



**15.247 CERTIFICATION
FCC ID: IMKRL81PC**

EMI TEST REPORT

ON

RANGELAN802 PCMCIA

PREPARED FOR

PROXIM

**295 N. BERNARDO AVE
MOUNTAIN VIEW, CA 94043**

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PREPARED BY

ELECTRONIC COMPLIANCE LABORATORIES INC.

**1249 BIRCHWOOD DR.
SUNNYVALE, CA 94089**

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TEST REPORT NUMBER: A803015

DATE OF TEST: APRIL 8, 1998

**IF THIS DOCUMENT IS REPRODUCED, IT MUST BE REPRODUCED
IN ITS ENTIRETY.**



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1.0 TEST FACILITY

Name: Electronic Compliance Laboratories

Location: 1249 Birchwood Dr.
Sunnyvale, CA 94089

Site Filing: A site description is on file at the Federal Communications Commission
P.O. Box 429
Columbia, MD 21045

NVLAP LAB CODE: 200089

Types of Sites: Open Field Radiated and Indoor Screen Room (Line Conducted). All sites are constructed and calibrated to meet ANSI C63.4-1994 requirements.

2.0 TEST EQUIPMENT

Description	Manufacturer	Model	SN
EMI Receiver	HP	8546A	3325A00137
Spectrum Analyzer	HP	8563A	3137A01183
Preamp	HP	8447F	3113A05849
Preamp	HP	8449B	3008A00527
LISN	EM	ANS-25/2	2532
Biconical Antenna	EM	EM 6912	414
Log Periodic Ant	EM	EM 6950	311
Double Ridge Horn	EM	EM 6961	6231
Filter BP 1.2-45 GHz	FSY	HM 1160-1155	001
Filter BP 4-10 GHz	FSY	HM 2950-1565	001
Filter HP 10-18 GHz	FSY	HP 8601-7SS	001

3.0 EUT

RangeLAN802 PCMCIA CARD
M/N 84XX
S/N 0020A6324BC5
FCC ID: IMKRL1PC

With one each Proxim P/N 1900.0020 Clip-on Antenna and P/N 1900.0021 Stub Antenna. Antennas were not serialized.

4.0 SUPPORT EQUIPMENT

Toshiba Laptop Model No. T19005 S/N 11453067
110v/10Hz to 24Vac Transformer

5.0 EQUIPMENT CONFIGURATION

All of the equipment and cables were placed in worst case positions to maximize emissions.

Interconnecting cables were of the type and length specified in the individual equipment requirements.

Grounding was in accordance with the manufacturer requirements and conditions for intended use.

6.0 SUMMARY OF TESTS

The RangeLAN802 PCMCIA is a wireless LAN adapter with a low power frequency hopping spread spectrum (FHSS) radio system operating in the 2400-2483.5 MHz band. Tests were performed with two different antennas. Test firmware resident in the EUT was used to do the test.

6.1 15.247(a)(1) FREQUENCY HOPPING SYSTEMS

RangeLAN802 PCMCIA uses 79 channels, each 1 MHz wide. The system hops over one of 15 pseudorandom sequences. On average, each channel is used equally. Please refer to "RangeLAN802 Frequency Hopping Theory of Operation" attached to this submission for more details.

6.1.1 15.247(a)(1)(ii) CHANNEL UTILIZATION

A spectrum analyzer plots labeled "Channel UTILIZATION". The total number of channels is 79. The channels used have nominal center frequencies of 2402 through 2480 MHz. Three spectrum analyzer MAX HOLD plots labeled "BANDWIDTH" show the 20 dB bandwidth of the hopping channel to be < 1 MHz (.950 / .950 / .960 MHz) at the low/midband/high frequencies of 2.402/2.440/2.480 GHz. **Test Plots are shown in Appendix A.**

Zero span spectrum analyzer plot labeled "DWELL TIME" shows
Worst case transmission time in a given slot: 390 ms elapsed
time, <100 % duty
Maximum allowed: 400 msec.

Test Data in Appendix A.

6.1.2 **15.247(b) MAXIMUM PEAK OUTPUT POWER**

The three spectrum analyzer plots labeled " POWER OUT" show the maximum power of the hopping channel to be 24.0 dBm or 250 mW. The EUT was made to transmit uninterrupted random data on each of the low/mid/high channels. **Test Plots are shown in Appendix A.**

The output was taken from an N connector, through 3 feet of RG 142 cable, to Spectrum Analyzer set on Max Hold with no additional attenuation.

Power = 23.0 dBm (peak reading) +1.0dB cable loss = +24.0 dBm / 251 mW EIRP

Limit: +30 dBm / 1 W maximum power

1900.0021 Stub Antenna

EIRP = +24.0 (peak power) +0.0 (peak gain, dBi) = + 24.0 dBm / 251 mW EIRP

Limit: +36 dBm / 4 W maximum EIRP

1900.0001 Clip-on Antenna

EIRP = +24.0 (peak power) + 1.0 (peak gain, dBi) = + 25.0 dBm / 316mW EIRP

Limit: +36 dBm / 4 W maximum EIRP

6.1.3 15.247(c) OUT OF BAND EMISSIONS

The spectrum analyzer plots titled "" OUT OF BAND - BAND EDGES" shows the output spectrum of the EUT while hopping one of the pseudorandom sequences and continuously transmitting packetized data. The analyzer was placed in MAX HOLD mode, and individual sweeps were recorded continually for 10 minutes with the same spectrum analyzer connection as was used for peak output power. The resultant plot shows that the EUT emissions remain inside the 2400 - 2483.5 MHz band when measured in ≥ 100 kHz bandwidth during operation.

The spectrum analyzer plots labeled "OUT OF BAND <1GHz GHz", "OUT OF BAND 1 -2.75 GHz", and "OUT OF BAND 2.75 - 26.5 GHz" show that emissions measured in ≥ 100 kHz bandwidth are more than 20 dB below the highest level of the desired power outside of the 2400 - 2483.5 MHz band. **Test Plots are shown in Appendix A.**

6.1.4 15.203 ANTENNA REQUIREMENT

This product has an MMCX connector to provide unique coupling to the antenna. The Manufacture's control drawings, and the antenna drawings are in **Appendix B.**

6.1.5 15.205 RESTRICTED BAND RADIATION LIMITS

The EUT was placed on a wooden table resting on a turntable. The wooden table was approximately 1 meter above the groundplane of the 3 meter test site. The search antenna was moved in to 1 meter when necessary to improve the noise floor, and the appropriate range factor was applied. While the EUT was transmitting uninterrupted random data on each of the low/mid/high channels and with the spectrum analyzer on MAX HOLD, the turntable was rotated, and the search antenna raised and lowered in an attempt to maximize the received radiated emission level. **Test results are attached in Appendix C** in tabular form showing that no spurious signals were detected above the 74 dBuV/m peak/54dBuV/m average limits. Peak measurements were made with a RBW and VBW = 1Mhz. Average measurements were made with a RBW = 1 MHz and a VBW = 10 Hz.

6.1.6 15.209 RADIATED EMISSIONS

The attached table shows that the Class B radiated limits from 30 - 1000 MHz are not exceeded by the EUT. The EUT was operating normally with a combination of transmission and reception and hopping one of the fifteen pseudorandom sequences during this test. The EUT was placed near one edge of a wooden table resting on a turntable. The wooden table was approximately 1 meter above the groundplane of the 3 meter test site. The search antennas were located at 3 meters. Measurements were made in accordance with ANSI C63.4-1994. **Test Data is in Appendix D.**

Electronic Compliance Laboratories

Chris Byleckie
Technical Director

Date

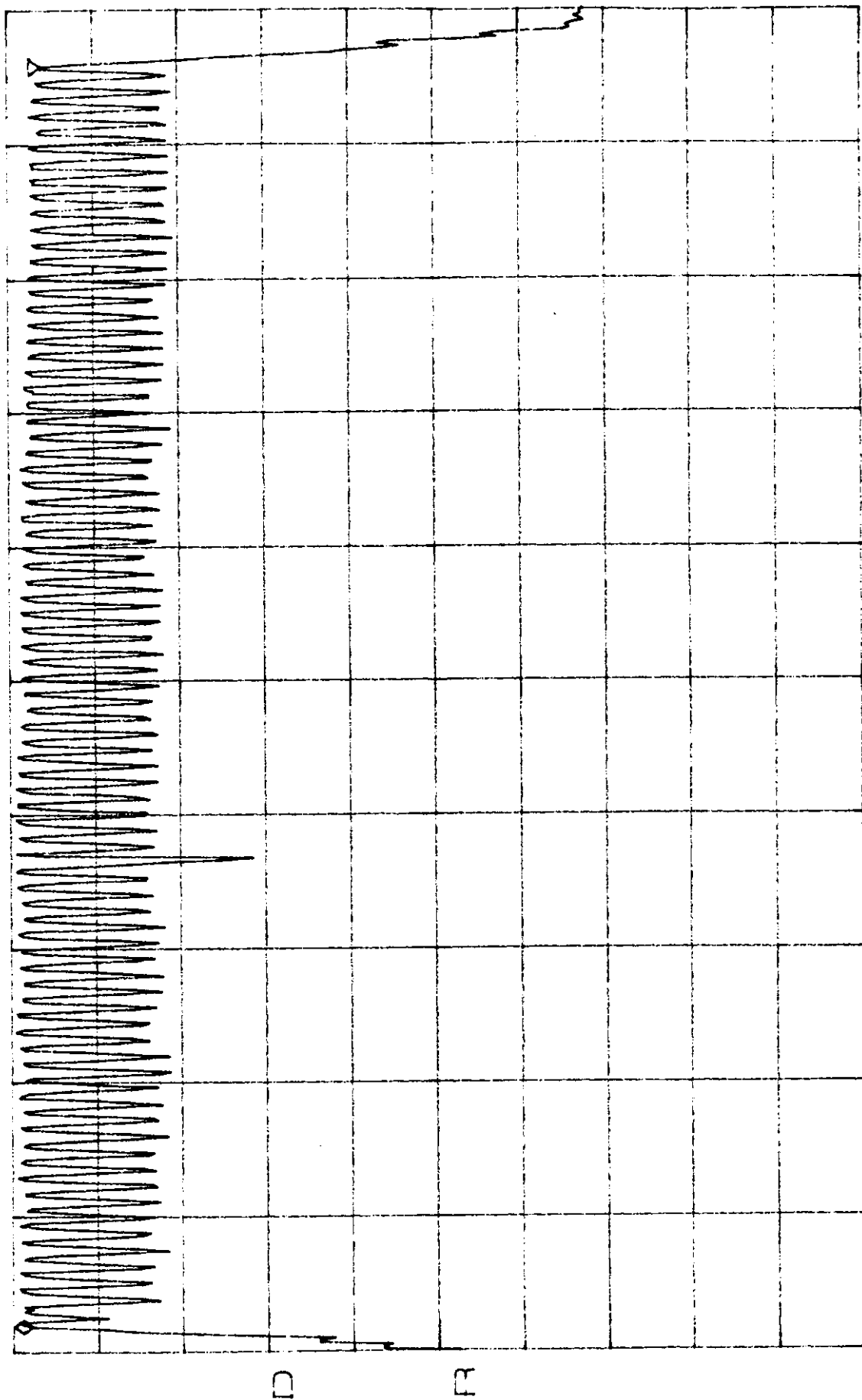
APPENDIX A
SPREAD SPECTRUM PLOTS

Channel Utilization

ATTEN 40dB
RL 24.0dBm

ΔMKR 1.66dB
-78.96MHz

10dB/



START 2.400000GHz STOP 2.484000GHz₁₀
A803015.DOC *FEBW 100KHz *VBW 100KHz SWP 50ms

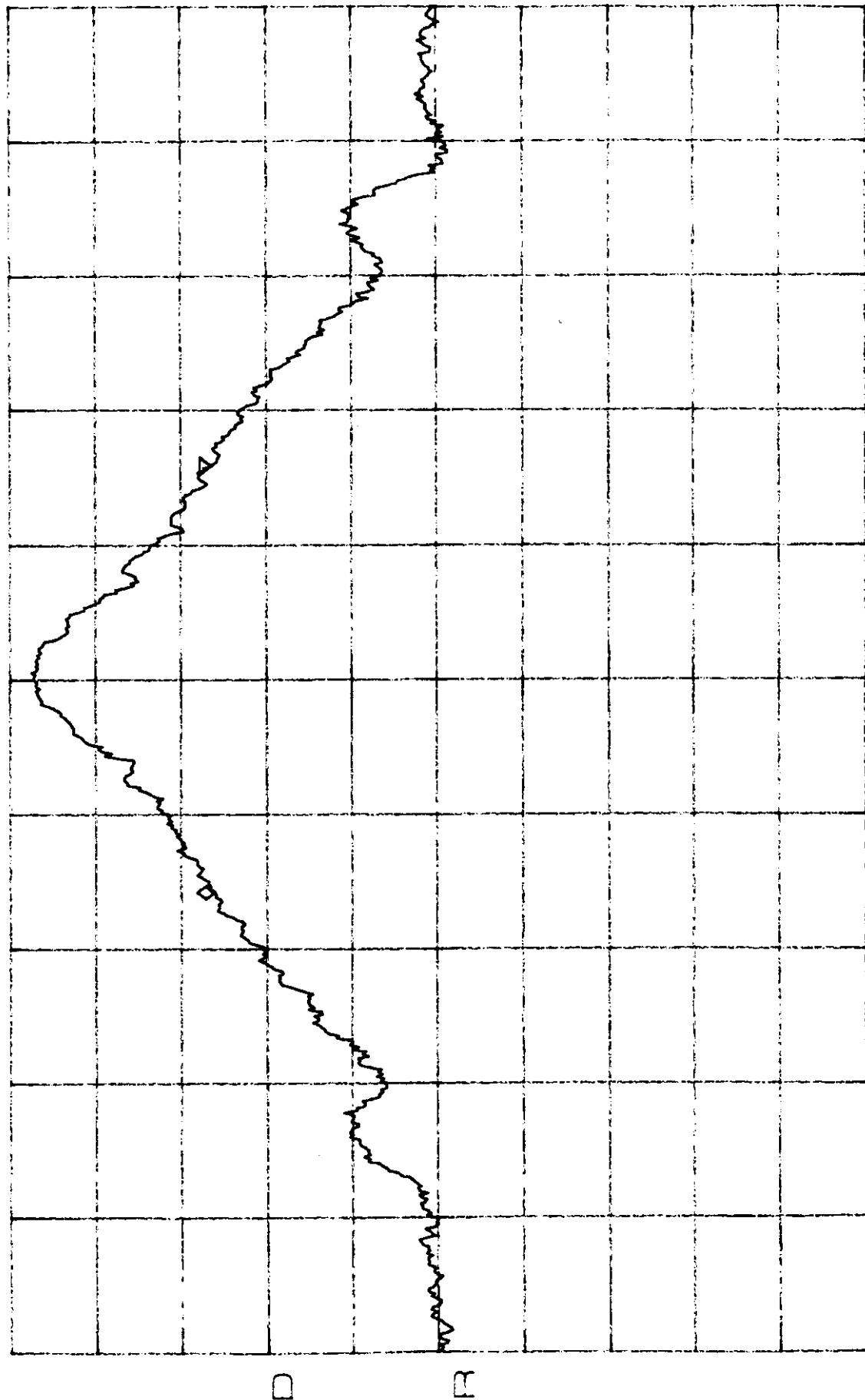
Bandwidth

ATTEN 40dB

ΔMKR - .33dB

RL 24.0dBm

10dB / -950kHz



CENTER 2.402000GHZ

SPAN 3.000MHZ

~~RBW 30kHz~~

VBW 30kHz

SWP 50ms

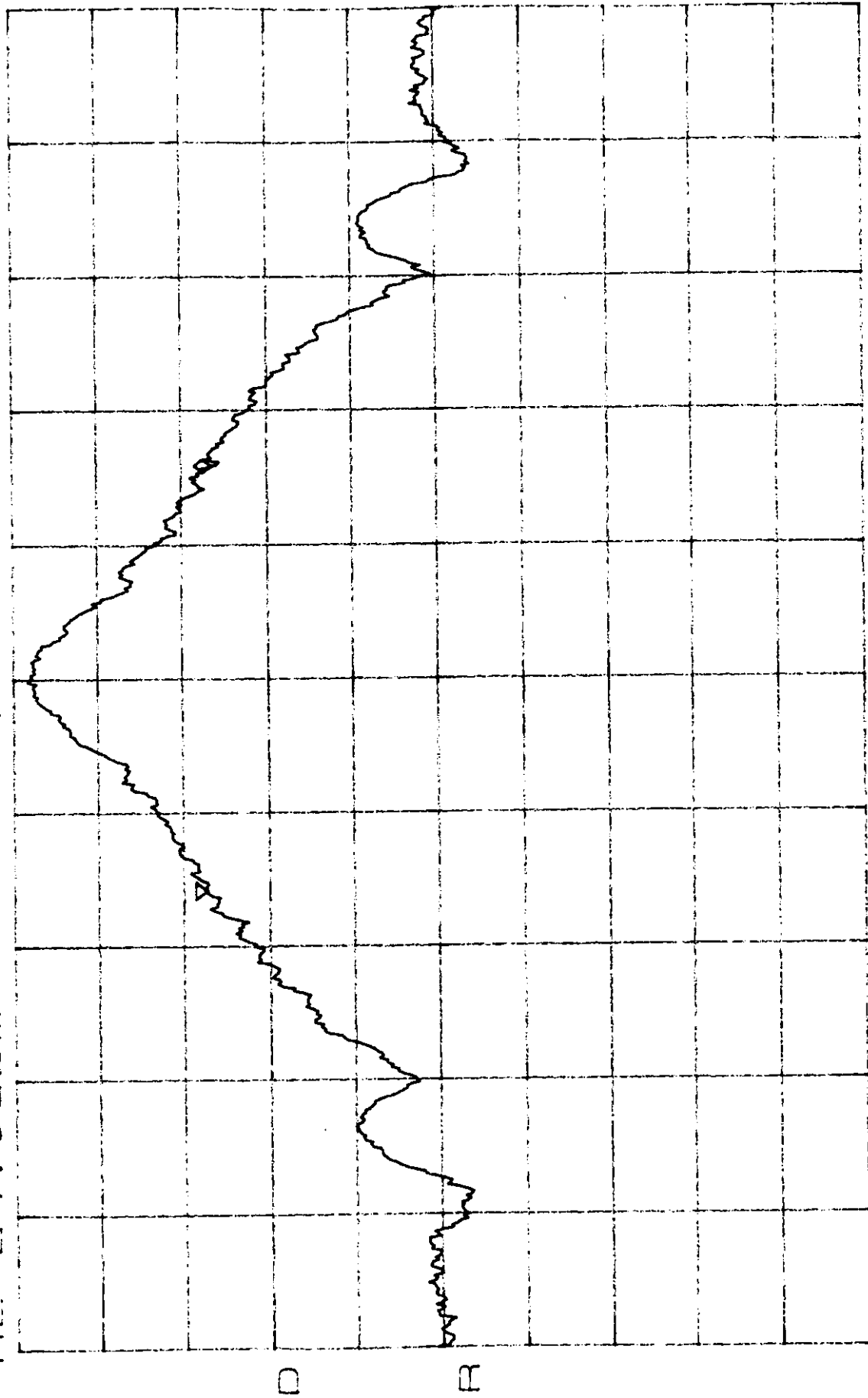
Bandwidth

ATTEN 40dB

ΔMKR --.83dB

RL 24.0dBm

10dB/ 950KHz



CENTER 2.440000GHZ SPAN 3.000MHZ

*A6015166 VBW 30KHZ SWP 50ms₁₂

Bandwidth

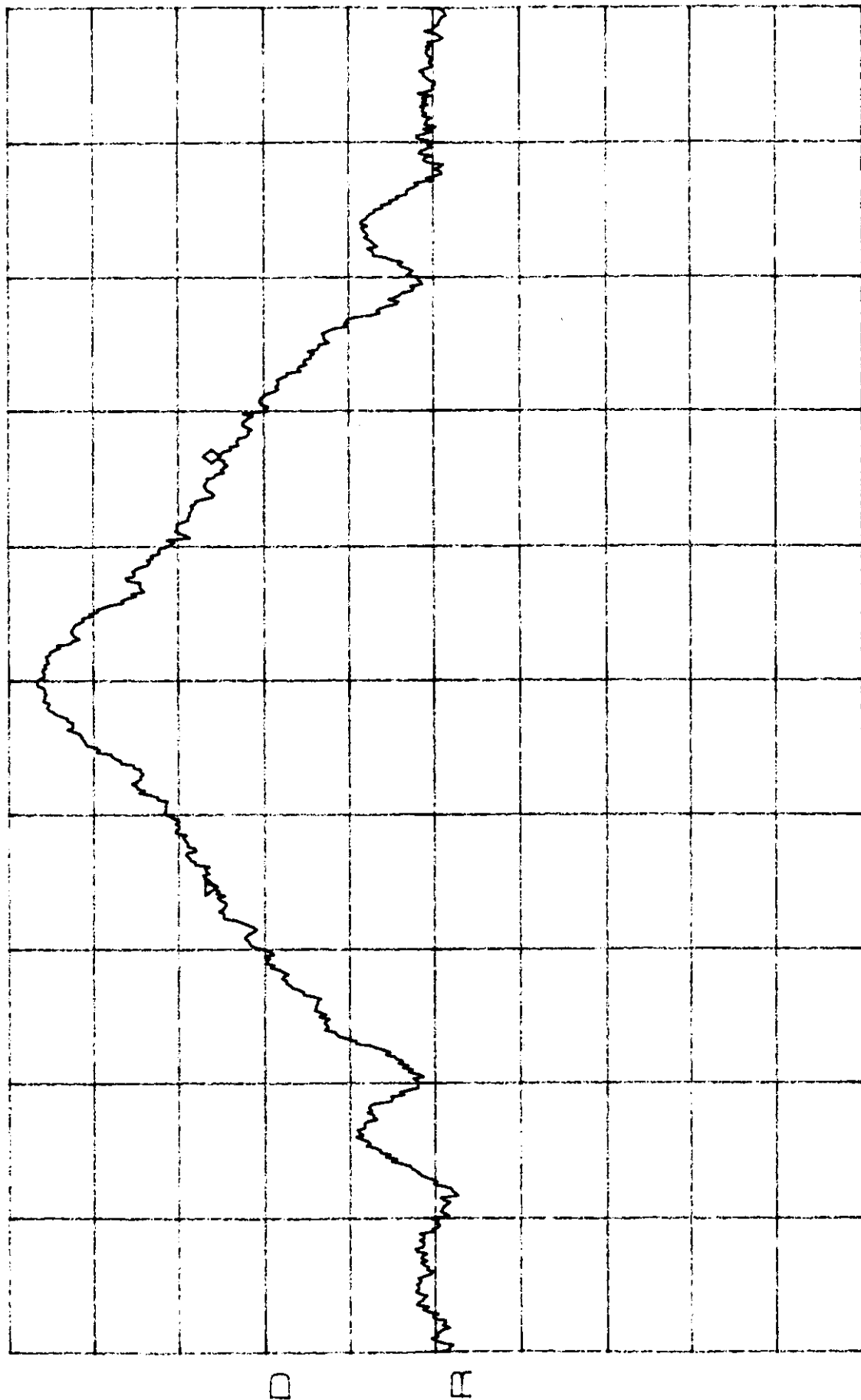
ATTEN 40dB

RL 24.0dBm

ΔMKR - .50dB

960KHz

10dB/



CENTER 2.480000GHZ

SPAN 3.000MHZ

*RBW 30KHz

VBW 30KHz

SWP 50mB

Dwell Time

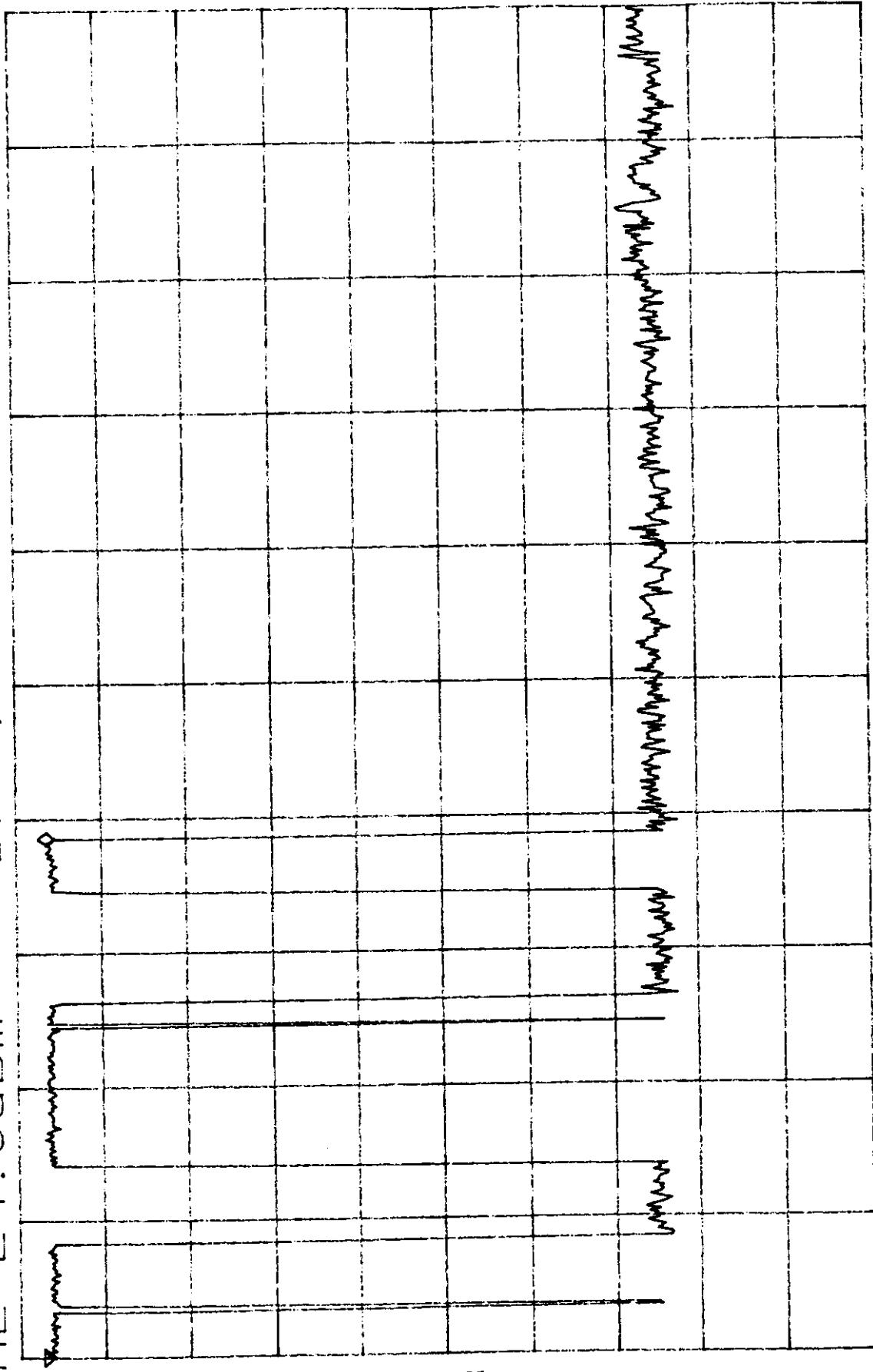
ATTEN 40dB

ΔMKR - .50dB

RL 24.0dBm

10dB/

390ms



TDS R

SPAN 0HZ

CENTER 2.440000000GHZ

*VBW 30KHZ

*VBW 30KHZ

14

SWP 1.0sec

Power Out

ATTEN 40dB

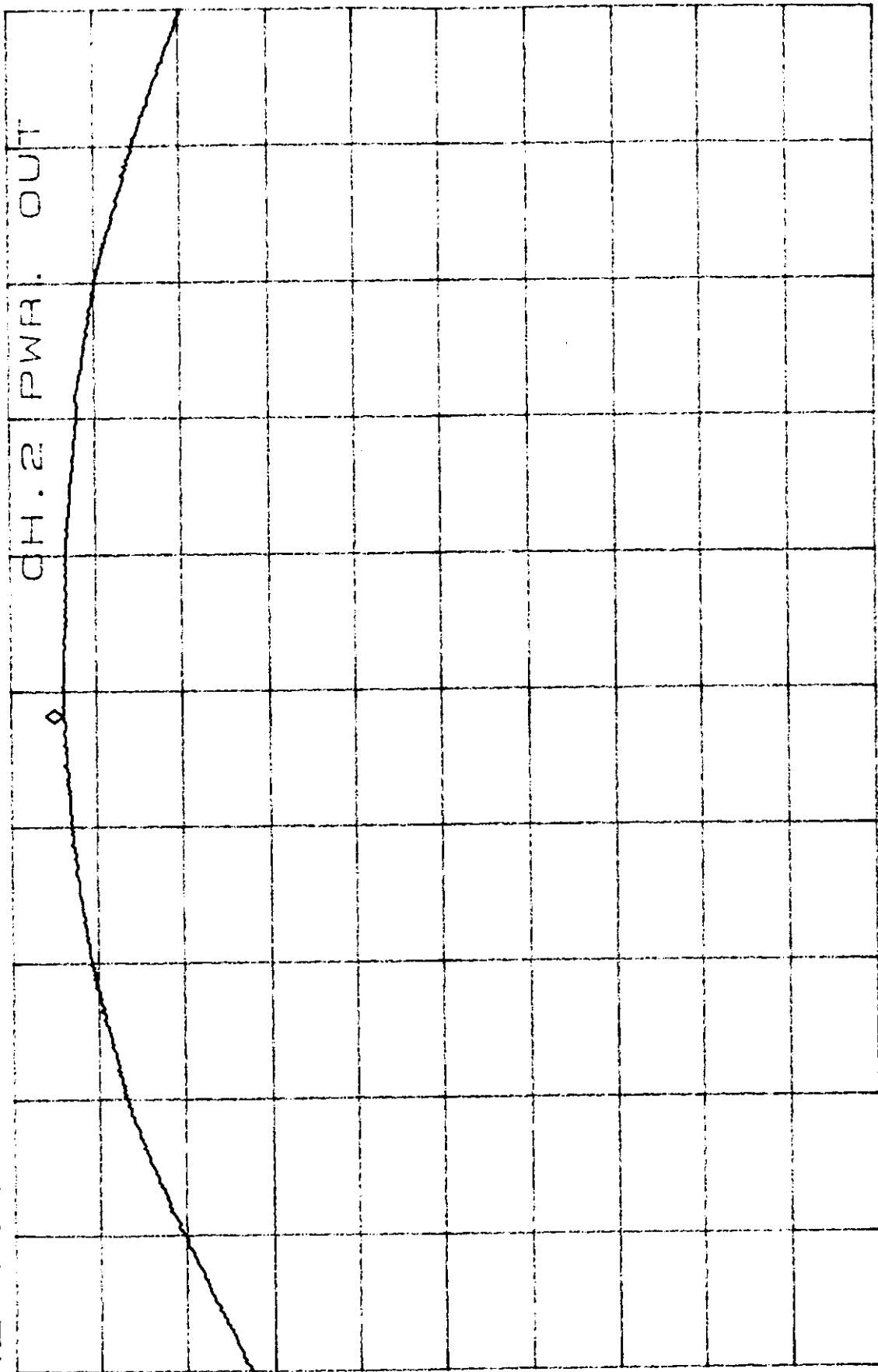
RL 30.0dBm

10dB/

MKR 24.00dBm

2.401908GHz

CH.2 PWR. OUT



D

R

CENTER 2.402000GHz

SPAN 5.000MHz

RES BW 2.0MHz

*VBW 3.0MHz

SWP 50ms

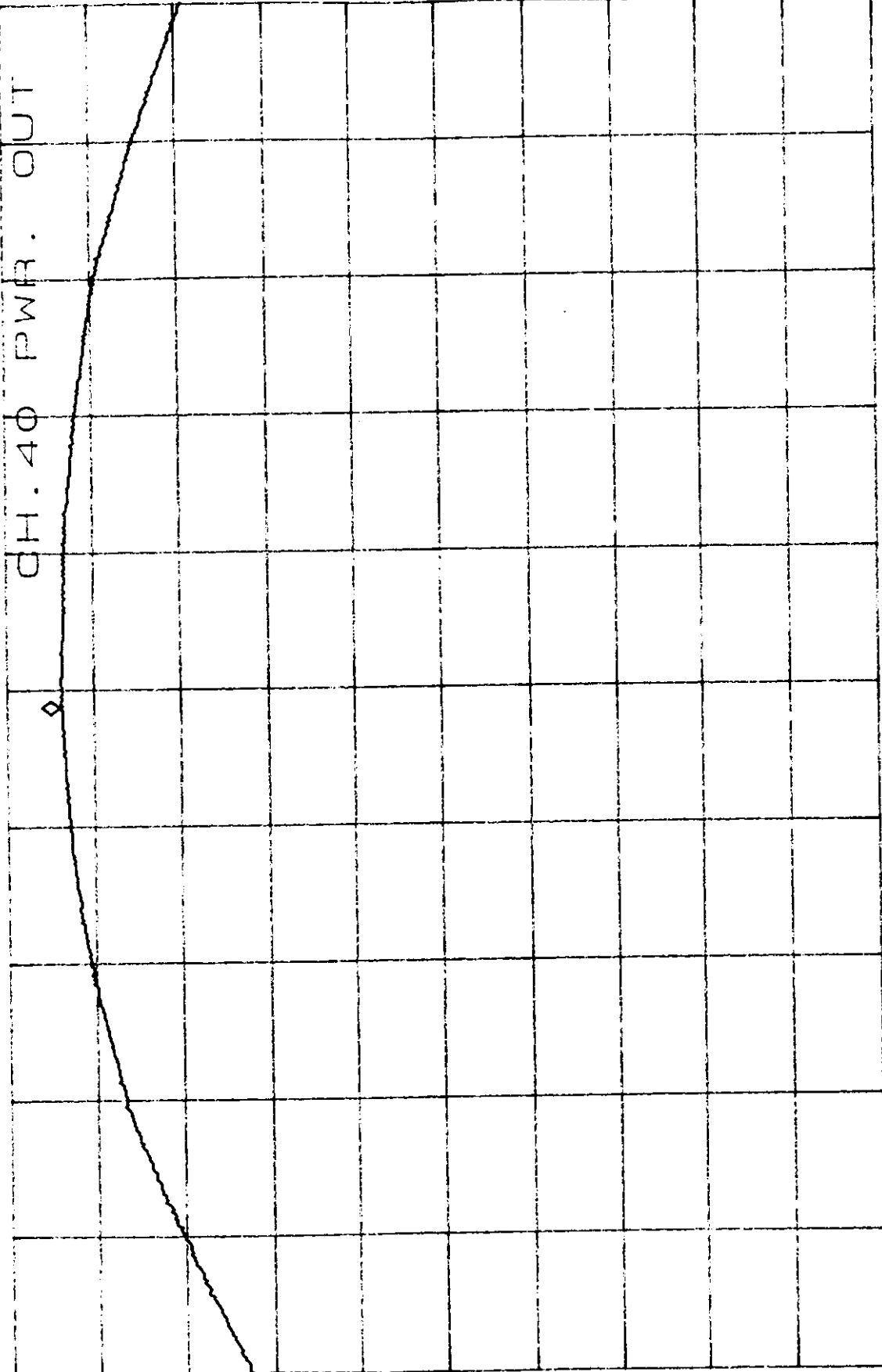
Power Out

ATTEN 40dB

MKR 24.00dBm

RL 30.0dBm

2.439933GHz



D

R

CENTER 2.440000GHZ

SPAN 5.000MHZ

*RBW 2.0MHZ

*VBW 3.0MHZ

16

SWP 50m

Power Out

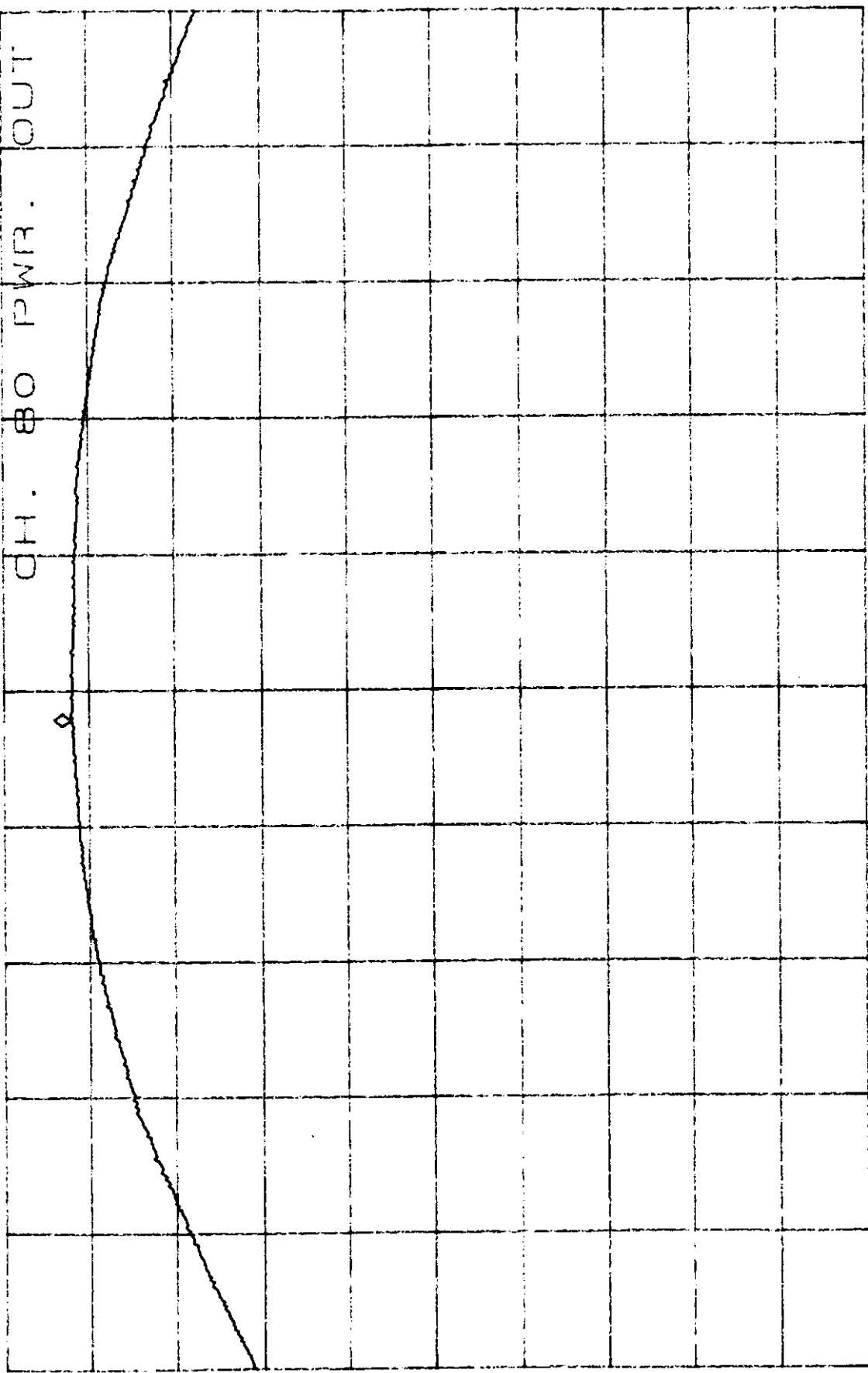
ATTEN 40dB

MKR 22.17dBm

RL 30.0dBm

2.479892GHz

10dB/



D

R

CENTER 2.480000GHz

SPAN 5.000MHz

* RBW 2.0MHz

* VBW 3.0MHz

17

SWP 50ms

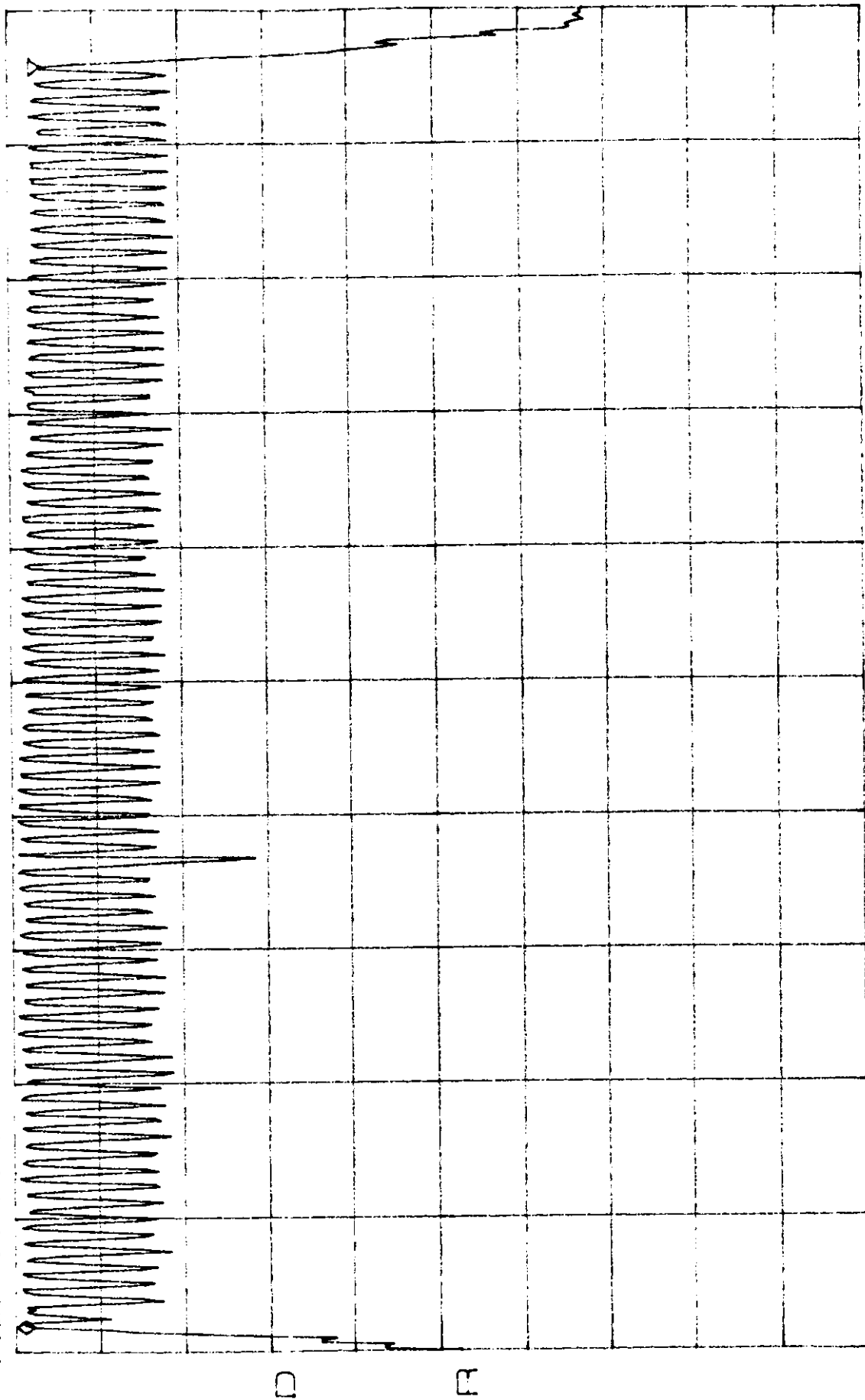
Out Of Band Emissions Band Edges

ATTEN 40dB

MARKER 1.66dB

RL 24.0dBm

10dB/ 78.96MHz



START 2.400000GHZ STOP 2.484000GHZ

*B3015B06/ 100KHZ *VBW 100KHZ SWP 50mS

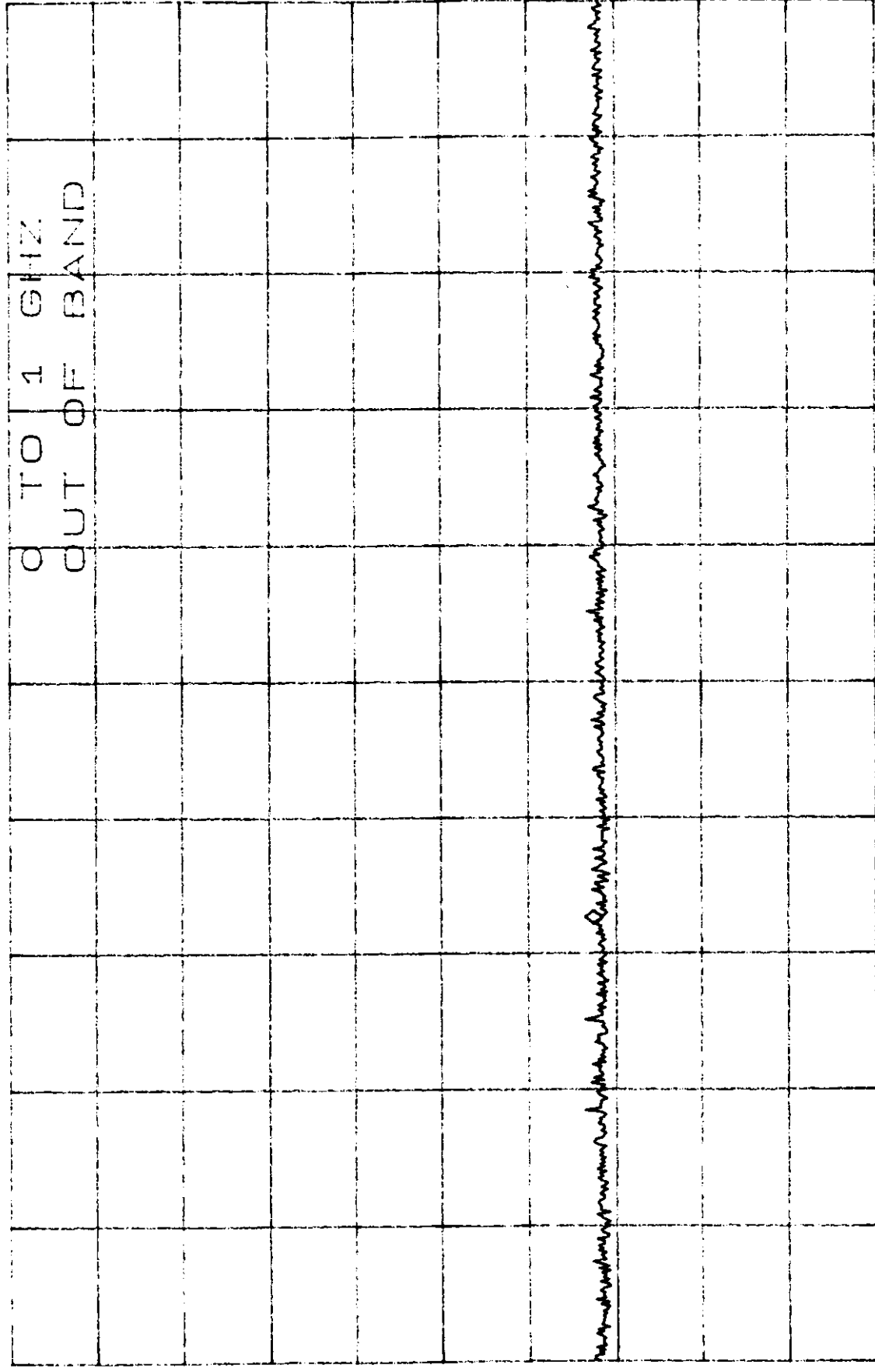
Out Of Band < 1 GHz

ATTEN 40dB

MKR -44.33dBm

RL 24.0dBm

10dB/ 327MHz



START 0Hz

STOP 1.000GHz

* RBW 100kHz

* VBW 100kHz

19

SWP 300ms

Out Of Band 1 - 2.75 GHz

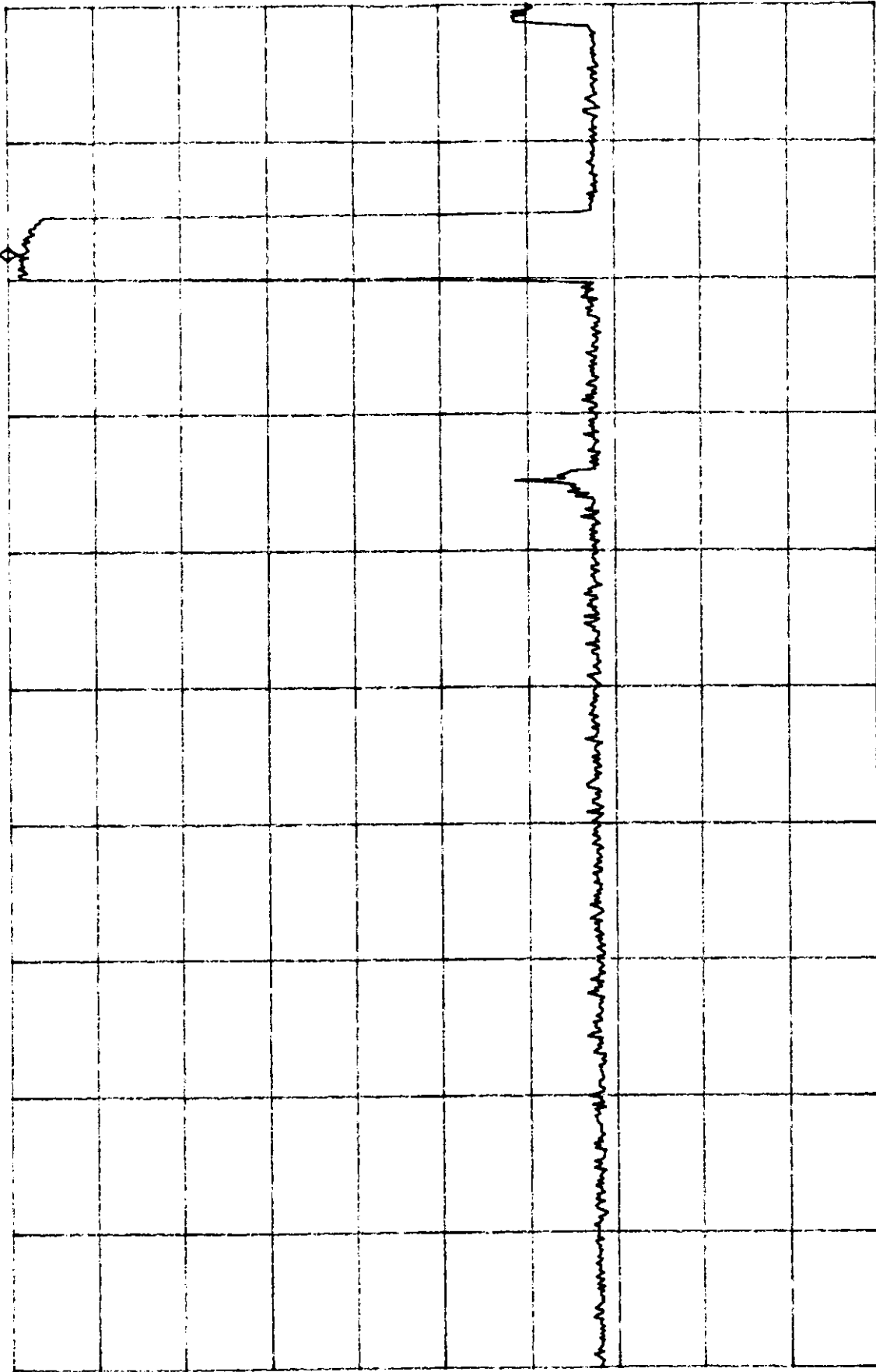
ATTEN 40dB

RL 24.0dBm

10dB/

2.432GHz

MKR 23.00dBm



START 1.000GHz

STOP 2.750GHz

A803012500 100kHz

*VBW 100kHz

SWP 500ms

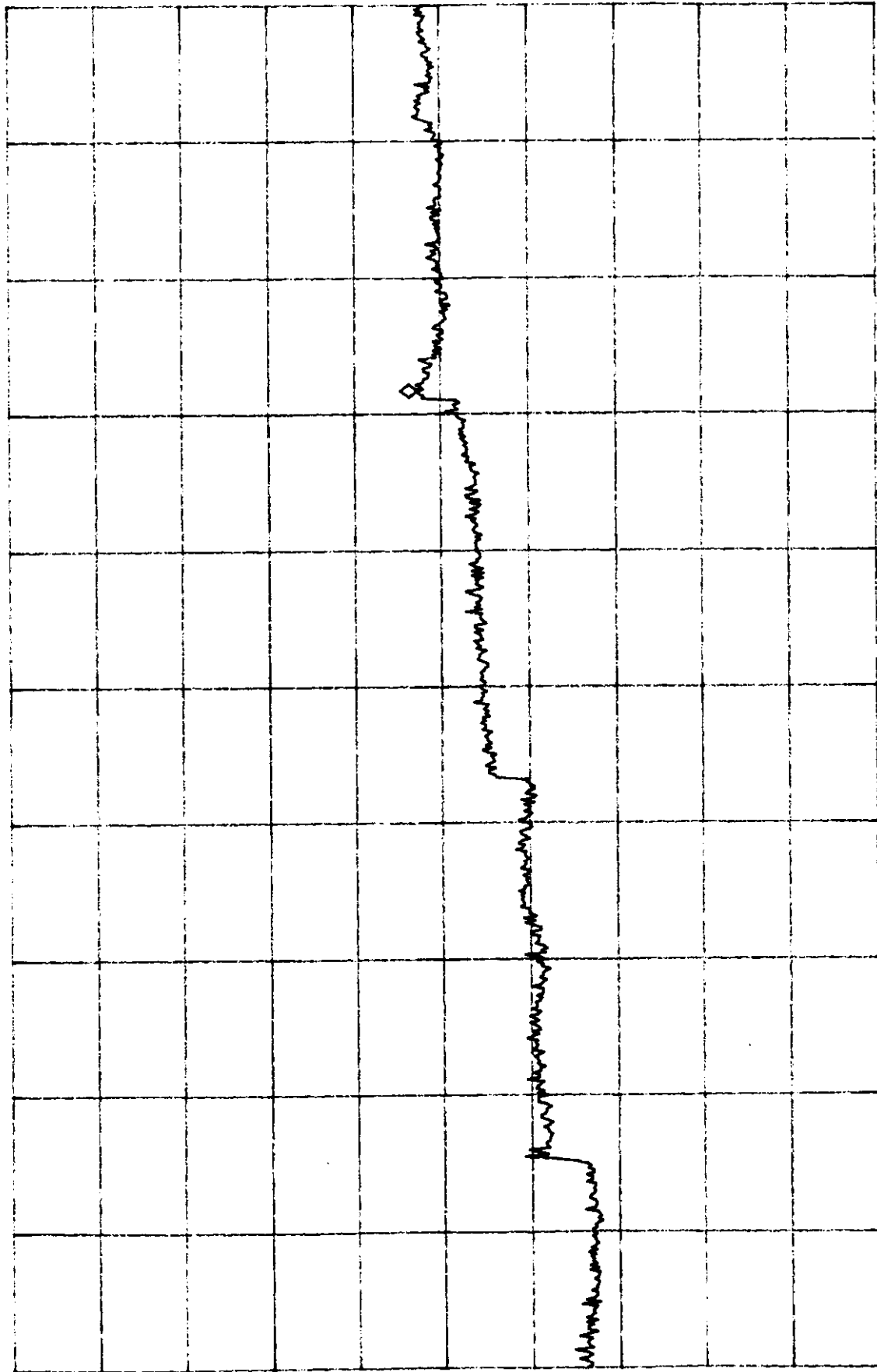
Out of Band 2.75 - 26.5 GHz

ATTEN 40dB

MKPR -23.33dBm

RL 24.0dBm

10dB/ 19.77GHz



START 2.75GHz

STOP 26.50GHz

*RBW 100kHz

*VBW 100kHz. 21

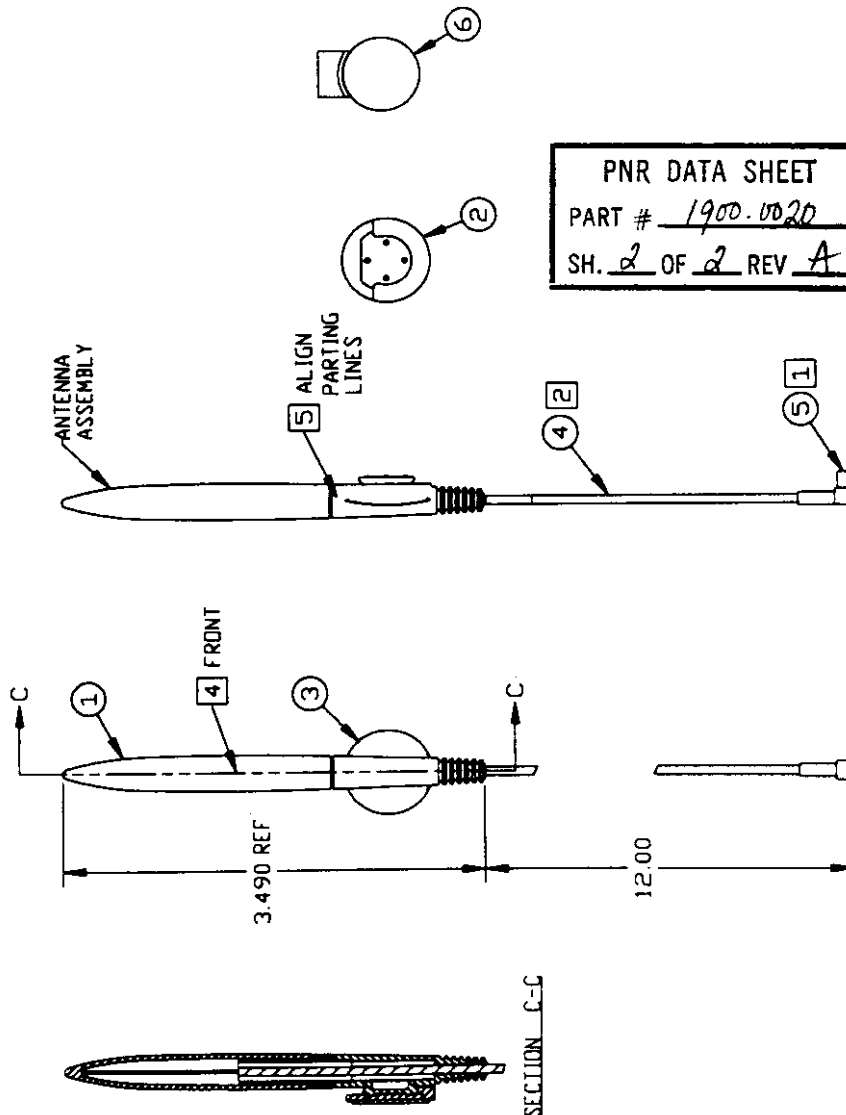
SWP 6.0sec

APPENDIX B
ANTENNA DRAWINGS

THIS DRAWING CONTAINS PROPRIETARY INFORMATION OF PROXIMIM AND IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE PRIOR WRITTEN PERMISSION OF PROXIMIM, AND IS NOT TO BE USED FOR ANY OTHER PURPOSES WITHOUT THE PRIOR WRITTEN PERMISSION OF PROXIMIM.

REVISION

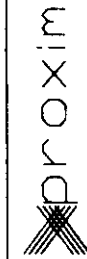
LTR	ECD	DATE	BY	APPR
01	P1014	5/31/96	BETA RELEASE	TLC
A	1480	11-8-96	PRODUCTION RELEASE	TLC



PNR DATA SHEET
PART # 1900.0020
SH. 2 OF 2 REV A

SPECIFICATION TABLE	
FREQUENCY	2.4 TO 2.5 GHz
VSWR	1.5:1 MAX
NOMINAL IMPEDANCE	50 Ω
PEAK GAIN	1.0 dBi
RADIATION PATTERN	OMNI-DIRECTIONAL
POLARIZATION	VERTICAL
OPERATING TEMPERATURE	-40 TO 85°C
POWER RATING	10 WATTS

ITEM	PART NO.	DESCRIPTION
1	8225.0066	BOOT
2	8225.0068	MOUNTING PLATE
3	8225.0069	ANTENNA BASE W/DOVETAIL
4	6000.0045	CABLE/COAX K TYPE, BLACK
5	2108.0074	RF CONN. MMCX RT ANGLE
6	2500.0024	TAPE, DOUBLE SIDED



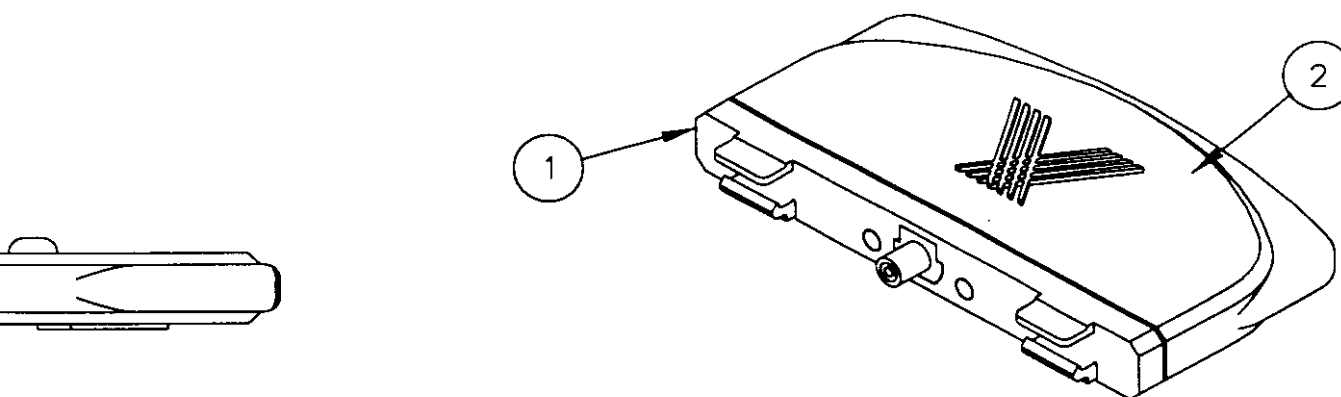
TITLE ANTENNA, DIPOLE, 2.4 GHz
RL2 1 PC

SIZE	B	DWG NO.	1900.0020	REV.	A
SCALE	1:1	FILE NAME	19000020	SHEET	1 OF 1

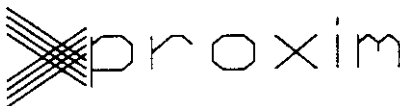
DRAWN	T. CASAREZ	7/21/95
DESIGN	T. CASAREZ	7/21/95
MATERIAL	SEE TABLE B	
FINISH	SEE NOTE 4	
CHECKED AND APPROVED		

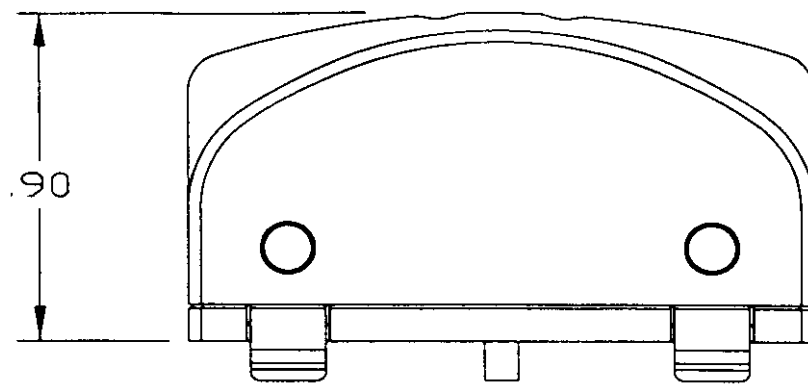
- NOTES:
- CONNECTOR TO BE ASSEMBLED AS SHOWN, CENTER PIN FACES THE REAR $\pm 15^\circ$.
 - ITEM 4 SHOULD HAVE NO PART OR MANUFACTURER MARKINGS.
 - ANTENNA ASSEMBLY, ITEM 2, AND ITEM 6 SHOULD BE PACKAGED IN A CLEAR PLASTIC ZIP-LOCK 3" X 4" BAG.
 - ALL FRONT FACING SURFACES TO BE CLASS A COSMETIC SURFACE FINISH. ALL OTHER SURFACES CLASS C FINISH. CLASS A IS DEFINED AS A SURFACE NORMALLY VIEWED BY THE USER. CLASS C IS DEFINED AS A SURFACE SELDOM SEEN BY THE USER.
 - THE PARTING LINE OF ITEM 1 AND ITEM 3 SHOULD BE ALIGNED $\pm 15^\circ$.
 - EACH ANTENNA TO BE TESTED TO MEET SPECIFICATIONS.
 - UNLESS OTHERWISE SPECIFIED, PART SHOULD MEET PMCMIA ANTENNA WORKMANSHIP REQUIREMENTS 1900.0032

P1049	8/28/96	ADD LIGHTPIPE, CHANGE OVERALL DIMENSIONS	TLC	
P1112	12/18/96	REVISE NOTES, ADD SPECIFICATIONS, SHT 2	TLC	
P1122	12/30/96	BOM CHANGE. QTY OF ITEM 4 S/B 2	BB	
P1147	3-3-97	REVISED TO SHOW SUB-ASSY DWG CONFIG	BB	
1694	5/1/97	PRODUCTION RELEASE	WF	TLC

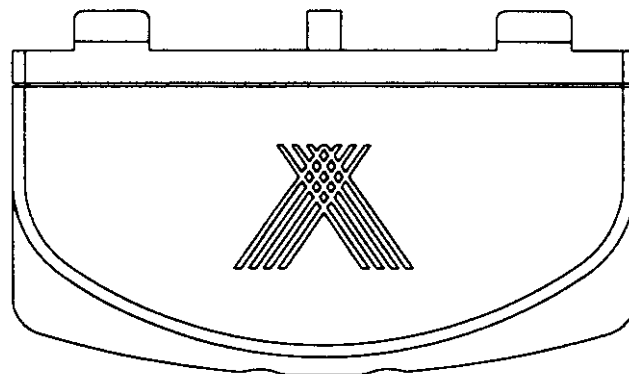
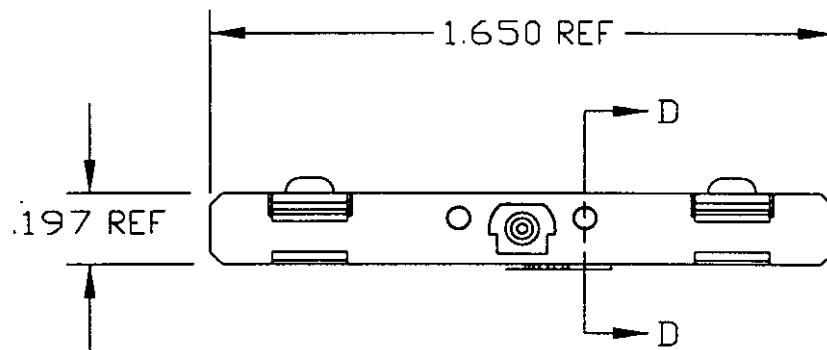


SPECIFICATIONS TABLE 3	
FREQUENCY	2.4 TO 2.5 GHz
VSWR	1.5:1 MAX
NOMINAL IMPEDANCE	50 Ω
PEAK GAIN	0.0 dBi
OPERATING TEMPERATURE	-20 TO 60°C
POWER RATING	10 W

DIMENSIONS IN INCHES DIMENSIONS X $\pm$.02 X $\pm$.010 AR $\pm$ 1° DIMENSIONS APPLY AFTER	DRAWN	T.CASAREZ	7/21/95			
	DESIGN	T.CASAREZ	7/21/95			
	MATERIAL			TITLE ANTENNA, SNAP-ON, 2.4 GHz RANGELAN2 PCMCIA 1 PC		
	SEE BOM					
	FINISH			SIZE	DWG NO.	REV.
CHECKED AND APPROVED			B	1900.0021	A	
			SCALE	FILE NAME	SHEET	
			2:1	190021-1	1 OF 2	



SECTION D-D



NOTES:

1. REFER TO SHEET 2 FOR ASSEMBLY.

2. UNLESS OTHERWISE SPECIFIED, PART SHOULD MEET
PCMCIA ANTENNA WORKMANSHIP REQUIREMENTS 1900.0032.

3 EACH ANTENNA TO MEET SPECIFICATIONS LISTED IN TABLE.

4 ALL EXTERIOR SURFACES TO HAVE A CLASS A COSMETIC SURFACE FINISH.

NOTES CONTINUED ON SHEET 2

APPENDIX C
RESTRICTED BAND DATA

FCC RADIATED DATA SHEET

EUT: RANGELAN802 PCMCIA
S/N:
RULE PART: 15.247

DATE: MAR 23 98
CUSTOMER NAME: PROXIM
WORK ORDER: 8032301
FILE: 8032301A.xls

ANTENNA: HORN OTHER CAL FACTOR ATTN dB: 0
MODULATION TYPE: DUTY dB: 0
TESTED BY: SURESH HP IL dB: 0
COMMENTS: DIST dB: 10

TETHERED ANTENNA

FREQ.	EADING	PK, QP,	A.F.	able los	AMP	O.C.F.	TOTAL	LIMIT	DELTA
MHz	dB(uV)	or Av	dB	dB	dB	dB	dB(uV/m)	dB(uV/m)	dB
Fund = 2402									
4804	40.0	Pk	32.8	7.0	35.0	10.0	34.8	74.0	-39.2
4804	29.2	Avg	32.8	7.0	35.0	10.0	24.0	54.0	-30.0
12010	38.2	Pk	39.3	13.6	35.0	10.0	46.0	74.0	-28.0
12010	16.8	Avg	39.3	13.6	35.0	10.0	24.7	54.0	-29.3
Fund = 2440									
4880	38.8	Pk	32.8	7.0	35.0	10.0	33.6	74.0	-40.4
4880	27.8	Avg	32.8	7.0	35.0	10.0	22.6	54.0	-31.4
7320	42.3	Pk	36.0	10.6	35.0	10.0	43.9	74.0	-30.1
7320	31.0	Avg	36.0	10.6	35.0	10.0	32.6	54.0	-21.4
12200	38.0	Pk	39.3	13.6	35.0	10.0	45.9	74.0	-28.2
12200	16.7	Avg	39.3	13.6	35.0	10.0	24.5	54.0	-29.5
Fund = 2480									
4960	40.3	Pk	32.8	7.0	35.0	10.0	35.1	74.0	-38.9
4960	29.9	Avg	32.8	7.0	35.0	10.0	24.7	54.0	-29.3
7440	40.2	Pk	36.0	10.6	35.0	10.0	41.8	74.0	-32.3
7440	30.2	Avg	36.0	10.6	35.0	10.0	31.8	54.0	-22.3
12400	38.2	Pk	39.3	13.6	35.0	10.0	46.0	74.0	-28.0
12400	16.5	Avg	39.3	13.6	35.0	10.0	24.4	54.0	-29.7

FCC RADIATED DATA SHEET

EUT: RANGELAN802 PCMCIA

S/N:

RULE PART: 15.247

DATE: MAR 23 98

CUSTOMER NAME: PROXIM

WORK ORDER: 8032301

FILE: 8032301B.xls

ANTENNA: HORN

OTHER CAL FACTOR ATTN dB: 0

MODULATION TYPE:

DUTY dB: 0

TESTED BY: SURESH

HP IL dB: 0

COMMENTS:

DIST dB: 10

SNAP ON ANTENNA

FREQ.	EADING	Pk, QP,	A.F.	able los	AMP	O.C.F.	TOTAL,	LIMIT	DELTA
MHz	dB(uV)	or Av	dB	dB	dB	dB	dB(uV/m)	dB(uV/m)	dB
Fund = 2402									
4804	38.8	Pk	32.8	7.0	35.0	10.0	33.6	74.0	-40.4
4804	28.9	Avg	32.8	7.0	35.0	10.0	23.7	54.0	-30.3
12010	36.5	Pk	39.3	13.6	35.0	10.0	44.4	74.0	-29.7
12010	16.7	Avg	39.3	13.6	35.0	10.0	24.6	54.0	-29.5
Fund = 2440									
4880	38.5	Pk	32.8	7.0	35.0	10.0	33.3	74.0	-40.7
4880	27.7	Avg	32.8	7.0	35.0	10.0	22.5	54.0	-31.5
7320	41.3	Pk	36.0	10.6	35.0	10.0	42.9	74.0	-31.1
7320	30.8	Avg	36.0	10.6	35.0	10.0	32.4	54.0	-21.6
12200	37.0	Pk	39.3	13.6	35.0	10.0	44.9	74.0	-29.2
12200	16.8	Avg	39.3	13.6	35.0	10.0	24.7	54.0	-29.3
Fund = 2480									
4960	40.8	Pk	32.8	7.0	35.0	10.0	35.6	74.0	-38.4
4960	29.3	Avg	32.8	7.0	35.0	10.0	24.1	54.0	-29.9
7440	41.0	Pk	36.0	10.6	35.0	10.0	42.6	74.0	-31.4
7440	30.2	Avg	36.0	10.6	35.0	10.0	31.8	54.0	-22.3
12400	37.3	Pk	39.3	13.6	35.0	10.0	45.2	74.0	-28.9
12400	16.5	Avg	39.3	13.6	35.0	10.0	24.4	54.0	-29.7

FCC RADIATED DATA SHEET

EUT: RANGELAN802 PCMCIA
 S/N:
 RULE PART:

DATE: MAR 23 98
 CUSTOMER NAME: PROXIM
 WORK ORDER: 8032301
 FILE: 8032301C.xls

ANTENNA: HORN OTHER CAL FACTOR ATTN dB: 0
 MODULATION TYPE: DUTY dB: 0
 TESTED BY: SURESH HP IL dB: 0
 COMMENTS: LO Leakage DIST dB: 10
 TETHERED ANTENNA

FREQ.	EADING	Pk, QP,	A.F.	able los	AMP	O.C.F.	TOTAL,	LIMIT	DELTA
MHz	dB(uV)	or Av	dB	dB	dB	dB	dB(uV/m)	dB(uV/m)	dB
Fund = 2077									
4154	41.5	Pk	33.1	7.0	35.0	10.0	36.6	74.0	-37.4
4154	31.0	Avg	33.1	7.0	35.0	10.0	26.1	54.0	-27.9
8308	43.2	Pk	37.0	11.4	35.0	10.0	46.6	74.0	-27.4
8308	30.2	Avg	37.0	11.4	35.0	10.0	33.6	54.0	-20.4
12462	38.2	Pk	39.3	13.6	35.0	10.0	46.0	74.0	-28.0
12462	17.5	Avg	39.3	13.6	35.0	10.0	25.4	54.0	-28.7
Fund = 2115									
4230	43.2	Pk	33.1	7.0	35.0	10.0	38.3	74.0	-35.7
4230	37.3	Avg	33.1	7.0	35.0	10.0	32.5	54.0	-21.5
8460	42.8	Pk	37.0	11.4	35.0	10.0	46.2	74.0	-27.8
8460	32.0	Avg	37.0	11.4	35.0	10.0	35.4	54.0	-18.6
Fund = 2155									
4310	43.7	Pk	33.1	7.0	35.0	10.0	38.8	74.0	-35.2
4310	33.7	Avg	33.1	7.0	35.0	10.0	28.8	54.0	-25.2
10774	39.0	Pk	38.9	13.6	35.0	10.0	46.5	74.0	-27.5
10774	28.0	Avg	38.9	13.6	35.0	10.0	35.5	54.0	-18.5

FCC RADIATED DATA SHEET

EUT: RANGELAN802 PCMCIA
S/N:
RULE PART: 15.247

DATE: MAR 23 98
CUSTOMER NAME: PROXIM
WORK ORDER: 8032301
FILE: 8032301D.xls

ANTENNA: HORN OTHER CAL FACTOR ATTN dB: 0
MODULATION TYPE: DUTY dB: 0
TESTED BY: SURESH HP IL dB: 0
COMMENTS: LO Leakage DIST dB: 10
SNAPON ANTENNA

FREQ.	READING	Pk, QP,	A.F.	able los	AMP	O.C.F.	TOTAL,	LIMIT	DELTA
MHz	dB(uV)	or Av	dB	dB	dB	dB	dB(uV/m)	dB(uV/m)	dB
Fund = 2077									
4154	41.0	Pk	33.1	7.0	35.0	10.0	36.1	74.0	-37.9
4154	30.2	Avg	33.1	7.0	35.0	10.0	25.3	54.0	-28.7
8308	41.7	Pk	37.0	11.4	35.0	10.0	45.1	74.0	-28.9
8308	30.8	Avg	37.0	11.4	35.0	10.0	34.2	54.0	-19.8
12462	37.7	Pk	39.3	13.6	35.0	10.0	45.6	74.0	-28.5
12462	17.5	Avg	39.3	13.6	35.0	10.0	25.4	54.0	-28.7
Fund = 2115									
4230	42.8	Pk	33.1	7.0	35.0	10.0	37.9	74.0	-36.1
4230	33.3	Avg	33.1	7.0	35.0	10.0	28.4	54.0	-25.6
8460	41.0	Pk	37.0	11.4	35.0	10.0	44.4	74.0	-29.6
8460	30.3	Avg	37.0	11.4	35.0	10.0	33.7	54.0	-20.3
Fund = 2155									
4310	42.5	Pk	33.1	7.0	35.0	10.0	37.6	74.0	-36.4
4310	31.0	Avg	33.1	7.0	35.0	10.0	26.1	54.0	-27.9
10775	39.7	Pk	38.9	13.6	35.0	10.0	47.2	74.0	-26.8
10775	18.0	Avg	38.9	13.6	35.0	10.0	25.5	54.0	-28.5

APPENDIX D
15.209
RADIATED EMISSIONS

Electronic Compliance Laboratories, Inc.
 1249 Birchwood Ave.
 Sunnyvale, CA
 Radiated Emissions
 Frequency range: 30MHz-1000MHz
 3 Meter Open Site
 Site Calibrated: June 1997

Government Agency and Limit: FCC Class B

QP = Quasi-Peak Note: Ignore peak readings when Quasi-Peak reading exists
 PK = Peak

Customer: Proxim Operator: Chris
 Date: 03-23-1998 Time: 08:35:09
 Temperature Range: 65 Deg F Percent Humidity: 60
 E.U.T.: RangeLAN802 PCMCIA
 Serial Number: 0020A6324BC5
 Support Devices:
 Serial Number:
 FCC ID:
 Exercise Program: rl2diag
 Modifications: N/A
 Report File Name: F:\TESTDATA\8032301.RF

Antenna Type: BICONICAL

TEST FREQ	TEST dBuV	ACTUAL dBuV/m	CLASS B LIMIT	VERSUS B LIMIT	TABLE DEGREES	ANTENNA HEIGHT	POLAR- IZATION	DETECTOR Type
32.000	45.0	37.2	40.0	-2.8	0	1.0	V	PK
32.000	43.0	35.1	40.0	-4.9	0	1.0	V	QP
64.000	51.0	31.2	40.0	-8.8	0	1.0	V	PK

NOTE: the above two Readings are amb

176.000	35.3	26.0	43.5	-17.5	90	1.0	V	PK
160.000	38.2	28.6	43.5	-14.9	90	1.5	V	PK
128.000	36.0	25.4	43.5	-18.1	90	2.0	H	PK
160.000	38.2	28.6	43.5	-14.9	0	1.5	H	PK

CHANGED ANTENNA TO LOG PERIODIC

336.000	36.9	27.8	46.0	-18.2	270	1.0	V	PK
349.000	41.8	32.9	46.0	-13.1	200	1.5	V	PK
352.000	39.1	30.3	46.0	-15.7	0	1.5	V	PK
368.000	36.7	28.2	46.0	-17.8	180	1.5	V	PK
400.000	38.3	30.6	46.0	-15.4	0	1.5	V	PK
416.000	41.5	34.1	46.0	-11.9	0	1.5	V	PK
480.000	37.7	31.7	46.0	-14.3	90	1.5	V	PK

TEST FREQ	TEST dBuV	ACTUAL dBuV/m	CLASS B LIMIT	VERSUS B LIMIT	TABLE DEGREES	ANTENNA HEIGHT	POLAR- IZATION	DETECTOR Type
=====	=====	=====	=====	=====	=====	=====	=====	=====
304.000	33.5	24.3	46.0	-21.7	0	1.5	H	PK
349.000	41.0	32.1	46.0	-13.9	90	1.0	H	PK
352.000	38.0	29.2	46.0	-16.8	270	1.0	H	PK
400.000	39.8	32.1	46.0	-13.9	270	1.0	H	PK
416.000	38.9	31.5	46.0	-14.5	270	1.0	H	PK
432.000	38.2	31.0	46.0	-15.0	270	1.0	H	PK
456.000	36.7	30.1	46.0	-15.9	270	1.0	H	PK