



FCC TEST REPORT

REPORT NO.: RF900628R02A

MODEL NO.: XI-325

RECEIVED: Nov. 28, 2001

TESTED: Dec. 3 ~ Dec. 6, 2001

APPLICANT: Z-COM, INC.

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Taiwan, R.O.C.

ISSUED BY: Advance Data Technology Corporation

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

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0528
ILAC MRA



Lab Code: 200102-0



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1 CERTIFICATION

PRODUCT : 2.4GHz Wireless LAN Card
BRAND NAME : Z-Com
MODEL NO. : XI-325
APPLICANT : Z-COM, 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 Dec. 3, 2001 to Dec. 6, 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: Dec. 11, 2001
James Lee

CHECKED BY: Demi Chen, DATE: Dec. 11, 2001
Demi Chen

APPROVED BY: Alan Lane, DATE: Dec. 11, 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 -3.72dBuV at 22.568MHz
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 -7.6dBuV at 4076.00 MHz
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	2.4GHz Wireless LAN Card
MODEL NO.	XI-325
POWER SUPPLY	5 VDC from notebook
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	18.15dBm
ANTENNA TYPE	Patch antenna(fixed and detachable)
DATA CABLE	NA
I/O PORTS	NA
ASSOCIATED DEVICES	NA

NOTE:

1. Model: XI-325 has two antenna types. The only difference is the antenna installation, one is detachable, and the other is fixed.
2. This report is prepared for FCC class II permissive change. The differences compared with the original design is PCB layout changed. The newest one did some modification on the PCB layout as well as the shape of housing.
3. The model: XI-325 with original design has been approved by FCC under FCC ID: M4Y-000325
4. 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. Model: XI-325 has two the antenna types. The only difference is the antenna installation, one is detachable, and the other is fixed.
4. The test results (A) is for detachable antenna, and (B) for fixed antenna.

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a 2.4GHz Wireless LAN 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, 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	NOTEBOOK	DELL	PP01L	TW-09C748-12800-19	FCCDoC APPROVED
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	Dec. 2, 2002
ROHDE & SCHWARZ 2-wire ISN	ENY22	837497/016	Dec. 2, 2002
*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

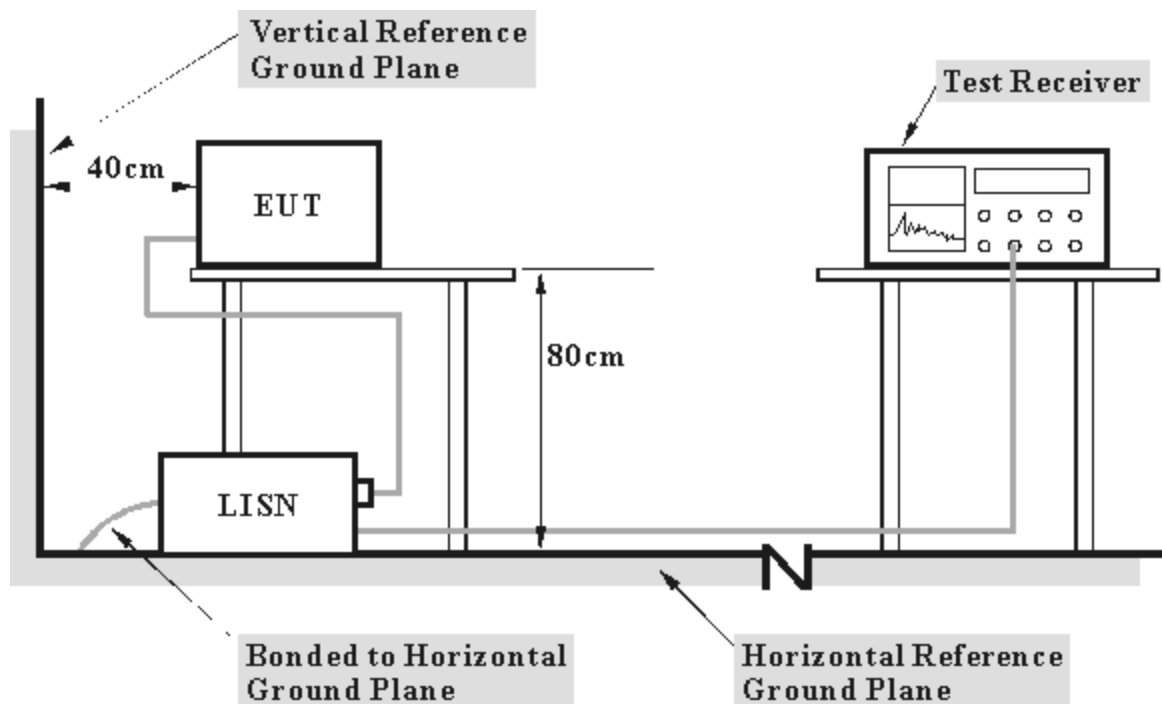
NOTE:

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. 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 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.

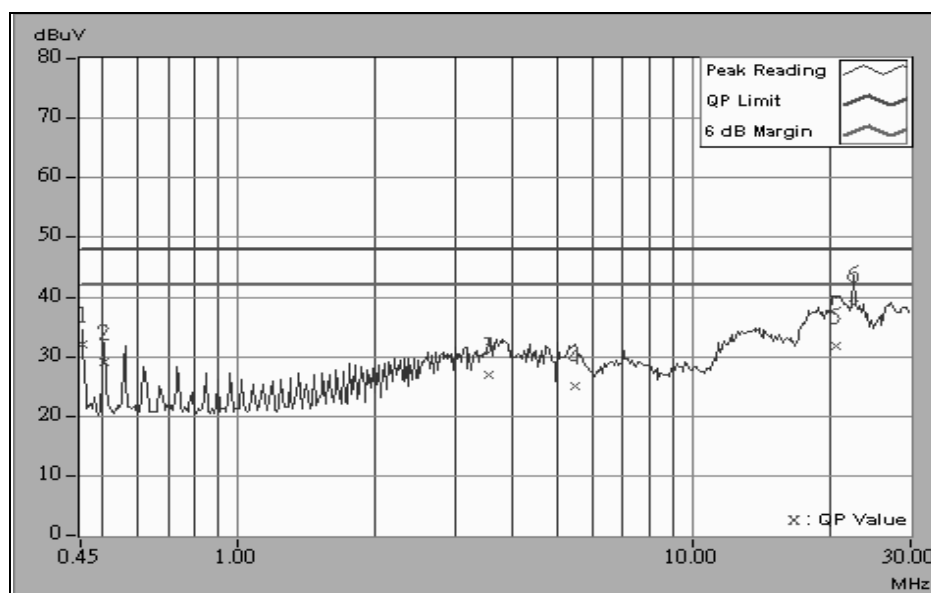
4.1.6 TEST RESULTS(A)

EUT	2.4GHz Wireless LAN Card	MODEL	XI-325
MODE	Channel 1	6dB BANDWIDTH	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	23 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	0.453	0.10	32.09	-	32.19	-	48.00	-	-15.81	-
2	0.509	0.10	29.21	-	29.31	-	48.00	-	-18.69	-
3	3.564	0.26	27.03	-	27.29	-	48.00	-	-20.71	-
4	5.489	0.35	25.07	-	25.42	-	48.00	-	-22.58	-
5	20.537	1.01	31.71	-	32.72	-	48.00	-	-15.28	-
6	22.568	1.05	38.75	-	39.80	-	48.00	-	-8.20	-

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.

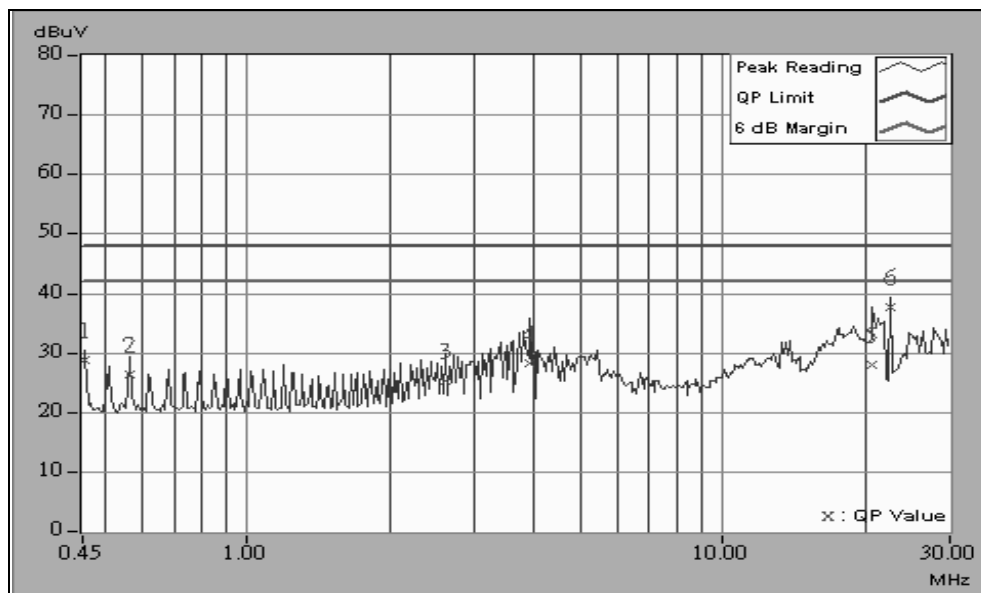


EUT	2.4GHz Wireless LAN Card	MODEL	XI-325
MODE	Channel 1	6dB BANDWIDTH	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	23 deg. C, 60%RH, 1005 hPa	TESTED BY: James Lee	

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	0.453	0.10	28.69	-	28.79	-	48.00	-	-19.21	-
2	0.567	0.10	26.41	-	26.51	-	48.00	-	-21.49	-
3	2.610	0.16	25.31	-	25.47	-	48.00	-	-22.53	-
4	3.915	0.29	28.31	-	28.60	-	48.00	-	-19.40	-
5	20.579	0.81	28.01	-	28.82	-	48.00	-	-19.18	-
6	22.568	0.85	37.71	-	38.56	-	48.00	-	-9.44	-

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.

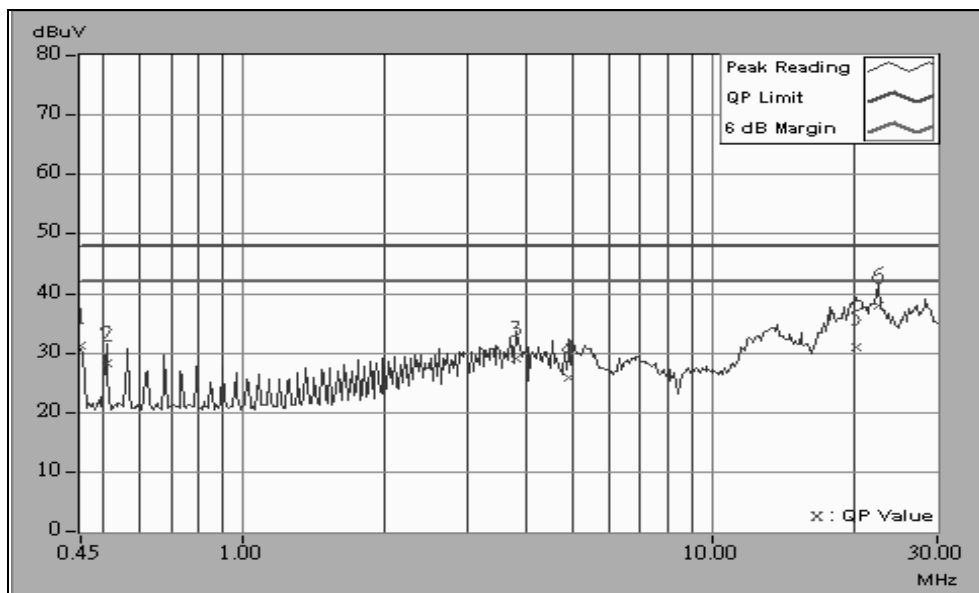


EUT	2.4GHz Wireless LAN Card	MODEL	XI-325
MODE	Channel 6	6dB BANDWIDTH	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	23 deg. C, 60%RH, 1005 hPa	TESTED BY: James Lee	

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	0.452	0.10	31.27	-	31.37	-	48.00	-	-16.63	-
2	0.510	0.10	28.21	-	28.31	-	48.00	-	-19.69	-
3	3.800	0.28	29.17	-	29.45	-	48.00	-	-18.55	-
4	4.937	0.33	25.79	-	26.12	-	48.00	-	-21.88	-
5	20.075	1.00	30.85	-	31.85	-	48.00	-	-16.15	-
6	22.568	1.05	38.03	-	39.08	-	48.00	-	-8.92	-

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.

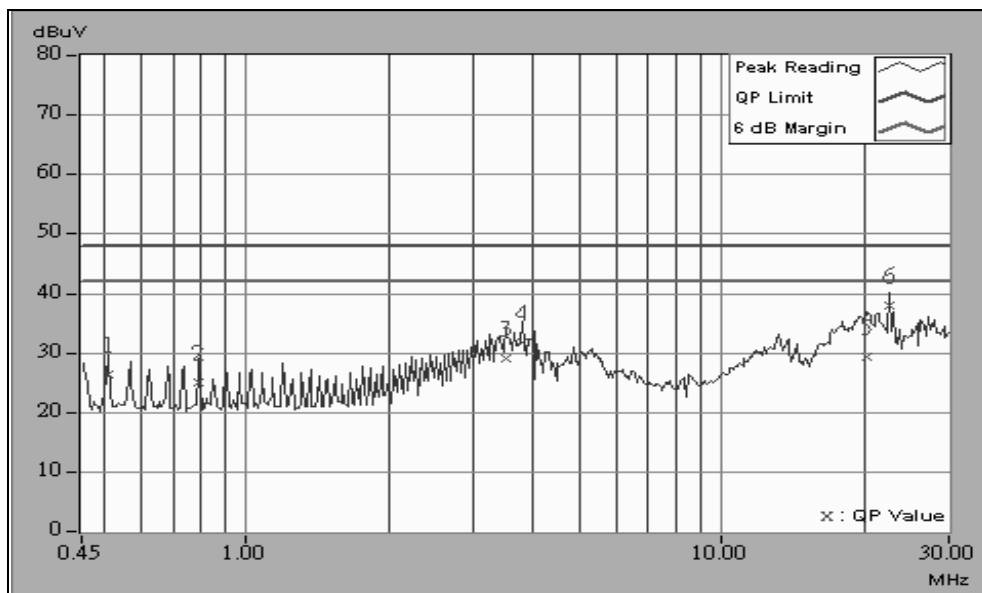


EUT	2.4GHz Wireless LAN Card	MODEL	XI-325
MODE	Channel 6	6dB BANDWIDTH	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	23 deg. C, 60%RH, 1005 hPa	TESTED BY: James Lee	

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	0.510	0.10	26.27	-	26.37	-	48.00	-	-21.63	-
2	0.795	0.10	24.99	-	25.09	-	48.00	-	-22.91	-
3	3.523	0.25	29.13	-	29.38	-	48.00	-	-18.62	-
4	3.811	0.28	31.87	-	32.15	-	48.00	-	-15.85	-
5	20.245	0.80	29.23	-	30.03	-	48.00	-	-17.97	-
6	22.569	0.85	37.87	-	38.72	-	48.00	-	-9.28	-

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.

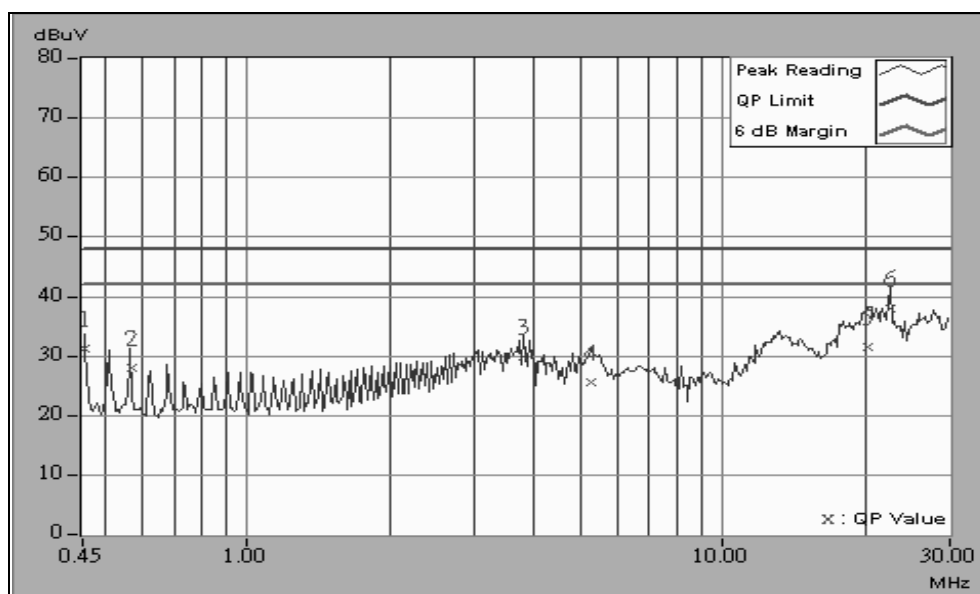


EUT	2.4GHz Wireless LAN Card	MODEL	XI-325
MODE	Channel 11	6dB BANDWIDTH	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	23 deg. C, 60%RH, 1005 hPa	TESTED BY: James Lee	

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	0.455	0.10	31.13	-	31.23	-	48.00	-	-16.77	-
2	0.569	0.10	27.91	-	28.01	-	48.00	-	-19.99	-
3	3.805	0.28	29.83	-	30.11	-	48.00	-	-17.89	-
4	5.283	0.34	25.61	-	25.95	-	48.00	-	-22.05	-
5	20.177	1.00	31.45	-	32.45	-	48.00	-	-15.55	-
6	22.569	1.05	37.99	-	39.04	-	48.00	-	-8.96	-

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.

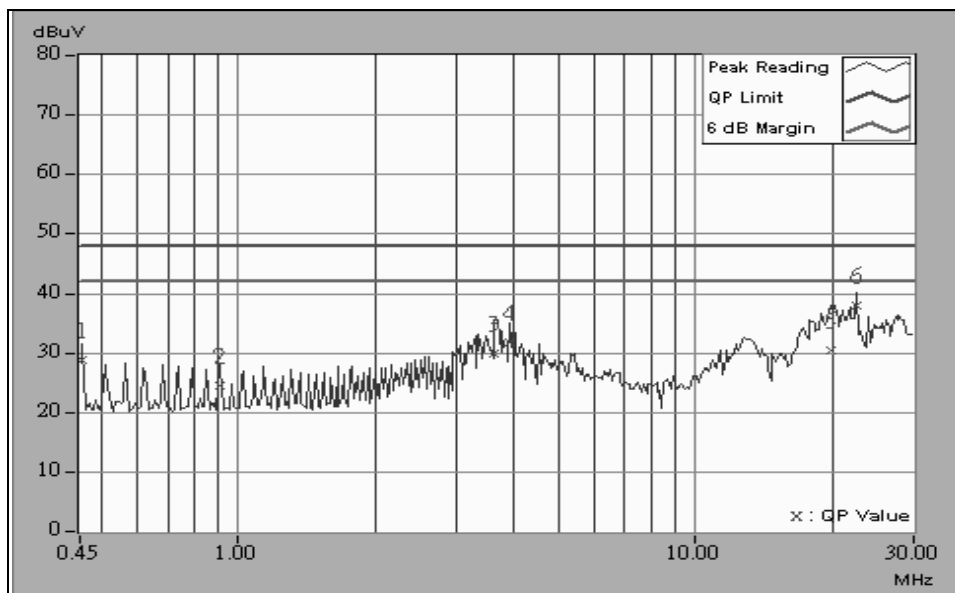


EUT	2.4GHz Wireless LAN Card	MODEL	XI-325
MODE	Channel 11	6dB BANDWIDTH	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Netural (N)
ENVIRONMENTAL CONDITIONS	23 deg. C, 60%RH, 1005 hPa	TESTED BY: James Lee	

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	0.453	0.10	28.83	-	28.93	-	48.00	-	-19.07	-
2	0.909	0.10	24.55	-	24.65	-	48.00	-	-23.35	-
3	3.637	0.26	29.93	-	30.19	-	48.00	-	-17.81	-
4	3.924	0.29	31.83	-	32.12	-	48.00	-	-15.88	-
5	19.727	0.79	30.47	-	31.26	-	48.00	-	-16.74	-
6	22.568	0.85	37.99	-	38.84	-	48.00	-	-9.16	-

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.



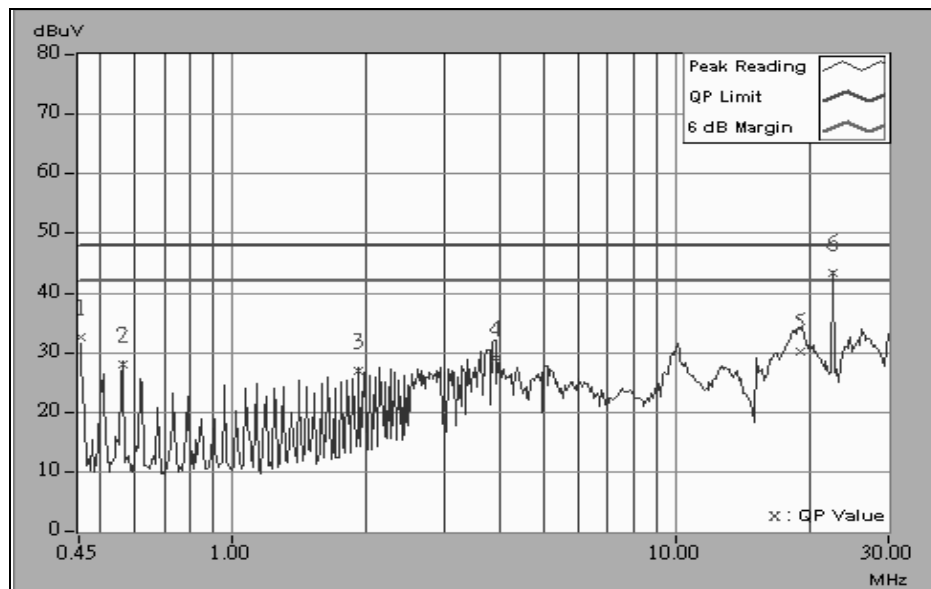
4.1.7 TEST RESULTS(B)

EUT	2.4GHz Wireless LAN Card	MODEL	XI-325
MODE	Channel 1	6dB BANDWIDTH	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	23 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	0.453	0.10	31.61	-	31.71	-	48.00	-	-16.29	-
2	0.564	0.10	26.85	-	26.95	-	48.00	-	-21.05	-
3	1.922	0.10	25.82	-	25.92	-	48.00	-	-22.08	-
4	3.900	0.29	27.96	-	28.25	-	48.00	-	-19.75	-
5	18.938	0.96	29.23	-	30.19	-	48.00	-	-17.81	-
6	22.569	1.05	42.37	-	43.42	-	48.00	-	-4.58	-

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.

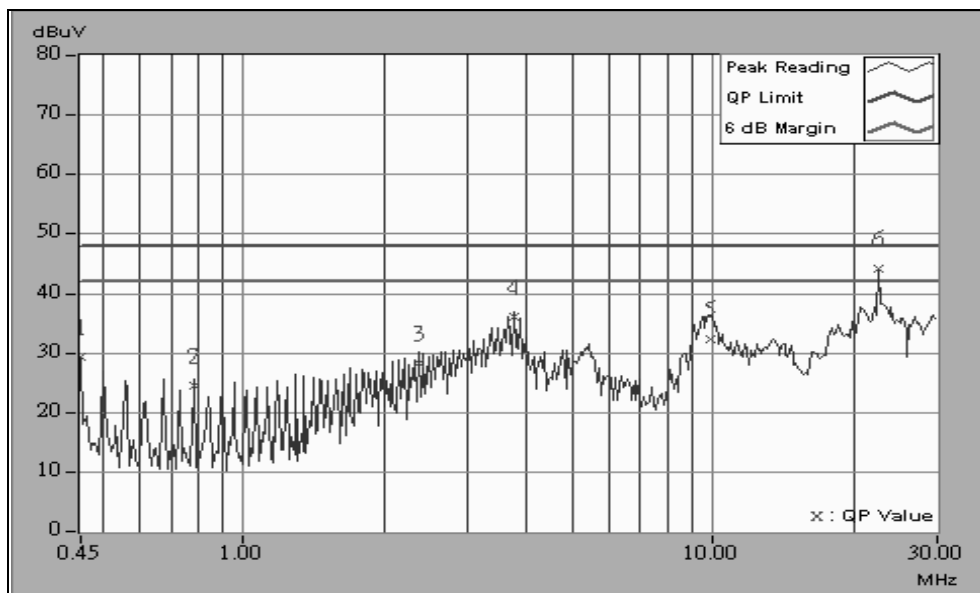


EUT	2.4GHz Wireless LAN Card	MODEL	XI-325
MODE	Channel 1	6dB BANDWIDTH	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	23 deg. C, 60%RH, 1005 hPa	TESTED BY: James Lee	

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	0.450	0.10	28.62	-	28.72	-	48.00	-	-19.28	-
2	0.786	0.10	23.77	-	23.87	-	48.00	-	-24.13	-
3	2.362	0.14	27.47	-	27.61	-	48.00	-	-20.39	-
4	3.771	0.28	35.13	-	35.41	-	48.00	-	-12.59	-
5	9.852	0.40	31.47	-	31.87	-	48.00	-	-16.13	-
6	22.568	0.85	43.43	-	44.28	-	48.00	-	-3.72	-

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.

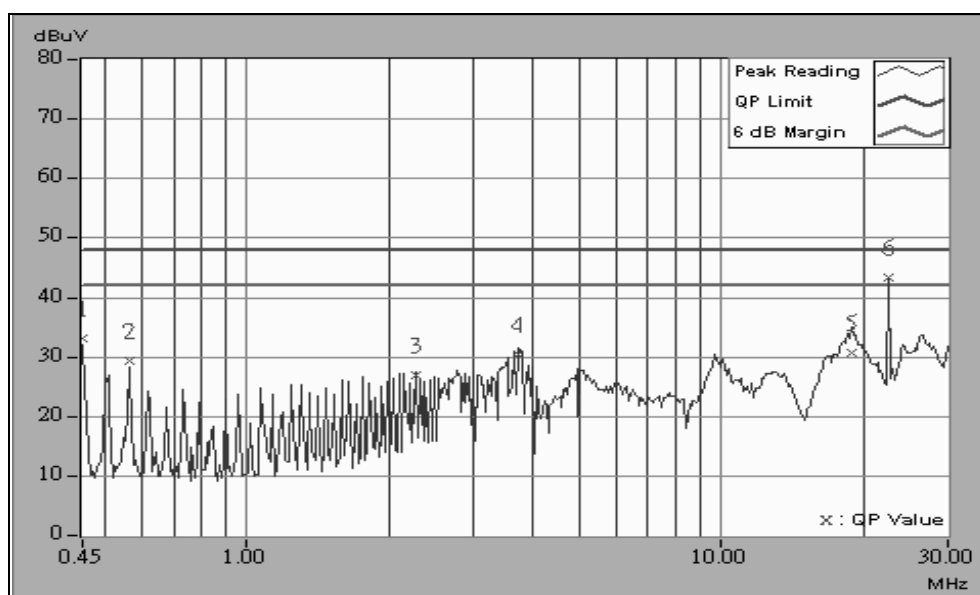


EUT	2.4GHz Wireless LAN Card	MODEL	XI-325
MODE	Channel 6	6dB BANDWIDTH	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	23 deg. C, 60%RH, 1005 hPa	TESTED BY: James Lee	

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	0.452	0.10	32.11	-	32.21	-	48.00	-	-15.79	-
2	0.564	0.10	28.41	-	28.51	-	48.00	-	-19.49	-
3	2.259	0.13	25.88	-	26.01	-	48.00	-	-21.99	-
4	3.728	0.27	29.35	-	29.62	-	48.00	-	-18.38	-
5	18.811	0.95	29.73	-	30.68	-	48.00	-	-17.32	-
6	22.569	1.05	42.27	-	43.32	-	48.00	-	-4.68	-

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.

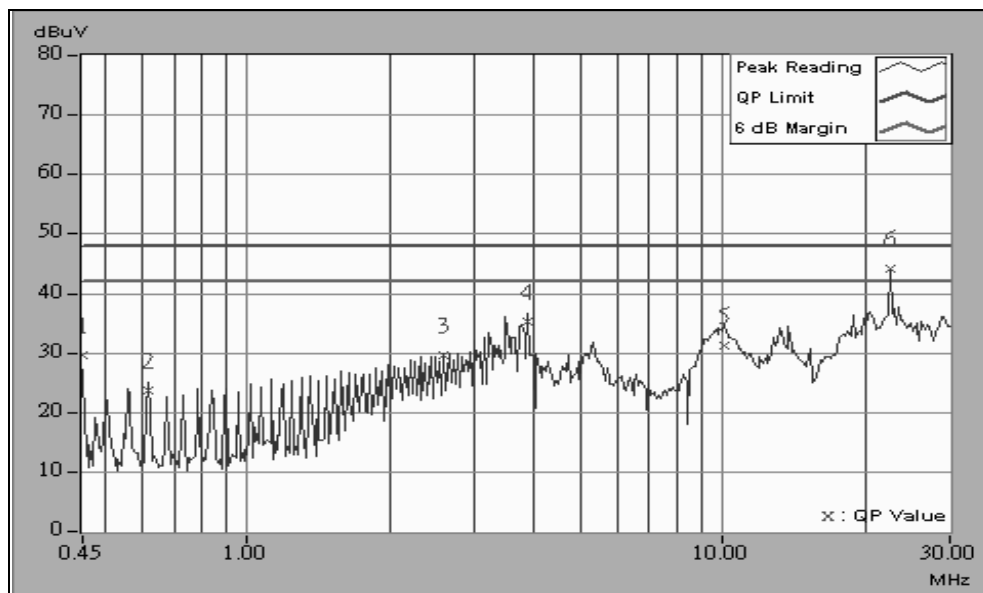


EUT	2.4GHz Wireless LAN Card	MODEL	XI-325
MODE	Channel 6	6dB BANDWIDTH	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	23 deg. C, 60%RH, 1005 hPa	TESTED BY: James Lee	

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	0.450	0.10	28.70	-	28.80	-	48.00	-	-19.20	-
2	0.618	0.10	22.91	-	23.01	-	48.00	-	-24.99	-
3	2.594	0.16	28.75	-	28.91	-	48.00	-	-19.09	-
4	3.890	0.29	34.50	-	34.79	-	48.00	-	-13.21	-
5	10.044	0.40	30.47	-	30.87	-	48.00	-	-17.13	-
6	22.569	0.85	43.37	-	44.22	-	48.00	-	-3.78	-

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.

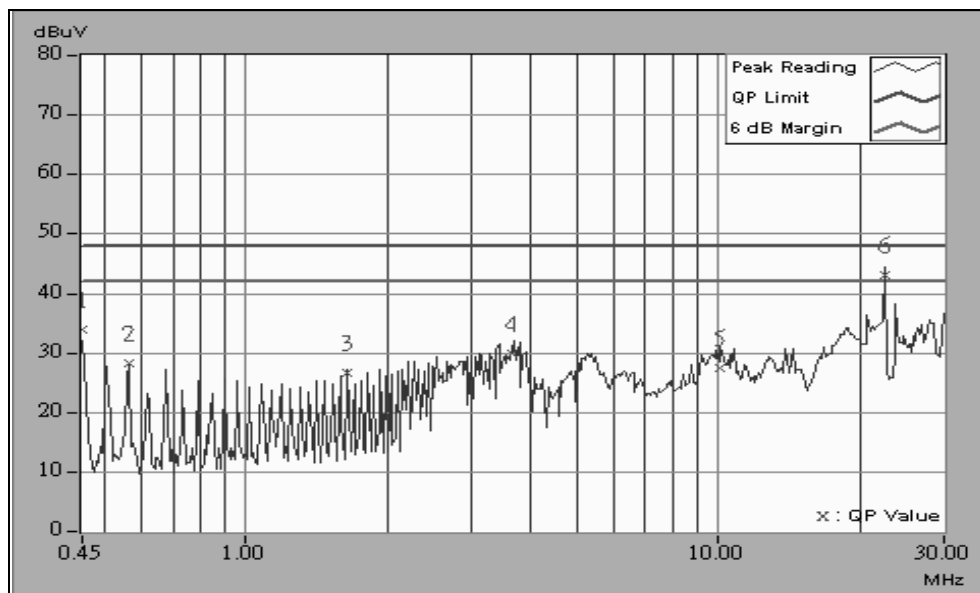


EUT	2.4GHz Wireless LAN Card	MODEL	XI-325
MODE	Channel 11	6dB BANDWIDTH	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	23 deg. C, 60%RH, 1005 hPa	TESTED BY: James Lee	

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	0.452	0.10	32.88	-	32.98	-	48.00	-	-15.02	-
2	0.564	0.10	27.20	-	27.30	-	48.00	-	-20.70	-
3	1.638	0.10	25.52	-	25.62	-	48.00	-	-22.38	-
4	3.673	0.27	28.81	-	29.08	-	48.00	-	-18.92	-
5	10.112	0.51	26.50	-	27.01	-	48.00	-	-20.99	-
6	22.570	1.05	42.04	-	43.09	-	48.00	-	-4.91	-

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.

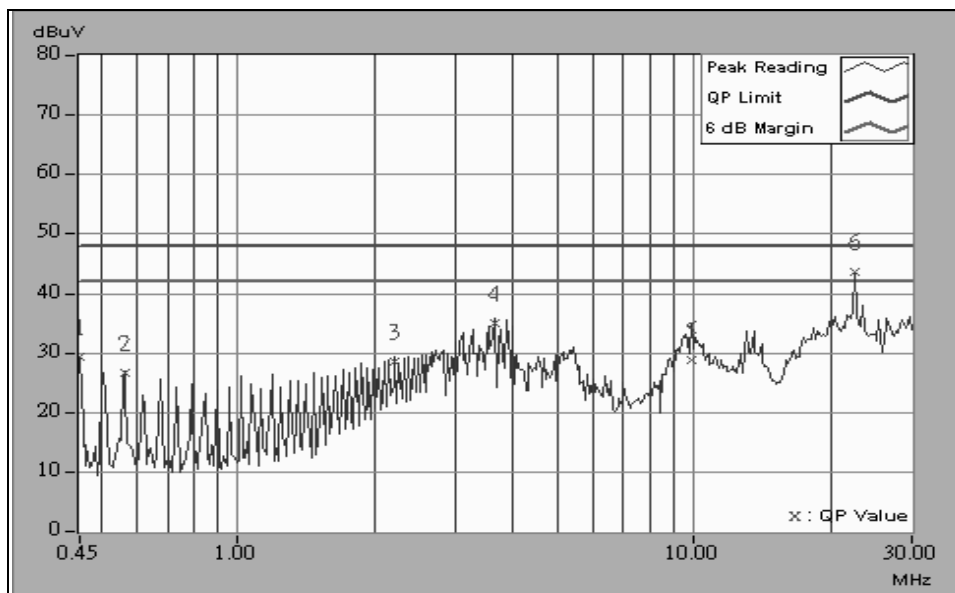


EUT	2.4GHz Wireless LAN Card	MODEL	XI-325
MODE	Channel 11	6dB BANDWIDTH	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Netural (N)
ENVIRONMENTAL CONDITIONS	23 deg. C, 60%RH, 1005 hPa	TESTED BY: James Lee	

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	0.450	0.10	28.54	-	28.64	-	48.00	-	-19.36	-
2	0.564	0.10	25.84	-	25.94	-	48.00	-	-22.06	-
3	2.202	0.12	27.71	-	27.83	-	48.00	-	-20.17	-
4	3.673	0.27	34.15	-	34.42	-	48.00	-	-13.58	-
5	9.894	0.40	27.93	-	28.33	-	48.00	-	-19.67	-
6	22.570	0.85	42.80	-	43.65	-	48.00	-	-4.35	-

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.





4.2 RADIATED EMISSION MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

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

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

NOTE:

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

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
* HP Spectrum Analyzer	8590L	3544A01176	May 7, 2002
* HP Preamplifier	8447D	2944A08485	May 7, 2002
* HP Preamplifier	8449B	3008A01201	Dec. 6, 2002
* 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, 2002
* CHASE BILOG Antenna	CBL6112A	2221	Aug. 2, 2002
* SCHWARZBECK Horn Antenna	BBHA9120-D1	D130	July 6, 2002
* EMCO Horn Antenna	3115	9312-4192	April 15, 2002
* EMCO Turn Table	1060	1115	NA
* SHOSHIN Tower	AP-4701	A6Y005	NA
* Software	AS61D4	NA	NA
* ANRITSU RF Switches	MP59B	M35046	Aug. 2, 2002
* TIMES RF cable	LMR-600	CABLE-ST5-01	Aug. 2, 2002
* Antenna (Horn)	BBHA9120-D	D130	July 10, 2002
Open Field Test Site	Site 5	ADT-R05	July 28, 2002
VCCI Site Registration No.	Site 5	R-1039	NA
Site Registration No.	FCC: 90422 Canada IC: IC 3789 VCCI : R-1039		

NOTE:

1. The measurement uncertainty is less than +/- 3.0dB, which is calculated as per the NAMAS document NIS81.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. "*" = These equipments are used for the final measurement.



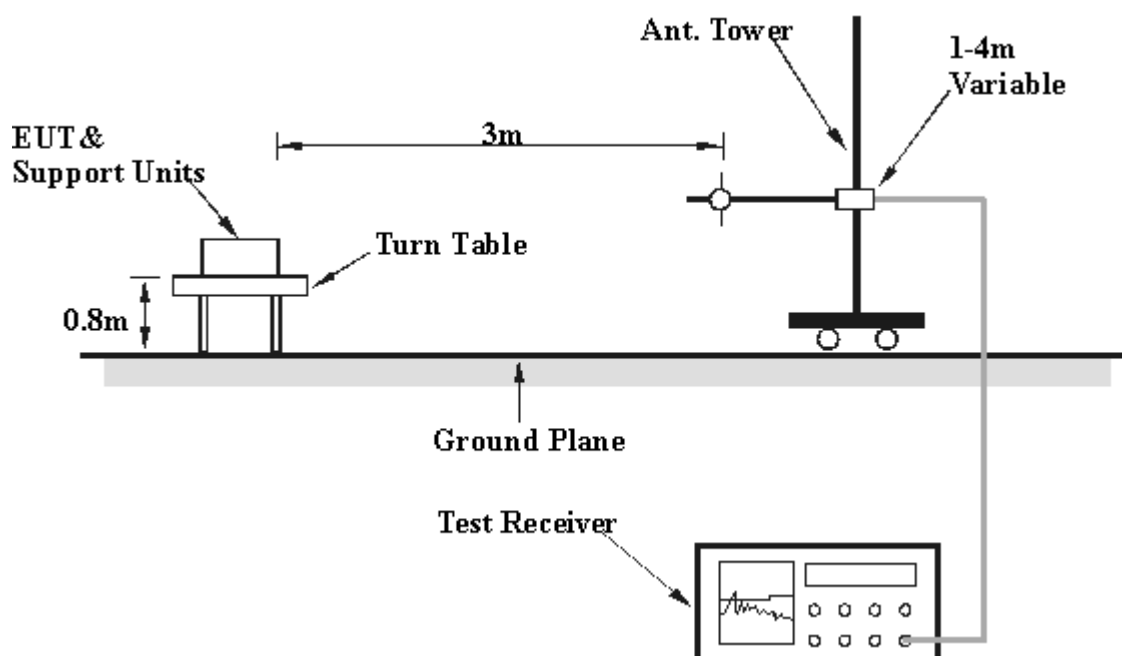
4.2.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10 dB margin would be re-tested one by one using 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	2.4GHz Wireless LAN Card	MODEL	XI-325
MODE	Channel 11	FREQUENCY RANGE	30-1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25 deg. C, 60 % RH, 1050 hPa	TESTED BY: James Lee	

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	440.00	29.2 QP	46.00	-16.80	1.03H	101	10.50	16.32	2.38	0.00	-18.69
2	483.99	29.3 QP	46.00	-16.70	1.02H	197	9.90	16.96	2.47	0.00	-19.44
3	528.07	31.7 QP	46.00	-14.30	1.13H	283	11.50	17.62	2.60	0.00	-20.22
4	572.00	29.5 QP	46.00	-16.50	1.88H	282	8.50	18.25	2.75	0.00	-21.00
5	616.00	29.2 QP	46.00	-16.80	1.65H	100	7.50	18.82	2.89	0.00	-21.71
6	660.00	32.3 QP	46.00	-13.70	1.00H	155	10.00	19.25	3.05	0.00	-22.29

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	440.00	32.5 QP	46.00	-13.50	1.22V	133	13.80	16.32	2.38	0.00	-18.69
2	484.00	29.4 QP	46.00	-16.60	1.00V	127	10.00	16.96	2.47	0.00	-19.43
3	572.00	34.5 QP	46.00	-11.50	1.06V	146	13.50	18.25	2.75	0.00	-21.00
4	616.00	32.7 QP	46.00	-13.30	1.00V	87	11.00	18.82	2.89	0.00	-21.71
5	659.99	32.8 QP	46.00	-13.20	1.43V	157	10.50	19.25	3.05	0.00	-22.29
6	880.10	33.7 QP	46.00	-12.30	1.04V	174	9.50	20.68	3.55	0.00	-24.24

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	2.4GHz Wireless LAN Card	MODEL	XI-325
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, 60 % RH, 1050 hPa	TESTED BY: James Lee	

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	2037.70	46.7 PK	74.00	-27.30	1.17H	342	51.50	25.20	4.86	34.90	4.84
2	*2413.30	102.8 PK	-	-	1.11H	7	70.56	27.11	5.10	0.00	-32.21
3	*2413.30	95.8 AV	-	-	1.11H	7	63.60	27.11	5.10	0.00	-32.21
4	4075.50	47.9 PK	74.00	-26.10	1.12H	132	45.50	30.13	6.78	34.52	-2.39
5	4824.00	48.5 PK	74.00	-25.50	1.44H	322	44.50	31.43	7.23	34.63	-4.02

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB)
1	2037.80	45.7 PK	74.00	-28.30	1.00V	331	50.50	25.20	4.86	34.90	4.84
2	*2413.40	103.1 PK	-	-	1.00V	63	70.90	27.11	5.10	0.00	-32.22
3	*2413.40	96.1 AV	-	-	1.00V	63	63.90	27.11	5.10	0.00	-32.22
4	4075.50	48.9 PK	74.00	-25.10	1.01V	119	46.50	30.13	6.78	34.52	-2.39
5	4824.00	49.5 PK	74.00	-24.50	1.04V	317	45.50	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	2.4GHz Wireless LAN Card	MODEL	XI-325
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, 60 % RH, 1050 hPa	TESTED BY:	James Lee

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	45.5 PK	74.00	-28.50	1.00H	99	50.00	25.41	4.96	34.90	4.53
2	*2438.40	103.8 PK	-	-	1.29H	320	71.40	27.33	5.08	0.00	-32.40
3	*2438.40	96.8 AV	-	-	1.29H	320	64.40	27.33	5.08	0.00	-32.40
4	4125.50	49.5 PK	74.00	-24.50	1.68H	320	47.00	30.32	6.70	34.56	-2.46
5	4874.00	49.1 PK	74.00	-24.90	1.16H	197	45.00	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	2062.70	46.0 PK	74.00	-28.00	1.24V	353	50.50	25.41	4.96	34.90	4.53
2	*2438.30	106.5 PK	-	-	1.21V	28	74.10	27.33	5.08	0.00	-32.41
3	*2438.30	99.5 AV	-	-	1.21V	28	67.10	27.33	5.08	0.00	-32.41
4	4125.50	48.0 PK	74.00	-26.00	1.57V	11	45.50	30.32	6.70	34.56	-2.46
5	4874.00	48.6 PK	74.00	-25.40	1.07V	354	44.50	31.47	7.21	34.63	-4.05

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	2.4GHz Wireless LAN Card	MODEL	XI-325
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, 60 % RH, 1050 hPa	TESTED BY: James Lee	

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	46.5 PK	74.00	-27.50	1.19H	1	50.80	25.62	5.02	34.90	4.26
2	*2462.20	104.3 PK	-	-	1.44H	12	71.90	27.33	5.08	0.00	-32.40
3	*2462.20	97.3 AV	-	-	1.44H	12	64.90	27.33	5.08	0.00	-32.40
4	2487.50	46.4 PK	74.00	-27.60	1.00H	354	48.70	27.54	5.06	34.90	2.31
5	4175.50	47.0 PK	74.00	-27.00	1.00H	325	44.50	30.41	6.68	34.58	-2.51
6	4924.00	44.6 PK	74.00	-29.40	1.02H	5	40.50	31.51	7.21	34.62	-4.11

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	46.7 PK	74.00	-27.30	1.27V	5	51.00	25.62	5.02	34.90	4.26
2	*2462.60	104.6 PK	-	-	1.15V	239	72.20	27.33	5.08	0.00	-32.40
3	*2462.60	97.6 AV	-	-	1.15V	239	65.20	27.33	5.08	0.00	-32.40
4	2488.00	47.9 PK	74.00	-26.10	2.18V	353	50.20	27.54	5.06	34.90	2.31
5	4175.50	49.0 PK	74.00	-25.00	2.11V	62	46.50	30.41	6.68	34.58	-2.51
6	4924.00	47.6 PK	74.00	-26.40	1.09V	179	43.50	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	2.4GHz Wireless LAN Card	MODEL	XI-325
MODE	Channel 11	FREQUENCY RANGE	30-1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25 deg. C, 60 % RH, 1050 hPa	TESTED BY: James Lee	

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	264.20	31.8 QP	46.00	-14.20	1.29H	28	17.40	12.75	1.70	0.00	-14.45
2	352.00	31.4 QP	46.00	-14.60	1.18H	302	15.00	14.31	2.05	0.00	-16.36
3	528.00	35.0 QP	46.00	-11.00	1.15H	253	14.80	17.62	2.60	0.00	-20.22
4	660.00	35.1 QP	46.00	-10.90	1.21H	183	12.80	19.25	3.05	0.00	-22.29
5	748.50	34.4 QP	46.00	-11.60	1.63H	6	11.00	20.14	3.26	0.00	-23.40
6	880.00	34.2 QP	46.00	-11.80	1.00H	355	10.00	20.68	3.55	0.00	-24.23

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	220.00	29.6 QP	46.00	-16.40	1.18V	149	18.00	10.12	1.51	0.00	-11.63
2	396.00	31.2 QP	46.00	-14.80	1.40V	217	13.00	15.96	2.22	0.00	-18.18
3	440.00	33.7 QP	46.00	-12.30	1.22V	282	15.00	16.32	2.38	0.00	-18.69
4	528.00	34.2 QP	46.00	-11.80	1.16V	237	14.00	17.62	2.60	0.00	-20.22
5	660.00	36.5 QP	46.00	-9.50	1.09V	186	14.20	19.25	3.05	0.00	-22.29
6	748.00	34.4 QP	46.00	-11.60	1.45V	265	11.00	20.14	3.26	0.00	-23.40

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	2.4GHz Wireless LAN Card	MODEL	XI-325
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, 60 % RH, 1050 hPa	TESTED BY:	James Lee

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	49.5 PK	74.00	-24.50	1.12H	359	54.30	25.20	4.86	34.90	4.84
2	*2413.40	104.2 PK	-	-	1.30H	299	72.00	27.11	5.10	0.00	-32.21
3	*2413.40	96.2 AV	-	-	1.30H	299	64.00	27.11	5.10	0.00	-32.21
4	4076.00	50.0 PK	74.00	-24.00	1.34H	225	47.60	30.13	6.78	34.52	-2.39
5	4824.00	50.4 PK	74.00	-23.60	1.33H	121	46.40	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	49.5 PK	74.00	-24.50	1.20V	262	54.36	25.20	4.86	34.90	4.84
2	*2413.40	100.7 PK	-	-	1.28V	280	68.50	27.11	5.10	0.00	-32.21
3	*2413.40	93.6 AV	-	-	1.28V	280	61.40	27.11	5.10	0.00	-32.21
4	4076.00	53.4 PK	74.00	-20.60	1.30V	232	51.00	30.13	6.78	34.52	-2.39
5	4076.00	46.4 AV	54.00	-7.60	1.30V	232	44.00	30.13	6.78	34.52	-2.39
6	4824.00	51.0 PK	74.00	-23.00	1.37V	287	47.00	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	2.4GHz Wireless LAN Card	MODEL	XI-325
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, 60 % RH, 1050 hPa	TESTED BY: James Lee	

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	49.6 PK	74.00	-24.40	1.03H	4	54.09	25.41	4.96	34.90	4.53
2	*2437.00	99.3 PK	-	-	1.90H	345	66.90	27.33	5.08	0.00	-32.40
3	*2437.00	91.4 AV	-	-	1.90H	345	59.00	27.33	5.08	0.00	-32.40
4	4126.00	49.5 PK	74.00	-24.50	1.24H	34	47.00	30.32	6.70	34.56	-2.46
5	4874.00	51.6 PK	74.00	-22.40	1.31H	65	47.50	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	50.5 PK	74.00	-23.50	1.06V	354	55.00	25.41	4.96	34.90	4.53
2	*2437.00	100.4 PK	-	-	1.51V	2	68.00	27.33	5.08	0.00	-32.40
3	*2437.00	93.4 AV	-	-	1.51V	2	61.00	27.33	5.08	0.00	-32.40
4	4125.00	50.5 PK	74.00	-23.50	1.85V	1	48.00	30.32	6.70	34.56	-2.46
5	4874.00	50.8 PK	74.00	-23.20	1.32V	160	46.70	31.47	7.21	34.63	-4.05
6	6188.00	51.5 PK	74.00	-22.50	1.44V	356	45.00	33.14	8.01	34.60	-6.55

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	2.4GHz Wireless LAN Card	MODEL	XI-325
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, 60 % RH, 1050 hPa	TESTED BY:	James Lee

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	49.3 PK	74.00	-24.70	1.03H	3	53.56	25.62	5.02	34.90	4.26
2	*2463.00	101.9 PK	-	-	1.59H	328	69.50	27.33	5.08	0.00	-32.40
3	*2463.00	93.8 AV	-	-	1.59H	328	61.40	27.33	5.08	0.00	-32.40
4	2483.60	48.4 PK	74.00	-25.60	1.47H	318	50.70	27.54	5.06	34.90	2.31
5	4176.00	49.5 PK	74.00	-24.50	1.24H	1	47.00	30.41	6.68	34.58	-2.51
6	4924.00	50.9 PK	74.00	-23.10	1.23H	339	46.80	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	49.7 PK	74.00	-24.30	1.86V	1	54.00	25.62	5.02	34.90	4.26
2	*2463.00	102.3 PK	-	-	1.63V	23	69.87	27.33	5.08	0.00	-32.40
3	*2463.00	93.4 AV	-	-	1.63V	23	61.00	27.33	5.08	0.00	-32.40
4	2485.50	48.7 PK	74.00	-25.30	1.30V	350	51.00	27.54	5.06	34.90	2.31
5	4176.00	48.5 PK	74.00	-25.50	1.30V	270	46.00	30.41	6.68	34.58	-2.51
6	4924.00	50.6 PK	74.00	-23.40	1.27V	338	46.50	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
ROHDE & SCHWARZ TEST RECEIVER	ESMI	839379/002	Dec. 28, 2001
HP ATTENUATOR	8496B	3247A18505	Cal. on use
HP PLOTTER	7475A	2641V27755	N/A

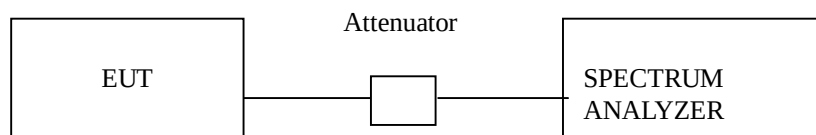
NOTE:

- 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.

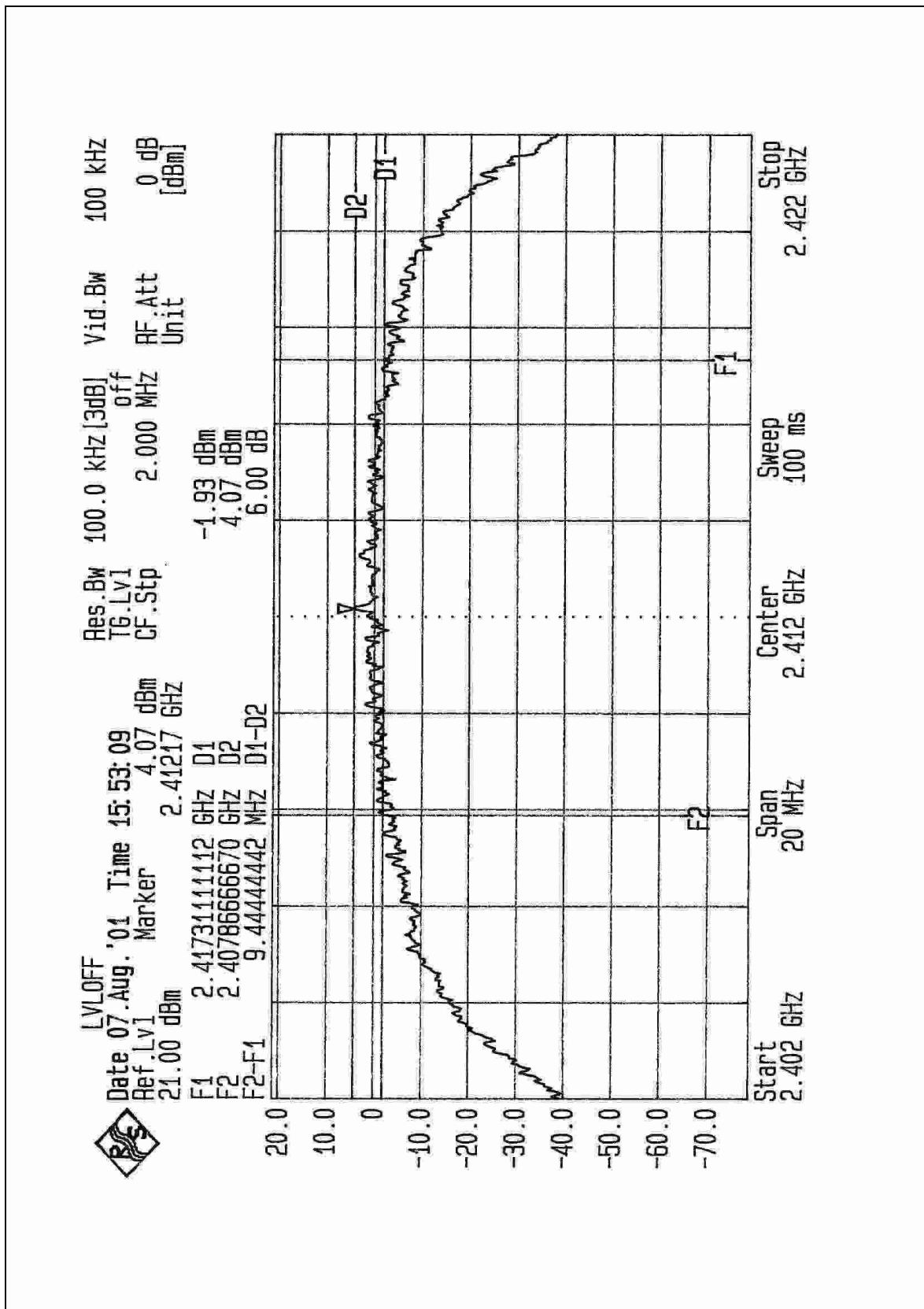


4.3.6 TEST RESULTS

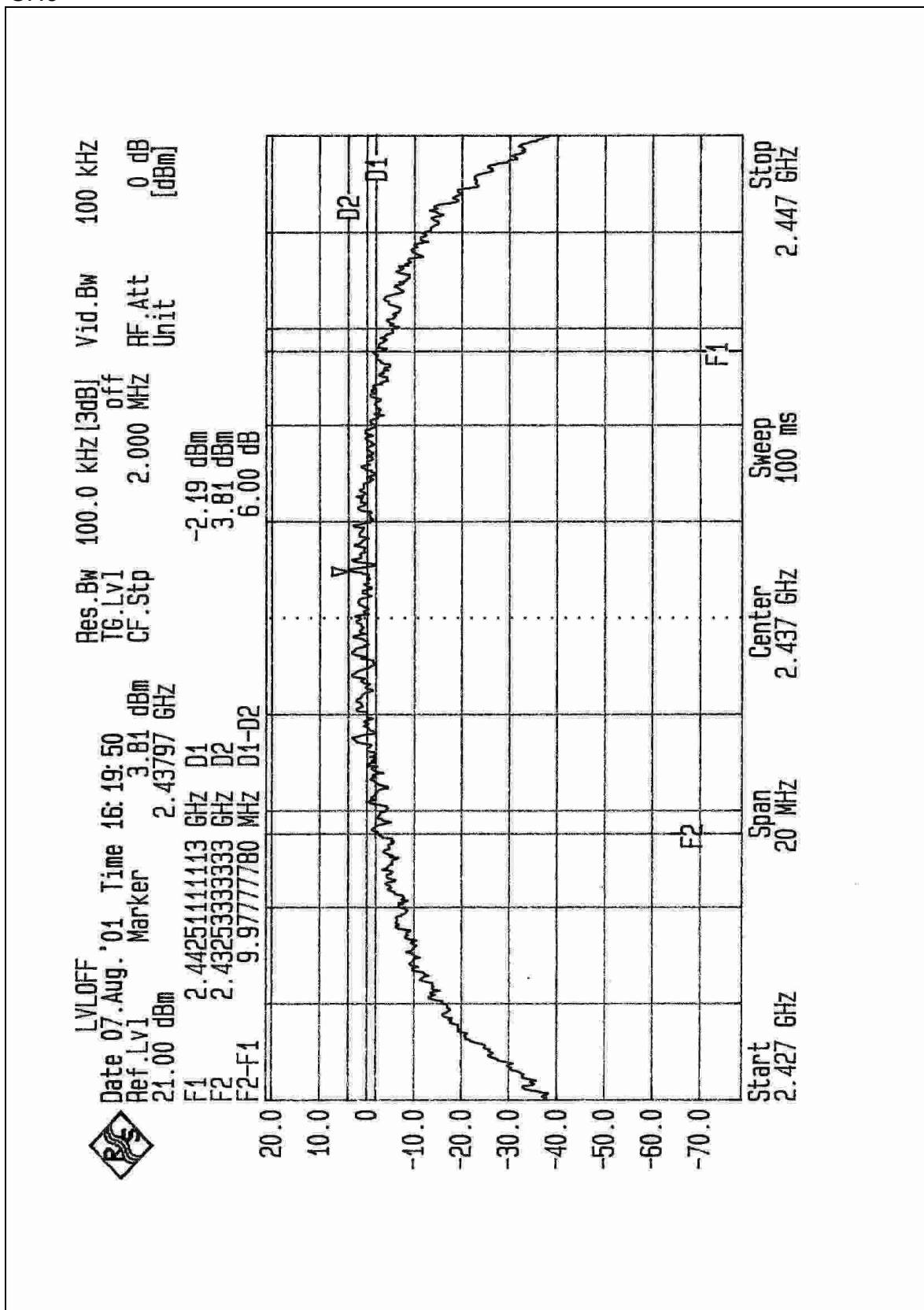
EUT	2.4GHz Wireless LAN Card	MODEL	XI-325
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	23 deg. C, 60%RH, 1005 hPa
TESTED BY: Bunny Yao			

CHANNEL	CHANNEL FREQUENCY (MHz)	6 dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	9.44	0.5	PASS
6	2437	9.98	0.5	PASS
11	2462	9.60	0.5	PASS

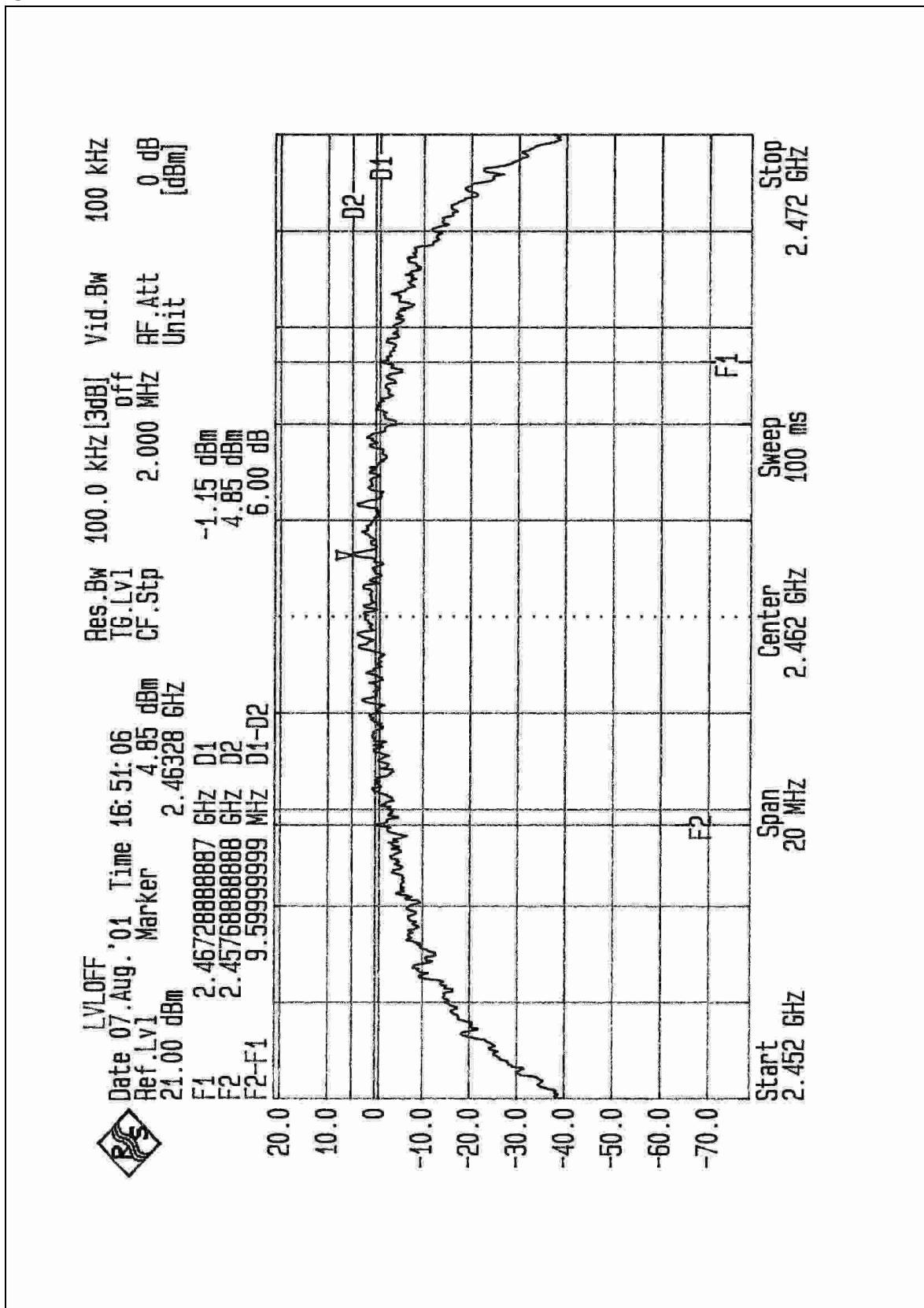
CH1



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
SINGLE CHANNEL POWER METER	NRVS	100026	Feb. 21, 2002
PEAK POWER SENSOR	NRV-Z32	100013	May 23, 2002

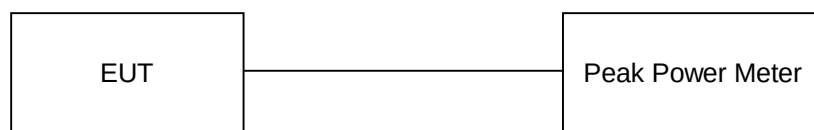
NOTE:

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

The transmitter output was connected to peak power meter.

4.4.4 TEST SETUP



4.4.5 EUT OPERATING CONDITIONS

Same as Item 4.3.5

4.4.6 TEST RESULTS

EUT	2.4GHz Wireless LAN Card	MODEL	XI-325
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	23 deg. C, 60%RH, 1005 hPa
TESTED BY: Bunny Yao			

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	18.10	30	PASS
6	2437	18.15	30	PASS
11	2462	18.12	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
ROHDE & SCHWARZ TEST RECEIVER	ESMI	839379/002	Dec. 28, 2001
HP ATTENUATOR	8496B	3247A18505	Cal. on use
HP PLOTTER	7475A	2641V27755	N/A

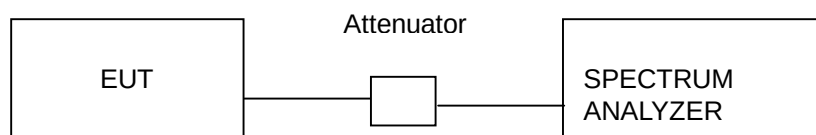
NOTE:

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

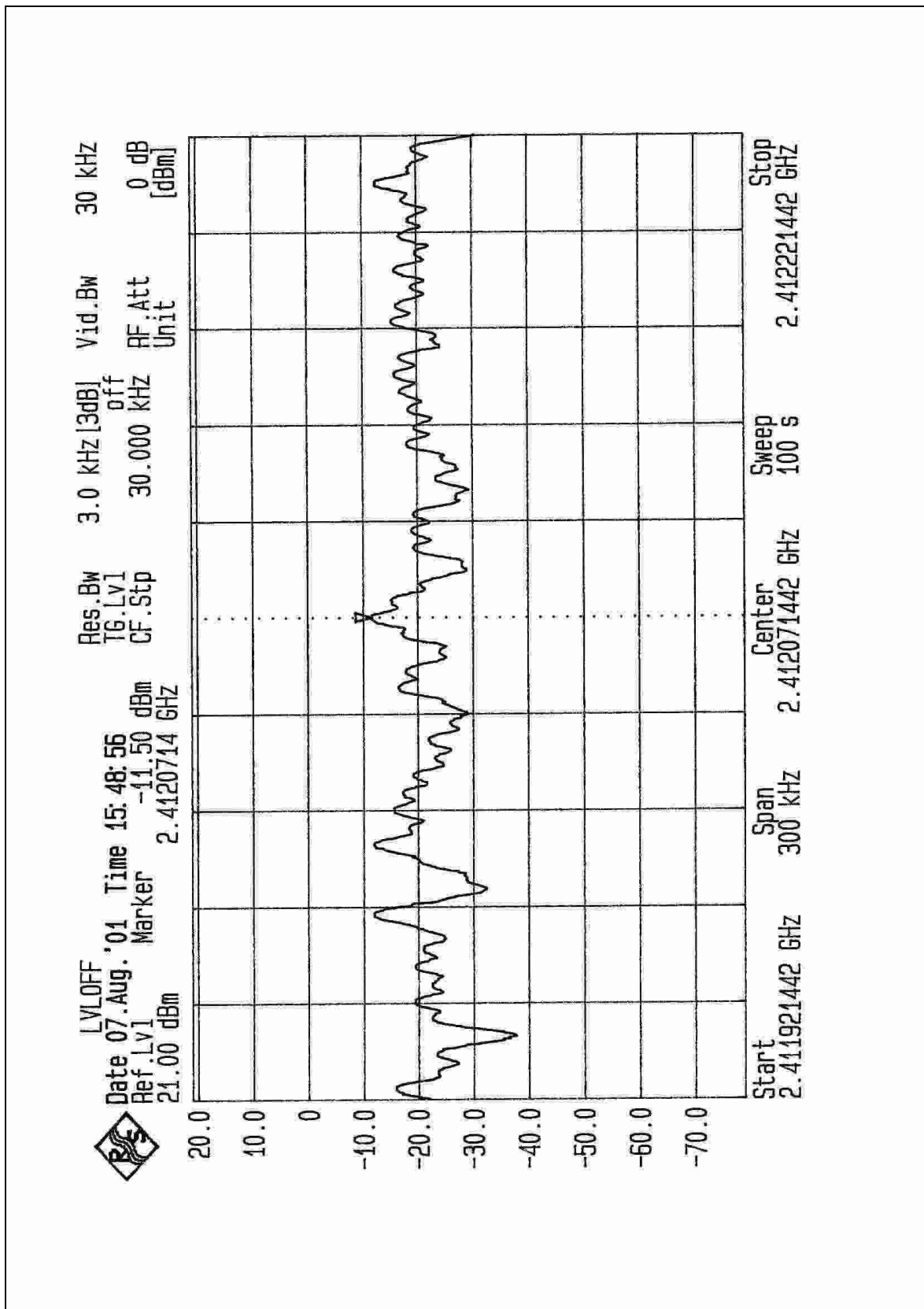
Same as 4.3.5

4.5.6 TEST RESULTS

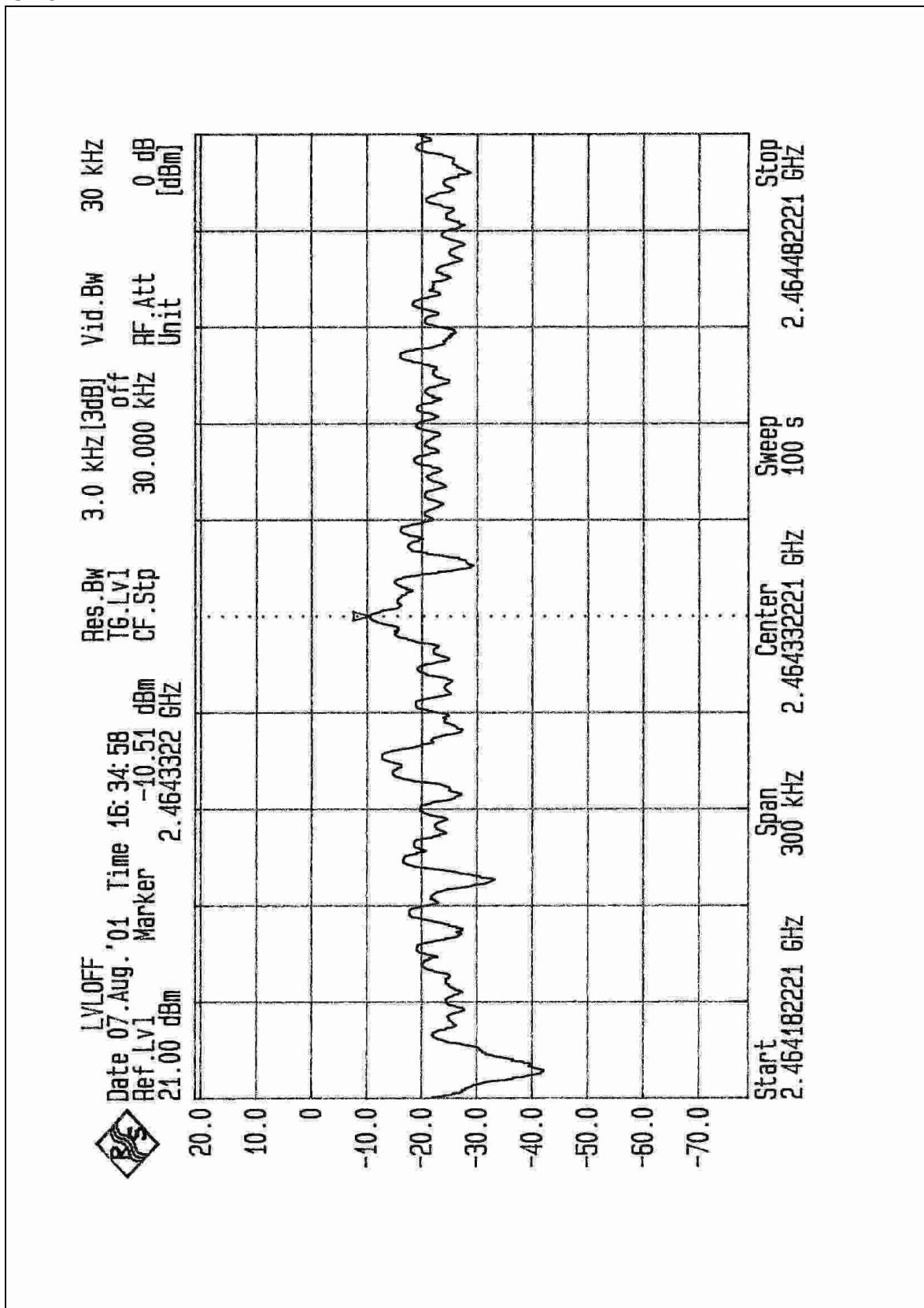
EUT	2.4GHz Wireless LAN Card	MODEL	XI-325
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	23 deg. C, 60%RH, 1005 hPa
TESTED BY: Bunny Yao			

CHANNEL NUMBER	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 KHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-11.50	8	PASS
6	2437	-11.37	8	PASS
11	2462	-10.51	8	PASS

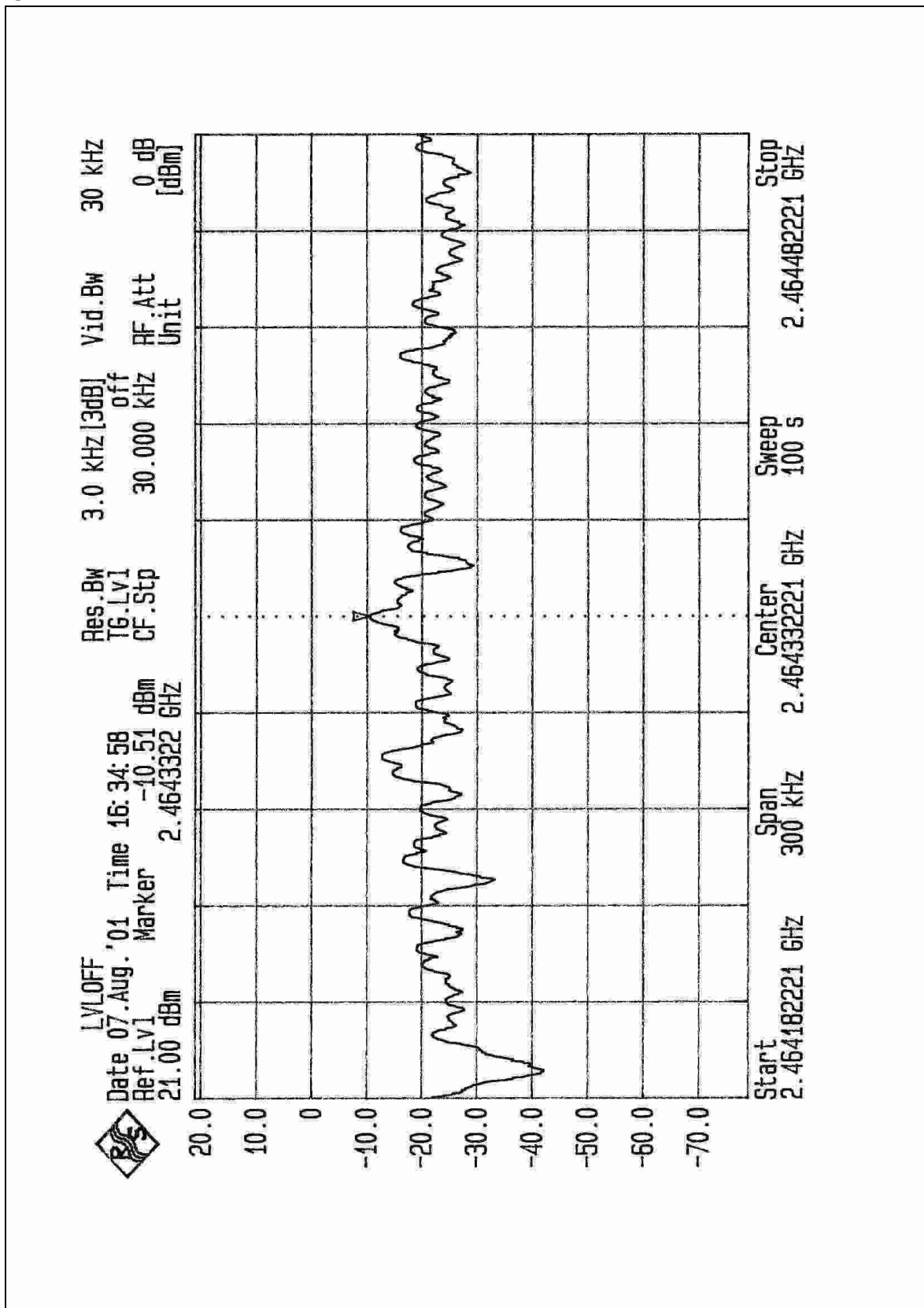
CH1



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
ROHDE & SCHWARZ TEST RECEIVER	ESMI	848926/005 846839/018	Dec 28, 2001
HP ATTENUATOR	8496B	3247A18505	Cal. on use
HP PLOTTER	7475A	2641V27755	N/A

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.



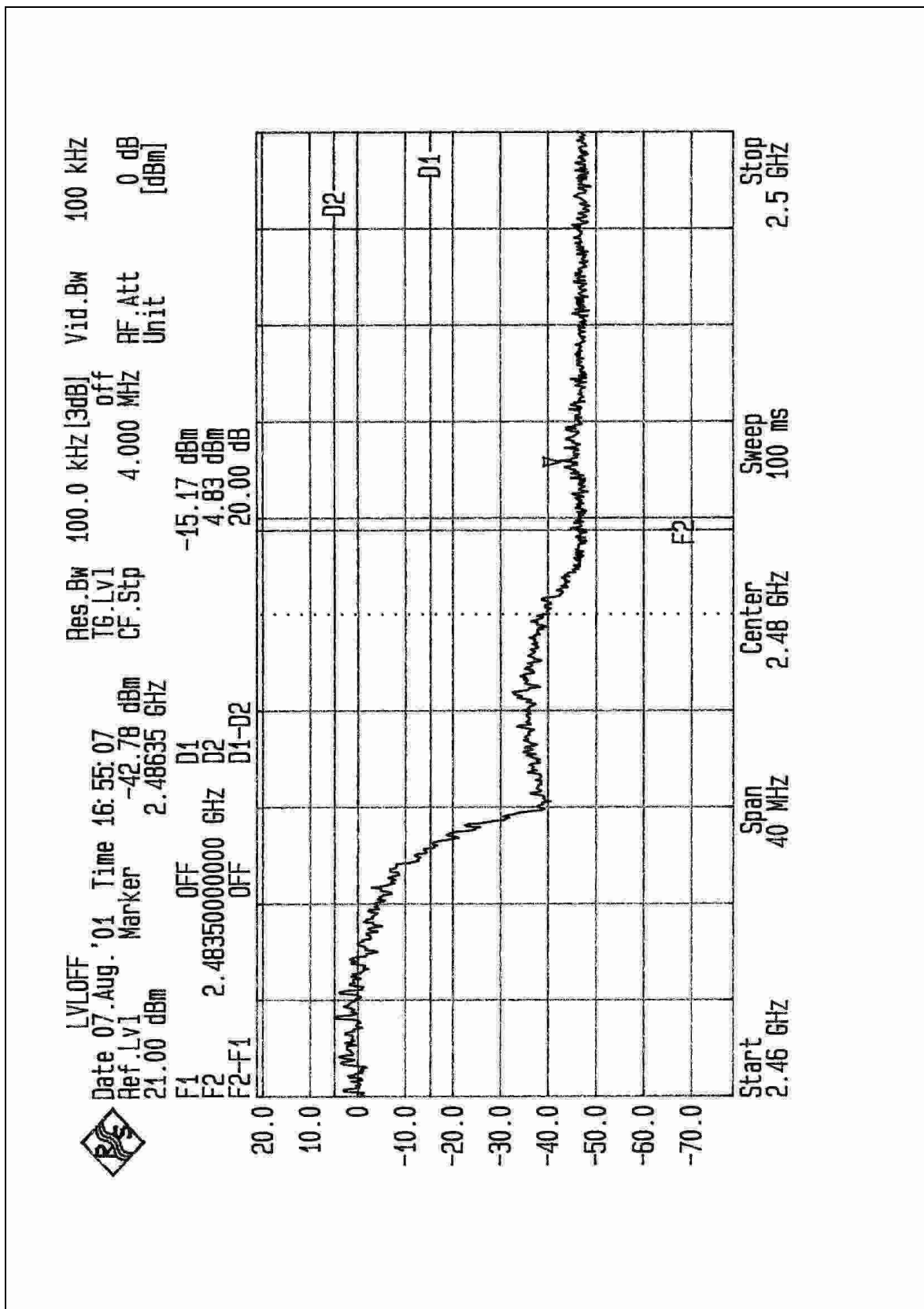
4.6.4 EUT OPERATING CONDITION

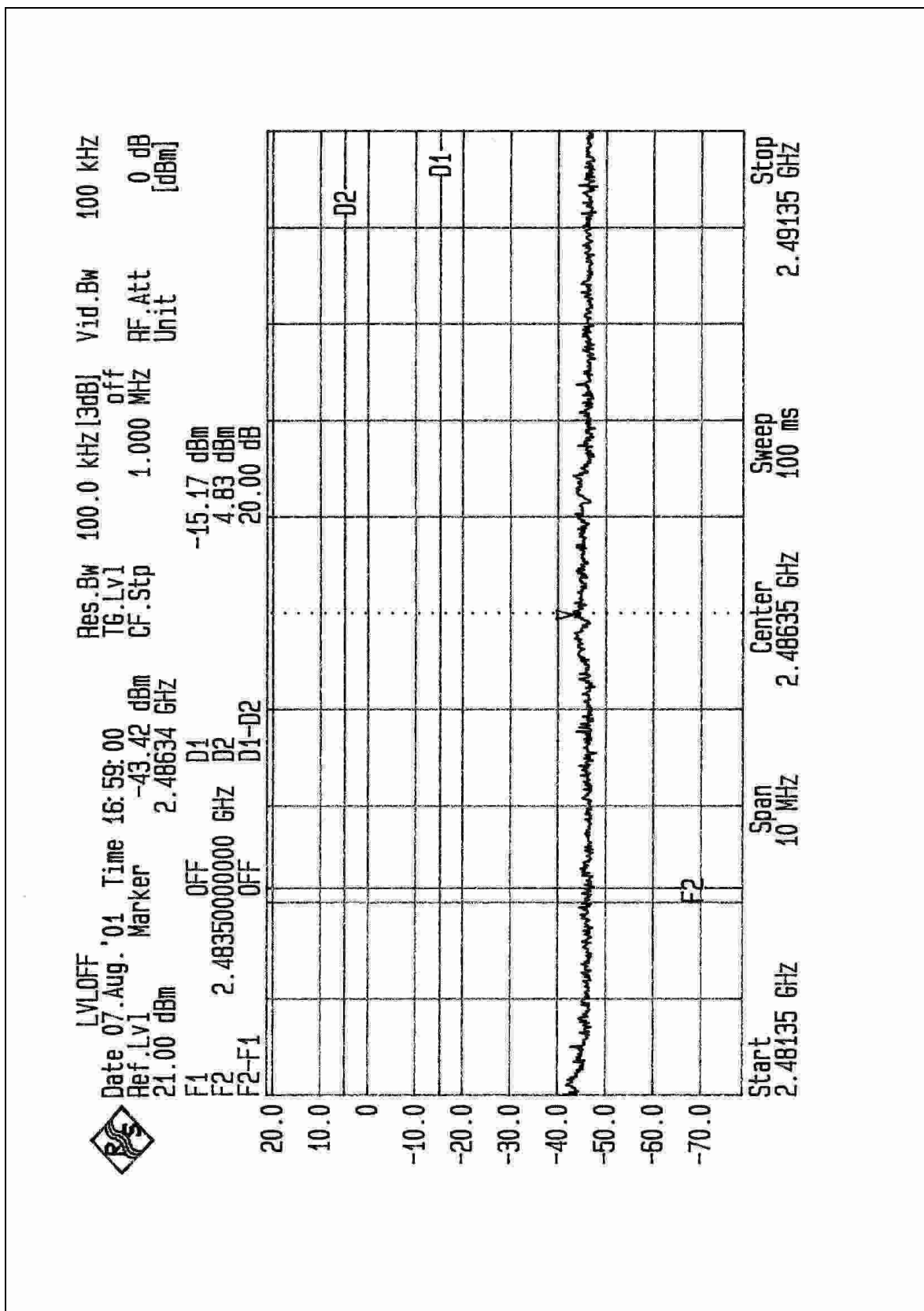
Same as Item 4.3.5

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 47.61dB delta between carrier maximum power and local maximum emission in restrict band (2.48635GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.6 (Page 31) is 97.6dBuV/m, so the maximum field strength in restrict band is $97.6 - 47.61 = 49.99$ 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

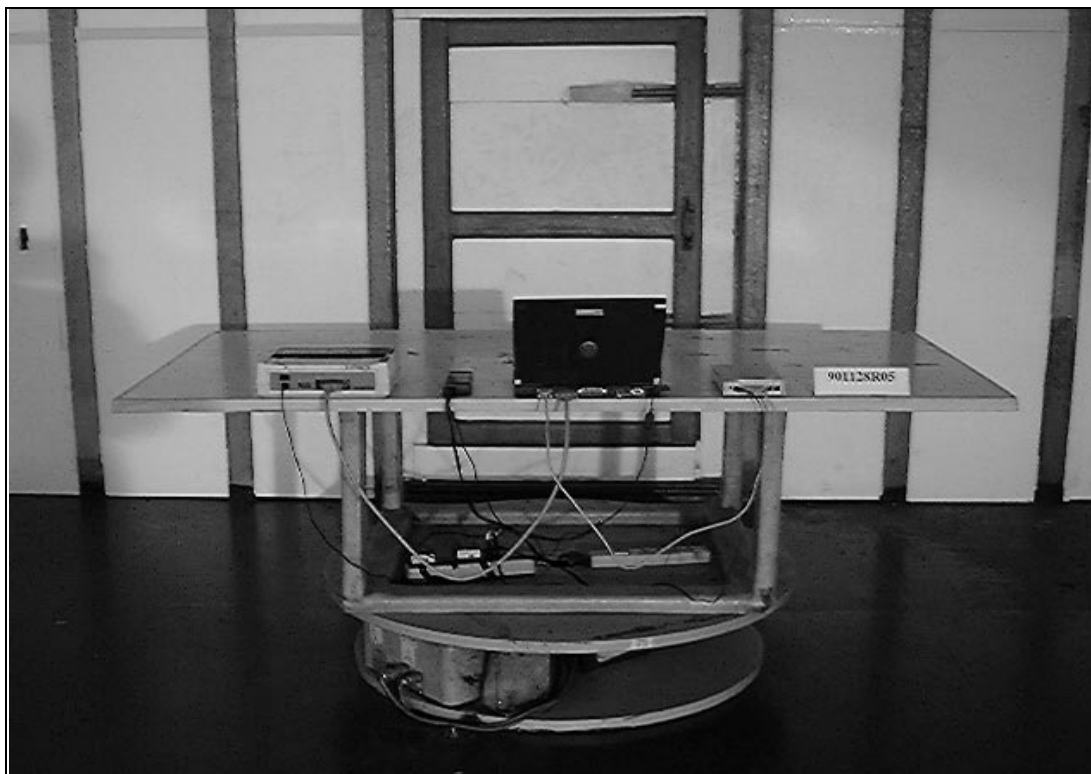
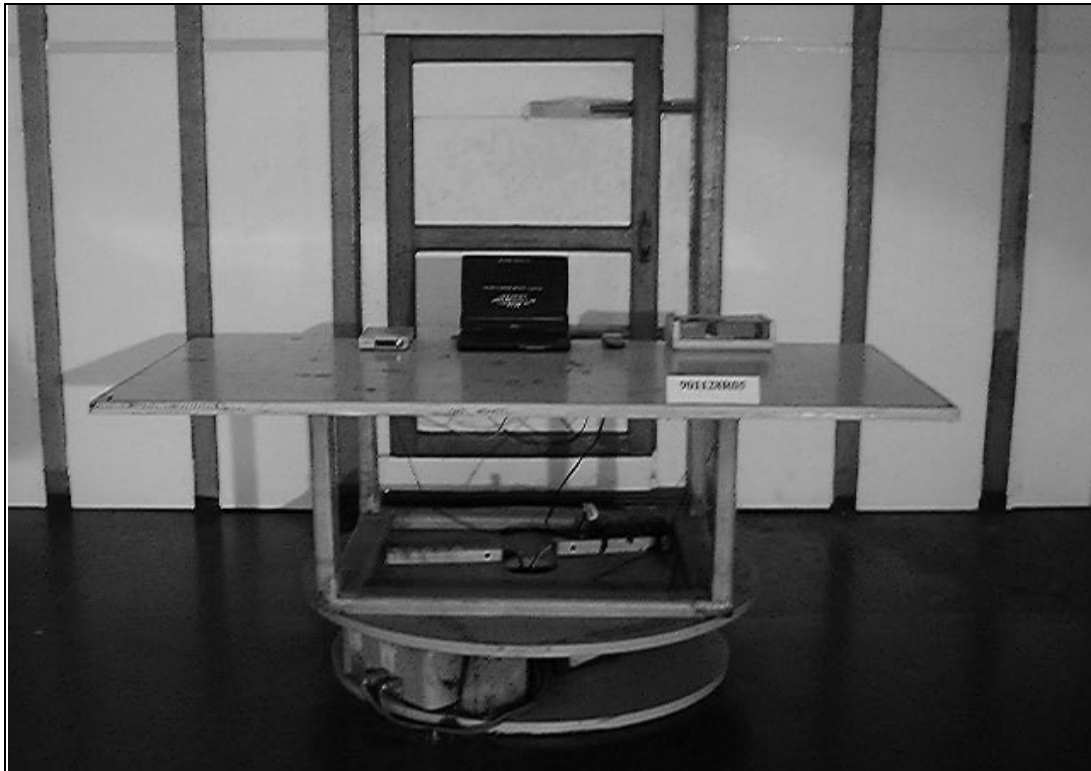
The antenna used in this product is patch antenna. There is no antenna connector for detachable antenna, and MMCX antenna connector is used for fixed antenna. The maximum Gain of this antenna is only -1dBi.

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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Fax: 886-2-26052943

Hsin Chu EMC Lab:

Tel: 886-35-935343

Fax: 886-35-935342

Lin Kou Safety Lab:

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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.