-up	All loads, +60°C and -30°C; in vacuum	Verified at +60 and -30°C, ambient	Verified at +60 and -30°C, ambient
3.2.1.4 & 3.2.1.5	Frequency Stability from 57.290344 GHz	±200 kHz	-26 kHz, -17 kHz	-25 kHz to -29 kHz
3.2.1.6	RF Output Power	17 to 20 dBm	19.2 dBm	18.7 dBm
3.2.1.7	Output Power Stability	<1.5 dB	0.7 dB	1.2 dB
3.2.1.8	Load VSWR	2.01:1 or less	Verified	Verified
3.2.1.9	AM Noise	<-130 dBc/Hz @ 1 MHz	-140 dBc/Hz @ 1MHz	-140 dBc/Hz @ 1Mhz
3.2.1.10	FM Noise	<-100 dBc/Hz @ 1 MHz	-103 dBc/Hz @ 1 MHz	<-100 dBc/Hz @ 1 MHz
3.2.1.11	Spurious and Sub-Harmonic Signals	<-90 dBc	< -92 dBc	< -92 dBc
3.2.1.12	Harmonics	<30 dBc	-69 dBc	-69 dBc
3.2.1.14	Warm-up Time	< 30 minutes	Verified	Verified
3.2.1.15	Grounding and Shielding		By Design	By Design
3.2.1.16	Input Voltage Protection		By Design	By Design
3.2.1.17	Reverse Polarity Protection		By Design	By Design
Environmental Testing				
Microphonics		AE-26633	TCXO Test	TCXO Test
Radiation Hardness		AE-26633	By Analysis	By Analysis
EMI/RFI		AE-26633	Not Required	Not Required
Vibration		AE-26633	Acceptance Level	Acceptance Level
Thermal Vacuum		AE-26633	Verified at Ambient Pressure Only	Verified at Ambient Pressure Only
Weight		2.0 lbs	2.0 lbs	2.0 lbs

TEST DATA SHEET 6A (Sheet 2 of 4)
Functional Testing (Paragraph 4.2.1)

Pre-Environmental CPT

Paragraph 4.2.1.3 (Cont):

Step	Test	Expected	Measured	Pass/Fail
14	Frequency vs. Voltage			
	± 15 V Supplies	+14.8 ± 0.05 V	+Voltage = +14.80 V	Pass
		-14.8 ± 0.05 V	-Voltage = -14.79 V	Pass
		57.290344 ± .0002 GHz	Freq. = 57.290 3089 GHz	Pass
		17 to 20 dBm	P = 19.3 dBm	Pass
15	Spurious and Sub	-200 to -90 dBc	See Plots	Pass
16	Power level of 114.58 GHz signal	<-10 dBm	-62 dBm	Pass
17	Load VSWR and Frequency Pulling			
	2:1 mismatch over 1λ	N/A	Worst Case Freq = ≈ 5 Hz	N/A
	2:1 mismatch over 1λ	N/A	Worst Case Power = 1.2 dB Peak	N/A
18	Operating Temperature @ 1°C baseplate	TC1 = 1 ±2°C	TC1 = 0.5°C	Pass
			TC2 = 1.5°C	N/A
			TC3 = 0.6°C	N/A
		0 - 1V	DRO L/A = 43 mV	Pass
		0 - 1V	PLO L/A = 46 mV	Pass
19	Input Voltage and Current			
	VM1 Voltage	+15 ± 0.1 V	VM1 = +15.0 V	Pass
	VM2 Voltage	-15 ± 0.1 V	VM2 = -15.0 V	Pass
	IM1 Current	600 mA max.	IM1 = 489 mA	Pass
	IM2 Current	100 mA max.	IM2 = 66 mA	Pass
	DRO L/A Voltage	0 to 1V	DRO L/A = 43 mV	Pass
	PLO L/A Voltage	0 to 1V	PLO L/A = 46 mV	Pass
	RF Output Power	17 to 20 dBm	Power = 19.97 dBm	Pass
	Frequency	57.290344 ± .0002 GHz	Freq. 57.290 3125 GHz	Pass
	Frequency vs. Voltage			
	± 15 V Supplies	+15.2 ± 0.05 V	+Voltage = +15.21 V	Pass
		-15.2 ± 0.05 V	-Voltage = -15.20 V	Pass
		57.290344 ± .0002 GHz	Freq. = 57. 290 3124 GHz	Pass
		17 to 20 dBm	Power = 20 dBm	Pass
	Frequency vs. Voltage			
	± 15 V Supplies	+14.8 ± 0.05 V	+Voltage = 14.80 V	Pass
		-14.8 ± 0.05 V	-Voltage = -14.79 V	Pass
		57.290344 ± .0002 GHz	Freq. = 57.290 3122 GHz	Pass
		17 to 20 dBm	Power = 20 dBm	Pass

TEST DATA SHEET 6A (Sheet 3 of 4)
Functional Testing (Paragraph 4.2.1)

Pre-Environmental CPT

Paragraph 4.2.1.3 (Cont):

Step	Test	Expected	Measured	Pass/Fail
19 (Cont)	Spurious and Sub	-200 to -90 dBc	See Plots	Pass
	Power level of 114.58 GHz signal	<-10 dBm	-61 dBm	Pass
	Load VSWR and Frequency Pulling			
	2:1 mismatch over 1λ	N/A	Worst Case Freq = ≈ 5Hz	N/A
	2:1 mismatch over 1λ	N/A	Worst Case Power = 1.1 dB Peak	N/A
21	Operating Temperature @ +44°C Baseplate	TC1 = 44 ±2°C	TC1 = 43.9°C	Pass
			TC2 = 45.1°C	N/A
			TC3 = 44.1°C	N/A
		0 - 1V	DRO L/A = 116 mV	Pass
		0 - 1V	PLO L/A = 104 mV	Pass
22	Input Voltage and Current			
	VM1 Voltage	+15 ± 0.1 V	VM1 = +15.0 V	Pass
	VM2 Voltage	-15 ± 0.1 V	VM2 = -15.0 V	Pass
	IM1 Current	600 mA max.	IM1 = 511 mA	Pass
	IM2 Current	100 mA max.	IM2 = 68 mA	Pass
	DRO L/A Voltage	0 to 1V	DRO L/A = 116 mV	Pass
	PLO L/A Voltage	0 to 1V	PLO L/A = 104 mV	Pass
	RF Output Power and	17 to 20 dBm	Power = 18.9 dBm	Pass
	Frequency	57.290344 ± .0002 GHz	Freq. = 57.2902974 GHz	Pass
	Frequency vs. Voltage			
	± 15 V Supplies	+15.2 ± 0.05 V	+Voltage = +15.20 V	Pass
		-15.2 ± 0.05 V	-Voltage = -15.20 V	Pass
		57.290344 ± .0002 GHz	Freq. = 57.2902969 GHz	Pass
		17 to 20 dBm	Power = 18.9 dBm	Pass
	Frequency vs. Voltage			
	± 15 V Supplies	+14.8 ± 0.05 V	+Voltage = +14.80 V	Pass
		-14.8 ± 0.05 V	-Voltage = -14.90 V	Pass
		57.290344 ± .0002 GHz	Freq. = 57.2902969 GHz	Pass
		17 to 20 dBm	Power = 18.9 dBm	Pass

TEST DATA SHEET 6A (Sheet 4 of 4)
Functional Testing (Paragraph 4.2.1)

Pre-Environmental CPT

Paragraph 4.2.1.3 (Cont):

Step	Test	Expected	Measured	Pass/Fail
22 (Cont)	Spurious and Sub	-200 to -90 dBc	See Plots	Pass
	Power level of 114.58 GHz signal	<-10 dBm	-63 dBm	Pass
	Load VSWR and Frequency Pulling			
	2:1 mismatch over 1λ	N/A	Worst Case Freq = 2 Hz	N/A
	2:1 mismatch over 1λ	N/A	Worst Case Power = 0.85 dB Peak	N/A

Shop Order No.: 534921

Operation: 0110

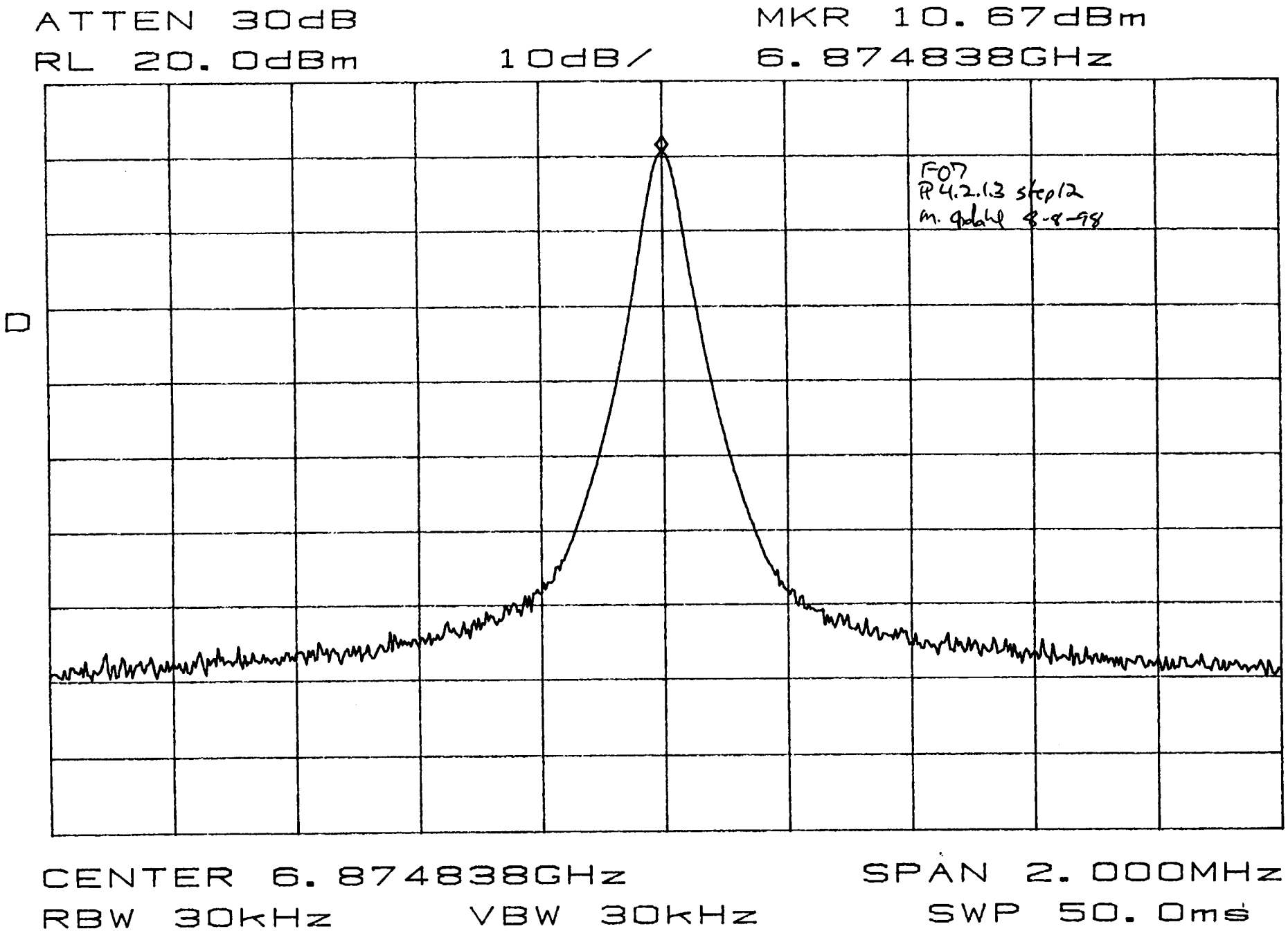
Unit Serial No.: F07

Date: 8-8-94

Test Engineer: Mark Dahl

Quality Control: 7A 190 AUG 8 98

Govt. Rep.: 8/8/98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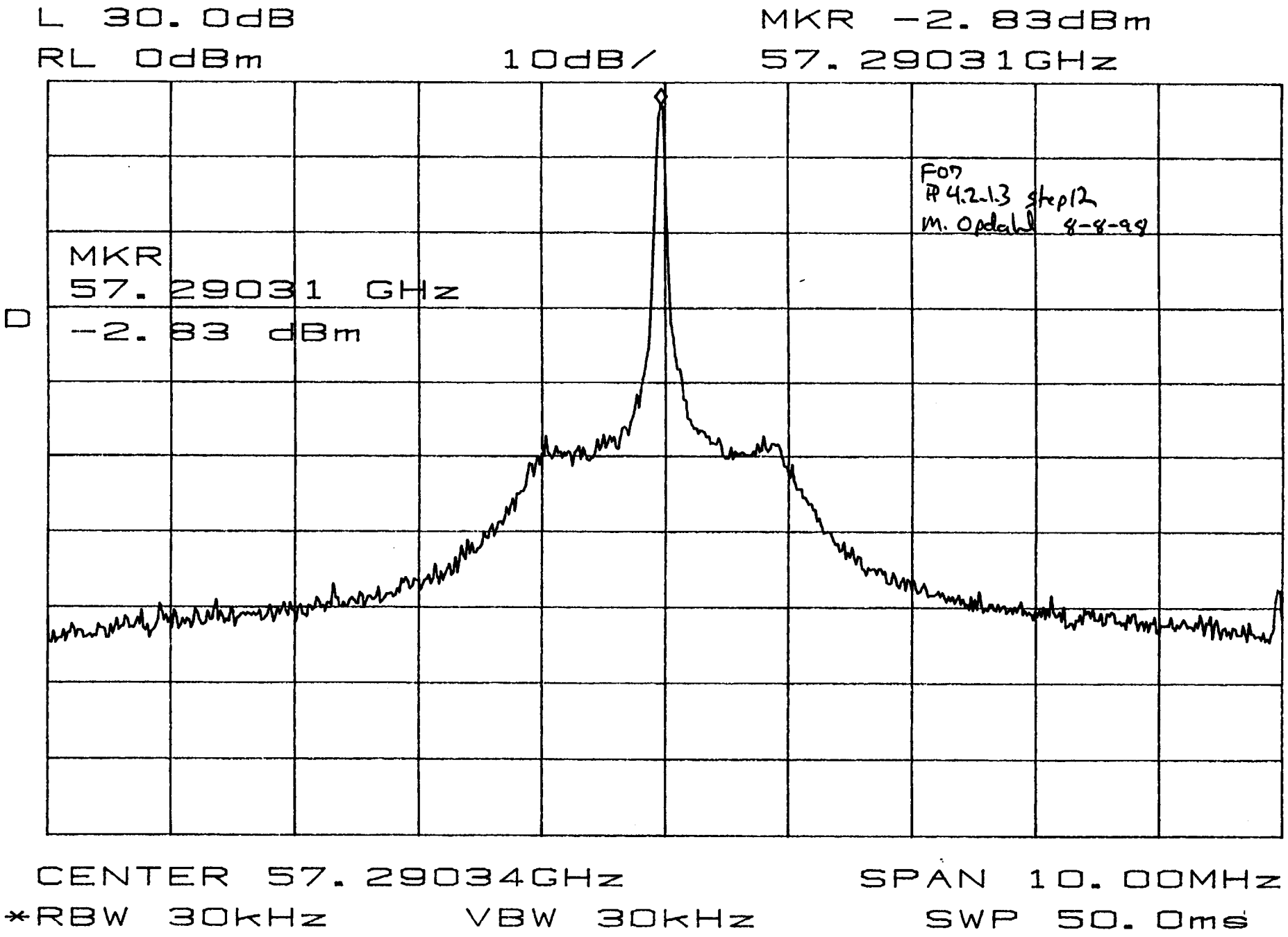
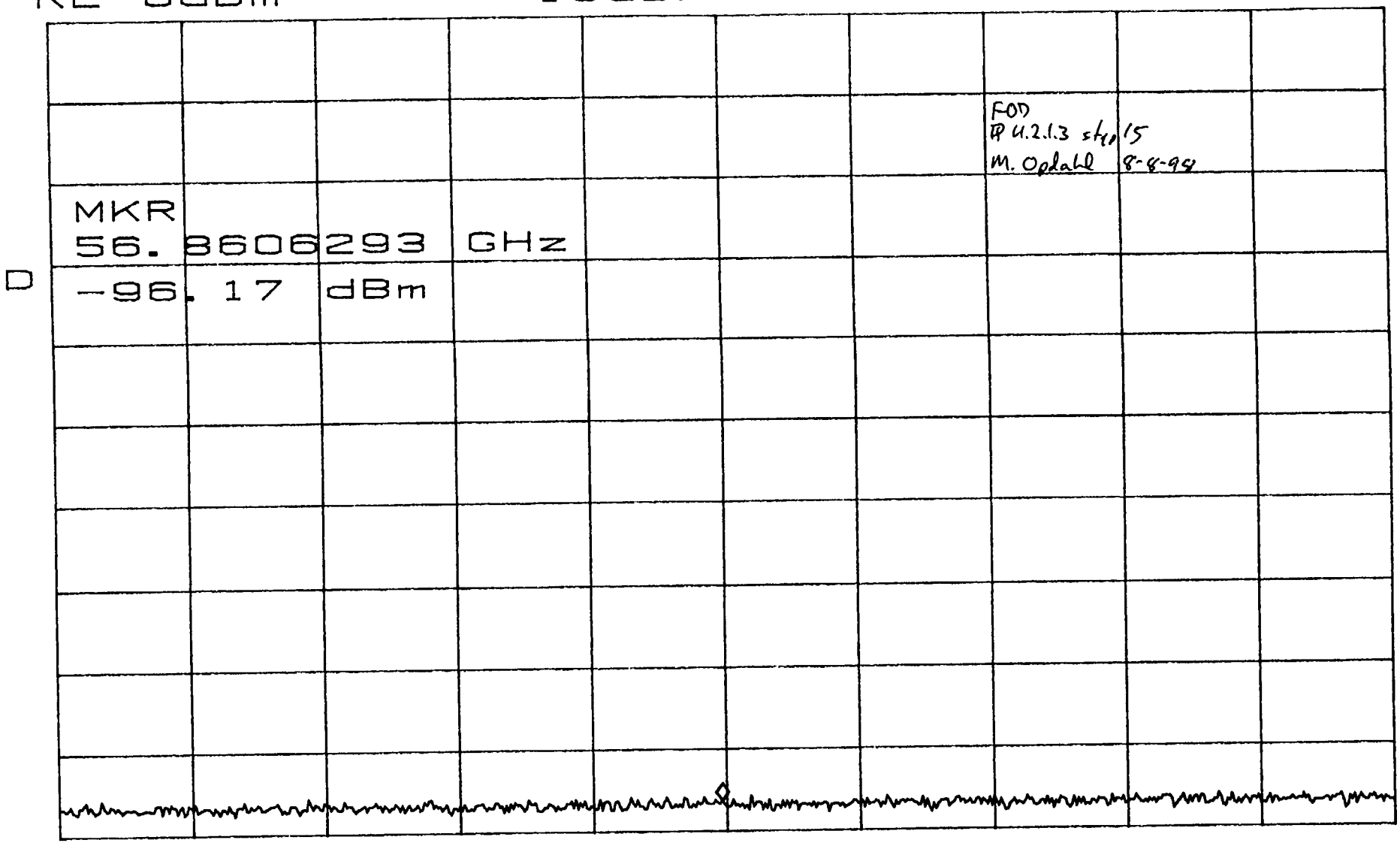
RL 20.0dBm
10dB/
MKR 10.67dBm
6.874838GHz
FCC
Pt 4.2.1.3 step 12
M. Galaly 8-8-98
D
CENTER 6.874838GHz
SPAN 2.000MHz
RBW 30kHz
VBW 30kHz
SWP 50.0ms

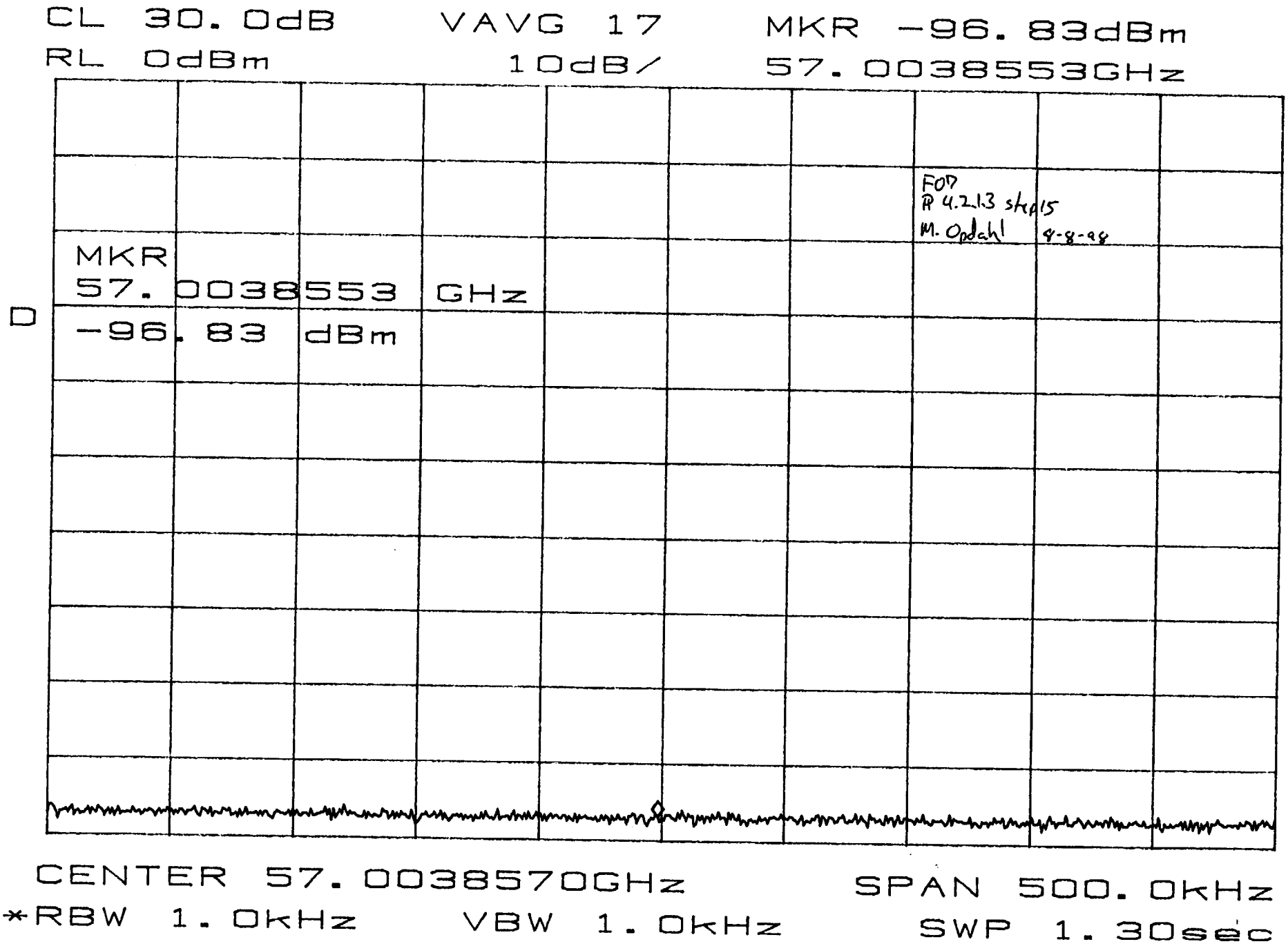

L 30.0dB
MKR -2.83dBm
RL 0dBm
10dB/
57.29031GHz
FCC
Pt 4.2.1.3 step 12
M. Opdahl 8-8-98
MKR
57.29031 GHz
-2.83 dBm
D
CENTER 57.29034GHz
SPAN 10.00MHz
*RBW 30kHz
VBW 30kHz
SWP 50.0ms

CL 30.0dB VAVG 12 MKR -96.17dBm
RL 0dBm 10dB/ 56.8606293GHz



D

CENTER 56.8606310GHz SPAN 500.0kHz
*RBW 1.0kHz VBW 1.0kHz SWP 1.30sec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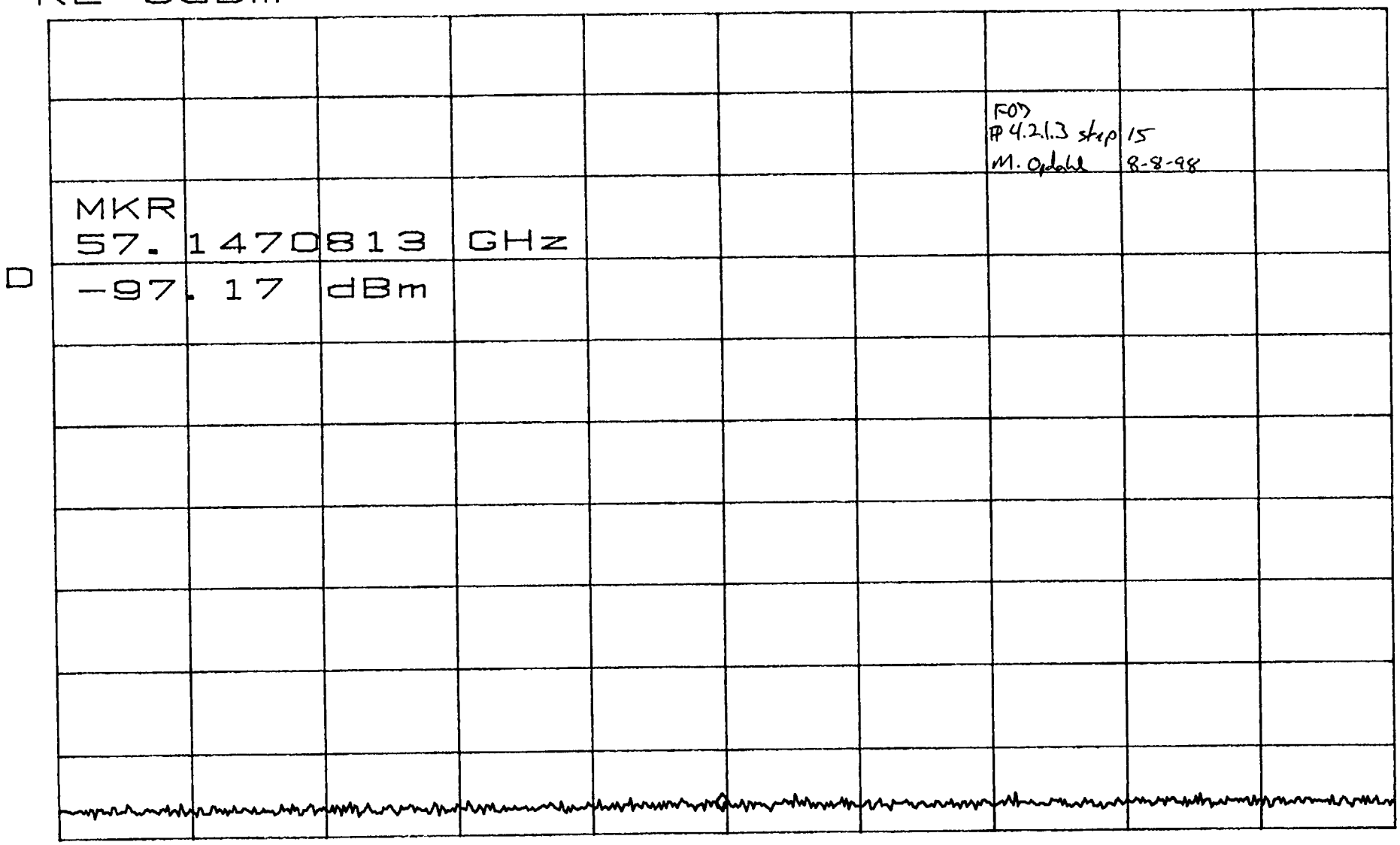
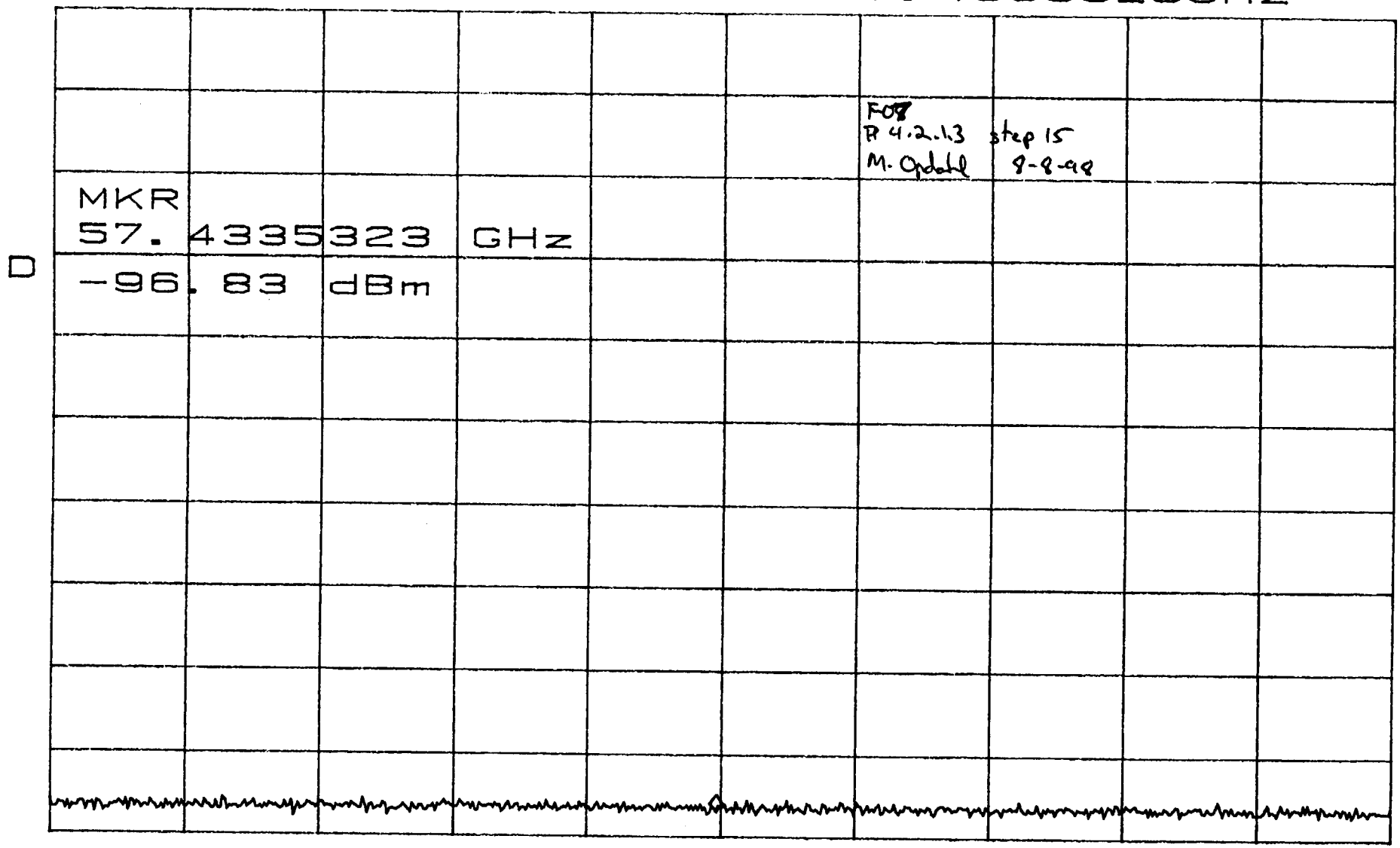
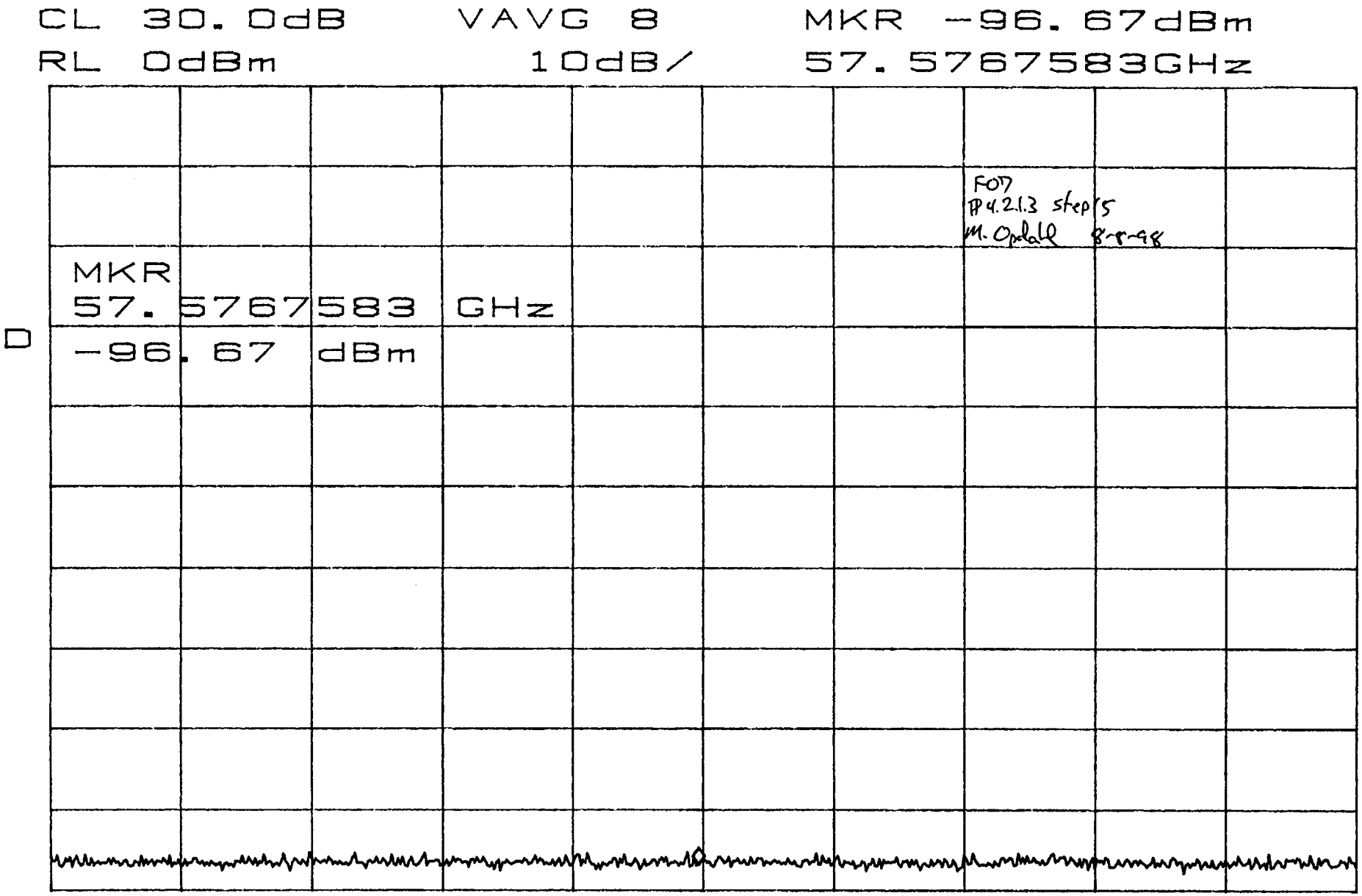
VAVG 17
MKR -96.83dBm
RL 0dBm
10dB/
57.0038553GHz
FOD
P 4.2.1.3 step 15
M. Opdahl 9-8-98
MKR
57.0038553 GHz
-96.83 dBm
D
CENTER 57.0038570GHz
SPAN 500.0kHz
*RBW 1.0kHz
VBW 1.0kHz
SWP 1.30sec

CL 30.0dB VAVG 19 MKR -97.17dBm
RL 0dBm 10dB/ 57.1470813GHz



CENTER 57.1470830GHz SPAN 500.0kHz
*RBW 1.0kHz VBW 1.0kHz SWP 1.30sec


CL 30.0dB
VAVG 13
MKR -96.83dBm
RL 0dBm
10dB/
57.4335323GHz
FCC
Pt 4.2.13 step 15
M. Ogdahl 8-8-98
MKR
57.4335323 GHz
-96.83 dBm
D
CENTER 57.4335340GHz
SPAN 500.0kHz
*RBW 1.0kHz
VBW 1.0kHz
SWP 1.30sec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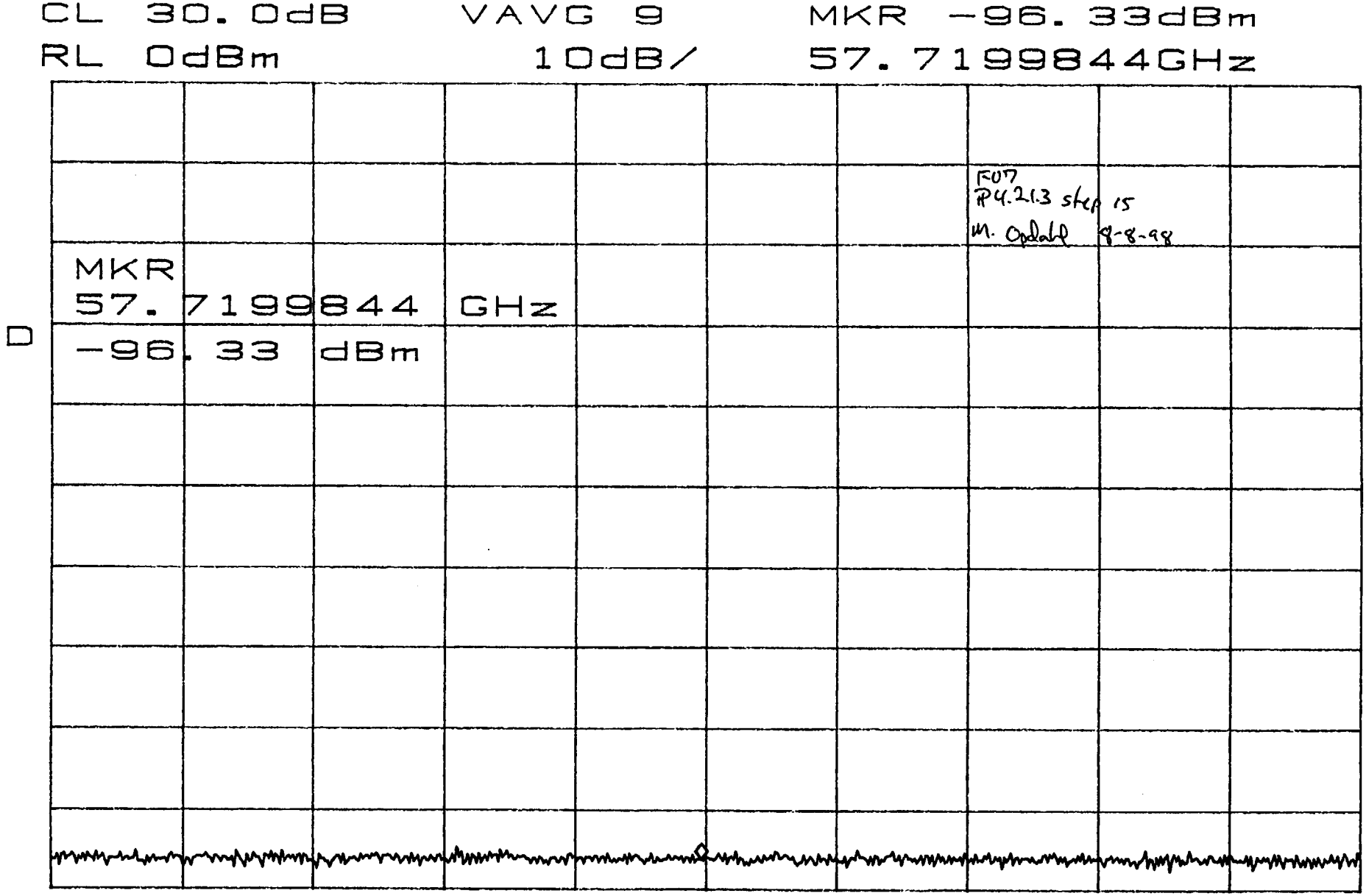
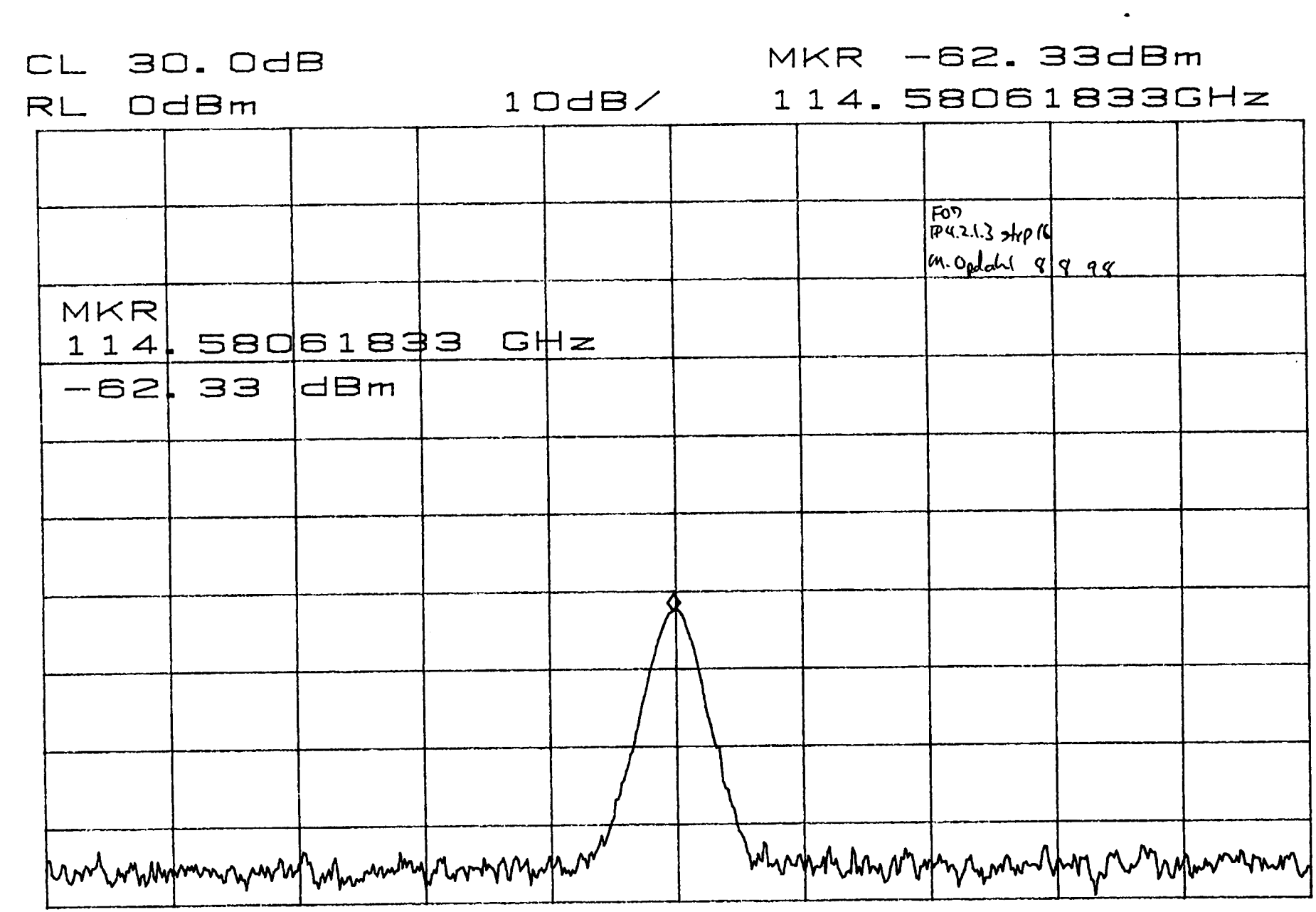
VAVG 8
MKR -96.67dBm
RL 0dBm
10dB/
57.5767583GHz
FCC
Pt 4.2.1.3 step 5
M. Opdahl 8-8-98
MKR
57.5767583 GHz
-96.67 dBm
D
CENTER 57.5767600GHz
SPAN 500.0kHz
*RBW 1.0kHz
VBW 1.0kHz
SWP 1.30sec


CL 30.0dB
VAVG 9
MKR -96.33dBm
RL 0dBm
10dB/
57.7199844GHz
FCC
RP4.2.13 step 15
M. Opdahl 9-8-98
MKR
57.7199844 GHz
-96.33 dBm
D
CENTER 57.7199861GHz
SPAN 500.0kHz
*RBW 1.0kHz
VBW 1.0kHz
SWP 1.30sec


CL 30.0dB
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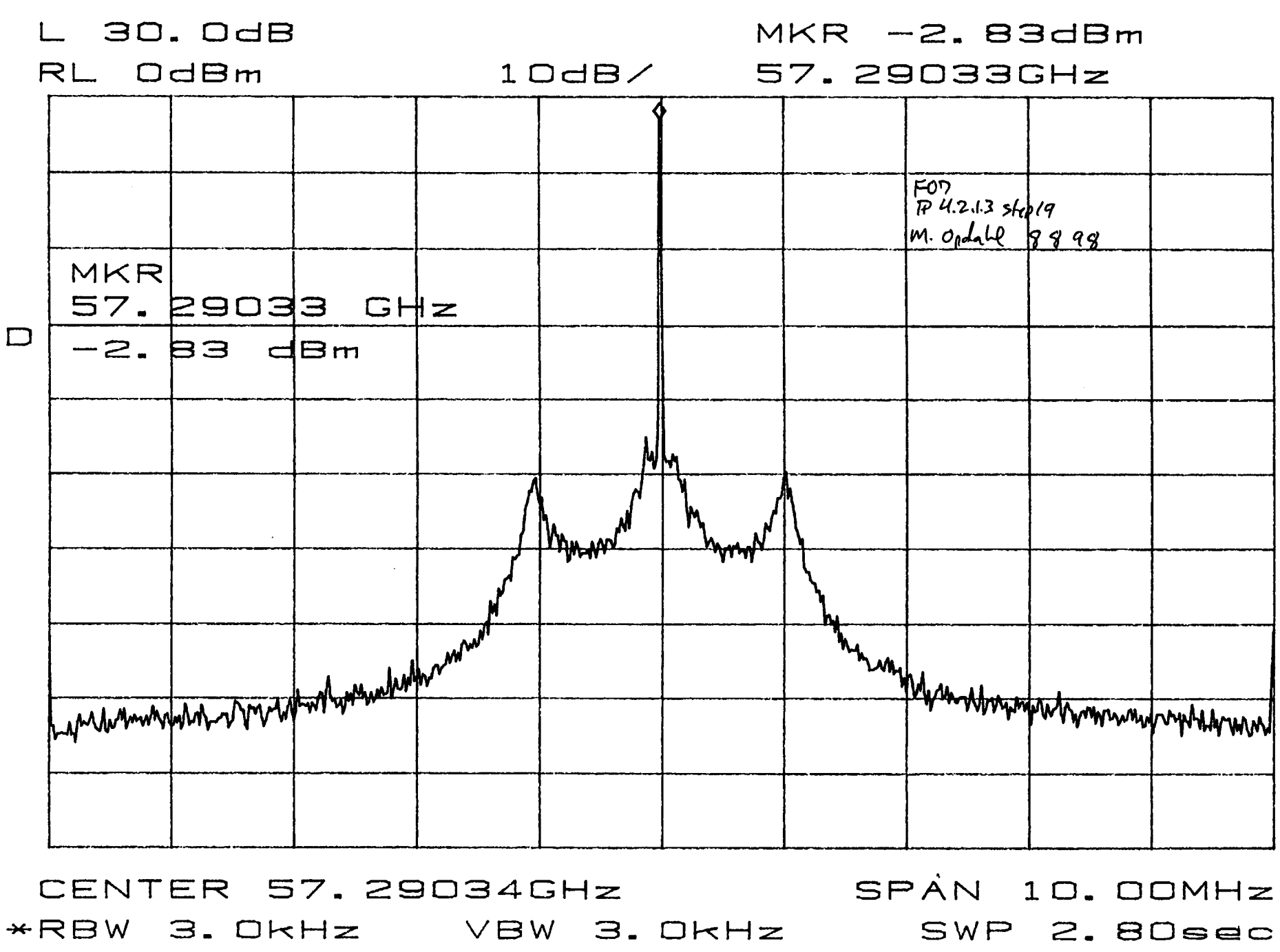
RL 0dBm
10dB/
114.58061833GHz
FOD
TP4.2.1.3 strip 16
m. Opdahl 8 9 98
MKR
114.58061833 GHz
-62.33 dBm
CENTER 114.58061842GHz
SPAN 50.00kHz
*RBW 1.0kHz
*VBW 1.0kHz
SWP 200ms


L 30.0dB
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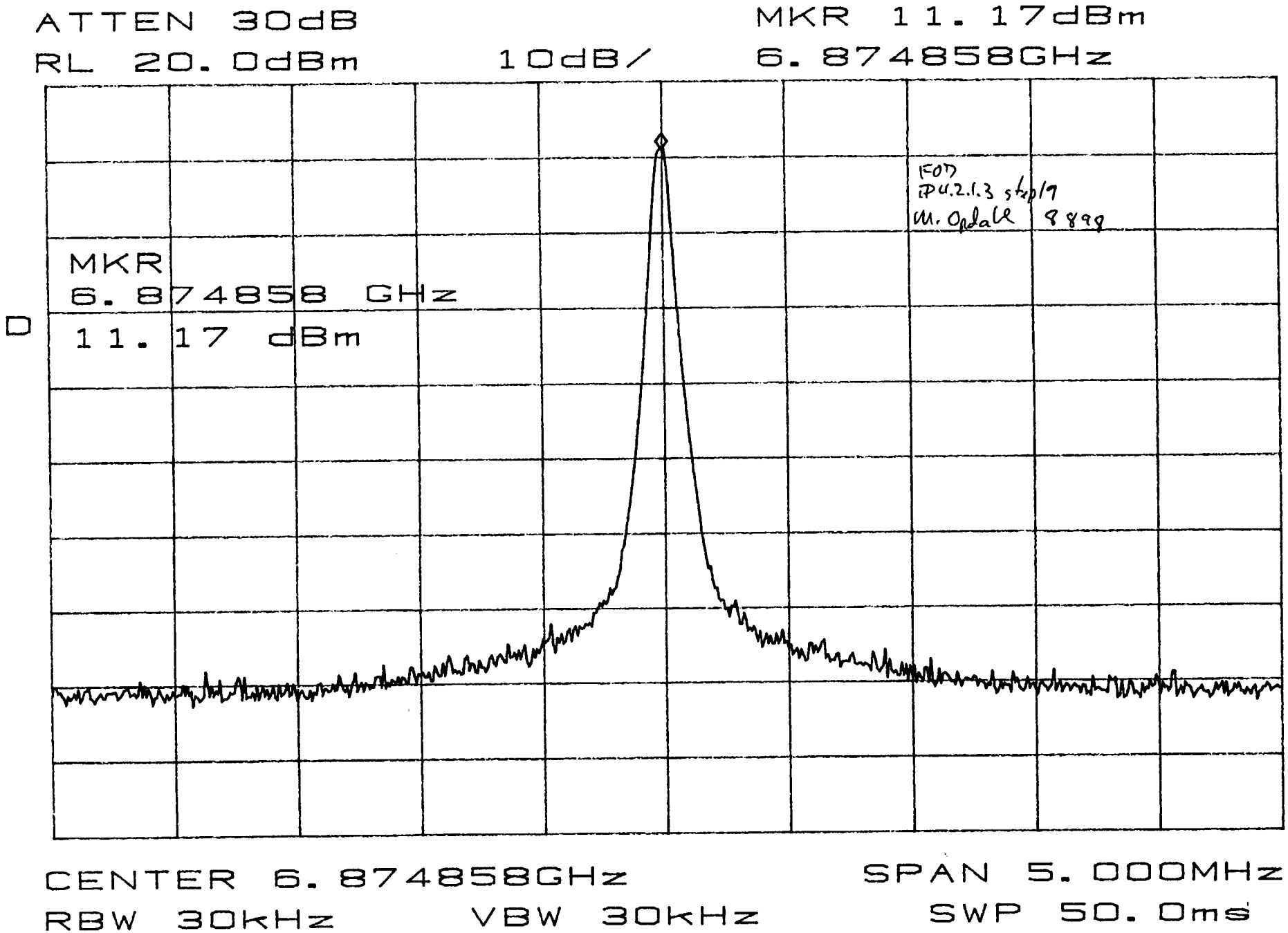
RL 0dBm
10dB/
57.29033GHz
FOT
TP 4.2.1.3 step 19
M. Opdahl 8 8 98
MKR
57.29033 GHz
-2.83 dBm
D
CENTER 57.29034GHz
SPAN 10.00MHz
*RBW 3.0kHz
VBW 3.0kHz
SWP 2.80sec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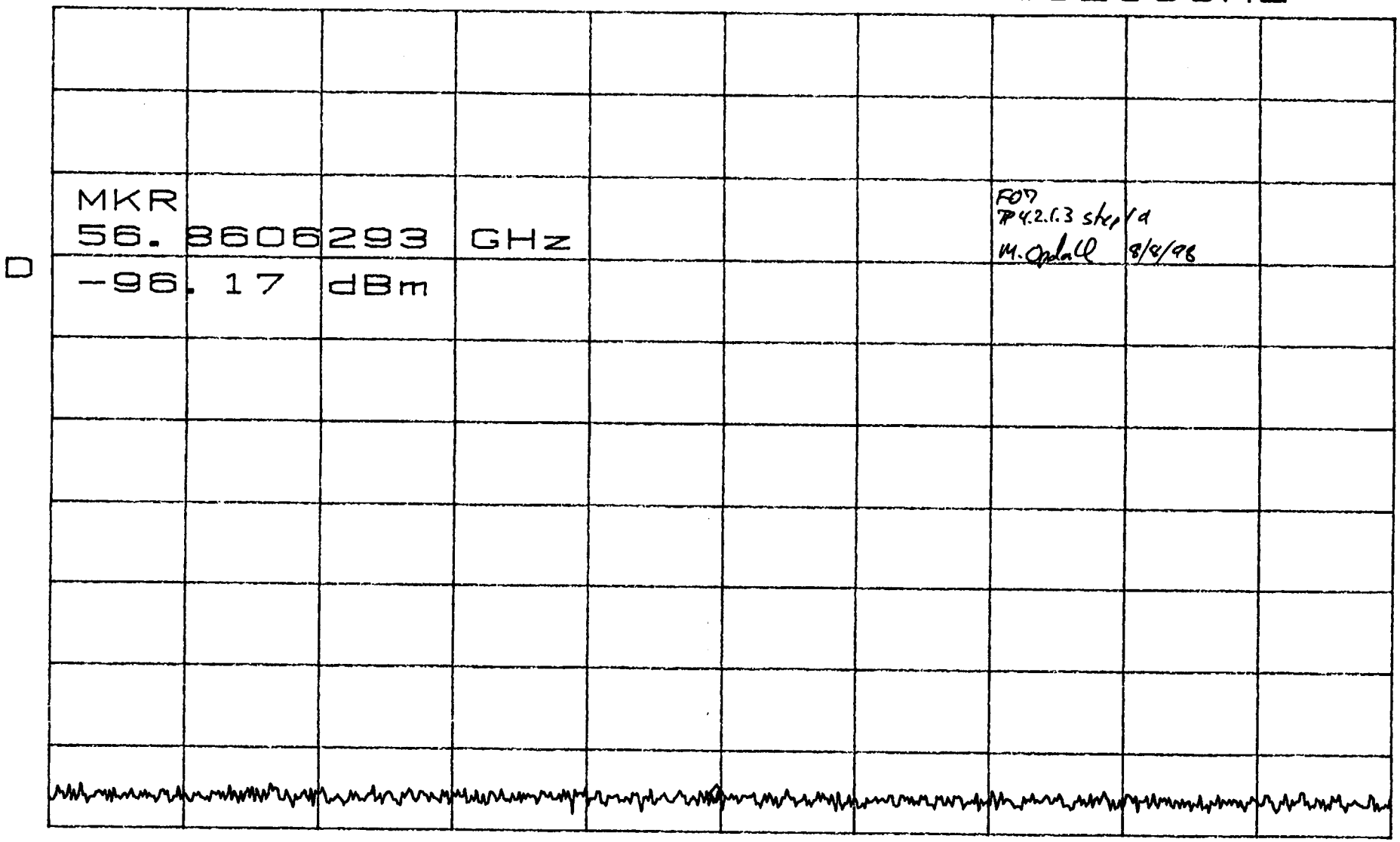
RL 20.0dBm
10dB/
MKR 11.17dBm
6.874858GHz
FOD
EPU.2.1.3 sht 9
M. Opdahl 8/88
MKR
6.874858 GHz
11.17 dBm
CENTER 6.874858GHz
SPAN 5.000MHz
RBW 30kHz
VBW 30kHz
SWP 50.0ms

CL 30.0dB VAVG 5 MKR -96.17dBm

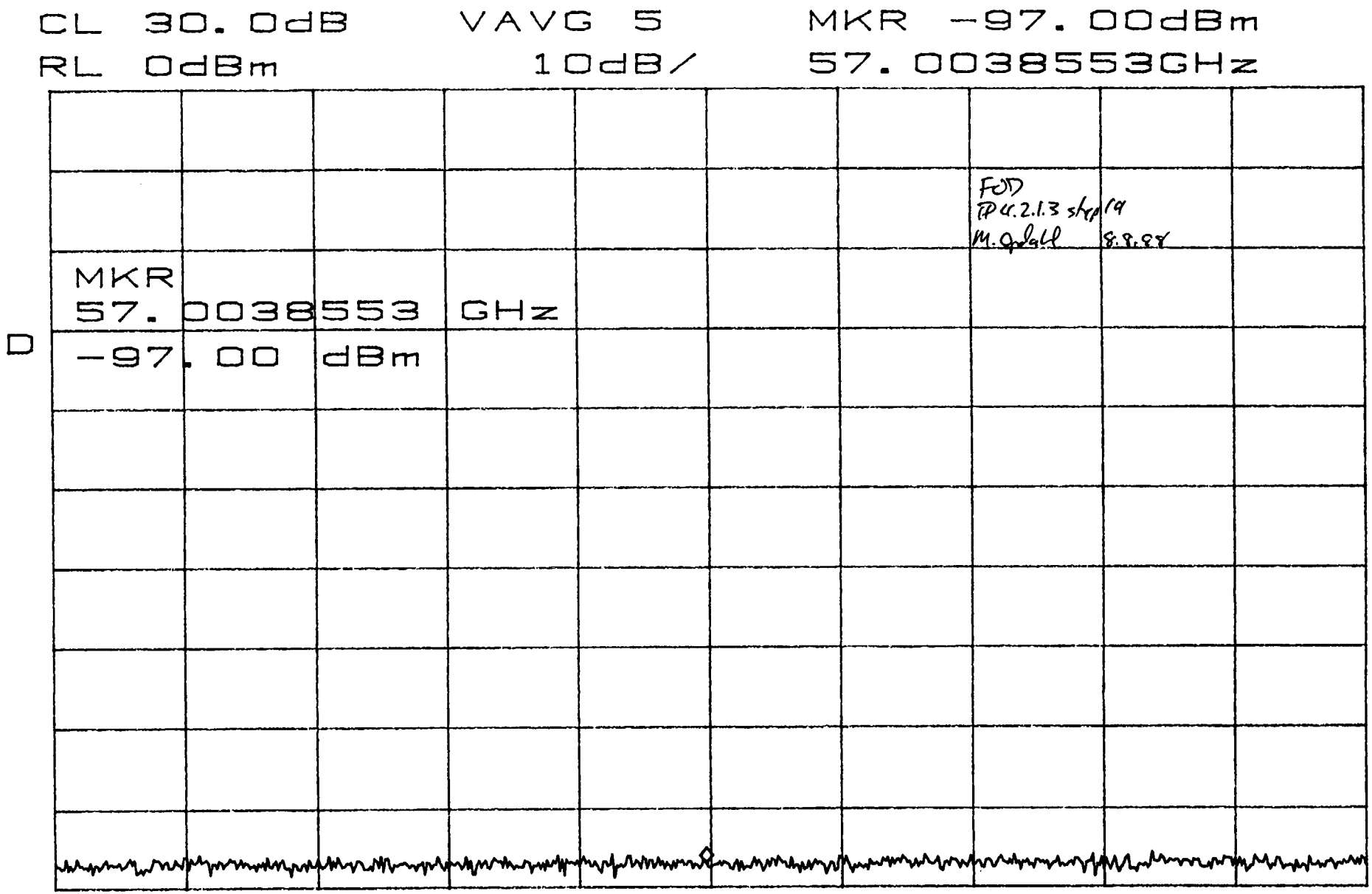
RL 0dBm 10dB/ 56.8606293GHz



D

CENTER 56.8606310GHz SPAN 500.0kHz

*RBW 1.0kHz VBW 1.0kHz SWP 1.30sec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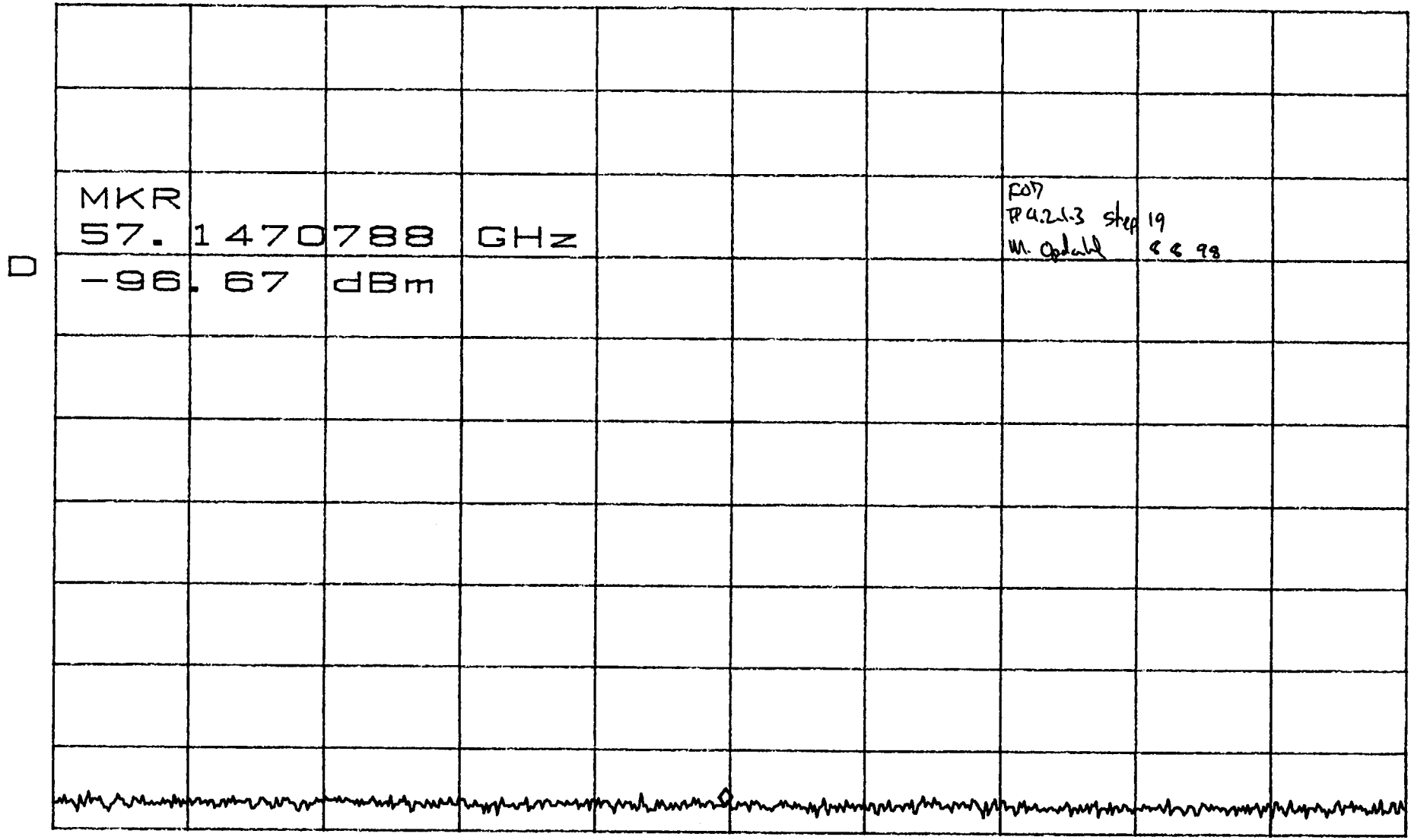
RL 0dBm
10dB/
57.0038553GHz
FCC
FCC 2.1.3 Step 19
M. Gold 8.8.88
MKR
57.0038553 GHz
-97.00 dBm
D
CENTER 57.0038570GHz
SPAN 500.0kHz
*RBW 1.0kHz
VBW 1.0kHz
SWP 1.30sec

CL 30.0dB VAVG 6 MKR -96.67dBm
RL 0dBm 10dB/ 57.1470788GHz



D

CENTER 57.1470805GHz SPAN 500.0kHz
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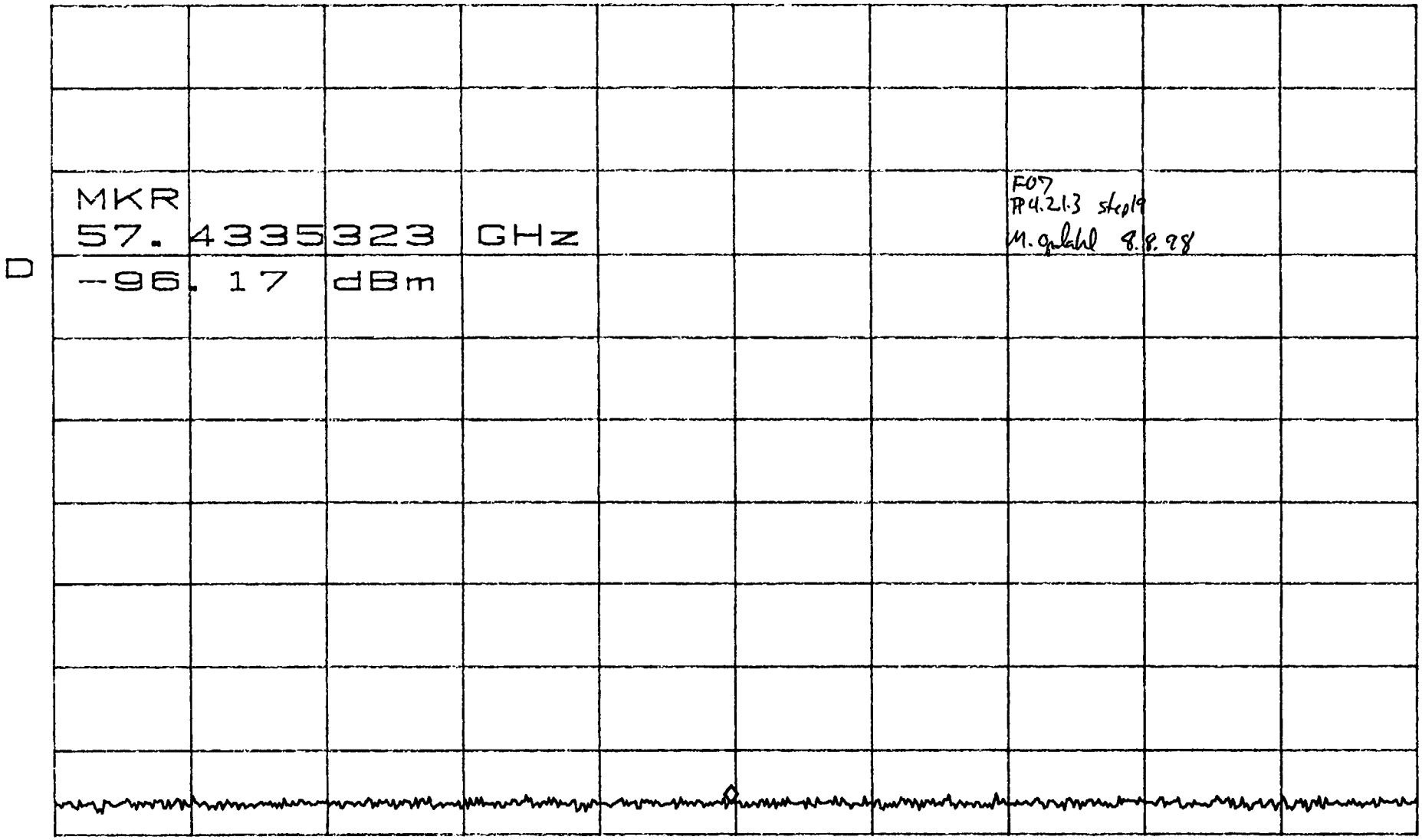
RL 0dBm 10dB/ 57.4335323GHz



D

CENTER 57.4335340GHz SPAN 500.0kHz
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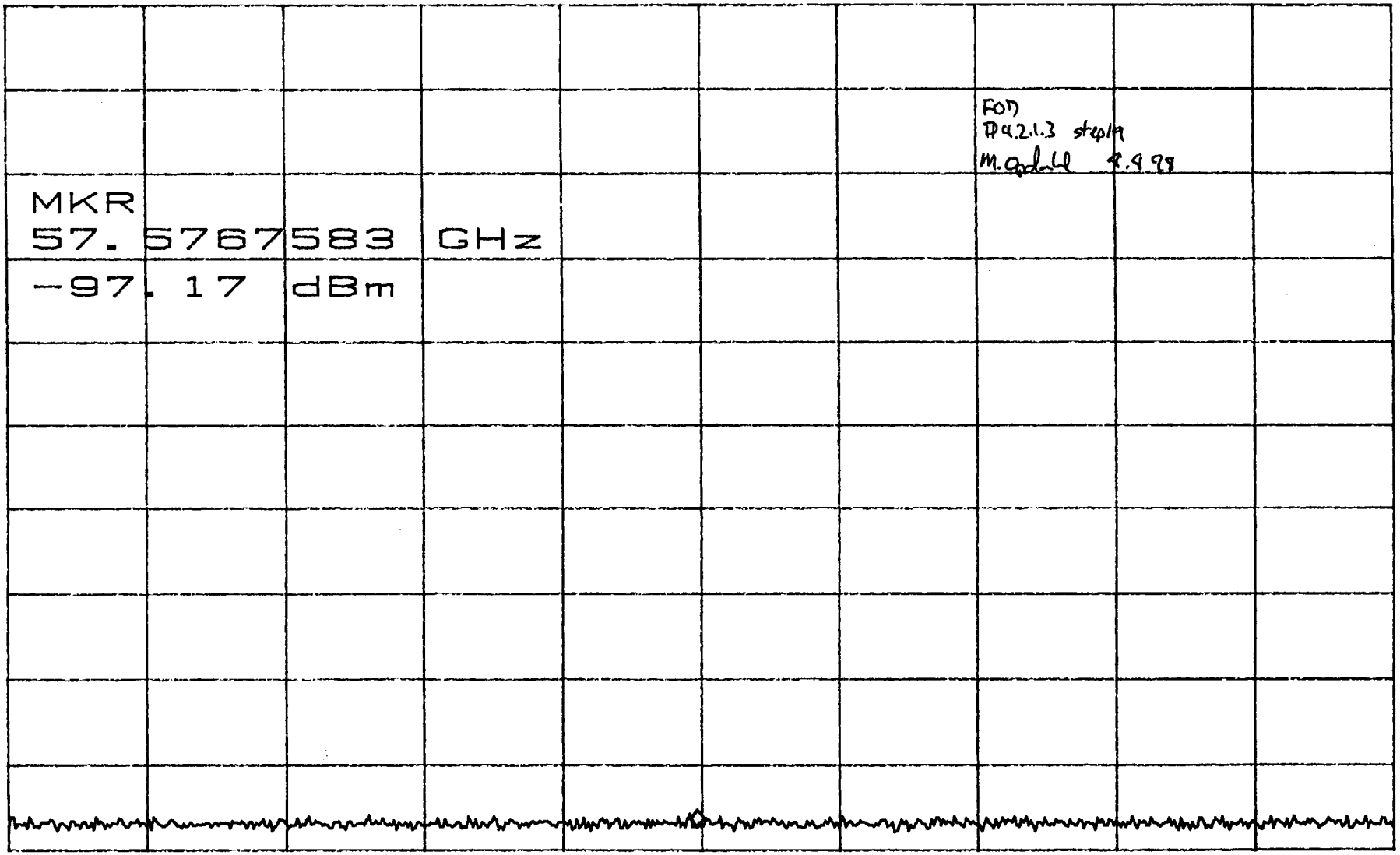
CL 30.0dB VAVG 21 MKR -97.17dBm
RL 0dBm 10dB/ 57.5767583GHz



D

CENTER 57.5767600GHz SPAN 500.0kHz
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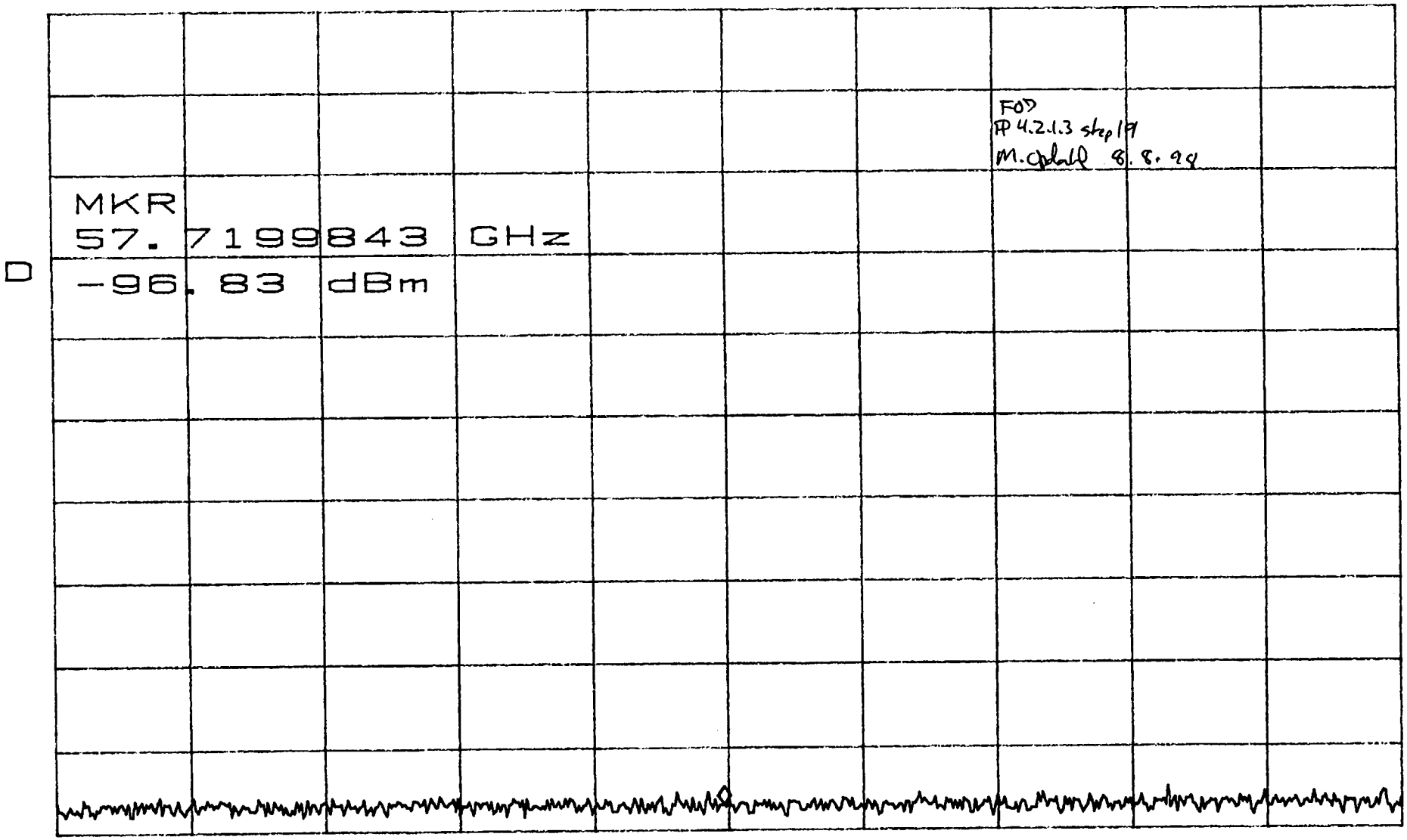
CL 30.0dB VAVG 5 MKR -96.83dBm

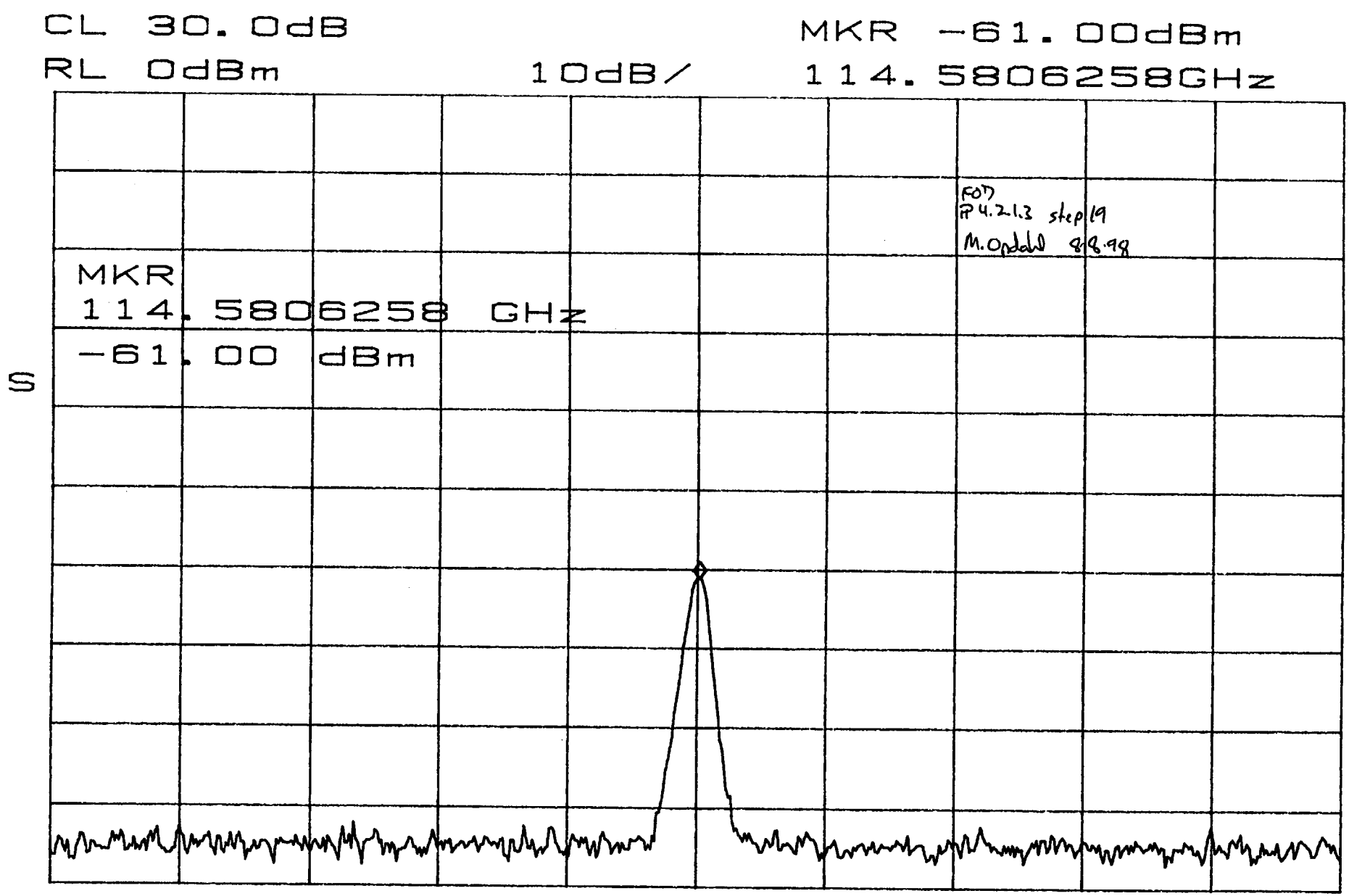
RL 0dBm 10dB/ 57.7199843GHz

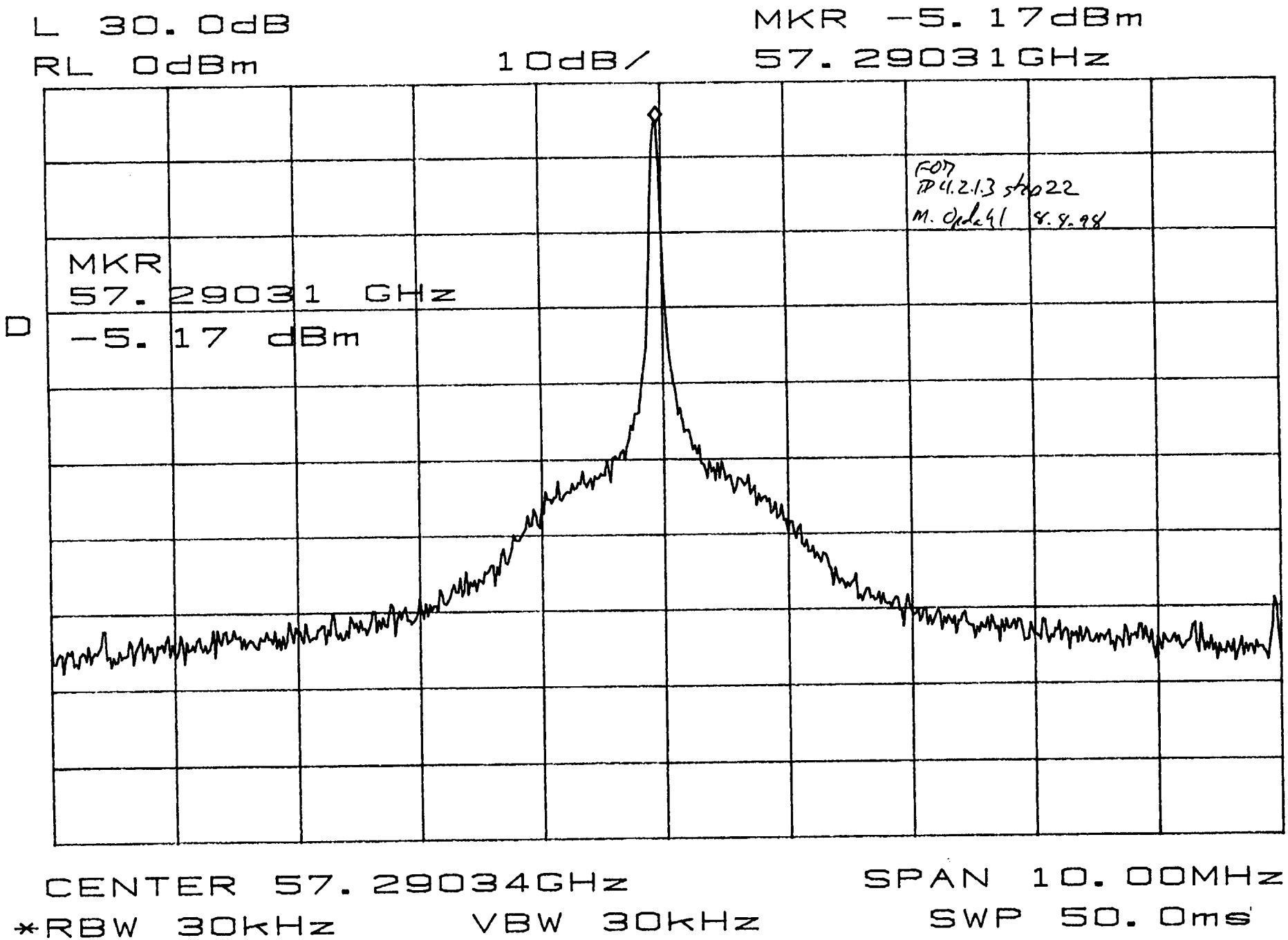


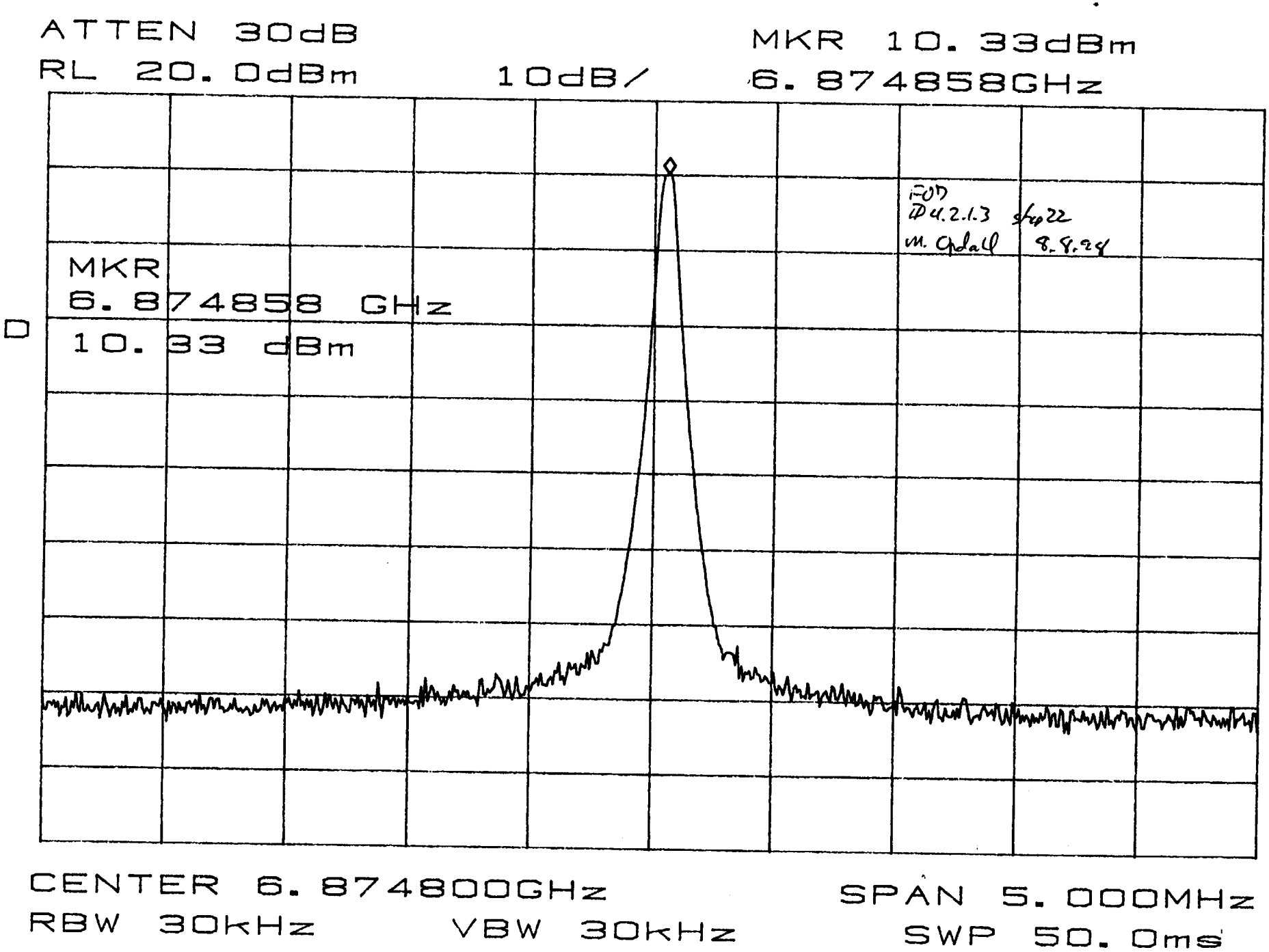
D

CENTER 57.7199860GHz SPAN 500.0kHz

*RBW 1.0kHz VBW 1.0kHz SWP 1.30sec

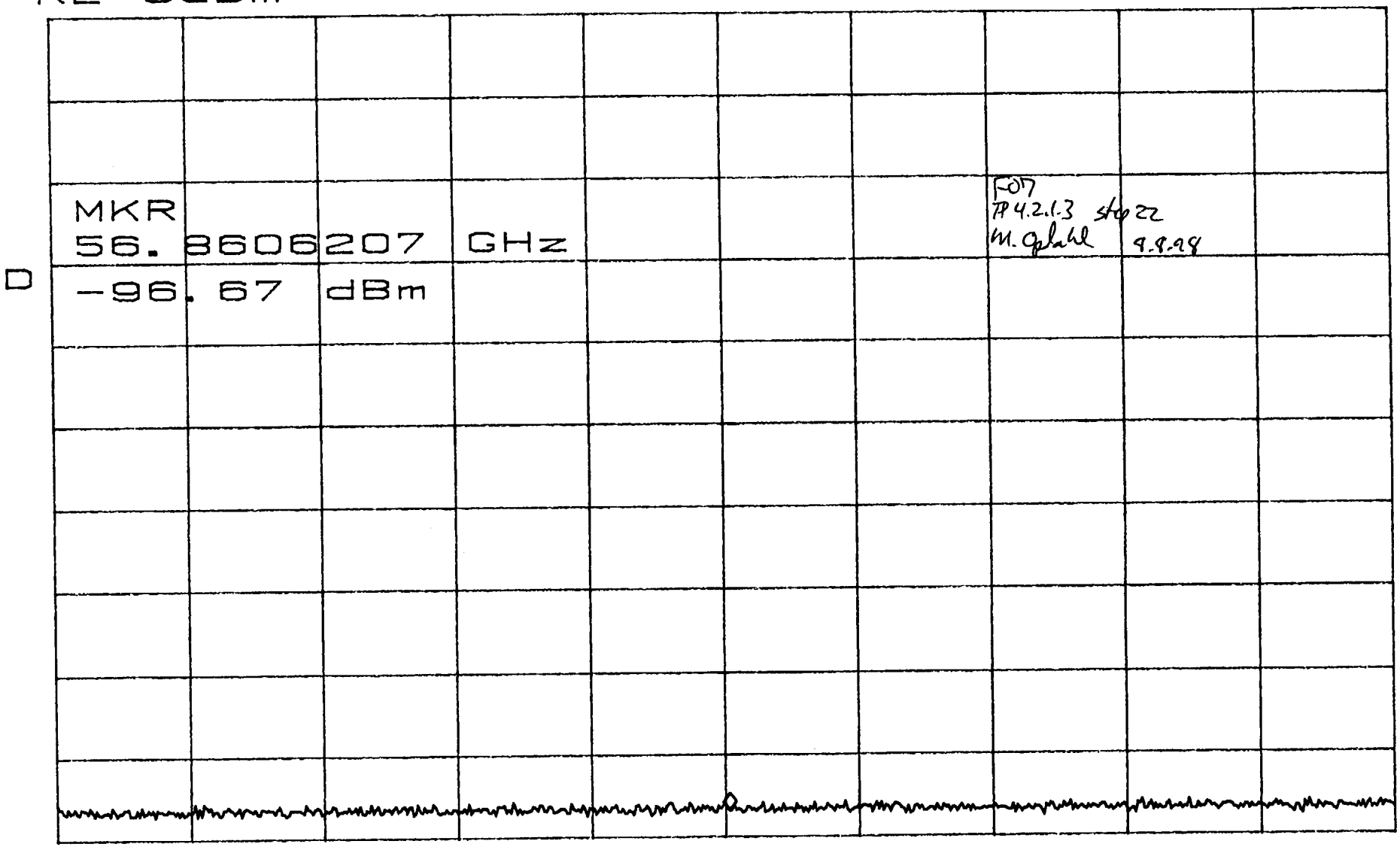

CL 30.0dB
MKR -61.00dBm
RL 0dBm
10dB/
114.5806258GHz
FOR
P4.2.1.3 step 19
M.Opdahl 8.8.98
MKR
114.5806258 GHz
-61.00 dBm
S
CENTER 114.5806256GHz
SPAN 100.0kHz
*RBW 1.0kHz
*VBW 1.0kHz
SWP 250ms


L 30.0dB
RL 0dBm
10dB/
MKR -5.17dBm
57.29031GHz
FCC
ID 4.2.1.3 sht 22
M. Ogle 4/ 8.4.98
MKR
57.29031 GHz
-5.17 dBm
D
CENTER 57.29034GHz
SPAN 10.00MHz
*RBW 30kHz
VBW 30kHz
SWP 50.0ms


ATTEN 30dB
RL 20.0dBm
10dB/
MKR 10.33dBm
6.874858GHz
MKR
6.874858 GHz
10.33 dBm
D
FOD
ID 4.2.1.3 Sh 22
M. Opdahl 8.8.94
CENTER 6.874800GHz
SPAN 5.000MHz
RBW 30kHz
VBW 30kHz
SWP 50.0ms

CL 30.0dB VAVG 40 MKR -96.67dBm

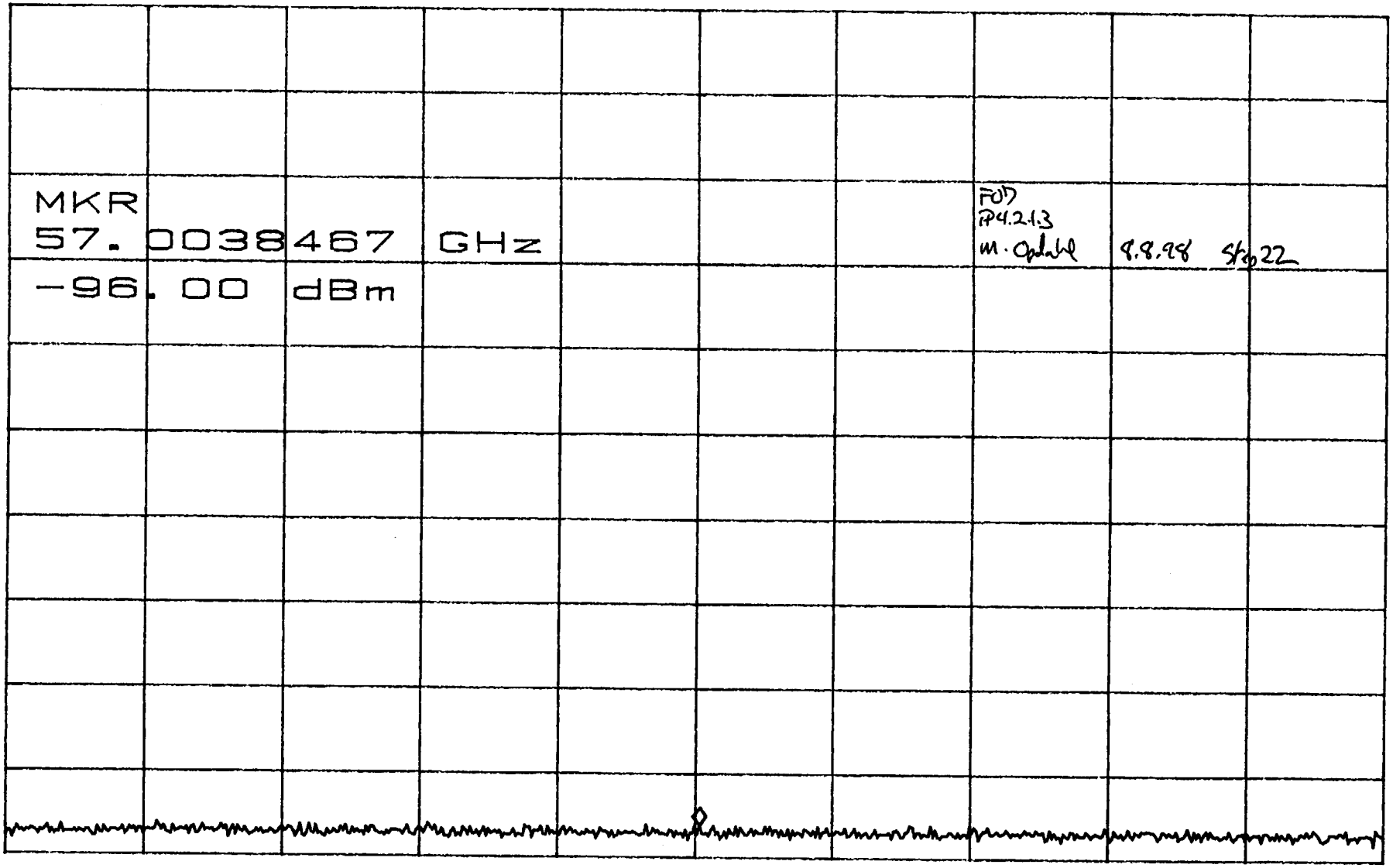
RL 0dBm 10dB/ 56.8606207GHz



CENTER 56.8606190GHz SPAN 500.0kHz

*RBW 1.0kHz VBW 1.0kHz SWP 1.30sec

CL 30.0dB VAVG 24 MKR -96.00dBm
RL 0dBm 10dB/ 57.0038467GHz

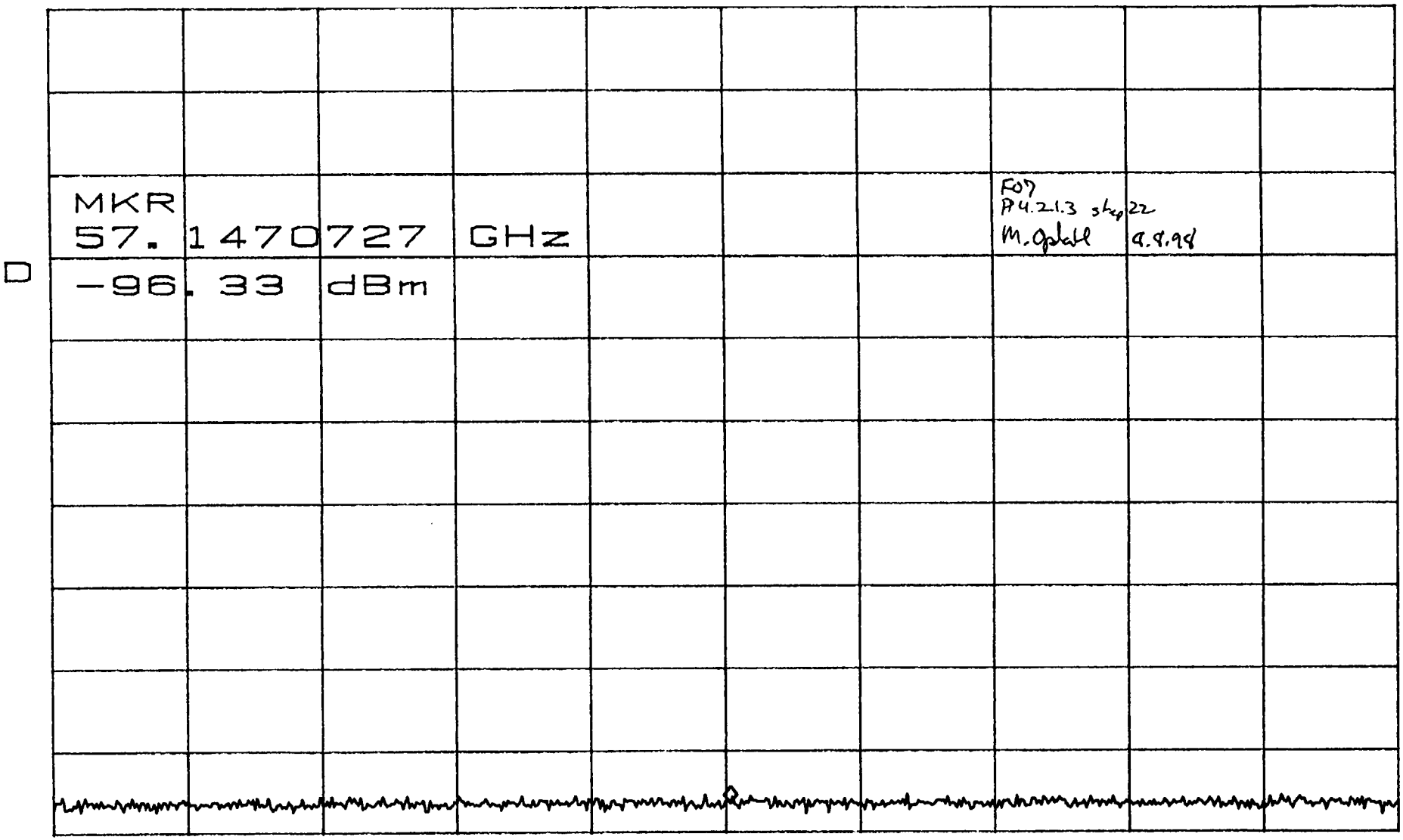


D

CENTER 57.0038450GHz SPAN 500.0kHz
*RBW 1.0kHz VBW 1.0kHz SWP 1.30sec

CL 30.0dB VAVG 10 MKR -96.33dBm

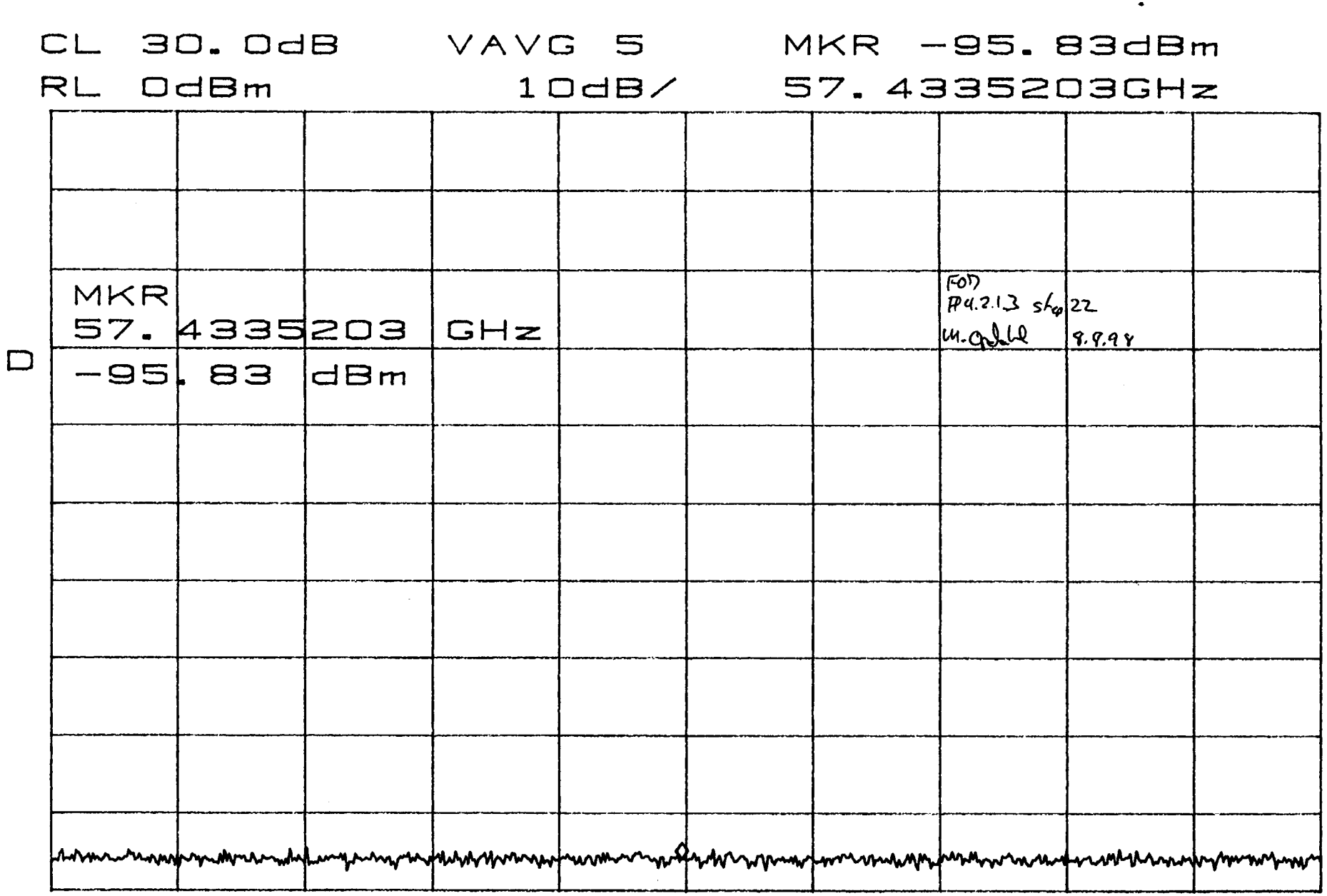
RL 0dBm 10dB/ 57.1470727GHz



D

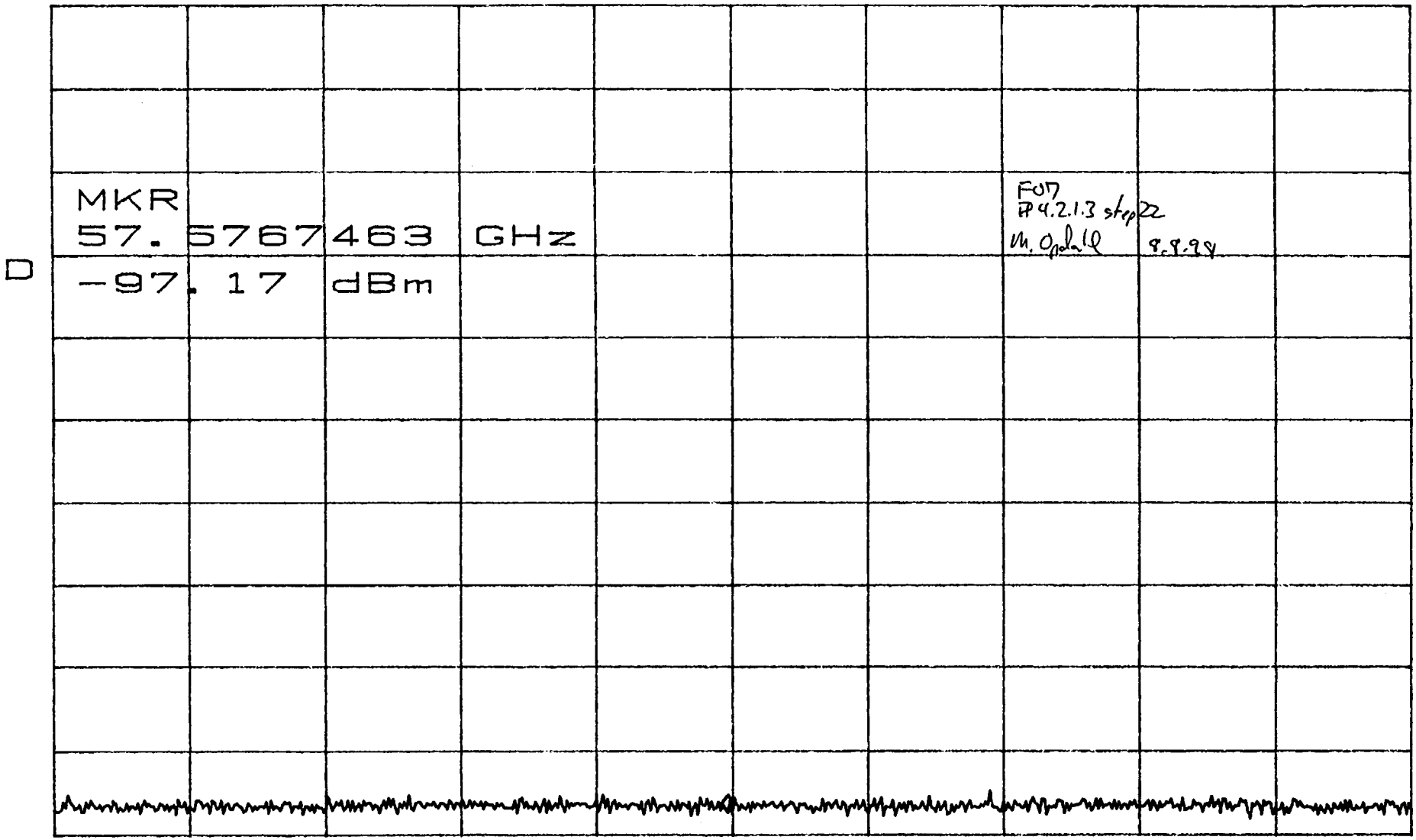
CENTER 57.1470710GHz SPAN 500.0kHz

*RBW 1.0kHz VBW 1.0kHz SWP 1.30sec


CL 30.0dB
VAVG 5
MKR -95.83dBm
RL 0dBm
10dB/
57.4335203GHz
MKR
57.4335203 GHz
-95.83 dBm
D
(FOT)
FP4.2.13 sh 22
M. Gold
8.9.98
CENTER 57.4335220GHz
SPAN 500.0kHz
*RBW 1.0kHz
VBW 1.0kHz
SWP 1.30sec

CL 30.0dB VAVG 7 MKR -97.17dBm

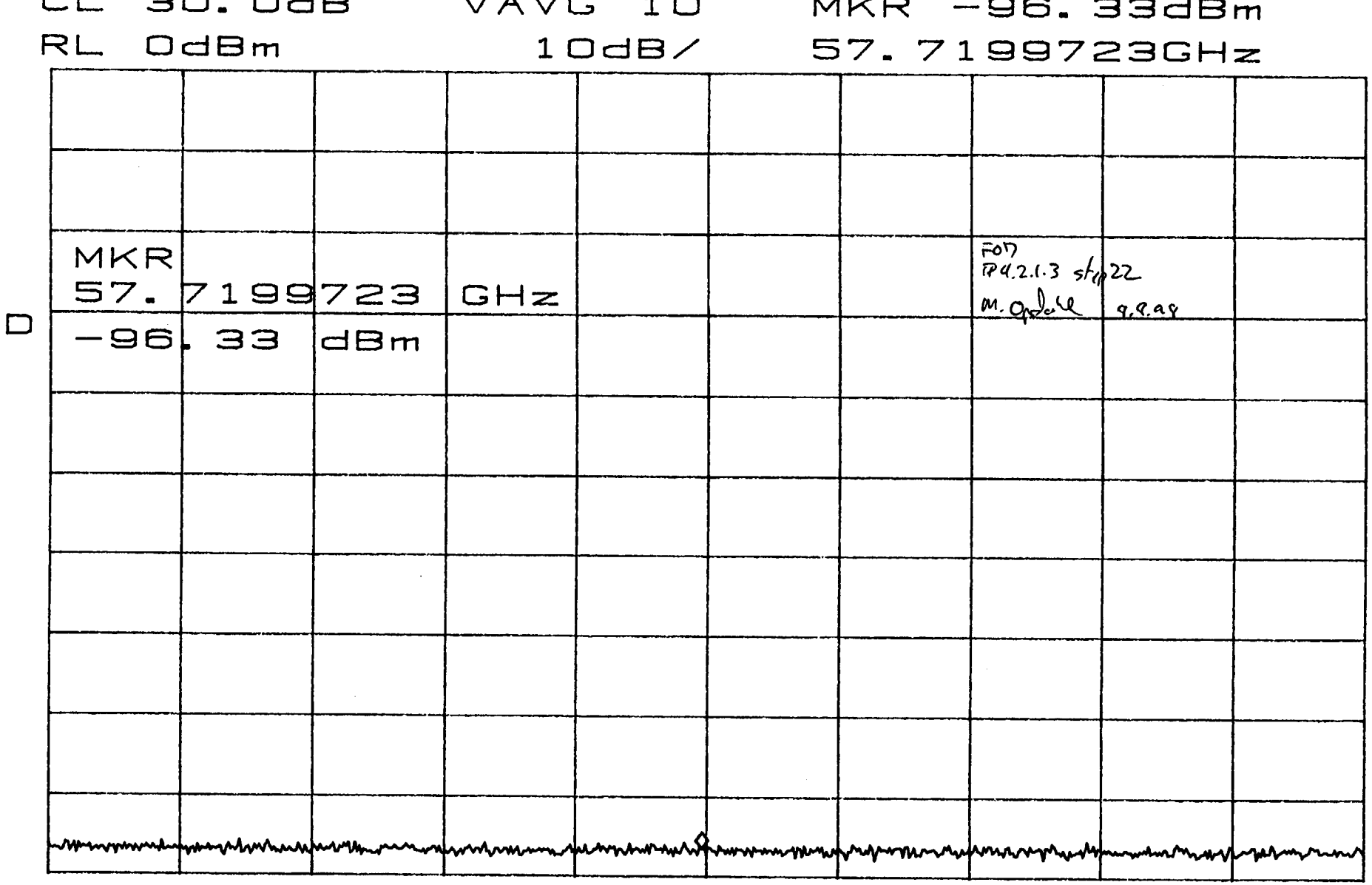
RL 0dBm 10dB/ 57.5767463GHz

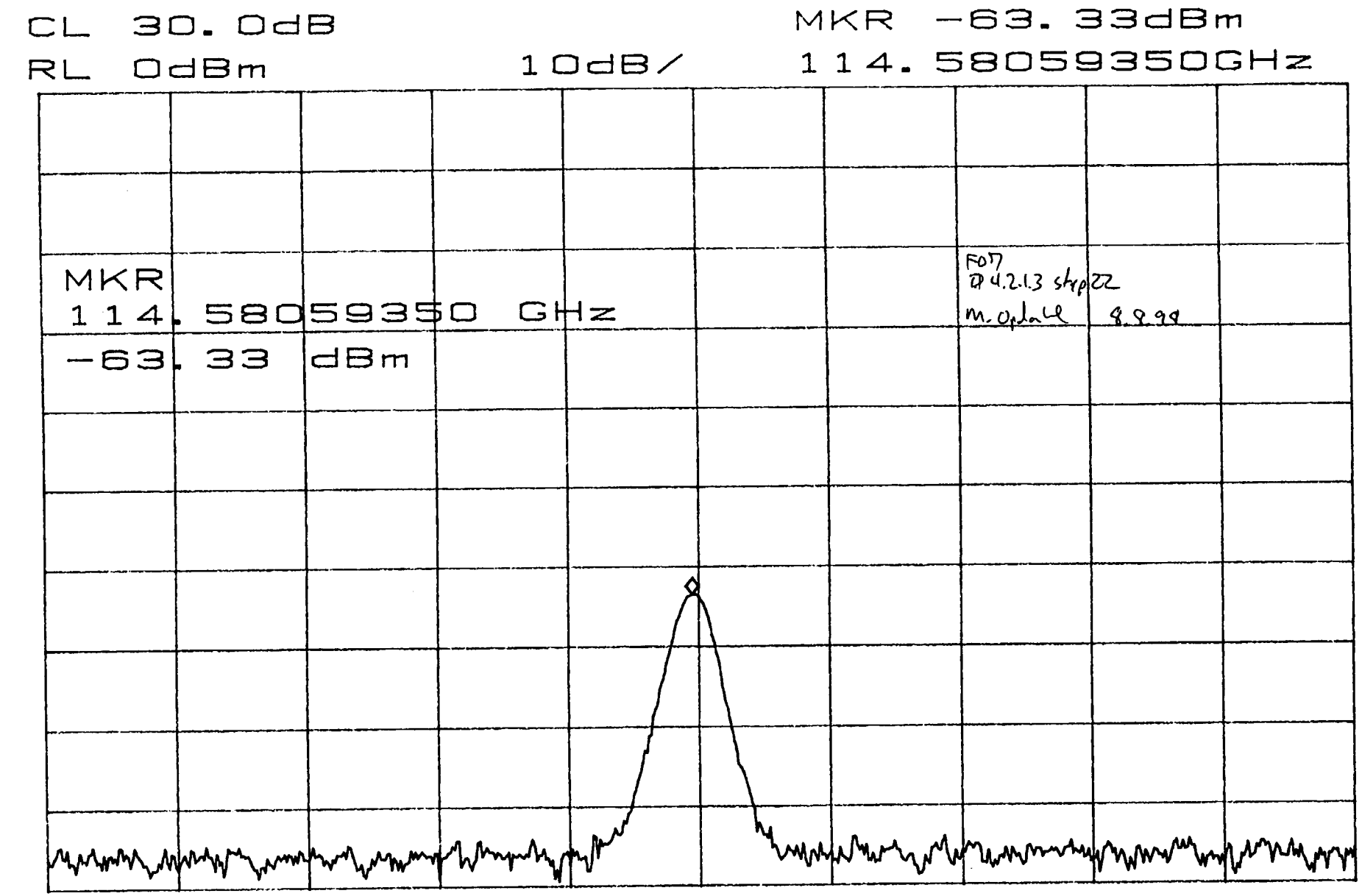


D

CENTER 57.5767480GHz SPAN 500.0kHz

*RBW 1.0kHz VBW 1.0kHz SWP 1.30sec


CL 30.0dB
VAVG 10
MKR -96.33dBm
RL 0dBm
10dB/
57.7199723GHz
MKR
57.7199723 GHz
-96.33 dBm
FOR
TP4.2.1.3 step 22
M. Gadde 9.9.98
D
CENTER 57.7199740GHz
SPAN 500.0kHz
*RBW 1.0kHz
VBW 1.0kHz
SWP 1.30sec


CL 30.0dB
MKR -63.33dBm
RL 0dBm
10dB/
114.58059350GHz
MKR
114.58059350 GHz
-63.33 dBm
FOT
@ 4.2.13 skip22
M. Opland 8.8.99
CENTER 114.58059375GHz
SPAN 50.00kHz
*RBW 1.0kHz
*VBW 1.0kHz
SWP 200ms

Section 1B: Initial Functional Testing - F08

This section contains the results of a full functional test over temperature taken before PLO F08 endured thermal cycling. All tests passed.

TEST DATA SHEET 6A (Sheet 1 of 4)
Functional Testing (Paragraph 4.2.1)

Test Setup Verified: _____ Pre-Environmental CPT
Signature

Paragraph 4.2.1.3, Functional Testing:

Step	Test	Expected	Measured	Pass/Fail
1	Potential Difference from ± 15 V RTN to:			
	PLO Base Plate	< 1.0 Vac	0.1	Pass
	Spectrum Analyzer	< 1.0 Vac	0.1	Pass
	Frequency Counter Chassis	< 1.0 Vac	0.1	Pass
	Power Meter Chassis	< 1.0 Vac	0.1	Pass
4	Evacuate vacuum chamber and record pressure	$<10^{-2}$ torr	N/A	N/A*
5	Thermal couple readings	TC1 = 22 ± 2 °C	TC1 = 22.9 °C	Pass
			TC2 = 23.0 °C	N/A
			TC3 = 22.6 °C	N/A
6	DRO L/A	0 to 1V	DRO L/A = 61 mV	Pass
	PLO L/A	0 to 1V	PLO L/A = 60.9 mV	Pass
	Is PLO locked?	Yes	Yes X No _____	Pass
7	PLO Frequency	57.290344 ± .0002 GHz	Freq. = 57.2903190 GHz	Pass
	PLO Power	17 to 20 dBm	P = 18.7 dBm	
8	Input Voltage and Current			
	VM1 Voltage	+15 ± 0.1 V	VM1 = 15.6 V	Pass
	VM2 Voltage	-15 ± 0.1 V	VM2 = -15.0 V	Pass
	IM1 Current	600 mA max.	IM1 = 542 mA	Pass
	IM2 Current	100 mA max.	IM2 = 65.8 mA	Pass
	DRO L/A Voltage	0 to 1V	DRO L/A = 61 mV	Pass
	PLO L/A Voltage	0 to 1V	PLO L/A = 61 mV	Pass
12	RF Output Power and Frequency	17 to 20 dBm	P = 18.7 dBm	Pass
		57.290344 ± .0002 GHz	Freq. = 57.2903192 GHz	Pass
	Baseplate Temp. (TC1)	TC1 = 22 ±2°C	TC1 = 22.8 °C	Pass
13	Frequency vs. Voltage			
	± 15 V Supplies	+15.2 ± 0.05 V	+Voltage = 15.2 V	Pass
		-15.2 ± 0.05 V	-Voltage = -15.2 V	Pass
		57.290344 ± .0002 GHz	Freq. = 57.2903192 GHz	Pass
		17 to 20 dBm	P = 18.7 dBm	Pass

*Record data only if performing test under vacuum

TEST DATA SHEET 6A (Sheet 2 of 4)
Functional Testing (Paragraph 4.2.1)

Pre-Environmental CPT

Paragraph 4.2.1.3 (Cont):

Step	Test	Expected	Measured	Pass/Fail
14	Frequency vs. Voltage			
	± 15 V Supplies	+14.8 ± 0.05 V	+Voltage = 14.80 V	Pass
		-14.8 ± 0.05 V	-Voltage = -14.80 V	Pass
		57.290344 ± .0002 GHz	Freq. = 57.290342 GHz	Pass
		17 to 20 dBm	P = 19.7 dBm	Pass
15	Spurious and Sub	-200 to -90 dBc	See Plots	Pass
16	Power level of 114.58 GHz signal	<-10 dBm	-65 dBm	Pass
17	Load VSWR and Frequency Pulling			
	2:1 mismatch over 1λ	N/A	Worst Case Freq = 5Hz	N/A
	2:1 mismatch over 1λ	N/A	Worst Case Power = 1 dB Peak	N/A
18	Operating Temperature @ 1°C baseplate	TC1 = 1 ±2°C	TC1 = 1.6	Pass
			TC2 = 1.6	N/A
			TC3 = 1.3	N/A
		0 - 1V	DRO L/A = 46 mV	Pass
		0 - 1V	PLO L/A = 46 mV	Pass
19	Input Voltage and Current			
	VM1 Voltage	+15 ± 0.1 V	VM1 = 15.0 V	Pass
	VM2 Voltage	-15 ± 0.1 V	VM2 = -15.0 V	Pass
	IM1 Current	600 mA max.	IM1 = 526 mA	Pass
	IM2 Current	100 mA max.	IM2 = 64 mA	Pass
	DRO L/A Voltage	0 to 1V	DRO L/A = 46 mV	Pass
	PLO L/A Voltage	0 to 1V	PLO L/A = 46mV	Pass
	RF Output Power	17 to 20 dBm	Power = 19.4 dBm	Pass
	Frequency	57.290344 ± .0002 GHz	Freq. = 57.2903090 GHz	Pass
	Frequency vs. Voltage			
	± 15 V Supplies	+15.2 ± 0.05 V	+Voltage = 15.20 V	Pass
		-15.2 ± 0.05 V	-Voltage = -15.20 V	Pass
		57.290344 ± .0002 GHz	Freq. = 57.290309 GHz	Pass
		17 to 20 dBm	Power = 19.4 dBm	Pass
	Frequency vs. Voltage			
	± 15 V Supplies	+14.8 ± 0.05 V	+Voltage = 14.80 V	Pass
		-14.8 ± 0.05 V	-Voltage = -14.80 V	Pass
		57.290344 ± .0002 GHz	Freq. = 57.2903091 GHz	Pass
		17 to 20 dBm	Power = 17.4 dBm	Pass

TEST DATA SHEET 6A (Sheet 3 of 4)
Functional Testing (Paragraph 4.2.1)

Pre-Environmental CPT

Paragraph 4.2.1.3 (Cont):

Step	Test	Expected	Measured	Pass/Fail
19 (Cont)	Spurious and Sub	-200 to -90 dBc	See Plots	Pass
	Power level of 114.58 GHz signal	<-10 dBm	-64 dBm	Pass
	Load VSWR and Frequency Pulling			
	2:1 mismatch over 1λ	N/A	Worst Case Freq = 5 Hz	N/A
	2:1 mismatch over 1λ	N/A	Worst Case Power = 1 dB Peak	N/A
21	Operating Temperature @ +44°C Baseplate	TC1 = 44 ±2°C	TC1 = 45.1	Pass
			TC2 = 45.1	N/A
			TC3 = 44.7	N/A
		0 - 1V	DRO L/A = 111 mV	Pass
		0 - 1V	PLO L/A = 110 mV	Pass
22	Input Voltage and Current			
	VM1 Voltage	+15 ± 0.1 V	VM1 = 15.0 V	Pass
	VM2 Voltage	-15 ± 0.1 V	VM2 = -15.0 V	Pass
	IM1 Current	600 mA max.	IM1 = 557 mA	Pass
	IM2 Current	100 mA max.	IM2 = 67 mA	Pass
	DRO L/A Voltage	0 to 1V	DRO L/A = 111 mV	Pass
	PLO L/A Voltage	0 to 1V	PLO L/A = 110 mV	Pass
	RF Output Power and	17 to 20 dBm	Power = 18.2 dBm	Pass
	Frequency	57.290344 ± .0002 GHz	Freq. = 57.290359 GHz	Pass
	Frequency vs. Voltage			
	± 15 V Supplies	+15.2 ± 0.05 V	+Voltage = 15.20 V	Pass
		-15.2 ± 0.05 V	-Voltage = -15.20 V	Pass
		57.290344 ± .0002 GHz	Freq. = 57.290359 GHz	Pass
		17 to 20 dBm	Power = 18.2 dBm	Pass
	Frequency vs. Voltage			
	± 15 V Supplies	+14.8 ± 0.05 V	+Voltage = +14.81 V	Pass
		-14.8 ± 0.05 V	-Voltage = -14.80 V	Pass
		57.290344 ± .0002 GHz	Freq. = 57.290359 GHz	Pass
		17 to 20 dBm	Power = 18.2 dBm	Pass

TEST DATA SHEET 6A (Sheet 4 of 4)
Functional Testing (Paragraph 4.2.1)

Pre-Environmental CPT

Paragraph 4.2.1.3 (Cont):

Step	Test	Expected	Measured	Pass/Fail
22 (Cont)	Spurious and Sub	-200 to -90 dBc	See Plots	Pass
	Power level of 114.58 GHz signal	<-10 dBm	-64 dBm	Pass
	Load VSWR and Frequency Pulling			
	2:1 mismatch over 1λ	N/A	Worst Case Freq = 5	N/A
	2:1 mismatch over 1λ	N/A	Worst Case Power = 1 dB Peak	N/A

Shop Order No.: 534922

Operation: 0110

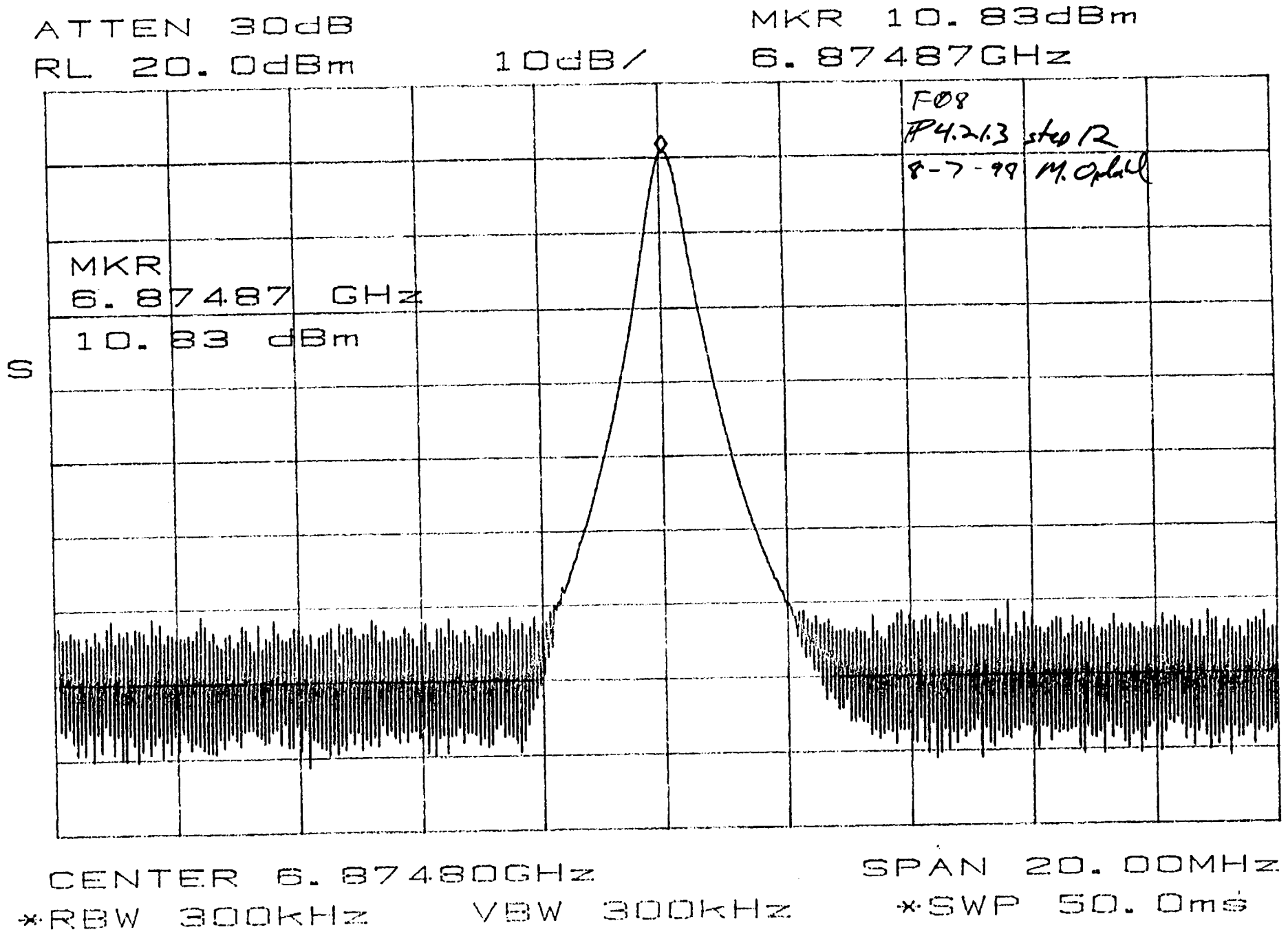
Unit Serial No.: F08

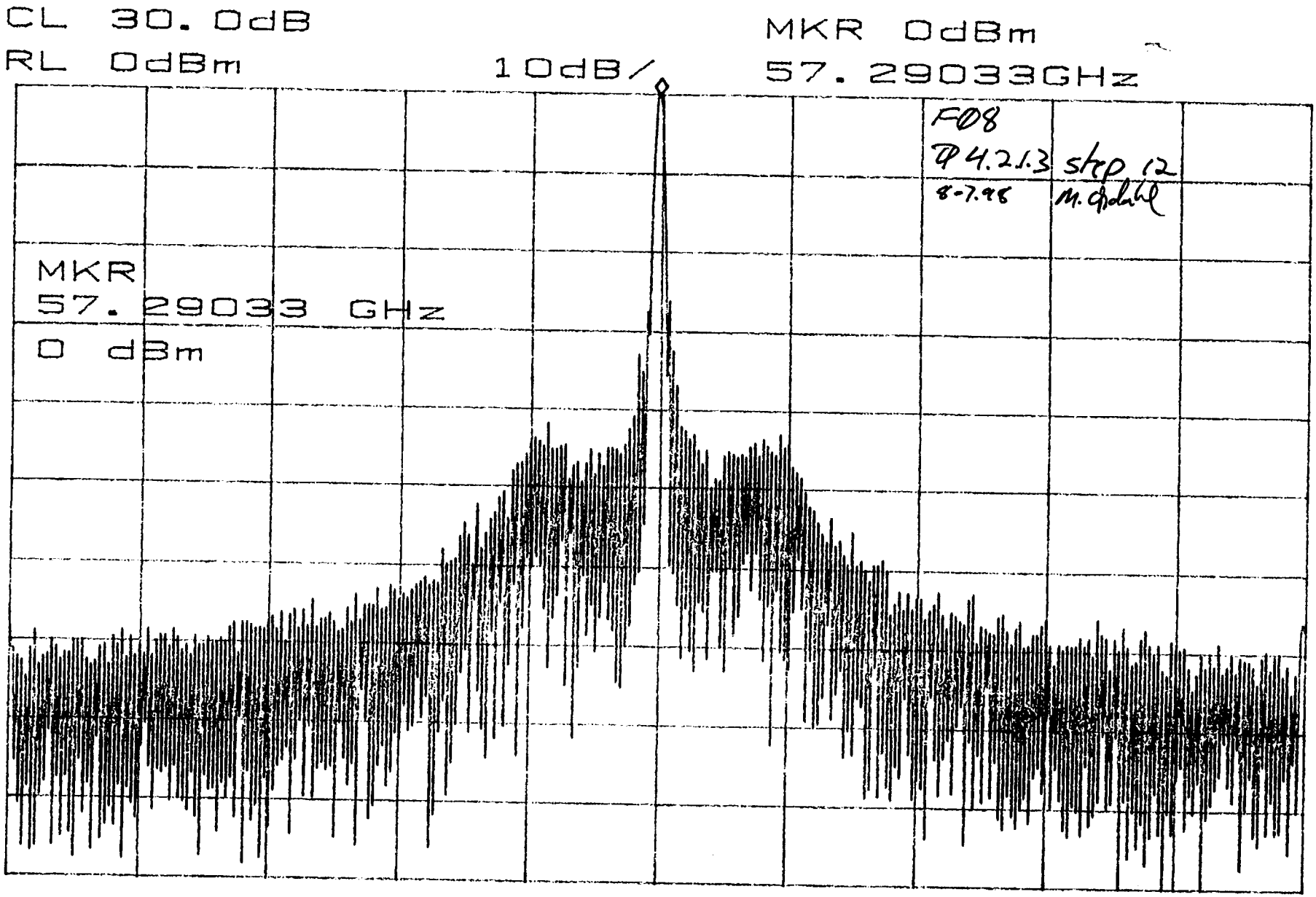
Date: 8-7-98

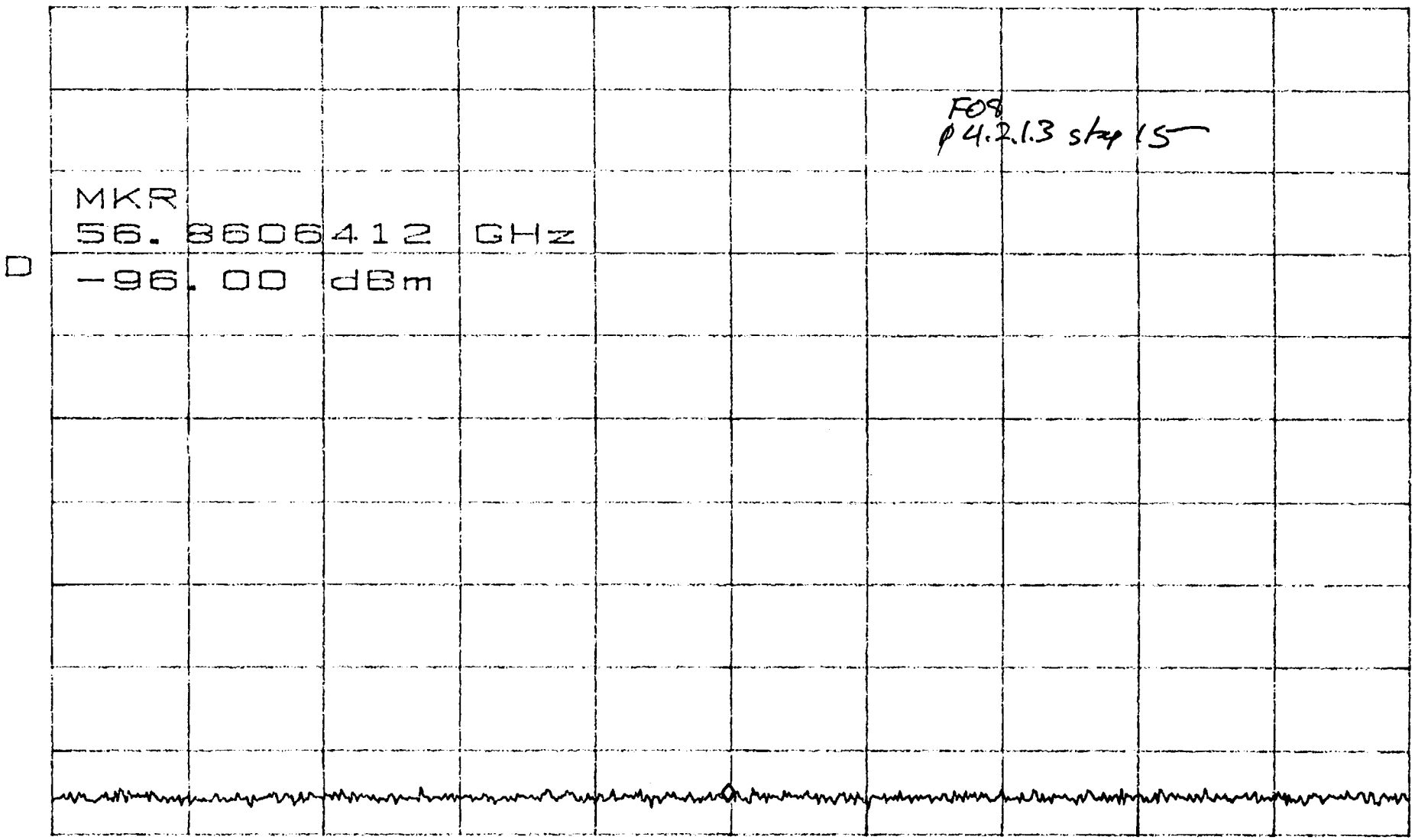
Test Engineer: [signature]

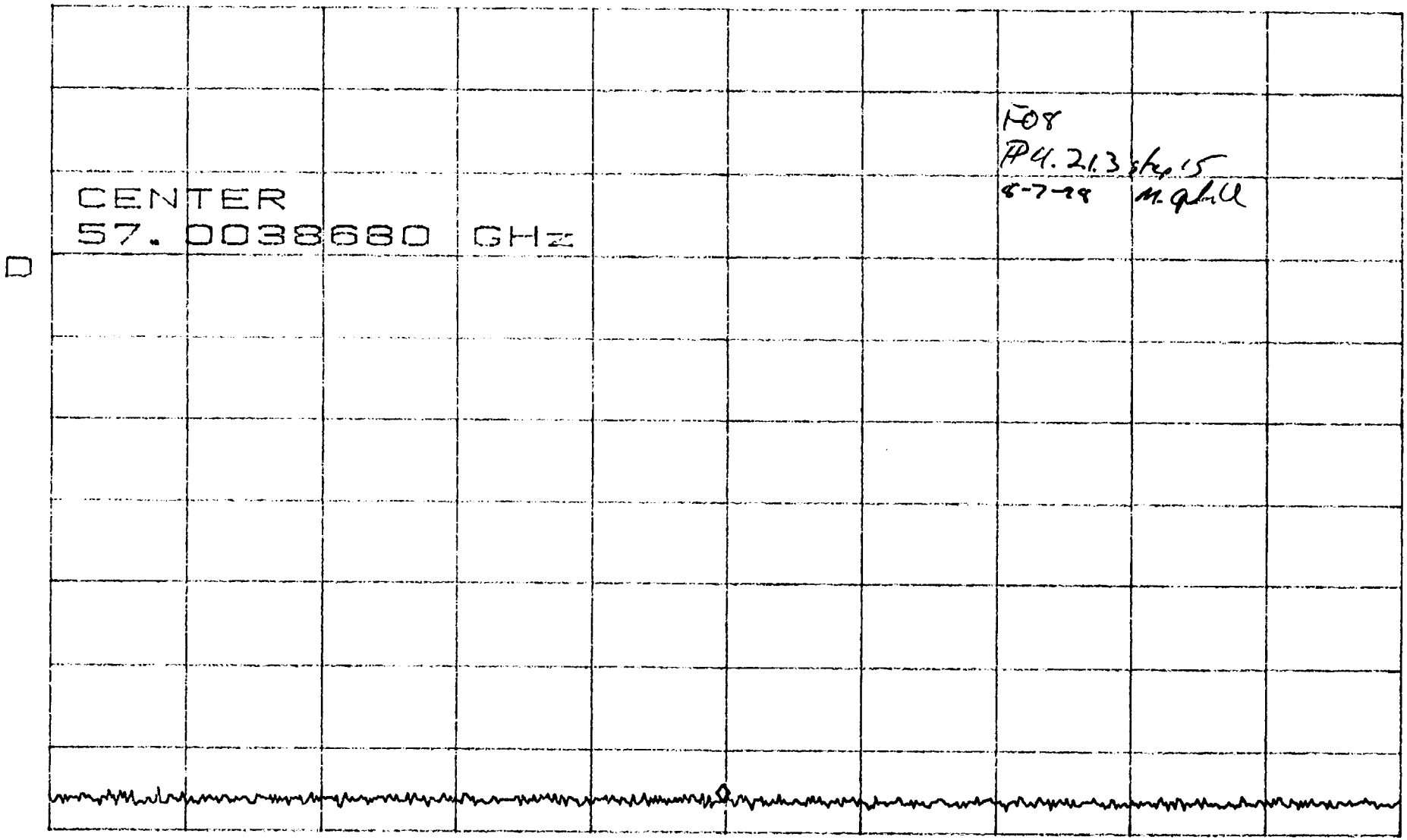
Quality Control: [signature]

Govt. Rep.: [signature] 8/12/98

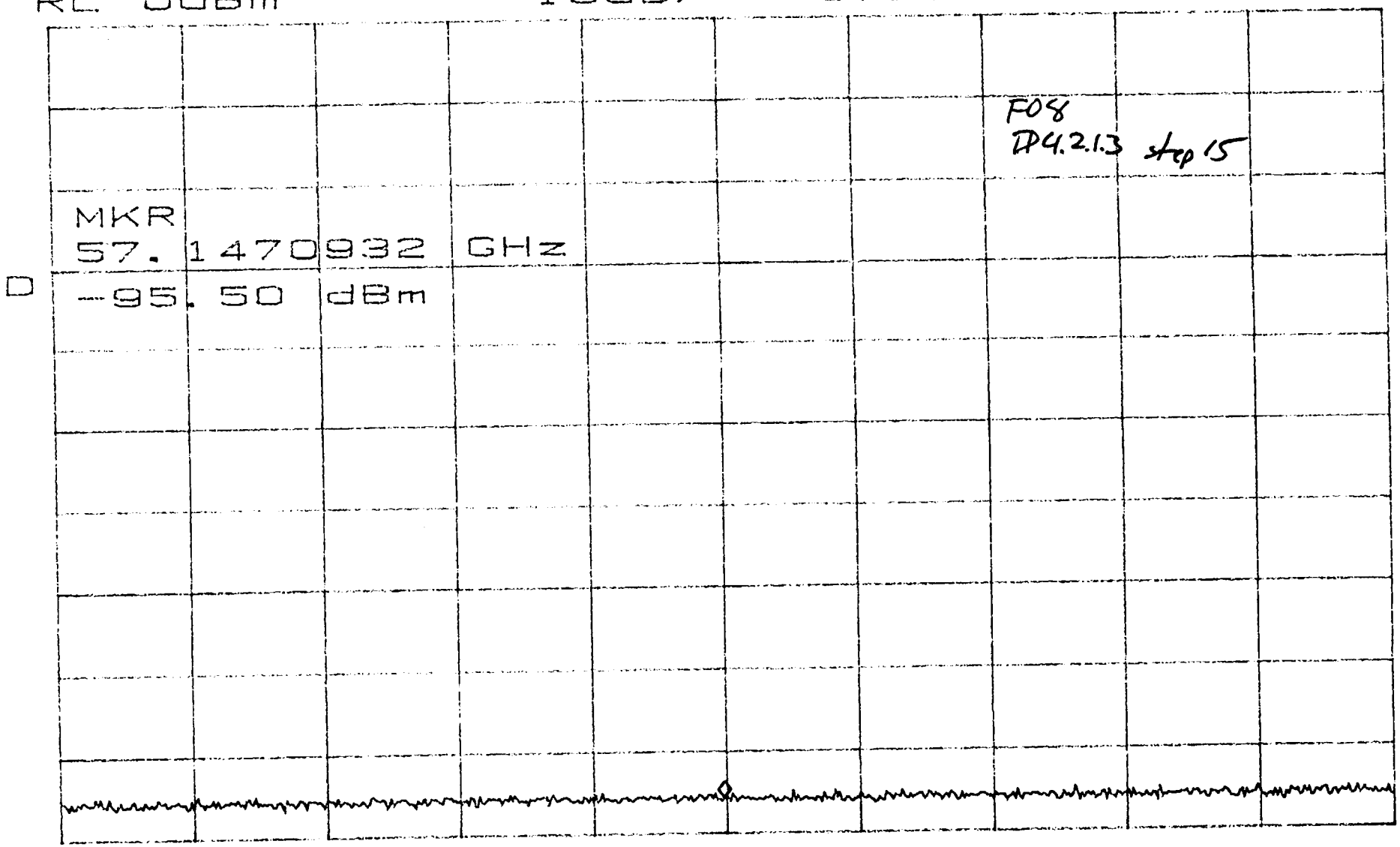

ATTEN 30dB
RL 20.0dBm
10dB/
MKR 10.83dBm
6.87487GHz
F08
FP4.2.13 step 12
8-7-99 M. Oplatt
MKR
6.87487 GHz
10.83 dBm
S
CENTER 6.87480GHz
SPAN 20.00MHz
*RBW 300kHz
VBW 300kHz
*SWP 50.0ms


CL 30.0dB
RL 0dBm
10dB/
MKR 0dBm
57.29033GHz
F08
@ 4.2.1.3 step 12
8-7-98
MKR
57.29033 GHz
0 dBm
CENTER 57.29034GHz
SPAN 10.00MHz
*RBW 30kHz
*VBW 300kHz
SWP 50.0ms


CL 30.0dB
VAVG 17
MKR -96.00dBm
RL 0dBm
10dB/
56.8606412GHz
FOR
§ 4.2.1.3 step 15
MKR
56.8606412 GHz
-96.00 dBm
D
CENTER 56.8606420GHz
SPAN 500.0kHz
*RBW 1.0kHz
VBW 1.0kHz
SWP 1.30sec

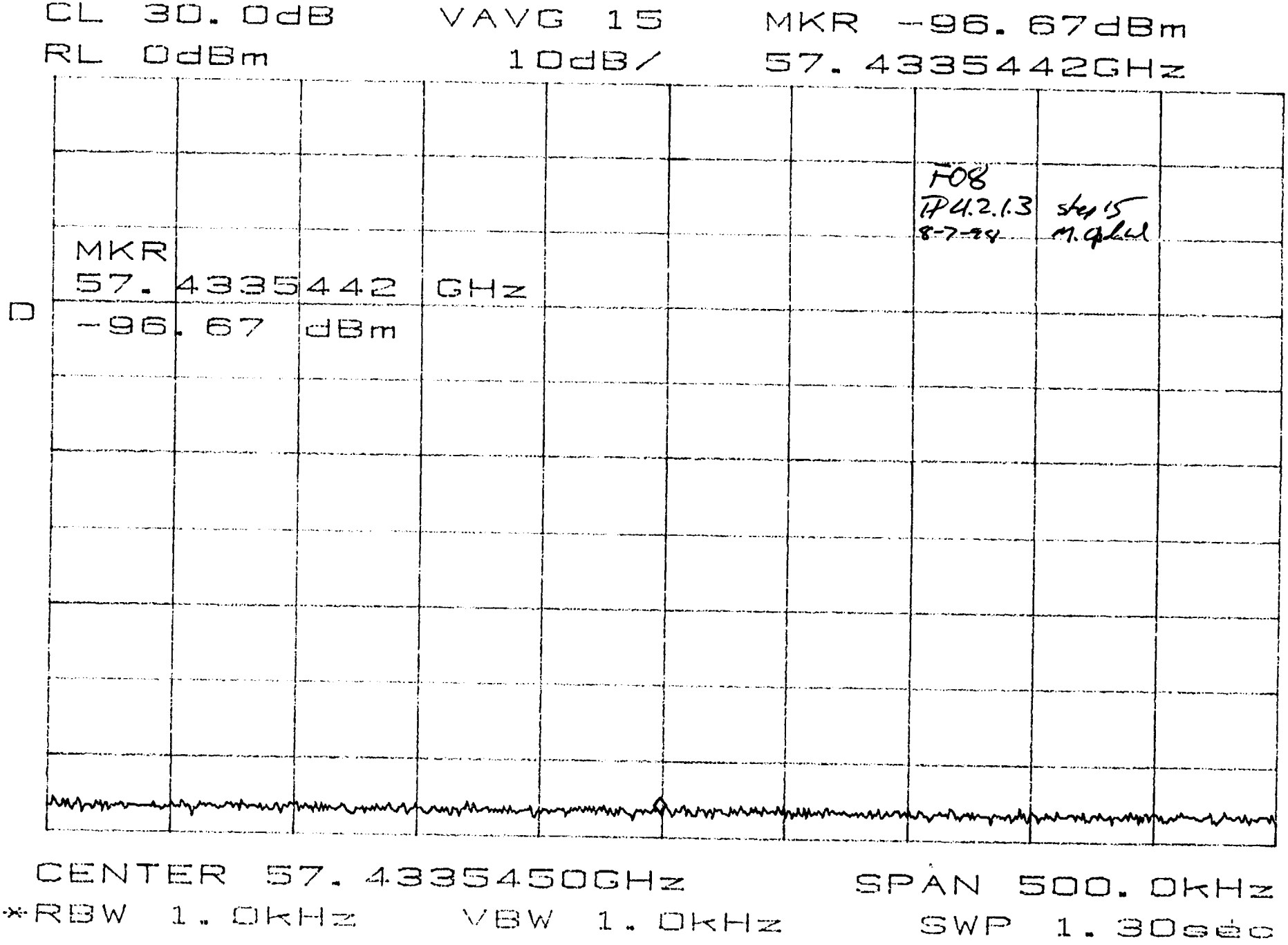

CL 30.0dB
VAVG 16
MKR -96.17dBm
RL 0dBm
10dB/
57.0038672GHz
CENTER
57.0038680 GHz
D
CENTER 57.0038680GHz
SPAN 500.0kHz
*RBW 1.0kHz
VBW 1.0kHz
SWP 1.30sec

CL 30.0dB VAVG 19 MKR -95.50dBm
RL 0dBm 10dB/ 57.1470932GHz

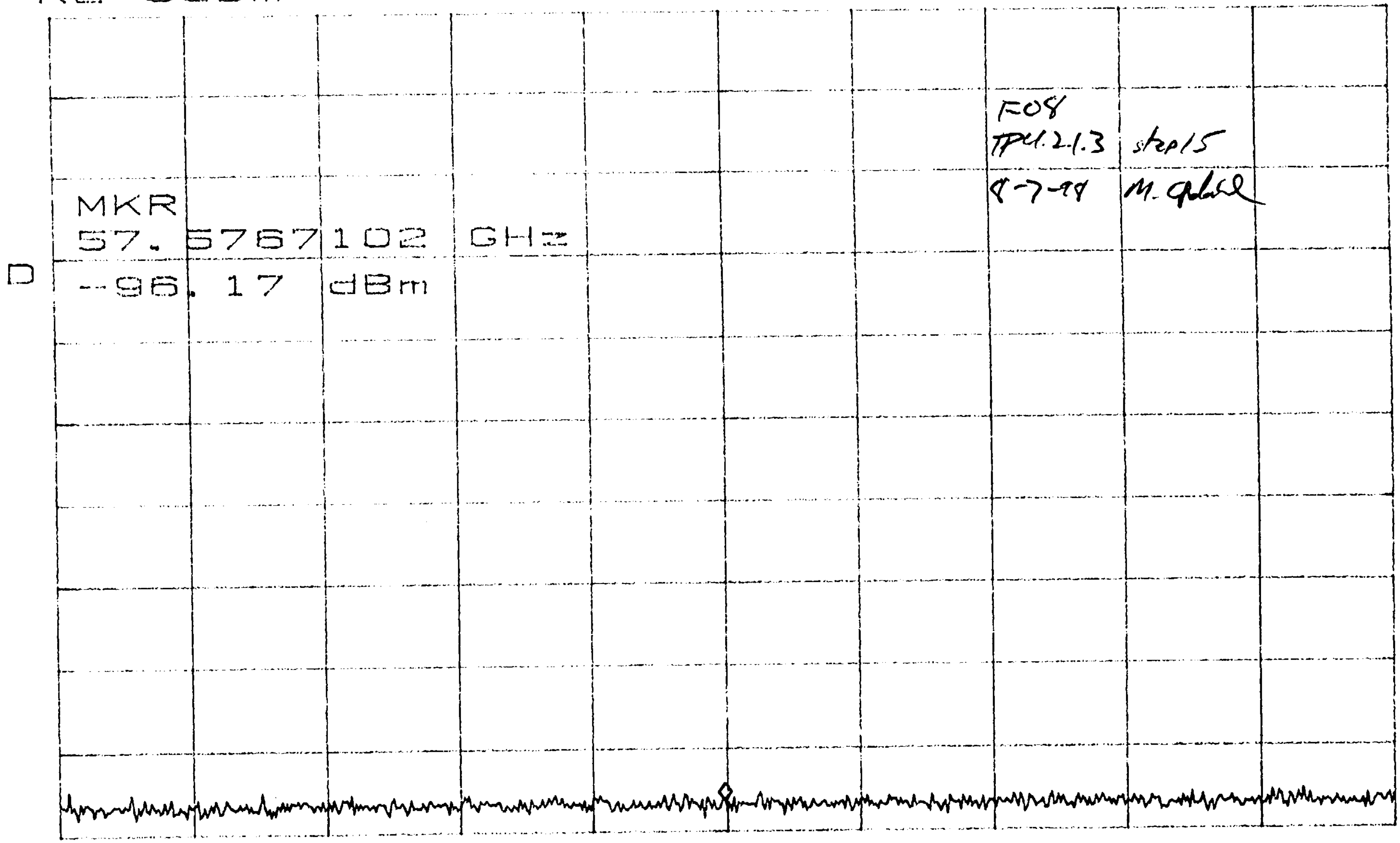


D

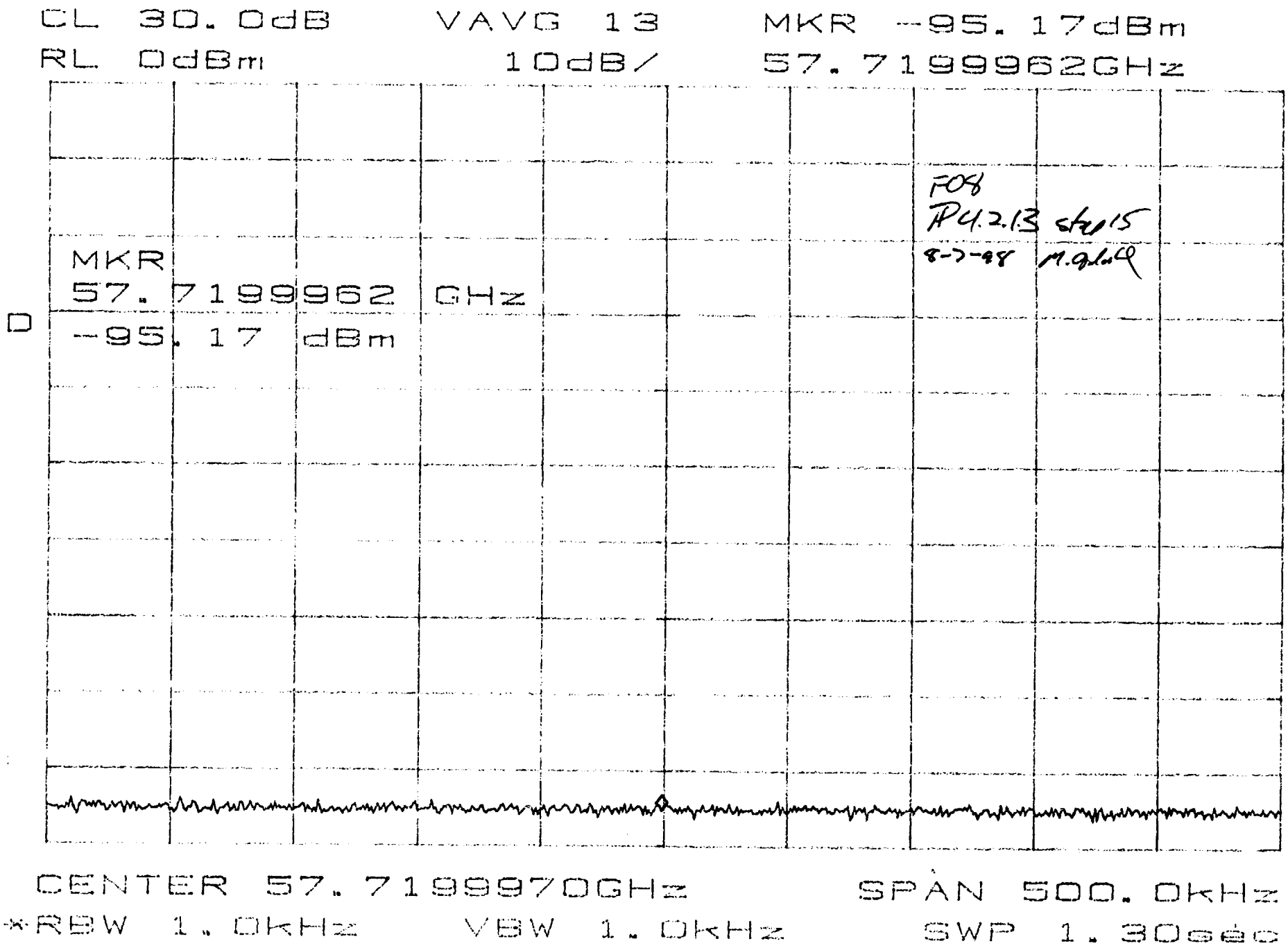
CENTER 57.1470940GHz SPAN 500.0kHz
*RBW 1.0kHz VBW 1.0kHz SWP 1.30sec

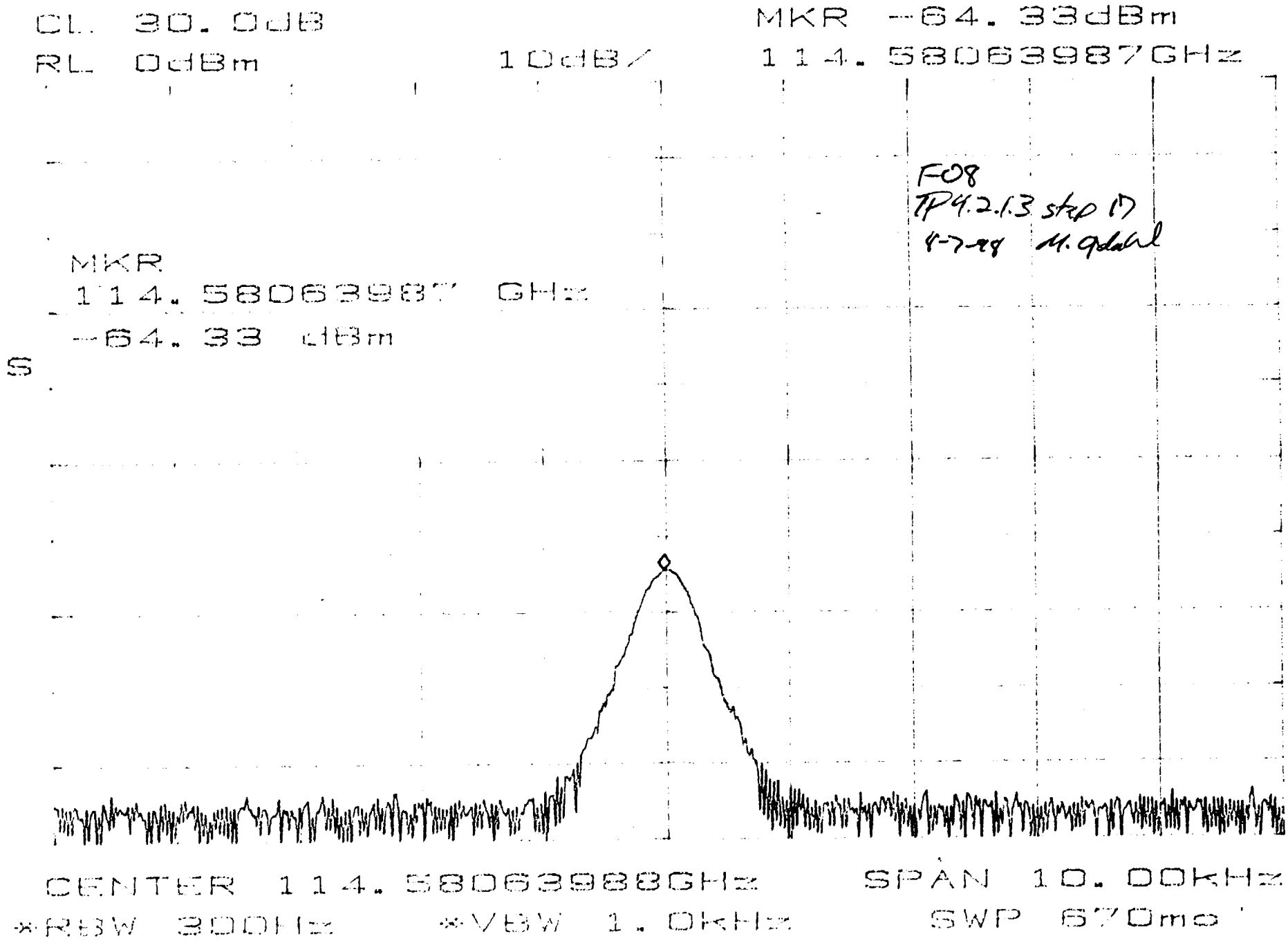

CL 30.0dB
VAVG 15
MKR -96.67dBm
RL 0dBm
10dB/
57.4335442GHz
FOR
TP4.2.1.3 step 15
8-7-98 M.Qadir
MKR
57.4335442 GHz
-96.67 dBm
D
CENTER 57.4335450GHz
SPAN 500.0kHz
*RBW 1.0kHz
VBW 1.0kHz
SWP 1.30sec

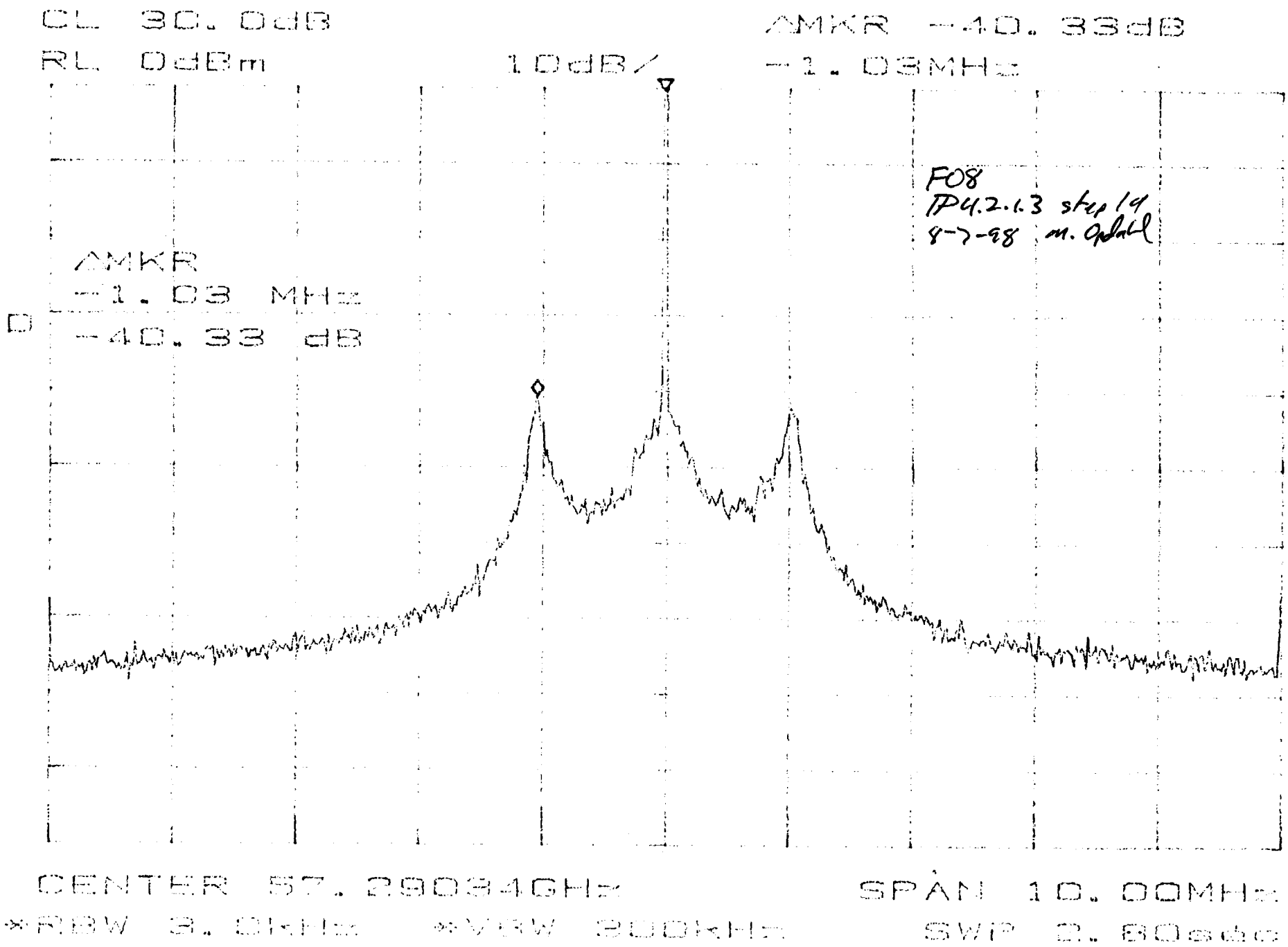
CL 30.0dB VAVG 7 MKR -96.17dBm
RL 0dBm 10dB/ 57.5767102GHz

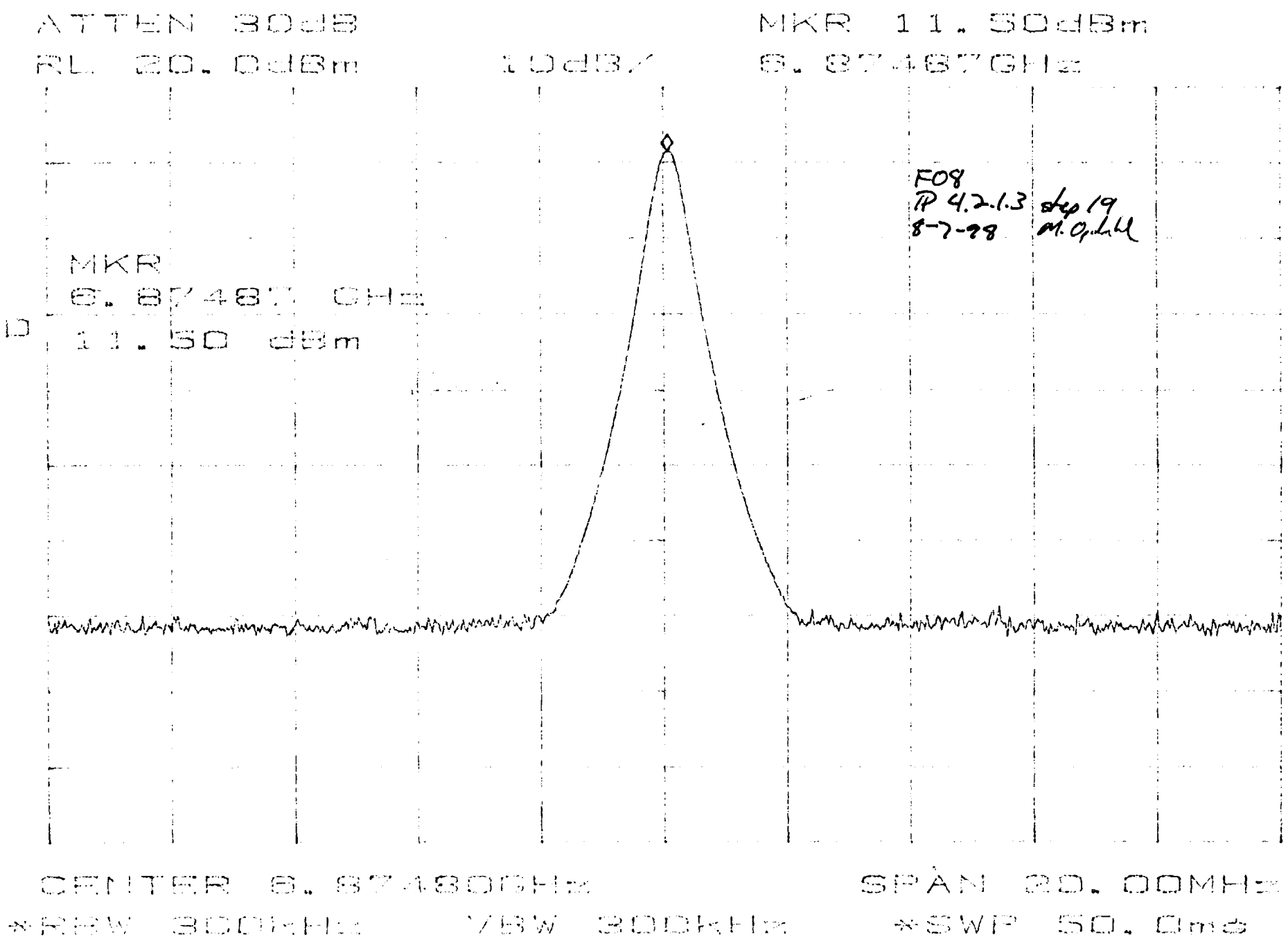


CENTER 57.576710GHz SPAN 500.0kHz
*RBW 1.0kHz VBW 1.0kHz SWP 1.30sec


CL 30.0dB
VAVG 13
MKR -95.17dBm
RL 0dBm
10dB/
57.7199962GHz
FCC
Pt 15.247
8-7-98 M.Slot
MKR
57.7199962 GHz
-95.17 dBm
D
CENTER 57.7199970GHz
SPAN 500.0kHz
*RBW 1.0kHz
VBW 1.0kHz
SWP 1.30sec

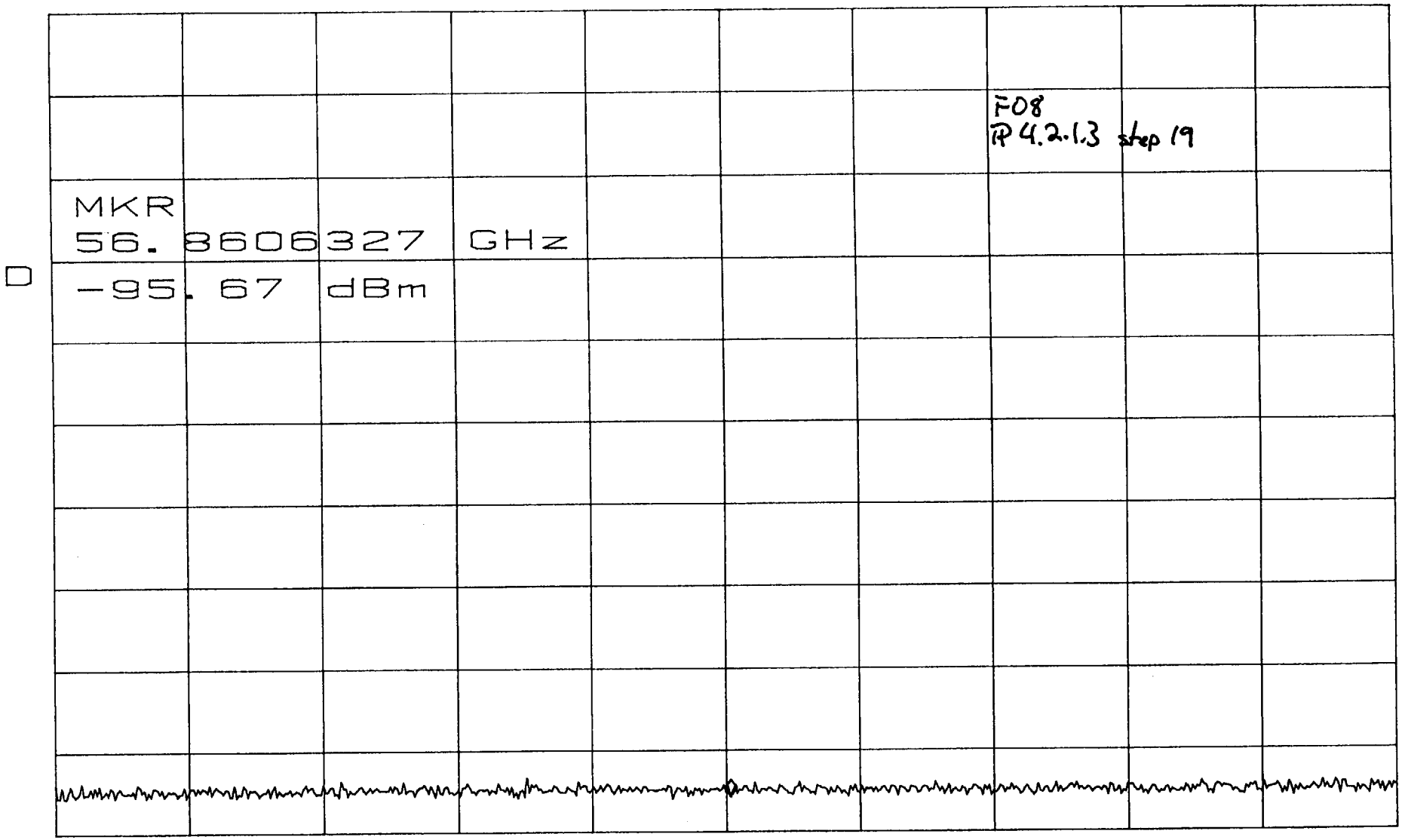

CL 30.0dB
RL 0dBm
10dB/
MKR -64.33dBm
114.580639870GHz
F08
TP4.2.1.3 step 17
8-7-98 M. Qdahl
MKR
114.580639870 GHz
-64.33 dBm
S
CENTER 114.580639880GHz
SPAN 10.00kHz
*RBW 300Hz
*VBW 1.0kHz
SWP 67.0ms


CL 30.0dB
RL 0dBm
10dB/
ΔMKR -40.33dB
-1.03MHz
F08
IP4.2.1.3 step 14
8-7-98 M. Oddall
ΔMKR
-1.03 MHz
-40.33 dB
CENTER 57.29034GHz
SPAN 10.00MHz
*RBW 3.0kHz
*VBW 300kHz
SWP 2.80sec


ATTEN 30dB
RL 20.0dBm
10dB/
MKR 11.50dBm
6.87487GHz
MKR
6.87481 GHz
11.50 dBm
F08
P 4.2.1.3
8-7-98
CENTER 6.87480GHz
SPAN 20.00MHz
*RBW 300kHz
VBW 300kHz
*SWP 50.0ms

CL 30.0dB VAVG 10 MKR −95.67dBm

RL 0dBm 10dB/ 56.8606327GHz



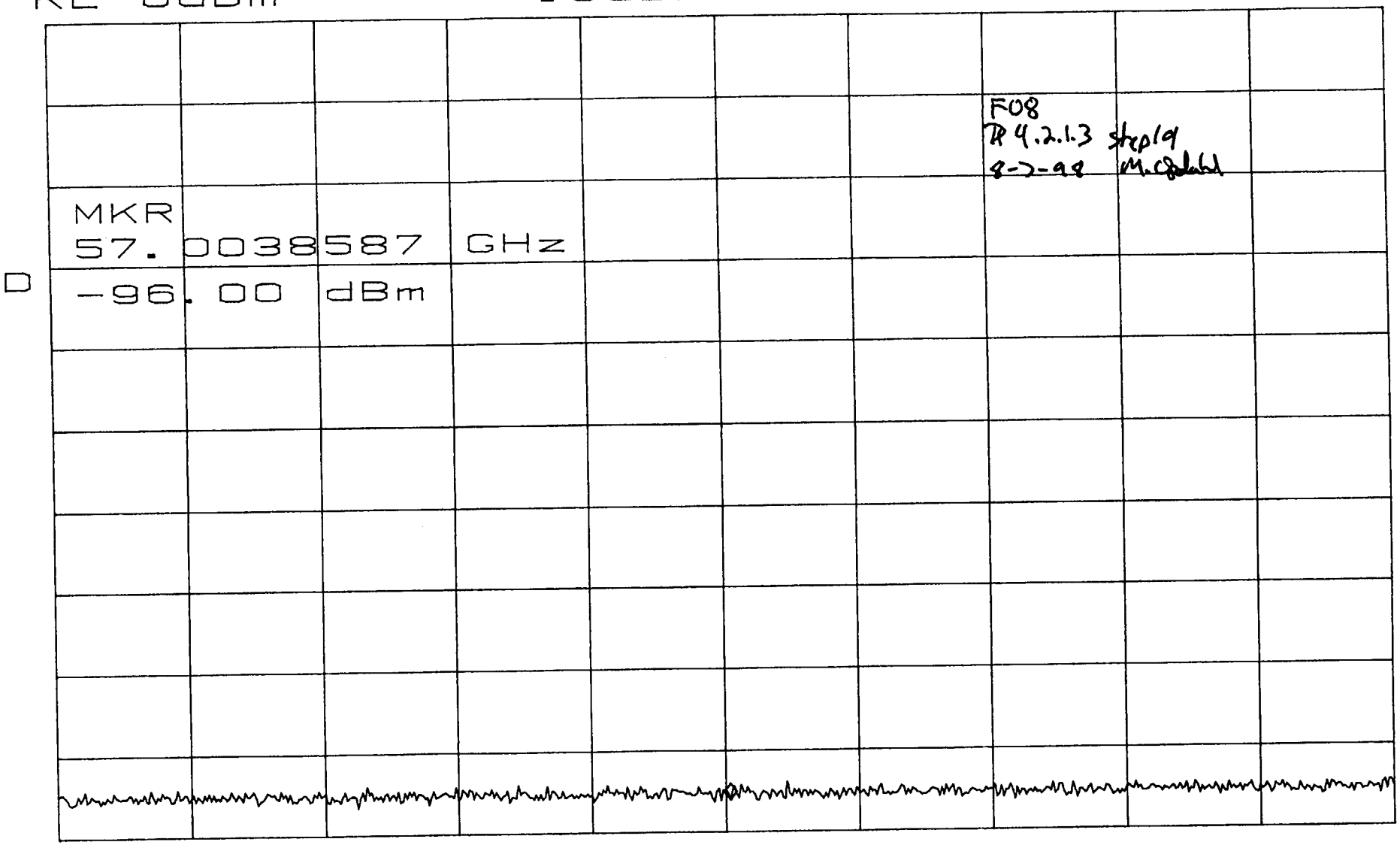
D

CENTER 56.8606310GHz SPAN 500.0kHz

*RBW 1.0kHz VBW 1.0kHz SWP 1.30sec

CL 30.0dB VAVG 8 MKR -96.00dBm

RL 0dBm 10dB/ 57.0038587GHz

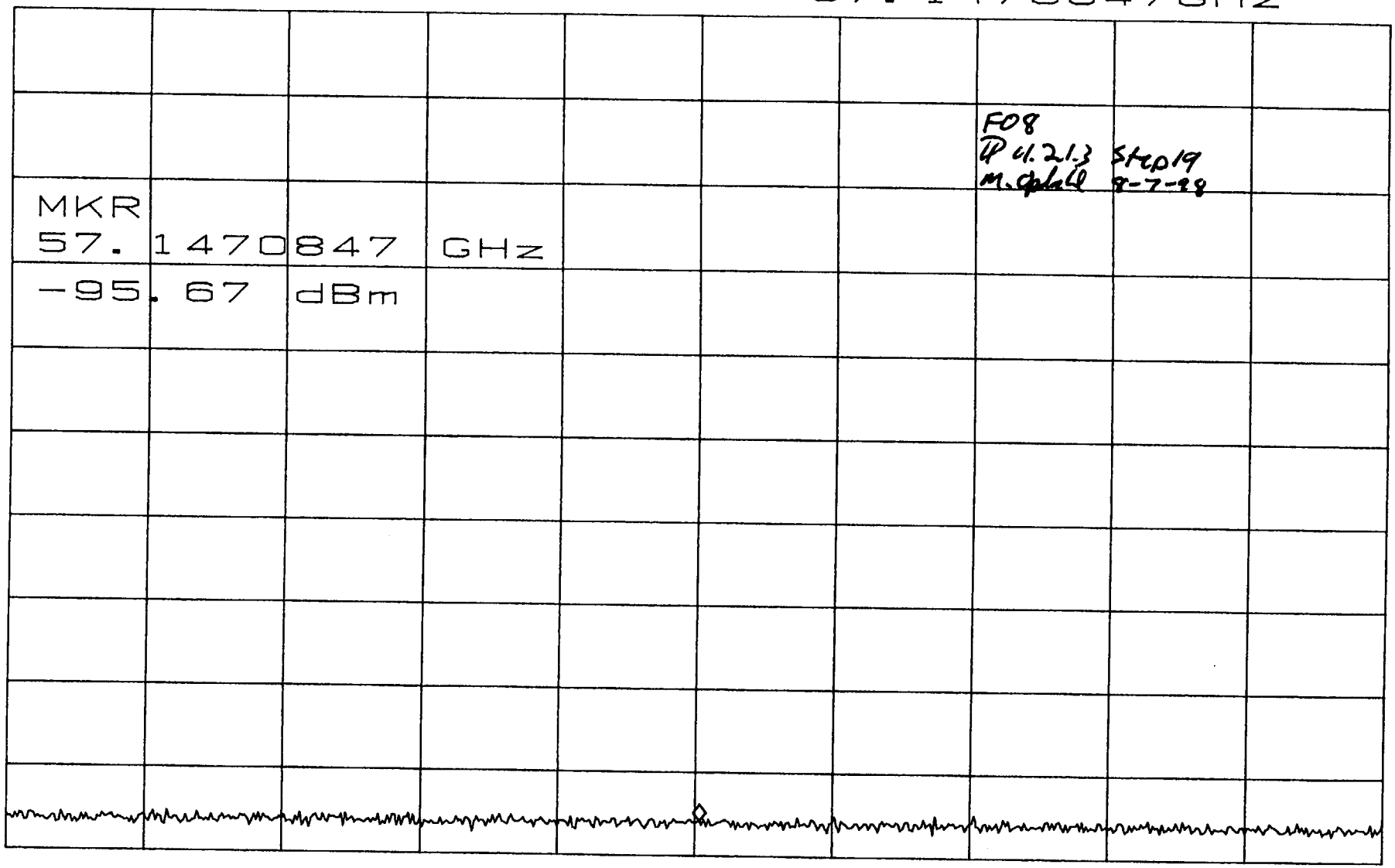


CENTER 57.0038570GHz SPAN 500.0kHz

*RBW 1.0kHz VBW 1.0kHz SWP 1.30sec

CL 30.0dB VAVG 10 MKR -95.67dBm

RL 0dBm 10dB/ 57.1470847GHz

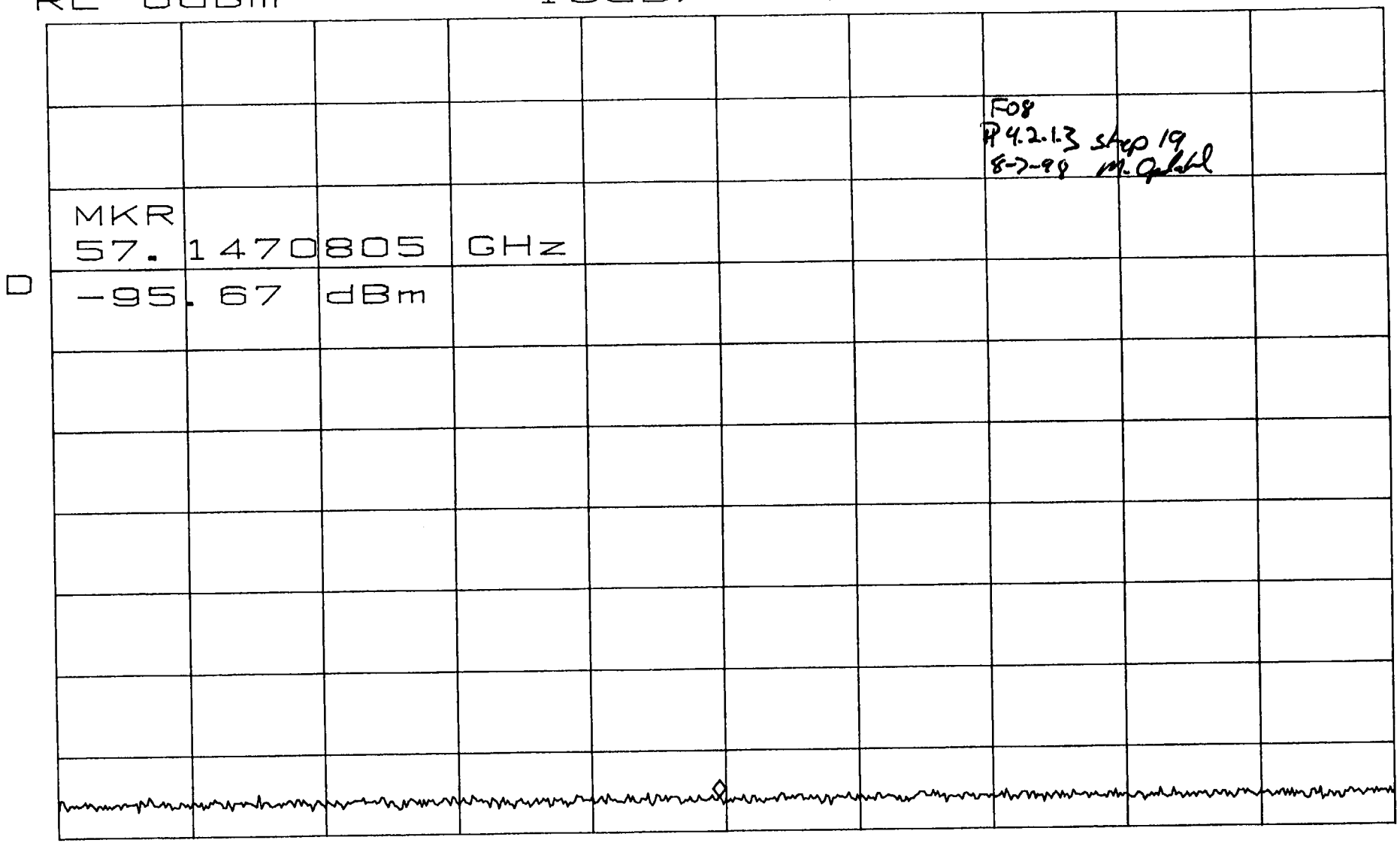


CENTER 57.1470830GHz SPAN 500.0kHz

*RBW 1.0kHz VBW 1.0kHz SWP 1.30sec

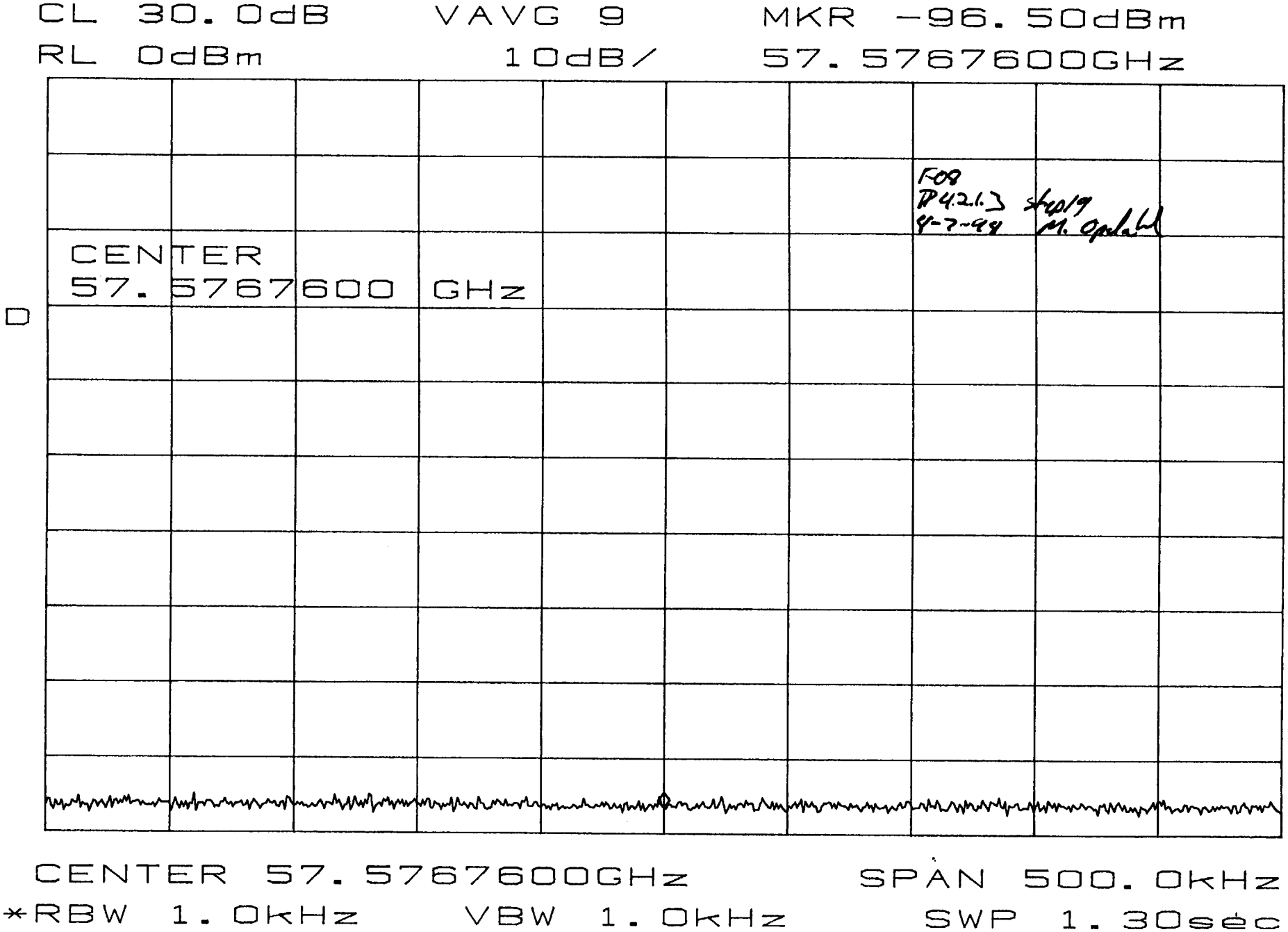
CL 30.0dB VAVG 40 MKR -95.67dBm

RL 0dBm 10dB/ 57.1470805GHz

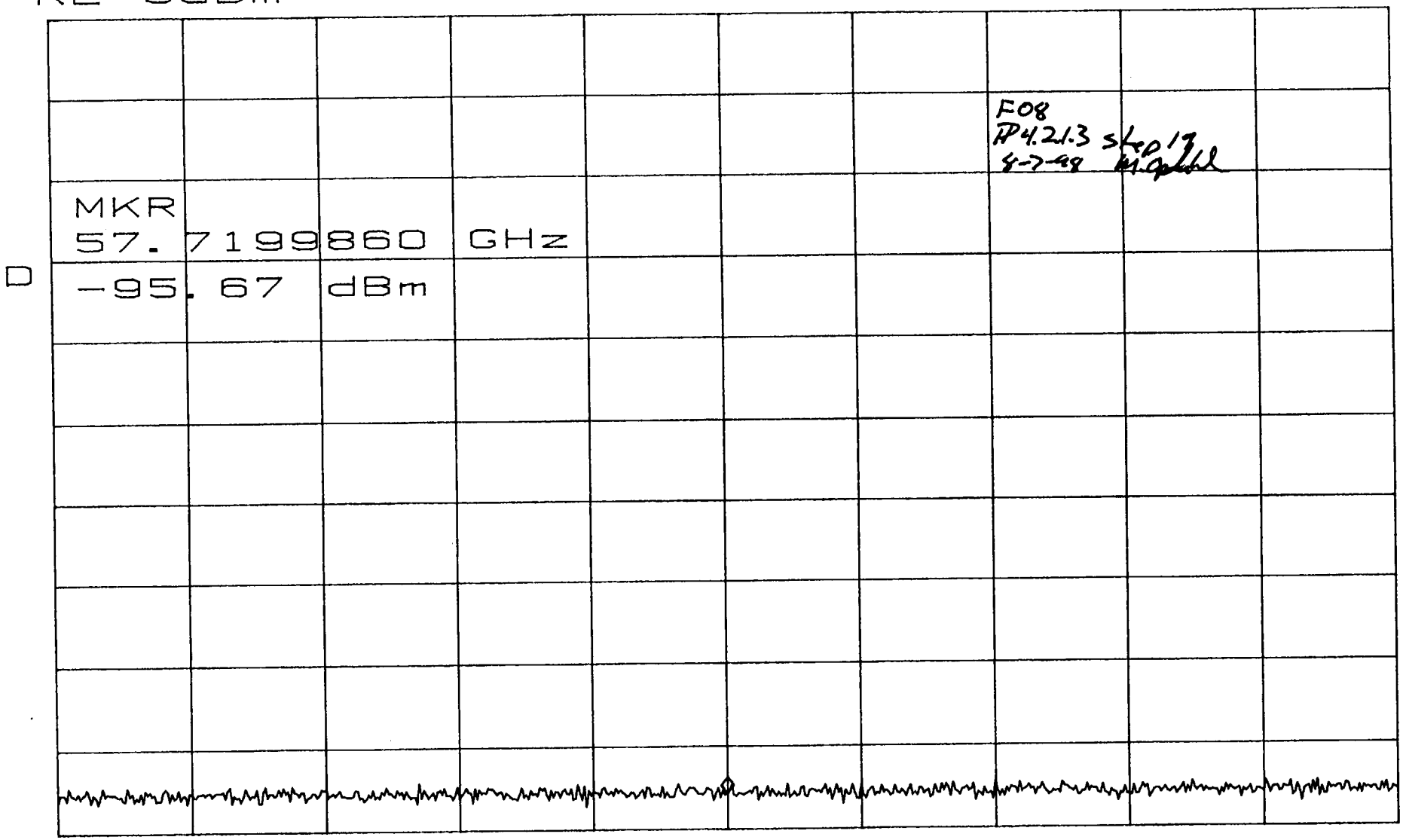


CENTER 57.1470830GHz SPAN 500.0kHz

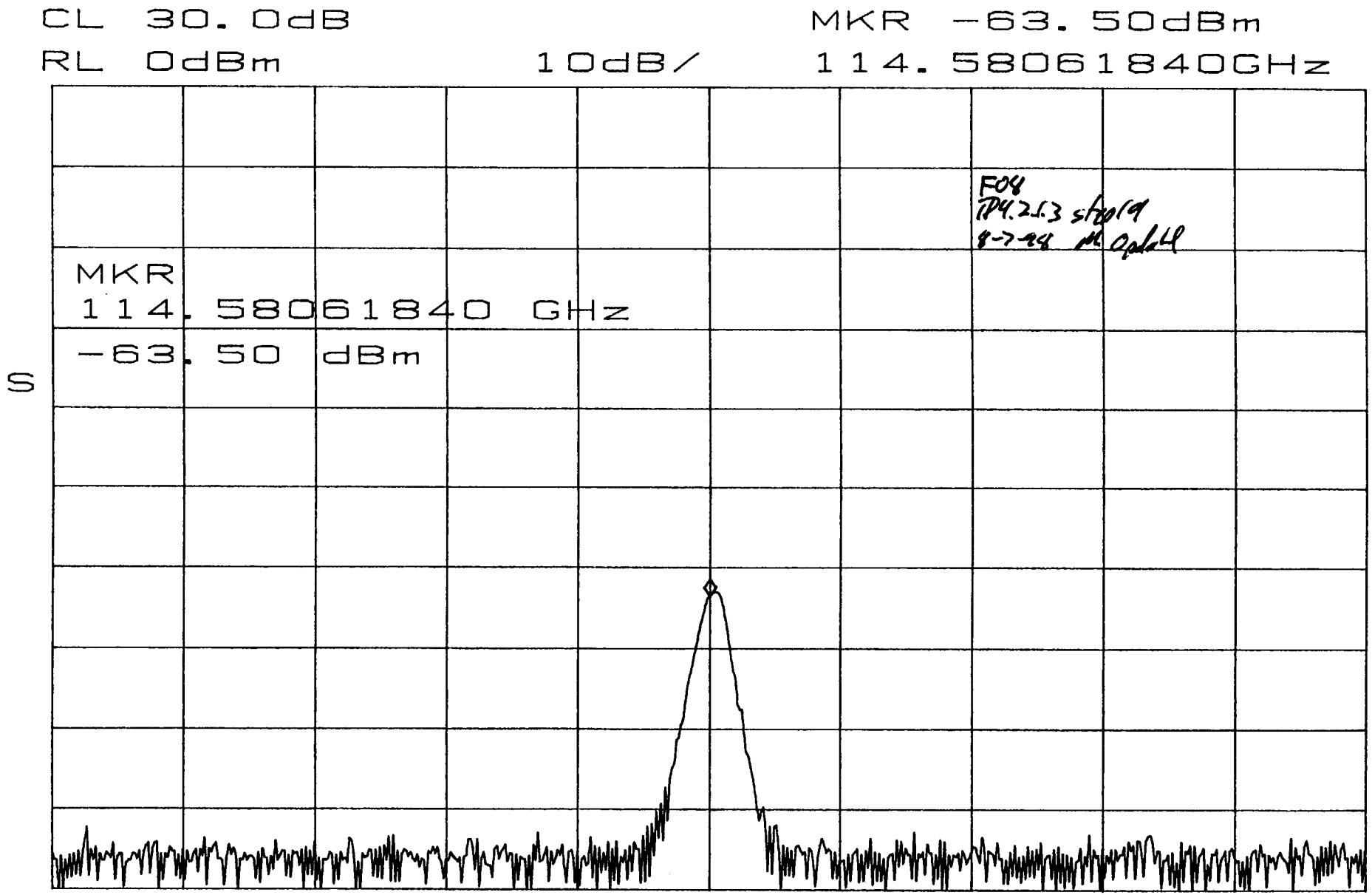
*RBW 1.0kHz VBW 1.0kHz SWP 1.30sec

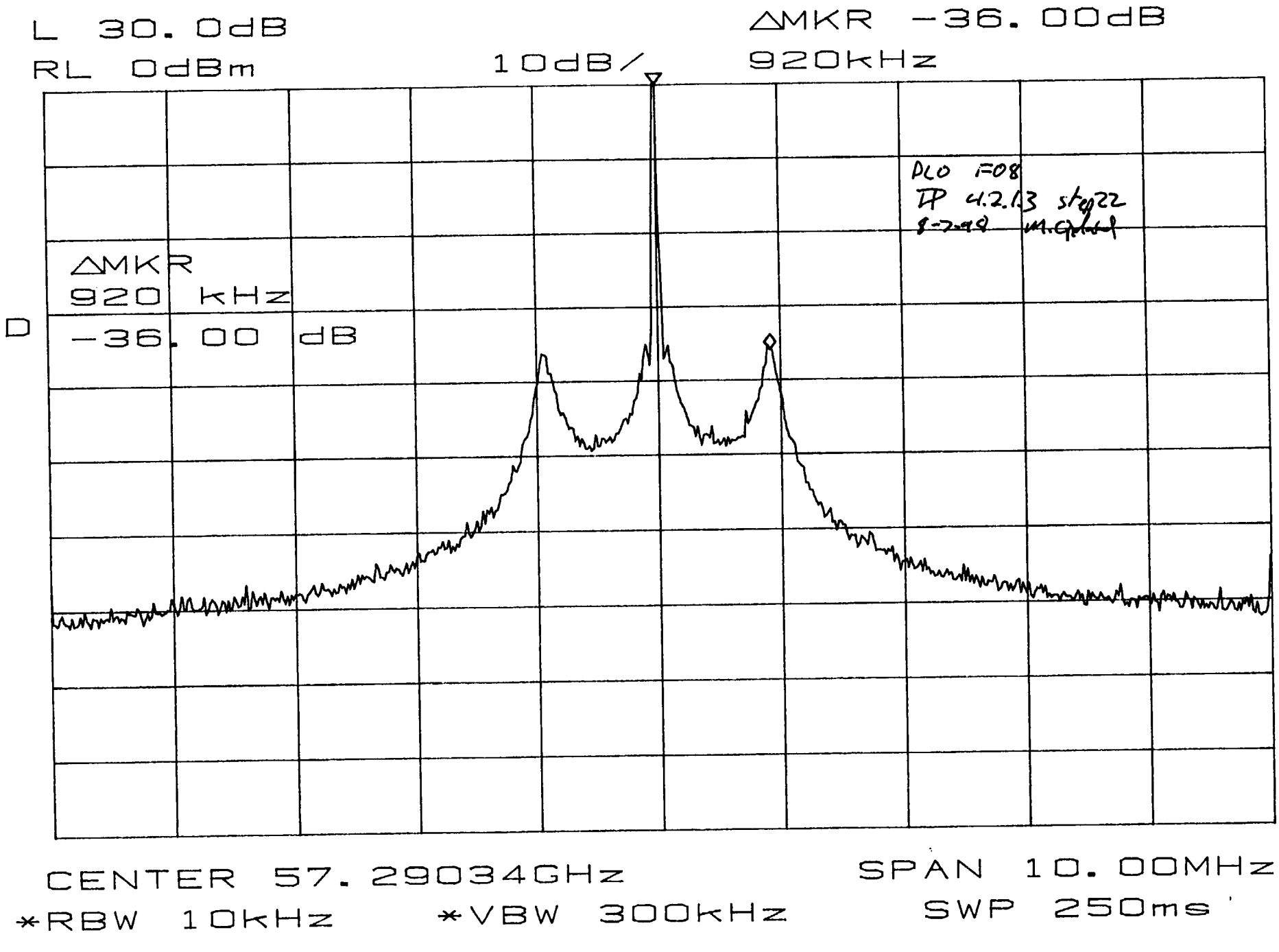

CL 30.0dB
VAVG 9
MKR -96.50dBm
RL 0dBm
10dB/
57.5767600GHz
FCC
IP 4.2.1.3 Sht 9/9
4-7-94 M. Opalski
CENTER
57.5767600 GHz
D
CENTER 57.5767600GHz
SPAN 500.0kHz
*RBW 1.0kHz
VBW 1.0kHz
SWP 1.30sec

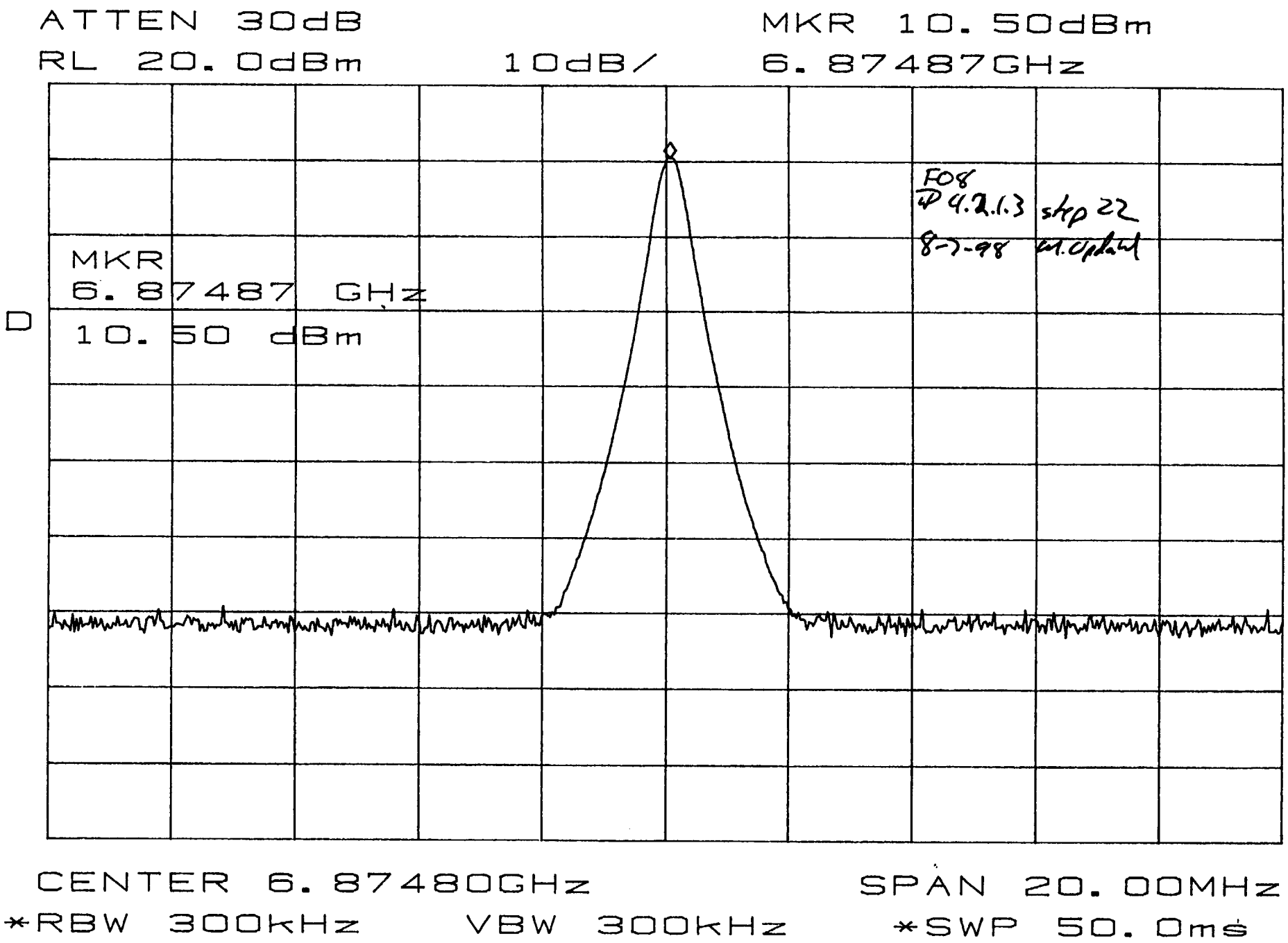
CL 30.0dB VAVG 8 MKR -95.67dBm
RL 0dBm 10dB/ 57.7199860GHz



CENTER 57.7199860GHz SPAN 500.0kHz
*RBW 1.0kHz VBW 1.0kHz SWP 1.30sec

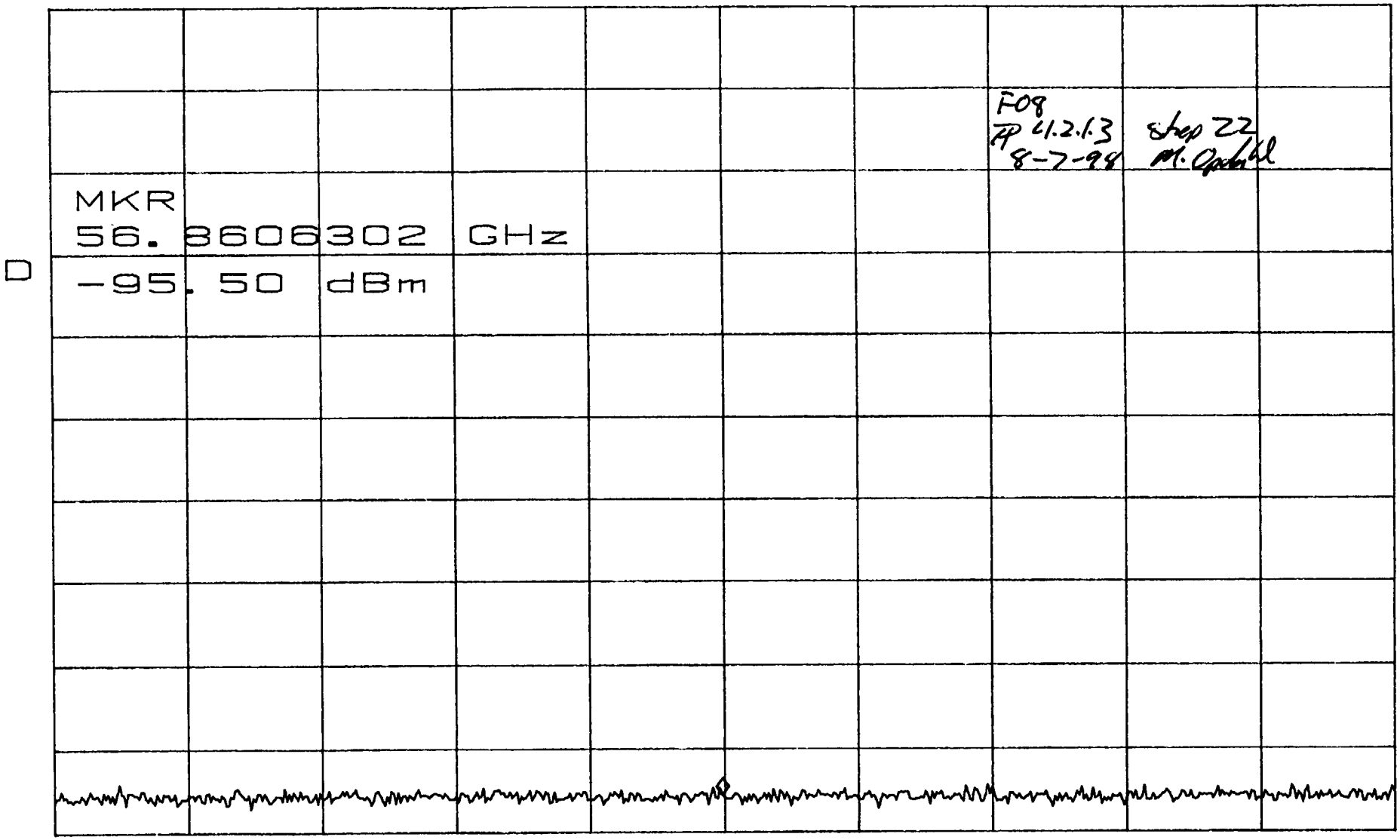

CL 30.0dB
MKR -63.50dBm
RL 0dBm
10dB/
114.58061840GHz
F04
TP4.2.1.3 stop19
8-7-96 M. Opdahl
MKR
114.58061840 GHz
-63.50 dBm
S
CENTER 114.58061840GHz
SPAN 20.00kHz
*RBW 300Hz
*VBW 1.0kHz
SWP 670ms


L 30.0dB
RL 0dBm
10dB/
ΔMKR -36.00dB
920kHz
DLO #08
IP 4.2.13 stg22
8-2-98 M.Gabel
ΔMKR
920 kHz
-36.00 dB
D
CENTER 57.29034GHz
SPAN 10.00MHz
*RBW 10kHz
*VBW 300kHz
SWP 250ms


ATTEN 30dB
RL 20.0dBm
10dB/
MKR 10.50dBm
6.87487GHz
FOR
¶ 4.2.1.3 step 22
8-7-98 ant. Updated
MKR
6.87487 GHz
10.50 dBm
D
CENTER 6.87480GHz
SPAN 20.00MHz
*RBW 300kHz
VBW 300kHz
*SWP 50.0ms

CL 30.0dB VAVG 9 MKR -95.50dBm

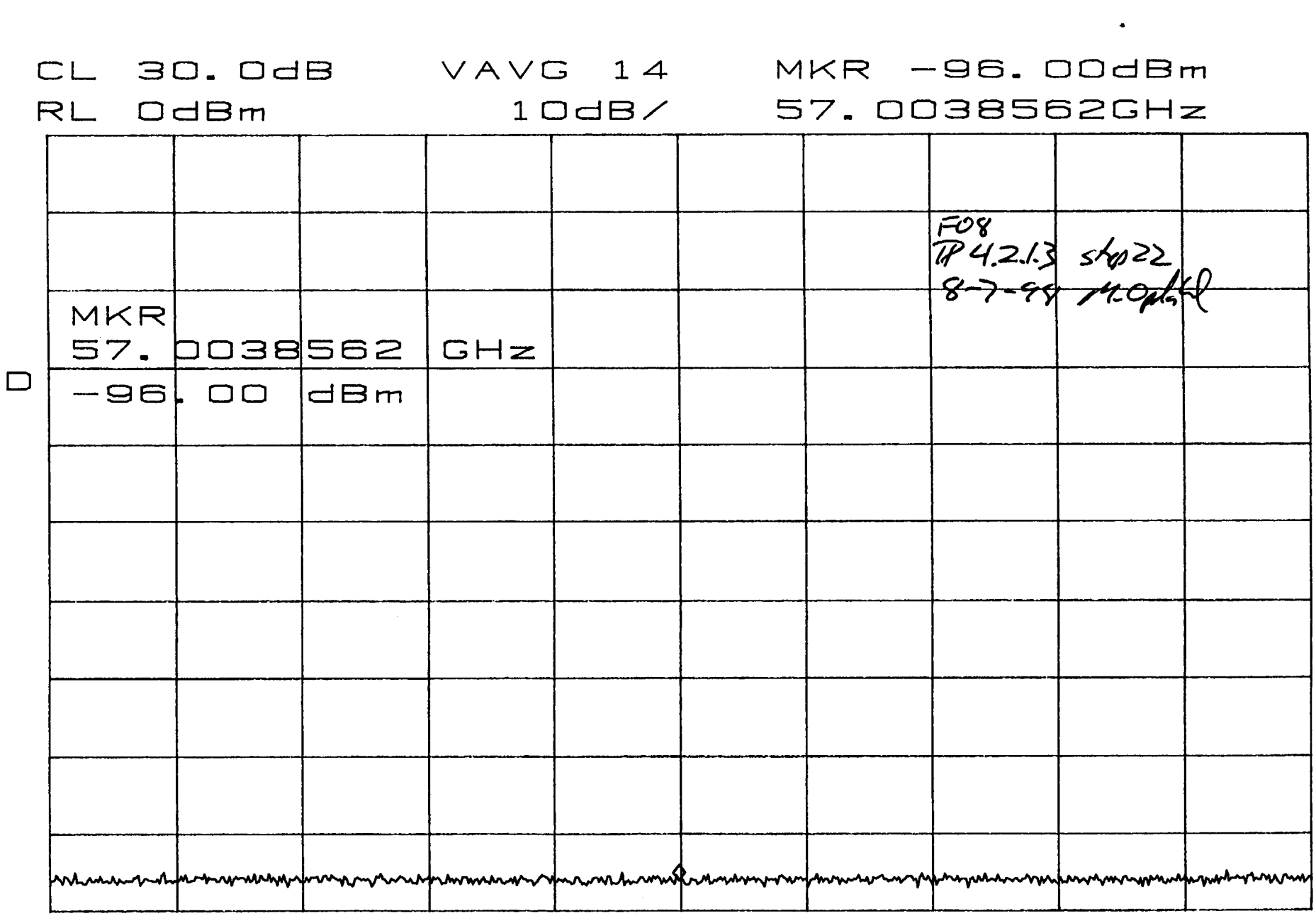
RL 0dBm 10dB/ 56.8606302GHz

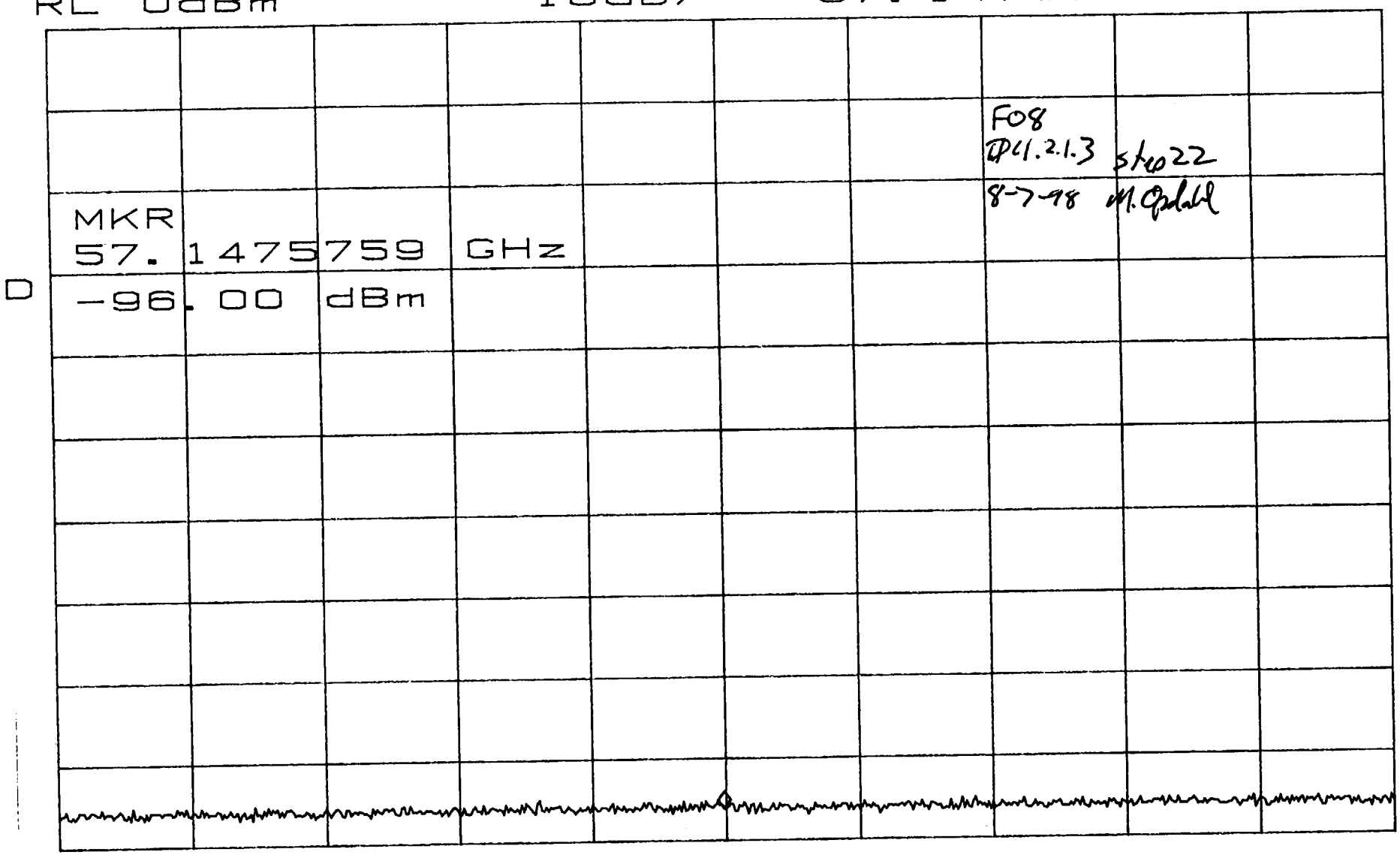


D

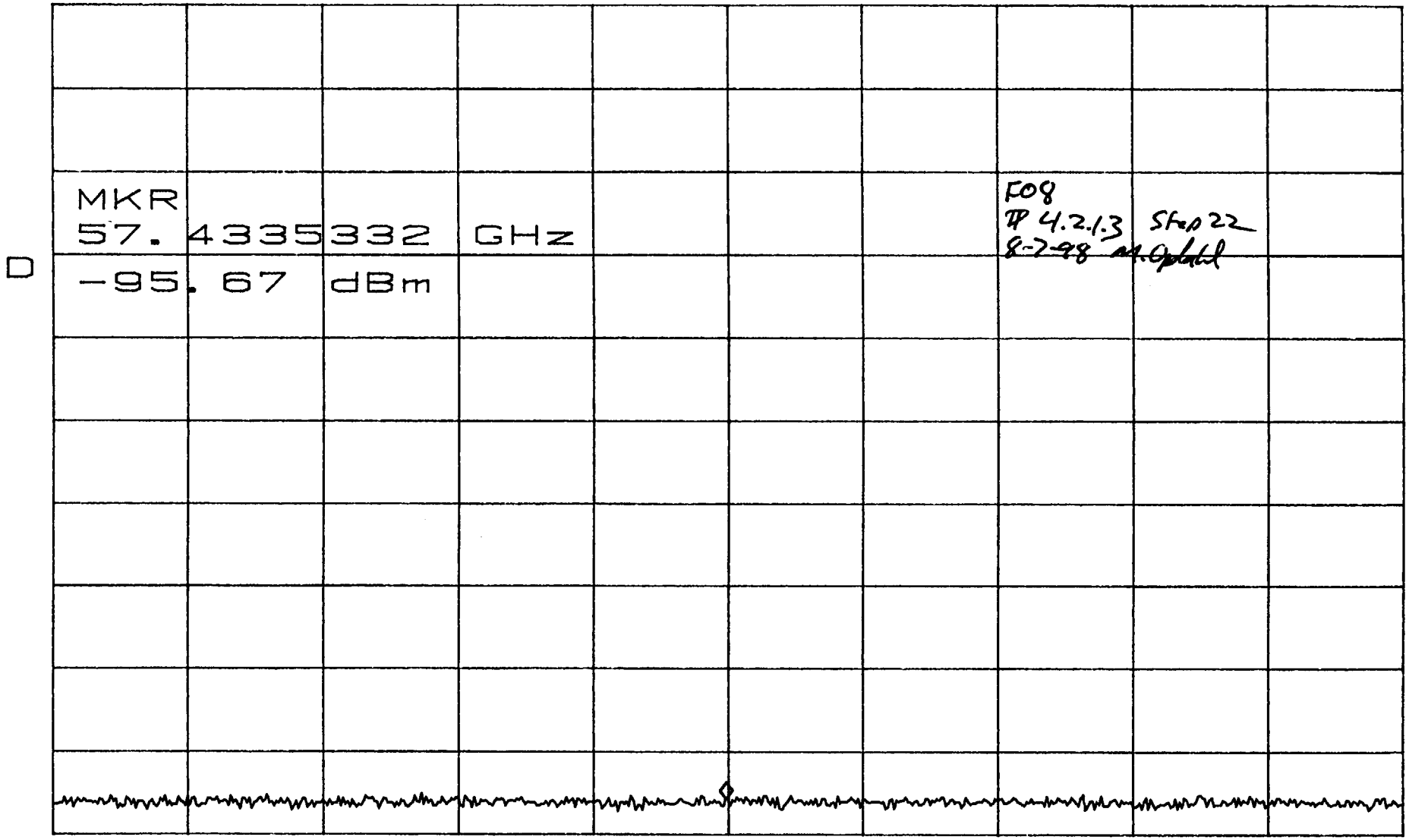
CENTER 56.8606310GHz SPAN 500.0kHz

*RBW 1.0kHz VBW 1.0kHz SWP 1.30sec


CL 30.0dB
VAVG 14
MKR -96.00dBm
RL 0dBm
10dB/
57.0038562GHz
FOR
TP 4.2.1.3 sht 22
8-7-98 M.Ophold
MKR
57.0038562 GHz
D
-96.00 dBm
CENTER 57.0038570GHz
SPAN 500.0kHz
*RBW 1.0kHz
VBW 1.0kHz
SWP 1.30sec


CL 30.0dB
VAVG 52
MKR -96.00dBm
RL 0dBm
10dB/
57.1475759GHz
FO8
DP41.2.1.3 sht22
8-7-98
MKR
57.1475759 GHz
-96.00 dBm
D
CENTER 57.1475768GHz
SPAN 500.0kHz
*RBW 1.0kHz
VBW 1.0kHz
SWP 1.30sec

CL 30.0dB VAVG 23 MKR -95.67dBm
RL 0dBm 10dB/ 57.4335332GHz

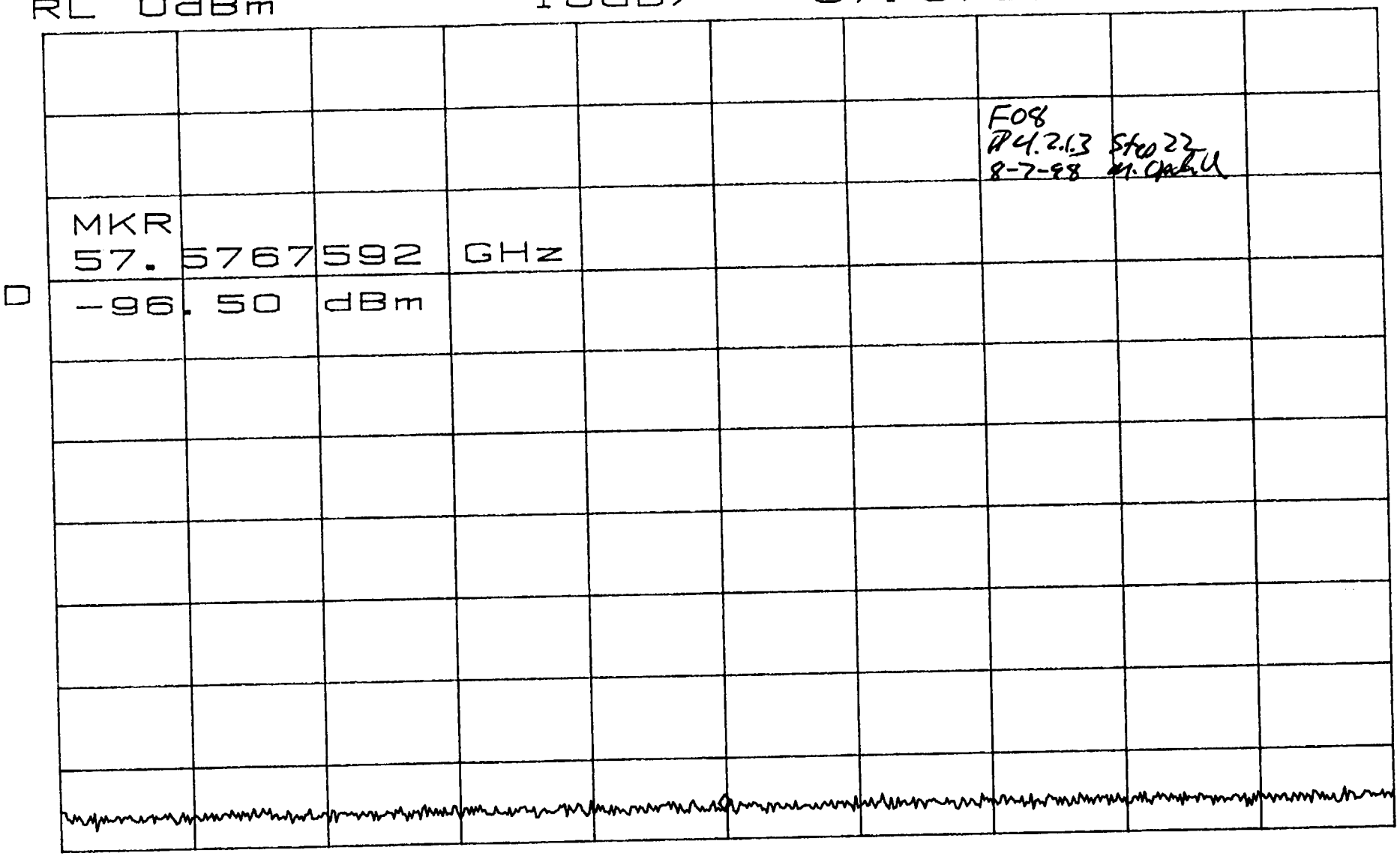


D

CENTER 57.4335340GHz SPAN 500.0kHz
*RBW 1.0kHz VBW 1.0kHz SWP 1.30sec

CL 30.0dB VAVG 14 MKR -96.50dBm

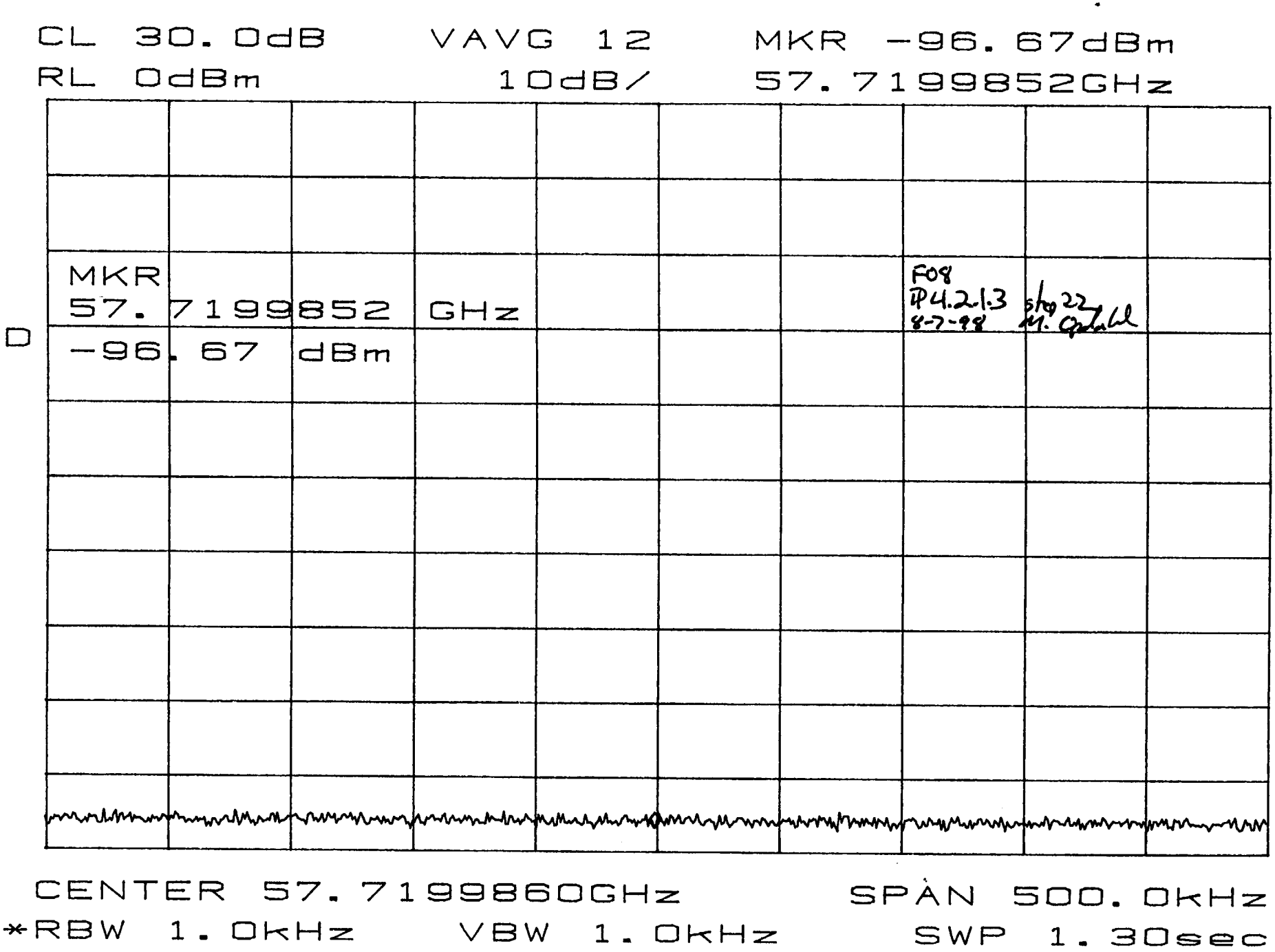
RL 0dBm 10dB/ 57.5767592GHz

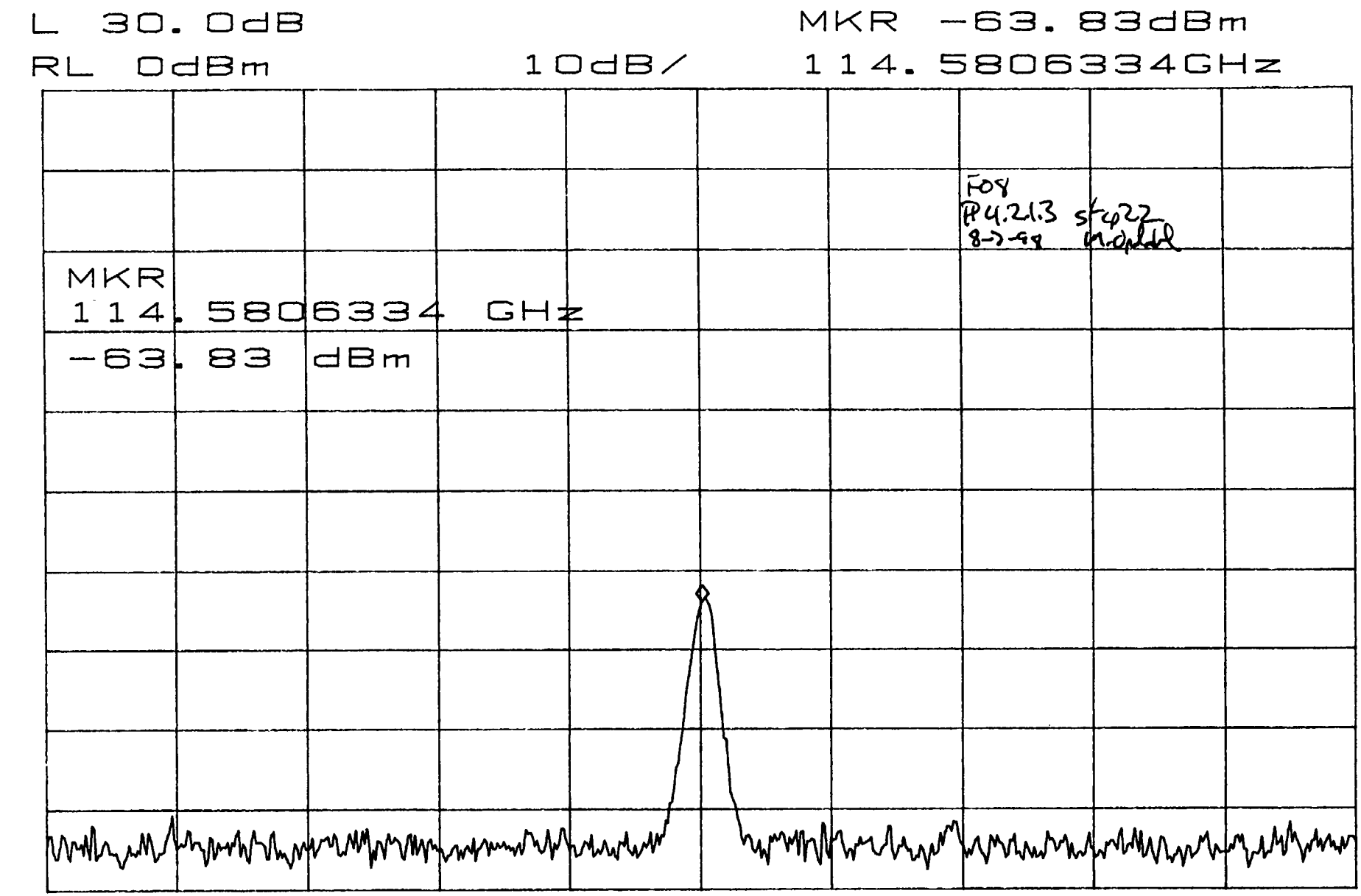


D

CENTER 57.5767600GHz SPAN 500.0kHz

*RBW 1.0kHz VBW 1.0kHz SWP 1.30sec


CL 30.0dB
VAVG 12
MKR -96.67dBm
RL 0dBm
10dB/
57.7199852GHz
MKR
57.7199852 GHz
-96.67 dBm
D
F08
IP4.2.1.3 sht 22
8-7-98
CENTER 57.7199860GHz
SPAN 500.0kHz
*RBW 1.0kHz
VBW 1.0kHz
SWP 1.30sec


L 30.0dB
MKR -63.83dBm
RL 0dBm
10dB/
114.5806334GHz
FOR
MKR
114.5806334 GHz
-63.83 dBm
CENTER 114.5806332GHz
SPAN 100.0kHz
*RBW 1.0kHz
*VBW 1.0kHz
SWP 250ms

Section 2A: Acceptance Level Vibration - F07

This section includes the data from the limited functional tests which take place before and throughout vibration, and the vibration-specific. The following table summarizes the results of the limited functional test.

Test	Expected Value	Post X axis	Post Y axis	Post Z axis
Output Frequency	57290344 ± 200 kHz	57290309 kHz	57290307 kHz	57290302 kHz
Output Power	18.5 dBm ± 1.5 dB	19.6 dBm	19.5 dBm	19.5 dBm

The following pages contain the raw data.

TEST DATA SHEET 8B

Limited Functional Test (Paragraph 4.2.3)

Post X-Axis LPT

Test Setup Verified: _____
Signature

Paragraph 4.2.3.2:

Step	Test		Required	Measurement	Pass/Fail
3	Potential Difference				
	From	To			
	Power Supply RTN	Test Platform *	< 1.0 Vac	N/A	
	Power Supply RTN	Frequency Counter Chassis	< 1.0 Vac	0.05 Vac	Pass
	Power Supply RTN	Power Meter Chassis	< 1.0 Vac	0.04 Vac	Pass

Step	Test	Expected	Measured	Pass/Fail
8	Voltage Meter 1	+15 ± 0.1 V	15.0 V	Pass
	Voltage Meter 2	-15 ± 0.1 V	-15.0 V	Pass
	Current Meter 1	600 mA max.	499.6 mA	Pass
	Current Meter 2	100 mA max.	-67.0 mA	Pass
9	Output Frequency	57.290344 ± .0001 GHz	57.2903093 GHz	Pass
10	Output Power	18.5 dBm ±1.5 dB	19.6 dBm	Pass

* If used. N/A this line entry if not used in test. Example: If PLO is to be vibrated and unit tested "in-place" after each axis, check potential difference between shaker table and power supply RTN.

Shop Order No.: 534921

Operation: 0150

Unit Serial No.: F07

Date: Aug 18 1998

Test Engineer: _____ 8/18/98

Quality Control: _____ 7A 269

Govt. Rep.: _____ 8/18/98

TEST DATA SHEET 8C

Limited Functional Test (Paragraph 4.2.3)

Post Y-Axis LPT

Test Setup Verified: _____ Signature

Paragraph 4.2.3.2:

Step	Test		Required	Measurement	Pass/Fail
3	Potential Difference				
	From	To			
	Power Supply RTN	Test Platform *	< 1.0 Vac	N/A	N/A
	Power Supply RTN	Frequency Counter Chassis	< 1.0 Vac	0.05 Vac	Pass
	Power Supply RTN	Power Meter Chassis	< 1.0 Vac	0.02 Vac	Pass

Step	Test	Expected	Measured	Pass/Fail
8	Voltage Meter 1	+15 ± 0.1 V	15.0 V	Pass
	Voltage Meter 2	-15 ± 0.1 V	-15.0 V	Pass
	Current Meter 1	600 mA max.	499.1 mA	Pass
	Current Meter 2	100 mA max.	67.1 mA	Pass
9	Output Frequency	57.290344 ± .0001 GHz	57.290307 GHz	Pass
10	Output Power	18.5 dBm ±1.5 dB	19.5 dBm	Pass

* If used. N/A this line entry if not used in test. Example: If PLO is to be vibrated and unit tested "in-place" after each axis, check potential difference between shaker table and power supply RTN.

Shop Order No.: 534921

Operation: 0150

Unit Serial No.: F07

Date: Aug 18, 1988

Test Engineer: _____ 8/18/98

Quality Control: Estella M. Gonzales 8/18/98 QA 200

Govt. Rep.: _____ 8/18/98

TEST DATA SHEET 8D
Limited Functional Test (Paragraph 4.2.3)

Post Z-Axis LPT

Test Setup Verified: _____
Signature

Paragraph 4.2.3.2:

Step	Test		Required	Measurement	Pass/Fail
3	Potential Difference				
	From	To			
	Power Supply RTN	Test Platform *	< 1.0 Vac	N/A	N/A
	Power Supply RTN	Frequency Counter Chassis	< 1.0 Vac	0.05 VAC	PASS
	Power Supply RTN	Power Meter Chassis	< 1.0 Vac	0.04 VAC	PASS

Step	Test	Expected	Measured	Pass/Fail
8	Voltage Meter 1	+15 ± 0.1 V	+15.0 V	PASS
	Voltage Meter 2	-15 ± 0.1 V	-15.0 V	PASS
	Current Meter 1	600 mA max.	500.2 mA	PASS
	Current Meter 2	100 mA max.	-67.16 mA	PASS
9	Output Frequency	57.290344 ± .0001 GHz	57.290302 GHz	PASS
10	Output Power	18.5 dBm ±1.5 dB	19.5 dBm	PASS

* If used. N/A this line entry if not used in test. Example: If PLO is to be vibrated and unit tested "in-place" after each axis, check potential difference between shaker table and power supply RTN.

Shop Order No.: 354921

Operation: 0150

Unit Serial No.: F07

Date: Aug 18, 1998

Test Engineer: _____ 8/18/98

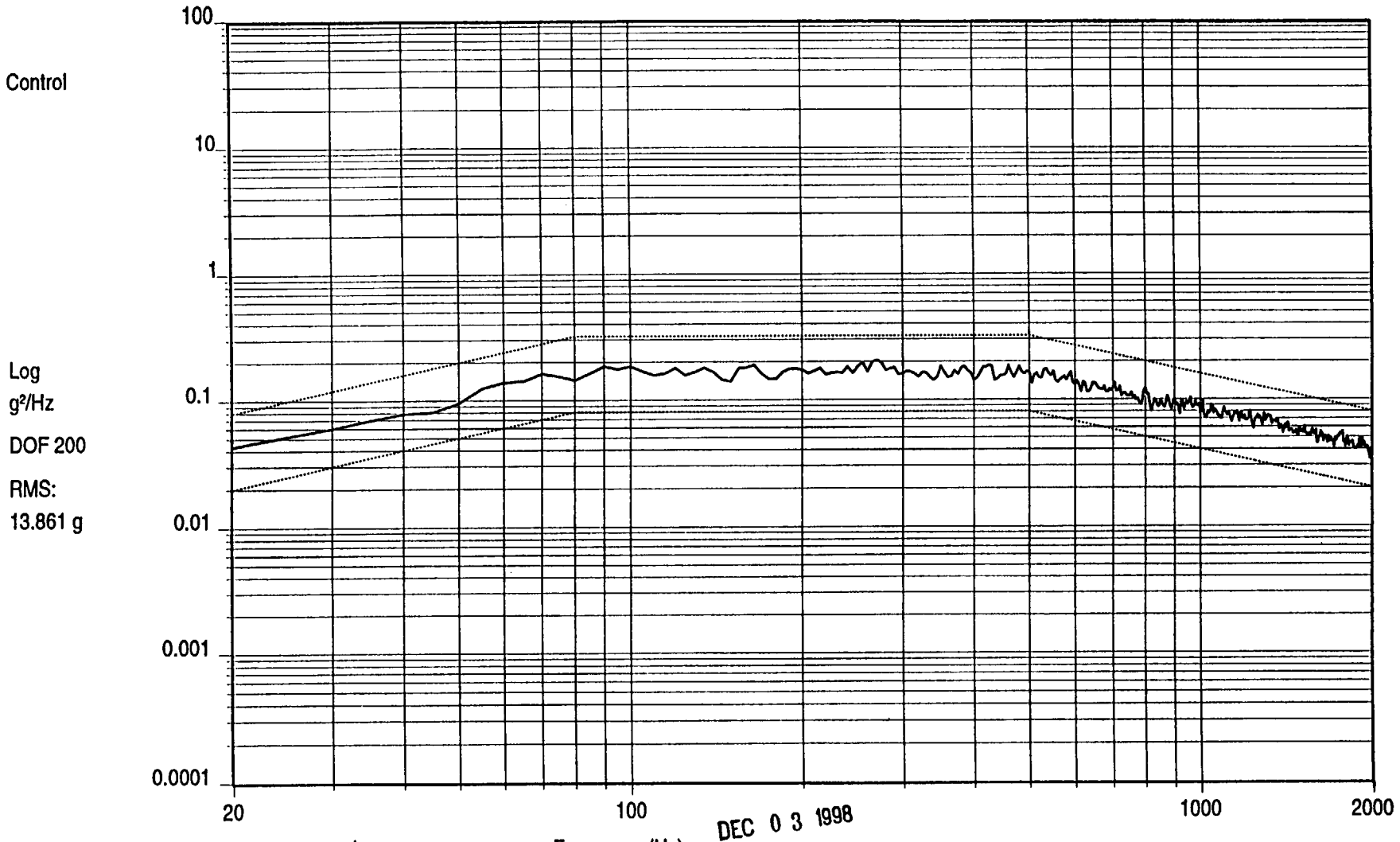
Quality Control: _____

Govt. Rep.: _____ 8/18/98

Test Level: 0.000 dB
Test Time: 000:01:00

Reference RMS: 13.576
Clipping: Off

Test Range: 20.000, 2000.000 Hz
Resolution: 5.000 Hz



DEC 0 3 1998

ENG 217

15:00:17
Mon Aug 17 1998

AMSU PHASE LOCK OSCILLATOR S/O534921, ~~534922~~
FIXTURE CHECKOUT P/N 1348360-1,1348360-1 S/N ~~F08~~,F07
Data Review Name: PLO.tmp

QC 236

ENG 217

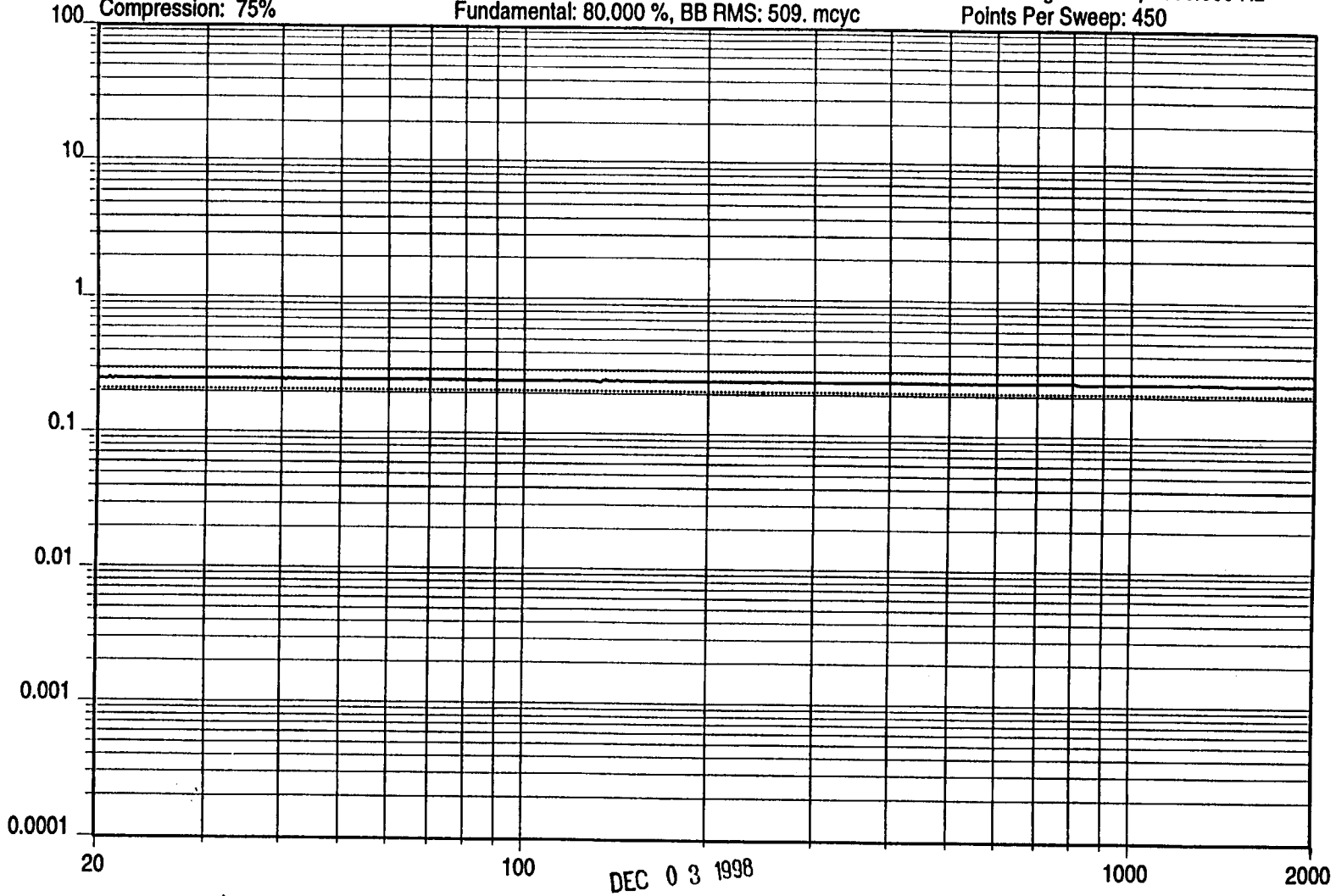
8/17/98

AUG 1 8 1998

Sweep Number: 1.00
Sweep Rate 1: 2.000 oct/min
Compression: 75%

Elapsed Time: 000:03:19
Filter Type: Proportional
Fundamental: 80.000 %, BB RMS: 509. mcyc

Remaining Time: 000:00:00
Test Range: 20.000, 2000.000 Hz
Points Per Sweep: 450



DEC 0 3 1998

ENG 217 QA 236

15:21:47
17-Aug-1998

AMSU PHASE LOCK OSCILLATOR S/O 5 34921,~~34922~~
FIXTURE CHECKOUT P/N 1348360-1,1348360-1 S/N ~~F08~~,F07
Sine Test Name: PLO.tmp

8/17/98

ENG 217 QA 200

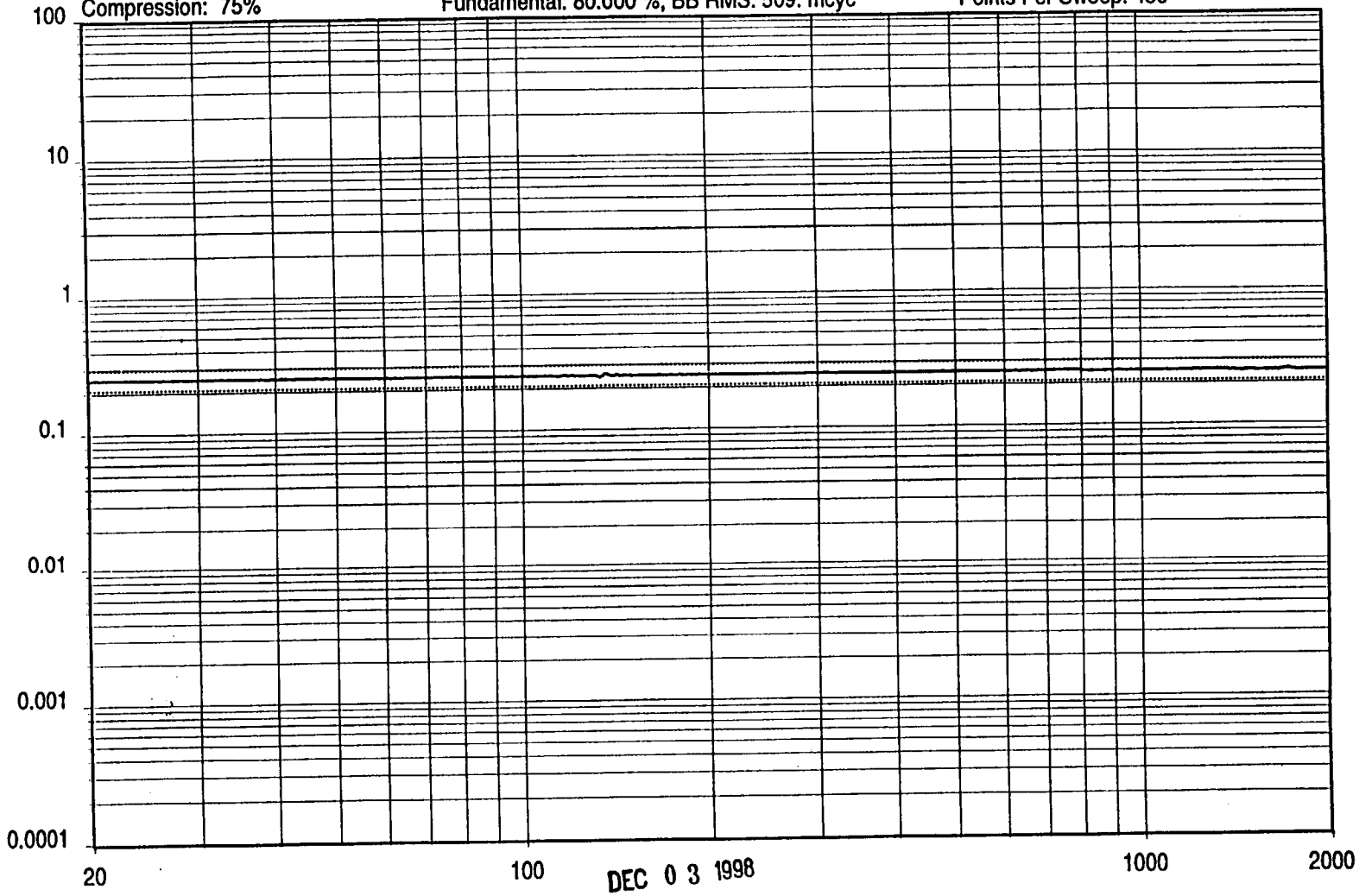
AUG 1 8 1998

Sweep Number: 1.00
Sweep Rate 1: 2.000 oct/min
Compression: 75%

Elapsed Time: 000:03:19
Filter Type: Proportional
Fundamental: 80.000 %, BB RMS: 509. mcyc

Remaining Time: 000:00:00
Test Range: 20.000, 2000.000 Hz
Points Per Sweep: 450

Control



DEC 0 3 1998

ENG 217

8/18/98

07:53:59
18-Aug-1998

AMSU PHASE LOCK OSCILLATOR S/O 5 34921,~~534922~~
PRE X AXIS SINE SWEEP P/N 1348360-1,1348360-1 S/N ~~F08~~;F07
Sine Test Name: PLO.tmp

QC 236

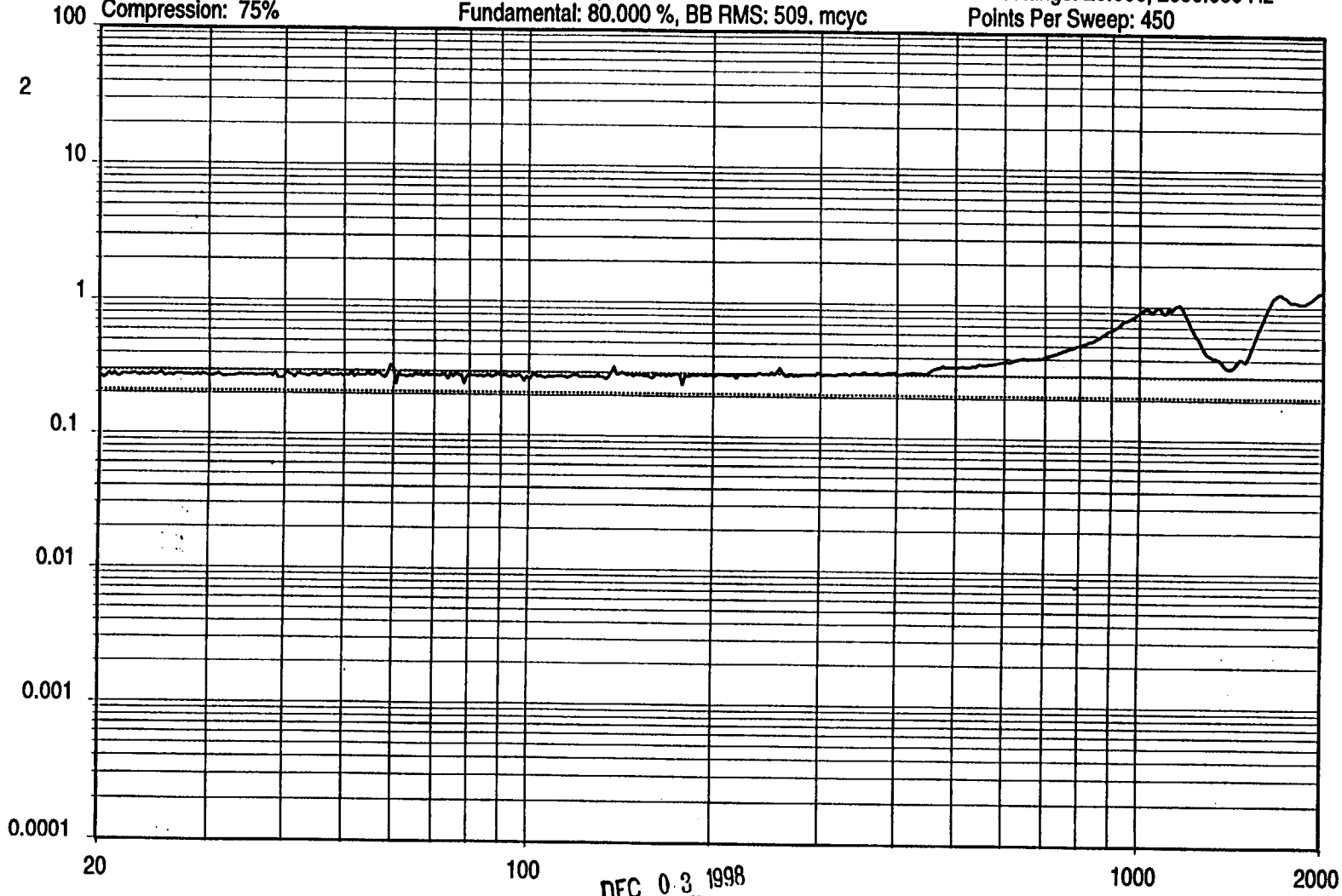
ENG 217
TA 200

AUG 1 8 1998

Sweep Number: 1.00
Sweep Rate 1: 2.000 oct/min
Compression: 75%

Elapsed Time: 000:03:19
Filter Type: Proportional
Fundamental: 80.000 %, BB RMS: 509. mcyc

Remaining Time: 000:00:00
Test Range: 20.000, 2000.000 Hz
Points Per Sweep: 450



DEC 03 1998
ENG 217
QC 236

07:54:02
18-Aug-1998

AMSU PHASE LOCK OSCILLATOR S/O 5 34921,~~584922~~
PRE X AXIS SINE SWEEP P/N 1348360-1,1348360-1 S/N ~~F08~~,F07
Sine Test Name: PLO.tmp

8/18/98 UNIT X

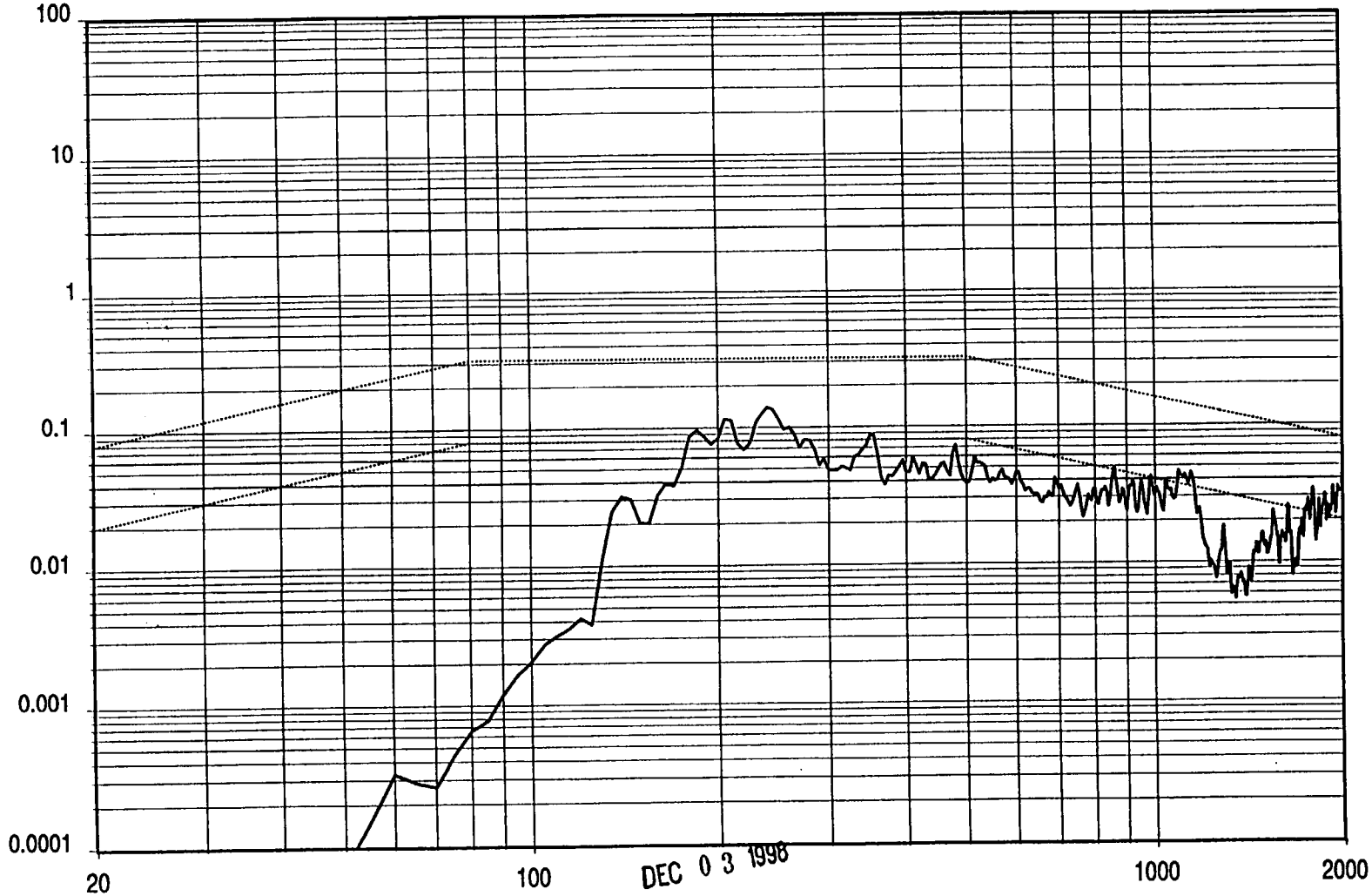
ENG 217
QA 200

AUG 18 1998

Test Level: 0.000 dB
Test Time: 000:01:00

Reference RMS: 13.576
Clipping: Off

Test Range: 20.000, 2000.000 Hz
Resolution: 5.000 Hz



DEC 0 3 1998

ENG 217 QC 236

09:05:47
18-Aug-1998

AMSU PHASE LOCK OSCILLATOR S/O534921, ~~534922~~
Y AXIS TEST P/N 1348360-1,1348360-1 S/N ~~F08~~ ,F07

Test Name: PLO.tmp

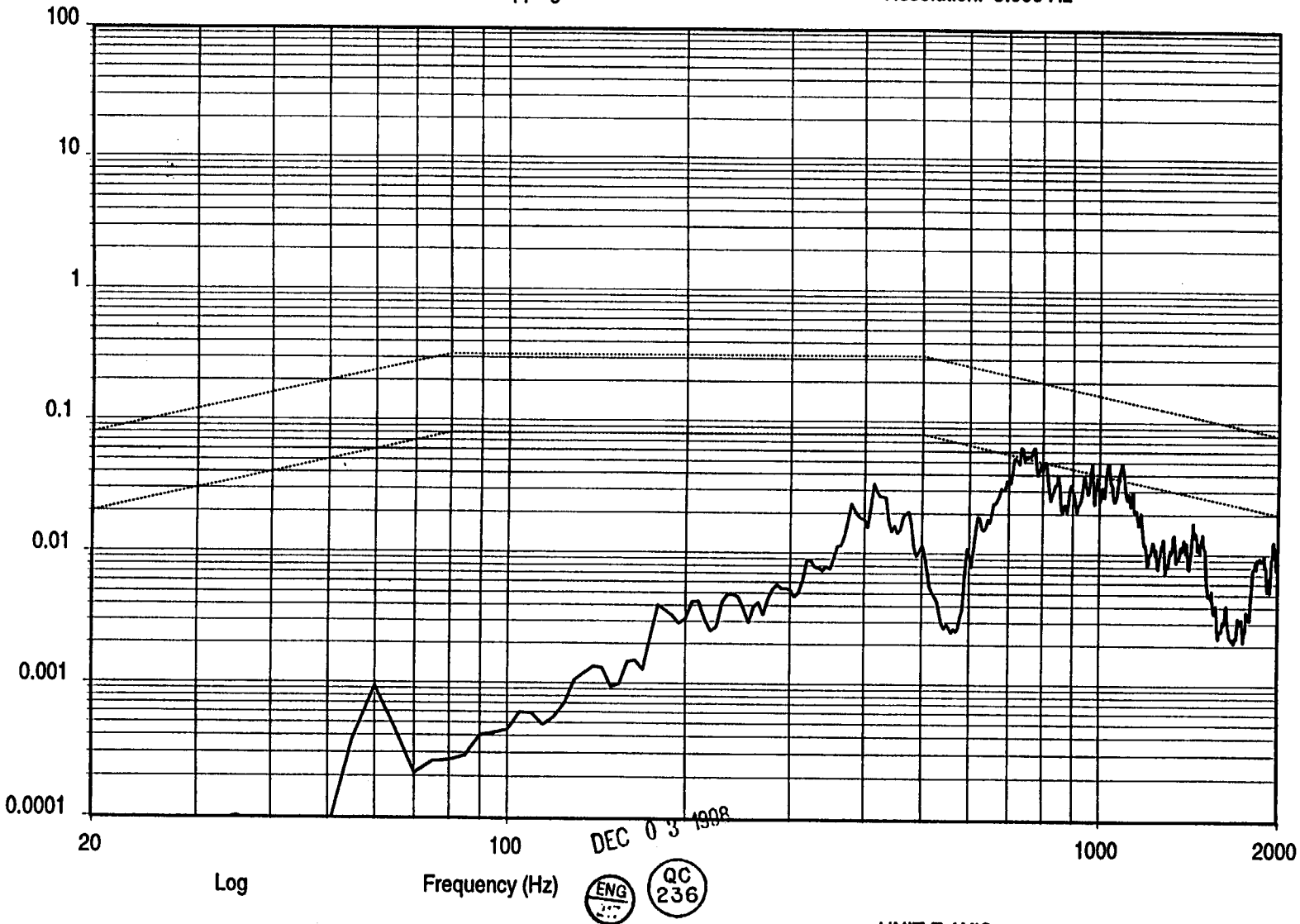
UNIT X AXIS

ENG 217 8/18/98

Test Level: 0.000 dB
Test Time: 000:01:00

Reference RMS: 13.576
Clipping: Off

Test Range: 20.000, 2000.000 Hz
Resolution: 5.000 Hz



Auxiliary 3

Log
g²/Hz
DOF 120
RMS:
5.457 g

DEC 03 1998

ENG
QC 236

09:05:55
18-Aug-1998

AMSU PHASE LOCK OSCILLATOR S/O534921, ~~534922~~
Y AXIS TEST P/N 1348360-1,1348360-1 S/N~~F08~~,F07
Test Name: PLO.tmp

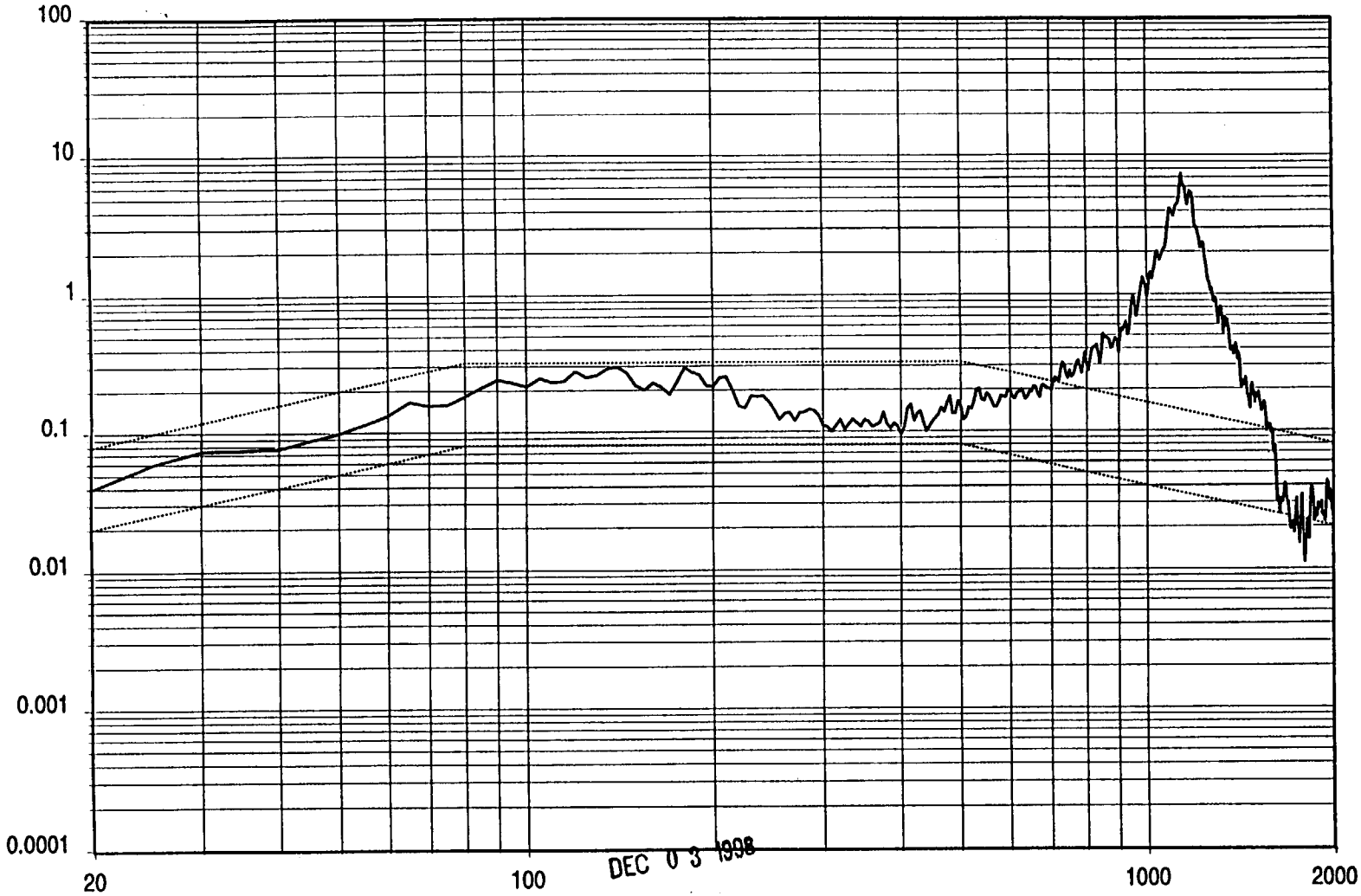
UNIT Z AXIS

ENG
TA 200
8/18/98

Test Level: 0.000 dB
Test Time: 000:01:00

Reference RMS: 13.576
Clipping: Off

Test Range: 20.000, 2000.000 Hz
Resolution: 5.000 Hz



Auxiliary 4

Log
g²/Hz
DOF 120
RMS:
35.318 g

DEC 0 3 1998

ENG 217
QC 236
TA 200
ENG 217

8/18/98

09:05:59
18-Aug-1998

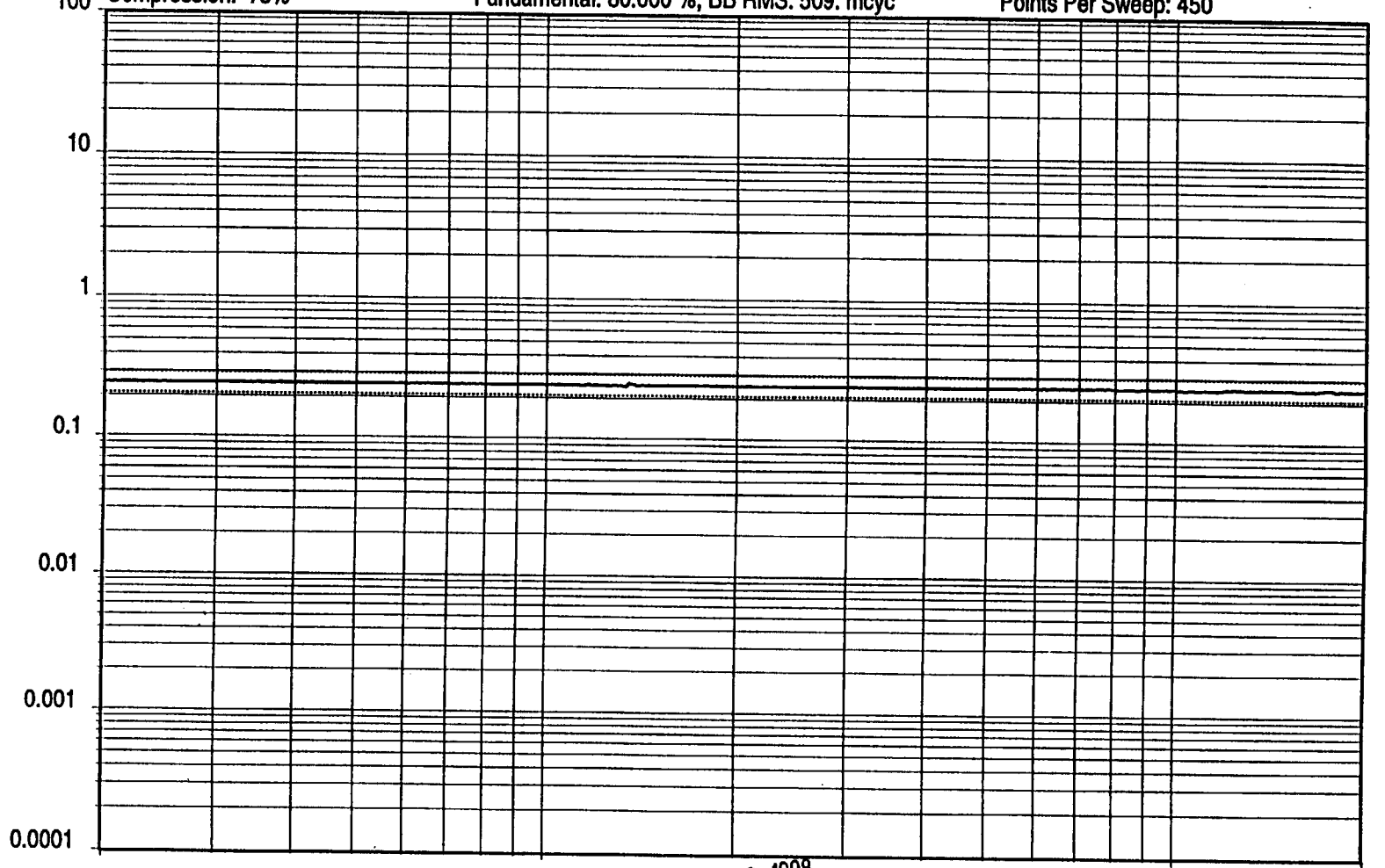
AMSU PHASE LOCK OSCILLATOR S/O534921, ~~534922~~
Y AXIS TEST P/N 1348360-1,1348360-1 S/N ~~F08~~ ,F07
Test Name: PLO.tmp

UNIT Y AXIS

Sweep Number: 1.00
Sweep Rate 1: 2.000 oct/min
Compression: 75%

Elapsed Time: 000:03:19
Filter Type: Proportional
Fundamental: 80.000 %, BB RMS: 509. mcyc

Remaining Time: 000:00:00
Test Range: 20.000, 2000.000 Hz
Points Per Sweep: 450



DEC 0 3 1998

ENG 217 QC 236

09:14:35
18-Aug-1998

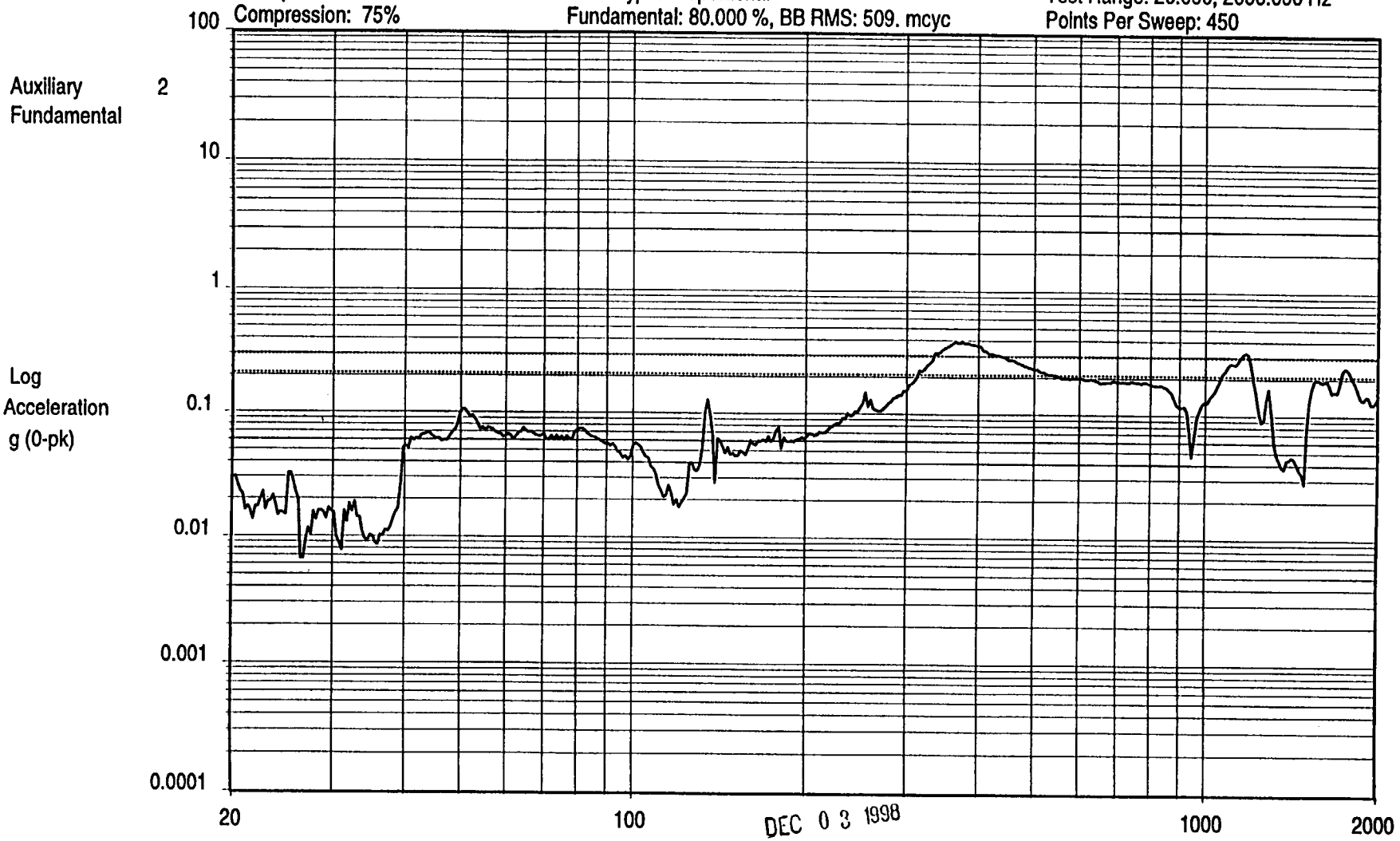
AMSU PHASE LOCK OSCILLATOR S/O 534921,~~534922~~
POST Y AXIS SINE SWEEP P/N 1348360-1,1348360-1 S/N ~~F08~~,F07
Sine Test Name: PLO.tmp

ENG 217 8/18/98
TA 200

Sweep Number: 1.00
Sweep Rate 1: 2.000 oct/min
Compression: 75%

Elapsed Time: 000:03:19
Filter Type: Proportional
Fundamental: 80.000 %, BB RMS: 509. mcyc

Remaining Time: 000:00:00
Test Range: 20.000, 2000.000 Hz
Points Per Sweep: 450



DEC 0 3 1998

ENG QC 236

09:14:40
18-Aug-1998

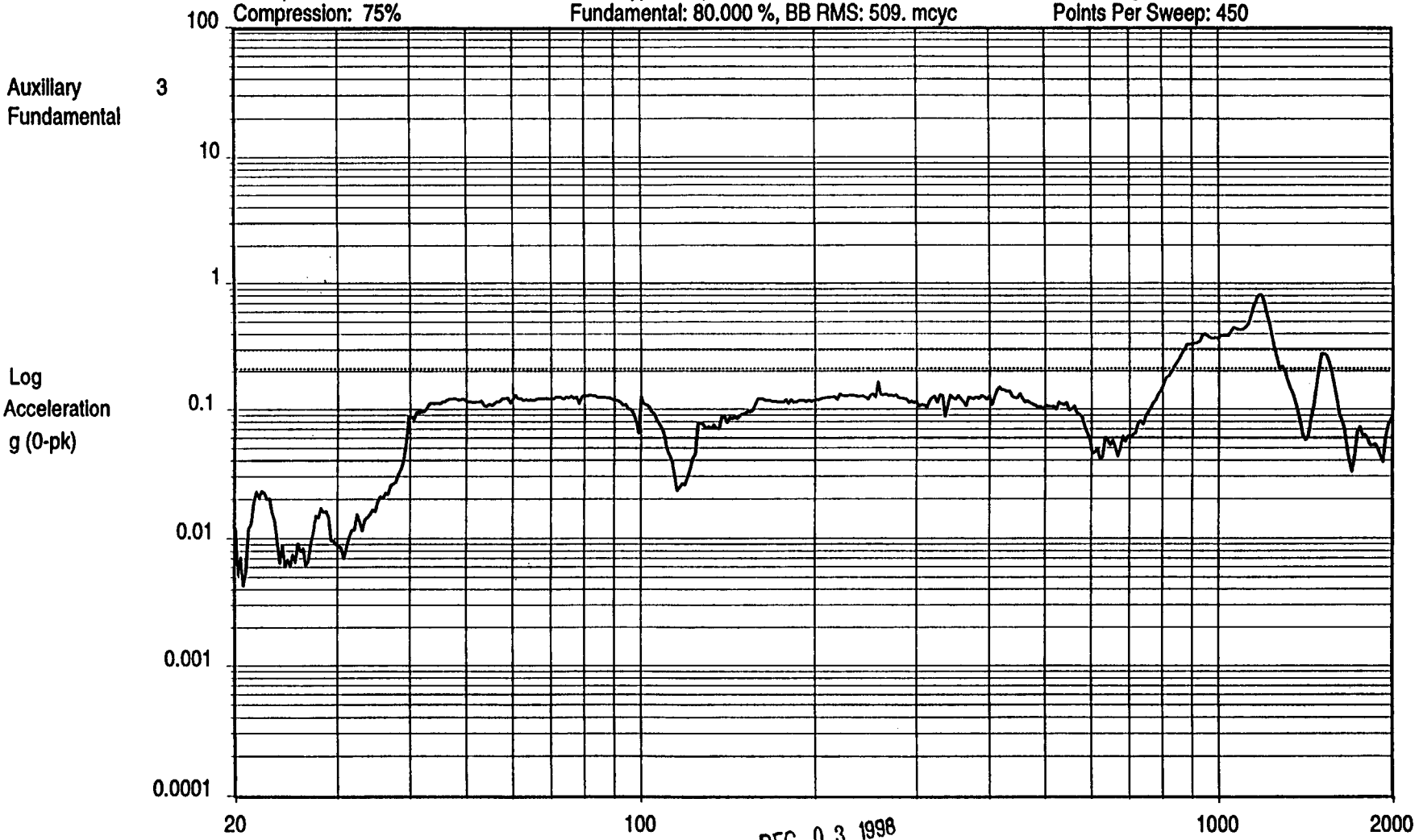
AMSU PHASE LOCK OSCILLATOR S/O 534921,~~504922~~
POST Y AXIS SINE SWEEP P/N 1348360-1,1348360-1 S/N ~~F06~~,F07
Sine Test Name: PLO.tmp

TA 200 ENG 217 8/18/98 UNIT X

Sweep Number: 1.00
Sweep Rate 1: 2.000 oct/min
Compression: 75%

Elapsed Time: 000:03:19
Filter Type: Proportional
Fundamental: 80.000 %, BB RMS: 509. mcyc

Remaining Time: 000:00:00
Test Range: 20.000, 2000.000 Hz
Points Per Sweep: 450



DEC 0 3 1998

ENG
QC 236

09:14:43
18-Aug-1998

AMSU PHASE LOCK OSCILLATOR S/O 534921,~~534922~~
POST Y AXIS SINE SWEEP P/N 1348360-1,1348360-1 S/N ~~FO8~~,F07
Sine Test Name: PLO.tmp

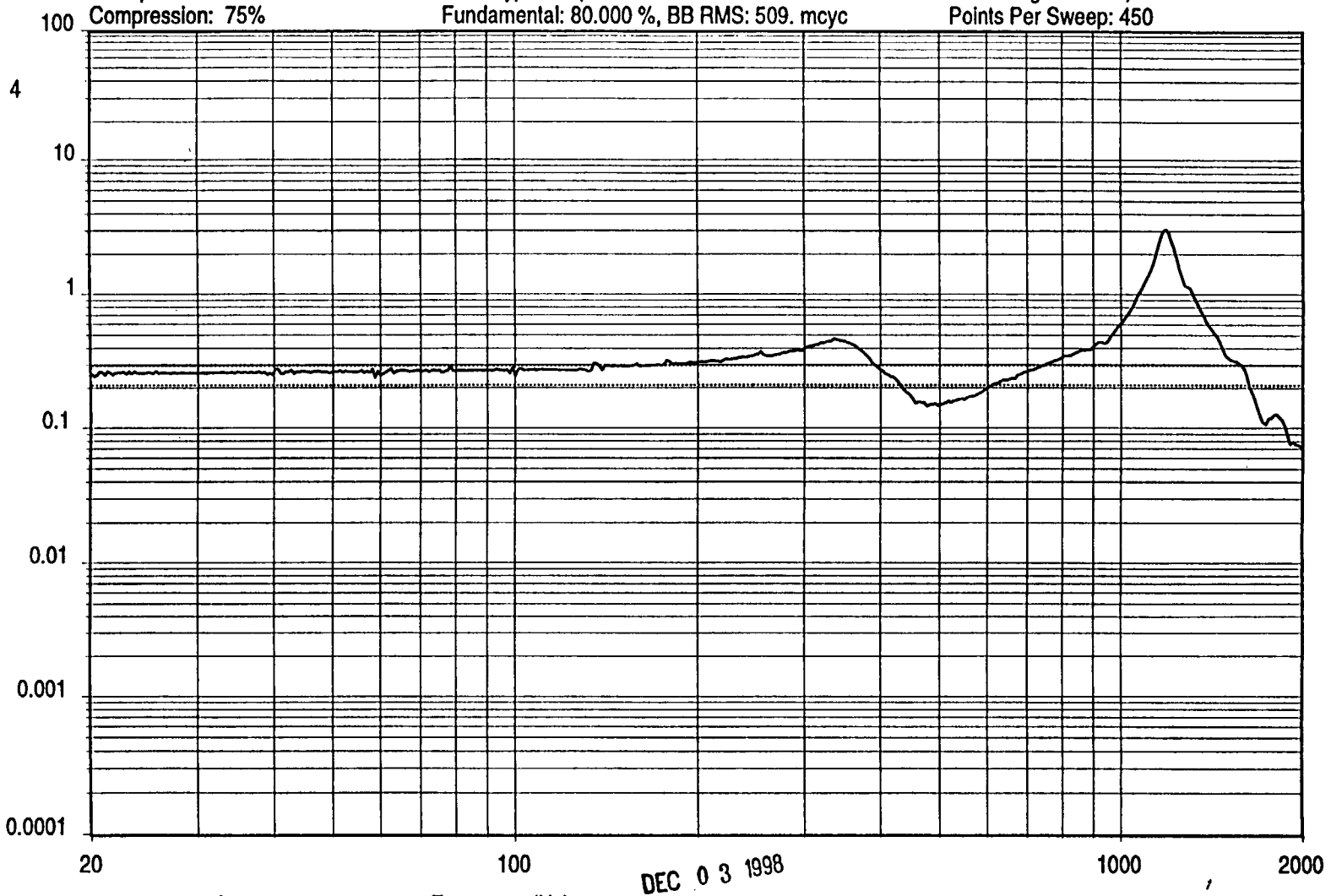
UNIT Z

ENG
8/18/98
QA 200

Sweep Number: 1.00
Sweep Rate 1: 2.000 oct/min
Compression: 75%

Elapsed Time: 000:03:19
Filter Type: Proportional
Fundamental: 80.000 %, BB RMS: 509. mcyc

Remaining Time: 000:00:00
Test Range: 20.000, 2000.000 Hz
Points Per Sweep: 450



DEC 0 3 1998

ENG
QC 236

09:14:46
18-Aug-1998

AMSU PHASE LOCK OSCILLATOR S/O 534921,~~534922~~
POST Y AXIS SINE SWEEP P/N 1348360-1,1348360-1 S/N ~~F08~~,F07
Sine Test Name: PLO.tmp

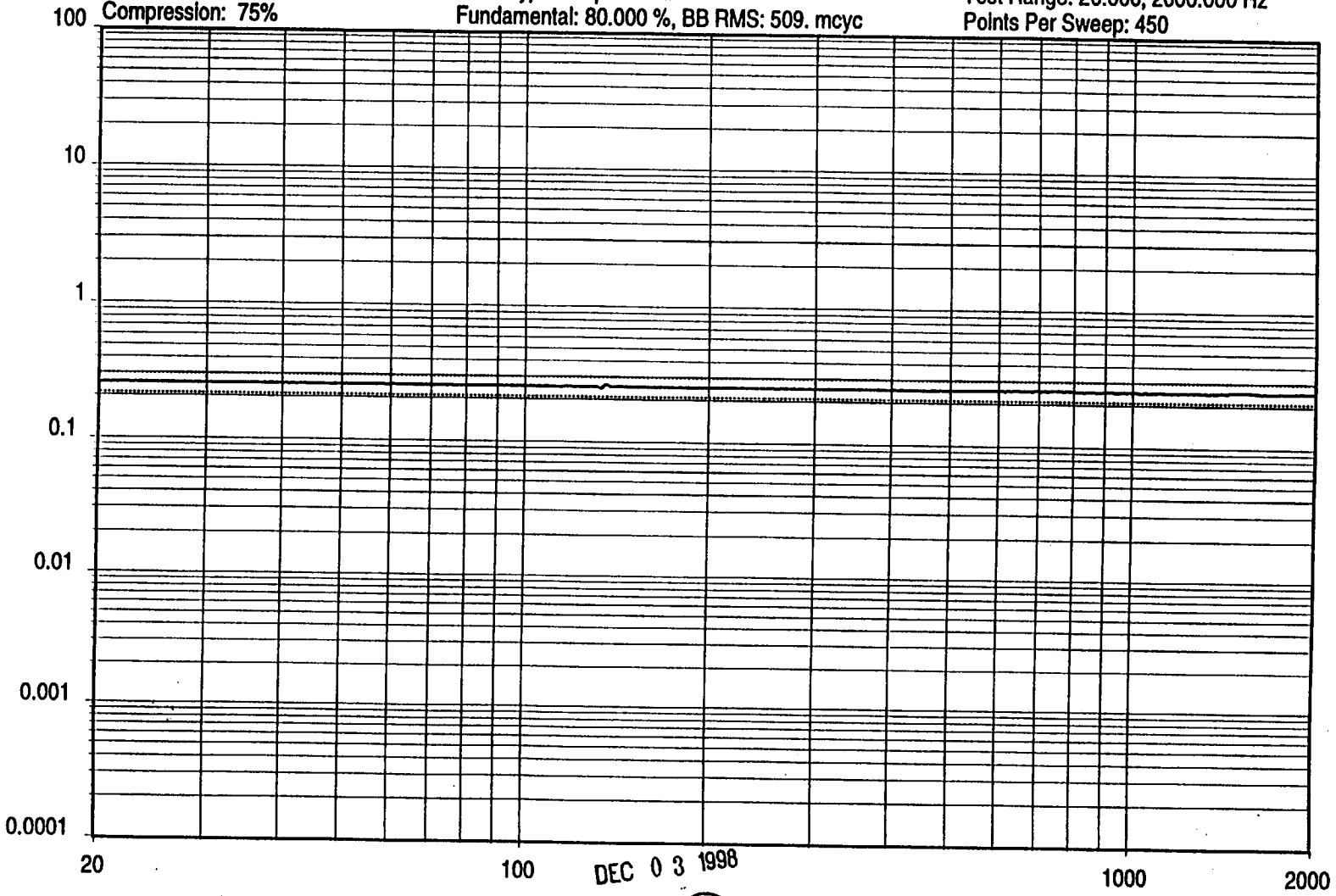
UNIT Y

ENG
8/18/98
QA 200

Sweep Number: 1.00
Sweep Rate 1: 2.000 oct/min
Compression: 75%

Elapsed Time: 000:03:19
Filter Type: Proportional
Fundamental: 80.000 %, BB RMS: 509. mcyc

Remaining Time: 000:00:00
Test Range: 20.000, 2000.000 Hz
Points Per Sweep: 450



DEC 0 3 1998

ENG 217

QC 236

10:34:16
18-Aug-1998

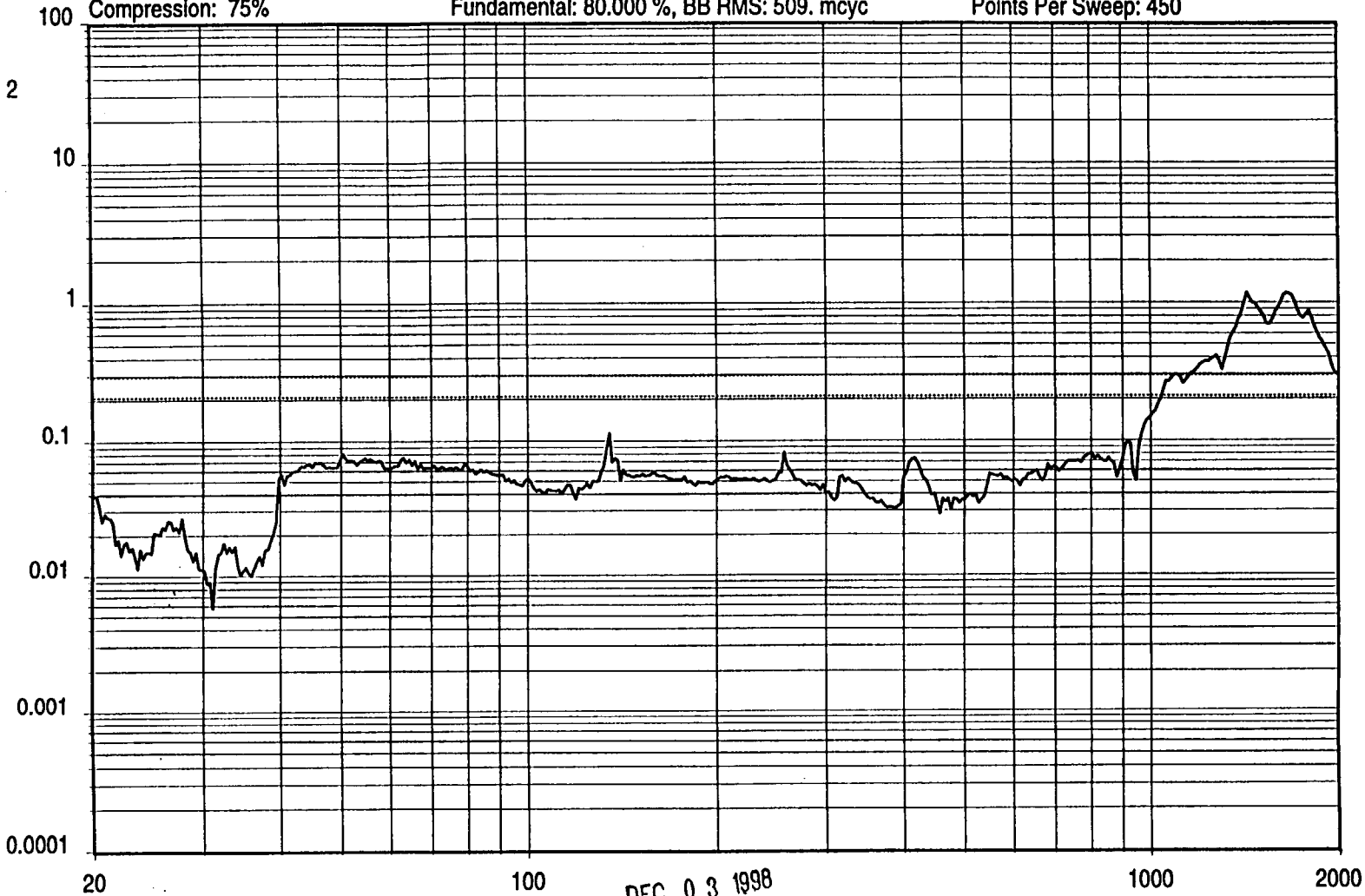
AMSU PHASE LOCK OSCILLATOR S/O 534921~~,534922~~
PRE Z AXIS SINE SWEEP P/N 1348360-1,1348360-1 S/N ~~F08~~,F07
Sine Test Name: PLO.tmp

ENG 217 1A 200 8/18/98

Sweep Number: 1.00
Sweep Rate 1: 2.000 oct/min
Compression: 75%

Elapsed Time: 000:03:19
Filter Type: Proportional
Fundamental: 80.000 %, BB RMS: 509. mcyc

Remaining Time: 000:00:00
Test Range: 20.000, 2000.000 Hz
Points Per Sweep: 450



DEC 0 3 1998

ENG 217 QC 236

10:34:22
18-Aug-1998

AMSU PHASE LOCK OSCILLATOR S/O 534921, ~~534922~~
~~UNIT Y~~ PRE Z AXIS SINE SWEEP P/N 1348360-1
S/N F07

8/18/98 UNIT X

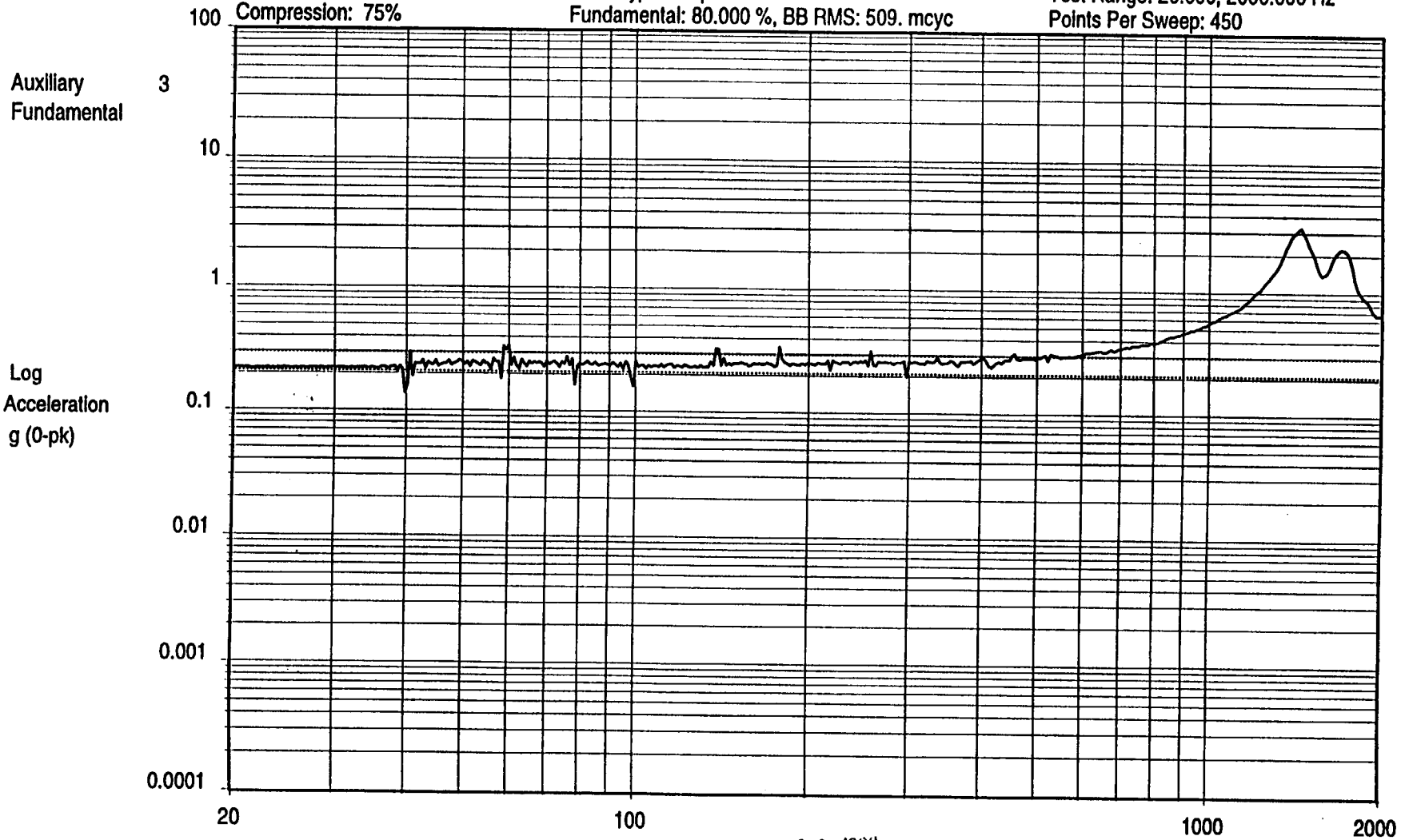
ENG 217 QA 200

Sine Test Name: PLO.tmp

Sweep Number: 1.00
Sweep Rate 1: 2.000 oct/min
Compression: 75%

Elapsed Time: 000:03:19
Filter Type: Proportional
Fundamental: 80.000 %, BB RMS: 509. mcyc

Remaining Time: 000:00:00
Test Range: 20.000, 2000.000 Hz
Points Per Sweep: 450



DEC 0 3 1998

ENG
QC 236

10:34:19
18-Aug-1998

AMSU PHASE LOCK OSCILLATOR S/O 534921,~~534922~~
~~UNIT Y~~ PRE Z AXIS SINE SWEEP P/N 1348360-1
S/N F07
Sine Test Name: PLO.tmp

UNIT Z

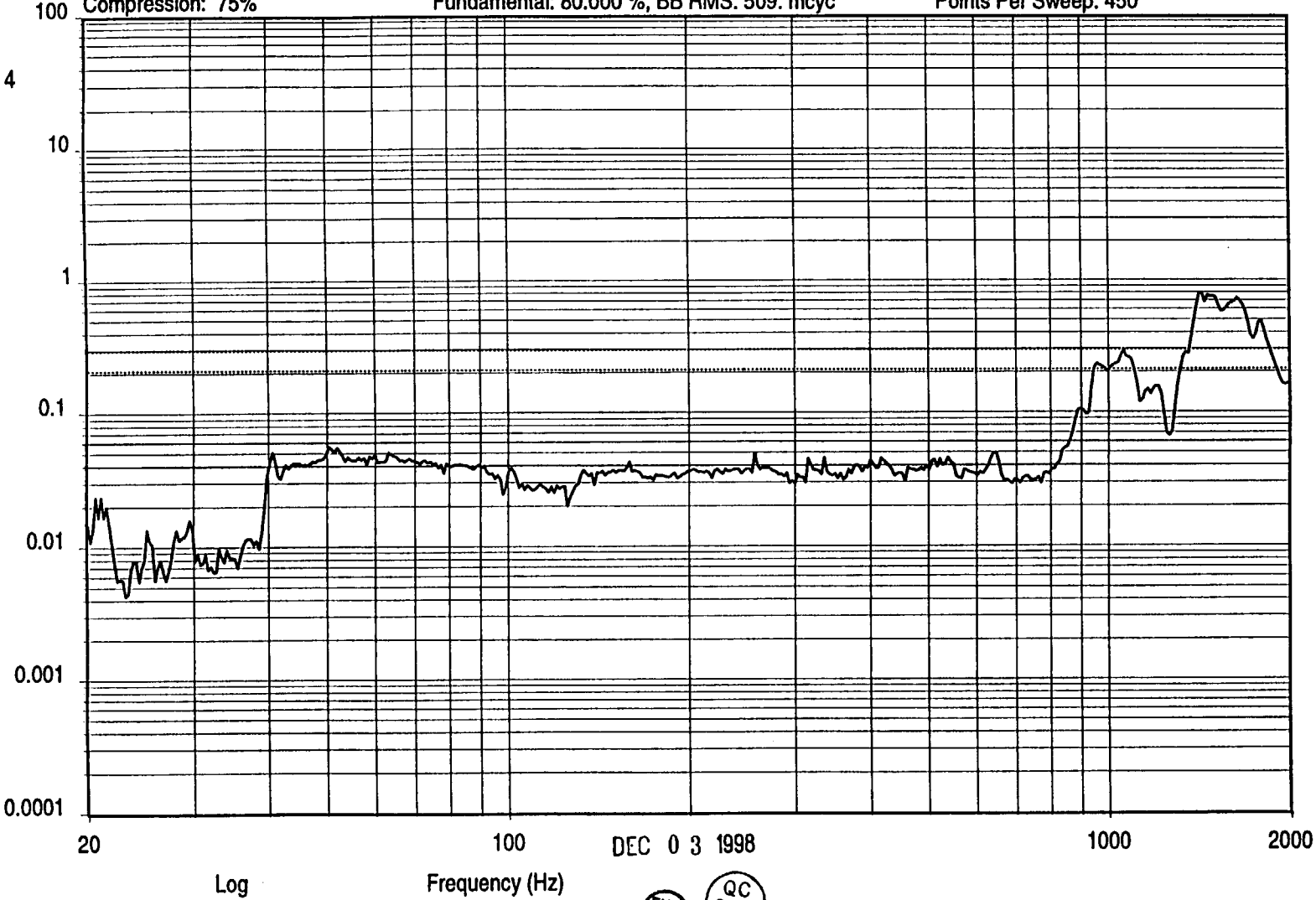
ENG 217
7A 200

8/18/98

Sweep Number: 1.00
Sweep Rate 1: 2.000 oct/min
Compression: 75%

Elapsed Time: 000:03:19
Filter Type: Proportional
Fundamental: 80.000 %, BB RMS: 509. mcyc

Remaining Time: 000:00:00
Test Range: 20.000, 2000.000 Hz
Points Per Sweep: 450



10:34:25
18-Aug-1998

AMSU PHASE LOCK OSCILLATOR S/O 534921,~~534922~~
~~UNIT Y~~ PRE Z AXIS SINE SWEEP P/N 1348360-1
S/N F07

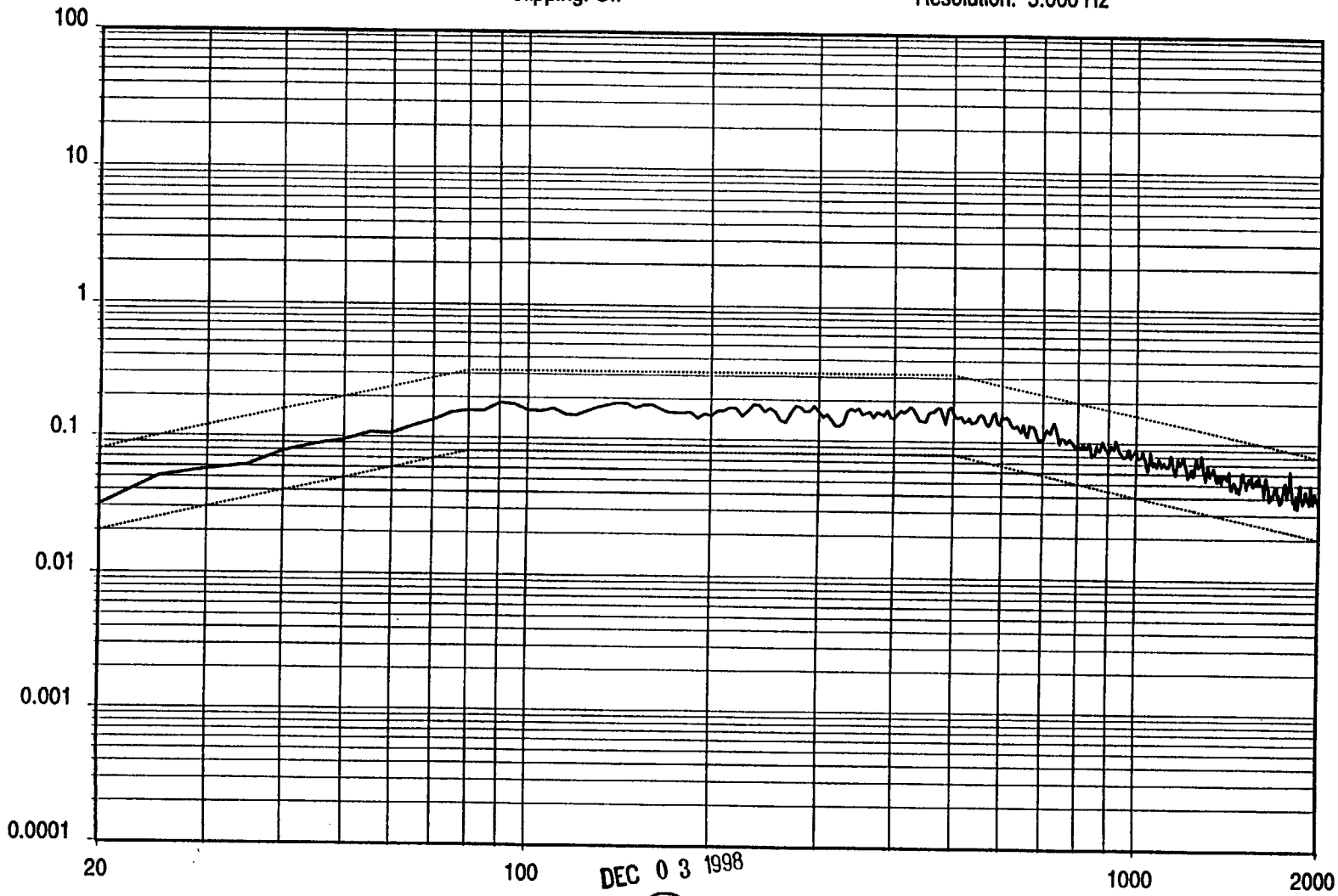
Sine Test Name: PLO.tmp

ENG
QC 236
7A 200
ENG
UNIT Y
8/18/98

Test Level: 0.000 dB
Test Time: 000:01:00

Reference RMS: 13.576
Clipping: Off

Test Range: 20.000, 2000.000 Hz
Resolution: 5.000 Hz



Control

Log
g²/Hz

DOF 200

RMS:
13.635 g

DEC 0 3 1998

ENG 217 QC 236

10:42:44
18-Aug-1998

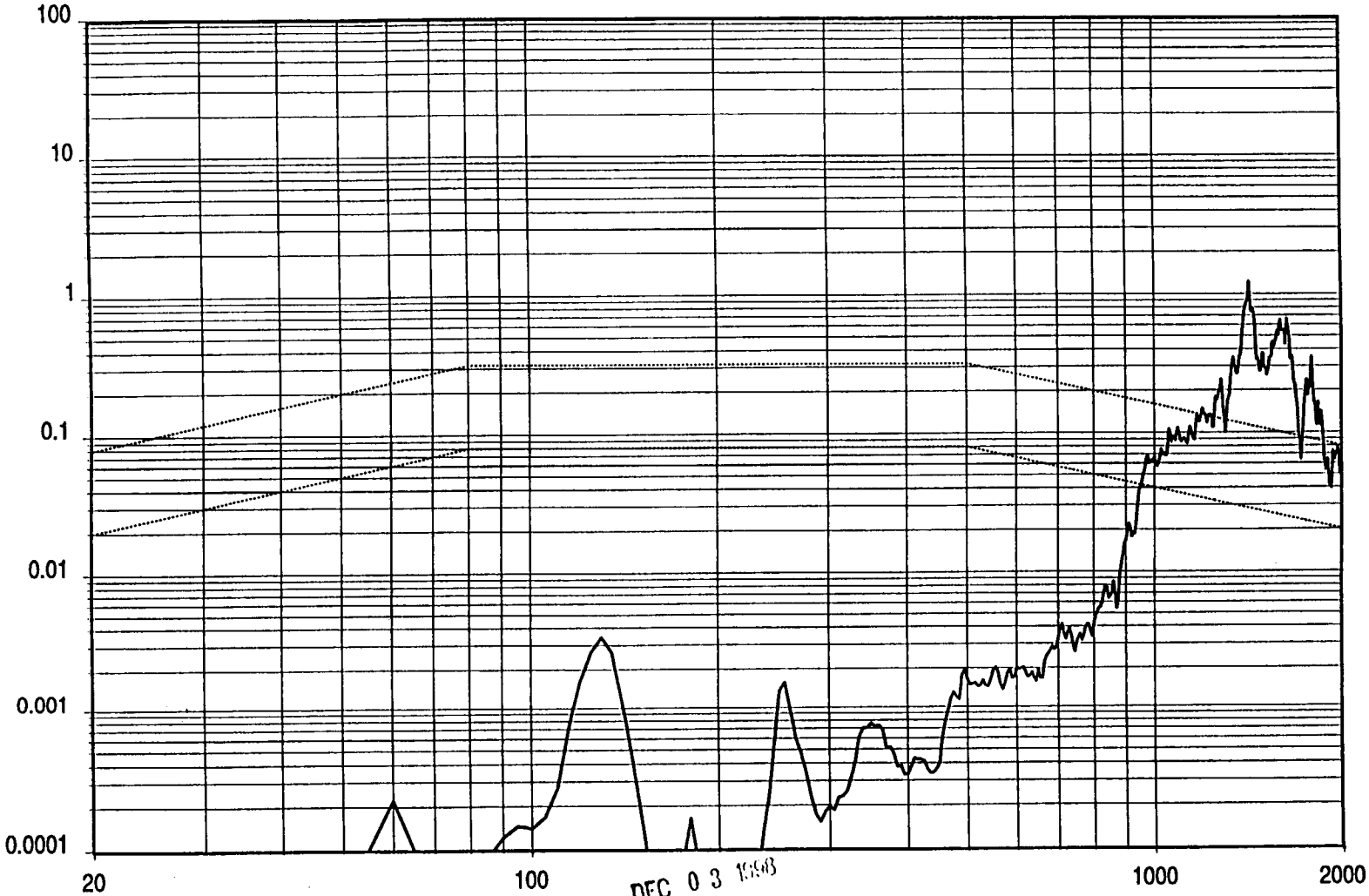
AMSU PHASE LOCK OSCILLATOR S/O534921, ~~534922~~
Z AXIS TEST P/N 1348360-1,1348360-1 ~~S/N F08~~ ,F07
Test Name: PLO.tmp

ENG 217 TA 200 8/18/98

Test Level: 0.000 dB
Test Time: 000:01:00

Reference RMS: 13.576
Clipping: Off

Test Range: 20.000, 2000.000 Hz
Resolution: 5.000 Hz



Auxiliary 2

Log
g²/Hz

DOF 120

RMS:
15.834 g

DEC 0 3 1998

ENG 217 QC 236

10:44:02
18-Aug-1998

AMSU PHASE LOCK OSCILLATOR S/O534921, ~~534922~~
Z AXIS TEST P/N 1348360-1,1348360-1 S/N ~~F08~~ ,F07

Test Name: PLO.tmp

7A 200 ENG 217 8/18/98

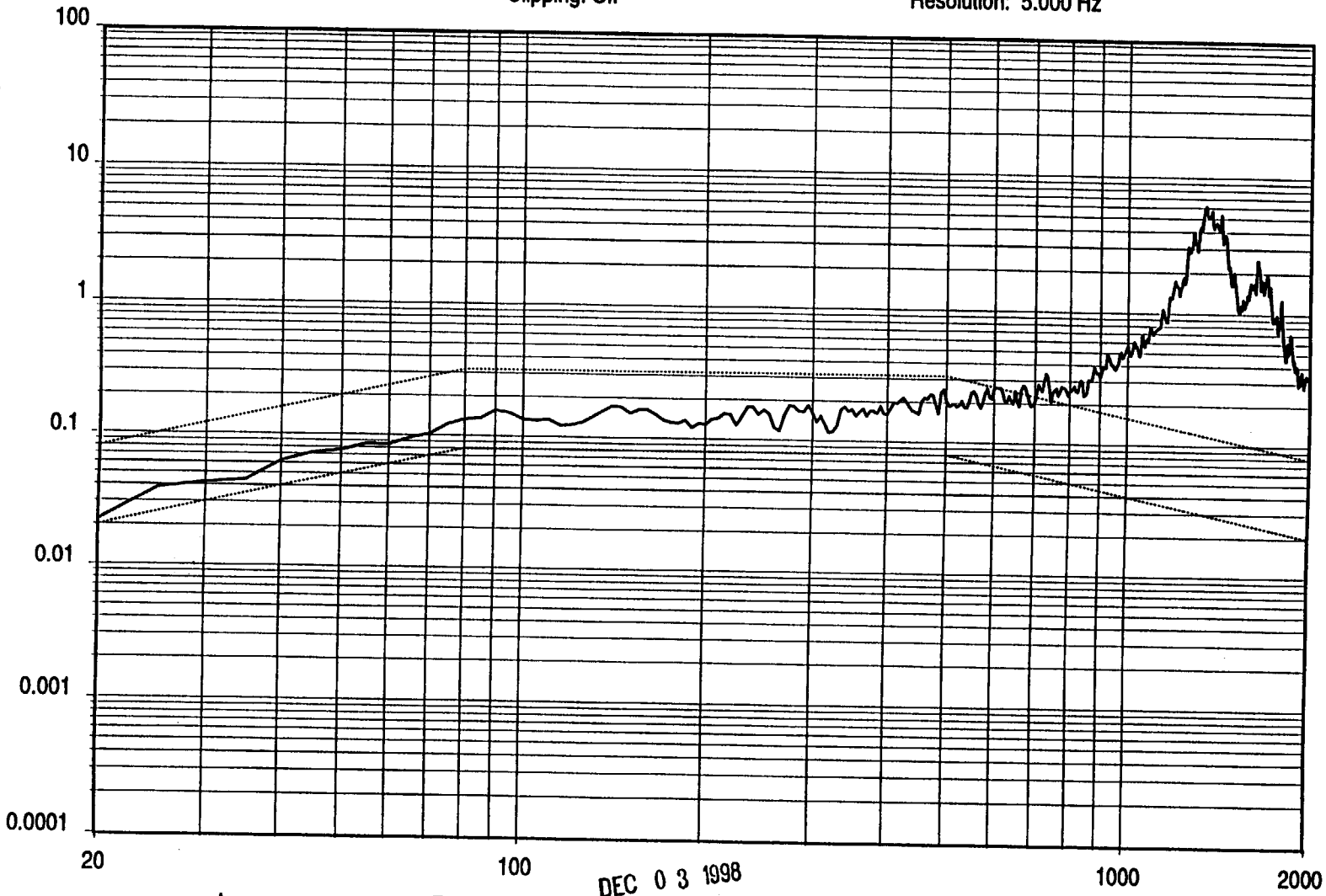
UNIT X AXIS

Test Level: 0.000 dB
Test Time: 000:01:00

Reference RMS: 13.576
Clipping: Off

Test Range: 20.000, 2000.000 Hz
Resolution: 5.000 Hz

Auxiliary 3



DEC 0 3 1998
ENG 217
QC 236

10:42:46
18-Aug-1998

AMSU PHASE LOCK OSCILLATOR S/O534921, ~~534922~~
Z AXIS TEST P/N 1348360-1,1348360-1 S/N ~~F08~~ ,F07
Test Name: PLO.tmp

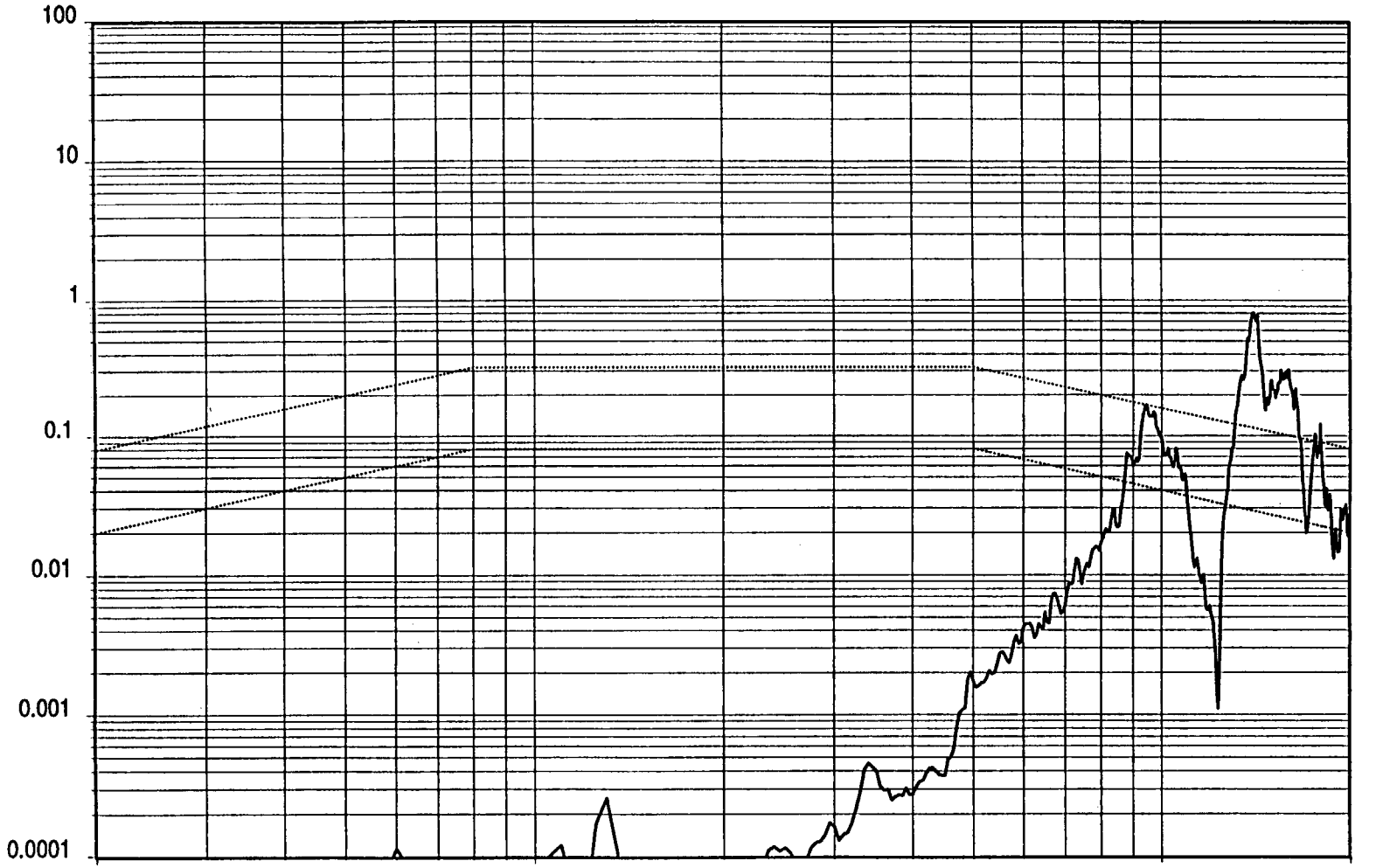
UNIT Z AXIS

ENG 217
TK 200
8/18/98

Test Level: 0.000 dB
Test Time: 000:01:00

Reference RMS: 13.576
Clipping: Off

Test Range: 20.000, 2000.000 Hz
Resolution: 5.000 Hz



DEC 0 3 1998

ENG QC 236

10:42:50
18-Aug-1998

AMSU PHASE LOCK OSCILLATOR S/O534921, ~~534922~~
Z AXIS TEST P/N 1348360-1,1348360-1 S/N ~~F08~~,F07
Test Name: PLO.tmp

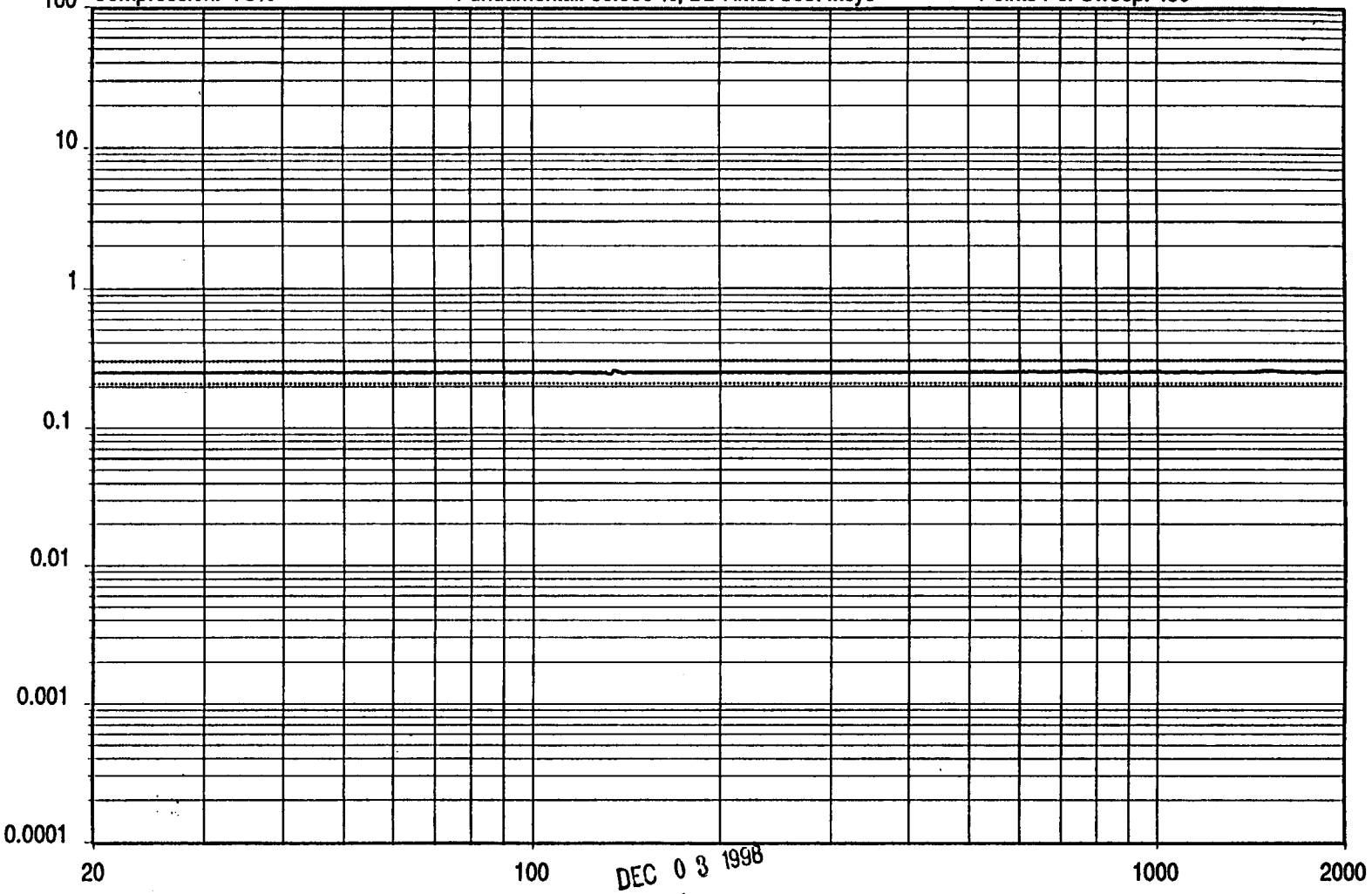
UNIT Y AXIS

ENG 7A 200 8/18/98

Sweep Number: 1.00
Sweep Rate 1: 2.000 oct/min
Compression: 75%

Elapsed Time: 000:03:1
Filter Type: Proportional
Fundamental: 80.000 %, BB RMS: 509. mcyc

Remaining Time: 000:00:00
Test Range: 20.000, 2000.000 Hz
Points Per Sweep: 450



DEC 0 3 1998

ENG
QC 236

8/18/98
ENG
IA 200

10:52:29
18-Aug-1998

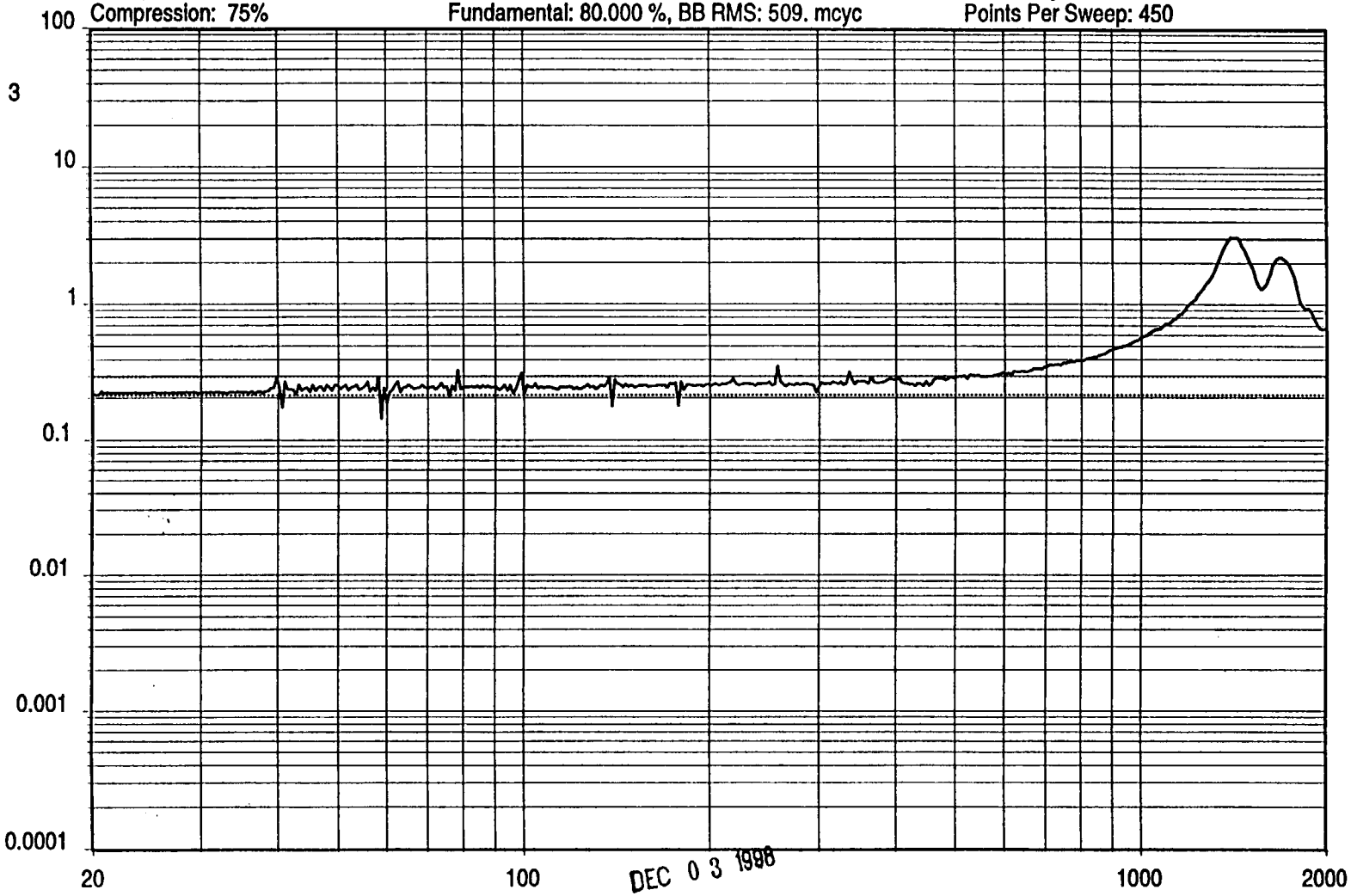
AMSU PHASE LOCK OSCILLATOR S/O 534921,~~534922~~
POST Z AXIS SINE SWEEP P/N 1348360-1,1348360-1 S/N ~~F08~~,F07
Sine Test Name: PLO.tmp

200

Sweep Number: 1.00
Sweep Rate 1: 2.000 oct/min
Compression: 75%

Elapsed Time: 000:03:19
Filter Type: Proportional
Fundamental: 80.000 %, BB RMS: 509. mcyc

Remaining Time: 000:00:00
Test Range: 20.000, 2000.000 Hz
Points Per Sweep: 450



DEC 0 3 1998

ENG
QC 236

10:52:33
18-Aug-1998

AMSU PHASE LOCK OSCILLATOR S/O 534921,~~534922~~
POST Z AXIS SINE SWEEP P/N 1348360-1,1348360-1 S/N~~F08~~,F07
Sine Test Name: PLO.tmp

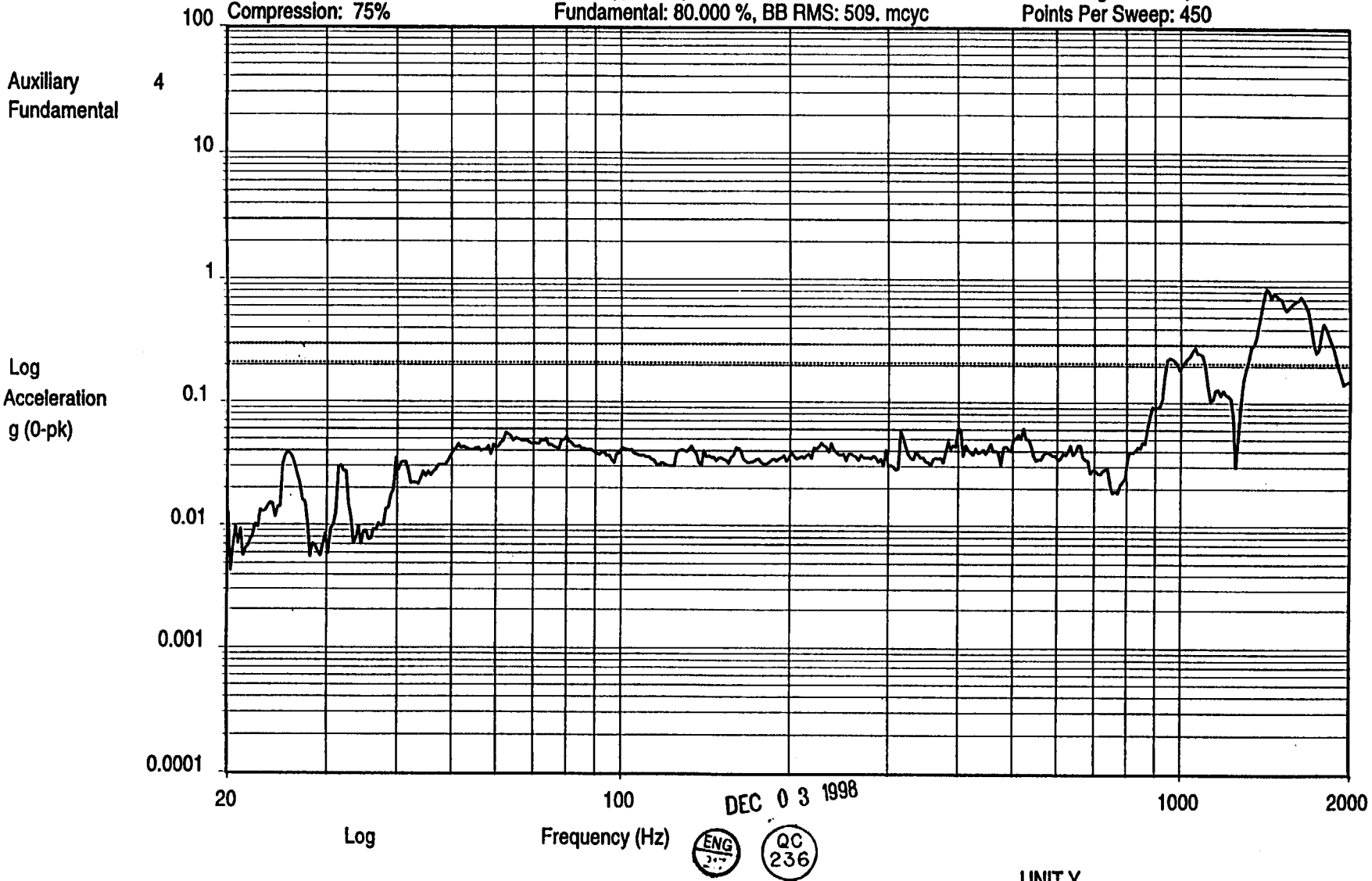
UNIT Z
8/18/98

ENG QA 200

Sweep Number: 1.00
Sweep Rate 1: 2.000 oct/min
Compression: 75%

Elapsed Time: 000:03:19
Filter Type: Proportional
Fundamental: 80.000 %, BB RMS: 509. mcyc

Remaining Time: 000:00:00
Test Range: 20.000, 2000.000 Hz
Points Per Sweep: 450



DEC 0 3 1998

ENG
QC 236

10:52:41
18-Aug-1998

AMSU PHASE LOCK OSCILLATOR S/O 534921,~~534922~~
POST Z AXIS SINE SWEEP P/N 1348360-1,1348360-1 S/N ~~F08~~,F07
Sine Test Name: PLO.tmp

UNIT Y

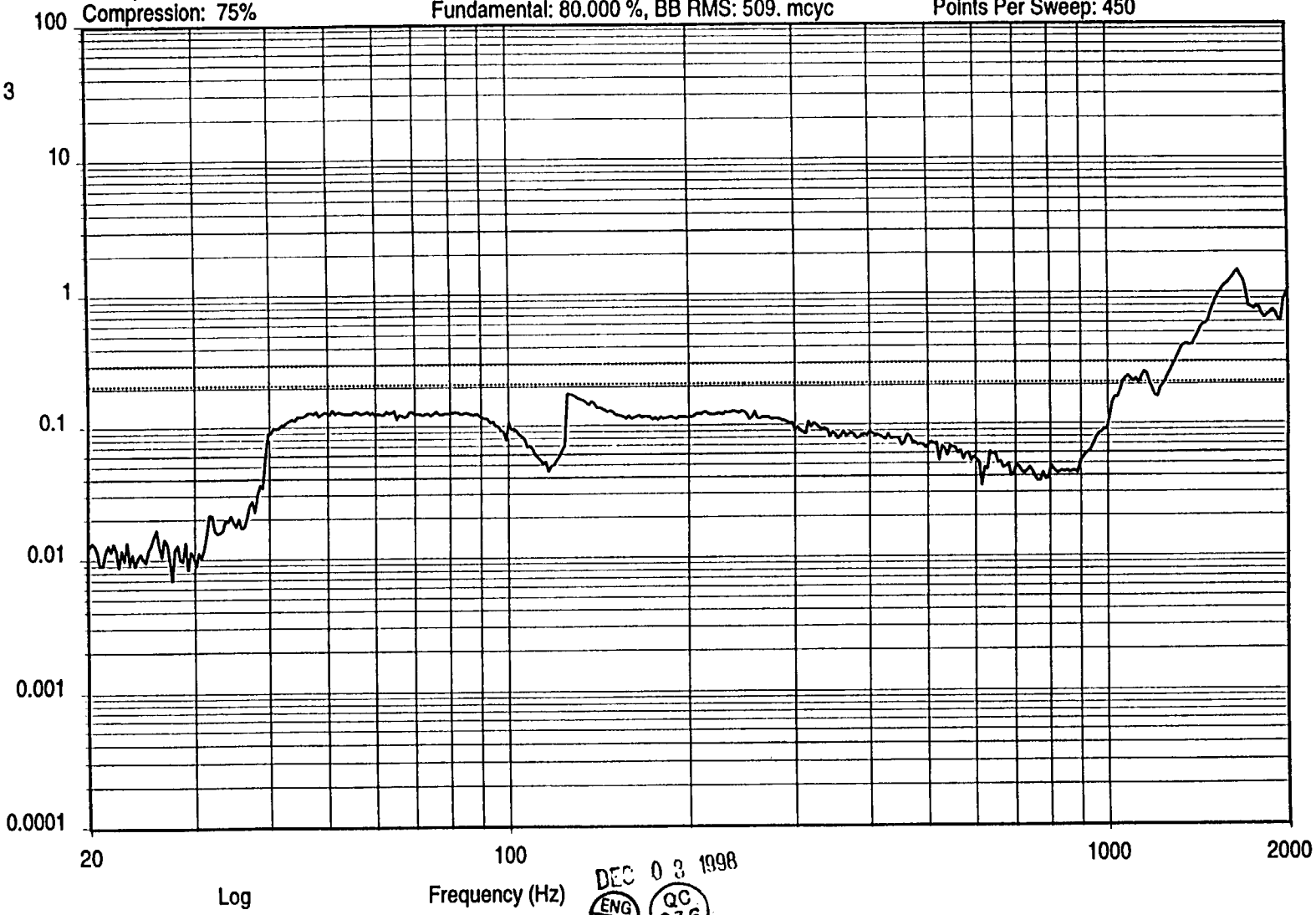
7A 200 ENG

8/18/98

Sweep Number: 1.00
Sweep Rate 1: 2.000 oct/min
Compression: 75%

Elapsed Time: 000:03:19
Filter Type: Proportional
Fundamental: 80.000 %, BB RMS: 509. mcyc

Remaining Time: 000:00:00
Test Range: 20.000, 2000.000 Hz
Points Per Sweep: 450



DEC 0 3 1998
ENG 217
QC 236

07:54:07
18-Aug-1998

AMSU PHASE LOCK OSCILLATOR S/O 5 34921,~~594922~~
PRE X AXIS SINE SWEEP P/N 1348360-1,1348360-1 S/N ~~F08~~,F07
Sine Test Name: PLO.tmp

UNIT Z
8/18/98

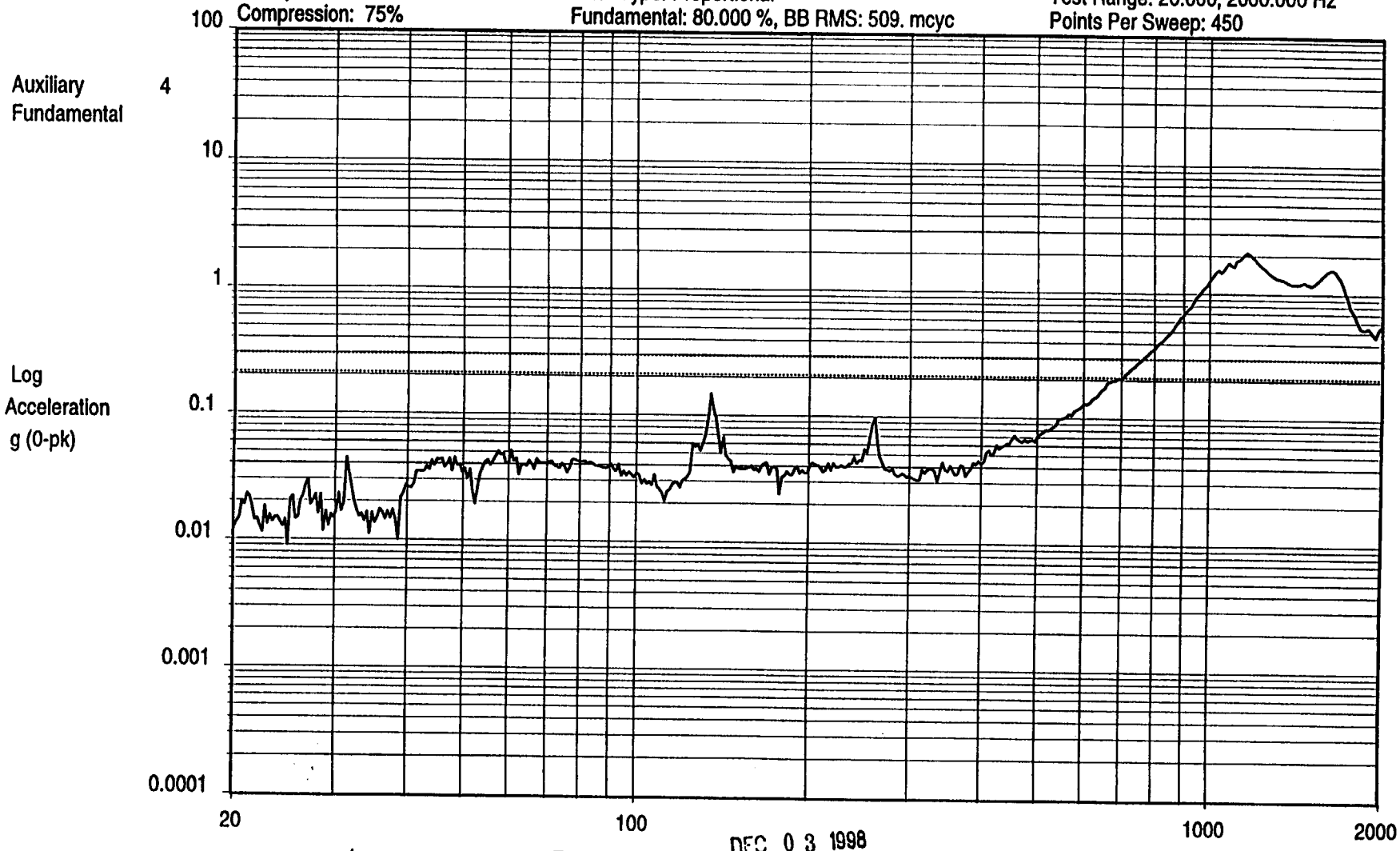
ENG 217
QA 200

AUG 1 8 1998

Sweep Number: 1.00
Sweep Rate 1: 2.000 oct/min
Compression: 75%

Elapsed Time: 000:03:19
Filter Type: Proportional
Fundamental: 80.000 %, BB RMS: 509. mcyc

Remaining Time: 000:00:00
Test Range: 20.000, 2000.000 Hz
Points Per Sweep: 450



DEC 0 3 1998

ENG 217 QC 236

07:54:12
18-Aug-1998

AMSU PHASE LOCK OSCILLATOR S/O 5 34921,~~534922~~
PRE X AXIS SINE SWEEP P/N 1348360-1,1348360-1 S/N ~~F08~~,F07
Sine Test Name: PLO.tmp

UNIT Y

8/18/98

ENG 217

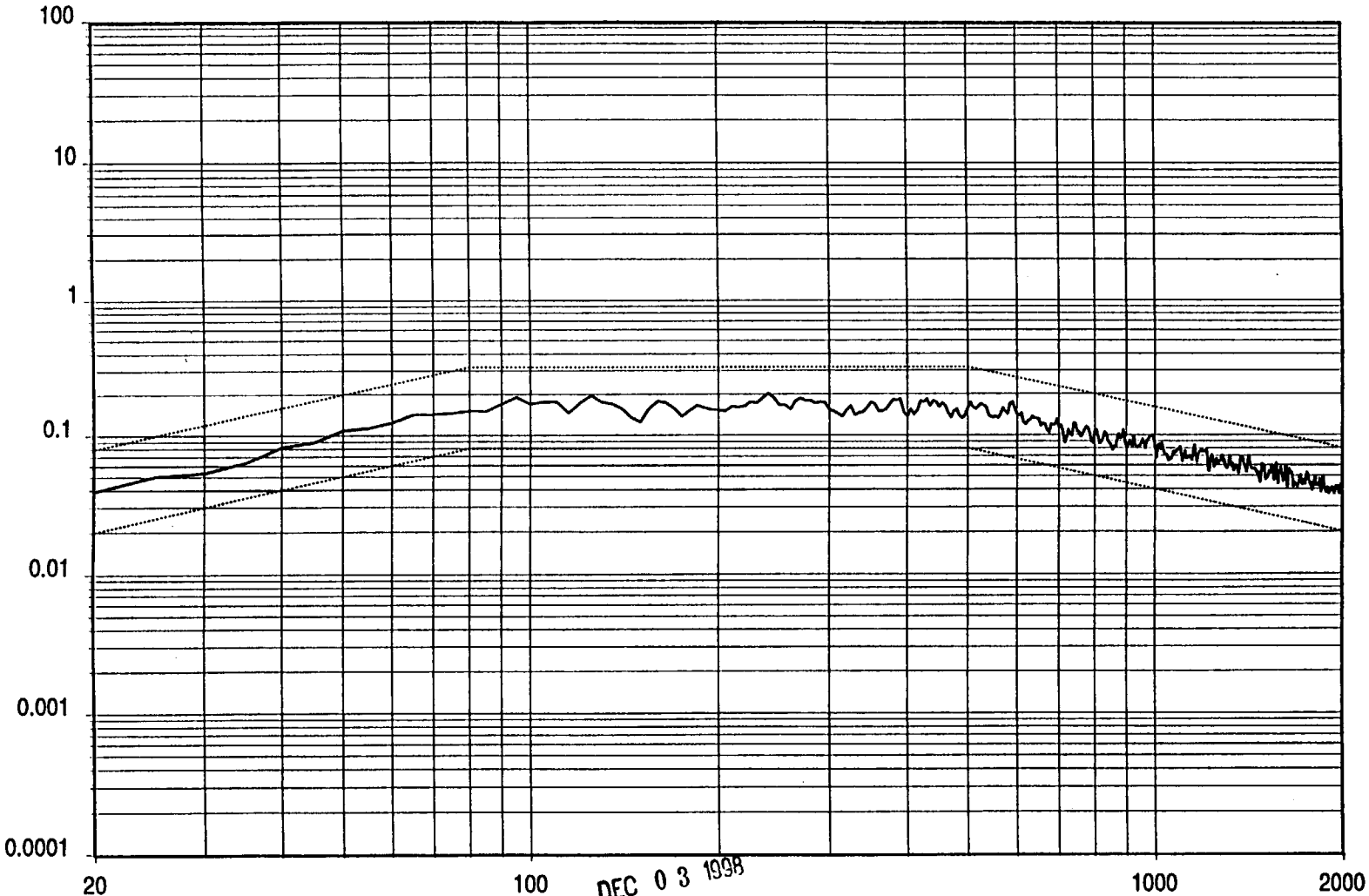
TA 200

AUG 1 8 1998

Test Level: 0.000 dB
Test Time: 000:01:00

Reference RMS: 13.576
Clipping: Off

Test Range: 20.000, 2000.000 Hz
Resolution: 5.000 Hz



Control

Log
g²/Hz

DOF 200

RMS:
13.666 g

DEC 0 3 1998

ENG 217

QC 236

8/18/98

08:05:18
18-Aug-1998

AMSU - PHASE LOCK OSCILLATOR S/O534921, ~~534922~~
X AXIS TEST P/N 1348360-1,1348360-1 S/N F~~00~~,F07
Test Name: PLO.tmp

ENG 217

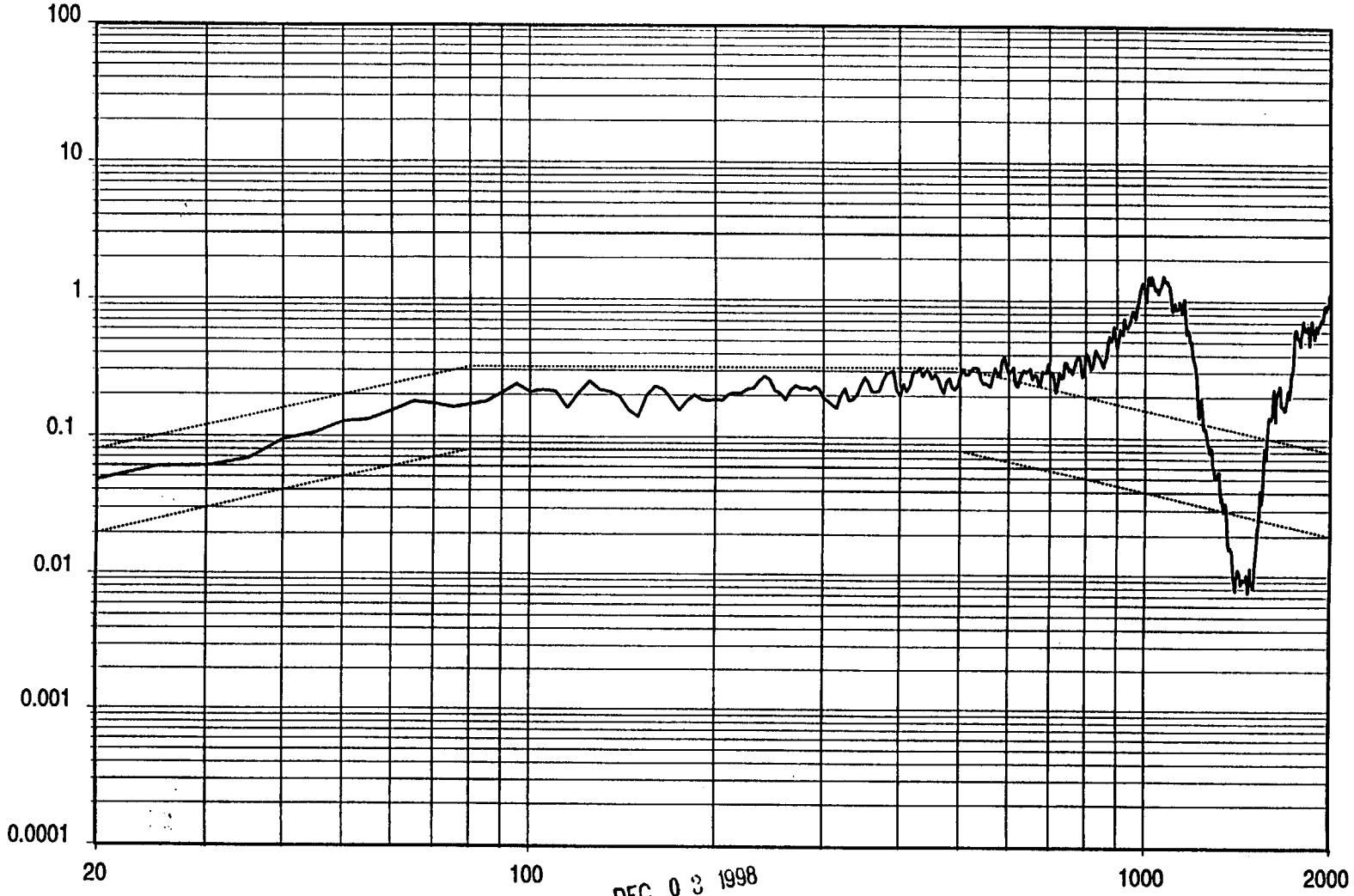
TA 200

AUG 1 8 1998

Test Level: 0.000 dB
Test Time: 000:01:00

Reference RMS: 13.576
Clipping: Off

Test Range: 20.000, 2000.000 Hz
Resolution: 5.000 Hz



DEC 0 3 1998
ENG 217
QC 236

08:05:24
18-Aug-1998

AMSU PHASE LOCK OSCILLATOR S/O534921, ~~534922~~
X AXIS TEST P/N 1348360-1,1348360-1 S/N ~~F08~~,F07
Test Name: PLO.tmp

UNIT X AXIS

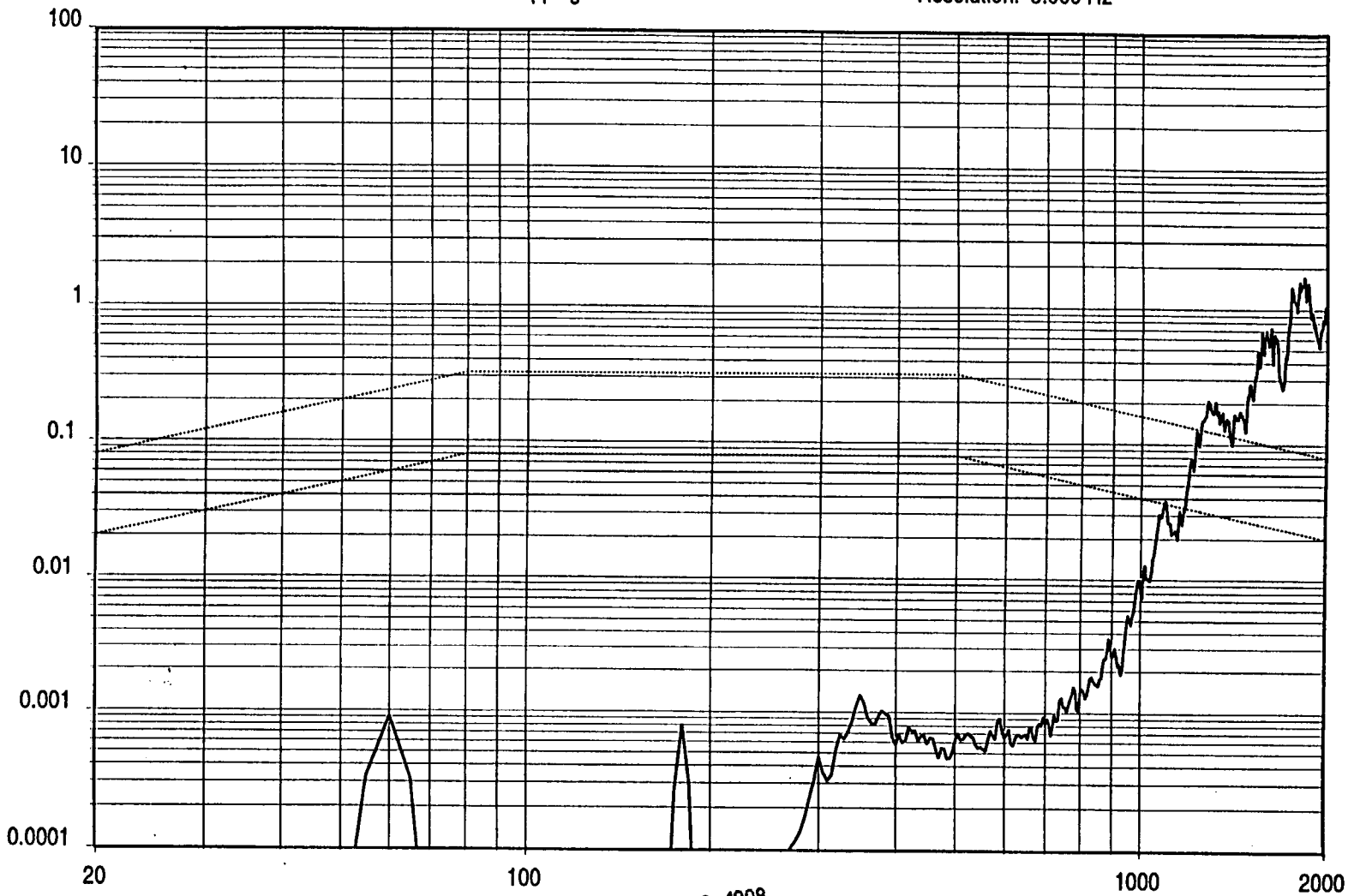
ENG 217 8/19/98
TA 200

AUG 1 8 1998

Test Level: 0.000 dB
Test Time: 000:01:00

Reference RMS: 13.576
Clipping: Off

Test Range: 20.000, 2000.000 Hz
Resolution: 5.000 Hz



DEC 0 3 1998
ENG 217
QC 236

08:05:28
18-Aug-1998

AMSU PHASE LOCK OSCILLATOR S/O534921, ~~534922~~
X AXIS TEST P/N 1348360-1,1348360-1 S/N ~~F08~~,F07
Test Name: PLO.tmp

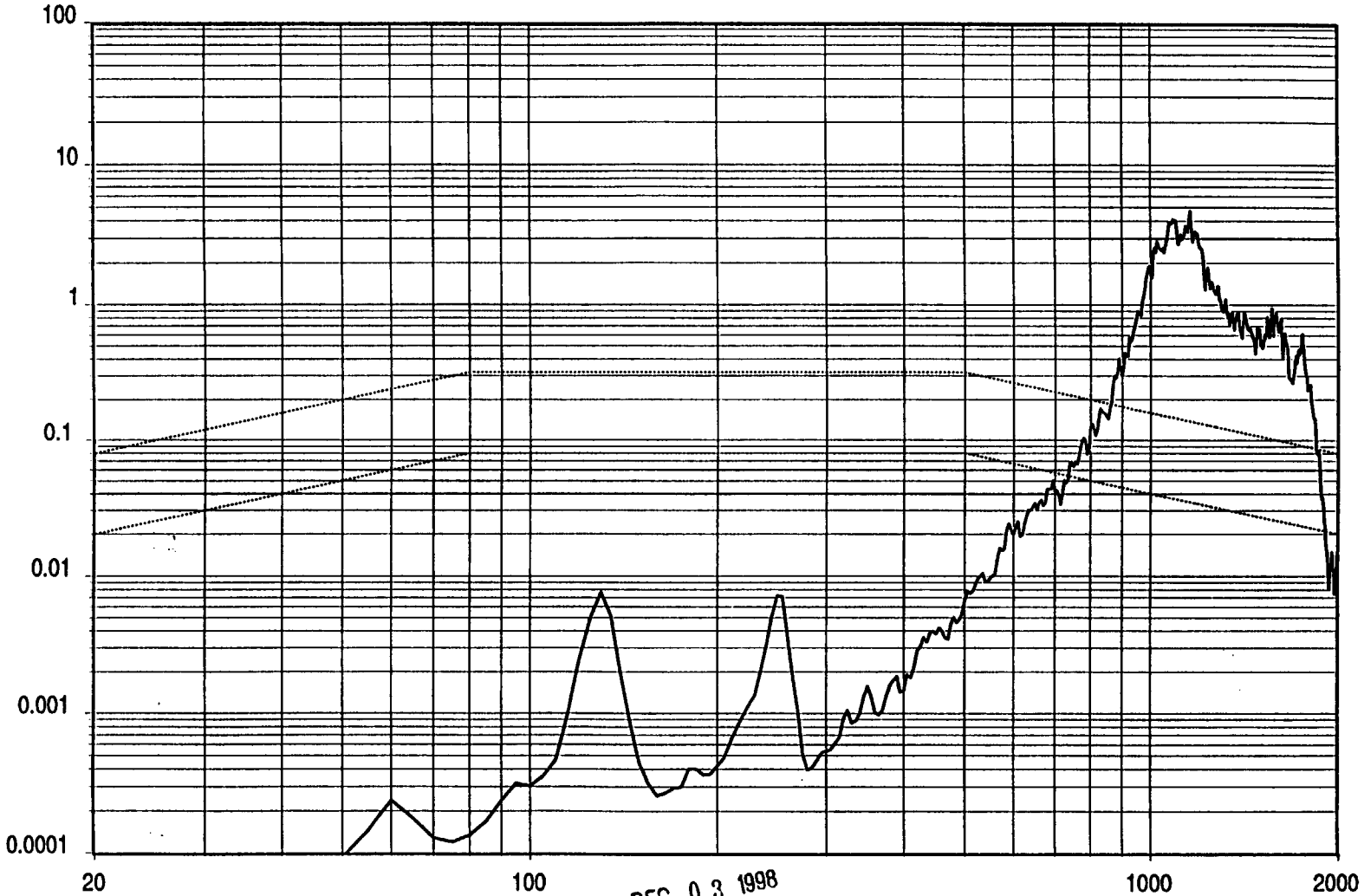
UNIT Z AXIS

ENG 217 8/18/98
TA 200
AUG 1 8 1998

Test Level: 0.000 dB
Test Time: 000:01:00

Reference RMS: 13.576
Clipping: Off

Test Range: 20.000, 2000.000 Hz
Resolution: 5.000 Hz



Auxiliary 4

Log
g²/Hz

DOF 120

RMS:
34.725 g

DEC 0 3 1998

QC 236

ENG 217

UNIT Y AXIS

08:05:32
18-Aug-1998

AMSU PHASE LOCK OSCILLATOR S/O534921, ~~534922~~
X AXIS TEST P/N 1348360-1,1348360-1 S/N ~~F08~~ ,F07
Test Name: PLO.tmp

ENG 217 8/18/98

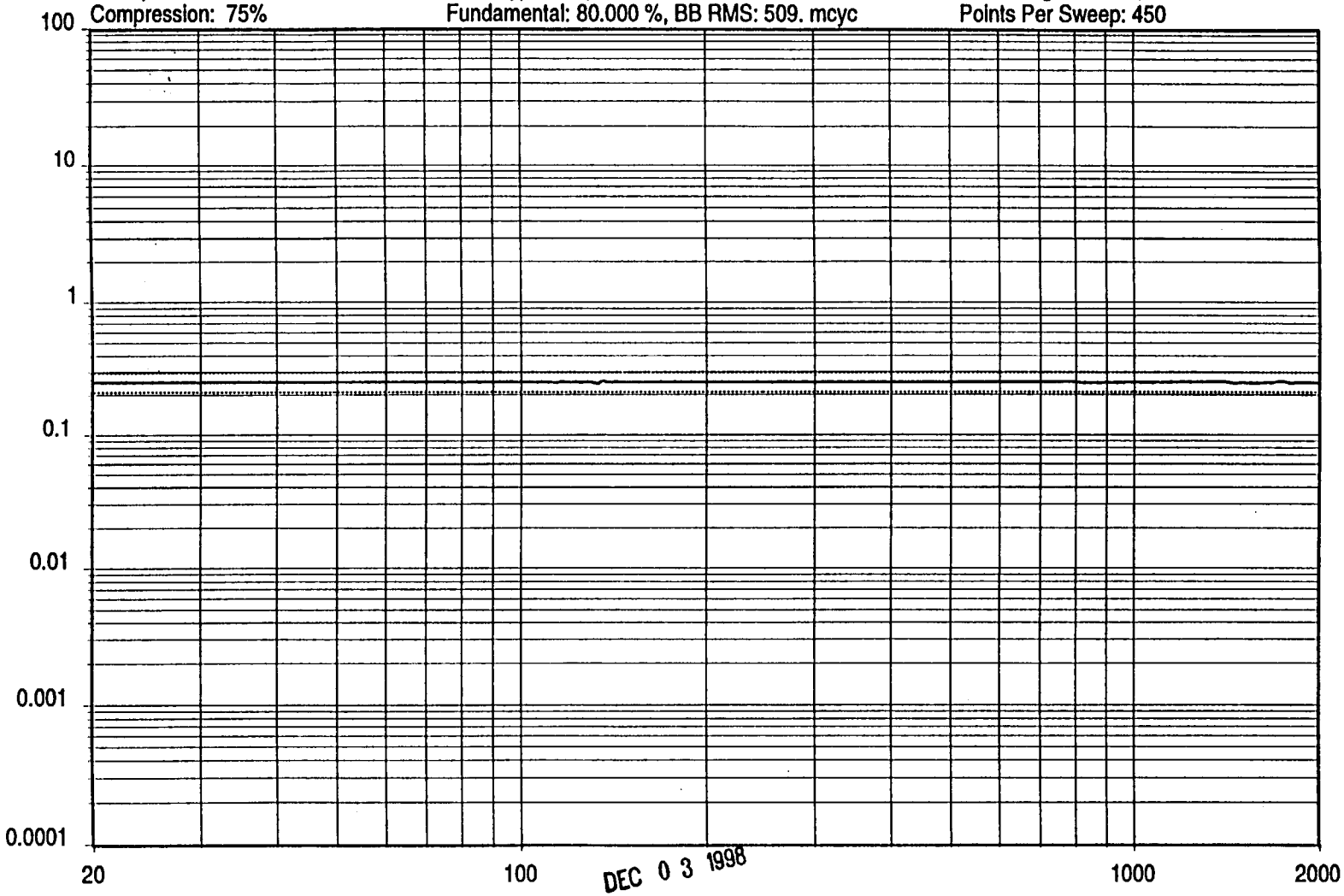
QA 200

AUG 1 8 1998

Sweep Number: 1.00
Sweep Rate 1: 2.000 oct/min
Compression: 75%

Elapsed Time: 000:03:19
Filter Type: Proportional
Fundamental: 80.000 %, BB RMS: 509. mcyc

Remaining Time: 000:00:00
Test Range: 20.000, 2000.000 Hz
Points Per Sweep: 450



DEC 0 3 1998

ENG 217 QC 236

08:15:30
18-Aug-1998

AMSU PHASE LOCK OSCILLATOR S/O 534921,~~534922~~
POST X AXIS SINE SWEEP P/N 1348360-1,1348360-1 S/N ~~F08~~;F07
Sine Test Name: PLO.tmp

8/18/98

ENG 217

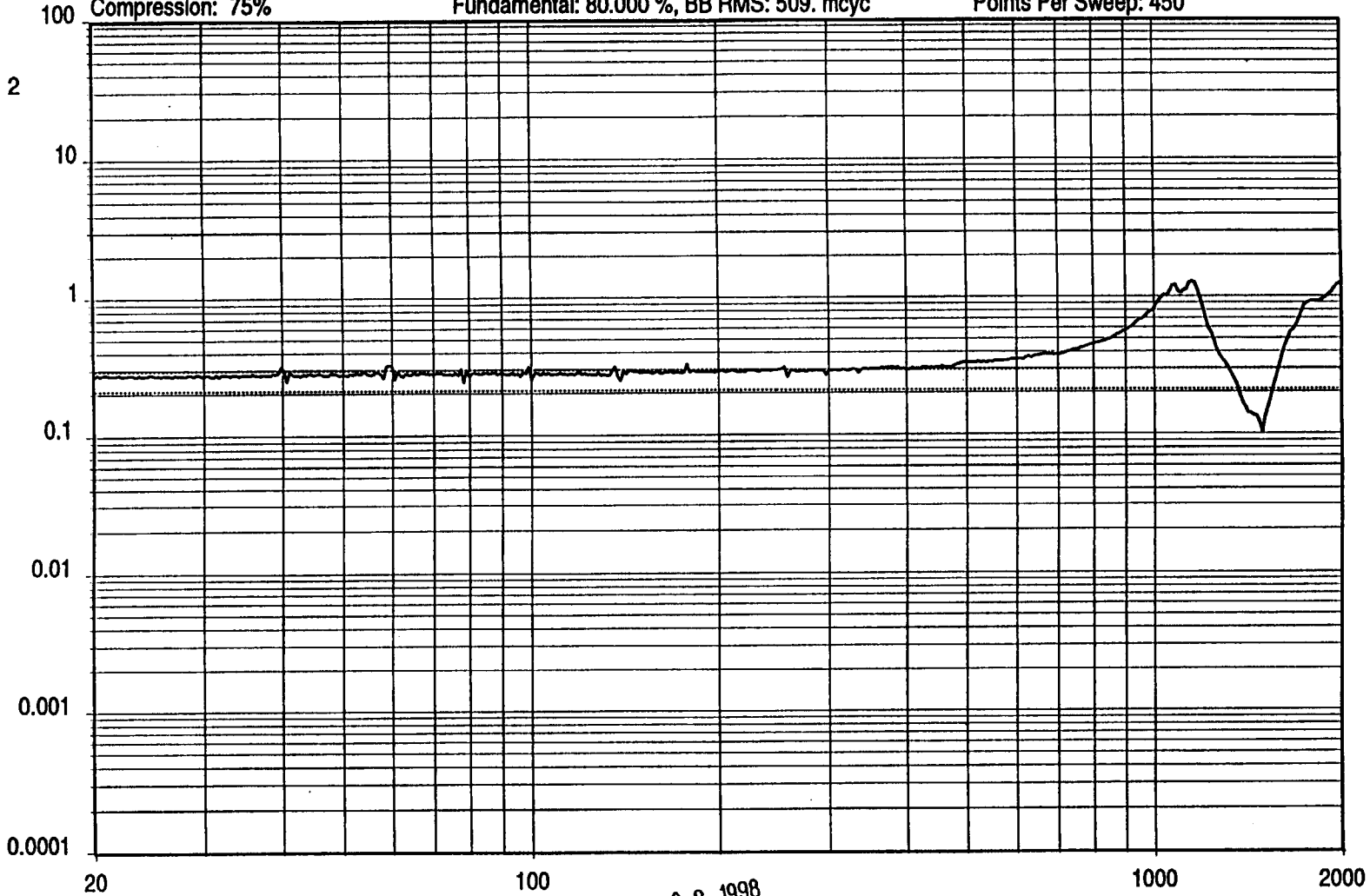
VA 300

AUG 1 8 ...

Sweep Number: 1.00
Sweep Rate 1: 2.000 oct/min
Compression: 75%

Elapsed Time: 000:03:19
Filter Type: Proportional
Fundamental: 80.000 %, BB RMS: 509. mcyc

Remaining Time: 000:00:00
Test Range: 20.000, 2000.000 Hz
Points Per Sweep: 450



DEC 0 3 1998
ENG
QC 236

08:16:06
18-Aug-1998

AMSU PHASE LOCK OSCILLATOR S/O 534921,~~534922~~
POST X AXIS SINE SWEEP P/N 1348360-1,1348360-1 S/N ~~F08~~,F07
Sine Test Name: PLO.tmp

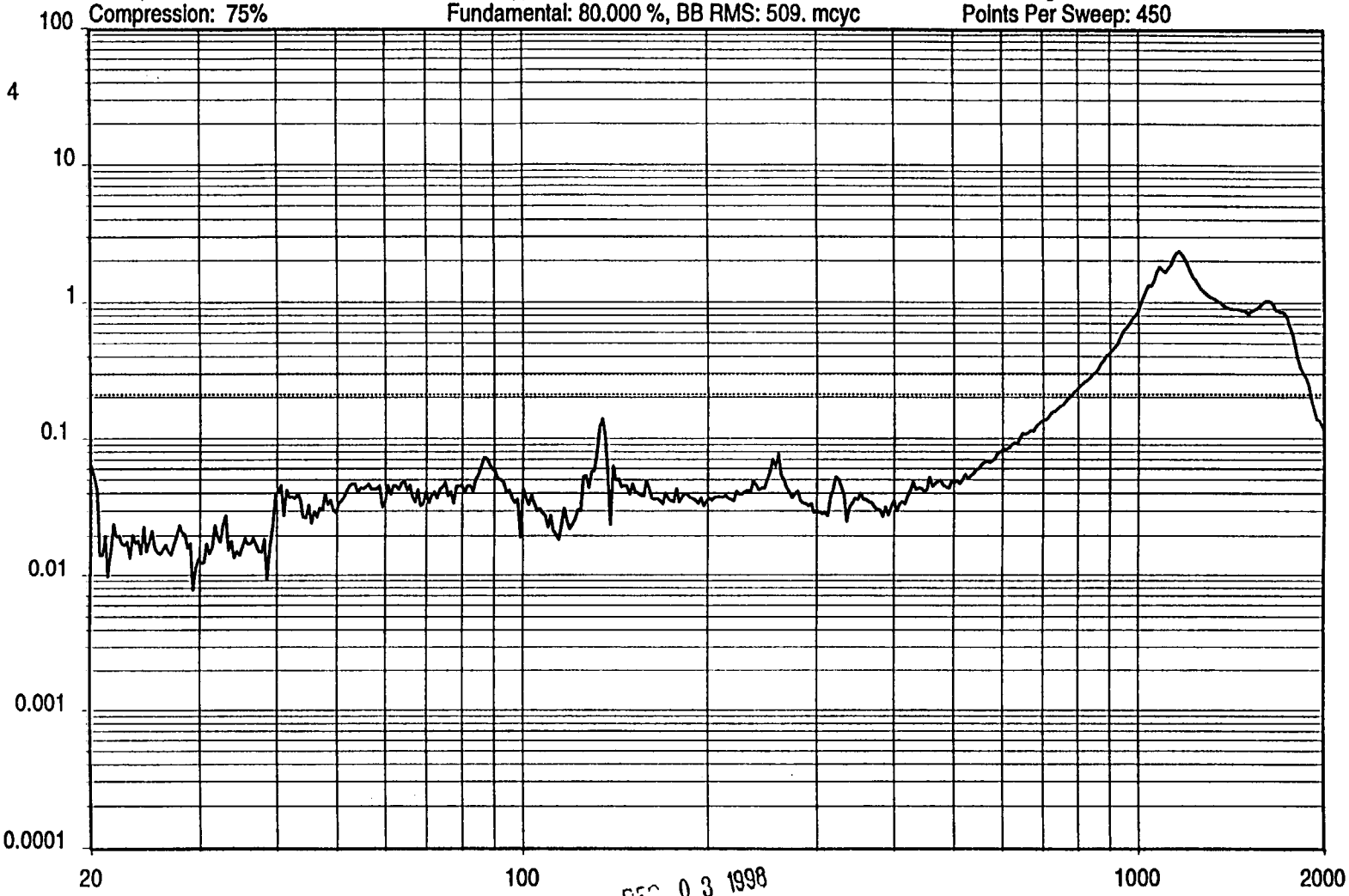
UNIT X
8/18/98

ENG 217
TA 200
AUG 1 8 1998

Sweep Number: 1.00
Sweep Rate 1: 2.000 oct/min
Compression: 75%

Elapsed Time: 000:03:19
Filter Type: Proportional
Fundamental: 80.000 %, BB RMS: 509. mcyc

Remaining Time: 000:00:00
Test Range: 20.000, 2000.000 Hz
Points Per Sweep: 450



DEC 0 3 1998

ENG 217 QC 236

UNIT Y

08:16:14
18-Aug-1998

AMSU PHASE LOCK OSCILLATOR S/O 534921,~~534922~~
POST X AXIS SINE SWEEP P/N 1348360-1,1348360-1 S/N ~~F08~~,F07

ENG 217 8/18/98

Sine Test Name: PLO.tmp

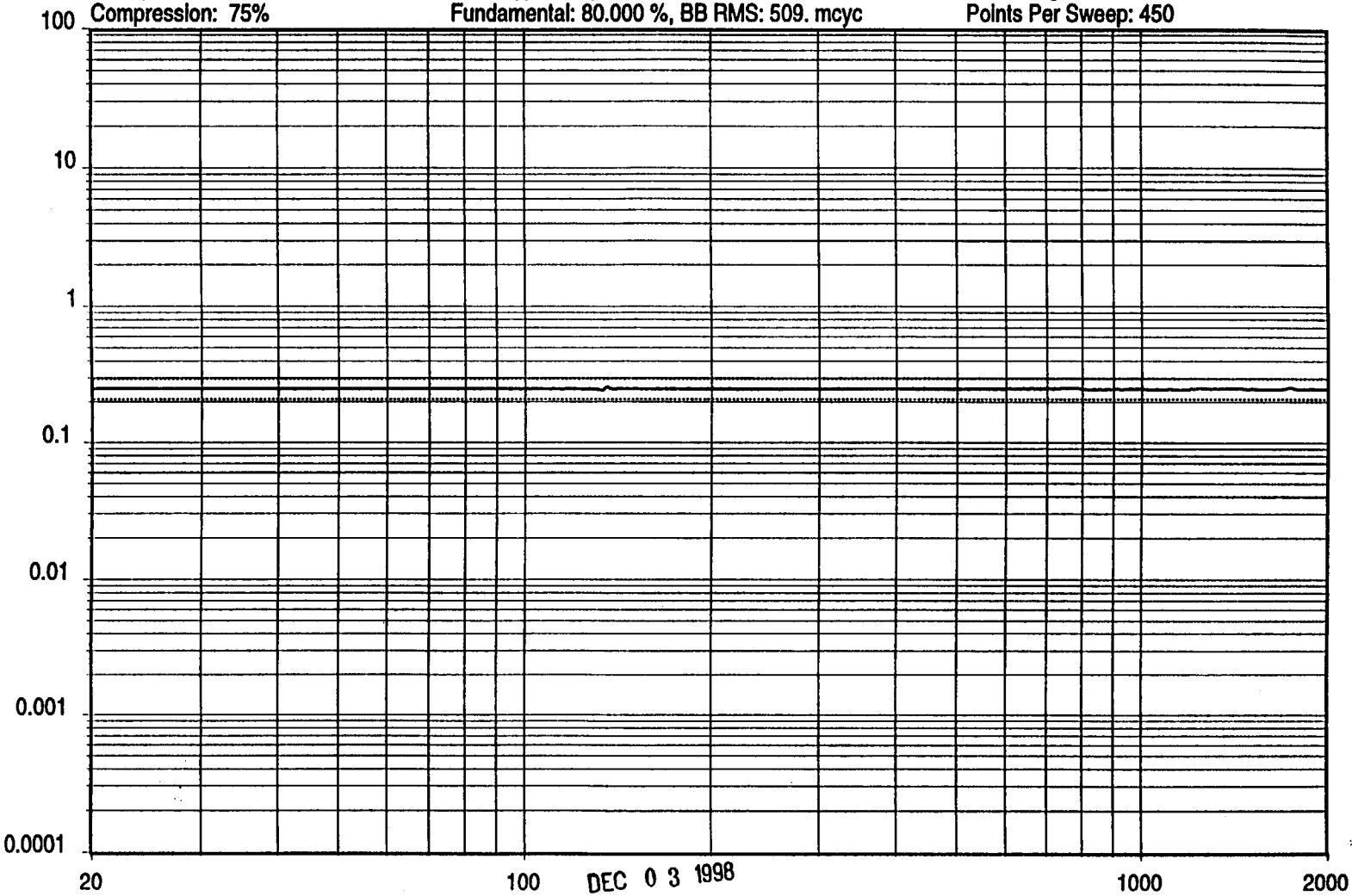
TA 200

AUG 1 8 1998

Sweep Number: 1.00
Sweep Rate 1: 2.000 oct/min
Compression: 75%

Elapsed Time: 000:03:19
Filter Type: Proportional
Fundamental: 80.000 %, BB RMS: 509. mcyc

Remaining Time: 000:00:00
Test Range: 20.000, 2000.000 Hz
Points Per Sweep: 450



DEC 0 3 1998

ENG 217 QC 236

08:56:37
18-Aug-1998

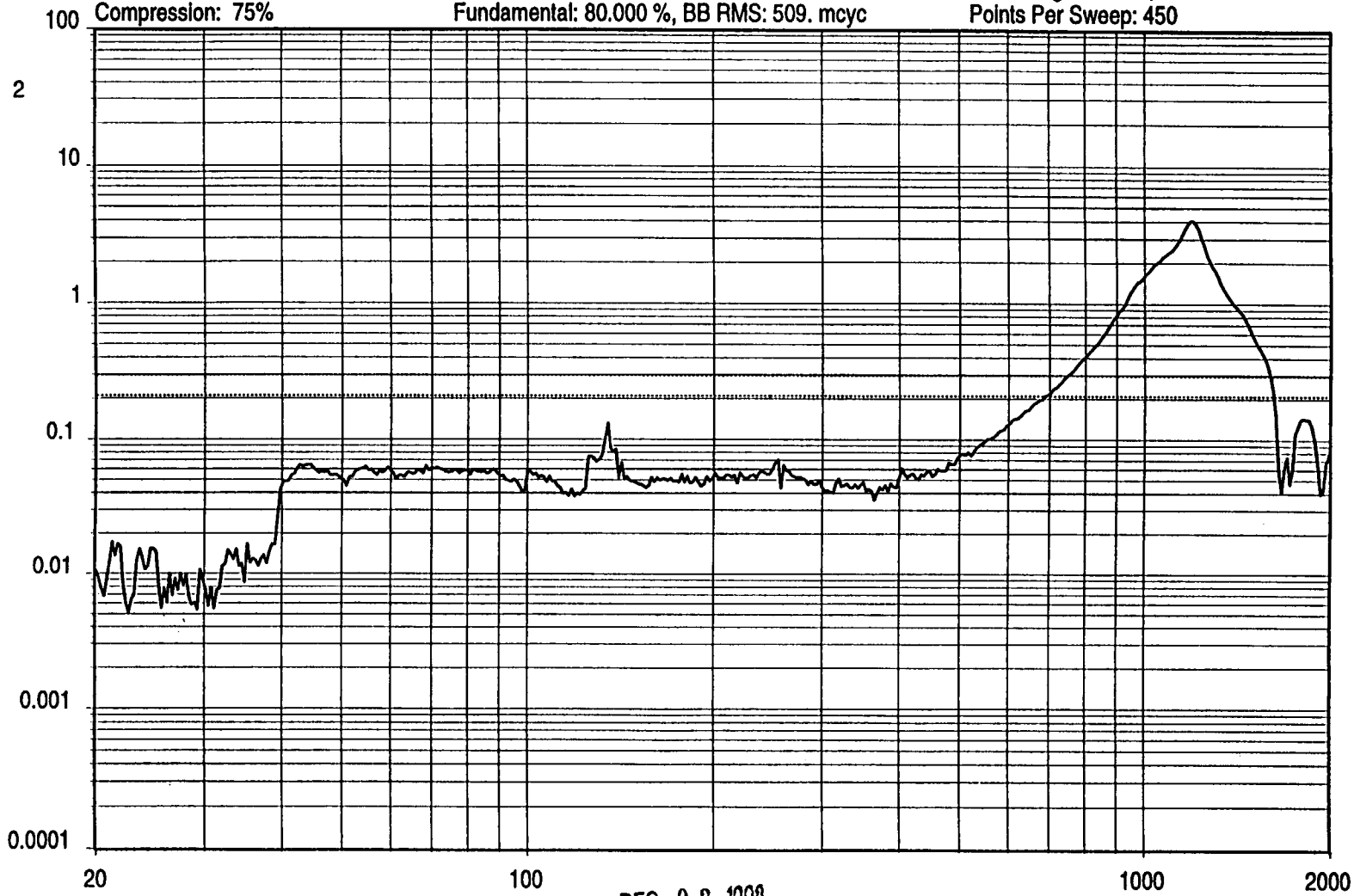
AMSU PHASE LOCK OSCILLATOR S/O 534921~~,534922~~
PRE Y AXIS SINE SWEEP P/N 1348360-1,1348360-1 S/N ~~FO~~8,F07
Sine Test Name: PLO.tmp

ENG 217 7A 200 8/18/98

Sweep Number: 1.00
Sweep Rate 1: 2.000 oct/min
Compression: 75%

Elapsed Time: 000:03:19
Filter Type: Proportional
Fundamental: 80.000 %, BB RMS: 509. mcyc

Remaining Time: 000:00:00
Test Range: 20.000, 2000.000 Hz
Points Per Sweep: 450



DEC 0 3 1998

ENG QC 236

08:56:43
18-Aug-1998

AMSU PHASE LOCK OSCILLATOR S/O 534921,~~534922~~
PRE Y AXIS SINE SWEEP P/N 1348360-1,1348360-1 S/N ~~F06~~,F07
Sine Test Name: PLO.tmp

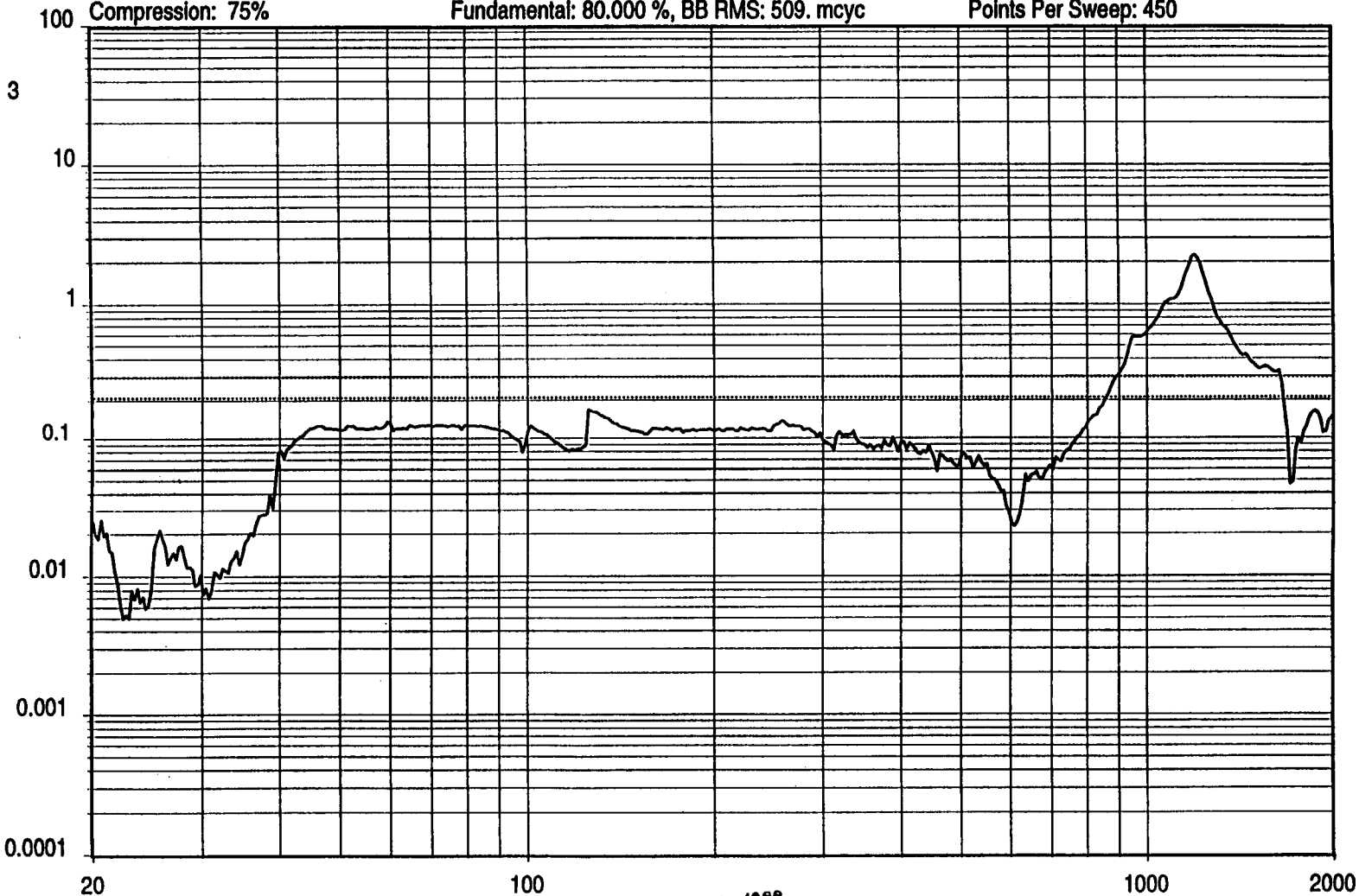
UNIT X

ENG IA 200 8/18/98

Sweep Number: 1.00
Sweep Rate 1: 2.000 oct/min
Compression: 75%

Elapsed Time: 000:03:19
Filter Type: Proportional
Fundamental: 80.000 %, BB RMS: 509. mcyc

Remaining Time: 000:00:00
Test Range: 20.000, 2000.000 Hz
Points Per Sweep: 450



DEC 0 3 1998

ENG 217 QC 236

08:56:46
18-Aug-1998

AMSU PHASE LOCK OSCILLATOR S/O 534921,~~534922~~
PRE Y AXIS SINE SWEEP P/N 1348360-1,1348360-1 S/N ~~F08~~,F07
Sine Test Name: PLO.tmp

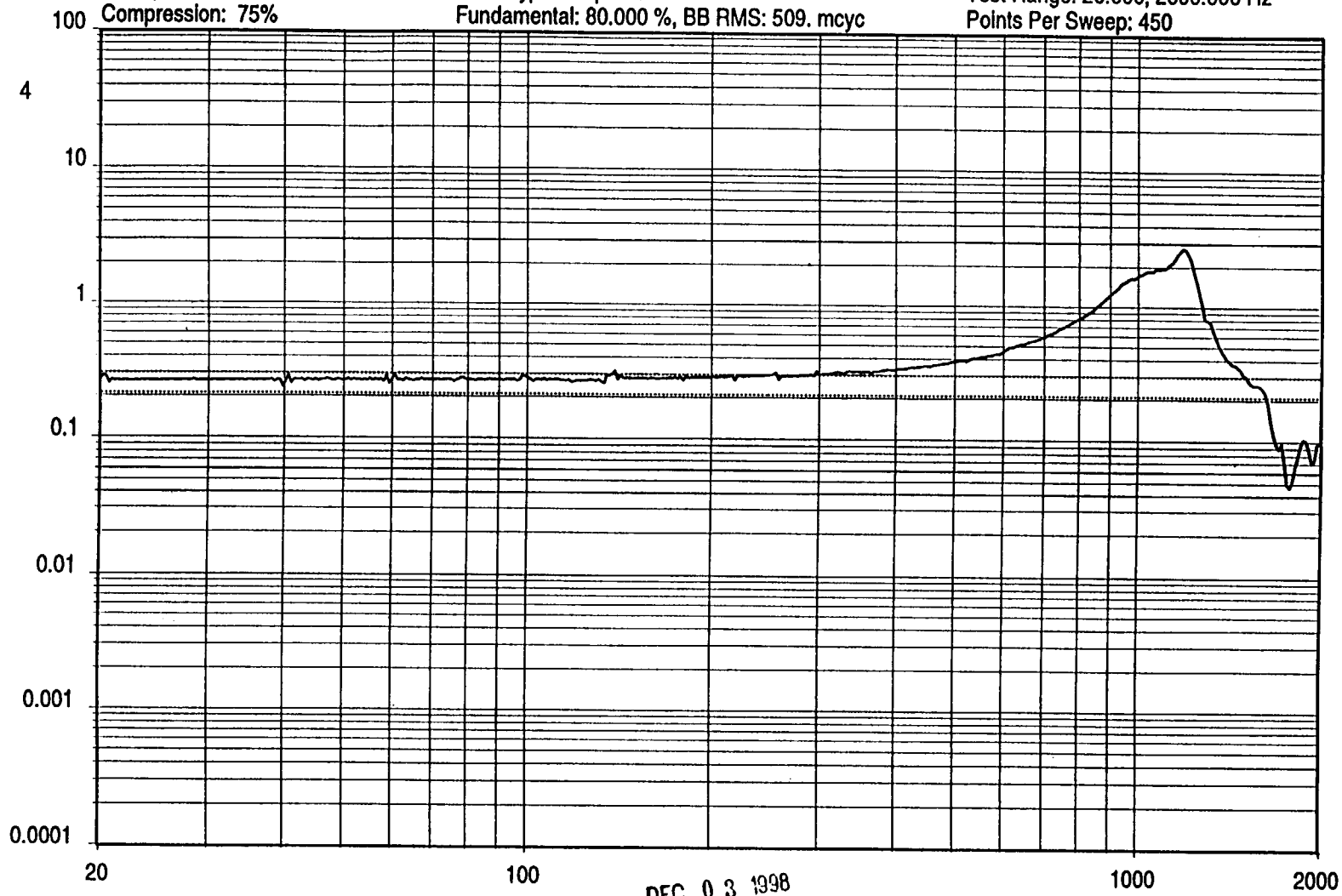
UNIT Z

ENG 217 QA 200 8/18/98

Sweep Number: 1.00
Sweep Rate 1: 2.000 oct/min
Compression: 75%

Elapsed Time: 000:03:19
Filter Type: Proportional
Fundamental: 80.000 %, BB RMS: 509. mcyc

Remaining Time: 000:00:00
Test Range: 20.000, 2000.000 Hz
Points Per Sweep: 450



DEC 0 3 1998

ENG 217 QC 236

08:56:51
18-Aug-1998

AMSU PHASE LOCK OSCILLATOR S/O 534921,~~534922~~
PRE Y AXIS SINE SWEEP P/N 1348360-1,1348360-1 S/N ~~F08~~,F07
Sine Test Name: PLO.tmp

UNIT Y

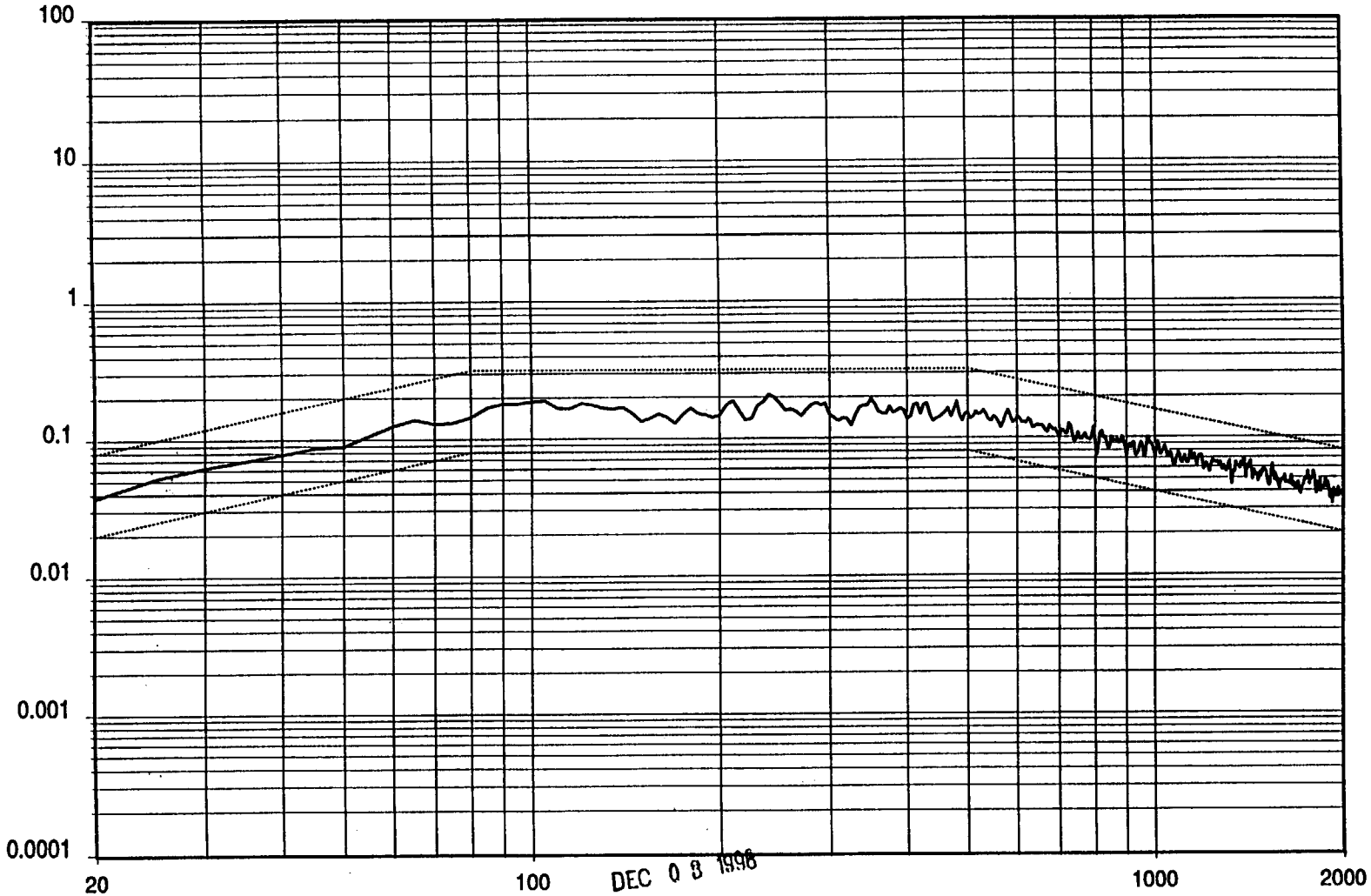
ENG 217 8/18/98

TA 200

Test Level: 0.000 dB
Test Time: 000:01:00

Reference RMS: 13.576
Clipping: Off

Test Range: 20.000, 2000.000 Hz
Resolution: 5.000 Hz



DEC 03 1998

ENG 217 QC 236

09:05:43
18-Aug-1998

AMSU PHASE LOCK OSCILLATOR S/O534921, ~~534922~~
Y AXIS TEST P/N 1348360-1,1348360-1 S/N ~~F08~~ ,F07
Test Name: PLO.tmp

8/18/98

ENG 217 QC 236

Section 2B: Acceptance Level Vibration - F08

This section includes the data from the limited functional tests which take place before and throughout vibration, and the vibration-specific. The following table summarizes the results of the limited functional test.

Test	Expected Value	Post X axis	Post Y axis	Post Z axis
Output Frequency	57290344 ± 200 kHz	57290318 kHz	57290318 kHz	57290317 kHz
Output Power	18.5 dBm ± 1.5 dB	19.1	19.1	17.0*

* This measurement is out-of-family. Measurements taken in later tests show expected power levels.

The following pages contain the raw data.

TEST DATA SHEET 8B

Limited Functional Test (Paragraph 4.2.3)

Post X-Axis LPT

Test Setup Verified: _____
Signature

Paragraph 4.2.3.2:

Step	Test		Required	Measurement	Pass/Fail
3	Potential Difference				
	From	To			
	Power Supply RTN	Test Platform *	< 1.0 Vac	N/A	N/A
	Power Supply RTN	Frequency Counter Chassis	< 1.0 Vac	0.02 Vac	Pass
	Power Supply RTN	Power Meter Chassis	< 1.0 Vac	0.03 Vac	Pass

Step	Test	Expected	Measured	Pass/Fail
8	Voltage Meter 1	+15 ± 0.1 V	+15.0 V	Pass
	Voltage Meter 2	-15 ± 0.1 V	-15.0 V	Pass
	Current Meter 1	600 mA max.	542. mA	Pass
	Current Meter 2	100 mA max.	65.8 mA	Pass
9	Output Frequency	57.290344 ± .0001 GHz	57.290318 GHz	Pass
10	Output Power	18.5 dBm ±1.5 dB	19.1 dBm	PASS

* If used. N/A this line entry if not used in test. Example: If PLO is to be vibrated and unit tested "in-place" after each axis, check potential difference between shaker table and power supply RTN.

Shop Order No.: 534922

Operation: 0150 STEP C

Unit Serial No.: FOS

Date: Aug 18, 1998

Test Engineer: _____ 8/18/98

Quality Control: _____

Govt. Rep.: _____ 8/18/98

TEST DATA SHEET 8C

Limited Functional Test (Paragraph 4.2.3)

Post Y-Axis LPT

Test Setup Verified: _____
Signature

Paragraph 4.2.3.2:

Step	Test		Required	Measurement	Pass/Fail
3	Potential Difference				
	From	To			
	Power Supply RTN	Test Platform *	< 1.0 Vac	N/A	N/A
	Power Supply RTN	Frequency Counter Chassis	< 1.0 Vac	0.04 VAC	Pass
	Power Supply RTN	Power Meter Chassis	< 1.0 Vac	0.03 VAC	Pass

Step	Test	Expected	Measured	Pass/Fail
8	Voltage Meter 1	+15 ± 0.1 V	+15.0 V	PASS
	Voltage Meter 2	-15 ± 0.1 V	+15.0 V	PASS
	Current Meter 1	600 mA max.	541.5 mA	PASS
	Current Meter 2	100 mA max.	65.8 mA	PASS
9	Output Frequency	57.290344 ± .0001 GHz	57.290318 GHz	PASS
10	Output Power	18.5 dBm ±1.5 dB	19.1 bBm	PASS

* If used. N/A this line entry if not used in test. Example: If PLO is to be vibrated and unit tested "in-place" after each axis, check potential difference between shaker table and power supply RTN.

Shop Order No.: 534922

Operation: 0150 STEP E

Unit Serial No.: F08

Date: Aug 18, 1998

Test Engineer: _____ 8/18/

Quality Control: _____ QA 200

Govt. Rep.: _____

TEST DATA SHEET 8D

Limited Functional Test (Paragraph 4.2.3)

Post Z-Axis LPT

Test Setup Verified: _____
Signature

Paragraph 4.2.3.2:

Step	Test		Required	Measurement	Pass/Fail
3	Potential Difference				
	From	To			
	Power Supply RTN	Test Platform *	< 1.0 Vac	N/A	N/A
	Power Supply RTN	Frequency Counter Chassis	< 1.0 Vac	0.05 Vac	PASS
	Power Supply RTN	Power Meter Chassis	< 1.0 Vac	0.03 Vac	PASS

Step	Test	Expected	Measured	Pass/Fail
8	Voltage Meter 1	+15 ± 0.1 V	+15.0 V	PASS
	Voltage Meter 2	-15 ± 0.1 V	-15.0 V	PASS
	Current Meter 1	600 mA max.	541.9 mA	PASS
	Current Meter 2	100 mA max.	65.8 mA	PASS
9	Output Frequency	57.290344 ± .0001 GHz	57.290317 GHz	PASS
10	Output Power	18.5 dBm ±1.5 dB	17.02	PASS

* If used. N/A this line entry if not used in test. Example: If PLO is to be vibrated and unit tested "in-place" after each axis, check potential difference between shaker table and power supply RTN.

Shop Order No.: 534922

Operation: 0150 STEP C

Unit Serial No.: F08

Date: Aug 18, 1998

Test Engineer: _____ 8/18/98

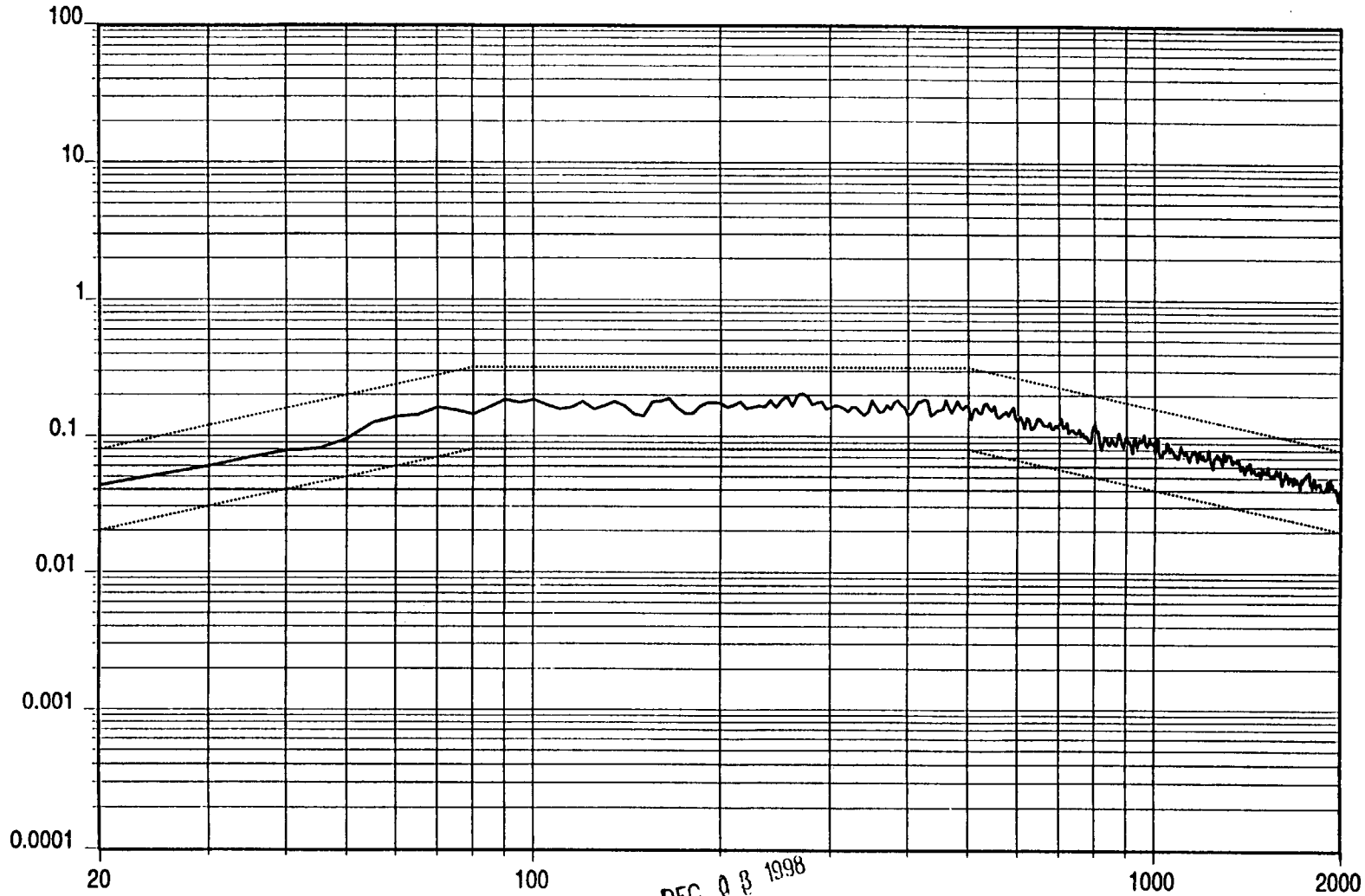
Quality Control: _____

Govt. Rep.: _____ 8/18/98

Test Level: 0.000 dB
Test Time: 000:01:00

Reference RMS: 13.576
Clipping: Off

Test Range: 20.000, 2000.000 Hz
Resolution: 5.000 Hz



Control

Log
g²/Hz
DOF 200
RMS:
13.861 g

Log Frequency (Hz)

DEC 08 1998

ENG 217 QC 236

15:00:17
Mon Aug 17 1998

AMSU PHASE LOCK OSCILLATOR S/O~~534921~~, 534922
FIXTURE CHECKOUT P/N 1348360-1,1348360-1 S/N F08 ,~~F07~~

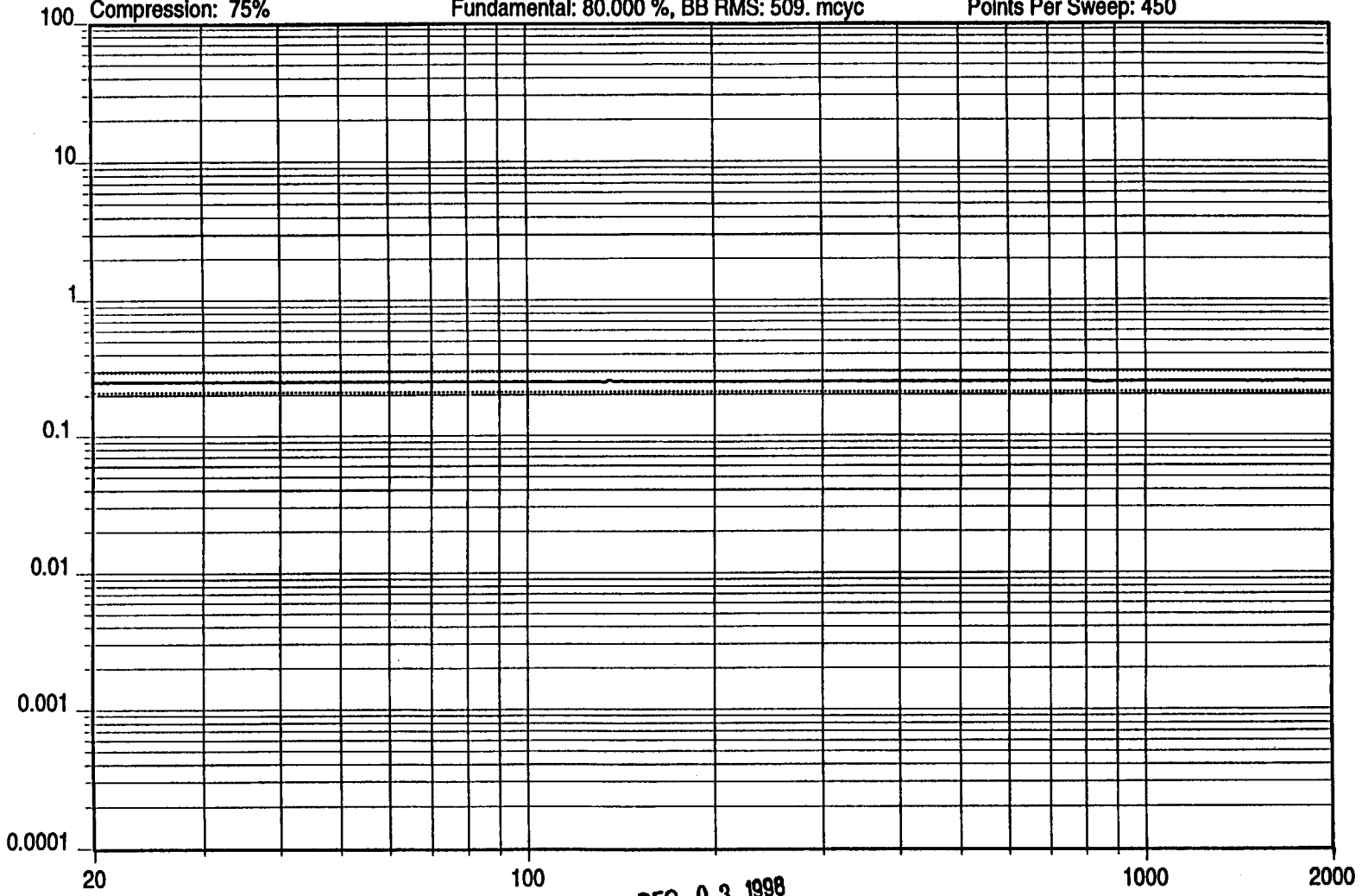
Data Review Name: PLO.tmp

ENG 217 TA 200 8/17/98

Sweep Number: 1.00
Sweep Rate 1: 2.000 oct/min
Compression: 75%

Elapsed Time: 000:03:19
Filter Type: Proportional
Fundamental: 80.000 %, BB RMS: 509. mcyc

Remaining Time: 000:00:00
Test Range: 20.000, 2000.000 Hz
Points Per Sweep: 450



DEC 03 1998

ENG 217 QC 236

8/17/98

ENG 217 TA 200

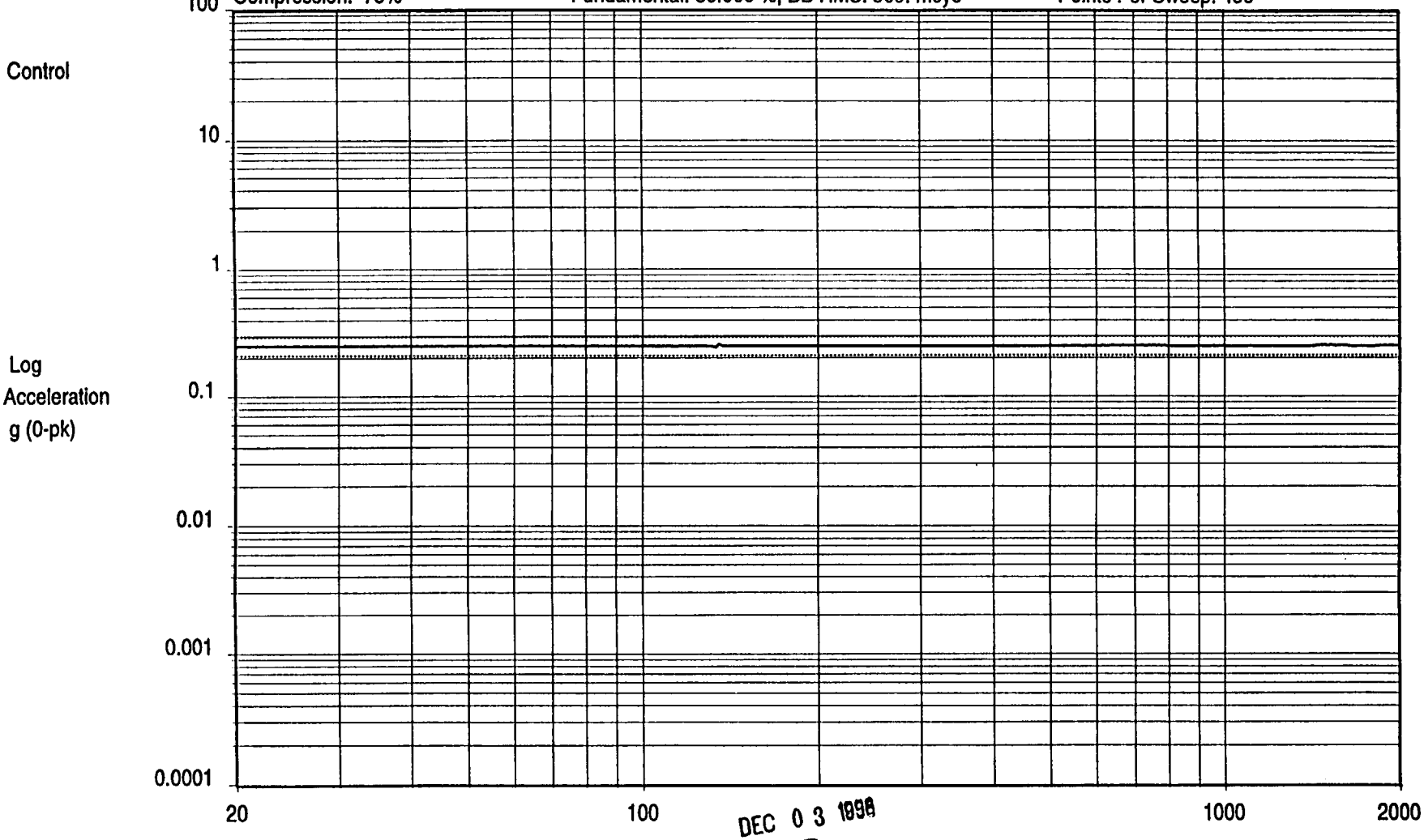
15:21:42
17-Aug-1998

AMSU PHASE LOCK OSCILLATOR S/O ~~5-94921~~,534922
FIXTURE CHECKOUT P/N 1348360-1,1348360-1 S/N FO8,~~F07~~
Sine Test Name: PLO.tmp

Sweep Number: 1.00
Sweep Rate 1: 2.000 oct/min
Compression: 75%

Elapsed Time: 000:03:19
Filter Type: Proportional
Fundamental: 80.000 %, BB RMS: 509. mcyc

Remaining Time: 000:00:00
Test Range: 20.000, 2000.000 Hz
Points Per Sweep: 450



DEC 0 3 1998

ENG 217 QC 236

11:25:21
18-Aug-1998

AMSU PHASE LOCK OSCILLATOR S/O ~~534921~~,534922
PRE Z AXIS SINE SWEEP P/N 1348360-1,1348360-1 S/N FO8,~~F07~~

Sine Test Name: PLO.tmp

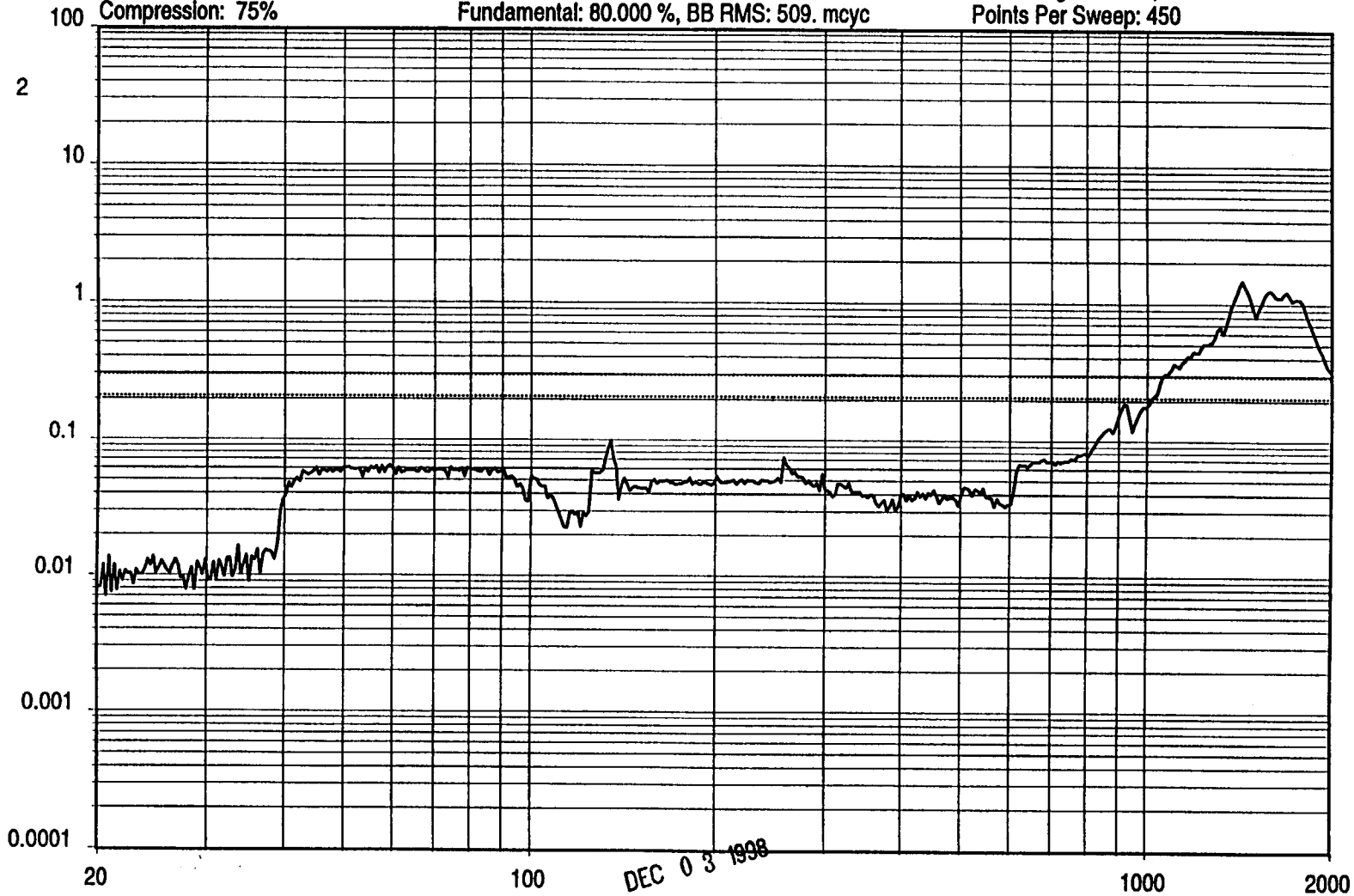
ENG 217 TA 200

AUG 1 8 1998

Sweep Number: 1.00
Sweep Rate 1: 2.000 oct/min
Compression: 75%

Elapsed Time: 000:03:19
Filter Type: Proportional
Fundamental: 80.000 %, BB RMS: 509. mcyc

Remaining Time: 000:00:00
Test Range: 20.000, 2000.000 Hz
Points Per Sweep: 450



DEC 03 1998

ENG 217

QC 236

UNIT X

11:25:29
18-Aug-1998

AMSU PHASE LOCK OSCILLATOR S/O ~~534921~~,534922
PRE Z AXIS SINE SWEEP P/N 1348360-1,1348360-1 S/N FO8,~~F07~~
Sine Test Name: PLO.tmp

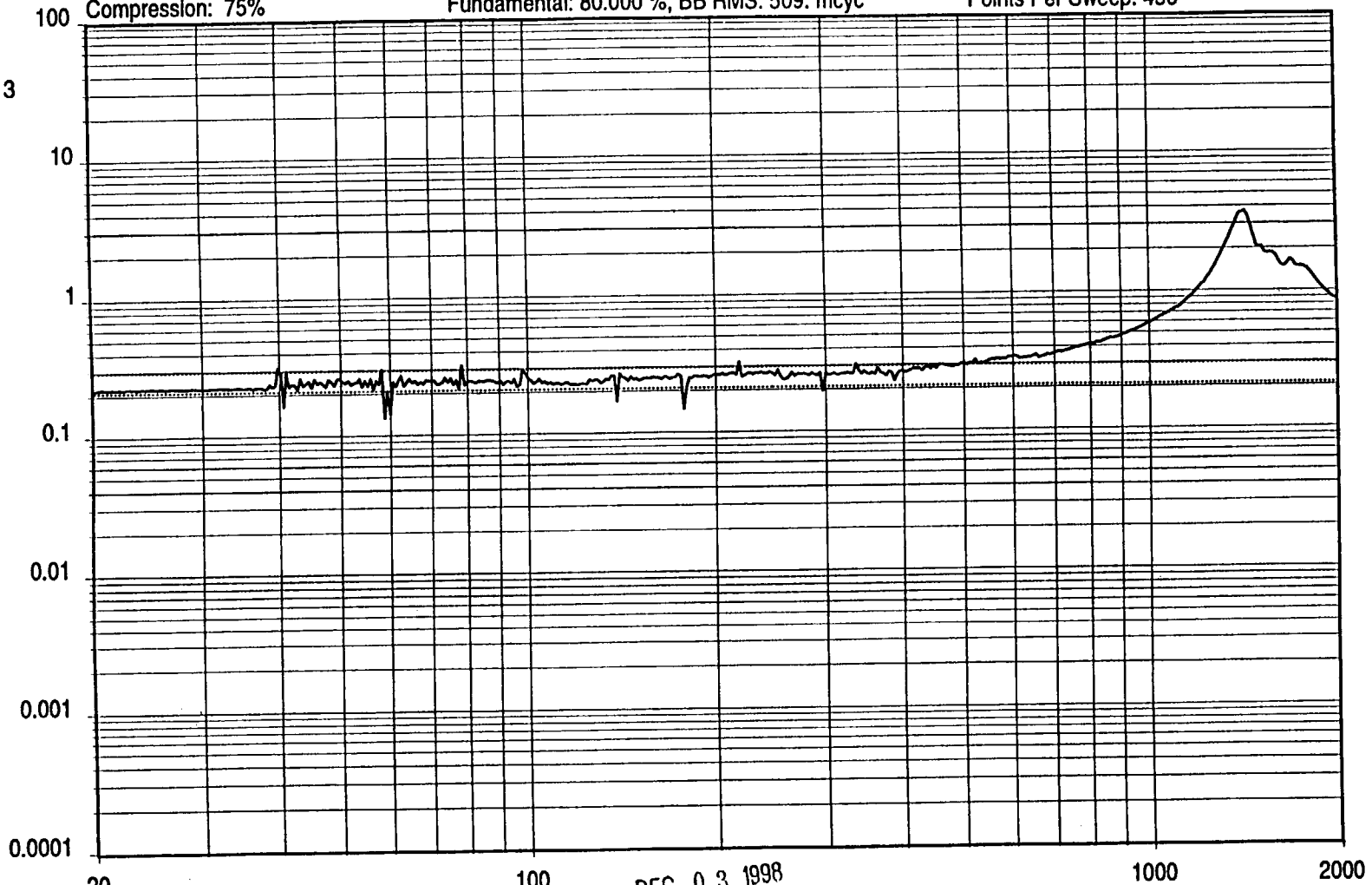
ENG 217 MA 200

AUG 18 1998

Sweep Number: 1.00
Sweep Rate 1: 2.000 oct/min
Compression: 75%

Elapsed Time: 000:03:19
Filter Type: Proportional
Fundamental: 80.000 %, BB RMS: 509. mcyc

Remaining Time: 000:00:00
Test Range: 20.000, 2000.000 Hz
Points Per Sweep: 450



DEC 03 1998

ENG

QC 236

UNIT Z

11:25:23
18-Aug-1998

AMSU PHASE LOCK OSCILLATOR S/O ~~534921~~,534922
PRE Z AXIS SINE SWEEP P/N 1348360-1,1348360-1 S/N FO8,~~F07~~

Sine Test Name: PLO.tmp

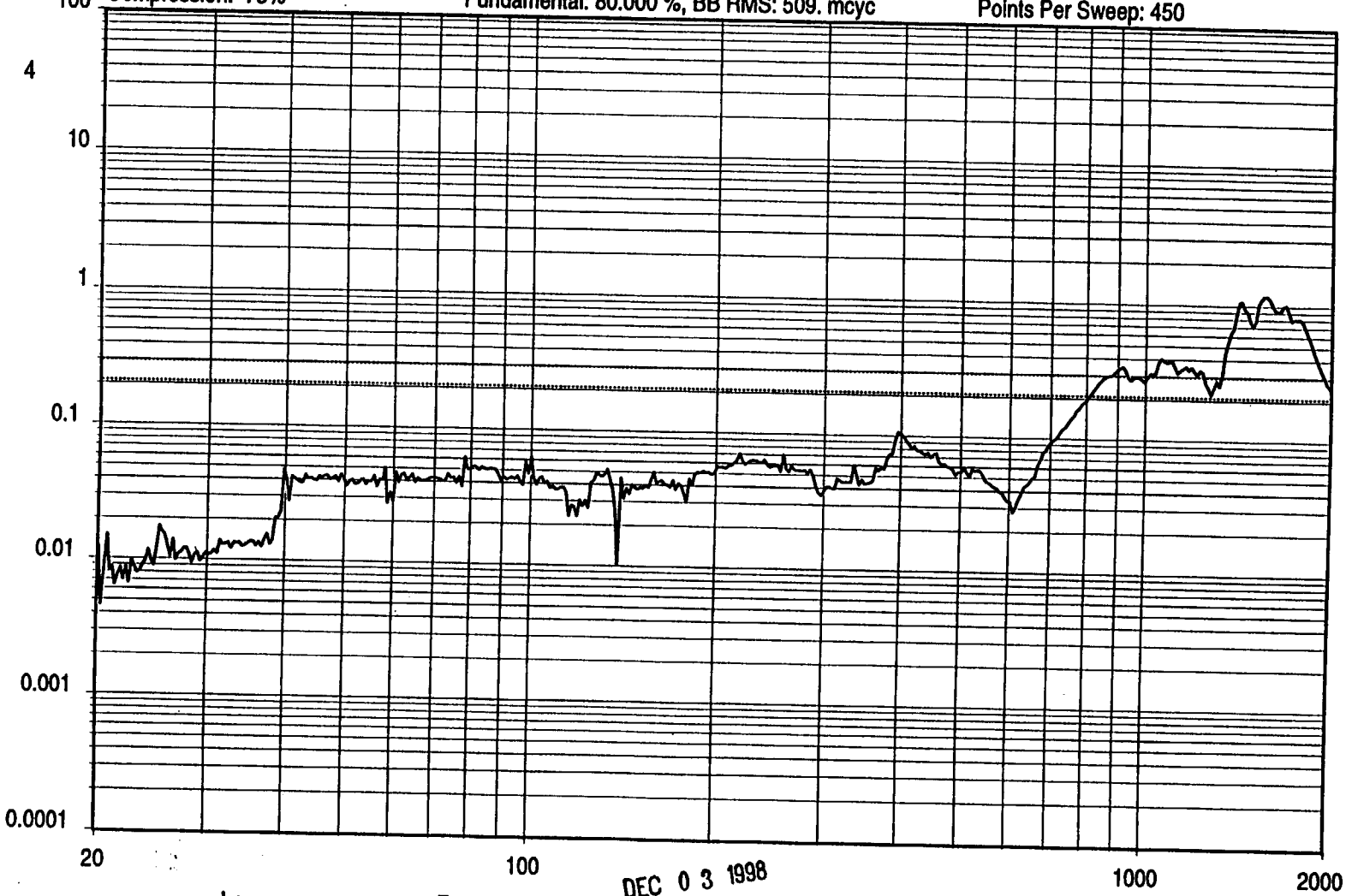
7A 200

AUG 18 1998

Sweep Number: 1.00
Sweep Rate 1: 2.000 oct/min
Compression: 75%

Elapsed Time: 000:03:19
Filter Type: Proportional
Fundamental: 80.000 %, BB RMS: 509. mcyc

Remaining Time: 000:00:00
Test Range: 20.000, 2000.000 Hz
Points Per Sweep: 450



DEC 0 3 1998

ENG 2??

QC 236

11:25:26
18-Aug-1998

AMSU PHASE LOCK OSCILLATOR S/O ~~534921~~,534922
PRE Z AXIS SINE SWEEP P/N 1348360-1,1348360-1 S/N FO8,~~F07~~
Sine Test Name: PLO.tmp

UNIT Y

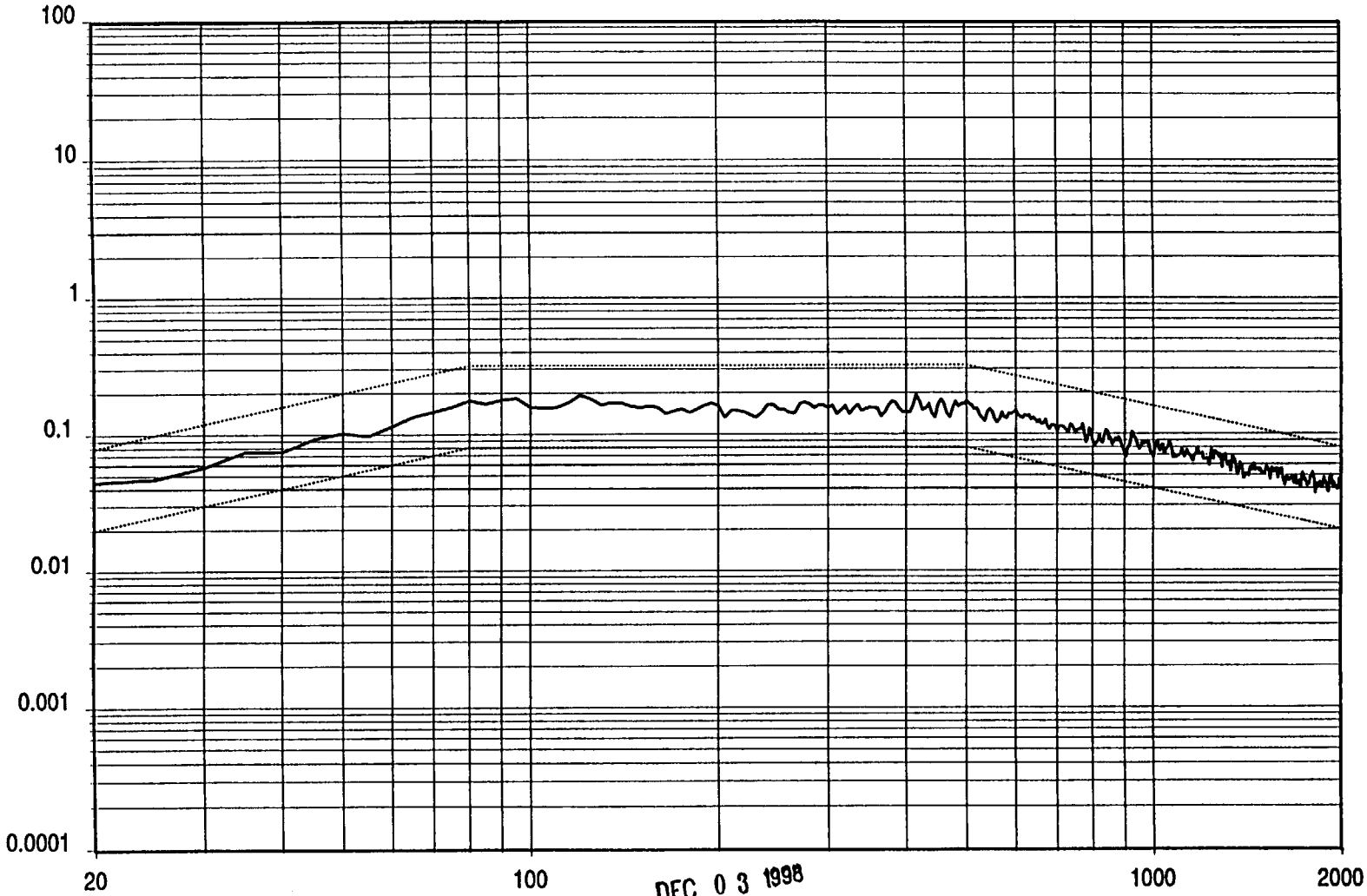
ENG 7A 200

AUG 1 8 1998

Test Level: 0.000 dB
Test Time: 000:01:00

Reference RMS: 13.576
Clipping: Off

Test Range: 20.000, 2000.000 Hz
Resolution: 5.000 Hz



DEC 0 3 1998

ENG 217 QC 236

11:34:15
18-Aug-1998

AMSU PHASE LOCK OSCILLATOR S/O~~534921~~, 534922
Z AXIS TEST P/N 1348360-1,1348360-1 S/N F08 ~~,F07~~
Test Name: PLO.tmp

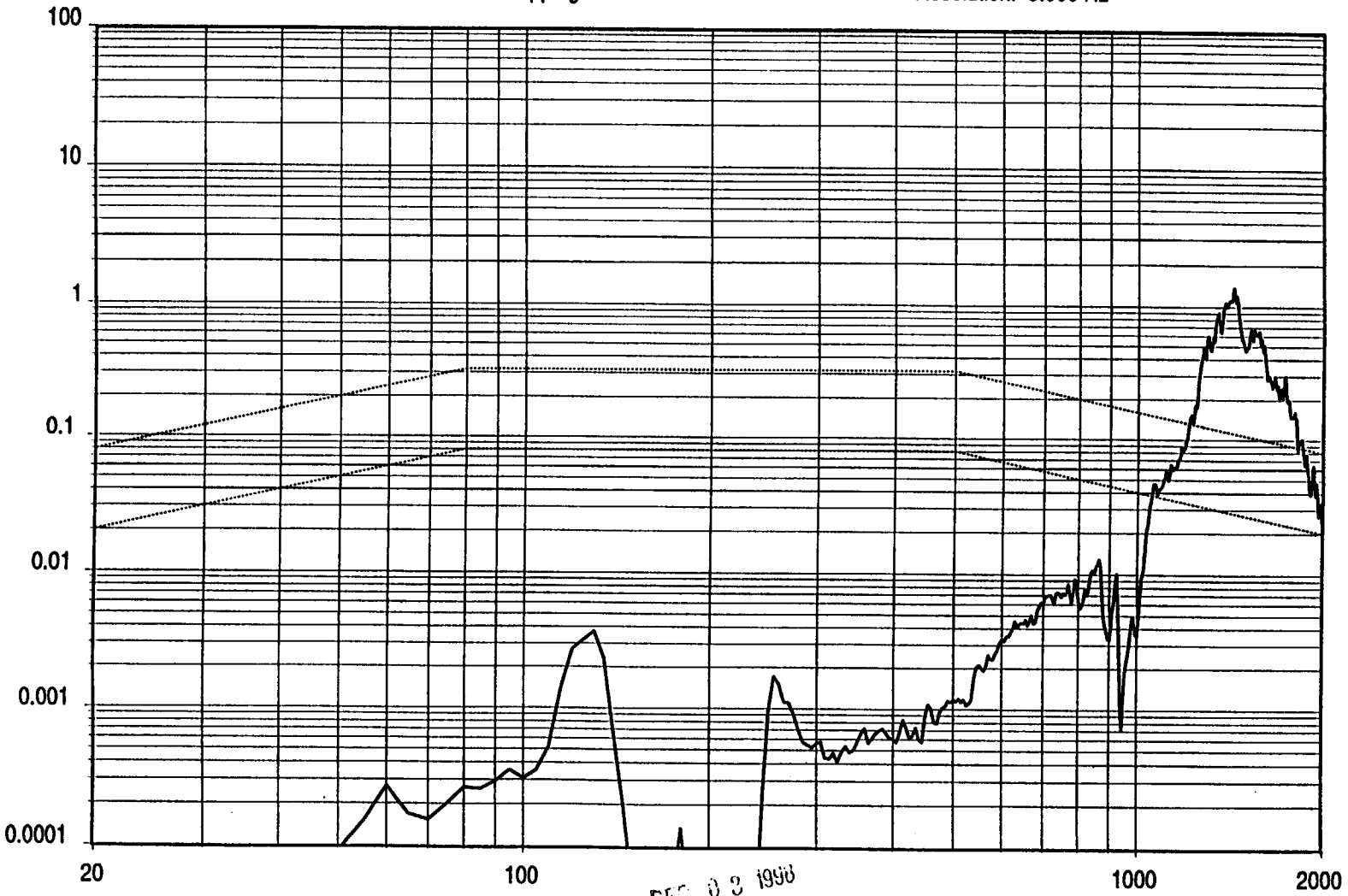
ENG 217 7A 200

AUG 1 8 1998

Test Level: 0.000 dB
Test Time: 000:01:00

Reference RMS: 13.576
Clipping: Off

Test Range: 20.000, 2000.000 Hz
Resolution: 5.000 Hz



Auxiliary 2

Log
g²/Hz

DOF 120

RMS:
18.057 g

DEC 0 3 1998

ENG QC 236

11:34:21
18-Aug-1998

AMSU PHASE LOCK OSCILLATOR S/O~~534921~~, 534922
Z AXIS TEST P/N 1348360-1,1348360-1 S/N F08 ,~~F07~~
Test Name: PLO.tmp

UNIT X AXIS

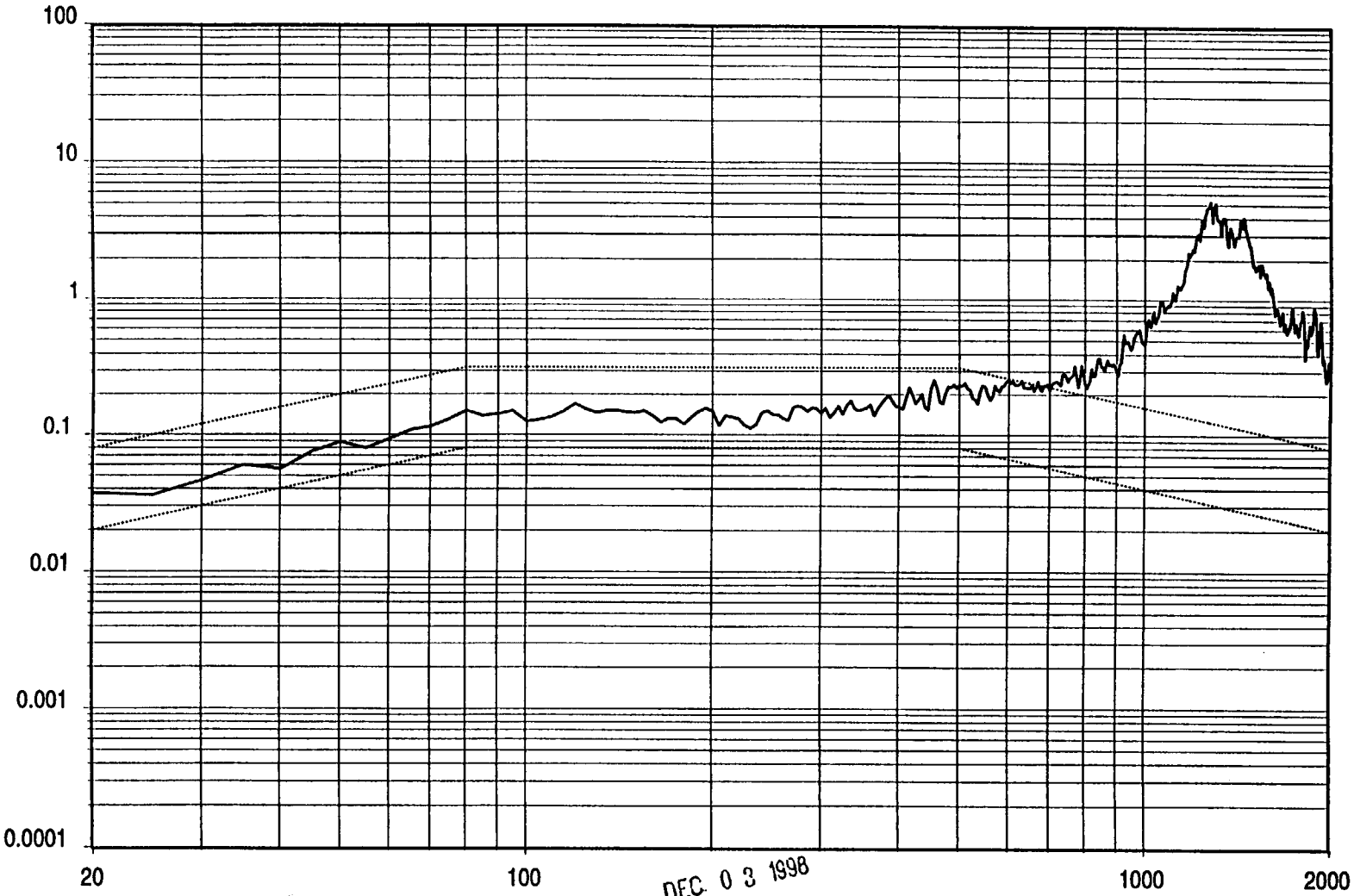
ENG 7A 200

AUG 1 8 1998

Test Level: 0.000 dB
Test Time: 000:01:00

Reference RMS: 13.576
Clipping: Off

Test Range: 20.000, 2000.000 Hz
Resolution: 5.000 Hz



DEC 0 3 1998

ENG 217

QC 236

UNIT Z AXIS

11:34:17
18-Aug-1998

AMSU PHASE LOCK OSCILLATOR S/O~~534921~~, 534922
Z AXIS TEST P/N 1348360-1,1348360-1 S/N F08 ,~~F07~~
Test Name: PLO.tmp

7A 200

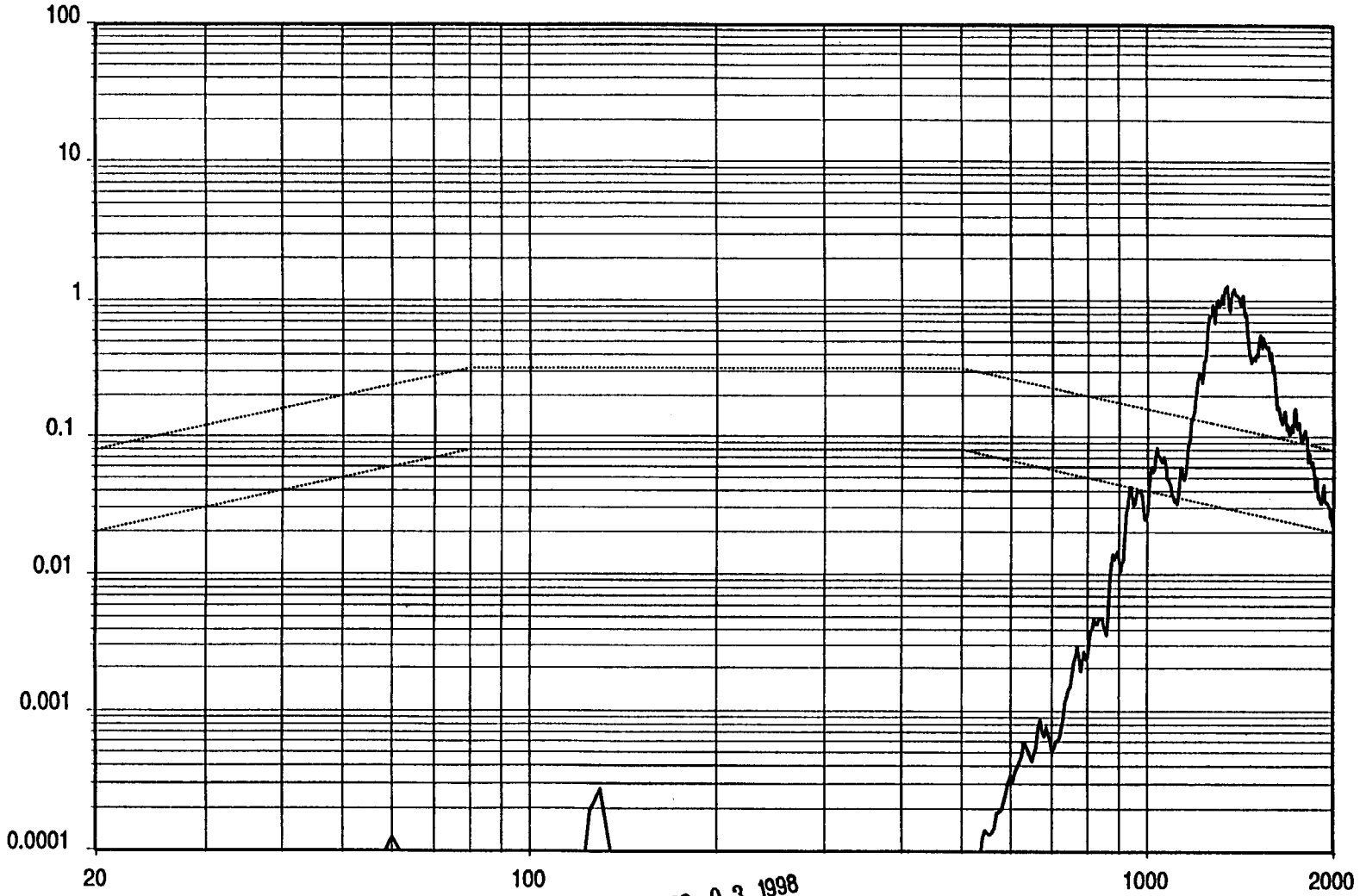
AUG 1 8 1998

Test Level: 0.000 dB
Test Time: 000:01:00

Reference RMS: 13.576
Clipping: Off

Test Range: 20.000, 2000.000 Hz
Resolution: 5.000 Hz

Auxiliary 4



Log
g²/Hz

DOF 120

RMS:
18.094 g

DEC 0 3 1998
ENG 217
QC 236

UNIT Y AXIS

11:34:25
18-Aug-1998

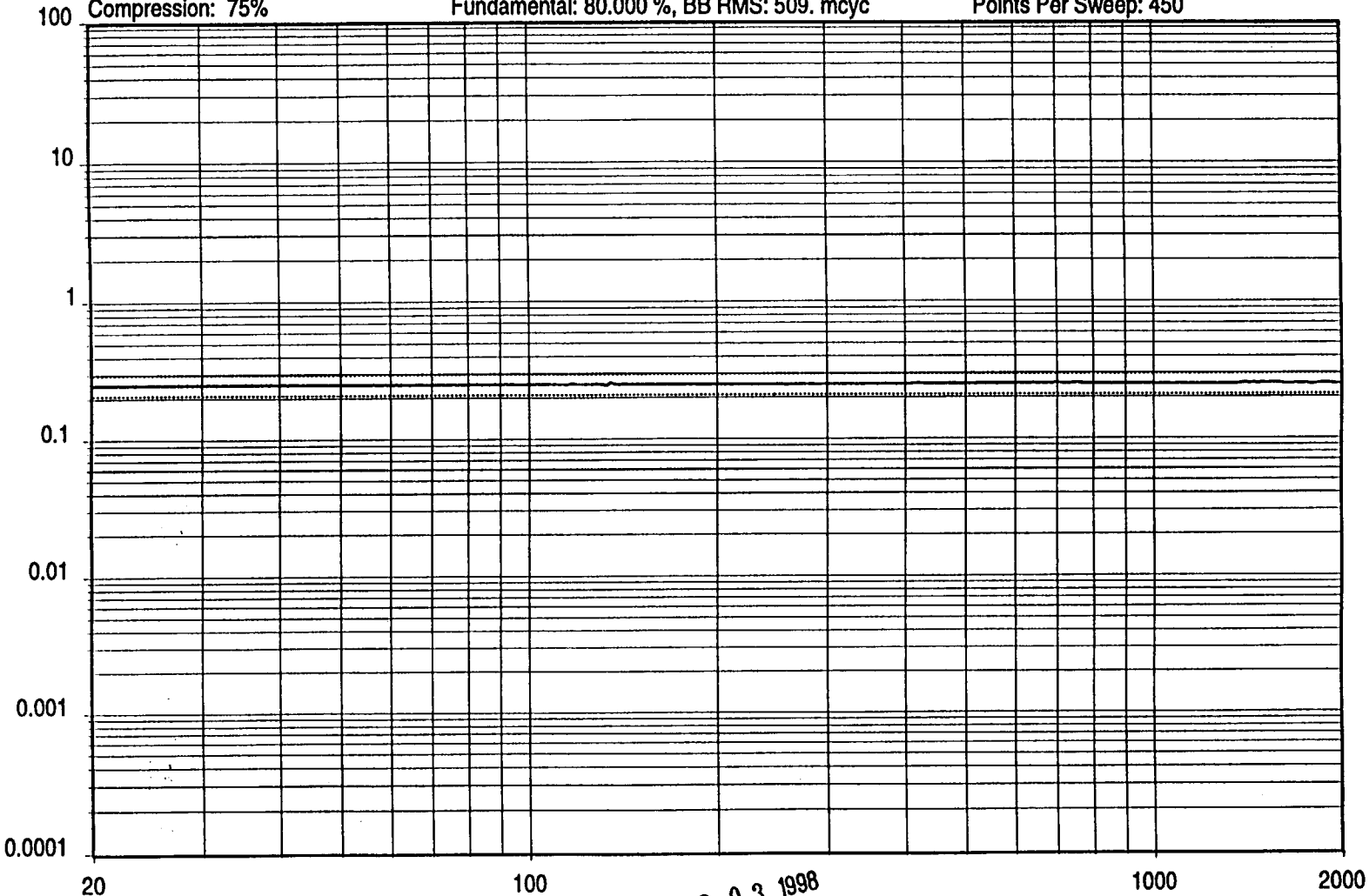
AMSU PHASE LOCK OSCILLATOR S/O~~534921~~, 534922
Z AXIS TEST P/N 1348360-1,1348360-1 S/N F08 ;~~F07~~
Test Name: PLO.tmp

7A 200
AUG 1 8 1998

Sweep Number: 1.00
Sweep Rate 1: 2.000 oct/min
Compression: 75%

Elapsed Time: 000:03:18
Filter Type: Proportional
Fundamental: 80.000 %, BB RMS: 509. mcyc

Remaining Time: 000:00:01
Test Range: 20.000, 2000.000 Hz
Points Per Sweep: 450



DEC 0 3 1998

ENG 217 QC 236

11:43:15
18-Aug-1998

AMSU PHASE LOCK OSCILLATOR S/O ~~534921~~,534922
POST Z AXIS SINE SWEEP P/N 1348360-1,1348360-1 S/N FO8,~~F07~~

Sine Test Name: PLO.tmp

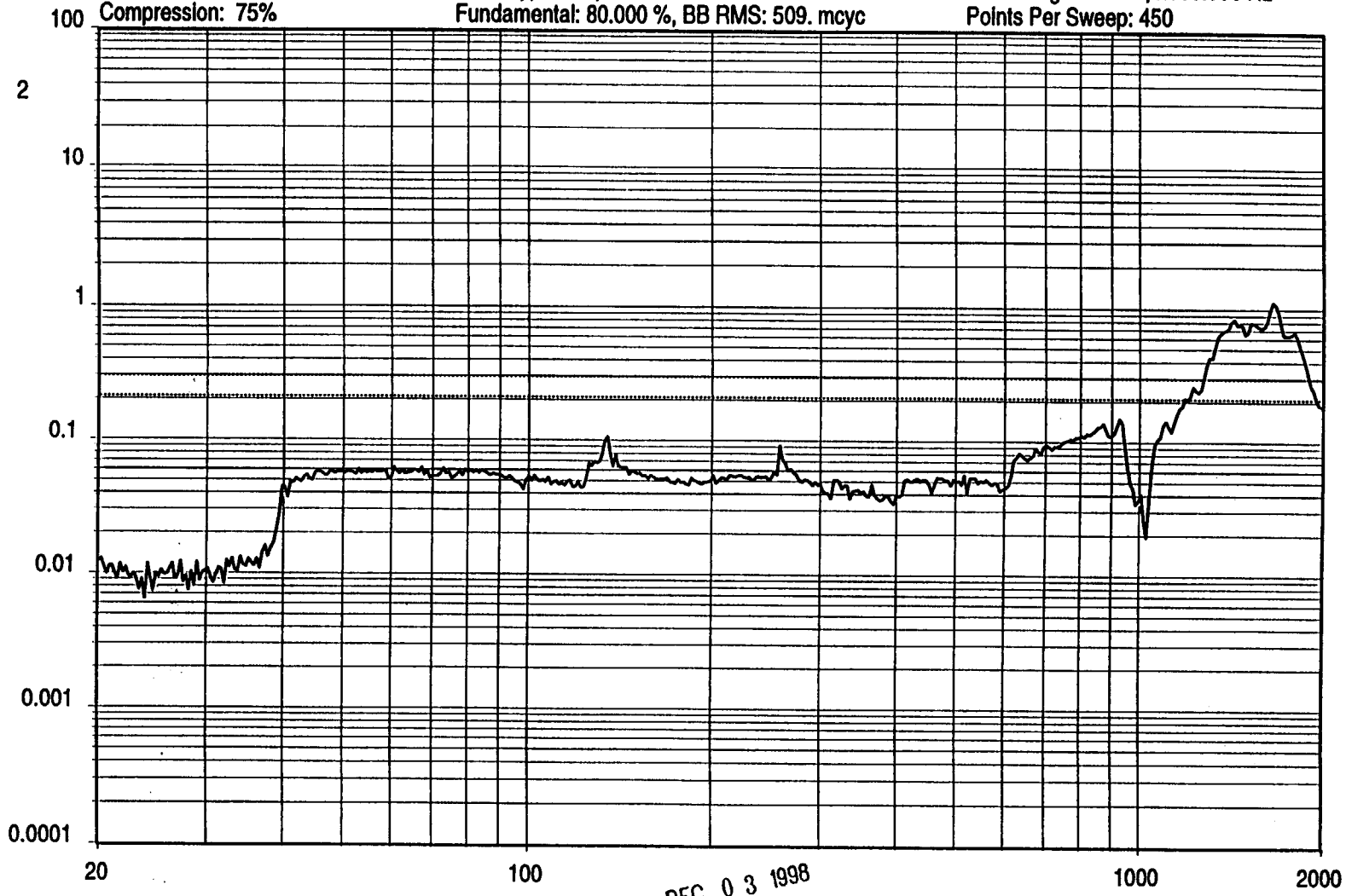
ENG 217 7A 200

AUG 1 8 1998

Sweep Number: 1.00
Sweep Rate 1: 2.000 oct/min
Compression: 75%

Elapsed Time: 000:03:18
Filter Type: Proportional
Fundamental: 80.000 %, BB RMS: 509. mcyc

Remaining Time: 000:00:01
Test Range: 20.000, 2000.000 Hz
Points Per Sweep: 450



DEC 0 3 1998

ENG 217 QC 236

11:43:25
18-Aug-1998

AMSU PHASE LOCK OSCILLATOR S/O ~~534921~~,534922
POST Z AXIS SINE SWEEP P/N 1348360-1,1348360-1 S/N FO8;~~F07~~
Sine Test Name: PLO.tmp

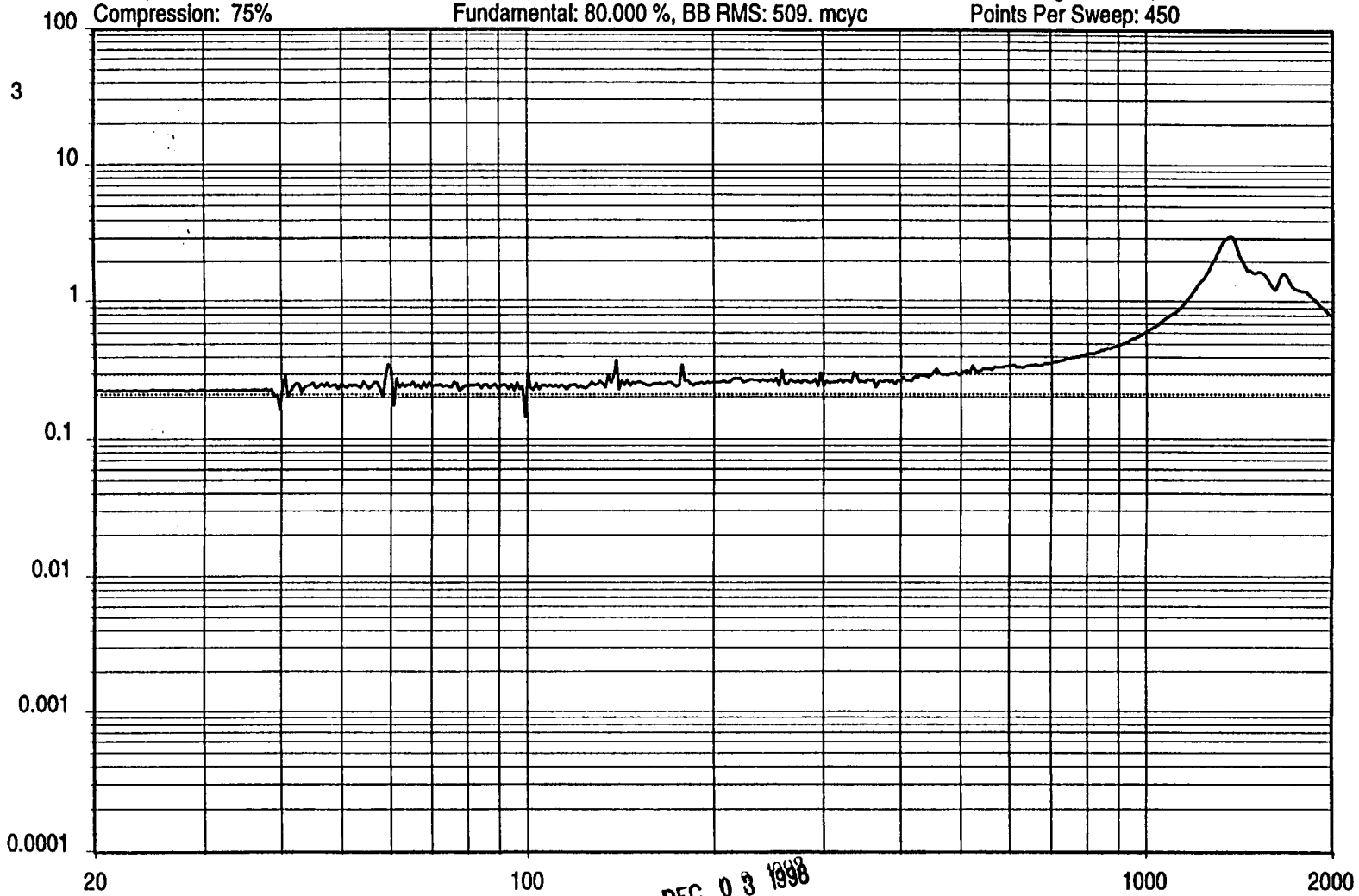
UNIT X

ENG 217 TA 200 AUG 18 1998

Sweep Number: 1.00
Sweep Rate 1: 2.000 oct/min
Compression: 75%

Elapsed Time: 000:03:18
Filter Type: Proportional
Fundamental: 80.000 %, BB RMS: 509. mcyc

Remaining Time: 000:00:01
Test Range: 20.000, 2000.000 Hz
Points Per Sweep: 450



DEC 03 1998
ENG 217
QC 236

UNIT Z

11:43:18
18-Aug-1998

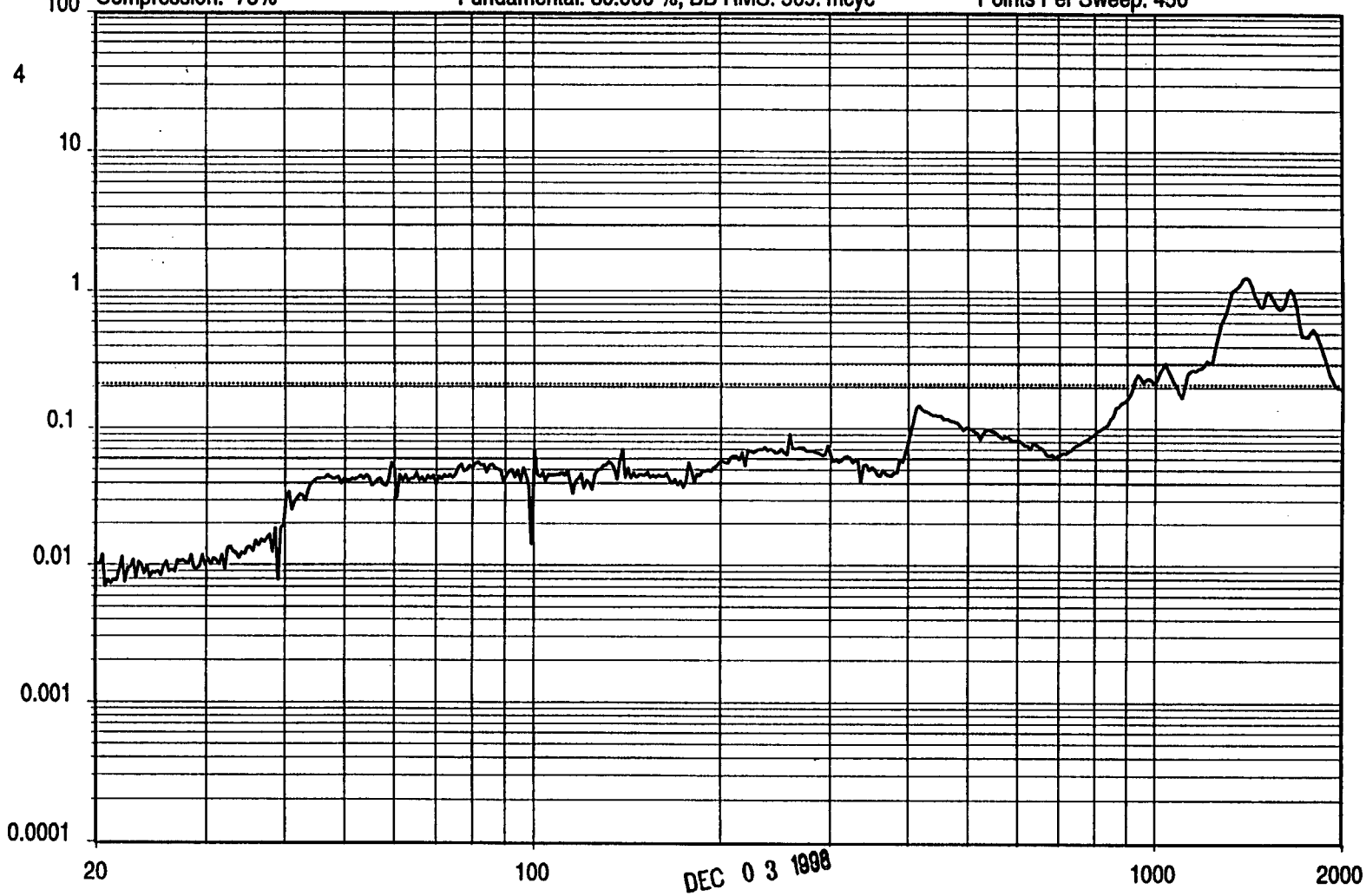
AMSU PHASE LOCK OSCILLATOR S/O ~~534921~~,534922
POST Z AXIS SINE SWEEP P/N 1348360-1,1348360-1 S/N FO8,~~F07~~
Sine Test Name: PLO.tmp

ENG 217
7A 200
AUG 18 1998

Sweep Number: 1.00
Sweep Rate 1: 2.000 oct/min
Compression: 75%

Elapsed Time: 000:03:18
Filter Type: Proportional
Fundamental: 80.000 %, BB RMS: 509. mcyc

Remaining Time: 000:00:01
Test Range: 20.000, 2000.000 Hz
Points Per Sweep: 450



DEC 0 3 1998

ENG 217
QC 236

UNIT Y

11:43:22
18-Aug-1998

AMSU PHASE LOCK OSCILLATOR S/O ~~594921~~,534922
POST Z AXIS SINE SWEEP P/N 1348360-1,1348360-1 S/N FO8,~~F07~~
Sine Test Name: PLO.tmp

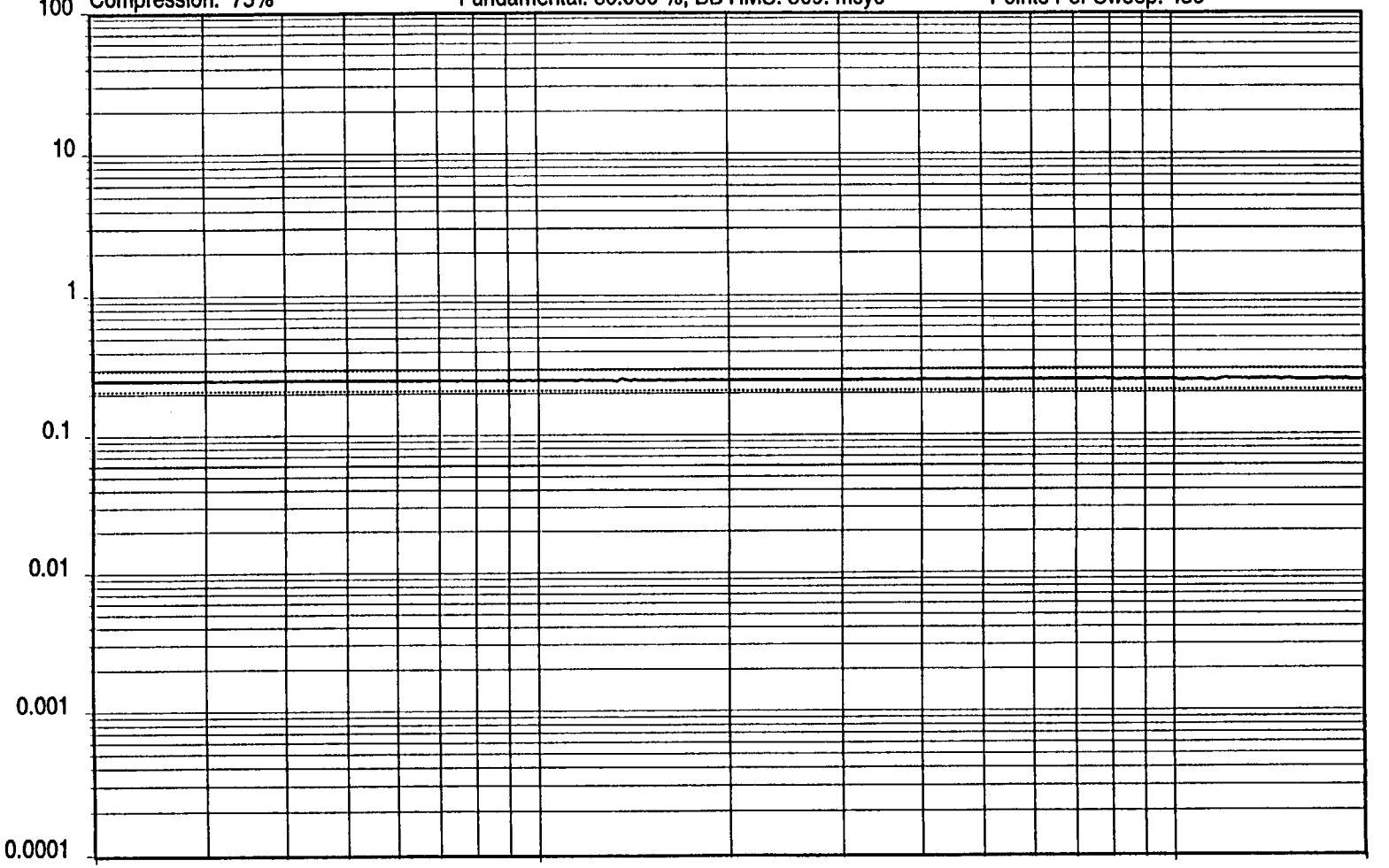
ENG
TA 200

AUG 1 8 1998

Sweep Number: 1.00
Sweep Rate 1: 2.000 oct/min
Compression: 75%

Elapsed Time: 000:03:18
Filter Type: Proportional
Fundamental: 80.000 %, BB RMS: 509. mcyc

Remaining Time: 000:00:01
Test Range: 20.000, 2000.000 Hz
Points Per Sweep: 450



DEC 0 3 1998

ENG 217 QC 236

14:05:31
18-Aug-1998

AMSU PHASE LOCK OSCILLATOR S/O ~~534921~~,534922
PRE Y AXIS SINE SWEEP P/N 1348360-1,1348360-1 S/N FO8,~~F07~~

Sine Test Name: PLO.tmp

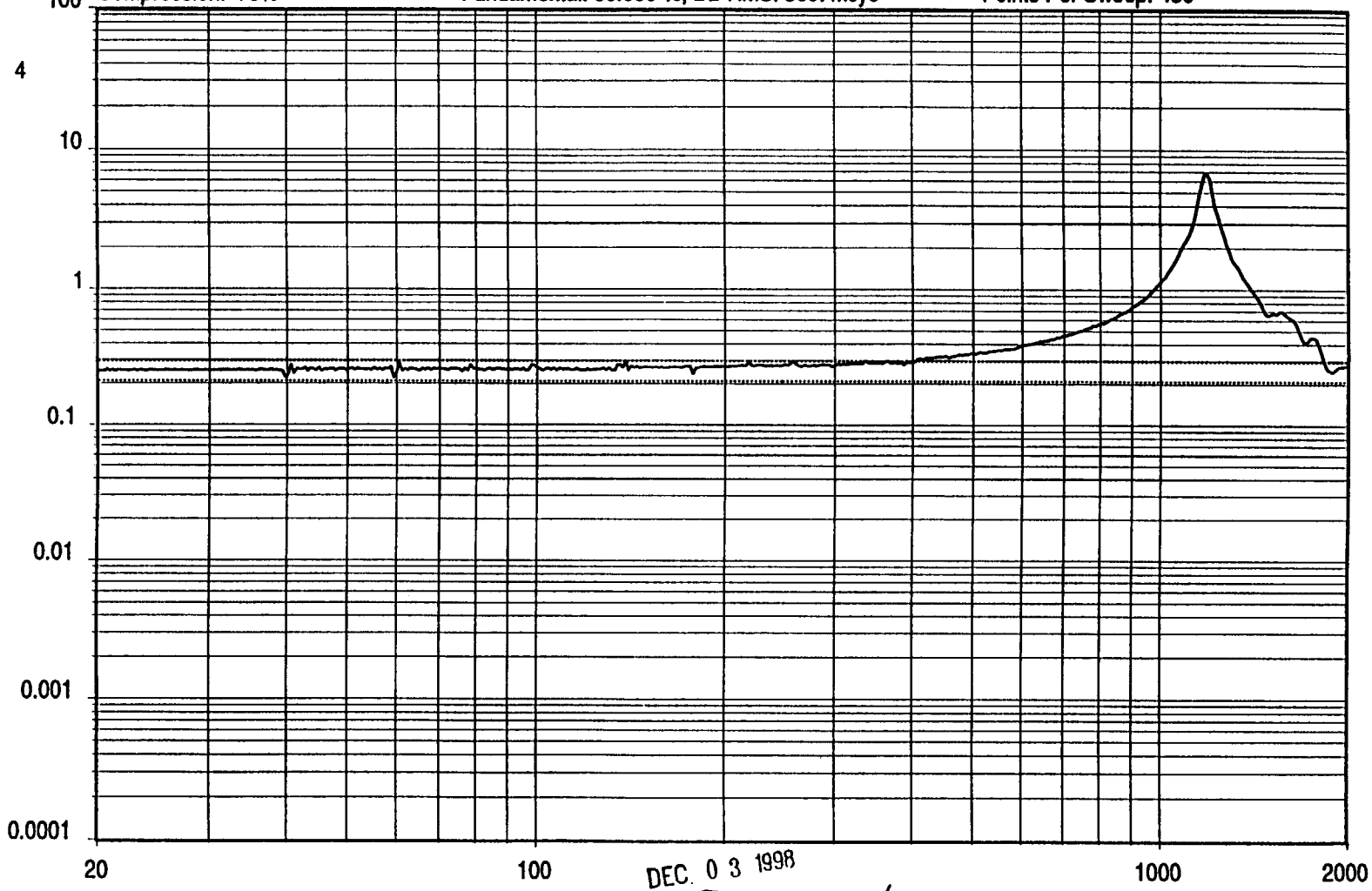
8/18/98

ENG 217 QA 200

Sweep Number: 1.00
Sweep Rate 1: 2.000 oct/min
Compression: 75%

Elapsed Time: 000:03:18
Filter Type: Proportional
Fundamental: 80.000 %, BB RMS: 509. mcyc

Remaining Time: 000:00:01
Test Range: 20.000, 2000.000 Hz
Points Per Sweep: 450



DEC 0 3 1998

ENG 217 QC 236

8/18/98

ENG 217 ZA 200

UNIT Y

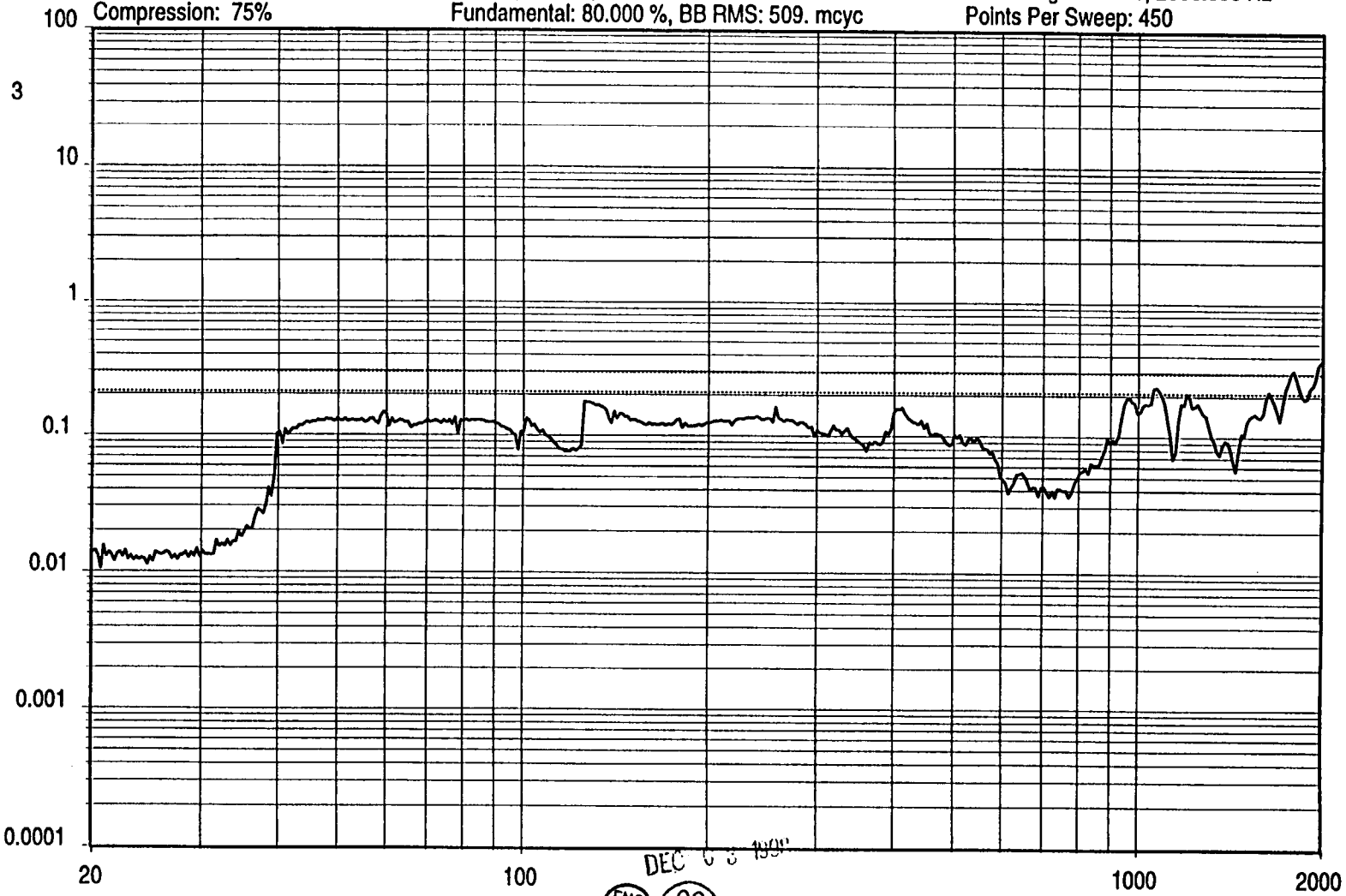
14:05:36
18-Aug-1998

AMSU PHASE LOCK OSCILLATOR S/O ~~534921~~,534922
PRE Y AXIS SINE SWEEP P/N 1348360-1,1348360-1 S/N FO8,~~F07~~
Sine Test Name: PLO.tmp

Sweep Number: 1.00
Sweep Rate 1: 2.000 oct/min
Compression: 75%

Elapsed Time: 000:03:18
Filter Type: Proportional
Fundamental: 80.000 %, BB RMS: 509. mcyc

Remaining Time: 000:00:01
Test Range: 20.000, 2000.000 Hz
Points Per Sweep: 450



DEC 0 3 1998

ENG 217 QC 236

14:05:40
18-Aug-1998

AMSU PHASE LOCK OSCILLATOR S/O ~~594921~~,534922
PRE Y AXIS SINE SWEEP P/N 1348360-1,1348360-1 S/N FO8,~~F07~~
Sine Test Name: PLO.tmp

8/18/98

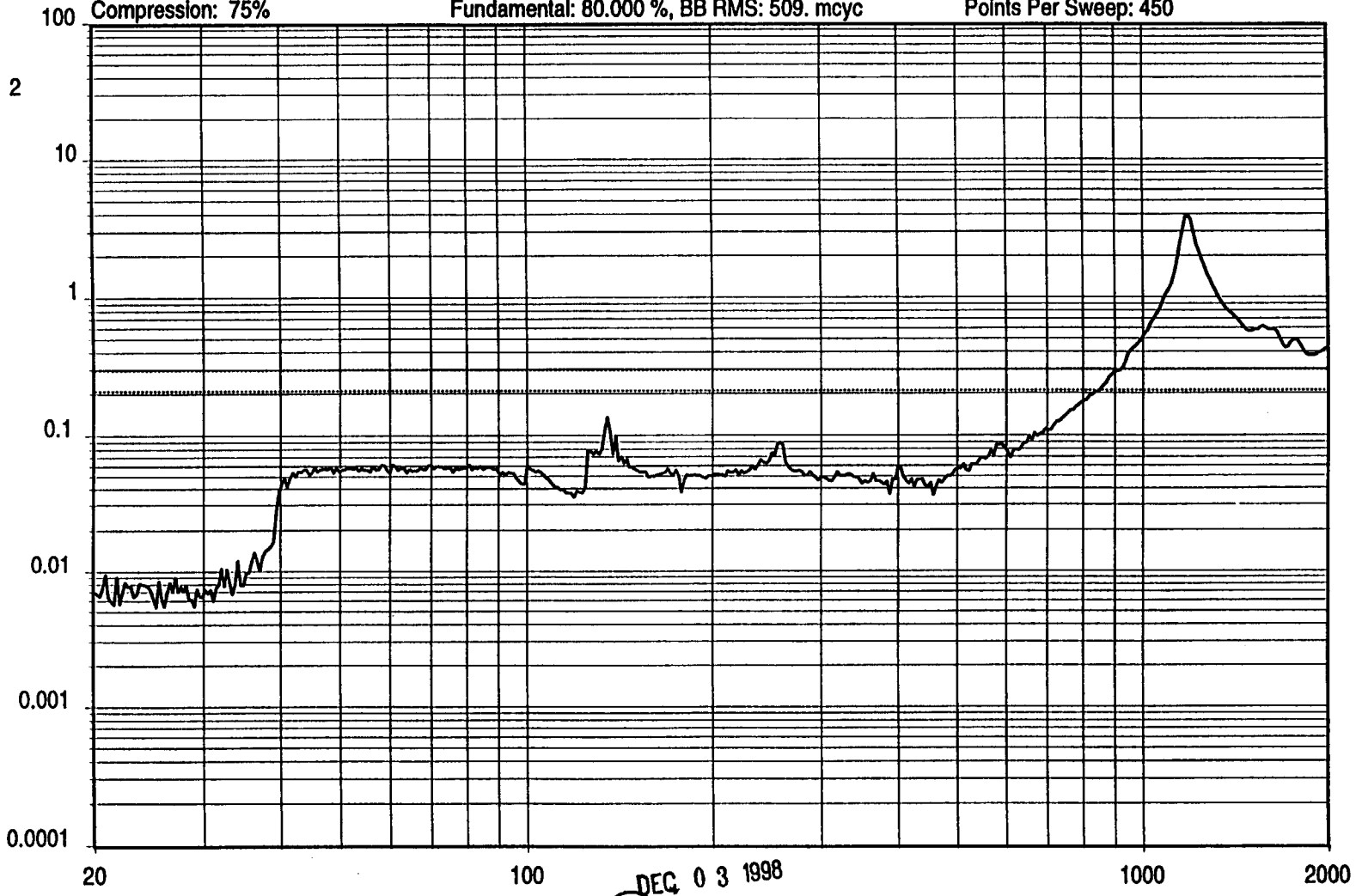
ENG 217 TA 200

UNIT Z

Sweep Number: 1.00
Sweep Rate 1: 2.000 oct/min
Compression: 75%

Elapsed Time: 000:03:18
Filter Type: Proportional
Fundamental: 80.000 %, BB RMS: 509. mcyc

Remaining Time: 000:00:01
Test Range: 20.000, 2000.000 Hz
Points Per Sweep: 450



DEC 0 3 1998

ENG 217 QC 236

8/18/98

UNIT X

14:05:44
18-Aug-1998

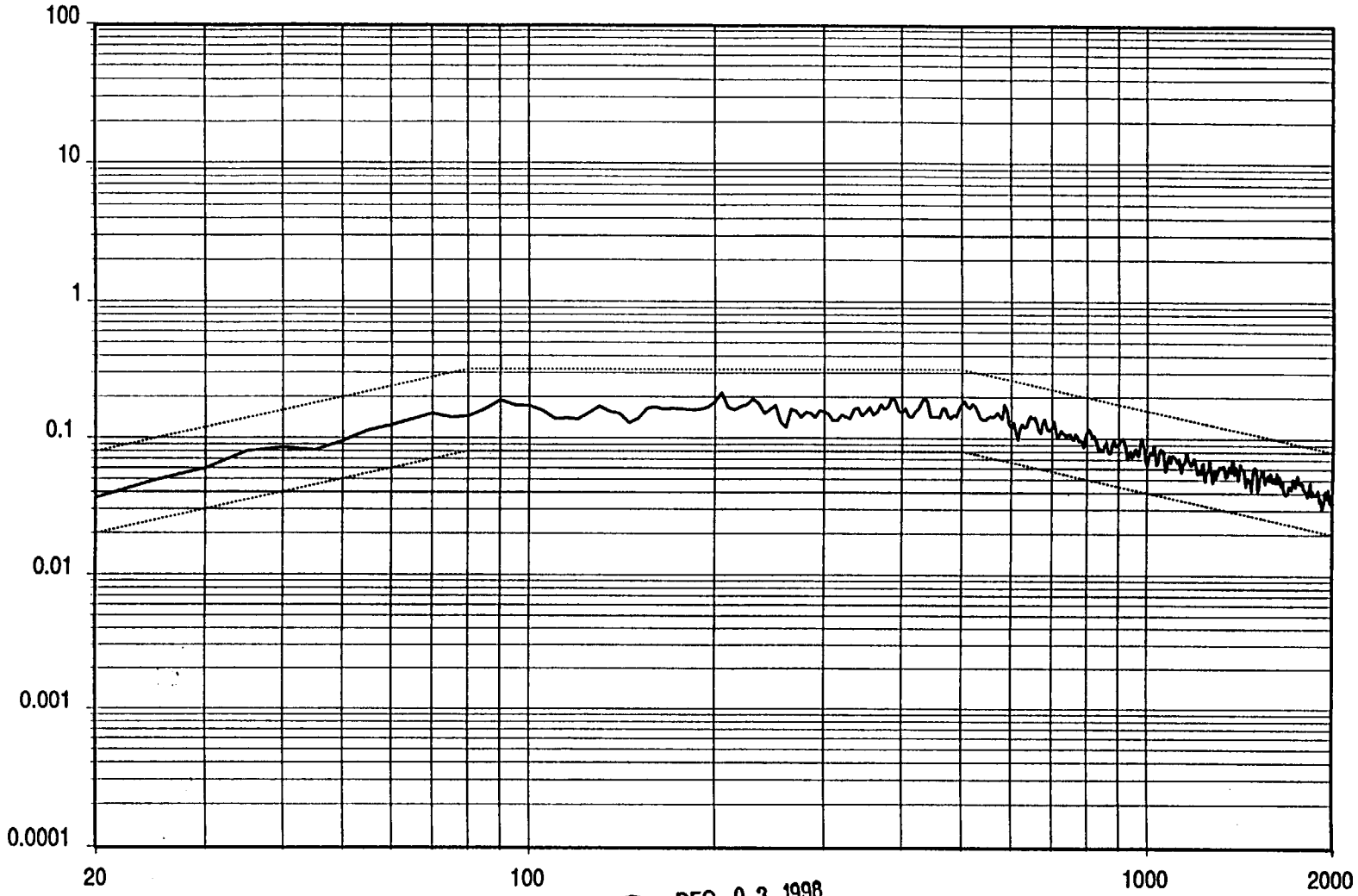
AMSU PHASE LOCK OSCILLATOR S/O ~~534921~~,534922
PRE Y AXIS SINE SWEEP P/N 1348360-1,1348360-1 S/N FO8;~~F07~~
Sine Test Name: PLO.tmp

ENG 217 TA 200

Test Level: 0.000 dB
Test Time: 000:01:00

Reference RMS: 13.576
Clipping: Off

Test Range: 20.000, 2000.000 Hz
Resolution: 5.000 Hz



Control

Log
g²/Hz

DOF 200

RMS:
13.527 g

DEC 0 3 1998

ENG 217
QC 236

8/18/98

ENG 217
QC 236

14:17:20
18-Aug-1998

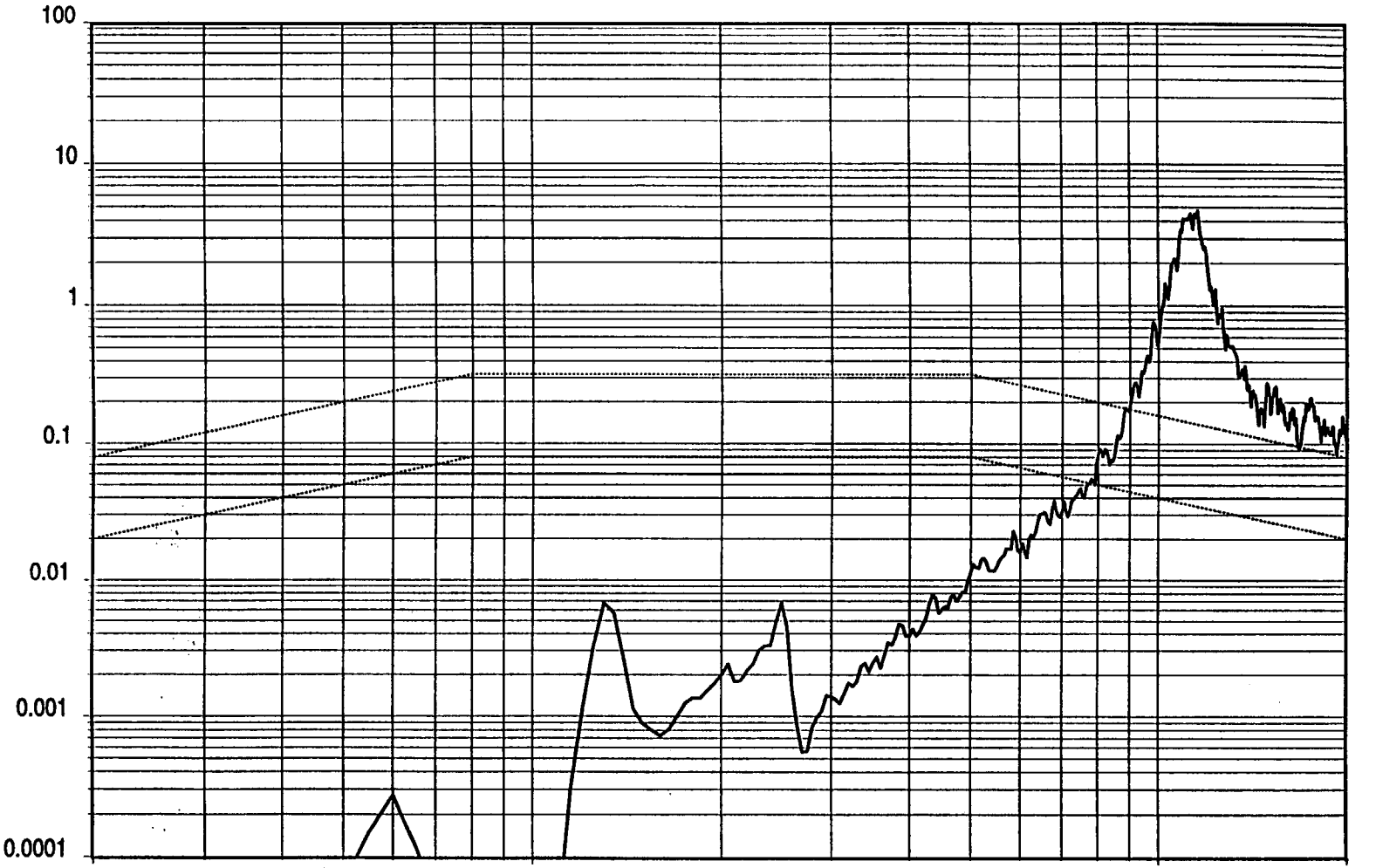
AMSU PHASE LOCK OSCILLATOR S/O~~534921~~, 534922
Y AXIS TEST P/N 1348360-1,1348360-1 S/N F08 ,~~F07~~

Test Name: PLO.tmp

Test Level: 0.000 dB
Test Time: 000:01:00

Reference RMS: 13.576
Clipping: Off

Test Range: 20.000, 2000.000 Hz
Resolution: 5.000 Hz



Auxiliary 2

Log
g²/Hz
DOF 120
RMS:
28.908 g

DEC 0 3 1998
ENG
QC
236

14:17:28
18-Aug-1998

AMSU PHASE LOCK OSCILLATOR S/O~~534921~~, 534922
Y AXIS TEST P/N 1348360-1,1348360-1 S/N F08 ~~,F07~~
Test Name: PLO.tmp

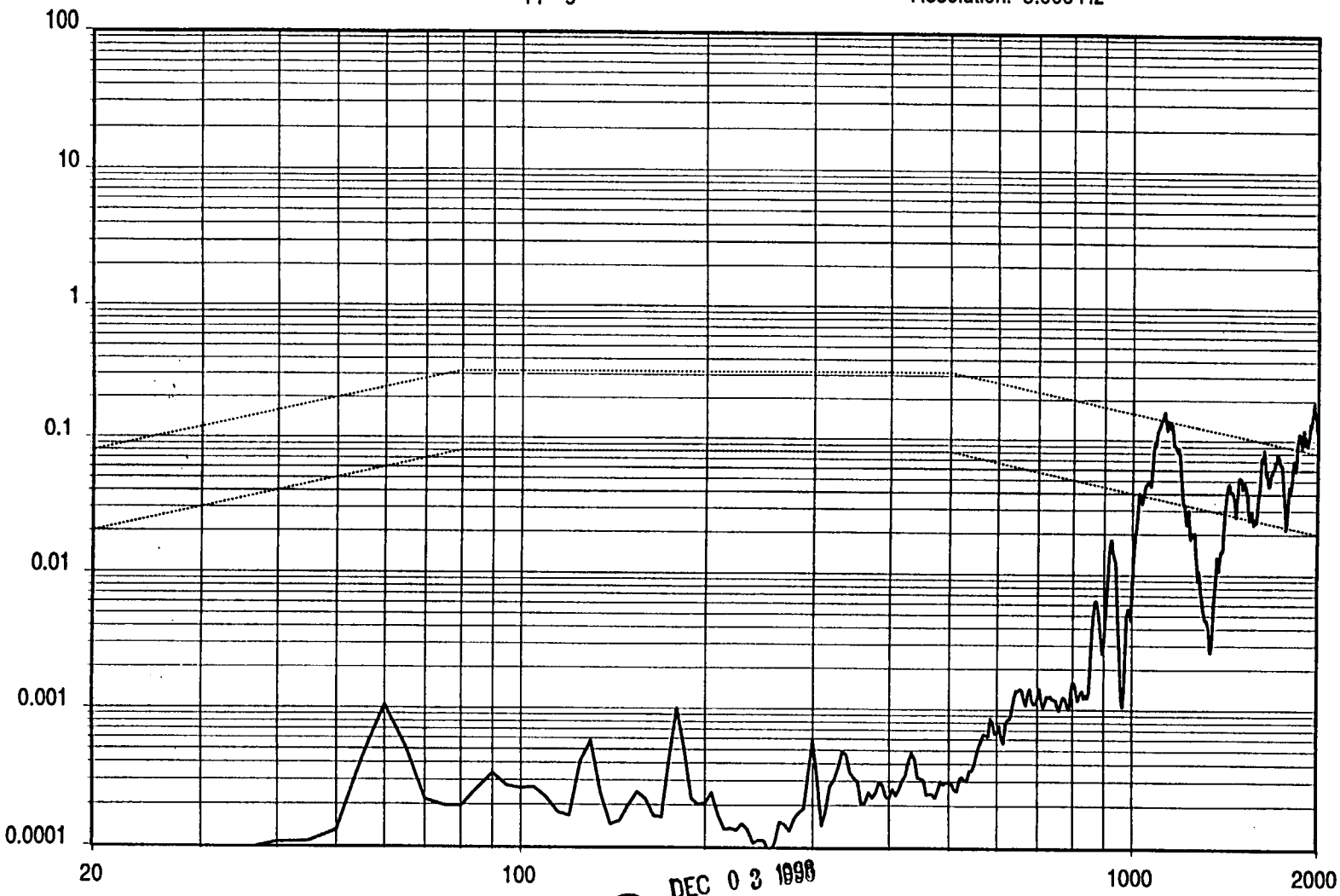
UNIT X AXIS

8/18/98
ENG
QC
236

Test Level: 0.000 dB
Test Time: 000:01:00

Reference RMS: 13.576
Clipping: Off

Test Range: 20.000, 2000.000 Hz
Resolution: 5.000 Hz



Auxiliary 3

Log
g²/Hz

DOF 120

RMS:
7.860 g

DEC 0 3 1998

ENG
QC 236

14:17:32
18-Aug-1998

AMSU PHASE LOCK OSCILLATOR S/O~~534921~~, 534922
Y AXIS TEST P/N 1348360-1,1348360-1 S/N F08 ,~~F07~~
Test Name: PLO.tmp

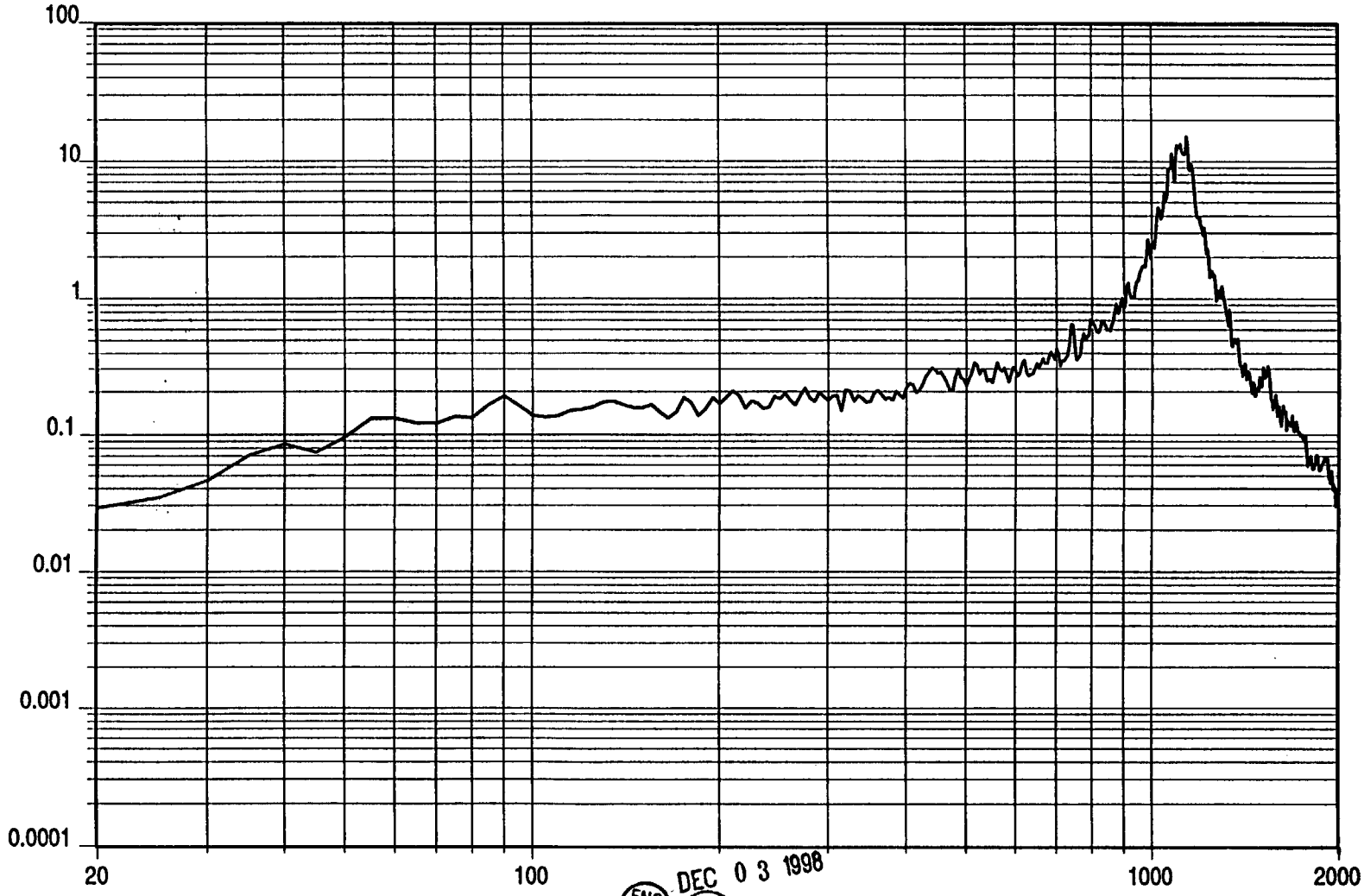
UNIT Z AXIS

8/18/96
ENG
ZA 200

Test Level: -18.000 dB
Test Time: 000:01:23

Reference RMS: 13.576
Clipping: Off

Test Range: 20.000, 2000.000 Hz
Resolution: 5.000 Hz



Auxiliary 4

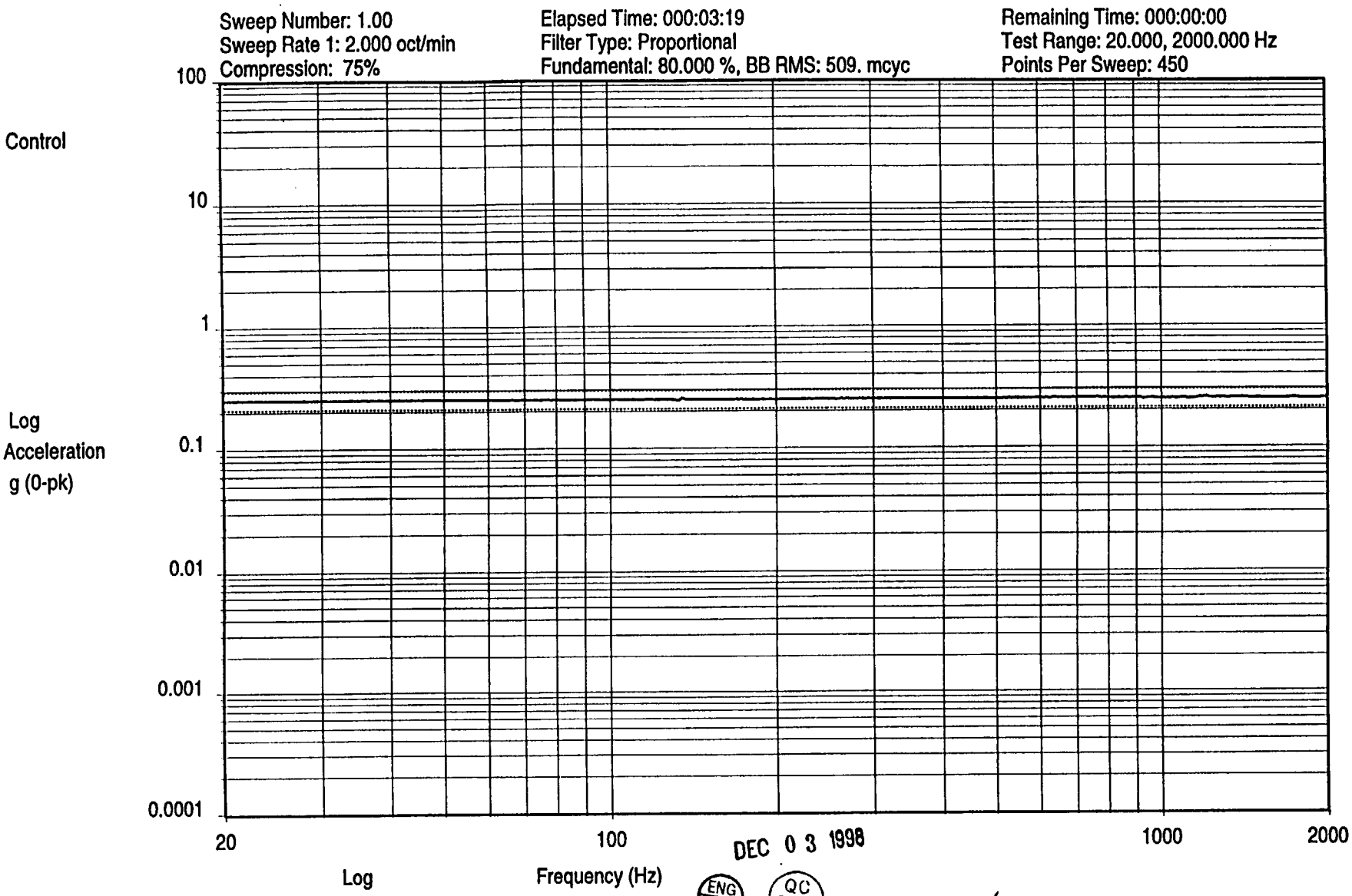
Log
g²/Hz
DOF 120
RMS:
47.792 g

DEC 0 3 1998
ENG 217
QC 236

8/18/98
UNIT Y AXIS
ENG 217 200 TA

15:38:01
18-Aug-1998

AMSU PHASE LOCK OSCILLATOR S/O~~534921~~, 534922
Y AXIS TEST P/N 1348360-1,1348360-1 S/N F08 ~~,F07~~
Test Name: PLO.tmp



DEC 0 3 1998

ENG 217 QC 236

14:25:30
18-Aug-1998

AMSU PHASE LOCK OSCILLATOR S/O ~~534921~~,534922
POST Y AXIS SINE SWEEP P/N 1348360-1,1348360-1 S/N FO8,~~F07~~
Sine Test Name: PLO.tmp

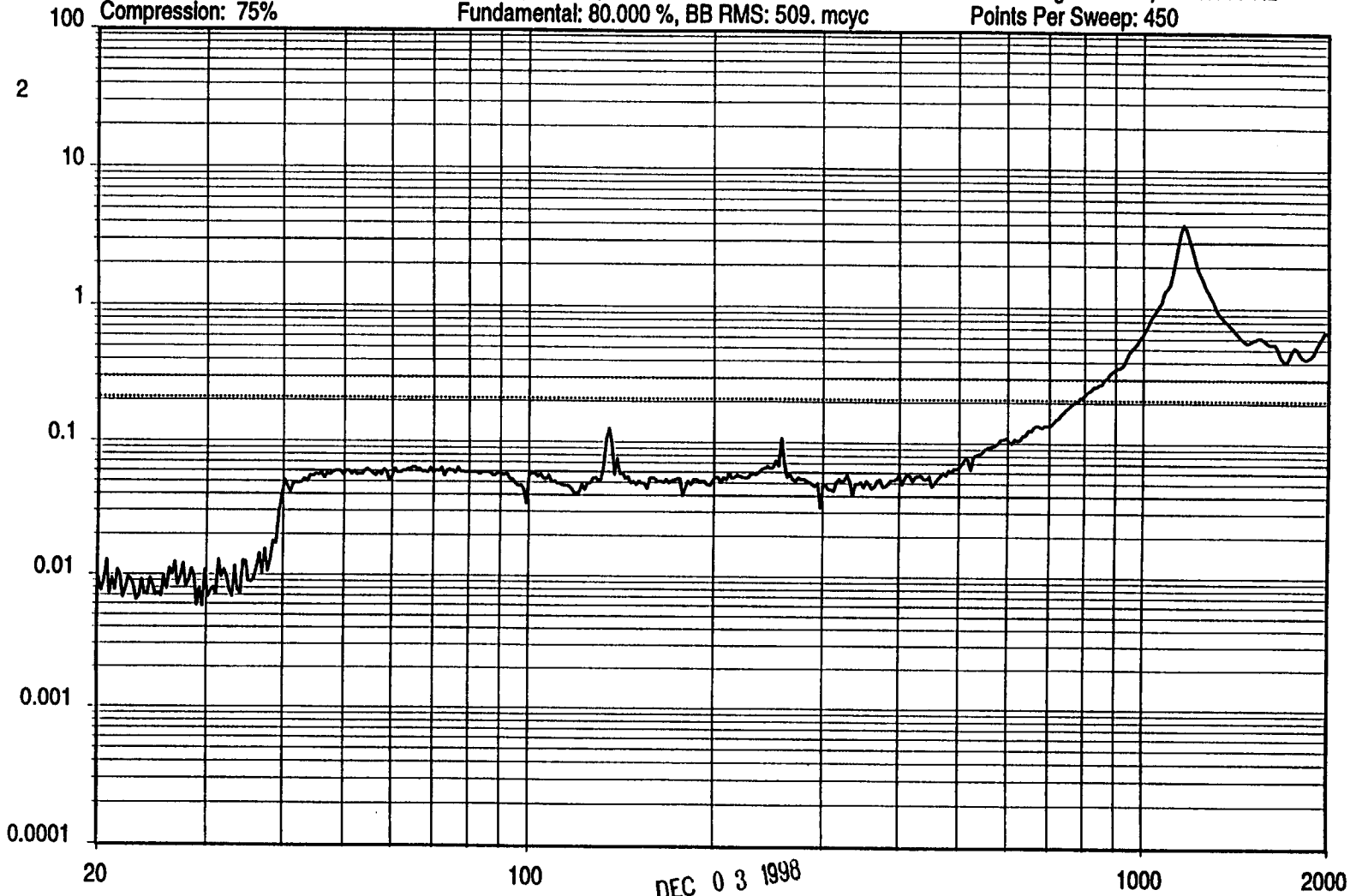
8/18/98

ENG 217 TA 200

Sweep Number: 1.00
Sweep Rate 1: 2.000 oct/min
Compression: 75%

Elapsed Time: 000:03:19
Filter Type: Proportional
Fundamental: 80.000 %, BB RMS: 509. mcyc

Remaining Time: 000:00:00
Test Range: 20.000, 2000.000 Hz
Points Per Sweep: 450



DEC 0 3 1998

ENG 217

QC 236

14:25:39
18-Aug-1998

AMSU PHASE LOCK OSCILLATOR S/O ~~534921~~,534922
POST Y AXIS SINE SWEEP P/N 1348360-1,1348360-1 S/N FO8,~~F07~~
Sine Test Name: PLO.tmp

UNIT X

8/18/98

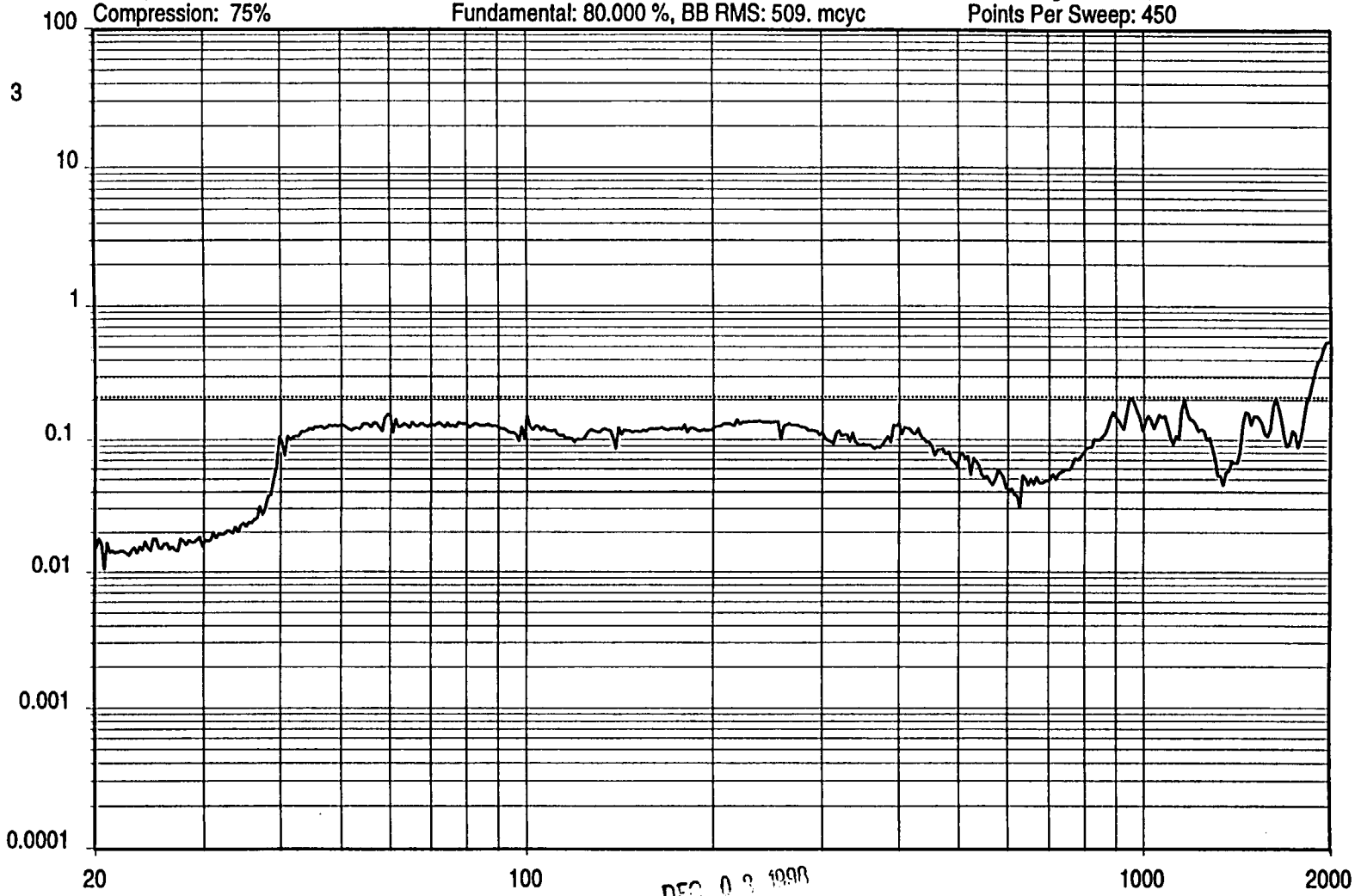
ENG 24

QC 200

Sweep Number: 1.00
Sweep Rate 1: 2.000 oct/min
Compression: 75%

Elapsed Time: 000:03:19
Filter Type: Proportional
Fundamental: 80.000 %, BB RMS: 509. mcyc

Remaining Time: 000:00:00
Test Range: 20.000, 2000.000 Hz
Points Per Sweep: 450



DEC 0 3 1998

ENG
QC
236

UNIT Z

14:25:36
18-Aug-1998

AMSU PHASE LOCK OSCILLATOR S/O ~~534921~~,534922
POST Y AXIS SINE SWEEP P/N 1348360-1,1348360-1 S/N FO8,~~F07~~

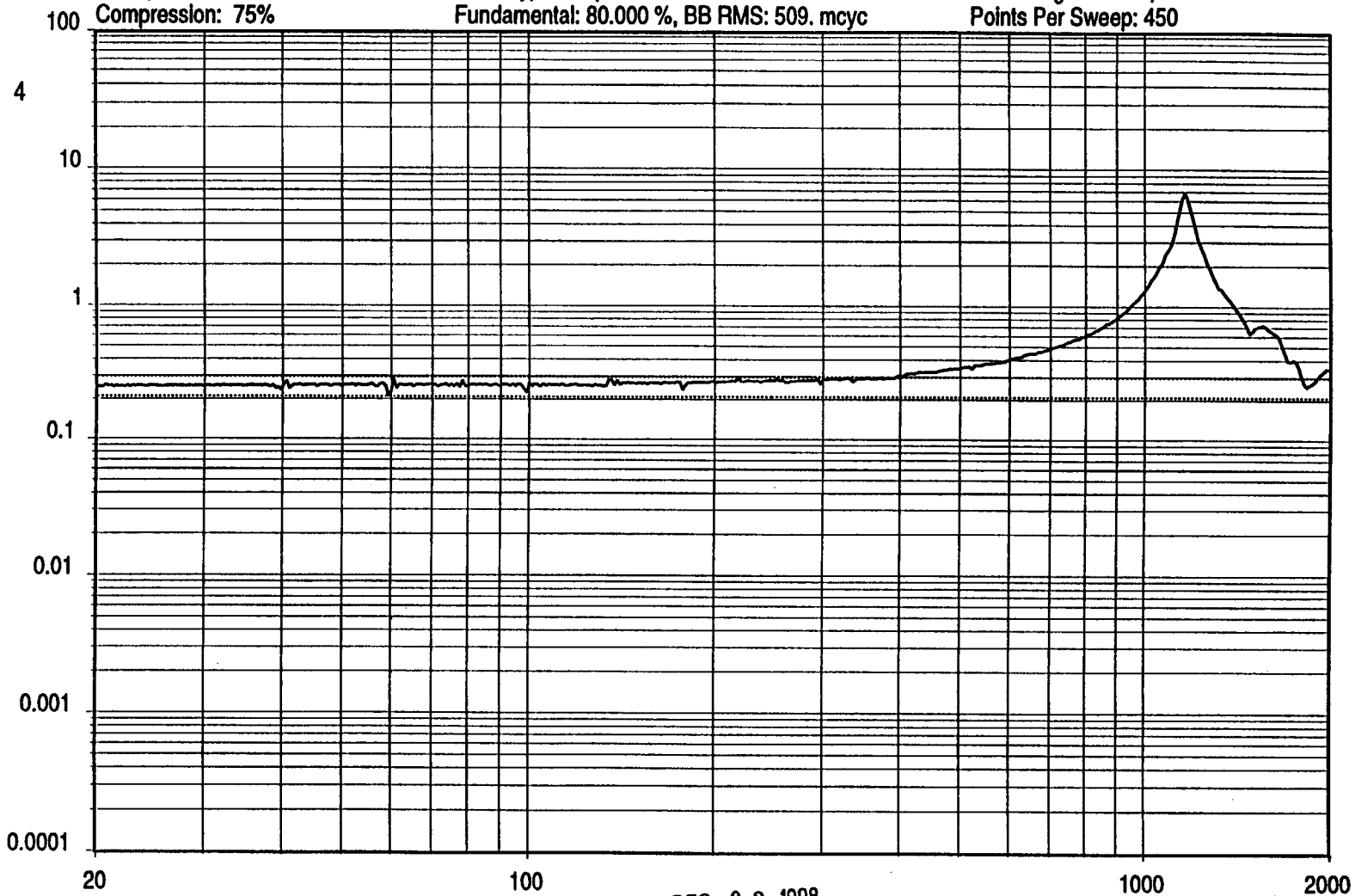
Sine Test Name: PLO.tmp

ENG
TA
200
8/18/98

Sweep Number: 1.00
Sweep Rate 1: 2.000 oct/min
Compression: 75%

Elapsed Time: 000:03:19
Filter Type: Proportional
Fundamental: 80.000 %, BB RMS: 509. mcyc

Remaining Time: 000:00:00
Test Range: 20.000, 2000.000 Hz
Points Per Sweep: 450



DEC 0 3 1998

ENG QC 236

14:25:32
18-Aug-1998

AMSU PHASE LOCK OSCILLATOR S/O ~~594921~~,534922
POST Y AXIS SINE SWEEP P/N 1348360-1,1348360-1 S/N FO8,~~F07~~
Sine Test Name: PLO.tmp

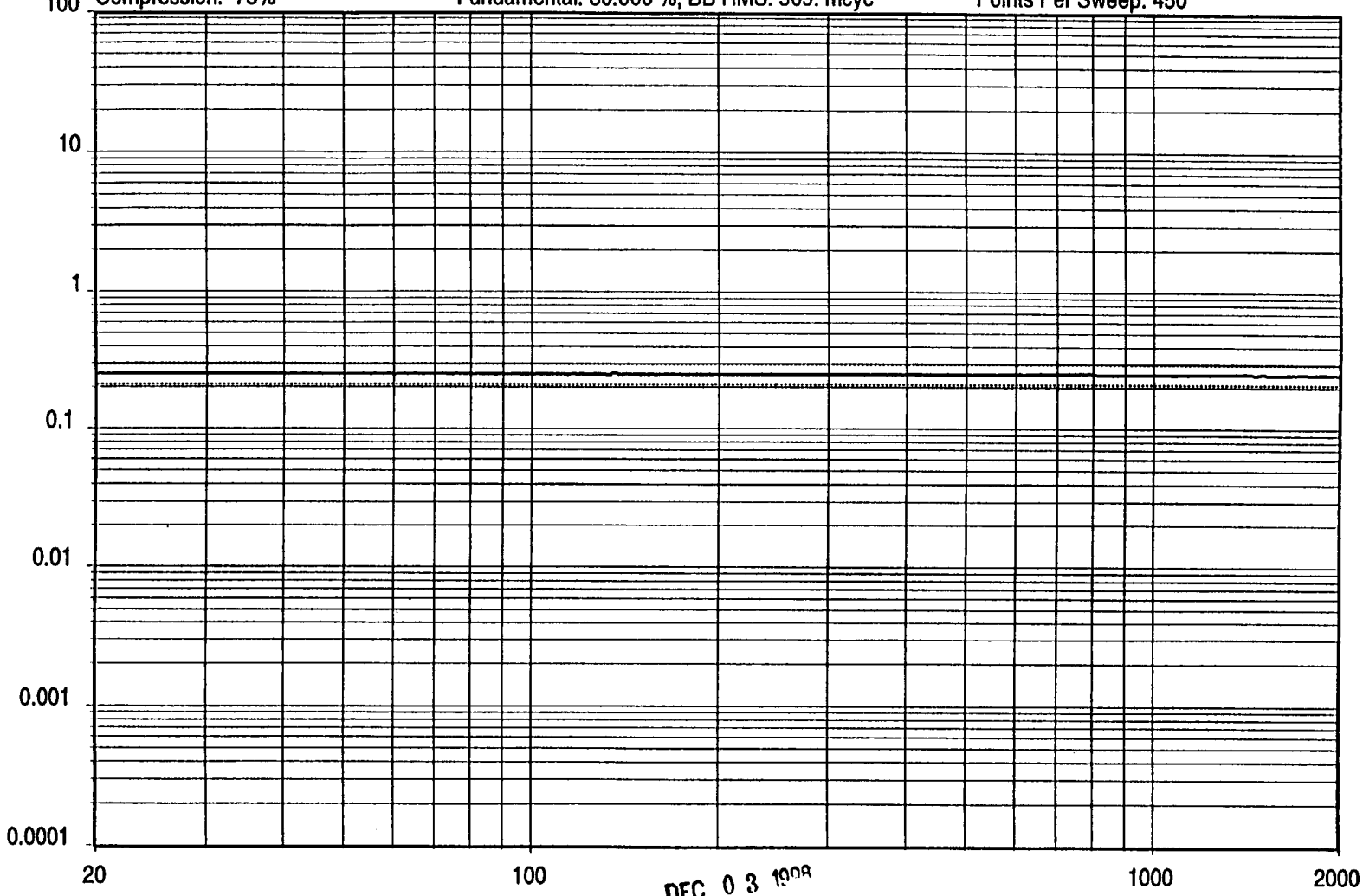
UNIT Y

ENG QA 200 8/18/98

Sweep Number: 1.00
Sweep Rate 1: 2.000 oct/min
Compression: 75%

Elapsed Time: 000:03:19
Filter Type: Proportional
Fundamental: 80.000 %, BB RMS: 509. mcyc

Remaining Time: 000:00:00
Test Range: 20.000, 2000.000 Hz
Points Per Sweep: 450



DEC 0 3 1998

ENG 217 QC 236

8/18/98

15:06:19
18-Aug-1998

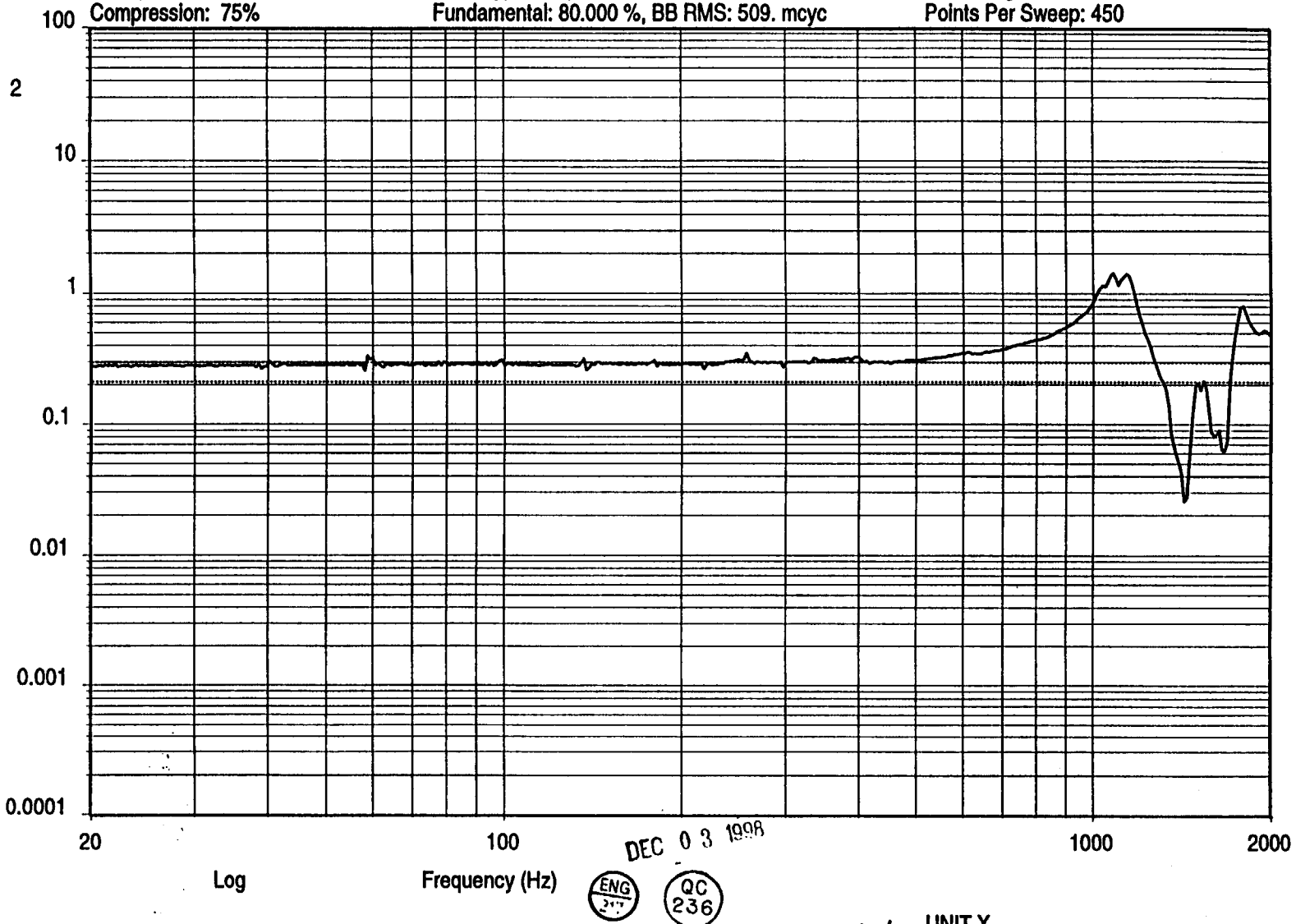
AMSU PHASE LOCK OSCILLATOR S/O ~~534921~~,534922
PRE X AXIS SINE SWEEP P/N 1348360-1,1348360-1 S/N FO8,~~F07~~
Sine Test Name: PLO.tmp

ENG 217 ZA 200

Sweep Number: 1.00
Sweep Rate 1: 2.000 oct/min
Compression: 75%

Elapsed Time: 000:03:19
Filter Type: Proportional
Fundamental: 80.000 %, BB RMS: 509. mcyc

Remaining Time: 000:00:00
Test Range: 20.000, 2000.000 Hz
Points Per Sweep: 450



DEC 0 3 1998

ENG 317 QC 236

15:06:27
18-Aug-1998

AMSU PHASE LOCK OSCILLATOR S/O ~~534921~~,534922
PRE X AXIS SINE SWEEP P/N 1348360-1,1348360-1 S/N FO8,~~F07~~
Sine Test Name: PLO.tmp

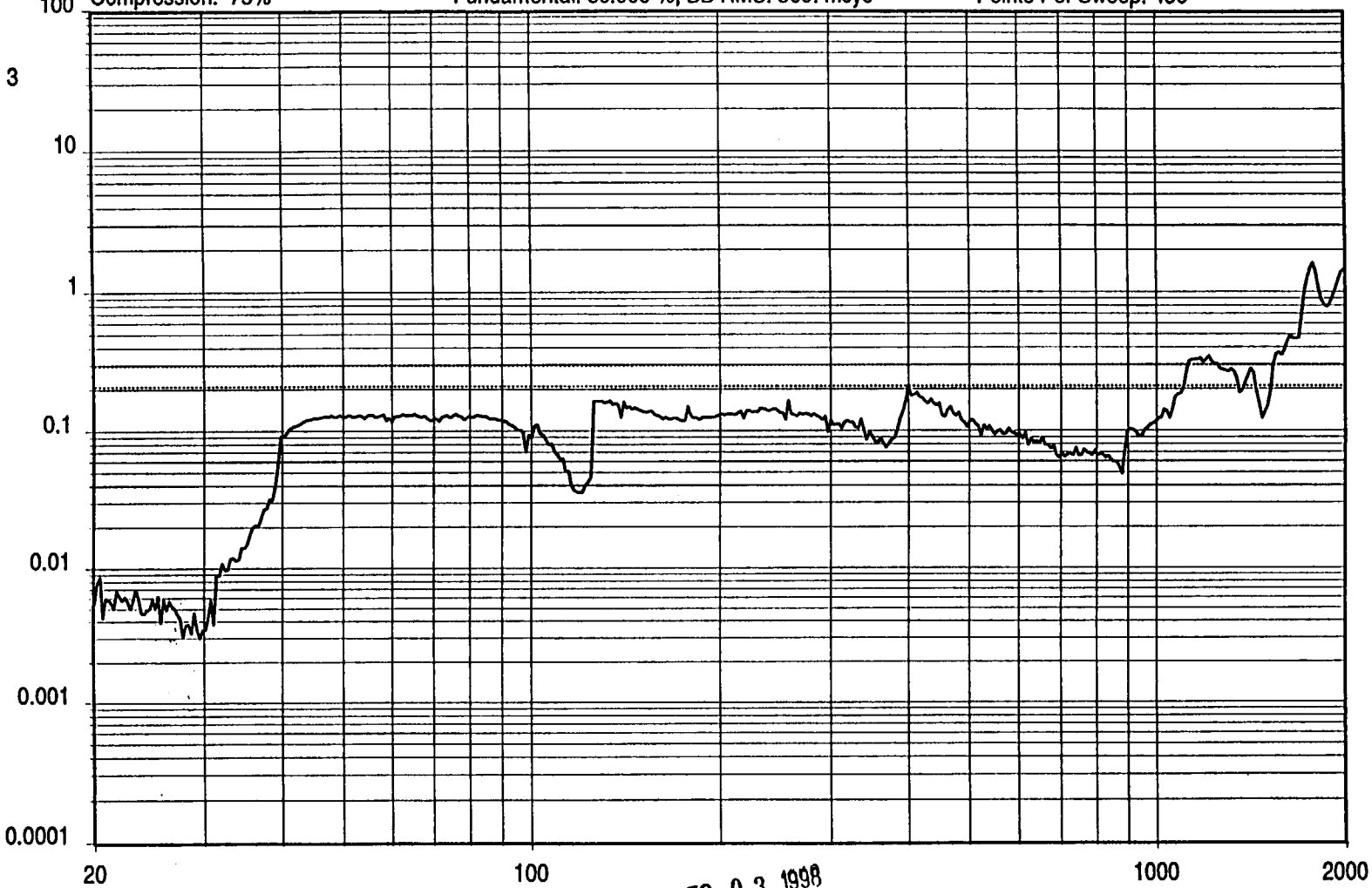
8/18/98 UNIT X

ENG 317 TA QC

Sweep Number: 1.00
Sweep Rate 1: 2.000 oct/min
Compression: 75%

Elapsed Time: 000:03:19
Filter Type: Proportional
Fundamental: 80.000 %, BB RMS: 509. mcyc

Remaining Time: 000:00:00
Test Range: 20.000, 2000.000 Hz
Points Per Sweep: 450



DEC 0 3 1998

ENG
QC
236

8/18/98

UNIT Z

15:06:24
18-Aug-1998

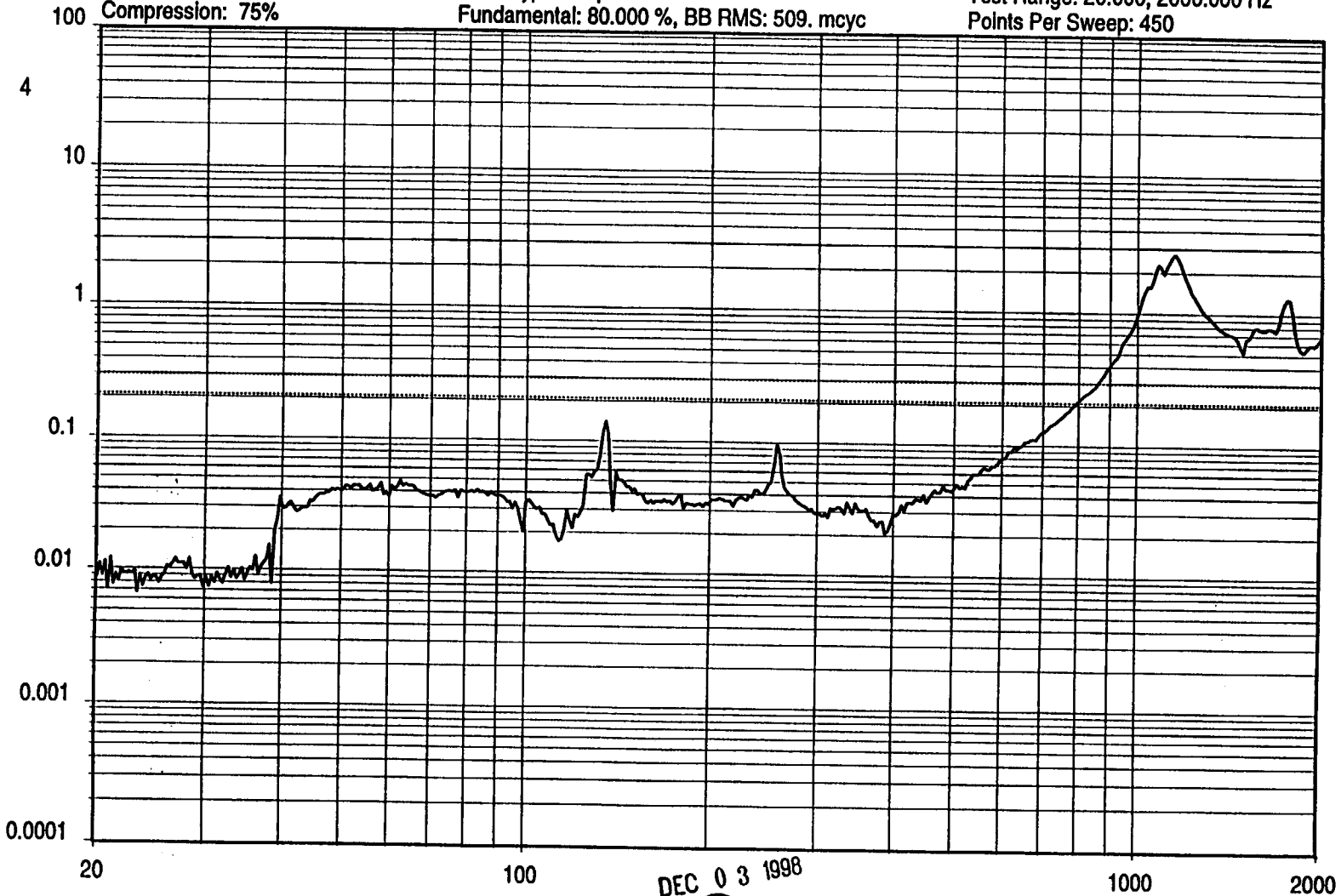
AMSU PHASE LOCK OSCILLATOR S/O ~~534921~~,534922
PRE X AXIS SINE SWEEP P/N 1348360-1,1348360-1 S/N FO8,~~F07~~
Sine Test Name: PLO.tmp

ENG
TA
200

Sweep Number: 1.00
Sweep Rate 1: 2.000 oct/min
Compression: 75%

Elapsed Time: 000:03:19
Filter Type: Proportional
Fundamental: 80.000 %, BB RMS: 509. mcyc

Remaining Time: 000:00:00
Test Range: 20.000, 2000.000 Hz
Points Per Sweep: 450



DEC 0 3 1998

ENG 217 QC 236

8/18/98

ENG 217 TA 200

15:06:21
18-Aug-1998

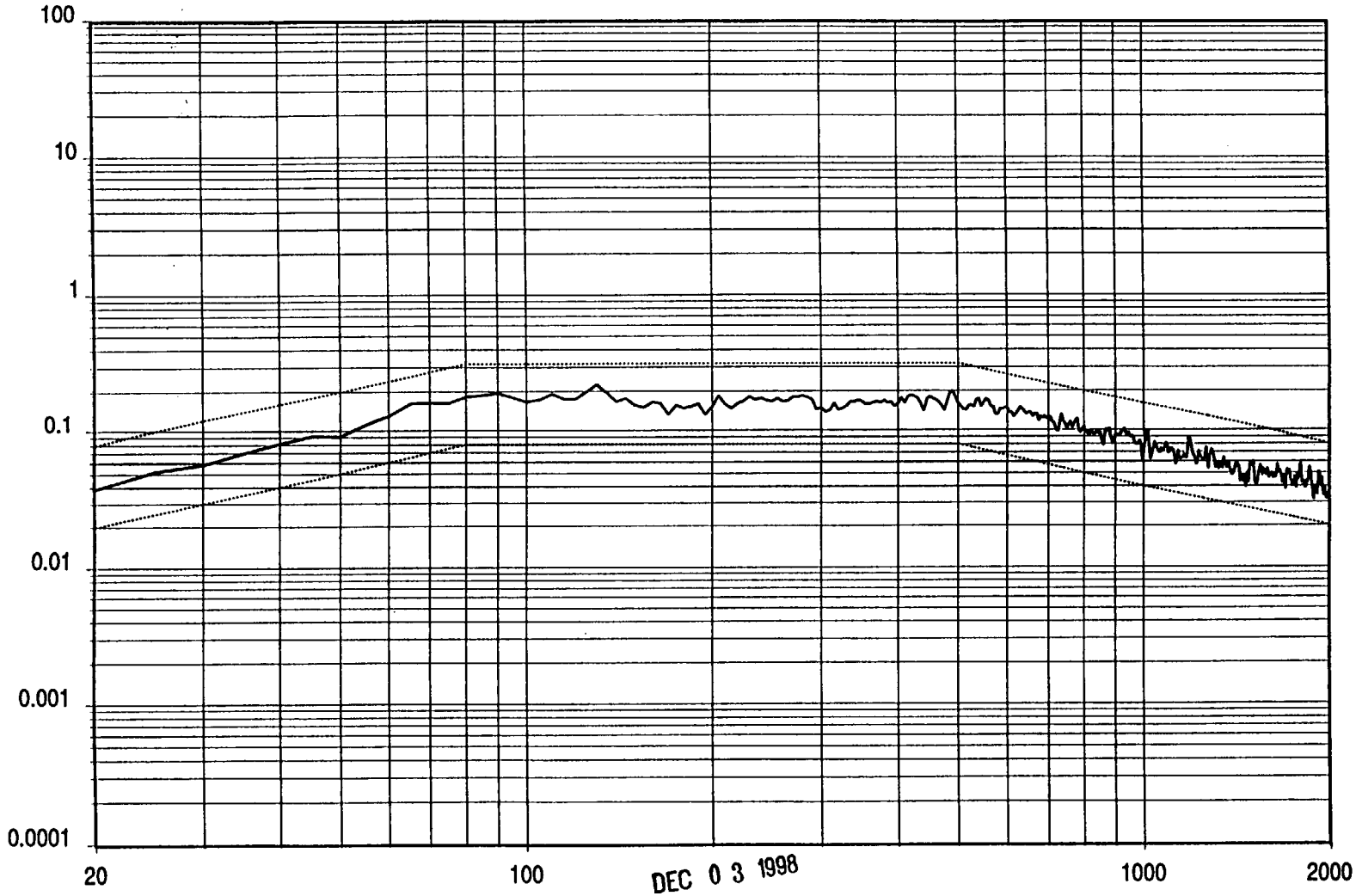
AMSU PHASE LOCK OSCILLATOR S/O ~~534921~~,534922
PRE X AXIS SINE SWEEP P/N 1348360-1,1348360-1 S/N FO8;~~F07~~
Sine Test Name: PLO.tmp

UNIT Y

Test Level: 0.000 dB
Test Time: 000:01:00

Reference RMS: 13.576
Clipping: Off

Test Range: 20.000, 2000.000 Hz
Resolution: 5.000 Hz



Control

Log
g²/Hz

DOF 200

RMS:
13.741 g

Log Frequency (Hz)

DEC 0 3 1998

ENG QC 236

8/18/98
ENG 217 ZA 200

15:14:07
18-Aug-1998

AMSU PHASE LOCK OSCILLATOR S/O~~534921~~, 534922
X AXIS TEST P/N 1348360-1,1348360-1 S/N F08 ~~,F07~~

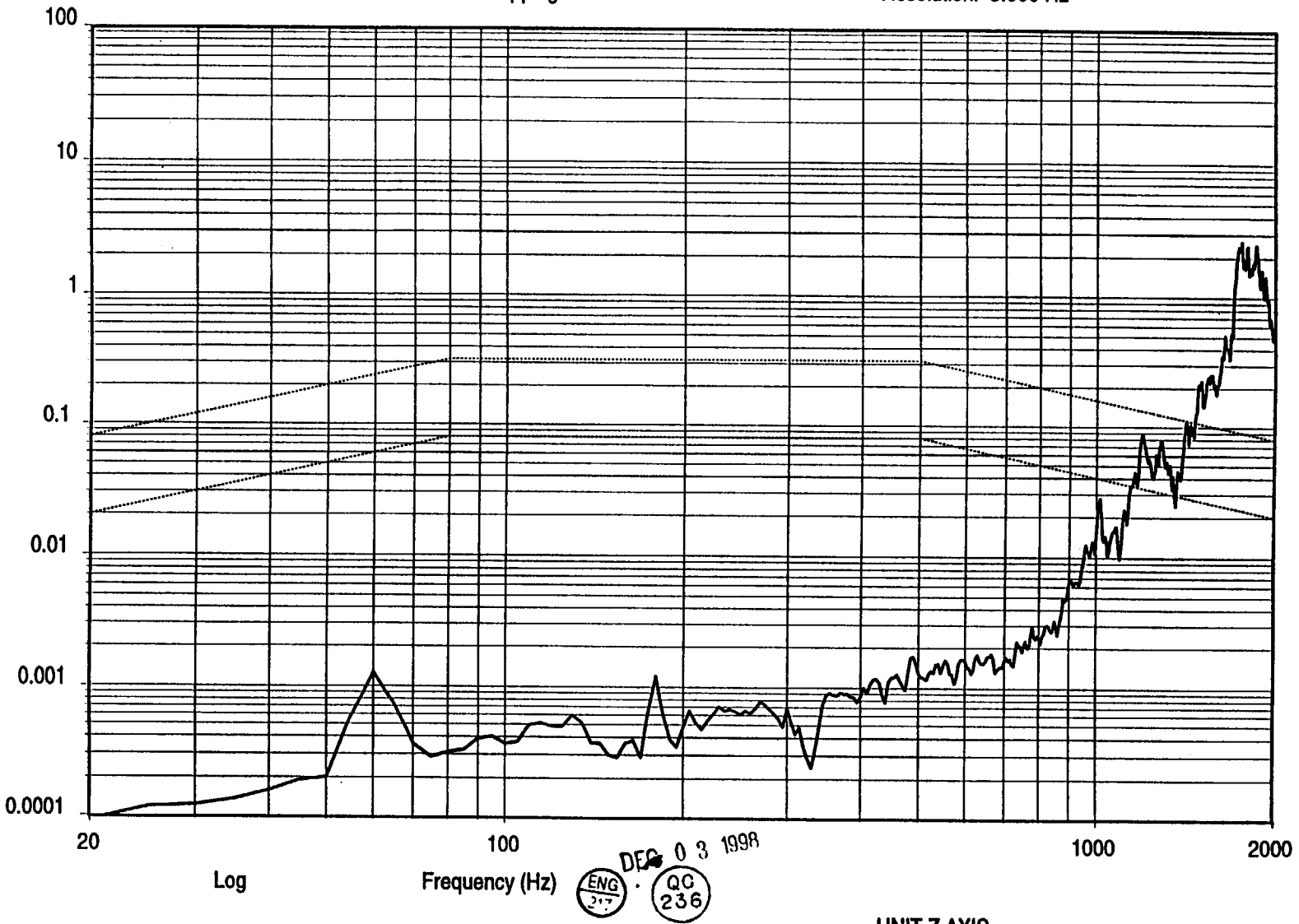
Test Name: PLO.tmp

Test Level: 0.000 dB
Test Time: 000:01:00

Reference RMS: 13.576
Clipping: Off

Test Range: 20.000, 2000.000 Hz
Resolution: 5.000 Hz

Auxiliary 3



DEC 0 3 1998

ENG 217 QC 236

15:14:11
18-Aug-1998

AMSU PHASE LOCK OSCILLATOR S/O~~534921~~, 534922
X AXIS TEST P/N 1348360-1,1348360-1 S/N F08 ,~~F07~~
Test Name: PLO.tmp

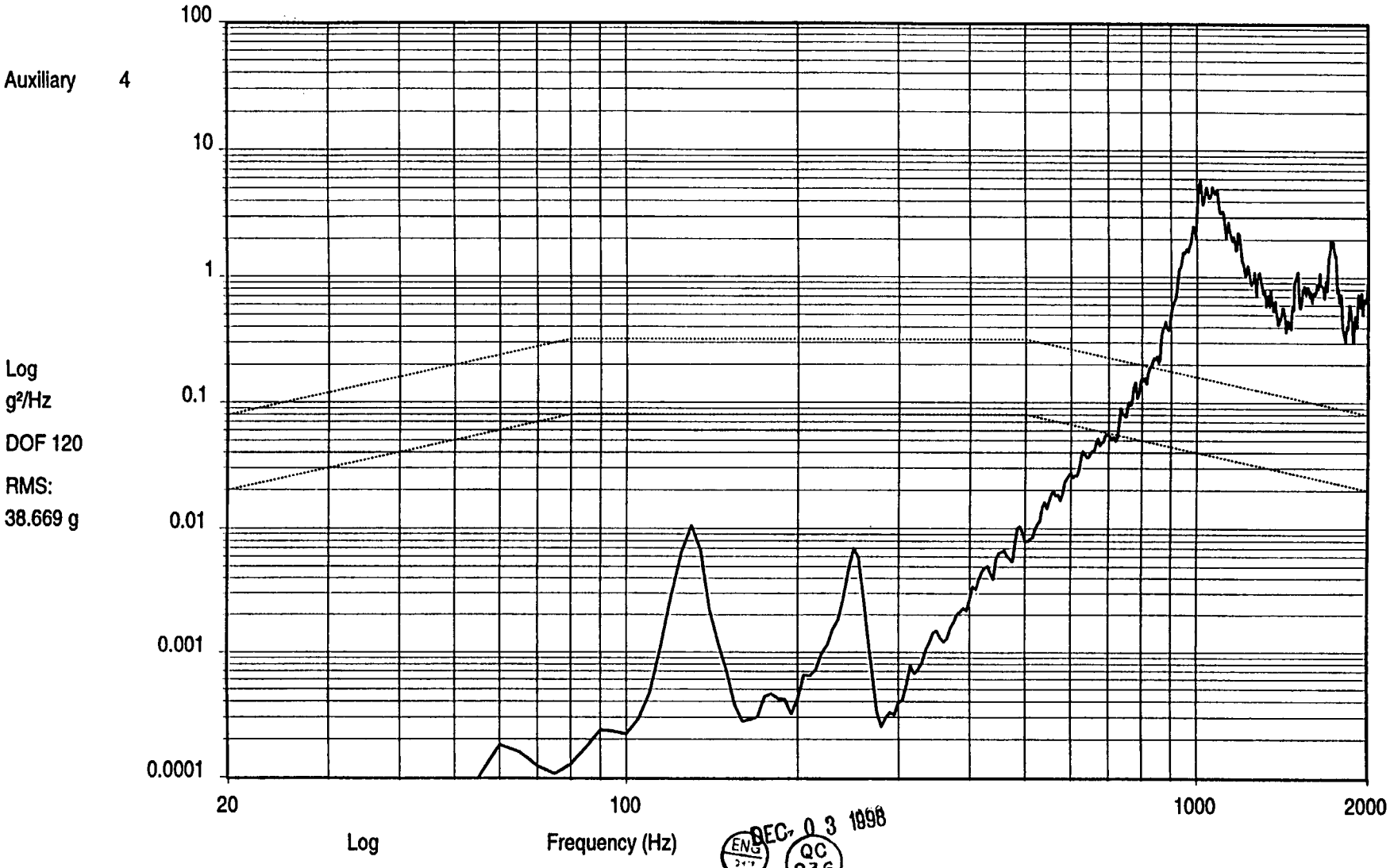
UNIT Z AXIS

ENG 217 8/18/98 QA 290

Test Level: 0.000 dB
Test Time: 000:01:00

Reference RMS: 13.576
Clipping: Off

Test Range: 20.000, 2000.000 Hz
Resolution: 5.000 Hz



DEC 03 1998

ENG 217 QC 236

UNIT Y AXIS

15:14:15
18-Aug-1998

AMSU PHASE LOCK OSCILLATOR S/O~~534921~~, 534922
X AXIS TEST P/N 1348360-1,1348360-1 S/N F08 ~~,F07~~
Test Name: PLO.tmp

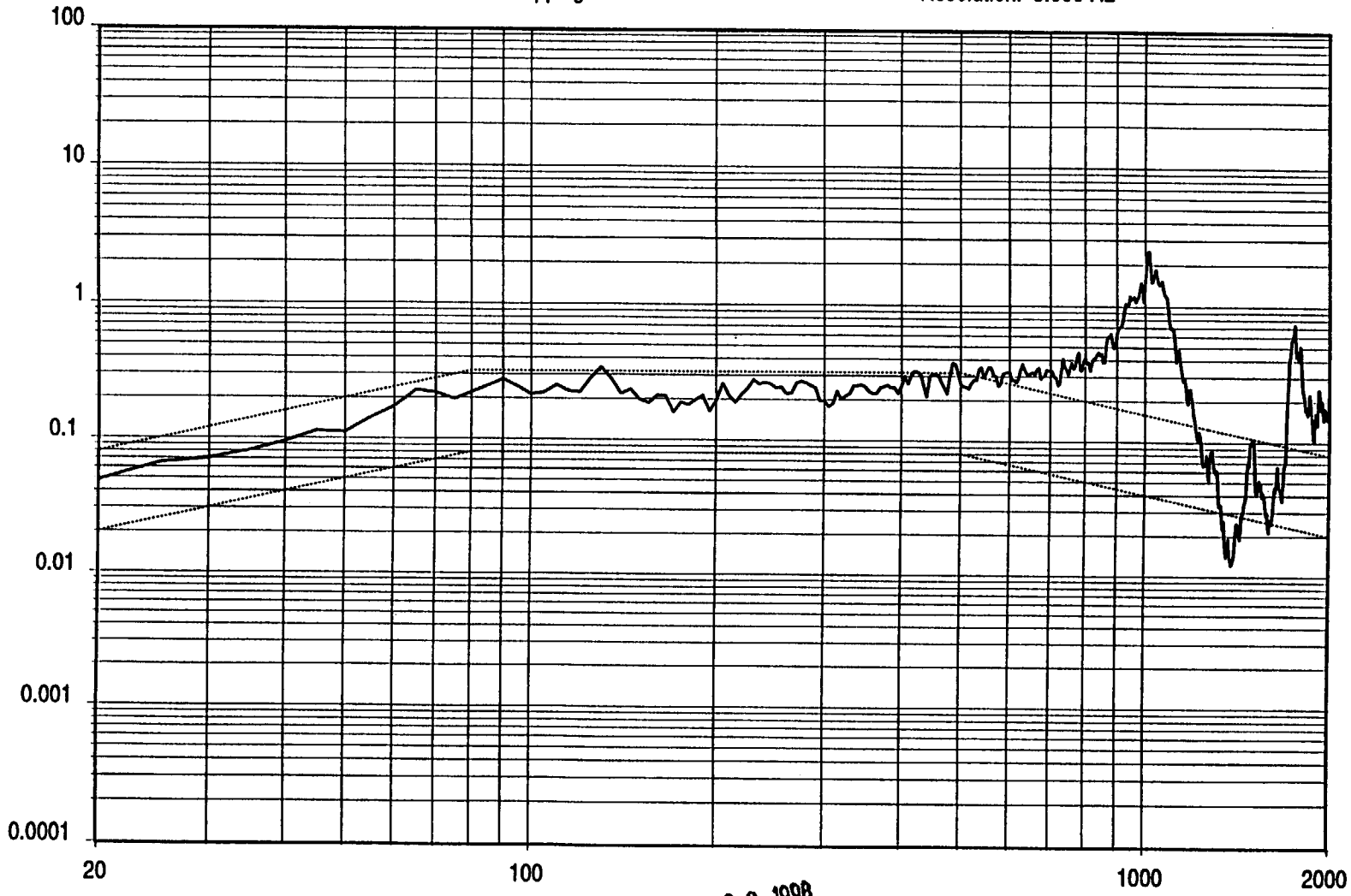
8/18/98

QA 200

Test Level: 0.000 dB
Test Time: 000:01:00

Reference RMS: 13.576
Clipping: Off

Test Range: 20.000, 2000.000 Hz
Resolution: 5.000 Hz



ENG DEC 0 3 1998 QC 236

15:14:19
18-Aug-1998

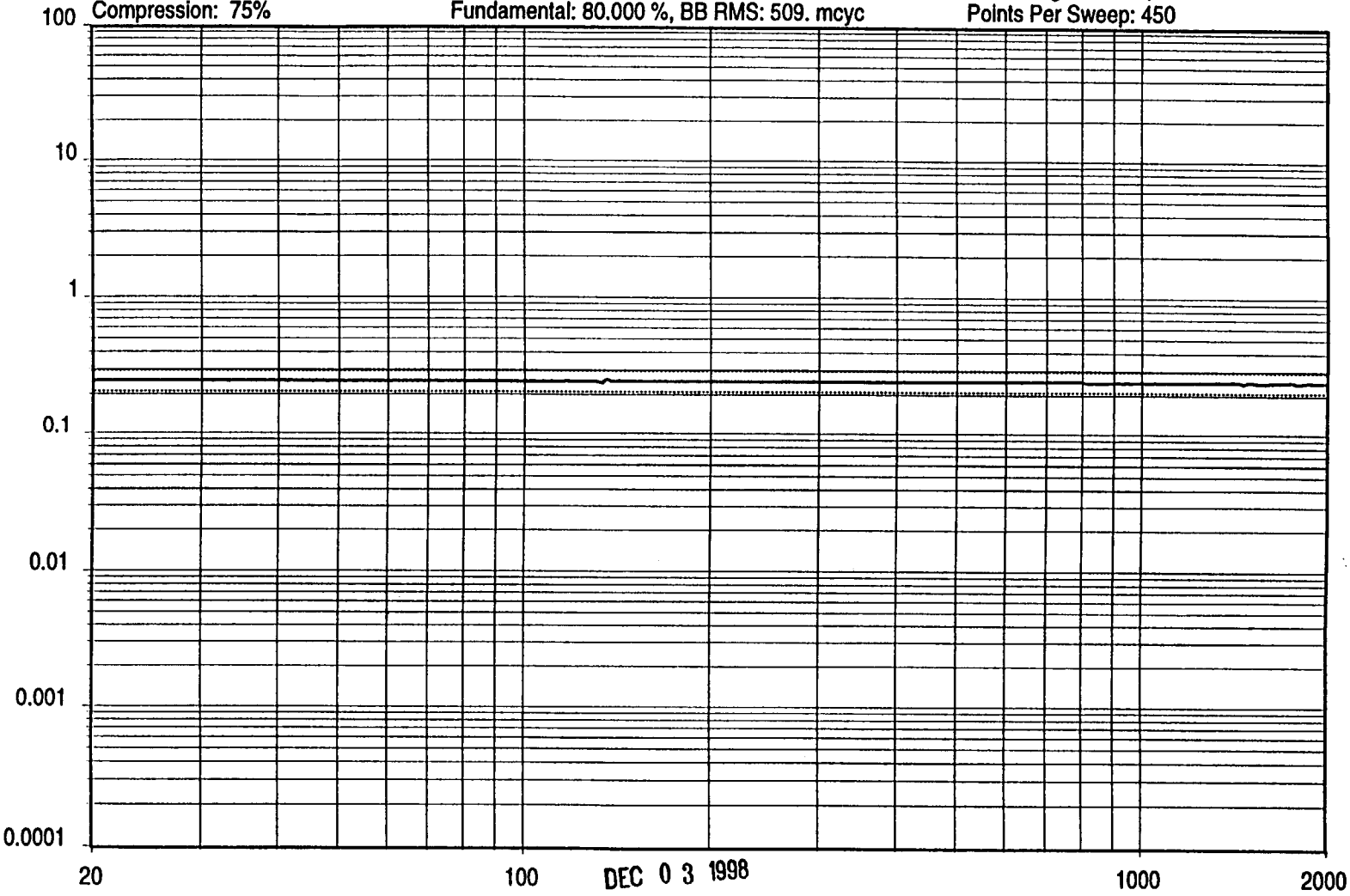
AMSU PHASE LOCK OSCILLATOR S/O~~534921~~, 534922
X AXIS TEST P/N 1348360-1,1348360-1 S/N F08 ,~~F07~~
Test Name: PLO.tmp

UNIT X AXIS
8/18/98
TA 200

Sweep Number: 1.00
Sweep Rate 1: 2.000 oct/min
Compression: 75%

Elapsed Time: 000:03:19
Filter Type: Proportional
Fundamental: 80.000 %, BB RMS: 509. mcyc

Remaining Time: 000:00:00
Test Range: 20.000, 2000.000 Hz
Points Per Sweep: 450



DEC 0 3 1998

ENG 217 QC 236

8/18/98

ENG 217 QC 236 VL

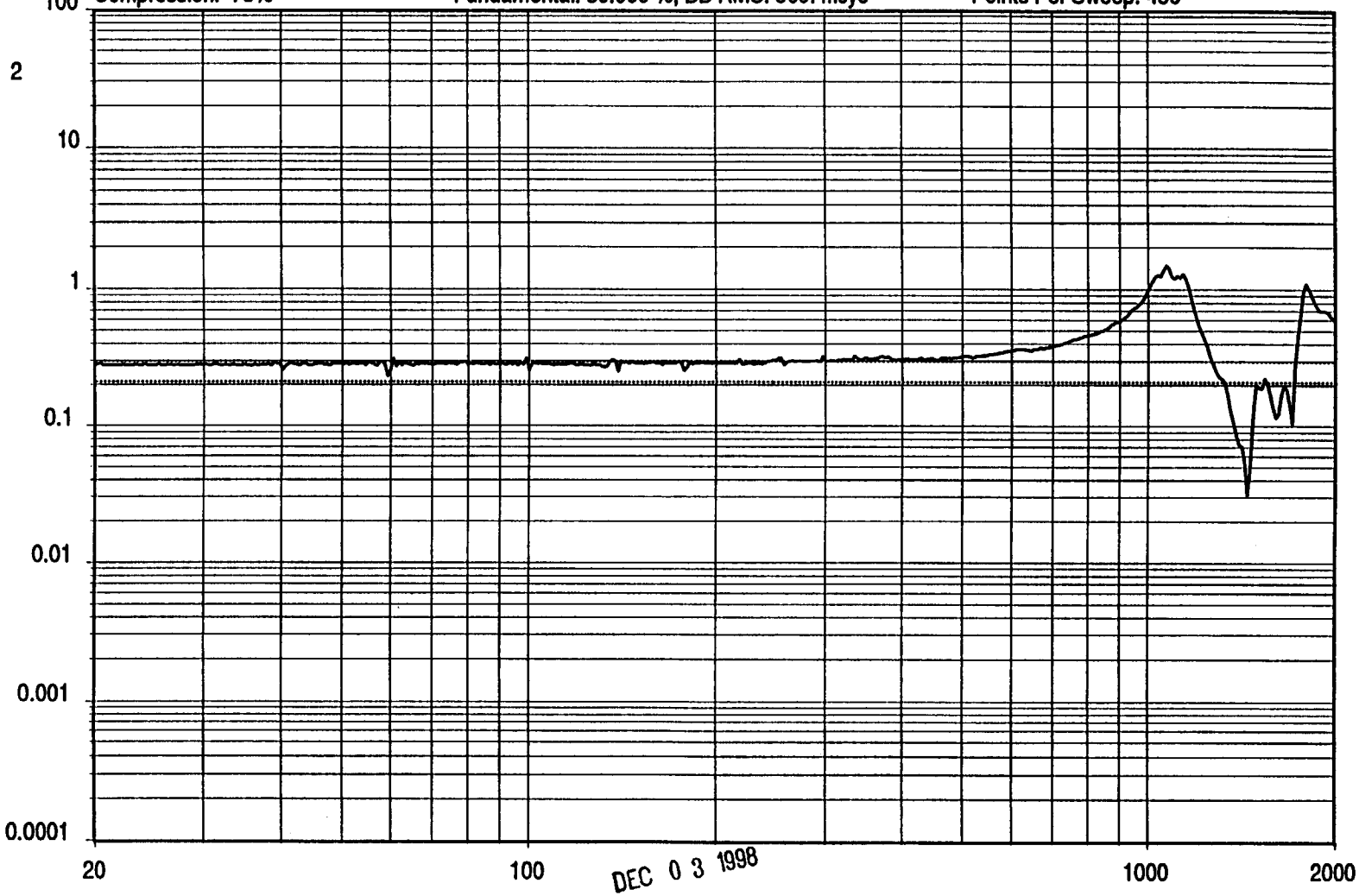
15:22:27
18-Aug-1998

AMSU PHASE LOCK OSCILLATOR S/O ~~534921~~,534922
POST X AXIS SINE SWEEP P/N 1348360-1,1348360-1 S/N FO8;~~F07~~
Sine Test Name: PLO.tmp

Sweep Number: 1.00
Sweep Rate 1: 2.000 oct/min
Compression: 75%

Elapsed Time: 000:03:19
Filter Type: Proportional
Fundamental: 80.000 %, BB RMS: 509. mcyc

Remaining Time: 000:00:00
Test Range: 20.000, 2000.000 Hz
Points Per Sweep: 450



DEC 0 3 1998

ENG 217

QC 236

UNIT X

15:22:36
18-Aug-1998

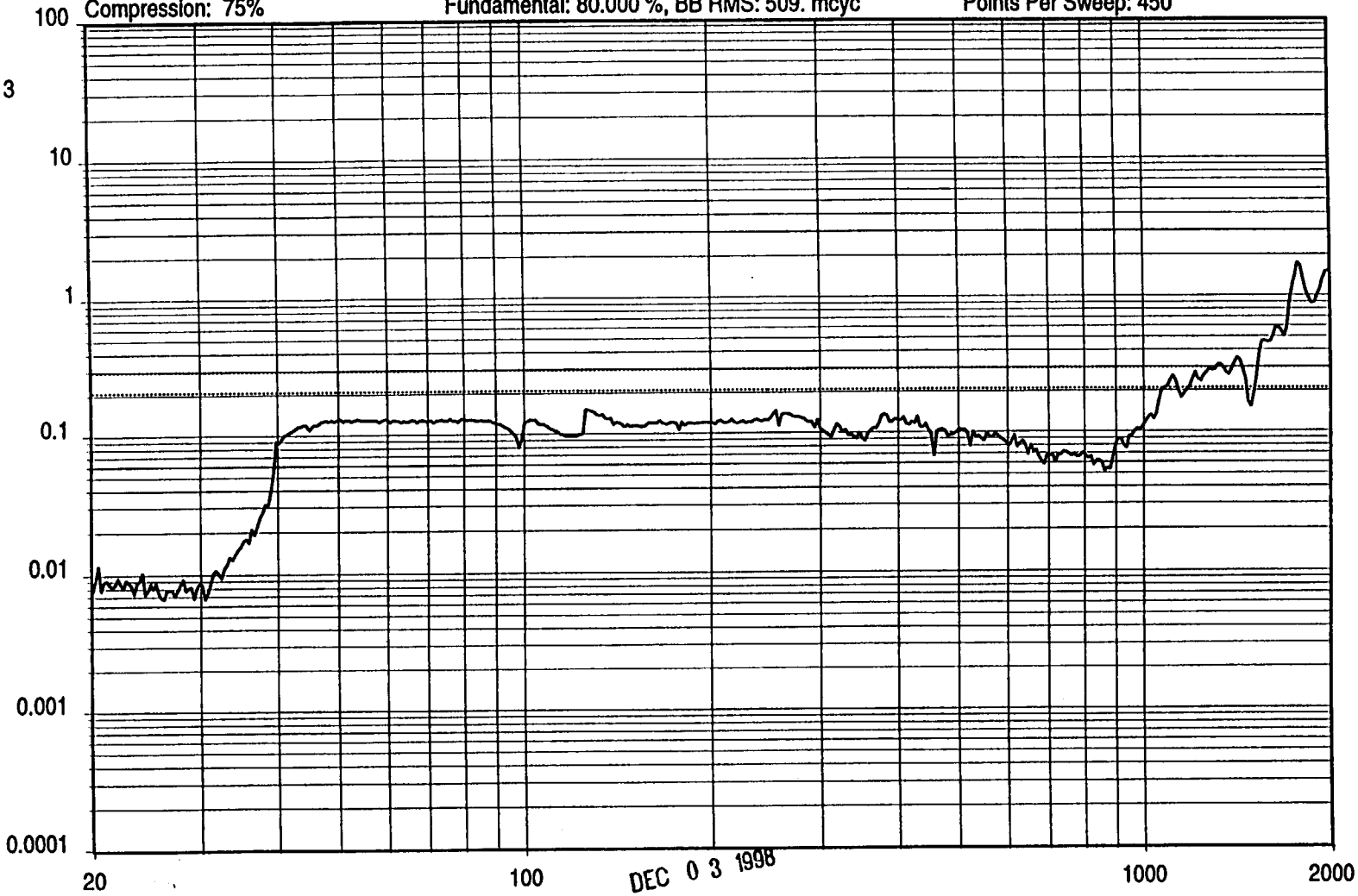
AMSU PHASE LOCK OSCILLATOR S/O ~~534921~~,534922
POST X AXIS SINE SWEEP P/N 1348360-1,1348360-1 S/N FO8,~~F07~~
Sine Test Name: PLO.tmp

ENG 217 QC 236 AUG 18 1998

Sweep Number: 1.00
Sweep Rate 1: 2.000 oct/min
Compression: 75%

Elapsed Time: 000:03:19
Filter Type: Proportional
Fundamental: 80.000 %, BB RMS: 509. mcyc

Remaining Time: 000:00:00
Test Range: 20.000, 2000.000 Hz
Points Per Sweep: 450



DEC 0 3 1998

ENG 217

QC 236

UNIT Z

15:22:32
18-Aug-1998

AMSU PHASE LOCK OSCILLATOR S/O ~~534921~~;534922
POST X AXIS SINE SWEEP P/N 1348360-1,1348360-1 S/N FO8;~~F07~~

Sine Test Name: PLO.tmp

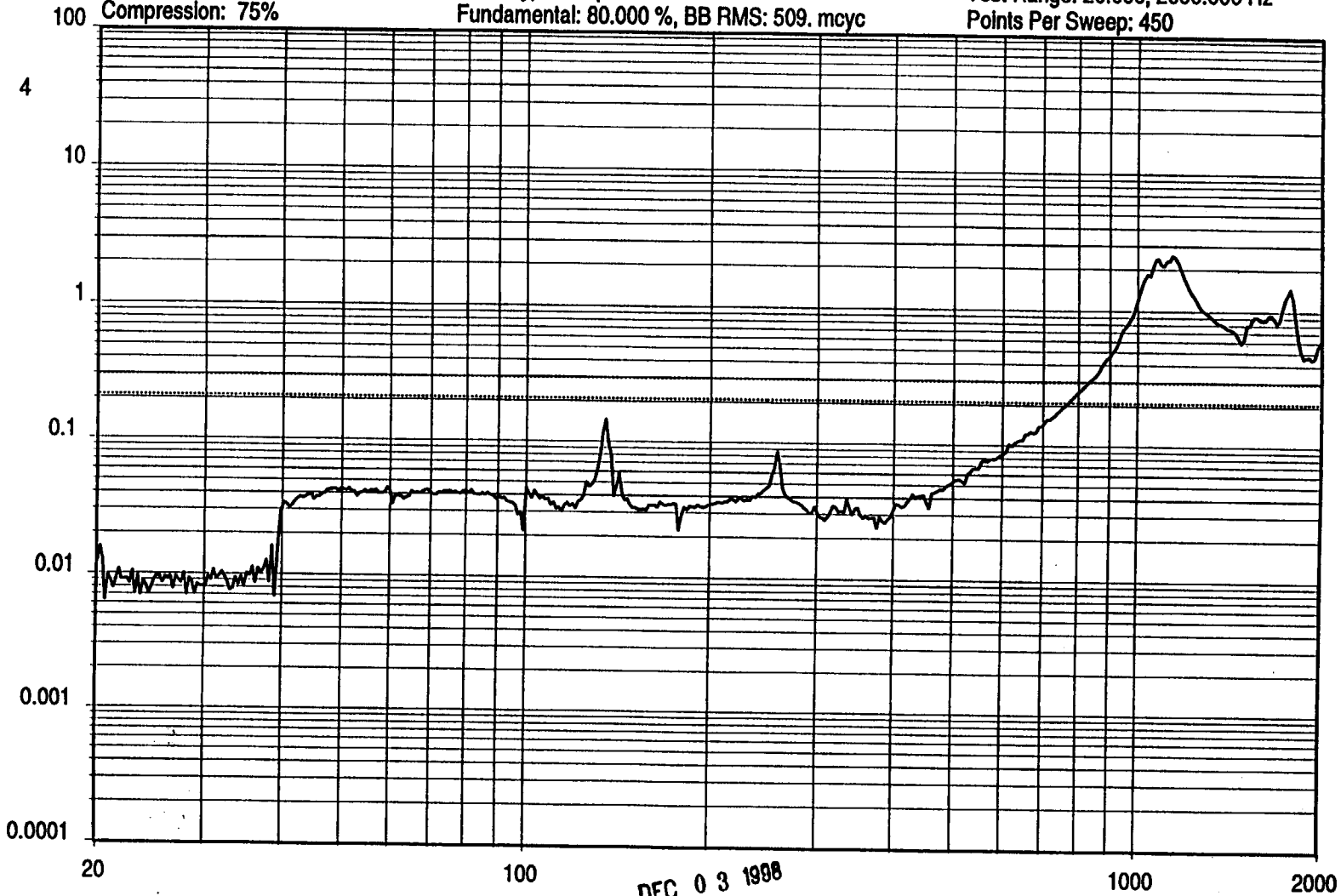
ENG 217

TA 800

Sweep Number: 1.00
Sweep Rate 1: 2.000 oct/min
Compression: 75%

Elapsed Time: 000:03:19
Filter Type: Proportional
Fundamental: 80.000 %, BB RMS: 509. mcyc

Remaining Time: 000:00:00
Test Range: 20.000, 2000.000 Hz
Points Per Sweep: 450



DEC 0 3 1998

ENG 217

QC 236

15:22:29
18-Aug-1998

AMSU PHASE LOCK OSCILLATOR S/O ~~534921~~,534922
POST X AXIS SINE SWEEP P/N 1348360-1,1348360-1 S/N FO8,~~F07~~
Sine Test Name: PLO.tmp

UNIT Y

TA 200

AUG 1 8 1998

Section 3A: Frequency and Power Hysteresis - F07

Worst case frequency and power hysteresis at 22°C for S/N F07 are 2 kHz and approximately 0.7 dBm, respectively. The recorded value for Output Power after cycle 5 is determined to be erroneous data resultant from adding in a coupler loss of 1.2 twice. Without the loss added twice, the power after cycle 5 would be 19.3 dBm, which is very much in line with expectation.

TEST DATA SHEET 7 (Sheet 1 of 3)
Temperature Cycling (Paragraph 4.2.2)

Test Setup Verified: _____
Signature

Temperature Cycle	Cycle 1	Cycle 2	Cycle 3	Cycle 4	Cycle 5	Cycle 6
Frequency 57.290344 GHz ±200 kHz				57.290324 GHz	57.290323 GHz	57.290325 GHz
Output Power 17 to 20 dBm		NA		19.90dBm	20.51 ~~19~~ dBM (Ena)	19.3 dBm
Frequency 57.290344 GHz ±200 kHz		9/8/98 (QC 227)				
Output Power 17 to 20 dBm						

Shop Order No.: 534921
Operation: 0170
Unit Serial No.: F07
Date: 9-3-98

Test Engineer: M R Yarbrough
Quality Control: (ZA 190) SD
Govt. Rep.: R. Brown 9-11-98

Section 3B: Frequency and Power Hysteresis - F08

Worst case frequency and power hysteresis at 22°C for S/N F07 are 2 kHz and approximately 0.5 dBm, respectively.

TEST DATA SHEET 7 (Sheet 1 of 3)
Temperature Cycling (Paragraph 4.2.2)

Test Setup Verified: _____
Signature

Temperature Cycle	Cycle 1	Cycle 2	Cycle 3	Cycle 4	Cycle 5	Cycle 6
Frequency 57.290344 GHz ±200 kHz				57.290331 GHz	57.290332 GHz	57.290333 GHz
Output Power 17 to 20 dBm				18.55 dBm ~~18.35 dBm~~ S. Reynolds 9-3-98	18.63 dBm	18.1 dBm
Frequency 57.290344 GHz ±200 kHz	N/A S. Reynolds 9/8/98 QC 227					
Output Power 17 to 20 dBm						

Shop Order No.: 534922

Operation: 0170

Unit Serial No.: F08

Date: 9-2-98

Test Engineer: S. Reynolds 9-2-98

Quality Control: 268 9/8/98

Govt. Rep.: R. Rivera 9-11-98

Section 4A: EMI/RE02 - F07

Not required. Qualification Testing done on S/N's F01, F02.

Section 4B: EMI/RE02 - F08

Not required. Qualification Testing done on S/N's F01, F02.

Section 5A: Final Functional Testing - F07

This section contains the results of a full functional test over temperature taken after PLO F07 endured thermal cycling. All tests passed.

TEST DATA SHEET 6C (Sheet 1 of 4)
Functional Testing (Paragraph 4.2.1)

Post-Thermal Cycling CPT

Test Setup Verified: [signature] 9-8-98
Signature

Paragraph 4.2.1.3, Functional Testing:

Step	Test	Expected	Measured	Pass/Fail
1	Potential Difference from ± 15 V RTN to:			
	PLO Base Plate	< 1.0 Vac	.01 V	PASS
	Spectrum Analyzer	< 1.0 Vac	.01 V	PASS
	Frequency Counter Chassis	< 1.0 Vac	.01 V	PASS
	Power Meter Chassis	< 1.0 Vac	.01 V	PASS
4	Evacuate vacuum chamber and record pressure	$<10^{-2}$ torr	Pressure = _____ torr	*
5	Thermal couple readings	TC1 = 22 ± 2 °C	TC1 = 22.2 °C	PASS
			TC2 = 22.7 °C	N/A
			TC3 = 22.2 °C	N/A
6	DRO L/A	0 to 1V	DRO L/A = .01 V	Pass
	PLO L/A	0 to 1V	PLO L/A = 0 V	Pass
	Is PLO locked?	Yes	Yes yes No _____	Pass
7	PLO Frequency	57.290344 ± .0002 GHz	Freq. = 57.290325 GHz	Pass
	PLO Power	17 to 20 dBm	P = 19.2 dBm	Pass
8	Input Voltage and Current			
	VM1 Voltage	+15 ± 0.1 V	VM1 = +15.00 V	Pass
	VM2 Voltage	-15 ± 0.1 V	VM2 = -15.00 V	Pass
	IM1 Current	600 mA max.	IM1 = 499 mA	Pass
	IM2 Current	100 mA max. 9/11/98	IM2 = 67.5 mA	Pass
	DRO L/A Voltage	0 to 1V	DRO L/A = 60.8m V	Pass
	PLO L/A Voltage	9/11/98 0 to 1V 14.50 ± 0.42V	PLO L/A = 14.25 V	Pass
12	RF Output Power and Frequency	17 to 20 dBm	P = 19.2 dBm	Pass
		57.290344 ± .0002 GHz	Freq. = 57.290325 GHz	Pass
	Baseplate Temp. (TC1)	TC1 = 22 ±2°C	TC1 = 22.4 °C	Pass
13	Frequency vs. Voltage			
	± 15 V Supplies	+15.2 ± 0.05 V	+Voltage = 15.2 V	Pass
		-15.2 ± 0.05 V	-Voltage = -15.2 V	Pass
		57.290344 ± .0002 GHz	Freq. = 57.290325 GHz	Pass
		17 to 20 dBm	P = 19.3 dBm	Pass

*Record data only if performing test under vacuum

TEST DATA SHEET 6C (Sheet 2 of 4)
Functional Testing (Paragraph 4.2.1)

Post-Thermal Cycling CPT

Paragraph 4.2.1.3 (Cont):

Step	Test	Expected	Measured	Pass/Fail
14	Frequency vs. Voltage			
	± 15 V Supplies	+14.8 ± 0.05 V	+Voltage = +14.8 V	Pass
		-14.8 ± 0.05 V	-Voltage = -14.8 V	Pass
		57.290344 ± .0002 GHz	Freq. = 57.290325 GHz	Pass
		17 to 20 dBm	P = 19.3 dBm	Pass
15	Spurious and Sub	-200 to -90 dBc	see plots	Pass
16	Power level of 114.58 GHz signal	<-10 dBm	-67 dBm	Pass
17	Load VSWR and Frequency Pulling			
	2:1 mismatch over 1λ	N/A	Worst Case Freq = 1 Hz	N/A
	2:1 mismatch over 1λ	N/A	Worst Case Power = .19 dB Peak	N/A
18	Operating Temperature @ 1°C baseplate	TC1 = 1 ±2°C	TC1 = 0.9 °C	Pass
			TC2 = 1.3°C	N/A
			TC3 = 0.8°C	N/A
		0 - 1V	DRO L/A = .04 V	Pass
		~~0 - 1V~~ 14.50V ± .40V	PLO L/A = 14.35 V	Pass
19	Input Voltage and Current	9/11/98	Shipacks 9-9-98	
	VM1 Voltage	+15 ± 0.1 V	VM1 = 15.20 V	Pass
	VM2 Voltage	-15 ± 0.1 V	VM2 = -14.98 V	Pass
	IM1 Current	600 mA max.	IM1 = 489 mA	Pass
	IM2 Current	100 mA max. 9/11/98	IM2 = 66.0 mA	Pass
	DRO L/A Voltage	0 to 1V Volmax	DRO L/A = 48.8 V	Pass
	PLO L/A Voltage	~~0 to 1V~~ 14.50 ± 0.40V	PLO L/A = 14.35 V	Pass
	RF Output Power	9/11/98 17 to 20 dBm	Power = 19.7 dBm	Pass
	Frequency	57.290344 ± .0002 GHz	Freq. = 57.290327 GHz	Pass
	Frequency vs. Voltage			
	± 15 V Supplies	+15.2 ± 0.05 V	+Voltage = 15.20 V	Pass
		-15.2 ± 0.05 V	-Voltage = -15.20 V	Pass
		57.290344 ± .0002 GHz	Freq. = 57.290327 GHz	Pass
		17 to 20 dBm	Power = 18.8 dBm	Pass
	Frequency vs. Voltage			
	± 15 V Supplies	+14.8 ± 0.05 V	+Voltage = 14.80 V	Pass
		-14.8 ± 0.05 V	-Voltage = -14.80 V	Pass
		57.290344 ± .0002 GHz	Freq. = 57.290327 GHz	Pass
		17 to 20 dBm	Power = 18.8 dBm	Pass

TEST DATA SHEET 6C (Sheet 3 of 4)
Functional Testing (Paragraph 4.2.1)

Post-Thermal Cycling CPT

Paragraph 4.2.1.3 (Cont):

Step	Test	Expected	Measured	Pass/Fail
19 (Cont)	Spurious and Sub	-200 to -90 dBc	See Plots	Pass
	Power level of 114.58 GHz signal	<-10 dBm	S/R Report -95 9-9-98 -68 dBm	Pass
	Load VSWR and Frequency Pulling			
	2:1 mismatch over 1λ	N/A	Worst Case Freq = 2 Hz	N/A
	2:1 mismatch over 1λ	N/A	Worst Case Power = .5 dB	N/A
21	Operating Temperature @ +44°C Baseplate	TC1 = 44 ±2°C	TC1 = 43.7 °C	Pass
			TC2 = 43.7 °C	N/A
			TC3 = 43.7 °C	N/A
		0 - 1V 9/11/98 ~~0 - 1V~~ 1460 ± 0.4V	DRO L/A = .01 V	Pass
			PLO L/A = 142 V	Pass
22	Input Voltage and Current			
	VM1 Voltage	+15 ± 0.1 V	VM1 = 15.00 V	Pass
	VM2 Voltage	-15 ± 0.1 V	VM2 = -15.02 V	Pass
	IM1 Current	600 mA max.	IM1 = 511 mA	Pass
	IM2 Current	100 mA max.	IM2 = 69.8 mA	Pass
	DRO L/A Voltage	0 to 1V	DRO L/A = 119 m V	Pass
	PLO L/A Voltage	9/11/98 ~~0 to 1V~~ 14.50 ± 0.5V	PLO L/A = 14.2 V	P.
	RF Output Power and	17 to 20 dBm	Power = 19.1 dBm	Pass
	Frequency	57.290344 ± .0002 GHz	Freq. = 57.290317 GHz	Pass
	Frequency vs. Voltage			
	± 15 V Supplies	+15.2 ± 0.05 V	+Voltage = 15.2 V	Pass
		-15.2 ± 0.05 V	-Voltage = -15.2 V	Pass
		57.290344 ± .0002 GHz	Freq. = 57.290318 GHz	Pass
		17 to 20 dBm	Power = 19.1 dBm	Pass
	Frequency vs. Voltage			
	± 15 V Supplies	+14.8 ± 0.05 V	+Voltage = 14.8 V	Pass
		-14.8 ± 0.05 V	-Voltage = -14.8 V	Pass
		57.290344 ± .0002 GHz	Freq. = 57.290318 GHz	Pass
		17 to 20 dBm	Power = 19.1 dBm	Pass

TEST DATA SHEET 6C (Sheet 4 of 4)
Functional Testing (Paragraph 4.2.1)

Post-Thermal Cycling CPT

Paragraph 4.2.1.3 (Cont):

Step	Test	Expected	Measured	Pass/Fail
22 (Cont)	Spurious and Sub	-200 to -90 dBc	See plots	Pass
	Power level of 114.58 GHz signal	<-10 dBm	~~-98~~ -68 dBm S. Rogers 9-9-98	Pass
	Load VSWR and Frequency Pulling			
	2:1 mismatch over 1λ	N/A	Worst Case Freq = 24z	N/A
	2:1 mismatch over 1λ	N/A	Worst Case Power = .2 dB	N/A

Shop Order No.: 534921

Operation: 0170

Unit Serial No.: F07

Date: 9-998

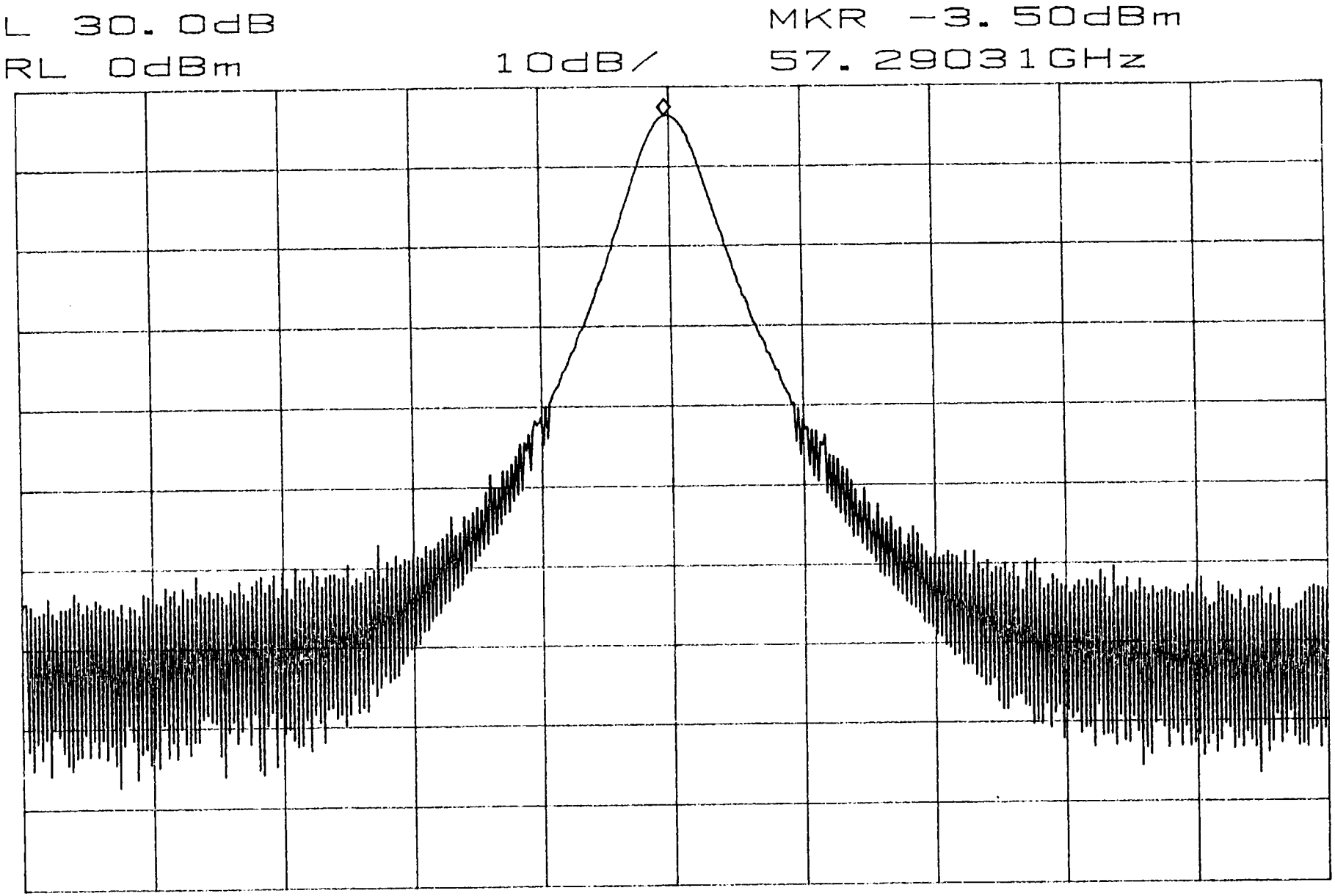
Test Engineer: S. Rogers 9-9-98

Quality Control: 7A 190 SEP 10

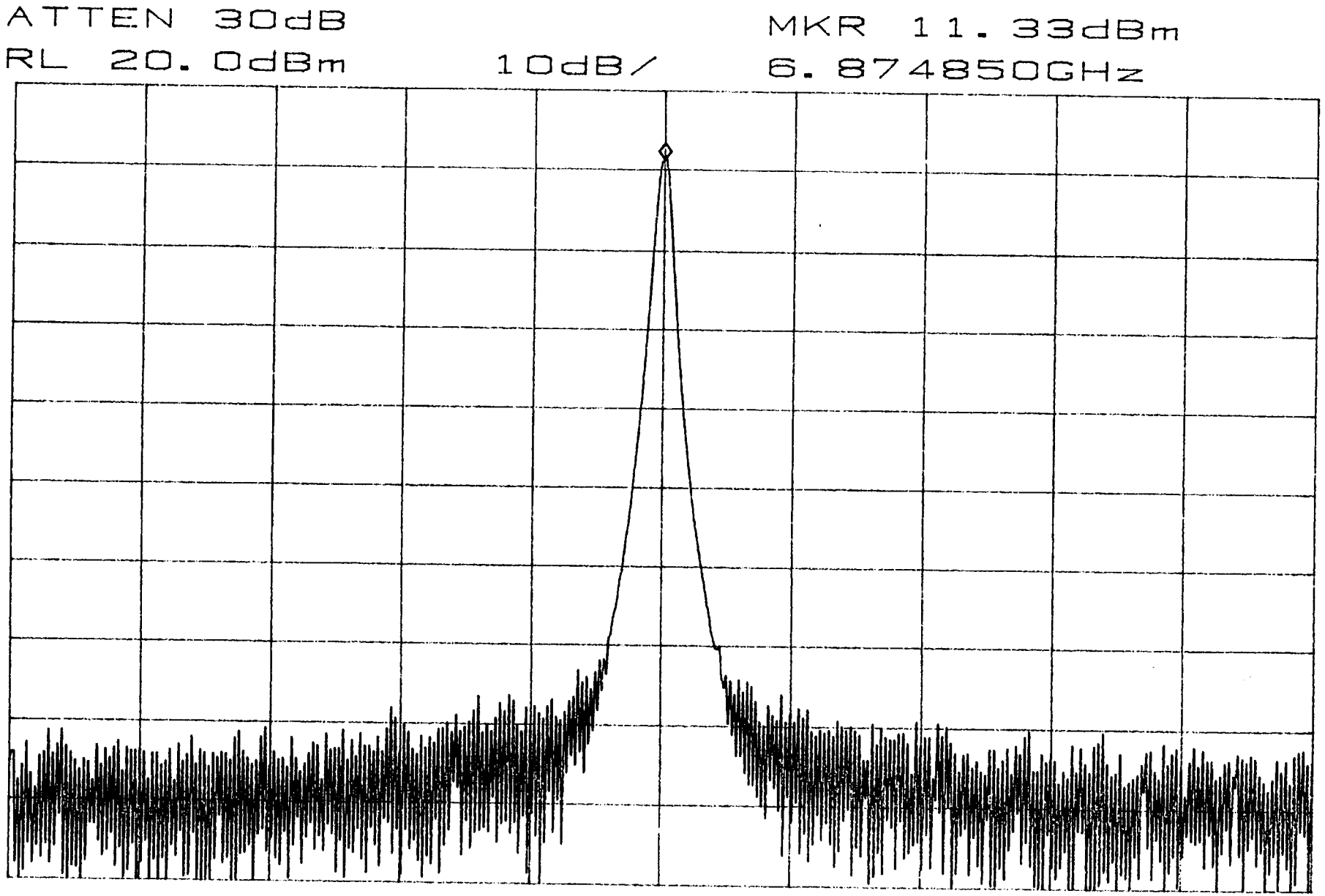
Govt. Rep.: R. Russell 9-11-98

POST T/C

F07
CPT
AMBIENT ° C
9-8-98



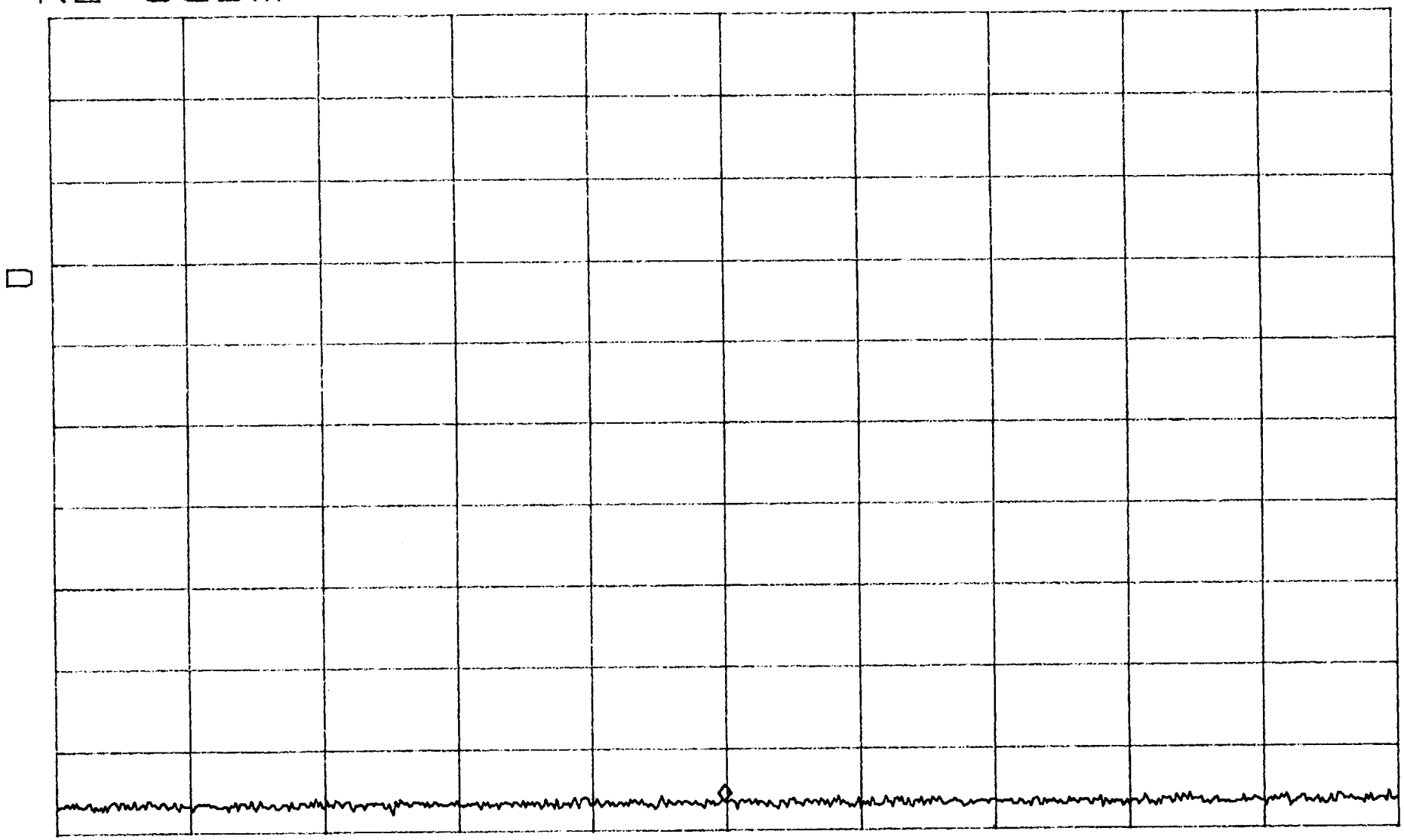
STEP 12, 22.4°C
FO7



STEP 12, 22.4°C
'97, 9-8-98

CL 30.0dB VAVG 82 MKR -96.33dBm

RL 0dBm 10dB/ 56.8606462GHz



CENTER 56.8606470GHz SPAN 500.0kHz

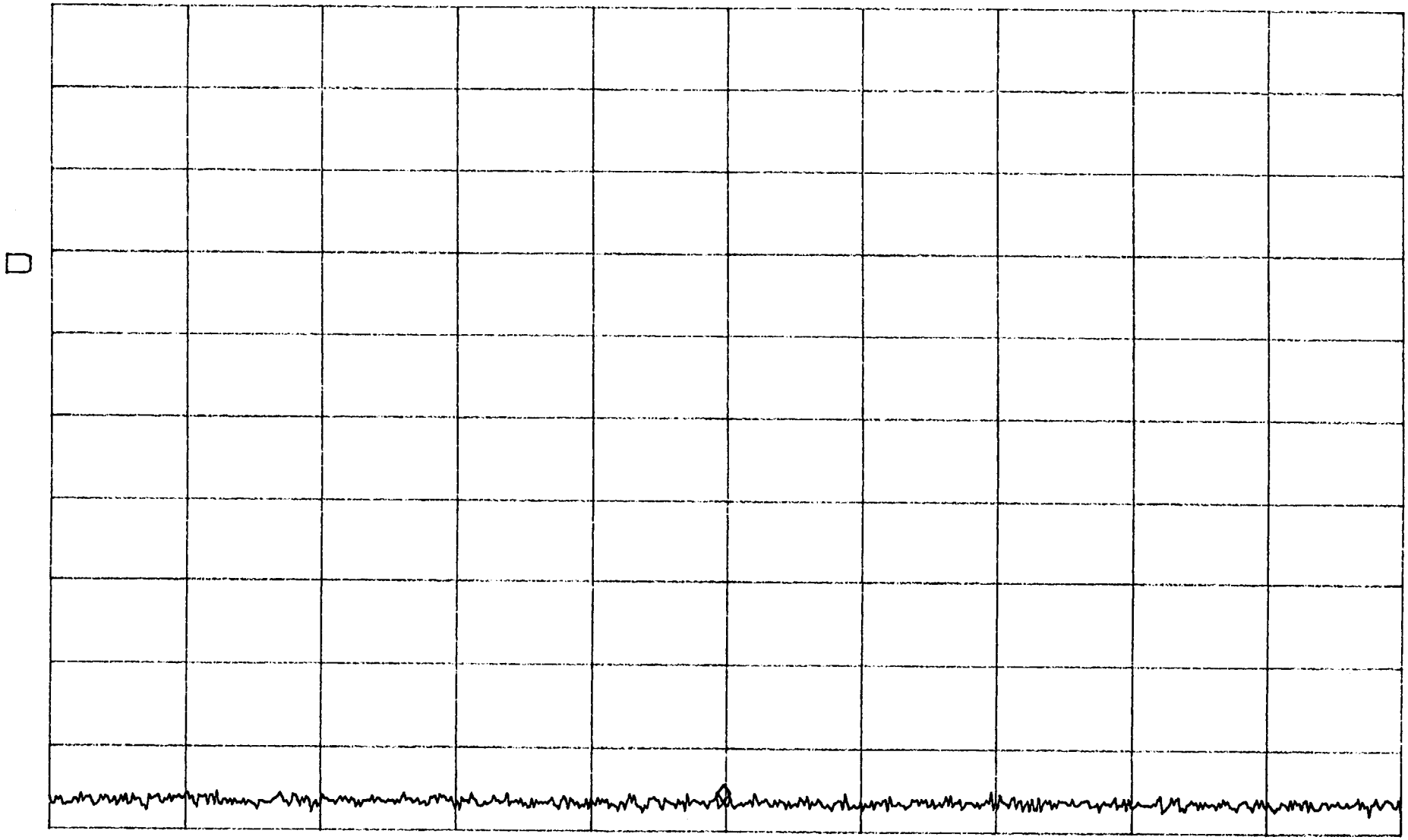
*RBW 1.0kHz VBW 1.0kHz SWP 1.30sec

FOT - ambient

56.860 9-8-98

CL 30.0dB VAVG 6 MKR -96.33dBm

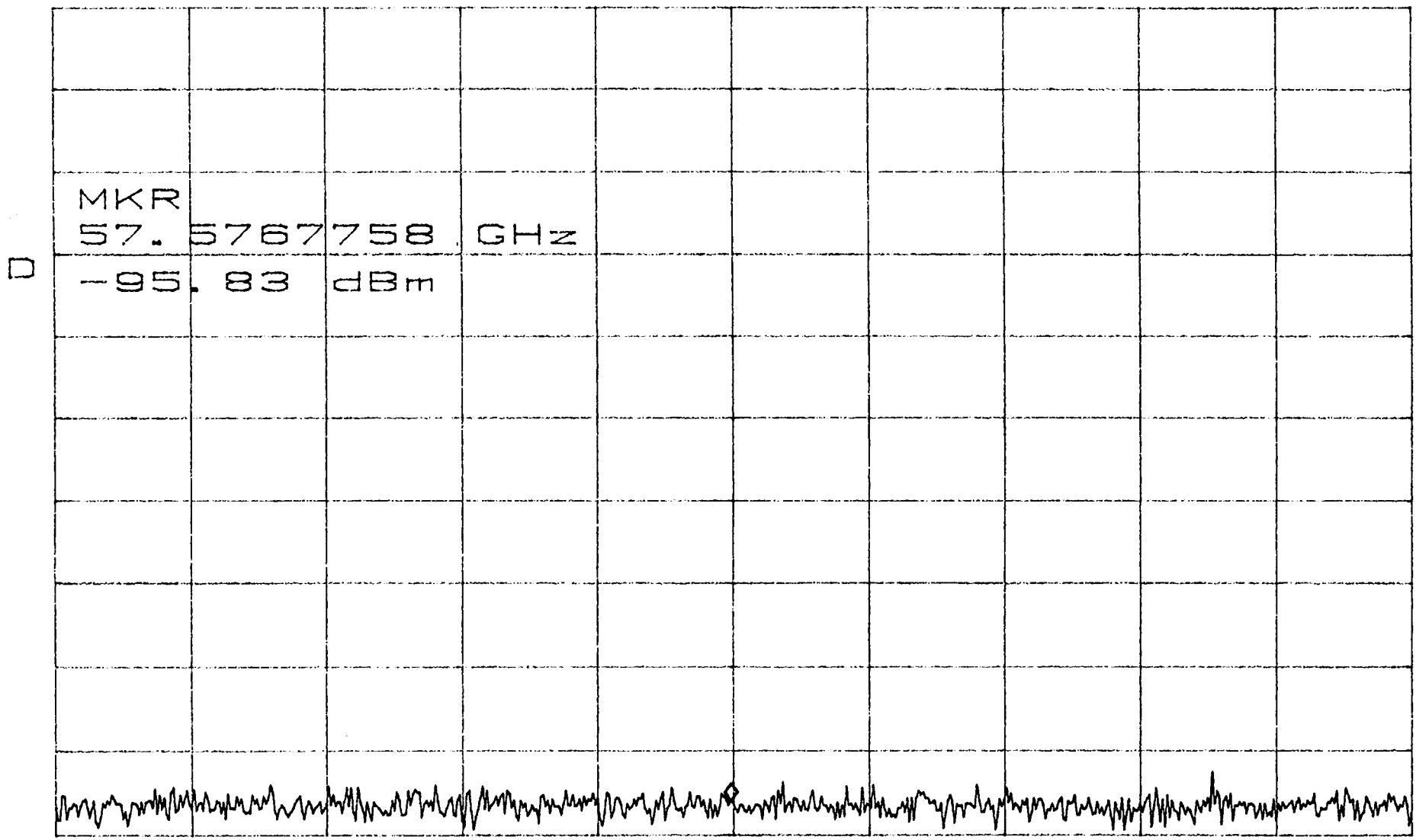
RL 0dBm 10dB/ 57.7200016GHz



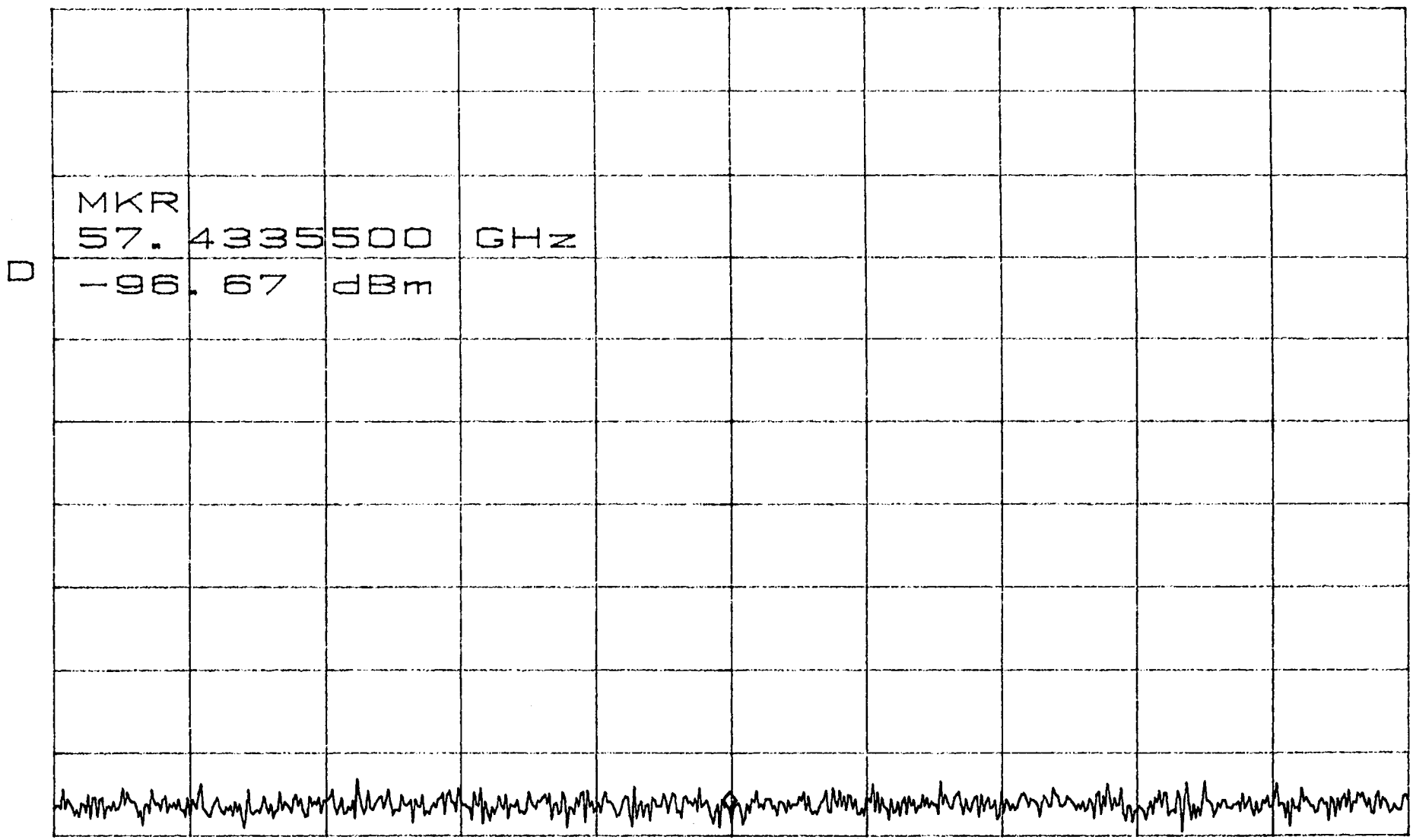
CENTER 57.7200024GHz SPAN 500.0kHz

*RBW 1.0kHz VBW 1.0kHz SWP 1.30sec

For ambient


CL 30.0dB
VAVG 1
MKR -95.83dBm
RL 0dBm
10dB/
57.5767758GHz
MKR
57.5767758 GHz
-95.83 dBm
D
CENTER 57.5767766GHz
SPAN 500.0kHz
*RBW 1.0kHz
VBW 1.0kHz
SWP 1.30sec

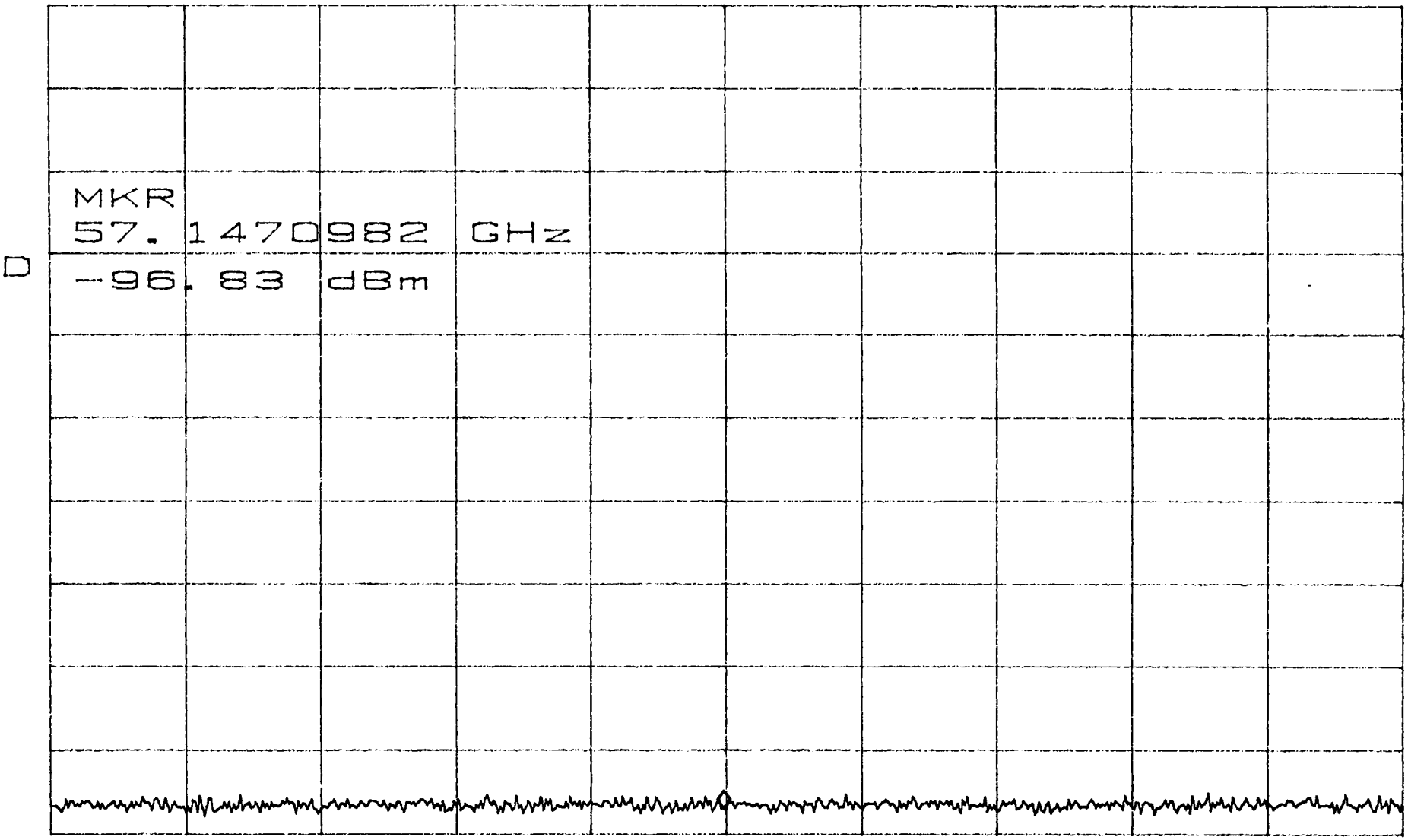
For ambient



FOT ambient
a o co

CL 30.0dB VAVG 5 MKR -96.83dBm

RL 0dBm 10dB/ 57.1470982GHz



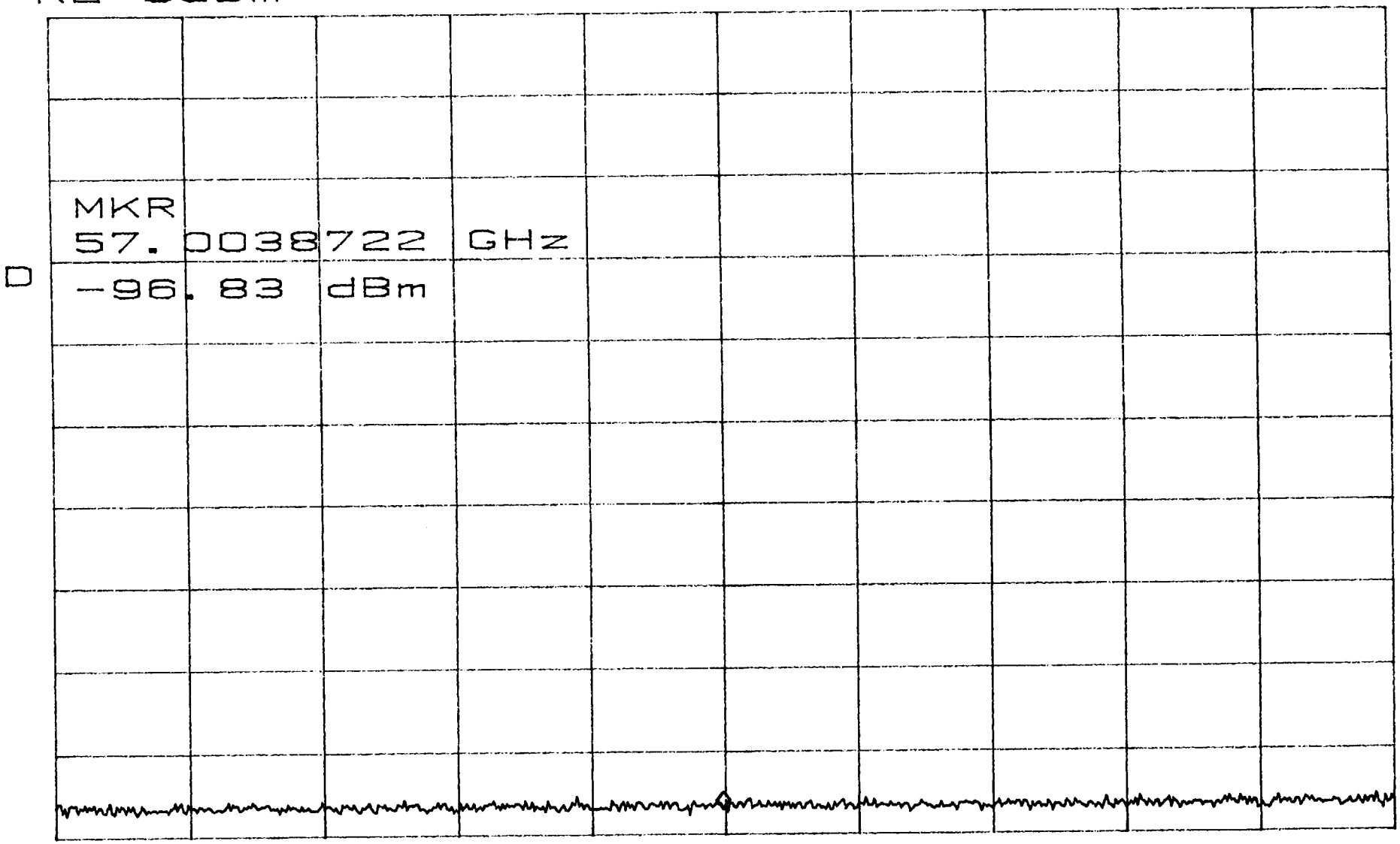
D

CENTER 57.1470990GHz SPAN 500.0kHz

*RBW 1.0kHz VBW 1.0kHz SWP 1.30sec

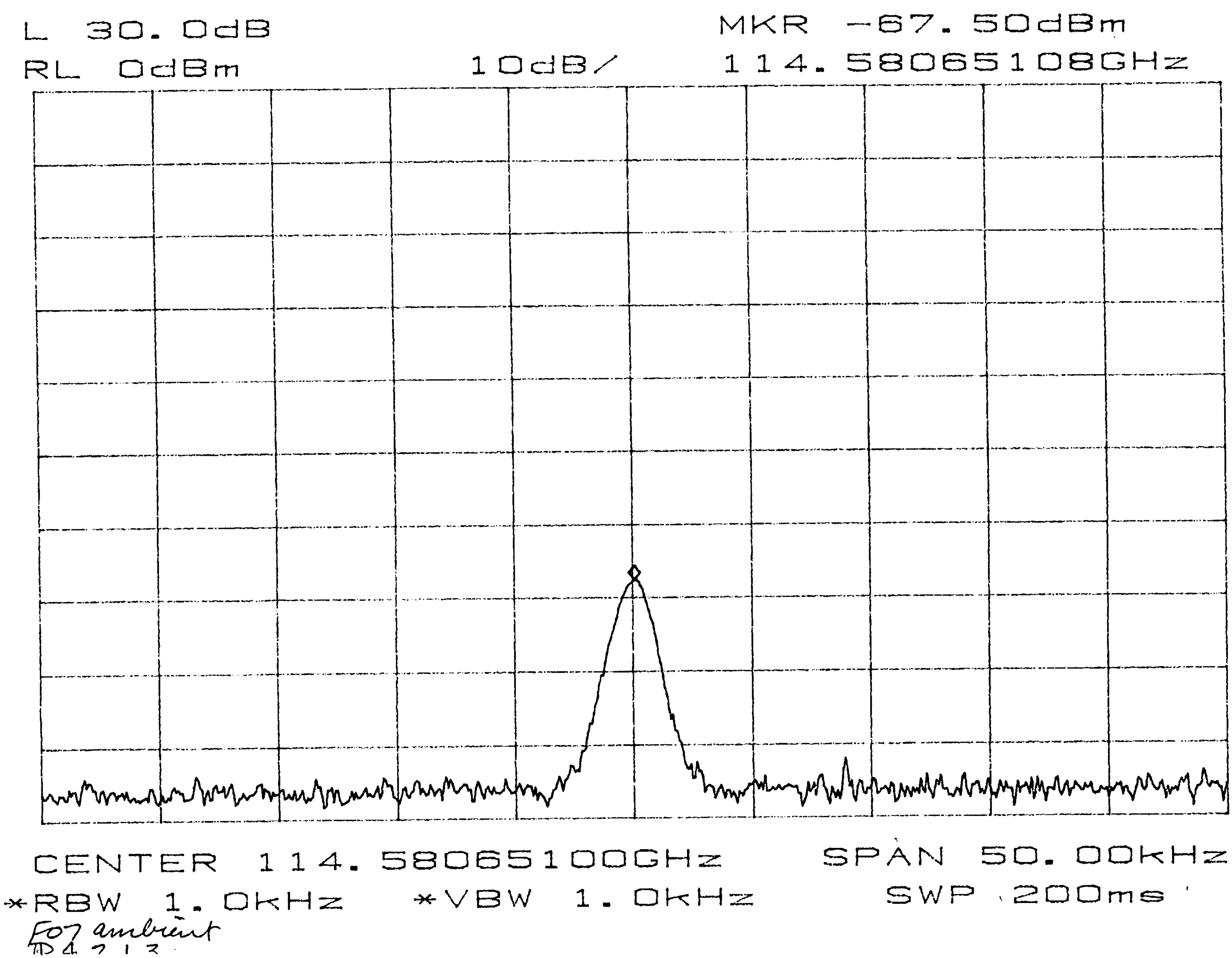
For ambient
9-8-98

CL 30.0dB VAVG 11 MKR -96.83dBm
RL 0dBm 10dB/ 57.0038722GHz



D

CENTER 57.0038730GHz SPAN 500.0kHz
*RBW 1.0kHz VBW 1.0kHz SWP 1.30sec
For ambient


L 30.0dB
RL 0dBm
10dB/
MKR -67.50dBm
114.58065108GHz
CENTER 114.58065100GHz
SPAN 50.00kHz
*RBW 1.0kHz
*VBW 1.0kHz
SWP 200ms
F07 ambient

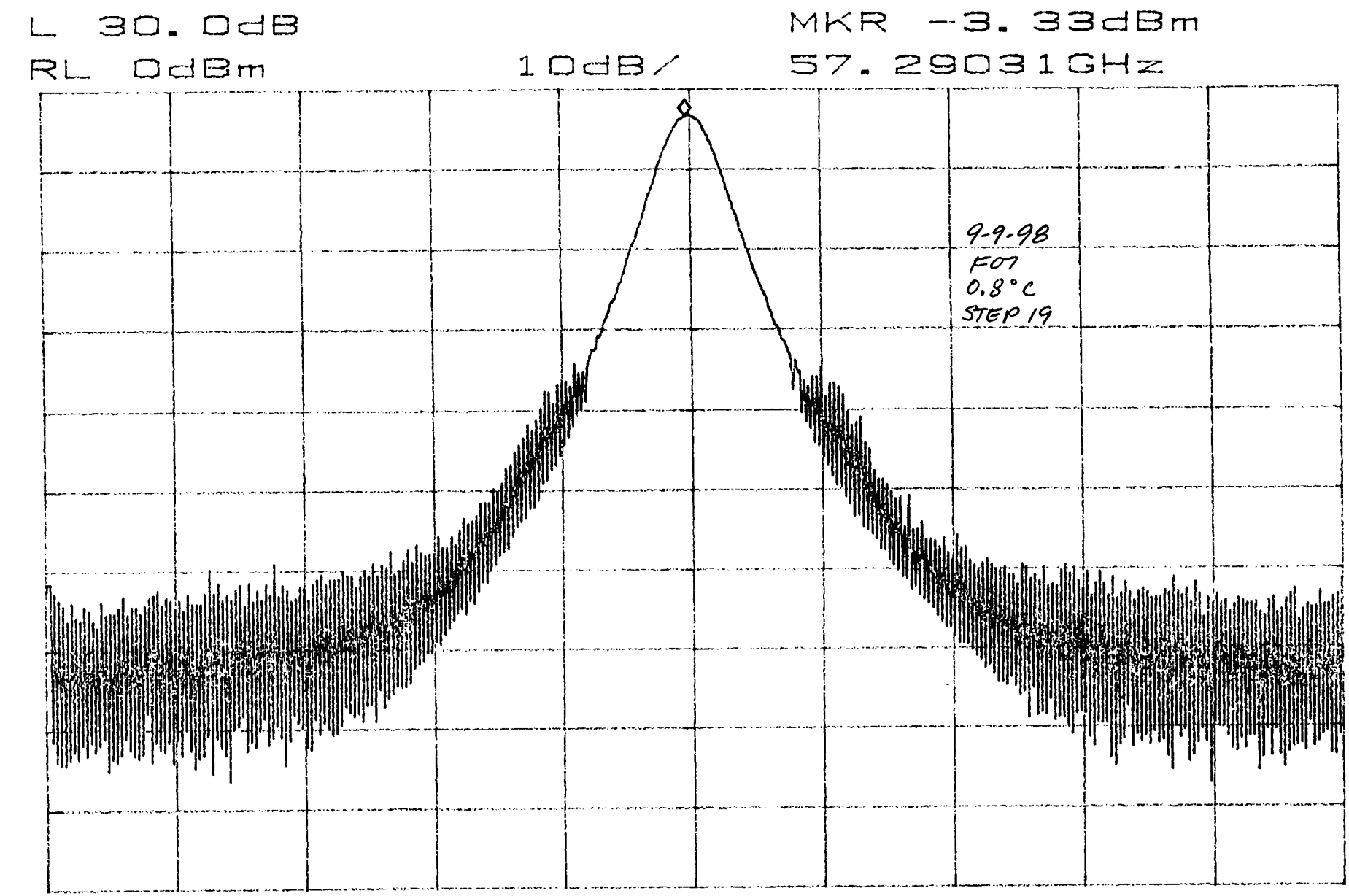
POST T/C

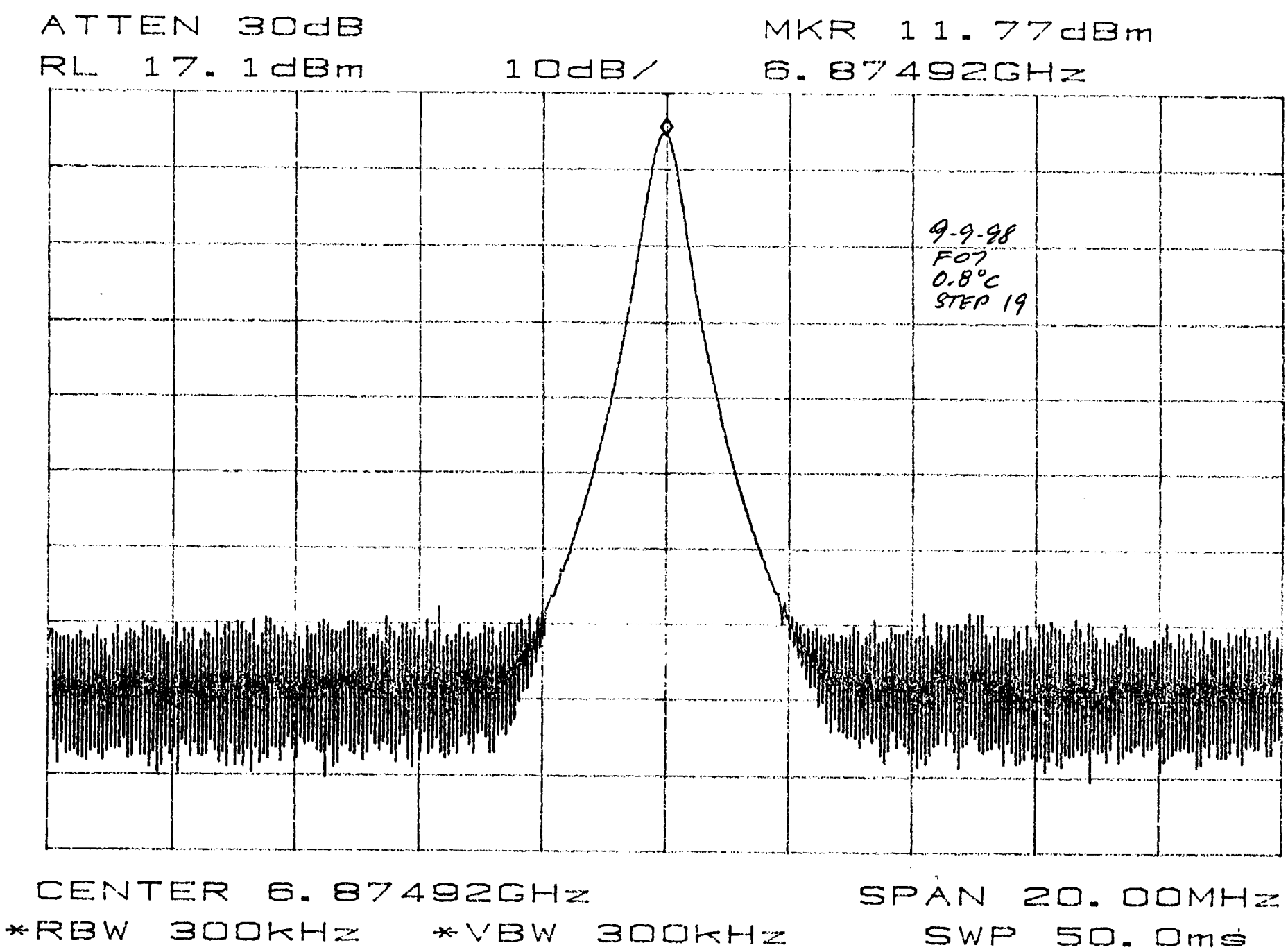
F07

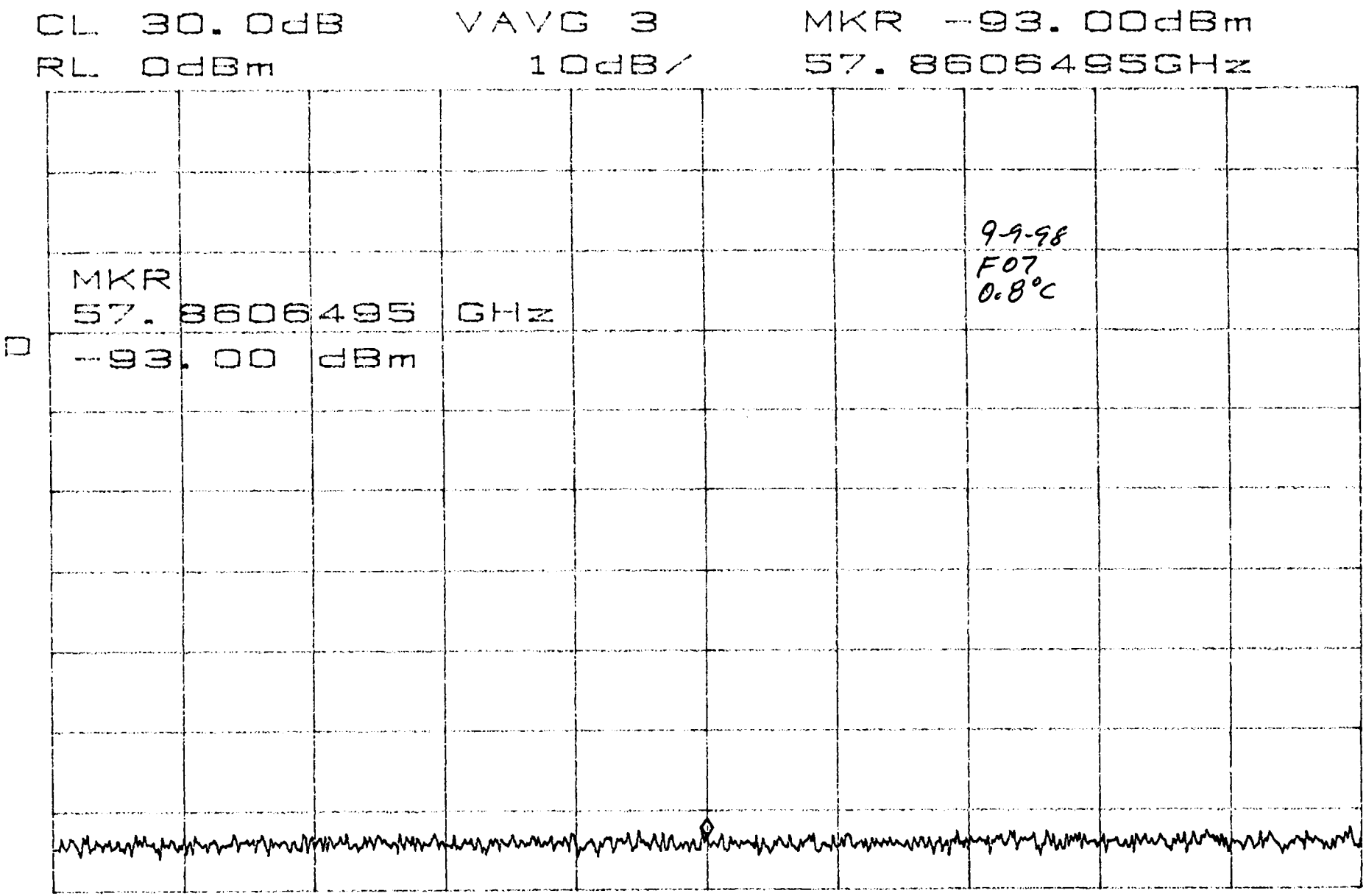
CPT

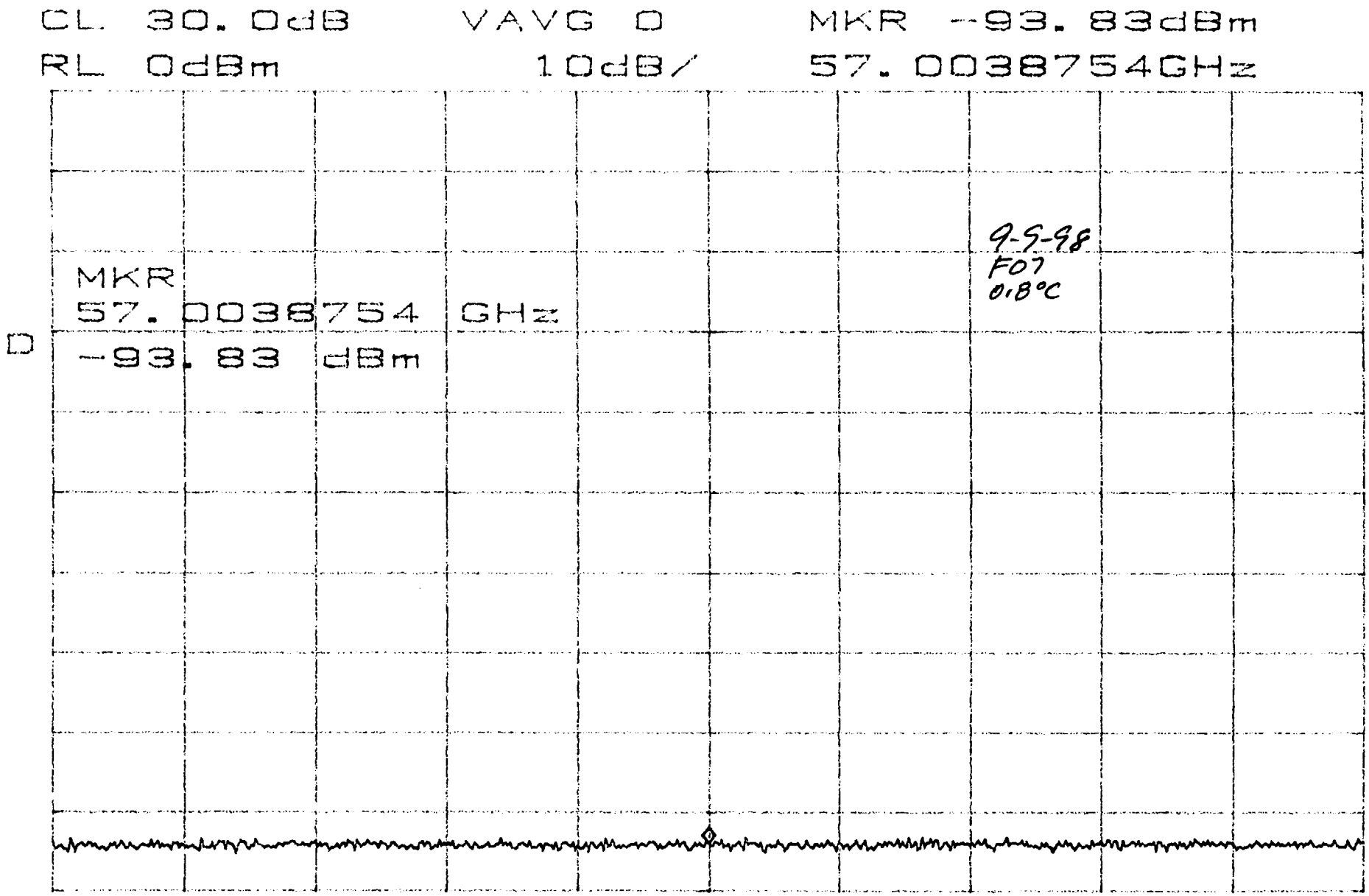
0.8°C

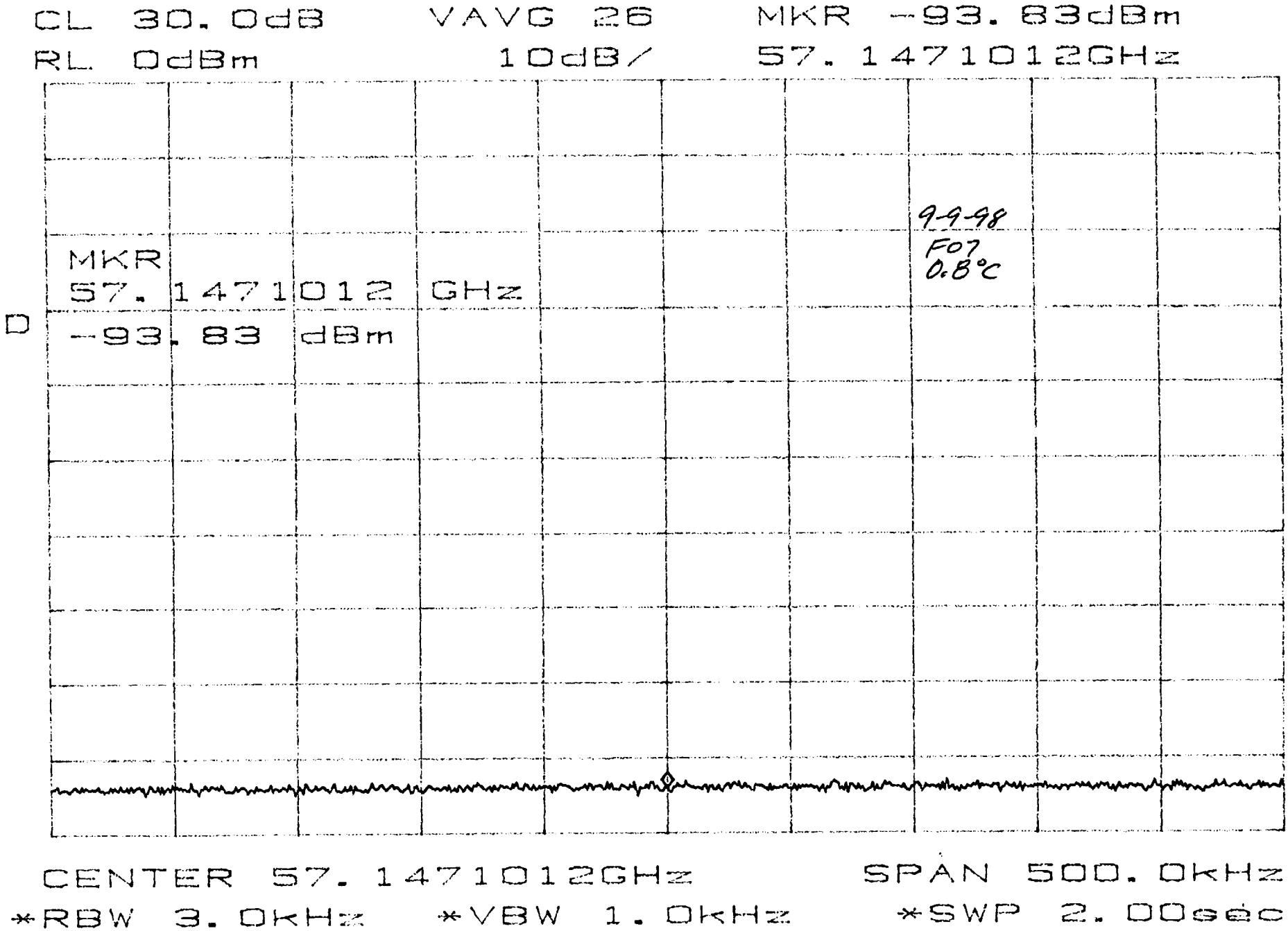
PLOTS 9-9-98

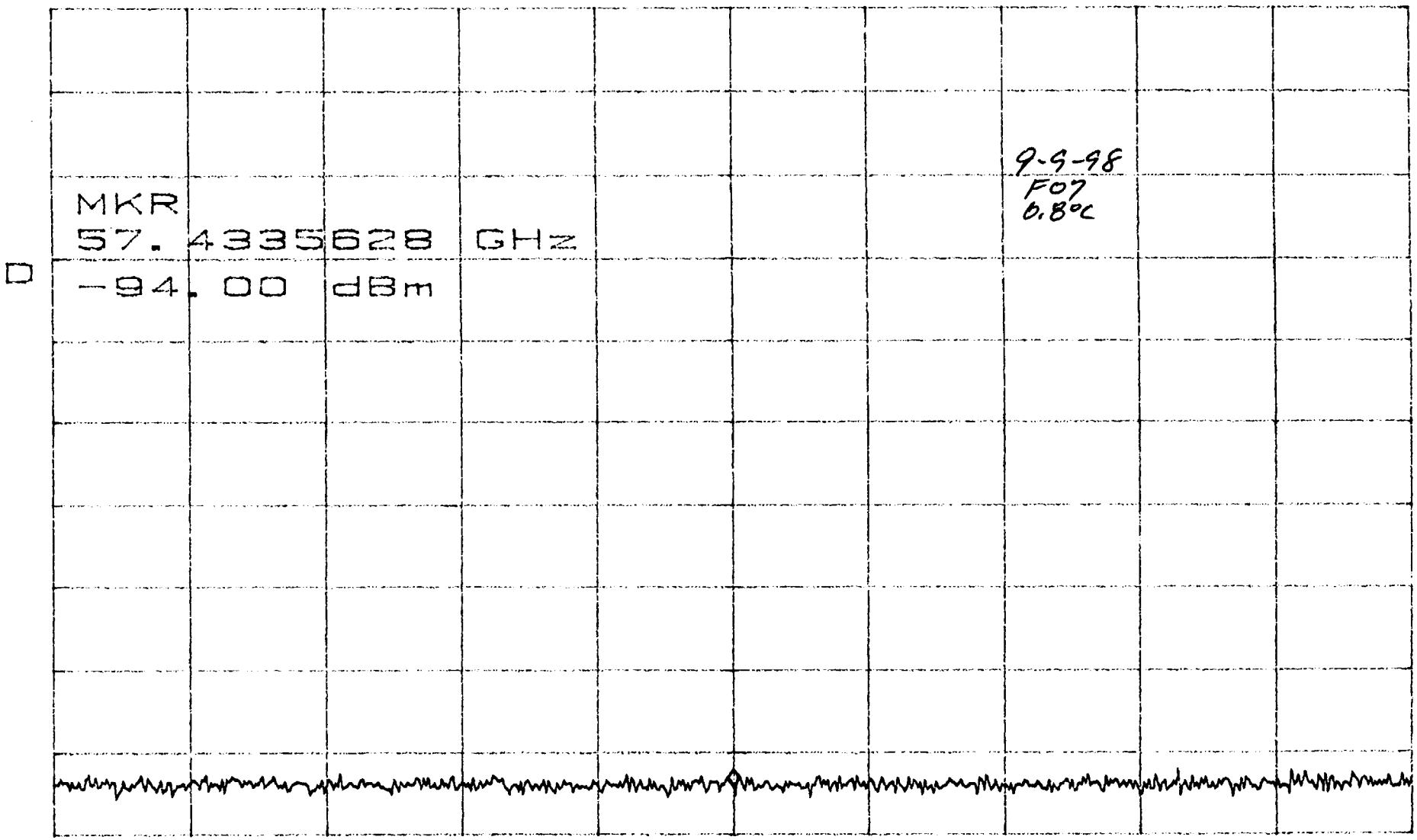

L 30.0dB
MKR -3.33dBm
RL 0dBm
10dB/
57.290310GHz
9-9-98
FOT
0.8°C
STEP 19
CENTER 57.290340GHz
SPAN 10.00MHz
*RBW 300kHz
VBW 300kHz
SWP 50.0ms

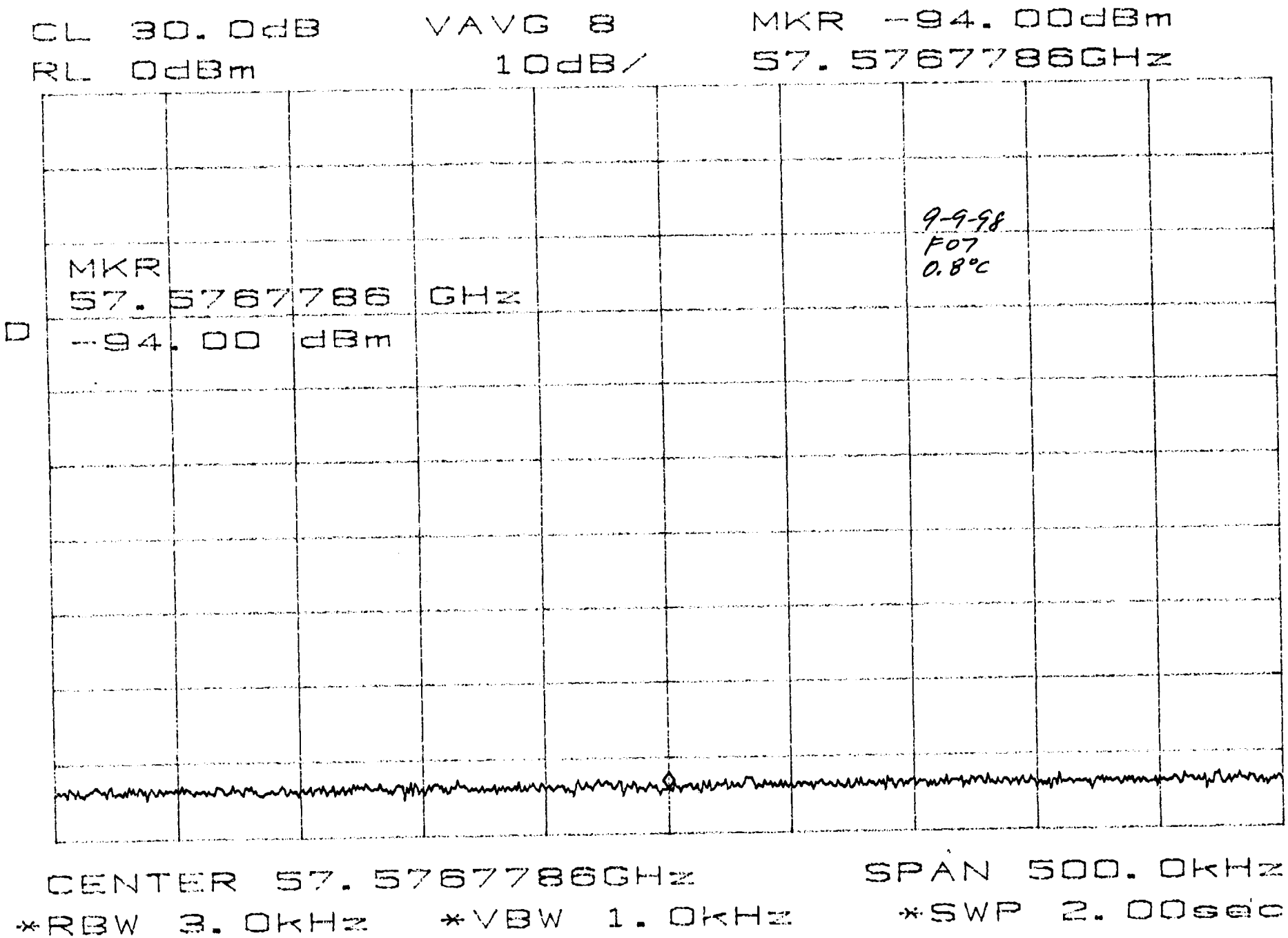

ATTEN 30dB
RL 17.1dBm
10dB/
MKR 11.77dBm
6.87492GHz
9-9-98
FO7
0.8°C
STEP 19
CENTER 6.87492GHz
SPAN 20.00MHz
*RBW 300kHz
*VBW 300kHz
SWP 50.0ms

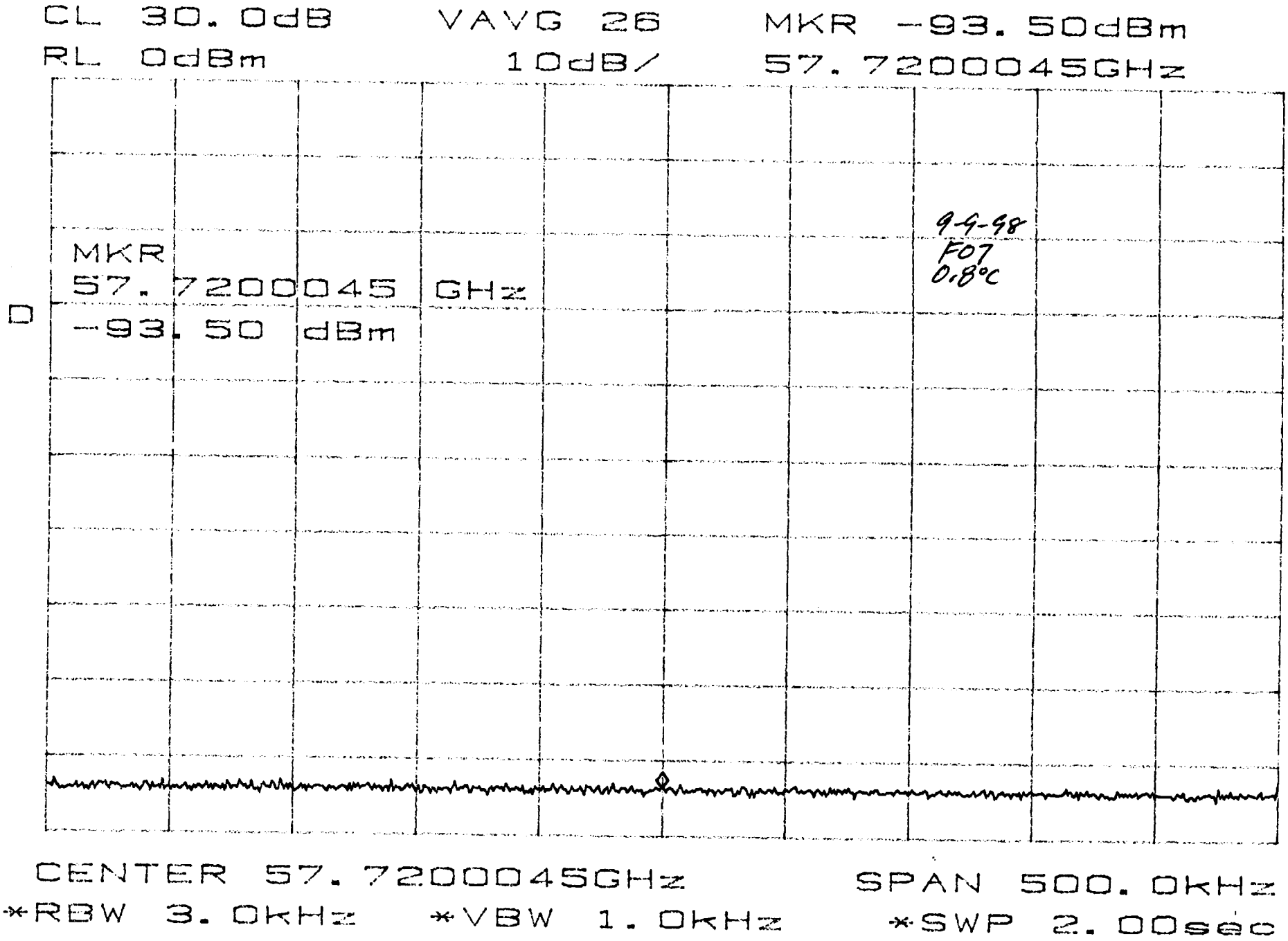

CL 30.0dB
VAVG 3
MKR -93.00dBm
RL 0dBm
10dB/
57.8606495GHz
9-9-98
F07
0.8°C
MKR
57.8606495 GHz
-93.00 dBm
D
CENTER 57.8606495GHz
SPAN 500.0kHz
*RBW 3.0kHz
*VBW 1.0kHz
*SWP 2.00sec

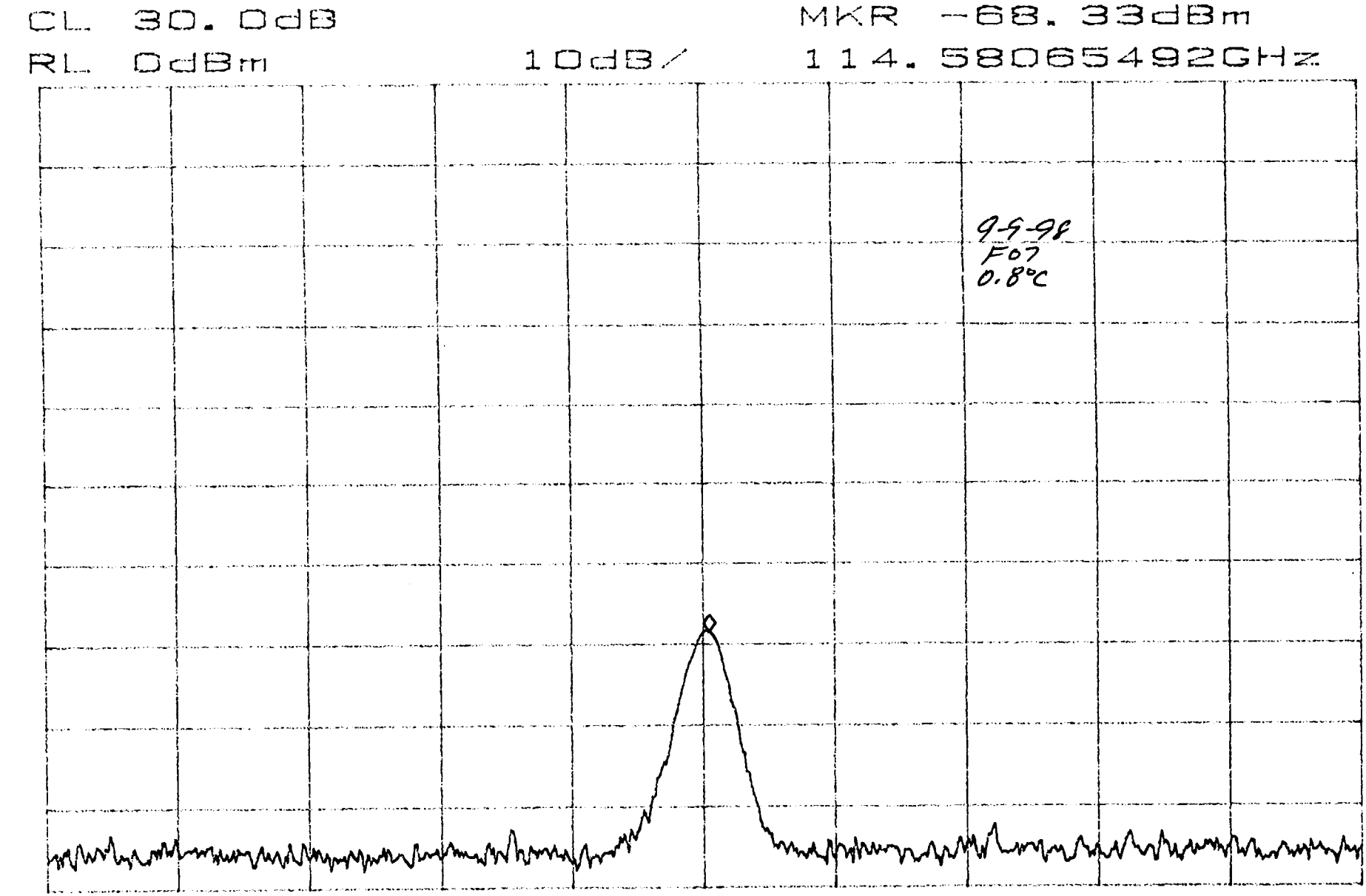

CL 30.0dB
VAVG 0
MKR -93.83dBm
RL 0dBm
10dB/
57.0038754GHz
9-5-98
F07
0.18°C
MKR
57.0038754 GHz
-93.83 dBm
D
CENTER 57.0038754GHz
SPAN 500.0kHz
*RBW 3.0kHz
*VBW 1.0kHz
*SWP 2.00sec


CL 30.0dB
VAVG 26
MKR -93.83dBm
RL 0dBm
10dB/
57.1471012GHz
9-9-98
F07
0.8°C
MKR
57.1471012 GHz
D
-93.83 dBm
CENTER 57.1471012GHz
SPAN 500.0kHz
*RBW 3.0kHz
*VBW 1.0kHz
*SWP 2.00sec


CL 30.0dB
VAVG 4
MKR -94.00dBm
RL 0dBm
10dB/
57.4335628GHz
9-9-98
F07
0.8°C
MKR
57.4335628 GHz
D
-94.00 dBm
CENTER 57.4335628GHz
SPAN 500.0kHz
*RBW 3.0kHz
*VBW 1.0kHz
*SWP 2.00sec


CL 30.0dB
VAVG 8
MKR -94.00dBm
RL 0dBm
10dB/
57.57677786GHz
9-9-98
F07
0.8°C
MKR
57.57677786 GHz
D
-94.00 dBm
CENTER 57.57677860Hz
SPAN 500.0kHz
*RBW 3.0kHz
*VBW 1.0kHz
*SWP 2.00sec


CL 30.0dB
VAVG 26
MKR -93.50dBm
RL 0dBm
10dB/
57.7200045GHz
9-9-98
F07
0.8°C
MKR
57.7200045 GHz
-93.50 dBm
D
CENTER 57.7200045GHz
SPAN 500.0kHz
*RBW 3.0kHz
*VBW 1.0kHz
*SWP 2.00sec


CL 30.0dB
MKR -68.33dBm
RL 0dBm
10dB/
114.580654920Hz
9-9-98
F07
0.8°C
CENTER 114.580654670Hz
SPAN 50.00kHz
*RBW 1.0kHz
*VBW 1.0kHz
SWP 200ms

POST T/C

FOT

CPT

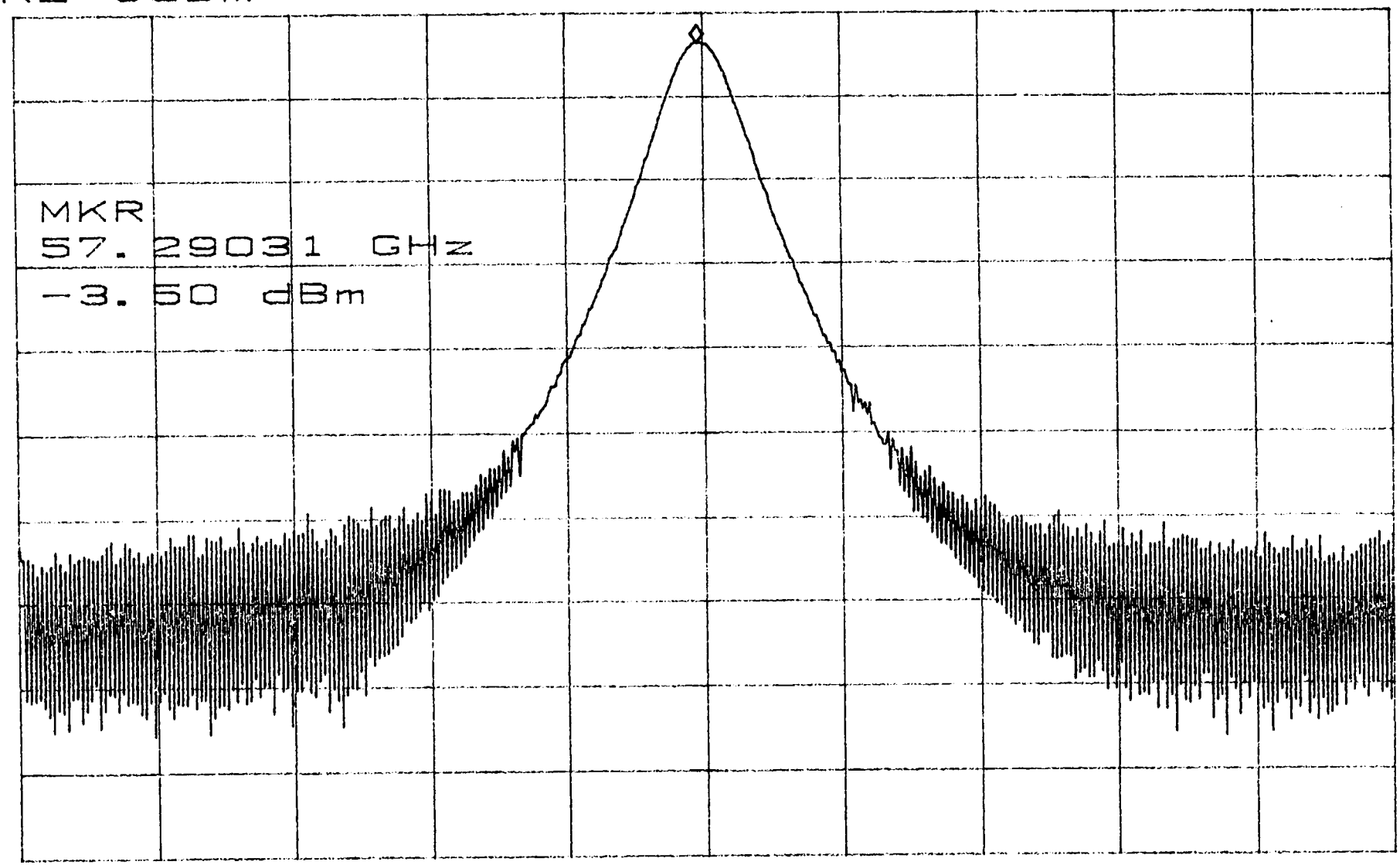
43.7°C

PLOTS 9-8-98

ADT PER AE-26758B
PARA. 4.2.1.3
STEP: 22

TE ID: 43.7°C
S/N F07

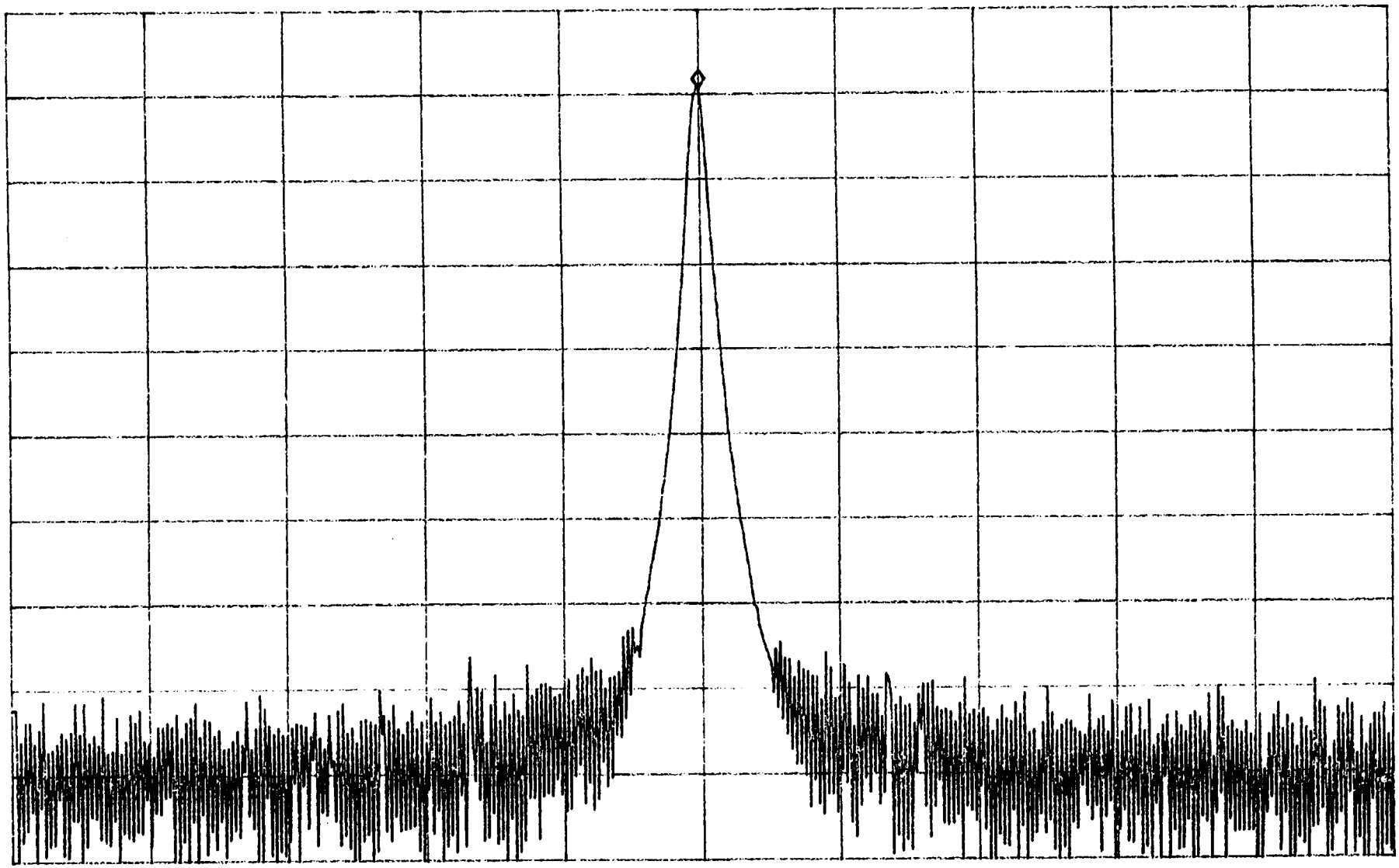
DATE: 9/8/98
TE: Soto
INSP:



IDT PER AE-26158B
PARA. 4.2.1.3
STEP: 22

TEM$_1$: 43.7°C
S/N F07

DATE: 9/8/98
TE: JSato
INSP:

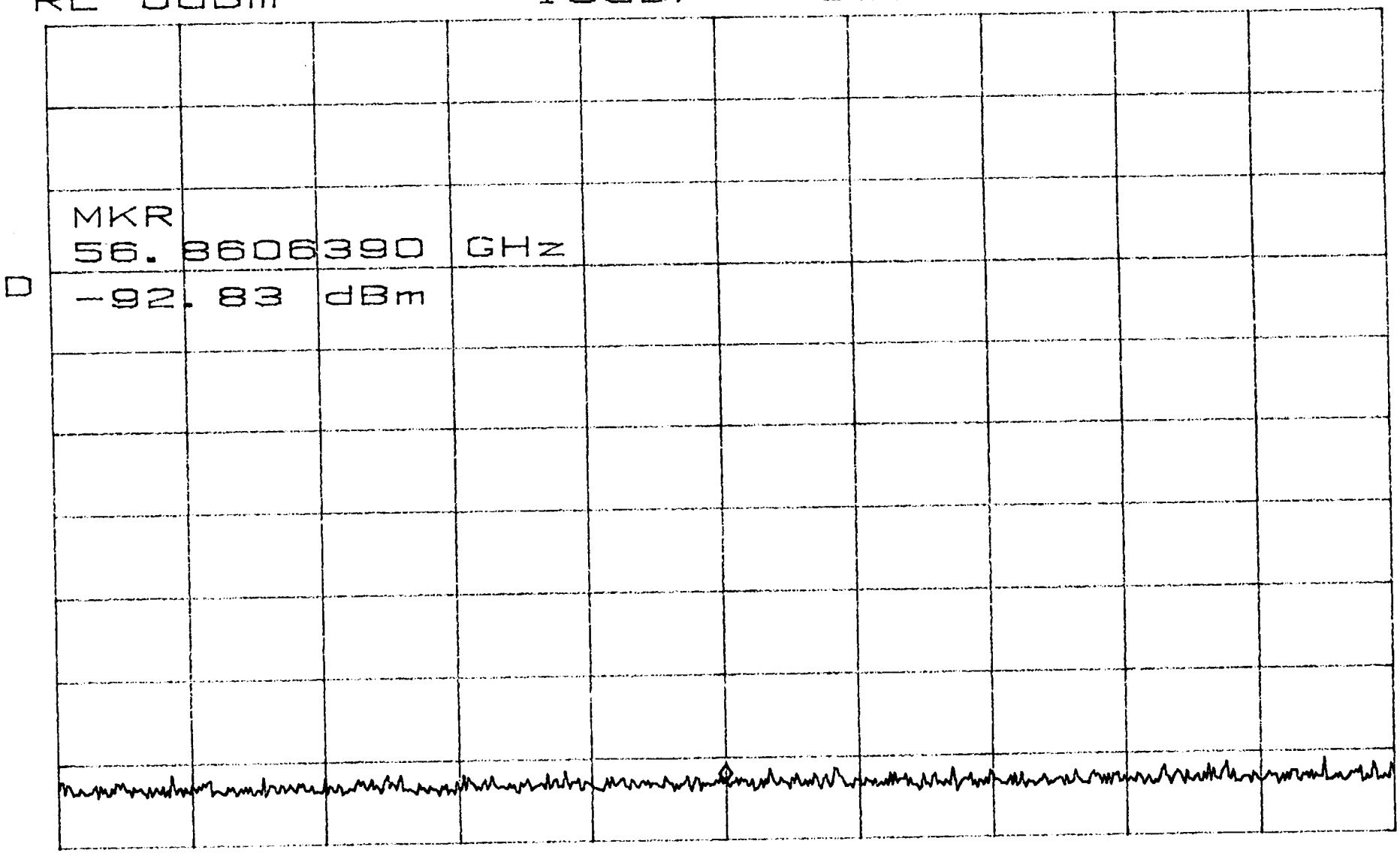


1AT per AE-26758B
PARA. 4.2.13
SEQ. 22

TEM: 43.7°C
S/N: F07

Date: 9/8/98
TE: 25%
INIT:

CL 30.0dB VAVG 0 MKR -92.83dBm
RL 0dBm 10dB/ 56.8606390GHz



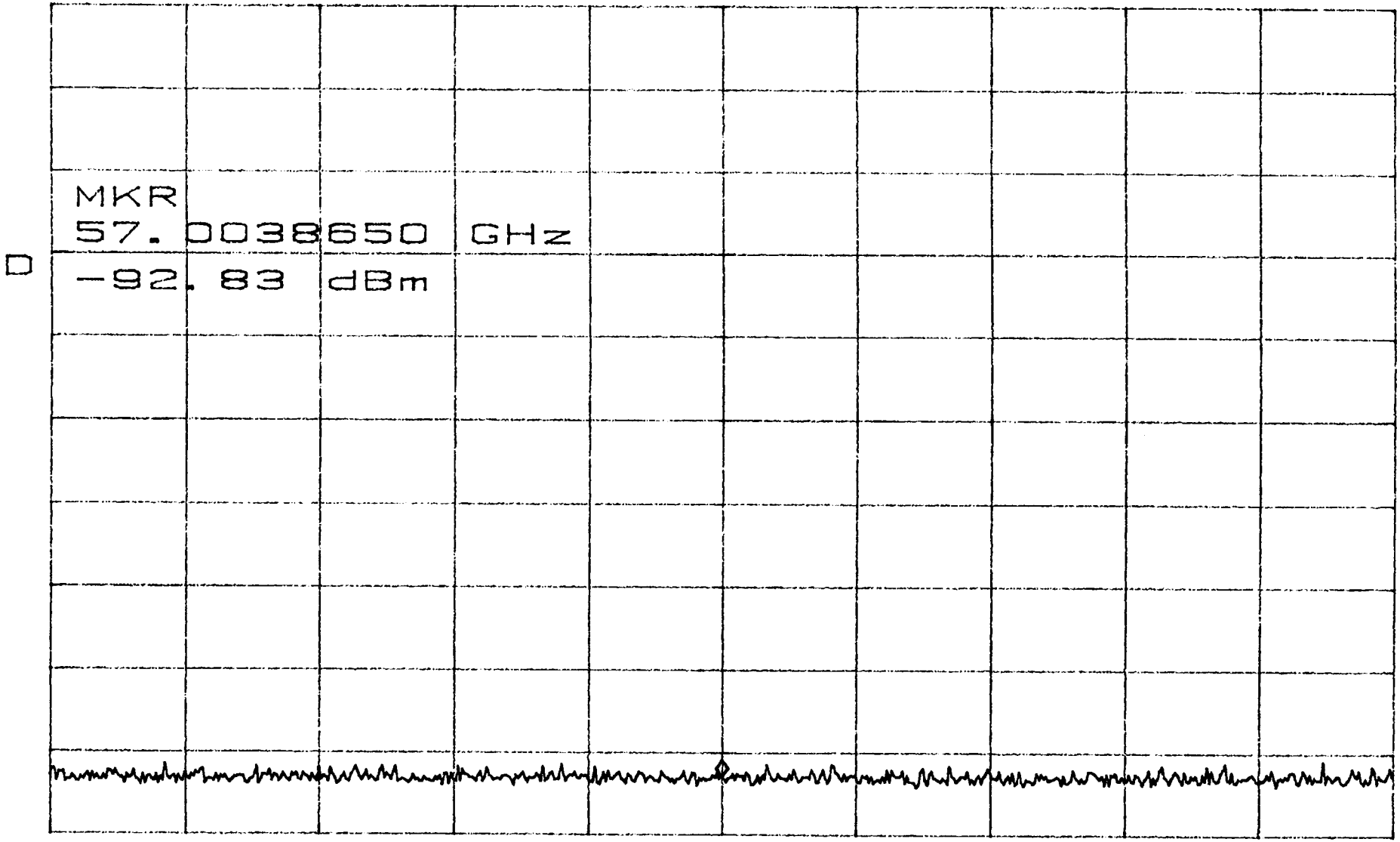
CENTER 56.8606390GHz SPAN 500.0kHz
*RBW 1.0kHz VBW 1.0kHz SWP 1.30sec

ADT per AE-26758B
PARA. 4.2.1.3
STEP. 22

TEN 43.7°C
S/N: F07

DATE: 9/8/98
TE: Soto
INSP:

CL 30.0dB VAVG 0 MKR -92.83dBm
RL 0dBm 10dB/ 57.0038650GHz



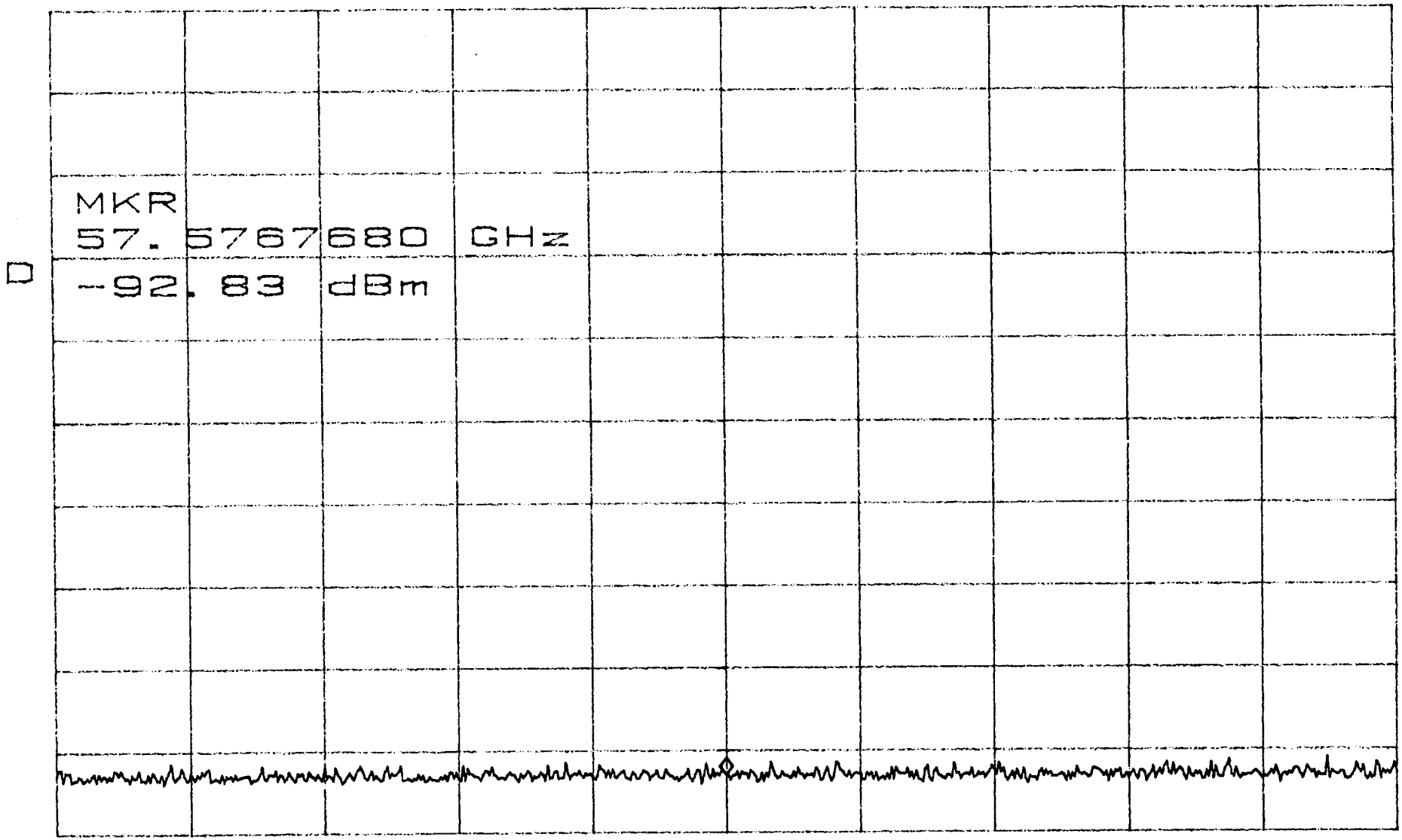
CENTER 57.0038650GHz SPAN 500.0kHz
*RBW 1.0kHz VBW 1.0kHz SWP 1.30sec

IAW PER AE-26758B
PARA: 4.2.1.3
STEP: 22

TE ID: 43.7°C
S/N: F07

DATE: 9/8/98
TE: Soto
INSP:

CL 30.0dB VAVG 0 MKR -92.83dBm
RL 0dBm 10dB/ 57.5767680GHz



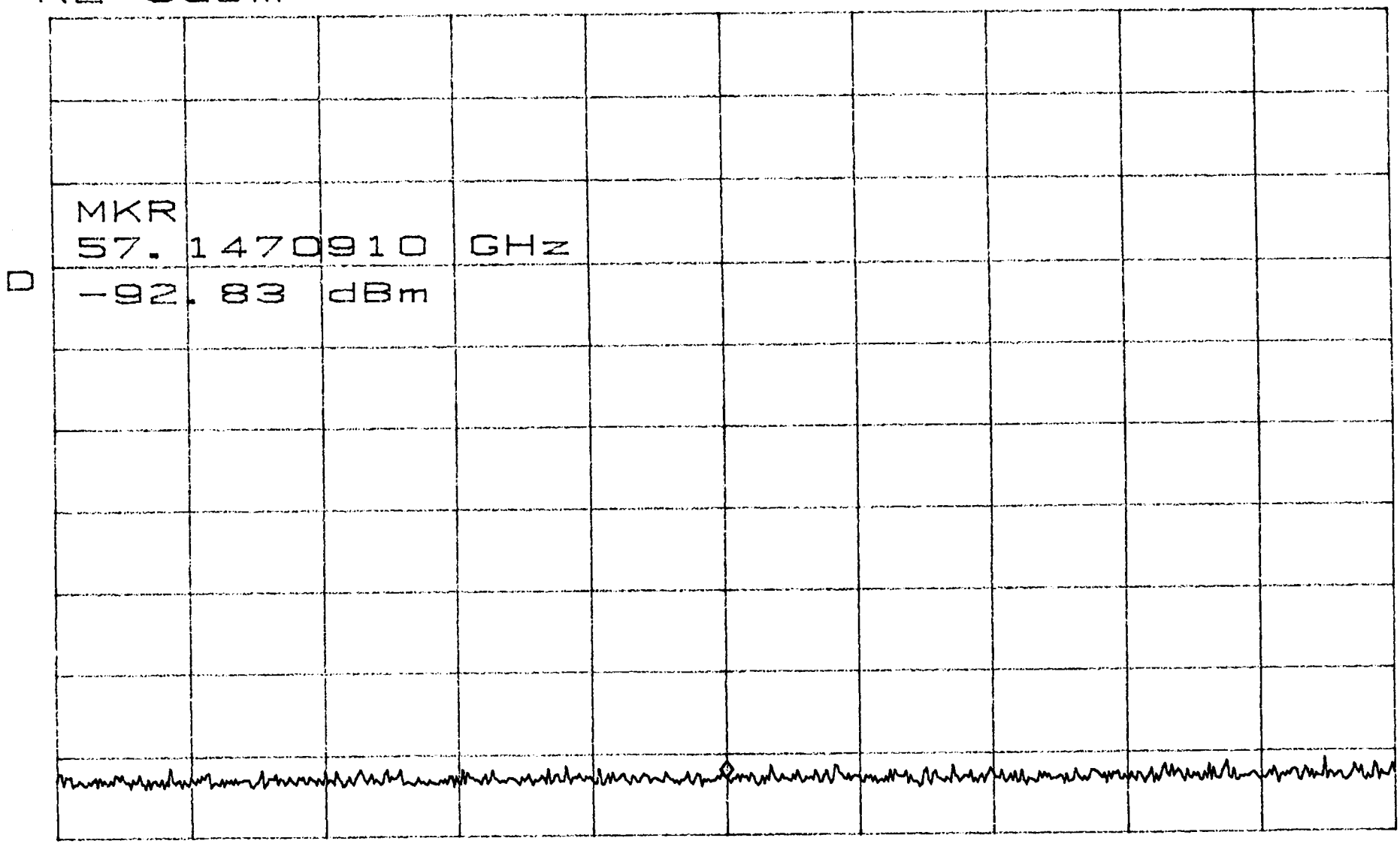
CENTER 57.5767680GHz SPAN 500.0kHz
*RBW 1.0kHz VBW 1.0kHz SWP 1.30sec

IDT PER AE-26758B
PARA. 4.2.1.3
STEP 22

TEMP 43.7°C
S/N F07

DATE: 9/8/98
TE: i_ddb
INSP:

CL 30.0dB VAVG 0 MKR -92.83dBm
RL 0dBm 10dB/ 57.1470910GHz

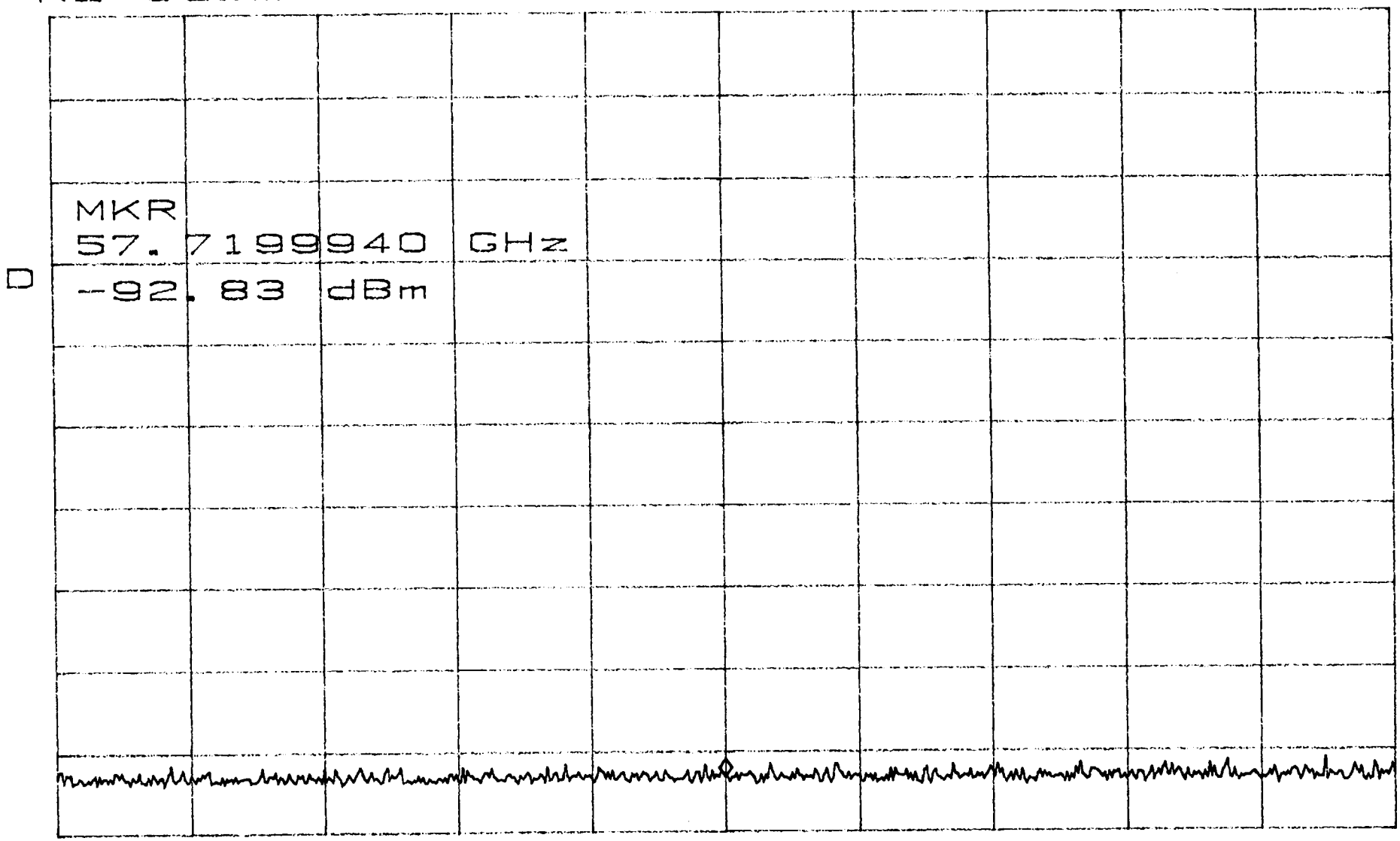


CENTER 57.1470910GHz SPAN 500.0kHz
*RBW 1.0kHz VBW 1.0kHz SWP 1.30sec

CTT PER AE-26758B
PARA. 4.2.1.3
STEP. 22

TEMP 43.7°C
S/N F07

DATE: 9/8/98
TE: J Soto
EMP:

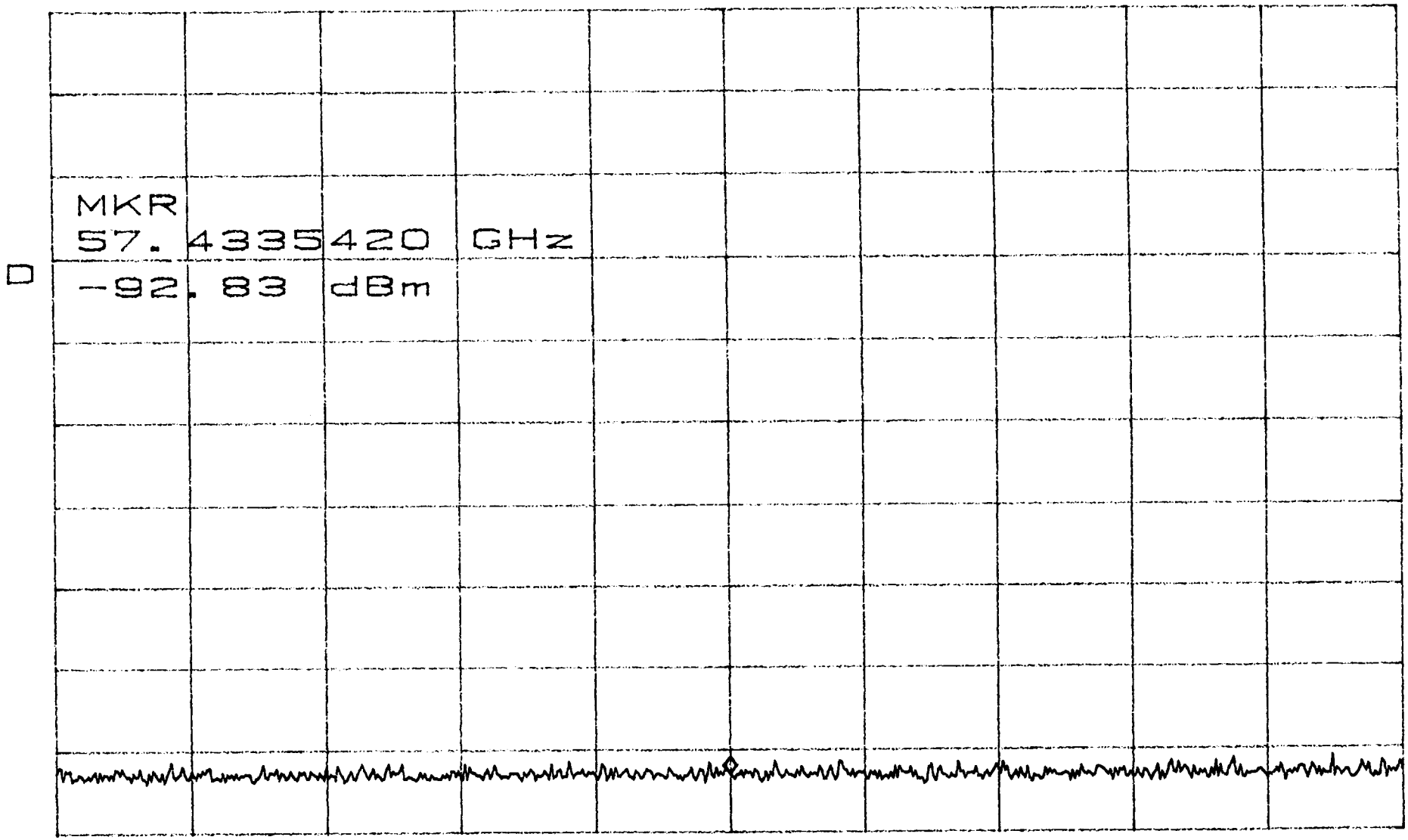


CPT PER AE26758B
PARA. 4.2.1.3
Step 22

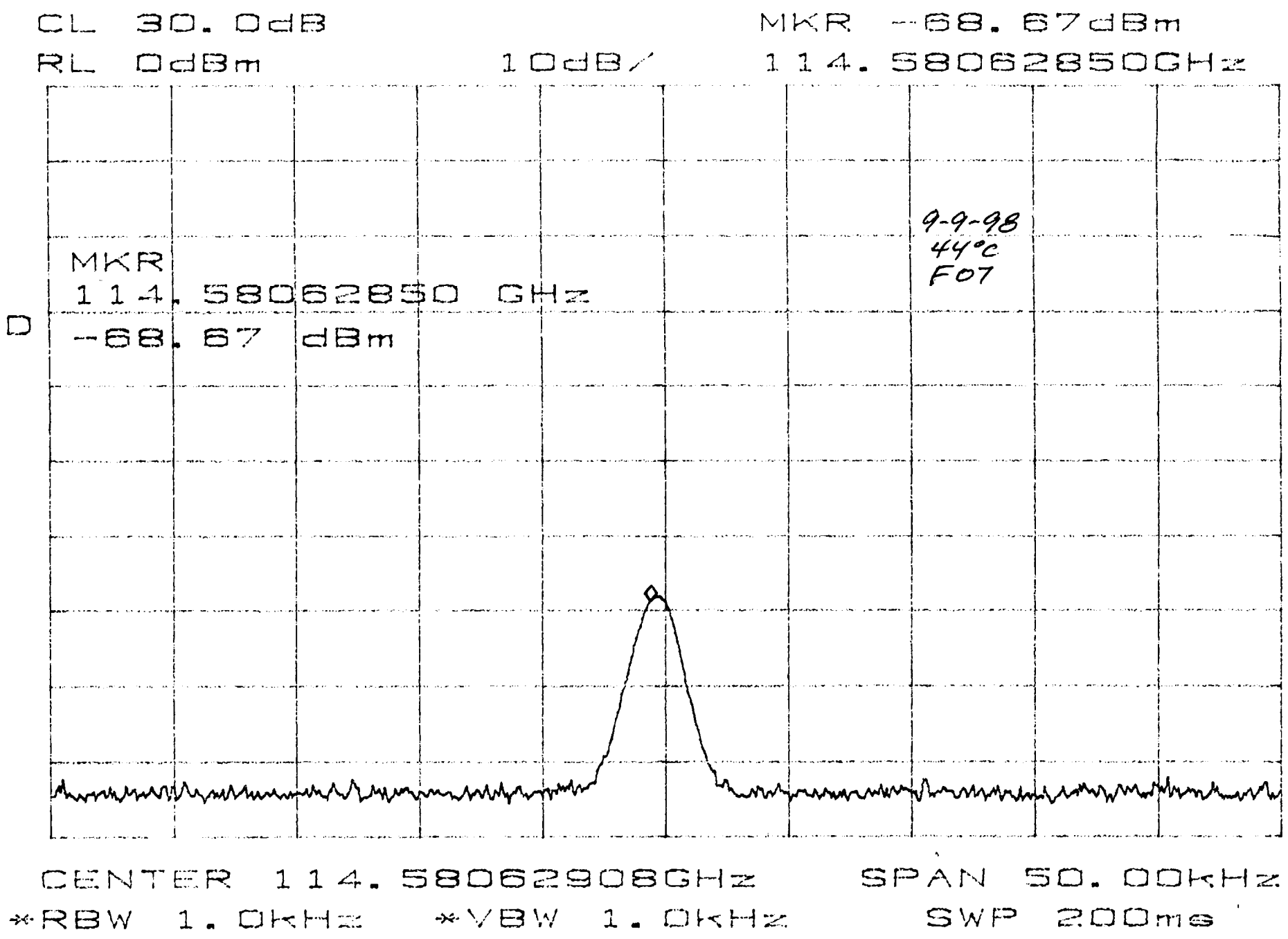
TEMP. 23.7°C
S/N F07

T.E. DSto
DATE. 3/98
INSP.

CL 30.0dB VAVG 0 MKR -92.83dBm
RL 0dBm 10dB/ 57.4335420GHz



CENTER 57.4335420GHz SPAN 500.0kHz
*RBW 1.0kHz VBW 1.0kHz SWP 1.30sec


CL 30.0dB
MKR -68.67dBm
RL 0dBm
10dB/
114.580628500GHz
9-9-98
44°C
F07
MKR
114.580628500 GHz
D
-68.67 dBm
CENTER 114.580629080GHz
SPAN 50.00kHz
*RBW 1.0kHz
*VBW 1.0kHz
SWP 200ms

Section 5B: Final Functional Testing - F08

This section contains the results of a full functional test over temperature taken after PLO F08 endured thermal cycling. All tests passed.

TEST DATA SHEET 6C (Sheet 1 of 4)
Functional Testing (Paragraph 4.2.1)

Post-Thermal Cycling CPT

Test Setup Verified: LA Perea
Signature

Paragraph 4.2.1.3, Functional Testing:

Step	Test	Expected	Measured	Pass/Fail
1	Potential Difference from ± 15 V RTN to:			
	PLO Base Plate	< 1.0 Vac	0.006	PASS
	Spectrum Analyzer	< 1.0 Vac	0.01	PASS
	Frequency Counter Chassis	< 1.0 Vac	0.01	PASS
	Power Meter Chassis	< 1.0 Vac	0.01	Pass
4	Evacuate vacuum chamber and record pressure	$<10^{-2}$ torr	Pressure = _____ torr	*
5	Thermal couple readings	TC1 = 22 ± 2 °C	TC1 = 23.3 °C	
			TC2 = 23.3 °C	N/A
			TC3 = 23.3 °C	N/A
6	DRO L/A	0 to 1V	DRO L/A = .01 V	Pass
	PLO L/A	~~0 to 1V~~ 14.50 ± 0.40 V	PLO L/A = ~~14.3~~ 14.3 V	Pass
	Is PLO locked?	Yes	Yes V No _____	
7	PLO Frequency	57.290344 ± .0002 GHz	Freq. = 57.290326 GHz	
	PLO Power	17 to 20 dBm	P = 17.93 dBm	
8	Input Voltage and Current			
	VM1 Voltage	+15 ± 0.1 V	VM1 = 14.95 V	Pass
	VM2 Voltage	-15 ± 0.1 V	VM2 = -15.04 V	Pass
	IM1 Current	600 mA max.	IM1 = 543 mA	Pass
	IM2 Current	100 mA max.	IM2 = 66.2 mA	Pass
	DRO L/A Voltage	0 to 1V	DRO L/A = 260m V	Pass
	PLO L/A Voltage	~~0 to 1V~~ 14.50 ± 0.40 V	PLO L/A = 14.2 V	Pass
12	RF Output Power and Frequency	17 to 20 dBm	P = 17.93 dBm	Pass
		57.290344 ± .0002 GHz	Freq. = 57.290326 GHz	Pass
	Baseplate Temp. (TC1)	TC1 = 22 ±2°C	TC1 = 23.2 °C	Pass
13	Frequency vs. Voltage			
	± 15 V Supplies	+15.2 ± 0.05 V	+Voltage = 15.19 V	Pass
		-15.2 ± 0.05 V	-Voltage = -15.20 V	Pass
		57.290344 ± .0002 GHz	Freq. = 57.290327 GHz	Pass
		17 to 20 dBm	P = 18.0 dBm	Pass

*Record data only if performing test under vacuum

TEST DATA SHEET 6C (Sheet 2 of 4)
Functional Testing (Paragraph 4.2.1)

Post-Thermal Cycling CPT

Paragraph 4.2.1.3 (Cont):

Step	Test	Expected	Measured	Pass/Fail
14	Frequency vs. Voltage			
	± 15 V Supplies	+14.8 ± 0.05 V	+Voltage = 14.78 V	Pass
		-14.8 ± 0.05 V	-Voltage = -14.80 V	Pass
		57.290344 ± .0002 GHz	Freq. = 57.290327 GHz	Pass
		17 to 20 dBm	P = 18.0 dBm	Pass
15	Spurious and Sub	-200 to -90 dBc	< -96.83 32 plots	Pass
16	Power level of 114.58 GHz signal	<-10 dBm	-66.7 dBm	Pass
17	Load VSWR and Frequency Pulling			
	2:1 mismatch over 1λ	N/A	Worst Case Freq = 542	N/A
	2:1 mismatch over 1λ	N/A	Worst Case Power = .9 dB Peak	N/A
18	Operating Temperature @ 1°C baseplate	TC1 = 1 ±2°C	TC1 = 0.8 °C	Pass
			TC2 = 0.7 °C	N/A
			TC3 = 0.2 °C	N/A
		0 - 1V	DRO L/A = ~~14.38~~ V 185 mV	Pass
		~~0 - 1V~~ 14.60 ± 0.40	PLO L/A = 14.38 V	Pass
19	Input Voltage and Current			
	VM1 Voltage	+15 ± 0.1 V	VM1 = 15.04 V	Pass
	VM2 Voltage	-15 ± 0.1 V	VM2 = -15.04 V	Pass
	IM1 Current	600 mA max.	IM1 = 526 mA	Pass
	IM2 Current	100 mA max.	IM2 = 64.4 mA	Pass
	DRO L/A Voltage	0 to 1V	DRO L/A = 185 m V	Pass
	PLO L/A Voltage	0 to 1V 14.60 ± 0.40 V	PLO L/A = 14.38 V	Pass
	RF Output Power	17 to 20 dBm	Power = 18.0 dBm	Pass
	Frequency	57.290344 ± .0002 GHz	Freq. = 57.290313 GHz	Pass
	Frequency vs. Voltage			
	± 15 V Supplies	+15.2 ± 0.05 V	+Voltage = 15.20 V	Pass
		-15.2 ± 0.05 V	-Voltage = -15.20 V	Pass
		57.290344 ± .0002 GHz	Freq. = 57.290312 GHz	Pass
		17 to 20 dBm	Power = 18.2 dBm	Pass
	Frequency vs. Voltage			
	± 15 V Supplies	+14.8 ± 0.05 V	+Voltage = 14.80 V	Pass
		-14.8 ± 0.05 V	-Voltage = -14.80 V	Pass
		57.290344 ± .0002 GHz	Freq. = 57.290312 GHz	Pass
		17 to 20 dBm	Power = 18.4 dBm	Pass

TEST DATA SHEET 6C (Sheet 3 of 4)
Functional Testing (Paragraph 4.2.1)

Post-Thermal Cycling CPT

Paragraph 4.2.1.3 (Cont):

Step	Test	Expected	Measured	Pass/Fail
19 (Cont)	Spurious and Sub	-200 to -90 dBc	See plots	Pass
	Power level of 114.58 GHz signal	<-10 dBm	-69 dBm	
	Load VSWR and Frequency Pulling			
	2:1 mismatch over 1λ	N/A	Worst Case Freq = 5hz	N/A
	2:1 mismatch over 1λ	N/A	Worst Case Power = 1 dB	N/A
21	Operating Temperature @ +44°C Baseplate	TC1 = 44 ±2°C	TC1 = 44.3 °C	PASS
			TC2 = 44.4 °C	N/A
			TC3 = 44.5	N/A
		0 - 1V	DRO L/A = 0 V	PASS
		~~0 - 1V~~ 14.69 ± 0.49V	PLO L/A = 1.42 V	PASS
22	Input Voltage and Current			
	VM1 Voltage	+15 ± 0.1 V	VM1 = 15.0 V	Pass
	VM2 Voltage	-15 ± 0.1 V	VM2 = -15.0 V	Pass
	IM1 Current	600 mA max.	IM1 = 558 mA	Pass
	IM2 Current	100 mA max.	IM2 = 67.6 mA	Pass
	DRO L/A Voltage	0 to 1V	DRO L/A = 287mV	Pass
	PLO L/A Voltage	~~0 to 1V~~ 14.69 ± 0.49V	PLO L/A = 14.2 V	
	RF Output Power and	17 to 20 dBm	Power = 17.6 dBm	Pass
	Frequency	57.290344 ± .0002 GHz	Freq. = 57.290331 GHz	Pass
	Frequency vs. Voltage			
	± 15 V Supplies	+15.2 ± 0.05 V	+Voltage = 15.2 V	Pass
		-15.2 ± 0.05 V	-Voltage = -15.2 V	Pass
		57.290344 ± .0002 GHz	Freq. = 57.290334 GHz	Pass
		17 to 20 dBm	Power = 17.7 dBm	Pass
	Frequency vs. Voltage			
	± 15 V Supplies	+14.8 ± 0.05 V	+Voltage = 14.8 V	Pass
		-14.8 ± 0.05 V	-Voltage = -14.8 V	Pass
		57.290344 ± .0002 GHz	Freq. = 57.290334 GHz	Pass
		17 to 20 dBm	Power = 17.7 dBm	Pass

TEST DATA SHEET 6C (Sheet 4 of 4)
Functional Testing (Paragraph 4.2.1)

Post-Thermal Cycling CPT

Paragraph 4.2.1.3 (Cont):

Step	Test	Expected	Measured	Pass/Fail
22 (Cont)	Spurious and Sub	-200 to -90 dBc	see plots	Pass
	Power level of 114.58 GHz signal	<-10 dBm	-63.0 dBm	Pass
	Load VSWR and Frequency Pulling			
	2:1 mismatch over 1λ	N/A	Worst Case Freq = 5 Hz	N/A
	2:1 mismatch over 1λ	N/A	Worst Case Power = 1.0 dB	N/A

Shop Order No.: 534922

Operation: 0170

Unit Serial No.: F08

Date: 9-9-98

Test Engineer: [signature] 9-9-98

Quality Control: [signature] EOI 9/11/98

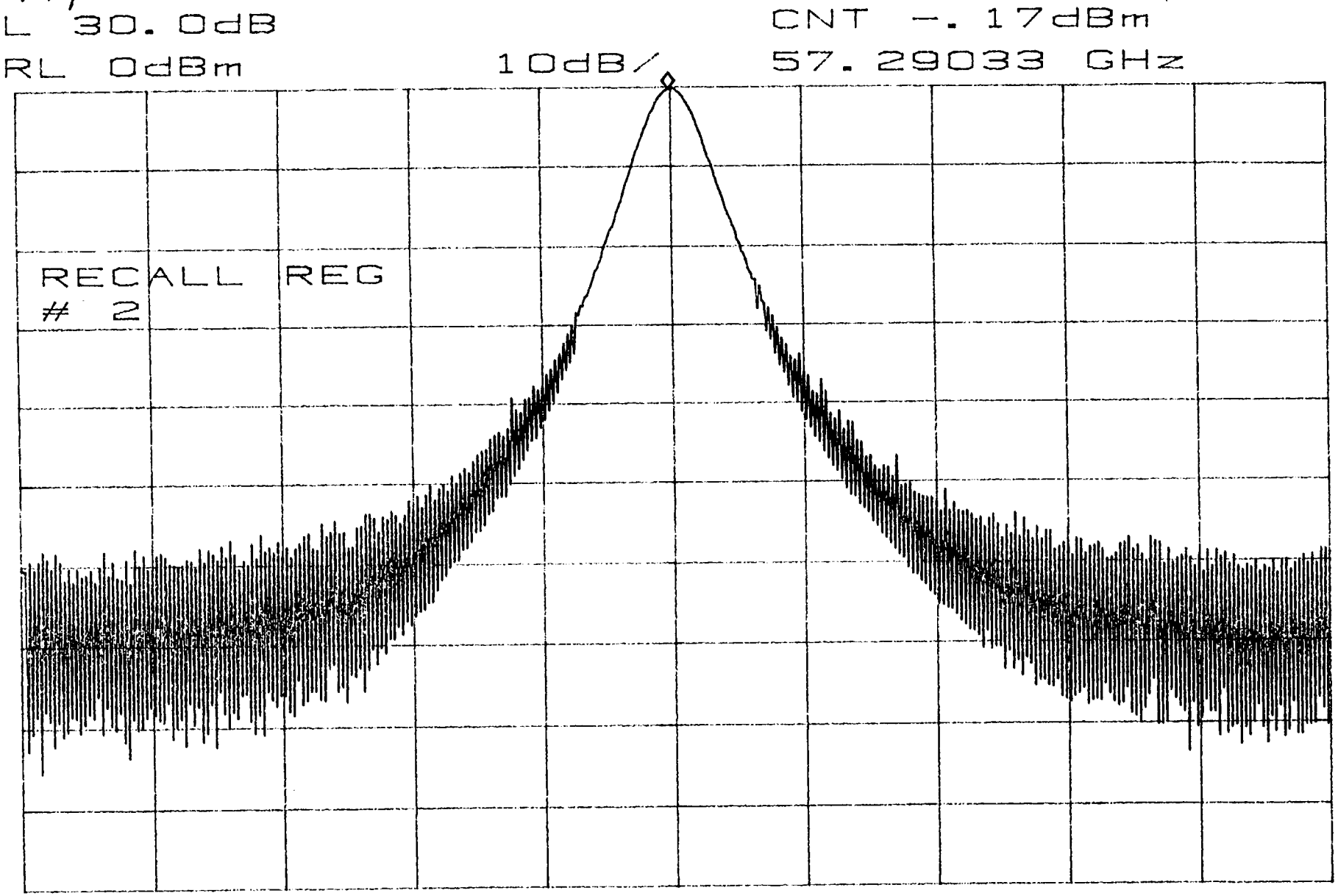
Govt. Rep.: [signature] 9-11-98

POST T/C

F08
CPT
AMBIENT ° C
9-8-98

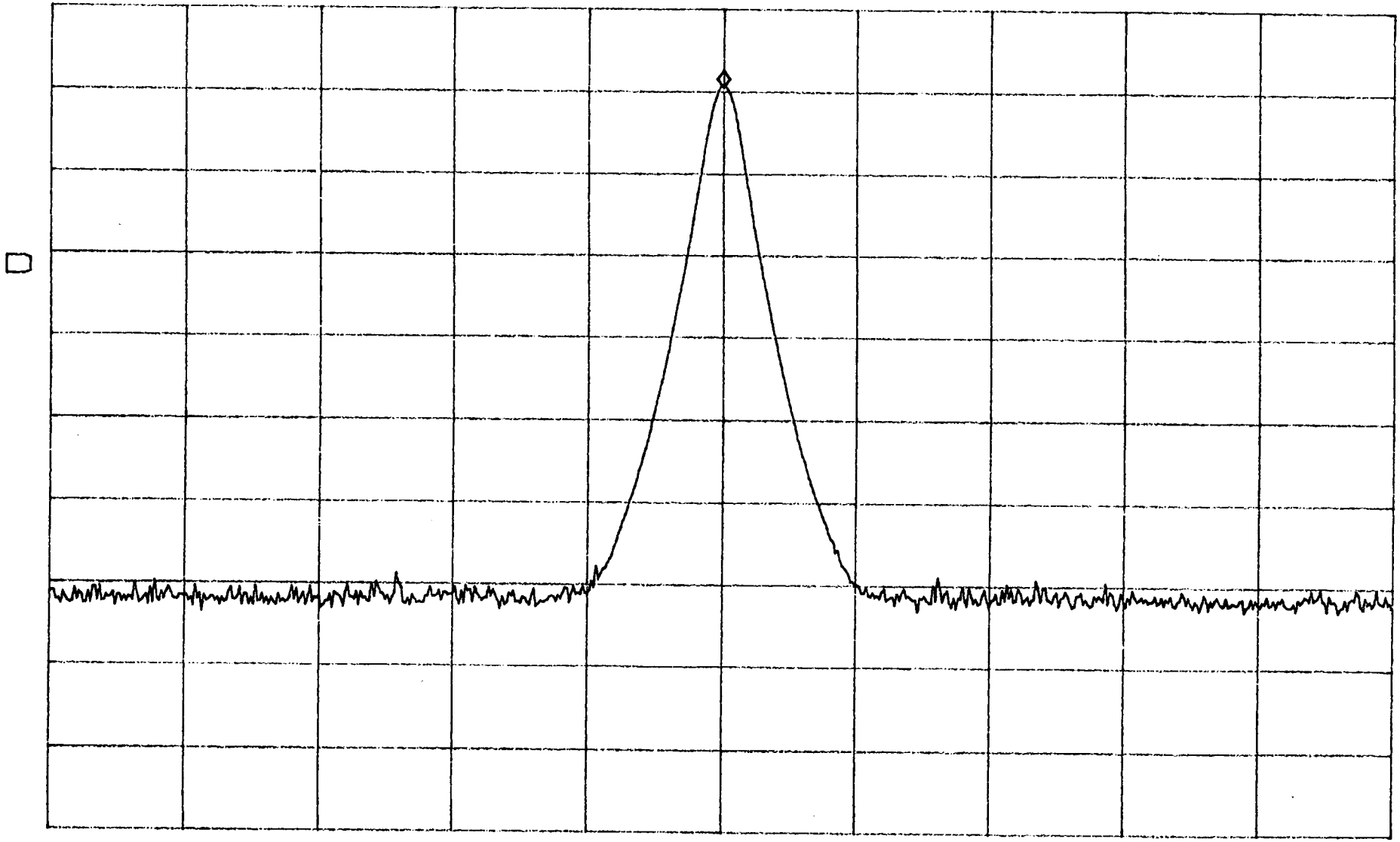
S/N 108
PARA. 4.2.1.3, STEP 12
TEMP: 23.3°C

DATE: 9/8/98
T.E.: [illegible]
INSP:



S/N F08
PARA. 4.2.1.3, STEP 12
TEMP: 23.3°C

DATE: 9/8/98
T.E. D.
FNSP:

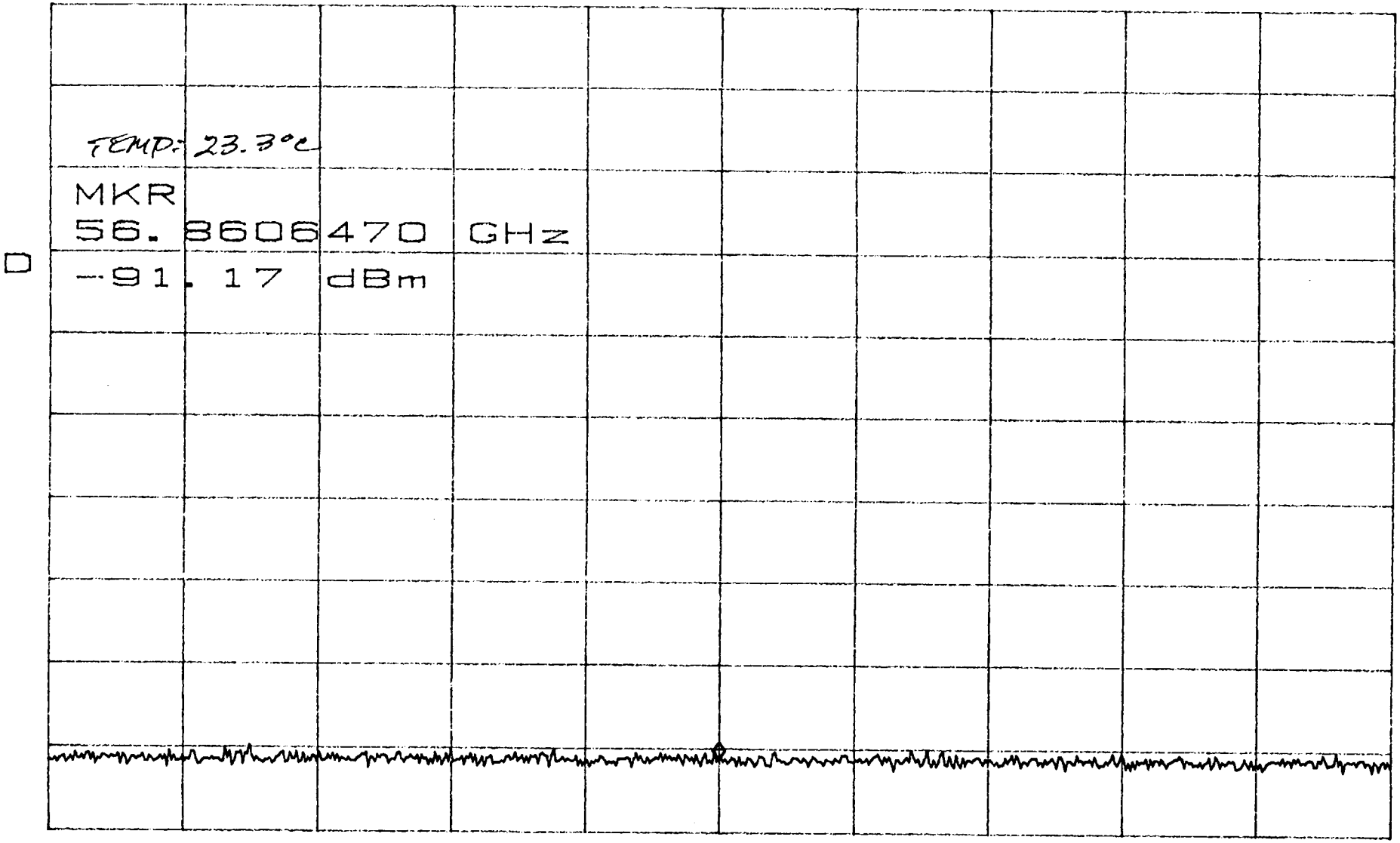


CDT PER AE-26758B

S/N F08

DATE 9/8/98
TE: 2 ,to
EASP:

CL 30.0dB VAVG 42 MKR -91.17dBm
RL 0dBm 10dB/ 56.8606470GHz



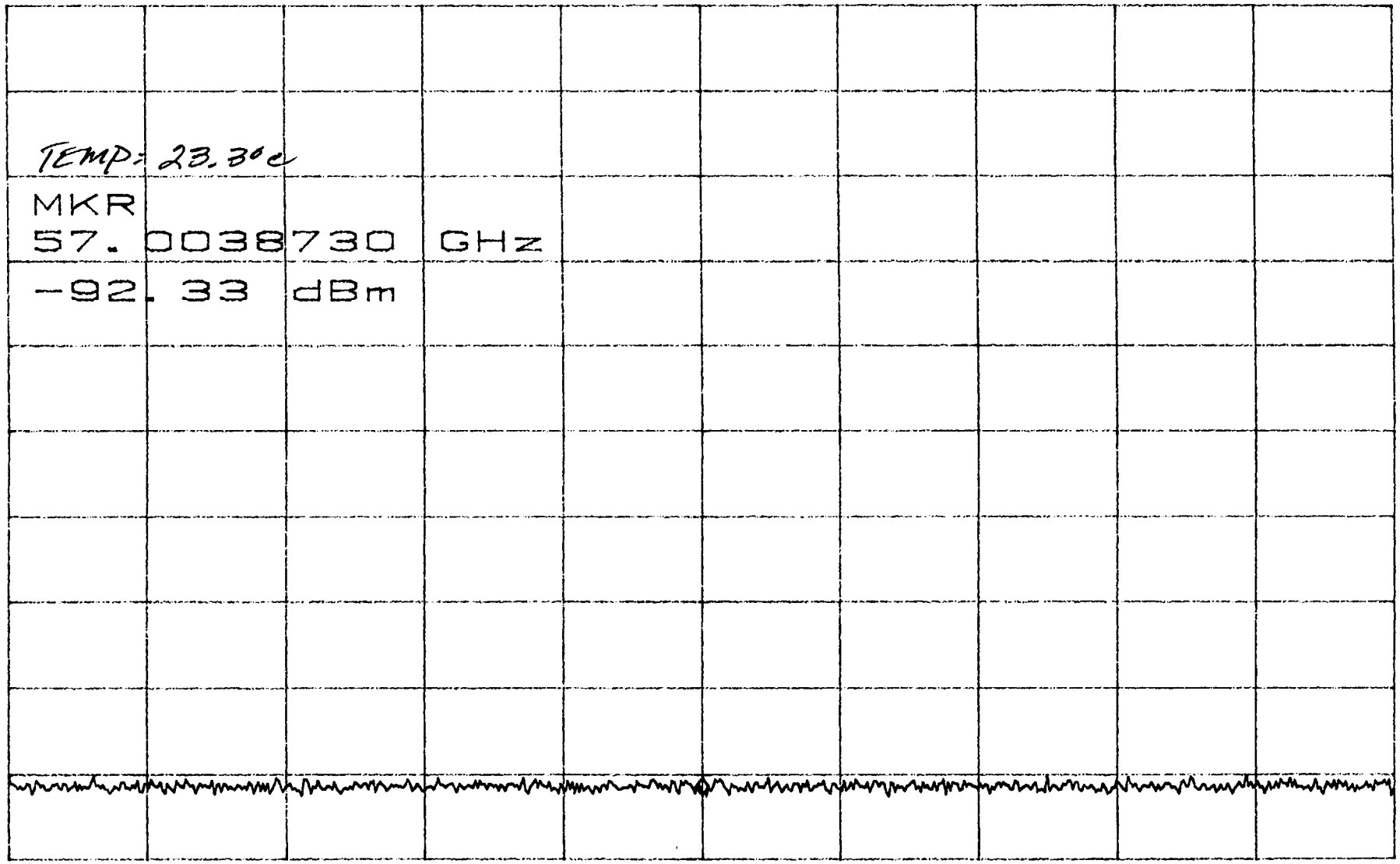
CENTER 56.8606470GHz SPAN 500.0kHz
RBW 3.0kHz *VBW 1.0kHz *SWP 1.30sec

-IPT PER AE-2C158B

'N F08

DATE 9/8/98
TE: DS
INSP:

CL 30.0dB VAVG 84 MKR -92.33dBm
RL 0dBm 10dB/ 57.0038730GHz



D

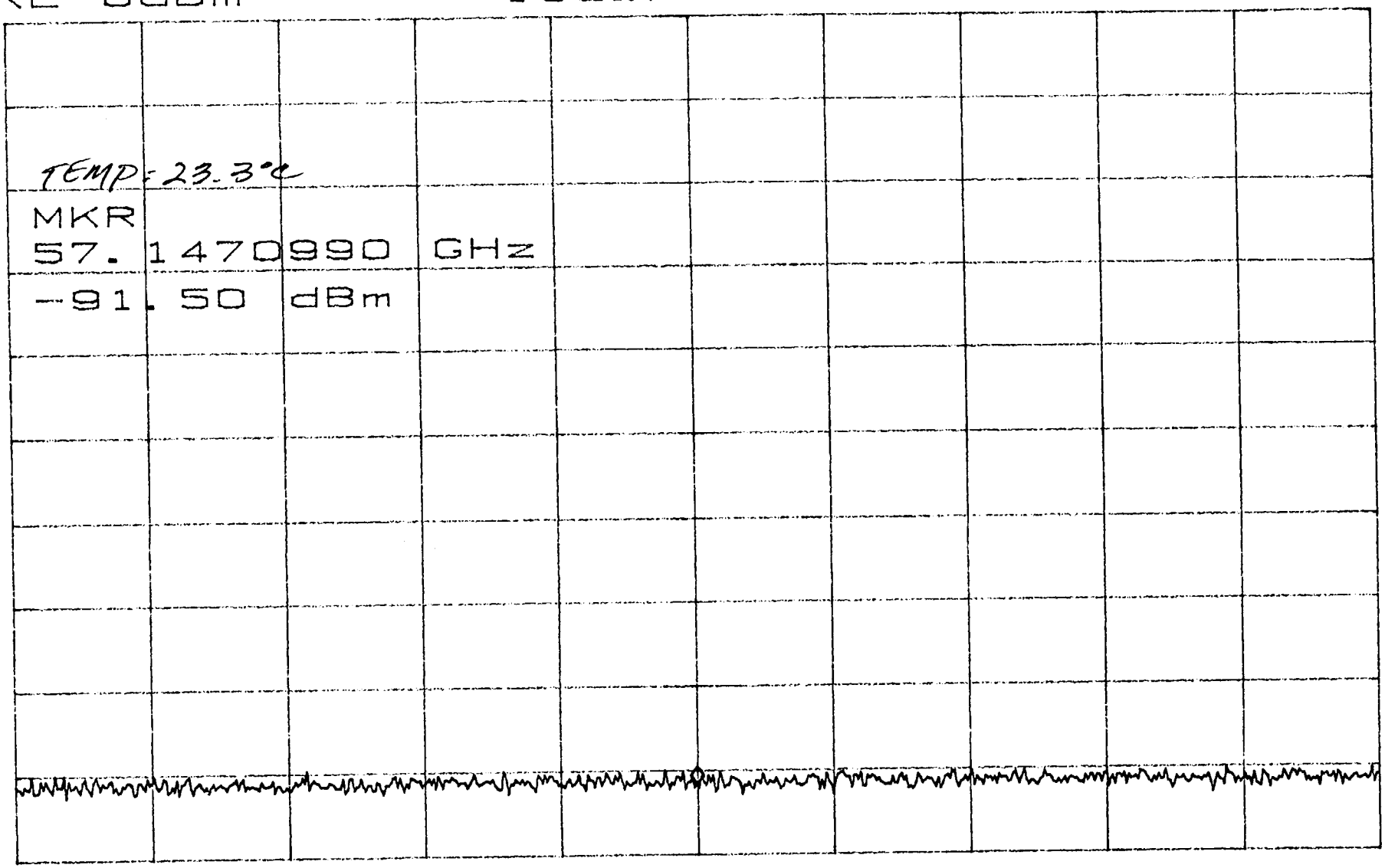
CENTER 57.0038730GHz SPAN 500.0kHz
RBW 3.0kHz *VBW 1.0kHz *SWP 1.30sec

CPT PER AE-26758B

5.1 F08

DATE: 9/8/98
TE: Labtech
EUSP:

CL 30.0dB VAVG 12 MKR -91.50dBm
RL 0dBm 10dB/ 57.1470990GHz

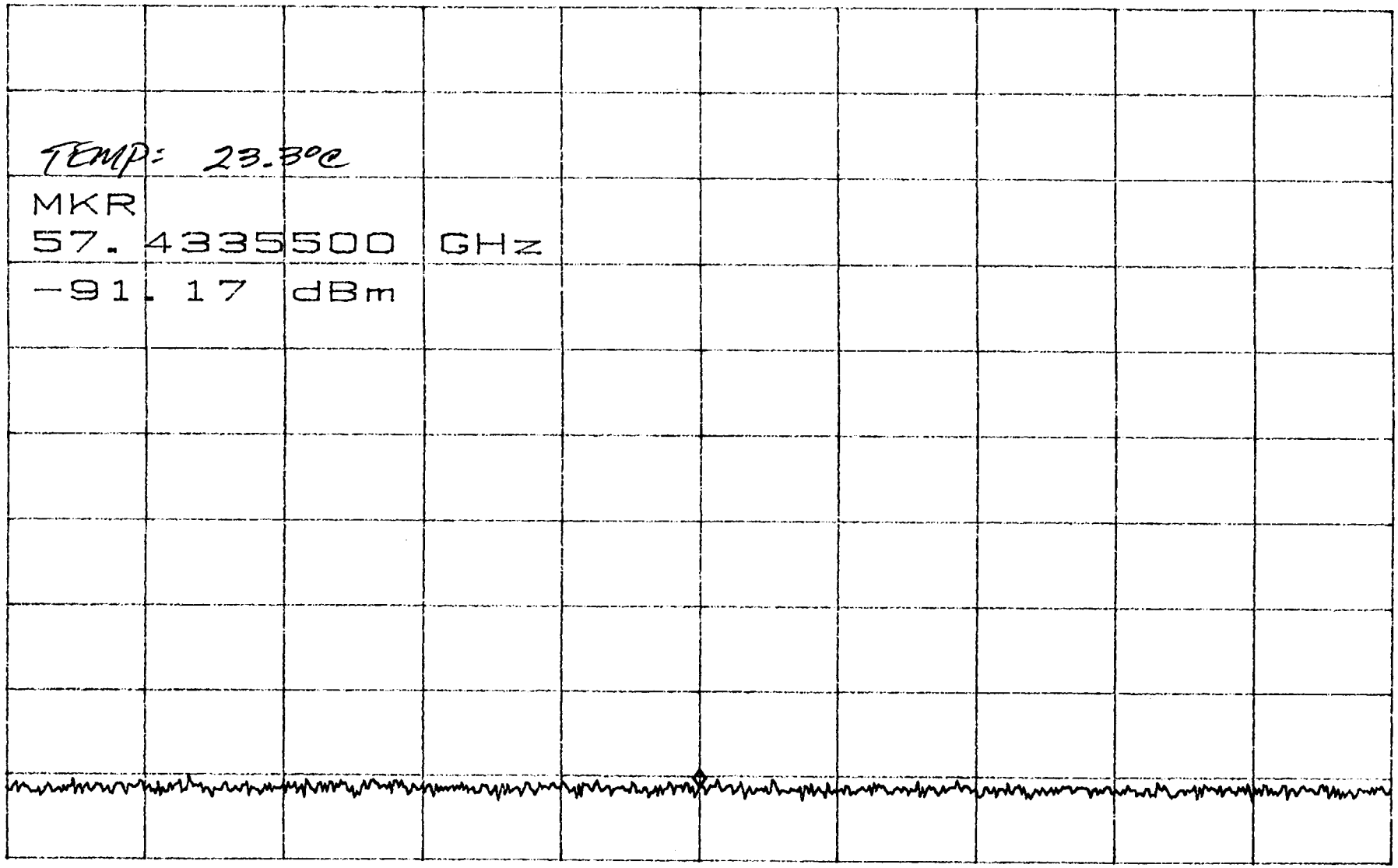


CENTER 57.1470990GHz SPAN 500.0kHz
RBW 3.0kHz *VBW 1.0kHz *SWP 1.30sec

IPT PER AE-26758B S/N 08

DATE: 9/8/98
TE: JSoto
Insp:

CL 30.0dB VAVG 56 MKR -91.17dBm
RL 0dBm 10dB/ 57.4335500GHz



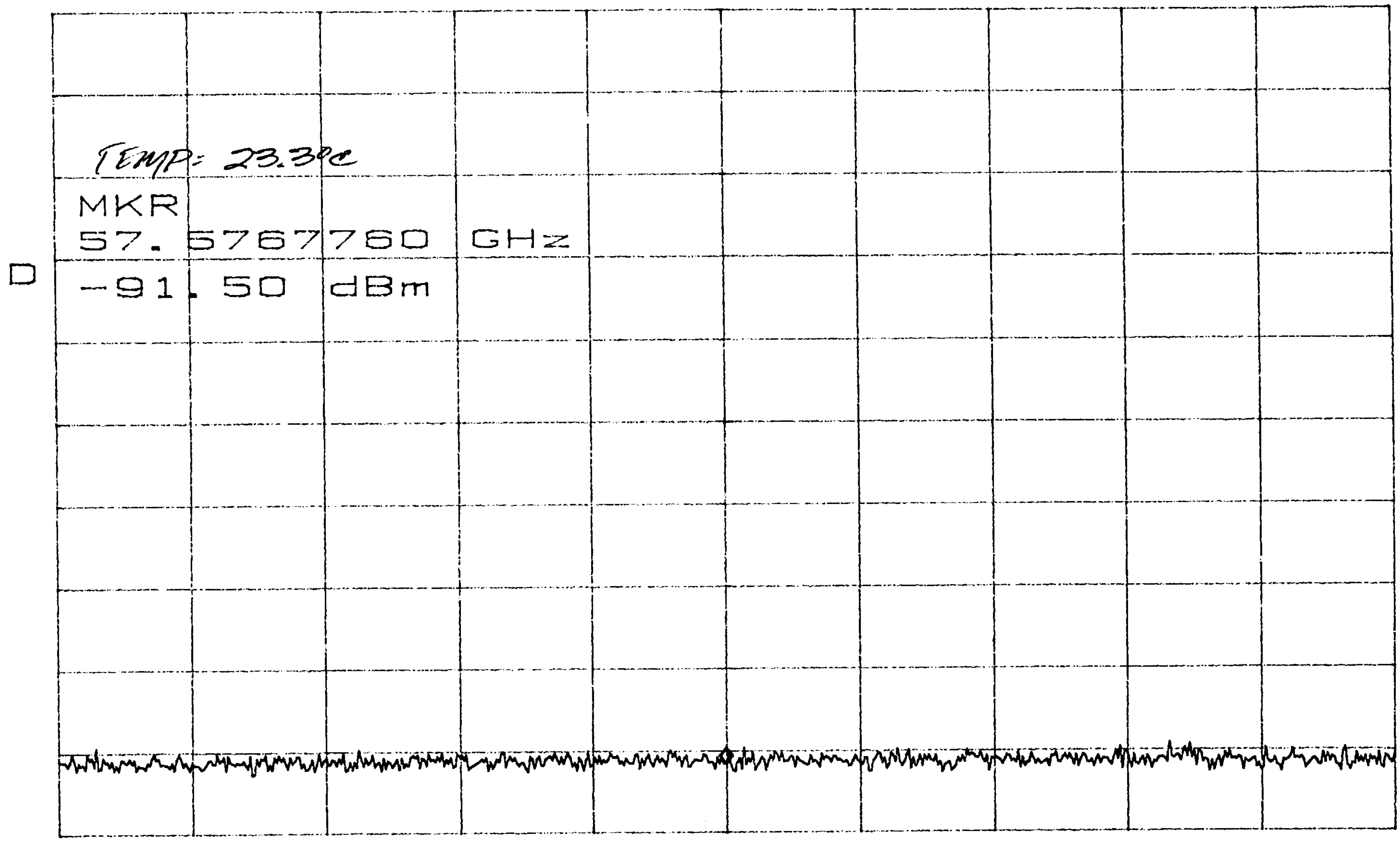
CENTER 57.4335500GHz SPAN 500.0kHz
RBW 3.0kHz *VBW 1.0kHz *SWP 1.30sec

ADT PER AE-26758B

S/N F08

DATE: 3/8/98
TE: Soto
INSP:

CL 30.0dB VAVG 9 MKR -91.50dBm
RL 0dBm 10dB/ 57.5767760GHz



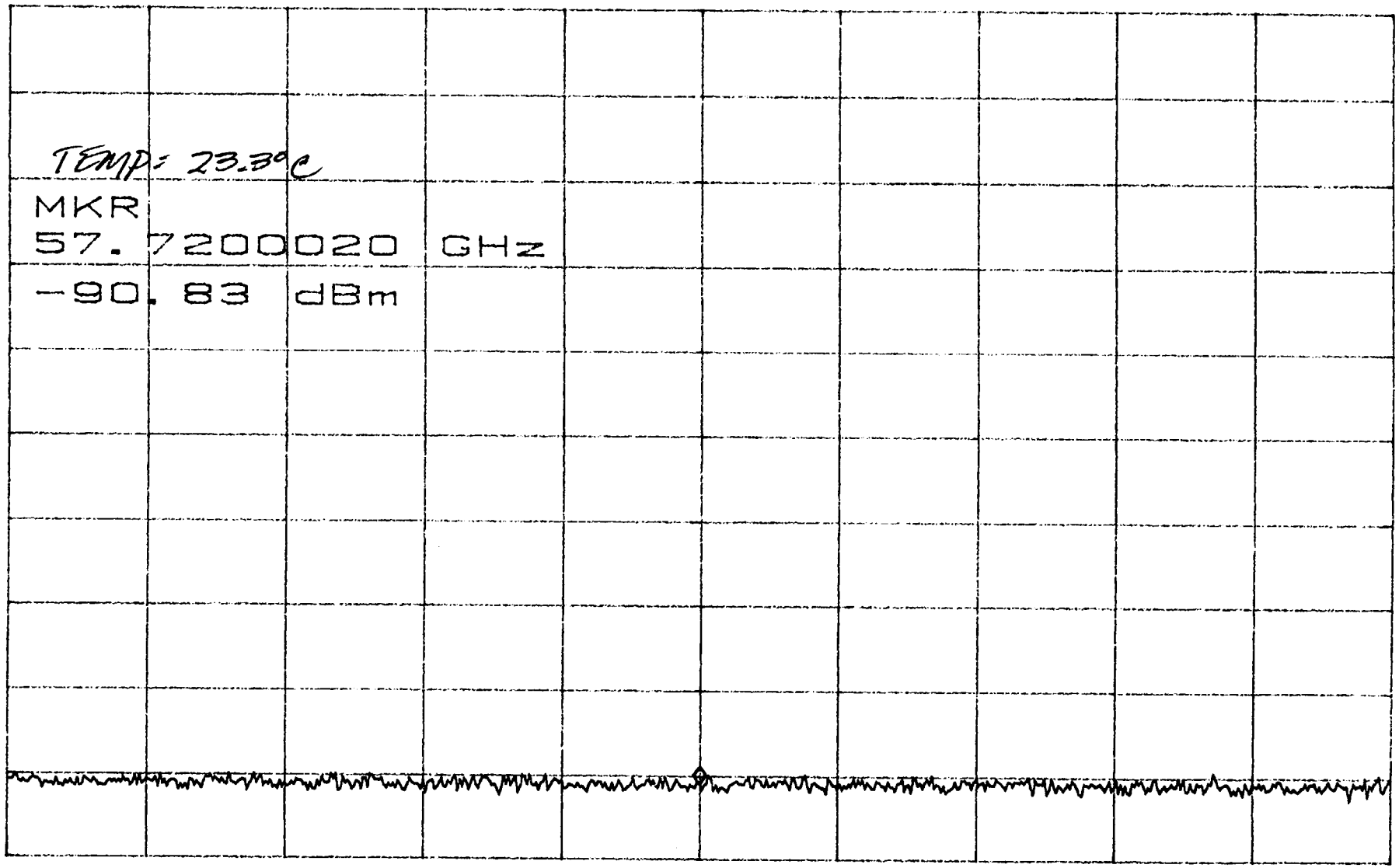
CENTER 57.5767760GHz SPAN 500.0kHz
RBW 3.0kHz *VBW 1.0kHz *SWP 1.30sec

APT PER AE-267558B

S/N F08

DATE: 9/8/98
TE: JSato
Disp:

L 30.0dB VAVG 18 MKR -90.83dBm
RL 0dBm 10dB/ 57.7200020GHz



CENTER 57.7200020GHz SPAN 500.0kHz
RBW 3.0kHz *VBW 1.0kHz *SWP 1.30sec

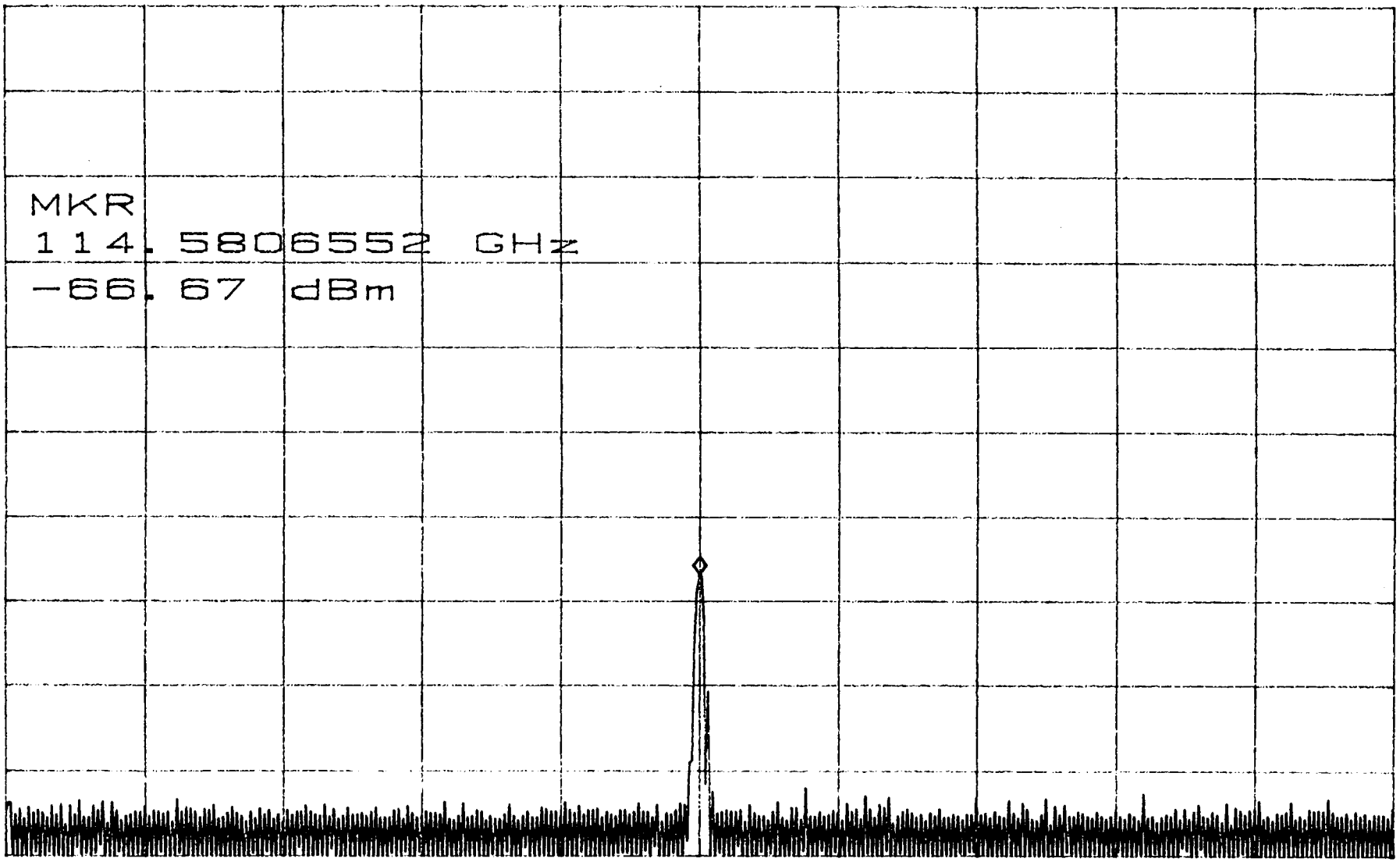
POST T/C

EOB
CPT

44.3°C
9-8-98

OPT PER AE-26758B S/N F08 DATE: 4/8/98
TE: [illegible]
[illegible]:

L 30.0dB MKR -66.67dBm
RL 0dBm 10dB/ 114.5806552GHz

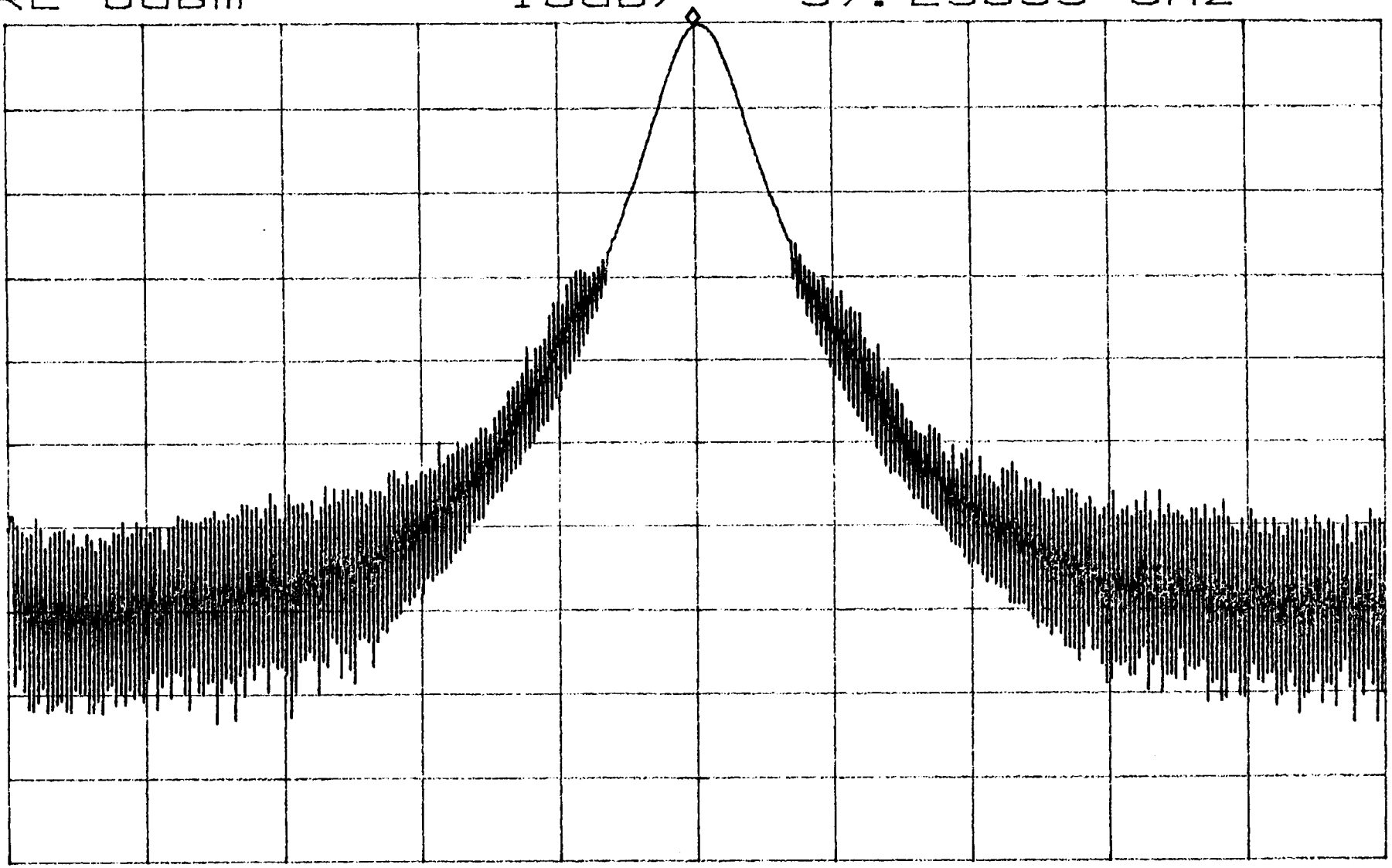


CENTER 114.5806552GHz SPAN 100.0kHz
*RBW 300Hz *VBW 1.0kHz SWP 2.80sec

'pT PER AE-267588
TEMP = 44.3°C

S/N F08

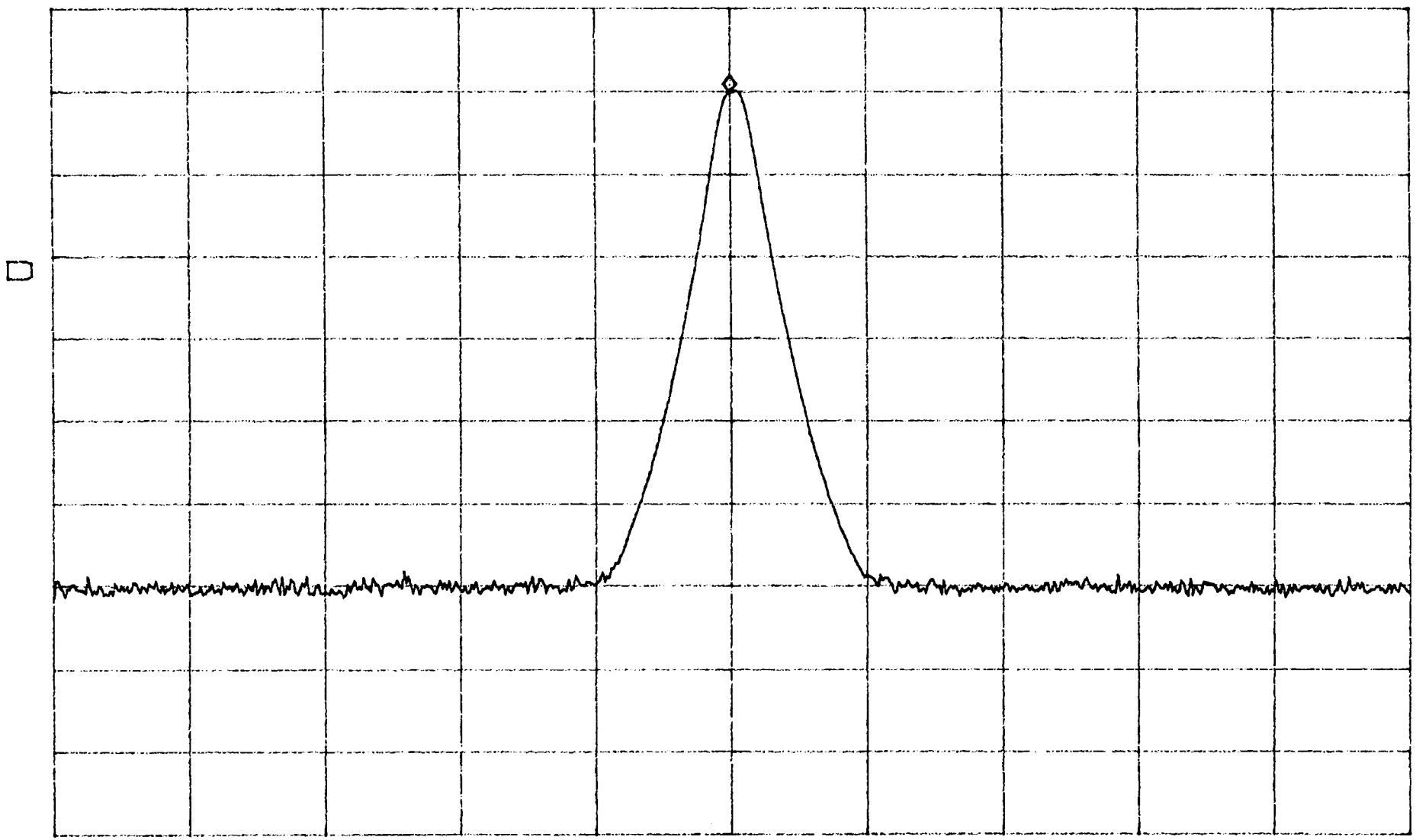
DATE: 9/8/98
TE: J Soto
EWP



CPT PER AE-2C7588
TEMP: 44.3°C

INFO8

DATE: 9/8/98
TE: Soto
FNSP:

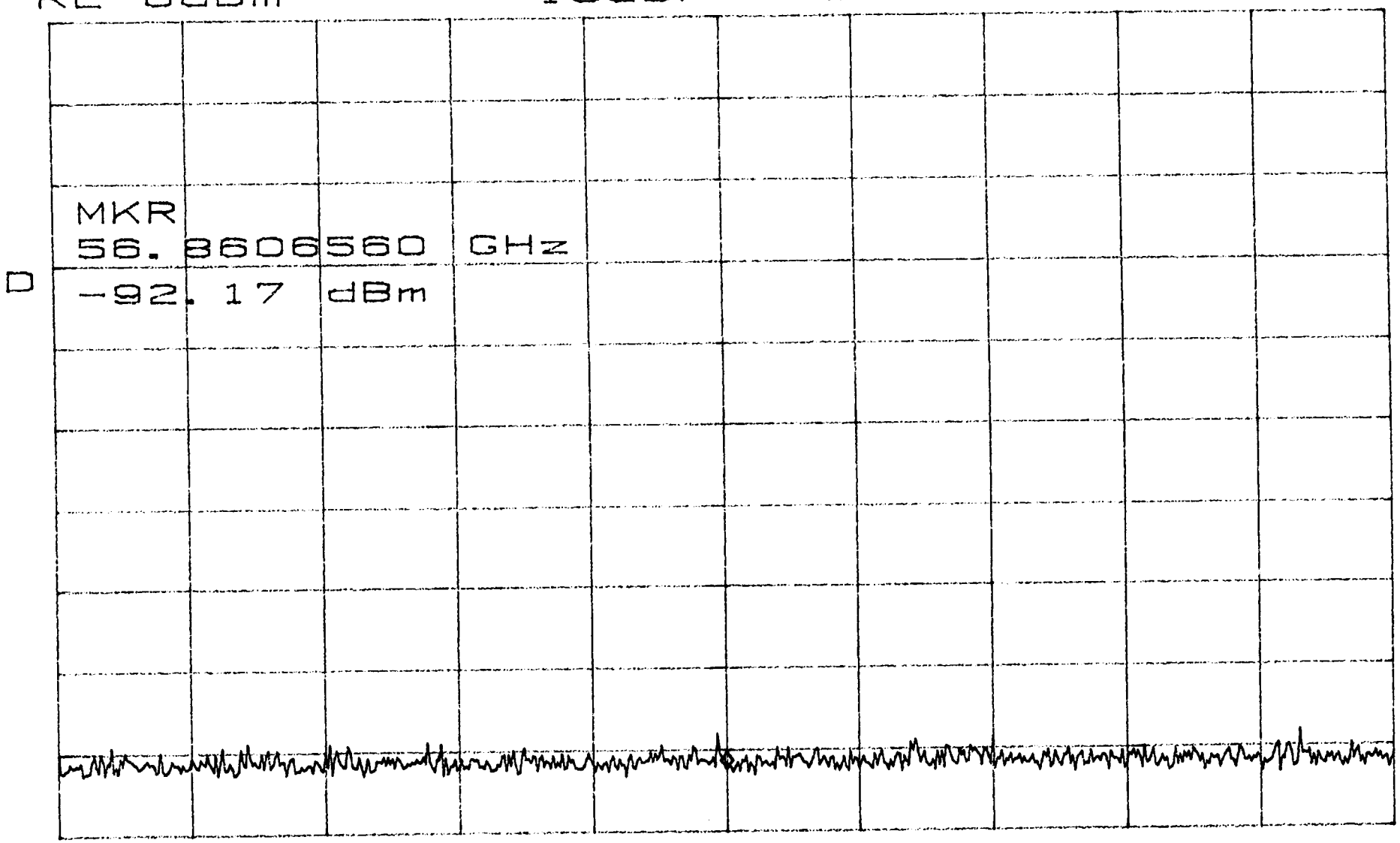


CPT PER AE-26758B
TEMP: 44.3°C

S/. F08

DATE: 9/6/98
TE: Dato
Insp:

CL 30.0dB
RL 0dBm
10dB/
CNT -92.17dBm
56.86072 GHz



CENTER 56.8606560GHz
SPAN 500.0kHz
*RBW 1.0kHz
*VBW 1.0kHz
SWP 1.30sec

PDT PER AE 26758B

TEMP = 44.3°C

S/N F08

DATE: 9/8/98
TE: Dukto
DISP:

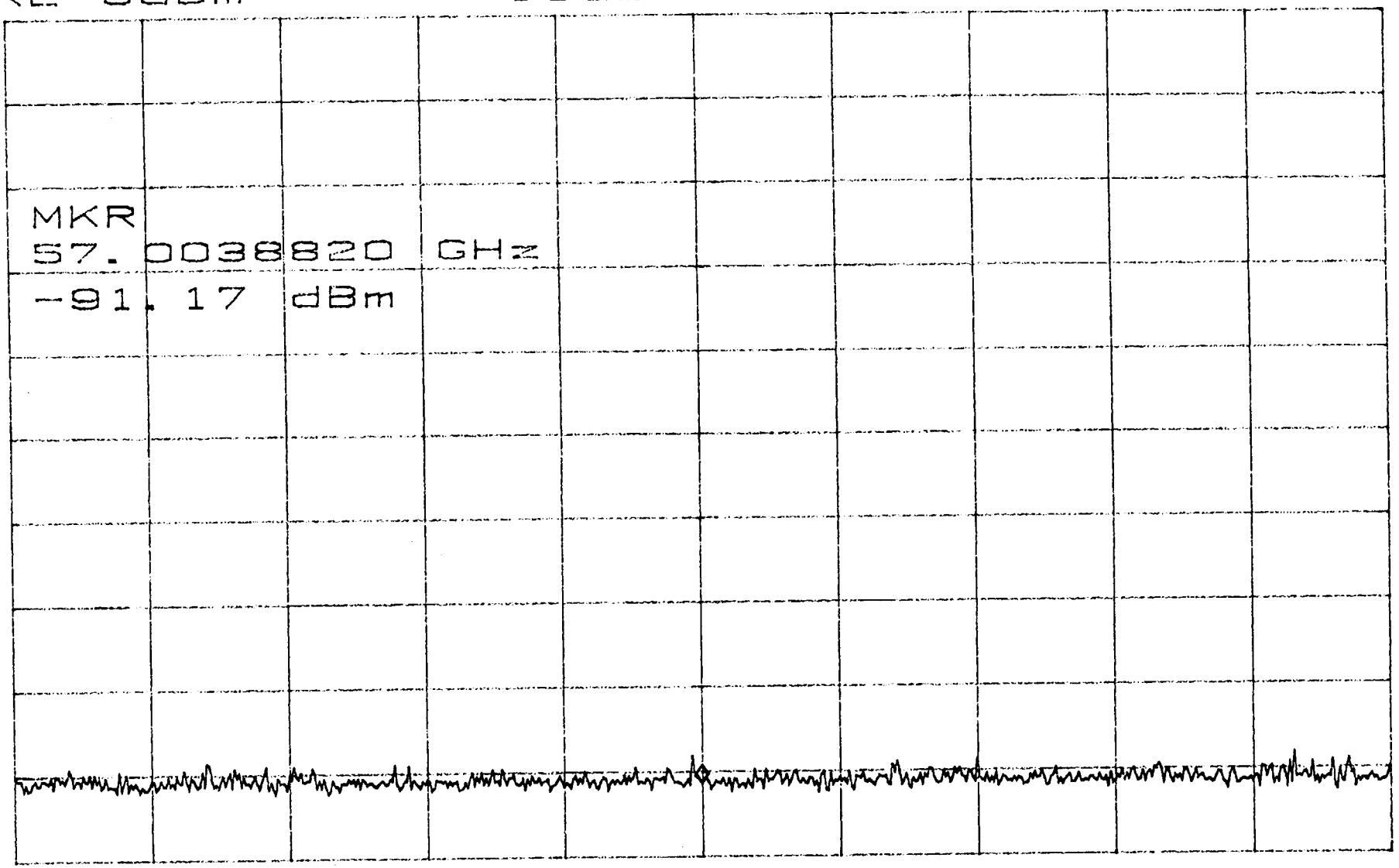
CL 30.0dB

CNT -91.17dBm

RL 0dBm

10dB/

57.00391 GHz



CENTER 57.0038820GHz

SPAN 500.0kHz

*RBW 1.0kHz

*VBW 1.0kHz

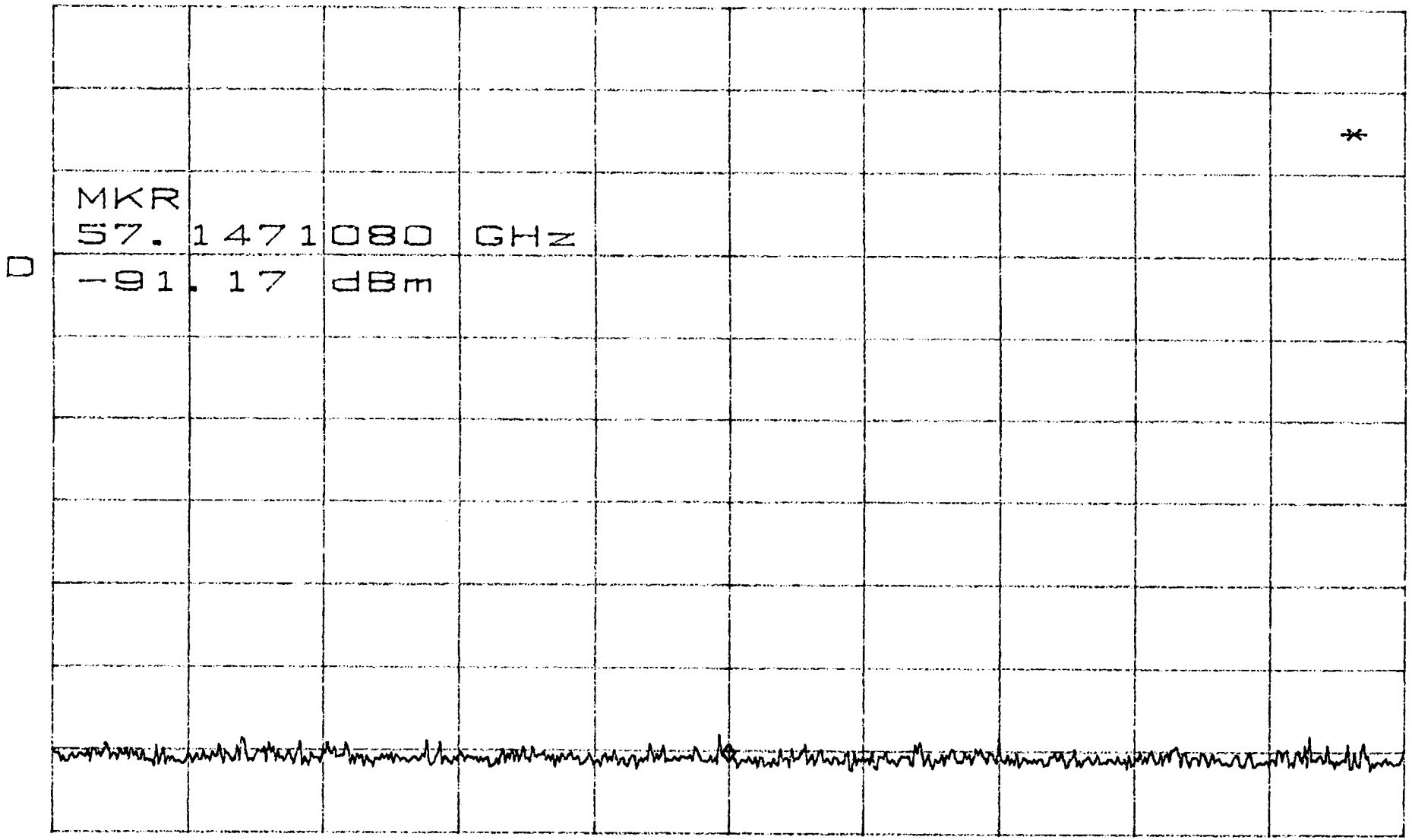
SWP 1.30sec

*PT PER AE 26758B
TEMP: 44.3°C

S/N F08

DATE: 9/8/98
TE: J Soto
INSP:

CL 30.0dB
RL 0dBm
10dB/
CNT -91.17dBm
57.00393 GHz



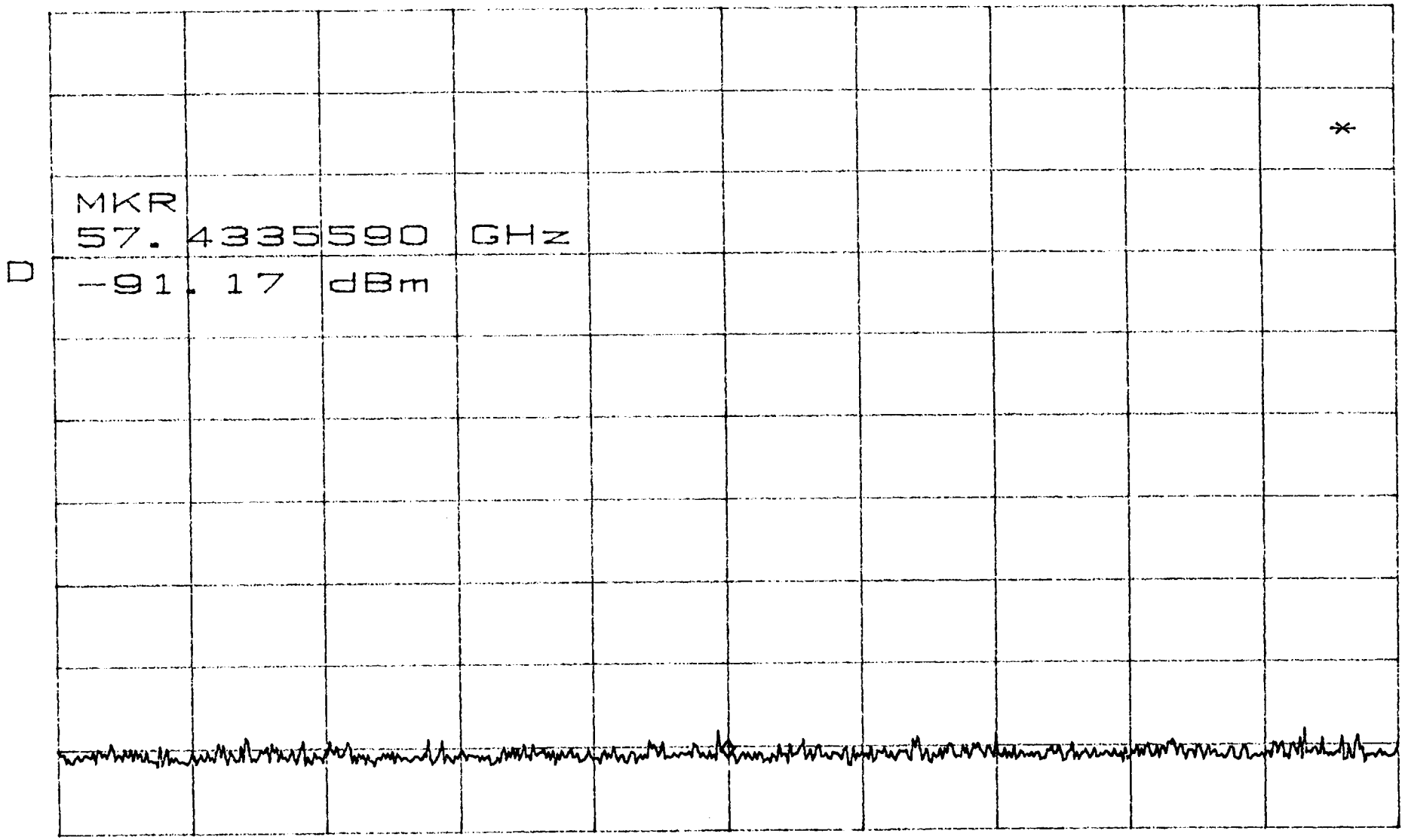
CENTER 57.1471080GHz
SPAN 500.0kHz
*RBW 1.0kHz
*VBW 1.0kHz
SWP 1.30sec

IPT PER AE-26758B
TEMP: 44.3°C

S/N F08

DATE: 9/18/98
TE: Lasto
INSP:

CL 30.0dB
RL 0dBm
10dB/
CNT -91.17dBm
57.00393 GHz

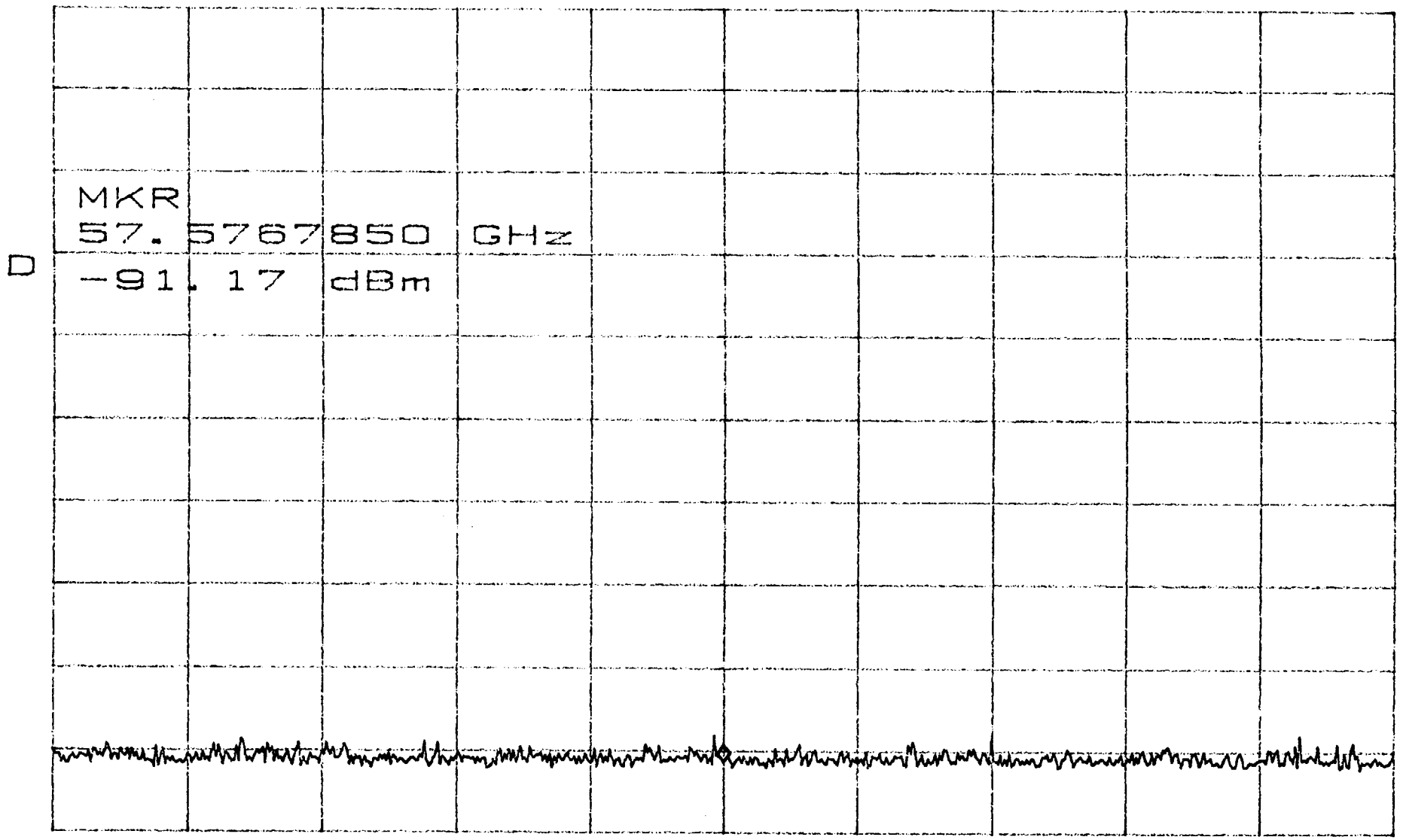


CENTER 57.4335590GHz
SPAN 500.0kHz
*RBW 1.0kHz
*VBW 1.0kHz
SWP 1.30sec

CPT PER AE-26758B
TEMP: 44.3°C

S/C F08

DATE: 2/18/98
TE: Watts
ENGR:

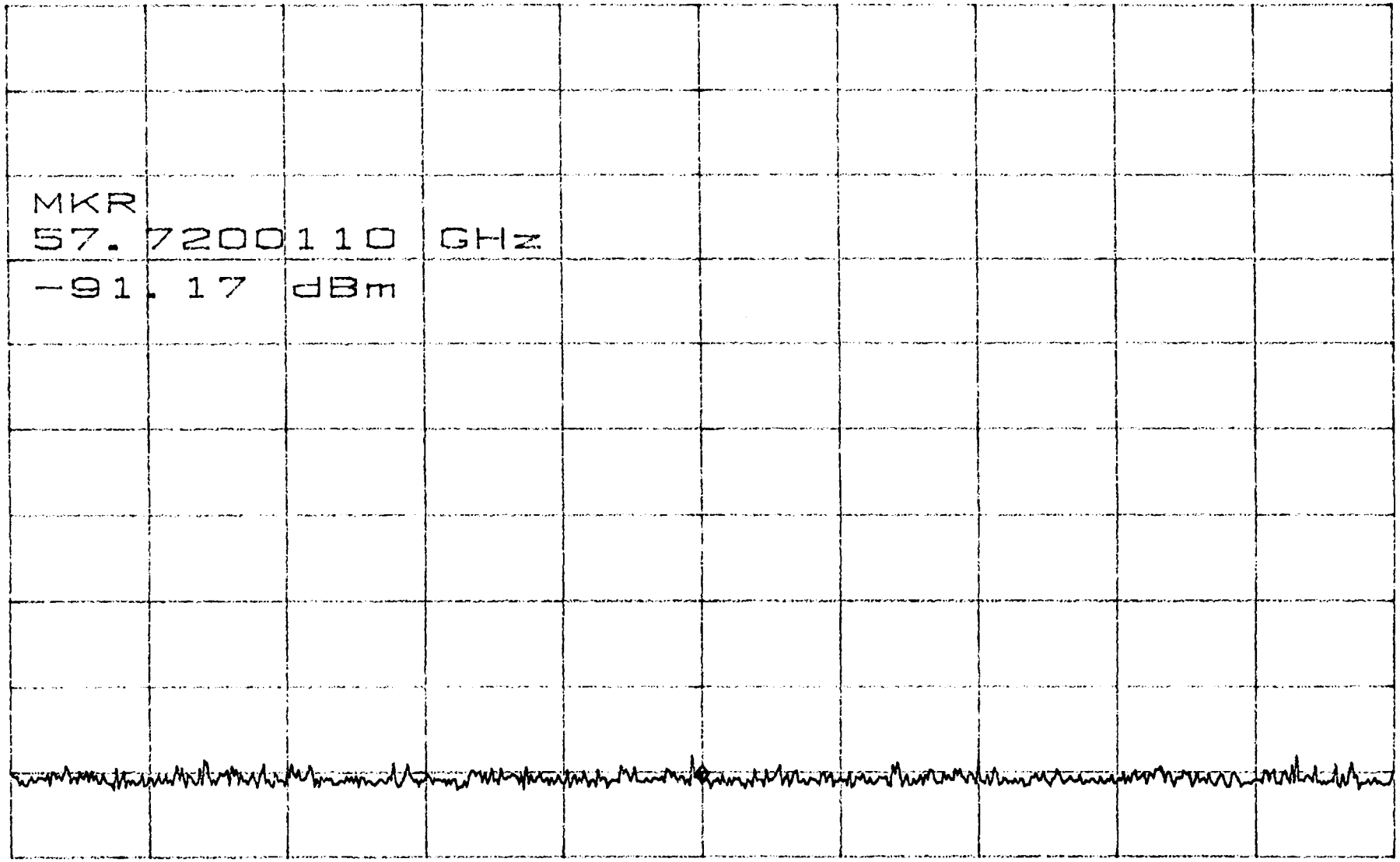


IDT per AE-26758B
Temp 44.3°C

S/. F08

DATE: 07/7/58
TE: DSOIO
Insp:

CL 30.0dB
RL 0dBm
10dB/
CNT -91.17dBm
57.72007 GHz

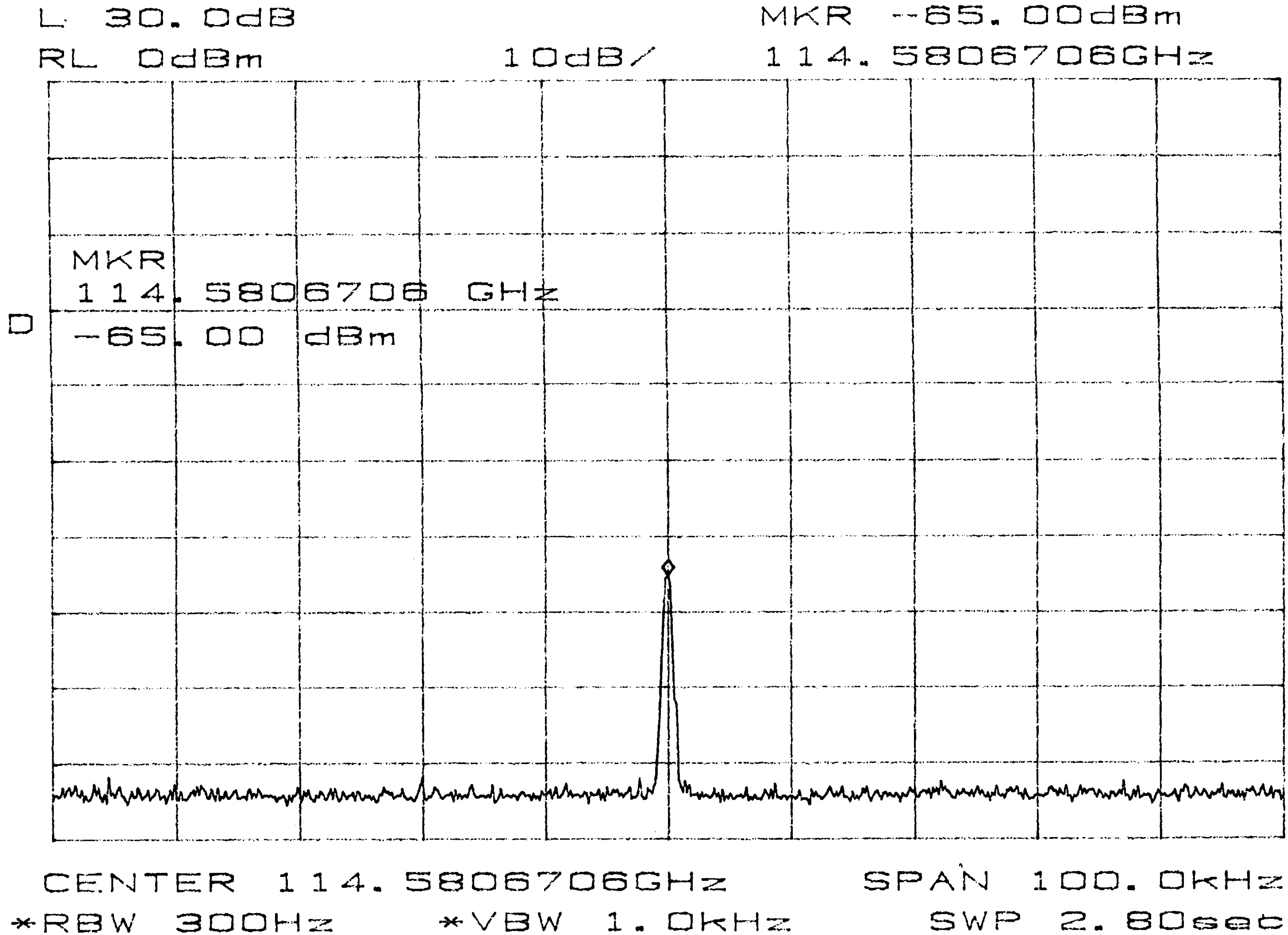


CENTER 57.7200110GHz
SPAN 500.0kHz
*RBW 1.0kHz
*VBW 1.0kHz
SWP 1.30sec

*PT PER AE267588
TEMP: 44.3 °C

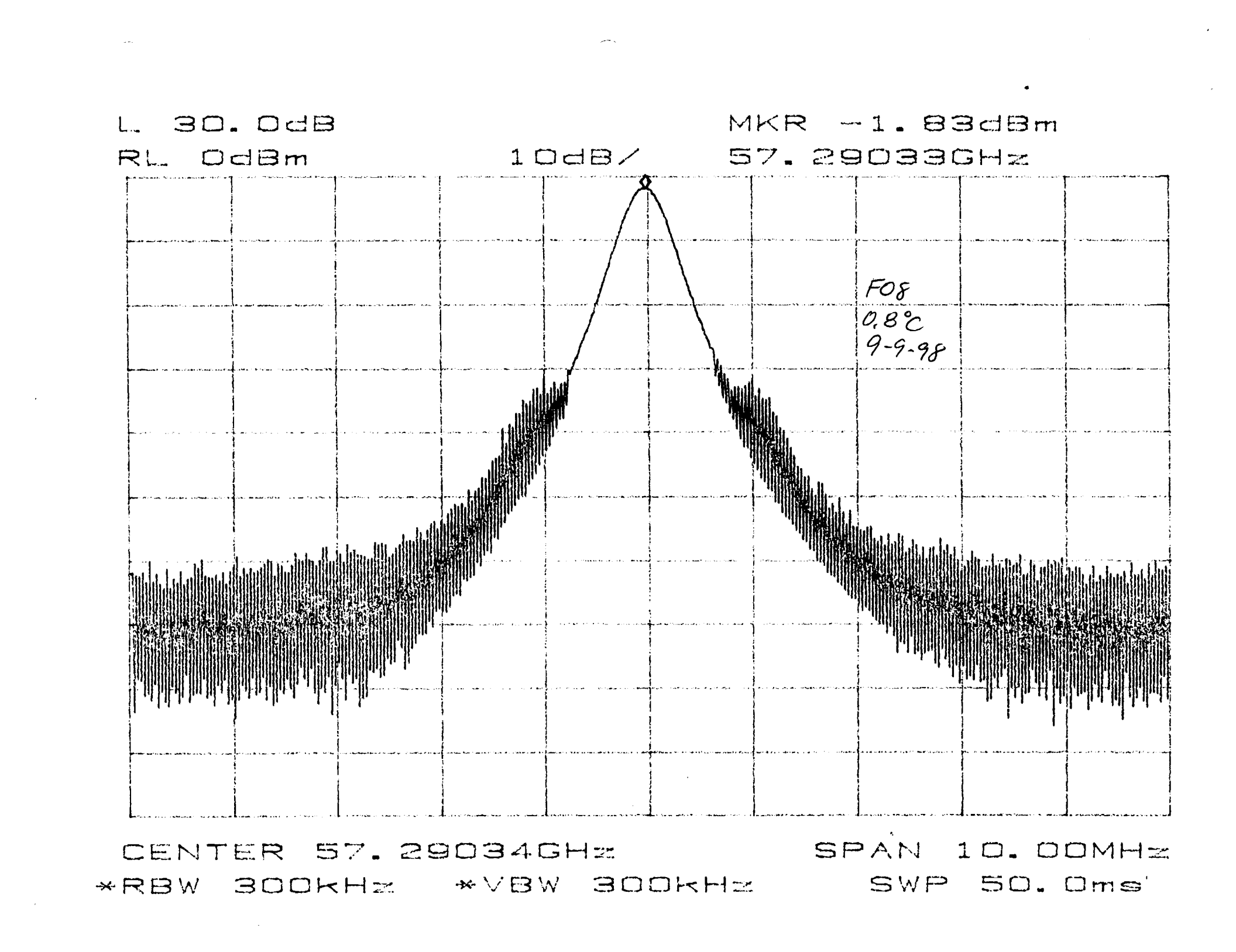
S/N 1 8

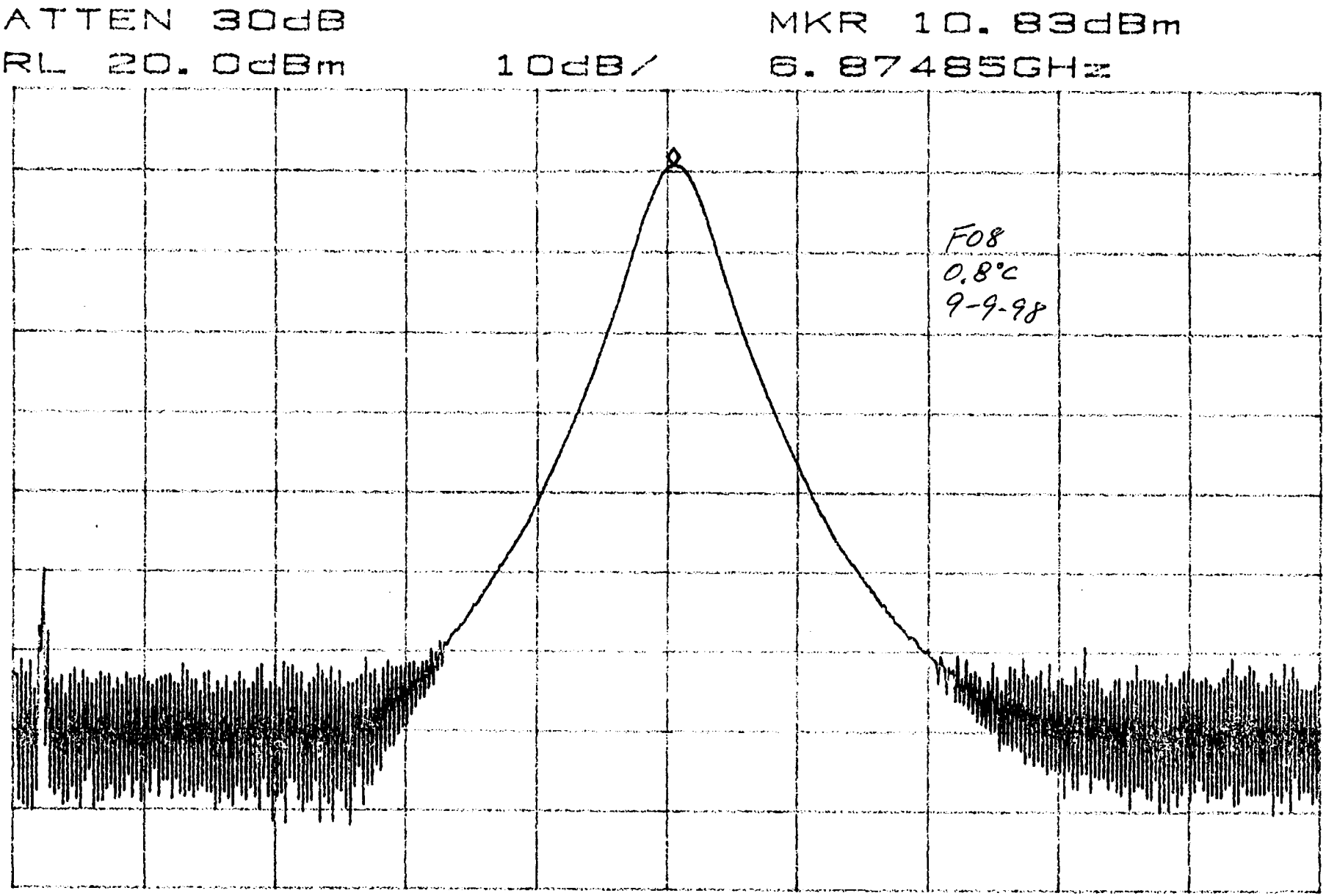
DATE 9/8/98
TE Ic do
INSP

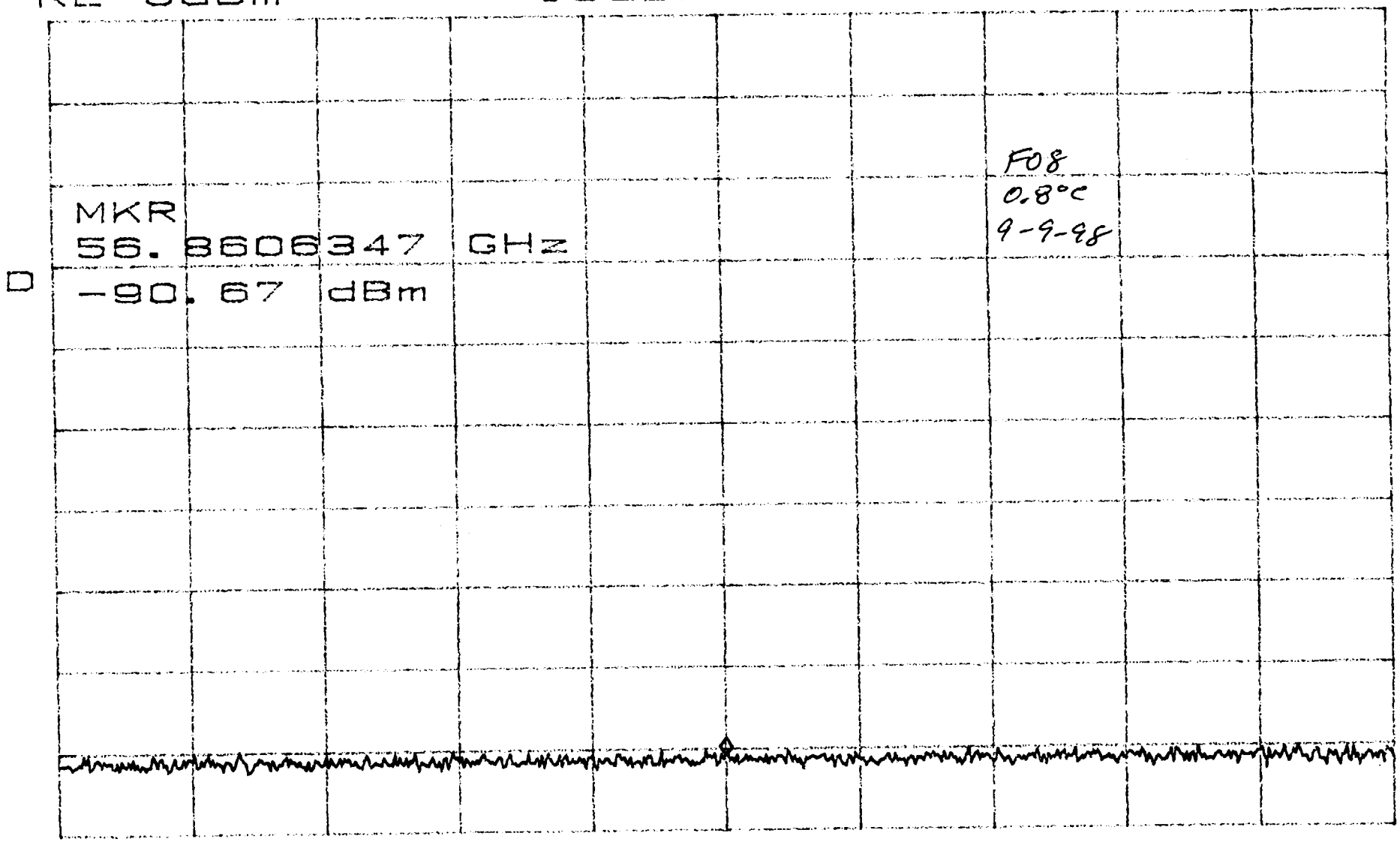


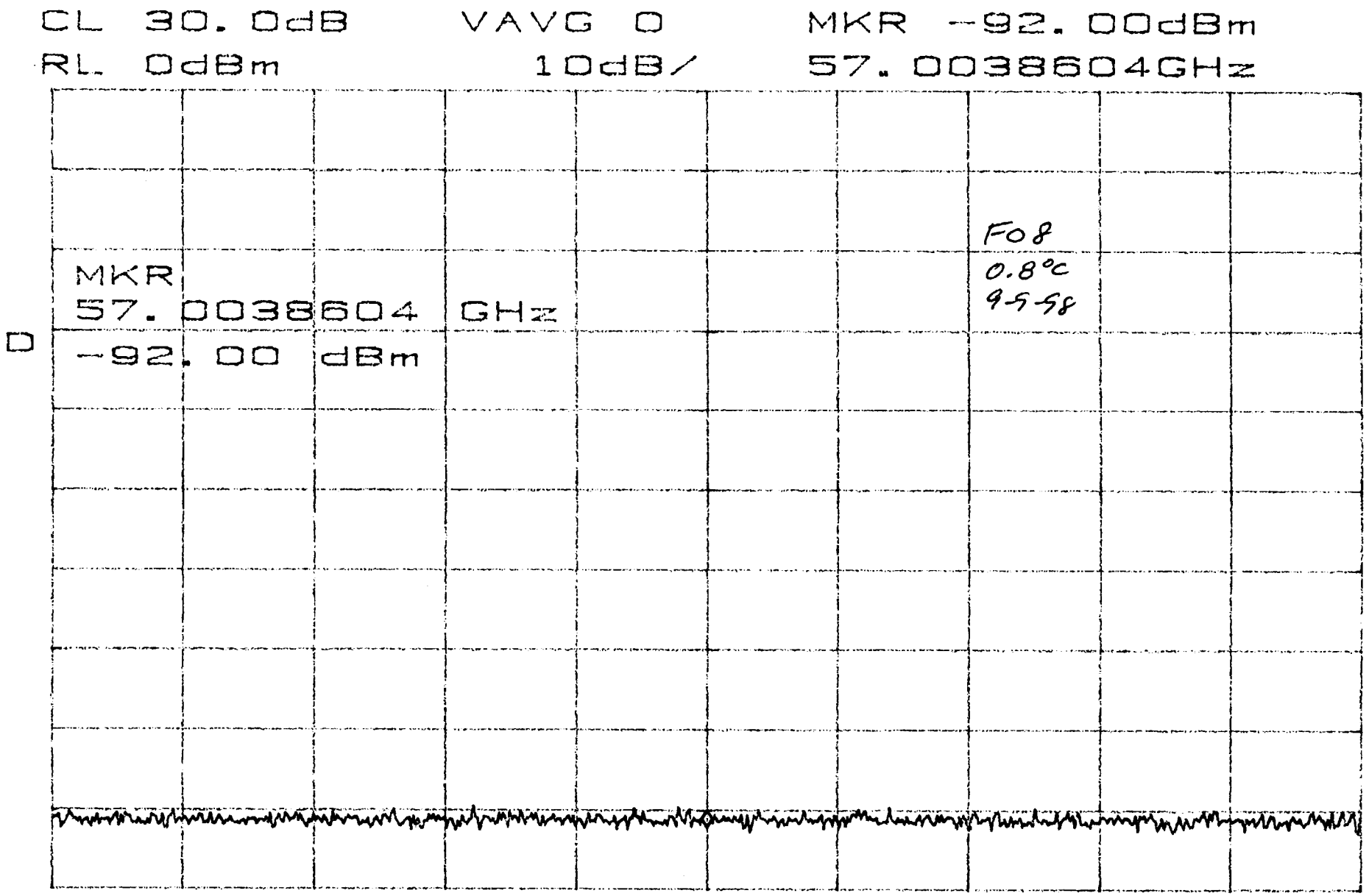
POST T/C

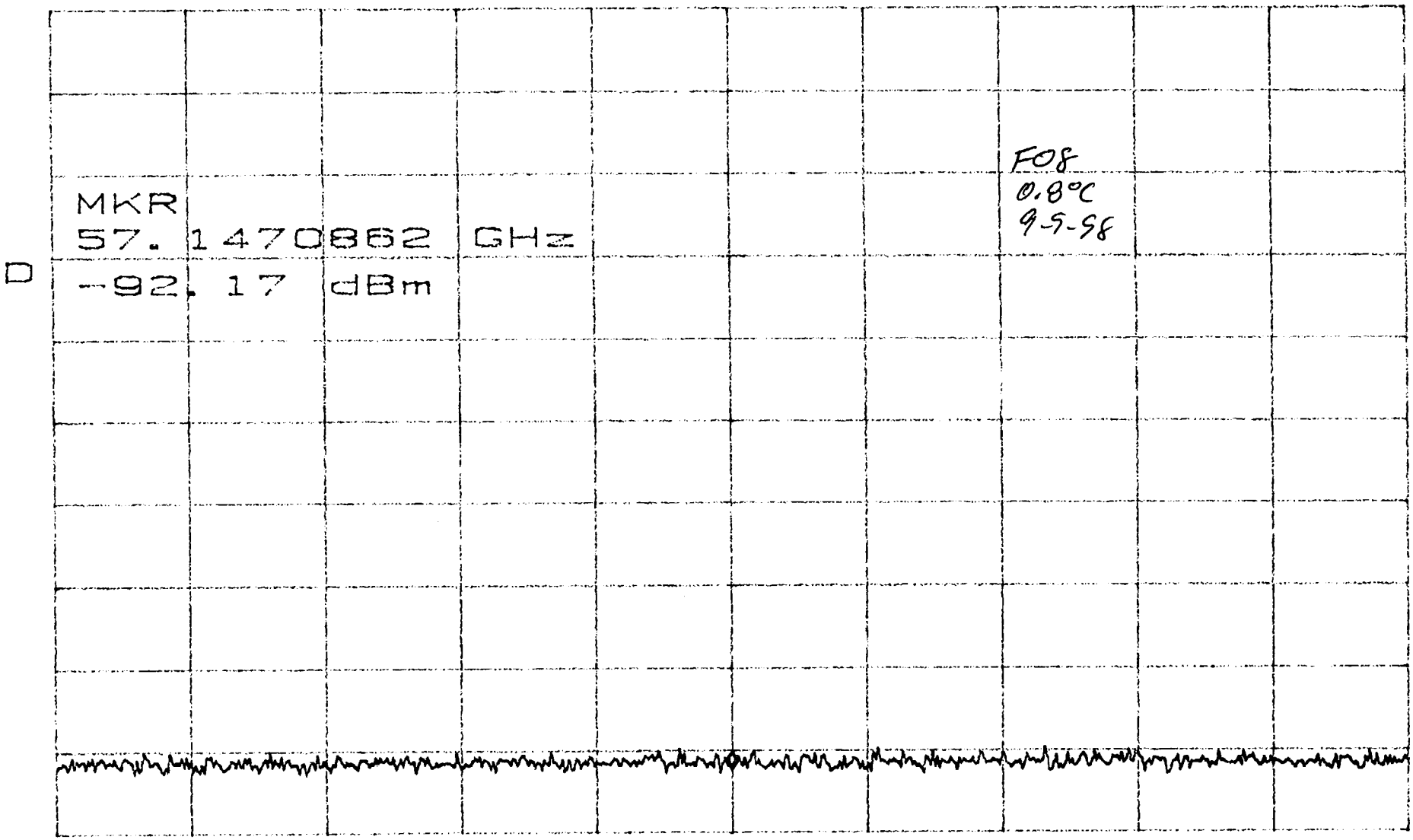
F08
CPT
0.8° C
9-8-98

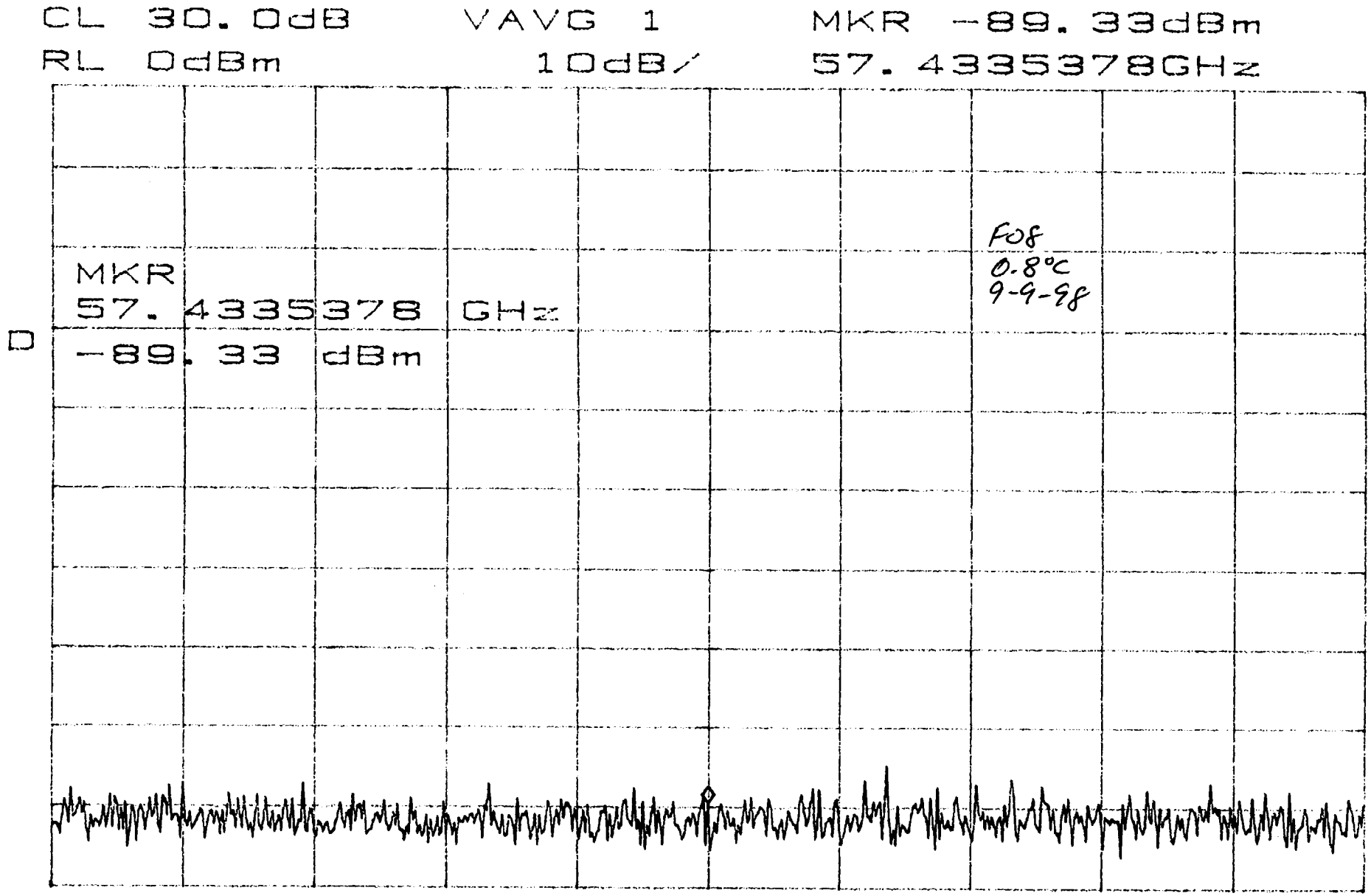

L 30.0dB
RL 0dBm
10dB/
MKR -1.83dBm
57.290330GHz
FO8
0.8°C
9-9-98
CENTER 57.29034GHz
SPAN 10.00MHz
*RBW 300kHz
*VBW 300kHz
SWP 50.0ms

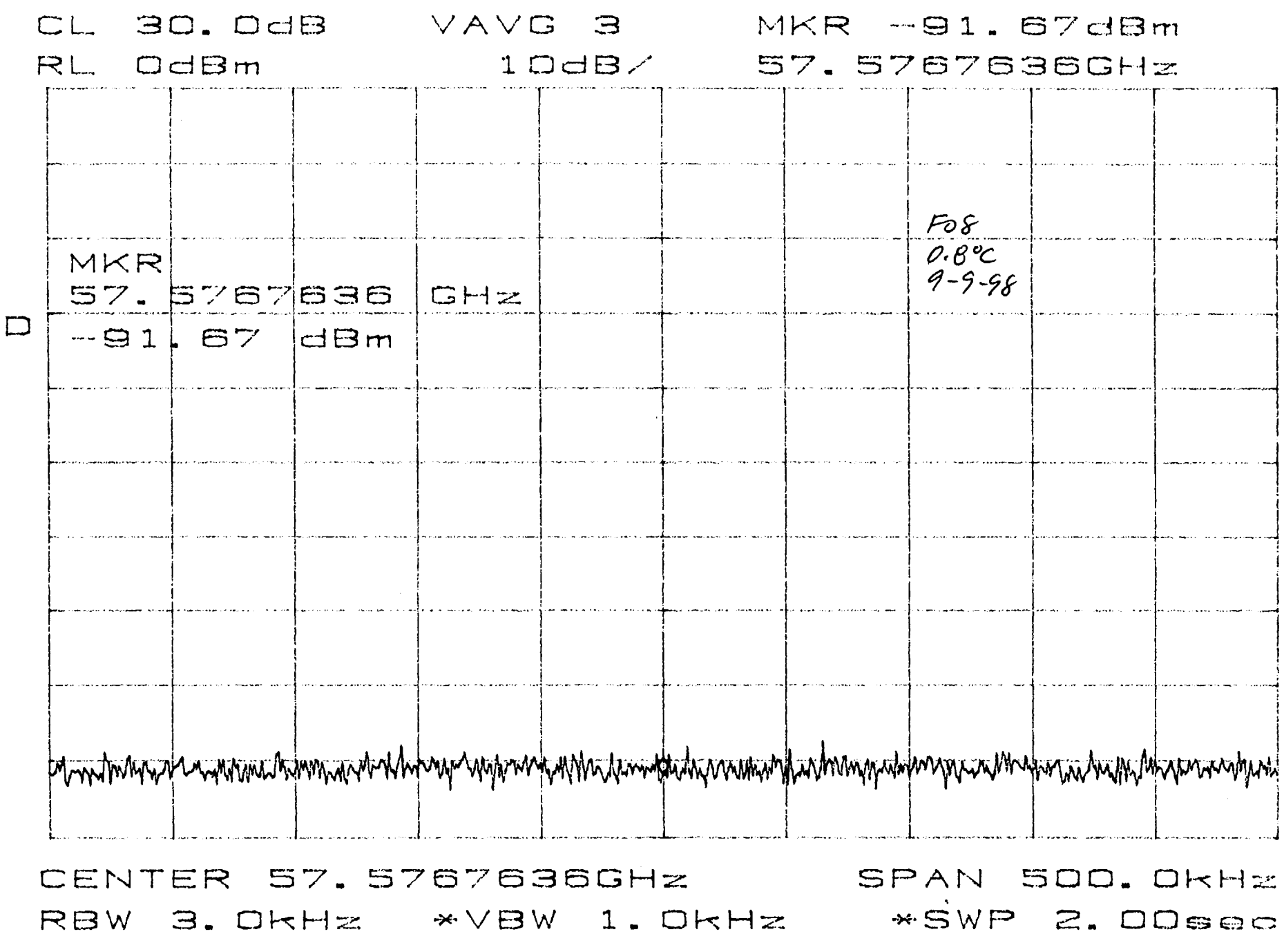

ATTEN 30dB
MKR 10.83dBm
RL 20.0dBm
10dB/
6.87485GHz
F08
0.8°C
9-9-98
CENTER 6.87480GHz
SPAN 10.00MHz
*RBW 300kHz
VBW 300kHz
*SWP 50.0ms

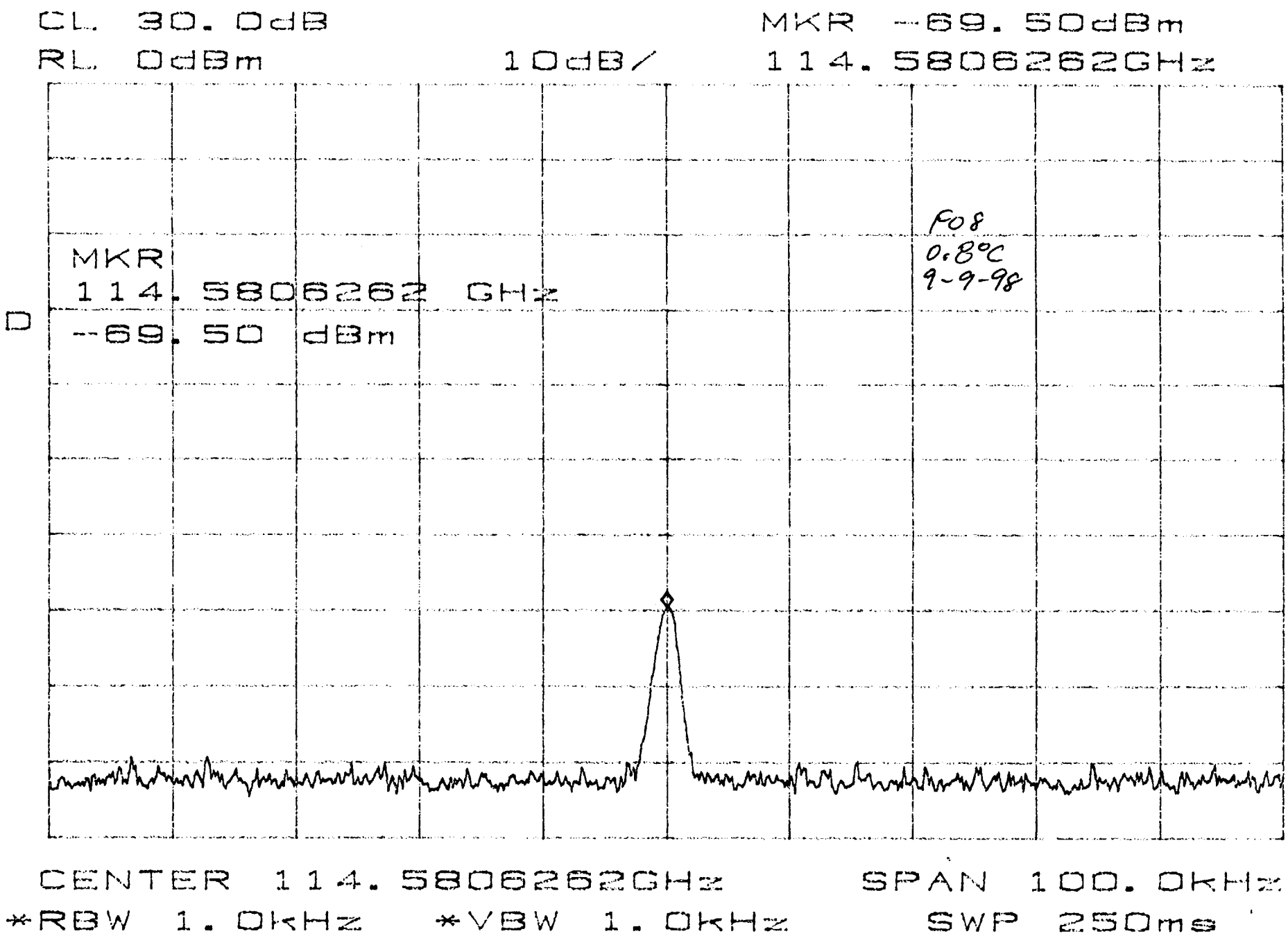

CL 30.0dB
VAVG 0
MKR -90.67dBm
RL 0dBm
10dB/
56.8606347GHz
F08
0.8°C
9-9-98
MKR
56.8606347 GHz
D
-90.67 dBm
CENTER 56.8606347GHz
SPAN 500.0kHz
RBW 3.0kHz
*VBW 1.0kHz
*SWP 2.00sec


CL 30.0dB
VAVG 0
MKR -92.00dBm
RL 0dBm
10dB/
57.0038604GHz
MKR
57.0038604 GHz
-92.00 dBm
D
F08
0.8°c
9-5-98
CENTER 57.0038604GHz
SPAN 500.0kHz
RBW 3.0kHz
*VBW 1.0kHz
*SWP 2.00sec


CL 30.0dB
VAVG 9
MKR -92.17dBm
RL 0dBm
10dB/
57.1470862GHz
MKR
57.1470862 GHz
-92.17 dBm
FOS
0.8°C
9-5-98
D
CENTER 57.1470862GHz
SPAN 500.0kHz
RBW 3.0kHz
*VBW 1.0kHz
*SWP 2.00sec

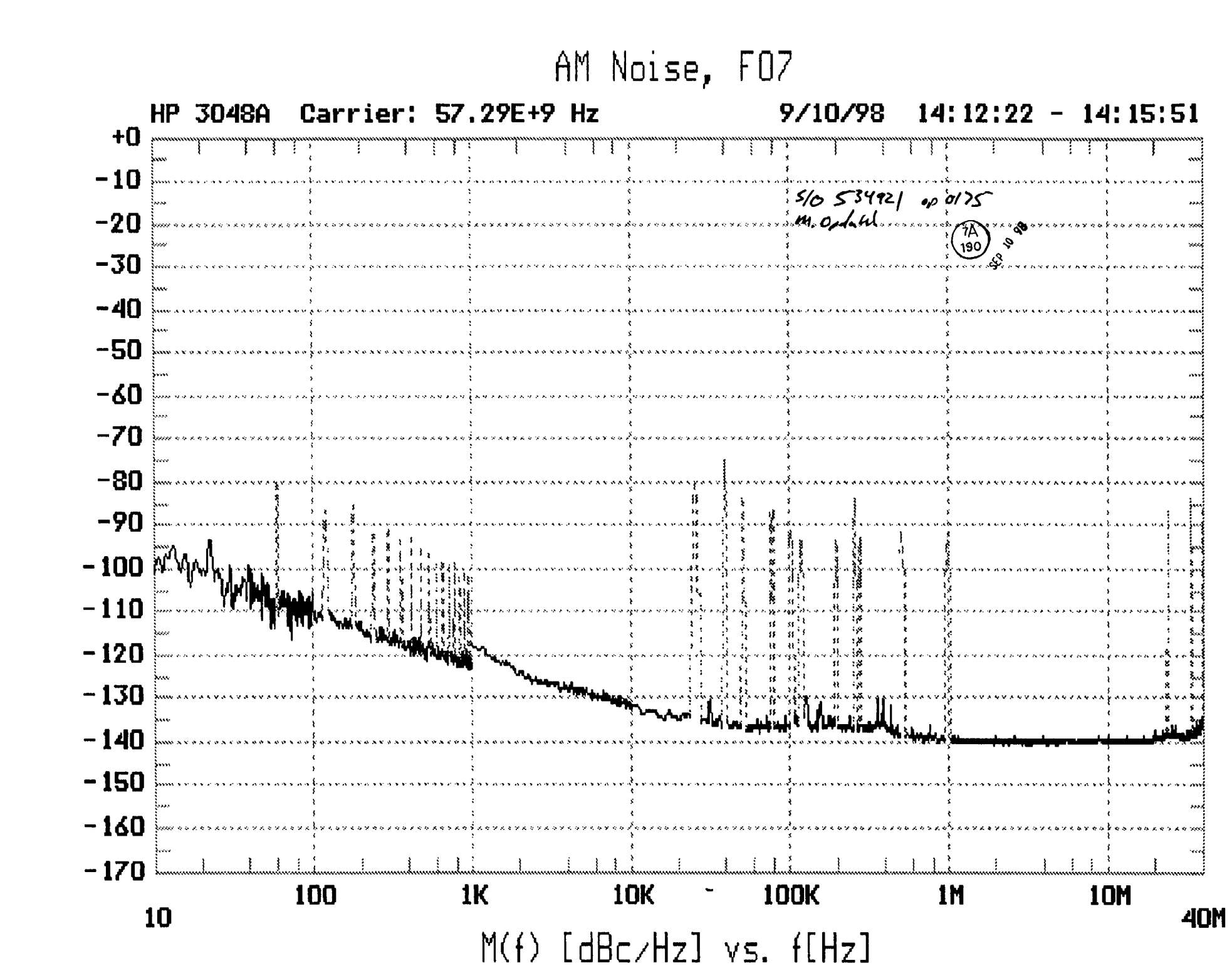

CL 30.0dB
VAVG 1
MKR -89.33dBm
RL 0dBm
10dB/
57.4335378GHz
MKR
57.4335378 GHz
-89.33 dBm
D
FOS
0.8°C
9-9-98
CENTER 57.4335378GHz
SPAN 500.0kHz
RBW 3.0kHz
*VBW 1.0kHz
*SWP 2.00sec

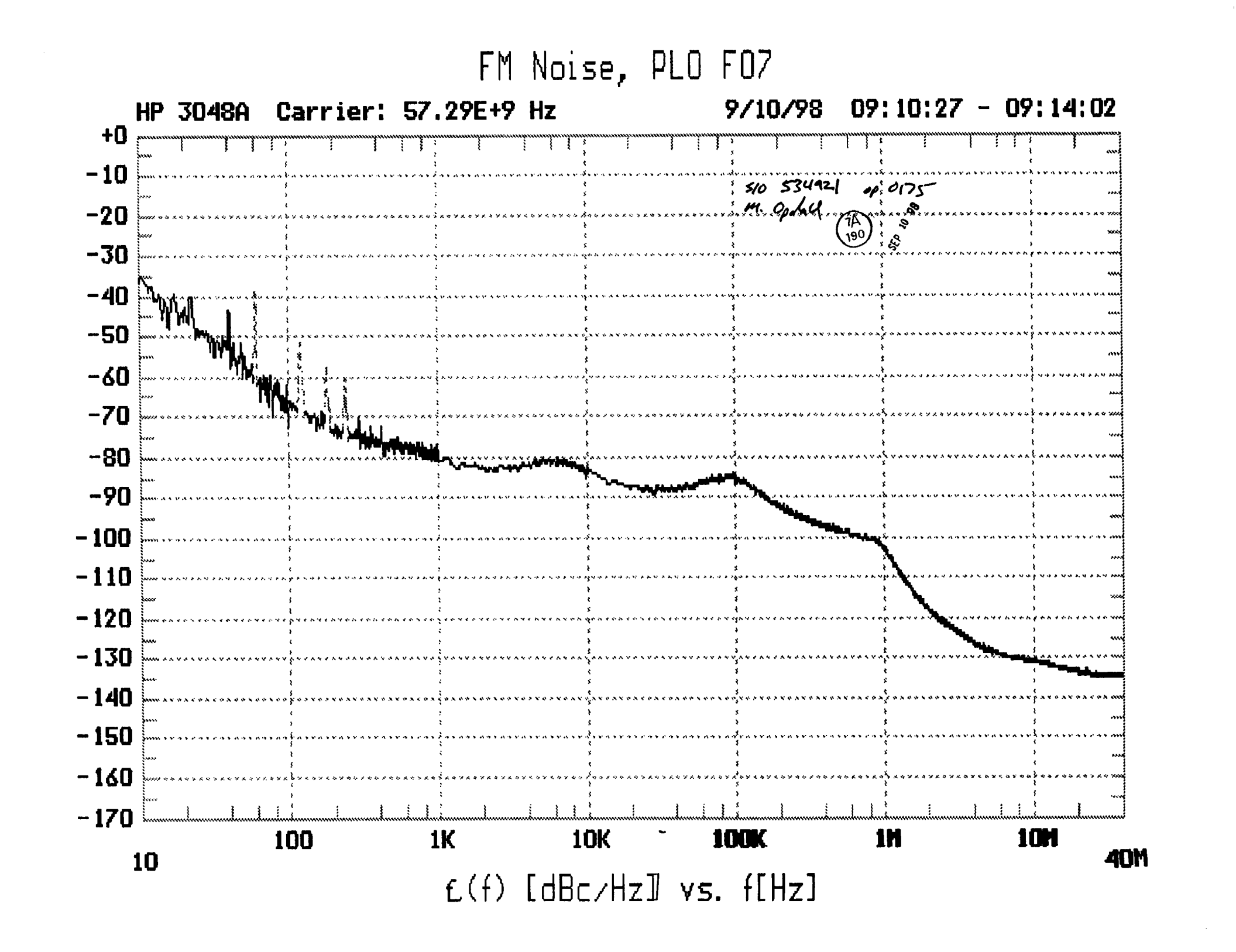

CL 30.0dB
VAVG 3
MKR -91.67dBm
RL 0dBm
10dB/
57.5767636GHz
MKR
57.5767636 GHz
-91.67 dBm
D
F08
0.8°C
9-9-98
CENTER 57.5767636GHz
SPAN 500.0kHz
RBW 3.0kHz
*VBW 1.0kHz
*SWP 2.00sec


CL 30.0dB
RL 0dBm
10dB/
MKR -69.50dBm
114.5806262GHz
MKR
114.5806262 GHz
-69.50 dBm
D
Fo8
0.8°C
9-9-98
CENTER 114.5806262GHz
SPAN 100.0kHz
*RBW 1.0kHz
*VBW 1.0kHz
SWP 250ms

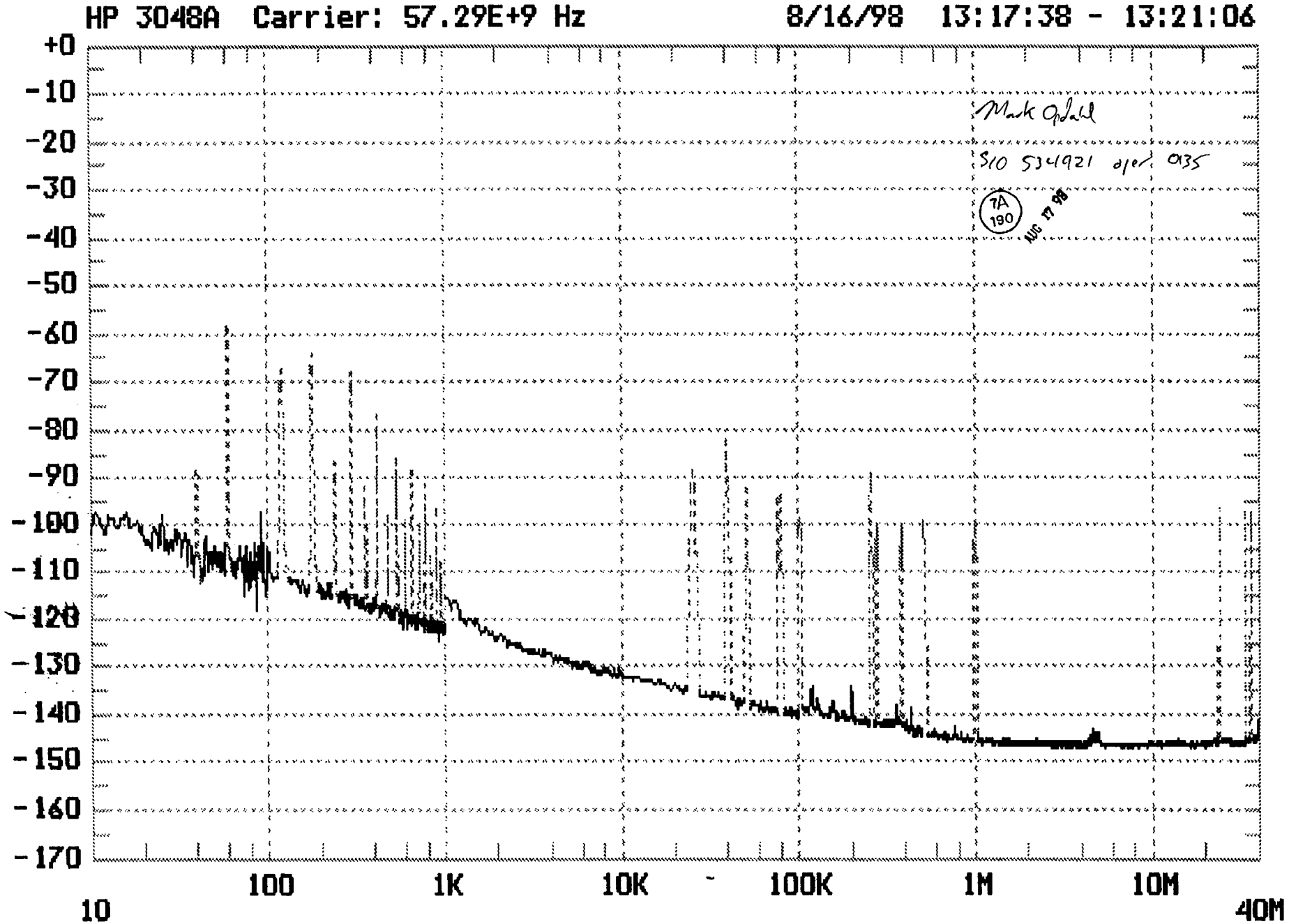
Section 6A: AM/FM Testing - F07

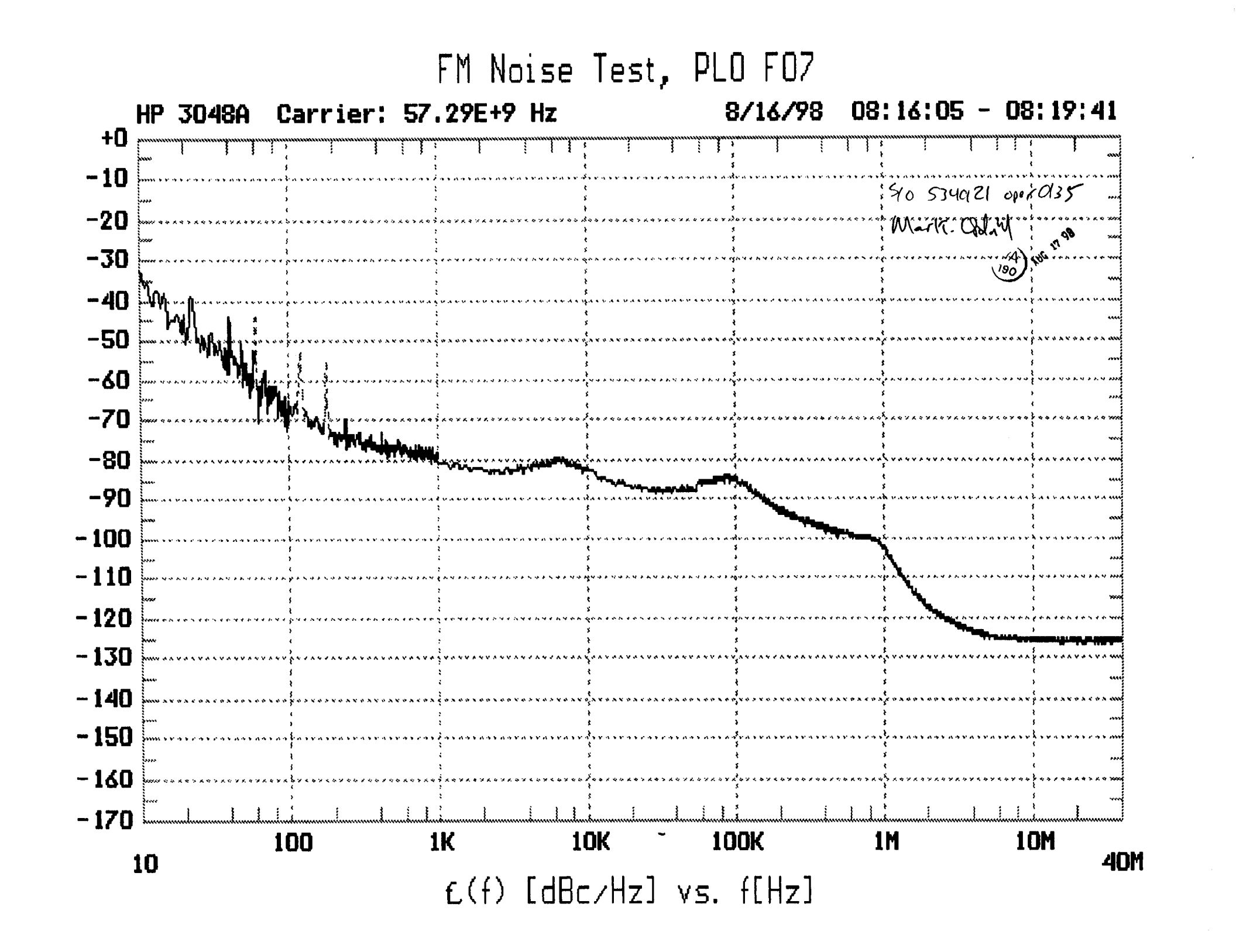
The following section contains the raw data from the AM/FM Noise Tests. Requirements are that the FM Noise level be less than -100 dBc/Hz for frequencies greater than 1 MHz. Requirements are that the AM Noise level be less than 130 dBc/Hz for all frequencies greater than 1 MHz. Both Tests Pass.


AM Noise, F07
HP 3048A Carrier: 57.29E+9 Hz
9/10/98 14:12:22 - 14:15:51
+0
-10
-20
-30
-40
-50
-60
-70
-80
-90
-100
-110
-120
-130
-140
-150
-160
-170
10
100
1K
10K
100K
1M
10M
40M
M(f) [dBc/Hz] vs. f[Hz]


FM Noise, PLO F07
HP 3048A Carrier: 57.29E+9 Hz
9/10/98 09:10:27 - 09:14:02
+0
-10
-20
-30
-40
-50
-60
-70
-80
-90
-100
-110
-120
-130
-140
-150
-160
-170
10
100
1K
10K
100K
1M
10M
40M
S/O 534921 op: 0175
M. Opdahl
7A
190
SEP 10 '98
£(f) [dBc/Hz] vs. f[Hz]

AM Noise Test, F07

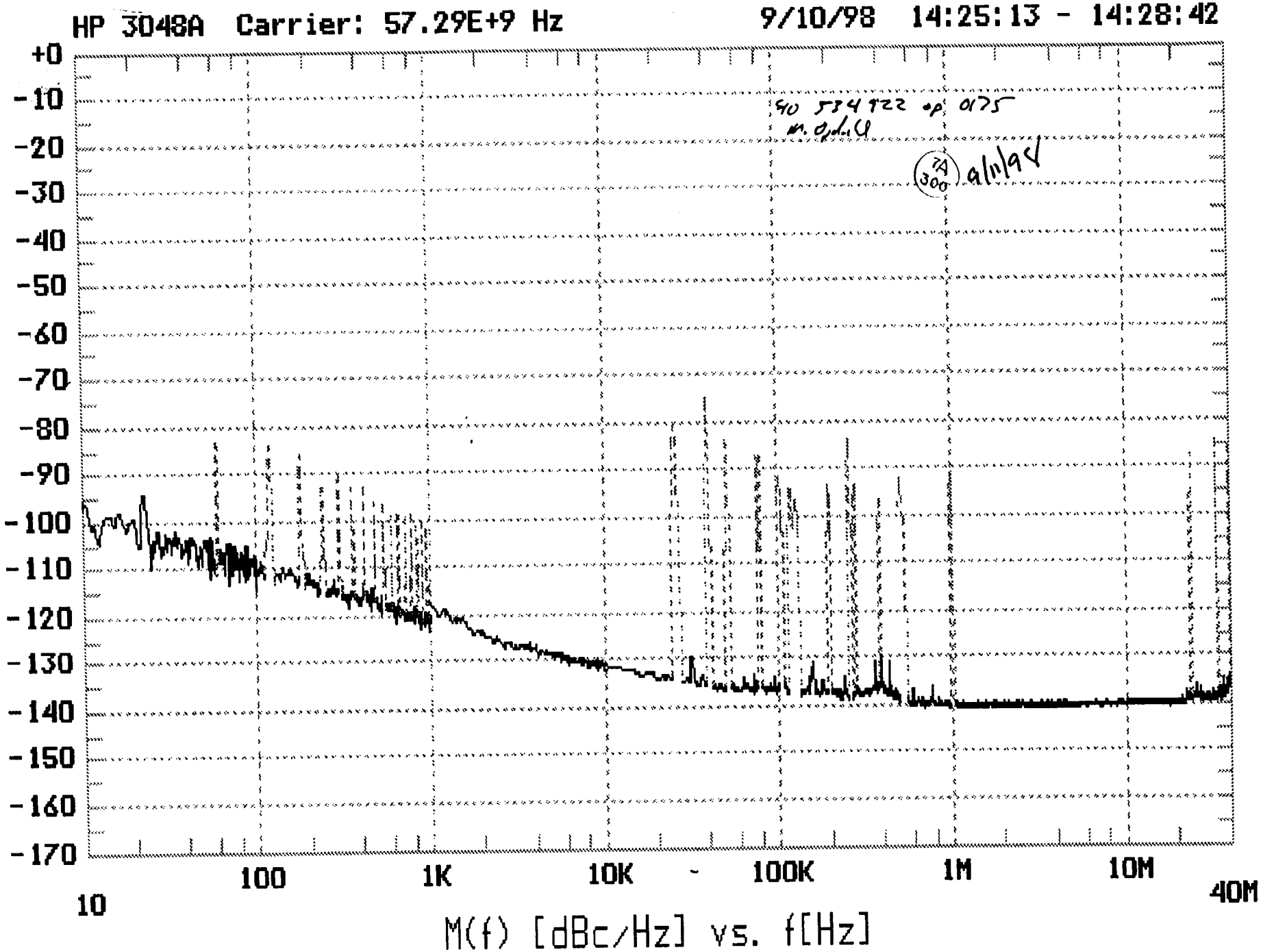



FM Noise Test, PLO F07
HP 3048A Carrier: 57.29E+9 Hz
8/16/98 08:16:05 - 08:19:41
+0
-10
-20
-30
-40
-50
-60
-70
-80
-90
-100
-110
-120
-130
-140
-150
-160
-170
10
100
1K
10K
100K
1M
10M
40M
£(f) [dBc/Hz] vs. f[Hz]
S/O 534021 opt 035
Mark Oatley
Aug 17 98
190

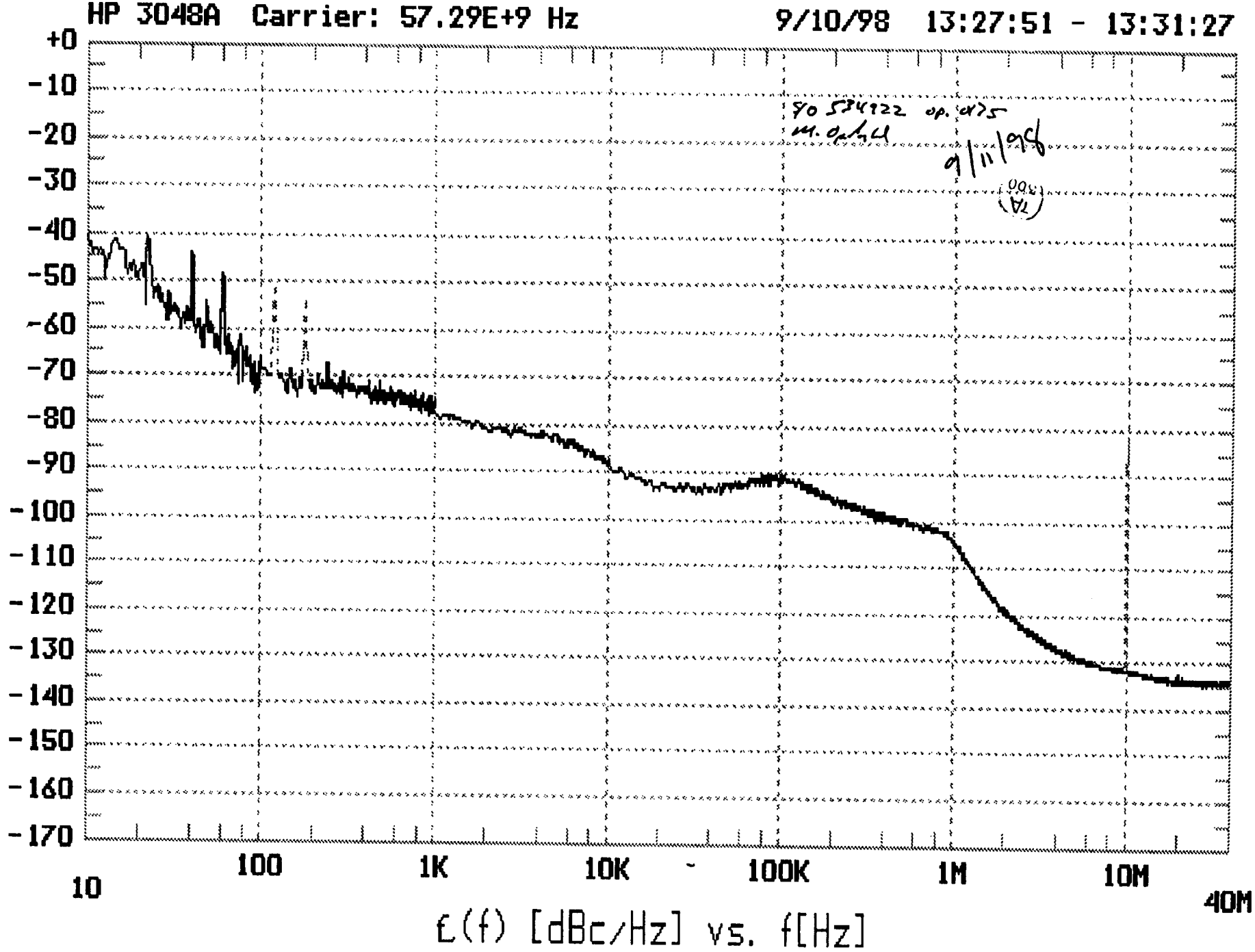
Section 6B: AM/FM - F08

The following section contains the raw data from the AM/FM Noise Tests. Requirements are that the FM Noise level be less than -100 dBc/Hz for frequencies greater than 1 MHz. Requirements are that the AM Noise level be less than 130 dBc/Hz for all frequencies greater than 1 MHz. Both Tests pass.

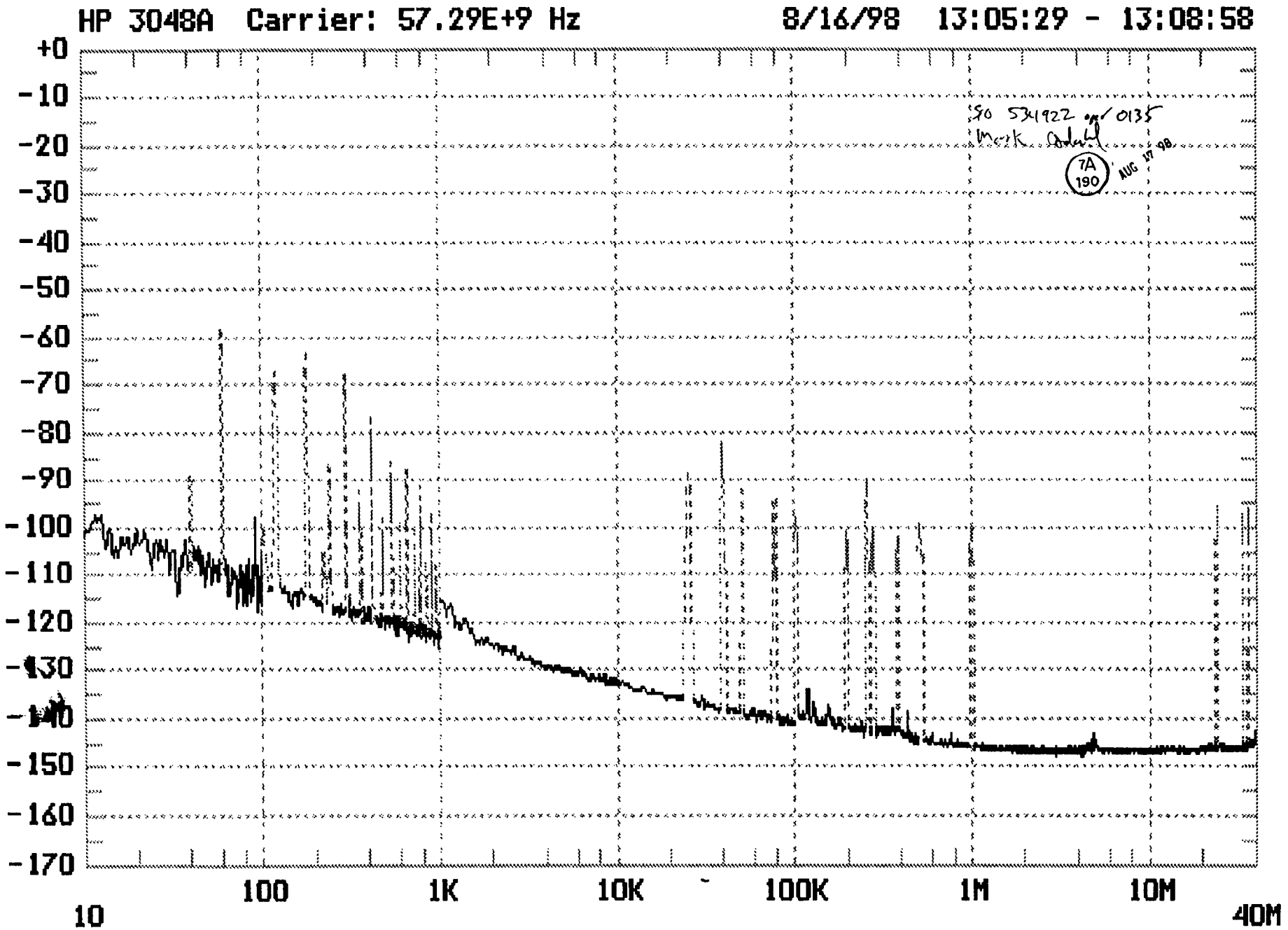
AM Noise, F08


HP 3048A Carrier: 57.29E+9 Hz
9/10/98 14:25:13 - 14:28:42
+0
-10
-20
-30
-40
-50
-60
-70
-80
-90
-100
-110
-120
-130
-140
-150
-160
-170
10
100
1K
10K
100K
1M
10M
40M
M(f) [dBc/Hz] vs. f[Hz]

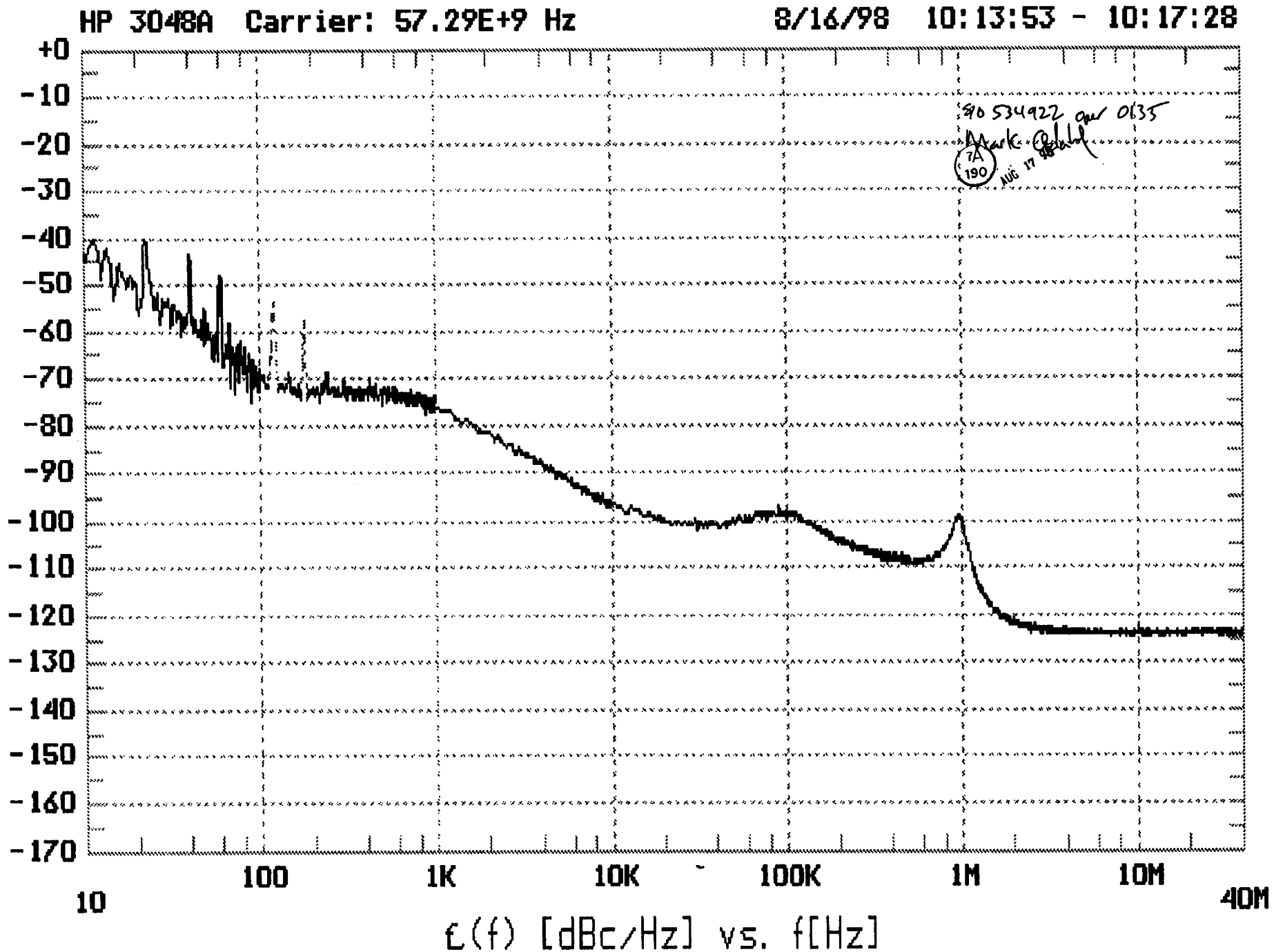
FM Noise, PLO F08



AM Noise Test, F08



FM Noise Test, PLO F08



Section 7.0

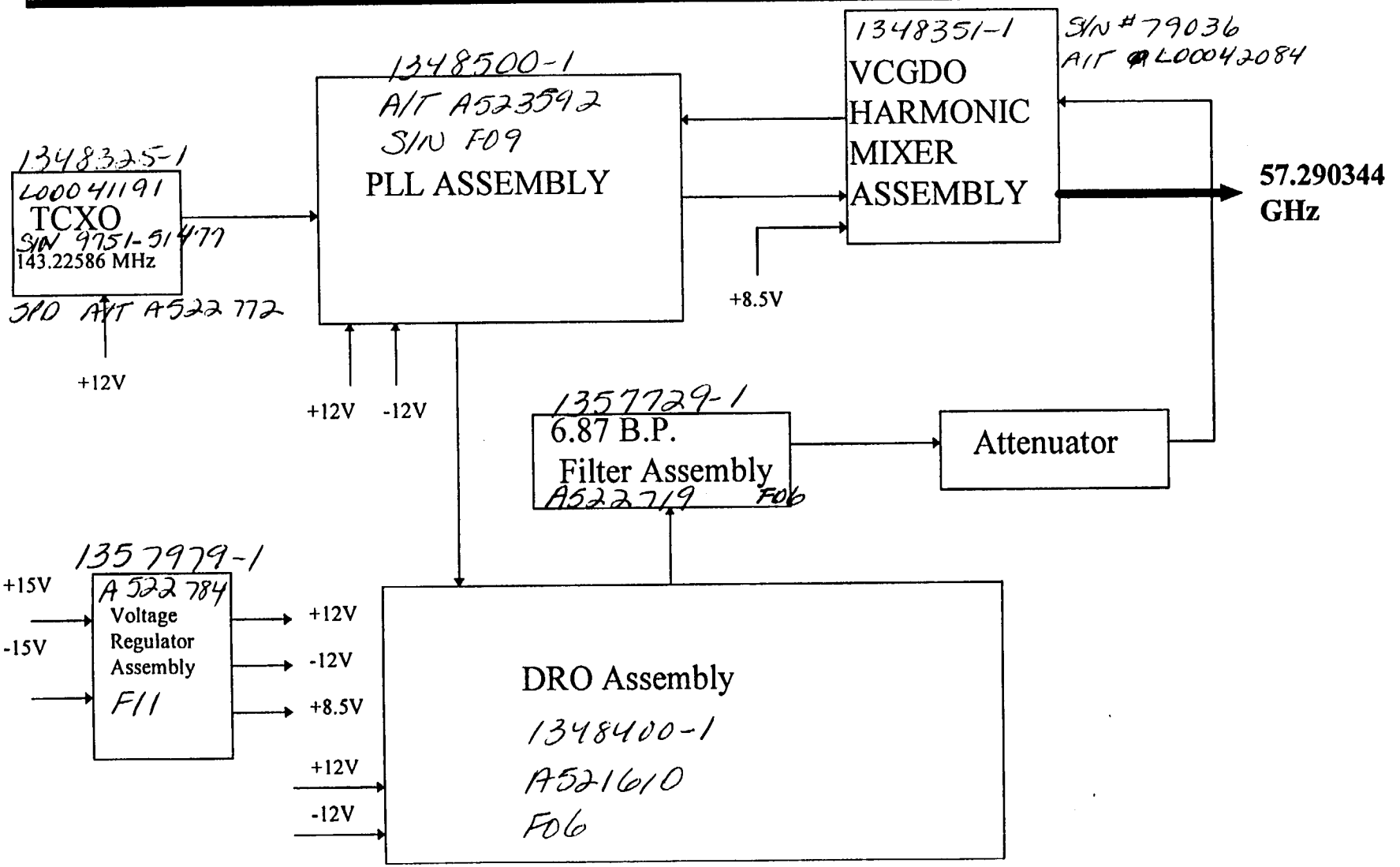
PLO AS BUILT CONFIGURATION

Part Name	Part Number	Serial Number	
		F07	F08
1. TCXO	1348325-1	51477	48690
2. VCGDO	1348351-1	79036	79031
3. PLL Assembly	1348500-1	F09	F08
4. DRO Assembly	1348400-1	F06	F09
5. Voltage Regulator	1357979-1	F11	F06

F07
S/O 534921

AMSU-A PLO Block Diagram

GENCORP AEROJET



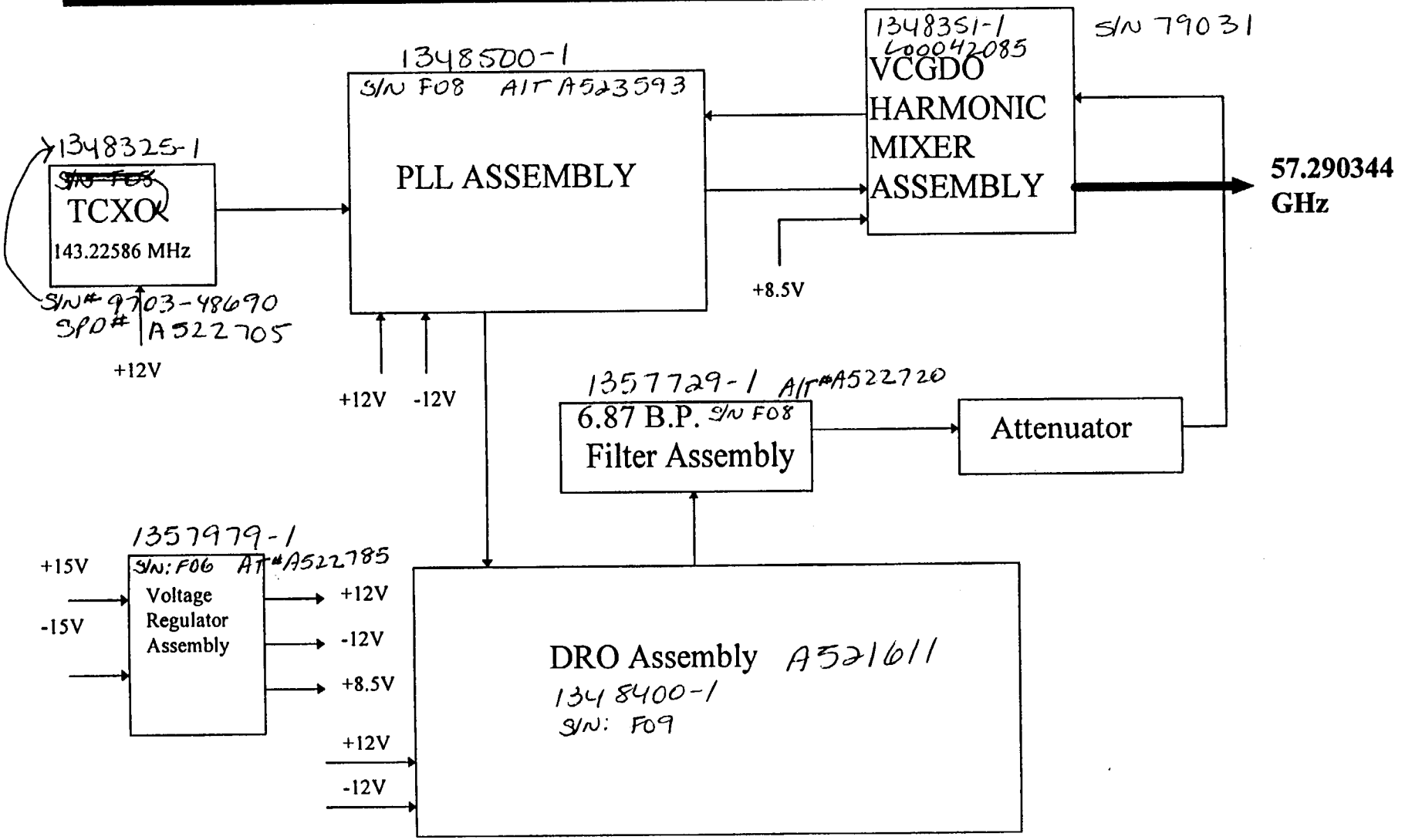
1348360-1

F08

SO#534922

AMSU-A PLO Block Diagram

GENCORP AEROJET



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1. AGENCY USE ONLY (*Leave blank*)	2. REPORT DATE	3. REPORT TYPE AND DATES COVERED

4. TITLE AND SUBTITLE	5. FUNDING NUMBERS
Integrated Advanced Microwave Sounding Unit-A (AMSU-A), Performance Verification Report	NAS 5-32314
6. AUTHOR(S) D. Pines	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Aerojet 1100 W. Hollyvale Azusa, CA 91702	8. PERFORMING ORGANIZATION REPORT NUMBER 11360 December 1998
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) NASA Goddard Space Flight Center Greenbelt, Maryland 20771	10. SPONSORING/MONITORING AGENCY REPORT NUMBER ---
11. SUPPLEMENTARY NOTES ---	
12a. DISTRIBUTION/AVAILABILITY STATEMENT ---	12b. DISTRIBUTION CODE ---

13. ABSTRACT (*Maximum 200 words*)

This is the Performance Verification Report, METSAT Phase Locked Oscillator Assembly, P/N 1348360-1, S/N's F07 and F08, for the Integrated Advanced Microwave Sounding Unit-A (AMSU-A).

14. SUBJECT TERMS	15. NUMBER OF PAGES
EOS Microwave System	16. PRICE CODE ---

17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT
Unclassified	Unclassified	Unclassified	SAR

NSN 7540-01-280-5500

Standard Form 298 (Rev. 2-89)
Prescribed by ANSI Std 239-18
298-102

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. AGENCY USE ONLY *(Leave blank)*

2. REPORT DATE
December 1998

3. REPORT TYPE AND DATES COVERED
Contractor Report

4. TITLE AND SUBTITLE
Integrated Advanced Microwave Sounding Unit-A (AMSU-A) Performance Verification Report, METSAT Phase Locked Oscillator Assembly P/N 1348360-1, S/N's F07 and F08

5. FUNDING NUMBERS
NAS5-32314

6. AUTHOR(S)
D. Pines

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS (ES)
Aerojet
1100 West Hollywood St.
Azusa, CA 91702

8. PEFORMING ORGANIZATION REPORT NUMBER
11360

9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS (ES)
National Aeronautics and Space Administration
Washington, DC 20546-0001

10. SPONSORING / MONITORING AGENCY REPORT NUMBER
CR–209218

11. SUPPLEMENTARY NOTES

12a. DISTRIBUTION / AVAILABILITY STATEMENT
Unclassified–Unlimited
Subject Category: 18
Report available from the NASA Center for AeroSpace Information,
7121 Standard Drive, Hanover, MD 21076-1320. (301) 621-0390.

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EOS; microwave system.

15. NUMBER OF PAGES
241

16. PRICE CODE

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