



INTRODUCTION

As required by §2.931 and §2.938 of 47 CFR, the following data is presented on behalf of the manufacturer, General Microwave Services, Inc., as verification of the compliance of the General Microwave STS-10000 Microwave Transmitter to the requirements of Parts 74 and 90 of 47 CFR. (All references are to the most current version of 47 CFR in effect.)

TEST SITE

All testing was conducted at MET Laboratories, Inc., 914 West Patapsco Avenue, Baltimore, Maryland 21230-3493. Radiated emissions measurements were performed on a ten meter open air test site (OATS). In accordance with 47 CFR, §2.948, a complete site description is on file with the FCC Laboratory Division as 31040/SIT/MET.

MEASUREMENT PROCEDURES

As required by §2.993, *field strength of spurious radiation measurements* were made in accordance with the general procedures of ANSI C63.4-1992 "Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9kHz to 40 GHz". The measurements were performed over the frequency range of 9 kHz to 26 GHz using the following equipment:

Frequency Range	Input Transducer	Measurement Instrumentation
9 kHz to 30 MHz	Loop Antenna	Spectrum Analyzer
30 MHz to 200 MHz	Biconical Antenna	Spectrum Analyzer
200 MHz to 1 GHz	Log Periodic Antenna	Spectrum Analyzer
1 GHz to 10 GHz	Double Ridged Guide Horn	Spectrum Analyzer
18 GHz to 26 GHz	Standard Gain Horn	Spectrum Analyzer

The measurements were made with the detector set for quasi-peak with a bandwidth of 120 kHz. A preliminary RF scan was performed in an RF-shielded enclosure. Final measurements were made on the OATS, as per §15.31(d).

As required by §2.985 of CFR 47, *RF power output measurements* were made at the RF output terminals using a spectrum analyzer. This test was performed with the carrier unmodulated.



MEASUREMENT PROCEDURES (continued)

As required by §2.995 of CFR 47, *frequency tolerance measurements* were made over the temperature range of -30°C to $+50^{\circ}\text{C}$, and variations of the primary voltage between 85% and 115% (of the rated supply voltage). The frequency measurements were made using direct input to a spectrum analyzer, or with a current probe placed around or near the transmitting antenna, as the input to the analyzer.

Power supply variations were simulated using a DC power supply. Climatic control was accomplished using an environmental simulation chamber. The temperature was first lowered to -30°C and then raised hourly in 10° increments. The unit remained in the chamber during temperature transitions and during the measurement process.

As required by §2.989 of CFR 47, *occupied bandwidth measurements* were made by measuring the unmodulated carrier and comparing this measurement to the modulated carrier. If front end limiting circuitry is provided, a modulation meter was used to determine the 100% modulation level. If no limiting circuitry exists in the front end, the modulation amplitude was set per the manufacturer's instructions for 100% to allow for front end sensitivity of the modulation circuit. The unit was then exercised using signal types required by §2.989.

As required by §2.991 of CFR 47, *spurious emissions at antenna terminal measurements* were made at the RF output terminals using a spectrum analyzer set for a 100 kHz bandwidth. This test was performed with the carrier unmodulated. For each of the harmonic spurs measurements out to the tenth harmonic, high pass/bandpass filters were used to eliminate any possible saturation effects from the fundamental transmit frequency.



INSTRUMENTATION

Radiated emissions measurements were made using a Hewlett-Packard 6563A Spectrum Analyzer with an EMCO Model 3104C biconical antenna for the range 30 MHz - 200 MHz, an EMCO model 3146A log periodic antenna for the range 200 MHz - 1 GHz, an EMCO model 3115 double-ridge guided horn antenna for the range 1 GHz - 18 GHz, and a Waveline model 899 standard gain horn antenna for the range 18 GHz - 27 GHz.

Carrier field strength measurements, when necessary, were made using the equipment described above.

Occupied bandwidth measurements were made using a Hewlett-Packard 6563A Spectrum Analyzer. Video signals were provided by an NTSC video signal generator, audio signals were provide by an audio frequency signal generator.

TEST CONFIGURATION

The Microwave Transmitter was configured in accordance with the manufacturer's instructions and operated in a manner representative of the typical usage of the equipment. During all testing, system components were manipulated within the confines of typical usage to maximize each emission.

Video modulation was provided by an NTSC signal generator for all test which required modulated signals. Audio signals were injected into both audio channels in parallel at the frequencies and amplitudes required by each measurement procedure.

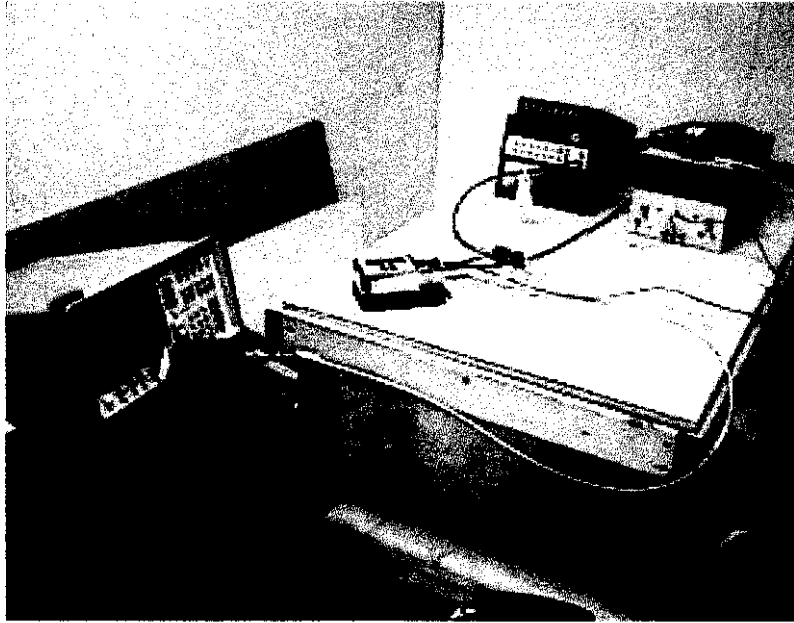
Test Configuration List

Equipment Type	Manufacturer	Model #	Serial #	Cabling
EUT	General Microwave	STS-10000	n/a	as below
Audio Generator	HP	33120A	U534008074	0.5m shielded 1/4" to banana
DC Power Supply	HP	6002A	1802A02498	1m unshielded to EUT
RF Load	Microwave Devices	634N	A441	1m shielded to EUT
NTSC Generator	Tektronics	TSG-120	B010648	1m 75ohm shielded coax to EUT



Photograph of Occupied Bandwidth and Power Output Test Configuration

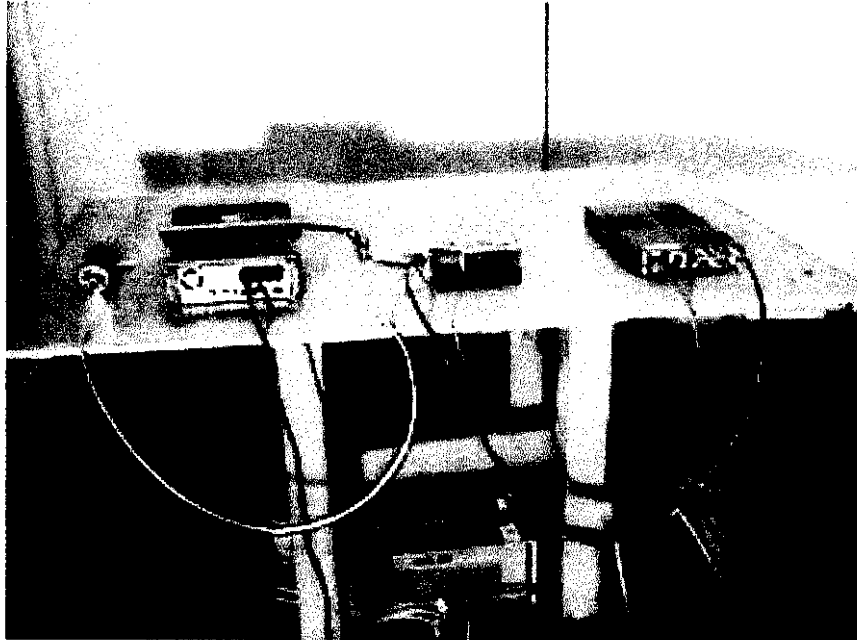
General Microwave STS-10000 Microwave Transmitter





Photograph of Radiated Emissions Test Configuration

General Microwave STS-10000 Microwave Transmitter



**SUBJECT:** Radiated Emissions

FCC Part 74

MET REPORT:**MFG:****TESTED BY:****TEST DATE:**

EMI894

General Microwave

Kenneth Bass

23 March 1998

EUT: Microwave Transmitter**MODEL:** STS-10000**TECHNICAL SPECIFICATION:** 2.993**Carrier Emissions Limit:**

20 Watts

Spurious Emissions Limits:100% removed from carrier frequency ≤ 25 dB150% removed from carrier frequency ≤ 35 dB $>150\%$ removed from carrier frequency $\leq 43 + 10 \log_{10}(\text{carrier power})$ dB

Frequency (MHz)	Azimuth ($^{\circ}$ CCW-O $^{\circ}$ =EUT facing ant.)	Polarity	Height (m)	Raw Amplitude (dBuV)	Ant.Cor. Factor (db)	Cable Loss (db)	Corrected Amplitude (dBuV/m)	Limit (dBuV/m)
55.40	120	H	1.5	14.2	11.3	1.2	26.70	84.86
55.40	180	V	1.5	14.8	11.6	1.2	27.60	84.86
110.30	180	H	1.5	13.3	12.4	.2	25.90	84.86
110.30	270	V	1.5	14.1	12.7	.2	27.00	84.86
111.60	180	H	1.3	13.6	12.4	.2	26.20	84.86
111.60	90	V	1.3	14.1	12.7	.2	27.00	84.86
124.90	90	H	1.5	13.3	13.5	.3	27.10	84.86
124.90	90	V	1.5	13.2	14.4	.3	27.90	84.86
333.3	180	H	1.3	12.7	15.5	2.4	30.60	84.86
333.3	180	V	1.3	12.9	15.1	2.4	30.40	84.86
458.0	90	H	1.5	12.8	19.0	1.1	32.90	84.86
458.0	180	V	1.5	12.9	17.6	1.1	31.60	84.86

Note: The EUT was tested at 3m.

Equipment meets the specifications of 2.985; 2.993; 74.636; 74.637(a) ; 90.69



Frequency (MHz)	Azimuth (°CCW-O°=EUT facing ant.)	Polarity	Height (m)	Raw Amplitude (dBuV)	Ant.Cor. Factor (db)	Cbl/flt Loss (db)	Other	Corrected Amplitude (dBuV/m)	Limit (dBuV/m)
7,375.50	45	H	1.0	49.50	38.20	1.0	-9.54	79.16	84.86
7,375.50	45	V	1.0	47.40	38.40	1.0	-9.54	77.26	84.86
9,834.00	45	H	1.0	37.17	39.20	1.0	-9.54	77.37	84.86
9,834.00	45	V	1.0	29.17	37.20	1.0	-9.54	67.37	84.86
12,292.00	45	H	1.0	48.17	39.00	1.0	-9.54	78.63	84.86
12,292.00	45	V	1.0	47.83	41.00	1.0	-9.54	80.29	84.86
19,668.00	45	H	1.0	12.00	33.09	1.5	-9.54	37.05	84.86
19,668.00	45	V	1.0	6.50	33.09	1.5	-9.54	31.55	84.86

Note: The EUT was tested at 1m. The data has been corrected for comparison with the 3m limit using the formula: $20\log(1m/3m)$ as expressed in the 'Other' column.

Equipment meets the specifications of 2.985; 2.993; 74.636; 74.637(a) ; 90.69

**SUBJECT:** RF Power Output

FCC Part 74 ; 90

MET REPORT:**MFG:****TESTED BY:****TEST DATE:**

EMI894

General Microwave

Kenneth Bass

29 OCT 1997

EUT: Microwave Transmitter**MODEL:** STS-10000**TECHNICAL SPECIFICATION:** 2.985; 74.637(a) ; 90.69

Comment: Equipment complies with Section 2.985 and 74.636. The transmitter power which will be authorized will be 10 W. Transmitters designed for other types of modulation - when modulated by an appropriate signal of sufficient amplitude to be representative of the type of service in which used. A description of the input signal is supplied on page 12.

Plots appears on following pages.

For the Low Power mode;

$$P_{o(meas)} = 141 \text{ dB}\mu\text{V}$$

Solving for power (W) gives ;

$$141/20 = 7.05$$

$$10^{7.05} = 11,220,184.54 \mu\text{V} \times 10^{-6} = 11.22\text{V}$$

$$\text{and } P_{o(W)} = (11.22\text{V})^2 / 50 = 2.517 \text{ W}$$

For High Power mode;

$$P_{o(meas)} = 146 \text{ dB}\mu\text{V}$$

Solving for power (W) gives ;

$$146/20 = 7.30$$

$$10^{7.30} = 19,952,623.10 \mu\text{V} \times 10^{-6} = 19.95\text{V}$$

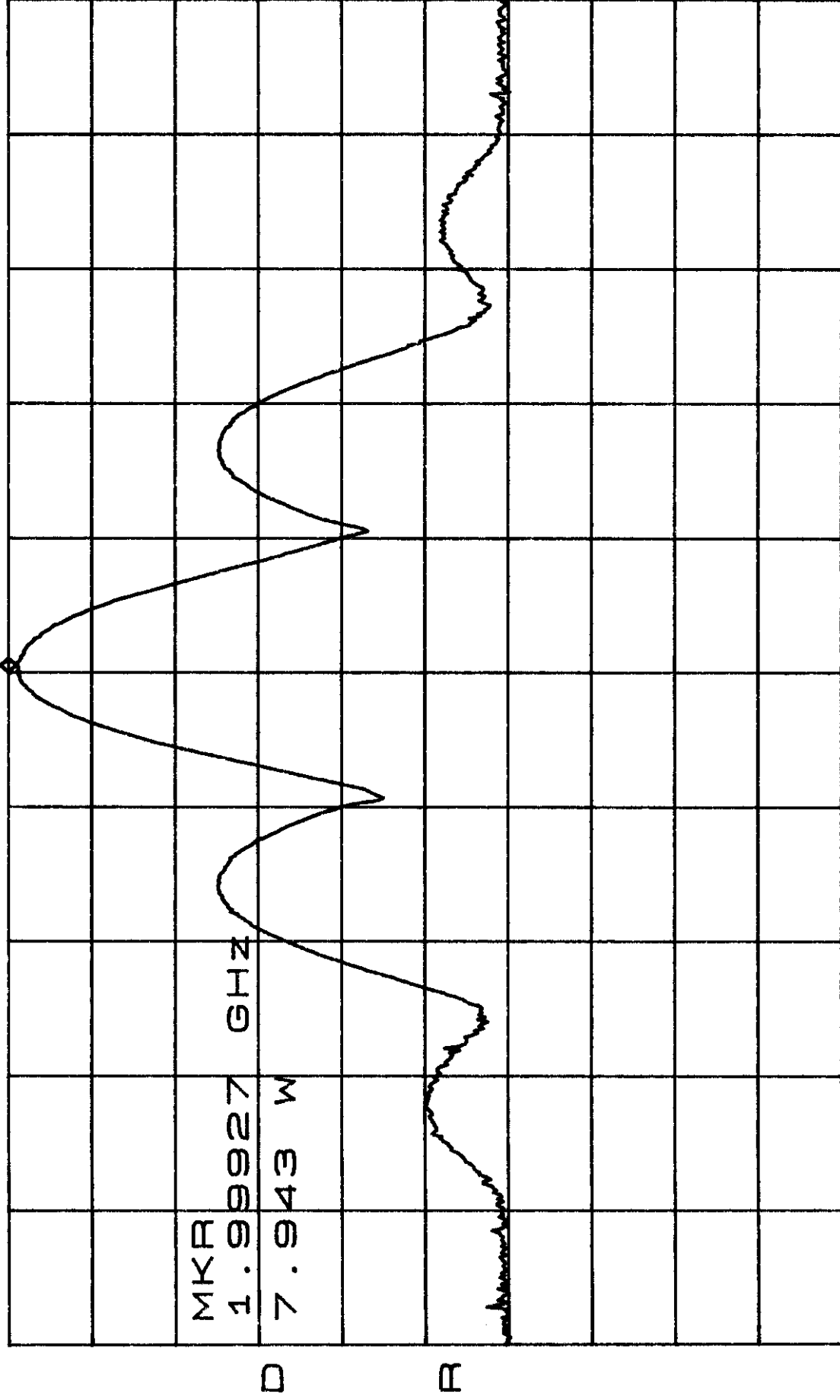
$$\text{and } P_{o(W)} = (19.95\text{V})^2 / 50 = 7.96 \text{ W}$$

*ATTEN 20dB

RL 10.00W

MKR 7.943W

1.99927GHz



CENTER 1.99907GHz

*RBW 2.0MHz

*VBW 3.0MHz

SPAN 40.00MHz

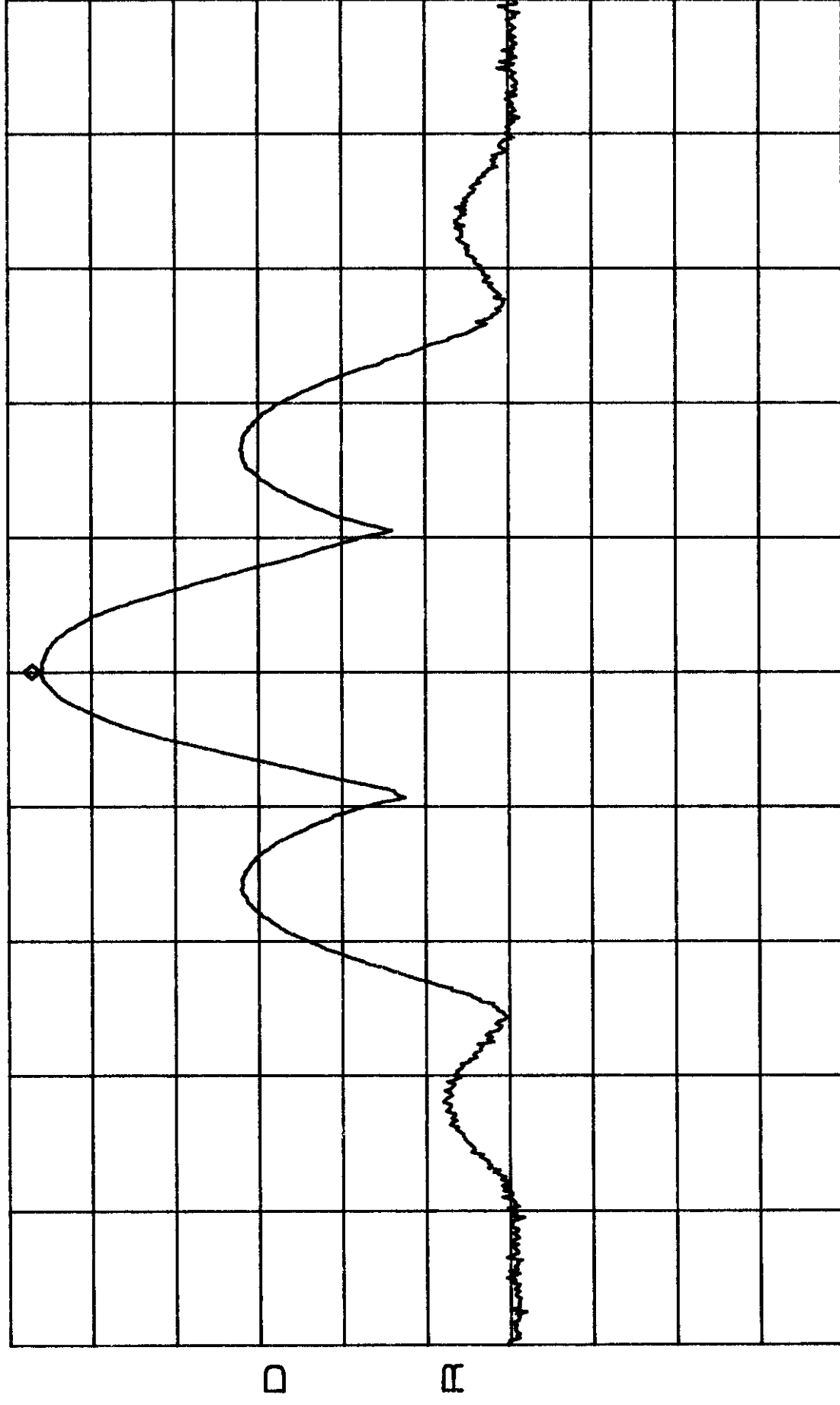
SWP 50ms

*ATTEN 20dB

RL 10.00W

MKR 4.140W

10dB/ 1.99907GHZ



CENTER 1.99907GHZ

SPAN 40.00MHZ

*RBW 2.0MHZ

*VBW 3.0MHZ

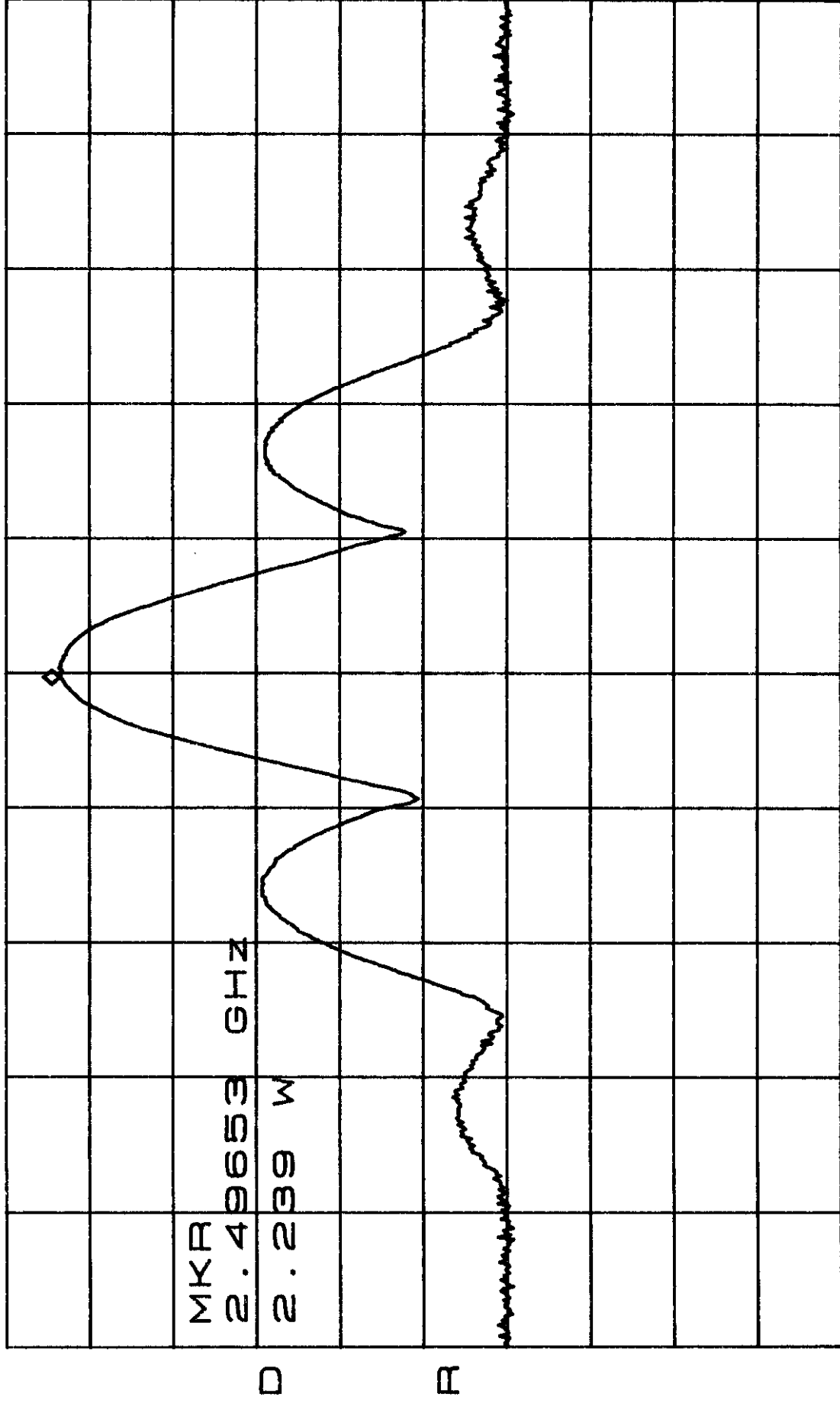
SWP 50ms

*ATTEN 20dB

RL 10.00W

MKR 2.239W

10dB/ 2.49653GHz



CENTER 2.49666GHz

SPAN 40.00MHz

*RBW 2.0MHz

*VBW 3.0MHz

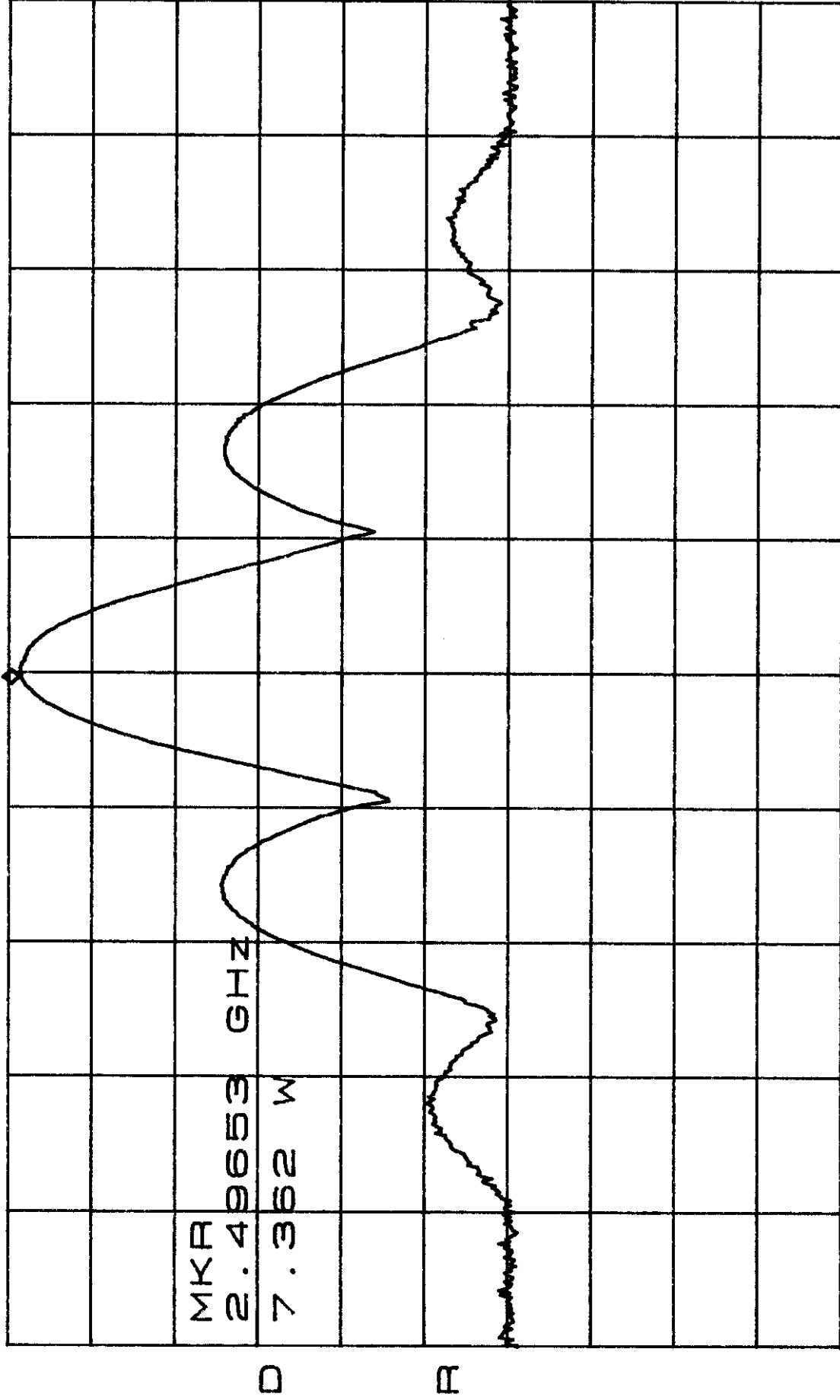
SWP 50ms

*ATTEN 20dB

RL 10.00W

MKR 7.362W

10dB/ 2.49653GHz



MKR 2.49653 GHz

7.362 W

CENTER 2.49666GHz

SPAN 40.00MHz

*RBW 2.0MHz

*VBW 3.0MHz

SWP 50ms



SUBJECT: Antenna Conducted
Spurious Emissions
FCC Part 74 ; 90

MET REPORT: EMI894
MFG: General Microwave
TESTED BY: Kenneth Bass
TEST DATE: 10 MAR 1998

TECHNICAL SPECIFICATION: 2.991; 74.637

EUT: Microwave Transmitter
MODEL: STS-10000

Comment: Equipment complies with Section 2.991 and 74.637(a). Emissions outside of the allowable bandwidth are attenuated at least $43 + 10_{\log}(\text{carrier power})$ below the level of the unmodulated carrier.

$$43 + 10_{\log}(\text{carrier power}) = 43 + 10 \log (10) = 53 \text{ dBc}$$

Since $10\text{W} = 40 \text{ dBm}$;

$$40 \text{ dBm} - 53 \text{ dB} = -13 \text{ dBm}$$

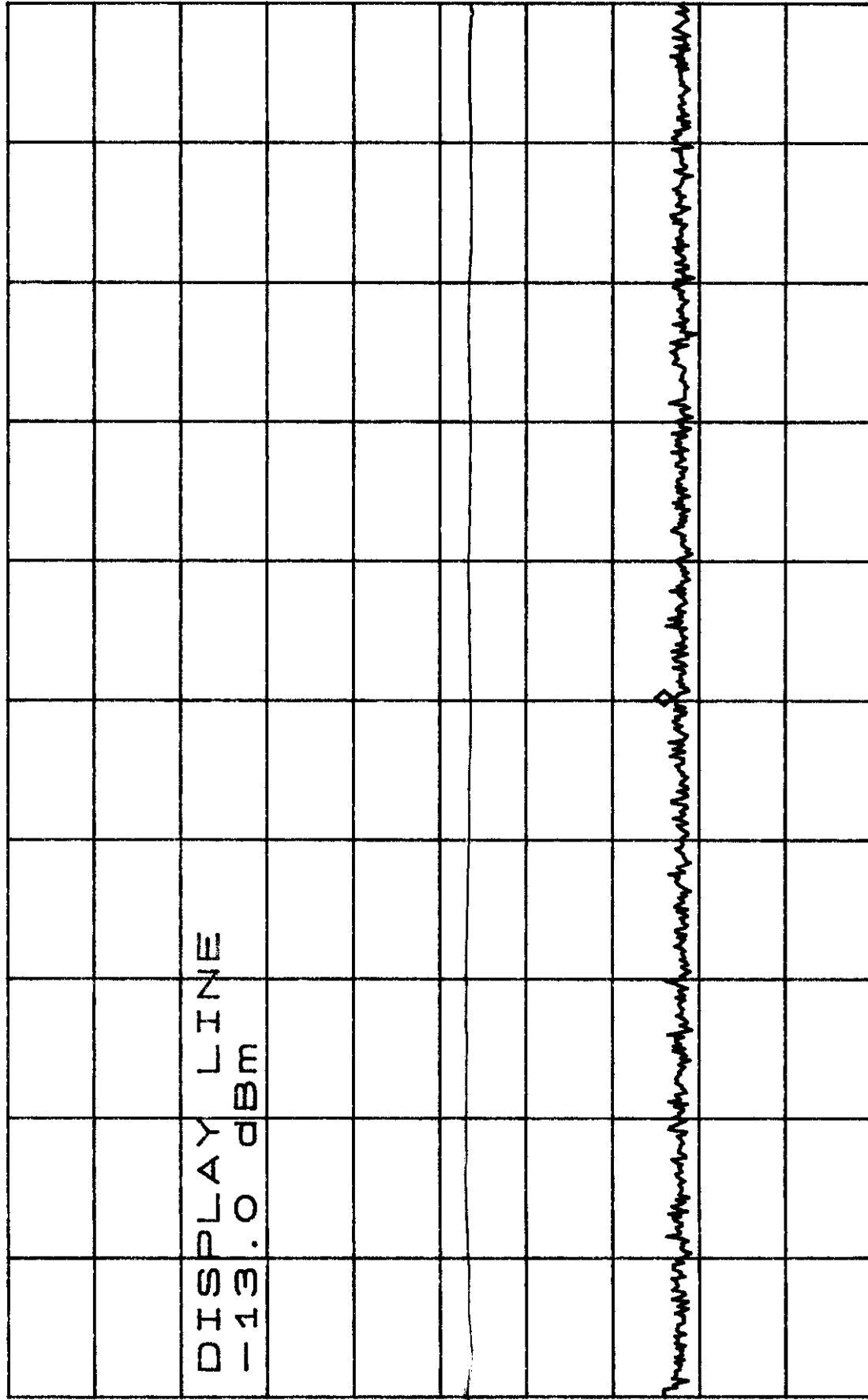
Plots appear on following pages.

*ATTEN 20dB

RL 40.0dBm

MKR -37.00dBm

10dB/
10.04MHz



START 10KHZ

STOP 20.00MHz

*RBW 10KHZ

*VBW 100KHZ

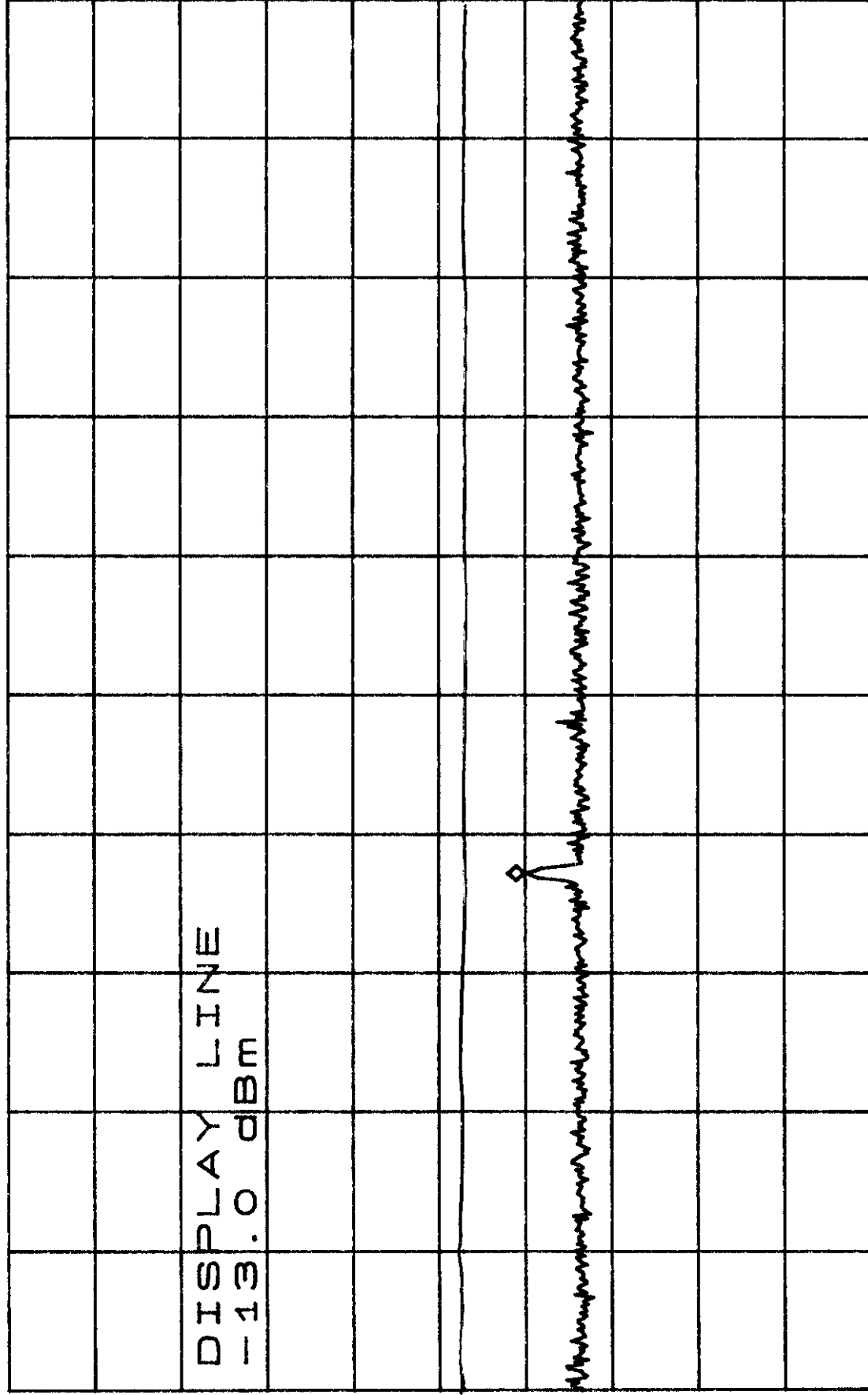
SWP 500ms

*ATTEN 20dB

RL 40.0dBm

MKR -20.00dBm

10dB/ 43.45MHz



D

R

START 10.00MHz

RBW 1.0MHz

STOP 100.00MHz

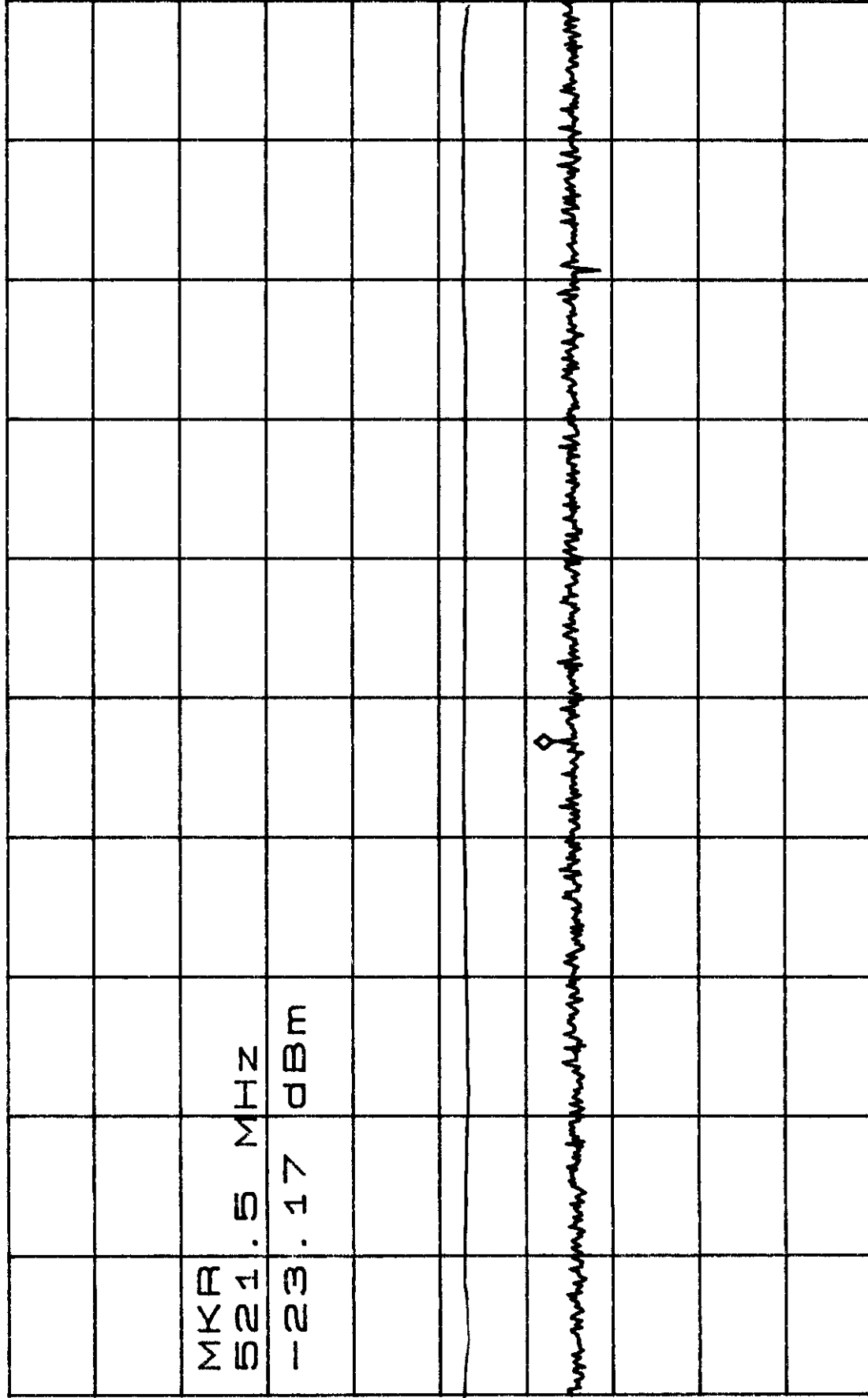
VBW 1.0MHz SWP 50ms

*ATTEN 20dB

RL 40.0dBm

MKR -23.17dBm

521.5MHz / 10dB



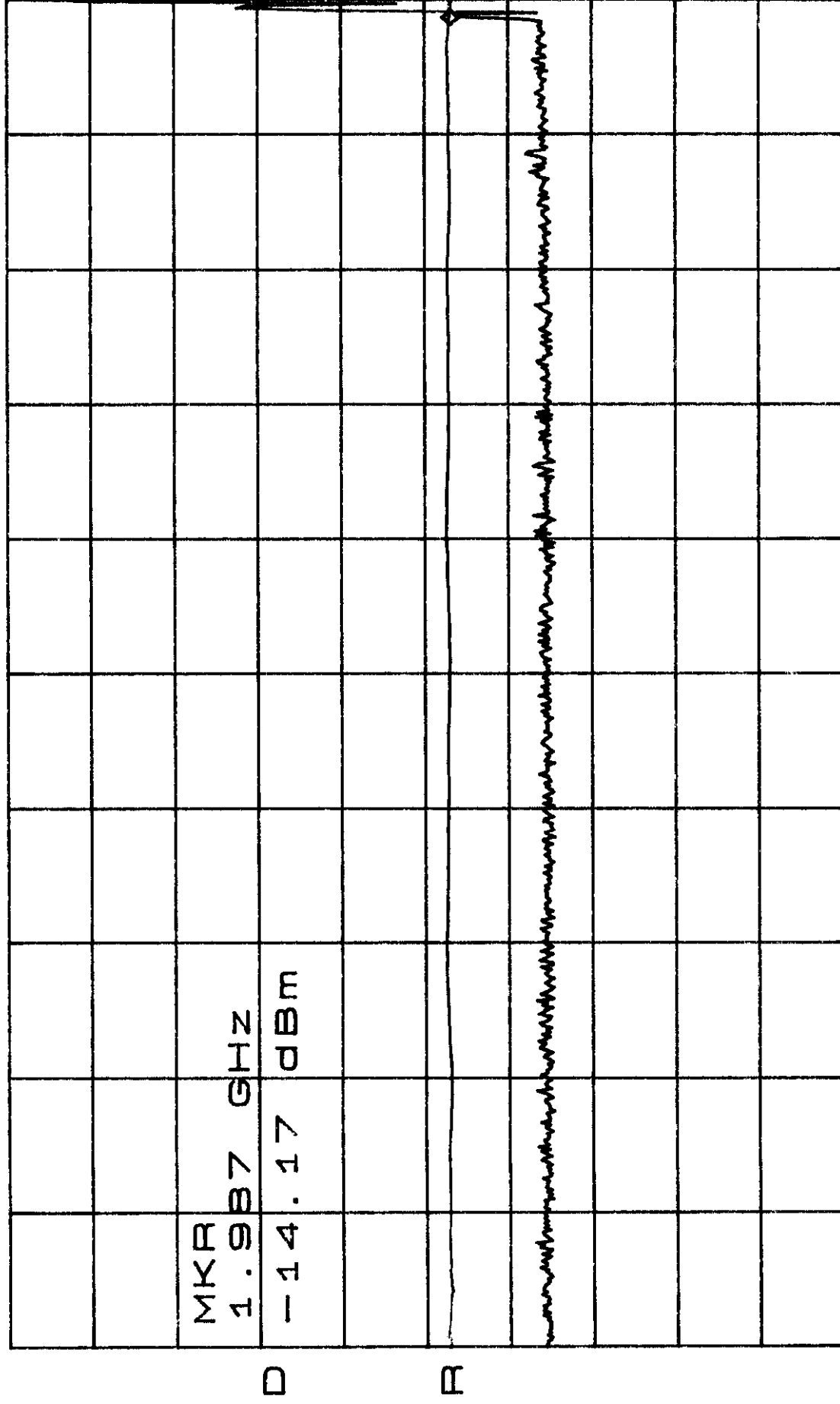
START 100.0MHz STOP 1.0000GHz
RBW 1.0MHz VBW 1.0MHz SWP 50ms

*ATTEN 20dB

RL 40.0dBm

MKR -14.17dBm

10dB/ 1.987GHz



START 1.000GHz

RBW 1.0MHz

STOP 2.000GHz

VBW 1.0MHz SWP 50ms

*ATTEN 40dB

RL 50.00dBm

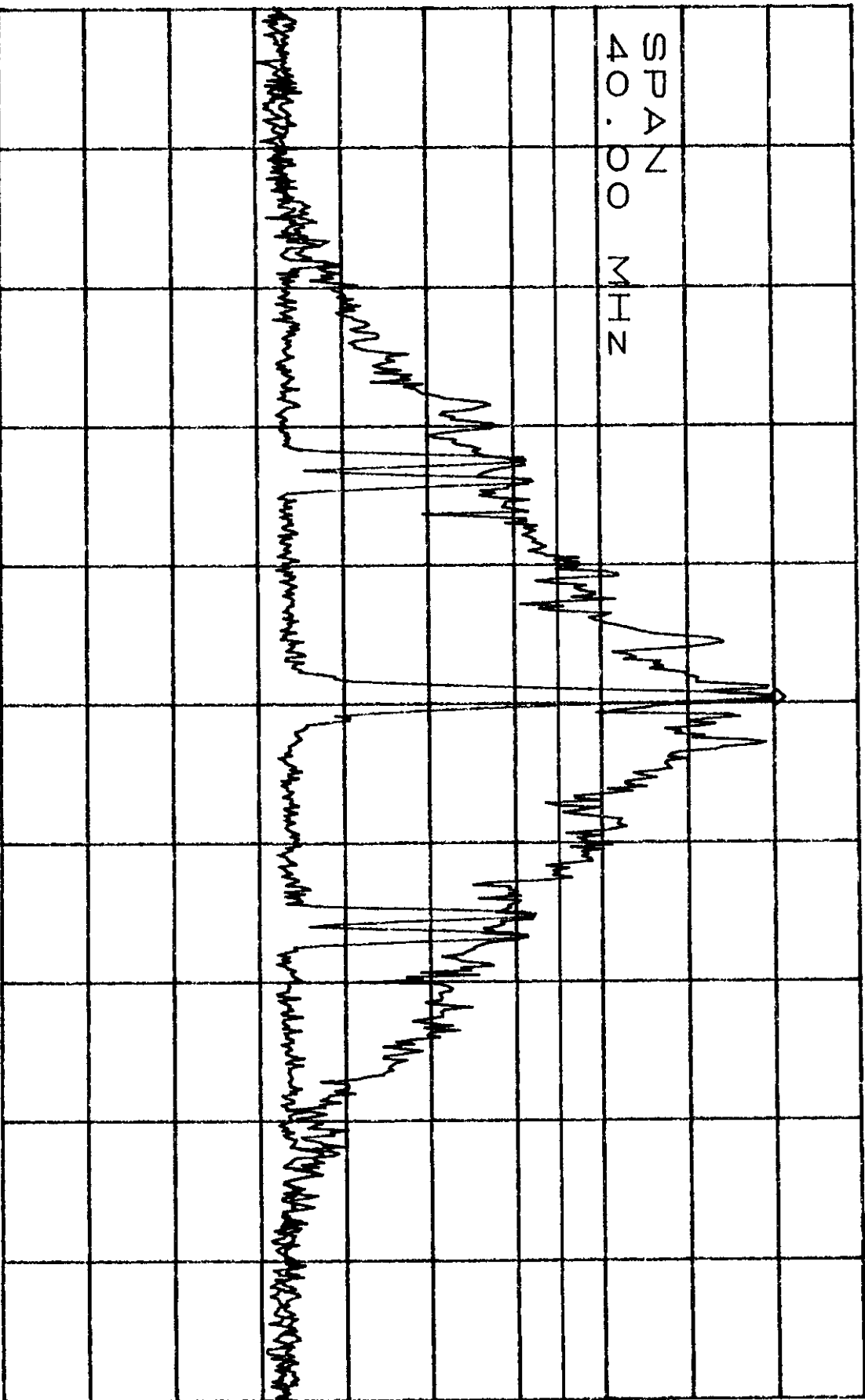
10dB/

MK 1 39.33dBm

SPAN
40.00 MHz

D

R



CENTER 1.99917GHz

SPAN 40.00MHz

*RBW 100kHz

*VBW 100kHz

SMP 50ms

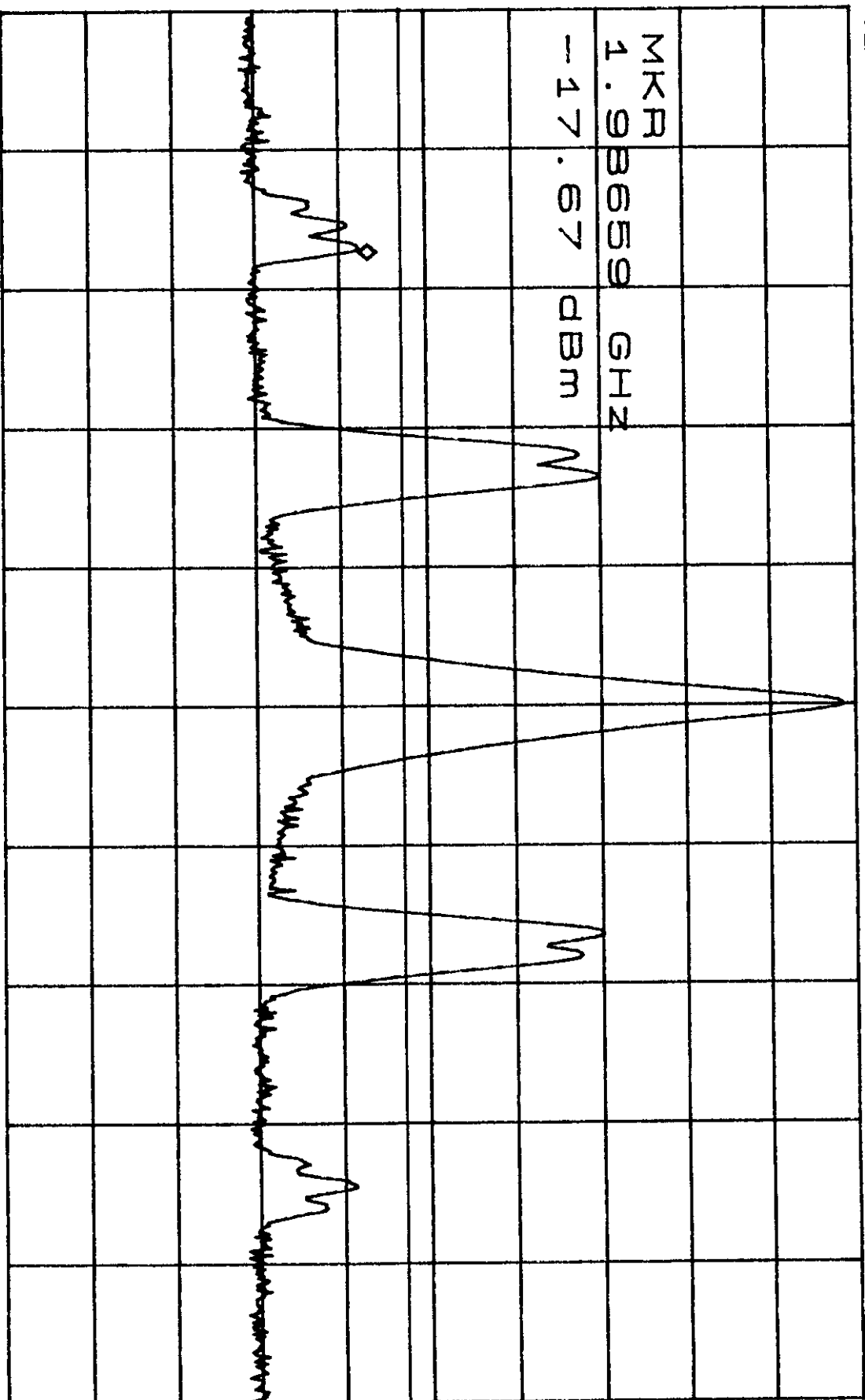
*ATTEN 20dB
RL 40.0dBm

10dB/

MKR -17.67GHz

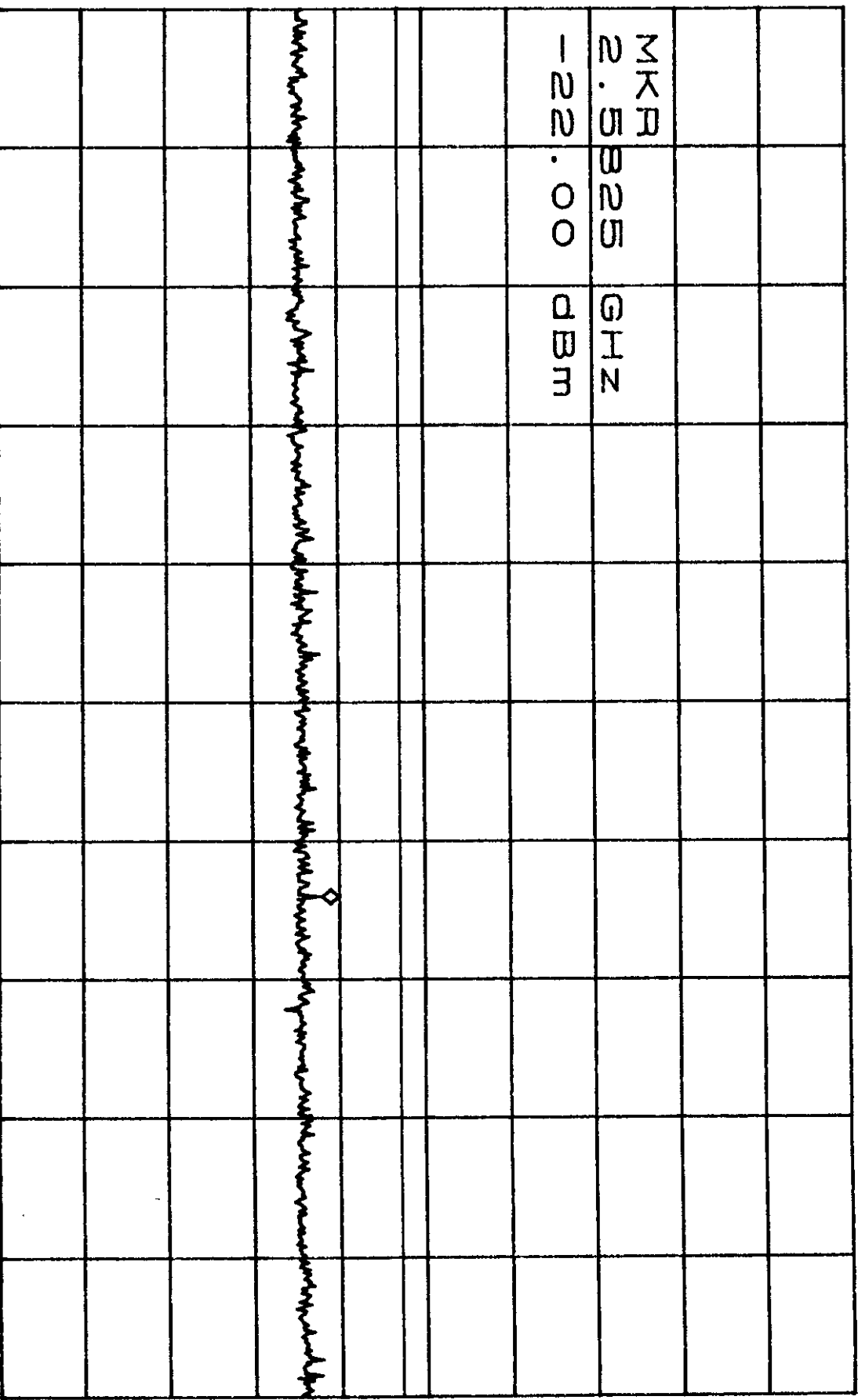
MKR
1.98659 GHz
D -17.67 dBm

R



START 1.98000GHz STOP 2.01803GHz
RBW 300Hz VBW 300Hz SWP 50ms

*ATTEN 20dB MKR -22.00dBm
 RL 40.00dBm 10dB/ 2.5825GHz



START 2.0180GHz STOP 2.9000GHz
 RBW 1.0MHz VBW 1.0MHz SWP 50ms

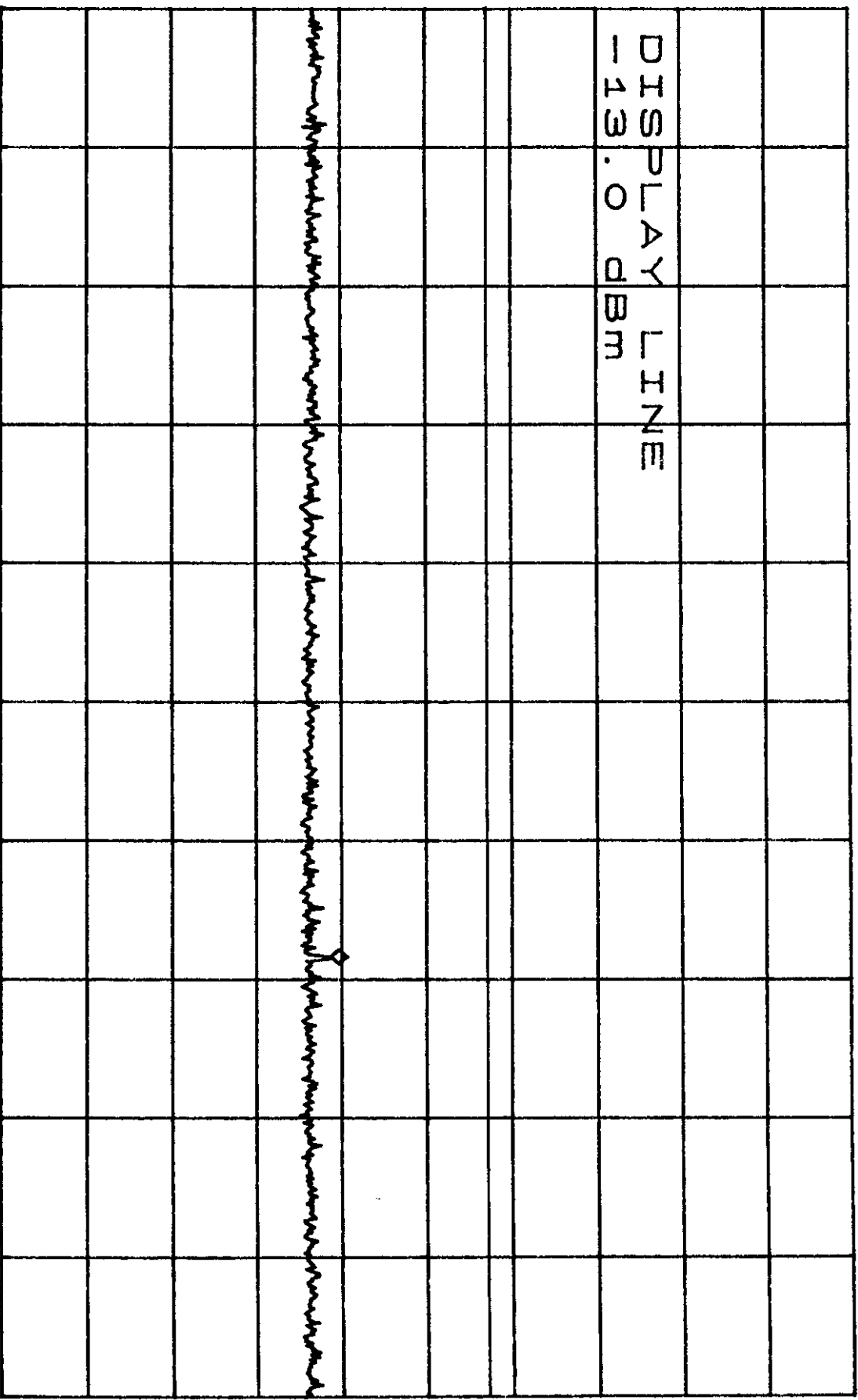
*ATTEN 10dB

MARK -34.330BM

RL 30.0dBm

10dB/

3.993GHz



D

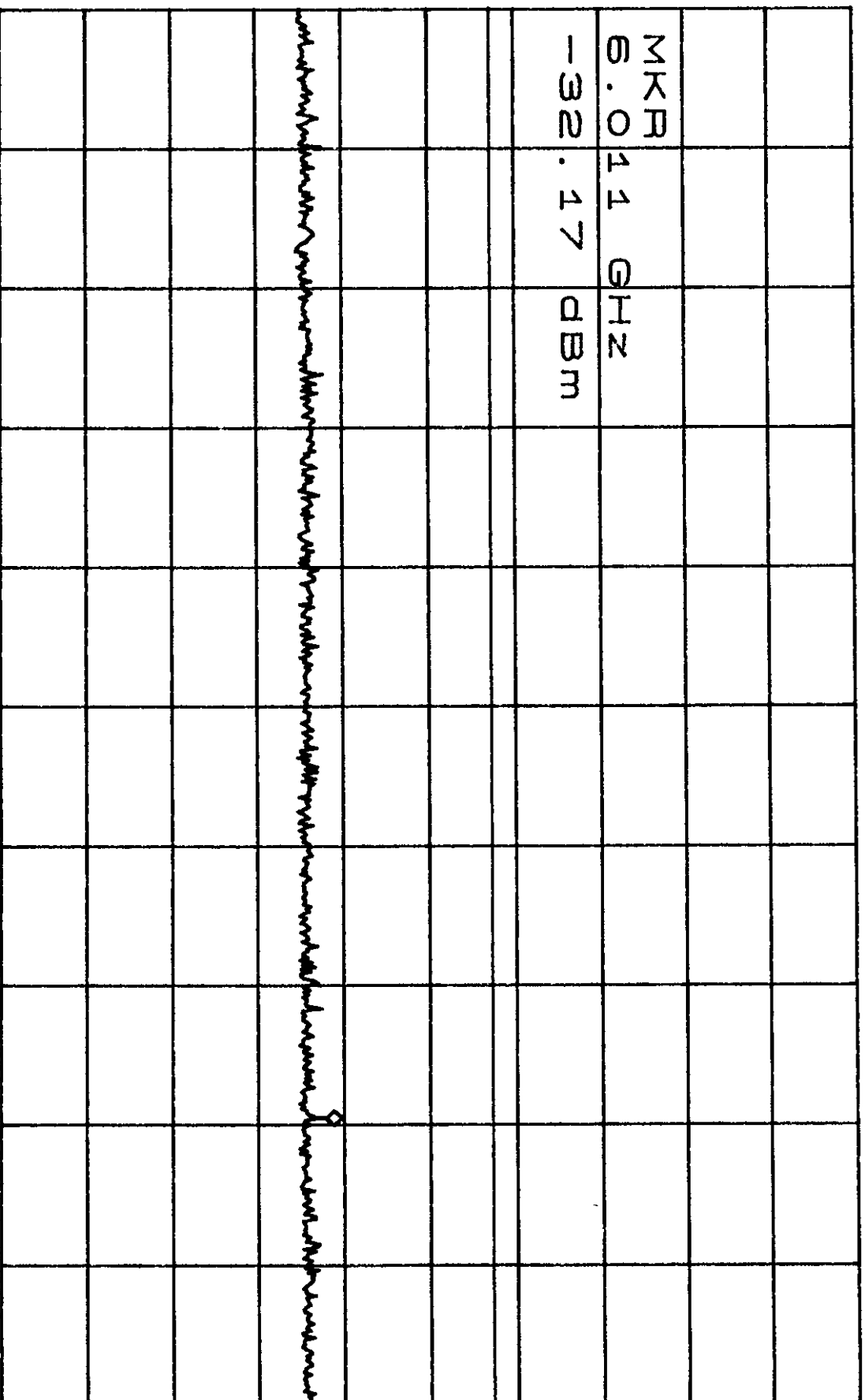
R

START 2.900GHZ STOP 4.500GHZ
RBW 1.0MHZ VBW 1.0MHZ SWP 50ms

*ATTEN 10dB
RL 30.0dBm

10dB/

MKR -32.17GHz

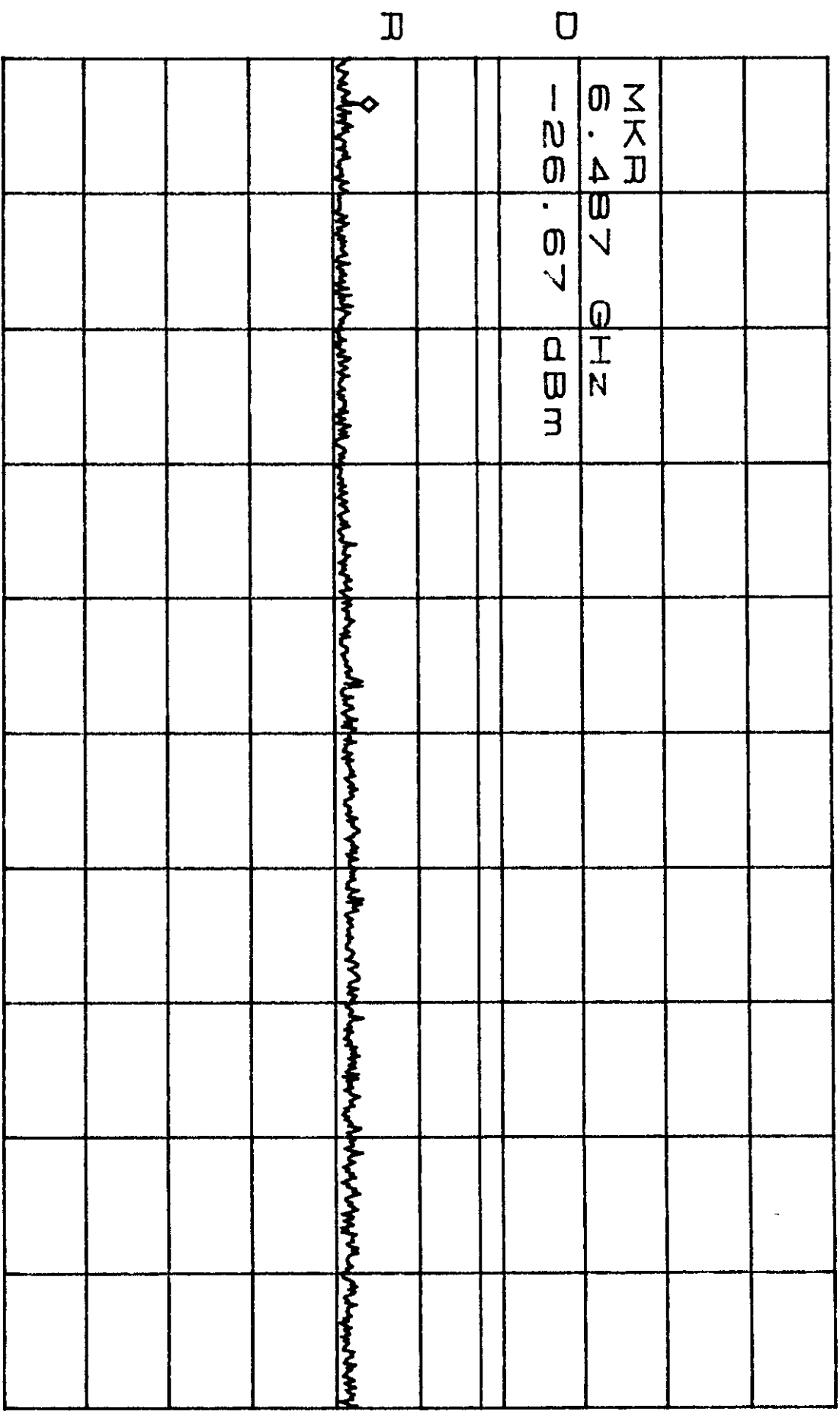


START 4.500GHz
RBW 1.0MHz

STOP 6.400GHz
VBW 1.0MHz

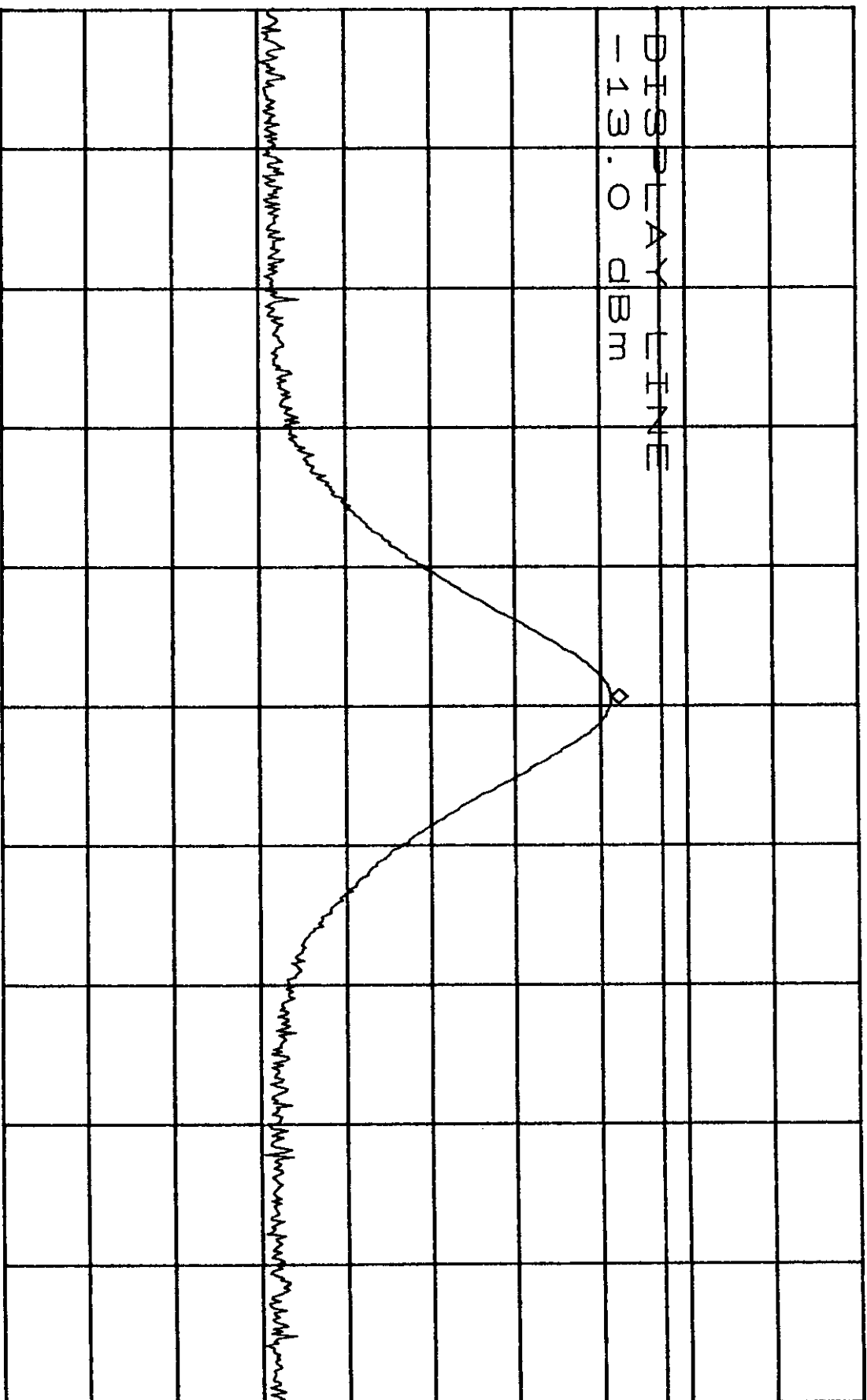
SWP 50ms

*ATTEN 10dB 10dB/ MKR -26.67dBm
RL 30.0dBm 6.487GHz



START 6.400GHz STOP 9.000GHz
RBW 1.0MHz VBW 1.0MHz SWP 52ms

ATTEN 20dB MKR -18.83dBm
RL 10.0dBm 10dB/ 7.489535GHz



D

DISPLAY LINE
-13.0 dBm

CENTER 7.489548GHz SPAN 2.000MHz
*RBW 100kHz *VBW 300kHz SWP 50ms

*ATTEN 0dB

MKR -40.00dBm

RL 20.00dBm

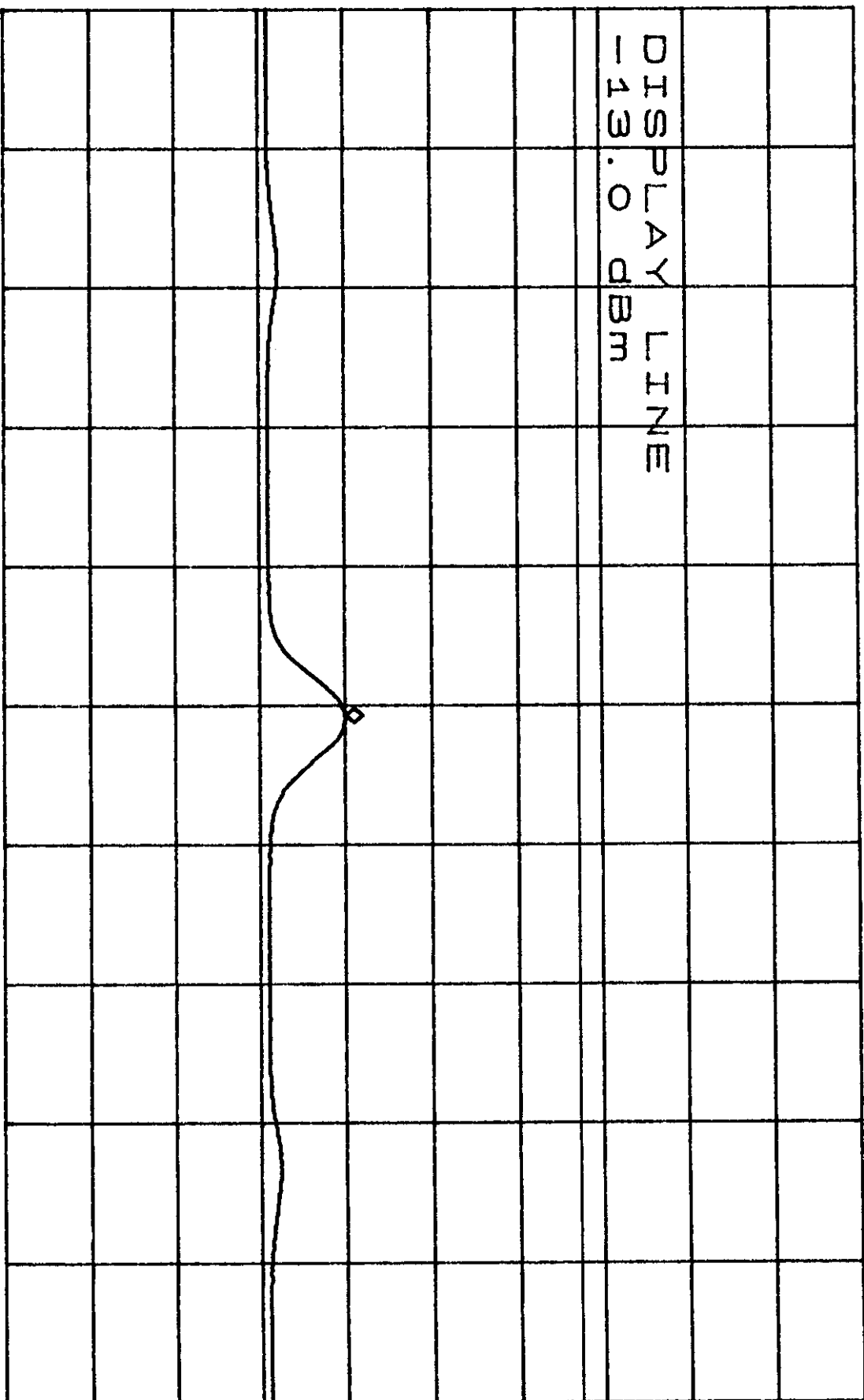
10dB/

11.99433GHz

DISPLAY LINE
-13.0 dBm

D

R



CENTER 11.99420GHz

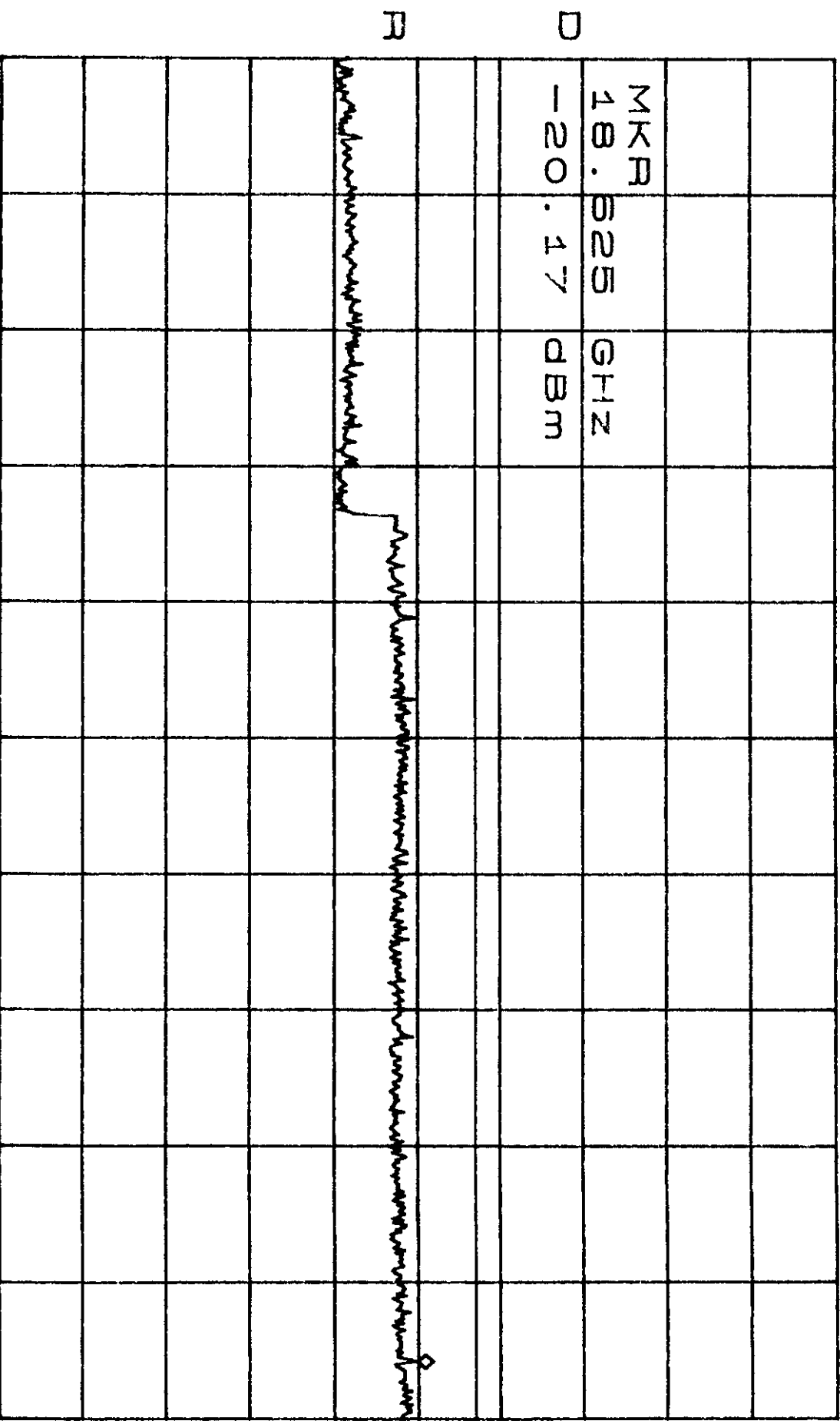
SPAN 20.00MHz

*RBW 1.0MHz

*VBW 10Hz

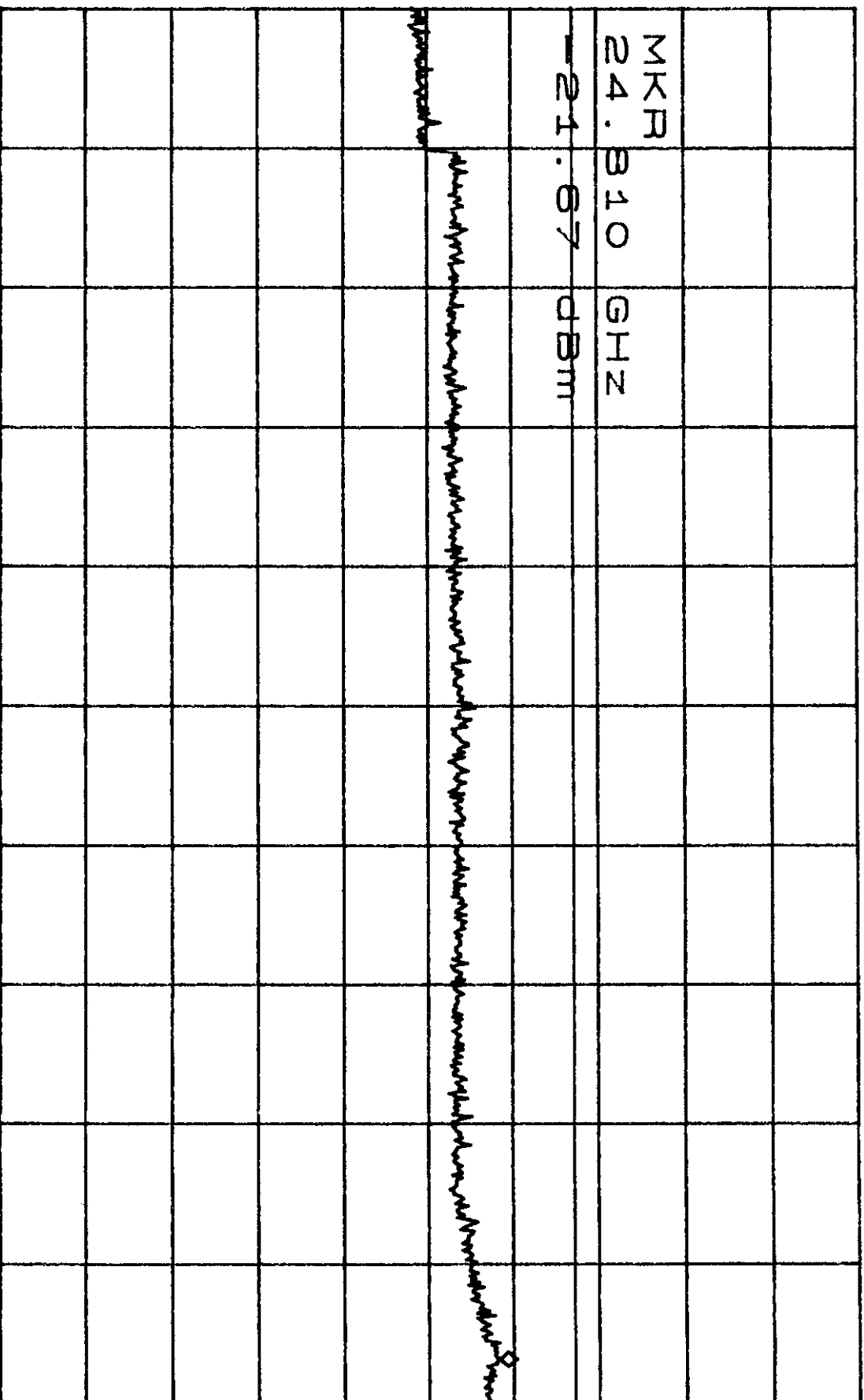
SMP 5.0sec

*ATTEN 10dB MKR -20.17dBm
RL 30.0dBm 10dB/ 18.625GHz



START 18.000GHz STOP 19.000GHz
RBW 1.0MHz VBW 1.0MHz SWP 180ms

*ATTEN 0dB
FL 20.0dBm 10dB/ MKR -24.670GHz



START 19.000GHz STOP 25.000GHz
RBW 1.0MHz VBW 1.0MHz SWP 120ms

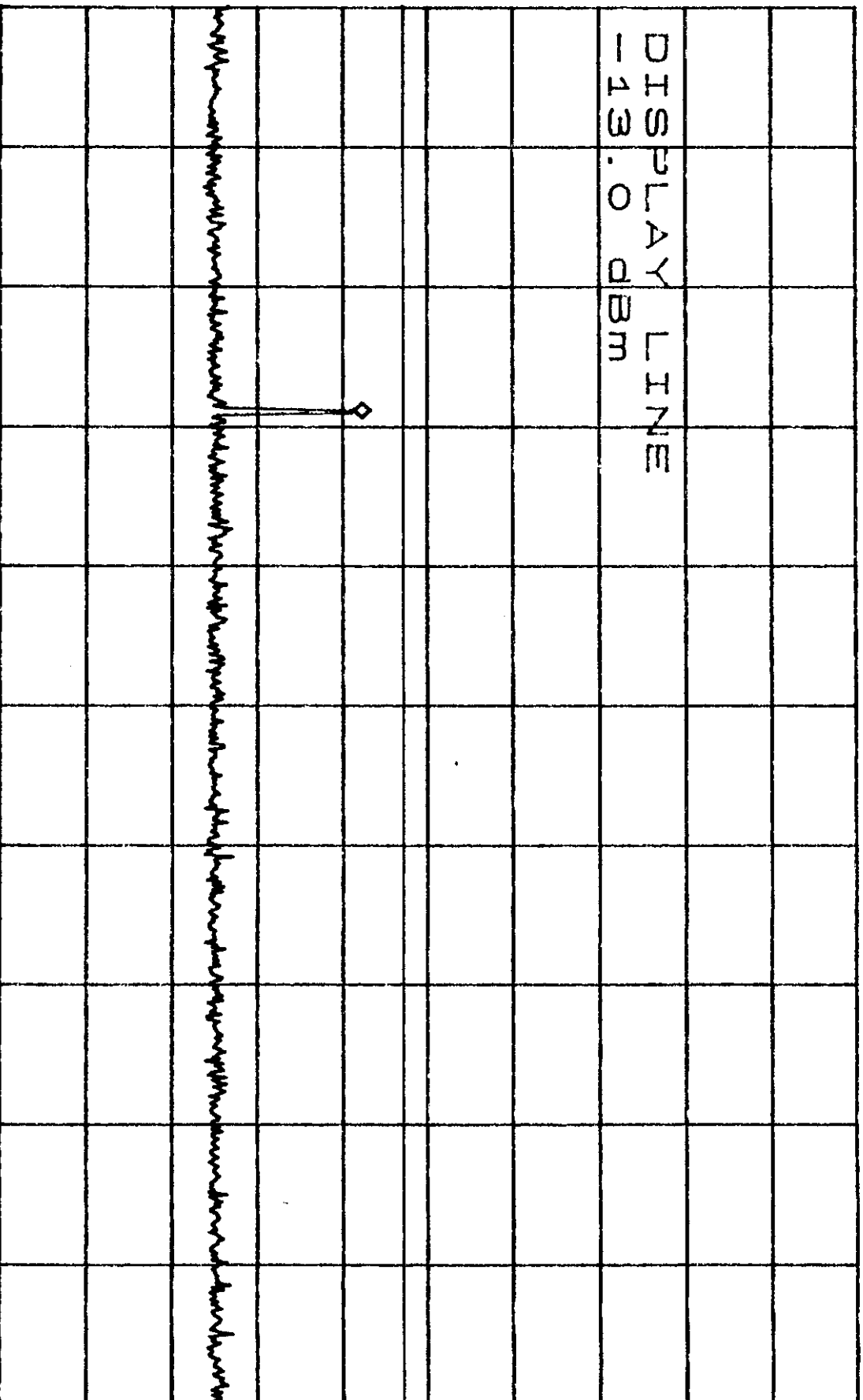
*ATTEN 20dB

NKFR -18.67dBm

RL 40.0dBm

10dB/

144.2MHz



D

R

START 0Hz

STOP 500.0MHz

*RBW 100kHz

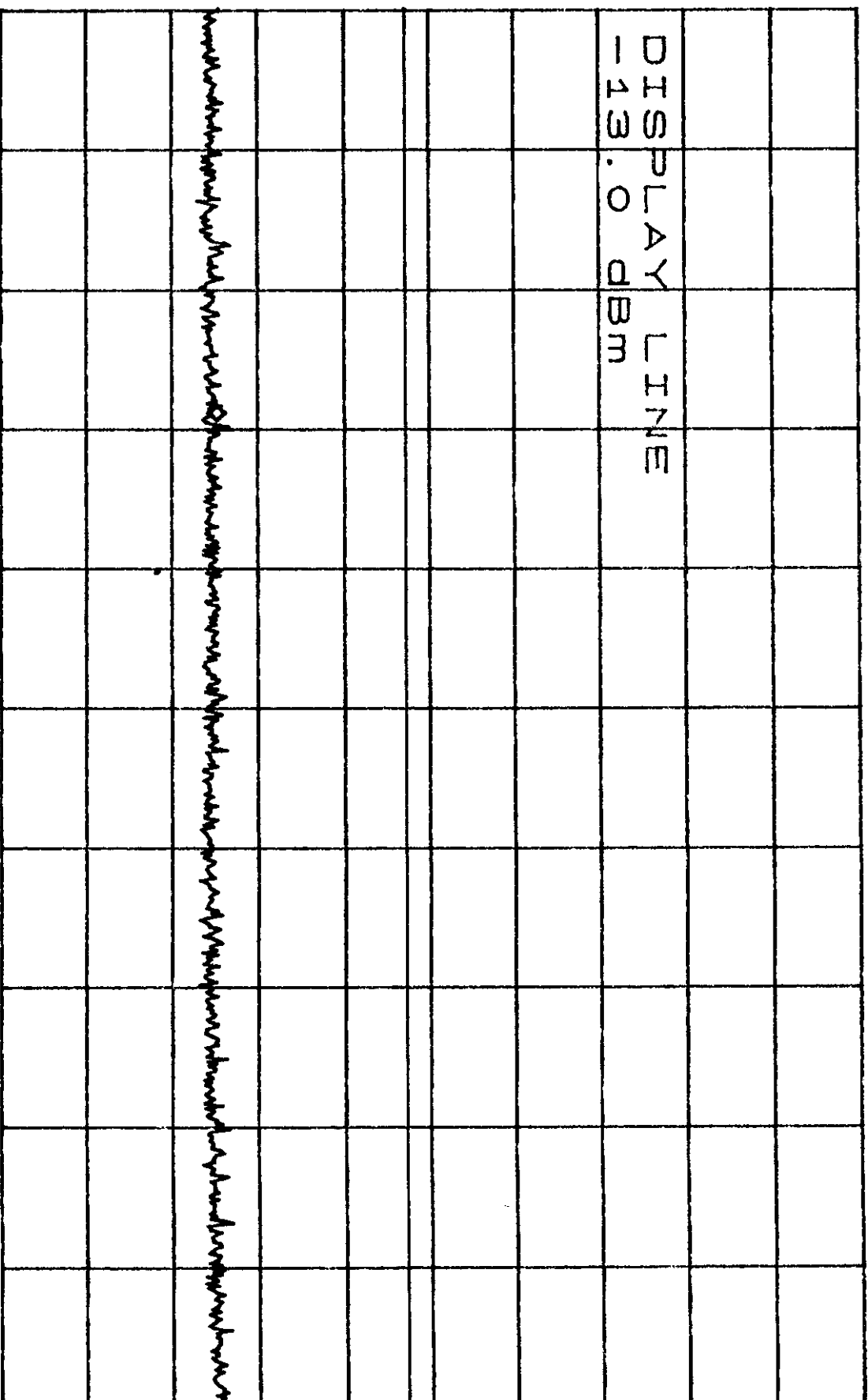
*VBW 300kHz

SWP 130ms

*ATTEN 20dB
RL 40.0dBm

10dB/

MARK 130.07dBm
933MHz



START 500MHz
*RBW 100kHz

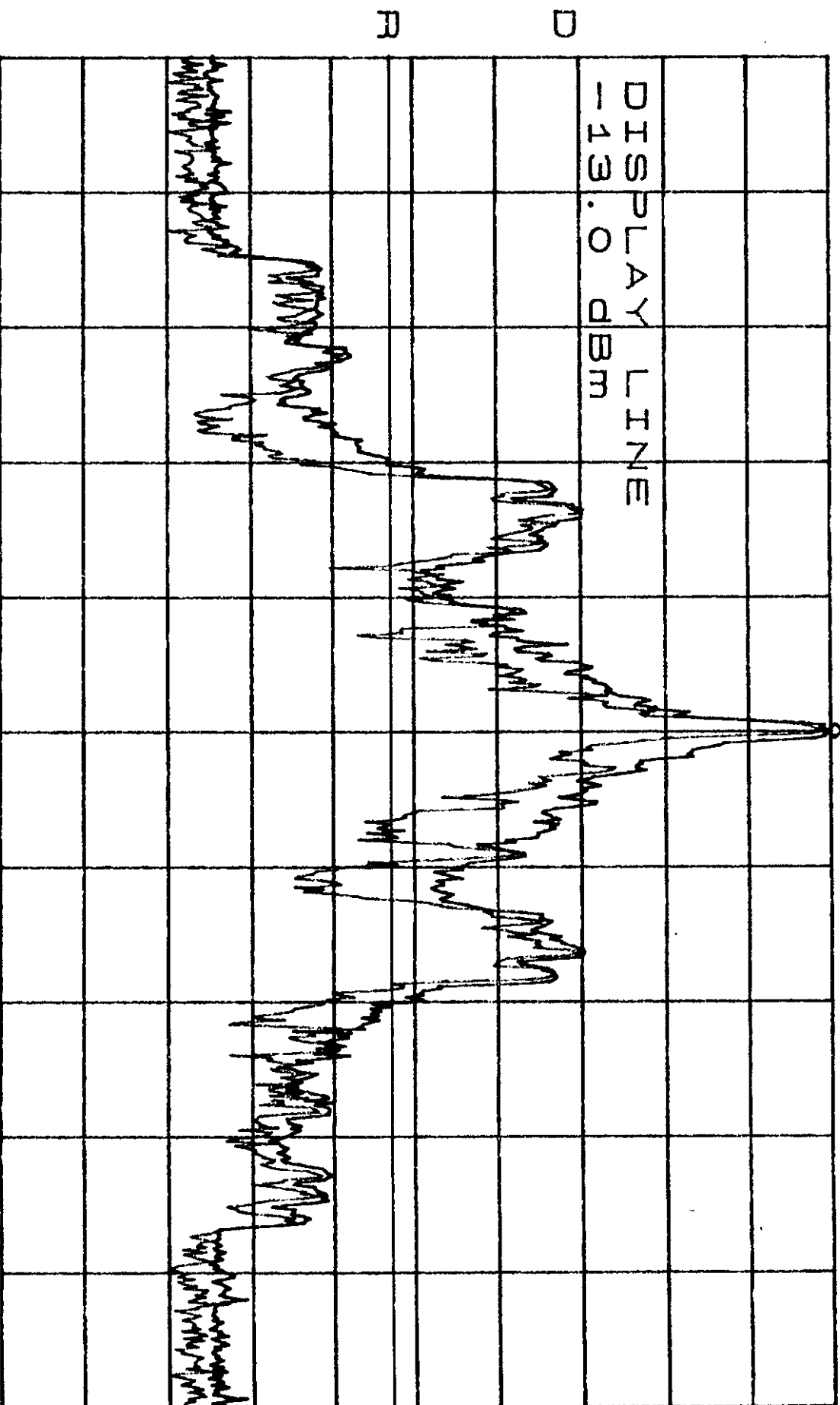
*VBW 300kHz

STOP 2.000GHz
SWP 380ms

*ATTEN 20dB
RL 40.0dBm

10dB/

MKR 39.50dBm
2.10154GHz



CENTER 2.10154GHz
*RBW 400kHz *VBW 3.0MHz

SPAN 40.00MHz
SWP 50ms

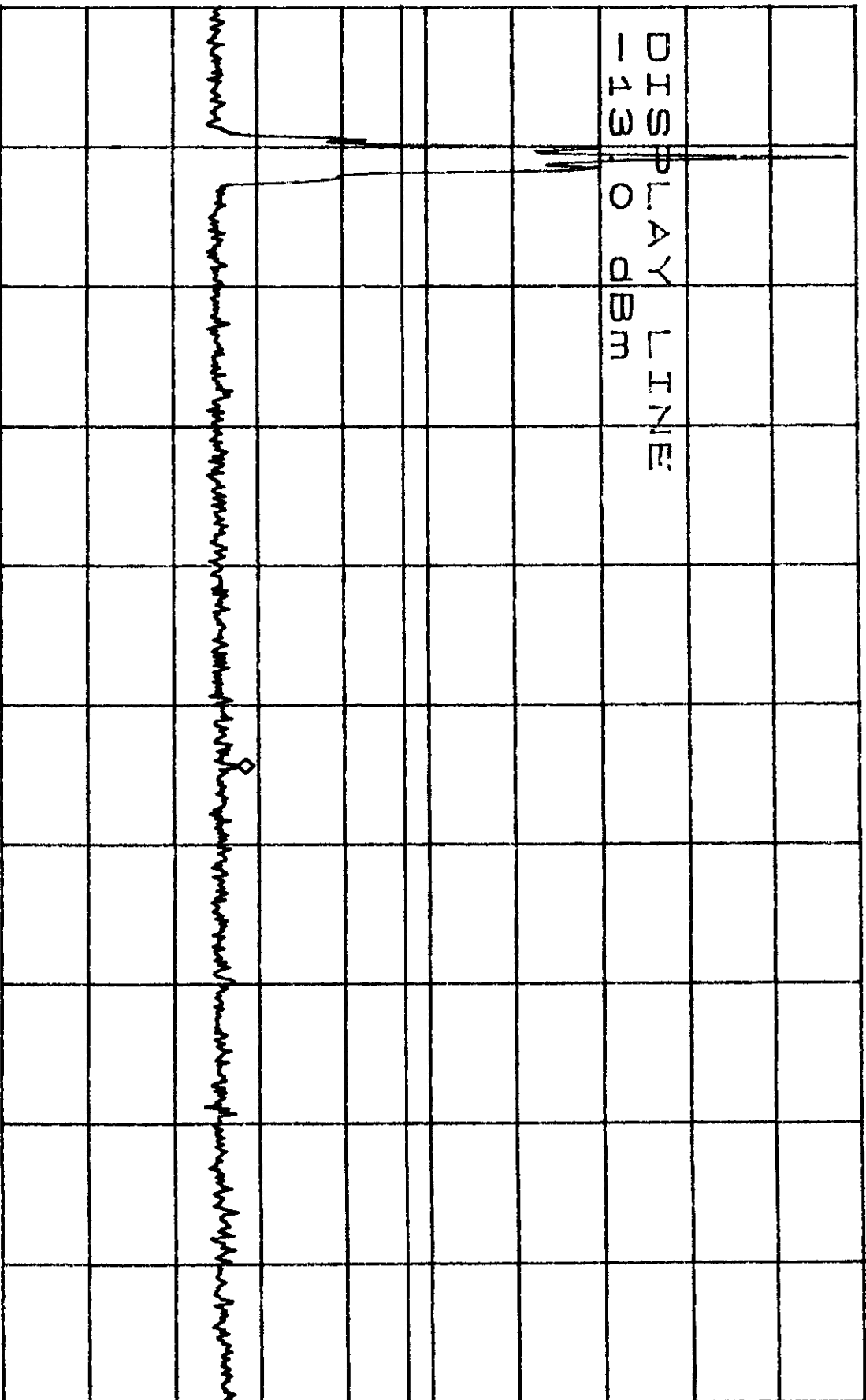
*ATTEN 20dB

MKR -32.50dBm

RL 40.0dBm

10dB/

2.4890GHz



D

D

START 2.0000GHz

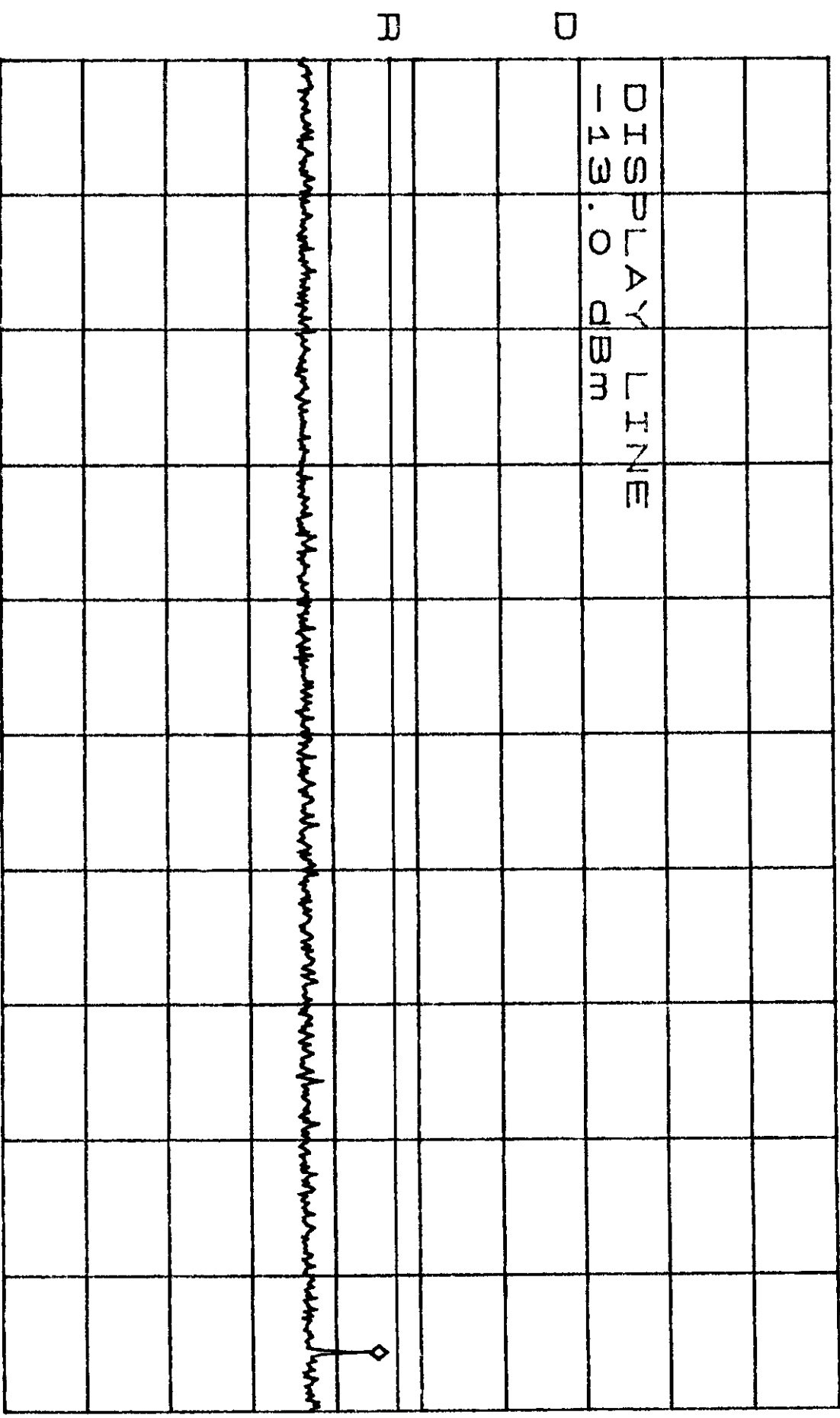
STOP 2.9000GHz

*RBW 40KHz

*VBW 300KHz

SWP 230Hz

*ATTEN 20dB MKR -16.00dBm
RL 40.00dBm 10dB/ 6.302GHz



START 2.900GHz STOP 6.457GHz
*RBW 1.0MHz *VBW 3.0MHz SWP 72ms

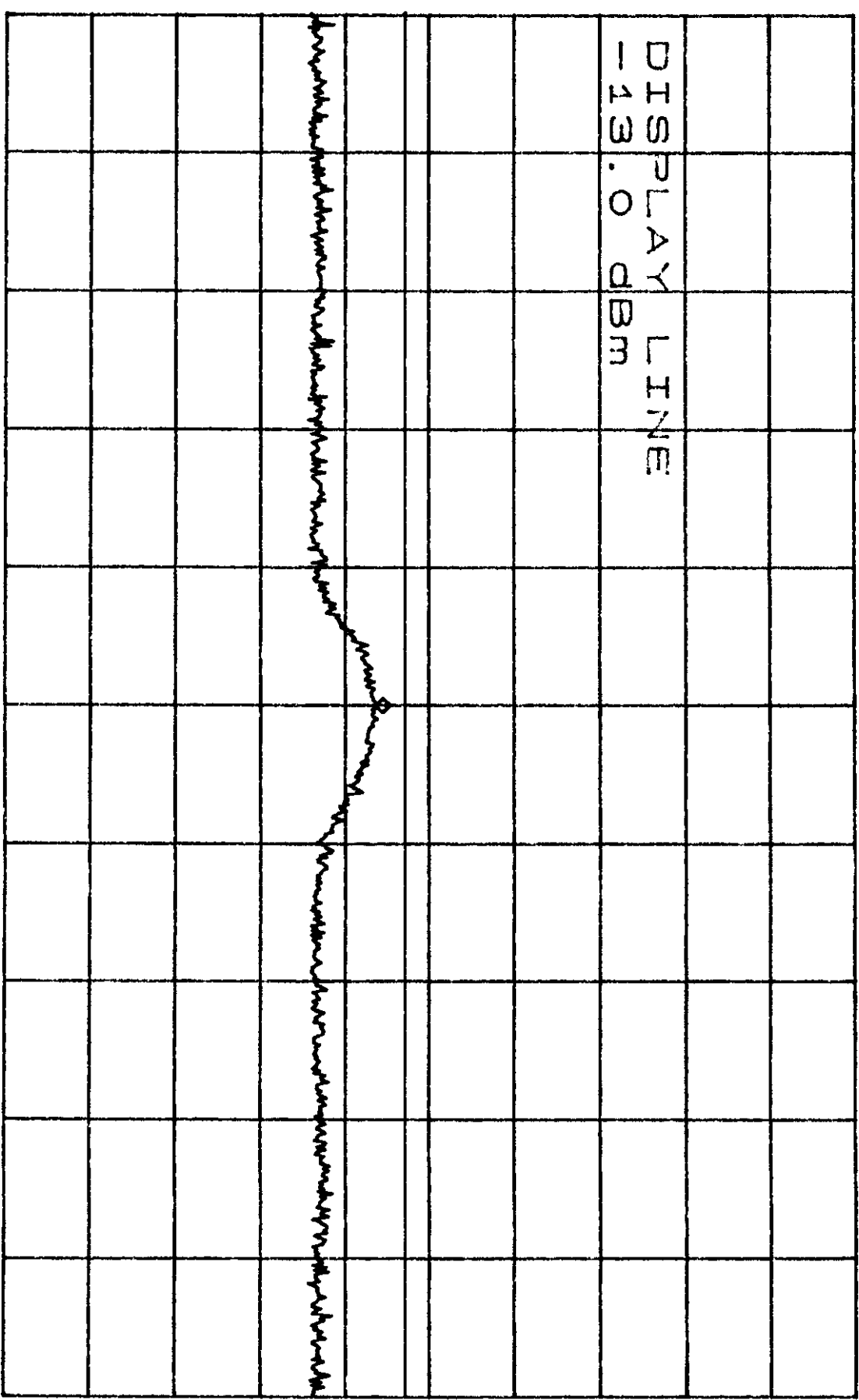
*ATTEN 20dB

MARK -140.50dBm

RL 40.0dBm

10dB/

6.30465GHz



CENTER 6.30465GHz

SPAN 20.00MHz

*RBW 1.0MHz

*VBW 3.0MHz

SWP 50ms

*ATTEN 20dB

MKR -17.17dBm

RL 40.0dBm

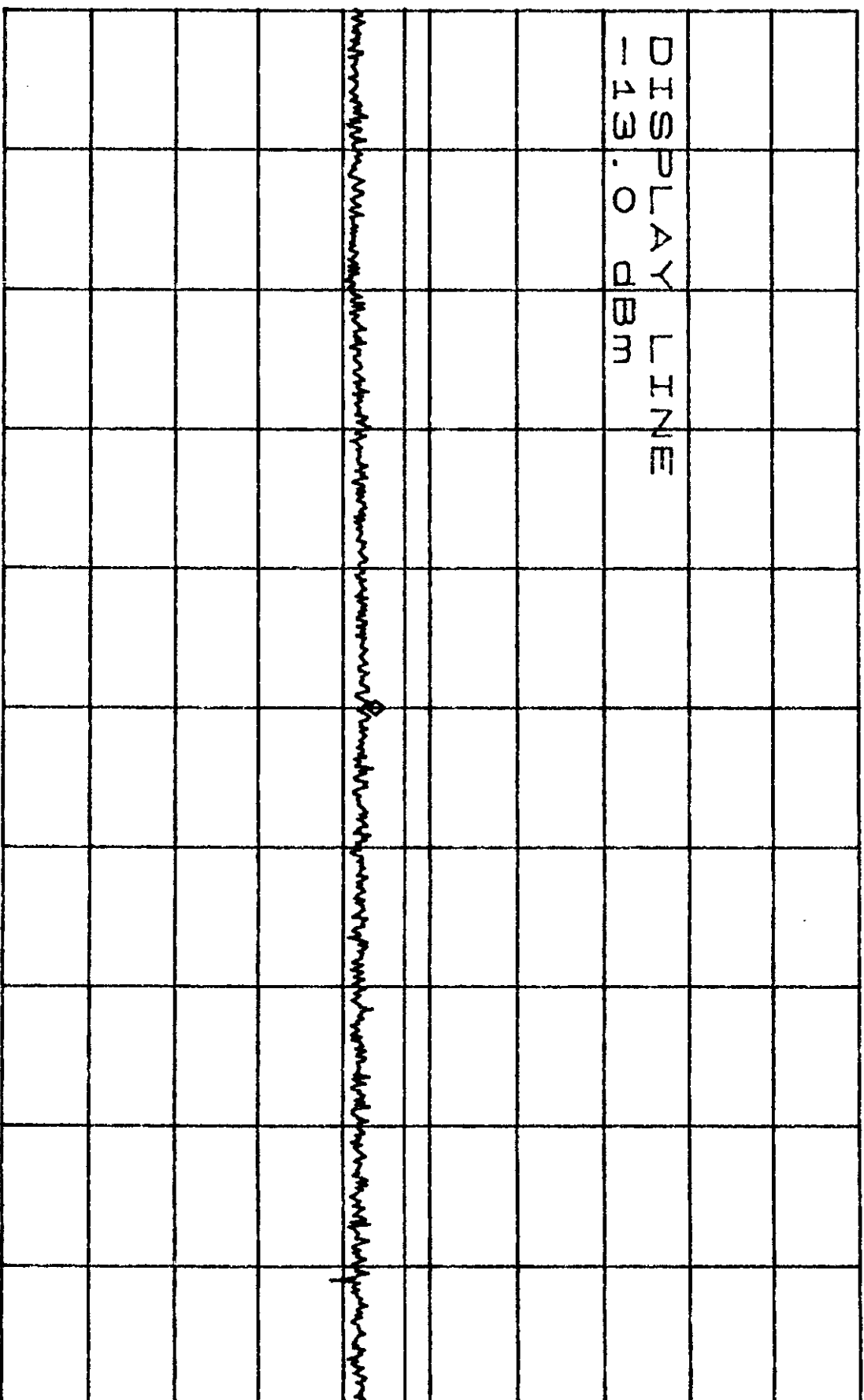
10dB/

8.200GHz

DISPLAY LINE
-13.0 dBm

D

R



START 6.400GHz

STOP 10.000GHz

*RBW 1.0MHz

*VBW 3.0MHz

SWP 72ms

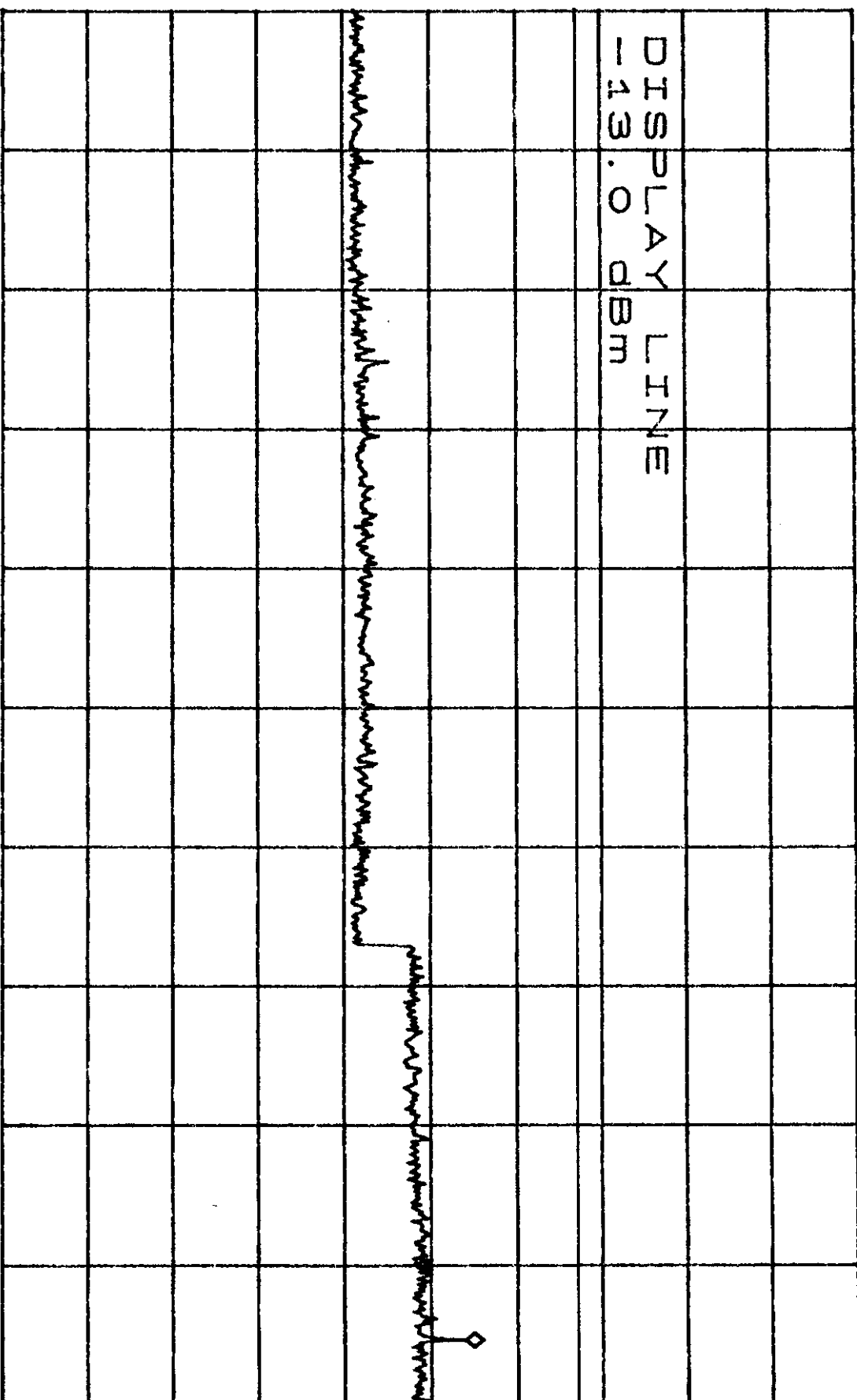
*ATTEN 0dB

MARK 120.00dB

RL 20.0dBm

10dB/

14.720GHz



D

R

START 9.000GHz

STOP 15.000GHz

*RBW 1.0MHz

*VBW 3.0MHz

SWP 120ms

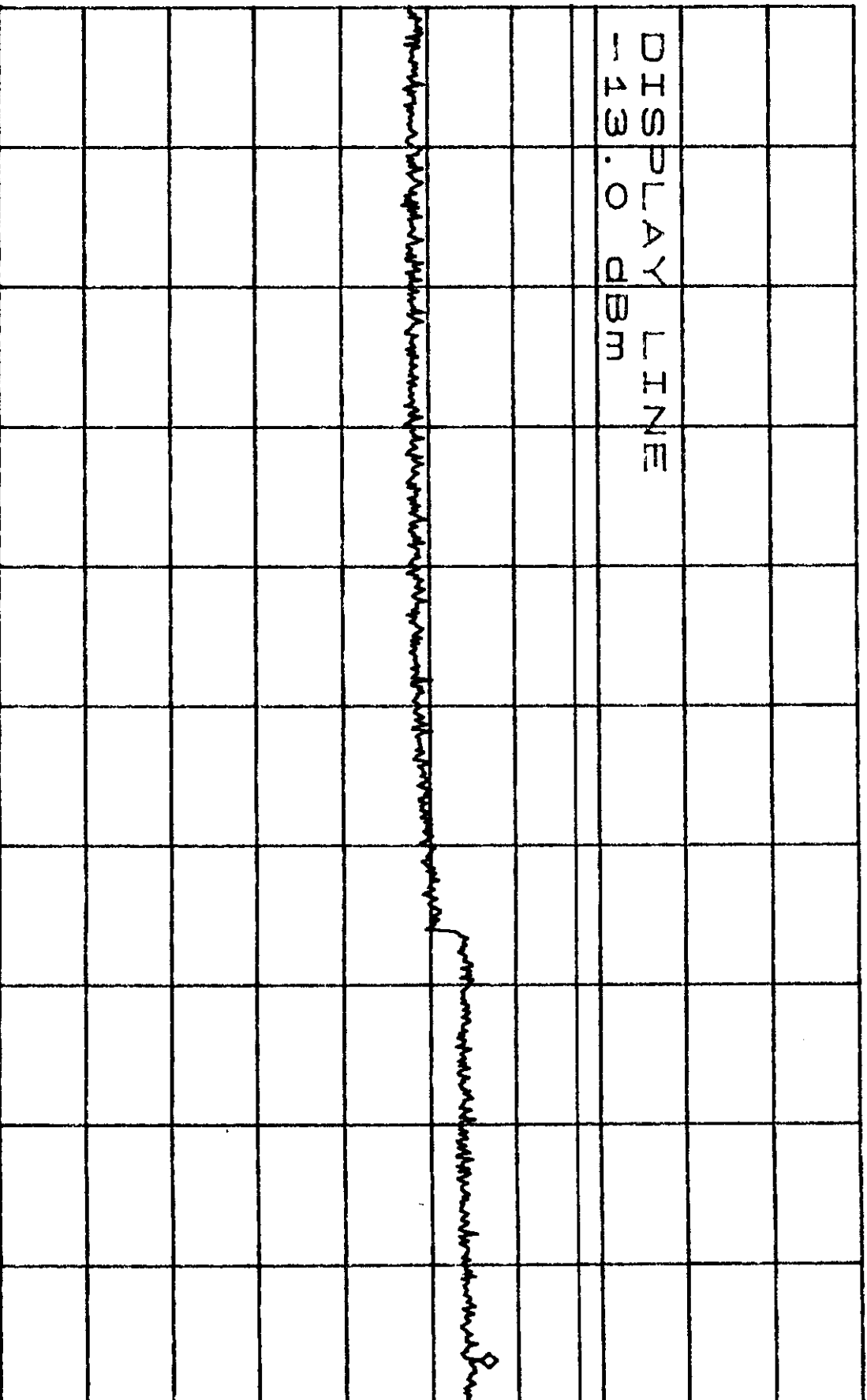
*ATTEN 0dB

MKR 124.500MHz

RL 20.0dBm

10dB/

21.778GHz



START 15.000GHz

STOP 22.000GHz

*RBW 1.0MHz

*VBW 3.0MHz

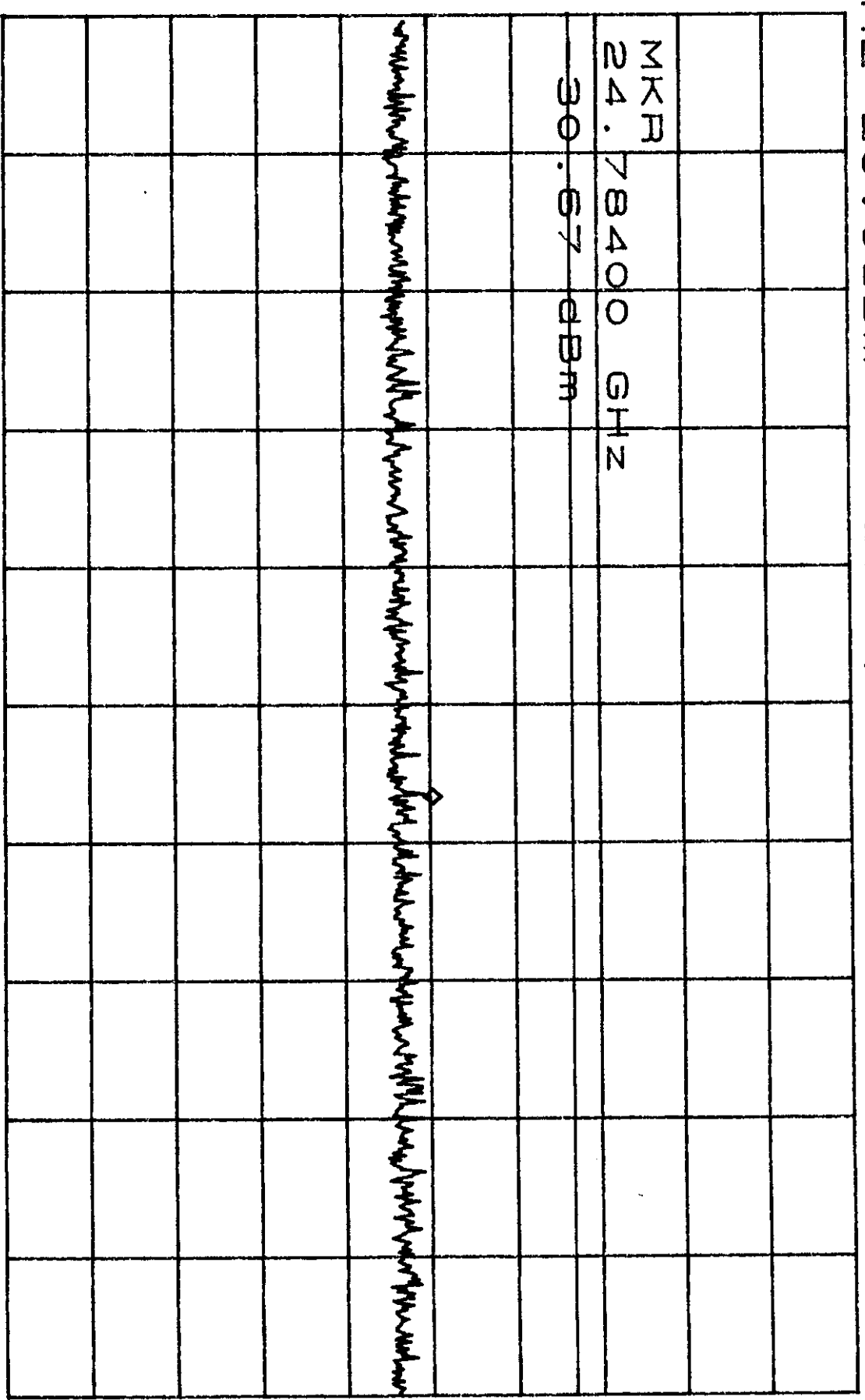
SWP 140ms

*ATTEN 0dB

10dB/

MKR 130.67dBm

RL 20.0dBm



R

D

CENTER 24.78333GHz

SPAN 10.00MHz

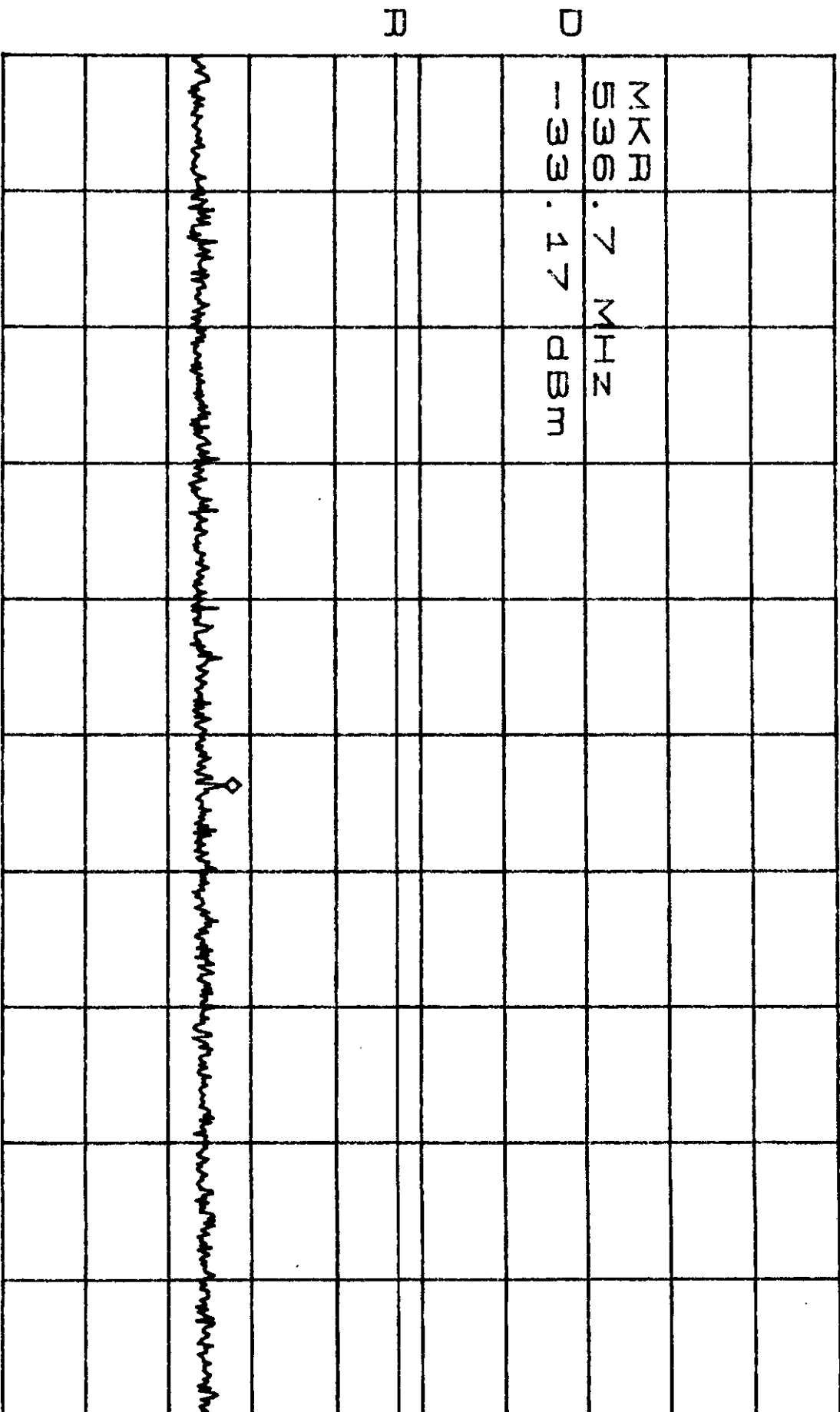
*RBW 100kHz *VBW 300kHz

SMP 50ms

*ATTEN 20dB
RL 40.0dBm

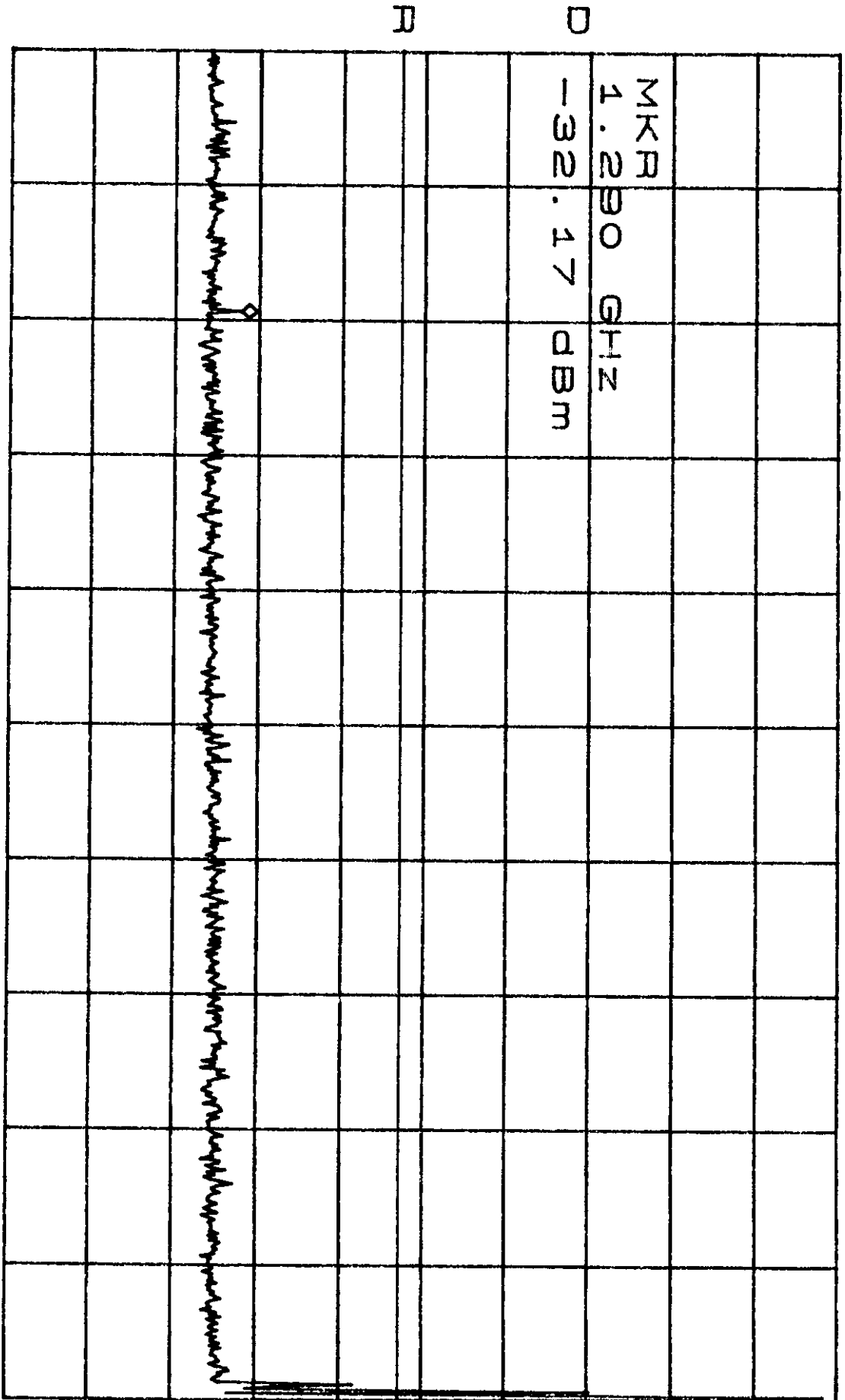
10dB/

NKR -33.17dBm
536.7MHz



START OHZ STOP 1.00006HZ
*RBW 100KHz *VBW 300KHz SWP 250ms

*ATTEN 20dB MKR -32.47dBm
FL 40.0dBm 10dB/ 1.290GHz

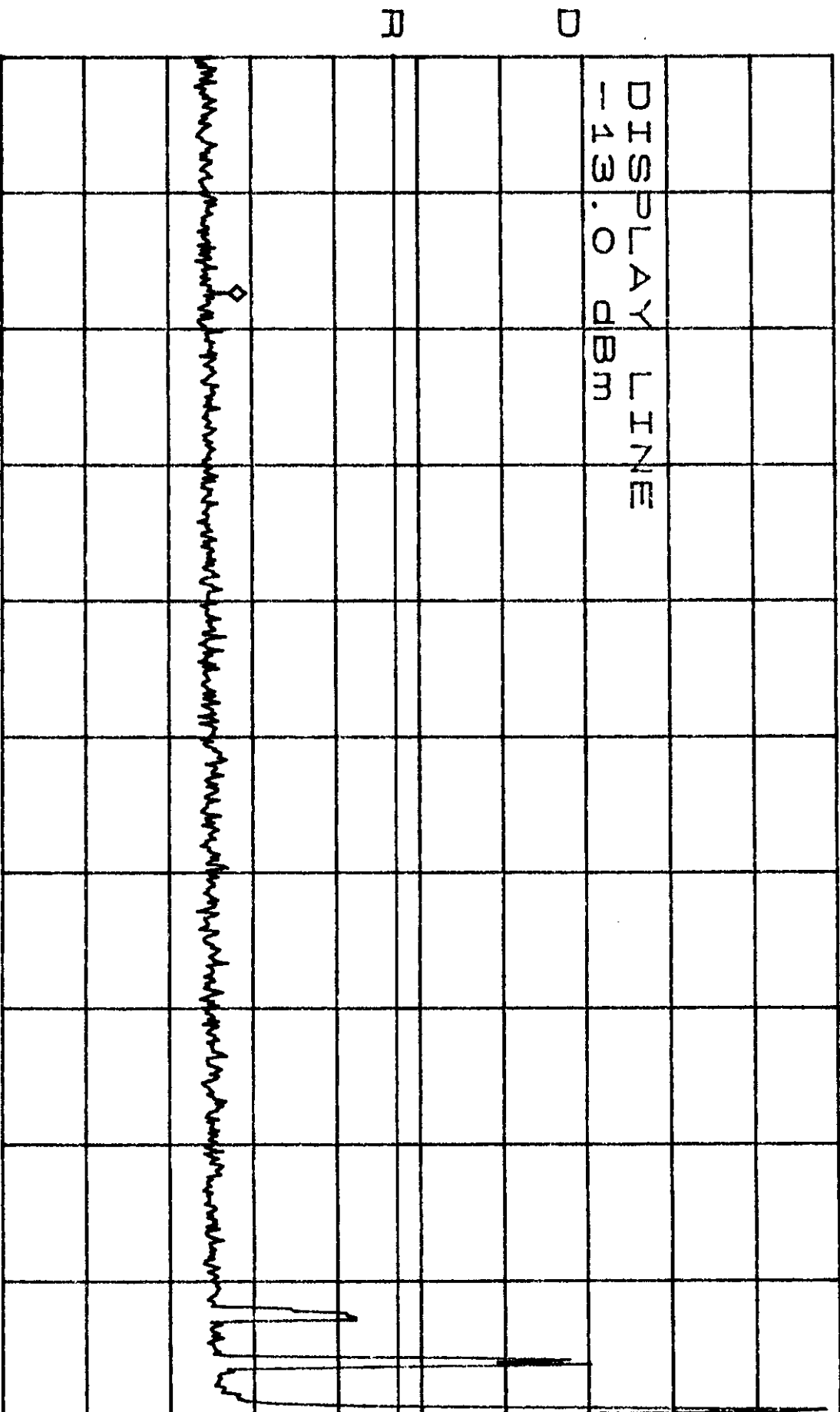


START 1.000GHz STOP 2.498GHz
*RBW 100kHz *VBW 300kHz SWP 380ms

*ATTEN 20dB
RL 40.0dBm

10dB/

MARK 132.670GHz



D
R

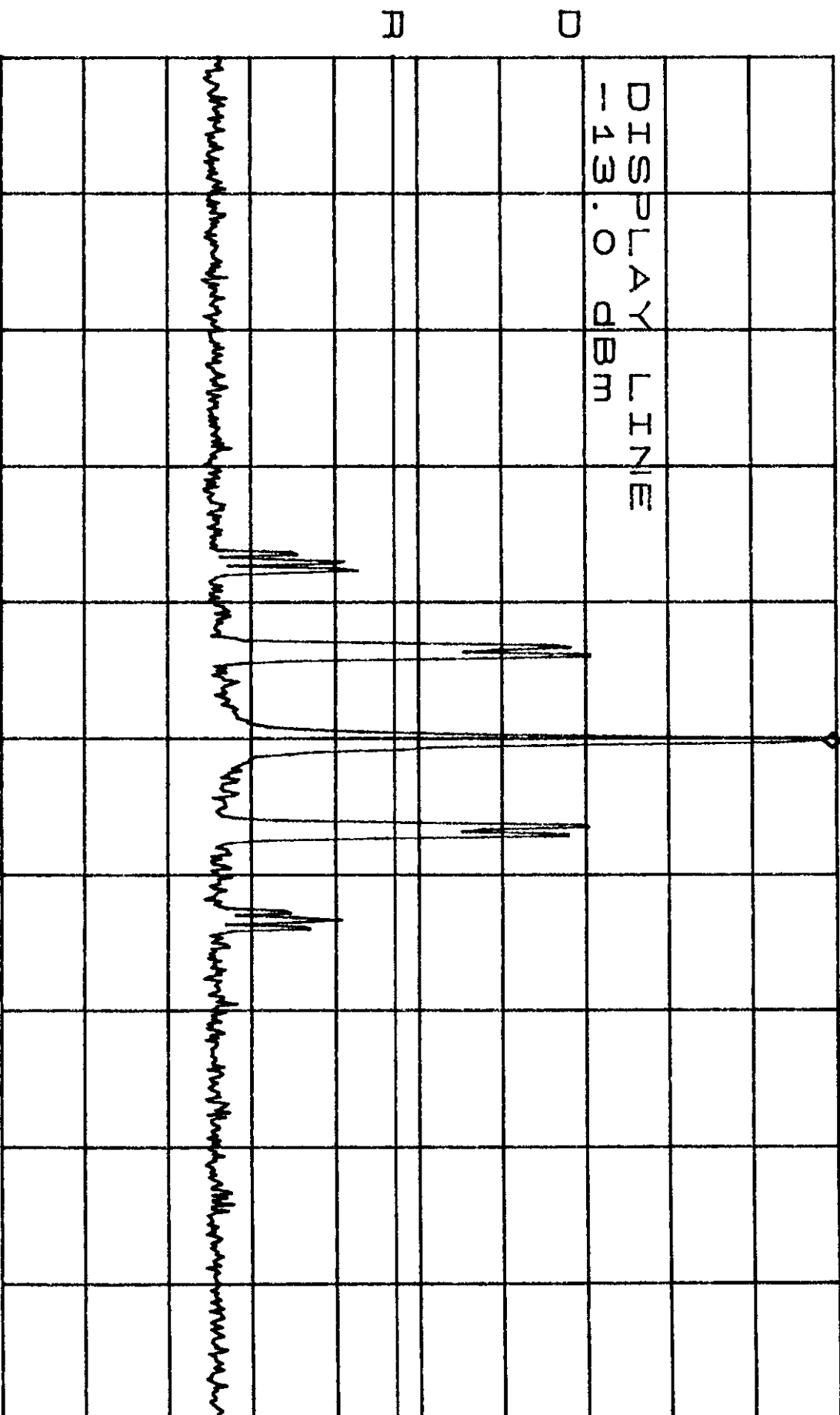
START 2.3141GHz
*RBW 100kHz *VBW 300kHz

STOP 2.4982GHz
SWP 50ms

*ATTEN 20dB
RL 40.0dBm

10dB/

MARK 38.50dBm
2.4967GHz

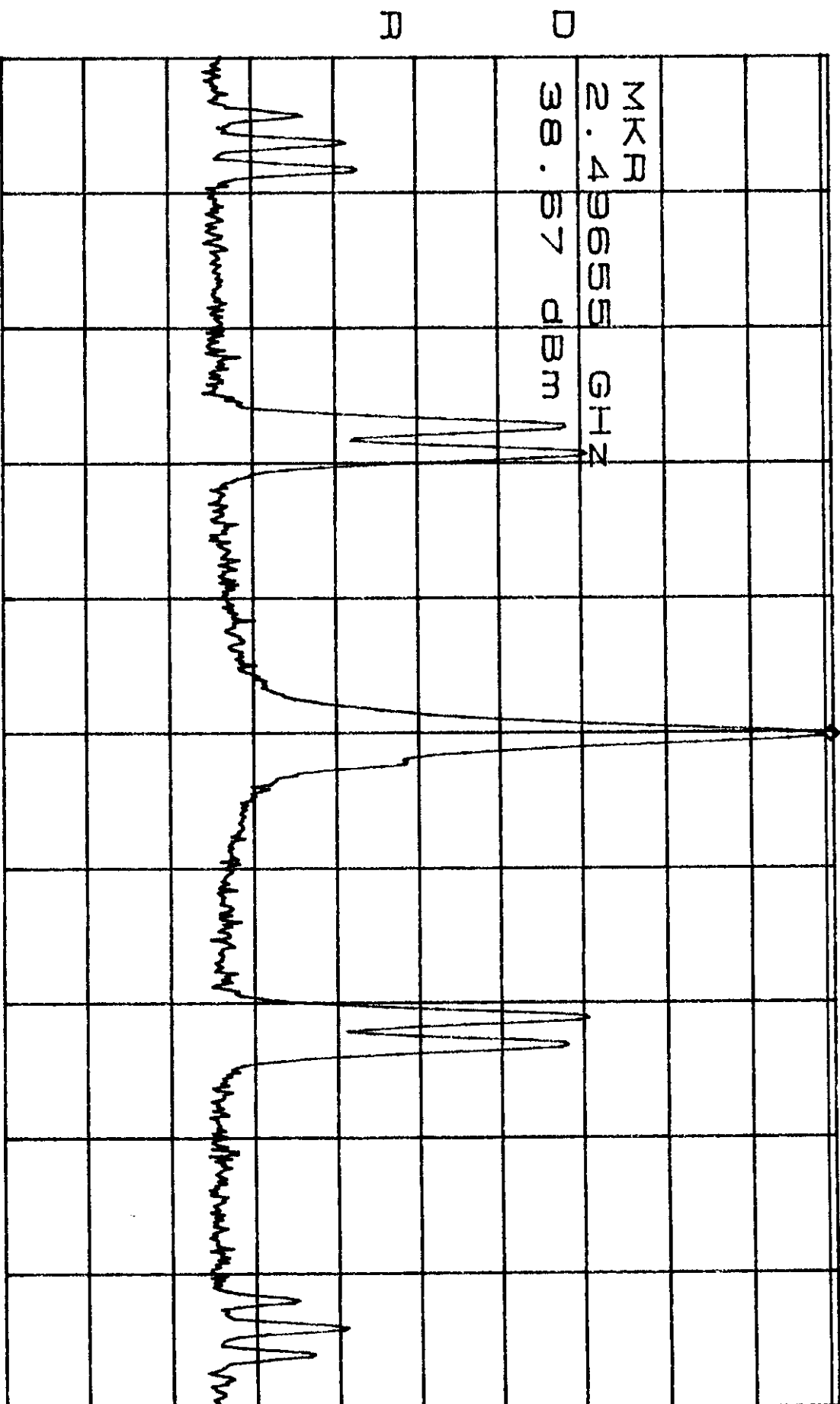


CENTER 2.4965GHz SPAN 100.0MHz
*RBW 100kHz *VBW 1.0MHz SWP 50ms

*ATTEN 20dB
RL 40.0dBm

10dB/

MKR 38.67GHz



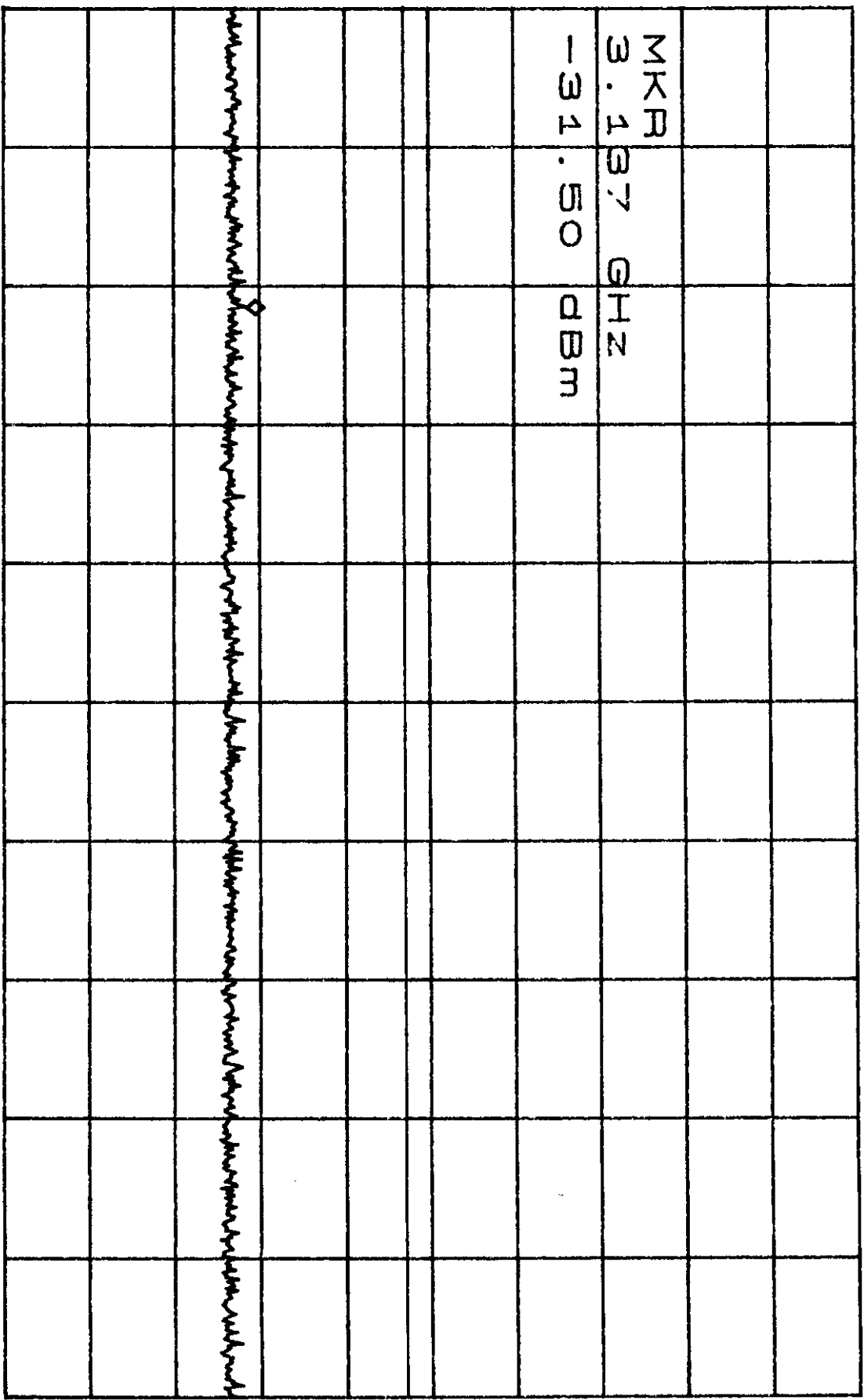
CENTER 2.49650GHz SPAN 30.00MHz
*RBW 100kHz *VBW 1.00MHz SWP 50ms

*ATTEN 20dB

RL 40.0dBm

10dB/

NKP -31.50dBm
3.137GHz



D

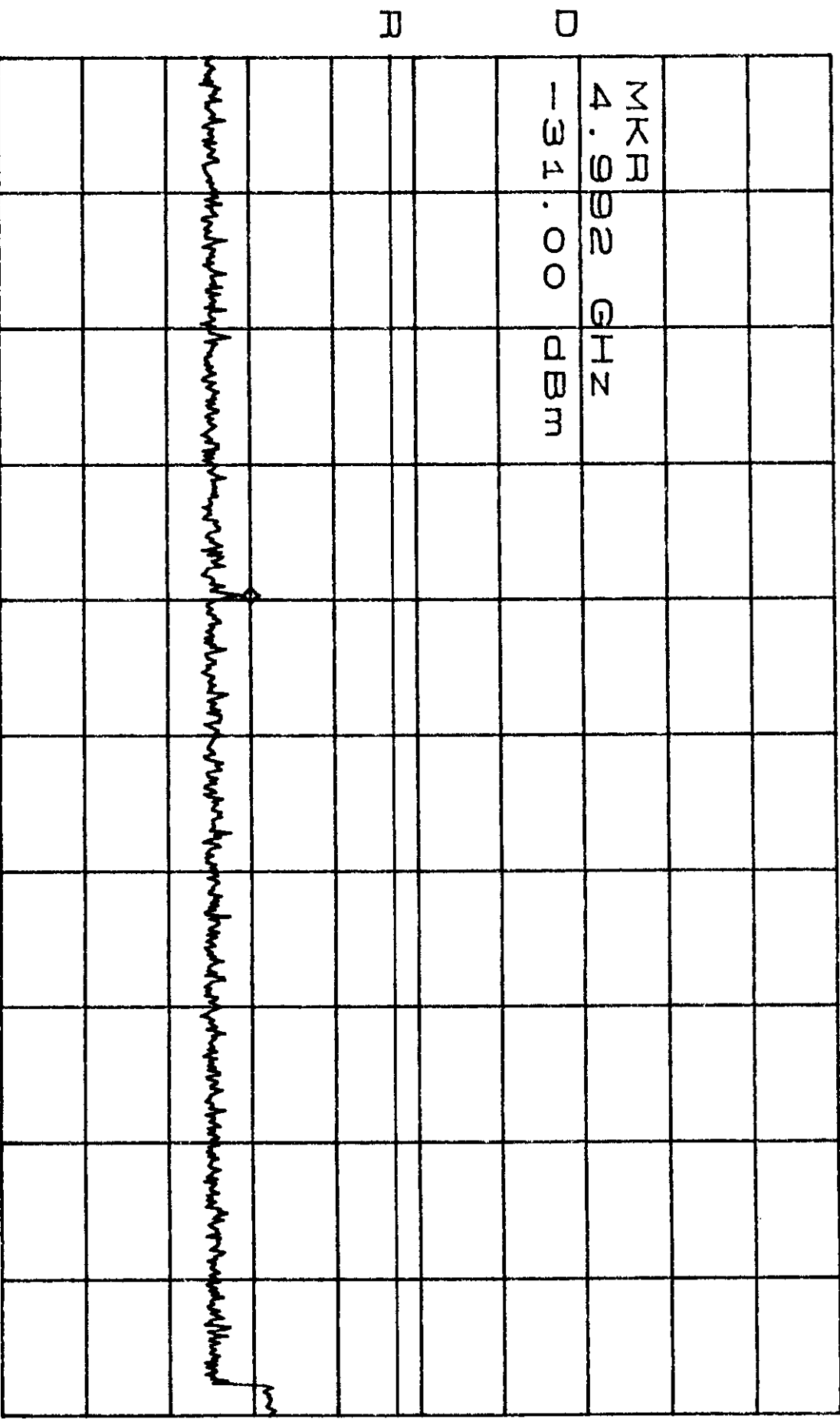
D

START 2.900GHz STOP 4.000GHz
*RBW 100kHz *VBW 300kHz SWP 280ms

*ATTEN 20dB
FL 40.00dBm

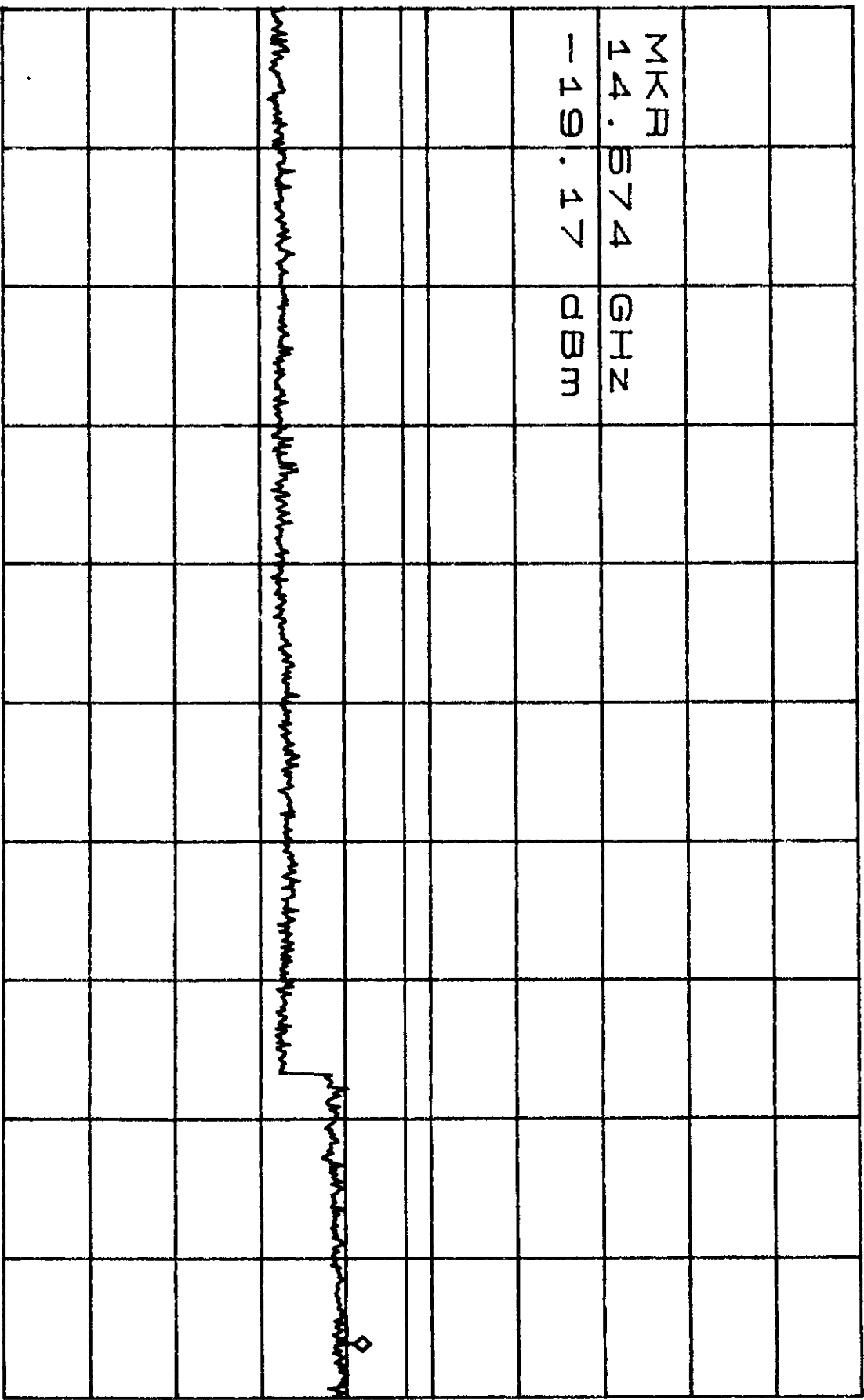
10dB/

MKR -34.00dBm
4.992GHz



START 4.000GHz STOP 6.500GHz
*RBW 100KHz *VBW 300KHz SWP 630ms

*ATTEN 20dB
 RL 40.0dBm
 10dB/
 MKR -19.17dBm
 14.674GHz



D
 R

START 6.500GHz
 *RBW 100kHz
 *VBW 300kHz
 STOP 15.000GHz
 SWP 2.2sec

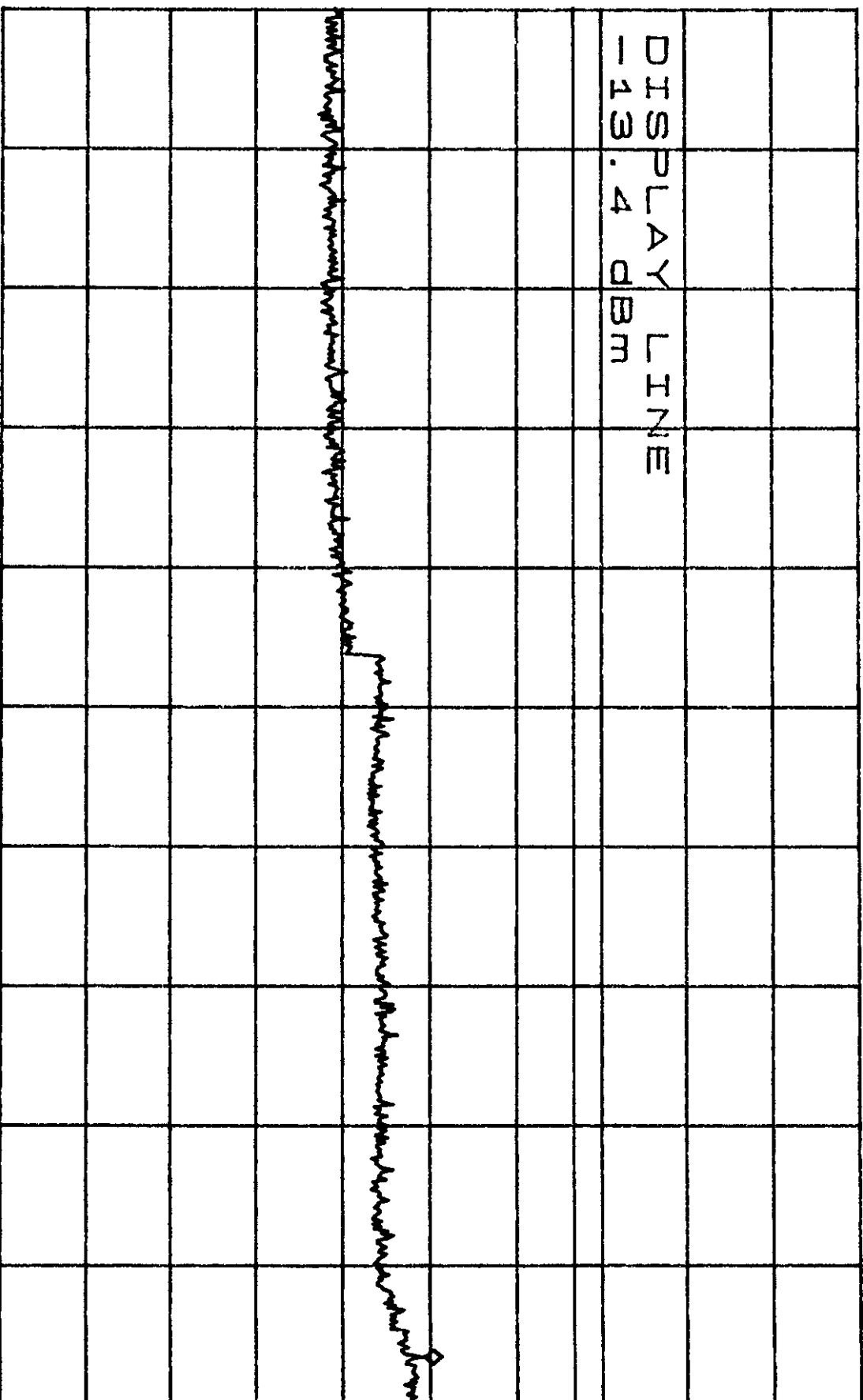
*ATTEN 0dB

MR -30.67dBm

RL 20.0dBm

10dB/

24.65GHz



D

R

START 15.00GHz

STOP 25.00GHz

*RBW 100kHz

*VBW 300kHz

SWP 2.5sec



FCC ID: KPB-ST510000

SUBJECT: Modulation Characteristics
FCC Part 74 : 90
MET REPORT: EM1894
MFG: General Microwave
TESTED BY: Kenneth Bass
TEST DATE: 23 MAR 1998

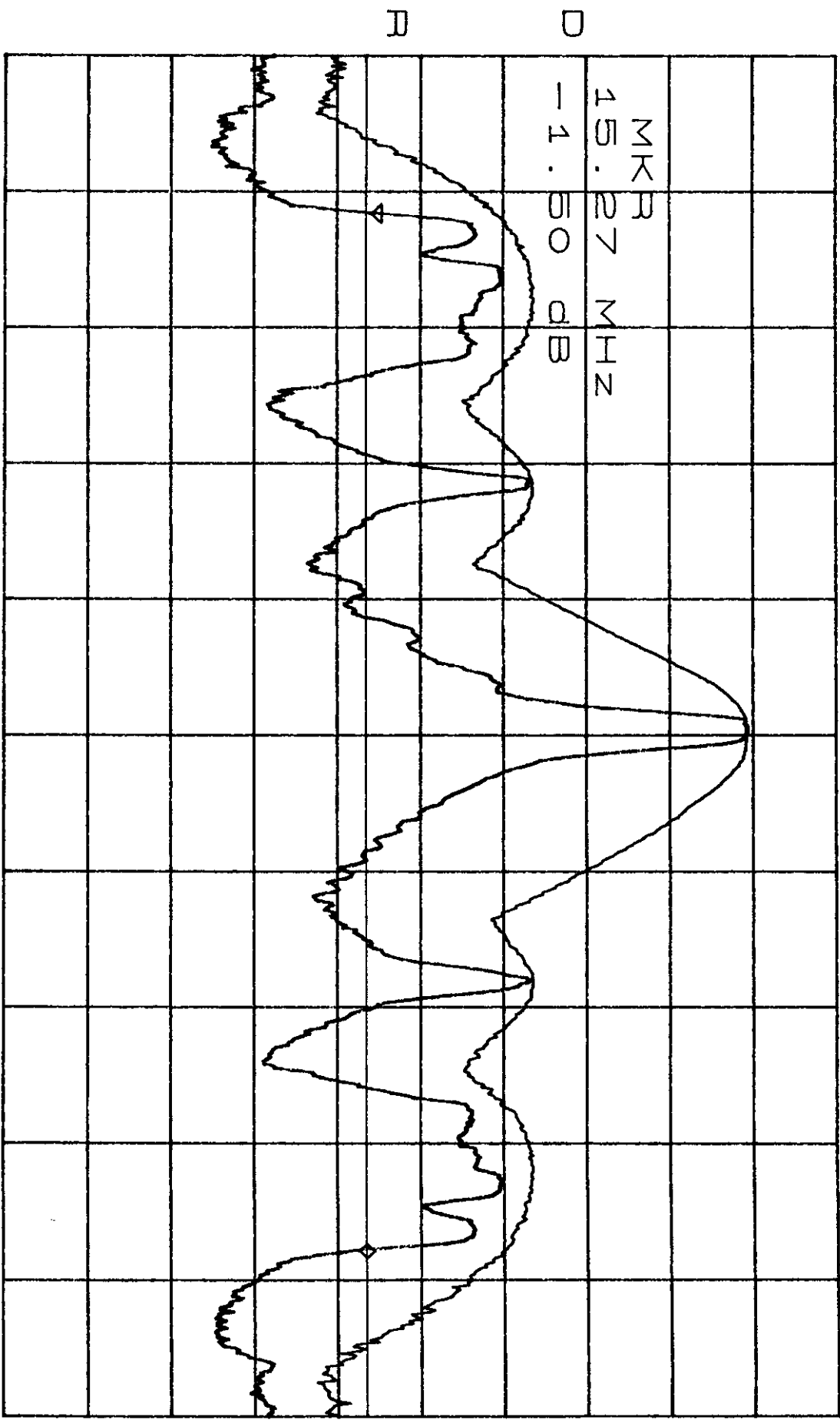
EUT: Microwave Transmitter
MODEL: STS-10000

TECHNICAL SPECIFICATION: 2.987

Comment: A curve or equivalent data which shows that the equipment will meet the modulation requirements of the rules under which the equipment is to be licensed.

Refer to plots #3 and #4 for modulation characteristics. The input signals used for this (and other appropriate tests) was an NTSC standard input from a Tektronics NTSC signal generator set to provide standard color bars video signal. The audio subcarriers were modulated with 15 kHz tones from an audio signal generator.

*ATTEN 30dB MKR -1.50dB
RL 50.0dB 10dB/ 15.27MHz



CENTER 2.45873GHz SPAN 20.00MHz
*RBW 100kHz VBW 100kHz SWP 50ms



SUBJECT: Occupied Bandwidth
FCC Part 74 ; 90
MET REPORT: EM1894
MFG: General Microwave
TESTED BY: Kenneth Bass
TEST DATE: 23 MAR 1998

EUT: Microwave Transmitter
MODEL: STS-10000

TECHNICAL SPECIFICATION: 2.989(i)

Comment: Modulated by an appropriate signal of sufficient amplitude to be representative of the type of service in which used. The signal source used was a Tektronics NTSC signal generator and 100% modulation on both audio channels.

Plot appears on following page.

Special Note:

The channel Bandwidth (as noted on the FCC form 731) is specified as 18 MHz. This bandwidth is determined from the following:

a) Maximum modulating frequency = ± 4.0 MHz (m)

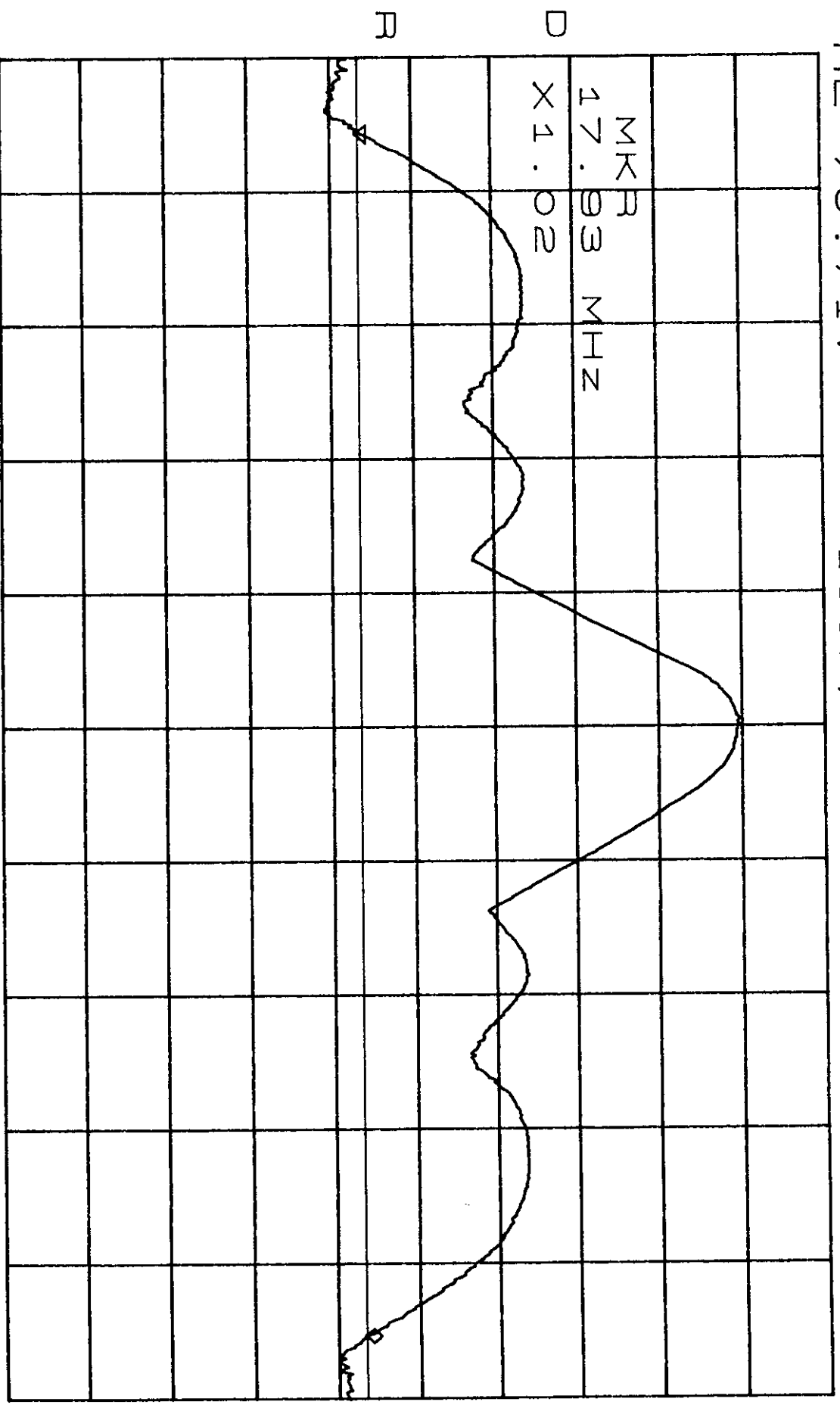
b) Maximum frequency deviation = ± 4.0 MHz (D)

c) Audio subcarriers = 1 MHz deviation nominal
= 2 MHz deviation maximum

Therefore;

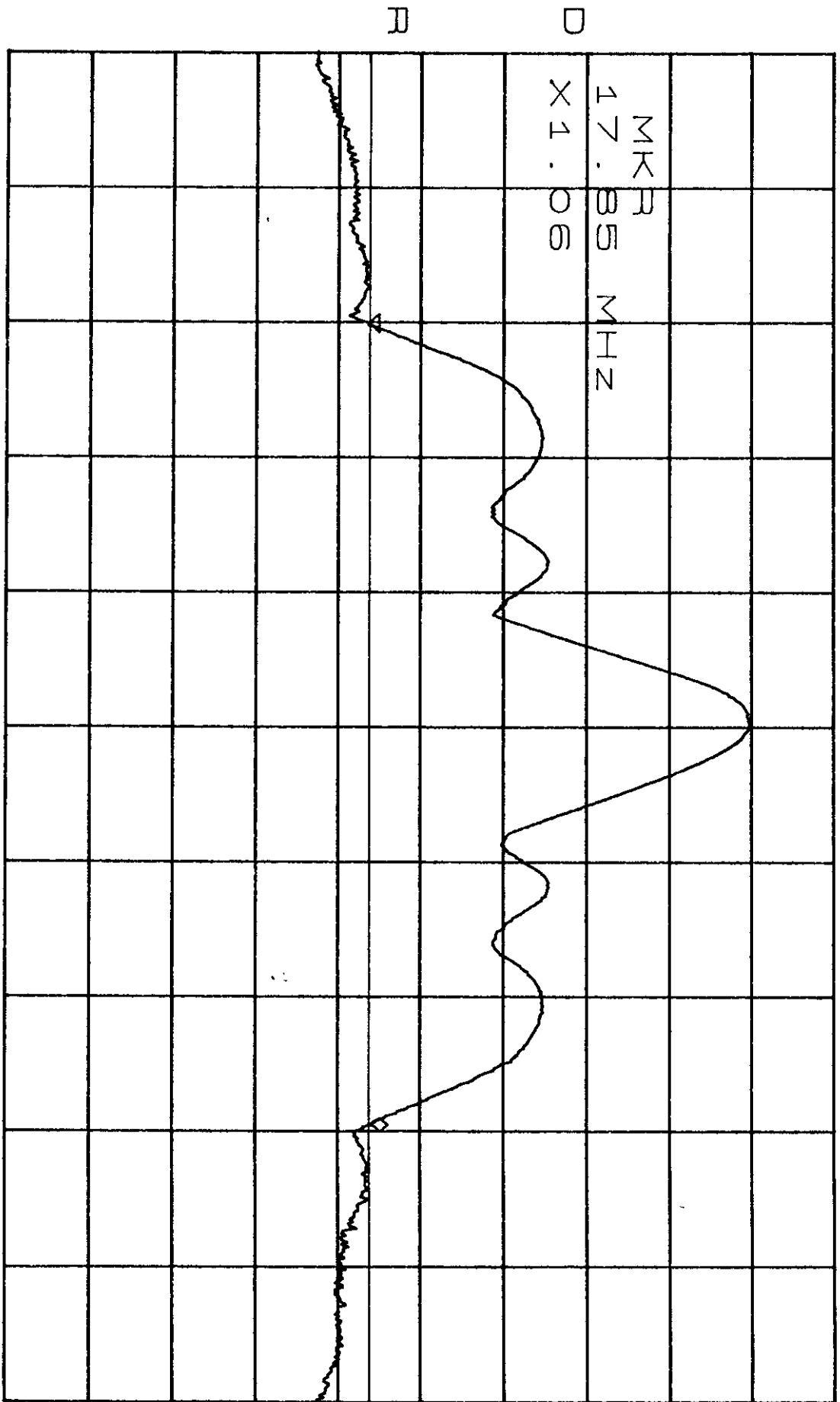
$$\begin{aligned} \text{BW}_{\text{channel}} &= 2M + 2D = 8 \text{ MHz} + 8 \text{ MHz} = 16 \text{ MHz} \\ &= 16 \text{ MHz} + 2 \text{ MHz}_{(\text{max audio})} = 18 \text{ MHz} \end{aligned}$$

*ATTEN 30dB
RL 70.71V
MKR X1.02
10dB/
47.93MHz



CENTER 2.45873GHz
SPAN 20.00MHz
*RBW 1.0MHz
VBW 1.0MHz
SWP 50ms

*ATTEN 30dB
RL 70.71V
10dB/
MKR X1.06
17.85MHz



CENTER 2.10167GHz
SPAN 30.00MHz
*RBW 1.0MHz
*VBW 3.0MHz
SWP 50ms

*ATTEN 40dB

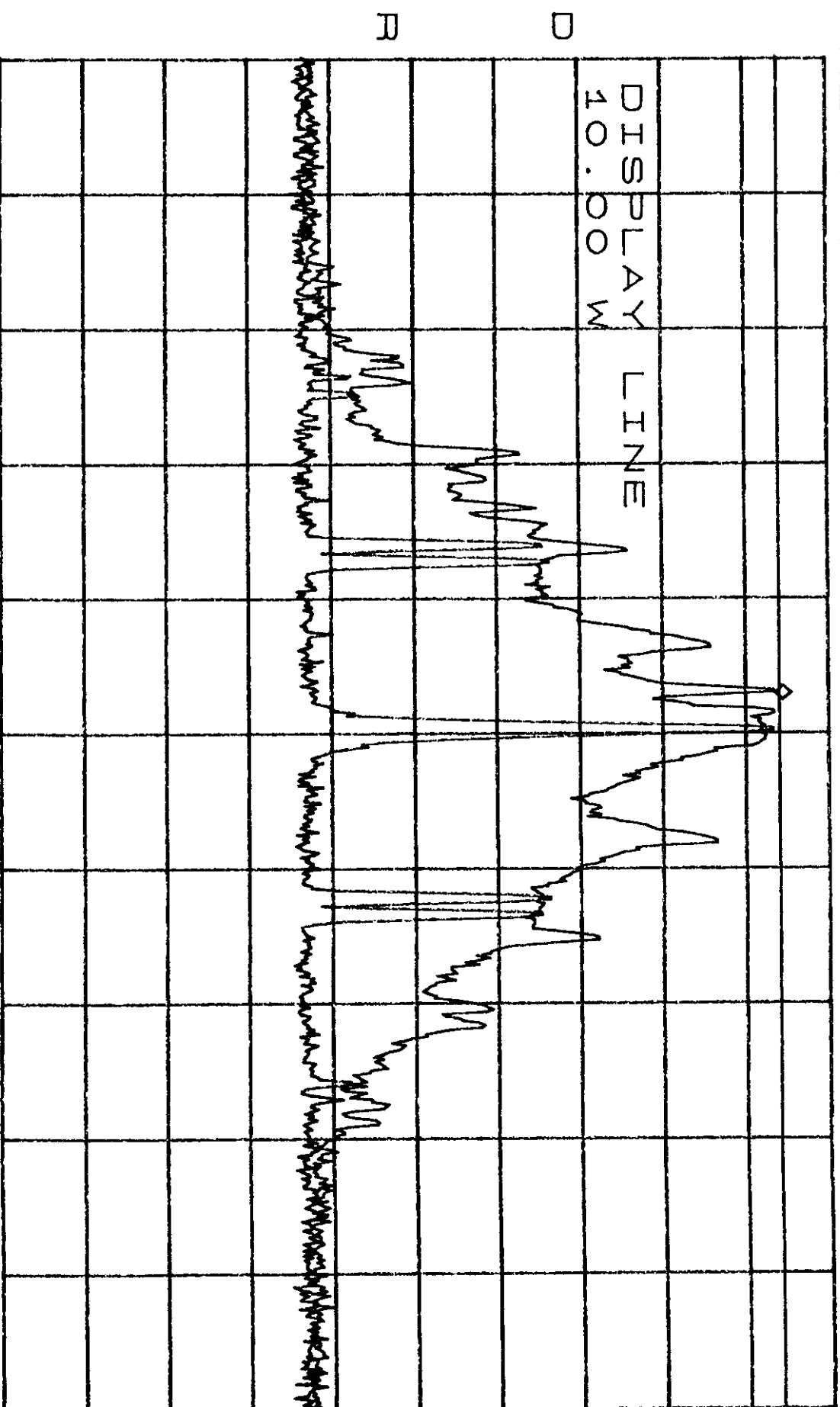
MKR 8.9954W

RL 39.99W

10dB/

1.99760GHz

DISPLAY LINE
10.00 W



D

D

CENTER 1.99910GHz

SPAN 50.00MHz

*RBW 100kHz

VBW 100kHz

SWP 50ms

*ATTEN 40dB

PL 46.00dBm

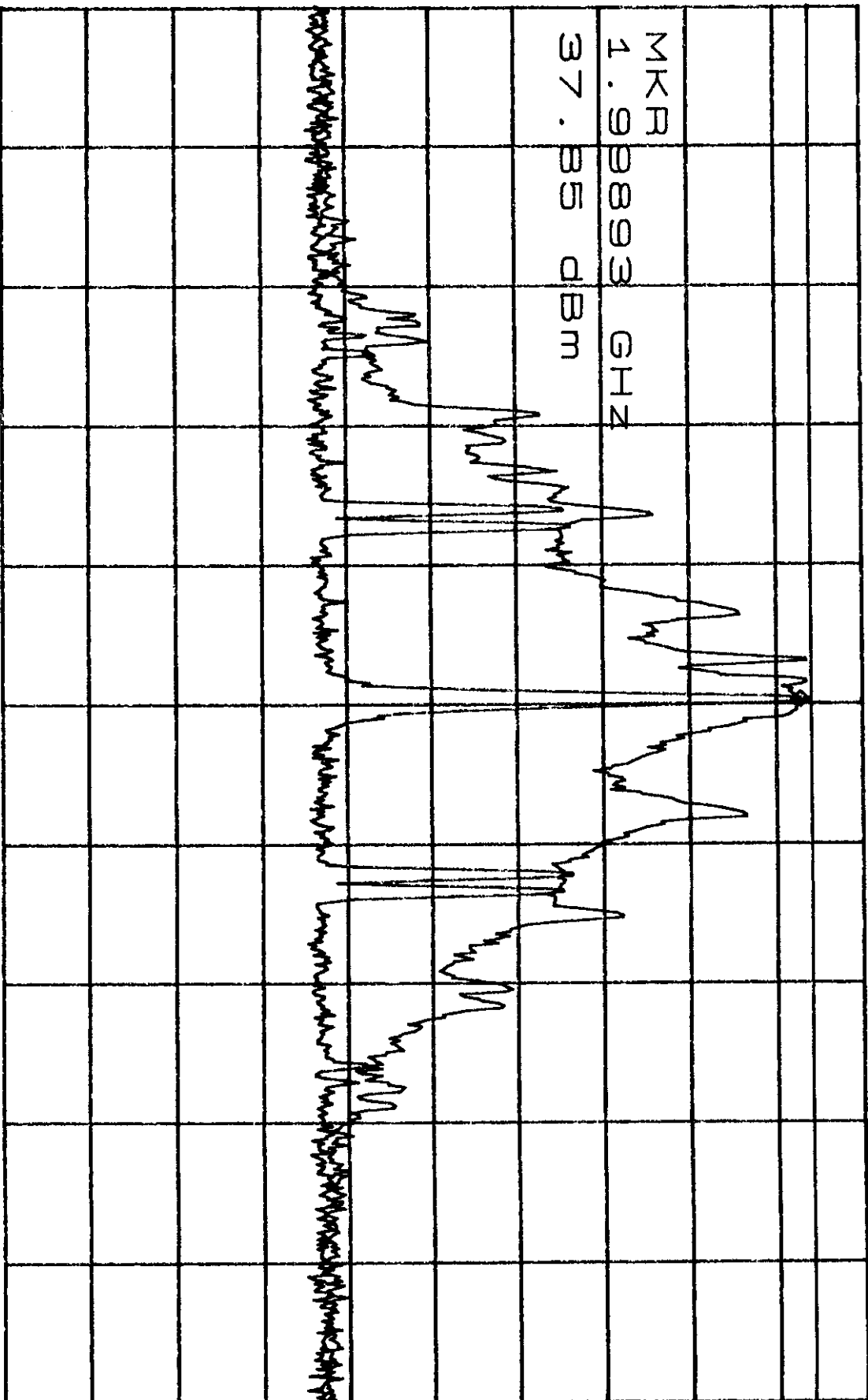
10dB/

MKR 37.85GHz

D

MKR
1.99993 GHz
37.85 dBm

D



CENTER 1.99993 GHz

SPAN 50.00 MHz

*RBW 100 kHz

VBW 100 kHz

SMP 500 ms



SUBJECT: Frequency Stability
FCC Part 74 ; 90

MET REPORT: EMI894
MFG: General Microwave
TESTED BY: Kenneth Bass
TEST DATE: 31 OCT 1997

EUT: Microwave Transmitter
MODEL: STS-10000

TECHNICAL SPECIFICATION: 2.995

Frequency tolerance of carrier signal: +/- 0.005% for a temperature variation from -30°C to +50°C at normal supply voltage, and for a variation in primary voltage from 85% to 100% of the rated supply voltage at +20°C.

CARRIER FREQUENCY TOLERANCE LIMIT

Tolerance	Channel Frequency
+0.005%	2029.5950 MHz
0%	2029.4932 MHz
-0.005%	2029.3920 MHz

CARRIER FREQUENCY DEVIATIONS DUE TO POWER SUPPLY INSTABILITY

% Deviation from Nominal Voltage	Supply Voltage	Channel Carrier Frequency (GHz) High Power	Δf (KHz)
85%	10.2	2.1015001	4.3
100%	12	2.1015005	0
115%	13.15	2.1014999	6.0



CARRIER FREQUENCY DEVIATIONS DUE TO TEMPERATURE INSTABILITY

Temperature (°C)	Δf High Power Mode	
	Carrier Frequency (GHz) High Power	Δf (KHz)
-30	2.10150083	4.75
-20	2.10150083	1.92
-10	2.10150083	1.92
0	2.10150083	1.25
+10	2.10150083	.750
+20	2.10151675	16.5
+30	2.10151675	4.92
+40	2.10151675	1.67
+50	2.10151067	3.08

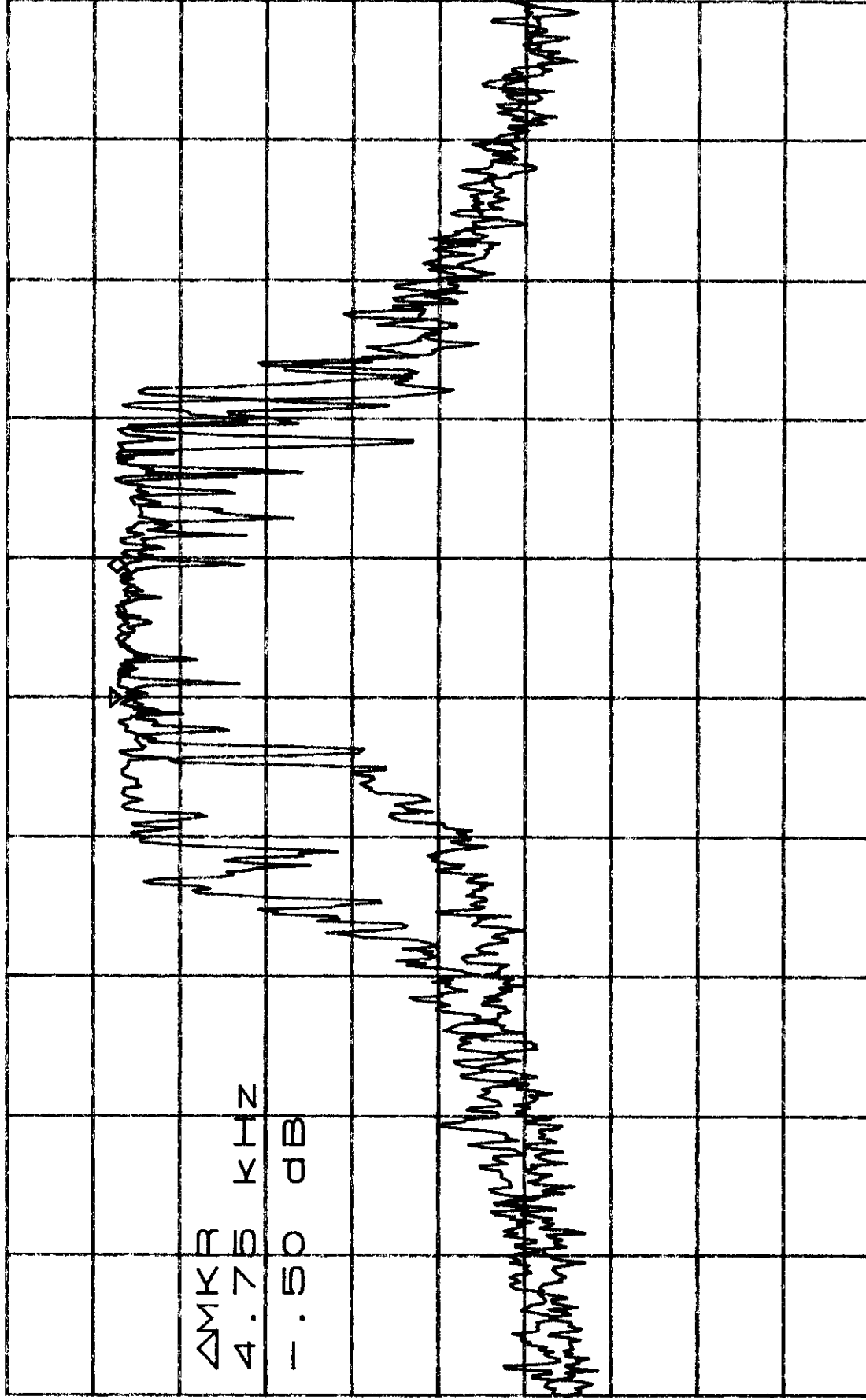
Equipment meets the requirements of 2.995

*ATTEN 30dB

RL 50.0dBm

ΔMKR -1.50dB

10dB/ 4.75kHz



CENTER 2.10150083GHz

SPAN 50.00kHz

*RBW 1.0kHz

*VBW 30kHz

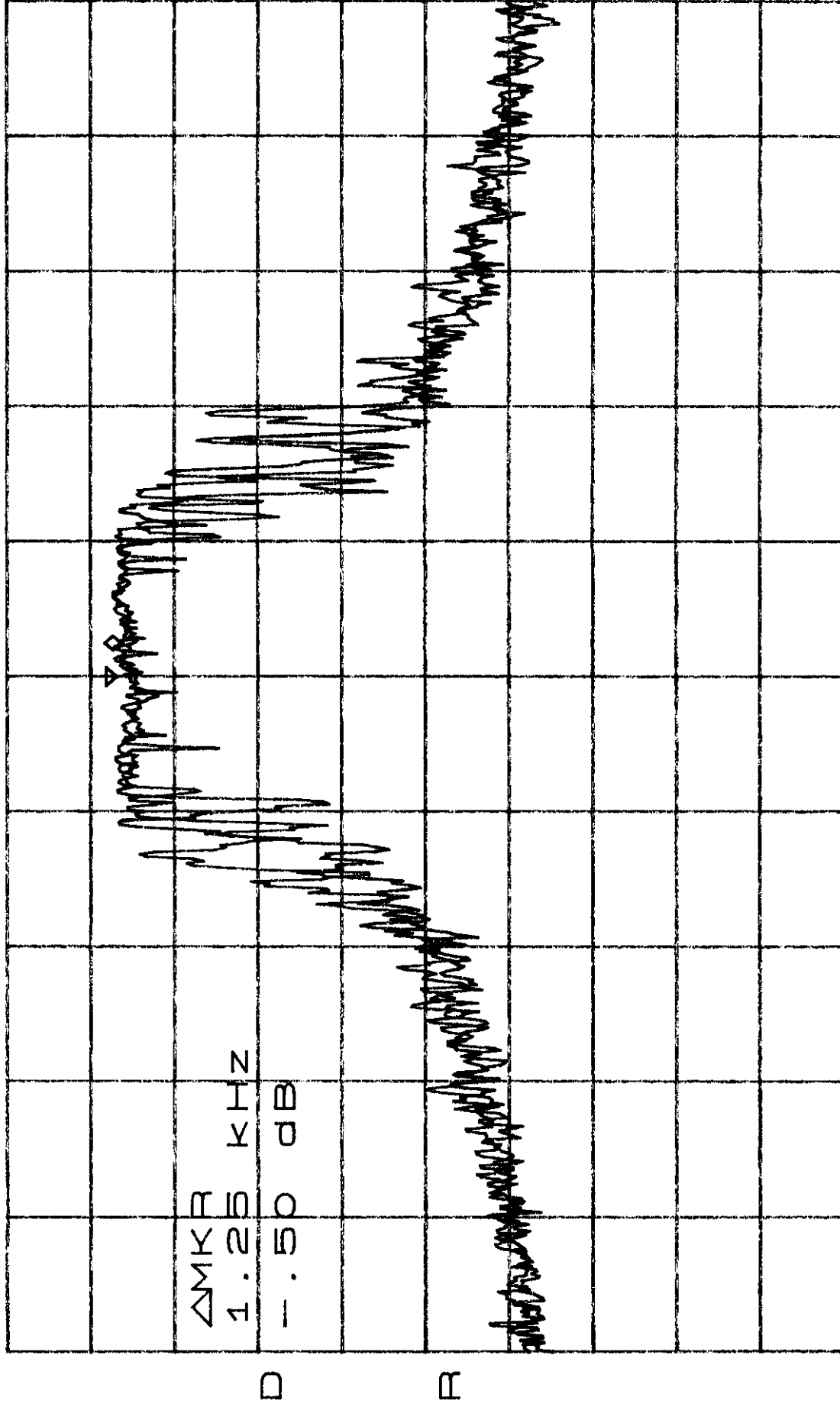
SWP 200ms

*ATTEN 30dB

RL 50.0dBm

ΔMKR - .50dB

10dB/ 1.25kHz



CENTER 2.10150083GHZ

SPAN 50.00KHZ

*RBW 1.0KHZ

*VBW 30KHZ

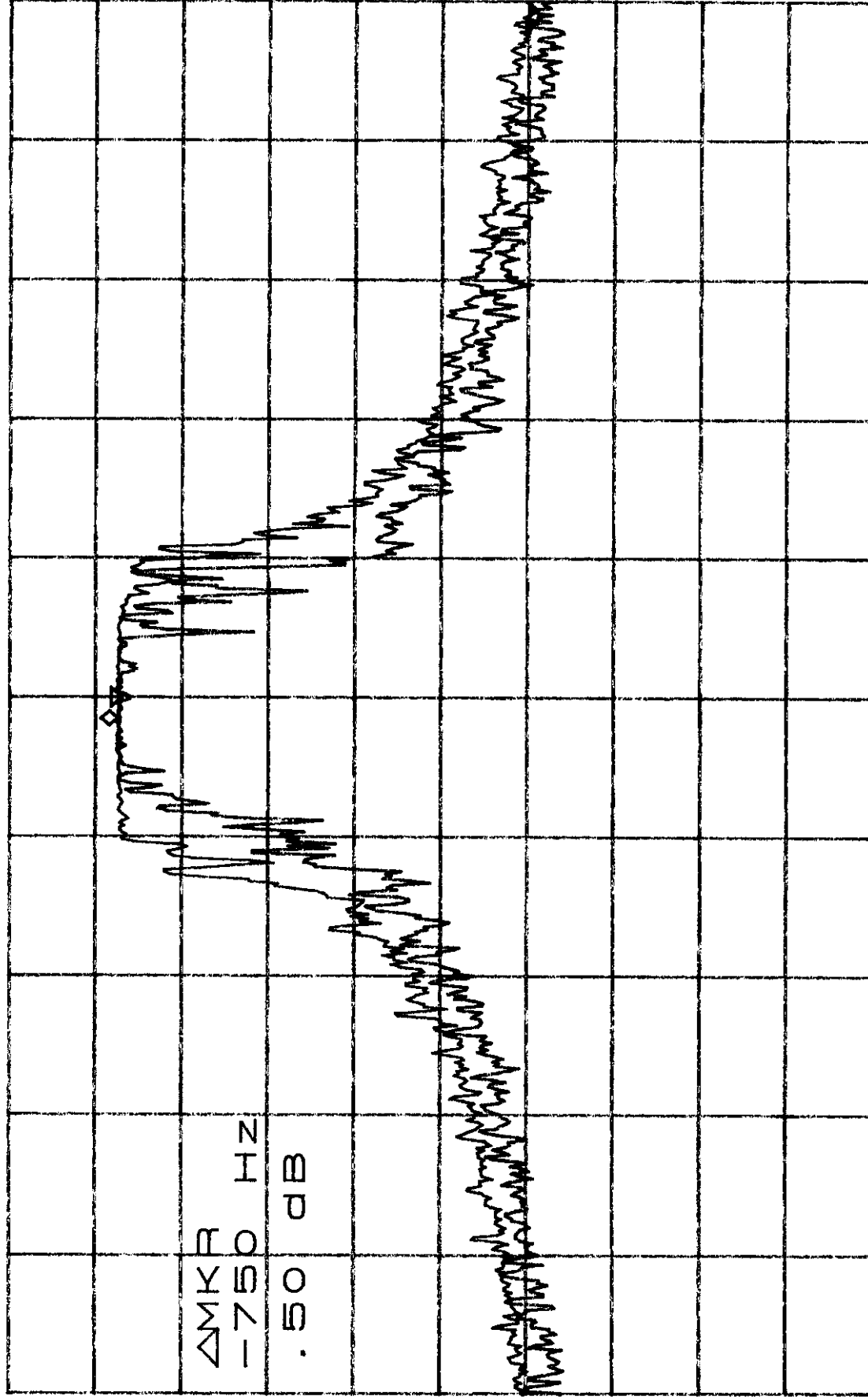
SWP 200ms

*ATTEN 30dB

RL 50.0dBm

ΔMKR .50dB

10dB/-750HZ



ΔMKR
-750 HZ

.50 dB

D

H

CENTER 2.10150083GHZ

SPAN 50.00KHZ

*RBW 1.0KHZ

*VBW 30KHZ

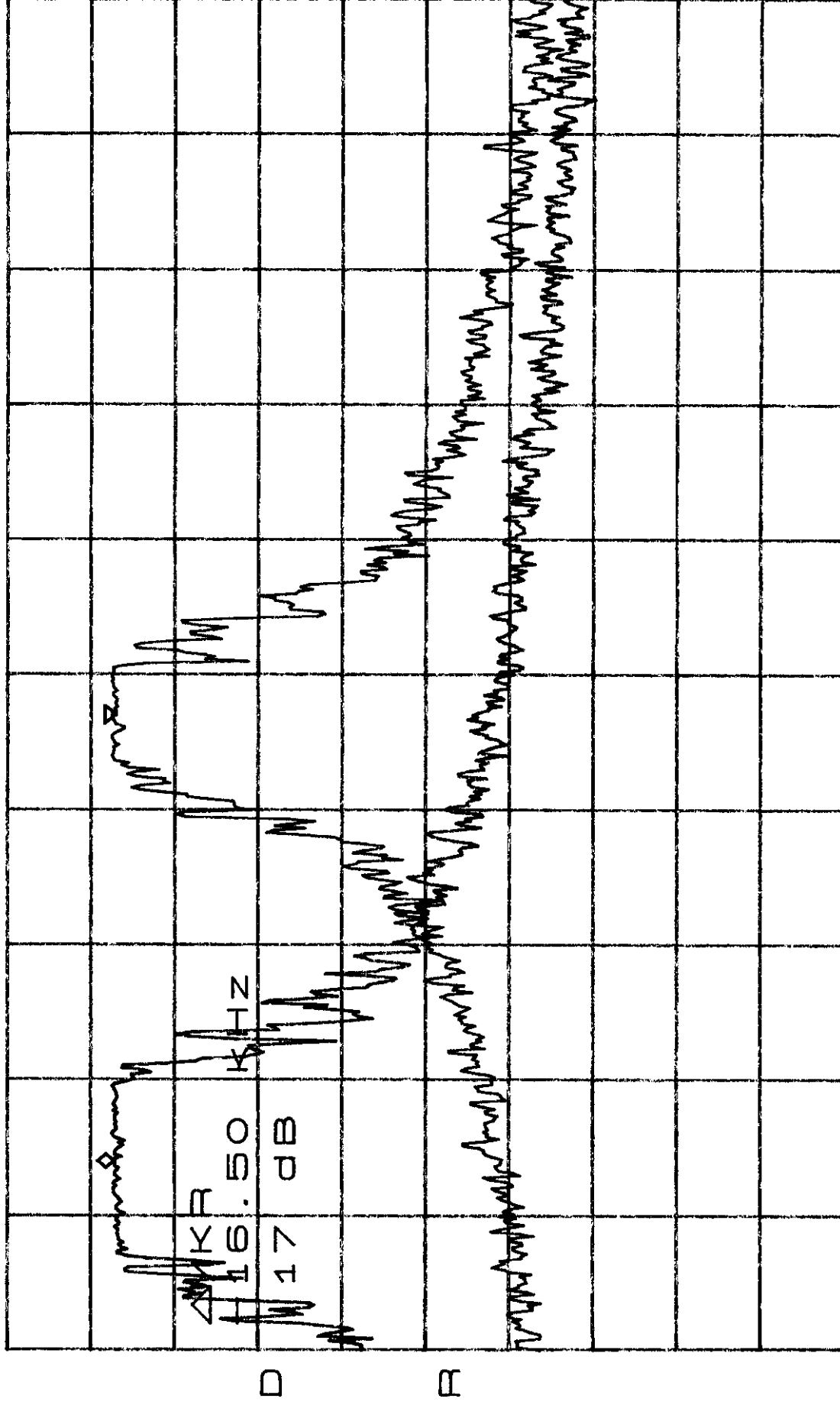
SWP 200ms

*ATTEN 30dB

RL 50.0dBm

ΔMKR .17dB

10dB/
-16.50KHZ



CENTER 2.10151675GHZ

SPAN 50.00KHZ

*RBW 1.0KHZ

*VBW 30KHZ

SWP 200ms

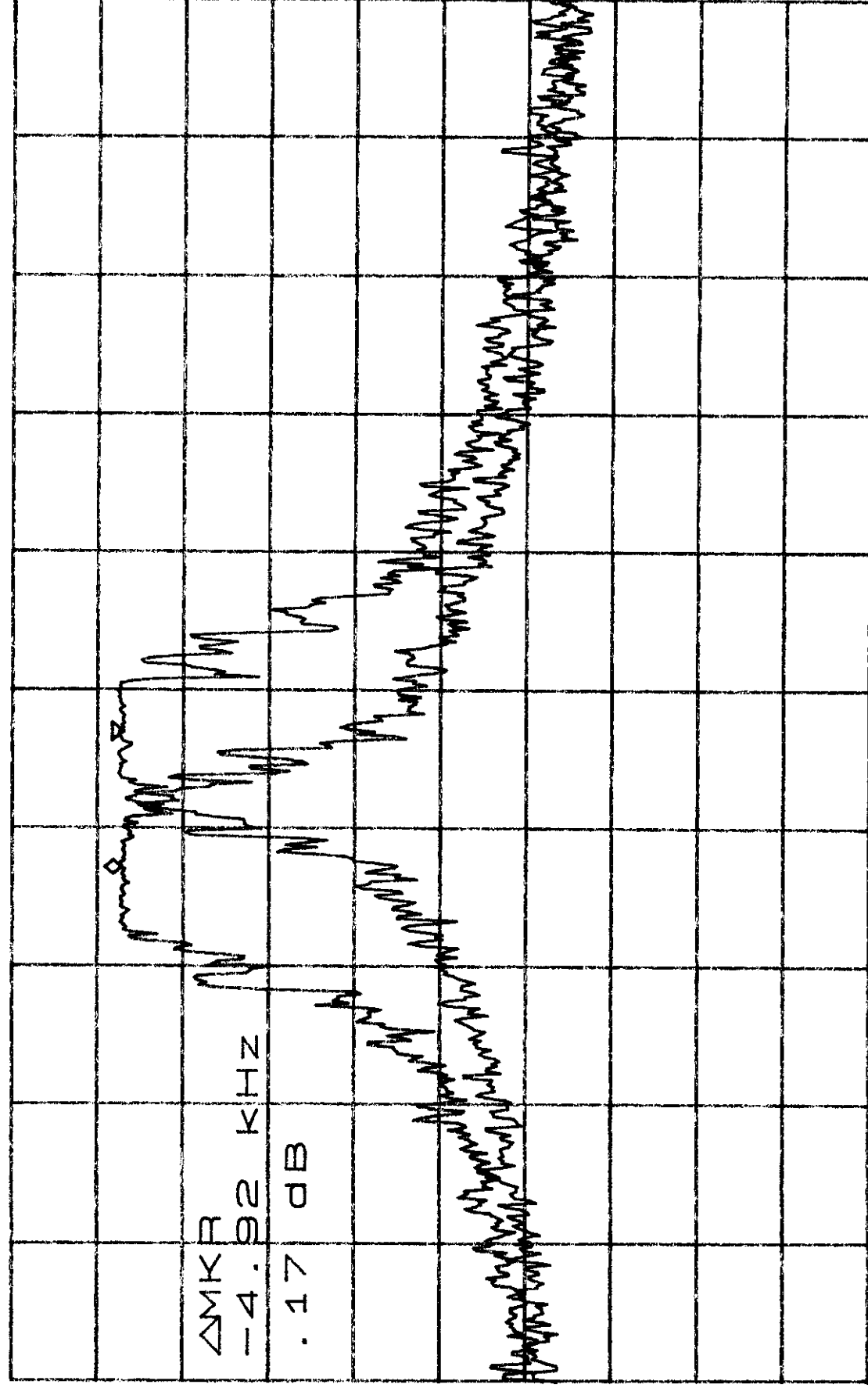
*ATTEN 30dB

RL 50.0dBm

Δ MKR .17dB

10dB/

-4.92KHZ



Δ MKR

-4.92 KHZ

.17 dB

CENTER 2.10151675GHZ

SPAN 50.00KHZ

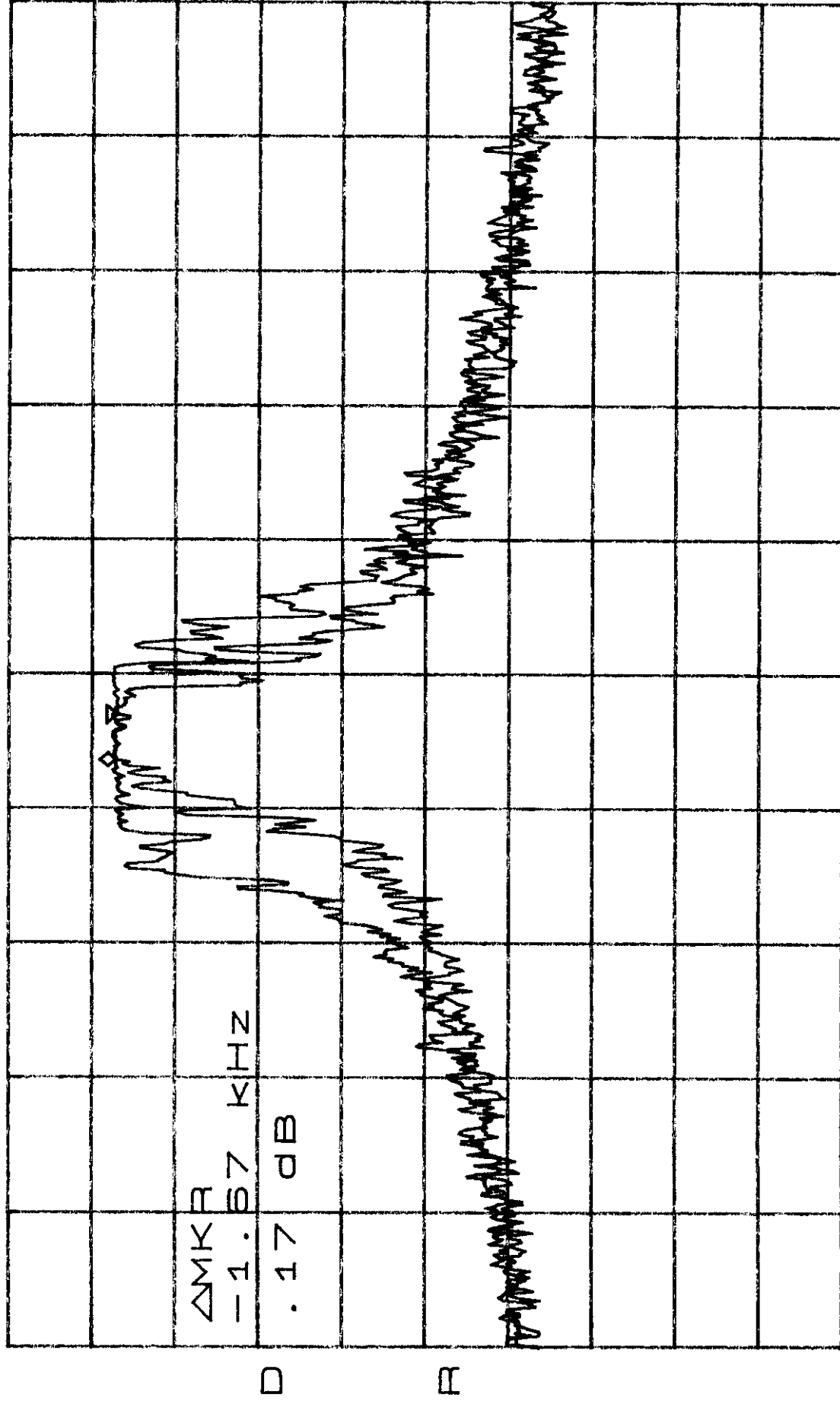
*RBW 1.0KHZ

*VBW 30KHZ

SWP 200ms

*ATTEN 30dB
RL 50.0dBm

ΔMKR .17dB
-1.67KHz



CENTER 2.10151675GHz
*RBW 1.0KHz *VBW 30KHz

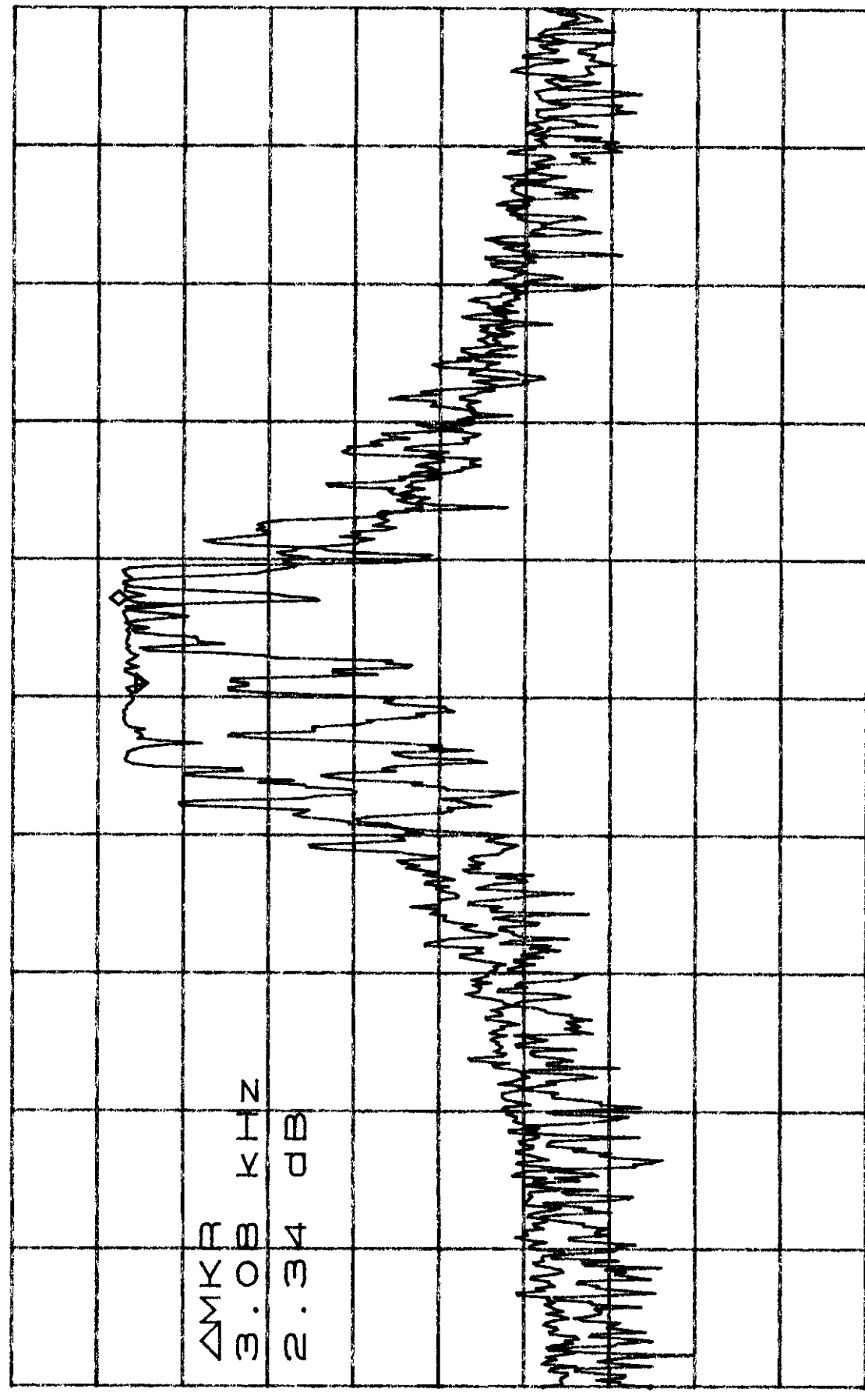
SPAN 50.00KHz
SWP 200ms

*ATTEN 30dB

RL 50.0dBm

ΔMKR 2.34dB

10dB/ 3.08KHz



ΔMKR
3.08 KHz
2.34 dB

CENTER 2.10151067GHz

*RBW 1.0KHz

*VBW 30KHz

SPAN 50.00KHz

SWP 200ms