



FCC TEST REPORT

REPORT NO.: RF900809R01

MODEL NO.: LM-WP200 (for DELTA)
MA401 rev.B (for Netgear)

RECEIVED: August 9, 2001

TESTED: August 17~ August 22, 2001

APPLICANT: DELTA NETWORKS, INC.

ADDRESS: 8, Kon Jan West Road, Liutu Industrial Zone Keelung,
Taiwan, R.O.C.

ISSUED BY: Advance Data Technology Corporation

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

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0528



Lab Code: 200102-0

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1 CERTIFICATION

PRODUCT : WLAN PCMCIA Card
BRAND NAME : DELTA
MODEL NO. : LM-WP200
OEM BRAND NAME : Netgear
OEM MODEL NO. : MA401 rev.B
APPLICANT : DELTA NETWORKS, 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 August 17, 2001 to August 22, 2001, 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.

TESTED BY : Gary Chang , DATE: Aug 24, 2001
Gary Chang

CHECKED BY : Demi Chen , DATE: Aug 24, 2001
Demi Chen

APPROVED BY : Alan Lane , DATE: Aug 28, 2001
Dr. Alan Lane, Manager

2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: 47 CFR Part 15, Subpart C			
Standard Section	Test Type and Limit	Result	REMARK
15.107	AC Power Conducted Emission Limit: 48dBuV	PASS	Meet the requirement of limit Minimum passing margin is -9.54dBuV at 17.67342MHz
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 -6.4dBuV at 2063.00 MHz
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	WLAN PCMCIA Card
MODEL NO.	LM-WP200
POWER SUPPLY	3.3VDC from notebook
MODULATION TYPE	CCK, BPSK, QPSK
RADIO TECHNOLOGY	DSSS
TRANSFER RATE	1/2/5.5/11Mbps
FREQUENCY RANGE	2412MHz ~ 2462MHz
NUMBER OF CHANNEL	11
OUTPUT POWER	14dBm
ANTENNA TYPE	Patch antenna
DATA CABLE	NA
I/O PORTS	NA
ASSOCIATED DEVICES	NA

NOTE:

1. The EUT can help you create a wireless network for sharing your broadband cable or DLS access among multiple PCs in and around your home or office
2. Model: LM-WP200 and MA404 rev.B are identical, except brand name and model number.
3. For a more detailed features description, please refer to the manufacturer's specifications or User's Manual.

3.2 DESCRIPTION OF TEST MODES

Eleven channels are provided in this EUT.

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

NOTE:

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

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

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

ANSI C63.4 : 1992

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

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



3.4 DESCRIPTION OF SUPPORT UNITS

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

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK	ACER	Travel Mate 332T	9140C0120C94100A27M	FCC DoC Approved
2	PRINTER	HP	C2145A	SG5BN160GY	B94C2145X
3	MODEM	GVC	F-1128V1R6	96-191-113003	DK4F1128VR6

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 (MHz)	Class B (dBuV)	
	Quasi-peak	Average
0.45 – 30	48	-

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. All emanations from a class B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
*ROHDE & SCHWARZ Test Receiver	ESHS30	828109/007	July 4, 2002
*ROHDE & SCHWARZ Artificial Mains Network (for EUT)	ESH3-Z5	839135/006	July 3, 2002
ROHDE & SCHWARZ 4-wire ISN	ENY41	837032/016	Nov. 28, 2001
ROHDE & SCHWARZ 2-wire ISN	ENY22	837497/016	Dec. 3, 2001
*EMCO-L.I.S.N. (for peripheral)	3825/2	9204-1964	July 3, 2002
*Software	Cond-V2J	NA	NA
*RF cable (JYEBAO)	RG-58A/U	Cable-C02.01	July 9, 2002
HP Terminator (For EMCO LISN)	11593A	E1-01-298	Feb. 20, 2002
HP Terminator (For EMCO LISN)	11593A	E1-01-299	Feb. 20, 2002
Shielded Room	Site 2	ADT-C02	NA
VCCI Site Registration No.	Site 2	C-240	NA

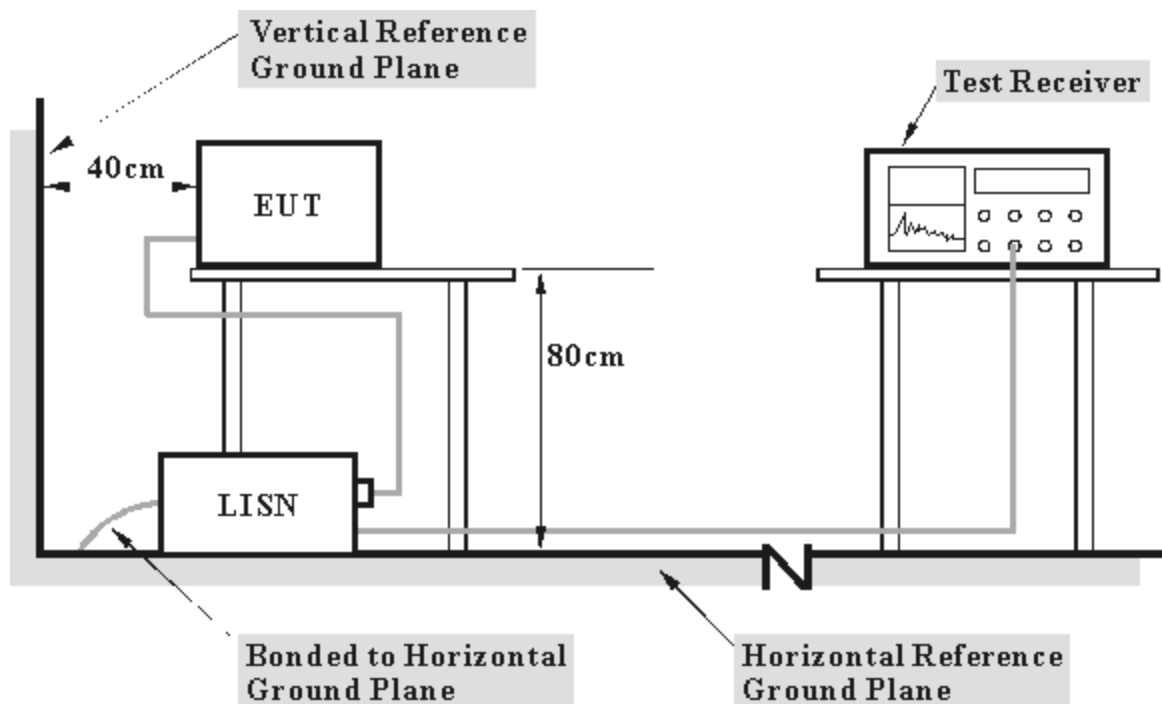
NOTE:

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

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 450 kHz to 30 MHz was searched. Emission levels over 10dB under the prescribed limits could not be reported

4.1.4 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.



4.1.5 EUT OPERATING CONDITIONS

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

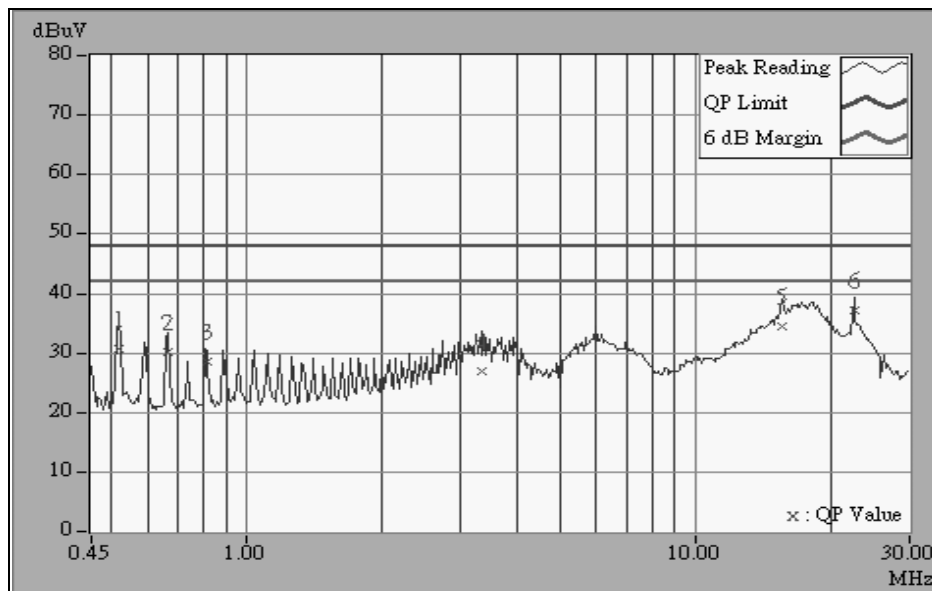
4.1.6 TEST RESULTS

EUT	WLAN PCMCIA Card	MODEL	LM-WP200
MODE	Channel 1	6dB BANDWIDTH	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	30 deg. C, 60%RH, 1005 hPa	TESTED BY: Gary Chang	

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.51594	0.10	30.76	-	30.86	-	48.00	-	-17.14	-
2	0.66600	0.10	30.17	-	30.27	-	48.00	-	-17.73	-
3	0.81548	0.10	28.62	-	28.72	-	48.00	-	-19.28	-
4	3.34413	0.23	26.98	-	27.21	-	48.00	-	-20.79	-
5	15.60706	0.82	34.60	-	35.42	-	48.00	-	-12.58	-
6	22.56994	1.05	37.08	-	38.13	-	48.00	-	-9.87	-

NOTE:

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

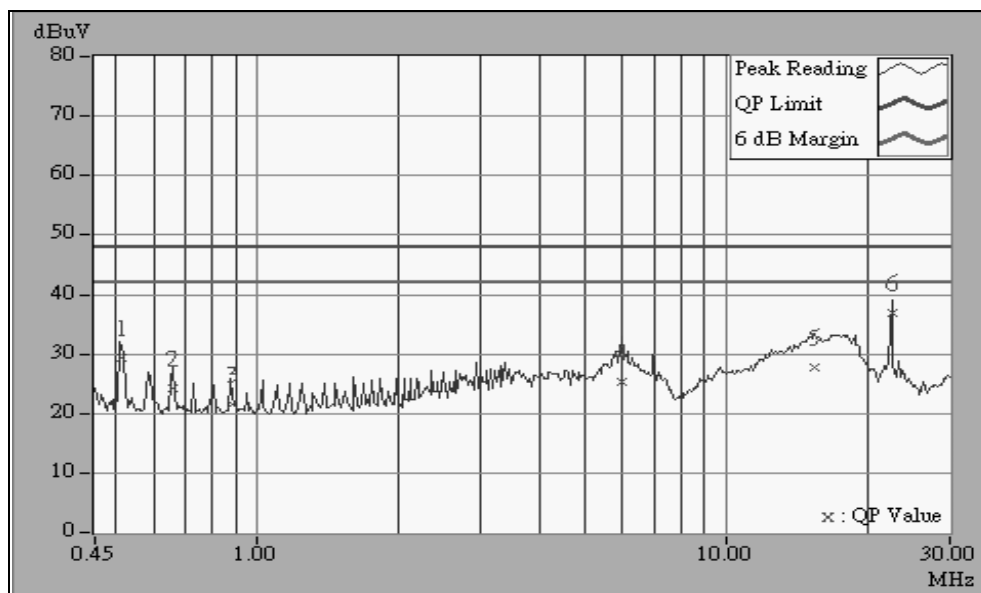


EUT	WLAN PCMCIA Card	MODEL	LM-WP200
MODE	Channel 1	6dB BANDWIDTH	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	28 deg. C, 65%RH, 1005 hPa	TESTED BY: Gary Chang	

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.51273	0.10	29.47	-	29.57	-	48.00	-	-18.43	-
2	0.66000	0.10	24.21	-	24.31	-	48.00	-	-23.69	-
3	0.88321	0.10	21.43	-	21.53	-	48.00	-	-26.47	-
4	5.99900	0.33	25.32	-	25.65	-	48.00	-	-22.35	-
5	15.39900	0.62	27.71	-	28.33	-	48.00	-	-19.67	-
6	22.56800	0.85	37.02	-	37.87	-	48.00	-	-10.13	-

NOTE:

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

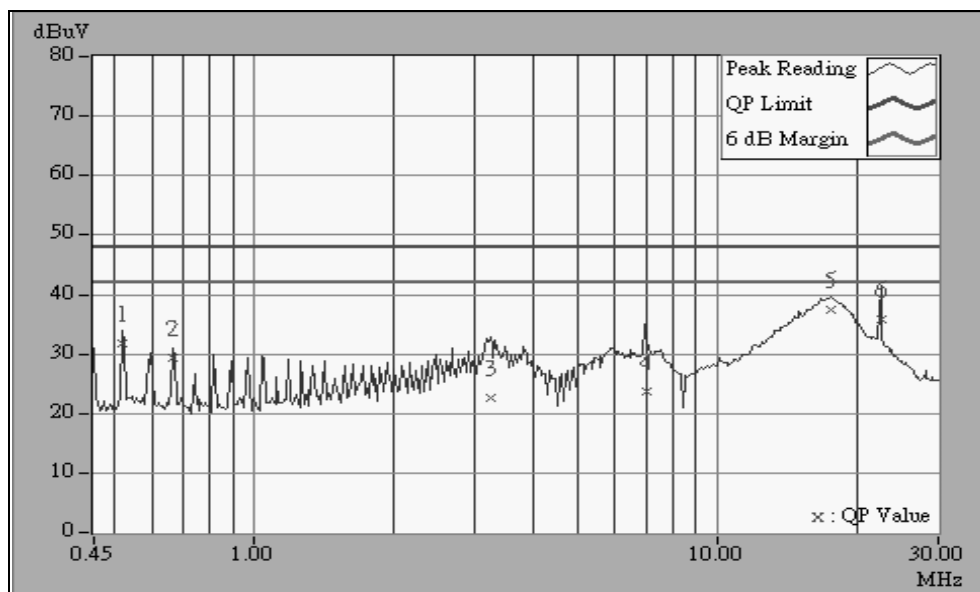


EUT	WLAN PCMCIA Card	MODEL	LM-WP200
MODE	Channel 6	6dB BANDWIDTH	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	28 deg. C, 65%RH, 1005 hPa	TESTED BY: Gary Chang	

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.51900	0.10	31.72	-	31.82	-	48.00	-	-16.18	-
2	0.66900	0.10	29.44	-	29.54	-	48.00	-	-18.46	-
3	3.23700	0.22	22.58	-	22.80	-	48.00	-	-25.20	-
4	7.00776	0.40	23.61	-	24.01	-	48.00	-	-23.99	-
5	17.67342	0.91	37.55	-	38.46	-	48.00	-	-9.54	-
6	22.56800	1.05	35.77	-	36.82	-	48.00	-	-11.18	-

NOTE:

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

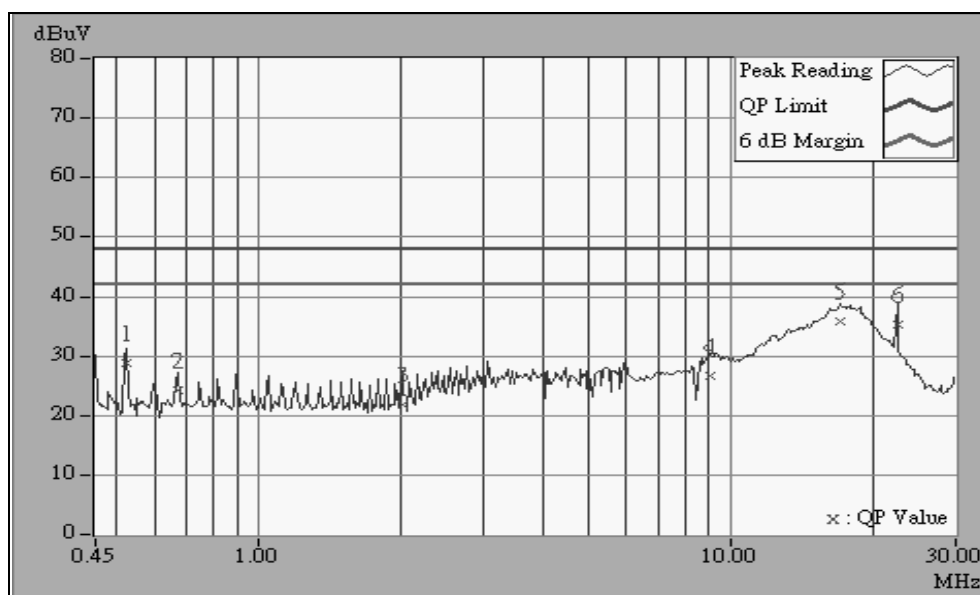


EUT	WLAN PCMCIA Card	MODEL	LM-WP200
MODE	Channel 6	6dB BANDWIDTH	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	25 deg. C, 55%RH, 1005 hPa	TESTED BY: Gary Chang	

No	Freq.	Corr. Factor	Reading Value [dB (Uv)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.52200	0.10	28.95	-	29.05	-	48.00	-	-18.95	-
2	0.67200	0.10	24.33	-	24.43	-	48.00	-	-23.57	-
3	2.01600	0.10	21.89	-	21.99	-	48.00	-	-26.01	-
4	9.04968	0.38	26.74	-	27.12	-	48.00	-	-20.88	-
5	17.12707	0.69	35.73	-	36.42	-	48.00	-	-11.58	-
6	22.56800	0.85	35.25	-	36.10	-	48.00	-	-11.90	-

NOTE:

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

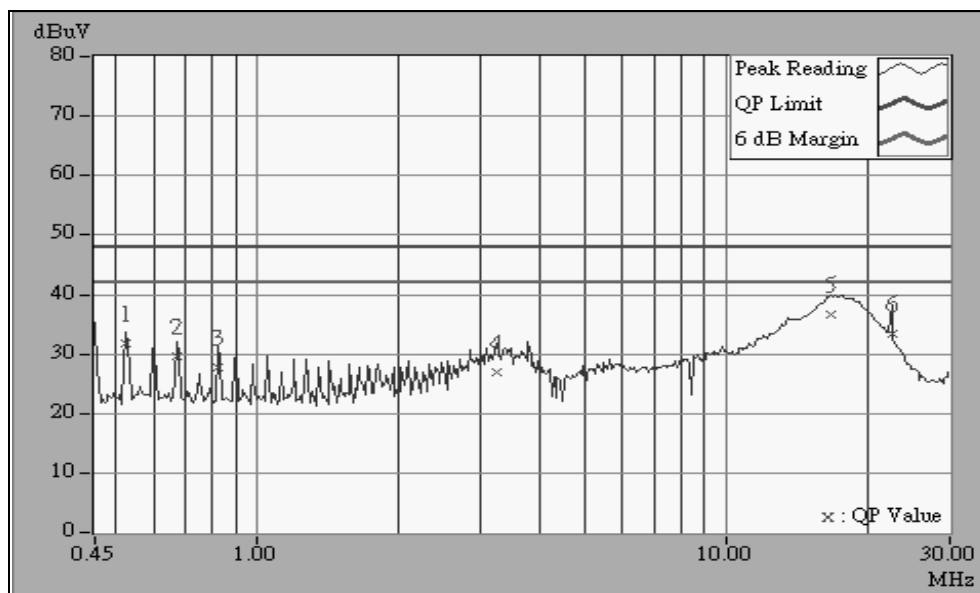


EUT	WLAN PCMCIA Card	MODEL	LM-WP200
MODE	Channel 11	6dB BANDWIDTH	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	28 deg. C, 65%RH, 1005 hPa	TESTED BY: Gary Chang	

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.52500	0.10	31.84	-	31.94	-	48.00	-	-16.06	-
2	0.67500	0.10	29.65	-	29.75	-	48.00	-	-18.25	-
3	0.82500	0.10	27.63	-	27.73	-	48.00	-	-20.27	-
4	3.23226	0.22	26.97	-	27.19	-	48.00	-	-20.81	-
5	16.69565	0.87	36.72	-	37.59	-	48.00	-	-10.41	-
6	22.56675	1.05	33.38	-	34.43	-	48.00	-	-13.57	-

NOTE:

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

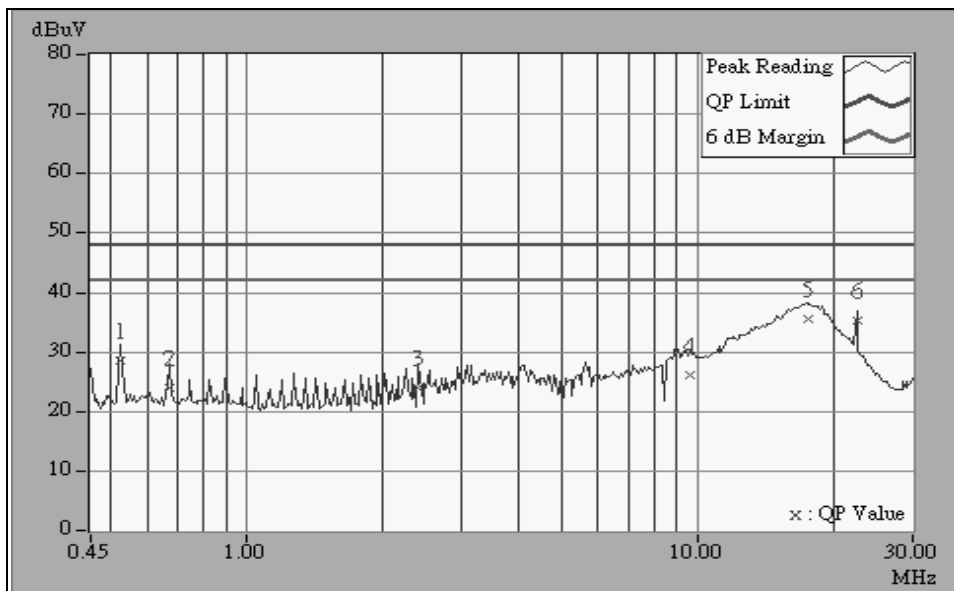


EUT	WLAN PCMCIA Card	MODEL	LM-WP200
MODE	Channel 11	6dB BANDWIDTH	10 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Netural (N)
ENVIRONMENTAL CONDITIONS	28 deg. C, 65%RH, 1005 hPa	TESTED BY: Gary Chang	

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.52200	0.10	28.43	-	28.53	-	48.00	-	-19.47	-
2	0.67200	0.10	24.01	-	24.11	-	48.00	-	-23.89	-
3	2.39512	0.14	23.95	-	24.09	-	48.00	-	-23.91	-
4	9.58721	0.39	26.01	-	26.40	-	48.00	-	-21.60	-
5	17.53785	0.70	35.52	-	36.22	-	48.00	-	-11.78	-
6	22.56800	0.85	35.27	-	36.12	-	48.00	-	-11.88	-

NOTE:

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





4.2 RADIATED EMISSION MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Field strength limits are at the distance of 3 meters, emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

Frequencies (MHz)	Field Strength of Fundamental	
	uV/m	dBuV/m
30-88	100	40.0
88-216	150	43.5
216-960	200	46.0
Above 960	500	54.0

NOTE:

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

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
* HP Spectrum Analyzer	8590L	3544A01176	May 7, 2002
* HP Preamplifier	8447D	2944A08485	Nov. 3, 2001
* HP Preamplifier	8449B	3008A01201	Dec. 13, 2001
* ROHDE & SCHWARZ TEST RECEIVER	ESMI	839013/007 839379/002	Jan. 25, 2002
SCHWARZBECK Tunable Dipole Antenna	VHA 9103 UHA 9105	E101051 E101055	Nov. 23, 2001
* CHASE BILOG Antenna	CBL6112A	2221	Aug. 2, 2002
* SCHWARZBECK Horn Antenna	BBHA9120-D1	D130	July 6, 2002
* EMCO Horn Antenna	3115	9312-4192	April 15, 2002
* EMCO Turn Table	1060	1115	NA
* SHOSHIN Tower	AP-4701	A6Y005	NA
* Software	AS61D4	NA	NA
* ANRITSU RF Switches	MP59B	M35046	Aug. 2, 2002
* TIMES RF cable	LMR-600	CABLE-ST5-01	Aug. 2, 2002
* Antenna (Horn)	BBHA9120-D	D130	July 10, 2002
Open Field Test Site	Site 5	ADT-R05	July 28, 2002
VCCI Site Registration No.	Site 5	R-1039	NA
Site Registration No.	FCC: 90422 Canada IC: IC 3789 VCCI : R-1039		

NOTE:

1. The measurement uncertainty is less than +/- 3.0dB, which is calculated as per the NAMAS document NIS81.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. "*" = These equipments are used for the final measurement.



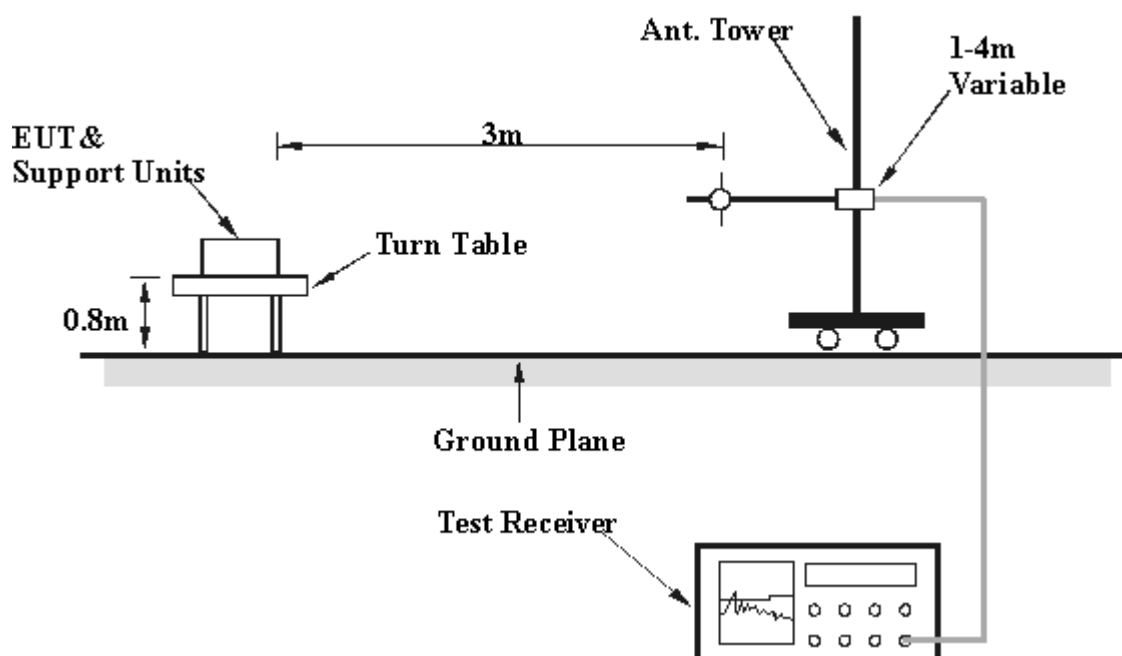
4.2.3 TEST PROCEDURES

- 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 TEST SETUP



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

4.2.5 EUT OPERATING CONDITIONS

Same as 4.1.5.

4.2.6 TEST RESULTS

EUT	WLAN PCMCIA Card	MODEL	LM-WP200
MODE	Channel 11	FREQUENCY RANGE	30-1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	30 deg. C, 60 % RH, 1050 hPa	TESTED BY: Gary Chang	

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M											
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB)
1	132.28	26.2 QP	43.50	-17.3	1.80H	42	39.68	10.97	2.52	27.00	13.51
2	220.00	27.8 QP	46.00	-18.2	1.75H	329	42.37	9.58	2.82	27.00	14.59
3	264.20	27.6 QP	46.00	-18.4	2.03H	224	39.68	12.00	2.96	27.00	12.04
4	308.21	30.2 QP	46.00	-15.8	1.15H	105	41.24	12.77	3.15	27.00	11.08
5	395.97	32.9 QP	46.00	-13.1	1.01H	250	41.24	15.22	3.46	27.00	8.32
6	440.23	27.5 QP	46.00	-18.5	1.94H	114	35.26	15.93	3.27	27.00	7.80
7	528.00	26.0 QP	46.00	-20.0	1.74H	172	32.30	17.03	3.67	27.00	6.29
8	616.60	26.6 QP	46.00	-19.4	1.86H	28	32.30	17.68	3.61	27.00	5.71
9	880.00	26.5 QP	46.00	-19.5	1.75H	168	29.34	19.63	4.54	27.00	2.83

NOTE:

1. Emission level = Raw value - Correction Factor
2. Correction Factor = Pre-Amp. Factor - Ant. Factor - Cable loss
(Pre-Amp. Factor = 0, when a Pre-Amplifier is not used for the test.)
3. Margin value = Emission level - Limit value
4. The other emission levels were very low against the limit.



EUT	WLAN PCMCIA Card	MODEL	LM-WP200
MODE	Channel 11	FREQUENCY RANGE	30-1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	30 deg. C, 60 % RH, 1050 hPa	TESTED BY: Gary Chang	

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M											
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB)
1	132.00	33.5 QP	43.50	-10.0	1.64V	168	47.01	10.97	2.52	27.00	13.51
2	220.00	26.5 QP	46.00	-19.5	2.19V	142	41.08	9.58	2.82	27.00	14.59
3	264.05	28.7 QP	46.00	-17.3	1.95V	167	40.70	12.00	2.96	27.00	12.04
4	396.00	30.2 QP	46.00	-15.8	1.29V	216	38.48	15.22	3.46	27.00	8.32
5	439.96	28.8 QP	46.00	-17.2	1.62V	105	36.55	15.93	3.27	27.00	7.80
6	528.04	30.7 QP	46.00	-15.3	1.27V	299	36.99	17.03	3.67	27.00	6.29
7	616.02	24.9 QP	46.00	-21.1	1.48V	50	30.59	17.68	3.61	27.00	5.71
8	880.12	28.1 QP	46.00	-17.9	1.99V	175	30.91	19.63	4.54	27.00	2.83

NOTE:

1. Emission level = Raw value - Correction Factor
2. Correction Factor = Pre-Amp. Factor - Ant. Factor - Cable loss
(Pre-Amp. Factor = 0, when a Pre-Amplifier is not used for the test.)
3. Margin value = Emission level - Limit value
4. The other emission levels were very low against the limit.

EUT	WLAN PCMCIA Card	MODEL	LM-WP200
MODE	Channel 1	FREQUENCY RANGE	Above 1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	30 deg. C, 60 % RH, 1050 hPa	TESTED BY: Gary Chang	

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB)
1	2037.70	49.9 PK	74.00	-24.10	1.00H	85	21.30	25.27	3.29	0.00	-28.57
2	2037.70	47.5 AV	54.00	-6.50	1.00H	85	18.90	25.27	3.29	0.00	-28.57
3	*2411.70	102.1 PK	-	-	1.00H	57	71.30	27.19	3.62	0.00	-30.81
4	*2411.70	95.3 AV	-	-	1.00H	57	64.50	27.19	3.62	0.00	-30.81
5	4075.50	49.2 PK	74.00	-24.80	1.00H	106	14.30	30.18	4.77	0.00	-34.95
6	4075.50	43.8 AV	54.00	-10.20	1.00H	106	8.90	30.18	4.77	0.00	-34.95
7	4824.20	51.4 PK	74.00	-22.60	1.00H	95	14.80	31.43	5.21	0.00	-36.64
8	4824.20	44.0 AV	54.00	-10.00	1.00H	95	7.40	31.43	5.21	0.00	-36.64

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB)
1	2037.70	49.9 PK	74.00	-24.1	1.00V	327	21.30	25.27	3.29	0.00	-28.57
2	2037.70	45.5 AV	54.00	-8.50	1.00V	327	16.90	25.27	3.29	0.00	-28.57
3	*2411.60	97.1 PK	-	-	1.06V	52	66.30	27.19	3.62	0.00	-30.81
4	*2411.60	90.4 AV	-	-	1.06V	52	59.60	27.19	3.62	0.00	-30.81
5	4075.50	50.2 PK	74.00	-23.80	1.00V	63	15.30	30.18	4.77	0.00	-34.95
6	4075.50	43.6 AV	54.00	-10.40	1.00V	63	8.70	30.18	4.77	0.00	-34.95
7	4824.20	50.4 PK	74.00	-23.60	1.00V	239	13.80	31.43	5.21	0.00	-36.64
8	4824.20	43.5 AV	54.00	-10.50	1.00V	239	6.90	31.43	5.21	0.00	-36.64

NOTE:

1. Emission level = Raw value - Correction Factor
2. Correction Factor = Pre-Amp. Factor - Ant. Factor - Cable loss
(Pre-Amp. Factor = 0, when a Pre-Amplifier is not used for the test.)
3. Margin value = Emission level - Limit value
4. " * " : Fundamental frequency
5. The other emission levels were very low against the limit.

EUT	WLAN PCMCIA Card	MODEL	LM-WP200
MODE	Channel 6	FREQUENCY RANGE	Above 1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	28 deg. C, 65 % RH, 1050 hPa	TESTED BY: Gary Chang	

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB)
1	2063.00	51.0 PK	74.00	-23.00	1.00H	115	22.30	25.39	3.31	0.00	-28.70
2	2063.00	47.6 AV	54.00	-6.40	1.00H	115	18.90	25.39	3.31	0.00	-28.70
3	*2436.60	99.8 PK	-	-	1.00H	58	68.90	27.30	3.64	0.00	-30.94
4	*2436.60	92.1 AV	-	-	1.00H	58	61.20	27.30	3.64	0.00	-30.94
5	4125.60	48.8 PK	74.00	-25.20	1.02H	253	13.70	30.28	4.79	0.00	-35.07
6	4125.60	38.9 AV	54.00	-15.10	1.02H	150	3.80	30.28	4.79	0.00	-35.07
7	4874.20	51.6 PK	74.00	-22.40	1.09H	150	14.90	31.47	5.25	0.00	-36.72
8	4874.20	43.9 AV	54.00	-10.10	1.09H	150	7.20	31.47	5.25	0.00	-36.72

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB)
1	2062.80	48.3 PK	74.00	-25.7	1.19V	193	19.60	25.39	3.31	0.00	-28.70
2	2062.80	44.1 AV	54.00	-9.90	1.19V	193	15.40	25.39	3.31	0.00	-28.70
3	*2438.50	103.0 PK	-	-	1.19V	319	72.10	27.30	3.64	0.00	-30.94
4	*2438.40	98.1 AV	-	-	1.19V	275	67.20	27.30	3.64	0.00	-30.95
5	4125.50	50.4 PK	74.00	-23.60	1.18V	236	15.30	30.28	4.79	0.00	-35.07
6	4125.50	40.3 AV	54.00	-13.70	1.18V	236	5.20	30.28	4.79	0.00	-35.07
7	4874.20	51.6 PK	74.00	-22.40	1.02V	331	14.90	31.47	5.25	0.00	-36.72
8	4874.20	43.9 AV	54.00	-10.10	1.02V	331	7.20	31.47	5.25	0.00	-36.72

NOTE:

1. Emission level = Raw value - Correction Factor
2. Correction Factor = Pre-Amp. Factor - Ant. Factor - Cable loss
(Pre-Amp. Factor = 0, when a Pre-Amplifier is not used for the test.)
3. Margin value = Emission level - Limit value
4. " * " : Fundamental frequency
5. The other emission levels were very low against the limit.



EUT	WLAN PCMCIA Card	MODEL	LM-WP200
MODE	Channel 11	FREQUENCY RANGE	Above 1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	30 deg. C, 60 % RH, 1050 hPa	TESTED BY: Gary Chang	

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB)
1	2088.00	51.9 PK	74.00	-22.10	1.11H	188	23.10	25.50	3.33	0.00	-28.83
2	2088.00	47.0 AV	54.00	-7.00	1.11H	188	18.20	25.50	3.33	0.00	-28.83
3	*2463.10	102.7 PK	-	-	1.10H	169	71.64	27.41	3.66	0.00	-31.07
4	*2463.10	99.3 AV	-	-	1.10H	169	67.20	27.41	3.66	0.00	-31.07
5	2483.50	48.4 PK	74.00	-25.60	1.11H	195	17.23	27.52	3.68	0.00	-31.21
6	2483.50	42.4 AV	54.00	-11.60	1.11H	195	11.20	27.52	3.68	0.00	-31.20
7	4175.50	48.2 PK	74.00	-25.80	1.18H	129	13.02	30.38	4.81	0.00	-35.19
8	4175.50	38.7 AV	54.00	-15.30	1.18H	129	3.50	30.38	4.81	0.00	-35.19
9	4924.20	51.0 PK	74.00	-23.00	1.13H	66	14.23	31.51	5.28	0.00	-36.80
10	4924.20	42.7 AV	54.00	-11.30	1.13H	66	5.90	31.51	5.28	0.00	-36.80

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)	Antenna Factor (dB)	Cable Factor (dB)	Pre-Amp. Factor (dB)	Correction Factor (dB)
1	2087.90	47.0 PK	74.00	-27.00	1.35V	101	18.20	25.50	3.33	0.00	-28.83
2	2087.90	41.1 AV	54.00	-12.90	1.35V	101	12.30	25.50	3.33	0.00	-28.83
3	*2462.80	100.3 PK	-	-	1.26V	27	69.20	27.41	3.66	0.00	-31.07
4	*2462.80	95.3 AV	-	-	1.26V	27	64.10	27.41	3.66	0.00	-31.07
5	2483.50	44.4 PK	74.00	-29.60	1.32V	309	13.20	27.52	3.68	0.00	-31.20
6	2483.50	38.0 AV	54.00	-16.00	1.32V	309	6.80	27.52	3.68	0.00	-31.20
7	4175.60	51.5 PK	74.00	-22.50	1.06V	189	16.30	30.38	4.81	0.00	-35.19
8	4175.60	41.4 AV	54.00	-12.90	1.06V	189	5.90	30.38	4.81	0.00	-35.19
9	4924.20	51.5 PK	74.00	-22.90	1.02V	304	14.30	31.51	5.28	0.00	-36.80
10	4924.20	42.7 AV	54.00	-11.30	1.02V	304	5.90	31.51	5.28	0.00	-36.80

NOTE:

1. Emission level = Raw value - Correction Factor
2. Correction Factor = Pre-Amp. Factor - Ant. Factor - Cable loss
(Pre-Amp. Factor = 0, when a Pre-Amplifier is not used for the test.)
3. Margin value = Emission level - Limit value
4. " * " : Fundamental frequency
5. The other emission levels were very low against the limit.

4.3 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
ROHDE & SCHWARZ TEST RECEIVER	ESMI	839379/002	Dec. 28, 2001
HP ATTENUATOR	8496B	3247A18505	Cal. on use
HP PLOTTER	7475A	2641V27755	N/A

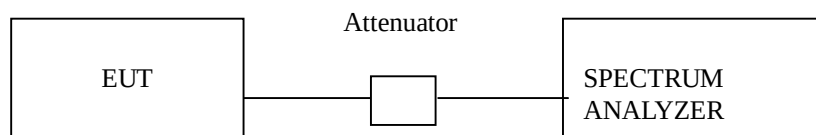
NOTE:

- 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 100 kHz RBW and 100 kHz VBW. The 6 dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6 dB.

4.3.4 TEST SETUP



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

4.3.5 EUT OPERATING CONDITIONS

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

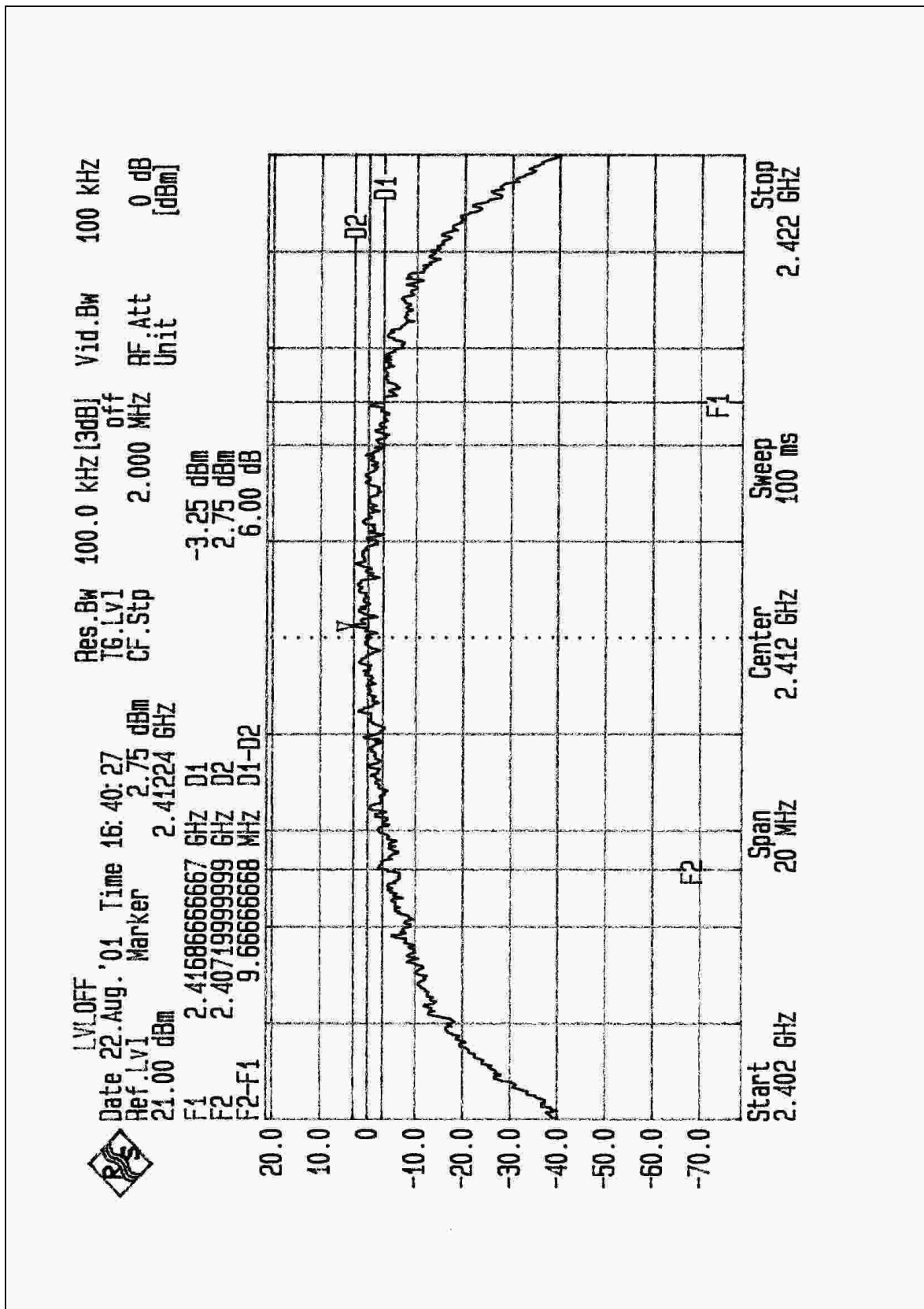


4.3.6 TEST RESULTS

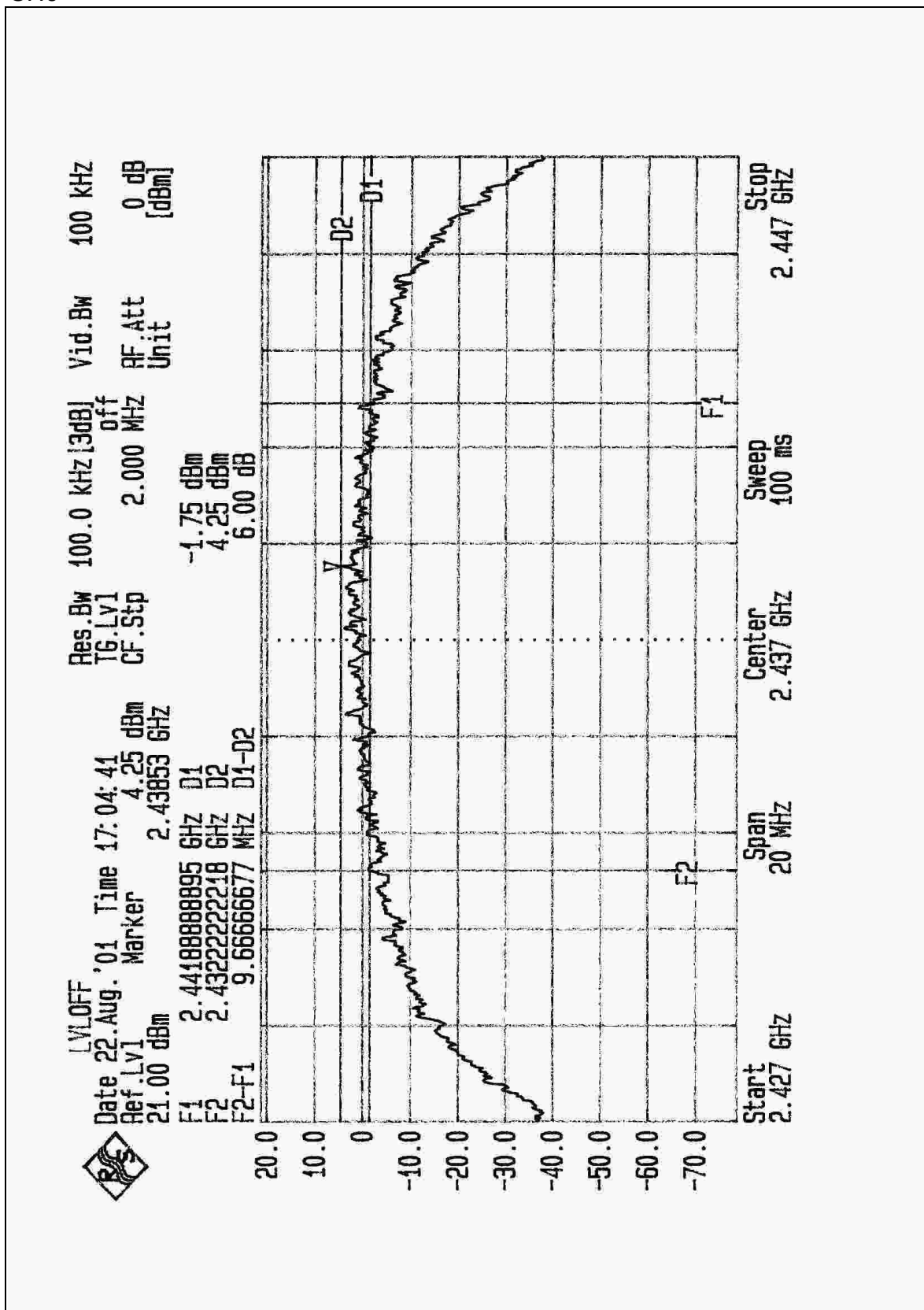
EUT	WLAN PCMCIA Card	MODEL	LM-WP200
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	27 deg. C, 70%RH, 1005 hPa
TESTED BY: Gary Chang			

CHANNEL	CHANNEL FREQUENCY (MHz)	6 dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	9.67	0.5	PASS
6	2437	9.67	0.5	PASS
11	2462	9.71	0.5	PASS

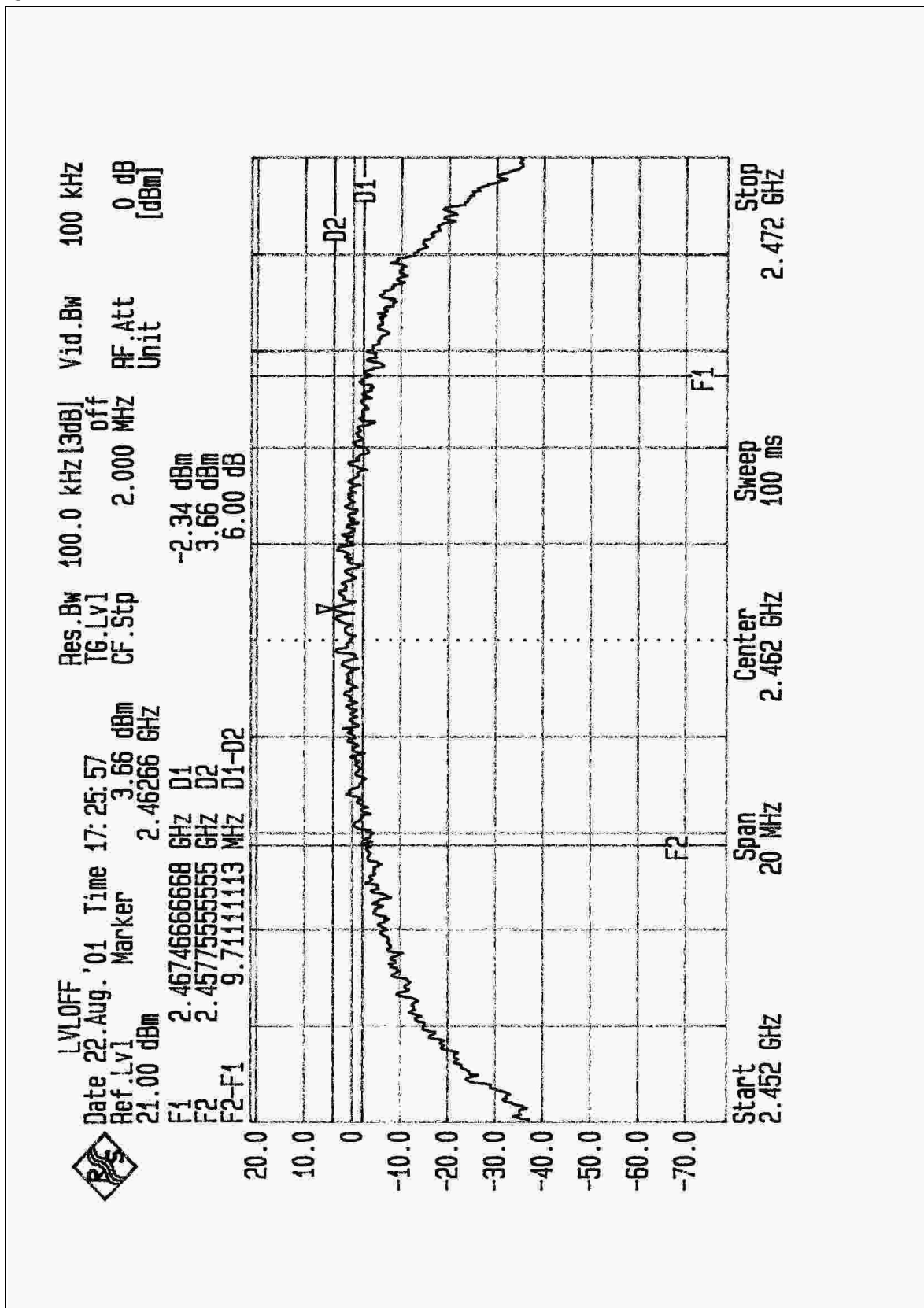
CH1



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
ROHDE & SCHWARZ TEST RECEIVER	ESMI	839379/002	Dec. 28, 2001
HP ATTENUATOR	8496B	3247A18505	Cal. on use
HP PLOTTER	7475A	2641V27755	N/A

NOTE:

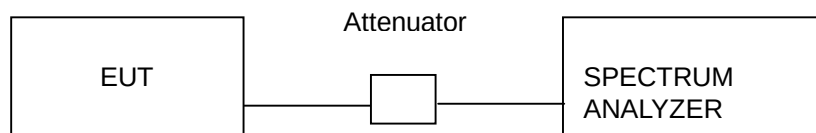
1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.4.3 TEST PROCEDURES

- a. The transmitter output was connected to the spectrum analyzer through an attenuator.
- b. The center frequency of the spectrum analyzer was set to the fundamental frequency and using 3 MHz RBW and 3 MHz VBW.
- c. The span of the spectrum analyzer should be larger than 6dB BandWidth plus 10MHz.
- d. Used Peak Search to read the peak power after Maximum Hold function was activated.
- e. Shifted the marker to +/- 3MHz and +/-6MHz, and recorded the reading.
- f. The Maximum Peak Output Power was the linear summation of the 5 readings in (4) and (5).

NOTE: This measurement is the total power of 15MHz bandwidth which is far more wider than 6dB bandwidth.

4.4.4 TEST SETUP



4.4.5 EUT OPERATING CONDITIONS

Same as Item 4.3.5

4.4.6 TEST RESULTS

EUT	WLAN PCMCIA Card	MODEL	LM-WP200
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	27 deg. C, 70%RH, 1005 hPa
TESTED BY: Gary Chang			

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	18.38	30	PASS
6	2437	18.10	30	PASS
11	2462	18.20	30	PASS