REPORT NO	:	RF89072702
PRODUCT	:	Wireless LAN
MODEL NO	:	GL241101-1, GL241101-2
SERIAL NO	:	N/A
CLIENT	:	GLOBAL SUN COMMUNICATIONS, INC.
ADDRESS	:	2F. No.6, Bau Chaing Road, Hsin-Tien, Taiwan, R.O.C.
ISSUED BY	:	Advance Data Technology Corporation (ADT Corp.)
OFFICE ADDRESS	:	11F, No. 1, Sec. 4, Nan-King East Rd., Taipei, Taiwan, R.O.C.
LABORATORY ADDRESS	:	No. 47, 14 Ling, Chia Pau Tsuen, Lin Kou Hsian, Taipei Hsien, Taiwan, R.O.C.
TEST STANDARD	:	47CFR Part 15, Subpart C (15.247) and Subpart B
TEST DATE	:	August 7, 2000
TEST RESULT	:	Pass

Accredited Laboratory

TABLE OF CONTENTS

1 CERTIFICATION

Issue Date: August 10, 2000

PRODUCT	:	Wireless LAN
MODEL NO	:	GL241101-1, GL241101-2
FCC ID	:	O7J-GL2411010700
CLIENT	:	Global Sun Communications, Inc.
TEST STANDARD	:	FCC 47CFR Part 15, Subpart C (Section 15.247) and Subpart B, ANSI C63.4-1992

We, ADVANCE DATA TECHNOLOGY CORPORATION**,** hereby certify that one sample of the designated sample has been tested in our facility. The test record, data evaluation and Equipment Under Test (EUT) configurations represented herein are true and accurate representation of the measurements of the sample's EMI characteristics and the energy emitted under the conditions herein specified.

TESTED BY: Ellis Wu **DATE:** Aug 10, 2000
Ellis Wu

PREPARED BY: Delphine Hsu **DATE:** Aug 10, 2000
Delphine Hsu

APPROVED BY: Alan Lane **DATE:** Aug 10, 2000
Dr. Alan Lane, Manager

2 SUMMARY OF TEST RESULTS

47 CFR Part 15, Subpart C			
PARAGRAPH.	TEST REQUIREMENTS	COMPLIANCE (YES/NO)	TEST RESULT
15.107	**AC Power Conducted Emissions Spec.: 48 dBuV**	**Yes**	**Minimum passing margin is –8.9 dBuV At 34.8 MHz**
15.247(a)(2)	**Spectrum Bandwidth of a Direct Sequence Spread Spectrum System Spec.: min. 500 kHz**	**Yes**	**9.75 MHz > 500 kHz**
15.247(b)	**Maximum Peak Output Power Spec.: max. 30 dBm**	**Yes**	**15.78 dBm < 30 dBm**
15.247(c)	**Transmitter Radiated Emissions Spec.: Table 15.209**	**Yes**	**Minimum passing margin is –6.1 dBuV At 44.00 MHz**
15.247(d)	**Power Spectral Density Spec.: max. 8dBm**	**Yes**	**-9.66 dBm < 8 dBm**
15.247(e)	**Processing Gain of Direct Sequence Spread Spectrum System Spec.: min. 10 dB**	**Yes**	**11.4dB ≧10dB**

3 DECLARATION OF COMPLIANCE WITH SUBPART B

The digital circuits and receiver portion of the EUT has been tested in ADT. The test result has been verified to comply with FCC Part 15, Subpart B, Class B – Computing Devices (FCC DoC). The engineering test report can be provided upon FCC requests.

4 GENERAL INFORMATION

4.1 General Description of EUT

Product	:	**Wireless LAN**
Model No	:	**GL241101-1, GL241101-2**
Power Supply	:	**DC power from notebook**
Modulation Type	:	**BPSK(1Mbps)/QPSK(2/5.5/11Mbps)**
Transfer Rate	:	**11/5.5/2/1 Mbps**
Operating Frequency	:	**2.4 - 2.4835 GHz**
Number of Channel	:	**11**
Channel Spacing	:	**5MHz**
Rated RF output power level	:	**14 dBm**
Associated devices	:	**N/A**

Note: The GL-241101 IEEE 802.11b PCMCIA PC Card is compatible with any standard, notebook computer Type II or Type III PCMCIA slot. As a Plug-and Play device, Windows 95/98 will automatically recognize the GL-241101 PCMCIA card and initiate the installation process. Upon successful installation, the GL-241101 PCMCIA card will communicate seamlessly with other GL-241101 wireless home and office networking products.

The other detailed information, please refer to user' s manual.

4.2 Description of Test mode

The EUT has 11 channels for data transmission. According to Part 15, Sec. 15.31(m), the channel 1, 6 and 11 were chosen for evaluation. Additionally, the software provided by the manufacturer is used to control the channel for testing.

Two housings with plastic material are used in this product as shown in photo 8(GS plastic material for model name GL241101-1) and photo 2 (Teccon Plastic material for model name GL241101-2). The test result shown in this test report is the worst case in photo 2.

4.3 Test Methodology

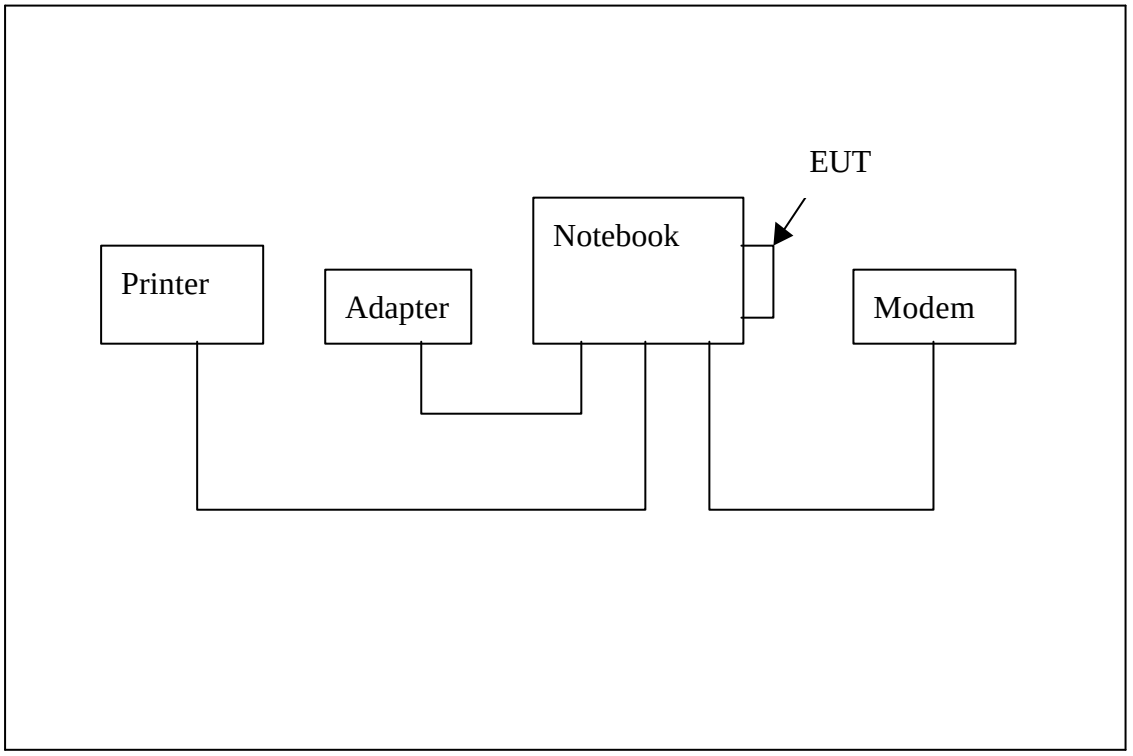
These tests were conducted on a sample of EUT for the evaluation in compliance with FCC CFR47 Part 15, Subpart C. (15.247) &Subpart B.

Both conducted and radiated emissions measurements were carried out in accordance with ANSI C63.4:1992.

4.4 Support Units List

No	Product	Brand	Model No.	Serial No.	I/O Cable
1.	Note Book	CLEVO	3300C	N3000C3C001576	(Nonshielded) 1.2m
2.	Modem	ACEEX	1414	980020503	(Shielded) 1.2m
3.	Printer	HP	2225C+	3123597230	(Shielded) 1.2m

4.5 Configuration of System Under Test



5 GENERAL INFORMATION OF TEST FACILITY

5.1 Test Lab.

Advance Data Technology Corporation (NVLAP accredited)
No. 47, 14 Ling, Chia Pau Tsuen, Lin Kuo Hsiang, Taipei, Taiwan, R.O.C.
Tel: +886-3-3270910
Fax: +886-3-3270892

5.2 Calibration Interval

All calibration intervals of the test sites and test instruments are 12 months. The calibrations are traceable to NML/ROC and NIST/USA.

6 TEST PROCEDURES AND TEST RESULTS

6.1 Conducted Emission Measurement

6.1.1 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
ROHDE & SCHWARZ Test Receiver	ESH3	893495/006	July 26, 2001
ROHDE & SCHWARZ Spectrum Monitor	EZM	893787/013	July 14, 2001
ROHDE & SCHWARZ Artificial Mains Network	ESH2-Z5	892107/003	July 11, 2001
EMCO L.I.S.N.	3825/2	9504-2359	July 11, 2001
Shielded Room	Site 3	ADT-C03	NA

The measurement uncertainty is less than +/- 2.6dB, which is calculated as per NAMAS document NIS81.

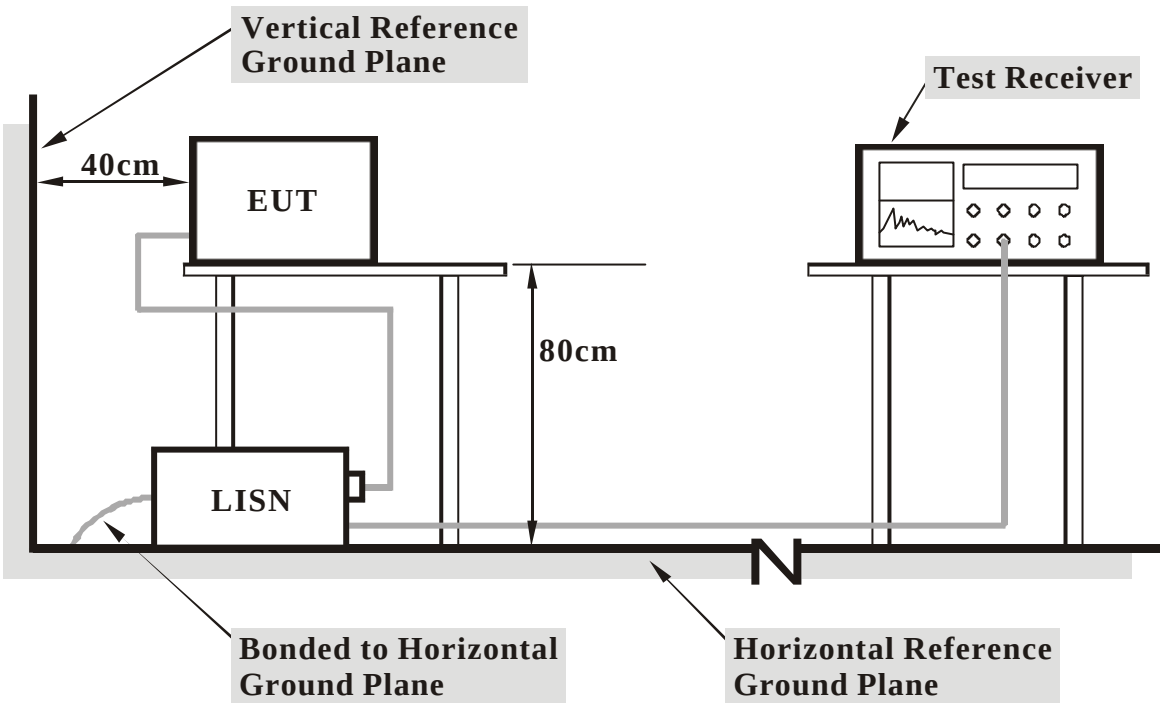
6.1.2 Test Procedure

The EUT was placed 0.4 meter from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50Ω/ 50μH coupling impedance for the measuring instrument.

Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

The frequency range from 450 kHz to 30 MHz was searched. The emission levels over 10dB under the prescribed limits could not be reported.

6.1.3 Test Setup



Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

6.1.4 Photograph of Test Setup

6.1.5 EUT Operating condition

The software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel frequencies individually. "H" patterns were sent to support units and displayed on the screen of Notebook PC to maintain the operating condition.

6.1.6 Climate Condition

The temperature and related humidity is 24 ℃ and 80 % respectively.

6.1.7 Test Results

MODE: CH 1		6 dB Bandwidth: 10 kHz				PHASE: LINE (L)			
Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
		Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.657	**0.2**	**31.9**	**-**	**32.1**	**-**	**48**	**-**	**-15.9**	**-**
1.551	**0.2**	**30.5**	**-**	**30.7**	**-**	**48**	**-**	**-17.3**	**-**
3.100	**0.3**	**30.3**	**-**	**30.6**	**-**	**48**	**-**	**-17.4**	**-**
4.760	**0.4**	**36.9**	**-**	**37.3**	**-**	**48**	**-**	**-10.7**	**-**
14.320	**0.8**	**24.2**	**-**	**25.0**	**-**	**48**	**-**	**-23.0**	**-**
22.020	**1.2**	**25.6**	**-**	**26.8**	**-**	**48**	**-**	**-21.2**	**-**

MODE: CH1		6 dB Bandwidth: 10 kHz				PHASE: Neutral(N)			
Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
		Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.657	**0.2**	**37.0**	**-**	**37.2**	**-**	**48**	**-**	**-10.8**	**-**
1.551	**0.2**	**31.7**	**-**	**31.9**	**-**	**48**	**-**	**-16.1**	**-**
3.100	**0.3**	**31.9**	**-**	**32.2**	**-**	**48**	**-**	**-15.8**	**-**
4.760	**0.4**	**38.5**	**-**	**38.9**	**-**	**48**	**-**	**-9.1**	**-**
14.320	**0.7**	**24.4**	**-**	**25.1**	**-**	**48**	**-**	**-22.9**	**-**
22.020	**1.2**	**28.2**	**-**	**29.4**	**-**	**48**	**-**	**-18.6**	**-**

Remarks:
1. **"*": Undetectable**
2. **Q.P. and AV. are abbreviations of quasi-peak and average individually.**
3. **"-":NA**
4. **The emission levels of other frequencies were very low against the limit.**
5. **Margin value = Emission level - Limit value**
6. **Emission Level = Correction Factor + Reading Value.**

MODE: CH 6	6 dB Bandwidth: 10 kHz				PHASE: LINE (L)			
Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
		Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.657	**0.2**	**32.3**	**-**	**32.5**	**-**	**48**	**-**	**-15.5**	**-**
1.551	**0.2**	**28.0**	**-**	**28.2**	**-**	**48**	**-**	**-19.8**	**-**
3.390	**0.3**	**30.9**	**-**	**31.2**	**-**	**48**	**-**	**-16.8**	**-**
4.711	**0.5**	**37.3**	**-**	**37.8**	**-**	**48**	**-**	**-10.2**	**-**
14.32	**0.8**	**23.4**	**-**	**24.2**	**-**	**48**	**-**	**-23.8**	**-**
22.66	**1.2**	**23.7**	**-**	**24.9**	**-**	**48**	**-**	**-23.1**	**-**

MODE: CH6	6 dB Bandwidth: 10 kHz				PHASE: Neutral(N)			
Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
		Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.657	**0.2**	**37.0**	**-**	**37.2**	**-**	**48**	**-**	**-10.8**	**-**
1.551	**0.2**	**31.5**	**-**	**31.7**	**-**	**48**	**-**	**-16.3**	**-**
3.390	**0.3**	**34.8**	**-**	**35.1**	**-**	**48**	**-**	**-12.9**	**-**
4.711	**0.4**	**38.7**	**-**	**39.1**	**-**	**48**	**-**	**-8.9**	**-**
14.32	**0.7**	**23.1**	**-**	**23.8**	**-**	**48**	**-**	**-24.2**	**-**
22.66	**1.2**	**26.6**	**-**	**27.8**	**-**	**48**	**-**	**-20.2**	**-**

Remarks:
1. **"*": Undetectable**
2. **Q.P. and AV. are abbreviations of quasi-peak and average individually.**
3. **"-":NA**
4. **The emission levels of other frequencies were very low against the limit.**
5. **Margin value = Emission level - Limit value**
6. **Emission Level = Correction Factor + Reading Value.**

MODE: CH 11	6 dB Bandwidth: 10 kHz				PHASE: LINE (L)			
Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
		Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.653	**0.2**	**32.3**	**-**	**32.5**	**-**	**48**	**-**	**-15.5**	**-**
1.551	**0.2**	**29.8**	**-**	**30.0**	**-**	**48**	**-**	**-18.0**	**-**
3.218	**0.3**	**30.9**	**-**	**31.2**	**-**	**48**	**-**	**-16.8**	**-**
4.828	**0.4**	**37.6**	**-**	**38.0**	**-**	**48**	**-**	**-10.0**	**-**
14.310	**0.8**	**22.7**	**-**	**23.5**	**-**	**48**	**-**	**-24.5**	**-**
21.501	**1.1**	**25.8**	**-**	**26.9**	**-**	**48**	**-**	**-21.1**	**-**

MODE: CH11	6 dB Bandwidth: 10 kHz				PHASE: Neutral(N)			
Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
		Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.657	**0.2**	**36.4**	**-**	**36.6**	**-**	**48**	**-**	**-11.4**	**-**
1.5507	**0.2**	**30.7**	**-**	**30.9**	**-**	**48**	**-**	**-17.1**	**-**
3.39	**0.3**	**31.9**	**-**	**32.2**	**-**	**48**	**-**	**-15.8**	**-**
4.711	**0.5**	**38.2**	**-**	**38.7**	**-**	**48**	**-**	**-9.3**	**-**
14.32	**0.8**	**24.3**	**-**	**25.1**	**-**	**48**	**-**	**-22.9**	**-**
22.66	**1.0**	**27.7**	**-**	**28.7**	**-**	**48**	**-**	**-19.3**	**-**

Remarks:
1. **"*": Undetectable**
2. **Q.P. and AV. are abbreviations of quasi-peak and average individually.**
3. **"-":NA**
4. **The emission levels of other frequencies were very low against the limit.**
5. **Margin value = Emission level - Limit value**
6. **Emission Level = Correction Factor + Reading Value.**

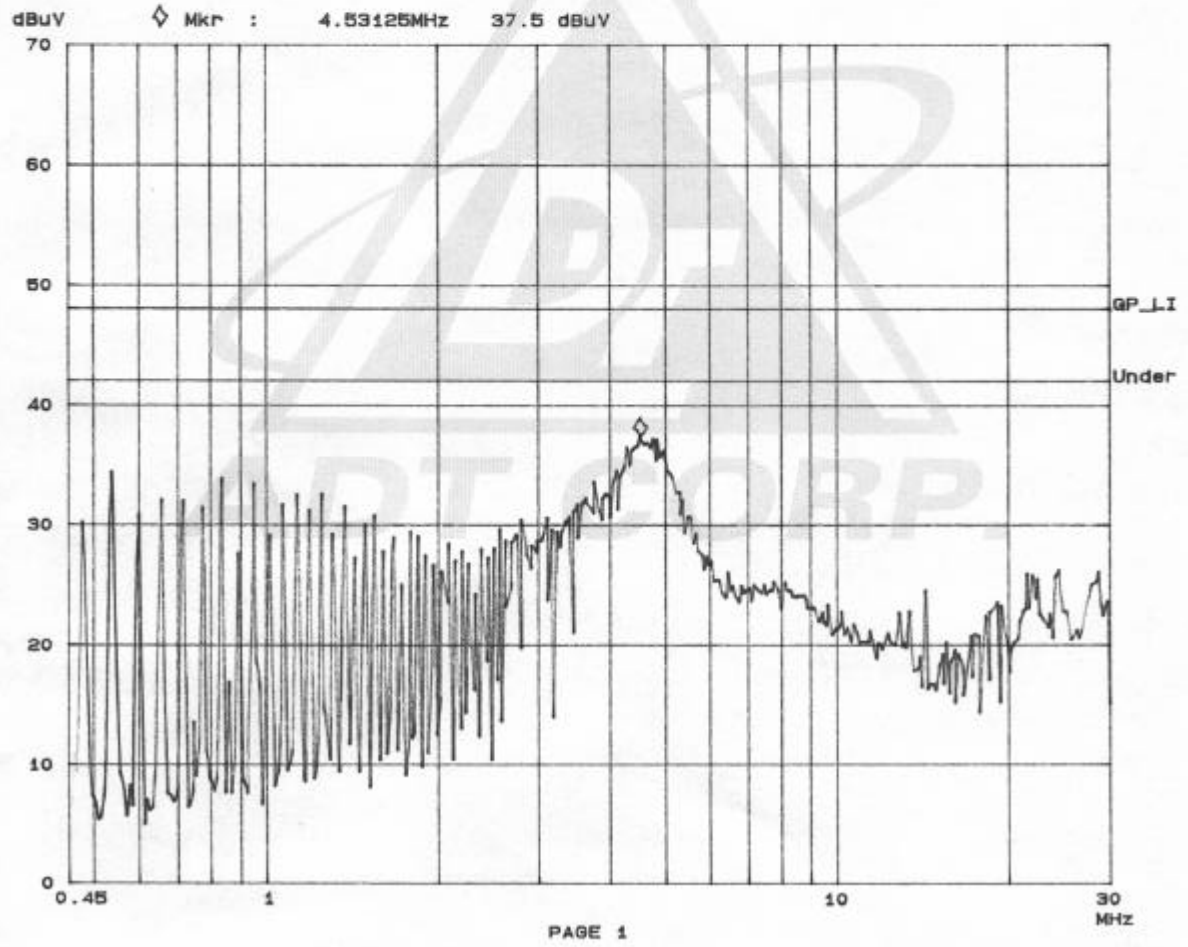
CH1

ADT CORP. Shielded Room 2 04. Aug 00 20:55
FCC CLASS B

EUT: GL241101-2
Op Cond: CH 1
Operator: ELLIS
Test Spec: LISN : L
Comment: 120V AC / 60Hz
File name: FCC_B.SPC

Overview Scan Settings (3 Ranges)

Frequencies			Receiver Settings				
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp
450k	1M	3.9k	9k	PK	1ms	10dBLN	OFF
1M	10M	3.9k	9k	PK	1ms	10dBLN	OFF
10M	30M	3.9k	9k	PK	1ms	10dBLN	OFF



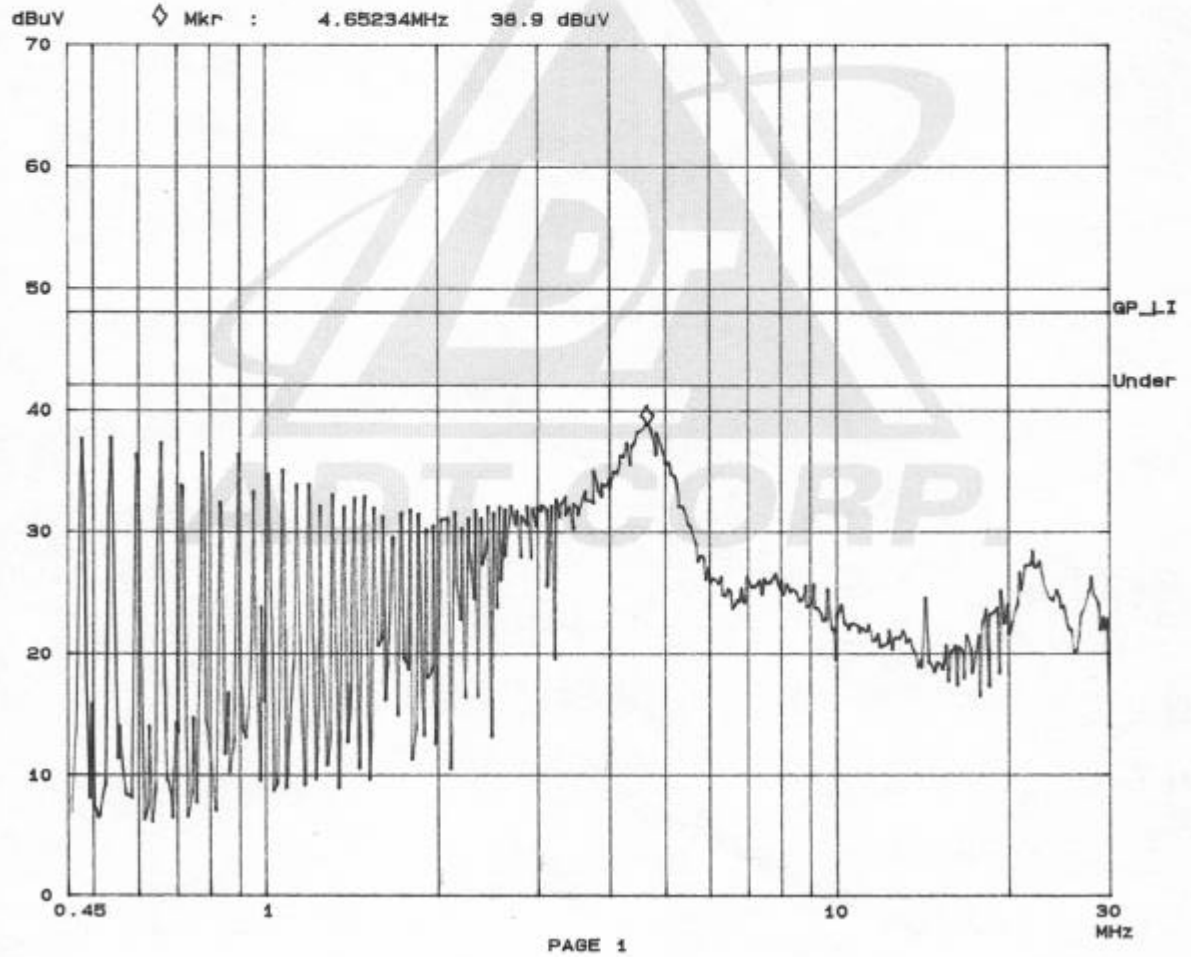
CH1

ADT CORP. Shielded Room 2 04. Aug 00 21:02
FCC CLASS B

EUT: GL241101-2
Op Cond: CH 1
Operator: ELLIS
Test Spec: LISN : N
Comment: 120V AC / 60Hz
File name: FCC_B.SPC

Overview Scan Settings (3 Ranges)

Frequencies			Receiver Settings				
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp
450k	1M	3.9k	9k	PK	1ms	10dBLN	OFF
1M	10M	3.9k	9k	PK	1ms	10dBLN	OFF
10M	30M	3.9k	9k	PK	1ms	10dBLN	OFF



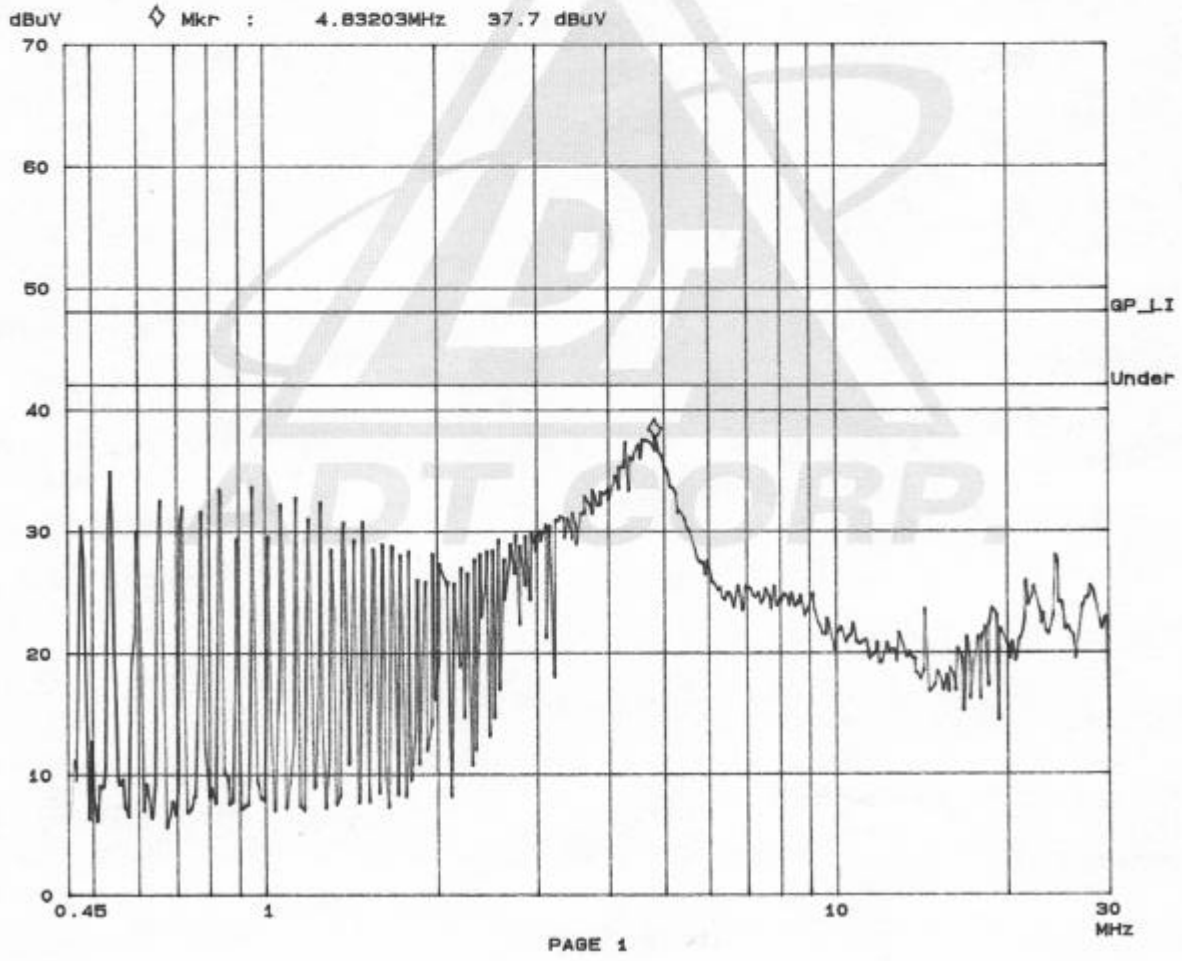
CH6

ADT CORP. Shielded Room 2 04. Aug 00 21:09
FCC CLASS B

EUT: GL241101-2
Op Cond: CH 6
Operator: ELLIS
Test Spec: LISN : L
Comment: 120V AC / 60Hz
File name: FCC_B.SPC

Overview Scan Settings (3 Ranges)

Frequencies			Receiver Settings				
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp
450k	1M	3.9k	9k	PK	1ms	10dBLN	OFF
1M	10M	3.9k	9k	PK	1ms	10dBLN	OFF
10M	30M	3.9k	9k	PK	1ms	10dBLN	OFF



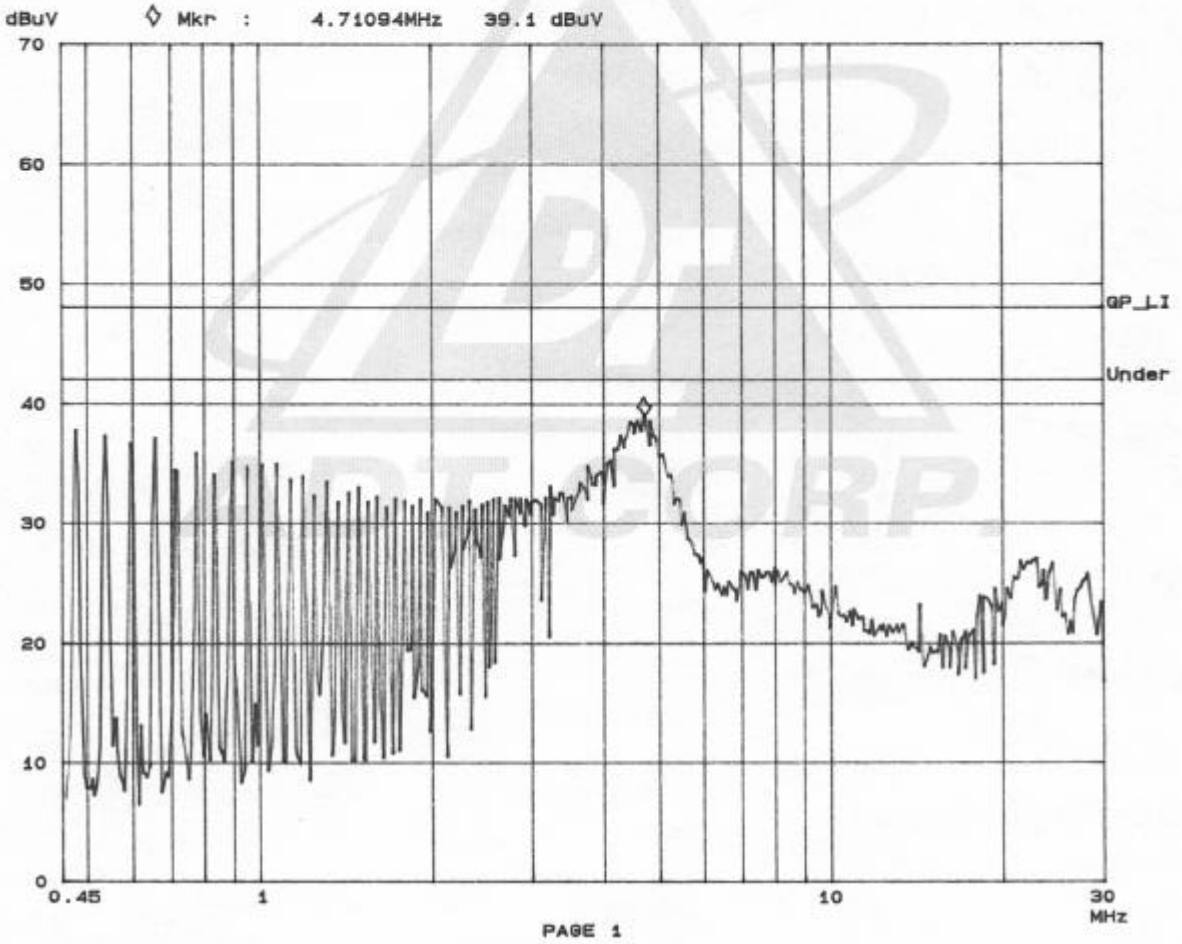
CH6

ADT CORP. Shielded Room 2 04. Aug 00 21:05
FCC CLASS B

EUT: GL241101-2
Op Cond: CH 6
Operator: ELLIS
Test Spec: LISN : N
Comment: 120V AC / 60Hz
File name: FCC_B.SPC

Overview Scan Settings (3 Ranges)

Frequencies			Receiver Settings				
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp
450k	1M	3.9k	9k	PK	1ms	10dBLN	OFF
1M	10M	3.9k	9k	PK	1ms	10dBLN	OFF
10M	30M	3.9k	9k	PK	1ms	10dBLN	OFF



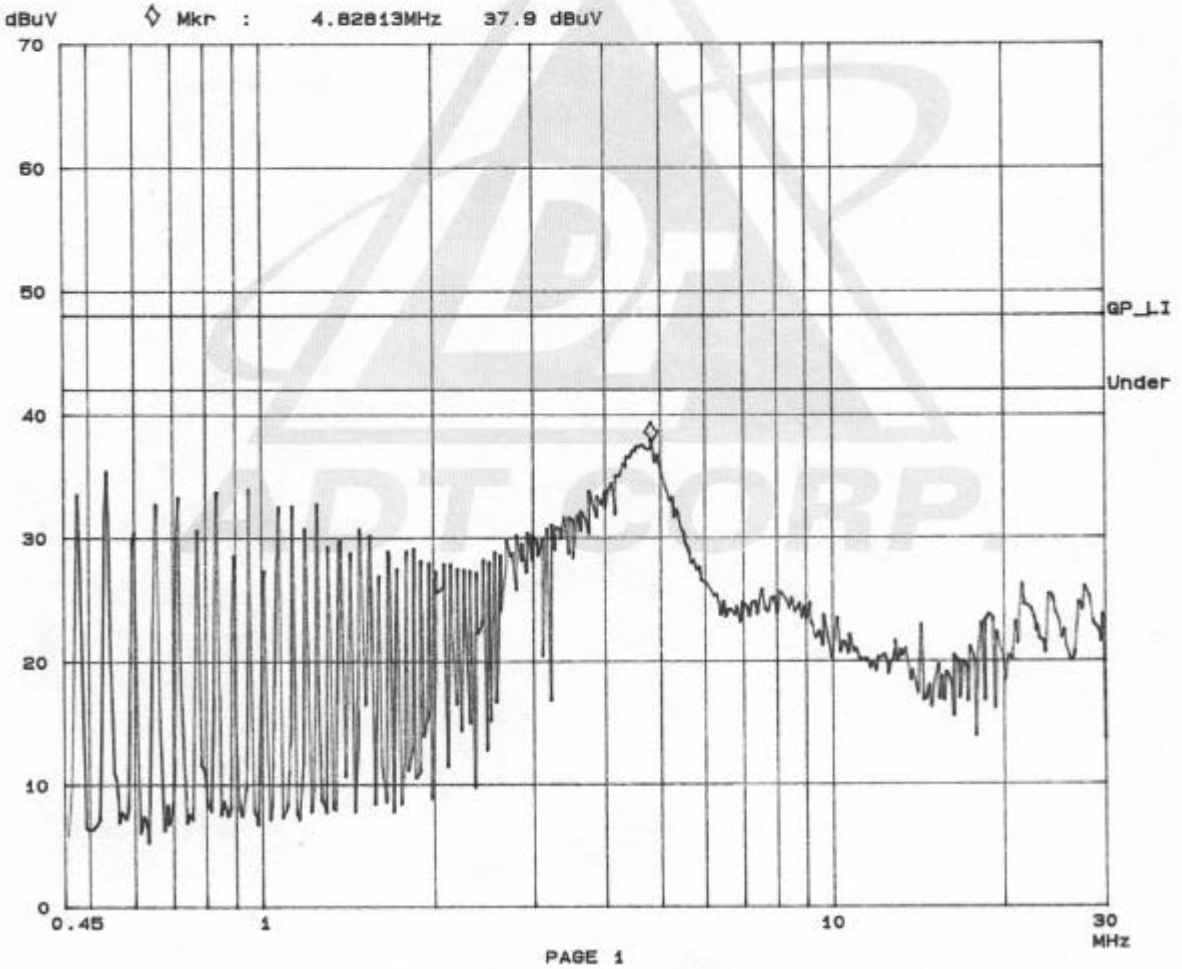
CH11

ADT CORP. Shielded Room 2 04. Aug 00 21:12
FCC CLASS B

EUT: GL241101-2
Op Cond: CH 11
Operator: ELLIS
Test Spec: LISN : L
Comment: 120V AC / 60Hz
File name: FCC_B.SPC

Overview Scan Settings (3 Ranges)

Frequencies			Receiver Settings				
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp
450k	1M	3.9k	9k	PK	1ms	10dBLN	OFF
1M	10M	3.9k	9k	PK	1ms	10dBLN	OFF
10M	30M	3.9k	9k	PK	1ms	10dBLN	OFF



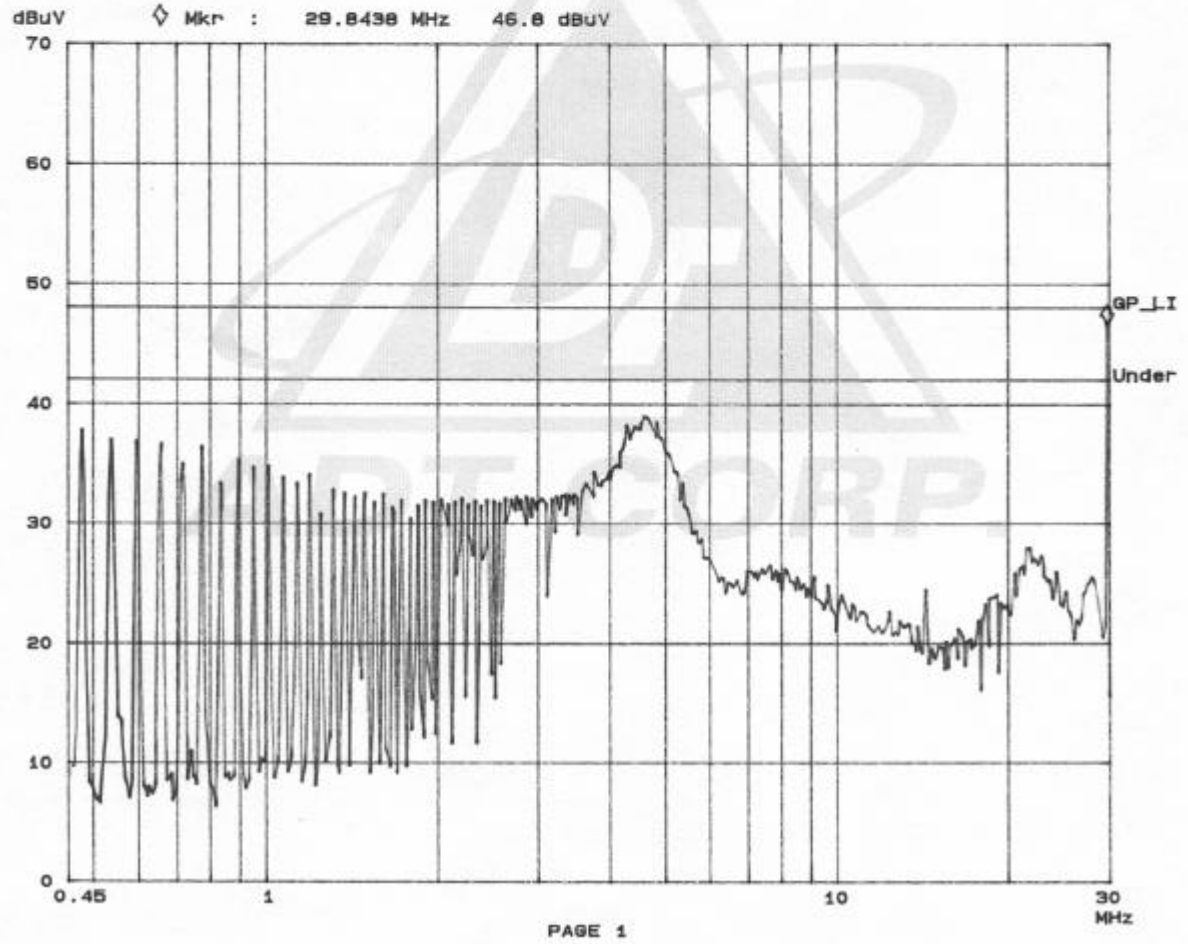
CH11

ADT CORP. Shielded Room 2 04. Aug 00 21:16
FCC CLASS B

EUT: GL241101-2
Op Cond: CH 11
Operator: ELLIS
Test Spec: LISN : N
Comment: 120V AC / 60Hz
File name: FCC_B.SPC

Overview Scan Settings (3 Ranges)

Frequencies			Receiver Settings				
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp
450k	1M	3.9k	9k	PK	1ms	10dBLN	OFF
1M	10M	3.9k	9k	PK	1ms	10dBLN	OFF
10M	30M	3.9k	9k	PK	1ms	10dBLN	OFF



6.2 6dB Bandwidth Measurement

6.2.1 Test Instruments

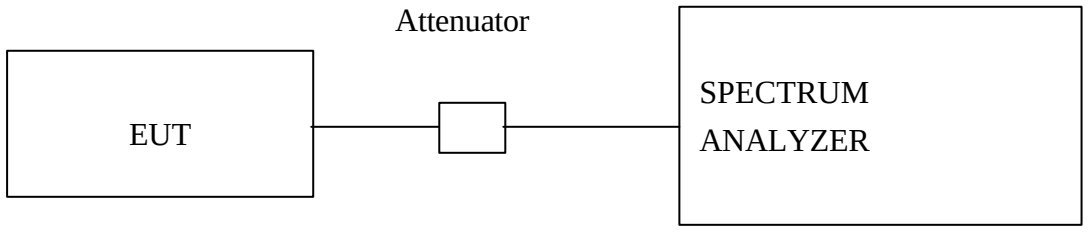
Description & Manufacturer	Model No.	Serial No.	Calibrated Until
ROHDE & SCHWARZ TEST RECEIVER	**ESMI**	**846839/018 848926/005**	**Dec. 03, 2000**
HP ATTENUATOR	**8496B**	**3247A18505**	**Cal. on use**
HP PLOTTER	**7475A**	**2641V27755**	**N/A**

The measurement uncertainty is less than +/- 2.6dB, which is calculated as per NAMAS document NIS81.

6.2.2 Test Procedure

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100 kHz RBW and 100 kHz VBW. The 6 dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6 dB.

6.2.3 Test Setup



6.2.4 EUT Operating Condition

The software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel frequencies individually.

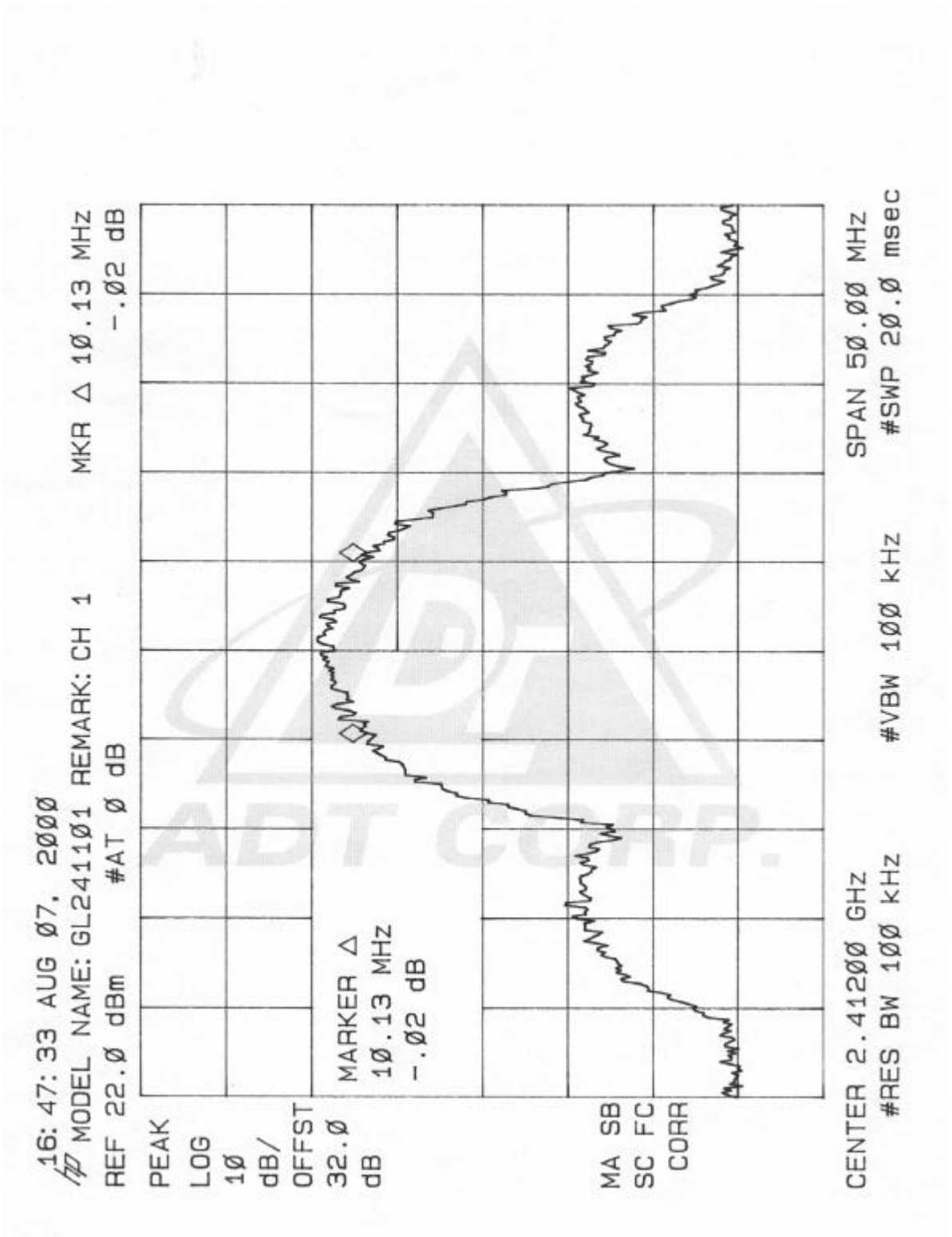
6.2.5 Climate Condition

The temperature and related humidity is 18℃ and 78% respectively.

6.2.6 Test Results

CHANNEL	CHANNEL FREQUENCY (MHz)	6 dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	10.13	0.5	PASS
6	2437	10.13	0.5	PASS
11	2462	9.75	0.5	PASS

CH1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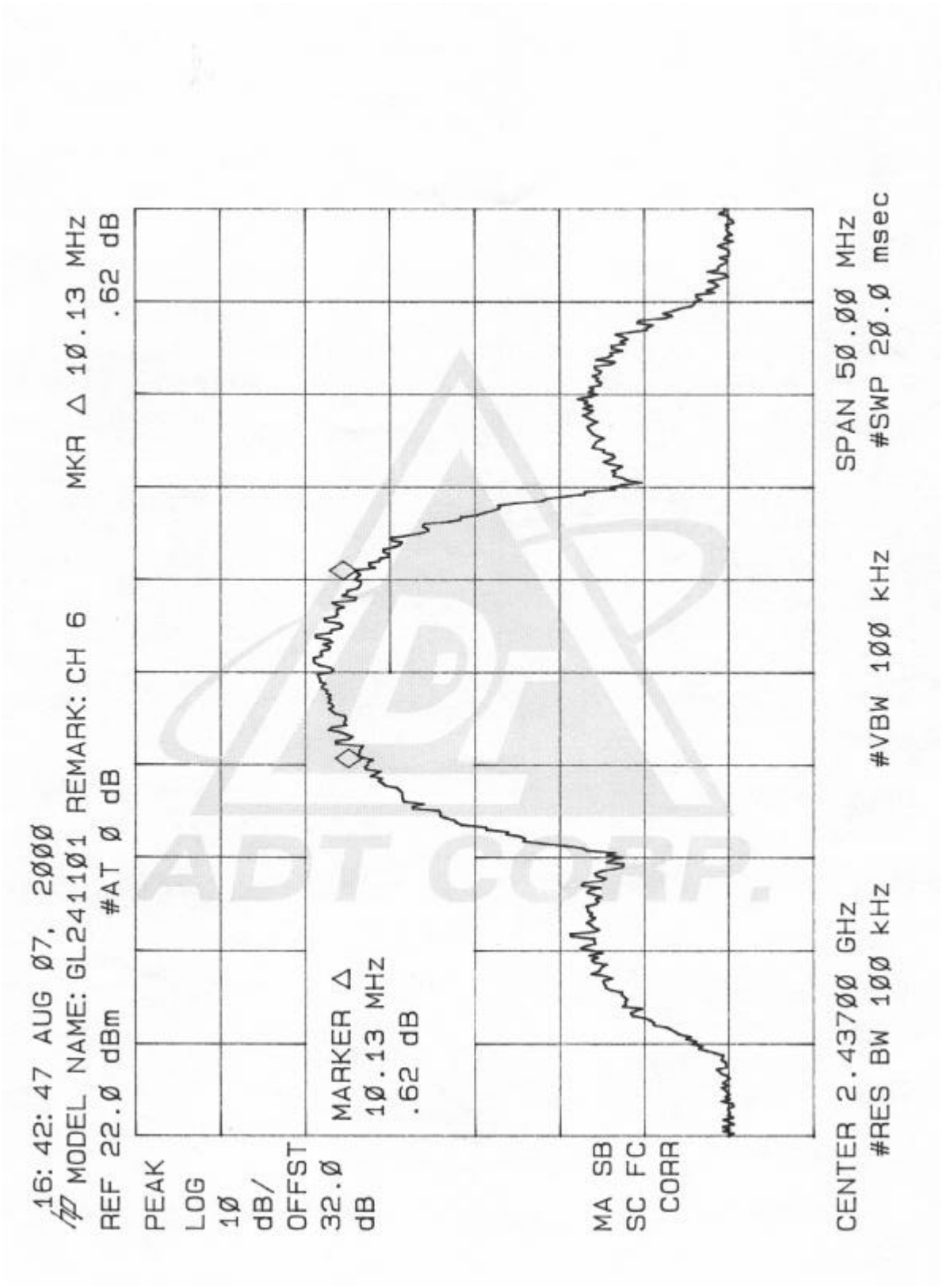
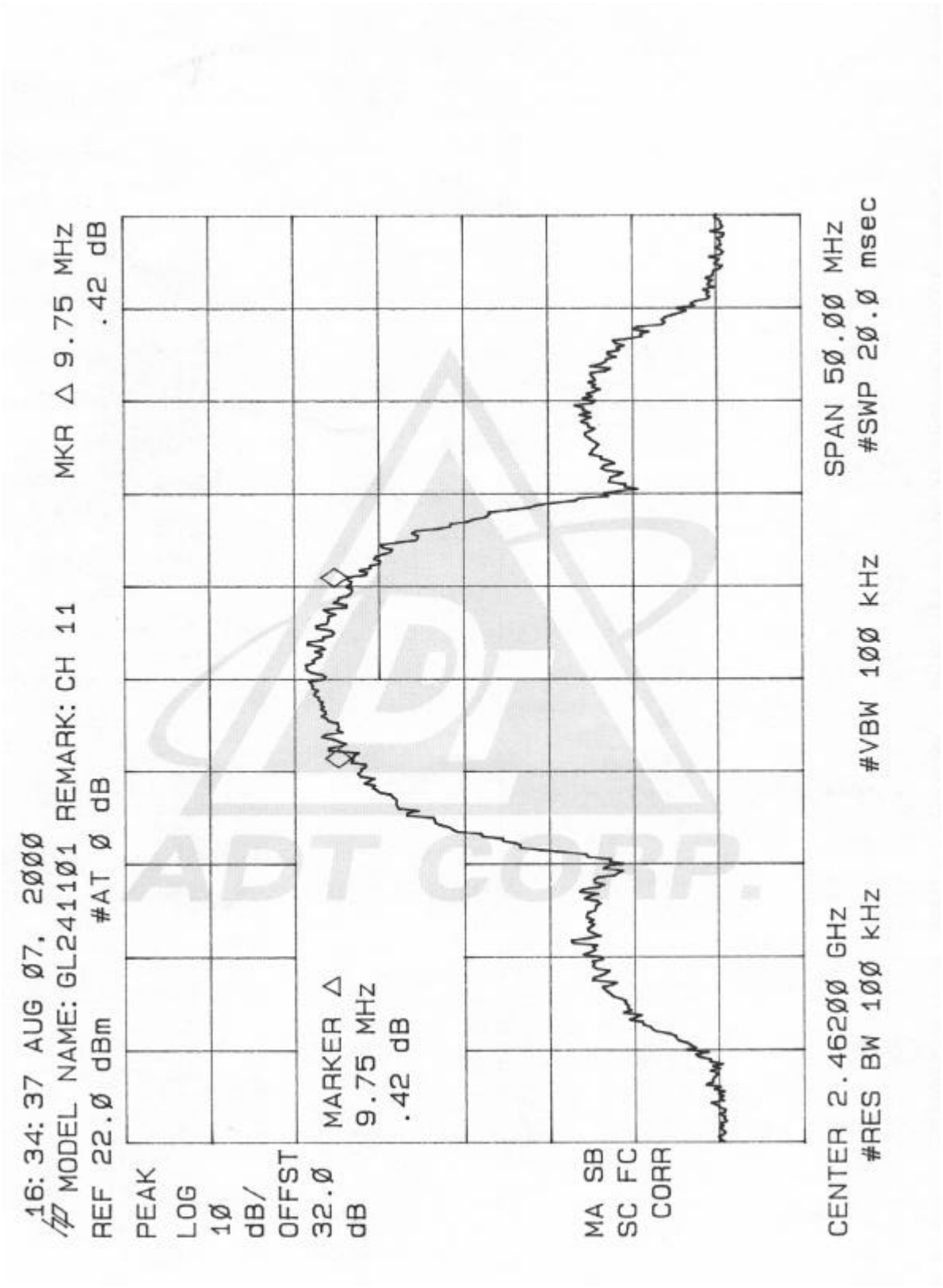
MODEL NAME: GL241101 REMARK: CH 1
REF 22.Ø dBm #AT Ø dB
MKR Δ 1Ø.13 MHz
-.Ø2 dB
PEAK
LOG
1Ø
dB/
OFFST
32.Ø
dB
MARKER Δ
1Ø.13 MHz
-.Ø2 dB
MA SB
SC FC
CORR
CENTER 2.412ØØ GHz
#RES BW 1ØØ kHz
#VBW 1ØØ kHz
SPAN 5Ø.ØØ MHz
#SWP 2Ø.Ø msec

CH6


16: 42: 47 AUG 07, 2000
MODEL NAME: GL241101 REMARK: CH 6
REF 22.0 dBm #AT 0 dB
MKR Δ 10.13 MHz
.62 dB
PEAK
LOG
10
dB/
OFFST
32.0
dB
MARKER Δ
10.13 MHz
.62 dB
MA SB
SC FC
CORR
CENTER 2.437000 GHz
#RES BW 100 kHz
#VBW 100 kHz
SPAN 50.00 MHz
#SWP 20.0 msec

CH11


16: 34: 37 AUG Ø7, 2ØØØ
MODEL NAME: GL241101 REMARK: CH 11
REF 22.Ø dBm #AT Ø dB
PEAK
LOG
1Ø
dB/
OFFST
32.Ø
dB
MARKER Δ
9.75 MHz
.42 dB
MKR Δ 9.75 MHz
.42 dB
MA SB
SC FC
CORR
CENTER 2.462ØØ GHz
#RES BW 1ØØ kHz
#VBW 1ØØ kHz
SPAN 5Ø.ØØ MHz
#SWP 2Ø.Ø msec

6.3 Maximum Peak Output Power and RF Exposure Measurement

6.3.1 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
ROHDE & SCHWARZ TEST RECEIVER	**ESMI**	**846839/018 848926/005**	**Dec. 03, 2000**
HP ATTENUATOR	**8496B**	**3247A18505**	**Cal. on use**
HP PLOTTER	**7475A**	**2641V27755**	**N/A**

The measurement uncertainty is less than +/- 2.6dB, which is calculated as per NAMAS document NIS81.

6.3.2 Test Procedures

1. The transmitter output was connected to the spectrum analyzer through an attenuator.
2. The center frequency of the spectrum analyzer is set to the fundamental frequency and using 3 MHz RBW and 3 MHz VBW.
3. The span of the spectrum analyzer should be larger than 6dB BandWidth plus 10 MHz.
4. Use Peak Search to read the peak power after Maximum Hold function is activated.
5. Shif the marker to +/- 3MHz and +/-6MHz, and record the reading.
6. The Maximum Peak Output Peak is the linear summation of the 5 readings in (4) and (5).

Alternatively, instead of spectrum analyzer, the power meter can be used in this measurement only when the Duty Cycle of the transmitter is 1.0 during test.

6.3.3 RF exposure limit

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified in 1.1307(b)

LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Average Time (minutes)
(A)Limits For Occupational / Control Exposures				
300-1500	…	…	F/300	6
1500-100,000	…	…	5	6
(B)Limits For General Population / Uncontrolled Exposure				
300-1500	…	…	F/1500	6
1500-100,000	…	…	1.0	30

F = Frequency in MHz

The limit of MPE is reached in a very short distance away from the antenna. Please see the calculation we followed to prove the limited harmfulness of the radiation in this product.

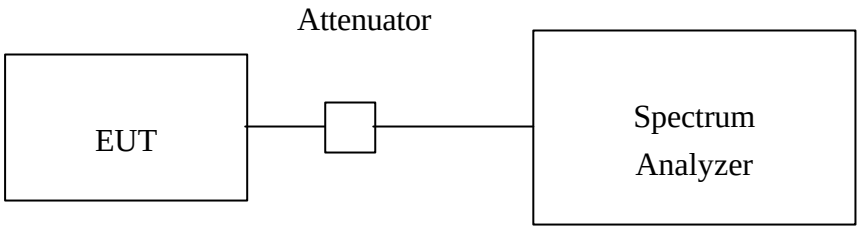
Friis transmission formula : $Pd = (Pout*G) / (4*pi*r^2)$

where
Pd = power density in mW/cm^2
Pout = output power to antenna in mW
G = gain of antenna in linear scale
Pi = 3.1416
R = distance between observation point and center of the radiator in cm

The limit of MPE here is 1.0 mW/cm^2 which makes Pd=1.0. If the Gain of the antenna and the total output power to the antenna, Pout, is known, then the Allowance Minimum Distance r can be calculated.

Ref. : David K. Cheng, *Field and Wave Electromagnetics*, Second Edition, Page 640, Eq. (11-133).

6.3.4 Test Setup



6.3.5 EUT Operating Condition

The software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel frequencies individually.

6.3.6 Climate Condition

The temperature and related humidity is 18℃ and 78% respectively.

6.3.7 Test Result

6.3.7.1 Peak Power

The maximum antenna Gain measured is –0.4dBi or 0.91 (numeric).

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2.412	18.08	30	PASS
6	2.437	19.78	30	PASS
11	2.462	18.97	30	PASS

6.3.7.2 RF Exposure Distances :

CHANNEL	CHANNEL FREQUENCY (MHz)	OUTPUT POWER TO ANTENNA (mW)	MINIMUM ALLOWABLE DISTANCE (r) FROM SKIN (Centi-Meter)
1	2412	64.26	2.16
6	2437	95.06	2.61
11	2462	78.88	2.37

Under the condition of normal use, more than 2.61 cm separation distance between user and antenna is kept. So, the SAR measurement is not needed.

6.4 Radiated Emission Measurement

6.4.1 Test instruments

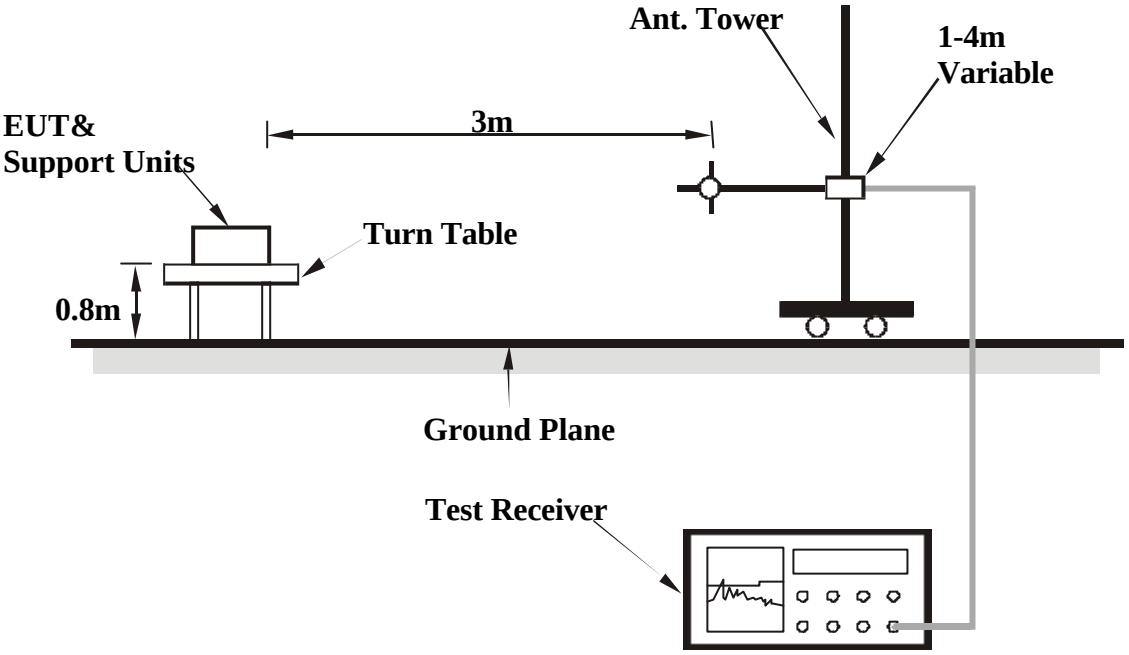
Description & Manufacturer	Model No.	Serial No.	Calibrated Until
HP Spectrum Analyzer	**8590L**	**3544A01176**	**Apr 18, 2001**
HP Preamplifier	**8447D**	**2944A08485**	**Oct. 23, 2000**
HP Preamplifier	**8347A**	**3307A01088**	**Sep. 09, 2000**
ROHDE & SCHWARZ TEST RECEIVER	**ESMI**	**839013/007 839379/002**	**Aug. 27, 2000**
SCHWARZBECK Tunable Dipole Antenna	**VHA 9103 UHA 9105**	**E101051 E101055**	**Nov. 25, 2000**
CHASE BILOG Antenna	**CBL6112A**	**2221**	**Aug. 10, 2000**
SCHWARZBECK Horn Antenna	**BBHA9120-D**	**D130**	**Jul. 09, 2001**
SCHWARZBECK Horn Antenna	**BBHA9170**	**123**	**Jan. 31, 2001**
EMCO Turn Table	**1060**	**1115**	**N/A**
SHOSHIN Tower	**AP-4701**	**A6Y005**	**N/A**
Open Field Test Site	**Site 5**	**ADT-R05**	**Aug. 09, 2000**

The measurement uncertainty is less than +/- 3dB, which is calculated as per NAMAS document NIS81.

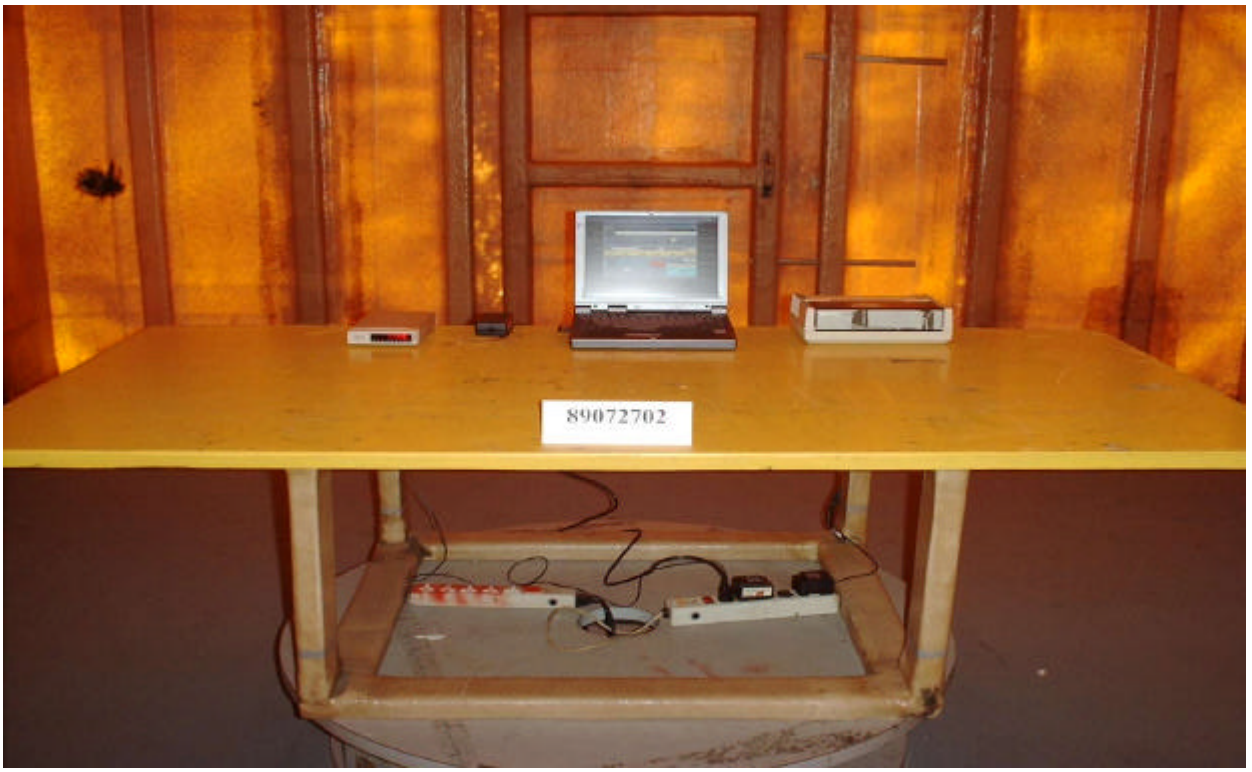
6.4.2 Test Procedure

a. The EUT was placed on the turn table 0.8 meter above ground in 3 meter open area test site.
b. Set the resolution bandwidth to 120KHz in the test receiver and select Peak function to scan the frequency below 1 GHz.
c. Shift the interference-receiving antenna located in antenna tower upwards and downwards between 1 and 4 meters above ground and find out the local peak emission on frequency domain.
d. Locate the interference-receiving antenna at the position where the local peak reach the maximum emission.
e. Rotate the turn table and stop at the angle where the measurement device has maximum reading.
f. Shift the interference-receiving antenna again to detect the maximum emission of the local peak.
g. If the reading of the local peak under Peak function is lower than limit by over 6dB, then Quasi Peak detection is not needed and this reading should be recorded. And if it is higher than Peak limit, then the test is fail. Others, switch the receiver to Quasi Peak function, set the resolution bandwidth to 100kHz and repeat the procedures C ~ F. If the reading is lower than limit, this reading should be recorded, otherwise, the test is fail.
h. Set the resolution and video bandwidth of the spectrum analyzer to 1MHz and repeat procedures C ~ F for frequency band from 1 GHz to 10 times carrier frequency.
i. If the reading for the local peak is lower than the Average limit, no further testing is needed in this local peak and this reading should be recorded. If it is higher than Average limit but lower than Peak limit, then set the resolution bandwidth to 1MHz and video bandwidth to 300Hz. Repeat procedures C ~ F. If the maximum reading is lower than Average limit, then this reading should be recorded. If it is higher, then the test is fail.

6.4.3 Test Setup



6.4.4 Photograph of Test Setup



6.4.5 EUT Operating Condition

The software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel frequencies individually. "H" patterns were sent to support units and displayed on the screen of Notebook PC to maintain operating condition.

6.4.6 Climate Condition

The temperature and related humidity is 24℃ and 80% respectively.

6.4.7 Test Results

Channel:1 ANTENNA POLARITY: Vertical		Detector Function : Quasi-Peak		6dB Bandwidth : 120 kHz.		Distance : 3 M Frequency Range : 30 – 1000 MHz.	
Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
44.00	**11.0**	**22.9**	**33.9**	**46.0**	**-6.1**	**137**	**212**
110.00	**12.3**	**11.7**	**24.0**	**43.5**	**-19.5**	**145**	**305**
198.00	**10.2**	**20.2**	**30.4**	**43.5**	**-13.1**	**118**	**226**
308.00	**15.1**	**8.3**	**23.4**	**46.0**	**-22.6**	**123**	**132**
462.00	**18.9**	**5.0**	**23.9**	**46.0**	**-22.1**	**148**	**282**
572.00	**20.9**	**1.9**	**22.8**	**46.0**	**-23.2**	**129**	**146**
748.00	**22.4**	**1.8**	**24.2**	**46.0**	**-21.8**	**131**	**333**

Remarks: 1. Emission level (dBuV/m) = Correction Factor (dB) + Reading value (dBuV).
2. Correction Factor (dB) = Ant. Factor (dB)+Cable loss (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level - Limit value
5. The limit value is defined as per 15.247

Channel:1 ANTENNA POLARITY: Horizontal		Detector Function : Quasi-Peak		6dB Bandwidth : 120 kHz.		Distance : 3 M Frequency Range : 30 – 1000 MHz.	
Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
44.00	**11.0**	**13.8**	**24.8**	**40.0**	**-15.2**	**121**	**184**
176.00	**10.9**	**19.4**	**30.3**	**43.5**	**-13.2**	**129**	**212**
308.00	**15.1**	**4.6**	**19.7**	**46.0**	**-26.3**	**161**	**361**
462.00	**18.9**	**1.4**	**20.3**	**46.0**	**-25.7**	**151**	**103**
572.00	**20.9**	**3.1**	**24.0**	**46.0**	**-22.0**	**139**	**133**
704.00	**21.7**	**4.6**	**26.3**	**46.0**	**-19.7**	**128**	**174**
836.00	**23.1**	**2.0**	**25.1**	**46.0**	**-20.9**	**149**	**217**

Remarks: 1. Emission level (dBuV/m) = Correction Factor (dB) + Reading value (dBuV).

2. Correction Factor (dB) = Ant. Factor (dB)+Cable loss (dB)

3. The other emission levels were very low against the limit.

4. Margin value = Emission level - Limit value

5. The limit value is defined as per 15.247

Channel:6 ANTENNA POLARITY: Vertical		Detector Function : Quasi-Peak		6dB Bandwidth : 120 kHz.		Distance : 3 M Frequency Range : 30 – 1000 MHz.	
Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
44.00	**11.0**	**18.3**	**29.3**	**40.0**	**-10.7**	**143**	**106**
110.00	**12.3**	**10.2**	**22.5**	**43.5**	**-21.0**	**139**	**197**
286.00	**14.8**	**6.1**	**20.9**	**46.0**	**-25.1**	**106**	**151**
418.00	**18.2**	**1.8**	**20.0**	**46.0**	**-26.0**	**146**	**123**
616.00	**21.1**	**2.1**	**23.2**	**46.0**	**-22.8**	**181**	**248**
748.00	**22.4**	**0.8**	**23.2**	**46.0**	**-22.8**	**114**	**211**
902.00	**23.4**	**5.5**	**28.9**	**46.0**	**-17.1**	**144**	**307**

Remarks: 1. Emission level (dBuV/m) = Correction Factor (dB) + Reading value (dBuV).

2. Correction Factor (dB) = Ant. Factor (dB)+Cable loss (dB)

3. The other emission levels were very low against the limit.

4. Margin value = Emission level - Limit value

5. The limit value is defined as per 15.247

Channel:6 ANTENNA POLARITY: Horizontal		Detector Function : Quasi-Peak		6dB Bandwidth : 120 kHz.		Distance : 3 M Frequency Range : 30 – 1000 MHz.	
Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
44.00	**11.0**	**13.0**	**24.0**	**40.0**	**-16.0**	**139**	**41**
220.00	**11.6**	**15.9**	**27.5**	**46.0**	**-18.5**	**148**	**159**
330.00	**15.8**	**8.4**	**24.2**	**46.0**	**-21.8**	**139**	**183**
484.00	**19.4**	**3.0**	**22.4**	**46.0**	**-23.6**	**124**	**223**
616.00	**21.1**	**1.8**	**22.9**	**46.0**	**-23.1**	**127**	**274**
748.00	**22.4**	**2.8**	**25.5**	**46.0**	**-20.8**	**138**	**224**
858.00	**23.3**	**3.4**	**26.7**	**46.0**	**-19.3**	**109**	**309**

Remarks: 1. Emission level (dBuV/m) = Correction Factor (dB) + Reading value (dBuV).

2. Correction Factor (dB) = Ant. Factor (dB)+Cable loss (dB)

3. The other emission levels were very low against the limit.

4. Margin value = Emission level - Limit value

5. The limit value is defined as per 15.247

Channel:11 ANTENNA POLARITY: Vertical		Detector Function : Quasi-Peak		6dB Bandwidth : 120 kHz.		Distance : 3 M Frequency Range : 30 – 1000 MHz.	
Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
44.00	**11.0**	**17.5**	**28.5**	**40.0**	**-11.5**	**134**	**34**
110.00	**12.3**	**7.6**	**19.9**	**43.5**	**-23.6**	**131**	**198**
308.00	**15.1**	**7.4**	**22.5**	**46.0**	**-23.5**	**155**	**271**
462.00	**18.9**	**3.2**	**22.1**	**46.0**	**-23.9**	**120**	**303**
616.00	**21.1**	**2.2**	**23.3**	**46.0**	**-22.7**	**145**	**184**
726.00	**22.1**	**2.5**	**24.6**	**46.0**	**-21.4**	**112**	**243**
880.00	**23.3**	**1.6**	**24.9**	**46.0**	**-21.1**	**149**	**250**

Remarks: 1. Emission level (dBuV/m) = Correction Factor (dB) + Reading value (dBuV).

2. Correction Factor (dB) = Ant. Factor (dB)+Cable loss (dB)

3. The other emission levels were very low against the limit.

4. Margin value = Emission level - Limit value

5. The limit value is defined as per 15.247

Channel:11 ANTENNA POLARITY: Horizontal		Detector Function : Quasi-Peak		6dB Bandwidth : 120 kHz.		Distance : 3 M Frequency Range : 30 – 1000 MHz.	
Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
44.00	**11.0**	**11.8**	**22.8**	**40.0**	**-17.2**	**120**	**320**
154.00	**11.9**	**3.9**	**15.8**	**43.5**	**-27.7**	**149**	**61**
308.00	**15.1**	**6.1**	**21.2**	**46.0**	**-24.8**	**118**	**171**
484.00	**19.4**	**3.9**	**236.3**	**46.0**	**-22.7**	**164**	**221**
638.00	**21.4**	**2.3**	**23.7**	**46.0**	**-22.3**	**142**	**176**
748.00	**22.4**	**2.2**	**24.6**	**46.0**	**-21.4**	**120**	**306**
880.00	**23.3**	**3.3**	**26.6**	**46.0**	**-19.4**	**101**	**172**

Remarks: 1. Emission level (dBuV/m) = Correction Factor (dB) + Reading value (dBuV).

2. Correction Factor (dB) = Ant. Factor (dB)+Cable loss (dB)

3. The other emission levels were very low against the limit.

4. Margin value = Emission level - Limit value

5. The limit value is defined as per 15.247

Channel 1 ANTENNA POLARITY: Vertical		Detector Function : Peak Average		6dB Bandwidth : 1 MHz.				Distance : 3 M Frequency Range : Above 1000 MHz.			
Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)		Antenna Height (cm)	Table Angle (Degree)
		P.K.	A.V.	P.K.	A.V.	P.K.	A.V.	P.K.	A.V.		
2038.00	33.1	14.9	-	48.0	-	74.0	54.0	-26.0	-	111	64
*2412.00	34.3	66.1	58.0	100.4	92.3	-	-	-	-	100	27
4076.00	40.0	8.3	-	48.3	-	74.0	54.0	-25.7	-	138	88
4824.00	41.3	8.6	-	49.9	-	74.0	54.0	-24.1	-	114	347
7236.00	39.7	17.0	5.8	56.7	45.5	74.0	54.0	-17.3	-8.5	100	30

Channel 1 ANTENNA POLARITY: Horizontal		Detector Function : Peak Average		6dB Bandwidth : 1 MHz.				Distance : 3 M Frequency Range : Above 1000 MHz.			
Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)		Antenna Height (cm)	Table Angle (Degree)
		P.K.	A.V.	P.K.	A.V.	P.K.	A.V.	P.K.	A.V.		
2038.00	33.1	13.2	-	46.3	-	74.0	54.0	-27.8	-	135	89
*2413.00	34.3	75.7	67.4	110.0	101.7	-	-	-	-	113	99
4076.00	40.0	9.7	-	49.7	-	74.0	54.0	-24.3	-	135	70
4824.00	41.3	8.3	-	49.6	-	74.0	54.0	-24.4	-	132	323
7234.90	39.7	20.0	10.2	59.7	49.9	74.0	54.0	-14.3	-4.1	184	39

Remarks: 1. Emission level (dBuV/m) = Correction Factor (dB) + Reading value (dBuV).

2. Correction Factor (dB) = Ant. Factor (dB)+Cable loss (dB)

3. The other emission levels were very low against the limit.

4. Margin value = Emission level - Limit value

5. The limit value is defined as per 15.247

6. " * " : Fundamental Frequency

Channel 6 ANTENNA POLARITY: Vertical		Detector Function : Peak Average		6dB Bandwidth : 1 MHz.						Distance : 3 M Frequency Range : Above 1000 MHz.	
Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)		Antenna Height (cm)	Table Angle (Degree)
		P.K.	A.V.	P.K.	A.V.	P.K.	A.V.	P.K.	A.V.		
2063.00	33.2	13.6	-	46.8	-	74.0	54.0	-27.2	-	151	258
*2437.00	34.4	64.6	57.2	99.0	91.6	-	-	-	-	144	83
4126.00	39.9	8.7	-	48.6	-	74.0	54.0	-25.4	-	124	268
4874.00	41.2	8.0	-	49.2	-	74.0	54.0	-24.8	-	144	147
7311.10	39.7	12.7	-	52.4	-	74.0	54.0	-21.6	-	127	34

Channel 6 ANTENNA POLARITY: Horizontal		Detector Function : Peak Average		6dB Bandwidth : 1 MHz.						Distance : 3 M Frequency Range : Above 1000 MHz.	
Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)		Antenna Height (cm)	Table Angle (Degree)
		P.K.	A.V.	P.K.	A.V.	P.K.	A.V.	P.K.	A.V.		
2063.00	33.2	14.6	-	47.8	-	74.0	54.0	-26.2	-	143	328
*2437.00	34.4	73.7	65.4	108.1	99.8	-	-	-	-	114	106
4126.00	39.9	8.6	-	48.5	-	74.0	54.0	-25.5	-	119	185
4874.00	41.2	8.1	-	49.3	-	74.0	54.0	-24.7	-	149	10
7311.00	39.7	17.2	6.0	56.9	45.7	74.0	54.0	-17.1	-8.3	194	34

Remarks: 1. Emission level (dBuV/m) = Correction Factor (dB) + Reading value (dBuV).

2. Correction Factor (dB) = Ant. Factor (dB)+Cable loss (dB)

3. The other emission levels were very low against the limit.

4. Margin value = Emission level - Limit value

5. The limit value is defined as per 15.247

6. " * " : Fundamental Frequency

Channel 11 ANTENNA POLARITY: Vertical		Detector Function : Peak Average				6dB Bandwidth : 1 MHz.				Distance : 3 M Frequency Range : Above 1000 MHz.	
Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)		Antenna Height (cm)	Table Angle (Degree)
		P.K.	A.V.	P.K.	A.V.	P.K.	A.V.	P.K.	A.V.		
2088.00	33.2	14.3	-	47.5	-	74.0	54.0	-26.5	-	110	44
*2462.00	34.5	65.3	58.5	99.8	93.0	-	-	-	-	111	253
4176.00	39.9	10.7	-	50.6	-	74.0	54.0	-23.4	-	110	71
4924.00	41.4	7.9	-	49.0	-	74.0	54.0	-25.0	-	139	187
7386.00	39.7	9.1	-	48.8	-	74.0	54.0	-25.2	-	163	363

Channel 11 ANTENNA POLARITY: Horizontal		Detector Function : Peak Average				6dB Bandwidth : 1 MHz.				Distance : 3 M Frequency Range : Above 1000 MHz.	
Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)		Antenna Height (cm)	Table Angle (Degree)
		P.K.	A.V.	P.K.	A.V.	P.K.	A.V.	P.K.	A.V.		
2088.00	33.2	13.4	-	46.6	-	74.0	54.0	-27.4	-	115	141
*2462.00	34.5	73.8	65.2	108.3	99.7	-	-	-	-	135	84
4176.00	39.9	7.9	-	47.8	-	74.0	54.0	-26.2	-	168	155
4924.00	41.4	8.0	-	49.4	-	74.0	54.0	-24.6	-	119	197
7386.00	39.7	13.1	-	52.8	-	74.0	54.0	-21.2	-	163	363

Remarks: 1. Emission level (dBuV/m) = Correction Factor (dB) + Reading value (dBuV).

2. Correction Factor (dB) = Ant. Factor (dB)+Cable loss (dB)

3. The other emission levels were very low against the limit.

4. Margin value = Emission level - Limit value

5. The limit value is defined as per 15.247

6. " * " : Fundamental Frequency

6.5 Power Spectral Density Measurement

6.5.1 Test Instruments

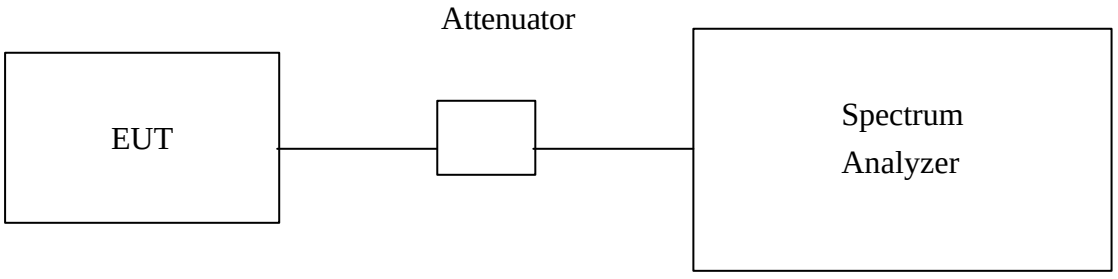
Description & Manufacturer	Model No.	Serial No.	Calibrated Until
ROHDE & SCHWARZ TEST RECEIVER	**ESMI**	**846839/018 848926/005**	**Dec. 03, 2000**
HP ATTENUATOR	**8496B**	**3247A18505**	**Cal. on use**
HP PLOTTER	**7475A**	**2641V27755**	**N/A**

The measurement uncertainty is less than +/- 2.6dB, which is calculated as per NAMAS document NIS81.

6.5.2 Test Procedure

The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3 kHz RBW and 30 kHz VBW, set sweep time=span/3kHz. The power spectral density was measured and recorded. The longer sweep time is allowed for the detection of the maximum radiation through each 3KHz filter.

6.5.3 Test Setup



6.5.4 EUT Operating Condition

The software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel frequencies individually.

6.5.5 Climate Condition

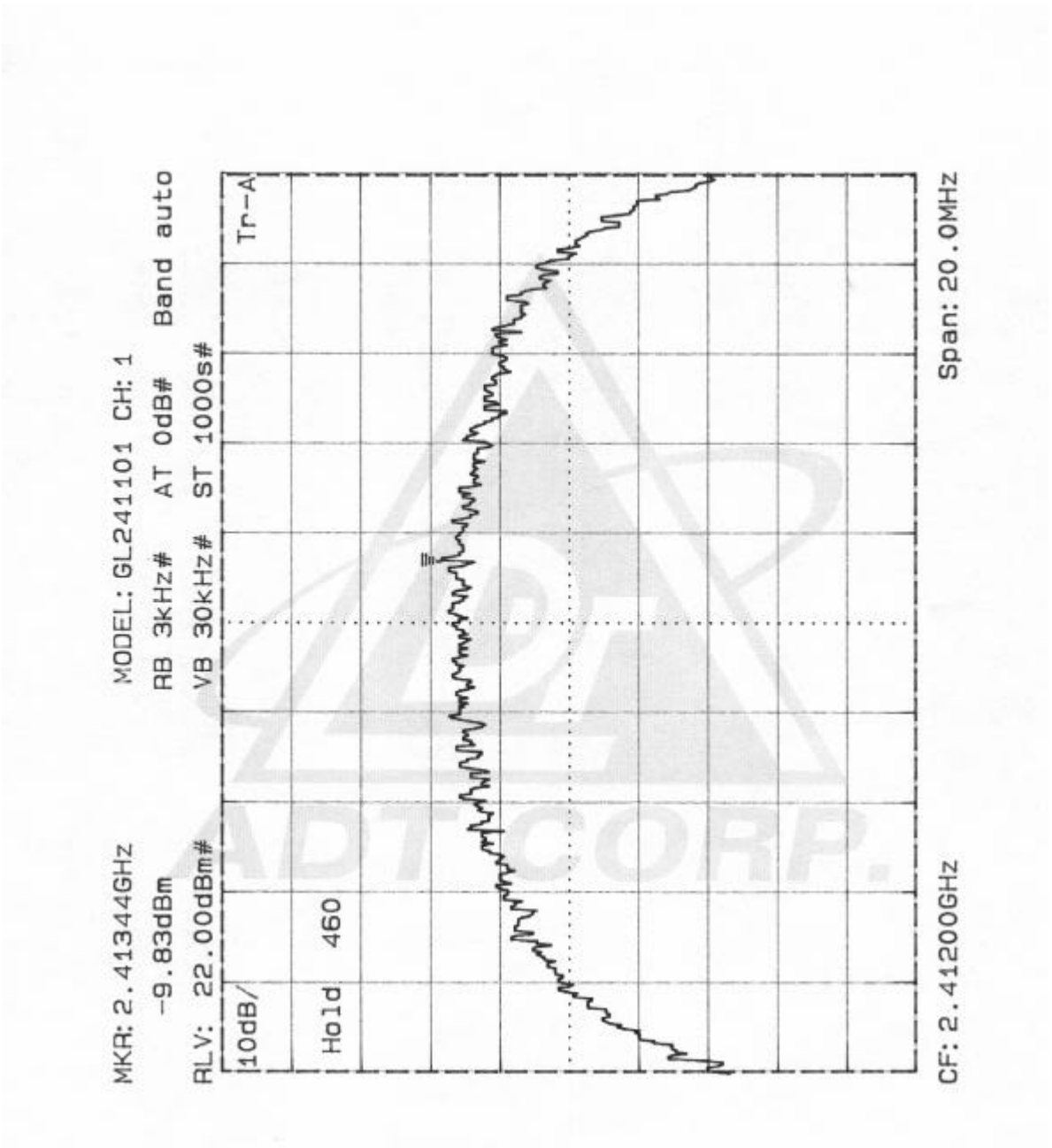
The temperature and related humidity is 18℃ and 78% respectively.

6.5.6 Test Result

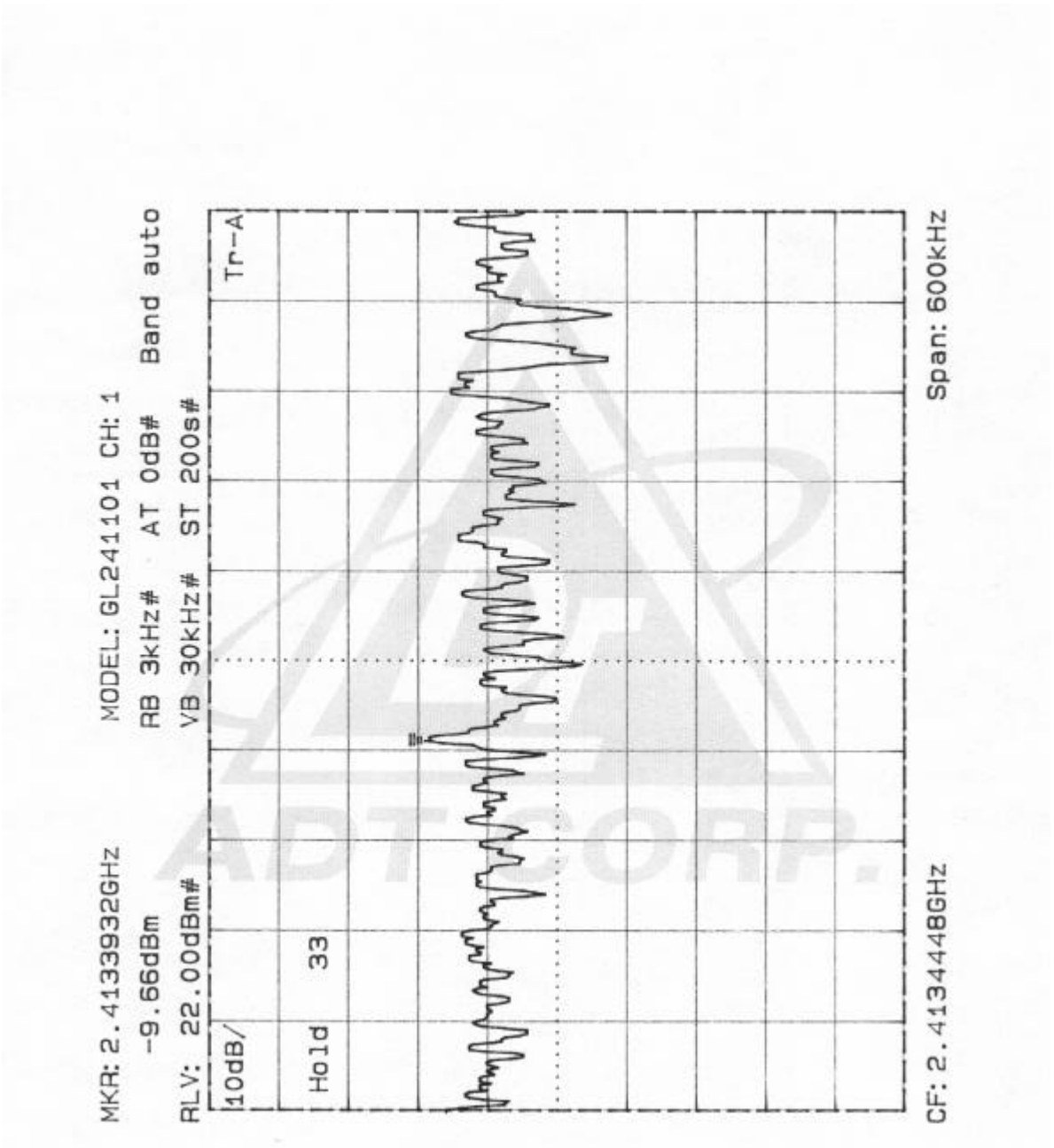
CHANNEL NUMBER	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 KHz BW	MAXIMUM LIMIT (MHz)	PASS/FAIL
1	2412	-9.66dBm	8dBm	PASS
6	2437	-10.38dBm	8dBm	PASS
11	2462	-10.98dBm	8dBm	PASS

The spectrum plots of test result are attached as below.

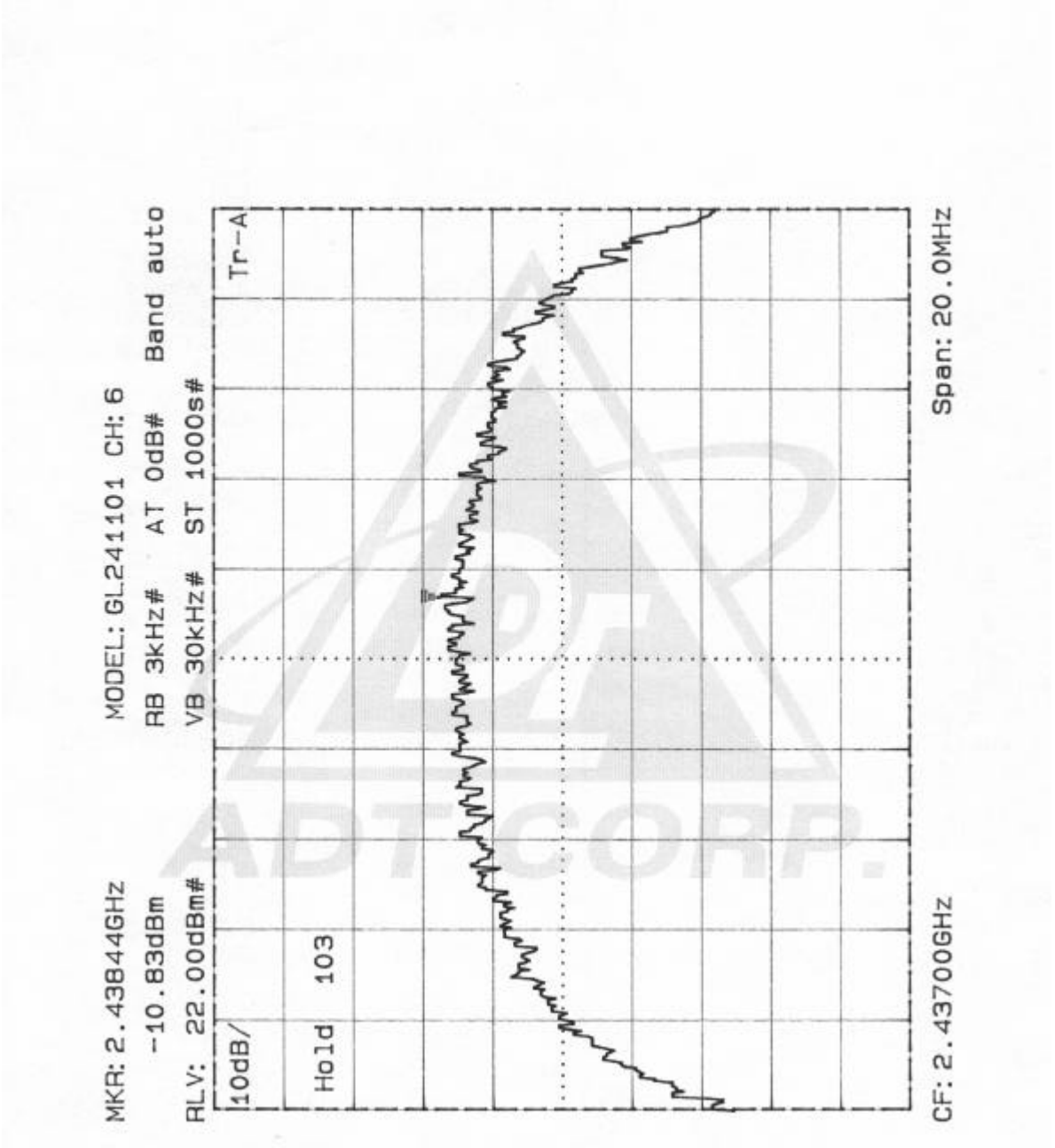
CH 1


MKR: 2.41344GHz
-9.83dBm
RLV: 22.00dBm#
10dB/
Hold 460
MODEL: GL241101 CH: 1
RB 3kHz# AT 0dB# Band auto
VB 30kHz# ST 1000s#
Tr-A
Span: 20.0MHz
CF: 2.41200GHz

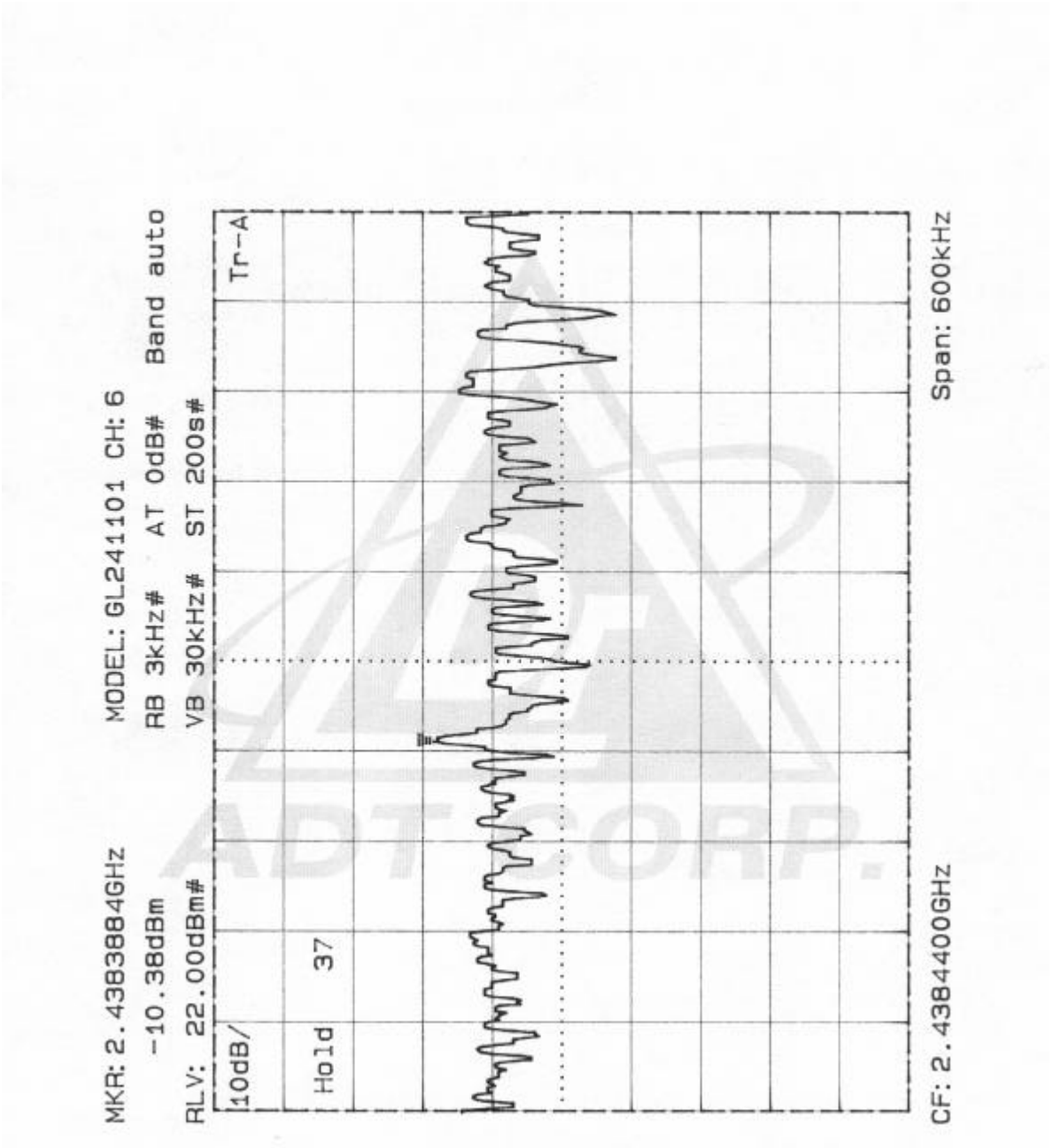
CH 1


MKR: 2.4133932GHz
-9.66dBm
RLV: 22.00dBm#
10dB/
Hold 33
MODEL: GL241101 CH: 1
RB 3kHz# AT 0dB# Band auto
VB 30kHz# ST 200s#
Tr-A
Span: 600kHz
CF: 2.413448GHz

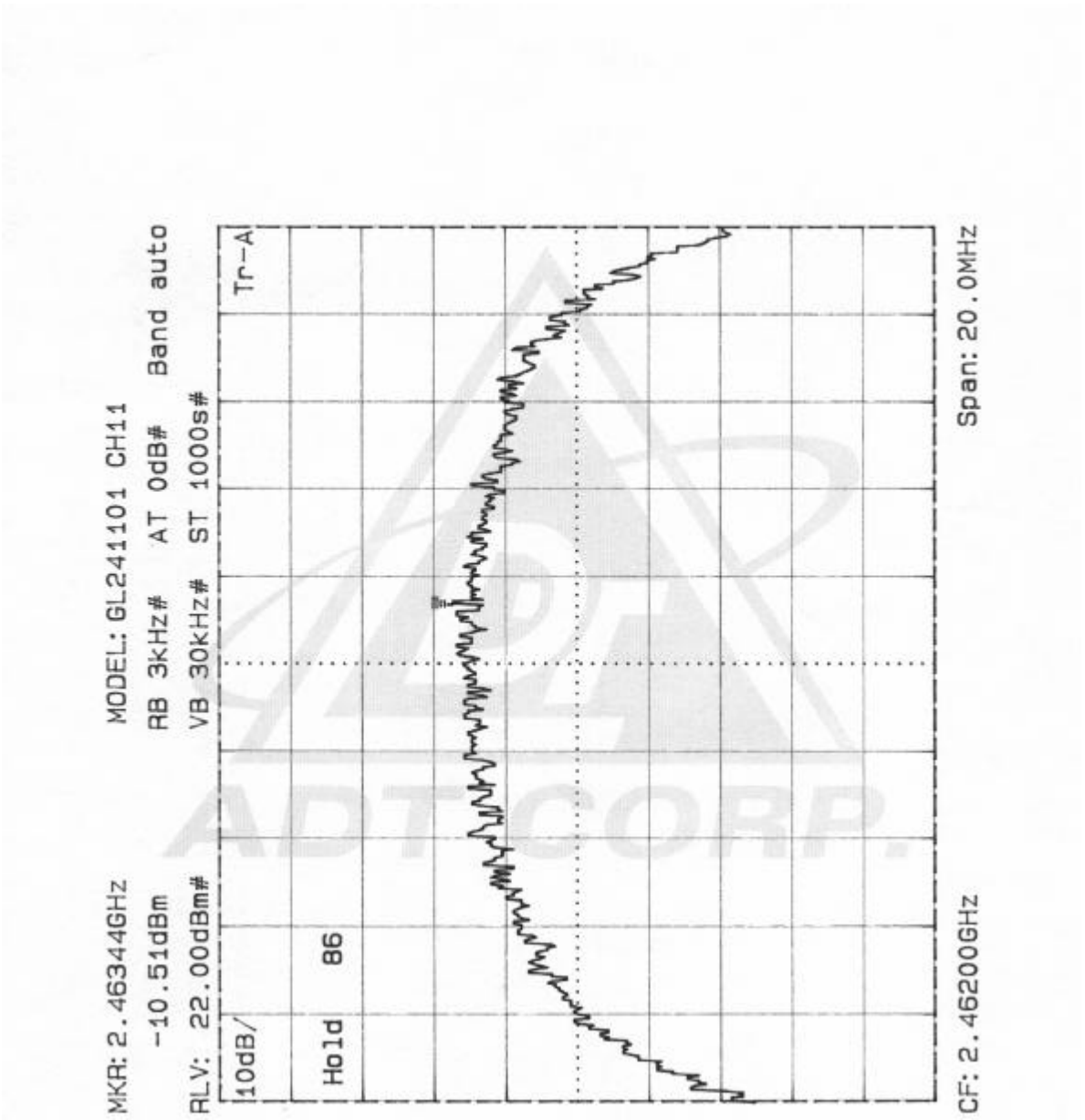
CH6


MKR: 2.43844GHz
-10.83dBm
RLV: 22.00dBm#
10dB/
Hold 103
MODEL: GL241101 CH: 6
RB 3kHz# AT 0dB# Band auto
VB 30kHz# ST 1000s#
Tr-A
Span: 20.0MHz
CF: 2.43700GHz

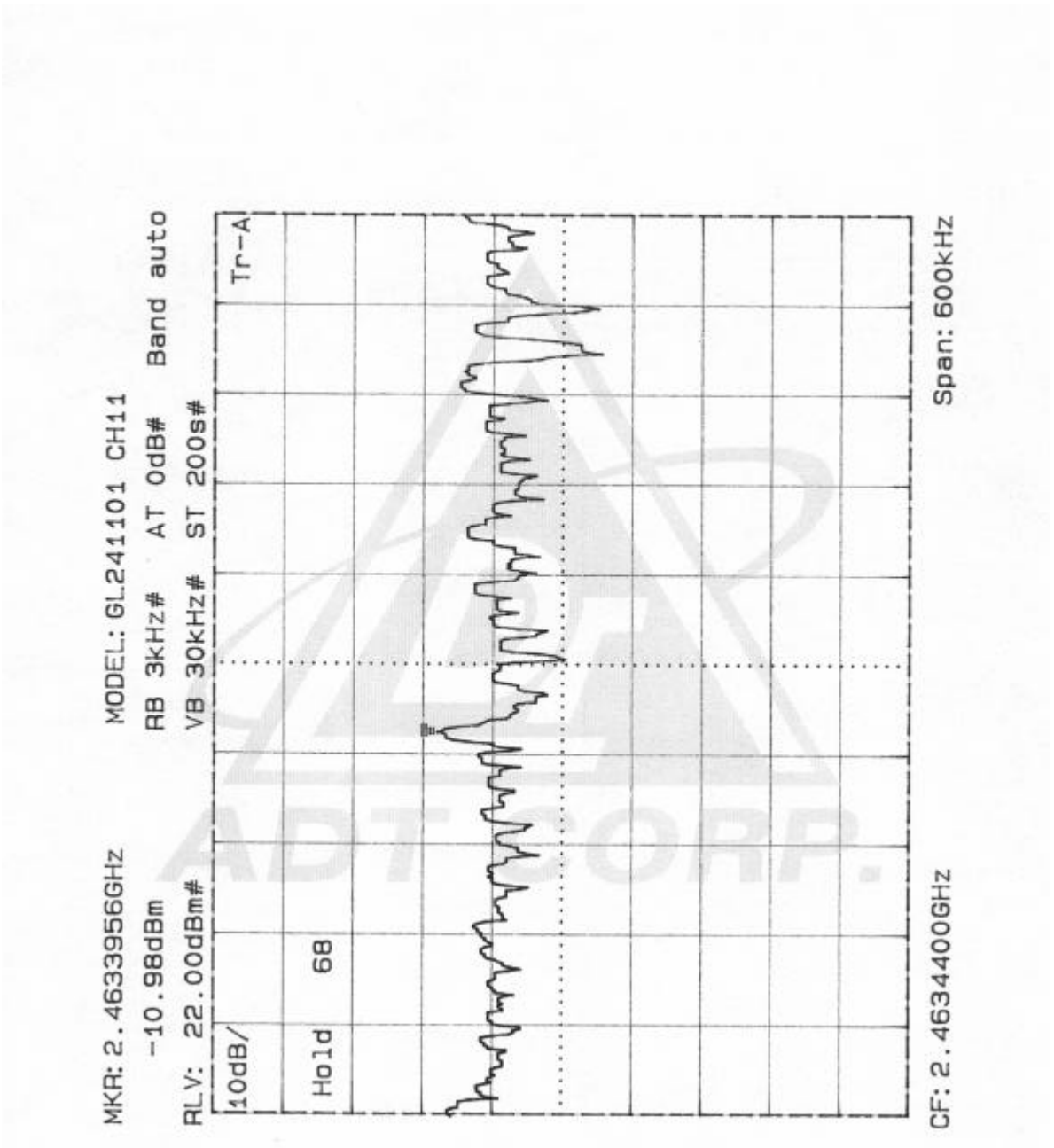
CH 6


MKR: 2.4383884GHz
-10.38dBm
RLV: 22.00dBm#
10dB/
Hold 37
MODEL: GL241101 CH: 6
RB 3kHz# AT 0dB# Band auto
VB 30kHz# ST 200s#
Tr-A
Span: 600kHz
CF: 2.4384400GHz

CH11


MKR: 2.46344GHz
-10.51dBm
RLV: 22.00dBm#
MODEL: GL241101 CH11
RB 3kHz# AT 0dB# Band auto
VB 30kHz# ST 1000s#
Tr-A
10dB/
Hold 86
Span: 20.0MHz
CF: 2.46200GHz

CH 11


MKR: 2.4633956GHz
-10.98dBm
RLV: 22.00dBm#
10dB/
Hold 68
MODEL: GL241101 CH11
RB 3kHz# AT 0dB# Band auto
VB 30kHz# ST 200s#
Tr-A
Span: 600kHz
CF: 2.4634000GHz

6.6 Processing Gain of a Direct Sequence Spread Spectrum Measurement

6.6.1 Test Instruments and Support Units

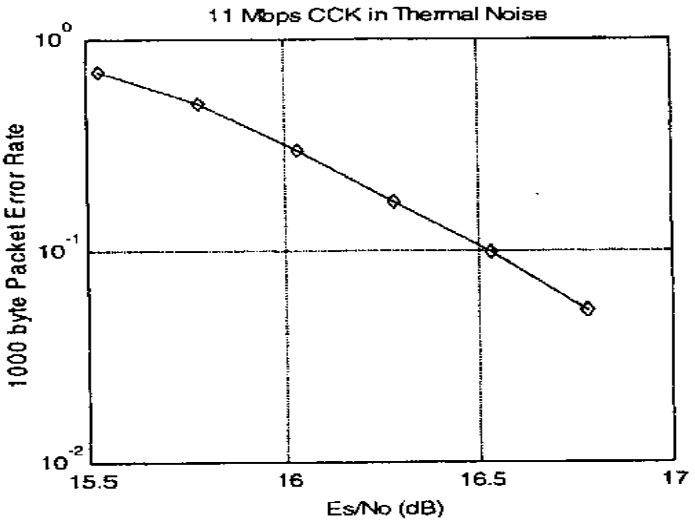
Description & Manufacturer	Model No.	Serial No.
Hewlett Packard Spectrum Analyzer, 9kHz to 22GHz	**HP8593E**	**S942848**
Marconi Signal Generator, 10kHz to 2.7GHz	**2031**	**953426**
Hewlett Packard Power Meter,	**HP438A**	**S952633**
Hewlett Packard Power Sensor, -20 to –70dBm	**HP8481D**	**SCD15369**
Hewlett Packard Attenuator, 6dB to 10 dB	**HP8493A**	**NA**
Hewlett Packard Step Attenuator, 1dB steps	**HP8494A**	**NA**
Hewlett Packard Step Attenuator, 10dB steps	**HP8495D**	**NA**
Hewlett Packard Power Splitter,	**HP11667B**	**04390**
Campaq Laptop Computer (Qty 2),	**Armada 1700**	**NA**

6.6.2 Method of Measurement

The processing gain may be measured using the CW jamming margin method. Figure 1 shows the test configuration. The test consists of stepping a signal generator in 50 kHz increments across the passband of the system. At each point, the generator level required to produce the recommended Bit Error Rate (BER) is recorded. This level is jammer level. The output power of the transmitting unit is measured at the same point. The jammer to Signal (J/S) ratio is then calculated. Discard the worst 20% of the J/S data points. The lowest remaining J/S ratio is used when calculating the Process Gain.

The reference PER is specified as 8%. The corresponding Es/No (signal to noise ratio per symbol) is 16.4 dB. The curve is attached as below.

1.1 1000 byte PER vs. Es/No



This value and the measured J/S ratio are used in the following equation to calculate the Process Gain (Gp) of the system.

$$Gp = (S/N)_o + Mj + Lsys$$

Where:

$(S/N)_o$: Signal to noise ratio for the chosen BER.

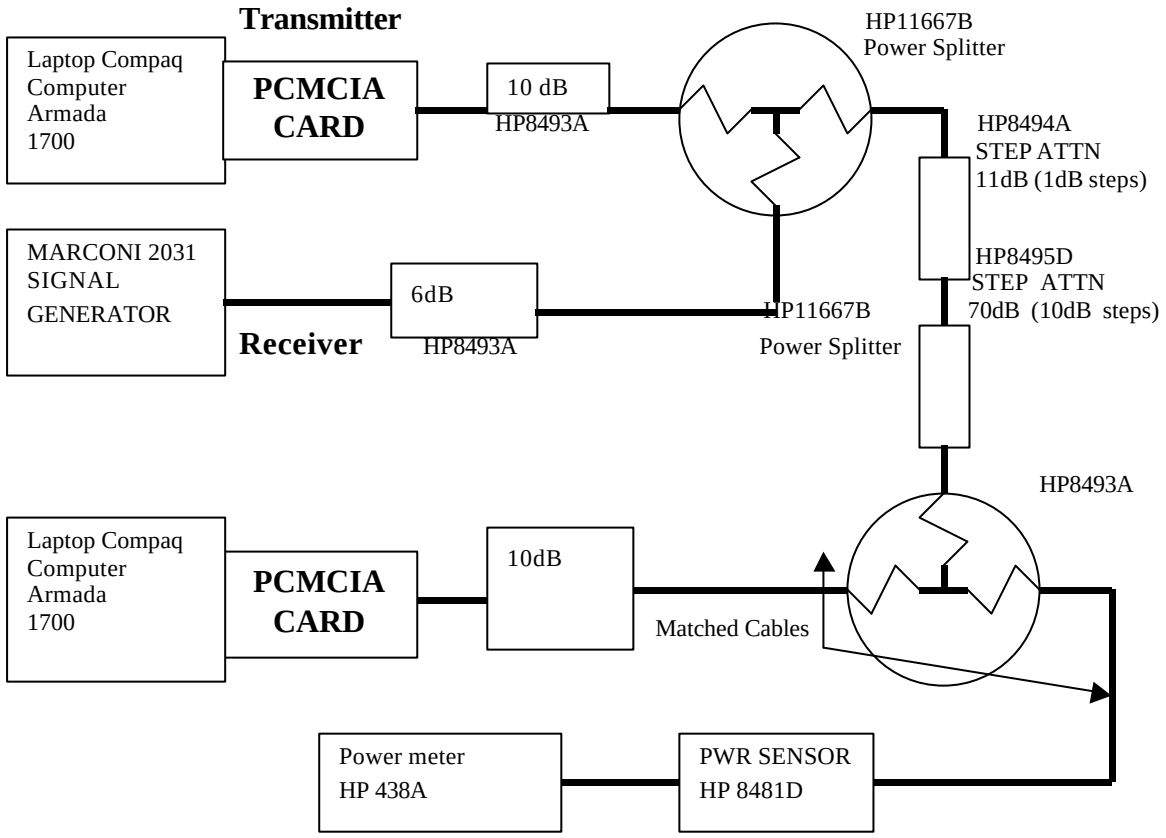
Mj : Maximum jammer to Signal Ratio recorded at the detected BER.

Lsys : System losses . For the purpose of this processing gain calculation, we assume Lsys at its minimum value of 2 dB.

Applicable Reference Documents.

1. "HFA3861A Direct Sequence Spread Spectrum Baseband Processor" Harris Corporation Semiconductor Sector Preliminary Data Sheet, Melbourne FL, July 1999.
2. "M-ary Orthogonal Keying BER Curve".

6.6.3 Test Setup



6.6.4 Test Procedure

Obtain the simplex link shown. Perform all independent instrumentation calibrations prior to this procedure. Set operating power levels using fixed and variable attenuators in system to meet the following objectives:

1. Signal Power at receiver approximately –60dBm (above thermal sensitivity such that thermal noise does not cause bit errors.

2. Signal Power at power meter between –20 and –30dBm for optimal linearity.

3. Use spectrum analyzer to monitor test.

4. Ensure that CW Jammer generator RF output is disabled and measure the power at the power meter port using the power meter. This is the relative signal power, Sr.

5. Disable Transmitter, and set CW Jammer generator RF output frequency equal to the carrier frequency and enable generator output. Set reference CW Jammer power level at power meter port 8.4dB below Sr (minimum J/S, or 10dB processing gain reference level). Note the power level setting on the generator, this is the reference CW Jammer power setting, Jr.

6. Disable CW Jammer, re-establish link. PER test should be operating essentially error -free.

7. Enable CW Jammer at the reference power level and verify that the PER test indicates a PER of less than 8%.

8. Alternatively, adjust the CW Jammer level to that which causes 8% PER and verify that the S/J is less than 8.4dB.

9. Repeat step 7 for uniform steps in frequency increments of 50 kHz across the receiver passband with the CW Jammer. In this case the receiver passband is +/- 8.5 MHz.

The numerical data associated with the following radio channel is tabulated and presented for :

Channel 1	:2412 MHZ
Channel 6	:2437 MHz
Channel 11	:2462 MHz

6.6.5 EUT Operating condition

The software provided by client to set the EUT to transmit at lowest, middle and highest channel.

6.6.6 Climate Condition

The temperature and related humidity: 25°C and 50%.

6.6.7 Test Results

Although the theoretical processing gain is lower than 10 dB, but the CCK coding provides an extra coding gain of 2.2dB.

11Mbps CHANNEL 1 Processing Gain						
Gp = (S/N)。 + Mj + Lsys						
Freq.	Gp	(S/N)。	Mj = J/S	Lsys	Jammer	LVL
(GHz)	(dB)	(dB)	(dB)	(dB)	(dBm)	(dBm)
2.4095	11.3	16.4	-7.1	2	-47.1	-0.7
2.40955	11.4	16.4	-7	2	-47	-0.6
2.4096	11.4	16.4	-7	2	-47	-0.6
2.40965	11.4	16.4	-7	2	-47	-0.6
2.4097	11.3	16.4	-7.1	2	-47.1	-0.7
2.40975	11.3	16.4	-7.1	2	-47.1	-0.7
2.4098	11.1	16.4	-7.3	2	-47.3	-0.9
2.40985	11.1	16.4	-7.3	2	-47.3	0.9
2.4099	11	16.4	-7.4	2	-47.4	-1
2.40995	11	16.4	-7.4	2	-47.4	-1
2.41	10.9	16.4	-7.5	2	-47.5	-1.1
2.41005	11	16.4	-7.4	2	-47.4	-1
2.4101	11	16.4	-7.4	2	-47.4	-1
2.41015	11.1	16.4	-7.3	2	-47.3	-0.9
2.4102	11.2	16.4	-7.2	2	-47.2	-0.8
2.41025	11.3	16.4	-7.1	2	-47.1	-0.7
2.4103	11.3	16.4	-7.1	2	-47.1	-0.7
2.41035	11.4	16.4	-7	2	-47	-0.6
2.4104	11.3	16.4	-7.1	2	-47.1	-0.7
2.41045	11.3	16.4	-7.1	2	-47.1	-0.7
2.4105	11.3	16.4	-7.1	2	-47.1	-0.7
2.41055	11.2	16.4	-7.2	2	-47.2	-0.8
2.4106	11.2	16.4	-7.2	2	-47.2	-0.8
2.41065	11.3	16.4	-7.1	2	-47.1	-0.7
2.4107	11.3	16.4	-7.1	2	-47.1	-0.7
2.41075	11.3	16.4	-7.1	2	-47.1	-0.7
2.4108	11.4	16.4	-7	2	-47	-0.6
2.41085	11.5	16.4	-6.9	2	-46.9	-0.5
2.4109	11.6	16.4	-6.8	2	-46.8	-0.4
2.41095	11.6	16.4	-6.8	2	-46.8	-0.4
2.411	11.6	16.4	-6.8	2	-46.8	-0.4
2.41105	11.4	16.4	-7	2	-47	-0.6
2.4111	11.5	16.4	-6.9	2	-46.9	-0.5
2.41115	11.6	16.4	-6.8	2	-46.8	-0.4

11Mbps CHANNEL 1 Processing Gain						
Gp = (S/N)。+ Mj + Lsys						
Freq.	Gp	(S/N)。	Mj = J/S	Lsys	Jammer	LVL
(GHz)	(dB)	(dB)	(dB)	(dB)	(dBm)	(dBm)
2.4112	11.5	16.4	-6.9	2	-46.9	-0.5
2.41125	11.5	16.4	-6.9	2	-46.9	-0.5
2.4113	11.5	16.4	-6.9	2	-46.9	-0.5
2.41135	11.4	16.4	-7	2	-47	-0.6
2.4114	11.4	16.4	-7	2	-47	-0.6
2.41145	11.4	16.4	-7	2	-47	-0.6
2.4115	11.4	16.4	-7	2	-47	-0.6
2.41155	11.4	16.4	-7	2	-47	-0.6
2.4116	11.6	16.4	-6.8	2	-46.8	-0.4
2.41165	11.6	16.4	-6.8	2	-46.8	-0.4
2.4117	11.5	16.4	-6.9	2	-46.9	-0.5
2.41175	11.4	16.4	-7	2	-47	-0.6
2.4118	11.2	16.4	-7.2	2	-47.2	-0.8
2.41185	11.1	16.4	-7.3	2	-47.3	-0.9
2.4119	11	16.4	-7.4	2	-47.4	-1
2.41195	10.8	16.4	-7.6	2	-47.6	-1.2
2.412	10.9	16.4	-7.5	2	-47.5	-1.1
2.41205	10.9	16.4	-7.5	2	-47.5	-1.1
2.4121	11.1	16.4	-7.3	2	-47.3	-0.9
2.41215	11.4	16.4	-7	2	-47	-0.6
2.4122	11.5	16.4	-6.9	2	-46.9	-0.5
2.41225	11.6	16.4	-6.8	2	-46.8	-0.4
2.4123	11.7	16.4	-6.7	2	-46.7	-0.3
2.41235	11.7	16.4	-6.7	2	-46.7	-0.3
2.4124	11.7	16.4	-6.7	2	-46.7	-0.3
2.41245	11.6	16.4	-6.8	2	-46.8	-0.4
2.4125	11.6	16.4	-6.8	2	-46.8	-0.4
2.41255	11.6	16.4	-6.8	2	-46.8	-0.4
2.4126	11.6	16.4	-6.8	2	-46.8	-0.4
2.41265	11.6	16.4	-6.8	2	-46.8	-0.4
2.4127	11.7	16.4	-6.7	2	-46.7	-0.3
2.41275	11.6	16.4	-6.8	2	-46.8	-0.4
2.4128	11.8	16.4	-6.6	2	-46.6	-0.2
2.41285	11.8	16.4	-6.6	2	-46.6	-0.2

11Mbps CHANNEL 1 Processing Gain						
Gp = (S/N)。+ Mj + Lsys						
Freq.	**Gp**	**(S/N)。**	**Mj = J/S**	**Lsys**	**Jammer**	**LVL**
(GHz)	**(dB)**	**(dB)**	**(dB)**	**(dB)**	**(dBm)**	**(dBm)**
2.4129	11.8	16.4	-6.6	2	-46.6	-0.2
2.41295	11.9	16.4	-6.5	2	-46.5	-0.1
2.413	11.8	16.4	-6.6	2	-46.6	-0.2
2.41305	11.8	16.4	-6.6	2	-46.6	-0.2
2.4131	11.8	16.4	-6.6	2	-46.6	-0.2
2.41315	11.7	16.4	-6.7	2	-46.7	-0.3
2.4132	11.6	16.4	-6.8	2	-46.8	-0.4
2.41325	11.7	16.4	-6.7	2	-46.7	-0.3
2.4133	11.6	16.4	-6.8	2	-46.8	-0.4
2.41335	11.6	16.4	-6.8	2	46.8	-0.4
2.4134	11.6	16.4	-6.8	2	-46.8	-0.4
2.41345	11.6	16.4	-6.8	2	-46.8	-0.4
2.4135	11.6	16.4	-6.8	2	-46.8	-0.4
2.41355	11.7	16.4	-6.8	2	-46.8	-0.4
2.4136	11.6	16.4	-6.7	2	-46.7	-0.3
2.41365	11.7	16.4	-6.7	2	-46.7	-0.3
2.4137	11.7	16.4	-6.7	2	-46.7	-0.3
2.41375	11.7	16.4	-6.7	2	-46.7	-0.3
2.4138	11.6	16.4	-6.8	2	-46.8	-0.4
2.41385	11.5	16.4	-6.9	2	-46.9	-0.5
2.4139	11.4	16.4	-7	2	-47	-0.6
2.41395	11.3	16.4	-7.1	2	-47.1	-0.7
2.414	11.2	16.4	-7.2	2	-47.2	-0.8
2.41405	11.2	16.4	-7.2	2	-47.2	-0.8
2.4141	11.2	16.4	-7.2	2	-47.2	-0.8
2.41415	11.2	16.4	-7.2	2	-47.2	-0.8
2.4142	11.3	16.4	-7.1	2	-47.1	-0.7
2.41425	11.4	16.4	-7	2	-47	-0.6
2.4143	11.5	16.4	-6.9	2	-46.9	-0.5
2.41435	11.5	16.4	-6.9	2	-46.9	-0.5
2.4144	11.5	16.4	-6.9	2	-46.9	-0.5
2.41445	11.5	16.4	-6.9	2	-46.9	-0.5
2.4145	11.4	16.4	-7	2	-47	-0.6
Processing Gain : 11.5 dB						

11Mbps CHANNEL 6 Processing Gain						
Gp = (S/N)。+ Mj + Lsys						
Freq.	Gp	(S/N)。	Mj = J/S	Lsys	Jammer	LVL
(GHz)	(dB)	(dB)	(dB)	(dB)	(dBm)	(dBm)
2.4345	11.2	16.4	-7.2	2	-47.2	-3.1
2.43455	11.2	16.4	-7.2	2	-47.2	-3.1
2.4346	11.2	16.4	-7.2	2	-47.2	-3.1
2.43465	11.3	16.4	-7.1	2	-47.1	-3
2.4347	11.3	16.4	-7.1	2	-47.1	-3
2.43475	11.2	16.4	-7.2	2	-47.2	-3.1
2.4348	11.1	16.4	-7.3	2	-47.3	-3.2
2.43485	11.1	16.4	-7.3	2	-47.3	-3.2
2.4349	11	16.4	-7.4	2	-47.4	-3.3
2.43495	11	16.4	-7.4	2	-47.4	-3.3
2.435	11	16.4	-7.4	2	-47.4	-3.3
2.43505	11.1	16.4	-7.3	2	-47.3	-3.2
2.4351	11.1	16.4	-7.3	2	-47.3	-3.2
2.43515	11.2	16.4	-7.2	2	-47.2	-3.1
2.4352	11.3	16.4	-7.1	2	-47.1	-3
2.43525	11.3	16.4	-7.1	2	-47.1	-3
2.4353	11.4	16.4	-7	2	-47	-2.9
2.43535	11.4	16.4	-7	2	-47	-2.9
2.4354	11.3	16.4	-7.1	2	-47.1	-3
2.43545	11.3	16.4	-7.1	2	-47.1	-3
2.4355	11.2	16.4	-7.2	2	-47.2	-3.1
2.43555	11.2	16.4	-7.2	2	-47.2	-3.1
2.4356	11.2	16.4	-7.2	2	-47.2	-3.1
2.43565	11.2	16.4	-7.2	2	-47.2	-3.1
2.4357	11.2	16.4	-7.2	2	-47.2	-3.1
2.43575	11.3	16.4	-7.1	2	-47.1	-3
2.4358	11.4	16.4	-7	2	-47	-2.9
2.43585	11.5	16.4	-6.9	2	-46.9	-2.8
2.4359	11.5	16.4	-6.9	2	-46.9	-2.8
2.43595	11.5	16.4	-6.9	2	-476.9	-2.8
2.436	11.5	16.4	-6.9	2	-46.9	-2.8
2.43605	11.4	16.4	-7	2	-47	-2.9
2.4361	11.5	16.4	-6.9	2	-46.9	-2.8
2.43615	11.5	16.4	-6.9	2	-46.9	-2.8

11Mbps CHANNEL 6 Processing Gain						
Gp = (S/N)o + Mj + Lsys						
Freq.	Gp	(S/N)o	Mj = J/S	Lsys	Jammer	LVL
(GHz)	(dB)	(dB)	(dB)	(dB)	(dBm)	(dBm)
2.4362	11.5	16.4	-6.9	2	-46.9	-2.8
2.43625	11.5	16.4	-6.9	2	-46.9	-2.8
2.4363	11.5	16.4	-6.9	2	-46.9	-2.8
2.43635	11.4	16.4	-7	2	-47	-2.9
2.4364	11.4	16.4	-7	2	-47	-2.9
2.43645	11.4	16.4	-7	2	-47	-2.9
2.4365	11.4	16.4	-7	2	-47	-2.9
2.43655	11.4	16.4	-7	2	-47	-2.9
2.4366	11.4	16.4	-7	2	-47	-2.9
2.43665	11.5	16.4	-6.9	2	-46.9	-2.8
2.4367	11.5	16.4	-6.9	2	-46.9	-2.8
2.43675	11.4	16.4	-7	2	-47	-2.9
2.4368	11.3	16.4	-7.1	2	-47.1	-3
2.43685	11.1	16.4	-7.3	2	-47.3	-3.2
2.4369	11	16.4	-7.4	2	-47.4	-3.3
2.43695	10.9	16.4	-7.5	2	-47.5	-3.4
2.437	10.9	16.4	-7.5	2	-47.5	-3.4
2.43705	11	16.4	-7.4	2	-47.4	-3.3
2.4371	11.1	16.4	-7.3	2	-47.3	-3.2
2.43715	11.2	16.4	-7.2	2	-47.2	-3.1
2.4372	11.3	16.4	-7.1	2	-47.1	-3
2.43725	11.5	16.4	-6.9	2	-46.9	-2.8
2.4373	11.6	16.4	-6.8	2	-46.8	-2.7
2.43735	11.6	16.4	-6.8	2	-46.8	-2.7
2.4374	11.5	16.4	-6.9	2	-46.9	-2.8
2.43745	11.4	16.4	-7	2	-47	-2.9
2.4375	11.4	16.4	-7	2	-47	-2.9
2.43755	11.5	16.4	-6.9	2	-46.9	-2.8
2.4376	11.5	16.4	-6.9	2	-46.9	-2.8
2.43765	11.5	16.4	-6.9	2	-46.9	-2.8
2.4377	11.5	16.4	-6.9	2	-46.9	-2.8
2.43775	11.5	16.4	-6.9	2	-46.9	-2.8
2.4378	11.6	16.4	-6.8	2	-46.8	-2.7
2.43785	11.7	16.4	-6.7	2	-46.7	-2.6

11Mbps CHANNEL 6 Processing Gain						
Gp = (S/N)o + Mj + Lsys						
Freq.	Gp	(S/N)o	Mj = J/S	Lsys	Jammer	LVL
(GHz)	(dB)	(dB)	(dB)	(dB)	(dBm)	(dBm)
2.4379	11.8	16.4	-6.6	2	-46.6	-2.5
2.43795	11.7	16.4	-6.7	2	-46.7	-2.6
2.438	11.7	16.4	-6.7	2	-46.7	-2.6
2.43805	11.6	16.4	-6.8	2	-46.8	-2.7
2.4381	11.6	16.4	-6.8	2	-46.8	-2.7
2.43815	11.5	16.4	-6.9	2	-46.9	-2.8
2.4382	11.5	16.4	-6.9	2	-46.9	-2.8
2.43825	11.4	16.4	-7	2	-47	-2.9
2.4383	11.4	16.4	-7	2	-47	-2.9
2.43835	11.3	16.4	-7.1	2	-47.1	-3
2.4384	11.3	16.4	-7.1	2	-47.1	-3
2.43845	11.3	16.4	-7.1	2	-47.1	-3
2.4385	11.3	16.4	-7.1	2	-47.1	-3
2.43855	11.4	16.4	-7	2	-47	-2.9
2.4386	11.4	16.4	-7	2	-47	-2.9
2.43865	11.4	16.4	-7	2	-47	-2.9
2.4387	11.4	16.4	-7	2	-47	-2.9
2.43875	11.4	16.4	-7	2	-47	-2.9
2.4388	11.3	16.4	-7.1	2	-47.1	-3
2.43885	11.3	16.4	-7.1	2	-47.1	-3
2.4389	11.2	16.4	-7.2	2	-47.2	-3.1
2.4895	11.1	16.4	-7.3	2	-47.3	-3.2
2.439	11.1	16.4	-7.3	2	-47.3	-3.2
2.43905	11	16.4	-7.4	2	-47.4	-3.3
2.4391	11	16.4	-7.4	2	-47.4	-3.3
2.43915	11	16.4	-7.4	2	-47.4	-3.3
2.4392	11	16.4	-7.4	2	-47.4	-3.3
2.43925	11.1	16.4	-7.3	2	-47.3	-3.2
2.4393	11.2	16.4	-7.2	2	-47.2	-3.1
2.43935	11.2	16.4	-7.2	2	-47.2	-3.1
2.4394	11.4	16.4	-7	2	-47	-2.9
2.43945	11.4	16.4	-7	2	-47	-2.9
2.4395	11.2	16.4	-7.2	2	-47.2	-3.1
Processing Gain : 11.4 dB						

11Mbps CHANNEL 11 Processing Gain						
Gp = (S/N)。 + Mj + Lsys						
Freq.	Gp	(S/N)。	Mj = J/S	Lsys	Jammer	LVL
(GHz)	(dB)	(dB)	(dB)	(dB)	(dBm)	(dBm)
2.4595	11.7	16.4	-6.7	2	-46.7	-4.9
2.45955	11.8	16.4	-6.6	2	-46.6	-4.8
5.4596	11.8	16.4	-6.6	2	-46.6	-4.8
2.45965	11.7	16.4	-6.7	2	-46.7	-4.9
2.4597	11.7	16.4	-6.7	2	-46.7	-4.9
2.45975	11.6	16.4	-6.8	2	-46.8	-5
2.4598	11.5	16.4	-6.9	2	-46.9	-5.1
2.45985	11.4	16.4	-7	2	-47	-5.2
2.4599	11.4	16.4	-7	2	-47	-5.2
2.45995	11.3	16.4	-7.1	2	-47.1	-5.3
2.46	11.3	16.4	-7.1	2	-47.1	-5.3
2.46005	11.3	16.4	-7.1	2	-47.1	-5.3
2.4601	11.4	16.4	-7	2	-47	-5.2
2.46015	11.5	16.4	-6.9	2	-46.9	-5.1
2.4602	11.5	16.4	-6.9	2	-46.9	-5.1
2.46025	11.6	16.4	-6.8	2	-46.8	-5
2.4603	11.6	16.4	-6.8	2	-46.8	-5
2.46035	11.6	16.4	-6.8	2	-46.8	-5
2.4604	11.6	16.4	-6.8	2	-46.8	-5
2.46045	11.5	16.4	-6.9	2	-46.9	-5.1
2.4605	11.5	16.4	-6.9	2	-46.9	-5.1
2.46055	11.4	16.4	-7	2	-47	-5.2
2.4606	11.4	16.4	-7	2	-47	-5.2
2.46065	11.5	16.4	-6.9	2	-46.9	-5.1
2.4607	11.5	16.4	-6.9	2	-46.9	-5.1
2.46075	11.6	16.4	-6.8	2	-46.8	-5
2.4608	11.6	16.4	-6.8	2	-46.8	-5
2.46085	11.8	16.4	-6.6	2	-46.6	-4.8
2.4609	11.9	16.4	-6.5	2	-46.5	-4.7
2.46095	12	16.4	-6.4	2	-46.4	-4.6
2.461	12	16.4	-6.4	2	-46.4	-4.6
2.46105	11.9	16.4	-6.5	2	-46.5	-4.7
2.4611	12	16.4	-6.4	2	-46.4	-4.6
2.46115	12.1	16.4	-6.3	2	-46.3	-4.5

11Mbps CHANNEL 11 Processing Gain						
Gp = (S/N)。+ Mj + Lsys						
Freq.	Gp	(S/N)。	Mj = J/S	Lsys	Jammer	LVL
(GHz)	(dB)	(dB)	(dB)	(dB)	(dBm)	(dBm)
2.4612	12.1	16.4	-6.3	2	-46.3	-4.5
2.46125	12.1	16.4	-6.3	2	-46.3	-4.5
2.4613	12.1	16.4	-6.3	2	-46.3	-4.5
2.46135	12.1	16.4	-6.3	2	-46.3	-4.5
2.4614	12.1	16.4	-6.3	2	-46.3	-4.5
2.46145	12.1	16.4	-6.3	2	-46.3	-4.5
2.4615	12.2	16.4	-6.2	2	-46.2	-4.4
2.46155	12.2	16.4	-6.2	2	-46.2	-4.4
2.4616	12.3	16.4	-6.1	2	-46.1	-4.3
2.46165	12.3	16.4	-6.1	2	-46.1	-4.3
2.4617	12.4	16.4	-6	2	-46	-4.2
2.46175	12.3	16.4	-6.1	2	-46.1	-4.3
2.4618	12.2	16.4	-6.2	2	-46.2	-4.4
2.46185	12.1	16.4	-6.3	2	-46.3	-4.5
2.4619	12	16.4	-6.4	2	-46.4	-4.6
2.46195	12	16.4	-6.4	2	-46.4	-4.6
2.462	11.9	16.4	-6.5	2	-46.5	-4.7
2.46205	12	16.4	-6.4	2	-46.4	-4.6
2.4621	12.1	16.4	-6.3	2	-46.3	-4.5
2.46215	12.2	16.4	-6.2	2	-46.2	-4.4
2.4622	12.3	16.4	-6.1	2	-46.1	-4.3
2.46225	12.4	16.4	-6	2	-46	-4.2
2.4623	12.5	16.4	-5.9	2	-45.9	-4.1
2.46235	12.4	16.4	-6	2	-46	-4.2
2.4624	12.4	16.4	-6	2	-46	-4.2
2.46245	12.3	16.4	-6.1	2	-46.1	-4.3
2.4625	12.3	16.4	-6.1	2	-46.1	-4.3
2.46255	12.3	16.4	-6.1	2	-46.1	-4.3
2.4626	12.3	16.4	-6.1	2	-46.1	-4.3
2.46265	12.3	16.4	-6.1	2	-46.1	-4.3
2.4627	12.2	16.4	-6.2	2	-46.2	-4.4
2.46275	12.3	16.4	-6.1	2	-46.1	-4.3
2.4628	12.3	16.4	-6.1	2	-46.1	-4.3
2.46285	12.3	16.4	-6.1	2	-46.1	-4.3

11Mbps CHANNEL 11 Processing Gain						
Gp = (S/N)。 + Mj + Lsys						
Freq.	Gp	(S/N)。	Mj = J/S	Lsys	Jammer	LVL
(GHz)	(dB)	(dB)	(dB)	(dB)	(dBm)	(dBm)
2.4629	12.2	16.4	-6.2	2	-46.2	-4.4
2.46295	12.2	16.4	-6.2	2	-46.2	-4.4
2.463	12.2	16.4	-6.2	2	-46.2	-4.4
2.46305	12.1	16.4	-6.3	2	-46.3	-4.5
2.4631	12	16.4	-6.4	2	-46.4	-4.6
2.46315	11.9	16.4	-6.5	2	-46.5	-4.7
2.4632	11.9	16.4	-6.5	2	-46.5	-4.7
2.46325	11.8	16.4	-6.6	2	-46.6	-4.8
2.4633	11.8	16.4	-6.6	2	-46.6	-4.8
2.46335	11.7	16.4	-6.7	2	-46.7	-4.9
2.4634	11.8	16.4	-6.6	2	-46.6	-4.8
2.46345	11.8	16.4	-6.6	2	-46.6	-4.8
2.4635	11.9	16.4	-6.5	2	-46.5	-4.7
2.46355	11.9	16.4	-6.5	2	-46.5	-4.7
2.4636	12	16.4	-6.4	2	-46.4	-4.6
2.46365	12	16.4	-6.4	2	-46.4	-4.6
2.4637	12.1	16.4	-6.3	2	-46.3	-4.5
2.46375	12.1	16.4	-6.3	2	-46.3	-4.5
2.4638	12	16.4	-6.4	2	-46.4	-4.6
2.46385	12	16.4	-6.4	2	-46.4	-4.6
2.4639	11.9	16.4	-6.5	2	-46.5	-4.7
2.46395	11.8	16.4	-6.6	2	-46.6	-4.8
2.464	11.8	16.4	-6.6	2	-46.6	-4.8
2.46405	11.8	16.4	-6.6	2	-46.6	-4.8
2.4641	11.8	16.4	-6.6	2	-46.6	-4.8
2.46415	11.8	16.4	-6.6	2	-46.6	-4.8
2.4642	11.9	16.4	-6.5	2	-46.5	-4.7
2.46425	12	16.4	-6.4	2	-46.4	-4.6
2.4643	12.1	16.4	-6.3	2	-46.3	-4.5
2.46435	12.2	16.4	-6.2	2	-46.2	-4.4
4.4644	12.2	16.4	-6.2	2	-46.2	-4.4
2.46445	12.2	16.4	-6.2	2	-46.2	-4.4
2.4645	12.2	16.4	-6.2	2	-46.2	-4.4
Processing Gain : 12 dB						

2Mbps CHANNEL 6 Processing Gain						
Gp = (S/N)。+ Mj + Lsys						
Freq.	Gp	(S/N)。	Mj = J/S	Lsys	Jammer	LVL
(GHz)	(dB)	(dB)	(dB)	(dB)	(dBm)	(dBm)
2.4345	12.1	13.3	-3.2	2	-43.2	0.5
2.43455	12.7	13.3	-2.6	2	-42.6	1.1
2.4346	12.9	13.3	-2.4	2	-42.4	1.3
2.43465	13	13.3	-2.3	2	-42.3	1.4
2.4347	13	13.3	-2.3	2	-42.3	1.4
2.43475	12.9	13.3	-2.4	2	-42.4	1.3
2.4348	13.1	13.3	-2.2	2	-42.2	1.5
2.43485	12.4	13.3	-2.9	2	-42.9	0.8
2.4349	12.1	13.3	-3.2	2	-43.2	0.5
2.43495	12.6	13.3	-2.7	2	-42.7	1
2.435	12.6	13.3	-2.7	2	-42.7	1
2.43505	12.5	13.3	-2.8	2	-42.8	0.9
2.4351	12.4	13.3	-2.9	2	-42.9	0.8
2.43515	12.4	13.3	-2.9	2	-42.9	0.8
2.4352	12.2	13.3	-3.1	2	-43.1	0.6
2.43525	12.2	13.3	-3.1	2	-43.7	0.6
2.4353	12.3	13.3	-3	2	-43	0.7
2.43535	11.9	13.3	-3.4	2	-43.4	0.3
2.4354	11.5	13.3	-3.8	2	-43.8	-0.1
2.43545	12.1	13.3	-3.2	2	-43.2	0.5
2.4355	11.5	13.3	-3.8	2	-43.8	-0.1
2.43555	12.4	13.3	-2.9	2	-42.9	0.8
2.4356	12.7	13.3	-2.6	2	-42.6	1.1
2.43565	12.9	13.3	-2.4	2	-42.4	1.3
2.4357	12.8	13.3	-2.5	2	-42.5	1.2
5.43575	12.8	13.3	-2.5	2	-42.5	1.2
2.4358	12.9	13.3	-2.4	2	-42.4	1.3
2.43585	12.1	13.3	-3.2	2	-43.2	0.5
2.4359	11.7	13.3	-3.6	2	-43.6	0.1
2.43595	12.4	13.3	-2.9	2	-42.9	0.8
2.436	12.5	13.3	-2.8	2	-42.8	0.9
2.43605	12.5	13.3	-2.8	2	-42.8	0.9
2.4361	12.4	13.3	-2.9	2	-42.9	0.8
2.43615	12.4	13.3	-2.9	2	-42.9	0.8

2Mbps CHANNEL 6 Processing Gain						
Gp = (S/N)。 + Mj + Lsys						
Freq.	Gp	(S/N)。	Mj = J/S	Lsys	Jammer	LVL
(GHz)	(dB)	(dB)	(dB)	(dB)	(dBm)	(dBm)
2.4362	12.1	13.3	-3.2	2	-43.2	0.5
2.43625	12.1	13.3	-3.2	2	-43.2	0.5
2.4363	12.1	13.3	-3.2	2	-43.2	0.5
2.43635	11.5	13.3	-3.8	2	-43.8	-0.1
2.4364	11.1	13.3	-4.2	2	-44.2	-0.5
2.43645	11.7	13.3	-3.6	2	-43.6	0.1
2.4365	11.2	13.3	-4.1	2	-44.1	-0.4
2.43655	12.6	13.3	-2.7	2	-42.7	1
2.4366	13.1	13.3	-2.2	2	-42.2	1.5
2.43665	13.7	13.3	-1.6	2	-41.6	2.1
2.4367	14.1	13.3	-1.2	2	-41.2	2.5
2.43675	15.1	13.3	-0.2	2	-40.2	3.5
2.4368	15.7	13.3	0.4	2	-39.6	4.1
2.43685	16.2	13.3	0.9	2	-39.1	4.6
2.4369	16.1	13.3	0.8	2	-39.2	4.5
2.43695	16.3	13.3	1	2	-39	4.7
2.437	16.6	13.3	1.3	2	-38.7	5
2.43705	16.3	13.3	1	2	-39	4.7
2.4371	16.3	13.3	1	2	-39	4.7
2.43715	16	13.3	0.7	2	-39.3	4.4
2.4372	15.5	13.3	0.2	2	-39.8	3.9
2.43725	14.8	13.3	-0.5	2	-40.5	3.2
2.4373	14	13.3	-1.3	2	-41.3	2.4
2.43735	13.5	13.3	-1.8	2	-41.8	1.9
2.4374	12.7	13.3	-2.6	2	-42.6	1.1
2.43745	12.6	13.3	-2.7	2	-42.7	1
2.4375	11.6	13.3	-3.7	2	-43.7	0
2.43755	12.1	13.3	-3.2	2	-43.2	0.5
2.4376	12.1	13.3	-3.2	2	-43.2	0.5
2.43765	12.1	13.3	-3.2	2	-43.2	0.5
2.4377	12	13.3	-3.3	2	-43.3	0.4
2.43775	11.7	13.3	-3.6	2	-43.6	0.1
2.4378	12	13.3	-3.3	2	43.3	0.4
2.43785	11.1	13.3	-4.2	2	-44.2	-0.5

2Mbps CHANNEL 6 Processing Gain						
Gp = (S/N)。+ Mj + Lsys						
Freq.	Gp	(S/N)。	Mj = J/S	Lsys	Jammer	LVL
(GHz)	(dB)	(dB)	(dB)	(dB)	(dBm)	(dBm)
2.4379	11.2	13.3	-4.1	2	-44.1	-0.4
2.43795	12.1	13.3	-3.2	2	-43.2	0.5
2.438	12.5	13.3	-2.8	2	-42.8	0.9
2.43805	12.7	13.3	-2.6	2	-42.6	1.1
2.4381	12.8	13.3	-2.5	2	-42.5	1.2
2.43815	12.9	13.3	-2.4	2	-42.4	1.3
2.4382	12.9	13.3	-2.4	2	-42.4	1.3
2.43825	12.9	13.3	-2.4	2	-42.4	1.3
2.4383	12.8	13.3	-2.5	2	-42.5	1.2
2.43835	12.6	13.3	-2.7	2	-42.7	1
2.4384	12	13.3	-3.3	2	-43.3	0.4
2.43845	12.4	13.3	-2.9	2	-42.9	0.8
2.4385	11.7	13.3	-3.6	2	-43.6	0.1
2.43855	12.3	13.3	-3	2	-43	0.7
2.4386	12.3	13.3	-3	2	-43	0.7
2.43865	12.3	13.3	-3	2	-43	0.7
2.4387	12.2	13.3	-3.1	2	-43.1	0.6
2.43875	12	13.3	-3.3	2	-43.3	0.4
2.4388	12.3	13.3	-3	2	-43	0.7
2.43885	11.6	13.3	-3.7	2	-43.7	0
2.4389	11.6	13.3	-3.7	2	-43.7	0
2.43895	12.4	13.3	-2.9	2	-42.9	0.8
2.439	12.7	13.3	-2.6	2	-42.6	1.1
2.43905	12.7	13.3	-2.6	2	-42.6	1.1
2.4391	12.8	13.3	-2.5	2	-42.5	1.2
2.43915	12.9	13.3	-2.4	2	-42.4	1.3
2.4392	12.8	13.3	-2.5	2	-42.5	1.2
2.43925	12.9	13.3	-2.4	2	-42.4	1.3
2.4393	12.8	13.3	-2.5	2	-42.5	1.2
2.43935	12.6	13.3	-2.7	2	-42.7	1
2.4394	12.3	13.3	-3	2	-43	0.7
2.43945	12.5	13.3	-2.8	2	-42.8	0.9
2.4395	12	13.3	-3.3	2	-43.3	0.4
Processing Gain : 12.5 dB						

6.7 ANTENNA REQUIREMENT

6.7.1 Standard Applicable

For intentional device, according to § 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And according to **§ 15.247 (b), if transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.**

6.7.2 Antenna Connected Construction

The antenna used in this product is printed antenna. So, there is no antenna connector in this product.

7 PHOTOS

Photo 1

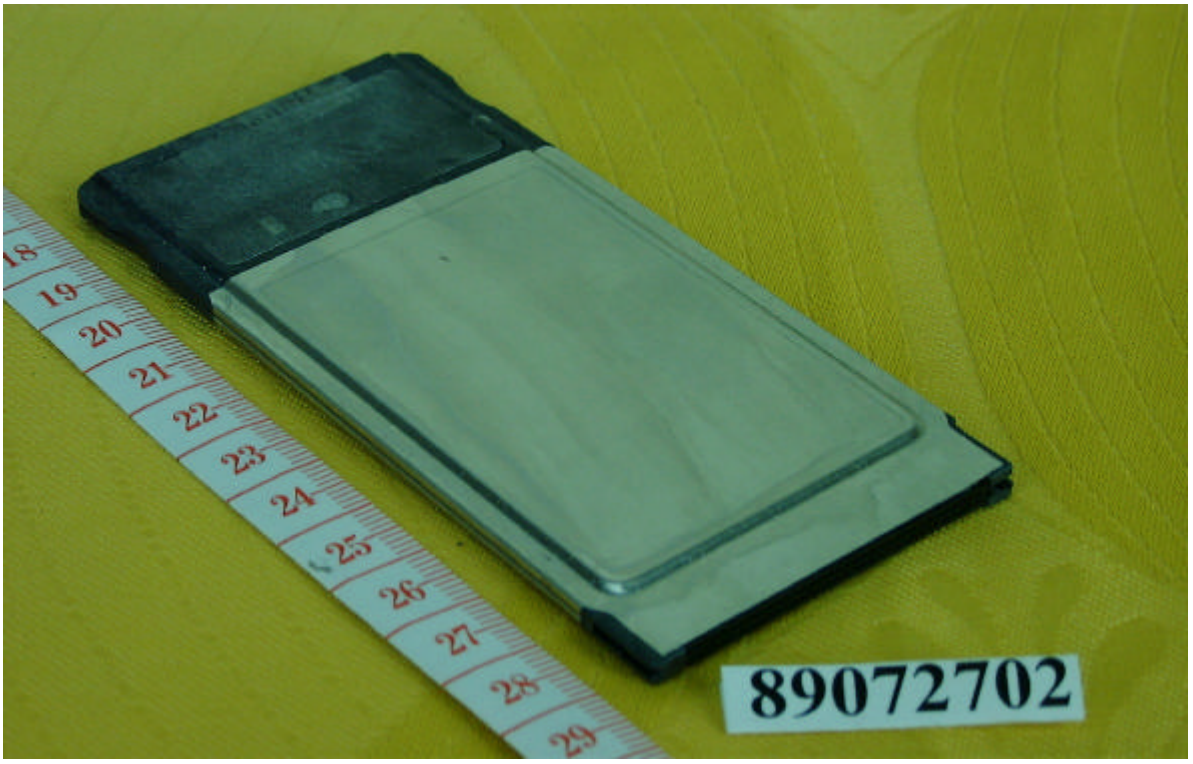


Photo 2

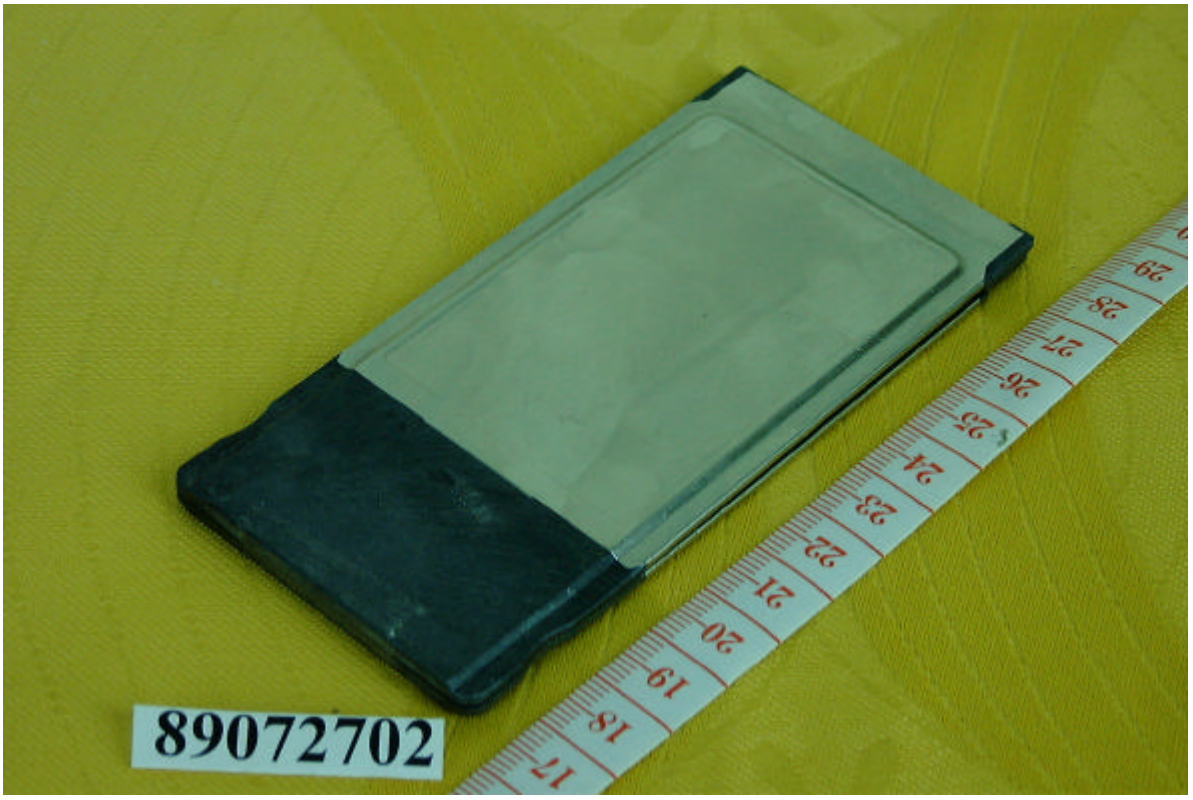


Photo 3

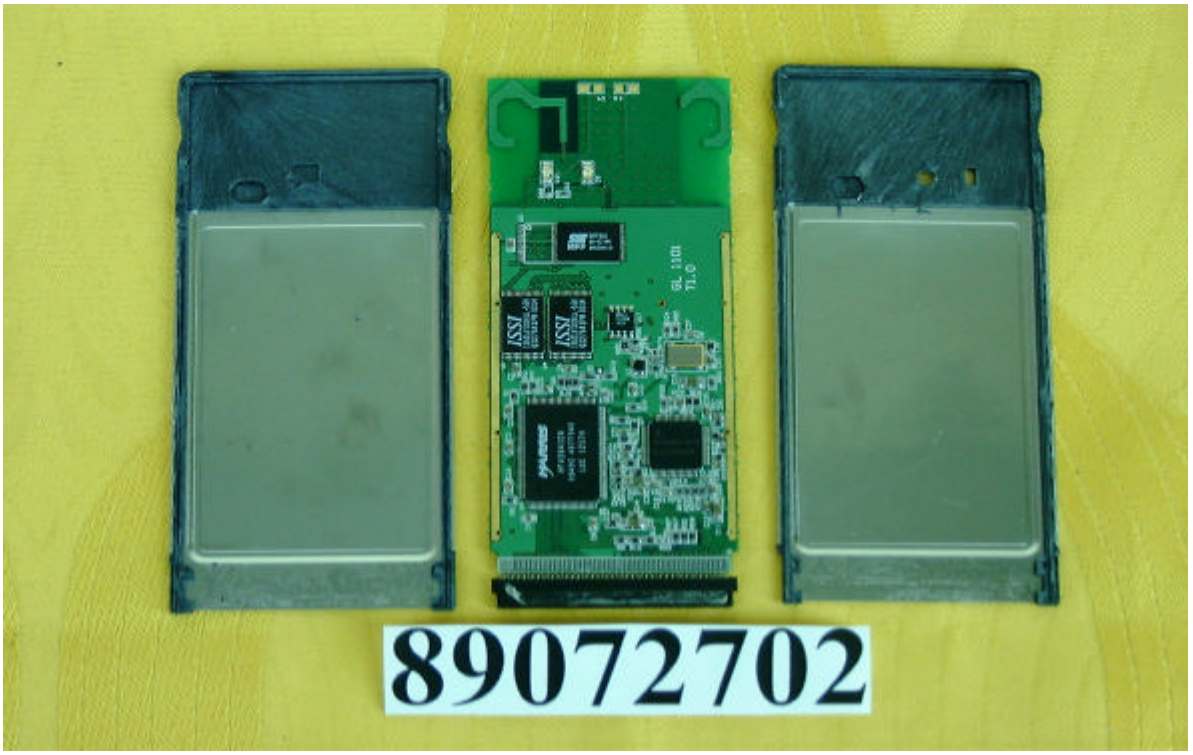


Photo 4

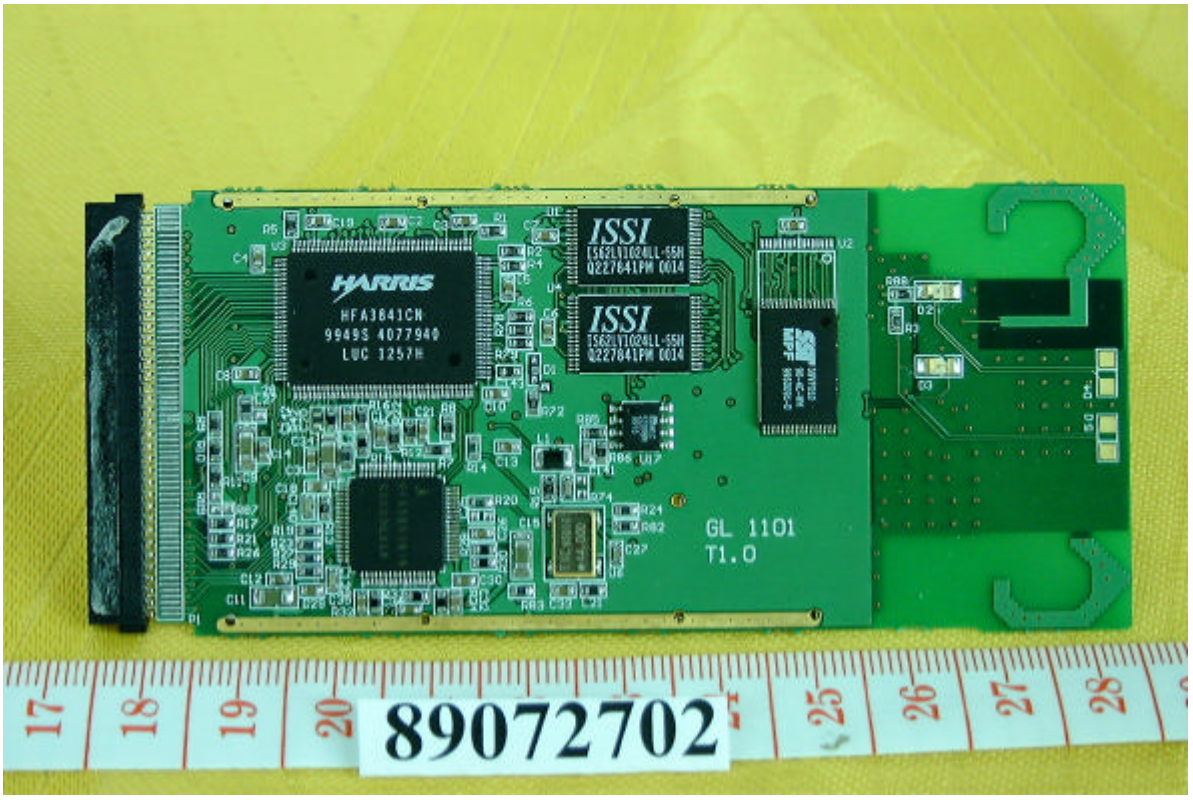


Photo 5

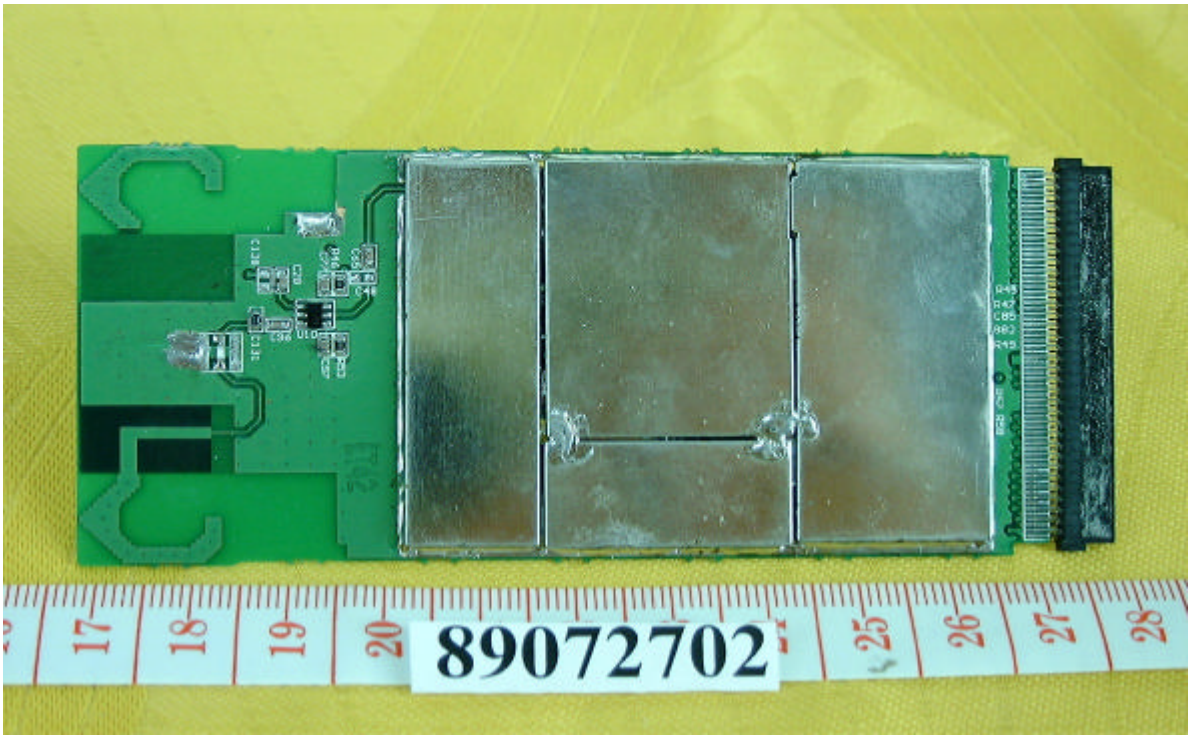


Photo 6

Photo 7

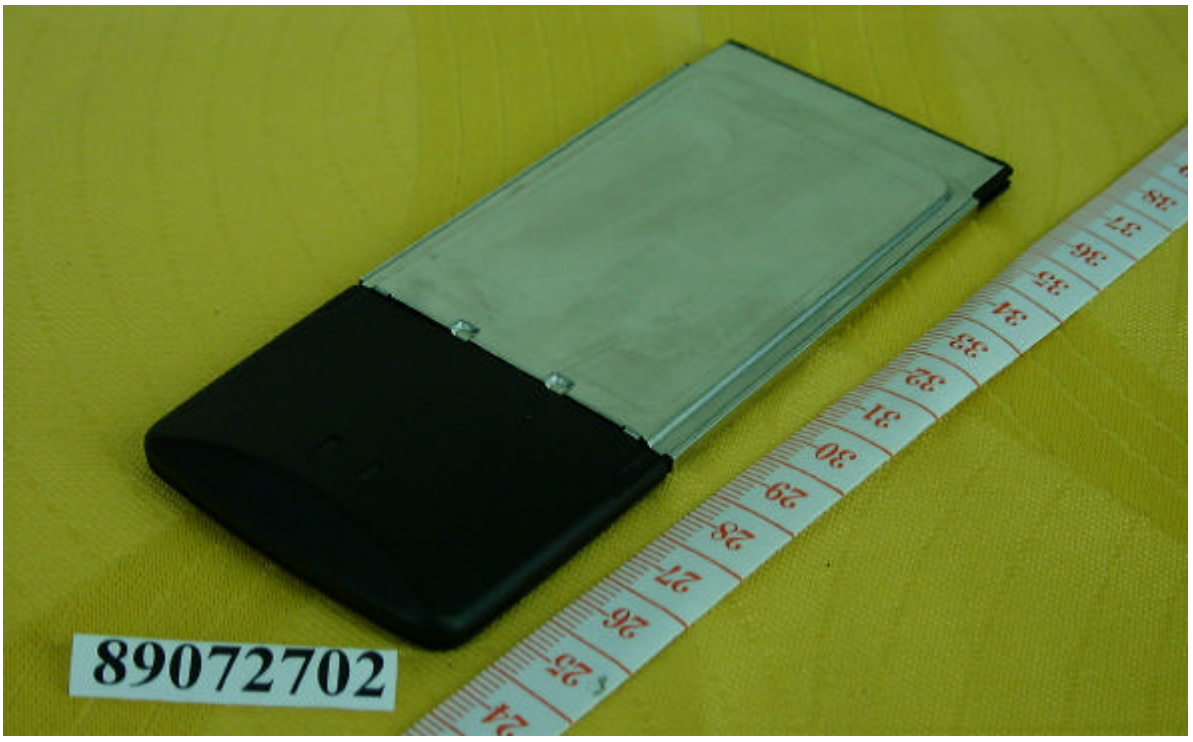


Photo 8

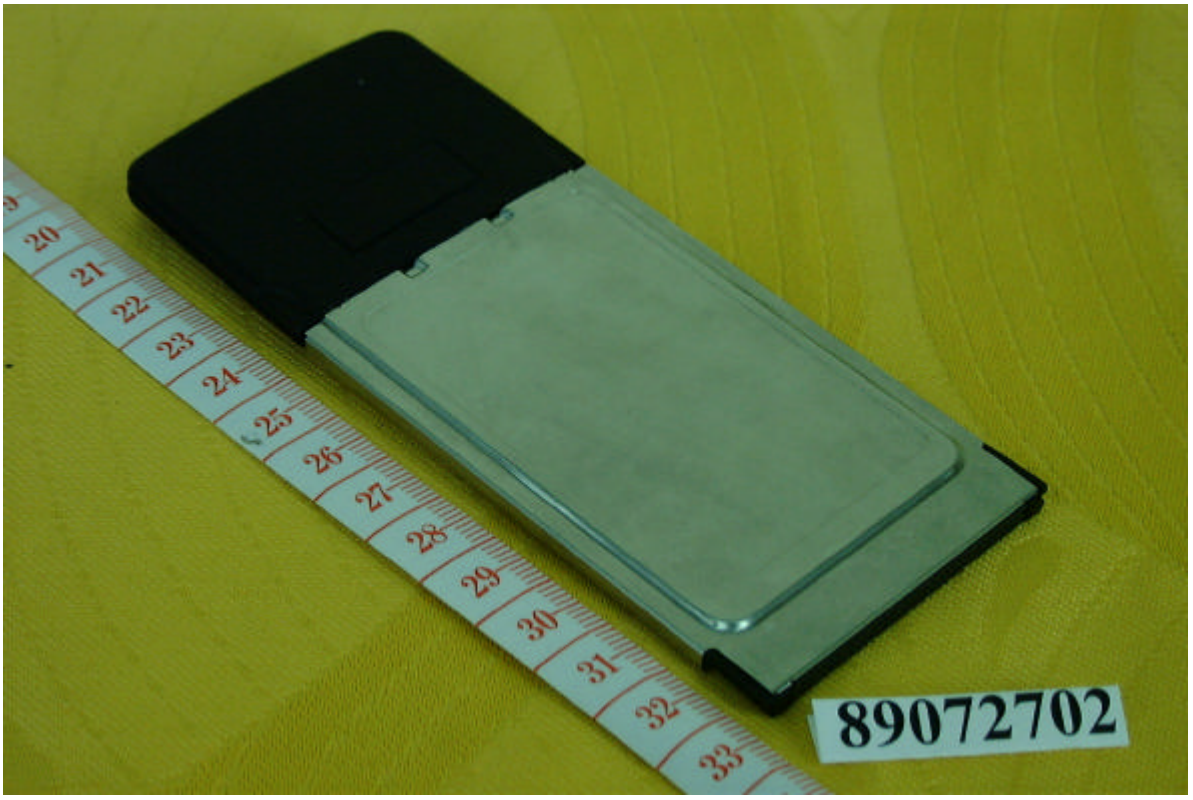


Photo 9

Photo 10