FCC TEST REPORT

REPORT NO.: RF911024R05A
MODEL NO.: WAP11 Ver.2.6
RECEIVED: Dec. 16, 2002
TESTED: Dec. 18 ~ Dec. 25, 2002

APPLICANT: The Linksys Group, Inc.

ADDRESS: 17401 Armstrong Ave., Irvine, CA 92614

ISSUED BY: Advance Data Technology Corporation

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

This test report consists of 31 pages in total. It may be duplicated completely for legal use with the approval of the applicant. It should not be reproduced except in full, without the written approval of our laboratory. The client should not use it to claim product endorsement by CNLA, NVLAP or any government agencies. The test results in the report only apply to the tested sample.

0528
ILAC MRA

Lab Code: 200102-0

Table of Contents

1 CERTIFICATION

PRODUCT NAME :	Wireless Access Point
BRAND NAME :	Linksys
MODEL NO. :	WAP11 Ver.2.6
APPLICANT :	The Linksys Group, Inc.
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 Dec. 18 ~ Dec. 25, 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 RF911024R05 and shall be used combined together with its original report.

CHECKED BY : Emily Lu , **DATE :** Dec. 30, 2002
Emily Lu

APPROVED BY : Eric Wu for , **DATE :** Dec. 30, 2002
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 –0.92dBuV at 0.174MHz
15.247(c)	Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit Minimum passing margin is –2.20dBuV at 2088.00MHz
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 due to the change of PCB (both of layout and size). Only conducted emission, radiated emission and band edge measurements were presented in this test report.

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Wireless Access Point
MODEL NO.	WAP11 Ver.2.6
POWER SUPPLY	5VDC from AC adapter
MODULATION TYPE	DSSS
TRANSFER RATE	1/2/5.5/11Mbps
FREQUENCY RANGE	2412MHz ~ 2462MHz
NUMBER OF CHANNEL	11
OUTPUT POWER	15.66dBm
ANTENNA TYPE	Dipole antenna
I/O PORTS	RJ-45
ASSOCIATED DEVICES	NA

NOTE:

1. The EUT was operated by the following AC adapter:

BRAND:	Linksys
MODEL NO.:	MS15-050250-A1D
INPUT POWER :	100-240Vac 50/60Hz 0.5A
OUTPUT POWER :	5Vdc 2.5A

2. This report is prepared for FCC class II permissive change due to the change of PCB (both of layout and size).
3. For more detailed features description, please refer to the manufacturer's specifications or User's Manual.

3.2 DESCRIPTION OF TEST MODES

Eleven channels are provided in this EUT.

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

NOTE:

1. Below 1 GHz, the channel 1, 6, and 11 were pre-tested in chamber. The channel 11, worst case one, was chosen for final test.
2. Above 1 GHz, the channel 1, 6, and 11 were tested individually.
3. Only conducted emission, radiated emission and band edge measurements were presented in the following sections.

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a Wireless Access Point. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC 47 CFR 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 Computer	IBM	TYPE 1161-41T	AA-G0R37 00/10	FCC DoC Approved
2	USB 10/100 Fast Ethernet	D-Link	DU-E100	UR15001597	MQ4FE2K5MX

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA
2	NA

NOTE: All power cords of the above support units are non shielded (1.8m).

4 TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBμV)	
	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	ESHS30	828109/007	July 3, 2003
ROHDE & SCHWARZ Artificial Mains Network (for EUT)	ESH3-Z5	839135/006	July 2, 2003
* ROHDE & SCHWARZ 4-wire ISN	ENY41	838119/028	Nov. 29, 2003
* ROHDE & SCHWARZ 2-wire ISN	ENY22	837497/016	Nov. 29, 2003
EMCO-L.I.S.N. (for peripheral)	3825/2	9204-1964	July 2, 2003
Software	Cond-V2L	NA	NA
RF cable (JYEBAO)	5D-FB	Cable-C02.01	July 5, 2003
HP Terminator (For EMCO LISN)	11593A	E1-01-298	Feb. 20, 2003
HP Terminator (For EMCO LISN)	11593A	E1-01-299	Feb. 20, 2003
Shielded Room	Site 2	ADT-C02	NA
VCCI Site Registration No.	Site 2	C-240	NA

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 Open Site No. 2.

4.1.3 TEST PROCEDURES

a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.

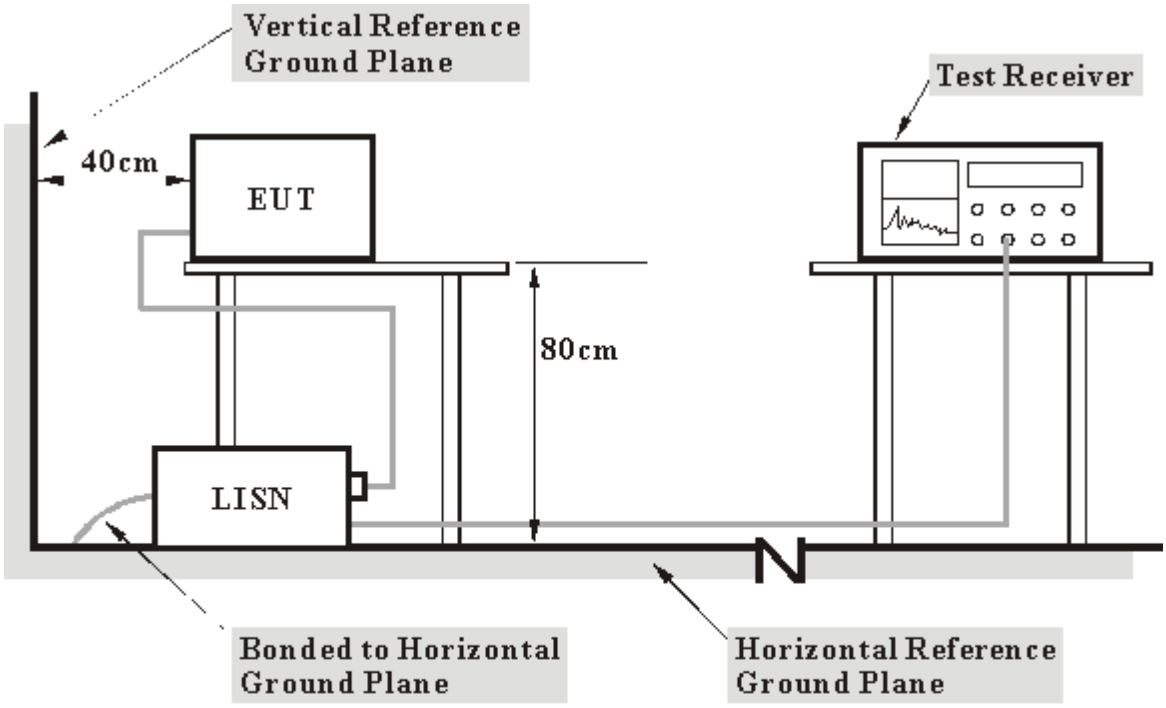
b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

c. The frequency range from 150 kHz to 30 MHz was searched. Emission levels over 10dB under the prescribed limits could not be reported

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



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

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

4.1.6 EUT OPERATING CONDITIONS

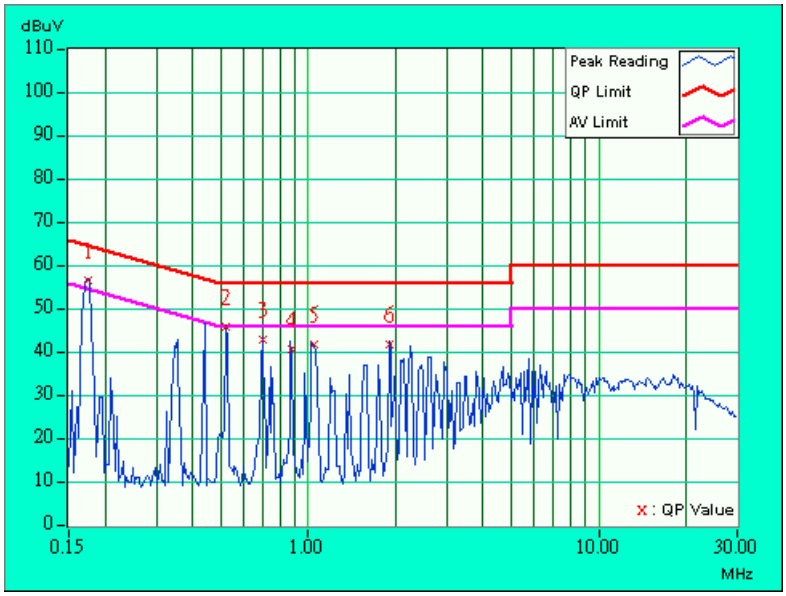
a. Placed the EUT on the testing table.
b. Prepared another computer system to act as a communication partner and placed it outside of testing area.
c. The communication partner run a test program to enable EUT under transmission/receiving condition continuously at specific channel frequency via an RJ 45 cable.
d. The communication partner sent data to EUT by command "PIN".

4.1.7 TEST RESULTS

EUT	Wireless Access Point	**MODEL**	WAP11 Ver.2.6
MODE	Channel 1	**6dB BANDWIDTH**	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**PHASE**	Line (L)
ENVIRONMENTAL CONDITIONS	20deg.C, 65%RH, 1005 hPa	**TESTED BY**: Cody Chang	

No	Freq. (MHz)	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			QP.	AV.	QP.	AV.	QP.	AV.	QP.	AV.
1	0.174	0.10	56.49	53.68	56.59	53.78	64.76	54.76	-8.17	-0.98
2	0.523	0.10	45.85	-	45.95	-	56.00	46.00	-10.05	-
3	0.696	0.10	42.97	-	43.07	-	56.00	46.00	-12.93	-
4	0.876	0.10	40.71	-	40.81	-	56.00	46.00	-15.19	-
5	1.044	0.10	41.84	-	41.94	-	56.00	46.00	-14.06	-
6	1.914	0.10	41.70	-	41.80	-	56.00	46.00	-14.20	-

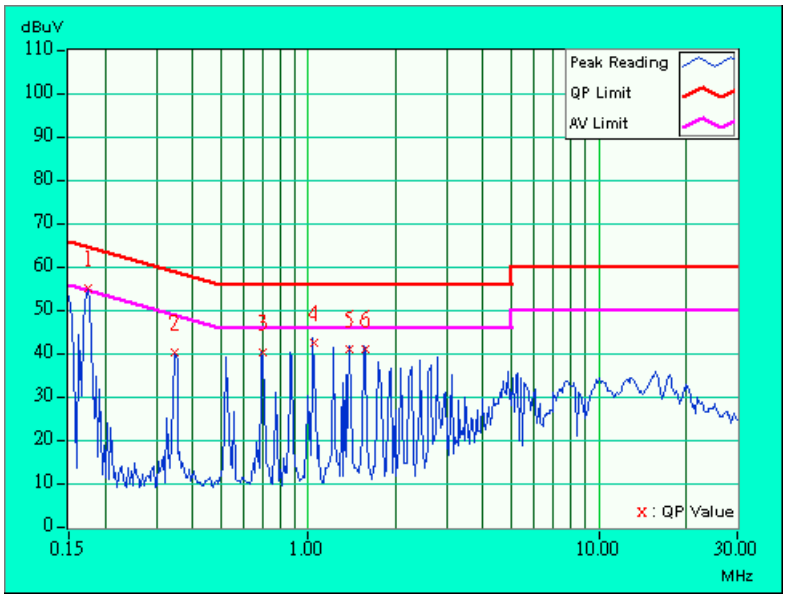
Remarks:
1. "*": Undetectable
2. QP. and AV. are abbreviations of quasi-peak and average individually.
3. "-": NA
4. The emission levels of other frequencies were very low against the limit.
5. Margin value = Emission level - Limit value
6. Emission Level = Correction Factor + Reading Value.



EUT	Wireless Access Point	**MODEL**	WAP11 Ver.2.6
MODE	Channel 1	**6dB BANDWIDTH**	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**PHASE**	Neutral (N)
ENVIRONMENTAL CONDITIONS	20deg.C, 65%RH, 1005 hPa	**TESTED BY**: Cody Chang	

No	Freq. (MHz)	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			QP.	AV.	QP.	AV.	QP.	AV.	QP.	AV.
1	0.174	0.10	54.99	51.50	55.09	51.60	64.77	54.77	-9.68	-3.17
2	0.348	0.10	40.33	-	40.43	-	59.02	49.02	-18.59	-
3	0.697	0.10	40.14	-	40.24	-	56.00	46.00	-15.76	-
4	1.045	0.10	42.60	-	42.70	-	56.00	46.00	-13.30	-
5	1.393	0.10	40.93	-	41.03	-	56.00	46.00	-14.97	-
6	1.566	0.10	40.99	-	41.09	-	56.00	46.00	-14.91	-

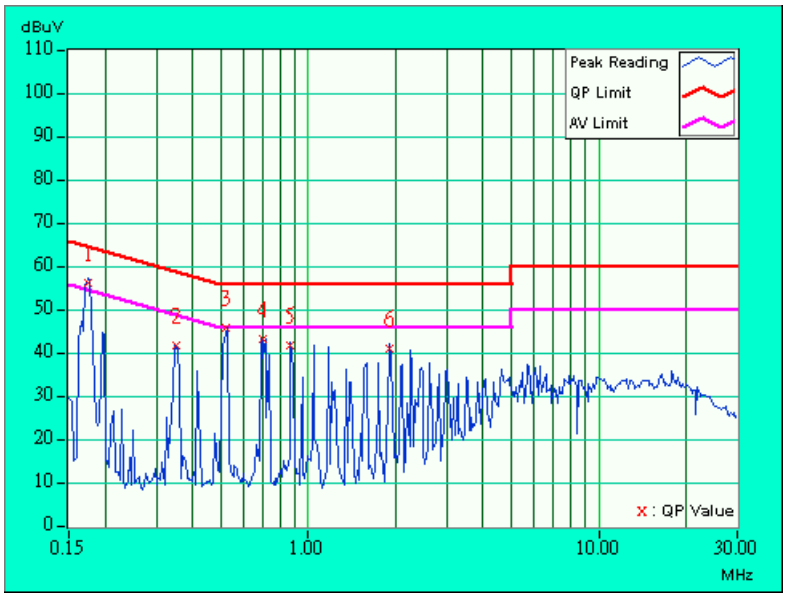
Remarks:
1. "*": Undetectable
2. QP. and AV. are abbreviations of quasi-peak and average individually.
3. "-": NA
4. The emission levels of other frequencies were very low against the limit.
5. Margin value = Emission level - Limit value
6. Emission Level = Correction Factor + Reading Value.



EUT	Wireless Access Point	**MODEL**	WAP11 Ver.2.6
MODE	Channel 6	**6dB BANDWIDTH**	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**PHASE**	Line (L)
ENVIRONMENTAL CONDITIONS	20deg.C, 65%RH, 1005 hPa	**TESTED BY**: Cody Chang	

No	Freq. (MHz)	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			QP.	AV.	QP.	AV.	QP.	AV.	QP.	AV.
1	0.175	0.10	56.29	53.12	56.39	53.22	64.71	54.71	-8.32	-1.49
2	0.350	0.10	41.91	-	42.01	-	58.97	48.97	-16.96	-
3	0.521	0.10	45.99	44.33	46.09	44.43	56.00	46.00	-9.91	-1.57
4	0.694	0.10	43.11	-	43.21	-	56.00	46.00	-12.79	-
5	0.868	0.10	41.63	-	41.73	-	56.00	46.00	-14.27	-
6	1.915	0.10	40.92	-	41.02	-	56.00	46.00	-14.98	-

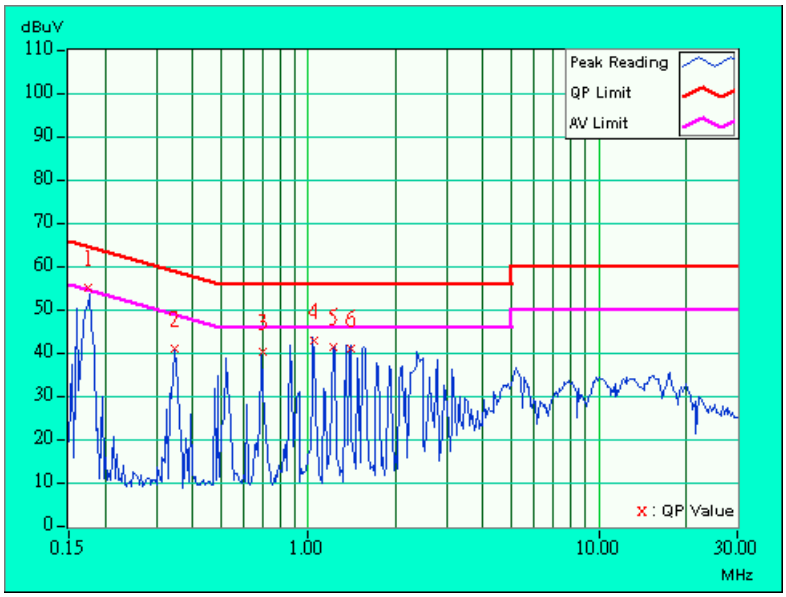
Remarks:
1. "*": Undetectable
2. QP. and AV. are abbreviations of quasi-peak and average individually.
3. "-": NA
4. The emission levels of other frequencies were very low against the limit.
5. Margin value = Emission level - Limit value
6. Emission Level = Correction Factor + Reading Value.



EUT	Wireless Access Point	**MODEL**	WAP11 Ver.2.6
MODE	Channel 6	**6dB BANDWIDTH**	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**PHASE**	Neutral (N)
ENVIRONMENTAL CONDITIONS	20deg.C, 65%RH, 1005 hPa	**TESTED BY**: Cody Chang	

No	Freq. (MHz)	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			QP.	AV.	QP.	AV.	QP.	AV.	QP.	AV.
1	0.174	0.10	54.93	51.44	55.03	51.54	64.75	54.75	-9.72	-3.21
2	0.349	0.10	41.07	-	41.17	-	58.99	48.99	-17.82	-
3	0.697	0.10	40.24	-	40.34	-	56.00	46.00	-15.66	-
4	1.044	0.10	42.69	-	42.79	-	56.00	46.00	-13.21	-
5	1.215	0.10	41.21	-	41.31	-	56.00	46.00	-14.69	-
6	1.395	0.10	40.93	-	41.03	-	56.00	46.00	-14.97	-

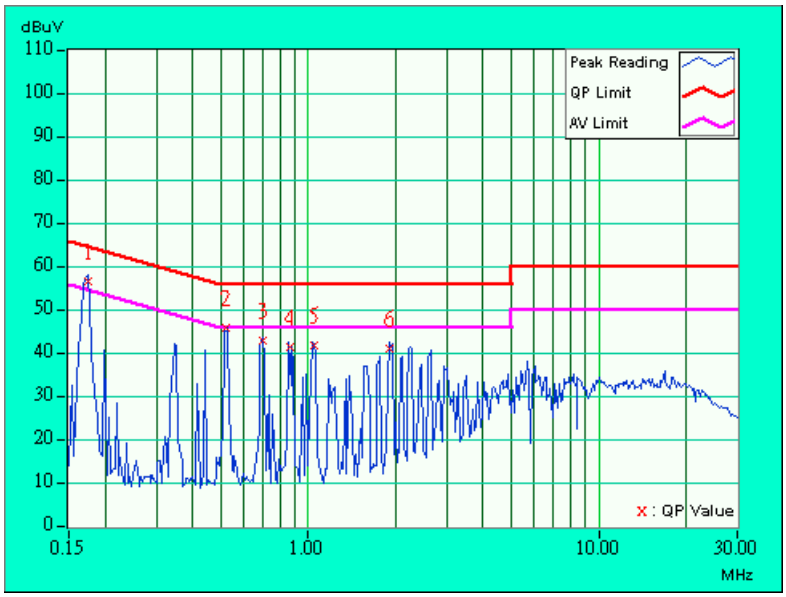
Remarks:
1. "*": Undetectable
2. QP. and AV. are abbreviations of quasi-peak and average individually.
3. "-": NA
4. The emission levels of other frequencies were very low against the limit.
5. Margin value = Emission level - Limit value
6. Emission Level = Correction Factor + Reading Value.



EUT	Wireless Access Point	**MODEL**	WAP11 Ver.2.6
MODE	Channel 11	**6dB BANDWIDTH**	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**PHASE**	Line (L)
ENVIRONMENTAL CONDITIONS	20deg.C, 65%RH, 1005 hPa	**TESTED BY**: Cody Chang	

No	Freq. (MHz)	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			QP.	AV.	QP.	AV.	QP.	AV.	QP.	AV.
1	0.174	0.10	56.51	53.75	56.61	53.85	64.77	54.77	-8.16	-0.92
2	0.522	0.10	45.99	43.58	46.09	43.68	56.00	46.00	-9.91	-2.32
3	0.695	0.10	43.01	-	43.11	-	56.00	46.00	-12.89	-
4	0.870	0.10	41.32	-	41.42	-	56.00	46.00	-14.58	-
5	1.041	0.10	41.74	-	41.84	-	56.00	46.00	-14.16	-
6	1.909	0.10	41.18	-	41.28	-	56.00	46.00	-14.72	-

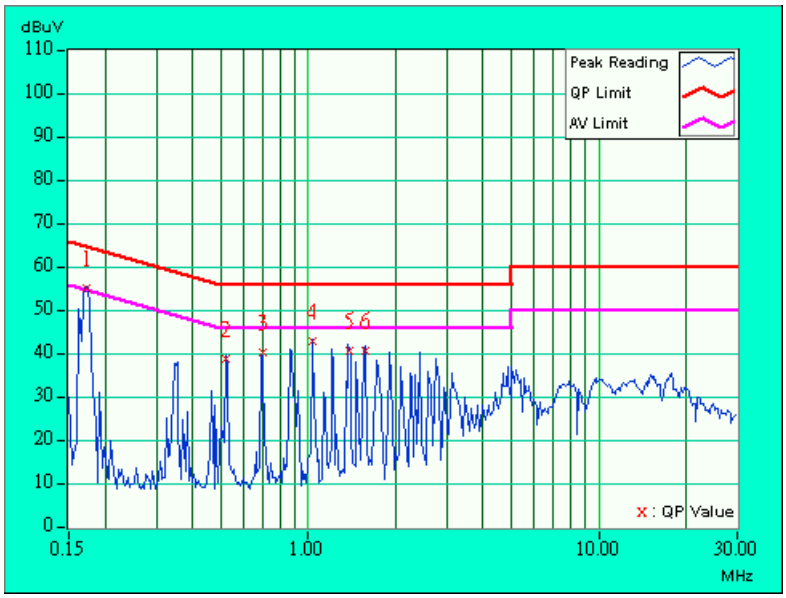
Remarks:
1. "*": Undetectable
2. QP. and AV. are abbreviations of quasi-peak and average individually.
3. "-": NA
4. The emission levels of other frequencies were very low against the limit.
5. Margin value = Emission level - Limit value
6. Emission Level = Correction Factor + Reading Value.



EUT	Wireless Access Point	**MODEL**	WAP11 Ver.2.6
MODE	Channel 11	**6dB BANDWIDTH**	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**PHASE**	Neutral (N)
ENVIRONMENTAL CONDITIONS	20deg.C, 65%RH, 1005 hPa	**TESTED BY**: Cody Chang	

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	QP.	AV.	QP.	AV.	QP.	AV.	QP.	AV.
1	0.172	0.10	55.11	51.62	55.21	51.72	64.85	54.85	-9.64	-3.13
2	0.520	0.10	38.96	-	39.06	-	56.00	46.00	-16.94	-
3	0.695	0.10	40.16	-	40.26	-	56.00	46.00	-15.74	-
4	1.041	0.10	43.01	-	43.11	-	56.00	46.00	-12.89	-
5	1.394	0.10	40.65	-	40.75	-	56.00	46.00	-15.25	-
6	1.569	0.10	40.47	-	40.57	-	56.00	46.00	-15.43	-

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



4.2 RADIATED EMISSION MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

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

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

NOTE:

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

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
* HP Spectrum Analyzer	8590L	3544A01176	May 13, 2003
* HP Preamplifier	8447D	2944A08485	Apr. 29, 2003
* HP Preamplifier	8449B	3008A01201	Dec. 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 SCHWARZBECK Tunable Dipole Antenna	VHBA 9123 UHA 9105	459 977	Nov. 22, 2003
* CHASE BILOG Antenna	CBL6112A	2221	Aug. 02, 2003
* SCHWARZBECK Horn Antenna	BBHA9120-D1	D130	Jul. 03, 2003
* EMCO Horn Antenna	3115	9312-4192	Apr. 09, 2003
* EMCO Turn Table	1060	1115	NA
* SHOSHIN Tower	AP-4701	A6Y005	NA
* Software	AS61D4	NA	NA
* ANRITSU RF Switches	MP59B	M35046	Jan. 25, 2003
* TIMES RF cable	LMR-600	CABLE-ST5-01	Jul. 12, 2003
Open Field Test Site	Site 5	ADT-R05	Jul. 19, 2003
VCCI Site Registration No.	Site 5	R-1039	NA
Site Registration No.	FCC: 90422 Canada IC: IC 3789 VCCI: R-1039		

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.

4.2.3 TEST PROCEDURES

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. If the emission level of the EUT in peak mode was 10 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10 dB margin would be re-tested one by one using the quasi-peak method or average method as specified and then reported in Data sheet peak mode and QP mode.

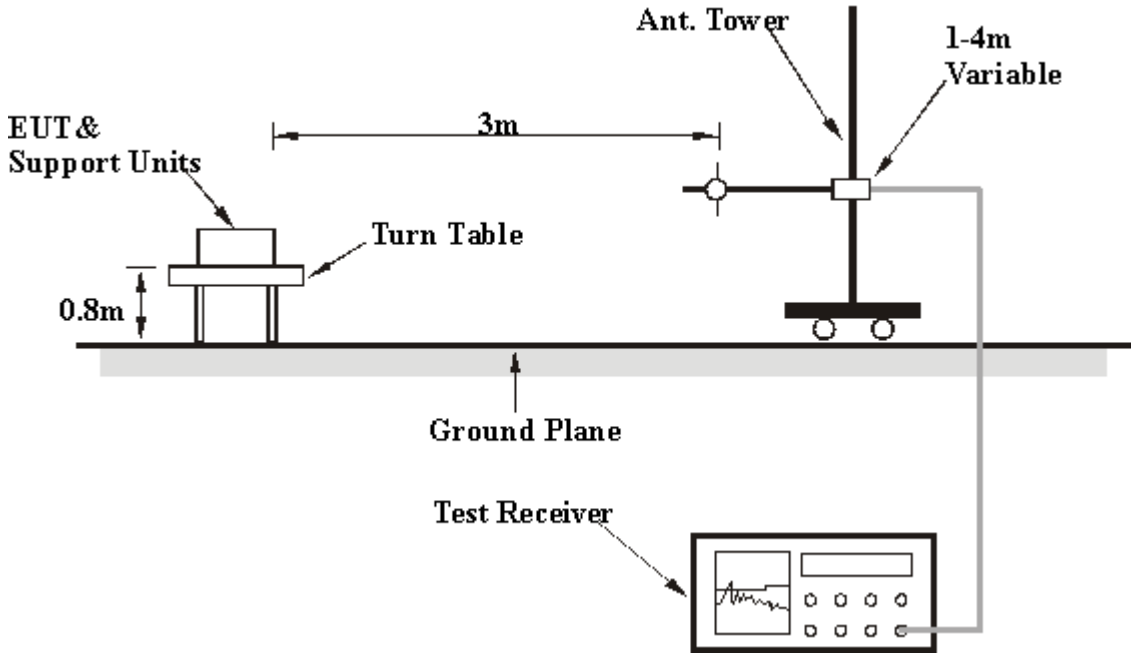
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 300 Hz for Average detection (AV) at frequency above 1GHz.

4.2.4 DEVIATION FROM TEST STANDARD

No deviation

4.2.5 TEST SETUP



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

4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6

4.2.7 TEST RESULTS

EUT	Wireless Access Point	MODEL	WAP11 Ver.2.6
MODE	Channel 11	FREQUENCY RANGE	Below 1GHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 1005 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/m)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB/m)
1	220.00	27.0 QP	46.00	-19.00	1.64H	259	12.58	10.12	4.30	0.00	-14.42
2	264.00	28.0 QP	46.00	-18.00	1.22H	22	10.21	12.89	4.91	0.00	-17.79
3	375.00	28.0 QP	46.00	-18.00	1.00H	359	6.94	15.13	5.93	0.00	-21.07
4	396.00	27.0 QP	46.00	-19.00	1.11H	3	4.91	15.96	6.13	0.00	-22.09
5	396.00	27.4 QP	46.00	-18.60	1.22H	17	5.31	15.96	6.13	0.00	-22.10
6	748.00	40.5 QP	46.00	-5.50	1.38H	2	11.61	20.14	8.75	0.00	-28.90
7	800.00	31.0 QP	46.00	-15.00	1.39H	3	1.04	20.69	9.28	0.00	-29.96
8	836.00	30.8 QP	46.00	-15.20	1.00H	319	0.83	20.54	9.43	0.00	-29.97
9	924.00	30.8 QP	46.00	-15.20	1.66H	2	-0.23	21.00	10.03	0.00	-31.03

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/m)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB/m)
1	132.00	28.0 QP	43.50	-15.50	1.14V	106	13.47	11.16	3.37	0.00	-14.53
2	176.00	29.0 QP	43.50	-14.50	1.00V	353	16.12	9.08	3.80	0.00	-12.88
3	220.00	30.8 QP	46.00	-15.20	1.06V	85	16.38	10.12	4.30	0.00	-14.42
4	240.00	27.5 QP	46.00	-18.50	1.45V	257	11.54	11.41	4.55	0.00	-15.96
5	396.00	30.4 QP	46.00	-15.60	1.37V	220	8.31	15.96	6.13	0.00	-22.10
6	400.00	26.0 QP	46.00	-20.00	1.01V	2	3.72	16.11	6.18	0.00	-22.28
7	572.00	28.5 QP	46.00	-17.50	1.55V	75	2.60	18.25	7.65	0.00	-25.91
8	748.00	31.0 QP	46.00	-15.00	1.55V	341	2.11	20.14	8.75	0.00	-28.90
9	836.00	33.5 QP	46.00	-12.50	1.26V	230	3.48	20.54	9.43	0.00	-29.98
10	875.00	29.0 QP	46.00	-17.00	1.56V	181	-1.29	20.63	9.65	0.00	-30.29
11	924.00	32.0 QP	46.00	-14.00	1.01V	3	0.97	21.00	10.03	0.00	-31.03

NOTE: 1 Emission level = Raw Value - Correction Factor

2 Correction Factor = External Preamp. Gain - Ant. Factor - Cable loss
(External Preamp. Gain = 0, when the test receiver is used for the test.)

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

4 Margin value = Emission level - Limit value

EUT	Wireless Access Point	**MODEL**	WAP11 Ver.2.6
MODE	Channel 1	**FREQUENCY RANGE**	Above 1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 1005 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/m)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB/m)
1	2038.00	50.5 PK	74.00	-23.50	1.22H	86	59.50	26.37	1.38	36.80	9.05
2	2386.00	47.5 PK	74.00	-26.50	1.14H	318	54.00	27.67	2.53	36.72	6.52
3	*2412.00	101.5 PK			1.56H	20	71.30	27.67	2.53	0.00	-30.20
4	*2412.00	96.1 AV			1.56H	20	65.90	27.67	2.53	0.00	-30.20
5	4076.00	43.3 PK	74.00	-30.70	1.38H	266	45.80	30.38	3.63	36.52	2.51
6	4824.00	48.3 PK	74.00	-25.70	1.02H	7	49.50	31.52	4.01	36.70	1.18.
7	7236.00	50.6 PK	74.00	-23.40	1.66H	313	45.80	36.20	5.58	37.00	-4.78

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB/m)
1	2038.00	51.5 PK	74.00	-22.50	1.23V	13	60.50	26.37	1.38	36.80	9.05
2	2386.00	44.5 AV	54.00	-9.50	1.54V	358	51.00	27.67	2.53	36.72	6.52
3	2386.00	60.5 PK	74.00	-13.50	1.54V	358	67.00	27.67	2.53	36.72	6.52.
4	*2412.00	107.5 PK			1.00V	24	77.30	27.67	2.53	0.00	-30.20
5	*2412.00	103.3 AV			1.00V	24	73.10	27.67	2.53	0.00	-30.20
6	4076.00	44.0 PK	74.00	-30.00	1.00V	244	46.50	30.38	3.63	36.52	2.51
7	4824.00	51.8 AV	54.00	-2.20	1.37V	10	53.00	31.52	4.01	36.70	1.19
8	4824.00	56.6 PK	74.00	-17.40	1.36V	10	57.80	31.52	4.01	36.70	1.18.
9	7236.00	56.8 PK	74.00	-17.20	1.48V	336	52.00	36.20	5.58	37.00	-4.79
10	7236.00	46.8 AV	54.00	-7.20	1.48V	336	42.00	36.20	5.58	37.00	-4.78
11	9648.00	50.6 PK	74.00	-23.40	1.13V	37	44.00	38.45	5.76	37.63	-6.59

NOTE: 1. Emission level = Raw Value - Correction Factor
2. Correction Factor = External Preamp. Gain - Ant. Factor - Cable loss
(External Preamp. Gain = 0, when the test receiver is used for the test.)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level - Limit value
5. The limit value is defined as per 15.247
6. " * " : Fundamental frequency

EUT	Wireless Access Point	**MODEL**	WAP11 Ver.2.6
MODE	Channel 6	**FREQUENCY RANGE**	Above 1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 1005 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/m)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB/m)
1	2063.00	50.2 PK	74.00	-23.80	1.12H	127	59.00	26.51	1.51	36.79	8.77
2	*2437.00	102.3 PK			1.39H	30	71.83	27.81	2.66	0.00	-30.47
3	*2437.00	96.8 AV			1.39H	30	66.33	27.81	2.66	0.00	-30.47
4	4126.00	44.1 PK	74.00	-29.90	1.42H	94	46.50	30.50	3.66	36.56	2.40
5	4874.00	47.4 PK	74.00	-26.60	1.84H	343	48.50	31.59	4.03	36.70	1.08
6	7311.00	51.9 PK	74.00	-22.10	1.39H	4	47.00	36.26	5.65	37.02	-4.91

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB/m)
1	2063.00	52.2 PK	74.00	-21.80	1.00V	306	61.00	26.51	1.51	36.79	8.77
2	2063.00	50.4 AV	54.00	-3.60	1.00V	306	59.20	26.51	1.51	36.79	8.77
3	*2437.00	108.8 PK			1.00V	13	78.33	27.81	2.66	0.00	-30.45
4	*2437.00	103.8 AV			1.00V	13	73.33	27.81	2.66	0.00	-30.47
5	4126.00	44.4 PK	74.00	-29.60	1.34V	236	46.80	30.50	3.66	36.56	2.39
6	4874.00	47.4 AV	54.00	-6.60	1.34V	3	48.50	31.59	4.03	36.70	1.08
7	4874.00	52.9 PK	74.00	-21.10	1.34V	3	54.00	31.59	4.03	36.70	1.08
8	6188.00	46.7 PK	74.00	-27.30	1.20V	102	45.50	33.30	4.67	36.77	-1.20
9	7311.00	55.9 PK	74.00	-18.10	1.12V	1	51.00	36.26	5.65	37.02	-4.90-
10	7311.00	46.9 AV	54.00	-7.10	1.12V	1	42.00	36.26	5.65	37.02	-4.90

NOTE: 1. Emission level = Raw Value - Correction Factor
2. Correction Factor = External Preamp. Gain - Ant. Factor - Cable loss
(External Preamp. Gain = 0, when the test receiver is used for the test.)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level - Limit value
5. The limit value is defined as per 15.247
6. " * " : Fundamental frequency

EUT	Wireless Access Point	**MODEL**	WAP11 Ver.2.6
MODE	Channel 11	**FREQUENCY RANGE**	Above 1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 1005 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/m)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB/m)
1	2088.00	48.5 PK	74.00	-25.50	1.50H	201	57.00	26.66	1.64	36.78	8.49
2	*2463.00	98.8 PK			1.50H	14	68.33	27.81	2.66	0.00	-30.47
3	*2463.00	93.3 AV			1.50H	14	62.83	27.81	2.66	0.00	-30.47
4	2492.00	45.0 PK	74.00	-29.00	1.21H	5	51.00	27.96	2.78	36.70	5.96
5	4176.00	43.9 PK	74.00	-30.10	1.46H	5	46.20	30.56	3.68	36.58	2.34
6	4924.00	47.2 PK	74.00	-26.80	1.40H	178	48.20	31.66	4.06	36.70	0.99
7	7389.00	49.1 PK	74.00	-24.90	1.35H	4	44.00	36.40	5.79	37.05	-5.15

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB/m)
1	2088.00	51.8 AV	54.00	-2.20	1.14V	5	60.30	26.66	1.64	36.78	8.49
2	2088.00	53.5 PK	74.00	-20.50	1.14V	5	62.00	26.66	1.64	36.78	8.49
3	*2463.00	109.0 PK			1.18V	7	78.53	27.81	2.66	0.00	-30.47
4	*2463.00	102.3 AV			1.18V	7	71.83	27.81	2.66	0.00	-30.47
5	2491.00	49.0 PK	74.00	-25.00	1.15V	274	55.00	27.96	2.78	36.70	5.96
6	4176.00	44.7 PK	74.00	-29.30	1.27V	339	47.00	30.56	3.68	36.58	2.33
7	4924.00	54.4 PK	74.00	-19.60	1.26V	3	55.40	31.66	4.06	36.70	0.99.
8	4924.00	48.7 AV	54.00	-5.30	1.26V	3	49.67	31.66	4.06	36.70	0.99
9	7385.00	56.3 PK	74.00	-17.70	1.18V	60	51.20	36.40	5.79	37.05	-5.14.
10	7385.00	46.1 AV	54.00	-7.90	1.18V	60	41.00	36.40	5.79	37.05	-5.14

NOTE: 1. Emission level= Raw Value - Correction Factor
2. Correction Factor = External Preamp. Gain - Ant. Factor - Cable loss
(External Preamp. Gain = 0, when the test receiver is used for the test.)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level - Limit value
5. The limit value is defined as per 15.247
6. " * " : Fundamental frequency

4.3 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 RBW=1MHz and VBW=300Hz of spectrum analyzer with suitable frequency span including 100kHz bandwidth from band edge. The band edges was measured and recorded.

4.3.4 DEVIATION FROM TEST STANDARD

No deviation

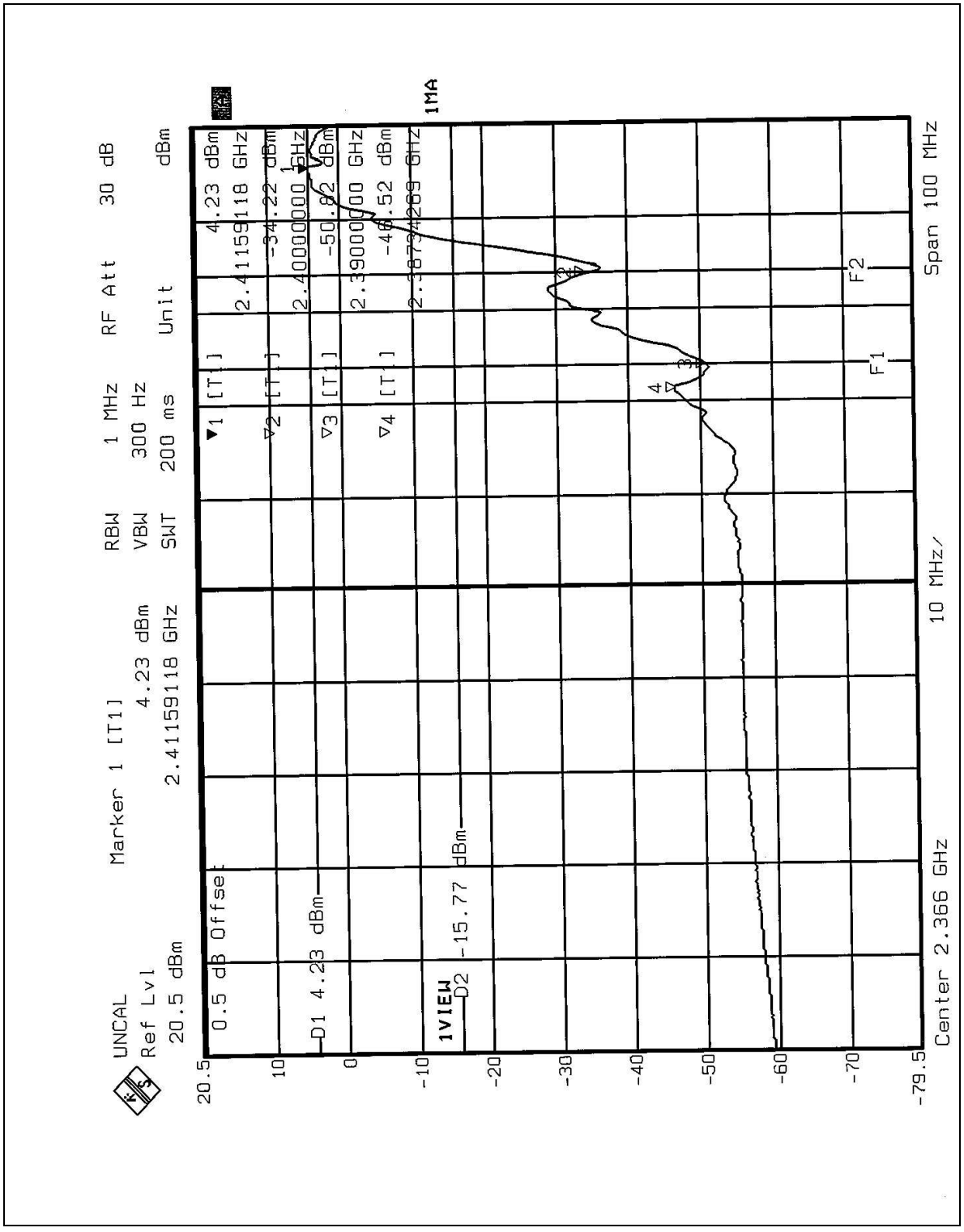
4.3.5 EUT OPERATING CONDITION

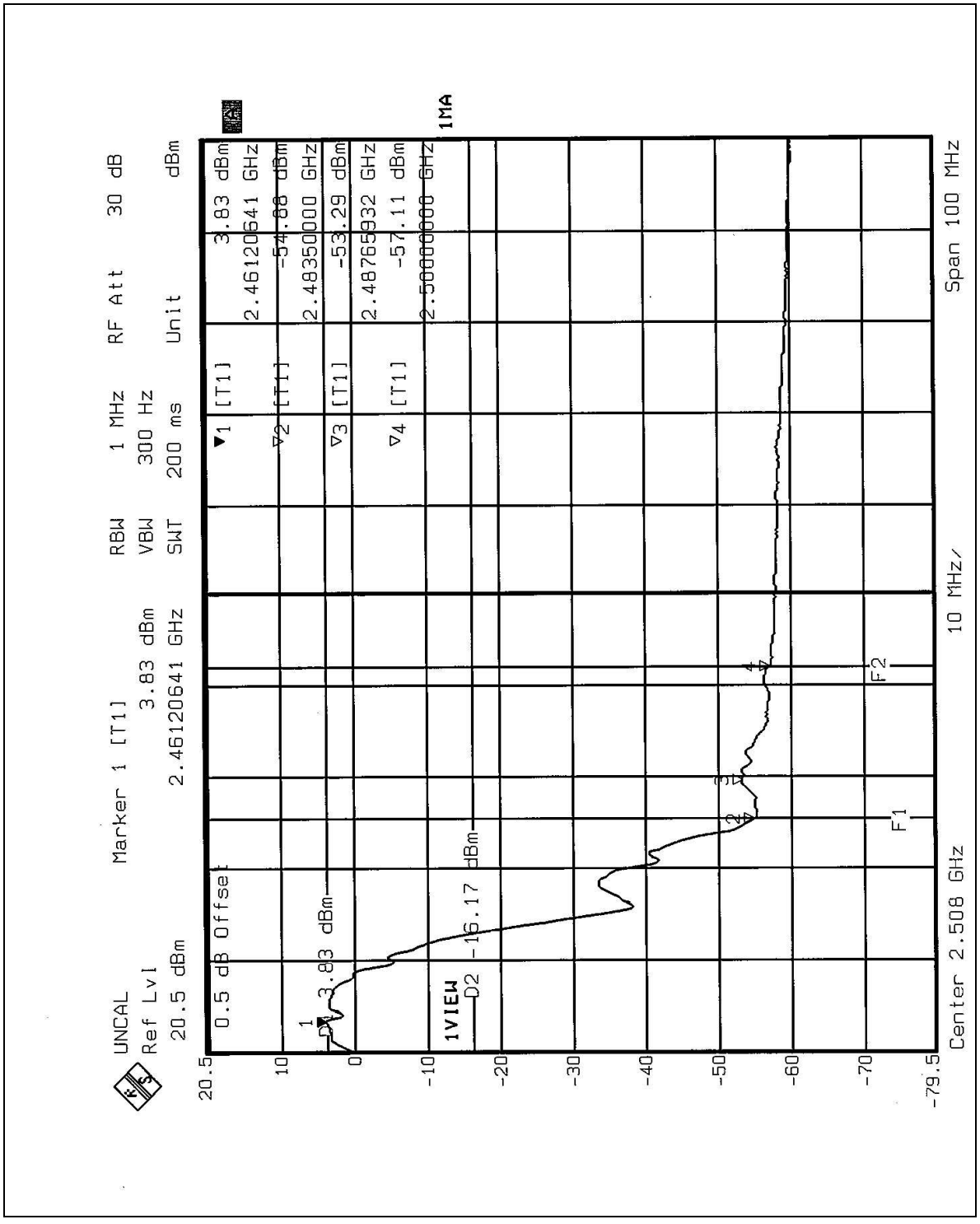
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

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).

NOTE: The band edge emission plot on the following 2 pages shows 50.75dB / 57.12dB delta between carrier maximum power and local maximum emission in restrict band (2.3873GHz / 2.4877GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 103.3dBuV/m, so the maximum field strength in restrict band is 103.3-50.75=52.55dBuV/m which is under 54dBuV/m limit.

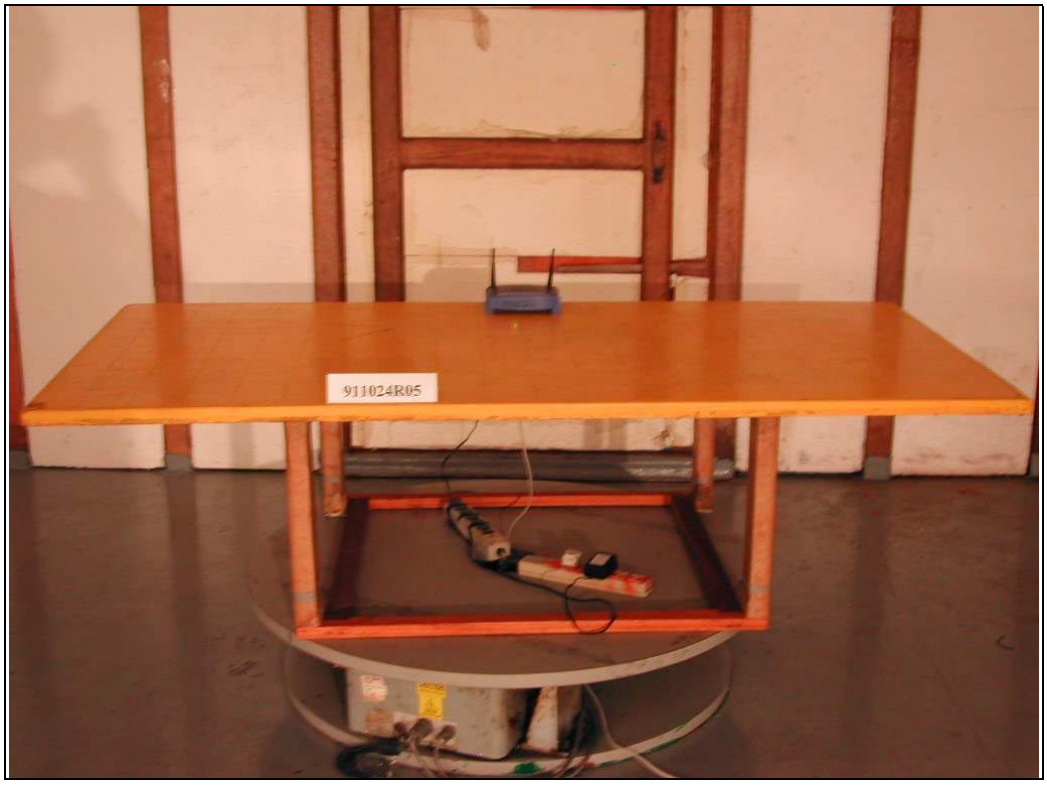

UNCAL
Ref Lvl
20.5 dBm
0.5 dB Offset
Marker 1 [T1]
4.23 dBm
2.41159118 GHz
D1 4.23 dBm
D2 -15.77 dBm
1VIEW
RBW 1 MHz
VBW 300 Hz
SWT 200 ms
RF Att 30 dB
Unit dBm
1 [T1] 4.23 dBm 2.41159118 GHz
2 [T1] -34.22 dBm 2.40000000 GHz
3 [T1] -50.82 dBm 2.39000000 GHz
4 [T1] -46.52 dBm
1MA
F1
F2
Center 2.366 GHz
10 MHz/
Span 100 MHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5

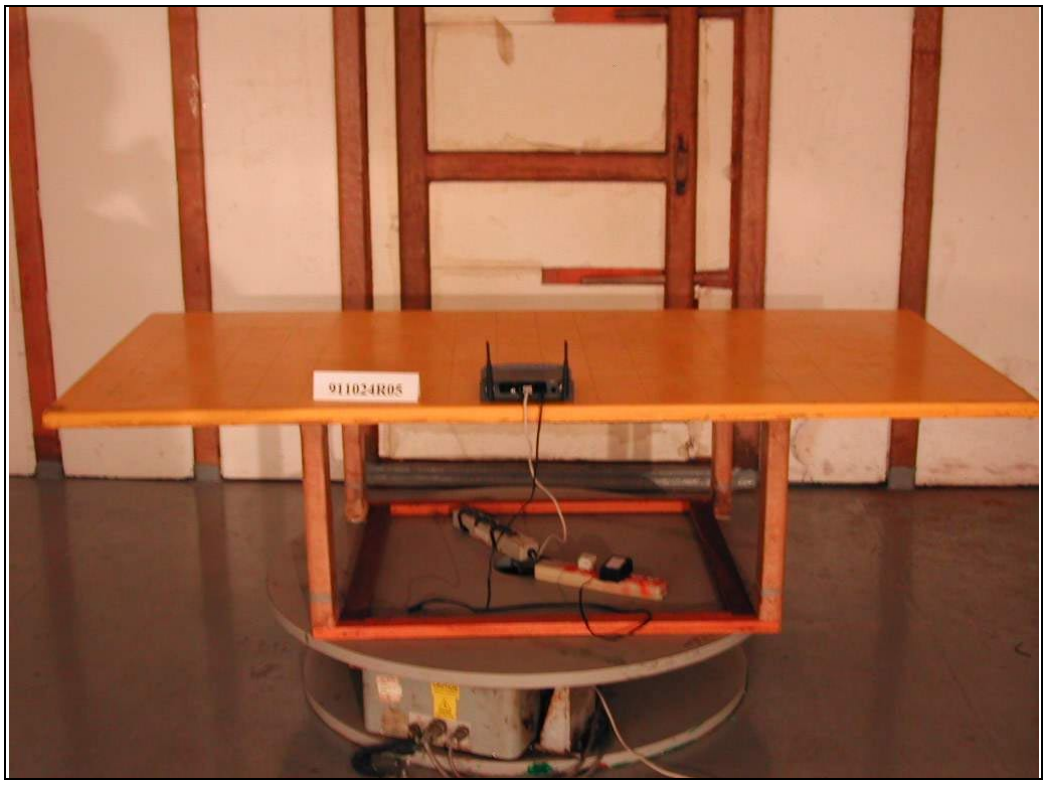

UNCAL
Ref Lvl
20.5 dBm
0.5 dB Offset
Marker 1 [T1]
3.83 dBm
2.46120641 GHz
RBW 1 MHz
VBW 300 Hz
SWT 200 ms
RF Att 30 dB
Unit dBm
1 [T1] 3.83 dBm
2.46120641 GHz
2 [T1] -54.68 dBm
2.48350000 GHz
3 [T1] -53.29 dBm
2.48765932 GHz
4 [T1] -57.11 dBm
2.50000000 GHz
1MA
1VIEW
D2 -16.17 dBm
3.83 dBm
F1
F2
Center 2.508 GHz
10 MHz/
Span 100 MHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5

5 PHOTOGRAPHS OF THE TEST CONFIGURATION

CONDUCTED EMISSION TEST

RADIATED EMISSION TEST





6 INFORMATION ON THE TESTING LABORATORIES

We, ADT Corp., were founded in 1988 to provide our best service in EMC and Safety consultation. Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025, Guide 25 or EN 45001:

USA	FCC, NVLAP, UL
Germany	TUV Rheinland
Japan	VCCI
New Zealand	MoC
Norway	NEMKO
R.O.C.	BSMI, DGT, CNLA

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site: www.adt.com.tw/index.5/phtml.

If you have any comments, please feel free to contact us at the following:

Lin Kou EMC Lab:
Tel: 886-2-26052180
Fax: 886-2-26052943

Hsin Chu EMC Lab:
Tel: 886-35-935343
Fax: 886-35-935342

Lin Kou Safety Lab:
Tel: 886-2-26093195
Fax: 886-2-26093184

Lin Kou RF&Telecom Lab
Tel: 886-3-3270910
Fax: 886-3-3270892

Email: service@mail.adt.com.tw
Web Site: www.adt.com.tw

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