FCC TEST REPORT

REPORT NO.: RF910220R01
MODEL NO.: GL2411RT-0B
RECEIVED: Feb. 18, 2002
TESTED: Feb. 20 ~ Feb. 21, 2002

APPLICANT: GLOBAL SUN TECHNOLOGY INC.

ADDRESS: No. 13, Tung Yuan Rd., Jung Li Industrial Park, Jung Li City, Tao Yuan Hsien, Taiwan, R.O.C.

ISSUED BY: Advance Data Technology Corporation

LAB LOCATION: 47 14th Lin, Chiapau Tsun, Linko, Taipei, Taiwan, R.O.C.

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0528
ILAC MRA

Lab Code: 200102-0

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1 CERTIFICATION

PRODUCT :	Wireless Router
BRAND NAME :	GLOBAL SUN
MODEL NO. :	GL2411RT-0B
APPLICANT :	GLOBAL SUN TECHNOLOGY INC.
STANDARDS :	47 CFR Part 15, Subpart C (Section 15.247), ANSI C63.4-1992, Canada RSS 210, New Zealand RFS 29

We, **Advance Data Technology Corporation**, hereby certify that one sample of the designation has been tested in our facility from Feb. 20, 2002 ~ Feb. 21, 2002. The test record, data evaluation and Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions herein specified.

TESTED BY : Gary Chang , DATE: Feb. 25, 2002
Gary Chang

CHECKED BY : Demi Chen , DATE: Feb. 25, 2002
Demi Chen

APPROVED BY : Alan Lane , DATE: Feb. 25, 2002
Dr. Alan Lane, Manager

2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: 47 CFR Part 15, Subpart C			
Standard Section	**Test Type and Limit**	**Result**	**REMARK**
15.207	AC Power Conducted Emission Limit: 48dBuV	PASS	Meet the requirement of limit Minimum passing margin is –6.10dBuV at 0.473MHz
15.247(a)(2)	Spectrum Bandwidth of a Direct Sequence Spread Spectrum System Limit: min. 500kHz	PASS	Meet the requirement of limit
15.247(b)	Maximum Peak Output Power Limit: max. 30dBm	PASS	Meet the requirement of limit
15.247(c)	Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit Minimum passing margin is –4.6dBuV at 750.00MHz
15.247(d)	Power Spectral Density Limit: max. 8dBm	PASS	Meet the requirement of limit
15.247(c)	Band Edge Measurement Limit: 20 dB less than the peak value of fundamental frequency	PASS	Meet the requirement of limit

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Wireless Router
MODEL NO.	GL2411RT-0B
POWER SUPPLY	5.0VDC from AC adapter
MODULATION TYPE	BPSK, QPSK, CCK
RADIO TECHNOLOGY	DSSS
TRANSFER RATE	1/2/5.5/11Mbps
FREQUENCY RANGE	2412MHz ~ 2462MHz
NUMBER OF CHANNEL	11
OUTPUT POWER	18.97dBm
ANTENNA TYPE	Dipole antenna
POWER CABLE	1.8m (Nonshielded)
I/O PORTS	RJ45 port
ASSOCIATED DEVICES	NA

NOTE:

1. The EUT is operated with the following power adapter.

Model No. :	HPW-2005U A1
Input Power :	100V ~ 240V, 2.0A, Max 50-60Hz
Output Power :	5.0VDC,2.5A

2. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

3.2 DESCRIPTION OF TEST MODES

Eleven channels are provided in this EUT.

Channel	Frequency	Channel	Frequency
1	2412 MHz	7	2442 MHz
2	2417 MHz	8	2447 MHz
3	2422 MHz	9	2452 MHz
4	2427 MHz	10	2457 MHz
5	2432 MHz	11	2462 MHz
6	2437 MHz		

NOTE:

1. Below 1 GHz, the channel 1, 6, and 11 were pre-tested in chamber. The channel 11, worst case one, was chosen for final test.
2. Above 1 GHz, the channel 1, 6, and 11 were tested individually.

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a Wireless Router. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC CFR 47 Part 15, Subpart C. (15.247)

ANSI C63.4 : 1992, Canada RSS 210, New Zealand RFS 29

All tests have been performed and recorded as per the above standards.

NOTE: The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

3.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	PERSONAL COMPUTER	HP	Brio BA410	SG12902766	FCC DoC APPROVED
2	MONITOR	ADI	SM-5514A	5600S00599	FCC DoC APPROVED
3	PS/2 KEYBOARD	FORWARD	FDA-104GA	FDKB8110111	F4ZDA-104G
4	PS/2 MOUSE	LOGITECH	M-S43	LZE00703207	DZL211106
5	PRINTER	HP	2225C+	3123S97230	DSI6XU2225
6	MODEM	ACEEX	1414	980020510	IFAXDM1414
7	NOTEBOOK	DELL	PP01L	TW-09C748-12800-19O-B220	FCC DoC APPROVED
8	USB 10/100 Fast Ethernet	D-Link	DU-E100	UR15001597	FCC DoC APPROVED

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA
2	NA
3	1.5 m foil shielded wire, terminated with PS/2 connector via metallic frame, w/o core.
4	1.8 m foil shielded wire, terminated with PS/2 connector via drain wire, w/o core.
5	1.2m braid shielded wire, terminated with DB25 and Centronics connector via metallic frame, w/o core.
6	1.2 m braid shielded wire, terminated with DB25 and DB9 connector via metallic frame, w/o core.
7	NA
8	NA

NOTE: All power cords of the above support units are non shielded (1.8m).

4 TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY (MHz)	Class B (dBuV)	
	Quasi-peak	Average
0.45 – 30	48	-

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. All emanations from a class B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
ROHDE & SCHWARZ Test Receiver	ESCS30	847793/022	Feb. 25, 2002
ROHDE & SCHWARZ Artificial Mains Network (For EUT)	ESH3-Z5	847265/023	Jan. 10, 2003
* ROHDE & SCHWARZ 4-wire ISN	ENY41	838119/028	Dec. 10, 2002
* ROHDE & SCHWARZ 2-wire ISN	ENY22	837497/018	Dec. 10, 2002
EMCO L.I.S.N. (For peripherals)	3825/2	9504-2359	July 10, 2002
Software	Cond-V2L	NA	NA
RF cable (JYEBAO)	5D-FB	Cable-C03.01	July 11, 2002
Terminator (For EMCO LISN)	NA	E1-01-300	Feb. 20, 2003
Terminator (For EMCO LISN)	NA	E1-01-301	Feb. 20, 2003
Shielded Room	Site 3	ADT-C03	NA
VCCI Site Registration No.	Site 3	C-274	NA

NOTE: 1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.

2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

3. "*": These equipment are used for conducted telecom port test only (if tested).

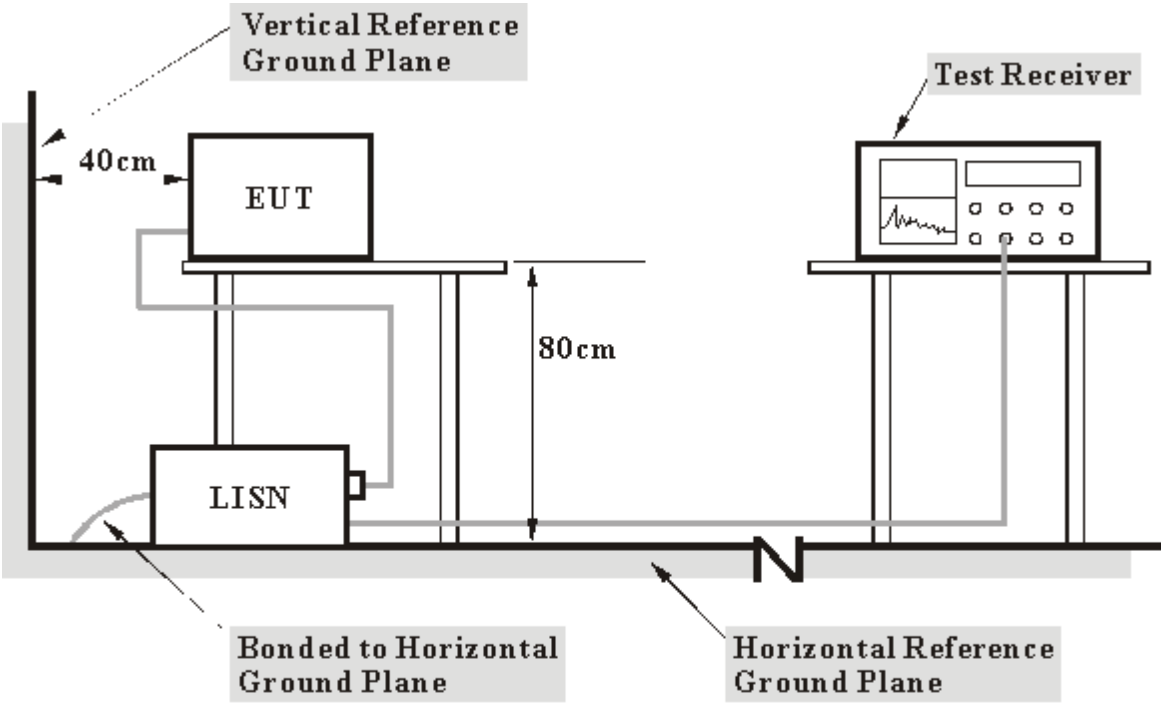
4.1.3 TEST PROCEDURES

a. The EUT was placed 0.4 meters 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 50 ohm/ 50uH of coupling impedance for the measuring instrument.

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

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

4.1.4 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.

For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

4.1.5 EUT OPERATING CONDITIONS

a. Placed the EUT on the testing table.
b. Prepared another computer system to act as a communication partner and placed it outside of testing area.
c. The communication partner run a test program to enable EUT under transmission/receiving condition continuously at specific channel frequency via an RJ 45 cable.
d. The communication partner sent data to EUT by command "PIN".

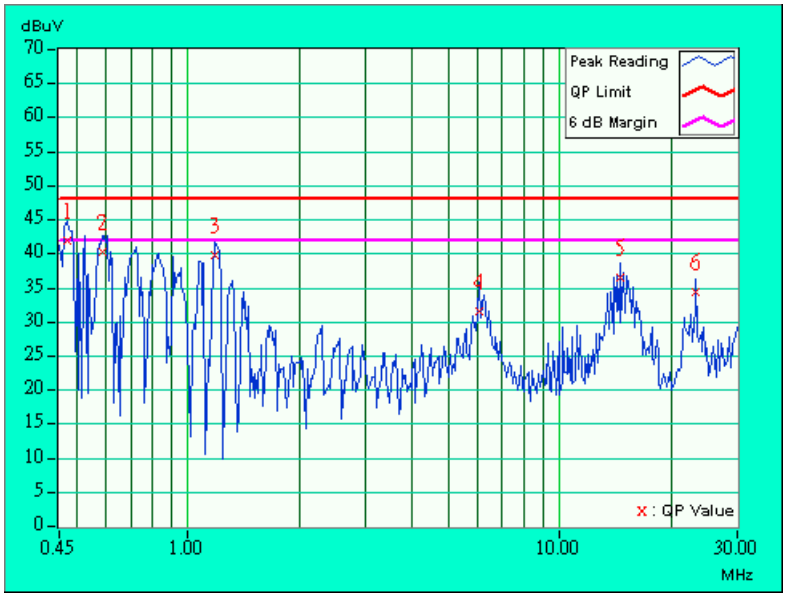
4.1.6 TEST RESULTS

EUT	Wireless Router	**MODEL**	GL2411RT-0B
MODE	Channel 1	**6dB BANDWIDTH**	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**PHASE**	Line (L)
ENVIRONMENTAL CONDITIONS	20 deg. C, 55%RH, 1005 hPa	**TESTED BY**: Gary Chang	

No	Freq. (MHz)	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			QP.	AV.	QP.	AV.	QP.	AV.	QP.	AV.
1	0.473	0.10	40.91	-	41.01	-	48.00	-	-6.99	-
2	0.591	0.10	39.22	-	39.32	-	48.00	-	-8.68	-
3	1.184	0.10	38.85	-	38.95	-	48.00	-	-9.05	-
4	6.074	0.37	30.62	-	30.99	-	48.00	-	-17.01	-
5	14.590	0.78	35.44	-	36.22	-	48.00	-	-11.78	-
6	23.129	1.03	33.34	-	34.37	-	48.00	-	-13.63	-

NOTE:

1. "*": Undetectable
2. QP. 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.

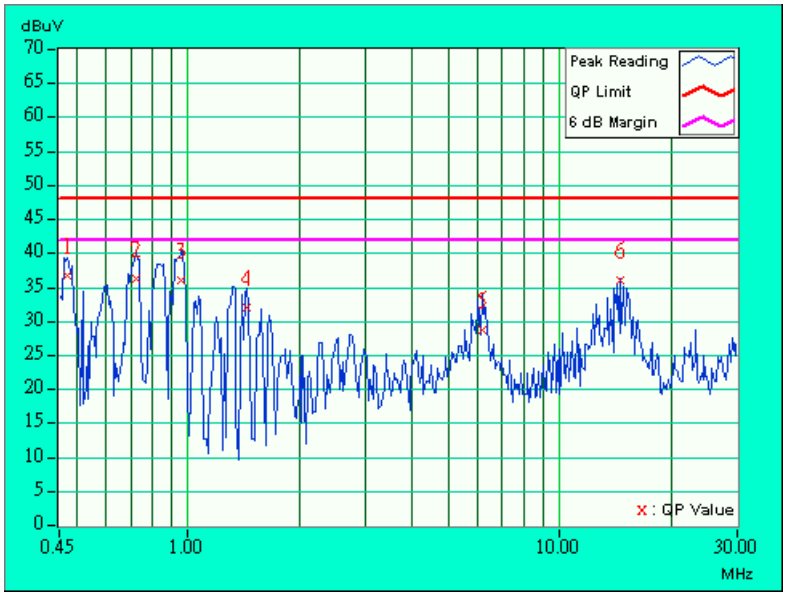


EUT	Wireless Router	**MODEL**	GL2411RT-0B
MODE	Channel 1	**6dB BANDWIDTH**	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**PHASE**	Neutral (N)
ENVIRONMENTAL CONDITIONS	20 deg. C, 55%RH, 1005 hPa	**TESTED BY**: Gary Chang	

No	Freq. (MHz)	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			QP.	AV.	QP.	AV.	QP.	AV.	QP.	AV.
1	0.473	0.10	36.18	-	36.28	-	48.00	-	-11.72	-
2	0.723	0.10	35.62	-	35.72	-	48.00	-	-12.28	-
3	0.962	0.10	35.37	-	35.47	-	48.00	-	-12.53	-
4	1.434	0.10	31.56	-	31.66	-	48.00	-	-16.34	-
5	6.195	0.34	28.19	-	28.53	-	48.00	-	-19.47	-
6	14.590	0.58	35.44	-	36.02	-	48.00	-	-11.98	-

NOTE:

1. "*": Undetectable
2. QP. 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.

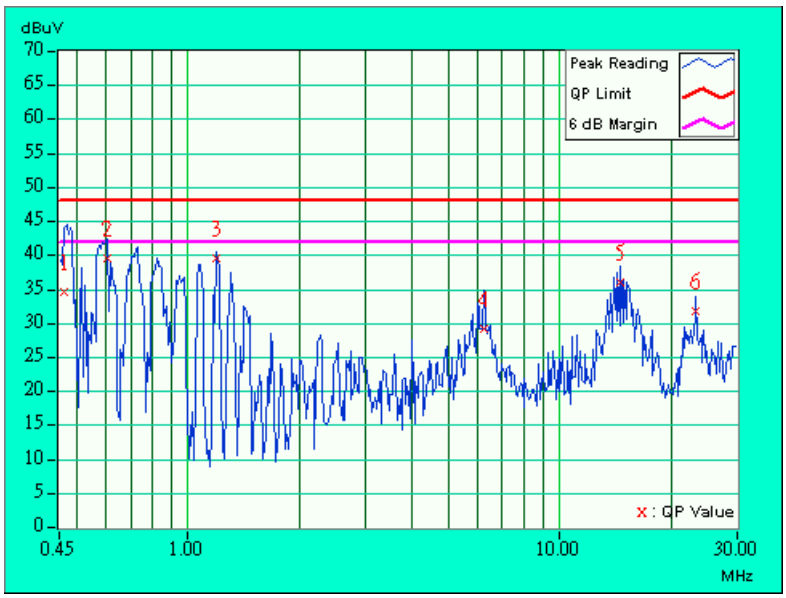


EUT	Wireless Router	**MODEL**	GL2411RT-0B
MODE	Channel 6	**6dB BANDWIDTH**	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**PHASE**	Line (L)
ENVIRONMENTAL CONDITIONS	20 deg. C, 55%RH, 1005 hPa	**TESTED BY**: Gary Chang	

No	Freq. (MHz)	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			QP.	AV.	QP.	AV.	QP.	AV.	QP.	AV.
1	0.462	0.10	33.72	-	33.82	-	48.00	-	-14.18	-
2	0.606	0.10	38.65	-	38.75	-	48.00	-	-9.25	-
3	1.191	0.10	38.62	-	38.72	-	48.00	-	-9.28	-
4	6.230	0.37	28.12	-	28.49	-	48.00	-	-19.51	-
5	14.582	0.77	35.08	-	35.85	-	48.00	-	-12.15	-
6	23.129	1.03	30.88	-	31.91	-	48.00	-	-16.09	-

NOTE:

1. "*": Undetectable
2. QP. 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.

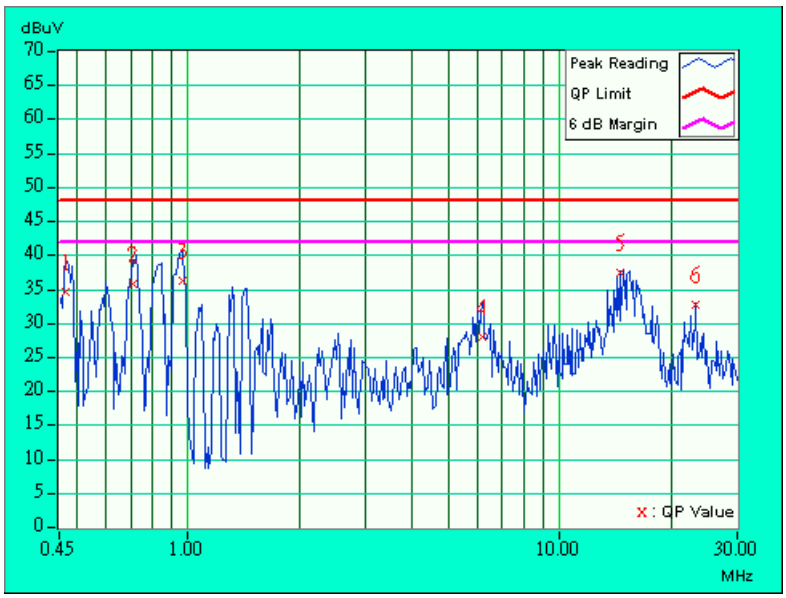


EUT	Wireless Router	**MODEL**	GL2411RT-0B
MODE	Channel 6	**6dB BANDWIDTH**	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**PHASE**	Neutral (N)
ENVIRONMENTAL CONDITIONS	20 deg. C, 55%RH, 1005 hPa	**TESTED BY**: Gary Chang	

No	Freq. (MHz)	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			QP.	AV.	QP.	AV.	QP.	AV.	QP.	AV.
1	0.470	0.10	33.95	-	34.05	-	48.00	-	-13.95	-
2	0.708	0.10	35.08	-	35.18	-	48.00	-	-12.82	-
3	0.966	0.10	35.62	-	35.72	-	48.00	-	-12.28	-
4	6.188	0.34	27.28	-	27.62	-	48.00	-	-20.38	-
5	14.590	0.58	36.75	-	37.33	-	48.00	-	-10.67	-
6	23.129	0.76	31.99	-	32.75	-	48.00	-	-15.25	-

NOTE:

1. "*": Undetectable
2. QP. 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.

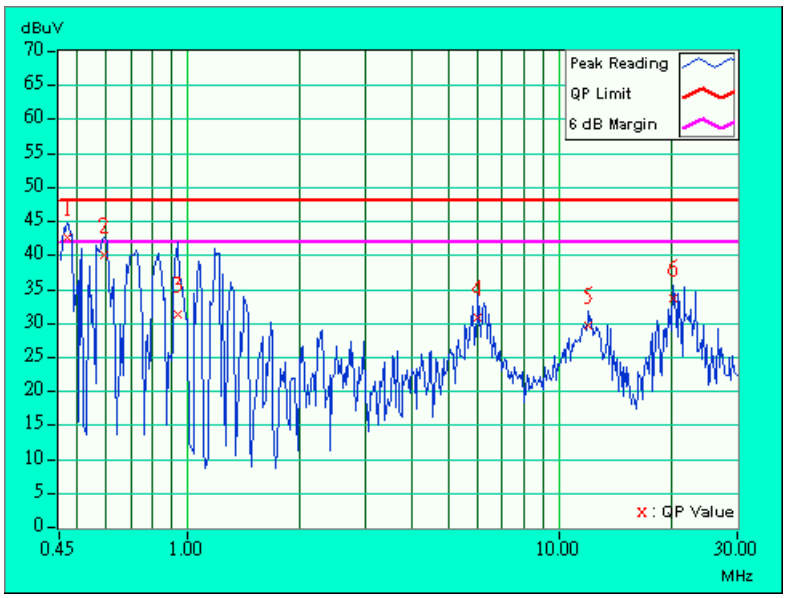


EUT	Wireless Router	**MODEL**	GL2411RT-0B
MODE	Channel 11	**6dB BANDWIDTH**	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**PHASE**	Line (L)
ENVIRONMENTAL CONDITIONS	20 deg. C, 55%RH, 1005 hPa	**TESTED BY**: Gary Chang	

No	Freq. (MHz)	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			QP.	AV.	QP.	AV.	QP.	AV.	QP.	AV.
1	0.473	0.10	41.80	-	41.90	-	48.00	-	-6.10	-
2	0.595	0.10	39.26	-	39.36	-	48.00	-	-8.64	-
3	0.938	0.10	30.47	-	30.57	-	48.00	-	-17.43	-
4	6.035	0.37	30.08	-	30.45	-	48.00	-	-17.55	-
5	11.953	0.62	28.89	-	29.51	-	48.00	-	-18.49	-
6	20.258	0.91	32.90	-	33.81	-	48.00	-	-14.19	-

NOTE:

1. "*": Undetectable
2. QP. 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.

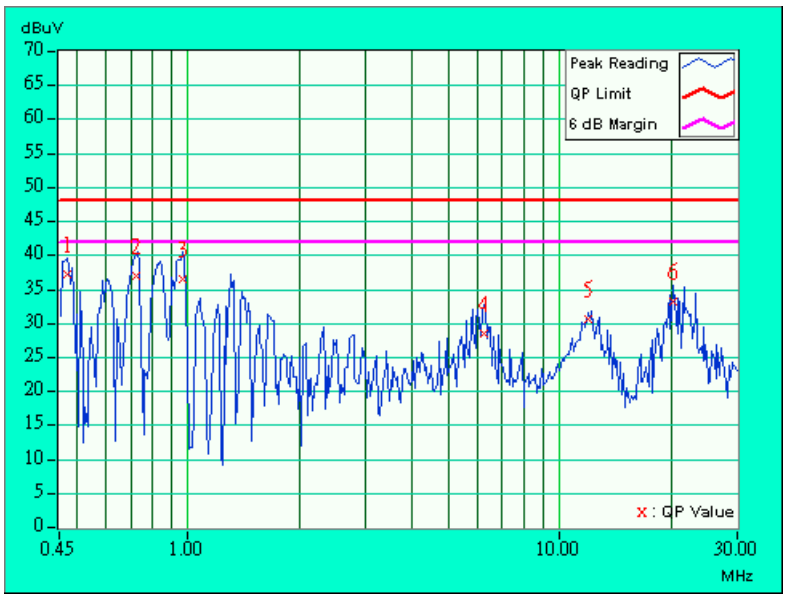


EUT	Wireless Router	**MODEL**	GL2411RT-0B
MODE	Channel 11	**6dB BANDWIDTH**	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**PHASE**	Neutral (N)
ENVIRONMENTAL CONDITIONS	20 deg. C, 55%RH, 1005 hPa	**TESTED BY**: Gary Chang	

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	QP.	AV.	QP.	AV.	QP.	AV.	QP.	AV.
1	0.473	0.10	36.48	-	36.58	-	48.00	-	-11.42	-
2	0.727	0.10	36.19	-	36.29	-	48.00	-	-11.71	-
3	0.966	0.10	35.87	-	35.97	-	48.00	-	-12.03	-
4	6.242	0.34	27.70	-	28.04	-	48.00	-	-19.96	-
5	11.895	0.48	29.90	-	30.38	-	48.00	-	-17.62	-
6	20.258	0.71	32.64	-	33.35	-	48.00	-	-14.65	-

NOTE:

1. "*": Undetectable
2. QP. 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.



4.2 RADIATED EMISSION MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Field strength limits are at the distance of 3 meters, emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

Frequencies (MHz)	Field Strength of Fundamental	
	uV/m	dBuV/m
30-88	100	40.0
88-216	150	43.5
216-960	200	46.0
Above 960	500	54.0

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
* HP Spectrum Analyzer	8590L	3544A01176	May 7, 2002
* HP Preamplifier	8447D	2944A08485	May 7, 2002
* HP Preamplifier	8449B	3008A01201	Dec. 06, 2002
* HP Preamplifier	8449B	3008A01292	Aug. 21, 2002
* ROHDE & SCHWARZ TEST RECEIVER	ESMI	839013/007 839379/002	Jan. 27, 2003
SCHWARZBECK Tunable Dipole Antenna	VHA 9103 UHA 9105	E101051 E101055	Nov. 23, 2002
* CHASE BILOG Antenna	CBL6112A	2221	Aug. 2, 2002
* SCHWARZBECK Horn Antenna	BBHA9120-D1	D130	July 6, 2002
* EMCO Horn Antenna	3115	9312-4192	April 15, 2002
* EMCO Turn Table	1060	1115	NA
* SHOSHIN Tower	AP-4701	A6Y005	NA
* Software	AS61D4	NA	NA
* ANRITSU RF Switches	MP59B	M35046	Aug. 2, 2002
* TIMES RF cable	LMR-600	CABLE-ST5-01	Aug. 2, 2002
* Antenna (Horn)	BBHA9120-D	D130	July 10, 2002
Open Field Test Site	Site 5	ADT-R05	July 28, 2002
VCCI Site Registration No.	Site 5	R-1039	NA
Site Registration No.	FCC: 90422 Canada IC: IC 3789 VCCI : R-1039		

NOTE: 1.The measurement uncertainty is less than +/- 3.0dB, which is calculated as per the NAMAS document NIS81.

2.The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

3.“*” = These equipments are used for the final measurement.

4.2.3 TEST PROCEDURES

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

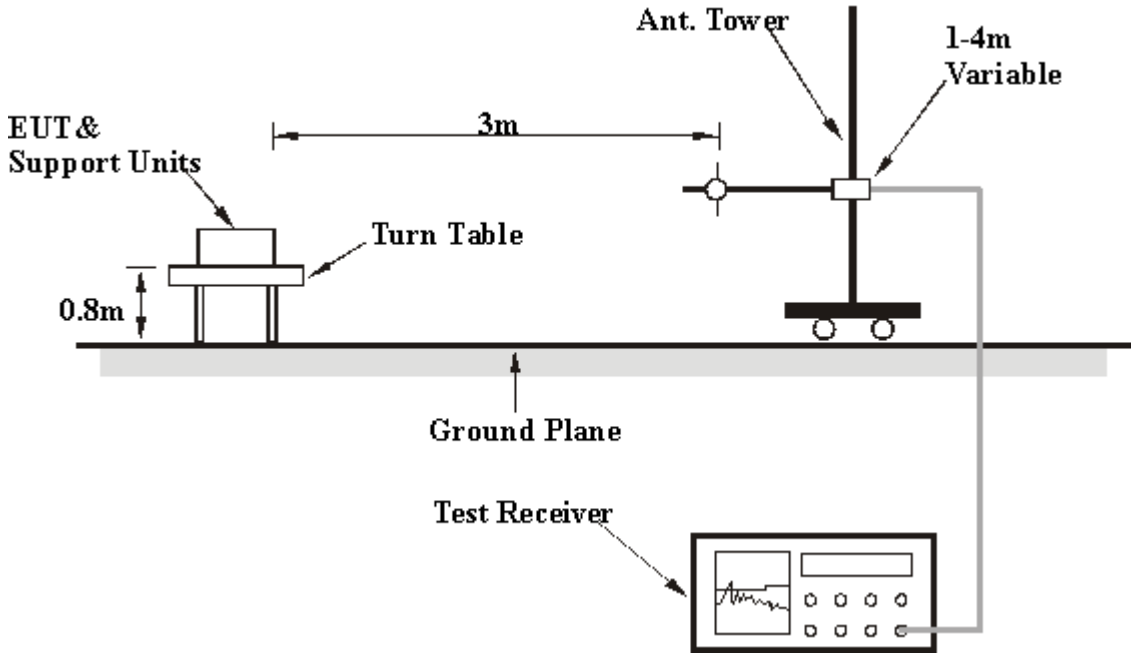
e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. If the emission level of the EUT in peak mode was 10 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10 dB margin would be re-tested one by one using the quasi-peak method or average method as specified and then reported in Data sheet peak mode and QP mode.

NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 300 Hz for Average detection (AV) at frequency above 1GHz.

4.2.4 TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

4.2.5 EUT OPERATING CONDITIONS

Same as 4.1.5.

4.2.6 TEST RESULTS

EUT	Wireless Router	**MODEL**	GL2411RT-0B
MODE	Channel 11	**FREQUENCY RANGE**	30-1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**DETECTOR FUNCTION**	Quasi-Peak
ENVIRONMENTAL CONDITIONS	20deg. C, 70%RH, 1005 hPa	**TESTED BY**: Gary Chang	

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M											
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB/m)
1	150.00	31.5 QP	43.50	-12.00	1.10H	284	20.00	10.30	1.20	0.00	-11.51
2	200.00	28.4 QP	43.50	-15.10	1.05H	239	18.00	8.98	1.42	0.00	-10.40
3	250.00	33.7 QP	46.00	-12.30	1.00H	192	20.00	12.02	1.66	0.00	-13.69
4	300.00	36.1 QP	46.00	-9.90	1.13H	151	21.00	13.18	1.88	0.00	-15.07
5	375.00	36.3 QP	46.00	-9.70	1.07H	108	19.00	15.13	2.14	0.00	-17.28
6	396.00	35.7 QP	46.00	-10.30	1.15H	288	17.50	15.96	2.22	0.00	-18.18
7	400.00	36.3 QP	46.00	-9.70	1.18H	55	18.00	16.11	2.24	0.00	-18.35
8	484.00	36.9 QP	46.00	-9.10	1.11H	66	17.50	16.96	2.47	0.00	-19.43
9	500.00	36.8 QP	46.00	-9.20	1.07H	102	17.00	17.26	2.50	0.00	-19.77
10	600.00	37.4 QP	46.00	-8.60	1.14H	147	16.00	18.61	2.83	0.00	-21.45
11	650.00	38.0 QP	46.00	-8.00	1.08H	186	15.70	19.23	3.02	0.00	-22.26
12	748.00	37.4 QP	46.00	-8.60	1.13H	228	14.00	20.14	3.26	0.00	-23.41
13	750.00	41.4 QP	46.00	-4.60	1.07H	274	18.00	20.18	3.26	0.00	-23.45
14	800.00	36.0 QP	46.00	-10.00	1.00H	338	12.00	20.69	3.32	0.00	-24.01
15	836.00	35.0 QP	46.00	-11.00	1.08H	258	11.00	20.54	3.45	0.00	-23.99
16	850.00	34.5 QP	46.00	-11.50	1.14H	213	10.50	20.48	3.50	0.00	-23.98
17	880.00	35.6 QP	46.00	-10.40	1.10H	163	11.40	20.68	3.55	0.00	-24.23
18	924.00	35.7 QP	46.00	-10.30	1.00H	107	11.00	21.00	3.68	0.00	-24.69
19	950.00	35.0 QP	46.00	-11.00	1.11H	22	10.00	21.20	3.79	0.00	-25.00

NOTE: 1 Emission level = Raw Value - Correction Factor
2 Correction Factor = External Preamp. Gain - Ant. Factor - Cable loss
(External Preamp. Gain = 0, when the test receiver is used for the test.)
3 The other emission levels were very low against the limit.
4 Margin value = Emission level - Limit value

EUT	Wireless Router	**MODEL**	GL2411RT-0B
MODE	Channel 11	**FREQUENCY RANGE**	30-1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**DETECTOR FUNCTION**	Quasi-Peak
ENVIRONMENTAL CONDITIONS	20deg. C, 70%RH, 1005 hPa	**TESTED BY**: Gary Chang	

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M											
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB/m)
1	132.00	34.3 QP	43.50	-9.20	1.15V	290	22.00	11.16	1.13	0.00	-12.29
2	150.00	32.5 QP	43.50	-11.00	1.25V	343	21.00	10.30	1.20	0.00	-11.51
3	200.00	31.6 QP	43.50	-11.90	1.10V	207	21.20	8.98	1.42	0.00	-10.40
4	250.00	33.7 QP	46.00	-12.30	1.17V	168	20.00	12.02	1.66	0.00	-13.69
5	450.00	36.8 QP	46.00	-9.20	1.26V	121	18.00	16.37	2.41	0.00	-18.79
6	500.00	37.3 QP	46.00	-8.70	1.20V	82	17.50	17.26	2.50	0.00	-19.77
7	550.00	36.6 QP	46.00	-9.40	1.39V	33	16.00	17.93	2.68	0.00	-20.61
8	572.00	36.0 QP	46.00	-10.00	1.33V	15	15.00	18.25	2.75	0.00	-21.01
9	600.00	36.4 QP	46.00	-9.60	1.41V	59	15.00	18.61	2.83	0.00	-21.44
10	616.00	35.7 QP	46.00	-10.30	1.49V	101	14.00	18.82	2.89	0.00	-21.71
11	624.00	37.0 QP	46.00	-9.00	1.40V	142	15.20	18.91	2.92	0.00	-21.83
12	650.00	38.3 QP	46.00	-7.70	1.34V	178	16.00	19.23	3.02	0.00	-22.25
13	748.00	36.4 QP	46.00	-9.60	1.27V	219	13.00	20.14	3.26	0.00	-23.40
14	750.00	35.4 QP	46.00	-10.60	1.34V	257	12.00	20.18	3.26	0.00	-23.44
15	792.00	35.3 QP	46.00	-10.70	1.27V	305	11.40	20.60	3.31	0.00	-23.91
16	800.00	37.0 QP	46.00	-9.00	1.27V	334	13.00	20.69	3.32	0.00	-24.01
17	836.00	36.0 QP	46.00	-10.00	1.36V	305	12.00	20.54	3.45	0.00	-23.99
18	850.00	35.2 QP	46.00	-10.80	1.30V	266	11.20	20.48	3.50	0.00	-23.98
19	880.00	35.2 QP	46.00	-10.80	1.37V	175	11.00	20.68	3.55	0.00	-24.23
20	900.00	34.4 QP	46.00	-11.60	1.30V	120	10.00	20.80	3.58	0.00	-24.39
21	924.00	35.7 QP	46.00	-10.30	1.23V	80	11.00	21.00	3.68	0.00	-24.70
22	950.00	35.4 QP	46.00	-10.60	1.18V	53	10.40	21.20	3.79	0.00	-25.00

NOTE: 1 Emission level = Raw Value - Correction Factor
2 Correction Factor = External Preamp. Gain - Ant. Factor - Cable loss
(External Preamp. Gain = 0, when the test receiver is used for the test.)
3 The other emission levels were very low against the limit.
4 Margin value = Emission level - Limit value

EUT	Wireless Router	**MODEL**	GL2411RT-0B
MODE	Channel 1	**FREQUENCY RANGE**	Above 1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	20 deg. C, 70%RH, 1005 hPa	**TESTED BY**: Gary Chang	

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB/m)
1	2038.0	47.6 PK	74.00	-26.40	1.02H	30	52.40	25.20	4.86	34.90	4.84
2	*2412.0	93.2 PK	-	-	1.28H	357	61.00	27.11	5.10	0.00	-32.21
3	*2412.0	89.4 AV	-	-	1.28H	357	57.20	27.11	5.10	0.00	-32.21
4	4076.0	52.4 PK	74.00	-21.60	1.79H	358	50.00	30.13	6.78	34.52	-2.39
5	4824.0	51.5 PK	74.00	-22.50	1.43H	177	47.50	31.43	7.23	34.63	-4.02

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB/m)
1	2038.0	46.2 PK	74.00	-27.80	1.13V	121	51.00	25.20	4.86	34.90	4.84
2	*2412.0	99.0 PK	-	-	1.00V	127	66.80	27.11	5.10	0.00	-32.21
3	*2412.0	93.2 AV	-	-	1.00V	127	61.00	27.11	5.10	0.00	-32.21
4	4076.0	50.4 PK	74.00	-23.60	1.24V	144	48.00	30.13	6.78	34.52	-2.39
5	4824.0	49.2 PK	74.00	-24.80	1.14V	109	45.20	31.43	7.23	34.63	-4.02

NOTE:
1. Emission level = Raw Value - Correction Factor
2. Correction Factor = External Preamp. Gain - Ant. Factor - Cable loss
   (External Preamp. Gain = 0, when the test receiver is used for the test.)
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

EUT	Wireless Router	**MODEL**	GL2411RT-0B
MODE	Channel 6	**FREQUENCY RANGE**	Above 1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	20 deg. C, 70%RH, 1005 hPa	**TESTED BY**: Gary Chang	

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB/m)
1	2063.0	46.5 PK	74.00	-27.50	1.23H	283	51.00	25.41	4.96	34.90	4.53
2	*2437.0	95.1 PK	-	-	1.65H	156	62.70	27.33	5.08	0.00	-32.40
3	*2437.0	89.8 AV	-	-	1.65H	156	57.40	27.33	5.08	0.00	-32.40
4	4126.0	51.5 PK	74.00	-22.50	1.44H	302	49.00	30.32	6.70	34.56	-2.46
5	4874.0	52.3 PK	74.00	-21.70	1.28H	355	48.20	31.47	7.21	34.63	-4.05

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB/m)
1	2063.0	46.5 PK	74.00	-27.50	1.05V	3	51.00	25.41	4.96	34.90	4.53
2	*2437.0	99.4 PK	-	-	1.18V	300	67.00	27.33	5.08	0.00	-32.40
3	*2437.0	94.4 AV	-	-	1.18V	300	62.00	27.33	5.08	0.00	-32.40
4	4126.0	50.5 PK	74.00	-23.50	1.28V	74	48.00	30.32	6.70	34.56	-2.46
5	4874.0	49.9 PK	74.00	-24.10	1.22V	115	45.80	31.47	7.21	34.63	-4.05

NOTE:
1. Emission level = Raw Value - Correction Factor
2. Correction Factor = External Preamp. Gain - Ant. Factor - Cable loss
   (External Preamp. Gain = 0, when the test receiver is used for the test.)
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

EUT	Wireless Router	**MODEL**	GL2411RT-0B
MODE	Channel 11	**FREQUENCY RANGE**	Above 1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	20 deg. C, 70%RH, 1005 Hpa	**TESTED BY**: Gary Chang	

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB/m)
1	2088.0	48.1 PK	74.00	-25.90	1.34H	356	52.40	25.62	5.02	34.90	4.26
2	*2463.0	95.4 PK	-	-	1.00H	198	63.00	27.33	5.08	0.00	-32.41
3	*2463.0	90.4 AV	-	-	1.00H	198	58.00	27.33	5.08	0.00	-32.41
4	2491.0	48.7 PK	74.00	-25.30	1.34H	138	51.00	27.54	5.06	34.90	2.31
5	4176.0	48.5 PK	74.00	-25.50	1.28H	22	46.00	30.41	6.68	34.58	-2.51
6	4924.0	50.1 PK	74.00	-23.90	1.15H	149	46.00	31.51	7.21	34.62	-4.10

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB/m)
1	2088.0	47.7 PK	74.00	-26.30	1.57V	59	52.00	25.62	5.02	34.90	4.26
2	*2463.0	98.2 PK	-	-	1.07V	3	65.80	27.33	5.08	0.00	-32.40
3	*2463.0	92.6 AV	-	-	1.07V	3	60.20	27.33	5.08	0.00	-32.40
4	2485.4	47.9 PK	74.00	-26.10	1.61V	4	50.20	27.54	5.06	34.90	2.32
5	4175.0	47.5 PK	74.00	-26.50	1.60V	279	45.00	30.41	6.68	34.58	-2.51
6	4924.0	49.3 PK	74.00	-24.70	1.07V	357	45.20	31.51	7.21	34.62	-4.10

NOTE:
1. Emission level= Raw Value - Correction Factor
2. Correction Factor = External Preamp. Gain - Ant. Factor - Cable loss
   (External Preamp. Gain = 0, when the test receiver is used for the test.)
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

4.3 6dB BANDWIDTH MEASUREMENT

4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
SPECTRUM ANALYZER	FSEK30	100049	July 17, 2002

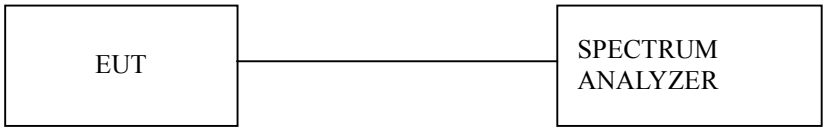
NOTES:

1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.3.3 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.

4.3.4 TEST SETUP



4.3.5 EUT OPERATING CONDITIONS

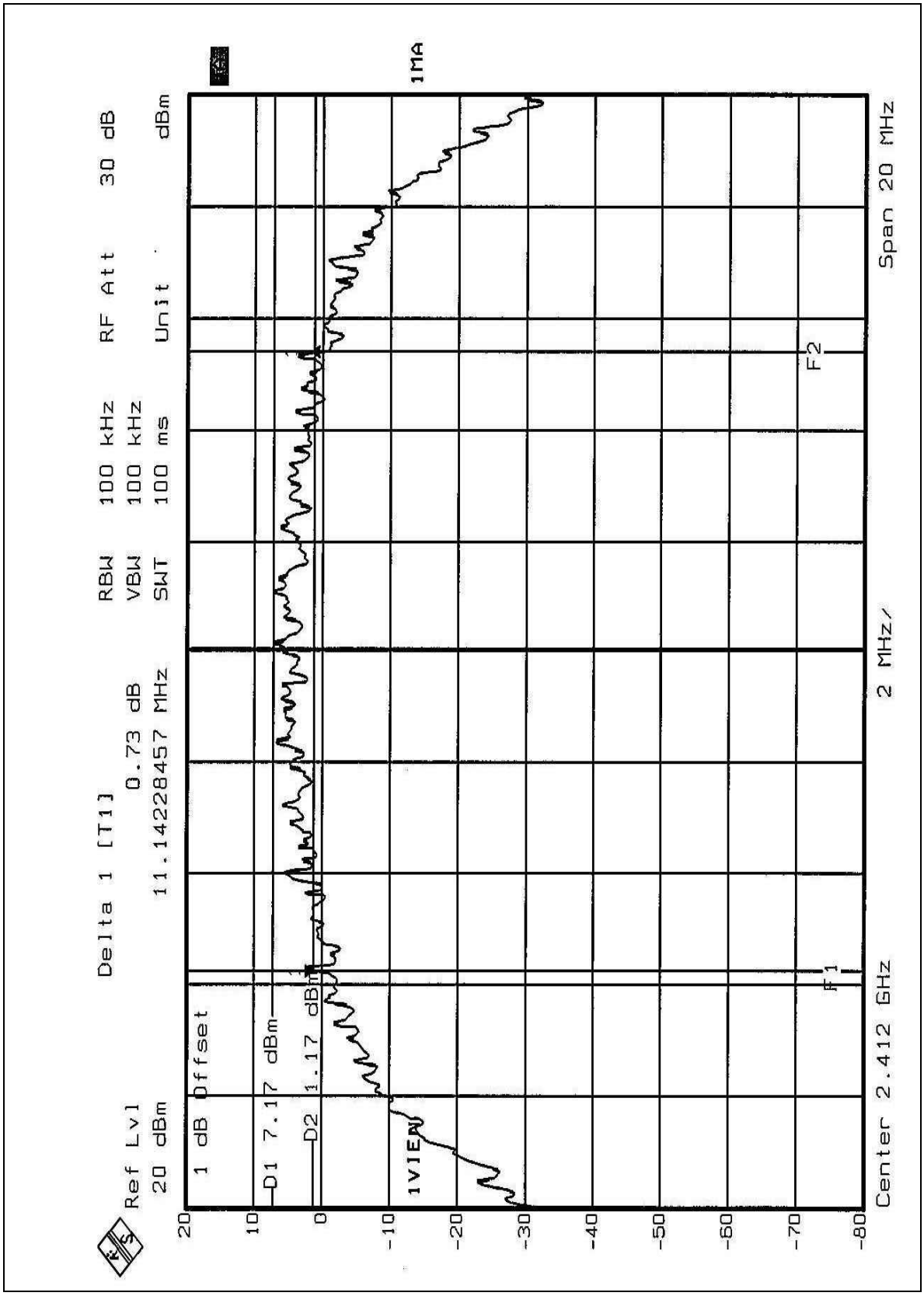
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.3.6 TEST RESULTS

EUT	Wireless Router	**MODEL**	GL2411RT-0B
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	23 deg. C, 55%RH, 1005 hPa
TESTED BY: Bruce Shiau			

CHANNEL	CHANNEL FREQUENCY (MHz)	6 dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	11.14	0.5	PASS
6	2437	11.14	0.5	PASS
11	2462	11.10	0.5	PASS

CH1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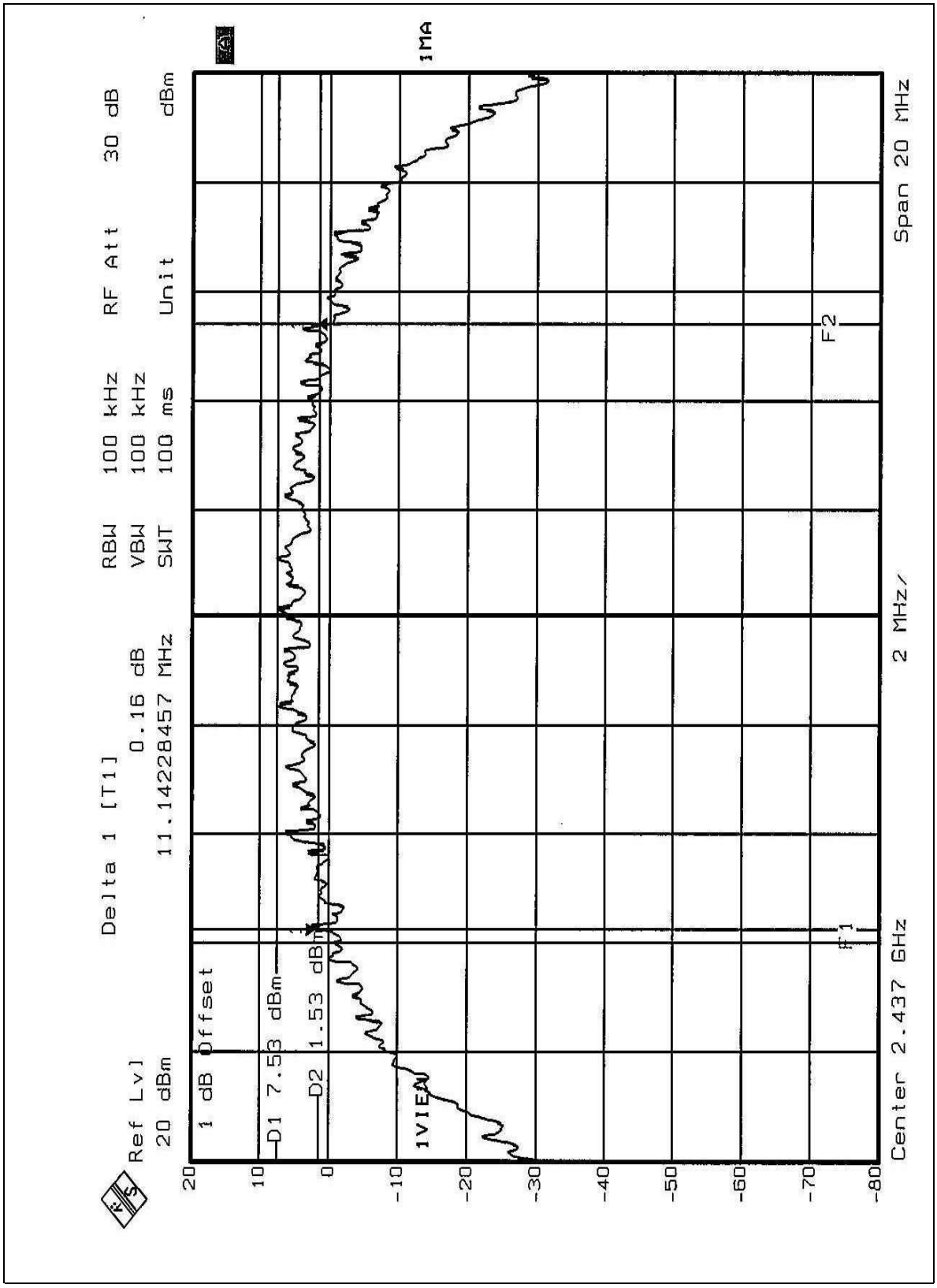
20 dBm
1 dB Offset
D1 7.17 dBm
D2 1.17 dBm
Delta 1 [T1]
0.73 dB
11.14228457 MHz
RBW 100 kHz
VBW 100 kHz
SWT 100 ms
RF Att 30 dB
Unit dBm
1MA
1VIEW
F1
F2
Center 2.412 GHz
2 MHz/
Span 20 MHz

CH6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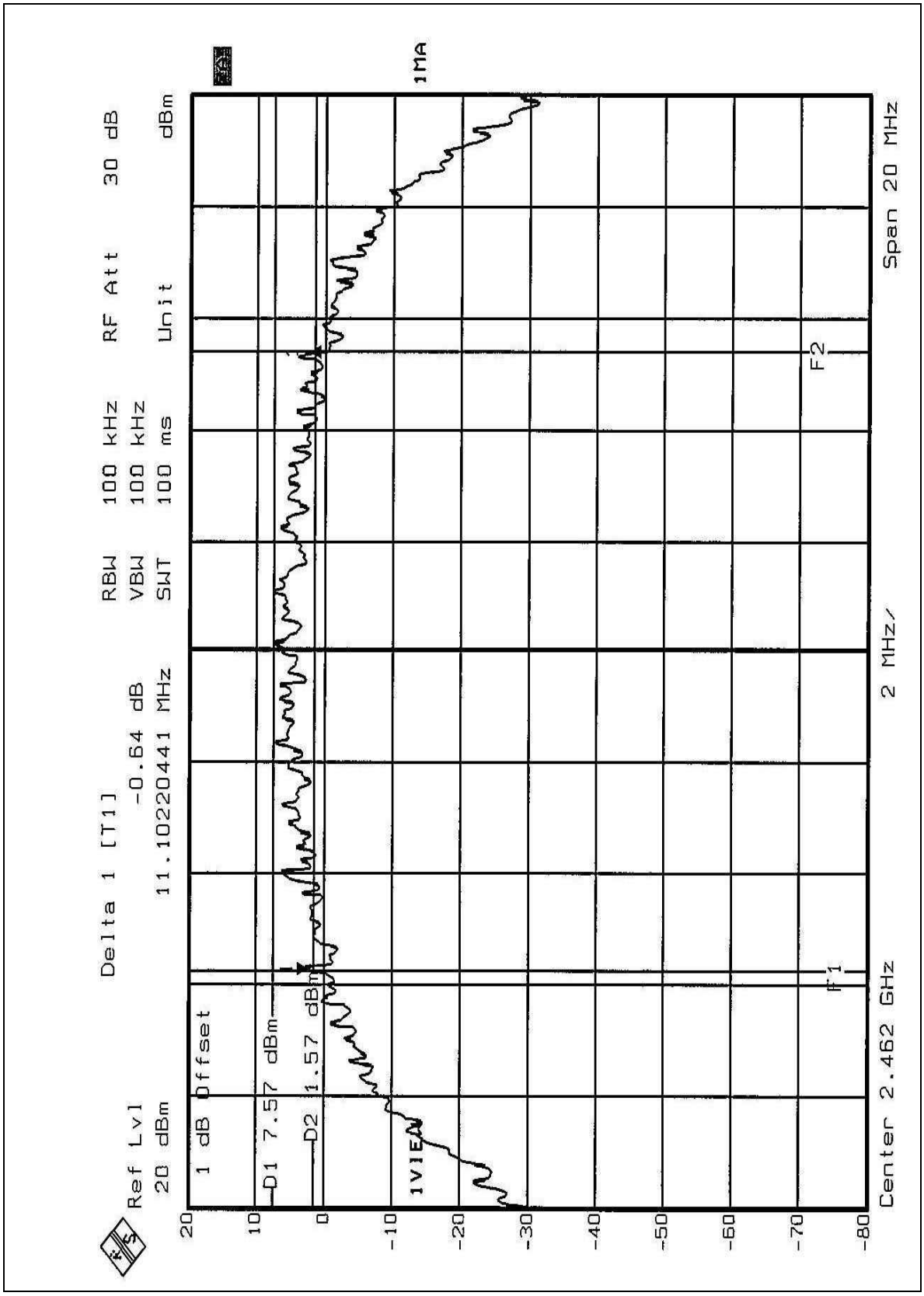
11.14228457 MHz
RBW 100 kHz
VBW 100 kHz
SWT 100 ms
RF Att 30 dB
Unit dBm
D1 7.53 dBm
D2 1.53 dBm
1MA
1VIEW
F1
F2
Center 2.437 GHz
2 MHz/
Span 20 MHz
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80

CH11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20 dBm
1 dB Offset
D1 7.57 dBm
D2 1.57 dBm
Delta 1 [T1]
-0.64 dB
11.10220441 MHz
RBW 100 kHz
VBW 100 kHz
SWT 100 ms
RF Att 30 dB
Unit dBm
1MA
1VIEW
F1
F2
Center 2.462 GHz
2 MHz/
Span 20 MHz

4.4 MAXIMUM PEAK OUTPUT POWER

4.4.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 30dBm.

4.4.2 INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
SINGLE CHANNEL POWER METER	NRVS	100026	Feb. 21, 2003
PEAK POWER SENSOR	NRV-Z32	100013	Feb. 21, 2003

NOTE:

1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.4.3 TEST PROCEDURES

1. The transmitter output was connected to the peak power meter.

4.4.4 TEST SETUP

4.4.5 EUT OPERATING CONDITIONS

Same as Item 3.4.5

4.4.6 TEST RESULTS

EUT	Wireless Router	**MODEL**	GL2411RT-0B
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	23 deg. C, 55%RH, 1005 hPa
TESTED BY: Bruce Shiau			

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	18.35	30	PASS
6	2437	18.87	30	PASS
11	2462	18.97	30	PASS

4.5 POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

4.5.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
SPECTRUM ANALYZER	FSEK30	100049	July 17, 2002

NOTE:

1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.5.3 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/3 kHz. The power spectral density was measured and recorded.
The sweep time is allowed to be longer than span/3 kHz for a full response of the mixer in the spectrum analyzer.

4.5.4 TEST SETUP

4.5.5 EUT OPERATING CONDITION

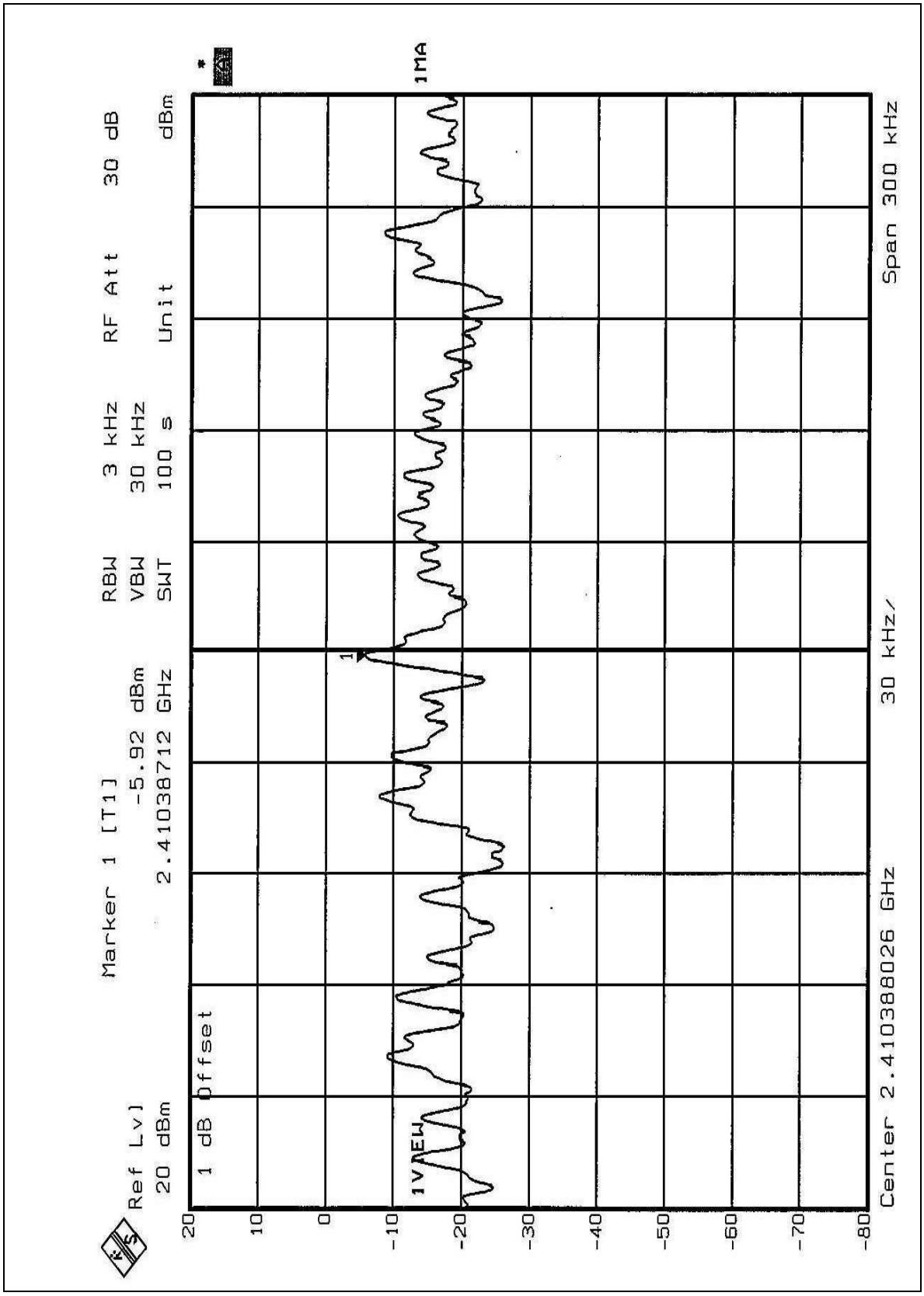
Same as Item 3.4.5

4.5.6 TEST RESULTS

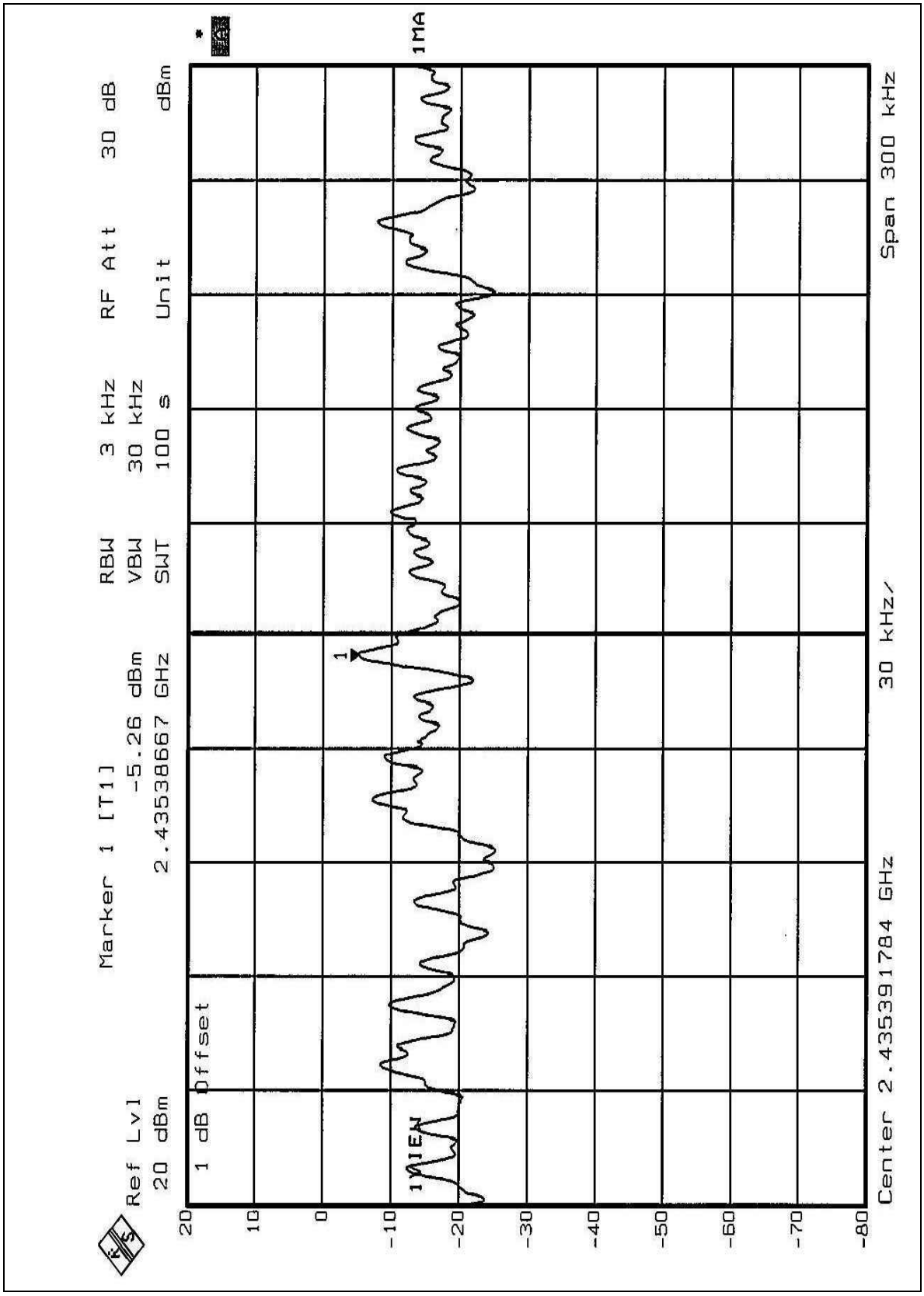
EUT	Wireless Router	**MODEL**	GL2411RT-0B
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	23 deg. C, 55%RH, 1005 hPa
TESTED BY: Bruce Shiau			

CHANNEL NUMBER	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-5.92	8	PASS
6	2437	-5.26	8	PASS
11	2462	-5.19	8	PASS

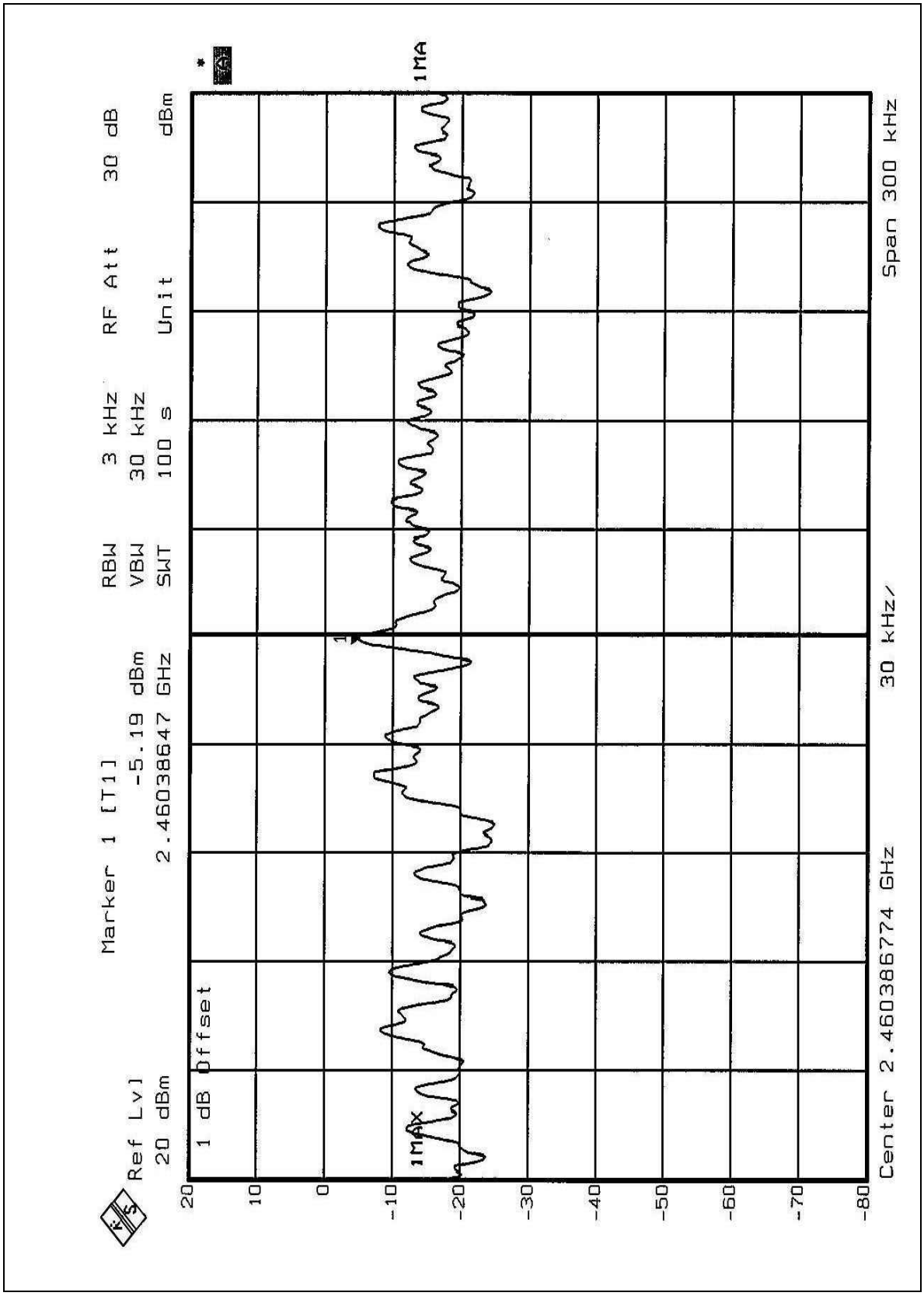
CH1


Ref Lvl
20 dBm
1 dB Offset
Marker 1 [T1]
-5.92 dBm
2.41038712 GHz
RBW 3 kHz
VBW 30 kHz
SWT 100 s
RF Att 30 dB
Unit dBm
1VIEW
1MA
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.41038026 GHz
30 kHz/
Span 300 kHz

CH6


Ref Lvl
20 dBm
1 dB Offset
Marker 1 [T1]
-5.26 dBm
2.43538667 GHz
RBW 3 kHz
VBW 30 kHz
SWT 100 s
RF Att 30 dB
Unit dBm
1MA
1MEM
Center 2.435391784 GHz
30 kHz/
Span 300 kHz

CH11


Ref Lvl
20 dBm
1 dB Offset
Marker 1 [T1]
-5.19 dBm
2.460386647 GHz
RBW 3 kHz
VBW 30 kHz
SWT 100 s
RF Att 30 dB
Unit dBm
1MA
1MAX
Center 2.460386774 GHz
30 kHz/
Span 300 kHz

4.6 BAND EDGES MEASUREMENT

4.6.1 LIMITS OF BAND EDGES MEASUREMENT

Below –20dB of the highest emission level of operating band (in 100KHz Resolution Bandwidth).

4.6.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
SPECTRUM ANALYZER	FSEK30	100049	July 17, 2002

NOTE:

1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.6.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer via a low lose cable. Set both RBW and VBW of spectrum analyzer to 100 kHz with suitable frequency span including 100 kHz bandwidth from band edge. The band edges was measured and recorded.

4.6.4 EUT OPERATING CONDITION

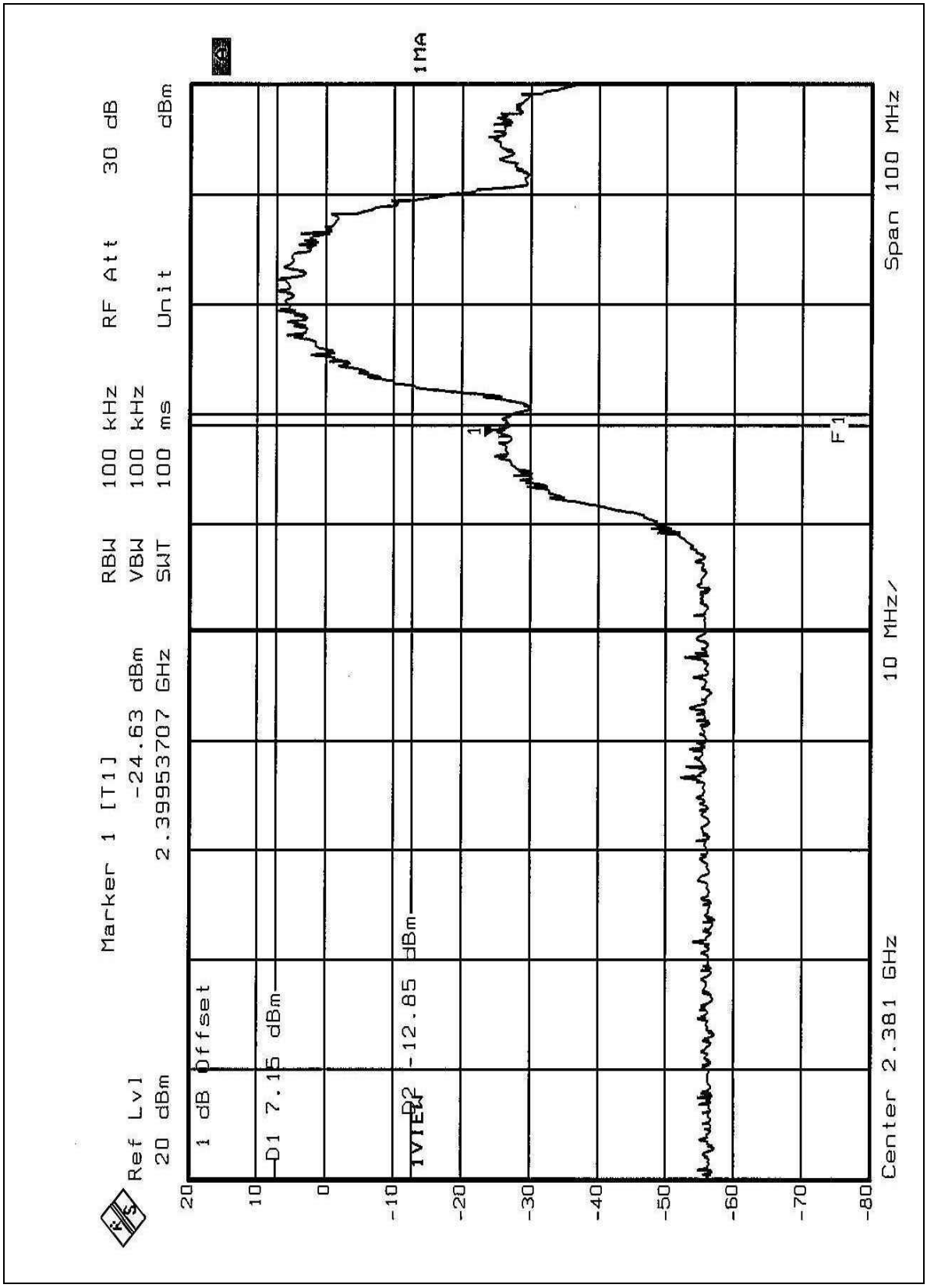
Same as Item 3.4.5

4.6.5 TEST RESULTS

The spectrum plots are attached on the following 2 pages. D2 line indicates the highest level, D1 line indicates the 20dB offset below D2. It shows compliance with the requirement in part 15.247(C).

NOTE: The band edge emission plot on the following 2 pages shows 55.50dB delta between carrier maximum power and local maximum emission in restrict band (2.4837GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.6 (Page 26) is 92.6dBuV/m, so the maximum field strength in restrict band is 92.60-55.50=37.10dBuV/m which is under 54 dBuV/m limit.

Ref Lvl
20 dBm
1 dB Offset
Marker 1 [T1]
-47.76 dBm
2.48367255 GHz
RBW 100 kHz
VBW 100 kHz
SWT 100 ms
RF Att 30 dB
Unit dBm
1MA
D1 7.74 dBm
D2 -12.26 dBm
1VIEW
F1
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.4974 GHz
10 MHz/
Span 100 MHz


Ref Lvl
20 dBm
1 dB Offset
D1 7.15 dBm
D2 -12.85 dBm
Marker 1 [T1]
-24.63 dBm
2.39953707 GHz
RBW 100 kHz
VBW 100 kHz
SWT 100 ms
RF Att 30 dB
Unit dBm
1MA
Center 2.381 GHz
10 MHz/
Span 100 MHz
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80

4.7 ANTENNA REQUIREMENT

4.7.1 STANDARD APPLICABLE

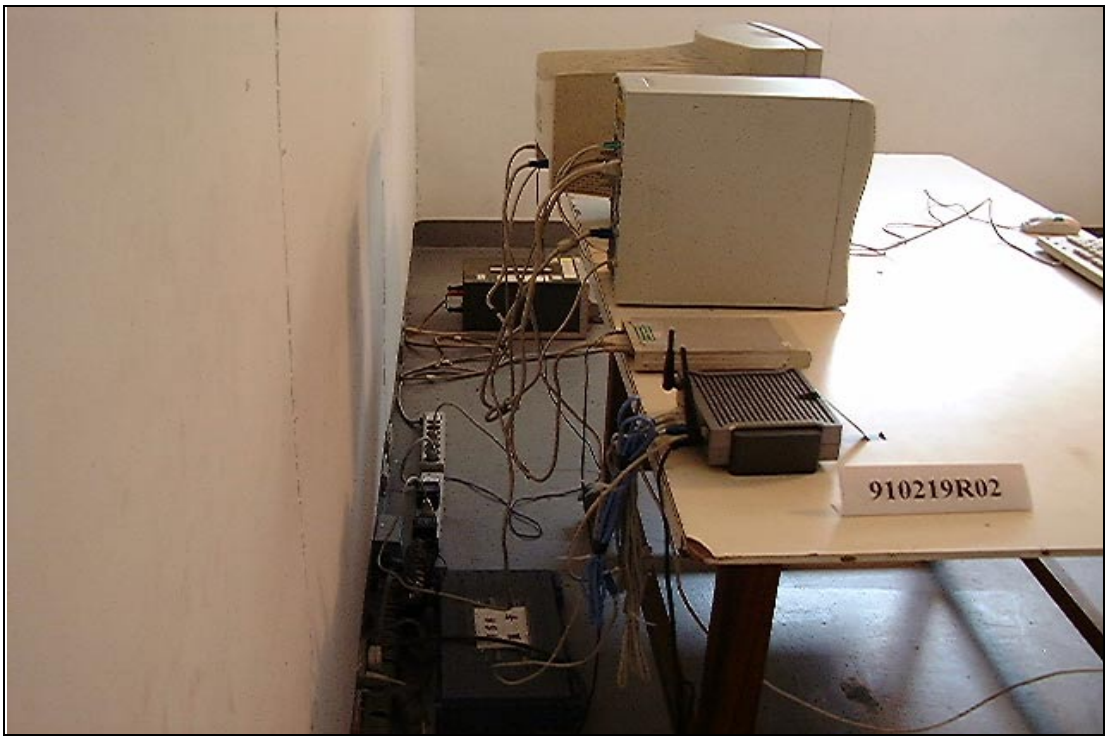
For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

4.7.2 ANTENNA CONNECTED CONSTRUCTION

The antenna used in this product is Dipole Antenna and the MCX connector is used. The maximum Gain of the antenna is 1dBi only.

5 PHOTOGRAPHS OF THE TEST CONFIGURATION

CONDUCTED EMISSION TEST



RADIATED EMISSION TEST

6 INFORMATION ON THE TESTING LABORATORIES

We, ADT Corp., were founded in 1988 to provide our best service in EMC and Safety consultation. Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025, Guide 25 or EN 45001:

USA	FCC, NVLAP, UL
Germany	TUV Rheinland
Japan	VCCI
New Zealand	MoC
Norway	NEMKO
R.O.C.	BSMI, DGT, CNLA

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site: www.adt.com.tw/index.5/phtml.

If you have any comments, please feel free to contact us at the following:

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Tel: 886-3-3270910
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The address and road map of all our labs can be found in our web site also.