



FCC TEST REPORT

REPORT NO.: RF920725H03

MODEL NO.: WN6401C

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TESTED: Aug. 02 to Sep. 08, 2003

APPLICANT: Arcadyan Technology Corporation

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Lab Code: 200376-0



Table of Contents

1.	CERTIFICATION.....	5
2.	SUMMARY OF TEST RESULTS.....	6
3.	GENERAL INFORMATION.....	8
3.1	GENERAL DESCRIPTION OF EUT.....	8
3.2	DESCRIPTION OF TEST MODES.....	10
3.3	GENERAL DESCRIPTION OF APPLIED STANDARDS.....	12
3.4	DESCRIPTION OF SUPPORT UNITS.....	13
4.	TEST TYPES AND RESULTS (For Part 802.11b).....	14
4.1	CONDUCTED EMISSION MEASUREMENT.....	14
4.1.1	LIMITS OF CONDUCTED EMISSION MEASUREMENT.....	14
4.1.2	TEST INSTRUMENTS.....	14
4.1.3	TEST PROCEDURES.....	15
4.1.4	DEVIATION FROM TEST STANDARD.....	15
4.1.5	TEST SETUP.....	16
4.1.6	EUT OPERATING CONDITIONS.....	16
4.1.7	TEST RESULTS.....	17
4.2	Radiated Emission Measurement.....	19
4.2.1	LIMITS OF RADIATED EMISSION MEASUREMENT.....	19
4.2.2	TEST INSTRUMENTS.....	20
4.2.3	TEST PROCEDURES.....	21
4.2.4	DEVIATION FROM TEST STANDARD.....	21
4.2.5	TEST SETUP.....	22
4.2.6	EUT OPERATING CONDITIONS.....	22
4.2.7	TEST RESULTS (A).....	23
4.2.8	TEST RESULTS (B).....	30
4.3	6dB BANDWIDTH MEASUREMENT.....	37
4.3.1	LIMITS OF 6dB BANDWIDTH MEASUREMENT.....	37
4.3.2	TEST INSTRUMENTS.....	37
4.3.3	TEST PROCEDURE.....	38
4.3.4	DEVIATION FROM TEST STANDARD.....	38
4.3.5	TEST SETUP.....	38
4.3.6	EUT OPERATING CONDITIONS.....	38
4.3.7	TEST RESULTS - DSSS.....	39
4.3.8	TEST RESULTS - OFDM.....	43
4.4	MAXIMUM PEAK OUTPUT POWER.....	47
4.4.1	LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT.....	47
4.4.2	INSTRUMENTS.....	47
4.4.3	TEST PROCEDURES.....	48
4.4.4	TEST SETUP.....	48
4.4.5	EUT OPERATING CONDITIONS.....	48
4.4.6	TEST RESULTS - DSSS.....	49



4.4.7	TEST RESULTS - OFDM.....	49
4.5	POWER SPECTRAL DENSITY MEASUREMENT.....	50
4.5.1	LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT.....	50
4.5.2	TEST INSTRUMENTS.....	50
4.5.3	TEST PROCEDURE	51
4.5.4	DEVIATION FROM TEST STANDARD	51
4.5.5	TEST SETUP.....	51
4.5.6	EUT OPERATING CONDITION.....	51
4.5.7	TEST RESULTS - DSSS	52
4.5.8	TEST RESULTS - OFDM.....	56
4.6	BAND EDGES MEASUREMENT.....	60
4.6.1	LIMITS OF BAND EDGES MEASUREMENT.....	60
4.6.2	TEST INSTRUMENTS.....	60
4.6.3	TEST PROCEDURE	60
4.6.4	DEVIATION FROM TEST STANDARD	60
4.6.5	EUT OPERATING CONDITION.....	61
4.6.6	TEST RESULTS - DSSS	61
4.6.7	TEST RESULTS - OFDM.....	64
4.7	ANTENNA REQUIREMENT.....	67
4.7.1	STANDARD APPLICABLE	67
4.7.2	ANTENNA CONNECTED CONSTRUCTION.....	67
5.	TEST TYPES AND RESULTS (For part 802.11a).....	68
5.1	CONDUCTED EMISSION MEASUREMENT.....	68
5.1.1	LIMITS OF CONDUCTED EMISSION MEASUREMENT.....	68
5.1.2	TEST INSTRUMENTS.....	68
5.1.3	TEST PROCEDURES.....	69
5.1.4	DEVIATION FROM TEST STANDARD	69
5.1.5	TEST SETUP.....	70
5.1.6	EUT OPERATING CONDITIONS	70
5.1.7	TEST RESULTS.....	71
5.2	Radiated Emission Measurement	73
5.2.1	LIMITS OF RADIATED EMISSION MEASUREMENT.....	73
5.2.2	LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS	74
5.2.3	TEST INSTRUMENTS.....	75
5.2.4	TEST PROCEDURES	76
5.2.5	DEVIATION FROM TEST STANDARD	76
5.2.6	TEST SETUP.....	77
5.2.7	EUT OPERATING CONDITIONS	77
5.2.8	TEST RESULTS.....	78
5.2.9	TEST RESULTS (a).....	79
5.2.10	TEST RESULTS (B).....	86
5.3	Peak transmit power MEASUREMENT.....	93
5.3.1	LIMITS OF PEAK TRANSMIT POWER MEASUREMENT.....	93
5.3.2	TEST INSTRUMENTS.....	93



5.3.3	TEST PROCEDURE	94
5.3.4	DEVIATION FROM TEST STANDARD	94
5.3.5	TEST SETUP	94
5.3.6	EUT OPERATING CONDITIONS	94
5.3.7	TEST RESULTS.....	95
5.4	Peak power EXCURSION MEASUREMENT.....	111
5.4.1	LIMITS OF PEAK POWER EXCURSION MEASUREMENT.....	111
5.4.2	TEST INSTRUMENTS.....	111
5.4.3	TEST PROCEDURE	112
5.4.4	DEVIATION FROM TEST STANDARD	112
5.4.5	TEST SETUP.....	112
5.4.6	EUT OPERATING CONDITIONS	112
5.4.7	TEST RESULTS.....	113
5.5	PEAK power spectral density measurement.....	122
5.5.1	LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT.....	122
5.5.2	TEST INSTRUMENTS.....	122
5.5.3	TEST PROCEDURES	123
5.5.4	DEVIATION FROM TEST STANDARD	123
5.5.5	TEST SETUP.....	123
5.5.6	EUT OPERATING CONDITIONS	123
5.5.7	TEST RESULTS.....	124
5.6	FREQUENCY STABILITY	133
5.6.1	LIMITS OF FREQUENCY STABILITY MEASUREMENT.....	133
5.6.2	TEST INSTRUMENTS.....	133
5.6.3	TEST PROCEDURE	133
5.6.4	DEVIATION FROM TEST STANDARD	133
5.6.5	TEST SETUP.....	134
5.6.6	EUT OPERATING CONDITION.....	134
5.6.7	TEST RESULTS.....	135
5.7	BAND EDGES MEASUREMENT	136
5.7.1	TEST INSTRUMENTS.....	136
5.7.2	TEST PROCEDURE	136
5.7.3	EUT OPERATING CONDITION.....	136
5.7.4	TEST RESULTS.....	137
5.8	ANTENNA REQUIREMENT.....	142
5.8.1	STANDARD APPLICABLE	142
5.8.2	ANTENNA CONNECTED CONSTRUCTION.....	142
6.	PHOTOGRAPHS OF THE TEST CONFIGURATION.....	143
7.	INFORMATION ON THE TESTING LABORATORIES.....	151



1. CERTIFICATION

PRODUCT : Wireless miniPCI 802.11 a/g/b adapter
BRAND NAME : Arcadyan
MODEL NO. : WN6401C
APPLICANT : Arcadyan Technology Corporation
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 Aug. 02 to Sep. 08, 2003. 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.

PREPARED BY: Amanda Chu, **DATE:** Sep. 09, 2003
(Amanda Chu)

APPROVED BY: Eric Lin, **DATE:** Sep. 09, 2003
(Eric Lin, 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 -13.16dBuV at 0.177MHz
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 -3.4dBuV at 68.20 MHz
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 -16.24dBuV at 0.177MHz
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 -3.2dBuV at 69.00MHz
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	Wireless miniPCI 802.11 a/g/b adapter
MODEL NO.	WN6401C
POWER SUPPLY	3.3VDC from host equipment
MODULATION	DSSS, OFDM
TRANSFER RATE	802.11b and draft 802.11g: 1/2/5.5/6/9/11/12/18/24/36/48/54Mbps 802.11a:6 to 54Mbps (Turbo mode: up to 108Mbps *see note 1)
FREQUENCY RANGE	802.11b and draft 802.11g: 2400MHz ~ 2483.5MHz 802.11a: 5.15~5.35GHz
NUMBER OF CHANNEL	802.11b and draft 802.11g: 11 802.11a: 8 for Normal mode / 3 for Turbo mode
CHANNEL SPACING	802.11b and draft 802.11g: 5MHz 802.11a: 20MHz for Normal mode / 40MHz for Turbo mode
OUTPUT POWER	802.11b: 15.63dBm / draft 802.11g: 18.62dBm 802.11a: 12.59dBm
DATA CABLE	NA
ANTENNA TYPE	PIFA Antenna
I/O PORTS	Mini-PCI
ASSOCIATED DEVICES	NA

NOTE:

1. This EUT is capable of providing data rates of up to 108Mbps in Turbo Mode depending upon reception quality.



2. There are four types of antennas provided to this EUT, please refer to the following table:

No.	Brand:Mitac	Gain (dBi)	Antenna Type / Connector
1	Mitac Apollo	-2.16dBi(2.4GHz) -0.11dBi(5GHz)	PIFA antenna / with MMCX connector
2	Mitac Apollo MMCX	-3.34dBi(2.4GHz) -2.86dBi(5GHz)	
3	Mitac Athena	-0.35dBi(2.4GHz) -3.73dBi(5GHz)	
4	Mitac Athena MMCX	0.02dBi(2.4GHz) -3.98dBi(5GHz)	

3. Dual-band, the EUT communicates with Wireless-A (802.11a), Wireless-B, (802.11b), and Wireless-G (draft 802.11g) wireless networks.
4. 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. The EUT was tested under the following test modes, and their data were recorded in this report:

2.4GHz(11g &11b)	
Test Mode	Antenna
A	Apollo MMCX
B	Athena MMCX
5GHz	
Test Mode	Antenna
A	Athena MMCX
B	Apollo

3. Transfer rate, 11Mbps with CCK technique and 6Mbps with OFDM technique, the worst case, were chosen for final test.



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		

Three channels are provided to this EUT for Turbo Mode.

Channel	Frequency		
1	5210 MHz		
2	5250 MHz		
3	5290 MHz		

NOTE:

- 1..The EUT was tested in both normal mode (channel bandwidth of approximately 20MHz) and turbo mode (channel bandwidth of approximately 40MHz).
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 108Mbps. 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 Wireless miniPCI 802.11 a/g/b adapter According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

**47 CFR 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 47CFR Part 15, Subpart B, Class B (DoC). The test report has been issued separately.



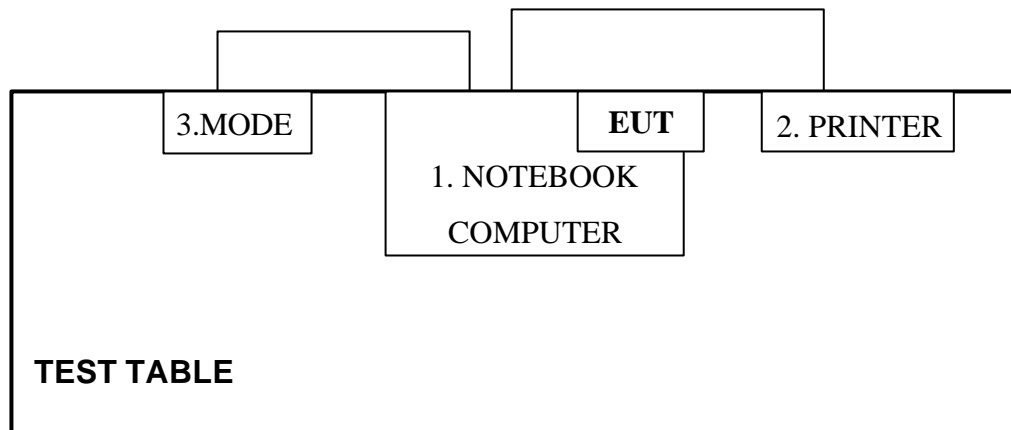
3.4 DESCRIPTION OF SUPPORT UNITS

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

No.	Product	Brand	Model No.	Serial No.	FCC ID
1	NOTEBOOK	DELL	PP01L	TW-09C748-12800-1A3-1999	FCC DoC
2	Matrix Printer	EPSON	LQ-300+	DCGY017079	FCC DoC
3	MODEM	ACEEX	1414	0206026775	IFAXDM1414

No.	Signal cable description
1	NA
2	1.8 m braid shielded wire, terminated with DB25 and Centronics connector via metallic frame, w/o core.
3	1.3 m braid shielded wire, terminated with DB25 and DB9 connector via metallic frame, w/o core.

Note: 1. All power cords of the above support units are unshielded (1.8m).



NOTE: 1. Please refer to the photos of test configuration in Item 5 also.



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 (dB μ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

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

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
ROHDE & SCHWARZ Test Receiver	ESCS 30	847124/029	Nov. 17, 2003
ROHDE & SCHWARZ LISN (for EUT)	ESHS-Z5	848773/004	Nov. 13, 2003
KYORITSU LISN (for peripheral)	KNW-407	8/1395/12	Jul. 23, 2004
RF Cable (JETBAO)	RG233/U	Cable_CA_01	Jul. 03, 2004
Terminator(for KYORITSU)	50	3	Apr. 11, 2004
Software	Cond-V2e	NA	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. The test was performed in ADT Shielded Room No. A.
 3. The VCCI Con A Registration No. is C-817.



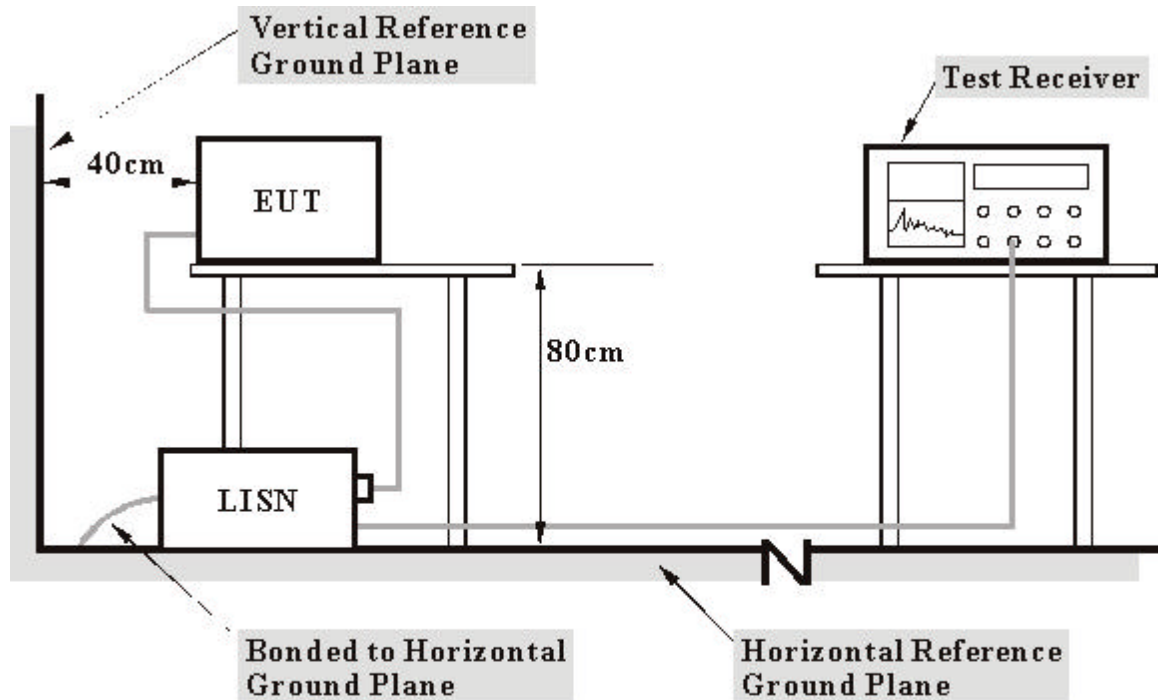
4.1.3 TEST PROCEDURES

- 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 support unit 1 (Notebook computer) which placed on a testing table.
- b. The support unit 1 (Notebook computer) ran a test program to enable EUT under transmission condition continuously at specific channel frequency.

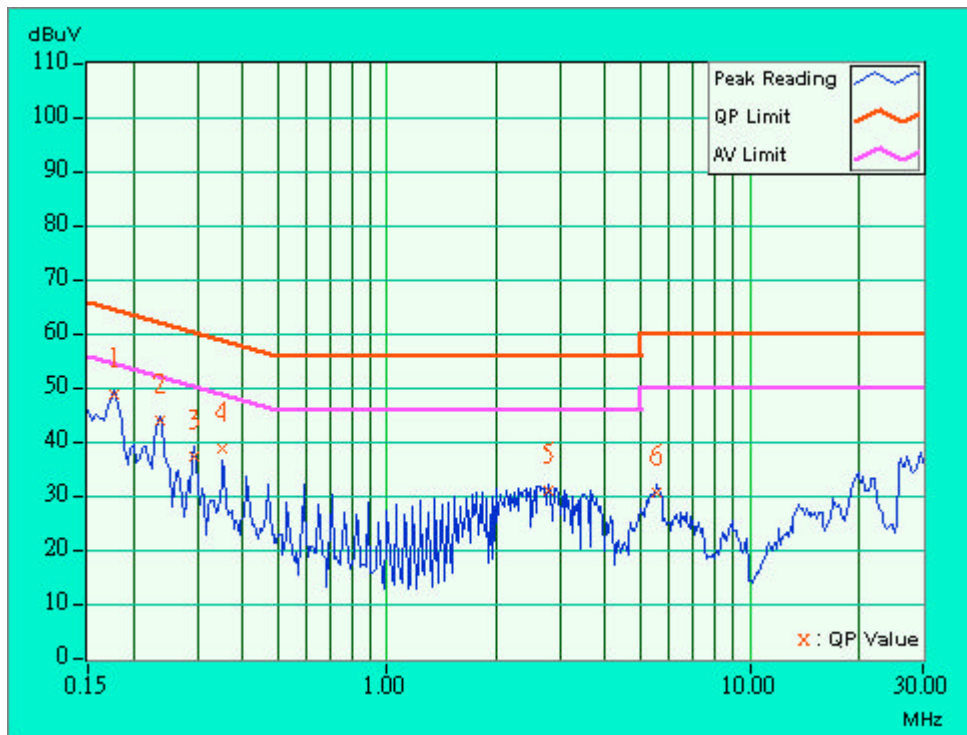


4.1.7 TEST RESULTS

EUT	Wireless miniPCI 802.11 a/g/b adapter		
MODEL	WN6401C	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	27deg. C, 60%RH, 966 hPa	TESTED BY	Tony Chen

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.177	0.20	48.50	-	48.70	-	64.61
2	0.236	0.20	43.44	-	43.64	-	62.24	52.24	-18.60	-
3	0.295	0.20	36.87	-	37.07	-	60.40	50.40	-23.33	-
4	0.353	0.20	38.53	-	38.73	-	58.89	48.89	-20.16	-
5	2.771	0.34	30.66	-	31.00	-	56.00	46.00	-25.00	-
6	5.547	0.50	30.07	-	30.57	-	60.00	50.00	-29.43	-

- NOTES:** (1) "**": Undetectable
 (2) Q.P. and AV. are abbreviations of quasi-peak and average.
 (3) "-": The Quasi-peak reading value also meets an average limit, thus measurement with the average detector is unnecessary.
 (4) The emission levels of other frequencies were very low against the limit.
 (5) Correction Factor = Insertion loss + Cable loss
 (6) Margin value = Emission level - Limit value

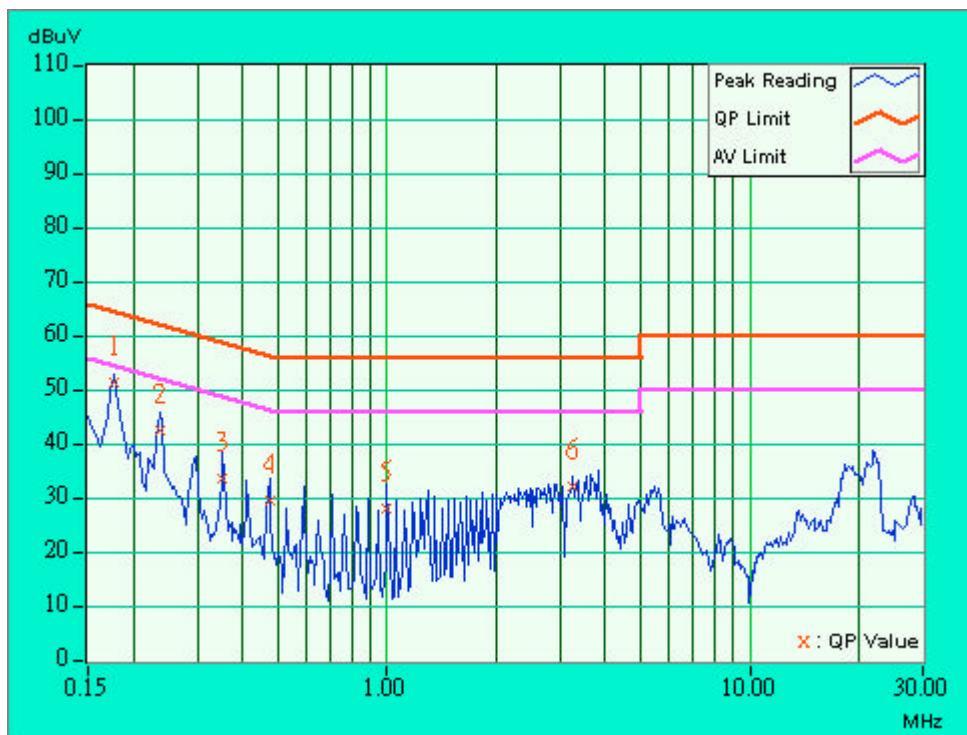




EUT	Wireless miniPCI 802.11 a/g/b adapter		
MODEL	WN6401C	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	27deg. C, 60%RH, 966 hPa	TESTED BY	Tony Chen

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.177	0.20	51.25	-	51.45	-	64.61
2	0.236	0.20	42.07	-	42.27	-	62.24	52.24	-19.97	-
3	0.353	0.20	33.44	-	33.64	-	58.89	48.89	-25.25	-
4	0.474	0.21	29.15	-	29.36	-	56.44	46.44	-27.08	-
5	1.002	0.30	27.86	-	28.16	-	56.00	46.00	-27.84	-
6	3.242	0.36	31.72	-	32.08	-	56.00	46.00	-23.92	-

- NOTES:**
- "*": Undetectable
 - Q.P. and AV. are abbreviations of quasi-peak and average.
 - "-": The Quasi-peak reading value also meets an average limit, thus measurement with the average detector is unnecessary.
 - The emission levels of other frequencies were very low against the limit.
 - Correction Factor = Insertion loss + Cable loss
 - Margin value = Emission level - Limit 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	8594ER	3829U04676	Jul. 14, 2004
ADVANTEST Spectrum Analyzer	R3271A	85060311	May 21, 2004
CHASE RF Pre_Amplifier	CPA9232	1057	Apr. 24, 2004
HP Pre_Amplifier	8449B	3008A01281	June 27, 2004
ROHDE & SCHWARZ Test Receiver	ESVS 10	849231 /019	Nov. 03, 2003
CHASE Broadband Antenna	CBL6111c	2730	Jul 17, 2004
Schwarzbeck Horn_Antenna	3115	5619	Jul. 17, 2004
SCHWARZBECK Tunable Dipole Antenna	UHAP	897	Mar. 07, 2005
SCHWARZBECK Tunable Dipole Antenna	VHAP	880	Mar. 07, 2005
RF Switches (ARNITSU)	CS-201	1565157	Dec. 01, 2003
RF CABLE (Chaintek) 1GHz-20GHz	SF102	22054-2	Feb. 10. 2004
RF Cable(RICHTEC)	9913-30M	STCCAB-30M- 1GHz-021	Nov. 5, 2003
Software	AS60P8	NA	NA
CHANCE MOST Antenna Tower	AT-100	0203	NA
CHANCE MOST Turn Table	TT-100	0203	NA

Note: 1. The calibration interval of the above test instruments is 12 months (36 months for Tunable Dipole Antenna) 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. C.
5. The FCC Site Registration No. is 656396.
6. The VCCI Site Registration No. is R-1626.
7. The CANADA Site Registration No. is IC 3789-C.



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.

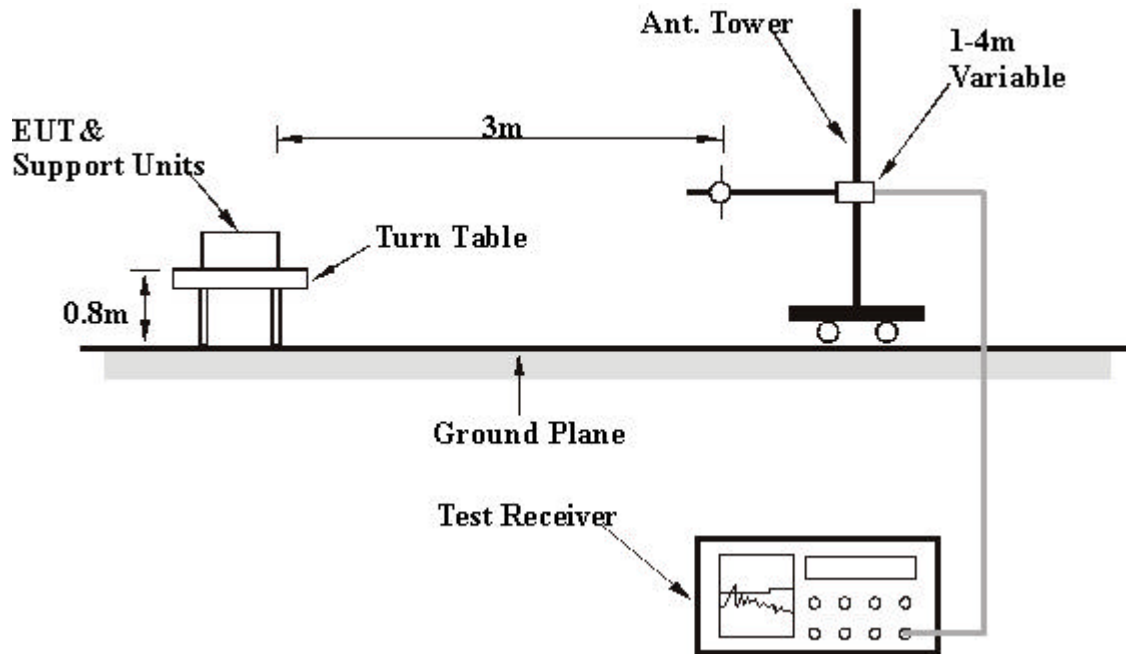
NOTE:

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 (A)

EUT	Wireless miniPCI 802.11 a/g/b adapter		
MODEL	WN6401C	FREQUENCY RANGE	Below 1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	24deg. C, 57%RH, 966 hPa	TESTED BY	Eric Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	68.26	34.8 QP	40.00	-5.20	1.25 H	55	29.10	5.70
2	133.00	36.9 QP	43.50	-6.60	1.87 H	239	25.10	11.70
3	154.84	24.3 QP	43.50	-19.20	1.04 H	49	13.70	10.60
4	170.24	36.0 QP	43.50	-7.50	1.00 H	93	26.30	9.70
5	199.99	31.7 QP	43.50	-11.80	1.44 H	193	22.70	9.00
6	234.82	31.2 QP	46.00	-14.80	1.01 H	298	20.00	11.20
7	352.00	24.7 QP	46.00	-21.30	1.96 H	359	9.20	15.50
8	492.14	29.1 QP	46.00	-16.90	1.85 H	97	10.00	19.10
9	505.00	29.3 QP	46.00	-16.70	1.54 H	33	10.00	19.30
10	533.14	24.9 QP	46.00	-21.10	1.19 H	274	5.10	19.80

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)	Correction Factor (dB/m)
1	65.26	34.3 QP	40.00	-5.70	1.29 V	356	29.00	5.30
2	165.36	20.0 QP	43.50	-23.50	1.28 V	7	10.00	10.00
3	169.68	27.0 QP	43.50	-16.50	1.35 V	264	17.20	9.70
4	201.00	31.2 QP	43.50	-12.20	1.57 V	48	22.30	9.00
5	236.41	22.4 QP	46.00	-23.60	1.07 V	221	11.00	11.40
6	291.50	25.7 QP	46.00	-20.30	1.01 V	21	11.70	14.00
7	298.00	30.6 QP	46.00	-15.40	1.20 V	117	16.40	14.20
8	331.00	33.3 QP	46.00	-12.70	1.25 V	54	18.40	14.90
9	421.32	29.0 QP	46.00	-17.00	1.68 V	21	11.20	17.80
10	462.00	32.5 QP	46.00	-13.50	1.07 V	349	14.10	18.40

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.



TEST RESULTS (A)- DSSS

EUT	Wireless miniPCI 802.11 a/g/b adapter	MODEL	WN6401C
MODE	Channel 1	FREQUENCY RANGE	1000 ~ 24835 MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 58%RH, 966 hPa	TESTED BY	Eric Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	59.1 PK	74.00	-14.90	1.04 H	5	28.70	30.40
1	2390.00	47.3 AV	54.00	-6.70	1.04 H	5	16.90	30.40
2	*2412.00	98.4 PK			1.50 H	4	67.90	30.50
2	*2412.00	91.9 AV			1.50 H	4	61.40	30.50
3	4824.00	51.9 PK	74.00	-22.10	1.05 H	246	15.60	36.20
3	4824.00	43.1 AV	54.00	-10.90	1.05 H	246	6.90	36.20
4	7236.00	50.4 PK	74.00	-23.60	1.24 H	111	8.70	41.70
5	9648.00	51.8 PK	74.00	-22.20	1.09 H	118	6.90	44.90
5	9648.00	40.2 AV	54.00	-13.80	1.09 H	118	-4.70	44.90

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)	Correction Factor (dB/m)
1	2390.00	59.1 PK	74.00	-14.90	1.52 V	140	28.70	30.40
1	2390.00	47.4 AV	54.00	-6.60	1.52 V	140	17.00	30.40
2	*2412.00	99.6 PK			1.24 V	54	69.10	30.50
2	*2412.00	93.1 AV			1.24 V	54	62.60	30.50
3	4824.00	51.9 PK	74.00	-22.10	1.08 V	66	15.60	36.20
3	4824.00	43.5 AV	54.00	-10.50	1.08 V	66	7.30	36.20
4	7236.00	51.2 PK	74.00	-22.80	1.05 V	87	9.50	41.70
4	7236.00	43.4 AV	54.00	-10.60	1.05 V	87	1.80	41.70
5	9648.00	52.3 PK	74.00	-21.70	1.35 V	250	7.40	44.90
5	9648.00	42.2 AV	54.00	-11.80	1.35 V	250	-2.70	44.90

NOTE:

1. Emission level = Raw value + Correction Factor
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
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 miniPCI 802.11 a/g/b adapter	MODEL	WN6401C
MODE	Channel 6	FREQUENCY RANGE	1000 ~ 24835 MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 58%RH, 966 hPa	TESTED BY	Eric Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	98.7 PK			1.39 H	69	68.00	30.70
1	*2437.00	91.9 AV			1.39 H	69	61.20	30.70
2	4874.00	53.8 PK	74.00	-20.20	1.20 H	8	17.30	36.50
2	4874.00	42.7 AV	54.00	-11.30	1.20 H	8	6.20	36.50
3	7311.00	53.2 PK	74.00	-20.80	1.22 H	229	11.50	41.80
3	7311.00	45.4 AV	54.00	-8.60	1.22 H	229	3.70	41.80
4	9748.00	52.7 PK	74.00	-21.30	1.53 H	326	8.10	44.60
4	9748.00	41.4 AV	54.00	-12.60	1.53 H	326	-3.20	44.60

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)	Correction Factor (dB/m)
1	*2437.00	99.6 PK			1.63 V	325	68.90	30.70
1	*2437.00	92.7 AV			1.63 V	325	62.00	30.70
2	4874.00	51.6 PK	74.00	-22.40	1.42 V	20	15.10	36.50
2	4874.00	43.7 AV	54.00	-10.30	1.42 V	20	7.20	36.50
3	7311.00	51.6 PK	74.00	-22.40	1.42 V	57	9.80	41.80
3	7311.00	43.2 AV	54.00	-10.80	1.42 V	57	1.50	41.80
4	9748.00	51.6 PK	74.00	-22.40	1.45 V	241	7.00	44.60
4	9748.00	42.6 AV	54.00	-11.40	1.45 V	241	-2.00	44.60

NOTE:

1. Emission level = Raw value + Correction Factor
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
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 miniPCI 802.11 a/g/b adapter	MODEL	WN6401C
MODE	Channel 11	FREQUENCY RANGE	1000 ~ 24835 MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 58%RH, 966 hPa	TESTED BY	Eric Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	99.5 PK			1.25 H	52	68.70	30.80
1	*2462.00	92.2 AV			1.25 H	52	61.40	30.80
2	2483.50	59.6 PK	74.00	-14.40	1.20 H	214	28.60	31.00
2	2483.50	48.2 AV	54.00	-5.80	1.20 H	214	17.20	31.00
3	4924.00	52.7 PK	74.00	-21.30	1.02 H	74	16.00	36.70
3	4924.00	45.0 AV	54.00	-9.00	1.02 H	74	8.30	36.70
4	7386.00	50.6 PK	74.00	-23.40	1.20 H	74	8.80	41.80
5	9848.00	51.2 PK	74.00	-22.80	1.46 H	333	6.80	44.40
5	9848.00	41.5 AV	54.00	-12.50	1.46 H	333	-2.90	44.40

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	98.1 PK			1.57 V	90	67.30	30.80
1	*2462.00	92.8 AV			1.57 V	90	62.00	30.80
2	2483.50	59.3 PK	74.00	-14.70	1.54 V	216	28.30	31.00
2	2483.50	47.3 AV	54.00	-6.70	1.54 V	216	16.30	31.00
3	4924.00	50.7 PK	74.00	-23.30	1.78 V	119	14.00	36.70
4	7386.00	51.9 PK	74.00	-22.10	1.05 V	249	10.00	41.80
4	7386.00	43.5 AV	54.00	-10.50	1.05 V	249	1.60	41.80
5	9848.00	51.0 PK	74.00	-23.00	1.12 V	326	6.70	44.40
5	9848.00	42.0 AV	54.00	-12.00	1.12 V	326	-2.40	44.40

NOTE:

1. Emission level = Raw value + Correction Factor
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
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



TEST RESULTS (A)- OFDM

EUT	Wireless miniPCI 802.11 a/g/b adapter	MODEL	WN6401C
MODE	Channel 1	FREQUENCY RANGE	1000 ~ 24835 MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 58%RH, 966 hPa	TESTED BY	Eric Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	56.7 PK	74.00	-17.30	1.45 H	220	26.30	30.40
1	2390.00	45.7 AV	54.00	-8.30	1.45 H	220	15.20	30.40
2	*2412.00	87.7 PK			1.14 H	52	57.20	30.50
2	*2412.00	79.6 AV			1.14 H	52	49.00	30.50
3	4824.00	44.5 PK	74.00	-29.50	1.35 H	324	8.30	36.20
4	7236.00	49.3 PK	74.00	-24.70	1.27 H	4	7.70	41.70
5	9648.00	49.9 PK	74.00	-24.10	1.09 H	6	5.00	44.90

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)	Correction Factor (dB/m)
1	2390.00	57.4 PK	74.00	-16.60	1.87 V	48	27.00	30.40
1	2390.00	45.9 AV	54.00	-8.10	1.87 V	48	15.40	30.40
2	*2412.00	87.5 PK			1.04 V	249	57.00	30.50
2	*2412.00	79.7 AV			1.04 V	249	49.20	30.50
3	4824.00	45.2 PK	74.00	-28.80	1.58 V	88	9.00	36.20
4	7236.00	46.1 PK	74.00	-27.90	1.67 V	59	4.40	41.70
5	9648.00	53.0 PK	74.00	-21.00	1.21 V	46	8.10	44.90
5	9648.00	43.4 AV	54.00	-10.60	1.21 V	46	-1.50	44.90

NOTE:

1. Emission level = Raw value + Correction Factor
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
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 miniPCI 802.11 a/g/b adapter	MODEL	WN6401C
MODE	Channel 6	FREQUENCY RANGE	1000 ~ 24835 MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 58%RH, 966 hPa	TESTED BY	Eric Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	88.3 PK			1.72 H	6	57.70	30.70
1	*2437.00	78.8 AV			1.72 H	6	48.10	30.70
2	4874.00	45.4 PK	74.00	-28.60	1.65 H	9	9.00	36.50
3	7311.00	48.4 PK	74.00	-25.60	1.33 H	114	6.60	41.80
4	9748.00	51.8 PK	74.00	-22.20	1.87 H	96	7.10	44.60
4	9748.00	41.8 AV	54.00	-12.20	1.87 H	96	-2.80	44.60

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)	Correction Factor (dB/m)
1	*2437.00	86.9 PK			1.55 V	208	56.20	30.70
1	*2437.00	79.4 AV			1.55 V	208	48.70	30.70
2	4874.00	45.0 PK	74.00	-29.00	1.06 V	2	8.60	36.50
3	7311.00	49.2 PK	74.00	-24.80	1.52 V	352	7.50	41.80
4	9748.00	50.0 PK	74.00	-24.00	1.08 V	63	5.40	44.60

NOTE:

1. Emission level = Raw value + Correction Factor
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
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 miniPCI 802.11 a/g/b adapter	MODEL	WN6401C
MODE	Channel 11	FREQUENCY RANGE	1000 ~ 24835 MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 58%RH, 966 hPa	TESTED BY	Eric Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	87.2 PK			1.13 H	56	56.30	30.80
1	*2462.00	79.1 AV			1.13 H	56	48.30	30.80
2	2483.50	57.9 PK	74.00	-16.10	1.25 H	47	26.90	31.00
2	2483.50	46.8 AV	54.00	-7.20	1.25 H	47	15.80	31.00
3	4924.00	46.4 PK	74.00	-27.60	1.03 H	111	9.70	36.70
4	7386.00	3.1 PK	74.00	-70.90	1.60 H	2	-38.80	41.80
5	9848.00	51.9 PK	74.00	-22.10	1.07 H	82	7.50	44.40
5	9848.00	40.8 AV	54.00	-13.20	1.07 H	82	-3.50	44.40

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	88.5 PK			1.36 V	64	57.60	30.80
1	*2462.00	80.1 AV			1.36 V	64	49.20	30.80
2	2483.50	59.1 PK	74.00	-14.90	1.24 V	51	28.10	31.00
2	2483.50	47.4 AV	54.00	-6.60	1.24 V	51	16.50	31.00
3	4924.00	44.8 PK	74.00	-29.20	1.24 V	88	8.10	36.70
4	7386.00	49.3 PK	74.00	-24.70	1.45 V	78	7.50	41.80
5	9848.00	51.0 PK	74.00	-23.00	1.04 V	69	6.70	44.40
5	9848.00	41.3 AV	54.00	-12.70	1.04 V	69	-3.10	44.40

NOTE:

1. Emission level = Raw value + Correction Factor
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
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



4.2.8 TEST RESULTS (B)

EUT	Wireless miniPCI 802.11 a/g/b adapter		
MODEL	WN6401C	FREQUENCY RANGE	Below 1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	24deg. C, 57%RH, 966 hPa	TESTED BY	Eric Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	68.20	36.6 QP	40.00	-3.40	1.54 H	30	30.90	5.70
2	133.75	38.3 QP	43.50	-5.20	1.61 H	50	26.50	11.70
3	154.03	25.7 QP	43.50	-17.80	1.22 H	321	14.90	10.80
4	167.09	36.7 QP	43.50	-6.80	1.76 H	74	26.80	9.90
5	195.75	31.6 QP	43.50	-11.90	1.54 H	58	22.30	9.30
6	200.58	36.9 QP	43.50	-6.60	1.63 H	85	27.90	9.00
7	234.10	32.3 QP	46.00	-13.70	1.62 H	3	21.20	11.10
8	352.20	25.5 QP	46.00	-20.50	1.66 H	39	10.00	15.50
9	491.09	28.5 QP	46.00	-17.50	1.99 H	20	9.40	19.10
10	504.01	29.9 QP	46.00	-16.10	1.54 H	229	10.60	19.30
11	532.00	26.5 QP	46.00	-19.50	1.20 H	265	6.70	19.80

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)	Correction Factor (dB/m)
1	66.78	36.4 QP	40.00	-3.60	1.15 V	135	30.90	5.50
2	160.00	19.7 QP	43.50	-23.80	1.14 V	314	9.40	10.30
3	170.00	27.8 QP	43.50	-15.70	1.08 V	5	18.10	9.70
4	200.55	32.2 QP	43.50	-11.30	1.07 V	191	23.20	9.00
5	235.09	27.3 QP	46.00	-18.70	1.40 V	219	16.10	11.20
6	290.00	26.0 QP	46.00	-20.00	1.12 V	20	12.00	14.00
7	298.73	32.8 QP	46.00	-13.20	1.52 V	209	18.60	14.20
8	330.00	34.4 QP	46.00	-11.60	1.96 V	326	19.50	14.90
9	420.00	30.3 QP	46.00	-15.70	1.27 V	352	12.40	17.80
10	461.00	33.5 QP	46.00	-12.50	1.35 V	21	15.10	18.40

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.



TEST RESULTS (B)- DSSS

EUT	Wireless miniPCI 802.11 a/g/b adapter	MODEL	WN6401C
MODE	Channel 1	FREQUENCY RANGE	1000 ~ 24835 MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 58%RH, 966 hPa	TESTED BY	Eric Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	56.6 PK	74.00	-17.40	1.11 H	79	26.20	30.40
1	2390.00	47.3 AV	54.00	-6.70	1.11 H	79	16.90	30.40
2	*2412.00	101.1 PK			1.34 H	5	70.60	30.50
2	*2412.00	95.1 AV			1.34 H	5	64.50	30.50
3	4824.00	52.8 PK	74.00	-21.20	1.24 H	115	16.60	36.20
3	4824.00	45.1 AV	54.00	-8.90	1.24 H	115	8.90	36.20
4	7236.00	51.3 PK	74.00	-22.70	1.12 H	208	9.60	41.70
4	7236.00	43.8 AV	54.00	-10.20	1.12 H	208	2.10	41.70
5	9648.00	52.1 PK	74.00	-21.90	1.21 H	9	7.20	44.90
5	9648.00	43.4 AV	54.00	-10.60	1.21 H	9	-1.50	44.90

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)	Correction Factor (dB/m)
1	2390.00	58.8 PK	74.00	-15.20	1.02 V	5	28.40	30.40
1	2390.00	47.7 AV	54.00	-6.30	1.02 V	5	17.30	30.40
2	*2412.00	100.5 PK			1.36 V	62	70.00	30.50
2	*2412.00	94.1 AV			1.36 V	62	63.60	30.50
3	4824.00	51.4 PK	74.00	-22.60	1.02 V	229	15.10	36.20
3	4824.00	43.9 AV	54.00	-10.10	1.02 V	229	7.60	36.20
4	7236.00	51.3 PK	74.00	-22.70	1.52 V	360	9.60	41.70
4	7236.00	43.4 AV	54.00	-10.60	1.52 V	360	1.70	41.70
5	9648.00	52.3 PK	74.00	-21.70	1.33 V	1	7.40	44.90
5	9648.00	44.1 AV	54.00	-9.90	1.33 V	1	-0.80	44.90

NOTE:

1. Emission level = Raw value + Correction Factor
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
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 miniPCI 802.11 a/g/b adapter	MODEL	WN6401C
MODE	Channel 6	FREQUENCY RANGE	1000 ~ 24835 MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 58%RH, 966 hPa	TESTED BY	Eric Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	100.7 PK			1.25 H	9	70.00	30.70
1	*2437.00	95.3 AV			1.25 H	9	64.60	30.70
2	4874.00	53.1 PK	74.00	-20.90	1.07 H	89	16.60	36.50
2	4874.00	45.0 AV	54.00	-9.00	1.07 H	89	8.60	36.50
3	7311.00	52.2 PK	74.00	-21.80	1.01 H	2	10.50	41.80
3	7311.00	43.5 AV	54.00	-10.50	1.01 H	2	1.70	41.80
4	9748.00	49.5 PK	74.00	-24.50	1.15 H	4	4.90	44.60

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)	Correction Factor (dB/m)
1	*2437.00	101.3 PK			1.39 V	265	70.60	30.70
1	*2437.00	94.9 AV			1.39 V	265	64.20	30.70
2	4874.00	51.6 PK	74.00	-22.40	1.11 V	280	15.20	36.50
2	4874.00	43.7 AV	54.00	-10.30	1.11 V	280	7.30	36.50
3	7311.00	52.2 PK	74.00	-21.80	1.08 V	152	10.50	41.80
3	7311.00	44.7 AV	54.00	-9.30	1.08 V	152	3.00	41.80
4	9748.00	49.6 PK	74.00	-24.40	1.45 V	64	4.90	44.60

NOTE:

1. Emission level = Raw value + Correction Factor
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
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 miniPCI 802.11 a/g/b adapter	MODEL	WN6401C
MODE	Channel 11	FREQUENCY RANGE	1000 ~ 24835 MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 58%RH, 966 hPa	TESTED BY	Eric Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	102.2 PK			1.45 H	210	71.40	30.80
1	*2462.00	96.6 AV			1.45 H	210	65.80	30.80
2	2483.50	60.3 PK	74.00	-13.70	1.07 H	80	29.30	31.00
2	2483.50	49.6 AV	54.00	-4.40	1.07 H	80	18.70	31.00
3	4924.00	53.8 PK	74.00	-20.20	1.04 H	51	17.10	36.70
3	4924.00	44.9 AV	54.00	-9.10	1.04 H	51	8.20	36.70
4	7386.00	51.6 PK	74.00	-22.40	1.07 H	348	9.80	41.80
4	7386.00	44.5 AV	54.00	-9.50	1.07 H	348	2.70	41.80
5	9848.00	51.0 PK	74.00	-23.00	1.84 H	21	6.60	44.40
5	9848.00	42.3 AV	54.00	-11.70	1.84 H	21	-2.00	44.40

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	100.0 PK			1.11 V	45	69.20	30.80
1	*2462.00	93.9 AV			1.11 V	45	63.10	30.80
2	2483.50	60.4 PK	74.00	-13.60	1.09 V	49	29.40	31.00
2	2483.50	49.9 AV	54.00	-4.10	1.09 V	49	19.00	31.00
3	4924.00	52.7 PK	74.00	-21.30	1.09 V	333	16.00	36.70
3	4924.00	43.9 AV	54.00	-10.10	1.09 V	333	7.20	36.70
4	7386.00	50.5 PK	74.00	-23.50	1.69 V	62	8.70	41.80
5	9848.00	51.0 PK	74.00	-23.00	1.03 V	78	6.70	44.40
5	9848.00	42.7 AV	54.00	-11.30	1.03 V	78	-1.60	44.40

NOTE:

1. Emission level = Raw value + Correction Factor
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
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



TEST RESULTS (B)- OFDM

EUT	Wireless miniPCI 802.11 a/g/b adapter	MODEL	WN6401C
MODE	Channel 1	FREQUENCY RANGE	1000 ~ 24835 MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 58%RH, 966 hPa	TESTED BY	Eric Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	57.2 PK	74.00	-16.80	1.47 H	64	26.80	30.40
1	2390.00	46.7 AV	54.00	-7.30	1.47 H	64	16.20	30.40
2	*2412.00	89.9 PK			1.22 H	25	59.40	30.50
2	*2412.00	82.0 AV			1.22 H	25	51.40	30.50
3	4824.00	47.0 PK	74.00	-27.00	1.38 H	2	10.80	36.20
4	7236.00	48.5 PK	74.00	-25.50	1.33 H	62	6.90	41.70
5	9648.00	50.0 PK	74.00	-24.00	1.22 H	51	5.10	44.90

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)	Correction Factor (dB/m)
1	2390.00	57.9 PK	74.00	-16.10	1.11 V	92	27.50	30.40
1	2390.00	46.8 AV	54.00	-7.20	1.11 V	92	16.40	30.40
2	*2412.00	89.5 PK			1.32 V	64	59.00	30.50
2	*2412.00	81.5 AV			1.32 V	64	51.00	30.50
3	4824.00	46.6 PK	74.00	-27.40	1.30 V	60	10.40	36.20
4	7236.00	49.1 PK	74.00	-24.90	1.01 V	7	7.40	41.70
5	9648.00	52.3 PK	74.00	-21.70	1.09 V	81	7.40	44.90
5	9648.00	42.2 AV	54.00	-11.80	1.09 V	81	-2.70	44.90

NOTE:

1. Emission level = Raw value + Correction Factor
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
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 miniPCI 802.11 a/g/b adapter	MODEL	WN6401C
MODE	Channel 6	FREQUENCY RANGE	1000 ~ 24835 MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 58%RH, 966 hPa	TESTED BY	Eric Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	89.6 PK			1.09 H	20	58.90	30.70
1	*2437.00	81.7 AV			1.09 H	20	51.00	30.70
2	4874.00	48.5 PK	74.00	-25.50	1.79 H	93	12.00	36.50
3	7311.00	48.3 PK	74.00	-25.70	1.05 H	5	6.60	41.80
4	9748.00	48.7 PK	74.00	-25.30	1.12 H	37	4.10	44.60

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)	Correction Factor (dB/m)
1	*2437.00	90.0 PK			1.35 V	2	59.40	30.70
1	*2437.00	82.8 AV			1.35 V	2	52.10	30.70
2	4874.00	46.7 PK	74.00	-27.30	1.32 V	60	10.20	36.50
3	7311.00	50.5 PK	74.00	-23.50	1.05 V	352	8.80	41.80
4	9748.00	49.4 PK	74.00	-24.60	1.00 V	1	4.80	44.60

NOTE:

1. Emission level = Raw value + Correction Factor
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
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 miniPCI 802.11 a/g/b adapter	MODEL	WN6401C
MODE	Channel 11	FREQUENCY RANGE	1000 ~ 24835 MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 58%RH, 966 hPa	TESTED BY	Eric Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	90.8 PK			1.29 H	36	60.00	30.80
1	*2462.00	82.9 AV			1.29 H	36	52.10	30.80
2	2483.50	57.6 PK	74.00	-16.40	1.54 H	13	26.60	31.00
2	2483.50	47.2 AV	54.00	-6.80	1.54 H	13	16.20	31.00
3	4924.00	48.3 PK	74.00	-25.70	1.36 H	61	11.60	36.70
4	7386.00	49.0 PK	74.00	-25.00	1.30 H	201	7.20	41.80
5	9848.00	49.4 PK	74.00	-24.60	1.08 H	7	5.10	44.40

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	89.8 PK			1.54 V	2	59.00	30.80
1	*2462.00	82.1 AV			1.54 V	2	51.30	30.80
2	2483.50	59.6 PK	74.00	-14.40	1.09 V	350	28.60	31.00
2	2483.50	48.6 AV	54.00	-5.40	1.09 V	350	17.60	31.00
3	4924.00	47.8 PK	74.00	-26.20	1.22 V	70	11.10	36.70
4	7386.00	48.4 PK	74.00	-25.60	1.54 V	19	6.50	41.80
5	9848.00	49.8 PK	74.00	-24.20	1.17 V	59	5.50	44.40

NOTE:

1. Emission level = Raw value + Correction Factor
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
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
R&S SPECTRUM ANALYZER	FSP	1093.4495.30	Dec. 19, 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.

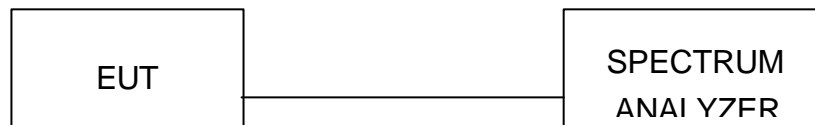
4.3.3 TEST PROCEDURE

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.



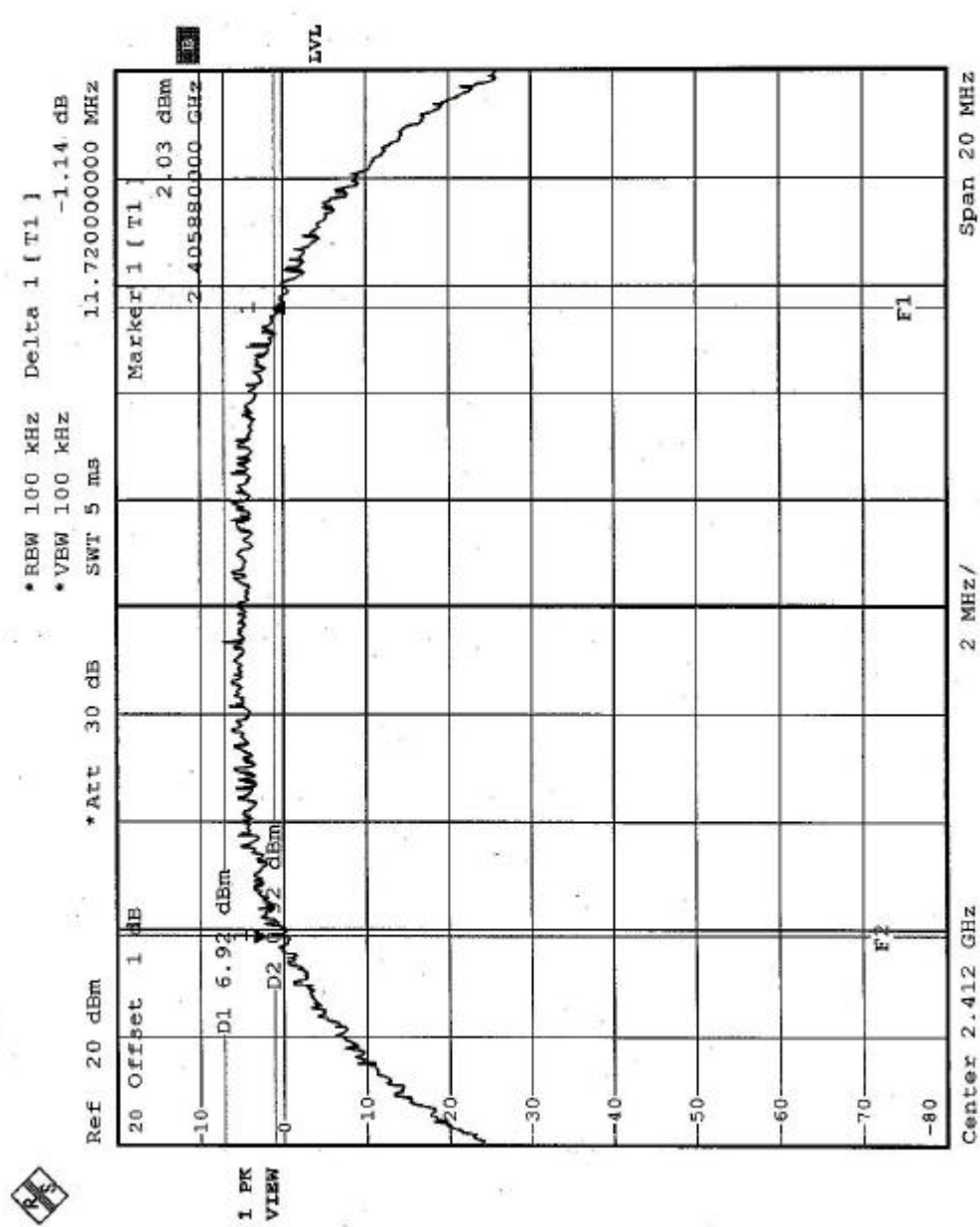
4.3.7 TEST RESULTS - DSSS

EUT	Wireless miniPCI 802.11 a/g/b adapter	MODEL	WN6401C
INPUT POWER (SYSTEM)	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	21deg. C, 58%RH, 966 hPa
TESTED BY	Eric Lee		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	11.72	0.5	PASS
6	2437	12.00	0.5	PASS
11	2462	11.72	0.5	PASS

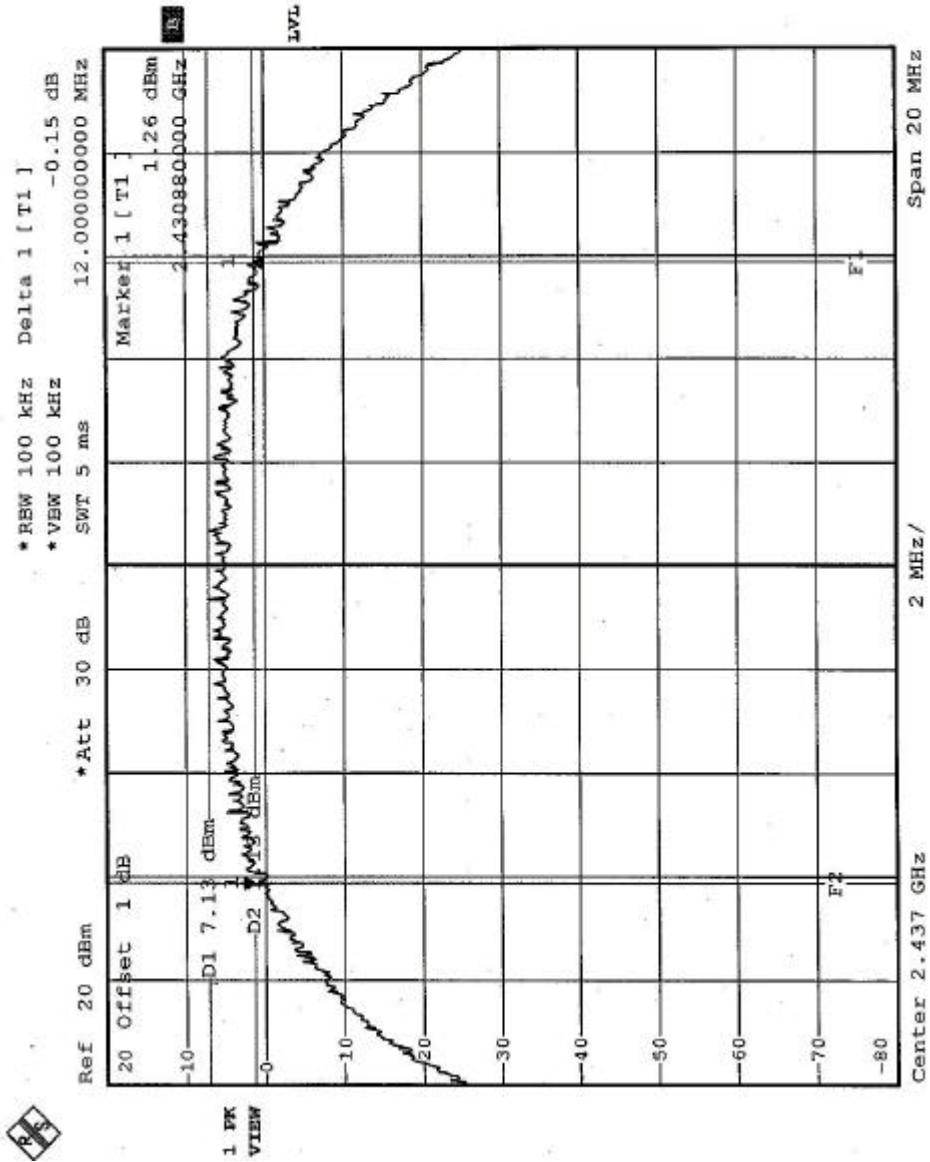


CH1



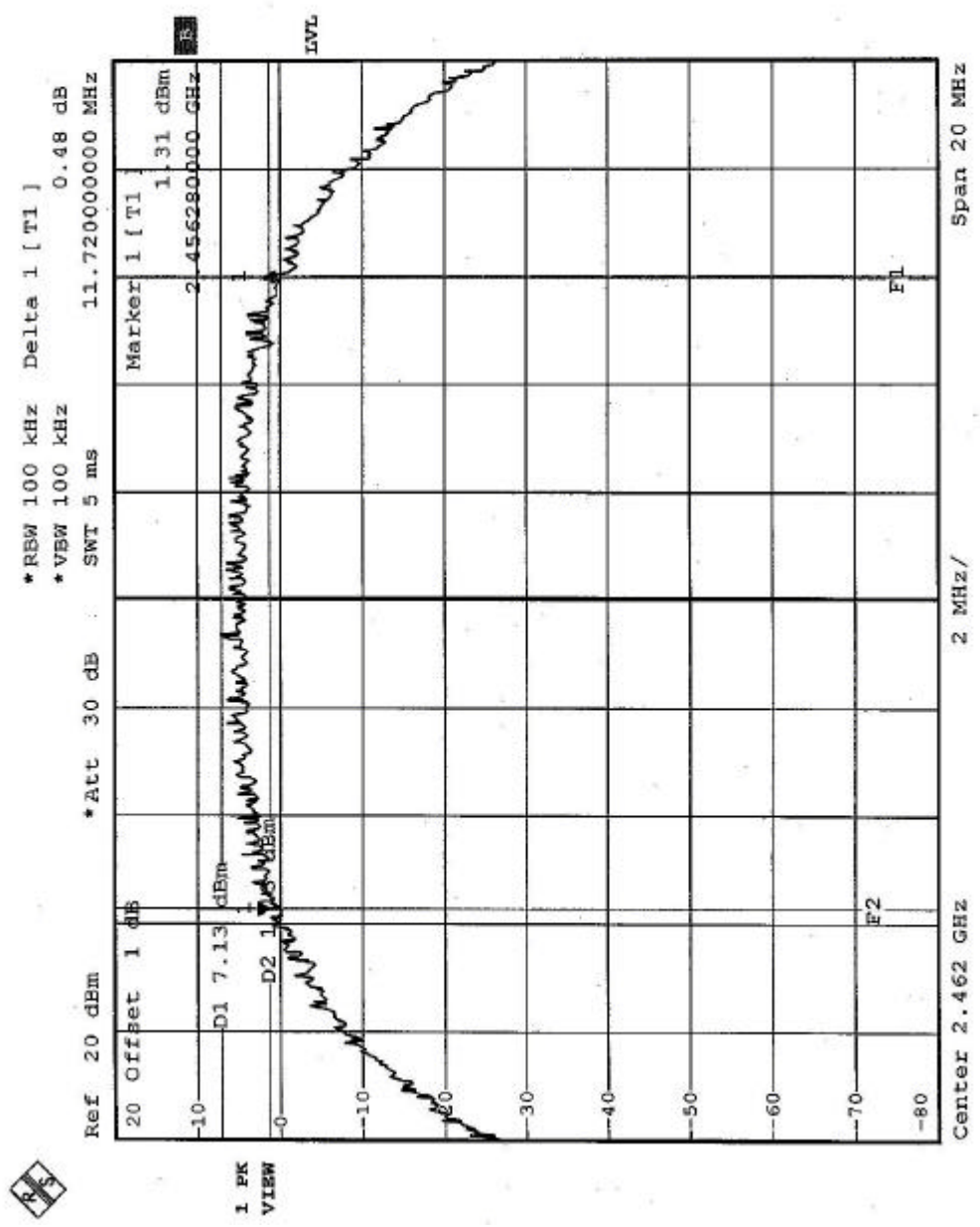


CH6





CH11





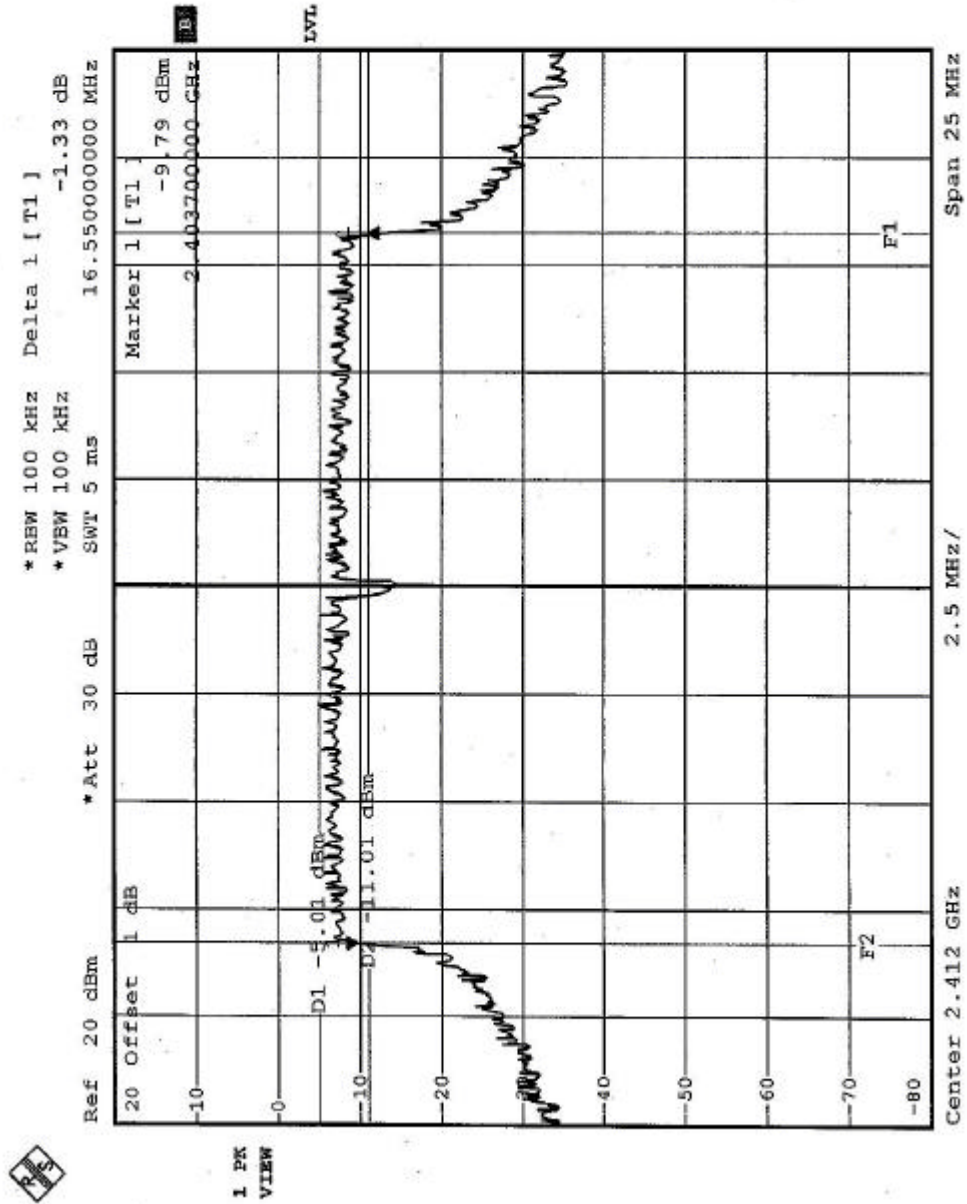
4.3.8 TEST RESULTS - OFDM

EUT	Wireless miniPCI 802.11 a/g/b adapter	MODEL	WN6401C
INPUT POWER (SYSTEM)	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	21deg. C, 58%RH, 966 hPa
TESTED BY	Eric Lee		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	16.55	0.5	PASS
6	2437	16.55	0.5	PASS
11	2462	16.55	0.5	PASS

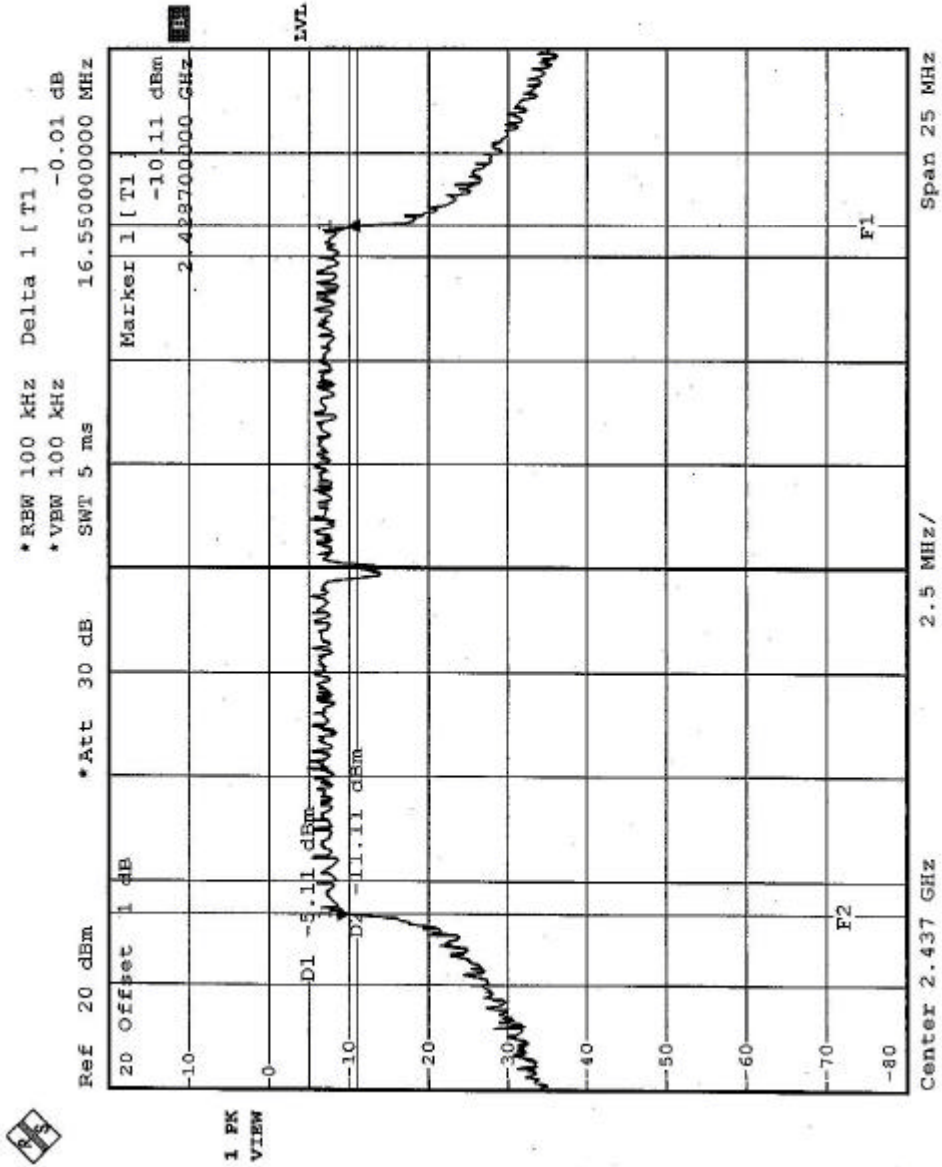


CH1



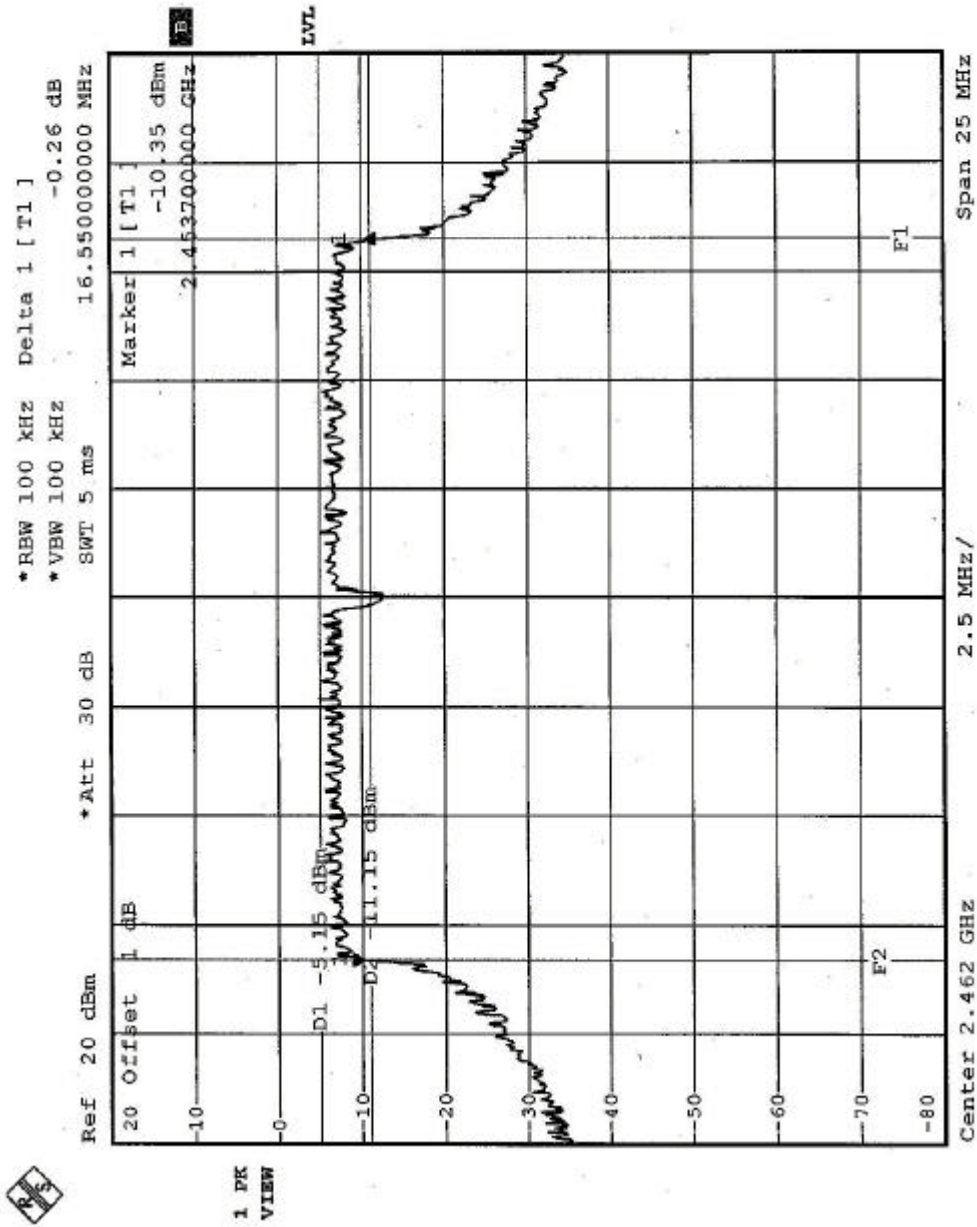


CH6





CH11





4.4 MAXIMUM PEAK OUTPUT POWER

4.4.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 30dBm.

4.4.2 INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSP30	100019	Dec. 19, 2003
R&S SIGNAL GENERATOR	SMP04	100011	May 28, 2004
TEKTRONIX OSCILLOSCOPE	TDS 220	B048470	Mar. 05, 2004
NARDA DETECTOR	4503A	FSCM99899	NA

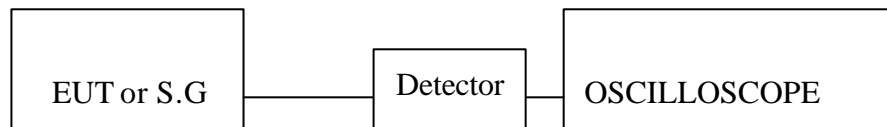
NOTE:

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

1. A detector was used on the output port of the EUT. An oscilloscope was used to read the peak response of the detector.
2. Replaced the EUT by the signal generator. The center frequency of the S.G was adjusted to the center frequency of the measured channel.
3. Adjusted the power to have the same peak reading on oscilloscope.
Record the power level.

4.4.4 TEST SETUP



4.4.5 EUT OPERATING CONDITIONS

Same as Item 4.3.6



4.4.6 TEST RESULTS - DSSS

EUT	Wireless miniPCI 802.11 a/g/b adapter	MODEL	WN6401C
INPUT POWER (SYSTEM)	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	21deg. C, 58%RH, 966 hPa
TESTED BY	Eric Lee		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	18.62	30	PASS
6	2437	18.41	30	PASS
11	2462	18.10	30	PASS

4.4.7 TEST RESULTS - OFDM

EUT	Wireless miniPCI 802.11 a/g/b adapter	MODEL	WN6401C
INPUT POWER (SYSTEM)	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	21deg. C, 58%RH, 966 hPa
TESTED BY	Eric Lee		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	13.03	30	PASS
6	2437	13.80	30	PASS
11	2462	13.46	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
R&S SPECTRUM ANALYZER	FSP	1093.4495.30	Dec. 19, 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

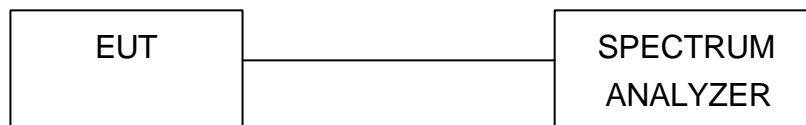
The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3 kHz RBW and 30 kHz VBW, set sweep time = span/3 kHz. The power spectral density was measured and recorded.

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



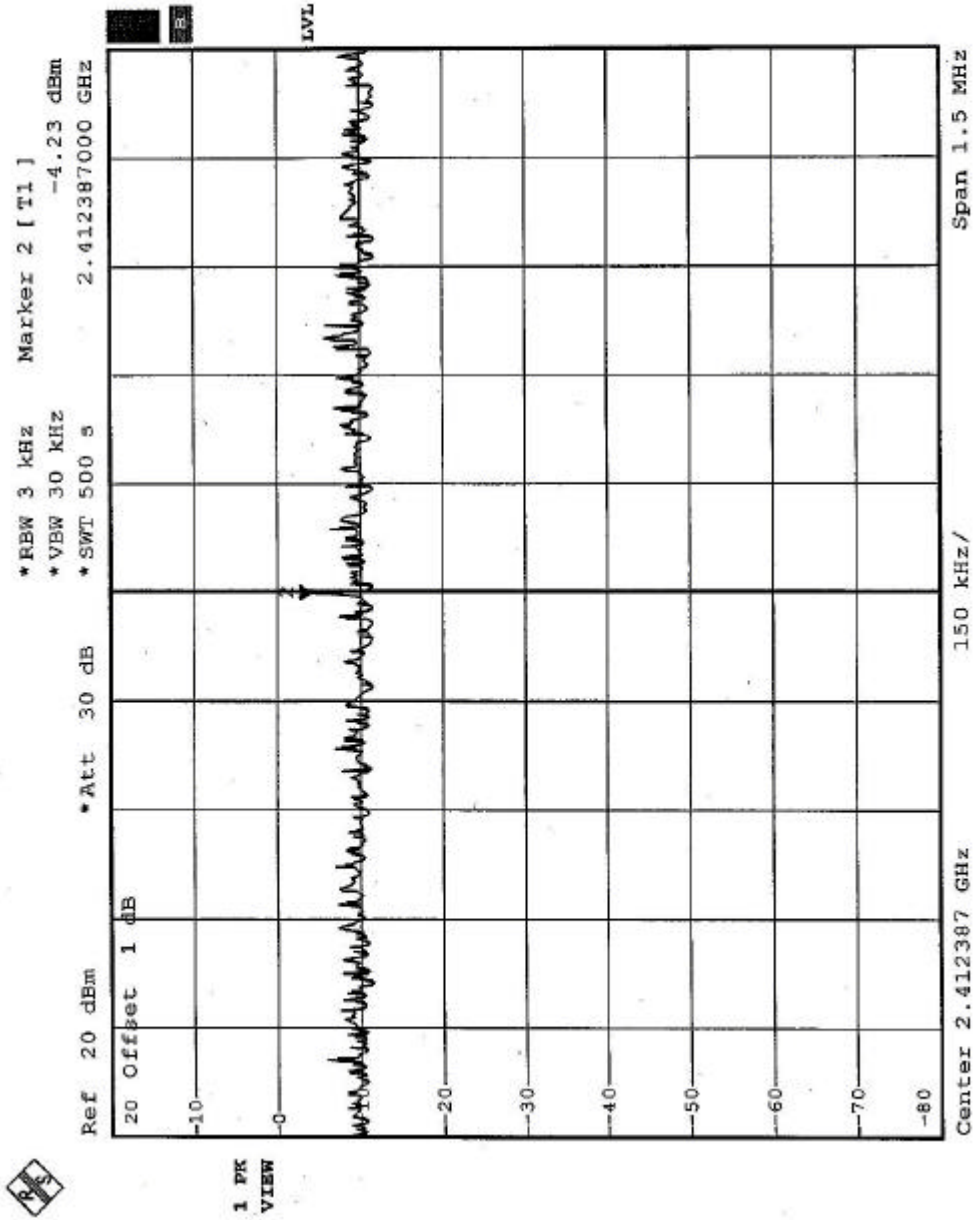
4.5.7 TEST RESULTS - DSSS

EUT	Wireless miniPCI 802.11 a/g/b adapter	MODEL	WN6401C
INPUT POWER (SYSTEM)	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	21deg. C, 58RH, 966 hPa
TESTED BY	Eric Lee		

CHANNEL NUMBER	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-4.23	8	PASS
6	2437	-4.30	8	PASS
11	2462	-4.87	8	PASS

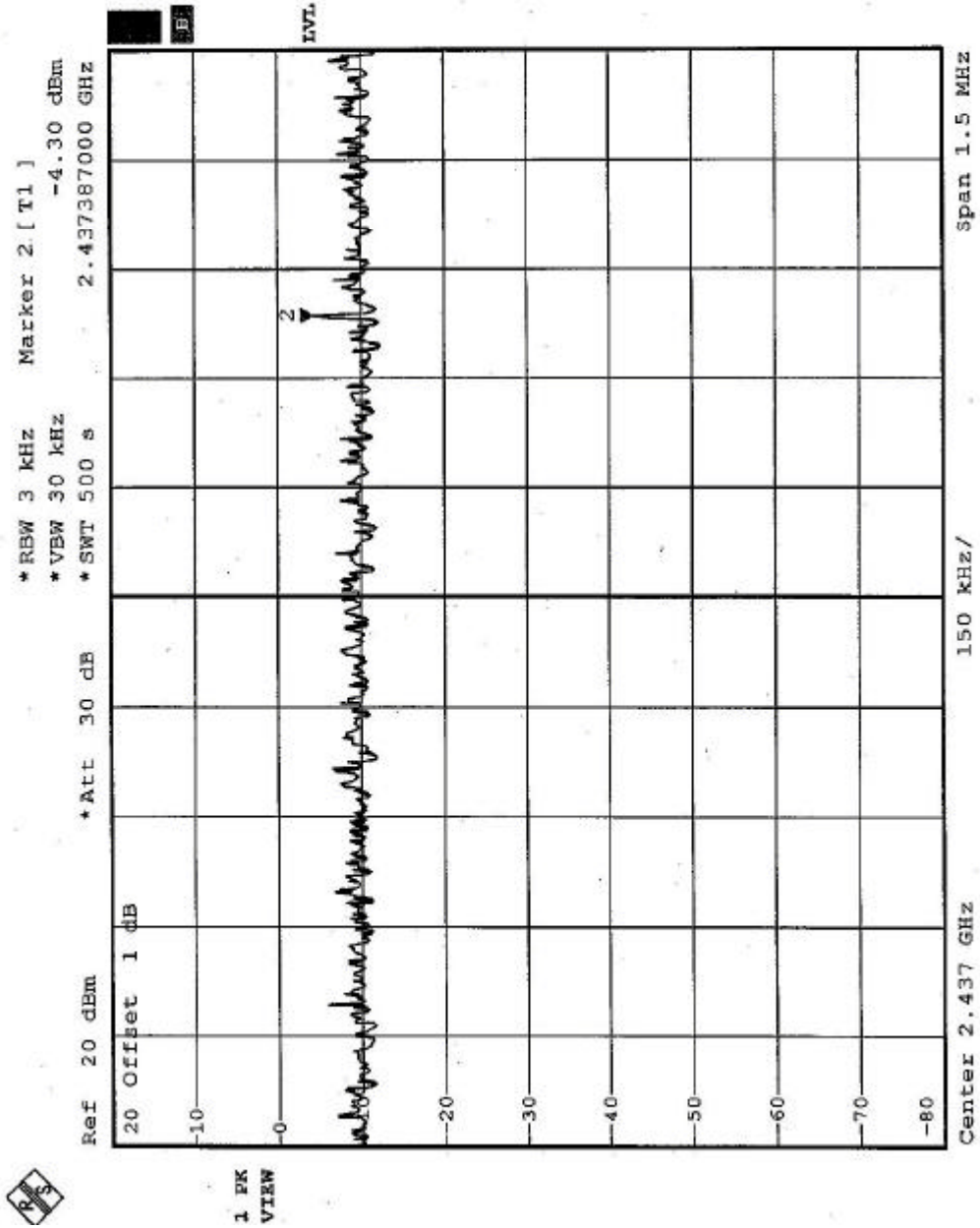


CH1



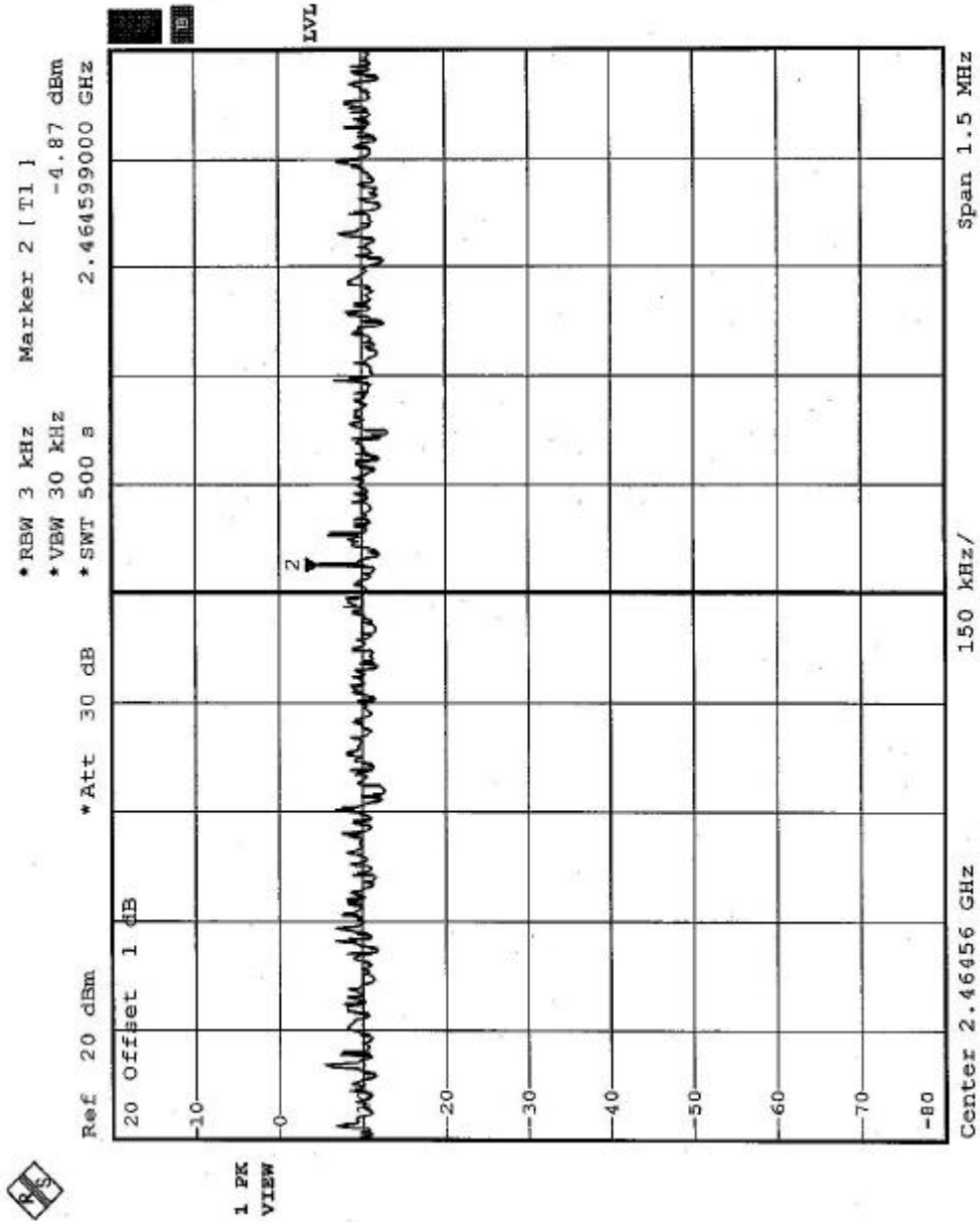


CH6





CH11





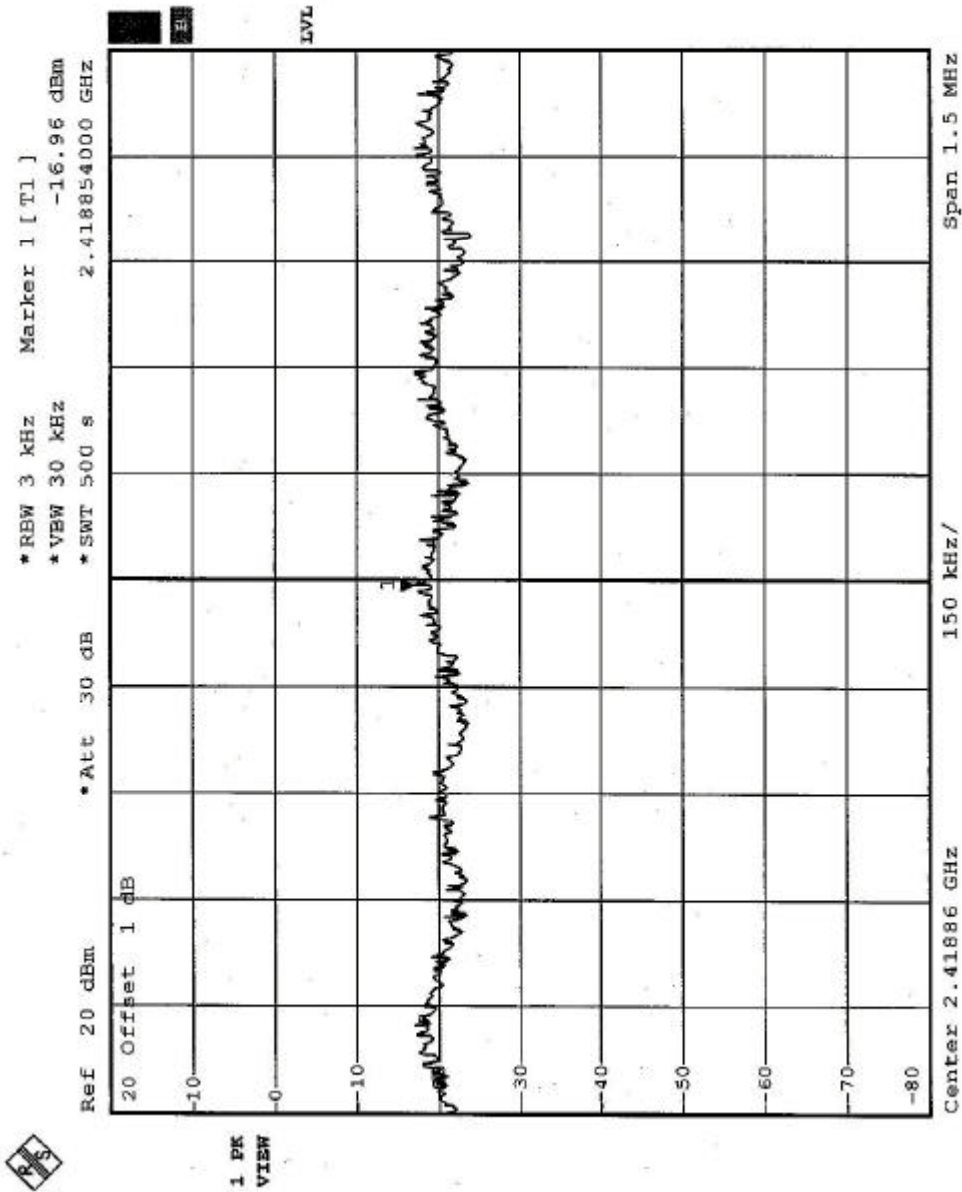
4.5.8 TEST RESULTS - OFDM

EUT	Wireless miniPCI 802.11 a/g/b adapter	MODEL	WN6401C
INPUT POWER (SYSTEM)	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	21deg. C, 58RH, 966 hPa
TESTED BY	Eric Lee		

CHANNEL NUMBER	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-16.96	8	PASS
6	2437	-15.97	8	PASS
11	2462	-16.48	8	PASS

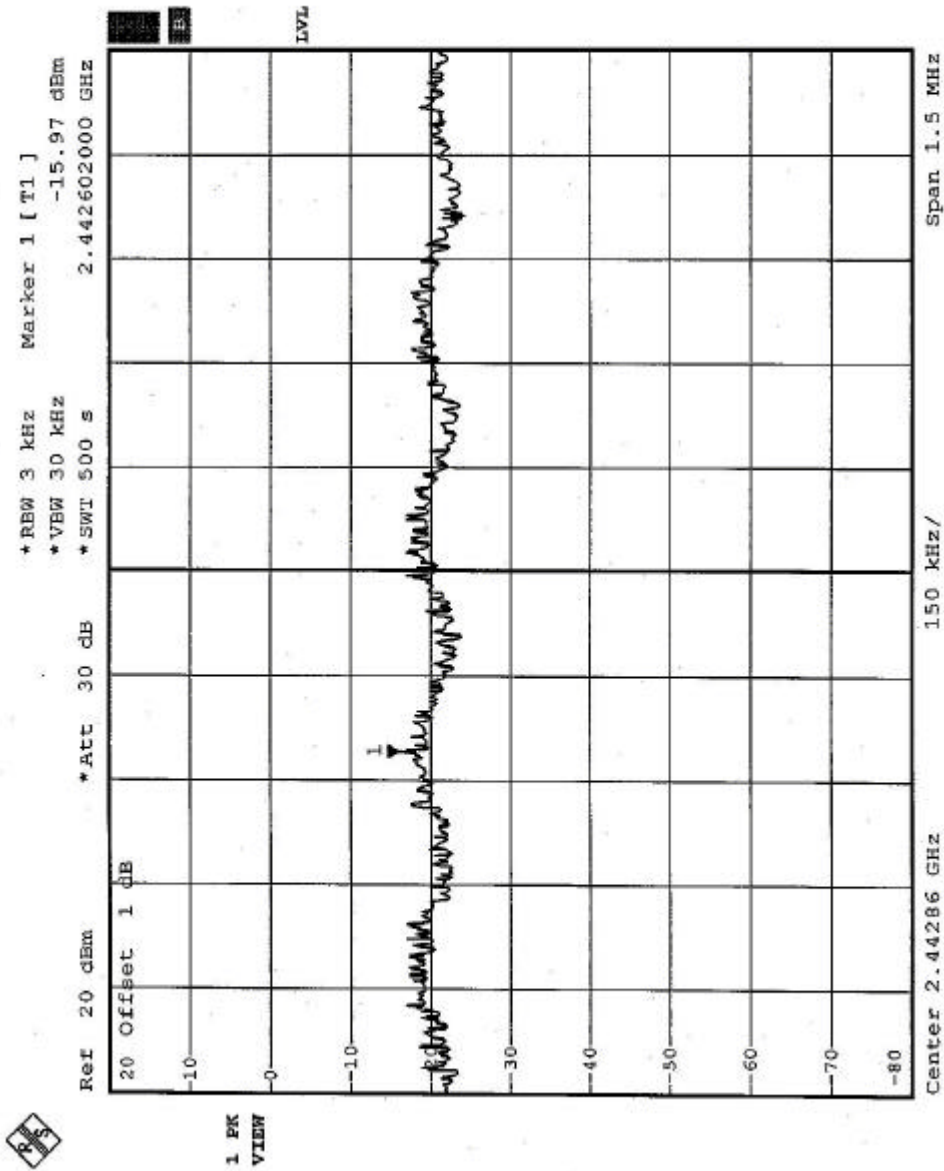


CH1



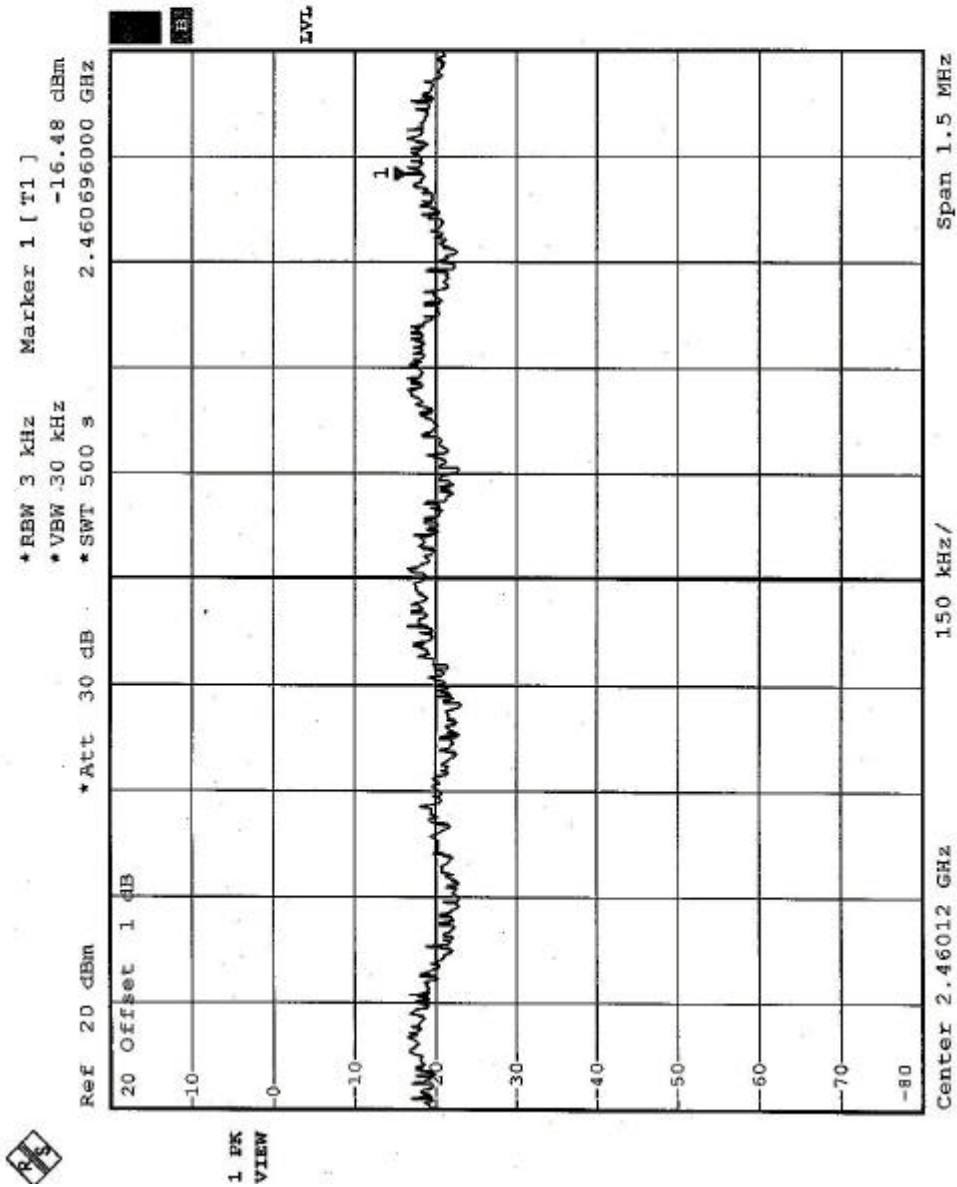


CH6





CH11





4.6 BAND EDGES MEASUREMENT

4.6.1 LIMITS OF BAND EDGES MEASUREMENT

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

4.6.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSP	1093.4495.30	Dec. 19, 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

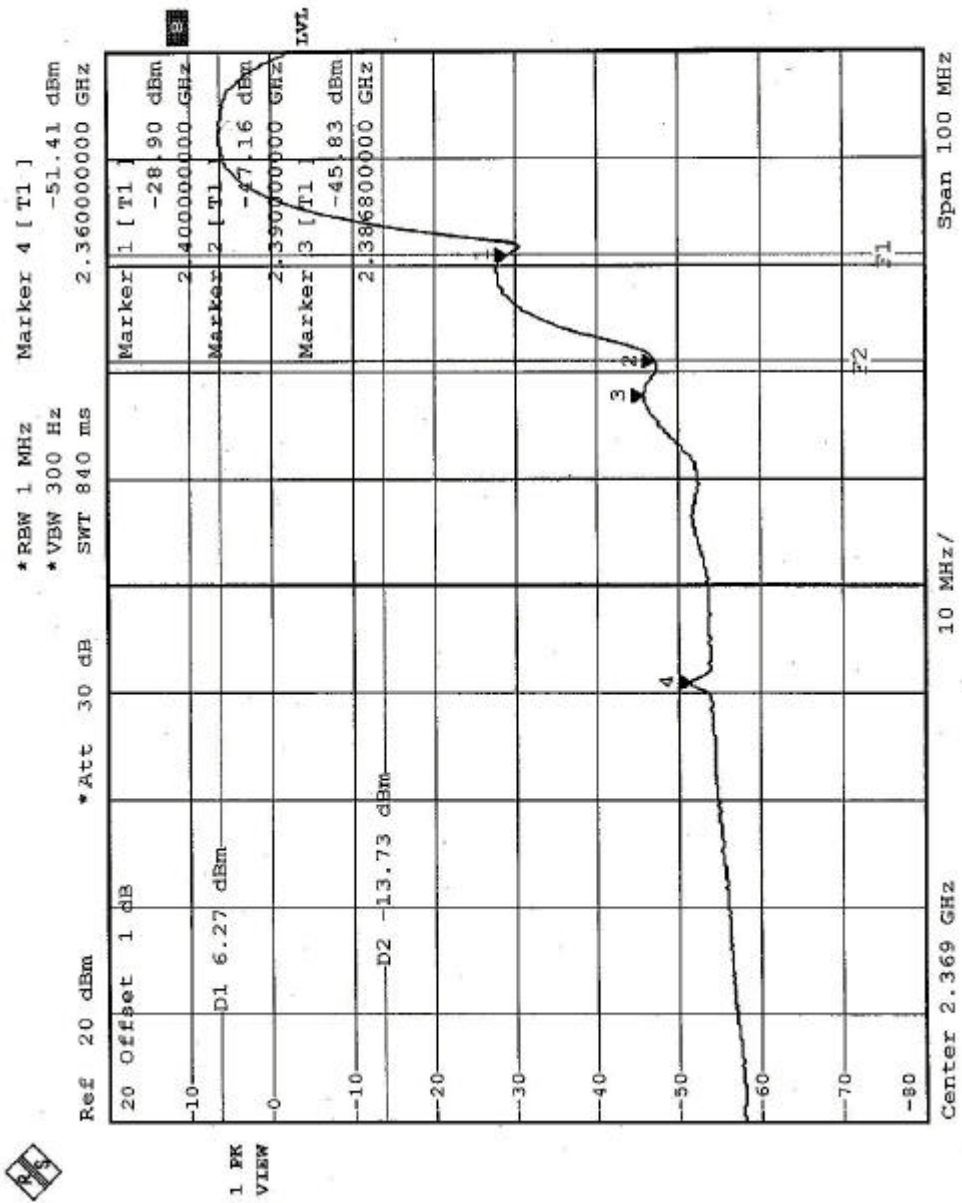
Same as Item 4.3.6

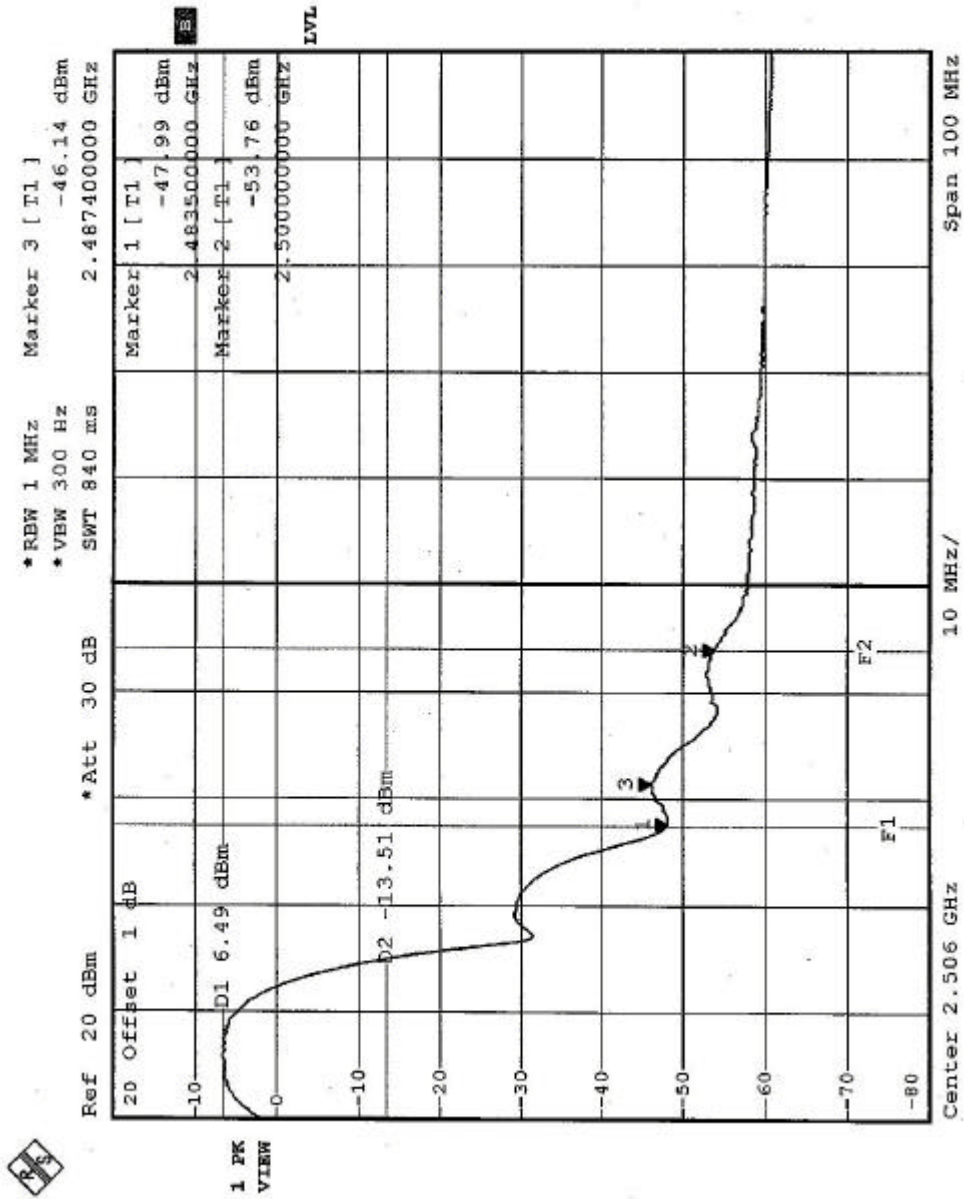
4.6.6 TEST RESULTS - DSSS

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

NOTE (1): The band edge emission plot on the following first page shows 52.1 dB delta between carrier maximum power and local maximum emission in restrict band (2.3868GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2 is 95.1dBuV/m, so the maximum field strength in restrict band is $95.1-52.1=43\text{dBuV/m}$ which is under 54 dBuV/m limit.

NOTE (2): The band edge emission plot on the following second page shows 50.63 dB delta between carrier maximum power and local maximum emission in restrict band (2.4874GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2 is 96.6dBuV/m, so the maximum field strength in restrict band is $96.6-50.63=45.97\text{dBuV/m}$ which is under 54 dBuV/m limit.







4.6.7 TEST RESULTS - OFDM

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

NOTE (1): The band edge emission plot on the following first page shows 45.73dB delta between carrier maximum power and local maximum emission in restrict band (2.390GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2 is 82dBuV/m, so the maximum field strength in restrict band is $82-45.73=36.27$ dBuV/m which is under 54 dBuV/m limit.

NOTE (2): The band edge emission plot on the following second page shows 47.26 dB delta between carrier maximum power and local maximum emission in restrict band (2.4836GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2 is 82.9dBuV/m, so the maximum field strength in restrict band is $82.9-47.26=35.64$ dBuV/m which is under 54 dBuV/m limit.

