



FCC TEST REPORT

REPORT NO.: RF920603R02

MODEL NO.: 802MR

802MR-W

RECEIVED: June 3, 2003

TESTED: June 5~July 8, 2003

APPLICANT: Qcom Technology Inc.

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0528
ILAC MRA

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1 CERTIFICATION

PRODUCT : Mini PCI 802.11b Wireless LAN Card
MODEL NO. : 802MR
802MR-W
BRAND NAME : Actiontec
TEST ITEM: ENGINEERING SAMPLE
APPLICANT : Qcom Technology Inc.
STANDARDS : 47 CFR Part 15, Subpart C (Section 15.247),
ANSI C63.4-1992

We, **Advance Data Technology Corporation**, hereby certify that one sample of the designation has been tested in our facility from June 5~July 8, 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.

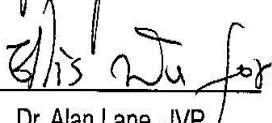
PREPARED BY:

A handwritten signature in black ink, appearing to read 'Stephanie'.

DATE:

July 16, 2003

APPROVED BY:

A handwritten signature in black ink, appearing to read 'Dr. Alan Lane, JVP'.

DATE:

July 16, 2003

2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: 47 CFR Part 15, Subpart C			
Standard Section	Test Type and Limit	Result	REMARK
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit Minimum passing margin is -15.10dBuV 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)	Transmitter Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit Minimum passing margin is -2.00dBuV at 88.00MHz
15.247(d)	Power Spectral Density Limit: max. 8dBm	PASS	Meet the requirement of limit
15.247(c)	Band Edge Measurement Limit: 20 dB less than the peak value of fundamental frequency	PASS	Meet the requirement of limit

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Mini PCI 802.11b Wireless LAN Card
MODEL NO.	802MR 802MR-W
POWER SUPPLY	3.3VDC from host equipment
MODULATION TYPE	CCK , DBPSK , DQPSK
TRANSFER RATE	1/2/5.5/11Mbps
FREQUENCY RANGE	2412MHz ~ 2462MHz
NUMBER OF CHANNEL	11
OUTPUT POWER	10.31dBm
ANTENNA TYPE	PIFA Antenna
DATA CABLE	NA
I/O PORTS	NA
ASSOCIATED DEVICES	NA

NOTE:

NOTE:

1. There are two PIFA antennas provided to this EUT. One is for antenna gain with 0.53dBi and another is for antenna gain with -1.61dBi.
2. The EUT was designed with two kinds of combination. Model 802MR-W was designed with LAN function, and model 802MR was designed with LAN and Modern function.
3. For more detailed features description, please refer to the manufacturer's specifications or User's Manual.

3.2 DESCRIPTION OF TEST MODES

Eleven channels are provided 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 1GHz, the channel 1, 6, and 11 were pre-tested in chamber. The channel 11, worst case one, was chosen for final test.
2. Above 1GHz, the channel 1, 6, and 11 were tested individually.
3. Data rate 11Mbps, the worst case, was chosen for final test.
4. Model NO.802MR is designs with modem part, the worde case was chosen for test.
5. The test result(A) is for antenna gain 0.53dBi, and the test result(B) is for antenna gain -1.61dBi.

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is an 802.11b Wireless LAN PC Card. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC 47 CFR Part 15, Subpart C. (15.247)

ANSI C63.4 : 1992

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

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



3.4 DESCRIPTION OF SUPPORT UNITS

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

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK	DELL	PP01L	TW-09C748-12800-19O-B220	FCC DoC APPROVED
2	PRINTER	EPSON	LQ-300+	DCGY017096	FCC DoC APPROVED
3	MODEM	ACEEX	1414	980020569	IFAXDM1414

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA
2	1.2m braid shielded wire, terminated with DB25 and Centronics connector via metallic frame, w/o core
3	1.2 m braid shielded wire, terminated with DB25 and DB9 connector via metallic frame, w/o core

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

4 TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dB μ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

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

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
ROHDE & SCHWARZ Test Receiver	ESCS30	847793/022	Mar. 10, 2004
ROHDE & SCHWARZ Artificial Mains Network (for EUT)	ESH2-Z5	828075/003	July 23, 2003
ROHDE & SCHWARZ 200-A Four-line V-Network	ENV4200	830326/018	Oct. 30, 2003
* ROHDE & SCHWARZ 4-wire ISN	ENY41	838119/028	Nov. 29, 2003
* ROHDE & SCHWARZ 2-wire ISN	ENY22	837497/018	Nov. 29, 2003
EMCO-L.I.S.N. (for peripheral)	3825/2	90031627	July 23, 2003
Software	Cond-V2M3	NA	NA
RF cable (JYEBAO)	5D-FB	Cable-C05.01	May. 23, 2004
LYNICS Terminator (For EMCO LISN)	0900510	E1-01-305	Feb. 23, 2004
LYNICS Terminator (For EMCO LISN)	0900510	E1-01-306	Feb. 23, 2004

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

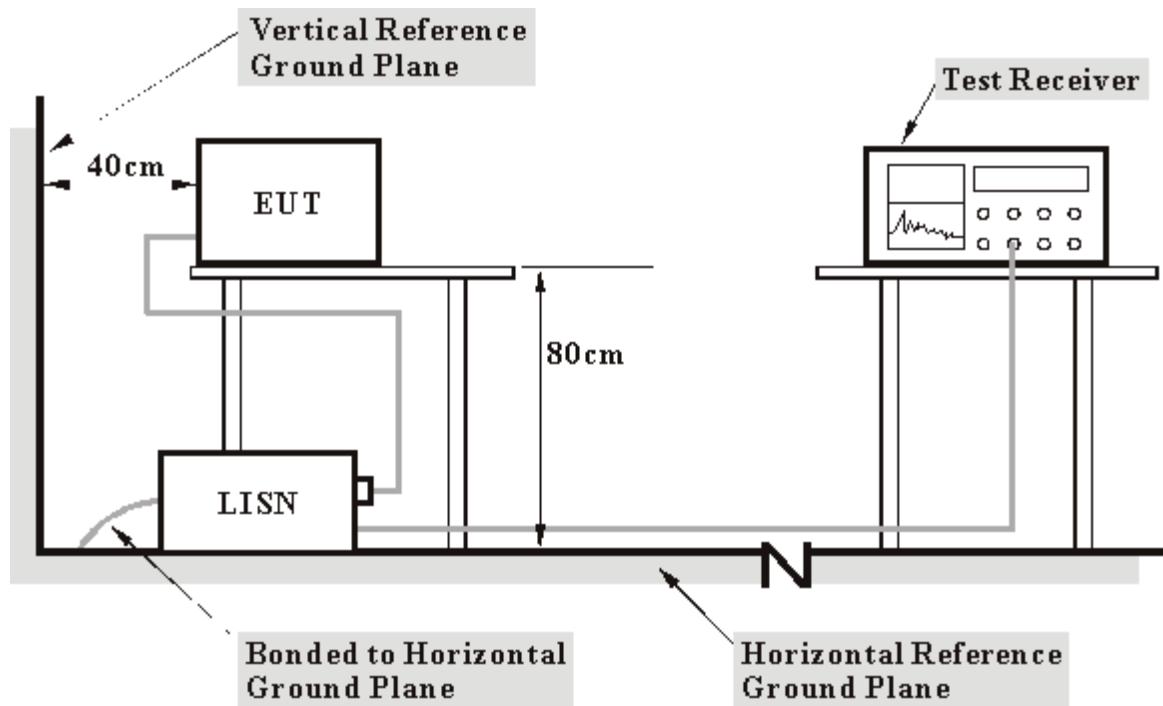
4.1.3 TEST PROCEDURES

- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- c. The frequency range from 150kHz to 30MHz 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

- Connected the EUT to a computer system placed on a testing table.
- The computer system ran a test program to enable EUT under transmission/receiving condition continuously at specific channel frequency.
- The computer system sent "H" messages to its screen.
- The computer system sent "H" messages to modem and printer and then printer prints them on paper.

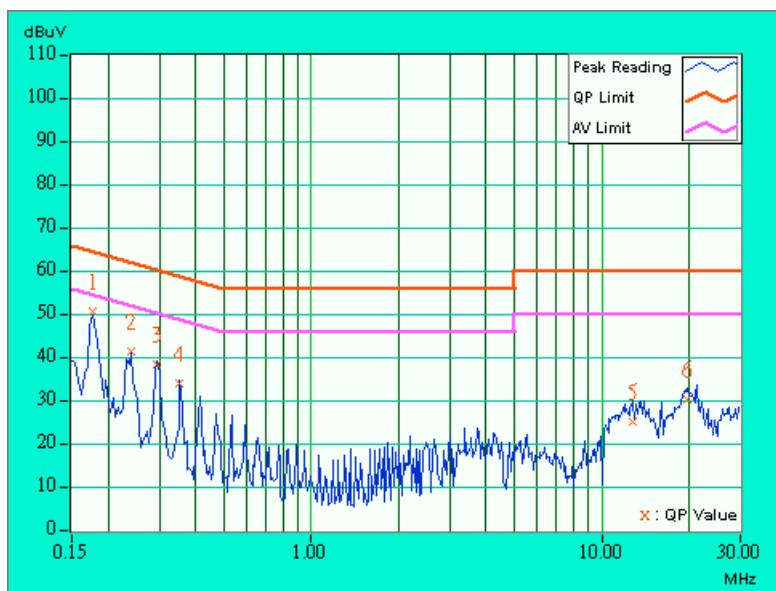
4.1.7 TEST RESULT

EUT	Mini PCI 802.11b Wireless LAN Card	MODEL	802MR
MODE	Channel 1	6dB BANDWIDTH	9kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 991hPa		TESTED BY: Gary Chang

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.177	0.18	49.33	-	49.51	-	64.61	54.61	-15.10	-
2	0.240	0.20	40.18	-	40.38	-	62.10	52.10	-21.72	-
3	0.295	0.20	37.37	-	37.57	-	60.40	50.40	-22.83	-
4	0.353	0.20	32.85	-	33.05	-	58.89	48.89	-25.84	-
5	12.840	0.86	23.98	-	24.84	-	60.00	50.00	-35.16	-
6	19.672	1.27	29.18	-	30.45	-	60.00	50.00	-29.55	-

REMARKS:

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

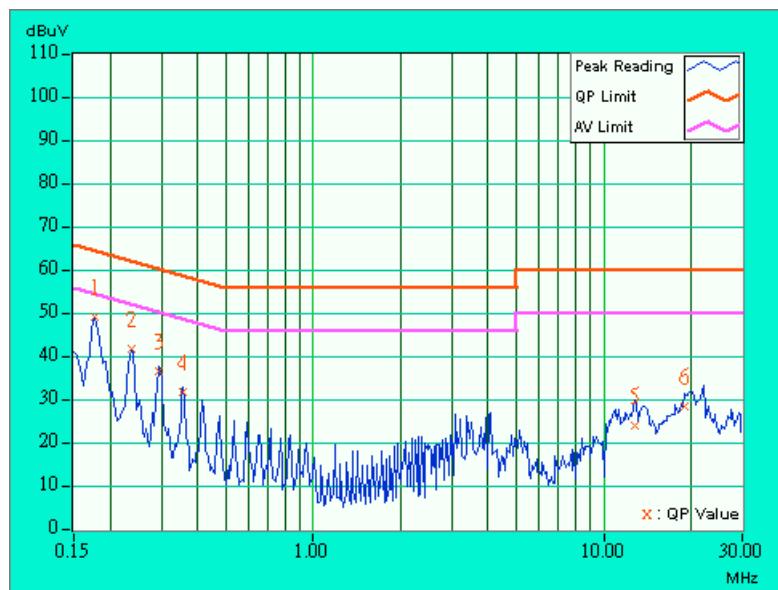


EUT	Mini PCI 802.11b Wireless LAN Card	MODEL	802MR
MODE	Channel 1	6dB BANDWIDTH	9kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 991hPa		TESTED BY: Gary Chang

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.177	0.18	48.51	-	48.69	-	64.61	54.61	-15.92	-
2	0.236	0.20	41.02	-	41.22	-	62.24	52.24	-21.02	-
3	0.295	0.20	35.82	-	36.02	-	60.40	50.40	-24.38	-
4	0.357	0.20	30.90	-	31.10	-	58.80	48.80	-27.70	-
5	12.797	0.60	22.99	-	23.59	-	60.00	50.00	-36.41	-
6	19.031	0.92	27.75	-	28.67	-	60.00	50.00	-31.33	-

REMARKS:

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

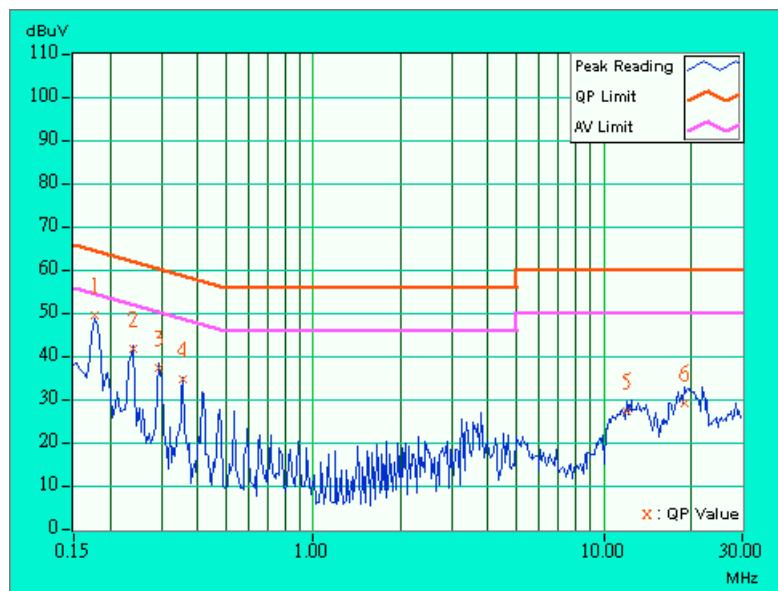


EUT	Mini PCI 802.11b Wireless LAN Card	MODEL	802MR
MODE	Channel 6	6dB BANDWIDTH	9kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 991hPa		TESTED BY: Gary Chang

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.177	0.18	48.29	-	48.47	-	64.61	54.61	-16.14	-
2	0.240	0.20	40.66	-	40.86	-	62.10	52.10	-21.24	-
3	0.295	0.20	36.25	-	36.45	-	60.40	50.40	-23.95	-
4	0.357	0.20	33.52	-	33.72	-	58.80	48.80	-25.08	-
5	12.000	0.84	26.36	-	27.20	-	60.00	50.00	-32.80	-
6	18.941	1.22	27.96	-	29.18	-	60.00	50.00	-30.82	-

REMARKS:

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

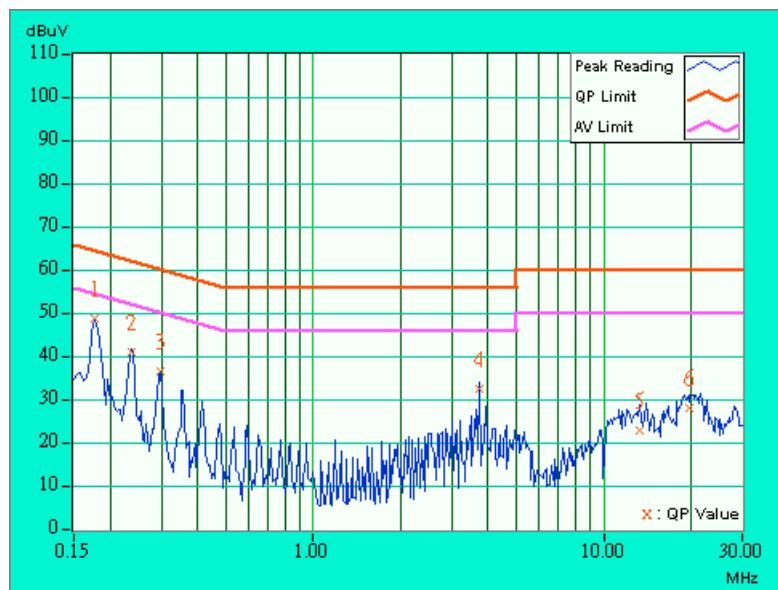


EUT	Mini PCI 802.11b Wireless LAN Card	MODEL	802MR
MODE	Channel 6	6dB BANDWIDTH	9kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 991hPa		TESTED BY: Gary Chang

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.177	0.18	48.09	-	48.27	-	64.61	54.61	-16.34	-
2	0.236	0.20	40.28	-	40.48	-	62.24	52.24	-21.76	-
3	0.298	0.20	35.64	-	35.84	-	60.29	50.29	-24.45	-
4	3.738	0.40	31.61	-	32.01	-	56.00	46.00	-23.99	-
5	13.336	0.60	21.92	-	22.52	-	60.00	50.00	-37.48	-
6	19.617	0.97	27.27	-	28.24	-	60.00	50.00	-31.76	-

REMARKS:

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

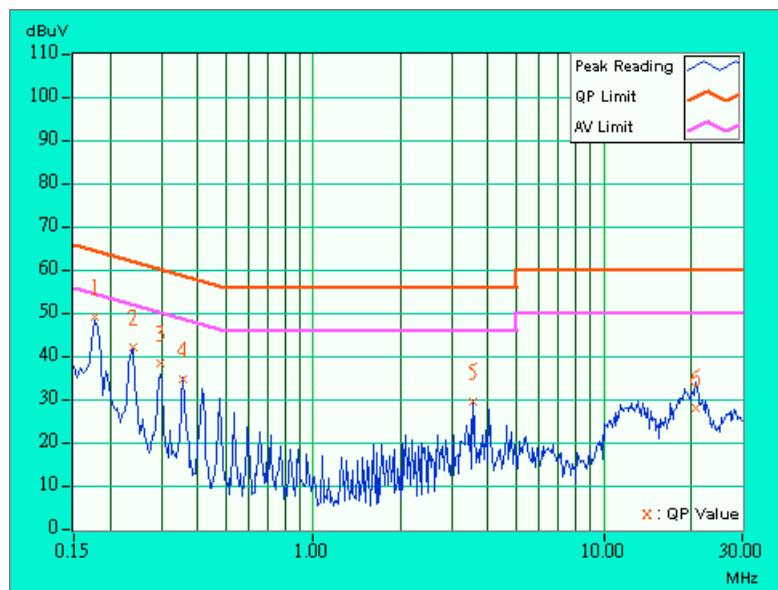


EUT	Mini PCI 802.11b Wireless LAN Card	MODEL	802MR
MODE	Channel 11	6dB BANDWIDTH	9kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 991hPa		TESTED BY: Gary Chang

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.177	0.18	47.97	-	48.15	-	64.61	54.61	-16.46	-
2	0.240	0.20	40.82	-	41.02	-	62.10	52.10	-21.08	-
3	0.298	0.20	37.15	-	37.35	-	60.29	50.29	-22.94	-
4	0.357	0.20	33.64	-	33.84	-	58.80	48.80	-24.96	-
5	3.566	0.48	28.21	-	28.69	-	56.00	46.00	-27.31	-
6	20.738	1.31	26.68	-	27.99	-	60.00	50.00	-32.01	-

REMARKS:

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

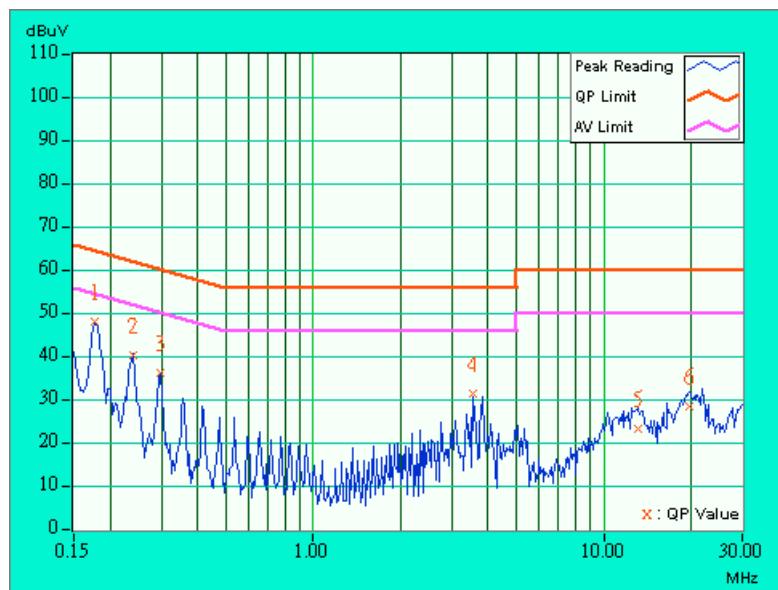


EUT	Mini PCI 802.11b Wireless LAN Card	MODEL	802MR
MODE	Channel 11	6dB BANDWIDTH	9kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 991hPa		TESTED BY: Gary Chang

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.177	0.18	47.07	-	47.25	-	64.61	54.61	-17.36	-
2	0.240	0.20	39.40	-	39.60	-	62.10	52.10	-22.50	-
3	0.298	0.20	35.42	-	35.62	-	60.29	50.29	-24.67	-
4	3.570	0.40	30.69	-	31.09	-	56.00	46.00	-24.91	-
5	13.137	0.60	22.37	-	22.97	-	60.00	50.00	-37.03	-
6	19.691	0.98	27.53	-	28.51	-	60.00	50.00	-31.49	-

REMARKS:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
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 (dB_uV/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, 2004
* HP Preamplifier	8447D	2944A08485	May 01, 2004
* HP Preamplifier	8449B	3008A01201	Dec. 01, 2003
* HP Preamplifier	8449B	3008A01292	Aug. 07, 2003
* Spectrum Analyzer	8593E	3926A04191	Mar. 24, 2004
* Test Receiver	ESI7	838496/016	Feb. 23, 2004
SCHAFFNER Tunable Dipole Antenna	VHBA 9123	459	Nov. 22, 2003
SCHWARZBECK Tunable Dipole Antenna	UHA 9105	977	
* CHASE BILOG Antenna	CBL6112A	2221	Aug. 02, 2003
* SCHWARZBECK Horn Antenna	BBHA9120-D1	D130	July 03, 2003
* EMCO Horn Antenna	3115	9312-4192	Mar. 23, 2004
* EMCO Turn Table	1060	1115	NA
* SHOSHIN Tower	AP-4701	A6Y005	NA
* Software	ADT_Radiated_V5.09	NA	NA
* ANRITSU RF Switches	MP59B	M35046	Jul. 11. 2003
* TIMES RF cable	LMR-600	CABLE-ST5-01	Jul. 11. 2003

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

2. “*” = These equipment are used for the final measurement.

3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.

4. The test was performed in ADT Open Site No. 5.

5. The VCCI Site Registration No. is R-1039.

4.2.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10 dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

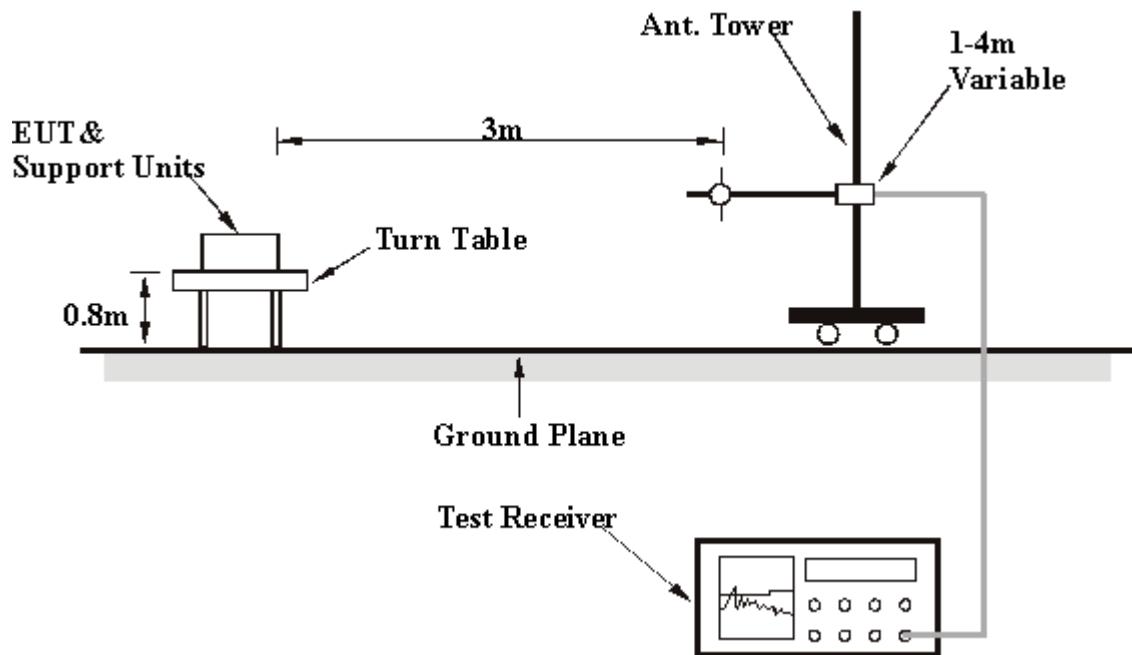
NOTE:

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

4.2.4 DEVIATION FROM TEST STANDARD

No deviation

4.2.5 TEST SETUP



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

4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6..

TRANSMITTER PARAMETERS

4.2.7 TEST RESULT (A)

EUT	Mini PCI 802.11b Wireless LAN Card	MODEL	802MR
MODE	Channel 11	FREQUENCY RANGE	Below 1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	27deg. C, 45%RH, 991hPa		TESTED BY: Steven Lu

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	88.00	38.0 QP	40.00	-2.00	2.10H	176	29.00	9.00
2	132.00	36.5 QP	43.50	-7.00	1.69H	167	24.60	12.00
3	176.00	31.9 QP	43.50	-11.60	1.57H	177	22.30	9.60
4	220.00	34.3 QP	46.00	-11.70	1.25H	165	23.30	11.00
5	264.00	39.2 QP	46.00	-6.80	1.12H	143	24.90	14.40
6	308.00	35.9 QP	46.00	-10.10	1.28H	137	21.10	14.70
7	352.00	40.4 QP	46.00	-5.60	1.00H	137	24.30	16.10
8	396.00	40.1 QP	46.00	-5.90	0.99H	159	22.70	17.40
9	440.00	38.6 QP	46.00	-7.40	1.00H	137	20.10	18.60
10	484.00	36.8 QP	46.00	-9.20	1.00H	109	17.40	19.40
11	528.05	33.7 QP	46.00	-12.30	1.00H	137	12.50	21.20
12	572.00	36.2 QP	46.00	-9.80	1.90H	214	14.20	22.00
13	616.00	33.1 QP	46.00	-12.90	1.32H	217	11.30	21.80
14	660.00	39.8 QP	46.00	-6.20	1.34H	285	17.20	22.60
15	704.00	32.9 QP	46.00	-13.10	1.28H	193	9.50	23.40
16	748.00	36.3 QP	46.00	-9.70	1.39H	244	11.60	24.70
17	792.00	35.0 QP	46.00	-11.00	1.18H	172	10.40	24.50
18	836.00	38.5 QP	46.00	-7.50	1.08H	167	13.10	25.40
19	880.00	34.7 QP	46.00	-11.30	1.00H	240	9.10	25.60
20	924.00	36.4 QP	46.00	-9.60	0.99H	209	10.20	26.20
21	968.00	35.0 QP	54.00	-19.00	1.70H	218	7.80	27.20

REMARKS: 1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)

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.

EUT	Mini PCI 802.11b Wireless LAN Card	MODEL	802MR
MODE	Channel 11	FREQUENCY RANGE	Below 1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	27deg. C, 45%RH, 991hPa		TESTED BY: Steven Lu

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	88.00	31.7 QP	40.00	-8.30	1.09V	341	22.70	9.00
2	132.00	34.4 QP	43.50	-9.10	1.53V	54	22.40	12.00
3	176.00	28.5 QP	43.50	-15.00	1.21V	54	18.90	9.60
4	220.01	32.5QP	46.00	-13.50	1.04V	281	21.50	11.00
5	264.00	30.3QP	46.00	-15.70	1.04V	82	16.00	14.30
6	308.00	29.8 QP	46.00	-16.20	1.42V	116	15.10	14.70
7	352.00	32.6 QP	46.00	-13.40	1.45V	109	16.60	16.10
8	396.00	31.6 QP	46.00	-14.40	1.33V	148	14.10	17.40
9	440.00	29.3 QP	46.00	-16.70	1.06V	129	10.70	18.60
10	484.00	34.3 QP	46.00	-11.70	1.16V	107	14.90	19.40
11	528.00	31.5 QP	46.00	-14.50	1.24V	206	10.40	21.20
12	572.00	31.8QP	46.00	-14.20	1.32V	71	9.90	22.00
13	616.00	31.0 QP	46.00	-15.00	1.50V	121	9.20	21.80
14	660.00	37.0 QP	46.00	-9.00	1.47V	268	14.40	22.60
15	704.00	28.1 QP	46.00	-17.90	1.47V	265	4.70	23.40
16	748.00	30.8 QP	46.00	-15.20	1.35V	61	6.20	24.70
17	792.00	30.1QP	46.00	-15.90	1.13V	273	5.50	24.50
18	836.00	33.6 QP	46.00	-12.40	1.00V	104	8.20	25.40
19	880.00	30.3 QP	46.00	-15.70	1.66V	84	4.80	25.60
20	924.00	32.1QP	46.00	-13.90	1.37V	235	5.90	26.20
21	968.00	32.9 QP	54.00	-21.10	1.42V	239	5.70	27.20

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.

EUT	Mini PCI 802.11b Wireless LAN Card	MODEL	802MR
MODE	Channel 1	FREQUENCY RANGE	Above 1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	30deg. C, 60%RH, 991hPa		TESTED BY: Hardaway 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	455.0 PK	74.00	-8.50	1.35 H	199	15.90	29.60
2	*2412.00	104.5 PK			1.35 H	199	74.80	29.70
2	*2412.00	97.5 AV			1.35 H	199	67.90	29.60
3	4824.00	62.0 PK	74.00	-12.00	1.35 H	199	26.80	35.30
3	4824.00	48.7 AV	54.00	-5.30	1.35 H	199	13.50	29.70

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	*2412.00	99.8 PK			1.22 V	254	70.10	29.70
1	*2412.00	95.3 AV			1.22 V	254	65.60	29.70
2	4824.00	60.8 PK	74.00	-13.20	1.24 V	111	25.50	35.30
2	4824.00	47.2 AV	54.00	-6.80	1.24 V	111	11.90	35.30

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.
5. “*”: Fundamental frequency.

EUT		Mini PCI 802.11b Wireless LAN Card	MODEL	802MR
MODE		Channel 6	FREQUENCY RANGE	Above 1000 MHz
INPUT POWER (SYSTEM)		120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS		30deg. C, 60%RH, 991hPa	TESTED BY: Hardaway 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			1.87 H	65	68.90	29.70
1	*2437.00	91.5 AV			1.87 H	65	61.80	29.70
2	4874.00	61.6 PK	74.00	-12.40	1.52 H	121	26.20	35.50
2	4874.00	48.4 AV	54.00	-5.60	1.52 H	121	12.90	35.50

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	98.2 PK			1.00 V	106	68.40	29.70
1	*2437.00	91.2 AV			1.00 V	106	61.40	29.70
2	4874.00	62.5 PK	74.00	-11.50	1.51 V	190	27.10	35.50
2	4874.00	49.2 AV	54.00	-4.80	1.51 V	190	13.80	35.50
3	7310.00	54.1 PK	74.00	-19.90	1.17 V	190	12.80	41.30
3	7310.00	40.9 AV	54.00	-13.10	1.17 V	190	-0.40	41.30

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.
5. “*”: Fundamental frequency.

EUT		Mini PCI 802.11b Wireless LAN Card	MODEL	802MR	
MODE		Channel 11	FREQUENCY RANGE	Above 1000 MHz	
INPUT POWER (SYSTEM)		120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)	
ENVIRONMENTAL CONDITIONS		30deg. C, 60%RH, 991hPa	TESTED BY: Hardaway 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	*2462.00	102.6 PK			1.35 H	199	72.70	29.80
1	*2462.00	95.0 AV			1.35 H	199	65.20	29.80
3	4923.00	60.7 PK	74.00	-13.30	1.18 H	99	25.00	35.70
3	4923.00	46.7 AV	54.00	-7.30	1.18 H	99	11.00	29.90
4	7384.00	52.6 PK	74.00	-21.40	1.71 H	199	11.10	41.50

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	*2462.00	96.1 PK			1.35 V	199	66.30	29.80
1	*2462.00	88.9 AV			1.35 V	199	59.10	29.80
2	4924.00	62.9 PK	74.00	-11.10	1.35 V	199	27.20	35.70
2	4924.00	49.1 AV	54.00	-4.90	1.35 V	199	13.40	35.70

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.
5. “*”: Fundamental frequency.

4.2.8 TEST RESULT(B)

EUT	Mini PCI 802.11b Wireless LAN Card	MODEL	802MR
MODE	Channel 11	FREQUENCY RANGE	Below 1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak/Average
ENVIRONMENTAL CONDITIONS	27deg. C, 45%RH, 991hPa		TESTED BY: Steven Lu

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	88.00	36.5 QP	40.00	-3.50	2.20H	198	27.30	9.20
2	132.00	35.0 QP	43.50	-8.50	1.75H	13	22.80	12.20
3	176.00	34.0 QP	43.50	-9.50	1.88H	19	24.00	10.00
4	220.00	33.2 QP	46.00	-12.80	2.01H	211	21.90	11.30
5	264.00	36.2 QP	46.00	-9.80	1.66H	328	22.00	14.20
6	308.01	34.6 QP	46.00	-11.40	1.13H	195	19.90	14.70
7	352.01	38.4 QP	46.00	-7.60	1.28H	317	22.70	15.80
8	440.01	37.8 QP	46.00	-8.20	1.01H	137	19.80	18.00
9	484.01	37.6 QP	46.00	-8.40	1.00H	124	18.70	18.90
10	528.02	28.9 QP	46.00	-17.10	1.15H	354	8.80	20.10
11	572.01	31.5 QP	46.00	-14.50	1.00H	9	10.80	20.70
12	660.00	43.0 QP	46.00	-3.00	1.78H	332	21.70	21.30
13	704.00	24.1 QP	46.00	-21.90	1.68H	302	2.60	21.60
14	748.00	36.8 QP	46.00	-9.20	1.42H	220	14.50	22.30
15	836.00	38.7 QP	46.00	-7.30	1.21H	255	15.80	22.90
16	880.00	35.3 QP	46.00	-10.70	1.13H	253	12.20	23.10
17	924.00	40.6 QP	46.00	-5.40	1.22H	287	17.10	23.50
18	968.00	54.0 QP	46.00	-17.10	1.14H	260	13.00	23.80

REMARKS:

1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
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.

EUT	Mini PCI 802.11b Wireless LAN Card	MODEL	802MR
MODE	Channel 11	FREQUENCY RANGE	Below 1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak/Average
ENVIRONMENTAL CONDITIONS	27deg. C, 45%RH, 991hPa		TESTED BY: Steven Lu

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	88.02	30.1 QP	43.5	-13.4	1.31V	170	20.9	9.2
2	132.02	27.0 QP	43.5	-16.5-	1.05V	357	14.7	12.2
3	176.02	27.2 QP	43.5	16.5	1.00V	45	17.2	10.0
4	220.02	23.8 QP	46.0	-22.2-	2.07V	124	12.5	11.3
5	264.02	30.0 QP	46.00	-16.0	1.92V	275	15.8	14.2
6	308.02	24.3 QP	46.00	-21.7	1.48V	2	9.6	14.7
7	352.02	30.3 QP	46.00	-15.7	1.02V	356	14.6	15.8
8	396.02	28.6 QP	46.00	-17.4	1.54V	151	11.1	17.5
9	440.02	27.8 QP	46.00	-18.2	1.27V	121	9.7	18.0
10	484.02	29.2 QP	46.00	-16.8	1.32V	133	10.3	18.9
11	528.02	24.8 QP	46.00	-21.2	1.43V	256	4.6	20.1
12	572.02	25.5 QP	46.00	-20.5	1.23V	244	4.8	20.7
13	660.02	38.6 QP	46.00	-7.4	1.67V	262	17.4	21.3
14	704.02	23.1 QP	46.00	-22.9	1.70V	167	1.6	21.6
15	748.02	27.9 QP	46.00	-18.1	1.50V	106	5.6	22.3
16	836.02	28.5 QP	46.00	-17.5	1.31V	269	5.7	22.9
17	880.02	27.2 QP	46.00	-18.8	1.00V	65	4.1	23.1
18	924.02	33.9 QP	46.00	-12.1	1.25V	38	10.4	23.5
19	968.02	25.9 QP	54.0	-28.1	2.03V	272	2.1	23.8

REMARKS: 1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)

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.

EUT	Mini PCI 802.11b Wireless LAN Card	MODEL	802MR
MODE	Channel 1	FREQUENCY RANGE	Above 1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak/Average
ENVIRONMENTAL CONDITIONS	30deg. C, 60%RH, 991hPa		TESTED BY: Hardaway 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	53.6 PK	74.00	-20.40	1.28 H	321	24.00	29.60
1	2390.00	45.7 AV	54.00	-8.30	1.28 H	321	16.10	29.60
2	*2412.00	104.0 PK			1.28 H	321	74.30	29.70
2	*2412.00	96.1 AV			1.28 H	321	66.50	29.70
3	4824.00	59.3 PK	74.00	-14.70	1.33 H	221	24.10	35.30
3	4824.00	45.7 AV	54.00	-8.30	1.33 H	221	10.40	35.30

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	*2412.00	99.6 PK			1.00 V	98	69.90	29.70
1	*2412.00	92.1 AV			1.00 V	98	62.40	29.70
2	4824.00	65.1 PK	74.00	-8.90	1.24 V	87	29.80	35.30
2	4824.00	51.3 AV	54.00	-2.70	1.24 V	87	16.00	35.30

REMARKS:

1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
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.

EUT	Mini PCI 802.11b Wireless LAN Card	MODEL	802MR
MODE	Channel 6	FREQUENCY RANGE	Above 1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak/Average
ENVIRONMENTAL CONDITIONS	30deg. C, 60%RH, 991hPa		TESTED BY: Hardaway 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	104.6 PK			1.11 H	222	74.90	29.70
1	*2437.00	94.5 AV			1.11 H	222	64.80	29.70
2	4874.00	60.1 PK	74.00	-13.90	1.17 H	147	24.60	35.50
2	4874.00	46.2 AV	54.00	-7.80	1.17 H	147	10.80	35.50

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	98.9 PK			1.00 V	181	69.20	29.70
1	*2437.00	91.8 AV			1.00 V	181	62.10	29.70
2	4874.00	64.8 PK	74.00	-9.20	1.17 V	147	29.40	35.50
2	4874.00	51.4 AV	54.00	-2.60	1.17 V	147	15.90	35.50

REMARKS:

1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
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.

EUT	Mini PCI 802.11b Wireless LAN Card	MODEL	802MR
MODE	Channel 11	FREQUENCY RANGE	Above 1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak/Average
ENVIRONMENTAL CONDITIONS	30deg. C, 60%RH, 991hPa		TESTED BY: Hardaway 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	*2462.00	105.1 PK			1.13 H	88	75.20	29.80
1	*2462.00	97.9 AV			1.13 H	88	68.00	29.80
2	2483.50	55.4 PK	74.00	-18.60	1.13 H	88	25.50	29.90
2	2483.50	48.2 AV	54.00	-5.80	1.13 H	88	18.30	29.90
3	4924.00	60.9 PK	74.00	-13.10	1.28 H	321	25.20	35.70
3	4924.00	47.3 AV	54.00	-6.70	1.28 H	321	11.70	35.70

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	*2462.00	99.5 PK			1.13 V	188	69.70	29.80
1	*2462.00	91.9 AV			1.13 V	188	62.00	29.80
2	4924.00	60.4 PK	74.00	-13.60	1.63 V	117	24.70	35.70
2	4924.00	46.5 AV	54.00	-7.50	1.63 V	117	10.80	35.70

REMARKS:

1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
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.

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: 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 6dB.

4.3.4 DEVIATION FROM TEST STANDARD

No deviation

4.3.5 TEST SETUP



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

4.3.6 EUT OPERATING CONDITIONS

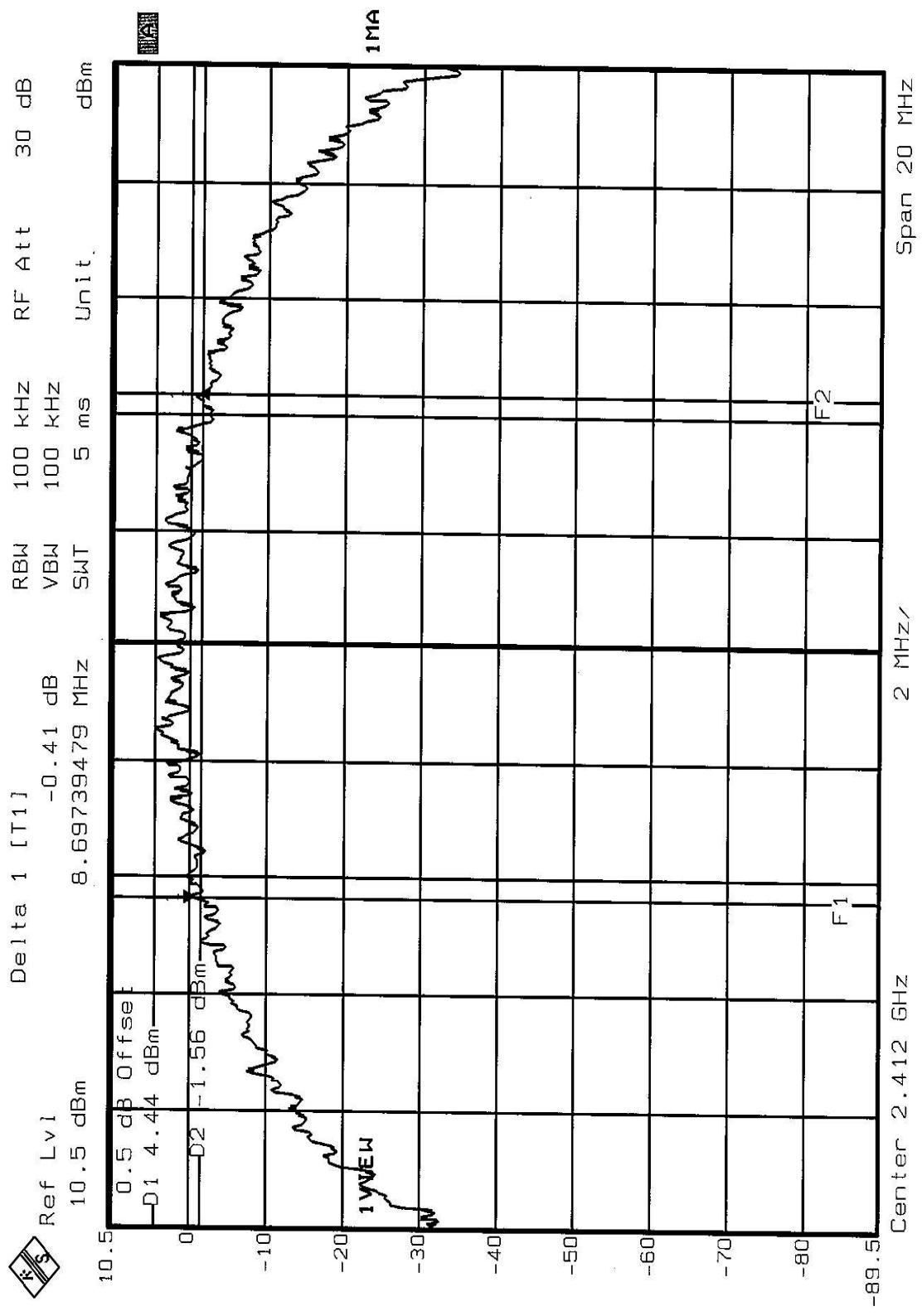
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.3.7 TEST RESULT

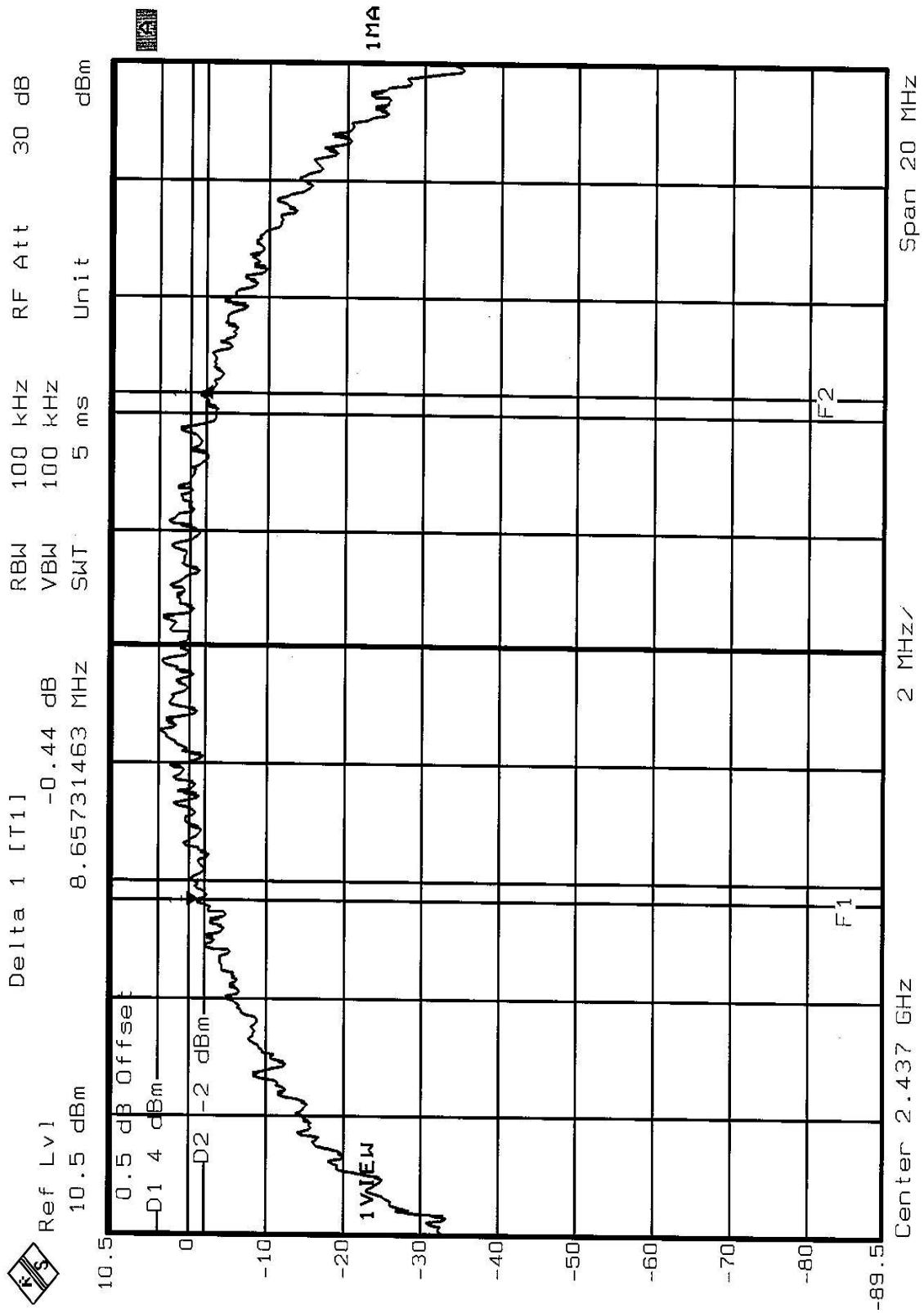
EUT	Mini PCI 802.11b Wireless LAN Card	MODEL	802MR
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 991hPa
TESTED BY: Cody Chang			

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	8.697	0.5	PASS
6	2437	8.657	0.5	PASS
11	2462	9.419	0.5	PASS

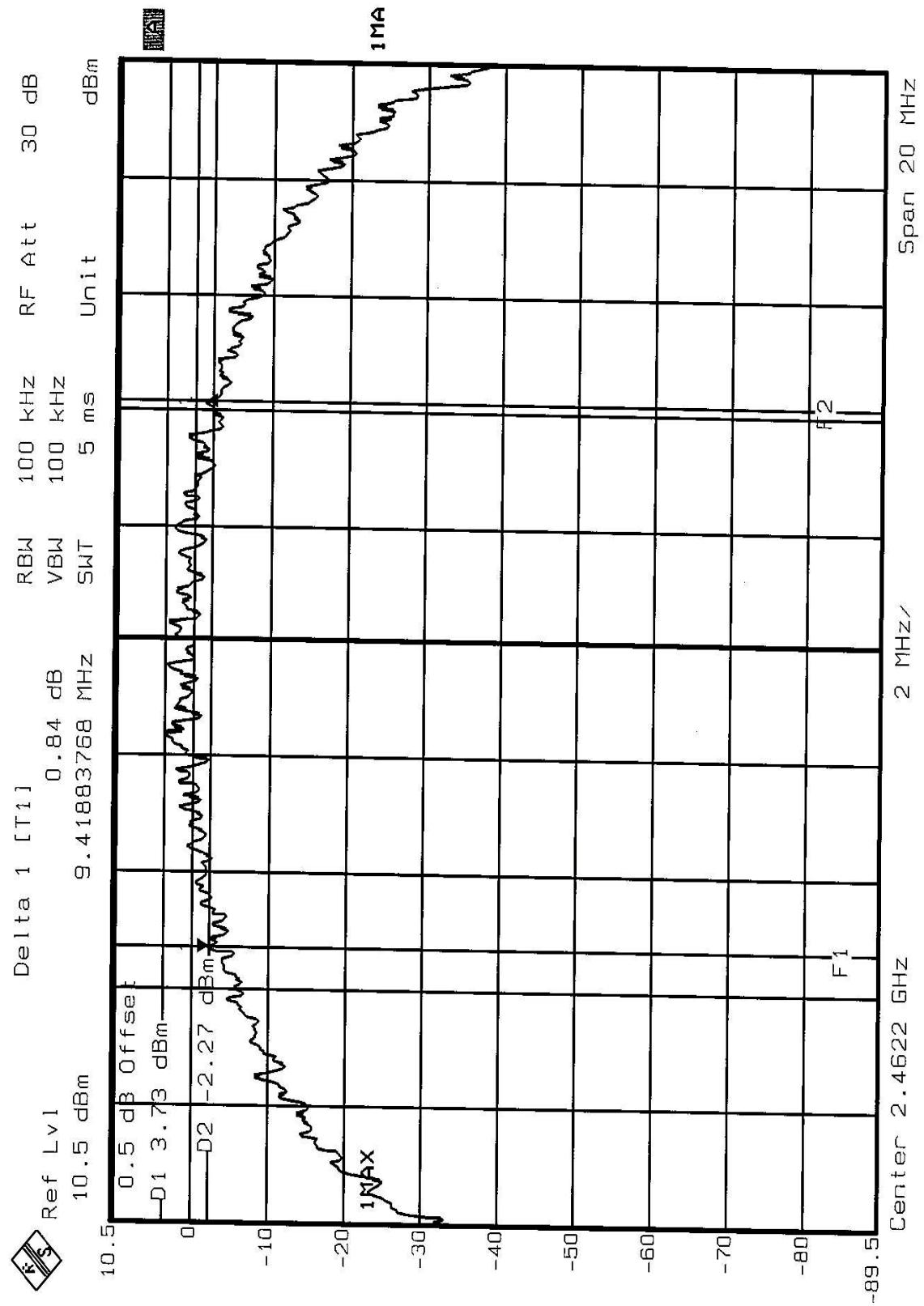
CH1



CH6



CH11



4.4 MAXIMUM PEAK OUTPUT POWER

4.4.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 30dBm.

4.4.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSEK30	100049	Jul. 24, 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

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 6dB.

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 RESULT

EUT	Mini PCI 802.11b Wireless LAN Card	MODEL	802MR
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 991hPa
TESTED BY: Steven Lu			

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	10.23	30	PASS
6	2437	10.31	30	PASS
11	2462	10.20	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: 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

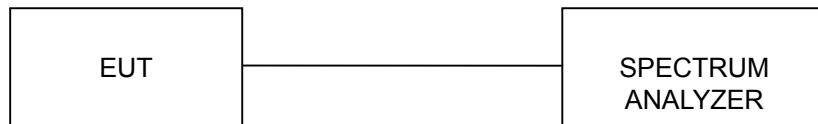
The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3kHz RBW and 30kHz VBW, set sweep time=span/3kHz. The power spectral density was measured and recorded.

The sweep time is allowed to be longer than span/3KHz for a full response of the mixer in the spectrum analyzer.

4.5.4 DEVIATION FROM TEST STANDARD

No deviation

4.5.5 TEST SETUP



4.5.6 EUT OPERATING CONDITIONS

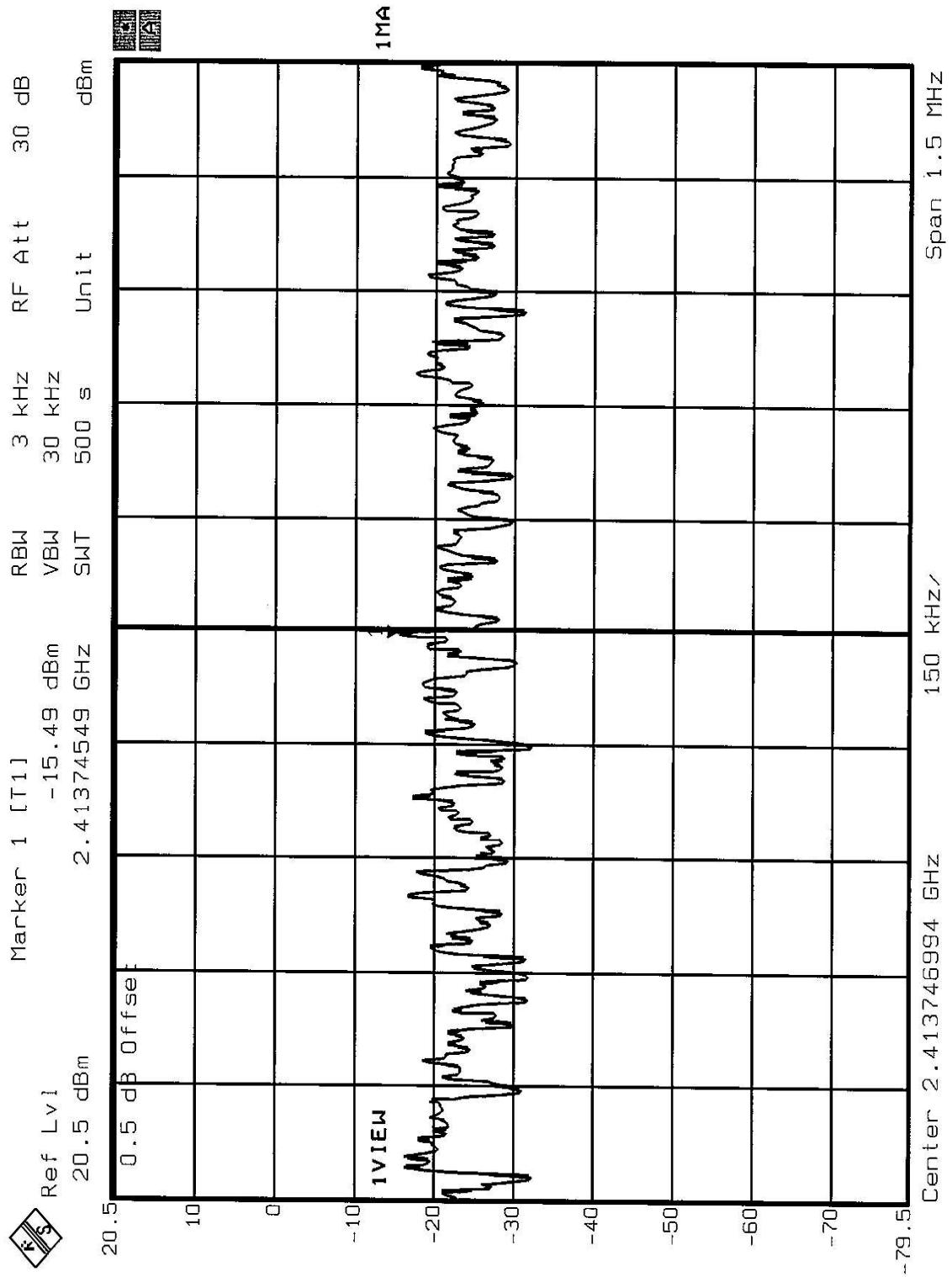
Same as 4.3.6

4.5.7 TEST RESULT

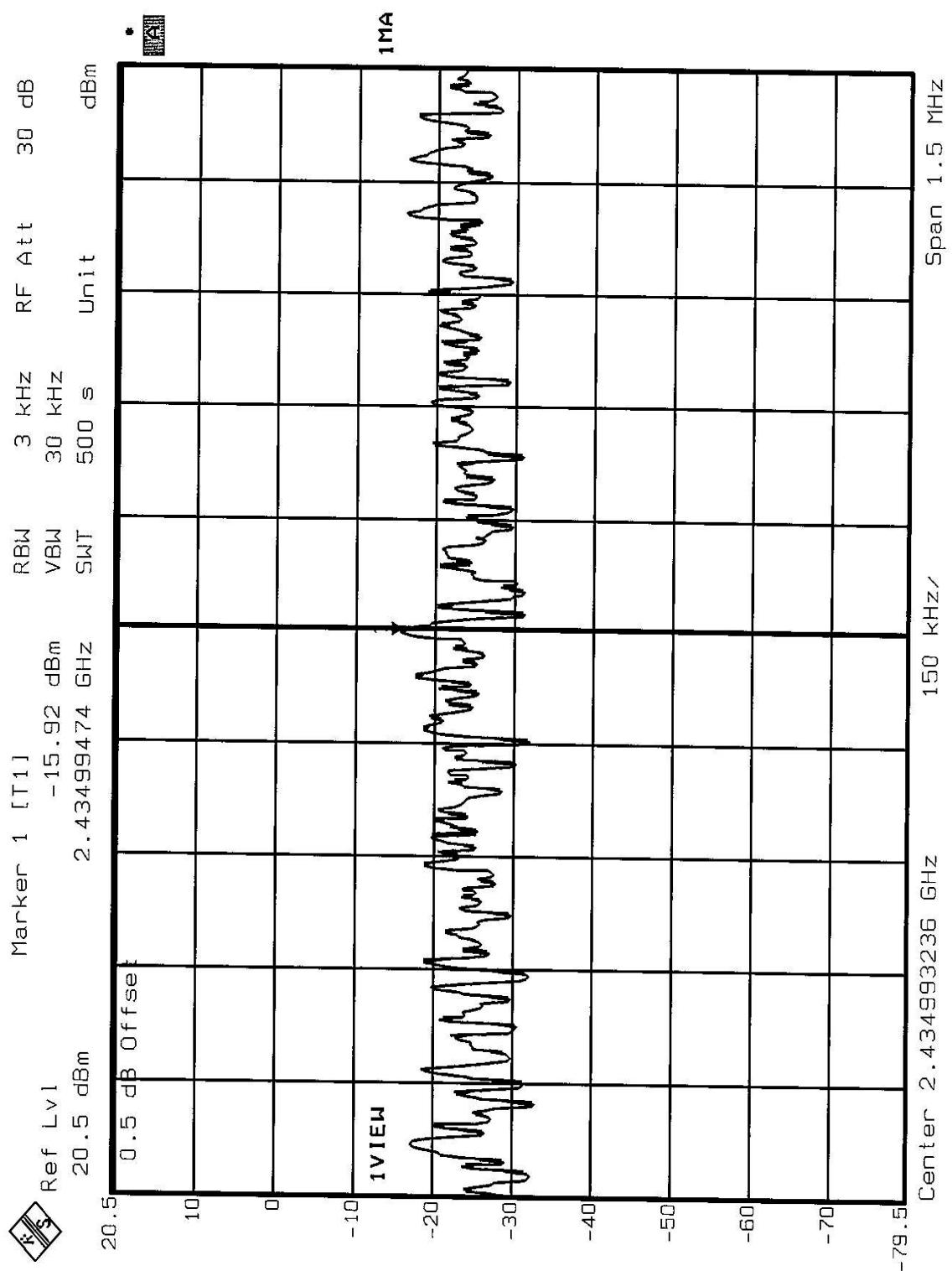
EUT	Mini PCI 802.11b Wireless LAN Card	MODEL	802MR
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	28deg. C, 59%RH, 991hPa
TESTED BY: Ansen Lei			

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-15.49	8	PASS
6	2437	-15.92	8	PASS
11	2462	-16.31	8	PASS

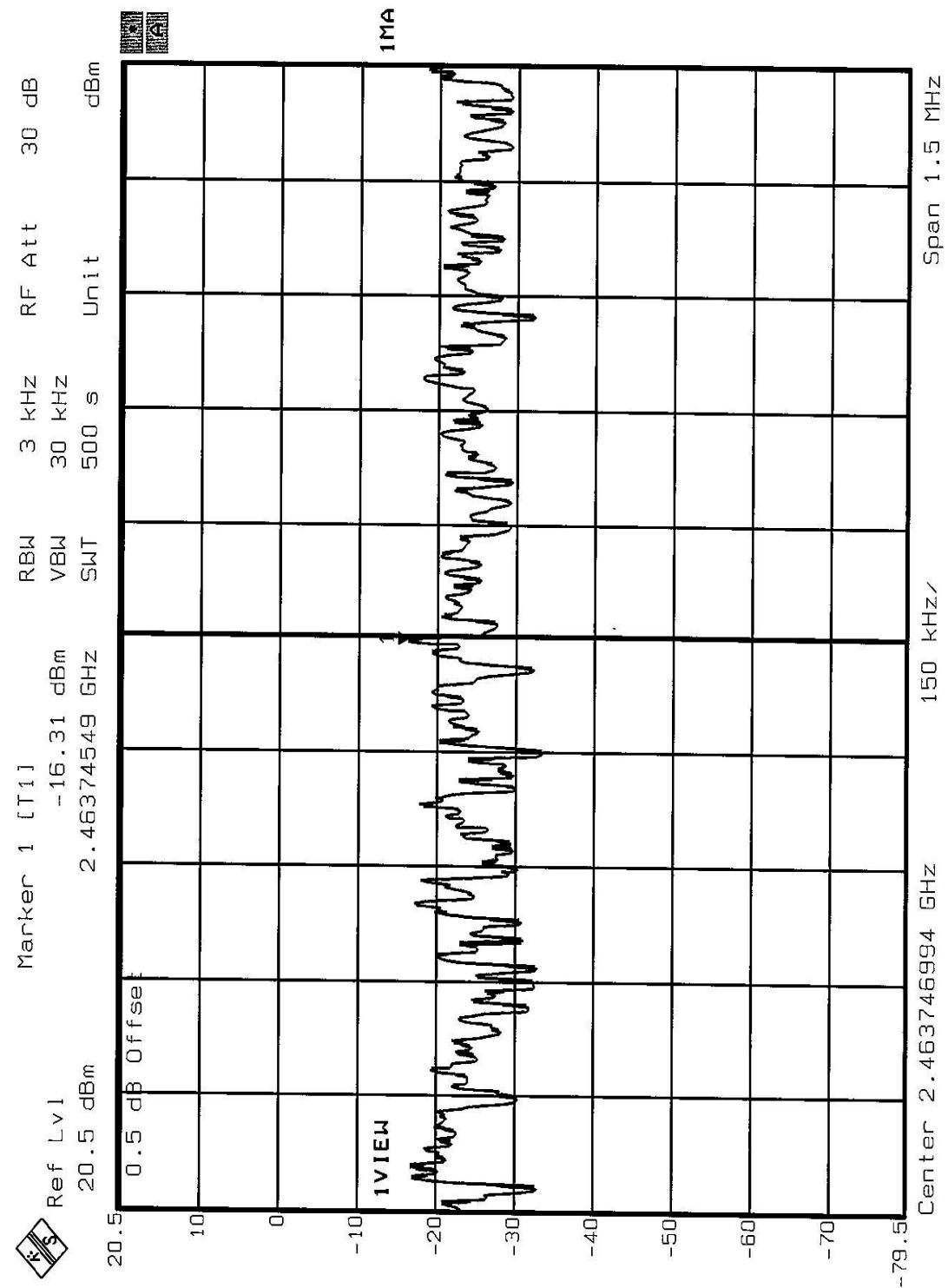
CH1



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
SPECTRUM ANALYZER	FSEK30	100049	July 24, 2003

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

4.6.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer via a low loss cable. Set both RBW and VBW of spectrum analyzer to 100kHz with suitable frequency span including 100kHz bandwidth from band edge. The band edges was measured and recorded.

4.6.4 DEVIATION FROM TEST STANDARD

No deviation

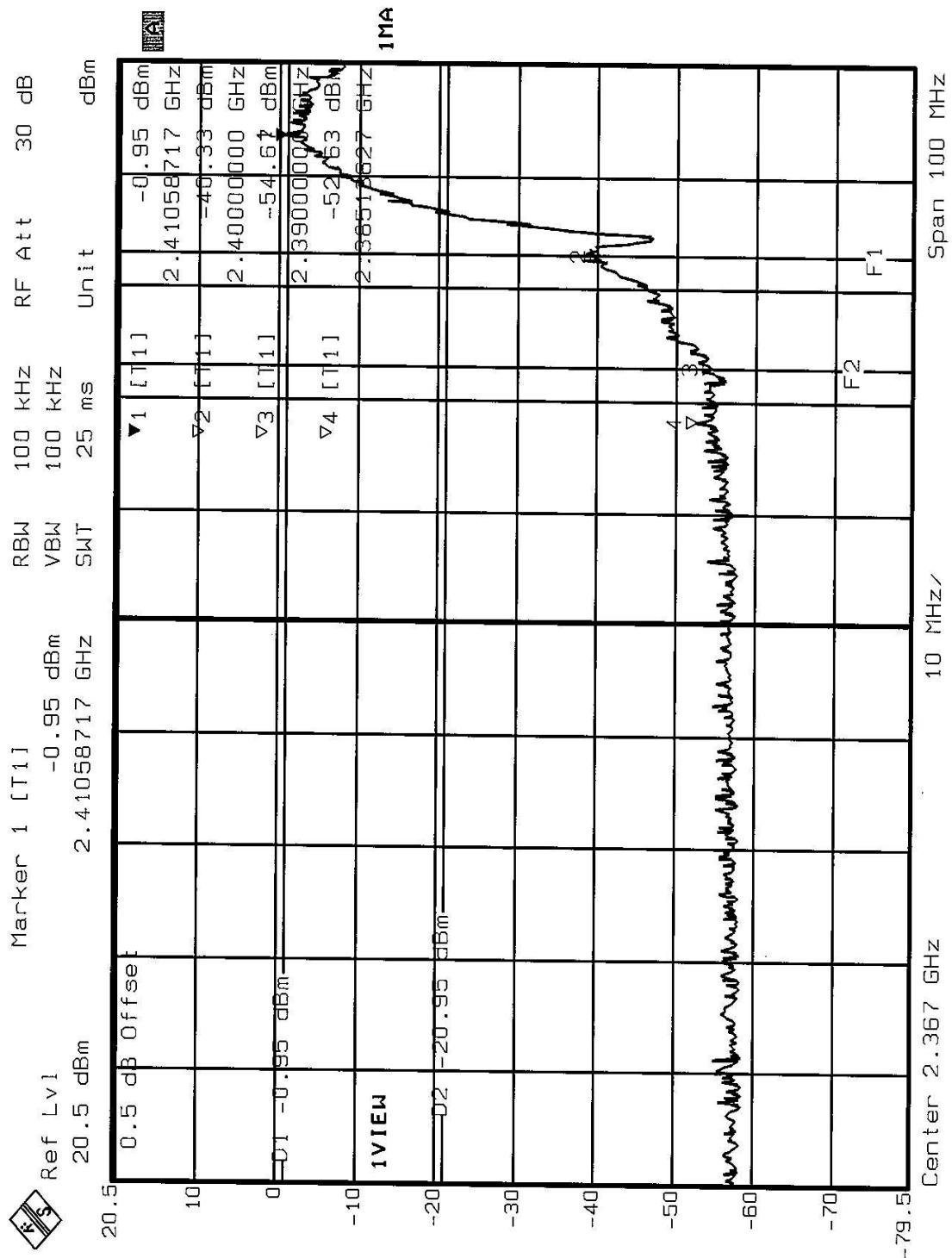
4.6.5 EUT OPERATING CONDITION

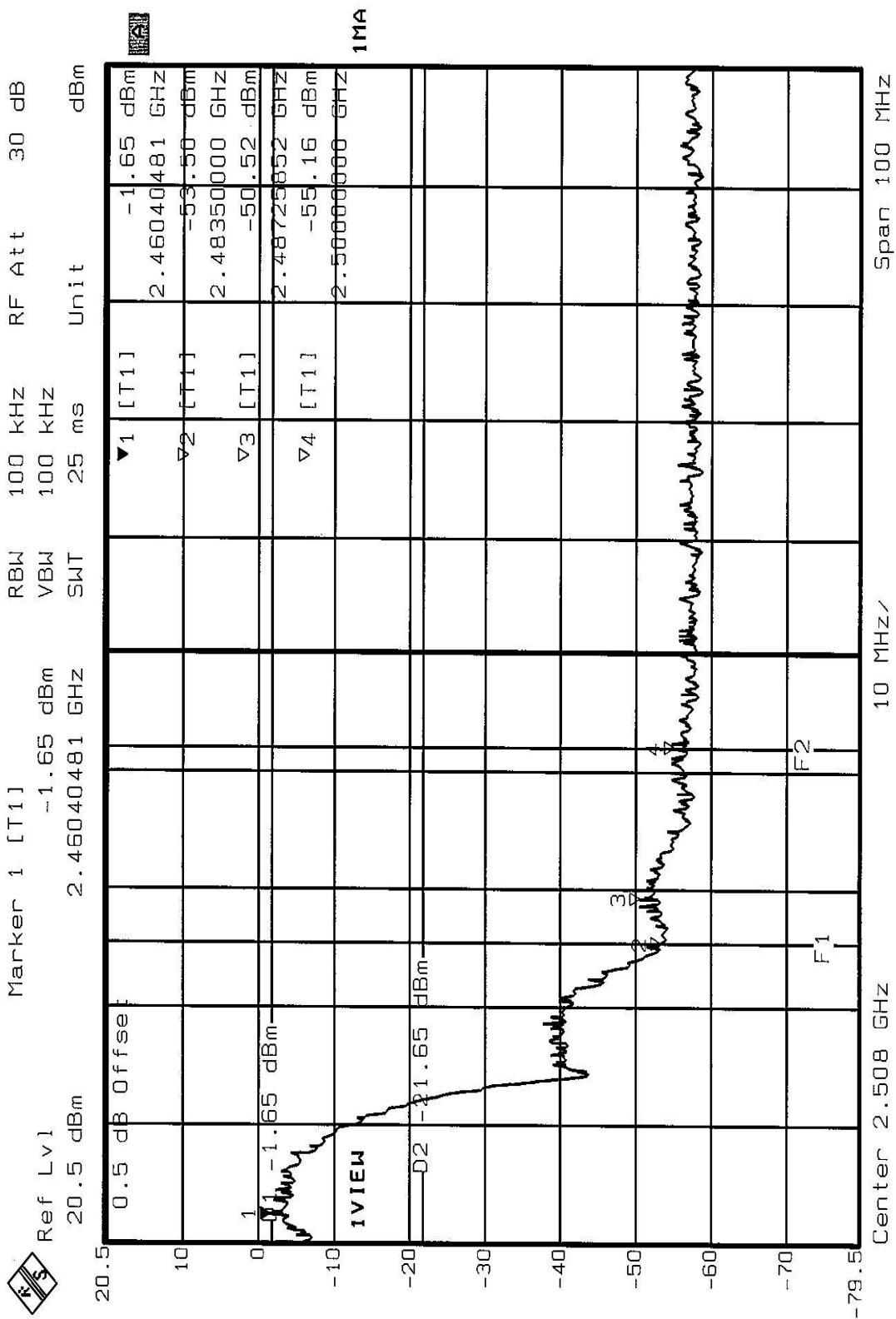
Same as Item 4.3.6

4.6.6 TEST RESULT

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

NOTE: The band edge emission plot on the following two pages shows 51.68dB / 48.87dB delta between carrier maximum power and local maximum emission in restrict band (2.3851GHz / 2.4872GHz). The emission of carrier strength list in the test result of channel 11at the item 4.2.7 is 97.9dBuV/m, so the maximum field strength in restrict band is $97.9 - 48.87 = 49.03$ dBuV/m which is under 54dBuV/m limit.





4.7 ANTENNA REQUIREMENT

4.7.1 STANDARD APPLICABLE

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

4.7.2 ANTENNA CONNECTED CONSTRUCTION

The antenna type used in this product is PIFA antenna with UFL antenna connector. The maximum Gain of this antenna is only 0.53dBi.

5 PHOTOGRAPHS OF THE TEST CONFIGURATION

CONDUCTED EMISSION TEST(model 1)





(model 2)



FCC ID: QP7-802MR



RADIATED EMISSION TEST
(model 1)





(model 2)



FCC ID: QP7-802MR





6. INFORMATION ON THE TESTING LABORATORIES

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

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

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site:

www.adt.com.tw/index.5/phtml.

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

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Fax: 886-35-935342

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Tel: 886-3-3270910
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Email: service@mail.adt.com.tw
Web Site: www.adt.com.tw

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