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 unmodualted 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 ofthe 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.

6.2 Test Equipment

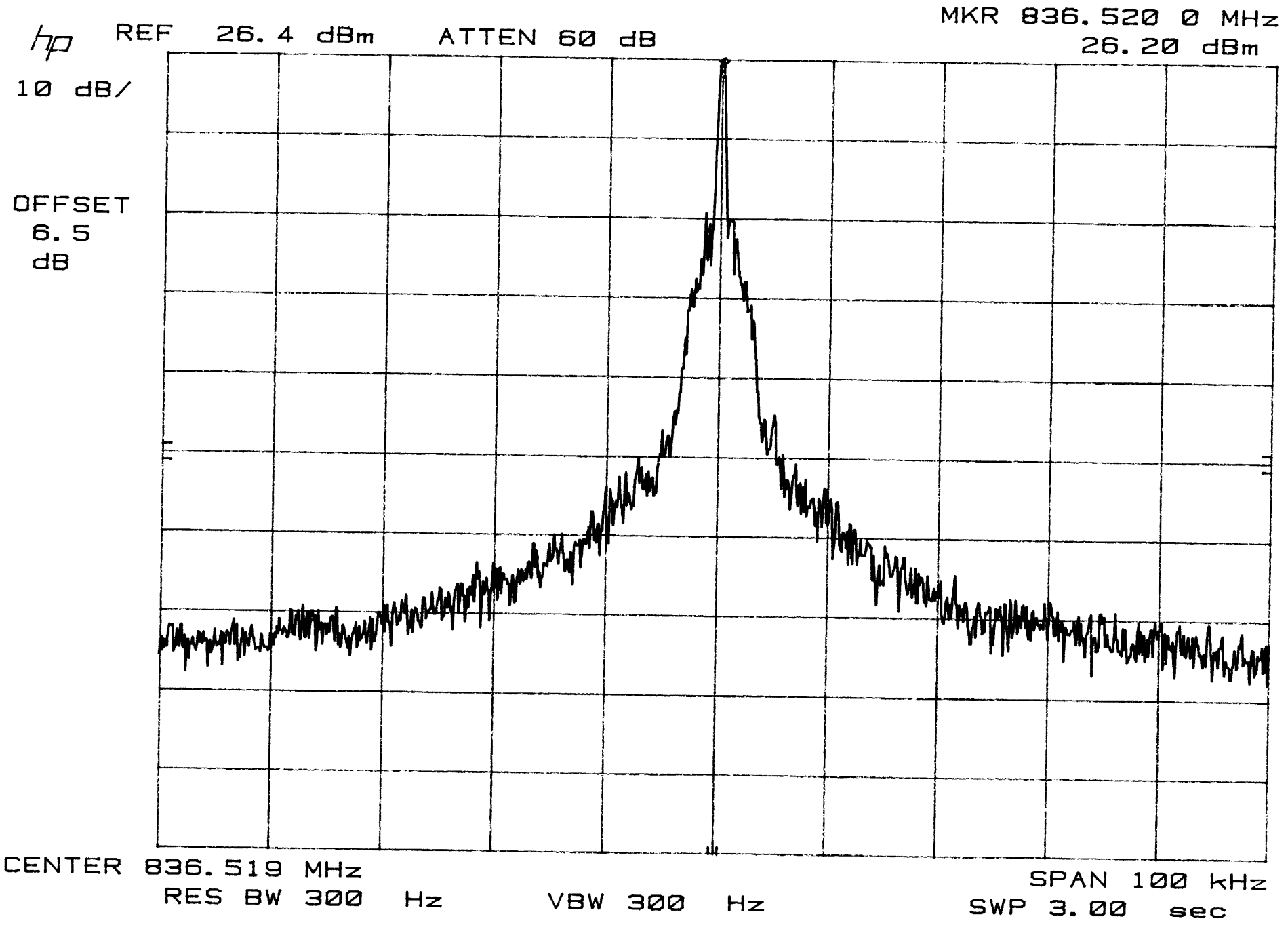
HP 8566B Spectrum Analyzer
Leader LFG-1300S Function Generator
Leader LMV-182 AC Millivoltmeter
Marconi 2955A Radio Communication Test Set
HP 7470A Plotter

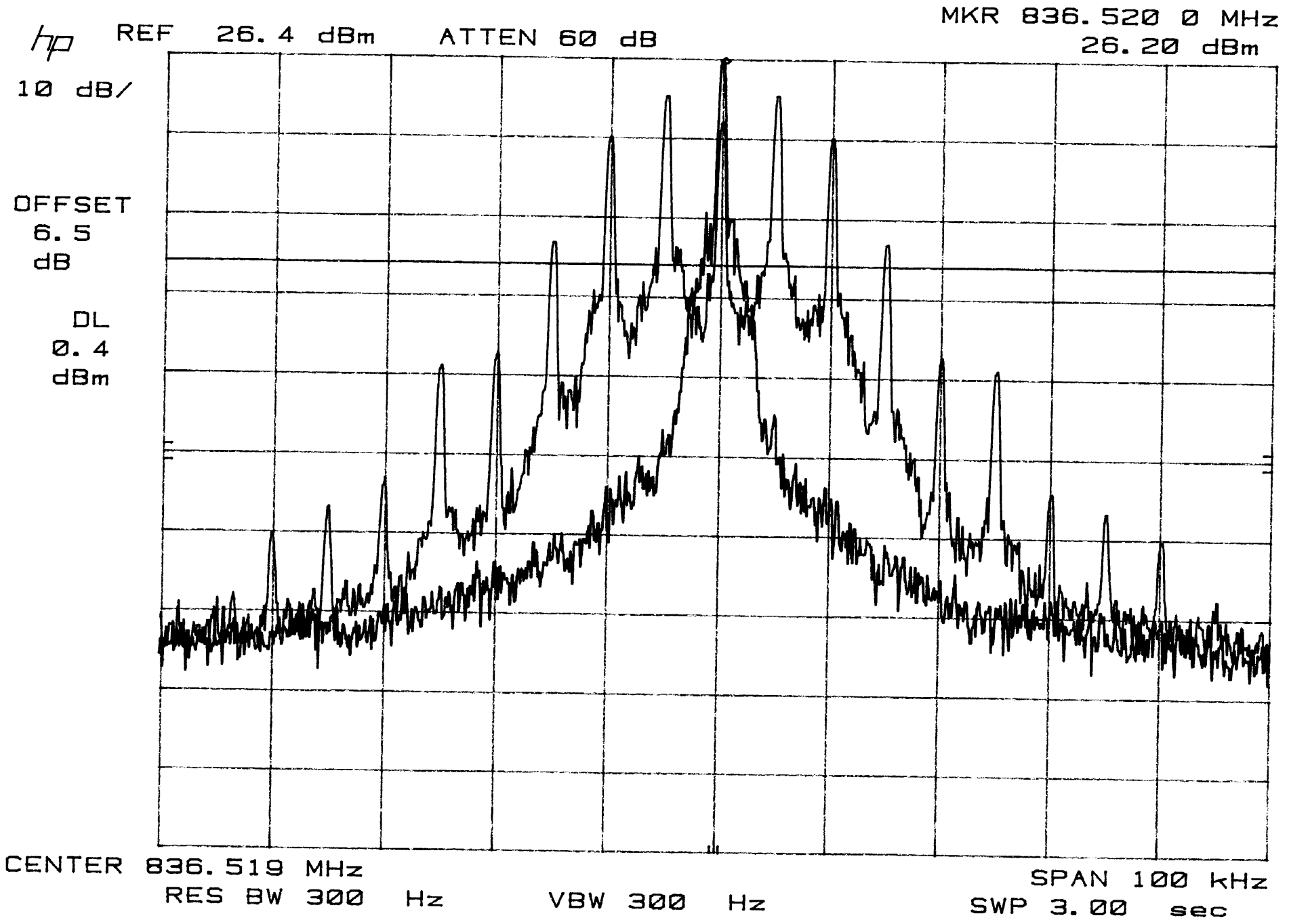
6.3 Test Results

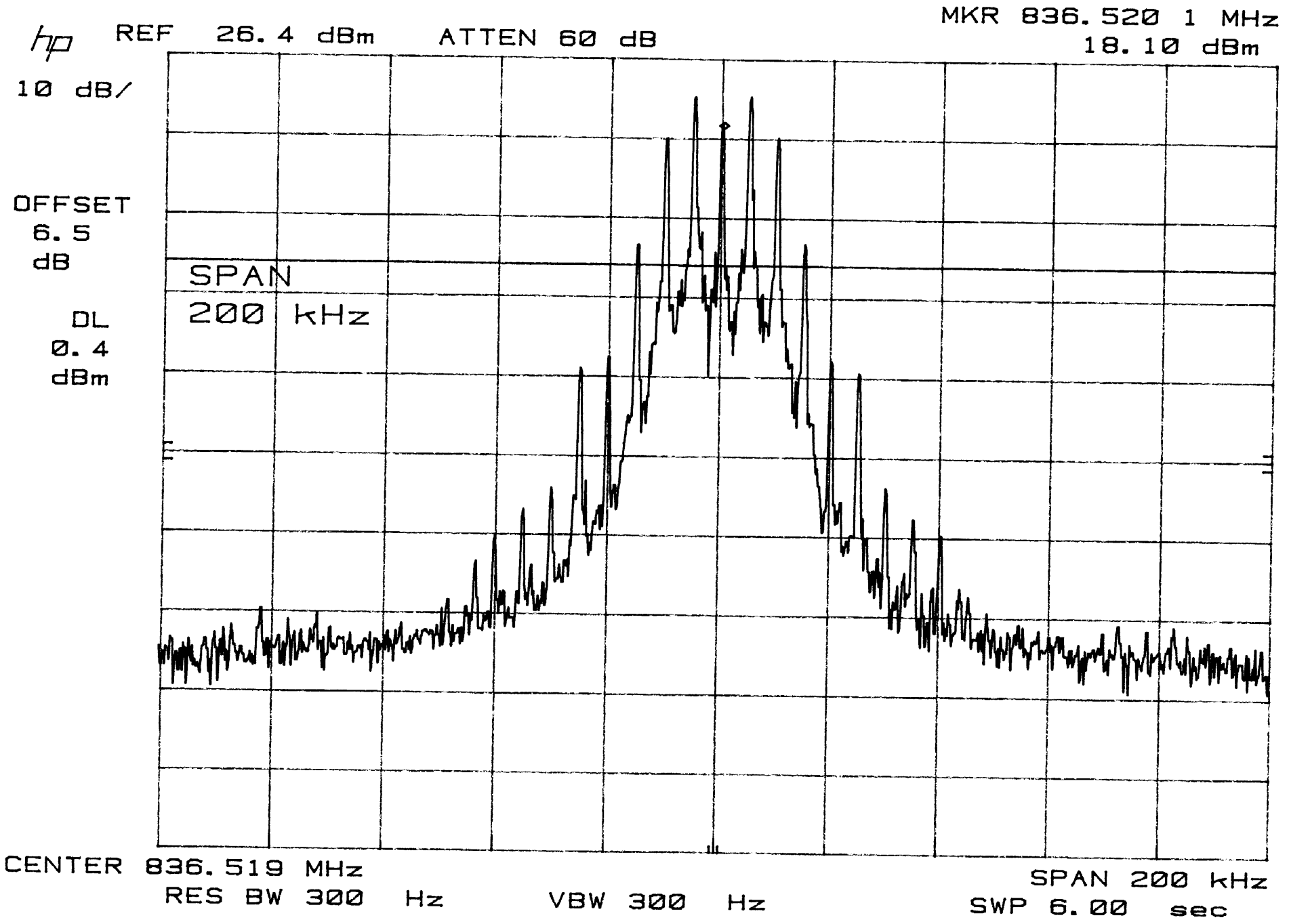
Passes	Refer to the attached plots.

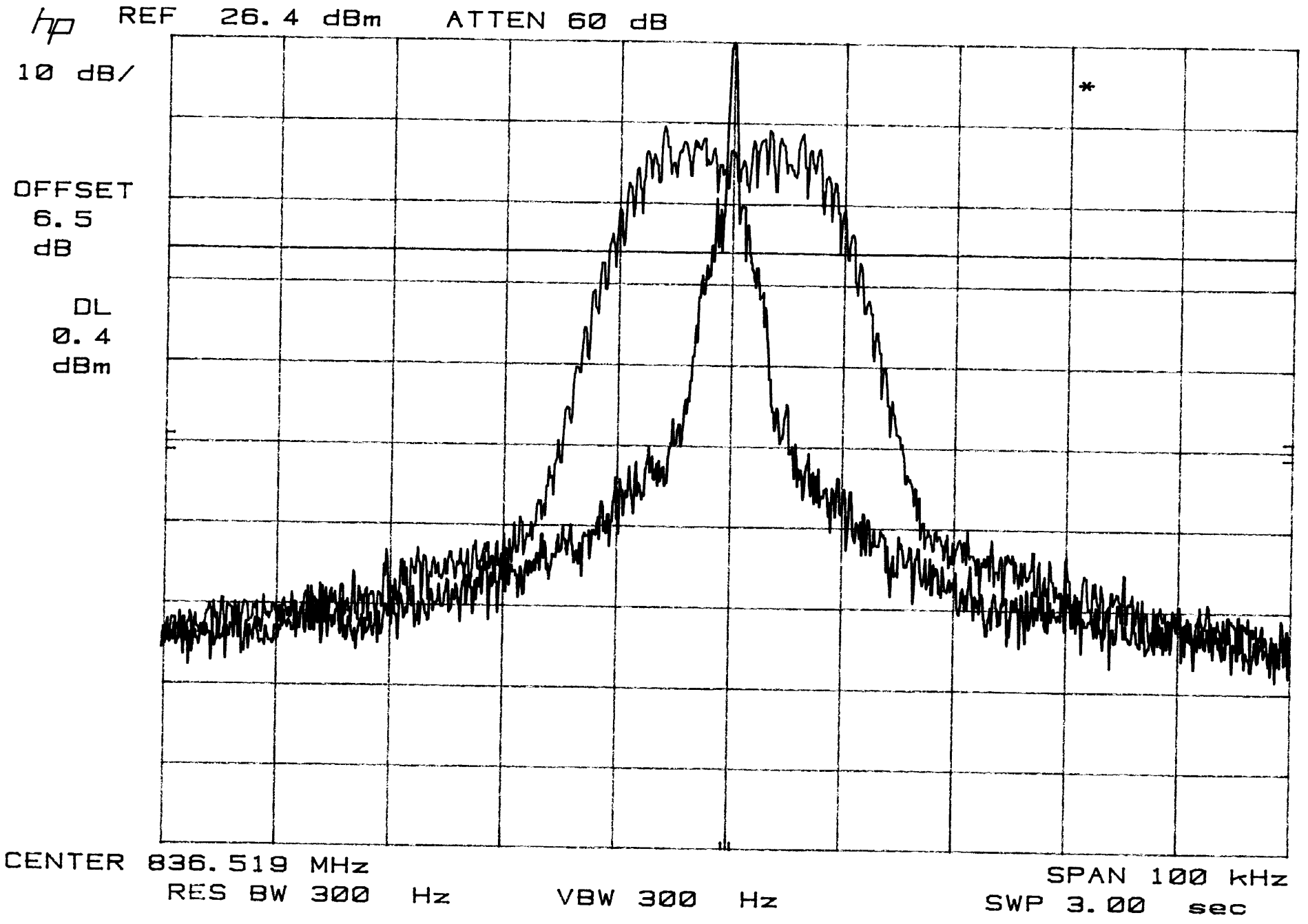
Occupied Bandwidth - AMPS	
Plot Number	Description
6.3.a	Carrier frequency, no modulation
6.3.b	Wideband emission (8 kHz deviation) scan 100 kHz
6.3.c	Wideband emission (8 kHz deviation) scan 200 kHz
6.3.d	DTMF "9"
6.3.e	SAT (6 kHz, 2 kHz deviation)
6.3.f	ST (10 kHz, 8 kHz deviation) scan 100 kHz, RBW = 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

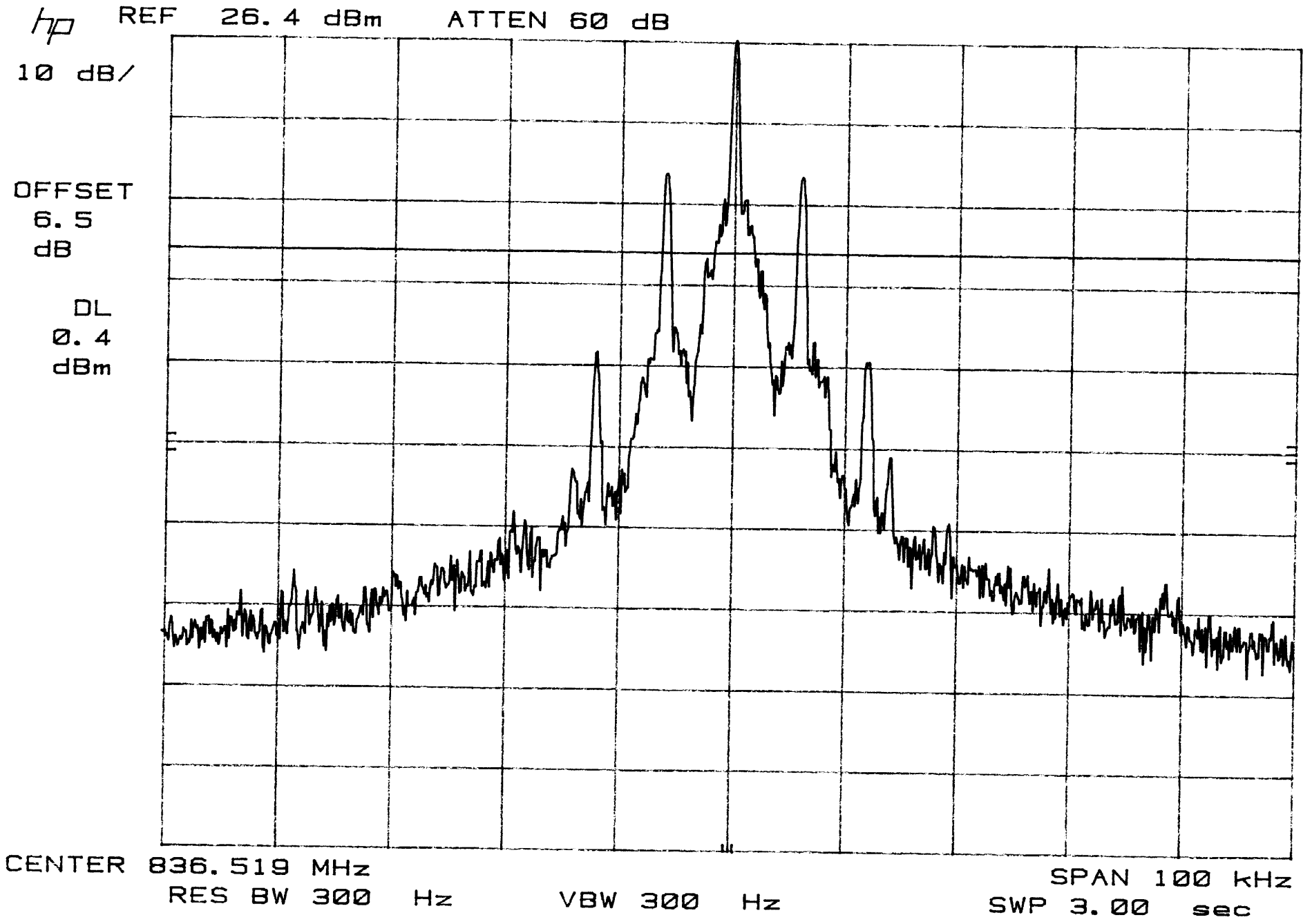
6.1.9

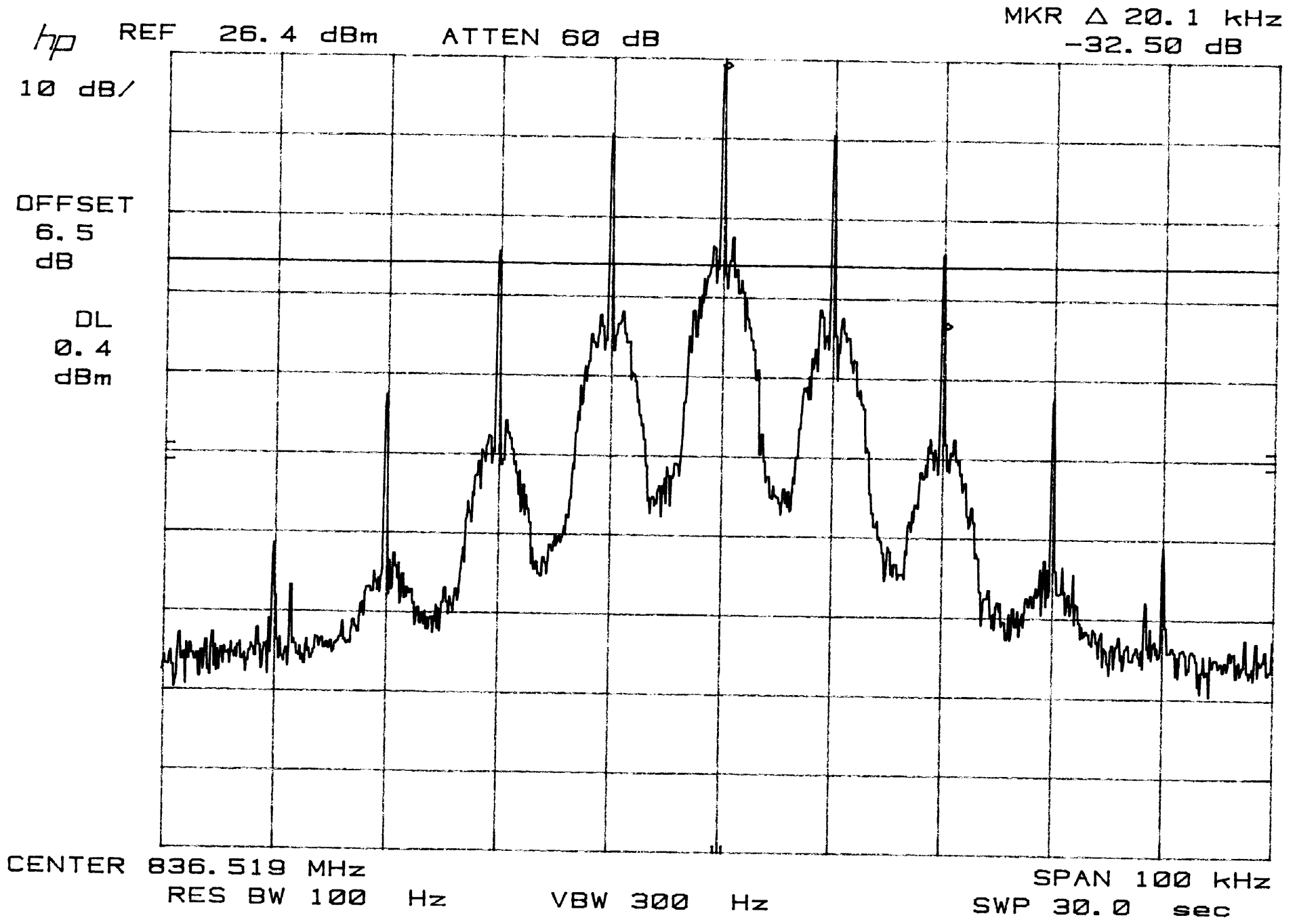

hp
REF 26.4 dBm
ATTEN 60 dB
MKR 836.520 0 MHz
26.20 dBm
10 dB/
OFFSET
6.5
dB
CENTER 836.519 MHz
RES BW 300 Hz
VBW 300 Hz
SPAN 100 kHz
SWP 3.00 sec

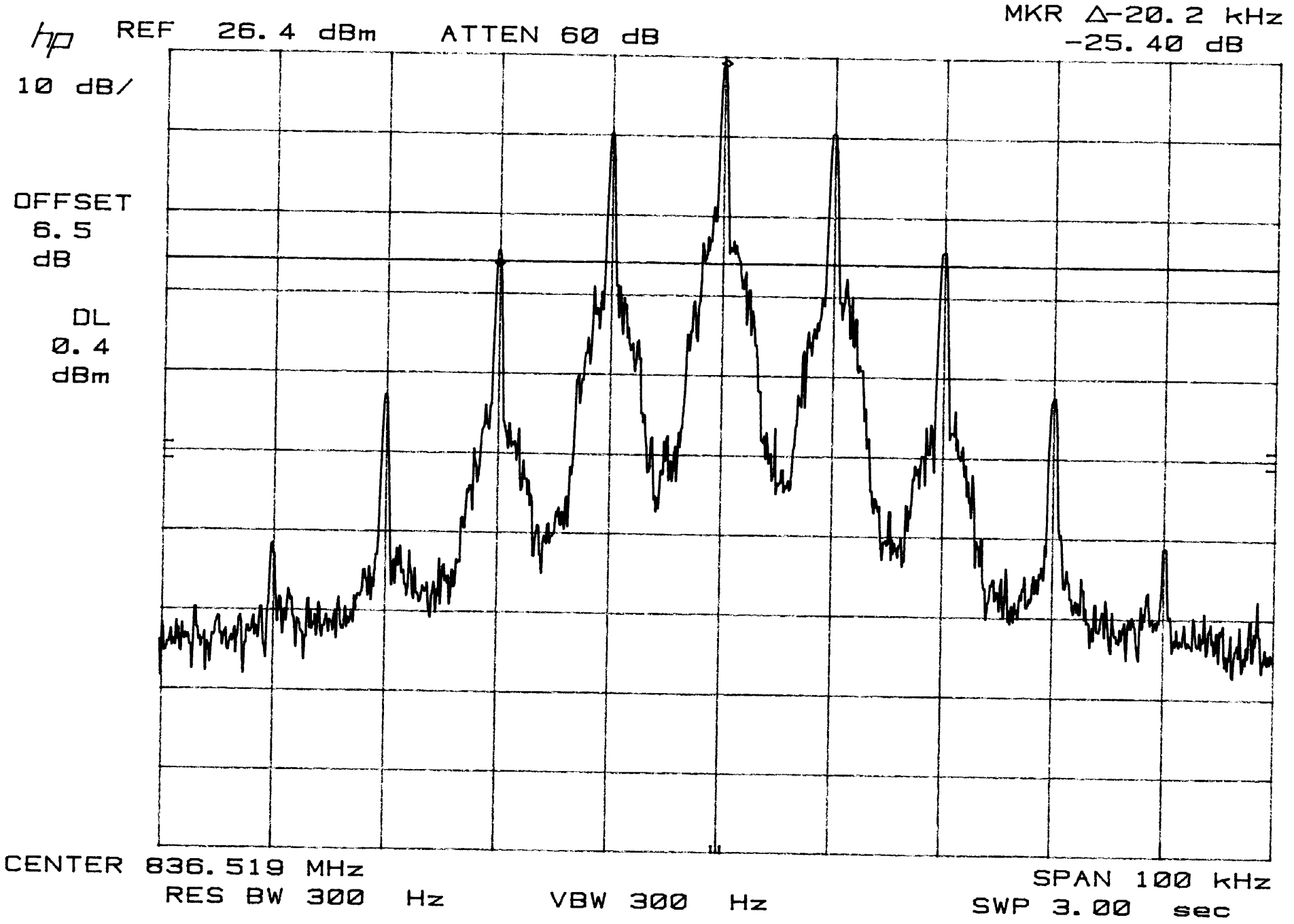

hp
REF 26.4 dBm
ATTEN 60 dB
MKR 836.520 0 MHz
26.20 dBm
10 dB/
OFFSET
6.5
dB
DL
0.4
dBm
CENTER 836.519 MHz
RES BW 300 Hz
VBW 300 Hz
SPAN 100 kHz
SWP 3.00 sec

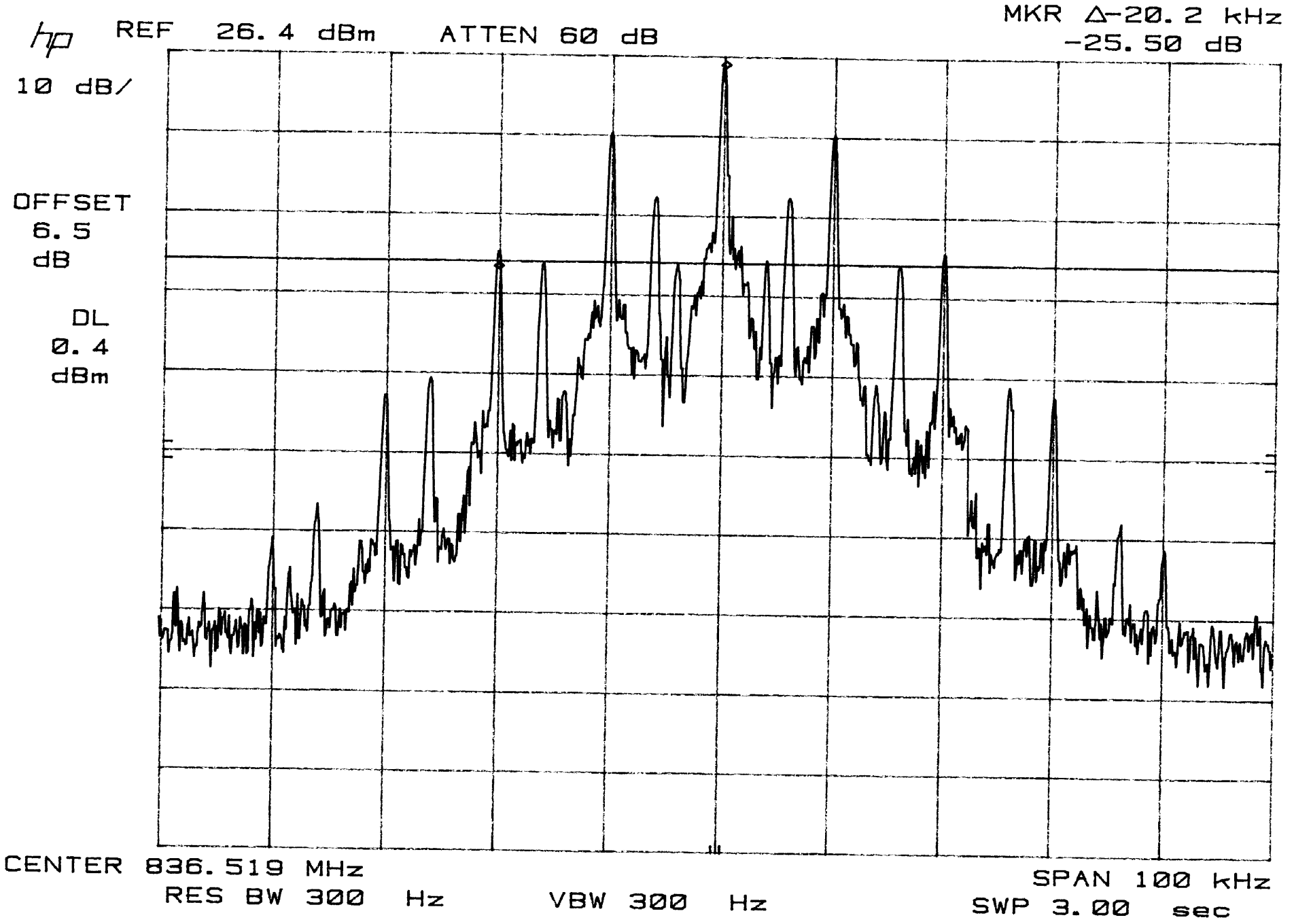

hp
REF 26.4 dBm
ATTEN 60 dB
MKR 836.520 1 MHz
18.10 dBm
10 dB/
OFFSET
6.5
dB
SPAN
200 kHz
DL
0.4
dBm
CENTER 836.519 MHz
RES BW 300 Hz
VBW 300 Hz
SPAN 200 kHz
SWP 6.00 sec

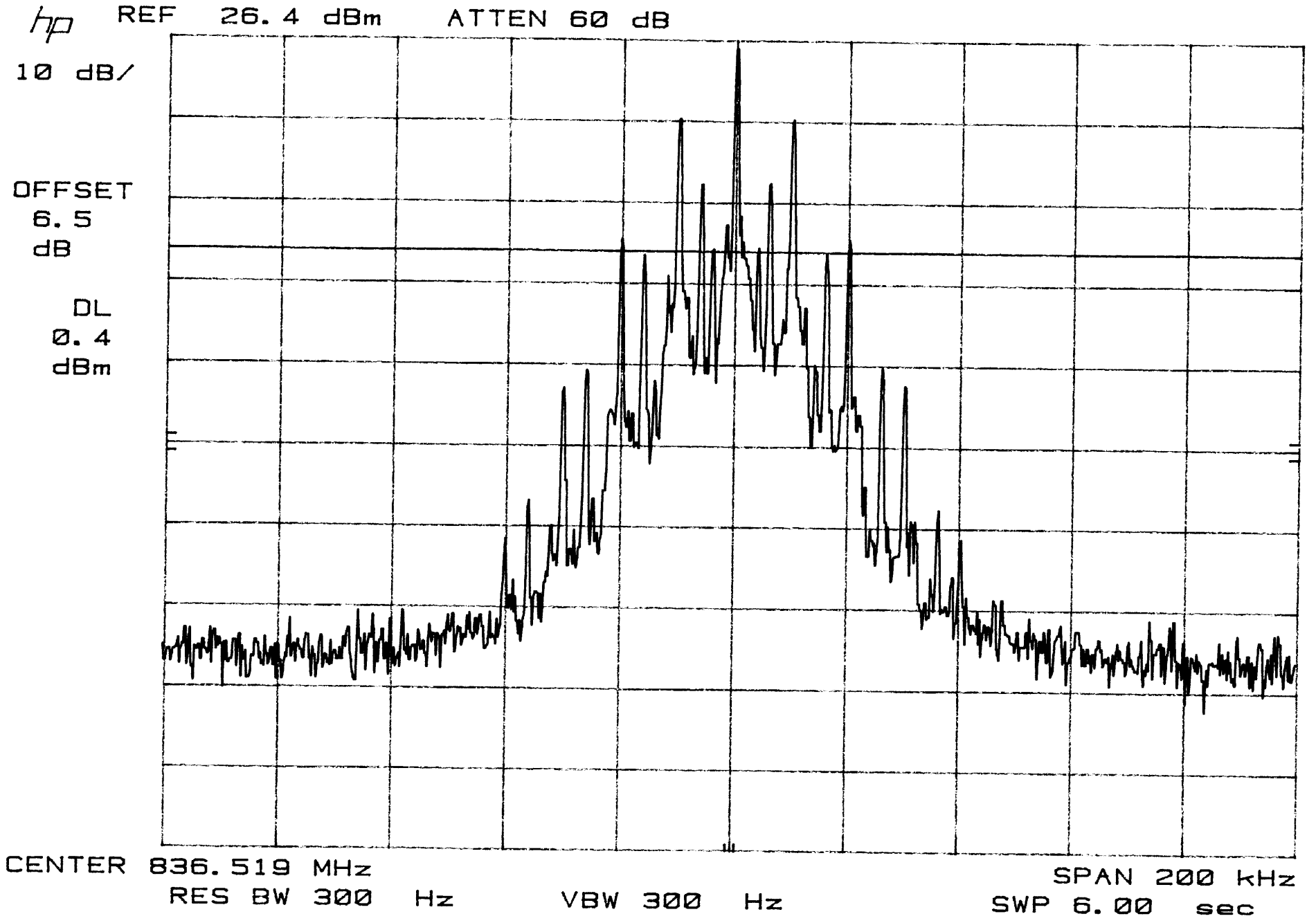

hp
REF 26.4 dBm
ATTEN 60 dB
10 dB/
OFFSET
6.5
dB
DL
0.4
dBm
*
CENTER 836.519 MHz
RES BW 300 Hz
VBW 300 Hz
SPAN 100 kHz
SWP 3.00 sec

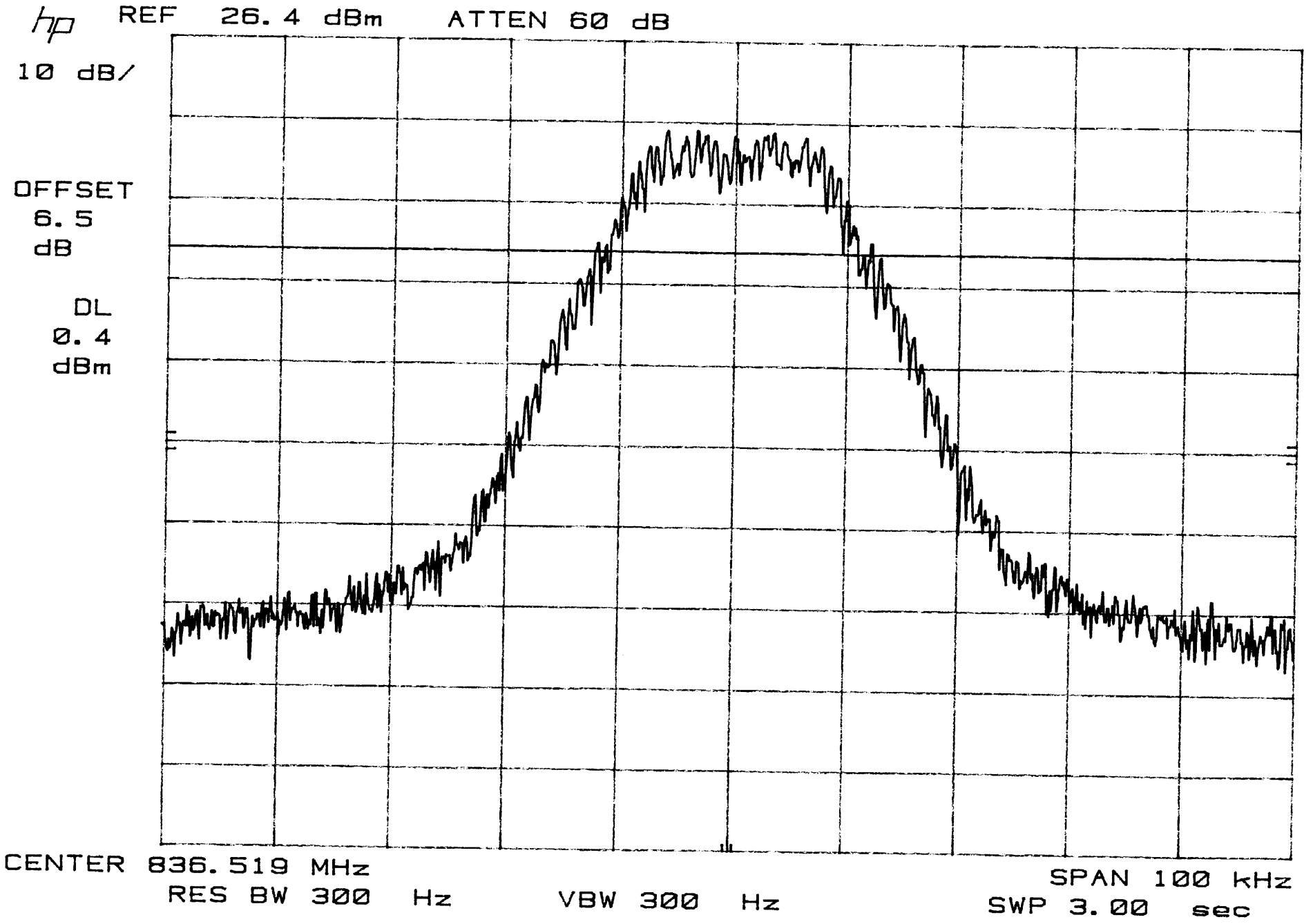

hp
REF 26.4 dBm
ATTEN 60 dB
10 dB/
OFFSET
6.5
dB
DL
0.4
dBm
CENTER 836.519 MHz
RES BW 300 Hz
VBW 300 Hz
SPAN 100 kHz
SWP 3.00 sec

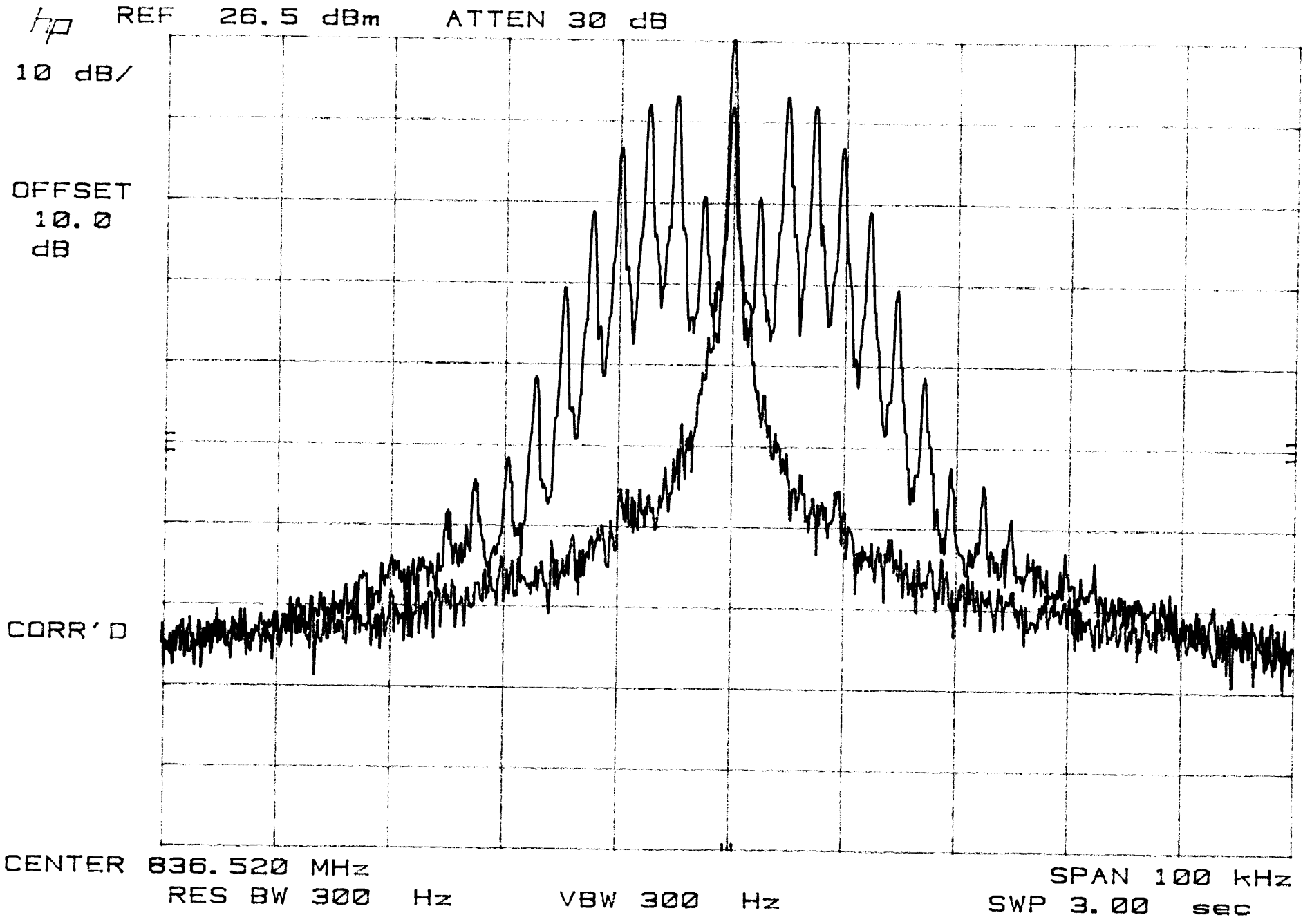

hp
REF 26.4 dBm
ATTEN 60 dB
MKR Δ 20.1 kHz
-32.50 dB
10 dB/
OFFSET
6.5
dB
DL
0.4
dBm
CENTER 836.519 MHz
RES BW 100 Hz
VBW 300 Hz
SPAN 100 kHz
SWP 30.0 sec

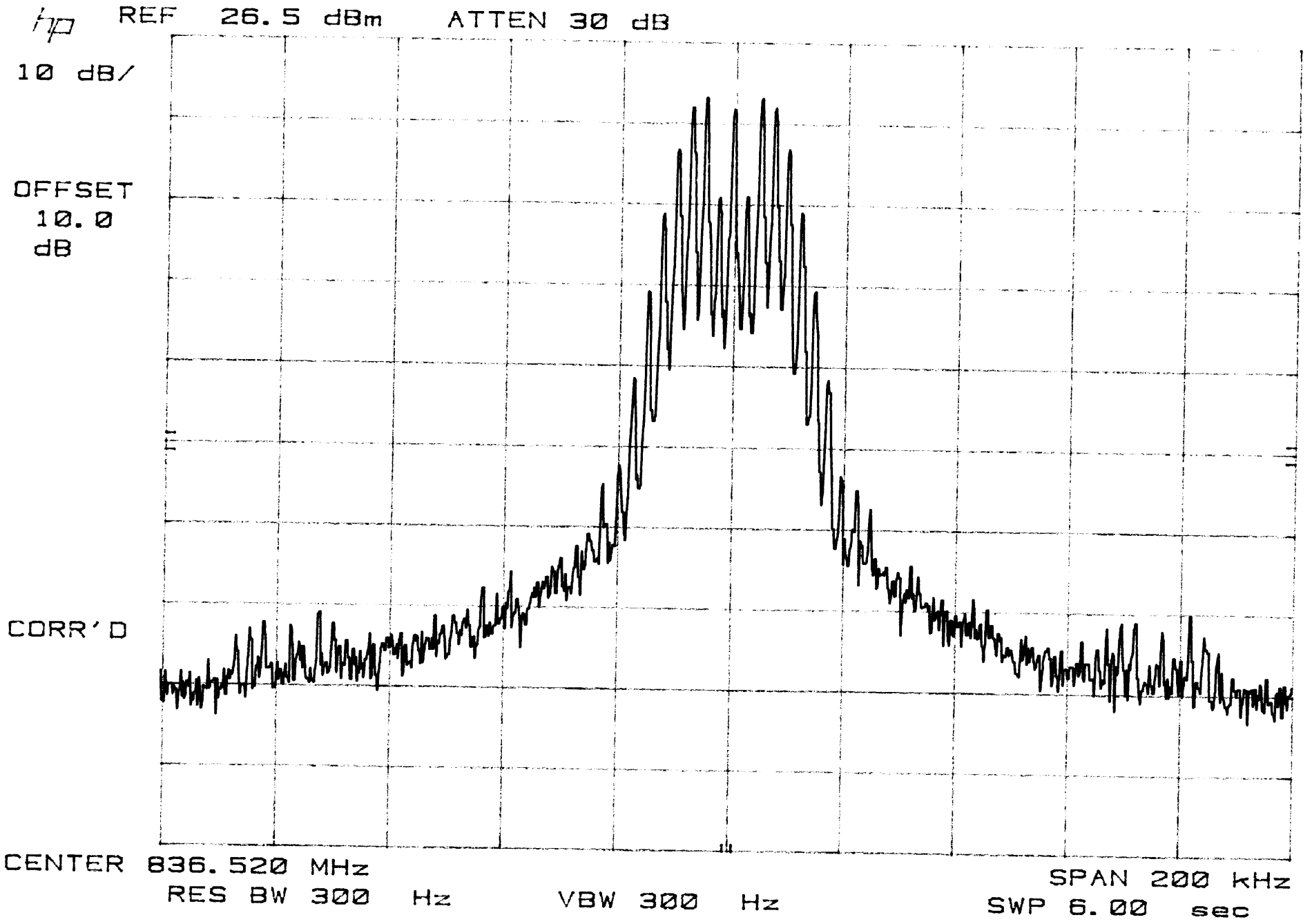

hp
REF 26.4 dBm
ATTEN 60 dB
MKR Δ-20.2 kHz
-25.40 dB
10 dB/
OFFSET
6.5
dB
DL
0.4
dBm
CENTER 836.519 MHz
RES BW 300 Hz
VBW 300 Hz
SPAN 100 kHz
SWP 3.00 sec

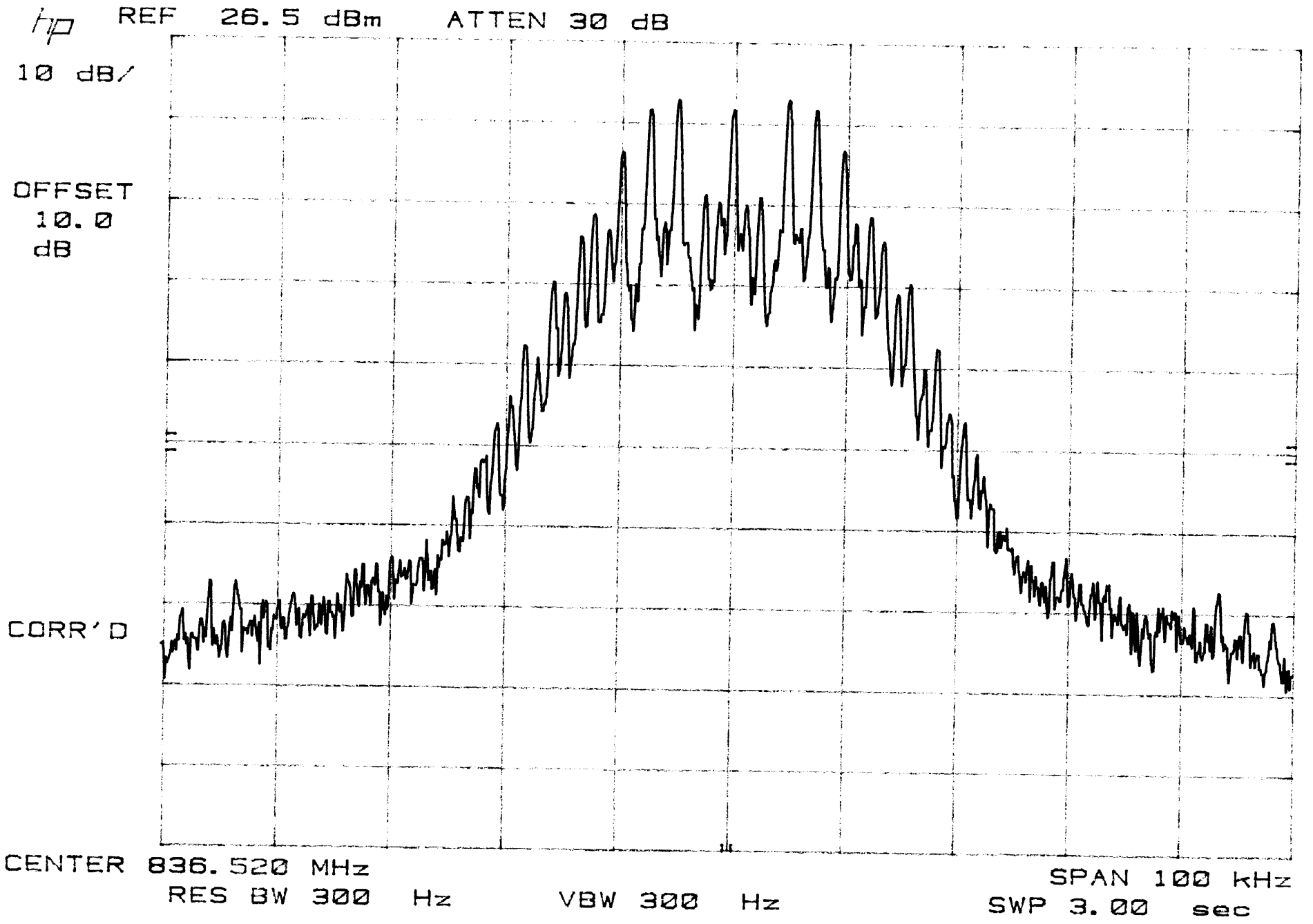

hp
REF 26.4 dBm
ATTEN 60 dB
MKR Δ-20.2 kHz
-25.50 dB
10 dB/
OFFSET
6.5
dB
DL
0.4
dBm
CENTER 836.519 MHz
RES BW 300 Hz
VBW 300 Hz
SPAN 100 kHz
SWP 3.00 sec

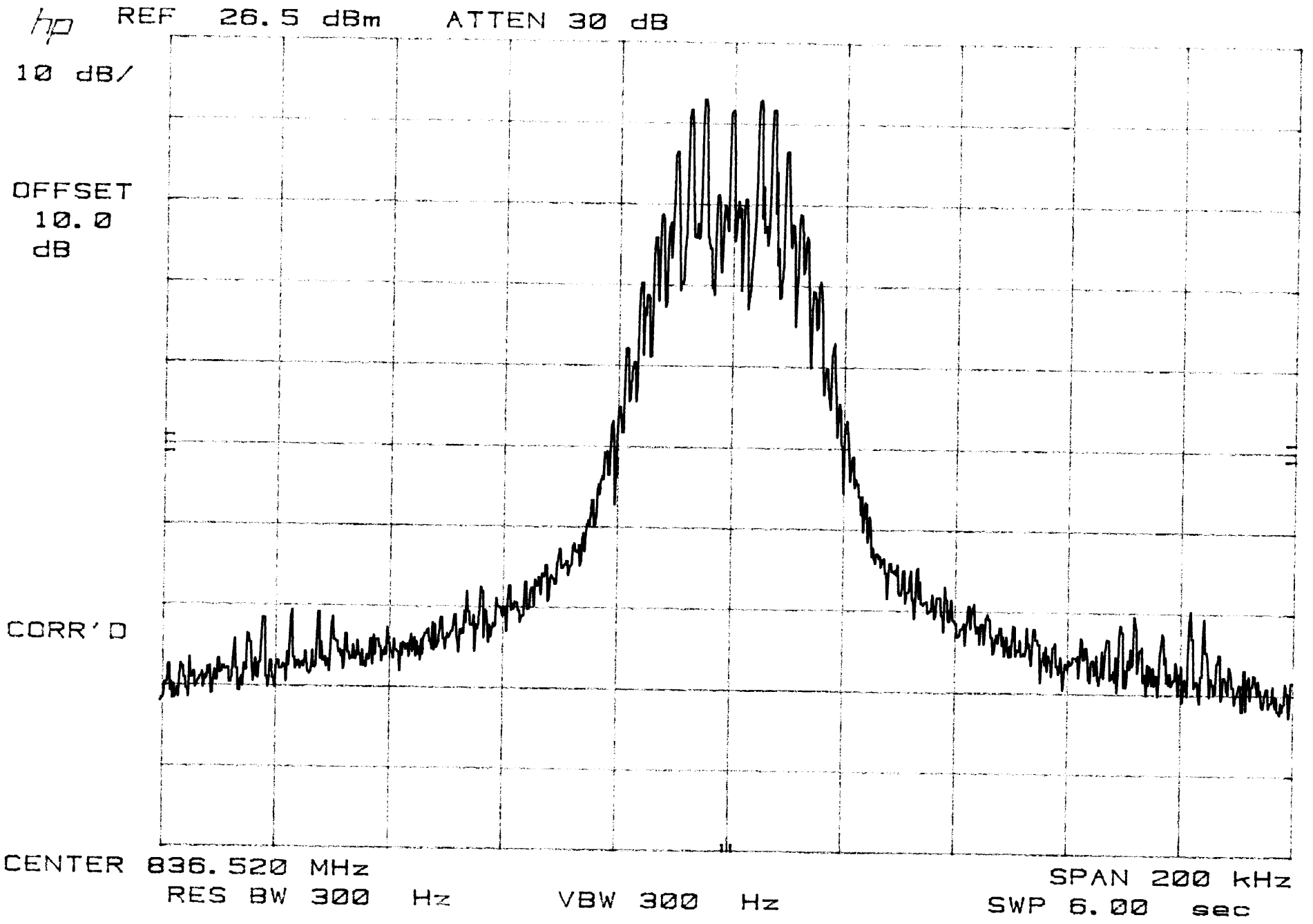

hp
REF 26.4 dBm
ATTEN 60 dB
10 dB/
OFFSET
6.5
dB
DL
0.4
dBm
CENTER 836.519 MHz
RES BW 300 Hz
VBW 300 Hz
SPAN 200 kHz
SWP 6.00 sec

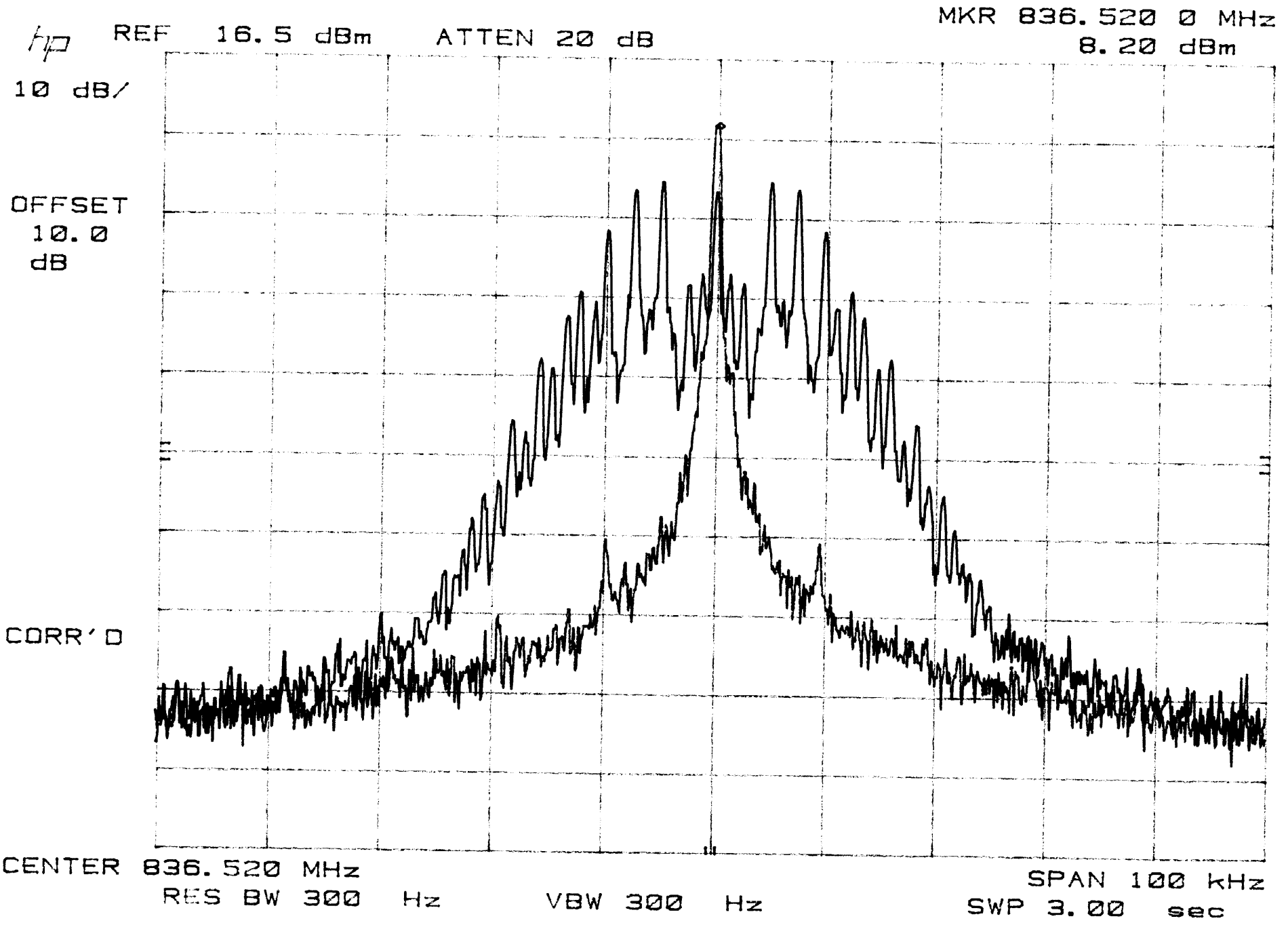

hp
REF 26.4 dBm
ATTEN 60 dB
10 dB/
OFFSET
6.5
dB
DL
0.4
dBm
CENTER 836.519 MHz
RES BW 300 Hz
VBW 300 Hz
SPAN 100 kHz
SWP 3.00 sec

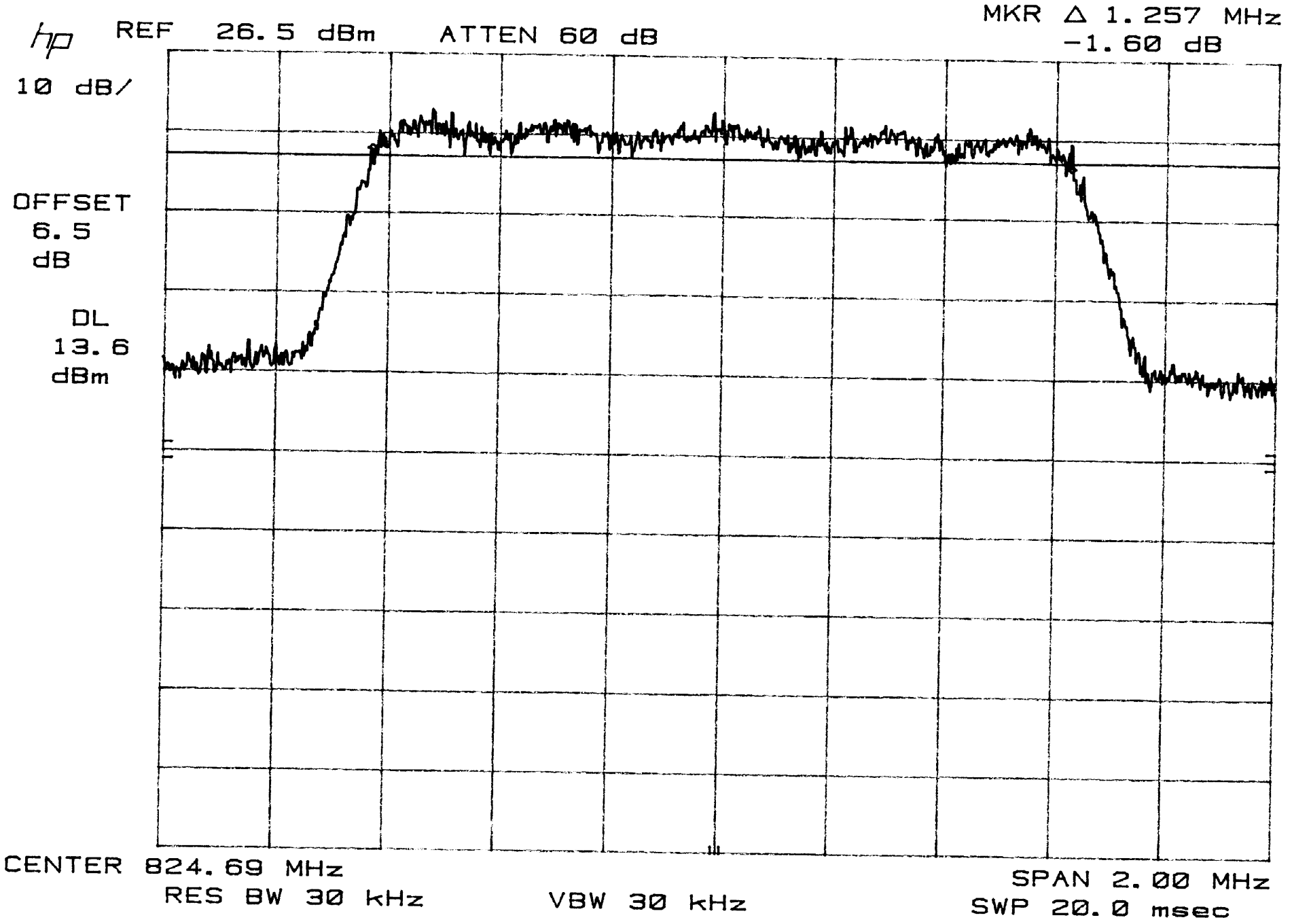

REF 26.5 dBm
ATTEN 30 dB
10 dB/
OFFSET
10.0
dB
CORR'D
CENTER 836.520 MHz
RES BW 300 Hz
VBW 300 Hz
SPAN 100 kHz
SWP 3.00 sec

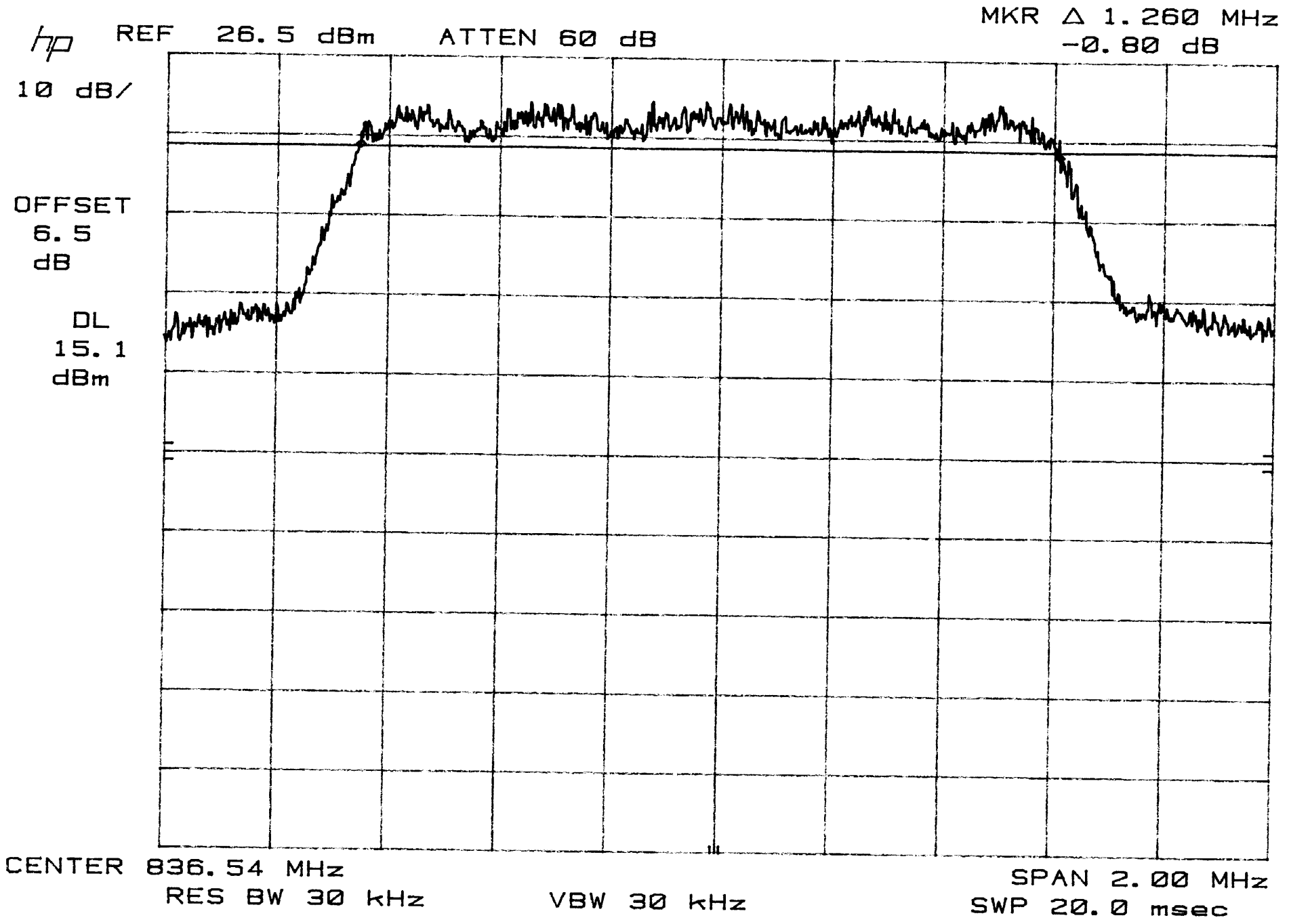

hp
REF 26.5 dBm
ATTEN 30 dB
10 dB/
OFFSET
10.0
dB
CORR'D
CENTER 836.520 MHz
RES BW 300 Hz
VBW 300 Hz
SPAN 200 kHz
SWP 6.00 sec

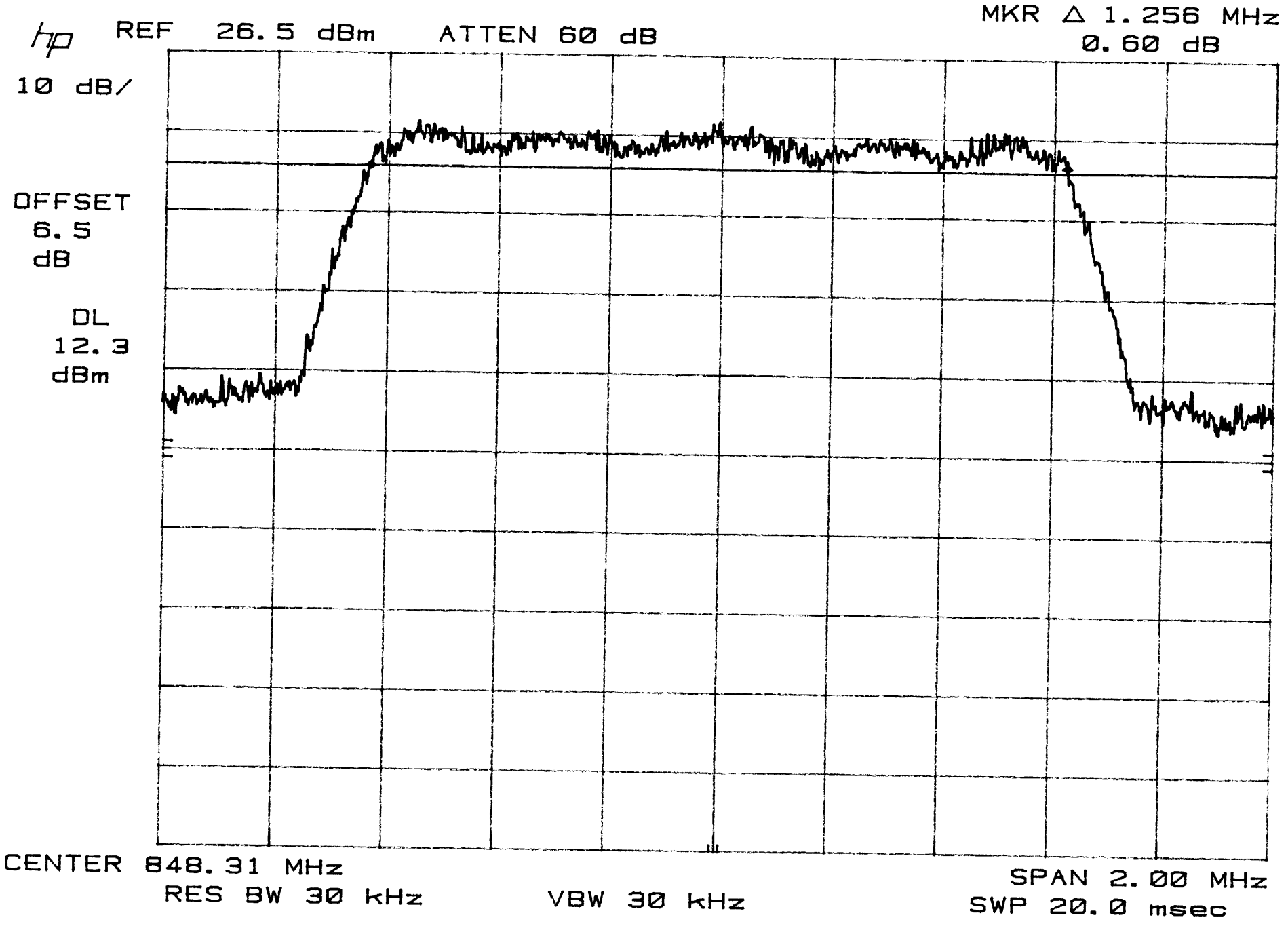

hp
REF 26.5 dBm
ATTEN 30 dB
10 dB/
OFFSET
10.0
dB
CORR'D
CENTER 836.520 MHz
RES BW 300 Hz
VBW 300 Hz
SPAN 100 kHz
SWP 3.00 sec


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


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

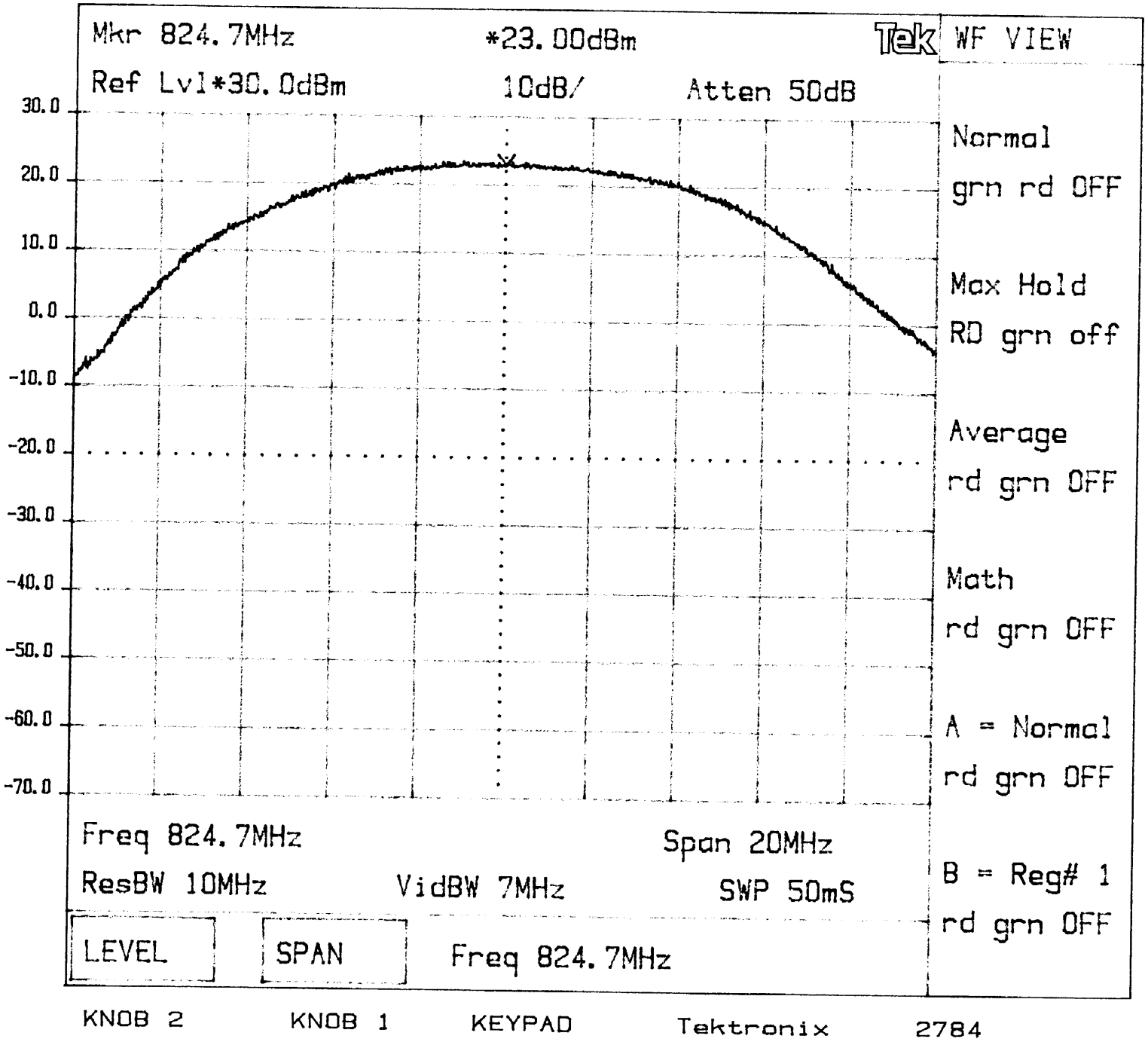

hp
REF 26.5 dBm
ATTEN 60 dB
MKR Δ 1.257 MHz
-1.60 dB
10 dB/
OFFSET
6.5
dB
DL
13.6
dBm
CENTER 824.69 MHz
RES BW 30 kHz
VBW 30 kHz
SPAN 2.00 MHz
SWP 20.0 msec


hp
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

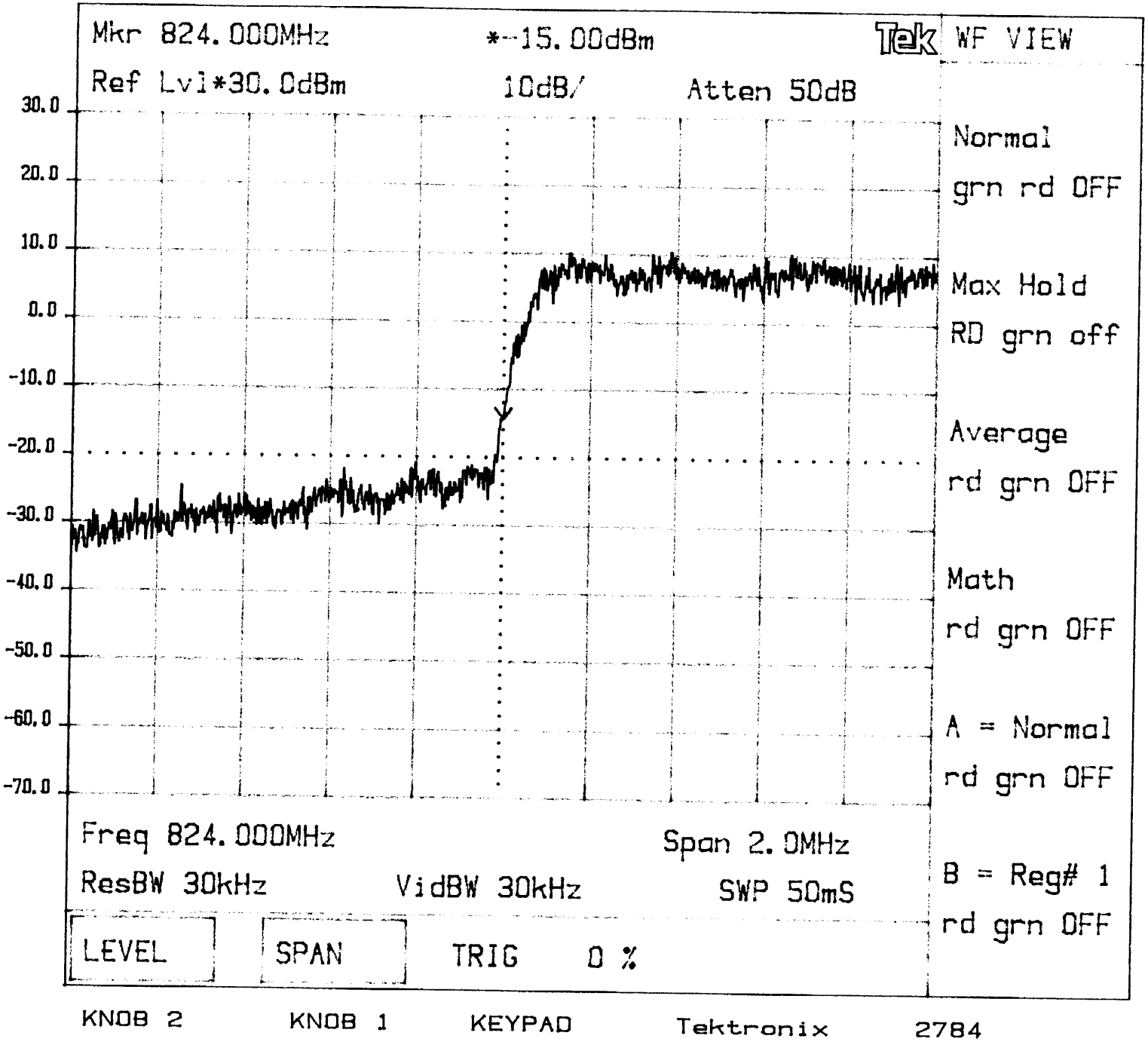

hp
REF 26.5 dBm
ATTEN 60 dB
MKR Δ 1.256 MHz
0.60 dB
10 dB/
OFFSET
6.5
dB
DL
12.3
dBm
CENTER 848.31 MHz
RES BW 30 kHz
VBW 30 kHz
SPAN 2.00 MHz
SWP 20.0 msec

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

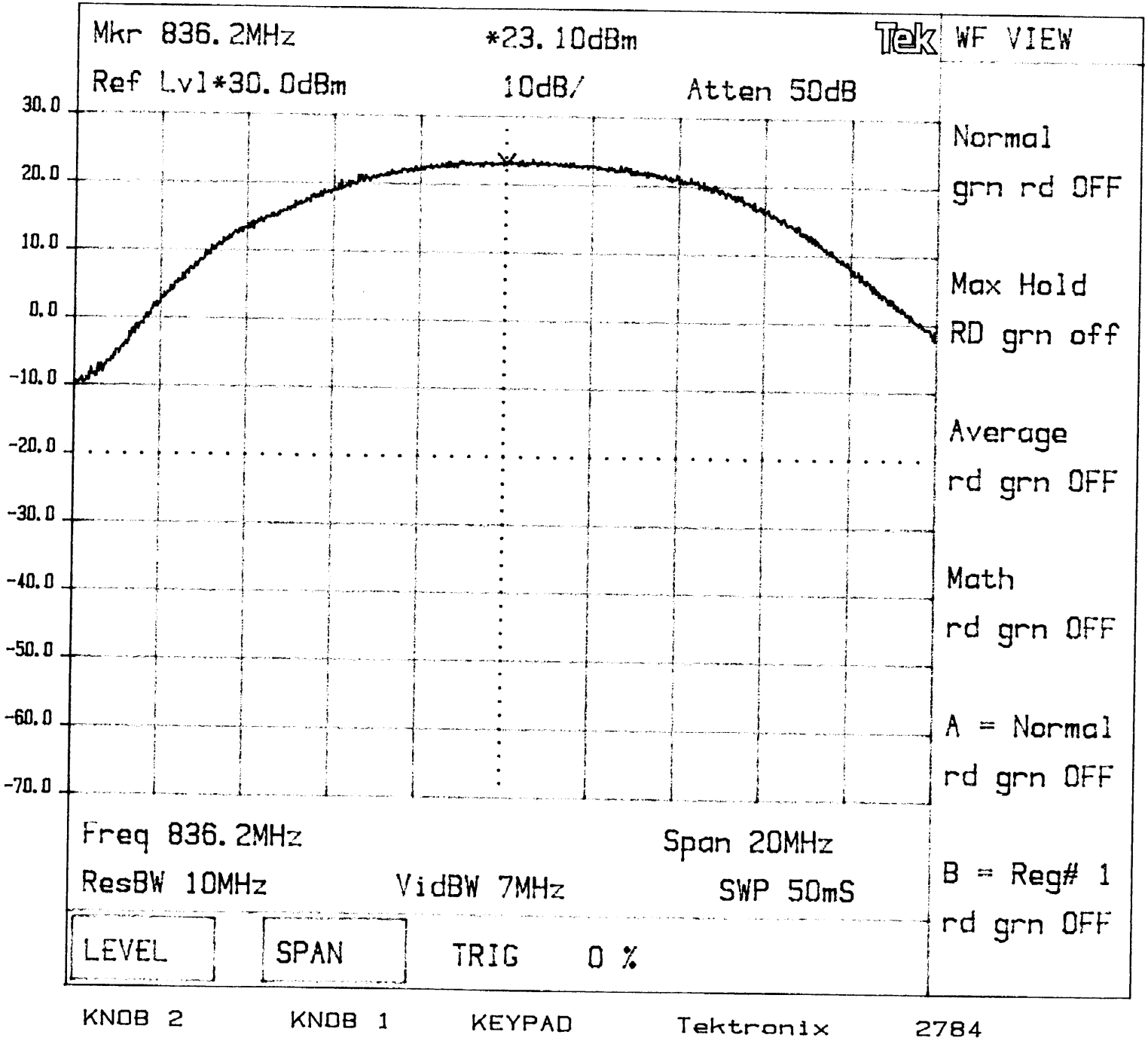
6,3,5


Mkr 824.7MHz
*23.00dBm
Tek WF VIEW
Ref Lvl*30.0dBm
10dB/
Atten 50dB
30.0
20.0
10.0
0.0
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
Normal
grn rd OFF
Max Hold
RD grn off
Average
rd grn OFF
Math
rd grn OFF
A = Normal
rd grn OFF
B = Reg# 1
rd grn OFF
Freq 824.7MHz
Span 20MHz
ResBW 10MHz
VidBW 7MHz
SWP 50mS
LEVEL
SPAN
Freq 824.7MHz
KNOB 2
KNOB 1
KEYPAD
Tektronix
2784

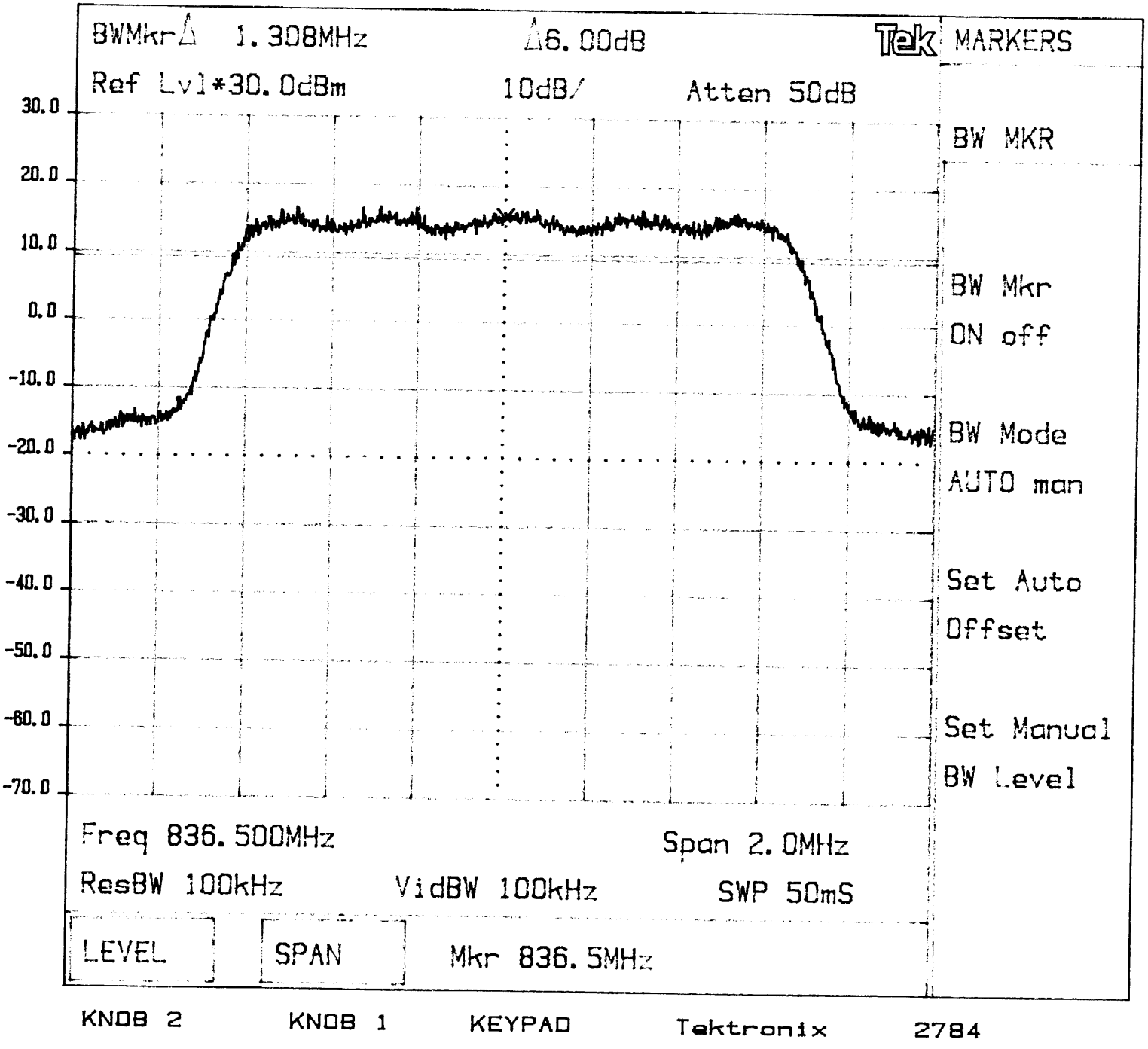
6,3,t


Mkr 824.000MHz
*-15.00dBm
Tek WF VIEW
Ref Lvl*30.0dBm
10dB/
Atten 50dB
30.0
20.0
10.0
0.0
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
Normal
grn rd OFF
Max Hold
RD grn off
Average
rd grn OFF
Math
rd grn OFF
A = Normal
rd grn OFF
B = Reg# 1
rd grn OFF
Freq 824.000MHz
Span 2.0MHz
ResBW 30kHz
VidBW 30kHz
SWP 50mS
LEVEL
SPAN
TRIG
0 %
KNOB 2
KNOB 1
KEYPAD
Tektronix
2784

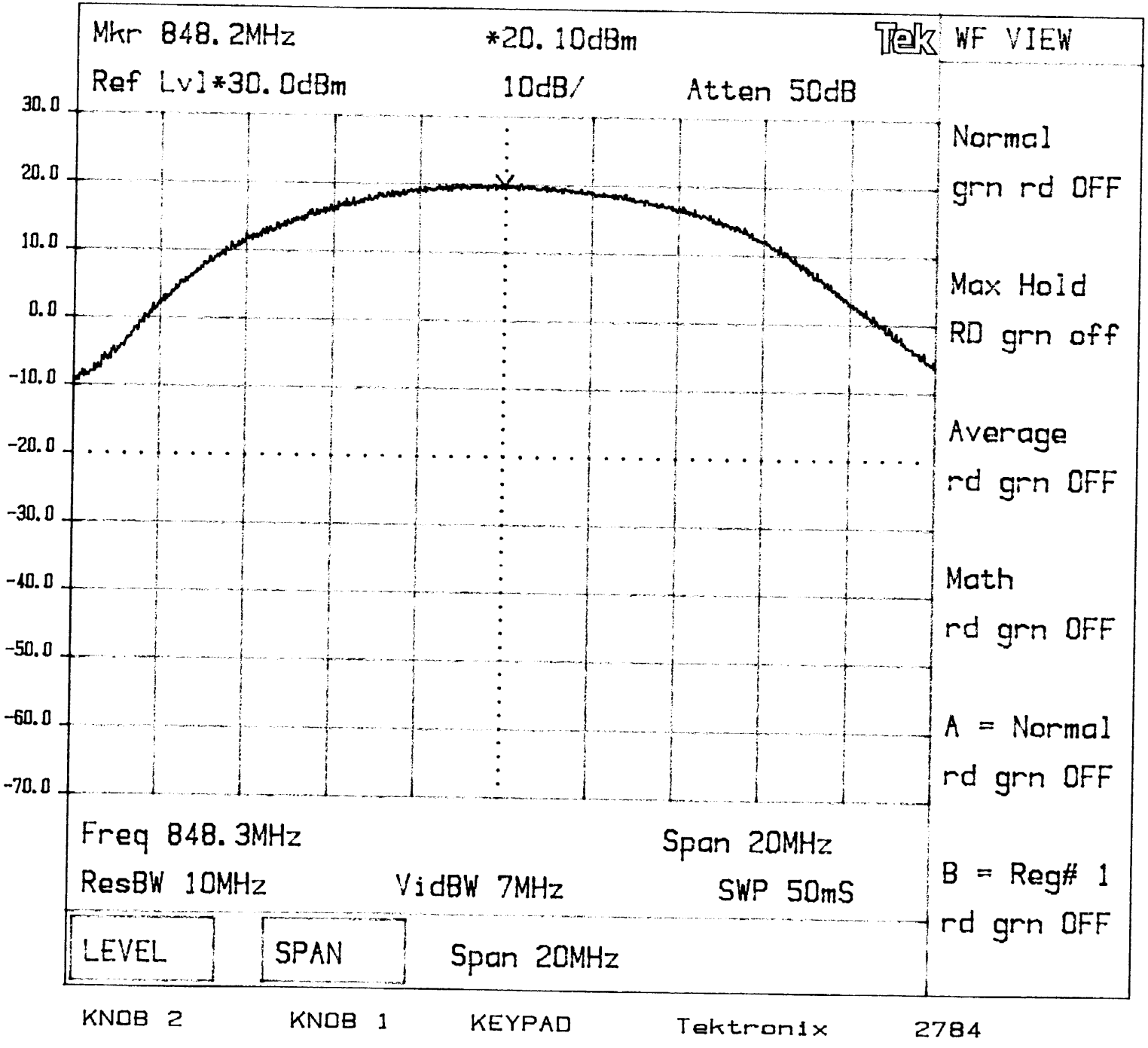
6.3.2


Mkr 836.2MHz
*23.10dBm
Tek
WF VIEW
Ref Lvl*30.0dBm
10dB/
Atten 50dB
30.0
20.0
10.0
0.0
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
Normal
grn rd OFF
Max Hold
RD grn off
Average
rd grn OFF
Math
rd grn OFF
A = Normal
rd grn OFF
B = Reg# 1
rd grn OFF
Freq 836.2MHz
Span 20MHz
ResBW 10MHz
VidBW 7MHz
SWP 50mS
LEVEL
SPAN
TRIG
0 %
KNOB 2
KNOB 1
KEYPAD
Tektronix
2784

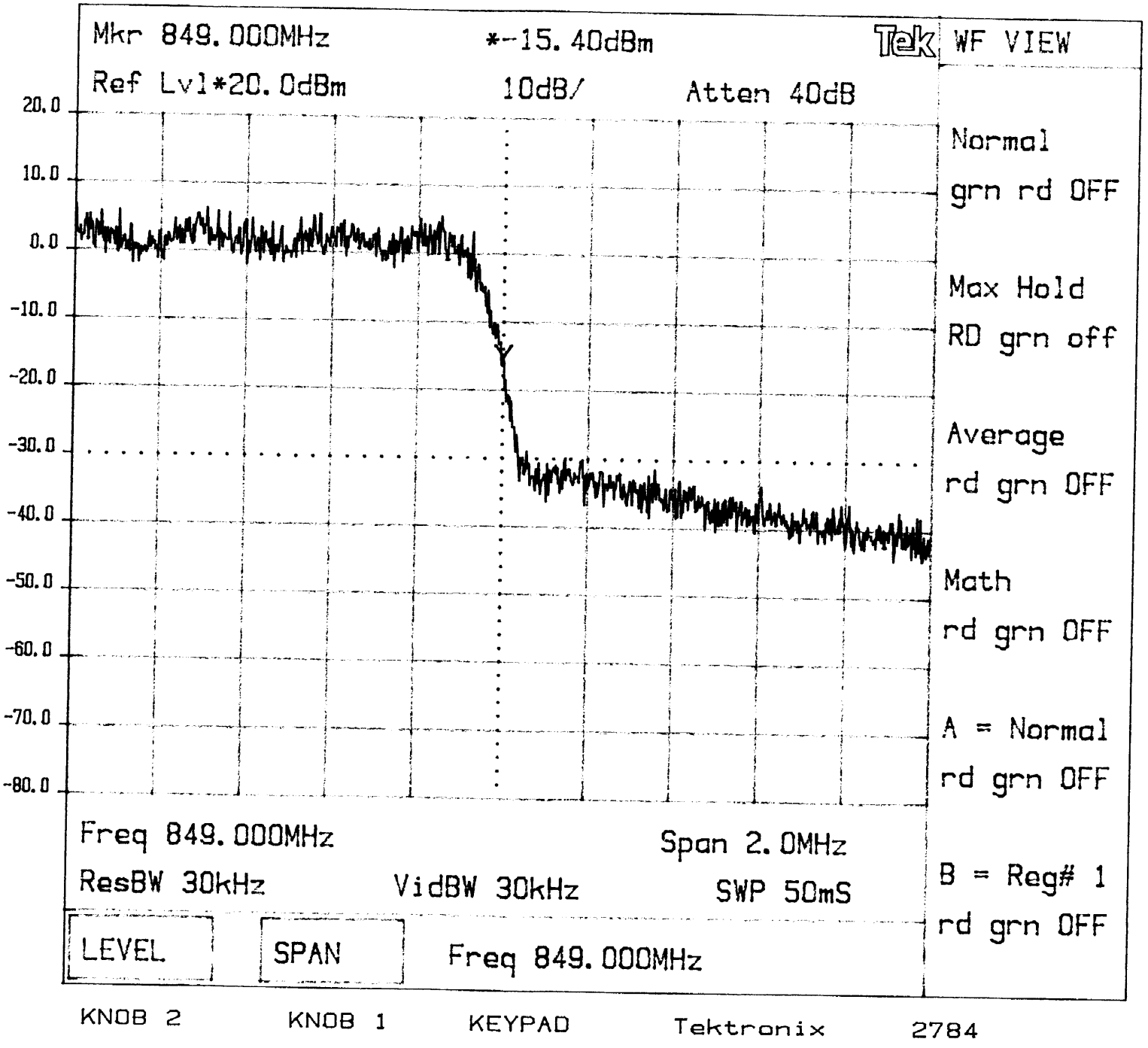
6.3.1


BWMkrΔ 1.308MHz
Δ6.00dB
Tek
MARKERS
Ref Lvl*30.0dBm
10dB/
Atten 50dB
30.0
20.0
10.0
0.0
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
BW MKR
BW Mkr
ON off
BW Mode
AUTO man
Set Auto
Offset
Set Manual
BW Level
Freq 836.500MHz
Span 2.0MHz
ResBW 100kHz
VidBW 100kHz
SWP 50mS
LEVEL
SPAN
Mkr 836.5MHz
KNOB 2
KNOB 1
KEYPAD
Tektronix
2784

6, 3, W


Mkr 848.2MHz
*20.10dBm
Tek WF VIEW
Ref Lvl*30.0dBm
10dB/
Atten 50dB
30.0
20.0
10.0
0.0
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
Normal
grn rd OFF
Max Hold
RD grn off
Average
rd grn OFF
Math
rd grn OFF
A = Normal
rd grn OFF
B = Reg# 1
rd grn OFF
Freq 848.3MHz
Span 20MHz
ResBW 10MHz
VidBW 7MHz
SWP 50mS
LEVEL
SPAN
Span 20MHz
KNOB 2
KNOB 1
KEYPAD
Tektronix
2784

6.5.X


Mkr 849.000MHz
*-15.40dBm
Tek WF VIEW
Ref Lvl*20.0dBm
10dB/
Atten 40dB
20.0
10.0
0.0
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
Normal
grn rd OFF
Max Hold
RD grn off
Average
rd grn OFF
Math
rd grn OFF
A = Normal
rd grn OFF
B = Reg# 1
rd grn OFF
Freq 849.000MHz
Span 2.0MHz
ResBW 30kHz
VidBW 30kHz
SWP 50mS
LEVEL
SPAN
Freq 849.000MHz
KNOB 2
KNOB 1
KEYPAD
Tektronix
2784