

Tottori Sanyo Electric Co., Ltd., Cellular Phone
FCC ID: NRNDMC200

Date of Test: May 27 & 28, 1999 & July 7, 1999

6.0 Emission Limitations, Occupied Bandwidth, FCC § 22.917(b)(d), FCC § 2.989(b)(1)

For F3E/F3D emission mask uses with audio filter, the mean power of emissions must be attenuated below the mean power of the unmodulated carrier wave (P) as follows:

- (1) On any frequency removed from the carrier frequency by more than 20 kHz but not more than 45 kHz: at least 26 dB;
- (2) On any frequency removed from the carrier frequency by more than 45 kHz, up to the first multiple of the carrier frequency: at least 60 dB or $43 + 10 \log P$ dB, whichever is the lesser attenuation.

For F1D emission mask, the mean power of emissions must be attenuated below the mean power of the unmodulated carrier (P) as follows:

- (1) On any frequency removed from the carrier frequency by more than 20 kHz but no more than 45 kHz: at least 26 dB;
- (2) On any frequency removed from the carrier frequency by more than 45 kHz but not more than 90 kHz: at least 45 dB;
- (2) On any frequency removed from the carrier frequency by more than 90 kHz, up to the first multiple of the carrier frequency: at least 60 dB or $43 + 10 \log P$ dB, whichever is the lesser attenuation.

6.1 Test Procedure

The RF output of the transceiver was connected to the input of the spectrum analyzer through sufficient attenuation. The audio generator was connected to the audio input of the transceiver.

The spectrum with no modulation was recorded. The audio input signal was adjusted to obtain the frequencies deviation equal 6 kHz at the audio frequency of maximum response which was determined measuring deviation versus frequency from 300 Hz to 3.5 kHz and was found 2.8 kHz. The audio input level was increased by 16 dB. The audio frequency was set to the frequency 2.5 kHz.

The resolution bandwidth of the spectrum analyzer was set at 300 Hz and the spectrum was recorded in the frequency band ± 50 kHz and ± 100 kHz from the carrier frequency. The same plots has been done for wideband emissions, SAT, ST, DTMF9, Voice, some of the combinations of these modulating signals and in NAMPS mode.

Note: Some of the plots were only done in the frequency band of ± 50 kHz since it was clear from these plots, that the levels of emissions were well below the limits.

Tottori Sanyo Electric Co., Ltd., Cellular Phone
FCC ID: NRNDMC200

Date of Test: May 27 & 28, 1999 & July 7, 1999

6.2 Test Equipment

HP 8566B Spectrum Analyzer
Leader LFG-1300S Function Generator
Leader LMV-182 AC Millivoltmeter
Marconi 2955A Radio Communication Test Set
HP 7470A Plotter

6.3 Test Results

Passes

Refer to the attached plots.

Occupied Bandwidth - AMPS	
Plot Number	Description
6.3.a	Carrier frequency, no modulation
6.3.b	Wideband emission (8 kHz deviation) scan 100 kHz
6.3.c	Wideband emission (8 kHz deviation) scan 200 kHz
6.3.d	DTMF "9"
6.3.e	SAT (6 kHz, 2 kHz deviation)
6.3.f	ST (10 kHz, 8 kHz deviation) scan 100 kHz, RBW = 30 Hz
6.3.g	ST (10 kHz, 8 kHz deviation) scan 100 kHz, RBW = 100 Hz
6.3.h	SAT & ST (6 kHz, 10 kHz deviation) scan 100 kHz
6.3.i	SAT & ST (6 kHz, 10 kHz deviation) scan 200 kHz
6.3.j	DTMF & SAT, scan 100 kHz
6.3.k	Voice (2.5 kHz) scan 100 kHz
6.3.l	Voice (2.5 kHz) scan 100 kHz
6.3.m	Voice (2.5 kHz) & SAT (6 kHz) scan 100 kHz
6.3.n	Voice (2.5 kHz) & SAT (6 kHz) scan 200 kHz
6.3.o	Voice (2.5 kHz) & SAT (6 kHz) scan 100 kHz, low power
6.3.p-6.3.r	CDMA mode, 6 dB bandwidth

6.1.1

HP

REF 26.4 dBm

ATTEN 60 dB

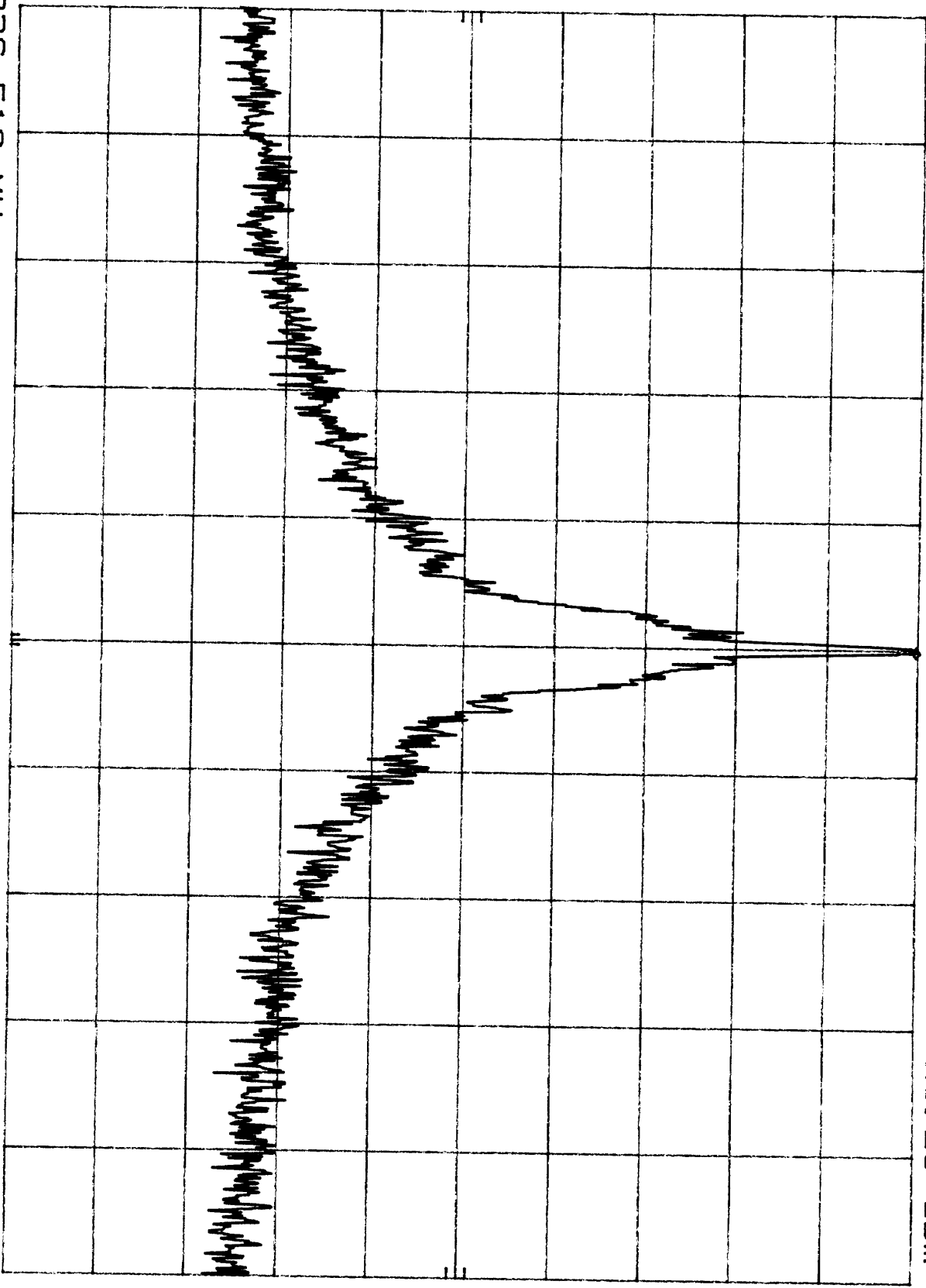
MKR 836.520 0 MHz
26.20 dBm

10 dB/

OFFSET

6.5

dB



CENTER 836.519 MHz

RES BW 300

Hz

VBW 300

Hz

SPAN 100 kHz
SWP 3.00 sec

70

REF 26.4 dBm

ATTEN 60 dB

MKR 836.520 0 MHz
26.20 dBm

10 dB/

OFFSET

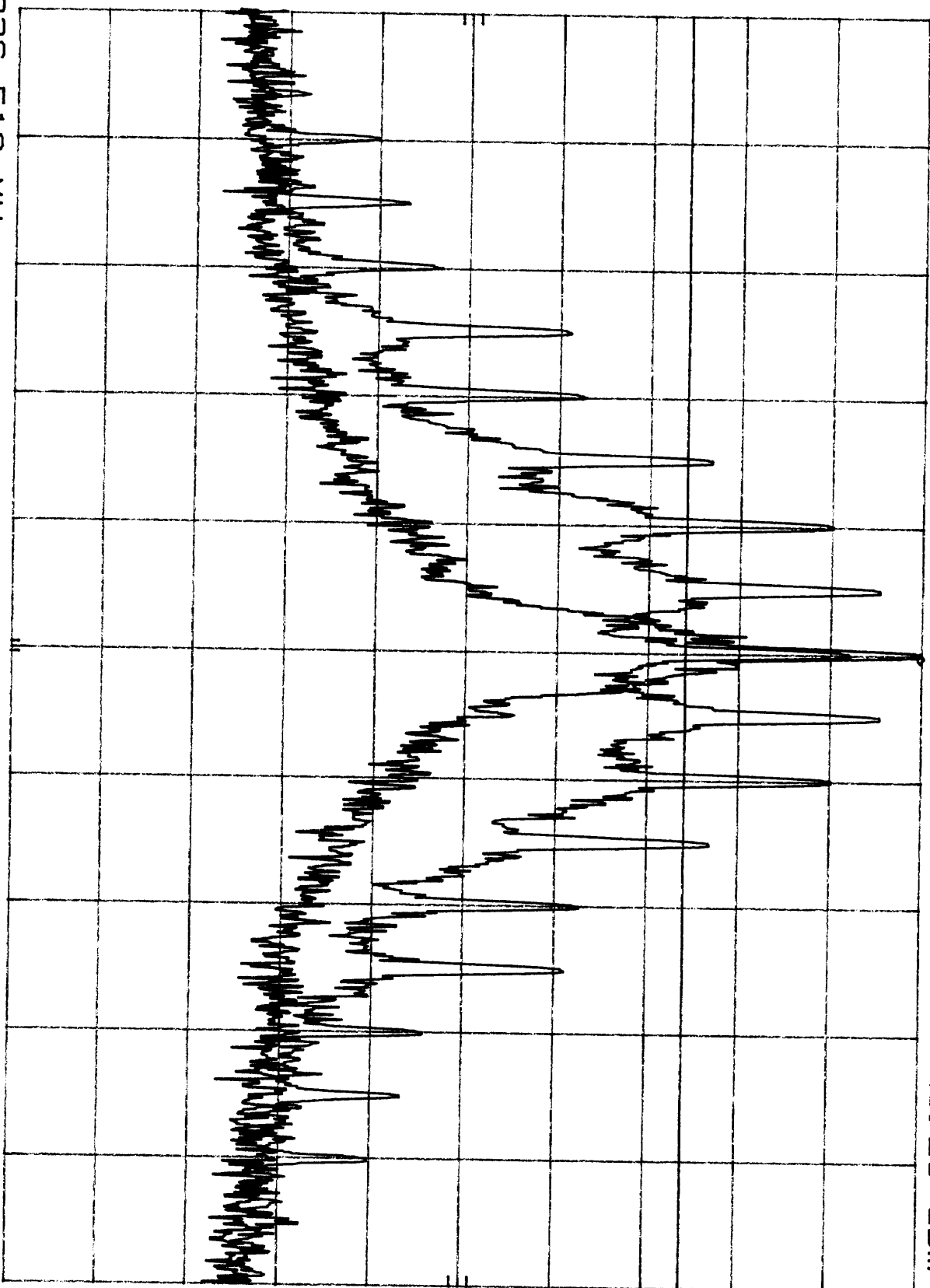
6.5

dB

DL

0.4

dBm



CENTER 836.519 MHz

RES BW 300

Hz

VBW 300

Hz

SPAN 100 kHz
SWP 3.00 sec

6.1.1

HP

REF 26.4 dBm

ATTEN 60 dB

MKR 836.520 1 MHz
18.10 dBm

10 dB/

OFFSET

6.5

dB

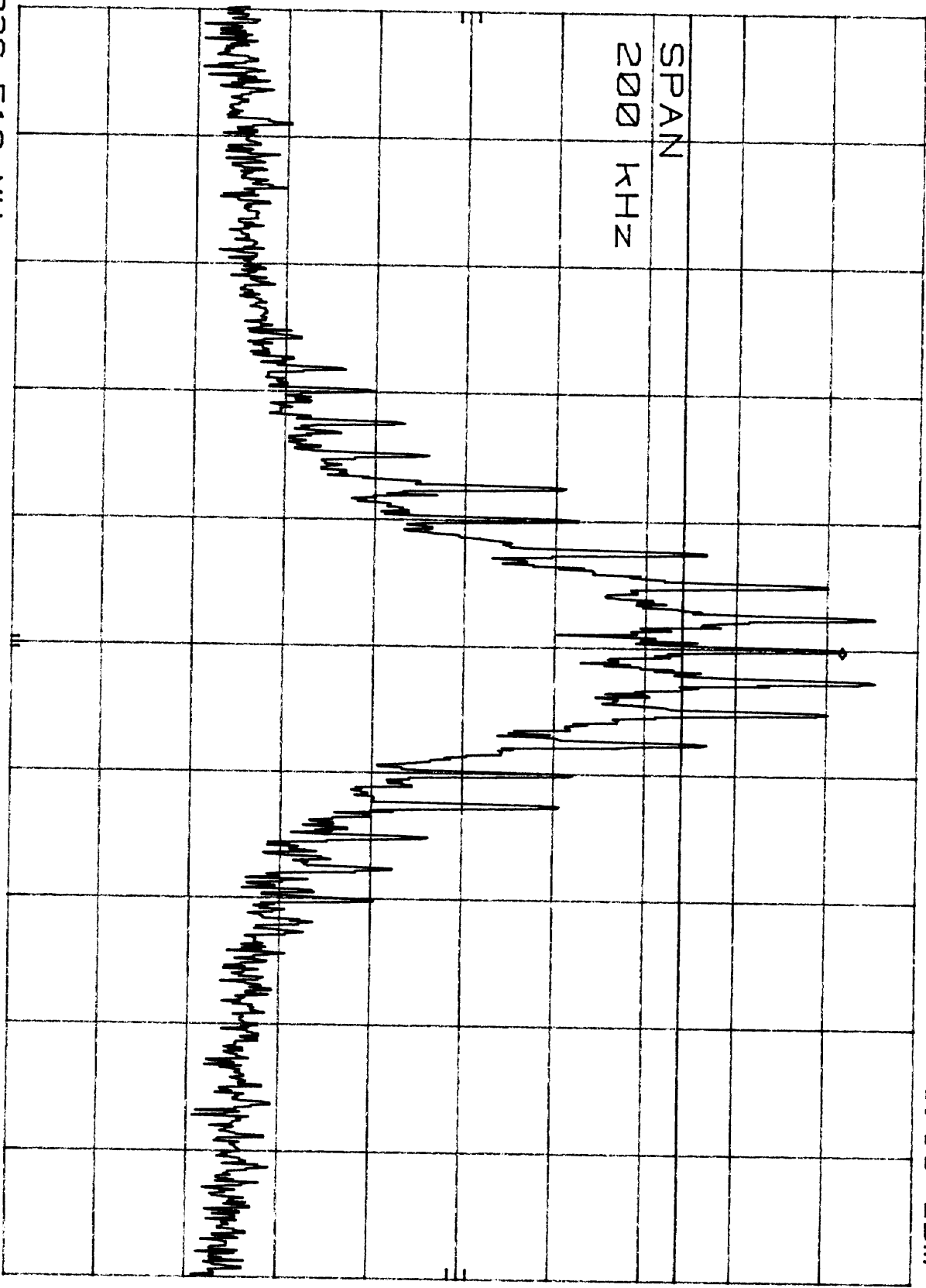
DL

0.4

dBm

SPAN

200 KHz



CENTER 836.519 MHz

RES BW 300

Hz

VBW 300

Hz

SPAN 200 KHz
SWP 6.00 sec

HP

REF 26.4 dBm

ATTEN 60 dB

10 dB/

OFFSET

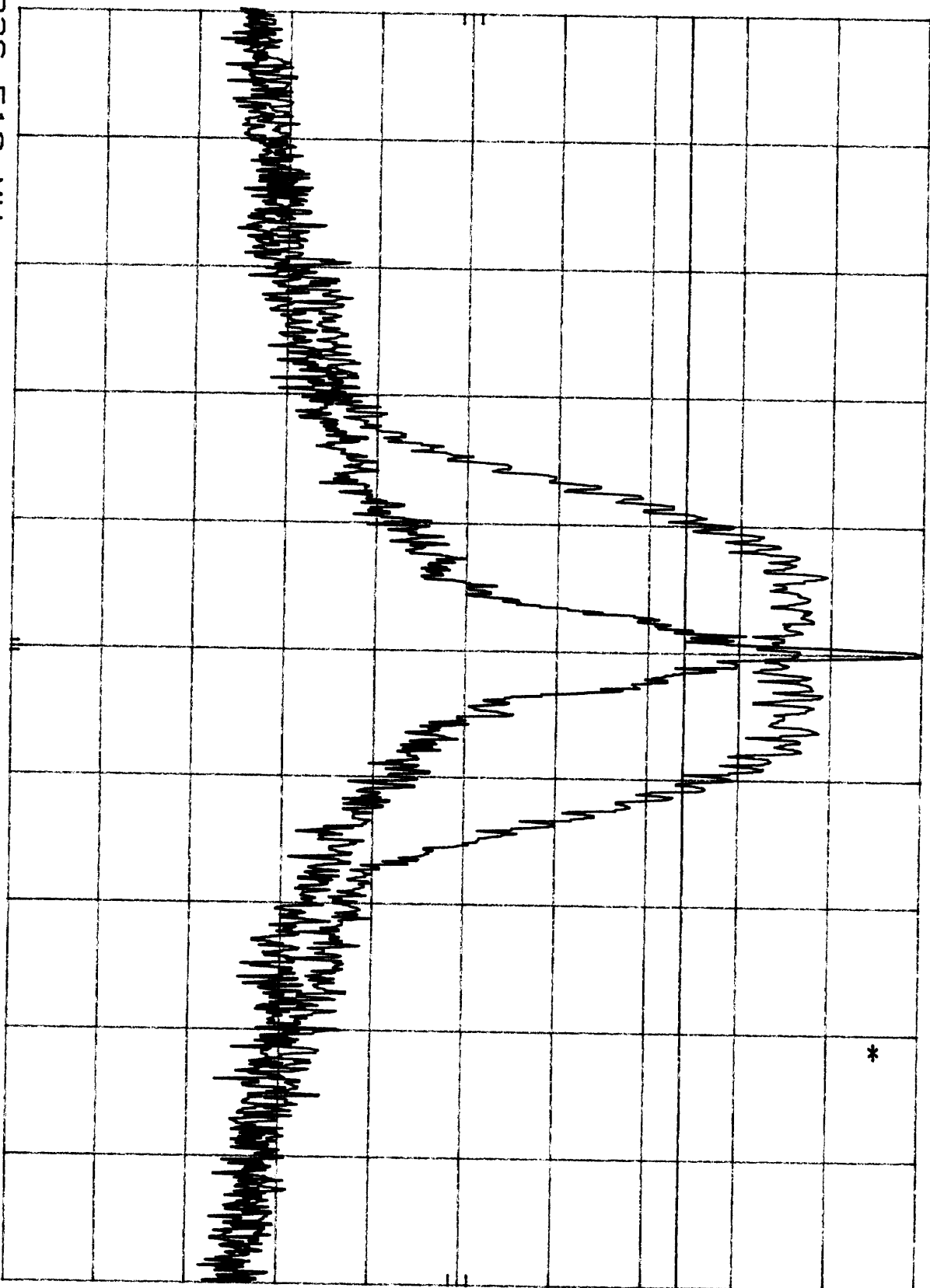
6.5

dB

DL

0.4

dBm



CENTER 836.519 MHz

RES BW 300

Hz

VBW 300 Hz

SPAN 100 kHz
SWP 3.00 sec

5, 2, 2, 2

HP

REF 26.4 dBm

ATTEN 60 dB

10 dB/

OFFSET

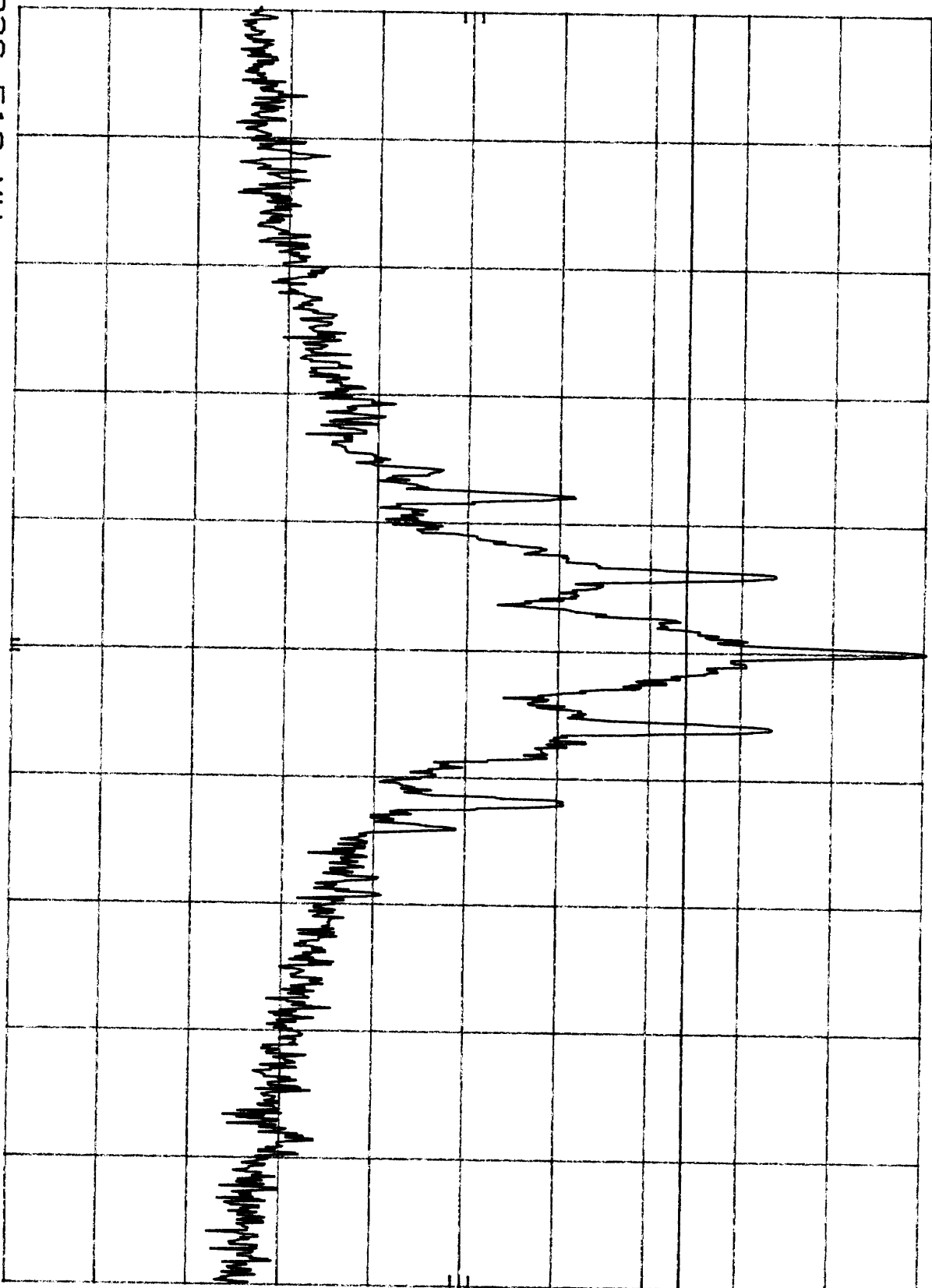
6.5

dB

DL

0.4

dBm



CENTER 836.519 MHz

RES BW 300

Hz

VBW 300

Hz

SPAN 100 kHz
SWP 3.00 sec

8.1.2

HP

REF 26.4 dBm

ATTEN 60 dB

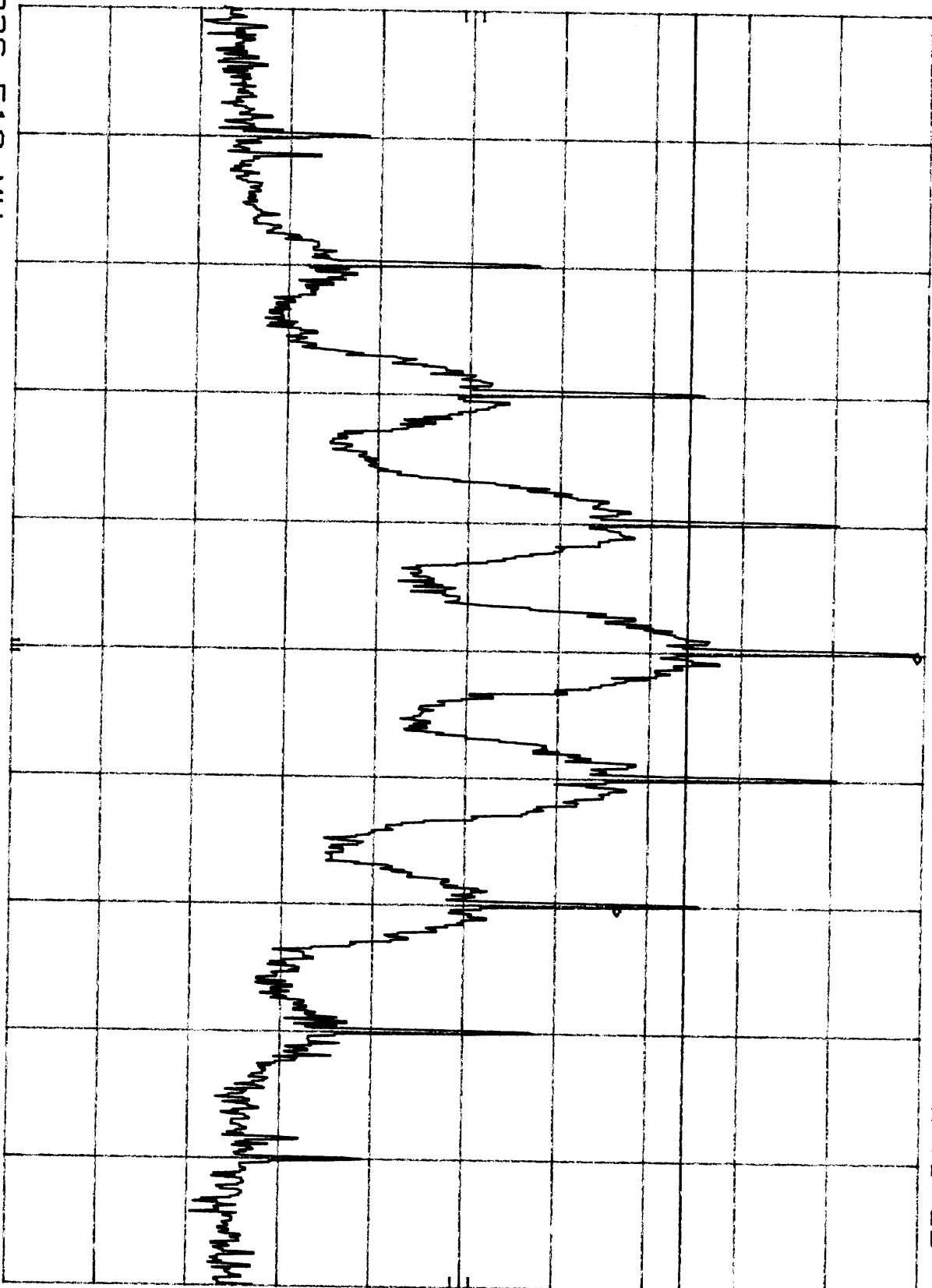
MKR Δ 20.1 kHz
-32.50 dB

10 dB/

OFFSET
6.5

dB

DL
0.4
dBm



CENTER 836.519 MHz

RES BW 100 Hz

VBW 300 Hz

SPAN 100 kHz
SWP 30.0 sec

5.7

HP

REF 26.4 dBm

ATTEN 60 dB

MKR Δ -20.2 kHz
-25.40 dB

10 dB/

OFFSET

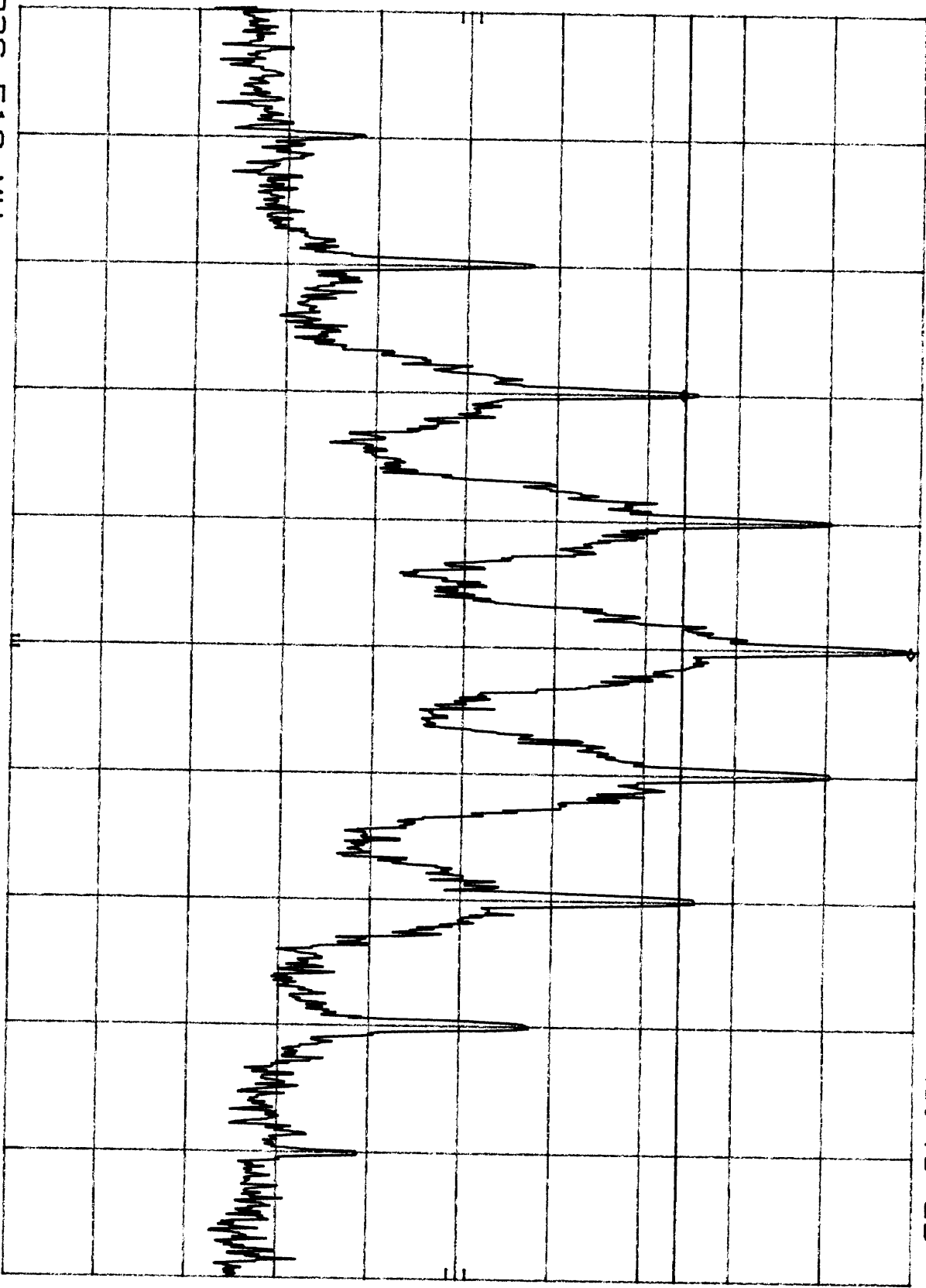
6.5

dB

DL

0.4

dBm



CENTER 836.519 MHz

RES BW 300

Hz

VBW 300

Hz

SPAN 100 kHz
SWP 3.00 sec

7p

REF 26.4 dBm

ATTEN 60 dB

MKR Δ -20.2 kHz
-25.50 dB

10 dB/

OFFSET

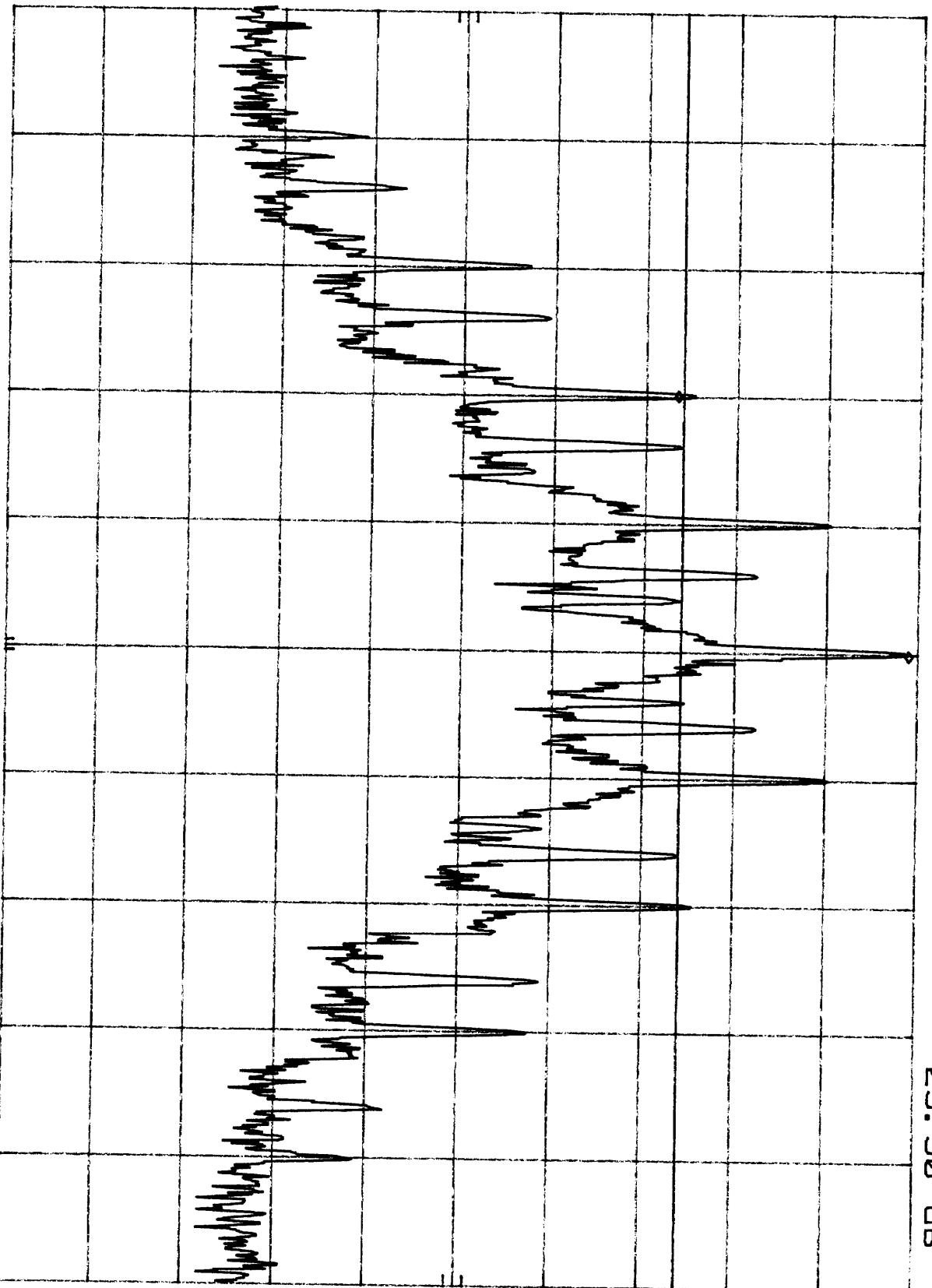
6.5

dB

DL

0.4

dBm



CENTER 836.519 MHz

RES BW 300

Hz

VBW 300

Hz

SPAN 100 kHz
SWP 3.00 sec

h_p

REF 26.4 dBm

ATTEN 60 dB

10 dB/

OFFSET

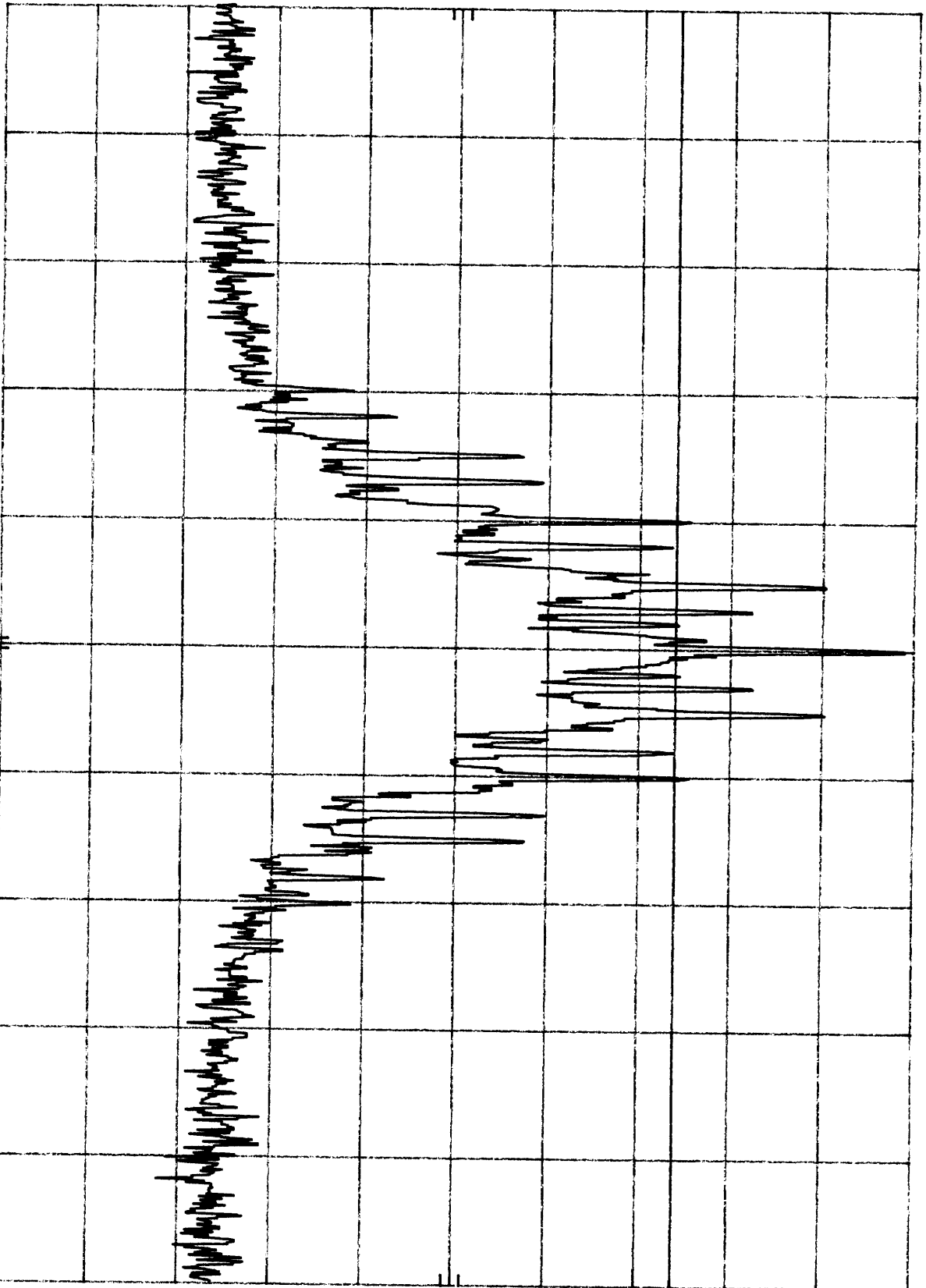
6.5

dB

DL

0.4

dBm



CENTER 836.519 MHz

RES BW 300 Hz

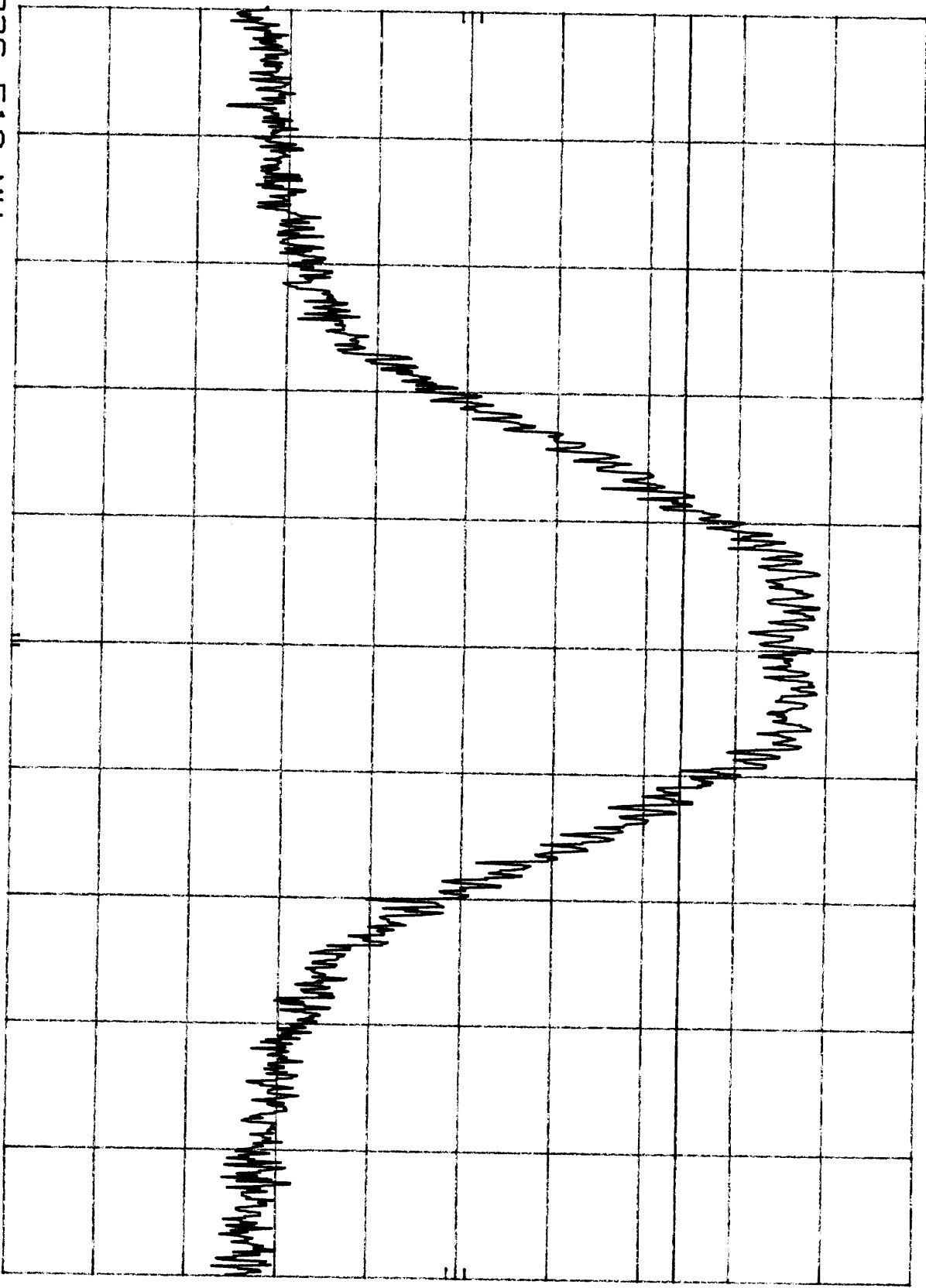
VBW 300 Hz

SPAN 200 kHz
SWP 6.00 sec

HP REF 26.4 dBm ATTEN 60 dB
10 dB/

OFFSET
6.5
dB

DL
0.4
dBm



CENTER 836.519 MHz
RES BW 300 Hz
VBW 300 Hz
SPAN 100 kHz
SWP 3.00 sec

h_p

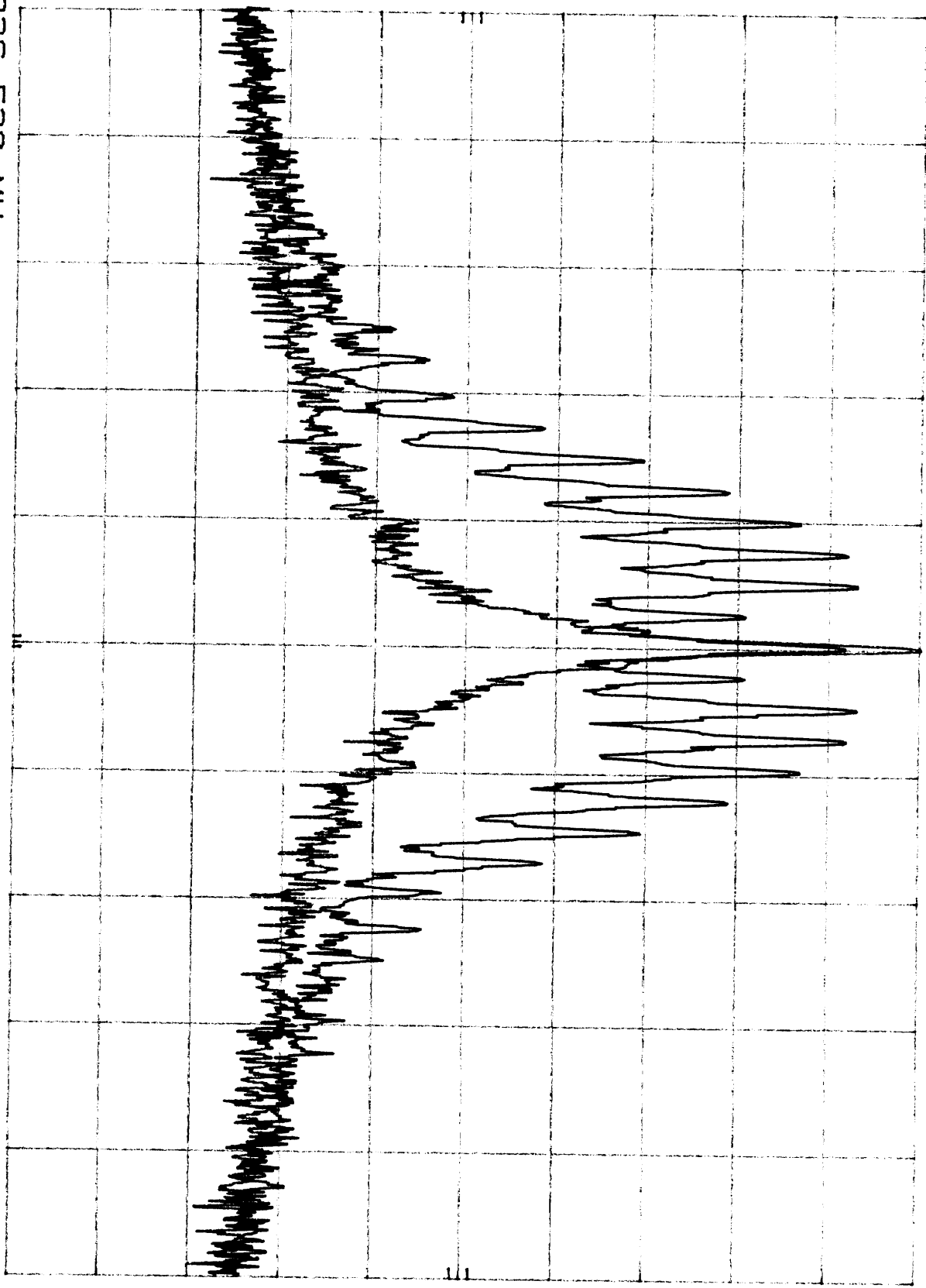
REF 26.5 dBm ATTEN 30 dB

10 dB/

OFFSET

10.0
dB

CORR'D



CENTER 836.520 MHz

RES BW 300 Hz

Hz

VBW 300 Hz

Hz

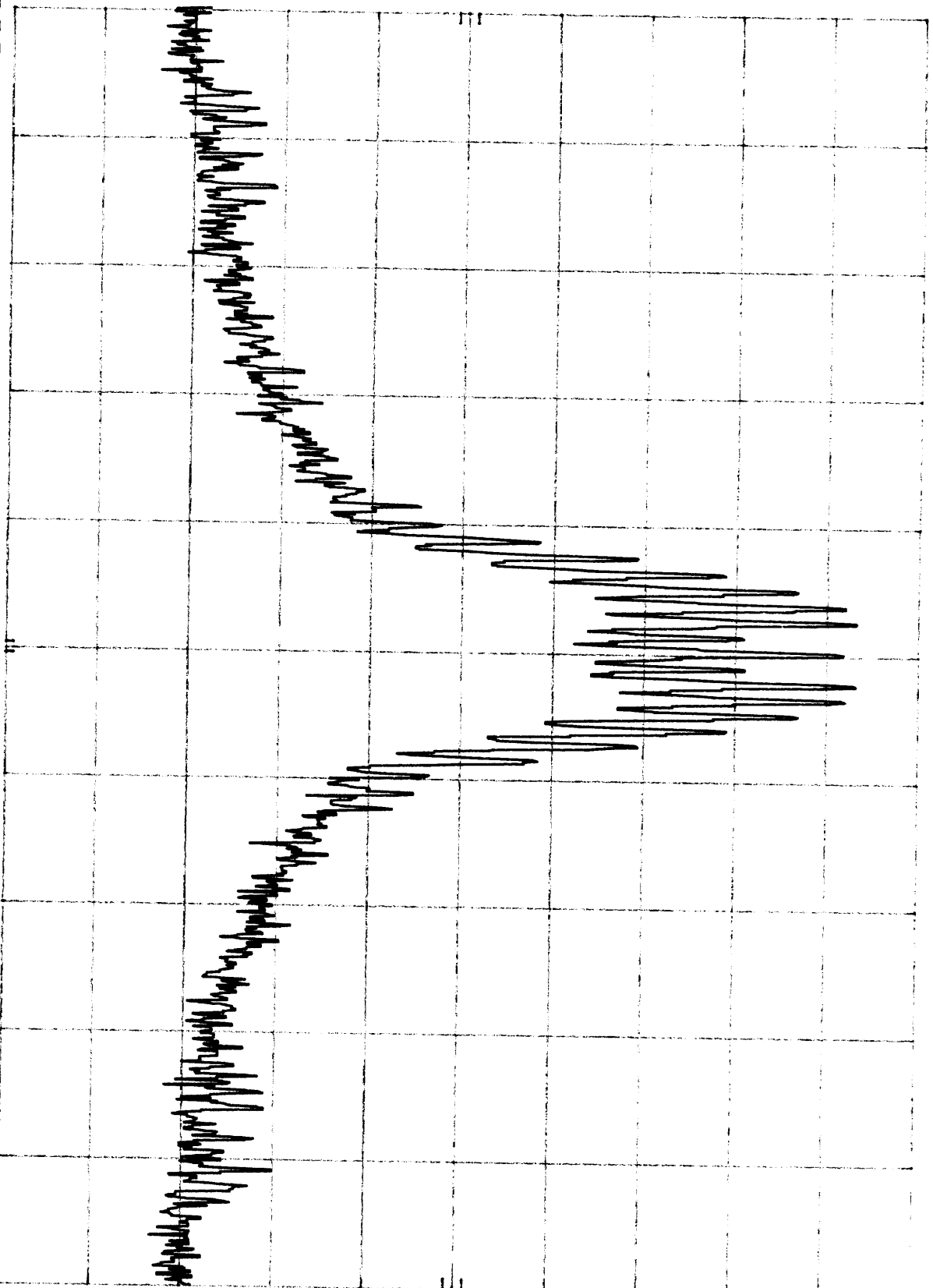
SPAN 100 kHz
SWP 3.00 sec

HP REF 26.5 dBm ATTEN 30 dB

10 dB/

OFFSET
10.0
dB

CORR'D



CENTER 836.520 MHz
RES BW 300 Hz
VBW 300 Hz
SPAN 200 kHz
SWP 6.00 sec

100000

HP

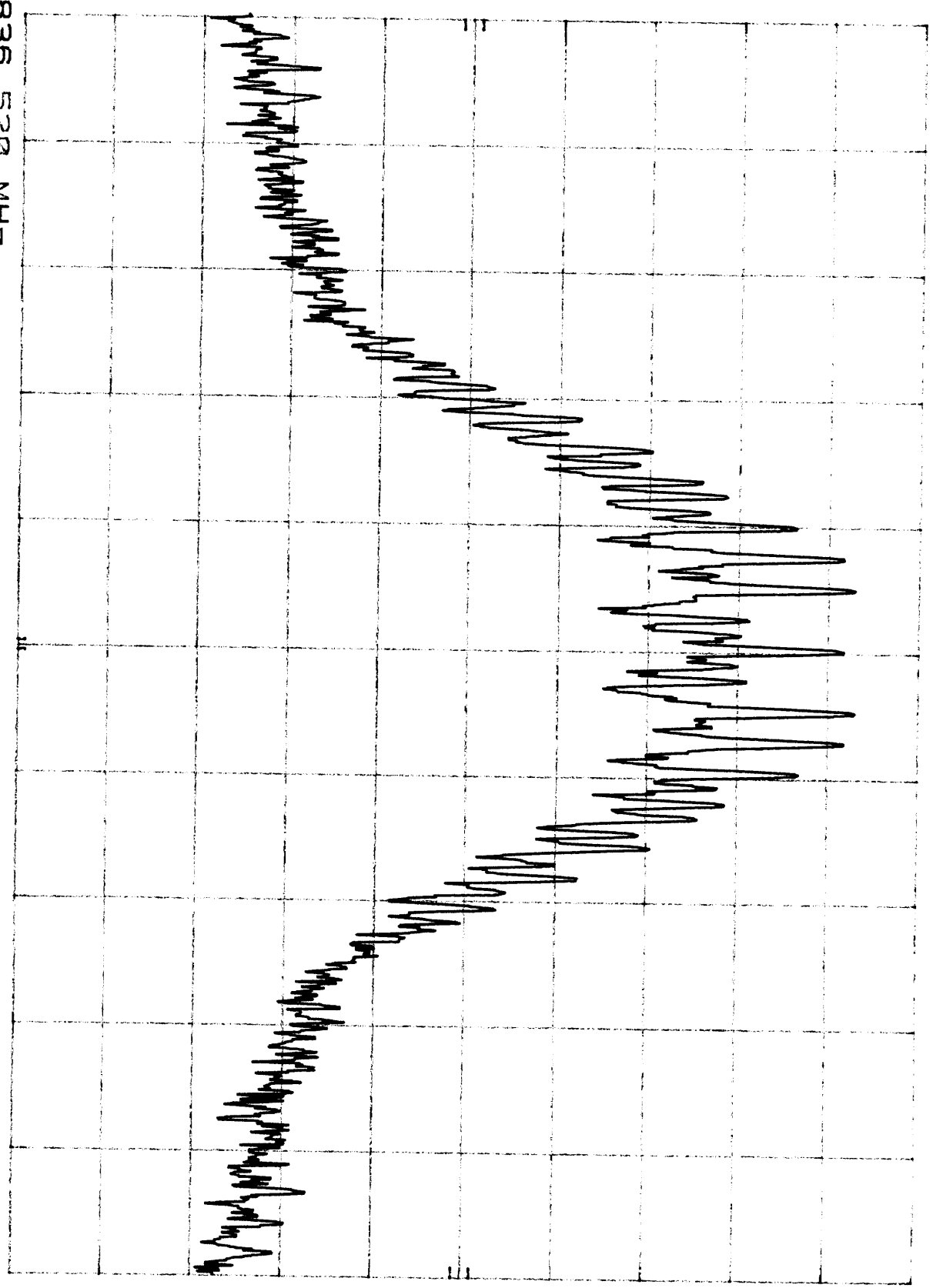
REF 26.5 dBm

ATTEN 30 dB

10 dB/

OFFSET
10.0
dB

CORR'D



CENTER 836.520 MHz

RES BW 300 Hz

Hz

VBW 300 Hz

Hz

SPAN 100 kHz
SWP 3.00 sec

HP

REF 26.5 dBm

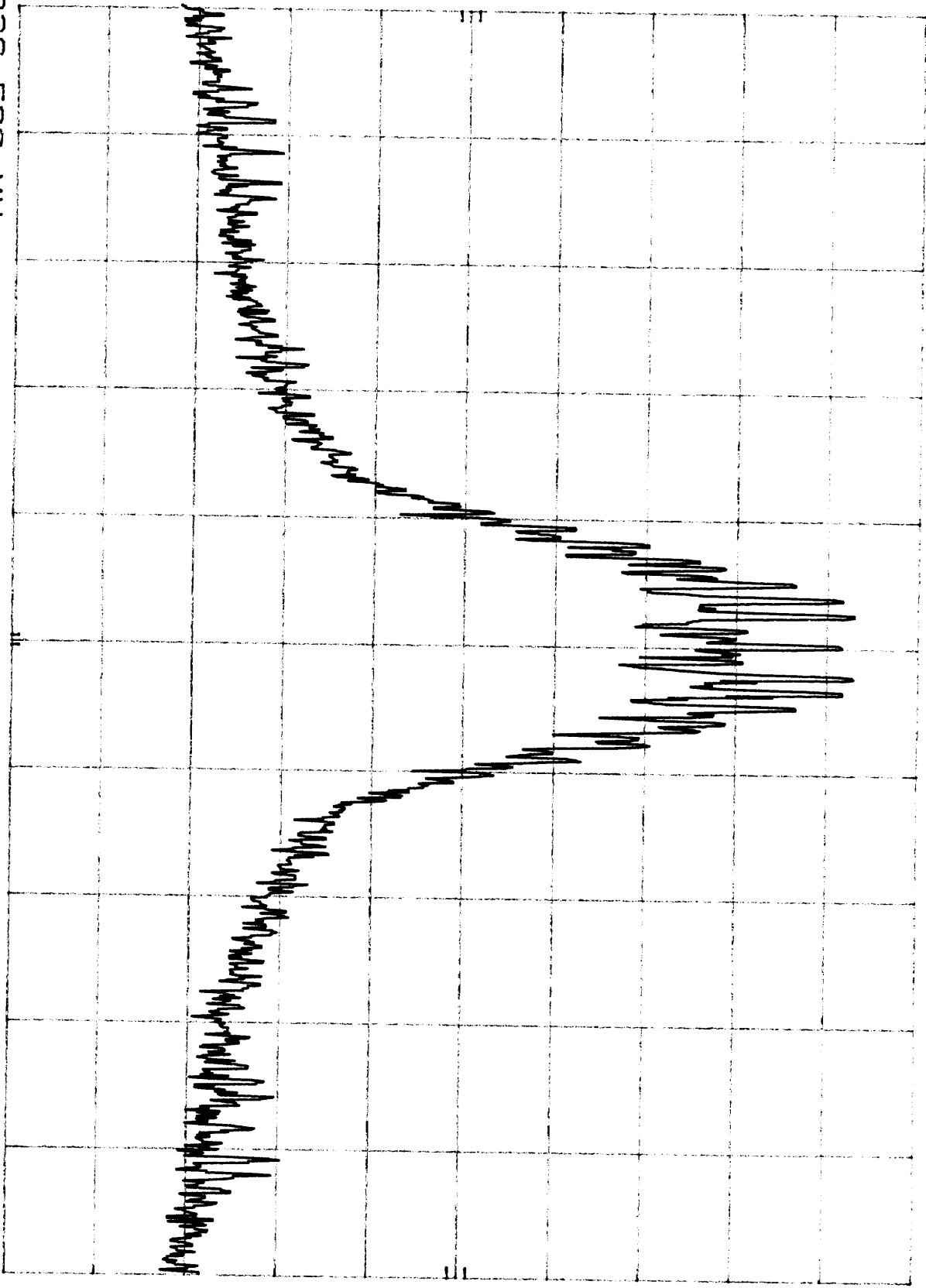
ATTEN 30 dB

10 dB/

OFFSET

10.0
dB

CORR'D



CENTER 836.520 MHz

RES BW 300

Hz

VBW 300

Hz

SPAN 200 kHz
SWP 6.00 sec

hpd

REF 16.5 dBm

ATTEN 20 dB

MKR 836.520 0 MHz
8.20 dBm

10 dB/

OFFSET
10.0

dB

CORR'D

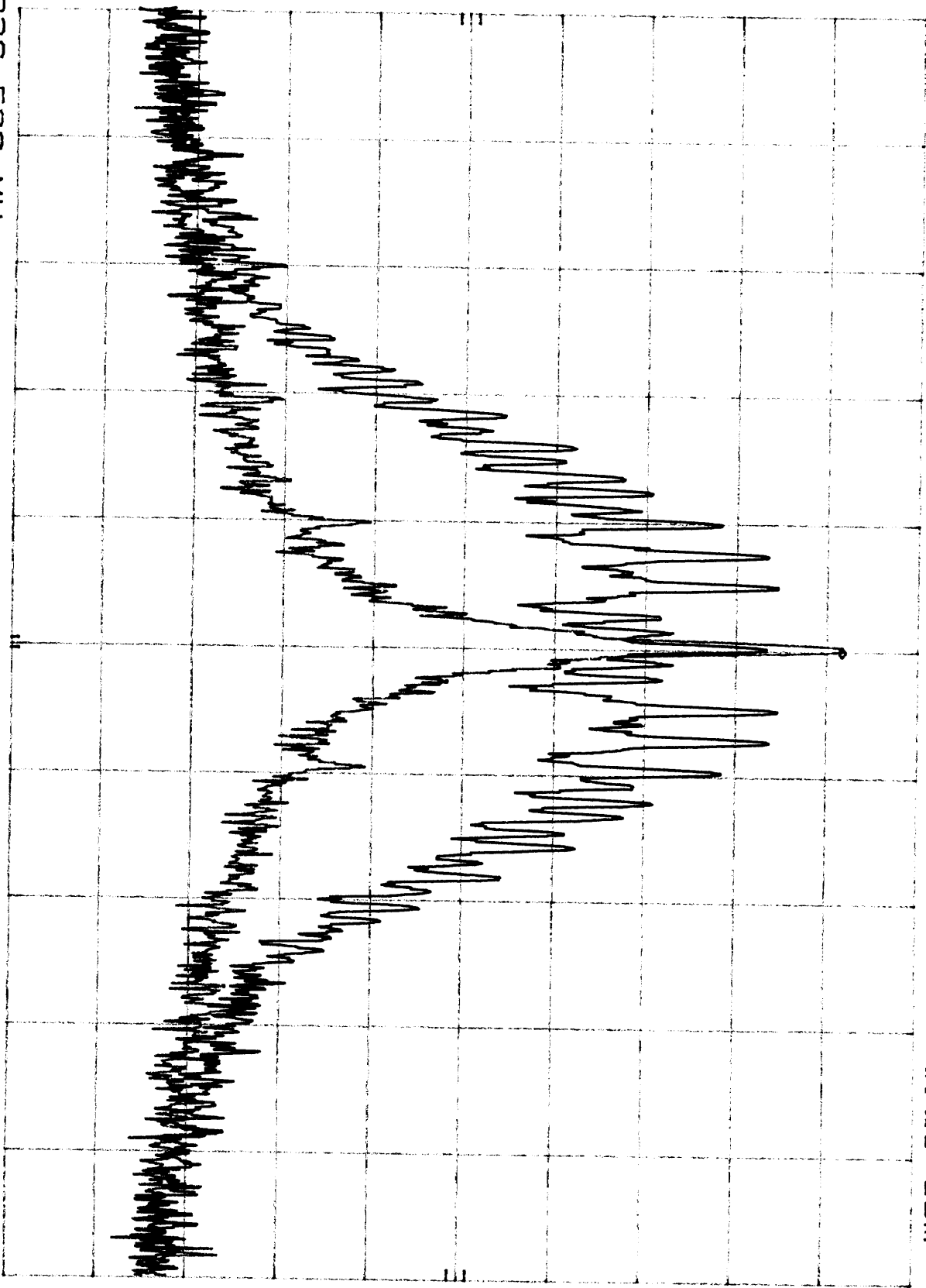
CENTER 836.520 MHz

RES BW 300

Hz

VBW 300 Hz

SPAN 100 kHz
SWP 3.00 sec



HP

REF 26.5 dBm

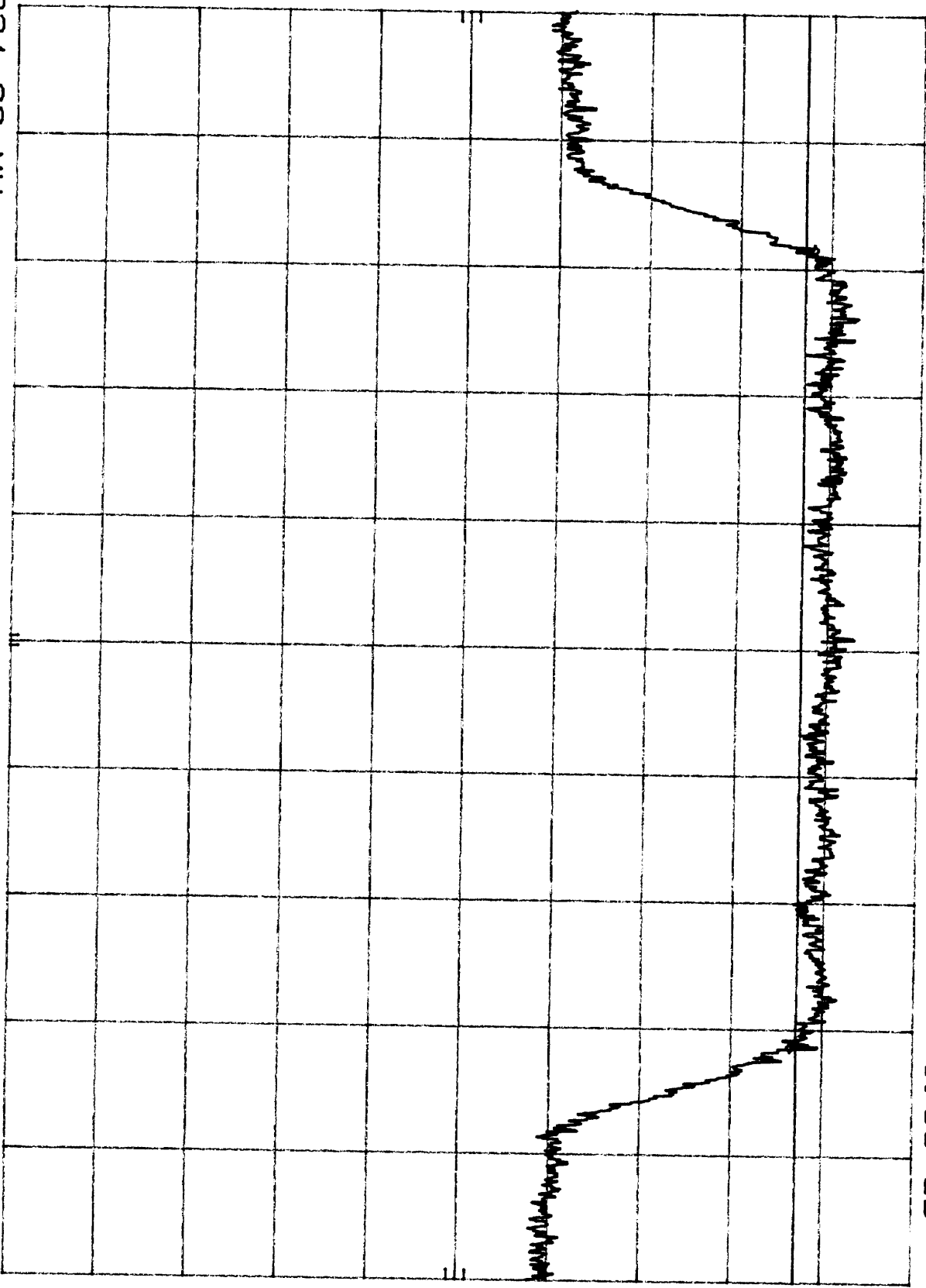
ATTEN 60 dB

MKR Δ 1.257 MHz
-1.60 dB

10 dB/

OFFSET
6.5
dB

DL
13.6
dBm



CENTER 824.69 MHz
RES BW 30 kHz

VBW 30 kHz

SPAN 2.00 MHz
SWP 20.0 msec

h_p

REF 26.5 dBm

ATTEN 60 dB

MKR Δ 1.260 MHz

-0.80 dB

10 dB/

OFFSET

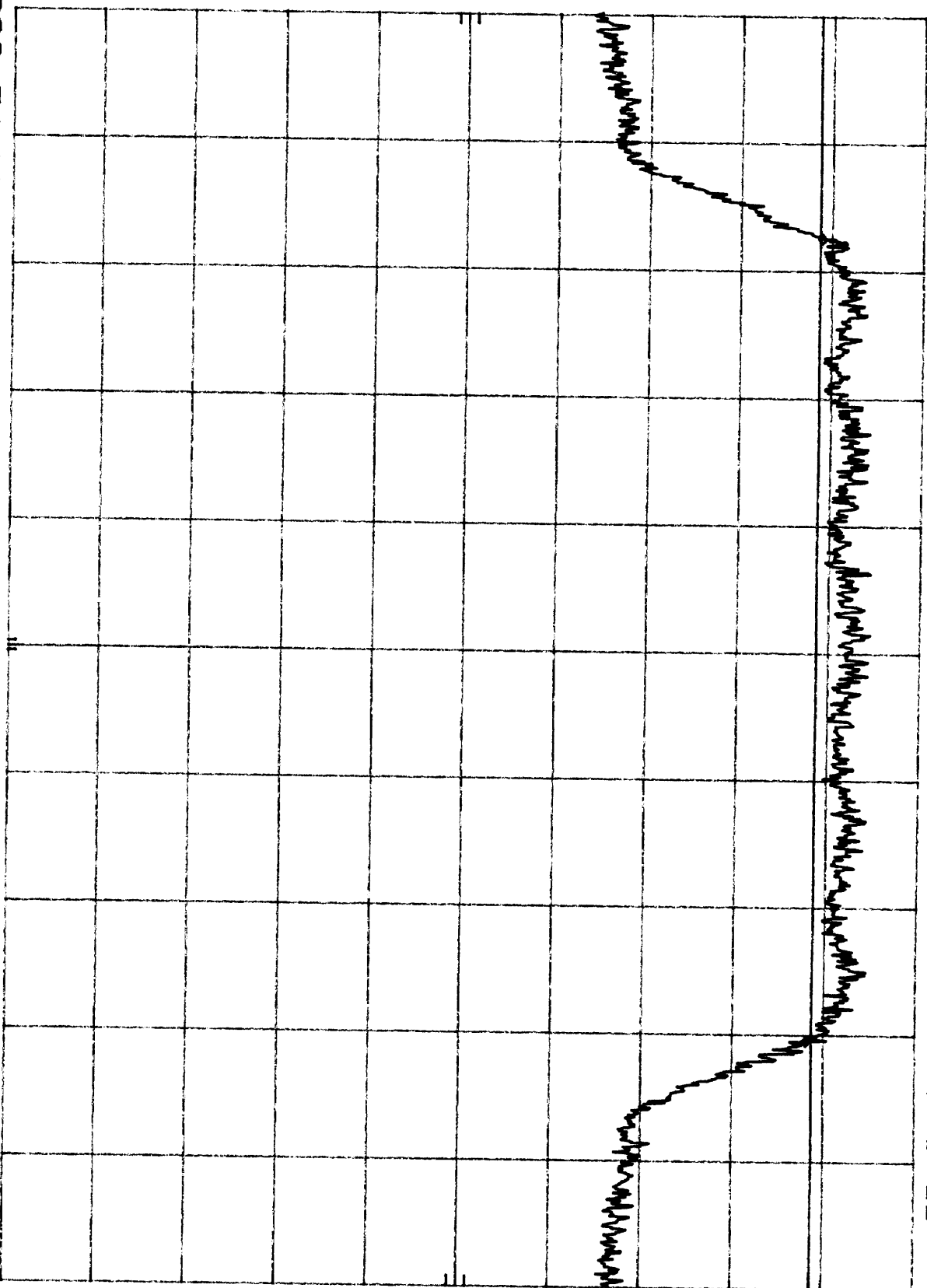
6.5

dB

DL

15.1

dBm



CENTER 836.54 MHz

RES BW 30 KHz

VBW 30 KHz

SPAN 2.00 MHz
SWP 20.0 msec

7p

REF 26.5 dBm

ATTEN 60 dB

MKR Δ 1.256 MHz
0.60 dB

10 dB/

OFFSET

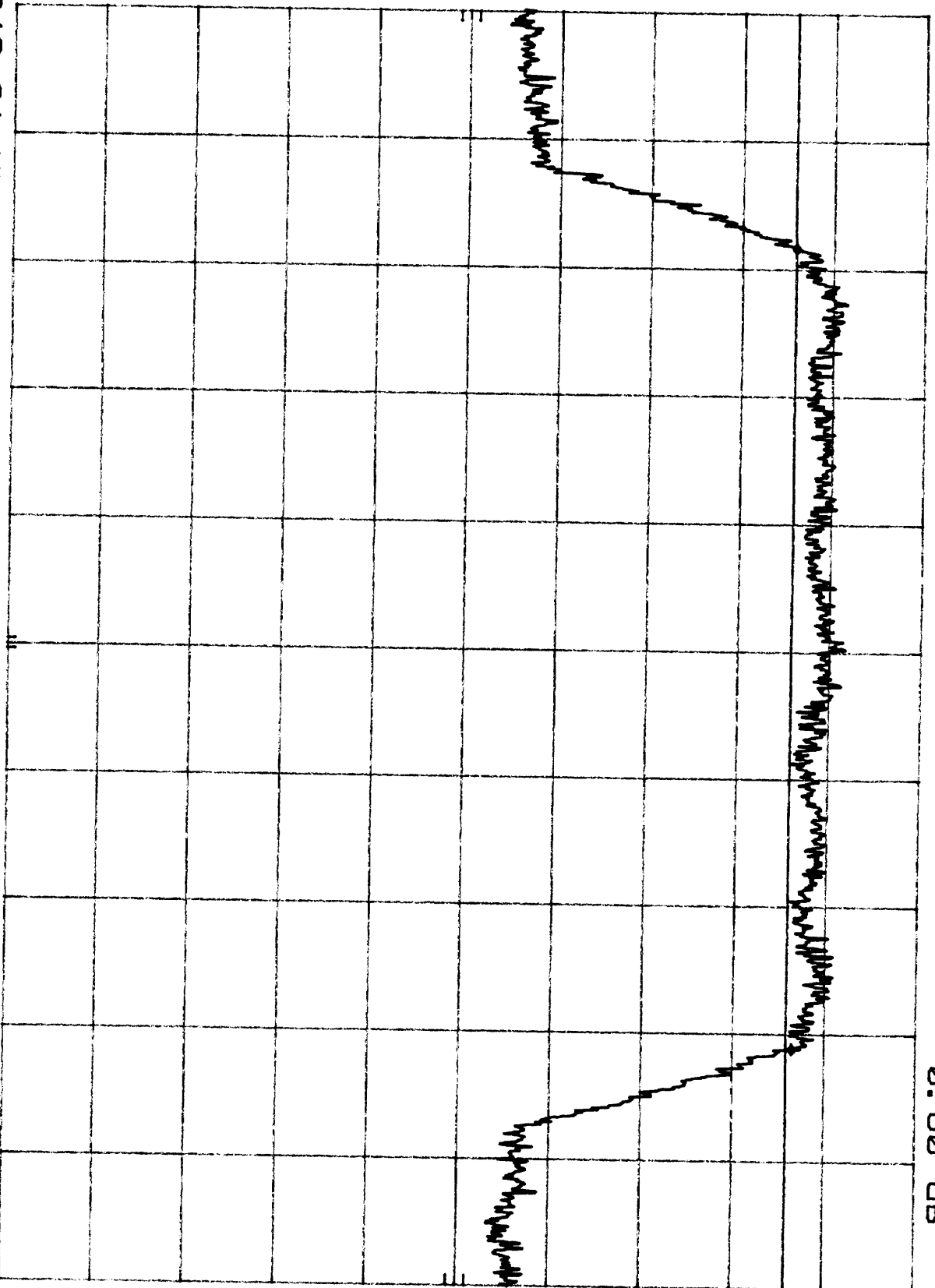
6.5

dB

DL

12.3

dBm



CENTER 848.31 MHz

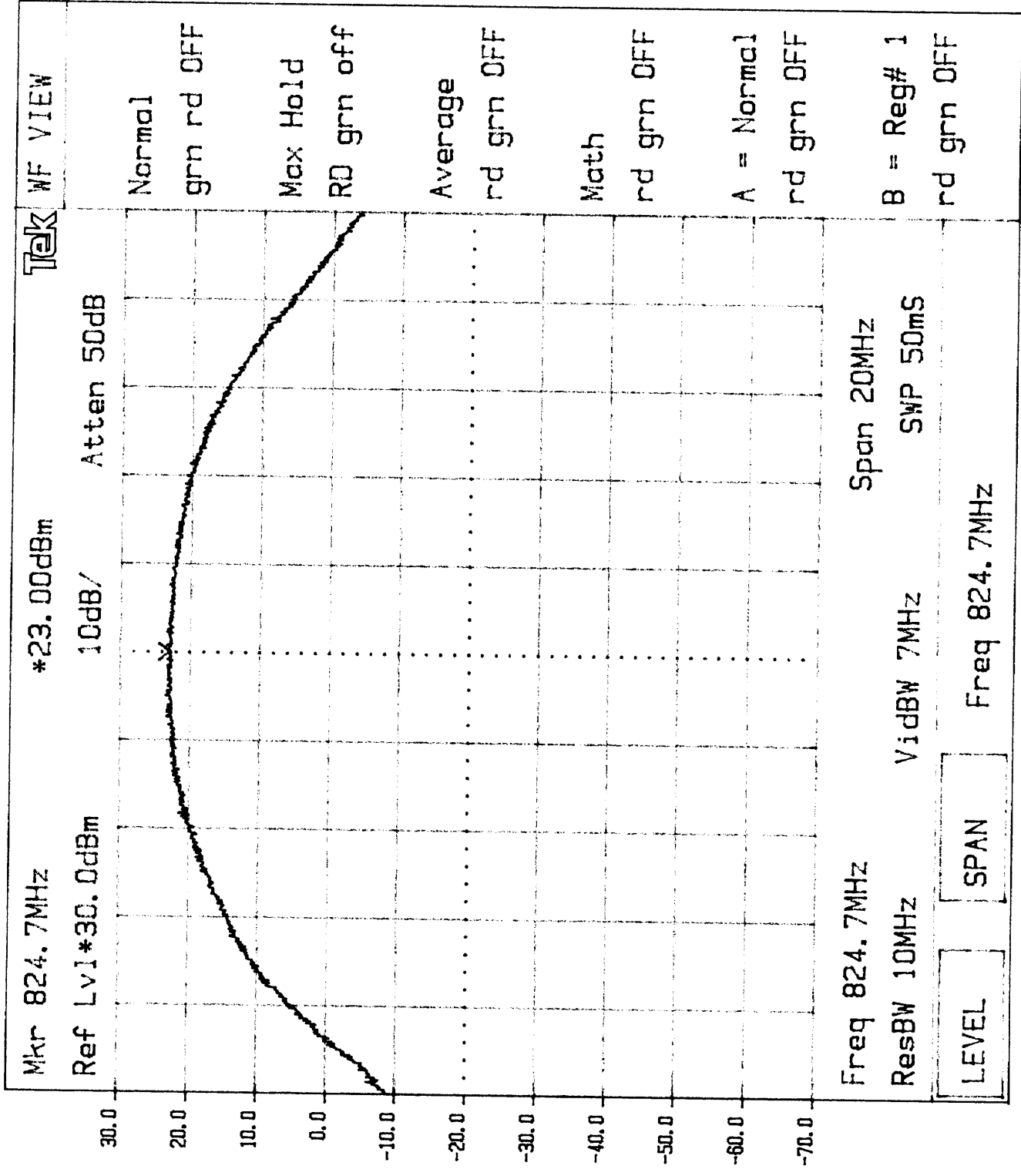
RES BW 30 kHz

VBW 30 kHz

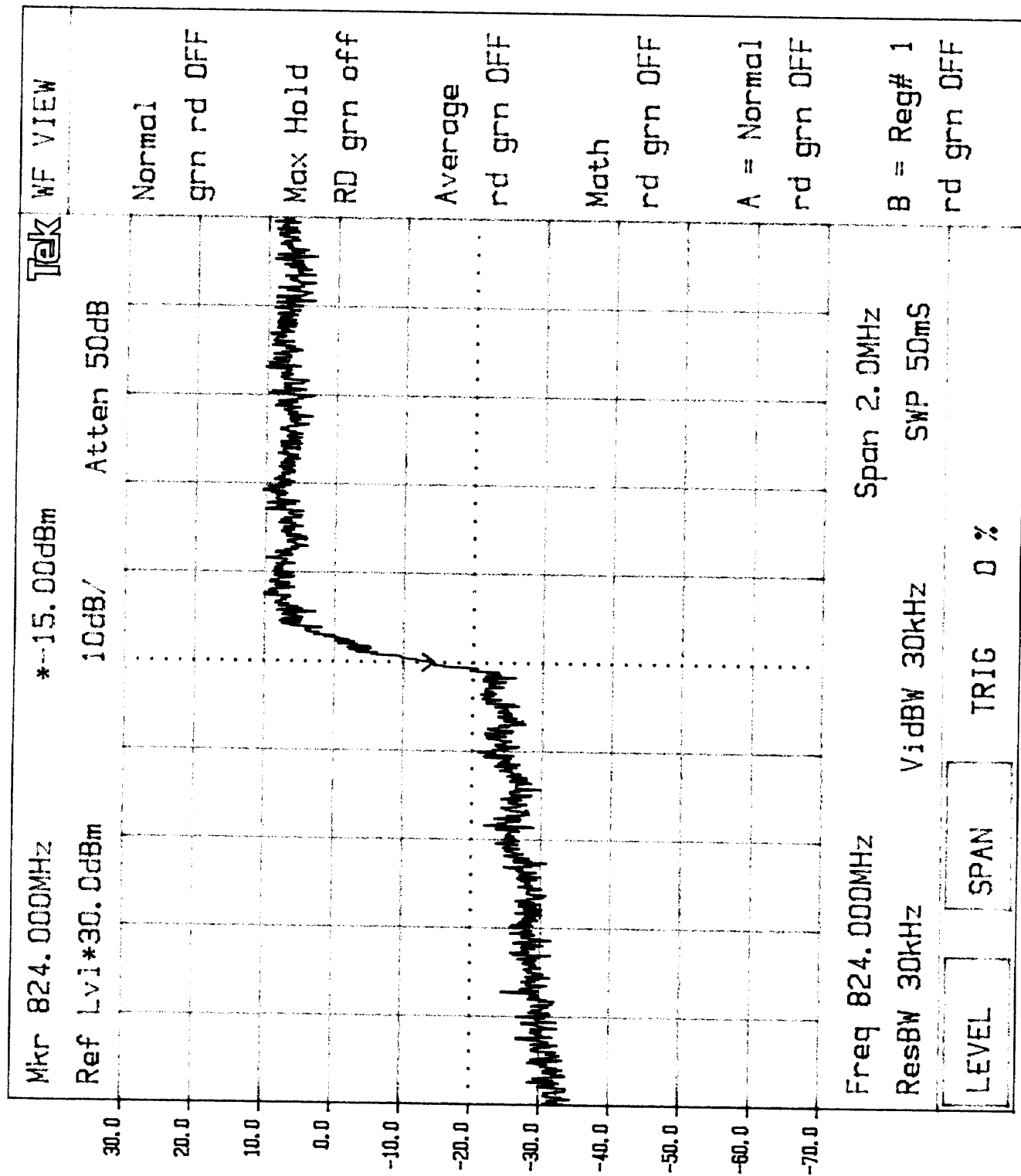
SPAN 2.00 MHz
SWP 20.0 msec

Occupied Bandwidth - CDMA	
Plot Number	Description
6.3.s	Low channel power
6.3.t	Low channel band edge
6.3.u	Middle channel power
6.3.v	Middle channel 6 dB bandwidth
6.3.w	High channel power
6.3.x	High channel band edge

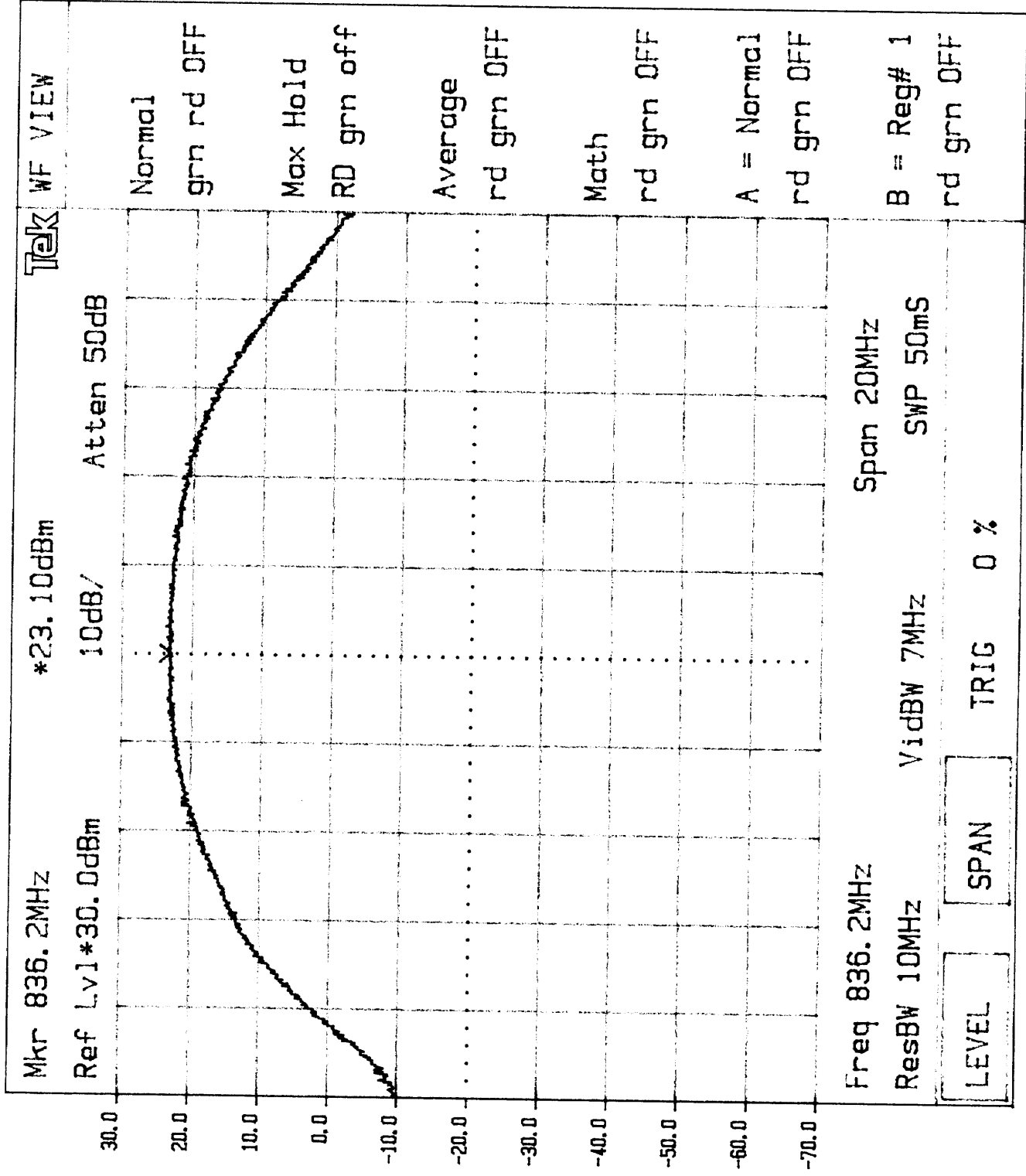
6,3,5



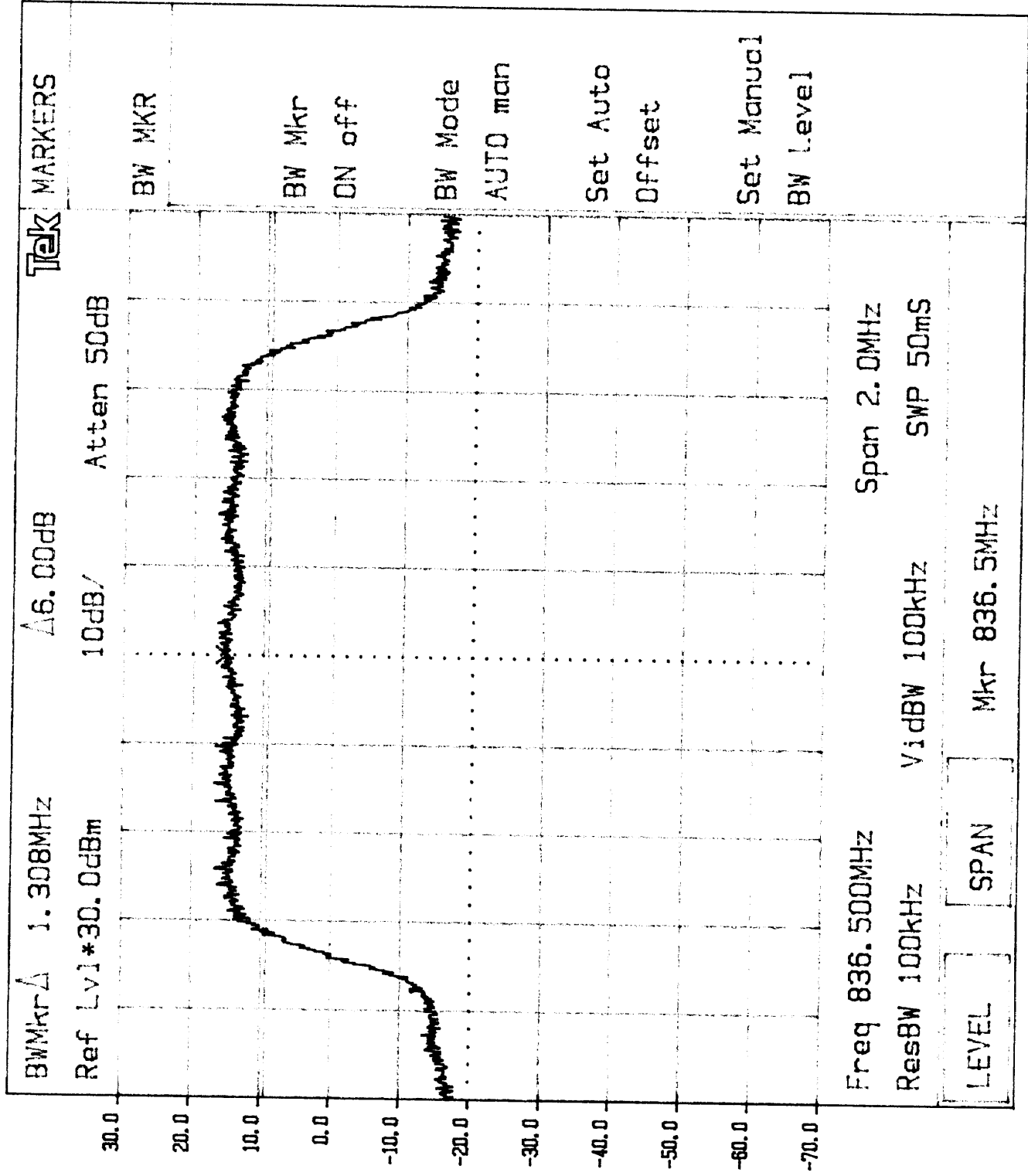
6,3,t



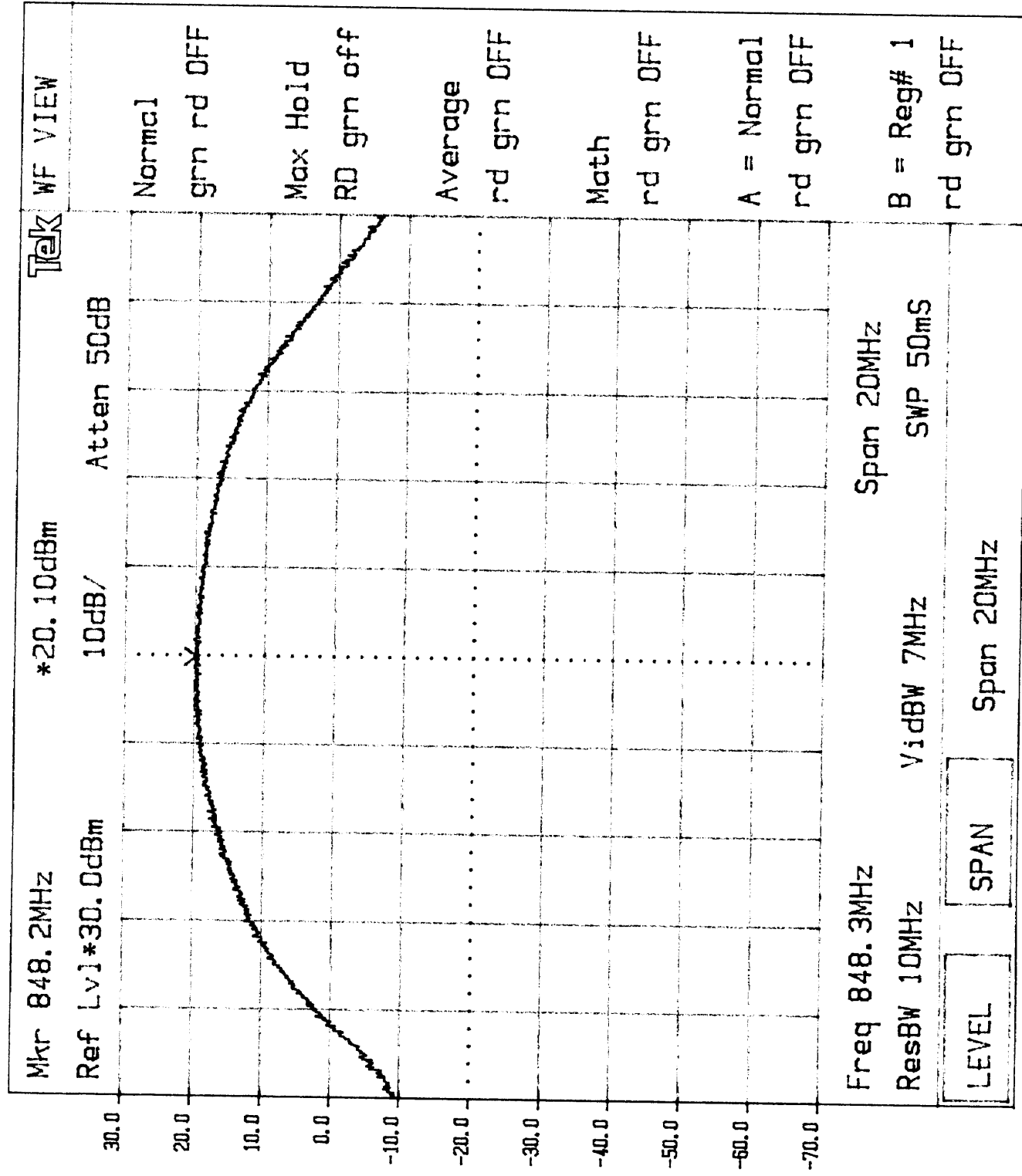
613,20



6.3.1



6.3, W



6.3.X

