



FCC TEST REPORT

REPORT NO.: RF901015R02

MODEL NO.: IWE1200A

RECEIVED: Oct. 15, 2001

TESTED: Oct. 18 ~ Oct. 24, 2001

APPLICANT: Interepoch Technology Inc.

ADDRESS: 7F, No. 3, Alley 6, Lane 235, Pao Chiao Rd.,
Hsin-Tien City, Taipei Hsien, Taiwan, R.O.C.

ISSUED BY: Advance Data Technology Corporation

LAB LOCATION: 47 14th Ling, Chia Pau Tsuen, Linkou Hsiang,
Taipei, Taiwan, R.O.C.

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0528
ILAC MRA



Lab Code: 200102-0



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1 CERTIFICATION

PRODUCT : Wireless Broadband Router
BRAND NAME : INTEREPOCH
MODEL NO. : IWE1200A
APPLICANT : Interepoch 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 Oct. 18, 2001 to Oct. 24, 2001. 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: Oct. 30, 2001
Gary Chang

PREPARED BY: Anna Kuo, DATE: Oct. 30, 2001
Anna Kuo

APPROVED BY: Alan Lane, DATE: Oct. 30, 2001
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
15.107	AC Power Conducted Emission Limit: 48dBuV	PASS	Meet the requirement of limit Minimum passing margin is -14.24dBuV at 13.188MHz
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 -2.20dBuV at 4075.00MHz
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 Broadband Router
MODEL NO.	IWE1200A
POWER SUPPLY	5VDC from AC adapter
MODULATION TYPE	DSSS
RADIO TECHNOLOGY	BPSK/QPSK/CCK
TRANSFER RATE	1/2/5.5/11Mbps
FREQUENCY RANGE	2412MHz ~ 2462MHz
NUMBER OF CHANNEL	11
OUTPUT POWER	<20dBm
ANTENNA TYPE	Dipole antenna
POWER CABLE	NA
I/O PORTS	WAN, RJ45, Serial, Parallel Port
ASSOCIATED DEVICES	NA

NOTE:

1.The EUT is operated with the power adapter as follows:

Brand Name:	INTEREPOCH
Model No. :	MA15-050
Input Power :	100-240V, 1.0A, 47-63Hz
Output Power :	DC 5V, 2.5A

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

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a Wireless Broadband 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	19" COLOR MONITOR	HP	D2842A	KR93473168	BEJCB910
3	PS/2 KEYBOARD	FORWARD	FDA-104GA	FDKB8110111	F4ZDA-104G
4	USB MOUSE	DEXIN	A2U800A	71001836	NIYA2U800A
5	PRINTER	HP	2225C+	3123S97230	DSI6XU2225
6	MODEM	ACEEX	1414	980020503	IFAXDM1414
7	Notebook	Dell	INSPIRON 5000E	DS/N TW-012JXN-12961-0B9-2192	FCC DoC Approved
8	10/100 LAN PC CARD	3COM	3CCFE575CT-D	6ZE1316B4E	FCC DoC Approved

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA
2	1.8 m braid shielded wire, terminated with VGA connector via metallic frame, w/o core.
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 USB 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	ESHS30	828109/007	July 4, 2002
*ROHDE & SCHWARZ Artificial Mains Network (for EUT)	ESH3-Z5	839135/006	July 3, 2002
ROHDE & SCHWARZ 4-wire ISN	ENY41	837032/016	Nov. 28, 2001
ROHDE & SCHWARZ 2-wire ISN	ENY22	837497/016	Dec. 3, 2001
*EMCO-L.I.S.N. (for peripheral)	3825/2	9204-1964	July 3, 2002
*Software	Cond-V2J	NA	NA
*RF cable (JYEBao)	RG-58A/U	Cable-C02.01	July 9, 2002
HP Terminator (For EMCO LISN)	11593A	E1-01-298	Feb. 20, 2002
HP Terminator (For EMCO LISN)	11593A	E1-01-299	Feb. 20, 2002
Shielded Room	Site 2	ADT-C02	NA
VCCI Site Registration No.	Site 2	C-240	NA

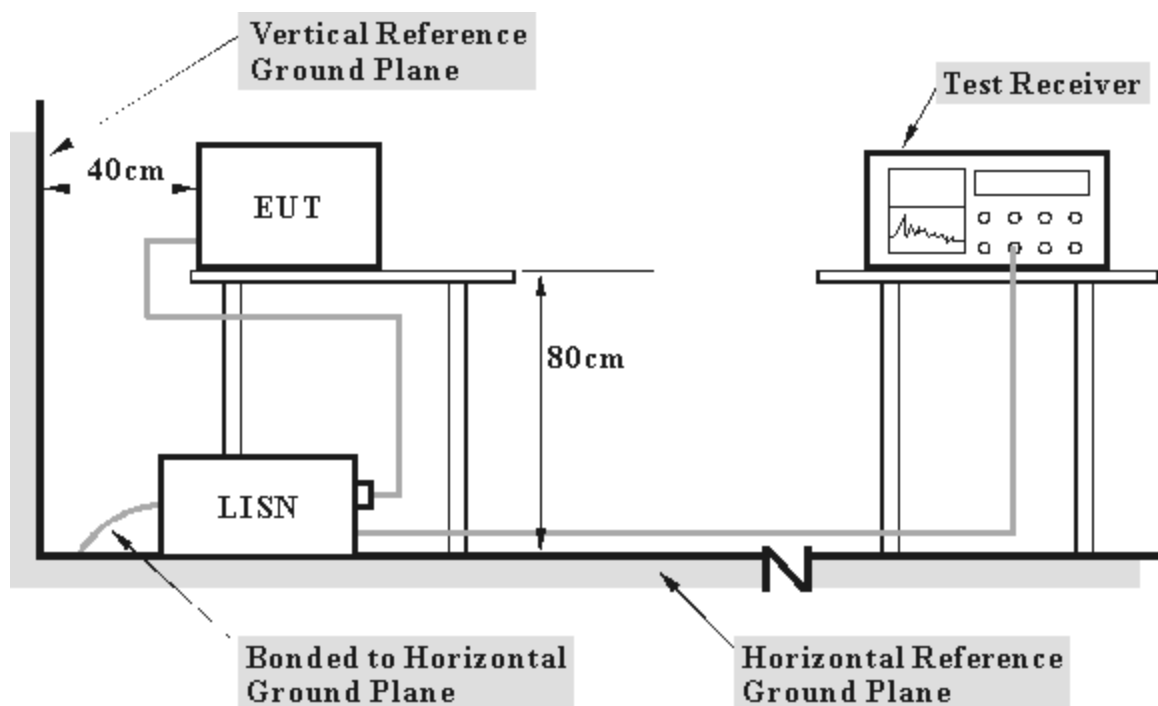
NOTE:

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 equipments are used for the final measurement.

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

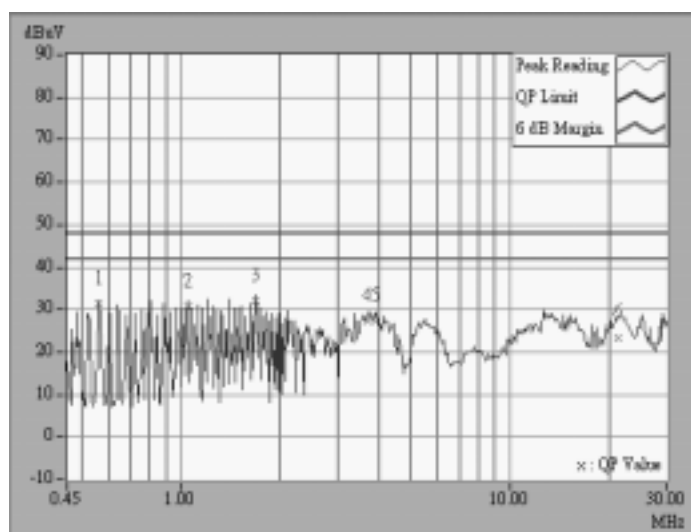
- a. Placed the EUT (with a computer system) on the testing table.
- b. The computer system sent data to EUT by command "PIN" via an RJ 45 cable.
- c. The computer system sent "H" messages to Color Monitor and Monitor displayed "H" patterns on its screen.
- d. The computer system sent "H" messages to modem.
- e. The computer system sent "H" messages to printer, and the printer prints them on paper.
- f. Prepared another computer system to act as a communication partner and placed it outside of testing area.
- g. The communication partner run a test program to enable EUT under transmission/receiving condition continuously at specific channel frequency via an RJ 45 cable.
- h. The communication partner sent data to EUT by command "PIN".

4.1.6 TEST RESULTS

EUT	Wireless Broadband Router	MODEL	IWE1200A
MODE	Channel 1	6dB BANDWIDTH	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 1005 hPa	TESTED BY: Gary Chang	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.562	0.10	31.54	-	31.64	-	48.00	-	-16.36	-
2	1.045	0.10	30.89	-	30.99	-	48.00	-	-17.01	-
3	1.688	0.10	32.22	-	32.32	-	48.00	-	-15.68	-
4	3.697	0.27	27.45	-	27.72	-	48.00	-	-20.28	-
5	3.940	0.29	27.33	-	27.62	-	48.00	-	-20.38	-
6	21.381	1.03	23.33	-	24.36	-	48.00	-	-23.64	-

- REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.





EUT	Wireless Broadband Router	MODEL	IWE1200A
MODE	Channel 1	6dB BANDWIDTH	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 1005 hPa	TESTED BY: Gary Chang	

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.481	0.10	28.33	-	28.43	-	48.00	-	-19.57	-
2	0.645	0.10	27.53	-	27.63	-	48.00	-	-20.37	-
3	1.728	0.10	28.93	-	29.03	-	48.00	-	-18.97	-
4	4.140	0.30	23.18	-	23.48	-	48.00	-	-24.52	-
5	13.188	0.53	33.23	-	33.76	-	48.00	-	-14.24	-
6	22.109	0.84	24.60	-	25.44	-	48.00	-	-22.56	-

REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.

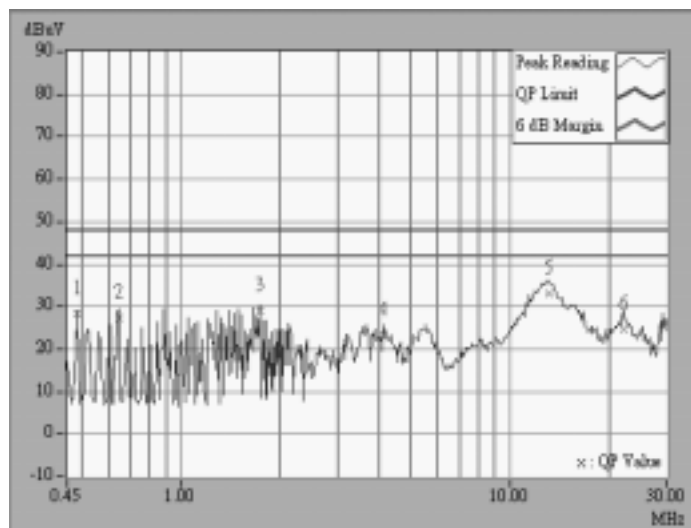
2."-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.

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

4.Margin value = Emission level - Limit value

5.Correction factor = Insertion loss + Cable loss

6.Emission Level = Correction Factor + Reading Value.





EUT	Wireless Broadband Router	MODEL	IWE1200A
MODE	Channel 6	6dB BANDWIDTH	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 1005 hPa	TESTED BY: Gary Chang	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.562	0.10	31.52	-	31.62	-	48.00	-	-16.38	-
2	1.044	0.10	30.97	-	31.07	-	48.00	-	-16.93	-
3	3.818	0.28	28.23	-	28.51	-	48.00	-	-19.49	-
4	5.469	0.35	25.51	-	25.86	-	48.00	-	-22.14	-
5	15.513	0.82	24.17	-	24.99	-	48.00	-	-23.01	-
6	25.227	1.10	28.84	-	29.94	-	48.00	-	-18.06	-

REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.

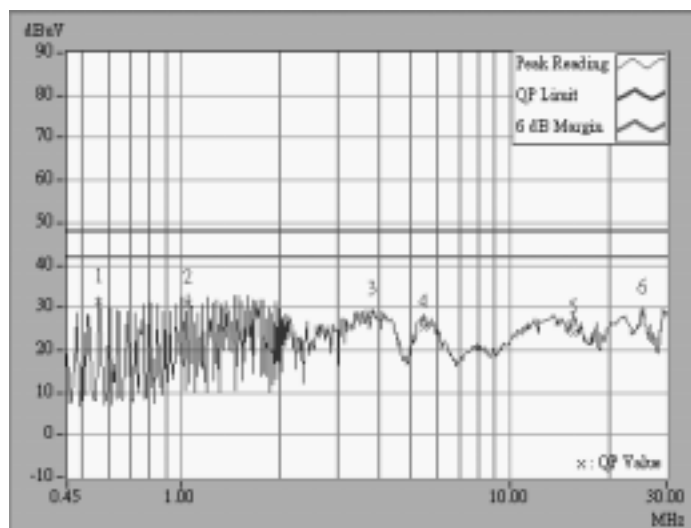
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.

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

4. Margin value = Emission level - Limit value

5. Correction factor = Insertion loss + Cable loss

6. Emission Level = Correction Factor + Reading Value.

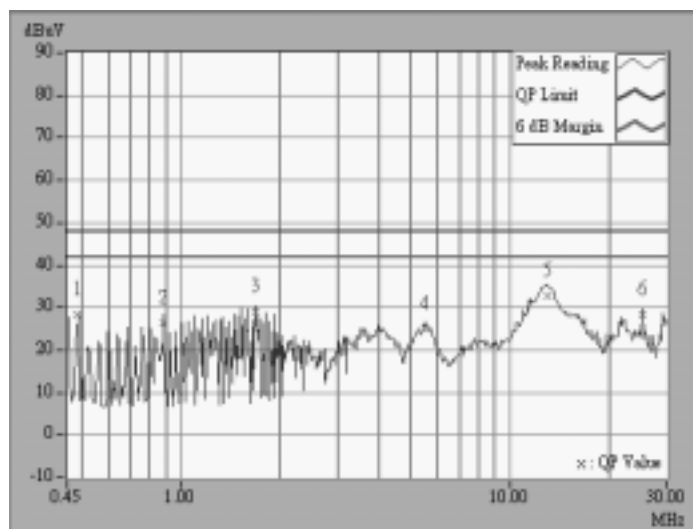




EUT	Wireless Broadband Router	MODEL	IWE1200A
MODE	Channel 6	6dB BANDWIDTH	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	26 deg. C, 60%RH, 1005 hPa	TESTED BY: Gary Chang	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.481	0.10	28.31	-	28.41	-	48.00	-	-19.59	-
2	0.882	0.10	26.23	-	26.33	-	48.00	-	-21.67	-
3	1.688	0.10	29.07	-	29.17	-	48.00	-	-18.83	-
4	5.506	0.33	25.04	-	25.37	-	48.00	-	-22.63	-
5	13.057	0.52	32.71	-	33.23	-	48.00	-	-14.77	-
6	25.227	0.90	28.38	-	29.28	-	48.00	-	-18.72	-

- REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.

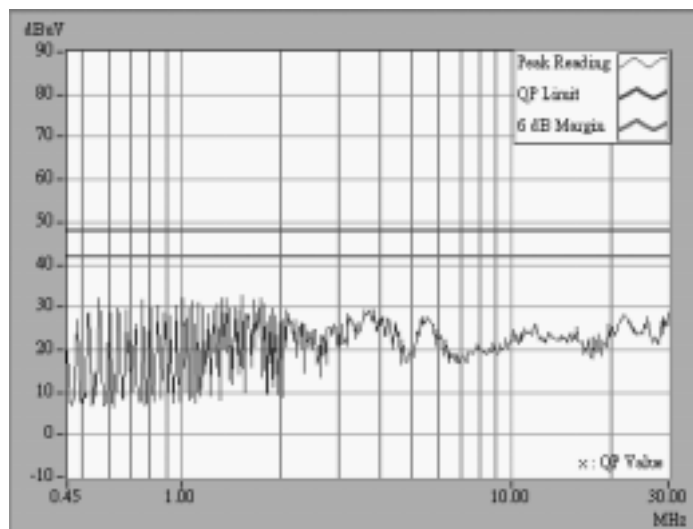




EUT	Wireless Broadband Router	MODEL	IWE1200A
MODE	Channel 11	6dB BANDWIDTH	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 1005 hPa	TESTED BY: Gary Chang	

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.563	0.10	31.00	-	31.10	-	48.00	-	-16.90	-
2	0.763	0.10	31.02	-	31.12	-	48.00	-	-16.88	-
3	1.527	0.10	30.91	-	31.01	-	48.00	-	-16.99	-
4	3.856	0.29	27.06	-	27.35	-	48.00	-	-20.65	-
5	15.704	0.83	21.24	-	22.07	-	48.00	-	-25.93	-
6	22.050	1.04	23.97	-	25.01	-	48.00	-	-22.99	-

- REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individual ly.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.

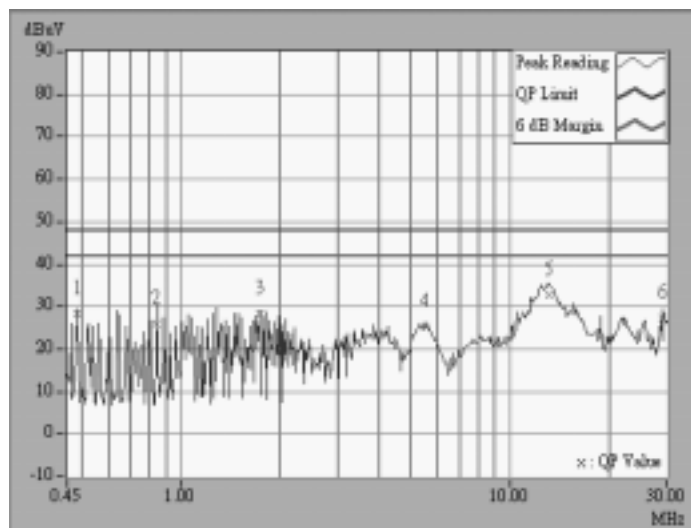




EUT	Wireless Broadband Router	MODEL	IWE1200A
MODE	Channel 11	6dB BANDWIDTH	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	26 deg. C, 60%RH, 1005 hPa	TESTED BY: Gary Chang	

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.482	0.10	28.23	-	28.33	-	48.00	-	-19.67	-
2	0.842	0.10	26.04	-	26.14	-	48.00	-	-21.86	-
3	1.729	0.10	28.34	-	28.44	-	48.00	-	-19.56	-
4	5.503	0.33	25.19	-	25.52	-	48.00	-	-22.48	-
5	13.097	0.52	32.87	-	33.39	-	48.00	-	-14.61	-
6	29.235	0.98	27.26	-	28.24	-	48.00	-	-19.76	-

- REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
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	Nov. 3, 2001
* HP Preamplifier	8449B	3008A01201	Dec. 13, 2001
* HP Preamplifier	8449B	3008A01292	Aug. 21, 2002
* ROHDE & SCHWARZ TEST RECEIVER	ESMI	839013/007 839379/002	Jan. 25, 2002
SCHWARZBECK Tunable Dipole Antenna	VHA 9103 UHA 9105	E101051 E101055	Nov. 23, 2001
* 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
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 VCCI : R-1039 Canada IC: IC 3789-5		

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.



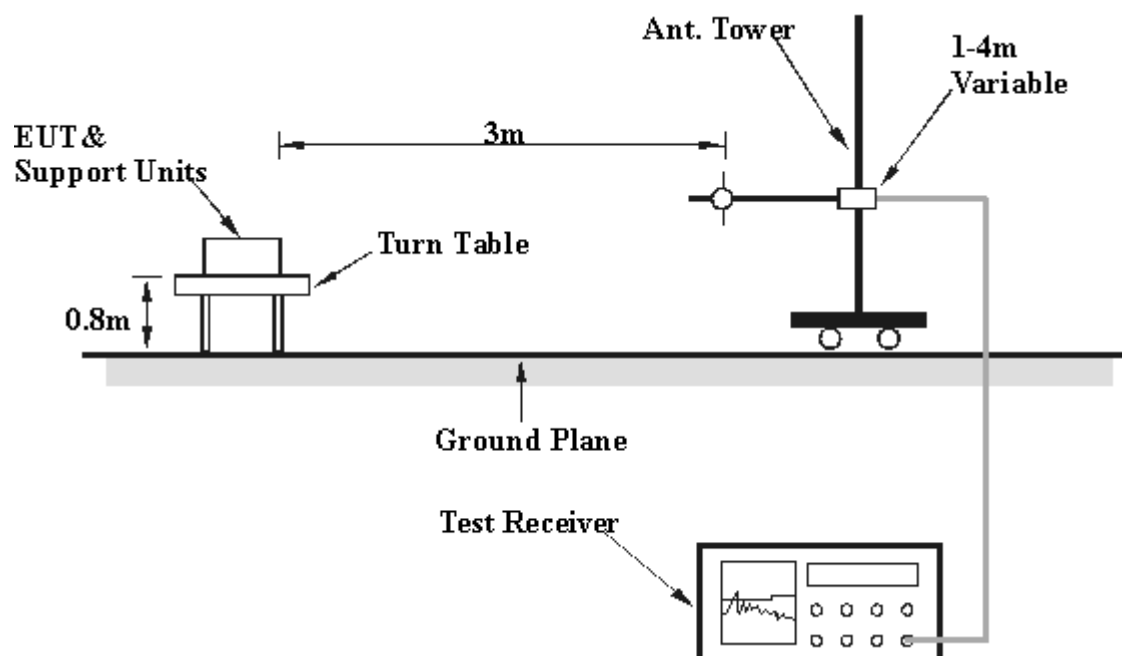
4.2.3 TEST PROCEDURES

- 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 Broadband Router	MODEL	IWE1200A
MODE	Channel 11	FREQUENCY RANGE	30-1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25 deg. C, 50%RH, 1005 hPa	TESTED BY: Gary Chang	

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M											
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB)
1	132.00	30.3 QP	43.50	-13.20	1.01H	248	18.00	11.16	1.13	0.00	-12.29
2	150.00	31.5 QP	43.50	-12.00	1.76H	9	20.00	10.30	1.20	0.00	-11.51
3	200.00	32.4 QP	43.50	-11.10	2.00H	56	22.00	8.98	1.42	0.00	-10.40
4	250.00	33.7 QP	46.00	-12.30	2.26H	135	20.00	12.02	1.66	0.00	-13.69
5	375.00	36.3 QP	46.00	-9.70	1.73H	273	19.00	15.13	2.14	0.00	-17.28
6	400.00	35.3 QP	46.00	-10.70	1.16H	204	17.00	16.11	2.24	0.00	-18.35
7	440.50	33.9 QP	46.00	-12.10	1.02H	197	15.20	16.32	2.38	0.00	-18.69
8	450.00	34.8 QP	46.00	-11.20	1.12H	89	16.00	16.37	2.41	0.00	-18.79
9	500.00	42.8 QP	46.00	-3.20	1.77H	7	23.00	17.26	2.50	0.00	-19.77
10	528.00	34.2 QP	46.00	-11.80	1.01H	310	14.00	17.62	2.60	0.00	-20.22
11	600.00	36.4 QP	46.00	-9.60	1.40H	313	15.00	18.61	2.83	0.00	-21.44
12	625.00	42.8 QP	46.00	-3.20	2.16H	349	21.00	18.91	2.92	0.00	-21.83
13	650.00	36.8 QP	46.00	-9.20	1.42H	36	14.50	19.23	3.02	0.00	-22.25
14	748.50	36.4 QP	46.00	-9.60	1.58H	80	13.00	20.14	3.26	0.00	-23.40
15	750.00	40.4 QP	46.00	-5.60	1.90H	356	17.00	20.18	3.26	0.00	-23.44
16	850.00	40.0 QP	46.00	-6.00	1.87H	7	16.00	20.48	3.50	0.00	-23.98
17	875.00	39.2 QP	46.00	-6.80	1.16H	353	15.00	20.63	3.54	0.00	-24.17
18	950.00	36.0 QP	46.00	-10.00	1.03H	355	11.00	21.20	3.79	0.00	-24.99

- REMARKS:
1. Emission level(dBuV/m)=Raw Value(dBuV) – Correction Factor(dB)
 2. Correction Factor(dB) = Pre-Amplifier Factor (dB) - Antenna Factor (dB) - Cable Factor (dB)
 3. Pre-Amplifier Factor (dB) = 0, when the test receiver is used to read the value and because it did not use the Pre-Amplifier.
 4. The other emission levels were very low against the limit.
 5. Margin value = Emission level – Limit value.



EUT	Wireless Broadband Router	MODEL	IWE1200A
MODE	Channel 11	FREQUENCY RANGE	30-1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25 deg. C, 50%RH, 1005 hPa	TESTED BY: Gary Chang	

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M											
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB)
1	150.00	29.9 QP	43.50	-13.60	1.48V	9	18.40	10.30	1.20	0.00	-11.51
2	200.00	35.4 QP	43.50	-8.10	1.40V	20	25.00	8.98	1.42	0.00	-10.40
3	250.00	37.7 QP	46.00	-8.30	2.10V	354	24.00	12.02	1.66	0.00	-13.69
4	264.00	32.6 QP	46.00	-13.40	1.03V	6	18.00	12.89	1.70	0.00	-14.59
5	375.00	34.3 QP	46.00	-11.70	1.10V	39	17.00	15.13	2.14	0.00	-17.27
6	475.00	34.3 QP	46.00	-11.70	1.40V	50	15.00	16.83	2.46	0.00	-19.29
7	500.00	39.8 QP	46.00	-6.20	2.04V	271	20.00	17.26	2.50	0.00	-19.76
8	528.00	34.4 QP	46.00	-11.60	1.29V	302	14.20	17.62	2.60	0.00	-20.22
9	528.00	33.2 QP	46.00	-12.80	1.29V	5	13.00	17.62	2.60	0.00	-20.22
10	550.00	36.3 QP	46.00	-9.70	1.26V	295	15.70	17.93	2.68	0.00	-20.60
11	600.00	38.4 QP	46.00	-7.60	1.65V	335	17.00	18.61	2.83	0.00	-21.44
12	625.00	40.8 QP	46.00	-5.20	1.72V	352	19.00	18.91	2.92	0.00	-21.83
13	748.50	34.4 QP	46.00	-11.60	1.78V	356	11.00	20.14	3.26	0.00	-23.40
14	750.00	43.6 QP	46.00	-2.40	2.10V	313	20.20	20.18	3.26	0.00	-23.44
15	800.00	39.4 QP	46.00	-6.60	1.64V	354	15.40	20.69	3.32	0.00	-24.01
16	850.00	38.5 QP	46.00	-7.50	1.36V	65	14.50	20.48	3.50	0.00	-23.98
17	875.00	36.2 QP	46.00	-9.80	1.31V	96	12.00	20.63	3.54	0.00	-24.17

- REMARKS:
1. Emission level(dBuV/m)=Raw Value(dBuV) – Correction Factor(dB)
 2. Correction Factor(dB) = Pre-Amplifier Factor (dB) - Antenna Factor (dB) - Cable Factor (dB)
 3. Pre-Amplifier Factor (dB) = 0, when the test receiver is used to read the value and because it did not use the Pre-Amplifier.
 4. The other emission levels were very low against the limit.
 5. Margin value = Emission level – Limit value.



EUT	Wireless Broadband Router	MODEL	IWE1200A
MODE	Channel 1	FREQUENCY RANGE	Above 1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26 deg. C, 60%RH, 1005 hPa	TESTED BY: Gary Chang	

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB)
1	2038.00	47.1 pk	74.00	-26.90	1.39H	115	51.93	25.20	4.86	34.90	4.84
*2	2412.00	101.7 pk	-	-	1.74H	208	69.48	27.11	5.10	0.00	-32.21
*3	2412.00	93.2 Av	-	-	1.74H	208	61.00	27.11	5.10	0.00	-32.21
4	4075.80	51.4 pk	74.00	-22.60	1.33H	176	49.00	30.13	6.78	34.52	-2.39
5	4824.00	50.2 pk	74.00	-23.80	1.25H	229	46.20	31.43	7.23	34.63	-4.02

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB)
1	2038.00	49.2 pk	74.00	-24.28	1.23V	281	54.00	25.20	4.86	34.90	4.84
*2	2412.00	107.7 pk	-	-	1.09V	244	75.45	27.11	5.10	0.00	-32.21
*3	2412.00	100.2 Av	-	-	1.09V	244	68.00	27.11	5.10	0.00	-32.21
4	4075.00	52.9 pk	74.00	-21.10	1.16V	314	50.53	30.13	6.78	34.52	-2.39
5	4824.00	51.0 pk	74.00	-23.00	1.04V	276	47.00	31.43	7.23	34.63	-4.02

- REMARKS:
1. Emission level(dBuV/m)=Raw Value(dBuV) – Correction Factor(dB)
 2. Correction Factor(dB) = Pre-Amplifier Factor (dB) - Antenna Factor (dB) - Cable Factor (dB)
 3. Pre-Amplifier Factor (dB) = 0, when the test receiver is used to read the value and because it did not use the Pre-Amplifier.
 4. The other emission levels were very low against the limit.
 5. Margin value = Emission level – Limit value.
 6. “*” = Fundamental frequency



EUT	Wireless Broadband Router	MODEL	IWE1200A
MODE	Channel 6	FREQUENCY RANGE	Above 1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 70%RH, 1005 hPa	TESTED BY: Gary Chang	

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M											
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB)
1	2063.00	47.3 pk	74.00	-26.70	1.02H	309	51.80	25.41	4.96	34.90	4.53
*2	2437.00	91.4 Av	-	-	1.16H	226	59.00	27.33	5.08	0.00	-32.40
*3	2437.00	100.9 pk	-	-	1.16H	226	68.50	27.33	5.08	0.00	-32.40
4	4125.00	52.6 pk	74.00	-21.40	1.08H	255	50.10	30.32	6.70	34.56	-2.46
5	4874.00	49.8 pk	74.00	-24.20	1.21H	307	45.70	31.47	7.21	34.63	-4.05

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M											
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB)
1	2063.00	49.9 pk	74.00	-24.10	1.17V	289	54.42	25.41	4.96	34.90	4.53
*2	2437.00	107.4 pk	-	-	1.05V	149	75.00	27.33	5.08	0.00	-32.40
*3	2437.00	100.4 Av	-	-	1.05V	149	68.00	27.33	5.08	0.00	-32.40
4	4125.00	52.6 pk	74.00	-21.40	1.08V	207	50.10	30.32	6.70	34.56	-2.46
5	4874.00	50.3 pk	74.00	-23.70	1.12V	152	46.20	31.47	7.21	34.63	-4.05

- REMARKS:
1. Emission level(dBuV/m)=Raw Value(dBuV) – Correction Factor(dB)
 2. Correction Factor(dB) = Pre-Amplifier Factor (dB) - Antenna Factor (dB) - Cable Factor (dB)
 3. Pre-Amplifier Factor (dB) = 0, when the test receiver is used to read the value and because it did not use the Pre-Amplifier.
 4. The other emission levels were very low against the limit.
 5. Margin value = Emission level – Limit value.
 6. “*” = Fundamental frequency



EUT	Wireless Broadband Router	MODEL	IWE1200A
MODE	Channel 11	FREQUENCY RANGE	Above 1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 70%RH, 1005 hPa	TESTED BY: Gary Chang	

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M											
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB)
1	2088.00	48.7 pk	74.00	-25.30	1.28H	171	53.00	25.62	5.02	34.90	4.26
*2	2463.00	101.4 pk	-	-	1.20H	173	69.00	27.33	5.08	0.00	-32.41
*3	2463.00	93.4 Av	-	-	1.20H	173	61.00	27.33	5.08	0.00	-32.41
4	2483.50	48.7 pk	74.00	-25.30	1.13H	209	51.00	27.54	5.06	34.90	2.31
5	4176.00	50.5 pk	74.00	-23.50	1.21H	212	48.00	30.41	6.68	34.58	-2.51
6	4924.00	51.1 pk	74.00	-22.90	1.18H	257	47.00	31.51	7.21	34.62	-4.10

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M											
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB)
1	2088.00	51.7 pk	74.00	-22.30	1.08V	239	56.00	25.62	5.02	34.90	4.26
*2	2463.00	100.5 Av	-	-	1.13V	132	68.10	27.33	5.08	0.00	-32.41
*3	2463.00	109.2 pk	-	-	1.13V	132	76.80	27.33	5.08	0.00	-32.41
4	2483.50	49.7 pk	74.00	-24.30	1.04V	268	52.00	27.54	5.06	34.90	2.31
5	4175.00	55.1 pk	74.00	-18.90	1.08V	105	52.62	30.41	6.68	34.58	-2.51
6	4175.00	51.8 Av	54.00	-2.20	1.08V	105	49.26	30.41	6.68	34.58	-2.51
7	4924.00	50.1 pk	74.00	-23.90	1.13V	164	46.00	31.51	7.21	34.62	-4.10

- REMARKS:
1. Emission level(dBuV/m)=Raw Value(dBuV) – Correction Factor(dB)
 2. Correction Factor(dB) = Pre-Amplifier Factor (dB) - Antenna Factor (dB) - Cable Factor (dB)
 3. Pre-Amplifier Factor (dB) = 0, when the test receiver is used to read the value and because it did not use the Pre-Amplifier.
 4. The other emission levels were very low against the limit.
 5. Margin value = Emission level – Limit value.
 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

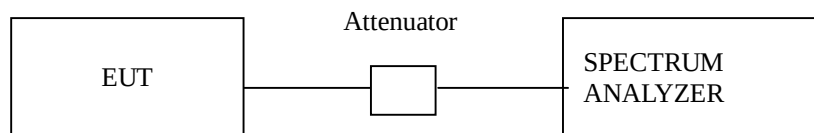
Notes:

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.

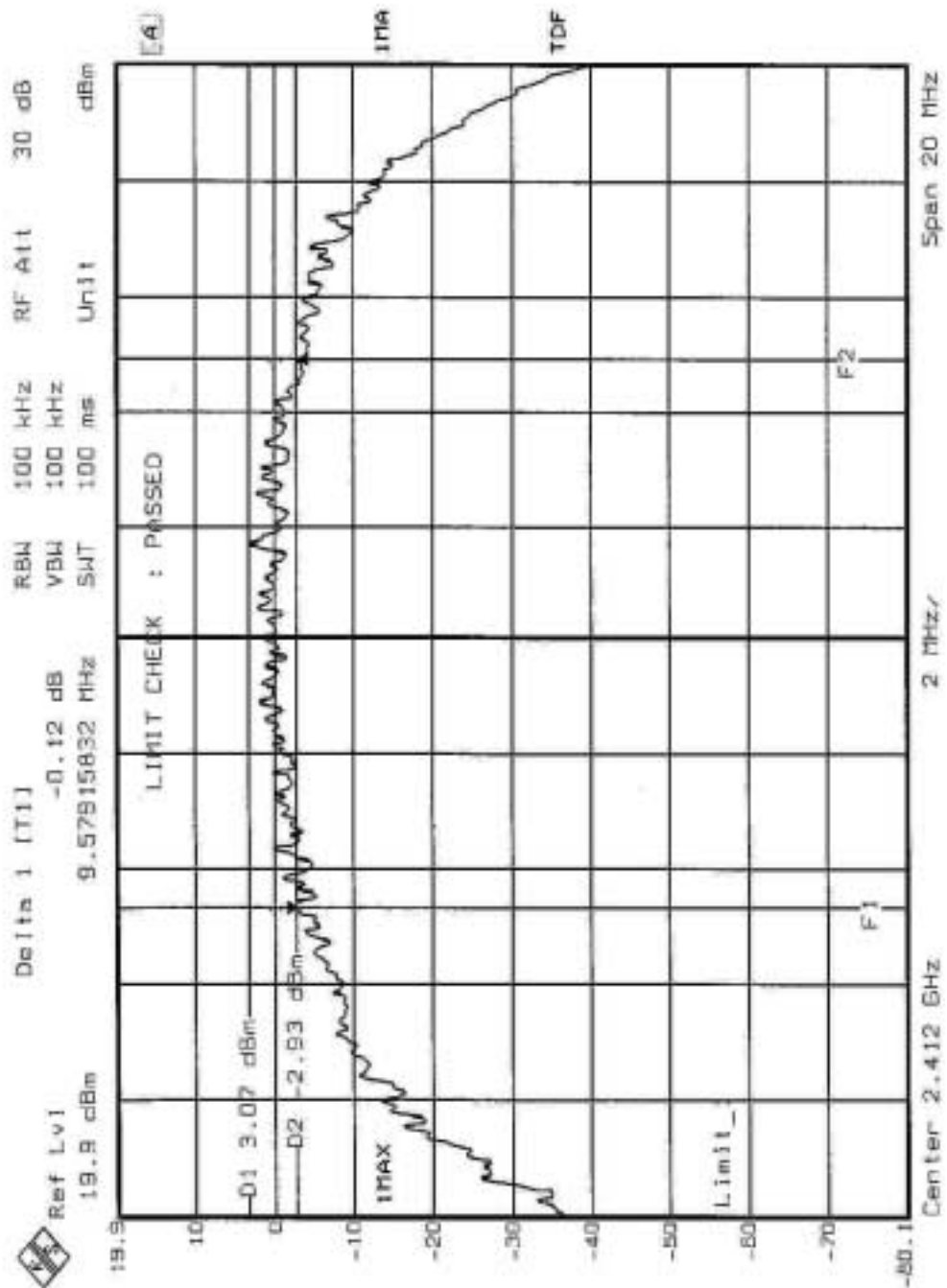


4.3.6 TEST RESULTS

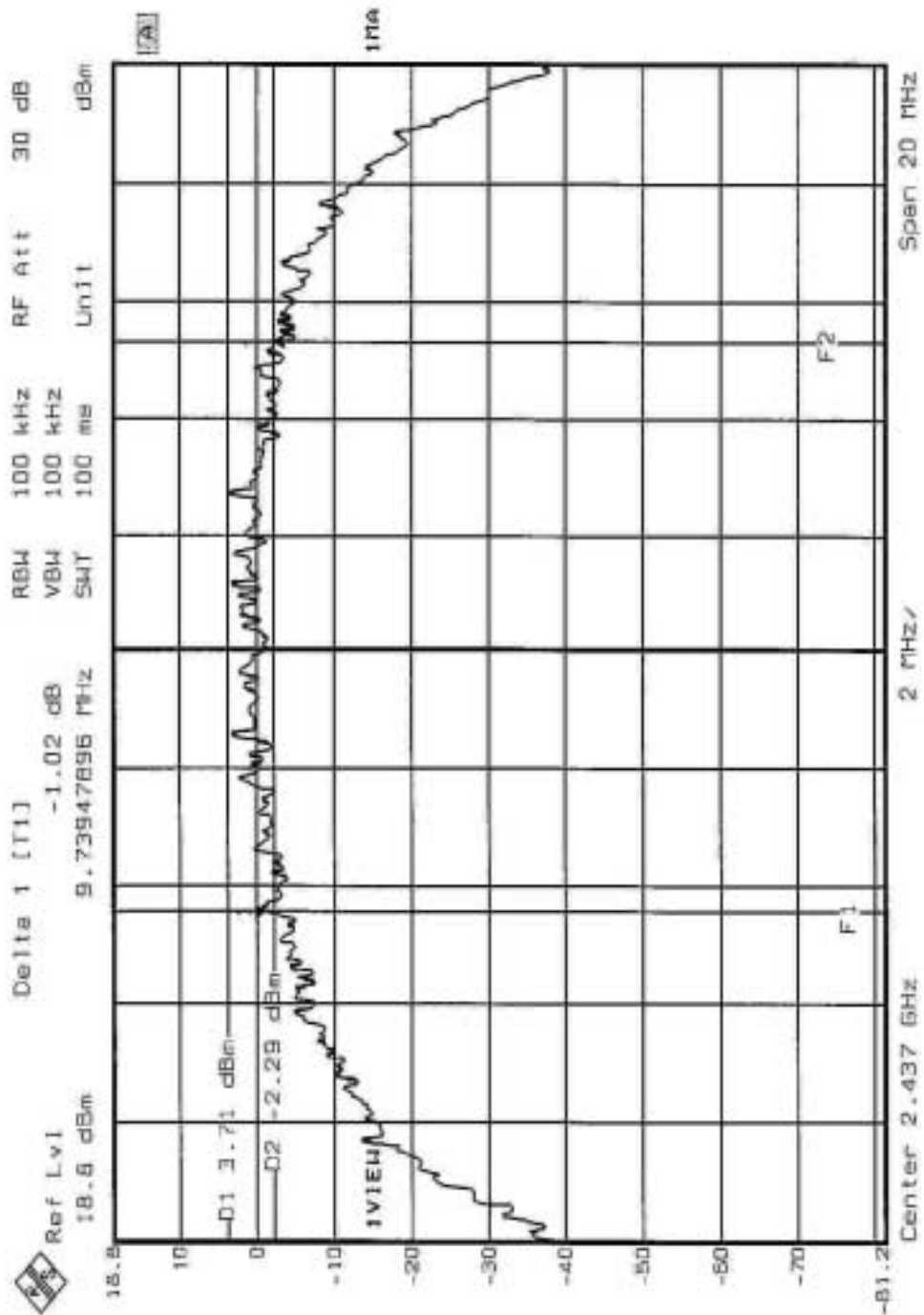
EUT	Wireless Broadband Router	MODEL	IWE1200A
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25 deg. C, 70%RH, 1005 hPa
TESTED BY: Gary Chang			

CHANNEL	CHANNEL FREQUENCY (MHz)	6 dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	9.58	0.5	PASS
6	2437	9.74	0.5	PASS
11	2462	10.98	0.5	PASS

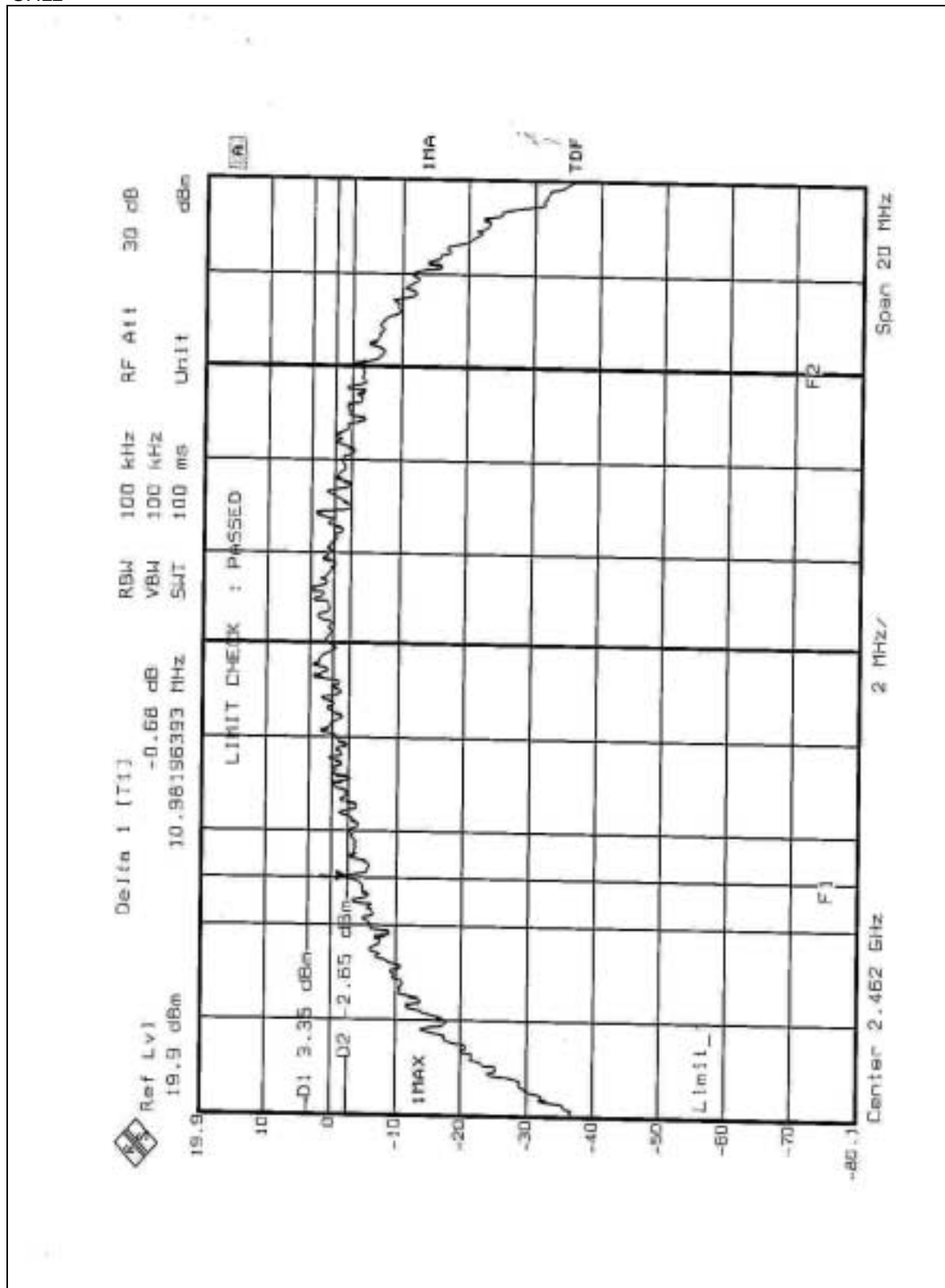
CH1



CH6



CH11





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
SPECTRUM ANALYZER	FSEK30	100049	July 17, 2002

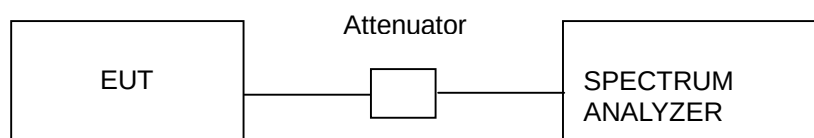
- NOTE:**1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.4.3 TEST PROCEDURES

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

NOTE: This measurement is the total power of 12MHz bandwidth which is far more wider than 6dB bandwidth.

4.4.4 TEST SETUP



4.4.5 EUT OPERATING CONDITIONS

Same as Item 3.4.5



4.4.6 TEST RESULTS

EUT	Wireless Broadband Router	MODEL	IWE1200A
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25 deg. C, 70%RH, 1005 hPa
TESTED BY: Gary Chang			

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	18.12	30	PASS
6	2437	18.04	30	PASS
11	2462	18.16	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

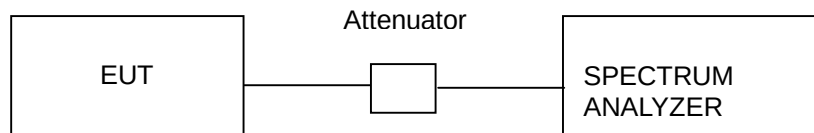
- NOTE:**1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

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

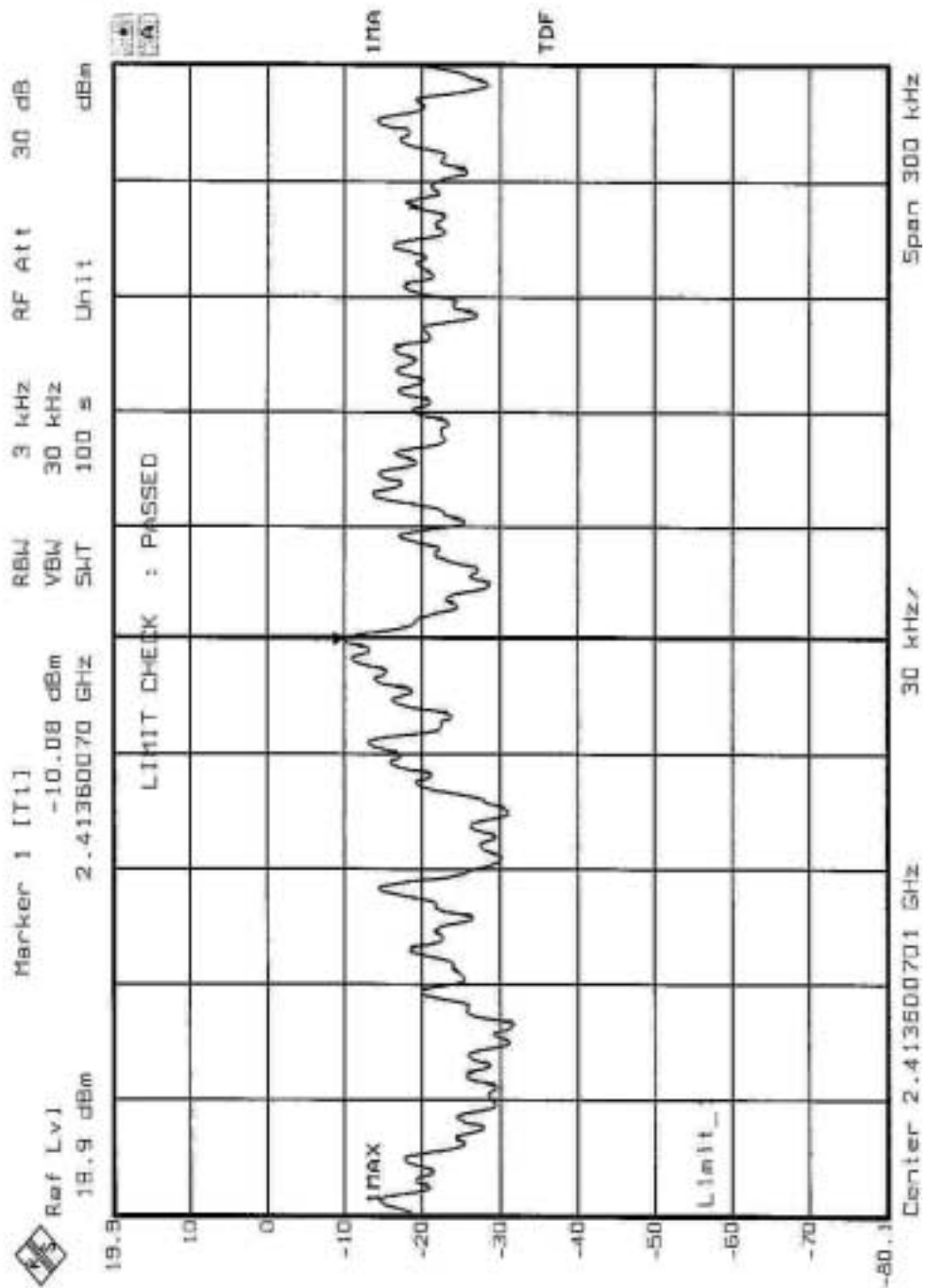


4.5.6 TEST RESULTS

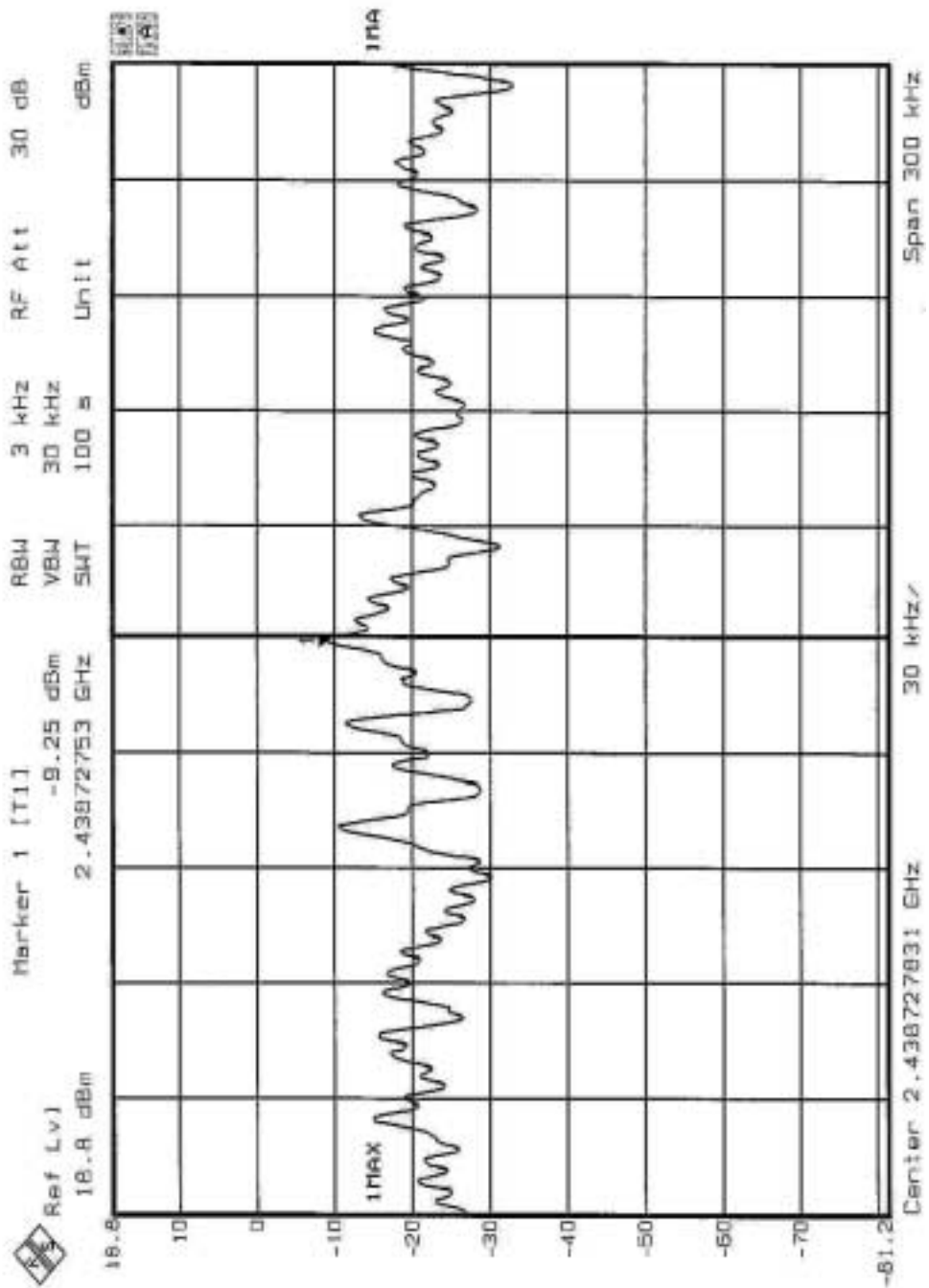
EUT	Wireless Broadband Router	MODEL	IWE1200A
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25 deg. C, 70%RH, 1005 hPa
TESTED BY: Gary Chang			

CHANNEL NUMBER	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-10.08	8	PASS
6	2437	-9.25	8	PASS
11	2462	-10.60	8	PASS

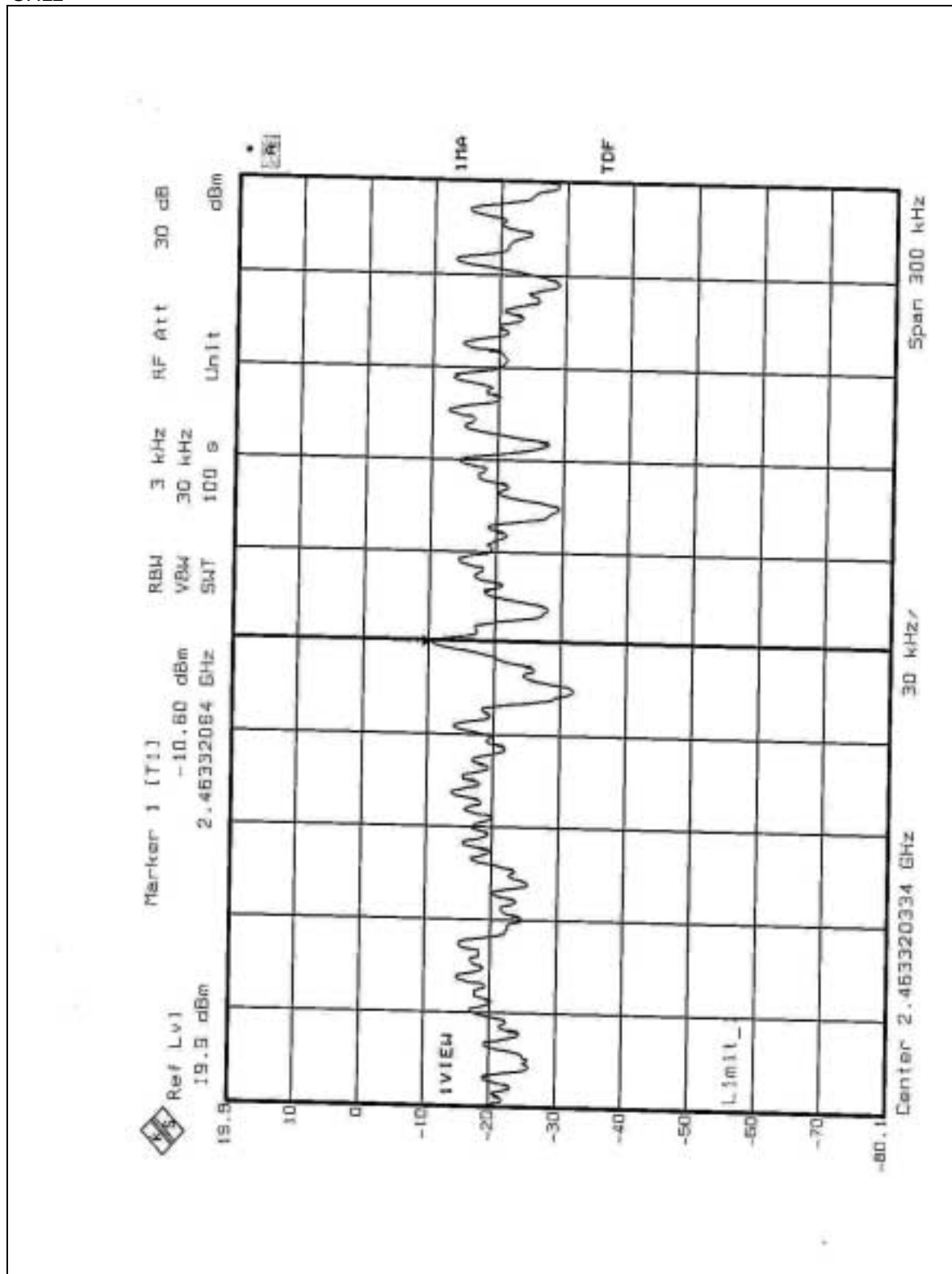
CH1



CH6



CH11





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 loss 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 were measured and recorded.



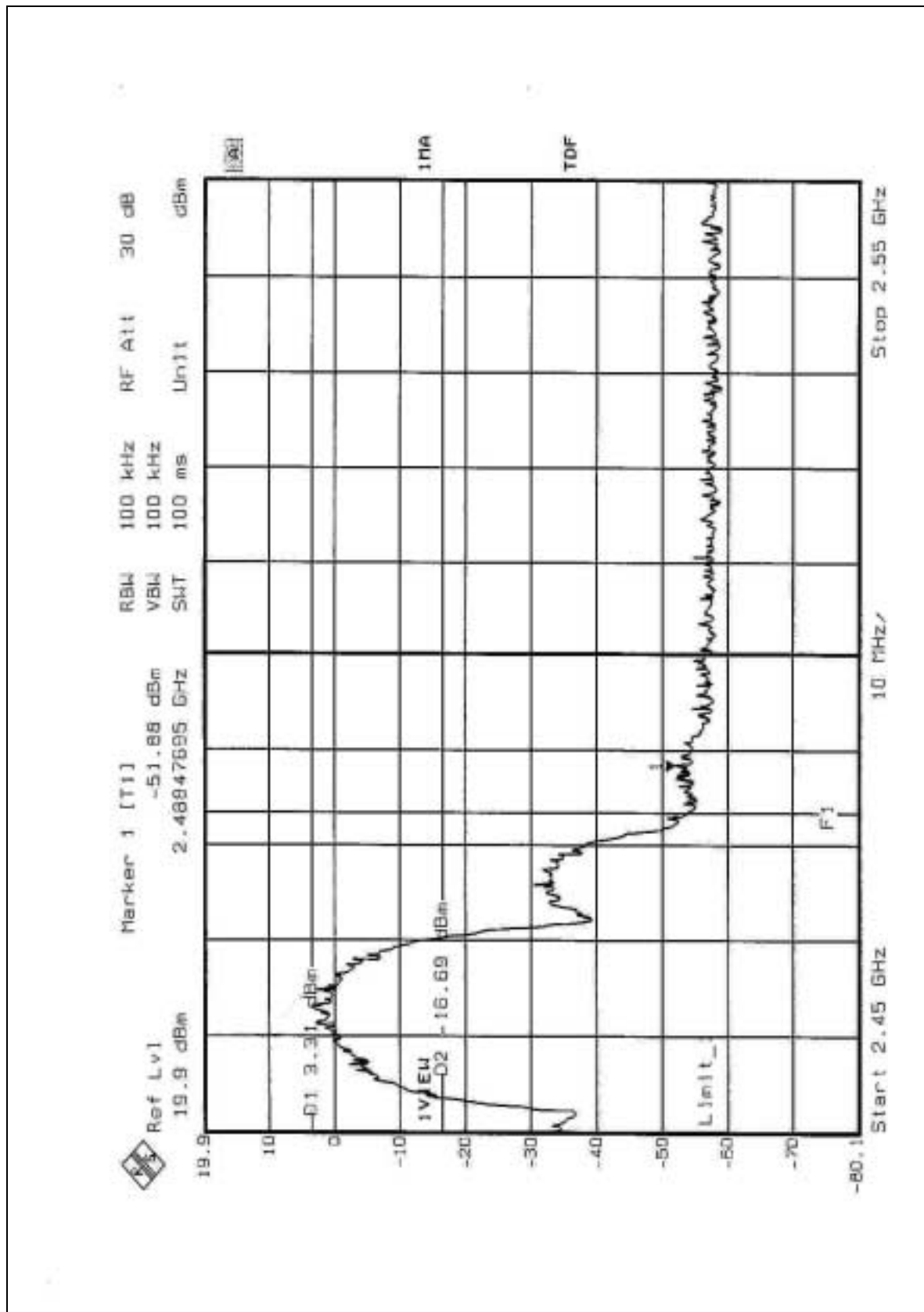
4.6.4 EUT OPERATING CONDITION

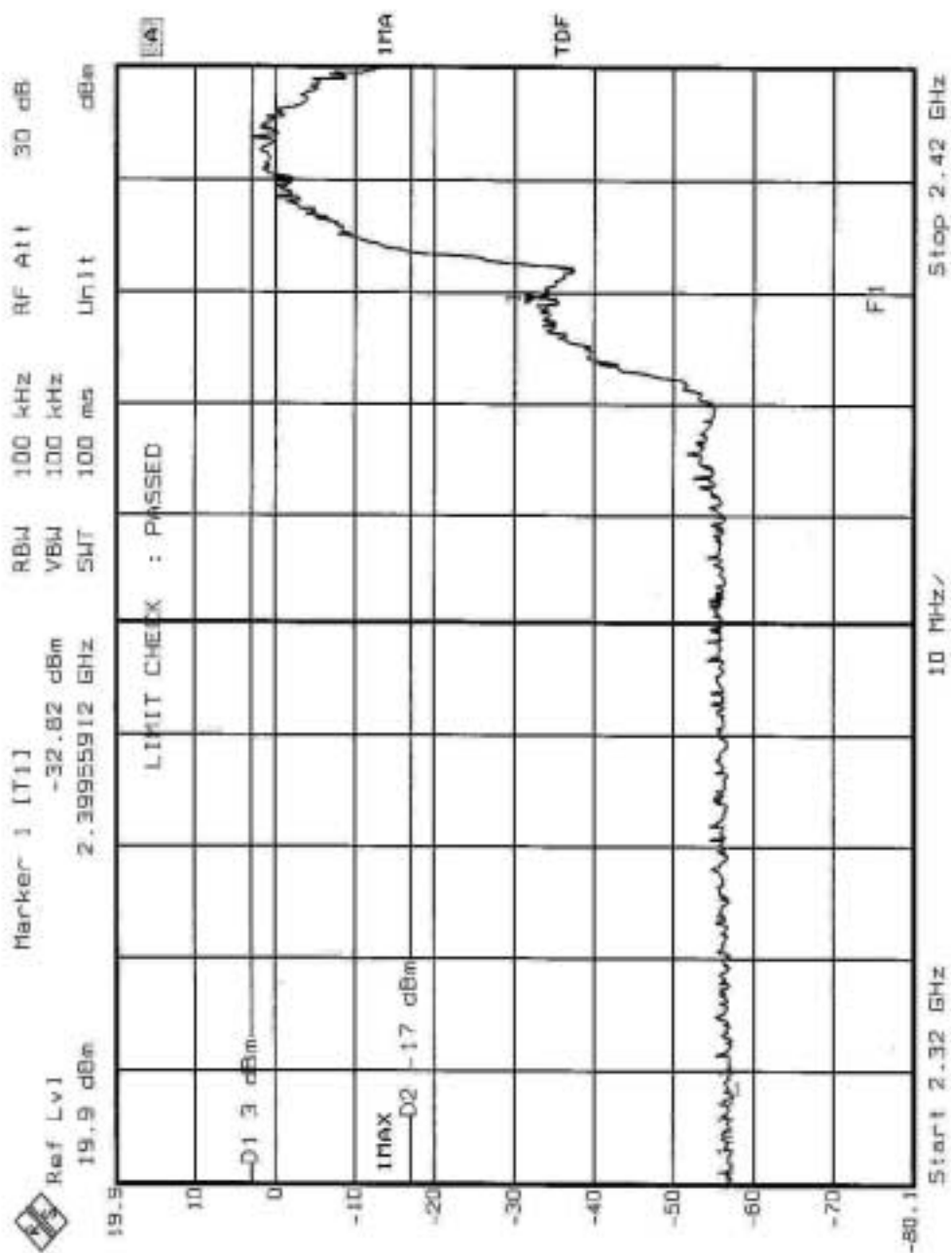
Same as Item 3.4.5

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 55.19dB delta between carrier maximum power and local maximum emission in restrict band (2.4885GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.6 (Page 26) is 100.50dBuV/m, so the maximum field strength in restrict band is $100.50 - 55.19 = 45.31$ dBuV/m which is under 54 dBuV/m limit.







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.

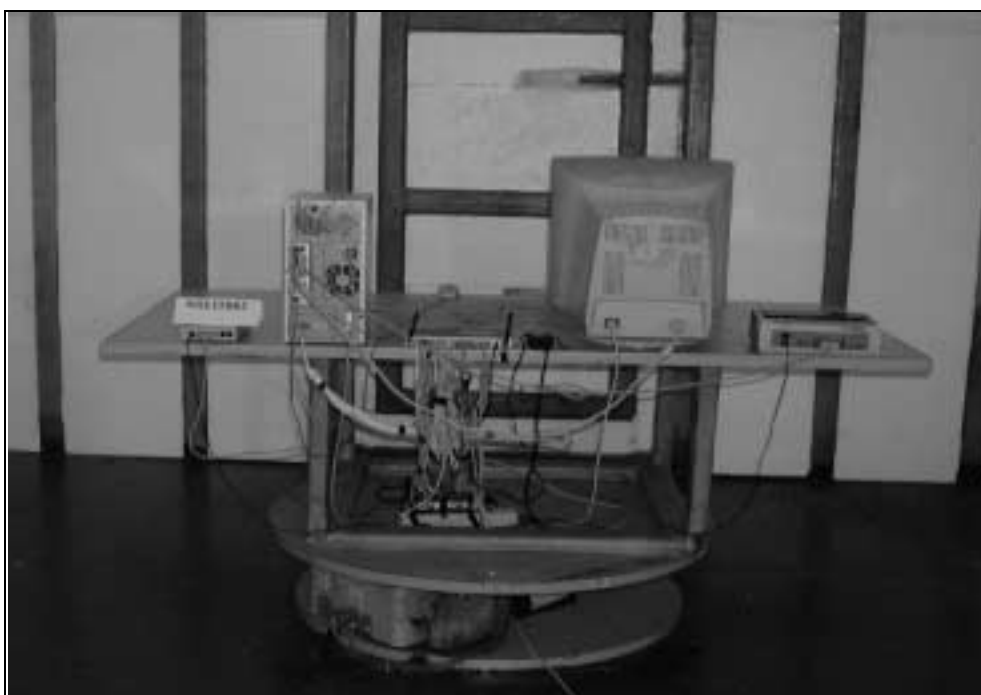
4.7.2 ANTENNA CONNECTED CONSTRUCTION

The antenna used in this product is dipole antenna and the MMCX connector is used. The maximum Gain of the antenna is 0.5dBi 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:

Lin Kou EMC Lab:

Tel: 886-2-26052180

Fax: 886-2-26052943

Hsin Chu EMC Lab:

Tel: 886-35-935343

Fax: 886-35-935342

Lin Kou Safety Lab:

Tel: 886-2-26093195

Fax: 886-2-26093184

Lin Kou RF&Telecom Lab

Tel: 886-3-3270910

Fax: 886-3-3270892

Email: service@mail.adt.com.tw

Web Site: www.adt.com.tw

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