



Intertek Testing Services

APPLICATION FOR FCC CERTIFICATION

Symbol Technologies Inc.

2.4 GHz 100mW Radio

Model: LA3021-100

FCC ID: H9PLA3021-100

Job# J99013298

Report# J99013298b

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

Date of Report: June 22, 1999

All services undertaken are subject to the following general policy: Reports are submitted for exclusive use of the client to whom they are addressed. Their significance is subject to the adequacy and representative character of the samples and to the comprehensiveness of the tests, examinations or surveys made. No quotations from reports or use of Intertek Testing Services's name is permitted except as expressly authorized by Intertek Testing Services in writing.





Table of Contents

1.0	<u>Summary of Tests</u>	2
2.0	<u>General Description</u>	3
2.1	Product Description.....	3
2.2	Related Submittal(s) Grants.....	3
2.3	Test Methodology.....	4
2.4	Test Facility.....	4
3.0	<u>System Test Configuration</u>	5
3.1	Support Equipment.....	5
3.2	Block Diagram of Test Setup	5
3.3	Justification	6
3.4	Software Exercise Program	6
3.5	Mode of Operation During Test	6
3.6	Modifications Required for Compliance	6
4.0	Measurement Results.....	7
4.1	Maximum Conducted Output Power at Antenna Terminals.....	7
4.2	Hopping Channel 20 dB RF Bandwidth.....	8
4.3	Minimum Number of Hopping Frequencies.....	9
4.4	Average Channel Occupancy Time	10
4.5	Out of Band Conducted Emissions.....	11
4.6	Out of Band Radiated Emissions.....	12
4.7	Transmitter Radiated Emissions in Restricted Bands	13
4.8	Radiated Emission Configuration Photograph.....	14
4.9	Radiated Emissions from Digital Section of Transceiver (Transmitter),	25
4.10	Radiated Emissions from Receiver Section of Transceiver (L.O. Radiation),	26
4.11	AC Line Conducted Emission	27
4.12	AC Line Conducted Configuration Photograph	28
5.0	<u>Equipment Photographs</u>	29
6.0	<u>Product Labeling</u>	30
6.1	Label Artwork	30
6.2	Label Location.....	30
7.0	<u>Technical Specifications</u>	31
7.1	Circuit Diagram.....	31
7.2	Block Diagram.....	32
7.3	Antenna gain and Mounting Information	33
8.0	<u>Instruction Manual</u>	34

Symbol Technologies Inc.

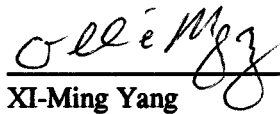
Date of Test: May 19 - June 9, 1999

FCC ID: H9PLA3021-100

1 . 0 Summary of Tests**Symbol Technologies Inc. - Model No.: LA-3021-100**
FCC ID:

TEST	REFERENCE	RESULTS
Max. Output power	15.247(b)(3)	Pass
20 dB Bandwidth	15.247(a)(1)	Pass
Min. Hopping Channels	15.247(a)(1)	Pass
Average Channel Occupancy Time	15.47(a)(1)	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:


XI-Ming Yang

Date: June 30, 1999

EMC Site Mgr.:


David Chemomordik

Date: 1/7/99

2.0 General Description**2.1 Product Description**

The Symbol Technologies Inc. Model LA3021-100 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. LA3021-100
FCC Identifier	H9PLA3021-100
Use of Product	
Manufacturer & Model of Spread Spectrum Module	
Type of Transmission	Frequency Hopping Spread Spectrum
Rated RF Output (mW)	100
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

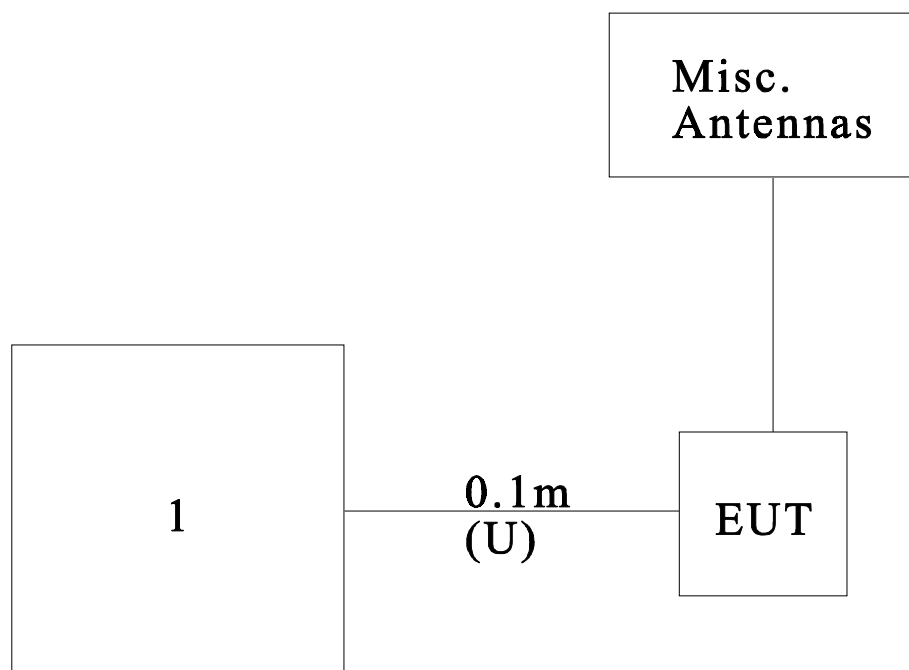
The open area test site and conducted measurement facility used to collect the radiated data is located at 1365 Adams Court, Menlo Park, CA 94025. This test facility and site measurement data have been fully placed on file with the FCC.

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	20.5	112
2440	20.3	107
2480	20.0	100

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

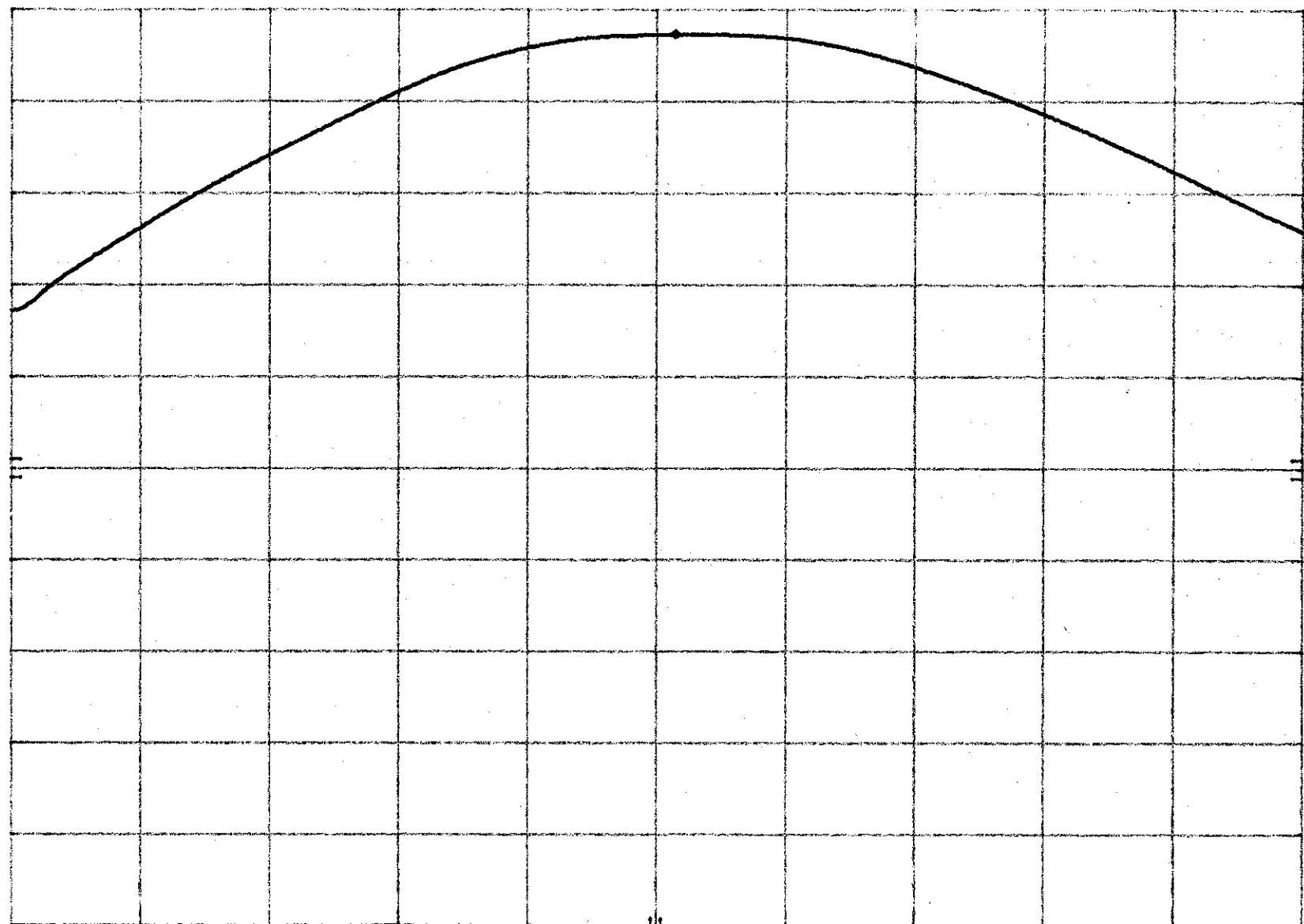
Plot 1.c: High Channel Output Power

MKR 2.402 14 GHz
20.50 dBm

hp REF 23.2 dBm ATTN 30 dB

10 dB/

OFFSET
3.2
dB

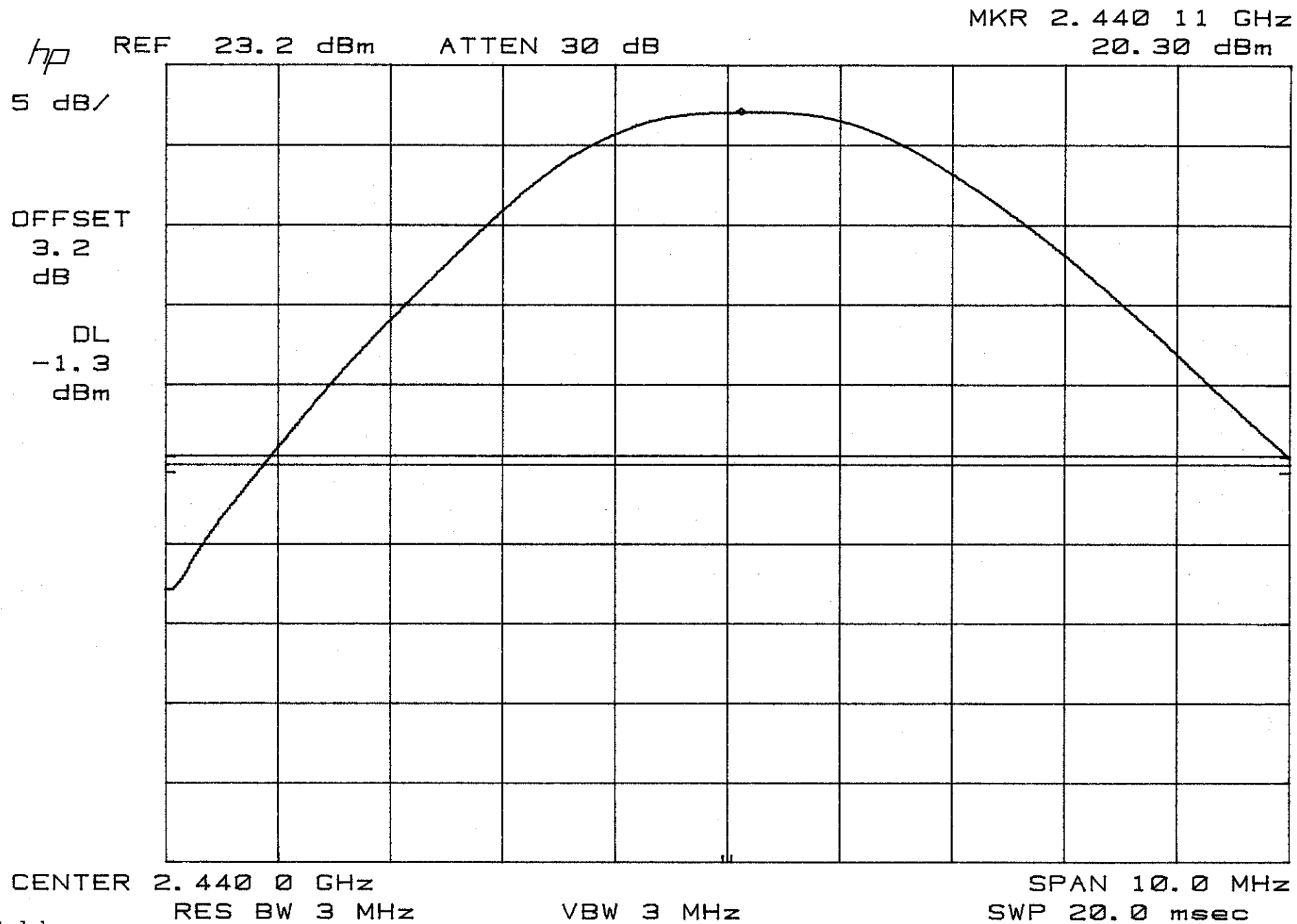


CENTER 2.402 0 GHz
RES BW 3 MHz

VBW 3 MHz

SPAN 10.0 MHz
SWP 20.0 msec

Plot
1,a



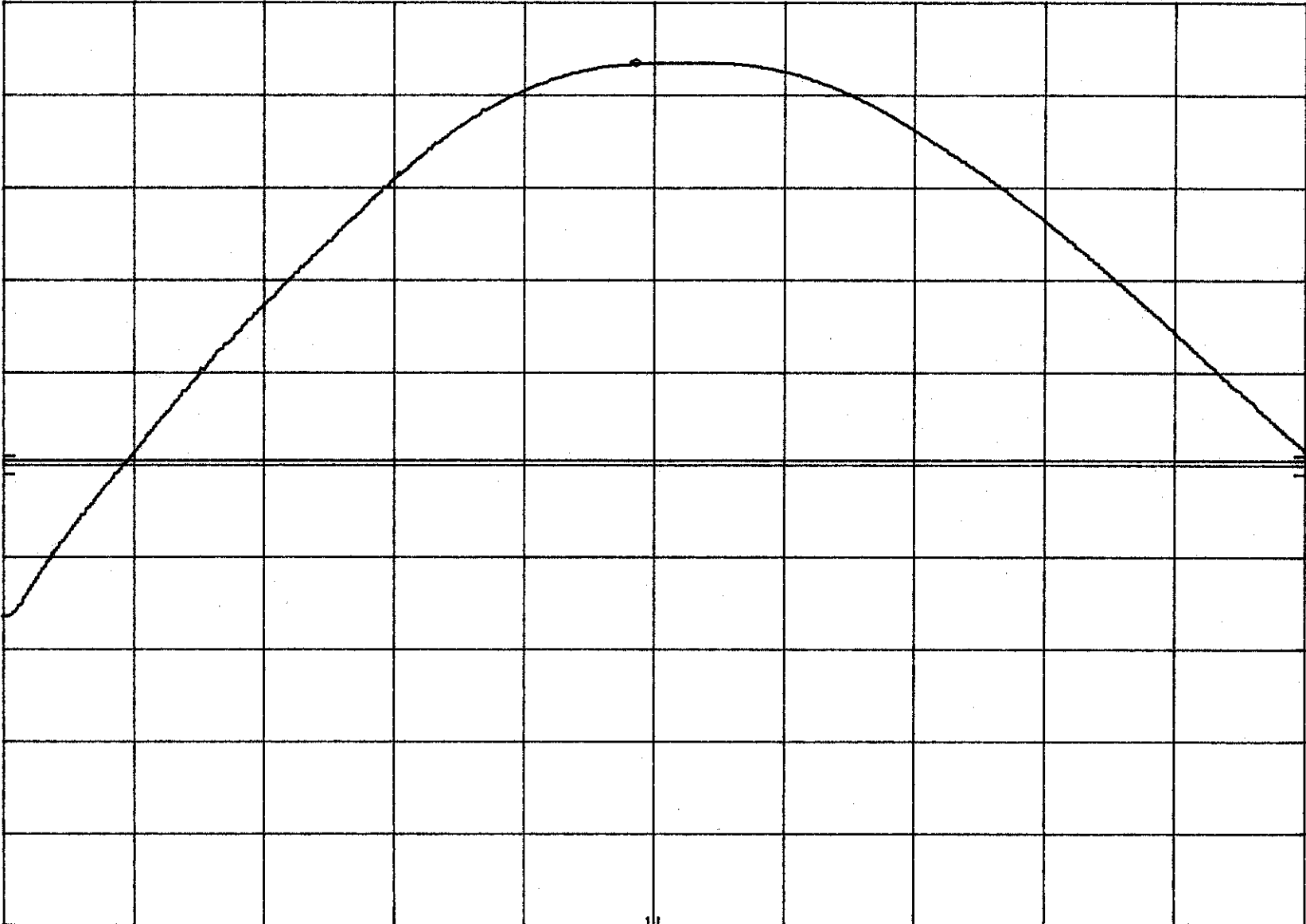
MKR 2.479 85 GHz
19.95 dBm

hp REF 23.2 dBm ATTN 30 dB

5 dB/

OFFSET
3.2
dB

DL
-1.6
dBm



CENTER 2.480 0 GHz

SPAN 10.0 MHz

RES BW 3 MHz

VBW 3 MHz

SWP 20.0 msec

Plot 1,c

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	982
Middle, 2440	954
High, 2480	982

Please refer to the attached plots for details:

Plot 2.a: Low Channel

Plot 2.b: Middle Channel

Plot 2.c: High Channel

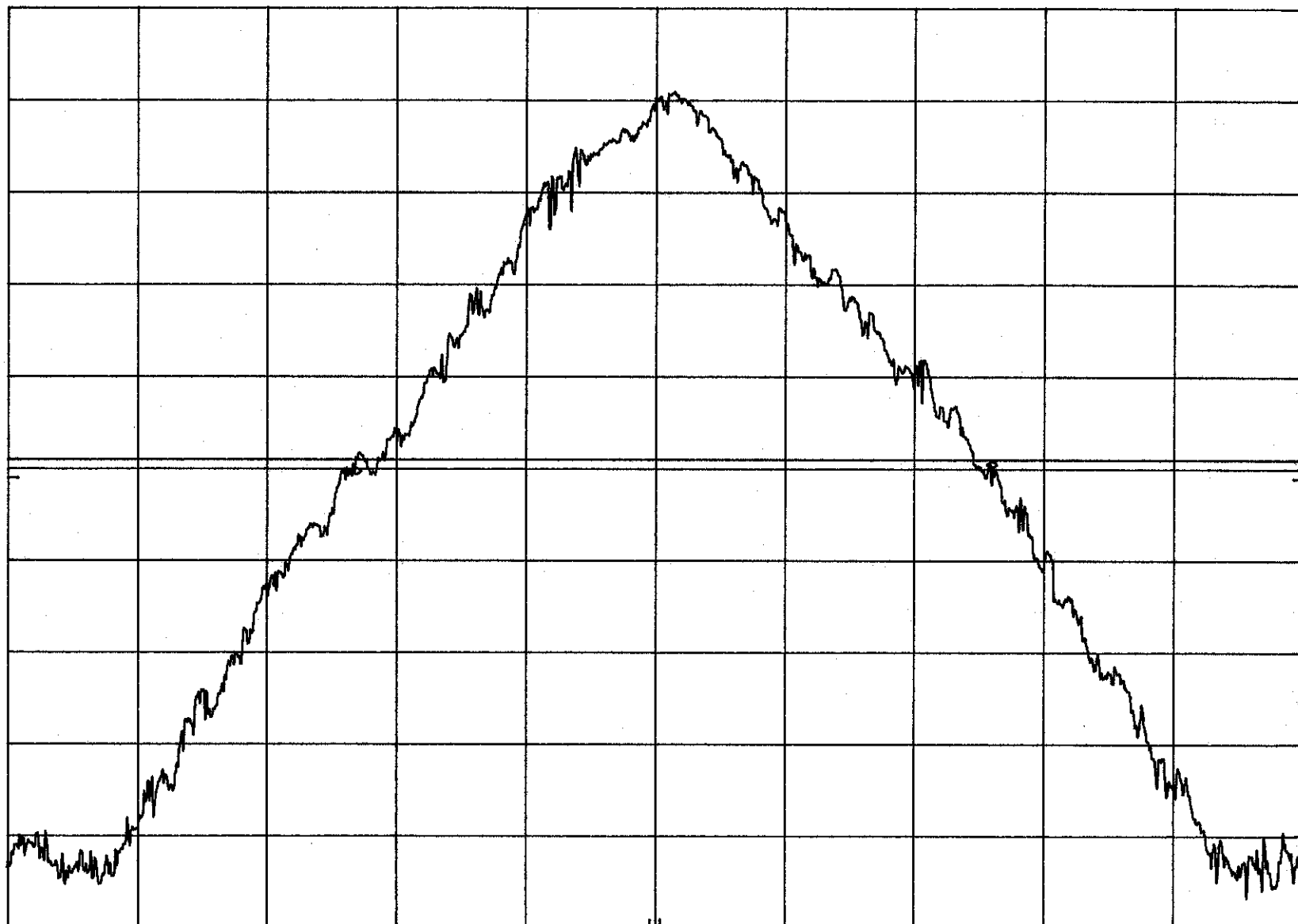
MKR Δ 982 kHz
0.40 dB

hp REF 23.2 dBm ATTN 30 dB

5 dB/

OFFSET
3.2
dB

DL
-1.3
dBm



CENTER 2.402 00 GHz

SPAN 2.00 MHz

Plot 2,a

RES BW 30 kHz

VBW 30 kHz

SWP 20.0 msec

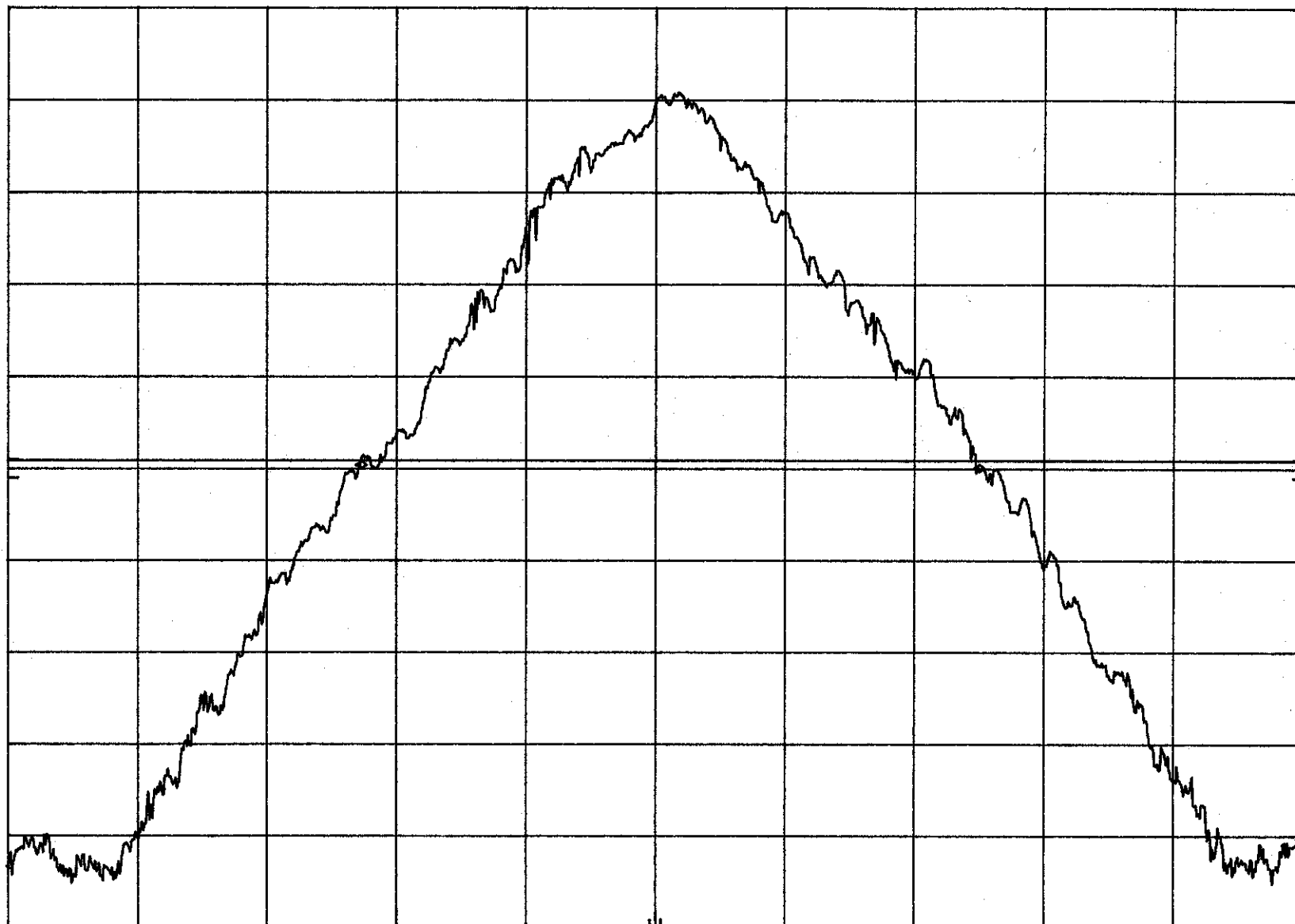
MKR Δ 954 kHz
-0.15 dB

hp REF 23.2 dBm ATTN 30 dB

5 dB/

OFFSET
3.2
dB

DL
-1.3
dBm



CENTER 2.440 00 GHz

SPAN 2.00 MHz

Plot 2,b

RES BW 30 kHz

VBW 30 kHz

SWP 20.0 msec

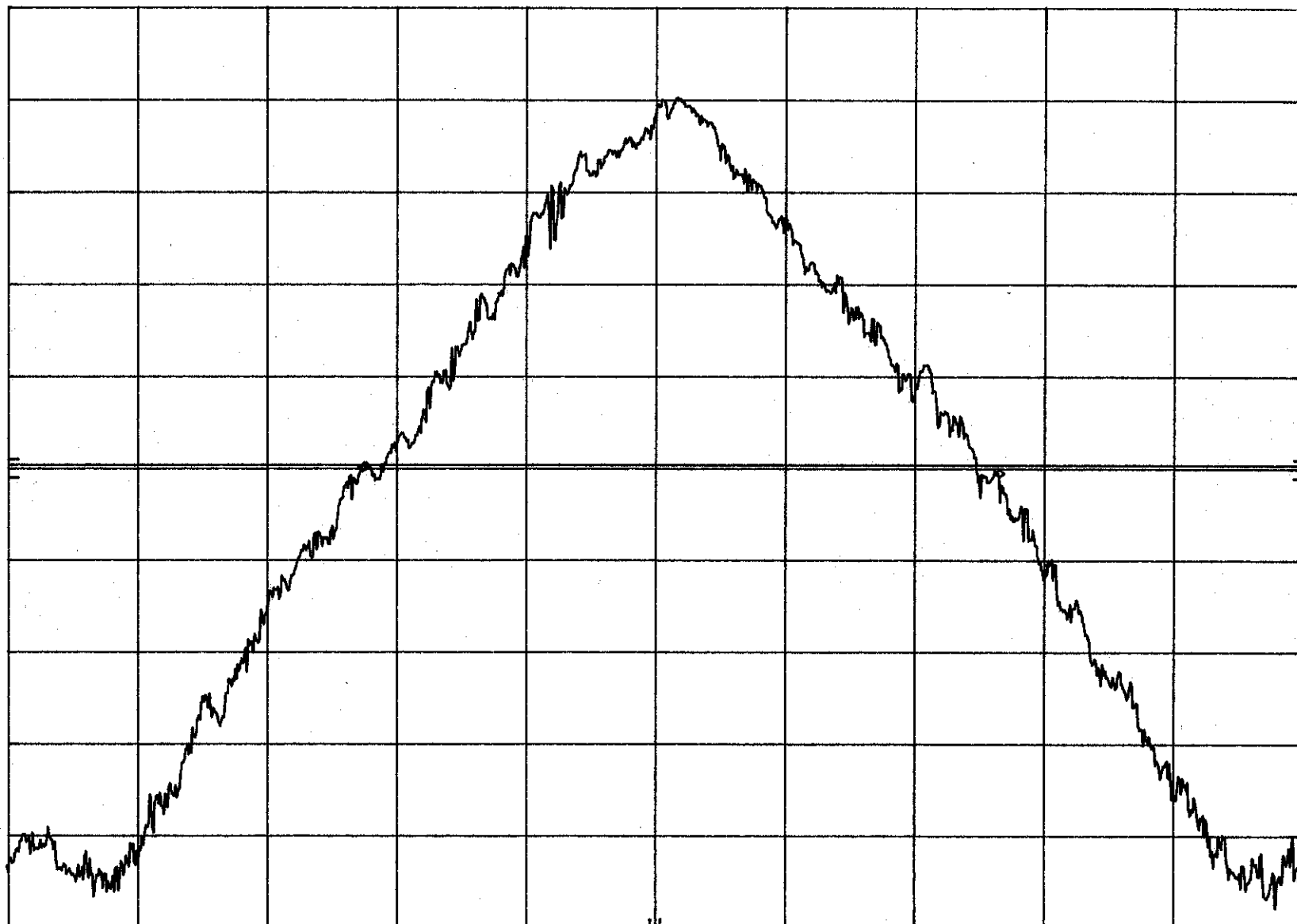
MKR Δ 982 kHz
-0.30 dB

hp REF 23.2 dBm ATTEN 30 dB

5 dB/

OFFSET
3.2
dB

DL
-1.6
dBm



CENTER 2.480 00 GHz

SPAN 2.00 MHz

Plot 2,c

RES BW 30 kHz

VBW 30 kHz

SWP 20.0 msec

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
------------------------------	----

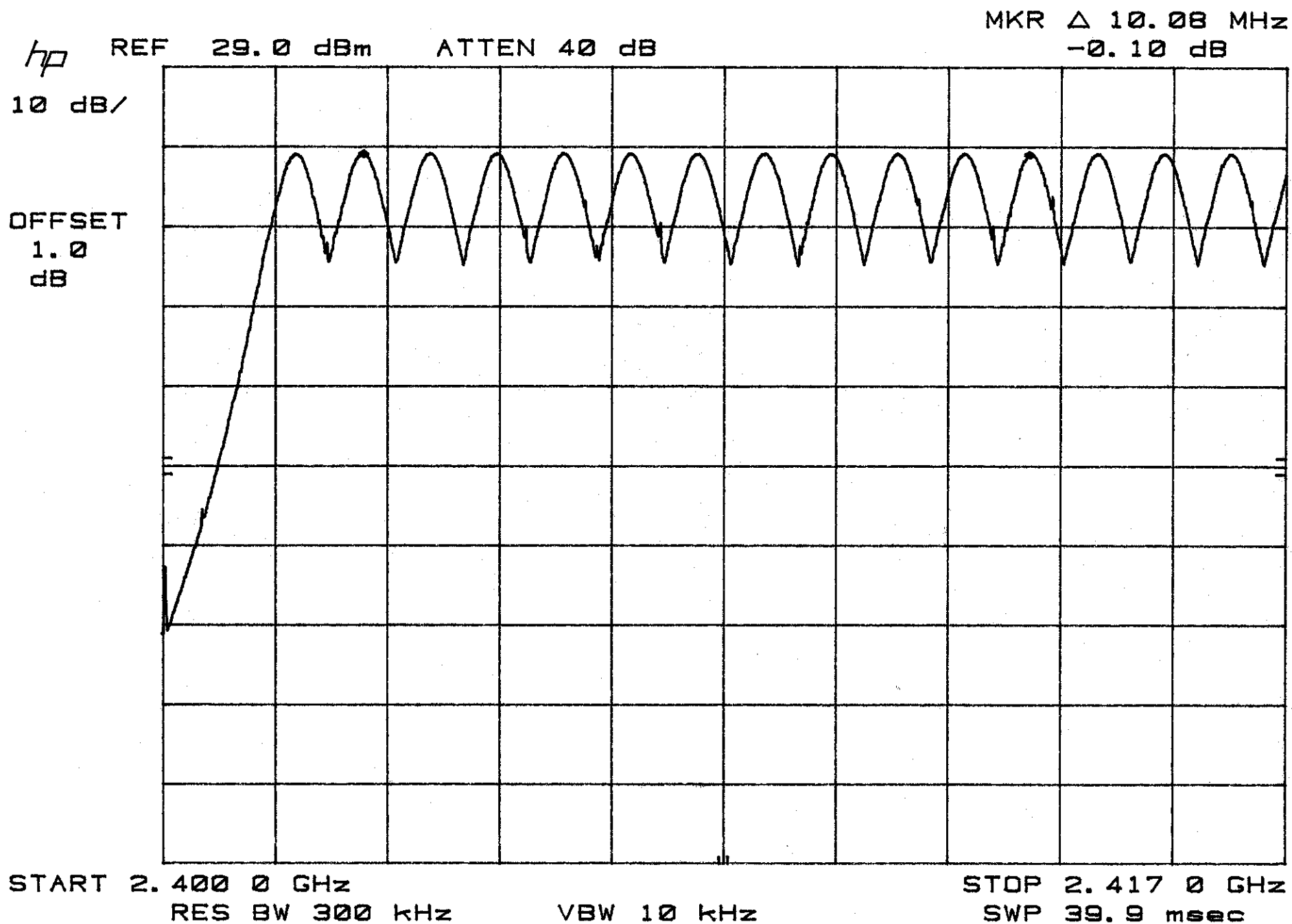
Minimum Requirements:

at least 50 channels for 902 - 928 MHz band;

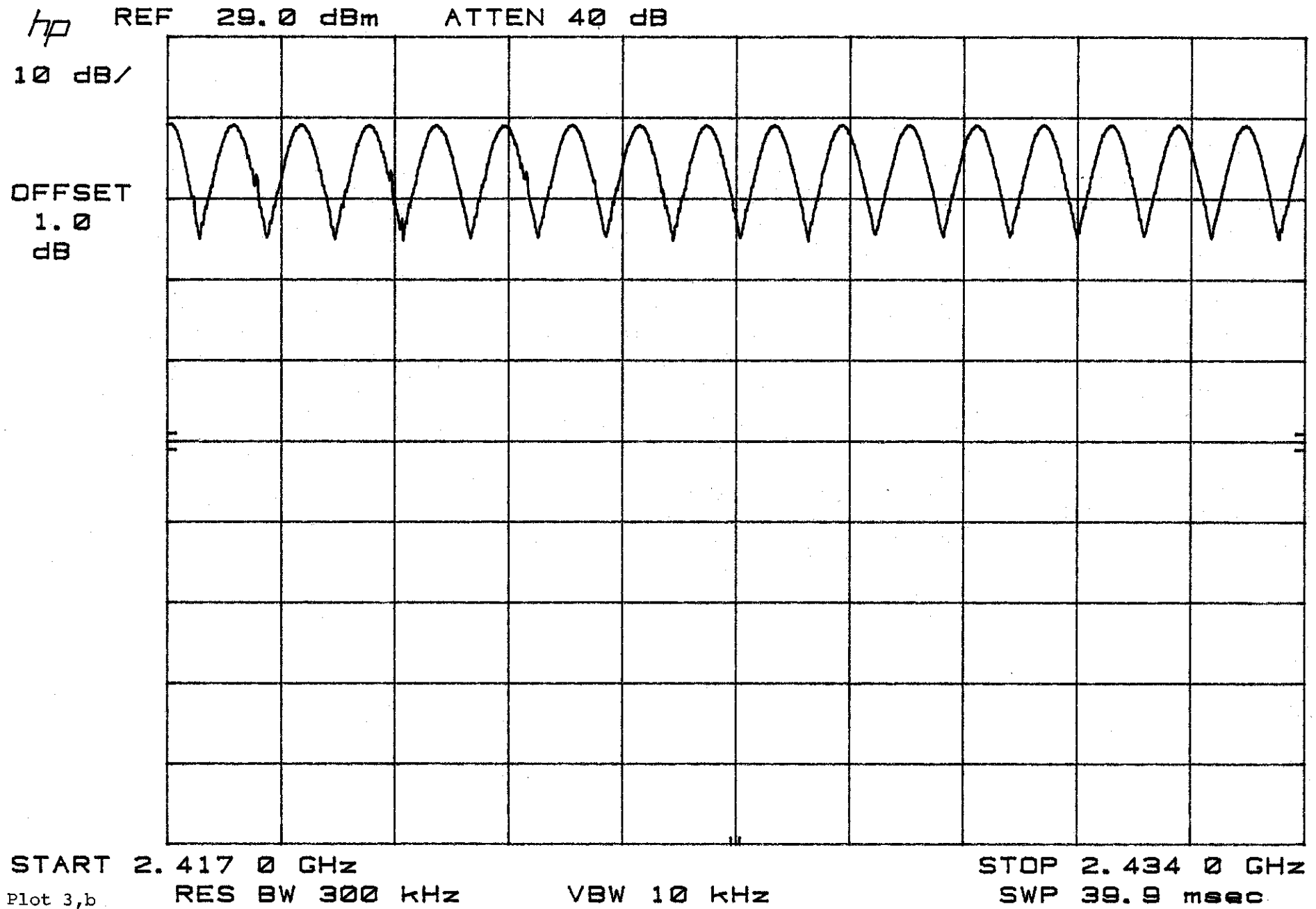
at least 75 channels for 2400 - 2483.5 and 5725 - 5850 MHz systems

Please refer to the attached plots for details:

Plots 3.a - 3.e



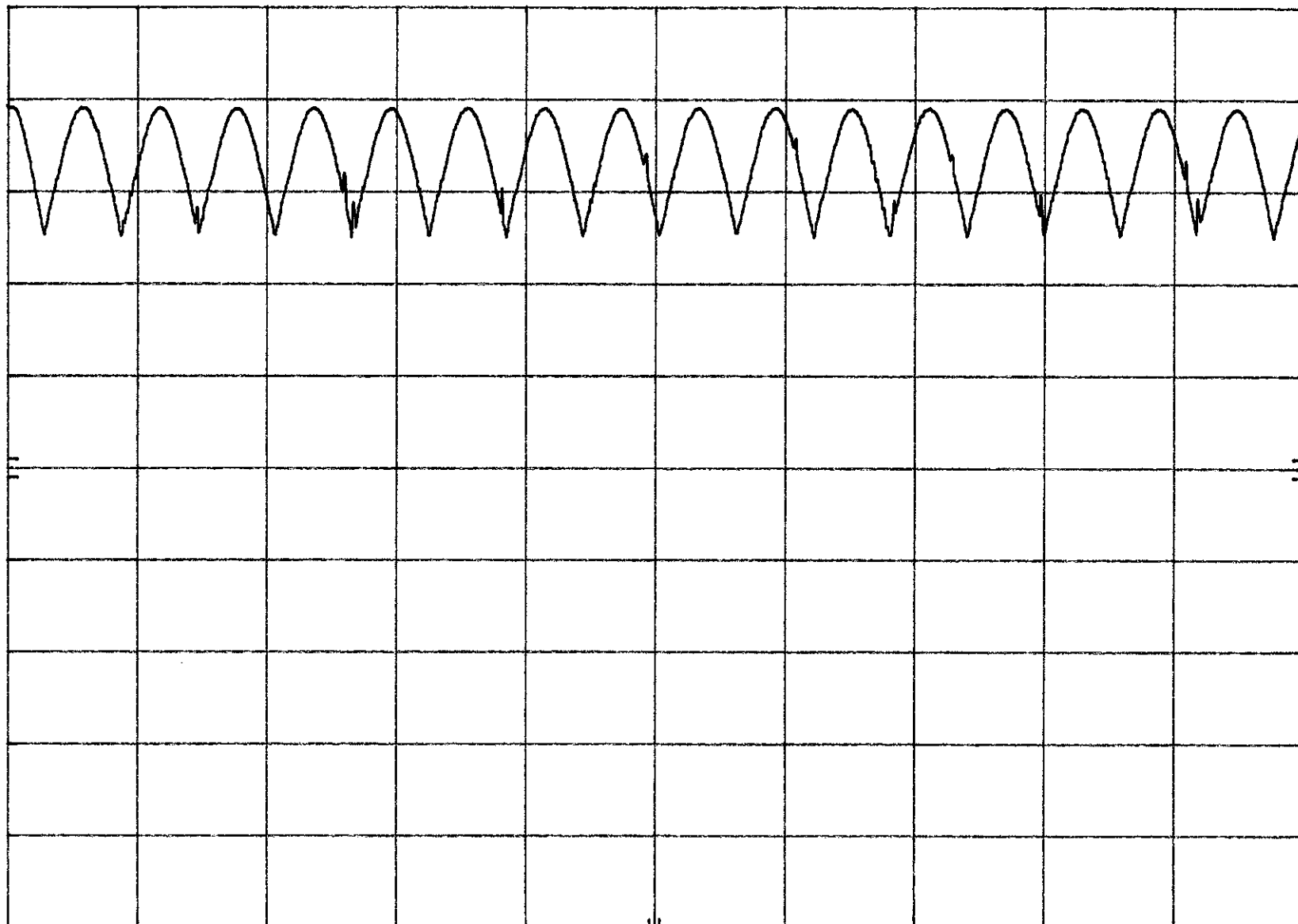
Plot 3,a



hp REF 29.0 dBm ATTN 40 dB

10 dB/

OFFSET
1.0
dB



START 2.434 0 GHz

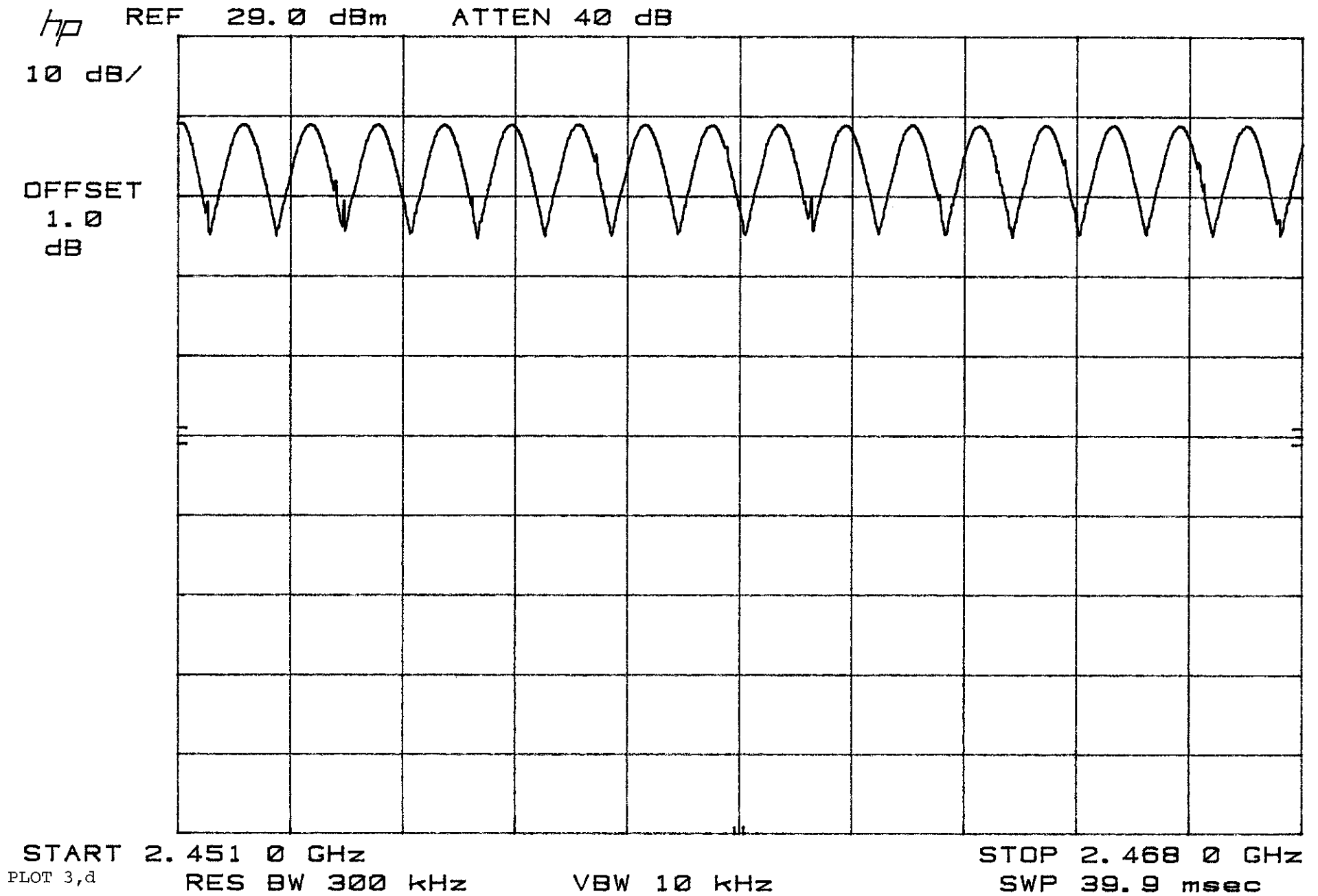
STOP 2.451 0 GHz

Plot 3,c

RES BW 300 kHz

VBW 10 kHz

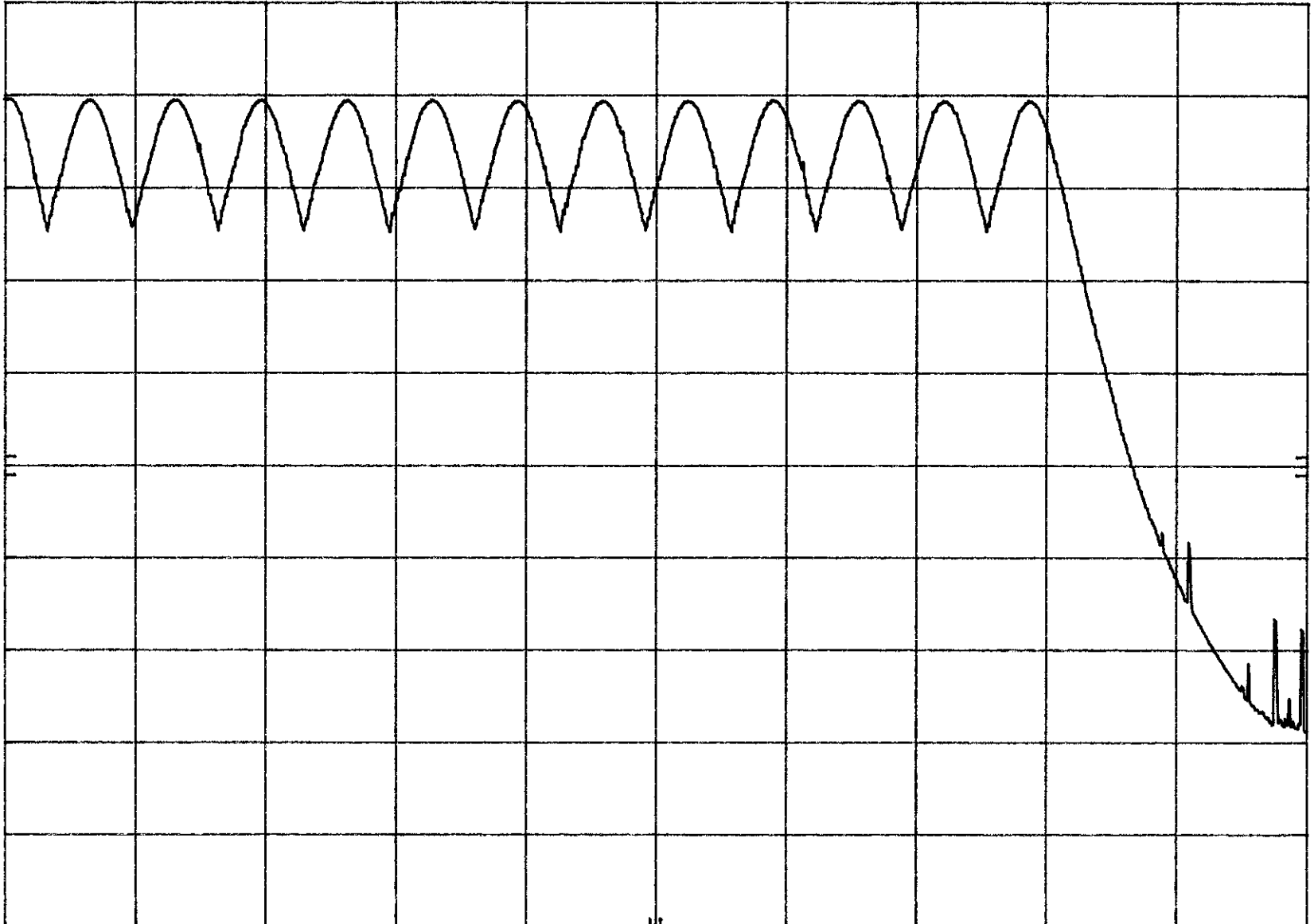
SWP 39.9 msec



hp REF 29.0 dBm ATTN 40 dB

10 dB/

OFFSET
1.0
dB



START 2.468 0 GHz

STOP 2.483 5 GHz

Plot 3,e

RES BW 300 kHz

VBW 10 kHz

SWP 39.9 msec

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:

$$39 \times 9.9 \text{ (ms)} = 386.1 \text{ ms}$$

Please refer to the attached plots for details:

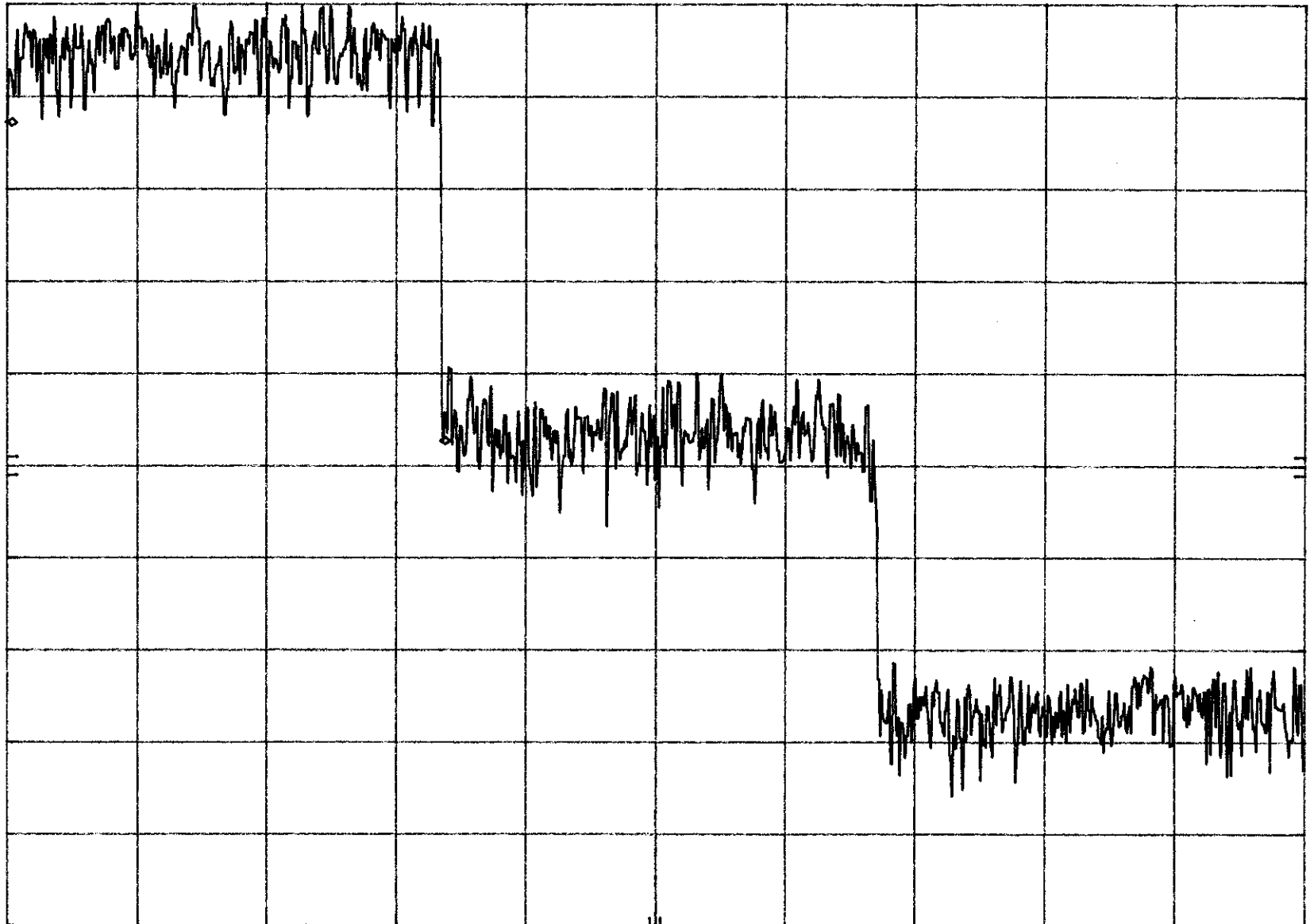
Plots 4.a - 4.b

MKR Δ 10.11 msec
-34.50 dB

hp REF 129.0 dB μ V ATTN 30 dB

10 dB/

OFFSET
6.0
dB



CENTER 2.440 000 000 GHz

SPAN 0 Hz

Plot 4,a

RES BW 30 kHz

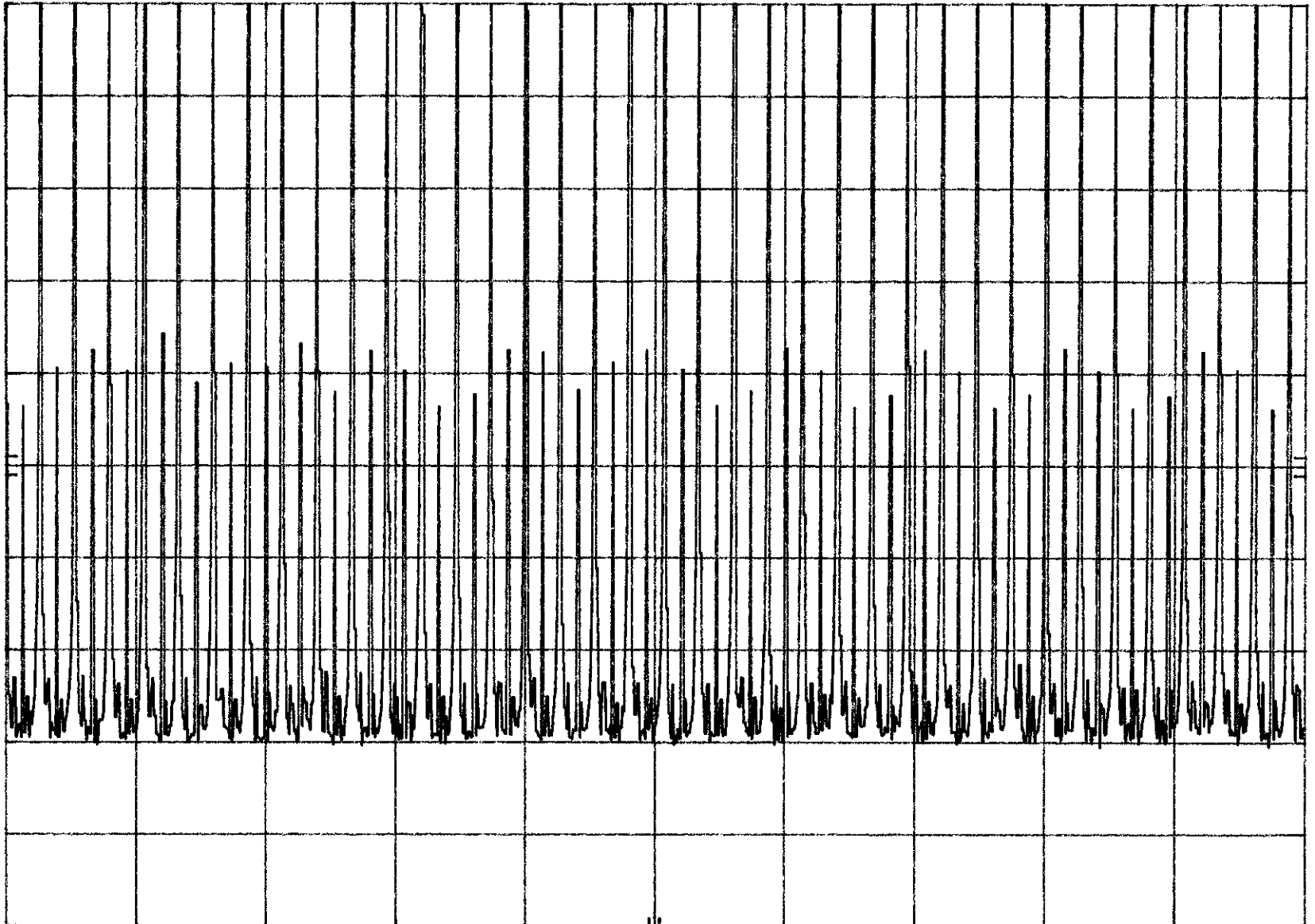
VBW 30 kHz

SWP 30.0 msec

hp REF 129.0 dBμV ATTN 30 dB

10 dB/

OFFSET
6.0
dB



CENTER 2.440 000 000 GHz

SPAN 0 Hz

Plot 4,b

RES BW 30 kHz

VBW 30 kHz

SWP 30.0 sec

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

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:

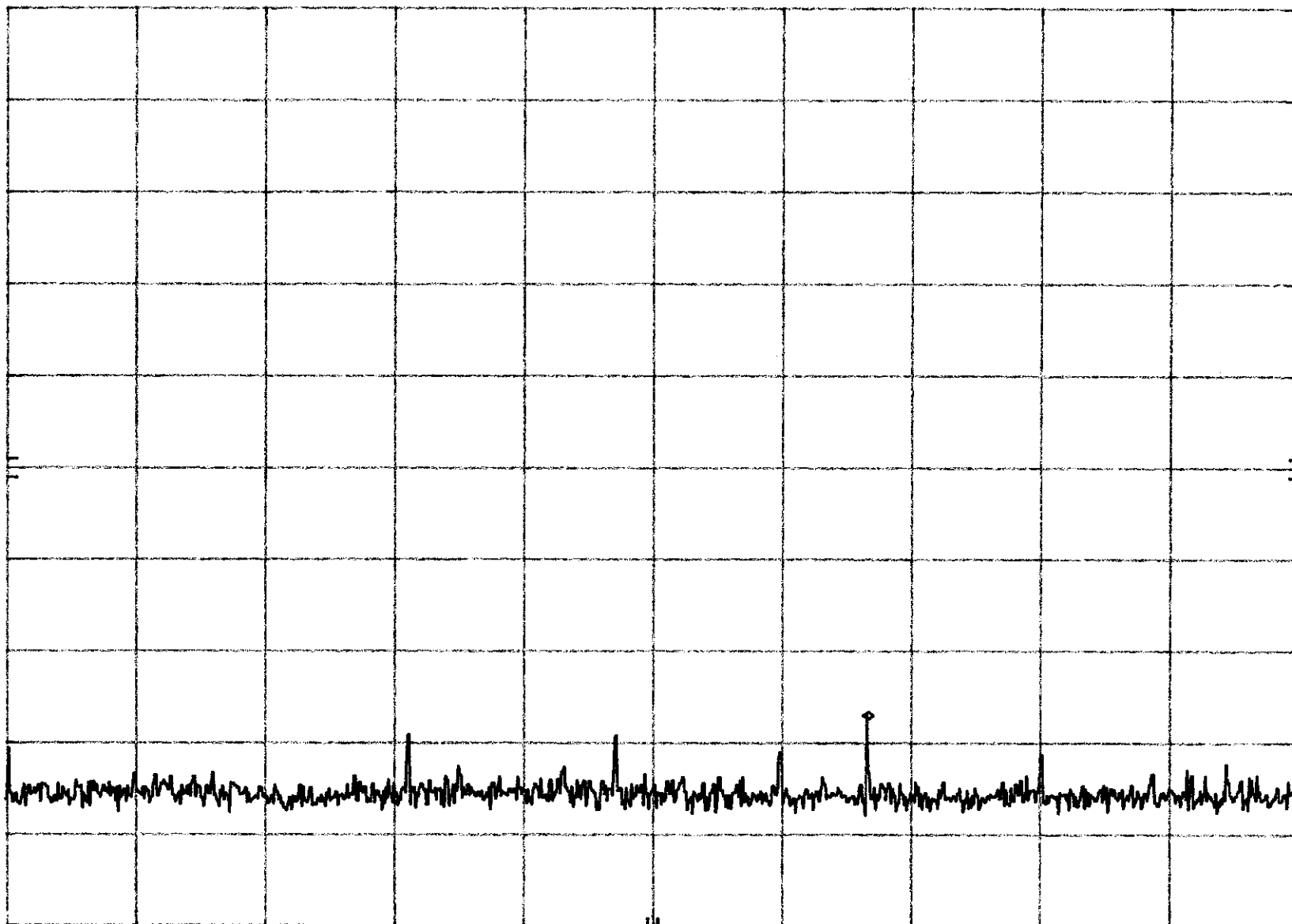
Low Channel	Plots 5.a.1 - 5.a.5
Middle Channel	Plots 5.b.1 - 5.b.5
High Channel	Plots 5.c.1 - 5.c.7

MKR 66.93 MHz
-60.00 dBm

hp REF 17.0 dBm ATTN 0 dB

10 dB/

OFFSET
27.0
dB



START 1.0 MHz

PLOT 5,a,1

RES BW 30 kHz

VBW 30 kHz

STOP 100.0 MHz

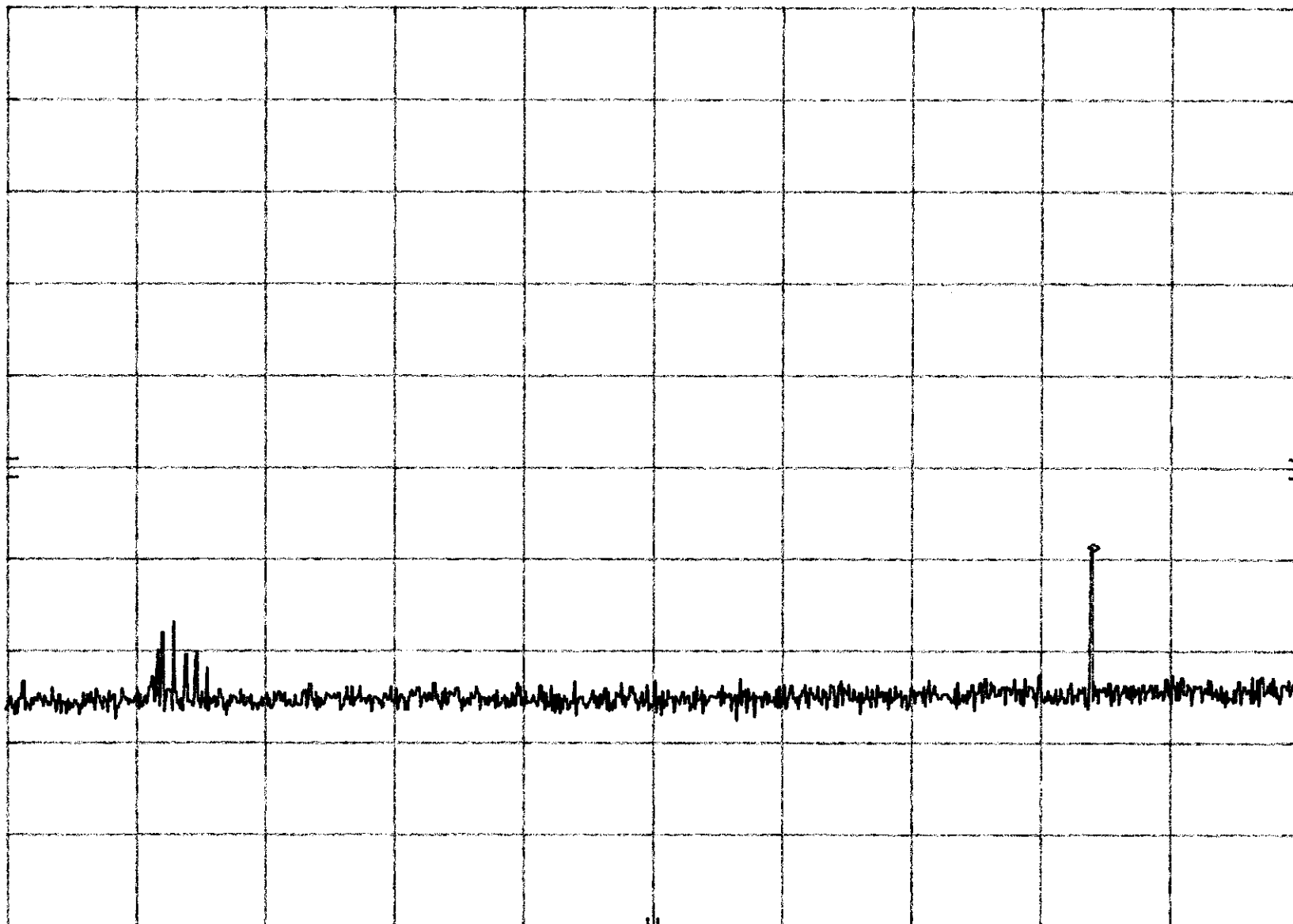
SWP 297 msec

MKR 2.032 GHz
-41.70 dBm

hp REF 17.0 dBm ATTN 10 dB

10 dB/

OFFSET
27.0
dB



START 100 MHz

STOP 2.40 GHz

Plot 5.a,2

RES BW 30 kHz

VBW 30 kHz

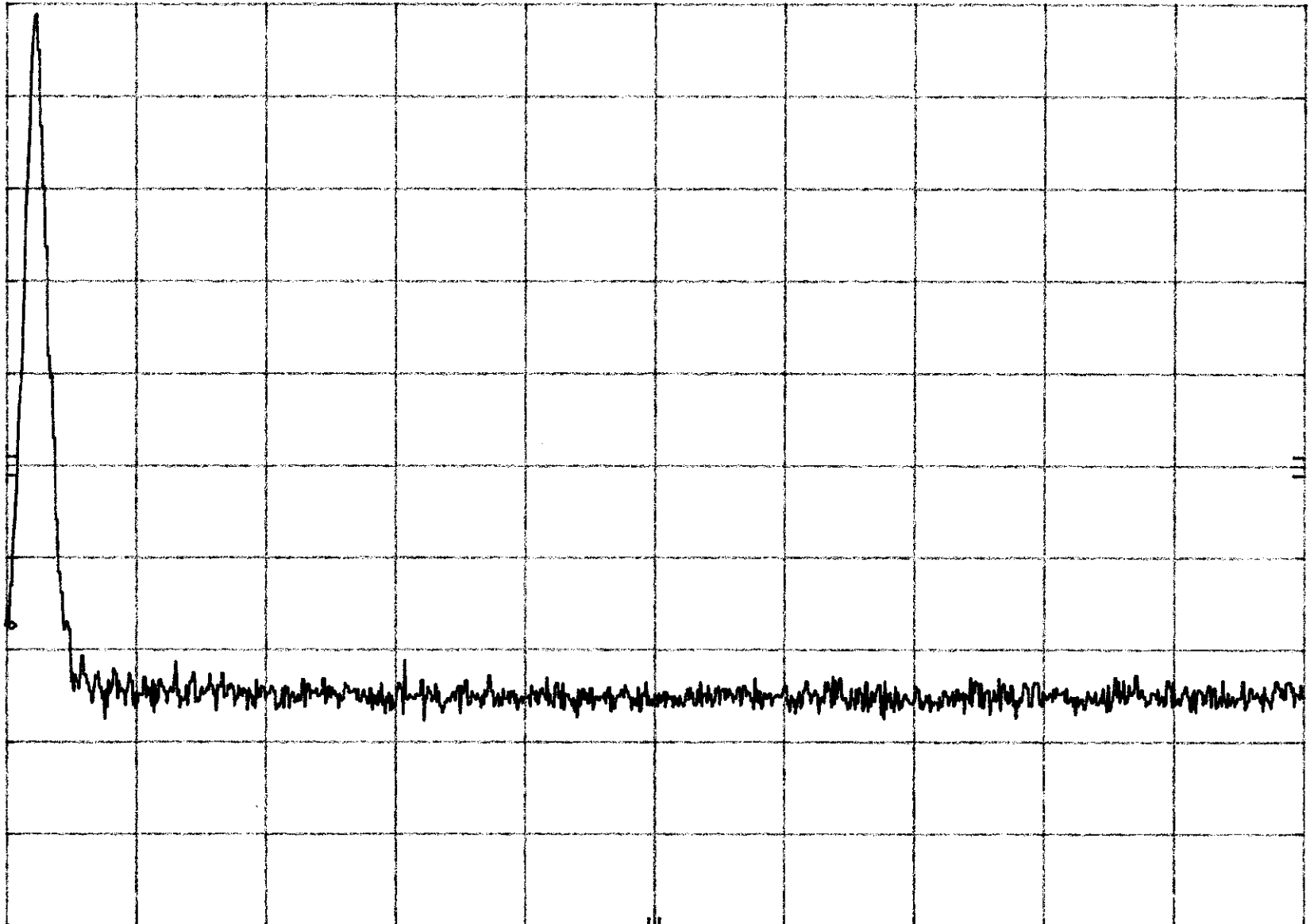
SWP 6.90 sec

MKR 2.400 00 GHz
-50.40 dBm

hp REF 17.0 dBm ATTN 10 dB

10 dB/

OFFSET
27.0
dB



START 2.400 0 GHz

STOP 2.483 5 GHz

Plot 5a,3

RES BW 30 kHz

VBW 30 kHz

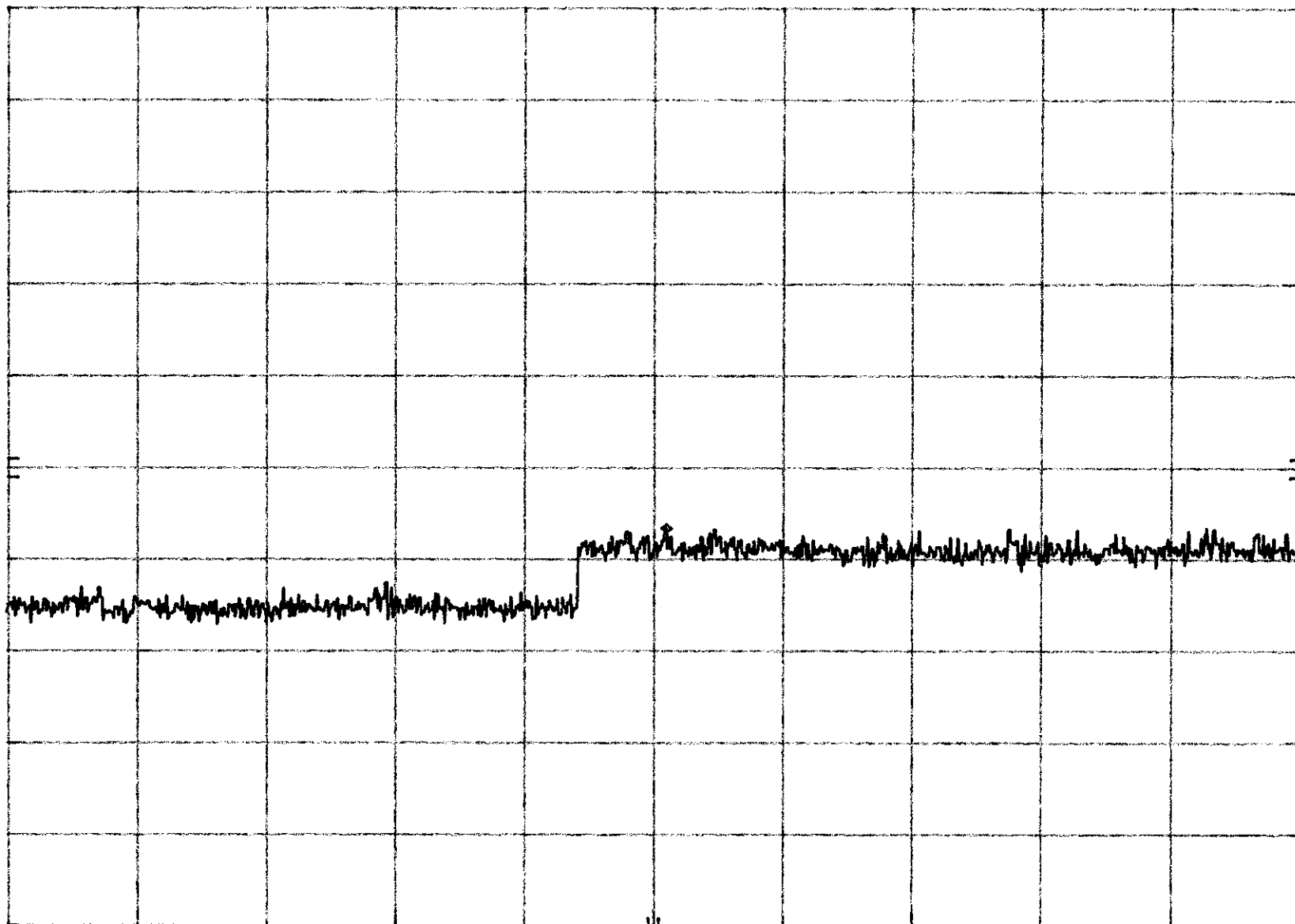
SWP 251 msec

MKR 6.309 GHz
-39.60 dBm

hp REF 17.0 dBm ATTN 10 dB

10 dB/

OFFSET
27.0
dB



START 2.48 GHz

Plot 5a,4

RES BW 300 kHz

VBW 300 kHz

STOP 10.00 GHz

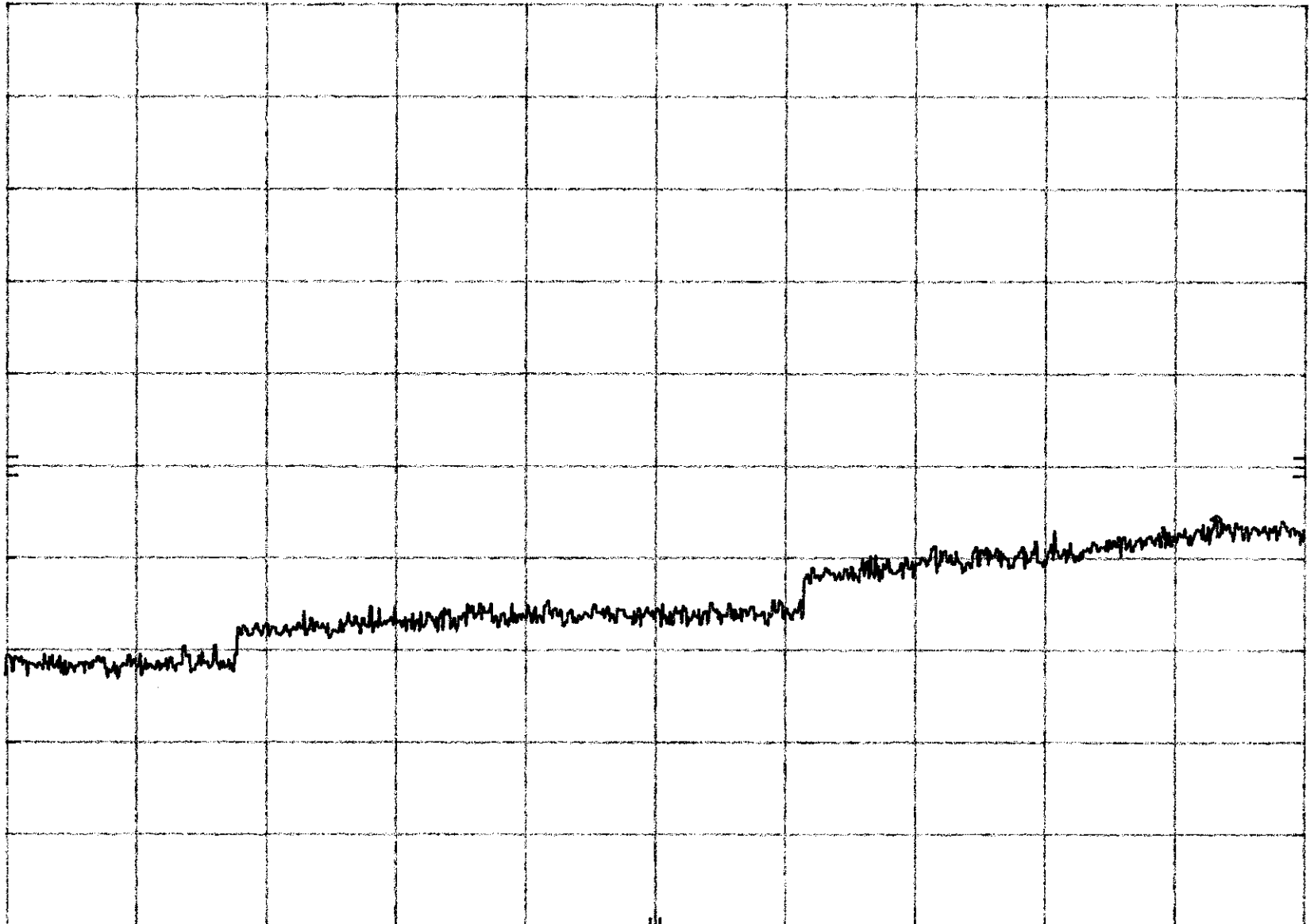
SWP 225 msec

MKR 23.03 GHz
-38.70 dBm

hp REF 17.0 dBm ATTN 0 dB

10 dB/

OFFSET
27.0
dB



START 10.0 GHz

STOP 24.0 GHz

Plot 5a, 5

RES BW 100 kHz

VBW 100 kHz

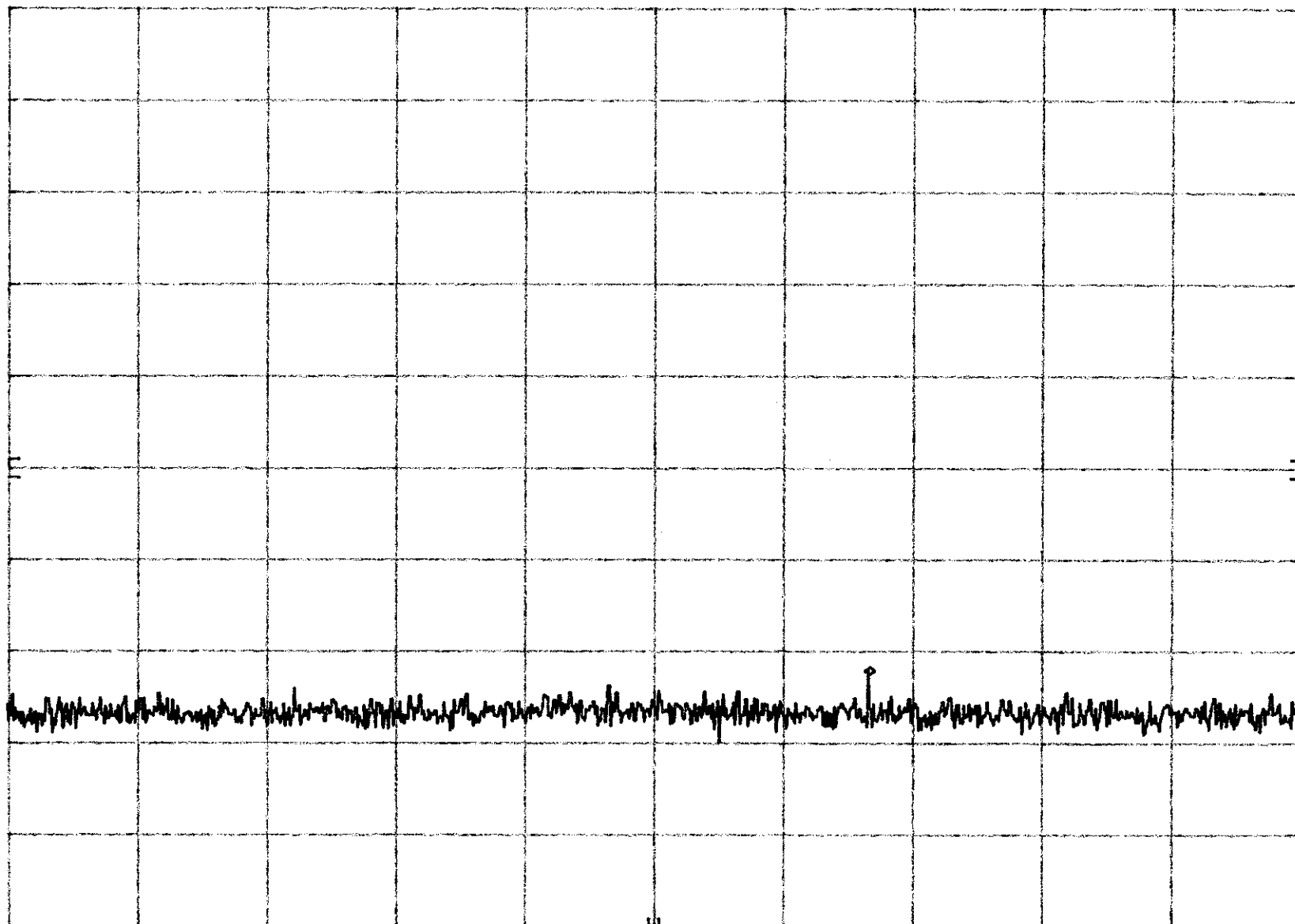
SWP 4.20 sec

MKR 66.93 MHz
-55.10 dBm

hp REF 17.0 dBm ATTN 10 dB

10 dB/

OFFSET
27.0
dB



START 1.0 MHz

Plot 5b,1

RES BW 30 kHz

VBW 30 kHz

STOP 100.0 MHz

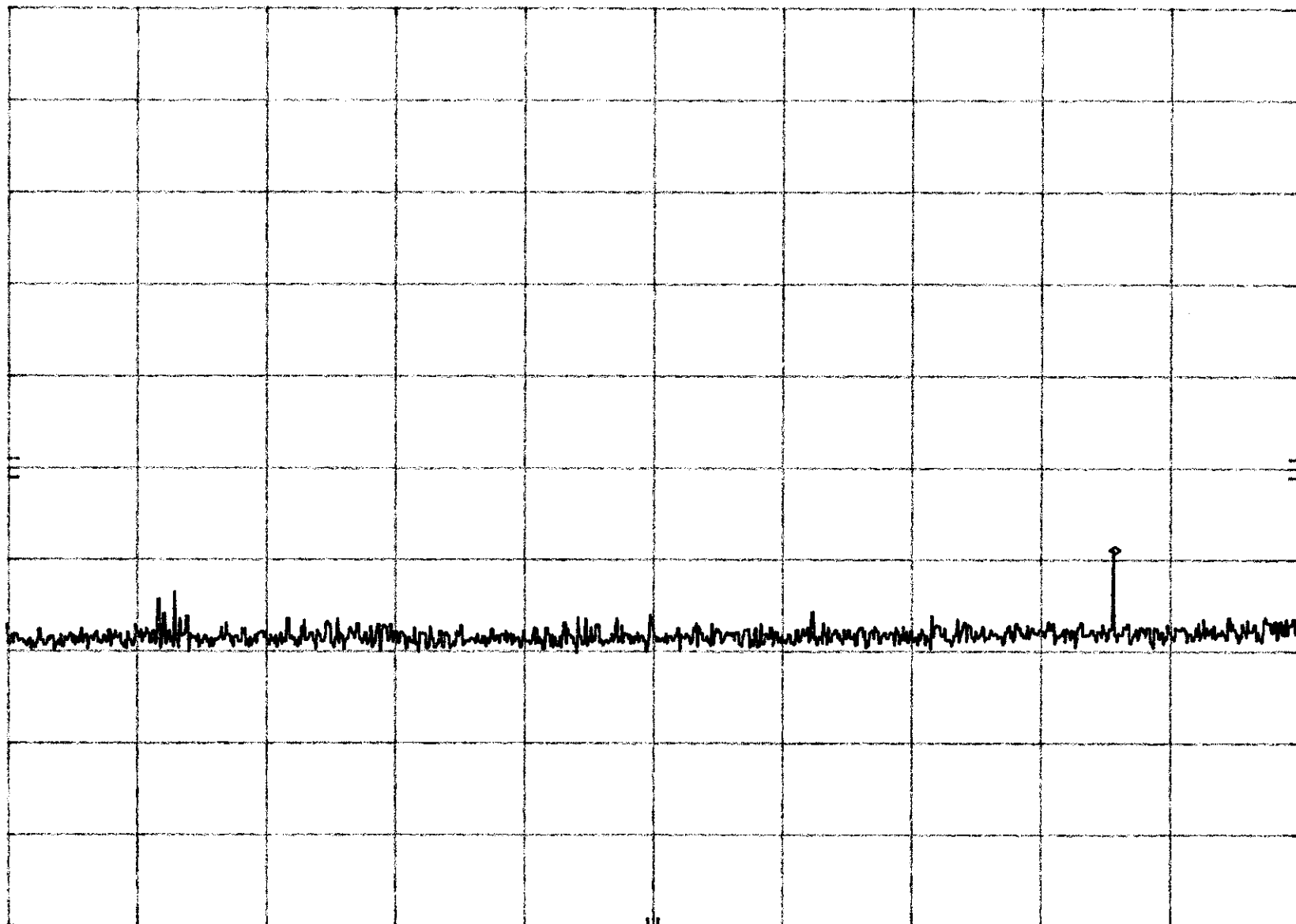
SWP 297 msec

MKR 2.069 GHz
-41.90 dBm

hp REF 17.0 dBm ATTEN 10 dB

10 dB/

OFFSET
27.0
dB



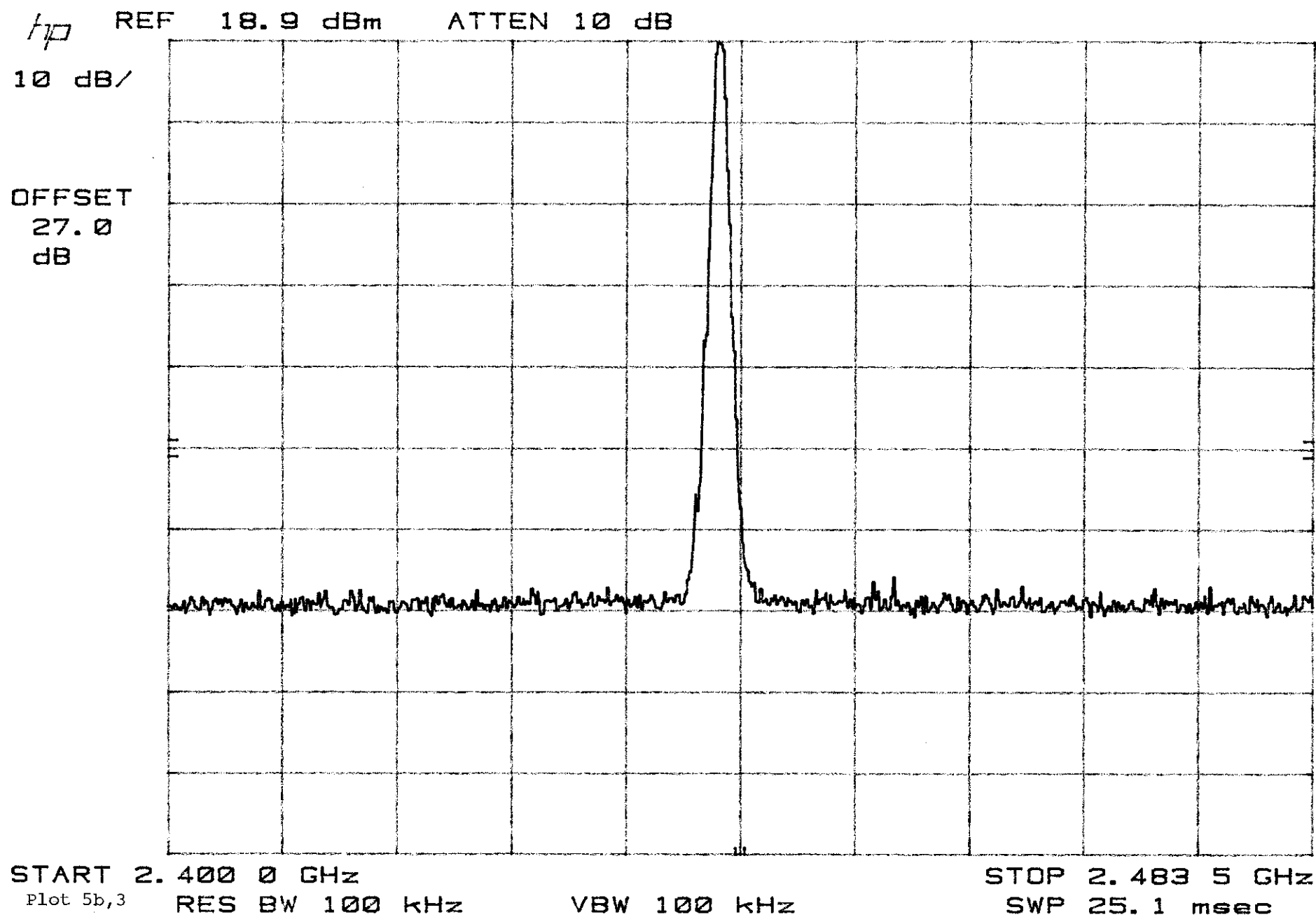
START 100 MHz

STOP 2.40 GHz

Plot 5b,2 RES BW 100 kHz

VBW 100 kHz

SWP 690 msec

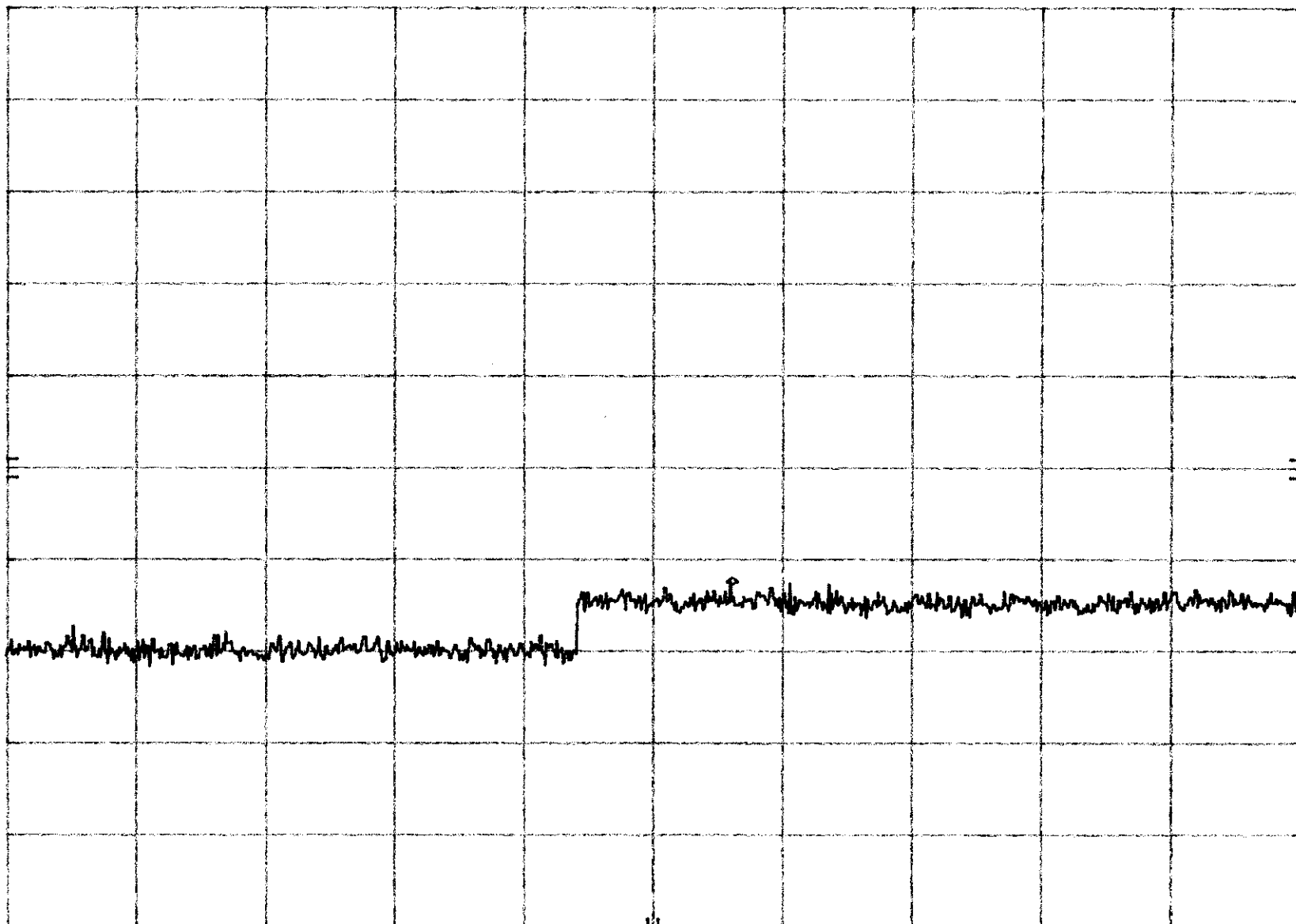


MKR 6.692 GHz
-43.50 dBm

hp REF 18.9 dBm ATTEN 10 dB

10 dB/

OFFSET
27.0
dB



START 2.48 GHz

Plot 5b,4

RES BW 100 kHz

VBW 100 kHz

STOP 10.00 GHz

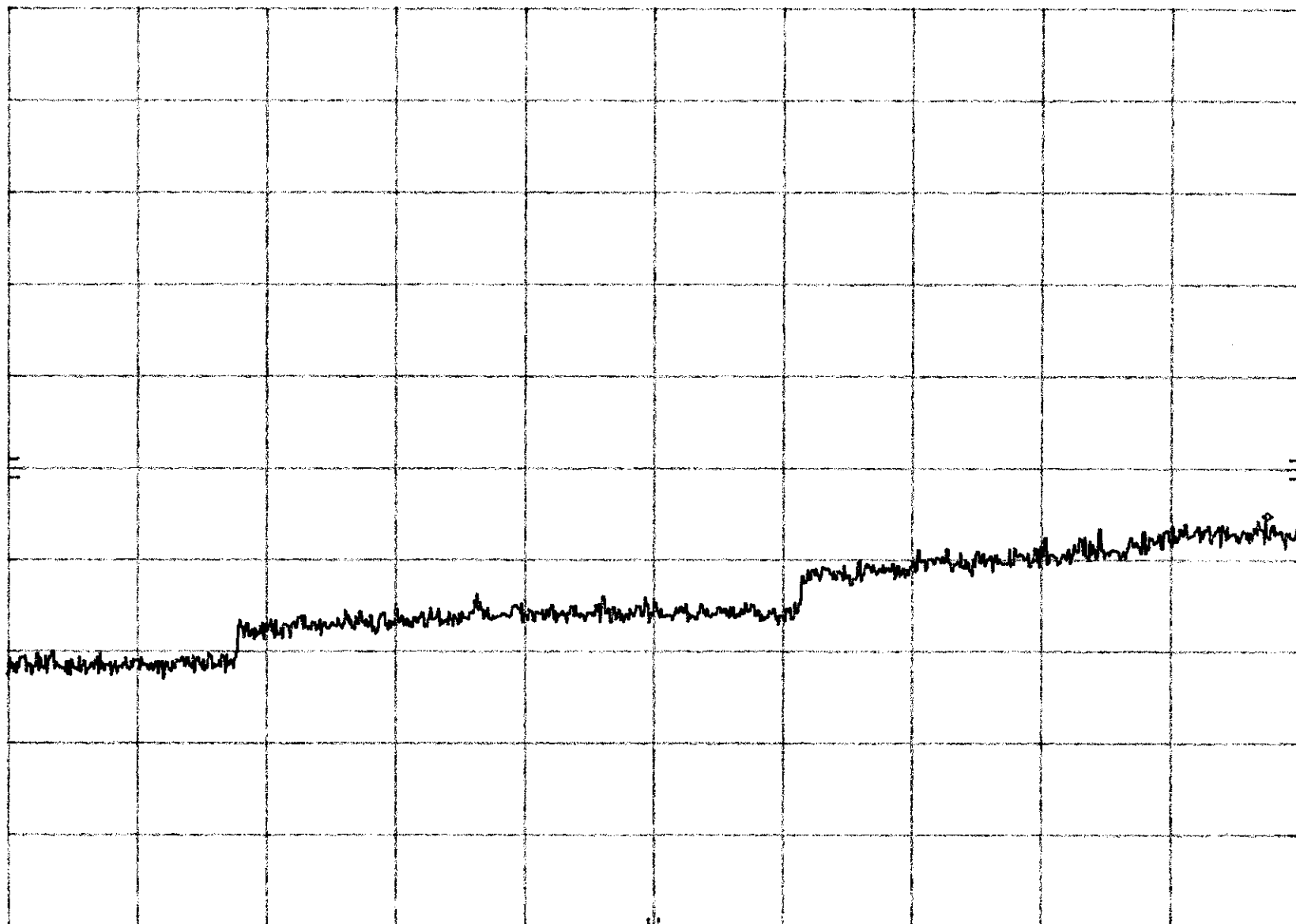
SWP 2.25 sec

MKR 23.64 GHz
-38.20 dBm

hp REF 17.0 dBm ATTN 0 dB

10 dB/

OFFSET
27.0
dB



START 10.0 GHz

Plot 5b,5 RES BW 100 kHz

VBW 100 kHz

STOP 24.0 GHz

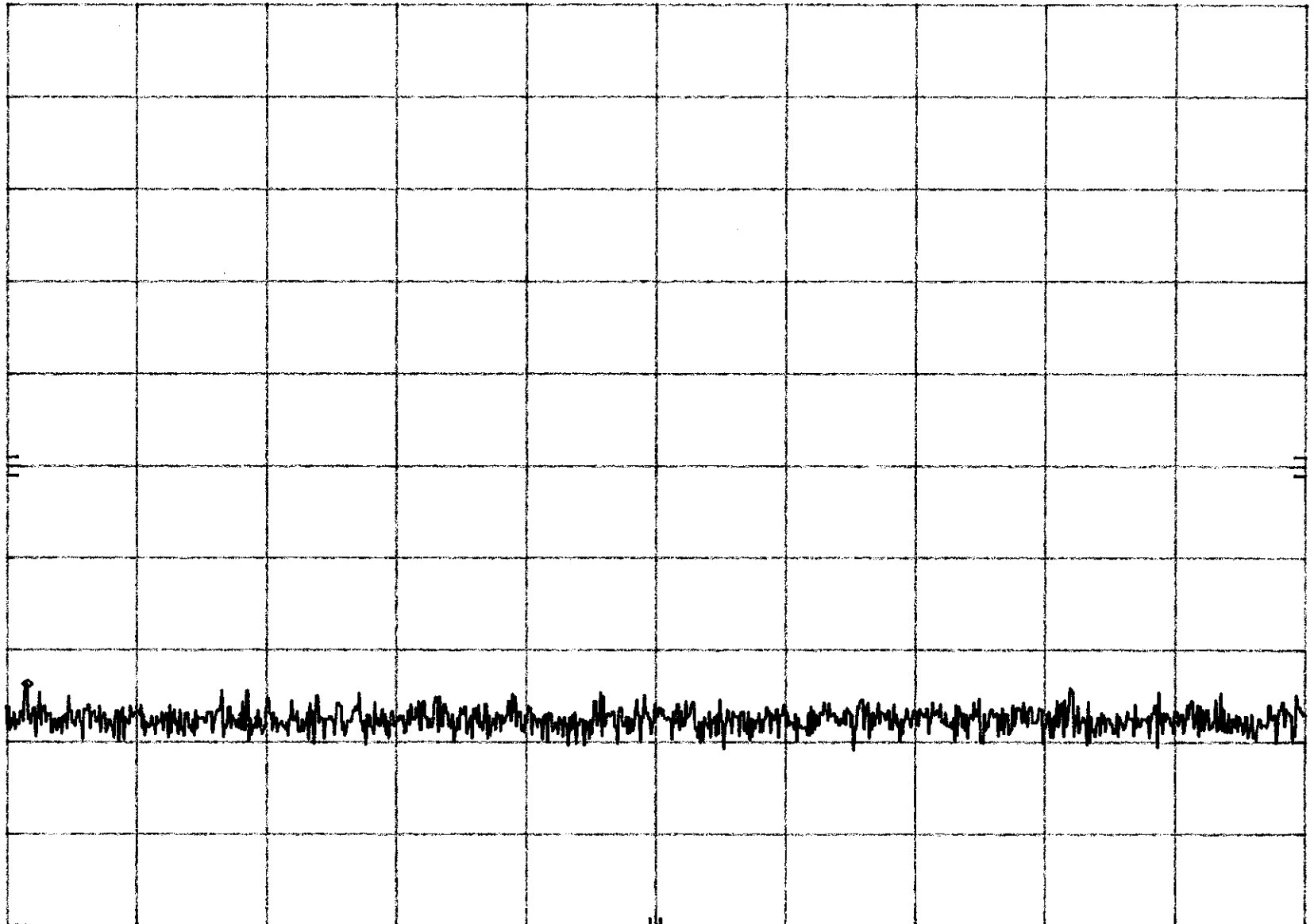
SWP 4.20 sec

MKR 2.49 MHz
-56.70 dBm

hp REF 17.0 dBm ATTN 10 dB

10 dB/

OFFSET
27.0
dB



START 1.0 MHz

STOP 100.0 MHz

PLOT 5c,1

RES BW 30 kHz

VBW 30 kHz

SWP 297 msec

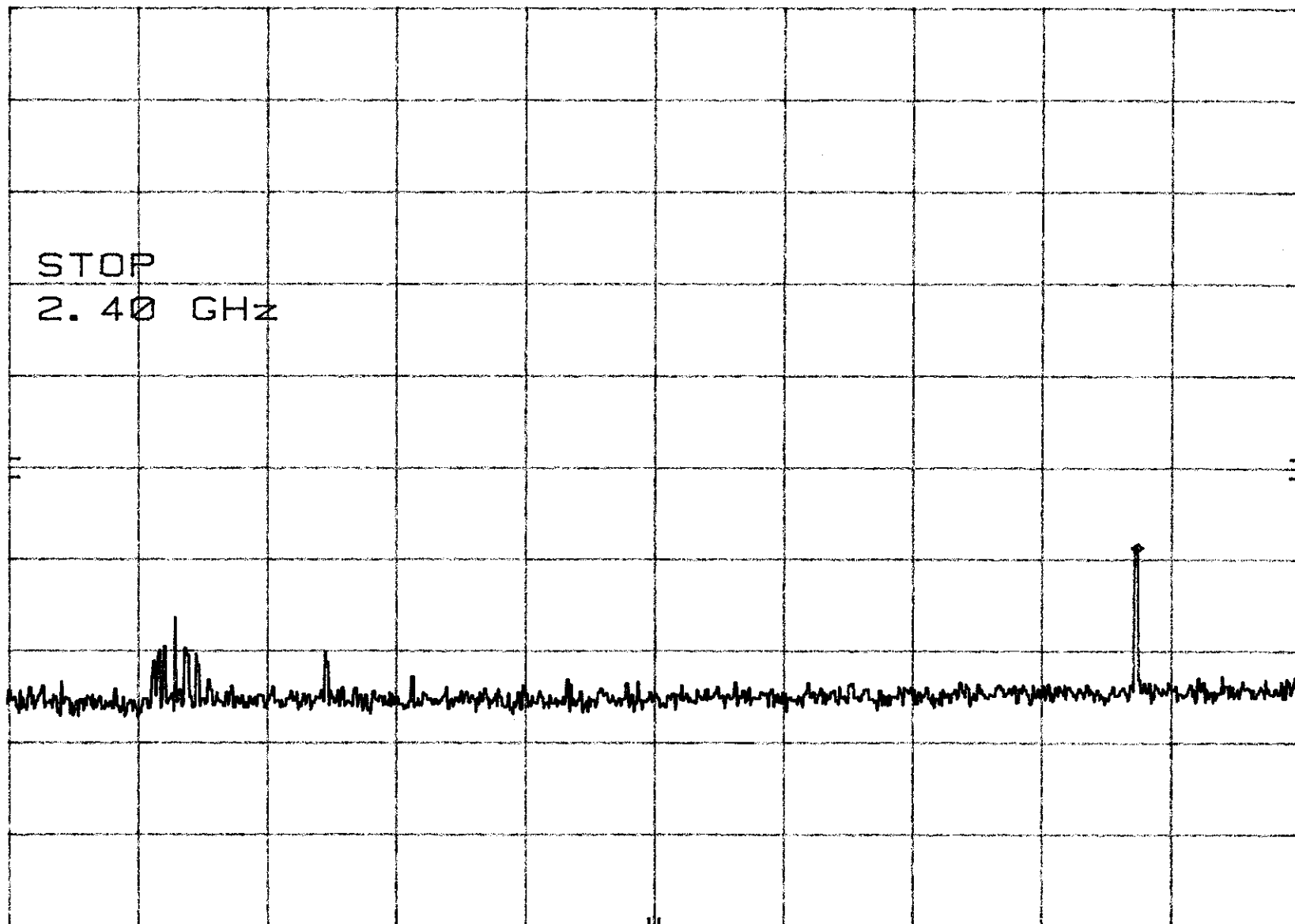
MKR 2.108 GHz
-41.70 dBm

hp REF 17.0 dBm ATTN 10 dB

10 dB/

OFFSET
27.0
dB

STOP
2.40 GHz



START 100 MHz

RES BW 30 kHz

VBW 30 kHz

STOP 2.40 GHz

SWP 6.90 sec

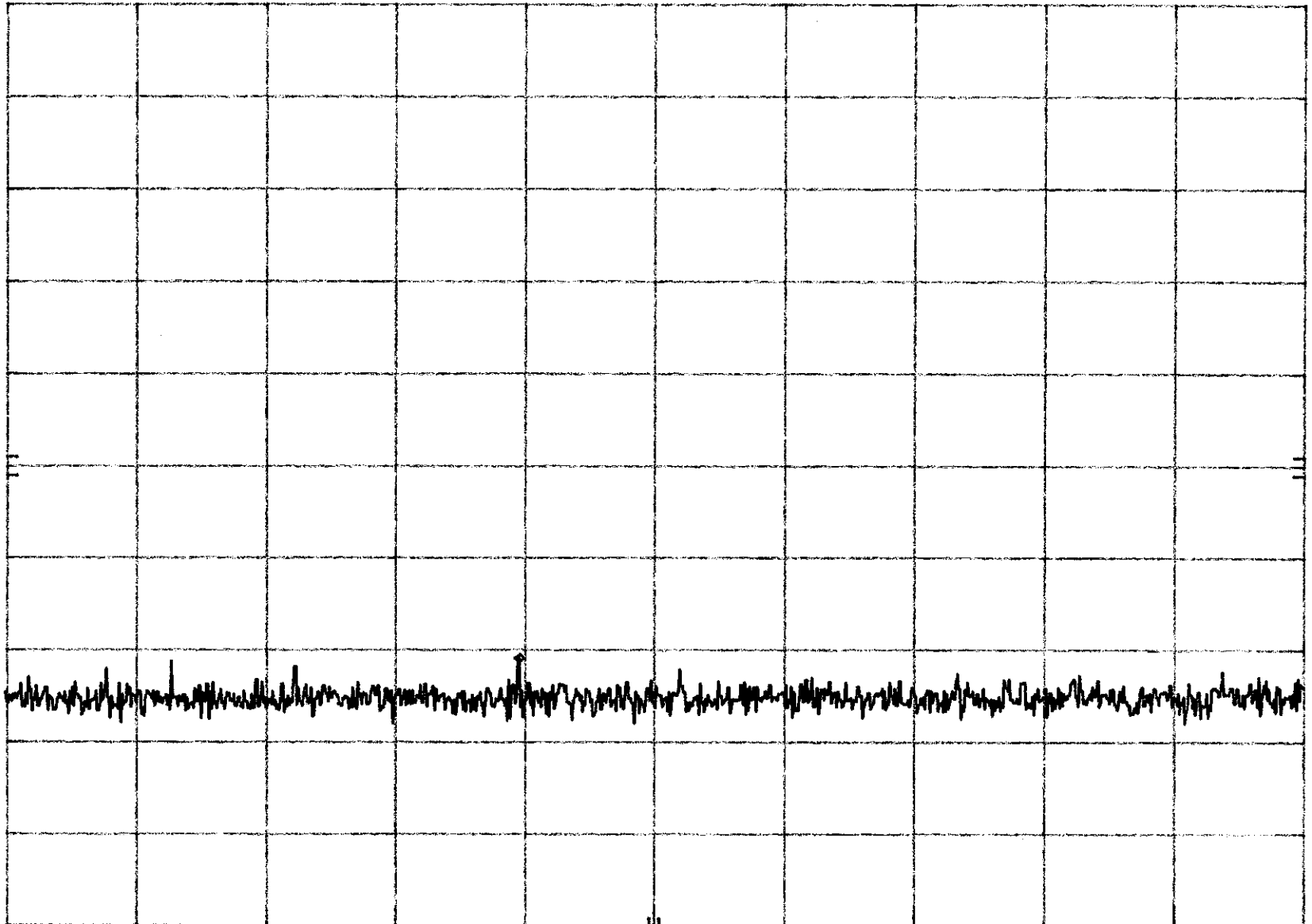
Plot 5c,2

MKR 2.429 03 GHz
-53.90 dBm

hp REF 17.0 dBm ATTN 10 dB

10 dB/

OFFSET
27.0
dB



START 2.400 0 GHz

RES BW 30 kHz

VBW 30 kHz

STOP 2.473 5 GHz

SWP 221 msec

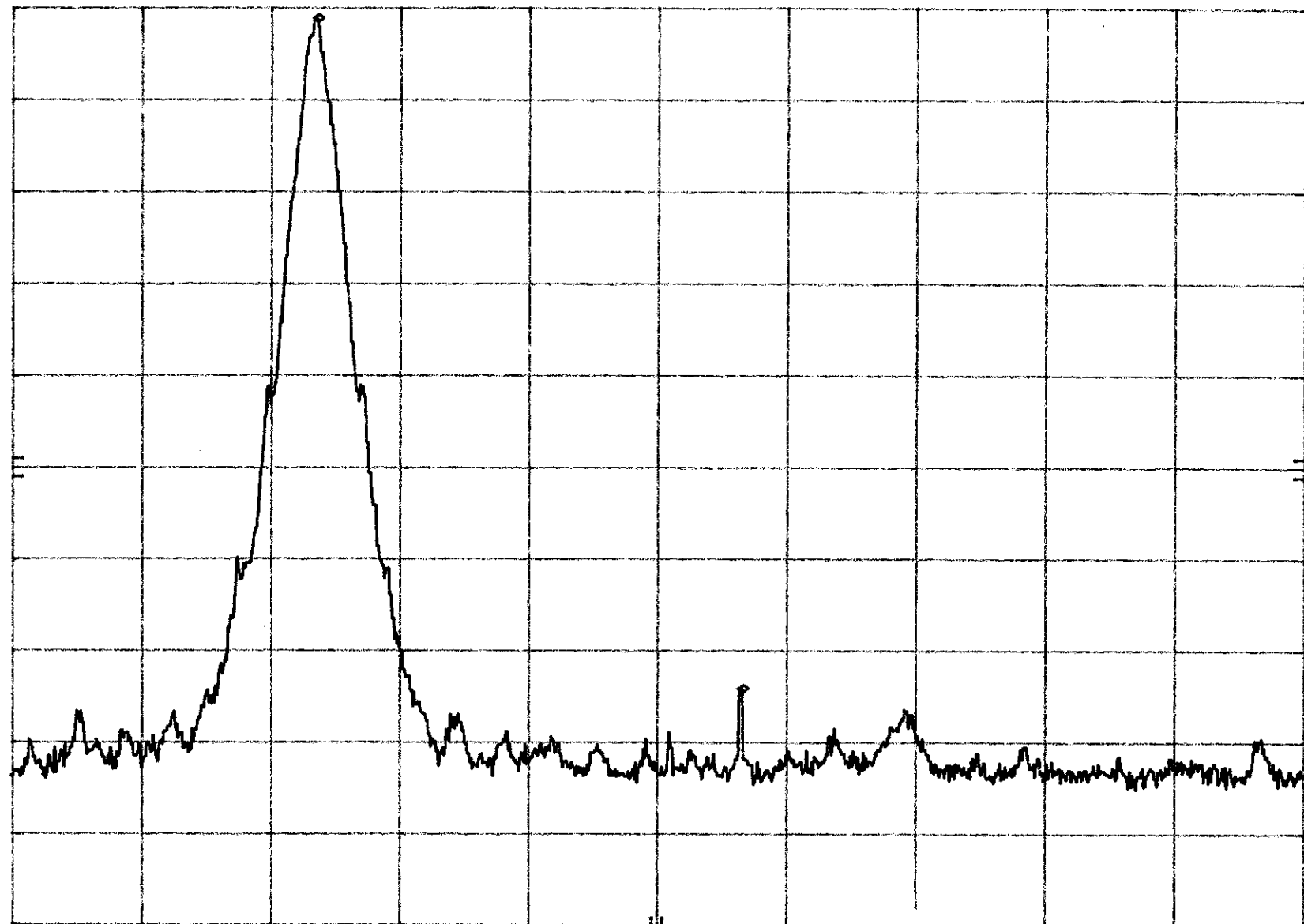
Plot 5c,3

MKR Δ 9.08 MHz
-73.00 dB

hp REF 17.0 dBm ATTN 0 dB

10 dB/

OFFSET
27.0
dB



START 2.473 5 GHz

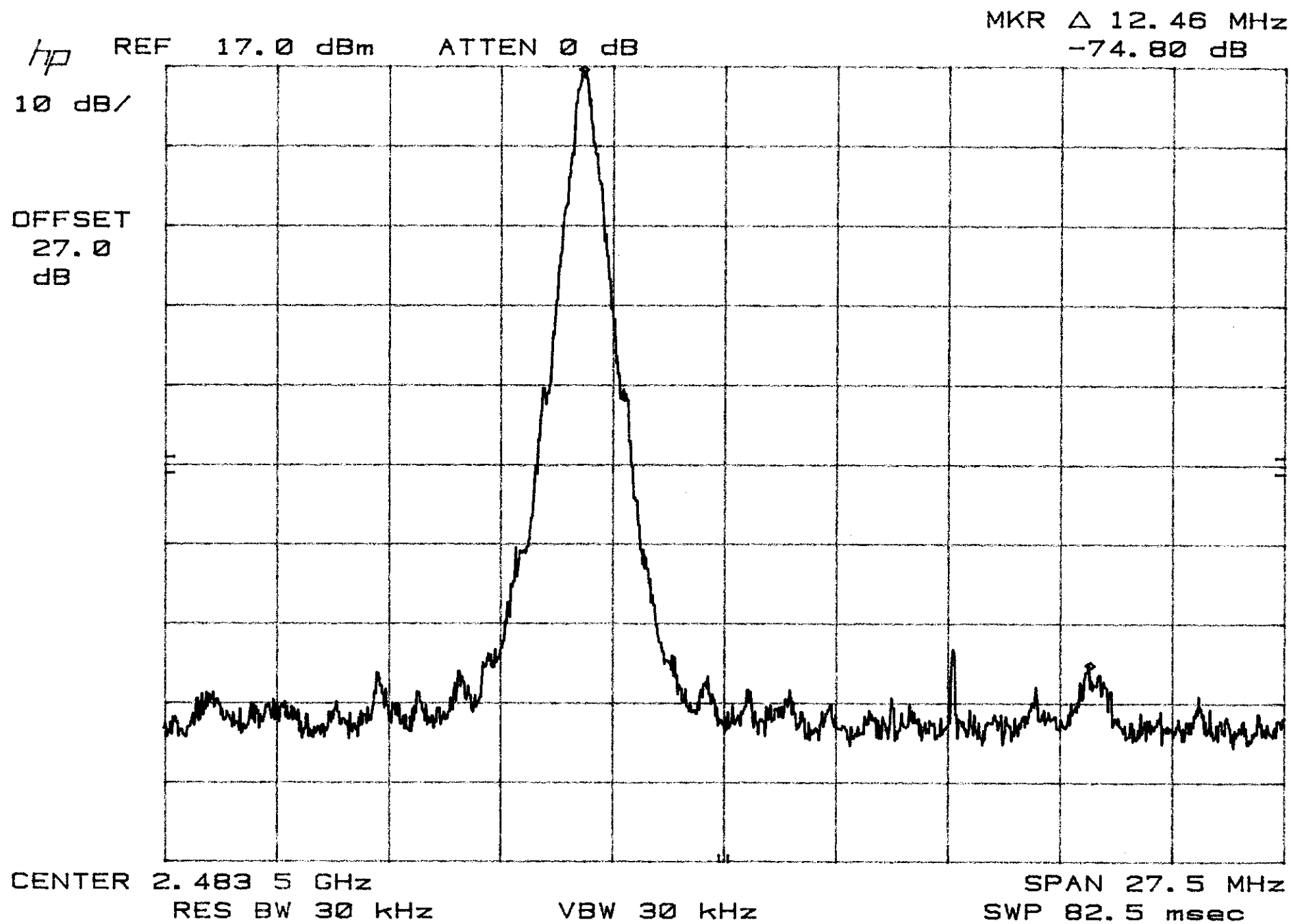
STOP 2.501 0 GHz

Plot 5c,4

RES BW 30 kHz

VBW 30 kHz

SWP 82.5 msec



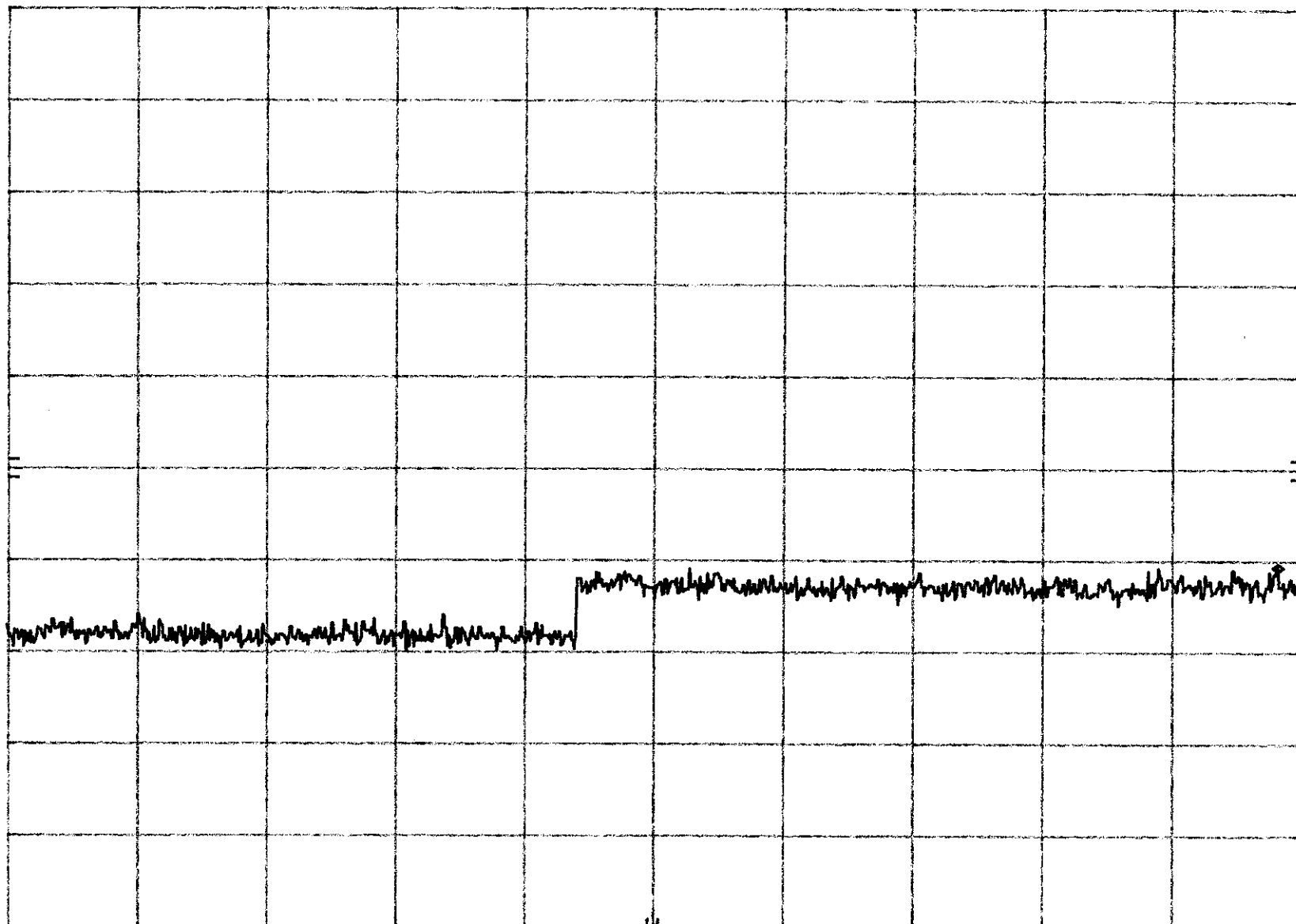
Plot 5c,5

MKR 9.858 GHz
-43.70 dBm

hp REF 17.0 dBm ATTN 10 dB

10 dB/

OFFSET
27.0
dB



START 2.50 GHz

STOP 10.00 GHz

Plot 5c,6 RES BW 100 kHz

VBW 100 kHz

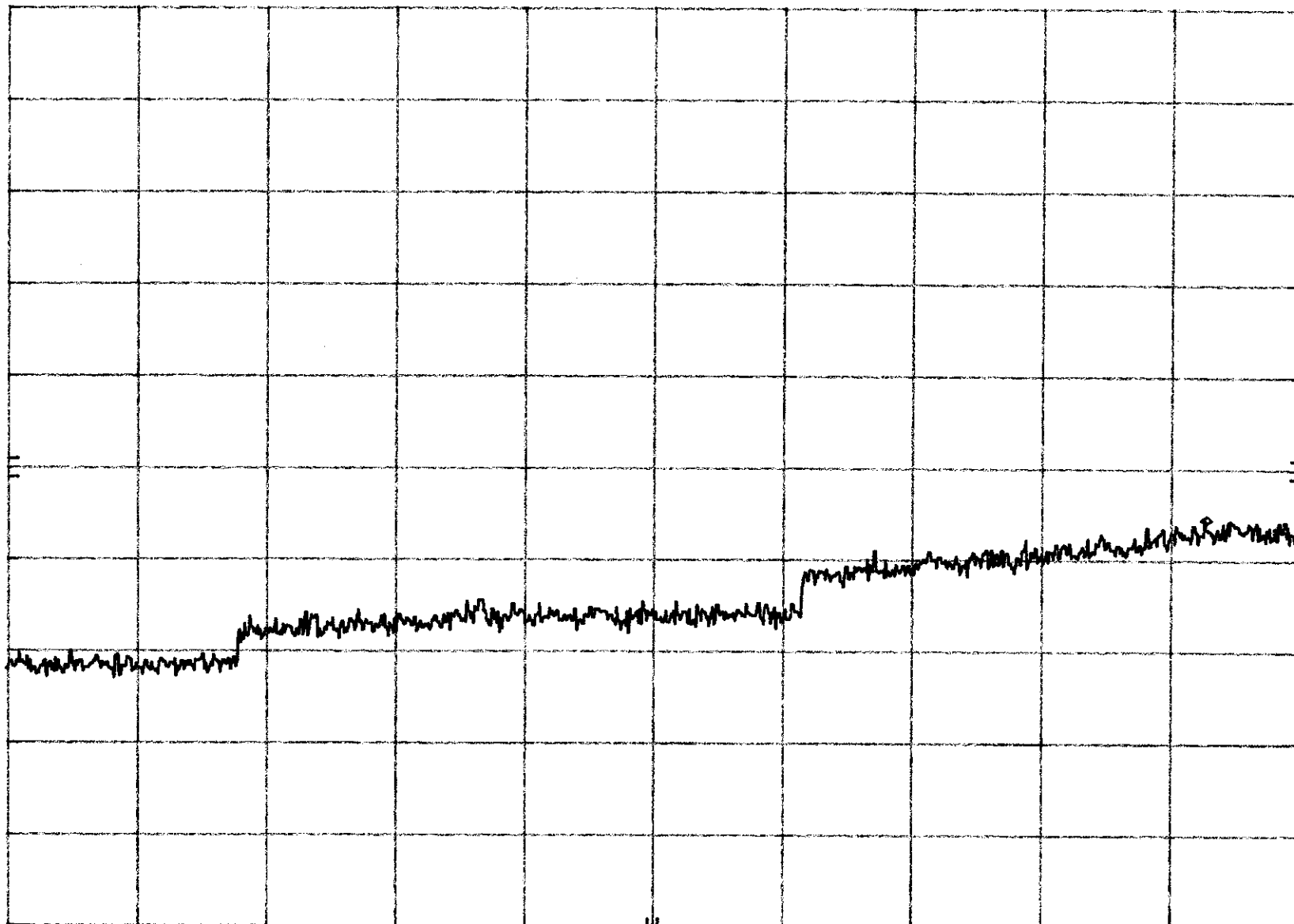
SWP 2.25 sec

MKR 22.96 GHz
-38.50 dBm

hp REF 17.0 dBm ATTN 0 dB

10 dB/

OFFSET
27.0
dB



START 10.0 GHz

RES BW 100 kHz

VBW 100 kHz

STOP 24.0 GHz

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.

☒ 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.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.



Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 19, 1999

FCC 15.247 Radiated Emissions

Antenna	1	2402MHz									
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin
	Polarity	Analyz		Factor	Loss		Factor	Cycle	Reading		
MHz	H/V	Detector	dB(uV)	dB/m	dB	dB	dB	dB	dB(uV/m)	dB(uV/m)	dB
4804.0	V	Peak	36.0	35.4	3.4	28.1	0.0	0.0	46.7	74.0	-27.3
4804.0	V	Average	26.0	35.4	3.4	28.1	0.0	0.0	36.7	54.0	-17.3
7206.0	V	Peak	37.0	36.9	4.6	28.0	0.0	0.0	50.5	74.0	-23.5
7206.0	V	Average	28.0	36.9	4.6	28.0	0.0	0.0	41.5	54.0	-12.5
12010.0	V	Peak	42.1	39.0	5.9	39.0	0.0	0.0	48.0	74.0	-26.0
12010.0	H	Average	32.2	39.0	5.9	39.0	0.0	0.0	38.1	54.0	-15.9
19216.0	H	Peak	40.0	40.2	7.5	23.3	-9.5	0.0	54.9	74.0	-19.1
19216.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1
21618.0	V	Peak	40.0	40.3	9.1	24.0	-9.5	0.0	55.9	74.0	-18.1
21618.0	V	Average	31.0	40.3	9.1	24.0	-9.5	0.0	46.9	54.0	-7.1

Note: 1. All measurement were made at 3 meters
 2. Negative signs (-) in the margin column signify levels below the limit.
 3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
 Measurements were performed at 1m distance.



Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 19, 1999

FCC 15.247 Radiated Emissions

Antenna	1	2440MHz									
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin
	Polarity	Analyz		Factor	Loss		Factor	Cycle	Reading		
MHz	H/V	Detector	dB(uV)	dB/m	dB	dB	dB	dB	dB(uV/m)	dB(uV/m)	dB
4880.0	V	Peak	39.4	35.4	3.4	28.1	0.0	0.0	50.1	74.0	-23.9
4880.0	V	Average	31.9	35.4	3.4	28.1	0.0	0.0	42.6	54.0	-11.4
7320.0	V	Peak	39.0	36.9	4.6	28.0	0.0	0.0	52.5	74.0	-21.5
7320.0	V	Average	32.4	36.9	4.6	28.0	0.0	0.0	45.9	54.0	-8.1
12200.0	V	Peak	42.1	39.0	5.9	39.0	0.0	0.0	48.0	74.0	-26.0
12200.0	H	Average	32.2	39.0	5.9	39.0	0.0	0.0	38.1	54.0	-15.9
19520.0	H	Peak	39.0	40.2	7.5	23.3	-9.5	0.0	53.9	74.0	-20.1
19520.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1
21960.0	V	Peak	40.0	40.3	9.1	24.0	-9.5	0.0	55.9	74.0	-18.1
21960.0	V	Average	31.1	40.3	9.1	24.0	-9.5	0.0	47.0	54.0	-7.0

Note: 1. All measurement were made at 3 meters
 2. Negative signs (-) in the margin column signify levels below the limit.
 3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
 Measurements were performed at 1m distance.

ITS Intertek Testing Services

Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 19, 1999

FCC 15.247 Radiated Emissions

Antenna	1	2480MHz									
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin
MHz	Polarity	Analyz	dB(uV)	Factor	Loss	dB	Factor	Cycle	Reading	dB(uV/m)	dB
4960.0	V	Peak	43.2	35.4	3.4	28.1	0.0	0.0	53.9	74.0	-20.1
4960.0	V	Average	33.2	35.4	3.4	28.1	0.0	0.0	43.9	54.0	-10.1
7440.0	V	Peak	40.9	36.9	4.6	28.0	0.0	0.0	54.4	74.0	-19.6
7440.0	V	Average	30.7	36.9	4.6	28.0	0.0	0.0	44.2	54.0	-9.8
12400.0	V	Peak	42.1	39.0	5.9	39.0	0.0	0.0	48.0	74.0	-26.0
12400.0	H	Average	32.2	39.0	5.9	39.0	0.0	0.0	38.1	54.0	-15.9
19840.0	H	Peak	39.0	40.2	7.5	23.3	-9.5	0.0	53.9	74.0	-20.1
19840.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1
22320.0	V	Peak	39.0	40.3	9.1	24.0	-9.5	0.0	54.9	74.0	-19.1
22320.0	V	Average	31.1	40.3	9.1	24.0	-9.5	0.0	47.0	54.0	-7.0

Note: 1. All measurement were made at 3 meters
 2. Negative signs (-) in the margin column signify levels below the limit.
 3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
 Measurements were performed at 1m distance.

Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 19, 1999

FCC 15.247 Radiated Emissions

Antenna	2	2402MHz										
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin	
MHz	Polarity	Analyz	dB(uV)	Factor	Loss	dB	Factor	Cycle	Reading	dB(uV/m)	dB	
4804.0	V	Peak	37.0	35.4	3.4	28.1	0.0	0.0	47.7	74.0	-26.3	
4804.0	V	Average	27.0	35.4	3.4	28.1	0.0	0.0	37.7	54.0	-16.3	
7206.0	V	Peak	37.5	36.9	4.6	28.0	0.0	0.0	51.0	74.0	-23.0	
7206.0	V	Average	28.1	36.9	4.6	28.0	0.0	0.0	41.6	54.0	-12.4	
12010.0	V	Peak	42.1	39.0	5.9	39.0	0.0	0.0	48.0	74.0	-26.0	
12010.0	H	Average	32.2	39.0	5.9	39.0	0.0	0.0	38.1	54.0	-15.9	
19216.0	H	Peak	40.0	40.2	7.5	23.3	-9.5	0.0	54.9	74.0	-19.1	
19216.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1	
21618.0	V	Peak	40.0	40.3	9.1	24.0	-9.5	0.0	55.9	74.0	-18.1	
21618.0	V	Average	31.0	40.3	9.1	24.0	-9.5	0.0	46.9	54.0	-7.1	

Note: 1. All measurement were made at 3 meters
 2. Negative signs (-) in the margin column signify levels below the limit.
 3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
 Measurements were performed at 1m distance.



Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 19, 1999

FCC 15.247 Radiated Emissions

Antenna	2	2440MHz										
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin	
MHz	Polarity	Analyz	dB(uV)	Factor	Loss	dB	Factor	Cycle	Reading	dB(uV/m)	dB	
4880.0	V	Peak	39.5	35.4	3.4	28.1	0.0	0.0	50.2	74.0	-23.8	
4880.0	V	Average	34.8	35.4	3.4	28.1	0.0	0.0	45.5	54.0	-8.5	
7320.0	V	Peak	43.3	36.9	4.6	28.0	0.0	0.0	56.8	74.0	-17.2	
7320.0	V	Average	34.9	36.9	4.6	28.0	0.0	0.0	48.4	54.0	-5.6	
12200.0	V	Peak	42.1	39.0	5.9	39.0	0.0	0.0	48.0	74.0	-26.0	
12200.0	H	Average	32.2	39.0	5.9	39.0	0.0	0.0	38.1	54.0	-15.9	
19520.0	H	Peak	39.0	40.2	7.5	23.3	-9.5	0.0	53.9	74.0	-20.1	
19520.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1	
21960.0	V	Peak	40.0	40.3	9.1	24.0	-9.5	0.0	55.9	74.0	-18.1	
21960.0	V	Average	31.1	40.3	9.1	24.0	-9.5	0.0	47.0	54.0	-7.0	

Note: 1. All measurement were made at 3 meters
 2. Negative signs (-) in the margin column signify levels below the limit.
 3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
 Measurements were preformed at 1m distance.



Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 19, 1999

FCC 15.247 Radiated Emissions

Antenna	2	2480MHz										
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin	
MHz	Polarity	Analyz	dB(uV)	Factor	Loss	dB	Factor	Cycle	Reading	dB(uV/m)	dB	
4960.0	V	Peak	39.7	35.4	3.4	28.1	0.0	0.0	50.4	74.0	-23.6	
4960.0	V	Average	34.2	35.4	3.4	28.1	0.0	0.0	44.9	54.0	-9.1	
7440.0	V	Peak	41.4	36.9	4.6	28.0	0.0	0.0	54.9	74.0	-19.1	
7440.0	V	Average	32.9	36.9	4.6	28.0	0.0	0.0	46.4	54.0	-7.6	
12400.0	V	Peak	42.1	39.0	5.9	39.0	0.0	0.0	48.0	74.0	-26.0	
12400.0	H	Average	32.2	39.0	5.9	39.0	0.0	0.0	38.1	54.0	-15.9	
19840.0	H	Peak	39.0	40.2	7.5	23.3	-9.5	0.0	53.9	74.0	-20.1	
19840.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1	
22320.0	V	Peak	39.0	40.3	9.1	24.0	-9.5	0.0	54.9	74.0	-19.1	
22320.0	V	Average	31.1	40.3	9.1	24.0	-9.5	0.0	47.0	54.0	-7.0	

Note: 1. All measurement were made at 3 meters
 2. Negative signs (-) in the margin column signify levels below the limit.
 3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
 Measurements were performed at 1m distance.



Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 20, 1999

FCC 15.247 Radiated Emissions

Antenna	3	2402MHz									
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin
	Polarity	Analyz		Factor	Loss		Factor	Cycle	Reading		
MHz	H/V	Detector	dB(uV)	dB/m	dB	dB	dB	dB	dB(uV/m)	dB(uV/m)	dB
4804.0	V	Peak	34.0	35.4	3.4	28.1	0.0	0.0	44.7	74.0	-29.3
4804.0	V	Average	26.5	35.4	3.4	28.1	0.0	0.0	37.2	54.0	-16.8
7206.0	V	Peak	38.0	36.9	4.6	28.0	0.0	0.0	51.5	74.0	-22.5
7206.0	V	Average	29.7	36.9	4.6	28.0	0.0	0.0	43.2	54.0	-10.8
12010.0	V	Peak	42.3	39.0	5.9	39.0	0.0	0.0	48.2	74.0	-25.8
12010.0	H	Average	32.1	39.0	5.9	39.0	0.0	0.0	38.0	54.0	-16.0
19216.0	H	Peak	40.0	40.2	7.5	23.3	-9.5	0.0	54.9	74.0	-19.1
19216.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1
21618.0	V	Peak	40.0	40.3	9.1	24.0	-9.5	0.0	55.9	74.0	-18.1
21618.0	V	Average	31.1	40.3	9.1	24.0	-9.5	0.0	47.0	54.0	-7.0

Note: 1. All measurement were made at 3 meters
 2. Negative signs (-) in the margin column signify levels below the limit.
 3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
 Measurements were performed at 1m distance.



Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 20, 1999

FCC 15.247 Radiated Emissions

Antenna	3	2440MHz									
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin
	Polarity	Analyz		Factor	Loss		Factor	Cycle	Reading		
MHz	H/V	Detector	dB(uV)	dB/m	dB	dB	dB	dB	dB(uV/m)	dB(uV/m)	dB
4880.0	V	Peak	41.8	35.4	3.4	28.1	0.0	0.0	52.5	74.0	-21.5
4880.0	V	Average	37.0	35.4	3.4	28.1	0.0	0.0	47.7	54.0	-6.3
7320.0	V	Peak	38.2	36.9	4.6	28.0	0.0	0.0	51.7	74.0	-22.3
7320.0	V	Average	31.0	36.9	4.6	28.0	0.0	0.0	44.5	54.0	-9.5
12200.0	V	Peak	42.3	39.0	5.9	39.0	0.0	0.0	48.2	74.0	-25.8
12200.0	H	Average	32.1	39.0	5.9	39.0	0.0	0.0	38.0	54.0	-16.0
19520.0	H	Peak	40.0	40.2	7.5	23.3	-9.5	0.0	54.9	74.0	-19.1
19520.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1
21960.0	V	Peak	40.0	40.3	9.1	24.0	-9.5	0.0	55.9	74.0	-18.1
21960.0	V	Average	31.1	40.3	9.1	24.0	-9.5	0.0	47.0	54.0	-7.0

Note: 1. All measurement were made at 3 meters
 2. Negative signs (-) in the margin column signify levels below the limit.
 3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
 Measurements were performed at 1m distance.



Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 20, 1999

FCC 15.247 Radiated Emissions

Antenna	3	2480MHz									
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin
MHz	Polarity	Analyz	dB(uV)	Factor	Loss	dB	Factor	Cycle	Reading	dB(uV/m)	dB
4960.0	V	Peak	36.0	35.4	3.4	28.1	0.0	0.0	46.7	74.0	-27.3
4960.0	V	Average	28.4	35.4	3.4	28.1	0.0	0.0	39.1	54.0	-14.9
7440.0	V	Peak	37.1	36.9	4.6	28.0	0.0	0.0	50.6	74.0	-23.4
7440.0	V	Average	29.0	36.9	4.6	28.0	0.0	0.0	42.5	54.0	-11.5
12400.0	V	Peak	42.3	39.0	5.9	39.0	0.0	0.0	48.2	74.0	-25.8
12400.0	H	Average	32.1	39.0	5.9	39.0	0.0	0.0	38.0	54.0	-16.0
19840.0	H	Peak	8.0	40.2	7.5	23.3	-9.5	0.0	22.9	74.0	-51.1
19840.0	H	Average	9.0	40.2	7.5	23.3	-9.5	0.0	23.9	54.0	-30.1
22320.0	V	Peak	9.0	40.3	9.1	24.0	-9.5	0.0	24.9	74.0	-49.1
22320.0	V	Average	10.0	40.3	9.1	24.0	-9.5	0.0	25.9	54.0	-28.1

Note: 1. All measurement were made at 3 meters
 2. Negative signs (-) in the margin column signify levels below the limit.
 3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
 Measurements were performed at 1m distance.



Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 21, 1999

FCC 15.247 Radiated Emissions

Antenna	4	2402MHz										
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin	
MHz	Polarity	Analyz	dB(uV)	Factor	Loss	dB	Factor	Cycle	Reading	dB(uV/m)	dB	
4804.0	V	Peak	36.3	35.4	3.4	28.1	0.0	0.0	47.0	74.0	-27.0	
4804.0	V	Average	26.4	35.4	3.4	28.1	0.0	0.0	37.1	54.0	-16.9	
7206.0	V	Peak	37.0	36.9	4.6	28.0	0.0	0.0	50.5	74.0	-23.5	
7206.0	V	Average	28.0	36.9	4.6	28.0	0.0	0.0	41.5	54.0	-12.5	
12010.0	V	Peak	42.4	39.0	5.9	39.0	0.0	0.0	48.3	74.0	-25.7	
12010.0	H	Average	32.3	39.0	5.9	39.0	0.0	0.0	38.2	54.0	-15.8	
19216.0	H	Peak	40.0	40.2	7.5	23.3	-9.5	0.0	54.9	74.0	-19.1	
19216.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1	
21618.0	V	Peak	40.0	40.3	9.1	24.0	-9.5	0.0	55.9	74.0	-18.1	
21618.0	V	Average	31.0	40.3	9.1	24.0	-9.5	0.0	46.9	54.0	-7.1	

Note: 1. All measurement were made at 3 meters
 2. Negative signs (-) in the margin column signify levels below the limit.
 3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
 Measurements were performed at 1m distance.



Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 21, 1999

FCC 15.247 Radiated Emissions

Antenna	4	2440MHz										
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin	
MHz	Polarity	Analyz	dB(uV)	Factor	Loss	dB	Factor	Cycle	Reading	dB(uV/m)	dB	
4880.0	V	Peak	37.3	35.4	3.4	28.1	0.0	0.0	48.0	74.0	-26.0	
4880.0	V	Average	28.5	35.4	3.4	28.1	0.0	0.0	39.2	54.0	-14.8	
7320.0	V	Peak	41.0	36.9	4.6	28.0	0.0	0.0	54.5	74.0	-19.5	
7320.0	V	Average	32.3	36.9	4.6	28.0	0.0	0.0	45.8	54.0	-8.2	
12200.0	V	Peak	42.4	39.0	5.9	39.0	0.0	0.0	48.3	74.0	-25.7	
12200.0	H	Average	32.3	39.0	5.9	39.0	0.0	0.0	38.2	54.0	-15.8	
19520.0	H	Peak	39.0	40.2	7.5	23.3	-9.5	0.0	53.9	74.0	-20.1	
19520.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1	
21960.0	V	Peak	40.0	40.3	9.1	24.0	-9.5	0.0	55.9	74.0	-18.1	
21960.0	V	Average	31.1	40.3	9.1	24.0	-9.5	0.0	47.0	54.0	-7.0	

Note: 1. All measurement were made at 3 meters
 2. Negative signs (-) in the margin column signify levels below the limit.
 3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
 Measurements were performed at 1m distance.



Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 21, 1999

FCC 15.247 Radiated Emissions

Antenna	4	2480MHz										
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin	
MHz	Polarity	Analyz	dB(uV)	Factor	Loss	dB	Factor	Cycle	Reading	dB(uV/m)	dB	
2480.0	V	Peak	89.5	30.4	2.3	0.0	0.0	0.0	122.2			
2480.0	V	Average	87.5	30.4	2.3	0.0	0.0	0.0	120.2			
2489.0	V	Peak							49.3*	74.0	-24.7	
2489.0	V	Average							47.3*	54.0	-6.7	
2492.5	V	Peak							47.4#	74.0	-26.6	
2492.5	V	Average							45.4#	54.0	-8.6	
4960.0	V	Peak	34.9	35.4	3.4	28.1	0.0	0.0	45.6	74.0	-28.4	
4960.0	V	Average	24.1	35.4	3.4	28.1	0.0	0.0	34.8	54.0	-19.2	
7440.0	V	Peak	40.6	36.9	4.6	28.0	0.0	0.0	54.1	74.0	-19.9	
7440.0	V	Average	30.3	36.9	4.6	28.0	0.0	0.0	43.8	54.0	-10.2	
12400.0	V	Peak	42.4	39.0	5.9	39.0	0.0	0.0	48.3	74.0	-25.7	
12400.0	H	Average	32.3	39.0	5.9	39.0	0.0	0.0	38.2	54.0	-15.8	
19840.0	H	Peak	39.0	40.2	7.5	23.3	-9.5	0.0	53.9	74.0	-20.1	
19840.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1	
22320.0	V	Peak	39.0	40.3	9.1	24.0	-9.5	0.0	54.9	74.0	-19.1	
22320.0	V	Average	31.1	40.3	9.1	24.0	-9.5	0.0	47.0	54.0	-7.0	

- Note:
1. All measurement were made at 3 meters
 2. Negative signs (-) in the margin column signify levels below the limit.
 4. Readings with * are fundamental minus attenuation from plot 4.c.4(73dB)
 5. Readings with # are fundamental minus attenuation from plot 4.c.5(74.8dB)
 6. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
Measurements were preformed at 1m distance.



Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 18, 1999

FCC 15.247 Radiated Emissions

Antenna	5	2402MHz										
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin	
MHz	Polarity	Analyz	dB(uV)	Factor	Loss	dB	Factor	Cycle	Reading	dB(uV/m)	dB	
4804.0	V	Peak	35.6	35.4	3.4	28.1	0.0	0.0	46.3	74.0	-27.7	
4804.0	V	Average	25.5	35.4	3.4	28.1	0.0	0.0	36.2	54.0	-17.8	
7206.0	V	Peak	37.8	36.9	4.6	28.0	0.0	0.0	51.3	74.0	-22.7	
7206.0	V	Average	29.0	36.9	4.6	28.0	0.0	0.0	42.5	54.0	-11.5	
12010.0	V	Peak	42.1	39.0	5.9	39.0	0.0	0.0	48.0	74.0	-26.0	
12010.0	H	Average	32.2	39.0	5.9	39.0	0.0	0.0	38.1	54.0	-15.9	
19216.0	H	Peak	40.0	40.2	7.5	23.3	-9.5	0.0	54.9	74.0	-19.1	
19216.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1	
21618.0	V	Peak	40.0	40.3	9.1	24.0	-9.5	0.0	55.9	74.0	-18.1	
21618.0	V	Average	31.0	40.3	9.1	24.0	-9.5	0.0	46.9	54.0	-7.1	

Note: 1. All measurement were made at 3 meters
 2. Negative signs (-) in the margin column signify levels below the limit.
 3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
 Measurements were performed at 1m distance.



Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 18, 1999

FCC 15.247 Radiated Emissions

Antenna	5	2440MHz										
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin	
	Polarity	Analyz		Factor	Loss		Factor	Cycle	Reading			
MHz	H/V	Detector	dB(uV)	dB/m	dB	dB	dB	dB	dB(uV/m)	dB(uV/m)	dB	
4880.0	V	Peak	38.2	35.4	3.4	28.1	0.0	0.0	48.9	74.0	-25.1	
4880.0	V	Average	30.8	35.4	3.4	28.1	0.0	0.0	41.5	54.0	-12.5	
7320.0	V	Peak	42.3	36.9	4.6	28.0	0.0	0.0	55.8	74.0	-18.2	
7320.0	V	Average	33.3	36.9	4.6	28.0	0.0	0.0	46.8	54.0	-7.2	
12200.0	V	Peak	42.1	39.0	5.9	39.0	0.0	0.0	48.0	74.0	-26.0	
12200.0	H	Average	32.2	39.0	5.9	39.0	0.0	0.0	38.1	54.0	-15.9	
19520.0	H	Peak	39.0	40.2	7.5	23.3	-9.5	0.0	53.9	74.0	-20.1	
19520.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1	
21960.0	V	Peak	40.0	40.3	9.1	24.0	-9.5	0.0	55.9	74.0	-18.1	
21960.0	V	Average	31.1	40.3	9.1	24.0	-9.5	0.0	47.0	54.0	-7.0	

Note: 1. All measurement were made at 3 meters
 2. Negative signs (-) in the margin column signify levels below the limit.
 3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
 Measurements were preformed at 1m distance.

ITS Intertek Testing Services

Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 18, 1999

FCC 15.247 Radiated Emissions

Antenna	5	2480MHz									
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin
MHz	Polarity	Analyz	dB(uV)	Factor	Loss	dB	Factor	Cycle	Reading	dB(uV/m)	dB
4960.0	V	Peak	37.0	35.4	3.4	28.1	0.0	0.0	47.7	74.0	-26.3
4960.0	V	Average	27.6	35.4	3.4	28.1	0.0	0.0	38.3	54.0	-15.7
7440.0	V	Peak	40.6	36.9	4.6	28.0	0.0	0.0	54.1	74.0	-19.9
7440.0	V	Average	30.2	36.9	4.6	28.0	0.0	0.0	43.7	54.0	-10.3
12400.0	V	Peak	33.7	39.0	5.9	39.0	0.0	0.0	39.6	74.0	-34.4
12400.0	H	Average	25.8	39.0	5.9	39.0	0.0	0.0	31.7	54.0	-22.3
19840.0	H	Peak	39.0	40.2	7.5	23.3	-9.5	0.0	53.9	74.0	-20.1
19840.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1
22320.0	V	Peak	39.0	40.3	9.1	24.0	-9.5	0.0	54.9	74.0	-19.1
22320.0	V	Average	31.1	40.3	9.1	24.0	-9.5	0.0	47.0	54.0	-7.0

Note: 1. All measurement were made at 3 meters
 2. Negative signs (-) in the margin column signify levels below the limit.
 3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
 Measurements were preformed at 1m distance.

Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 21, 1999

FCC 15.247 Radiated Emissions

Antenna	6	2402MHz									
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin
MHz	Polarity	Analyz	dB(uV)	Factor	Loss	dB	Factor	Cycle	Reading	dB(uV/m)	dB
4804.0	V	Peak	35.4	35.4	3.4	28.1	0.0	0.0	46.1	74.0	-27.9
4804.0	V	Average	24.3	35.4	3.4	28.1	0.0	0.0	35.0	54.0	-19.0
7206.0	V	Peak	37.0	36.9	4.6	28.0	0.0	0.0	50.5	74.0	-23.5
7206.0	V	Average	29.0	36.9	4.6	28.0	0.0	0.0	42.5	54.0	-11.5
12010.0	V	Peak	42.4	39.0	5.9	39.0	0.0	0.0	48.3	74.0	-25.7
12010.0	H	Average	32.3	39.0	5.9	39.0	0.0	0.0	38.2	54.0	-15.8
19216.0	H	Peak	40.0	40.2	7.5	23.3	-9.5	0.0	54.9	74.0	-19.1
19216.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1
21618.0	V	Peak	40.0	40.3	9.1	24.0	-9.5	0.0	55.9	74.0	-18.1
21618.0	V	Average	31.0	40.3	9.1	24.0	-9.5	0.0	46.9	54.0	-7.1

Note: 1. All measurement were made at 3 meters
 2. Negative signs (-) in the margin column signify levels below the limit.
 3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
 Measurements were performed at 1m distance.



Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 21, 1999

FCC 15.247 Radiated Emissions

Antenna	6	2440MHz										
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin	
MHz	Polarity	Analyz	dB(uV)	Factor	Loss	dB	Factor	Cycle	Reading	dB(uV/m)	dB	
4880.0	V	Peak	38.3	35.4	3.4	28.1	0.0	0.0	49.0	74.0	-25.0	
4880.0	V	Average	29.1	35.4	3.4	28.1	0.0	0.0	39.8	54.0	-14.2	
7320.0	V	Peak	40.8	36.9	4.6	28.0	0.0	0.0	54.3	74.0	-19.7	
7320.0	V	Average	31.0	36.9	4.6	28.0	0.0	0.0	44.5	54.0	-9.5	
12200.0	V	Peak	42.4	39.0	5.9	39.0	0.0	0.0	48.3	74.0	-25.7	
12200.0	H	Average	32.3	39.0	5.9	39.0	0.0	0.0	38.2	54.0	-15.8	
19520.0	H	Peak	39.0	40.2	7.5	23.3	-9.5	0.0	53.9	74.0	-20.1	
19520.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1	
21960.0	V	Peak	40.0	40.3	9.1	24.0	-9.5	0.0	55.9	74.0	-18.1	
21960.0	V	Average	31.1	40.3	9.1	24.0	-9.5	0.0	47.0	54.0	-7.0	

Note: 1. All measurement were made at 3 meters
 2. Negative signs (-) in the margin column signify levels below the limit.
 3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
 Measurements were performed at 1m distance.



Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 21, 1999

FCC 15.247 Radiated Emissions

Antenna	6	2480MHz									
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin
MHz	Polarity	Analyz	dB(uV)	Factor	Loss	dB	Factor	Cycle	Reading	dB(uV/m)	dB
4960.0	V	Peak	36.7	35.4	3.4	28.1	0.0	0.0	47.4	74.0	-26.6
4960.0	V	Average	27.7	35.4	3.4	28.1	0.0	0.0	38.4	54.0	-15.6
7440.0	V	Peak	40.6	36.9	4.6	28.0	0.0	0.0	54.1	74.0	-19.9
7440.0	V	Average	29.4	36.9	4.6	28.0	0.0	0.0	42.9	54.0	-11.1
12400.0	V	Peak	42.4	39.0	5.9	39.0	0.0	0.0	48.3	74.0	-25.7
12400.0	H	Average	32.3	39.0	5.9	39.0	0.0	0.0	38.2	54.0	-15.8
19840.0	H	Peak	39.0	40.2	7.5	23.3	-9.5	0.0	53.9	74.0	-20.1
19840.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1
22320.0	V	Peak	39.0	40.3	9.1	24.0	-9.5	0.0	54.9	74.0	-19.1
22320.0	V	Average	31.1	40.3	9.1	24.0	-9.5	0.0	47.0	54.0	-7.0

Note: 1. All measurement were made at 3 meters
 2. Negative signs (-) in the margin column signify levels below the limit.
 3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
 Measurements were preformed at 1m distance.



Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 19, 1999

FCC 15.247 Radiated Emissions

Antenna	7	2402MHz									
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin
	Polarity	Analyz		Factor	Loss		Factor	Cycle	Reading		
MHz	H/V	Detector	dB(uV)	dB/m	dB	dB	dB	dB	dB(uV/m)	dB(uV/m)	dB
4804.0	V	Peak	38.5	35.4	3.4	28.1	0.0	0.0	49.2	74.0	-24.8
4804.0	V	Average	30.4	35.4	3.4	28.1	0.0	0.0	41.1	54.0	-12.9
7206.0	V	Peak	39.0	36.9	4.6	28.0	0.0	0.0	52.5	74.0	-21.5
7206.0	V	Average	30.0	36.9	4.6	28.0	0.0	0.0	43.5	54.0	-10.5
12010.0	V	Peak	42.1	39.0	5.9	39.0	0.0	0.0	48.0	74.0	-26.0
12010.0	H	Average	32.2	39.0	5.9	39.0	0.0	0.0	38.1	54.0	-15.9
19216.0	H	Peak	40.0	40.2	7.5	23.3	-9.5	0.0	54.9	74.0	-19.1
19216.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1
21618.0	V	Peak	40.0	40.3	9.1	24.0	-9.5	0.0	55.9	74.0	-18.1
21618.0	V	Average	31.0	40.3	9.1	24.0	-9.5	0.0	46.9	54.0	-7.1

Note: 1. All measurement were made at 3 meters
2. Negative signs (-) in the margin column signify levels below the limit.
3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
Measurements were performed at 1m distance.



Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 19, 1999

FCC 15.247 Radiated Emissions

Antenna	7	2440MHz										
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin	
MHz	Polarity	Analyz	dB(uV)	Factor	Loss	dB	Factor	Cycle	Reading	dB(uV/m)	dB	
4880.0	V	Peak	40.3	35.4	3.4	28.1	0.0	0.0	51.0	74.0	-23.0	
4880.0	V	Average	35.4	35.4	3.4	28.1	0.0	0.0	46.1	54.0	-7.9	
7320.0	V	Peak	40.4	36.9	4.6	28.0	0.0	0.0	53.9	74.0	-20.1	
7320.0	V	Average	30.1	36.9	4.6	28.0	0.0	0.0	43.6	54.0	-10.4	
12200.0	V	Peak	42.1	39.0	5.9	39.0	0.0	0.0	48.0	74.0	-26.0	
12200.0	H	Average	32.2	39.0	5.9	39.0	0.0	0.0	38.1	54.0	-15.9	
19520.0	H	Peak	39.0	40.2	7.5	23.3	-9.5	0.0	53.9	74.0	-20.1	
19520.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1	
21960.0	V	Peak	40.0	40.3	9.1	24.0	-9.5	0.0	55.9	74.0	-18.1	
21960.0	V	Average	31.1	40.3	9.1	24.0	-9.5	0.0	47.0	54.0	-7.0	

Note: 1. All measurement were made at 3 meters
 2. Negative signs (-) in the margin column signify levels below the limit.
 3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
 Measurements were performed at 1m distance.

ITS Intertek Testing Services

Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 19, 1999

FCC 15.247 Radiated Emissions

Antenna	7	2480MHz									
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin
MHz	Polarity	Analyz	dB(uV)	Factor	Loss	dB	Factor	Cycle	Reading	dB(uV/m)	dB
4960.0	V	Peak	40.2	35.4	3.4	28.1	0.0	0.0	50.9	74.0	-23.1
4960.0	V	Average	34.9	35.4	3.4	28.1	0.0	0.0	45.6	54.0	-8.4
7440.0	V	Peak	39.7	36.9	4.6	28.0	0.0	0.0	53.2	74.0	-20.8
7440.0	V	Average	28.5	36.9	4.6	28.0	0.0	0.0	42.0	54.0	-12.0
12400.0	V	Peak	42.1	39.0	5.9	39.0	0.0	0.0	48.0	74.0	-26.0
12400.0	H	Average	32.2	39.0	5.9	39.0	0.0	0.0	38.1	54.0	-15.9
19840.0	H	Peak	39.0	40.2	7.5	23.3	-9.5	0.0	53.9	74.0	-20.1
19840.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1
22320.0	V	Peak	39.0	40.3	9.1	24.0	-9.5	0.0	54.9	74.0	-19.1
22320.0	V	Average	31.1	40.3	9.1	24.0	-9.5	0.0	47.0	54.0	-7.0

Note: 1. All measurement were made at 3 meters
 2. Negative signs (-) in the margin column signify levels below the limit.
 3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
 Measurements were performed at 1m distance.



Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 18, 1999

FCC 15.247 Radiated Emissions

Antenna	8	2402MHz										
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin	
MHz	Polarity	Analyz	dB(uV)	Factor	Loss	dB	Factor	Cycle	Reading	dB(uV/m)	dB	
4804.0	V	Peak	37.9	35.4	3.4	28.1	0.0	0.0	48.6	74.0	-25.4	
4804.0	V	Average	30.2	35.4	3.4	28.1	0.0	0.0	40.9	54.0	-13.1	
7206.0	V	Peak	38.0	36.9	4.6	28.0	0.0	0.0	51.5	74.0	-22.5	
7206.0	V	Average	29.0	36.9	4.6	28.0	0.0	0.0	42.5	54.0	-11.5	
12010.0	V	Peak	42.4	39.0	5.9	39.0	0.0	0.0	48.3	74.0	-25.7	
12010.0	H	Average	32.3	39.0	5.9	39.0	0.0	0.0	38.2	54.0	-15.8	
19216.0	H	Peak	40.0	40.2	7.5	23.3	-9.5	0.0	54.9	74.0	-19.1	
19216.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1	
21618.0	V	Peak	40.0	40.3	9.1	24.0	-9.5	0.0	55.9	74.0	-18.1	
21618.0	V	Average	31.0	40.3	9.1	24.0	-9.5	0.0	46.9	54.0	-7.1	

Note: 1. All measurement were made at 3 meters
 2. Negative signs (-) in the margin column signify levels below the limit.
 3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
 Measurements were performed at 1m distance.



Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 18, 1999

FCC 15.247 Radiated Emissions

Antenna	8	2440MHz									
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin
MHz	Polarity	Analyz	dB(uV)	Factor	Loss	dB	Factor	Cycle	Reading	dB(uV/m)	dB
4880.0	V	Peak	36.2	35.4	3.4	28.1	0.0	0.0	46.9	74.0	-27.1
4880.0	V	Average	26.2	35.4	3.4	28.1	0.0	0.0	36.9	54.0	-17.1
7320.0	V	Peak	43.0	36.9	4.6	28.0	0.0	0.0	56.5	74.0	-17.5
7320.0	V	Average	35.8	36.9	4.6	28.0	0.0	0.0	49.3	54.0	-4.7
12200.0	V	Peak	42.4	39.0	5.9	39.0	0.0	0.0	48.3	74.0	-25.7
12200.0	H	Average	32.3	39.0	5.9	39.0	0.0	0.0	38.2	54.0	-15.8
19520.0	H	Peak	39.0	40.2	7.5	23.3	-9.5	0.0	53.9	74.0	-20.1
19520.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1
21960.0	V	Peak	40.0	40.3	9.1	24.0	-9.5	0.0	55.9	74.0	-18.1
21960.0	V	Average	31.1	40.3	9.1	24.0	-9.5	0.0	47.0	54.0	-7.0

Note: 1. All measurement were made at 3 meters
 2. Negative signs (-) in the margin column signify levels below the limit.
 3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
 Measurements were performed at 1m distance.



Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 18, 1999

FCC 15.247 Radiated Emissions

Antenna	8	2480MHz									
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin
	Polarity	Analyz		Factor	Loss		Factor	Cycle	Reading		
MHz	H/V	Detector	dB(uV)	dB/m	dB	dB	dB	dB	dB(uV/m)	dB(uV/m)	dB
4960.0	V	Peak	38.1	35.4	3.4	28.1	0.0	0.0	48.8	74.0	-25.2
4960.0	V	Average	29.8	35.4	3.4	28.1	0.0	0.0	40.5	54.0	-13.5
7440.0	V	Peak	42.6	36.9	4.6	28.0	0.0	0.0	56.1	74.0	-17.9
7440.0	V	Average	35.6	36.9	4.6	28.0	0.0	0.0	49.1	54.0	-4.9
12400.0	V	Peak	42.4	39.0	5.9	39.0	0.0	0.0	48.3	74.0	-25.7
12400.0	H	Average	32.3	39.0	5.9	39.0	0.0	0.0	38.2	54.0	-15.8
19840.0	H	Peak	39.0	40.2	7.5	23.3	-9.5	0.0	53.9	74.0	-20.1
19840.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1
22320.0	V	Peak	39.0	40.3	9.1	24.0	-9.5	0.0	54.9	74.0	-19.1
22320.0	V	Average	31.1	40.3	9.1	24.0	-9.5	0.0	47.0	54.0	-7.0

Note: 1. All measurement were made at 3 meters
2. Negative signs (-) in the margin column signify levels below the limit.
3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
Measurements were performed at 1m distance.



Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 21, 1999

FCC 15.247 Radiated Emissions

Antenna	9	2402MHz									
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin
MHz	Polarity	Analyz	dB(uV)	Factor	Loss	dB	Factor	Cycle	Reading	dB(uV/m)	dB
4804.0	V	Peak	37.9	35.4	3.4	28.1	0.0	0.0	48.6	74.0	-25.4
4804.0	V	Average	29.9	35.4	3.4	28.1	0.0	0.0	40.6	54.0	-13.4
7206.0	V	Peak	38.0	36.9	4.6	28.0	0.0	0.0	51.5	74.0	-22.5
7206.0	V	Average	28.0	36.9	4.6	28.0	0.0	0.0	41.5	54.0	-12.5
12010.0	V	Peak	42.4	39.0	5.9	39.0	0.0	0.0	48.3	74.0	-25.7
12010.0	H	Average	32.3	39.0	5.9	39.0	0.0	0.0	38.2	54.0	-15.8
19216.0	H	Peak	40.0	40.2	7.5	23.3	-9.5	0.0	54.9	74.0	-19.1
19216.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1
21618.0	V	Peak	40.0	40.3	9.1	24.0	-9.5	0.0	55.9	74.0	-18.1
21618.0	V	Average	31.0	40.3	9.1	24.0	-9.5	0.0	46.9	54.0	-7.1

Note: 1. All measurement were made at 3 meters
 2. Negative signs (-) in the margin column signify levels below the limit.
 3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
 Measurements were performed at 1m distance.



Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 21, 1999

FCC 15.247 Radiated Emissions

Antenna	9	2440MHz									
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin
	Polarity	Analyz		Factor	Loss		Factor	Cycle	Reading		
MHz	H/V	Detector	dB(uV)	dB/m	dB	dB	dB	dB	dB(uV/m)	dB(uV/m)	dB
4880.0	V	Peak	39.7	35.4	3.4	28.1	0.0	0.0	50.4	74.0	-23.6
4880.0	V	Average	33.8	35.4	3.4	28.1	0.0	0.0	44.5	54.0	-9.5
7320.0	V	Peak	40.8	36.9	4.6	28.0	0.0	0.0	54.3	74.0	-19.7
7320.0	V	Average	30.5	36.9	4.6	28.0	0.0	0.0	44.0	54.0	-10.0
12200.0	V	Peak	42.4	39.0	5.9	39.0	0.0	0.0	48.3	74.0	-25.7
12200.0	H	Average	32.3	39.0	5.9	39.0	0.0	0.0	38.2	54.0	-15.8
19520.0	H	Peak	39.0	40.2	7.5	23.3	-9.5	0.0	53.9	74.0	-20.1
19520.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1
21960.0	V	Peak	40.0	40.3	9.1	24.0	-9.5	0.0	55.9	74.0	-18.1
21960.0	V	Average	31.1	40.3	9.1	24.0	-9.5	0.0	47.0	54.0	-7.0

Note: 1. All measurement were made at 3 meters
 2. Negative signs (-) in the margin column signify levels below the limit.
 3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
 Measurements were performed at 1m distance.



Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 21, 1999

FCC 15.247 Radiated Emissions

Antenna	9	2480MHz									
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin
	Polarity	Analyz		Factor	Loss		Factor	Cycle	Reading		
MHz	H/V	Detector	dB(uV)	dB/m	dB	dB	dB	dB	dB(uV/m)	dB(uV/m)	dB
4960.0	V	Peak	40.5	35.4	3.4	28.1	0.0	0.0	51.2	74.0	-22.8
4960.0	V	Average	34.9	35.4	3.4	28.1	0.0	0.0	45.6	54.0	-8.4
7440.0	V	Peak	41.4	36.9	4.6	28.0	0.0	0.0	54.9	74.0	-19.1
7440.0	V	Average	33.5	36.9	4.6	28.0	0.0	0.0	47.0	54.0	-7.0
12400.0	V	Peak	42.4	39.0	5.9	39.0	0.0	0.0	48.3	74.0	-25.7
12400.0	H	Average	32.3	39.0	5.9	39.0	0.0	0.0	38.2	54.0	-15.8
19840.0	H	Peak	39.0	40.2	7.5	23.3	-9.5	0.0	53.9	74.0	-20.1
19840.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1
22320.0	V	Peak	39.0	40.3	9.1	24.0	-9.5	0.0	54.9	74.0	-19.1
22320.0	V	Average	31.1	40.3	9.1	24.0	-9.5	0.0	47.0	54.0	-7.0

Note: 1. All measurement were made at 3 meters
2. Negative signs (-) in the margin column signify levels below the limit.
3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
Measurements were preformed at 1m distance.



Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 21, 1999

FCC 15.247 Radiated Emissions

Antenna	10	2402MHz									
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin
MHz	Polarity	Analyz	dB(uV)	Factor	Loss	dB	Factor	Cycle	Reading	dB(uV/m)	dB
4804.0	V	Peak	37.3	35.4	3.4	28.1	0.0	0.0	48.0	74.0	-26.0
4804.0	V	Average	27.8	35.4	3.4	28.1	0.0	0.0	38.5	54.0	-15.5
7206.0	V	Peak	37.5	36.9	4.6	28.0	0.0	0.0	51.0	74.0	-23.0
7206.0	V	Average	28.0	36.9	4.6	28.0	0.0	0.0	41.5	54.0	-12.5
12010.0	V	Peak	42.4	39.0	5.9	39.0	0.0	0.0	48.3	74.0	-25.7
12010.0	H	Average	32.3	39.0	5.9	39.0	0.0	0.0	38.2	54.0	-15.8
19216.0	H	Peak	40.0	40.2	7.5	23.3	-9.5	0.0	54.9	74.0	-19.1
19216.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1
21618.0	V	Peak	40.0	40.3	9.1	24.0	-9.5	0.0	55.9	74.0	-18.1
21618.0	V	Average	31.0	40.3	9.1	24.0	-9.5	0.0	46.9	54.0	-7.1

Note: 1. All measurement were made at 3 meters
 2. Negative signs (-) in the margin column signify levels below the limit.
 3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
 Measurements were performed at 1m distance.



Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 21, 1999

FCC 15.247 Radiated Emissions

Antenna	10	2440MHz										
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin	
	Polarity	Analyz		Factor	Loss		Factor	Cycle	Reading			
MHz	H/V	Detector	dB(uV)	dB/m	dB	dB	dB	dB	dB(uV/m)	dB(uV/m)	dB	
4880.0	V	Peak	36.9	35.4	3.4	28.1	0.0	0.0	47.6	74.0	-26.4	
4880.0	V	Average	26.0	35.4	3.4	28.1	0.0	0.0	36.7	54.0	-17.3	
7320.0	V	Peak	42.3	36.9	4.6	28.0	0.0	0.0	55.8	74.0	-18.2	
7320.0	V	Average	34.1	36.9	4.6	28.0	0.0	0.0	47.6	54.0	-6.4	
12200.0	V	Peak	42.4	39.0	5.9	39.0	0.0	0.0	48.3	74.0	-25.7	
12200.0	H	Average	32.3	39.0	5.9	39.0	0.0	0.0	38.2	54.0	-15.8	
19520.0	H	Peak	39.0	40.2	7.5	23.3	-9.5	0.0	53.9	74.0	-20.1	
19520.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1	
21960.0	V	Peak	40.0	40.3	9.1	24.0	-9.5	0.0	55.9	74.0	-18.1	
21960.0	V	Average	31.1	40.3	9.1	24.0	-9.5	0.0	47.0	54.0	-7.0	

Note: 1. All measurement were made at 3 meters
2. Negative signs (-) in the margin column signify levels below the limit.
3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
Measurements were preformed at 1m distance.



Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 21, 1999

FCC 15.247 Radiated Emissions

Antenna	10	2480MHz									
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin
	Polarity	Analyz		Factor	Loss		Factor	Cycle	Reading		
MHz	H/V	Detector	dB(uV)	dB/m	dB	dB	dB	dB	dB(uV/m)	dB(uV/m)	dB
4960.0	V	Peak	37.9	35.4	3.4	28.1	0.0	0.0	48.6	74.0	-25.4
4960.0	V	Average	31.1	35.4	3.4	28.1	0.0	0.0	41.8	54.0	-12.2
7440.0	V	Peak	42.4	36.9	4.6	28.0	0.0	0.0	55.9	74.0	-18.1
7440.0	V	Average	34.2	36.9	4.6	28.0	0.0	0.0	47.7	54.0	-6.3
12400.0	V	Peak	42.4	39.0	5.9	39.0	0.0	0.0	48.3	74.0	-25.7
12400.0	H	Average	32.3	39.0	5.9	39.0	0.0	0.0	38.2	54.0	-15.8
19840.0	H	Peak	39.0	40.2	7.5	23.3	-9.5	0.0	53.9	74.0	-20.1
19840.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1
22320.0	V	Peak	39.0	40.3	9.1	24.0	-9.5	0.0	54.9	74.0	-19.1
22320.0	V	Average	31.1	40.3	9.1	24.0	-9.5	0.0	47.0	54.0	-7.0

Note: 1. All measurement were made at 3 meters
 2. Negative signs (-) in the margin column signify levels below the limit.
 3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
 Measurements were preformed at 1m distance.

Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 18, 1999

FCC 15.247 Radiated Emissions

Antenna	11	2402MHz										
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin	
MHz	Polarity	Analyz	dB(uV)	Factor	Loss	dB	Factor	Cycle	Reading	dB(uV/m)	dB	
4804.0	V	Peak	36.3	35.4	3.4	28.1	0.0	0.0	47.0	74.0	-27.0	
4804.0	V	Average	26.7	35.4	3.4	28.1	0.0	0.0	37.4	54.0	-16.6	
7206.0	V	Peak	37.9	36.9	4.6	28.0	0.0	0.0	51.4	74.0	-22.6	
7206.0	V	Average	28.4	36.9	4.6	28.0	0.0	0.0	41.9	54.0	-12.1	
12010.0	V	Peak	42.4	39.0	5.9	39.0	0.0	0.0	48.3	74.0	-25.7	
12010.0	H	Average	32.3	39.0	5.9	39.0	0.0	0.0	38.2	54.0	-15.8	
19216.0	H	Peak	40.0	40.2	7.5	23.3	-9.5	0.0	54.9	74.0	-19.1	
19216.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1	
21618.0	V	Peak	40.0	40.3	9.1	24.0	-9.5	0.0	55.9	74.0	-18.1	
21618.0	V	Average	31.0	40.3	9.1	24.0	-9.5	0.0	46.9	54.0	-7.1	

Note: 1. All measurement were made at 3 meters
 2. Negative signs (-) in the margin column signify levels below the limit.
 3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
 Measurements were performed at 1m distance.



Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 18, 1999

FCC 15.247 Radiated Emissions

Antenna	11	2440MHz									
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin
MHz	Polarity	Analyz	dB(uV)	Factor	Loss	dB	Factor	Cycle	Reading	dB(uV/m)	dB
4880.0	V	Peak	37.1	35.4	3.4	28.1	0.0	0.0	47.8	74.0	-26.2
4880.0	V	Average	27.8	35.4	3.4	28.1	0.0	0.0	38.5	54.0	-15.5
7320.0	V	Peak	44.4	36.9	4.6	28.0	0.0	0.0	57.9	74.0	-16.1
7320.0	V	Average	37.6	36.9	4.6	28.0	0.0	0.0	51.1	54.0	-2.9
12200.0	V	Peak	42.4	39.0	5.9	39.0	0.0	0.0	48.3	74.0	-25.7
12200.0	H	Average	32.3	39.0	5.9	39.0	0.0	0.0	38.2	54.0	-15.8
19520.0	H	Peak	39.0	40.2	7.5	23.3	-9.5	0.0	53.9	74.0	-20.1
19520.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1
21960.0	V	Peak	40.0	40.3	9.1	24.0	-9.5	0.0	55.9	74.0	-18.1
21960.0	V	Average	31.1	40.3	9.1	24.0	-9.5	0.0	47.0	54.0	-7.0

Note: 1. All measurement were made at 3 meters
2. Negative signs (-) in the margin column signify levels below the limit.
3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
Measurements were preformed at 1m distance.

ITS Intertek Testing Services

Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 18, 1999

FCC 15.247 Radiated Emissions

Antenna	11	2480MHz									
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin
MHz	Polarity	Analyz	dB(uV)	Factor	Loss	dB	Factor	Cycle	Reading	dB(uV/m)	dB
4960.0	V	Peak	39.4	35.4	3.4	28.1	0.0	0.0	50.1	74.0	-23.9
4960.0	V	Average	33.3	35.4	3.4	28.1	0.0	0.0	44.0	54.0	-10.0
7440.0	V	Peak	43.0	36.9	4.6	28.0	0.0	0.0	56.5	74.0	-17.5
7440.0	V	Average	36.3	36.9	4.6	28.0	0.0	0.0	49.8	54.0	-4.2
12400.0	V	Peak	42.4	39.0	5.9	39.0	0.0	0.0	48.3	74.0	-25.7
12400.0	H	Average	32.3	39.0	5.9	39.0	0.0	0.0	38.2	54.0	-15.8
19840.0	H	Peak	39.0	40.2	7.5	23.3	-9.5	0.0	53.9	74.0	-20.1
19840.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1
22320.0	V	Peak	39.0	40.3	9.1	24.0	-9.5	0.0	54.9	74.0	-19.1
22320.0	V	Average	31.1	40.3	9.1	24.0	-9.5	0.0	47.0	54.0	-7.0

Note: 1. All measurement were made at 3 meters
 2. Negative signs (-) in the margin column signify levels below the limit.
 3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
 Measurements were performed at 1m distance.



Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 21, 1999

FCC 15.247 Radiated Emissions

Antenna	12	2402MHz									
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin
MHz	Polarity	Analyz		Factor	Loss				Reading		
	H/V	Detector	dB(uV)	dB/m	dB	dB	dB	dB	dB(uV/m)	dB(uV/m)	dB
4804.0	V	Peak	35.7	35.4	3.4	28.1	0.0	0.0	46.4	74.0	-27.6
4804.0	V	Average	26.0	35.4	3.4	28.1	0.0	0.0	36.7	54.0	-17.3
7206.0	V	Peak	37.4	36.9	4.6	28.0	0.0	0.0	50.9	74.0	-23.1
7206.0	V	Average	28.0	36.9	4.6	28.0	0.0	0.0	41.5	54.0	-12.5
12010.0	V	Peak	42.4	39.0	5.9	39.0	0.0	0.0	48.3	74.0	-25.7
12010.0	H	Average	32.3	39.0	5.9	39.0	0.0	0.0	38.2	54.0	-15.8
19216.0	H	Peak	40.0	40.2	7.5	23.3	-9.5	0.0	54.9	74.0	-19.1
19216.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1
21618.0	V	Peak	40.0	40.3	9.1	24.0	-9.5	0.0	55.9	74.0	-18.1
21618.0	V	Average	31.0	40.3	9.1	24.0	-9.5	0.0	46.9	54.0	-7.1

Note: 1. All measurement were made at 3 meters
 2. Negative signs (-) in the margin column signify levels below the limit.
 3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
 Measurements were preformed at 1m distance.



Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 21, 1999

FCC 15.247 Radiated Emissions

Antenna	12	2440MHz										
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin	
MHz	Polarity	Analyz	dB(uV)	Factor	Loss	dB	Factor	Cycle	Reading	dB(uV/m)	dB	
4880.0	V	Peak	41.1	35.4	3.4	28.1	0.0	0.0	51.8	74.0	-22.2	
4880.0	V	Average	35.6	35.4	3.4	28.1	0.0	0.0	46.3	54.0	-7.7	
7320.0	V	Peak	41.9	36.9	4.6	28.0	0.0	0.0	55.4	74.0	-18.6	
7320.0	V	Average	33.6	36.9	4.6	28.0	0.0	0.0	47.1	54.0	-6.9	
12200.0	V	Peak	42.4	39.0	5.9	39.0	0.0	0.0	48.3	74.0	-25.7	
12200.0	H	Average	32.3	39.0	5.9	39.0	0.0	0.0	38.2	54.0	-15.8	
19520.0	H	Peak	39.0	40.2	7.5	23.3	-9.5	0.0	53.9	74.0	-20.1	
19520.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1	
21960.0	V	Peak	40.0	40.3	9.1	24.0	-9.5	0.0	55.9	74.0	-18.1	
21960.0	V	Average	31.1	40.3	9.1	24.0	-9.5	0.0	47.0	54.0	-7.0	

Note: 1. All measurement were made at 3 meters
 2. Negative signs (-) in the margin column signify levels below the limit.
 3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
 Measurements were performed at 1m distance.

ITS Intertek Testing Services

Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 21, 1999

FCC 15.247 Radiated Emissions

Antenna	12	2480MHz									
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin
MHz	Polarity	Analyz	dB(uV)	Factor	Loss	dB	Factor	Cycle	Reading	dB(uV/m)	dB
4960.0	V	Peak	40.2	35.4	3.4	28.1	0.0	0.0	50.9	74.0	-23.1
4960.0	V	Average	34.7	35.4	3.4	28.1	0.0	0.0	45.4	54.0	-8.6
7440.0	V	Peak	40.5	36.9	4.6	28.0	0.0	0.0	54.0	74.0	-20.0
7440.0	V	Average	39.4	36.9	4.6	28.0	0.0	0.0	52.9	54.0	-1.1
12400.0	V	Peak	42.4	39.0	5.9	39.0	0.0	0.0	48.3	74.0	-25.7
12400.0	H	Average	32.3	39.0	5.9	39.0	0.0	0.0	38.2	54.0	-15.8
19840.0	H	Peak	39.0	40.2	7.5	23.3	-9.5	0.0	53.9	74.0	-20.1
19840.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1
22320.0	V	Peak	39.0	40.3	9.1	24.0	-9.5	0.0	54.9	74.0	-19.1
22320.0	V	Average	31.1	40.3	9.1	24.0	-9.5	0.0	47.0	54.0	-7.0

Note: 1. All measurement were made at 3 meters
 2. Negative signs (-) in the margin column signify levels below the limit.
 3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
 Measurements were performed at 1m distance.



Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 20, 1999

FCC 15.247 Radiated Emissions

Antenna	13	2402MHz									
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin
MHz	Polarity	Analyz		Factor	Loss				Reading		
	H/V	Detector	dB(uV)	dB/m	dB	dB	dB	dB	dB(uV/m)	dB(uV/m)	dB
4804.0	V	Peak	37.3	35.4	3.4	28.1	0.0	0.0	48.0	74.0	-26.0
4804.0	V	Average	32.4	35.4	3.4	28.1	0.0	0.0	43.1	54.0	-10.9
7206.0	V	Peak	38.0	36.9	4.6	28.0	0.0	0.0	51.5	74.0	-22.5
7206.0	V	Average	33.0	36.9	4.6	28.0	0.0	0.0	46.5	54.0	-7.5
12010.0	V	Peak	42.3	39.0	5.9	39.0	0.0	0.0	48.2	74.0	-25.8
12010.0	H	Average	32.1	39.0	5.9	39.0	0.0	0.0	38.0	54.0	-16.0
19216.0	H	Peak	40.0	40.2	7.5	23.3	-9.5	0.0	54.9	74.0	-19.1
19216.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1
21618.0	V	Peak	40.0	40.3	9.1	24.0	-9.5	0.0	55.9	74.0	-18.1
21618.0	V	Average	31.1	40.3	9.1	24.0	-9.5	0.0	47.0	54.0	-7.0

Note: 1. All measurement were made at 3 meters
 2. Negative signs (-) in the margin column signify levels below the limit.
 3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
 Measurements were performed at 1m distance.



Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 20, 1999

FCC 15.247 Radiated Emissions

Antenna	13	2440MHz									
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin
	Polarity	Analyz		Factor	Loss		Factor	Cycle	Reading		
MHz	H/V	Detector	dB(uV)	dB/m	dB	dB	dB	dB	dB(uV/m)	dB(uV/m)	dB
4880.0	V	Peak	39.0	35.4	3.4	28.1	0.0	0.0	49.7	74.0	-24.3
4880.0	V	Average	35.4	35.4	3.4	28.1	0.0	0.0	46.1	54.0	-7.9
7320.0	V	Peak	39.0	36.9	4.6	28.0	0.0	0.0	52.5	74.0	-21.5
7320.0	V	Average	32.4	36.9	4.6	28.0	0.0	0.0	45.9	54.0	-8.1
12200.0	V	Peak	42.3	39.0	5.9	39.0	0.0	0.0	48.2	74.0	-25.8
12200.0	H	Average	32.1	39.0	5.9	39.0	0.0	0.0	38.0	54.0	-16.0
19520.0	H	Peak	40.0	40.2	7.5	23.3	-9.5	0.0	54.9	74.0	-19.1
19520.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1
21960.0	V	Peak	40.0	40.3	9.1	24.0	-9.5	0.0	55.9	74.0	-18.1
21960.0	V	Average	31.1	40.3	9.1	24.0	-9.5	0.0	47.0	54.0	-7.0

Note: 1. All measurement were made at 3 meters
 2. Negative signs (-) in the margin column signify levels below the limit.
 3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
 Measurements were performed at 1m distance.



Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 20, 1999

FCC 15.247 Radiated Emissions

Antenna	13	2480MHz									
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin
	Polarity	Analyz		Factor	Loss		Factor	Cycle	Reading		
MHz	H/V	Detector	dB(uV)	dB/m	dB	dB	dB	dB	dB(uV/m)	dB(uV/m)	dB
4960.0	V	Peak	41.7	35.4	3.4	28.1	0.0	0.0	52.4	74.0	-21.6
4960.0	V	Average	39.5	35.4	3.4	28.1	0.0	0.0	50.2	54.0	-3.8
7440.0	V	Peak	37.7	36.9	4.6	28.0	0.0	0.0	51.2	74.0	-22.8
7440.0	V	Average	30.0	36.9	4.6	28.0	0.0	0.0	43.5	54.0	-10.5
12400.0	V	Peak	42.3	39.0	5.9	39.0	0.0	0.0	48.2	74.0	-25.8
12400.0	H	Average	32.1	39.0	5.9	39.0	0.0	0.0	38.0	54.0	-16.0
19840.0	H	Peak	40.0	40.2	7.5	23.3	-9.5	0.0	54.9	74.0	-19.1
19840.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1
22320.0	V	Peak	40.0	40.3	9.1	24.0	-9.5	0.0	55.9	74.0	-18.1
22320.0	V	Average	31.1	40.3	9.1	24.0	-9.5	0.0	47.0	54.0	-7.0

Note: 1. All measurement were made at 3 meters
 2. Negative signs (-) in the margin column signify levels below the limit.
 3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
 Measurements were performed at 1m distance.

ITS Intertek Testing Services

Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 20, 1999

FCC 15.247 Radiated Emissions

Antenna	14	2402MHz									
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin
MHz	Polarity	Analyz		Factor	Loss		Factor	Cycle	Reading		
	H/V	Detector	dB(uV)	dB/m	dB	dB	dB	dB	dB(uV/m)	dB(uV/m)	dB
4804.0	V	Peak	36.0	35.4	3.4	28.1	0.0	0.0	46.7	74.0	-27.3
4804.0	V	Average	30.0	35.4	3.4	28.1	0.0	0.0	40.7	54.0	-13.3
7206.0	V	Peak	38.8	36.9	4.6	28.0	0.0	0.0	52.3	74.0	-21.7
7206.0	V	Average	30.0	36.9	4.6	28.0	0.0	0.0	43.5	54.0	-10.5
12010.0	V	Peak	42.3	39.0	5.9	39.0	0.0	0.0	48.2	74.0	-25.8
12010.0	H	Average	32.1	39.0	5.9	39.0	0.0	0.0	38.0	54.0	-16.0
19216.0	H	Peak	39.0	40.2	7.5	23.3	-9.5	0.0	53.9	74.0	-20.1
19216.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1
21618.0	V	Peak	39.0	40.3	9.1	24.0	-9.5	0.0	54.9	74.0	-19.1
21618.0	V	Average	30.0	40.3	9.1	24.0	-9.5	0.0	45.9	54.0	-8.1

- Note:
1. All measurement were made at 3 meters
 2. Negative signs (-) in the margin column signify levels below the limit.
 3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
Measurements were performed at 1m distance



Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 20, 1999

FCC 15.247 Radiated Emissions

Antenna	14	2440MHz										
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin	
MHz	Polarity	Analyz	dB(uV)	Factor	Loss	dB	Factor	Cycle	Reading	DB(uV/m)	dB	
	H/V	Detector							dB(uV/m)			
4880.0	V	Peak	35.0	35.4	3.4	28.1	0.0	0.0	45.7	74.0	-28.3	
4880.0	V	Average	28.3	35.4	3.4	28.1	0.0	0.0	39.0	54.0	-15.0	
7320.0	V	Peak	40.0	36.9	4.6	28.0	0.0	0.0	53.5	74.0	-20.5	
7320.0	V	Average	33.4	36.9	4.6	28.0	0.0	0.0	46.9	54.0	-7.1	
12200.0	V	Peak	42.3	39.0	5.9	39.0	0.0	0.0	48.2	74.0	-25.8	
12200.0	H	Average	32.1	39.0	5.9	39.0	0.0	0.0	38.0	54.0	-16.0	
19520.0	H	Peak	39.0	40.2	7.5	23.3	-9.5	0.0	53.9	74.0	-20.1	
19520.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1	
21960.0	V	Peak	40.0	40.3	9.1	24.0	-9.5	0.0	55.9	74.0	-18.1	
21960.0	V	Average	31.0	40.3	9.1	24.0	-9.5	0.0	46.9	54.0	-7.1	

- Note:
1. All measurement were made at 3 meters
 2. Negative signs (-) in the margin column signify levels below the limit.
 3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor. Measurements were preformed at 1m distance.



Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 20, 1999

FCC 15.247 Radiated Emissions

Antenna	14	2480MHz									
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin
	Polarity	Analyz		Factor	Loss		Factor	Cycle	Reading		
MHz	H/V	Detector	dB(uV)	dB/m	dB	dB	dB	dB	dB(uV/m)	dB(uV/m)	dB
4960.0	V	Peak	36.3	35.4	3.4	28.1	0.0	0.0	47.0	74.0	-27.0
4960.0	V	Average	30.6	35.4	3.4	28.1	0.0	0.0	41.3	54.0	-12.7
7440.0	V	Peak	38.4	36.9	4.6	28.0	0.0	0.0	51.9	74.0	-22.1
7440.0	V	Average	30.0	36.9	4.6	28.0	0.0	0.0	43.5	54.0	-10.5
12400.0	V	Peak	42.3	39.0	5.9	39.0	0.0	0.0	48.2	74.0	-25.8
12400.0	H	Average	32.1	39.0	5.9	39.0	0.0	0.0	38.0	54.0	-16.0
19840.0	H	Peak	40.0	40.2	7.5	23.3	-9.5	0.0	54.9	74.0	-19.1
19840.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1
22320.0	V	Peak	40.0	40.3	9.1	24.0	-9.5	0.0	55.9	74.0	-18.1
22320.0	V	Average	31.1	40.3	9.1	24.0	-9.5	0.0	47.0	54.0	-7.0

Note: 1. All measurement were made at 3 meters
2. Negative signs (-) in the margin column signify levels below the limit.
3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
Measurements were preformed at 1m distance.



Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 20, 1999

FCC 15.247 Radiated Emissions

Antenna	15	2402MHz									
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin
	Polarity	Analyz		Factor	Loss		Factor	Cycle	Reading		
MHz	H/V	Detector	dB(uV)	dB/m	dB	dB	dB	dB	dB(uV/m)	dB(uV/m)	dB
4804.0	V	Peak	33.8	35.4	3.4	28.1	0.0	0.0	44.5	74.0	-29.5
4804.0	V	Average	23.7	35.4	3.4	28.1	0.0	0.0	34.4	54.0	-19.6
7206.0	V	Peak	35.9	36.9	4.6	28.0	0.0	0.0	49.4	74.0	-24.6
7206.0	V	Average	26.7	36.9	4.6	28.0	0.0	0.0	40.2	54.0	-13.8
12010.0	V	Peak	42.3	39.0	5.9	39.0	0.0	0.0	48.2	74.0	-25.8
12010.0	H	Average	32.1	39.0	5.9	39.0	0.0	0.0	38.0	54.0	-16.0
19216.0	H	Peak	40.0	40.2	7.5	23.3	-9.5	0.0	54.9	74.0	-19.1
19216.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1
21618.0	V	Peak	40.0	40.3	9.1	24.0	-9.5	0.0	55.9	74.0	-18.1
21618.0	V	Average	31.1	40.3	9.1	24.0	-9.5	0.0	47.0	54.0	-7.0

Note: 1. All measurement were made at 3 meters
 2. Negative signs (-) in the margin column signify levels below the limit.
 3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
 Measurements were performed at 1m distance.

Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 20, 1999

FCC 15.247 Radiated Emissions											
Antenna	15	2440MHz									
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin
MHz	Polarity	Analyz	dB(uV)	Factor	Loss	dB	Factor	Cycle	Reading	dB(uV/m)	dB
	H/V	Detector		dB/m	dB				dB(uV/m)		
4880.0	V	Peak	32.0	35.4	3.4	28.1	0.0	0.0	42.7	74.0	-31.3
4880.0	V	Average	23.8	35.4	3.4	28.1	0.0	0.0	34.5	54.0	-19.5
7320.0	V	Peak	37.9	36.9	4.6	28.0	0.0	0.0	51.4	74.0	-22.6
7320.0	V	Average	30.2	36.9	4.6	28.0	0.0	0.0	43.7	54.0	-10.3
12200.0	V	Peak	42.3	39.0	5.9	39.0	0.0	0.0	48.2	74.0	-25.8
12200.0	H	Average	32.1	39.0	5.9	39.0	0.0	0.0	38.0	54.0	-16.0
19520.0	H	Peak	39.0	40.2	7.5	23.3	-9.5	0.0	53.9	74.0	-20.1
19520.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1
21960.0	V	Peak	40.0	40.3	9.1	24.0	-9.5	0.0	55.9	74.0	-18.1
21960.0	V	Average	31.1	40.3	9.1	24.0	-9.5	0.0	47.0	54.0	-7.0

Note: 1. All measurement were made at 3 meters
 2. Negative signs (-) in the margin column signify levels below the limit.
 3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
 Measurements were preformed at 1m distance.



Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 20, 1999

FCC 15.247 Radiated Emissions

Antenna	15	2480MHz										
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin	
MHz	Polarity	Analyz	dB(uV)	Factor	Loss	dB	Factor	Cycle	Reading	dB(uV/m)	dB	
2480.0	V	Peak	93.0	30.4	2.3	0.0	0.0	0.0	125.7			
2480.0	V	Average	91.0	30.4	2.3	0.0	0.0	0.0	123.7			
2489.0	V	Peak							52.7*	74.0	-21.3	
2489.0	V	Average							50.7*	54.0	-3.3	
2492.5	V	Peak							50.9#	74.0	-23.1	
2492.5	V	Average							48.9#	54.0	-5.1	
4960.0	V	Peak	33.0	35.4	3.4	28.1	0.0	0.0	43.7	74.0	-30.3	
4960.0	V	Average	24.0	35.4	3.4	28.1	0.0	0.0	34.7	54.0	-19.3	
7440.0	V	Peak	37.7	36.9	4.6	28.0	0.0	0.0	51.2	74.0	-22.8	
7440.0	V	Average	29.0	36.9	4.6	28.0	0.0	0.0	42.5	54.0	-11.5	
12400.0	V	Peak	42.3	39.0	5.9	39.0	0.0	0.0	48.2	74.0	-25.8	
12400.0	H	Average	32.1	39.0	5.9	39.0	0.0	0.0	38.0	54.0	-16.0	
19840.0	H	Peak	40.0	40.2	7.5	23.3	-9.5	0.0	54.9	74.0	-19.1	
19840.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1	
22320.0	V	Peak	41.0	40.3	9.1	24.0	-9.5	0.0	56.9	74.0	-17.1	
22320.0	V	Average	31.1	40.3	9.1	24.0	-9.5	0.0	47.0	54.0	-7.0	

- Note:
1. All measurement were made at 3 meters
 2. Negative signs (-) in the margin column signify levels below the limit.
 3. Readings with * are fundamental minus attenuation from plot 4.c.4(73dB)
 4. Readings with # are fundamental minus attenuation from plot 4.c.5(74.8dB)
 5. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
Measurements were preformed at 1m distance.



Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 20, 1999

FCC 15.247 Radiated Emissions

Antenna	16	2402MHz									
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin
MHz	Polarity	Analyz		Factor	Loss				Reading		
	H/V	Detector	dB(uV)	dB/m	dB	dB	dB	dB	dB(uV/m)	dB(uV/m)	dB
4804.0	V	Peak	33.9	35.4	3.4	28.1	0.0	0.0	44.6	74.0	-29.4
4804.0	V	Average	24.0	35.4	3.4	28.1	0.0	0.0	34.7	54.0	-19.3
7206.0	V	Peak	37.6	36.9	4.6	28.0	0.0	0.0	51.1	74.0	-22.9
7206.0	V	Average	29.6	36.9	4.6	28.0	0.0	0.0	43.1	54.0	-10.9
12010.0	V	Peak	42.3	39.0	5.9	39.0	0.0	0.0	48.2	74.0	-25.8
12010.0	H	Average	32.1	39.0	5.9	39.0	0.0	0.0	38.0	54.0	-16.0
19216.0	H	Peak	40.0	40.2	7.5	23.3	-9.5	0.0	54.9	74.0	-19.1
19216.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1
21618.0	V	Peak	40.0	40.3	9.1	24.0	-9.5	0.0	55.9	74.0	-18.1
21618.0	V	Average	31.1	40.3	9.1	24.0	-9.5	0.0	47.0	54.0	-7.0

Note: 1. All measurement were made at 3 meters
 2. Negative signs (-) in the margin column signify levels below the limit.
 3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
 Measurements were preformed at 1m distance.



Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 20, 1999

FCC 15.247 Radiated Emissions

Antenna	16	2440MHz									
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin
	Polarity	Analyz		Factor	Loss		Factor	Cycle	Reading		
MHz	H/V	Detector	dB(uV)	dB/m	dB	dB	dB	dB	dB(uV/m)	dB(uV/m)	dB
4880.0	V	Peak	32.0	35.4	3.4	28.1	0.0	0.0	42.7	74.0	-31.3
4880.0	V	Average	23.8	35.4	3.4	28.1	0.0	0.0	34.5	54.0	-19.5
7320.0	V	Peak	37.9	36.9	4.6	28.0	0.0	0.0	51.4	74.0	-22.6
7320.0	V	Average	30.2	36.9	4.6	28.0	0.0	0.0	43.7	54.0	-10.3
12200.0	V	Peak	42.3	39.0	5.9	39.0	0.0	0.0	48.2	74.0	-25.8
12200.0	H	Average	32.1	39.0	5.9	39.0	0.0	0.0	38.0	54.0	-16.0
19520.0	H	Peak	40.0	40.2	7.5	23.3	-9.5	0.0	54.9	74.0	-19.1
19520.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1
21960.0	V	Peak	40.0	40.3	9.1	24.0	-9.5	0.0	55.9	74.0	-18.1
21960.0	V	Average	31.1	40.3	9.1	24.0	-9.5	0.0	47.0	54.0	-7.0

Note: 1. All measurement were made at 3 meters
2. Negative signs (-) in the margin column signify levels below the limit.
3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
Measurements were performed at 1m distance.



Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 20, 1999

FCC 15.247 Radiated Emissions

Antenna	16	2480MHz									
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin
	Polarity	Analyz		Factor	Loss		Factor	Cycle	Reading		
MHz	H/V	Detector	dB(uV)	dB/m	dB	dB	dB	dB	dB(uV/m)	dB(uV/m)	dB
4960.0	V	Peak	33.0	35.4	3.4	28.1	0.0	0.0	43.7	74.0	-30.3
4960.0	V	Average	24.0	35.4	3.4	28.1	0.0	0.0	34.7	54.0	-19.3
7440.0	V	Peak	37.7	36.9	4.6	28.0	0.0	0.0	51.2	74.0	-22.8
7440.0	V	Average	29.0	36.9	4.6	28.0	0.0	0.0	42.5	54.0	-11.5
12400.0	V	Peak	42.3	39.0	5.9	39.0	0.0	0.0	48.2	74.0	-25.8
12400.0	H	Average	32.1	39.0	5.9	39.0	0.0	0.0	38.0	54.0	-16.0
19840.0	H	Peak	40.0	40.2	7.5	23.3	-9.5	0.0	54.9	74.0	-19.1
19840.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1
22320.0	V	Peak	40.0	40.3	9.1	24.0	-9.5	0.0	55.9	74.0	-18.1
22320.0	V	Average	31.1	40.3	9.1	24.0	-9.5	0.0	47.0	54.0	-7.0

Note: 1. All measurement were made at 3 meters
2. Negative signs (-) in the margin column signify levels below the limit.
3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
Measurements were performed at 1m distance.



Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 18, 1999

FCC 15.247 Radiated Emissions

Antenna	17	2402MHz										
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin	
MHz	Polarity	Analyz	dB(uV)	Factor	Loss	dB	Factor	Cycle	Reading	dB(uV/m)	dB	
4804.0	V	Peak	36.1	35.4	3.4	28.1	0.0	0.0	46.8	74.0	-27.2	
4804.0	V	Average	25.6	35.4	3.4	28.1	0.0	0.0	36.3	54.0	-17.7	
7206.0	V	Peak	37.5	36.9	4.6	28.0	0.0	0.0	51.0	74.0	-23.0	
7206.0	V	Average	28.0	36.9	4.6	28.0	0.0	0.0	41.5	54.0	-12.5	
12010.0	V	Peak	42.1	39.0	5.9	39.0	0.0	0.0	48.0	74.0	-26.0	
12010.0	H	Average	32.2	39.0	5.9	39.0	0.0	0.0	38.1	54.0	-15.9	
19216.0	H	Peak	40.0	40.2	7.5	23.3	-9.5	0.0	54.9	74.0	-19.1	
19216.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1	
21618.0	V	Peak	40.0	40.3	9.1	24.0	-9.5	0.0	55.9	74.0	-18.1	
21618.0	V	Average	31.0	40.3	9.1	24.0	-9.5	0.0	46.9	54.0	-7.1	

Note: 1. All measurement were made at 3 meters
2. Negative signs (-) in the margin column signify levels below the limit.
3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
Measurements were preformed at 1m distance.



Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 18, 1999

FCC 15.247 Radiated Emissions

Antenna	17	2440MHz										
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin	
MHz	Polarity	Analyz	dB(uV)	Factor	Loss	dB	Factor	Cycle	Reading	dB(uV/m)	dB	
4880.0	V	Peak	38.8	35.4	3.4	28.1	0.0	0.0	49.5	74.0	-24.5	
4880.0	V	Average	30.4	35.4	3.4	28.1	0.0	0.0	41.1	54.0	-12.9	
7320.0	V	Peak	42.5	36.9	4.6	28.0	0.0	0.0	56.0	74.0	-18.0	
7320.0	V	Average	33.9	36.9	4.6	28.0	0.0	0.0	47.4	54.0	-6.6	
12200.0	V	Peak	42.4	39.0	5.9	39.0	0.0	0.0	48.3	74.0	-25.7	
12200.0	H	Average	32.3	39.0	5.9	39.0	0.0	0.0	38.2	54.0	-15.8	
19520.0	H	Peak	39.0	40.2	7.5	23.3	-9.5	0.0	53.9	74.0	-20.1	
19520.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1	
21960.0	V	Peak	40.0	40.3	9.1	24.0	-9.5	0.0	55.9	74.0	-18.1	
21960.0	V	Average	31.1	40.3	9.1	24.0	-9.5	0.0	47.0	54.0	-7.0	

Note: 1. All measurement were made at 3 meters
2. Negative signs (-) in the margin column signify levels below the limit.
3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
Measurements were preformed at 1m distance.

Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 18, 1999

FCC 15.247 Radiated Emissions

Antenna	17	2480MHz									
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin
MHz	Polarity	Analyz	dB(uV)	Factor	Loss	dB	Factor	Cycle	Reading	dB(uV/m)	dB
4960.0	V	Peak	39.5	35.4	3.4	28.1	0.0	0.0	50.2	74.0	-23.8
4960.0	V	Average	33.1	35.4	3.4	28.1	0.0	0.0	43.8	54.0	-10.2
7440.0	V	Peak	42.7	36.9	4.6	28.0	0.0	0.0	56.2	74.0	-17.8
7440.0	V	Average	34.7	36.9	4.6	28.0	0.0	0.0	48.2	54.0	-5.8
12400.0	V	Peak	42.4	39.0	5.9	39.0	0.0	0.0	48.3	74.0	-25.7
12400.0	H	Average	32.3	39.0	5.9	39.0	0.0	0.0	38.2	54.0	-15.8
19840.0	H	Peak	39.0	40.2	7.5	23.3	-9.5	0.0	53.9	74.0	-20.1
19840.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1
22320.0	V	Peak	39.0	40.3	9.1	24.0	-9.5	0.0	54.9	74.0	-19.1
22320.0	V	Average	31.1	40.3	9.1	24.0	-9.5	0.0	47.0	54.0	-7.0

Note: 1. All measurement were made at 3 meters
 2. Negative signs (-) in the margin column signify levels below the limit.
 3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
 Measurements were performed at 1m distance.

Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 20, 1999

FCC 15.247 Radiated Emissions											
Antenna	18	2402MHz									
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin
MHz	Polarity	Analyz	dB(uV)	Factor	Loss	dB	Factor	Cycle	Reading	dB(uV/m)	dB
4804.0	V	Peak	34.0	35.4	3.4	28.1	0.0	0.0	44.7	74.0	-29.3
4804.0	V	Average	23.3	35.4	3.4	28.1	0.0	0.0	34.0	54.0	-20.0
7206.0	V	Peak	37.3	36.9	4.6	28.0	0.0	0.0	50.8	74.0	-23.2
7206.0	V	Average	28.4	36.9	4.6	28.0	0.0	0.0	41.9	54.0	-12.1
12010.0	V	Peak	42.3	39.0	5.9	39.0	0.0	0.0	48.2	74.0	-25.8
12010.0	H	Average	32.1	39.0	5.9	39.0	0.0	0.0	38.0	54.0	-16.0
19216.0	H	Peak	40.0	40.2	7.5	23.3	-9.5	0.0	54.9	74.0	-19.1
19216.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1
21618.0	V	Peak	40.0	40.3	9.1	24.0	-9.5	0.0	55.9	74.0	-18.1
21618.0	V	Average	31.0	40.3	9.1	24.0	-9.5	0.0	46.9	54.0	-7.1

Note: 1. All measurement were made at 3 meters
 2. Negative signs (-) in the margin column signify levels below the limit.
 3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
 Measurements were preformed at 1m distance.

ITS Intertek Testing Services

Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 20, 1999

FCC 15.247 Radiated Emissions

Antenna	18	2440MHz									
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin
MHz	Polarity	Analyz	dB(uV)	Factor	Loss	dB	Factor	Cycle	Reading	dB(uV/m)	dB
4880.0	V	Peak	33.6	35.4	3.4	28.1	0.0	0.0	44.3	74.0	-29.7
4880.0	V	Average	26.5	35.4	3.4	28.1	0.0	0.0	37.2	54.0	-16.8
7320.0	V	Peak	39.0	36.9	4.6	28.0	0.0	0.0	52.5	74.0	-21.5
7320.0	V	Average	32.4	36.9	4.6	28.0	0.0	0.0	45.9	54.0	-8.1
12200.0	V	Peak	42.1	39.0	5.9	39.0	0.0	0.0	48.0	74.0	-26.0
12200.0	H	Average	32.2	39.0	5.9	39.0	0.0	0.0	38.1	54.0	-15.9
19520.0	H	Peak	39.0	40.2	7.5	23.3	-9.5	0.0	53.9	74.0	-20.1
19520.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1
21960.0	V	Peak	40.0	40.3	9.1	24.0	-9.5	0.0	55.9	74.0	-18.1
21960.0	V	Average	31.1	40.3	9.1	24.0	-9.5	0.0	47.0	54.0	-7.0

Note: 1. All measurement were made at 3 meters
 2. Negative signs (-) in the margin column signify levels below the limit.
 3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
 Measurements were performed at 1m distance.



Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 20, 1999

FCC 15.247 Radiated Emissions

Antenna	18	2480MHz										
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin	
MHz	Polarity	Analyz	dB(uV)	Factor	Loss	dB	Factor	Cycle	Reading	dB(uV/m)	dB	
4960.0	V	Peak	37.1	35.4	3.4	28.1	0.0	0.0	47.8	74.0	-26.2	
4960.0	V	Average	30.7	35.4	3.4	28.1	0.0	0.0	41.4	54.0	-12.6	
7440.0	V	Peak	38.7	36.9	4.6	28.0	0.0	0.0	52.2	74.0	-21.8	
7440.0	V	Average	29.2	36.9	4.6	28.0	0.0	0.0	42.7	54.0	-11.3	
12400.0	V	Peak	42.1	39.0	5.9	39.0	0.0	0.0	48.0	74.0	-26.0	
12400.0	H	Average	32.2	39.0	5.9	39.0	0.0	0.0	38.1	54.0	-15.9	
19840.0	H	Peak	40.0	40.2	7.5	23.3	-9.5	0.0	54.9	74.0	-19.1	
19840.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1	
22320.0	V	Peak	39.0	40.3	9.1	24.0	-9.5	0.0	54.9	74.0	-19.1	
22320.0	V	Average	31.1	40.3	9.1	24.0	-9.5	0.0	47.0	54.0	-7.0	

Note: 1. All measurement were made at 3 meters
 2. Negative signs (-) in the margin column signify levels below the limit.
 3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
 Measurements were performed at 1m distance.

Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 20, 1999

FCC 15.247 Radiated Emissions

Antenna	19	2402MHz										
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin	
MHz	Polarity	Analyz	dB(uV)	Factor	Loss	dB	Factor	Cycle	Reading	dB(uV/m)	dB	
4804.0	V	Peak	32.4	35.4	3.4	28.1	0.0	0.0	43.1	74.0	-30.9	
4804.0	V	Average	23.6	35.4	3.4	28.1	0.0	0.0	34.3	54.0	-19.7	
7206.0	V	Peak	40.8	36.9	4.6	28.0	0.0	0.0	54.3	74.0	-19.7	
7206.0	V	Average	33.0	36.9	4.6	28.0	0.0	0.0	46.5	54.0	-7.5	
12010.0	V	Peak	42.3	39.0	5.9	39.0	0.0	0.0	48.2	74.0	-25.8	
12010.0	H	Average	32.1	39.0	5.9	39.0	0.0	0.0	38.0	54.0	-16.0	
19216.0	H	Peak	40.0	40.2	7.5	23.3	-9.5	0.0	54.9	74.0	-19.1	
19216.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1	
21618.0	V	Peak	40.0	40.3	9.1	24.0	-9.5	0.0	55.9	74.0	-18.1	
21618.0	V	Average	31.1	40.3	9.1	24.0	-9.5	0.0	47.0	54.0	-7.0	

Note: 1. All measurement were made at 3 meters
 2. Negative signs (-) in the margin column signify levels below the limit.
 3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
 Measurements were performed at 1m distance.



Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 20, 1999

FCC 15.247 Radiated Emissions

Antenna	19	2440MHz									
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin
	Polarity	Analyz		Factor	Loss		Factor	Cycle	Reading		
MHz	H/V	Detector	dB(uV)	dB/m	dB	dB	dB	dB	dB(uV/m)	dB(uV/m)	dB
4880.0	V	Peak	35.0	35.4	3.4	28.1	0.0	0.0	45.7	74.0	-28.3
4880.0	V	Average	27.8	35.4	3.4	28.1	0.0	0.0	38.5	54.0	-15.5
7320.0	V	Peak	40.0	36.9	4.6	28.0	0.0	0.0	53.5	74.0	-20.5
7320.0	V	Average	33.6	36.9	4.6	28.0	0.0	0.0	47.1	54.0	-6.9
12200.0	V	Peak	42.3	39.0	5.9	39.0	0.0	0.0	48.2	74.0	-25.8
12200.0	H	Average	32.1	39.0	5.9	39.0	0.0	0.0	38.0	54.0	-16.0
19520.0	H	Peak	40.0	40.2	7.5	23.3	-9.5	0.0	54.9	74.0	-19.1
19520.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1
21960.0	V	Peak	40.0	40.3	9.1	24.0	-9.5	0.0	55.9	74.0	-18.1
21960.0	V	Average	31.1	40.3	9.1	24.0	-9.5	0.0	47.0	54.0	-7.0

Note: 1. All measurement were made at 3 meters
 2. Negative signs (-) in the margin column signify levels below the limit.
 3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
 Measurements were performed at 1m distance.

ITS Intertek Testing Services

Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 20, 1999

FCC 15.247 Radiated Emissions

Antenna	19	2480MHz									
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin
MHz	Polarity	Analyz	dB(uV)	Factor	Loss	dB	Factor	Cycle	Reading	dB(uV/m)	dB
4960.0	V	Peak	35.8	35.4	3.4	28.1	0.0	0.0	46.5	74.0	-27.5
4960.0	V	Average	30.5	35.4	3.4	28.1	0.0	0.0	41.2	54.0	-12.8
7440.0	V	Peak	37.3	36.9	4.6	28.0	0.0	0.0	50.8	74.0	-23.2
7440.0	V	Average	28.6	36.9	4.6	28.0	0.0	0.0	42.1	54.0	-11.9
12400.0	V	Peak	42.3	39.0	5.9	39.0	0.0	0.0	48.2	74.0	-25.8
12400.0	H	Average	32.1	39.0	5.9	39.0	0.0	0.0	38.0	54.0	-16.0
19840.0	H	Peak	40.0	40.2	7.5	23.3	-9.5	0.0	54.9	74.0	-19.1
19840.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1
22320.0	V	Peak	40.0	40.3	9.1	24.0	-9.5	0.0	55.9	74.0	-18.1
22320.0	V	Average	31.1	40.3	9.1	24.0	-9.5	0.0	47.0	54.0	-7.0

Note: 1. All measurement were made at 3 meters
 2. Negative signs (-) in the margin column signify levels below the limit.
 3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
 Measurements were performed at 1m distance.



Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 18, 1999

FCC 15.247 Radiated Emissions

Antenna	20	2402MHz									
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin
MHz	Polarity	Analyz	dB(uV)	Factor	Loss	dB	Factor	Cycle	Reading	dB(uV/m)	dB
4804.0	V	Peak	36.8	35.4	3.4	28.1	0.0	0.0	47.5	74.0	-26.5
4804.0	V	Average	27.6	35.4	3.4	28.1	0.0	0.0	38.3	54.0	-15.7
7206.0	V	Peak	37.0	36.9	4.6	28.0	0.0	0.0	50.5	74.0	-23.5
7206.0	V	Average	28.0	36.9	4.6	28.0	0.0	0.0	41.5	54.0	-12.5
12010.0	V	Peak	42.4	39.0	5.9	39.0	0.0	0.0	48.3	74.0	-25.7
12010.0	H	Average	32.3	39.0	5.9	39.0	0.0	0.0	38.2	54.0	-15.8
19216.0	H	Peak	40.0	40.2	7.5	23.3	-9.5	0.0	54.9	74.0	-19.1
19216.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1
21618.0	V	Peak	40.0	40.3	9.1	24.0	-9.5	0.0	55.9	74.0	-18.1
21618.0	V	Average	31.0	40.3	9.1	24.0	-9.5	0.0	46.9	54.0	-7.1

Note: 1. All measurement were made at 3 meters
 2. Negative signs (-) in the margin column signify levels below the limit.
 3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
 Measurements were preformed at 1m distance.



Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 18, 1999

FCC 15.247 Radiated Emissions

Antenna	20	2440MHz										
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin	
MHz	Polarity	Analyz	dB(uV)	Factor	Loss	dB	Factor	Cycle	Reading	dB(uV/m)	dB	
4880.0	V	Peak	36.4	35.4	3.4	28.1	0.0	0.0	47.1	74.0	-26.9	
4880.0	V	Average	25.6	35.4	3.4	28.1	0.0	0.0	36.3	54.0	-17.7	
7320.0	V	Peak	41.7	36.9	4.6	28.0	0.0	0.0	55.2	74.0	-18.8	
7320.0	V	Average	33.3	36.9	4.6	28.0	0.0	0.0	46.8	54.0	-7.2	
12200.0	V	Peak	42.4	39.0	5.9	39.0	0.0	0.0	48.3	74.0	-25.7	
12200.0	H	Average	32.3	39.0	5.9	39.0	0.0	0.0	38.2	54.0	-15.8	
19520.0	H	Peak	39.0	40.2	7.5	23.3	-9.5	0.0	53.9	74.0	-20.1	
19520.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1	
21960.0	V	Peak	40.0	40.3	9.1	24.0	-9.5	0.0	55.9	74.0	-18.1	
21960.0	V	Average	31.1	40.3	9.1	24.0	-9.5	0.0	47.0	54.0	-7.0	

Note: 1. All measurement were made at 3 meters
 2. Negative signs (-) in the margin column signify levels below the limit.
 3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
 Measurements were performed at 1m distance.



Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 18, 1999

FCC 15.247 Radiated Emissions

Antenna	20	2480MHz										
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin	
MHz	Polarity	Analyz	dB(uV)	Factor	Loss	dB	Factor	Cycle	Reading	dB(uV/m)	dB	
4960.0	V	Peak	43.2	41.4	3.4	28.1	0.0	0.0	59.9	74.0	-14.1	
4960.0	V	Average	33.2	33.2	3.4	28.1	0.0	0.0	41.7	54.0	-12.3	
7440.0	V	Peak	40.9	41.9	4.6	28.0	0.0	0.0	59.4	74.0	-14.6	
7440.0	V	Average	30.7	32.9	4.6	28.0	0.0	0.0	40.2	54.0	-13.8	
12400.0	V	Peak	42.4	39.0	5.9	39.0	0.0	0.0	48.3	74.0	-25.7	
12400.0	H	Average	32.3	39.0	5.9	39.0	0.0	0.0	38.2	54.0	-15.8	
19840.0	H	Peak	39.0	40.2	7.5	23.3	-9.5	0.0	53.9	74.0	-20.1	
19840.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1	
22320.0	V	Peak	39.0	40.3	9.1	24.0	-9.5	0.0	54.9	74.0	-19.1	
22320.0	V	Average	31.1	40.3	9.1	24.0	-9.5	0.0	47.0	54.0	-7.0	

Note: 1. All measurement were made at 3 meters
2. Negative signs (-) in the margin column signify levels below the limit.
3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
Measurements were preformed at 1m distance.



Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 20, 1999

FCC 15.247 Radiated Emissions

Antenna	21	2402MHz									
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin
MHz	Polarity	Analyz		Factor	Loss				Reading		
	H/V	Detector	dB(uV)	dB/m	dB	DB	dB	dB	dB(uV/m)	dB(uV/m)	dB
4804.0	V	Peak	32.0	35.4	3.4	28.1	0.0	0.0	42.7	74.0	-31.3
4804.0	V	Average	22.0	35.4	3.4	28.1	0.0	0.0	32.7	54.0	-21.3
7206.0	V	Peak	39.5	36.9	4.6	28.0	0.0	0.0	53.0	74.0	-21.0
7206.0	V	Average	32.4	36.9	4.6	28.0	0.0	0.0	45.9	54.0	-8.1
12010.0	V	Peak	42.3	39.0	5.9	39.0	0.0	0.0	48.2	74.0	-25.8
12010.0	H	Average	32.1	39.0	5.9	39.0	0.0	0.0	38.0	54.0	-16.0
19216.0	H	Peak	40.0	40.2	7.5	23.3	-9.5	0.0	54.9	74.0	-19.1
19216.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1
21618.0	V	Peak	40.0	40.3	9.1	24.0	-9.5	0.0	55.9	74.0	-18.1
21618.0	V	Average	31.1	40.3	9.1	24.0	-9.5	0.0	47.0	54.0	-7.0

Note: 1. All measurement were made at 3 meters
 2. Negative signs (-) in the margin column signify levels below the limit.
 3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
 Measurements were performed at 1m distance.



Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 20, 1999

FCC 15.247 Radiated Emissions

Antenna	21	2440MHz									
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin
MHz	Polarity	Analyz	dB(uV)	Factor	Loss	dB	Factor	Cycle	Reading	dB(uV/m)	dB
4880.0	V	Peak	34.0	35.4	3.4	28.1	0.0	0.0	44.7	74.0	-29.3
4880.0	V	Average	24.0	35.4	3.4	28.1	0.0	0.0	34.7	54.0	-19.3
7320.0	V	Peak	38.5	36.9	4.6	28.0	0.0	0.0	52.0	74.0	-22.0
7320.0	V	Average	31.0	36.9	4.6	28.0	0.0	0.0	44.5	54.0	-9.5
12200.0	V	Peak	42.3	39.0	5.9	39.0	0.0	0.0	48.2	74.0	-25.8
12200.0	H	Average	32.1	39.0	5.9	39.0	0.0	0.0	38.0	54.0	-16.0
19520.0	H	Peak	40.0	40.2	7.5	23.3	-9.5	0.0	54.9	74.0	-19.1
19520.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1
21960.0	V	Peak	40.0	40.3	9.1	24.0	-9.5	0.0	55.9	74.0	-18.1
21960.0	V	Average	31.1	40.3	9.1	24.0	-9.5	0.0	47.0	54.0	-7.0

Note: 1. All measurement were made at 3 meters
 2. Negative signs (-) in the margin column signify levels below the limit.
 3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
 Measurements were performed at 1m distance.



Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: May 20, 1999

FCC 15.247 Radiated Emissions

Antenna	21	2480MHz										
Frequency	Antenna	Spec.	Reading	Antenna	Cable	Pre-amp	Distance	Duty	Corrected	Limit	Margin	
MHz	Polarity	Analyz	dB(uV)	Factor	Loss	dB	Factor	Cycle	Reading	dB(uV/m)	dB	
4960.0	V	Peak	34.0	35.4	3.4	28.1	0.0	0.0	44.7	74.0	-29.3	
4960.0	V	Average	24.0	35.4	3.4	28.1	0.0	0.0	34.7	54.0	-19.3	
7440.0	V	Peak	37.4	36.9	4.6	28.0	0.0	0.0	50.9	74.0	-23.1	
7440.0	V	Average	31.0	36.9	4.6	28.0	0.0	0.0	44.5	54.0	-9.5	
12400.0	V	Peak	42.3	39.0	5.9	39.0	0.0	0.0	48.2	74.0	-25.8	
12400.0	H	Average	32.1	39.0	5.9	39.0	0.0	0.0	38.0	54.0	-16.0	
19840.0	H	Peak	40.0	40.2	7.5	23.3	-9.5	0.0	54.9	74.0	-19.1	
19840.0	H	Average	30.0	40.2	7.5	23.3	-9.5	0.0	44.9	54.0	-9.1	
22320.0	V	Peak	40.0	40.3	9.1	24.0	-9.5	0.0	55.9	74.0	-18.1	
22320.0	V	Average	31.1	40.3	9.1	24.0	-9.5	0.0	47.0	54.0	-7.0	

Note: 1. All measurement were made at 3 meters
 2. Negative signs (-) in the margin column signify levels below the limit.
 3. Readings above 19 GHz were made with RBW=300KHz and they are noise floor.
 Measurements were performed at 1m distance.

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

☐ Not Applicable - No digital part

☒ Test results are attached

Company: Symbol Technologies
Project #: J99013298
Model: LA 3021-100-US
Engineer: Xi-Ming Yang
Date of test: June 9, 1999

FCC 15 Class B Radiated Emissions

Frequency	Antenna	Reading	Antenna	Cable	Pre-amp	Distance	Corrected	Limit	Margin
MHz	Polarity	dB(uV)	Factor	Loss	dB	Factor	Reading	dB(uV/m)	dB
60.0	H	31.1	4.7	0.0	0.0	0.0	35.8	40.0	-4.2
140.0	H	28.0	8.4	0.0	0.0	0.0	36.4	43.5	-7.1
160.0	H	31.1	8.8	0.0	0.0	0.0	39.9	43.5	-3.6
200.0	H	30.0	10.2	0.0	0.0	0.0	40.2	43.5	-3.3
240.0	H	31.0	11.0	0.0	0.0	0.0	42.0	46.0	-4.0
260.0	H	30.4	12.0	0.0	0.0	0.0	42.4	46.0	-3.6
280.0	H	30.0	12.1	0.0	0.0	0.0	42.1	46.0	-3.9
300.0	H	29.0	13.1	0.0	0.0	0.0	42.1	46.0	-3.9
380.0	H	25.0	15.0	0.0	0.0	0.0	40.0	46.0	-6.0
450.0	H	25.4	16.0	0.0	0.0	0.0	41.4	46.0	-4.6
720.0	H	11.0	20.4	0.0	0.0	0.0	31.4	46.0	-14.6

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

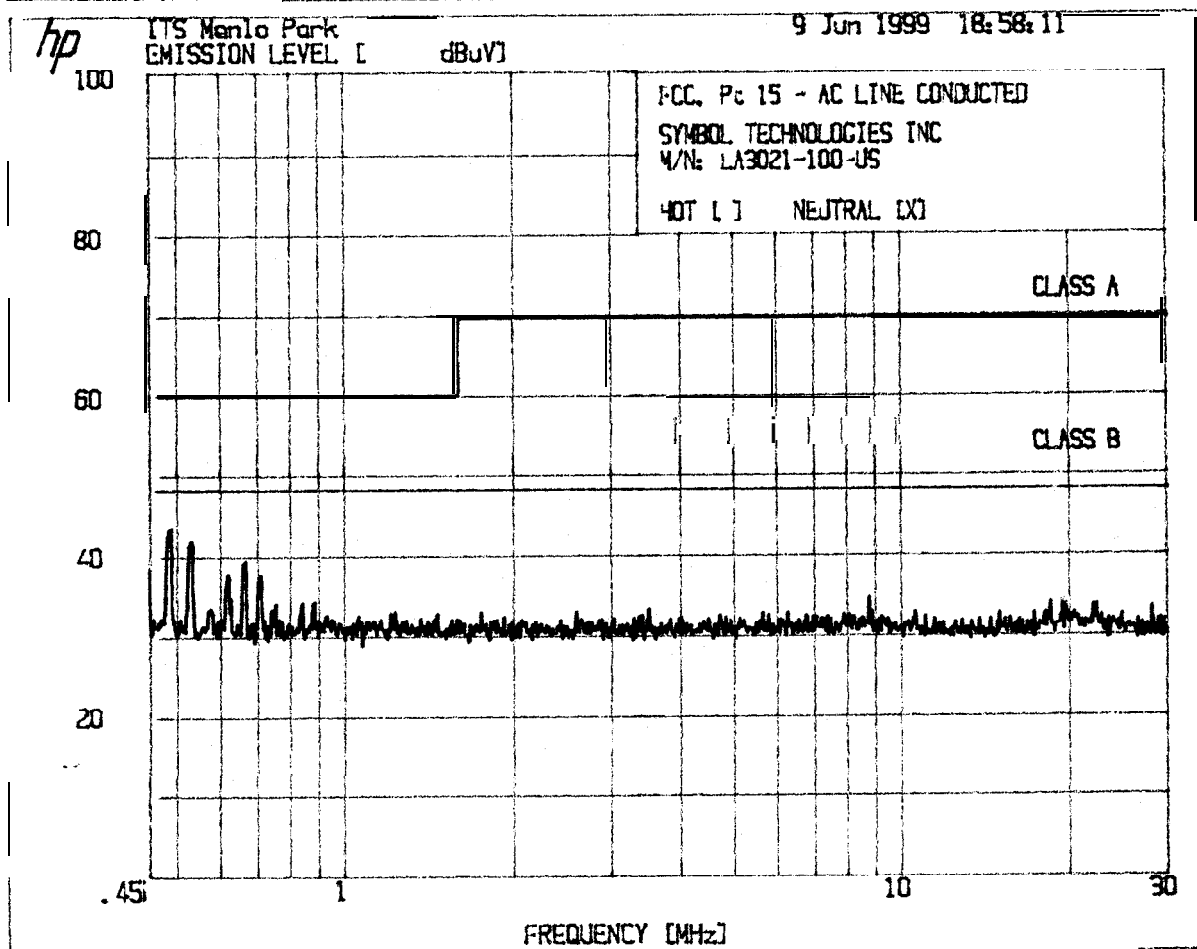
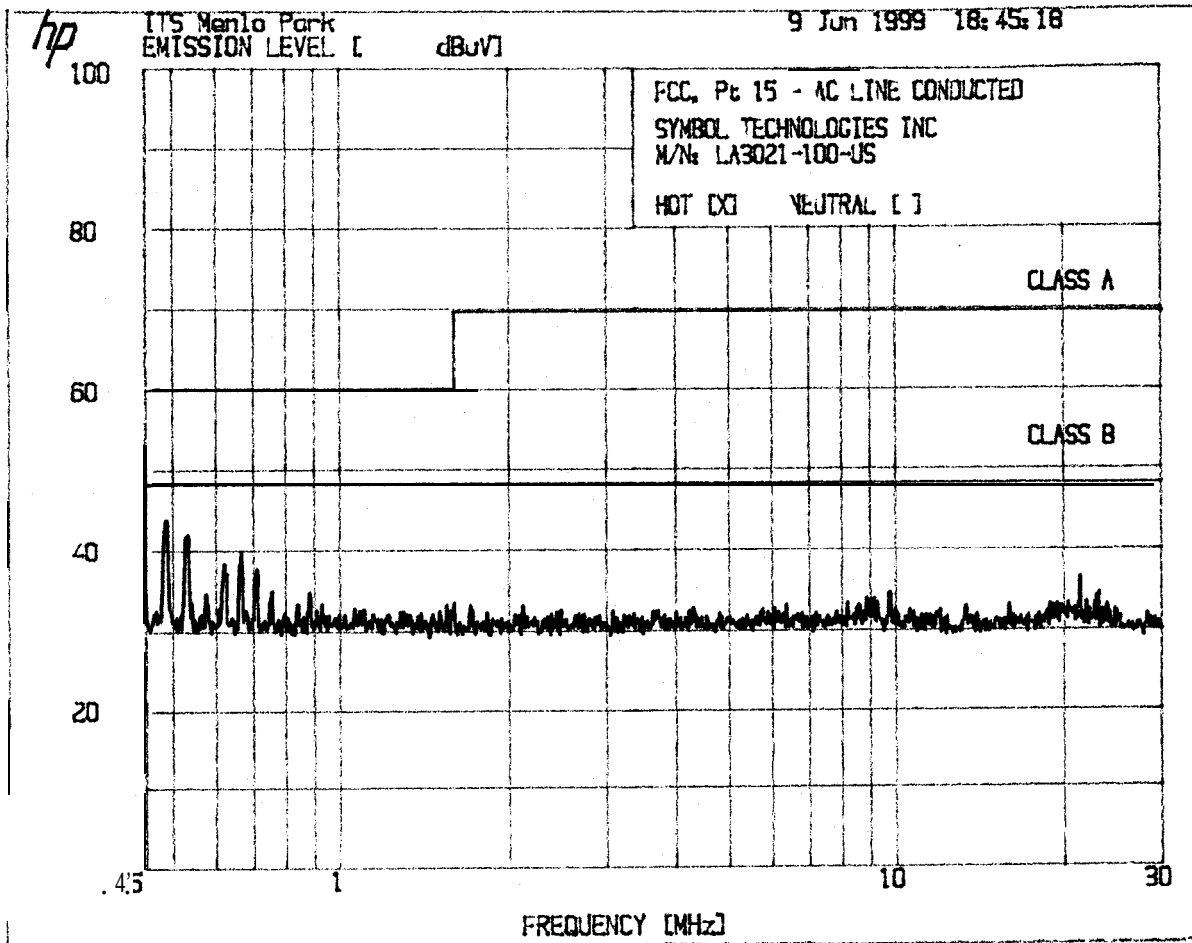
☐ [] Not performed; exempt until June 1999

☐ [] Test results are attached

4.11 AC Line Conducted Emission, FCC Rule 15.207:

☐ Not required; battery operation only

☒ Test data attached



=====

ITS Menlo Park	9 Jun 1989 18:45:18
----------------	---------------------

=====

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

=====

SYMBOL TECHNOLOGIES INC
M/N: LA3021-100-US

HOT [X] NEUTRAL []

PEAKS FOUND ABOVE 37 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

=====

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: LA3021-100-US

HOT [] NEUTRAL [X]

PEAKS FOUND ABOVE 38 dBuV

PEAK#	FREQ (MHz)	AMPL (dBuV)
1	.4914	43.4
2	.5367	41.8
3	.6704	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.