

Test Site Services. Inc.

Test Report

For Acom International

Acom 2000A

Model 2000A

Emissions

**FCC, Part 97 Sub Part D
External RF Power Amplifier**

Test # B90191

Test Site Services, Inc.
P.O. Box 766
Marlboro, MA 01752
U.S.A.
Phone/Fax: (508) 481-1684

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EMI Test Report
for
Acom International

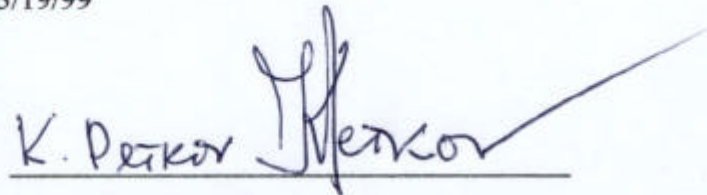
Test Number : B90191

Product Name : Acom 2000A

Regulation : FCC, Part 97 Sub Part D
: External RF Power Amplifier

Date : 03/19/99

**Report Reviewed
& Accepted by:**



K. Detkov

Acom International
157 Horse Pond Road
Sudbury, MA 01776
Phone: 978-440-7555
Fax : 978-440-9008

Report Issued By:



Richard L. Wiedeman, Laboratory Director

Tested By:



Tom Charron, Test Engineer

This test report is not valid without the signatures of Test Site Services, Inc. personnel.

Administrative Data

Regulation : FCC, Part 97 Sub Part D
: External RF Power Amplifier

Test Method : FCC, Part 97.317 (a) (1) (2) (3),(b) (1) (2),(c) (i) (ii)
Part 97.307 (d)
: Calibration / Measurements traceable to NIST

Test Type : Qualification

Responsible Parties

Manufacturer : Acom OOD - Bulgaria

Applicant : Acom International Inc. USA

EUT Type/Model # : Linear Amplifier / 2000A

Date(s) of Test : 03/19/99

Customer Personnel : Krassimir Petkov President

TSS Personnel : R. Wiedeman EMC Engineer

: Tom Charron Test Engineer

: Ken Raymond Test Engineer

Test Location : Open Area Test Site
Test Site Services, Inc.
30 Birch St.
Milford, MA 01757 U.S.A.

NOTICE	: FCC Rule 2.955 requires that a Verification Report for a Class A Computing Device must be signed by "an Official of the Company responsible for the device". A signature block has been provided on the first page for this purpose.
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EUT Description

The EUT (Acom 2000A) is a Linear Amplifier for Amateur Radio.

A complete description of the EUT may be found on block identifier page one.

The tests were run in a typical configuration including the following support equipment;

- 1) H.F. Transceiver
- 2) Drake Watt Meter
- 3) Bird Watt Meter
- 4) Bird 1.5KW 30db Attenuater
- 5) Band Pass Filters

REASON FOR TEST: Qualification for FCC Part 97

CHANGES MADE DURING TEST: None

DEVIATIONS FROM STANDARD TEST METHOD: None

Test Summary

The Acom 2000A complied with FCC Part 97 Subpart D, 97.307 and 97.317 Limits for Amateur Radio equipment when tested in the system configuration defined herein.

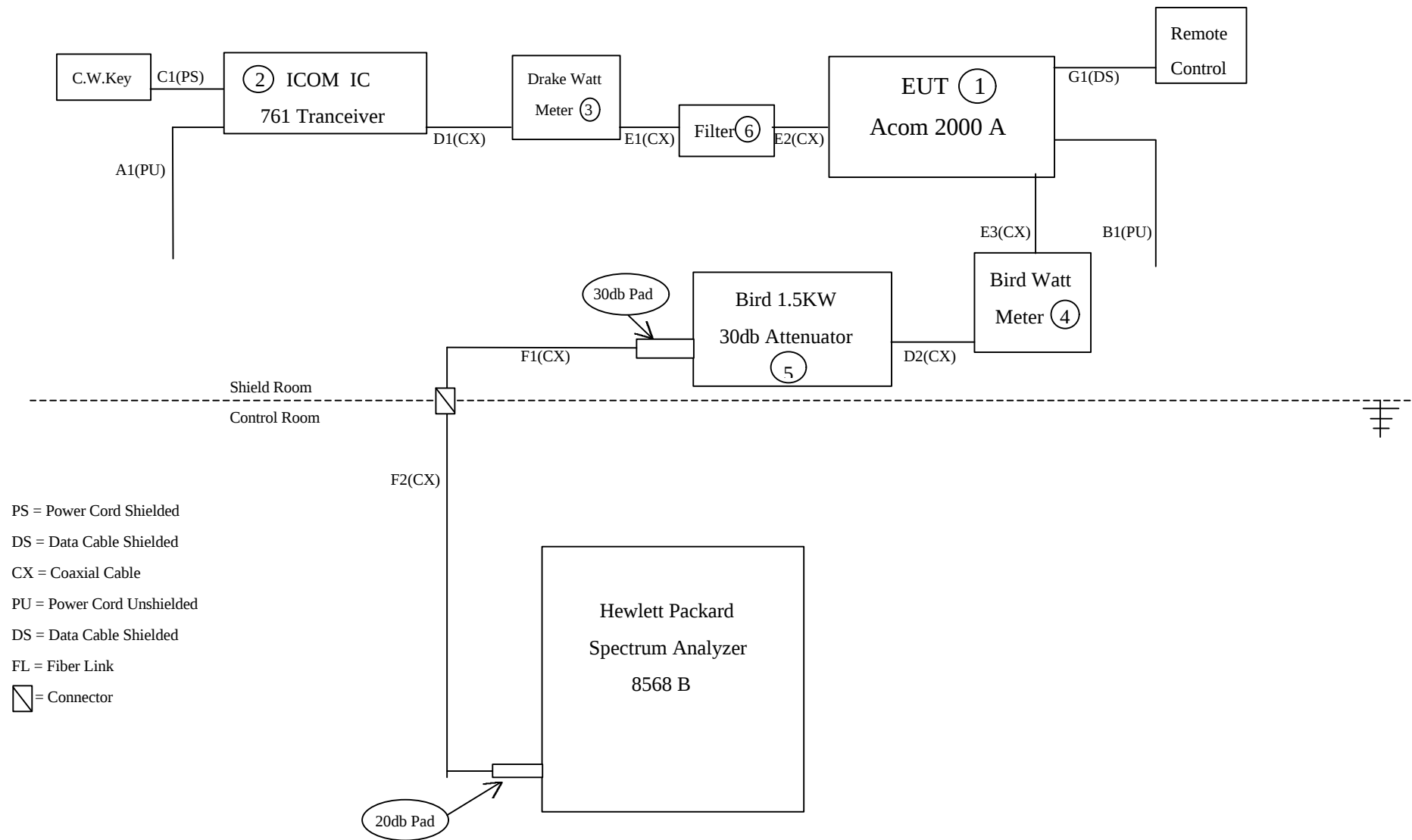
The following table indicates the margins (i.e. difference between measurement point and limit) of the nine data points and their harmonics to the tenth order:

Results reflect amplifier as shipped with 24 and 28 MHz. Bands disabled

Power Gain 97.317 (a) (1) (2) (3),(c) (6) (ii)				Spurious emissions 97.307 (d)			
Frequency (Mhz.) f1	Power in (W)	Power out (W)	Gain dB	2f1 dBc	3f1 dBc	4f1 dBc	5-10f1 dBc
1.9	50	1500.00	14.70	-51.50	-78.60	>-78.00	>-78.00
3.75	50	1500.00	14.70	-52.40	-77.90	-78.00	>-78.00
7.15	50	1500.00	14.70	-56.50	>-78.00	>-78.00	>-78.00
10.125	51	1500.00	14.68	-53.30	>-78.00	>-78.00	>-78.00
14.175	50	1500.00	14.70	-55.10	-77.60	>-77.00	>-77.00
18.118	53	1500.00	14.51	-62.40	>-75.00	>-75.00	>-75.00
21.225	52.5	1500.00	14.55	-61.40	-76.00	>-76.00	>-76.00
97.317 (b) (1) (2) 0 dB gain was noted in the 12 & 10 meter amateur bands and measured at the points below							
24.94	50.0	50.0	0.0				
28.90	50.0	50.0	0.0				
97.317 (c) (6) (i) was not capable of full power output when driven with < 40 watts							
1.9	38.00	800.00	13.2				
3.75	38.00	900.00	13.7				
7.15	38.00	900.00	13.7				
10.125	38.00	900.00	13.7				
14.175	38.00	850.00	13.5				
18.118	38.00	800.00	13.2				
21.225	38.00	800.00	13.2				

See Data Section For Additional Detail.

Block Diagram for Acom 2000A



EUT Technical Data – Block Identifier 1

Description : Linear Amplifier

Manuf/Model : Acom International

Model No.: :2000A

Serial # : 980001

FCC/FTZ Ident. : N/A

Power (Rated) : 240 VAC 60 Hz.

:

Power (Tested) : 240 VAC 60 Hz.

:

Internal Options :

None

External Options:

Remote Control

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Frequencies Generated:

Amateur radio bands from 1.8 MHz through 21.450 MHz

Comments:

Support Equipment Data – Block Identifier 2

Description : H.F. Transceiver

Manuf / Model : Icom

Model No.: IC 761

Serial # : 02788

FCC/FTZ Ident. :

Power : 120 VAC 60 Hz.

Internal Options:

None

External Options:

CW Key (Vibroplex)

Frequencies Generated:

Amateur radio bands from 1.8 MHz through 30.0 MHz

Comments:

Support Equipment Data – Block Identifier 3

Description : Watt Meter

Manuf/Model : Drake

Model No.: WH 7

Serial # : 1478

Power : No power Required

Internal Options: None

External Options: None

Frequencies Generated: None

Comments:

Support Equipment Data – Block Identifier 4

Description : Watt Meter

Manuf/Model : Bird

Model No.: 43

Serial # : EXP

Power : No power Required

Internal Options: None

External Options: None

Frequencies Generated: None

Comments:

Support Equipment Data – Block Identifier 5

Description : 1.5 KW load / 30db Attenuator

Manuf/Model : Bird

Model No.: 8327-300

Serial # : 1841

Power : No power Required

Internal Options: None

External Options: None

Frequencies Generated: None

Comments:

Support Equipment Data – Block Identifier 6

Description : Band Pass Filters

Manuf/Model : Industrial Communications Engineers Ltd.

Model No.: 160 Meter

403

Qty: 5

:

80 Meter

404

40 Meter 405

Serial #

: None

20 Meter 406

10 Meter

407

Power : No power Required

Internal Options: None

External Options: None

Frequencies Generated: None

Comments:

Cable Descriptions

(A)	Function	:	AC Power
Qty = 1	Type	:	Unshielded
	Length	:	1.8 Meters
	# of Conductors	:	3
	Connector Shell	:	Unshielded
	Part Number	:	
	Miscellaneous	:	120 VAC 60 Hz
(B)	Function	:	AC Power
Qty = 1	Type	:	Unshielded
	Length	:	2 Meters
	# of Conductors	:	3
	Connector Shell	:	Unshielded
	Part Number	:	
	Miscellaneous	:	240 VAC 60 Hz
(C)	Function	:	CW Key
Qty = 1	Type	:	Shielded
	Length	:	1 Meter
	# of Conductors	:	3
	Connector Shell	:	Unshielded
	Part Number	:	
	Miscellaneous	:	
(D1-D2)	Function	:	RF Power
Qty = 2	Type	:	Shielded
	Length	:	1 Meter
	# of Conductors	:	2
	Connector Shell	:	Shielded
	Part Number	:	
	Miscellaneous	:	RG 213 (Coaxial)

Cable Descriptions

(E1-E3)	Function	:	RF Power
Qty = 3	Type	:	Shielded
	Length	:	0.5 Feet
	# of Conductors	:	2
	Connector Shell	:	Shielded
	Part Number	:	
	Miscellaneous	:	RG 213 (Coaxial)
(F1-F2)	Function	:	RF Power
Qty = 2	Type	:	Shielded
	Length	:	4 Meters
	# of Conductors	:	2
	Connector Shell	:	Shielded
	Part Number	:	
	Miscellaneous	:	RG 223 (Coaxial)
(G)	Function	:	Remote Control
Qty = 1	Type	:	Shielded
	Length	:	1 Meter
	# of Conductors	:	9
	Connector Shell	:	Shielded
	Part Number	:	
	Miscellaneous	:	RS 232

EUT I/O Ports – Cable Configuration

All testing was performed with the following cables/terminators connected to the EUT I/O ports:

EUT I/O Ports (All available by type)	Cable Attached (Yes/No)
Remote Control (RS 232)	Yes
Key In	Yes
RF In	Yes
RF Out	Yes
AC In	Yes

Test Equipment List

#	Equipment Type	Manufacturer	Model #	Serial #	Cal Date	Cal Due	Used
1	Spectrum Analyzer	Hewlett-Packard	8568B	2207A01917	8/12/98	8/12/99	X
2	Quasi-Peak Adapter	Hewlett-Packard	85650A	2043A00249	8/12/98	8/12/99	X
3	RF Pre-Selector	Hewlett-Packard	85685A	2648A00500	8/12/98	8/12/99	X
4	Spectrum Analyzer	Hewlett-Packard	8566B	2532A02250	5/2/98	5/2/99	
5	Quasi-Peak Adapter	Hewlett-Packard	85650A	2521A00665	5/2/98	5/2/99	
6	RF Pre-Selector	Hewlett-Packard	85685A	2510A00186	5/2/98	5/2/99	
7	RF Probe	Fischer	F-33-1	367	7/14/97	7/14/98	
8	RF Pre-Amplifier	Hewlett Packard	8447D	1937A02850	5/30/98	5/30/99	
9	Pre-Amplifier	Hewlett-Packard	8449B	3008A00952	5/30/98	5/30/99	
10	Biconical Antenna	Schwarzbeck	BBA9106	0101	6/1/98	6/1/99	
11	Biconical Antenna	Schwarzbeck	BBA9106	0102	6/1/98	6/1/99	
12	Log Periodic Antenna	Schwarzbeck	UHALP9107	9107718	7/7/98	7/7/99	
13	Log Periodic Antenna	Schwarzbeck	UHALP9107	0103	7/7/98	7/7/99	
14	Mag Loop Antenna	EMCO	6502	9307-2841	1/28/99	1/28/00	
15	Horn Antenna	EMCO	3115	9308-4132	10/21/98	10/21/99	
16	Active Monopole Ant.	EMCO	3301B	9510-3625	2/8/99	2/8/00	
17	Tuned Dipole Antenna	Comp Design	A100	445	5/11/98	5/11/99	
18	1 KW 30 dB Atten.	Bird	8327-300	1841	3/18/99	3/18/00	X
19	20 dB Atten.	JFW	50HF-020	None	3/18/99	3/18/00	X
20	20 dB Atten.	JFW	50F-020	None	3/18/99	3/18/00	X
21	10 dB Atten.	Stoddart Electro	90513	10276	3/18.99	3/18/00	X
22	Watt Meter	Drake	WH7	1478	3/18.99	3/18/00	X
23	Watt Meter	Bird	43	EXP	3/18.99	3/18/00	X

Appendix A

TEST DATA

Data by Test Site Services Co

EUT : Acom 2000A Amplifier
 : W/ Icom 761
 :
 :

Engineer : R Wiedeman
 Technician : T CHARRON

Test: B90191
 Date: 03/26/99
 Power: 240VAC60Hz
 Spec: FCC
 Part 97

Receiver BW : 120 KHz >30MHz
 Receiver BW: 9 kHz < 30MHz
 NOTES:

Temperature: 72 F
 Rel. Humidity: 42 %

Freq	Signal					Cor.			Product	Limit	Margin
MHz	dBuV					Factor			Level	FCC	FCC
										97	97
										dBuV	dBuV
1.90	88.4					79.9			168.3	168.3	0.0
3.80	36.5					80.3			116.8	168.3	-51.5
5.70	9.5	N F				80.2			89.7	168.3	-78.6
7.60	9.3	N F				80.4			89.7	168.3	-78.6
9.50	8.7	N F				80.4			89.1	168.3	-79.2
11.40	7.7	N F				80.6			88.3	168.3	-80.0
13.30	8.3	N F				80.7			89.0	168.3	-79.3
15.20	8.5	N F				80.7			89.2	168.3	-79.1
17.10	7.7	N F				80.7			88.4	168.3	-79.9
19.00	7.8	N F				80.8			88.6	168.3	-79.7

AMP	
OFF	GAIN
74.10	14.30

Note: BB = BroadBand

Note: RBW = Reduced Bandwidth (kHz)

Note: MWA = Mixed With Ambient

Note: No signals observed above: 101.3 MHz

Note:VBW=VideoBand Width

Note NF= Noise Floor

Data by Test Site Services Co

EUT : Acom 2000A Amplifier
 : W/ Icom 761
 :
 :

Engineer : R Wiedeman
 Technician : T CHARRON

Test: B90191
 Date: 03/26/99
 Power: 240VAC60Hz
 Spec: FCC
 Part 97

Receiver BW : 120 KHz >30MHz

Receiver BW: 9 kHz < 30MHz

NOTES:

Temperature: 72 F

Rel. Humidity: 42 %

Freq	Signal					Cor.			Product	Limit	Margin
MHz	dBuV					Factor			Level	FCC	FCC
										97	97
										dBuV	dBuV
3.75	88.8					80.3			169.1	169.1	0.0
7.50	36.3					80.4			116.7	169.1	-52.4
11.25	10.6					80.6			91.2	169.1	-77.9
15.00	10.4					80.7			91.1	169.1	-78.0
18.75	8.9	N F				80.8			89.7	169.1	-79.4
22.50	7.4	N F				81.0			88.4	169.1	-80.7
26.25	7.9	N F				81.0			88.9	169.1	-80.2
30.00	9.0	N F				81.1			90.1	169.1	-79.0
33.75	9.6	N F				81.2			90.8	169.1	-78.3
37.50	9.1	N F				81.2			90.3	169.1	-78.8

AMP	
OFF	GAIN
74.10	14.70

Note: BB = BroadBand

Note: RBW = Reduced Bandwidth (kHz)

Note: MWA = Mixed With Ambient

Note: No signals observed above: 101.3 MHz

Note;VBW=VideoBand Width

Note NF Noise Floor

Data by Test Site Services Co

EUT : Acom 2000A Amplifier
 : W/ Icom 761
 :
 :

Engineer : R Wiedeman
 Technician : T CHARRON

Test: B90191
 Date: 03/26/99
 Power: 240VAC60Hz
 Spec: FCC
 Part 97

Receiver BW : 120 KHz >30MHz

Receiver BW: 9 kHz < 30MHz

NOTES:

Temperature: 72 F

Rel. Humidity: 42 %

Freq	Signal					Cor.			Product	Limit	Margin
MHz	dBuV					Factor			Level	FCC	FCC
										97	97
									dBuV	dBuV	dBuV
7.15	88.8					80.5			169.3	169.3	0.0
14.30	32.1					80.7			112.8	169.3	-56.5
21.45	8.2					81.0			89.2	169.3	-80.1
28.60	7.6	N F				81.2			88.8	169.3	-80.5
35.75	9.6	N F				81.0			90.6	169.3	-78.7
42.90	8.4	N F				81.3			89.7	169.3	-79.6
50.05	9.6	N F				81.3			90.9	169.3	-78.4
57.20	8.8	N F				81.2			90.0	169.3	-79.3
64.35	9.1	N F				81.5			90.6	169.3	-78.7
71.50	9.6	N F				81.7			91.3	169.3	-78.0

AMP	
OFF	GAIN
74.20	14.60

Note: BB = BroadBand

Note: RBW = Reduced Bandwidth (kHz)

Note: MWA = Mixed With Ambient

Note: No signals observed above: 101.3 MHz

Note;VBW=VideoBand Width

Note NF Noise Floor

Data by Test Site Services Co

EUT : Acom 2000A Amplifier
 : W/ Icom 761
 :
 :

Engineer : R Wiedeman
 Technician : T CHARRON

Test: B90191
 Date: 03/26/99
 Power: 240VAC60Hz
 Spec: FCC
 Part 97

Receiver BW : 120 KHz >30MHz
 Receiver BW: 9 kHz < 30MHz
 NOTES:

Temperature: 72 F
 Rel. Humidity: 42 %

Freq	Signal					Cor.			Product	Limit	Margin
MHz	dBuV					Factor			Level	FCC	FCC
										97	97
									dBuV	dBuV	dBuV
10.13	88.3					80.6			168.9	168.9	0.0
20.25	34.6					81.0			115.6	168.9	-53.3
30.38	8.7	N F				81.0			89.7	168.9	-79.2
40.50	8.5	N F				81.2			89.7	168.9	-79.2
50.63	9.2	N F				81.2			90.4	168.9	-78.5
60.75	9.1	N F				81.5			90.6	168.9	-78.3
70.88	8.9	N F				81.6			90.5	168.9	-78.4
81.00	9.7	N F				82.4			92.1	168.9	-76.8
91.13	9.1	N F				82.0			91.1	168.9	-77.8
101.25	8.5	N F				81.9			90.4	168.9	-78.5

AMP	
OFF	GAIN
74.10	14.20

Note: BB = BroadBand

Note: RBW = Reduced Bandwidth (kHz)

Note: MWA = Mixed With Ambient

Note: No signals observed above: 101.3 MHz

Note: VBW=VideoBand Width

Note NF Noise Floor

Data by Test Site Services Co

EUT : Acom 2000A Amplifier
 : W / Icom 761
 :
 :

Engineer : R Wiedeman
 Technician : T CHARRON
 K RAYMOND

Test: B90191
 Date: 03/26/99
 Power: 240VAC60Hz
 Spec: FCC
 Part 97

Receiver BW : 120 KHz > 30 MHz

Receiver BW: 9 KHz < 30 MHz

Temperature: 72 F

NOTES:

Rel. Humidity: 42 %

Freq	Signal					Cor.			Product	Limit	Margin
MHz	dBuV					Factor			Level	FCC	FCC
										97	97
										dBuV	dBuV
14.18	87.9					80.7			168.6	168.6	0.0
28.35	32.4					81.1			113.5	168.6	-55.1
42.53	9.8	N F				81.2			91.0	168.6	-77.6
56.70	9.2	N F				81.5			90.7	168.6	-77.9
70.88	9.4	N F				81.7			91.1	168.6	-77.5
85.05	9.3	N F				81.9			91.2	168.6	-77.4
99.23	9.6	N F				81.9			91.5	168.6	-77.1
113.40	9.6	N F				81.9			91.5	168.6	-77.1
127.58	9.8	N F				82.4			92.2	168.6	-76.4
141.75	10.2	N F				82.5			92.7	168.6	-75.9

Amp	
Off	GAIN
73.80	14.10

Note: BB = BroadBand

Note: RBW = Reduced Bandwidth (kHz)

Note: MWA = Mixed With Ambient

Note: No signals observed above: 212.3 MHz

Note:VBW=VideoBand Width

Note NF= Noise Floor

Data by Test Site Services Co

EUT : Acom 2000A Amplifier
 : W / Icom 761
 :
 :

Engineer : R Wiedeman
 Technician : T CHARRON
 K RAYMOND

Test: B90191
 Date: 03/26/99
 Power: 240VAC60Hz
 Spec: FCC
 Part 97

Receiver BW : 120 KHz > 30 MHz

Receiver BW: 9 KHz < 30 MHz

NOTES:

Temperature: 72 F
 Rel. Humidity: 42 %

Freq	Signal					Cor.			Product	Limit	Margin
MHz	dBuV					Factor			Level	FCC	FCC
										97	97
										dBuV	dBuV
18.12	87.9					80.8			168.7	168.7	0.0
36.24	25.1					81.2			106.3	168.7	-62.4
54.35	9.4	N F				81.4			90.8	168.7	-77.9
72.47	10.6	N F				81.7			92.3	168.7	-76.4
90.59	11.2	N F				82.0			93.2	168.7	-75.5
108.71	9.7	N F				81.9			91.6	168.7	-77.1
126.83	8.8	N F				82.4			91.2	168.7	-77.5
144.94	9.4	N F				82.8			92.2	168.7	-76.5
163.06	8.6	N F				82.9			91.5	168.7	-77.2
181.18	10.2	N F				82.7			92.9	168.7	-75.8

Amp	
Off	GAIN
73.50	14.40

Note: BB = BroadBand

Note: RBW = Reduced Bandwidth (kHz)

Note: MWA = Mixed With Ambient

Note: No signals observed above: 212.3 MHz

Note: VBW=VideoBand Width

Note NF Noise Floor

Data by Test Site Services Co

EUT : Acom 2000A Amplifier
 : W / Icom 761
 :
 :

Engineer : R Wiedeman
 Technician : T CHARRON
 K RAYMOND

Test: B90191
 Date: 03/26/99
 Power: 240VAC60Hz
 Spec: FCC
 Part 97

Receiver BW : 120 KHz > 30 MHz

Receiver BW: 9 KHz < 30 MHz

NOTES:

Temperature: 72 F
 Rel. Humidity: 42 %

Freq	Signal					Cor.			Product	Limit	Margin
MHz	dBuV					Factor			Level	FCC	FCC
										97	97
										dBuV	dBuV
21.23	87.6					81.0			168.6	168.6	0.0
42.45	25.9					81.3			107.2	168.6	-61.4
63.68	11					81.6			92.6	168.6	-76.0
84.90	10.4					81.9			92.3	168.6	-76.3
106.13	9.5	N F				82.1			91.6	168.6	-77.0
127.35	9.2	N F				82.4			91.6	168.6	-77.0
148.58	9.2	N F				82.6			91.8	168.6	-76.8
169.80	9.4	N F				83.2			92.6	168.6	-76.0
191.03	9.5	N F				83.0			92.5	168.6	-76.1
212.25	9.5	N F				83.1			92.6	168.6	-76.0

Amp	
Off	GAIN
73.20	14.40

Note: BB = BroadBand

Note: RBW = Reduced Bandwidth (kHz)

Note: MWA = Mixed With Ambient

Note: No signals observed above: 212.3 MHz

Note: VBW=VideoBand Width

Note NF Noise Floor

Test: B90191
Date: 03/26/99
Power: 240VAC60Hz
Spec: FCC
Part 97

Engineer : R Wiedeman
Technician : K. Raymond

Temperature: 72 F
Rel. Humidity: 42 %

NOTES:

[illegible][illegible]

Note;VBW=VideoBand Width

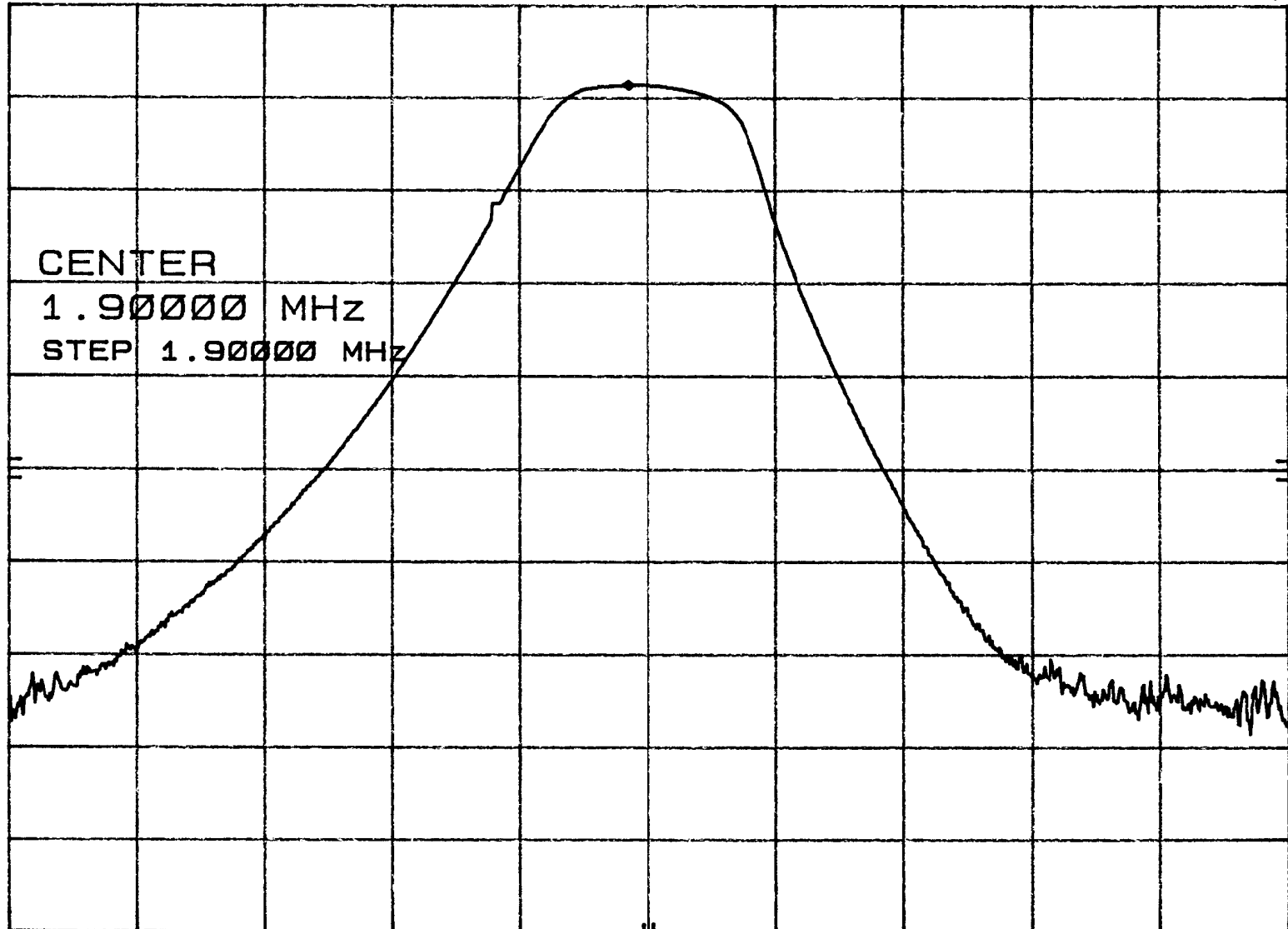
Note NF= Noise Floor

MKR 1.89920 MHz
88.40 dB μ V

hp REF 97.0 dB μ V ATTEN 10 dB + 10 dB

10 dB/

OFFSET
-10.0
dB



CENTER 1.90000 MHz
RES BW 10 kHz

VBW 10 kHz

SPAN 50.00 kHz
SWP 30 msec

hp

REF 77.0 dB μ V

ATTEN 10 dB + 10 dB

MKR 1.89945 MHz
74.10 dB μ V

10 dB/

OFFSET
-10.0
dB

CENTER

1.90000 MHz

STEP 1.90000 MHz

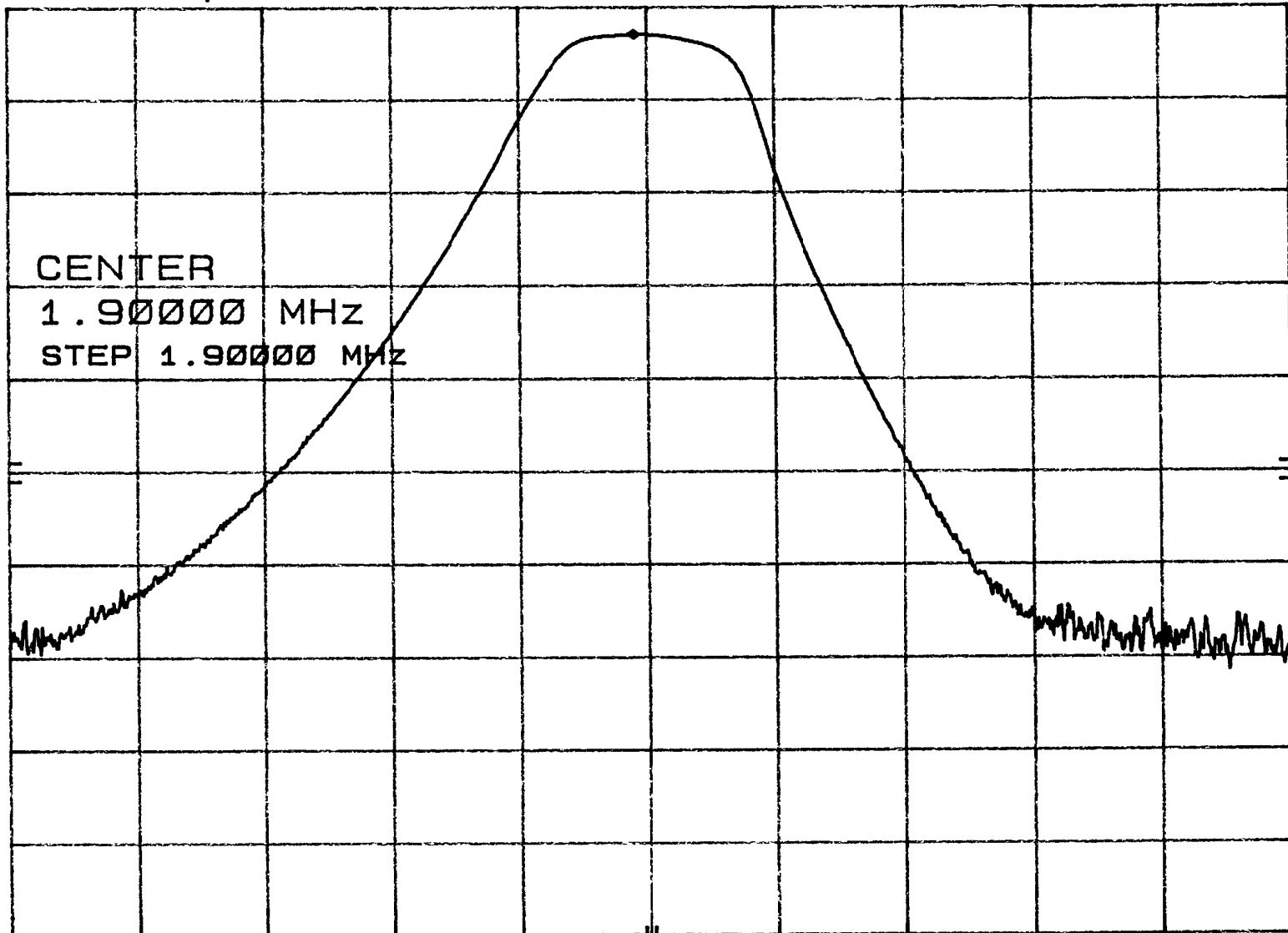
CENTER 1.90000 MHz

RES BW 10 kHz

VBW 10 kHz

SPAN 50.00 kHz

SWP 30 msec



MKR 3.79905 MHz

36.50 dB μ V

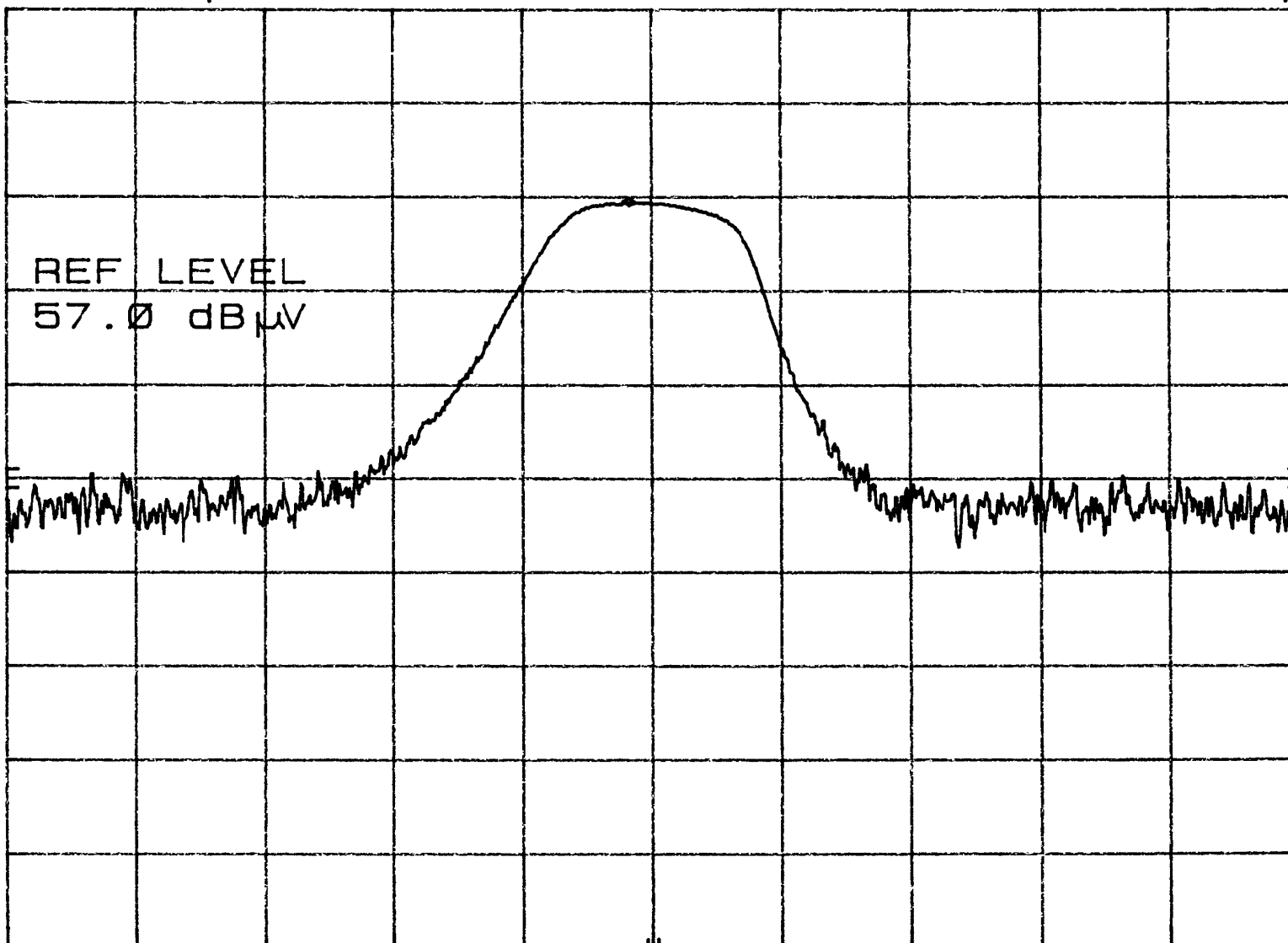
hp REF 57.0 dB μ V

ATTEN 10 dB + 10 dB

10 dB/

OFFSET
-10.0
dB

REF LEVEL
57.0 dB μ V



CENTER 3.80000 MHz

RES BW 10 kHz

VBW 10 kHz

SPAN 50.00 kHz

SWP 30 msec

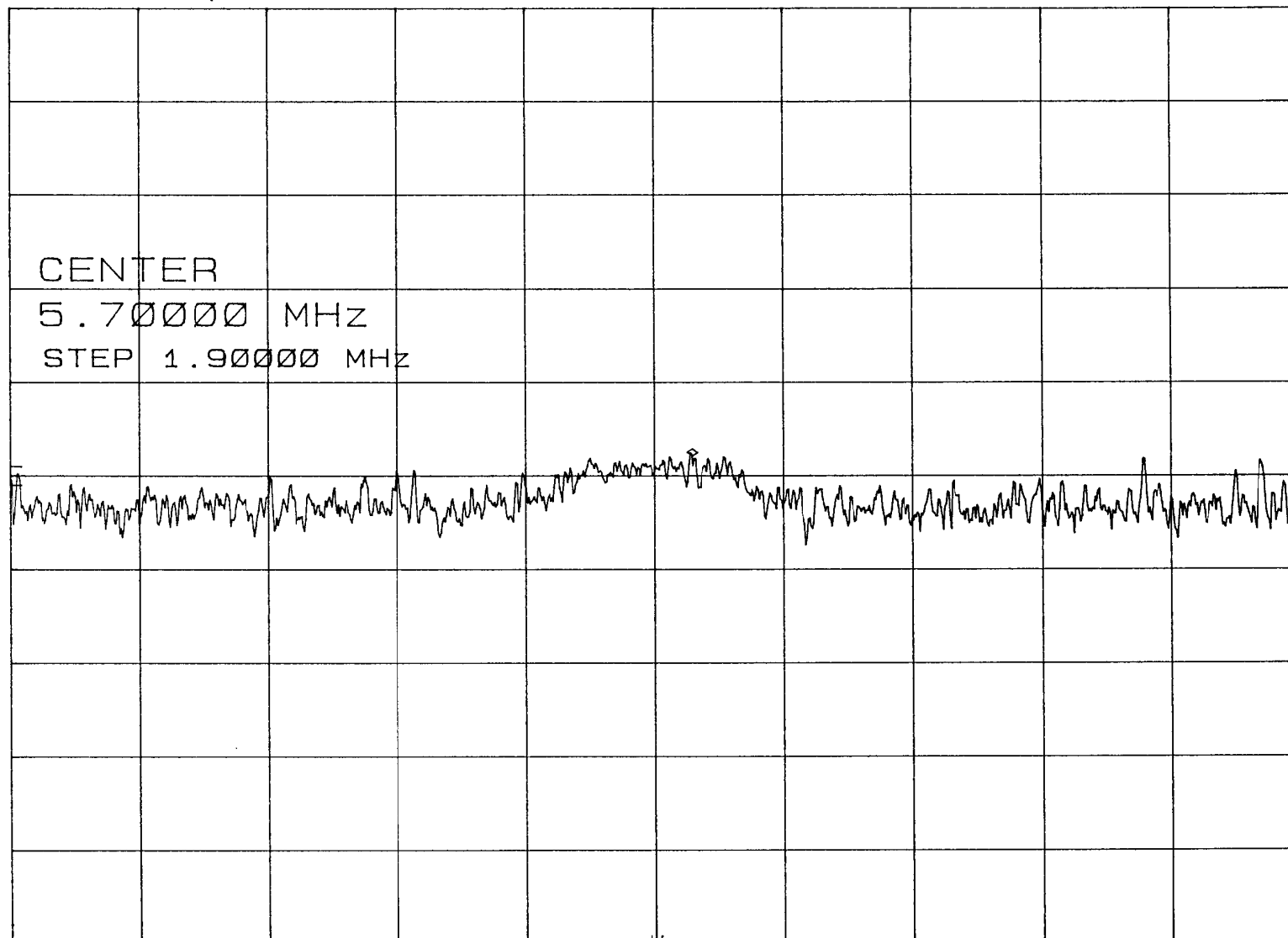
MKR 5.70140 MHz

9.50 dB μ V

hp REF 57.0 dB μ V ATTEN 10 dB + 10 dB

10 dB/

OFFSET
-10.0
dB



CENTER 5.70000 MHz

RES BW 10 kHz

VBW 10 kHz

SPAN 50.00 kHz
SWP 30 msec

MKR 7.5975 MHz

9.30 dB μ V

hp

REF 57.0 dB μ V

ATTEN 10 dB + 10 dB

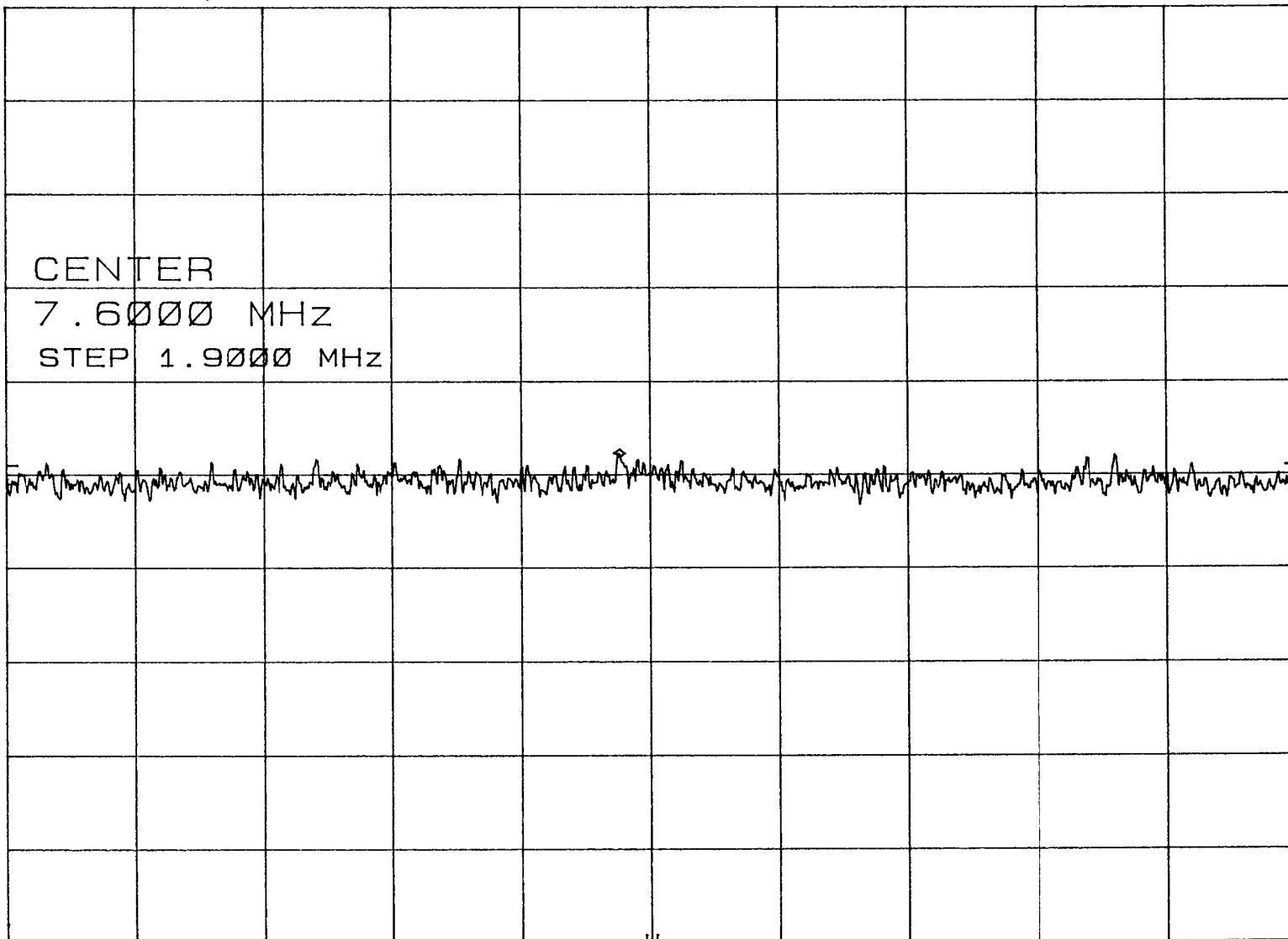
10 dB/

OFFSET
-10.0
dB

CENTER

7.6000 MHz

STEP 1.9000 MHz



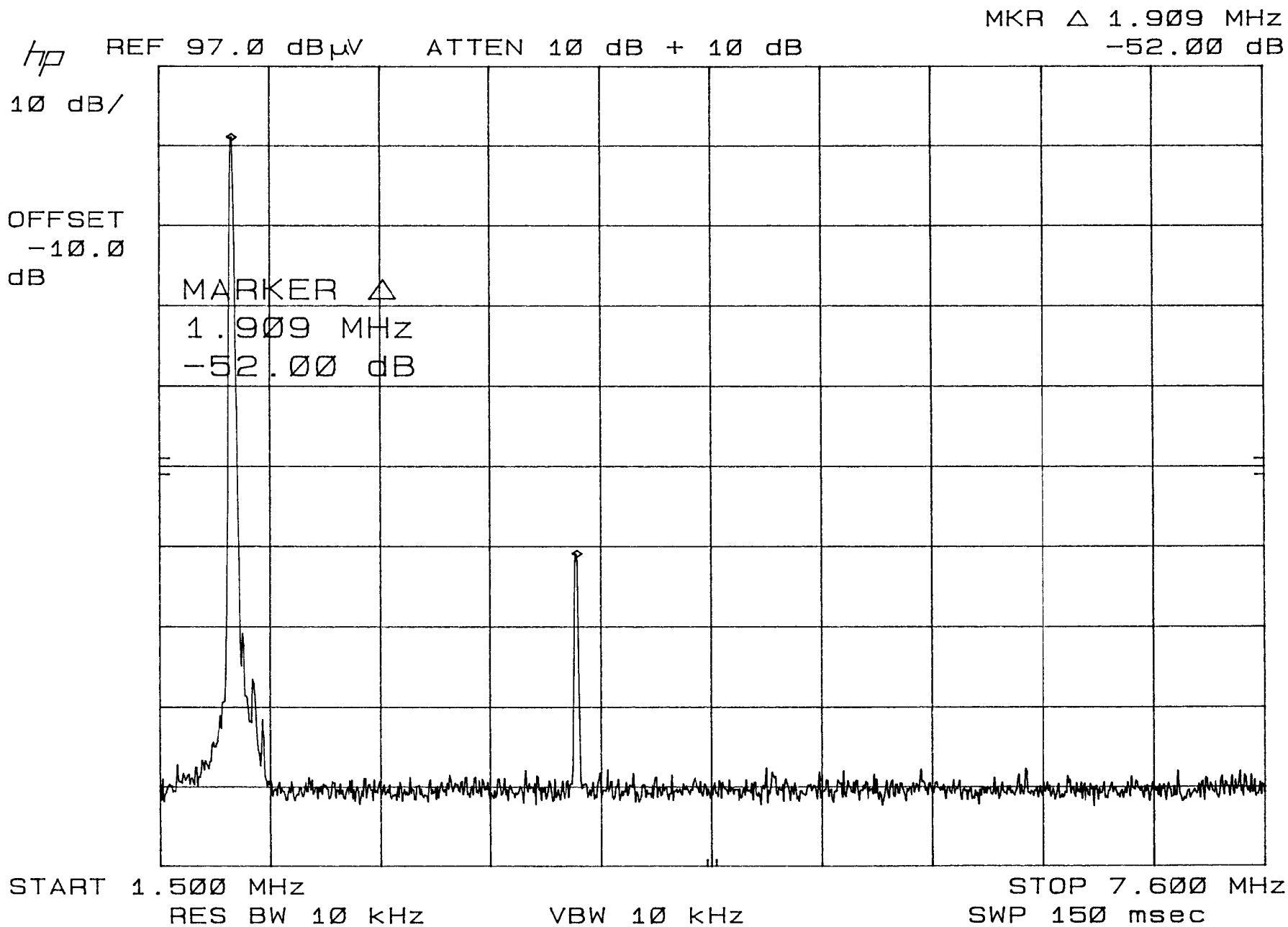
CENTER 7.6000 MHz

RES BW 10 kHz

VBW 10 kHz

SPAN 100.0 kHz

SWP 30 msec



MKR 3.74955 MHz

88.80 dB μ V

hp REF 97.0 dB μ V ATTEN 10 dB + 10 dB

10 dB/

OFFSET
-10.0
dB

CENTER

3.75000 MHz

STEP 3.75300 MHz

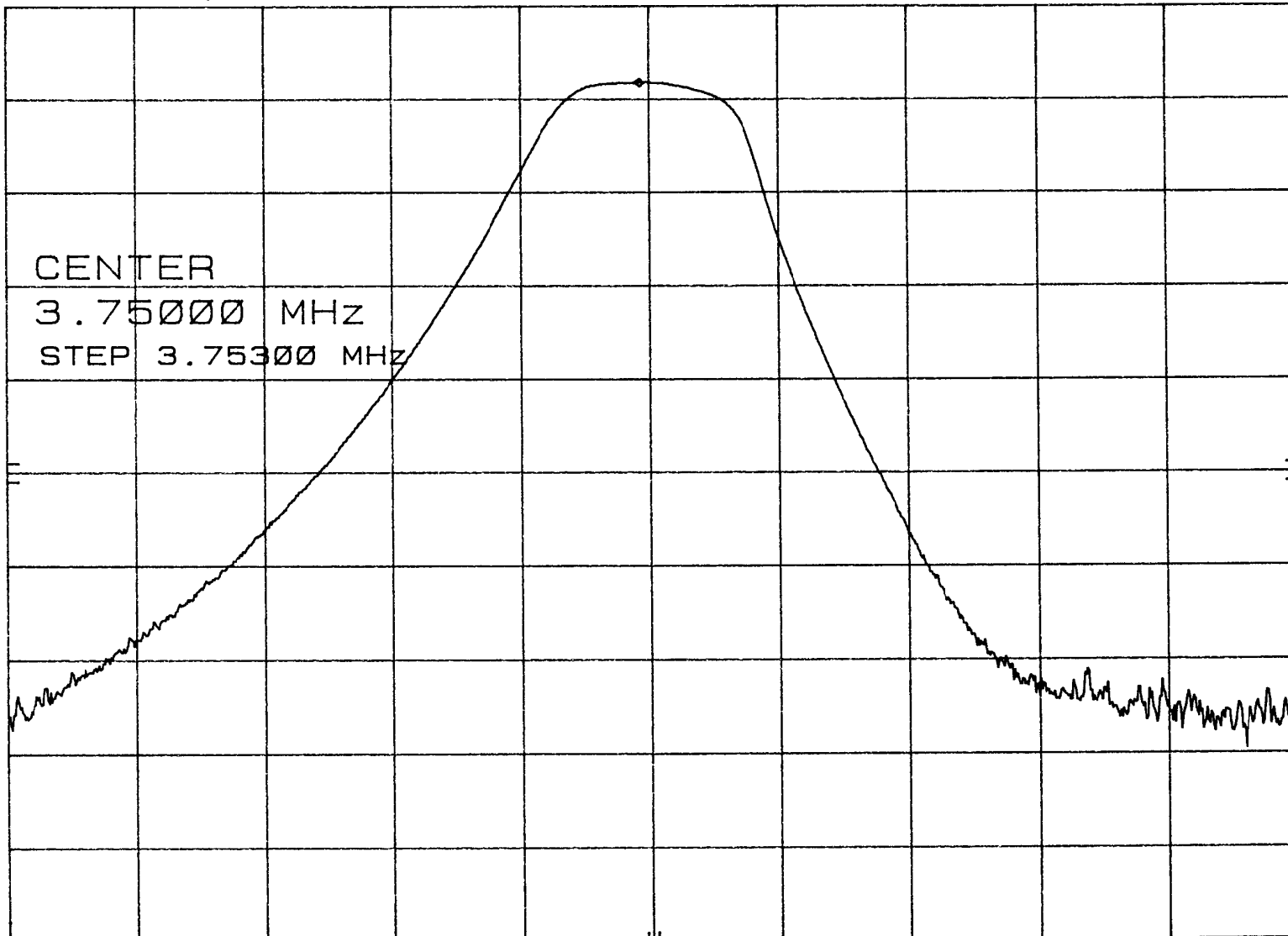
CENTER 3.75000 MHz

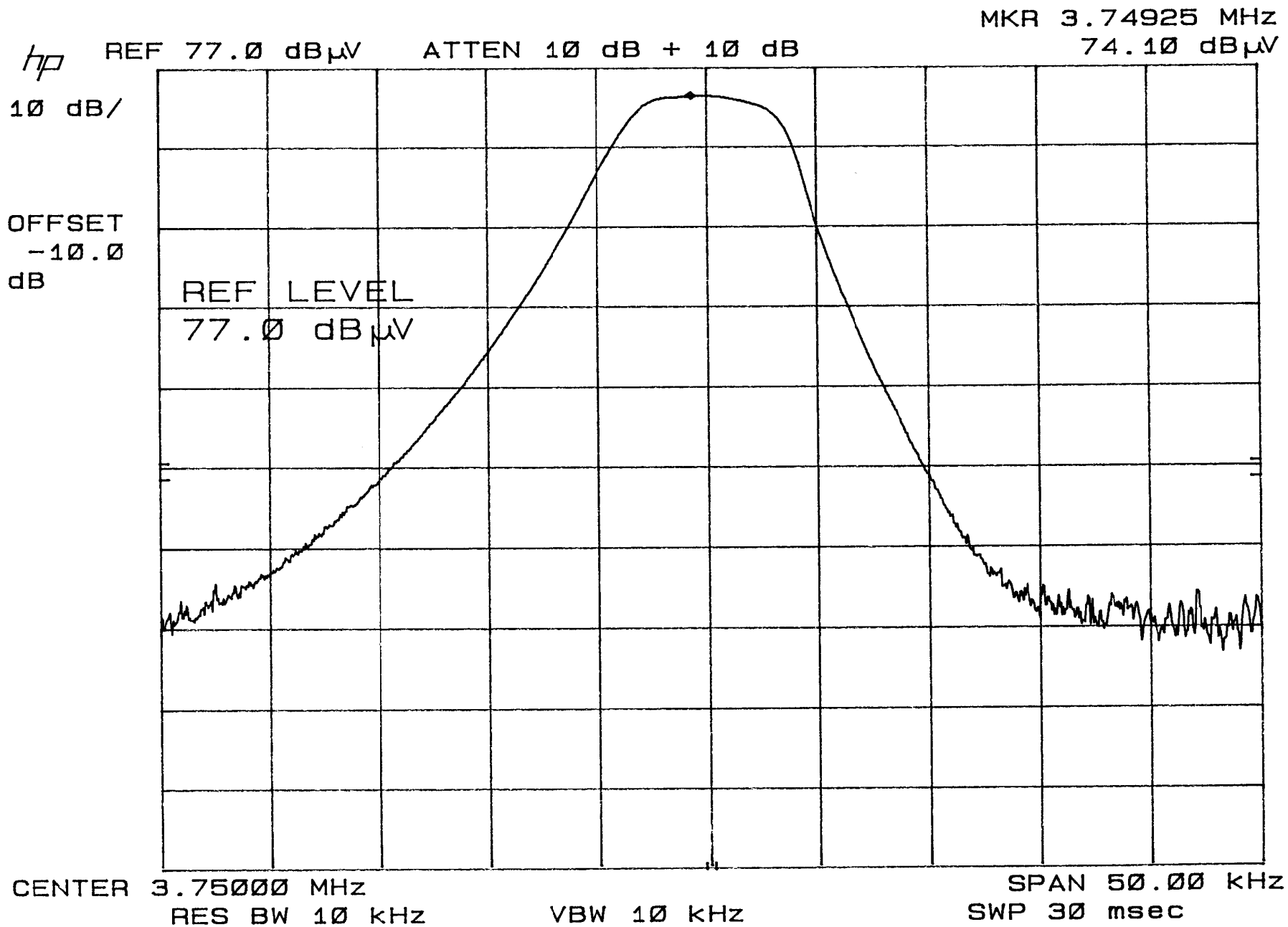
RES BW 10 kHz

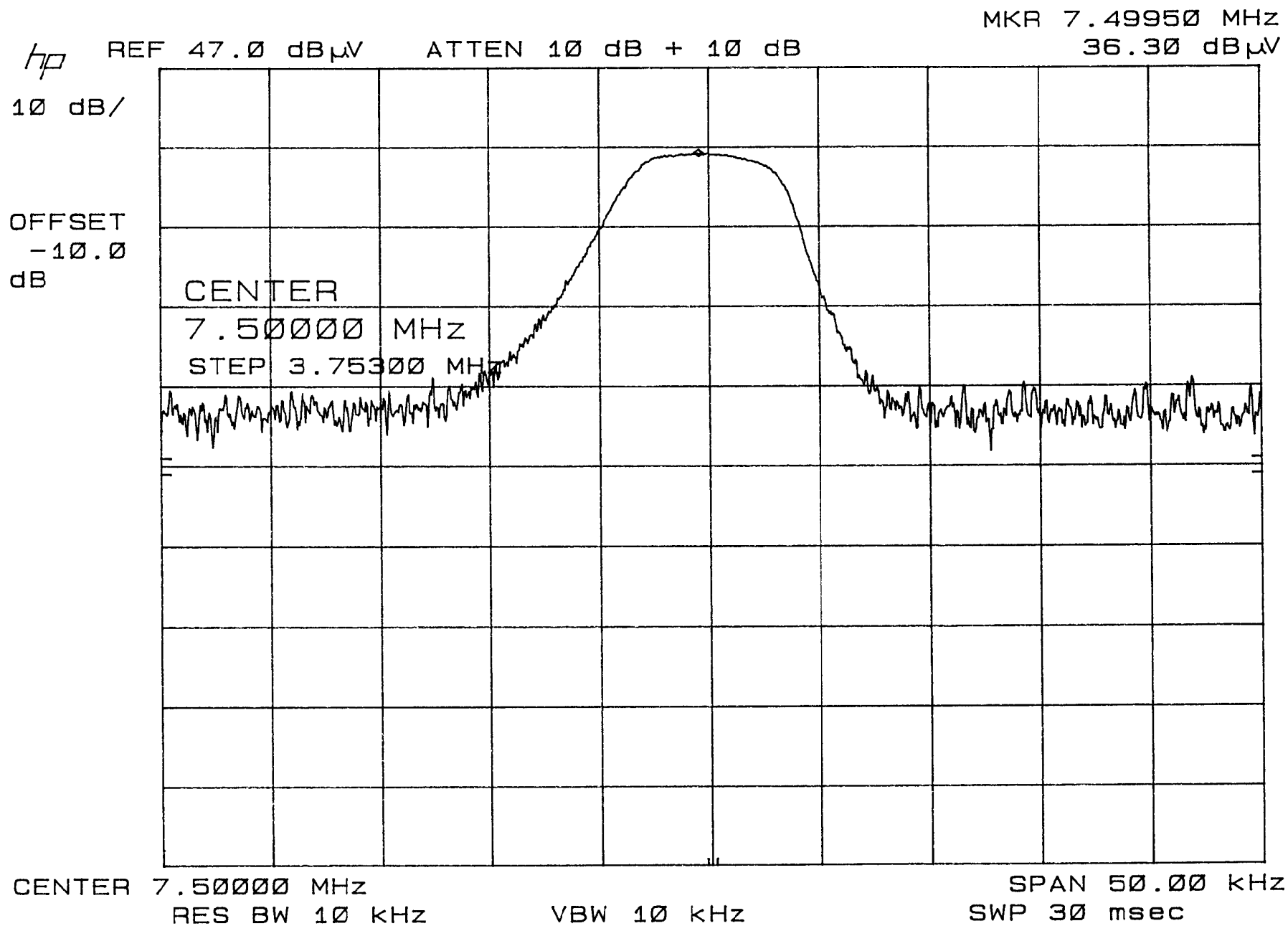
VBW 10 kHz

SPAN 50.00 kHz

SWP 30 msec







hp

REF 47.0 dB μ V

ATTEN 10 dB + 10 dB

MKR 11.25010 MHz
10.60 dB μ V

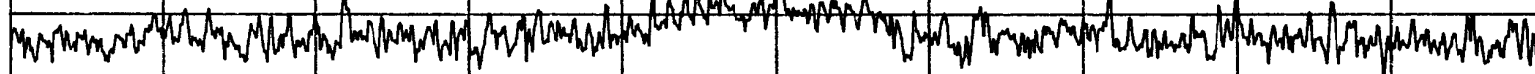
10 dB/

OFFSET
-10.0
dB

CENTER

11.25000 MHz

STEP 3.75300 MHz



CENTER 11.25000 MHz

RES BW 10 KHz

VBW 10 KHz

SPAN 50.00 KHz

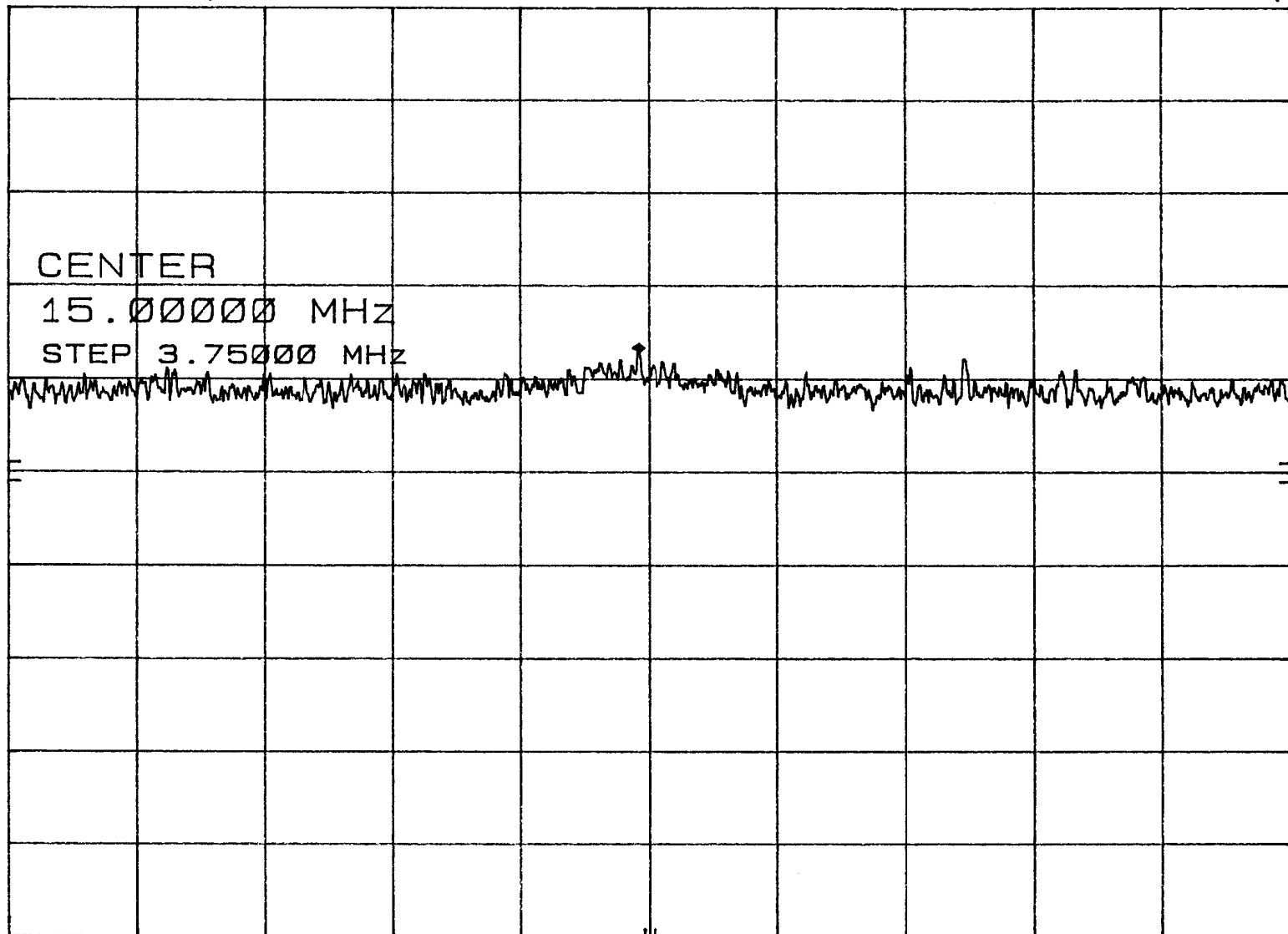
SWP 30 msec

MR 14.99955 MHz
10.40 dB μ V

hp REF 47.0 dB μ V ATTN 10 dB + 10 dB

10 dB/

OFFSET
-10.0
dB



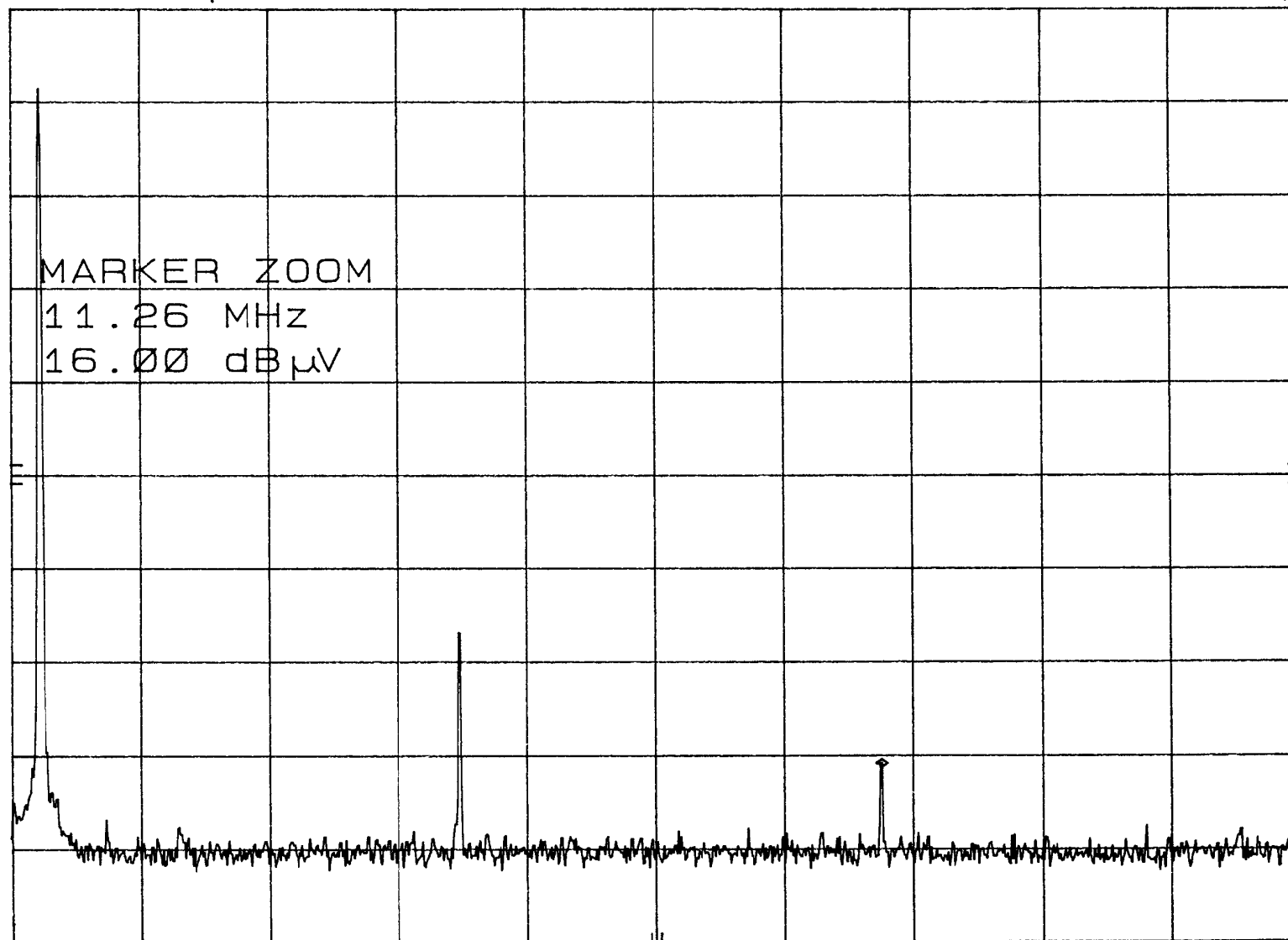
CENTER 15.00000 MHz SPAN 50.00 kHz
RES BW 10 kHz VBW 10 kHz SWP 30 msec

MKR 11.26 MHz
16.00 dB μ V

hp REF 97.0 dB μ V ATTEN 10 dB + 10 dB

10 dB/

OFFSET
-10.0
dB



START 3.50 MHz

RES BW 10 kHz

VBW 10 kHz

STOP 15.00 MHz
SWP 300 msec

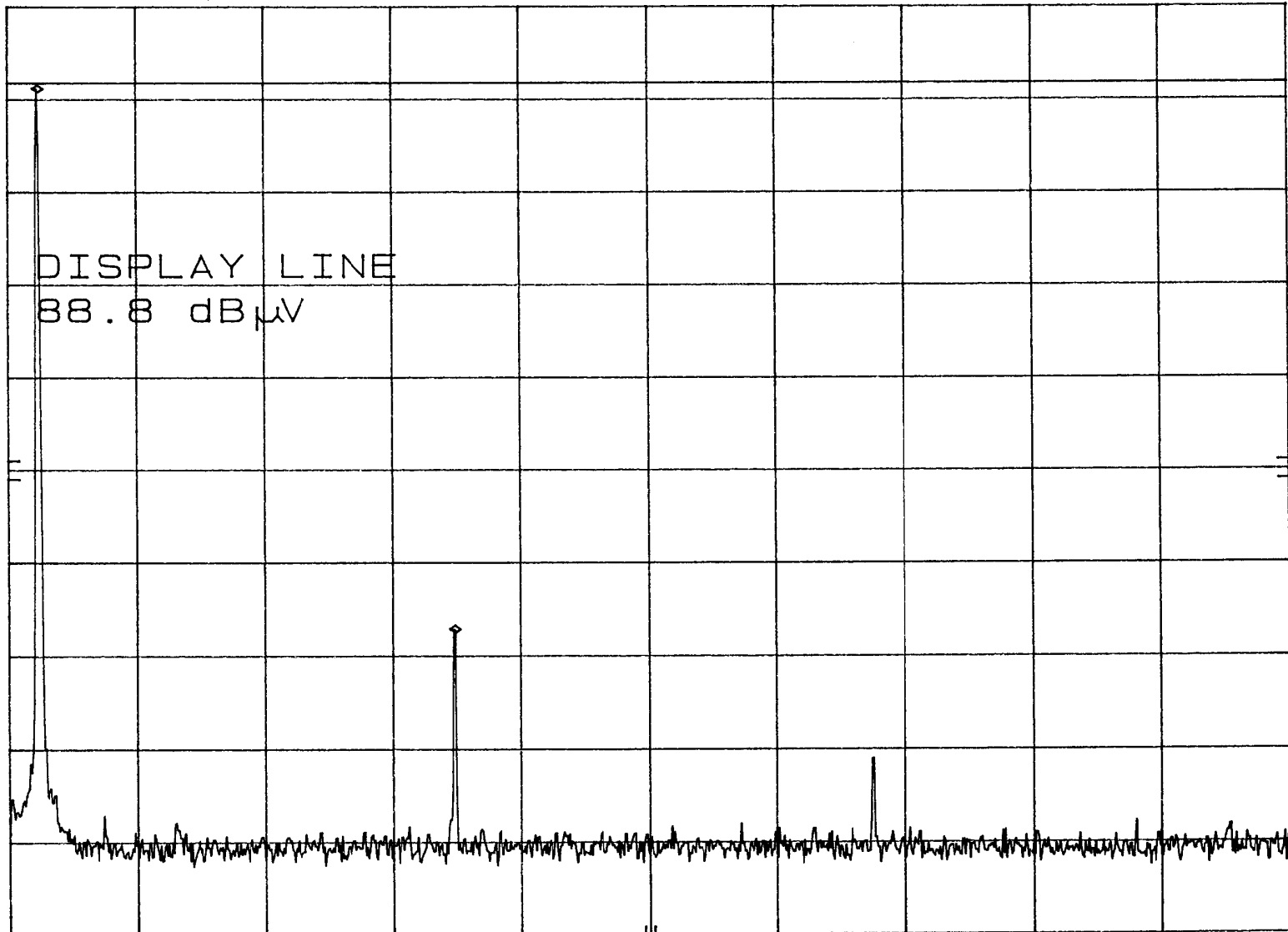
MKR Δ 3.75 MHz
-58.30 dB

hp REF 97.0 dB μ V ATTEN 10 dB + 10 dB

10 dB/

OFFSET
-10.0
dB

DL
88.8
dB μ V



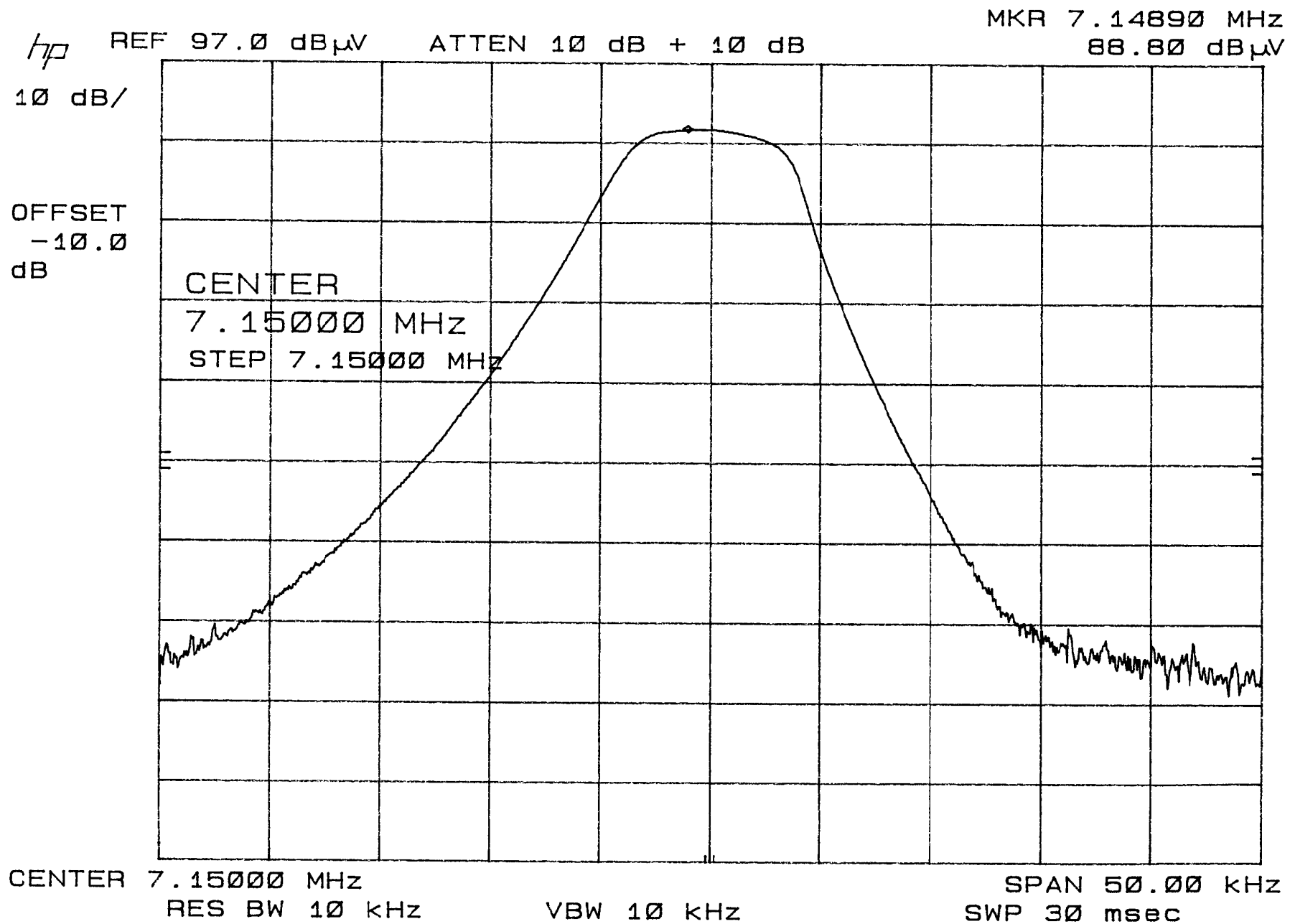
START 3.50 MHz

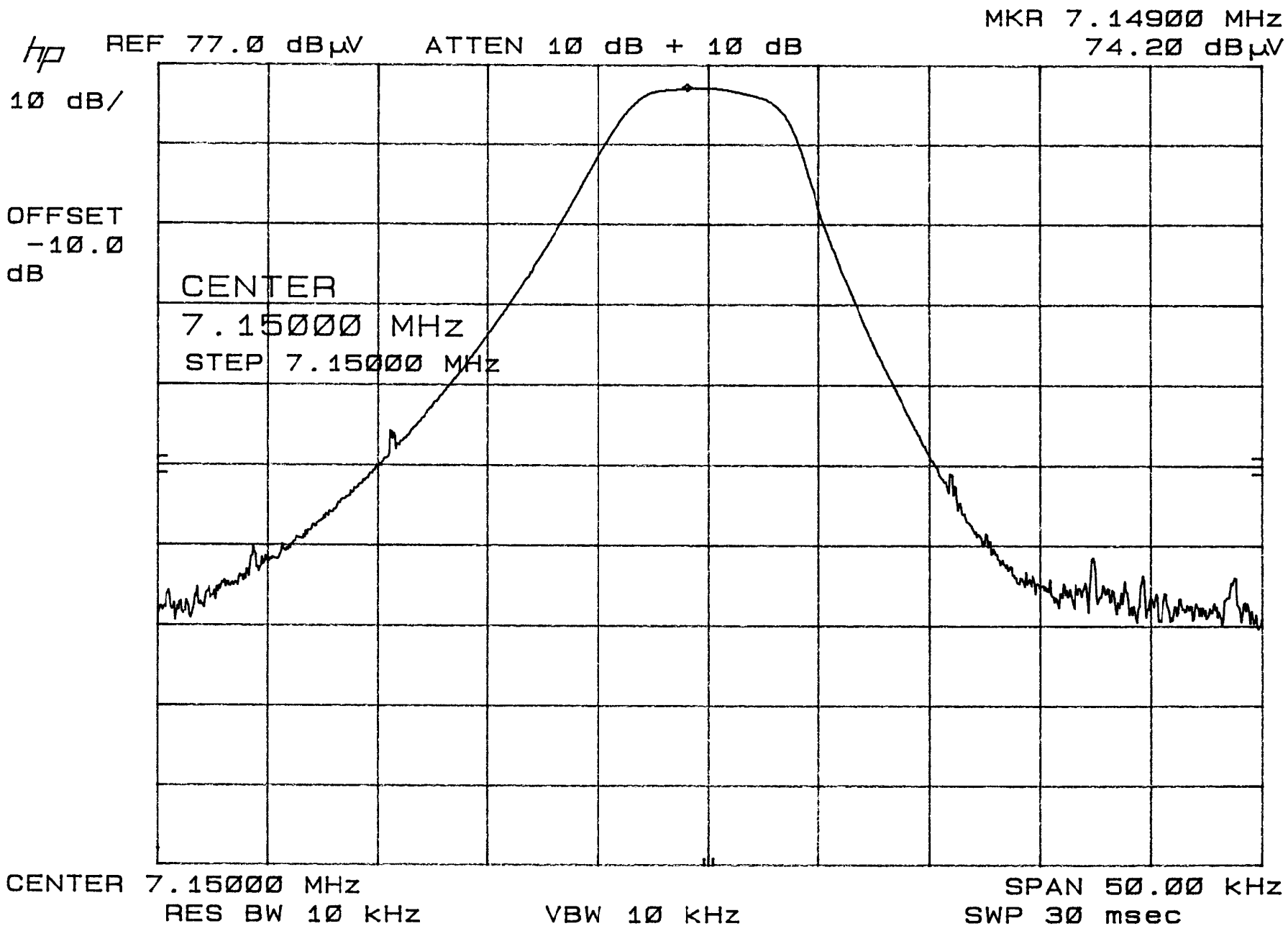
RES BW 10 kHz

VBW 10 kHz

STOP 15.00 MHz

SWP 300 msec



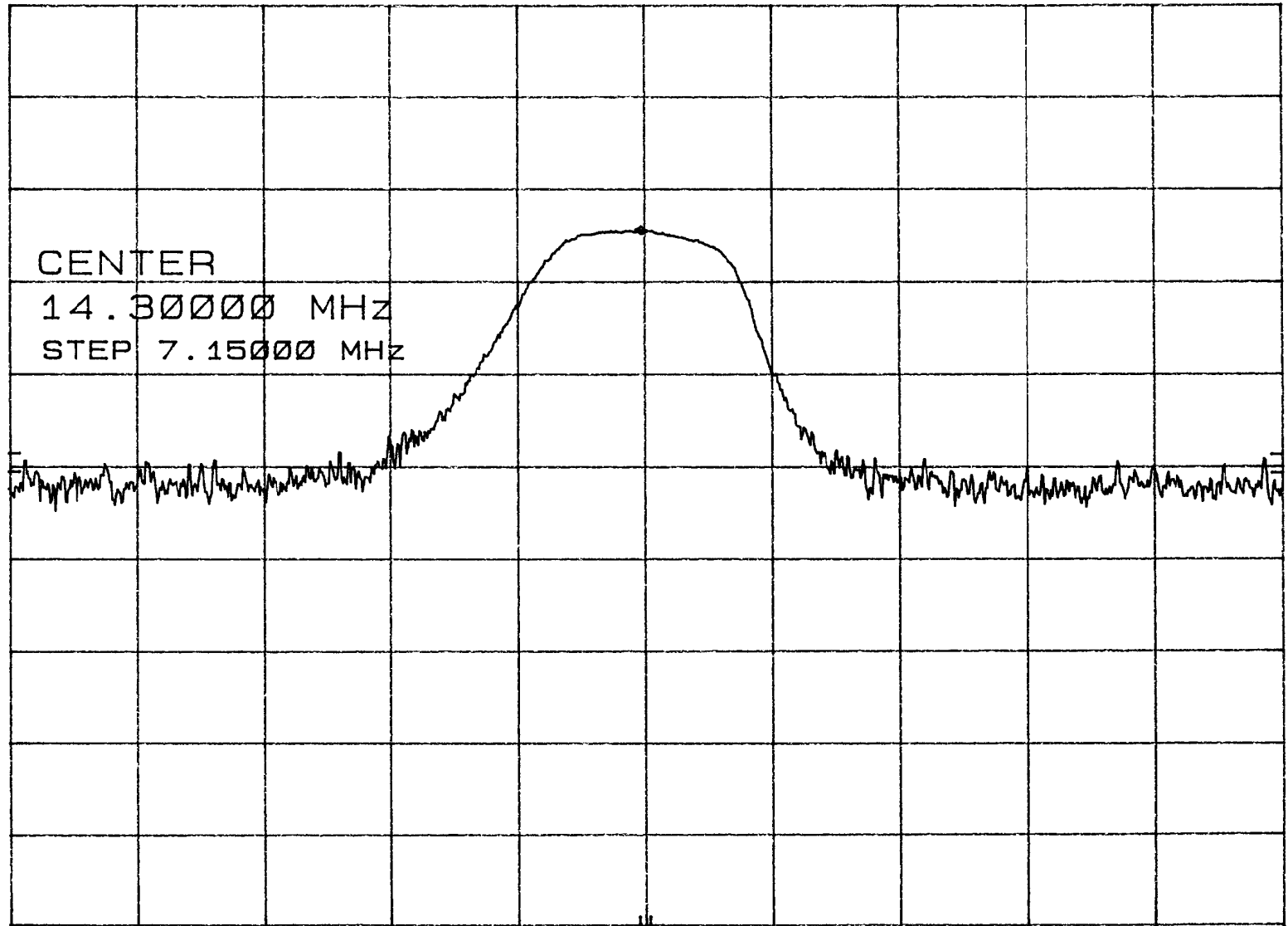


MKR 14.29985 MHz
32.10 dB μ V

hp REF 57.0 dB μ V ATTEN 10 dB + 10 dB

10 dB/

OFFSET
-10.0
dB



CENTER 14.30000 MHz
RES BW 10 KHz

VBW 10 KHz

SPAN 50.00 KHz
SWP 30 msec

MR 21.44865 MHz
8.20 dB μ V

hp REF 47.0 dB μ V ATTN 10 dB + 10 dB

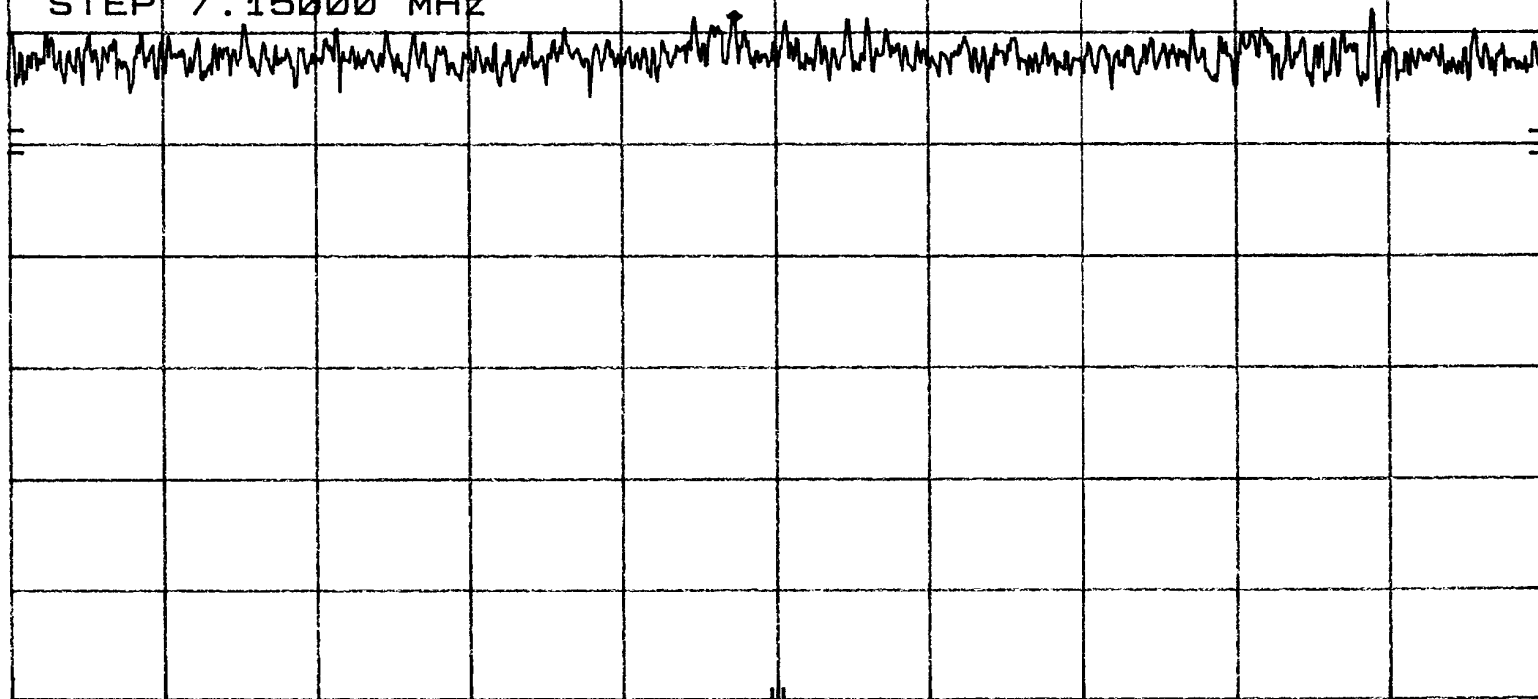
10 dB/

OFFSET
-10.0
dB

CENTER

21.45000 MHz

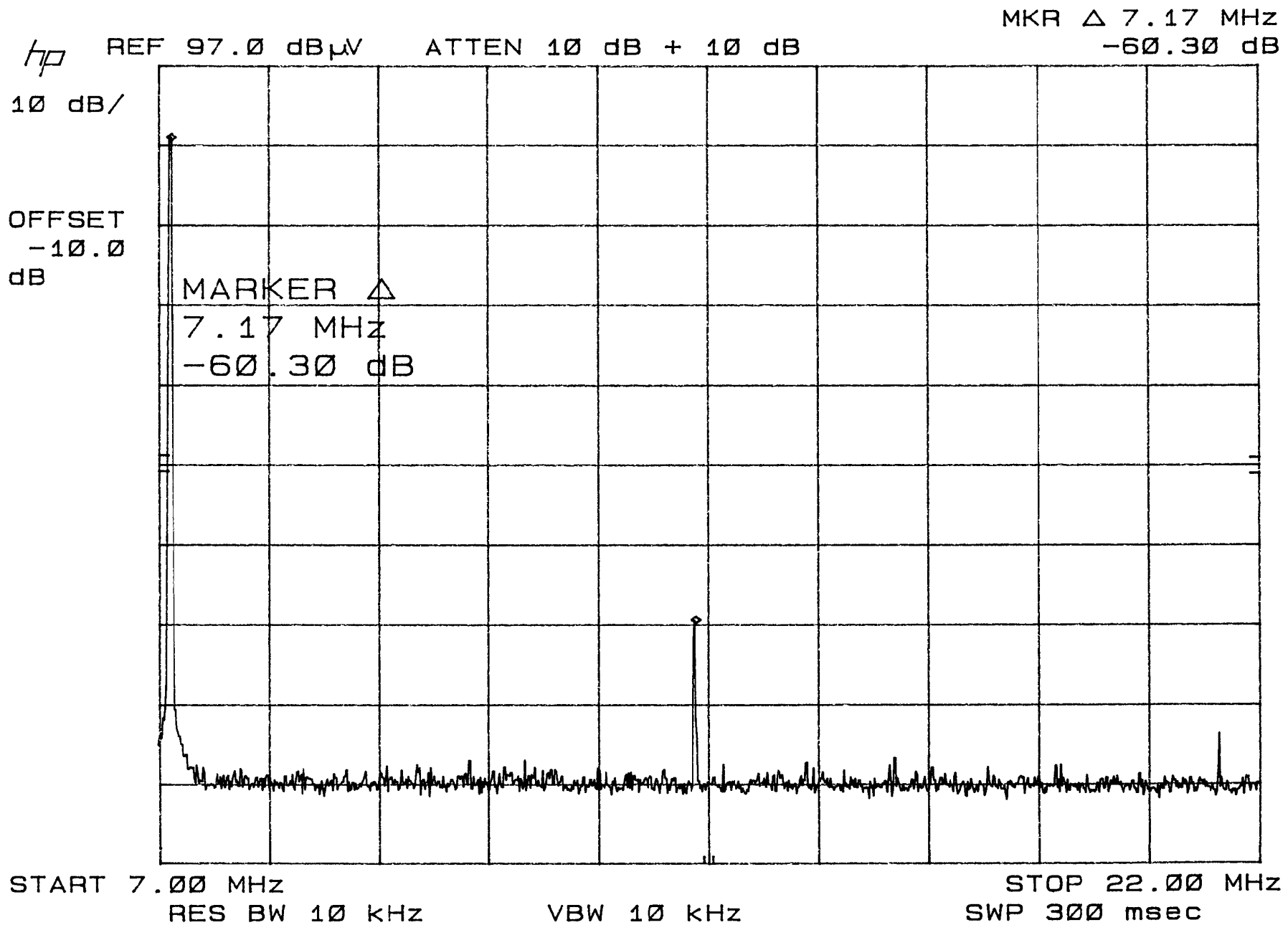
STEP 7.15000 MHz



CENTER 21.45000 MHz
RES BW 10 kHz

VBW 10 kHz

SPAN 50.00 kHz
SWP 30 msec



MKR 21.46 MHz
13.50 dB μ V

hp REF 97.0 dB μ V ATTEN 10 dB + 10 dB

10 dB/

OFFSET
-10.0
dB

MARKER ZOOM
21.46 MHz
13.50 dB μ V

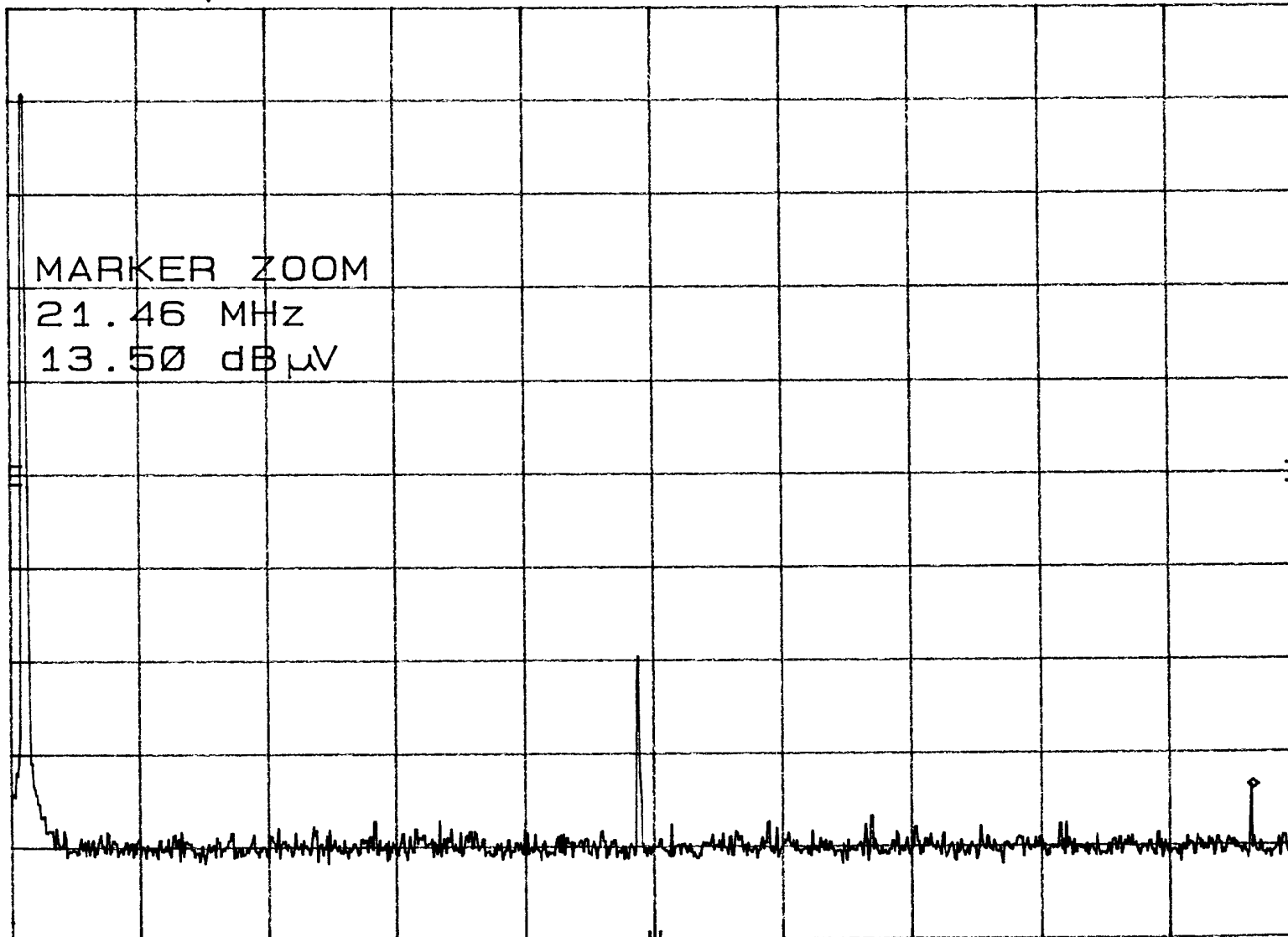
START 7.00 MHz

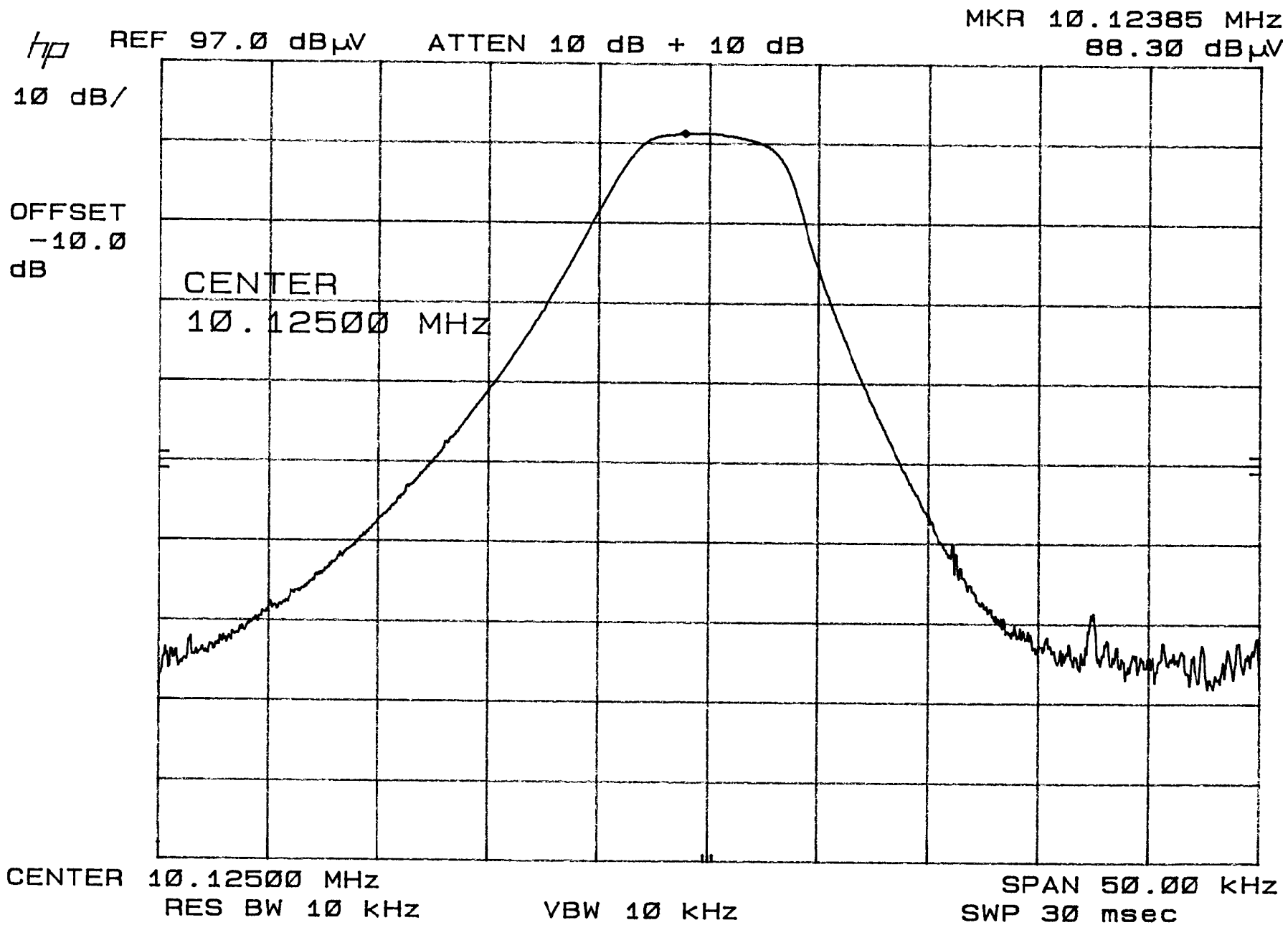
RES BW 10 kHz

VBW 10 kHz

STOP 22.00 MHz

SWP 300 msec



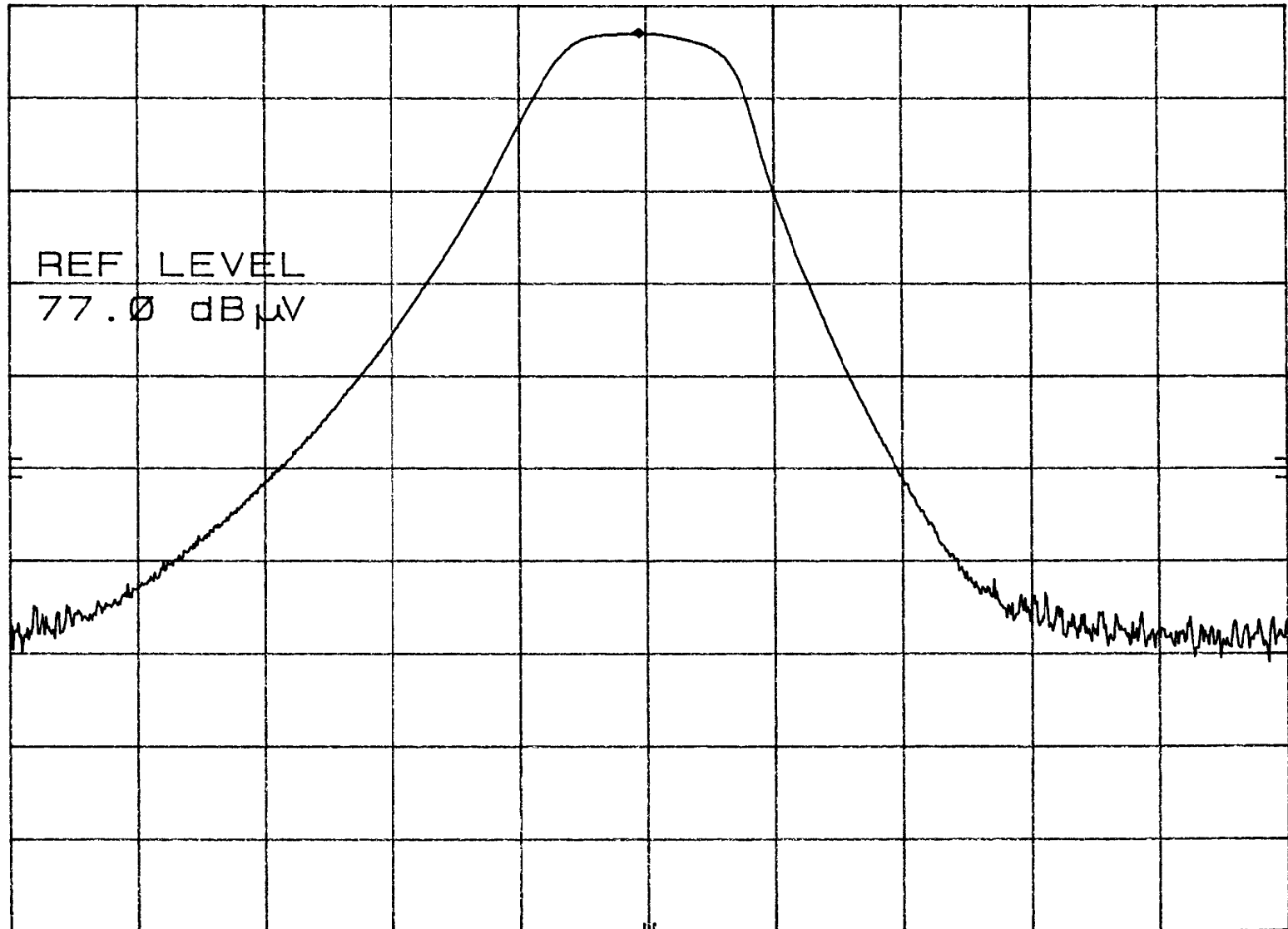


MKR 10.12465 MHz
74.10 dB μ V

hp REF 77.0 dB μ V ATTEN 10 dB + 10 dB

10 dB/

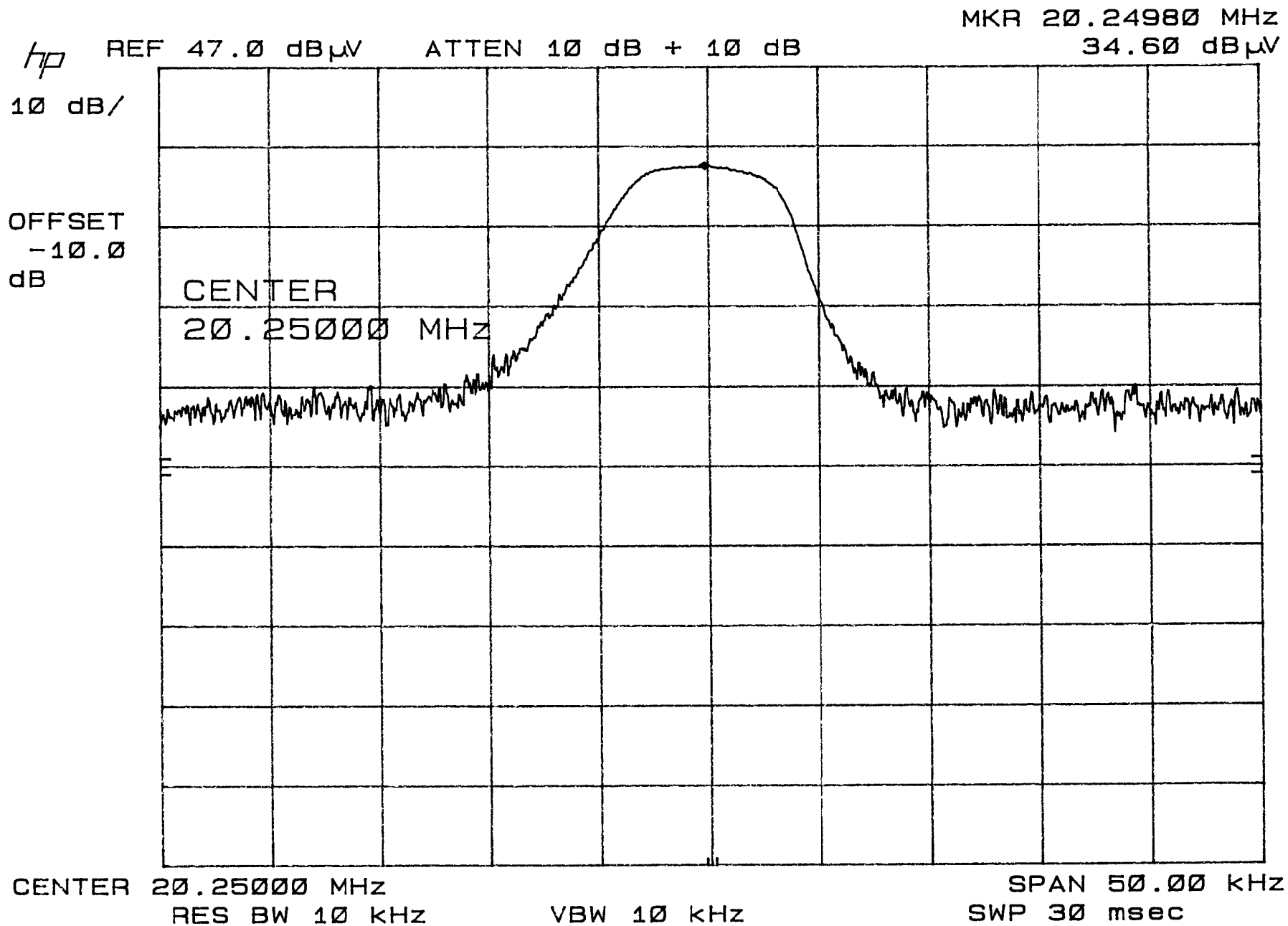
OFFSET
-10.0
dB



CENTER 10.12500 MHz
RES BW 10 kHz

VBW 10 kHz

SPAN 50.00 kHz
SWP 30 msec

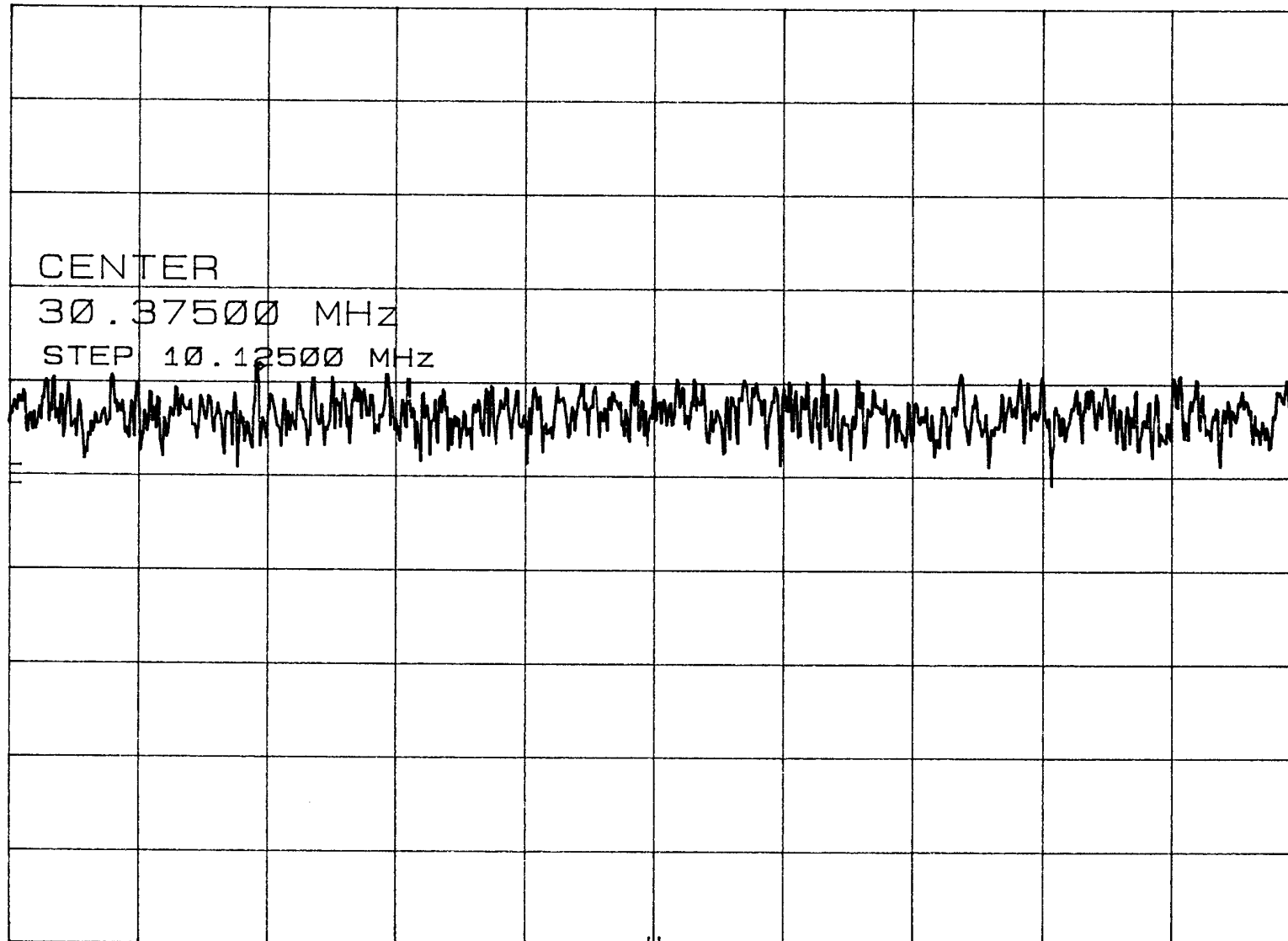


MKR 30.35965 MHz
8.70 dBμV

hp REF 47.0 dBμV ATTEN 10 dB + 10 dB

10 dB/

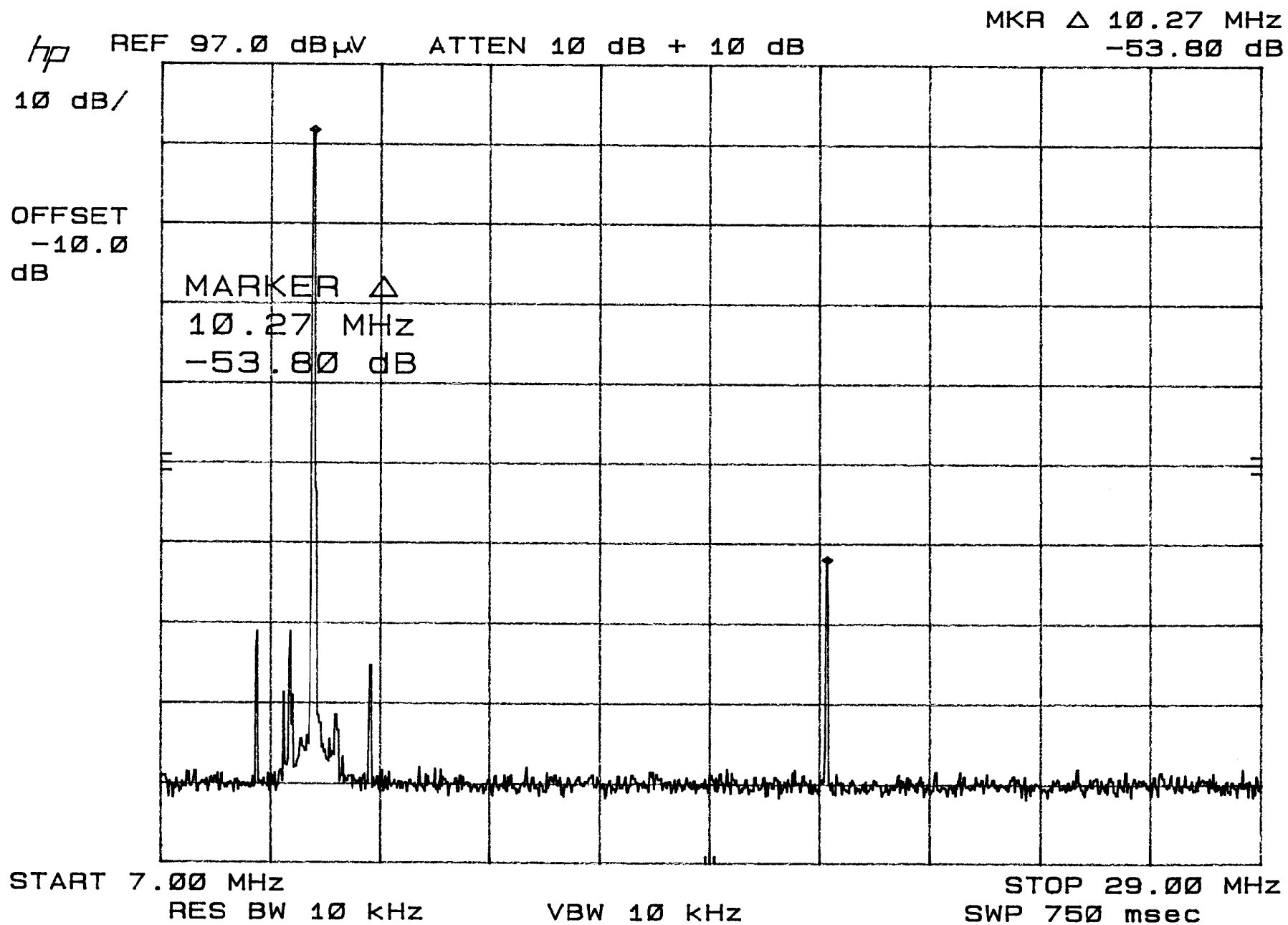
OFFSET
-10.0
dB



CENTER 30.37500 MHz
RES BW 10 kHz

VBW 10 kHz

SPAN 50.00 kHz
SWP 30 msec

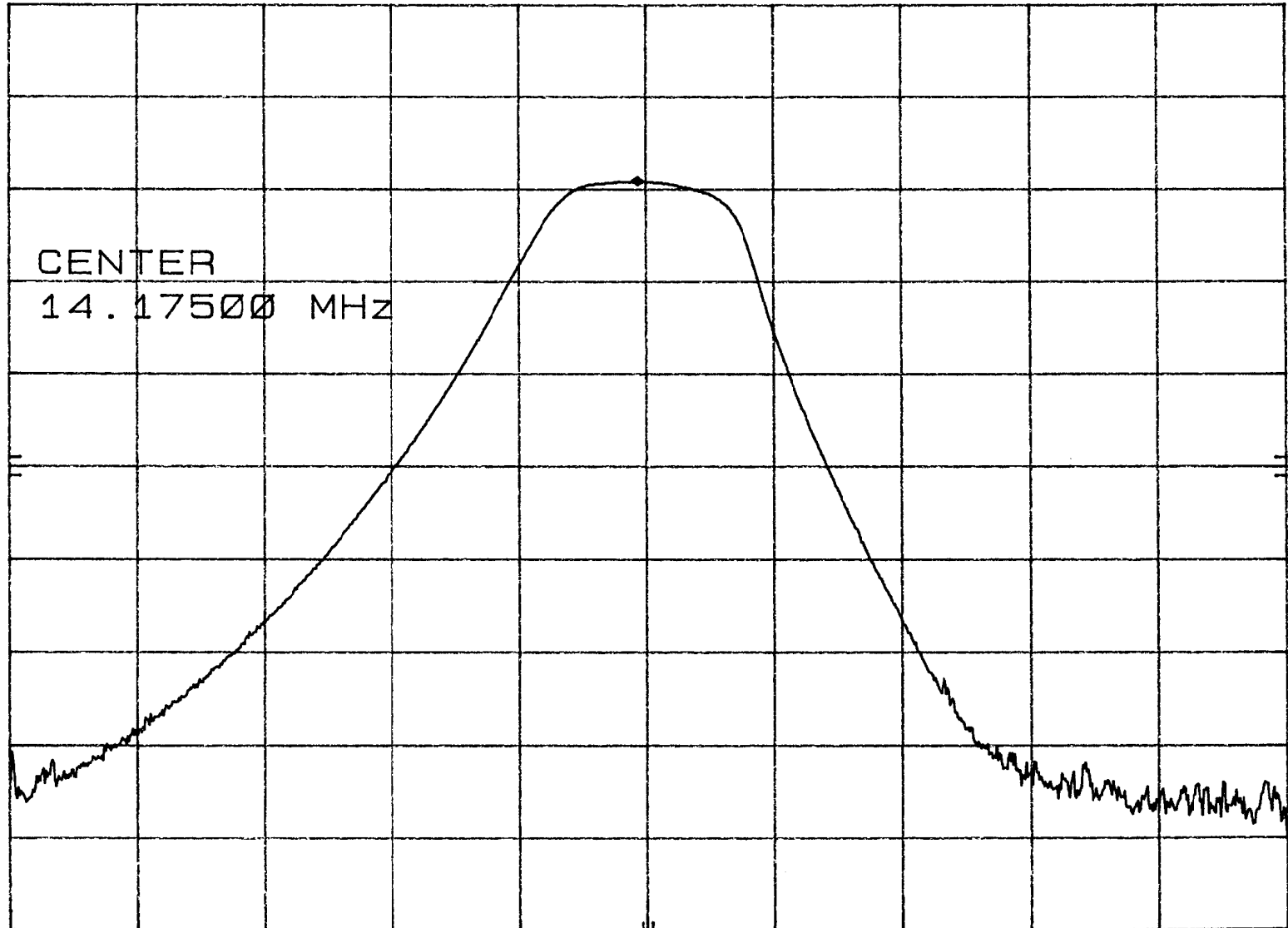


MKR 14.17460 MHz
87.90 dB μ V

hp REF 107.0 dB μ V ATTEN 20 dB + 10 dB

10 dB/

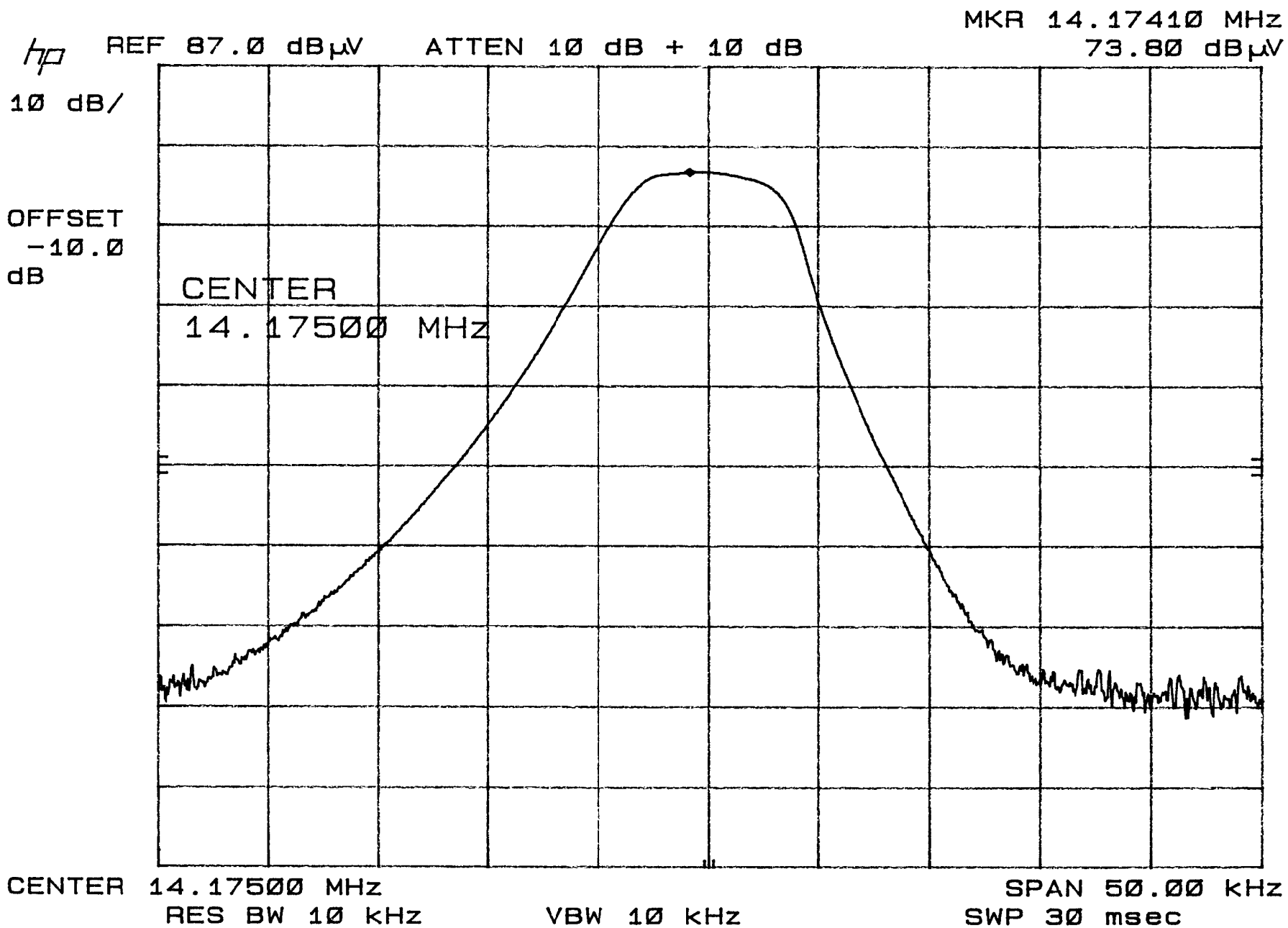
OFFSET
-10.0
dB



CENTER 14.17500 MHz
RES BW 10 kHz

VBW 10 kHz

SPAN 50.00 kHz
SWP 30 msec

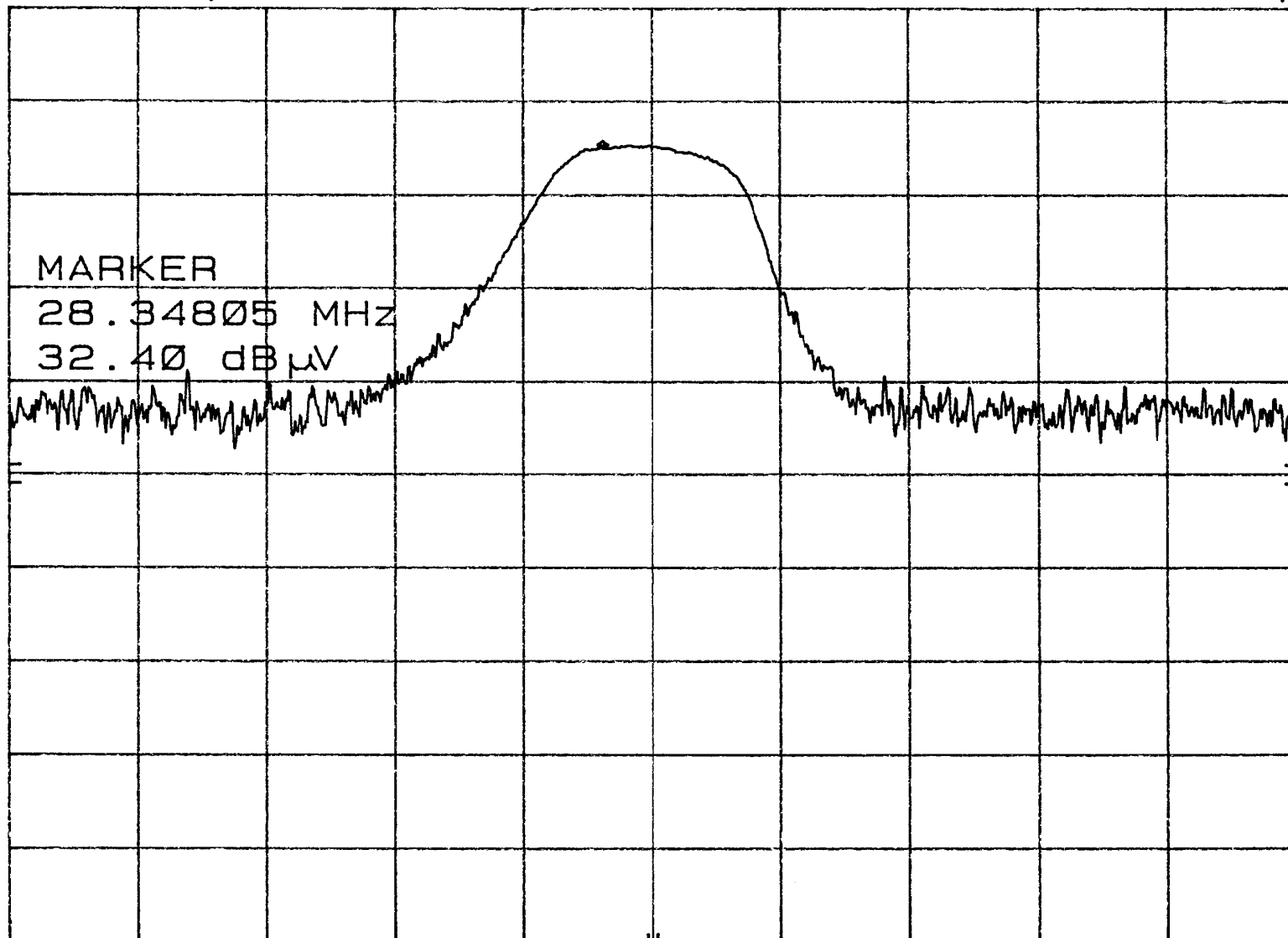


MKR 28.34805 MHz
32.40 dB μ V

hp REF 47.0 dB μ V ATTEN 10 dB + 10 dB

10 dB/

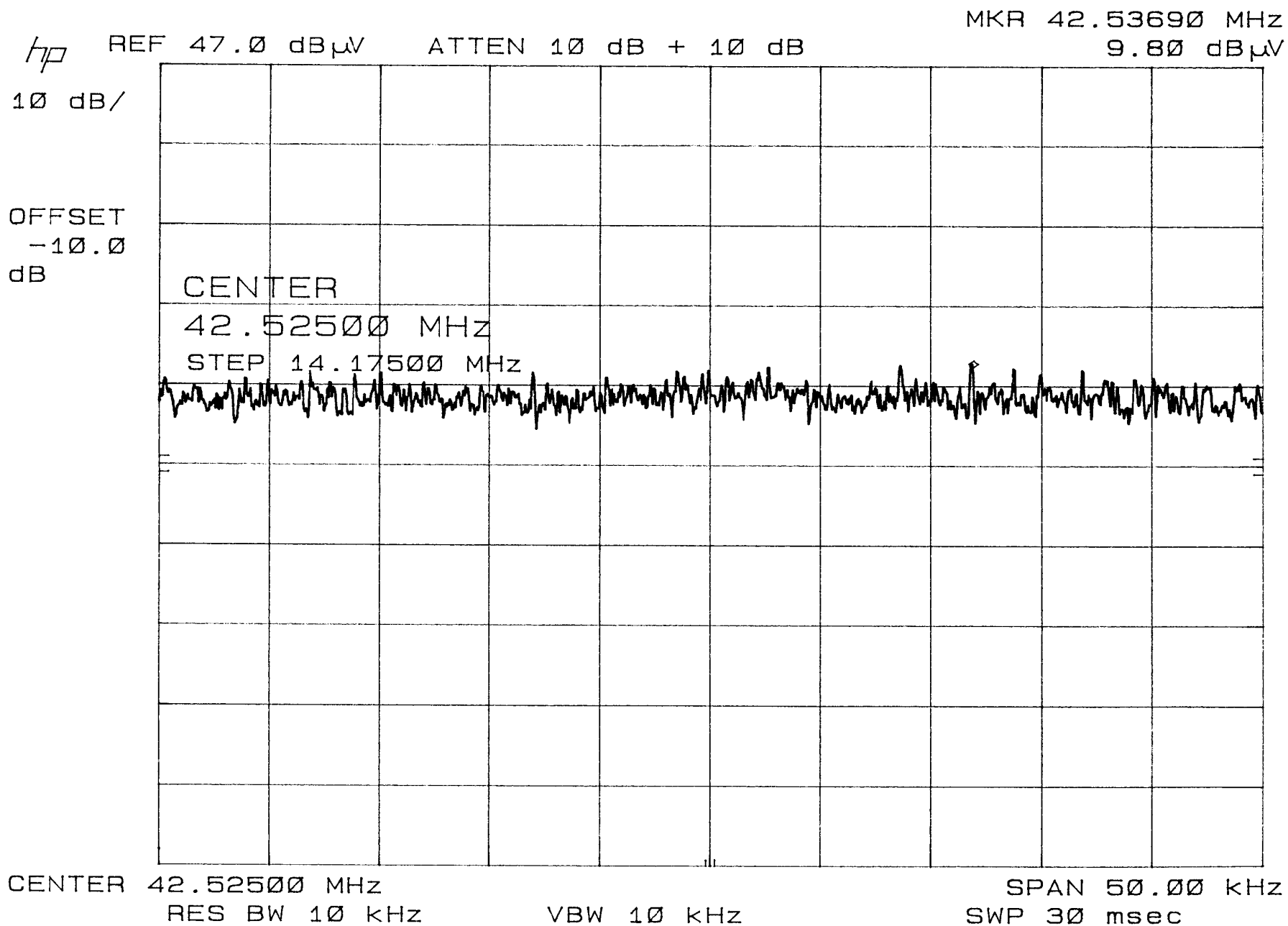
OFFSET
-10.0
dB

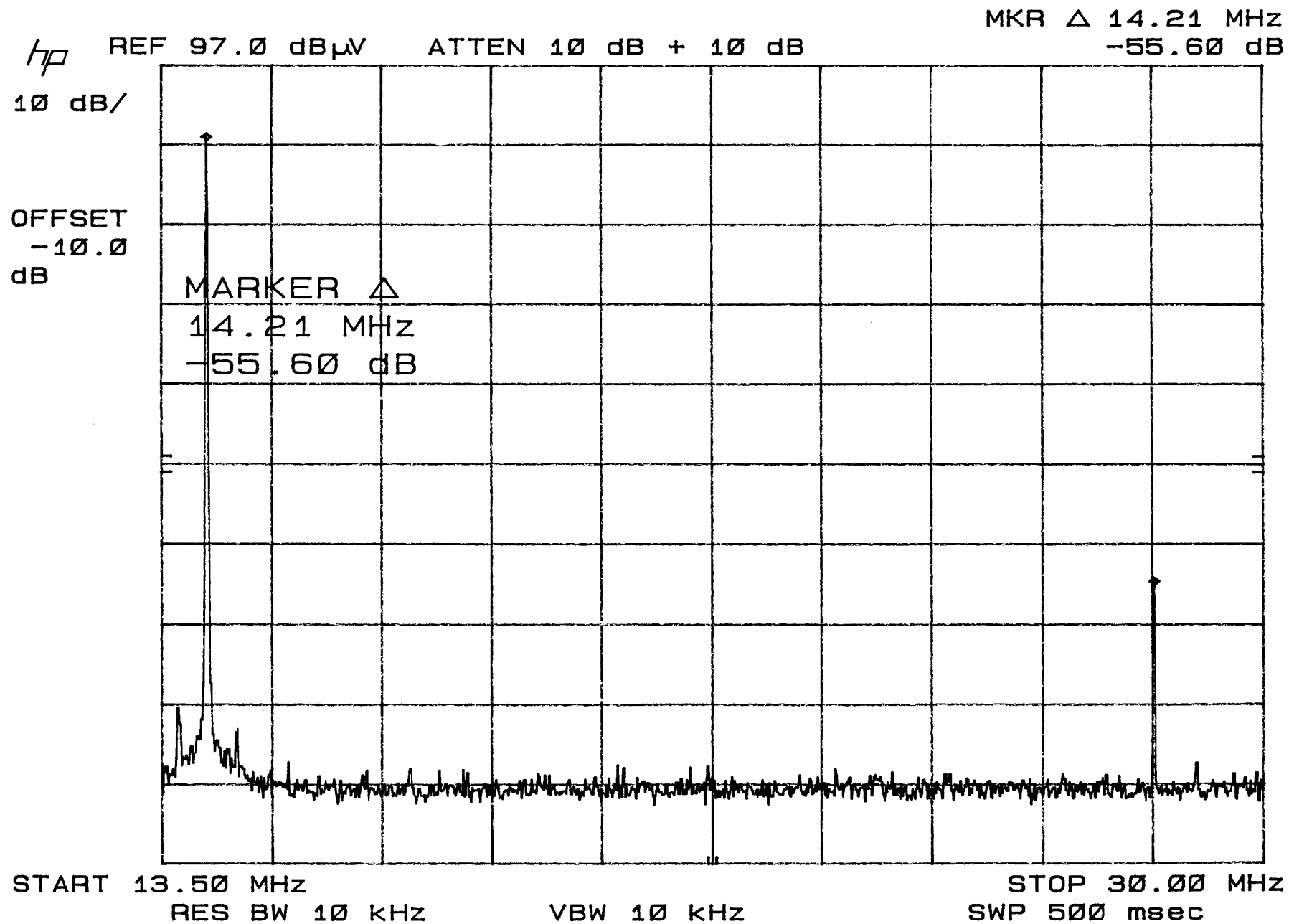


CENTER 28.35000 MHz
RES BW 10 kHz

VBW 10 kHz

SPAN 50.00 kHz
SWP 30 msec





hp

REF 97.0 dB μ V

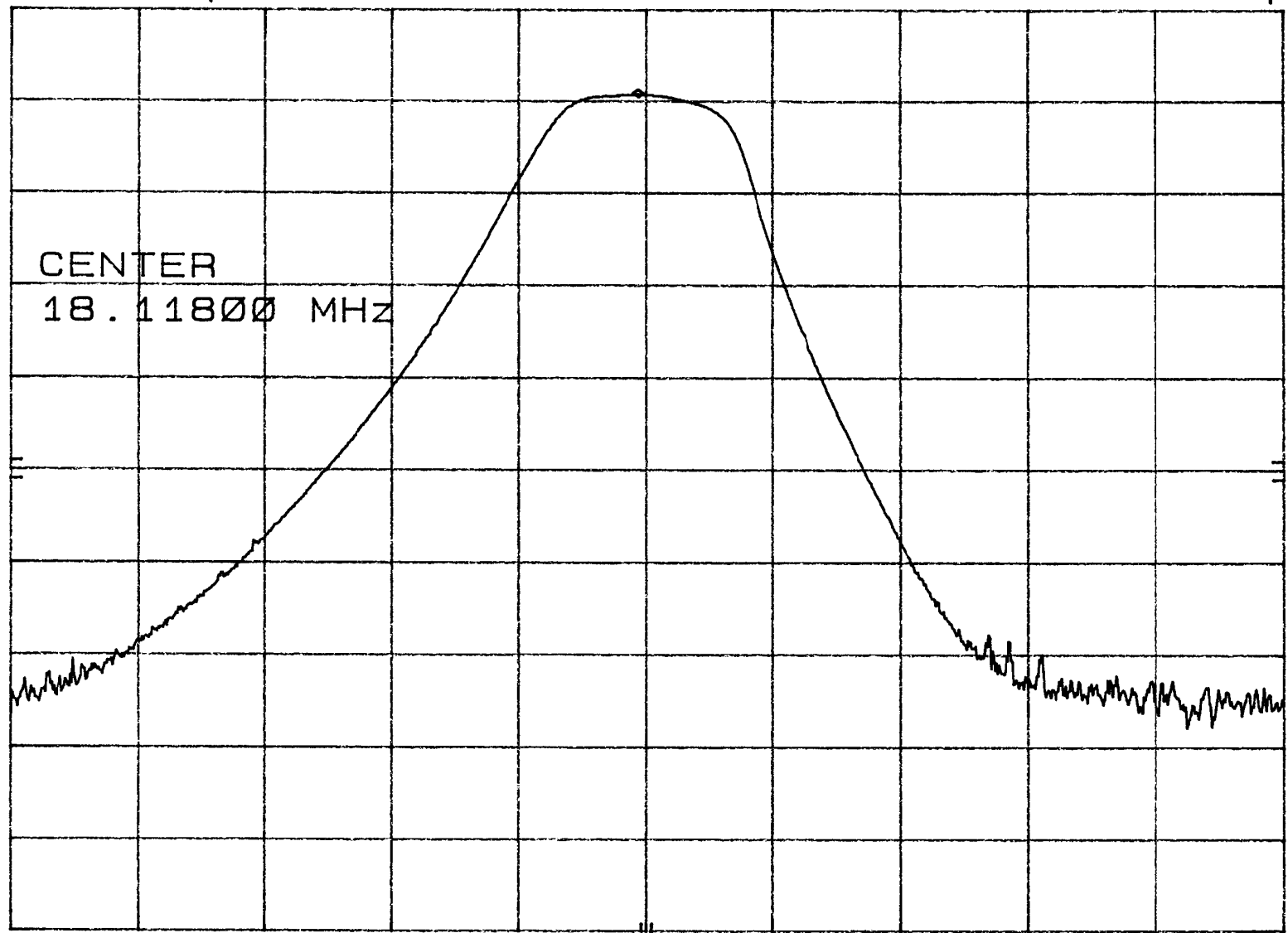
ATTEN 10 dB + 10 dB

MKR 18.11765 MHz
87.90 dB μ V

10 dB/

OFFSET
-10.0
dB

CENTER
18.11800 MHz



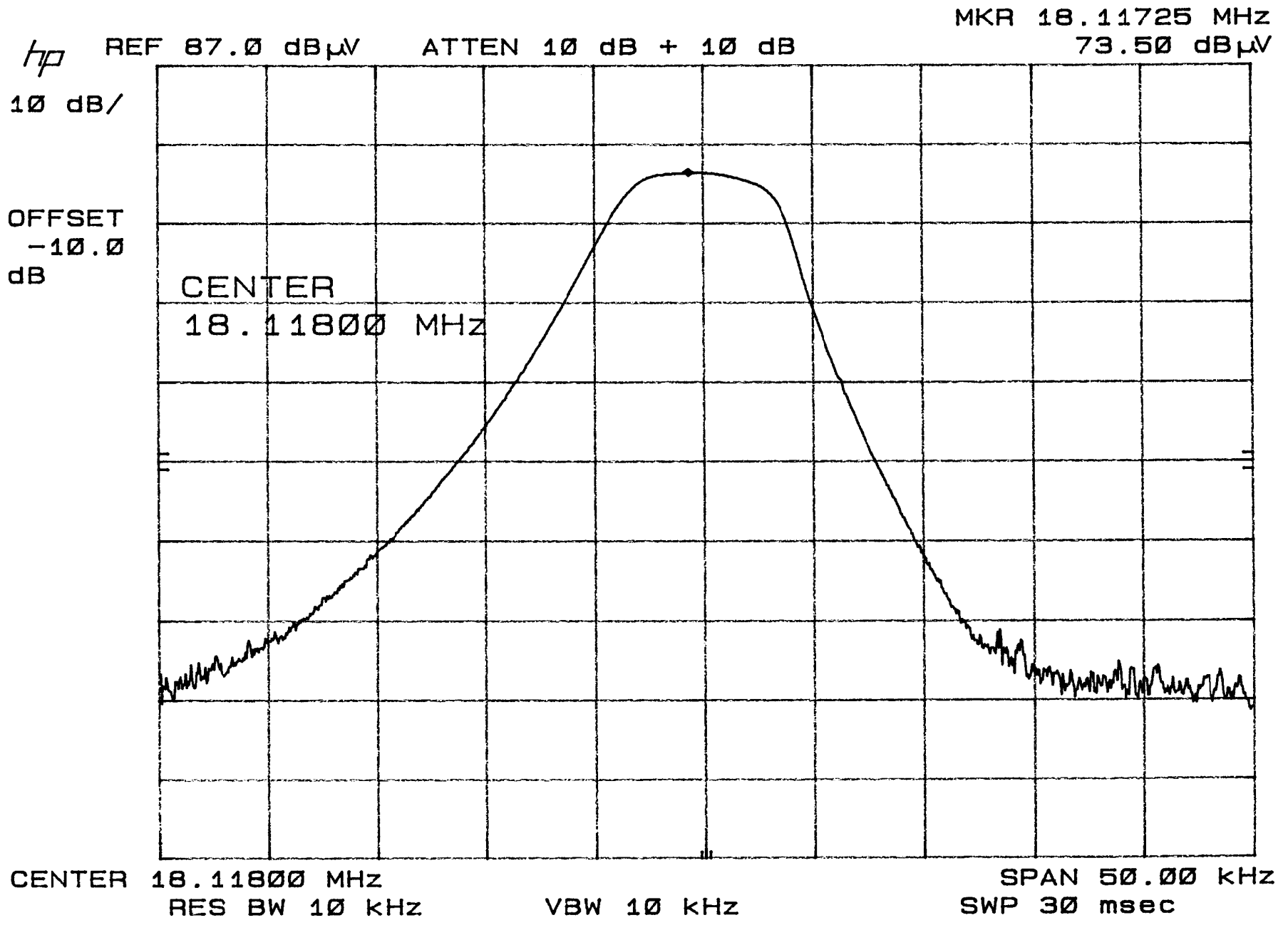
CENTER 18.11800 MHz

RES BW 10 kHz

VBW 10 kHz

SPAN 50.00 kHz

SWP 30 msec

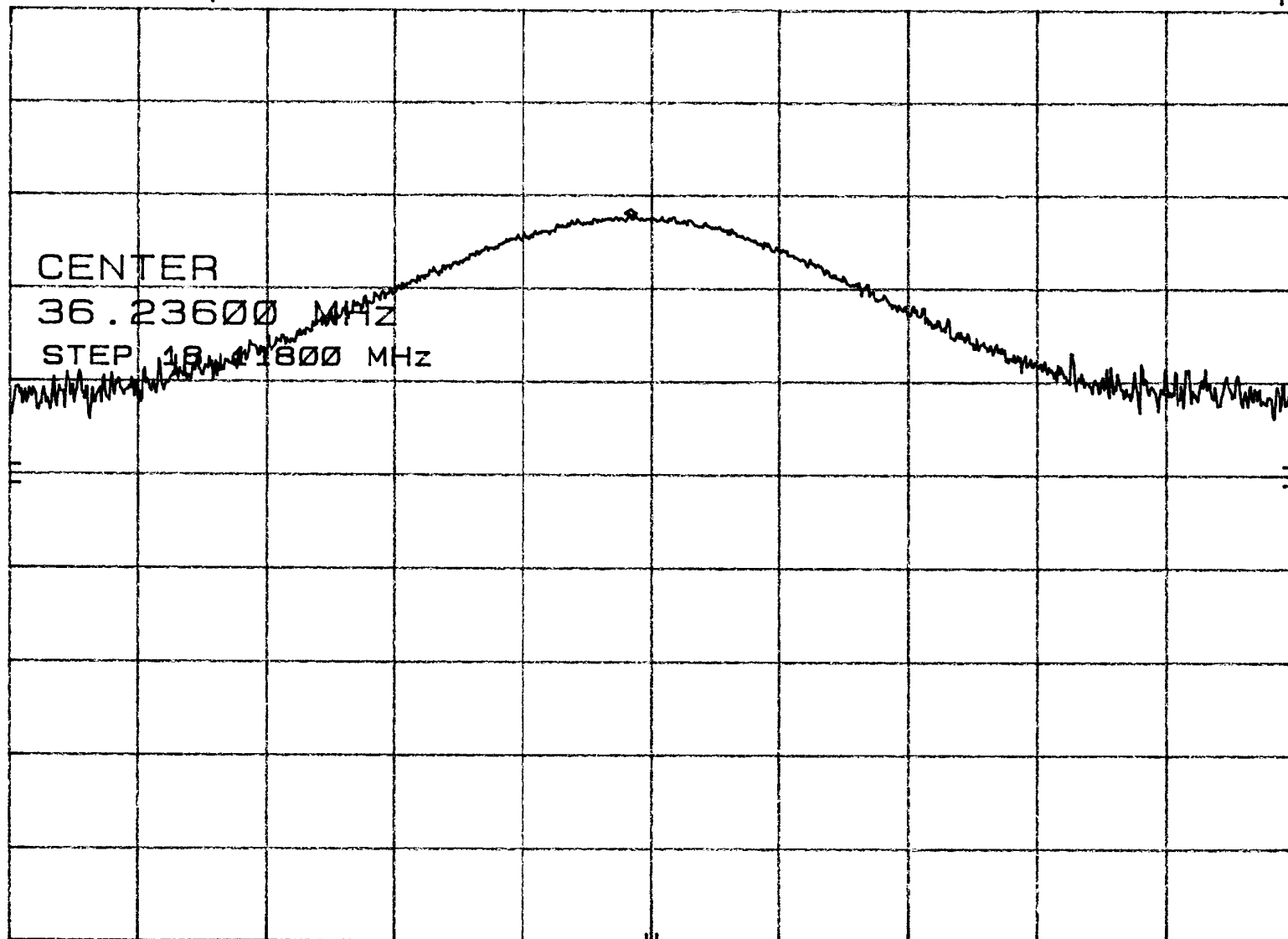


MKR 36.23515 MHz
25.10 dB μ V

hp REF 47.0 dB μ V ATTEN 10 dB + 10 dB

10 dB/

OFFSET
-10.0
dB



CENTER 36.23600 MHz
RES BW 10 kHz

VBW 10 kHz

SPAN 50.00 kHz
SWP 30 msec

hp

ATTEN 10 dB + 10 dB

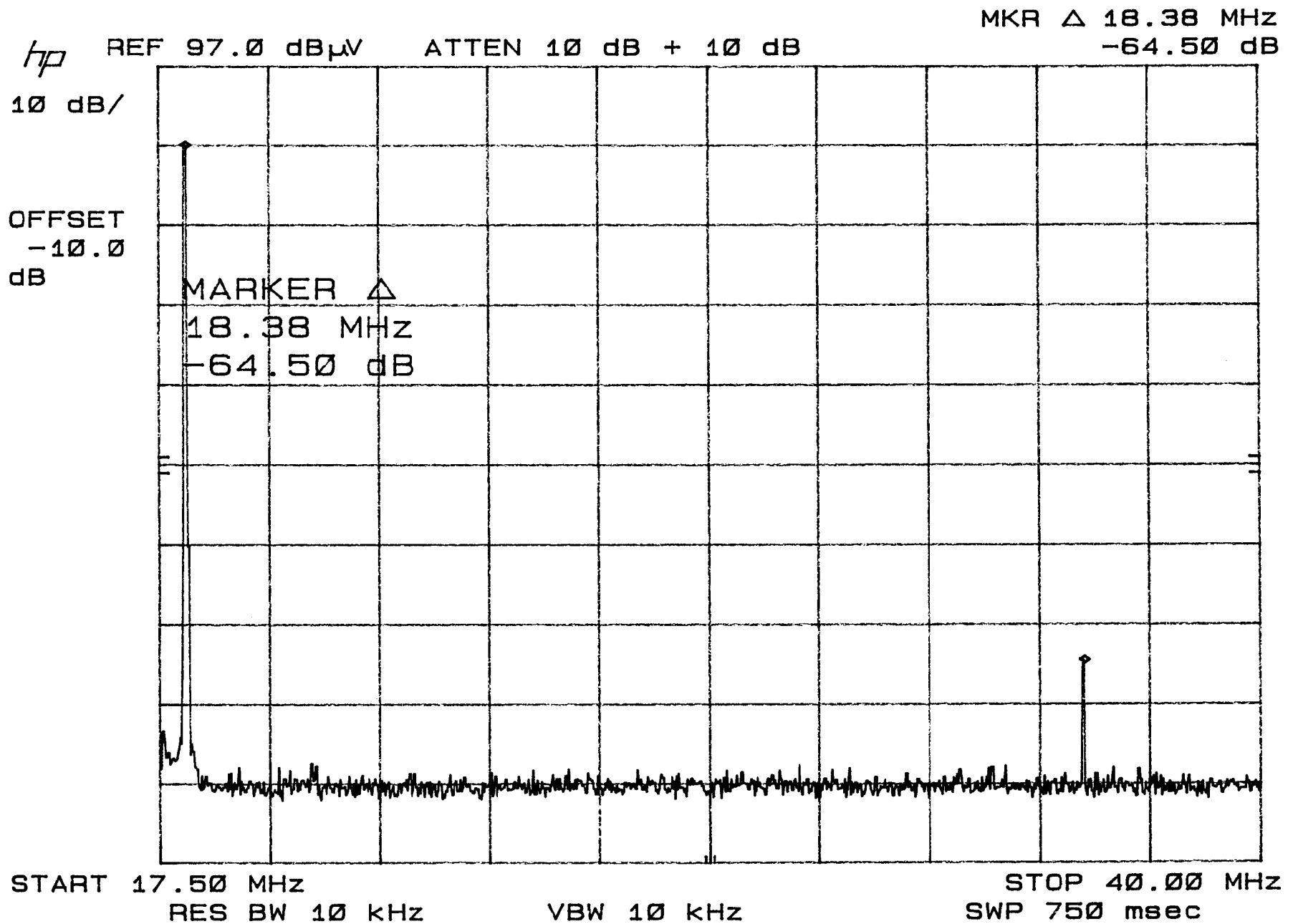
OFFSET
-10.0
dB

54.35400 MHz

STEP 18.1 ~~18.00~~ MHz

RES BW 10 KHz

SPAN 50.00 kHz
SWP 30 msec



MKR 21.22420 MHz
87.60 dB μ V

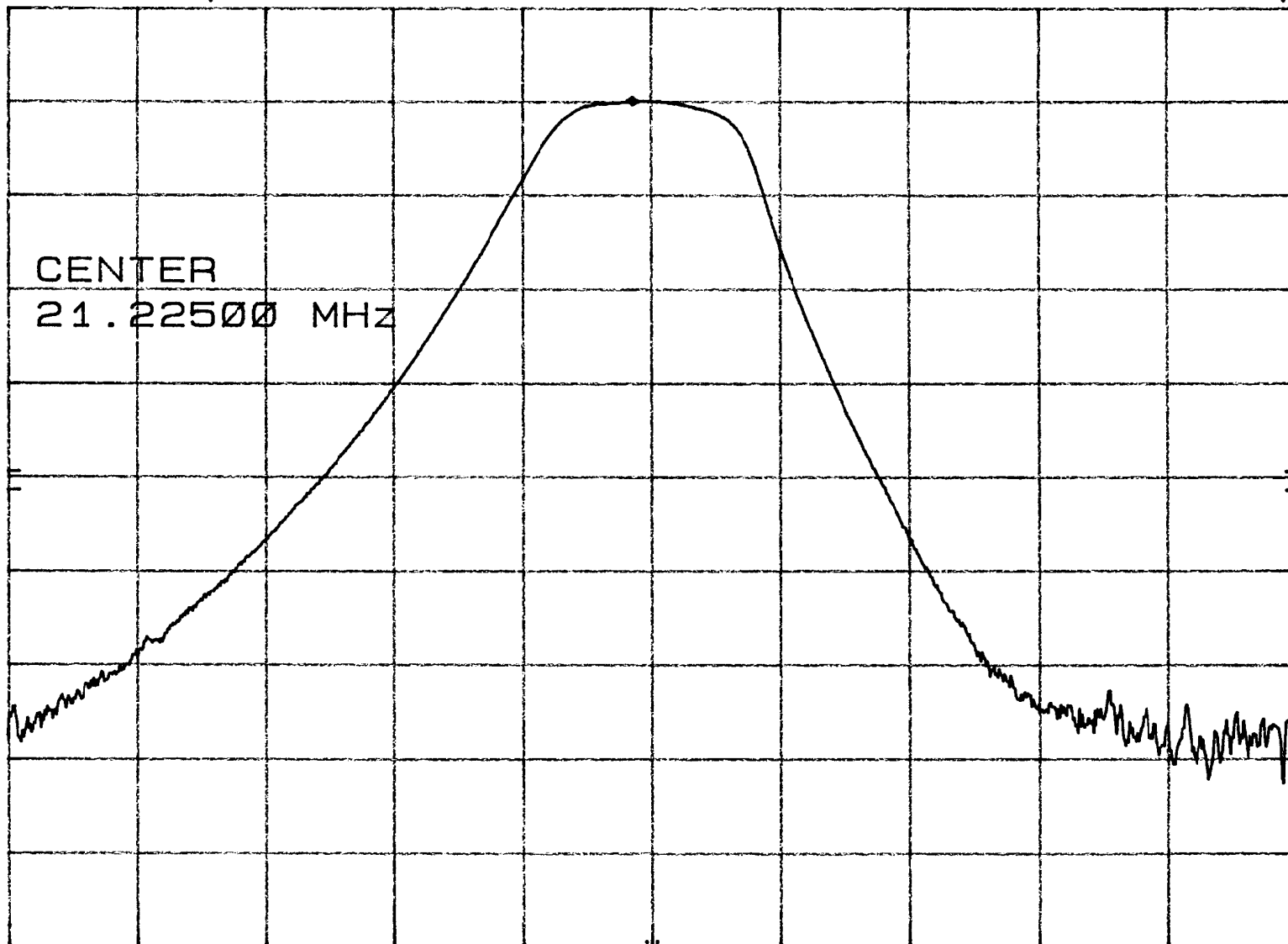
hp REF 97.0 dB μ V ATTEN 10 dB + 10 dB

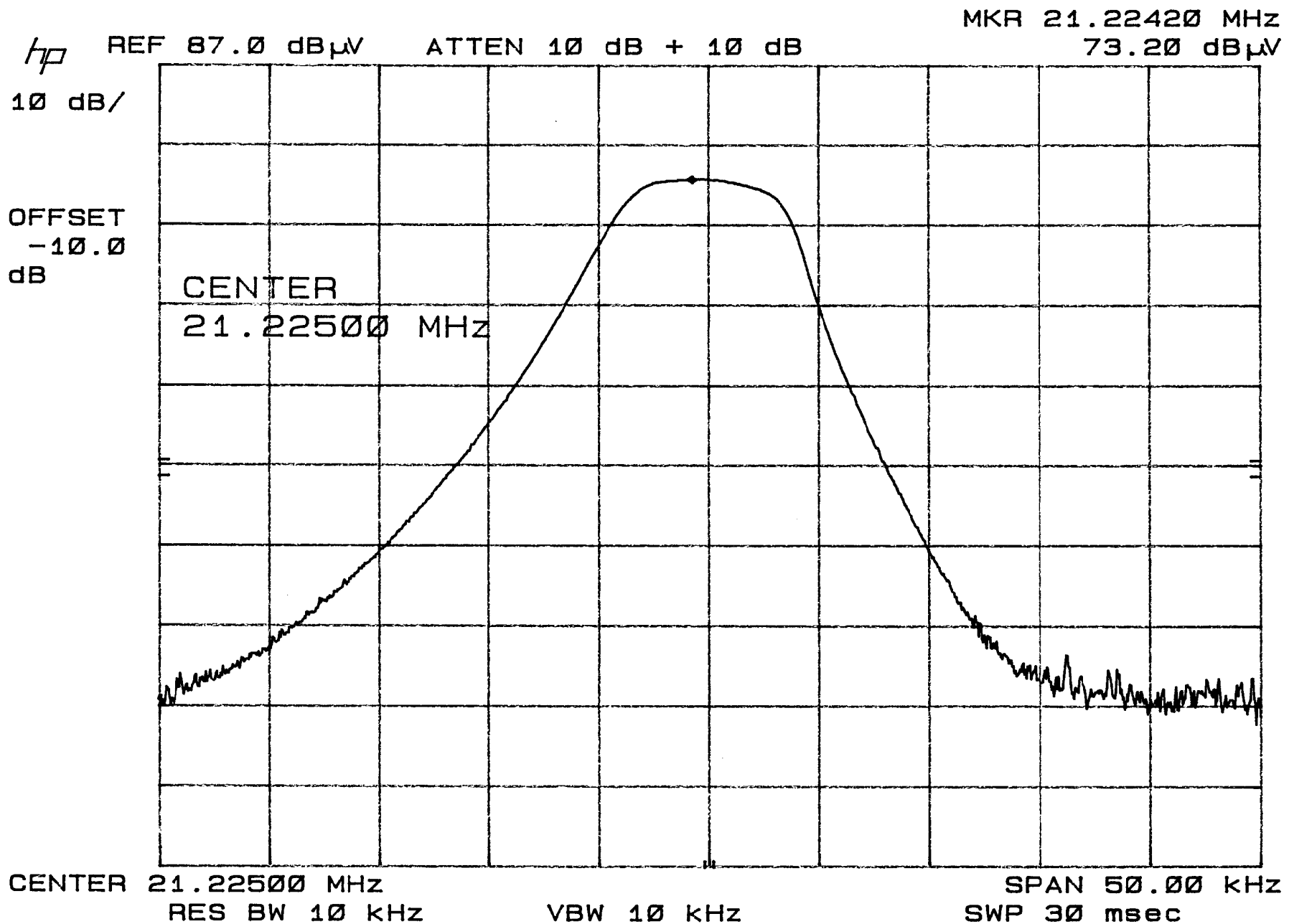
10 dB/

OFFSET
-10.0
dB

CENTER
21.22500 MHz

CENTER 21.22500 MHz SPAN 50.00 kHz
RES BW 10 kHz VBW 10 kHz SWP 30 msec





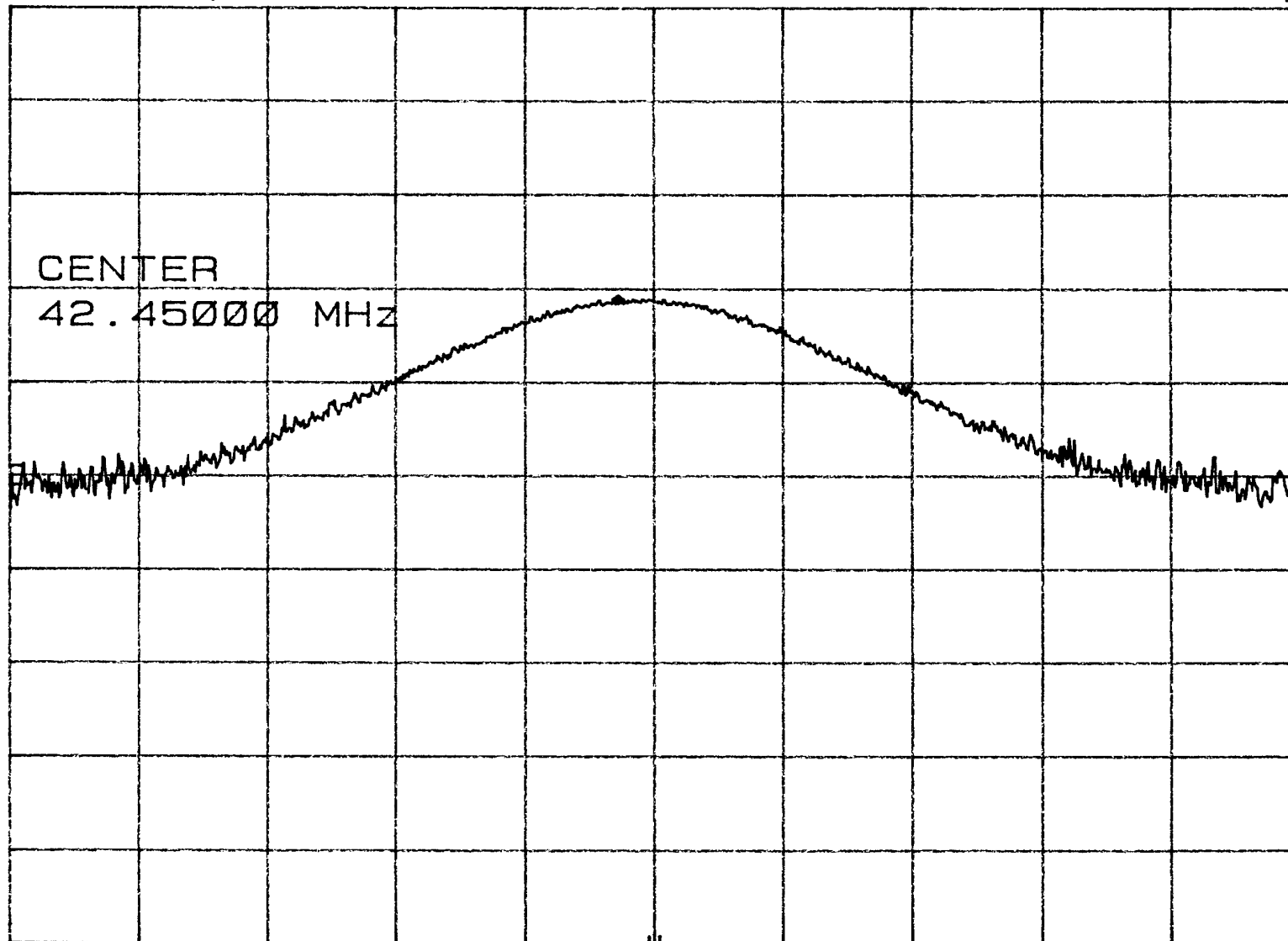
MKR 42.44855 MHz
25.90 dB μ V

hp REF 57.0 dB μ V ATTEN 10 dB + 10 dB

10 dB/

OFFSET
-10.0
dB

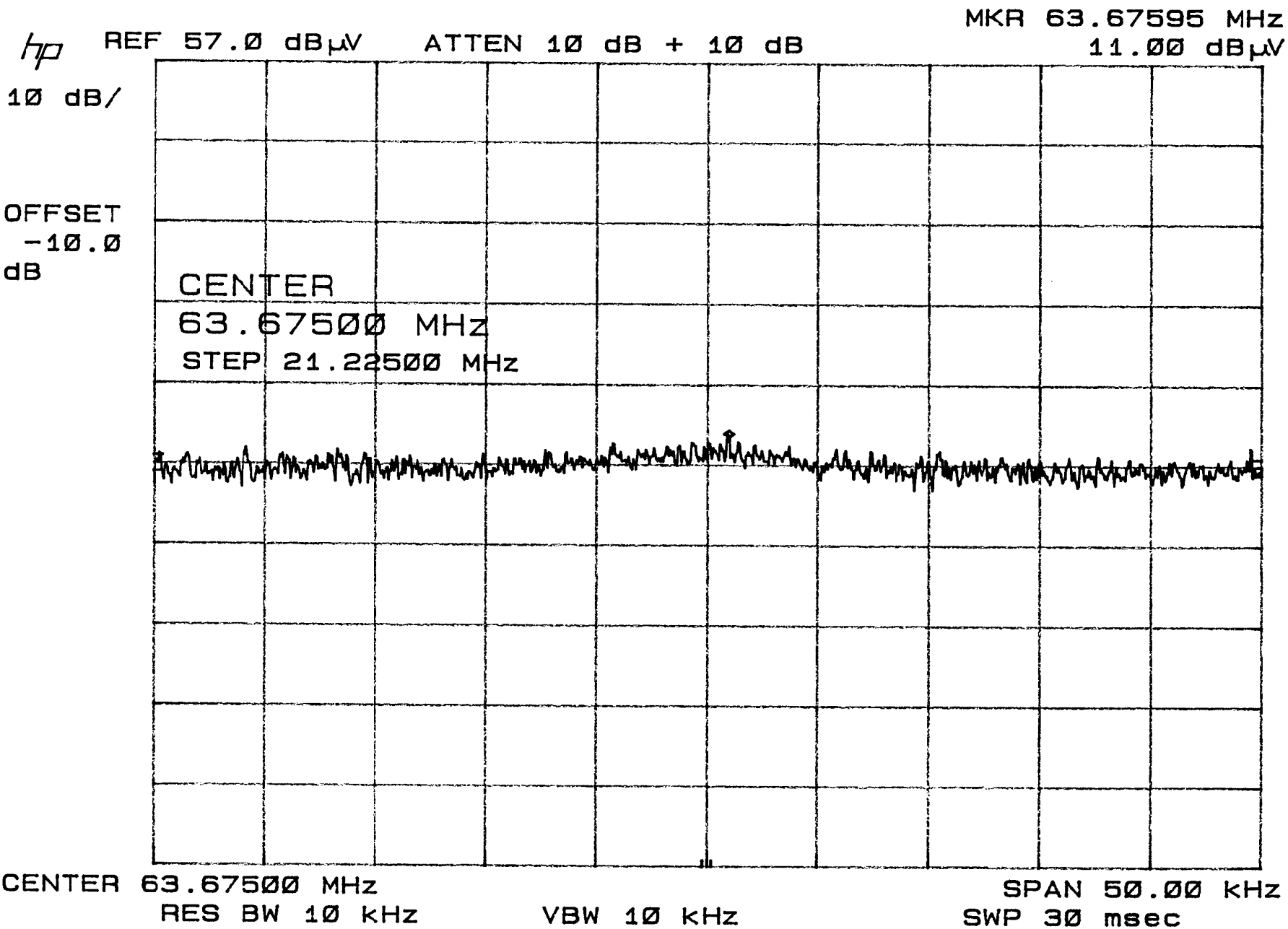
CENTER
42.45000 MHz



CENTER 42.45000 MHz
RES BW 10 kHz

VBW 10 kHz

SPAN 50.00 kHz
SWP 30 msec



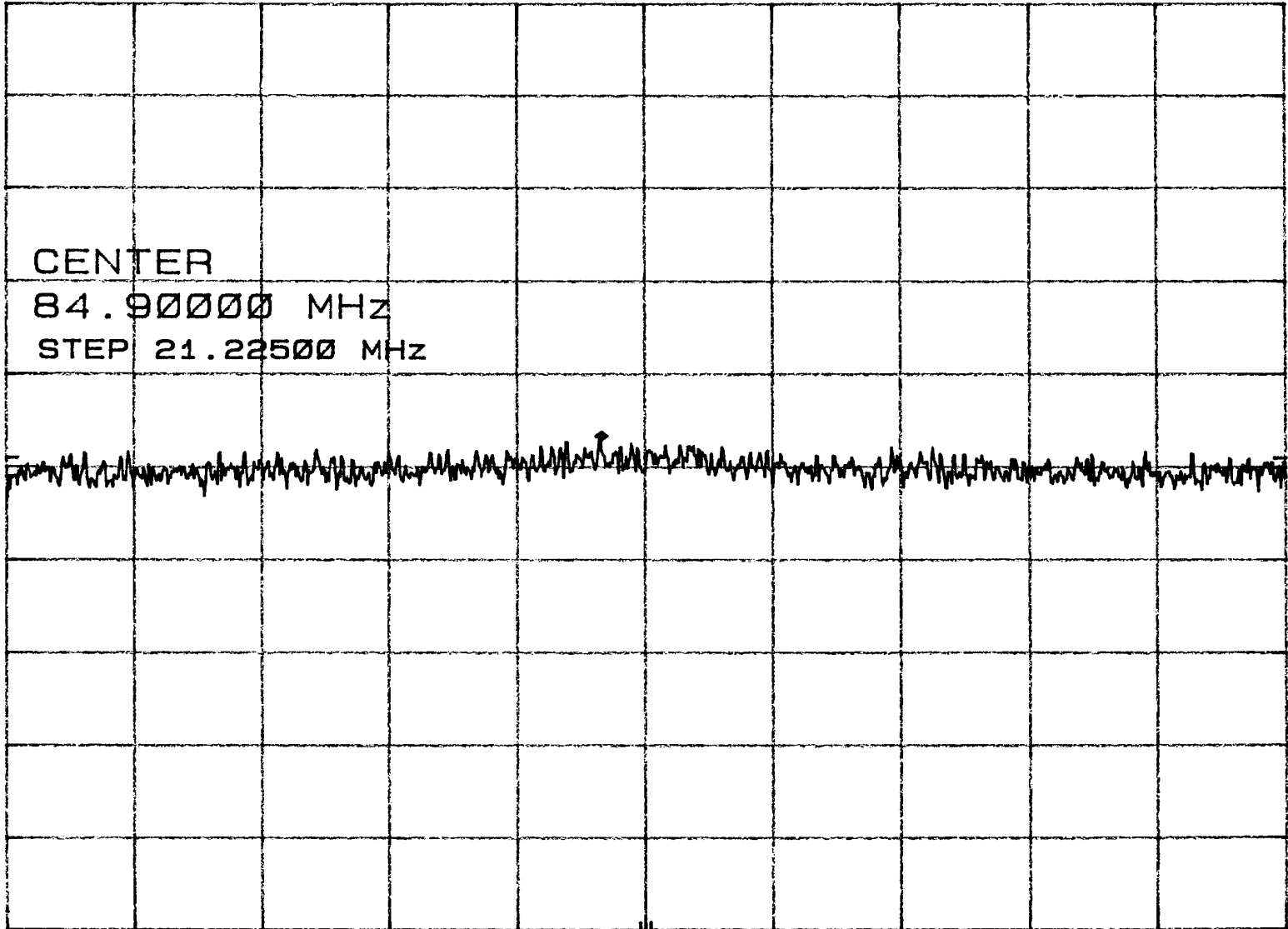
MKR 84.89825 MHz
10.40 dB μ V

hp REF 57.0 dB μ V ATTEN 10 dB + 10 dB

10 dB/

OFFSET
-10.0
dB

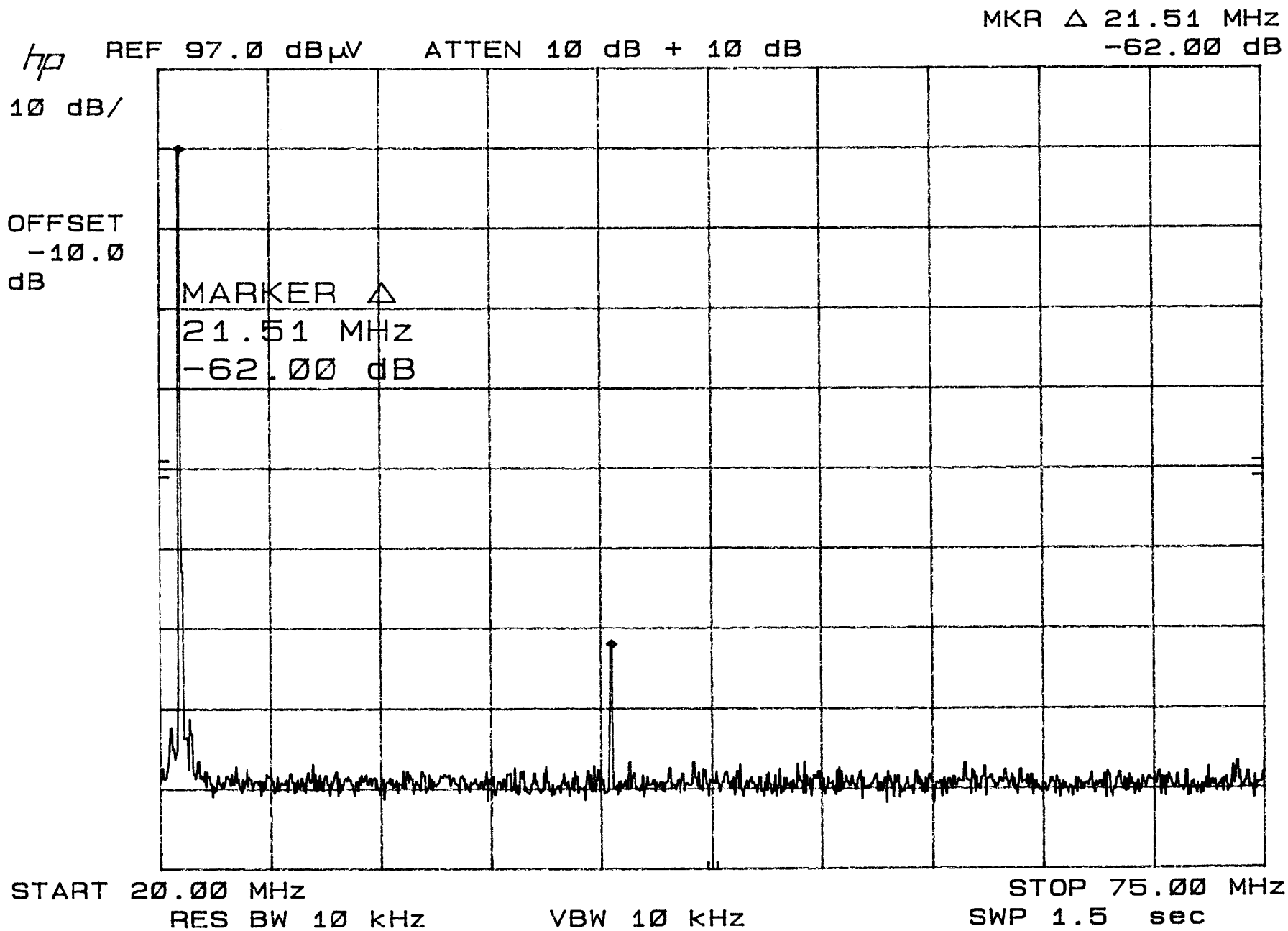
CENTER
84.90000 MHz
STEP 21.22500 MHz

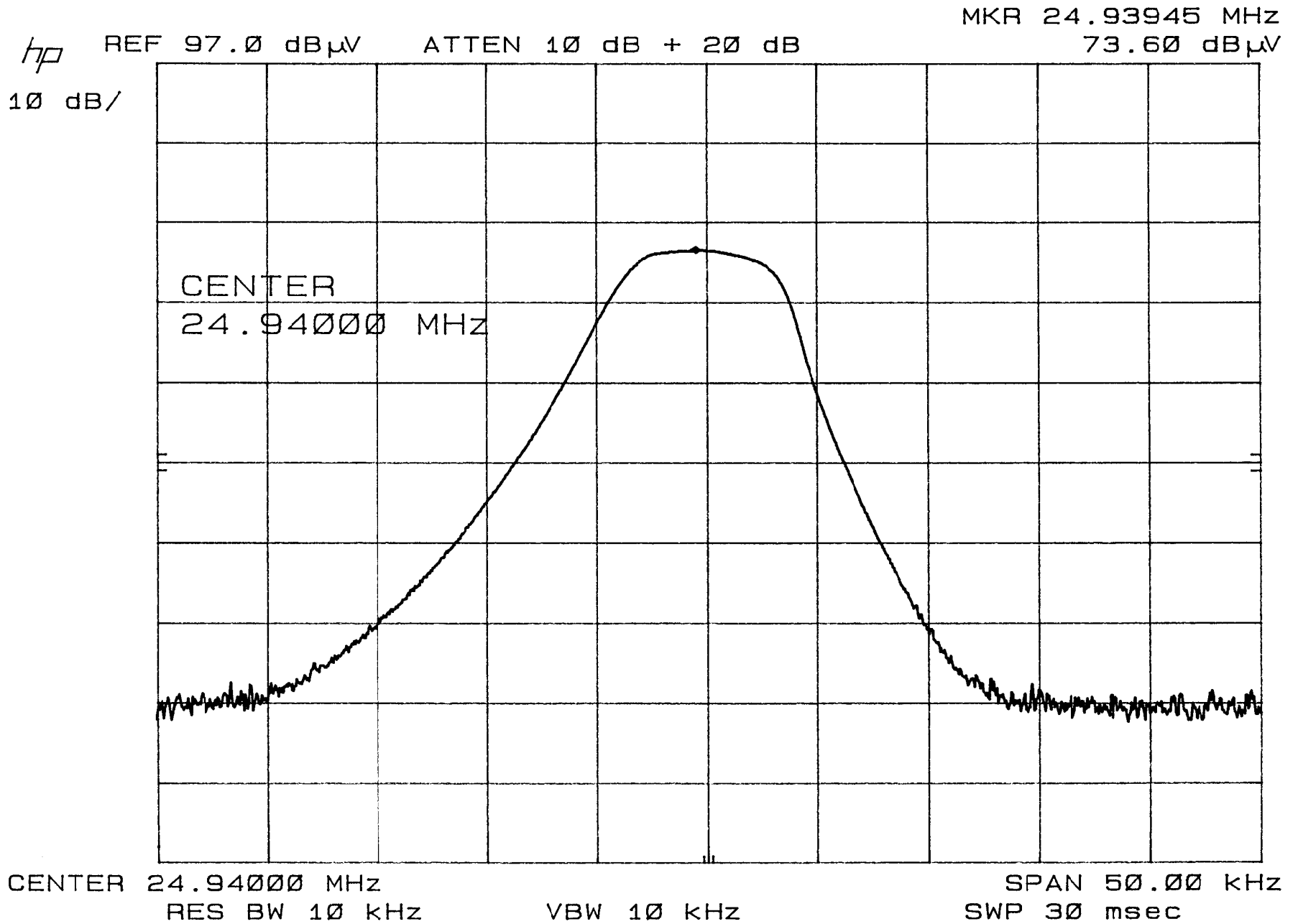


CENTER 84.90000 MHz
RES BW 10 KHz

VBW 10 KHz

SPAN 50.00 KHz
SWP 30 msec



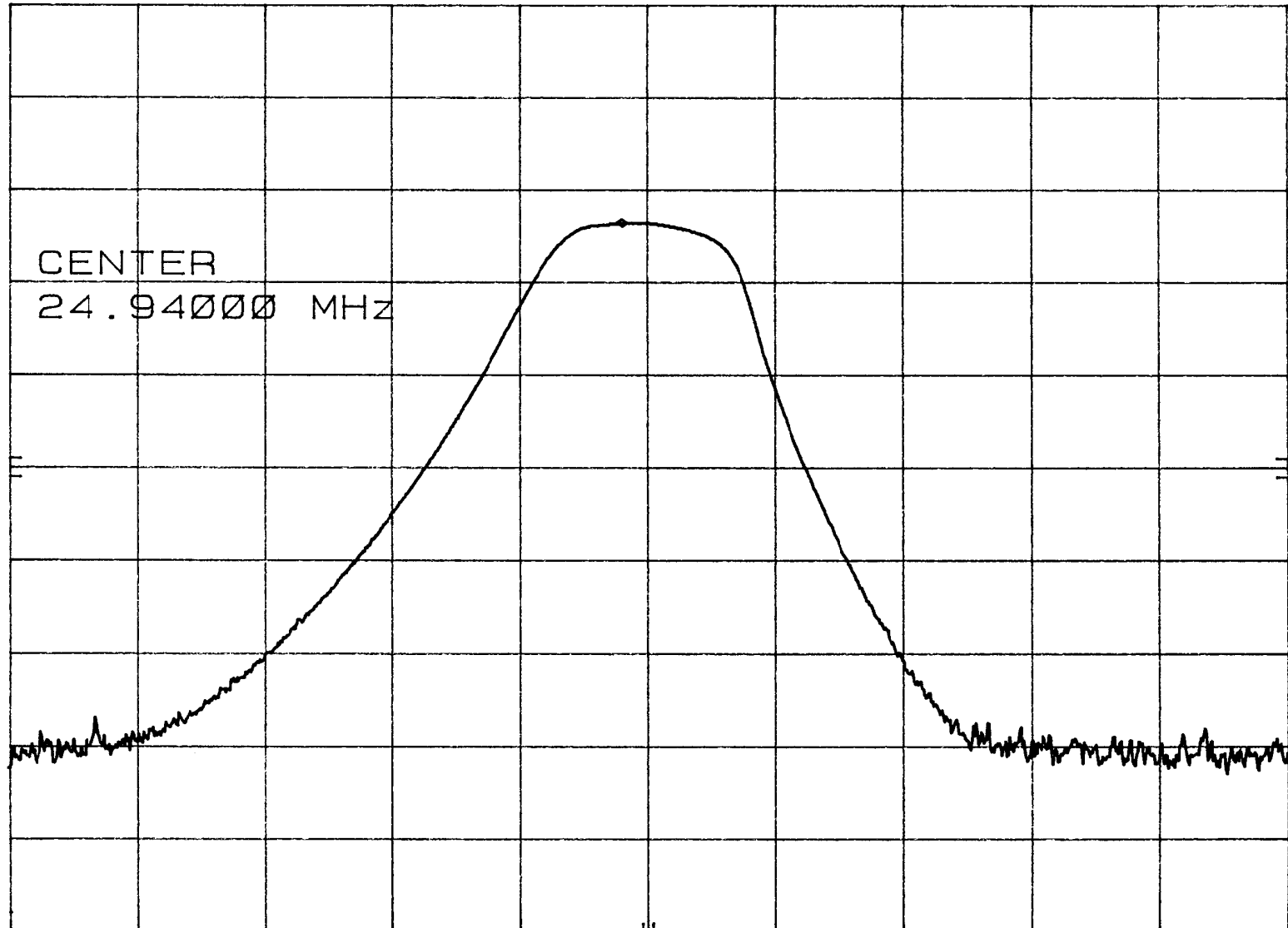


Amp on

MKR 24.93895 MHz
73.50 dB μ V

hp REF 97.0 dB μ V ATTN 10 dB + 20 dB

10 dB/



CENTER 24.94000 MHz

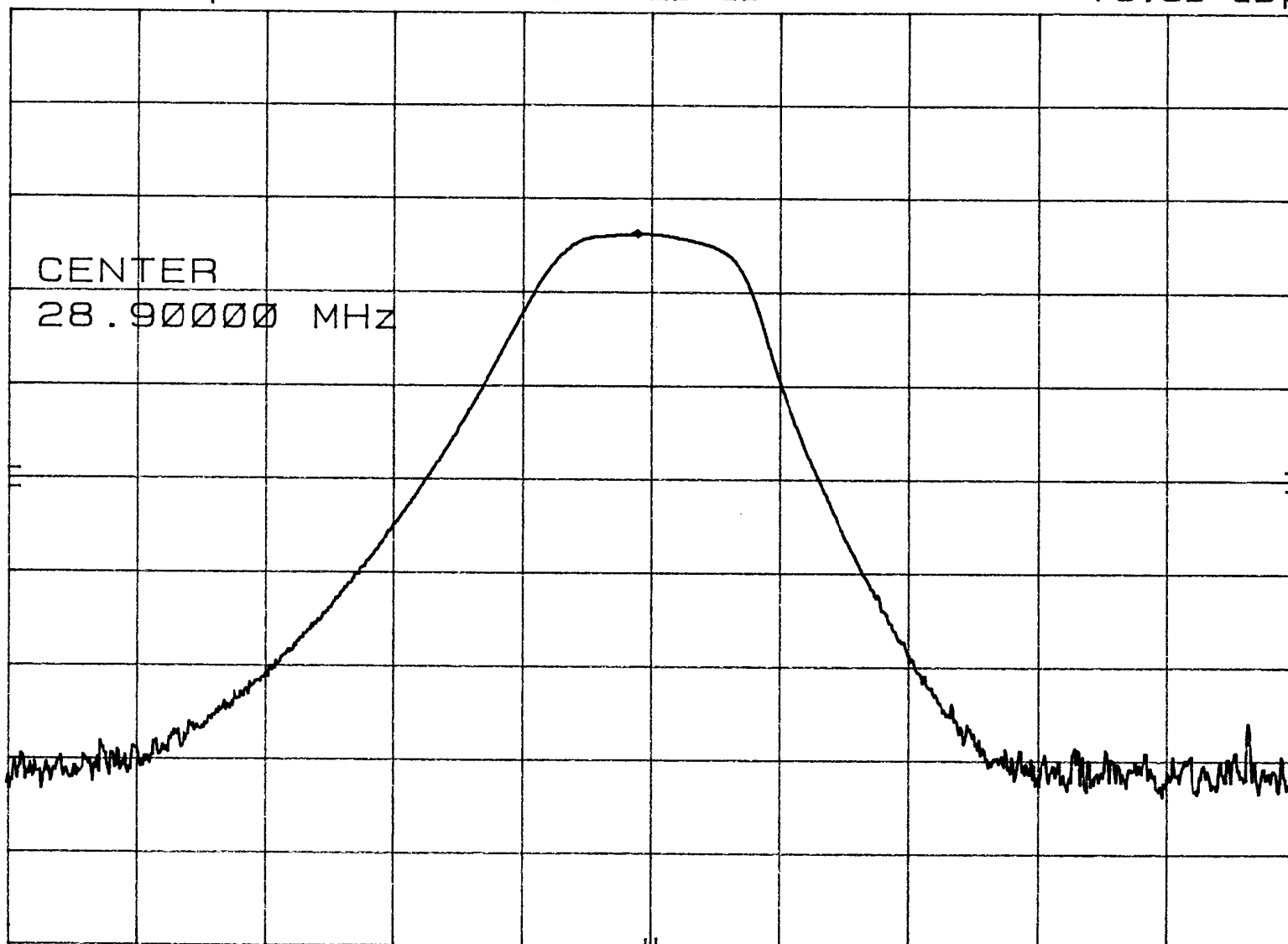
RES BW 10 KHz

VBW 10 KHz

SPAN 50.00 KHz
SWP 30 msec

Amp Standby

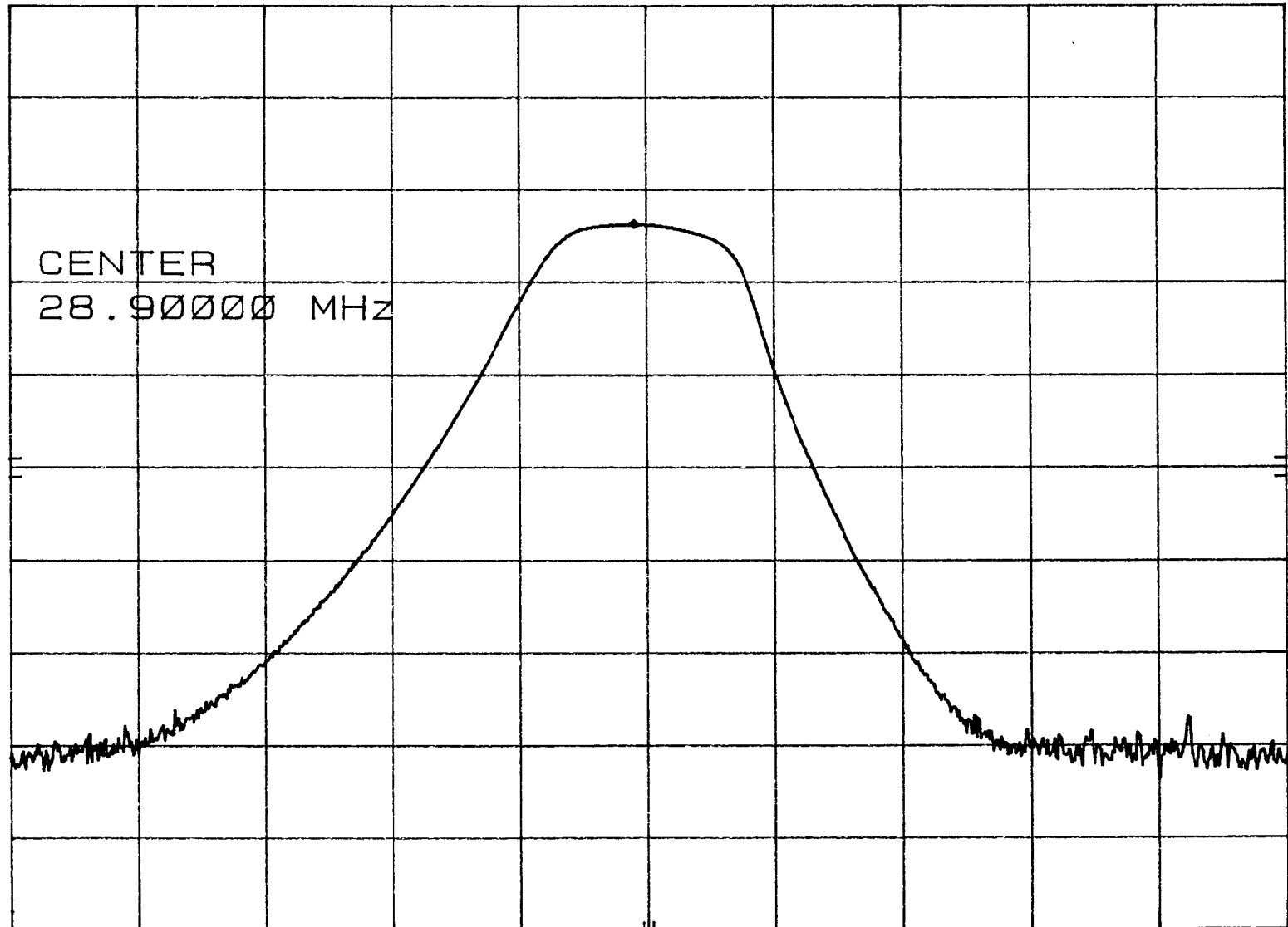
hp REF 97.0 dB μ V ATTEN 10 dB + 20 dB MKR 28.89940 MHz
10 dB/ 73.30 dB μ V



CENTER 28.90000 MHz SPAN 50.00 KHz
RES BW 10 KHz VBW 10 KHz SWP 30 msec
Amp on

MKR 28.89945 MHz
73.30 dB μ V

hp REF 97.0 dB μ V ATTEN 10 dB + 20 dB
10 dB/



CENTER 28.90000 MHz
RES BW 10 KHz

VBW 10 KHz

SPAN 50.00 KHz
SWP 30 msec

Amp Stand by

Appendix B

MEASUREMENT FACILITIES INFORMATION

DESCRIPTION of MEASUREMENT FACILITIES

The Open Area Test Site (OATS) is composed of a building and associated ground screen with a control room underneath.

The building is a TUFF-SPAN enclosure constructed of fiberglass reinforced plastic materials which provide above-ground weather protection. These materials are non conductive, non magnetic and RF transparent. They do not impact the surrounding electromagnetic environment and are corrosion resistant. The enclosure size permits Ten Meter Radiated Measurements within its confines and utilizes a remote controlled Macton Turntable Assembly. The conductive turntable is 16 feet in diameter and capable of moving a 10,000 pound load a full 360 degrees of rotation. It is flush-mounted to the ground screen and edge bonded circumferentially to the ground screen with beryllium copper "fingers". The ground screen is constructed of welded wire mesh lying directly on top of a concrete-over-steel foundation. The screen is extended beyond the building itself to provide 30 meter measurement capability when needed. There are no reflecting objects within the required obstruction free oval area.

The control room is located beneath the ground screen level with stairwell access to the ground plane area. An elevator is located beyond the ground screen and provides access to the control room, shipping dock and ground screen areas for large sized EUT's. Primary power cabling to the EUT is fed through a hole in the center of the table along with necessary EUT/Support Equipment interface cabling. A remote controlled EMCO Antenna Mast Assembly is located on the ground screen. It provides the operator with adjustable antenna height over the 1 meter through 4 meter range as well as allowing both horizontal and vertical polarizations at any height.

A conducted emissions measurement area is located in a shielded room and consists of a conductive (galvanized sheet metal) wall 20' wide x 8' high with a metal floor bonded to the wall. AC Power is supplied through receptacles located on the vertical wall. Each receptacle is adequately filtered using Shielded Room EMI Power Line Filters (Rayproof 1B42 Units) which provide 100 db attenuation over the 14KHz to 10GHz frequency range. The shielded room itself is bonded directly to earth ground.

Additionally, both the control room/shielded rooms and ground plane area have heating, air conditioning and relative humidity controlled environments.

Capability

Test Site Service's open area Test Sites have been evaluated in accordance with ANSI C63.4 procedures and found to be in compliance with ANSI C63.4-(1992) Site Attenuation and LISN requirements.

In addition, Test Site Services is Assessed and Approved annually by a European Competent Body to assure competence in testing products for CE Mark Compliance (Emissions and Immunity).

All of Test Site Service's measurement facilities meet the technical requirements for qualification testing of products to FCC, CISPR, IEC, VCCI, BCIQ and other International Standards.

Accreditation / Approval

- FCC Registered
- VCCI Registered
- BCIQ Accreditation
- NVLAP Accredited
- AUSTEL Listed
- New Zealand Approved (Ministry of Commerce)
- Competent Body Assessment / Approval (Technology International, UK)
- Sub-Accredited by Hewlett Packard (Mass. Medical Environmental Test Lab.)
- NARTE certified EMC Engineers