



# FCC TEST REPORT

**REPORT NO.:** RF910923R01

**MODEL NO.:** RB-8110

**RECEIVED:** Sept. 23, 2002

**TESTED:** Oct. 15 ~ Nov. 16, 2002

**APPLICANT:** SendFar Technology Co., Ltd.

**ADDRESS:** 15F, No. 866-2, Jung Jeng Rd., Junghe City,  
Taipei, Taiwan, R.O.C.

**ISSUED BY:** Advance Data Technology Corporation

**LAB LOCATION:** 47 14<sup>th</sup> 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 NAME :** Wireless Router Bridge  
**BRAND NAME :** SendFar  
**MODEL NO. :** RB-8110  
**APPLICANT :** SendFar Technology Co., Ltd.  
**STANDARDS :** 47 CFR Part 15, Subpart C (Section 15.247),  
ANSI C63.4-1992

We, **Advance Data Technology Corporation**, hereby certify that one sample of the designation has been tested in our facility from Oct. 15 ~ Nov. 16, 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.

**CHECKED BY:** Rennie Wang, **DATE:** November 18, 2002  
Rennie Wang

**APPROVED BY:** Dr. Alan Lane **DATE:** November 18, 2002  
Dr. Alan Lane  
Manager



## 2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

<b>APPLIED STANDARD: 47 CFR Part 15, Subpart C</b>			
<b>Standard Section</b>	<b>Test Type and Limit</b>	<b>Result</b>	<b>REMARK</b>
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit Minimum passing margin is -10.41dBuV at 2.05MHz
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 -3.00dBuV at 125.00MHz
15.247(d)	Power Spectral Density Limit: max. 8dBm	PASS	Meet the requirement of limit
15.247(c)	Band Edge Measurement Limit: 20dB less than the peak value of fundamental frequency	PASS	Meet the requirement of limit



### 3 GENERAL INFORMATION

#### 3.1 GENERAL DESCRIPTION OF EUT

<b>PRODUCT</b>	Wireless Router Bridge
<b>MODEL NO.</b>	RB-8110
<b>POWER SUPPLY</b>	5VDC from POE (Power over Ethernet)
<b>MODULATION TYPE</b>	BPSK, QPSK, CCK (DSSS)
<b>TRANSFER RATE</b>	1/2/5.5/11Mbps
<b>FREQUENCY RANGE</b>	2412MHz ~ 2462MHz
<b>NUMBER OF CHANNEL</b>	11
<b>OUTPUT POWER</b>	18.60dBm
<b>ANTENNA TYPE</b>	Patch antenna
<b>I/O PORTS</b>	RJ-45
<b>ASSOCIATED DEVICES</b>	NA

**NOTE:**

- The EUT was operated with following POE (Power over Ethernet):

<b>Model No.:</b>	IPW-4807
<b>Input power :</b>	100-240V
<b>Output power :</b>	5V---700mA

- Two types of antennas were provided to this EUT. Please see as follows:

Item	Model	Antenna Type	Antenna Gain(dBi)
1	FP24-10	Patch	10
2	FP24-12	Patch	12

- For more detailed features description, please refer to the manufacturer's specifications or 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. For "Radiated Emission Measurement" test, there are two test results for the test: The test result A is for antenna gain with 10dBi, and the test result B is for antenna gain with 12dBi.

### 3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a Wireless Router Bridge. 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**

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	NOTEBOOK	Dell	PP01L	TW-09C748-12800-19O-B220	FCC DoC APPROVED
2	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

**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 OF EMISSION (MHz)	CONDUCTED LIMIT (dB $\mu$ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

**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	834115/016	Mar. 3, 2003
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, 2003
Software	Cond-V2L	NA	NA
RF cable (JYBAO)	5D-FB	Cable-C03.01	July 11, 2003
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. The test was performed in ADT Open Site No. 3.



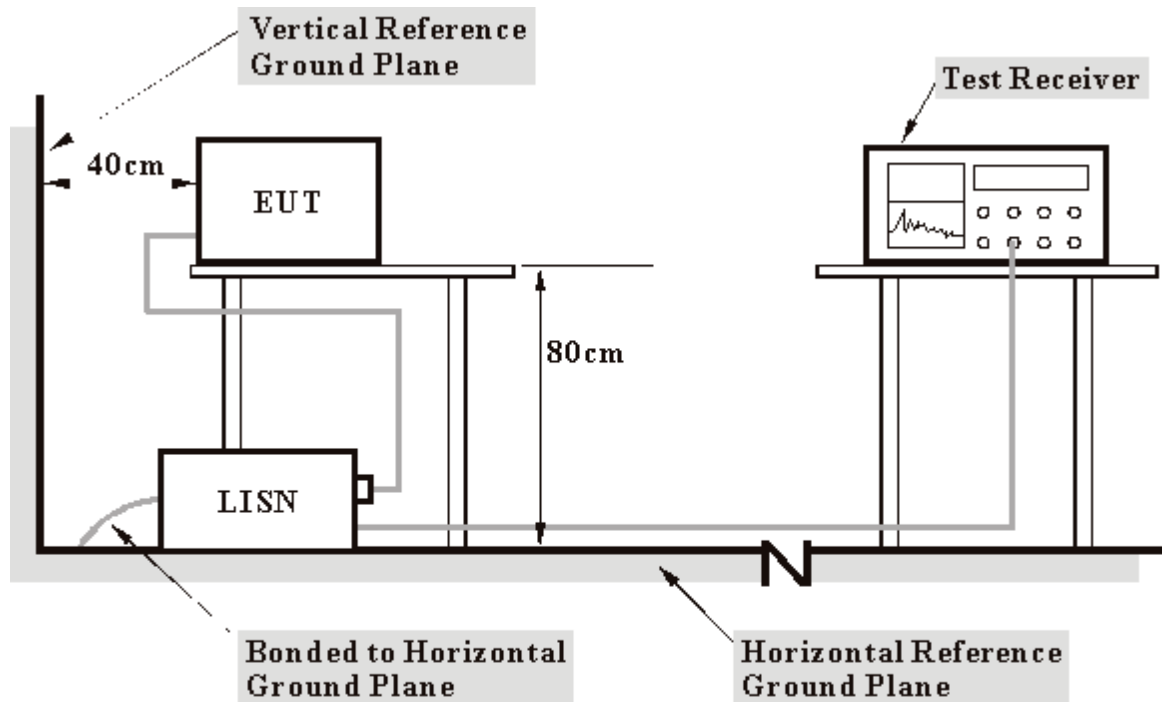
#### 4.1.3 TEST PROCEDURES

- 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 150 kHz to 30 MHz was searched. Emission levels over 10dB under the prescribed limits could not be reported

#### 4.1.4 DEVIATION FROM TEST STANDARD

No deviation

#### 4.1.5 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.

#### 4.1.6 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".

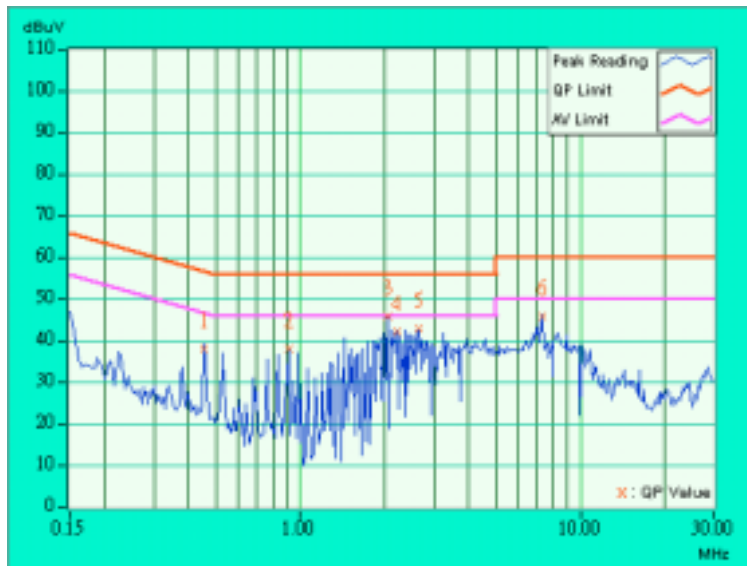


4.1.7 TEST RESULTS

<b>EUT</b>	Wireless Router Bridge	<b>MODEL</b>	RB-8110
<b>MODE</b>	Channel 1	<b>6dB BANDWIDTH</b>	9 kHz
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60Hz	<b>PHASE</b>	Line (L)
<b>ENVIRONMENTAL CONDITIONS</b>	24deg.C, 47%RH, 1005 hPa	<b>TESTED BY:</b> Cody 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	0.455	0.11	37.71	-	37.82	-	56.79	46.79	-18.97	-
2	0.912	0.19	37.73	-	37.92	-	56.00	46.00	-18.08	-
3	2.047	0.30	45.29	-	45.59	-	56.00	46.00	-10.41	-
4	2.230	0.32	41.67	-	41.99	-	56.00	46.00	-14.01	-
5	2.656	0.37	42.50	-	42.87	-	56.00	46.00	-13.13	-
6	7.357	0.50	45.41	-	45.91	-	60.00	50.00	-14.09	-

- Remarks:
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.

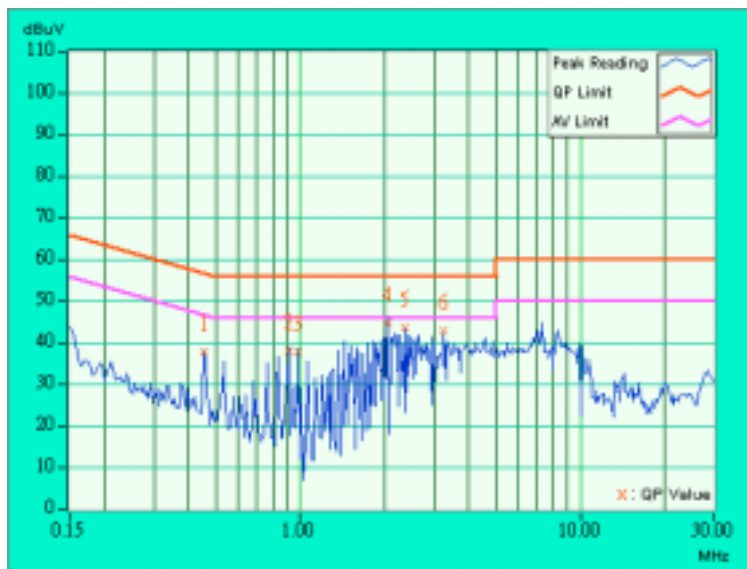




<b>EUT</b>	Wireless Router Bridge	<b>MODEL</b>	RB-8110
<b>MODE</b>	Channel 1	<b>6dB BANDWIDTH</b>	9 kHz
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60Hz	<b>PHASE</b>	Neutral (N)
<b>ENVIRONMENTAL CONDITIONS</b>	24deg.C, 47%RH, 1005 hPa	<b>TESTED BY:</b> Cody Chang	

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	0.455	0.11	37.45	-	37.56	-	56.79	46.79	-19.23	-
2	0.910	0.19	37.87	-	38.06	-	56.00	46.00	-17.94	-
3	0.987	0.20	37.44	-	37.64	-	56.00	46.00	-18.36	-
4	2.048	0.30	44.53	-	44.83	-	56.00	46.00	-11.17	-
5	2.352	0.32	43.40	-	43.72	-	56.00	46.00	-12.28	-
6	3.266	0.36	42.76	-	43.12	-	56.00	46.00	-12.88	-

- Remarks:
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.

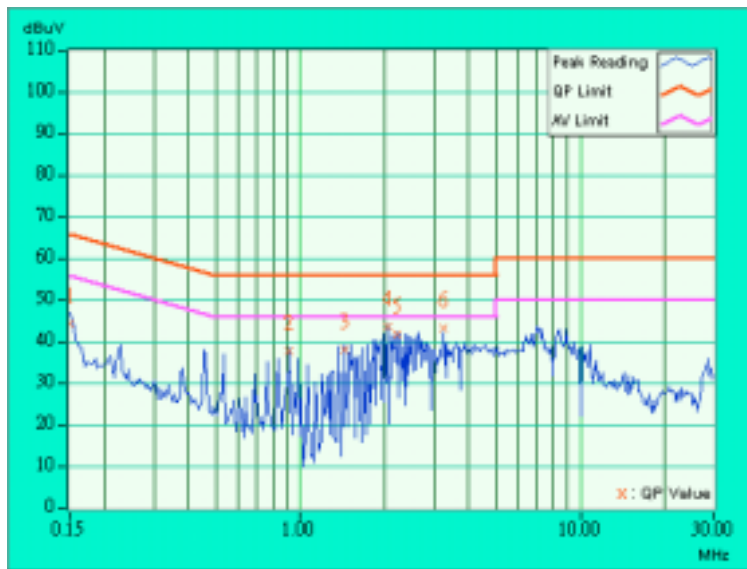




<b>EUT</b>	Wireless Router Bridge	<b>MODEL</b>	RB-8110
<b>MODE</b>	Channel 6	<b>6dB BANDWIDTH</b>	9 kHz
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60Hz	<b>PHASE</b>	Line (L)
<b>ENVIRONMENTAL CONDITIONS</b>	24deg.C, 48%RH, 1005 hPa	<b>TESTED BY:</b> Cody Chang	

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	0.150	0.10	44.06	-	44.16	-	66.00	56.00	-21.84	-
2	0.910	0.19	37.21	-	37.40	-	56.00	46.00	-18.60	-
3	1.441	0.24	37.85	-	38.09	-	56.00	46.00	-17.91	-
4	2.047	0.30	43.32	-	43.62	-	56.00	46.00	-12.38	-
5	2.230	0.32	41.59	-	41.91	-	56.00	46.00	-14.09	-
6	3.267	0.43	42.82	-	43.25	-	56.00	46.00	-12.75	-

- Remarks:
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.

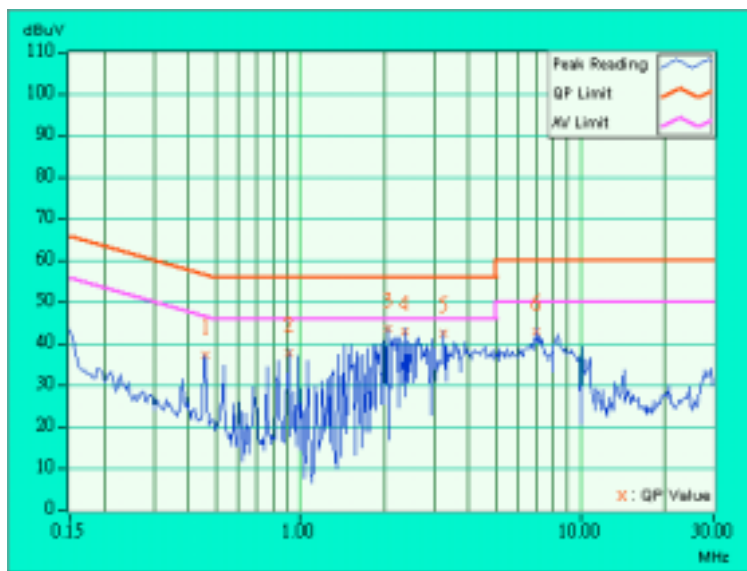




<b>EUT</b>	Wireless Router Bridge	<b>MODEL</b>	RB-8110
<b>MODE</b>	Channel 6	<b>6dB BANDWIDTH</b>	9 kHz
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60Hz	<b>PHASE</b>	Neutral (N)
<b>ENVIRONMENTAL CONDITIONS</b>	24deg.C, 48%RH, 1005 hPa	<b>TESTED BY:</b> Cody Chang	

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	0.456	0.11	37.09	-	37.20	-	56.77	46.77	-19.57	-
2	0.912	0.19	37.33	-	37.52	-	56.00	46.00	-18.48	-
3	2.048	0.30	43.26	-	43.56	-	56.00	46.00	-12.44	-
4	2.352	0.32	42.39	-	42.71	-	56.00	46.00	-13.29	-
5	3.266	0.36	42.07	-	42.43	-	56.00	46.00	-13.57	-
6	6.931	0.40	42.46	-	42.86	-	60.00	50.00	-17.14	-

- Remarks:
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.

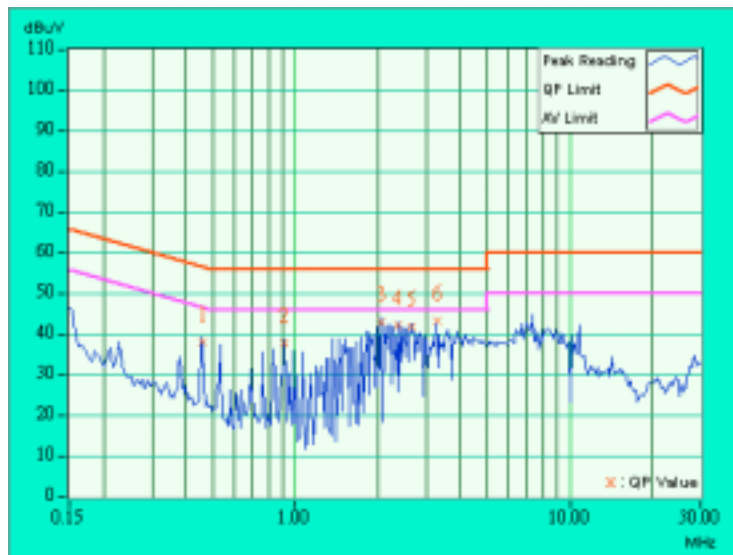




<b>EUT</b>	Wireless Router Bridge	<b>MODEL</b>	RB-8110
<b>MODE</b>	Channel 11	<b>6dB BANDWIDTH</b>	9 kHz
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60Hz	<b>PHASE</b>	Line (L)
<b>ENVIRONMENTAL CONDITIONS</b>	24deg.C, 48%RH, 1005 hPa	<b>TESTED BY:</b> Cody Chang	

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	0.456	0.11	37.74	-	37.85	-	56.77	46.77	-18.92	-
2	0.913	0.19	37.51	-	37.70	-	56.00	46.00	-18.30	-
3	2.047	0.30	42.54	-	42.84	-	56.00	46.00	-13.16	-
4	2.352	0.34	41.74	-	42.08	-	56.00	46.00	-13.92	-
5	2.656	0.37	41.33	-	41.70	-	56.00	46.00	-14.30	-
6	3.268	0.43	42.82	-	43.25	-	56.00	46.00	-12.75	-

- Remarks:
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.



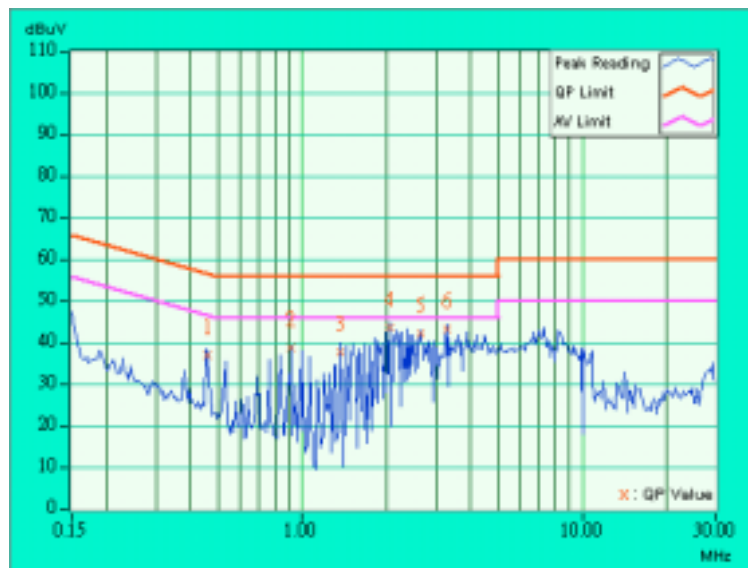




<b>EUT</b>	Wireless Router Bridge	<b>MODEL</b>	RB-8110
<b>MODE</b>	Channel 11	<b>6dB BANDWIDTH</b>	9 kHz
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60Hz	<b>PHASE</b>	Neutral (N)
<b>ENVIRONMENTAL CONDITIONS</b>	24deg.C, 48%RH, 1005 hPa	<b>TESTED BY:</b> Cody Chang	

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.
1	0.459	0.11	36.57	-	36.68	-	56.72	46.72	-20.04	-
2	0.913	0.19	38.37	-	38.56	-	56.00	46.00	-17.44	-
3	1.367	0.24	37.38	-	37.62	-	56.00	46.00	-18.38	-
4	2.047	0.30	43.22	-	43.52	-	56.00	46.00	-12.48	-
5	2.656	0.33	41.84	-	42.17	-	56.00	46.00	-13.83	-
6	3.270	0.36	42.92	-	43.28	-	56.00	46.00	-12.72	-

- Remarks:
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

Emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

Frequencies (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

**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 13, 2003
* HP Preamplifier	8447D	2944A08485	Apr. 29, 2003
* HP Preamplifier	8449B	3008A01201	Dec. 06, 2002
* HP Preamplifier	8449B	3008A01292	Aug. 7, 2003
* 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, 2003
* SCHWARZBECK Horn Antenna	BBHA9120-D1	D130	Jul. 3, 2003
* EMCO Horn Antenna	3115	9312-4192	Apr. 9, 2003
* EMCO Turn Table	1060	1115	NA
* SHOSHIN Tower	AP-4701	A6Y005	NA
* Software	AS61D4	NA	NA
* ANRITSU RF Switches	MP59B	M35046	Jan. 25, 2003
* TIMES RF cable	LMR-600	CABLE-ST5-01	Jul. 12, 2003
Open Field Test Site	Site 5	ADT-R05	Jul. 19, 2003
VCCI Site Registration No.	Site 5	R-1039	NA

- 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 equipment are used for the final measurement.
  4. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
  5. The test was performed in ADT Open Site No. 5.



#### 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.

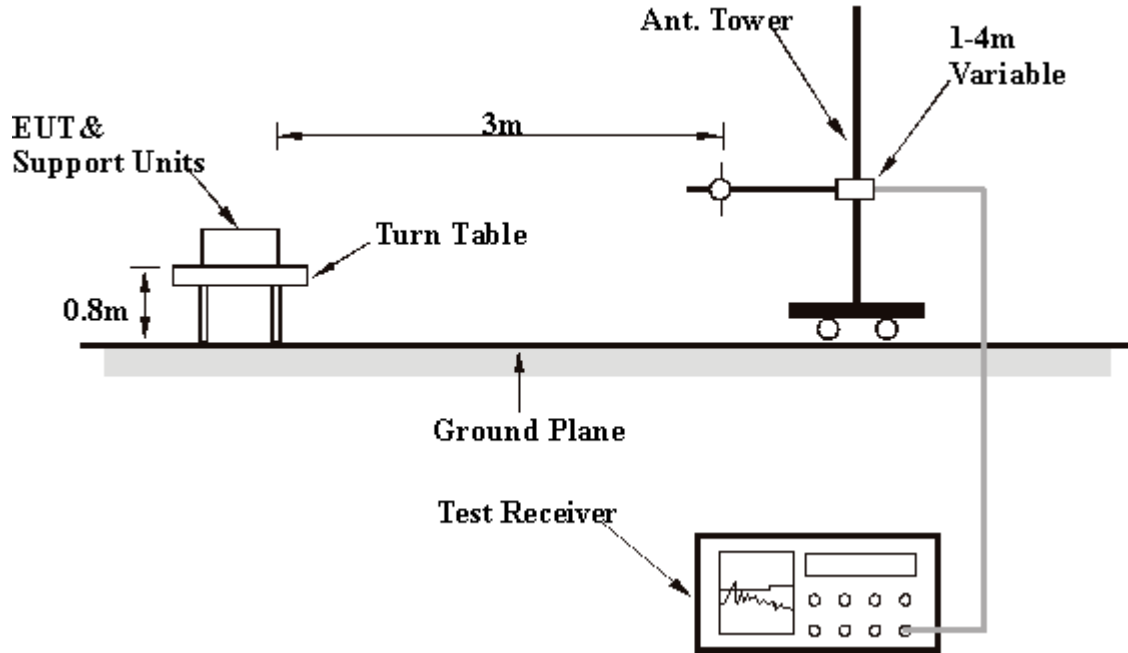
**NOTE:**

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 DEVIATION FROM TEST STANDARD

No deviation

#### 4.2.5 TEST SETUP



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

#### 4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6



4.2.7 TEST RESULTS (A)

<b>EUT</b>	Wireless Router Bridge	<b>MODEL</b>	RB-8110
<b>MODE</b>	Channel 11	<b>FREQUENCY RANGE</b>	30-1000 MHz
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60Hz	<b>DETECTOR FUNCTION</b>	Quasi-Peak
<b>ENVIRONMENTAL CONDITIONS</b>	25deg. C, 60%RH, 1005 hPa	<b>TESTED BY:</b> 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	125.00	32.4 QP	43.50	-11.10	1.05H	65	17.63	11.47	3.30	0.00	-14.77
2	200.00	31.0 QP	43.50	-12.50	1.48H	2	17.93	8.98	4.09	0.00	-13.07
3	250.00	30.5 QP	46.00	-15.50	1.03H	11	13.81	12.02	4.67	0.00	-16.69
4	300.00	26.4 QP	46.00	-19.60	1.18H	273	8.14	13.18	5.08	0.00	-18.26
5	360.00	41.2 QP	46.00	-4.80	1.00H	348	20.82	14.58	5.80	0.00	-20.38
6	411.00	29.4 QP	46.00	-16.60	1.55H	136	6.99	16.16	6.26	0.00	-22.41
7	463.00	42.0 QP	46.00	-4.00	1.00H	322	18.84	16.62	6.54	0.00	-23.16
8	566.00	35.4 QP	46.00	-10.60	1.59H	32	9.66	18.15	7.58	0.00	-25.75
9	617.20	36.5 QP	46.00	-9.50	1.81H	78	9.71	18.82	7.97	0.00	-26.79
10	657.20	35.0 QP	46.00	-11.00	1.00H	284	7.58	19.24	8.18	0.00	-27.42

**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	125.00	40.5 QP	43.50	-3.00	1.13V	359	25.73	11.47	3.30	0.00	-14.77
2	150.00	28.5 QP	43.50	-15.00	1.17V	1	14.68	10.30	3.52	0.00	-13.83
3	175.00	31.5 QP	43.50	-12.00	1.18V	294	18.62	9.08	3.80	0.00	-12.88
4	200.00	28.0 QP	43.50	-15.50	1.18V	42	14.93	8.98	4.09	0.00	-13.08
5	250.00	32.0 QP	46.00	-14.00	1.04V	302	15.31	12.02	4.67	0.00	-16.69
6	360.00	39.5 QP	46.00	-6.50	1.55V	63	19.12	14.58	5.80	0.00	-20.39
7	515.00	34.0 QP	46.00	-12.00	1.43V	250	9.78	17.46	6.77	0.00	-24.23
8	617.00	33.0 QP	46.00	-13.00	1.53V	33	6.21	18.82	7.97	0.00	-26.79
9	720.00	34.5 QP	46.00	-11.50	1.00V	334	6.25	19.68	8.57	0.00	-28.26
10	748.50	27.0 QP	46.00	-19.00	1.53V	11	-1.89	20.14	8.75	0.00	-28.90

- 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



<b>EUT</b>	Wireless Router Bridge	<b>MODEL</b>	RB-8110
<b>MODE</b>	Channel 1	<b>FREQUENCY RANGE</b>	Above 1000 MHz
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60Hz	<b>DETECTOR FUNCTION</b>	Peak(PK) Average (AV)
<b>ENVIRONMENTAL CONDITIONS</b>	25deg. C, 60%RH, 1005 hPa	<b>TESTED BY:</b> Gary Chang	

<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>											
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	2038.00	45.0 PK	74.00	-29.00	1.54H	317	54.00	26.37	1.38	36.80	9.05
2	2386.00	45.5 PK	74.00	-28.50	1.54H	2	52.00	27.67	2.53	36.72	6.52
3	*2412.00	93.5 AV	-	-	1.74H	52	63.60	27.67	2.53	0	-30.20
4	*2412.00	100.5 PK	-	-	1.74H	52	70.30	27.67	2.53	0	-30.20
5	2580.00	54.3 PK	80.50	-26.20	1.43H	35	60.00	28.10	2.89	36.73	5.75
6	2580.00	50.3 AV	73.50	-23.20	1.43H	35	56.00	28.10	2.89	36.73	5.74
7	4076.00	52.2 PK	74.00	-21.80	1.17H	79	54.70	30.38	3.63	36.52	2.51
8	4824.00	48.8 PK	74.00	-25.20	1.41H	10	50.00	31.52	4.01	36.70	1.18

<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>											
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	2038.00	49.0 PK	74.00	-25.00	1.20V	14	58.00	26.37	1.38	36.80	9.05
2	2386.00	54.5 PK	74.00	-19.50	1.25V	347	61.00	27.67	2.53	36.72	6.52
3	2386.00	43.5 AV	54.00	-10.50	1.25V	347	50.00	27.67	2.53	36.72	6.52
4	*2412.00	114.5 PK	-	-	1.02V	12	84.30	27.67	2.53	0	-30.20
5	*2412.00	108.5 AV	-	-	1.02V	12	78.30	27.67	2.53	0	-30.20
6	2580.00	63.3 PK	94.50	-31.20	1.11V	9	69.00	28.10	2.89	36.73	5.74.
7	2580.00	55.3 AV	88.50	-33.20	1.11V	9	61.00	28.10	2.89	36.73	5.74.
8	4076.00	43.0 PK	74.00	-31.00	1.48V	293	45.50	30.38	3.63	36.52	2.51
9	4824.00	44.8 PK	74.00	-29.20	1.17V	2	46.00	31.52	4.01	36.70	1.18

- 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



<b>EUT</b>	Wireless Router Bridge	<b>MODEL</b>	RB-8110
<b>MODE</b>	Channel 6	<b>FREQUENCY RANGE</b>	Above 1000 MHz
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60Hz	<b>DETECTOR FUNCTION</b>	Peak(PK) Average (AV)
<b>ENVIRONMENTAL CONDITIONS</b>	25deg. C, 60%RH, 1005 hPa	<b>TESTED BY:</b> Gary Chang	

<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>											
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	2063.00	45.2 PK	74.00	-28.80	1.00H	10	54.00	26.51	1.51	36.79	8.77
2	*2437.00	100.8 PK	-	-	1.77H	39	70.33	27.81	2.66	0	-30.47
3	*2437.00	94.8 AV	-	-	1.77H	39	64.33	27.81	2.66	0	-30.47
4	2628.00	49.3 PK	74.00	-24.70	1.56H	5	55.00	28.16	2.93	36.75	5.65
5	4126.00	43.8 PK	74.00	-30.20	1.36H	40	46.20	30.50	3.66	36.56	2.39
6	4874.00	46.1 PK	74.00	-27.90	1.44H	13	47.20	31.59	4.03	36.70	1.09
7	7308.00	48.1 PK	74.00	-25.90	1.16H	2	43.20	36.26	5.65	37.02	-4.90

<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>											
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	2063.00	52.0 PK	74.00	-22.00	1.21V	27	60.80	26.51	1.51	36.79	8.77
2	*2437.00	114.8 PK	-	-	1.00V	1	84.33	27.81	2.66	0	-30.47
3	*2437.00	107.8 AV	-	-	1.00V	1	77.33	27.81	2.66	0	-30.47
4	2630.00	54.3 AV	87.80	-33.50	1.12V	355	60.00	28.16	2.93	36.75	5.66
5	2630.00	62.3 PK	94.80	-32.50	1.12V	355	68.00	28.16	2.93	36.75	5.66
6	4126.00	43.2 PK	74.00	-30.80	1.28V	156	45.60	30.50	3.66	36.56	2.39
7	4874.00	44.9 PK	74.00	-29.10	1.35V	342	46.00	31.59	4.03	36.70	1.09

- 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





<b>EUT</b>	Wireless Router Bridge	<b>MODEL</b>	RB-8110
<b>MODE</b>	Channel 11	<b>FREQUENCY RANGE</b>	Above 1000 MHz
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60Hz	<b>DETECTOR FUNCTION</b>	Peak(PK) Average (AV)
<b>ENVIRONMENTAL CONDITIONS</b>	25deg. C, 60%RH, 1005 hPa	<b>TESTED BY:</b> 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	2088.00	48.5 PK	74.00	-25.50	1.12H	19	57.00	26.66	1.64	36.78	8.49
2	*2463.00	95.8 AV	-	-	1.71H	316	65.33	27.81	2.66	0	-30.47
3	*2463.00	103.6 PK	-	-	1.71H	316	73.13	27.81	2.66	0	-30.47
4	2493.00	45.4 PK	74.00	-28.60	1.32H	356	51.40	27.96	2.78	36.70	5.96
5	2680.00	49.9 PK	74.00	-24.10	1.27H	170	55.40	28.28	3.02	36.78	5.48
6	4176.00	42.9 PK	74.00	-31.10	1.29H	331	45.20	30.56	3.68	36.58	2.33
7	4924.00	45.5 PK	74.00	-28.50	1.02H	267	46.50	31.66	4.06	36.70	0.99
8	7387.00	47.6 PK	74.00	-26.40	1.32H	48	42.50	36.40	5.79	37.05	-5.14

**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	2088.00	50.9 AV	74.00	-23.10	1.21V	61	59.40	26.66	1.64	36.78	8.49
2	2088.00	52.9 PK	74.00	-21.10	1.21V	61	61.40	26.66	1.64	36.78	8.49
3	*2463.00	116.8 PK	-	-	1.13V	356	86.33	27.81	2.66	0	-30.47
4	*2463.00	111.3 AV	-	-	1.13V	356	80.83	27.81	2.66	0	-30.47
5	2492.00	53.2 PK	74.00	-20.80	1.21V	322	59.20	27.96	2.78	36.70	5.96
6	2492.00	45.0 AV	54.00	-9.00	1.21V	322	51.00	27.96	2.78	36.70	5.96
7	2680.00	53.5 PK	74.00	-20.50	1.28V	19	59.00	28.28	3.02	36.78	5.49
8	2680.00	45.5 AV	54.00	-8.50	1.28V	19	51.00	28.28	3.02	36.78	5.49
9	4176.00	43.1 PK	74.00	-30.90	1.20V	6	45.40	30.56	3.68	36.58	2.33
10	4924.00	46.2 PK	74.00	-27.80	1.32V	27	47.20	31.66	4.06	36.70	0.99
11	7382.00	50.3 PK	74.00	-23.70	1.30V	54	45.20	36.40	5.79	37.05	-5.14

- 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



4.2.8 TEST RESULTS (B)

<b>EUT</b>	Wireless Router Bridge	<b>MODEL</b>	RB-8110
<b>MODE</b>	Channel 11	<b>FREQUENCY RANGE</b>	30-1000 MHz
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60Hz	<b>DETECTOR FUNCTION</b>	Quasi-Peak
<b>ENVIRONMENTAL CONDITIONS</b>	25deg. C, 60%RH, 1005 hPa	<b>TESTED BY:</b> 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	125.00	30.1 QP	43.50	-13.40	1.84H	257	15.33	11.47	3.30	0.00	-14.77
2	200.00	32.0 QP	43.50	-11.50	1.20H	259	18.93	8.98	4.09	0.00	-13.08
3	225.00	29.5 QP	46.00	-16.50	1.74H	165	14.74	10.41	4.36	0.00	-14.76
4	250.00	39.5 QP	46.00	-6.50	1.35H	290	22.81	12.02	4.67	0.00	-16.70
5	360.20	37.2 QP	46.00	-8.80	1.75H	69	16.82	14.58	5.80	0.00	-20.39
6	411.00	33.2 QP	46.00	-12.80	1.00H	279	10.79	16.16	6.26	0.00	-22.41
7	463.20	42.2 QP	46.00	-3.80	2.05H	6	19.04	16.62	6.54	0.00	-23.16
8	515.00	38.5 QP	46.00	-7.50	1.34H	97	14.28	17.46	6.77	0.00	-24.23
9	566.00	37.2 QP	46.00	-8.80	1.62H	253	11.46	18.15	7.58	0.00	-25.74
10	617.00	36.1 QP	46.00	-9.90	1.88H	217	9.31	18.82	7.97	0.00	-26.79
11	750.00	32.0 QP	46.00	-14.00	1.19H	64	3.06	20.18	8.76	0.00	-28.94

**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	125.00	39.2 QP	43.50	-4.30	1.00V	15	24.43	11.47	3.30	0.00	-14.77
2	175.00	33.0 QP	43.50	-10.50	1.04V	7	20.12	9.08	3.80	0.00	-12.88
3	200.00	34.0 QP	43.50	-9.50	1.11V	0	20.93	8.98	4.09	0.00	-13.07.
4	225.00	33.0 QP	46.00	-13.00	1.02V	2	18.24	10.41	4.36	0.00	-14.76
5	250.00	36.0 QP	46.00	-10.00	1.05V	7	19.31	12.02	4.67	0.00	-16.70
6	300.00	30.0 QP	46.00	-16.00	1.02V	243	11.74	13.18	5.08	0.00	-18.26
7	352.00	30.0 QP	46.00	-16.00	1.00V	179	9.96	14.31	5.73	0.00	-20.05
8	360.00	38.5 QP	46.00	-7.50	1.00V	83	18.12	14.58	5.80	0.00	-20.38
9	411.00	30.0 QP	46.00	-16.00	1.11V	265	7.59	16.16	6.26	0.00	-22.42
10	463.00	41.4 QP	46.00	-4.60	1.21V	65	18.24	16.62	6.54	0.00	-23.16
11	515.00	34.5 QP	46.00	-11.50	1.61V	2	10.28	17.46	6.77	0.00	-24.22
12	600.00	31.0 QP	46.00	-15.00	1.10V	2	4.50	18.61	7.89	0.00	-26.50.
13	650.00	32.5 QP	46.00	-13.50	1.37V	310	5.13	19.23	8.13	0.00	-27.37

- 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



<b>EUT</b>	Wireless Router Bridge	<b>MODEL</b>	RB-8110
<b>MODE</b>	Channel 1	<b>FREQUENCY RANGE</b>	Above 1000 MHz
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60Hz	<b>DETECTOR FUNCTION</b>	Peak(PK) Average (AV)
<b>ENVIRONMENTAL CONDITIONS</b>	25deg. C, 60%RH, 1005 hPa	<b>TESTED BY:</b> 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	2038.00	50.0 PK	74.00	-24.00	1.00H	5	59.00	26.37	1.38	36.80	9.05
2	2386.00	48.5 PK	74.00	-25.50	1.37H	337	55.00	27.67	2.53	36.72	6.52
3	*2412.00	108.5 PK	-	-	1.03H	189	78.30	27.67	2.53	0	-30.20
4	*2412.00	101.5 AV	-	-	1.03H	189	71.30	27.67	2.53	0	-30.20
5	2580.00	56.3 PK	88.50	-32.20	1.08H	10	62.00	28.10	2.89	36.73	5.74.
6	2580.00	49.3 AV	81.50	-32.20	1.08H	10	55.00	28.10	2.89	36.73	5.74
7	4076.00	41.5 PK	74.00	-32.50	1.07H	354	44.00	30.38	3.63	36.52	2.51
8	4824.00	44.8 PK	74.00	-29.20	1.43H	58	46.00	31.52	4.01	36.70	1.18
9	7236.00	47.8 PK	74.00	-26.20	1.52H	308	43.00	36.20	5.58	37.00	-4.78

**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	2038.00	49.8 AV	54.00	-4.20	1.09V	29	58.80	26.37	1.38	36.80	9.05
2	2038.00	52.5 PK	74.00	-21.50	1.09V	29	61.50	26.37	1.38	36.80	9.05
3	2368.00	45.2 AV	54.00	-8.80	1.12V	242	52.00	27.52	2.40	36.73	6.80
4	2368.00	57.2 PK	74.00	-16.80	1.12V	242	64.00	27.52	2.40	36.73	6.80.
5	*2412.00	109.1 AV	-	-	1.10V	2	78.90	27.67	2.53	0	-30.20
6	*2412.00	117.0 PK	-	-	1.10V	2	86.80	27.67	2.53	0	-30.20
7	2580.00	64.3 PK	97.00	-32.70	1.01V	5	70.00	28.10	2.89	36.73	5.74.
8	2580.00	61.3 AV	89.10	-27.80	1.01V	5	67.00	28.10	2.89	36.73	5.74
9	4076.00	42.5 PK	74.00	-31.50	1.08V	353	45.00	30.38	3.63	36.52	2.51
10	4824.00	47.8 PK	74.00	-26.20	1.08V	211	49.00	31.52	4.01	36.70	1.18
11	7236.00	45.8 PK	74.00	-28.20	1.37V	153	41.00	36.20	5.58	37.00	-4.78
12	8151.00	48.4 PK	74.00	-25.60	1.37V	46	43.00	36.93	5.82	37.33	-5.43

- 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



<b>EUT</b>	Wireless Router Bridge	<b>MODEL</b>	RB-8110
<b>MODE</b>	Channel 6	<b>FREQUENCY RANGE</b>	Above 1000 MHz
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60Hz	<b>DETECTOR FUNCTION</b>	Peak(PK) Average (AV)
<b>ENVIRONMENTAL CONDITIONS</b>	25deg. C, 60%RH, 1005 hPa	<b>TESTED BY:</b> Gary Chang	

<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>											
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	2063.00	49.7 PK	74.00	-24.30	1.23H	80	58.50	26.51	1.51	36.79	8.77
2	*2437.00	99.8 AV	-	-	1.37H	325	69.33	27.81	2.66	0	-30.47
3	*2437.00	106.8 PK	-	-	1.37H	325	82.53	27.81	2.66	0	-30.47
4	2628.00	52.4 PK	86.80	-34.40	1.48H	323	58.10	28.16	2.93	36.75	5.65
5	2628.00	48.3 AV	79.80	-31.50	1.48H	323	54.00	28.16	2.93	36.75	5.65
6	4126.00	41.9 PK	74.00	-32.10	1.21H	42	44.30	30.50	3.66	36.56	2.39
7	4874.00	44.8 PK	74.00	-29.20	1.68H	8	45.85	31.59	4.03	36.70	1.08
8	7287.00	48.1 PK	74.00	-25.90	1.18H	2	43.20	36.26	5.65	37.02	-4.90

<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>											
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	2063.00	49.7 PK	74.00	-24.30	1.90V	17	58.50	26.51	1.51	36.79	8.77
2	*2437.00	117.6 PK	-	-	1.00V	2	87.13	27.81	2.66	0	-30.47
3	*2437.00	108.8 AV	-	-	1.00V	2	78.33	27.81	2.66	0	-30.47
4	2628.00	58.3 AV	88.80	-30.50	1.03V	269	64.00	28.16	2.93	36.75	5.65
5	2628.00	64.3 PK	97.60	-33.30	1.03V	269	70.00	28.16	2.93	36.75	5.65
6	4126.00	42.8 PK	74.00	-31.20	1.22V	300	45.20	30.50	3.66	36.56	2.39
7	4874.00	45.4 PK	74.00	-28.60	1.07V	265	46.50	31.59	4.03	36.70	1.09

- 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



<b>EUT</b>	Wireless Router Bridge	<b>MODEL</b>	RB-8110
<b>MODE</b>	Channel 11	<b>FREQUENCY RANGE</b>	Above 1000 MHz
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60Hz	<b>DETECTOR FUNCTION</b>	Peak(PK) Average (AV)
<b>ENVIRONMENTAL CONDITIONS</b>	25deg. C, 60%RH, 1005 hPa	<b>TESTED BY:</b> Gary Chang	

<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>											
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	2088.00	48.3 PK	74.00	-25.70	1.00H	216	56.80	26.66	1.64	36.78	8.49
2	*2463.00	108.8 PK	-	-	1.08H	335	78.33	27.81	2.66	0	-30.47
3	*2463.00	101.8 AV	-	-	1.08H	335	71.33	27.81	2.66	0	-30.47
4	2492.00	49.0 PK	74.00	-25.00	1.43H	353	55.00	27.96	2.78	36.70	5.96
5	2680.00	46.5 AV	54.00	-7.50	1.00H	46	52.00	28.28	3.02	36.78	5.49
6	2680.00	51.5 PK	74.00	-22.50	1.00H	46	57.00	28.28	3.02	36.78	5.49
7	4176.00	42.8 PK	74.00	-31.20	1.51H	234	45.10	30.56	3.68	36.58	2.33
8	4924.00	46.0 PK	74.00	-28.00	1.09H	104	47.00	31.66	4.06	36.70	0.99

<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>											
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	2088.00	47.3 PK	74.00	-26.70	1.29V	140	55.80	26.66	1.64	36.78	8.49
2	*2463.00	118.8 PK	-	-	1.32V	91	88.33	27.81	2.66	0	-30.47
3	*2463.00	110.8 AV	-	-	1.32V	91	80.33	27.81	2.66	0	-30.47
4	2498.00	54.0 PK	74.00	-20.00	1.26V	107	60.00	27.96	2.78	36.70	5.96
5	2498.00	43.0 AV	54.00	-11.00	1.26V	107	49.00	27.96	2.78	36.70	5.96
6	2680.00	53.0 PK	74.00	-21.00	1.00V	2	58.50	28.28	3.02	36.78	5.49
7	2680.00	46.5 AV	54.00	-7.50	1.00V	2	52.00	28.28	3.02	36.78	5.49
8	4176.00	43.7 PK	74.00	-30.30	1.33V	183	46.00	30.56	3.68	36.58	2.33
9	4924.00	43.5 PK	74.00	-30.50	1.43V	324	44.50	31.66	4.06	36.70	0.99
10	7387.00	48.3 PK	74.00	-25.70	1.38V	264	43.20	36.40	5.79	37.05	-5.14

- 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 24, 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.

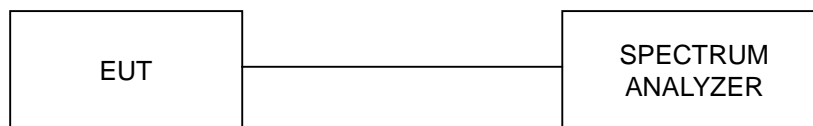
#### 4.3.3 TEST PROCEDURE

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 DEVIATION FROM TEST STANDARD

No deviation

#### 4.3.5 TEST SETUP



#### 4.3.6 EUT OPERATING CONDITIONS

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



## 4.3.7 TEST RESULTS

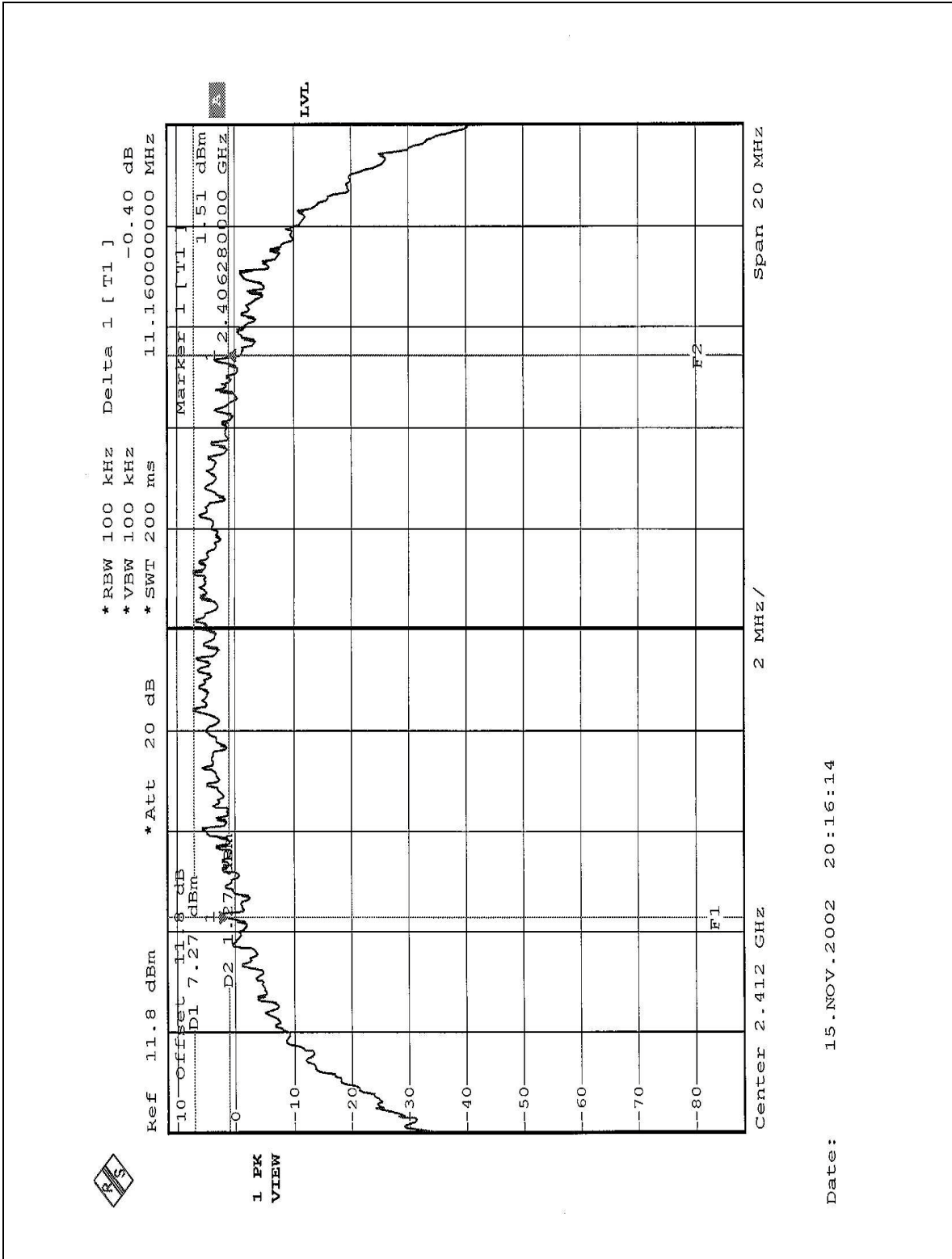
<b>EUT</b>	Wireless Router Bridge	<b>MODEL</b>	RB-8110
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60Hz	<b>ENVIRONMENTAL CONDITIONS</b>	23deg. C, 65%RH, 1005 hPa
<b>TESTED BY:</b> Steven Lu			

<b>CHANNEL</b>	<b>CHANNEL FREQUENCY (MHz)</b>	<b>6dB BANDWIDTH (MHz)</b>	<b>MINIMUM LIMIT (MHz)</b>	<b>PASS/FAIL</b>
1	2412	11.16	0.5	PASS
6	2437	11.16	0.5	PASS
11	2462	11.16	0.5	PASS





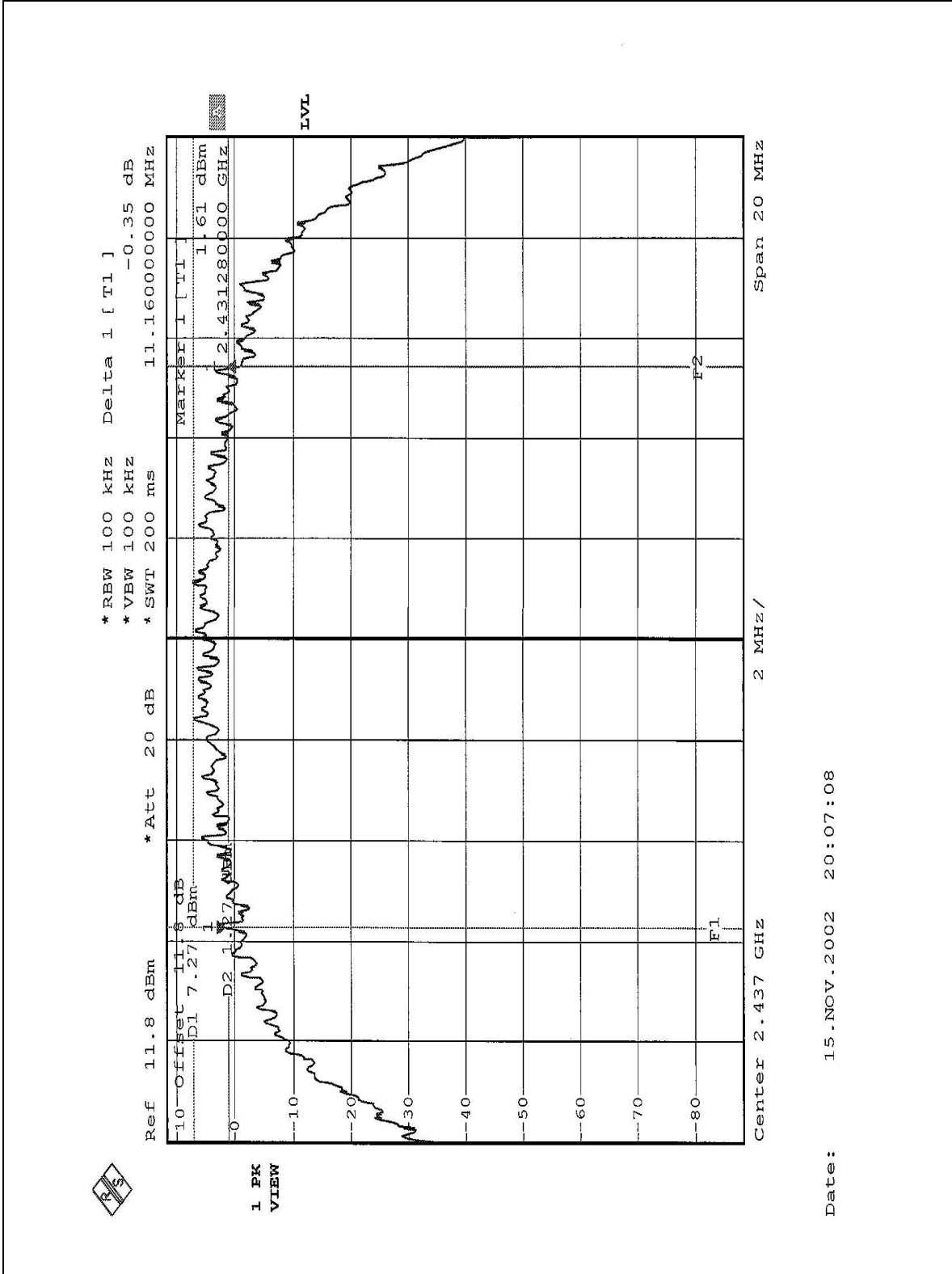
CH1



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CH6



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#### 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. 23, 2003
PEAK POWER SENSOR	NRV-Z32	100013	Feb. 23, 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.



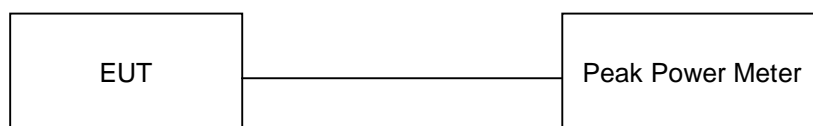
#### 4.4.3 TEST PROCEDURES

The transmitter output was connected to the peak power meter.

#### 4.4.4 DEVIATION FROM TEST STANDARD

No deviation

#### 4.4.5 TEST SETUP



#### 4.4.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6



## 4.4.7 TEST RESULTS

<b>EUT</b>	Wireless Router Bridge	<b>MODEL</b>	RB-8110
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60Hz	<b>ENVIRONMENTAL CONDITIONS</b>	23deg. C, 65%RH, 1005 hPa
<b>TESTED BY:</b> Steven Lu			

<b>CHANNEL</b>	<b>CHANNEL FREQUENCY (MHz)</b>	<b>PEAK POWER OUTPUT (dBm)</b>	<b>PEAK POWER LIMIT (dBm)</b>	<b>PASS/FAIL</b>
1	2412	18.56	28	PASS
6	2437	18.60	28	PASS
11	2462	18.60	28	PASS

**NOTE:** According to 15.247 (b) (3), the maximum antenna gain 12dBi is higher than 6dBi, so the limit of peak power shall be reduced by 2dB.



## 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 24, 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.



#### 4.5.3 TEST PROCEDURE

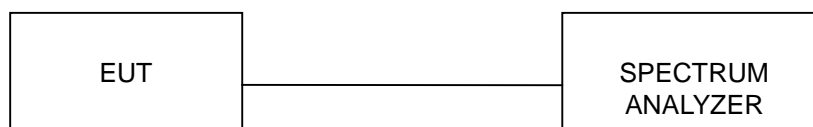
The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3 kHz RBW and 30 kHz VBW, set sweep time = span/3 kHz. The power spectral density was measured and recorded.

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 DEVIATION FROM TEST STANDARD

No deviation

#### 4.5.5 TEST SETUP



#### 4.5.6 EUT OPERATING CONDITION

Same as Item 4.3.6





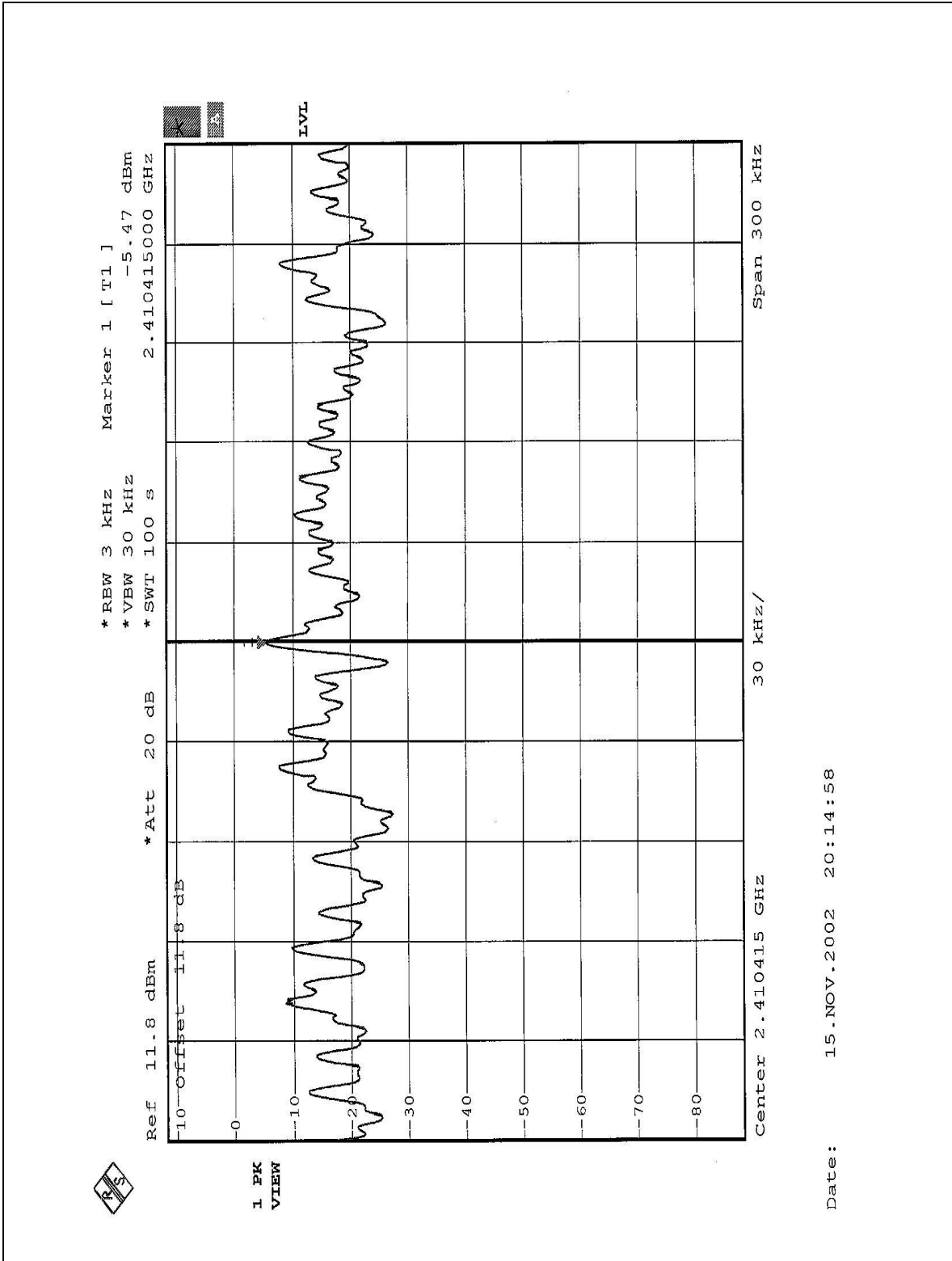
## 4.5.7 TEST RESULTS

<b>EUT</b>	Wireless Router Bridge	<b>MODEL</b>	RB-8110
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60Hz	<b>ENVIRONMENTAL CONDITIONS</b>	23deg. C, 65%RH, 1005 hPa
<b>TESTED BY:</b> Steven Lu			

<b>CHANNEL NUMBER</b>	<b>CHANNEL FREQUENCY (MHz )</b>	<b>RF POWER LEVEL IN 3 kHz BW (dBm)</b>	<b>MAXIMUM LIMIT (dBm)</b>	<b>PASS/FAIL</b>
1	2412	-5.47	8	PASS
6	2437	-5.56	8	PASS
11	2462	-7.33	8	PASS



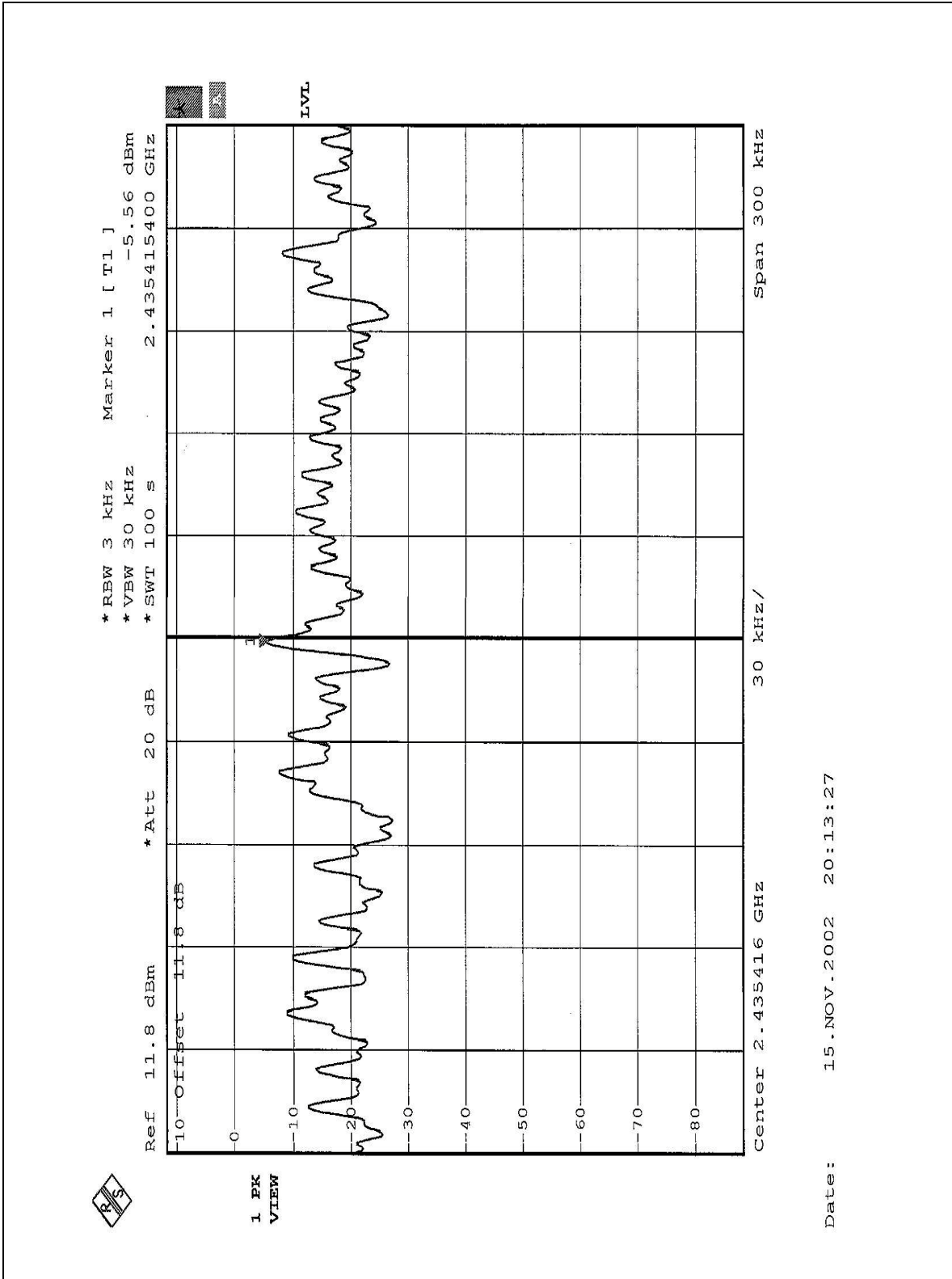
CH1



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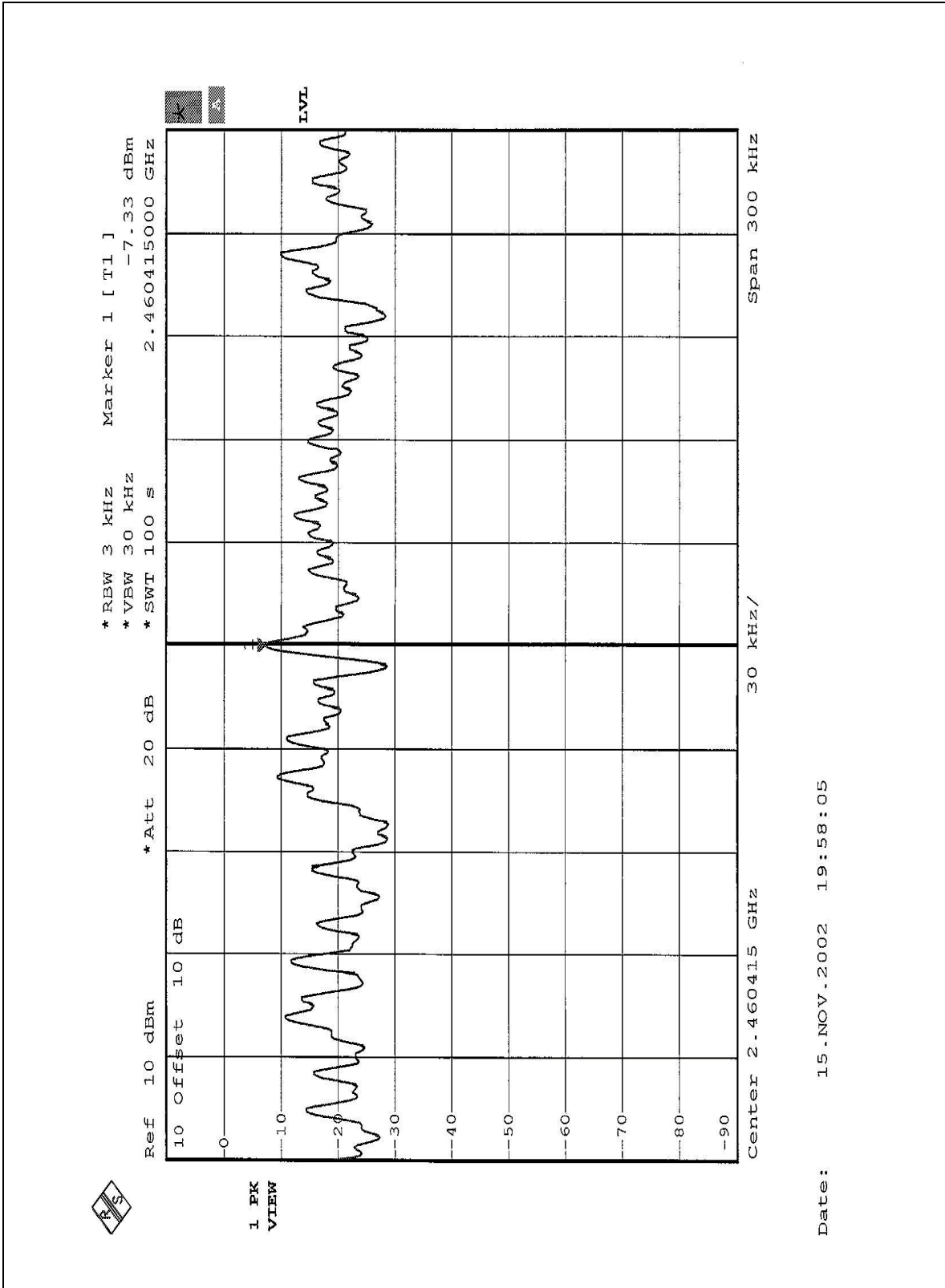
CH6



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CH11



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## 4.6 BAND EDGES MEASUREMENT

### 4.6.1 LIMITS OF BAND EDGES MEASUREMENT

Below  $-20\text{dB}$  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 24, 2003

**NOTE:**

1. The measurement uncertainty is less than  $\pm 2.6\text{dB}$ , 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 DEVIATION FROM TEST STANDARD

No deviation



#### 4.6.5 EUT OPERATING CONDITION

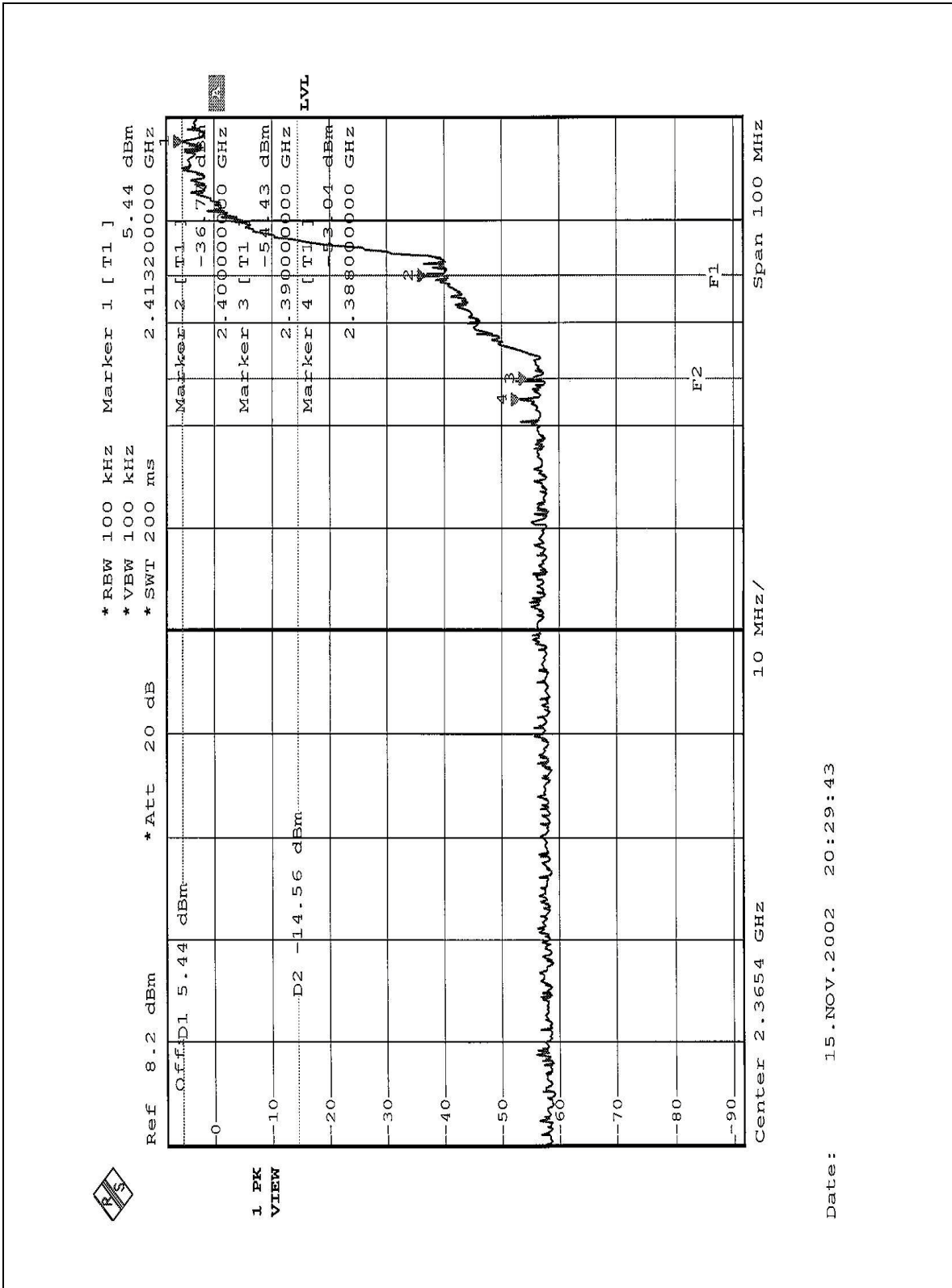
Same as Item 4.3.6

#### 4.6.6 TEST RESULTS

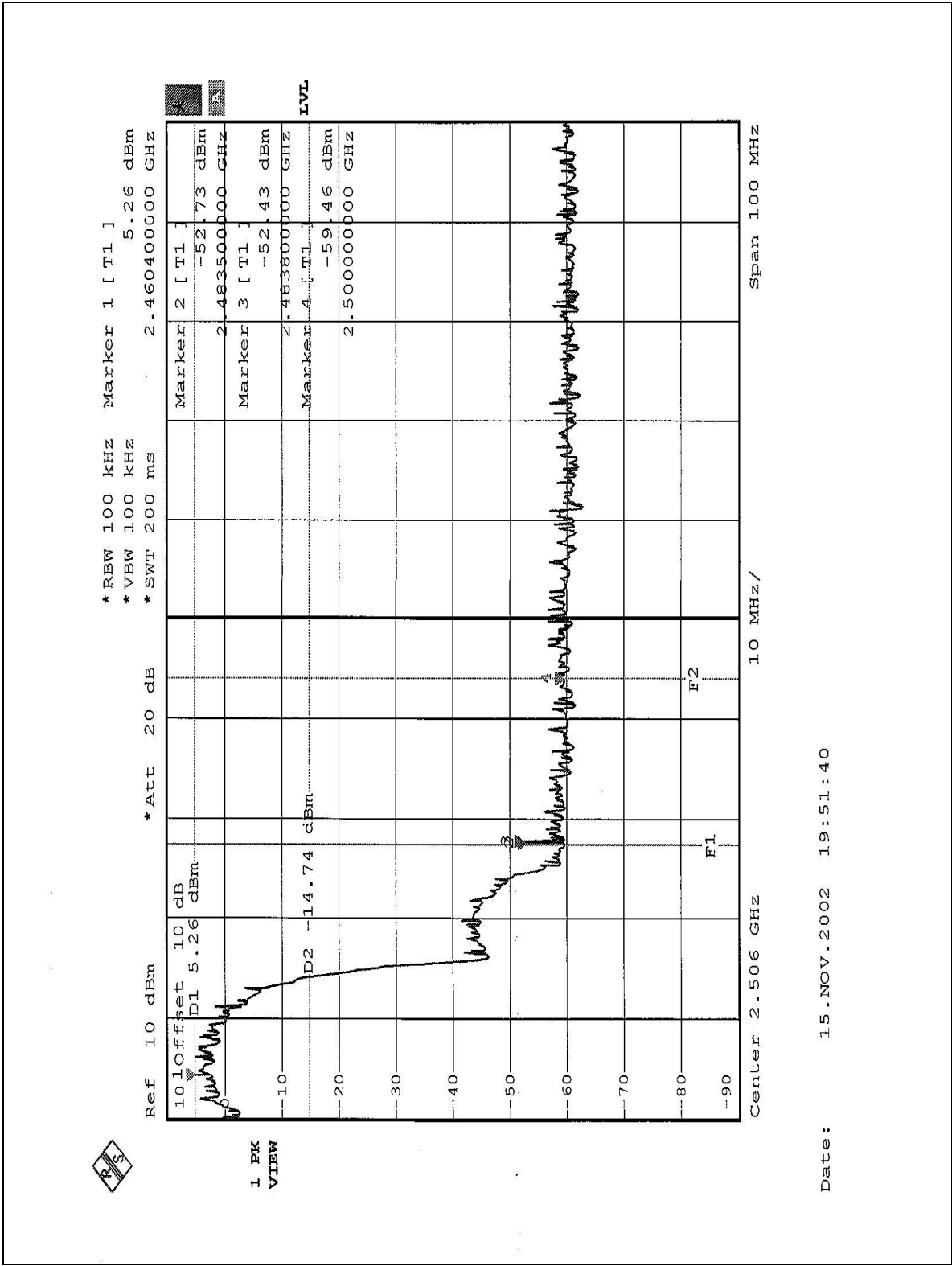
The spectrum plots are attached on the following 2 pages. D2 line indicates the highest level, D1 line indicates the 20dB offset below D2. It shows compliance with the requirement in part 15.247(C).

**NOTE1:** The band edge emission plot on the following first page shows 58.48dB delta between carrier maximum power and local maximum emission in restrict band (2.3880GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.8 (Page 27) is 109.1dBuV/m, so the maximum field strength in restrict band is  $109.1 - 58.48 = 50.62$ dBuV/m which is under 54dBuV/m limit.

**NOTE2:** The band edge emission plot on the following second page shows 57.69dB delta between carrier maximum power and local maximum emission in restrict band (2.4838GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 (Page 25) is 111.3dBuV/m, so the maximum field strength in restrict band is  $111.3 - 57.69 = 53.61$ dBuV/m which is under 54dBuV/m limit.



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## **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 Patch Antenna with Reversed N Type connector. The maximum Gain of the antenna is 12dBi.

## 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:

<b>USA</b>	FCC, NVLAP, UL
<b>Germany</b>	TUV Rheinland
<b>Japan</b>	VCCI
<b>New Zealand</b>	MoC
<b>Norway</b>	NEMKO
<b>R.O.C.</b>	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](http://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: 886-2-26052180

Fax: 886-2-26052943

**Hsin Chu EMC Lab:**

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Fax: 886-35-935342

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**Web Site:** [www.adt.com.tw](http://www.adt.com.tw)

The address and road map of all our labs can be found in our web site also.