



125 Technology Parkway
Norcross, Georgia, US 30092

Frequency Hopping
Spread Spectrum
Transmitter

Testing Performed by: LXE Inc.

Model: 4810P3S01US

Class 2 Permissive Change

FCC ID: KDZLXE4810P3S01US

LXE Project No.: 00-085

Issue Date: October 26, 2000

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1.0 GENERAL

1.1 Introduction

The purpose of this class 2 permissive change filing is to report findings of compliance testing performed to add the antennas listed in section 1.2 for use with the LXE 4810P3S01US Radio. The following report demonstrates compliance with Part 15, Subpart C of the FCC's Code of Federal Regulations.

1.2 Product Description

The EUT is the combination of the LXE Model 4810P3S01US Transceiver and the antennas listed in below.

The 4810P3S01US is a UHF, Frequency Hopping, Spread Spectrum, 250mW Transceiver intended for data link applications in the 902-928 MHz band.

1.3 Antennas

The 4810P3S01US transceiver was originally approved with generic 0dBi ¼ wave whip antenna. Table 1 below identifies and briefly describes the new antennas added by this filing. Specification pages and photographs of these antennas are included separately in this filing if available.

Table 1: New Antennas

LXE Antenna List							
LXE P/N	Mfg.	Mfg. P/N	Antenna Type	Gain (dBi)	System EIRP (dBm)	Intended Use (Mobile/Portable)	Required MPE Distance(cm)
148693-0001	Hytennas	10519	Omni	2.5	26.5	Mobile	4.62
148694-0001	Hytennas	10556	Omni	2.5	26.5	Mobile	4.62
148695-0001	Hytennas	10542	Omni	2.5	26.5	Mobile	4.62
155102-0001*	LXE	155102-0001	Omni	0	24	Portable	N/A
156428-0001*	LXE	156428-0001	Patch	0	24	Portable	N/A

* Will be used in device defined as portable and is exempt from MPE. See section 8.3 for RF safety compliance information of these antennas.

2.0 LOCATION OF TEST FACILITY

The LXE test facility is located at the following address:

LXE, Inc.
 An Electromagnetic Sciences Company
 125 Technology Parkway
 Norcross, GA US 30092-2993
 Tel: (770) 447-4224
 Fax: (770) 447-6928

Radiated emission tests were conducted at the manufacturer's test facility at a location specifically prepared for this testing. The radiated emissions test site meets the characteristics of ANSI C63.4:1992, CISPR 16 and EN 55022:1994. This site has been fully described and submitted to the FCC, and accepted in their letter marked 31040/SIT, 1300F2.

3.0 DESCRIPTION OF OPEN AREA TEST SITE

The open area test site(OATS) is located in the center of the rooftop of the building. The roof is located at a height of approximately 8 meters above the ground. The 3 meters radiated emissions test site is an open, flat area (open area) test site approximately 6.2m x 9.2m in dimension. All reflecting objects including test personnel lie outside the perimeter of the ellipse. The 3 meters test site ground plane is made of a 1/4" metal screen mesh which extends 2 meters past the mast and equipment under test(EUT). Material of the ground plane, comprised of individual 1/4" metal screen mesh rolls, were soldered at the seams with gaps smaller than 1/10 of the wavelength at 1000MHz. The ground plane is connected to the earth ground by ground rods. All wiring is done at floor level around the test site periphery. The radiated emissions test setup is shown in figure 1.

3.1 Radiated Emissions Testing Facility Drawing

All dimensions are in meters(m)

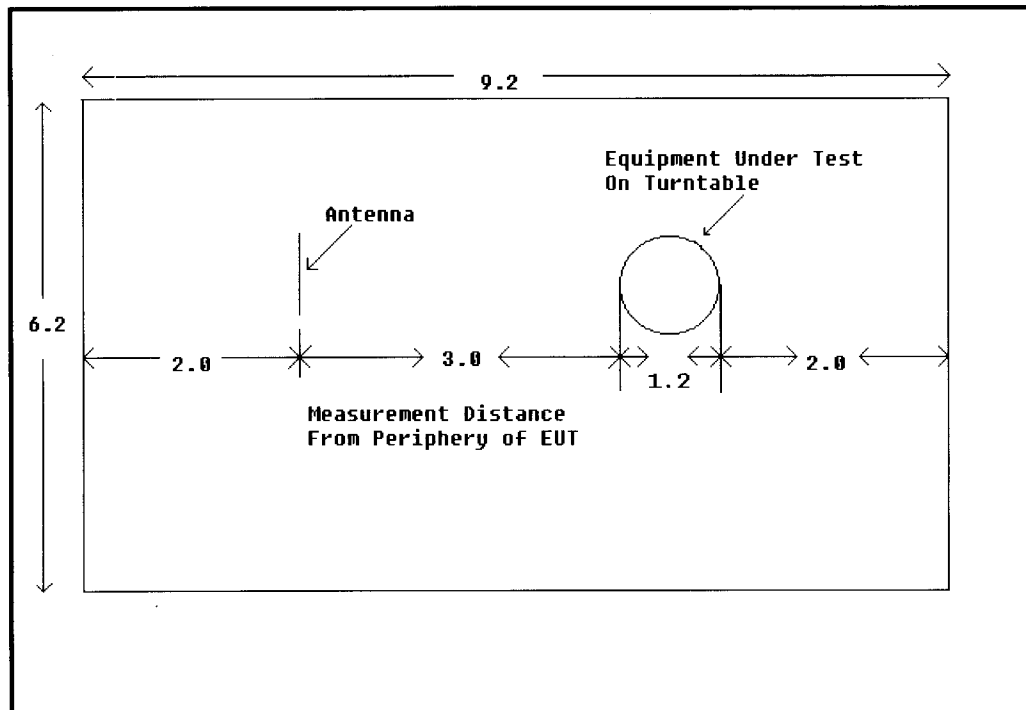


Figure 1: Open Area Test Site(OATS)

4.0 APPLICABLE STANDARD REFERENCES

The following standards were used to determine compliance:

- 1 - ANSI C63.4-1992: Method of Measurements of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the 9KHz to 40GHz
- 2 - US Code of Federal Regulations (CRF): Title 47, Part 15, Radio Frequency Devices, Subpart C, Intentional Radiators (October 1997)
- 3 - FCC Report and Order 97-114: Amendment of Parts 2 and 15 of the Commission's rules regarding Spread Spectrum Transmitters.
- 4 - OET Bulletin 65, Supplement C, Section 3: RF Exposure Compliance for Spread Spectrum Transmitters.

5.0 LIST OF TEST EQUIPMENT

Radiated field strength measurements are taken with a spectrum analyzer. For peak measurements the spectrum analyzer was set with both the VBW and the RBW at 1MHz. Average measurements were taken with the RBW at 1MHz and the VBW at 10Hz. The sweep rate was set to auto to optimize the measurement. Adequate attenuation was used to protect the analyzer from damage.

Table 2: Test Equipment

Cal #	MFG Name	Item Name	Model #:	Serial #	Recal Date:
53	Hewlett Packard	Spectrum Analyzer	8563E	3304A00657	5/4/01
62	Compliance Design, Inc.	Antenna, Dipole	B1000	265	4/12/01
202	Hewlett Packard	Amp, .01-26.5 GHz	83006A	3104A00543	11/9/00
228	Electro-Metrics	Antenna	RGA-60	6165	8/20/01
229	Electro-Metrics	Antenna	RGA-60	6166	4/10/01
230	EMCO	LISN	3810/2NM	9505-1024	5/16/01
232	Electro-Metrics	Antenna, Biconical	BIA-25	1165	7/06/01
233	EMCO	Antenna, Biconical	3104C	9012-4360	5/22/01
234	EMCO	Antenna, Log Periodic	3146	9011-2946	6/21/01
238	Hewlett Packard	Spectrum Analyzer	8591A	3131A02254	5/8/01
239	LXE	Pre-Amp	20-1000GHz	001	4/7/01
394	Microwave Circuits	High-Pass Filter	H3G020G2	0001 DC9853	1/27/01
399	Mini Circuits	High-Pass Filter	SHP-1000	none	N/A
450	LXE	RF Cables (High Freq. Short)	none	Copper	11/5/00
451	LXE	RF Cables (High Freq. Double)	7015/6986	MFR-57500	11/5/00
452	EMCO	Mast, Antenna, Mini	2075	PN399235	N/A
453	EMCO	Turntable	2065	PN399230	N/A
99998	Lindgren Enclosure	RF Enclosure	14-2/2-0	8147	N/A

6.0 TEST METHODOLOGY

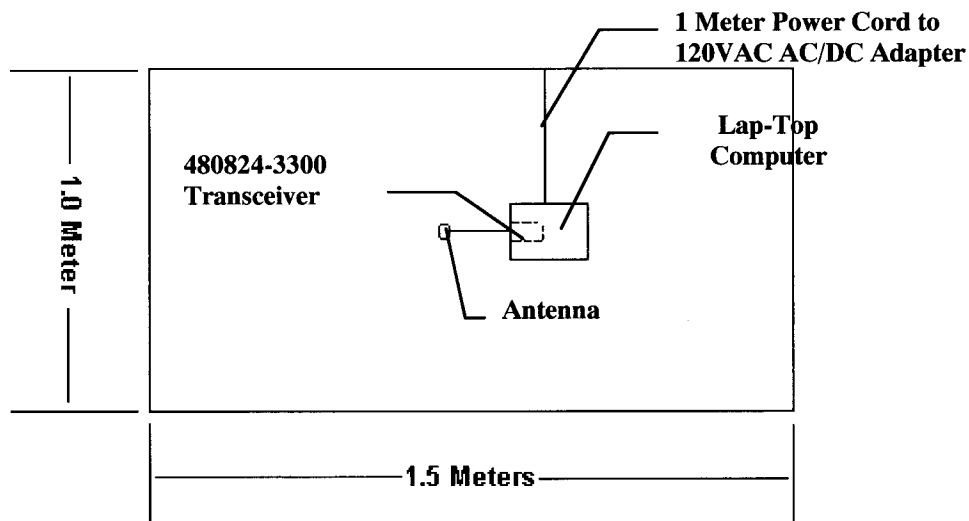
For the radiated emissions tests, measurements were made over the frequency range of 30MHz to 10 times the highest fundamental frequency. Measurements of the radiated field strength were made at a distance of 3m from the boundary of the equipment under test(EUT) and the receiving antenna. The antenna height was varied from 1m to 4m so that the maximum radiated emissions level would be detected. A non-conductive remotely controlled turntable approximately 0.91m x 1.2m x 0.8m was used to measure radiated emissions from all sides of the EUT. The turntable has a center opening that allows cabling to be routed directly down to the conducting ground plane.

Due to high ambient noise levels and small EUT size, radiated emission measurements may be made at a distance of 1 meter. An inverse proportionality factor of 20 dB per decade is used to normalize the measured data to the specified distance to determine compliance. The formula used to calculate an inverse proportionality factor is $20 \log (D1/D2)$, where D1 is the distance used and D2 is the specified distance.

Radiated measurements were made with the Spectrum Analyzer's resolution bandwidth set to 120KHz for measurements above 30MHz and below 1000MHz, and 1MHz for measurements above 1000 MHz.

7.0 SUPPORT EQUIPMENT**Table 3: Support Equipment**

Manufacturer	Equipment Type	Model Number	Serial Number	FCC ID
WinBook XP	LapTop Computer	ANL-4	10AUA01756	JRUANL-4M66
DELL	AC/DC Power Adapter	ADP-45GB	N6745067248	NONE

7.1 EQUIPMENT UNDER TEST SETUP BLOCK DIAGRAM**Figure 2: Test Setup Block Diagram**

8.0 SUMMARY OF TESTS

Along with the tabular data shown below, plots were also taken of all signals deemed important enough to document. Plots are included in the appendix.

8.1 Section 15.203 - Antenna Requirement

All antennas listed in section 1.3 are equipped with R-TNC or MMCX connecting arrangements

8.2 Section 15.247(b)(4) - RF Safety

Refer to section 1.3 for the intended use of each antenna included in this filing. All mobile equipment installation guides contain the following statement:

“This device is intended to transmit RF energy. For protection against excessive RF exposure to humans and in accordance with FCC rules, this equipment should be installed such that a minimum separation distance of at least 20cm is maintained between the radiating element and the user”

SAR Testing was performed on the combination of the 4810P3S01US transceiver and LXE antenna 155102-0001 in an out of box configuration with satisfactory results. This configuration was deemed worst case as this antenna, when installed in the host device, will be in the closest proximity of the user. LXE antenna 155426-0001 is assumed to be compliant based on these results. The SAR report is submitted separately with this filing.

8.3 Radiated Spurious Emissions(Restricted Bands)

The peak radiated spurious emissions found in the restricted bands are reported below in table 4 and plots of each can be found in the appendix. Only the highest gain of each type antenna was tested and the remaining are assumed compliant based on the satisfactory results.

Table 4: Radiated Spurious Emissions

Frequency (MHz)	Antenna Distance (m)	Level (dBm)	Detector Function (P/A)	Duty Cycle Correction (dB)	Correction Factors (dB)	Corrected Level (dBm)	Corrected Level (uV/m)	Limit (uV/m)	Margin (dB)	Final Result (Pass/Fail)
LXE Antenna Part: 156428-0001										
Channel 1: 902MHz										
2707	3	-64.83	p	21	14.45	-71.38	60.39	500	439.61	PASS
3609	3	-61.67	p	21	16.26	-66.41	107.09	500	392.91	PASS
4511	3	-63.67	p	21	17.50	-67.17	98.06	500	401.94	PASS
Channel 2: 915MHz										
2747	3	-58.33	p	21	14.48	-64.85	128.05	500	371.95	PASS
3663	3	-60.67	p	21	16.43	-65.24	122.40	500	377.60	PASS
4579	3	-58.17	p	21	17.81	-61.36	191.33	500	308.67	PASS
5495	3	-64.17	p	21	20.46	-64.71	130.20	500	369.80	PASS
6410	3	-65.33	p	21	20.82	-65.51	118.68	500	381.32	PASS
Channel 3: 927.8MHz										
2783	3	-59.67	p	21	14.50	-66.17	110.07	500	389.93	PASS
3711	3	-60.17	p	21	16.57	-64.60	131.81	500	368.19	PASS
4639	3	-64.33	p	21	18.08	-67.25	97.11	500	402.89	PASS
LXE Antenna Part: 154494-0001										
Channel 1: 902.2MHz										
2705	3	-63.00	p	21	14.45	-69.55	74.54	500	425.46	PASS
3609	3	-62.00	p	21	16.26	-66.74	103.10	500	396.90	PASS
4511	3	-66.33	p	21	17.50	-69.83	72.19	500	427.81	PASS
5413	3	-69.00	p	21	20.34	-69.66	73.59	500	426.41	PASS
Channel 2: 915MHz										
2745	3	-63.83	p	21	14.48	-70.35	67.97	500	432.03	PASS
3660	3	-62.67	p	21	16.42	-67.25	97.13	500	402.87	PASS
4575	3	-67.00	p	21	17.79	-70.21	69.08	500	430.92	PASS
5490	3	-67.83	p	21	20.45	-68.38	85.36	500	414.64	PASS
Channel 3: 927.8MHz										
2783	3	-64.50	p	21	14.50	-71.00	63.12	500	436.88	PASS
3711	3	-63.83	p	21	16.57	-68.26	86.48	500	413.52	PASS
4639	3	-70.17	p	21	18.08	-73.09	49.58	500	450.42	PASS
5567	3	-69.83	p	21	20.55	-70.28	68.56	500	431.44	PASS

9.0 CONCLUSION

The product covered by this report has been tested and found to comply with the requirements as described in Part 15, Subpart C, Section 15.247 of the FCC Code of Federal Regulations.

Testing Performed By: 
 Sam Wismer
 Lead Approvals Engineer

Report Reviewed By: 
 Cyril Binnom
 EMI/EMC Engineer

APPENDIX

This Appendix Includes:
Antenna Specification
Duty Cycle Plots
Spurious Emissions Plots

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NOTES: (UNLESS OTHERWISE SPECIFIED)

1. SPECIFICATIONS: ANTENNA VERTICAL, QUARTER WAVE, POLAR, 915 MHz

1.0 ELECTRICAL:

1.1 ANTENNA TYPE

QUARTER WAVE DIPOLE

1.2 POLARIZATION

VERTICAL

1.3 EFFICIENCY

65% MINIMUM

1.4 IMPEDANCE

50 Ohms NOMINAL

1.5 BANDWIDTH FOR $\pm 2.25:1$ VSWR

32 MHz

1.6 CENTER FREQUENCY

915 MHz

1.7 TEST CONDITIONS

6" x 6" ALUM. PLATE
GROUND PLANE

2.0 MECHANICAL:

2.1 CONNECTOR TYPE

POLARIZED TNC FEMALE

2.2 COVERING/COATINGS

BLACK POLYURETHANE
OR EQUIVALENT

2.3 OVERALL LENGTH

4.5" MAXIMUM

2. ONLY THE ITEM(S) DESCRIBED ON THIS DRAWING WHEN PROCURED FROM THE VENDORS LISTED HEREON IS APPROVED BY LXE FOR USE IN THE APPLICATION(S) SPECIFIED HEREON. A SUBSTITUTE ITEM SHALL NOT BE USED WITHOUT PRIOR TESTING AND APPROVAL BY THE LXE ENGINEER IN CHARGE OF THIS PROJECT.

3. IDENTIFICATION OF THE APPROVED SOURCE(S) HEREON IS NOT TO BE CONSTRUED AS A GUARANTEE OF PRESENT OR CONTINUED AVAILABILITY AS A SOURCE OF SUPPLY FOR THE ITEM(S) DESCRIBED ON THIS DRAWING.

APPROVED SOURCE(S)
OF SUPPLY

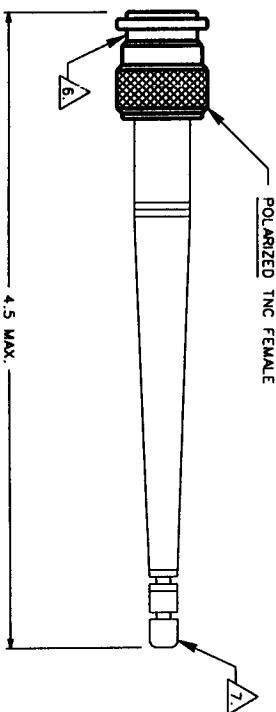
SUGGESTED SOURCE(S)	VENDOR PART #
CENTURION INTERNATIONAL, INC. P.O. BOX 82846 LINCOLN, NE 68501	CAF26312
HYTENNAS INC. 13250 95TH ST. N. LARGO, FL 34643	10519

REV	DESCRIPTION	DATE	APPROVED
A	ENG. RELEASE	4-23-92	B. AMERSON
B	INC. CNO1 JMB 6-29-92	7-15-92	B. AMERSON
C	INC. CNO2 JMB 8-2-95	8-2-95	J. AMERSON

5. SEE LXE DRAWING # 148764 FOR MORE DETAIL ON INTERFACED DIMENSIONS AND INTERNAL FEATURES OF A POLARIZED TNC FEMALE CONNECTOR.

6. DARK BLUE COLOR BAND TO IDENTIFY ANTENNA WITH A POLARIZED TNC CONNECTOR ON CENTURION ANTENNA ONLY.

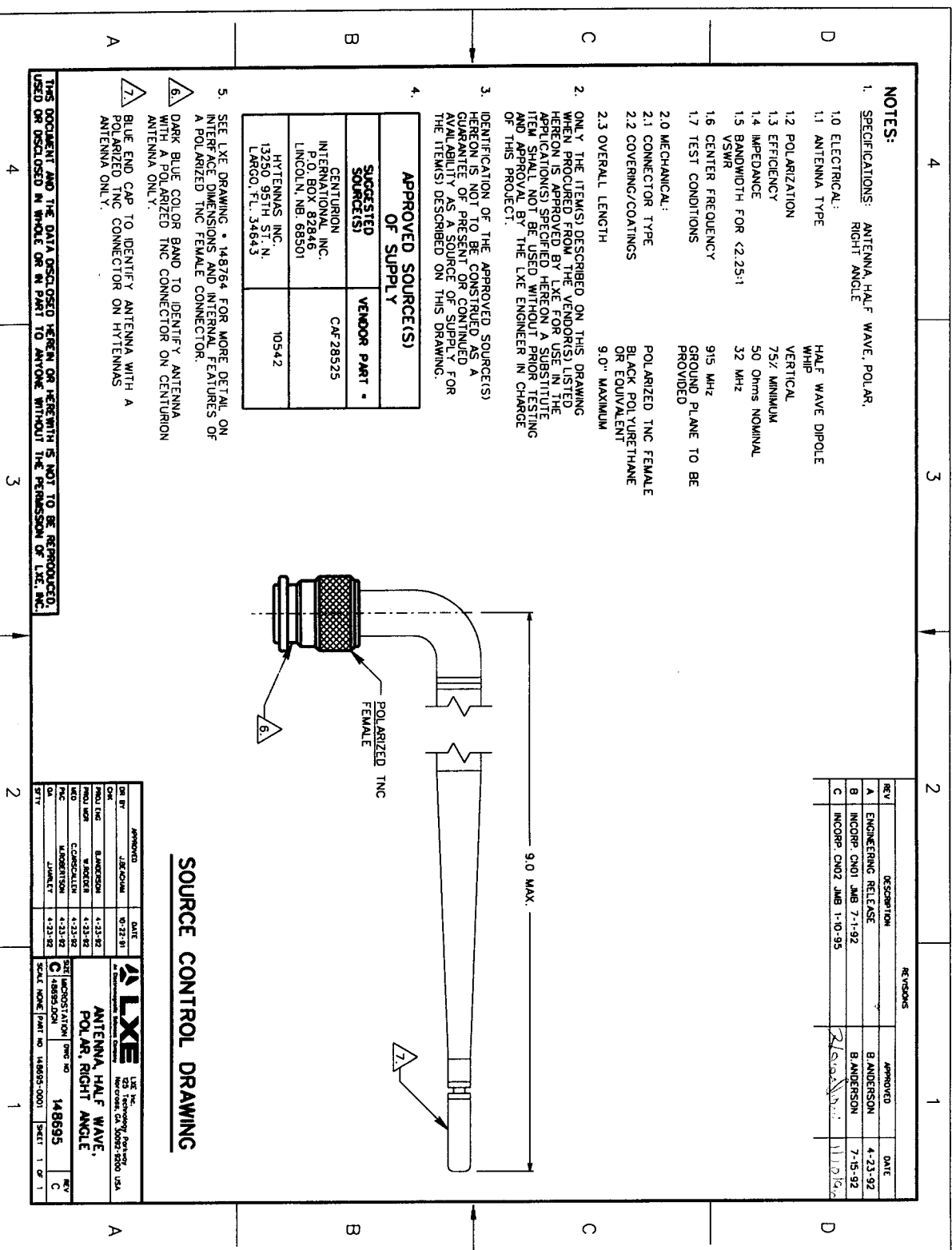
7. BLUE END CAP TO IDENTIFY ANTENNA WITH A POLARIZED TNC CONNECTOR ON HYTENNAS ANTENNA ONLY.



SOURCE CONTROL DRAWING

REV	DESCRIPTION	DATE	APPROVED
1	148693-0001	ANTENNA VERTICAL, QUARTER WAVE, POLAR	
2	148693-0002	ANTENNA VERTICAL, QUARTER WAVE, POLAR	
3	148693-0003	ANTENNA VERTICAL, QUARTER WAVE, POLAR	
4	148693-0004	ANTENNA VERTICAL, QUARTER WAVE, POLAR	

REV	DESCRIPTION	DATE	APPROVED
1	148693-0001	ANTENNA VERTICAL, QUARTER WAVE, POLAR	
2	148693-0002	ANTENNA VERTICAL, QUARTER WAVE, POLAR	
3	148693-0003	ANTENNA VERTICAL, QUARTER WAVE, POLAR	
4	148693-0004	ANTENNA VERTICAL, QUARTER WAVE, POLAR	



NOTES:

1. SPECIFICATIONS: ANTENNA, HALF WAVE, POLAR, RIGHT ANGLE

10 ELECTRICAL: HALF WAVE DIPOLE WHIP

11 ANTENNA TYPE: VERTICAL

12 POLARIZATION: 75% MINIMUM

13 EFFICIENCY: 50 Ohms NOMINAL

14 IMPEDANCE: 32 MHZ

15 BANDWIDTH FOR <2.25:1 VSWR

16 CENTER FREQUENCY: 915 MHZ

17 TEST CONDITIONS: GROUND PLANE TO BE PROVIDED

2.0 MECHANICAL: POLARIZED TNC FEMALE

2.1 CONNECTOR TYPE: BLACK POLYURETHANE OR EQUIVALENT

2.2 COVERING/COATINGS: 9.0" MAXIMUM

2.3 OVERALL LENGTH: 9.0" MAXIMUM

3. IDENTIFICATION OF THE APPROVED SOURCE(S) HEREON IS NOT TO BE CONSTRUED AS A GUARANTEE OF PRESENT OR CONTINUED AVAILABILITY AS A SOURCE OF SUPPLY FOR THE ITEM(S) DESCRIBED ON THIS DRAWING.

APPROVED SOURCE(S) OF SUPPLY

SUGGESTED SOURCE(S)	VENDOR PART #
CENTURION INTERNATIONAL INC. P.O. BOX 82946 LINCOLN, NB 68501	CAF28525
HYTENNAS INC. 13250 95TH ST. N. LARGO, FL. 34643	10542

5. SEE LXE DRAWING * 148764 FOR MORE DETAIL ON INTERFACE DIMENSIONS AND INTERNAL FEATURES OF A POLARIZED TNC FEMALE CONNECTOR.

6. DARK BLUE COLOR BAND TO IDENTIFY ANTENNA WITH A POLARIZED TNC CONNECTOR ON CENTURION ANTENNA ONLY.

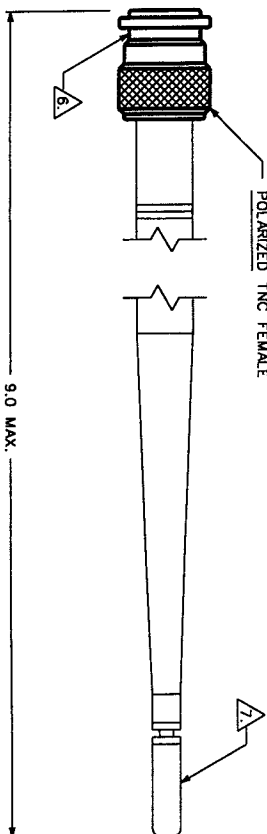
7. BLUE END CAP TO IDENTIFY ANTENNA WITH A POLARIZED TNC CONNECTOR ON HYTENNAS ANTENNA ONLY.

THIS DOCUMENT AND THE DATA DISCLOSED HEREON OR HEREWITH IS NOT TO BE REPRODUCED, USED OR DISCLOSED IN WHOLE OR IN PART TO ANYONE WITHOUT THE PERMISSION OF LXE, INC.

LXE					
LXE INC.					
PO BOX 907 NEWPORT NEWS, VA 23608-9070 USA					
(703) 261-2000 FAX (703) 261-2001					
TELETYPE (703) 261-2002					
CABLE LEXEVA					
ANTENNA, VERTICAL, HALF WAVE,					
POLAR, 915 MHZ					
PART NO. 148694					
REV C					
CABLE MODEL					
SHEET 1 OF 1					

ANTENNA, VERTICAL, HALF WAVE.
POI AR. 915 MHz

APPROVED SOURCE(S) OF SUPPLY	
SUGGESTED SOURCE(S)	VENDOR PART #
CENTURION INTERNATIONAL, INC. P.O. BOX 82846 LINCOLN, NB. 68501	CAF28526
HYTENNIS INC. 13250 95TH STREET NORTH LARCO, FL. 34643	10556



1. SPECIFICATIONS: ANTENNA, VERTICAL, HALF WAVE, POLAR, 915 MHz
- | | |
|---|----------------------|
| A | ENGINEERING RELEASE |
| B | INCORP. CN01 JAB 6-1 |
| C | INCORP. CN02 JAB 6-1 |
- 1.0 ELECTRICAL:
- 1.1 ANTENNA TYPE HALF WAVE DIPOLE WHIP
- 1.2 POLARIZATION VERTICAL
- 1.3 EFFICIENCY 75% MINIMUM
- 1.4 IMPEDANCE 50 Ohms NOMINAL
- 1.5 BANDWIDTH FOR ± 2.25 -1 VSWR 32 MHz
- 1.6 CENTER FREQUENCY 915 MHz
- 1.7 TEST CONDITIONS 6" x 6" ALUM. PLATE GROUND PLANE
- 2.0 MECHANICAL:
- 2.1 CONNECTOR TYPE POLARIZED TNC FEMALE
- 2.2 COVERING/COATINGS BLACK POLYURETHANE OR EQUIVALENT
- 2.3 OVERALL LENGTH 9.0" MAXIMUM
2. ONLY THE ITEM(S) DESCRIBED ON THIS DRAWING WHEN PROCURED FROM THE VENDORS LISTED HEREON IS APPROVED BY LXE FOR USE IN THE APPLICATION(S) SPECIFIED HEREON. A SUBSTITUTE ITEM SHALL NOT BE USED WITHOUT PRIOR TESTING AND APPROVAL BY THE LXE ENGINEER IN CHARGE OF THIS PROJECT.
6. SEE LXE DRAWING # 148764 FOR MORE DETAIL ON INTERFACE DIMENSIONS AND INTERNAL FEATURES OF A POLARIZED TNC FEMALE CONNECTOR.
7. DARK BLUE COLOR BAND TO IDENTIFY ANTENNA WITH A POLARIZED TNC CONNECTOR.
- ANTENNA WILL BE SHIPPED WITH BLUE CAP TO INDICATE POLARIZED TNC CONNECTOR.

REVISIONS		
REV	DESCRIPTION	DATE
A	ENGINEERING RELEASE	4-23-92
B	INCORP. CNO1 JMB 6-29-92	7-15-92
C	INCORP. CNO2 JMB 6-3-96	7-17-92

4

3

2

1

NOTES:

1. TRIM CABLE (ITEM 1) AS SPECIFIED.

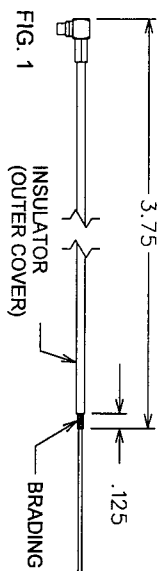


FIG. 1

2. INSERT THE PREPARED CABLE (ITEM 1) THROUGH THE CLIP (ITEM 2) FROM THE BACK SIDE UNTIL THE INSULATION (OUTER COVER) MAKES CONTACT WITH THE CLIP. MAKE SURE THAT THE CONNECTOR POINTS IN THE DIRECTION OF THE ARROW.



FIG. 2

3. SPREAD THE BRADING AS FLAT AS POSSIBLE ONTO THE CLIP FROM THE FRONT SIDE AND SOLDER. BEFORE SOLDERING MAKE SURE THAT THE CONNECTOR POINTS IN THE DIRECTION OF THE ARROW OF FIG. 2. TRIM ALL EXCESS BRADING. AFTER SOLDERING TRIM CABLE ASSY TO LENGTH SHOWN BELOW. SLIDE THE SHRINK TUBING (ITEM 3) OVER THE CENTER CONDUCTOR UNTIL IT IS SHUGLY AGAINST THE SOLDERED BRADING. SHRINK TUBING BY HEATING.

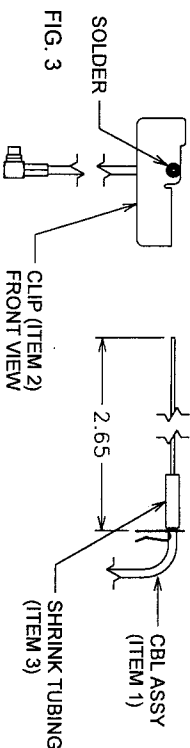
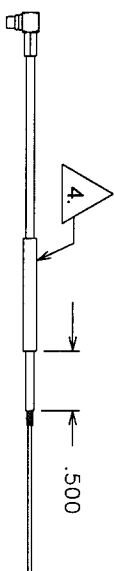


FIG. 3

4. INSTALL NEW LABEL WITH ASSEMBLY PART NUMBER AND CURRENT REVISION OVER PART NUMBER LABEL. SEE BELOW FOR LABEL INFORMATION.

155102-0001_

REVISIONS			
REV	DESCRIPTION	APPROVED	DATE
A	ENGINEERING RELEASE (REV 05)	J.D. K.F. 15	9-3-98
B	INCCP ECO3433 JMB 12-15-99	J.D. K.F. 15	12-16-99

155089-0001 (ITEM 2)
MTG CLIP, ANT 2330
SCALE: 2/1422280-0216 (ITEM 1)
CBL ASSY, MMCX W/RG178
SCALE: 1/1

THIS DOCUMENT CONTAINS INFORMATION PROPRIETARY AND/OR CONFIDENTIAL TO LXE INC. AND MAY NOT BE DIVULGED TO OTHERS, OR THE EMPLOYEES OR AGENTS OF OTHERS, WHO ARE NOT PARTIES TO OR SUBJECT TO THE TERMS AND CONDITIONS OF A NON-DISCLOSURE AGREEMENT WITH LXE INC.

APPROVED		DATE	
DR BY	J. BEACHAM	5-19-98	
CHK	H. DORRIS	9-3-98	
PROJ MGR	M. PHILLIPS	9-3-98	
ENG	C. CHASSALEN	9-14-98	
REV	A. L. VORDELL/ANDREH	9-16-98	
QA	B. SLOWIK	9-14-98	
REV			

155102-0001	155102	REV	B
SCALE: 1/1	PART NO	155102-0001	SHEET 1 OF 1

A

B

C

D

A

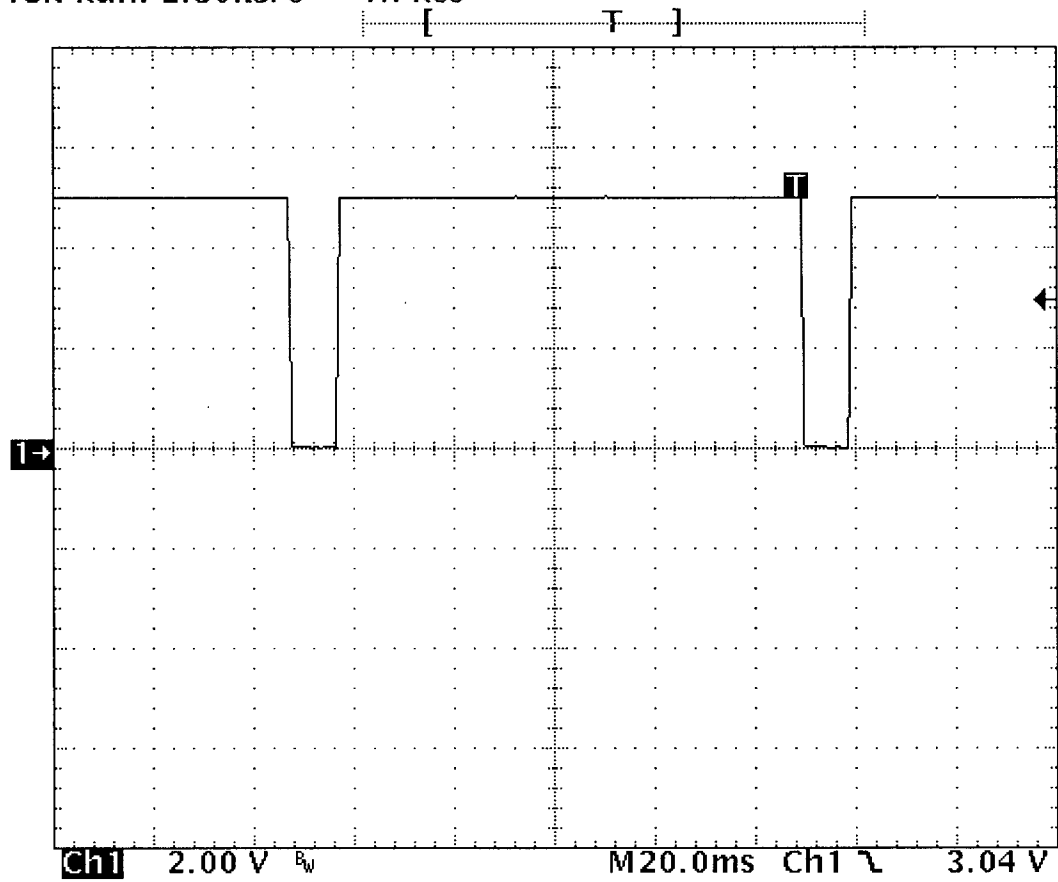
B

C

D

Tek Run: 2.50kS/s

Hi Res



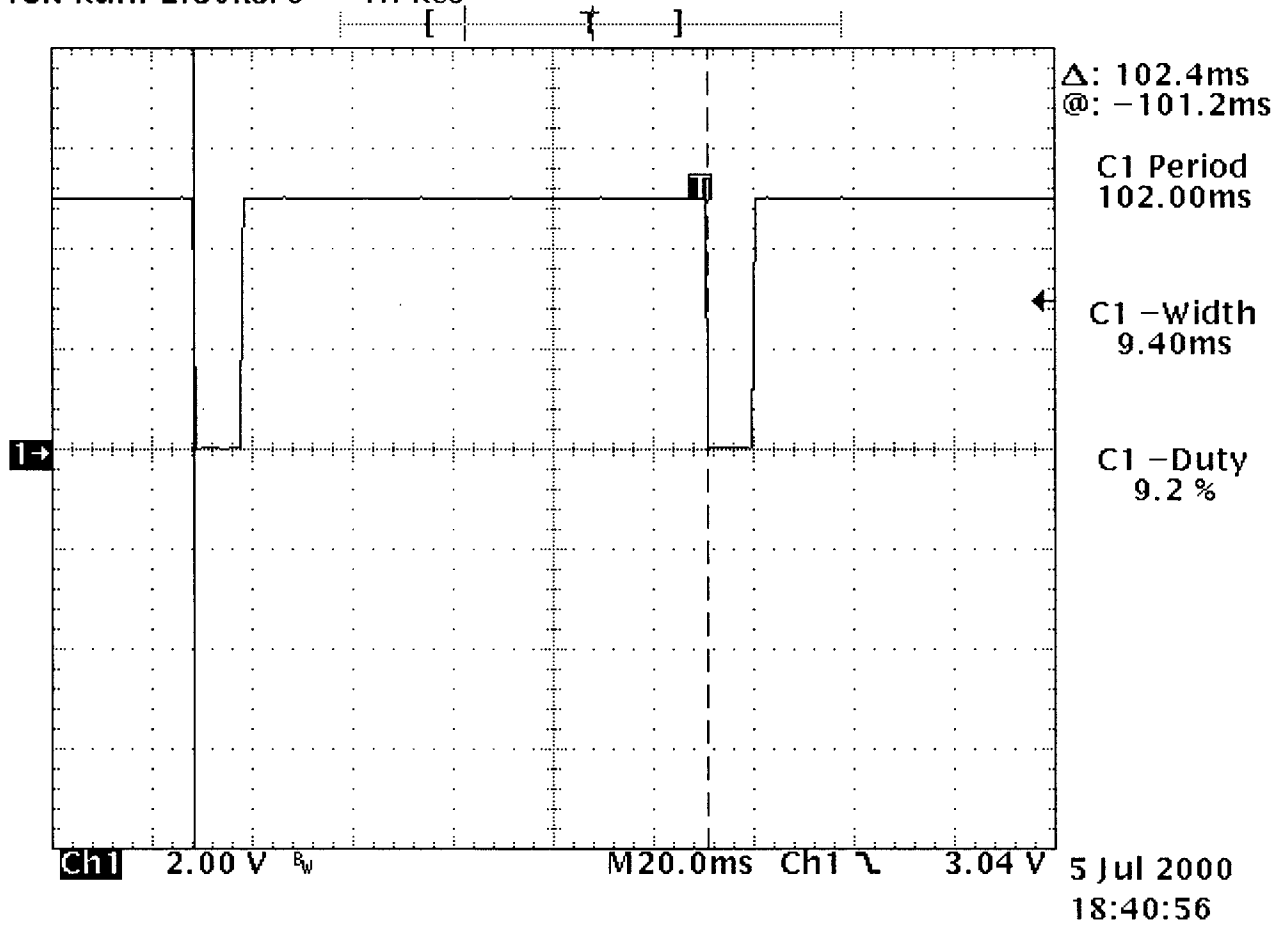
C1 Period
102.20ms

C1 -Width
9.48ms

C1 -Duty
9.3 %

5 Jul 2000
18:37:45

Hi Res



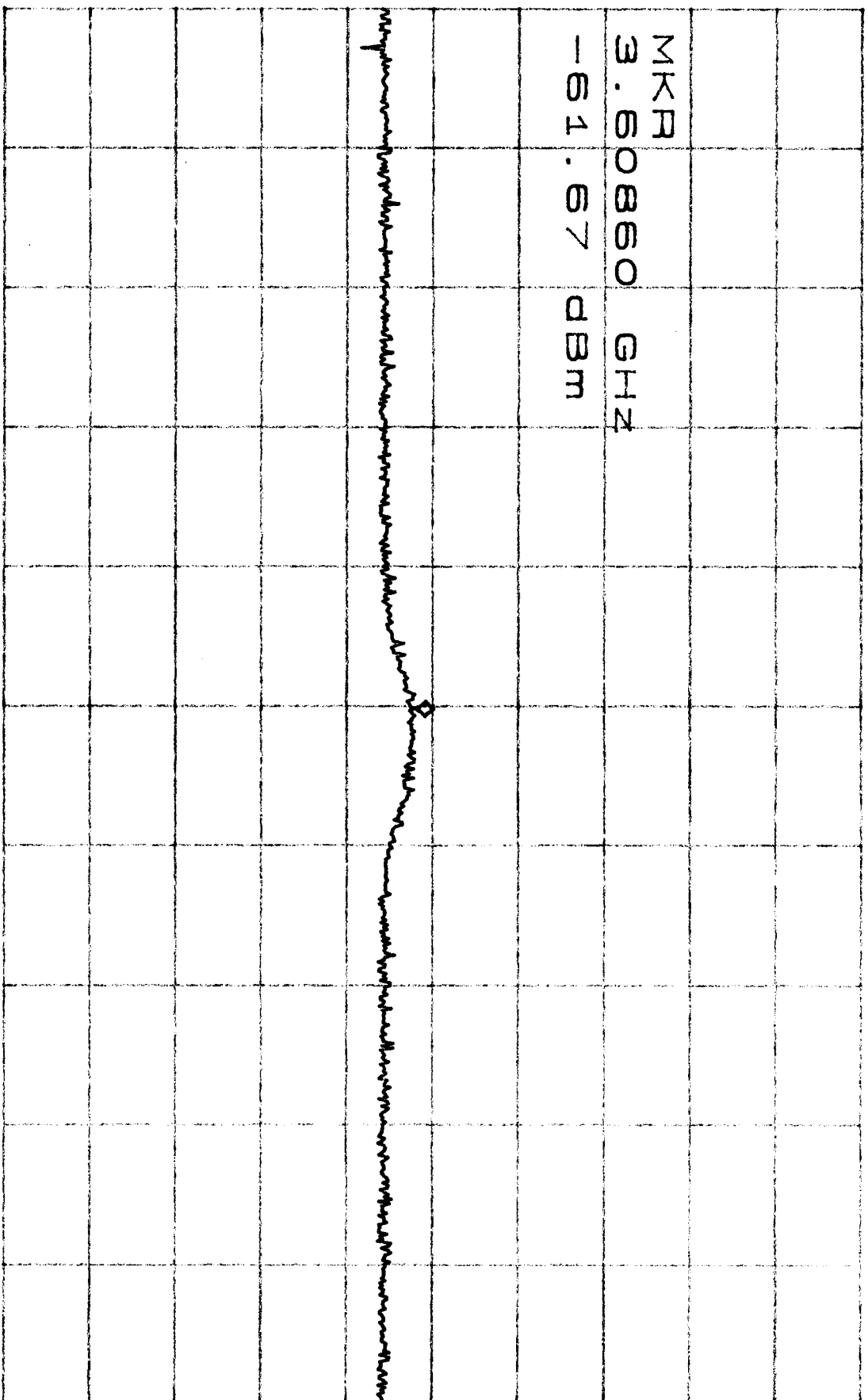
*ATTEN 10dB

NKP 104.67dBm

RL -10.0dBm

10dB/

3.60860GHz



CENTER 3.60858GHz

SPAN 10.00MHz

*RBW 1.0MHz

*VBW 1.0MHz

SWP 50ms

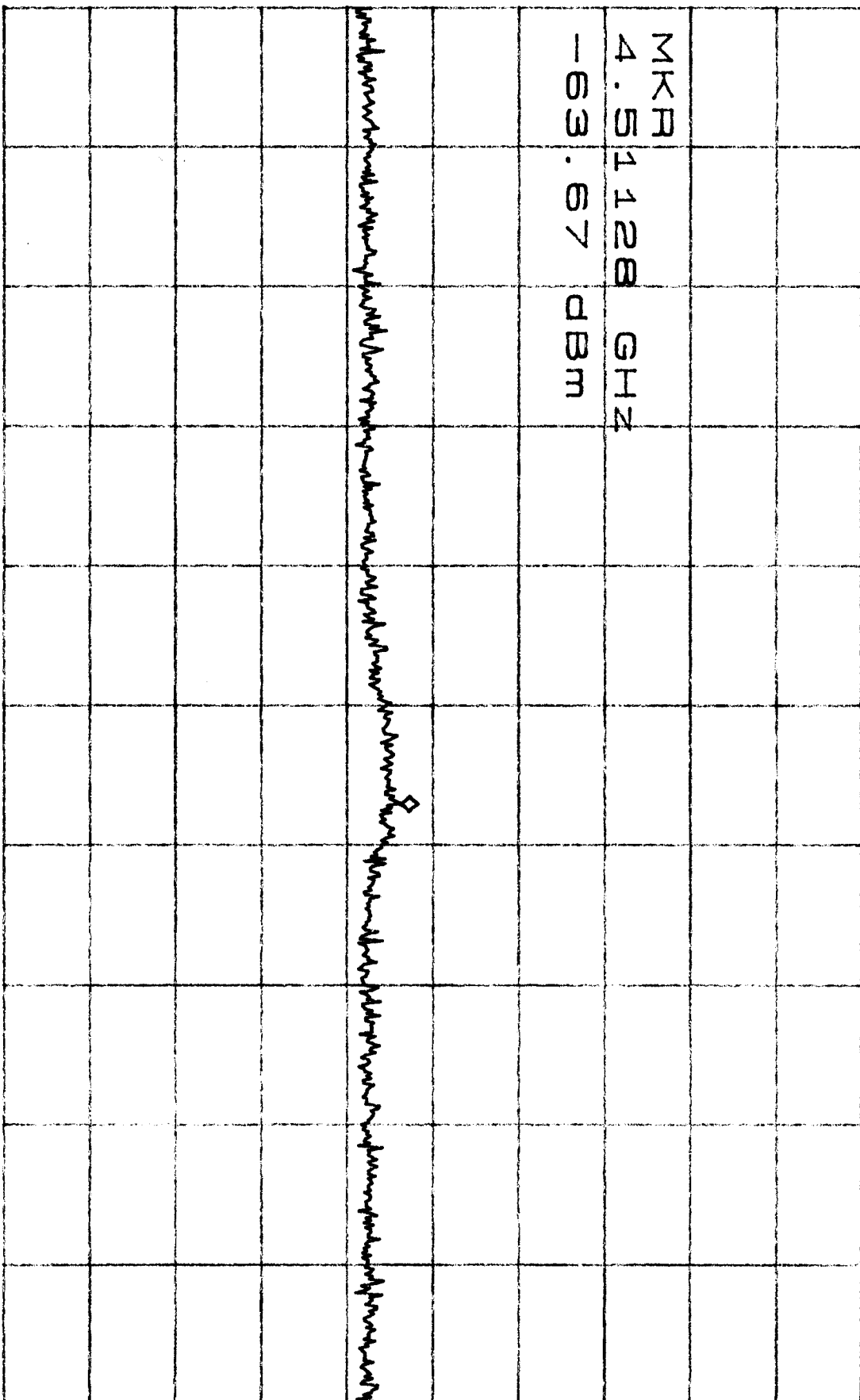
*ATTEN 10dB

NK11 -63.07dBm

FL -10.00dBm

10dB/

4.51128GHz



CENTER 4.51058GHz

SPAN 10.00MHz

*RBW 1.0MHz

*VBW 1.0MHz

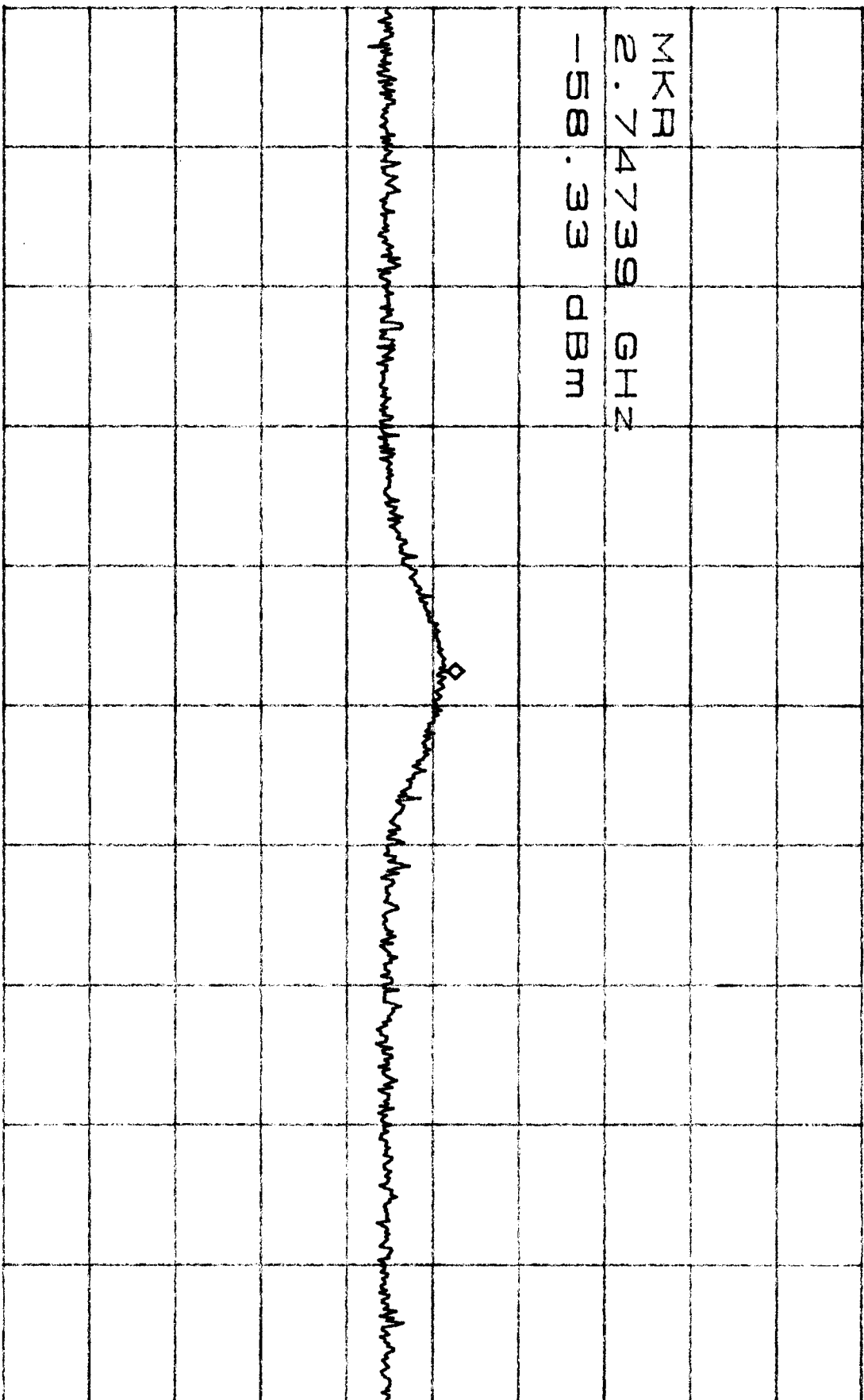
SWP 50ms

*ATTEN 10dB

RL -10.0dBm

10dB/

NKP 158.33dBm
2.74739GHz



CENTER 2.74764GHz

SPAN 10.00MHz

*RBW 1.0MHz

*VBW 1.0MHz

SWP 50ms

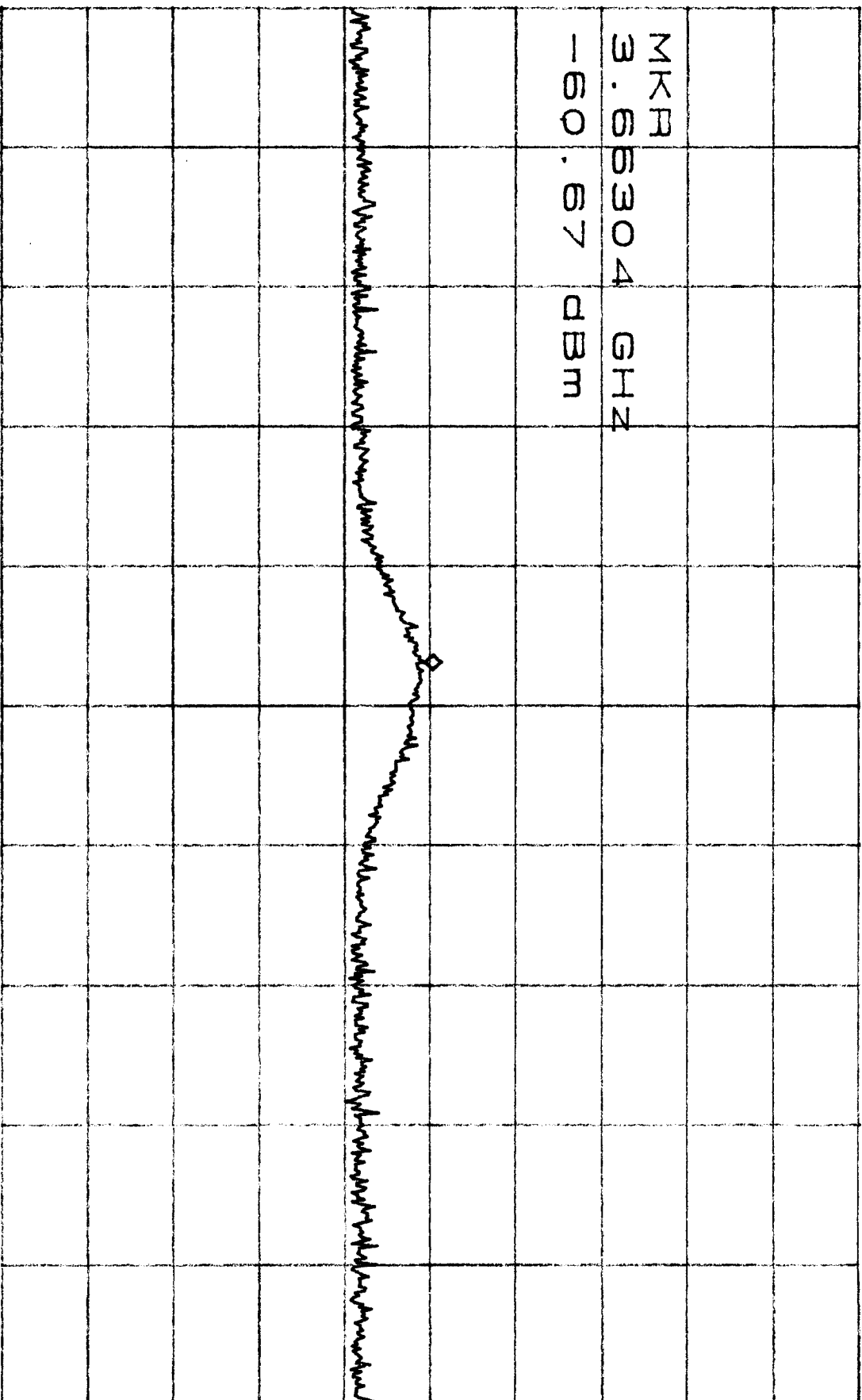
*ATTEN 10dB

MKR 160.67dBm

PL -10.0dBm

10dB/

3.66304GHz



CENTER 3.66336GHz

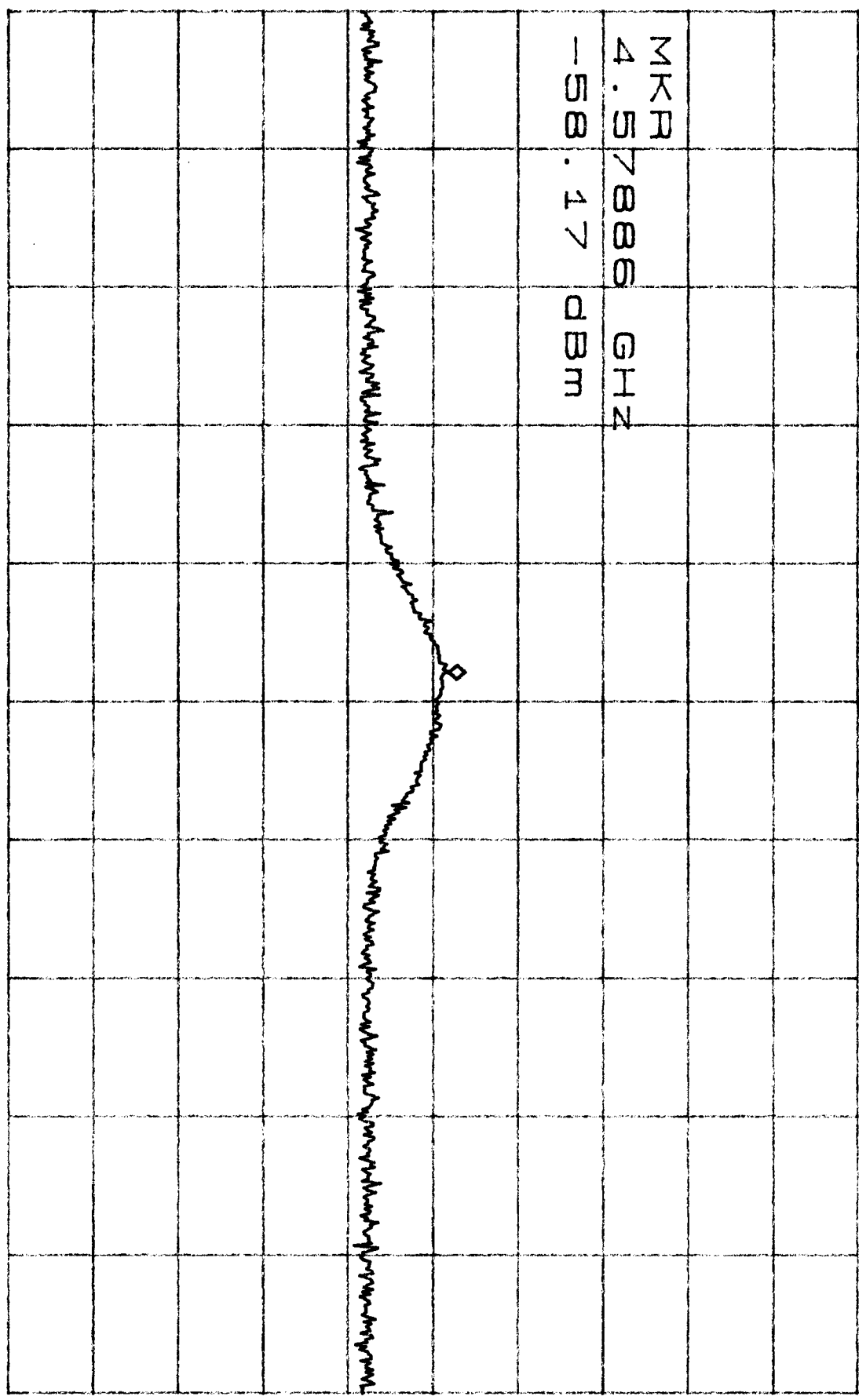
SPAN 10.00MHz

*RBW 1.0MHz

*VBW 1.0MHz

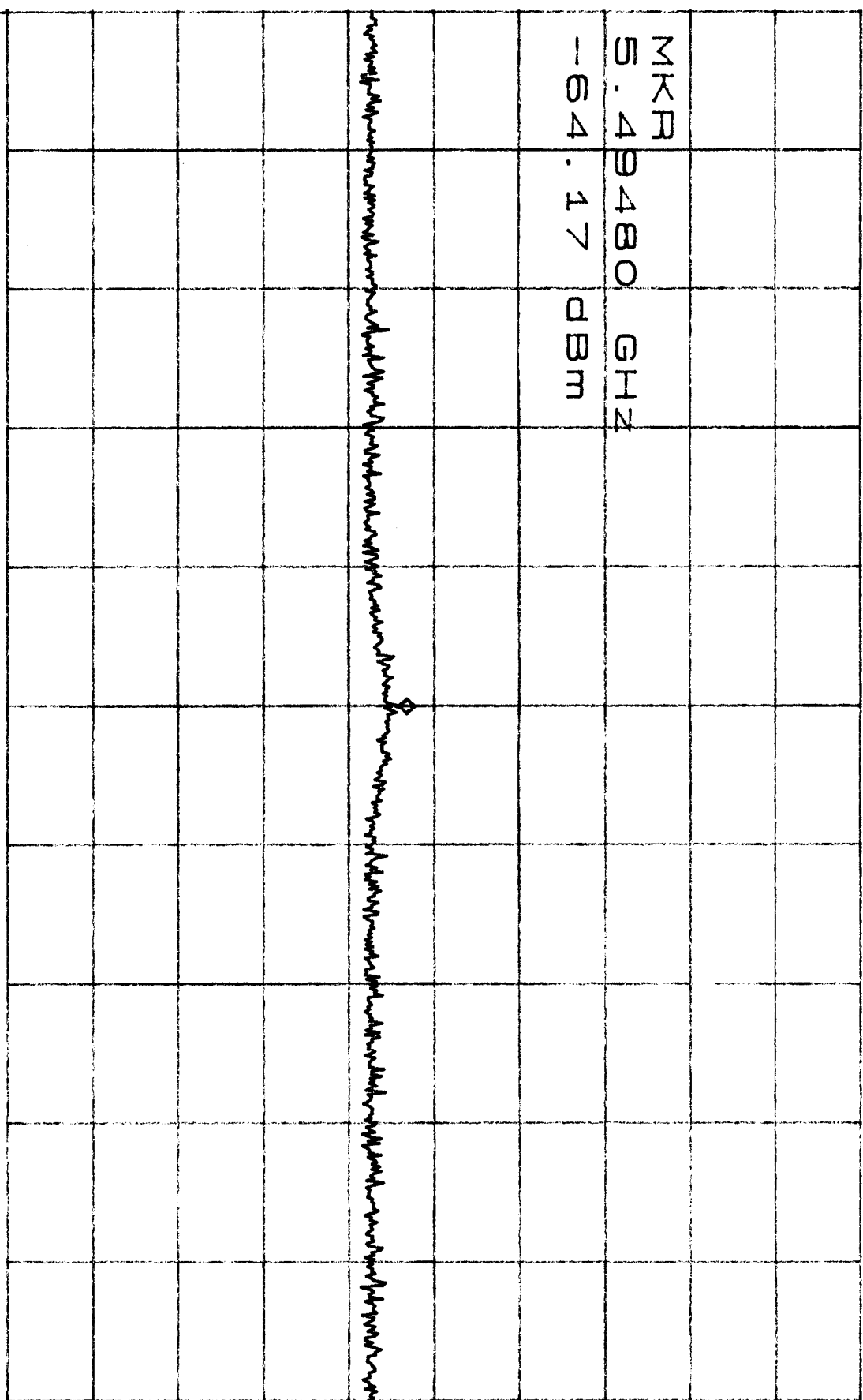
SWP 50ms

*ATTEN 10dB
RL -10.0dBm
10dB/
MKR -58.17dBm
4.57886GHz



CENTER 4.57908GHz
SPAN 10.00MHz
*RBW 1.0MHz *VBW 1.0MHz SWP 50ms

*ATTEN 10dB MKR -64.17dBm
RL -10.0dBm 10dB/ 5.49480GHz



CENTER 5.49480GHz SPAN 10.00MHz
*RBW 1.0MHz *VBW 1.0MHz SWP 50ms

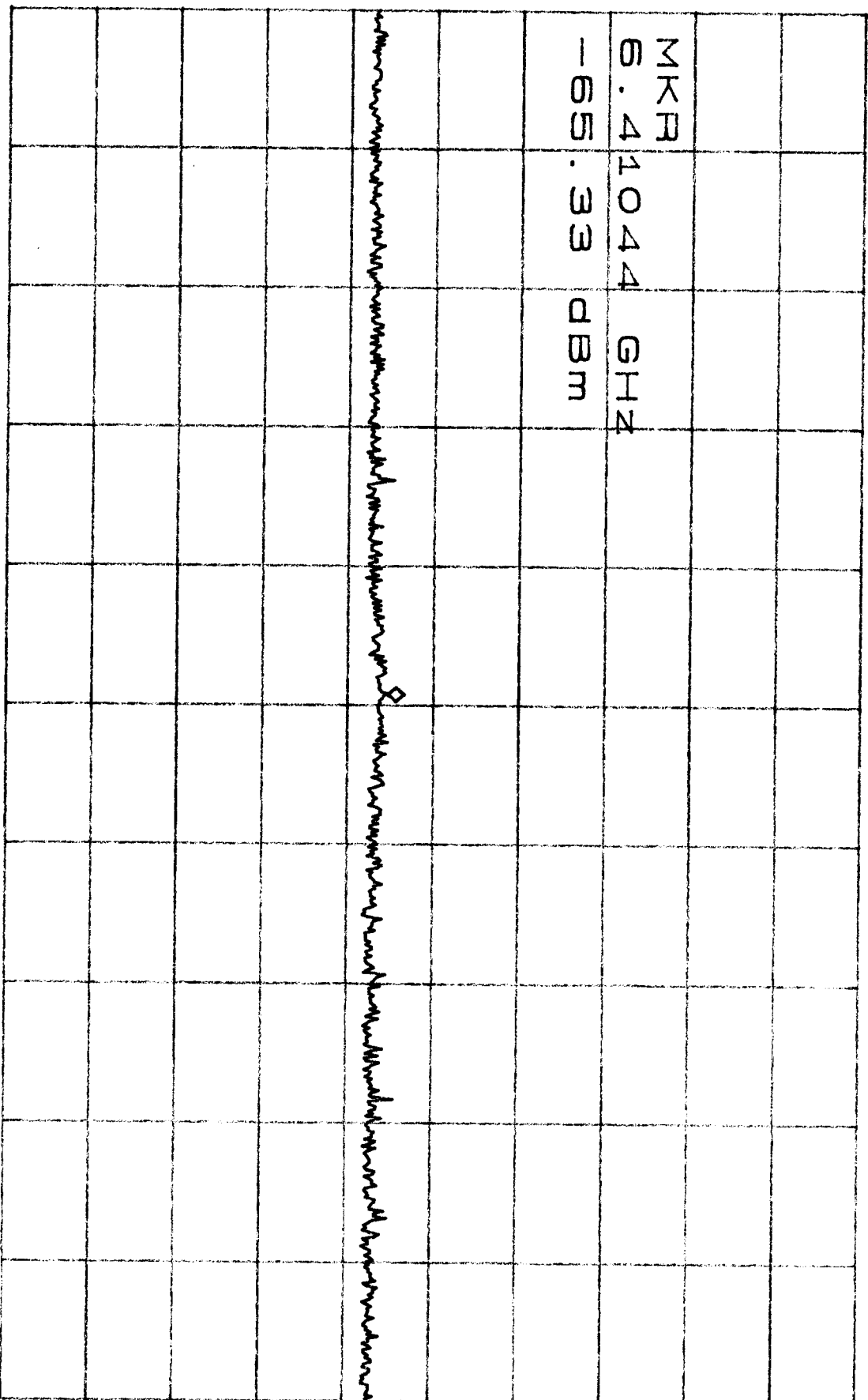
*ATTEN 10dB

RL -10.0dBm

10dB/

MKR -65.33dBm

6.41044GHz



CENTER 6.41052GHz

SPAN 10.00MHz

*RBW 1.0MHz

*VBW 1.0MHz

SMP 50ms

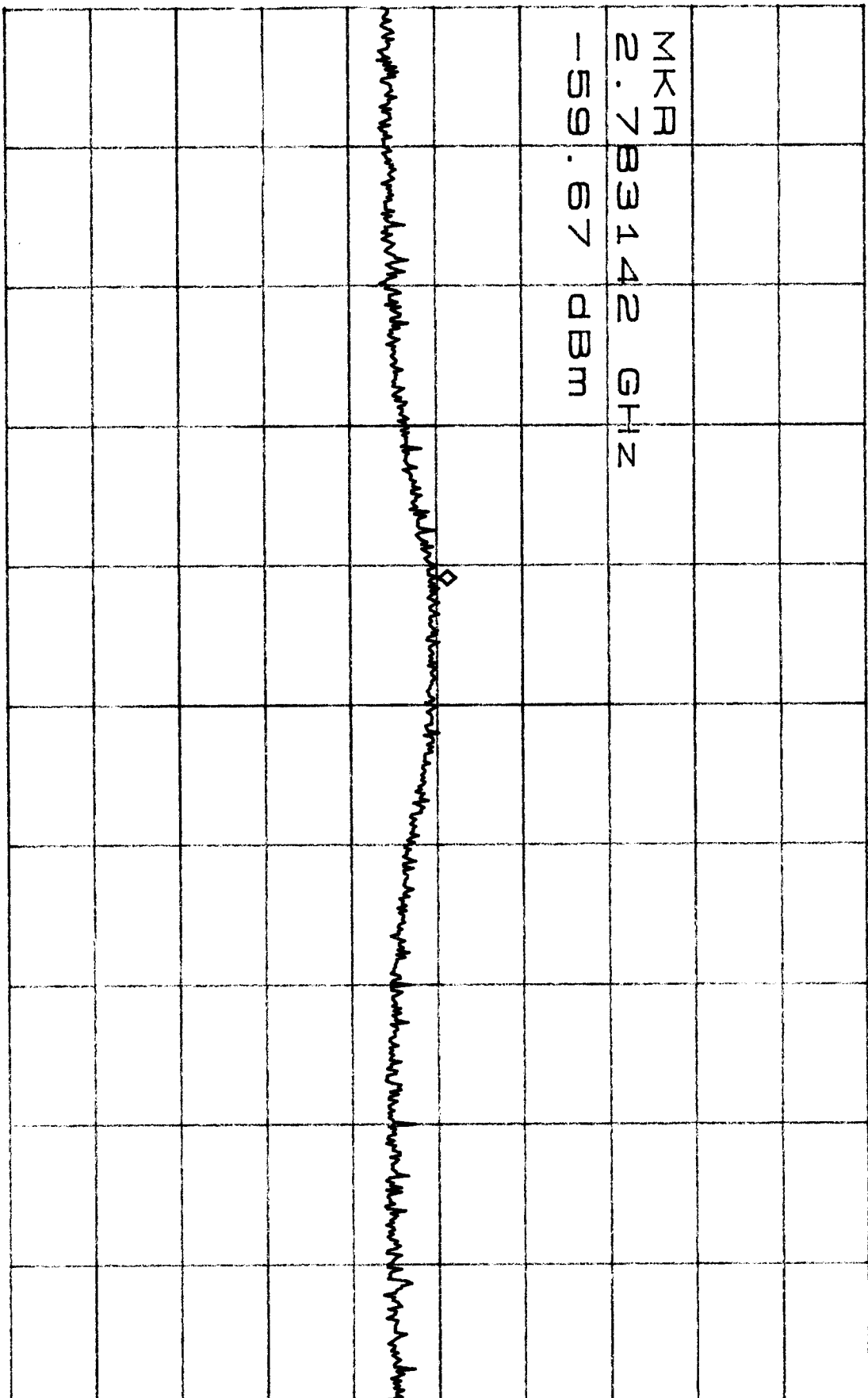
*ATTEN 10dB

MKR -59.67dBm

RL -10.0dBm

10dB/

2.783142GHz



CENTER 2.783600GHz

SPAN 5.000MHz

*RBW 1.0MHz

*VBW 1.0MHz

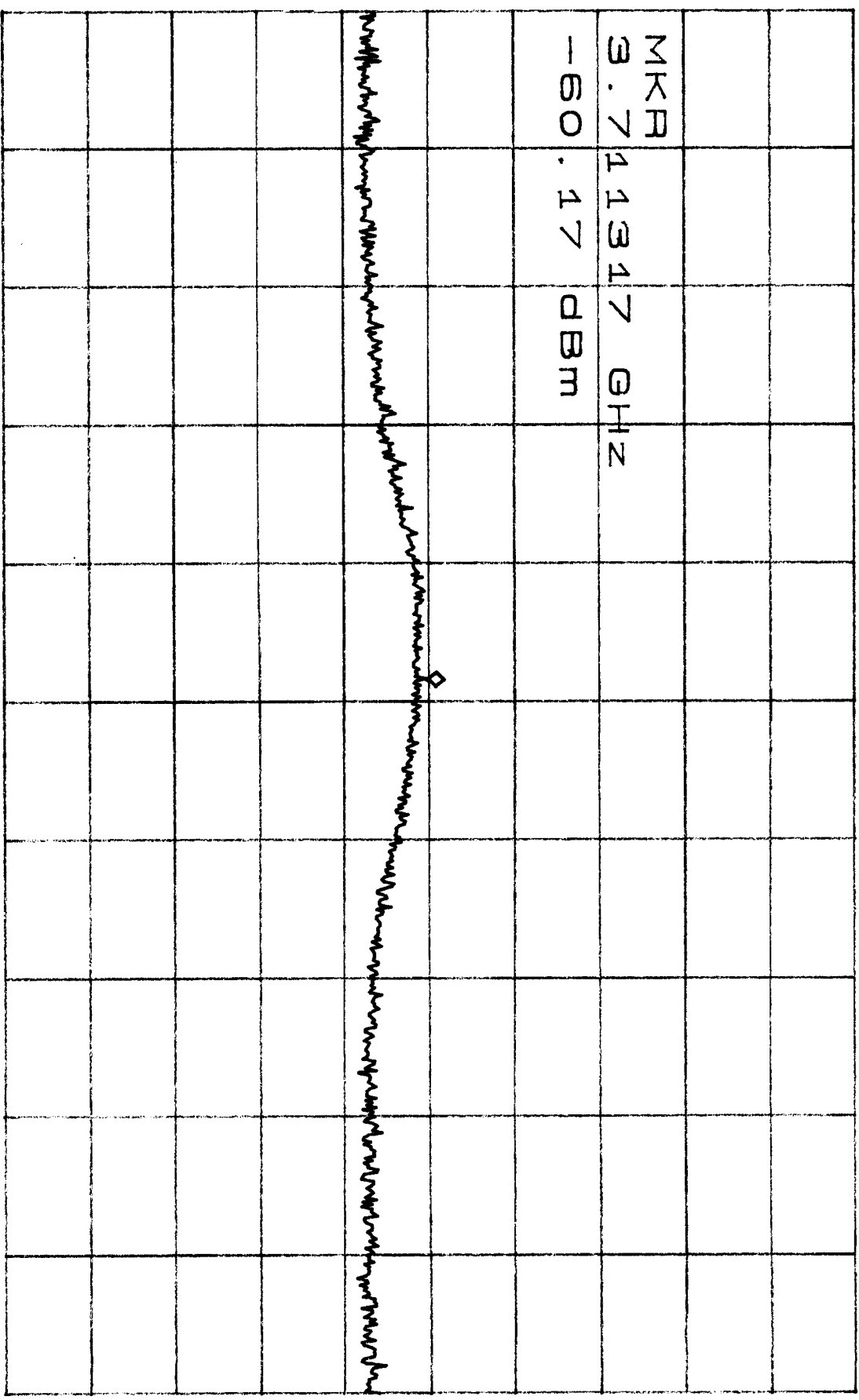
SMP 50ms

*ATTEN 10dB

PL -10.0dBm

10dB/

MKR -60.17dBm



CENTER 3.711400GHz

SPAN 5.000MHz

*RBW 1.0MHz

*VBW 1.0MHz

SMP 50ms

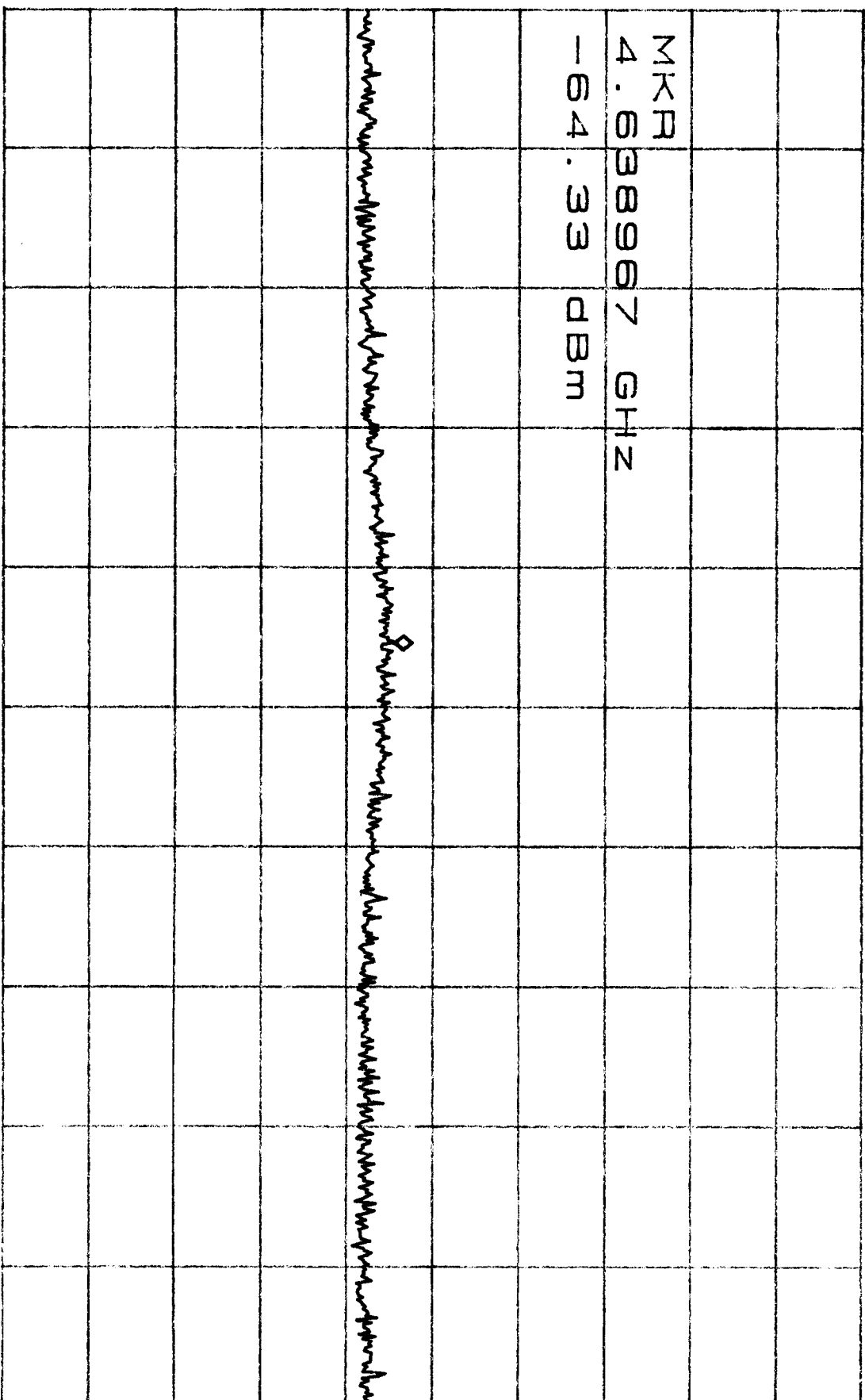
*ATTEN 10dB

NKR -64.33dBm

PL -10.0dBm

10dB/

4.638967GHz



CENTER 4.639200GHz

SPAN 5.000MHz

*RBW 1.0MHz

*VBW 1.0MHz

SWP 50ms

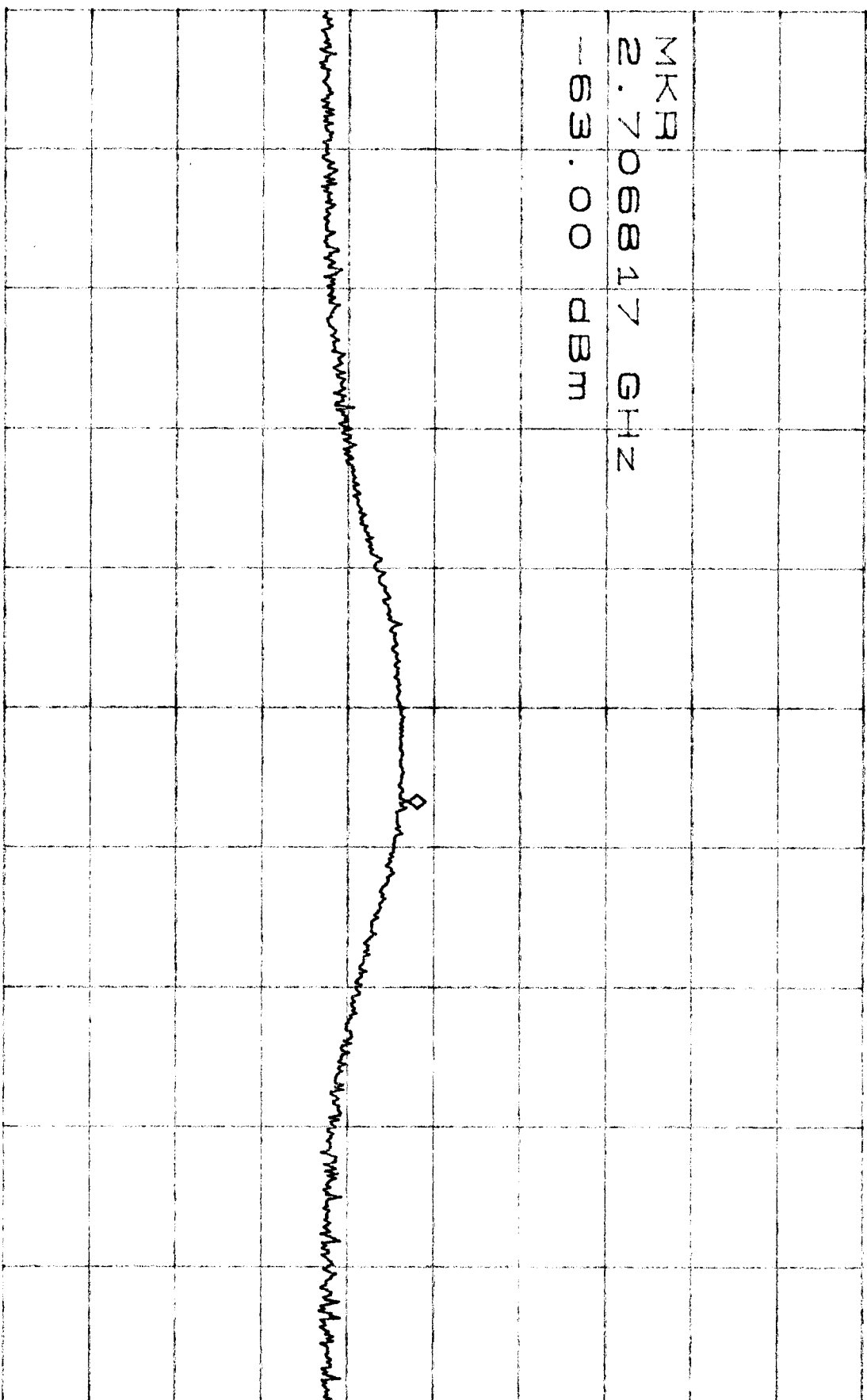
*ATTEN 0dB

MKR 163.00dBm

RL -10.0dBm

10dB/

2.706817GHz



CENTER 2.706483GHz

SPAN 5.000MHz

*RBW 1.0MHz

*VBW 1.0MHz

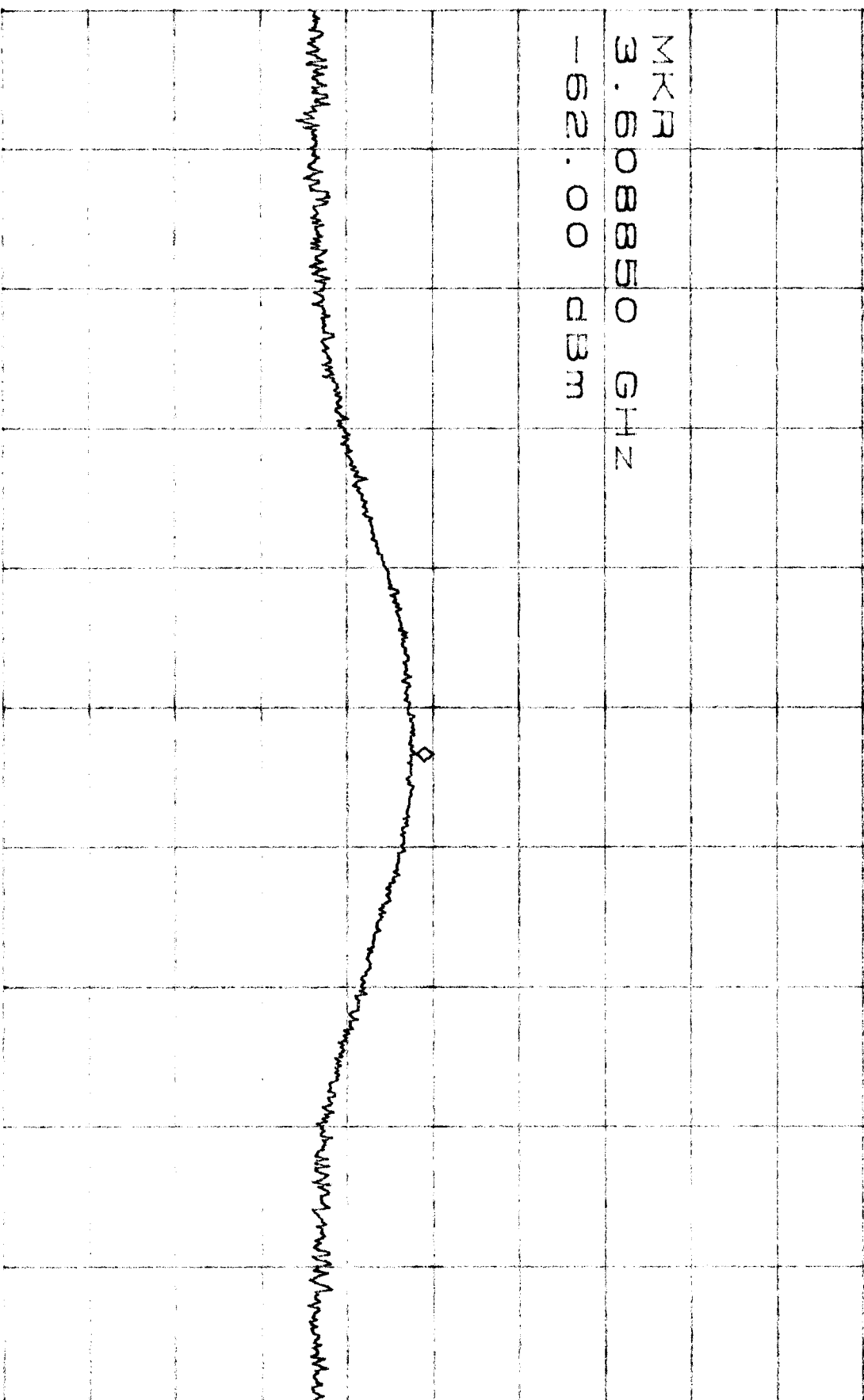
SMP 50ms

*ATTEN 0dB

RL -40.0dBm

10dB/

MARK 162.00dBm
3.608850GHz



CENTER 3.608850GHz

SPAN 5.000MHz

*RBW 1.0MHz

*VBW 1.0MHz

SWP 50ms

*ATTEN 00B

NKT -66.330Bm

RL -40.00Bm

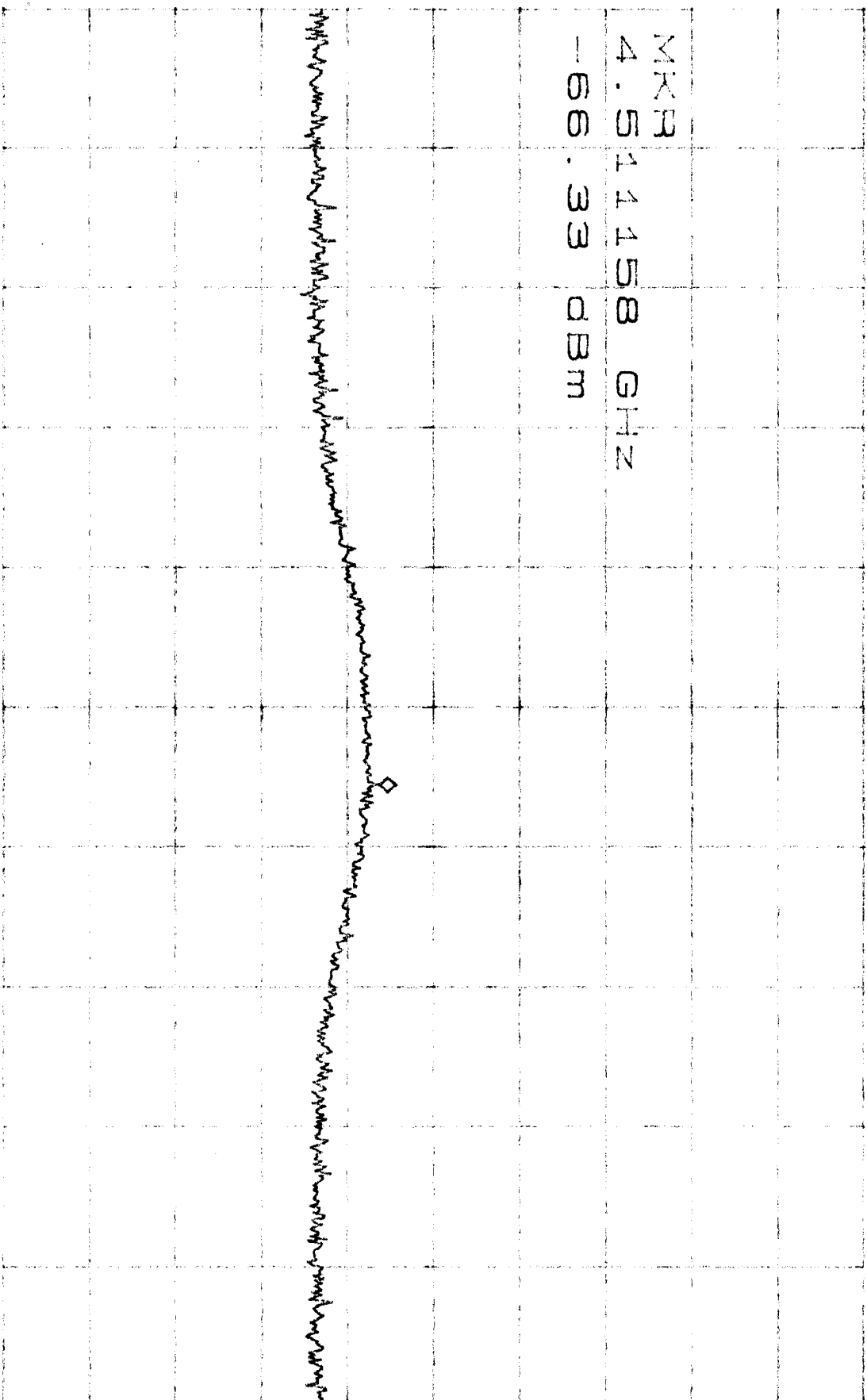
10dB/

4.51158GHz

NKT

4.51158 GHz

-66.33 dBm



CENTER 4.510883GHz

SPAN 5.000MHz

*RBW 1.0MHz

*VBW 1.0MHz

SWP 50ms

*ATTEN 0dB

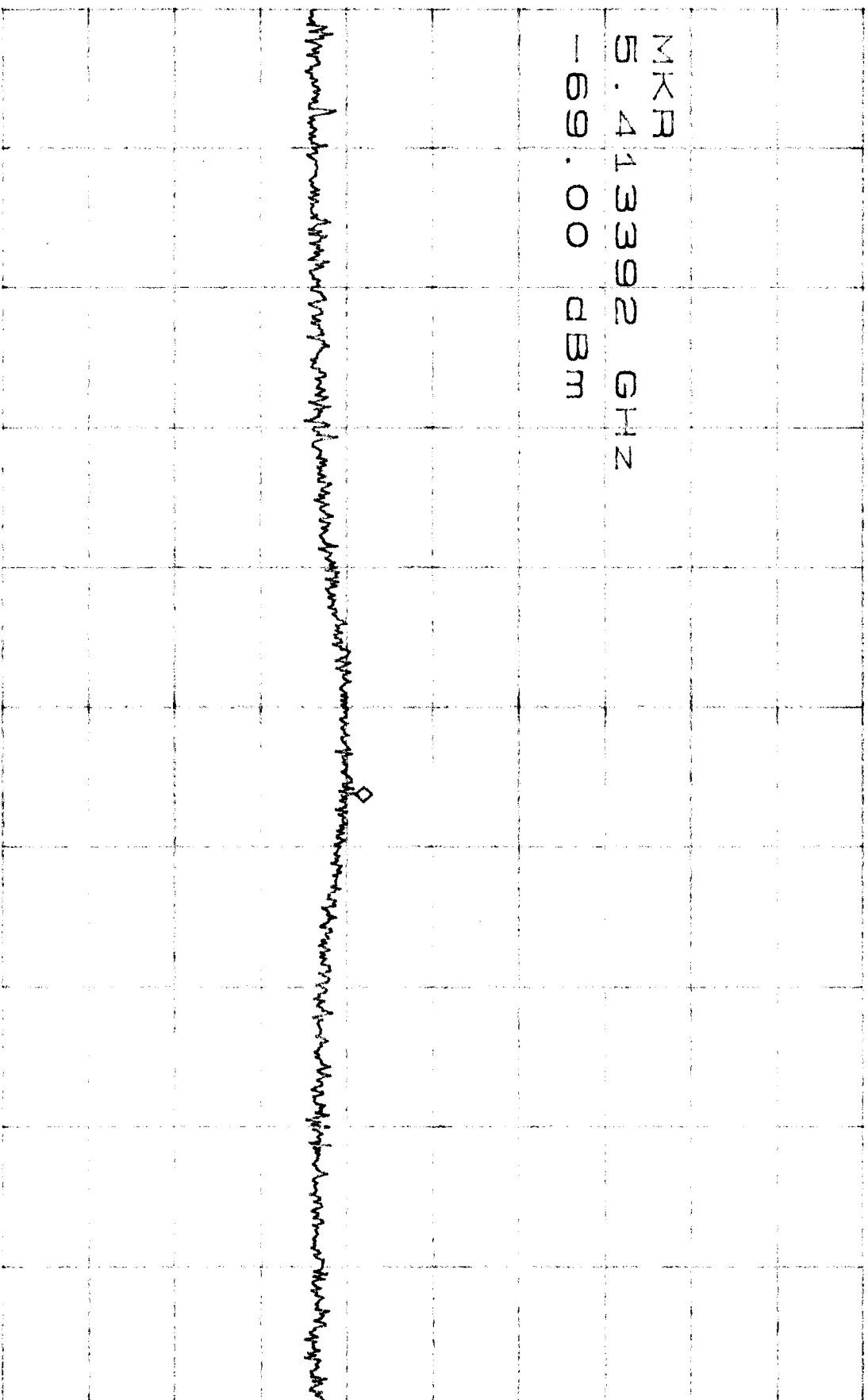
MARK 169.00dBm

RL -10.00dBm

10dB/

5.443392GHz

MARK
5.443392 GHz
-69.00 dBm



CENTER 5.443083GHz

SPAN 5.000MHz

*RBW 1.0MHz

*VBW 1.0MHz

SWP 50ms

*ATTEN 0dB

MARK -63.83dBm

RL -10.0dBm

10dB/

2.741967GHz

MARK

2.744967 GHz

-63.83 dBm



CENTER 2.745000GHz

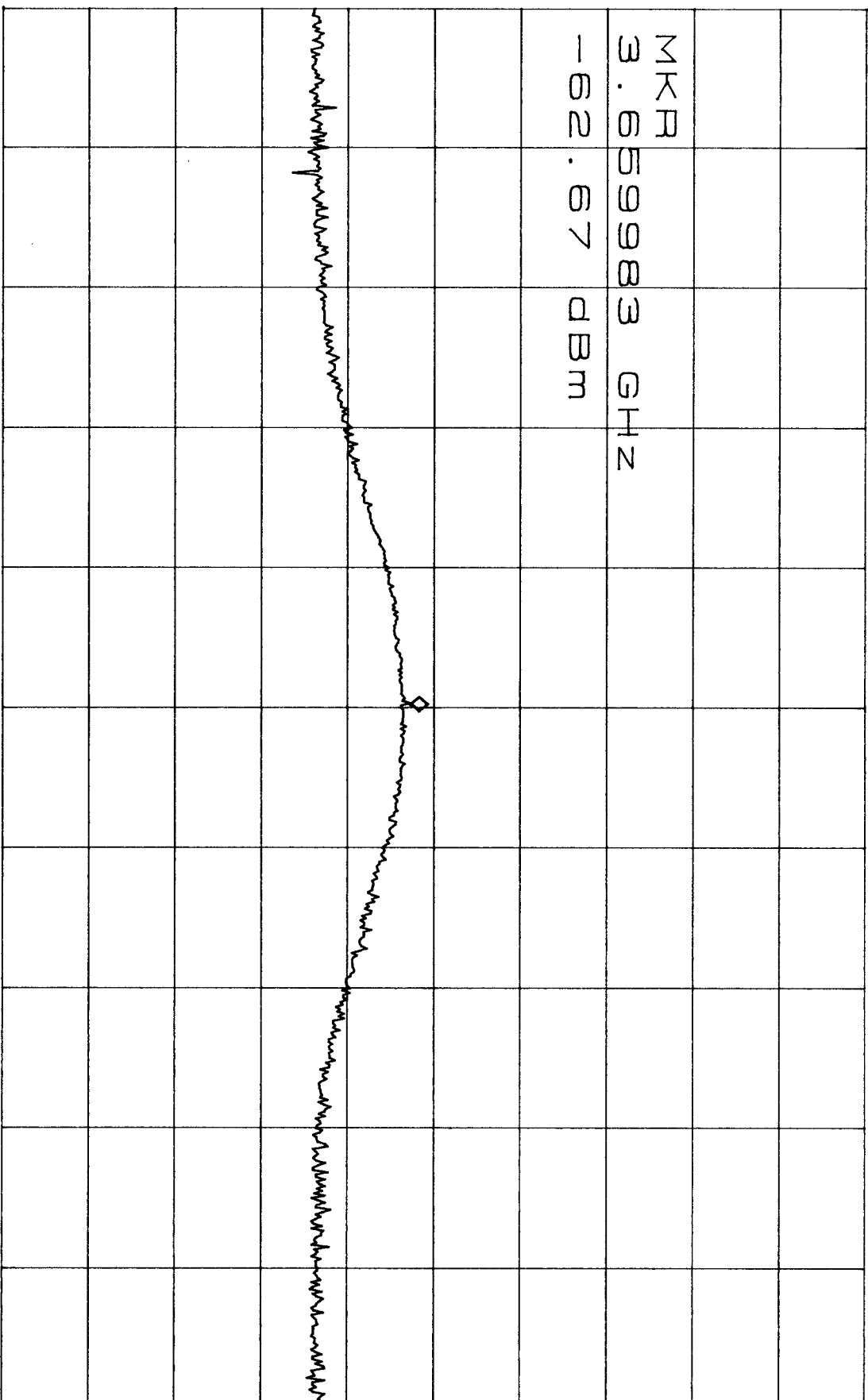
SPAN 5.000MHz

*RBW 1.0MHz

*VBW 1.0MHz

SNP 50ms

*ATTEN 0dB
RL -10.0dBm
10dB/
MKR -62.67dBm
3.659983GHz



CENTER 3.660000GHz
SPAN 5.000MHz
*RBW 1.0MHz
*VBW 1.0MHz
SWP 50ms

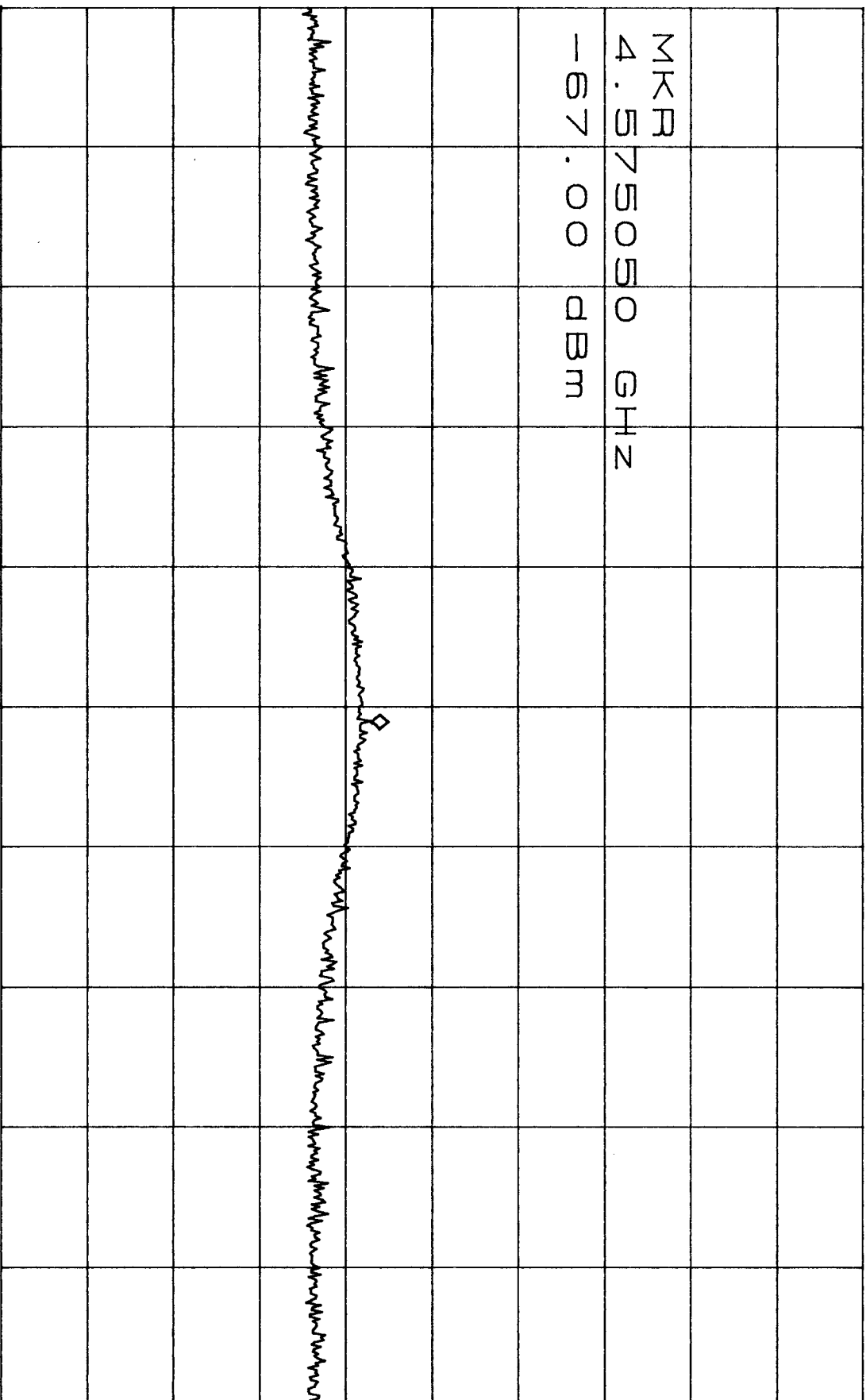
*ATTEN 0dB

RL -10.00dBm

10dB/

MKR -67.00dBm

4.575050GHz



CENTER 4.575000GHz

SPAN 5.000MHz

*RBW 1.0MHz

*VBW 1.0MHz

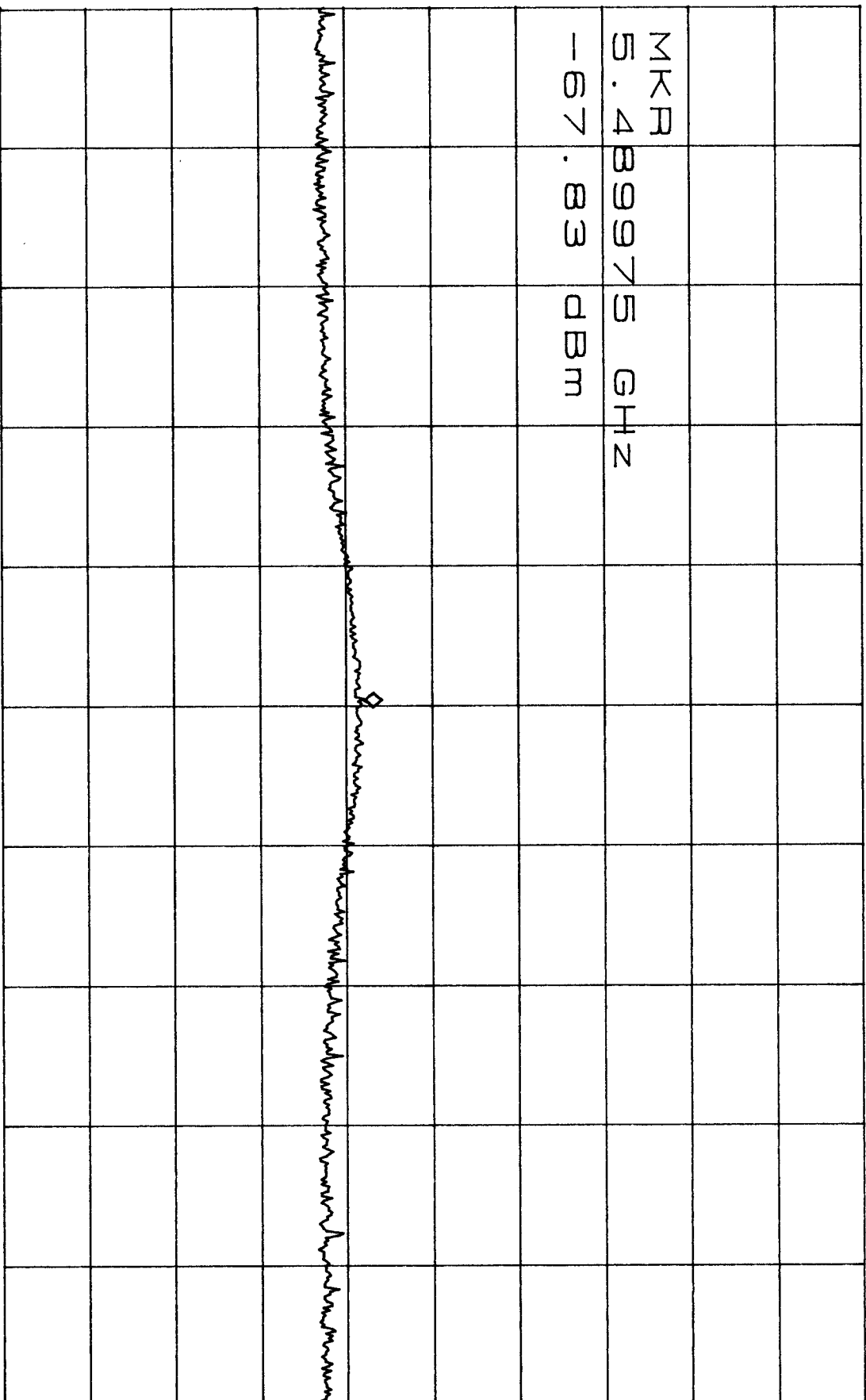
SWP 50ms

*ATTEN 0dB

RL -10.0dBm

10dB/

MKR -67.83dBm
5.489975GHz



CENTER 5.490000GHz

SPAN 5.000MHz

*RBW 1.0MHz

*VBW 1.0MHz

SWP 50ms

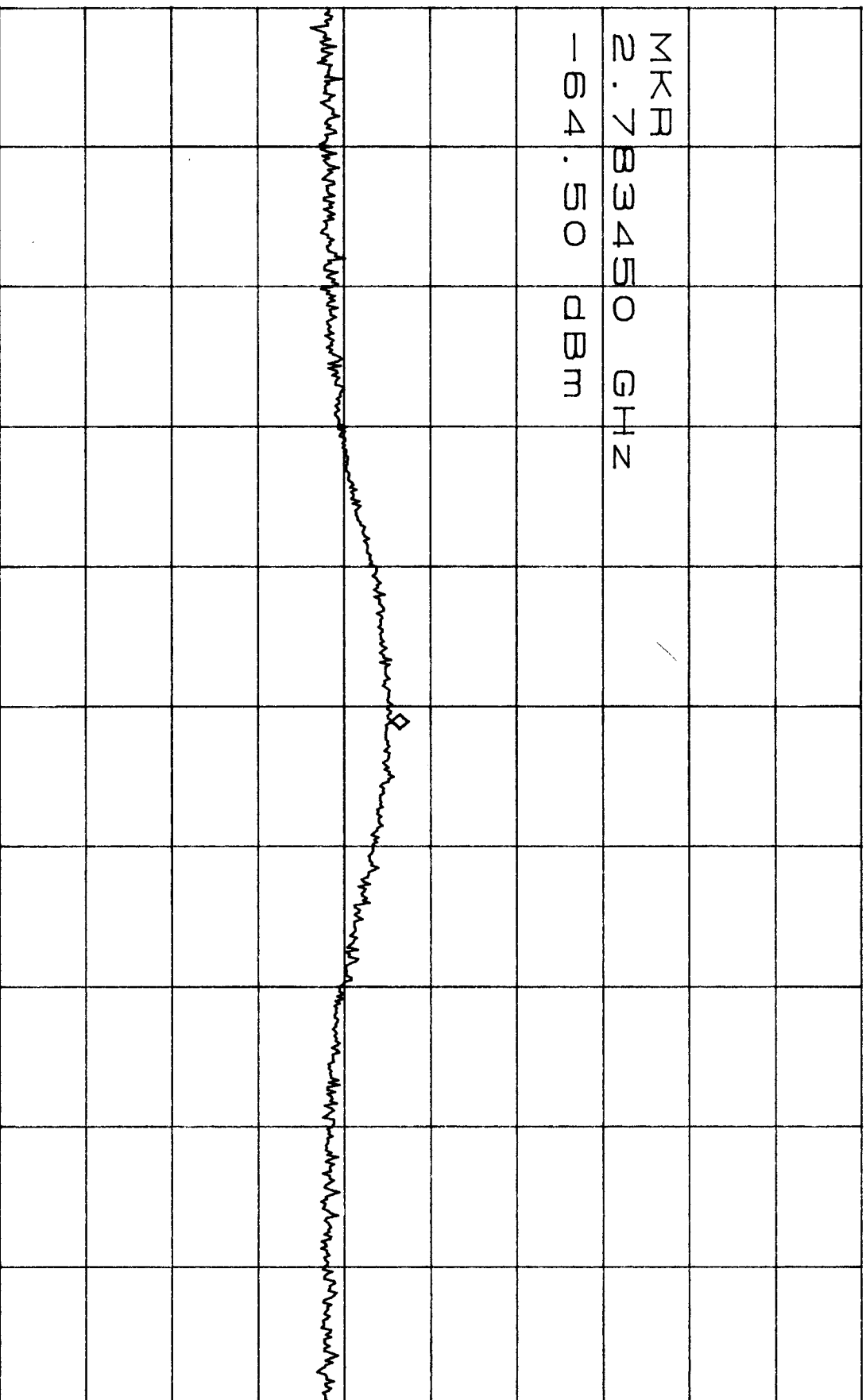
*ATTEN 0dB

MKR -64.50dBm

RL -10.0dBm

10dB/

2.783450GHz



CENTER 2.783400GHz

SPAN 5.000MHz

*RBW 1.0MHz

*VBW 1.0MHz

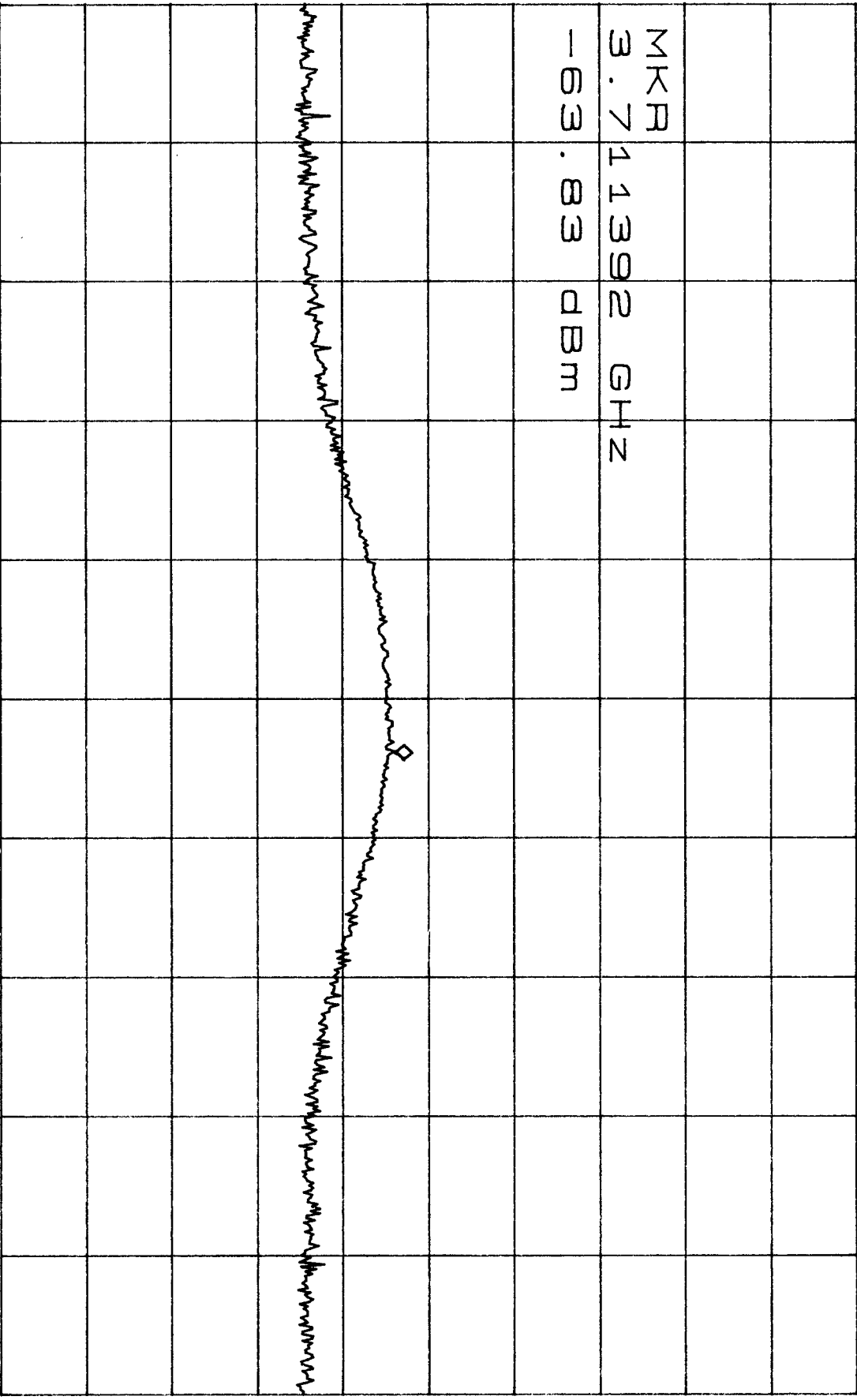
SMP 50ms

*ATTEN 0dB

RL -10.0dBm

10dB/

NKR -63.83dBm
3.711392GHz



CENTER 3.711200GHz

SPAN 5.000MHz

*RBW 1.0MHz

*VBW 1.0MHz

SWP 50ms

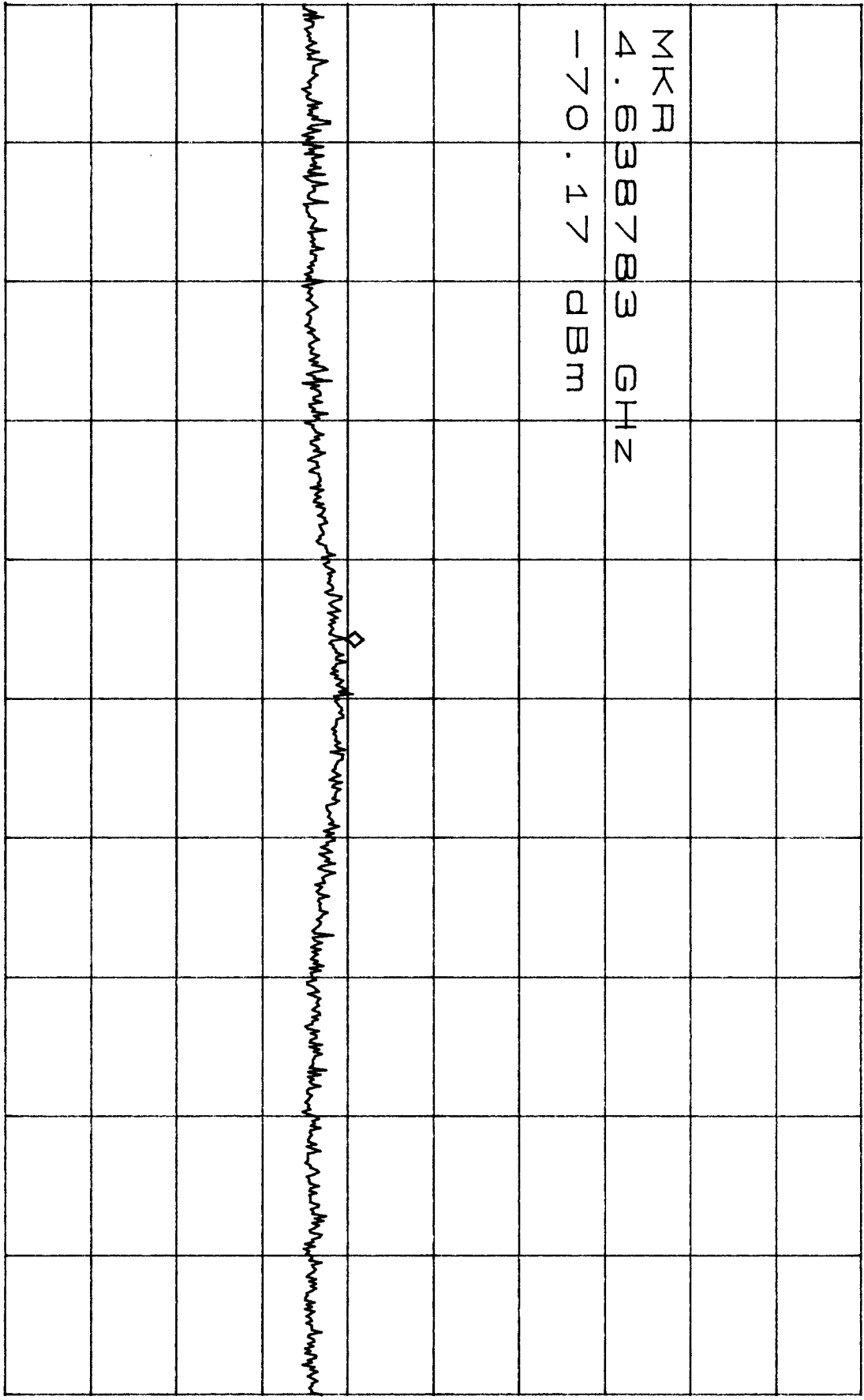
*ATTEN 0dB

NKR -70.17dBm

RL -10.0dBm

10dB/

4.638783GHz



CENTER 4.639000GHz

SPAN 5.000MHz

*RBW 1.0MHz

*VBW 1.0MHz

SWP 50ms

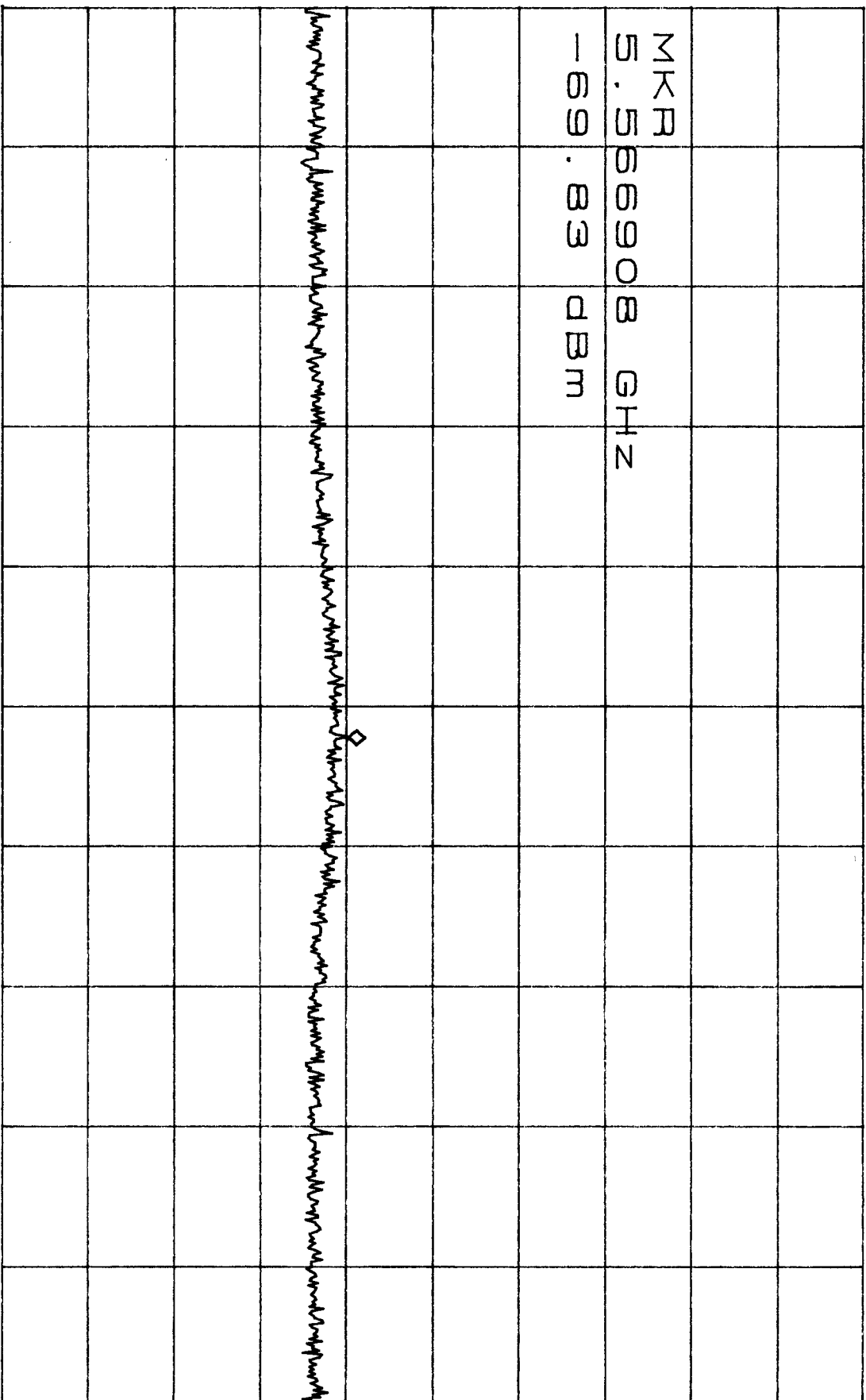
*ATTEN 0dB

NKR -69.83dBm

RL -10.0dBm

10dB/

5.566908GHz



CENTER 5.566800GHz

SPAN 5.000MHz

*RBW 1.0MHz

*VBW 1.0MHz

SWP 50ms