



FCC TEST REPORT

REPORT NO.: RF901009R01

MODEL NO.: WL-316C

RECEIVED: October 9, 2001

TESTED: October 17~ October 23, 2001

APPLICANT: GEMTEK TECHNOLOGY CO., LTD.

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ISSUED BY: Advance Data Technology Corporation

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

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0528



Lab Code: 200102-0



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1 CERTIFICATION

PRODUCT : Wireless PC Card
BRAND NAME : GemTek
MODEL NO. : WL-316C
APPLICANT : GEMTEK 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 October 17, 2001 to October 23, 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 : James Lee · DATE: Oct. 26, 2001
James Lee

CHECKED BY : Emily Lu · DATE: Oct. 26, 2001
Emily Lu

APPROVED BY : Alan Lane · DATE: Oct. 26, 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 -8.55dBuV at 2.6904MHz
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)	Transmitter Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit Minimum passing margin is -3.0dBuV at 2088.0MHz
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 PC Card
MODEL NO.	WL-316C
POWER SUPPLY	5VDC from host equipment
MODULATION TYPE	CCK, BPSK, QPSK
RADIO TECHNOLOGY	DSSS
TRANSFER RATE	1/2/5.5/11Mbps
FREQUENCY RANGE	2412MHz ~ 2462MHz
NUMBER OF CHANNEL	11
OUTPUT POWER	18dBm
ANTENNA TYPE	Monopole Antenna and Dipole Antenna
DATA CABLE	NA
I/O PORTS	NA
ASSOCIATED DEVICES	NA

NOTE:

1. There are two antenna types provided in this EUT. One is Monopole antenna and another is Dipole antenna.
2. For a 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. Test result (A) is for Monopole antenna and test result (B) is for Dipole antenna.

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a Wireless PC Card. 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	Personal Computer	IBM	ThinkPad 380xD	97-84L54	DoC
2	PRINTER	HP	2225C+	3123S97230	DSI6XU2225
3	MODEM	ACEEX	1414	980020510	IFAXDM1414

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA
2	1.2m braid shielded wire, terminated with DB25 and Centronics connector via metallic frame, w/o core.
3	1.2 m braid shielded wire, terminated with DB25 and DB9 connector via metallic frame, w/o core.

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 5, 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.

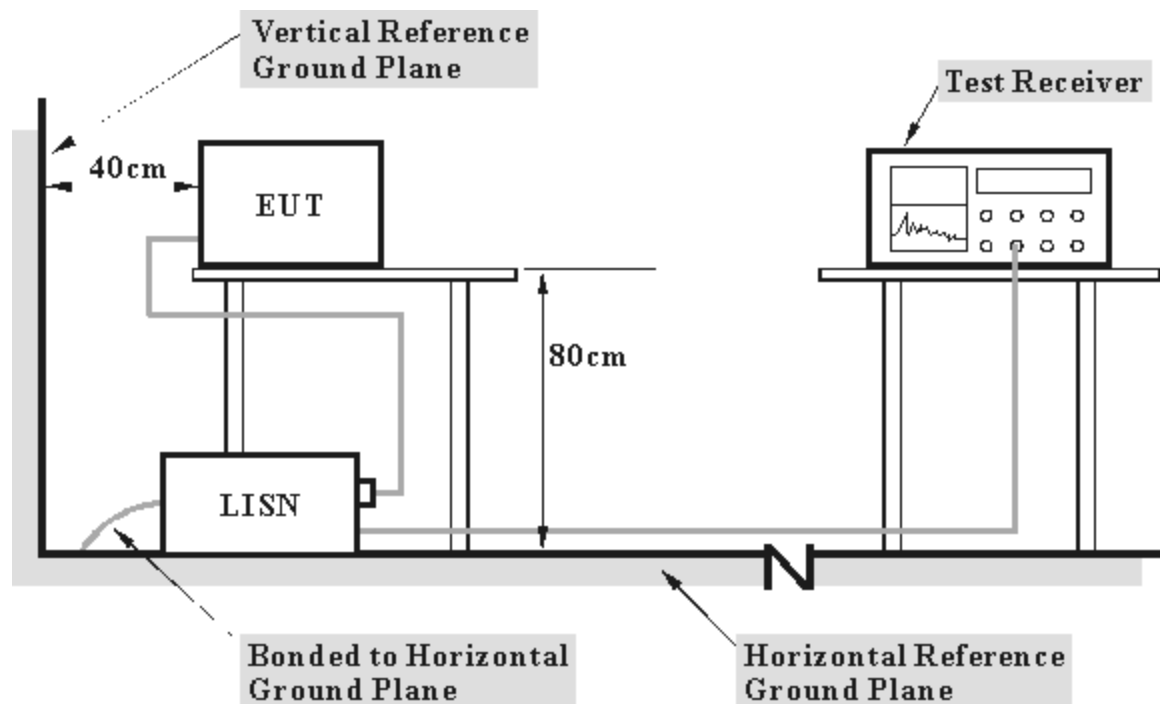
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

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

4.1.3 TEST PROCEDURES

- 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.
- Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- The frequency range from 450 kHz to 30 MHz was searched. Emission levels over 10dB under the prescribed limits could not be reported

4.1.4 TEST SETUP



- Note:**
- Support units were connected to second LISN.
 - 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. Connected the EUT to a computer system placed on a testing table.
- b. The computer system ran a test program to enable EUT under transmission/receiving condition continuously at specific channel frequency.
- c. The computer system sent "H" messages to color monitor.
- 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.

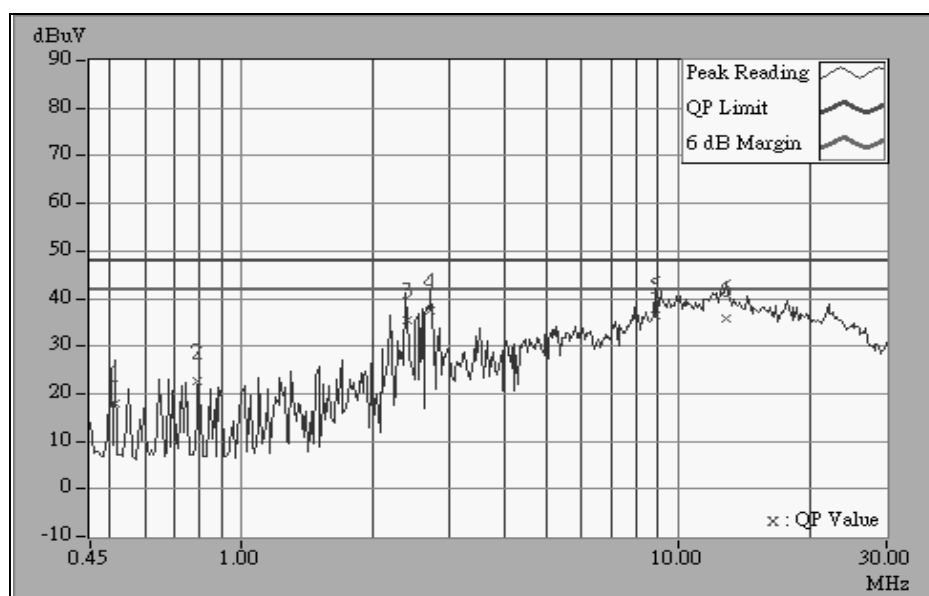
4.1.6 TEST RESULTS (A)

EUT	Wireless PC Card	MODEL	WL-316C
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: James Lee	

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.512	0.10	17.95	-	18.05	-	48.00	-	-29.95	-
2	0.794	0.10	22.60	-	22.70	-	48.00	-	-25.30	-
3	2.386	0.14	35.32	-	35.46	-	48.00	-	-12.54	-
4	2.695	0.17	37.47	-	37.64	-	48.00	-	-10.36	-
5	8.852	0.46	36.40	-	36.86	-	48.00	-	-11.14	-
6	12.817	0.67	35.92	-	36.59	-	48.00	-	-11.41	-

NOTE:

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



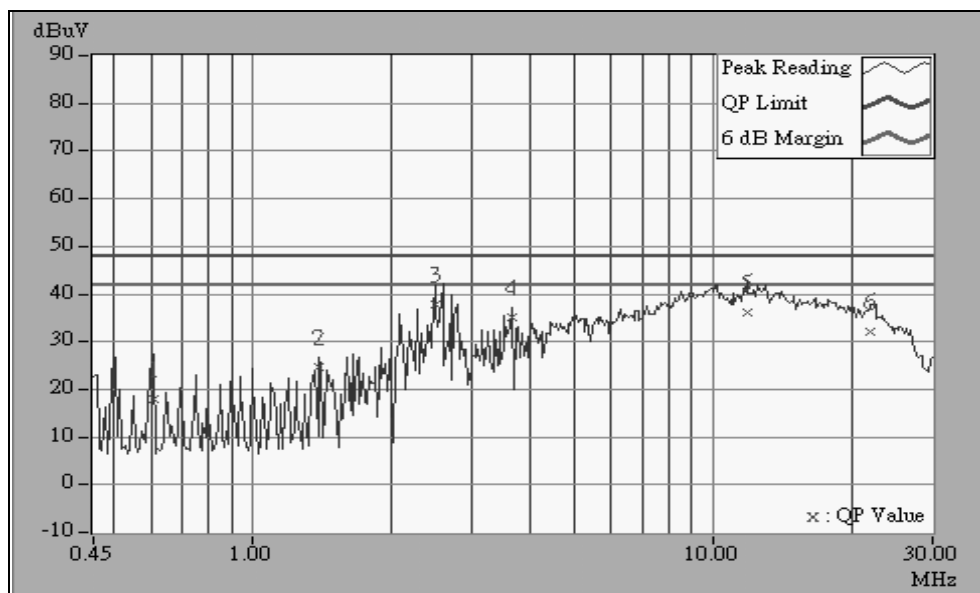


EUT	Wireless PC Card	MODEL	WL-316C
MODE	Channel 1	6dB BANDWIDTH	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 1005 hPa	TESTED BY: James Lee	

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.606	0.10	18.07	-	18.17	-	48.00	-	-29.83	-
2	1.392	0.10	24.69	-	24.79	-	48.00	-	-23.21	-
3	2.486	0.15	37.76	-	37.91	-	48.00	-	-10.09	-
4	3.651	0.27	35.02	-	35.29	-	48.00	-	-12.71	-
5	11.908	0.48	36.01	-	36.49	-	48.00	-	-11.51	-
6	21.981	0.84	31.95	-	32.79	-	48.00	-	-15.21	-

NOTE:

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



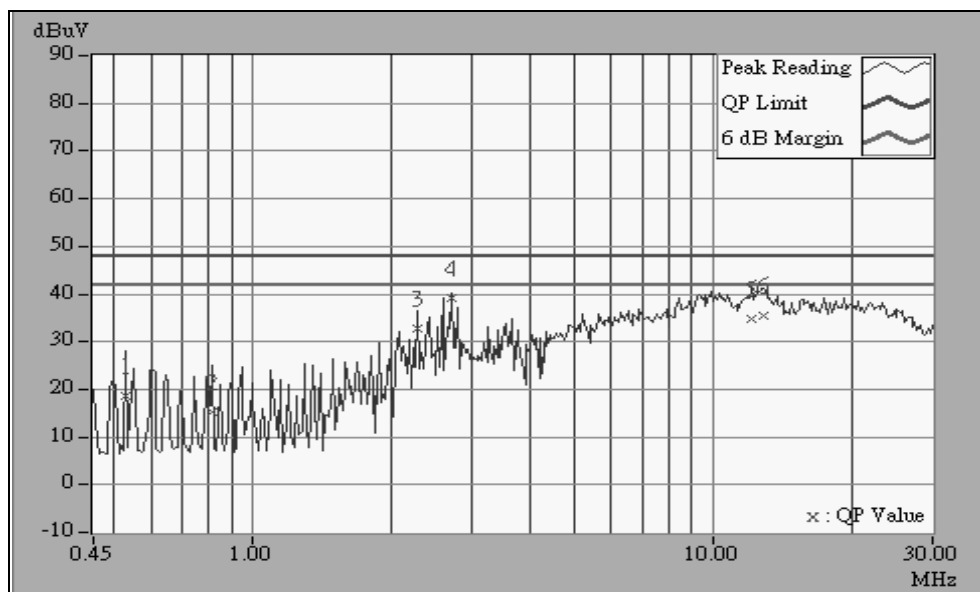


EUT	Wireless PC Card	MODEL	WL-316C
MODE	Channel 6	6dB BANDWIDTH	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 1005 hPa	TESTED BY: James Lee	

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.528	0.10	18.57	-	18.67	-	48.00	-	-29.33	-
2	0.814	0.10	15.11	-	15.21	-	48.00	-	-32.79	-
3	2.285	0.13	32.63	-	32.76	-	48.00	-	-15.24	-
4	2.690	0.17	39.28	-	39.45	-	48.00	-	-8.55	-
5	12.114	0.63	34.79	-	35.42	-	48.00	-	-12.58	-
6	12.894	0.67	35.47	-	36.14	-	48.00	-	-11.86	-

NOTE:

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



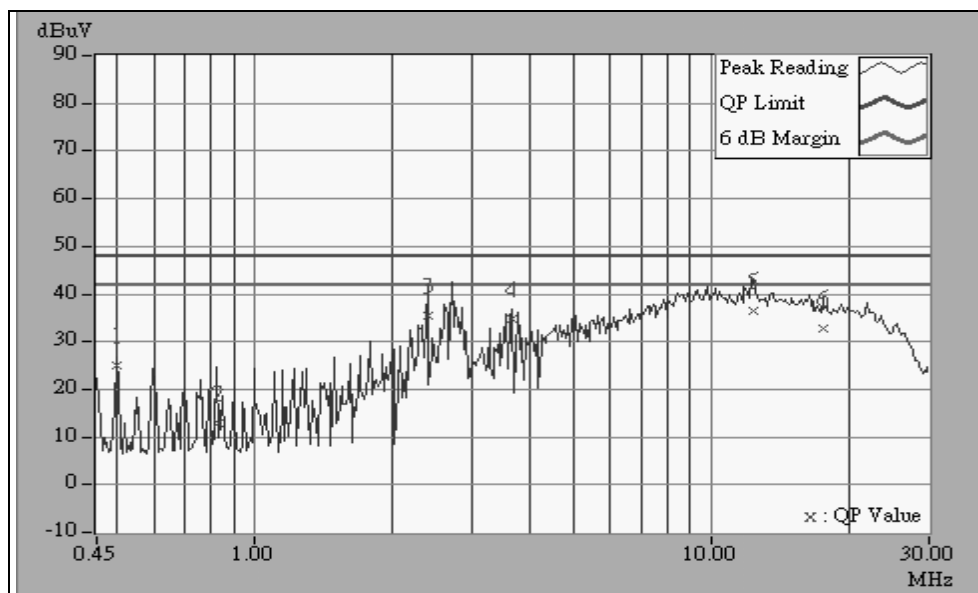


EUT	Wireless PC Card	MODEL	WL-316C
MODE	Channel 6	6dB BANDWIDTH	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 1005 hPa	TESTED BY: James Lee	

No	Freq.	Corr. Factor	Reading Value [dB (Uv)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.496	0.10	25.16	-	25.26	-	48.00	-	-22.74	-
2	0.831	0.10	12.91	-	13.01	-	48.00	-	-34.99	-
3	2.386	0.14	35.54	-	35.68	-	48.00	-	-12.32	-
4	3.654	0.27	34.66	-	34.93	-	48.00	-	-13.07	-
5	12.308	0.49	36.44	-	36.93	-	48.00	-	-11.07	-
6	17.566	0.70	32.67	-	33.37	-	48.00	-	-14.63	-

NOTE:

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



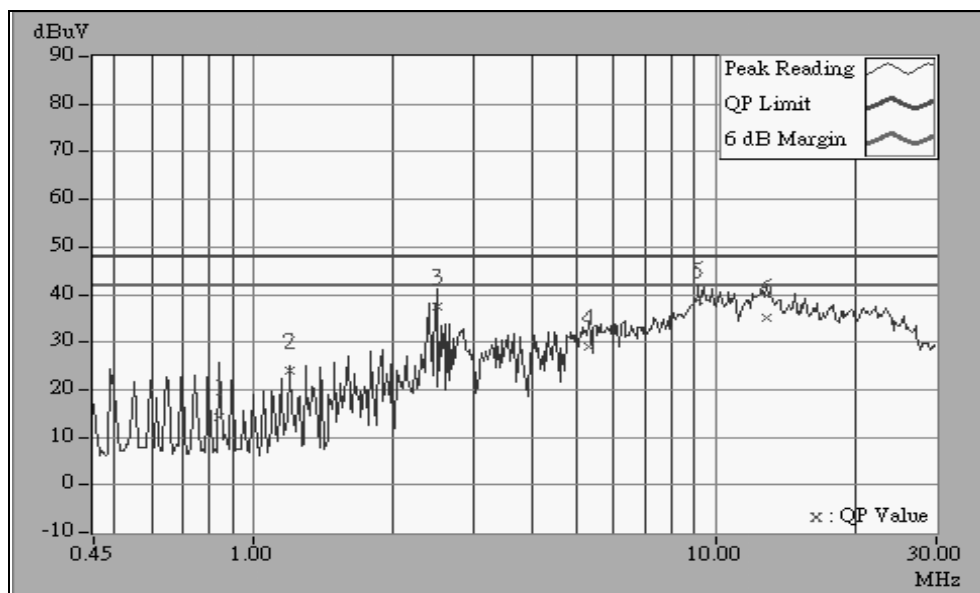


EUT	Wireless PC Card	MODEL	WL-316C
MODE	Channel 11	6dB BANDWIDTH	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 1005 hPa	TESTED BY: James Lee	

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.837	0.10	14.27	-	14.37	-	48.00	-	-33.63	-
2	1.192	0.10	23.84	-	23.94	-	48.00	-	-24.06	-
3	2.485	0.15	37.42	-	37.57	-	48.00	-	-10.43	-
4	5.328	0.34	29.20	-	29.54	-	48.00	-	-18.46	-
5	9.161	0.47	38.97	-	39.44	-	48.00	-	-8.56	-
6	12.919	0.68	34.99	-	35.67	-	48.00	-	-12.33	-

NOTE:

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



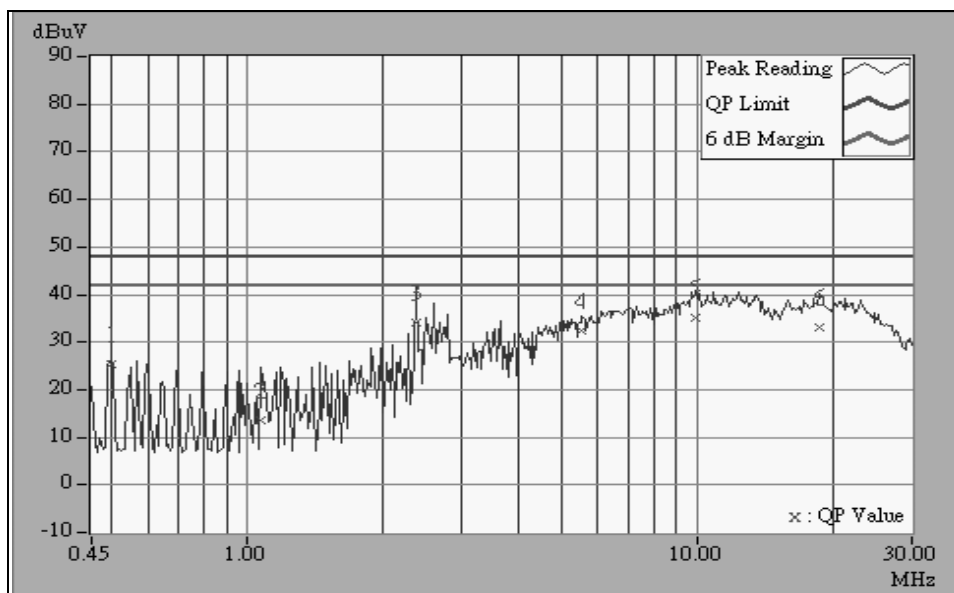


EUT	Wireless PC Card	MODEL	WL-316C
MODE	Channel 11	6dB BANDWIDTH	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Netural (N)
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 1005 hPa	TESTED BY: James Lee	

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.497	0.10	25.50	-	25.60	-	48.00	-	-22.40	-
2	1.067	0.10	13.72	-	13.82	-	48.00	-	-34.18	-
3	2.377	0.14	34.23	-	34.37	-	48.00	-	-13.63	-
4	5.550	0.33	32.26	-	32.59	-	48.00	-	-15.41	-
5	9.934	0.40	35.18	-	35.58	-	48.00	-	-12.42	-
6	18.755	0.75	33.11	-	33.86	-	48.00	-	-14.14	-

NOTE:

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



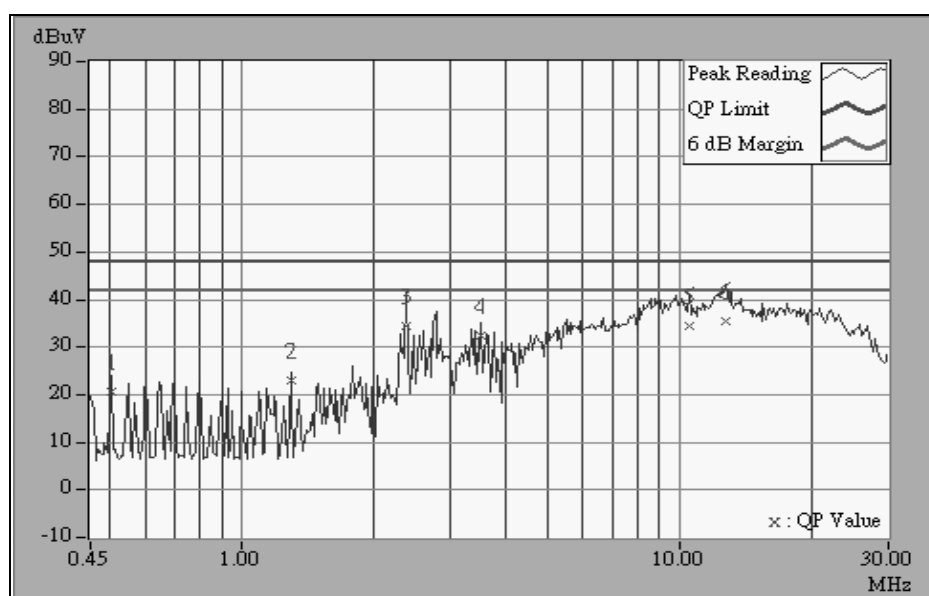
4.1.7 TEST RESULTS (B)

EUT	Wireless PC Card	MODEL	WL-316C
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: James Lee	

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.505	0.10	20.67	-	20.77	-	48.00	-	-27.23	-
2	1.292	0.10	22.94	-	23.04	-	48.00	-	-24.96	-
3	2.381	0.14	34.61	-	34.75	-	48.00	-	-13.25	-
4	3.522	0.25	32.49	-	32.74	-	48.00	-	-15.26	-
5	10.548	0.53	34.36	-	34.89	-	48.00	-	-13.11	-
6	12.802	0.67	35.60	-	36.27	-	48.00	-	-11.73	-

NOTE:

6. QP. and AV. are abbreviations of quasi-peak and average individually.
7. "-": NA
8. The emission levels of other frequencies were very low against the limit.
9. Margin value = Emission level - Limit value
10. Emission Level = Reading Value + Correction Factor.



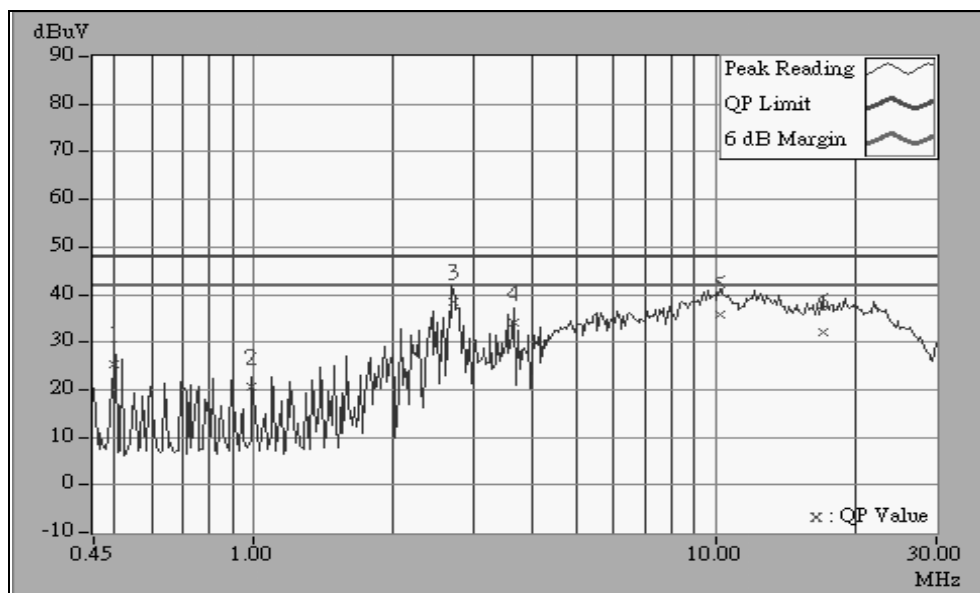


EUT	Wireless PC Card	MODEL	WL-316C
MODE	Channel 1	6dB BANDWIDTH	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 1005 hPa	TESTED BY: James Lee	

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.498	0.10	25.44	-	25.54	-	48.00	-	-22.46	-
2	0.989	0.10	20.73	-	20.83	-	48.00	-	-27.17	-
3	2.690	0.17	38.59	-	38.76	-	48.00	-	-9.24	-
4	3.647	0.26	34.01	-	34.27	-	48.00	-	-13.73	-
5	10.221	0.41	35.85	-	36.26	-	48.00	-	-11.74	-
6	16.993	0.68	32.24	-	32.92	-	48.00	-	-15.08	-

NOTE:

6. QP. and AV. are abbreviations of quasi-peak and average individually.
7. "-": NA
8. The emission levels of other frequencies were very low against the limit.
9. Margin value = Emission level - Limit value
10. Emission Level = Reading Value + Correction Factor.



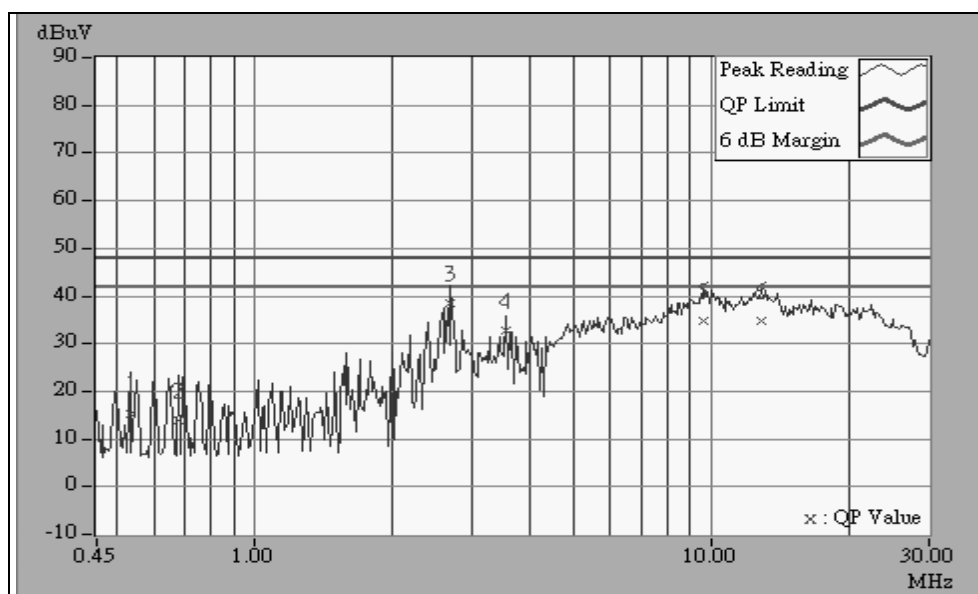


EUT	Wireless PC Card	MODEL	WL-316C
MODE	Channel 6	6dB BANDWIDTH	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 1005 hPa	TESTED BY: James Lee	

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.534	0.10	15.14	-	15.24	-	48.00	-	-32.76	-
2	0.682	0.10	14.05	-	14.15	-	48.00	-	-33.85	-
3	2.683	0.17	38.55	-	38.72	-	48.00	-	-9.28	-
4	3.549	0.25	32.70	-	32.95	-	48.00	-	-15.05	-
5	9.617	0.49	34.74	-	35.23	-	48.00	-	-12.77	-
6	12.917	0.68	34.62	-	35.30	-	48.00	-	-12.70	-

NOTE:

6. QP. and AV. are abbreviations of quasi-peak and average individually.
7. "-": NA
8. The emission levels of other frequencies were very low against the limit.
9. Margin value = Emission level - Limit value
10. Emission Level = Reading Value + Correction Factor.



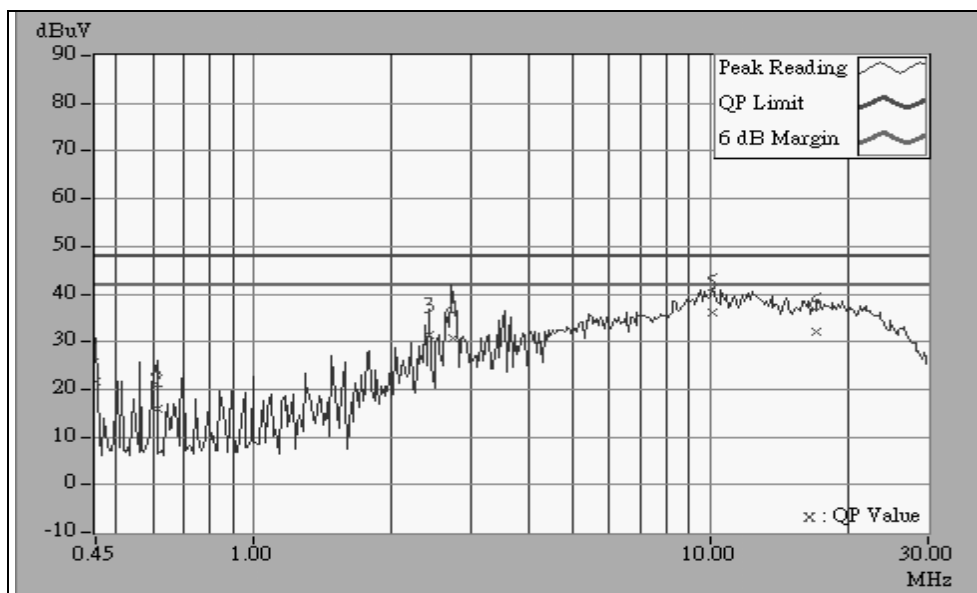


EUT	Wireless PC Card	MODEL	WL-316C
MODE	Channel 6	6dB BANDWIDTH	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 1005 hPa	TESTED BY: James Lee	

No	Freq.	Corr. Factor	Reading Value [dB (Uv)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.449	0.10	21.78	-	21.88	-	-	-	-	-
2	0.617	0.10	15.93	-	16.03	-	48.00	-	-31.97	-
3	2.427	0.14	31.41	-	31.55	-	48.00	-	-16.45	-
4	2.724	0.17	30.67	-	30.84	-	48.00	-	-17.16	-
5	10.119	0.40	36.28	-	36.68	-	48.00	-	-11.32	-
6	17.080	0.68	32.17	-	32.85	-	48.00	-	-15.15	-

NOTE:

6. QP. and AV. are abbreviations of quasi-peak and average individually.
7. "-": NA
8. The emission levels of other frequencies were very low against the limit.
9. Margin value = Emission level - Limit value
10. Emission Level = Reading Value + Correction Factor.



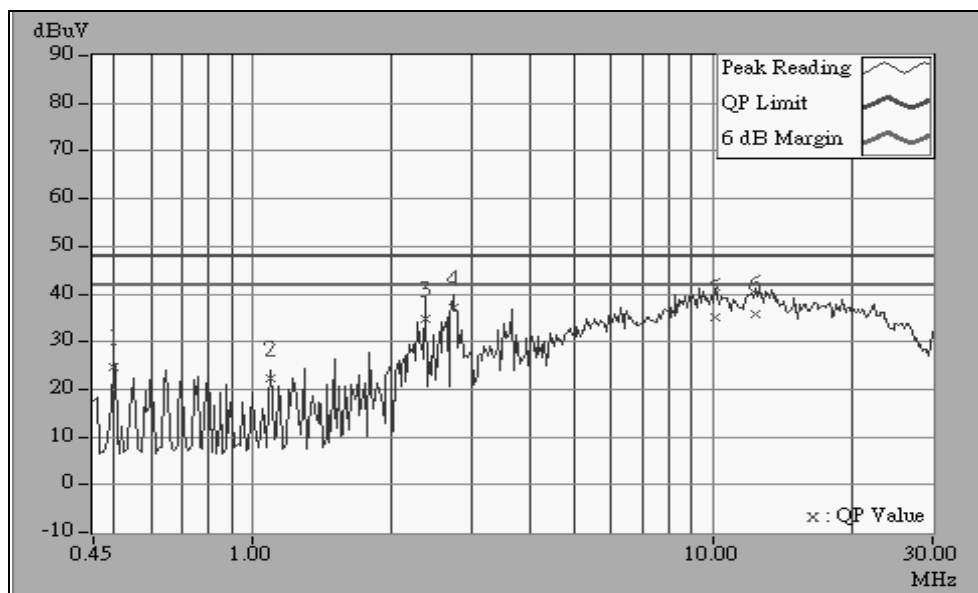


EUT	Wireless PC Card	MODEL	WL-316C
MODE	Channel 11	6dB BANDWIDTH	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 1005 hPa	TESTED BY: James Lee	

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.500	0.10	24.54	-	24.64	-	48.00	-	-23.36	-
2	1.093	0.10	22.45	-	22.55	-	48.00	-	-25.45	-
3	2.383	0.14	34.69	-	34.83	-	48.00	-	-13.17	-
4	2.736	0.17	37.00	-	37.17	-	48.00	-	-10.83	-
5	10.132	0.51	35.20	-	35.71	-	48.00	-	-12.29	-
6	12.350	0.64	35.92	-	36.56	-	48.00	-	-11.44	-

NOTE:

6. QP. and AV. are abbreviations of quasi-peak and average individually.
7. "-": NA
8. The emission levels of other frequencies were very low against the limit.
9. Margin value = Emission level - Limit value
10. Emission Level = Reading Value + Correction Factor.



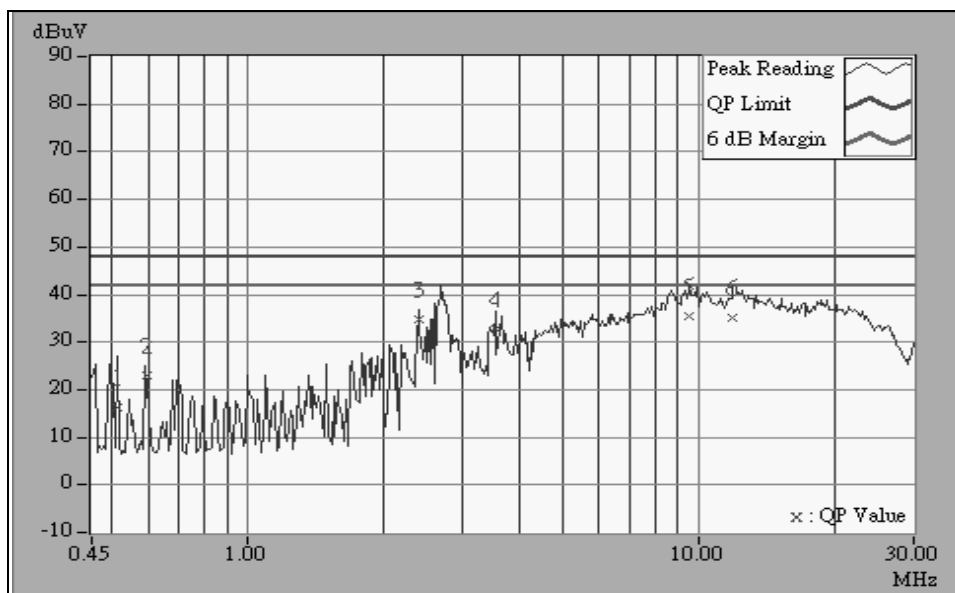


EUT	Wireless PC Card	MODEL	WL-316C
MODE	Channel 11	6dB BANDWIDTH	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Netural (N)
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 1005 hPa	TESTED BY: James Lee	

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.512	0.10	16.18	-	16.28	-	48.00	-	-31.72	-
2	0.597	0.10	22.95	-	23.05	-	48.00	-	-24.95	-
3	2.384	0.14	34.75	-	34.89	-	48.00	-	-13.11	-
4	3.544	0.25	32.68	-	32.93	-	48.00	-	-15.07	-
5	9.549	0.39	35.62	-	36.01	-	48.00	-	-11.99	-
6	11.916	0.48	35.17	-	35.65	-	48.00	-	-12.35	-

NOTE:

6. QP. and AV. are abbreviations of quasi-peak and average individually.
7. "-": NA
8. The emission levels of other frequencies were very low against the limit.
9. Margin value = Emission level - Limit value
10. Emission Level = Reading Value + Correction Factor.





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
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 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.



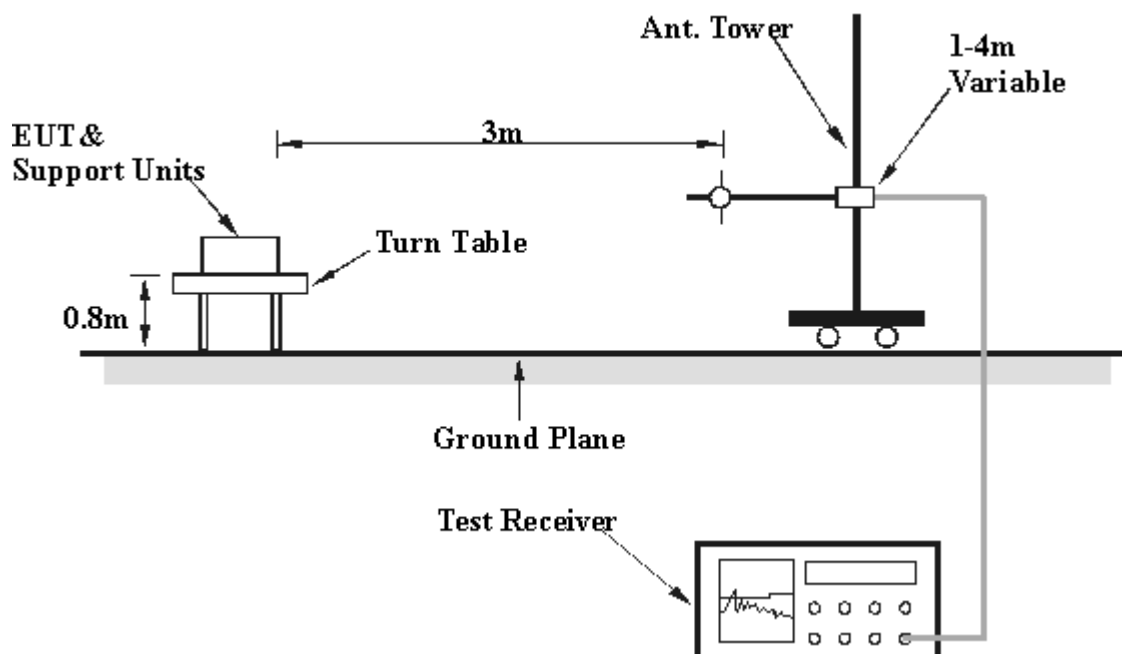
4.2.3 TEST PROCEDURES

- 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 peak, quasi-peak or average method as specified and then reported in a data sheet.

NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz for Peak detection 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 (A)

EUT	Wireless PC Card	MODEL	WL-316C
MODE	Channel 11	FREQUENCY RANGE	30-1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25 deg. C, 70 % RH, 1050 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)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB)	
1	132.00	30.3 QP	43.50	-13.20	1.81H	311	18.00	11.16	1.13	0.00	-12.29	
2	220.00	29.5 QP	46.00	-16.50	1.10H	85	17.90	10.12	1.51	0.00	-11.64	
3	264.02	31.2 QP	46.00	-14.80	1.50H	46	16.80	12.75	1.70	0.00	-14.46	
4	396.00	33.3 QP	46.00	-12.70	1.01H	292	15.10	15.96	2.22	0.00	-18.18	
5	484.00	32.6 QP	46.00	-13.40	2.07H	338	13.20	16.96	2.47	0.00	-19.43	
6	528.00	34.9 QP	46.00	-11.10	1.97H	331	14.70	17.62	2.60	0.00	-20.22	
7	660.00	36.4 QP	46.00	-9.60	1.17H	31	14.10	19.25	3.05	0.00	-22.29	
8	748.00	36.8 QP	46.00	-9.20	2.03H	259	13.40	20.14	3.26	0.00	-23.40	
9	836.00	35.5 QP	46.00	-10.50	1.87H	233	11.50	20.54	3.45	0.00	-23.99	

NOTE:

1. Emission level = Raw value - Correction Factor
2. Correction Factor = Pre-Amp. Factor - Ant. Factor - Cable loss
(Pre-Amp. Factor = 0, when a Pre-Amplifier is not used for the test.)
3. Margin value = Emission level - Limit value
4. The other emission levels were very low against the limit.



EUT	Wireless PC Card	MODEL	WL-316C
MODE	Channel 11	FREQUENCY RANGE	30-1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25 deg. C, 70 % RH, 1050 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)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB)
1	132.00	30.3 QP	43.50	-13.20	1.23V	273	18.00	11.16	1.13	0.00	-12.29
2	264.00	29.6 QP	46.00	-16.40	2.19V	17	15.00	12.89	1.70	0.00	-14.59
3	440.00	32.7 QP	46.00	-13.30	1.20V	80	14.00	16.32	2.38	0.00	-18.70
4	484.00	34.1 QP	46.00	-11.90	1.25V	200	14.70	16.96	2.47	0.00	-19.43
5	528.00	33.2 QP	46.00	-12.80	1.01V	142	13.00	17.62	2.60	0.00	-20.22
6	572.10	33.0 QP	46.00	-13.00	2.25V	327	12.00	18.25	2.75	0.00	-21.00
7	660.00	35.3 QP	46.00	-10.70	1.39V	283	13.00	19.25	3.05	0.00	-22.29
8	748.00	36.4 QP	46.00	-9.60	1.75V	153	13.00	20.14	3.26	0.00	-23.41
9	792.00	35.7 QP	46.00	-10.30	1.69V	170	11.80	20.60	3.31	0.00	-23.91
10	880.00	36.6 QP	46.00	-9.40	1.49V	131	12.40	20.68	3.55	0.00	-24.23

NOTE:

1. Emission level = Raw value - Correction Factor
2. Correction Factor = Pre-Amp. Factor - Ant. Factor - Cable loss
(Pre-Amp. Factor = 0, when a Pre-Amplifier is not used for the test.)
3. Margin value = Emission level - Limit value
4. The other emission levels were very low against the limit.



EUT	Wireless PC Card	MODEL	WL-316C
MODE	Channel 1	FREQUENCY RANGE	Above 1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 70 % RH, 1050 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)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB)
1	2037.90	47.4 PK	74.00	-26.60	1.99H	75	52.24	25.20	4.86	34.90	4.84
2	*2413.50	101.1 PK	-	-	2.00H	347	68.88	27.11	5.10	0.00	-32.21
3	*2413.50	93.4 AV	-	-	2.00H	347	61.20	27.11	5.10	0.00	-32.21
4	4076.00	51.4 PK	74.00	-22.60	1.06H	304	49.00	30.13	6.78	34.52	-2.39
5	4824.40	49.7 PK	74.00	-24.30	1.40H	98	45.70	31.43	7.23	34.63	-4.03

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)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB)
1	2038.00	51.2 PK	74.00	-22.80	1.00V	354	56.00	25.20	4.86	34.90	4.84
2	*2413.50	108.2 PK	-	-	1.10V	16	76.00	27.11	5.10	0.00	-32.22
3	*2413.50	100.2 AV	-	-	1.10V	16	68.00	27.11	5.10	0.00	-32.22
4	4075.00	50.4 PK	74.00	-23.60	1.43V	4	48.00	30.13	6.78	34.52	-2.39
5	4824.10	50.0 PK	74.00	-24.00	1.43V	300	46.00	31.43	7.23	34.63	-4.02

NOTE:

1. Emission level = Raw value - Correction Factor
2. Correction Factor = Pre-Amp. Factor - Ant. Factor - Cable loss
(Pre-Amp. Factor = 0, when a Pre-Amplifier is not used for the test.)
3. Margin value = Emission level - Limit value
4. " * " : Fundamental frequency
5. The other emission levels were very low against the limit.



EUT	Wireless PC Card	MODEL	WL-316C
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, 1050 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)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB)
1	2062.80	48.3 PK	74.00	-25.70	1.53H	24	52.82	25.41	4.96	34.90	4.53
2	*2437.00	97.9 PK	-	-	1.66H	348	65.54	27.33	5.08	0.00	-32.40
3	*2437.00	92.8 AV	-	-	1.66H	348	60.40	27.33	5.08	0.00	-32.40
4	4126.00	53.0 PK	74.00	-21.00	1.08H	4	50.50	30.32	6.70	34.56	-2.46
5	4126.00	46.7 AV	54.00	-7.30	1.08H	4	44.20	30.32	6.70	34.56	-2.46
6	4874.20	49.3 PK	74.00	-24.70	1.24H	347	45.20	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)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB)
1	2063.00	52.0 AV	54.00	-2.00	1.21V	26	56.50	25.41	4.96	34.90	4.53
2	*2437.00	106.4 PK	-	-	1.06V	18	74.00	27.33	5.08	0.00	-32.40
3	*2437.00	99.4 AV	-	-	1.06V	18	67.00	27.33	5.08	0.00	-32.40
4	4125.00	52.5 PK	74.00	-21.50	1.28V	352	50.00	30.32	6.70	34.56	-2.46
5	4874.10	49.3 PK	74.00	-24.70	1.01V	9	45.20	31.47	7.21	34.63	-4.05
6	8250.00	46.0 AV	54.00	-8.00	1.69V	272	34.13	36.71	10.00	34.85	-11.86

NOTE:

1. Emission level = Raw value - Correction Factor
2. Correction Factor = Pre-Amp. Factor - Ant. Factor - Cable loss
(Pre-Amp. Factor = 0, when a Pre-Amplifier is not used for the test.)
3. Margin value = Emission level - Limit value
4. " * " : Fundamental frequency
5. The other emission levels were very low against the limit.



EUT	Wireless PC Card	MODEL	WL-316C
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, 1050 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)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB)
1	2088.00	48.6 PK	74.00	-25.40	1.83H	44	52.85	25.62	5.02	34.90	4.26
2	*2463.00	96.5 PK	-	-	1.24H	353	64.10	27.33	5.08	0.00	-32.40
3	*2463.00	90.6 AV	-	-	1.24H	353	58.20	27.33	5.08	0.00	-32.40
4	2483.50	49.4 PK	74.00	-24.60	1.49H	351	51.74	27.54	5.06	34.90	2.31
5	4175.10	53.1 PK	74.00	-20.90	1.42H	4	50.59	30.41	6.68	34.58	-2.51
6	4924.00	50.1 PK	74.00	-23.90	1.39H	335	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)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB)
1	2088.00	53.0 PK	74.00	-21.00	1.00V	32	57.29	25.62	5.02	34.90	4.26
2	2088.00	51.0 AV	54.00	-3.00	1.00V	32	55.23	25.62	5.02	34.90	4.26
3	*2463.70	105.4 PK	-	-	1.06V	16	73.00	27.33	5.08	0.00	-32.41
4	*2463.70	96.4 AV	-	-	1.06V	16	64.00	27.33	5.08	0.00	-32.41
5	2483.50	52.7 PK	74.00	-21.30	1.04V	348	55.02	27.54	5.06	34.90	2.31
6	4175.60	53.0 PK	74.00	-21.00	1.00V	58	50.50	30.41	6.68	34.58	-2.51
7	4175.60	46.0 AV	54.00	-8.00	1.00V	58	43.05	30.41	6.68	34.58	-2.51
8	4924.00	50.1 PK	74.00	-23.90	1.36V	59	46.00	31.51	7.21	34.62	-4.10

NOTE:

1. Emission level = Raw value - Correction Factor
2. Correction Factor = Pre-Amp. Factor - Ant. Factor - Cable loss
(Pre-Amp. Factor = 0, when a Pre-Amplifier is not used for the test.)
3. Margin value = Emission level - Limit value
4. " * " : Fundamental frequency
5. The other emission levels were very low against the limit.



4.2.7 TEST RESULTS (B)

EUT	Wireless PC Card	MODEL	WL-316C
MODE	Channel 11	FREQUENCY RANGE	30-1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25 deg. C, 70 % RH, 1050 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)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB)
1	132.00	33.3 QP	43.50	-10.20	1.98H	9	21.00	11.16	1.13	0.00	-12.29
2	176.00	32.4 QP	43.50	-11.10	1.68H	339	22.00	9.08	1.33	0.00	-10.41
3	220.00	32.6 QP	46.00	-13.40	1.30H	6	21.00	10.12	1.51	0.00	-11.63
4	264.00	37.6 QP	46.00	-8.40	1.05H	194	23.00	12.89	1.70	0.00	-14.58
5	352.00	32.4 QP	46.00	-13.60	1.18H	108	16.00	14.31	2.05	0.00	-16.36
6	396.00	33.2 QP	46.00	-12.80	1.08H	285	15.00	15.96	2.22	0.00	-18.18
7	484.00	33.4 QP	46.00	-12.60	1.04H	12	14.00	16.96	2.47	0.00	-19.44
8	748.00	35.4 QP	46.00	-10.60	1.44H	43	12.00	20.14	3.26	0.00	-23.41
9	792.00	34.9 QP	46.00	-11.10	1.26H	154	11.00	20.60	3.31	0.00	-23.91

NOTE:

1. Emission level = Raw value - Correction Factor
2. Correction Factor = Pre-Amp. Factor - Ant. Factor - Cable loss
(Pre-Amp. Factor = 0, when a Pre-Amplifier is not used for the test.)
3. Margin value = Emission level - Limit value
4. The other emission levels were very low against the limit.



EUT	Wireless PC Card	MODEL	WL-316C
MODE	Channel 11	FREQUENCY RANGE	30-1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25 deg. C, 70 % RH, 1050 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)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB)
1	132.00	27.3 QP	43.50	-16.20	1.53V	5	15.00	11.16	1.13	0.00	-12.29
2	220.00	28.6 QP	46.00	-17.40	1.76V	311	17.00	10.12	1.51	0.00	-11.63
3	264.00	32.6 QP	46.00	-13.40	1.76V	23	18.00	12.89	1.70	0.00	-14.58
4	396.00	33.2 QP	46.00	-12.80	1.42V	186	15.00	15.96	2.22	0.00	-18.18
5	528.00	35.3 QP	46.00	-10.70	1.16V	81	15.10	17.62	2.60	0.00	-20.23
6	748.00	34.4 QP	46.00	-11.60	1.33V	287	11.00	20.14	3.26	0.00	-23.40
7	792.00	35.9 QP	46.00	-10.10	1.52V	204	12.00	20.60	3.31	0.00	-23.91
8	880.00	35.2 QP	46.00	-10.80	1.41V	54	11.00	20.68	3.55	0.00	-24.23

NOTE:

1. Emission level = Raw value - Correction Factor
2. Correction Factor = Pre-Amp. Factor - Ant. Factor - Cable loss
(Pre-Amp. Factor = 0, when a Pre-Amplifier is not used for the test.)
3. Margin value = Emission level - Limit value
4. The other emission levels were very low against the limit.



EUT	Wireless PC Card	MODEL	WL-316C
MODE	Channel 1	FREQUENCY RANGE	Above 1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 70 % RH, 1050 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)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB)
1	2038.00	49.1 PK	74.00	-24.90	1.18H	347	53.91	25.20	4.86	34.90	4.84
2	*2437.00	101.0 PK	-	-	1.18H	94	68.61	27.33	5.08	0.00	-32.41
3	*2437.00	94.8 AV	-	-	1.18H	94	62.40	27.33	5.08	0.00	-32.41
4	4076.00	50.4 PK	74.00	-23.60	1.27H	216	48.00	30.13	6.78	34.52	-2.39
5	4824.00	51.2 PK	74.00	-22.80	1.43H	292	47.20	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)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB)
1	2038.00	49.2 PK	74.00	-24.80	1.24V	108	54.00	25.20	4.86	34.90	4.84
2	*2437.00	107.4 PK	-	-	1.54V	212	75.00	27.33	5.08	0.00	-32.40
3	*2437.00	100.4 AV	-	-	1.54V	212	68.00	27.33	5.08	0.00	-32.40
4	4076.00	52.8 PK	74.00	-21.20	1.04V	212	50.38	30.13	6.78	34.52	-2.39
5	4824.00	51.3 PK	74.00	-22.70	1.34V	317	47.30	31.43	7.23	34.63	-4.02

NOTE:

1. Emission level = Raw value - Correction Factor
2. Correction Factor = Pre-Amp. Factor - Ant. Factor - Cable loss
(Pre-Amp. Factor = 0, when a Pre-Amplifier is not used for the test.)
3. Margin value = Emission level - Limit value
4. " * " : Fundamental frequency
5. The other emission levels were very low against the limit.



EUT	Wireless PC Card	MODEL	WL-316C
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, 1050 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)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB)
1	2063.00	50.5 PK	74.00	-23.50	1.19H	5	55.05	25.41	4.96	34.90	4.53
2	*2438.10	100.7 PK	-	-	1.26H	328	68.31	27.33	5.08	0.00	-32.40
3	*2438.10	93.4 AV	-	-	1.26H	328	61.00	27.33	5.08	0.00	-32.40
4	4125.40	51.3 PK	74.00	-22.70	1.88H	331	48.80	30.32	6.70	34.56	-2.46
5	4874.00	51.6 PK	74.00	-22.40	1.13H	67	47.50	31.47	7.21	34.63	-4.06

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)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB)
1	2063.00	47.7 PK	74.00	-26.30	1.36V	67	52.25	25.41	4.96	34.90	4.53
2	*2438.10	107.4 PK	-	-	1.82V	150	75.00	27.33	5.08	0.00	-32.40
3	*2438.10	100.4 AV	-	-	1.82V	150	68.00	27.33	5.08	0.00	-32.40
4	4126.00	52.5 PK	74.00	-21.50	1.36V	358	50.00	30.32	6.70	34.56	-2.46
5	4874.00	51.1 PK	74.00	-22.90	1.27V	106	47.00	31.47	7.21	34.63	-4.05
6	7315.00	57.8 PK	74.00	-16.20	1.63V	66	47.00	36.26	9.30	34.73	-10.84
7	7315.00	44.8 AV	54.00	-9.20	1.63V	66	34.00	36.26	9.30	34.73	-10.84

NOTE:

1. Emission level = Raw value - Correction Factor
2. Correction Factor = Pre-Amp. Factor - Ant. Factor - Cable loss
(Pre-Amp. Factor = 0, when a Pre-Amplifier is not used for the test.)
3. Margin value = Emission level - Limit value
4. " * " : Fundamental frequency
5. The other emission levels were very low against the limit.



EUT	Wireless PC Card	MODEL	WL-316C
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, 1050 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)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB)
1	2087.80	50.1 PK	74.00	-23.90	1.19H	8	54.37	25.62	5.02	34.90	4.26
2	*2463.50	99.4 PK	-	-	1.53H	9	67.00	27.33	5.08	0.00	-32.41
3	*2463.50	93.8 AV	-	-	1.53H	9	61.40	27.33	5.08	0.00	-32.41
4	2483.50	49.2 PK	74.00	-24.80	1.16H	31	51.55	27.54	5.06	34.90	2.31
5	4176.00	53.8 PK	74.00	-20.20	1.04H	237	51.27	30.41	6.68	34.58	-2.51
6	4176.00	47.3 AV	54.00	-6.70	1.04H	237	44.80	30.41	6.68	34.58	-2.51
7	4924.00	51.1 PK	74.00	-22.90	1.48H	13	47.00	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)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB)
1	2088.00	48.5 PK	74.00	-25.50	1.15V	252	52.75	25.62	5.02	34.90	4.26
2	*2463.00	105.9 PK	-	-	1.35V	165	73.52	27.33	5.08	0.00	-32.41
3	*2463.00	99.6 AV	-	-	1.35V	165	67.20	27.33	5.08	0.00	-32.41
4	2483.50	55.7 PK	74.00	-18.30	1.10V	266	58.00	27.54	5.06	34.90	2.31.
5	2483.50	44.7 AV	54.00	-9.30	1.10V	266	47.00	27.54	5.06	34.90	2.31
6	4176.00	53.1 PK	74.00	-20.90	1.47V	72	50.56	30.41	6.68	34.58	-2.51
7	4176.00	46.3 AV	54.00	-7.70	1.47V	72	43.77	30.41	6.68	34.58	-2.51
8	4924.00	52.1 PK	74.00	-21.90	1.48V	340	48.00	31.51	7.21	34.62	-4.10

NOTE:

1. Emission level = Raw value - Correction Factor
2. Correction Factor = Pre-Amp. Factor - Ant. Factor - Cable loss
(Pre-Amp. Factor = 0, when a Pre-Amplifier is not used for the test.)
3. Margin value = Emission level - Limit value
4. " * " : Fundamental frequency
5. The other emission levels were very low against the limit.



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	July17, 2002

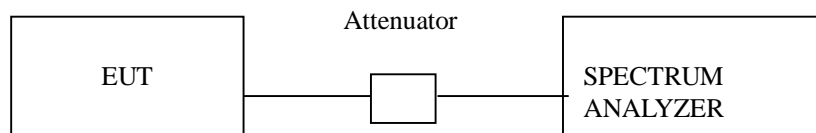
NOTE:

- 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.

4.3.3 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



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

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.

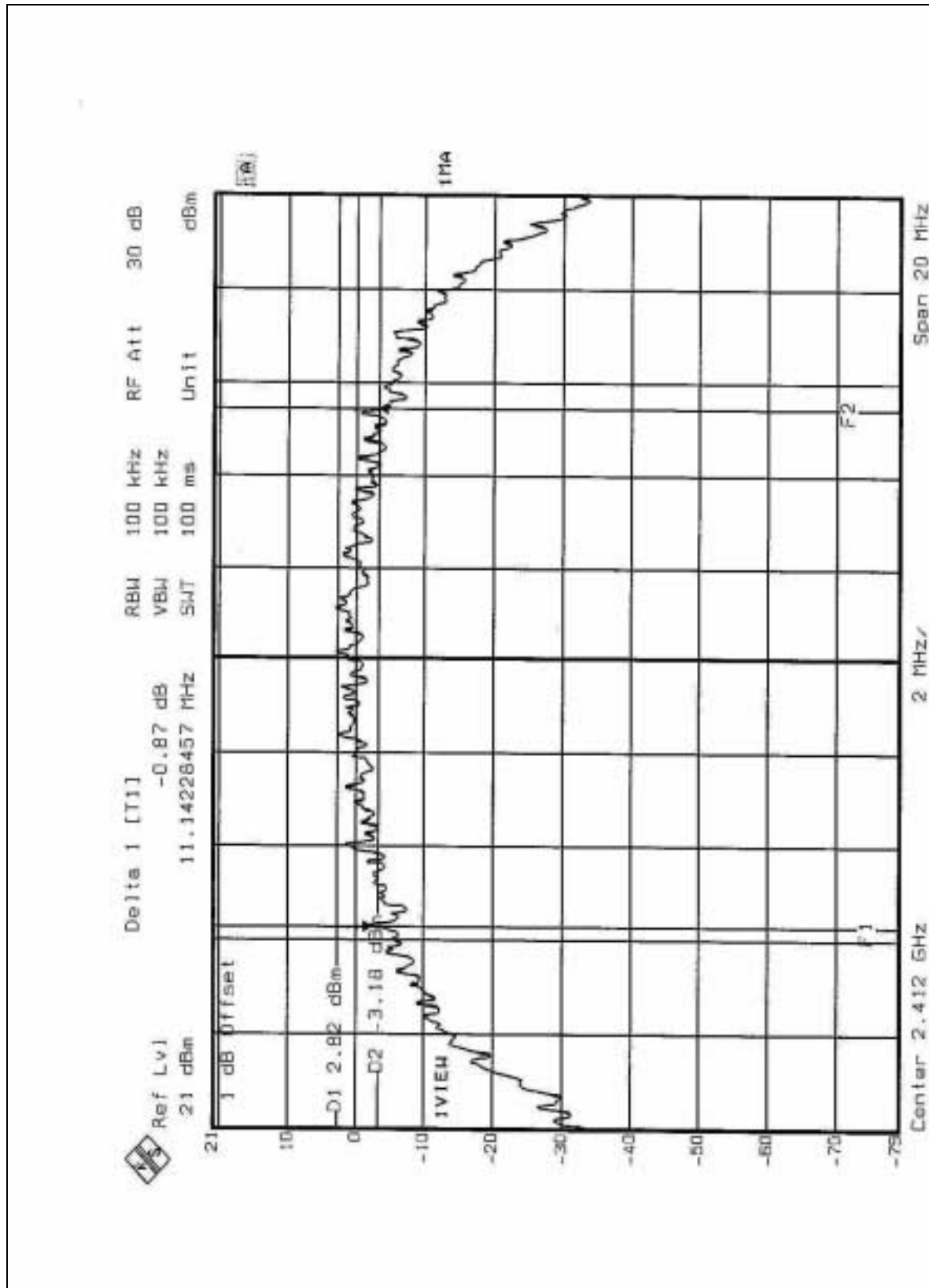


4.3.6 TEST RESULTS

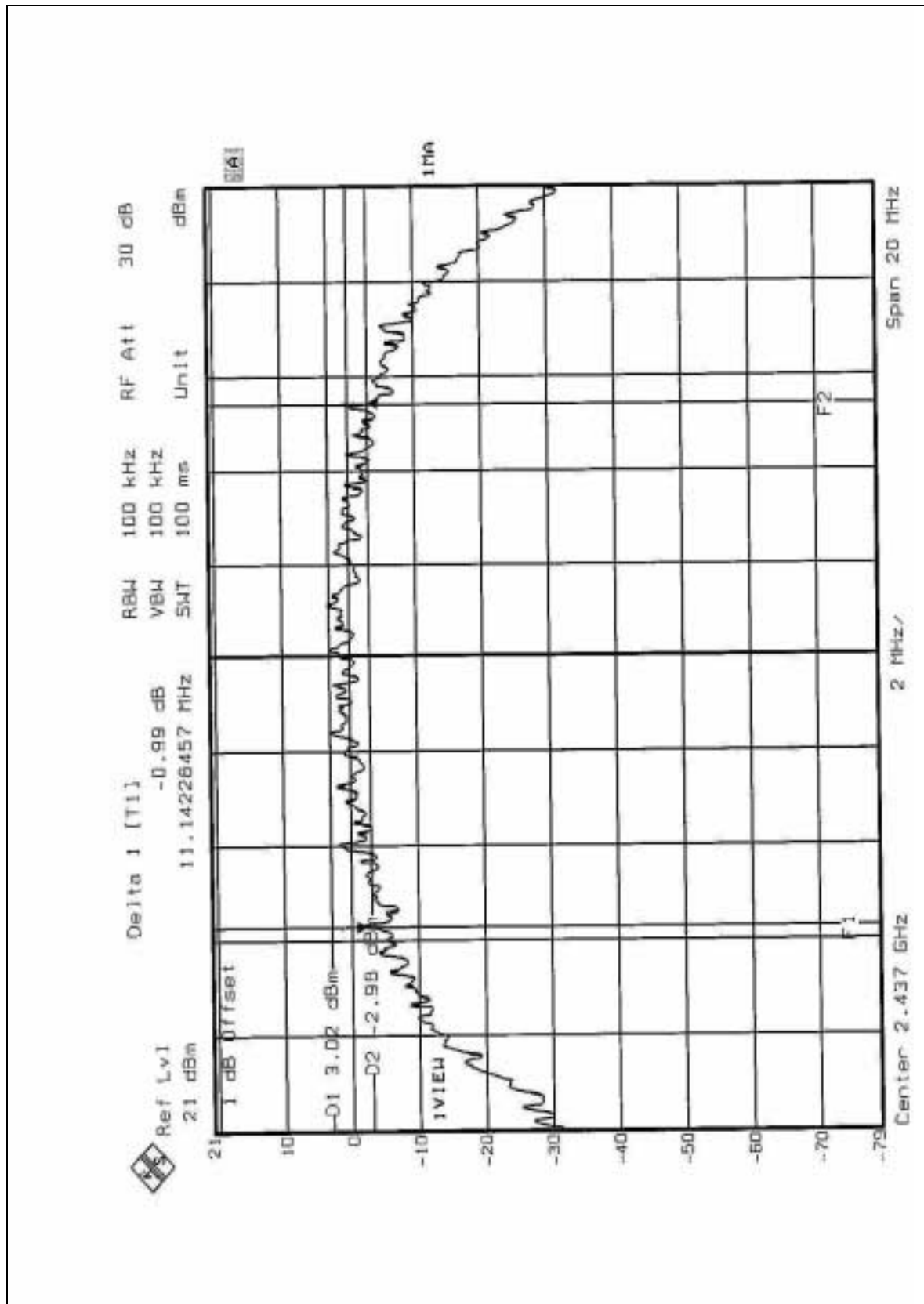
EUT	Wireless PC Card	MODEL	WL-316C
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25 deg. C, 70%RH, 1005 hPa
TESTED BY: Bruce Shiau			

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	11.14	0.5	PASS

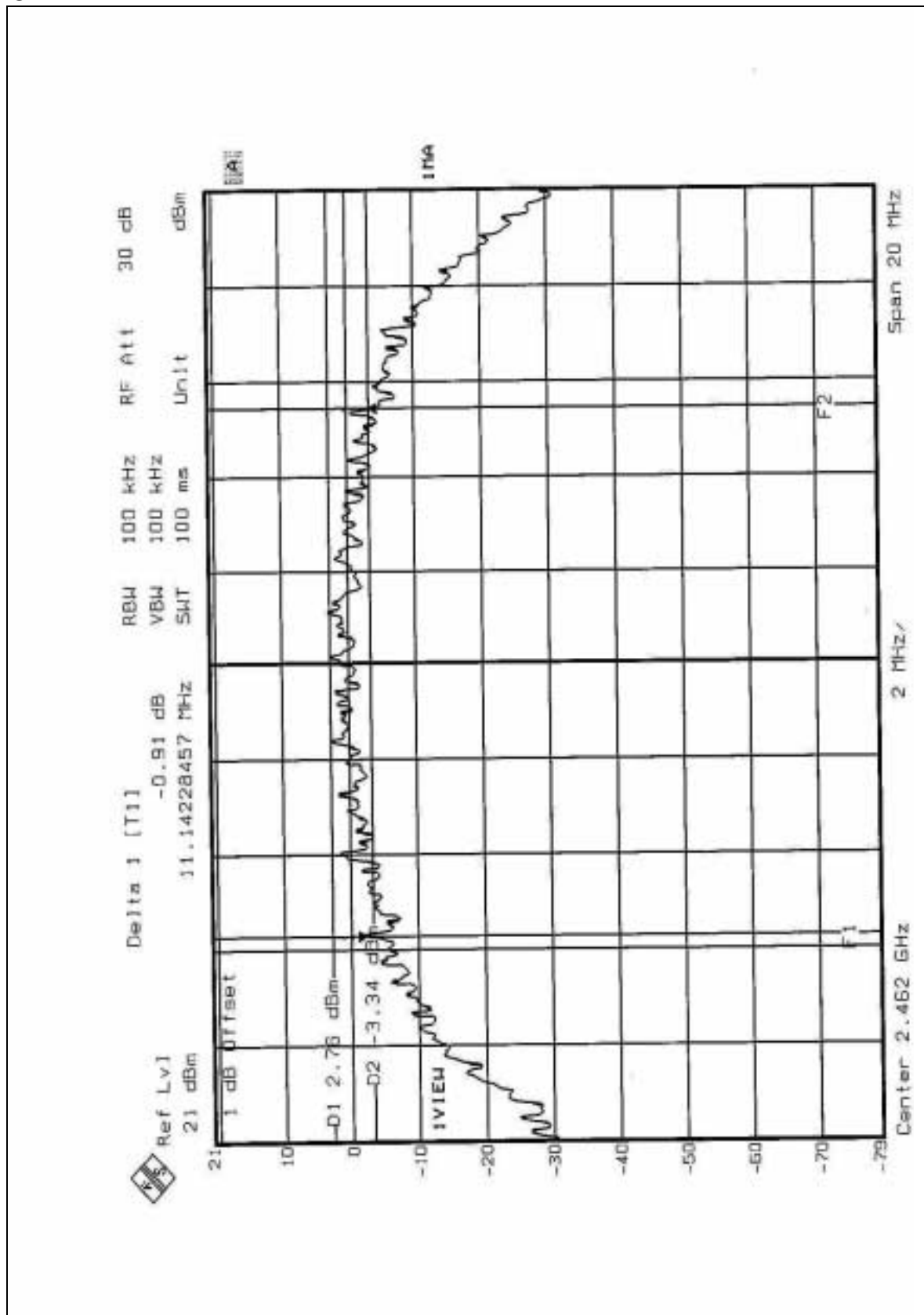
CH1



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 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
SPECTRUM ANALYZER	FSEK30	100049	July17, 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.

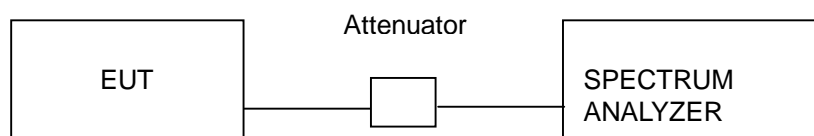


4.4.3 TEST PROCEDURES

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

NOTE: This measurement is the total power of 15MHz bandwidth which is far more wider than 6dB bandwidth.

4.4.4 TEST SETUP



4.4.5 EUT OPERATING CONDITIONS

Same as Item 4.3.5



4.4.6 TEST RESULTS

EUT	Wireless PC Card	MODEL	WL-316C
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25 deg. C, 70%RH, 1005 hPa
TESTED BY: Bruce Shiau			

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	18.10	30	PASS
6	2437	18.22	30	PASS
11	2462	17.96	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	July17, 2002

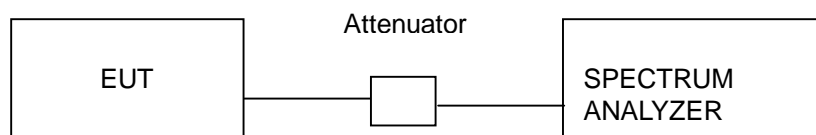
NOTE:

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

4.5.4 TEST SETUP



4.5.5 EUT OPERATING CONDITIONS

Same as 4.3.5

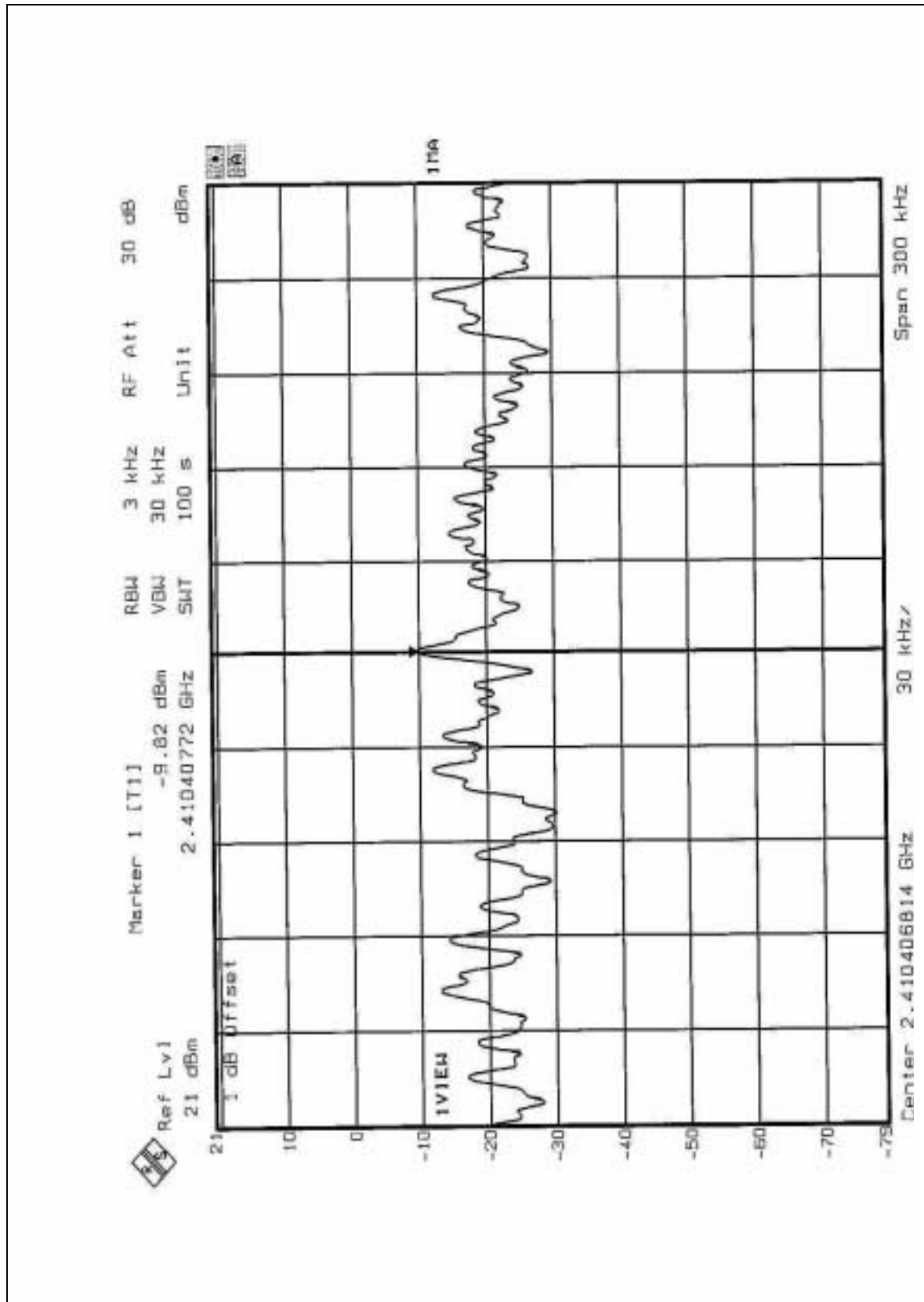


4.5.6 TEST RESULTS

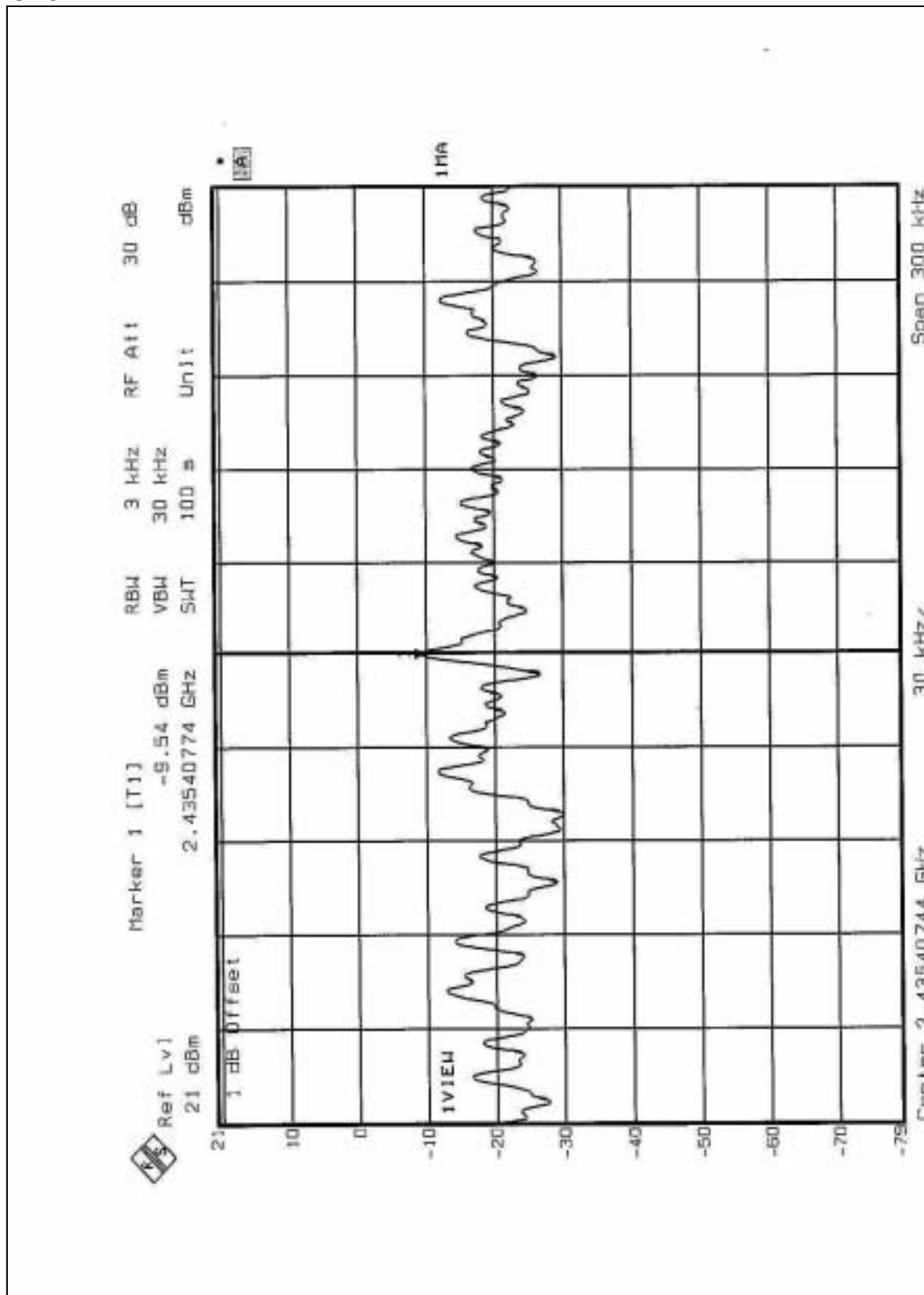
EUT	Wireless PC Card	MODEL	WL-316C
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25 deg. C, 70%RH, 1005 hPa
TESTED BY: Bruce Shiau			

CHANNEL NUMBER	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 KHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-9.82	8	PASS
6	2437	-9.54	8	PASS
11	2462	-9.85	8	PASS

CH1

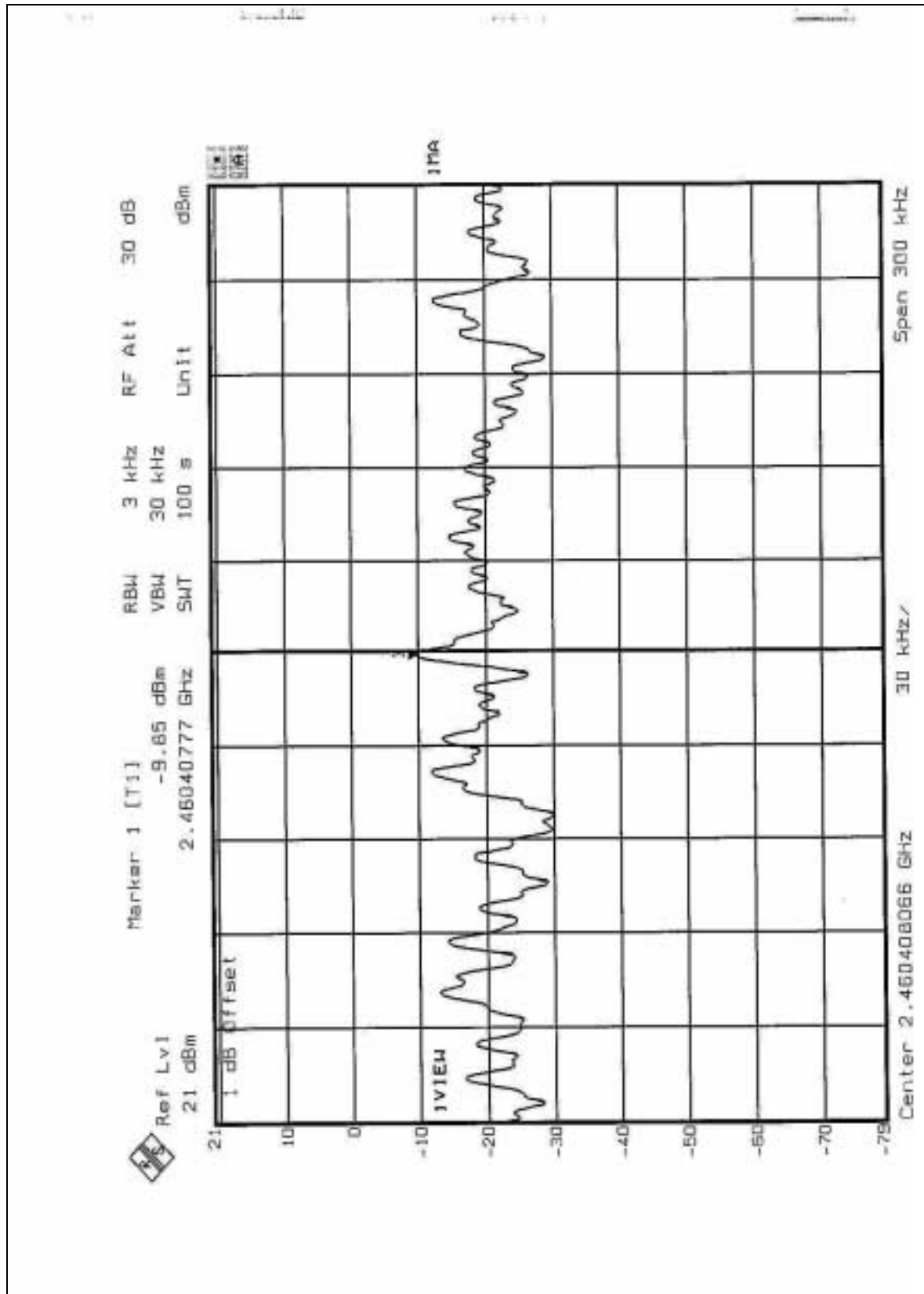


CH6





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	July17, 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.



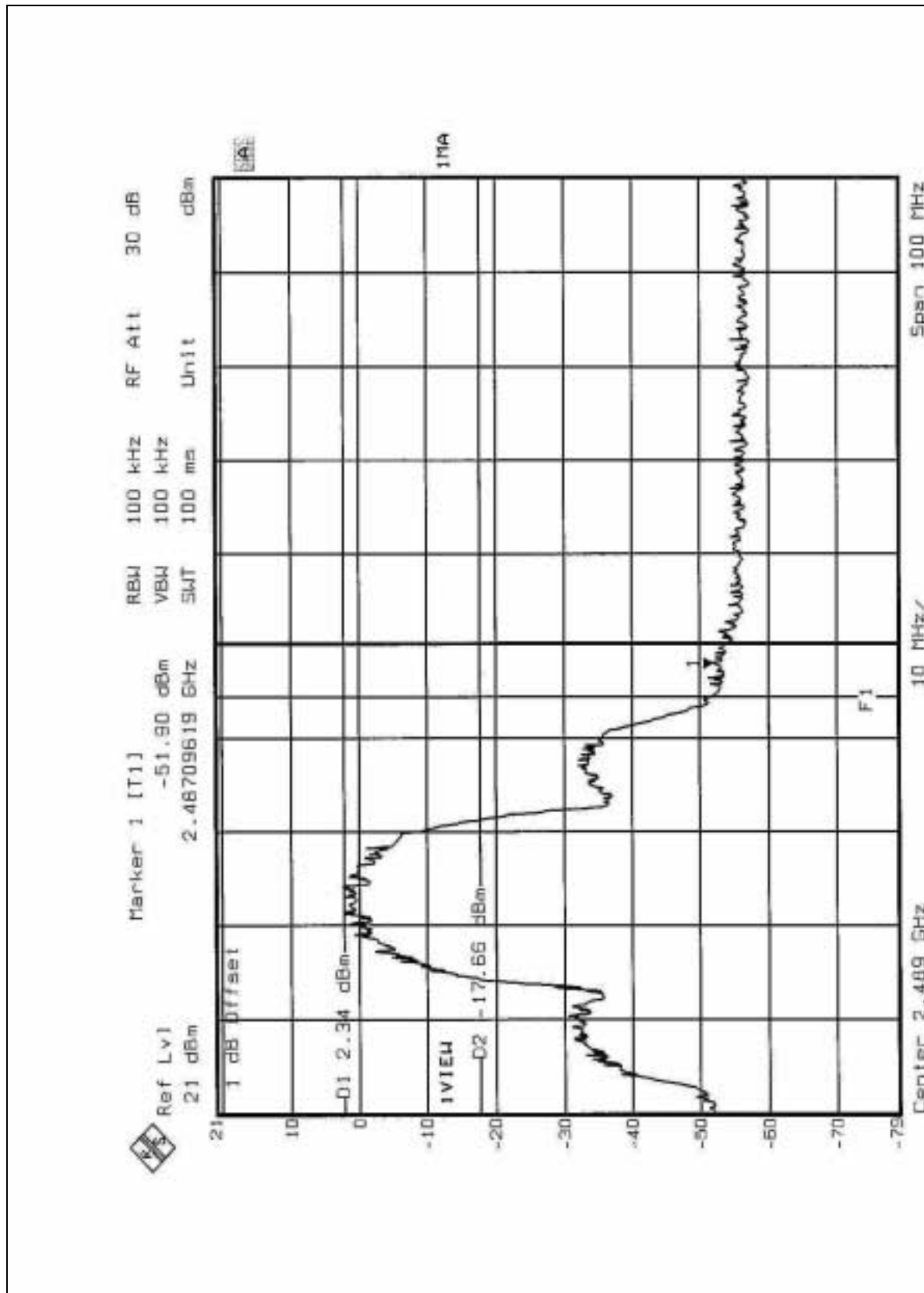
4.6.4 EUT OPERATING CONDITION

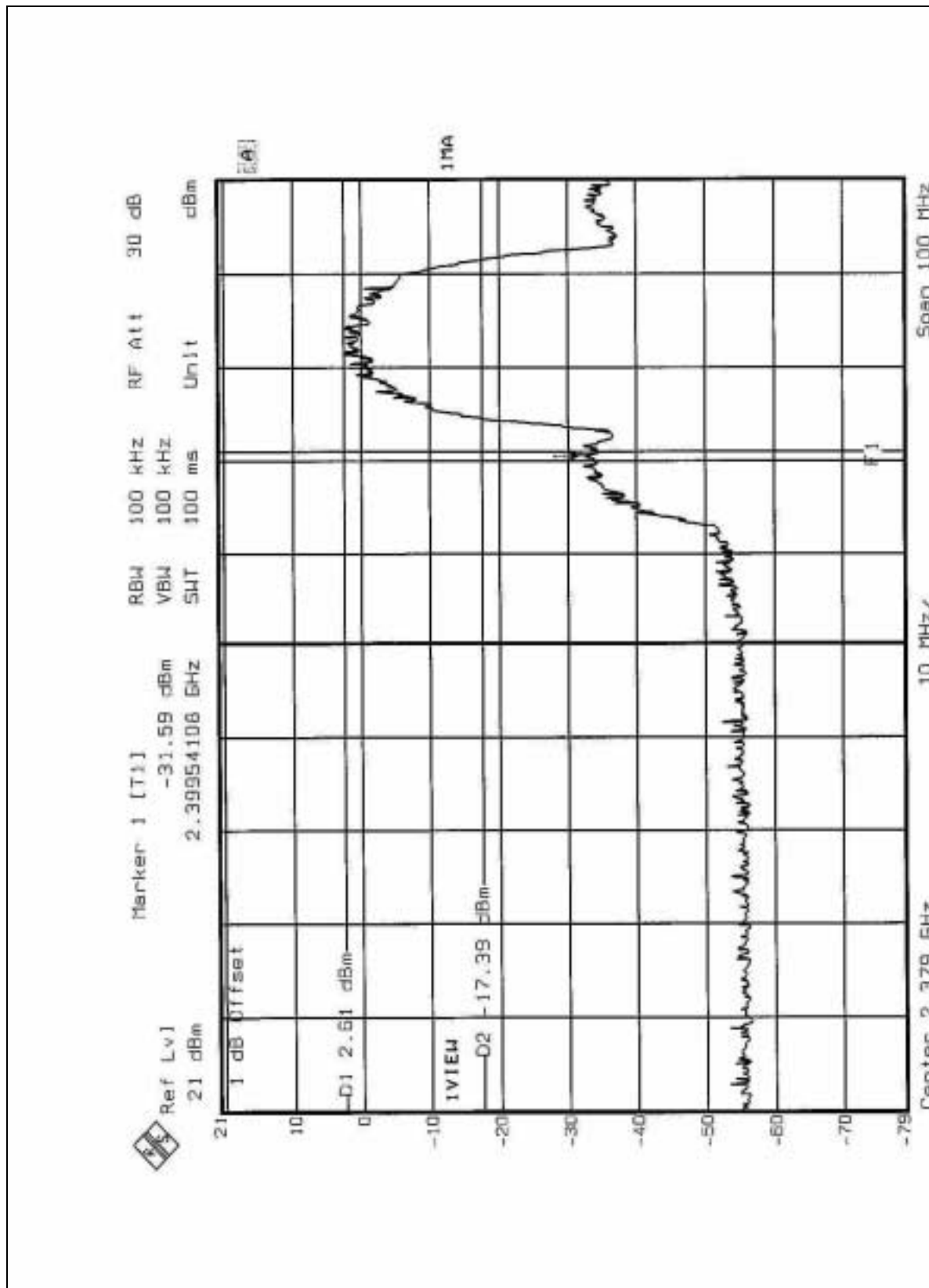
Same as Item 4.3.5

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 54.24dB delta between carrier maximum power and local maximum emission in restrict band (2.4871GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 (Page 37) is 99.6dBuV/m, so the maximum field strength in restrict band is $99.6 - 54.24 = 45.36$ 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

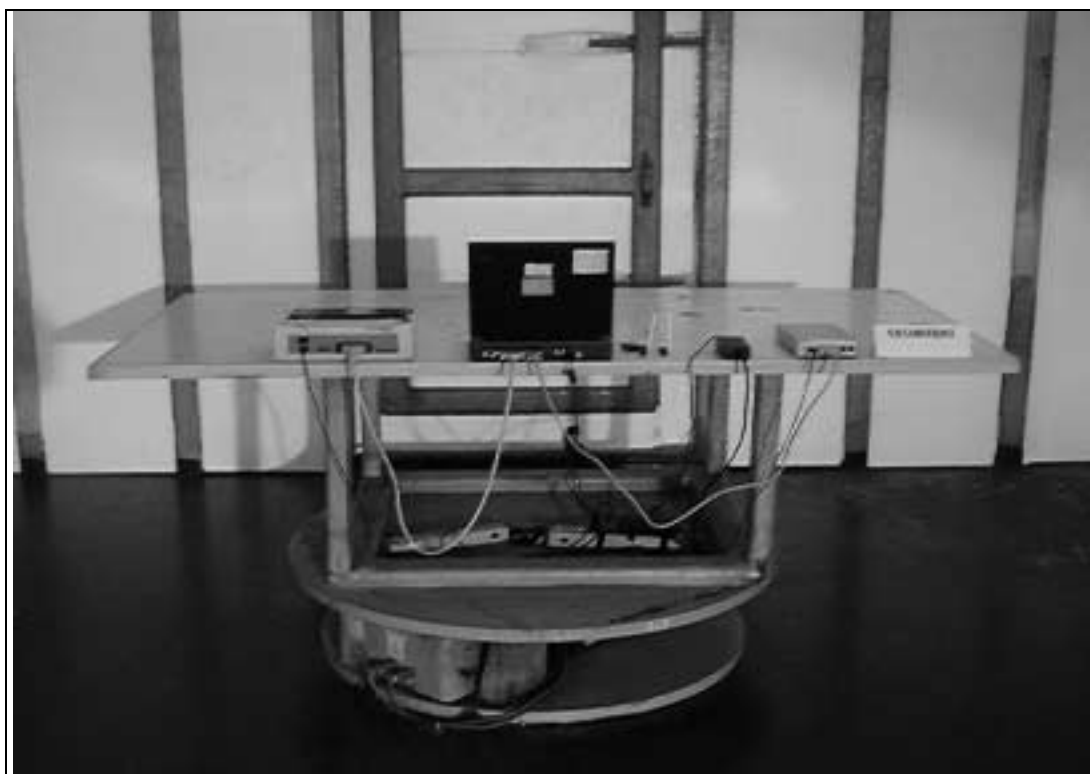
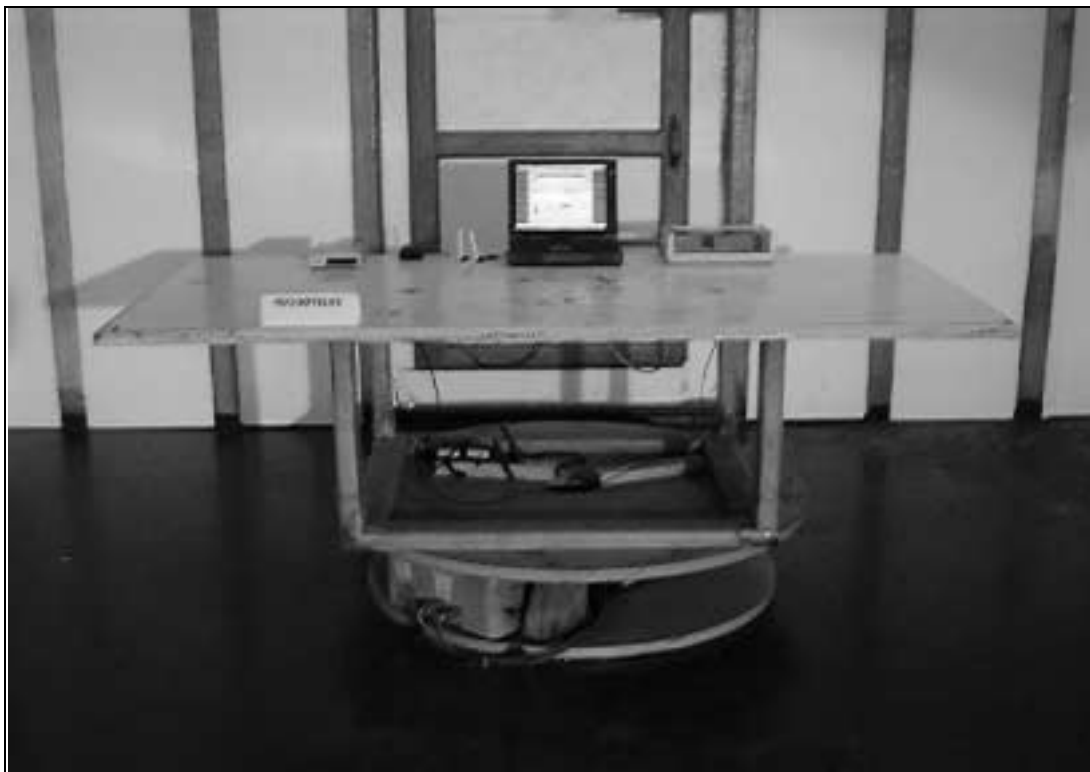
The antenna used in this product are Monopole antenna without antenna connector and Dipole antenna. The antenna connector is MMCX for Dipole antenna. And the maximum Gain of this antenna is only 1dBi.

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
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: 886-35-935343

Fax: 886-35-935342

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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.