

EXHIBIT 2

2.0 General Description

2.1 Product Description

The product is a self-contained battery operated transmitter for security systems. It transmits a PCM ON-OFF signal at 315.0 MHz to control devices.

2.2 Related Submittal(s) Grants

There are no other approvals required for this device.

2.3 Test Methodology

Radiated emission testing was performed according to the procedures in ANSI C63.4 (1992). Radiated testing was performed at an antenna to EUT distance of 3 meters below 1 GHz, and at a distance of 3 or 1 meter(s) for signals above 1 GHz. The actual test distance used is noted in the test data sheets. The devices performance was investigated to 10 times the fundamental frequency. A fresh battery was used for all testing. Although the device does contain voltage regulating circuitry, the emissions in each configuration were maximized and the battery changed in the maximized configuration just prior to the reading being taken to insure that maximum emissions were recorded.

All other performance tests were made in accordance with the procedures outlined in Part 15 of CFR 47. The applicable sections provided under Part 15 are provided in the measurement section of this report, Exhibit 3.

2.4 Test Facility

The open area test site and conducted measurement facility used to collect the radiated data is located at 527 Great Road, Littleton, MA 01460. Site "A" was used. This test facility has been fully described in a report dated December 12, 1996 and accepted by your office on February 28, 1997. Please reference your file # 31040/SIT should you have any questions regarding the test site construction.

2.5 Test Equipment Used

SPECTRUM ANALYZER(S)

[]	RED 8591E	HP	S/N:3441A03559	Calibration Due:13-MAR-99
	9 kHz-1.8GHz			
[X]	WHITE 8593E	HP	S/N:3547U01252	Calibration Due:17-MAR-99
	9 kHz-22 GHz			
[]	BLUE 8591E	HP	S/N:3223A00227	Calibration Due:5-FEB-99
	9 kHz-1.8 GHz			
[]	YELLOW 8594E	HP	S/N:3523A01958	Calibration Due:18-MAR-99

[]	9 kHz-2.9 GHz GREEN 8593E	HP	S/N:3829A03618	Calibration Due:31-AUG-99
[]	9 kHz-26.5 GHz YELLOW-BLACK 3585A	HP	S/N:A183438	Calibration Due:11-NOV-99
[]	20 Hz-40.0 MHz 8591EM	HP	S/N:3710A01179	Calibration Due:20-JAN-99
	9 kHz-1.8 MHz			

ANTENNA(S)

[]	GREEN CBL6112B	Chase	S/N:2435	Calibration Due:16-JUL-99
	Bilog 30 MHz-2 GHz			
[X]	GREEN-BLACK CBL6112B	Chase	S/N:2412	Calibration Due:30-MAR-99
	Bilog 30 MHz-2 GHz			
[]	RED 3143	EMCO	S/N:1270	Calibration Due:28-MAY-99
	Biconilog 30 MHz-1.1 GHz			
[]	BLUE 3143	EMCO	S/N:1271	Calibration Due:28-MAY-99
	Biconilog 30 MHz-1.1 GHz			
[]	GREY 3141	EMCO	S/N:9703-1038	Calibration Due:19-MAR-99
	Biconilog 26 MHz-2 GHz			
[]	YELLOW-BLACK CBL6140A	Chase	S/N:1112	Calibration Due:19-MAR-99
	X-Wing Bilog 20 - 2000 MHz			
[X]	YELLOW 3115	EMCO	S/N:9608-4989	Calibration Due:3-MAR-99
	Horn Antenna 1-18 GHz			
[]	BLACK 3115	EMCO	S/N:9703-5148	Calibration Due:16-MAR-99
	Horn Antenna 1-18 GHz			
[]	WHITE 3160-09	EMCO	S/N:9610-09	Calibration Due:8-DEC-98
	Standard Gain Horn Antenna 18-26.5 GHz			
[]	LOOP PLA-130/A	ARA	S/N:1024	Calibration Due:17-SEPT-99
	Passive Loop Antenna 9 KHz-30 MHz			
[]	LOOP 6511	EMCO	S/N:9704-1154	Calibration Due:11-AUG-99
	Passive Loop Antenna 20 Hz-5 MHz			
[]	MONOPOLE 3301B	EMCO	S/N:3824	Calibration Due:31-MAR-99
	Active Monopole antenna 30 Hz-30 MHz			
[]	DIPOLE 3121C	EMCO	S/N:1370	Calibration Due:01-APR-99
	Adjustable Dipole Antenna 30-1000 MHz			
[]	DIPOLE 3121C	EMCO	S/N:1371	Calibration Due:01-APR-99
	Adjustable Dipole Antenna 30-1000 MHz			

PREAMPLIFIER(S)

☐	RED	ZFL-1000-LN	MiniCircuits		Calibration Due:16-APR-99
		RF Preamplifier 10 - 2000 MHz			
☐	BLUE	ZFL-1000-LN	MiniCircuits		Calibration Due:14-OCT-99
		RF Preamplifier 0.05 - 2000 MHz			
☐	GREEN	ZFL-1000-LN	MiniCircuits		Calibration Due:14-OCT-99
		RF Preamplifier 0.05- 2000 MHz			
☒	GOLD	ZFL-1000-LN	MiniCircuits		Calibration Due:25-AUG-99
		RF Preamplifier 10 - 2000 MHz			
☒	WHITE	SMC-12A	MITEQ	S/N:426643	Calibration Due:30-OCT-99
		RF Preamplifier 2000 - 18000 MHz			
☐	YELLOW	AFS4-18002650-60-8P-4	MITEQ	S/N:467559	Calibration Due:1-MAY-99
		RF Preamplifier 18 - 26.5 GHz			

OPEN AREA TEST SITE(S)

☐	SITE "F"	Calibration Due:18-OCT-99
☐	SITE "T"	Calibration Due:28-MAY-99
☒	SITE "A"	Calibration Due:26-SEP-99
☐	SITE "M"	Calibration Due:17-JUL-99

Unless otherwise noted the calibration interval is one year. All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.

EXHIBIT 3

3.0 *Measurement Results*

3.1 Operating Frequency

The devices operating frequency is 315.0 MHz.

3.2 Electric Field Strength Radiation Measurements

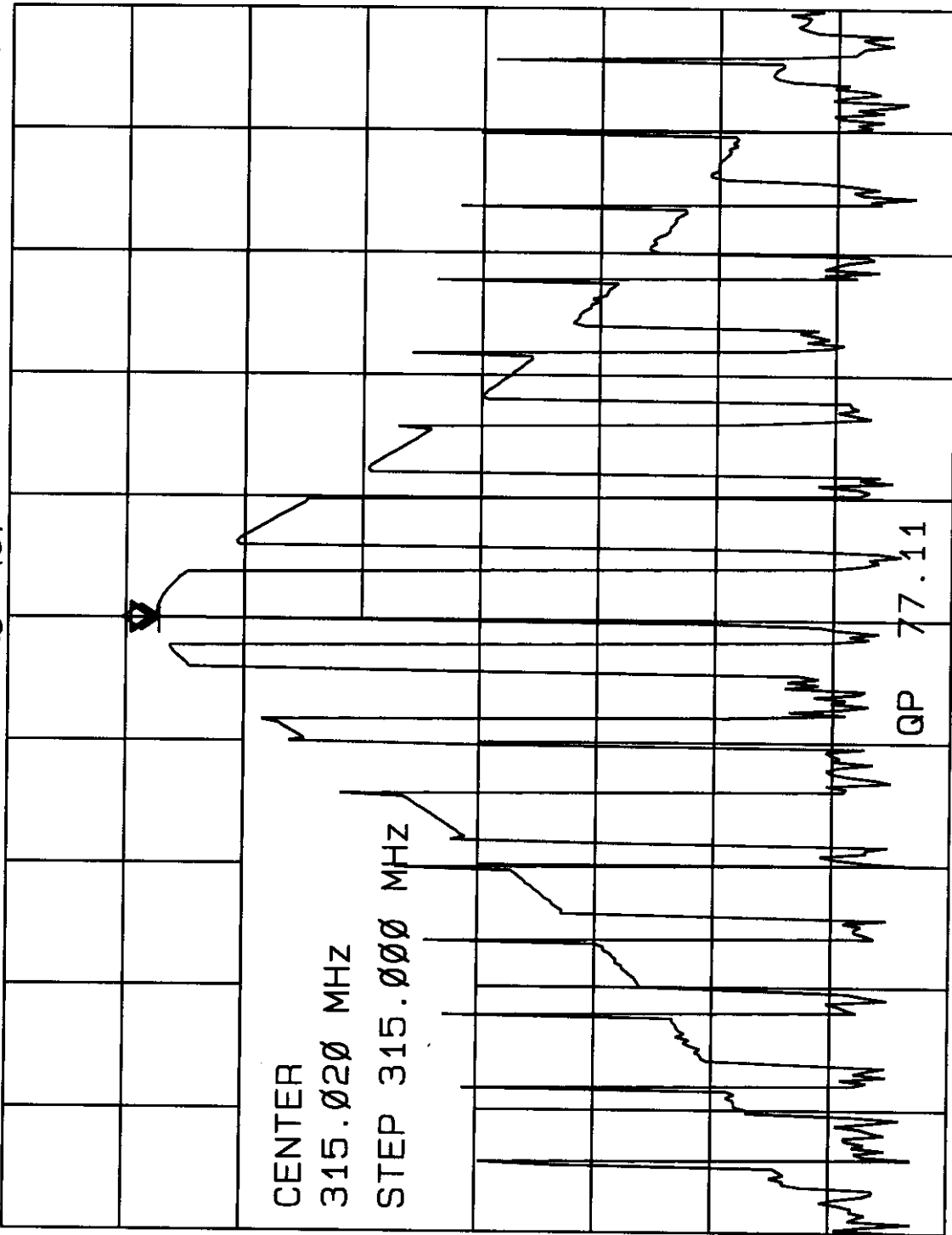
Data was obtained using the procedures outlined in ANSI C63.4 (1992). All signals from the transmitter within 20 dB of the emission limit are reported in the following data table.

Radiated Emissions Chart							Curtis-Straus LLC		
Date: 19-Nov-98		Company: Visonic, LTD				Distance: 3 m			
Engineer: David Heald		EUT Desc: MCT 10x Series Transmitters				Table No: 1			
Notes:						Work Order: 980963			
Antenna Polarization (H / V)	Frequency (MHz)	Reading (dBuV)	Preamp Factor (dB)	Antenna Factor (dB/m)	Cable Factor (dB)	Adjusted Reading (dBuV/m)	CFR 47 Part 15.231		
							Limit (dBuV/m)	Margin (dB)	Result (Pass/Fail)
MCT-101	315.0	77.5 (QP)	22.2	13.2	0.4	68.9	75.6	-6.7	Pass
	630.0	35.7 (QP)	21.6	18.7	0.6	33.4	55.6	-22.2	Pass
	945.0	51.9 (QP)	22.4	21.0	0.8	51.3	55.6	-4.3	Pass
	1260.0	24.5 (AVG)	22.0	23.4	0.9	26.8	55.6	-28.8	Pass
	1575.0	41.7 (AVG)	19.9	24.9	1.1	47.8	54.0	-6.2	Pass
	1890.0	38.6 (AVG)	18.5	27.1	1.2	48.4	55.6	-7.2	Pass
	2205.0	33.0 (AVG)	19.2	29.2	1.3	44.3	54.0	-9.7	Pass
	2520.0	29.6 (AVG)	19.2	29.9	1.5	41.8	55.6	-13.8	Pass
	2835.0	25.5 (AVG)	19.1	30.8	1.6	38.8	54.0	-15.2	Pass
	3150.0	22.4 (AVG)	19.0	31.8	1.7	36.9	55.6	-18.7	Pass
MCT-102	315.0	76.4 (QP)	22.2	13.2	0.4	67.8	75.6	-7.8	Pass
	630.0	34.1 (QP)	21.6	18.7	0.6	31.8	55.6	-23.8	Pass
	945.0	50.1 (QP)	22.4	21.0	0.8	49.5	55.6	-6.1	Pass
	1260.0	25.5 (AVG)	22.0	23.4	0.9	27.8	55.6	-27.8	Pass
	1575.0	40.0 (AVG)	19.9	24.9	1.1	46.1	54.0	-7.9	Pass
	1890.0	38.3 (AVG)	18.5	27.1	1.2	48.1	55.6	-7.5	Pass
	2205.0	32.9 (AVG)	19.2	29.2	1.3	44.2	54.0	-9.8	Pass
	2520.0	30.5 (AVG)	19.2	29.9	1.5	42.7	55.6	-12.9	Pass
	2835.0	24.8 (AVG)	19.1	30.8	1.6	38.1	54.0	-15.9	Pass
	3150.0	22.9 (AVG)	19.0	31.8	1.7	37.4	55.6	-18.2	Pass
MCT-104	315.0	77.1 (QP)	22.2	13.2	0.4	68.5	75.6	-7.1	Pass
	630.0	34.9 (QP)	21.6	18.7	0.6	32.6	55.6	-23.0	Pass
	945.0	48.5 (QP)	22.4	21.0	0.8	47.9	55.6	-7.7	Pass
	1260.0	25.4 (AVG)	22.0	23.4	0.9	27.7	55.6	-27.9	Pass
	1575.0	41.2 (AVG)	19.9	24.9	1.1	47.3	54.0	-6.7	Pass
	1890.0	37.9 (AVG)	18.5	27.1	1.2	47.7	55.6	-7.9	Pass
	2205.0	31.7 (AVG)	19.2	29.2	1.3	43.0	54.0	-11.0	Pass
	2520.0	28.3 (AVG)	19.2	29.9	1.5	40.5	55.6	-15.1	Pass
	2835.0	24.6 (AVG)	19.1	30.8	1.6	37.9	54.0	-16.1	Pass
	3150.0	22.0 (AVG)	19.0	31.8	1.7	36.5	55.6	-19.1	Pass
Pre-Amp: Gold, White OATS:"A" Cable: 12' RG8A-U Analyzer: White Antenna: Green-Black, Yellow									

22: 50: 03 19 NOV 1998

MR 315.020 MHz
77.10 dBμV

REF 90.0 dBμV #AT 0 dB



PEAK
LOG
10
dB/

WA SB
SC FS
CORR

QP AUTO
AT MKR

Qp Man
At MKR

CLEAR
QP DATA

CENTER 315.020 MHz

#RES BW 120 KHz

#VBW 300 KHz

SPAN 1.000 MHz

SWP 20.0 msec

22: 57: 11 19 NOV 1998

HP

MR 630.045 MHz

35.15 dBμV

#AT 0 dB

dBμV

MC T-101

PEAK

LOG

10

dB/

CENTER

630.045 MHz

STEP 315.000 MHz

QP AUTO
AT MKR

Qp Man
At MKR

CLEAR
QP DATA

WA SB
SC FS
CORR

QP 34.89

CENTER 630.045 MHz

#RES BW 120 KHz

#VBW 300 KHz

SPAN 1.000 MHz

SWP 20.0 msec

23:01:41 19 NOV 1998

HP

MKR 945.070 MHz

REF 70.0 dBμV #AT 0 dB

47.87 dBμV

MARKER
→ CF

PEAK

LOG

10

dB/

MCT-101

MARKER
945.070 MHz
47.87 dBμV

MARKER
→ REF LVL

MARKER
→ CF STEP

MARKER Δ
→ SPAN

MARKER
→ MINIMUM

More
1 of 2

WA SB
SC FS
CORR

QP 48.50

CENTER 945.070 MHz

#RES BW 120 kHz

#VBW 300 kHz

SPAN 1.000 MHz
SWP 20.0 msec

23:08:50 19 NOV 1998

HP

REF 70.0 dBμV

#AT 0 dB

MKR 1.260095 GHz

34.73 dBμV

SPAN

PEAK

LOG

10

dB/

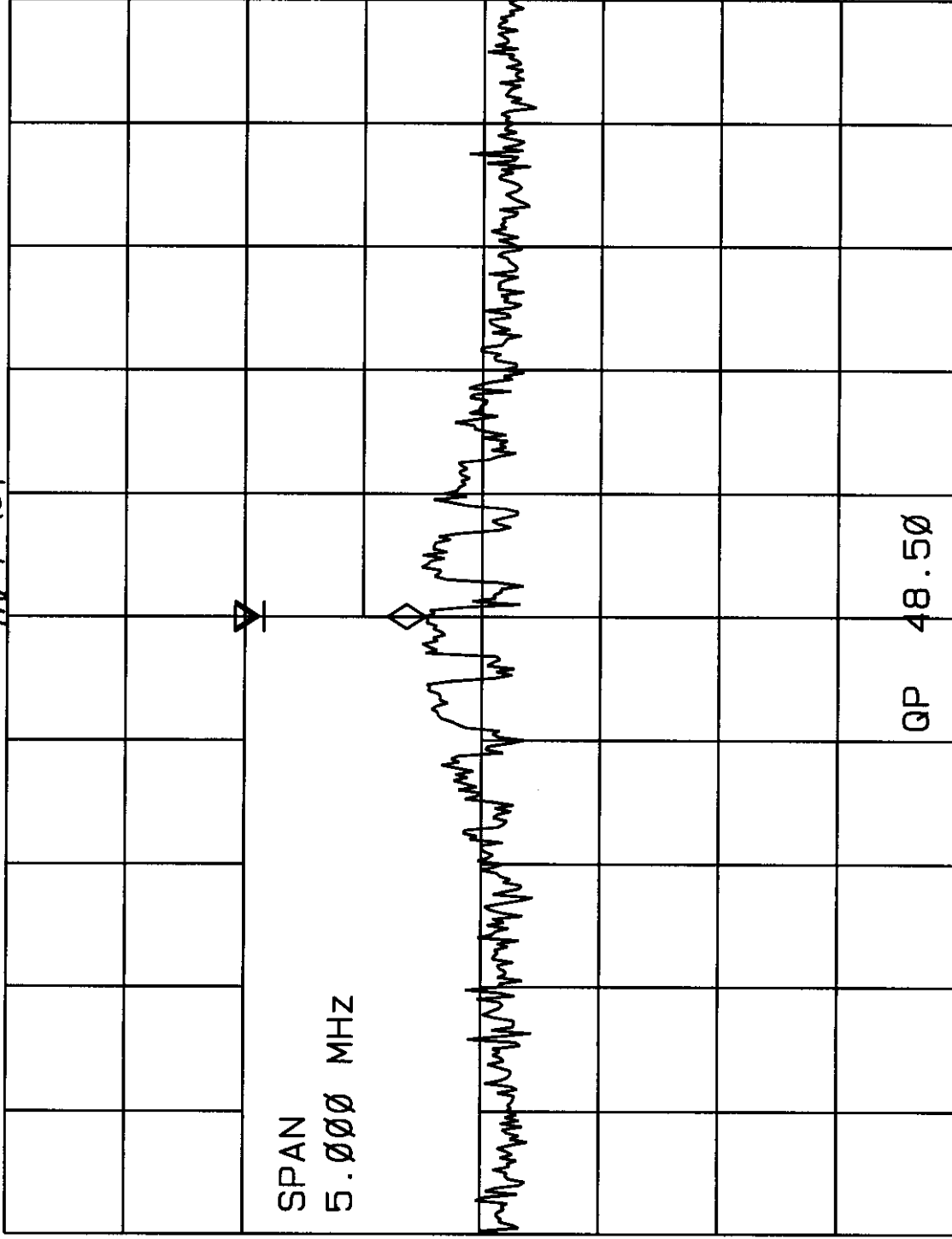
SPAN
ZOOM

FULL
SPAN

ZERO
SPAN

LAST
SPAN

PEAK
ZOOM



WA SB
SC FS
CORR

CENTER 1.260095 GHz

#RES BW 1.0 MHz

#VBW 1 MHz

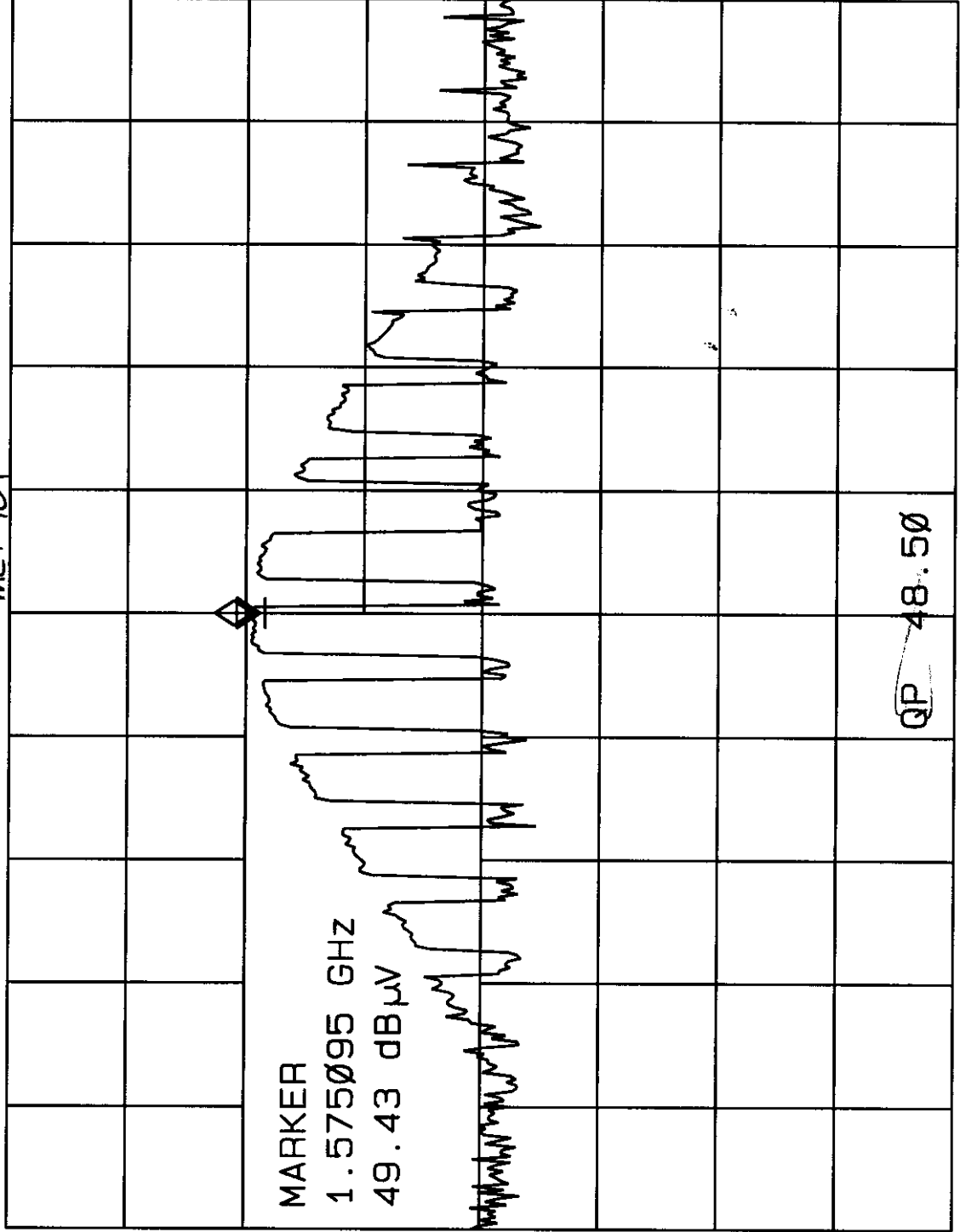
SPAN 5.000 MHz

SWP 20.0 msec

23: 12: 16 19 NOV 1998

MR 1.575095 GHz
49.43 dBμV

REF 70.0 dBμV #AT 0 dB



MARKER
→ CF

MARKER
→ REF LVL

MARKER
→ CF STEP

MARKER Δ
→ SPAN

MARKER
→ MINIMUM

More
1 of 2

WA SB
SC FS
CORR

CENTER 1.575095 GHz SPAN 5.000 MHz
#RES BW 1.0 MHz #VBW 1 MHz SWP 20.0 msec

23: 15: 17 19 NOV 1998
hp

MKR 1.890095 GHz
46.45 dB μ V

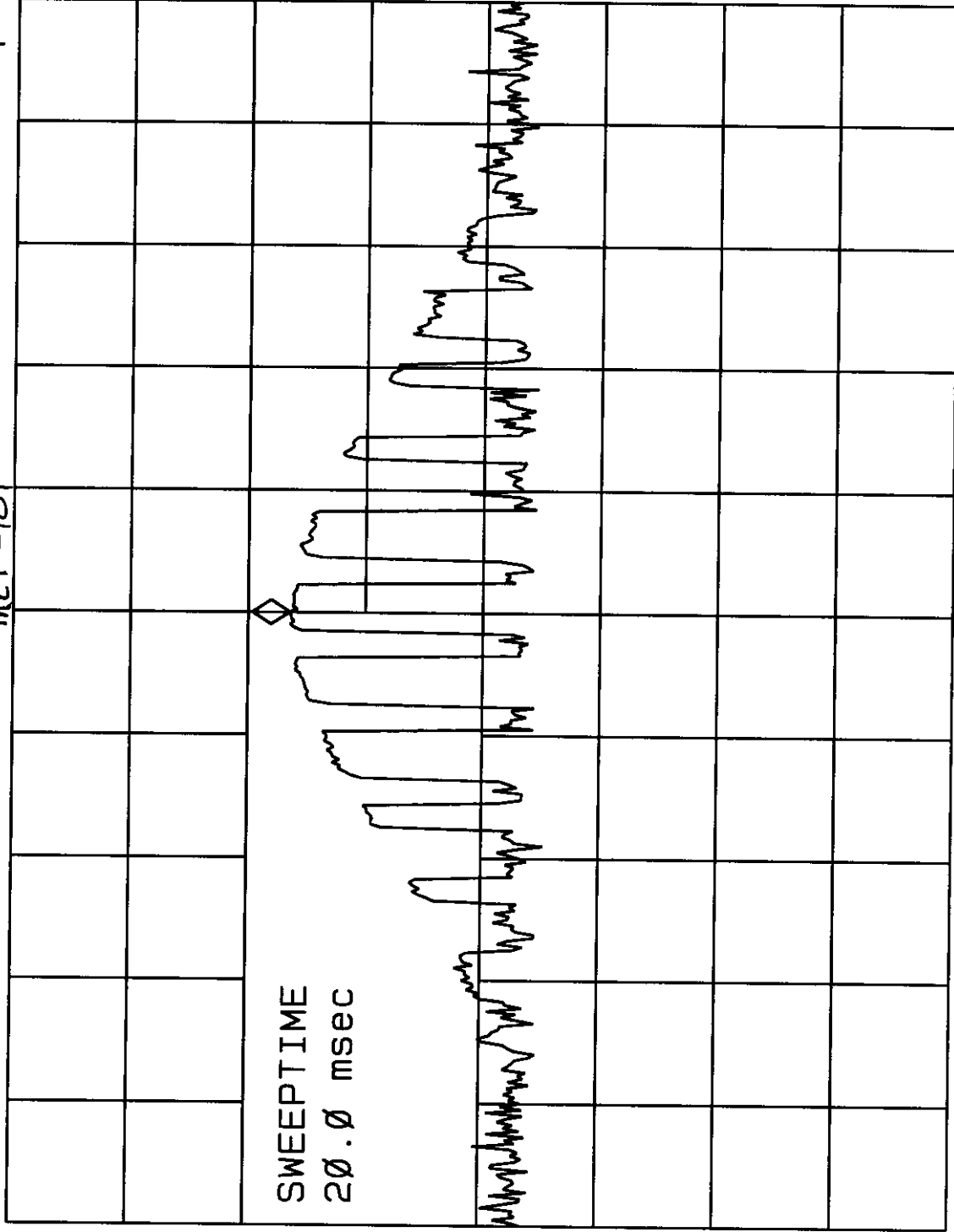
REF 70.0 dB μ V #AT 0 dB

SWP TIME
AUTO MAN

SWEEP
CONT SGL

GATE
ON OFF

Gate
Control



CENTER 1.890095 GHz
#RES BW 1.0 MHz

SPAN 5.000 MHz
SWP 20.0 msec

#VBW 1 MHz

23: 25: 42 19 NOV 1998

HP

MR 2.205095 GHz

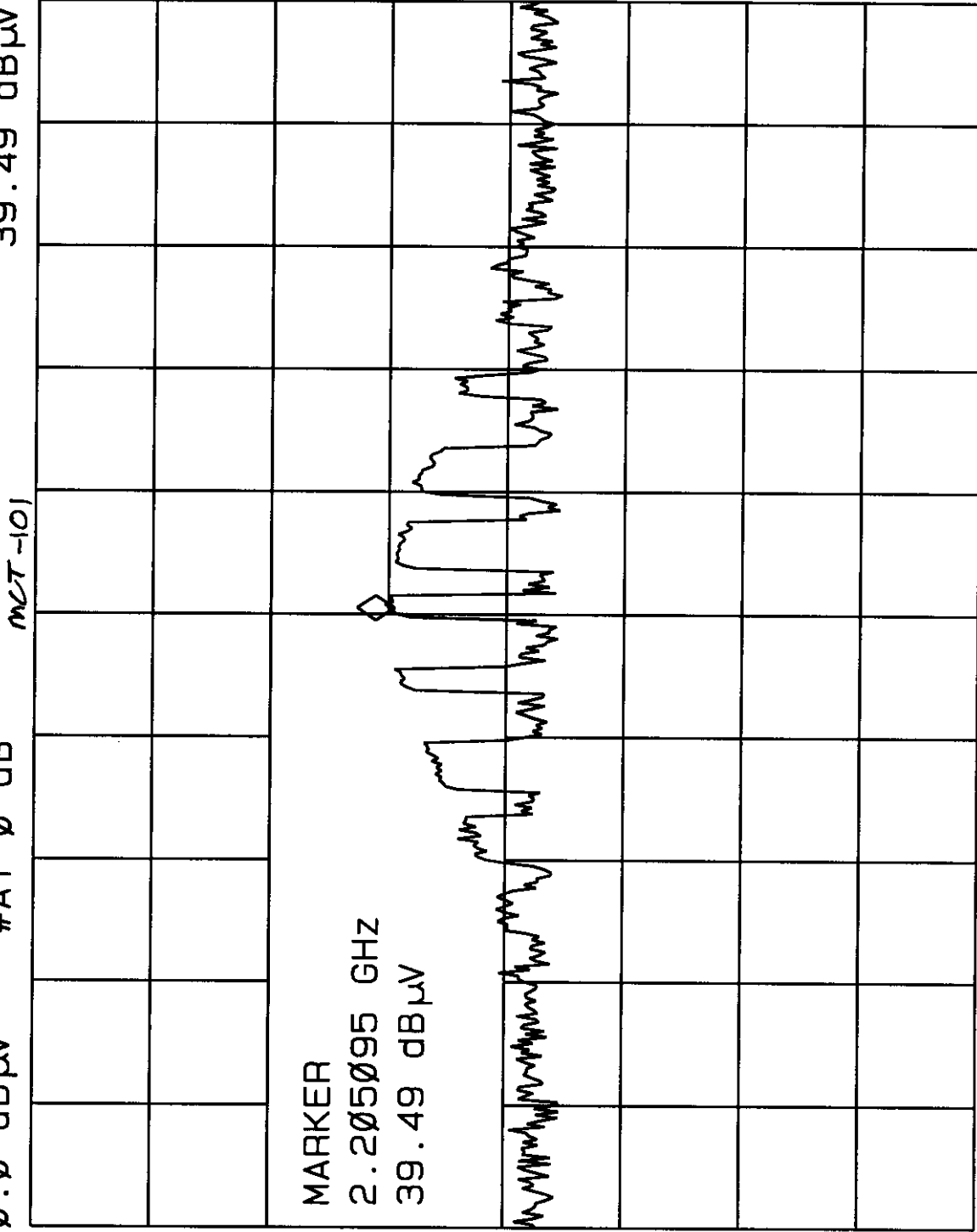
39.49 dBμV

#AT 0 dB

REF 70.0 dBμV

PEAK
LOG
10
dB/

MCT -101



MARKER
→ CF

MARKER
→REF LVL

MARKER
→CF STEP

MARKER Δ
→SPAN

MARKER
→MINIMUM

More
1 of 2

WA SB
SC FS
CORR

CENTER 2.205070 GHz

#RES BW 1.0 MHz

#VBW 1 MHz

SPAN 5.000 MHz

SWP 20.0 msec

23: 31: 28 19 NOV 1998

hp

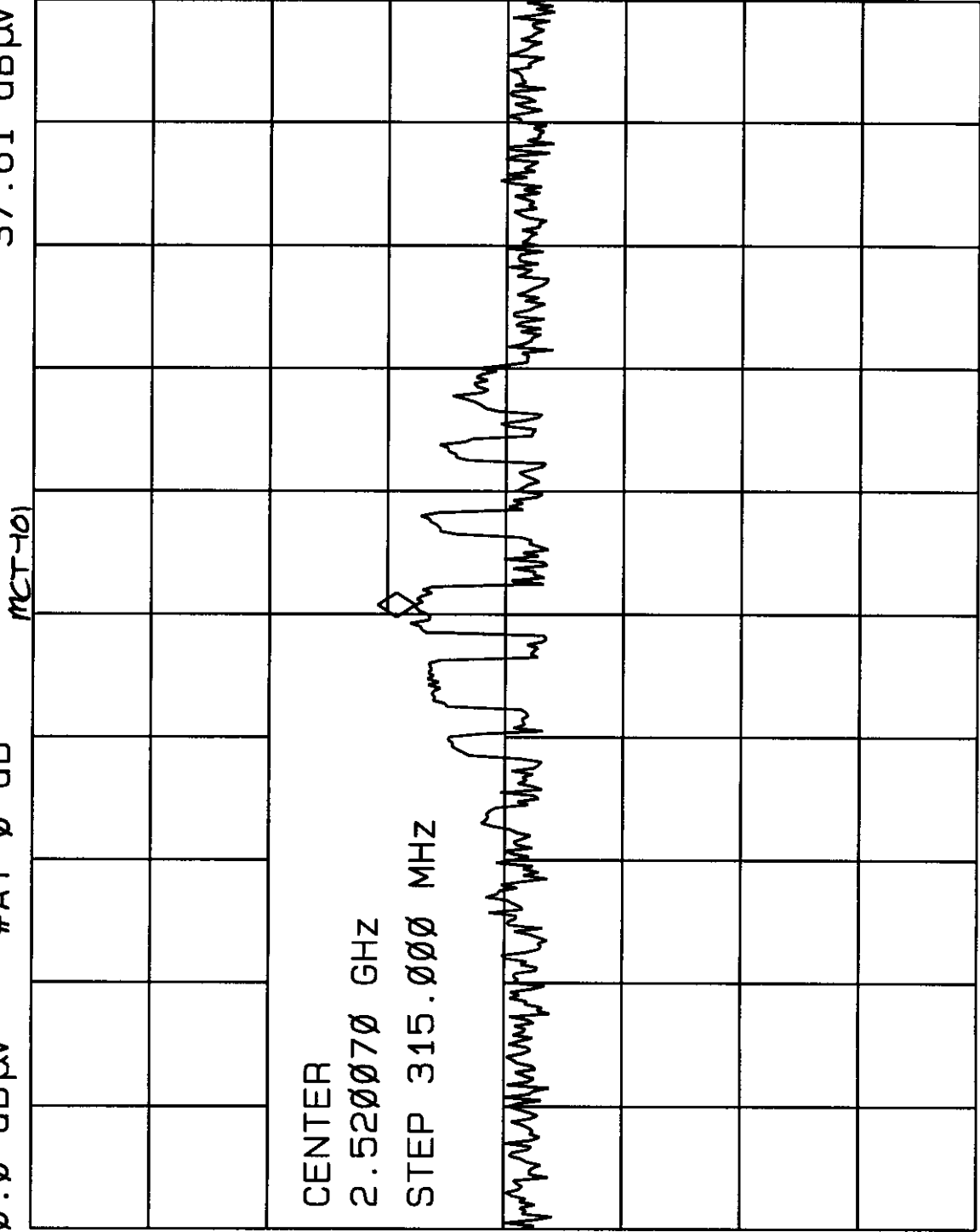
MKR 2.520108 GHZ

37.61 dB μ V

REF 70.0 dB μ V #AT 0 dB

CENTER
FREQ

PEAK
LOG
10
dB/



CENTER
2.520070 GHZ
STEP 315.000 MHZ

START
FREQ

STOP
FREQ

CF STEP
AUTO MAN

FREQ
OFFSET

Band
Lock

WA SB
SC FS
CORR

CENTER 2.520070 GHZ SPAN 5.000 MHZ
#RES BW 1.0 MHZ SWP 20.0 msec
#VBW 1 MHZ

23: 33: 47 19 NOV 1998

REF 70.0 dBμV

#AT 0 dB

MKR 2.835058 GHz

33.27 dBμV

MC T-101

PEAK

LOG

10

dB/

CENTER
FREQ

START
FREQ

STOP
FREQ

CF STEP
AUTO MAN

FREQ
OFFSET

Band
Lock

CENTER

2.835070 GHz

STEP 315.000 MHz

WA SB

SC FS

CORR

CENTER 2.835070 GHz

#RES BW 1.0 MHz

SPAN 5.000 MHz

SWP 20.0 msec

#VBW 1 MHz

23:36:23 19 NOV 1998

MKR 3.150145 GHz

30.33 dB μ V

#AT Ø dB

REF 70.0 dB μ V

REF LVL

MCT-101

PEAK

LOG

10

dB/

REF LEVEL
70.0 dBμV

ATTEN
AUTO MAN

SCALE
LOG LIN

```
PRESEL
PEAK
```

```
PRESEL
DEFAULT
```

More
1 of 2

CENTER 3.150070 GHz

#RES BW 1.0 MHZ

#VBW 1 MHZ

SPAN 5.000 MHZ

SWP 20.0 msec

22: 14: 35 19 NOV 1998

77

MR 315.015 MHz
76.50 dB μ V

#AT 0 dB

mct-102

PEAK

LOG

10

dB/

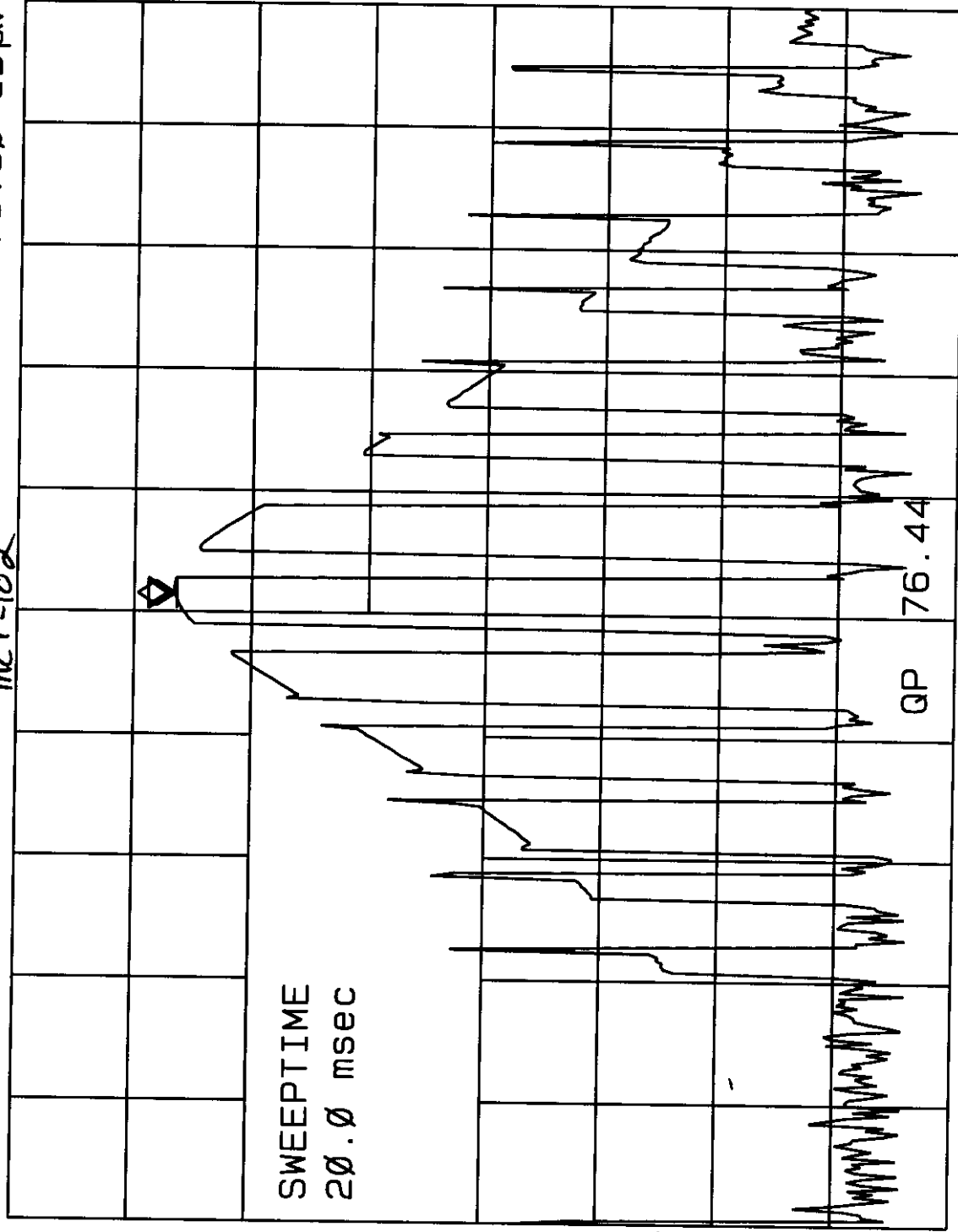
SWEPTIME
20.0 msec

QP AUTO
AT MKR

Qp Man
At MKr

CLEAR
QP DATA

WA SB
SC FS
CORR



CENTER 315.000 MHz

#RES BW 120 KHz

#VBW 300 KHz

SPAN 1.000 MHz

SWP 20.0 msec

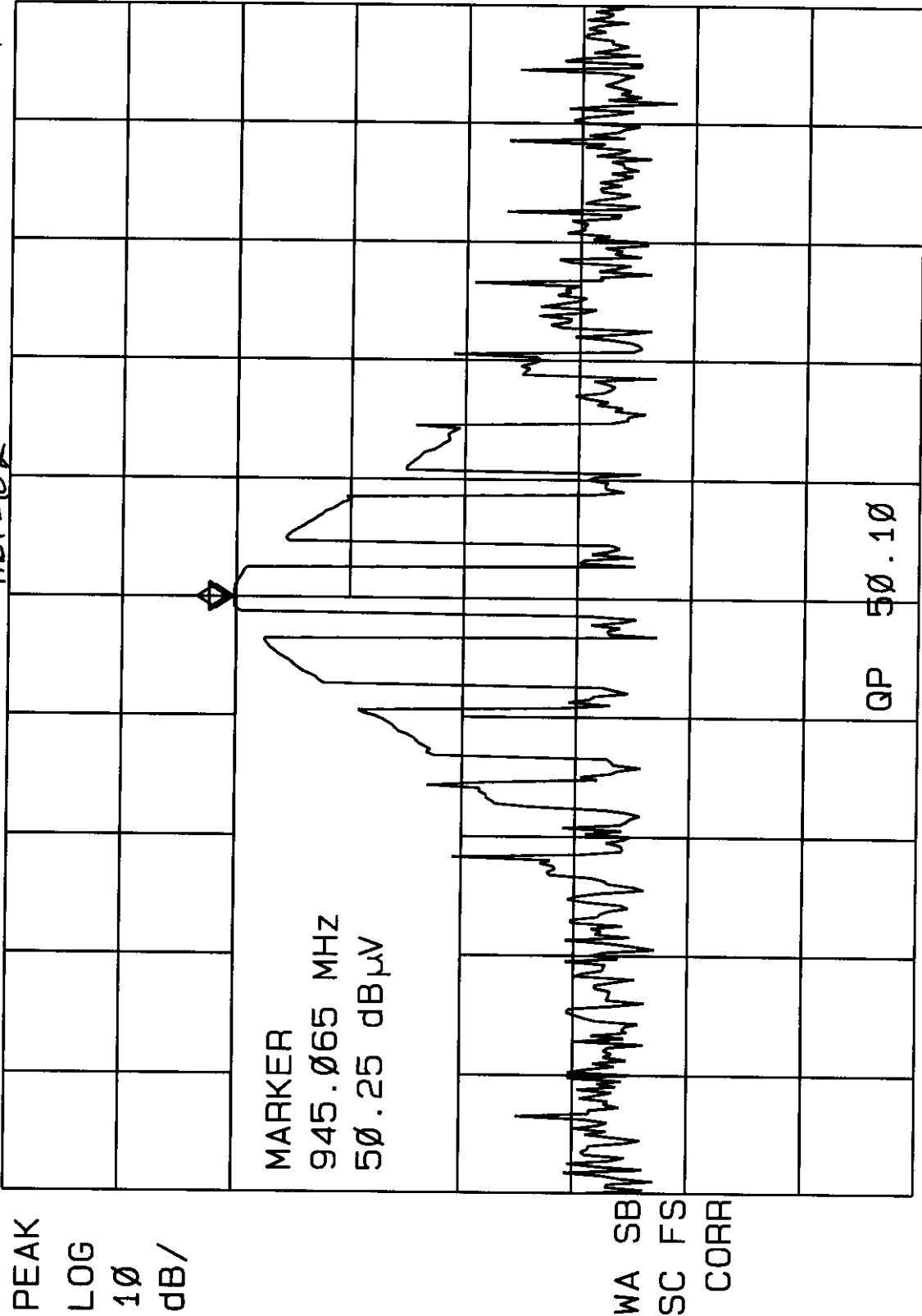
4

NET-102

CENTER 630.000 MHz
#RES BW 120 kHz
SPAN 1.000 MHz
SWP 20.0 msec
#VBW 300 kHz

22: 22: 28 19 NOV 1998

REF 70.0 dBμV #AT 0 dB MKR 945.065 MHz 50.25 dBμV



CENTER 945.065 MHz SPAN 1.000 MHz
#RES BW 120 KHz SWP 20.0 msec
#VBW 300 KHz

21: 46: 09 19 NOV 1998

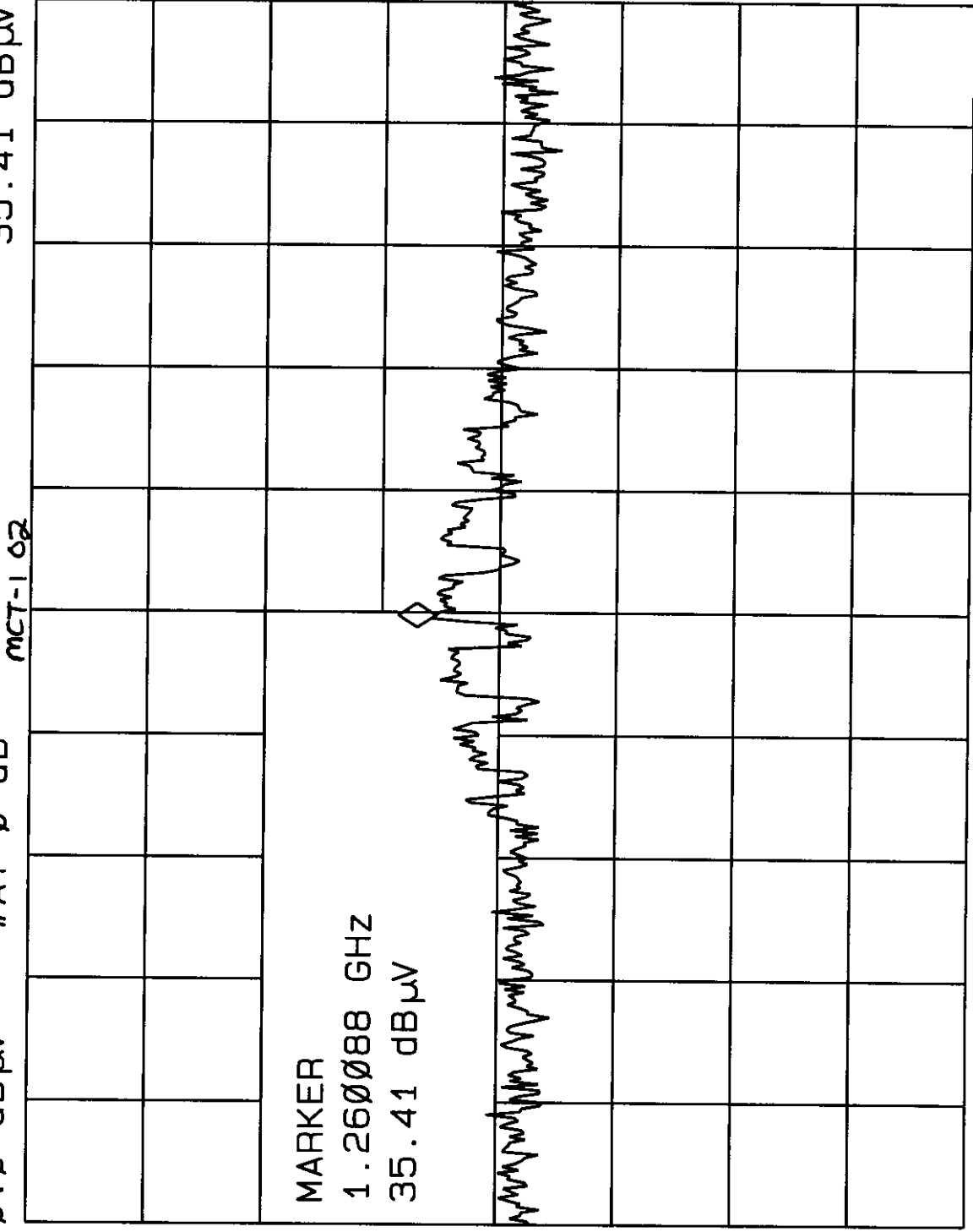
HP

MR 1.260088 GHz

35.41 dB μ V

#AT 0 dB

MCT-1 02



MARKER
→ CF

MARKER
→ REF LVL

MARKER
→ CF STEP

MARKER Δ
→ SPAN

MARKER
→ MINIMUM

More
1 of 2

PEAK
LOG
10
dB/

WA SB
SC FS
CORR

CENTER 1.260100 GHz

#RES BW 1.0 MHz

SPAN 5.000 MHz

SWP 20.0 msec

#VBW 1 MHz

21: 58: 50 19 NOV 1998

HP

MR 1.575125 GHz

REF 70.0 dBμV #AT 0 dB

47.71 dBμV

MCT-102

PEAK

LOG

10

dB/

MARKER
→ CF

MARKER
Δ

NEXT
PEAK

NEXT PK
RIGHT

NEXT PK
LEFT

MORE
1 of 2

REF LEVEL
70.0 dBμV

WA SB
SC FS
CORR

CENTER 1.575100 GHz

#RES BW 1.0 MHz

#VBW 1 MHz

SPAN 5.000 MHz

SWP 20.0 msec

22:01:26 19 NOV 1998

MR 1.890013 GHz
46.06 dBμV

REF 70.0 dBμV #AT 0 dB

MARKER
→ CF

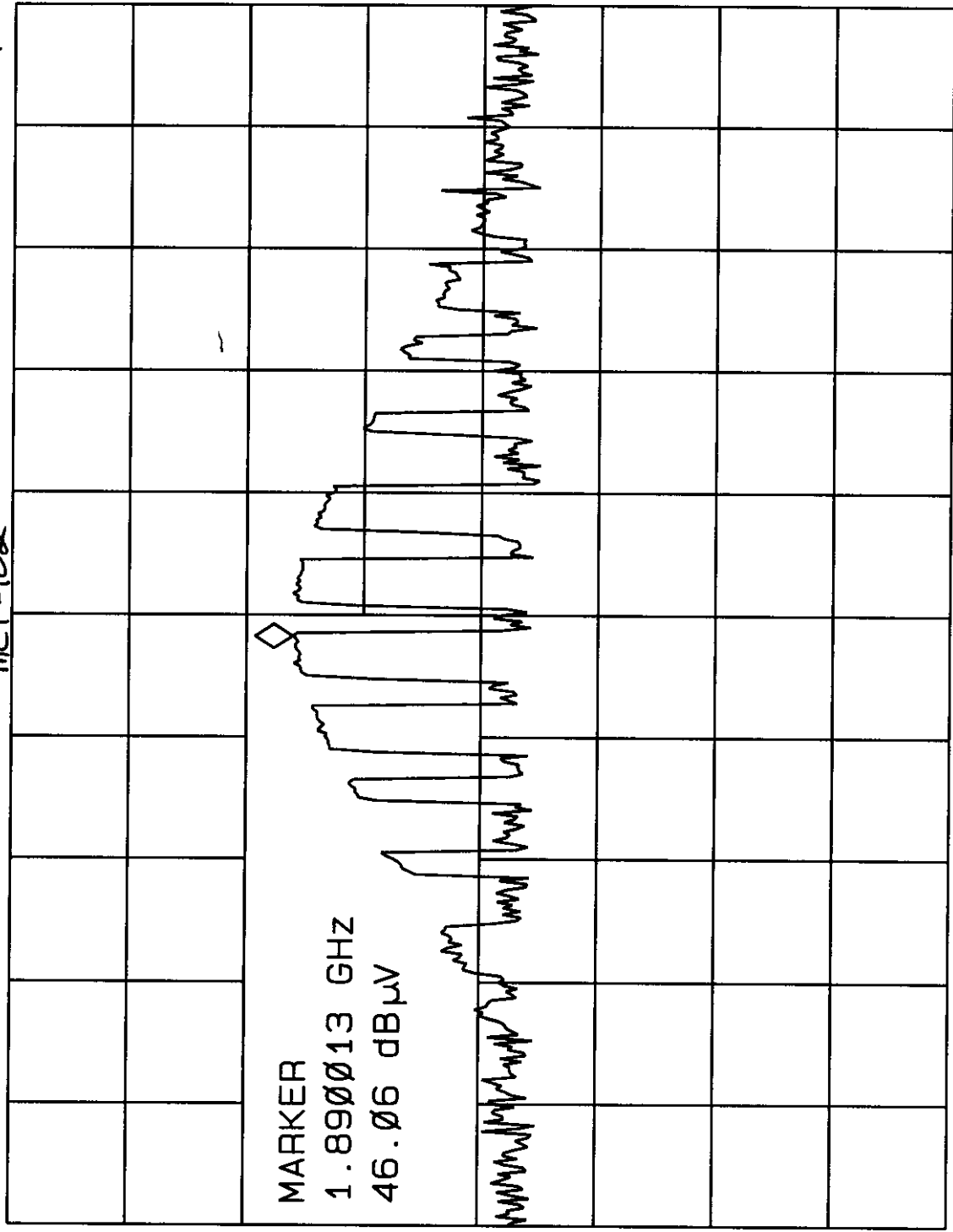
MARKER
→REF LVL

MARKER
→CF STEP

MARKER Δ
→SPAN

MARKER
→MINIMUM

More
1 of 2



PEAK
LOG
10
dB/

WA SB
SC FS
CORR

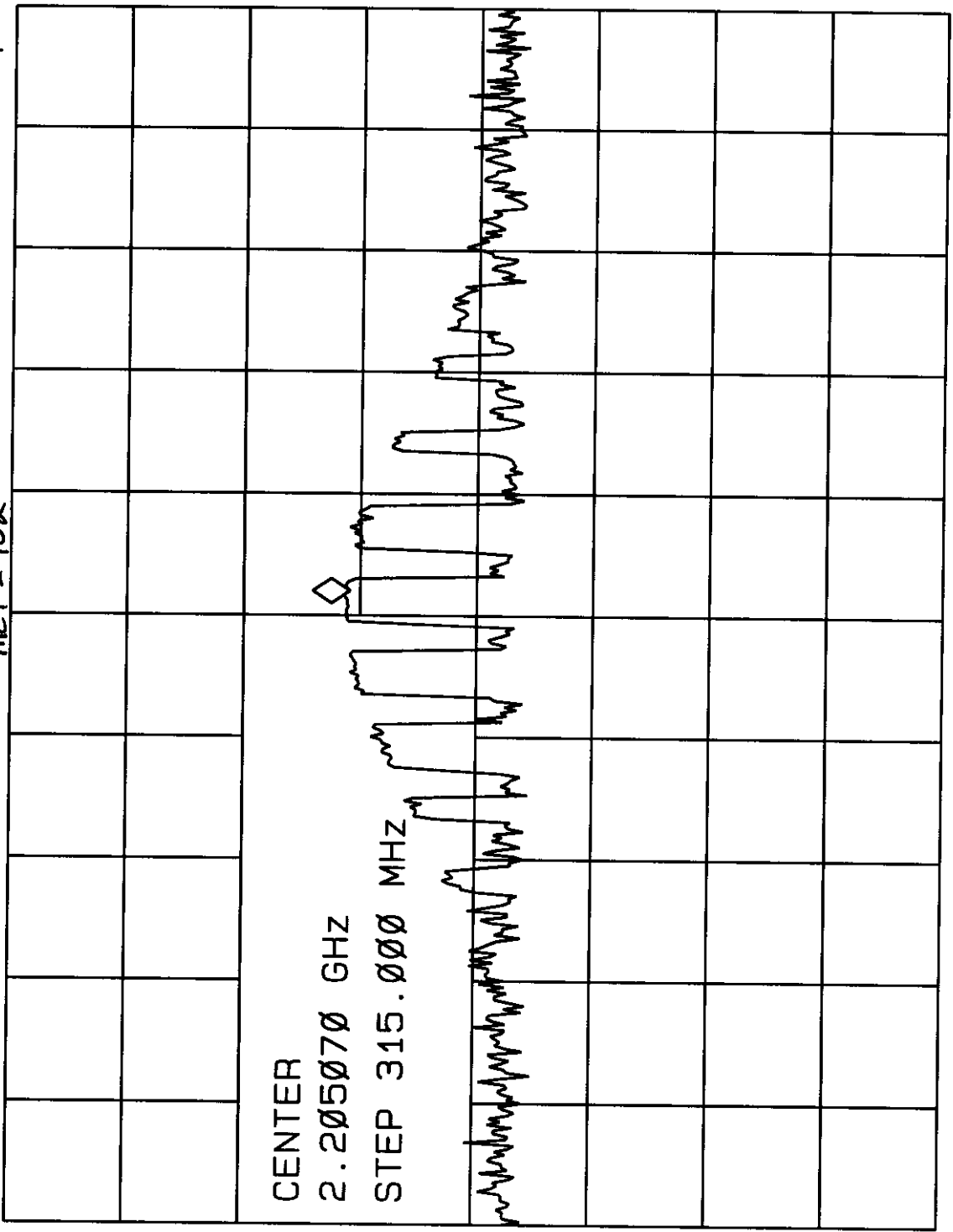
CENTER 1.890100 GHz SPAN 5.000 MHz
#RES BW 1.0 MHz SWP 20.0 msec
#VBW 1 MHz

23: 50: 44 19 NOV 1998

MR 2.205170 GHz
40.88 dBμV

REF 70.0 dBμV #AT 0 dB

CENTER
FREQ



PEAK
LOG
10
dB/

START
FREQ

STOP
FREQ

CF STEP
AUTO MAN

FREQ
OFFSET

Band
Lock

WA SB
SC FS
CORR

CENTER 2.205070 GHz SPAN 5.000 MHz
#RES BW 1.0 MHz #VBW 1 MHz SWP 20.0 msec

23: 48: 29 19 NOV 1998

HP

REF 70.0 dBμV

#AT 0 dB

MKR 2.520120 GHz
38.88 dBμV

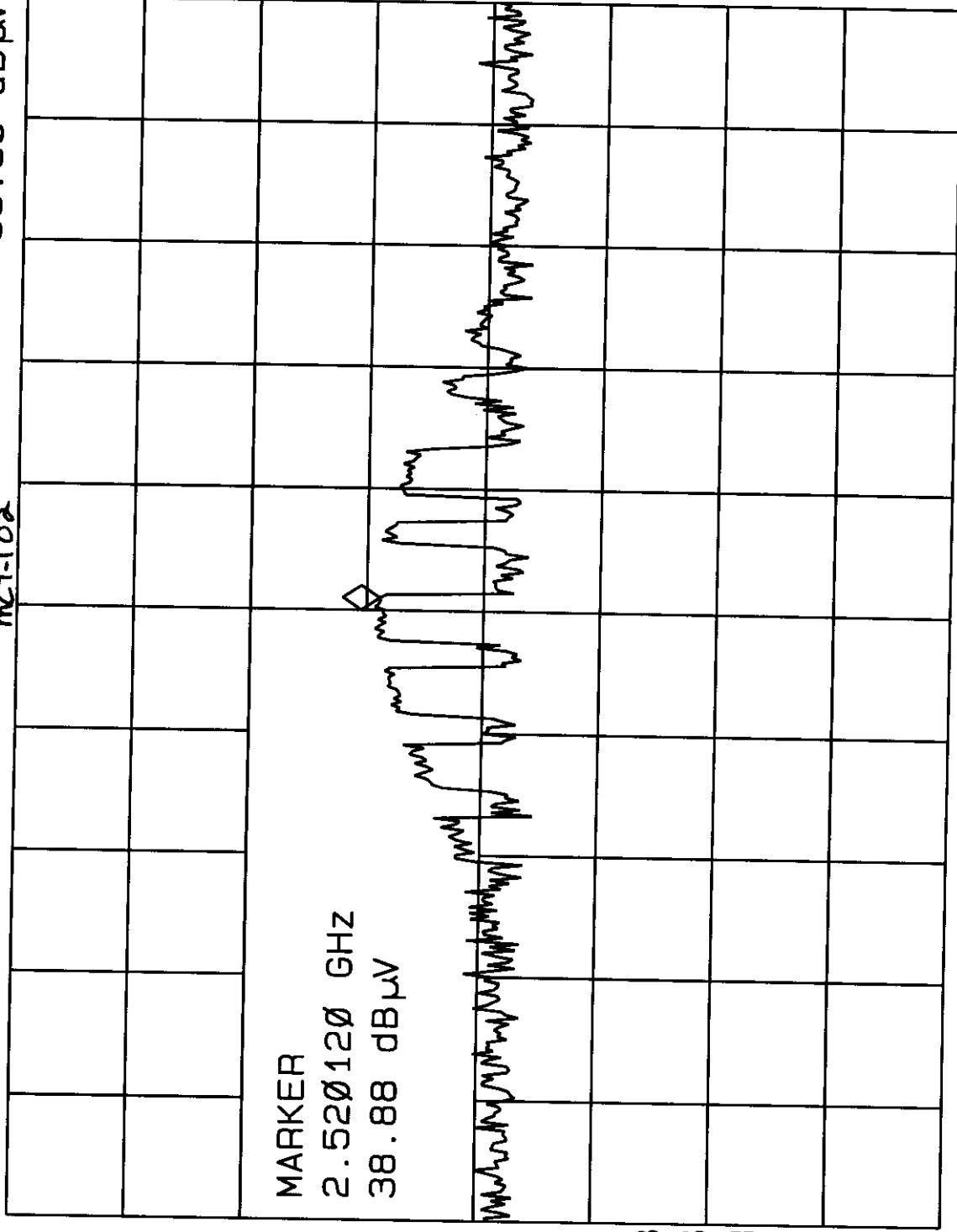
PEAK

LOG

10

dB/

MCT-102



WA SB
SC FS
CORR

MARKER
→ CF

MARKER
→ REF LVL

MARKER
→ CF STEP

MARKER Δ
→ SPAN

MARKER
→ MINIMUM

MORE
1 of 2

CENTER 2.520070 GHz
#RES BW 1.0 MHz

SPAN 5.000 MHz
SWP 20.0 msec

#VBW 1 MHz

23: 46: 07 19 NOV 1998

REF 70.0 dBμV #AT 0 dB

MKR 2.835120 GHz

32.98 dBμV

MCT-102

MARKER
→ CF

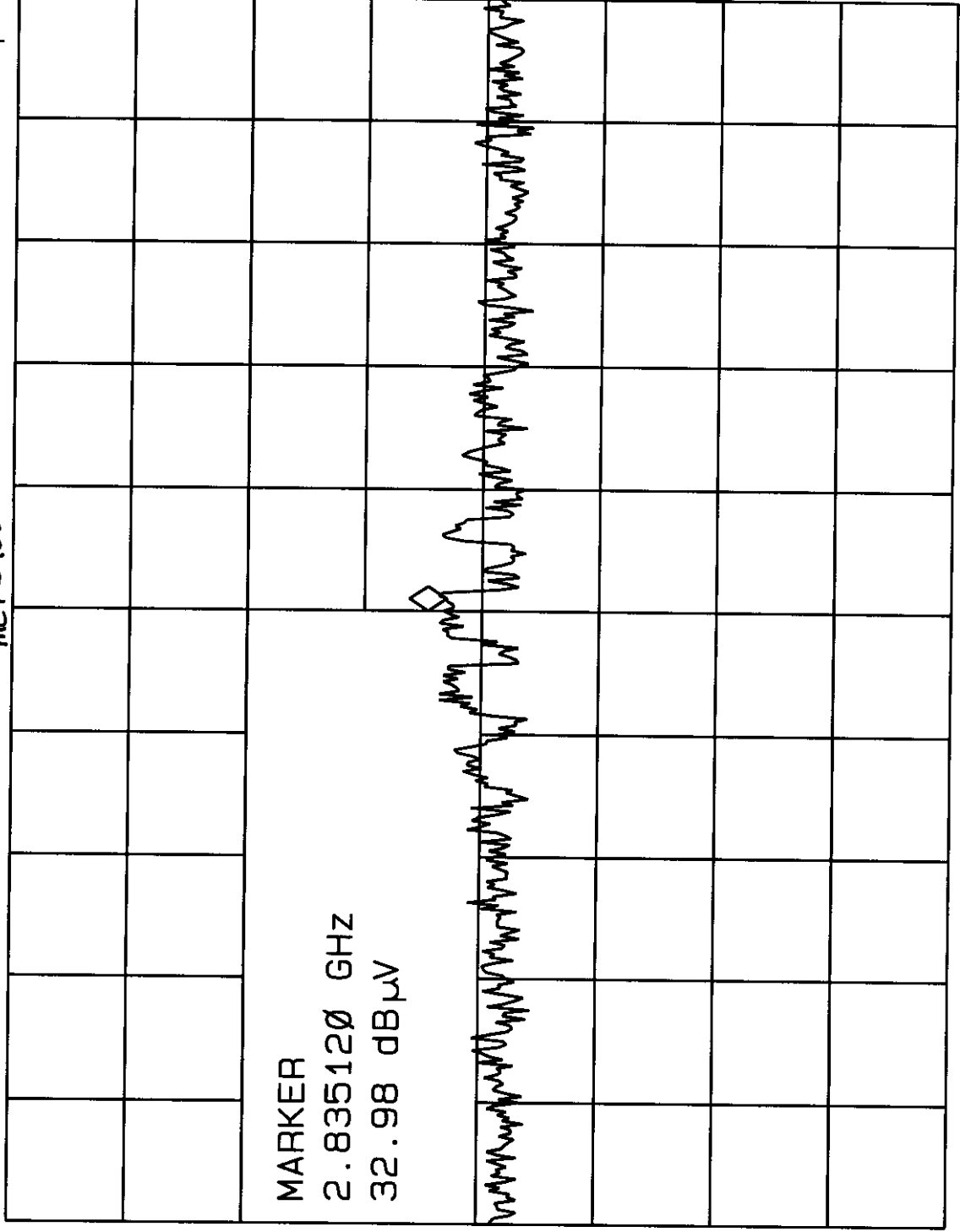
MARKER
→ REF LVL

MARKER
→ CF STEP

MARKER Δ
→ SPAN

MARKER
→ MINIMUM

More
1 of 2



WA SB
SC FS
CORR

CENTER 2.835070 GHz

#RES BW 1.0 MHz

#VBW 1 MHz

SPAN 5.000 MHz

SWP 20.0 msec

44

PEAK
LOG
1Ø
dB/

MKR 3.150183 GHz
30.31 dB μ V

MC T 102

#AT Ø dB

✓

PEAK

LOG

10

dB/

REF LEVEL
70.0 dBμV

$\frac{d}{dt} \left(\frac{1}{r^2} \right) = -\frac{2}{r^3} \frac{dr}{dt}$

WA SB
SC FS
CORR

CENTER 3.150070 GHZ
#RES BW 1.0 MHZ

SPAN 5.000 MHZ
SWP 20.0 msec

More
1 of 2

REF LVL

ATTEN
AUTO MAN

LOG SCALE
LIN LIN

PRESEL
PEAK

```
PRESEL
DEFAULT
```

More
1 of 2

19:09:49 19 NOV 1998

h/p

MR 315.023 MHz

REF 90.0 dBμV

#AT 0 dB

77.49 dBμV

MARKER
→ CF

PEAK

LOG

10

dB/

MARKER
→ REF LVL

MARKER

315.023 MHz

77.49 dBμV

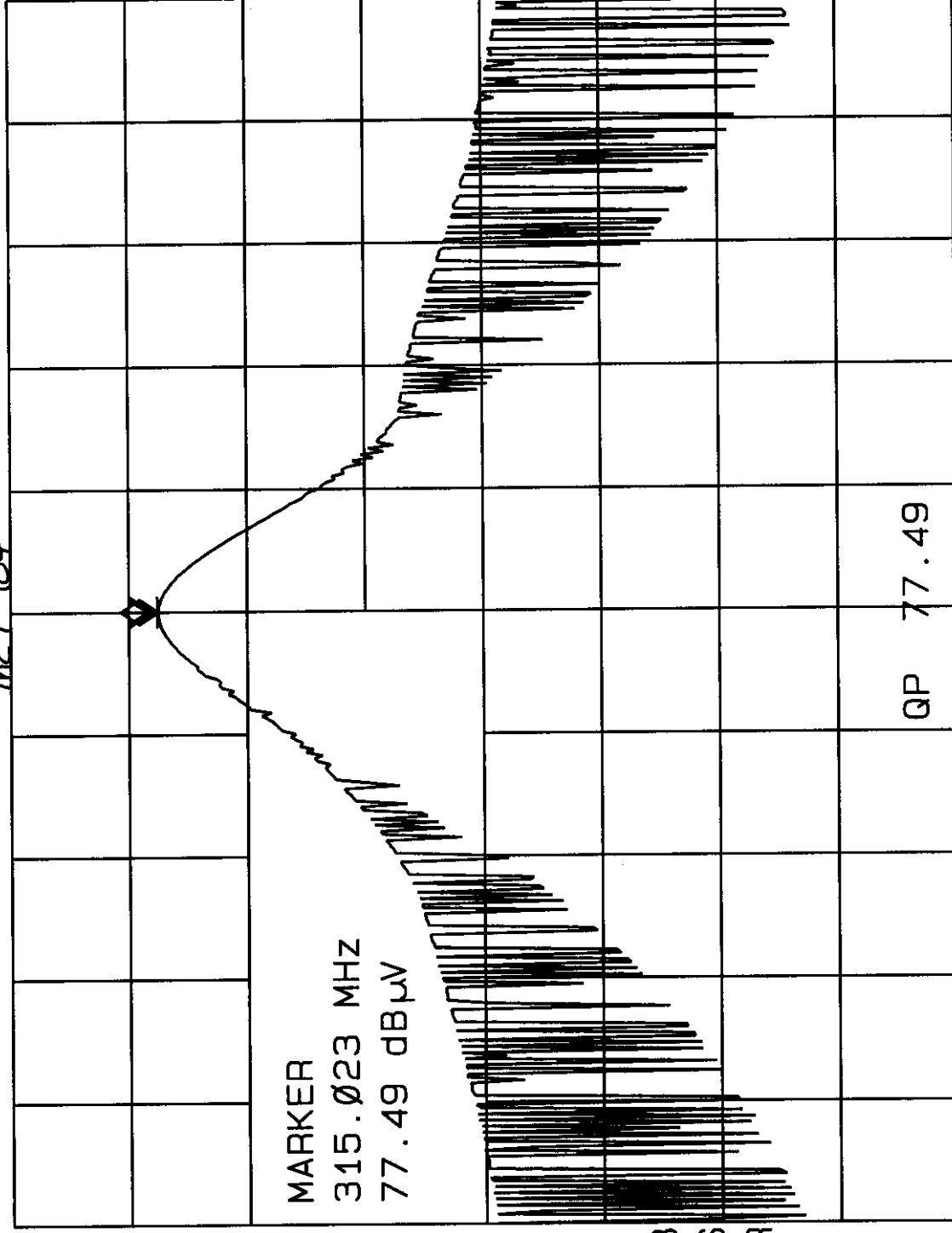
MARKER
→ CF STEP

MA SB
SC FS
CORR

MARKER Δ
→ SPAN

MARKER
→ MINIMUM

More
1 of 2



CENTER 315.023 MHz

#RES BW 120 kHz

VBW 300 kHz

SPAN 1.000 MHz

SWP 20.0 msec

19: 18: 06 19 NOV 1998

HP

REF 70.0 dBμV #AT 0 dB MKR 630.043 MHz 36.26 dBμV

PEAK
LOG
10
dB/

MC1-104

MARKER
630.043 MHz
36.26 dBμV

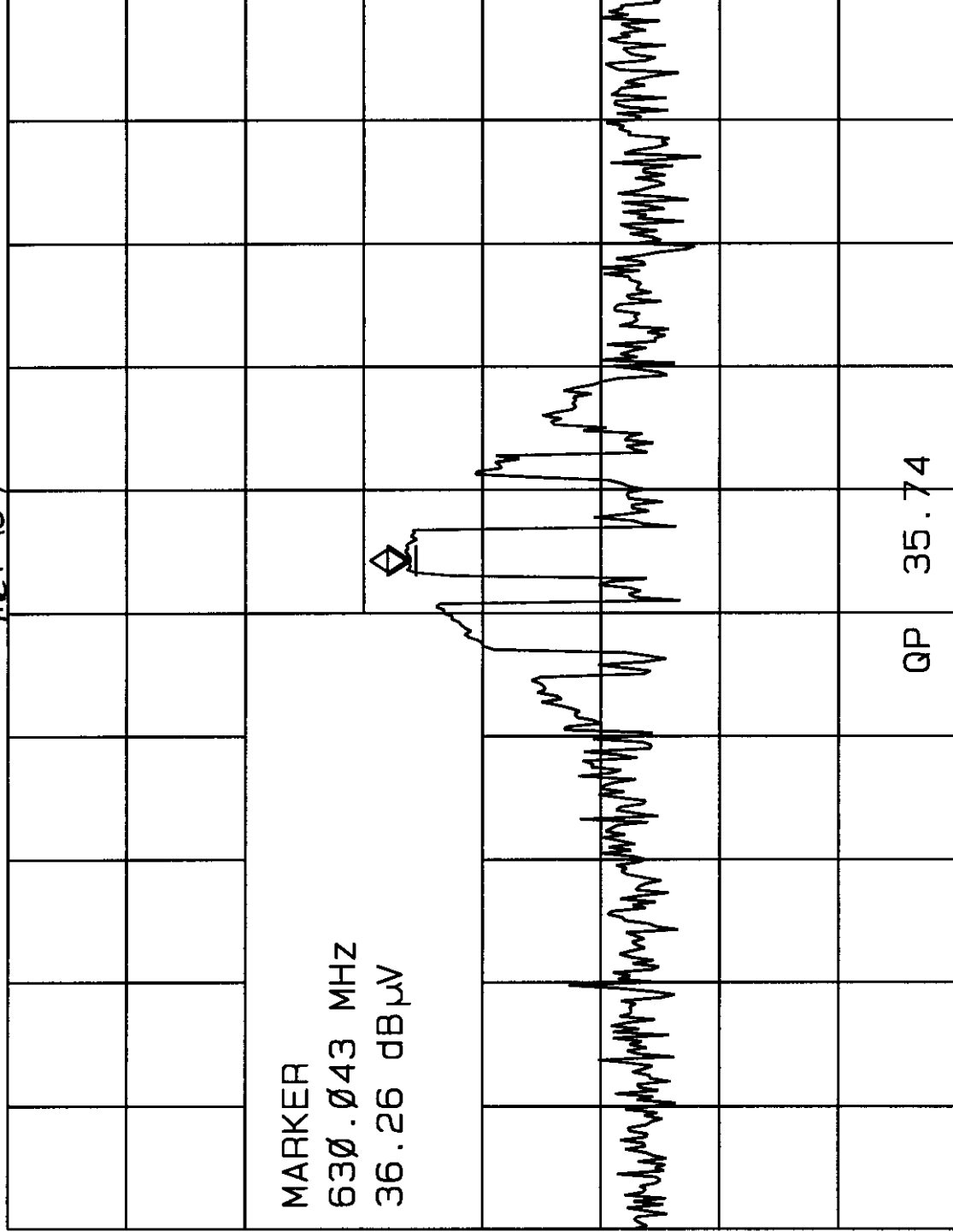


QP AUTO
AT MKR

Qp Man
At MKr

CLEAR
QP DATA

WA SB
SC FS
CORR



CENTER 630.000 MHz SPAN 1.000 MHz
#RES BW 120 KHZ SWP 20.0 msec
VBW 300 KHZ

19:33:05 19 NOV 1998

hp

MR 945.072 MHz

51.84 dB μ V

REF 70.0 dB μ V #AT 0 dB

MCCT-104

PEAK

LOG

10

dB/

SWEPTIME
20.0 msec

QP AUTO
AT MKR

Qp Man
At MKr

CLEAR
QP DATA

WA SB
SC FS
CORR

QP 51.86

CENTER 945.072 MHz

#RES BW 120 KHz

SPAN 1.000 MHz

SWP 20.0 msec

VBW 300 KHz

21: 44: 53 19 NOV 1998

hp

MARKER 1.575088 GHZ

48.94 dBμV

#AT 0 dB

REF 70.0 dBμV

MCT-104

PEAK

LOG

10

dB/

MARKER
→ CF

MARKER
→REF LVL

MARKER
→CF STEP

MARKER Δ
→SPAN

MARKER
→MINIMUM

More
1 of 2

MARKER

1.575088 GHZ

48.94 dBμV

WA SB

SC FS

CORR

CENTER 1.575100 GHZ

#RES BW 1.0 MHZ

#VBW 1 MHZ

SPAN 5.000 MHZ

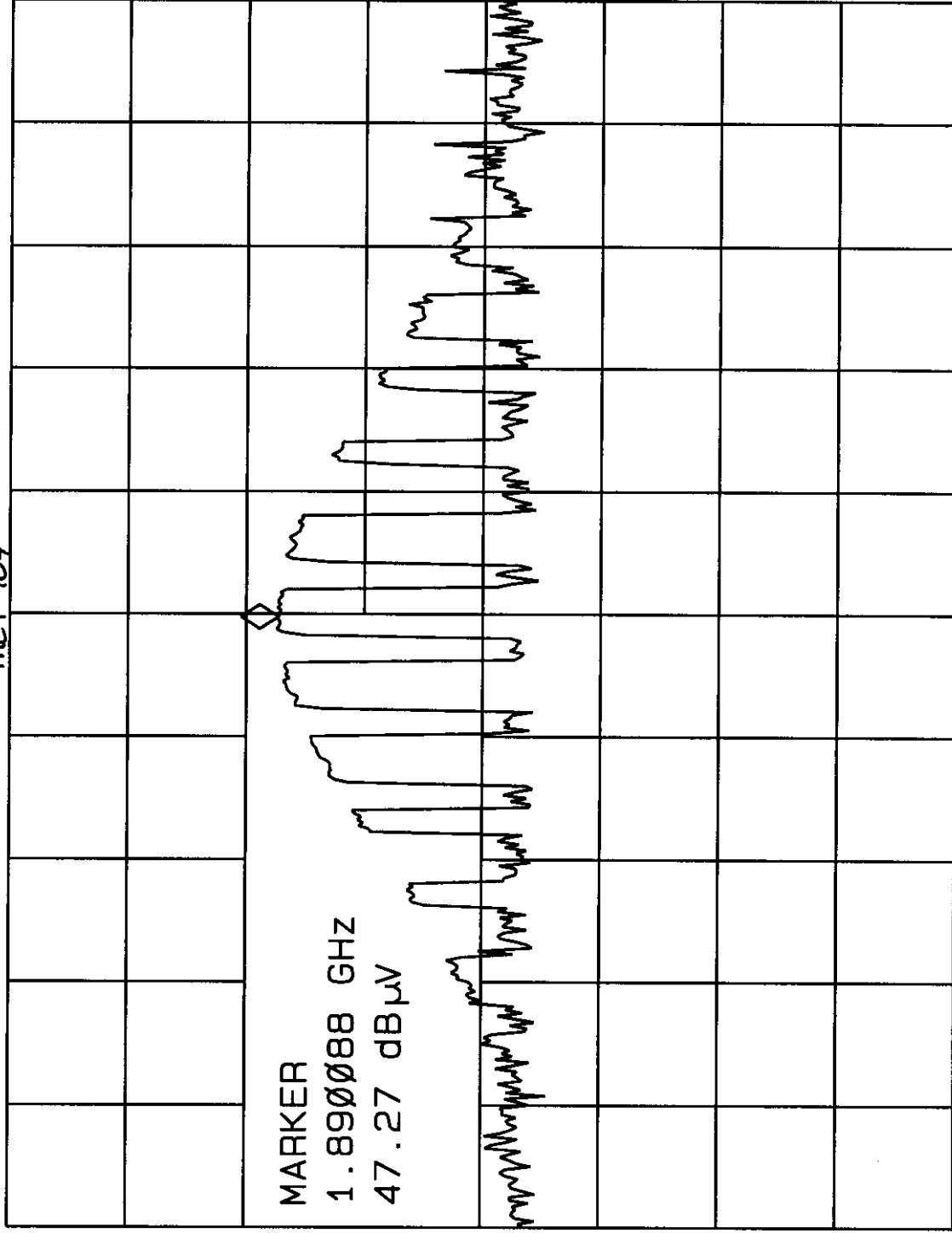
SWP 20.0 msec

21: 41: 35 19 NOV 1998

h
MKR 1.890088 GHz
47.27 dB μ V

REF 70.0 dB μ V #AT 0 dB

mct-104



MARKER
→ CF

MARKER
→ REF LVL

MARKER
→ CF STEP

MARKER Δ
→ SPAN

MARKER
→ MINIMUM

More
1 of 2

WA SB
SC FS
CORR

CENTER 1.890100 GHz
#RES BW 1.0 MHz

SPAN 5.000 MHz
SWP 20.0 msec

#VBW 1 MHz

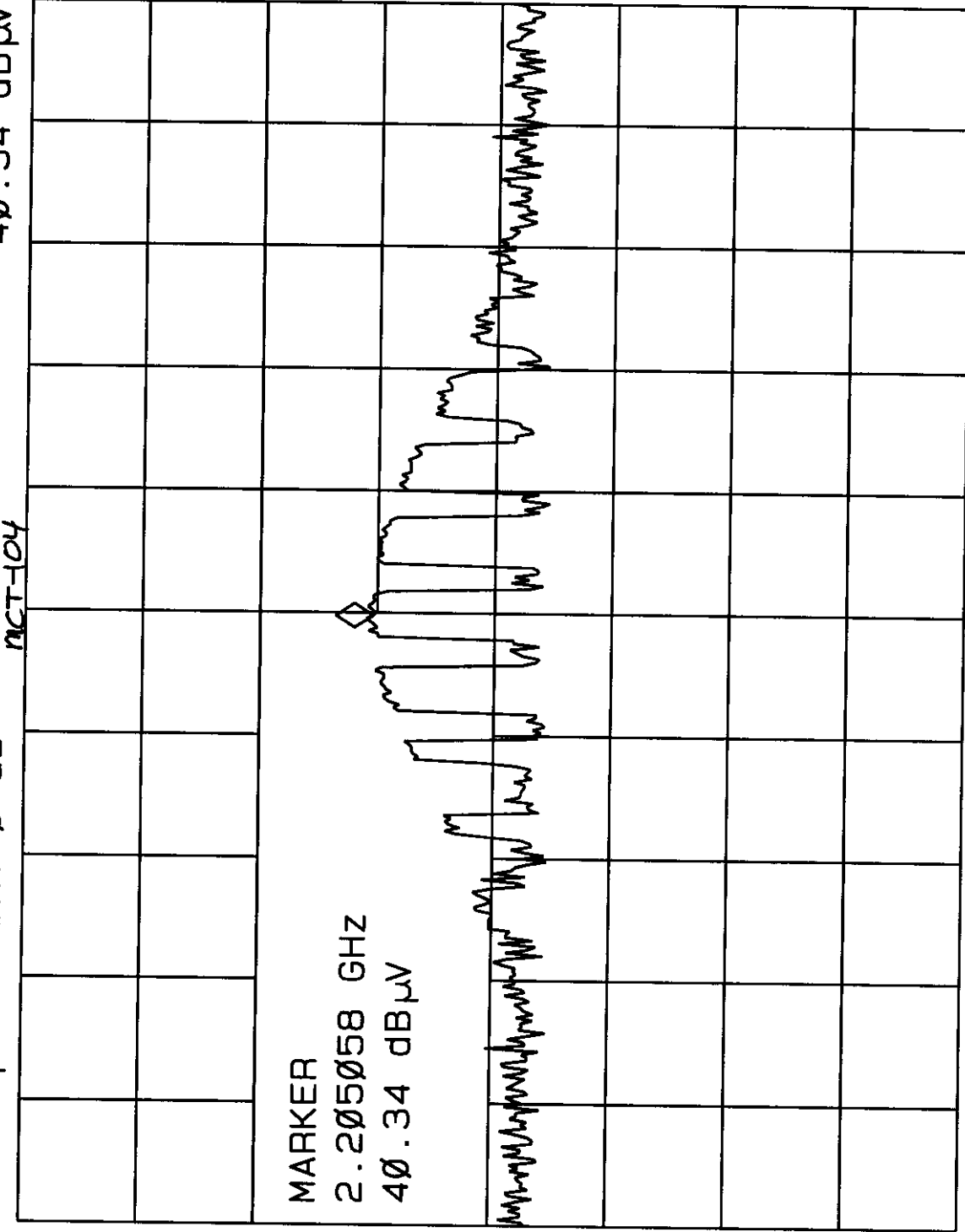
23:55:14 19 NOV 1998

REF 70.0 dBμV #AT 0 dB

MKR 2.205058 GHz
40.34 dBμV

PEAK
LOG
10
dB/

nct-104



MARKER
2.205058 GHz
40.34 dBμV

WA SB
SC FS
CORR

MARKER
→ CF

MARKER
→ REF LVL

MARKER
→ CF STEP

MARKER Δ
→ SPAN

MARKER
→ MINIMUM

More
1 of 2

CENTER 2.205070 GHz
#RES BW 1.0 MHz

SPAN 5.000 MHz
SWP 20.0 msec

#VBW 1 MHz

23: 57: 31 19 NOV 1998

h
REF 70.0 dBμV #AT 0 dB MKR 2.520058 GHz 37.27 dBμV

PEAK
LOG
10
dB/

MARKER
→ CF

MARKER
→REF LVL

MARKER
→CF STEP

MARKER Δ
→SPAN

MARKER
→MINIMUM

More
1 of 2

MARKER
2.520058 GHz
37.27 dBμV

WA SB
SC FS
CORR

CENTER 2.520070 GHz SPAN 5.000 MHz
#RES BW 1.0 MHz #VBW 1 MHz SWP 20.0 msec

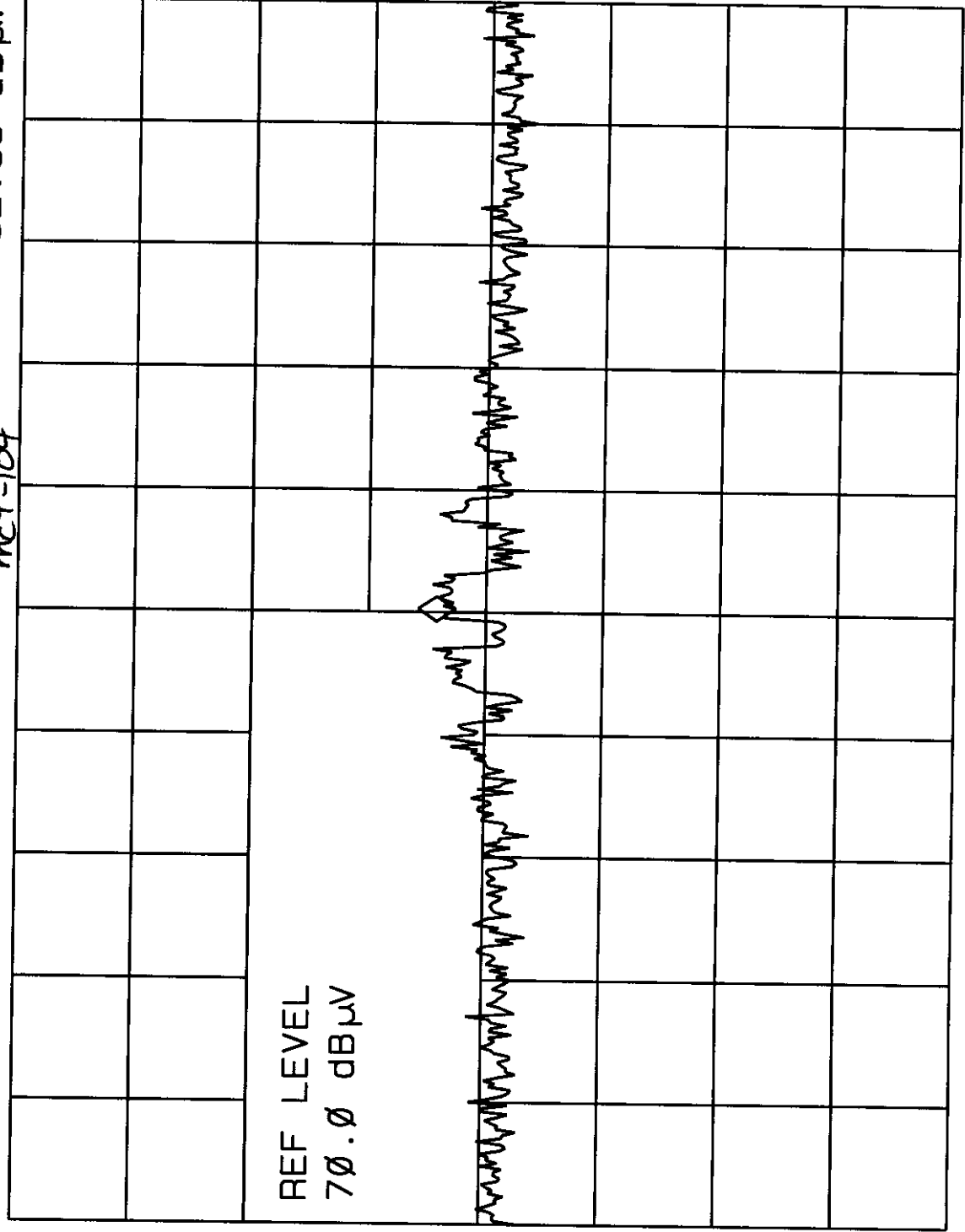
00:00:33 20 NOV 1998

MKR 2.835083 GHz

REF 70.0 dBμV #AT 0 dB

32.59 dBμV

REF LVL



PEAK
LOG
10
dB/

ATTEN
AUTO MAN

SCALE
LOG LIN

PRESEL
PEAK

PRESEL
DEFAULT

More
1 of 2

WA SB
SC FS
CORR

CENTER 2.835070 GHz
#RES BW 1.0 MHz
SPAN 5.000 MHz
SWP 20.0 msec
#VBW 1 MHz

00: 03: 20 20 NOV 1998

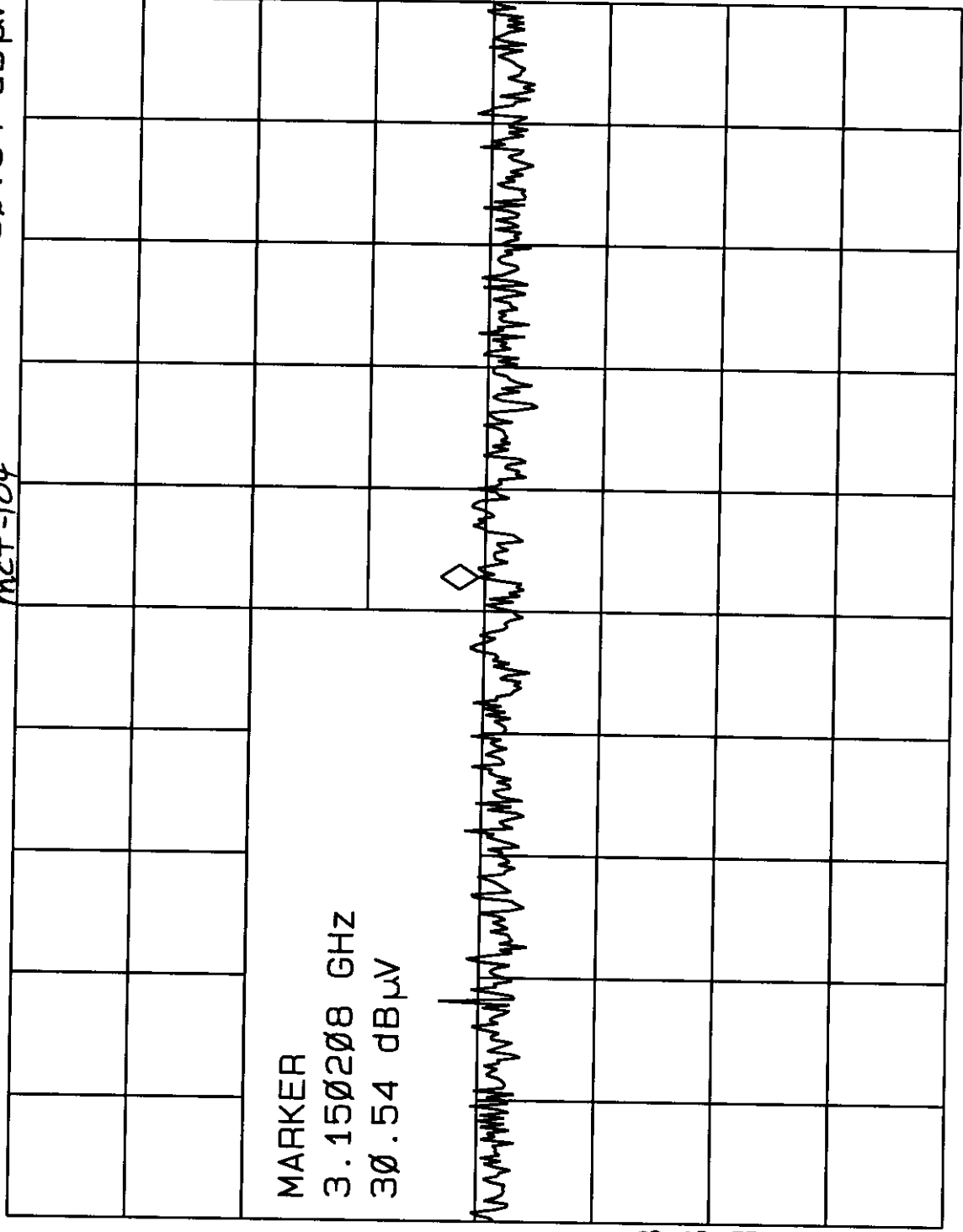
REF 70.0 dBμV

#AT 0 dB

MKR 3.150208 GHz
30.54 dBμV

PEAK
LOG
10
dB/

mcT-104



MARKER
→ CF

MARKER
→REF LVL

MARKER
→CF STEP

MARKER Δ
→SPAN

MARKER
→MINIMUM

More
1 of 2

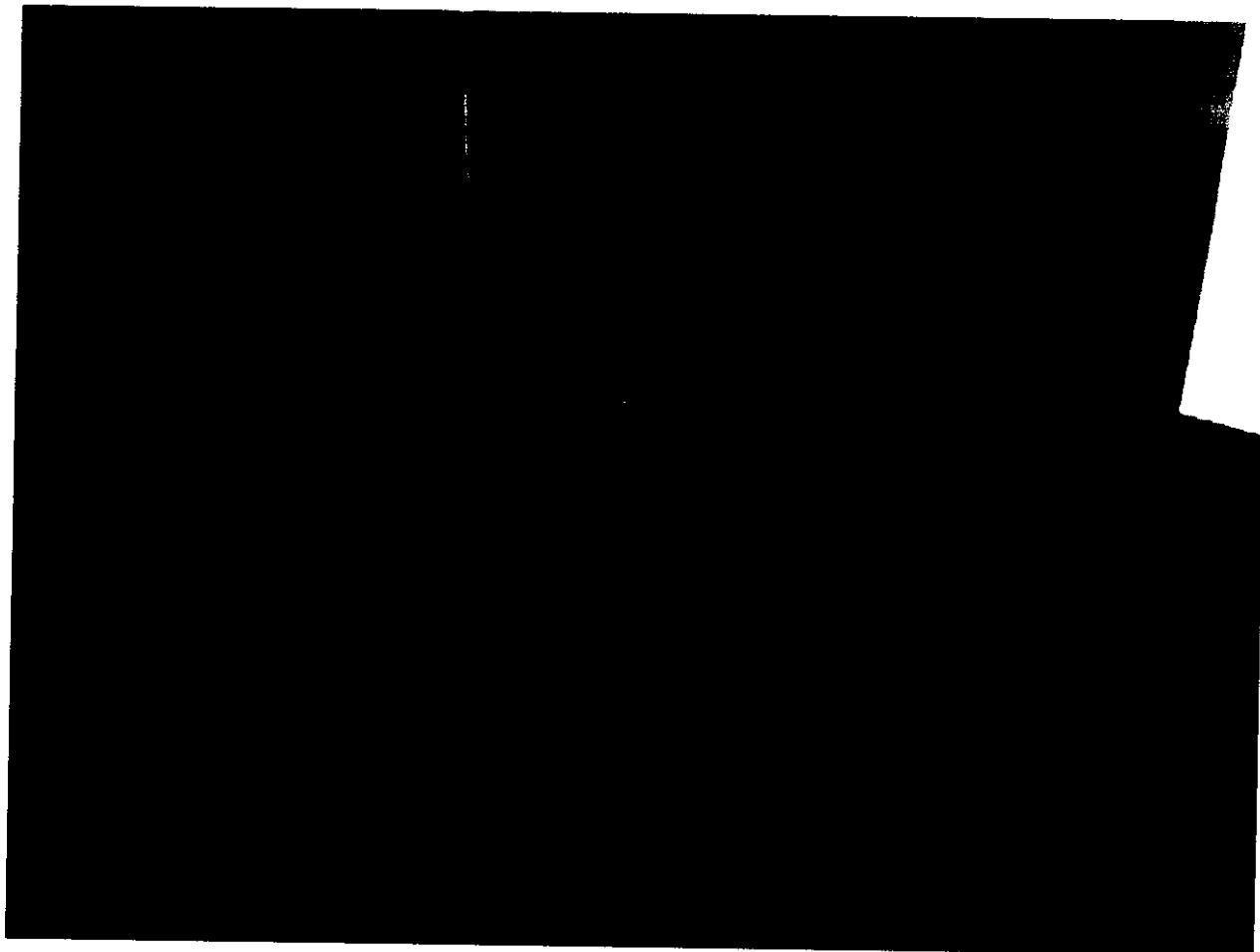
WA SB
SC FS
CORR

CENTER 3.150070 GHz
#RES BW 1.0 MHz

#VBW 1 MHz

SPAN 5.000 MHz
SWP 20.0 msec

Radiated Test Configuration Photographs:



3.3 Occupied Bandwidth Measurements

A plot was obtained with the unit operating with modulation. The bandwidth observed to be less than 363 kHz at the 20dB down points. Allowable bandwidth is 0.25% of 315.0 MHz or 787.5 kHz. The plot is attached.

3.4 Averaging factor derivation based on worst case 100mS period.

Attached is a discussion of the pulse code modulation scheme employed by the device. As can be seen, the worst case 100mS second period results in an averaging factor of 3.478 dB.

22:50:50 19 NOV 1998

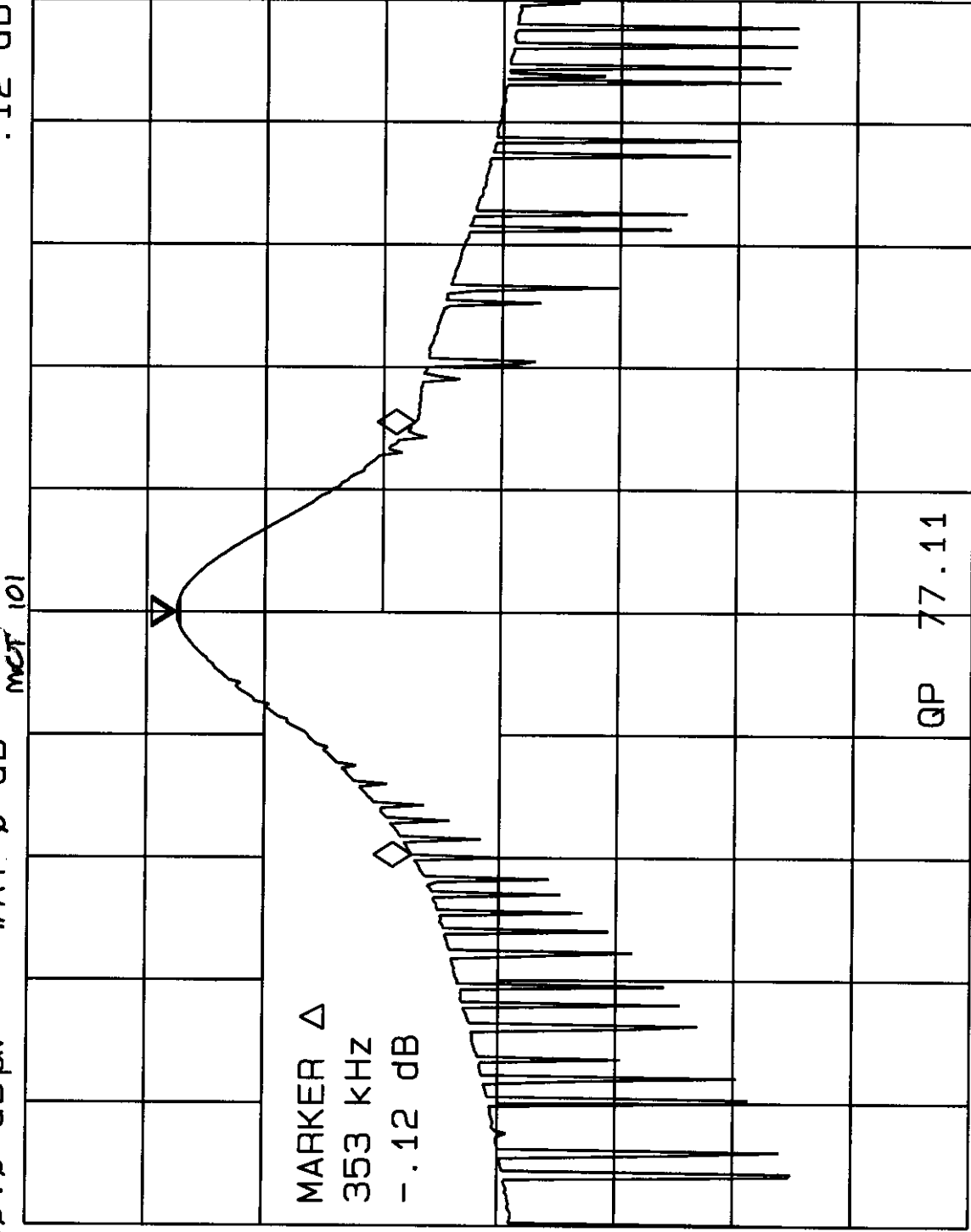
MRK Δ 353 KHZ
- .12 dB

REF 90.0 dB μ V #AT 0 dB

met 101

PEAK
LOG
10
dB/

MARKER Δ
353 KHZ
- .12 dB



MA SB
SC FS
CORR

MARKER
NORMAL

MARKER
 Δ

MARKER
AMPTD

SELECT
1 2 3 4

MARKER 1
ON OFF

More
1 of 2

CENTER 315.020 MHz

#RES BW 120 KHZ

#VBW 300 KHZ

SPAN 1.000 MHz

SWP 20.0 msec

22:15:13 19 NOV 1998

MKR Δ 353 KHZ
- .12 dB

REF 90.0 dBμV #AT 0 dB

MARKER
NORMAL

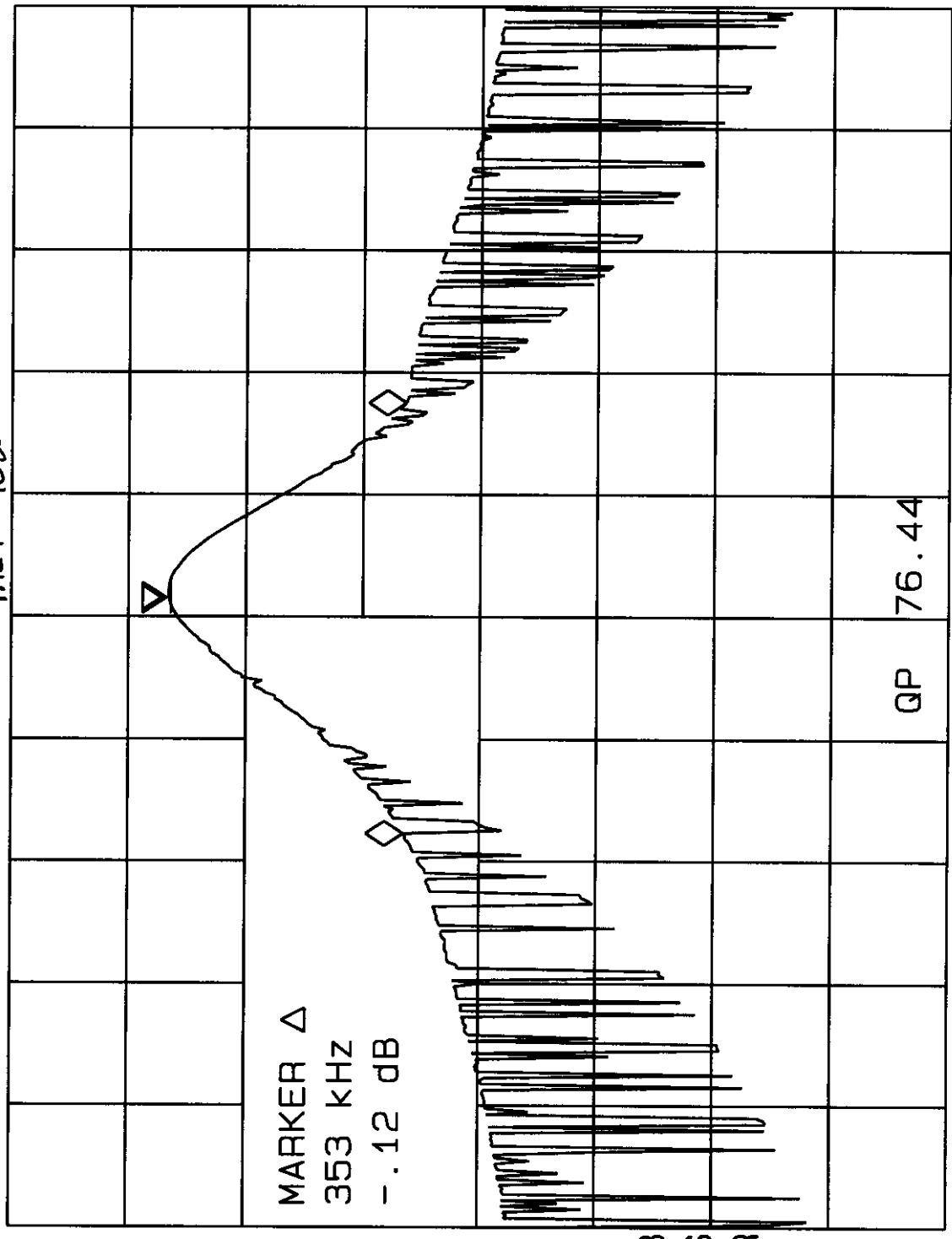
MARKER
Δ

MARKER
AMPTD

SELECT
1 2 3 4

MARKER 1
ON OFF

More
1 of 2



PEAK
LOG
10
dB/

MA SB
SC FS
CORR

QP 76.44

CENTER 315.000 MHZ SPAN 1.000 MHZ
#RES BW 120 KHZ SWP 20.0 msec
#VBW 300 KHZ

19: 12: 01 19 NOV 1998
hp

MR Δ 363 KHz
- .04 dB

REF 90.0 dBμV #AT 0 dB

PEAK
LOG
10
dB/

MARKER
NORMAL

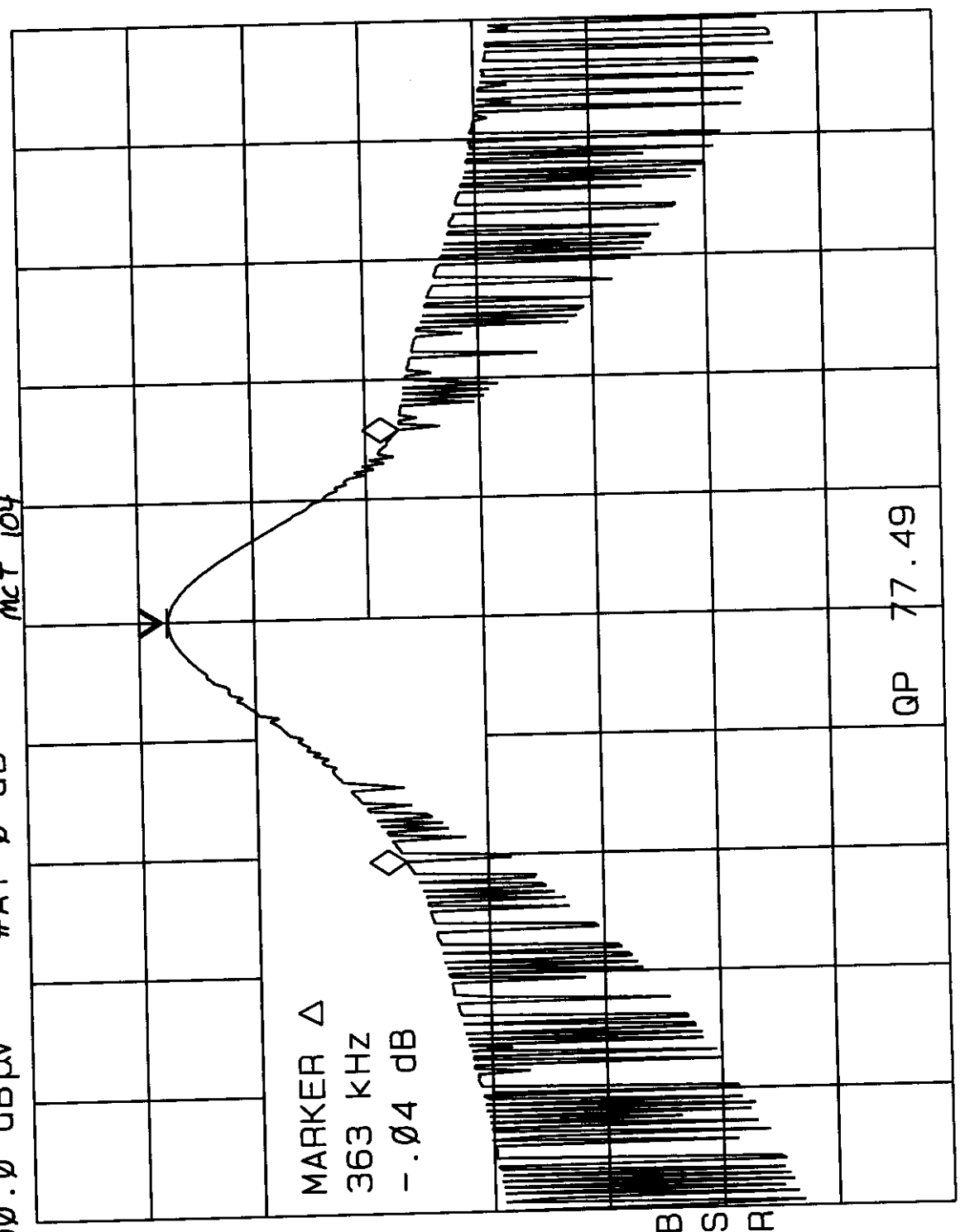
MARKER
Δ

MARKER
AMPTD

SELECT
1 2 3 4

MARKER 1
ON OFF

More
1 of 2



MA SB
SC FS
CORR

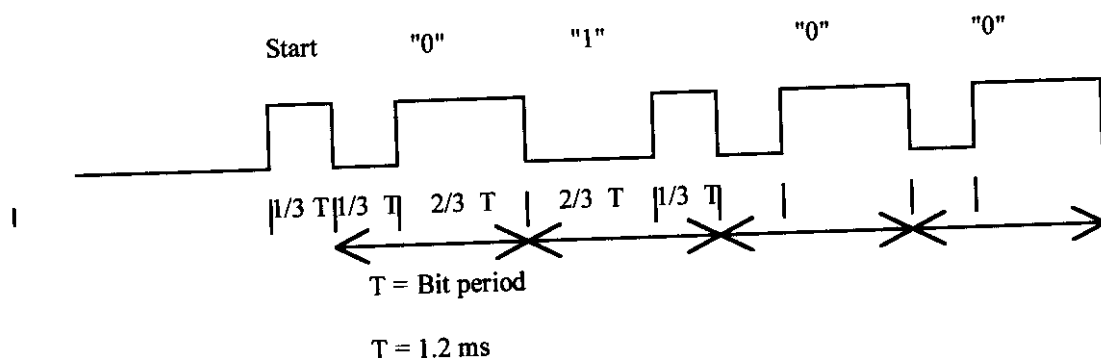
CENTER 315.023 MHz
#RES BW 120 KHz
SPAN 1.000 MHz
SWP 20.0 msec
VBW 300 KHz

VISIONIC LTD.			Doc Type: Product Specifications		Ref.
			Product Name:		
DEV-112	Name	Date	Signature	Doc Rev:	
Created by:	Visonic	zeroth		Doc No:	
Updated:		zeroth		Catalog No:	
Approved:	Nissim.A.			File Name: powerform	Page first of second
Distribution:					Printed: zeroth

MCT-10X Code-Format

General:

The coding uses a return to zero pulse width Manchester code. The transmitters are using key ON-OFF modulation. The following figure shows the start pulse and bit timing.



The message starts with a start pulse after a pause of at least $2T$ ($\geq 2.4 \text{ ms}$). The start pulse is off duration of $1/3 T$ (0.4 ms), followed by the message bits (see figure).

The end of the start pulse is used as time reference for the next bit, and the end of each bit is the reference for the next one.

Bit "0" is starting at $1/3 T$ from the end of the previous bit. Bit "1" will start transmission at $2/3 T$ from the end of the previous bit. The transmission stops always at the end of the bit period.

The message format

A message is defined as a start pulse that is coming after a pause always with a start pulse after a pause of at least $2T$ followed by 36 bits of data. Each bit of the message represents a special information.

All transmitters will initiate a message transmission when an ALARM condition is detected.

The messages will be transmitted in 3 message blocks separated randomly by a time that is generated using the ID Code as a seed. This is done to prevent the possibility of 2 transmitters to coincide in time at all 3 blocks and interfering each other.

Each message block is composed of a burst of 6 identical messages, separated by 4 ms from each other

- see figure below

VISIONIC LTD.		Doc Type: Product Specifications		
		Product Name:		
Doc Rev: 0	Doc No	Printed: zeroth	Last Ref.:	Page second of second

285ms A block time

