



FCC TEST REPORT

REPORT NO.: RF911009R03A

MODEL NO.: WL-611BC

RECEIVED: Dec. 2, 2002

TESTED: Dec. 4, 2002

APPLICANT: GEMTEK TECHNOLOGY CO., LTD.

ADDRESS: No.1, Jen Ai Road, Hsinchu Industrial Park
Hukou, Hsinchu, 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 : WLAN PC Card (PCMCIA & Cardbus)
MODEL NO. : WL-611BC
BRAND : Gemtek
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 on Dec. 4, 2002, The test record, data evaluation and Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions herein specified. This report is issued as a supplementary report of RF911009R03A. This report shall be used combined together with its original report.

CHECKED BY : Emily Lu , **DATE :** Jan. 7, 2003
Emily Lu

APPROVED BY : Dr. Alan Lane , **DATE :** Jan. 7, 2003
Dr. Alan Lane, Manager

2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: 47 CFR Part 15, Subpart C			
Standard Section	Test Type and Limit	Result	REMARK
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit Minimum passing margin is -15.72dBuV at 0.170MHz
15.247(c)	Transmitter Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit Minimum passing margin is -3.20dBuV at 2484.60MHz
15.247(c)	Band Edge Measurement Limit: 20 dB less than the peak value of fundamental frequency	PASS	Meet the requirement of limit

NOTE: This report is prepared for FCC class II permissive change. Only radiated emission, conducted emission and band edge measurement were presented in this test report.

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	WLAN PC Card (PCMCIA & Cardbus)
MODEL NO.	WL-611BC
POWER SUPPLY	3.3VDC from host equipment
MODULATION TYPE	BPSK, QPSK, CCK
RADIO TECHNOLOGY	DSSS
TRANSFER RATE	1/2/5.5/11Mbps
FREQUENCY RANGE	2412MHz ~ 2462MHz
NUMBER OF CHANNEL	11
OUTPUT POWER	12.61dBm
ANTENNA TYPE	Chip Antenna
DATA CABLE	NA
I/O PORTS	NA
ASSOCIATED DEVICES	NA

NOTE:

1. This report is prepared for FCC class II permissive change. The difference compared with the original design is one more antenna was added to this EUT for the test.
2. This antenna is a chip antenna with antenna gain 1dBi and there is no antenna connector.
3. Only radiated emission, conducted emission and band edge measurement were presented in this test report.
4. For more detailed features description, please refer to the manufacturer's specifications or User's Manual.

3.2 DESCRIPTION OF TEST MODES

Eleven channels are provided to this EUT.

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

NOTE:

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

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a WLAN PC Card (PCMCIA & Cardbus). According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC CFR 47 Part 15, Subpart C. (15.247)
ANSI C63.4 : 1992

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

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

3.4 DESCRIPTION OF SUPPORT UNITS

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

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK	DELL	PP01L	TW-09C748-12800-19O-B220	FCC DoC APPROVED
2	PRINTER	EPSON	LQ-300+	DCGY017096	FCC DoC APPROVED
3	MODEM	ACEEX	1414	980020569	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 OF EMISSION (MHz)	CONDUCTED LIMIT (dB μ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

- NOTE:**
1. The lower limit shall apply at the transition frequencies.
 2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.
 3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
ROHDE & SCHWARZ Test Receiver	ESCS30	847793/022	Mar. 12, 2003
ROHDE & SCHWARZ Artificial Mains Network (for EUT)	ESH2-Z5	828075/003	July 23, 2003
ROHDE & SCHWARZ 200-A Four-line V-Network	ENV4200	830326/018	Oct. 30, 2003
* ROHDE & SCHWARZ 4-wire ISN	ENY41	838119/028	Nov. 29, 2003
* ROHDE & SCHWARZ 2-wire ISN	ENY22	837497/018	Nov. 29, 2003
EMCO-L.I.S.N. (for peripheral)	3825/2	90031627	July 23, 2003
Software	Cond-V2M1	NA	NA
RF cable (JYEBAO)	5D-FB	Cable-C05.01	July 19, 2003
LYNICS Terminator (For EMCO LISN)	0900510	E1-01-305	Feb. 20, 2003
LYNICS Terminator (For EMCO LISN)	0900510	E1-01-306	Feb. 20, 2003

- NOTE:**
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. “*”: These equipment are used for conducted telecom port test only (if tested).
 3. The test was performed in ADT Shielded Room No. 5.
 4. The VCCI Site Registration No. is C-1093.



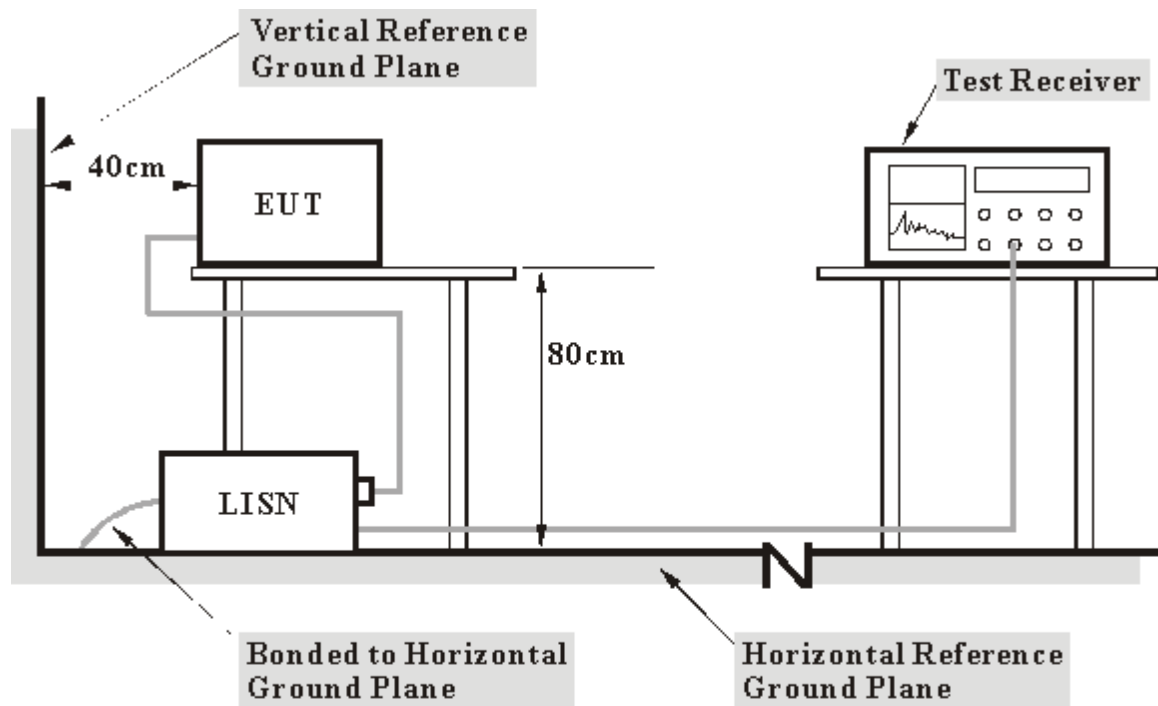
4.1.3 TEST PROCEDURES

- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- c. The frequency range from 150 kHz to 30 MHz was searched. Emission levels over 10dB under the prescribed limits could not be reported

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



- Note:**
1. Support units were connected to second LISN.
 2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

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

4.1.6 EUT OPERATING CONDITIONS

- a. 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.

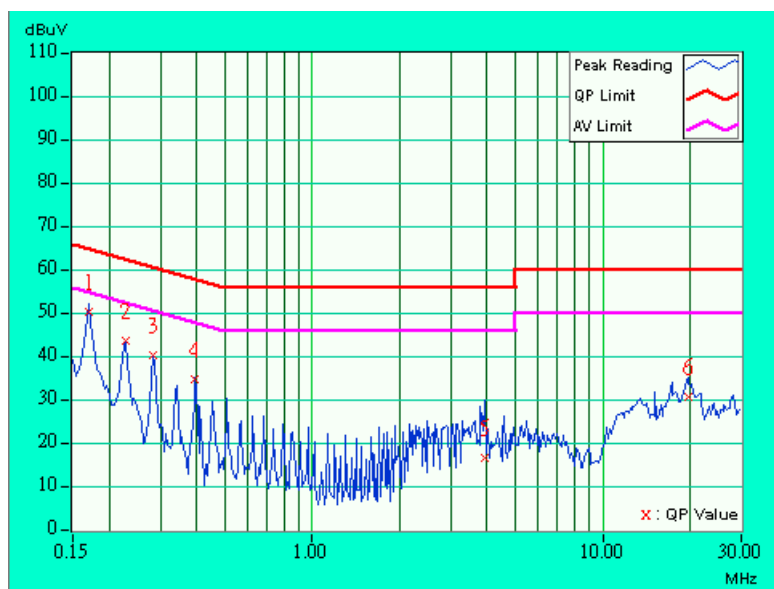
4.1.7 TEST RESULTS

EUT	WLAN PC Card (PCMCIA & Cardbus)	MODEL	WL-611BC
MODE	Channel 1	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 1005 hPa	TESTED BY: Gary Chang	

No	Freq.	Corr. Factor	Reading Value [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	0.170	0.10	49.16	-	49.26	-	64.98	54.98	-15.72	-
2	0.228	0.10	42.56	-	42.66	-	62.52	52.52	-19.86	-
3	0.283	0.10	39.32	-	39.42	-	60.73	50.73	-21.31	-
4	0.396	0.10	33.91	-	34.01	-	57.93	47.93	-23.92	-
5	3.910	0.39	15.65	-	16.04	-	56.00	46.00	-39.96	-
6	19.629	1.08	29.65	-	30.73	-	60.00	50.00	-29.27	-

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.

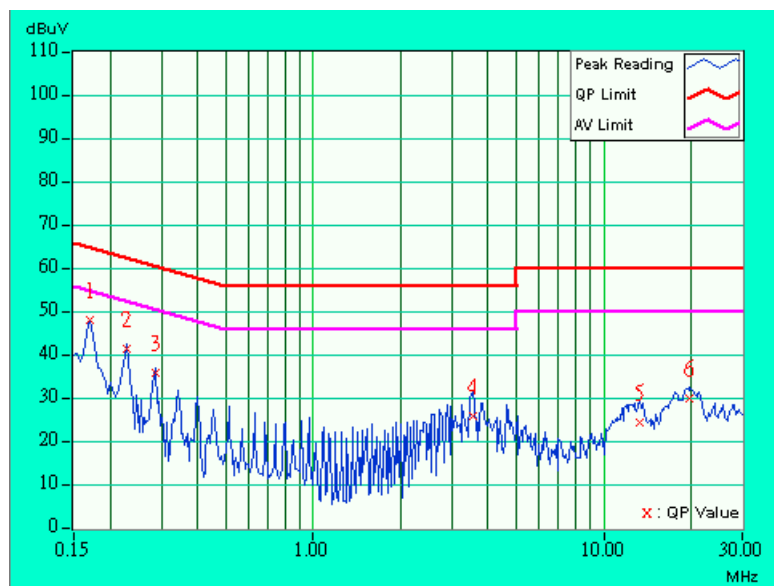


EUT	WLAN PC Card (PCMCIA & Cardbus)	MODEL	WL-611BC
MODE	Channel 1	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 1005 hPa	TESTED BY: Gary Chang	

No	Freq.	Corr. Factor	Reading Value [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	0.170	0.10	47.40	-	47.50	-	64.98	54.98	-17.48	-
2	0.228	0.10	40.88	-	40.98	-	62.52	52.52	-21.54	-
3	0.287	0.10	35.22	-	35.32	-	60.62	50.62	-25.30	-
4	3.527	0.28	25.32	-	25.60	-	56.00	46.00	-30.40	-
5	13.262	0.47	23.48	-	23.95	-	60.00	50.00	-36.05	-
6	19.773	0.79	29.11	-	29.90	-	60.00	50.00	-30.10	-

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.

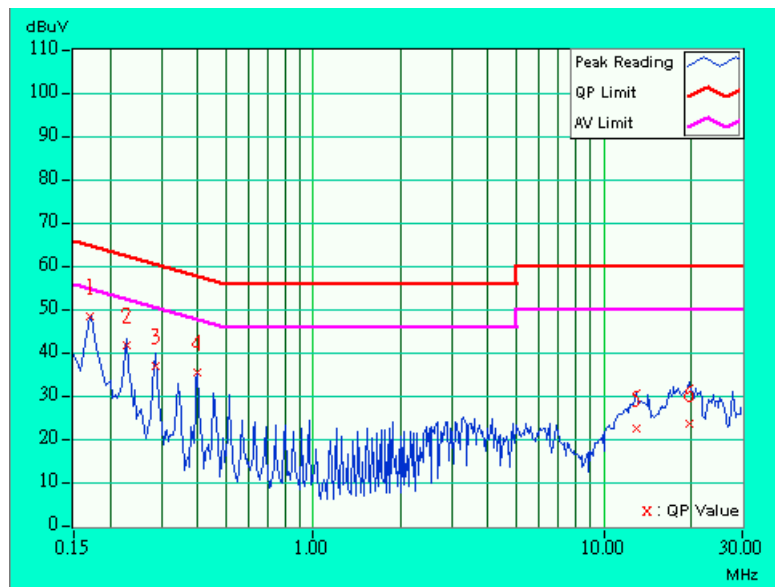


EUT	WLAN PC Card (PCMCIA & Cardbus)	MODEL	WL-611BC
MODE	Channel 6	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 1005 hPa	TESTED BY: Gary Chang	

No	Freq.	Corr. Factor	Reading Value [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	0.170	0.10	47.32	-	47.42	-	64.98	54.98	-17.56	-
2	0.228	0.10	40.66	-	40.76	-	62.52	52.52	-21.76	-
3	0.287	0.10	35.79	-	35.89	-	60.62	50.62	-24.73	-
4	0.400	0.10	34.54	-	34.64	-	57.85	47.85	-23.21	-
5	12.965	0.72	21.55	-	22.27	-	60.00	50.00	-37.73	-
6	19.613	1.08	22.62	-	23.70	-	60.00	50.00	-36.30	-

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.

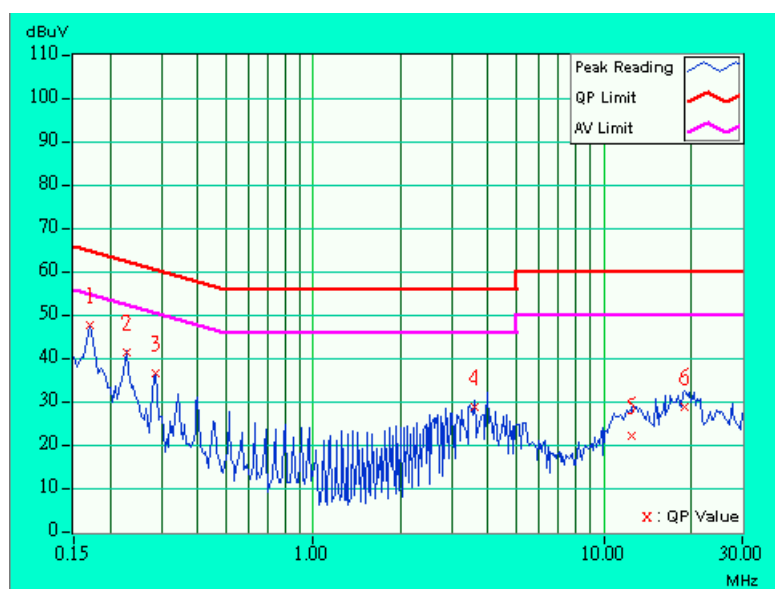


EUT	WLAN PC Card (PCMCIA & Cardbus)	MODEL	WL-611BC
MODE	Channel 6	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 1005 hPa	TESTED BY: Gary Chang	

No	Freq.	Corr. Factor	Reading Value [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	0.170	0.10	47.06	-	47.16	-	64.98	54.98	-17.82	-
2	0.228	0.10	40.86	-	40.96	-	62.52	52.52	-21.56	-
3	0.287	0.10	36.01	-	36.11	-	60.62	50.62	-24.51	-
4	3.590	0.28	28.29	-	28.57	-	56.00	46.00	-27.43	-
5	12.531	0.45	21.64	-	22.09	-	60.00	50.00	-37.91	-
6	19.078	0.74	28.05	-	28.79	-	60.00	50.00	-31.21	-

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.

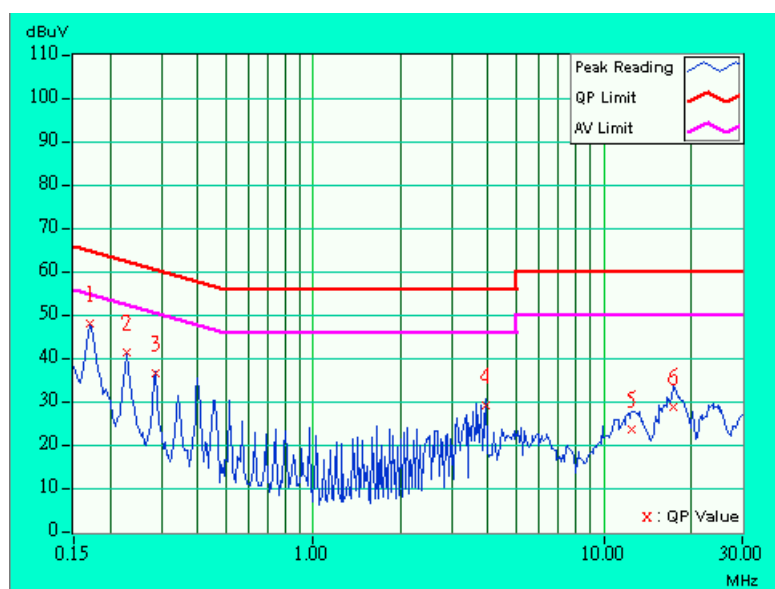


EUT	WLAN PC Card (PCMCIA & Cardbus)	MODEL	WL-611BC
MODE	Channel 11	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 1005 hPa	TESTED BY: Gary Chang	

No	Freq.	Corr. Factor	Reading Value [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	0.170	0.10	47.14	-	47.24	-	64.98	54.98	-17.74	-
2	0.228	0.10	40.56	-	40.66	-	62.52	52.52	-21.86	-
3	0.287	0.10	35.91	-	36.01	-	60.62	50.62	-24.61	-
4	3.938	0.39	28.22	-	28.61	-	56.00	46.00	-27.39	-
5	12.559	0.70	22.74	-	23.44	-	60.00	50.00	-36.56	-
6	17.285	0.94	27.90	-	28.84	-	60.00	50.00	-31.16	-

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.

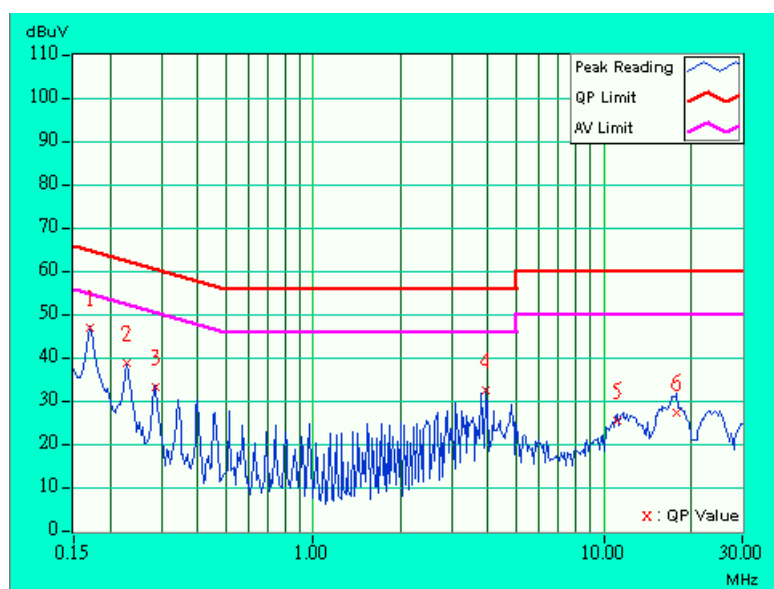


EUT	WLAN PC Card (PCMCIA & Cardbus)	MODEL	WL-611BC
MODE	Channel 11	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 1005 hPa	TESTED BY: Gary Chang	

No	Freq.	Corr. Factor	Reading Value [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	0.170	0.10	46.19	-	46.29	-	64.98	54.98	-18.69	-
2	0.228	0.10	38.08	-	38.18	-	62.52	52.52	-24.34	-
3	0.287	0.10	32.51	-	32.61	-	60.62	50.62	-28.01	-
4	3.941	0.30	31.85	-	32.15	-	56.00	46.00	-23.85	-
5	11.145	0.42	24.87	-	25.29	-	60.00	50.00	-34.71	-
6	17.918	0.68	26.83	-	27.51	-	60.00	50.00	-32.49	-

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

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

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

NOTE:

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

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
* HP Spectrum Analyzer	8590L	3544A01176	May 13, 2003
* HP Preamplifier	8447D	2944A08485	Apr. 29, 2003
* HP Preamplifier	8449B	3008A01201	Dec. 01, 2003
* HP Preamplifier	8449B	3008A01292	Aug. 07, 2003
* ROHDE & SCHWARZ TEST RECEIVER	ESMI	839013/007 839379/002	Jan. 27, 2003
SCHAFFNER Tunable Dipole Antenna	VHBA 9123	459	Nov. 22, 2003
SCHWARZBECK Tunable Dipole Antenna	UHA 9105	977	
* CHASE BILOG Antenna	CBL6112A	2221	Aug. 2, 2003
* SCHWARZBECK Horn Antenna	BBHA9120-D1	D130	July 3, 2003
* EMCO Horn Antenna	3115	9312-4192	April 9, 2003
* EMCO Turn Table	1060	1115	NA
* SHOSHIN Tower	AP-4701	A6Y005	NA
* Software	ADT_Radiated_V5.09	NA	NA
* ANRITSU RF Switches	MP59B	M35046	July 11, 2003
* TIMES RF cable	LMR-600	CABLE-ST5-01	July. 11. 2003

NOTE: 1. The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to NML/ROC and NIST/USA.

2. "*" = These equipment are used for the final measurement.
3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
4. The test was performed in ADT Open Site No. 5.
5. The VCCI Site Registration No. is R-1039.



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.

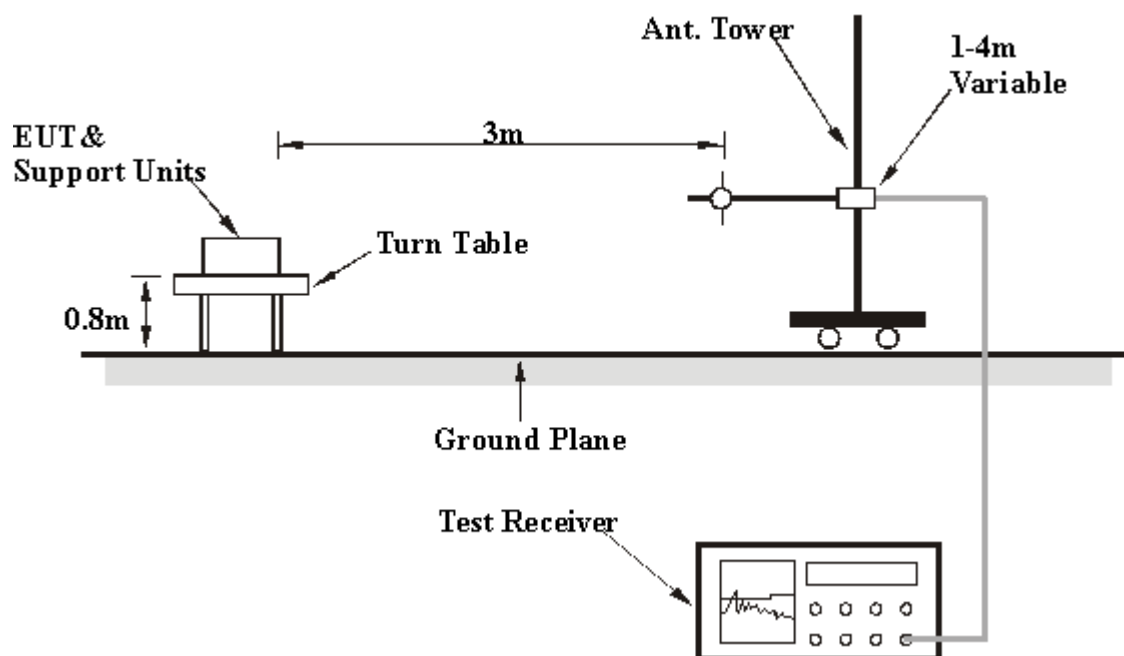
NOTE:

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 DEVIATION FROM TEST STANDARD

No deviation

4.2.5 TEST SETUP



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

4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6

4.2.7 TEST RESULTS

EUT	WLAN PC Card (PCMCIA & Cardbus)	MODEL	WL-611BC
MODE	Channel 11	FREQUENCY RANGE	Below 1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25 deg. C, 60 % 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	20.9 QP	43.50	-22.60	1.78H	214	6.20	11.37	3.37	0.00	-14.74
2	316.00	28.7 QP	46.00	-17.30	1.07H	231	8.32	15.12	5.28	0.00	-20.40
3	352.00	27.2 QP	46.00	-18.80	1.34H	220	5.70	15.72	5.73	0.00	-21.45
4	396.00	29.2 QP	46.00	-16.80	1.43H	333	6.32	16.77	6.13	0.00	-22.90
5	440.00	29.5 QP	46.00	-16.50	1.83H	172	5.87	17.15	6.49	0.00	-23.64
6	528.00	31.8 QP	46.00	-14.20	2.08H	206	6.38	18.45	7.00	0.00	-25.45

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	18.3 QP	43.50	-25.20	1.32V	206	3.57	11.37	3.37	0.00	-14.74
2	316.00	25.1 QP	46.00	-20.90	2.16V	129	4.68	15.12	5.28	0.00	-20.40
3	352.00	27.6 QP	46.00	-18.40	1.80V	204	6.10	15.72	5.73	0.00	-21.45
4	396.00	28.3 QP	46.00	-17.70	1.57V	228	5.36	16.77	6.13	0.00	-22.90
5	440.00	29.4 QP	46.00	-16.60	1.36V	260	5.80	17.15	6.49	0.00	-23.64
6	528.00	32.3 QP	46.00	-13.70	1.09V	241	6.80	18.45	7.00	0.00	-25.45

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	WLAN PC Card (PCMCIA & Cardbus)	MODEL	WL-611BC
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: 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	2343.60	50.1 AV	54.00	-3.90	1.31H	261	20.20	27.52	2.40	0.00	-29.92
2	*2412.00	98.9 PK			1.31H	261	68.70	27.67	2.53	0.00	-30.21
3	*2412.00	92.5 AV			1.31H	261	62.30	27.67	2.53	0.00	-30.21
4	4822.80	44.1 PK	74.00	-29.90	1.19H	81	45.30	31.52	4.01	36.70	1.19
5	4822.80	34.0 AV	54.00	-20.00	1.19H	81	35.20	31.52	4.01	36.70	1.18
6	7234.90	48.6 AV	54.00	-5.40	1.54H	312	43.80	36.20	5.58	37.00	-4.78
7	7234.90	58.7 PK	74.00	-15.30	1.54H	312	53.97	36.20	5.58	37.00	-4.78
8	9648.40	41.6 AV	54.00	-12.40	1.01H	304	35.00	38.45	5.76	37.63	-6.58
9	9648.40	48.6 PK	74.00	-25.40	1.01H	304	42.00	38.45	5.76	37.63	-6.59

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	*2412.00	93.2 AV			1.35V	91	62.96	27.67	2.53	0.00	-30.20
2	*2412.00	100.2 PK			1.35V	91	70.00	27.67	2.53	0.00	-30.20
3	2484.60	50.8 AV	54.00	-3.20	1.35V	233	20.10	27.96	2.78	0.00	-30.74
4	4822.20	38.9 AV	54.00	-15.10	1.46V	297	40.10	31.52	4.01	36.70	1.18
5	4822.20	50.0 PK	74.00	-24.00	1.46V	297	51.20	31.52	4.01	36.70	1.19
6	7235.60	58.2 PK	74.00	-15.80	1.42V	319	53.40	36.20	5.58	37.00	-4.78
7	7235.60	46.9 AV	54.00	-7.10	1.42V	319	42.10	36.20	5.58	37.00	-4.78
8	9648.20	51.2 PK	74.00	-22.80	1.35V	233	44.57	38.45	5.76	37.63	-6.58
9	9648.20	40.2 AV	54.00	-13.80	1.35V	233	33.65	38.45	5.76	37.63	-6.58

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	WLAN PC Card (PCMCIA & Cardbus)	MODEL	WL-611BC
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: 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	*2437.70	94.8 AV			1.10H	330	64.31	27.81	2.66	0.00	-30.47
2	*2437.70	100.8 PK			1.10H	330	70.38	27.81	2.66	0.00	-30.47
3	4873.40	34.4 AV	54.00	-19.60	1.14H	32	35.48	31.59	4.03	36.70	1.08
4	4873.40	43.9 PK	74.00	-30.10	1.14H	32	44.97	31.59	4.03	36.70	1.08
5	7309.80	56.6 PK	74.00	-17.40	1.50H	279	51.71	36.26	5.65	37.02	-4.90
6	7309.80	46.9 AV	54.00	-7.10	1.50H	279	41.99	36.26	5.65	37.02	-4.90
7	9745.20	49.7 PK	74.00	-24.30	1.23H	190	43.18	38.50	5.66	37.65	-6.51
8	9745.20	39.1 AV	54.00	-14.90	1.23H	190	32.59	38.50	5.66	37.65	-6.51

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	*2439.50	92.9 AV			1.00V	78	62.40	27.81	2.66	0.00	-30.47
2	*2439.50	99.7 PK			1.00V	78	69.20	27.81	2.66	0.00	-30.47
3	4872.30	50.5 PK	74.00	-23.50	1.33V	122	51.58	31.59	4.03	36.70	1.08
4	4872.30	39.4 AV	54.00	-14.60	1.33V	122	40.52	31.59	4.03	36.70	1.08
5	7312.00	48.1 AV	54.00	-5.90	1.83V	336	43.04	36.33	5.72	37.03	-5.02
6	7312.00	59.2 PK	74.00	-14.80	1.83V	336	54.20	36.33	5.72	37.03	-5.02
7	9745.70	50.3 PK	74.00	-23.70	1.73V	109	43.80	38.50	5.66	37.65	-6.51
8	9745.70	38.8 AV	54.00	-15.20	1.73V	109	32.30	38.50	5.66	37.65	-6.51

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	WLAN PC Card (PCMCIA & Cardbus)	MODEL	WL-611BC
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: 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	*2462.00	95.0 AV			1.10H	239	64.50	27.81	2.66	0.00	-30.47
2	*2462.00	101.3 PK			1.10H	239	70.80	27.81	2.66	0.00	-30.47
3	2491.40	49.9 AV	54.00	-4.10	1.11H	249	19.20	27.96	2.78	0.00	-30.74
4	4925.10	44.8 PK	74.00	-29.20	1.50H	51	45.80	31.66	4.06	36.70	1.00
5	4925.10	35.2 AV	54.00	-18.80	1.50H	51	36.20	31.66	4.06	36.70	0.99
6	7387.80	55.5 PK	74.00	-18.50	1.50H	259	50.40	36.40	5.79	37.05	-5.15
7	7387.80	45.6 AV	54.00	-8.40	1.50H	259	40.50	36.40	5.79	37.05	-5.14
8	9848.70	51.3 PK	74.00	-32.70	1.50H	280	44.80	38.54	5.59	37.67	-6.46
9	9848.70	38.7 AV	54.00	-15.30	1.50H	280	32.25	38.54	5.59	37.67	-6.46

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	*2464.20	94.1 AV			1.37V	58	63.63	27.81	2.66	0.00	-30.47
2	*2464.20	101.3 PK			1.37V	58	70.80	27.81	2.66	0.00	-30.47
3	2492.20	50.2 AV	54.00	-3.80	1.37V	58	19.50	27.96	2.78	0.00	-30.74
4	4926.00	39.5 AV	54.00	-14.50	1.33V	77	40.52	31.66	4.06	36.70	0.99
5	4926.00	50.5 PK	74.00	-23.50	1.33V	77	51.52	31.66	4.06	36.70	1.00
6	7385.30	57.5 PK	74.00	-16.50	1.46V	321	52.37	36.40	5.79	37.05	-5.15
7	7385.30	46.5 AV	54.00	-7.50	1.46V	321	41.40	36.40	5.79	37.05	-5.14
8	9847.70	49.9 PK	74.00	-24.10	1.78V	57	43.48	38.54	5.59	37.67	-6.46
9	9847.70	39.0 AV	54.00	-15.00	1.78V	57	32.53	38.54	5.59	37.67	-6.46

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 BAND EDGES MEASUREMENT

4.3.1 LIMITS OF BAND EDGES MEASUREMENT

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

4.3.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
SPECTRUM ANALYZER	FSEK30	100049	July 24, 2003

NOTE: 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 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.

4.3.4 DEVIATION FROM TEST STANDARD

No deviation

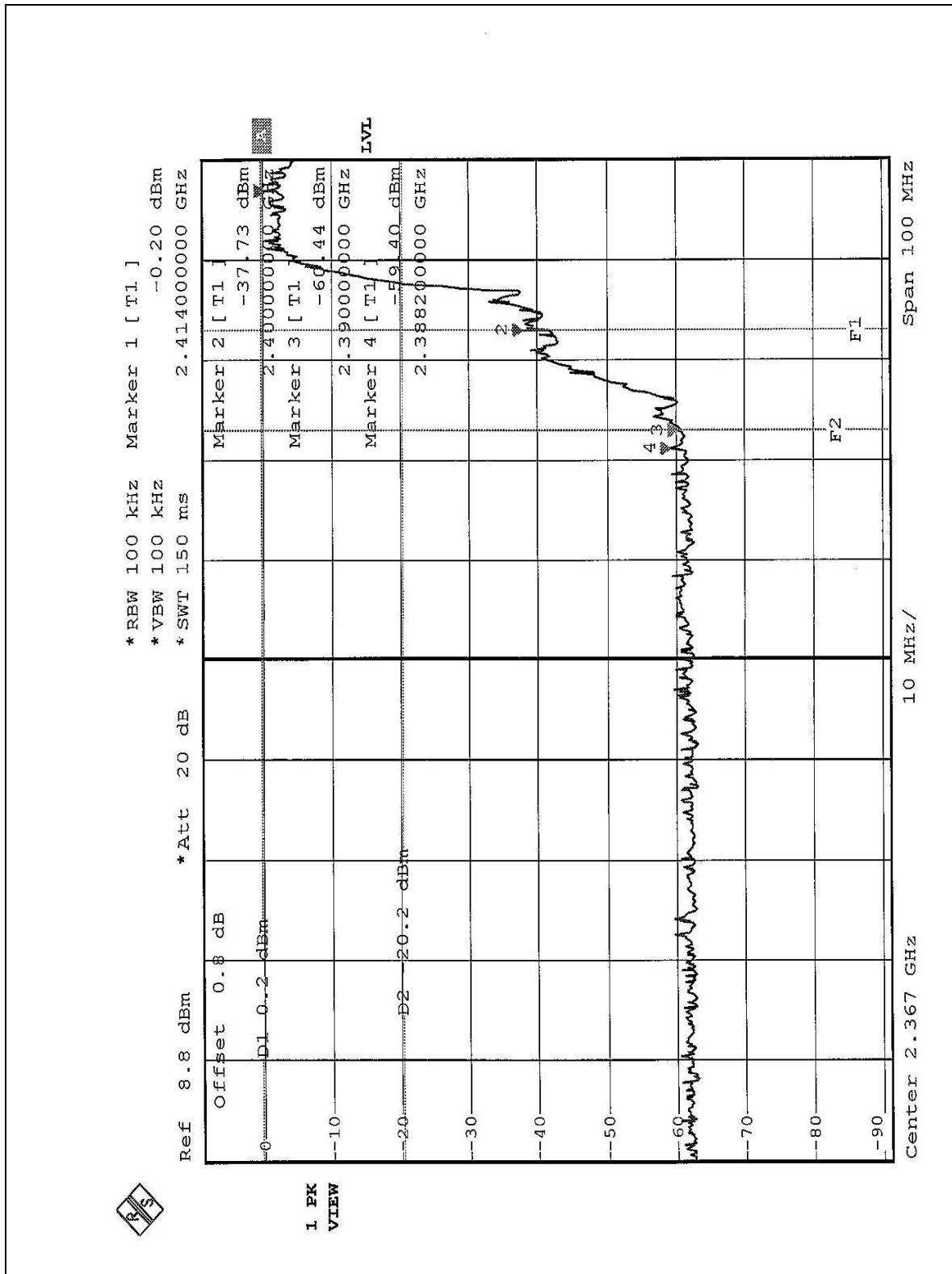
4.3.5 EUT OPERATING CONDITION

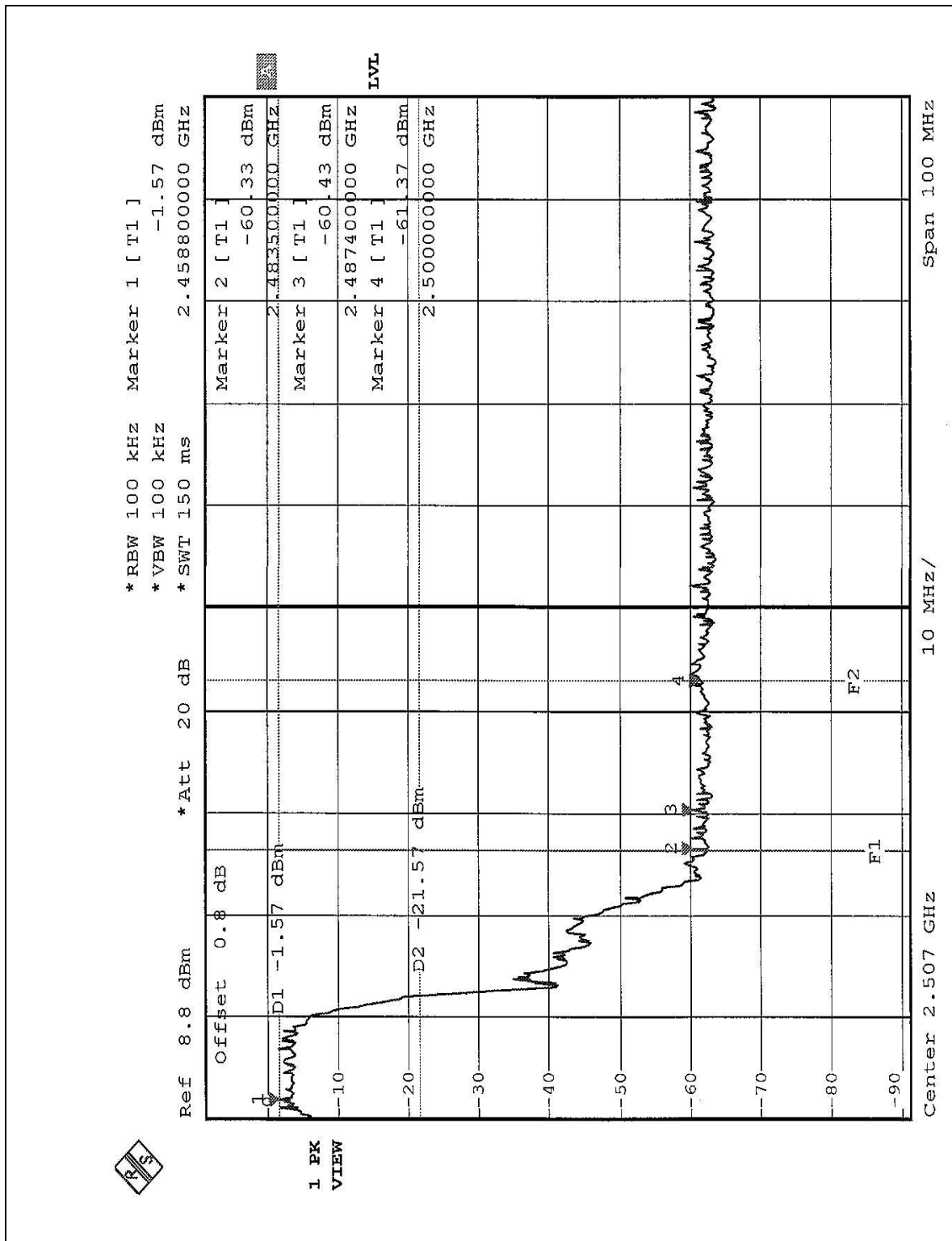
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.3.6 TEST RESULTS

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

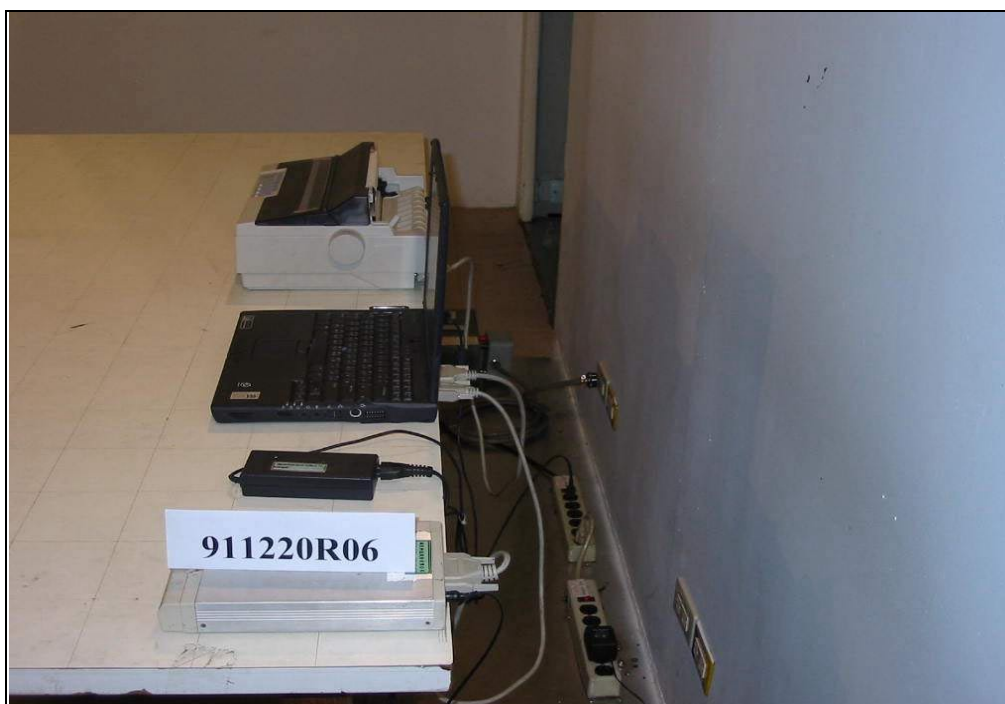
NOTE1: The band edge emission plot on the following first page shows 59.60dB / 58.76dB delta between carrier maximum power and local maximum emission in restrict band (2.3882GHz / 2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 95.0dBuV/m, so the maximum field strength in restrict band is $95.0 - 58.76 = 36.24$ dBuV/m which is under 54 dBuV/m limit.





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:

Lin Kou EMC Lab:

Tel: 886-2-26052180

Fax: 886-2-26052943

Hsin Chu EMC Lab:

Tel: 886-35-935343

Fax: 886-35-935342

Lin Kou Safety Lab:

Tel: 886-2-26093195

Fax: 886-2-26093184

Lin Kou RF&Telecom Lab

Tel: 886-3-3270910

Fax: 886-3-3270892

Email: service@mail.adt.com.tw

Web Site: www.adt.com.tw

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