FCC TEST REPORT

REPORT NO.: RF911026R01
MODEL NO.: WMP51AB
RECEIVED: Oct. 7, 2002
TESTED: Oct. 8 ~ Nov. 12, 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.

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0528
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Lab Code: 200102-0

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1. CERTIFICATION

PRODUCT :	Dual-Band Wireless A+B PCI Adapter
BRAND NAME :	Linksys
MODEL NO. :	WMP51AB
APPLICANT :	The Linksys Group, Inc.
STANDARDS :	47 CFR Part 15, Subpart C (Section 15.247), Subpart E (Section 15.407), ANSI C63.4-1992

We, **Advance Data Technology Corporation**, hereby certify that one sample of the designation has been tested in our facility from Oct. 8 ~ Nov. 12, 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.

CHECKED BY : Emily Lu, DATE : Nov. 25, 2002

Emily Lu

APPROVED BY : Chris Wu for, DATE : Nov. 25, 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 –14.22dBuV at 1.809MHz
15.247(a)(2)	Spectrum Bandwidth of a Direct Sequence Spread Spectrum System Limit: min. 500kHz	PASS	Meet the requirement of limit
15.247(b)	Maximum Peak Output Power Limit: max. 30dBm	PASS	Meet the requirement of limit
15.247(c)	Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit Minimum passing margin is –1.4dBuV at 4874.00MHz
15.247(d)	Power Spectral Density Limit: max. 8dBm	PASS	Meet the requirement of limit
15.247(c)	Band Edge Measurement Limit: 20dB less than the peak value of fundamental frequency	PASS	Meet the requirement of limit

APPLIED STANDARD: 47 CFR Part 15, Subpart E			
Standard Section	**Test Type**	**Result**	**REMARK**
15.407(b)(5)	AC Power Conducted Emission	PASS	Meet the requirement of limit Minimum passing margin is –14.40dBuV at 1.809MHz
15.407(b/1/2/3)(b)(5)	Electric Field Strength Spurious Emissions, 30 MHz – 40000 MHz	PASS	Meet the requirement of limit Minimum passing margin is –2.8dBuV at 10640.00MHz
15.407(a/1/2/3)	Peak Transmit Power	PASS	Meet the requirement of limit
15.407(a)(6)	Peak Power Excursion	PASS	Meet the requirement of limit
15.407(a/1/2/3)	Peak Power Spectral Density	PASS	Meet the requirement of limit
15.407(g)	Frequency Stability	PASS	Meet the requirement of limit

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Dual-Band Wireless A+B PCI Adapter
MODEL NO.	WMP51AB
POWER SUPPLY	5VDC from host equipment
MODULATION	802.11b: DSSS 802.11a: OFDM
TRANSFER RATE	802.11b: 1 / 2 / 5.5 / 11Mbps 802.11a: 6 to 54Mbps *(Turbo mode : up to 72Mbps)
FREQUENCY RANGE	802.11b: 2412MHz ~ 2462MHz 802.11a: 5.15GHz ~ 5.35GHz
NUMBER OF CHANNEL	802.11b: 11 802.11a: 8 for Normal mode / 3 for Turbo mode
CHANNEL SPACING	802.11b: 5MHz 802.11a: 20MHz for Normal mode / 40MHz for Turbo mode
OUTPUT POWER	802.11b: 15.34dBm 802.11a: 16.65dBm
DATA CABLE	NA
ANTENNA TYPE	Dipole antenna
I/O PORTS	NA
ASSOCIATED DEVICES	NA

NOTE:

1. The EUT operates in both the 5GHz and 2.4GHz Bands and compatibility with 802.11a and 802.11b technology.
2. For more detailed features description, please refer to the manufacturer's specifications or User's Manual.

3.2 DESCRIPTION OF TEST MODES

For 802.11b: 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.

For 802.11a: Eight channels are provided to this EUT for Normal mode.

Channel	Frequency	Channel	Frequency
1	5180 MHz	7	5300 MHz
2	5200 MHz	8	5320 MHz
3	5220 MHz		
4	5240 MHz		
5	5260 MHz		
6	5280 MHz		

Five channels are provided to this EUT for Turbo Mode.

Channel	Frequency	Channel	Frequency
1	5210 MHz	2	5250 MHz
3	5290 MHz		

NOTE:

1. The EUT was transmitting at full power on the specified channel with a duty cycle of 99% (maximum allowed). The EUT was tested in both normal mode (channel bandwidth of approximately 30MHz) and turbo mode (channel bandwidth of approximately 60MHz).
2. “Normal Mode” allows data rates of up to 54Mbps. The device was, therefore, tested in Normal mode at the data rate that produced the highest output power for normal mode (6Mbps).
3. “Turbo Mode” allows data rates of up to 72Mbps. At data rates higher than 12Mbps the PA gain is reduced to improve signal fidelity. The device was, therefore, tested in turbo mode at the data rate that produced the highest output power for turbo mode (12Mbps).
4. Channel 1, 4, 5 and 8 are the closest frequencies to the band edge, were chosen for final test of Normal Mode.
5. Channel 1 ~ 3 were chosen for final test of turbo mode.

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a Dual-Band Wireless A+B PCI Adapter. 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),
Subpart E (15.407). ANSI C63.4 : 1992

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

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

3.4 DESCRIPTION OF SUPPORT UNITS

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

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	PERSONAL COMPUTER	HP	Brio BA410	SG12902751	FCC DoC APPROVED
2	COLOR MONITOR	ADI	CM100	026058T10200611 A	FCC DoC APPROVED
3	PS/2 KEYBOARD	FORWARD	FDA-104GA	FDKB8110111	F4ZDA-104G
4	PS/2 MOUSE	LOGITECH	M-S43	LZE00703207	DZL211106
5	PRINTER	EPSON	LQ-300+	DCGY017096	FCC DoC APPROVED
6	MODEM	ACEEX	1414	980020569	IFAXDM1414

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA
2	1.8 m braid shielded wire, terminated with VGA connector via metallic frame, w/o core
3	1.5 m foil shielded wire, terminated with PS/2 connector via metallic frame, w/o core.
4	1.8 m foil shielded wire, terminated with PS/2 connector via drain wire, w/o core.
5	1.2m braid shielded wire, terminated with DB25 and Centronics connector via metallic frame, w/o core
6	1.2 m braid shielded wire, terminated with DB25 and DB9 connector via metallic frame, w/o core.

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

4. TEST TYPES AND RESULTS (FOR PART 802.11b)

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	ESCS30	834115/016	Mar. 3, 2003
ROHDE & SCHWARZ Artificial Mains Network (For EUT)	ESH3-Z5	847265/023	Jan. 10, 2003
* ROHDE & SCHWARZ 4-wire ISN	ENY41	838119/028	Dec. 10, 2002
* ROHDE & SCHWARZ 2-wire ISN	ENY22	837497/018	Dec. 10, 2002
EMCO L.I.S.N. (For peripherals)	3825/2	9504-2359	July 10, 2003
Software	Cond-V2L	NA	NA
RF cable (JYEBAO)	5D-FB	Cable-C03.01	July 11, 2003
Terminator (For EMCO LISN)	NA	E1-01-300	Feb. 20, 2003
Terminator (For EMCO LISN)	NA	E1-01-301	Feb. 20, 2003
Shielded Room	Site 3	ADT-C03	NA
VCCI Site Registration No.	Site 3	C-274	NA

NOTE:
1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. “*”: These equipment are used for conducted telecom port test only (if tested).
4. The test was performed in ADT Open Site No. 3.

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.

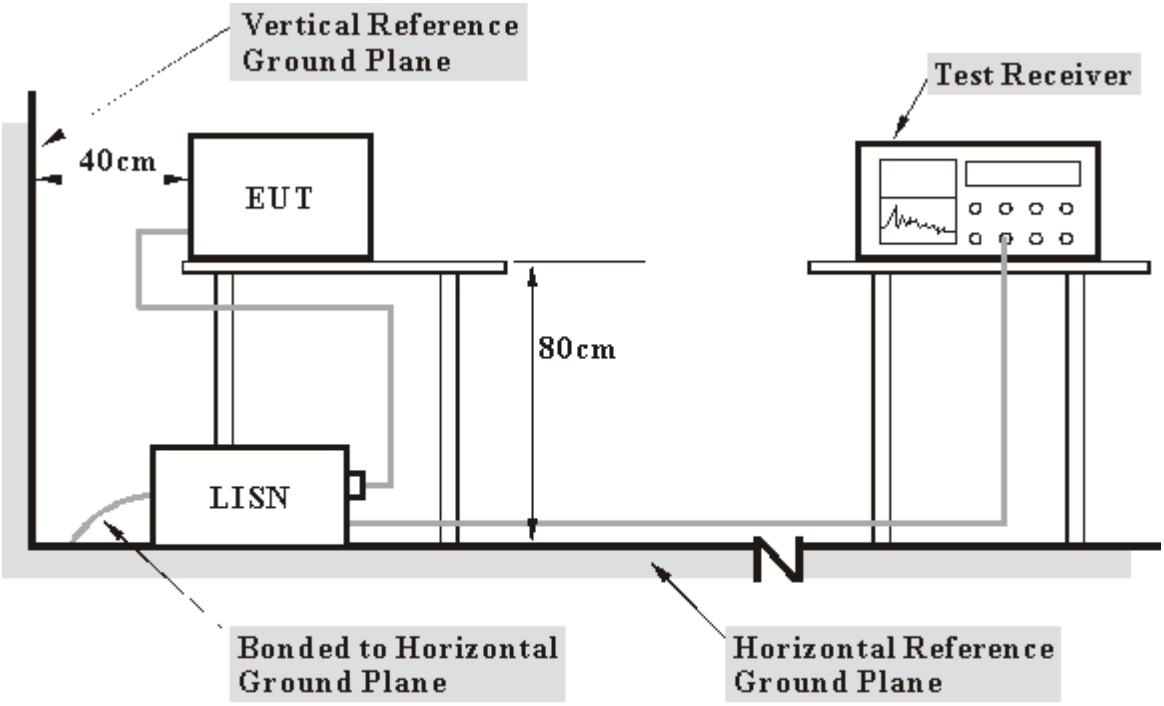
b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

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

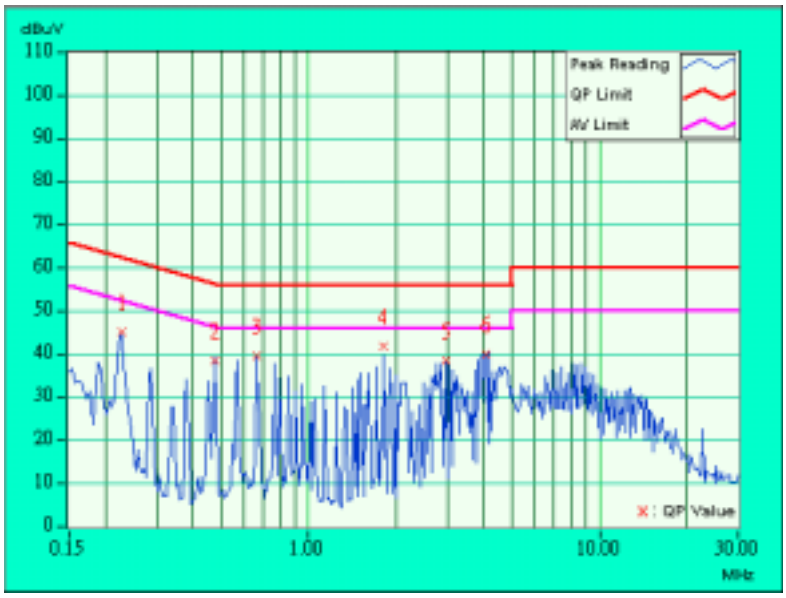
a. Plug the EUT into the computer system placed on a testing table.
b. The computer system ran a test program to enable EUT under transmission/receiving condition continuously at specific channel frequency.
c. The computer system sent "H" messages to its screen.
d. The computer system sent “H” messages to modem.
e. The computer system sent "H" messages to printer, and the printer prints them on paper.

4.1.7 TEST RESULTS

EUT	Dual-Band Wireless A+B PCI Adapter	**MODEL**	WMP51AB
MODE	Channel 1	**6dB BANDWIDTH**	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**PHASE**	Line (L)
ENVIRONMENTAL CONDITIONS	25deg. C, 62%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	0.227	0.10	44.64	-	44.74	-	62.57	52.57	-17.83	-
2	0.478	0.11	38.05	-	38.14	-	56.37	46.37	-18.23	-
3	0.666	0.14	39.05	-	39.19	-	56.00	46.00	-16.81	-
4	1.809	0.28	41.50	-	41.78	-	56.00	46.00	-14.22	-
5	2.953	0.40	37.90	-	38.30	-	56.00	46.00	-17.70	-
6	4.094	0.50	39.60	-	40.10	-	56.00	46.00	-15.90	-

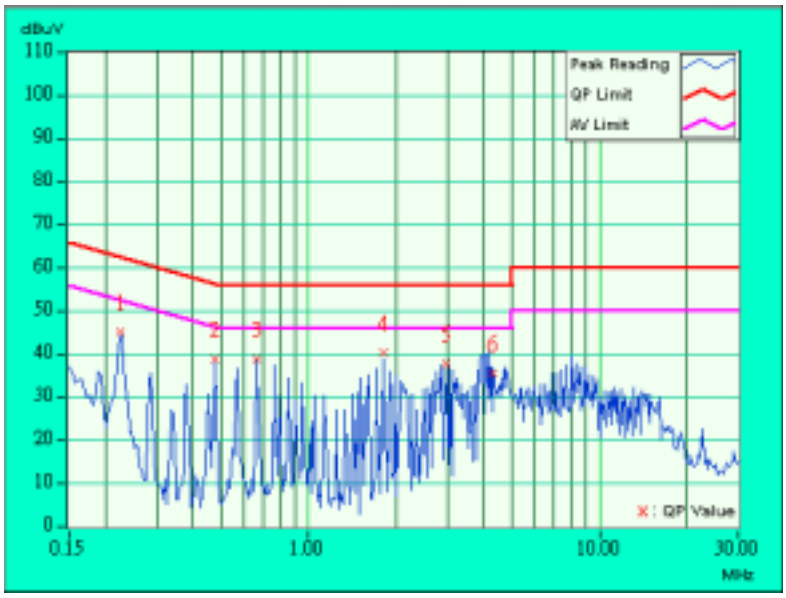
Remarks:
1. "*": Undetectable
2. QP. and AV. are abbreviations of quasi-peak and average individually.
3. "-": NA
4. The emission levels of other frequencies were very low against the limit.
5. Margin value = Emission level - Limit value
6. Emission Level = Correction Factor + Reading Value.



EUT	Dual-Band Wireless A+B PCI Adapter	**MODEL**	WMP51AB
MODE	Channel 1	**6dB BANDWIDTH**	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**PHASE**	Neutral (N)
ENVIRONMENTAL CONDITIONS	25deg. C, 62%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	0.226	0.10	44.64	-	44.74	-	62.61	52.61	-17.87	-
2	0.475	0.11	38.58	-	38.69	-	56.42	46.42	-17.72	-
3	0.666	0.14	38.63	-	38.77	-	56.00	46.00	-17.23	-
4	1.809	0.28	39.87	-	40.15	-	56.00	46.00	-15.85	-
5	2.952	0.35	37.56	-	37.91	-	56.00	46.00	-18.09	-
6	4.284	0.40	35.04	-	35.44	-	56.00	46.00	-20.56	-

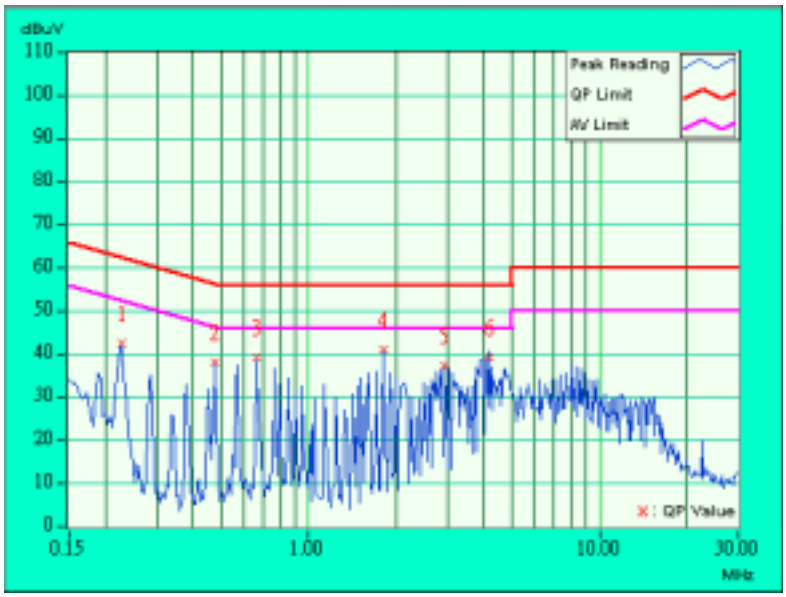
Remarks:
1. "*": Undetectable
2. QP. and AV. are abbreviations of quasi-peak and average individually.
3. "-": NA
4. The emission levels of other frequencies were very low against the limit.
5. Margin value = Emission level - Limit value
6. Emission Level = Correction Factor + Reading Value.



EUT	Dual-Band Wireless A+B PCI Adapter	**MODEL**	WMP51AB
MODE	Channel 6	**6dB BANDWIDTH**	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**PHASE**	Line (L)
ENVIRONMENTAL CONDITIONS	25deg. C, 62%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	0.228	0.10	42.11	-	42.21	-	62.52	52.52	-20.31	-
2	0.474	0.11	37.79	-	37.90	-	56.44	46.44	-18.54	-
3	0.666	0.14	38.65	-	38.79	-	56.00	46.00	-17.21	-
4	1.809	0.28	40.65	-	40.93	-	56.00	46.00	-15.07	-
5	2.951	0.40	36.76	-	37.16	-	56.00	46.00	-18.84	-
6	4.190	0.50	38.85	-	39.35	-	56.00	46.00	-16.65	-

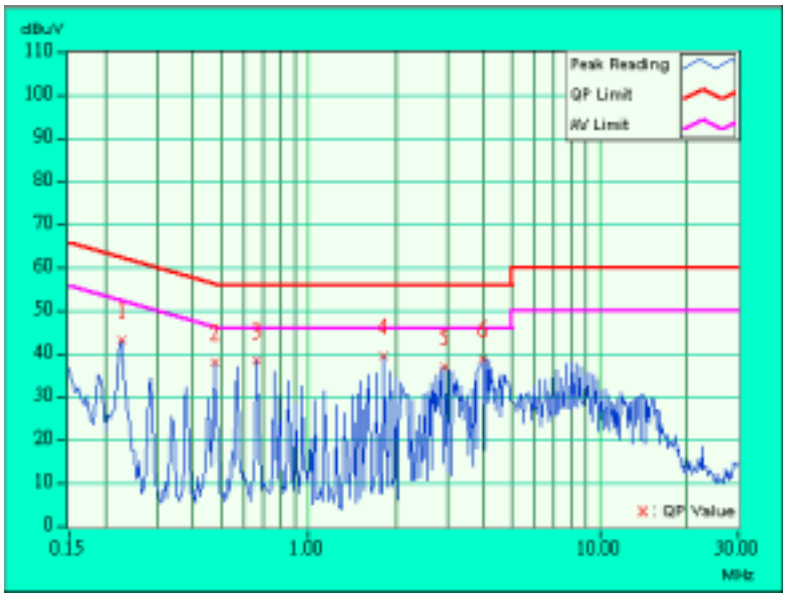
Remarks:
1. "*": Undetectable
2. QP. and AV. are abbreviations of quasi-peak and average individually.
3. "-": NA
4. The emission levels of other frequencies were very low against the limit.
5. Margin value = Emission level - Limit value
6. Emission Level = Correction Factor + Reading Value.



EUT	Dual-Band Wireless A+B PCI Adapter	**MODEL**	WMP51AB
MODE	Channel 6	**6dB BANDWIDTH**	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**PHASE**	Neutral (N)
ENVIRONMENTAL CONDITIONS	25deg. C, 62%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	0.227	0.10	42.99	-	43.09	-	62.57	52.57	-19.48	-
2	0.477	0.11	37.89	-	38.00	-	56.40	46.40	-18.39	-
3	0.666	0.14	38.25	-	38.39	-	56.00	46.00	-17.61	-
4	1.809	0.28	39.39	-	39.67	-	56.00	46.00	-16.33	-
5	2.951	0.35	36.52	-	36.87	-	56.00	46.00	-19.13	-
6	3.996	0.40	38.33	-	38.73	-	56.00	46.00	-17.27	-

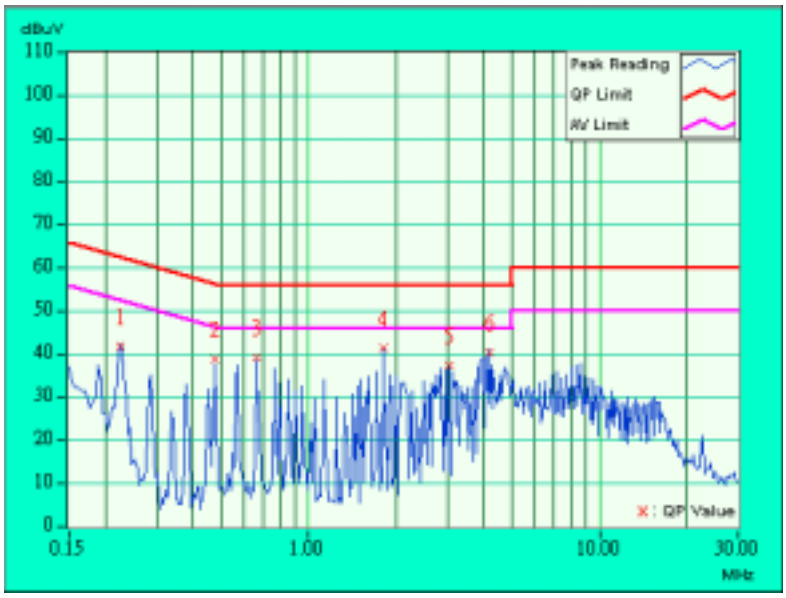
Remarks:
1. "*": Undetectable
2. QP. and AV. are abbreviations of quasi-peak and average individually.
3. "-": NA
4. The emission levels of other frequencies were very low against the limit.
5. Margin value = Emission level - Limit value
6. Emission Level = Correction Factor + Reading Value.



EUT	Dual-Band Wireless A+B PCI Adapter	**MODEL**	WMP51AB
MODE	Channel 11	**6dB BANDWIDTH**	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**PHASE**	Line (L)
ENVIRONMENTAL CONDITIONS	25deg. C, 62%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	0.224	0.10	41.47	-	41.57	-	62.66	52.66	-21.09	-
2	0.476	0.11	38.55	-	38.66	-	56.42	46.42	-17.75	-
3	0.666	0.14	38.60	-	38.74	-	56.00	46.00	-17.26	-
4	1.809	0.28	40.96	-	41.24	-	56.00	46.00	-14.76	-
5	3.047	0.40	36.87	-	37.27	-	56.00	46.00	-18.73	-
6	4.188	0.50	39.69	-	40.19	-	56.00	46.00	-15.81	-

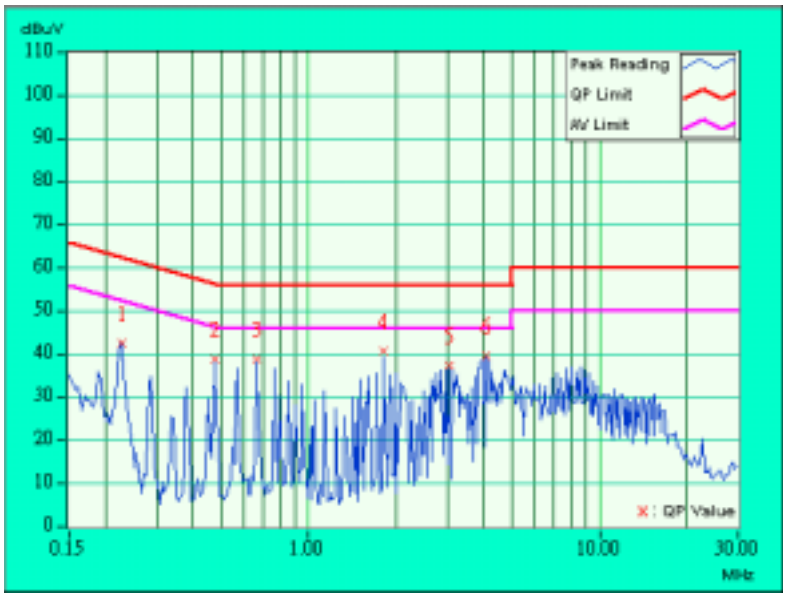
Remarks:
1. "*": Undetectable
2. QP. and AV. are abbreviations of quasi-peak and average individually.
3. "-": NA
4. The emission levels of other frequencies were very low against the limit.
5. Margin value = Emission level - Limit value
6. Emission Level = Correction Factor + Reading Value.



EUT	Dual-Band Wireless A+B PCI Adapter	**MODEL**	WMP51AB
MODE	Channel 11	**6dB BANDWIDTH**	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**PHASE**	Neutral (N)
ENVIRONMENTAL CONDITIONS	25deg. C, 62%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	0.228	0.10	42.31	-	42.41	-	62.52	52.52	-20.11	-
2	0.476	0.11	38.53	-	38.64	-	56.42	46.42	-17.77	-
3	0.666	0.14	38.46	-	38.60	-	56.00	46.00	-17.40	-
4	1.809	0.28	40.20	-	40.48	-	56.00	46.00	-15.52	-
5	3.047	0.35	36.97	-	37.32	-	56.00	46.00	-18.68	-
6	4.094	0.40	39.22	-	39.62	-	56.00	46.00	-16.38	-

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. 06, 2002
* HP Preamplifier	8449B	3008A01292	Aug. 7, 2003
* ROHDE & SCHWARZ TEST RECEIVER	ESMI	839013/007 839379/002	Jan. 27, 2003
SCHWARZBECK Tunable Dipole Antenna	VHA 9103 UHA 9105	E101051 E101055	Nov. 23, 2002
* CHASE BILOG Antenna	CBL6112A	2221	Aug. 2, 2003
* SCHWARZBECK Horn Antenna	BBHA9120-D1	D130	Jul. 3, 2003
* EMCO Horn Antenna	3115	9312-4192	Apr. 9, 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

NOTE: 1. The measurement uncertainty is less than +/- 3.0dB, which is calculated as per the NAMAS document NIS81.
2. The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to NML/ROC and NIST/USA.
3. "*" = These equipment are used for the final measurement.
4. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
5. 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.

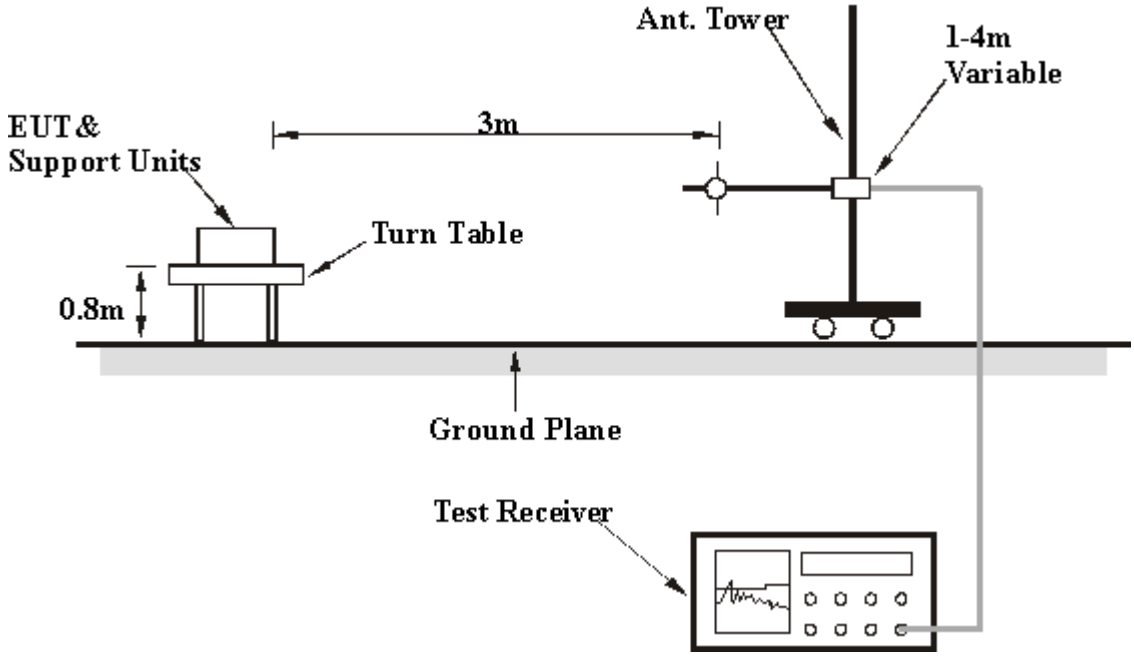
NOTE:

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	Dual-Band Wireless A+B PCI Adapter	**MODEL**	WMP51AB
MODE	Channel 11	**FREQUENCY RANGE**	30-1000 MHz
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	160.00	26.4 QP	43.50	-17.10	1.40H	30	13.15	9.62	3.62	0.00	-13.25
2	192.00	27.0 QP	43.50	-16.50	1.00H	3	14.04	8.95	4.00	0.00	-12.97
3	320.00	26.0 QP	46.00	-20.00	1.19H	3	7.03	13.62	5.34	0.00	-18.97
4	384.00	28.0 QP	46.00	-18.00	1.35H	1	6.48	15.50	6.02	0.00	-21.53
5	480.00	27.0 QP	46.00	-19.00	1.04H	3	3.57	16.92	6.51	0.00	-23.43
6	576.00	28.0 QP	46.00	-18.00	1.25H	43	2.05	18.28	7.67	0.00	-25.95

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	160.00	26.8 QP	43.50	-16.70	1.40V	293	13.55	9.62	3.62	0.00	-13.25
2	192.00	28.0 QP	43.50	-15.50	1.07V	288	15.04	8.95	4.00	0.00	-12.96
3	224.00	27.0 QP	46.00	-19.00	1.29V	1	12.24	10.41	4.36	0.00	-14.77
4	320.00	30.0 QP	46.00	-16.00	1.67V	29	11.03	13.62	5.34	0.00	-18.97
5	384.00	28.0 QP	46.00	-18.00	1.44V	299	6.48	15.50	6.02	0.00	-21.52
6	480.00	25.0 QP	46.00	-21.00	1.35V	3	1.57	16.92	6.51	0.00	-23.43
7	576.00	27.0 QP	46.00	-19.00	1.09V	20	1.05	18.28	7.67	0.00	-25.95

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	Dual-Band Wireless A+B PCI Adapter	**MODEL**	WMP51AB
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	*2412.00	103.2 PK			1.20H	29	73.00	27.67	2.53	0.00	-30.20
2	*2412.00	97.2 AV			1.20H	29	69.00	27.67	2.53	0.00	-30.20
3	4824.00	45.8 PK	74.00	-28.20	1.33H	3	47.00	31.52	4.01	36.70	1.18
4	7236.00	50.5 PK	74.00	-23.50	1.30H	359	45.70	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	*2412.00	101.6 AV			1.46V	27	71.40	27.67	2.53	0.00	-30.20
2	*2412.00	108.6 PK			1.46V	27	78.40	27.67	2.53	0.00	-30.20
3	4824.00	50.6 PK	74.00	-23.40	1.68V	343	51.80	31.52	4.01	36.70	1.18
4	7236.00	44.8 AV	54.00	-9.20	1.51V	17	40.00	36.20	5.58	37.00	-4.78
5	7236.00	52.8 PK	74.00	-21.20	1.51V	17	48.00	36.20	5.58	37.00	-4.78

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	Dual-Band Wireless A+B PCI Adapter	**MODEL**	WMP51AB
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	*2437.00	100.8 PK			1.86H	0	70.33	27.81	2.66	0.00	-30.47
2	*2437.00	97.8 AV			1.86H	0	67.33	27.81	2.66	0.00	-30.47
3	4874.00	48.1 PK	74.00	-25.90	1.36H	3	49.20	31.59	4.03	36.70	1.08
4	7312.00	49.0 PK	74.00	-25.00	1.42H	15	44.00	36.33	5.72	37.03	-5.02

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/m)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB/m)
1	*2437.00	104.8 AV			1.08V	7	74.33	27.81	2.66	0.00	-30.47
2	*2437.00	107.5 PK			1.08V	7	77.03	27.81	2.66	0.00	-30.47
3	4874.00	52.6 AV	54.00	-1.40	1.36V	19	53.72	31.59	4.03	36.70	1.08
4	4874.00	54.2 PK	74.00	-19.80	1.36V	19	55.31	31.59	4.03	36.70	1.08.
5	7312.00	53.5 PK	74.00	-20.50	1.50V	331	48.50	36.33	5.72	37.03	-5.02
6	7312.00	47.5 AV	54.00	-6.50	1.50V	331	42.50	36.33	5.72	37.03	-5.02

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	Dual-Band Wireless A+B PCI Adapter	**MODEL**	WMP51AB
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	*2462.00	94.8 AV			1.54H	10	64.33	27.81	2.66	0.00	-30.47
2	*2462.00	97.2 PK			1.54H	10	66.73	27.81	2.66	0.00	-30.47
3	2496.00	47.0 PK	74.00	-27.00	1.44H	3	53.00	27.96	2.78	36.70	5.96
4	4924.00	46.0 PK	74.00	-28.00	1.52H	3	47.00	31.66	4.06	36.70	0.99
5	7383.00	49.1 PK	74.00	-24.90	1.51H	69	44.00	36.40	5.79	37.05	-5.14

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	*2463.00	101.4 AV			1.07V	8	70.93	27.81	2.66	0.00	-30.47
2	*2463.00	103.4 PK			1.07V	8	72.93	27.81	2.66	0.00	-30.47
3	2496.00	49.2 AV	54.00	-4.80	1.64V	52	55.20	27.96	2.78	36.70	5.96
4	2496.00	57.0 PK	74.00	-17.00	1.64V	52	63.00	27.96	2.78	36.70	5.96.
5	4924.00	52.2 AV	54.00	-1.80	1.52V	3	53.23	31.66	4.06	36.70	0.99
6	4924.00	55.0 PK	74.00	-19.00	1.52V	3	56.00	31.66	4.06	36.70	0.99.
7	7386.00	51.4 AV	54.00	-2.60	1.63V	75	46.24	36.40	5.79	37.05	-5.14
8	7386.00	54.7 PK	74.00	-19.30	1.63V	75	49.60	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 6dB BANDWIDTH MEASUREMENT

4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 TEST INSTRUMENTS

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

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.

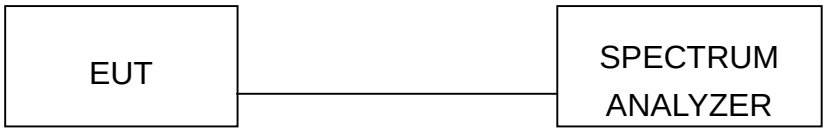
4.3.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100kHz RBW and 100kHz VBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6 dB.

4.3.4 DEVIATION FROM TEST STANDARD

No deviation

4.3.5 TEST SETUP



4.3.6 EUT OPERATING CONDITIONS

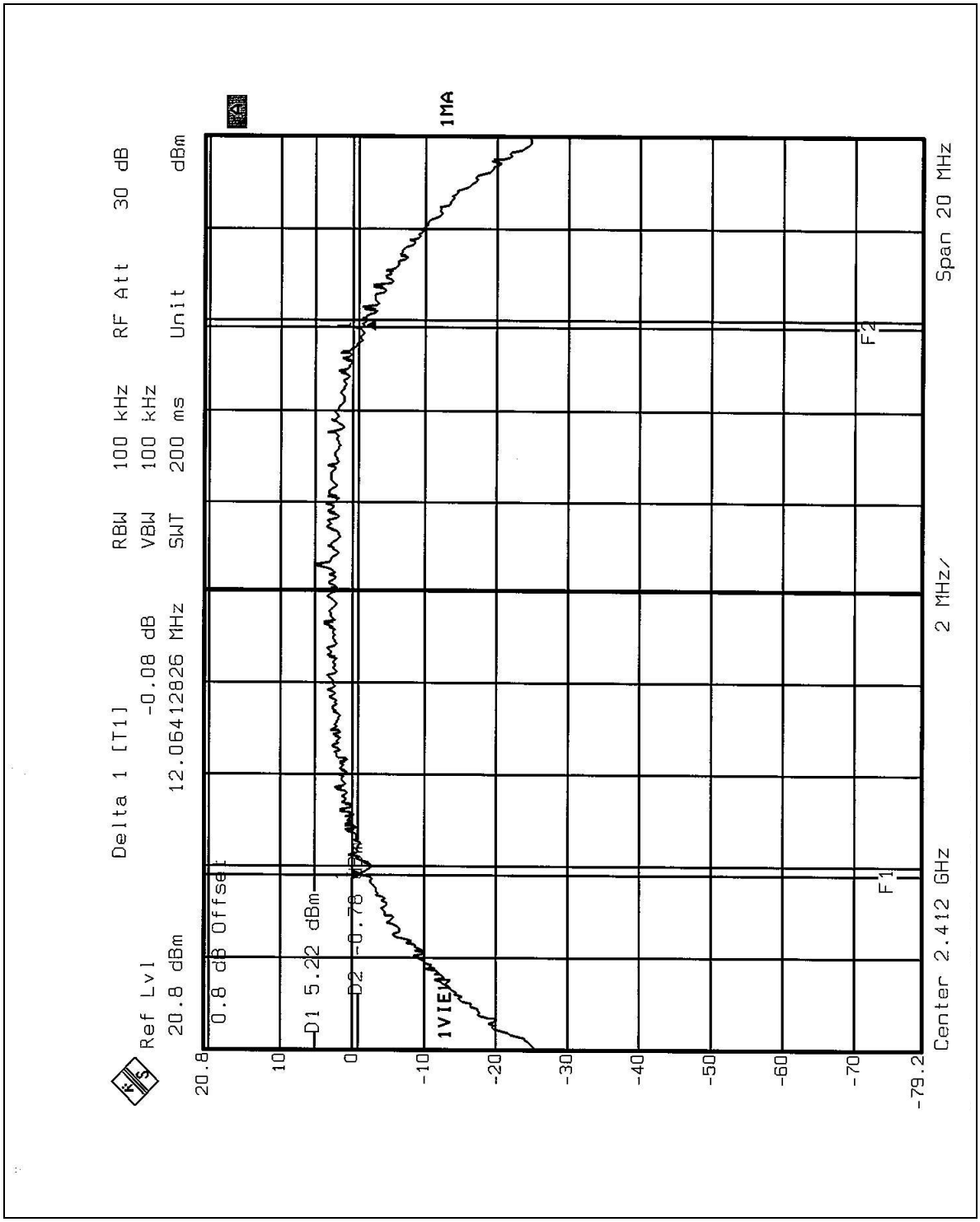
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.3.7 TEST RESULTS

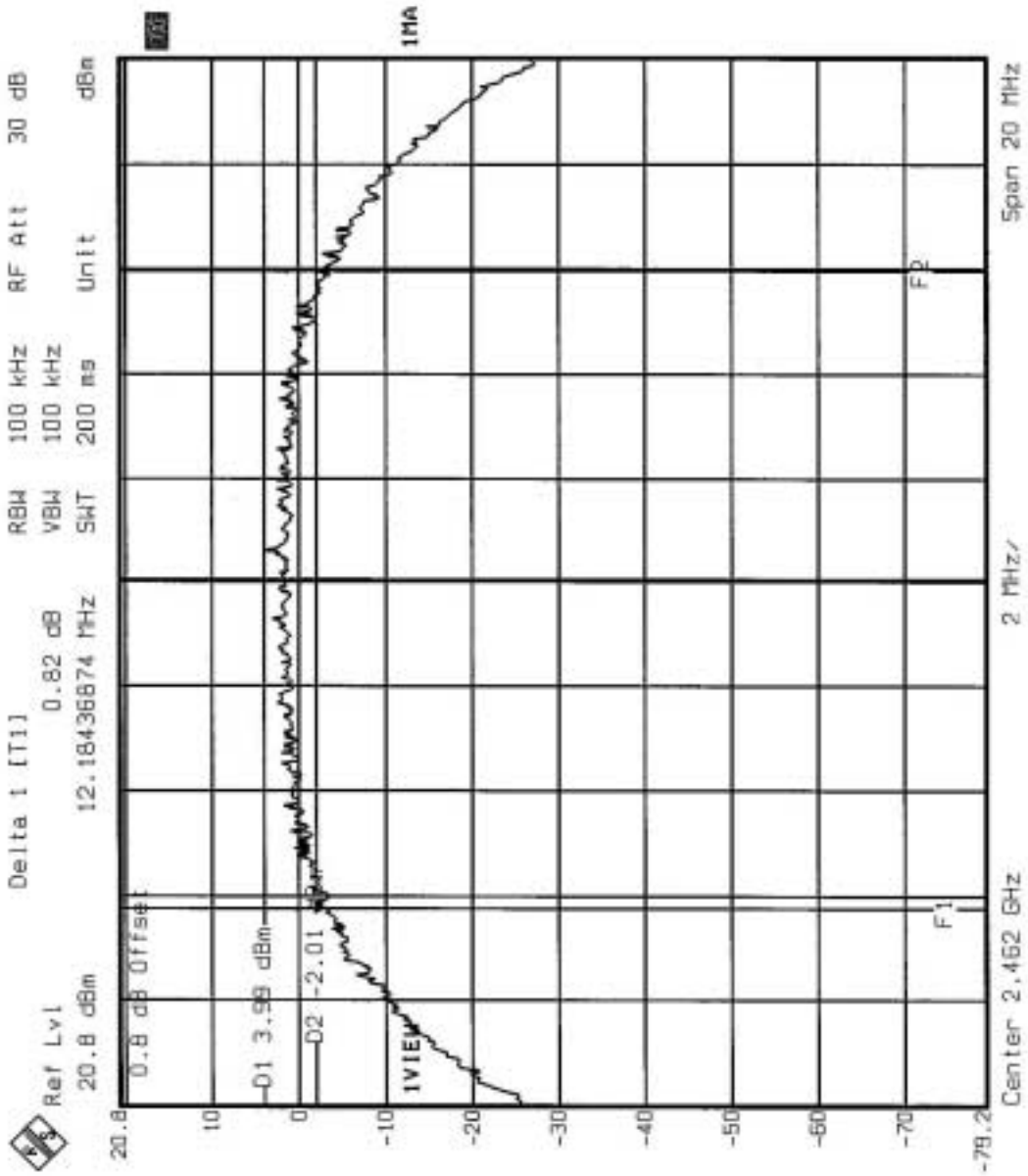
EUT	Dual-Band Wireless A+B PCI Adapter	**MODEL**	WMP51AB
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	25deg. C, 65%RH, 1005 hPa
TESTED BY: Steven Lu			

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	12.06	0.5	PASS
6	2437	12.18	0.5	PASS
11	2462	11.96	0.5	PASS

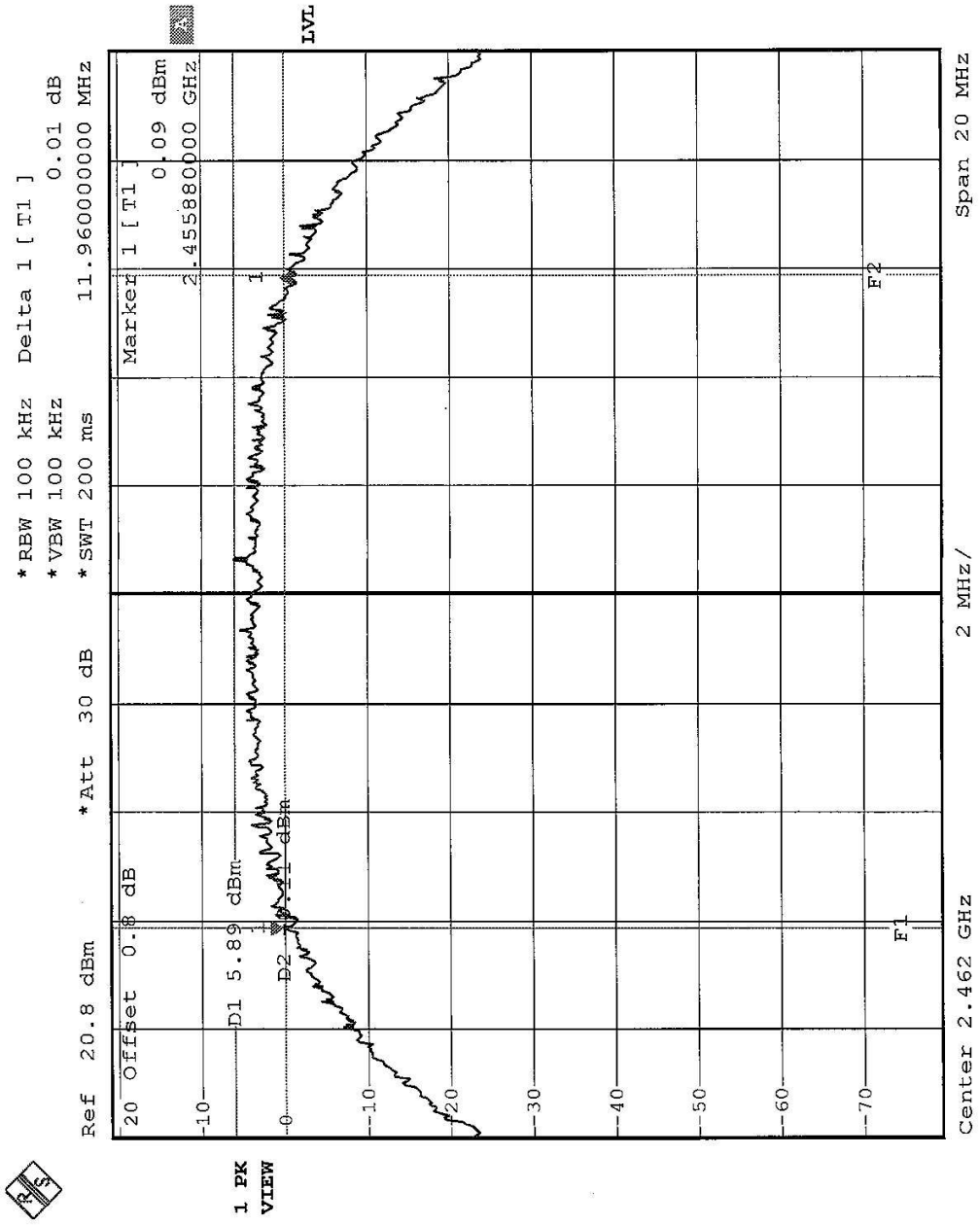
CH1


Ref Lvl
20.8 dBm
0.8 dB Offset
Delta 1 [T1]
-0.08 dB
12.06412826 MHz
RBW 100 kHz
VBW 100 kHz
SWT 200 ms
RF Att 30 dB
Unit dBm
D1 5.22 dBm
D2 -0.78 dBm
1VIEW
1MA
F1
F2
Center 2.412 GHz
2 MHz/
Span 20 MHz
20.8
10
0
-10
-20
-30
-40
-50
-60
-70
-79.2

CH6


Ref Lvl
20.8 dBm
0.8 dB Offset
Delta 1 [T1]
0.82 dB
12.18436874 MHz
RBW 100 kHz
VBW 100 kHz
SWT 200 ms
RF Att 30 dB
Unit dBm
D1 3.99 dBm
D2 -2.01
1MA
1VIEW
F1
F2
20.8
10
0
-10
-20
-30
-40
-50
-60
-70
-79.2
Center 2.462 GHz
2 MHz/
Span 20 MHz

CH11


Ref 20.8 dBm
Offset 0.8 dB
*Att 30 dB
*RBW 100 kHz
*VBW 100 kHz
*SWT 200 ms
Delta 1 [T1]
0.01 dB
11.96000000 MHz
Marker 1 [T1]
0.09 dBm
2.455880000 GHz
D1 5.89 dBm
D2 -1.1 dBm
1 PK
VIEW
LVL
F1
F2
Center 2.462 GHz
2 MHz/
Span 20 MHz

4.4 MAXIMUM PEAK OUTPUT POWER

4.4.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 30dBm.

4.4.2 INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
SINGLE CHANNEL POWER METER	NRVS	100026	Feb. 23, 2003
PEAK POWER SENSOR	NRV-Z32	100013	Feb. 23, 2003

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.

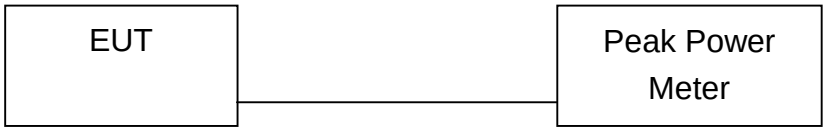
4.4.3 TEST PROCEDURES

The transmitter output was connected to the peak power meter.

4.4.4 DEVIATION FROM TEST STANDARD

No deviation

4.4.5 TEST SETUP



4.4.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6

4.4.7 TEST RESULTS

EUT	Dual-Band Wireless A+B PCI Adapter	**MODEL**	WMP51AB
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	25deg.C, 65%RH, 1005 hPa
TESTED BY: Steven Lu			

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	14.82	30	PASS
6	2437	15.34	30	PASS
11	2462	14.36	30	PASS

4.5 POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

4.5.2 TEST INSTRUMENTS

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

NOTE:

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

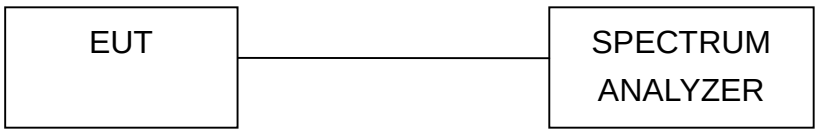
4.5.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3 kHz RBW and 30 kHz VBW, set sweep time = span/3 kHz. The power spectral density was measured and recorded.
The sweep time is allowed to be longer than span/3 kHz for a full response of the mixer in the spectrum analyzer.

4.5.4 DEVIATION FROM TEST STANDARD

No deviation

4.5.5 TEST SETUP



4.5.6 EUT OPERATING CONDITION

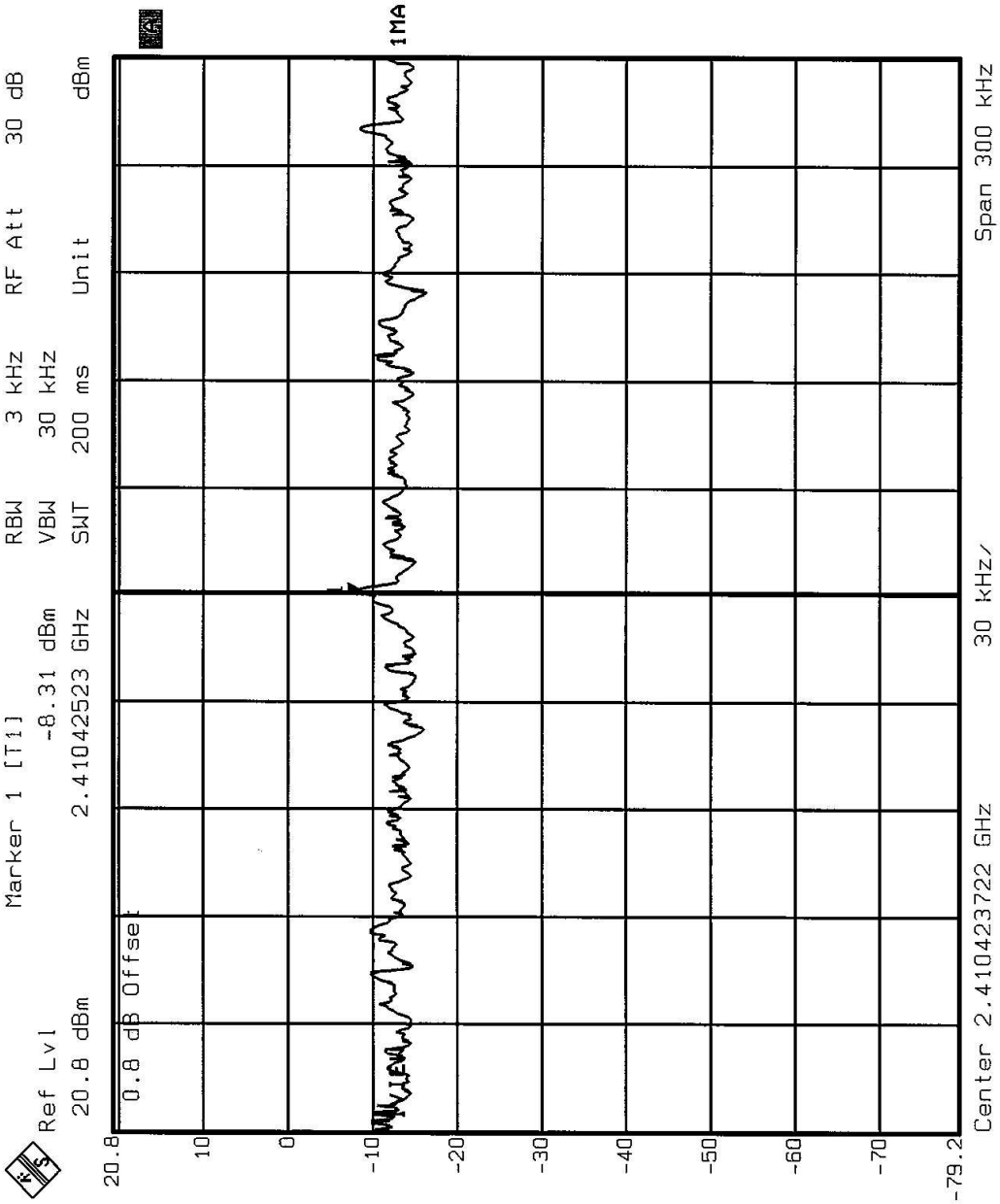
Same as Item 4.3.6

4.5.7 TEST RESULTS

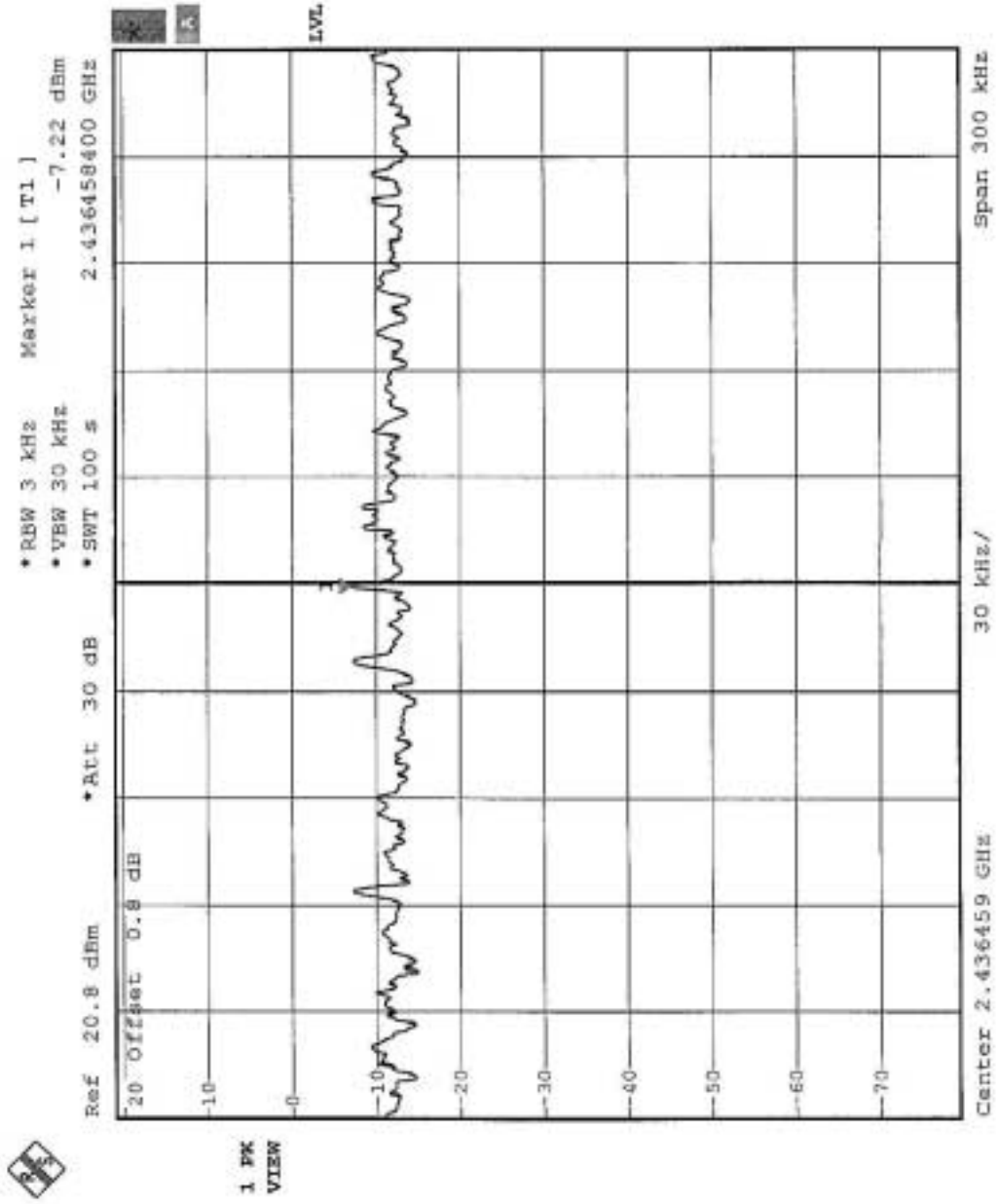
EUT	Dual-Band Wireless A+B PCI Adapter	**MODEL**	WMP51AB
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	25deg. C, 65%RH, 1005 hPa
TESTED BY: Steven Lu			

CHANNEL NUMBER	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-8.31	8	PASS
6	2437	-7.22	8	PASS
11	2462	-9.20	8	PASS

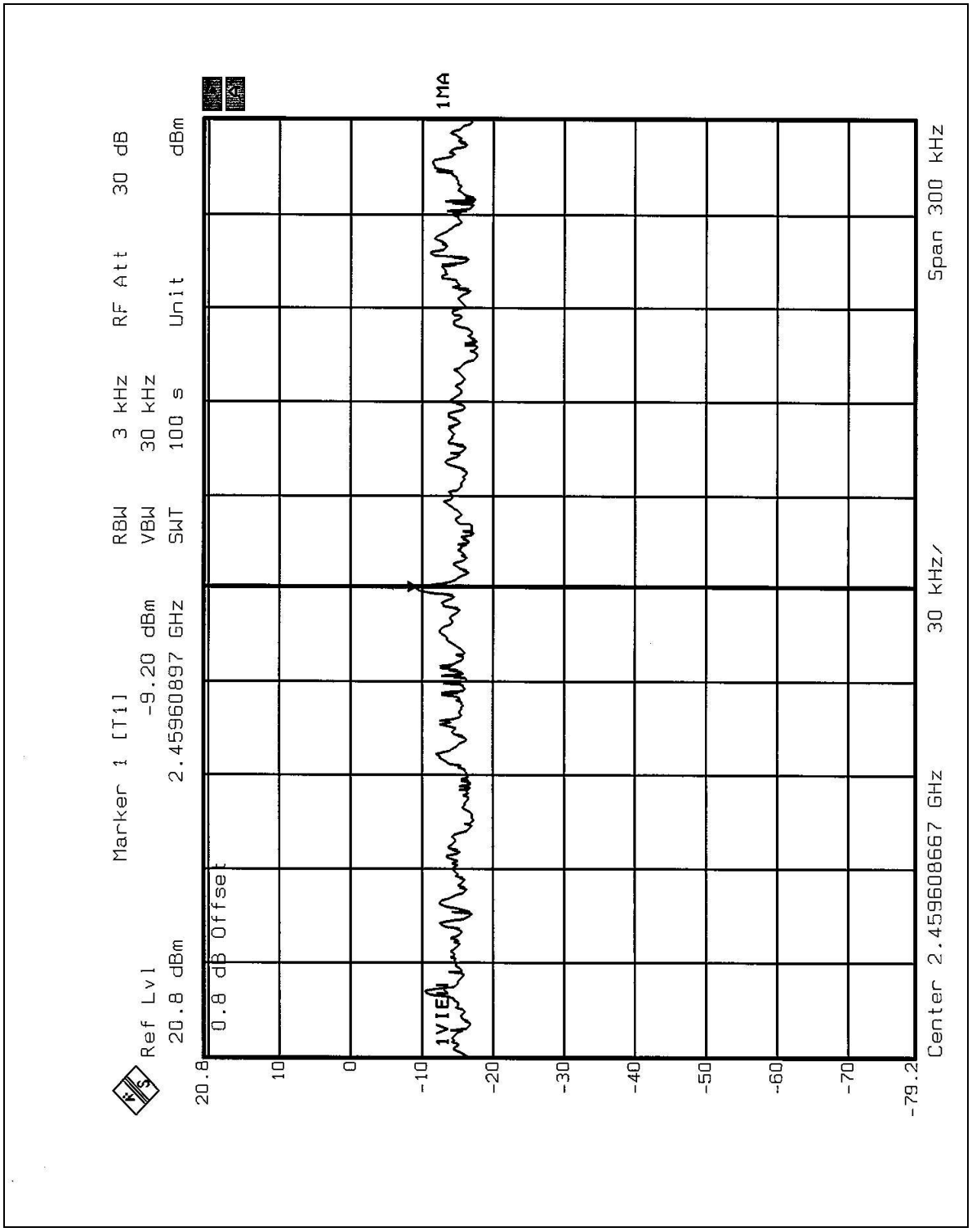
CH1


Ref Lvl
20.8 dBm
0.8 dB Offset
Marker 1 [T1]
-8.31 dBm
2.41042523 GHz
RBW 3 kHz
VBW 30 kHz
SWT 200 ms
RF Att 30 dB
Unit dBm
1MA
20.8
10
0
-10
-20
-30
-40
-50
-60
-70
-79.2
Center 2.410423722 GHz
30 kHz/
Span 300 kHz

CH6


Ref 20.8 dBm
Att 30 dB
RBW 3 kHz
VBW 30 kHz
SWT 100 s
Marker 1 [T1]
-7.22 dBm
2.436458400 GHz
1 PK
VIEW
LVL
Center 2.436459 GHz
30 kHz/
Span 300 kHz

CH11


Ref Lvl
20.8 dBm
0.8 dB Offset
Marker 1 [T1]
-9.20 dBm
2.45960897 GHz
RBW 3 kHz
VBW 30 kHz
SWT 100 s
RF Att 30 dB
Unit dBm
1VIEW
1MA
20.8
10
0
-10
-20
-30
-40
-50
-60
-70
-79.2
Center 2.459608667 GHz
30 kHz/
Span 300 kHz

4.6 BAND EDGES MEASUREMENT

4.6.1 LIMITS OF BAND EDGES MEASUREMENT

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

4.6.2 TEST INSTRUMENTS

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

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 DEVIATION FROM TEST STANDARD

No deviation

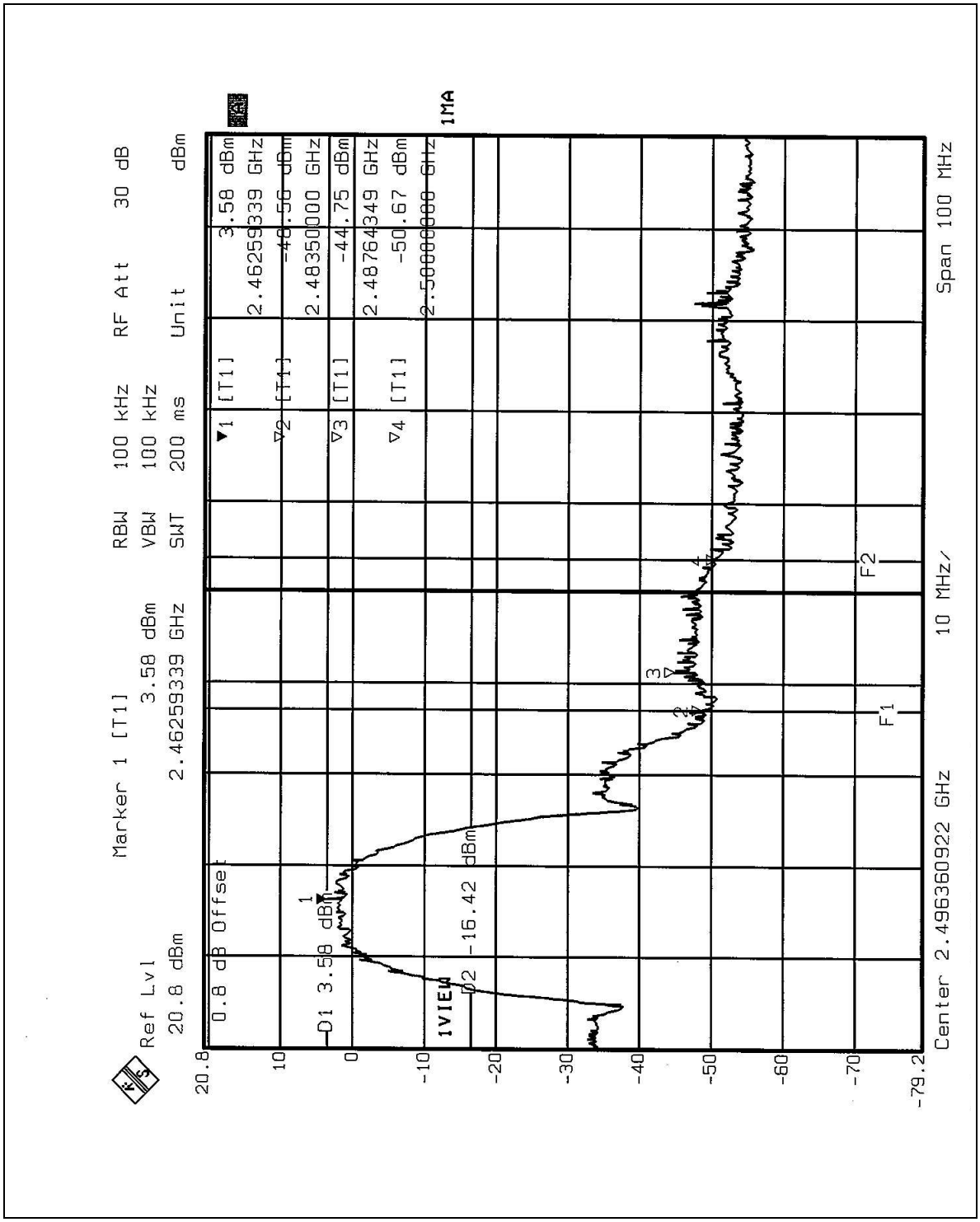
4.6.5 EUT OPERATING CONDITION

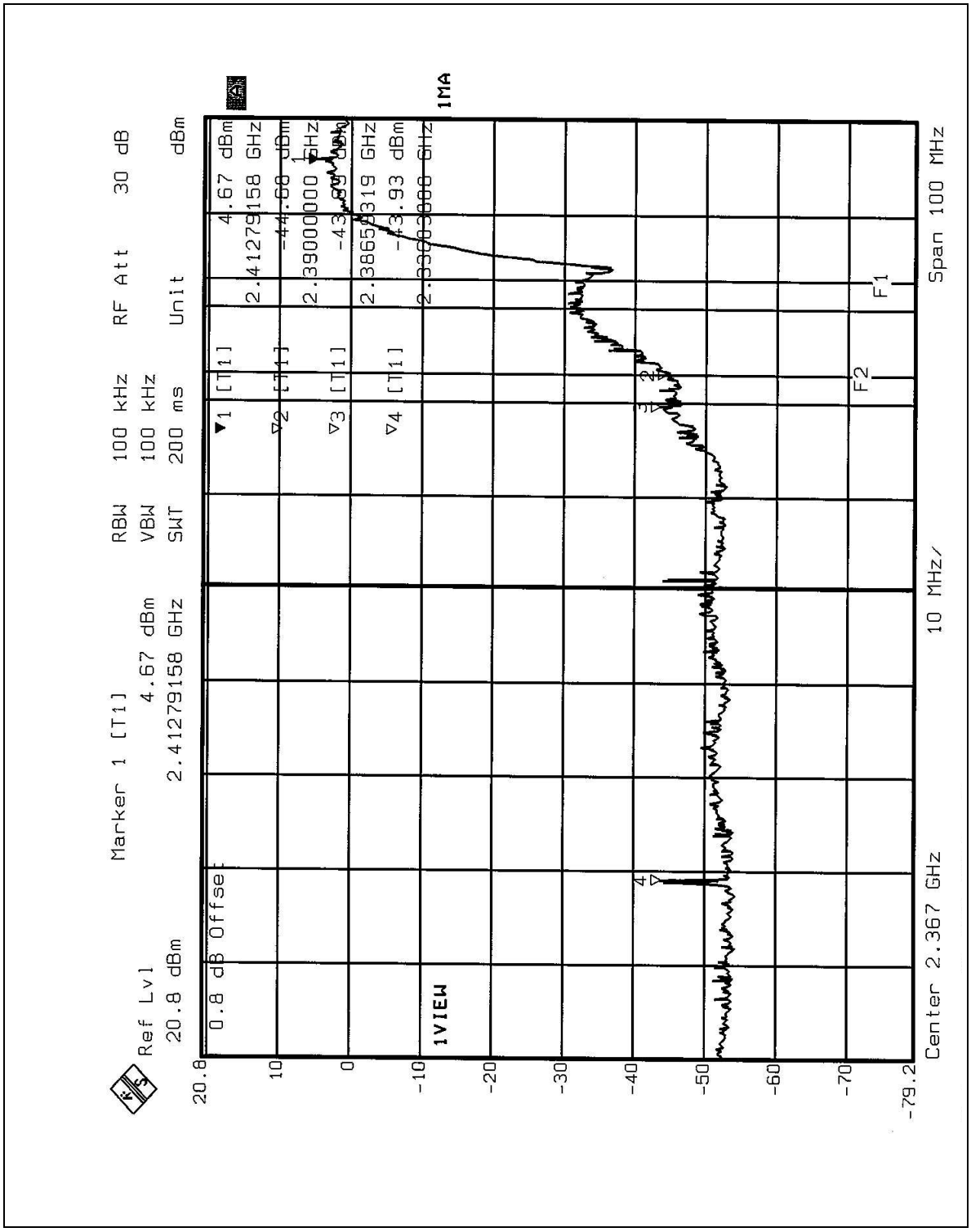
Same as Item 4.3.6

4.6.6 TEST RESULTS

The spectrum plots are attached on the following 2 pages. D2 line indicates the highest level, and 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 48.33dB/ 48.56dB delta between carrier maximum power and local maximum emission in restrict band (2.4876GHz / 2.3866GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 101.6dBuV/m, so the maximum field strength in restrict band is 101.6-48.33=53.27dBuV/m which is under 54dBuV/m limit.


Ref Lvl
20.8 dBm
0.8 dB Offset
Marker 1 [T1]
3.58 dBm
2.46259339 GHz
RBW 100 kHz
VBW 100 kHz
SWT 200 ms
RF Att 30 dB
Unit dBm
1 [T1] 3.58 dBm 2.46259339 GHz
2 [T1] -48.56 dBm 2.48350000 GHz
3 [T1] -44.75 dBm 2.48764349 GHz
4 [T1] -50.67 dBm 2.50000000 GHz
1MA
D1 3.58 dBm
D2 -16.42 dBm
1VIEW
F1
F2
Center 2.49360922 GHz
10 MHz/
Span 100 MHz


Ref Lvl
20.8 dBm
Marker 1 [T1]
4.67 dBm
2.41279158 GHz
RBW 100 kHz
VBW 100 kHz
SWT 200 ms
RF Att 30 dB
Unit dBm
0.8 dB Offset
1VIEW
1MA
Center 2.367 GHz
10 MHz/
Span 100 MHz
F1
F2

4.7 ANTENNA REQUIREMENT

4.7.1 STANDARD APPLICABLE

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

4.7.2 ANTENNA CONNECTED CONSTRUCTION

The antenna used in this product is Dipole antenna without connector. The maximum Gain of the antenna is 2.4dBi.

5. TEST TYPES AND RESULTS (FOR PART 802.11a)

5.1 CONDUCTED EMISSION MEASUREMENT

5.1.1 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.

5.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
ROHDE & SCHWARZ Test Receiver	ESCS30	834115/016	Mar. 3, 2003
ROHDE & SCHWARZ Artificial Mains Network (For EUT)	ESH3-Z5	847265/023	Jan. 10, 2003
* ROHDE & SCHWARZ 4-wire ISN	ENY41	838119/028	Dec. 10, 2002
* ROHDE & SCHWARZ 2-wire ISN	ENY22	837497/018	Dec. 10, 2002
EMCO L.I.S.N. (For peripherals)	3825/2	9504-2359	July 10, 2003
Software	Cond-V2L	NA	NA
RF cable (JYEBAO)	5D-FB	Cable-C03.01	July 11, 2003
Terminator (For EMCO LISN)	NA	E1-01-300	Feb. 20, 2003
Terminator (For EMCO LISN)	NA	E1-01-301	Feb. 20, 2003
Shielded Room	Site 3	ADT-C03	NA
VCCI Site Registration No.	Site 3	C-274	NA

NOTE:
1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. “*”: These equipment are used for conducted telecom port test only (if tested).
4. The test was performed in ADT Open Site No. 3.

5.1.3 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.

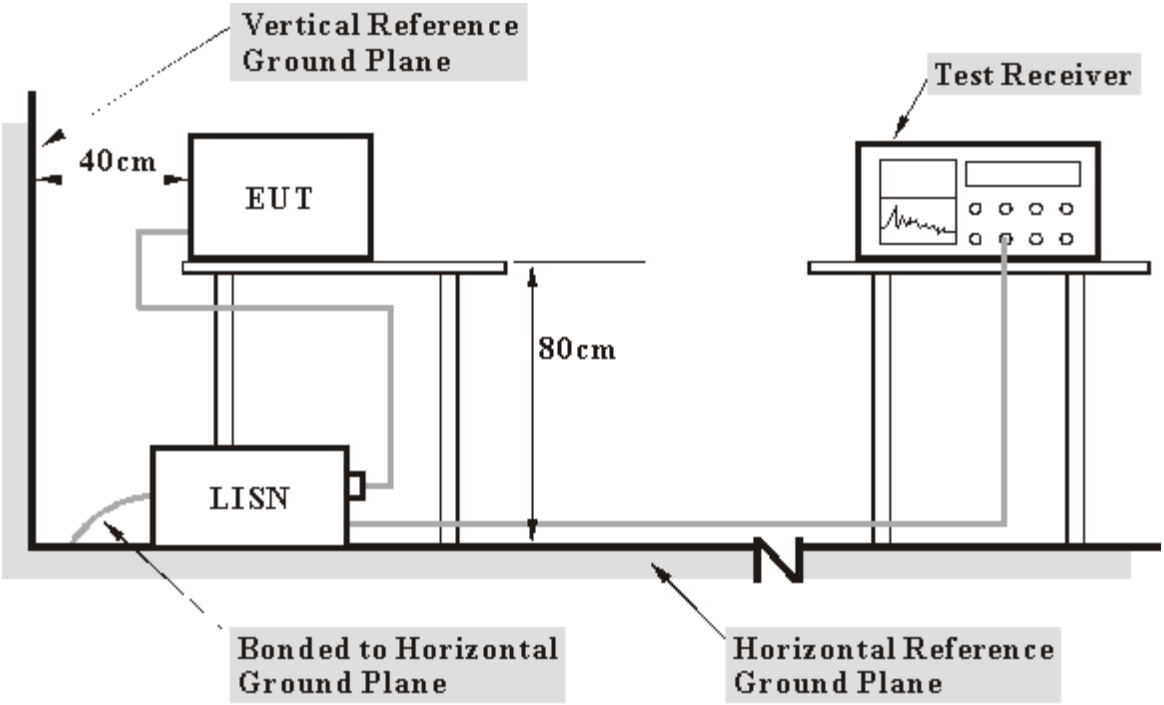
b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

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

5.1.4 DEVIATION FROM TEST STANDARD

No deviation

5.1.5 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.

5.1.6 EUT OPERATING CONDITIONS

Same as 4.1.6.

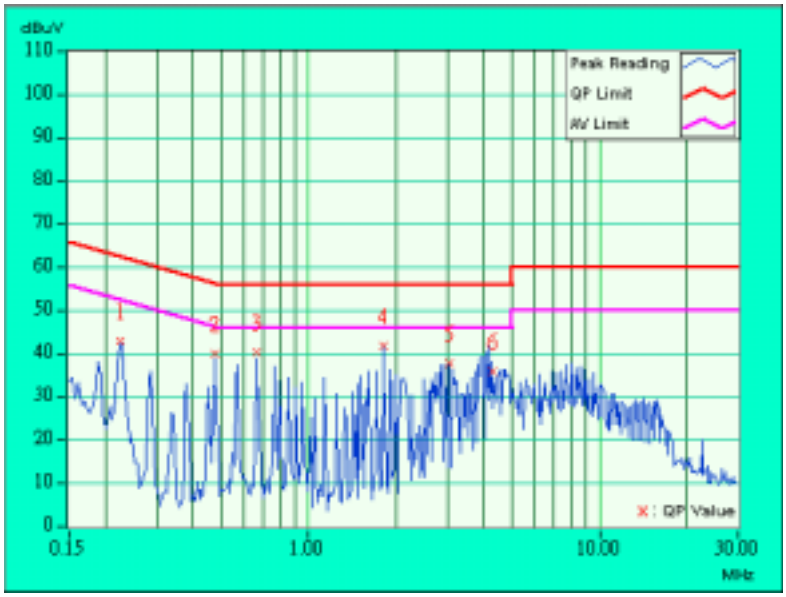
5.1.7 TEST RESULTS

EUT	Dual-Band Wireless A+B PCI Adapter	**MODEL**	WMP51AB
		6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**PHASE**	Line (L)
ENVIRONMENTAL CONDITIONS	25deg. C, 61%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)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.224	0.10	42.45	-	42.55	-	62.66	52.66	-20.11	-
2	0.475	0.11	39.33	-	39.44	-	56.42	46.42	-16.97	-
3	0.666	0.14	39.95	-	40.09	-	56.00	46.00	-15.91	-
4	1.809	0.28	41.32	-	41.60	-	56.00	46.00	-14.40	-
5	3.047	0.40	37.41	-	37.81	-	56.00	46.00	-18.19	-
6	4.284	0.50	35.35	-	35.85	-	56.00	46.00	-20.15	-

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.

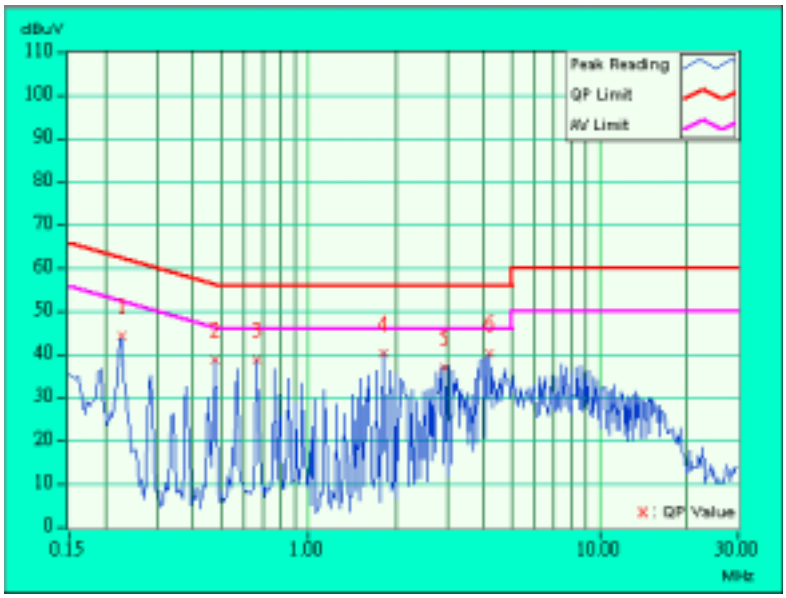


EUT	Dual-Band Wireless A+B PCI Adapter	**MODEL**	WMP51AB
		6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**PHASE**	Neutral (N)
ENVIRONMENTAL CONDITIONS	25deg. C, 61%RH, 1005 hPa	**TESTED BY**: Cody Chang	

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.227	0.10	43.95	-	44.05	-	62.57	52.57	-18.52	-
2	0.477	0.11	38.57	-	38.68	-	56.40	46.40	-17.71	-
3	0.666	0.14	38.53	-	38.67	-	56.00	46.00	-17.33	-
4	1.809	0.28	40.12	-	40.40	-	56.00	46.00	-15.60	-
5	2.949	0.35	36.76	-	37.11	-	56.00	46.00	-18.89	-
6	4.188	0.40	40.14	-	40.54	-	56.00	46.00	-15.46	-

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.



5.2 RADIATED EMISSION MEASUREMENT

5.2.1 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.

5.2.2 LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

Frequencies (MHz)	EIRP Limit (dBm)	Equivalent Field Strength at 3m (dBμV/m) *note 3
5150~5250	-27	68.3
5250~5350	-27	68.3
5725~5825	-27 *note 1	68.3
	-17 *note 2	78.3

NOTE:

1. For frequencies 10MHz or greater above or below the band edge.
2. All emissions within the frequency range from the band edge to 10MHz above or below the band edge.
3. The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength

$$E=\frac{1000000\sqrt{30P}}{3} \quad \mu V/m, \quad \text{where P is the eirp (Watts)}$$

5.2.3 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. 06, 2002
* HP Preamplifier	8449B	3008A01292	Aug. 7, 2003
* ROHDE & SCHWARZ TEST RECEIVER	ESMI	839013/007 839379/002	Jan. 27, 2003
SCHWARZBECK Tunable Dipole Antenna	VHA 9103 UHA 9105	E101051 E101055	Nov. 23, 2002
* CHASE BILOG Antenna	CBL6112A	2221	Aug. 2, 2003
* SCHWARZBECK Horn Antenna	BBHA9120-D1	D130	Jul. 3, 2003
* EMCO Horn Antenna	3115	9312-4192	Apr. 9, 2003
SCHWARZBECK Horn Antenna	BBHA9170	148	May 24, 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

NOTE: 1. The measurement uncertainty is less than +/- 3.0dB, which is calculated as per the NAMAS document NIS81.

2. The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to NML/ROC and NIST/USA.
3. "*" = These equipment are used for the final measurement.
4. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
5. The test was performed in ADT Open Site No. 5.

5.2.4 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 10dB 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 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

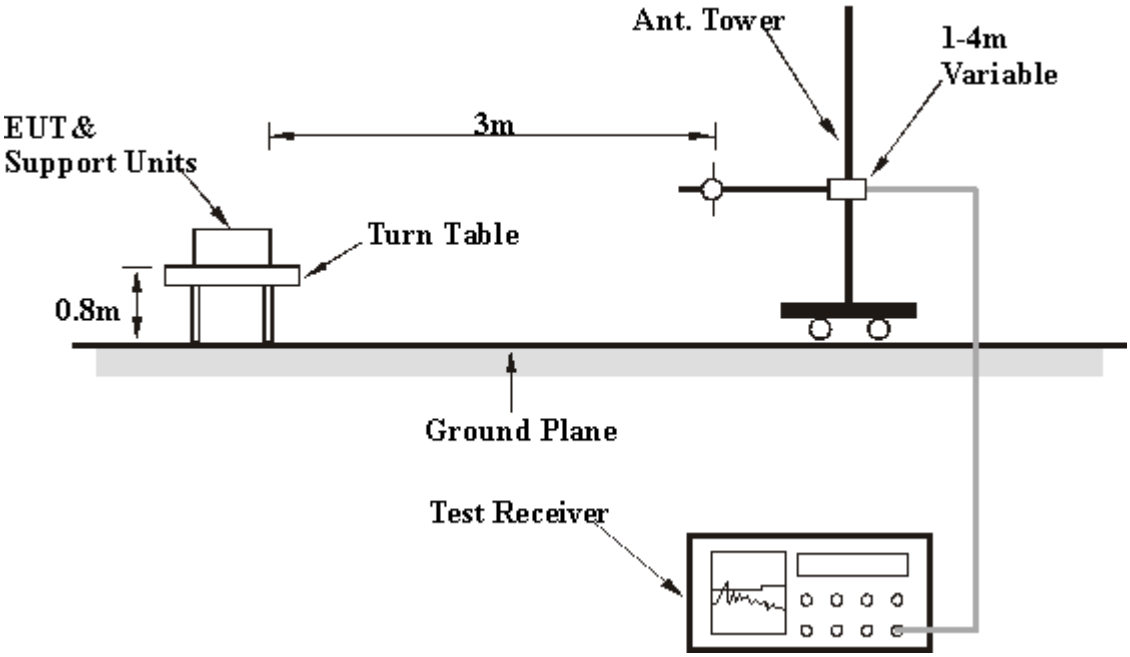
NOTE:

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.

5.2.5 DEVIATION FROM TEST STANDARD

No deviation

5.2.6 TEST SETUP



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

5.2.7 EUT OPERATING CONDITIONS

Same as 4.1.6.

5.2.8 TEST RESULTS

EUT	Dual-Band Wireless A+B PCI Adapter	**MODEL**	WMP51AB
FREQUENCY RANGE	30-1000 MHz	**DETECTOR FUNCTION**	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 1050 hPa	**INPUT POWER (SYSTEM)**	120Vac, 60Hz
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	160.00	26.4 QP	43.50	-17.10	1.40H	30	13.15	9.62	3.62	0.00	-13.25
2	192.00	27.0 QP	43.50	-16.50	1.00H	3	14.04	8.95	4.00	0.00	-12.97
3	320.00	26.0 QP	46.00	-20.00	1.19H	3	7.03	13.62	5.34	0.00	-18.97
4	384.00	28.0 QP	46.00	-18.00	1.35H	1	6.48	15.50	6.02	0.00	-21.53
5	480.00	27.0 QP	46.00	-19.00	1.04H	3	3.57	16.92	6.51	0.00	-23.43
6	576.00	28.0 QP	46.00	-18.00	1.25H	43	2.05	18.28	7.67	0.00	-25.95

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	160.00	26.8 QP	43.50	-16.70	1.40V	293	13.55	9.62	3.62	0.00	-13.25
2	192.00	28.0 QP	43.50	-15.50	1.07V	288	15.04	8.95	4.00	0.00	-12.96
3	224.00	27.0 QP	46.00	-19.00	1.29V	1	12.24	10.41	4.36	0.00	-14.77
4	320.00	30.0 QP	46.00	-16.00	1.67V	29	11.03	13.62	5.34	0.00	-18.97
5	384.00	28.0 QP	46.00	-18.00	1.44V	299	6.48	15.50	6.02	0.00	-21.52
6	480.00	25.0 QP	46.00	-21.00	1.35V	3	1.57	16.92	6.51	0.00	-23.43
7	576.00	27.0 QP	46.00	-19.00	1.09V	20	1.05	18.28	7.67	0.00	-25.95

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.

5.2.9 TEST RESULTS

EUT	Dual-Band Wireless A+B PCI Adapter	**MODEL**	WMP51AB
MODE	Normal Mode	**CHANNEL**	1
FREQUENCY RANGE	Above 1000 MHz	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 1050 hPa	**INPUT POWER (SYSTEM)**	120Vac, 60Hz
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)	Remark
1	*5180.00	88.8 AV			1.40H	5	89.60	31.87	3.95	36.63	0.82	
2	*5180.00	96.2 PK			1.40H	5	97.00	31.87	3.95	36.63	0.82	
3	10360.00	53.6 PK	68.30	-14.70	1.38H	4	45.20	39.16	6.69	37.42	-8.43	

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)	Remark
1	*5180.00	101.0 AV			1.00V	322	101.80	31.87	3.95	36.63	0.82	
2	*5180.00	109.0 PK			1.00V	322	109.86	31.87	3.95	36.63	0.82	
3	10360.00	55.9 PK	68.30	-12.40	1.68V	18	47.50	39.16	6.69	37.42	-8.44	

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.
5. “*” : Fundamental frequency

EUT	Dual-Band Wireless A+B PCI Adapter	**MODEL**	WMP51AB
MODE	Normal Mode	**CHANNEL**	4
FREQUENCY RANGE	Above 1000 MHz	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 1050 hPa	**INPUT POWER (SYSTEM)**	120Vac, 60Hz
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	*5240.00	92.2 AV			1.20H	337	93.00	31.90	3.86	36.60	0.84
2	*5240.00	98.2 PK			1.20H	337	99.00	31.90	3.86	36.60	0.84
3	10480.00	53.2 PK	68.30	-15.10	1.26H	349	44.00	39.36	7.14	37.32	-9.19

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	*5240.00	104.2 AV			1.16V	355	105.00	31.90	3.86	36.60	0.84
2	*5240.00	110.2 PK			1.16V	355	111.00	31.90	3.86	36.60	0.84
3	10480.00	62.4 PK	68.30	-5.90	1.00V	181	53.20	39.36	7.14	37.32	-9.19.

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.
5. “*” : Fundamental frequency

EUT	Dual-Band Wireless A+B PCI Adapter	**MODEL**	WMP51AB
MODE	Normal Mode	**CHANNEL**	5
FREQUENCY RANGE	Above 1000 MHz	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 1050 hPa	**INPUT POWER (SYSTEM)**	120Vac, 60Hz
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	*5260.00	100.2 PK			1.04H	2	101.00	31.90	3.86	36.60	0.84
2	*5260.00	9506 AV			1.04H	2	96.40	31.90	3.86	36.60	0.84
3	10518.00	62.4 PK	68.30	-5.90	1.08H	14	53.00	39.43	7.22	37.28	-9.36

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	*5260.00	103.2 AV			1.07V	7	104.00	31.90	3.86	36.60	0.84
2	*5260.00	107.8 PK			1.07V	7	108.60	31.90	3.86	36.60	0.84
3	10517.00	64.4 PK	68.30	-3.90	1.36V	5	55.00	39.43	7.22	37.28	-9.37

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.
5. “*” : Fundamental frequency

EUT	Dual-Band Wireless A+B PCI Adapter	**MODEL**	WMP51AB
MODE	Normal Mode	**CHANNEL**	8
FREQUENCY RANGE	Above 1000 MHz	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 1050 hPa	**INPUT POWER (SYSTEM)**	120Vac, 60Hz
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)	Remark
1	*5320.00	90.9 AV			1.65H	82	91.73	31.93	3.77	36.57	0.86	
2	*5320.00	97.6 PK			1.65H	82	98.50	31.93	3.77	36.57	0.86	
3	10640.00	56.6 PK	74.00	-17.40	1.25H	351	47.00	39.61	7.22	37.18	-9.64.	NOTE 6

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)	Remark
1	*5320.00	101.1 AV			1.70V	311	101.93	31.93	3.77	36.57	0.86	
2	*5320.00	107.9 PK			1.70V	311	108.76	31.93	3.77	36.57	0.86	
3	5350.00	46.4 PK	74.00	-27.60	1.70V	311	47.22	31.93	3.77	36.57	0.86	NOTE 6
4	10640.00	51.2 AV	54.00	-2.80	1.63V	297	41.58	39.61	7.22	37.18	-9.64	NOTE 6
5	10640.00	59.6 PK	74.00	-14.40	1.63V	297	50.00	39.61	7.22	37.18	-9.64.	NOTE 6

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.
5. “*” : Fundamental frequency
6. The radiated frequency falling in the restricted band.

EUT	Dual-Band Wireless A+B PCI Adapter	**MODEL**	WMP51AB
MODE	Turbo Mode	**CHANNEL**	1
FREQUENCY RANGE	Above 1000 MHz	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 1050 hPa	**INPUT POWER (SYSTEM)**	120Vac, 60Hz
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	*5210.00	79.9 AV			1.13H	170	80.70	31.88	3.90	36.62	0.83
2	*5210.00	88.2 PK			1.13H	170	89.00	31.88	3.90	36.62	0.83
3	10420.00	54.9 PK	68.30	-13.40	1.09H	188	46.00	39.30	6.99	37.35	-8.94.

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	*5210.00	107.2 PK			1.18V	154	108.00	31.88	3.90	36.62	0.83
2	*5210.00	95.2 AV			1.18V	154	96.00	31.88	3.90	36.62	0.83
3	10420.00	56.9 PK	68.30	-11.40	1.06V	178	48.00	39.30	6.99	37.35	-8.94.

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.
5. “*” : Fundamental frequency

EUT	Dual-Band Wireless A+B PCI Adapter	**MODEL**	WMP51AB
MODE	Turbo Mode	**CHANNEL**	2
FREQUENCY RANGE	Above 1000 MHz	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 1050 hPa	**INPUT POWER (SYSTEM)**	120Vac, 60Hz
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	*5250.00	87.2 PK			1.30H	338	88.00	31.90	3.86	36.60	0.84
2	*5250.00	80.2 AV			1.30H	338	81.00	31.90	3.86	36.60	0.84
3	10500.00	55.1 PK	68.30	-13.20	1.49H	351	45.70	39.43	7.22	37.28	-9.36.

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	*5250.00	97.2 AV			1.03V	217	98.00	31.90	3.86	36.60	0.84
2	*5250.00	108.2 PK			1.03V	217	109.00	31.90	3.86	36.60	0.84
3	10500.00	54.4 PK	68.30	-13.90	1.83V	0	45.00	39.43	7.22	37.28	-9.36.

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	Dual-Band Wireless A+B PCI Adapter	**MODEL**	WMP51AB
MODE	Turbo Mode	**CHANNEL**	3
FREQUENCY RANGE	Above 1000 MHz	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 1050 hPa	**INPUT POWER (SYSTEM)**	120Vac, 60Hz
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	*5290.00	88.2 AV			1.00H	189	89.00	31.92	3.82	36.58	0.85
2	*5290.00	96.2 PK			1.00H	189	97.00	31.92	3.82	36.58	0.85
3	10580.00	55.5 PK	68.30	-12.80	1.01H	165	46.00	39.49	7.22	37.25	-9.46.

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	*5290.00	95.2 AV			1.01V	258	96.00	31.92	3.82	36.58	0.85
2	*5290.00	107.2 PK			1.01V	258	108.00	31.92	3.82	36.58	0.85
3	10580.00	57.5 PK	68.30	-10.80	1.04V	273	48.00	39.49	7.22	37.25	-9.46

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. The other emission levels were very low against the limit.
5. “*” : Fundamental frequency

5.3 PEAK TRANSMIT POWER MEASUREMENT

5.3.1 LIMITS OF PEAK TRANSMIT POWER MEASUREMENT

Frequency Band	Limit
5.15 – 5.25 GHz	The lesser of 50mW (17dBm) or 4dBm + 10logB
5.25 – 5.35 GHz	The lesser of 250mW (24dBm) or 11dBm + 10logB
5.725 – 5.825 GHz	The lesser of 1W (30dBm) or 17dBm + 10logB

Note: Where B is the 26dB emission bandwidth in MHz.

5.3.2 TEST INSTRUMENTS

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

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.

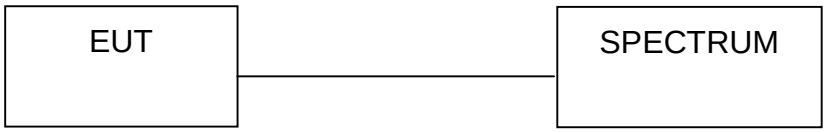
5.3.3 TEST PROCEDURE

1. The transmitter output was connected to the spectrum analyzer.
2. Set span to encompass the entire emission bandwidth of the signal.
3. Set RBW to 1MHz, VBW to 100kHz.
4. Using the spectrum analyzer's channel power measurement function to measure the output power.

5.3.4 DEVIATION FROM TEST STANDARD

No deviation

5.3.5 TEST SETUP



5.3.6 EUT OPERATING CONDITIONS

The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.

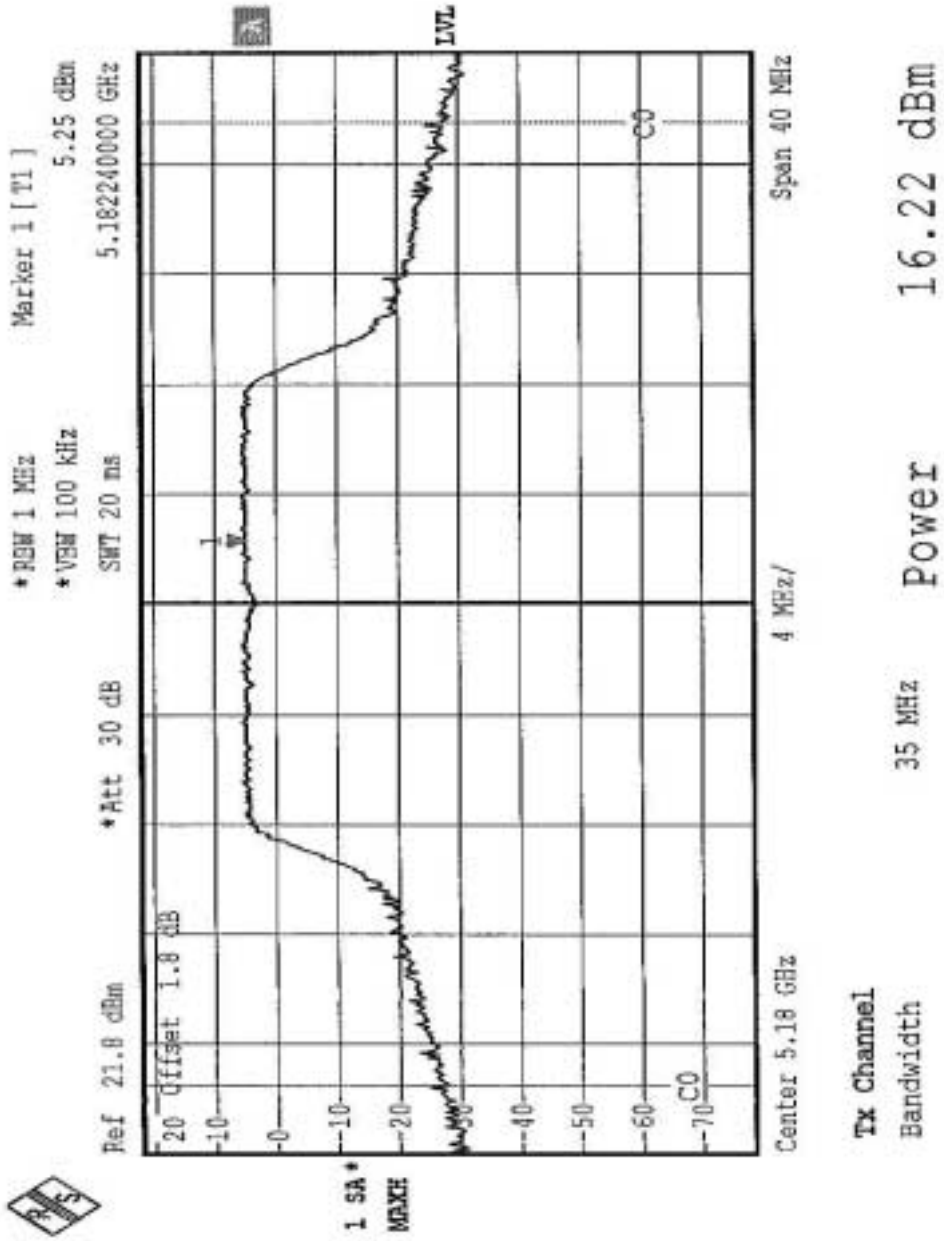
5.3.7 TEST RESULTS

EUT	Dual-Band Wireless A+B PCI Adapter	**MODEL**	WMP51AB
MODE	Normal	**INPUT POWER (SYSTEM)**	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 1005 hPa	**TESTED BY**	Steven Lu

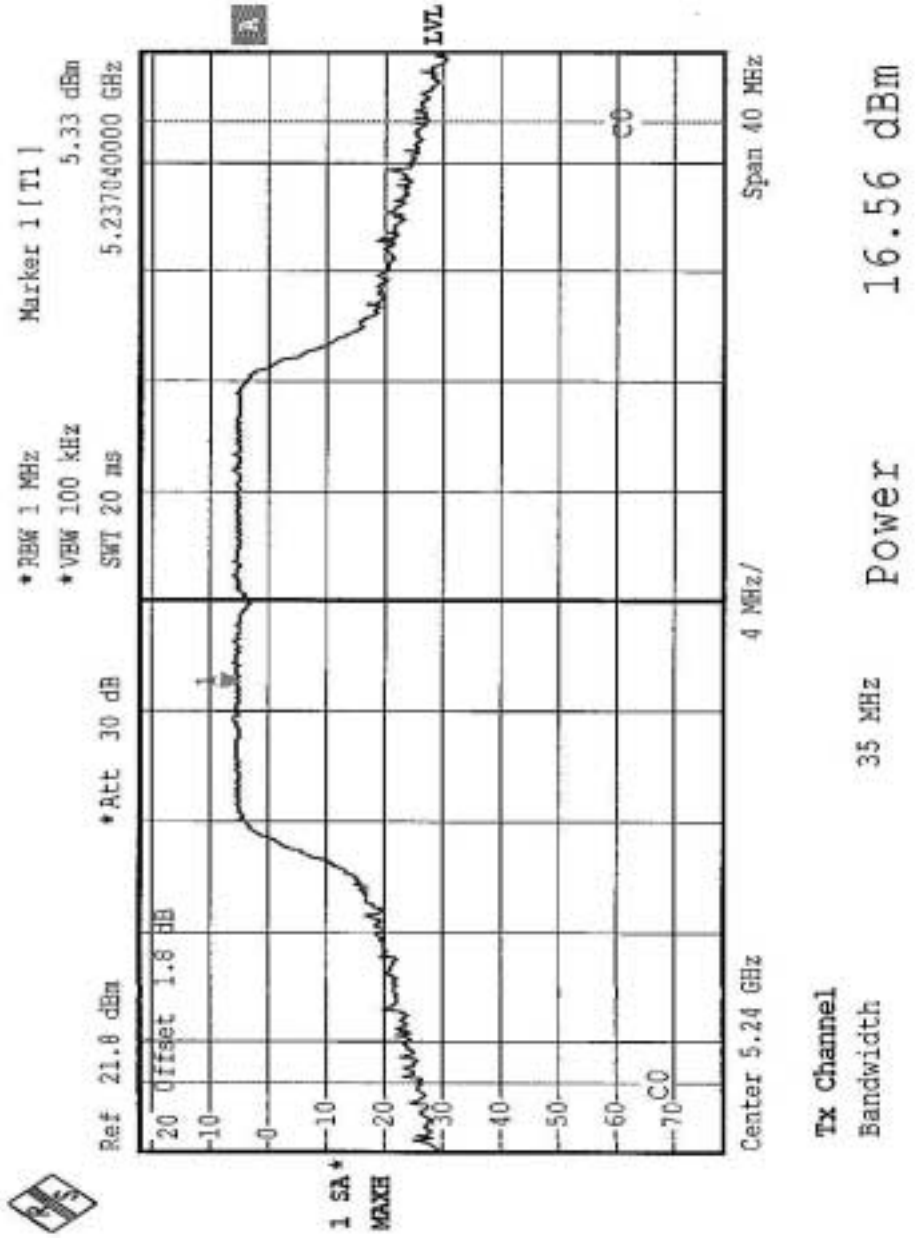
CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	26dBc Occupied Bandwidth (MHz)	PASS/FAIL
1	5180	16.22	17.00	31.04	PASS
4	5240	16.56	17.00	32.00	PASS
5	5260	15.67	24.00	31.04	PASS
8	5320	16.19	24.00	32.00	PASS

NOTE: The 26dBc Occupied Bandwidth plot, please refer to the following pages.

CHANNEL 1


Ref 21.8 dBm
Offset 1.8 dB
*Att 30 dB
*RBW 1 MHz
*VBW 100 kHz
SWT 20 ms
Marker 1 [T1]
5.25 dBm
5.182240000 GHz
1 SA*
MAXH
LVL
CO
Center 5.18 GHz
4 MHz/
Span 40 MHz
Tx Channel
Bandwidth
35 MHz
Power
16.22 dBm

CHANNEL 4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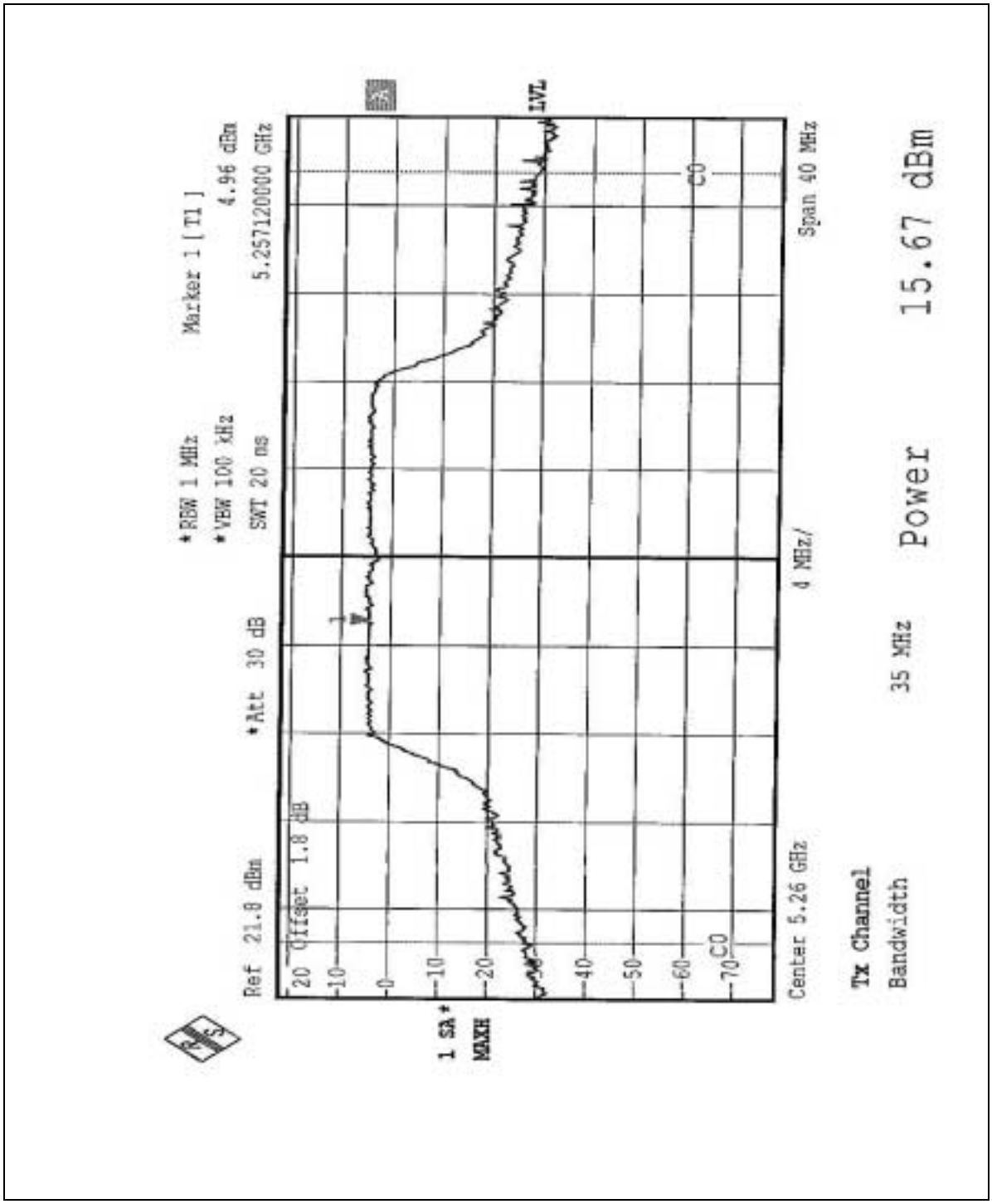
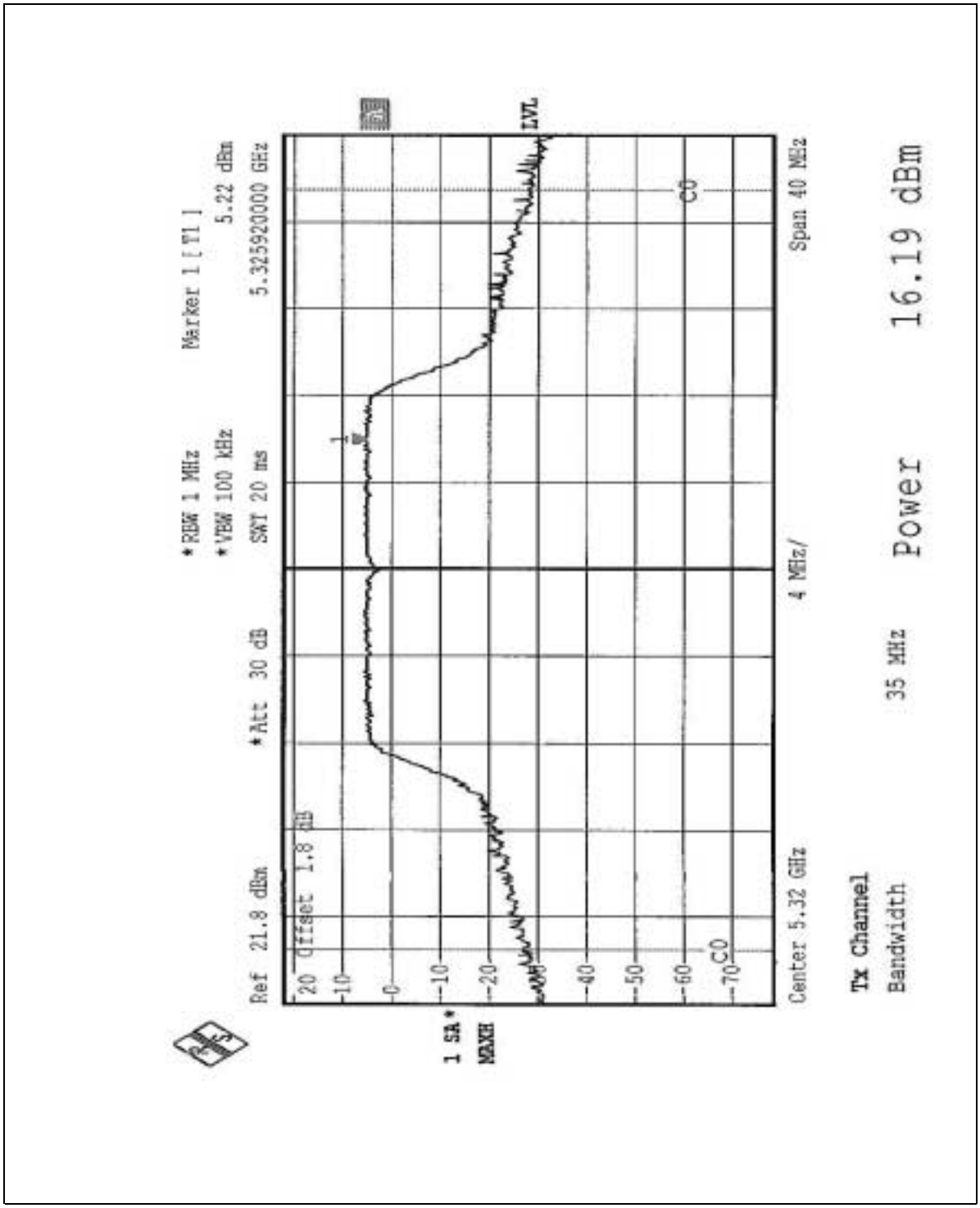
Offset 1.8 dB
*Att 30 dB
*RBW 1 MHz
*VBW 100 kHz
SWT 20 ms
Marker 1 [T1]
5.33 dBm
5.237040000 GHz
1 SA
MAXH
LVL
Center 5.24 GHz
4 MHz/
Span 40 MHz
Tx Channel
Bandwidth
35 MHz
Power
16.56 dBm

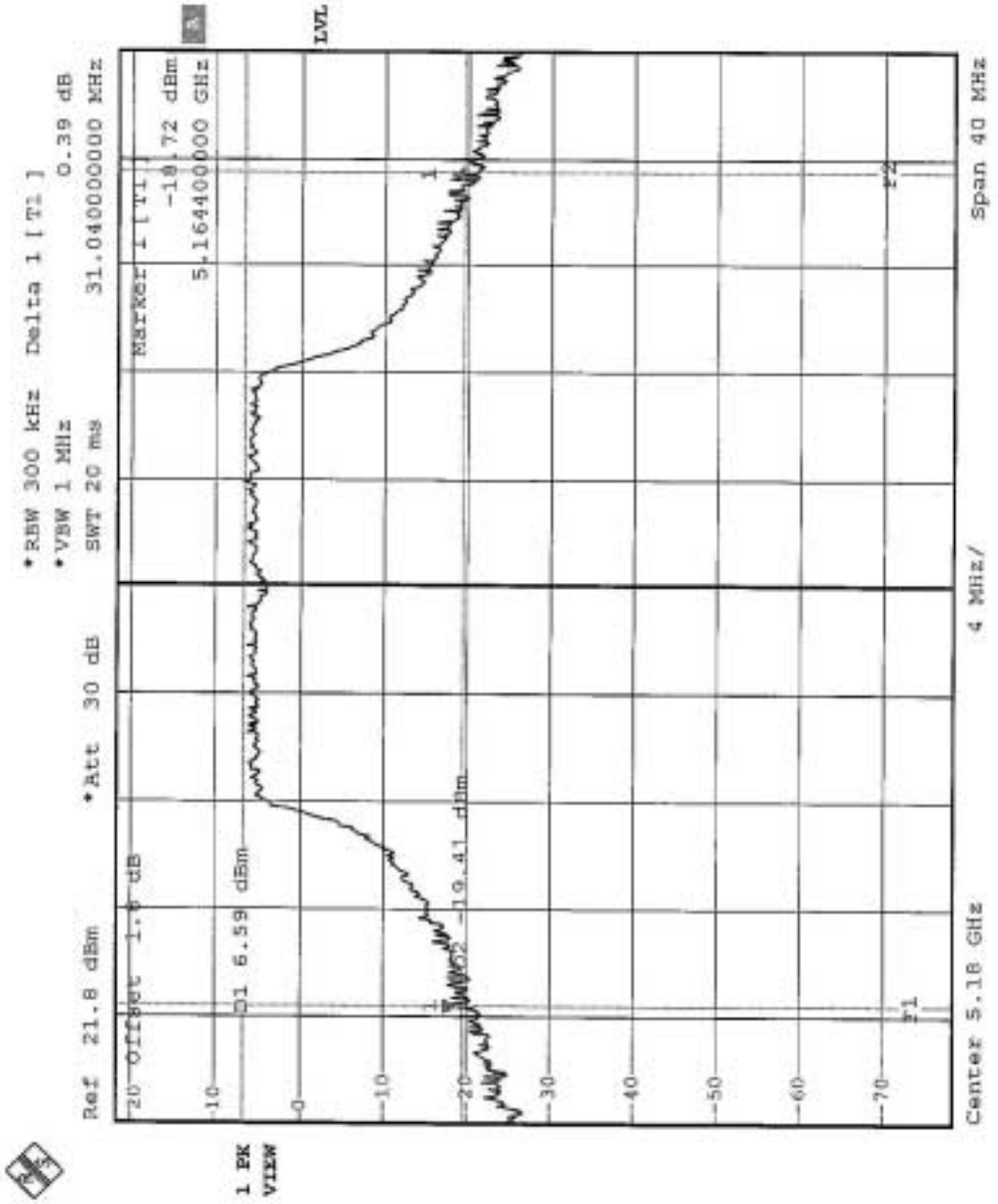
CHANNEL 5


Ref 21.8 dBm
Offset 1.8 dB
*Att 30 dB
*RBW 1 MHz
*VBW 100 kHz
SWT 20 ms
Marker 1 [T1]
4.96 dBm
5.257120000 GHz
1 SA*
MAXH
LVL
Center 5.26 GHz
4 MHz/
Span 40 MHz
Tx Channel
Bandwidth
35 MHz
Power
15.67 dBm

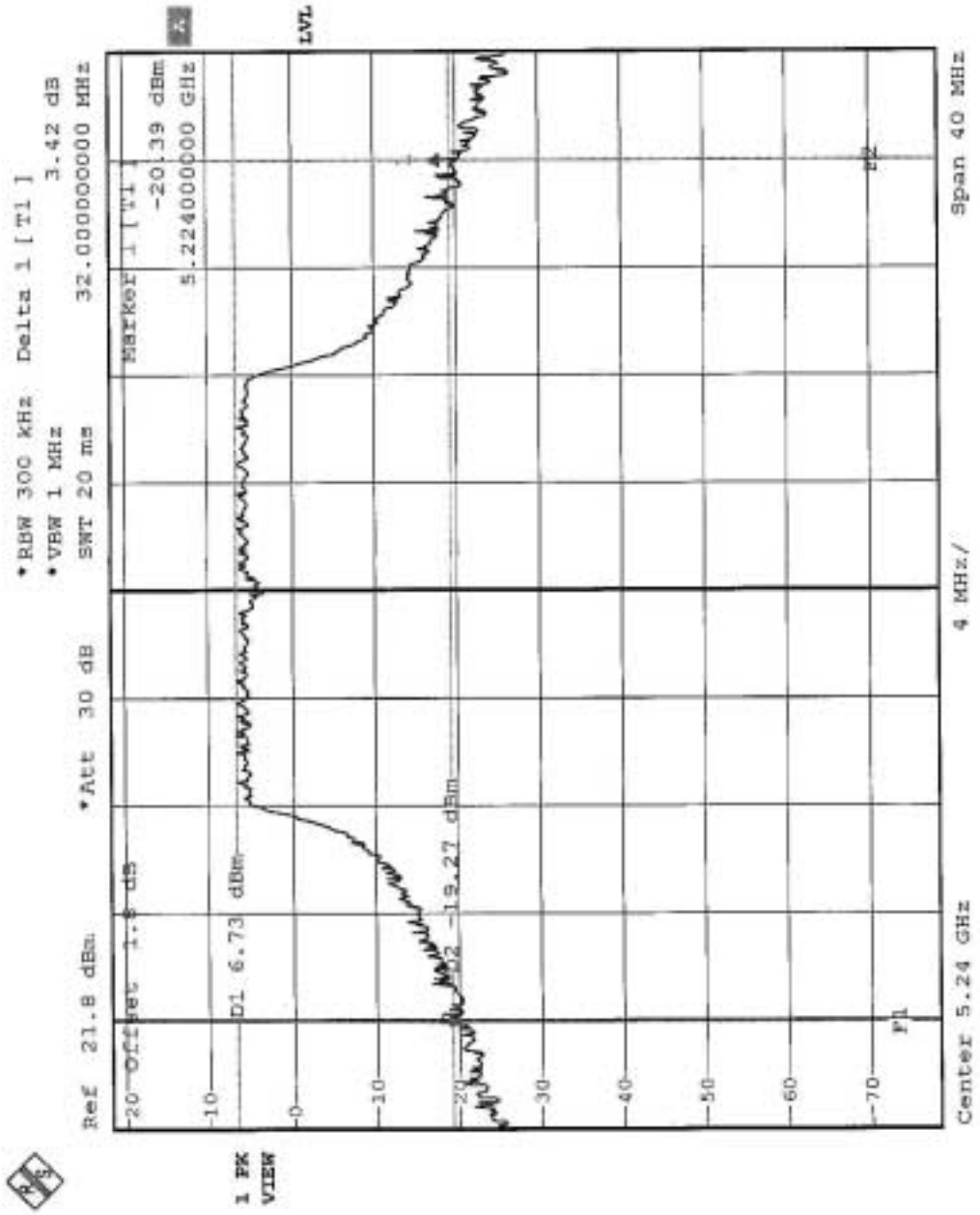
CHANNEL 8


Ref 21.8 dBm
Offset 1.8 dB
*Att 30 dB
*RBW 1 MHz
*VBW 100 kHz
SWT 20 ms
Marker 1 [T1]
5.22 dBm
5.325920000 GHz
1 Sa*
MAXH
Center 5.32 GHz
4 MHz/
Span 40 MHz
Tx Channel
Bandwidth
35 MHz
Power
16.19 dBm

CHANNEL 1


Ref 21.8 dBm
Att 30 dB
RBW 300 kHz
VBW 1 MHz
SWT 20 ms
Delta 1 [T1]
0.39 dB
31.04000000 MHz
Marker 1 [T1]
-19.72 dBm
5.16440000 GHz
1 PK
VIEW
LVL
D1 6.59 dBm
-19.41 dBm
Center 5.18 GHz
4 MHz/
Span 40 MHz

CHANNEL 4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Offset 1.8 dB
*Att 30 dB
*RBW 300 KHz
*VBW 1 MHz
SWT 20 ms
Delta 1 [T1]
3.42 dB
32.00000000 MHz
Marker 1 [T1]
-20.39 dBm
5.224000000 GHz
D1 6.73 dBm
D2 -13.27 dBm
1 PK
VIEW
LVL
Center 5.24 GHz
4 MHz/
Span 40 MHz

CHANNEL 5

CHANNEL 8

EUT	Dual-Band Wireless A+B PCI Adapter	**MODEL**	WMP51AB
MODE	Turbo	**INPUT POWER (SYSTEM)**	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 1005 hPa	**TESTED BY**	Steven Lu

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	26dBc Occupied Bandwidth (MHz)	PASS/FAIL
1	5210	16.65	17.00	50.76	PASS
2	5250	15.77	17.00	47.04	PASS
3	5290	15.94	24.00	48.96	PASS

NOTE: The 26dBc Occupied Bandwidth plot, please refer to the following pages.

CHANNEL 1

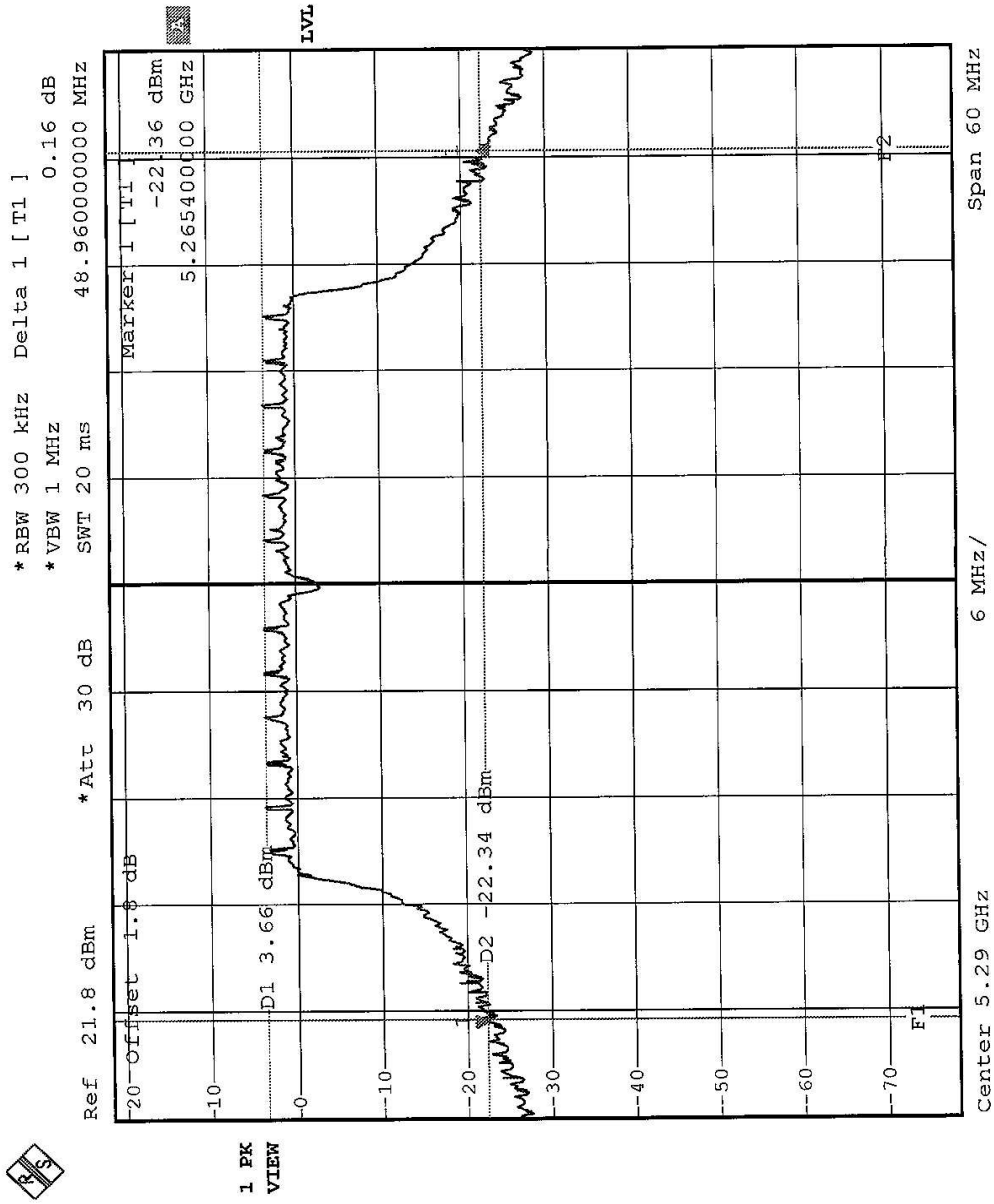
CHANNEL 2

CHANNEL 3

CHANNEL 1

CHANNEL 2

CHANNEL 3


Ref 21.8 dBm
Offset 1.6 dB
*Att 30 dB
*RBW 300 kHz
*VBW 1 MHz
SWT 20 ms
Delta 1 [T1]
0.16 dB
48.960000000 MHz
Marker 1 [T1]
-22.36 dBm
5.265400000 GHz
D1 3.66 dBm
D2 -22.34 dBm
LVL
1 PK
VIEW
Center 5.29 GHz
6 MHz/
Span 60 MHz

5.4 PEAK POWER EXCURSION MEASUREMENT

5.4.1 LIMITS OF PEAK POWER EXCURSION MEASUREMENT

Frequency Band	Limit
5.15 – 5.25 GHz	13dB
5.25 – 5.35 GHz	13dB
5.725 – 5.825 GHz	13dB

5.4.2 TEST INSTRUMENTS

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

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.

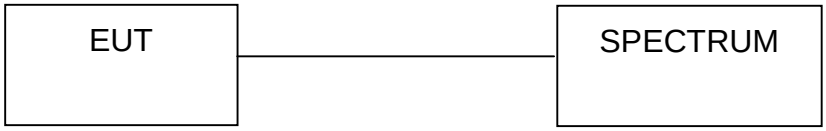
5.4.3 TEST PROCEDURE

1. The transmitter output was connected to the spectrum analyzer.
2. Set the spectrum bandwidth span to view the entire spectrum.
3. Using peak detector and Max-hold function for Trace 1 (RB=1MHz, VB=3MHz) and 2 (RB=1MHz, VB=100KHz).
4. The largest difference between Trace 1 and Trace 2 in any 1MHz band on any frequency was recorded.

5.4.4 DEVIATION FROM TEST STANDARD

No deviation

5.4.5 TEST SETUP



5.4.6 EUT OPERATING CONDITIONS

The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.

5.4.7 TEST RESULTS

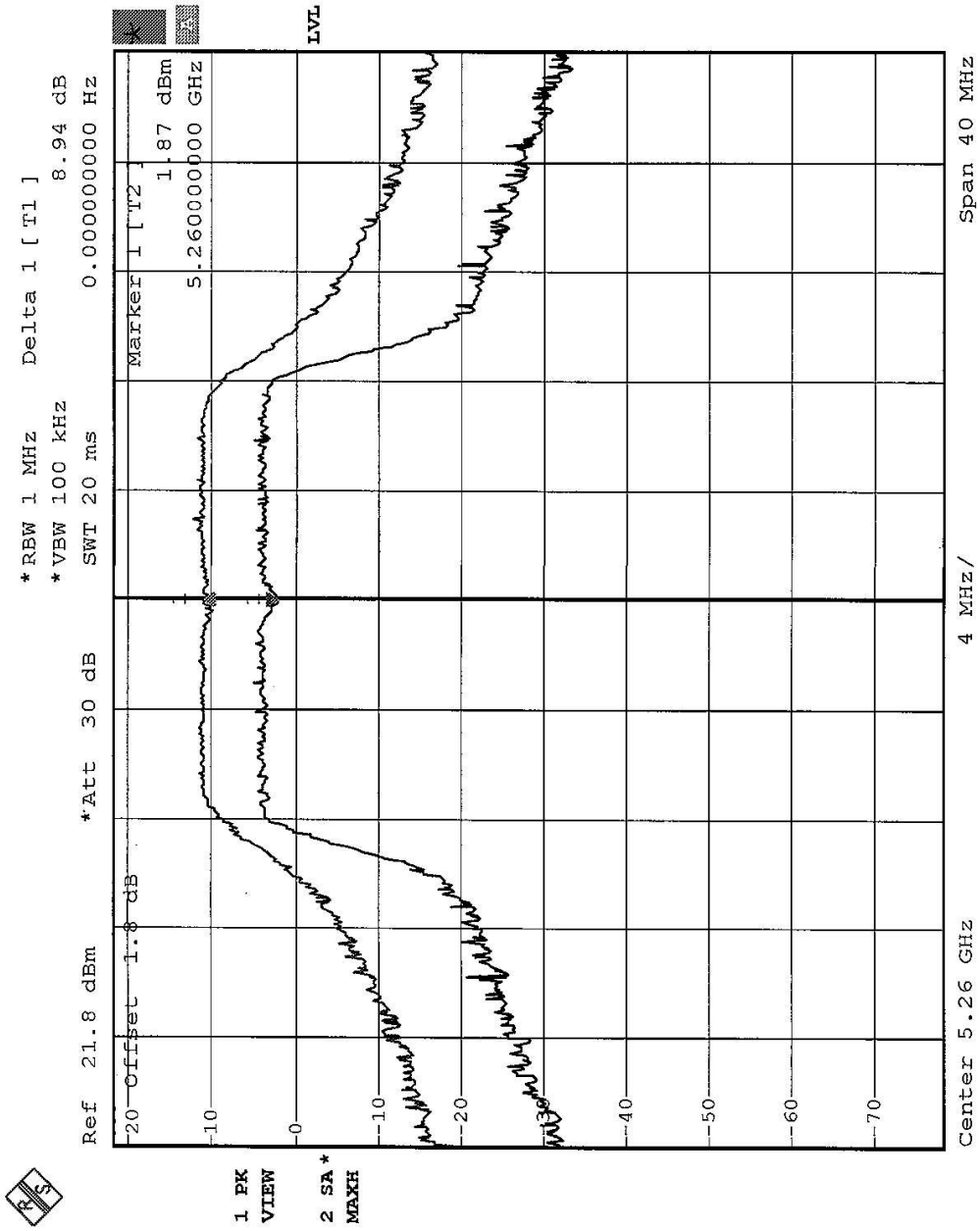
EUT	Dual-Band Wireless A+B PCI Adapter	**MODEL**	WMP51AB
MODE	Normal	**INPUT POWER (SYSTEM)**	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 1005 hPa	**TESTED BY**	Steven Lu

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)	PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
1	5180	8.44	13	PASS
4	5240	7.70	13	PASS
5	5260	8.94	13	PASS
8	5320	8.85	13	PASS

CHANNEL 1

CHANNEL 4

CHANNEL 5


Ref 21.8 dBm
Offset 1.8 dB
*Att 30 dB
*RBW 1 MHz
*VBW 100 kHz
SWT 20 ms
Delta 1 [T1]
8.94 dB
0.000000000 Hz
Marker 1 [T2]
1.87 dBm
5.260000000 GHz
LVL
1 PK VIEW
2 SA * MAXH
Center 5.26 GHz
4 MHz/
Span 40 MHz

CHANNEL 8

EUT	Dual-Band Wireless A+B PCI Adapter	**MODEL**	WMP51AB
MODE	Turbo	**INPUT POWER (SYSTEM)**	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 1005 hPa	**TESTED BY**	Steven Lu

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)	PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
1	5210	8.73	13	PASS
2	5250	9.17	13	PASS
3	5290	9.07	13	PASS

CHANNEL 1

CHANNEL 2

CHANNEL 3

5.5 PEAK POWER SPECTRAL DENSITY MEASUREMENT

5.5.1 LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT

Frequency Band	Limit
5.15 – 5.25 GHz	4dBm
5.25 – 5.35 GHz	11dBm
5.725 – 5.825 GHz	17dBm

5.5.2 TEST INSTRUMENTS

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

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.

5.5.3 TEST PROCEDURES

1. The transmitter output was connected to the spectrum analyzer.
2. Set RBW=1MHz, VBW=3MHz. The PPSD is the highest level found across the emission in any 1MHz band.

5.5.4 DEVIATION FROM TEST STANDARD

No deviation

5.5.5 TEST SETUP

5.5.6 EUT OPERATING CONDITIONS

Same as 5.3.6

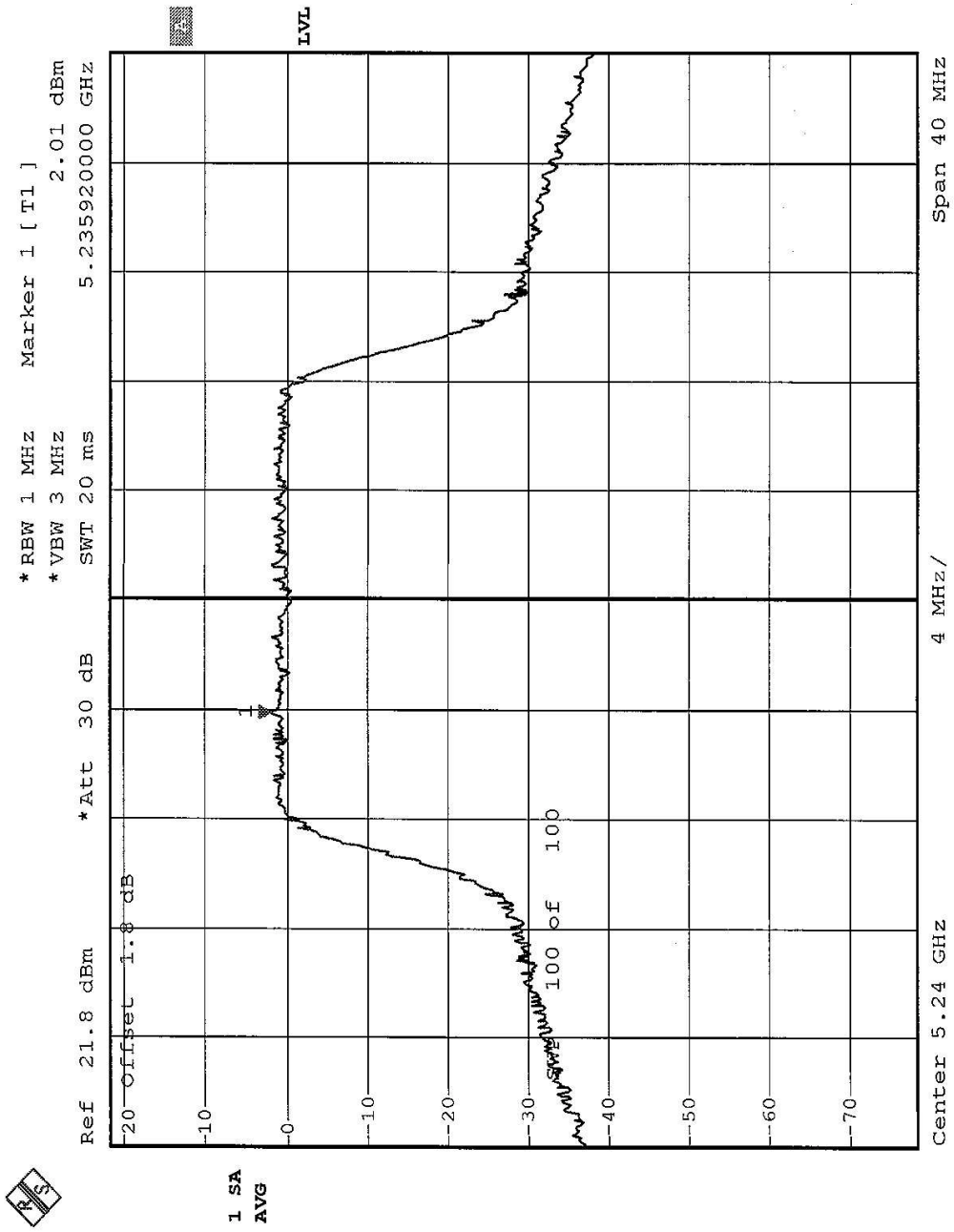
5.5.7 TEST RESULTS

EUT	Dual-Band Wireless A+B PCI Adapter	**MODEL**	WMP51AB
MODE	Normal	**INPUT POWER (SYSTEM)**	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 1005 hPa	**TESTED BY**	Steven Lu

CHANNEL NUMBER	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 1 MHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	5180	1.56	4	PASS
4	5240	2.01	4	PASS
5	5260	0.78	11	PASS
8	5320	1.41	11	PASS

CHANNEL 1

CHANNEL 4


Ref 21.8 dBm
Offset 1.8 dB
*Att 30 dB
* RBW 1 MHz
* VBW 3 MHz
SWT 20 ms
Marker 1 [T1]
2.01 dBm
5.235920000 GHz
1 SA
AVG
LVL
100 of 100
Center 5.24 GHz
4 MHz/
Span 40 MHz

CHANNEL 5

CHANNEL 8

EUT	Dual-Band Wireless A+B PCI Adapter	**MODEL**	WMP51AB
MODE	Turbo	**INPUT POWER (SYSTEM)**	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 1005 hPa	**TESTED BY**	Steven Lu

CHANNEL NUMBER	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 1 MHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	5210	-0.84	4	PASS
2	5250	-1.78	4	PASS
3	5290	-2.15	11	PASS

CHANNEL 1

CHANNEL 2

CHANNEL 3

5.6 FREQUENCY STABILITY

5.6.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

The frequency tolerance of the carrier signal shall be maintained within +/- 0.02% of the operating frequency over a temperature variation of –30 degrees to 50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C.

5.6.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
ANRITSU SPECTRUM ANALYZER	MS2667C	M10281	Mar. 15, 2003
WIT STANDARD TEMPERATURE AND HUMIDITY CHAMBER	TH-4S-C	W901030	Jun. 24, 2003

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.

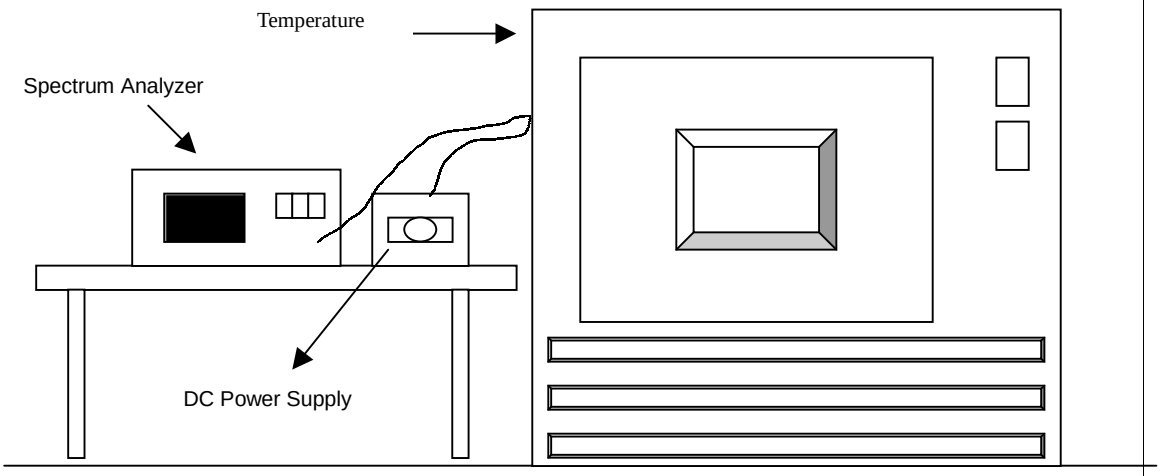
5.6.3 TEST PROCEDURE

1. The EUT was placed inside the environmental test chamber and powered by nominal DC voltage.
2. Turn the EUT on and couple its output to a spectrum analyzer.
3. Turn the EUT off and set the chamber to the highest temperature specified.
4. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.
5. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
6. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

5.6.4 DEVIATION FROM TEST STANDARD

No deviation

5.6.5 TEST SETUP



5.6.6 EUT OPERATING CONDITION

Same as Item 4.1.6

5.6.7 TEST RESULTS

Operating frequency: 5180MHz						Limit : ± 0.02%	
Temp. (℃)	Power supply (VDC)	2 minute		5 minute		10 minute	
		(MHz)	(%)	(MHz)	(%)	(MHz)	(%)
50	126.5	5180.0308	0.0005946	5180.0312	0.0006023	5180.0316	0.0006100
	110.0	5180.0306	0.0005907	5180.0314	0.0006062	5180.0320	0.0006178
	93.5	5180.0308	0.0005946	5180.0312	0.0006023	5180.0316	0.0006100
40	126.5	5180.0024	0.0000463	5180.0036	0.0000695	5180.0036	0.0000695
	110.0	5180.0018	0.0000347	5180.0034	0.0000656	5180.0038	0.0000734
	93.5	5180.0028	0.0000541	5180.0038	0.0000734	5180.0044	0.0000849
30	126.5	5179.9944	-0.0001081	5179.9942	-0.0001120	5179.9942	-0.0001120
	110.0	5179.9942	-0.0001120	5179.9940	-0.0001158	5179.9944	-0.0001081
	93.5	5179.9944	-0.0001081	5179.9940	-0.0001158	5179.9977	-0.0000444
20	126.5	5179.9894	-0.0002046	5179.9898	-0.0001969	5179.9900	-0.0001931
	110.0	5179.9896	-0.0002008	5179.9900	-0.0001931	5179.9900	-0.0001931
	93.5	5179.9898	-0.0001969	5179.9898	-0.0001969	5179.9898	-0.0001969
10	126.5	5179.9904	-0.0001853	5179.9908	-0.0001776	5179.9904	-0.0001853
	110.0	5179.9906	-0.0001815	5179.9906	-0.0001815	5179.9904	-0.0001853
	93.5	5179.9908	-0.0001776	5179.9904	-0.0001853	5179.9906	-0.0001815
0	126.5	5179.9972	-0.0000541	5179.9972	-0.0000541	5179.9972	-0.0000541
	110.0	5179.9972	-0.0000541	5179.9974	-0.0000502	5179.9972	-0.0000541
	93.5	5179.9974	-0.0000502	5179.9974	-0.0000502	5179.9972	-0.0000541
-10	126.5	5180.0004	0.0000077	5180.0006	0.0000116	5180.0008	0.0000154
	110.0	5180.0004	0.0000077	5180.0006	0.0000116	5180.0008	0.0000154
	93.5	5180.0006	0.0000116	5180.0006	0.0000116	5180.0008	0.0000154
-20	126.5	5180.0104	0.0002008	5180.0104	0.0002008	5180.0106	0.0002046
	110.0	5180.0102	0.0001969	5180.0104	0.0002008	5180.0104	0.0002008
	93.5	5180.0104	0.0002008	5180.0104	0.0002008	5180.0106	0.0002046
-30	126.5	5180.0116	0.0002239	5180.0118	0.0002278	5180.0118	0.0002278
	110.0	5180.0114	0.0002201	5180.0118	0.0002278	5180.0118	0.0002278
	93.5	5180.0116	0.0002239	5180.0118	0.0002278	5180.0120	0.0002317

5.7 BAND EDGES MEASUREMENT

5.7.1 TEST INSTRUMENTS

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

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.

5.7.2 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 1MHz with suitable frequency span including 100 MHz bandwidth from band edge. The band edges was measured and recorded.

5.7.3 EUT OPERATING CONDITION

The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.

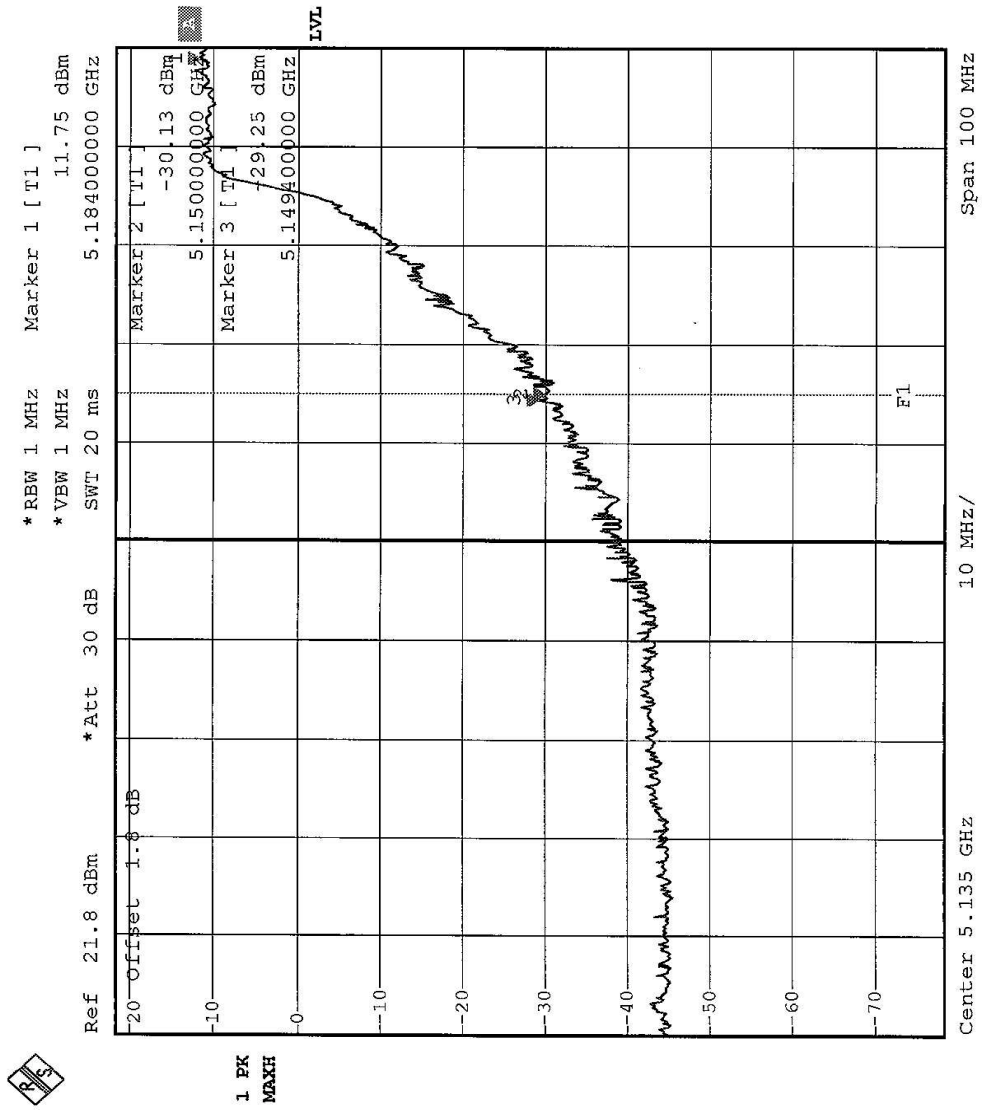
5.7.4 TEST RESULTS

For signals in the restricted bands above and below the 5.15 to 5.35 GHz allocated band a measurement was made of the amplitude of the spurious emissions with respect to the intentional signals. The relative amplitude, in dBc, was applied to the average and peak filed strength of the intentional signal made on the OATS to calculate the field strength of the unintentional signals.

The spectrum plots (Peak RBW=VBW=1MHz; Average RBW=1MHz, VBW=300Hz) are attached on the following 8 pages.

Normal Mode: Channel 1 (5180 MHz)

The band edge emission plot on the following 2 pages shows 41.0dBc (Peak) / 49.74dBc (Average) between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 1 (normal mode) is 101.0dBuV/m, so the maximum field strength in restrict band is 101.0-49.74=51.26dBuV/m which is under 54dBuV/m limit.

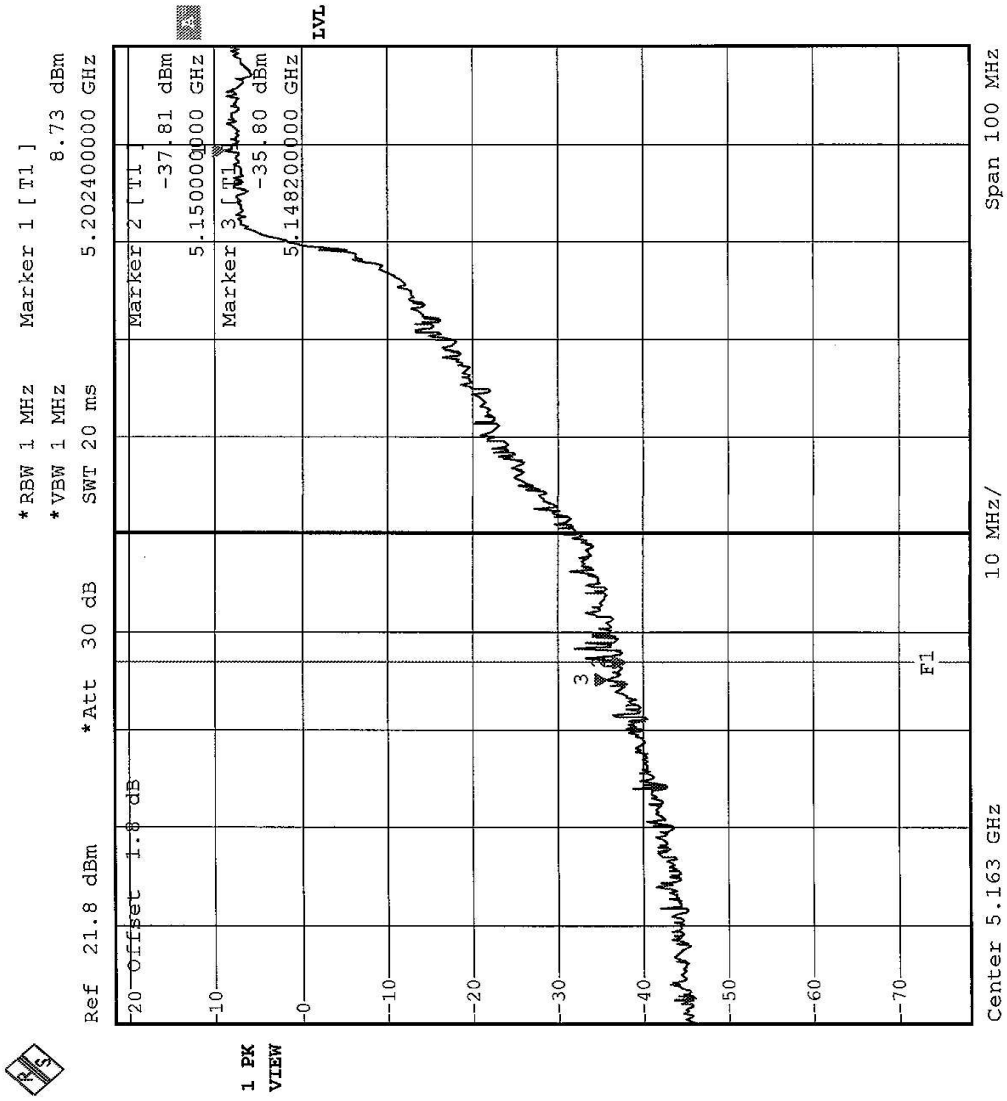


Normal Mode: Channel 8 (5320 MHz)

The band edge emission plot on the following 2 pages shows 42.34dBc (Peak) / 48.47dBc (Average) between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 8 (normal mode) is 101.1dBuV/m, so the maximum field strength in restrict band is 101.1-48.47=52.63dBuV/m which is under 54dBuV/m limit.

Turbo Mode: Channel 1 (5210 MHz)

The band edge emission plot on the following 2 pages shows 44.53dBc (Peak) / 48.79dBc (Average) between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 1 (normal mode) is 95.2dBuV/m, so the maximum field strength in restrict band is 95.2-48.79=46.41dBuV/m which is under 54dBuV/m limit.



Turbo Mode: Channel 3 (5290 MHz)

The band edge emission plot on the following 2 pages shows 45.02dBc (Peak) / 47.73dBc (Average) between carrier maximum power and local maximum emission in restrict band. The emission of carrier strength list in the test result of channel 3 (normal mode) is 95.2dBuV/m, so the maximum field strength in restrict band is 95.2-47.73=47.47dBuV/m which is under 54dBuV/m limit.

5.8 ANTENNA REQUIREMENT

5.8.1 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 15.407(a), 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.

5.8.2 ANTENNA CONNECTED CONSTRUCTION

The antenna used in this product is Dipole antenna without connector. The maximum Gain of the antenna is 2.7dBi.

6. PHOTOGRAPHS OF THE TEST CONFIGURATION

CONDUCTED EMISSION TEST

RADIATED EMISSION TEST

7. 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.

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