

EXHIBIT 5
EMISSIONS TEST REPORT

APPLICATION FOR FCC CERTIFICATION

Symbol Technologies Inc.

Spread Spectrum Radio

Model: LA3020

FCC ID: H9PLA3020

LTO# J98017331

Number of Pages: 30 pp. + Supporting Data and Documents

Date of Report: July 14, 1998

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Symbol Technologies Inc., Spread Spectrum
FCC ID: H9PLA3020

Date of Test: May 27, 1998 & June 3-26, 1998

Table of Contents

1.0	Summary of Tests	1
2.0	General Description	2
2.1	Product Description	2
2.2	Related Submittal(s) Grants	2
2.3	Test Methodology	3
2.4	Test Facility	3
3.0	System Test Configuration	4
3.1	Support Equipment	4
3.2	Block Diagram of Test Setup	4
3.3	Justification	5
3.4	Software Exercise Program	5
3.5	Mode of Operation During Test	5
3.6	Modifications Required for Compliance	5
4.0	Measurement Results	6
4.1	Maximum Conducted Output Power at Antenna Terminals	6
4.2	Hopping Channel 20 dB RF Bandwidth	7
4.3	Minimum Hopping Channel Carrier Frequency Separation	8
4.4	Minimum Number of Hopping Frequencies	9
4.5	Average Channel Occupancy Time	10
4.6	Out of Band Conducted Emissions	11
4.7	Out of Band Radiated Emissions	12
4.8	Transmitter Radiated Emissions in Restricted Bands	13
4.9	Radiated Emission Configuration Photograph	14
4.10	Radiated Emissions from Digital Section of Transceiver (Transmitter),	21
4.11	Radiated Emissions from Receiver Section of Transceiver (L.O. Radiation),	22
4.12	AC Line Conducted Emission	23
4.13	AC Line Conducted Configuration Photograph	24
5.0	Equipment Photographs	25
6.0	Product Labelling	26
6.1	Label Artwork	26
6.2	Label Location	26
7.0	Technical Specifications	27
7.1	Circuit Diagram	27
7.2	Block Diagram	28
7.3	Antenna gain and Mounting Information	29
8.0	Instruction Manual	30

Intertek Testing Services - Menlo Park

Symbol Technologies Inc., Spread Spectrum
FCC ID: H9PLA3020

Date of Test: May 27, 1998 & June 3-26, 1998

1.0 Summary of Tests

Symbol Technologies Inc. - Model No.: LA3020 FCC ID: HPPLA3020

TEST	REFERENCE	RESULTS
Max. Output power	15.247(b)(3)	Pass
20 dB Bandwidth	15.247(a)(1)	Pass
Min. Channel Separation	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
Xi-Ming Yang

Date:

7/14/98

EMC Site Mgr.:

David Chernomordik
David Chernomordik

Date:

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Symbol Technologies Inc., Spread Spectrum
FCC ID: H9PLA3020

Date of Test: May 27, 1998 & June 3-26, 1998

2.0 General Description

2.1 Product Description

The Symbol Technologies Inc. Model LA3020 is a spread spectrum radio.

Overview of the EUT

Applicant	Symbol Technologies Inc.
Trade Name & Model No.	Symbol Technologies, Model No. LA3020
FCC Identifier	H9PLA3020
Use of Product	
Manufacturer & Model of Spread Spectrum Module	
Type of Transmission	Frequency Hopping
Rated RF Output (mW)	
Frequency Range (MHz)	2402 - 2480
Number of Channel(s)	79
Antenna(s) & Gain, dBi	
Processing Gain Measurements	<input type="checkbox"/> Will be provided to ITS for submission with the application <input checked="" type="checkbox"/> Will be provided directly to the FCC reviewing engineer by the client or manufacturer of the spread spectrum module
Antenna Requirement	<input type="checkbox"/> The EUT uses a permanently connected antenna. <input type="checkbox"/> 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. <input type="checkbox"/> 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.

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Symbol Technologies Inc., Spread Spectrum
FCC ID: H9PLA3020

Date of Test: May 27, 1998 & June 3-26, 1998

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 South San Francisco. This test facility and site measurement data have been fully placed on file with the FCC.

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Symbol Technologies Inc., Spread Spectrum
 FCC ID: H9PLA3020

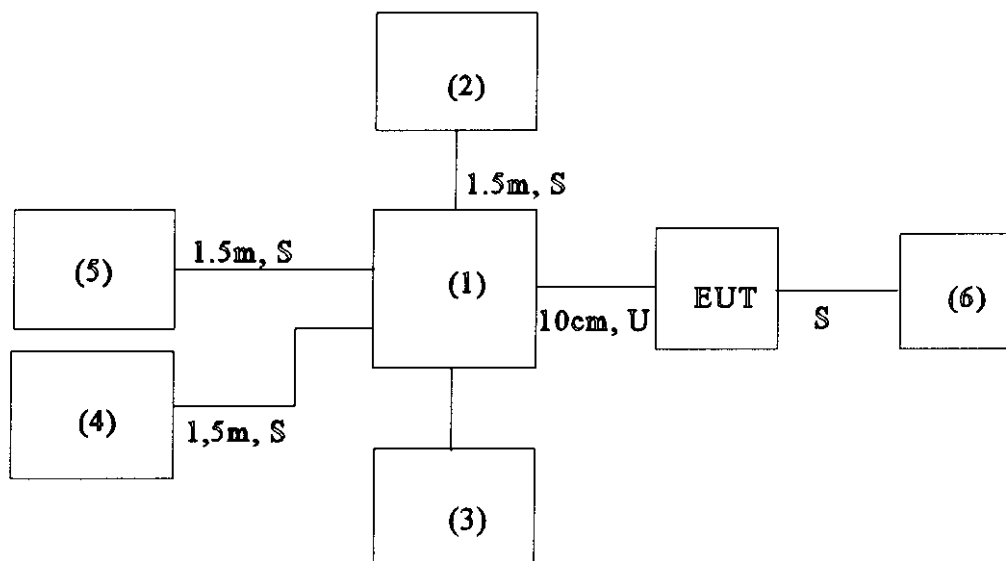
Date of Test: May 27, 1998 & June 3-26, 1998

3.0 System Test Configuration

3.1 Support Equipment

Item #	Description	Model No.	Serial No.	FCC ID
1	AST Computer	PAWEEEXEC 3/25SL	N/A	DJKPWRE386-25SL
2	ViewSonic Monitor	7034T	3732285769	FVI7034T
3	Compaq Mouse	M-S28	1D768AN56891	DZL210472
4	HP Printer	2225C+	2921S45711	DSI6XU2225
5	Datatronics Modem	1200CK	07-247336	E2050V1200CK
6	Antennas	--	--	--

3.2 Block Diagram of Test Setup



* = EUT	S = Shielded;	F = With Ferrite
** = No ferrites on video cable	U = Unshielded	

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Symbol Technologies Inc., Spread Spectrum
FCC ID: H9PLA3020

Date of Test: May 27, 1998 & June 3-26, 1998

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 without modulation.

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. Detector function is in peak mode. 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.

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Symbol Technologies Inc., Spread Spectrum
FCC ID: H9PLA3020

Date of Test: May 27, 1998 & June 3-26, 1998

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) dBm.

NOTE: Hopping function disabled during test

Frequency (MHz)	Output in dBm	Output in mWatt
2402	23.1	204.2
2440	23.8	240.0
2480	23.1	204.2

Cable loss: 0 dB

External Attenuation: 0 dB

Cable loss, external attenuation:

[x] included in OFFSET function

[] added to SA raw reading

EUT Transmit Antenna Gain(dBi) +20 dBm max. output level = dBm (36 dBm or less)

Please refer to the attached plots for details:

Plot 1a: Low Channel Output Power

Plot 1b: Middle Channel Output Power

Plot 1c: High Channel Output Power

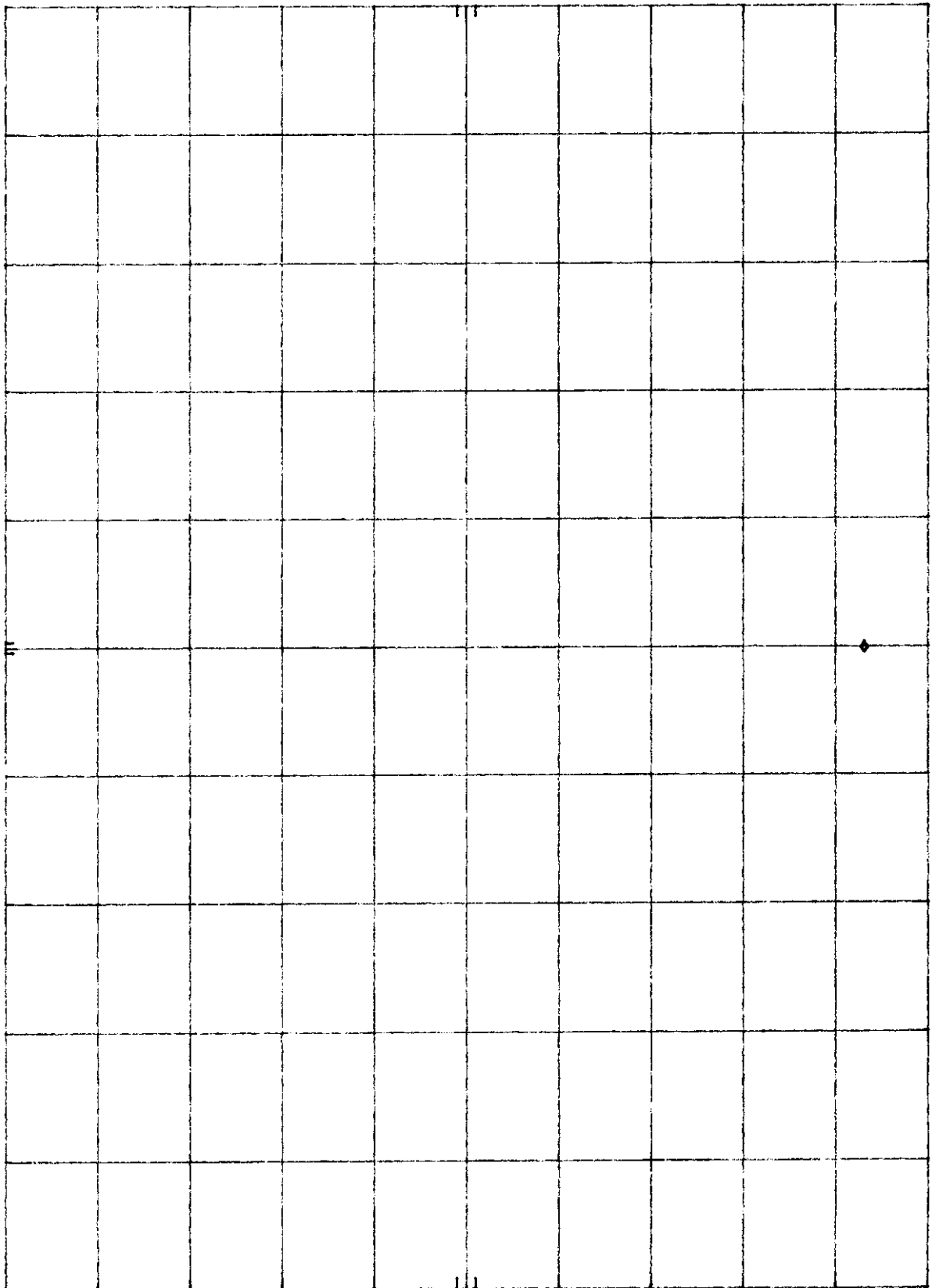
PLOT# 1a

MKR 2.402 00 GHZ
23.10 DBM

HP

REF 30.0 DBM ATTEN 40 DB

10 DB/



CENTER 2.402 0 GHZ

RES BW 3 MHZ

VBW 3 MHZ

SPAN 10.0 MHZ
SWP 20.0 msec

PLOT# 1b

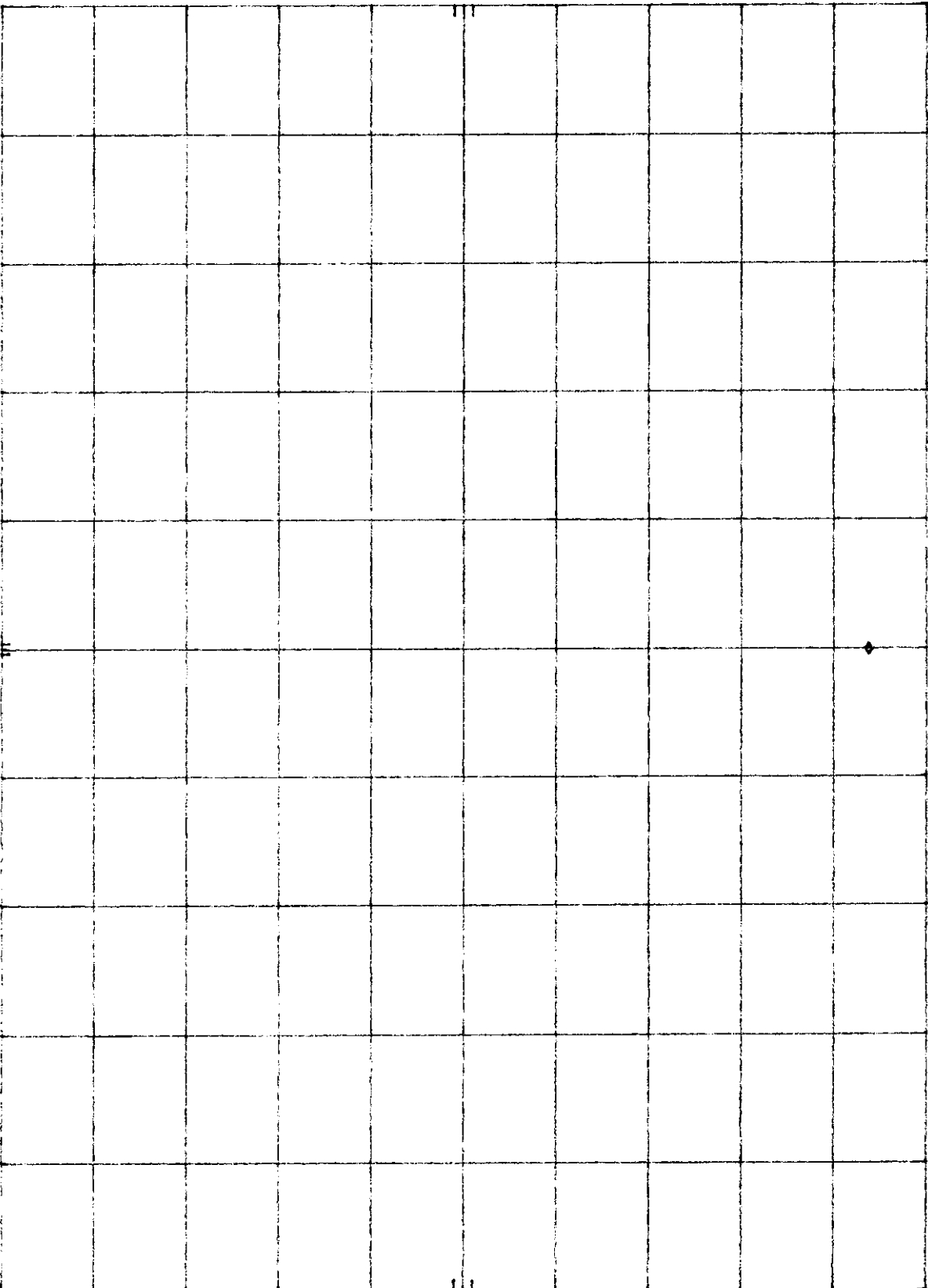
HP

REF 30.0 DBm

ATTEN 40 DB

MKR 2.440 00 GHZ
23.80 DBm

10 DB/



CENTER 2.440 0 GHZ

RES BW 3 MHz

VBW 3 MHz

SPAN 10.0 MHz
SWP 20.0 msec

PLOT# 1c

MKR 2.480 00 GHZ

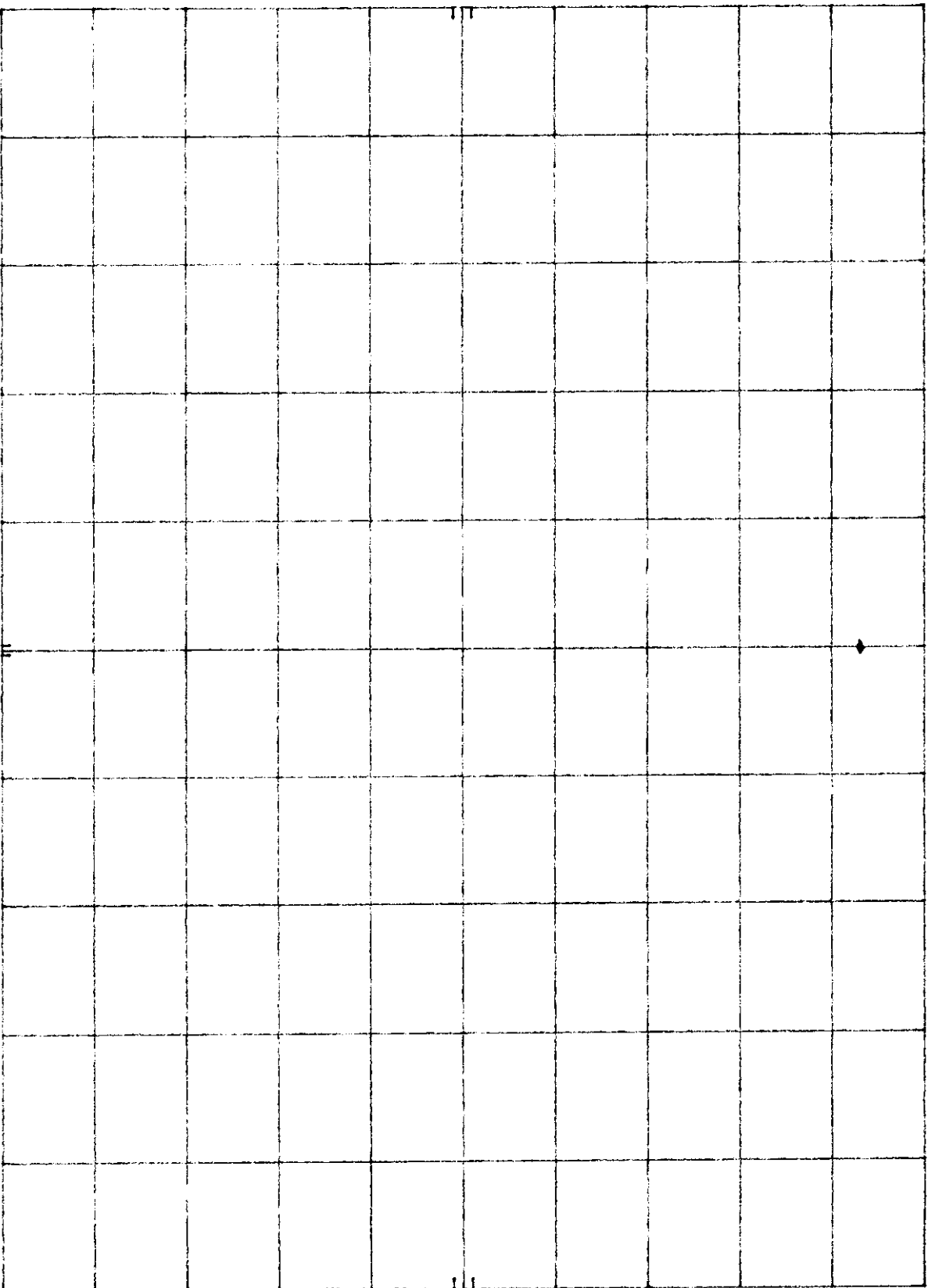
HP

REF 30.0 DBm

ATTEN 40 DB

23.10 DBm

10 DB/



CENTER 2.480 0 GHZ

RES BW 3 MHZ

VBW 3 MHZ

SPAN 10.0 MHZ
SWP 20.0 msec

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Symbol Technologies Inc., Spread Spectrum
FCC ID: H9PLA3020

Date of Test: May 27, 1998 & June 3-26, 1998

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

Test results:

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

Please refer to the attached plots for details:

Plot 2a - 2c

PLOT# 2a

REF 30.0 DBm

ATTEN 40 DB

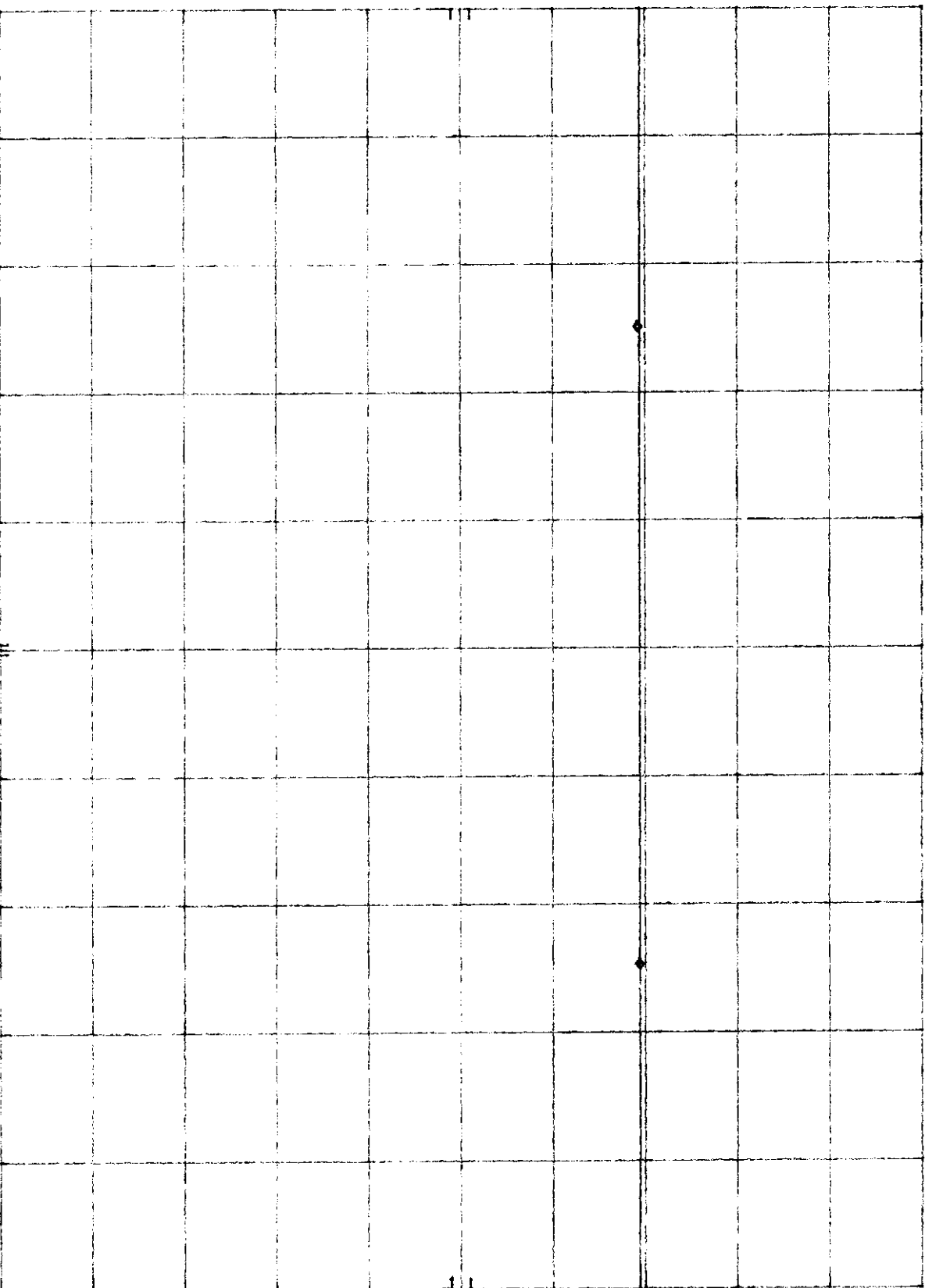
MKR Δ 998 KHZ

0.20 DB

10 DB/

HP

DL
-0.6
DBm



CENTER 2.402 00 GHZ

RES BW 30 KHZ

VBW 30 KHZ

SPAN 2.00 MHZ
SWP 20.0 msec

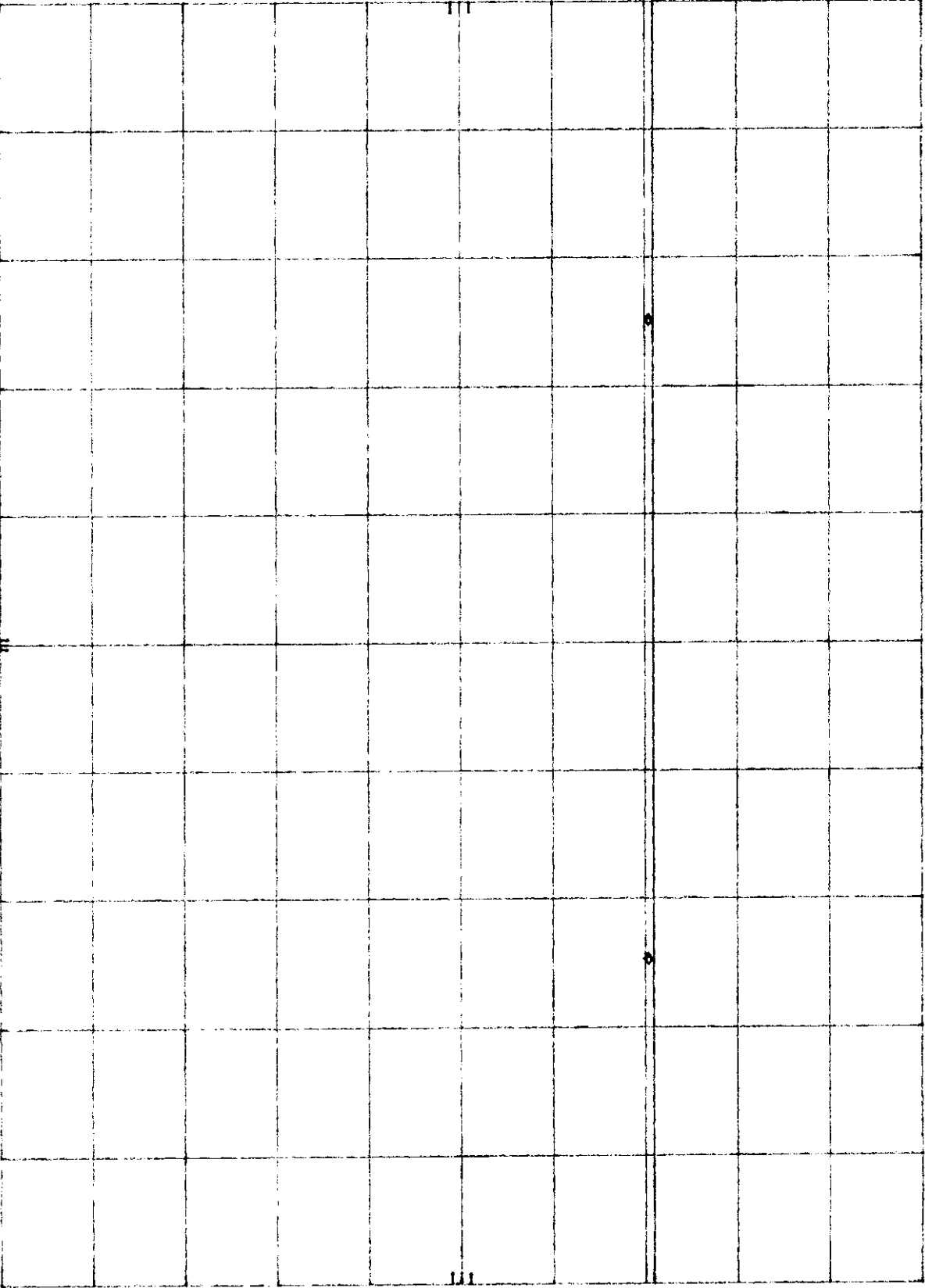
PLOT# 2b

REF 30.0 DBm ATTEN 40 DB

MKR Δ 998 KHZ
-0.10 DB

10 DB/

DL
0.9
DBm



CENTER 2.440 00 GHZ
 RES BW 30 KHZ
 VBW 30 KHZ
 SPAN 2.00 MHZ
 SWP 20.0 msec

PIOT# 2c

MKR Δ 998 KHZ

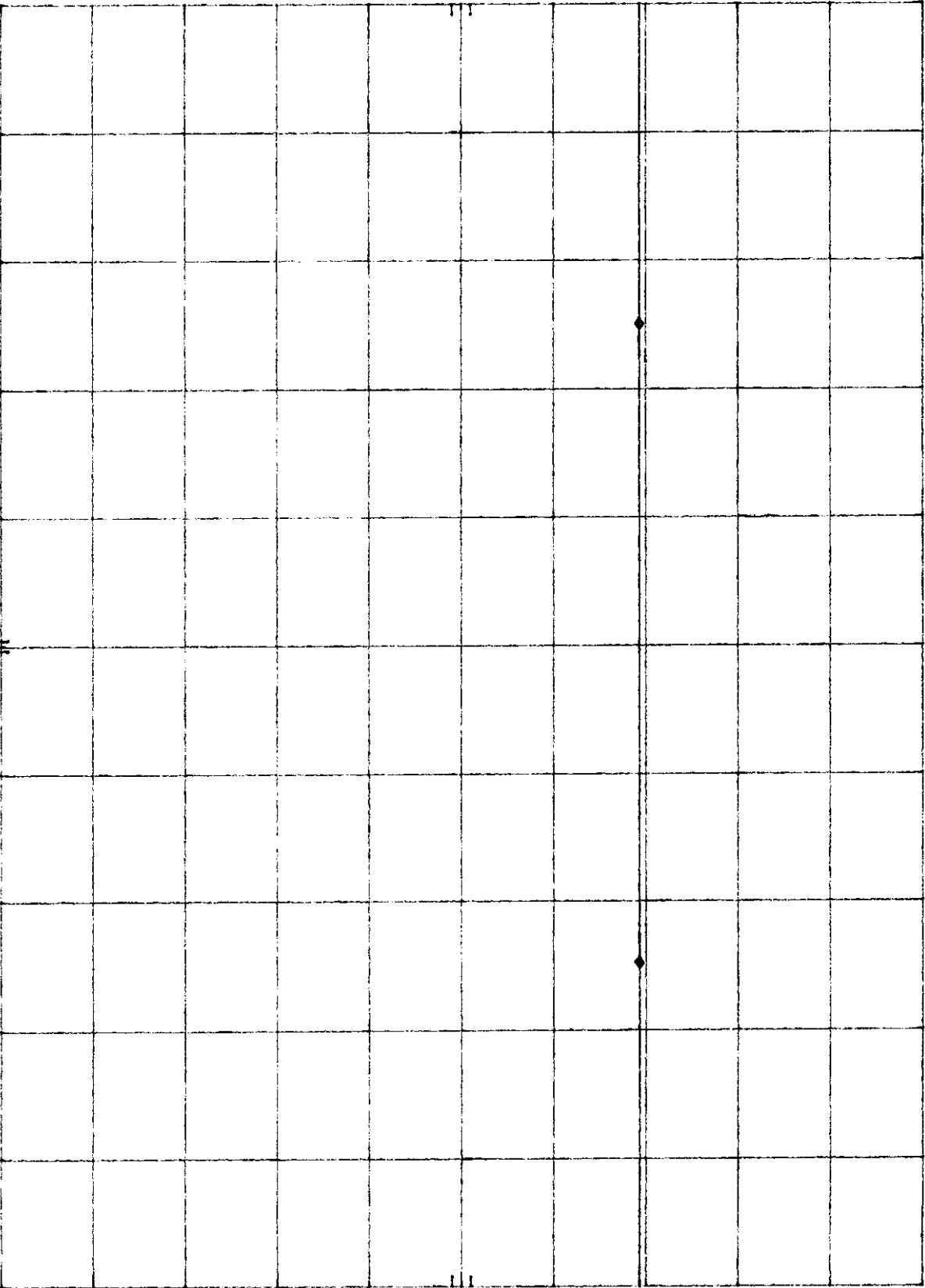
4p REF 30.0 DBm

ATTEN 40 DB

0.00 DB

10 DB/

DL
-0.7
dBm



CENTER 2.480 00 GHZ

RES BW 30 KHZ

VBW 30 KHZ

SPAN 2.00 MHZ
SWP 20.0 msec

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Symbol Technologies Inc., Spread Spectrum
FCC ID: H9PLA3020

Date of Test: May 27, 1998 & June 3-26, 1998

4.3 Minimum Hopping Channel Carrier Frequency Separation, FCC Ref: 15.247(a)(1)

Using the DELTA MARKER function of the analyzer, the frequency separation between two adjacent channels was measured and compared against the limit.

25 kHz

20 dB bandwidth of hopping channel

Please refer to the attached data and spectrum analyzer Plot # 2a - 2c in section 4.2 for the test result.

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Symbol Technologies Inc., Spread Spectrum
FCC ID: H9PLA3020

Date of Test: May 27, 1998 & June 3-26, 1998

4.4 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.

No. 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

Refer to spectrum analyzer charts 4a - 4b.

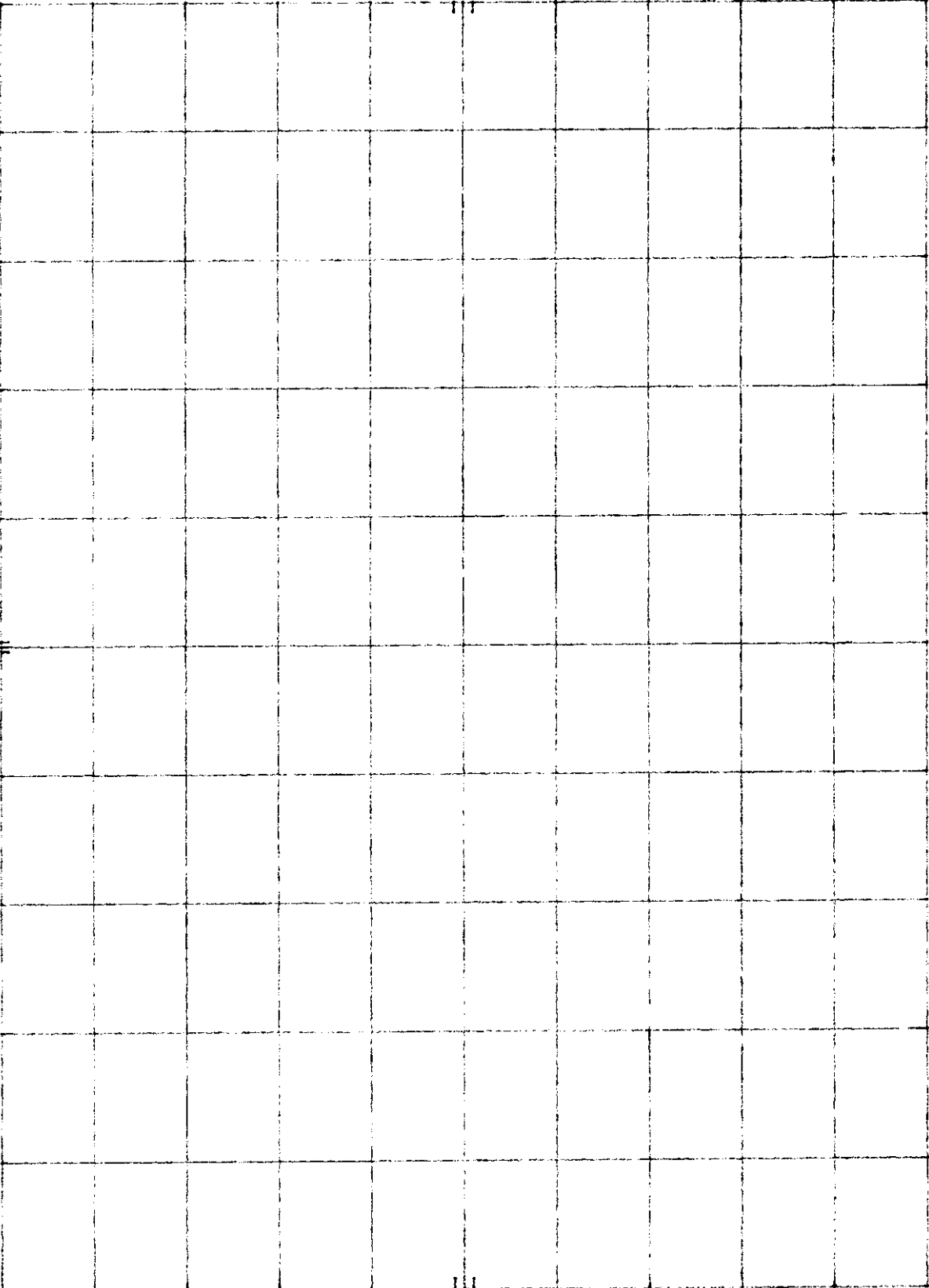
PLOT# 4a

HP

REF 30.0 DBM

ATTEN 40 DB

10 DB/



START 2.400 0 GHZ

RES BW 300 KHZ

VBW 10 KHZ

STOP 2.440 0 GHZ

SWP 40.0 msec

PLOT# 4b

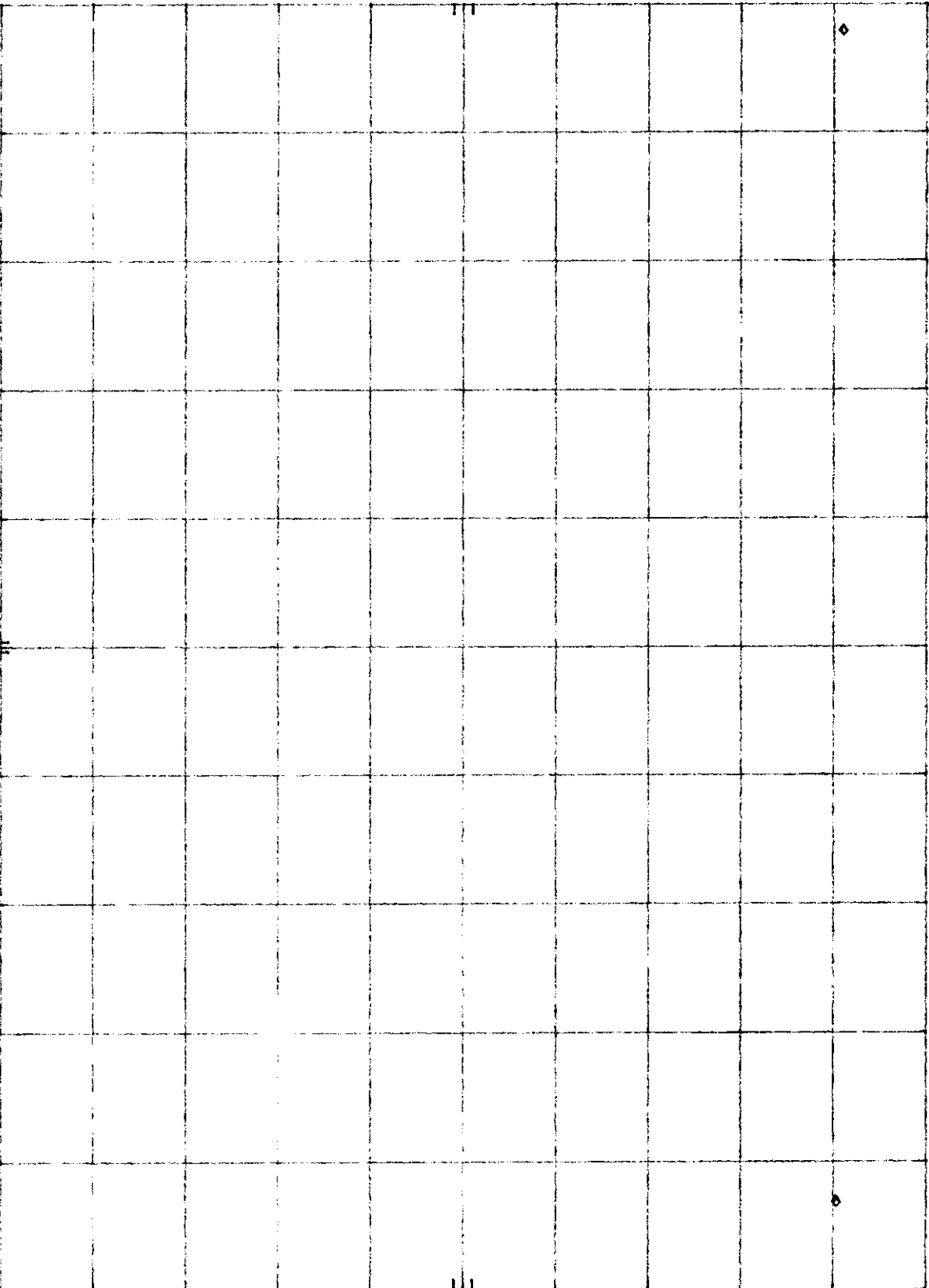
HP

REF 30.0 DBm

ATTEN 40 DB

MKR Δ 39.63 MHz
-0.70 DB

10 DB/



START 2.440 0 GHz

RES BW 300 KHz

VBW 10 KHz

STOP 2.483 5 GHz
SWP 43.5 msec

Intertek Testing Services - Menlo Park

Symbol Technologies Inc., Spread Spectrum
FCC ID: H9PLA3020

Date of Test: May 27, 1998 & June 3-26, 1998

4.5 Average Channel Occupancy Time, FCC Ref: 15.247(a)(1)(i&ii)

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).

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

Refer to attached spectrum analyzer plots 5a - 5b for details.

PLOT# 5a

MKR Δ 24.63 sec

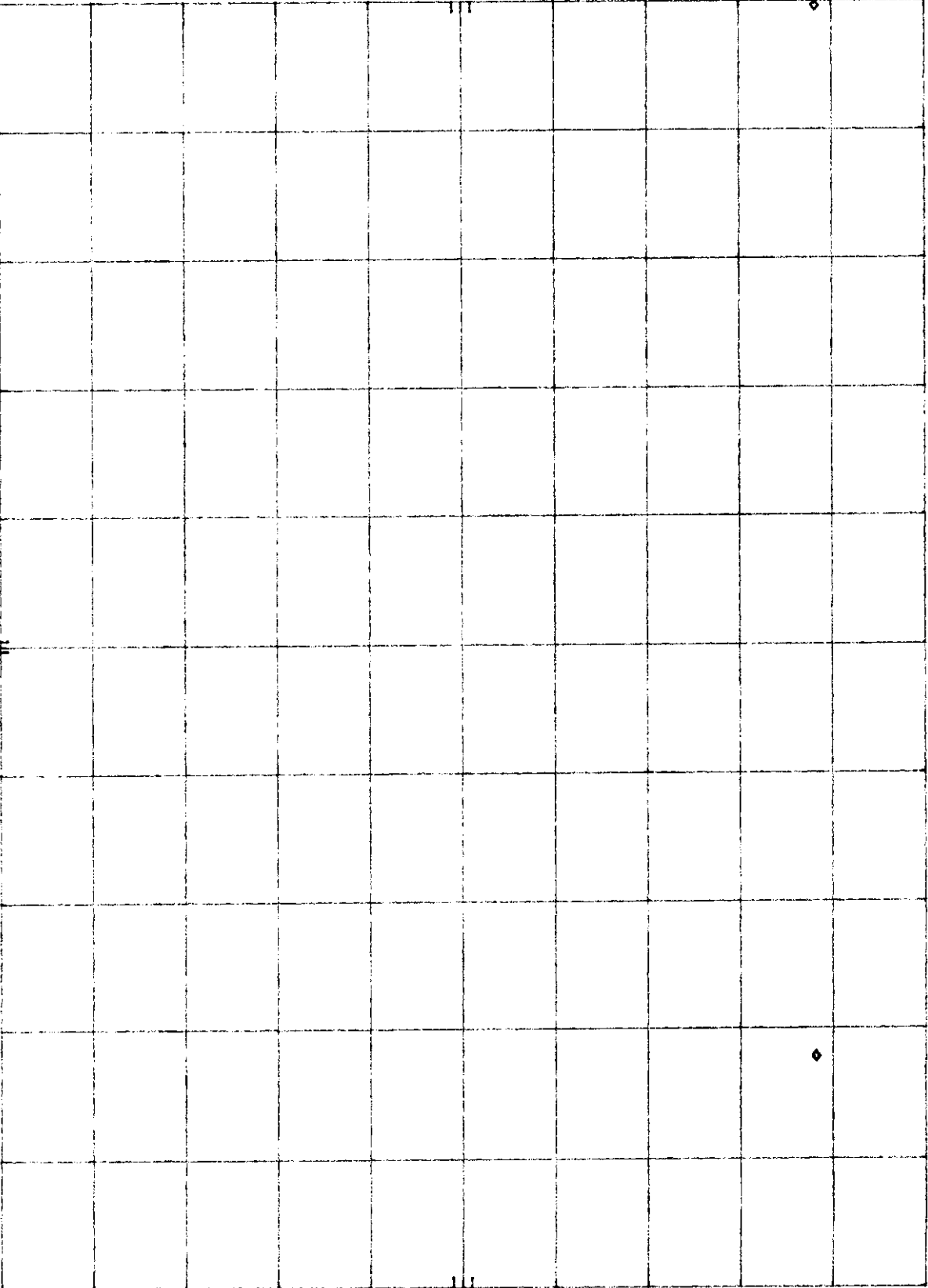
hp

REF 30.0 dBm

ATTEN 40 DB

0.00 DB

10 DB/



CENTER 2.449 910 000 GHz

RES BW 30 KHz

VBW 30 KHz

SWP 30.0 sec

SPAN 0 Hz

PILOT# 5b

HP

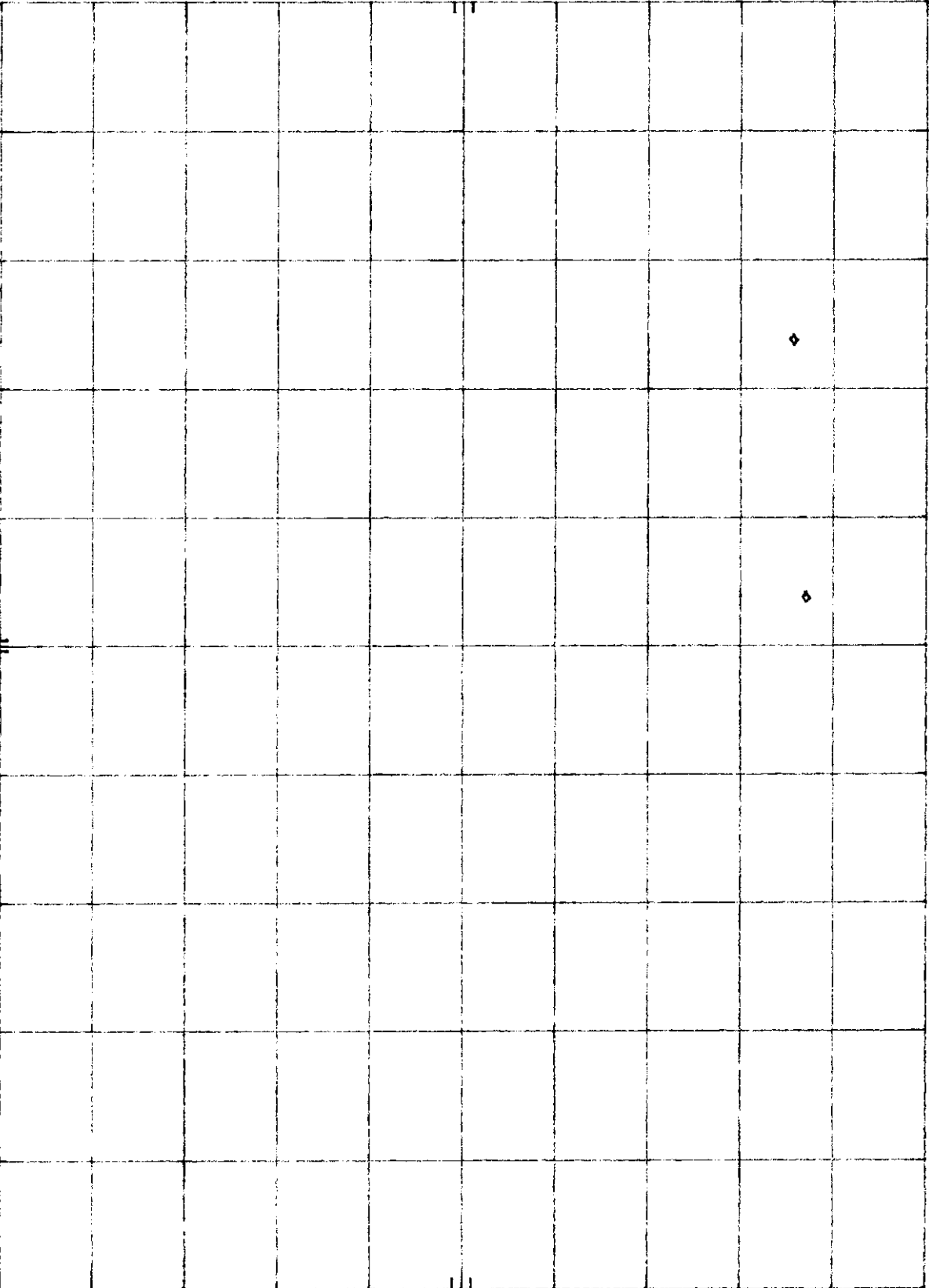
REF 30.0 DBm

ATTEN 40 DB

MKR Δ 100.0 msec

1.40 DB

10 DB/



CENTER 2.449 910 000 GHZ

RES BW 30 KHZ

VBW 30 KHZ

SWP 500 msec

SPAN 0 HZ

Intertek Testing Services - Menlo Park

Symbol Technologies Inc., Spread Spectrum
FCC ID: H9PLA3020

Date of Test: May 27, 1998 & June 3-26, 1998

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

For EUT antenna conducted output frequencies from 1 MHz to the 10th harmonic of the transmitter operating frequency (or 40 GHz, whichever is lower):

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, or else shall meet the general limits for radiated emissions at frequencies outside the passband, whichever results in lower attenuation.

All other types of emissions from the EUT shall meet the general limits for radiated frequencies outside the passband.

Please refer to the attached Plots for details:

Low Channel	Plots 6a - 6f
Middle Channel	Plots 6g - 6l
High Channel	Plots 6m - 6r

PLOT# 6a

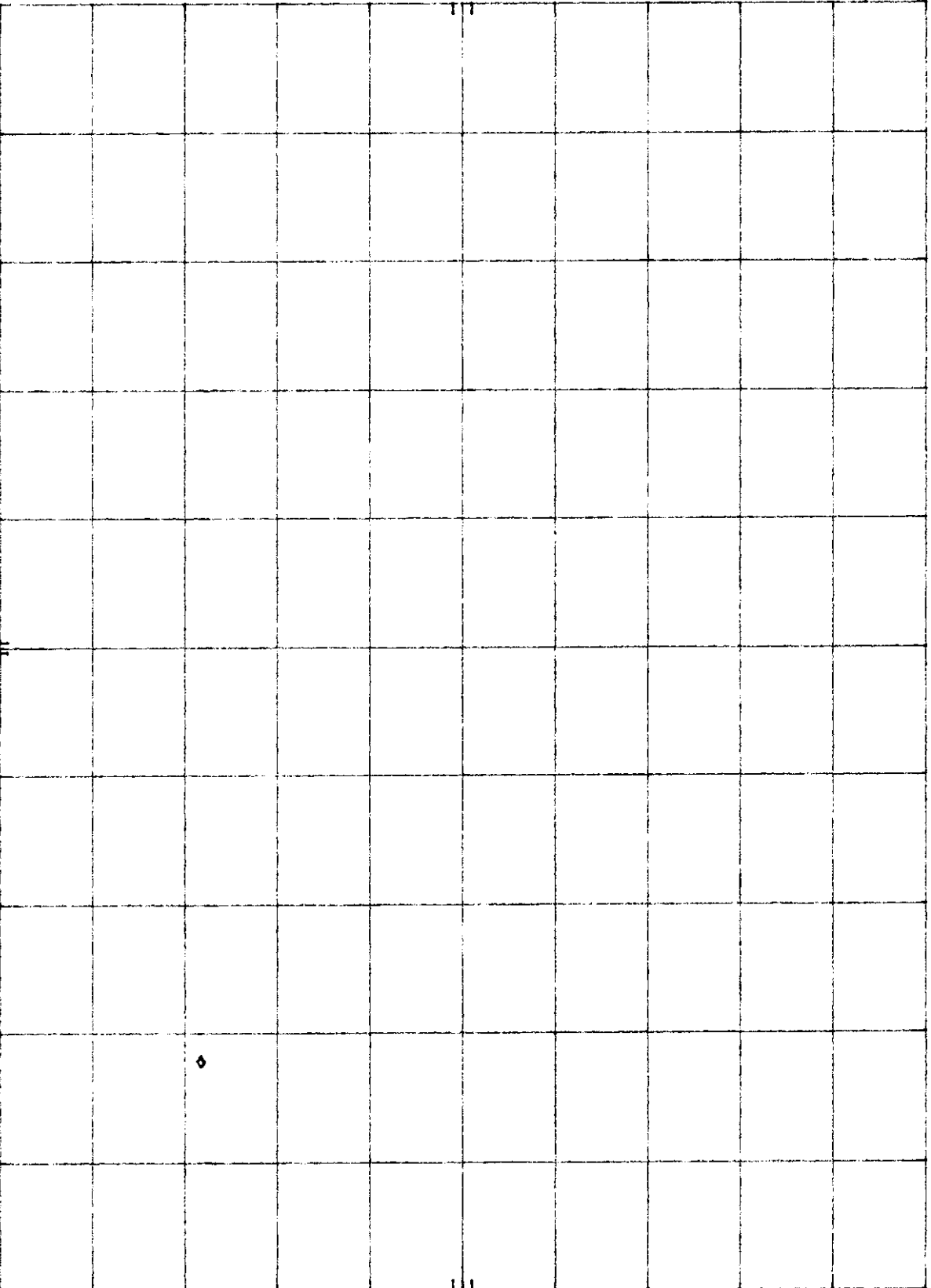
HP

REF 30.0 DBm

ATTEN 40 DB

MKR 82.28 MHZ
-48.30 DBm

10 DB/



START 1.0 MHZ

RES BW 100 KHZ

VBW 100 KHZ

STOP 100.0 MHZ
SWP 29.7 msec

Plot# 6b

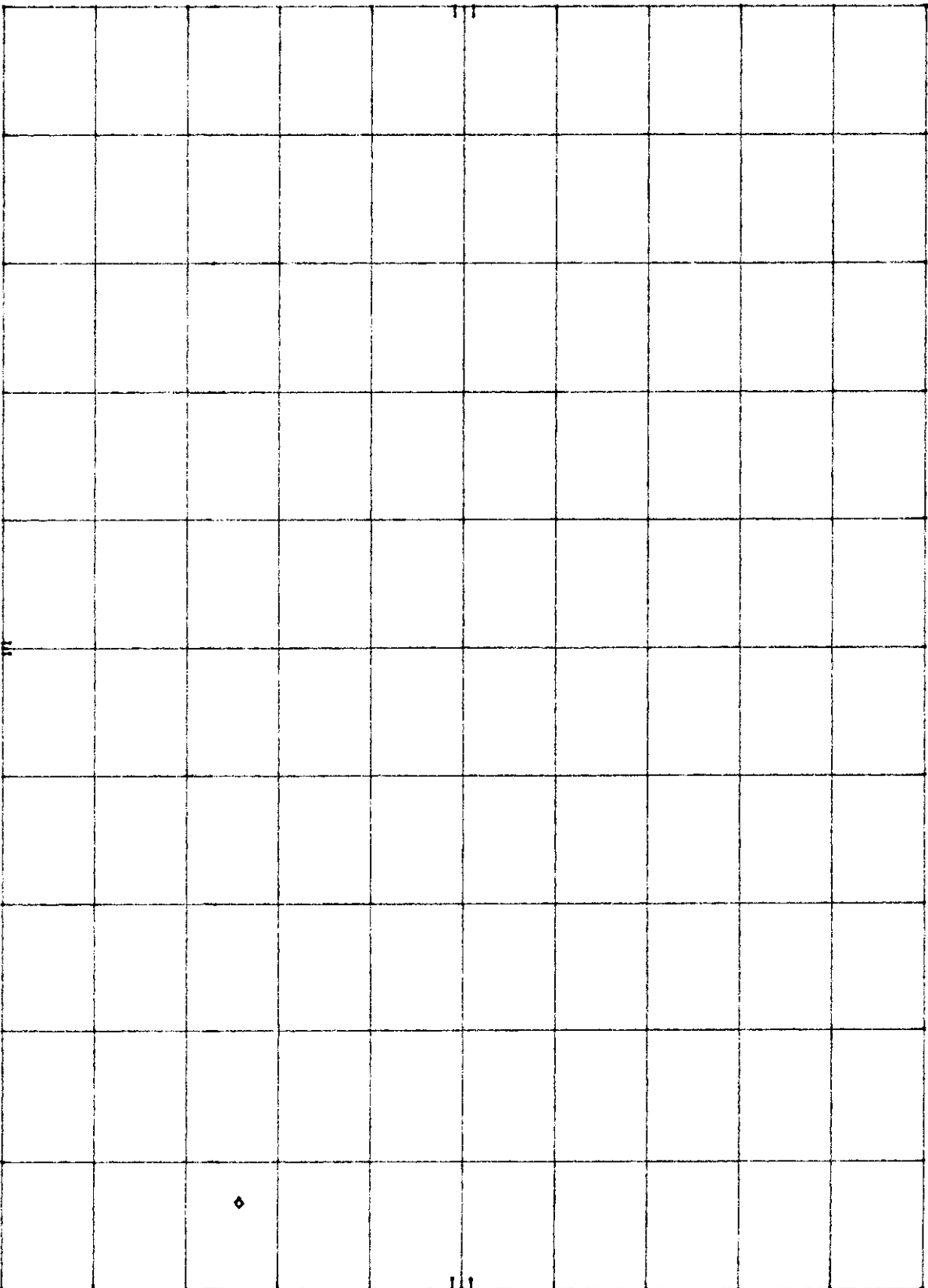
HP

REF 30.0 dBm

ATTEN 40 dB

MKR 938.8 MHz
-44.20 dBm

10 dB/



START 100 MHz RES BW 100 KHz VBW 100 KHz STOP 1.000 GHz
SMP 270 msec

PLOT# 6c

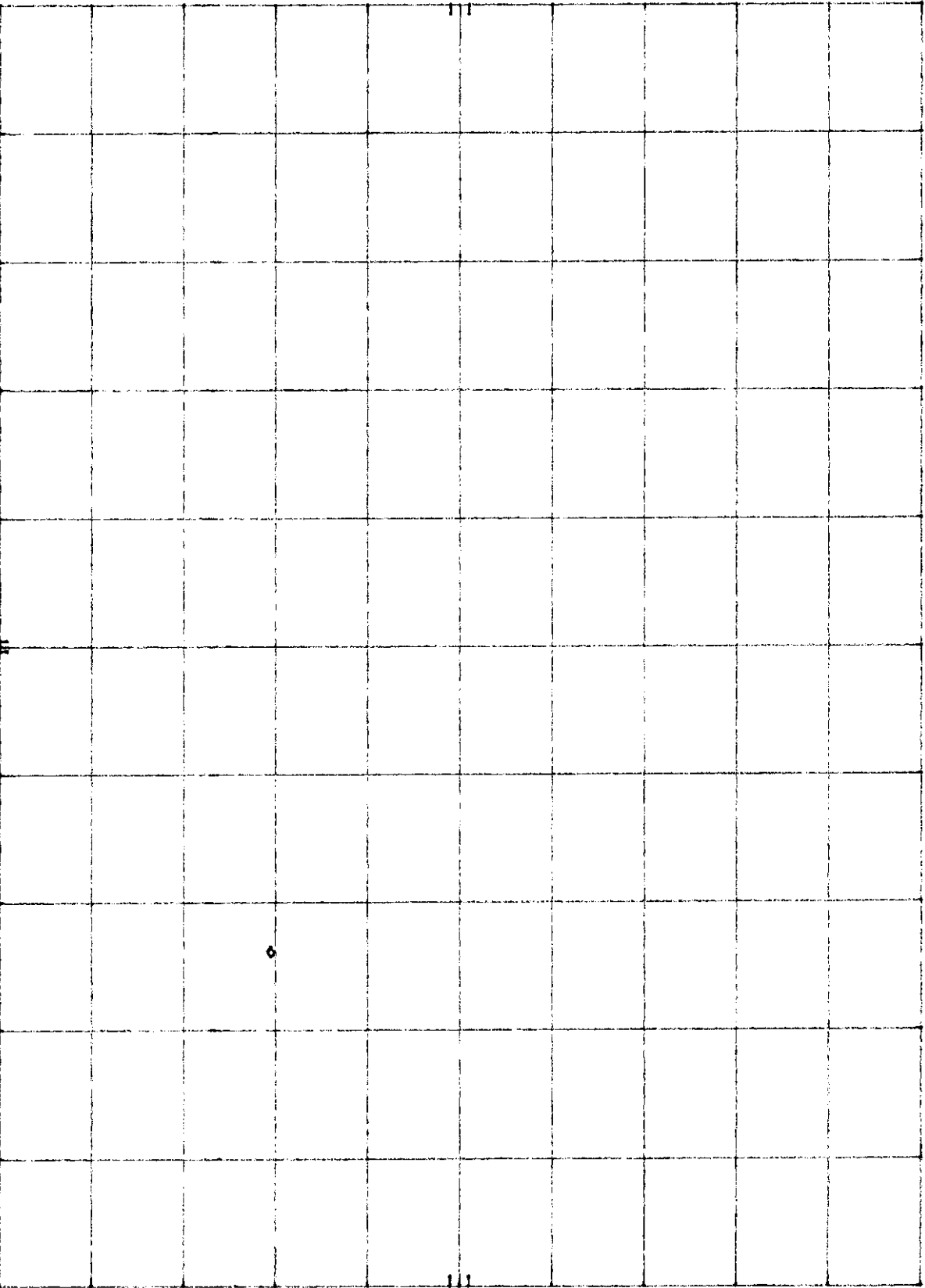
HP

REF 30.0 DBm

ATTEN 40 DB

MKR 2.033 GHz
-40.50 DBm

10 DB/



START 1.00 GHz

RES BW 100 KHZ

VBW 100 KHZ

STOP 2.40 GHz
SWP 420 msec

PLOT# 6d

MKR Δ -2.00 MHz

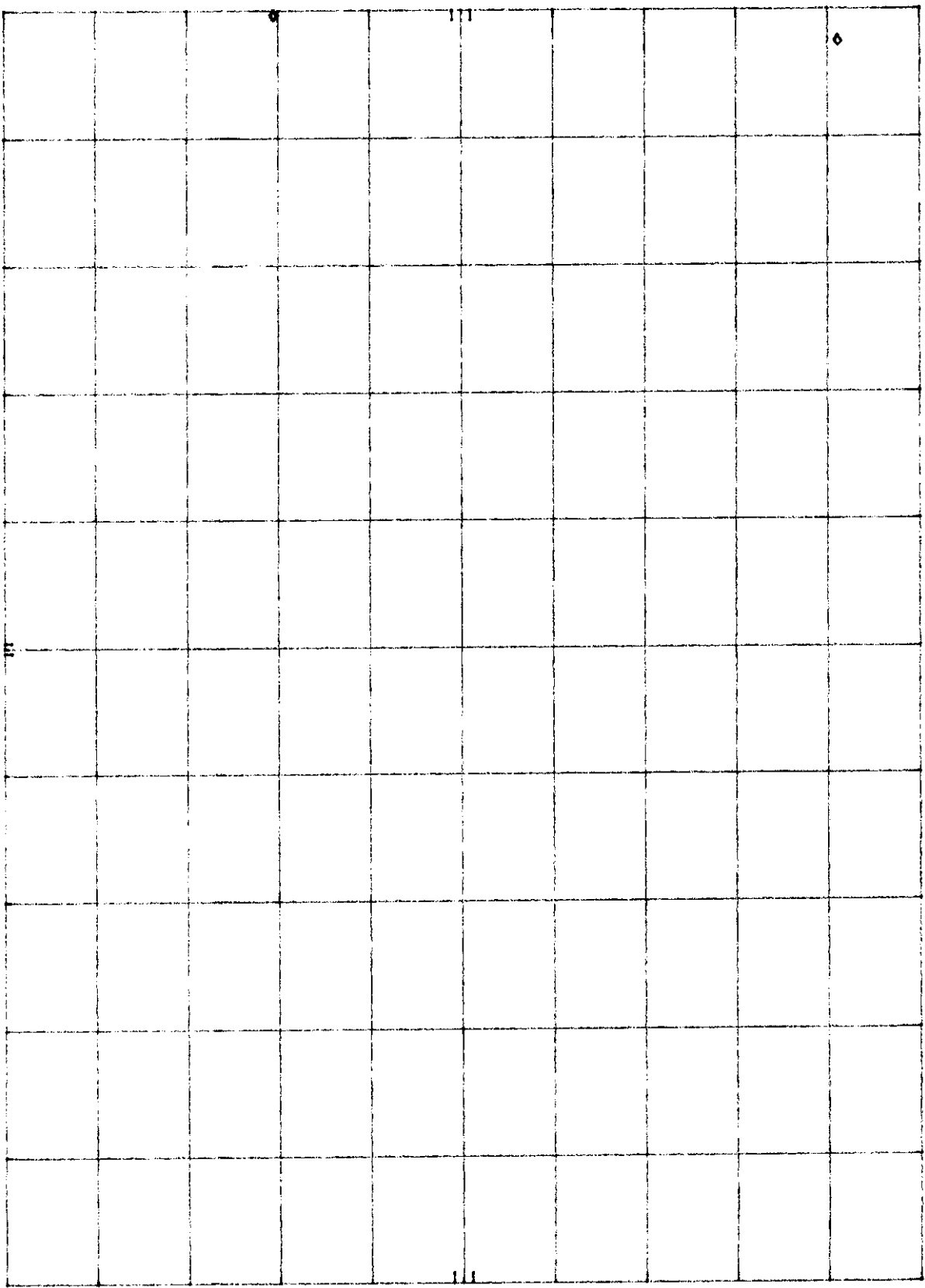
-61.60 dB

HP

REF 30.0 dBm

ATTEN 40 dB

10 dB/



START 2.400 0 GHz

RES BW 100 KHz

VBW 100 KHz

STOP 2.483 5 GHz

SWP 25.1 msec

PLOT# 6e

HP

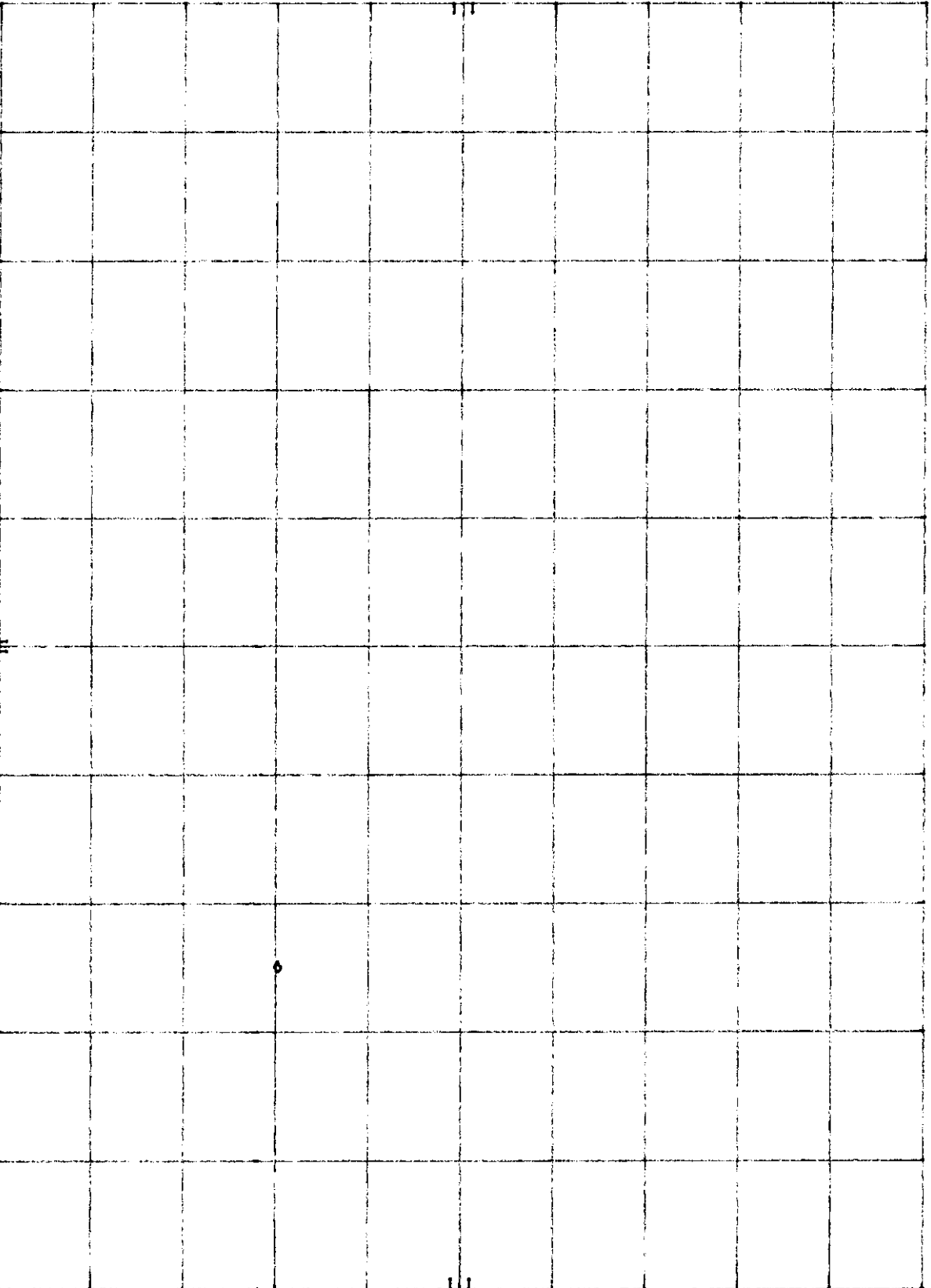
REF 30.0 DBm

ATTEN 40 DB

MKR 8.113 GHz

--39.80 DBm

10 DB/



START 2.48 GHz

RES BW 100 KHz

VBW 100 KHz

STOP 10.00 GHz

SWP 2.25 sec

Mkr 20.17GHz

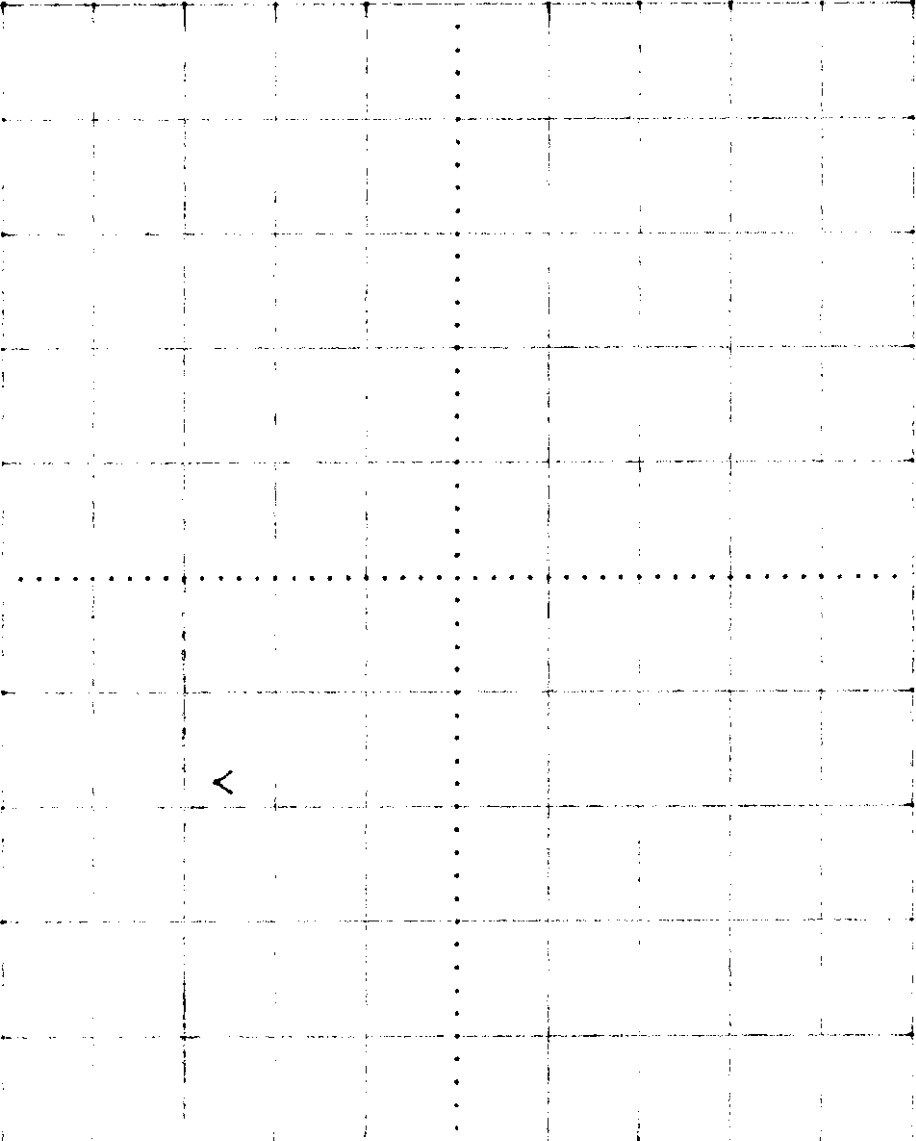
-46.30dBm

WF VIEW

Ref Lvl 30.0dBm

10dB/

Atten 30dB



Normal

grn rd OFF

Max Hold

RD grn off

Average

rd grn OFF

Math

rd grn OFF

A = Normal

rd grn OFF

10.00GHz

to

25.00GHz

ResBW 100kHz

ViDBW 100kHz

SWP 8.65

B = Reg# 1

rd grn OFF

LEVEL

SPAN

ResBW 100kHz

PLOT# 69

HP

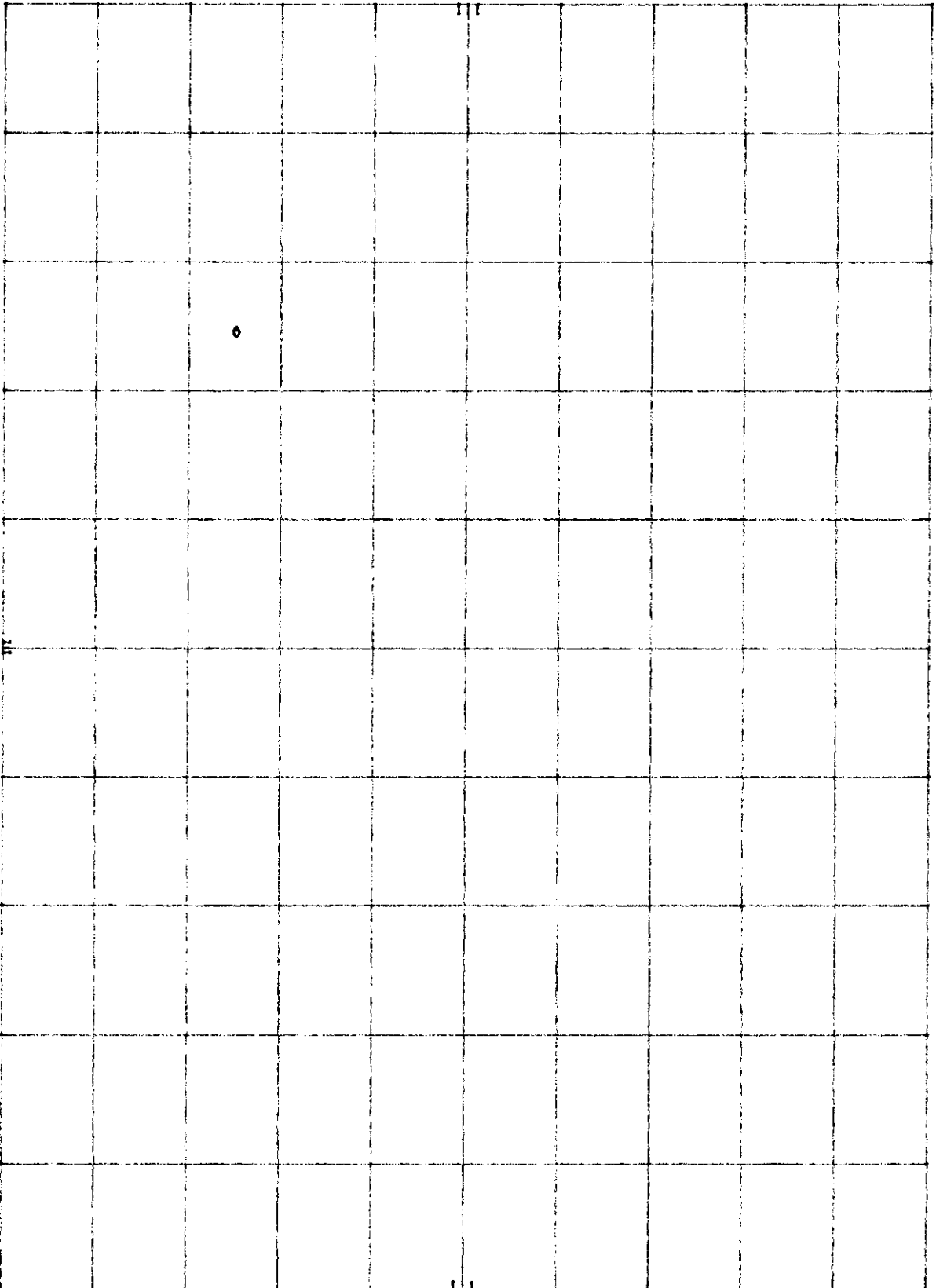
REF 30.0 DBm

ATTEN 40 DB

MKR 26.15 MHZ

-44.90 DBm

10 DB/



START 1.0 MHZ

RES BW 100 KHZ

VBW 100 KHZ

STOP 100.0 MHZ

SWP 29.7 msec

PILOT# 6h

HP

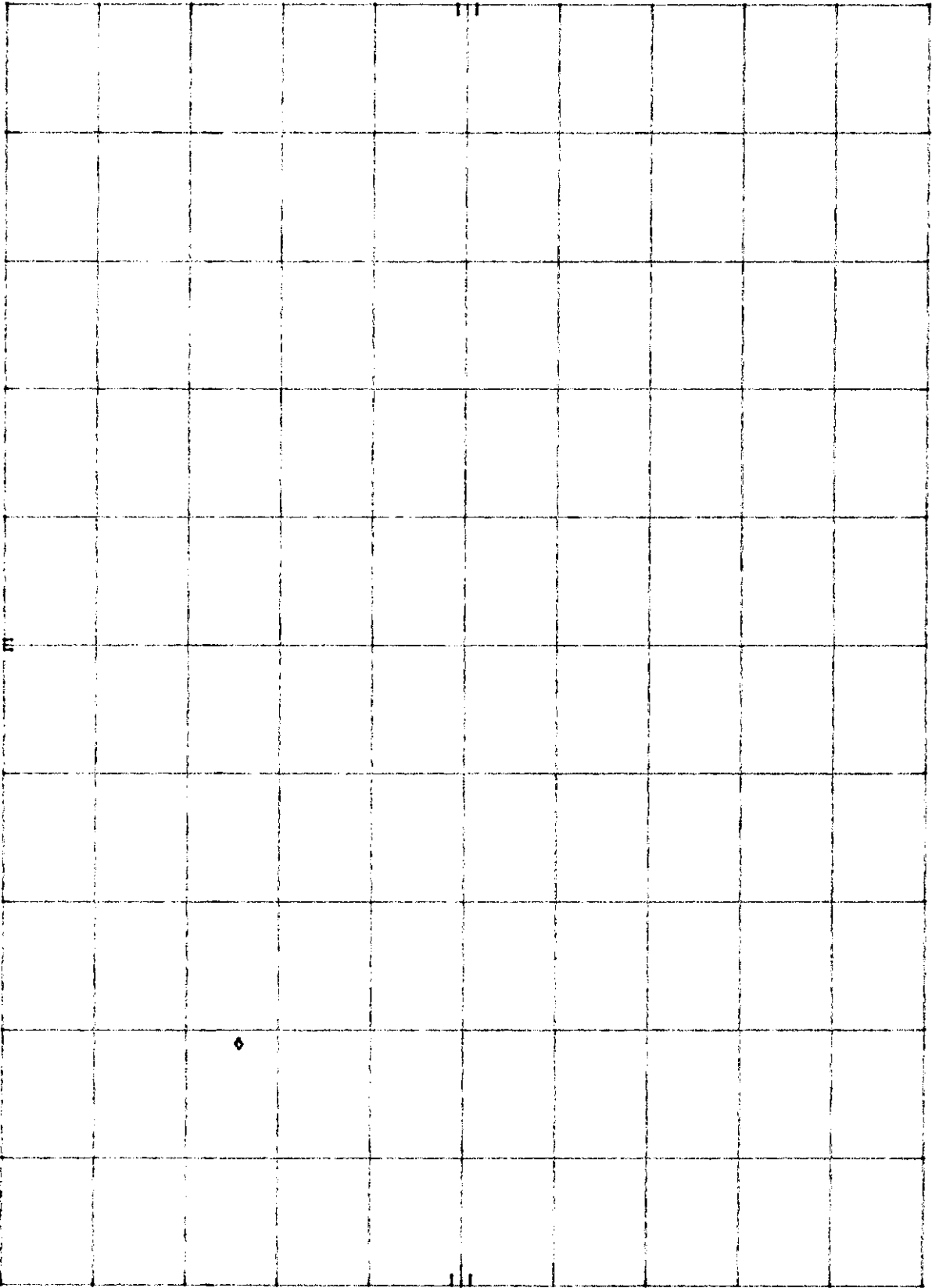
REF 30.0 DBM

ATTEN 40 DB

MKR 829.0 MHZ

-44.30 DBM

10 DB/



START 100 MHZ

RES BW 100 KHZ

VBW 100 KHZ

STOP 1.000 GHZ

SWP 270 msec

PLOT# 61

MKR 2.071 GHz

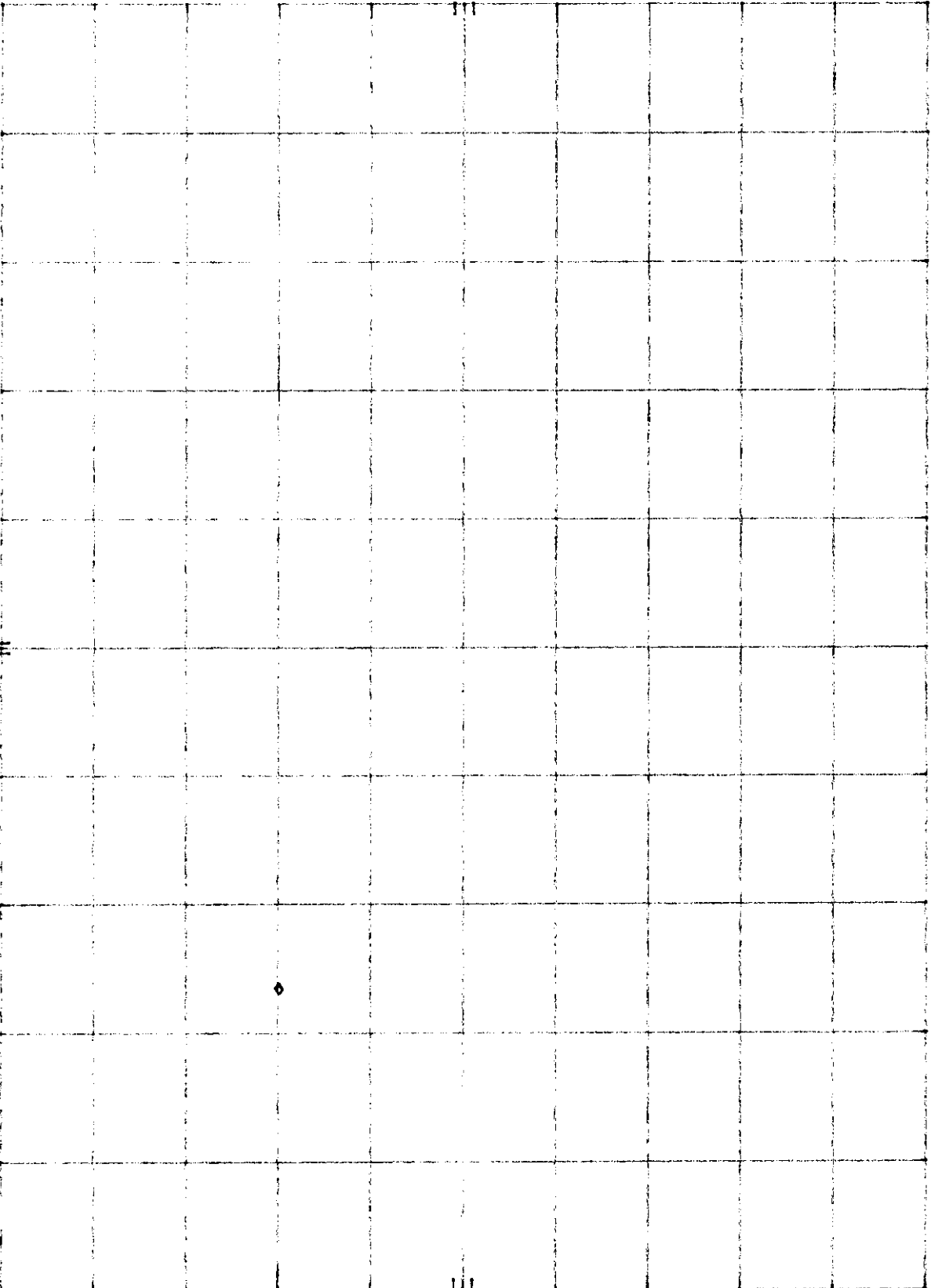
--39.90 dBm

HP

REF 30.0 dBm

ATTEN 40 dB

10 dB/



START 1.00 GHz

RES BW 100 KHz

VBW 100 KHz

STOP 2.40 GHz

SWP 420 msec

PLOT# 6J

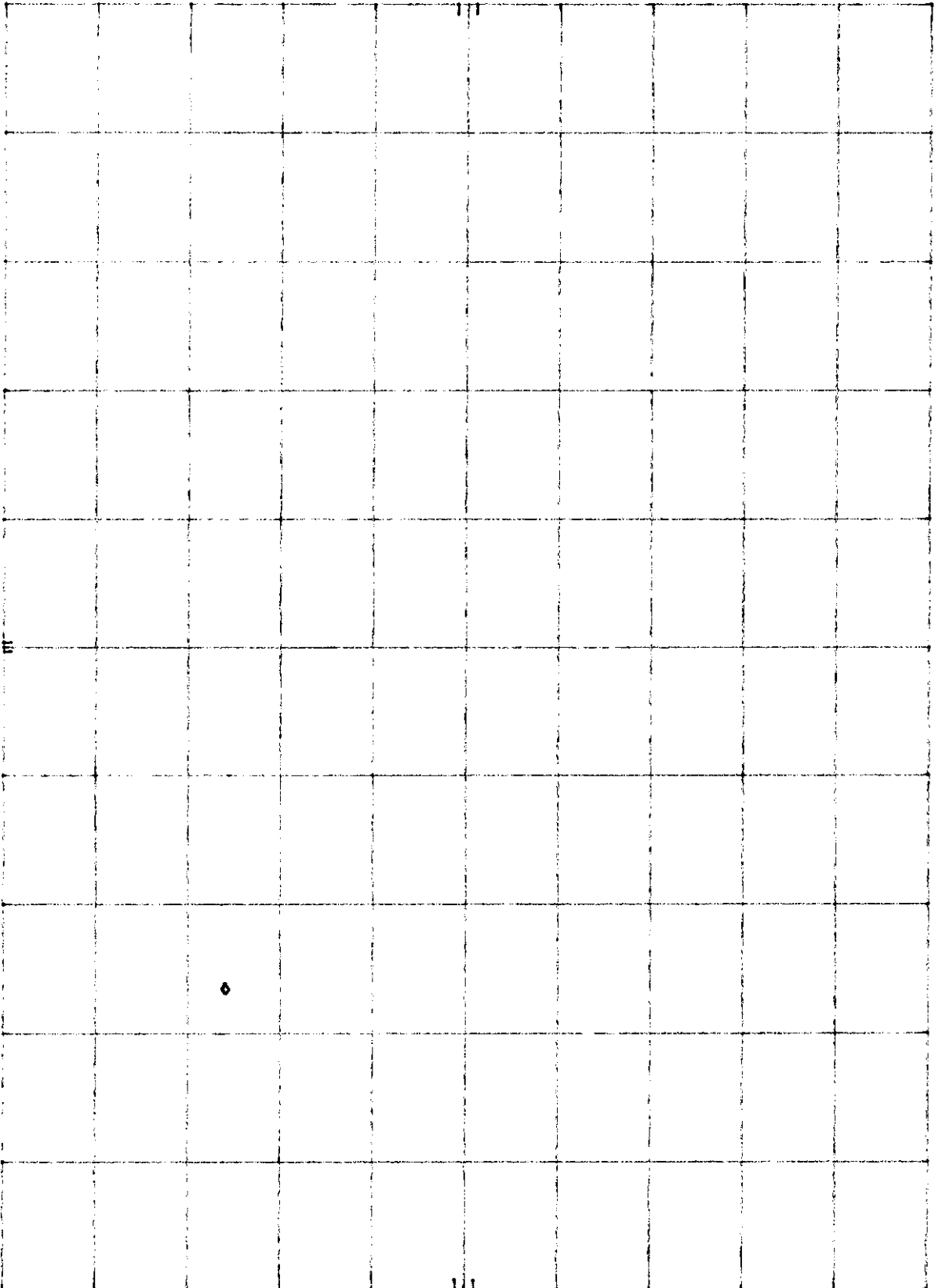
REF 30.0 dBm ATTEN 40 DB

MKR 2.463 88 GHz

-45.90 dBm

10 DB/

START 2.400 0 GHz RES BW 100 KHZ VBW 100 KHZ STOP 2.483 5 GHz SWP 25.1 msec



PLOT# 6k

MKR 9.368 GHz

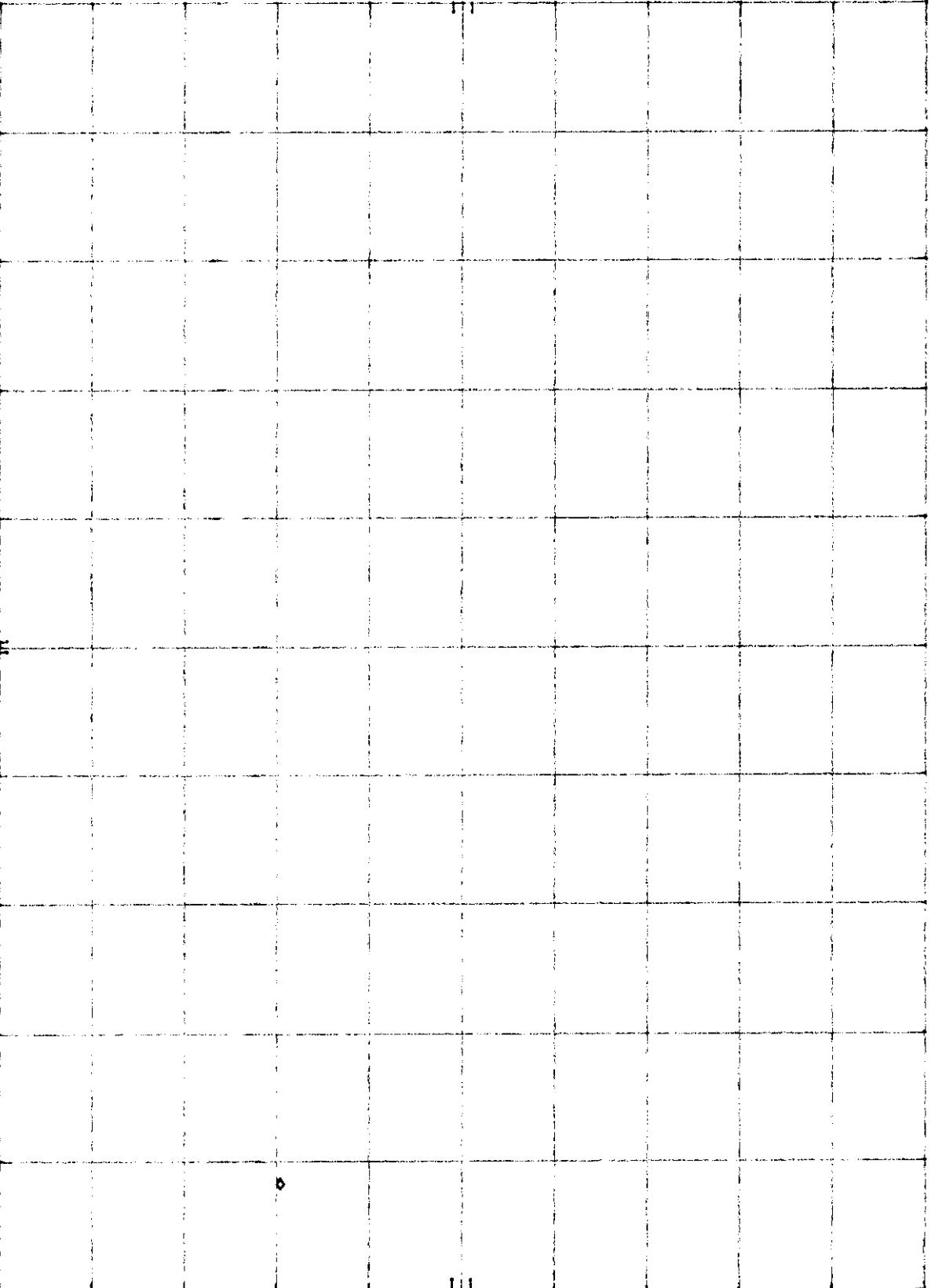
-39.60 dBm

hp

REF 30.0 dBm

ATTEN 40 dB

10 dB/



START 2.48 GHz

RES BW 100 KHz

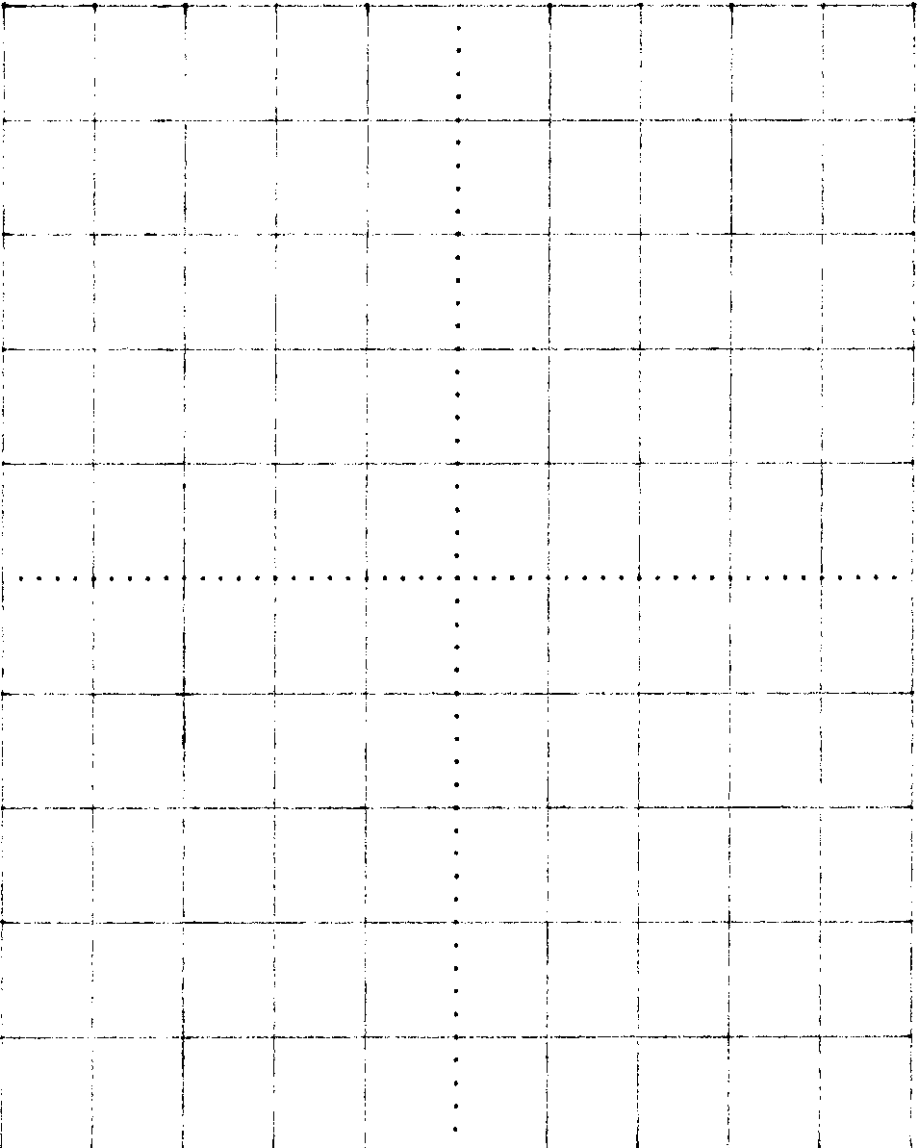
VBW 100 KHz

STOP 10.00 GHz

SWP 2.25 sec

WF VIEW

Ref Lvl 30.0dBm 10dB/ Atten 30dB



Normal
grn rd OFF

Max Hold

RD grn off

Average

rd grn OFF

Math

rd grn OFF

A = Normal

rd grn OFF

10.00GHz to 25.00GHz

ResBW 100kHz VidBW 100kHz SWP 8.65

LEVEL

SPAN

ResBW 100kHz

B = Reg# 1
rd grn OFF

PLOT# 6m

HP

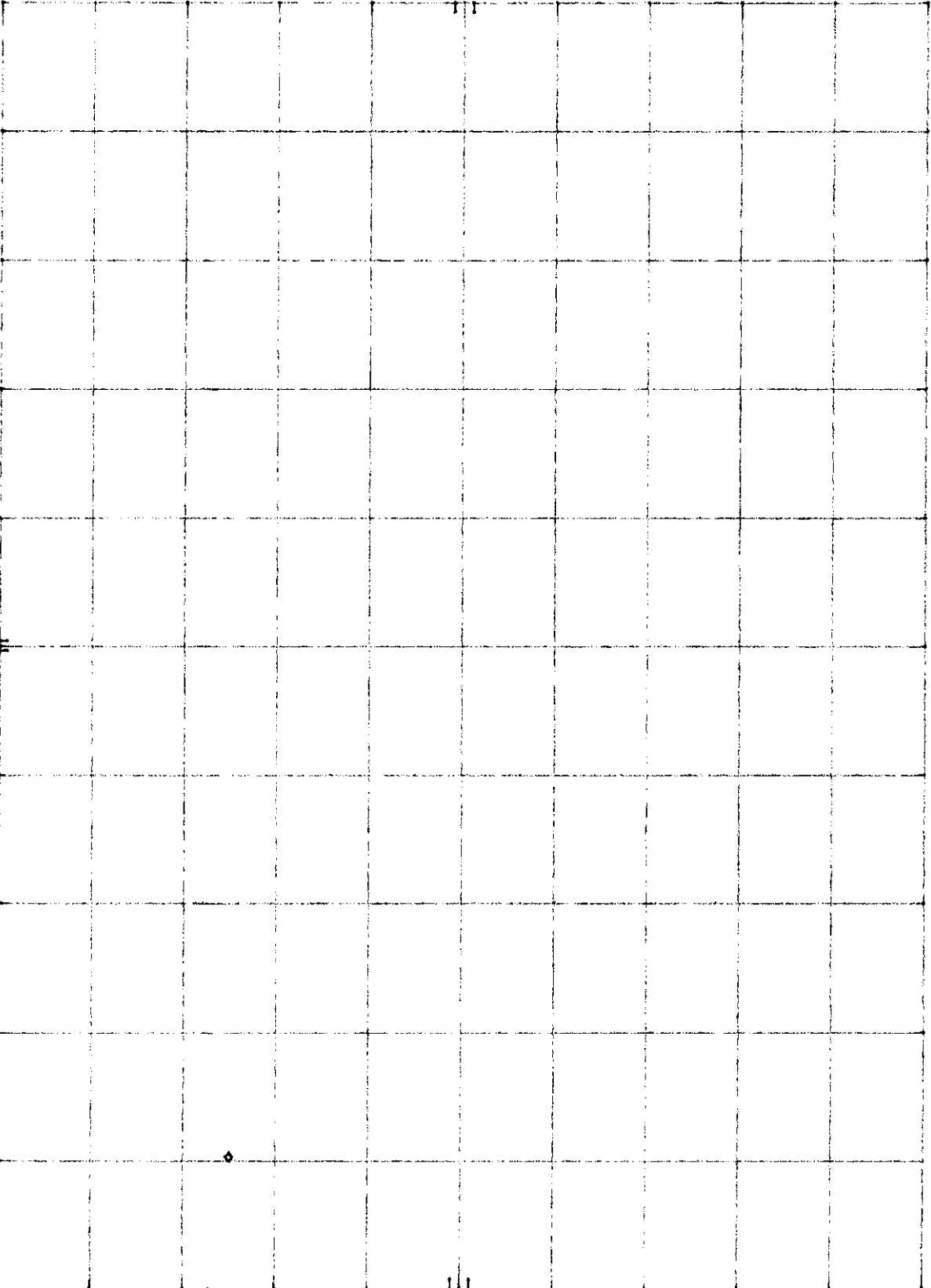
REF 30.0 DBm

ATTEN 40 DB

MKR 89.70 MHz

-45.00 DBm

10 DB/



START 1.0 MHz

RES BW 100 KHz

VBW 100 KHz

STOP 100.0 MHz

SWP 29.7 msec

PILOT # 6n

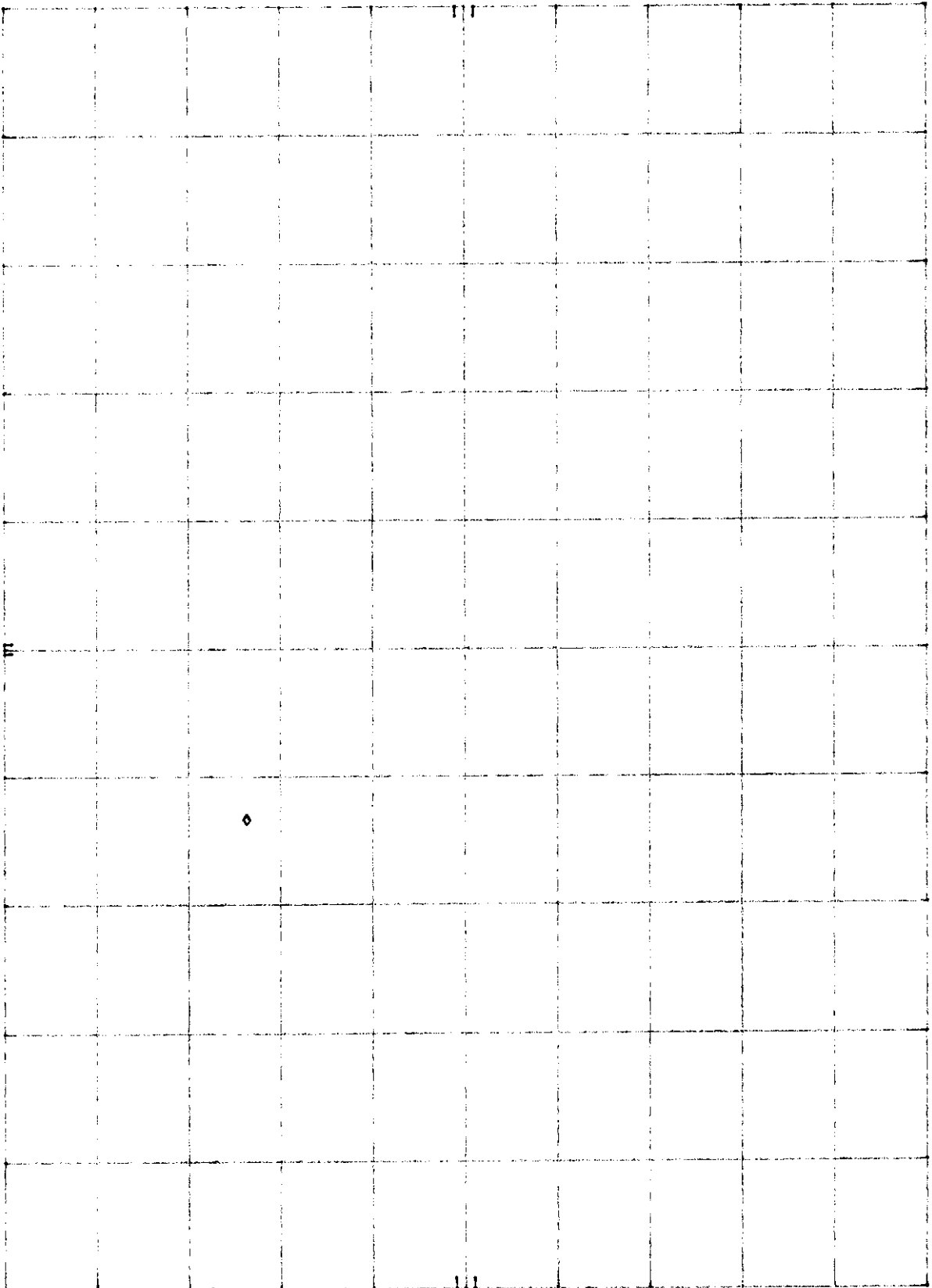
MKR 669.7 MHz
-43.70 dBm

HP

REF 30.0 dBm

ATTEN 40 DB

10 DB/



START 100 MHz

RES BW 100 KHZ

VBW 100 KHZ

STOP 1.000 GHz
SWP 270 msec

PLOT# 60

HP

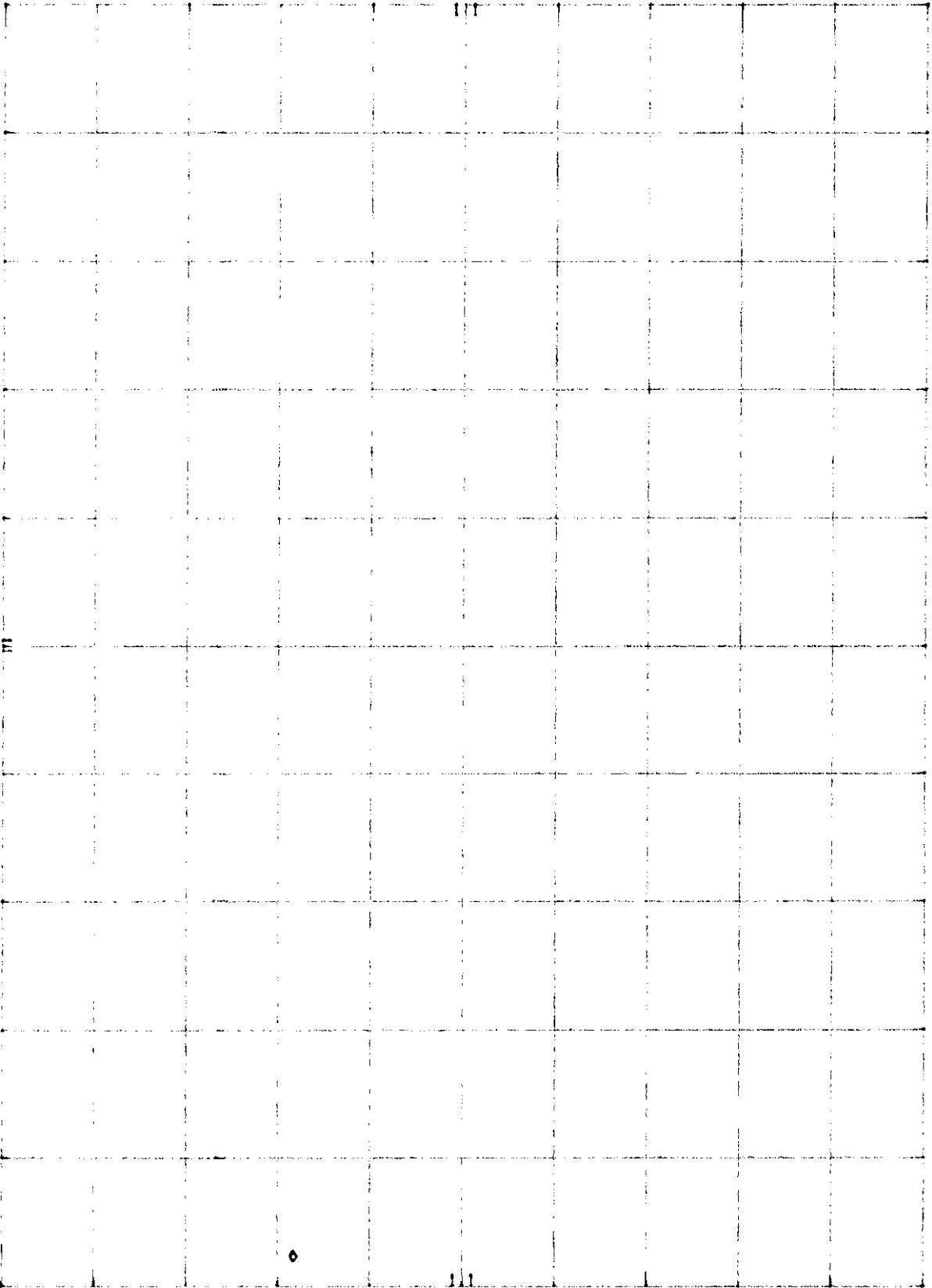
REF 30.0 DBm

ATTEN 40 DB

MKR 2.366 GHz

-38.30 DBm

10 DB/



START 1.00 GHz

RES BW 100 KHz

VBW 100 KHz

STOP 2.40 GHz

SMP 420 msec

PLOT# 6P

4P

REF 30.0 DBm

ATTEN 40 DB

MKR Δ 2.67 MHz

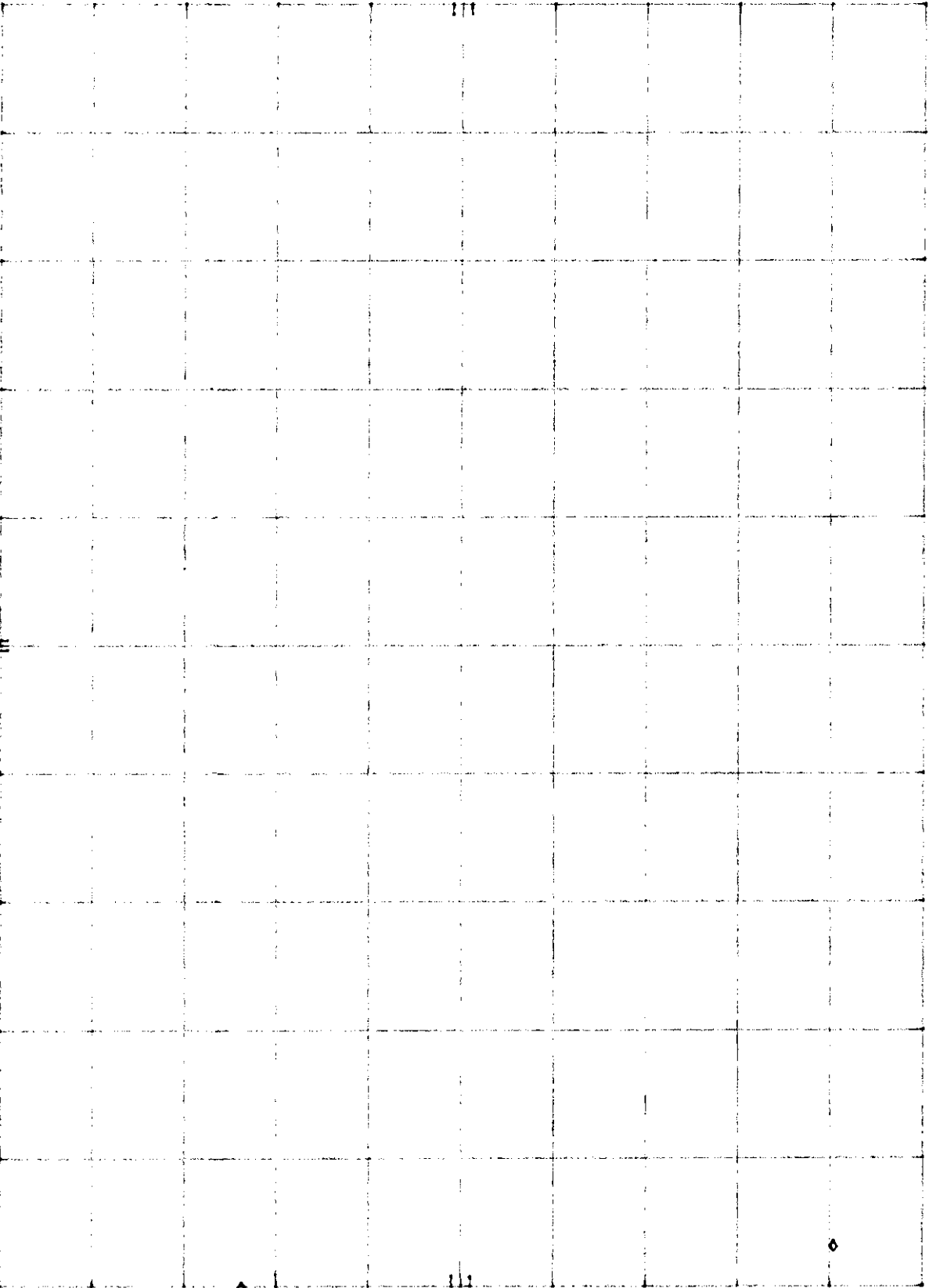
-64.20 DB

10 DB/

START 2.400 0 GHz
RES BW 100 KHZ

VBW 100 KHZ

STOP 2.483 5 GHz
SWP 25.1 msec



PLOT# 6q

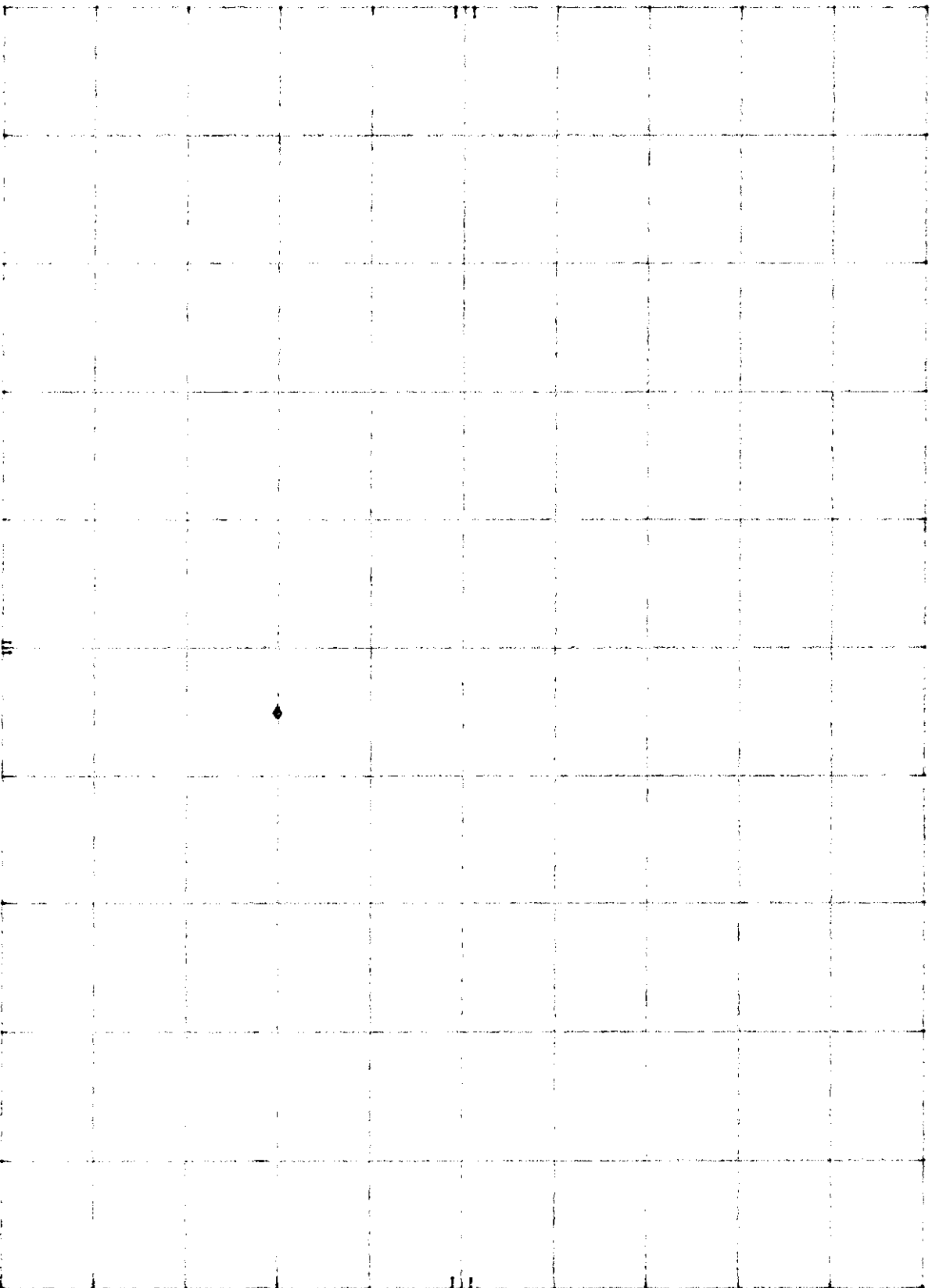
HP

REF 30.0 DBM

ATTEN 40 DB

MKR 6.617 GHz
-40.10 DBM

10 DBV



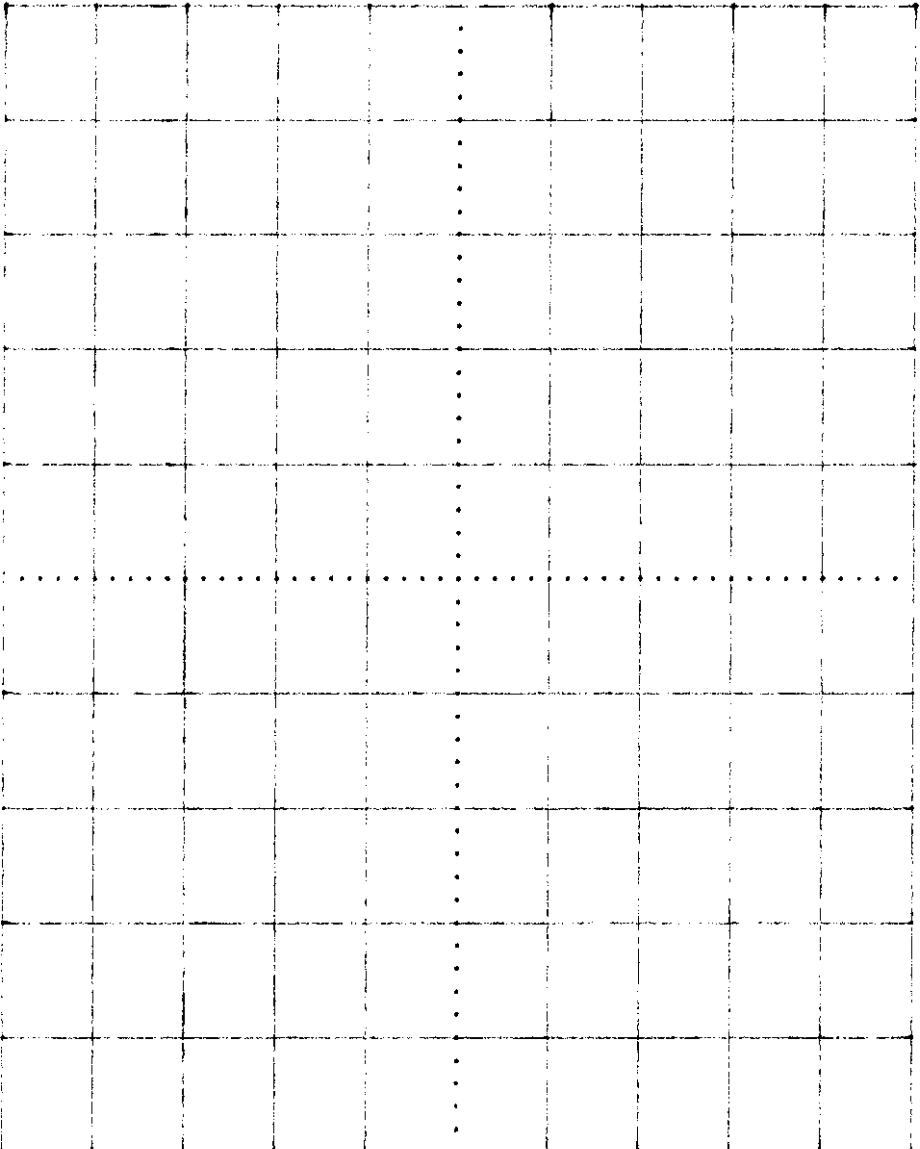
START 2.48 GHz
RES BW 100 KHz

VBW 100 KHz

STOP 10.00 GHz
SWP 2.25 sec

WF VIEW

Ref Lvl 1 30.0dBm 10dB/ Atten 30dB



10.00GHz to 25.00GHz

ResBW 100kHz VidBW 100kHz SWP 8.65

LEVEL

SPAN

ResBW 100kHz

B = Reg# 1
rd grn OFF

A = Normal
rd grn OFF

Math
rd grn OFF

Average
rd grn OFF

Max Hold
RD grn off

Normal
grn rd OFF

Intertek Testing Services - Menlo Park

Symbol Technologies Inc., Spread Spectrum
FCC ID: H9PLA3020

Date of Test: May 27, 1998 & June 3-26, 1998

- 4.7 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

Intertek Testing Services - Menlo Park

Symbol Technologies Inc., Spread Spectrum
FCC ID: H9PLA3020

Date of Test: May 27, 1998 & June 3-26, 1998

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

Radiated emission measurements were performed from 30 MHz to 24000 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 and at 2390.0 MHz.

The transmitter was configured with the worst case antenna (#15) and setup to transmit at the highest channel. Then the field strength was measured at 2483.5 MHz.

The transmitter was configured with the worst case antenna (#15) and setup to transmit at the Lowest channel. Then the field strength was measured at 2390.0 MHz.

See table below.

Freq. MHz	Antenna Polarization H/V	Reading dBuV	Antenna Factor dB(1/m)	Preamplifier dB	Cable Loss dB	Field Strength dB(uV/m)	Limit dB(uV/m)	Margin dB
2483.5	V	29.6	27.9	-8.4	2.3	51.4	54	-2.6
2390.0	V	28.1	27.9	-8.4	2.3	48.9	54	-4.1

The spectrum analyzer with resolution bandwidth 1 MHz was connected to the antenna terminal of the transmitter. The marker was set at 2483.5 MHz and plotted. The marker was set at 2390.0 MHz and plotted.

See plots 4.8.a - 4.8.b

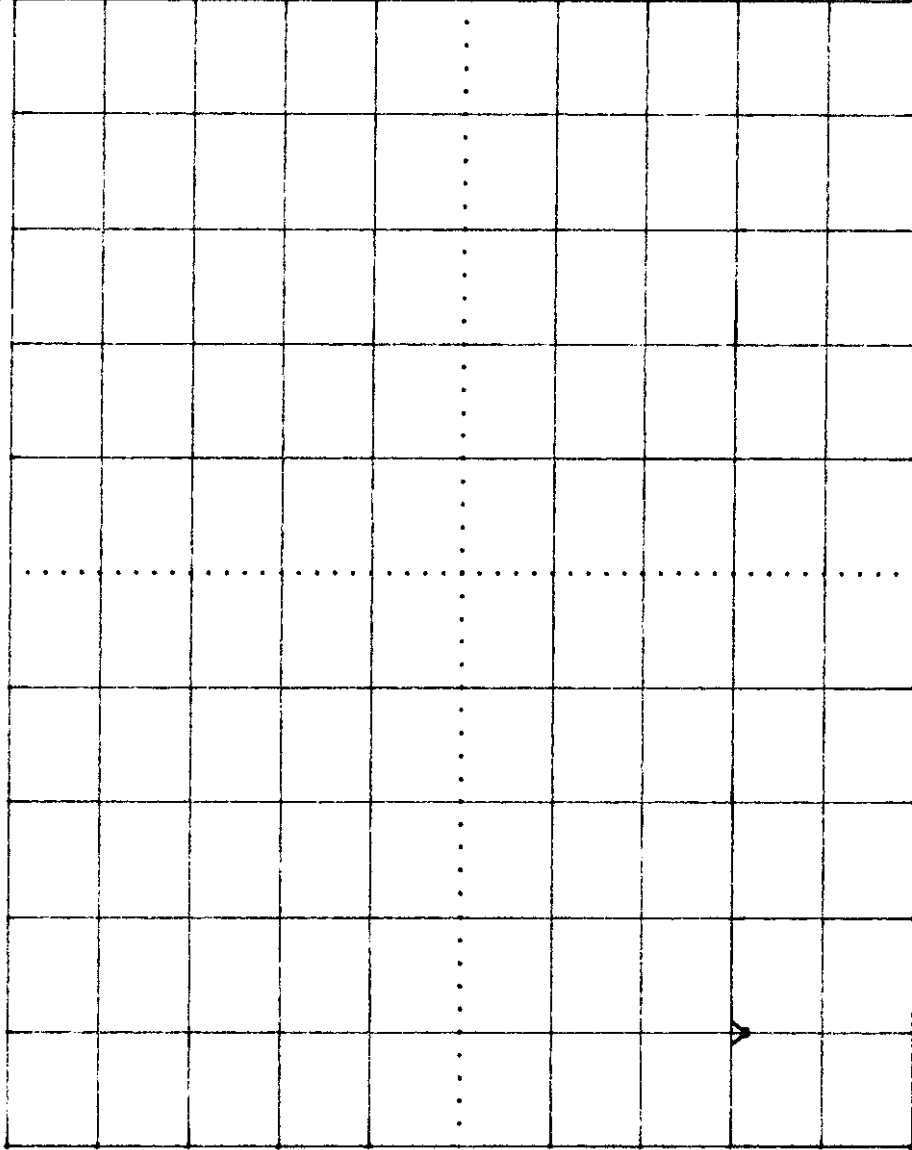
For transmitters with hopping channel ON times < 100 msec, DUTY CYCLE CORRECTION is permitted for emissions above 1000 MHz:

No Duty Cycle was used.

PLOT# 4.8.a

Mkr 2.390 00GHz 25.49dBuV

Ref Lvl 107.0dBuV 10dB/ Atten 0dB



WF VIEW

Normal
grn rd OFF

Max Hold
RD grn off

Average
rd grn OFF

Math
rd grn OFF

A = Normal
rd grn OFF

B = Reg# 1
rd grn OFF

Freq 2.402 00GHz Span 30MHz
ResBW 1MHz VidBW 300Hz SWP 200ms

LEVEL SCALE

Span 30MHz

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna #1, Tx @ 2402 MHz)
Engineer: Xi-Ming Yang
Date of test: May 27, 1998

FCC 15.247 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
4804.0	V	35.0*	32.5	3.4	-28.1	0.0	42.8	74.0	-31.2
4804.0	V	33.7	32.5	3.4	-28.1	0.0	41.5	54.0	-12.5
7206.0	V	32.0*	36.9	4.6	-28.0	0.0	45.5	74.0	-28.5
7206.0	V	29.3	36.9	4.6	-28.0	0.0	42.8	54.0	-11.2
12010.0	V	38.0*	39.0	5.9	-39.1	0.0	43.8	74.0	-30.2
12010.0	V	30.0	39.0	5.9	-39.1	0.0	35.8	54.0	-18.2
19216.0	V	30.0*	40.2	7.5	-23.3	-9.5	44.9	74.0	-29.1
19216.0	V	22.7	40.2	7.5	-23.3	-9.5	37.6	54.0	-16.4
21618.0	H	37.0*	40.3	9.1	-24.0	-9.5	52.9	74.0	-21.1
21618.0	H	28.4	40.3	9.1	-24.0	-9.5	44.3	54.0	-9.7

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

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna #1, Tx @ 2440 MHz)
Engineer: Xi-Ming Yang
Date of test: May 27, 1998

FCC 15.247 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
4880.0	V	36.0*	32.5	3.4	-28.1	0.0	43.8	74.0	-30.2
4880.0	V	34.7	32.5	3.4	-28.1	0.0	42.5	54.0	-11.5
7320.0	V	33.0*	36.9	4.6	-28.0	0.0	46.5	74.0	-27.5
7320.0	V	28.1	36.9	4.6	-28.0	0.0	41.6	54.0	-12.4
12200.0	V	38.0*	39.0	5.9	-39.1	0.0	43.8	74.0	-30.2
12200.0	V	30.0	39.0	5.9	-39.1	0.0	35.8	54.0	-18.2
19520.0	V	33.0*	40.2	7.5	-23.3	-9.5	47.9	74.0	-26.1
19520.0	V	22.6	40.2	7.5	-23.3	-9.5	37.5	54.0	-16.5
21960.0	H	33.0*	40.3	9.1	-24.0	-9.5	48.9	74.0	-25.1
21960.0	H	26.6	40.3	9.1	-24.0	-9.5	42.5	54.0	-11.5

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



Intertek Testing Services

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna #1, Tx @ 2480 MHz)
Engineer: Xi-Ming Yang
Date of test: May 27, 1998

FCC 15.247 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
4960.0	V	32.0*	32.5	3.4	-28.1	0.0	39.8	74.0	-34.2
4960.0	V	30.5	32.5	3.4	-28.1	0.0	38.3	54.0	-15.7
7440.0	V	30.0*	36.9	4.6	-28.0	0.0	43.5	74.0	-30.5
7440.0	V	26.5	36.9	4.6	-28.0	0.0	40.0	54.0	-14.0
12400.0	V	33.0*	39.0	5.9	-39.1	0.0	38.8	74.0	-35.2
12400.0	V	28.0	39.0	5.9	-39.1	0.0	33.8	54.0	-20.2
19840.0	V	32.0*	40.2	7.5	-23.3	-9.5	46.9	74.0	-27.1
19840.0	V	22.7	40.2	7.5	-23.3	-9.5	37.6	54.0	-16.4
22320.0	H	34.0*	40.3	9.1	-24.0	-9.5	49.9	74.0	-24.1
22320.0	H	27.3	40.3	9.1	-24.0	-9.5	43.2	54.0	-10.8

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



Intertek Testing Services

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna #2, Tx @ 2402 MHz)
Engineer: Xi-Ming Yang
Date of test: May 27, 1998

FCC 15.247 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
4804.0	V	37.0*	32.5	3.4	-28.1	0.0	44.8	74.0	-29.2
4804.0	V	35.0	32.5	3.4	-28.1	0.0	42.8	54.0	-11.2
7206.0	H	35.0*	36.9	4.6	-28.0	0.0	48.5	74.0	-25.5
7206.0	H	33.0	36.9	4.6	-28.0	0.0	46.5	54.0	-7.5
12010.0	V	40.0*	39.0	5.9	-39.1	0.0	45.8	74.0	-28.2
12010.0	V	32.0	39.0	5.9	-39.1	0.0	37.8	54.0	-16.2
19216.0	H	39.0*	40.2	7.5	-23.3	-9.5	53.9	74.0	-20.1
19216.0	H	32.0	40.2	7.5	-23.3	-9.5	46.9	54.0	-7.1
21618.0	H	37.0*	40.3	9.1	-24.0	-9.5	52.9	74.0	-21.1
21618.0	H	31.0	40.3	9.1	-24.0	-9.5	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. Read with * is peak reading.

ITS Intertek Testing Services

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna # 2, Tx @ 2440 MHz)
Engineer: Xi-Ming Yang
Date of test: May 27, 1998

FCC 15.247 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
4880.0	V	37.0*	32.5	3.4	-28.1	0.0	44.8	74.0	-29.2
4880.0	V	34.0	32.5	3.4	-28.1	0.0	41.8	54.0	-12.2
7320.0	V	37.0*	36.9	4.6	-28.0	0.0	50.5	74.0	-23.5
7320.0	V	32.0	36.9	4.6	-28.0	0.0	45.5	54.0	-8.5
12200.0	V	41.5*	39.0	5.9	-39.1	0.0	47.3	74.0	-26.7
12200.0	V	31.8	39.0	5.9	-39.1	0.0	37.6	54.0	-16.4
19520.0	V	40.0*	40.2	7.5	-23.3	-9.5	54.9	74.0	-19.1
19520.0	V	31.0	40.2	7.5	-23.3	-9.5	45.9	54.0	-8.1
21960.0	H	38.0*	40.3	9.1	-24.0	-9.5	53.9	74.0	-20.1
21960.0	H	29.0	40.3	9.1	-24.0	-9.5	44.9	54.0	-9.1

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

ITS Intertek Testing Services

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna # 2, Tx @ 2480 MHz)
Engineer: Xi-Ming Yang
Date of test: May 27, 1998

FCC 15.247 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
4960.0	V	38.0*	32.5	3.4	-28.1	0.0	45.8	74.0	-28.2
4960.0	V	35.0	32.5	3.4	-28.1	0.0	42.8	54.0	-11.2
7440.0	V	35.0*	36.9	4.6	-28.0	0.0	48.5	74.0	-25.5
7440.0	V	33.0	36.9	4.6	-28.0	0.0	46.5	54.0	-7.5
12400.0	V	41.0*	39.0	5.9	-39.1	0.0	46.8	74.0	-27.2
12400.0	V	31.0	39.0	5.9	-39.1	0.0	36.8	54.0	-17.2
19840.0	V	41.0*	40.2	7.5	-23.3	-9.5	55.9	74.0	-18.1
19840.0	V	32.0	40.2	7.5	-23.3	-9.5	46.9	54.0	-7.1
22320.0	H	40.0*	40.3	9.1	-24.0	-9.5	55.9	74.0	-18.1
22320.0	H	31.0	40.3	9.1	-24.0	-9.5	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. Read with * is peak reading.



Intertek Testing Services

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna #3, Tx @ 2402 MHz)
Engineer: Xi-Ming Yang
Date of test: May 27, 1998

FCC 15.247 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
4804.0	V	38.0*	32.5	3.4	-28.1	0.0	45.8	74.0	-28.2
4804.0	V	36.0	32.5	3.4	-28.1	0.0	43.8	54.0	-10.2
7206.0	H	34.0*	36.9	4.6	-28.0	0.0	47.5	74.0	-26.5
7206.0	H	30.0	36.9	4.6	-28.0	0.0	43.5	54.0	-10.5
12010.0	V	38.0*	39.0	5.9	-39.1	0.0	43.8	74.0	-30.2
12010.0	V	31.0	39.0	5.9	-39.1	0.0	36.8	54.0	-17.2
19216.0	H	38.0*	40.2	7.5	-23.3	-9.5	52.9	74.0	-21.1
19216.0	H	31.0	40.2	7.5	-23.3	-9.5	45.9	54.0	-8.1
21618.0	H	37.0*	40.3	9.1	-24.0	-9.5	52.9	74.0	-21.1
21618.0	H	31.0	40.3	9.1	-24.0	-9.5	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. Read with * is peak reading.

ITS Intertek Testing Services

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna #3, Tx @ 2440 MHz)
Engineer: Xi-Ming Yang
Date of test: May 27, 1998

FCC 15.247 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
4880.0	V	36.0	32.5	3.4	-28.1	0.0	43.8	74.0	-30.2
4880.0	V	34.0	32.5	3.4	-28.1	0.0	41.8	54.0	-12.2
7320.0	V	37.0	36.9	4.6	-28.0	0.0	50.5	74.0	-23.5
7320.0	V	35.0	36.9	4.6	-28.0	0.0	48.5	54.0	-5.5
12200.0	V	40.0	39.0	5.9	-39.1	0.0	45.8	74.0	-28.2
12200.0	V	31.8	39.0	5.9	-39.1	0.0	37.6	54.0	-16.4
19520.0	V	41.0	40.2	7.5	-23.3	-9.5	55.9	74.0	-18.1
19520.0	V	31.0	40.2	7.5	-23.3	-9.5	45.9	54.0	-8.1
21960.0	H	38.0	40.3	9.1	-24.0	-9.5	53.9	74.0	-20.1
21960.0	H	29.0	40.3	9.1	-24.0	-9.5	44.9	54.0	-9.1

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

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna #3, Tx @ 2480 MHz)
Engineer: Xi-Ming Yang
Date of test: May 27, 1998

FCC 15.247 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
4960.0	V	36.0*	32.5	3.4	-28.1	0.0	43.8	74.0	-30.2
4960.0	V	34.0	32.5	3.4	-28.1	0.0	41.8	54.0	-12.2
7440.0	V	35.0*	36.9	4.6	-28.0	0.0	48.5	74.0	-25.5
7440.0	V	33.0	36.9	4.6	-28.0	0.0	46.5	54.0	-7.5
12400.0	V	42.0*	39.0	5.9	-39.1	0.0	47.8	74.0	-26.2
12400.0	V	32.0	39.0	5.9	-39.1	0.0	37.8	54.0	-16.2
19840.0	V	41.0*	40.2	7.5	-23.3	-9.5	55.9	74.0	-18.1
19840.0	V	32.0	40.2	7.5	-23.3	-9.5	46.9	54.0	-7.1
22320.0	H	40.0*	40.3	9.1	-24.0	-9.5	55.9	74.0	-18.1
22320.0	H	31.0	40.3	9.1	-24.0	-9.5	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. Read with * is peak reading.

ITS Intertek Testing Services

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna #4, Tx @ 2402 MHz)
Engineer: Xi-Ming Yang
Date of test: May 27, 1998

FCC 15.247 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
4804.0	V	38.0*	32.5	3.4	-28.1	0.0	45.8	74.0	-28.2
4804.0	V	33.0	32.5	3.4	-28.1	0.0	40.8	54.0	-13.2
7206.0	H	34.0*	36.9	4.6	-28.0	0.0	47.5	74.0	-26.5
7206.0	H	32.0	36.9	4.6	-28.0	0.0	45.5	54.0	-8.5
12010.0	V	39.0*	39.0	5.9	-39.1	0.0	44.8	74.0	-29.2
12010.0	V	31.0	39.0	5.9	-39.1	0.0	36.8	54.0	-17.2
19216.0	H	39.0*	40.2	7.5	-23.3	-9.5	53.9	74.0	-20.1
19216.0	H	32.0	40.2	7.5	-23.3	-9.5	46.9	54.0	-7.1
21618.0	H	37.0*	40.3	9.1	-24.0	-9.5	52.9	74.0	-21.1
21618.0	H	31.0	40.3	9.1	-24.0	-9.5	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. Read with * is peak reading.



Intertek Testing Services

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna #4, Tx @ 2440 MHz)
Engineer: Xi-Ming Yang
Date of test: May 27, 1998

FCC 15.247 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
4880.0	V	36.0*	32.5	3.4	-28.1	0.0	43.8	74.0	-30.2
4880.0	V	34.0	32.5	3.4	-28.1	0.0	41.8	54.0	-12.2
7320.0	V	35.0*	36.9	4.6	-28.0	0.0	48.5	74.0	-25.5
7320.0	V	32.0	36.9	4.6	-28.0	0.0	45.5	54.0	-8.5
12200.0	V	38.0*	39.0	5.9	-39.1	0.0	43.8	74.0	-30.2
12200.0	V	31.8	39.0	5.9	-39.1	0.0	37.6	54.0	-16.4
19520.0	V	40.0*	40.2	7.5	-23.3	-9.5	54.9	74.0	-19.1
19520.0	V	31.0	40.2	7.5	-23.3	-9.5	45.9	54.0	-8.1
21960.0	H	38.0*	40.3	9.1	-24.0	-9.5	53.9	74.0	-20.1
21960.0	H	29.0	40.3	9.1	-24.0	-9.5	44.9	54.0	-9.1

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

ITS Intertek Testing Services

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna #4, Tx @ 2480 MHz)
Engineer: Xi-Ming Yang
Date of test: May 27, 1998

FCC 15.247 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
2483.5	H	38.0*	27.9	2.3	-19.3	0.0	48.9	74.0	-25.1
2483.5	H	35.2	27.9	2.3	-19.3	0.0	46.1	54.0	-7.9
4960.0	V	38.0*	32.5	3.4	-28.1	0.0	45.8	74.0	-28.2
4960.0	V	36.0	32.5	3.4	-28.1	0.0	43.8	54.0	-10.2
7440.0	V	34.0*	36.9	4.6	-28.0	0.0	47.5	74.0	-26.5
7440.0	V	32.0	36.9	4.6	-28.0	0.0	45.5	54.0	-8.5
12400.0	V	41.0*	39.0	5.9	-39.1	0.0	46.8	74.0	-27.2
12400.0	V	31.0	39.0	5.9	-39.1	0.0	36.8	54.0	-17.2
19840.0	V	41.0*	40.2	7.5	-23.3	-9.5	55.9	74.0	-18.1
19840.0	V	32.0	40.2	7.5	-23.3	-9.5	46.9	54.0	-7.1
22320.0	H	40.0*	40.3	9.1	-24.0	-9.5	55.9	74.0	-18.1
22320.0	H	31.0	40.3	9.1	-24.0	-9.5	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. Read with * is peak reading.



Intertek Testing Services

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna # 5, Tx @ 2402 MHz)
Engineer: Xi-Ming Yang
Date of test: May 28, 1998

FCC 15.247 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
4804.0	V	35.0*	32.5	3.4	-28.1	0.0	42.8	74.0	-31.2
4804.0	V	33.0	32.5	3.4	-28.1	0.0	40.8	54.0	-13.2
7206.0	H	30.0*	36.9	4.6	-28.0	0.0	43.5	74.0	-30.5
7206.0	H	26.0	36.9	4.6	-28.0	0.0	39.5	54.0	-14.5
12010.0	V	34.0*	39.0	5.9	-39.1	0.0	39.8	74.0	-34.2
12010.0	V	27.0	39.0	5.9	-39.1	0.0	32.8	54.0	-21.2
19216.0	H	29.0*	40.2	7.5	-23.3	-9.5	43.9	74.0	-30.1
19216.0	H	20.0	40.2	7.5	-23.3	-9.5	34.9	54.0	-19.1
21618.0	H	33.0*	40.3	9.1	-24.0	-9.5	48.9	74.0	-25.1
21618.0	H	23.0	40.3	9.1	-24.0	-9.5	38.9	54.0	-15.1

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

ITS Intertek Testing Services

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna # 5, Tx @ 2440 MHz)
Engineer: Xi-Ming Yang
Date of test: May 28, 1998

FCC 15.247 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
4880.0	V	36.0*	32.5	3.4	-28.1	0.0	43.8	74.0	-30.2
4880.0	V	33.4	32.5	3.4	-28.1	0.0	41.2	54.0	-12.8
7320.0	V	32.0*	36.9	4.6	-28.0	0.0	45.5	74.0	-28.5
7320.0	V	27.0	36.9	4.6	-28.0	0.0	40.5	54.0	-13.5
12200.0	V	34.0*	39.0	5.9	-39.1	0.0	39.8	74.0	-34.2
12200.0	V	28.0	39.0	5.9	-39.1	0.0	33.8	54.0	-20.2
19520.0	V	33.0*	40.2	7.5	-23.3	-9.5	47.9	74.0	-26.1
19520.0	V	24.0	40.2	7.5	-23.3	-9.5	38.9	54.0	-15.1
21960.0	H	35.0*	40.3	9.1	-24.0	-9.5	50.9	74.0	-23.1
21960.0	H	27.0	40.3	9.1	-24.0	-9.5	42.9	54.0	-11.1

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

ITS Intertek Testing Services

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna # 5, Tx @ 2480 MHz)
Engineer: Xi-Ming Yang
Date of test: May 28, 1998

FCC 15.247 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
4960.0	V	35.0*	32.5	3.4	-28.1	0.0	42.8	74.0	-31.2
4960.0	V	33.0	32.5	3.4	-28.1	0.0	40.8	54.0	-13.2
7440.0	V	31.0*	36.9	4.6	-28.0	0.0	44.5	74.0	-29.5
7440.0	V	28.0	36.9	4.6	-28.0	0.0	41.5	54.0	-12.5
12400.0	V	33.0*	39.0	5.9	-39.1	0.0	38.8	74.0	-35.2
12400.0	V	27.0	39.0	5.9	-39.1	0.0	32.8	54.0	-21.2
19840.0	V	32.0*	40.2	7.5	-23.3	-9.5	46.9	74.0	-27.1
19840.0	V	22.0	40.2	7.5	-23.3	-9.5	36.9	54.0	-17.1
22320.0	H	34.0*	40.3	9.1	-24.0	-9.5	49.9	74.0	-24.1
22320.0	H	26.0	40.3	9.1	-24.0	-9.5	41.9	54.0	-12.1

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

ITS Intertek Testing Services

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna # 6, Tx @ 2402 MHz)
Engineer: Xi-Ming Yang
Date of test: May 28, 1998

FCC 15.247 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
4804.0	V	40.0*	32.5	3.4	-28.1	0.0	47.8	74.0	-26.2
4804.0	V	37.0	32.5	3.4	-28.1	0.0	44.8	54.0	-9.2
7206.0	H	32.0*	36.9	4.6	-28.0	0.0	45.5	74.0	-28.5
7206.0	H	29.0	36.9	4.6	-28.0	0.0	42.5	54.0	-11.5
12010.0	V	39.0*	39.0	5.9	-39.1	0.0	44.8	74.0	-29.2
12010.0	V	31.0	39.0	5.9	-39.1	0.0	36.8	54.0	-17.2
19216.0	H	38.0*	40.2	7.5	-23.3	-9.5	52.9	74.0	-21.1
19216.0	H	29.0	40.2	7.5	-23.3	-9.5	43.9	54.0	-10.1
21618.0	H	39.0*	40.3	9.1	-24.0	-9.5	54.9	74.0	-19.1
21618.0	H	31.0	40.3	9.1	-24.0	-9.5	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. Read with * is peak reading.

ITS Intertek Testing Services

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna # 6, Tx @ 2440 MHz)
Engineer: Xi-Ming Yang
Date of test: May 28, 1998

FCC 15.247 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
4880.0	V	37.0*	32.5	3.4	-28.1	0.0	44.8	74.0	-29.2
4880.0	V	35.0	32.5	3.4	-28.1	0.0	42.8	54.0	-11.2
7320.0	V	35.0*	36.9	4.6	-28.0	0.0	48.5	74.0	-25.5
7320.0	V	33.5	36.9	4.6	-28.0	0.0	47.0	54.0	-7.0
12200.0	V	40.0*	39.0	5.9	-39.1	0.0	45.8	74.0	-28.2
12200.0	V	32.0	39.0	5.9	-39.1	0.0	37.8	54.0	-16.2
19520.0	V	38.0*	40.2	7.5	-23.3	-9.5	52.9	74.0	-21.1
19520.0	V	31.0	40.2	7.5	-23.3	-9.5	45.9	54.0	-8.1
21960.0	H	38.0*	40.3	9.1	-24.0	-9.5	53.9	74.0	-20.1
21960.0	H	29.0	40.3	9.1	-24.0	-9.5	44.9	54.0	-9.1

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

ITS Intertek Testing Services

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna #6, Tx @ 2480 MHz)
Engineer: Xi-Ming Yang
Date of test: May 28, 1998

FCC 15.247 Radiated Emissions

Frequency	Antenna	Reading	Antenna	Cable	Pre-amp	Distance	Corrected	Limit	Margin
MHz	Polarity	dB(uV)	Factor	Loss	dB	Factor	dB(uV/m)	dB(uV/m)	dB
4960.0	V	35.0*	32.5	3.4	-28.1	0.0	42.8	74.0	-31.2
4960.0	V	33.0	32.5	3.4	-28.1	0.0	40.8	54.0	-13.2
7440.0	V	34.0*	36.9	4.6	-28.0	0.0	47.5	74.0	-26.5
7440.0	V	30.0	36.9	4.6	-28.0	0.0	43.5	54.0	-10.5
12400.0	V	40.0*	39.0	5.9	-39.1	0.0	45.8	74.0	-28.2
12400.0	V	32.0	39.0	5.9	-39.1	0.0	37.8	54.0	-16.2
19840.0	V	41.0*	40.2	7.5	-23.3	-9.5	55.9	74.0	-18.1
19840.0	V	32.0	40.2	7.5	-23.3	-9.5	46.9	54.0	-7.1
22320.0	H	40.0*	40.3	9.1	-24.0	-9.5	55.9	74.0	-18.1
22320.0	H	31.0	40.3	9.1	-24.0	-9.5	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. Read with * is peak reading.

ITS Intertek Testing Services

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna # 7, Tx @ 2402 MHz)
Engineer: Xi-Ming Yang
Date of test: May 27, 1998

FCC 15.247 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
4804.0	V	35.0*	32.5	3.4	-28.1	0.0	42.8	74.0	-31.2
4804.0	V	33.4	32.5	3.4	-28.1	0.0	41.2	54.0	-12.8
7206.0	H	36.0*	36.9	4.6	-28.0	0.0	49.5	74.0	-24.5
7206.0	H	34.0	36.9	4.6	-28.0	0.0	47.5	54.0	-6.5
12010.0	V	31.0*	39.0	5.9	-39.1	0.0	36.8	74.0	-37.2
12010.0	V	24.0	39.0	5.9	-39.1	0.0	29.8	54.0	-24.2
19216.0	H	32.0*	40.2	7.5	-23.3	-9.5	46.9	74.0	-27.1
19216.0	H	23.0	40.2	7.5	-23.3	-9.5	37.9	54.0	-16.1
21618.0	H	32.0*	40.3	9.1	-24.0	-9.5	47.9	74.0	-26.1
21618.0	H	23.0	40.3	9.1	-24.0	-9.5	38.9	54.0	-15.1

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

ITS Intertek Testing Services

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna #7, Tx @ 2440 MHz)
Engineer: Xi-Ming Yang
Date of test: May 28, 1998

FCC 15.247 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
4880.0	V	34.0*	32.5	3.4	-28.1	0.0	41.8	74.0	-32.2
4880.0	V	31.8	32.5	3.4	-28.1	0.0	39.6	54.0	-14.4
7320.0	V	38.0*	36.9	4.6	-28.0	0.0	51.5	74.0	-22.5
7320.0	V	35.9	36.9	4.6	-28.0	0.0	49.4	54.0	-4.6
12200.0	V	33.0*	39.0	5.9	-39.1	0.0	38.8	74.0	-35.2
12200.0	V	24.0	39.0	5.9	-39.1	0.0	29.8	54.0	-24.2
19520.0	V	31.0*	40.2	7.5	-23.3	-9.5	45.9	74.0	-28.1
19520.0	V	21.0	40.2	7.5	-23.3	-9.5	35.9	54.0	-18.1
21960.0	H	37.0*	40.3	9.1	-24.0	-9.5	52.9	74.0	-21.1
21960.0	H	28.0	40.3	9.1	-24.0	-9.5	43.9	54.0	-10.1

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



Intertek Testing Services

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna #7, Tx @ 2480 MHz)
Engineer: Xi-Ming Yang
Date of test: May 27, 1998

FCC 15.247 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
4960.0	V	32.0*	32.5	3.4	-28.1	0.0	39.8	74.0	-34.2
4960.0	V	28.1	32.5	3.4	-28.1	0.0	35.9	54.0	-18.1
7440.0	V	35.0*	36.9	4.6	-28.0	0.0	48.5	74.0	-25.5
7440.0	V	33.9	36.9	4.6	-28.0	0.0	47.4	54.0	-6.6
12400.0	V	42.0*	39.0	5.9	-39.1	0.0	47.8	74.0	-26.2
12400.0	V	36.0	39.0	5.9	-39.1	0.0	41.8	54.0	-12.2
19840.0	V	32.0*	40.2	7.5	-23.3	-9.5	46.9	74.0	-27.1
19840.0	V	21.0	40.2	7.5	-23.3	-9.5	35.9	54.0	-18.1
22320.0	H	34.0*	40.3	9.1	-24.0	-9.5	49.9	74.0	-24.1
22320.0	H	25.0	40.3	9.1	-24.0	-9.5	40.9	54.0	-13.1

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

ITS Intertek Testing Services

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna #8, Tx @ 2402 MHz)
Engineer: Xi-Ming Yang
Date of test: May 27, 1998

FCC 15.247 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
4804.0	V	38.0*	32.5	3.4	-28.1	0.0	45.8	74.0	-28.2
4804.0	V	36.0	32.5	3.4	-28.1	0.0	43.8	54.0	-10.2
7206.0	H	34.0*	36.9	4.6	-28.0	0.0	47.5	74.0	-26.5
7206.0	H	30.0	36.9	4.6	-28.0	0.0	43.5	54.0	-10.5
12010.0	V	39.0*	39.0	5.9	-39.1	0.0	44.8	74.0	-29.2
12010.0	V	30.0	39.0	5.9	-39.1	0.0	35.8	54.0	-18.2
19216.0	H	38.0*	40.2	7.5	-23.3	-9.5	52.9	74.0	-21.1
19216.0	H	30.0	40.2	7.5	-23.3	-9.5	44.9	54.0	-9.1
21618.0	H	38.0*	40.3	9.1	-24.0	-9.5	53.9	74.0	-20.1
21618.0	H	31.0	40.3	9.1	-24.0	-9.5	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. Read with * is peak reading.



Intertek Testing Services

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna #8, Tx @ 2440 MHz)
Engineer: Xi-Ming Yang
Date of test: May 27, 1998

FCC 15.247 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
	H/V		dB(1/m)	dB		dB			
4880.0	V	36.0*	32.5	3.4	-28.1	0.0	43.8	74.0	-30.2
4880.0	V	34.0	32.5	3.4	-28.1	0.0	41.8	54.0	-12.2
7320.0	H	37.0*	36.9	4.6	-28.0	0.0	50.5	74.0	-23.5
7320.0	H	35.0	36.9	4.6	-28.0	0.0	48.5	54.0	-5.5
12200.0	V	38.0*	39.0	5.9	-39.1	0.0	43.8	74.0	-30.2
12200.0	V	30.0	39.0	5.9	-39.1	0.0	35.8	54.0	-18.2
19520.0	V	39.0*	40.2	7.5	-23.3	-9.5	53.9	74.0	-20.1
19520.0	V	30.0	40.2	7.5	-23.3	-9.5	44.9	54.0	-9.1
21960.0	H	37.0*	40.3	9.1	-24.0	-9.5	52.9	74.0	-21.1
21960.0	H	29.0	40.3	9.1	-24.0	-9.5	44.9	54.0	-9.1

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

ITS Intertek Testing Services

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna #8, Tx @ 2480 MHz)
Engineer: Xi-Ming Yang
Date of test: May 27, 1998

FCC 15.247 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
4960.0	V	35.0*	32.5	3.4	-28.1	0.0	42.8	74.0	-31.2
4960.0	V	32.0	32.5	3.4	-28.1	0.0	39.8	54.0	-14.2
7440.0	V	38.0*	36.9	4.6	-28.0	0.0	51.5	74.0	-22.5
7440.0	V	36.0	36.9	4.6	-28.0	0.0	49.5	54.0	-4.5
12400.0	V	39.0*	39.0	5.9	-39.1	0.0	44.8	74.0	-29.2
12400.0	V	31.0	39.0	5.9	-39.1	0.0	36.8	54.0	-17.2
19840.0	V	39.0*	40.2	7.5	-23.3	-9.5	53.9	74.0	-20.1
19840.0	V	30.0	40.2	7.5	-23.3	-9.5	44.9	54.0	-9.1
22320.0	H	39.0*	40.3	9.1	-24.0	-9.5	54.9	74.0	-19.1
22320.0	H	31.0	40.3	9.1	-24.0	-9.5	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. Read with * is peak reading.





Intertek Testing Services

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna #9, Tx @ 2402 MHz)
Engineer: Xi-Ming Yang
Date of test: May 29, 1998

FCC 15.247 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
4804.0	V	35.0*	32.5	3.4	-28.1	0.0	42.8	74.0	-31.2
4804.0	V	33.0	32.5	3.4	-28.1	0.0	40.8	54.0	-13.2
7206.0	H	37.0*	36.9	4.6	-28.0	0.0	50.5	74.0	-23.5
7206.0	H	35.0	36.9	4.6	-28.0	0.0	48.5	54.0	-5.5
12010.0	V	39.0*	39.0	5.9	-39.1	0.0	44.8	74.0	-29.2
12010.0	V	31.0	39.0	5.9	-39.1	0.0	36.8	54.0	-17.2
19216.0	H	39.0*	40.2	7.5	-23.3	-9.5	53.9	74.0	-20.1
19216.0	H	32.0	40.2	7.5	-23.3	-9.5	46.9	54.0	-7.1
21618.0	H	39.0*	40.3	9.1	-24.0	-9.5	54.9	74.0	-19.1
21618.0	H	32.0	40.3	9.1	-24.0	-9.5	47.9	54.0	-6.1

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

ITS Intertek Testing Services

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna #9, Tx @ 2440 MHz)
Engineer: Xi-Ming Yang
Date of test: May 29, 1998

FCC 15.247 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
4880.0	V	39.0*	32.5	3.4	-28.1	0.0	46.8	74.0	-27.2
4880.0	V	37.0	32.5	3.4	-28.1	0.0	44.8	54.0	-9.2
7320.0	V	36.0*	36.9	4.6	-28.0	0.0	49.5	74.0	-24.5
7320.0	V	34.0	36.9	4.6	-28.0	0.0	47.5	54.0	-6.5
12200.0	V	38.0*	39.0	5.9	-39.1	0.0	43.8	74.0	-30.2
12200.0	V	31.8	39.0	5.9	-39.1	0.0	37.6	54.0	-16.4
19520.0	V	39.0*	40.2	7.5	-23.3	-9.5	53.9	74.0	-20.1
19520.0	V	31.0	40.2	7.5	-23.3	-9.5	45.9	54.0	-8.1
21960.0	H	38.0*	40.3	9.1	-24.0	-9.5	53.9	74.0	-20.1
21960.0	H	29.0	40.3	9.1	-24.0	-9.5	44.9	54.0	-9.1

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

ITS Intertek Testing Services

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna #9, Tx @ 2480 MHz)
Engineer: Xi-Ming Yang
Date of test: May 29, 1998

FCC 15.247 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
4960.0	V	39.0*	32.5	3.4	-28.1	0.0	46.8	74.0	-27.2
4960.0	V	36.0	32.5	3.4	-28.1	0.0	43.8	54.0	-10.2
7440.0	V	37.0*	36.9	4.6	-28.0	0.0	50.5	74.0	-23.5
7440.0	V	34.0	36.9	4.6	-28.0	0.0	47.5	54.0	-6.5
12400.0	V	41.0*	39.0	5.9	-39.1	0.0	46.8	74.0	-27.2
12400.0	V	31.0	39.0	5.9	-39.1	0.0	36.8	54.0	-17.2
19840.0	H	41.0*	40.2	7.5	-23.3	-9.5	55.9	74.0	-18.1
19840.0	H	32.0	40.2	7.5	-23.3	-9.5	46.9	54.0	-7.1
22320.0	H	40.0*	40.3	9.1	-24.0	-9.5	55.9	74.0	-18.1
22320.0	H	31.0	40.3	9.1	-24.0	-9.5	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. Read with * is peak reading.

ITS Intertek Testing Services

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna #10, Tx @ 2402 MHz)
Engineer: Xi-Ming Yang
Date of test: June 1, 1998

FCC 15.247 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
4804.0	V	42.0*	32.5	3.4	-28.1	0.0	49.8	74.0	-24.2
4804.0	V	39.0	32.5	3.4	-28.1	0.0	46.8	54.0	-7.2
7206.0	H	35.0*	36.9	4.6	-28.0	0.0	48.5	74.0	-25.5
7206.0	H	32.0	36.9	4.6	-28.0	0.0	45.5	54.0	-8.5
12010.0	V	41.0*	39.0	5.9	-39.1	0.0	46.8	74.0	-27.2
12010.0	V	32.0	39.0	5.9	-39.1	0.0	37.8	54.0	-16.2
19216.0	H	40.0*	40.2	7.5	-23.3	-9.5	54.9	74.0	-19.1
19216.0	H	30.0	40.2	7.5	-23.3	-9.5	44.9	54.0	-9.1
21618.0	H	40.0*	40.3	9.1	-24.0	-9.5	55.9	74.0	-18.1
21618.0	H	32.0	40.3	9.1	-24.0	-9.5	47.9	54.0	-6.1

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

ITS Intertek Testing Services

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna #10, Tx @ 2440 MHz)
Engineer: Xi-Ming Yang
Date of test: June 1, 1998

FCC 15.247 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
4880.0	V	35.0*	32.5	3.4	-28.1	0.0	42.8	74.0	-31.2
4880.0	V	33.0	32.5	3.4	-28.1	0.0	40.8	54.0	-13.2
7320.0	V	36.0*	36.9	4.6	-28.0	0.0	49.5	74.0	-24.5
7320.0	V	33.0	36.9	4.6	-28.0	0.0	46.5	54.0	-7.5
12200.0	V	39.0*	39.0	5.9	-39.1	0.0	44.8	74.0	-29.2
12200.0	V	30.0	39.0	5.9	-39.1	0.0	35.8	54.0	-18.2
19520.0	V	39.0*	40.2	7.5	-23.3	-9.5	53.9	74.0	-20.1
19520.0	V	32.0	40.2	7.5	-23.3	-9.5	46.9	54.0	-7.1
21960.0	H	39.0*	40.3	9.1	-24.0	-9.5	54.9	74.0	-19.1
21960.0	H	31.0	40.3	9.1	-24.0	-9.5	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. Read with * is peak reading.

ITS Intertek Testing Services

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna #10, Tx @ 2480 MHz)
Engineer: Xi-Ming Yang
Date of test: May 27, 1998

FCC 15.247 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
4960.0	V	39.0*	32.5	3.4	-28.1	0.0	46.8	74.0	-27.2
4960.0	V	37.0	32.5	3.4	-28.1	0.0	44.8	54.0	-9.2
7440.0	V	36.0*	36.9	4.6	-28.0	0.0	49.5	74.0	-24.5
7440.0	V	34.0	36.9	4.6	-28.0	0.0	47.5	54.0	-6.5
12400.0	V	39.0*	39.0	5.9	-39.1	0.0	44.8	74.0	-29.2
12400.0	V	30.0	39.0	5.9	-39.1	0.0	35.8	54.0	-18.2
19840.0	V	39.0*	40.2	7.5	-23.3	-9.5	53.9	74.0	-20.1
19840.0	V	31.0	40.2	7.5	-23.3	-9.5	45.9	54.0	-8.1
22320.0	H	39.0*	40.3	9.1	-24.0	-9.5	54.9	74.0	-19.1
22320.0	H	31.0	40.3	9.1	-24.0	-9.5	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. Read with * is peak reading.

ITS Intertek Testing Services

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna #11, Tx @ 2402 MHz)
Engineer: Xi-Ming Yang
Date of test: June 3, 1998

FCC 15.247 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
4804.0	V	38.0*	32.5	3.4	-28.1	0.0	45.8	74.0	-28.2
4804.0	V	36.0	32.5	3.4	-28.1	0.0	43.8	54.0	-10.2
7206.0	H	35.0*	36.9	4.6	-28.0	0.0	48.5	74.0	-25.5
7206.0	H	33.0	36.9	4.6	-28.0	0.0	46.5	54.0	-7.5
12010.0	V	39.0*	39.0	5.9	-39.1	0.0	44.8	74.0	-29.2
12010.0	V	30.0	39.0	5.9	-39.1	0.0	35.8	54.0	-18.2
19216.0	H	39.0*	40.2	7.5	-23.3	-9.5	53.9	74.0	-20.1
19216.0	H	30.0	40.2	7.5	-23.3	-9.5	44.9	54.0	-9.1
21618.0	H	38.0*	40.3	9.1	-24.0	-9.5	53.9	74.0	-20.1
21618.0	H	31.0	40.3	9.1	-24.0	-9.5	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. Read with * is peak reading.



Intertek Testing Services

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna #11, Tx @ 2440 MHz)
Engineer: Xi-Ming Yang
Date of test: June 3, 1998

FCC 15.247 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
4880.0	V	38.4*	32.5	3.4	-28.1	0.0	46.2	74.0	-27.8
4880.0	V	36.2	32.5	3.4	-28.1	0.0	44.0	54.0	-10.0
7320.0	V	37.0*	36.9	4.6	-28.0	0.0	50.5	74.0	-23.5
7320.0	V	34.0	36.9	4.6	-28.0	0.0	47.5	54.0	-6.5
12200.0	V	38.0*	39.0	5.9	-39.1	0.0	43.8	74.0	-30.2
12200.0	V	30.0	39.0	5.9	-39.1	0.0	35.8	54.0	-18.2
19520.0	V	39.0*	40.2	7.5	-23.3	-9.5	53.9	74.0	-20.1
19520.0	V	30.0	40.2	7.5	-23.3	-9.5	44.9	54.0	-9.1
21960.0	H	39.0*	40.3	9.1	-24.0	-9.5	54.9	74.0	-19.1
21960.0	H	32.0	40.3	9.1	-24.0	-9.5	47.9	54.0	-6.1

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

ITS Intertek Testing Services

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna #11, Tx @ 2480 MHz)
Engineer: Xi-Ming Yang
Date of test: June 3, 1998

FCC 15.247 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
4960.0	V	40.0*	32.5	3.4	-28.1	0.0	47.8	74.0	-26.2
4960.0	V	38.0	32.5	3.4	-28.1	0.0	45.8	54.0	-8.2
7440.0	V	37.0*	36.9	4.6	-28.0	0.0	50.5	74.0	-23.5
7440.0	V	34.0	36.9	4.6	-28.0	0.0	47.5	54.0	-6.5
12400.0	V	39.0*	39.0	5.9	-39.1	0.0	44.8	74.0	-29.2
12400.0	V	30.0	39.0	5.9	-39.1	0.0	35.8	54.0	-18.2
19840.0	V	39.0*	40.2	7.5	-23.3	-9.5	53.9	74.0	-20.1
19840.0	V	31.0	40.2	7.5	-23.3	-9.5	45.9	54.0	-8.1
22320.0	H	39.0*	40.3	9.1	-24.0	-9.5	54.9	74.0	-19.1
22320.0	H	31.0	40.3	9.1	-24.0	-9.5	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. Read with * is peak reading.

ITS Intertek Testing Services

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna #12 , Tx @ 2402 MHz)
Engineer: Xi-Ming Yang
Date of test: June 5, 1998

FCC 15.247 Radiated Emissions

Frequency	Antenna	Reading	Antenna	Cable	Pre-amp	Distance	Corrected	Limit	Margin
MHz	Polarity	dB(uV)	Factor	Loss	dB	Factor	dB(uV/m)	dB(uV/m)	dB
4804.0	V	38.0*	32.5	3.4	-28.1	0.0	45.8	74.0	-28.2
4804.0	V	36.0	32.5	3.4	-28.1	0.0	43.8	54.0	-10.2
7206.0	H	35.0*	36.9	4.6	-28.0	0.0	48.5	74.0	-25.5
7206.0	H	32.0	36.9	4.6	-28.0	0.0	45.5	54.0	-8.5
12010.0	V	39.0*	39.0	5.9	-39.1	0.0	44.8	74.0	-29.2
12010.0	V	30.0	39.0	5.9	-39.1	0.0	35.8	54.0	-18.2
19216.0	H	39.0*	40.2	7.5	-23.3	-9.5	53.9	74.0	-20.1
19216.0	H	30.0	40.2	7.5	-23.3	-9.5	44.9	54.0	-9.1
21618.0	H	39.0*	40.3	9.1	-24.0	-9.5	54.9	74.0	-19.1
21618.0	H	32.0	40.3	9.1	-24.0	-9.5	47.9	54.0	-6.1

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



Intertek Testing Services

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna #12, Tx @ 2440 MHz)
Engineer: Xi-Ming Yang
Date of test: June 5, 1998

FCC 15.247 Radiated Emissions

Frequency	Antenna	Reading	Antenna	Cable	Pre-amp	Distance	Corrected	Limit	Margin
	Polarity		Factor	Loss		Factor	Reading		
MHz	H/V	dB(uV)	dB(1/m)	dB	dB	dB	dB(uV/m)	dB(uV/m)	dB
4880.0	V	42.0*	32.5	3.4	-28.1	0.0	49.8	74.0	-24.2
4880.0	V	39.0	32.5	3.4	-28.1	0.0	46.8	54.0	-7.2
7320.0	V	34.0*	36.9	4.6	-28.0	0.0	47.5	74.0	-26.5
7320.0	V	32.0	36.9	4.6	-28.0	0.0	45.5	54.0	-8.5
12200.0	V	39.0*	39.0	5.9	-39.1	0.0	44.8	74.0	-29.2
12200.0	V	30.0	39.0	5.9	-39.1	0.0	35.8	54.0	-18.2
19520.0	V	39.0*	40.2	7.5	-23.3	-9.5	53.9	74.0	-20.1
19520.0	V	31.0	40.2	7.5	-23.3	-9.5	45.9	54.0	-8.1
21960.0	H	38.0*	40.3	9.1	-24.0	-9.5	53.9	74.0	-20.1
21960.0	H	30.0	40.3	9.1	-24.0	-9.5	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. Read with * is peak reading.



Intertek Testing Services

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna #12, Tx @ 2480 MHz)
Engineer: Xi-Ming Yang
Date of test: June 5, 1998

FCC 15.247 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
4960.0	V	38.5*	32.5	3.4	-28.1	0.0	46.3	74.0	-27.7
4960.0	V	35.6	32.5	3.4	-28.1	0.0	43.4	54.0	-10.6
7440.0	V	33.0*	36.9	4.6	-28.0	0.0	46.5	74.0	-27.5
7440.0	V	30.0	36.9	4.6	-28.0	0.0	43.5	54.0	-10.5
12400.0	V	39.0*	39.0	5.9	-39.1	0.0	44.8	74.0	-29.2
12400.0	V	30.0	39.0	5.9	-39.1	0.0	35.8	54.0	-18.2
19840.0	V	39.0*	40.2	7.5	-23.3	-9.5	53.9	74.0	-20.1
19840.0	V	30.0	40.2	7.5	-23.3	-9.5	44.9	54.0	-9.1
22320.0	H	38.0*	40.3	9.1	-24.0	-9.5	53.9	74.0	-20.1
22320.0	H	30.0	40.3	9.1	-24.0	-9.5	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. Read with * is peak reading.

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna #13, Tx @ 2402 MHz)
Engineer: Xi-Ming Yang
Date of test: June 5, 1998

FCC 15.247 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
4804.0	V	38.0*	32.5	3.4	-28.1	0.0	45.8	74.0	-28.2
4804.0	V	36.0	32.5	3.4	-28.1	0.0	43.8	54.0	-10.2
7206.0	H	34.0*	36.9	4.6	-28.0	0.0	47.5	74.0	-26.5
7206.0	H	31.0	36.9	4.6	-28.0	0.0	44.5	54.0	-9.5
12010.0	V	36.0*	39.0	5.9	-39.1	0.0	41.8	74.0	-32.2
12010.0	V	31.0	39.0	5.9	-39.1	0.0	36.8	54.0	-17.2
19216.0	H	38.0*	40.2	7.5	-23.3	-9.5	52.9	74.0	-21.1
19216.0	H	30.0	40.2	7.5	-23.3	-9.5	44.9	54.0	-9.1
21618.0	H	39.0*	40.3	9.1	-24.0	-9.5	54.9	74.0	-19.1
21618.0	H	30.0	40.3	9.1	-24.0	-9.5	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. Read with * is peak reading.



Intertek Testing Services

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna #13, Tx @ 2440 MHz)
Engineer: Xi-Ming Yang
Date of test: June 5, 1998

FCC 15.247 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
4880.0	V	37.0*	32.5	3.4	-28.1	0.0	44.8	74.0	-29.2
4880.0	V	35.0	32.5	3.4	-28.1	0.0	42.8	54.0	-11.2
7320.0	V	34.0*	36.9	4.6	-28.0	0.0	47.5	74.0	-26.5
7320.0	V	30.0	36.9	4.6	-28.0	0.0	43.5	54.0	-10.5
12200.0	V	38.0*	39.0	5.9	-39.1	0.0	43.8	74.0	-30.2
12200.0	V	31.0	39.0	5.9	-39.1	0.0	36.8	54.0	-17.2
19520.0	V	39.0*	40.2	7.5	-23.3	-9.5	53.9	74.0	-20.1
19520.0	V	32.0	40.2	7.5	-23.3	-9.5	46.9	54.0	-7.1
21960.0	H	38.0*	40.3	9.1	-24.0	-9.5	53.9	74.0	-20.1
21960.0	H	30.0	40.3	9.1	-24.0	-9.5	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. Read with * is peak reading.

ITS Intertek Testing Services

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna #13, Tx @ 2480 MHz)
Engineer: Xi-Ming Yang
Date of test: June 5, 1998

FCC 15.247 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
4960.0	V	38.0*	32.5	3.4	-28.1	0.0	45.8	74.0	-28.2
4960.0	V	36.0	32.5	3.4	-28.1	0.0	43.8	54.0	-10.2
7440.0	V	34.0*	36.9	4.6	-28.0	0.0	47.5	74.0	-26.5
7440.0	V	31.0	36.9	4.6	-28.0	0.0	44.5	54.0	-9.5
12400.0	V	39.0*	39.0	5.9	-39.1	0.0	44.8	74.0	-29.2
12400.0	V	31.0	39.0	5.9	-39.1	0.0	36.8	54.0	-17.2
19840.0	V	39.0*	40.2	7.5	-23.3	-9.5	53.9	74.0	-20.1
19840.0	V	31.0	40.2	7.5	-23.3	-9.5	45.9	54.0	-8.1
22320.0	H	38.0*	40.3	9.1	-24.0	-9.5	53.9	74.0	-20.1
22320.0	H	31.0	40.3	9.1	-24.0	-9.5	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. Read with * is peak reading.

ITS Intertek Testing Services

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna #14, Tx @ 2402 MHz)
Engineer: Xi-Ming Yang
Date of test: June 8, 1998

FCC 15.247 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
4804.0	V	39.0*	32.5	3.4	-28.1	0.0	46.8	74.0	-27.2
4804.0	V	37.0	32.5	3.4	-28.1	0.0	44.8	54.0	-9.2
7206.0	H	39.0*	36.9	4.6	-28.0	0.0	52.5	74.0	-21.5
7206.0	H	36.0	36.9	4.6	-28.0	0.0	49.5	54.0	-4.5
12010.0	V	39.0*	39.0	5.9	-39.1	0.0	44.8	74.0	-29.2
12010.0	V	31.0	39.0	5.9	-39.1	0.0	36.8	54.0	-17.2
19216.0	H	39.0*	40.2	7.5	-23.3	-9.5	53.9	74.0	-20.1
19216.0	H	31.0	40.2	7.5	-23.3	-9.5	45.9	54.0	-8.1
21618.0	H	38.0*	40.3	9.1	-24.0	-9.5	53.9	74.0	-20.1
21618.0	H	31.0	40.3	9.1	-24.0	-9.5	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. Read with * is peak reading.

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna #14, Tx @ 2440 MHz)
Engineer: Xi-Ming Yang
Date of test: June 8, 1998

FCC 15.247 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
4880.0	V	37.0*	32.5	3.4	-28.1	0.0	44.8	74.0	-29.2
4880.0	V	35.0	32.5	3.4	-28.1	0.0	42.8	54.0	-11.2
7320.0	V	35.0*	36.9	4.6	-28.0	0.0	48.5	74.0	-25.5
7320.0	V	31.0	36.9	4.6	-28.0	0.0	44.5	54.0	-9.5
12200.0	V	41.5*	39.0	5.9	-39.1	0.0	47.3	74.0	-26.7
12200.0	V	32.0	39.0	5.9	-39.1	0.0	37.8	54.0	-16.2
19520.0	V	40.0*	40.2	7.5	-23.3	-9.5	54.9	74.0	-19.1
19520.0	V	30.0	40.2	7.5	-23.3	-9.5	44.9	54.0	-9.1
21960.0	H	38.0*	40.3	9.1	-24.0	-9.5	53.9	74.0	-20.1
21960.0	H	29.0	40.3	9.1	-24.0	-9.5	44.9	54.0	-9.1

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

ITS Intertek Testing Services

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna #14, Tx @ 2480 MHz)
Engineer: Xi-Ming Yang
Date of test: June 8, 1998

FCC 15.247 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
4960.0	V	35.0*	32.5	3.4	-28.1	0.0	42.8	74.0	-31.2
4960.0	V	32.0	32.5	3.4	-28.1	0.0	39.8	54.0	-14.2
7440.0	V	33.0*	36.9	4.6	-28.0	0.0	46.5	74.0	-27.5
7440.0	V	31.0	36.9	4.6	-28.0	0.0	44.5	54.0	-9.5
12400.0	V	39.0*	39.0	5.9	-39.1	0.0	44.8	74.0	-29.2
12400.0	V	31.0	39.0	5.9	-39.1	0.0	36.8	54.0	-17.2
19840.0	V	38.0*	40.2	7.5	-23.3	-9.5	52.9	74.0	-21.1
19840.0	V	30.0	40.2	7.5	-23.3	-9.5	44.9	54.0	-9.1
22320.0	H	39.0*	40.3	9.1	-24.0	-9.5	54.9	74.0	-19.1
22320.0	H	31.0	40.3	9.1	-24.0	-9.5	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. Read with * is peak reading.

ITS Intertek Testing Services

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna #15, Tx @ 2402 MHz)
Engineer: Xi-Ming Yang
Date of test: June 15, 1998

FCC 15.247 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
4804.0	V	37.0*	32.5	3.4	-28.1	0.0	44.8	74.0	-29.2
4804.0	V	34.5	32.5	3.4	-28.1	0.0	42.3	54.0	-11.7
7206.0	H	28.0*	36.9	4.6	-28.0	0.0	41.5	74.0	-32.5
7206.0	H	26.0	36.9	4.6	-28.0	0.0	39.5	54.0	-14.5
12010.0	V	38.0*	39.0	5.9	-39.1	0.0	43.8	74.0	-30.2
12010.0	V	31.0	39.0	5.9	-39.1	0.0	36.8	54.0	-17.2
19216.0	H	35.0*	40.2	7.5	-23.3	-9.5	49.9	74.0	-24.1
19216.0	H	28.0	40.2	7.5	-23.3	-9.5	42.9	54.0	-11.1
21618.0	H	37.0*	40.3	9.1	-24.0	-9.5	52.9	74.0	-21.1
21618.0	H	29.0	40.3	9.1	-24.0	-9.5	44.9	54.0	-9.1

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

ITS Intertek Testing Services

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna #15, Tx @ 2440 MHz)
Engineer: Xi-Ming Yang
Date of test: June 15, 1998

FCC 15.247 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
4880.0	V	35.0*	32.5	3.4	-28.1	0.0	42.8	74.0	-31.2
4880.0	V	33.0	32.5	3.4	-28.1	0.0	40.8	54.0	-13.2
7320.0	V	29.0*	36.9	4.6	-28.0	0.0	42.5	74.0	-31.5
7320.0	V	27.0	36.9	4.6	-28.0	0.0	40.5	54.0	-13.5
12200.0	V	38.0*	39.0	5.9	-39.1	0.0	43.8	74.0	-30.2
12200.0	V	30.0	39.0	5.9	-39.1	0.0	35.8	54.0	-18.2
19520.0	V	35.0*	40.2	7.5	-23.3	-9.5	49.9	74.0	-24.1
19520.0	V	27.0	40.2	7.5	-23.3	-9.5	41.9	54.0	-12.1
21960.0	H	37.0*	40.3	9.1	-24.0	-9.5	52.9	74.0	-21.1
21960.0	H	28.0	40.3	9.1	-24.0	-9.5	43.9	54.0	-10.1

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

ITS Intertek Testing Services

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna #15, Tx @ 2480 MHz)
Engineer: Xi-Ming Yang
Date of test: JUNE 15, 1998

FCC 15.247 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
2483.5	V	33.0*	27.9	2.3	-8.4	0.0	54.8	74.0	-19.2
2483.5	V	29.6	27.9	2.3	-8.4	0.0	51.4	54.0	-2.6
4960.0	V	35.0*	32.5	3.4	-28.1	0.0	42.8	74.0	-31.2
4960.0	V	32.0	32.5	3.4	-28.1	0.0	39.8	54.0	-14.2
7440.0	V	33.0*	36.9	4.6	-28.0	0.0	46.5	74.0	-27.5
7440.0	V	29.0	36.9	4.6	-28.0	0.0	42.5	54.0	-11.5
12400.0	V	35.0*	39.0	5.9	-39.1	0.0	40.8	74.0	-33.2
12400.0	V	31.0	39.0	5.9	-39.1	0.0	36.8	54.0	-17.2
19840.0	V	32.0*	40.2	7.5	-23.3	-9.5	46.9	74.0	-27.1
19840.0	V	25.0	40.2	7.5	-23.3	-9.5	39.9	54.0	-14.1
22320.0	H	38.0*	40.3	9.1	-24.0	-9.5	53.9	74.0	-20.1
22320.0	H	29.0	40.3	9.1	-24.0	-9.5	44.9	54.0	-9.1

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

ITS Intertek Testing Services

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna #16, Tx @ 2402 MHz)
Engineer: Xi-Ming Yang
Date of test: June 15, 1998

FCC 15.247 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
4804.0	V	35.0*	32.5	3.4	-28.1	0.0	42.8	74.0	-31.2
4804.0	V	33.0	32.5	3.4	-28.1	0.0	40.8	54.0	-13.2
7206.0	H	33.0*	36.9	4.6	-28.0	0.0	46.5	74.0	-27.5
7206.0	H	31.0	36.9	4.6	-28.0	0.0	44.5	54.0	-9.5
12010.0	V	37.0*	39.0	5.9	-39.1	0.0	42.8	74.0	-31.2
12010.0	V	30.0	39.0	5.9	-39.1	0.0	35.8	54.0	-18.2
19216.0	H	39.0*	40.2	7.5	-23.3	-9.5	53.9	74.0	-20.1
19216.0	H	32.0	40.2	7.5	-23.3	-9.5	46.9	54.0	-7.1
21618.0	H	39.0*	40.3	9.1	-24.0	-9.5	54.9	74.0	-19.1
21618.0	H	30.0	40.3	9.1	-24.0	-9.5	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. Read with * is peak reading.



Intertek Testing Services

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna #16, Tx @ 2440 MHz)
Engineer: Xi-Ming Yang
Date of test: June 15, 1998

FCC 15.247 Radiated Emissions

Frequency	Antenna	Reading	Antenna	Cable	Pre-amp	Distance	Corrected	Limit	Margin
	Polarity		Factor	Loss		Factor	Reading		
MHz	H/V	dB(uV)	dB(1/m)	dB	dB	dB	dB(uV/m)	dB(uV/m)	dB
4880.0	V	31.0*	32.5	3.4	-28.1	0.0	38.8	74.0	-35.2
4880.0	V	28.0	32.5	3.4	-28.1	0.0	35.8	54.0	-18.2
7320.0	V	32.0*	36.9	4.6	-28.0	0.0	45.5	74.0	-28.5
7320.0	V	28.0	36.9	4.6	-28.0	0.0	41.5	54.0	-12.5
12200.0	V	38.0*	39.0	5.9	-39.1	0.0	43.8	74.0	-30.2
12200.0	V	32.0	39.0	5.9	-39.1	0.0	37.8	54.0	-16.2
19520.0	V	39.0*	40.2	7.5	-23.3	-9.5	53.9	74.0	-20.1
19520.0	V	32.0	40.2	7.5	-23.3	-9.5	46.9	54.0	-7.1
21960.0	H	39.0*	40.3	9.1	-24.0	-9.5	54.9	74.0	-19.1
21960.0	H	31.0	40.3	9.1	-24.0	-9.5	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. Read with * is peak reading.

ITS Intertek Testing Services

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna #16, Tx @ 2480 MHz)
Engineer: Xi-Ming Yang
Date of test: June 15, 1998

FCC 15.247 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
4960.0	V	33.0*	32.5	3.4	-28.1	0.0	40.8	74.0	-33.2
4960.0	V	28.0	32.5	3.4	-28.1	0.0	35.8	54.0	-18.2
7440.0	V	32.0*	36.9	4.6	-28.0	0.0	45.5	74.0	-28.5
7440.0	V	28.0	36.9	4.6	-28.0	0.0	41.5	54.0	-12.5
12400.0	V	38.0*	39.0	5.9	-39.1	0.0	43.8	74.0	-30.2
12400.0	V	30.0	39.0	5.9	-39.1	0.0	35.8	54.0	-18.2
19840.0	V	39.0*	40.2	7.5	-23.3	-9.5	53.9	74.0	-20.1
19840.0	V	31.0	40.2	7.5	-23.3	-9.5	45.9	54.0	-8.1
22320.0	H	39.0*	40.3	9.1	-24.0	-9.5	54.9	74.0	-19.1
22320.0	H	31.0	40.3	9.1	-24.0	-9.5	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. Read with * is peak reading.

ITS Intertek Testing Services

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna #17, Tx @ 2402 MHz)
Engineer: Xi-Ming Yang
Date of test: June 16, 1998

FCC 15.247 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
4804.0	V	33.0*	32.5	3.4	-28.1	0.0	40.8	74.0	-33.2
4804.0	V	28.0	32.5	3.4	-28.1	0.0	35.8	54.0	-18.2
7206.0	H	34.0*	36.9	4.6	-28.0	0.0	47.5	74.0	-26.5
7206.0	H	29.0	36.9	4.6	-28.0	0.0	42.5	54.0	-11.5
12010.0	V	38.0*	39.0	5.9	-39.1	0.0	43.8	74.0	-30.2
12010.0	V	30.0	39.0	5.9	-39.1	0.0	35.8	54.0	-18.2
19216.0	H	39.0*	40.2	7.5	-23.3	-9.5	53.9	74.0	-20.1
19216.0	H	32.0	40.2	7.5	-23.3	-9.5	46.9	54.0	-7.1
21618.0	H	39.0*	40.3	9.1	-24.0	-9.5	54.9	74.0	-19.1
21618.0	H	31.0	40.3	9.1	-24.0	-9.5	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. Read with * is peak reading.

ITS Intertek Testing Services

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna #17, Tx @ 2440 MHz)
Engineer: Xi-Ming Yang
Date of test: June 16, 1998

FCC 15.247 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
4880.0	V	35.0*	32.5	3.4	-28.1	0.0	42.8	74.0	-31.2
4880.0	V	32.0	32.5	3.4	-28.1	0.0	39.8	54.0	-14.2
7320.0	V	35.0*	36.9	4.6	-28.0	0.0	48.5	74.0	-25.5
7320.0	V	33.0	36.9	4.6	-28.0	0.0	46.5	54.0	-7.5
12200.0	V	39.0*	39.0	5.9	-39.1	0.0	44.8	74.0	-29.2
12200.0	V	30.0	39.0	5.9	-39.1	0.0	35.8	54.0	-18.2
19520.0	V	39.0*	40.2	7.5	-23.3	-9.5	53.9	74.0	-20.1
19520.0	V	31.0	40.2	7.5	-23.3	-9.5	45.9	54.0	-8.1
21960.0	H	39.0*	40.3	9.1	-24.0	-9.5	54.9	74.0	-19.1
21960.0	H	31.0	40.3	9.1	-24.0	-9.5	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. Read with * is peak reading.

ITS Intertek Testing Services

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna #17, Tx @ 2480 MHz)
Engineer: Xi-Ming Yang
Date of test: June 16, 1998

FCC 15.247 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
4960.0	V	36.0*	32.5	3.4	-28.1	0.0	43.8	74.0	-30.2
4960.0	V	34.0	32.5	3.4	-28.1	0.0	41.8	54.0	-12.2
7440.0	V	38.0*	36.9	4.6	-28.0	0.0	51.5	74.0	-22.5
7440.0	V	30.0	36.9	4.6	-28.0	0.0	43.5	54.0	-10.5
12400.0	V	39.0*	39.0	5.9	-39.1	0.0	44.8	74.0	-29.2
12400.0	V	30.0	39.0	5.9	-39.1	0.0	35.8	54.0	-18.2
19840.0	V	39.0*	40.2	7.5	-23.3	-9.5	53.9	74.0	-20.1
19840.0	V	31.0	40.2	7.5	-23.3	-9.5	45.9	54.0	-8.1
22320.0	H	38.0*	40.3	9.1	-24.0	-9.5	53.9	74.0	-20.1
22320.0	H	31.0	40.3	9.1	-24.0	-9.5	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. Read with * is peak reading.



Intertek Testing Services

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna #18, Tx @ 2402 MHz)
Engineer: Xi-Ming Yang
Date of test: June 23, 1998

FCC 15.247 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
4804.0	V	36.0*	32.5	3.4	-28.1	0.0	43.8	74.0	-30.2
4804.0	V	33.0	32.5	3.4	-28.1	0.0	40.8	54.0	-13.2
7206.0	H	33.0*	36.9	4.6	-28.0	0.0	46.5	74.0	-27.5
7206.0	H	28.6	36.9	4.6	-28.0	0.0	42.1	54.0	-11.9
12010.0	V	37.0*	39.0	5.9	-39.1	0.0	42.8	74.0	-31.2
12010.0	V	34.0	39.0	5.9	-39.1	0.0	39.8	54.0	-14.2
19216.0	H	39.0*	40.2	7.5	-23.3	-9.5	53.9	74.0	-20.1
19216.0	H	33.0	40.2	7.5	-23.3	-9.5	47.9	54.0	-6.1
21618.0	H	39.0*	40.3	9.1	-24.0	-9.5	54.9	74.0	-19.1
21618.0	H	30.0	40.3	9.1	-24.0	-9.5	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. Read with * is peak reading.



Intertek Testing Services

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna #18, Tx @ 2440 MHz)
Engineer: Xi-Ming Yang
Date of test: June 23, 1998

FCC 15.247 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
4880.0	V	36.0*	32.5	3.4	-28.1	0.0	43.8	74.0	-30.2
4880.0	V	33.4	32.5	3.4	-28.1	0.0	41.2	54.0	-12.8
7320.0	V	32.0*	36.9	4.6	-28.0	0.0	45.5	74.0	-28.5
7320.0	V	28.0	36.9	4.6	-28.0	0.0	41.5	54.0	-12.5
12200.0	V	39.0*	39.0	5.9	-39.1	0.0	44.8	74.0	-29.2
12200.0	V	33.0	39.0	5.9	-39.1	0.0	38.8	54.0	-15.2
19520.0	V	35.0*	40.2	7.5	-23.3	-9.5	49.9	74.0	-24.1
19520.0	V	25.0	40.2	7.5	-23.3	-9.5	39.9	54.0	-14.1
21960.0	H	36.0*	40.3	9.1	-24.0	-9.5	51.9	74.0	-22.1
21960.0	H	27.0	40.3	9.1	-24.0	-9.5	42.9	54.0	-11.1

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

ITS Intertek Testing Services

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna #18, Tx @ 2480 MHz)
Engineer: Xi-Ming Yang
Date of test: June 23, 1998

FCC 15.247 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
4960.0	V	37.0*	32.5	3.4	-28.1	0.0	44.8	74.0	-29.2
4960.0	V	34.0	32.5	3.4	-28.1	0.0	41.8	54.0	-12.2
7440.0	V	32.0*	36.9	4.6	-28.0	0.0	45.5	74.0	-28.5
7440.0	V	28.0	36.9	4.6	-28.0	0.0	41.5	54.0	-12.5
12400.0	V	39.0*	39.0	5.9	-39.1	0.0	44.8	74.0	-29.2
12400.0	V	34.0	39.0	5.9	-39.1	0.0	39.8	54.0	-14.2
19840.0	V	30.0*	40.2	7.5	-23.3	-9.5	44.9	74.0	-29.1
19840.0	V	23.0	40.2	7.5	-23.3	-9.5	37.9	54.0	-16.1
22320.0	H	36.0*	40.3	9.1	-24.0	-9.5	51.9	74.0	-22.1
22320.0	H	28.0	40.3	9.1	-24.0	-9.5	43.9	54.0	-10.1

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

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna #19, Tx @ 2402 MHz)
Engineer: Xi-Ming Yang
Date of test: June 26, 1998

FCC 15.247 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
4804.0	V	38.0*	32.5	3.4	-28.1	0.0	45.8	74.0	-28.2
4804.0	V	35.9	32.5	3.4	-28.1	0.0	43.7	54.0	-10.3
7206.0	H	31.0*	36.9	4.6	-28.0	0.0	44.5	74.0	-29.5
7206.0	H	28.0	36.9	4.6	-28.0	0.0	41.5	54.0	-12.5
12010.0	V	39.0*	39.0	5.9	-39.1	0.0	44.8	74.0	-29.2
12010.0	V	31.0	39.0	5.9	-39.1	0.0	36.8	54.0	-17.2
19216.0	H	39.0*	40.2	7.5	-23.3	-9.5	53.9	74.0	-20.1
19216.0	H	31.0	40.2	7.5	-23.3	-9.5	45.9	54.0	-8.1
21618.0	H	39.0*	40.3	9.1	-24.0	-9.5	54.9	74.0	-19.1
21618.0	H	31.0	40.3	9.1	-24.0	-9.5	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. Read with * is peak reading.

ITS Intertek Testing Services

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna # 19, Tx @ 2440 MHz)
Engineer: Xi-Ming Yang
Date of test: June 26, 1998

FCC 15.247 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
4880.0	V	39.0*	32.5	3.4	-28.1	0.0	46.8	74.0	-27.2
4880.0	V	37.0	32.5	3.4	-28.1	0.0	44.8	54.0	-9.2
7320.0	V	30.0*	36.9	4.6	-28.0	0.0	43.5	74.0	-30.5
7320.0	V	27.0	36.9	4.6	-28.0	0.0	40.5	54.0	-13.5
12200.0	V	39.0*	39.0	5.9	-39.1	0.0	44.8	74.0	-29.2
12200.0	V	30.0	39.0	5.9	-39.1	0.0	35.8	54.0	-18.2
19520.0	V	39.0*	40.2	7.5	-23.3	-9.5	53.9	74.0	-20.1
19520.0	V	30.0	40.2	7.5	-23.3	-9.5	44.9	54.0	-9.1
21960.0	H	29.0*	40.3	9.1	-24.0	-9.5	44.9	74.0	-29.1
21960.0	H	30.0	40.3	9.1	-24.0	-9.5	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. Read with * is peak reading.

ITS Intertek Testing Services

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020 (antenna #19, Tx @ 2480 MHz)
Engineer: Xi-Ming Yang
Date of test: June 26, 1998

FCC 15.247 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
4960.0	V	36.0*	32.5	3.4	-28.1	0.0	43.8	74.0	-30.2
4960.0	V	33.0	32.5	3.4	-28.1	0.0	40.8	54.0	-13.2
7440.0	V	32.0*	36.9	4.6	-28.0	0.0	45.5	74.0	-28.5
7440.0	V	28.0	36.9	4.6	-28.0	0.0	41.5	54.0	-12.5
12400.0	V	39.0*	39.0	5.9	-39.1	0.0	44.8	74.0	-29.2
12400.0	V	31.0	39.0	5.9	-39.1	0.0	36.8	54.0	-17.2
19840.0	V	39.0*	40.2	7.5	-23.3	-9.5	53.9	74.0	-20.1
19840.0	V	30.0	40.2	7.5	-23.3	-9.5	44.9	54.0	-9.1
22320.0	H	38.0*	40.3	9.1	-24.0	-9.5	53.9	74.0	-20.1
22320.0	H	30.0	40.3	9.1	-24.0	-9.5	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. Read with * is peak reading.



Intertek Testing Services

Company: Symbol Technologies
Project #: J98017331
Model: H9PLA3020
Engineer: Xi-Ming Yang
Date of test: May 27, 1998

FCC 15 Class B Radiated Emissions

Frequency	Antenna Polarity	Reading	Antenna Factor	Cable Loss	Pre-amp	Distance Factor	Corrected Reading	Limit	Margin
MHz	H/V	dB(uV)	dB(1/m)	dB	dB	dB	dB(uV/m)	dB(uV/m)	dB
80.0	H	46.2	7.8	0.8	-19.0	0.0	35.8	40.0	-4.2
120.0	H	45.0	6.8	1.0	-19.1	0.0	33.7	43.5	-9.8
200.0	H	46.3	11.2	1.1	-18.5	0.0	40.1	43.5	-3.4
260.0	H	46.7	12.8	1.2	-18.3	0.0	42.4	46.0	-3.6
360.0	H	30.0	15.9	1.4	-17.4	0.0	29.9	46.0	-16.1
500.0	H	31.6	18.0	1.7	-16.6	0.0	34.7	46.0	-11.3
700.0	H	20.5	20.9	2.0	-14.7	0.0	28.7	46.0	-17.3
780.0	H	25.9	22.2	2.1	-14.6	0.0	35.6	46.0	-10.4

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

Product Compliance Test Report

Product : SYMBOL
Model : WVC1049-5986510S
Reference no.: 10016

Ilssan America, Inc.

TABLE OF CONTENT

1.1 SAR TEST REPORT	3
1.2 PRODUCT COMPLIANCE TEST REPORT	4
2.1 GUIDELINES	5
LOCATION OF TEST	5
2.2 MEASUREMENT SYSTEM SPECIFICATIONS	5
2.3 TEST DESCRIPTION	6
2.4 PHANTOM	6
2.5 SIMULATED TISSUE	6
PREPARATION	7
2.6 MEASUREMENT OF ELECTRICAL CHARACTERISTICS OF SIMULATED TISSUE	7
DESCRIPTION OF THE SLOTTED COAXIAL WAVEGUIDE	8
2.7 SYSTEM DESCRIPTION	9
2.8 DATA EXTRAPOLATION	10
2.9 INTERPOLATION AND GRAM AVERAGING	10
2.10 POWER MEASUREMENT	11
2.11 POSITIONING OF D.U.T	11
3.1 DATA	13
ANTENNA OUT	—
INFORMATION OF TEST	✓
ATTENUATION VERSUS DEPTH SCAN	✓
AREA SCAN CONTOUR PLOT	✓
3D PLOT OF ABSORBED ENERGY	✓
ANTENNA IN	—
INFORMATION OF TEST	—
ATTENUATION VERSUS DEPTH SCAN	—
AREA SCAN CONTOUR PLOT	—
3D PLOT OF ABSORBED ENERGY	—
SIMULATED TISSUE	—
CALIBRATION PLOT OF TESTED SIMULATED TISSUE	✓

SAR Test Report

To: SYMBOL TECHNOLOGIES, INC.
 Date: FEBRUARY 16, 1998
 Re: 1001b

Radio Information

Radio Type : SYMBOL
 Model Number : WJCLAV9-S9R6S10S
 Serial Number : ALPH0934
 Frequency Band : 2450 MHz
 Frequency Tested: 2402 to 2480 MHz
 Nominal Output Power: 0.5 Wpk/10
 Antenna Type : PATCH
 Antenna Position: -
 Signal Type : PULSE
 Duty Cycle : -

Simulated Tissue

Type of Tissue : MUSCLE
 Measured Dielectric Constant: 52.1
 Measured Conductivity : 1.81

Conditions

Robot : 6 AXIS
 Scan Type : SAR
 Measured Field : E
 Measured Power : -
 Phantom Type : Body
 Phantom Position: WAIST
 Room Temperature: 25°C
 Distance Antenna-Shell: 0

Probe

Probe Name : D
 Probe Orientation: -
 Probe Offset : 0.4 cm
 Sensor Factor : 10.8
 Conversion Factor: 2.3
 Calibration Date : 02/98

Results

Maximum Fields Location: X: 0 Y: -1
 Peak Voltage: 1.261
 1cm Voltage: 0.863
 SAR (averaged over 1 gram of tissue) W/kg: 0.2

Comments : - Data taken with the unit against flat portion of the abdominal area
 - Signal to noise ratio very low

Reference no. 10016


Product Compliance Test Report

Re: 10016

Manufacturer : SYMBOL TECHNOLOGIES, INC
Address : One Symbol Plaza, Hightsville, NY 11792-1300
Product Description: DATA TRANSMITTER
Product Classification: CONTROLLED

Based on the above information and the test results shown in attached test report, of the aforementioned product, the undersigned states that :

Tests were performed to establish the maximum value of the SAR (Specific Absorption Rate) in a person holding the product as specified in the user's manual. The D.U.T. was found to be in compliance with the limits established in the FCC 96-326 document.

Name : PHILIPPE BISAILLON
Signed : 

Date : 02/16/98

Test Information

Date : February,16,1998
Time : 4:32:50 PM

Radio Type : Symbol
Manufacturer : Symbol
Model Number : WWC1049-S98691US
Serial Number : ALPH0934
FCC ID Number : H9PWWC1049

Frequency (Mhz) : 2450
Nominal Output Power (W) : 0.5
Antenna Type : Patch
Signal : Pulse

Phantom Type : Body Waist
Simulated Tissue : Muscle

Dielectric Constant : 1.81
Conductivity : 52.1

Probe Name : D
Probe Offset : 4
Scan : Sar
Measured Power (W) :

Sensor Factor : 10.8
Conversion Factor : 52.1
Antenna Position : Internal

Amplifier Settings :
Channel 1 : 0.52

Channel 2 : 0.438

Channel 3 : 0.467

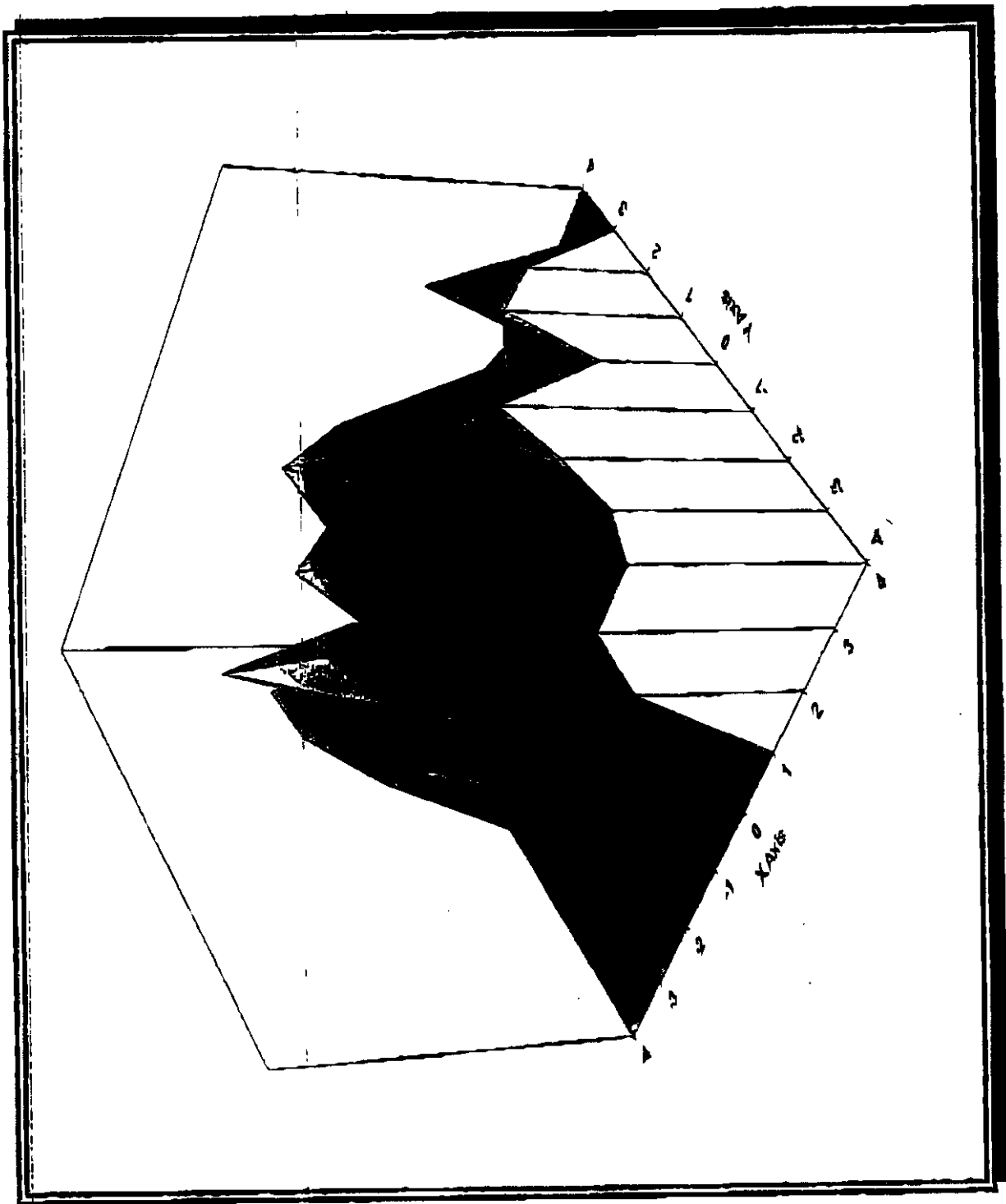
Location of Maximum Field :
X = 0 Y = -1

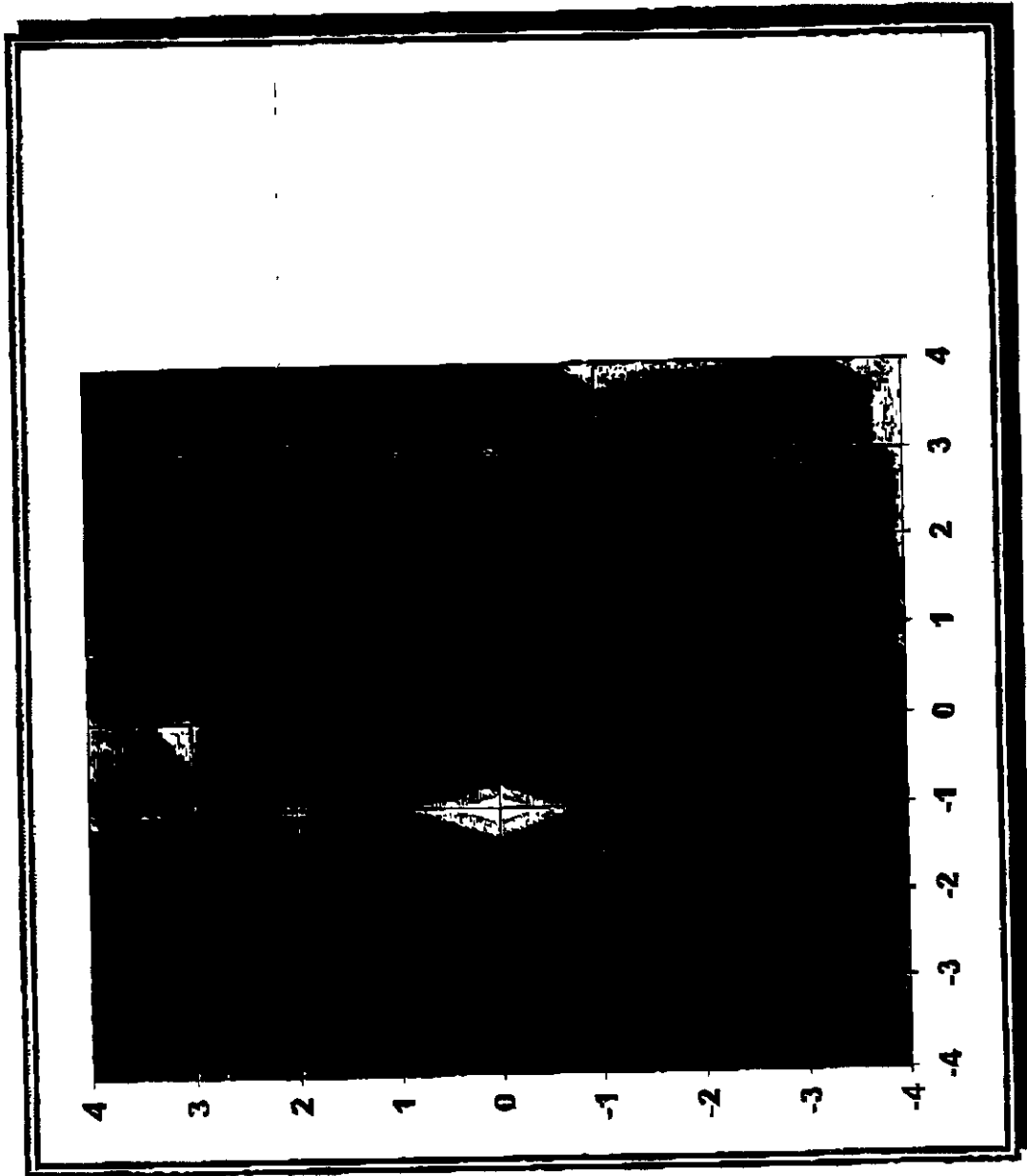
Measured Values (V) :					
1.107	0.925	0.8	0.652	0.808	0.854
0.777	0.769	0.755	0.673	0.742	

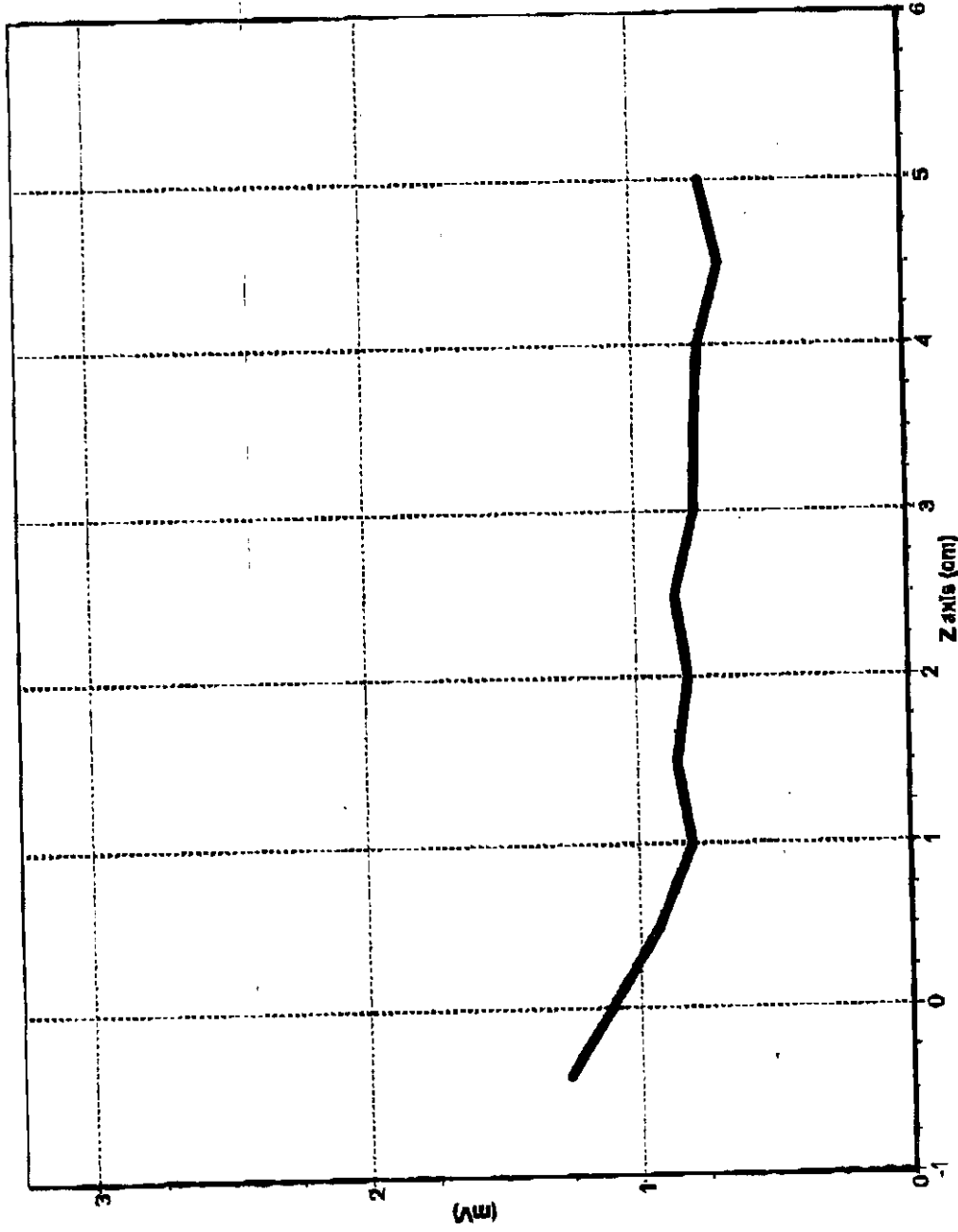
Peak Voltage : 1.261

1 Cm Voltage : 0.863

SAR(W/Kg) : 0.226







Reference no. 10016

2 Applicable Documents

2.1 Guidelines

The Guidelines of the following documents were considered in the performance of this test :

- 1) NCRP report 1986,
- 2) ANSI C95.1 - 1982,
- 3) IEEE C95.1 - 1991,
- 4) FCC rules 96 - 326

Location of test

All tests were performed in the EMC Near Field Measurement Laboratory located on 5450 NW, 33rd Avenue, Suite 100, Fort-Lauderdale, Florida, 33309.

2.2 Measurement System Specifications

Positioner	Probe
Type : 3D Near Field Scanner (Six Axis Ilesan America, Inc.) Location Repeatability : 0.1mm Speed 180°/sec AC motors	Sensor : E-Field Spatial Resolution : 0.1 cm ³ Isotropic Response : ± 0.5 dB Dynamic Range : 2 μW/g to 10 mW/g
Computer	Manikin
Type : 166 MHz Pentium Memory : 32 Meg RAM Operating System : Windows NT Monitor : 17" SVGA	Tissue : Simulated Tissue with electrical characteristics similar to the human at normal body temperature Shell : Fiberglass human shell shaped (1.5 mm thick)

Reference no. 10016

2.3 Test Description

In the SAR measurement, the positioning of the probes must be performed with sufficient accuracy to obtain repeatable measurements in the presence of rapid spatial attenuation phenomena. The accurate positioning of the E-field probe is accomplished by using a high precision robot. The robot can be taught to position the probe sensor following a specific pattern of points. In a first sweep, the sensor is positioned as close as possible to the brain's surface, with the sensor enclosure touching the inside of the fiberglass shell of the phantom. The SAR is measured on a grid of points which covers the curved surface of the head in an area larger than the area of the DUT. After the initial scan, a high resolution grid is used to locate the absolute maximum measured energy point. At this location, an attenuation versus depth scan will be accomplished by the measurement system to calculate the SAR value.

2.4 Phantom

The phantom used in the evaluation of the worst case exposure of the user of the DUT is a clear fiberglass enclosure 1.5 mm thick, shaped like a human head or body and filled with a mixture simulating the dielectric characteristics of the brain, muscle or other types of human tissue. The maximum width of the cranial model is 17 cm, the cephalic index is 0.7 and the crown circumference of the cranial model is 61 cm. The ear is 6 mm above the outer surface of the shell.

2.5 Simulated Tissue

- 1) Simulated Tissue : Suggested in paper by George Hartsgrove and colleagues in University of Ottawa Ref: Bioelectromagnetics 8:29-36 (1987)

Ingredient	Quantity
Water	40.4 %
Sugar	56.0 %
Salt	2.5 %
HEC	1.0 %
Bactericide	0.1 %

• Table. Example of composition of simulated tissue.

Usually, simulated tissue are mainly composed of water, sugar and salt. At higher frequencies, in order to achieve the proper conductivity, the solution does not contains salt. Also, at these frequencies, D.I. water and alcohol is preferred.

- 2) Tissue Density : Approximately 1.25 g/cm^3

Reference no. 10216

Preparation

Determine the volume needs and carefully measure all components. Obtain clean containers where the ingredients will be mixed. A stirring paddle and a hand drill or a similar device can be used to mix.

First, heat the DI water to about 40 °C to help the ingredients to dissolve and then pour the salt and the bactericide. Stir until all the ingredients are completely dissolved. Stir slowly while adding the sugar. Avoid high RPM from the mixing device to prevent air bubbles in the mixture. Later on, add the HEC to maintain the solution homogeneous. Mixing time is approximately 30 to 40 min.

2.6 Measurement of Electrical Characteristics of Simulated Tissue

- 1) Network Analyzer HP8753C or others
- 2) Slotted Coaxial Waveguide

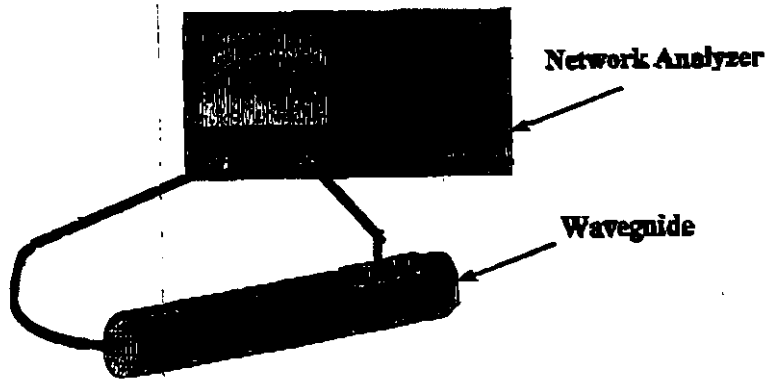
Description of the slotted coaxial waveguide

The Cylindrical waveguide is constructed with copper tube of about 30 to 40 cm of length, generally 12.7 mm diameter, with connectors at both ends. Inside of this tube, a conductive rod about 6.35 mm is coaxially supported by the two ends connectors (radiator). A slot 3 mm wide starts at the beginning of the tube to almost the $\frac{3}{4}$ of the tube length. The outer edge of the slotted tube is marked in centimeters (10 to 12) every 1 centimeter. A saddle piece containing the sampling probe is inserted in the slot so the tip of the probe is close but not in contact with the inner conductor (radiator). Calibration is performed by two steps :

To measure the electrical characteristics of the liquid simulated tissue, fill the coaxial waveguide, select CW frequency and measure amplitude and phase with the Network Analyzer for every point in the slot (typically 11). An effort is made to keep the results dielectric constant and conductivity within 5 % of published data.

Reference no. 10016

Electrical Characteristics Measurement Setup



$$c = 3 \cdot 10^8 \text{ m/s}$$

$$A = \frac{\Delta A}{20} \ln_{10} \frac{1}{m}$$

$$\theta = \frac{\Delta \theta \cdot 2\pi}{360}$$

$$\lambda = \frac{c}{f} \cdot \frac{100}{2.54} \text{ inches}$$

$$\epsilon_r = \frac{(A^2 + \theta^2) \cdot \lambda^2}{4\pi^2}$$

$$\theta' = \frac{|A| \cdot \lambda}{4\pi \sqrt{\epsilon_r}}$$

$$S = \tan(2\theta')$$

$$\sigma_r = \frac{\epsilon_r}{\sqrt{1+S^2}}$$

$$\sigma = S \cdot 2\pi \cdot f \cdot 8.854 \cdot 10^{-12} \cdot \sigma_r \text{ (S/m)}$$

where;

ΔA is the amplitude attenuation in dB

$\Delta \theta$ is the phase change in degrees for 5 cm of wave propagation in the slotted line

f is the frequency of interest in Hz

Reference no. 10016

2.7 System Description

The measurement system consists of an E-field probe, instrumentation amplifiers, high impedance cables connecting the amplifiers to the computer, the robotic arm with its extension and proximity switches, a phantom with simulated tissue and a radio holder to position the device under test. The E-field probe is a three channel device used to measure RF electric fields in the near vicinity of the source. The three sensors are mutually orthogonally positioned dipoles. Are constructed over a quartz substrate. Located in the center of the dipole is a schottky diode. High impedance lines are connecting the sensor to the amplifier and then to the computer. The probe have an isotropic response and is transparent to the RF fields.

Calibration is performed by two steps :

- 1) Determination of free space E-field from amplified probe outputs in a test RF field. This calibration can be performed in a TEM cell if the frequency is bellow 1 GHz and in a waveguide or some other methodologies above 1 GHz for free space. For the free space calibration, place the probe in the volumetric center of the cavity and at the proper orientation with the field. Then, rotate the probe 360 degrees until the three channels showing the maximum reading. This reading equate to $1\text{mW}/\text{cm}^2$ if that power density is available in the correspondent cavity.
- 2) Correlation of the measured free space E-field in the medium to temperature rise in a dielectric medium. E-field temperature correlation calibration is performed in a flat phantom filled with the appropriate simulated tissue.

For temperature correlation calibration, a RF transparent thermistor-based temperature probe is used in conjunction with the E-field probe. First, the location of the maximum E-field close to the phantom's bottom is determined as a function of power into the RF source; in this case, a dipole. Then, the E-field probe is moved sideways so that the temperature probe, while affixed to the E-field probe is placed at the previous location of the E-field probe. Finally, temperature changes for 30 seconds exposure at the same RF power levels used for the E-field measurement are recorded. The following equation relates SAR to initial temperature slope :

$$SAR = C \frac{\Delta T}{\Delta t} \quad \text{where :}$$

Δt = exposure time (30 seconds),

C = heat capacity of tissue (brain or muscle),

ΔT = temperature increase due to RF exposure.

The heat capacity used for brain simulated tissue is $2.7 \text{ joules}^\circ\text{C}/\text{g}$ and $3.0 \text{ joules}^\circ\text{C}/\text{g}$ for muscle.

Reference no. 16016

SAR is proportional to $\Delta T / \Delta t$, the initial rate of tissue heating, before thermal diffusion takes place. Now, it's possible to quantify the electric field in the simulated tissue by equating the thermally derived SAR to the E-field;

$$SAR = \frac{|E|^2 \cdot \sigma}{\rho} \quad \text{where;}$$

σ = simulated tissue conductivity,

ρ = Tissue density (1.25 g/cm³ for simulated tissue)

2.8 Data Extrapolation

There is a distance from the center of the sensor to the end of the protective tube called 'probe offset'. The data is collected when the probe outer surface make contact with the surface of the phantom (or interface), the field in the simulated tissue near the shell surface must be calculated. To do that, an average slope is obtained from the three data points nearest the surface and used to define an exponential decay of the energy density with the depth.

The field attenuation versus depth is recorded and extrapolated to obtain the $|E|^2$ value at the surface of the phantom, where the maximum SAR is located. This method has given repeatable results.

$$Slope = \frac{\frac{E_{tot_z1}}{E_{tot_z2}} + \frac{E_{tot_z2}}{E_{tot_z3}}}{2}$$

$$exp = \ln(slope) \cdot \frac{offset}{spacing}$$

$$E_{tot_z0} = E_{tot_z1} \cdot e^{exp}$$

2.9 Interpolation and Gram Averaging

The voltage, 1 cm above the phantoms surface (E_{tot_1cm}), is needed to calculate the exposure of one gram of tissue. The SAR value that estimates the average over 1 gram cubes is obtained from the extrapolated value. E_{tot_z0} and interpolated value, E_{tot_1cm} , is obtained by interpolation;

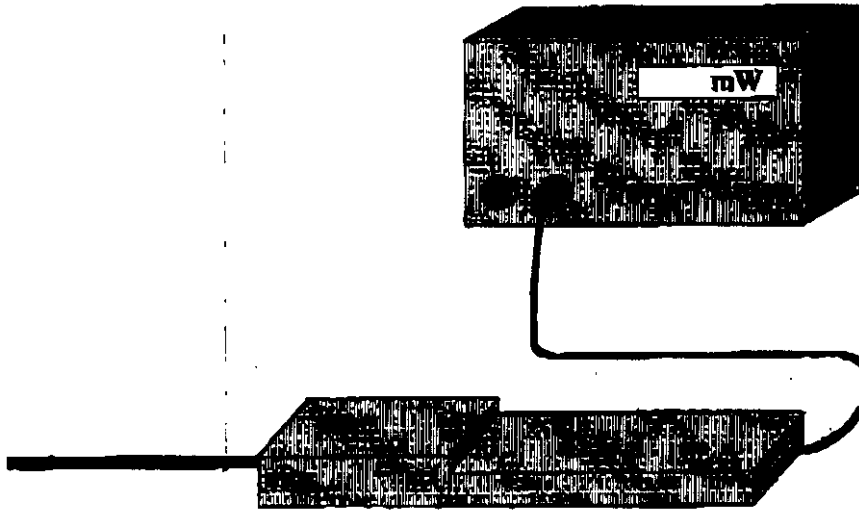
$$SAR(mW \cdot g) = \frac{E_{tot_z0} + E_{tot_1cm}}{2} \cdot \frac{CF}{SensorFactor}$$

Reference no. 10016

2.10 Power Measurement

When ever possible, a conducted power measurement is performed. To accomplish this, we utilize a fully charged battery, a calibrated power meter and a cable adapter provided by the manufacturer. The data of the cable and related circuits losses are also provided by the manufacturer. The power measurement is then performed across the operational band and the channel with the highest output power is recorded.

Power measurement is performed before and after the SAR to verify if the battery was delivering full power for the time of test. A difference in output power would determinate a need for battery replacement and repetition the SAR test.



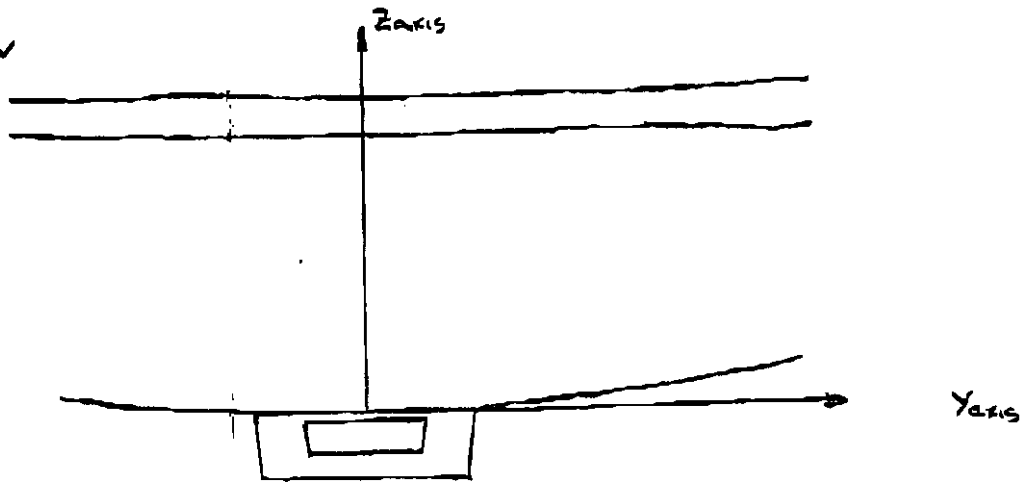
Nominal Power \approx Measured Power + Cable and Switching Mechanism Loss

2.11 Positioning of D.U.T.

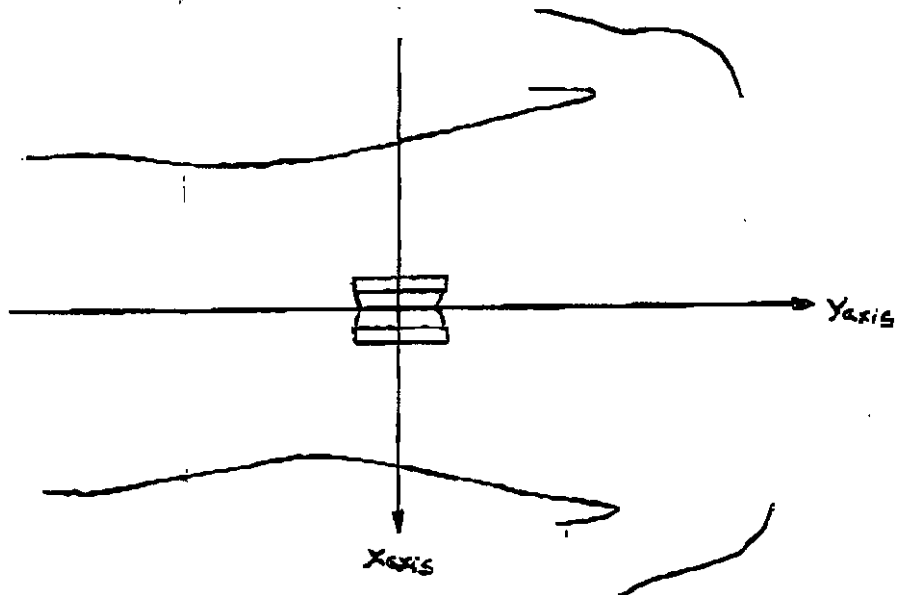
The clear fiberglass phantom shell have been previously marked with a highly visible line, so can easily be seen through the liquid simulated tissue, connecting the location of the inner earlobe with the corner of the lips. The D.U.T. can be placed by centering the speaker with the inner lobe of the ear and the center of the radio width with the corner of the mouth. At the same time the surface of the D.U.T. is always in contact with the phantoms shell. Three points contact; two in the ear region and one on the chin in addition to the previously describe alignment will assure repeatability of the test.

For **HAND HELD** devices (push-to-talk), the D.U.T. will be positioned as suggested by manufacturer operational manuals.

SIDE VIEW



TOP VIEW



Ilsan America, Inc.
EMC Laboratory

5450 NW 33 Ave, Suite 100
Fort-Lauderdale, FL, 33309

Date: 2/16/98, 16:28

Frequency: 2450 MHz

Comments: _____

Mixture: Muscle ('Brain' or 'Muscle')

of Points: 11

Point Dist: 0.5 cm.

-61.70	94.00
-63.60	-30.00
-65.10	-138.00
-66.90	106.00
-68.60	3.00
-70.30	-100.00
-72.50	155.00
-75.00	43.00
-77.20	-57.00
-79.50	-162.00
-82.50	96.00

-4.072727273
-58.95454545
-213.9818182
184.6727273

15393804003	rad/sec
8.86E-14	F/m
1.26E-08	H/m
-0.468890055	Np/cm
-3.734687267	rad/cm

52.1	53.6	50.92	56.28	-2.90
1.81	1.81	1.7195	1.9005	0.03

Mixture Test Amplitude and Phase Plot

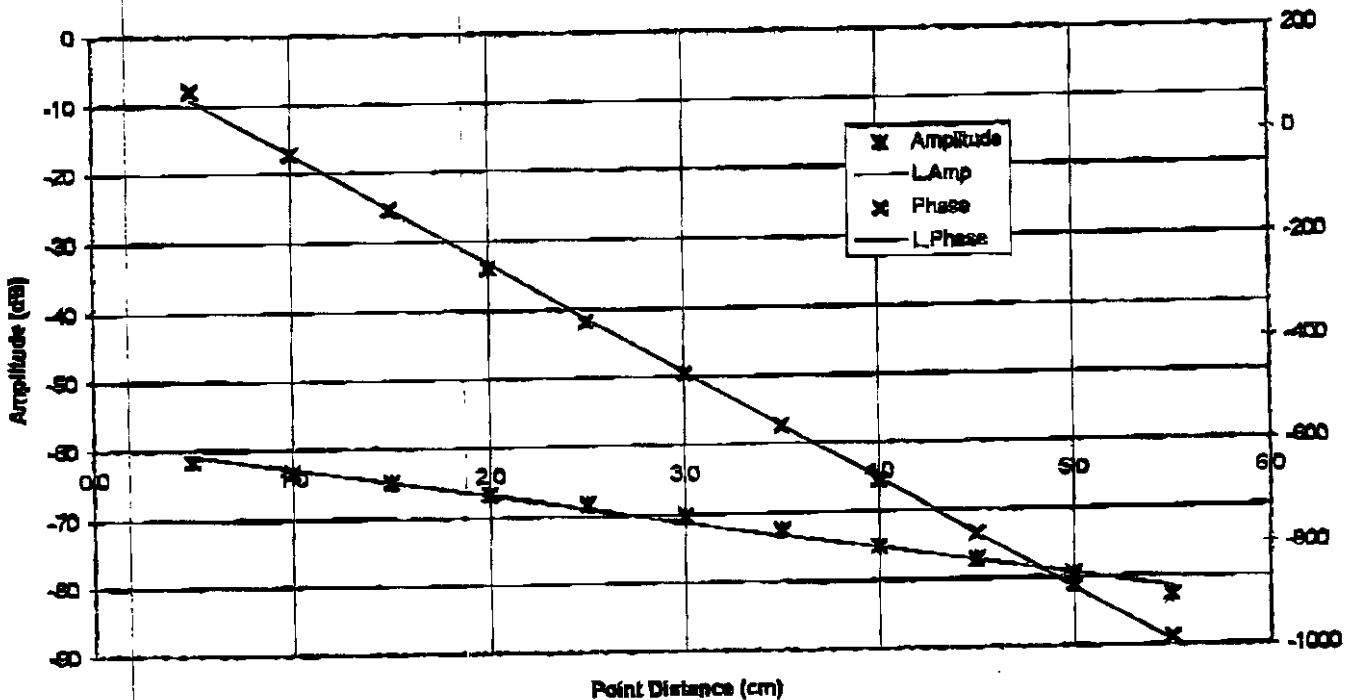


EXHIBIT 1

TECHNICAL REPORT

Exhibit 1 to this application is enclosed under a separate cover of Exhibit 7. As explained in the letter accompanying Exhibit 7, Symbol Technologies Inc., requests the Commission withhold Exhibit 1 from public disclosure because it contains trade secrets and confidential commercial information valuable to Symbol Technologies.

Intertek Testing Services - Menlo Park

Symbol Technologies Inc., Spread Spectrum
FCC ID: H9PLA3020

Date of Test: May 27, 1998 & June 3-26, 1998

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

Not Applicable - No digital part

Test results are attached

Intertek Testing Services - Menlo Park

Symbol Technologies Inc., Spread Spectrum
FCC ID: H9PLA3020

Date of Test: May 27, 1998 & June 3-26, 1998

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

Not required - EUT operation above 960 MHz only

Not Applicable - EUT is transmitter only

Not performed; exempt until June 1999

Test results are attached

Intertek Testing Services - Menlo Park

Symbol Technologies Inc., Spread Spectrum
FCC ID: H9PLA3020

Date of Test: May 27, 1998 & June 3-26, 1998

4.12 AC Line Conducted Emission, FCC Rule 15.207:

Not required; battery operation only

Test data attached