FCC TEST REPORT

REPORT NO.: RF930909L11A
MODEL NO.: WMCE54AG2
RECEIVED: NA
TESTED: Aug. 16 ~ Aug. 19, 2004

PREPARED BY: Cisco-Linksys, LLC

ADDRESS: 121 Theory Drive Irvine, CA 92612, U.S.A.

ISSUED BY: Advance Data Technology Corporation

LAB ADDRESS: 47 14th Ling, Chia Pau Tsuen, Lin Kou Hsiang 244, Taipei Hsien, Taiwan, R.O.C.

TEST LOCATION: No. 19, Hwa Ya 2nd Rd., Wen Hwa Tsuen, Kwei Shan Hsiang, Taoyuan Hsien 333, Taiwan, R.O.C.

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ILAC MRA

No. 2177-01

Table of Contents

1. CERTIFICATION 5
2. SUMMARY OF TEST RESULTS 6
2.1 MEASUREMENT UNCERTAINTY 8
3. GENERAL INFORMATION 9
3.1 GENERAL DESCRIPTION OF EUT 9
3.2 DESCRIPTION OF TEST MODES 10
3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS 11
3.4 DESCRIPTION OF SUPPORT UNITS 12
3.5 CONFIGURATION OF SYSTEM UNDER TEST 12
4. TEST TYPES AND RESULTS (FOR PART 802.11b & 802.11g) 13
4.1 CONDUCTED EMISSION MEASUREMENT 13
4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT 13
4.1.2 TEST INSTRUMENTS 13
4.1.3 TEST PROCEDURES 14
4.1.4 DEVIATION FROM TEST STANDARD 14
4.1.5 TEST SETUP 15
4.1.6 EUT OPERATING CONDITIONS 15
4.1.7 TEST RESULTS 16
4.2 RADIATED EMISSION MEASUREMENT 22
4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT 22
4.2.2 TEST INSTRUMENTS 23
4.2.3 TEST PROCEDURES 24
4.2.4 DEVIATION FROM TEST STANDARD 24
4.2.5 TEST SETUP 25
4.2.6 EUT OPERATING CONDITIONS 25
4.2.7 TEST RESULTS 26
4.3 6dB BANDWIDTH MEASUREMENT 35
4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT 35
4.3.2 TEST INSTRUMENTS 35
4.3.3 TEST PROCEDURE 35
4.3.4 DEVIATION FROM TEST STANDARD 36
4.3.5 TEST SETUP 36
4.3.6 EUT OPERATING CONDITIONS 36
4.3.7 TEST RESULTS 37
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....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....52
4.6 BAND EDGES MEASUREMENT....62
4.6.1 LIMITS OF BAND EDGES MEASUREMENT....62
4.6.2 TEST INSTRUMENTS....62
4.6.3 TEST PROCEDURE....62
4.6.4 DEVIATION FROM TEST STANDARD....62
4.6.5 EUT OPERATING CONDITION....62
4.6.6 TEST RESULTS....63
4.7 ANTENNA REQUIREMENT....76
4.7.1 STANDARD APPLICABLE....76
4.7.2 ANTENNA CONNECTED CONSTRUCTION....76
5. TEST TYPES AND RESULTS (FOR PART 802.11a)....77
5.1 CONDUCTED EMISSION MEASUREMENT....77
5.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT....77
5.1.2 TEST INSTRUMENTS....77
5.1.3 TEST PROCEDURES....78
5.1.4 DEVIATION FROM TEST STANDARD....78
5.1.5 TEST SETUP....79
5.1.6 EUT OPERATING CONDITIONS....79
5.1.7 TEST RESULTS....80
5.2 RADIATED EMISSION MEASUREMENT....82
5.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT....82
5.2.2 LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS....83
5.2.3 TEST INSTRUMENTS....84
5.2.4 TEST PROCEDURES....85
5.2.5 DEVIATION FROM TEST STANDARD....85
5.2.6 TEST SETUP....86
5.2.7 EUT OPERATING CONDITIONS....86
5.2.8 TEST RESULTS....87
5.3 PEAK TRANSMIT POWER MEASUREMENT....100
5.3.1 LIMITS OF PEAK TRANSMIT POWER MEASUREMENT....100
5.3.2 TEST INSTRUMENTS....100

5.3.3 TEST PROCEDURE 101
5.3.4 DEVIATION FROM TEST STANDARD 101
5.3.5 TEST SETUP 101
5.3.6 EUT OPERATING CONDITIONS 101
5.3.7 TEST RESULTS 102
5.4 PEAK POWER EXCURSION MEASUREMENT 126
5.4.1 LIMITS OF PEAK POWER EXCURSION MEASUREMENT 126
5.4.2 TEST INSTRUMENTS 126
5.4.3 TEST PROCEDURE 127
5.4.4 DEVIATION FROM TEST STANDARD 127
5.4.5 TEST SETUP 127
5.4.6 EUT OPERATING CONDITIONS 127
5.4.7 TEST RESULTS 128
5.5 PEAK POWER SPECTRAL DENSITY MEASUREMENT 141
5.5.1 LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT 141
5.5.2 TEST INSTRUMENTS 141
5.5.3 TEST PROCEDURES 142
5.5.4 DEVIATION FROM TEST STANDARD 142
5.5.5 TEST SETUP 142
5.5.6 EUT OPERATING CONDITIONS 142
5.5.7 TEST RESULTS 143
5.6 FREQUENCY STABILITY 156
5.6.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT 156
5.6.2 TEST INSTRUMENTS 156
5.6.3 TEST PROCEDURE 156
5.6.4 DEVIATION FROM TEST STANDARD 157
5.6.5 TEST SETUP 157
5.6.6 EUT OPERATING CONDITION 157
5.6.7 TEST RESULTS 158
5.7 BAND EDGES MEASUREMENT 159
5.7.1 TEST INSTRUMENTS 159
5.7.2 TEST PROCEDURE 159
5.7.3 EUT OPERATING CONDITION 159
5.7.4 TEST RESULTS 159
5.8 ANTENNA REQUIREMENT 168
5.8.1 STANDARD APPLICABLE 168
5.8.2 ANTENNA CONNECTED CONSTRUCTION 168
6. PHOTOGRAPHS OF THE TEST CONFIGURATION 169
7. INFORMATION ON THE TESTING LABORATORIES 173

1. CERTIFICATION

PRODUCT:	Wireless A+G Mini PCI Card
BRAND NAME:	Linksys
MODEL NO.:	WMCE54AG2
APPLICANT:	Cisco-Linksys, LLC
TEST SAMPLE:	Engineering Sample
STANDARDS:	FCC Part 15, Subpart C (Section 15.247), Subpart E (Section 15.407), ANSI C63.4-2003

The above equipment (model no.: WMCE54AG2) is identical to model no.: WMIA-123AG, which has been tested by **Advance Data Technology Corporation** from Aug. 16 to Aug. 19, 2004, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY : Windy Chou , **DATE:** Oct. 11, 2004
(Windy Chou)

TECHNICAL ACCEPTANCE : Gary Chang , **DATE:** Oct. 11, 2004
Responsible for RF (Gary Chang)

APPROVED BY : Cody Chang , **DATE:** Oct. 11, 2004
(Cody Chang, Deputy Manager)

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 15, Subpart C (Section 15.247)			
Standard Section	**Test Type and Limit**	**Result**	**Remark**
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is –18.16dB at 0.189MHz
15.247(a)(2)	Spectrum Bandwidth of a Direct Sequence Spread Spectrum System Limit: min. 500kHz	PASS	Meet the requirement of limit.
15.247(b)	Maximum Peak Output Power Limit: max. 30dBm	PASS	Meet the requirement of limit.
15.247(c)	Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit. Minimum passing margin is –1.32dB at 177.74MHz
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: FCC Part 15, Subpart E (Section 15.407)			
Standard Section	**Test Type**	**Result**	**Remark**
15.407(b)(5)	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is –18.18dB at 0.193MHz
15.407(b/1/2/3)(b)(5)	Electric Field Strength Spurious Emissions, 30MHz ~ 40000MHz	PASS	Meet the requirement of limit. Minimum passing margin is –0.99dB at 5835.00MHz
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.

2.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4:

Measurement	Frequency	Uncertainty
Conducted emissions	9k~30MHz	2.44 dB
Radiated emissions	30MHz ~ 200MHz	3.73 dB
	200MHz ~1000MHz	3.74 dB
	1GHz ~ 18GHz	2.20 dB
	18GHz ~ 40GHz	1.88 dB

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

EUT	Wireless A+G Mini PCI Card
MODEL NO.	WMCE54AG2
POWER SUPPLY	3.3Vdc from host equipment
MODULATION TYPE	DBPSK, DQPSK, CCK, 16QAM, 64QAM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11b:11/5.5/2/1Mbps 802.11g: 54/48/36/24/18/12/9/6Mbps 802.11a: 54/48/36/24/18/12/9/6Mbps (Turbo mode: up to 108Mbps *see Note 3)
FREQUENCY RANGE	802.11b & 802.11g: 2412 ~ 2462MHz 802.11a: 5.15 ~ 5.35GHz and 5.725 ~ 5.850GHz
NUMBER OF CHANNEL	802.11b & 802.11g: 11 for Normal mode / 1 for Turbo mode 802.11a: 13 for Normal mode / 5 for Turbo mode
CHANNEL SPACING	802.11b & 802.11g: 5MHz 802.11a: 20MHz for Normal mode / 40MHz for Turbo mode
OUTPUT POWER	802.11b: 41.687mW 802.11g: 26.303mW 802.11a: 16.069mW
DATA CABLE	NA
ANTENNA TYPE	External Antenna: Dipole antenna with 4.0dBi gain for 2.4GHz band Dipole antenna with 5.0dBi gain for 5GHz band Internal Antenna: Printed antenna with 2.44dBi gain for 2.4GHz band Printed antenna with 1.65dBi gain for 5GHz band
I/O PORTS	NA
ASSOCIATED DEVICES	NA

NOTE:

1. This report is issued as a duplicate report of RF930909L11 and differences are the brand, model no., and applicant.
2. The EUT operates in both the 5GHz and 2.4GHz Bands and compatibility with 802.11a and 802.11b, 802.11g technology.
3. This EUT is capable of providing data rates of up to 108Mbps in Turbo Mode depending upon reception quality.
4. The above EUT information was declared by the manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

3.2 DESCRIPTION OF TEST MODES

802.11b and 802.11g: 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. Above 1GHz, the channel 1, 6, and 11 were tested individually.
2. From our experience and technical viewpoint, we have chosen data rates, 11Mbps with CCK technique and 6Mbps with OFDM technique, as the worst cases for the test among other data rates.

One channel is provided to this EUT for Turbo Mode.

Channel	Frequency
6	2437 MHz

NOTE: One turbo mode at frequency 2437MHz.

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

Channel	Frequency	Channel	Frequency
1	5180 MHz	7	5300MHz
2	5200 MHz	8	5320MHz
3	5220 MHz	9	5745MHz
4	5240 MHz	10	5765MHz
5	5260 MHz	11	5785MHz
6	5280 MHz	12	5805MHz

Five channels are provided to this EUT for Turbo Mode.

Channel	Frequency	Channel	Frequency
1	5210 MHz	4	5760 MHz
2	5250 MHz	5	5800 MHz
3	5290 MHz		

NOTE:

1. The EUT was tested in both normal mode (channel bandwidth of approximately 30MHz) and turbo mode (channel bandwidth of approximately 60MHz).
2. "Normal Mode" allows data rates of up to 54Mbps. The device was, therefore, tested in Normal mode at the data rate that produced the highest output power for normal mode (6Mbps).
3. "Turbo Mode" allows data rates of up to 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).
3. Channel1, 4, 5, 8, 9 and 12 are the closest frequencies to the band edge, were chosen for final test of Normal Mode.
4. Channel 1~5 were chosen for final test of Turbo mode.

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a Wireless A+G Mini PCI Card. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart C. (15.247),
Subpart E (15.407). ANSI C63.4 : 2003

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

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

3.4 DESCRIPTION OF SUPPORT UNITS

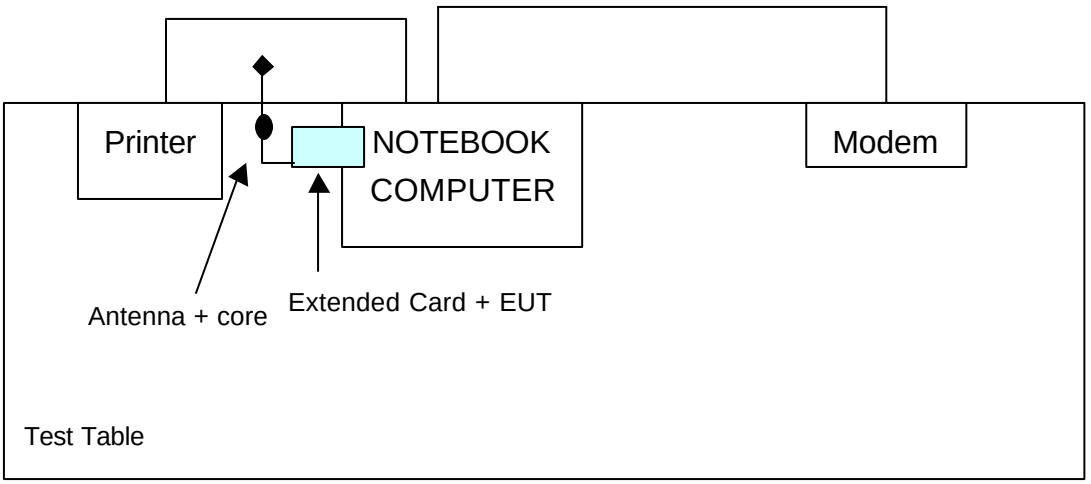
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP05L	12130898320	E2K24CLNS
2	PRINTER	EPSON	LQ-300+	DCGY054147	FCC DoC Approved
3	MODEM	ACEEX	1414V/3	0401008269	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	1.2m shielded without core

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

3.5 CONFIGURATION OF SYSTEM UNDER TEST



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

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

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

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
Test Receiver ROHDE & SCHWARZ	ESCS30	100288	Dec. 11, 2004
RF signal cable Woken	5D-FB	Cable-HyC02-01	Mar. 07, 2005
LISN ROHDE & SCHWARZ	ESH2-Z5	100100	Mar. 10, 2005
LISN ROHDE & SCHWARZ	ESH3-Z5	100311	Mar. 04, 2005
Software ADT	ADT_Cond_V3	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 HwaYa Shielded Room 2.

3. The VCCI Site Registration No. is C-2047.

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.

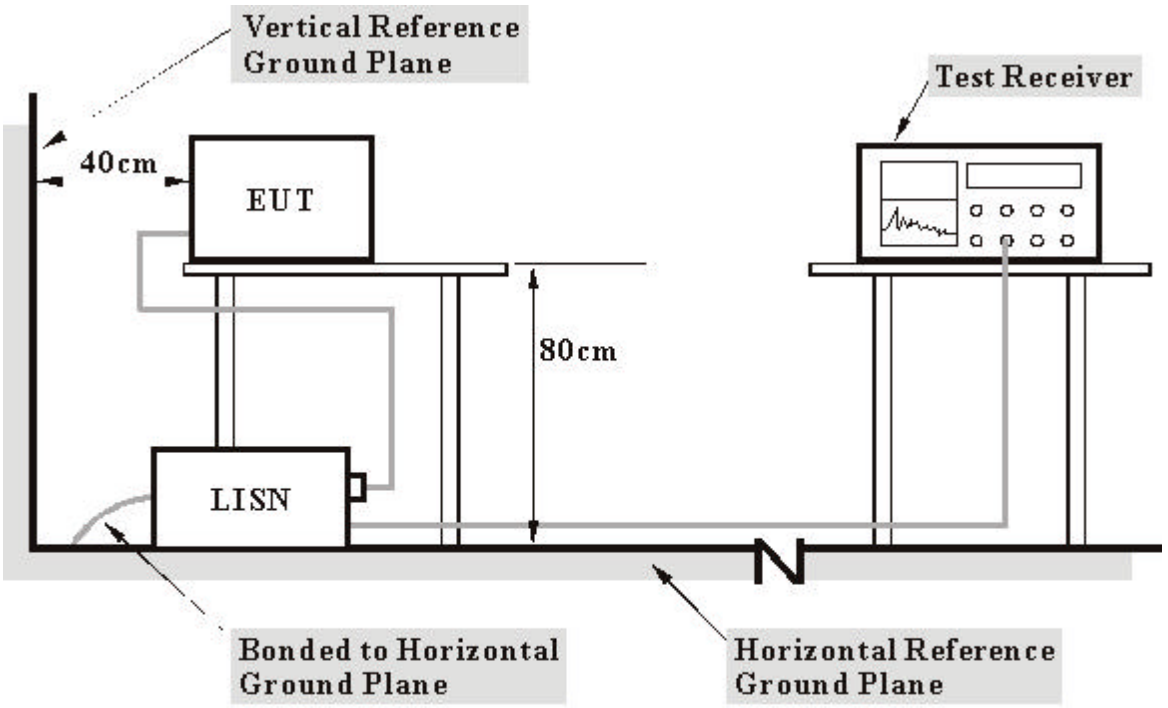
b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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. Connected the EUT to a notebook system placed on a testing table.
b. The notebook system ran a test program (provided by manufacturer) to enable EUT under transmission/receiving condition continuously at specific channel frequency.
c. The notebook system sent "H" messages to its screen.
d. The notebook system sent “H” messages to modem.
e. The notebook system sent "H" messages to printer, and the printer prints them on paper.
f. Steps c-e are repeated.

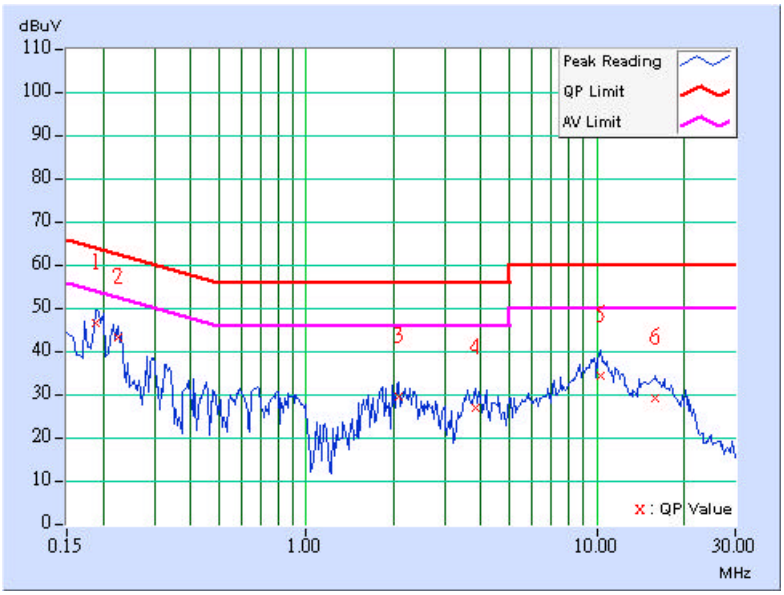
4.1.7 TEST RESULTS

EUT	Wireless A+G Mini PCI Card	**MODEL**	WMCE54AG2
MODE	Channel 1	**6dB BANDWIDTH**	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**PHASE**	Line (L)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 991hPa	**TESTED BY**: Match Tsui	

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	**0.189**	**0.10**	**45.82**	**-**	**45.92**	**-**	**64.08**	**54.08**	**-18.16**	**-**
2	0.224	0.10	42.59	-	42.69	-	62.66	52.66	-19.97	-
3	2.082	0.26	29.05	-	29.31	-	56.00	46.00	-26.69	-
4	3.832	0.31	26.34	-	26.65	-	56.00	46.00	-29.35	-
5	10.375	0.54	33.57	-	34.11	-	60.00	50.00	-25.89	-
6	15.914	0.74	28.57	-	29.31	-	60.00	50.00	-30.69	-

*(The test data is in accordance with ADT Report No.: RF930909L11.)

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.

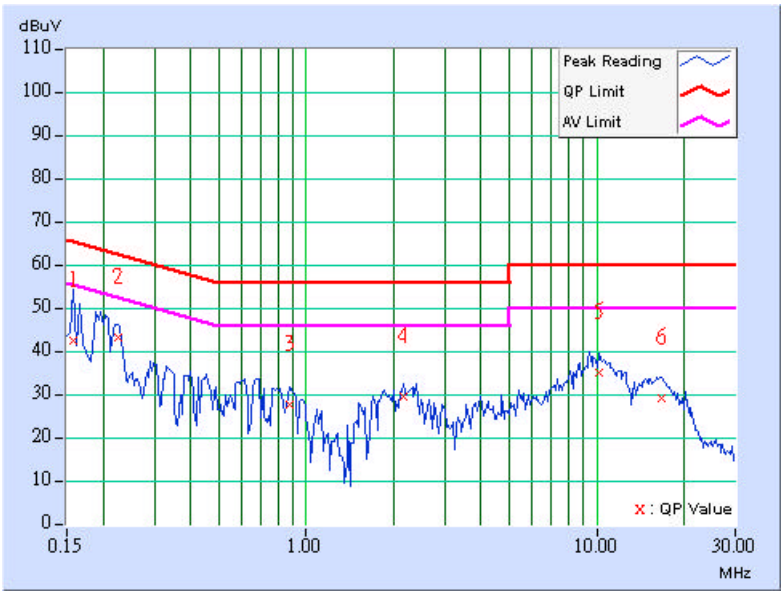


EUT	Wireless A+G Mini PCI Card	**MODEL**	WMCE54AG2
MODE	Channel 1	**6dB BANDWIDTH**	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**PHASE**	Neutral (N)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 991hPa	**TESTED BY**: Match Tsui	

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	0.158	0.10	41.99	-	42.09	-	65.58	55.58	-23.49	-
2	0.224	0.10	42.57	-	42.67	-	62.66	52.66	-19.99	-
3	0.873	0.21	27.22	-	27.43	-	56.00	46.00	-28.57	-
4	2.164	0.25	28.90	-	29.15	-	56.00	46.00	-26.85	-
5	10.203	0.49	34.58	-	35.07	-	60.00	50.00	-24.93	-
6	16.648	0.59	28.78	-	29.37	-	60.00	50.00	-30.63	-

*(The test data is in accordance with ADT Report No.: RF930909L11.)

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.

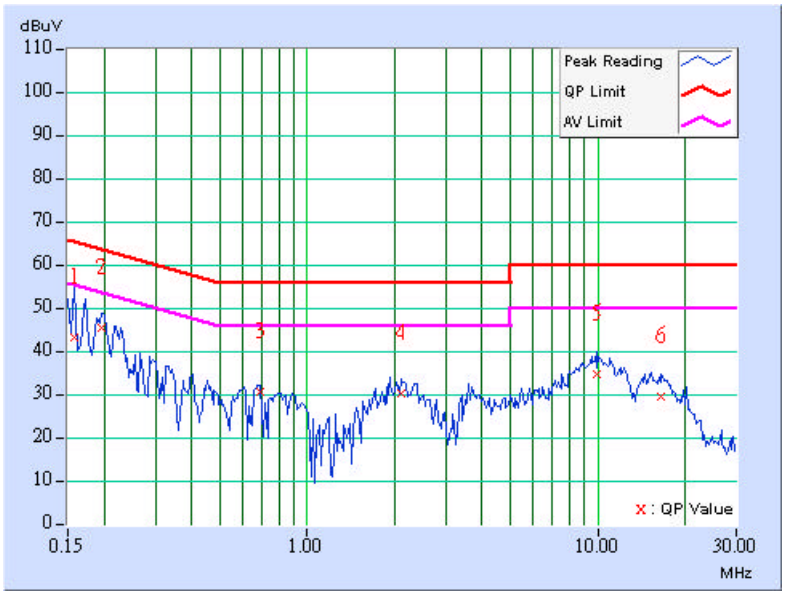


EUT	Wireless A+G Mini PCI Card	**MODEL**	WMCE54AG2
MODE	Channel 6	**6dB BANDWIDTH**	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**PHASE**	Line (L)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 991hPa	**TESTED BY**: Match Tsui	

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	0.158	0.10	42.39	-	42.49	-	65.58	55.58	-23.08	-
2	0.197	0.10	44.91	-	45.01	-	63.74	53.74	-18.73	-
3	0.685	0.18	29.91	-	30.09	-	56.00	46.00	-25.91	-
4	2.102	0.26	29.45	-	29.71	-	56.00	46.00	-26.29	-
5	9.941	0.53	34.17	-	34.70	-	60.00	50.00	-25.30	-
6	16.504	0.77	29.04	-	29.81	-	60.00	50.00	-30.19	-

*(The test data is in accordance with ADT Report No.: RF930909L11.)

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.

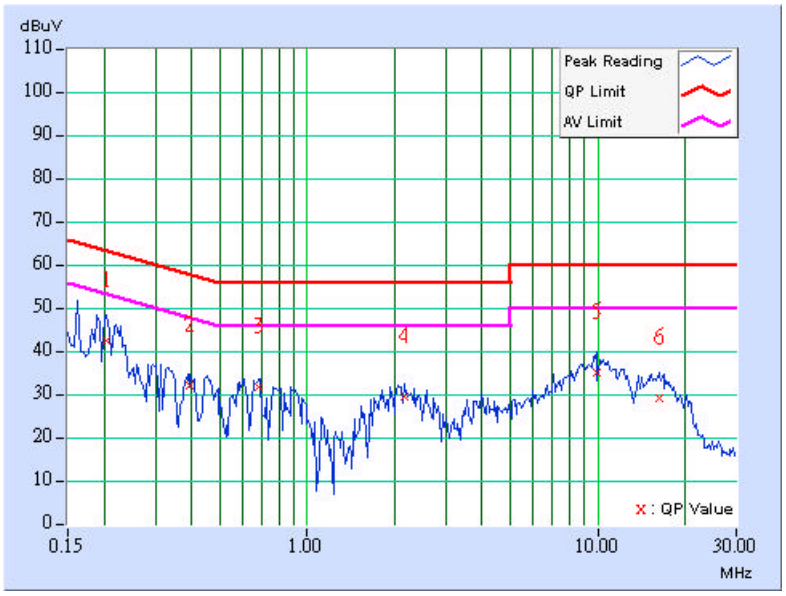


EUT	Wireless A+G Mini PCI Card	**MODEL**	WMCE54AG2
MODE	Channel 6	**6dB BANDWIDTH**	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**PHASE**	Neutral (N)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 991hPa	**TESTED BY**: Match Tsui	

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	0.205	0.10	42.12	-	42.22	-	63.42	53.42	-21.20	-
2	0.396	0.11	31.57	-	31.68	-	57.93	47.93	-26.25	-
3	0.681	0.17	31.18	-	31.35	-	56.00	46.00	-24.65	-
4	2.156	0.25	28.92	-	29.17	-	56.00	46.00	-26.83	-
5	9.984	0.49	34.53	-	35.02	-	60.00	50.00	-24.98	-
6	16.262	0.58	28.83	-	29.41	-	60.00	50.00	-30.59	-

*(The test data is in accordance with ADT Report No.: RF930909L11.)

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.

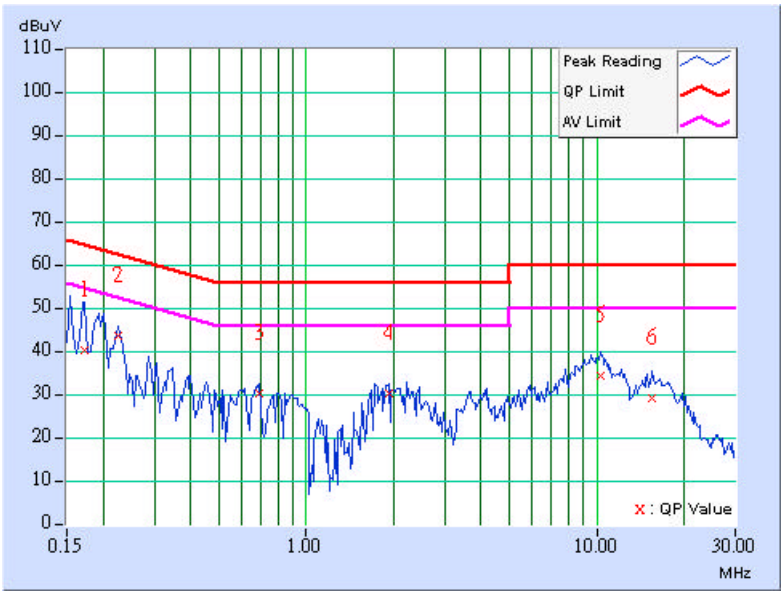


EUT	Wireless A+G Mini PCI Card	**MODEL**	WMCE54AG2
MODE	Channel 11	**6dB BANDWIDTH**	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**PHASE**	Line (L)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 991hPa	**TESTED BY**: Match Tsui	

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	0.173	0.10	39.55	-	39.65	-	64.79	54.79	-25.14	-
2	0.224	0.10	42.94	-	43.04	-	62.66	52.66	-19.62	-
3	0.689	0.18	29.53	-	29.71	-	56.00	46.00	-26.29	-
4	1.922	0.26	29.50	-	29.76	-	56.00	46.00	-26.24	-
5	10.293	0.54	33.76	-	34.30	-	60.00	50.00	-25.70	-
6	15.500	0.72	28.70	-	29.42	-	60.00	50.00	-30.58	-

*(The test data is in accordance with ADT Report No.: RF930909L11.)

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.

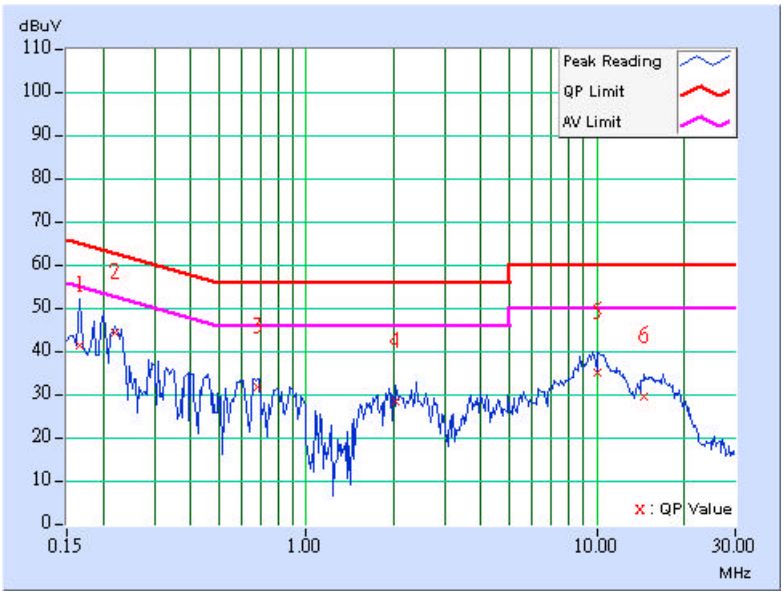


EUT	Wireless A+G Mini PCI Card	**MODEL**	WMCE54AG2
MODE	Channel 11	**6dB BANDWIDTH**	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**PHASE**	Neutral (N)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 991hPa	**TESTED BY**: Match Tsui	

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	0.166	0.10	41.01	-	41.11	-	65.18	55.18	-24.07	-
2	0.220	0.10	43.79	-	43.89	-	62.81	52.81	-18.92	-
3	0.677	0.17	31.22	-	31.39	-	56.00	46.00	-24.61	-
4	2.039	0.25	28.09	-	28.34	-	56.00	46.00	-27.66	-
5	10.070	0.49	34.67	-	35.16	-	60.00	50.00	-24.84	-
6	14.555	0.55	29.17	-	29.72	-	60.00	50.00	-30.28	-

*(The test data is in accordance with ADT Report No.: RF930909L11.)

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 (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
Test Receiver ROHDE & SCHWARZ	ESIB7	100188	Jan. 13, 2005
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100039	Dec. 15, 2004
BILOG Antenna SCHWARZBECK	VULB9168	9168-157	Feb. 03, 2005
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-407	Feb. 03, 2005
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA 9170241	Feb. 23, 2005
Preamplifier Agilent	8449B	3008A01961	Jan. 22, 2005
Preamplifier Agilent	8447D	2944A10629	Jan. 14, 2005
RF signal cable HUBER+SUHNER	SUCOFLEX 104	218182/4	Mar. 04, 2005
RF signal cable HUBER+SUHNER	SUCOFLEX 104	218194/4	Mar. 04, 2005
Software ADT.	ADT_Radiated_V5.14	NA	NA
Antenna Tower ADT.	AT100	AT93021702	NA
Turn Table ADT.	TT100.	TT93021702	NA
Controller ADT.	SC100.	SC93021702	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 HwaYa Chamber 1.

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

4. The IC Site Registration No. is IC4924-2.

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 3 meter semi- anechoic. 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.

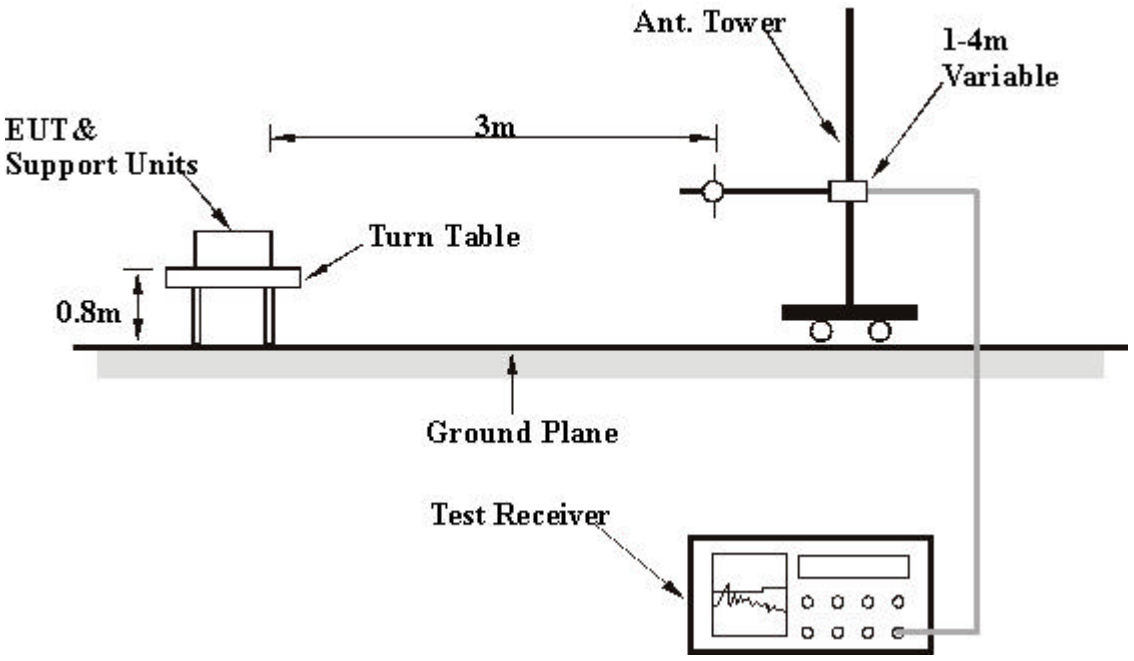
NOTE:

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 10 Hz for Average detection (AV) at frequency above 1GHz.

4.2.4 DEVIATION FROM TEST STANDARD

No deviation

4.2.5 TEST SETUP



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

4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6

4.2.7 TEST RESULTS

EUT	Wireless A+G Mini PCI Card	**MODEL**	WMCE54AG2
CHANNEL	Channel 11	**FREQUENCY RANGE**	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION**	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 991hPa	**TESTED BY**: Match Tsui	

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	57.21	26.01 QP	40.00	-13.99	1.50 H	265	12.03	13.99
2	82.48	30.46 QP	40.00	-9.54	1.50 H	181	20.43	10.03
3	113.59	36.98 QP	43.50	-6.52	1.00 H	325	24.60	12.37
4	125.25	42.17 QP	43.50	-1.33	1.50 H	31	28.78	13.39
5	142.75	42.10 QP	43.50	-1.40	1.47 H	357	27.62	14.48
6	**177.74**	**42.18 QP**	**43.50**	**-1.32**	**1.50 H**	**357**	**29.00**	**13.18**
7	210.78	36.36 QP	43.50	-7.14	1.00 H	316	24.73	11.63
8	267.15	32.21 QP	46.00	-13.79	1.50 H	154	18.56	13.66
9	300.20	32.16 QP	46.00	-13.84	1.00 H	316	17.65	14.50
10	333.25	41.05 QP	46.00	-4.95	1.00 H	325	25.78	15.26
11	377.96	32.28 QP	46.00	-13.72	1.00 H	25	16.01	16.27
12	449.88	32.00 QP	46.00	-14.00	1.50 H	262	13.94	18.07
13	531.52	26.40 QP	46.00	-19.60	1.50 H	208	7.06	19.34
14	599.56	33.39 QP	46.00	-12.61	1.50 H	94	12.39	21.00
15	665.65	29.40 QP	46.00	-16.60	1.00 H	274	7.52	21.87
16	931.96	29.22 QP	46.00	-16.78	1.50 H	130	3.77	25.45

*(The test data is in accordance with ADT Report No.: RF930909L11.)

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	Wireless A+G Mini PCI Card	**MODEL**	WMCE54AG2
CHANNEL	Channel 11	**FREQUENCY RANGE**	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION**	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 991hPa	**TESTED BY**: Match Tsui	

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	57.21	35.47 QP	40.00	-4.53	1.00 V	172	21.49	13.99
2	92.20	33.21 QP	43.50	-10.29	1.00 V	10	22.84	10.37
3	125.25	37.84 QP	43.50	-5.66	1.00 V	310	24.44	13.39
4	142.75	38.57 QP	43.50	-4.93	1.50 V	91	24.09	14.48
5	166.07	39.03 QP	43.50	-4.47	1.00 V	49	24.73	14.30
6	199.12	33.22 QP	43.50	-10.28	1.25 V	88	21.76	11.46
7	267.15	28.83 QP	46.00	-17.17	1.50 V	304	15.17	13.66
8	333.25	35.78 QP	46.00	-10.22	1.25 V	286	20.52	15.26
9	348.80	34.39 QP	46.00	-11.61	1.25 V	283	18.77	15.62
10	381.84	34.25 QP	46.00	-11.75	1.25 V	283	17.90	16.35
11	457.66	33.05 QP	46.00	-12.95	1.00 V	280	14.88	18.17
12	498.48	27.87 QP	46.00	-18.13	1.00 V	349	9.16	18.71
13	533.47	30.03 QP	46.00	-15.97	1.00 V	310	10.66	19.37
14	601.50	32.97 QP	46.00	-13.03	1.25 V	13	11.94	21.03
15	731.74	29.01 QP	46.00	-16.99	1.50 V	346	5.92	23.08
16	931.96	30.10 QP	46.00	-15.90	1.50 V	58	4.65	25.45

*(The test data is in accordance with ADT Report No.: RF930909L11.)

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	Wireless A+G Mini PCI Card	**MODEL**	WMCE54AG2
CHANNEL	Channel 1	**FREQUENCY RANGE**	1 ~ 25GHz
MODE	CCK		
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 991hPa	**TESTED BY**: Match Tsui	

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	2016.00	48.18 PK	74.00	-25.82	1.04 H	195	17.56	30.62
2	2360.00	58.43 PK	74.00	-15.57	1.18 H	187	26.72	31.71
2	2360.00	40.94 AV	54.00	-13.06	1.18 H	187	9.23	31.71
3	2390.00	47.65 PK	74.00	-26.35	1.14 H	191	15.85	31.80
4	*2412.00	104.69 PK			1.14 H	191	72.82	31.87
4	*2412.00	96.47 AV			1.14 H	191	64.60	31.87
5	2688.00	43.80 PK	74.00	-30.20	1.10 H	10	10.90	32.90
6	4824.00	49.01 PK	74.00	-24.99	1.21 H	242	10.90	38.11

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	2016.00	52.23 PK	74.00	-21.77	1.24 V	259	21.61	30.62
1	2016.00	49.49 AV	54.00	-4.51	1.24 V	259	18.87	30.62
2	2360.00	67.15 PK	74.00	-6.85	1.23 V	196	35.44	31.71
2	2360.00	49.57 AV	54.00	-4.43	1.23 V	196	17.86	31.71
3	2390.00	55.50 PK	74.00	-18.50	1.18 V	35	23.70	31.80
3	2390.00	47.21 AV	54.00	-6.79	1.18 V	35	15.41	31.80
4	*2412.00	112.59 PK			1.20 V	126	80.72	31.87
4	*2412.00	104.30 AV			1.20 V	126	72.43	31.87
5	2688.00	47.63 PK	74.00	-26.37	1.14 V	325	14.73	32.90
6	4824.00	55.09 PK	74.00	-18.91	1.18 V	35	16.98	38.11
6	4824.00	40.19 AV	54.00	-13.81	1.18 V	35	2.08	38.11

*(The test data is in accordance with ADT Report No.: RF930909L11.)

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	Wireless A+G Mini PCI Card	**MODEL**	WMCE54AG2
CHANNEL	Channel 6	**FREQUENCY RANGE**	1 ~ 25GHz
MODE	CCK		
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 991hPa	**TESTED BY**: Match Tsui	

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	2016.00	47.51 PK	74.00	-26.49	1.10 H	139	16.89	30.62
2	2360.00	53.60 PK	74.00	-20.40	1.18 H	170	21.89	31.71
2	2360.00	41.88 AV	54.00	-12.12	1.18 H	170	10.17	31.71
3	*2437.00	103.51 PK			1.12 H	176	71.56	31.95
3	*2437.00	95.37 AV			1.12 H	176	63.42	31.95
4	4874.00	48.67 PK	74.00	-25.33	1.12 H	232	10.39	38.28

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	2016.00	51.49 PK	74.00	-22.51	1.00 V	358	20.87	30.62
1	2016.00	49.04 AV	54.00	-4.96	1.00 V	358	18.42	30.62
2	2360.00	48.89 PK	74.00	-25.11	1.00 V	146	17.18	31.71
3	*2437.00	111.96 PK			1.01 V	320	80.01	31.95
3	*2437.00	103.79 AV			1.01 V	320	71.84	31.95
4	2688.00	48.39 PK	74.00	-25.61	1.16 V	326	15.49	32.90
5	4874.00	55.24 PK	74.00	-18.76	1.01 V	2	16.96	38.28
5	4874.00	40.52 AV	54.00	-13.48	1.01 V	2	2.24	38.28

*(The test data is in accordance with ADT Report No.: RF930909L11.)

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	Wireless A+G Mini PCI Card	**MODEL**	WMCE54AG2
CHANNEL	Channel 11	**FREQUENCY RANGE**	1 ~ 25GHz
MODE	CCK		
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 991hPa	**TESTED BY**: Match Tsui	

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	2016.00	50.36 PK	74.00	-23.64	1.06 H	193	19.74	30.62
1	2016.00	46.57 AV	54.00	-7.43	1.06 H	193	15.95	30.62
2	*2462.00	102.86 PK			1.00 H	360	70.84	32.02
2	*2462.00	94.94 AV			1.00 H	360	62.92	32.02
3	2488.00	46.04 PK	74.00	-27.96	1.00 H	360	13.94	32.10
4	2688.00	56.36 PK	74.00	-17.64	1.18 H	170	23.46	32.90
4	2688.00	43.34 AV	54.00	-10.66	1.18 H	170	10.44	32.90
5	4924.00	50.20 PK	74.00	-23.80	1.00 H	306	11.71	38.49
5	4924.00	35.77 AV	54.00	-18.23	1.00 H	306	-2.72	38.49

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	2016.00	53.33 PK	74.00	-20.67	1.23 V	260	22.71	30.62
1	2016.00	50.85 AV	54.00	-3.15	1.23 V	260	20.23	30.62
2	2360.00	61.46 PK	74.00	-12.54	1.22 V	180	29.75	31.71
2	2360.00	48.96 AV	54.00	-5.04	1.22 V	180	17.25	31.71
3	*2462.00	113.80 PK			1.11 V	205	81.78	32.02
3	*2462.00	105.53 AV			1.11 V	205	73.51	32.02
4	2488.00	56.98 PK	74.00	-17.02	1.11 V	205	24.88	32.10
4	2488.00	48.71 AV	54.00	-5.29	1.11 V	205	16.61	32.10
5	2688.00	47.33 PK	74.00	-26.67	1.15 V	13	14.43	32.90
6	4924.00	55.95 PK	74.00	-18.05	1.17 V	10	17.46	38.49
6	4924.00	41.25 AV	54.00	-12.75	1.17 V	10	2.76	38.49

*(The test data is in accordance with ADT Report No.: RF930909L11.)

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

Normal mode

EUT	Wireless A+G Mini PCI Card	**MODEL**	WMCE54AG2
CHANNEL	Channel 1	**FREQUENCY RANGE**	1 ~ 25GHz
MODE	OFDM		
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 991hPa	**TESTED BY**: Match Tsui	

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	2016.00	47.78 PK	74.00	-26.22	1.05 H	195	17.16	30.62
2	2360.00	54.33 PK	74.00	-19.67	1.08 H	315	22.62	31.71
2	2360.00	43.41 AV	54.00	-10.59	1.08 H	315	11.70	31.71
3	2390.00	52.24 PK	74.00	-21.76	1.00 H	347	20.44	31.80
3	2390.00	42.18 AV	54.00	-11.82	1.00 H	347	10.38	31.80
4	*2412.00	101.00 PK			1.00 H	347	69.13	31.87
4	*2412.00	90.94 AV			1.00 H	347	59.07	31.87
5	4824.00	48.13 PK	74.00	-25.87	1.05 H	12	10.02	38.11

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	2016.00	50.37 PK	74.00	-23.63	1.12 V	187	19.75	30.62
1	2016.00	46.92 AV	54.00	-7.08	1.12 V	187	16.30	30.62
2	2360.00	63.05 PK	74.00	-10.95	1.07 V	251	31.34	31.71
2	2360.00	49.80 AV	54.00	-4.20	1.07 V	251	18.09	31.71
3	2390.00	60.68 PK	74.00	-13.32	1.03 V	322	28.88	31.80
3	2390.00	49.10 AV	54.00	-4.90	1.03 V	322	17.30	31.80
4	*2412.00	109.44 PK			1.03 V	322	77.57	31.87
4	*2412.00	97.86 AV			1.03 V	322	65.99	31.87
5	2688.00	46.50 PK	74.00	-27.50	1.07 V	180	13.60	32.90
6	4824.00	52.28 PK	74.00	-21.72	1.10 V	12	14.17	38.11
6	4824.00	37.66 AV	54.00	-16.34	1.10 V	12	-0.45	38.11

*(The test data is in accordance with ADT Report No.: RF930909L11.)

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	Wireless A+G Mini PCI Card	**MODEL**	WMCE54AG2
CHANNEL	Channel 6	**FREQUENCY RANGE**	1 ~ 25GHz
MODE	OFDM		
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 991hPa	**TESTED BY**: Match Tsui	

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	2016.00	49.36 PK	74.00	-24.64	1.00 H	14	18.74	30.62
2	2360.00	55.38 PK	74.00	-18.62	1.07 H	316	23.67	31.71
2	2360.00	42.97 AV	54.00	-11.03	1.07 H	316	11.26	31.71
3	*2437.00	99.35 PK			1.12 H	175	67.40	31.95
3	*2437.00	89.70 AV			1.12 H	175	57.75	31.95
4	4874.00	48.50 PK	74.00	-25.50	1.12 H	160	10.22	38.28

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	2016.00	50.09 PK	74.00	-23.91	1.11 V	185	19.47	30.62
1	2016.00	49.81 AV	54.00	-4.19	1.11 V	185	19.19	30.62
2	2360.00	61.47 PK	74.00	-12.53	1.07 V	250	29.76	31.71
2	2360.00	49.67 AV	54.00	-4.33	1.07 V	250	17.96	31.71
3	2437.00	107.85 PK			1.34 V	251	75.90	31.95
3	2437.00	97.96 AV			1.34 V	251	66.01	31.95
4	2688.00	47.10 PK	74.00	-26.90	1.08 V	181	14.20	32.90
5	4874.00	50.01 PK	74.00	-23.99	1.10 V	184	11.73	38.28
5	4874.00	38.01 AV	54.00	-15.99	1.10 V	184	-0.27	38.28

*(The test data is in accordance with ADT Report No.: RF930909L11.)

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	Wireless A+G Mini PCI Card	**MODEL**	WMCE54AG2
CHANNEL	Channel 11	**FREQUENCY RANGE**	1 ~ 25GHz
MODE	OFDM		
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 991hPa	**TESTED BY**: Match Tsui	

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	2016.00	49.15 PK	74.00	-24.85	1.00 H	11	18.53	30.62
2	2360.00	54.61 PK	74.00	-19.39	1.03 H	342	22.90	31.71
2	2360.00	44.52 AV	54.00	-9.48	1.03 H	342	12.81	31.71
3	*2462.00	100.97 PK			1.28 H	47	68.95	32.02
3	*2462.00	90.78 AV			1.28 H	47	58.76	32.02
4	2483.50	52.62 PK	74.00	-21.38	1.28 H	47	20.53	32.09
4	2483.50	42.43 AV	54.00	-11.57	1.28 H	47	10.34	32.09
5	2688.00	44.19 PK	74.00	-29.81	1.24 H	0	11.29	32.90
6	4924.00	48.50 PK	74.00	-25.50	1.03 H	91	10.01	38.49

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	2016.00	49.58 PK	74.00	-24.42	1.00 V	6	18.96	30.62
2	2360.00	58.66 PK	74.00	-15.34	1.30 V	352	26.95	31.71
2	2360.00	49.55 AV	54.00	-4.45	1.30 V	352	17.84	31.71
3	*2462.00	108.45 PK			1.27 V	253	76.43	32.02
3	*2462.00	98.14 AV			1.27 V	253	66.12	32.02
4	2483.50	60.10 PK	74.00	-13.90	1.27 V	253	28.01	32.09
4	2483.50	49.79 AV	54.00	-4.21	1.27 V	253	17.70	32.09
5	2688.00	47.24 PK	74.00	-26.76	1.15 V	327	14.34	32.90
6	4924.00	50.79 PK	74.00	-23.21	1.04 V	206	12.30	38.49
6	4924.00	37.32 AV	54.00	-16.68	1.04 V	206	-1.17	38.49

*(The test data is in accordance with ADT Report No.: RF930909L11.)

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

Turbo mode

EUT	Wireless A+G Mini PCI Card	**MODEL**	WMCE54AG2
CHANNEL	Channel 6	**FREQUENCY RANGE**	1 ~ 25GHz
MODE	OFDM		
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION**	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 991hPa	**TESTED BY**: Match Tsui	

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	2016.00	49.19 PK	74.00	-24.81	1.16 H	322	18.57	30.62
2	2360.00	51.61 PK	74.00	-22.39	1.08 H	195	19.90	31.71
2	2360.00	42.21 AV	54.00	-11.79	1.08 H	195	10.50	31.71
3	*2437.00	98.54 PK			1.05 H	315	66.59	31.95
3	*2437.00	89.14 AV			1.05 H	315	57.19	31.95
4	2483.50	51.61 PK	74.00	-22.39	1.05 H	315	19.52	32.09
4	2483.50	37.75 AV	54.00	-16.25	1.05 H	315	5.66	32.09
5	2688.00	44.14 PK	74.00	-29.86	1.05 H	12	11.24	32.90
6	4874.00	48.74 PK	74.00	-25.26	1.01 H	195	10.46	38.28

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	2016.00	50.10 PK	74.00	-23.90	1.00 V	315	19.48	30.62
1	2016.00	49.72 AV	54.00	-4.28	1.00 V	315	19.10	30.62
2	2360.00	59.27 PK	74.00	-14.73	1.15 V	325	27.56	31.71
2	2360.00	49.09 AV	54.00	-4.91	1.15 V	325	17.38	31.71
3	*2437.00	106.20 PK			1.10 V	317	74.25	31.95
3	*2437.00	96.02 AV			1.10 V	317	64.07	31.95
4	2483.50	54.81 PK	74.00	-19.19	1.10 V	317	22.72	32.09
4	2483.50	44.63 AV	54.00	-9.37	1.10 V	317	12.54	32.09
5	2688.00	47.14 PK	74.00	-26.86	1.01 V	35	14.24	32.90
6	4874.00	50.00 PK	74.00	-24.00	1.02 V	350	11.72	38.28
6	4874.00	39.24 AV	54.00	-14.76	1.02 V	350	0.96	38.28

*(The test data is in accordance with ADT Report No.: RF930909L11.)

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

4.3 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	Aug. 12, 2005

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

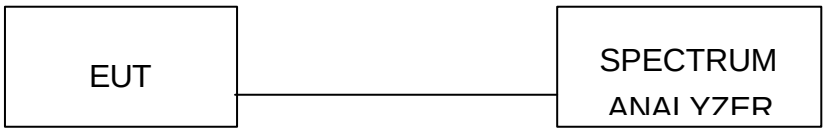
4.3.3 TEST PROCEDURE

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 6 dB.

4.3.4 DEVIATION FROM TEST STANDARD

No deviation

4.3.5 TEST SETUP



4.3.6 EUT OPERATING CONDITIONS

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

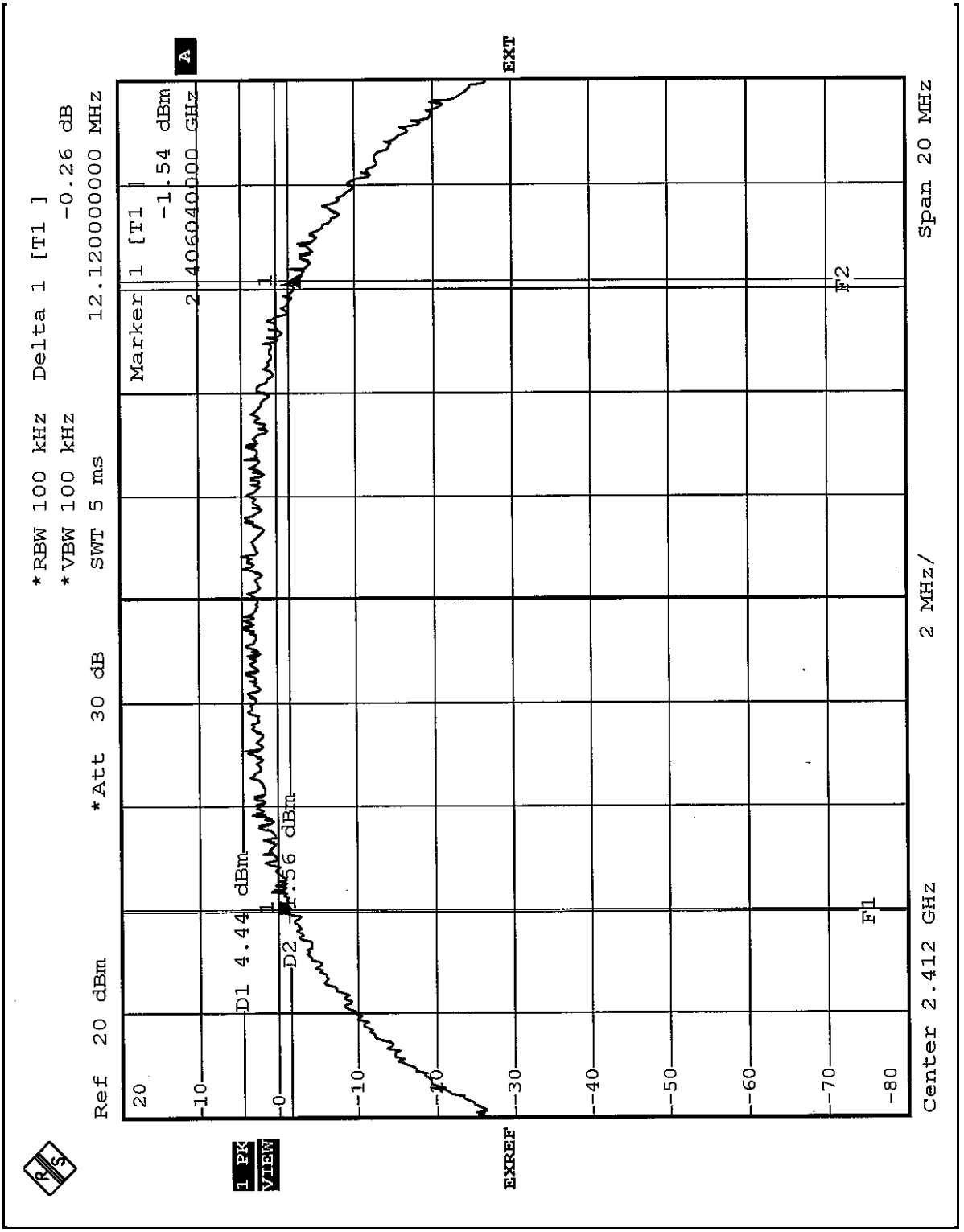
4.3.7 TEST RESULTS

EUT	Wireless A+G Mini PCI Card	**MODEL**	WMCE54AG2
MODE	CCK	**INPUT POWER (SYSTEM)**	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	24deg. C, 65%RH, 991hPa	**TESTED BY**	Leo Huang

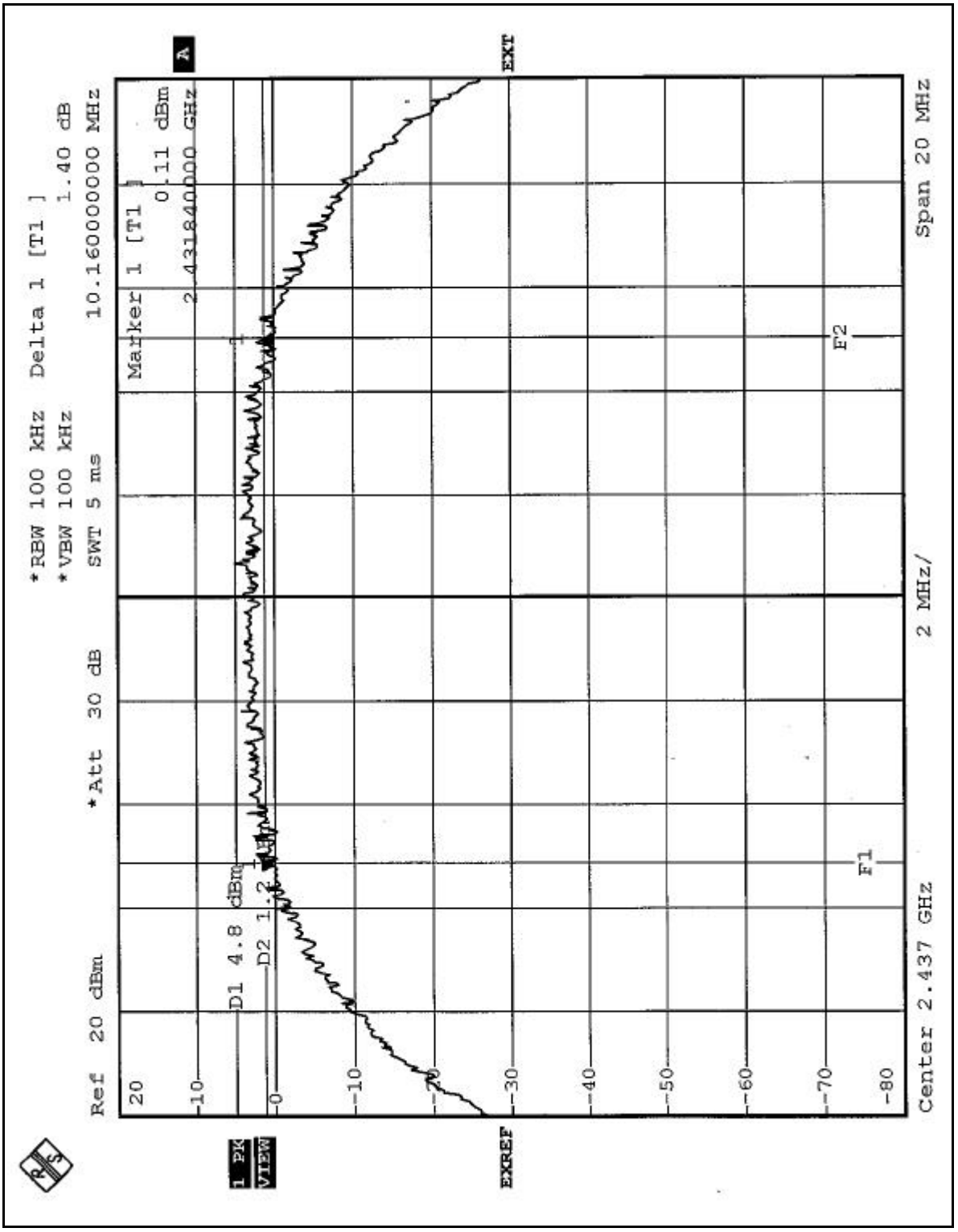
CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	12.12	0.5	PASS
6	2437	10.16	0.5	PASS
11	2462	11.32	0.5	PASS

*(The test data is in accordance with ADT Report No.: RF930909L11.)

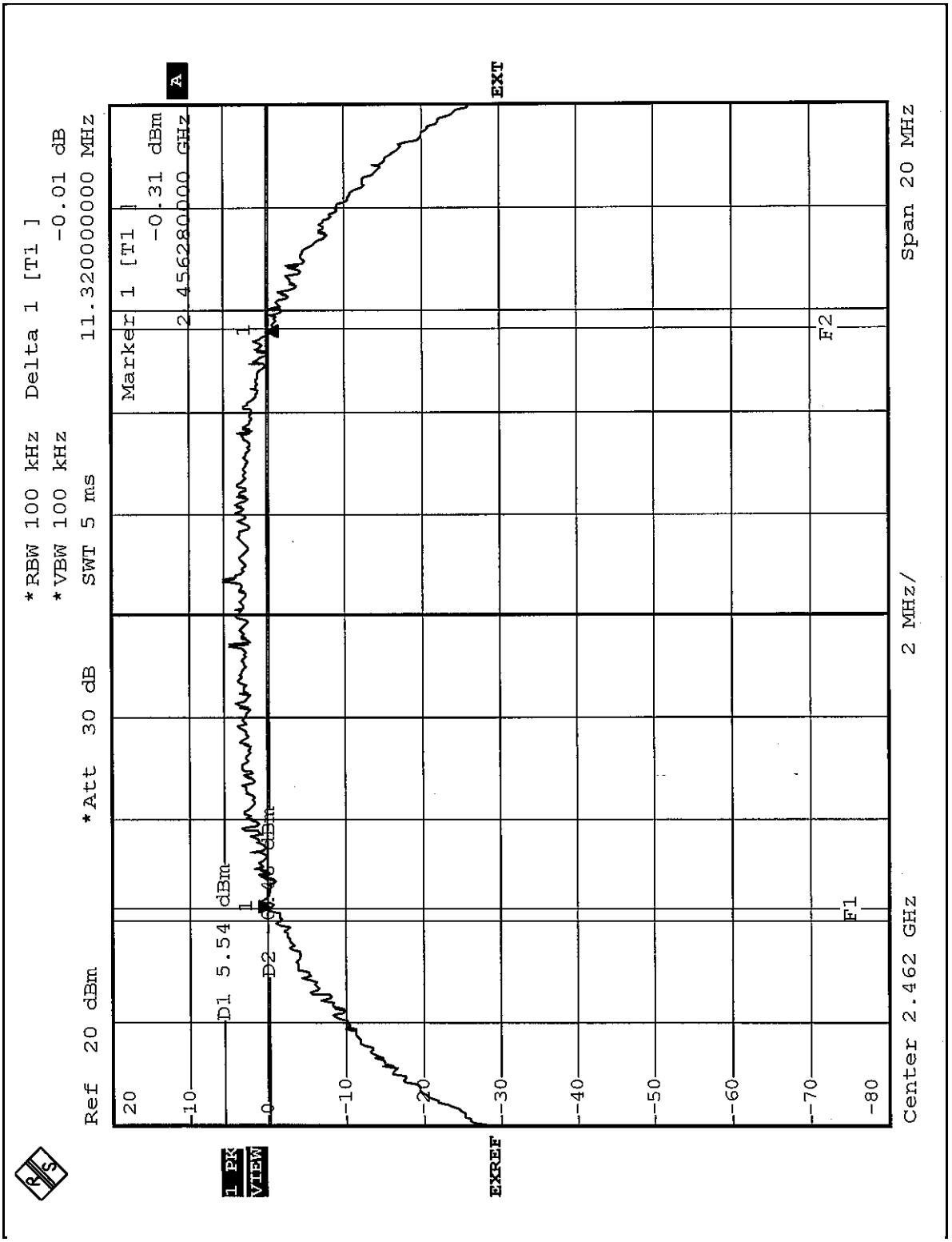
CH1


*RBW 100 kHz
*VBW 100 kHz
Ref 20 dBm
*Att 30 dB
SWT 5 ms
Delta 1 [T1]
-0.26 dB
12.120000000 MHz
Marker 1 [T1]
-1.54 dBm
2.406400000 GHz
D1 4.44 dBm
D2 -1.56 dBm
Center 2.412 GHz
2 MHz/
Span 20 MHz
EXT
EXREF
1 PK VIEW

CH6


*RBW 100 kHz
*VBW 100 kHz
*Att 30 dB
SWT 5 ms
Ref 20 dBm
Delta 1 [T1]
1.40 dB
10.160000000 MHz
Marker 1 [T1]
0.11 dBm
2.431840000 GHz
D1 4.8 dBm
D2 1.2
Center 2.437 GHz
2 MHz/
Span 20 MHz
F1
F2
EXT
EXREF
1 PK VIEW
A

CH11


*RBW 100 kHz
*VBW 100 kHz
Ref 20 dBm
*Att 30 dB
SWT 5 ms
Delta 1 [T1]
-0.01 dB
11.32000000 MHz
Marker 1 [T1]
-0.31 dBm
2.45628000 GHz
Center 2.462 GHz
2 MHz/
Span 20 MHz
D1 5.54 dBm
D2
F1
F2
EXT
EXREF
1 PK
VIEW

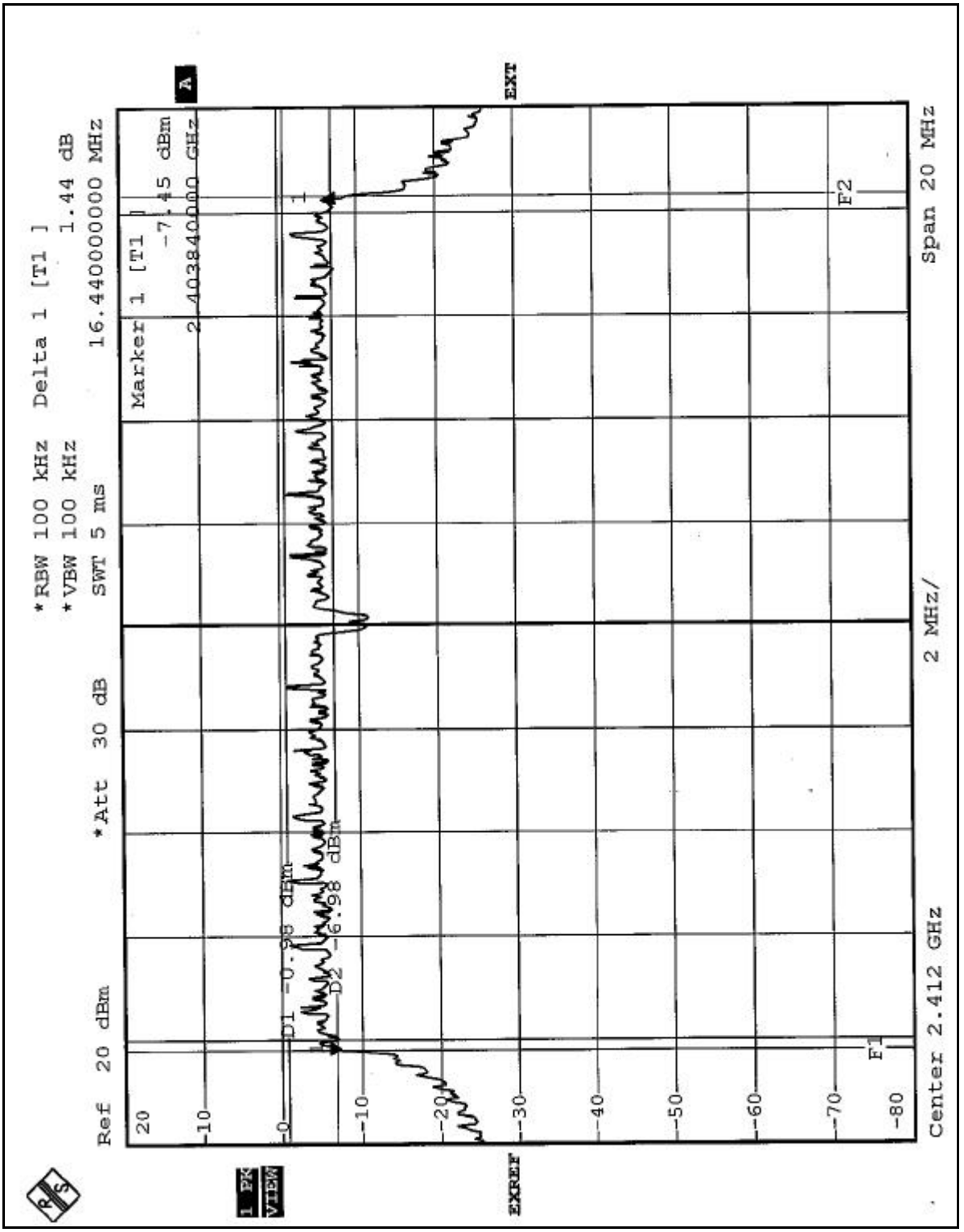
Normal mode

EUT	Wireless A+G Mini PCI Card	**MODEL**	WMCE54AG2
MODE	OFDM	**INPUT POWER (SYSTEM)**	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	24deg. C, 65%RH, 991hPa	**TESTED BY**	Leo Huang

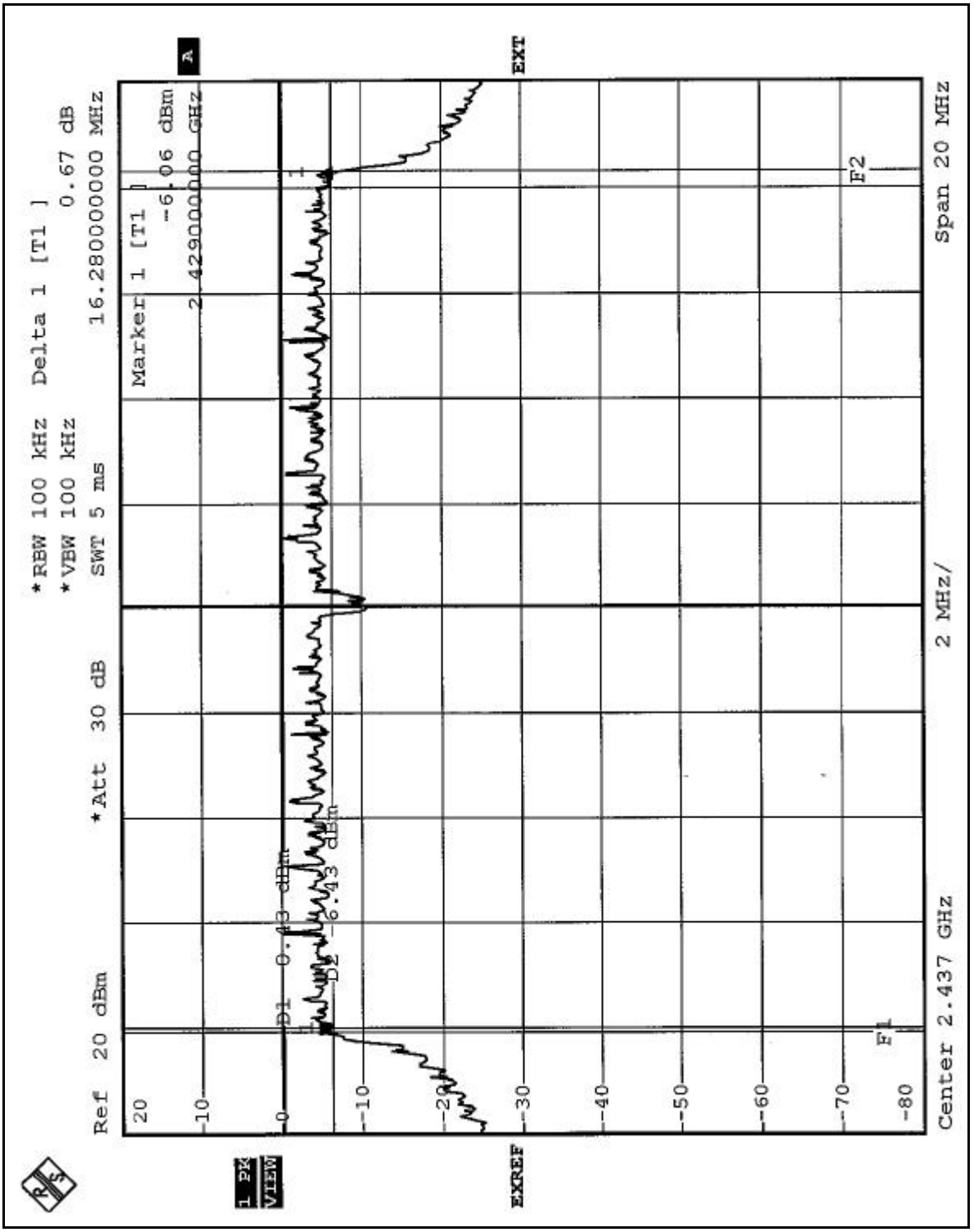
CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	16.44	0.5	PASS
6	2437	16.28	0.5	PASS
11	2462	16.32	0.5	PASS

*(The test data is in accordance with ADT Report No.: RF930909L11.)

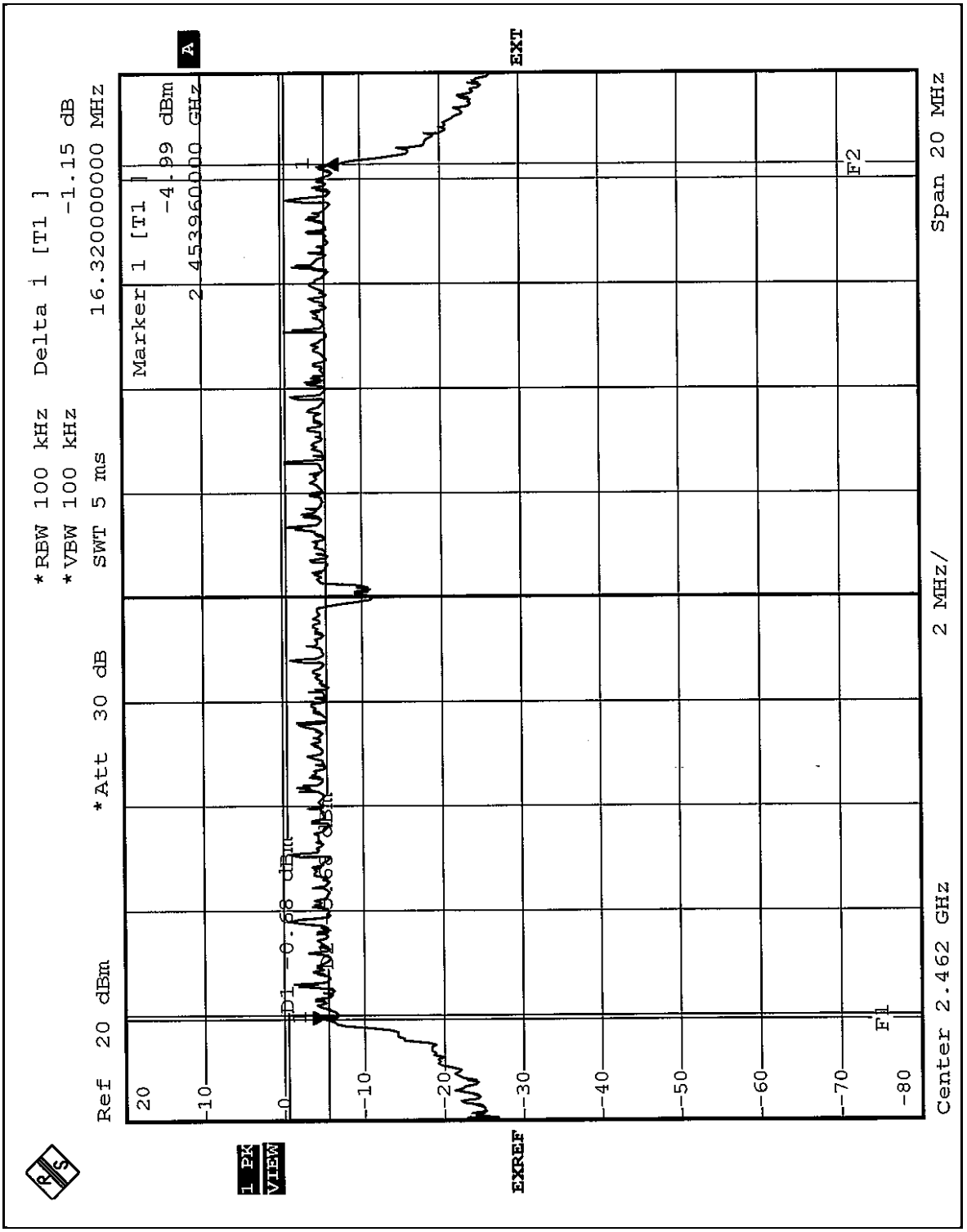
CH1


Ref 20 dBm
*Att 30 dB
*RBW 100 kHz
*VBW 100 kHz
SWT 5 ms
Delta 1 [T1]
1.44 dB
16.440000000 MHz
Marker 1 [T1]
-7.45 dBm
2.403840000 GHz
D1 -0.98 dBm
D2 -6.98 dBm
F1
F2
Center 2.412 GHz
2 MHz/
Span 20 MHz
1 PK
VIEW
EXT
EXREF

CH6


*RBW 100 kHz
*VBW 100 kHz
SWT 5 ms
Delta 1 [T1]
0.67 dB
16.280000000 MHz
Marker 1 [T1]
-6.06 dBm
2.429000000 GHz
Ref 20 dBm
*Att 30 dB
D1 0.43 dBm
D2 -6.43 dBm
EXT
EXREF
F1
F2
Center 2.437 GHz
2 MHz/
Span 20 MHz
1 PK VIEW

CH11


*RBW 100 kHz
*VBW 100 kHz
SWT 5 ms
*Att 30 dB
Ref 20 dBm
Delta 1 [T1]
-1.15 dB
16.320000000 MHz
Marker 1 [T1]
-4.99 dBm
2.453960000 GHz
D1 -0.68 dBm
Center 2.462 GHz
2 MHz/
Span 20 MHz
EXT
EXREF
1 PK
VIEW

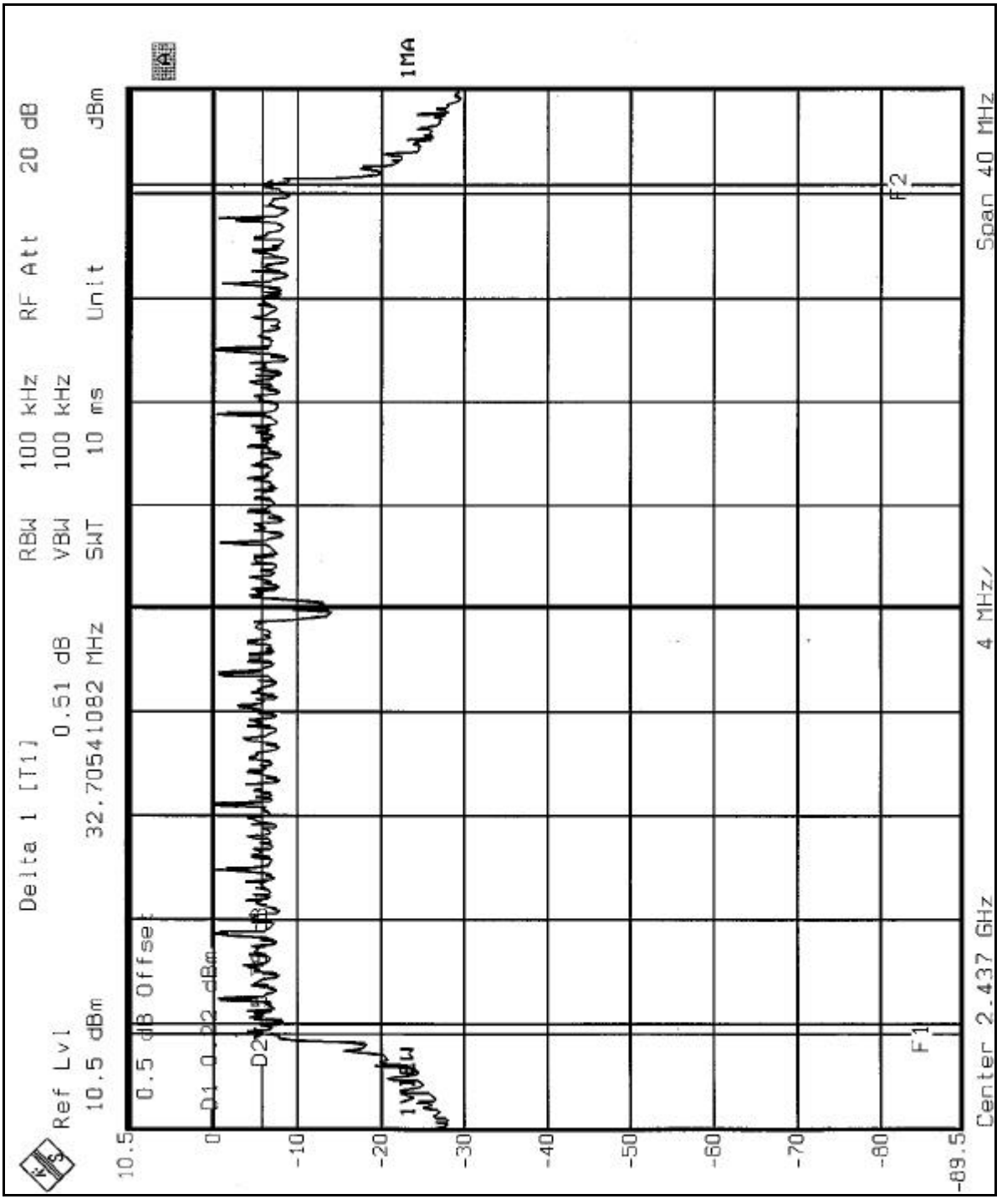
Turbo mode

EUT	Wireless A+G Mini PCI Card	**MODEL**	WMCE54AG2
MODE	OFDM	**INPUT POWER (SYSTEM)**	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	24deg. C, 65%RH, 991hPa	**TESTED BY**	Leo Huang

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
6	2437	32.71	0.5	PASS

*(The test data is in accordance with ADT Report No.: RF930909L11.)

CH6


Delta 1 [T1]
0.51 dB
32.70541082 MHz
RBW 100 kHz
VBW 100 kHz
SWT 10 ms
RF Att 20 dB
Unit dBm
Ref Lvl
10.5 dBm
0.5 dB Offset
D1 0.00 dBm
D2
1MA
F1
F2
Center 2.437 GHz
4 MHz/
Span 40 MHz
10.5
0
-10
-20
-30
-40
-50
-60
-70
-80
-89.5

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

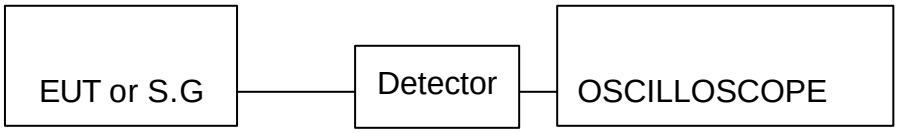
Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSEK30	100049	Aug. 12, 2005
AGILENT SIGNAL GENERATOR	E8257C	MY43320668	Dec. 31, 2004
TEKTRONIX OSCILLOSCOPE	TDS 1012	C019167	Feb. 01, 2005
NARDA DETECTOR	4503A	FSCM99899	NA

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 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 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

EUT	Wireless A+G Mini PCI Card	MODEL	WMCE54AG2
INPUT POWER (SYSTEM)	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	24deg.C, 65%RH, 991hPa
MODE	CCK	TESTED BY	Leo Huang

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	39.811	16.0	30	PASS
6	2437	40.738	16.1	30	PASS
11	2462	41.687	16.2	30	PASS

*(The test data is in accordance with ADT Report No.: RF930909L11.)

Normal mode

EUT	Wireless A+G Mini PCI Card	MODEL	WMCE54AG2
INPUT POWER (SYSTEM)	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	24deg.C, 65%RH, 991hPa
MODE	OFDM	TESTED BY	Leo Huang

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	25.704	14.1	30	PASS
6	2437	25.119	14.0	30	PASS
11	2462	26.303	14.2	30	PASS

*(The test data is in accordance with ADT Report No.: RF930909L11.)

Turbo mode

EUT	Wireless A+G Mini PCI Card	MODEL	WMCE54AG2
INPUT POWER (SYSTEM)	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	24deg.C, 65%RH, 991hPa
MODE	OFDM	TESTED BY	Leo Huang

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
6	2437	25.119	14.00	30	PASS

*(The test data is in accordance with ADT Report No.: RF930909L11.)

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	Aug. 12, 2005

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

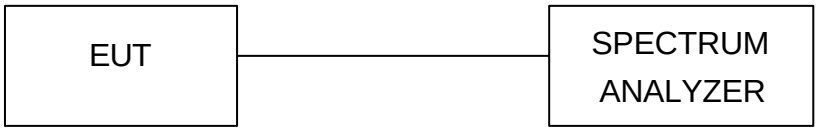
4.5.3 TEST PROCEDURE

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 3 kHz RBW and 30 kHz VBW, set sweep time = span/3 kHz. The power spectral density was measured and recorded.
The sweep time is allowed to be longer than span/3 kHz for a full response of the mixer in the spectrum analyzer.

4.5.4 DEVIATION FROM TEST STANDARD

No deviation

4.5.5 TEST SETUP



4.5.6 EUT OPERATING CONDITION

Same as Item 4.3.6

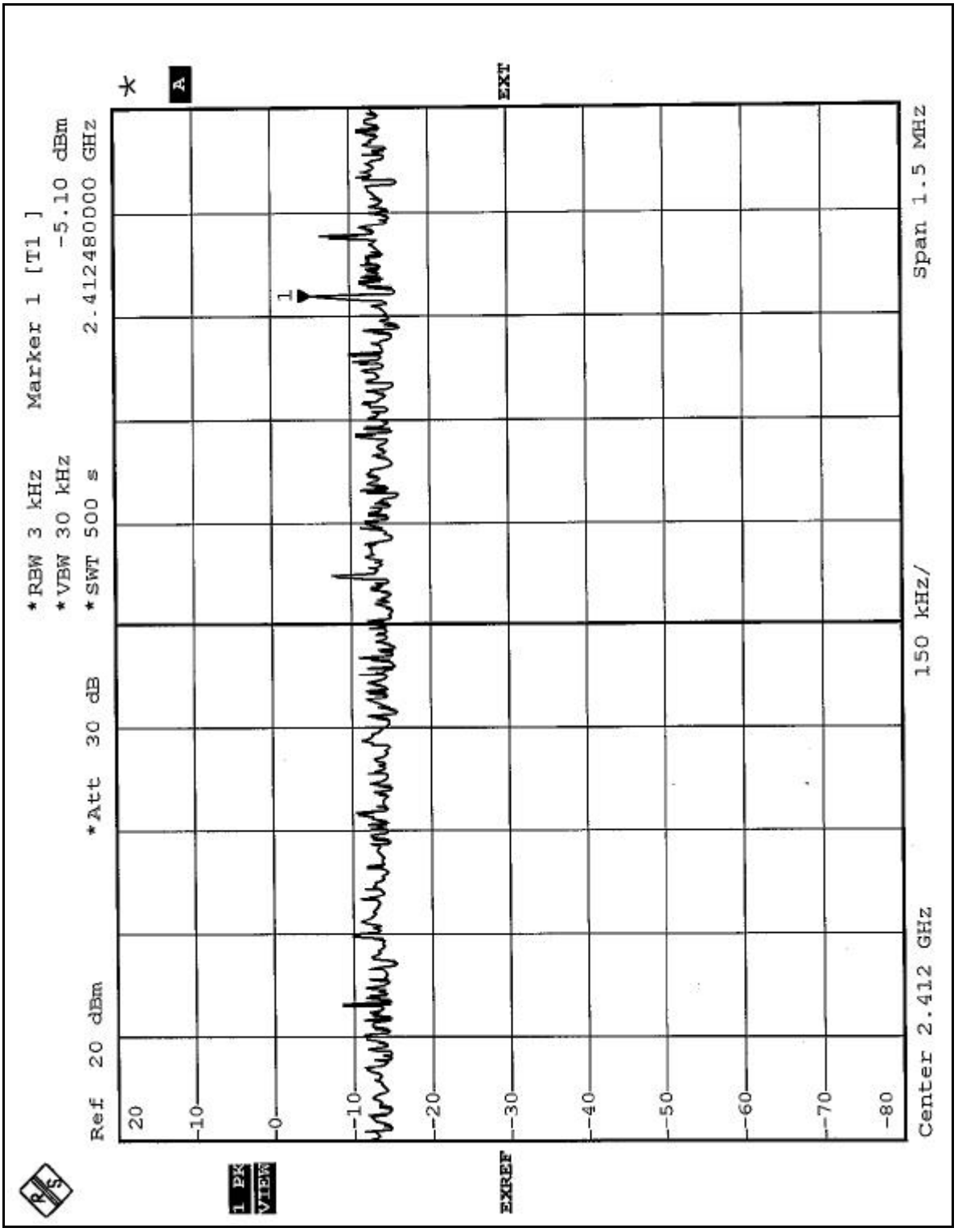
4.5.7 TEST RESULTS

EUT	Wireless A+G Mini PCI Card	MODEL	WMCE54AG2
INPUT POWER (SYSTEM)	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	24deg.C, 65%RH, 991hPa
MODE	CCK	TESTED BY	Leo Huang

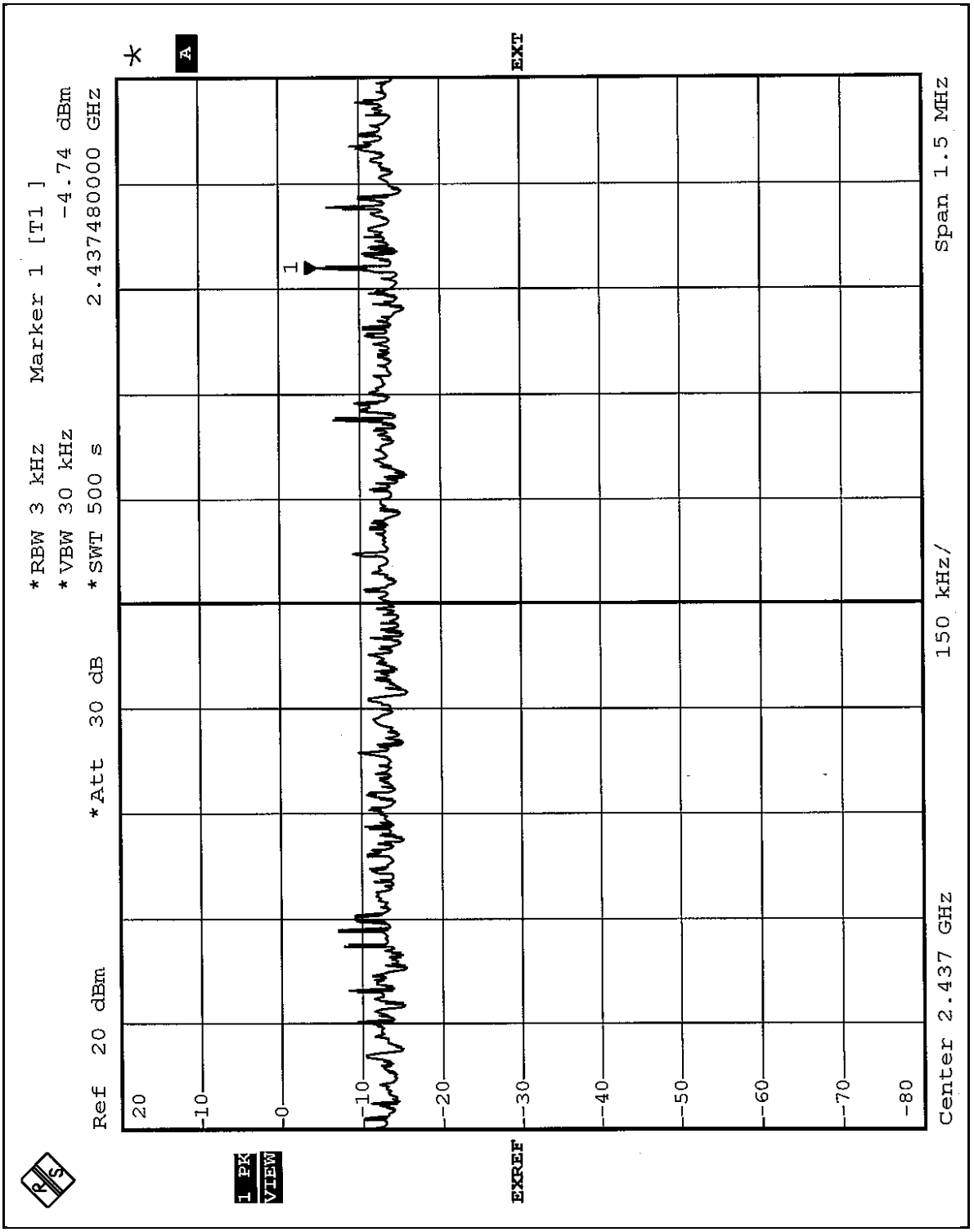
CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-5.10	8	PASS
6	2437	-4.74	8	PASS
11	2462	-5.56	8	PASS

*(The test data is in accordance with ADT Report No.: RF930909L11.)

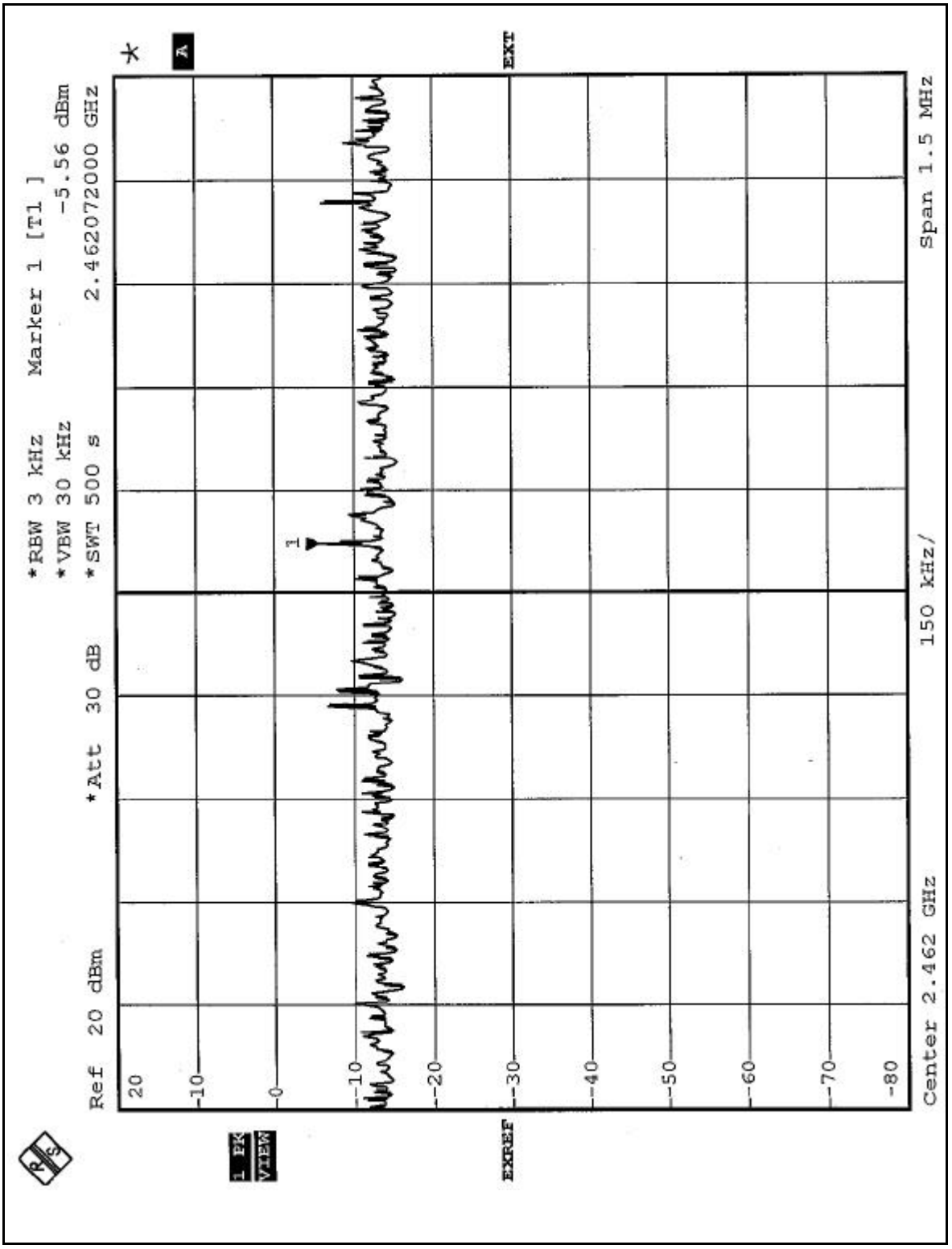
CH1


Ref 20 dBm
*Att 30 dB
*RBW 3 kHz
*VBW 30 kHz
*SWT 500 s
Marker 1 [T1]
-5.10 dBm
2.412480000 GHz
1 PK VIEW
EXT
EXREF
Center 2.412 GHz
150 kHz/
Span 1.5 MHz

CH6


*RBW 3 kHz
*VBW 30 kHz
*SWT 500 s
Marker 1 [T1]
-4.74 dBm
2.437480000 GHz
Ref 20 dBm
*Att 30 dB
Center 2.437 GHz
150 kHz/
Span 1.5 MHz
1 PK
VIEW
EXT
EXREF
A

CH11


*RBW 3 kHz
*VBW 30 kHz
*SWT 500 s
Marker 1 [T1]
-5.56 dBm
2.462072000 GHz
Ref 20 dBm
*Att 30 dB
Center 2.462 GHz
150 kHz/
Span 1.5 MHz
1 PK VIEW
EXT
EXREF

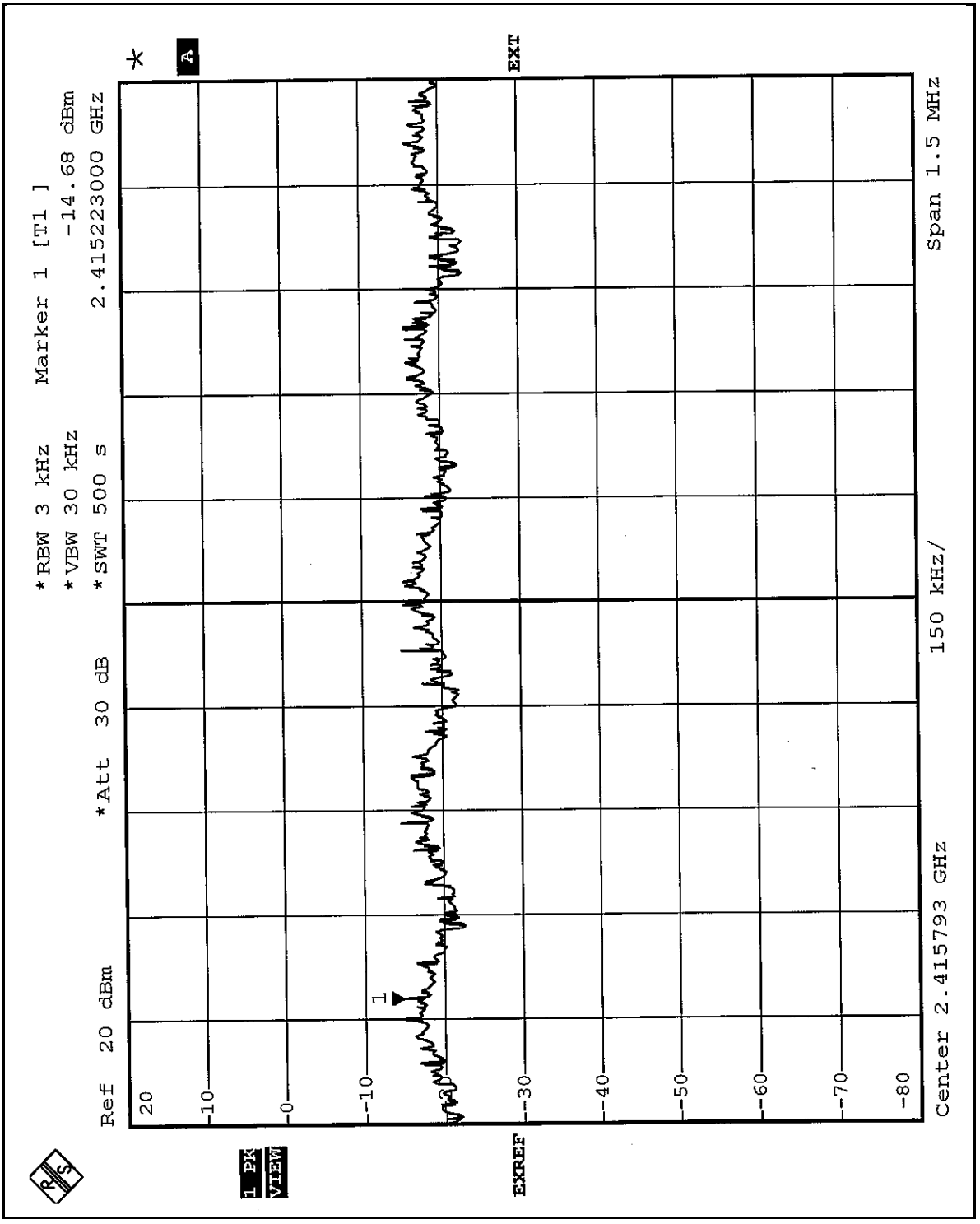
Normal mode

EUT	Wireless A+G Mini PCI Card	**MODEL**	WMCE54AG2
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	24deg.C, 65%RH, 991hPa
MODE	OFDM	**TESTED BY**	Leo Huang

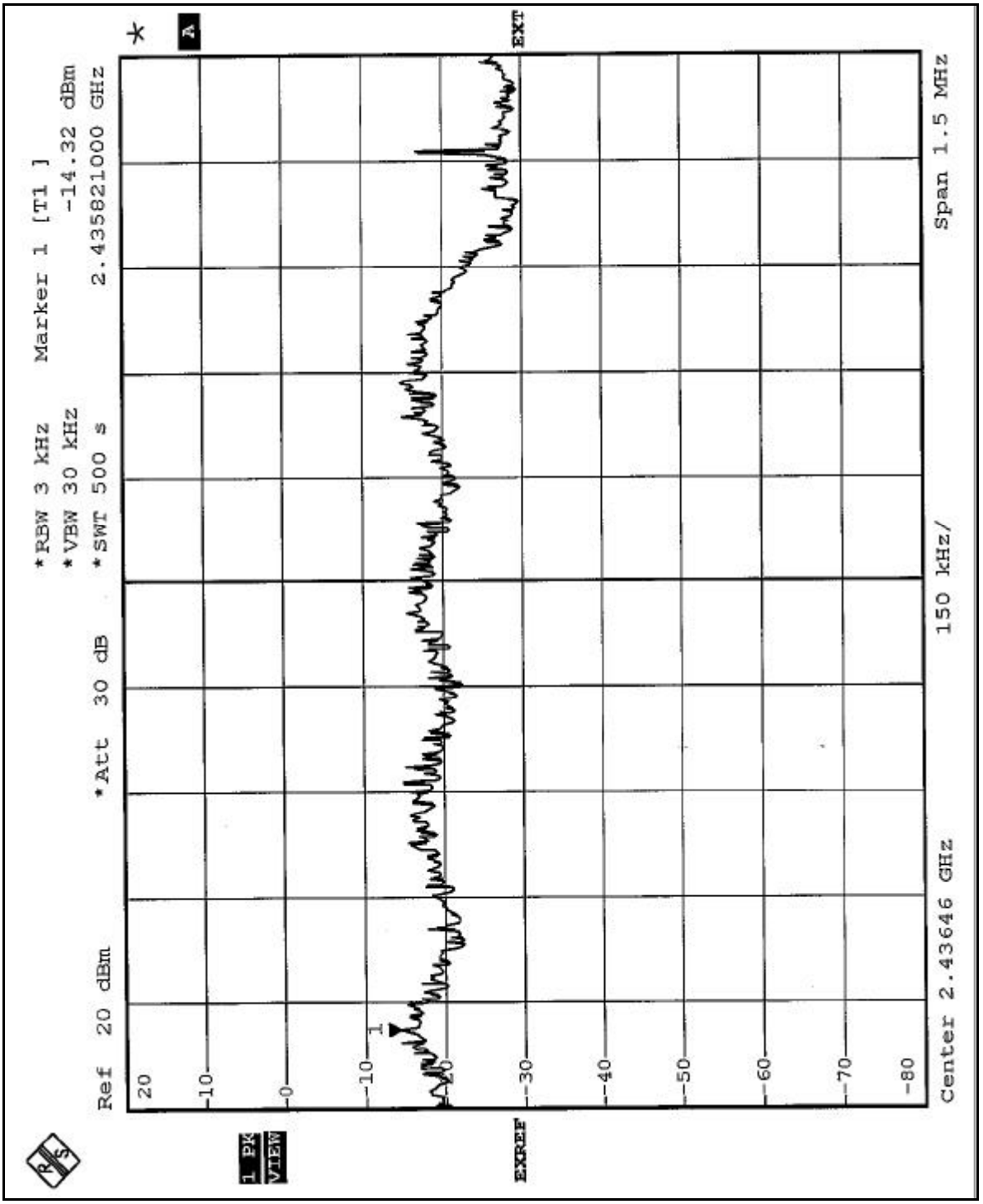
CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-14.68	8	PASS
6	2437	-14.32	8	PASS
11	2462	-14.48	8	PASS

*(The test data is in accordance with ADT Report No.: RF930909L11.)

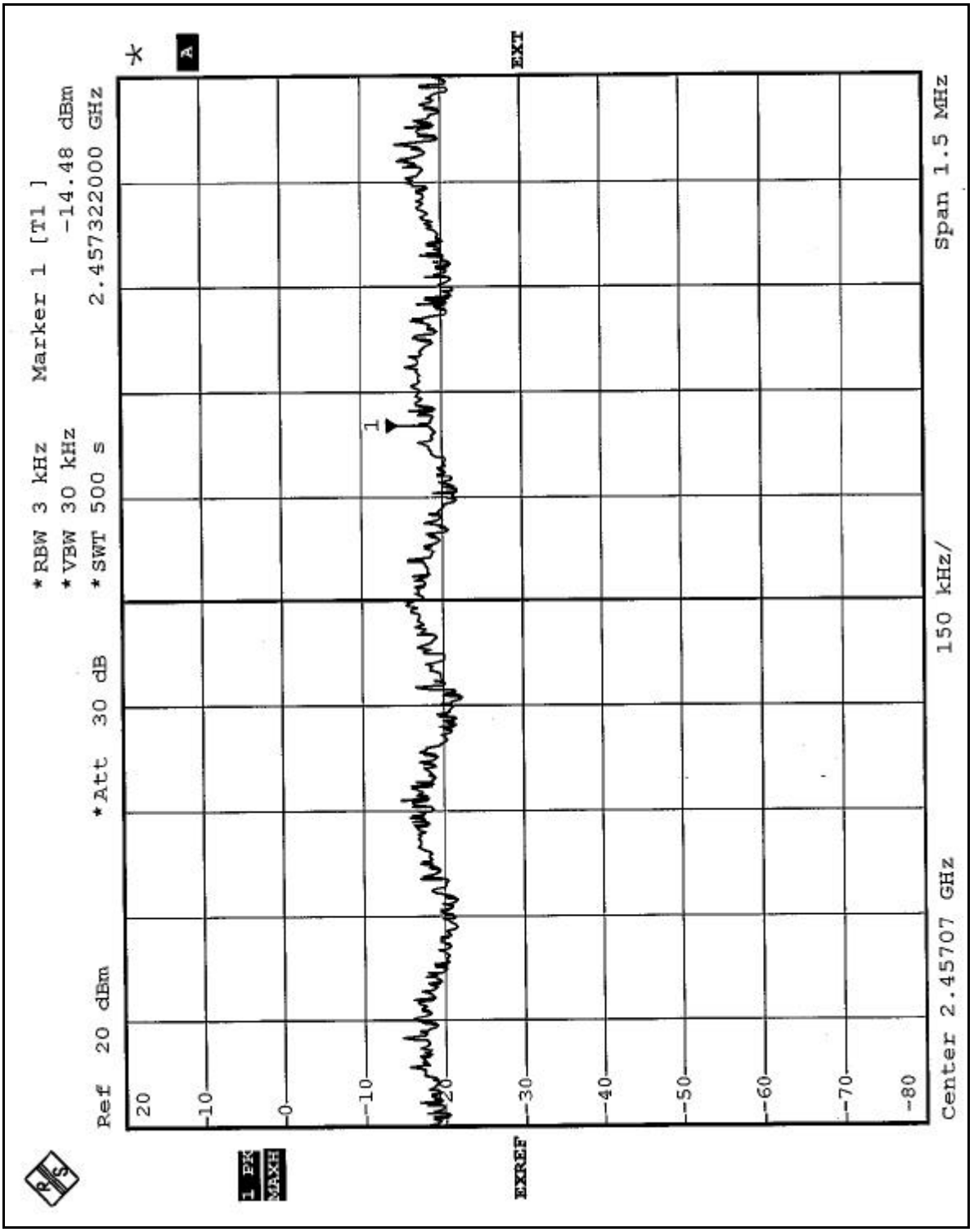
CH1


Marker 1 [T1]
-14.68 dBm
2.415223000 GHz
*RBW 3 kHz
*VBW 30 kHz
*SWT 500 s
*Att 30 dB
Ref 20 dBm
Center 2.415793 GHz
150 kHz/
Span 1.5 MHz
EXT
EXREF
1 PK VIEW
A
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80

CH6


Ref 20 dBm
*Att 30 dB
*RBW 3 kHz
*VBW 30 kHz
*SWT 500 s
Marker 1 [T1]
-14.32 dBm
2.435821000 GHz
Center 2.43646 GHz
150 kHz/
Span 1.5 MHz
1 PK VIEW
EXREF
EXT

CH11


Ref 20 dBm
*Att 30 dB
*RBW 3 kHz
*VBW 30 kHz
*SWT 500 s
Marker 1 [T1]
-14.48 dBm
2.457322000 GHz
Center 2.45707 GHz
150 kHz/
Span 1.5 MHz
1 PK MAXH
EXREF
EXT

Turbo mode

EUT	Wireless A+G Mini PCI Card	**MODEL**	WMCE54AG2
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	24deg.C, 65%RH, 991hPa
MODE	OFDM	**TESTED BY**	Leo Huang

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
6	2437	-15.79	8	PASS

*(The test data is in accordance with ADT Report No.: RF930909L11.)