Intertek Testing Services

APPLICATION FOR FCC CERTIFICATION

Symbol Technologies Inc.

2.4 GHz 500mW Radio

Model: LA3021-500

FCC ID: H9PLA3021-500

Job# J99013298
Report# J99013298d

Number of Pages: 34 pp. + Supporting Data and Documents

Date of Report: June 22, 1999

Table of Contents

1 . 0 Summary of Tests

Symbol Technologies Inc. - Model No.: LA-3021400
FCC ID: H9PLA3021-500

TEST	REFERENCE	RESULTS
Max. Output power	15.247(b)(3)	Pass
20 dB Bandwidth	15.247(a)(l)	Pass
Min. Hopping Channels	15.247(a)(l)	Pass
Average Channel Occupancy Time	15.247(a)(l)	Pass
Out of Band Antenna Conducted Emission	15.247 (c)	Pass
Out of Band Radiated Emission	15.247(c)	Not Applicable
Radiated Emission in Restricted Bands	15.247(c), 15.209(a)	Pass
AC Conducted Emission	15.207	Pass
Radiated Emission from Digital Part	15.109	Pass
Radiated Emission from Receiver L.O.	15.109	Not Applicable
Antenna Requirement	15.203	Pass

Test Engineer: Xli Ming for **Date:** July 1, 1999
XI-Ming Yang

EMC Site Mgr. : David Chernomordik Date: 1/7/99
David Chernomordik, Ph.D.

2.0 General Description

2.1 Product Description

The Symbol Technologies Inc. Model LA3021-500 is a 2.4 GHz frequency hopping spread spectrum device.

Overview of the EUT

Applicant	Symbol Technologies Inc.
Trade Name & Model No.	Symbol Technologies, Model No. LA3021-500
FCC Identifier	H9PLA3021-500
Use of Product	
Manufacturer & Model of Spread Spectrum Module	
Type of Transmission	Frequency Hopping Spread Spectrum
Rated RF Output (mW)	500
Frequency Range (MHz)	2402 - 2480
Number of Channel(s)	79
Antenna(s) & Gain, dBi	21 antennas; see antenna data sheet
Processing Gain Measurements	[X] Will be provided directly to the FCC reviewing engineer by the client or manufacturer of the spread spectrum module
Antenna Requirement	[ ]The EUT uses a permanently connected antenna. [X] The antenna is affixed to the EUT using a unique connector which allows for replacement of a broken antenna, but DOES NOT use a standard antenna jack or electrical connector. [ ] The EUT requires professional installation (attach supporting documentation if using this option).
Manufacturer name & address	Symbol Technologies 2145 Hamilton Avenue San Jose, CA 95125

2.2 Related Submittal(s) Grants

None.

2.3 Test Methodology

Both AC mains line-conducted and radiated emissions measurements were performed according to the procedures in ANSI C63.4 (1992). Radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the **"Data Sheet"** of this Application. All other measurements were made in accordance with the procedures in part 2 of CFR 47.

2.4 Test Facility

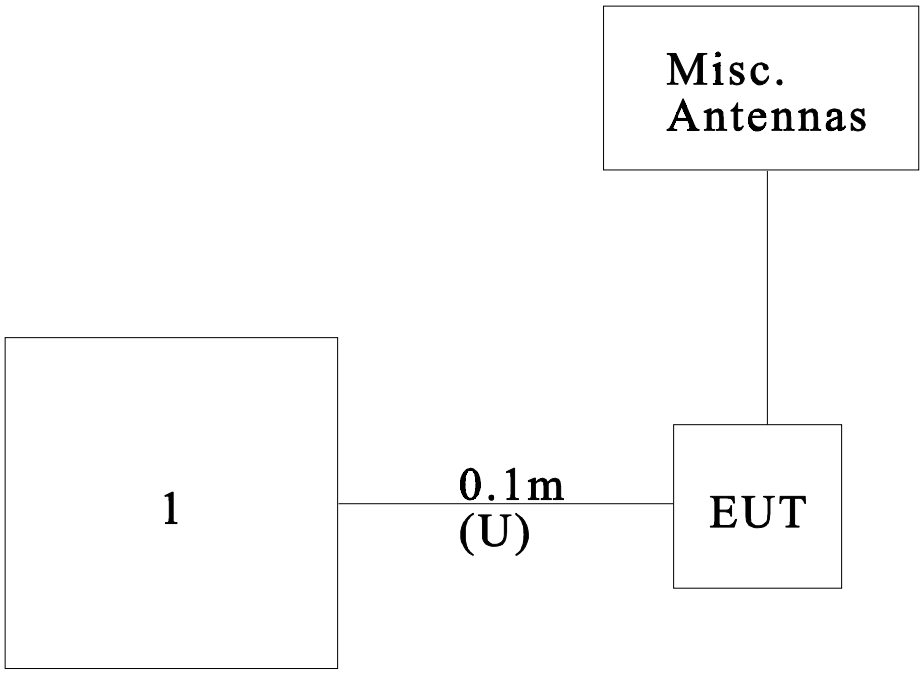
The open area test site and conducted measurement facility used to collect the radiated data is located at 1365 Adams Court, Menlo Park, CA 94025. This test facility and site measurement data have been fully placed on file with the FCC.

3.0 System Test Configuration

3.1 Support Equipment

Item #	Description	Model No.	Serial No.	FCC ID
1	Dell Computer	POS3410-N500	F999999	DoC

3.2 Block Diagram of Test Setup



m: Length in meters

U: Unshielded

3.3 Justification

For emission testing, the equipment under test (EUT) was configured for testing in a typical fashion (as a customer would normally use it). During testing, all cables were manipulated to produce worst case emissions.

For radiated emission measurements, the EUT is attached to a cardboard box (if necessary) and placed on the wooden turntable. If the EUT attaches to peripherals, they are connected and operational (as typical as possible). The EUT is wired to transmit full power.

The signal is maximized through rotation and placement in the three orthogonal axes. The antenna height and polarization are varied during the search for maximum signal level. The antenna height is varied from 1 to 4 meters. Radiated emissions are taken at three meters unless the signal level is too low for measurement at that distance. If necessary, a pre-amplifier is used and/or the test is conducted at a closer distance.

All readings are extrapolated back to the equivalent three meter reading using inverse scaling with distance.

3.4 Software Exercise Program

The EUT exercise program used during radiated and conducted testing was designed to exercise the various system components in a manner similar to a typical use.

3.5 Mode of Operation During Test

For emissions testing, the units were setup to transmit continuously to simplify the measurement methodology. Care was taken to ensure proper power supply voltages during testing.

3.6 Modifications Required for Compliance

The following modifications were installed during compliance testing in order to bring the product into compliance (Please note that this list does not include changes made specifically by Symbol Technologies Inc. prior to compliance testing):

No modifications were made to the EUT by Intertek Testing Services.

4.0 Measurement Results

4.1 Maximum Conducted Output Power at Antenna Terminals , FCC Ref: 15.247(b):

With the hopping function turned OFF:

[ ] The antenna port of the EUT was connected to the input of a power meter. Power was read directly and cable loss correction was added to the reading to obtain power at the EUT antenna terminals.

[X] The antenna port of the EUT was connected to the input of a spectrum analyzer. The analyzer was set for maximum RES BW and power was read directly in dBm.

For antennas with gains of 6 dBi or less , maximum allowed transmitter output is 1 watt (+30 dBm).

For antennas with gains greater than 6 dBi, transmitter output level must be decreased by an amount equal to (GAIN - 6)/3 dBm.

NOTE: Hopping function disabled during test

Frequency (MHz)	Output in dBm	Output in mWatt
2402	25.2	331
2440	24.9	309
2480	24.5	281

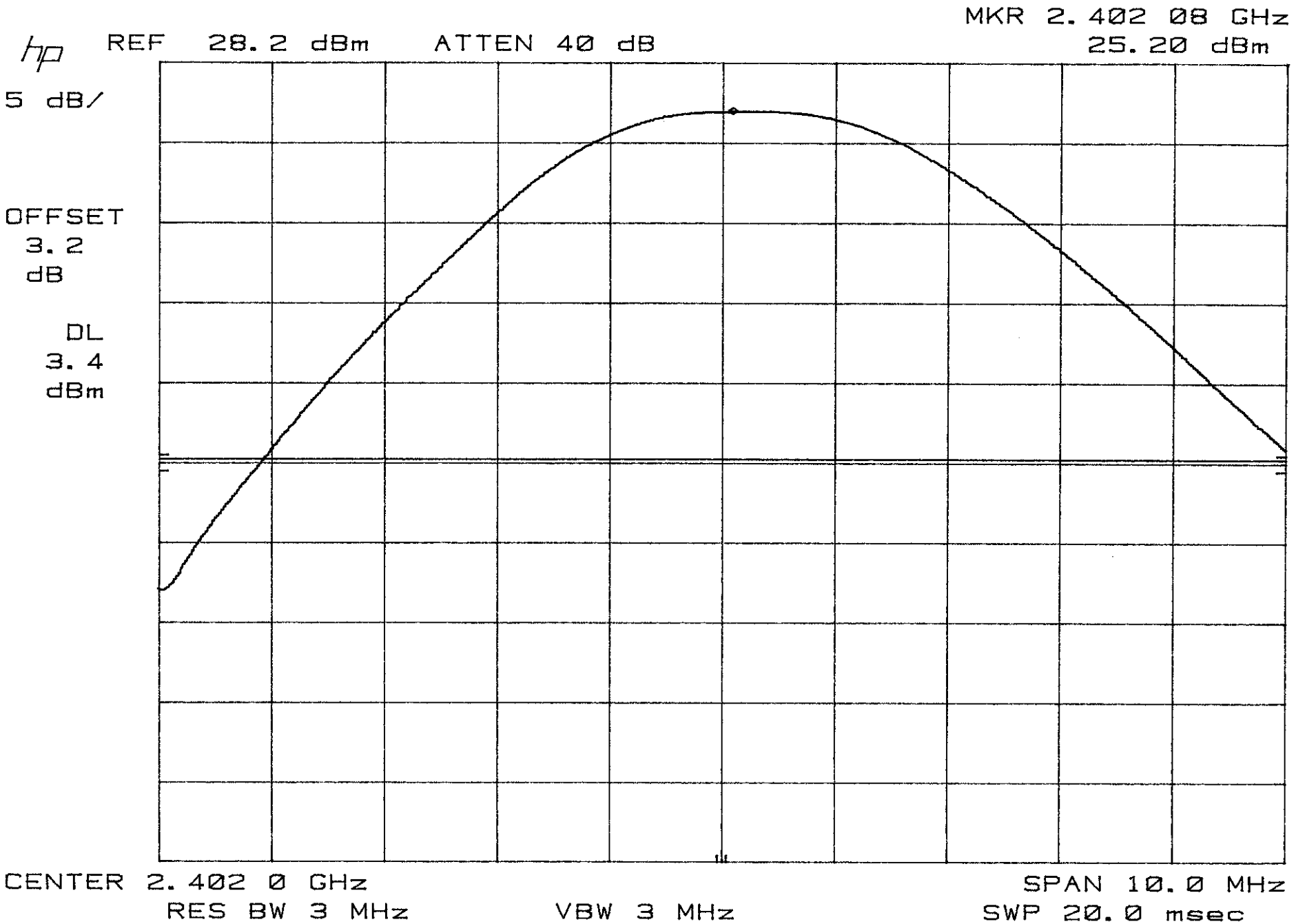
Cable loss: 0.2 dB External Attenuation: 3.0 dB

Cable loss, external attenuation: [X] included in OFFSET function
[ ] added to SA raw reading

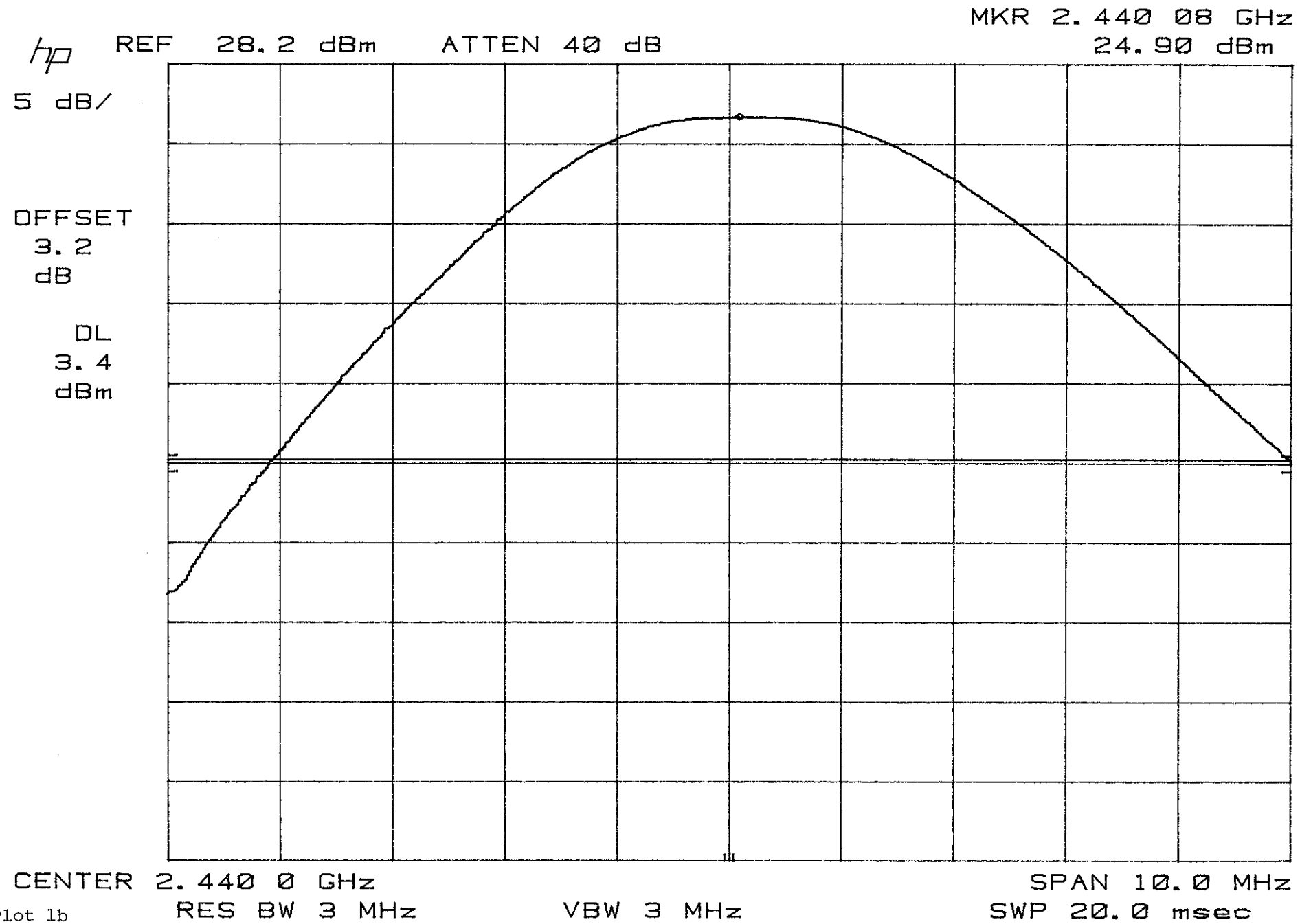
EUT Transmit Antenna Gain (0 dBi) +20.3 dBm max. output level =20.3 dBm.

Please refer to the attached plots for details:

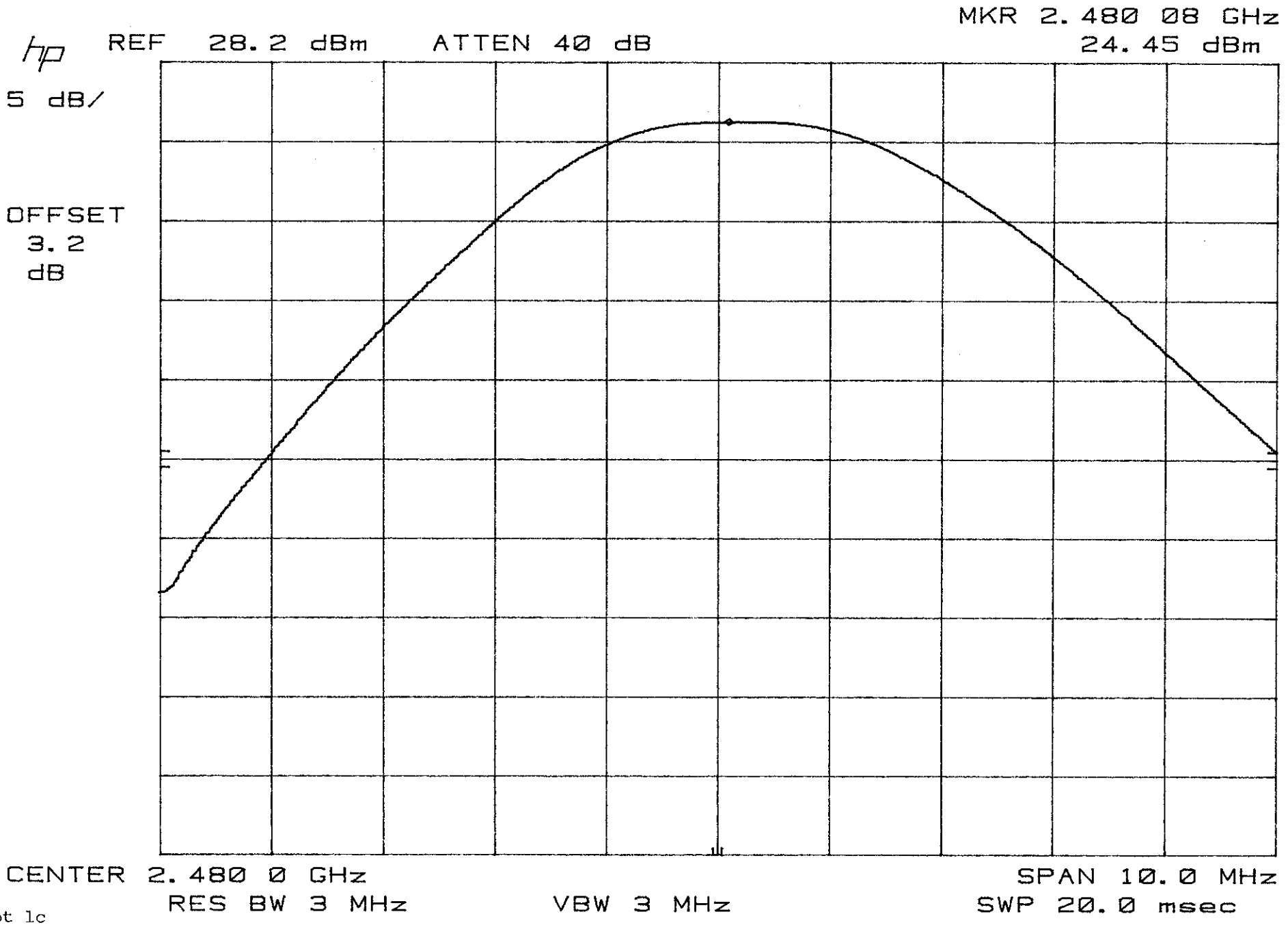
Plot 1.a: Low Channel Output Power
Plot 1.b: Middle Channel Output Power
Plot 1.c: High Channel Output Power


MKR 2.402 08 GHz
25.20 dBm
REF 28.2 dBm
ATTEN 40 dB
5 dB/
OFFSET
3.2
dB
DL
3.4
dBm
CENTER 2.402 0 GHz
RES BW 3 MHz
VBW 3 MHz
SPAN 10.0 MHz
SWP 20.0 msec

Plot 1a


MKR 2.440 08 GHz
24.90 dBm
REF 28.2 dBm
ATTEN 40 dB
5 dB/
OFFSET
3.2
dB
DL
3.4
dBm
CENTER 2.440 0 GHz
SPAN 10.0 MHz
RES BW 3 MHz
VBW 3 MHz
SWP 20.0 msec

Plot 1b


MKR 2.480 08 GHz
24.45 dBm
REF 28.2 dBm
ATTEN 40 dB
5 dB/
OFFSET
3.2
dB
CENTER 2.480 0 GHz
RES BW 3 MHz
VBW 3 MHz
SPAN 10.0 MHz
SWP 20.0 msec

Plot 1c

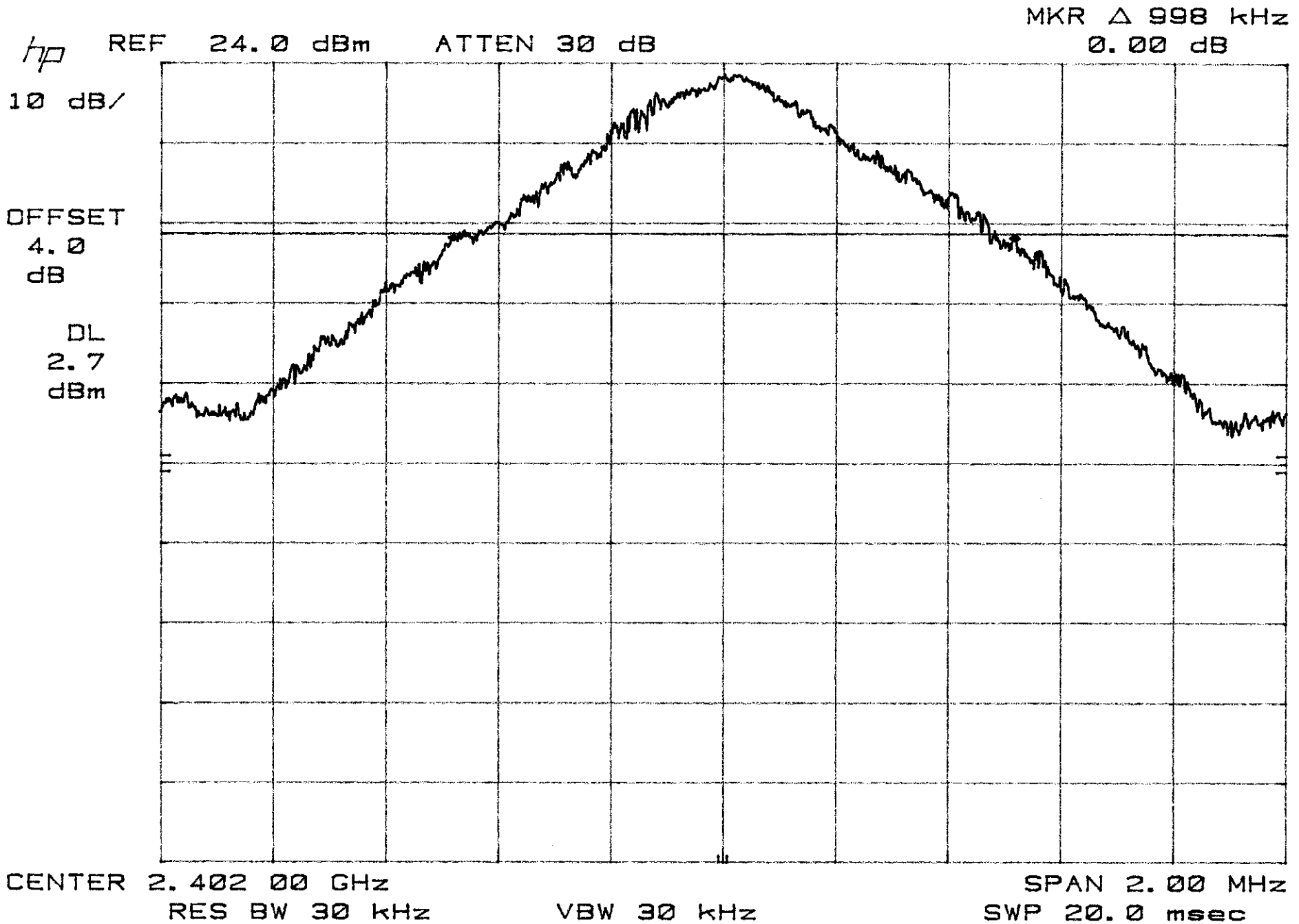
4.2 Hopping Channel 20 dB RF Bandwidth, FCC Ref: 15.247(a)(1)

Test results:

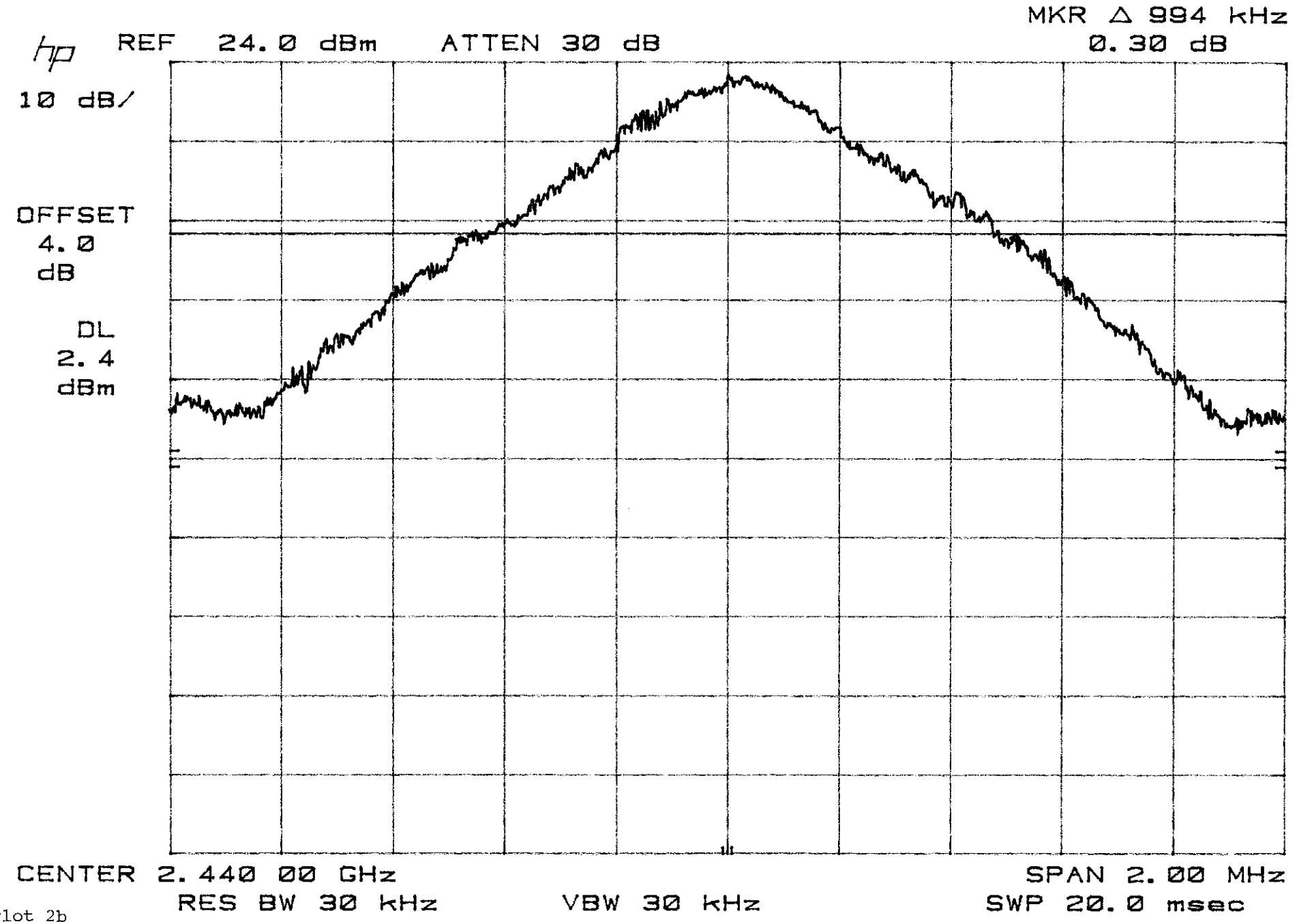
Channel (Frequency, MHz)	20 dB Bandwidth (kHz)
Low, 2402	998
Middle, 2440	994
High, 2480	996

Please refer to the attached plots for details:

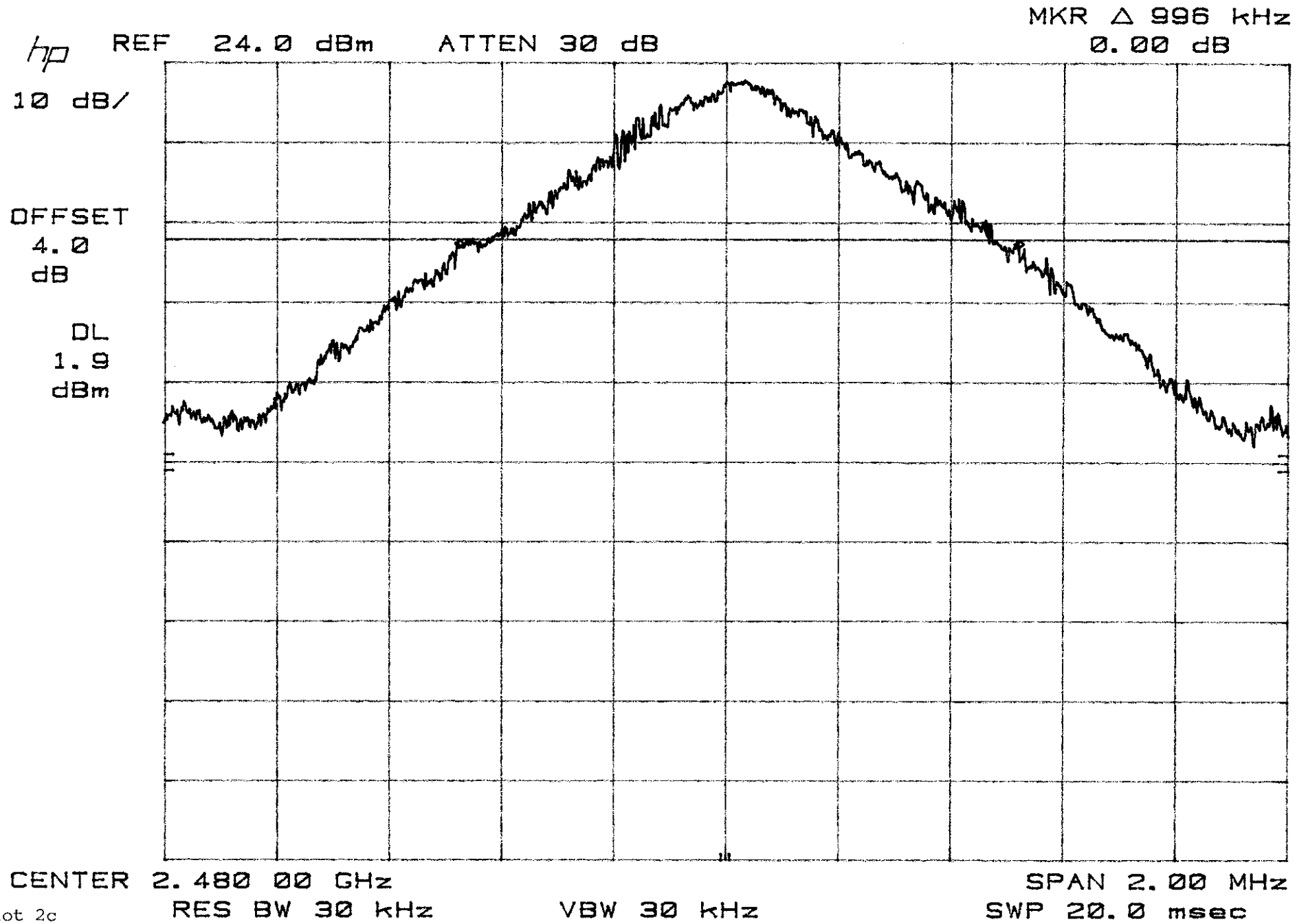
Plot 2.a: Low Channel
Plot 2.b: Middle Channel
Plot 2.c: High Channel


MKR Δ 998 kHz
0.00 dB
hp REF 24.0 dBm ATTEN 30 dB
10 dB/
OFFSET
4.0
dB
DL
2.7
dBm
CENTER 2.402 00 GHz
SPAN 2.00 MHz
RES BW 30 kHz
VBW 30 kHz
SWP 20.0 msec

PLOT 2a


MKR Δ 994 kHz
0.30 dB
hp REF 24.0 dBm ATTEN 30 dB
10 dB/
OFFSET
4.0
dB
DL
2.4
dBm
CENTER 2.440 00 GHz
SPAN 2.00 MHz
RES BW 30 kHz
VBW 30 kHz
SWP 20.0 msec

Plot 2b


MKR Δ 996 kHz
0.00 dB
hp REF 24.0 dBm ATTEN 30 dB
10 dB/
OFFSET
4.0
dB
DL
1.9
dBm
CENTER 2.480 00 GHz
SPAN 2.00 MHz
RES BW 30 kHz
VBW 30 kHz
SWP 20.0 msec

Plot 2c

4.3 Minimum Number of Hopping Frequencies, FCC Ref: 15.247(a)(1)(I&ii)

The RF passband of the EUT was divided into 2 approximately equal bands. With the analyzer set to MAX HOLD readings were taken for 2 - 3 minutes in each band. The channel peaks so recorded were added together, and the total number compared to the minimum number of channels required in the regulation.

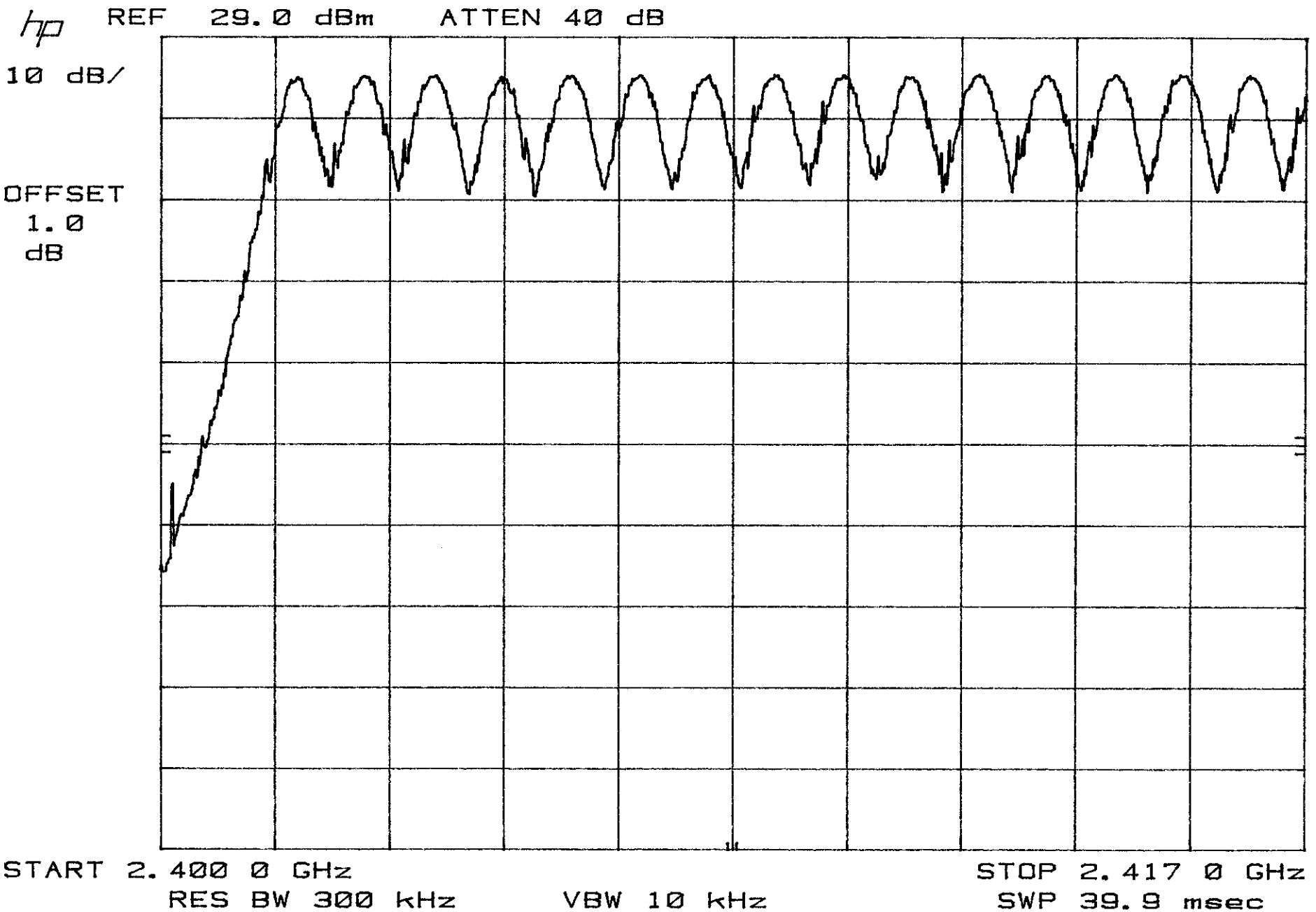
Number of hopping channels	79

Minimum Requirements:

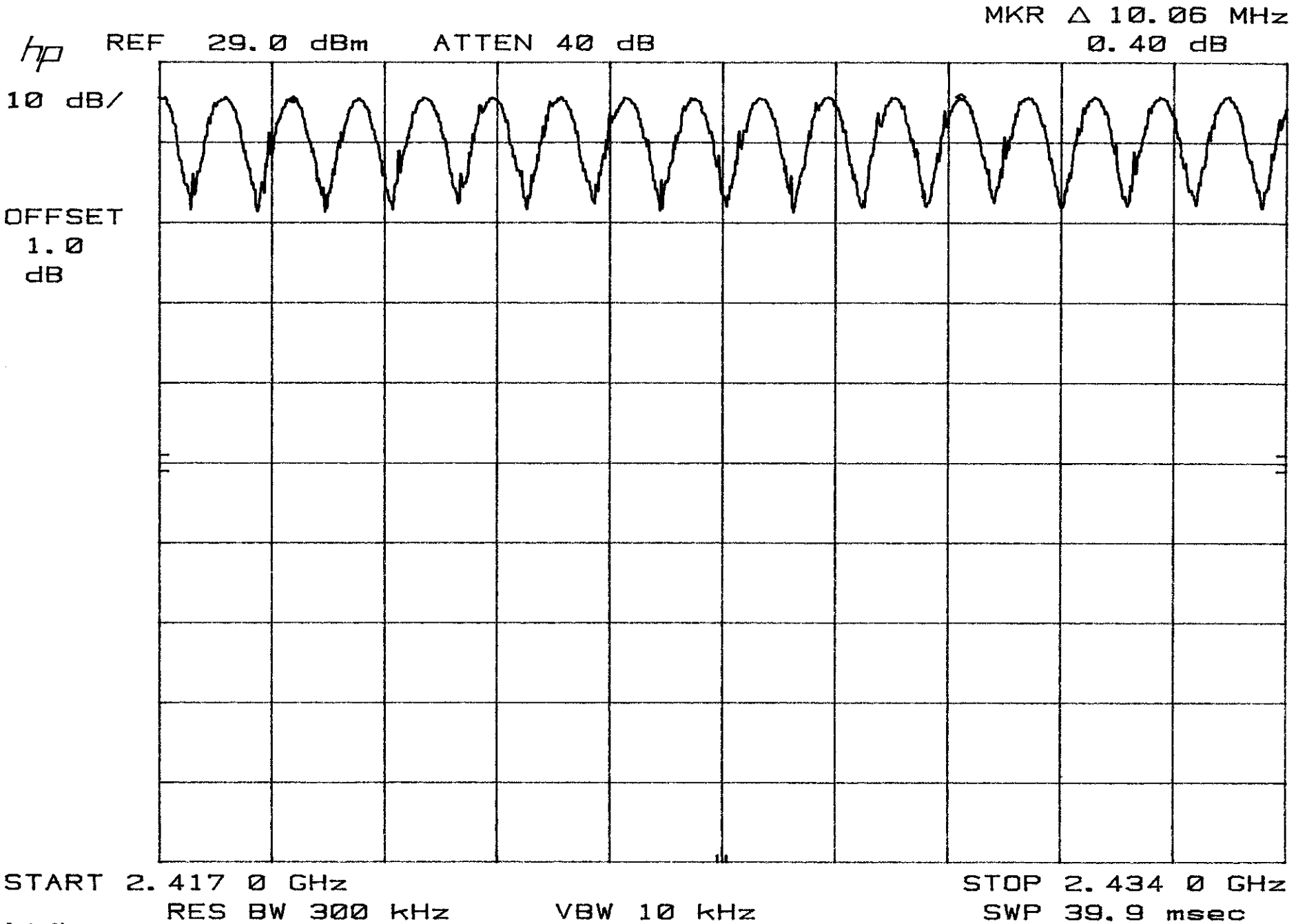
at least 50 channels for 902 - 928 MHz band;
at least 75 channels for 2400 - 2483.5 and 5725 - 5850 MHz systems

Please refer to the attached plots for details:

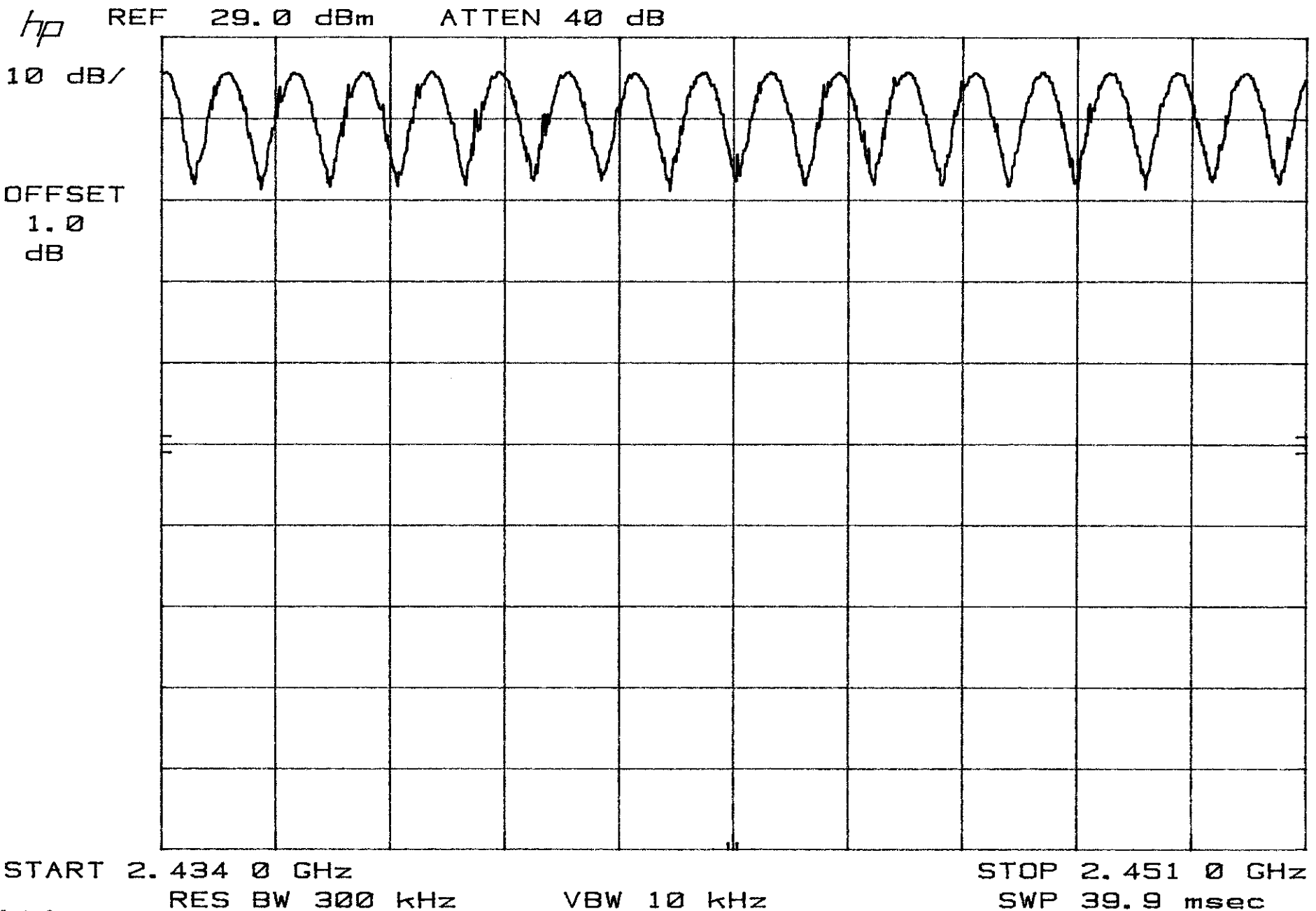
Plots 3.a - 3.e


REF 29.0 dBm
ATTEN 40 dB
10 dB/
OFFSET
1.0
dB
START 2.400 0 GHz
RES BW 300 kHz
VBW 10 kHz
STOP 2.417 0 GHz
SWP 39.9 msec

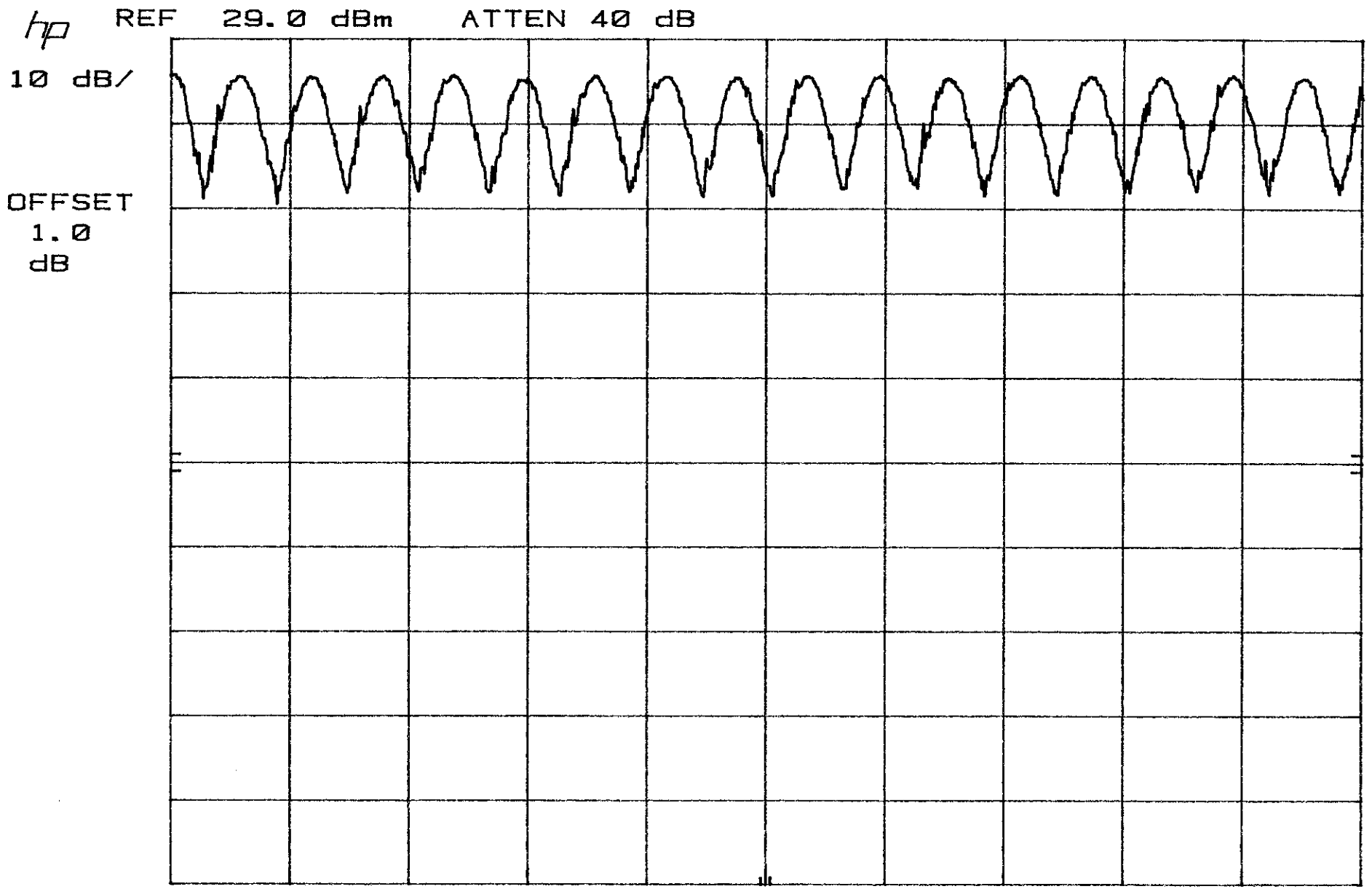
Plot 3a


MKR Δ 10.06 MHz
0.40 dB
REF 29.0 dBm
ATTEN 40 dB
10 dB/
OFFSET
1.0
dB
START 2.417 0 GHz
RES BW 300 kHz
VBW 10 kHz
STOP 2.434 0 GHz
SWP 39.9 msec

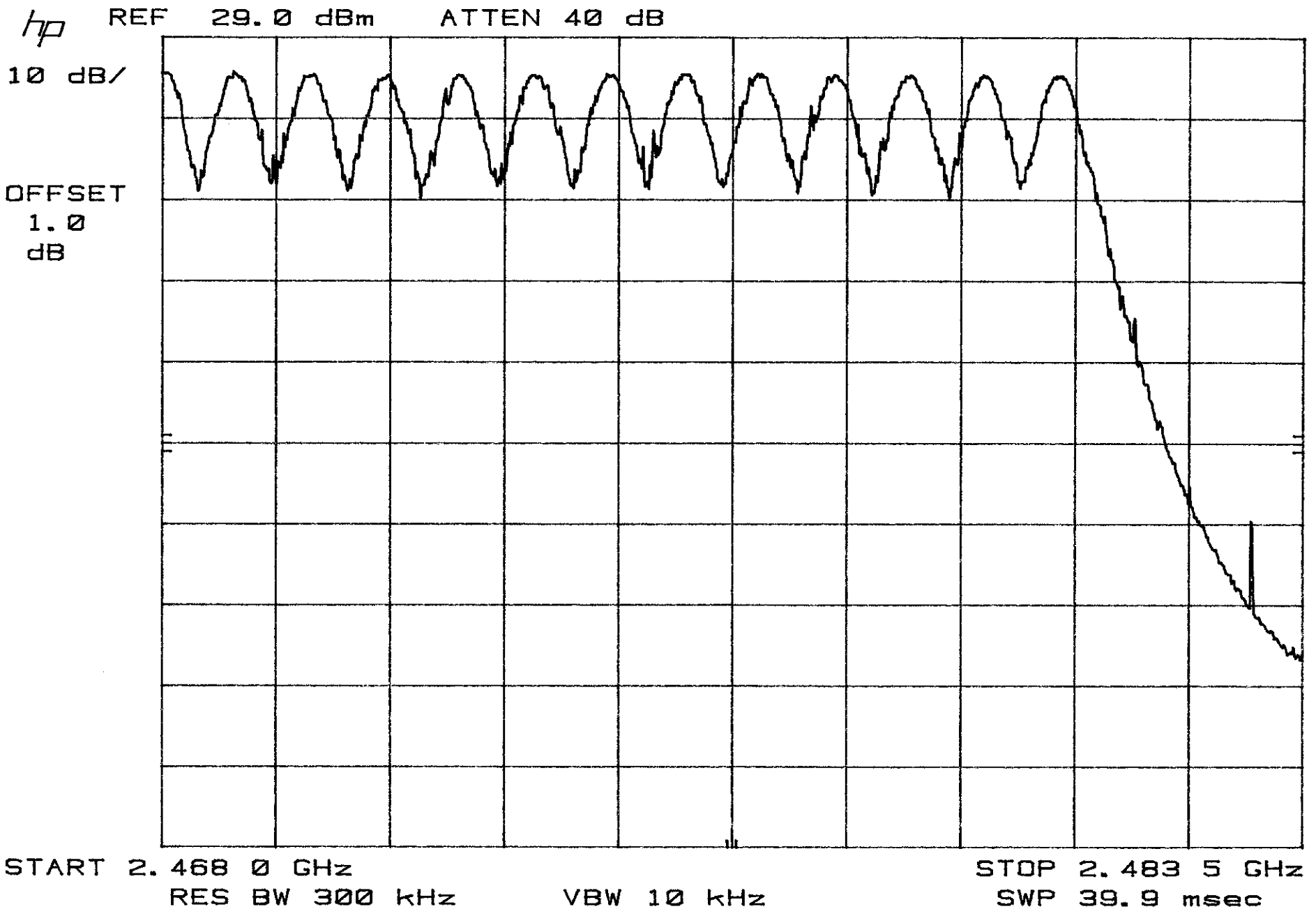
Plot 3b


REF 29.0 dBm
ATTEN 40 dB
10 dB/
OFFSET
1.0
dB
START 2.434 0 GHz
RES BW 300 kHz
VBW 10 kHz
STOP 2.451 0 GHz
SWP 39.9 msec

Plot 3c


hp
REF 29.0 dBm
ATTEN 40 dB
10 dB/
OFFSET
1.0
dB
START 2.451 0 GHz
STOP 2.468 0 GHz
RES BW 300 kHz
VBW 10 kHz
SWP 39.9 msec

PLOT 3d


hp
REF 29.0 dBm
ATTEN 40 dB
10 dB/
OFFSET
1.0
dB
START 2.468 0 GHz
RES BW 300 kHz
VBW 10 kHz
STOP 2.483 5 GHz
SWP 39.9 msec

Plot 3e

4.4 Average Channel Occupancy Time, FCC Ref: 15.247(a)(1)(I&ii)

Requirement:
Average 0.4 seconds maximum occupancy in 20 seconds, 902-928 MHz
Average 0.4 seconds maximum occupancy in 30 seconds, 2400-2483.5/5725-5850 MHz

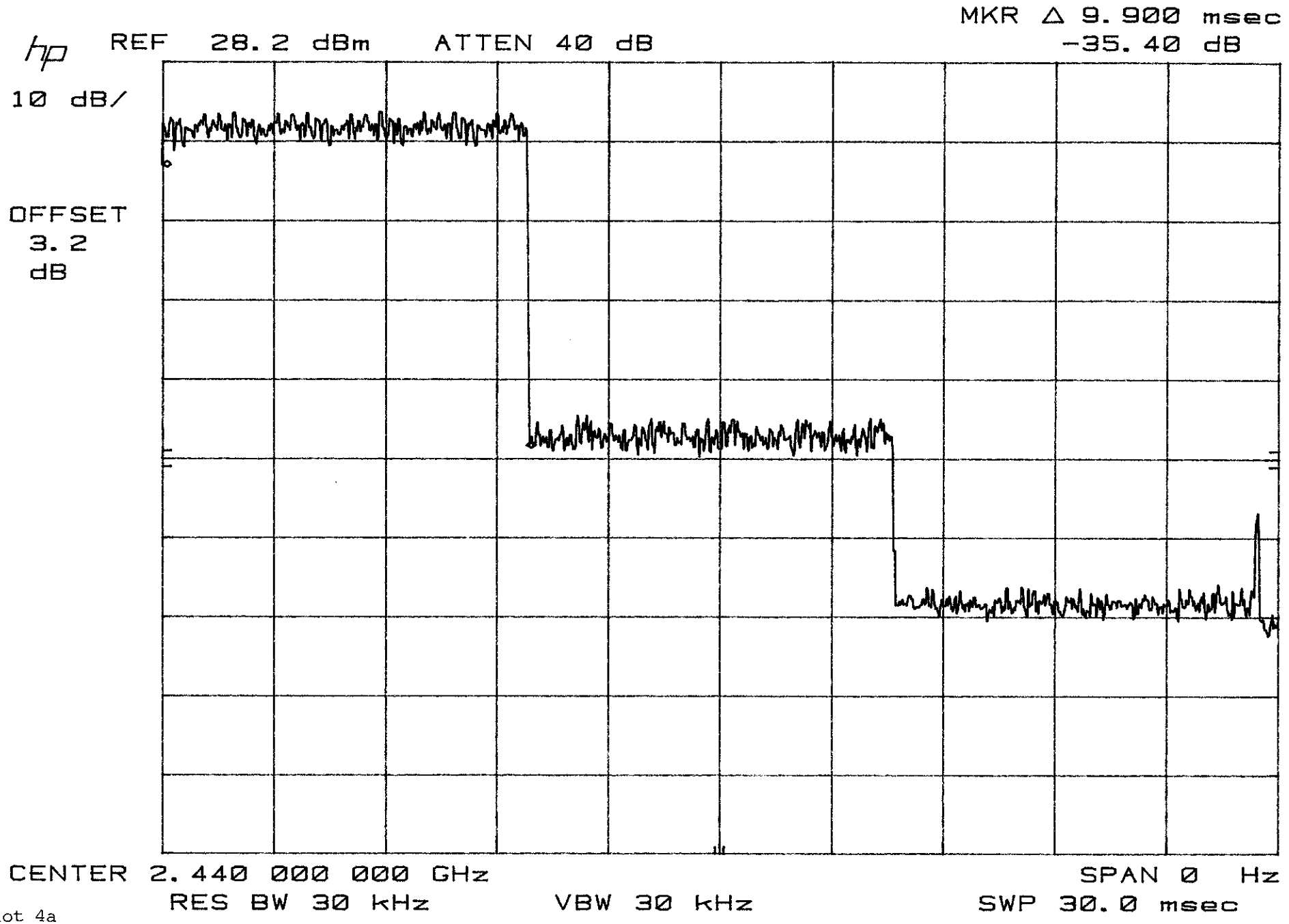
The spectrum analyzer center frequency was set to one of the known hopping channels. The SWEEP was set to 0.4 second, the SPAN was set to ZERO SPAN, and the TRIGGER was set to VIDEO. The time duration of the transmission so captured was measured with the MARKER DELTA function.

The SWEEP was then set to the time required by the regulation (20 seconds for 902-928 MHz devices, 30 seconds for all other bands). The analyzer was set to SINGLE SWEEP, the total ON time was added and compared against the limit (0.4 seconds).

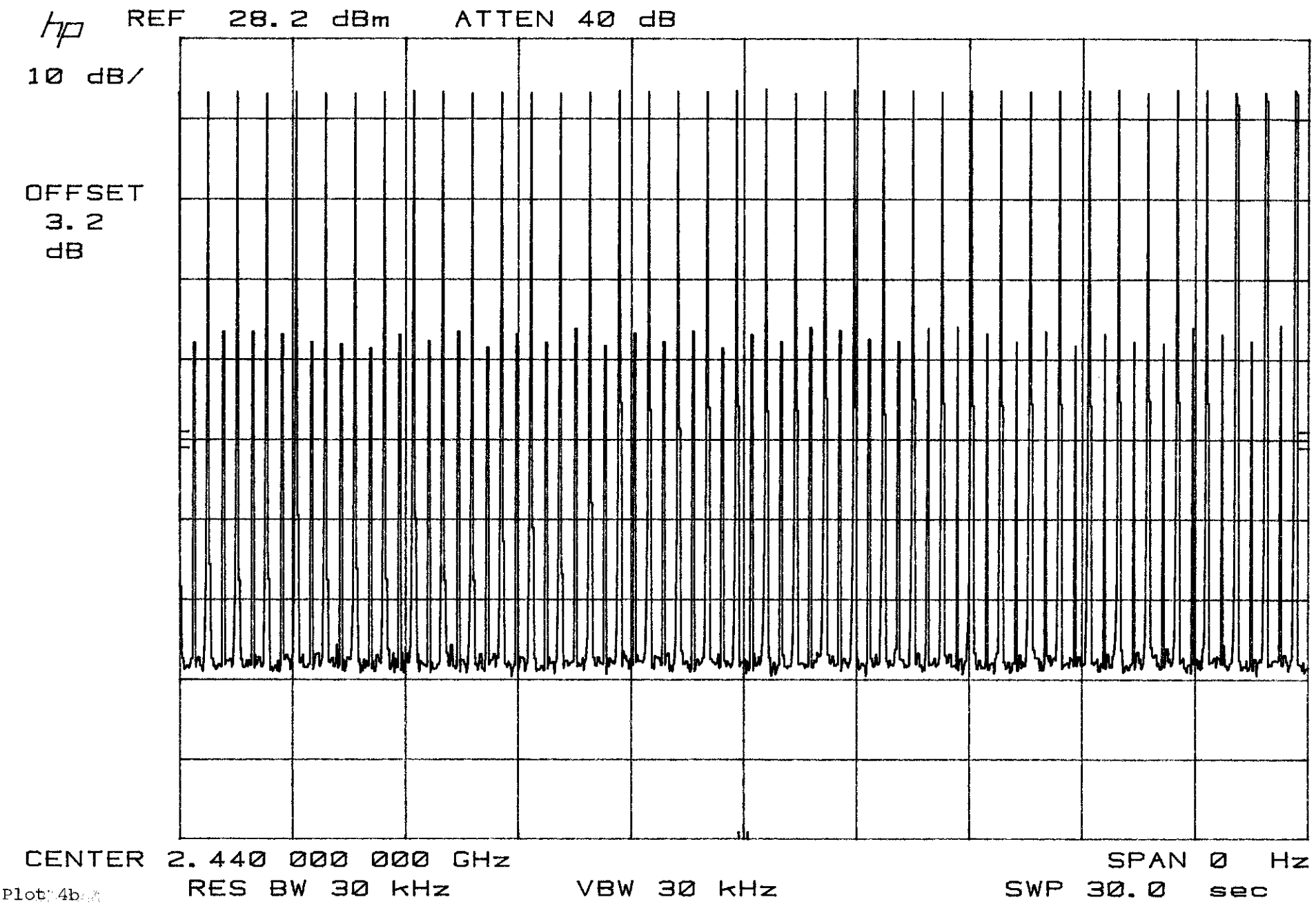
The average time occupancy is:
39 x 9.9 (ms) = 386.1 ms

Please refer to the attached plots for details:

Plots 4.a - 4.b


MKR Δ 9.900 msec
REF 28.2 dBm
ATTEN 40 dB
-35.40 dB
10 dB/
OFFSET
3.2
dB
CENTER 2.440 000 000 GHz
SPAN 0 Hz
RES BW 30 kHz
VBW 30 kHz
SWP 30.0 msec

Plot 4a


REF 28.2 dBm
ATTEN 40 dB
10 dB/
OFFSET
3.2
dB
CENTER 2.440 000 000 GHz
SPAN 0 Hz
RES BW 30 kHz
VBW 30 kHz
SWP 30.0 sec

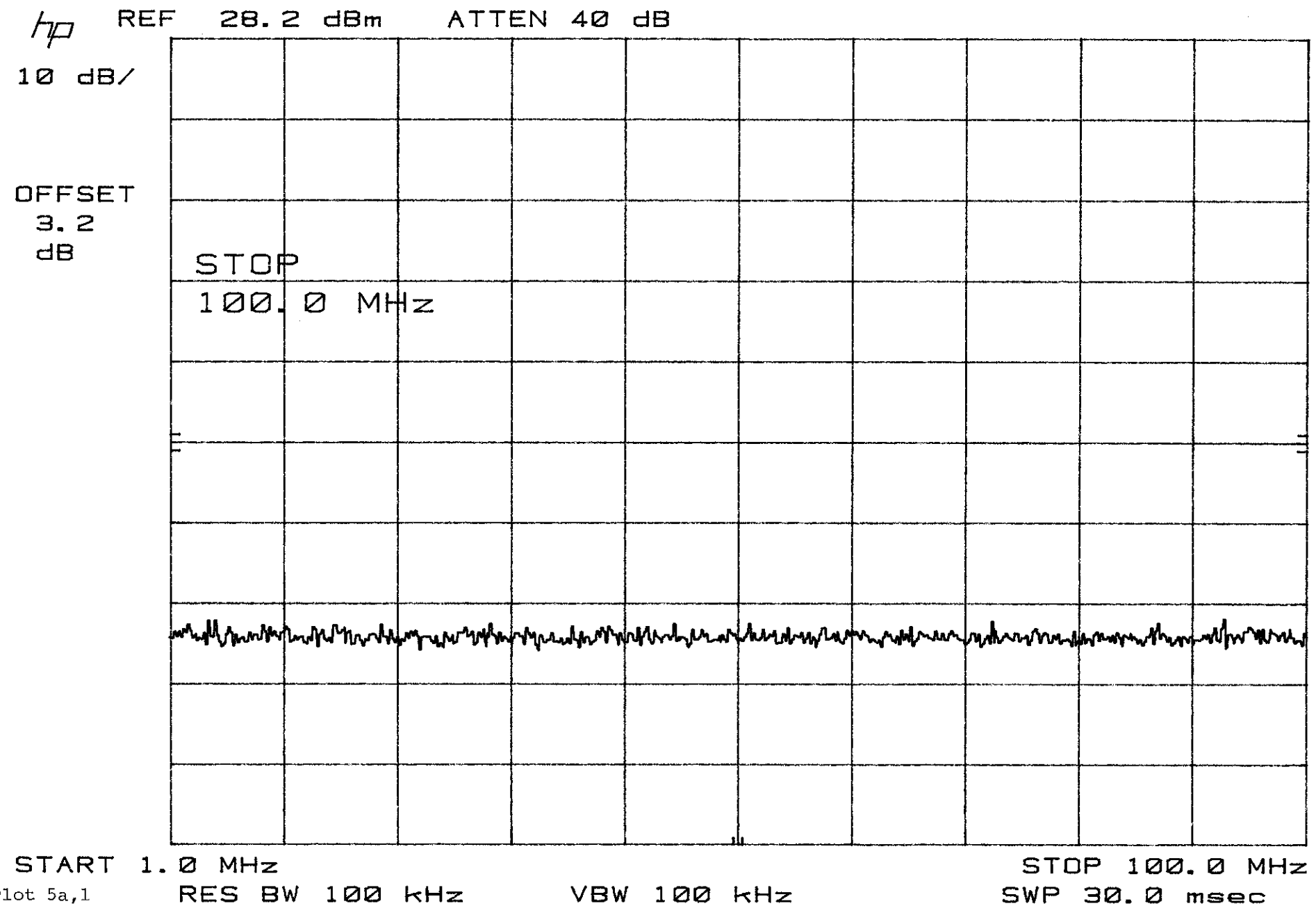
Plot 4b

4.5 Out of Band Conducted Emissions, FCC Ref: 15.247 (c)

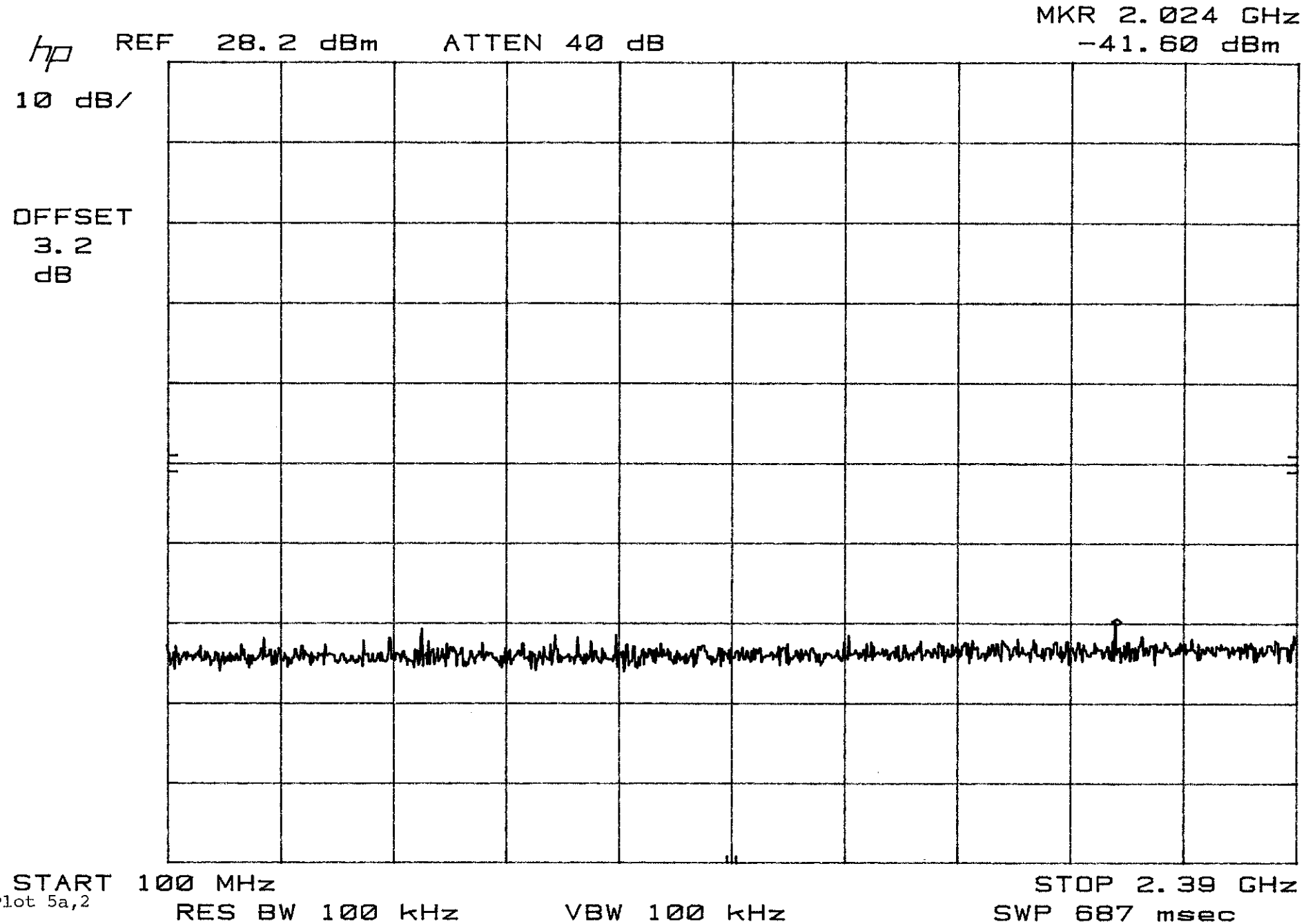
Requirements:
In any 100 kHz bandwidth outside the EUT passband, the RF power produced by the modulation products of the spreading sequence, the information sequence, and the carrier frequency shall be at least 20 dB below that of the maximum in-band 100 kHz emission.

Result:
Please refer to the attached Plots for details:

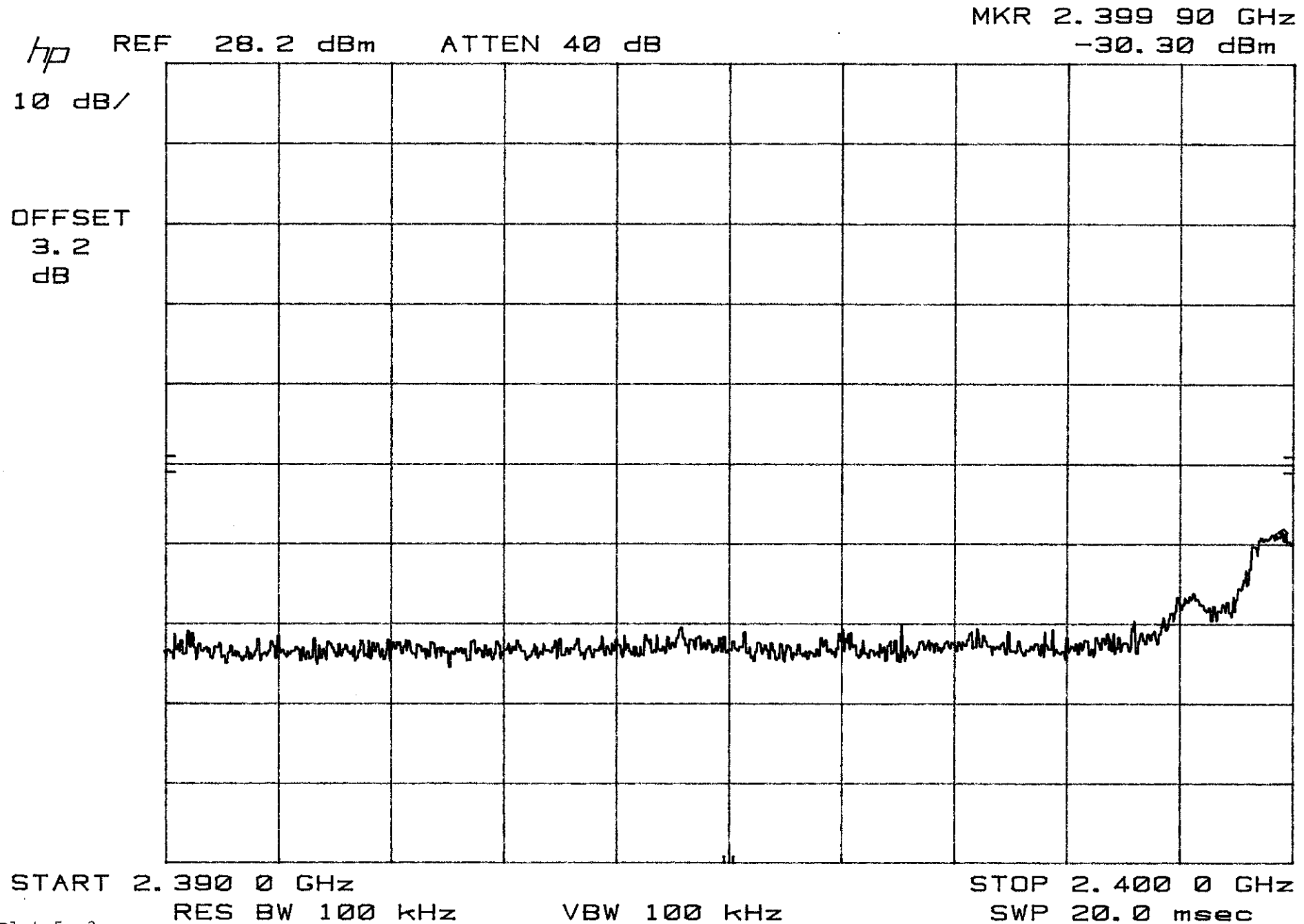
Low Channel	Plots 5.a.1 - 5.a.6
Middle Channel	Plots 5.b.1 - 5.b.5
High Channel	Plots 5.c.1 - 5.c.7


REF 28.2 dBm
ATTEN 40 dB
10 dB/
OFFSET
3.2
dB
STOP
100.0 MHz
START 1.0 MHz
STOP 100.0 MHz
RES BW 100 kHz
VBW 100 kHz
SWP 30.0 msec

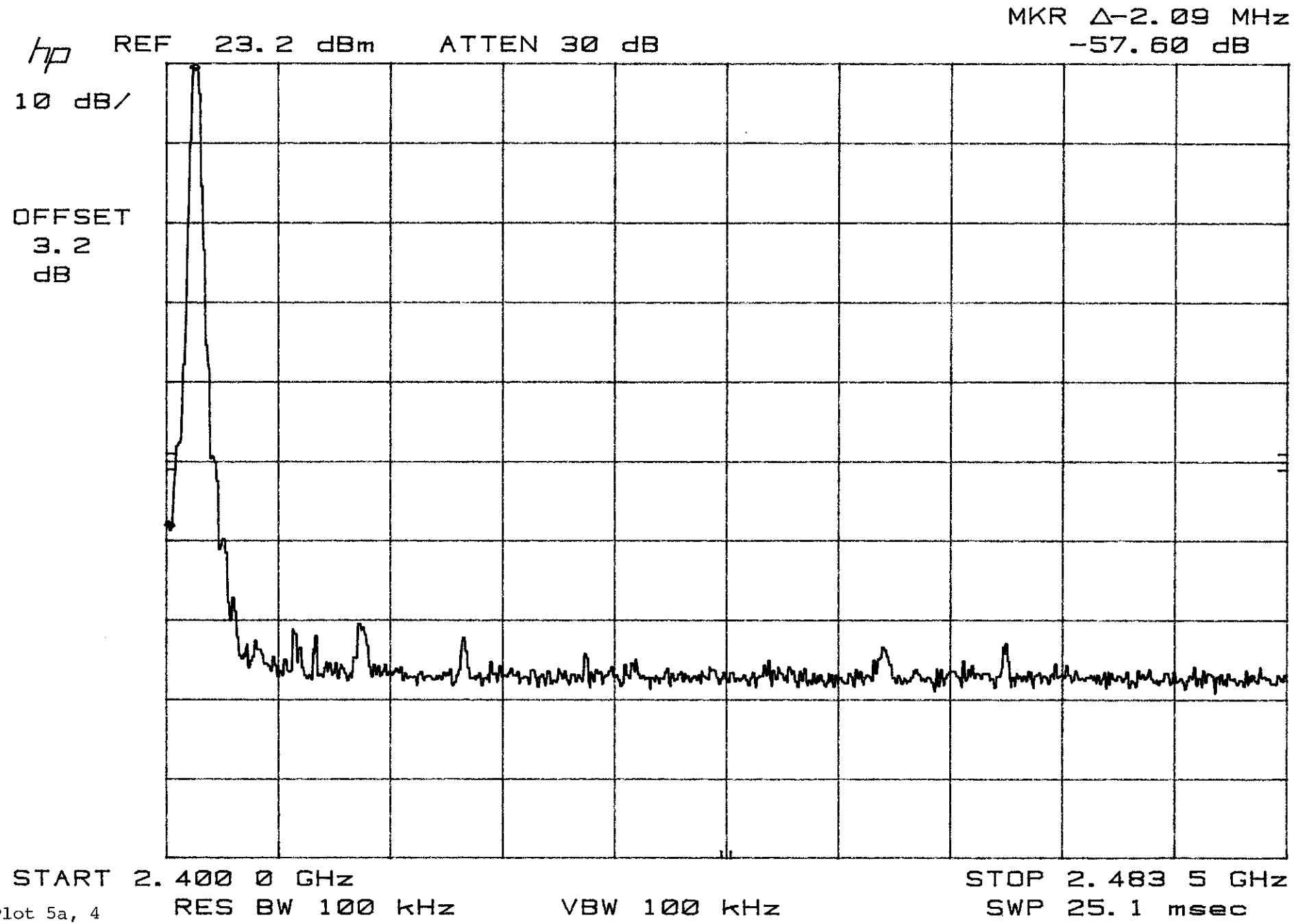
Plot 5a,1


MKR 2.024 GHz
-41.60 dBm
REF 28.2 dBm
ATTEN 40 dB
10 dB/
OFFSET
3.2
dB
START 100 MHz
STOP 2.39 GHz
RES BW 100 kHz
VBW 100 kHz
SWP 687 msec

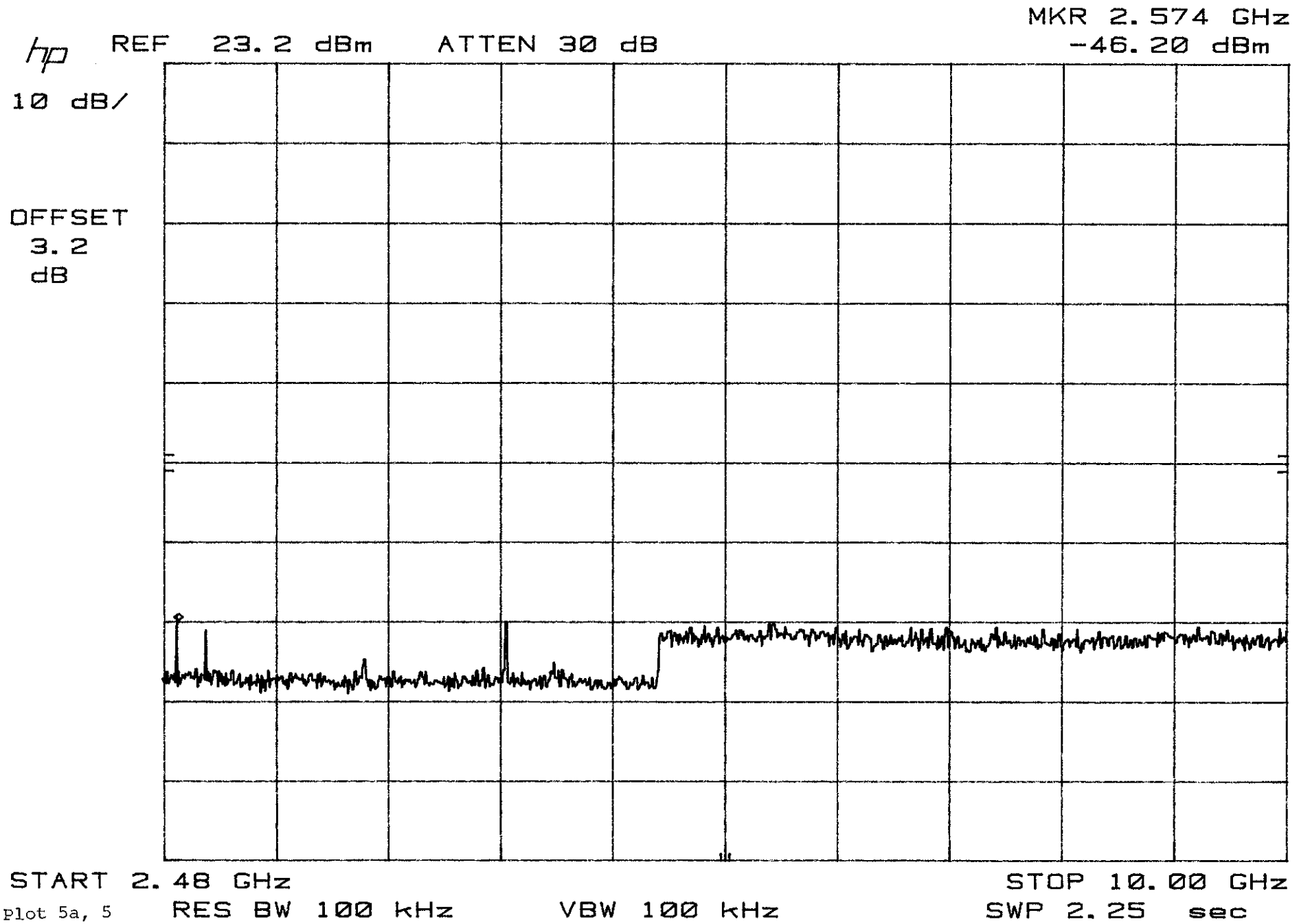
Plot 5a,2


MKR 2.399 90 GHz
-30.30 dBm
REF 28.2 dBm
ATTEN 40 dB
10 dB/
OFFSET
3.2
dB
START 2.390 0 GHz
RES BW 100 kHz
VBW 100 kHz
STOP 2.400 0 GHz
SWP 20.0 msec

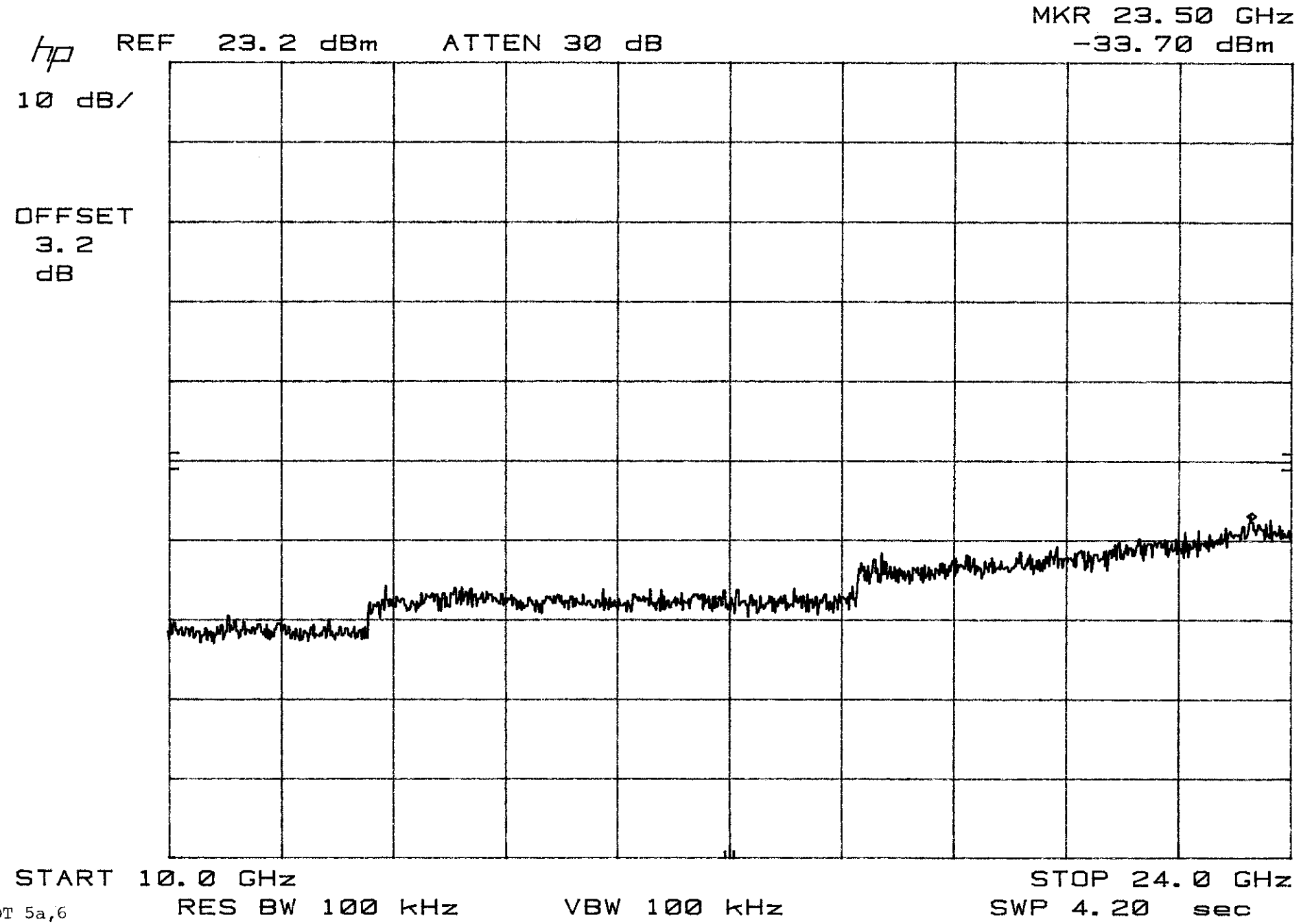
Plot 5a,3


MKR Δ-2.09 MHz
-57.60 dB
REF 23.2 dBm
ATTEN 30 dB
10 dB/
OFFSET
3.2
dB
START 2.400 0 GHz
STOP 2.483 5 GHz
RES BW 100 kHz
VBW 100 kHz
SWP 25.1 msec

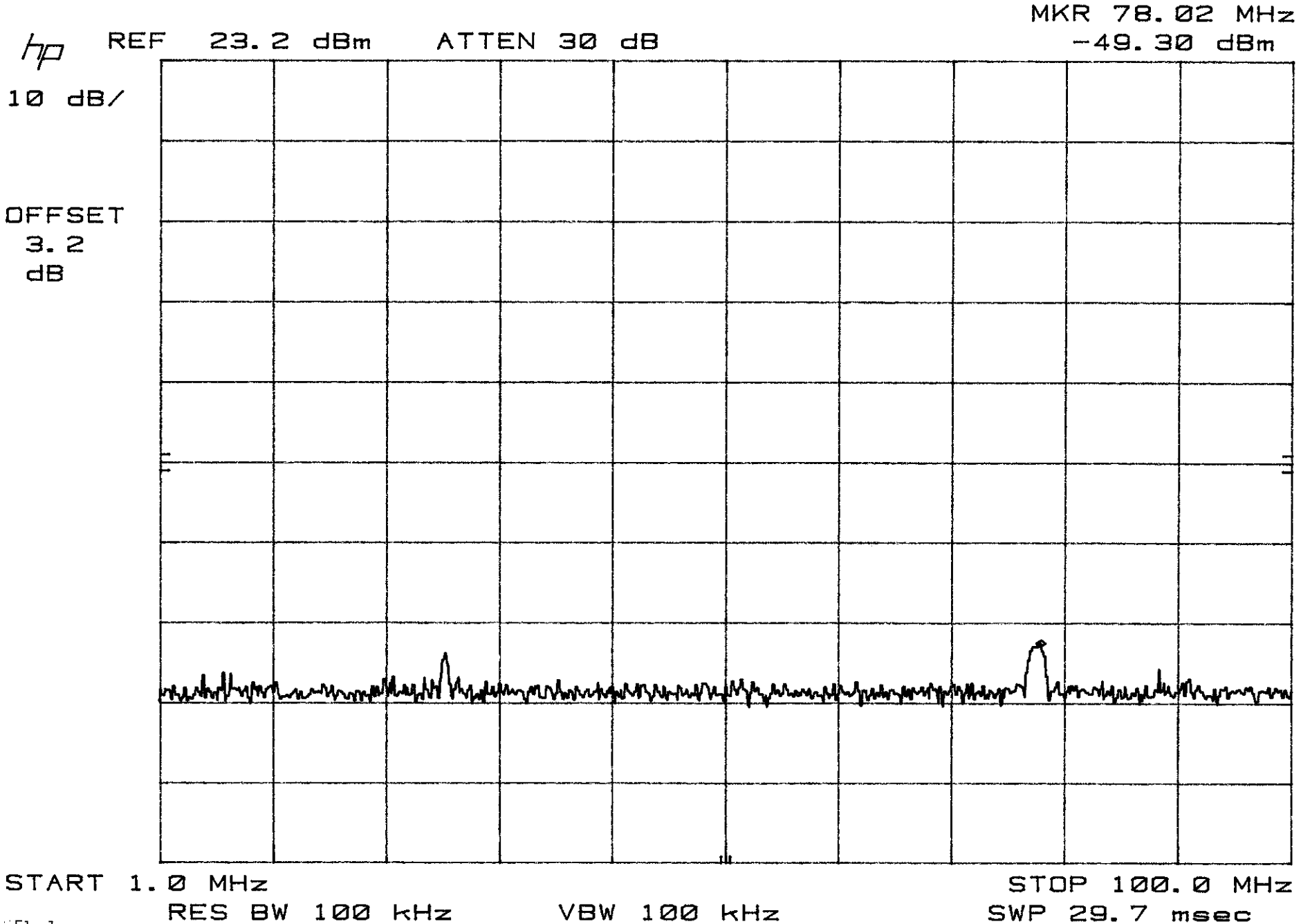
Plot 5a, 4


MKR 2.574 GHz
-46.20 dBm
REF 23.2 dBm
ATTEN 30 dB
10 dB/
OFFSET
3.2
dB
START 2.48 GHz
STOP 10.00 GHz
RES BW 100 kHz
VBW 100 kHz
SWP 2.25 sec

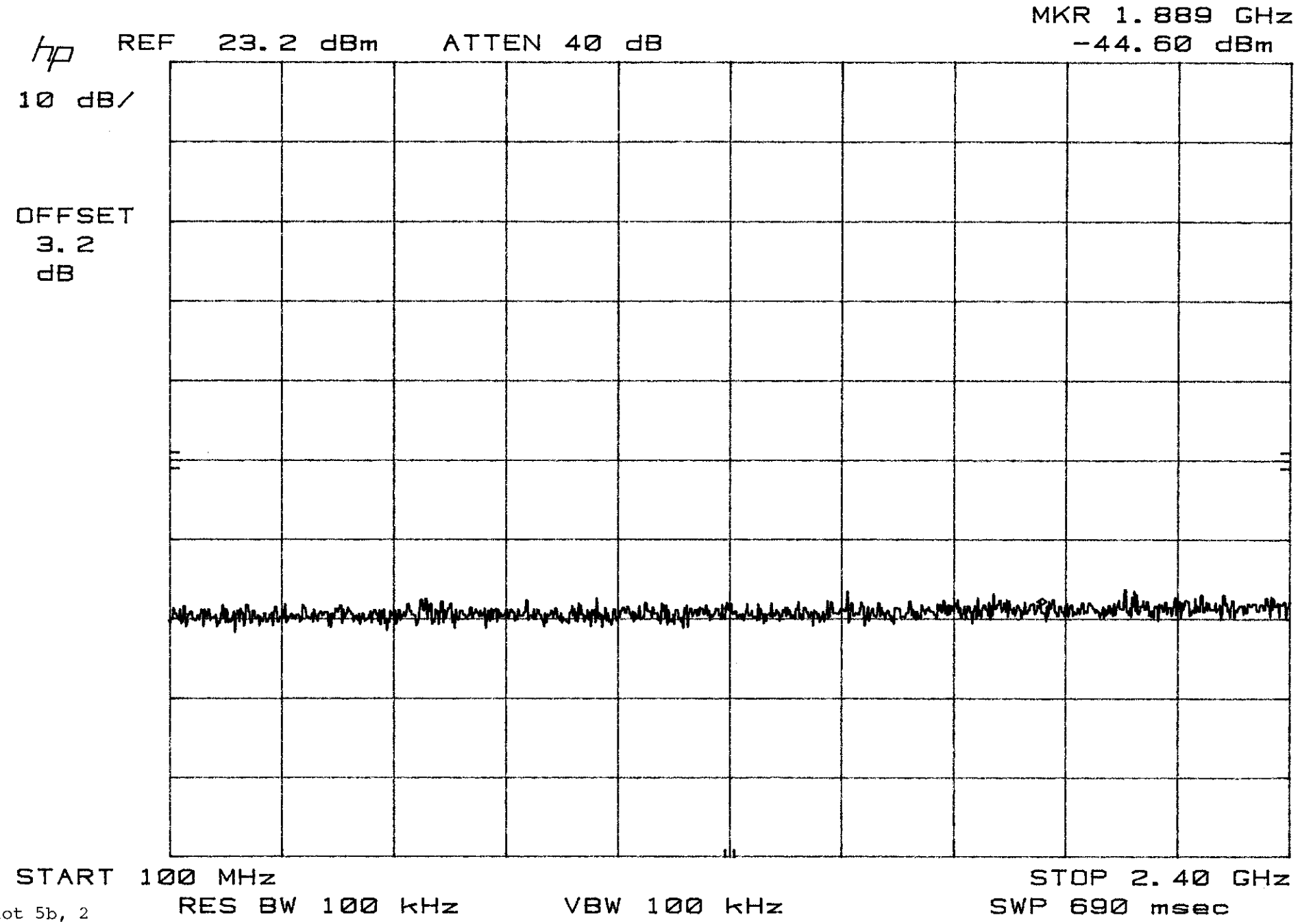
Plot 5a, 5


MKR 23.50 GHz
-33.70 dBm
REF 23.2 dBm
ATTEN 30 dB
10 dB/
OFFSET
3.2
dB
START 10.0 GHz
STOP 24.0 GHz
RES BW 100 kHz
VBW 100 kHz
SWP 4.20 sec

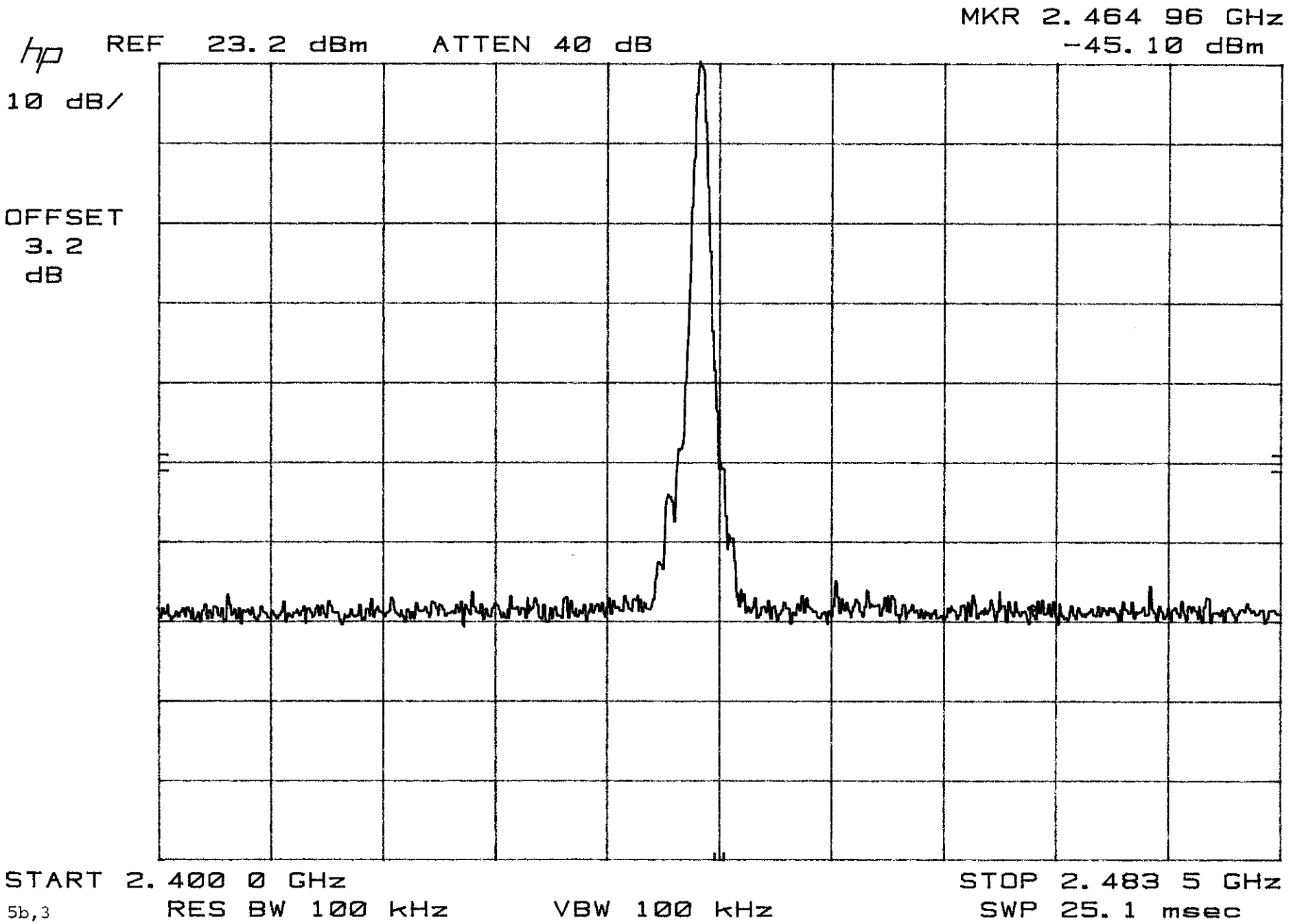
PLOT 5a,6


MKR 78.02 MHz
-49.30 dBm
REF 23.2 dBm
ATTEN 30 dB
10 dB/
OFFSET
3.2
dB
START 1.0 MHz
STOP 100.0 MHz
RES BW 100 kHz
VBW 100 kHz
SWP 29.7 msec

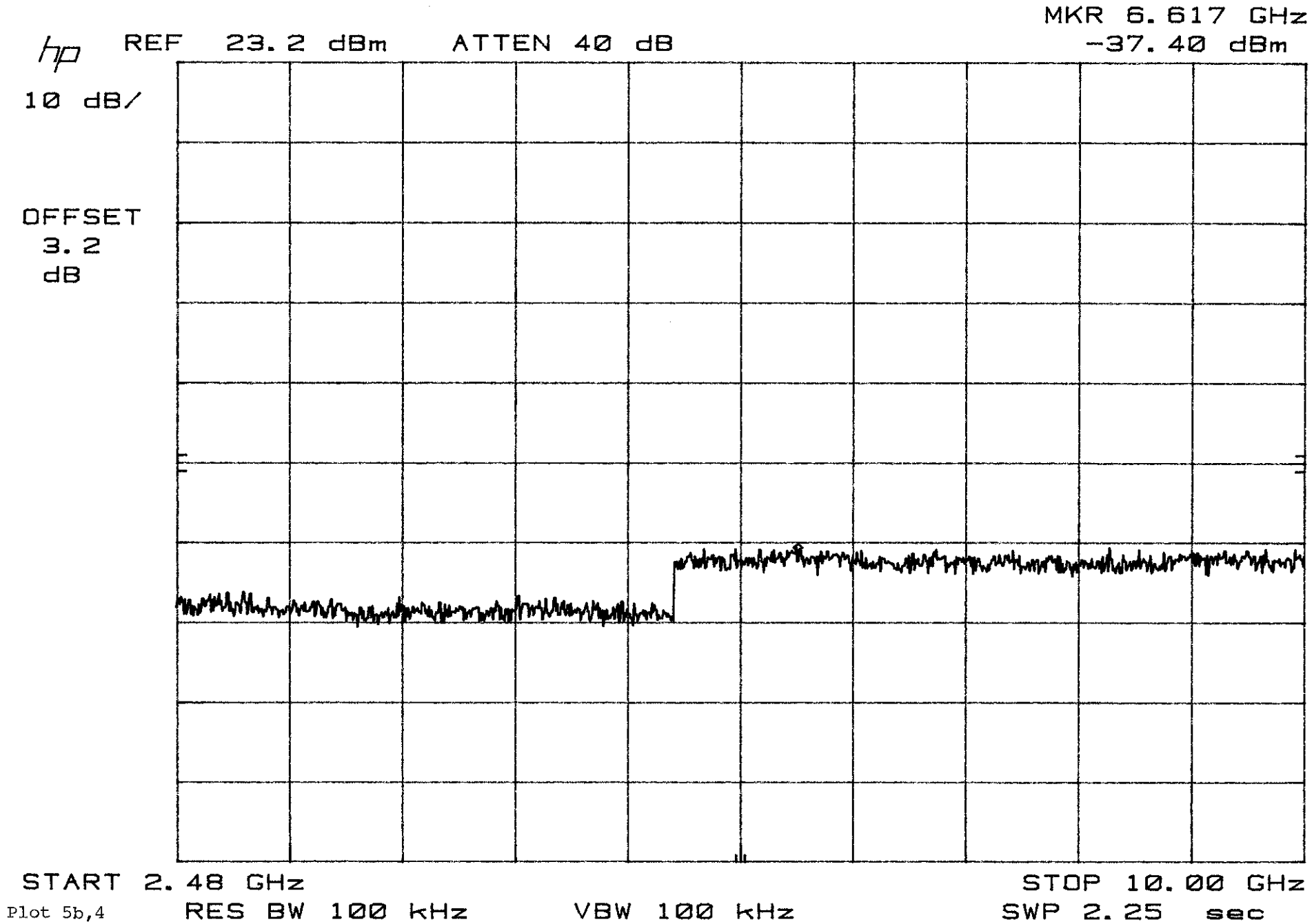
Plot 5b,1


MKR 1.889 GHz
-44.60 dBm
REF 23.2 dBm
ATTEN 40 dB
10 dB/
OFFSET
3.2
dB
START 100 MHz
STOP 2.40 GHz
RES BW 100 kHz
VBW 100 kHz
SWP 690 msec

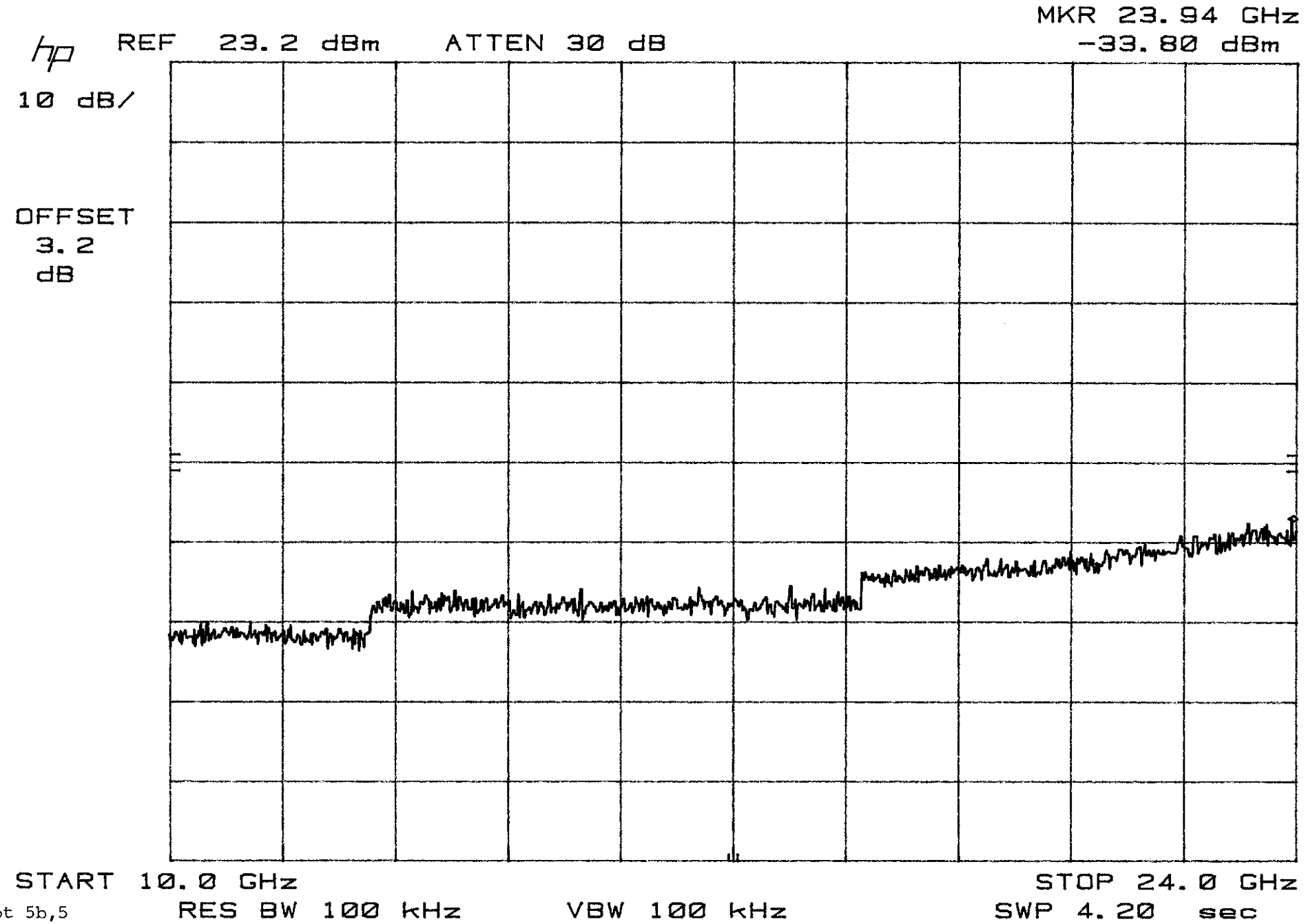
Plot 5b, 2


MKR 2.464 96 GHz
-45.10 dBm
REF 23.2 dBm
ATTEN 40 dB
10 dB/
OFFSET
3.2
dB
START 2.400 0 GHz
STOP 2.483 5 GHz
RES BW 100 kHz
VBW 100 kHz
SWP 25.1 msec

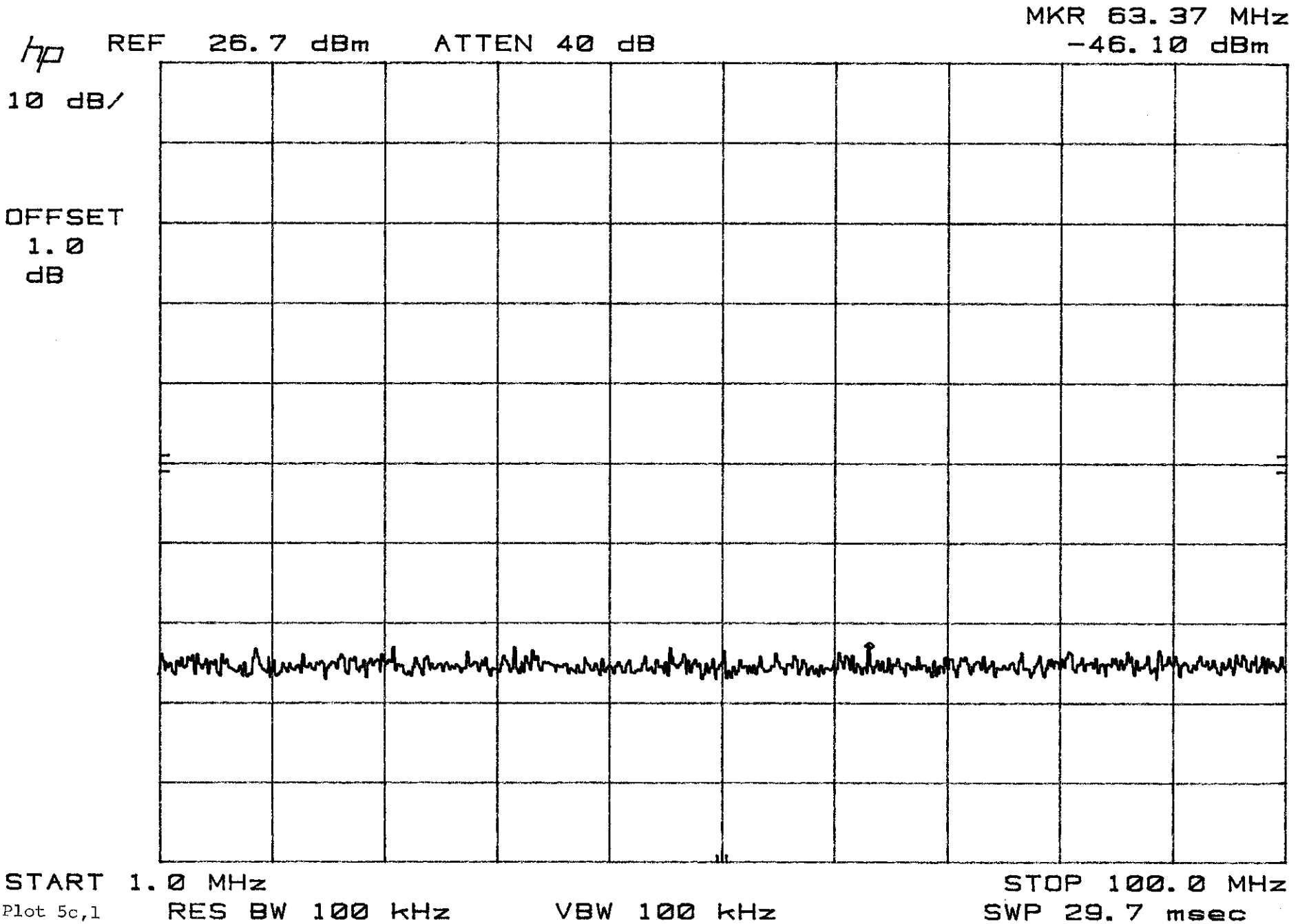
Plot 5b,3


MKR 6.617 GHz
-37.40 dBm
REF 23.2 dBm
ATTEN 40 dB
10 dB/
OFFSET
3.2
dB
START 2.48 GHz
STOP 10.00 GHz
RES BW 100 kHz
VBW 100 kHz
SWP 2.25 sec

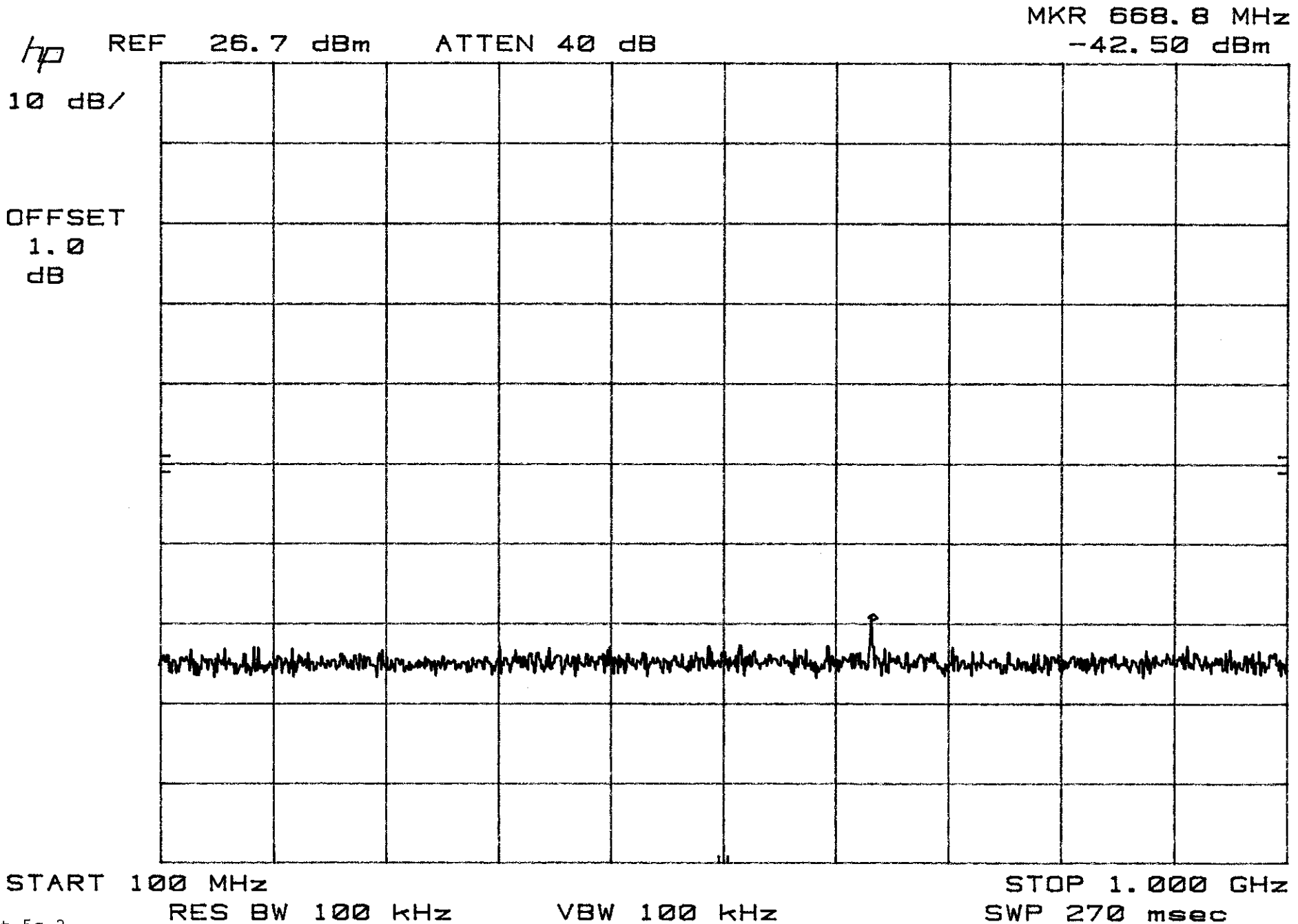
Plot 5b,4


MKR 23.94 GHz
-33.80 dBm
REF 23.2 dBm
ATTEN 30 dB
10 dB/
OFFSET
3.2
dB
START 10.0 GHz
STOP 24.0 GHz
RES BW 100 kHz
VBW 100 kHz
SWP 4.20 sec

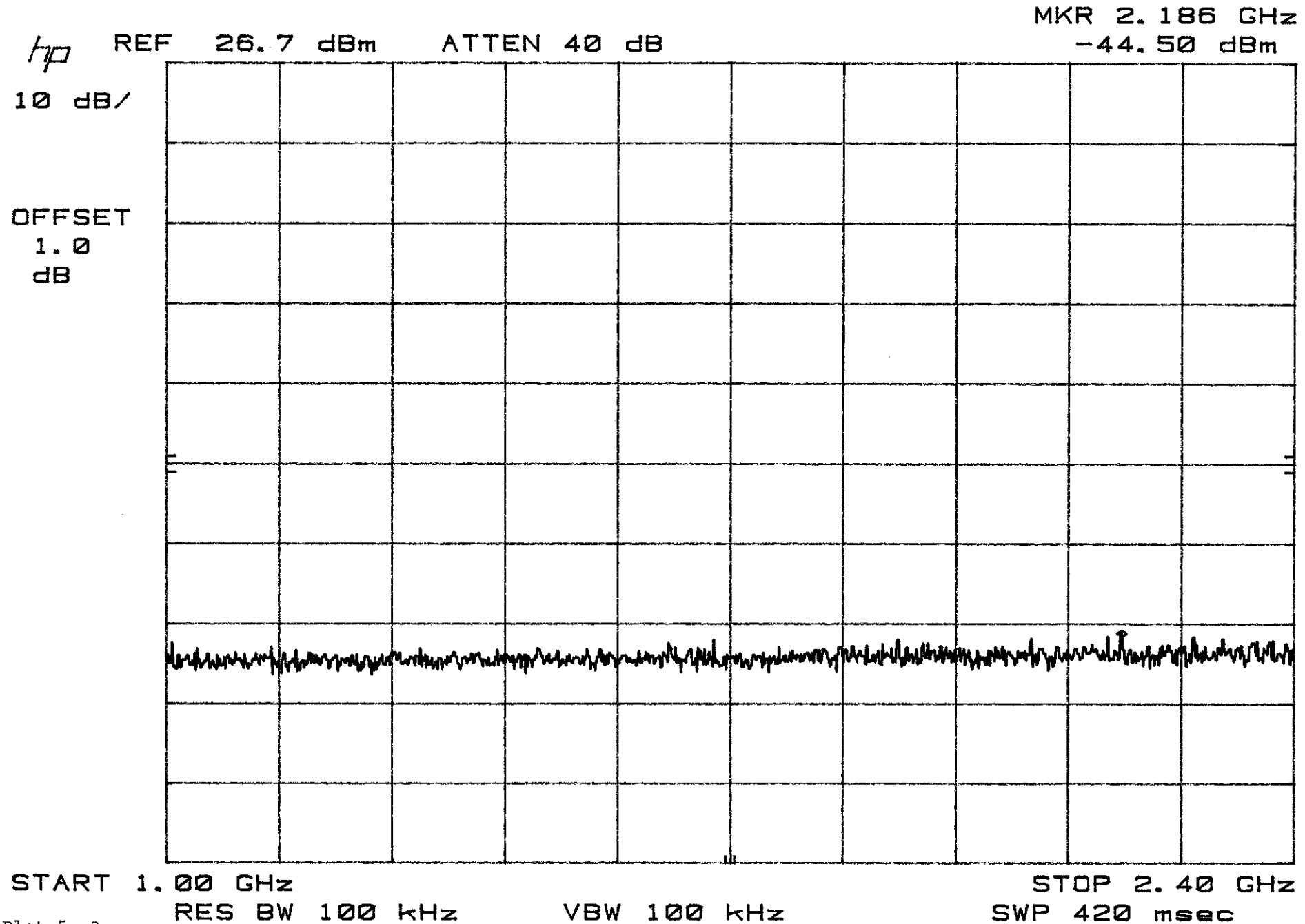
Plot 5b,5


MKR 63.37 MHz
-46.10 dBm
REF 26.7 dBm
ATTEN 40 dB
10 dB/
OFFSET
1.0
dB
START 1.0 MHz
STOP 100.0 MHz
RES BW 100 kHz
VBW 100 kHz
SWP 29.7 msec

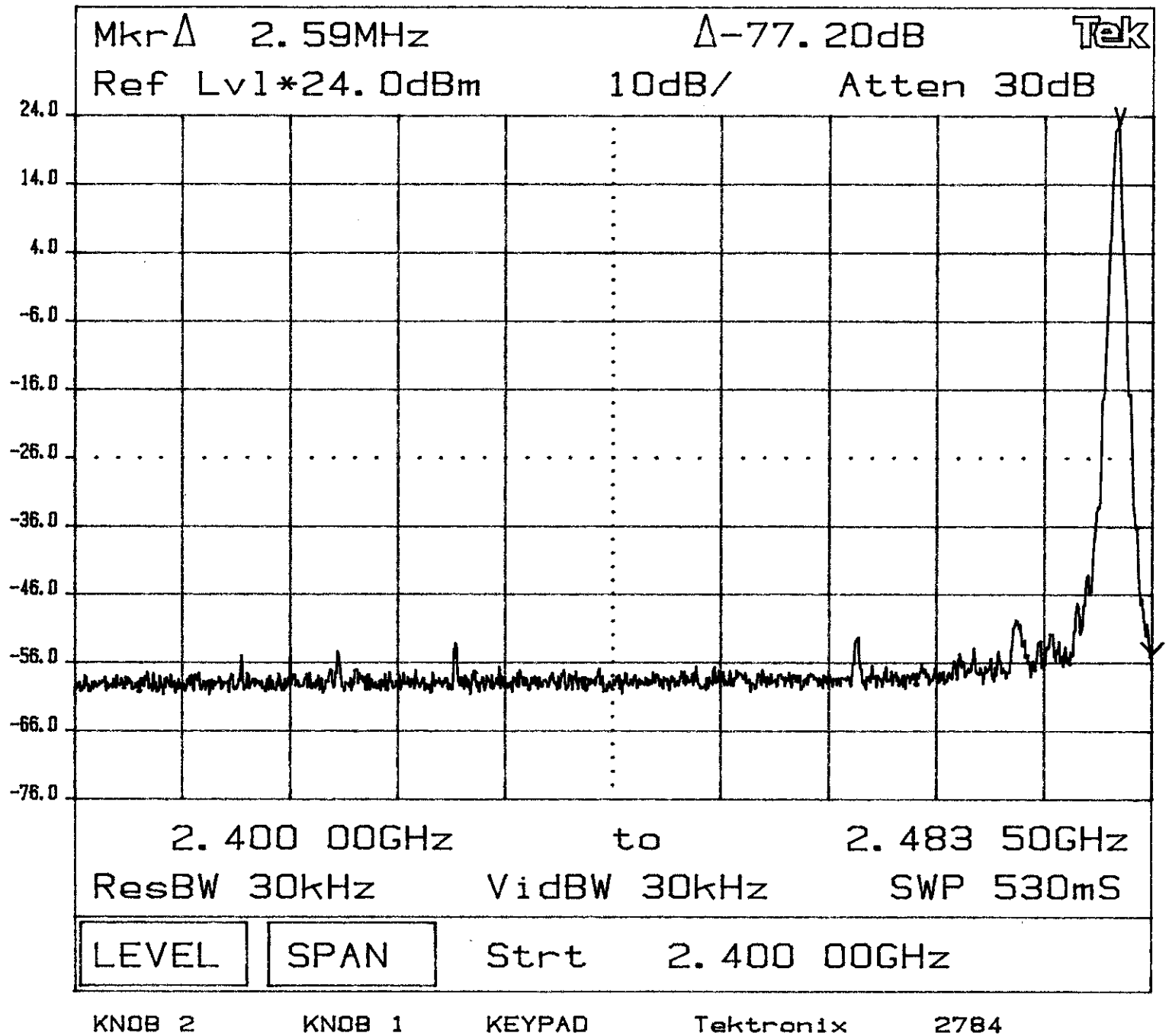
Plot 5c,1


MKR 668.8 MHz
-42.50 dBm
REF 26.7 dBm
ATTEN 40 dB
10 dB/
OFFSET
1.0
dB
START 100 MHz
RES BW 100 kHz
VBW 100 kHz
STOP 1.000 GHz
SWP 270 msec

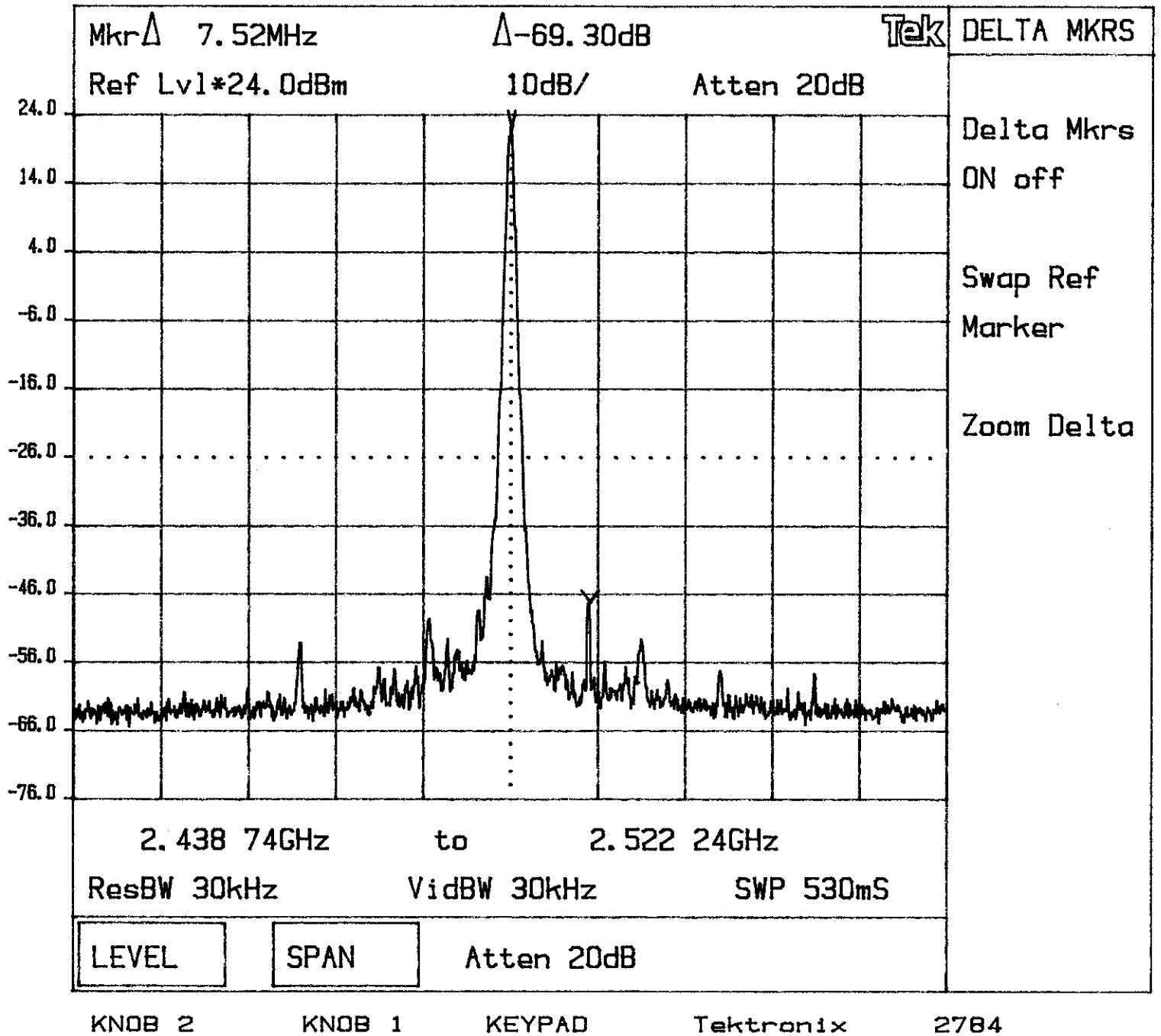
Plot 5c,2


MKR 2.186 GHz
-44.50 dBm
REF 26.7 dBm
ATTEN 40 dB
10 dB/
OFFSET
1.0
dB
START 1.00 GHz
RES BW 100 kHz
VBW 100 kHz
STOP 2.40 GHz
SWP 420 msec

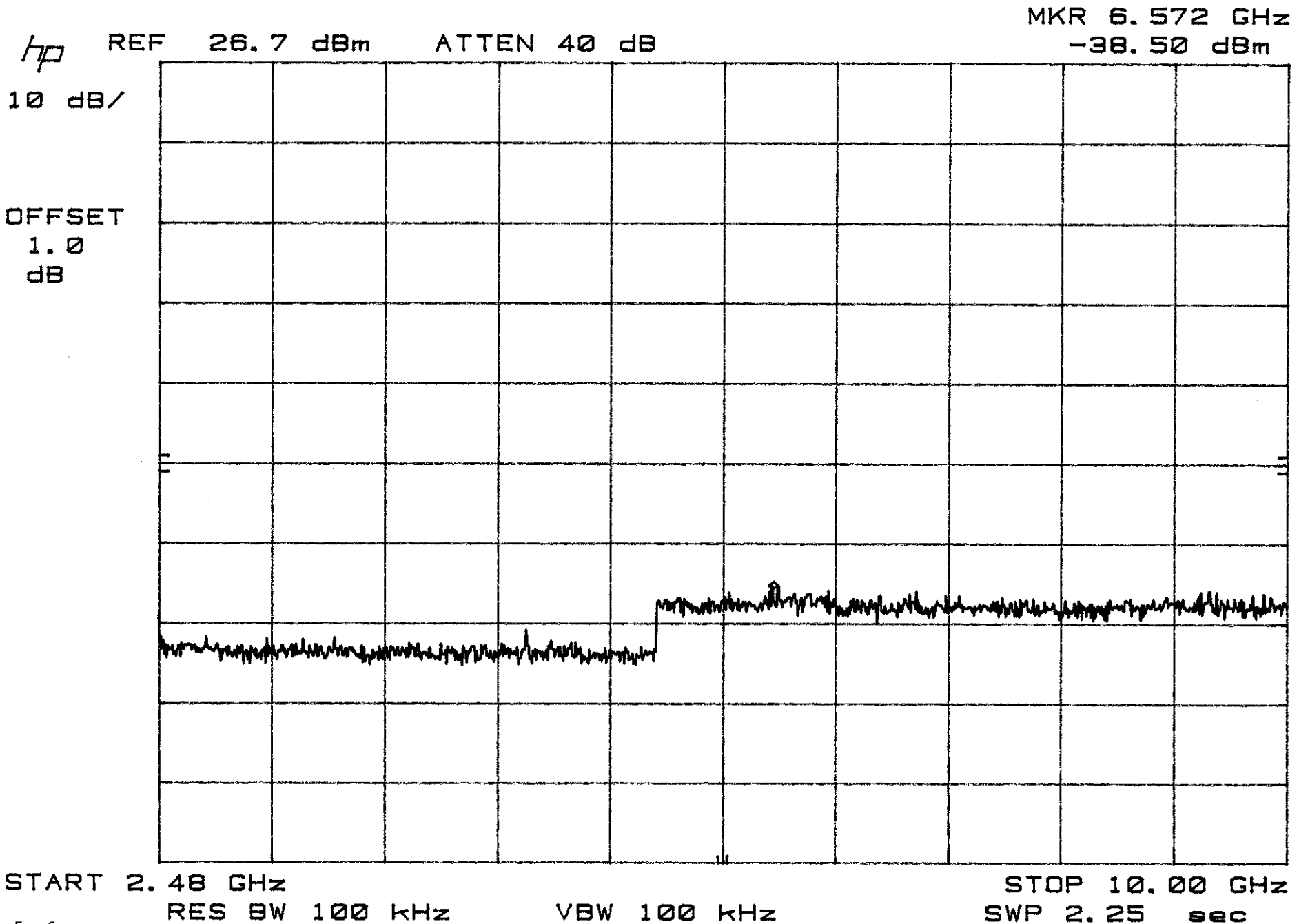
Plot 5c,3


MkrΔ 2.59MHz
Δ-77.20dB
Tek
Ref Lvl*24.0dBm
10dB/
Atten 30dB
24.0
14.0
4.0
-6.0
-16.0
-26.0
-36.0
-46.0
-56.0
-66.0
-76.0
2.400 00GHz
to
2.483 50GHz
ResBW 30kHz
VidBW 30kHz
SWP 530mS
LEVEL
SPAN
Strt 2.400 00GHz
KNOB 2
KNOB 1
KEYPAD
Tektronix
2784

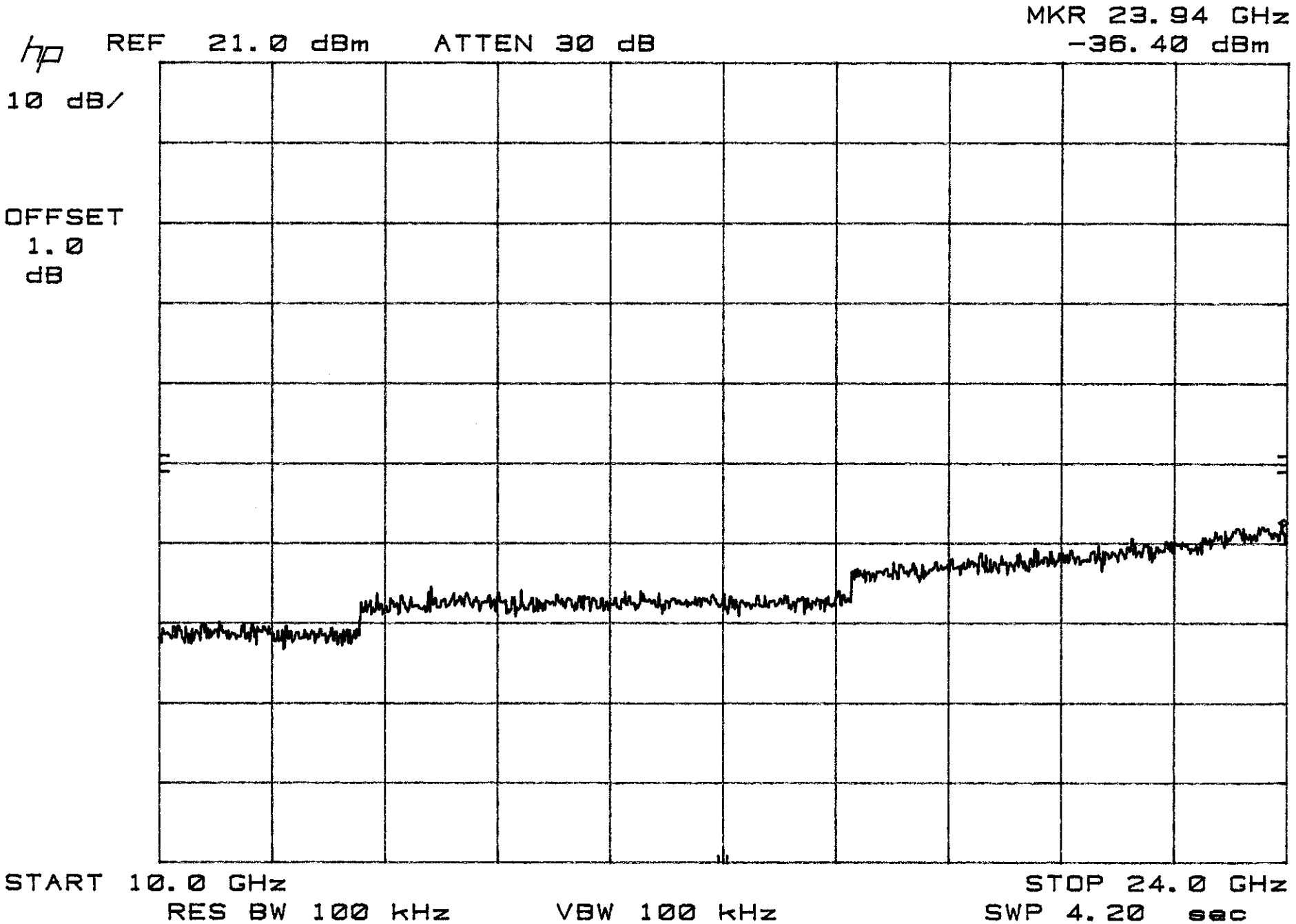
Plot 5c,4


MkrΔ 7.52MHz
Δ-69.30dB
Tek
DELTA MKRS
Ref Lvl*24.0dBm
10dB/
Atten 20dB
24.0
14.0
4.0
-6.0
-16.0
-26.0
-36.0
-46.0
-56.0
-66.0
-76.0
Delta Mkrs
ON off
Swap Ref
Marker
Zoom Delta
2.438 74GHz
to
2.522 24GHz
ResBW 30kHz
VidBW 30kHz
SWP 530mS
LEVEL
SPAN
Atten 20dB
KNOB 2
KNOB 1
KEYPAD
Tektronix
2784

Plot 5c,5


MKR 6.572 GHz
-38.50 dBm
REF 26.7 dBm
ATTEN 40 dB
10 dB/
OFFSET
1.0
dB
START 2.48 GHz
RES BW 100 kHz
VBW 100 kHz
STOP 10.00 GHz
SWP 2.25 sec

Plot 5c,6


MKR 23.94 GHz
-36.40 dBm
REF 21.0 dBm
ATTEN 30 dB
10 dB/
OFFSET
1.0
dB
START 10.0 GHz
STOP 24.0 GHz
RES BW 100 kHz
VBW 100 kHz
SWP 4.20 sec

Plot 5c,7

4.6 Out of Band Radiated Emissions (for emissions in § 4.6 above that are less than 26 dB below carrier), FCC Ref: 15.247 (c)

For out of band emissions that are close to or that exceed the 20 dB attenuation requirement described in the specification, radiated measurements were performed at a 3 m separation distance to determine whether these emissions complied with the general radiated emission requirement.

[ ] Test results are attached.

[X] Not required, all emissions more than 26 dB below fundamental

4.7 Transmitter Radiated Emissions in Restricted Bands, FCC Ref: 15.247(c),

Radiated emission measurements were performed from 30 MHz to 25000 MHz. Analyzer resolution is 100 kHz or greater for frequencies from 30 MHz to 1000 MHz and 1 MHz for frequencies above 1000 MHz.

Data is included of the worst case configuration (the configuration which resulted in the highest emission levels). A sample calculation, configuration photographs and data tables of the emissions are included. All measurements were performed with peak detection and average detection (above 1 GHz) unless otherwise specified.

On the following pages, the emissions on the harmonics frequencies, the limits, and the margin of compliance are presented. These tests were made when the transmitter is in full radiated power.

The additional test was performed to show compliance with the requirement at the band-edge frequency 2483.5 MHz and up to 2500 MHz.

The transmitter was setup to transmit at the highest channel. The spectrum analyzer with resolution bandwidth 1 MHz was connected to the antenna terminal of the transmitter. The antenna conducted emissions in the band 2400 - 2483.5 MHz were measured and plotted. The difference (delta) between the levels on fundamental frequency and on the frequency 2483.5 MHz was determined. Then the field strength (E_0 in dBuV/m) of radiated emission at the fundamental frequency at 3 m was measured.
The radiated emission (E_1 in dBuV/m) at 2483.5 MHz was calculated as follows:

$$E_1 = E_0 - \text{delta}.$$

The same procedure was used to measure the radiated emissions at the frequency 2390 MHz and down to 2310 MHz.

For the test results, refer to plot numbers 5.a.4, 5.c.4, and 5.c.5 in section 4.5.

For transmitters with hopping channel ON times < 100 msec, DUTY CYCLE CORRECTION is permitted for emissions above 1000 MHz: Duty Cycle of 0 dB was used.

4.9 Radiated Emissions from Digital Section of Transceiver, FCC Ref: 15.109

[ ] Not Applicable - No digital part

[X] Test results are attached

ITS Intertek Testing Services

Company: **Symbol Technologies**
Project #: **599013298**
Model: **LA 3021-500-US**
Engineer: **Xi-Ming Yang**
Date of test: **June 9,1999**

FCC 15 Class B Radiated Emissions

Frequency	Antenna Polarity	Reading	Antenna Factor	Cable Loss	Pre-amp	Distance Factor	Corrected Reading	Limit	Margin
MHz	H N	dB(uV)	dB/m	dB	dB	dB	dB(uV/m)	dB(uV/m)	dB
60.0	H	31.5	4.7	0.0	0.0	0.0	36.2	40.0	-3.8
140.0	H	27.7	8.4	0.0	0.0	0.0	36.1	43.5	-7.4
160.0	H	31.0	8.8	0.0	0.0	0.0	39.8	43.5	-3.7
200.0	H	29.9	10.2	0.0	0.0	0.0	40.1	43.5	-3.4
240.0	H	30.0	11.0	0.0	0.0	0.0	41.0	46.0	-5.0
260.0	H	31.0	12.0	0.0	0.0	0.0	43.0	46.0	-3.0
280.0	H	30.0	12.1	0.0	0.0	0.0	42.1	46.0	-3.9
300.0	H	26.8	13.1	0.0	0.0	0.0	41.9	46.0	-4.1
380.0	H	26.0	15.0	0.0	0.0	0.0	41.0	46.0	-5.0
450.0	H	25.0	16.0	0.0	0.0	0.0	41.0	46.0	-5.0
720.0	H	10.8	20.4	0.0	0.0	0.0	31.2	46.0	-14.8

Note: 1. All measurement were made at 3 meters
2. Negative signs (-) in the margin column signify levels below the limit.

4.10 Radiated Emissions from Receiver Section of Transceiver (L.O. Radiation), FCC Ref: 15.109, 15.111

[X] Not required - EUT operation above 960 MHz only

[ ] Not Applicable - EUT is transmitter only

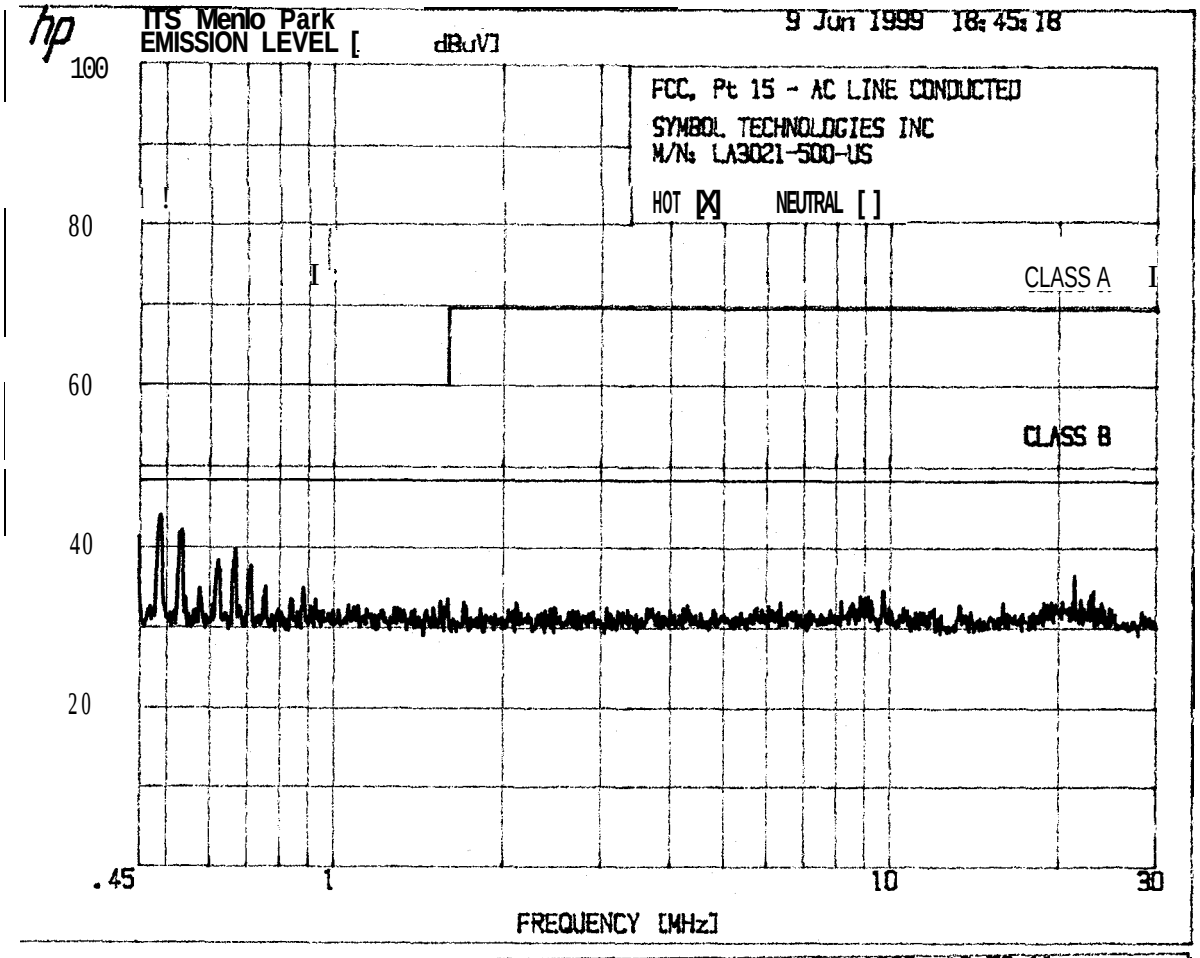
[ ] Not performed; exempt until June 1999

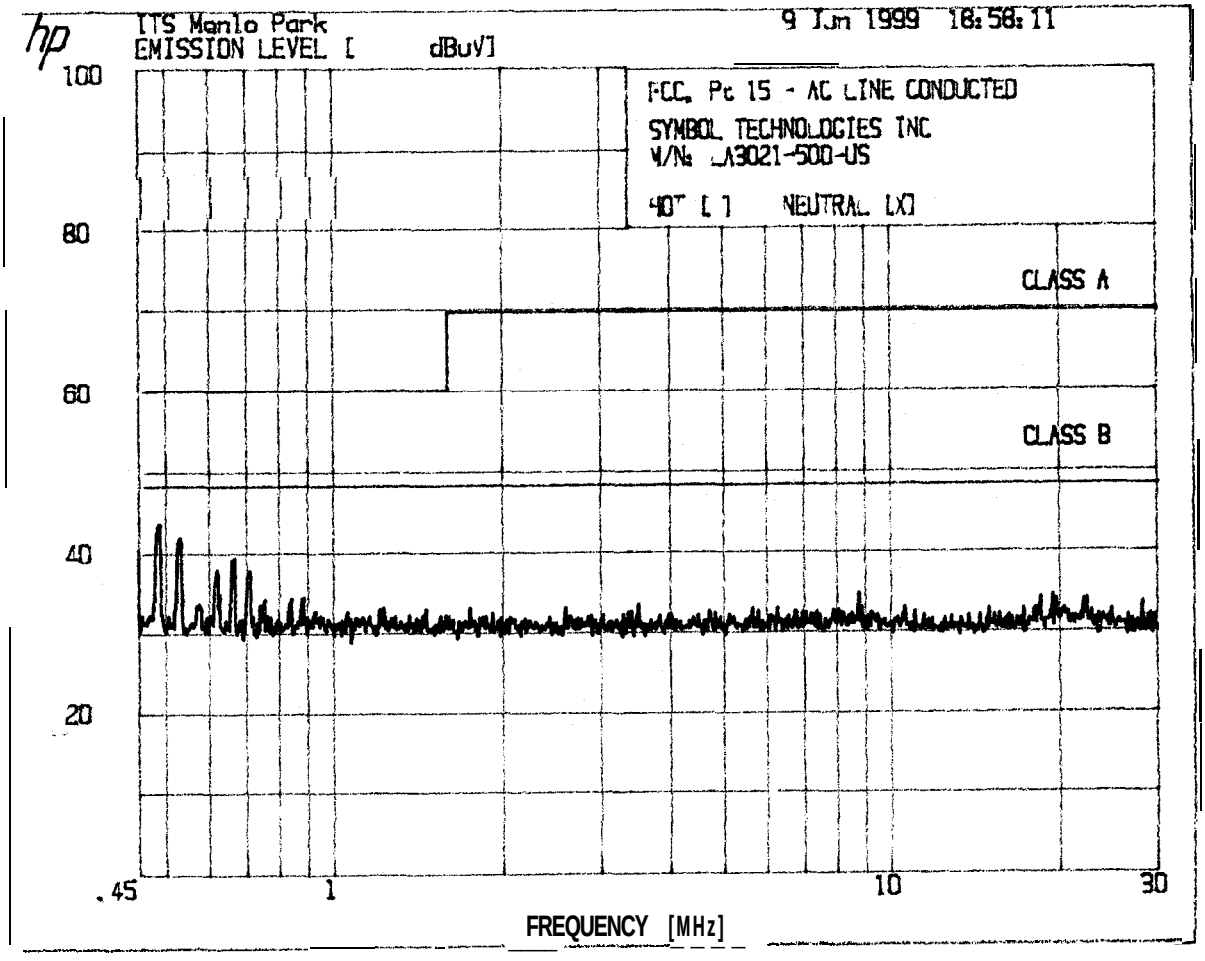
[ ] Test results are attached

4.11 AC Line Conducted Emission, FCC Rule 15.207:

[ ] Not required; battery operation only

[X] Test data attached


ITS Menlo Park
9 Jun 1999 18:45:18
EMISSION LEVEL [dBuV]
FCC, Pt 15 - AC LINE CONDUCTED
SYMBOL TECHNOLOGIES INC
M/N: LA3021-500-US
HOT [X] NEUTRAL [ ]
CLASS A
CLASS B
100
80
60
40
20
.45
1
10
30
FREQUENCY [MHz]


ITS Menlo Park
9 Jun 1999 18:58:11
EMISSION LEVEL [dBuV]
FCC, Pt 15 - AC LINE CONDUCTED
SYMBOL TECHNOLOGIES INC
M/N: LA3021-500-US
HOT [ ] NEUTRAL [X]
CLASS A
CLASS B
100
80
60
40
20
.45
1
10
30
FREQUENCY [MHz]

ITS Menlo Park 9 Jun 1999 10:45:18

3. FCC CFR 47, Pt 15
   3.1 FCC, Pt 15 - AC LINE CONDUCTED

SYMBOL TECHNOLOGIES INC
M/N: LA3021-500-US

HOT [X] NEUTRAL [ ]

PEAKS FOUND ABOVE 35 dBuV

PEAK#	FREQ (MHz)	AMPL(dBuV)
1	.4935	43.8
2	.5390	42.0
3	.6268	38.2
4	.6732	39.7
5	.7169	37.6
6	21.54	36.5

ITS Menlo Park 9 Jun 1999 18:58:11

3. FCC CFR 47, Pt 15
   3.1 FCC, Pt 15 - AC LINE CONDUCTED

SYMBOL TECHNOLOGIES INC
M/N: LA3021-500-US

HOT [ ] NEUTRAL [X]

PEAKS FOUND ABOVE 38 dBuV

PEAK#	FREQ (MHz)	AMPL(dBuV)
1	.4914	43.4
2	.5367	41.8
3	.8704	39.3

4.12 AC Line Conducted Configuration Photograph

5.0 **Equipment Photographs**

Photographs of the EUT are attached.

6.0 **Product Labeling**

6.1 Label Artwork

6.2 Label Location

See attached pages.

7.0 **Technical Specifications**

7.1 Circuit Diagram

See attached pages.

7.2 Block Diagram

See attached pages.

7.3 Antenna gain and Mounting Information

See attached pages.

8.0 **Instruction Manual**

Attached is a preliminary copy of the Instruction Manual.

Please note that the required FCC Information to the User can be found on Page ___ of this manual.

This manual will be provided to the end-user with each unit sold/leased in the United States.