



FCC TEST REPORT

REPORT NO.: RF930114R03

MODEL NO.: WMIB-111AG

RECEIVED: January 14, 2004

TESTED: January 16 ~ February 24, 2004

APPLICANT: Gemtek Technology Co., Ltd.

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ISSUED BY: Advance Data Technology Corporation

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0528
ILAC MRA

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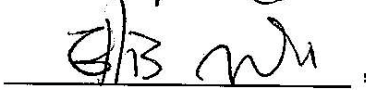


1. CERTIFICATION

PRODUCT : Wireless LAN 11a/g mini-PCI Adapter
BRAND NAME : Gemtek
MODEL NO. : WMIB-111AG
TEST ITEM : ENGINEERING SAMPLE
APPLICANT : Gemtek Technology Co., Ltd.
STANDARDS : FCC Part 15, Subpart C (Section 15.247), Subpart E (Section 15.407), ANSI C63.4-1992

We, **Advance Data Technology Corporation**, hereby certify that one sample of the designation has been tested in our facility from January 16 to February 24, 2004. 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:  , **DATE:** March 1, 2004
Stephanie Hung

APPROVED BY:  , **DATE:** March 1, 2004
Ellis Wu /
Technical Manager

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC 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 -12.59dB at 0.213MHz
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 -1.39dB at 9648.00MHz
15.247(d)	Power Spectral Density Limit: max. 8dBm	PASS	Meet the requirement of limit
15.247(c)	Band Edge Measurement Limit: 20dB less than the peak value of fundamental frequency	PASS	Meet the requirement of limit

NOTE: The information of measurement uncertainty is available upon the customer's request.



APPLIED STANDARD: FCC Part 15, Subpart E			
Standard Section	Test Type	Result	REMARK
15.407(b)(5)	AC Power Conducted Emission	PASS	Meet the requirement of limit Minimum passing margin is -18.03dB at 0.213MHz
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 -2.00dB 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

NOTE: The information of measurement uncertainty is available upon the customer's request.

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Wireless LAN 11a/g mini-PCI Adapter
MODEL NO.	WMIB-111AG
POWER SUPPLY	3.3Vdc from host equipment
MODULATION TYPE	BPSK, QPSK, CCK, 16QAM, 64QAM, GFSK
MODULATION TECHNOLOGY	DSSS, OFDM, FHSS
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 Bluetooth: 54/48/36/24/18/12/11/9/6/5.5/2/1Mbps
FREQUENCY RANGE	802.11b/g: 2412~2462MHz 802.11a: 5150~5350MHz and 5725~5825MHz Bluetooth: 2402~2480MHz
NUMBER OF CHANNEL	802.11b/g: 11 802.11a: 12 Bluetooth: 11
CHANNEL SPACING	802.11b/g: 5MHz 802.11a: 20MHz Bluetooth: 5MHz
OUTPUT POWER	802.11b/g: 13.50dBm 802.11a: 12.65dBm Bluetooth: 3.73dBm
ANTENNA TYPE	Main antenna: Metal PIFA Auxiliary antenna: Metal IFA
ANTENNA GAIN	802.11b/g: -3.83dBm 802.11a: -3.21dBm
DATA CABLE	NA
I/O PORTS	NA
ASSOCIATED DEVICES	NA

NOTE:

1. The EUT is specified to a Table PC which brand is Motion and the model name is M1400/T003.
2. The Table PC is powered by the following adapter:

Brand	DELTA ELECTRONICS, INC.
Model	ADP-50HH REV.A
Input	AC100-240Vac, 1.5A, 50~60Hz
Output	19Vdc, 2.64A

3. The EUT operates in both the 5GHz and 2.4GHz Bands and compatibility with 802.11a and 802.11g technology.
4. The test report includes bluetooth function.
5. For more detailed features description, please refer to the manufacturer's specifications or User's Manual.

3.2 DESCRIPTION OF TEST MODES

Since the EUT is considered a portable unit, it was pre-tested on the positioned of each 3 axis. The worst case was found when positioned on Z-plane. There for only the test data of this Z-plane was used for Radiated test.

For Bluetooth Function: Seventy-nine channels are provided to this EUT.

Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)
0	2402	20	2422	40	2442	60	2462
1	2403	21	2423	41	2443	61	2463
2	2404	22	2424	42	2444	62	2464
3	2405	23	2425	43	2445	63	2465
4	2406	24	2426	44	2446	64	2466
5	2407	25	2427	45	2447	65	2467
6	2408	26	2428	46	2448	66	2468
7	2409	27	2429	47	2449	67	2469
8	2410	28	2430	48	2450	68	2470
9	2411	29	2431	49	2451	69	2471
10	2412	30	2431	50	2452	70	2472
11	2413	31	2433	51	2453	71	2473
12	2414	32	2434	52	2454	72	2474
13	2415	33	2435	53	2455	73	2475
14	2416	34	2436	54	2456	74	2476
15	2417	35	2437	55	2457	75	2477
16	2418	36	2438	56	2458	76	2478
17	2419	37	2439	57	2459	77	2479
18	2420	38	2440	58	2460	78	2480
19	2421	39	2441	59	2461		

NOTE:

1. Below 1 GHz, the channel 0, 39, and 78 were pre-tested in chamber. The channel 78, worst case one, was chosen for final test.
2. Above 1 GHz, the channel 0, 39, and 78 were tested individually.

For 802.11b/g: 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, channels 1, 6, and 11 were pre-tested in chamber. Channel 11, the worst case, was chosen for final test.
2. Above 1GHz, channels 1, 6, and 11 were tested individually.
3. Transfer rates at 11Mbps with CCK technique and 6Mbps with OFDM technique, worst cases, were chosen for final test.

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

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

NOTE:

1. The EUT allows data rates of up to 54Mbps and was tested at 6Mbps data rate that produced the highest output power.
2. Channel 1, 4, 5, 8, 9 and 12 are the closest frequencies to the band edge, were chosen for final test.

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

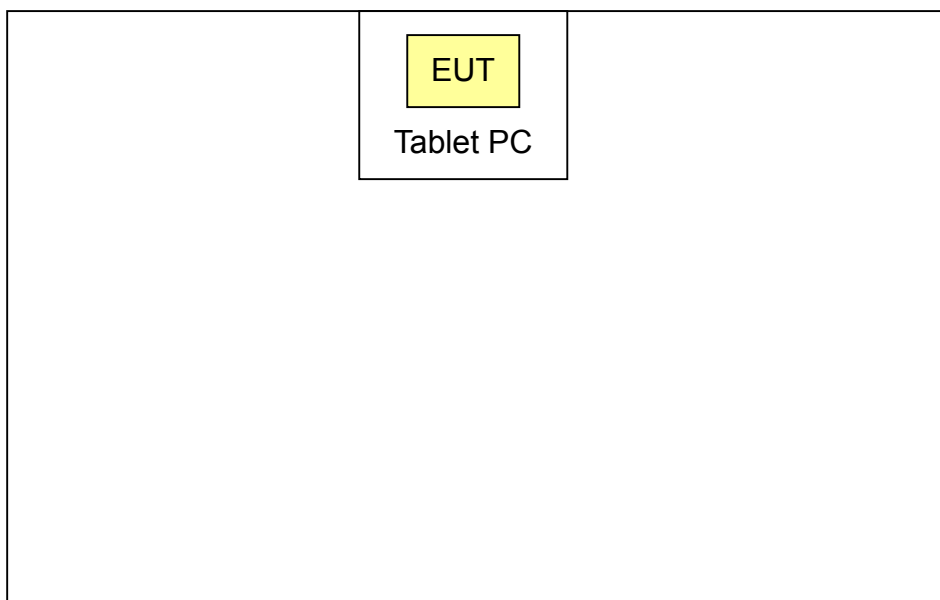
The EUT is a Wireless LAN 11a/g mini-PCI Adapter. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

**FCC Part 15, Subpart C (15.247),
Subpart E (15.407). ANSI C63.4-1992**

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 CONFIGURATION OF SYSTEM UNDER TEST



4. TEST TYPES AND RESULTS (FOR 2.4GHz BAND)

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

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

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
ROHDE & SCHWARZ Test Receiver	ESCS 30	838251/021	Jan. 04, 2005
ROHDE & SCHWARZ Artificial Mains Network (for EUT)	ESH3-Z5	100218	Dec. 09, 2004
ROHDE & SCHWARZ Artificial Mains Network (for peripherals)	ESH3-Z5	100219	Dec. 09, 2004
ROHDE & SCHWARZ Artificial Mains Network (for peripherals)	ESH3-Z5	100220	Dec. 09, 2004
*ROHDE & SCHWARZ 4-wire ISN	ENY41	837032/016	Nov. 19, 2004
*ROHDE & SCHWARZ 2-wire ISN	ENY22	837497/016	Nov. 19, 2004
Software	Cond-V2M3	NA	NA
RF cable (JYEBAO)	5D-FB	Cable-C10.01	May 01, 2004
SUHNER Terminator (For ROHDE & SCHWARZ LISN)	65BNC-5001	E1-010770	Mar. 24, 2004
SUHNER Terminator (For ROHDE & SCHWARZ LISN)	65BNC-5001	E1-010773	Apr. 06, 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. 10.
 4. The VCCI Site Registration No. is C-1312.



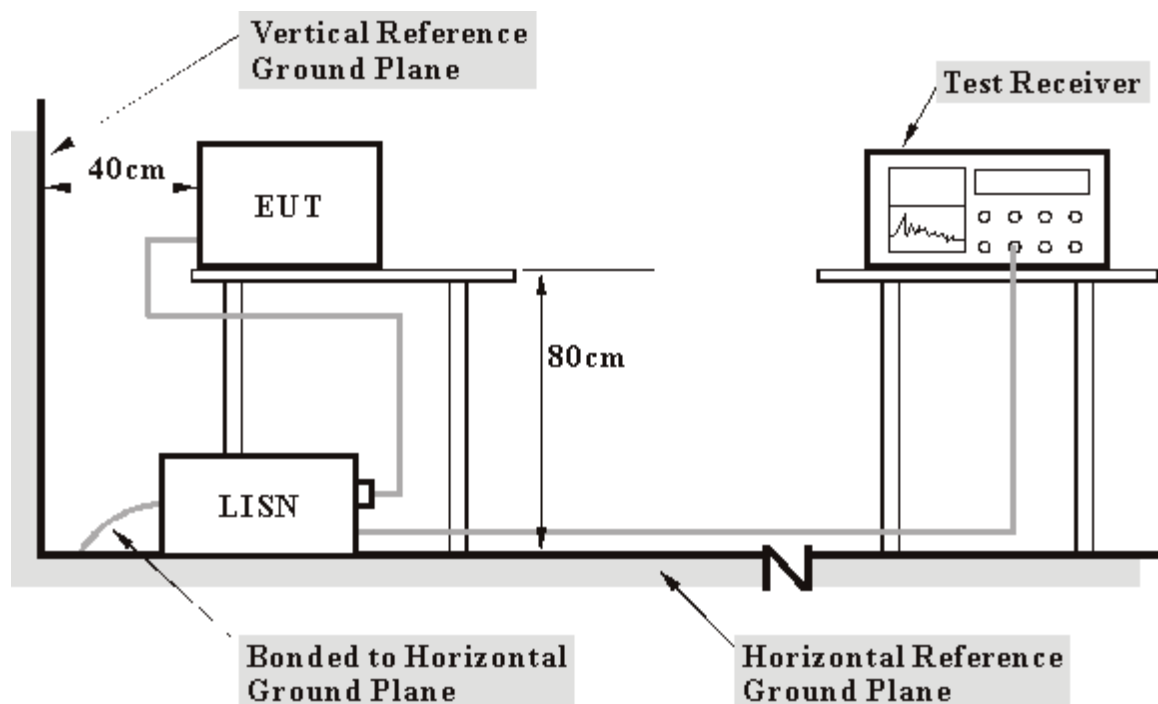
4.1.3 TEST PROCEDURES

- 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

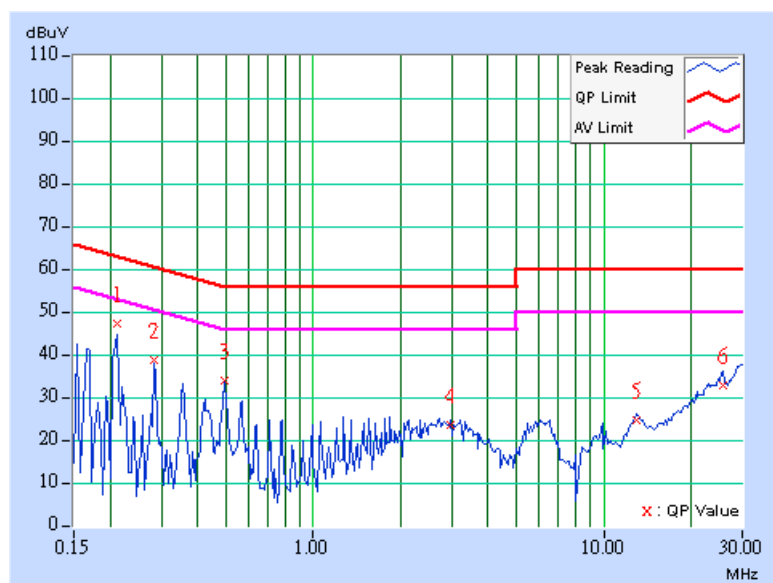
- a. The computer system ran a test program to enable EUT under transmission/receiving condition continuously at specific channel frequency.
- b. The computer system sent "H" messages to its screen.

4.1.7 TEST RESULTS

EUT	Wireless LAN 11a/g mini-PCI Adapter	MODEL	WMIB-111AG
CHANNEL	1	6dB BANDWIDTH	9kHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	20deg.C, 70%RH, 991hPa	TESTED BY: Martin Lee	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.213	0.10	46.30	-	46.40	-	63.11	53.11	-16.71	-
2	0.283	0.10	37.74	-	37.84	-	60.73	50.73	-22.89	-
3	0.494	0.12	32.96	-	33.08	-	56.10	46.10	-23.03	-
4	2.988	0.25	22.62	-	22.87	-	56.00	46.00	-33.13	-
5	13.034	0.72	23.72	-	24.44	-	60.00	50.00	-35.56	-
6	25.634	1.20	31.68	-	32.88	-	60.00	50.00	-27.12	-

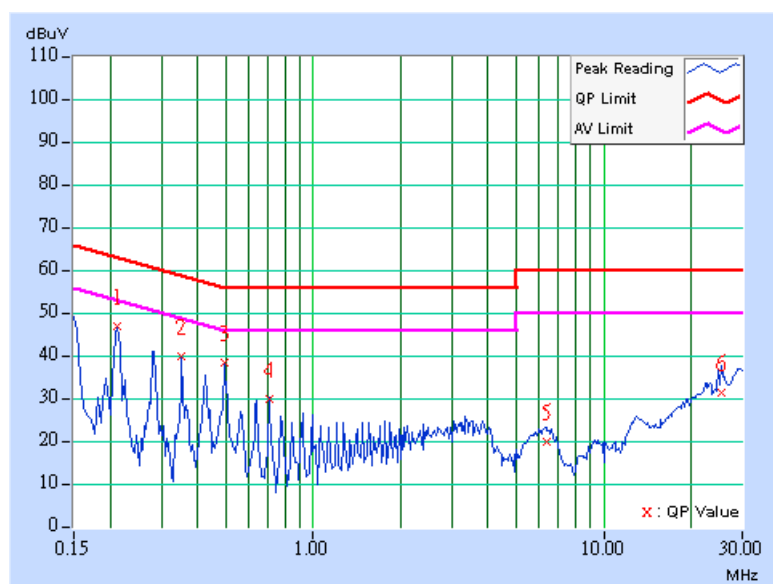
- REMARKS:** 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value =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



EUT	Wireless LAN 11a/g mini-PCI Adapter	MODEL	WMIB-111AG
CHANNEL	1	6dB BANDWIDTH	9kHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	20deg.C, 70%RH, 991hPa	TESTED BY: Martin Lee	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.213	0.10	46.20	-	46.30	-	63.11	53.11	-16.81	-
2	0.353	0.10	38.86	-	38.96	-	58.89	48.89	-19.93	-
3	0.494	0.12	37.42	-	37.54	-	56.10	46.10	-18.57	-
4	0.705	0.15	28.86	-	29.01	-	56.00	46.00	-26.99	-
5	6.328	0.38	19.08	-	19.46	-	60.00	50.00	-40.54	-
6	25.517	1.00	30.58	-	31.58	-	60.00	50.00	-28.42	-

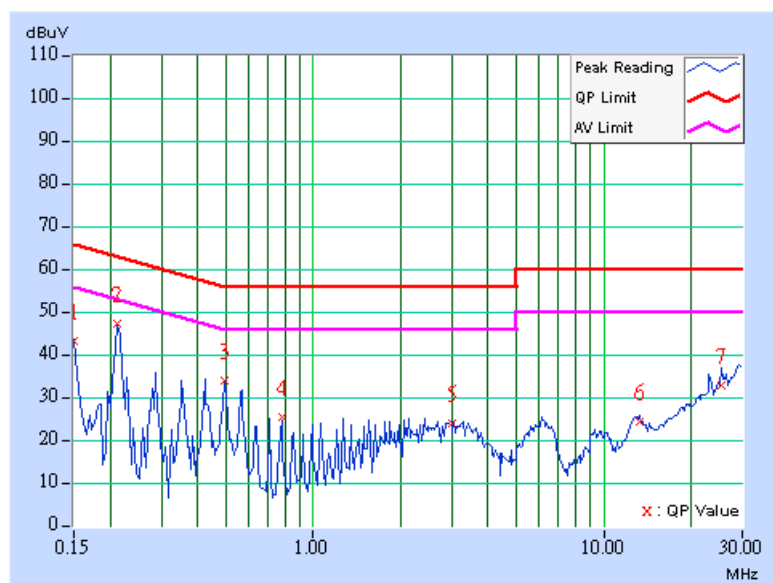
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



EUT	Wireless LAN 11a/g mini-PCI Adapter	MODEL	WMIB-111AG
CHANNEL	6	6dB BANDWIDTH	9kHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	20deg.C, 70%RH, 991hPa	TESTED BY: Martin Lee	

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	0.150	0.10	42.00	-	42.10	-	66.00	56.00	-23.90	-
2	0.213	0.10	46.10	-	46.20	-	63.11	53.11	-16.91	-
3	0.494	0.12	32.90	-	33.02	-	56.10	46.10	-23.08	-
4	0.779	0.16	24.24	-	24.40	-	56.00	46.00	-31.60	-
5	2.992	0.25	22.70	-	22.95	-	56.00	46.00	-33.05	-
6	13.260	0.73	23.20	-	23.93	-	60.00	50.00	-36.07	-
7	25.516	1.20	31.78	-	32.98	-	60.00	50.00	-27.02	-

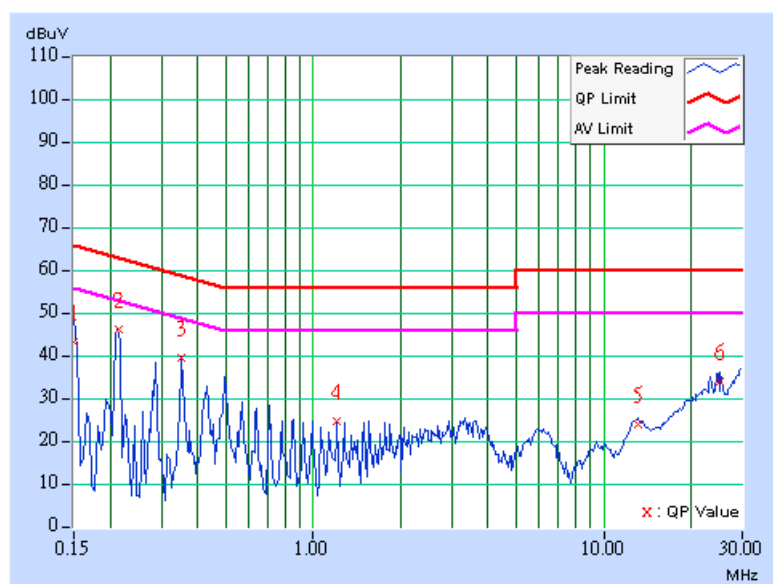
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



EUT	Wireless LAN 11a/g mini-PCI Adapter	MODEL	WMIB-111AG
CHANNEL	6	6dB BANDWIDTH	9kHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	20deg.C, 70%RH, 991hPa	TESTED BY: Martin Lee	

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	0.150	0.10	42.18	-	42.28	-	66.00	56.00	-23.72	-
2	0.214	0.10	45.44	-	45.54	-	63.05	53.05	-17.51	-
3	0.353	0.10	38.62	-	38.72	-	58.89	48.89	-20.17	-
4	1.207	0.20	24.00	-	24.20	-	56.00	46.00	-31.80	-
5	13.130	0.63	22.98	-	23.61	-	60.00	50.00	-36.39	-
6	25.094	1.00	33.18	-	34.18	-	60.00	50.00	-25.82	-

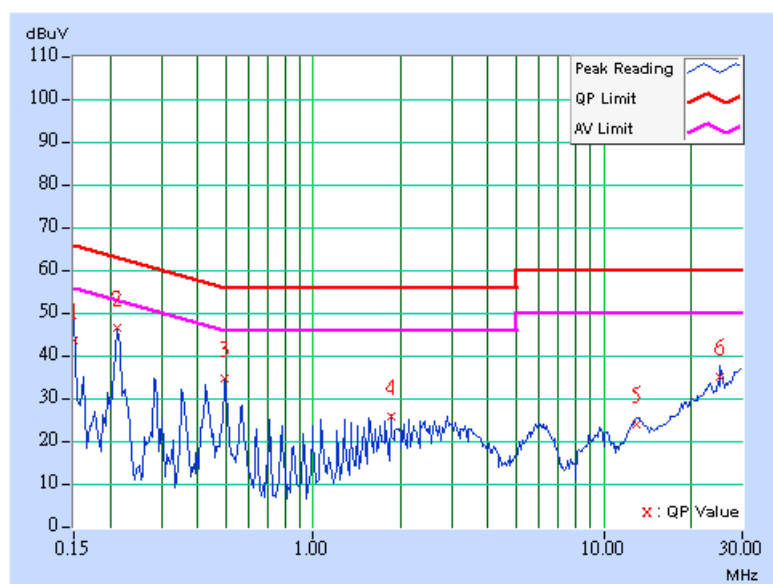
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



EUT	Wireless LAN 11a/g mini-PCI Adapter	MODEL	WMIB-111AG
CHANNEL	11	6dB BANDWIDTH	9kHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	20deg.C, 70%RH, 991hPa	TESTED BY: Martin Lee	

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	0.150	0.10	42.50	-	42.60	-	66.00	56.00	-23.40	-
2	0.213	0.10	45.62	-	45.72	-	63.11	53.11	-17.39	-
3	0.498	0.12	33.46	-	33.58	-	56.04	46.04	-22.46	-
4	1.848	0.20	24.72	-	24.92	-	56.00	46.00	-31.08	-
5	12.937	0.72	22.90	-	23.62	-	60.00	50.00	-36.38	-
6	25.095	1.20	34.14	-	35.34	-	60.00	50.00	-24.66	-

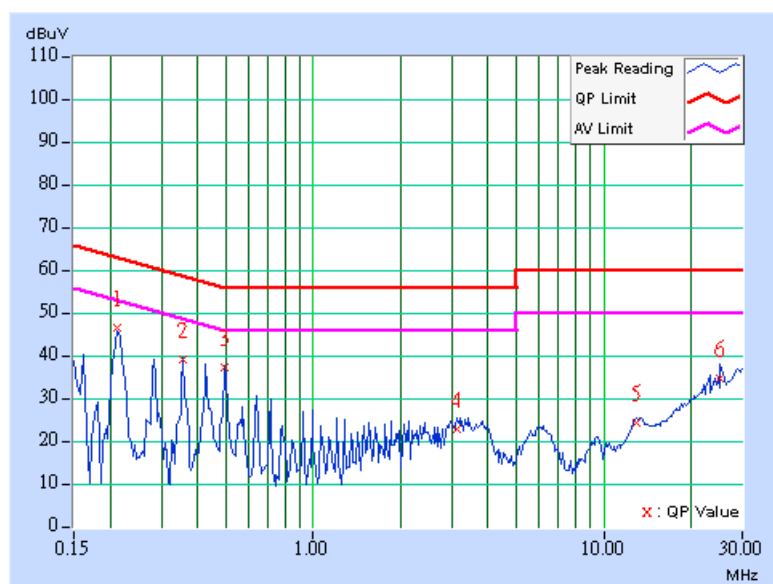
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value =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



EUT	Wireless LAN 11a/g mini-PCI Adapter	MODEL	WMIB-111AG
CHANNEL	11	6dB BANDWIDTH	9kHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	20deg.C, 70%RH, 991hPa	TESTED BY: Martin Lee	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.213	0.10	45.62	-	45.72	-	63.11	53.11	-17.39	-
2	0.357	0.10	38.12	-	38.22	-	58.80	48.80	-20.58	-
3	0.498	0.12	36.56	-	36.68	-	56.04	46.04	-19.36	-
4	3.141	0.26	22.06	-	22.32	-	56.00	46.00	-33.68	-
5	13.002	0.62	23.40	-	24.02	-	60.00	50.00	-35.98	-
6	25.213	1.00	33.84	-	34.84	-	60.00	50.00	-25.16	-

- 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
*HP Spectrum Analyzer	8593E	3911A07465	Jul. 07, 2004
*HP Preamplifier	8447D	2944A10386	Aug. 12, 2004
* HP Preamplifier	8449B	3008A01292	Aug. 11, 2004
SCHAFFNER Tunable Dipole Antenna	VHBA 9123	459	Jun. 26, 2004
SCHWARZBECK Tunable Dipole Antenna	UHA 9105	977	
*SCHAFFNER TEST RECEIVER	SCR 3501	409	Nov. 06, 2004
* SCHAFFNER BILOG Antenna	CBL6111C	2727	Jul. 15, 2004
* SCHWARZBECK Horn Antenna	BBHA9120-D1	D130	Jun. 30, 2004
* ADT. Turn Table	TT100	0201	NA
* ADT. Tower	AT100	0201	NA
* Software	ADT_Radiated_V5.14	NA	NA
* ANRITSU RF Switches	MP59B	6100237246	Oct. 17, 2004
* TIMES RF cable	LMR-600	CABLE-ST10-01	Oct. 17, 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 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. 10.
5. The VCCI Site Registration No. is R-1625.



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

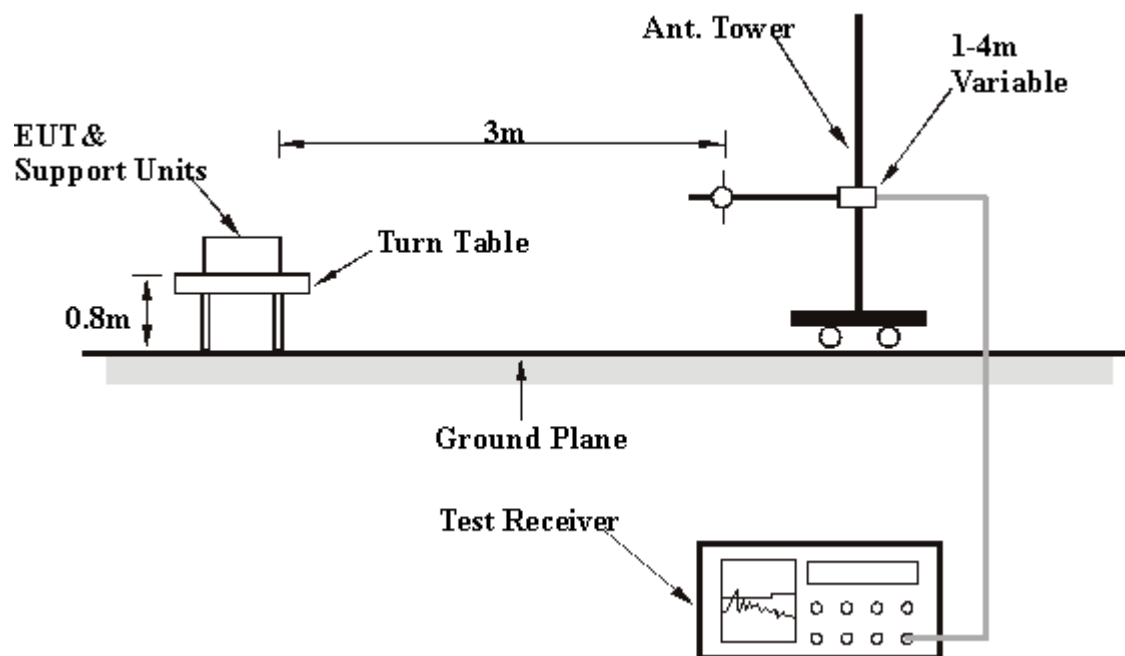
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz 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 10Hz 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 LAN 11a/g mini-PCI Adapter	MODEL	WMIB-111AG
CHANNEL	11	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	15deg.C, 85%RH, 991hPa	TESTED BY	Jun Wu

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	30.42	32.47 QP	40.00	-7.53	2.41 H	233	12.26	20.21
2	38.68	29.87 QP	40.00	-10.13	2.41 H	193	15.62	14.25
3	133.20	29.05 QP	43.50	-14.45	2.31 H	339	16.56	12.49
4	162.00	25.50 QP	43.50	-18.00	2.37 H	199	14.81	10.69
5	193.25	25.36 QP	43.50	-18.14	2.27 H	17	15.02	10.34
6	202.55	21.87 QP	43.50	-21.63	2.27 H	66	11.22	10.65
7	336.00	28.60 QP	46.00	-17.40	1.00 H	223	11.60	17.00
8	398.90	34.13 QP	46.00	-11.87	1.00 H	40	14.76	19.37
9	597.00	32.69 QP	46.00	-13.31	1.00 H	67	8.30	24.39
10	668.00	32.61 QP	46.00	-13.39	1.00 H	42	6.87	25.74
11	746.50	31.63 QP	46.00	-14.37	1.00 H	231	4.32	27.31

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	30.55	36.80 QP	40.00	-3.20	1.00 V	20	16.70	20.10
2	78.25	30.71 QP	40.00	-9.29	1.00 V	238	23.15	7.56
3	133.50	40.24 QP	43.50	-3.26	1.00 V	0	27.75	12.49
4	159.50	28.22 QP	43.50	-15.28	1.00 V	220	17.42	10.80
5	399.00	36.48 QP	46.00	-9.52	1.60 V	264	17.10	19.38
6	433.00	33.49 QP	46.00	-12.51	1.51 V	317	13.44	20.05
7	565.00	30.65 QP	46.00	-15.35	1.00 V	159	6.98	23.67
8	600.00	31.22 QP	46.00	-14.78	1.00 V	129	6.76	24.46
9	632.00	30.24 QP	46.00	-15.76	1.00 V	101	5.03	25.21
10	768.30	29.10 QP	46.00	-16.90	1.00 V	258	1.77	27.33

- 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 LAN 11a/g mini-PCI Adapter	MODEL	WMIB-111AG
CHANNEL	1	FREQUENCY RANGE	1~25GHz
MODULATION	CCK	INPUT POWER (SYSTEM)	120Vac, 60Hz
ENVIRONMENTAL CONDITIONS	15deg.C, 85%RH, 991hPa	DETECTOR FUNCTION	Peak(PK) Average (AV)
TESTED BY	Jun Wu		

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	55.20 PK	74.00	-18.80	1.26 H	12	24.90	30.30
1	2390.00	47.20 AV	54.00	-6.80	1.26 H	12	16.90	30.30
2	*2412.00	103.20 PK			1.26 H	12	72.96	30.24
2	*2412.00	95.20 AV			1.26 H	12	64.96	30.24
3	4824.00	49.92 PK	74.00	-24.08	1.10 H	15	13.40	36.53
4	9648.00	57.61 PK	74.00	-16.39	1.00 H	14	13.33	44.28
4	9648.00	52.61 AV	54.00	-1.39	1.00 H	14	8.33	44.28

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	47.20 PK	74.00	-26.80	1.00 V	33	16.90	30.30
2	*2412.00	99.80 PK			1.00 V	33	69.56	30.24
2	*2412.00	91.50 AV			1.00 V	33	61.26	30.24
3	4824.00	44.89 PK	74.00	-29.11	1.07 V	152	8.37	36.53
4	9648.00	55.11 PK	74.00	-18.89	1.16 V	18	10.83	44.28
4	9648.00	50.27 AV	54.00	-3.73	1.16 V	18	5.99	44.28

- 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 LAN 11a/g mini-PCI Adapter	MODEL	WMIB-111AG
CHANNEL	6	FREQUENCY RANGE	1~25GHz
MODULATION	CCK	INPUT POWER (SYSTEM)	120Vac, 60Hz
ENVIRONMENTAL CONDITIONS	15deg.C, 85%RH, 991hPa	DETECTOR FUNCTION	Peak(PK) Average (AV)
TESTED BY	Jun Wu		

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	103.90 PK			1.54 H	10	73.59	30.31
1	*2437.00	95.40 AV			1.54 H	10	65.09	30.31
2	4874.00	46.05 PK	74.00	-27.95	1.25 H	25	9.36	36.69
3	9748.00	53.87 PK	74.00	-20.13	1.05 H	354	9.64	44.23
3	9748.00	44.37 AV	54.00	-9.63	1.05 H	354	0.14	44.23

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	99.80 PK			1.00 V	34	69.49	30.31
1	*2437.00	92.40 AV			1.00 V	34	62.09	30.31
2	4874.00	46.55 PK	74.00	-27.45	1.29 V	32	9.86	36.69
3	9748.00	53.37 PK	74.00	-20.63	1.23 V	3	9.14	44.23
3	9748.00	43.27 AV	54.00	-10.73	1.23 V	3	-0.96	44.23

- 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 LAN 11a/g mini-PCI Adapter	MODEL	WMIB-111AG
CHANNEL	11	FREQUENCY RANGE	1~25GHz
MODULATION	CCK	INPUT POWER (SYSTEM)	120Vac, 60Hz
ENVIRONMENTAL CONDITIONS	15deg.C, 85%RH, 991hPa	DETECTOR FUNCTION	Peak(PK) Average (AV)
TESTED BY	Jun Wu		

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	103.50 PK			1.18 H	8	73.13	30.37
1	*2462.00	95.70 AV			1.18 H	8	65.33	30.37
2	2483.50	55.70 PK	74.00	-18.30	1.18 H	8	25.27	30.43
2	2483.50	47.10 AV	54.00	-6.90	1.18 H	8	16.67	30.43
3	4924.00	46.66 PK	74.00	-27.34	1.33 H	48	9.82	36.85
4	9848.00	51.22 PK	74.00	-22.78	1.11 H	287	7.02	44.19
4	9848.00	47.20 AV	54.00	-6.80	1.11 H	287	3.01	44.19

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	99.20 PK			1.00 V	7	68.83	30.37
1	*2462.00	91.80 AV			1.00 V	7	61.43	30.37
2	2483.50	48.60 PK	74.00	-25.40	1.00 V	7	18.17	30.43
3	4924.00	47.73 PK	74.00	-26.27	1.13 V	210	10.89	36.85

- 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 LAN 11a/g mini-PCI Adapter	MODEL	WMIB-111AG
CHANNEL	1	FREQUENCY RANGE	1~25GHz
MODULATION	OFDM	INPUT POWER (SYSTEM)	120Vac, 60Hz
ENVIRONMENTAL CONDITIONS	15deg.C, 85%RH, 991hPa	DETECTOR FUNCTION	Peak(PK) Average (AV)
TESTED BY	Jun Wu		

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	54.10 PK	74.00	-19.90	1.25 H	13	23.80	30.30
1	2390.00	44.30 AV	54.00	-9.70	1.25 H	13	14.00	30.30
2	*2412.00	103.70 PK			1.25 H	13	73.46	30.24
2	*2412.00	93.50 AV			1.25 H	13	63.26	30.24
3	4824.00	54.10 PK	74.00	-19.90	1.42 H	204	17.57	36.53
3	4824.00	43.50 AV	54.00	-10.50	1.42 H	204	6.97	36.53

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	51.20 PK	74.00	-22.80	1.00 V	355	20.90	30.30
1	2390.00	42.50 AV	54.00	-11.50	1.00 V	355	12.20	30.30
2	*2412.00	100.20 PK			1.00 V	355	69.96	30.24
2	*2412.00	91.10 AV			1.00 V	355	60.86	30.24
3	4824.00	55.69 PK	74.00	-18.31	1.11 V	147	19.16	36.53
3	4824.00	47.20 AV	54.00	-6.80	1.11 V	147	10.67	36.53

- 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 LAN 11a/g mini-PCI Adapter	MODEL	WMIB-111AG
CHANNEL	6	FREQUENCY RANGE	1~25GHz
MODULATION	OFDM	INPUT POWER (SYSTEM)	120Vac, 60Hz
ENVIRONMENTAL CONDITIONS	15deg.C, 85%RH, 991hPa	DETECTOR FUNCTION	Peak(PK) Average (AV)
TESTED BY	Jun Wu		

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	103.70 PK			1.23 H	18	73.39	30.31
1	*2437.00	92.50 AV			1.23 H	18	62.19	30.31
2	4874.00	55.50 PK	74.00	-18.50	1.30 H	49	18.81	36.69
2	4874.00	46.90 AV	54.00	-7.10	1.30 H	49	10.21	36.69

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	100.40 PK			1.04 V	55	70.09	30.31
1	*2437.00	90.90 AV			1.04 V	55	60.59	30.31
2	4874.00	54.10 PK	74.00	-19.90	1.18 V	214	17.41	36.69
2	4874.00	45.90 AV	54.00	-8.10	1.18 V	214	9.21	36.69

- 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 LAN 11a/g mini-PCI Adapter	MODEL	WMIB-111AG
CHANNEL	11	FREQUENCY RANGE	1~25GHz
MODULATION	OFDM	INPUT POWER (SYSTEM)	120Vac, 60Hz
ENVIRONMENTAL CONDITIONS	15deg.C, 85%RH, 991hPa	DETECTOR FUNCTION	Peak(PK) Average (AV)
TESTED BY	Jun Wu		

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	103.90 PK			1.00 H	16	73.53	30.37
1	*2462.00	93.50 AV			1.00 H	16	63.13	30.37
2	2483.50	58.90 PK	74.00	-15.10	1.00 H	16	28.47	30.43
2	2483.50	48.50 AV	54.00	-5.50	1.00 H	16	18.07	30.43
3	4924.00	56.30 PK	74.00	-17.70	1.08 H	154	19.45	36.85
3	4924.00	47.60 AV	54.00	-6.40	1.08 H	154	10.75	36.85

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	99.20 PK			1.00 V	58	68.83	30.37
1	*2462.00	90.10 AV			1.00 V	58	59.73	30.37
2	2483.50	53.00 PK	74.00	-21.00	1.00 V	58	22.57	30.43
2	2483.50	45.50 AV	54.00	-8.50	1.00 V	58	15.07	30.43
3	4924.00	56.10 PK	74.00	-17.90	1.08 V	226	19.25	36.85
3	4924.00	47.60 AV	54.00	-6.40	1.08 V	226	10.75	36.85

- 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, 2004

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

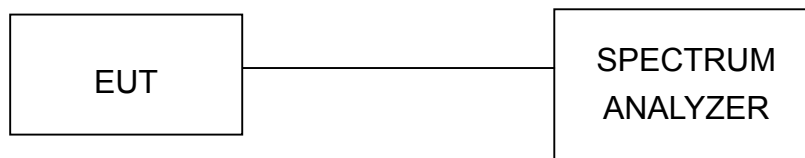
4.3.3 TEST PROCEDURE

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



4.3.6 EUT OPERATING CONDITIONS

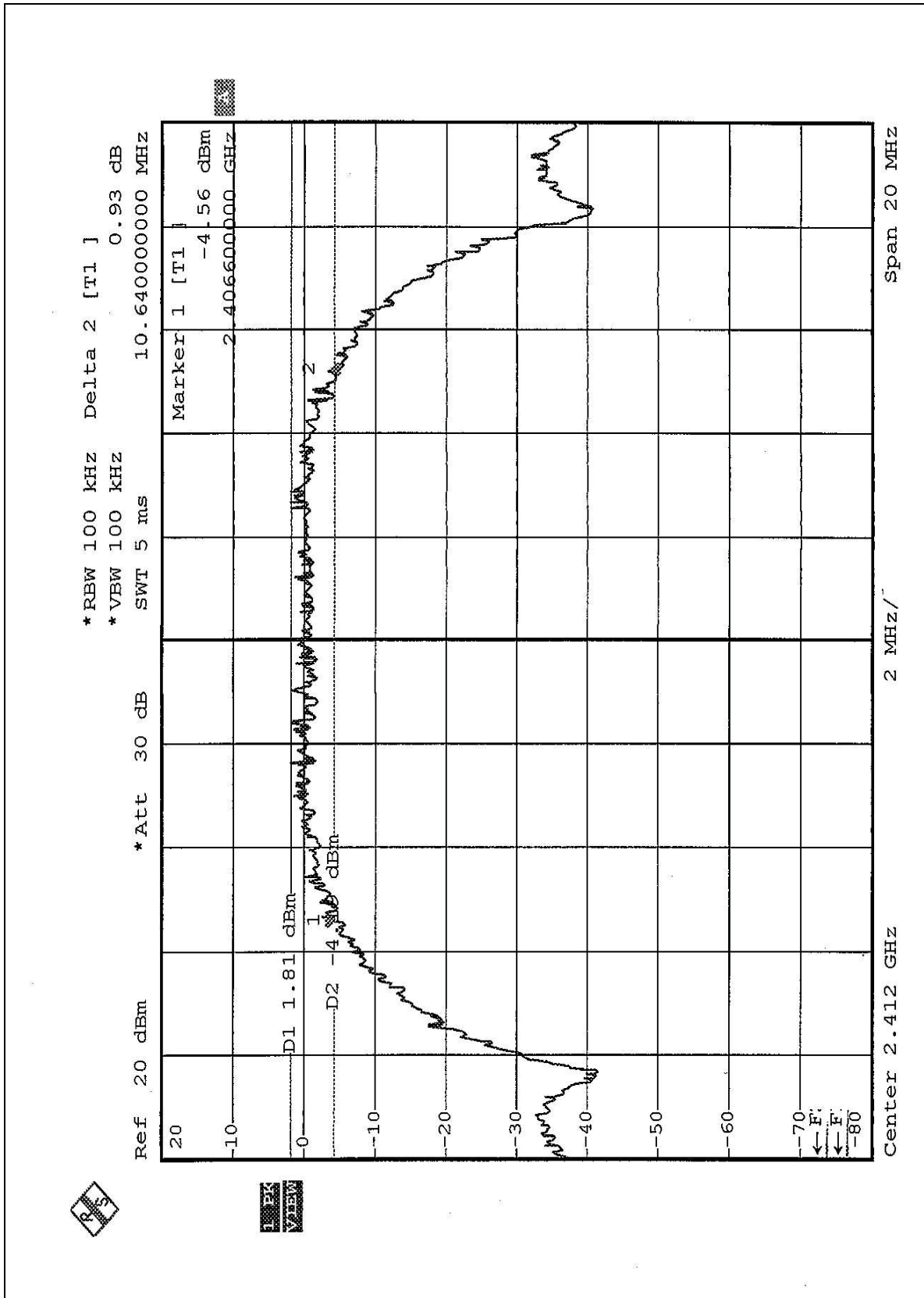
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.3.7 TEST RESULTS

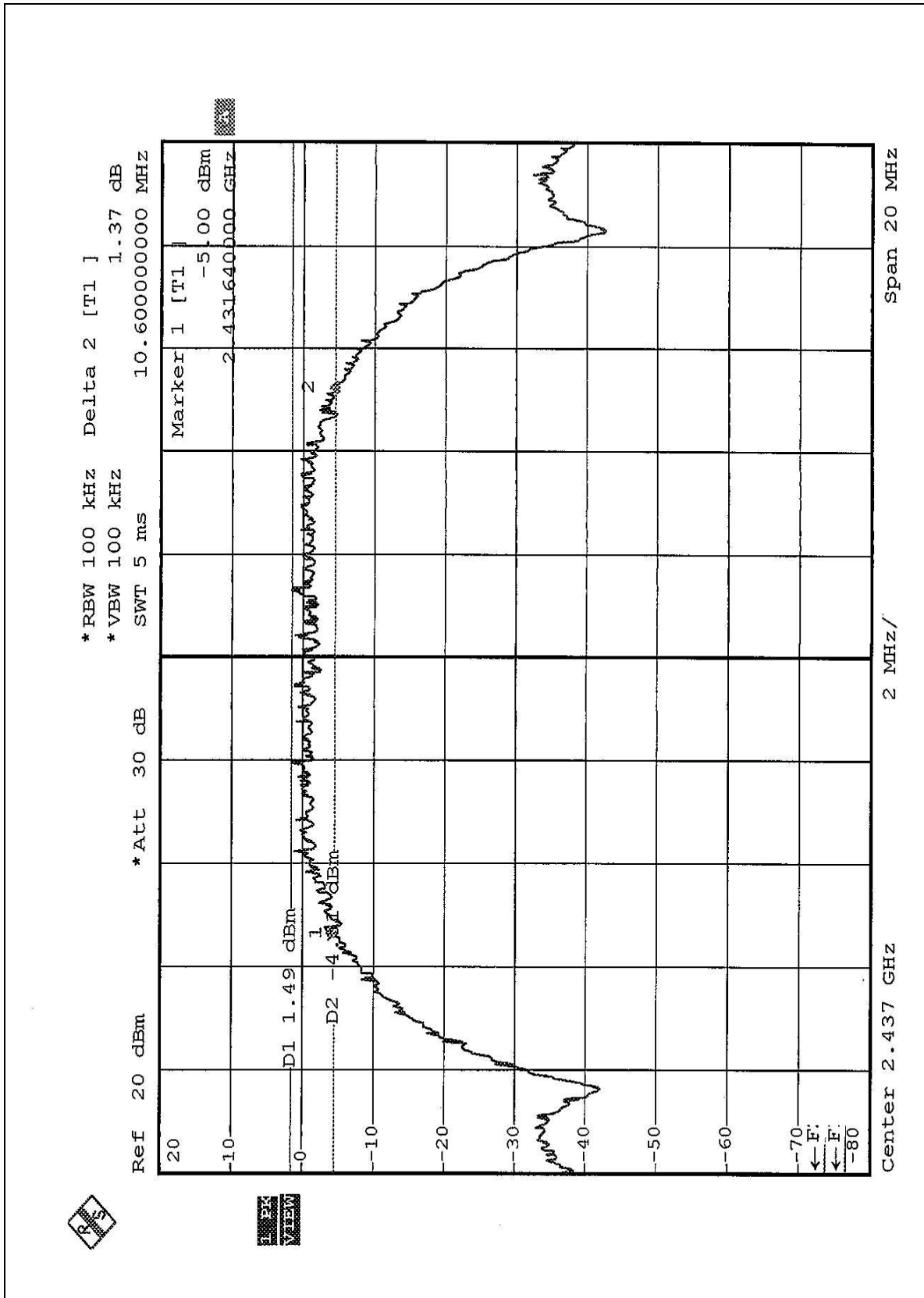
EUT	Wireless LAN 11a/g mini-PCI Adapter	MODEL	WMIB-111AG
MODULATION	CCK	INPUT POWER (SYSTEM)	120Vac, 60Hz
ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH, 991hPa	TESTED BY	Steven Lu

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	10.64	0.5	PASS
6	2437	10.60	0.5	PASS
11	2462	10.76	0.5	PASS

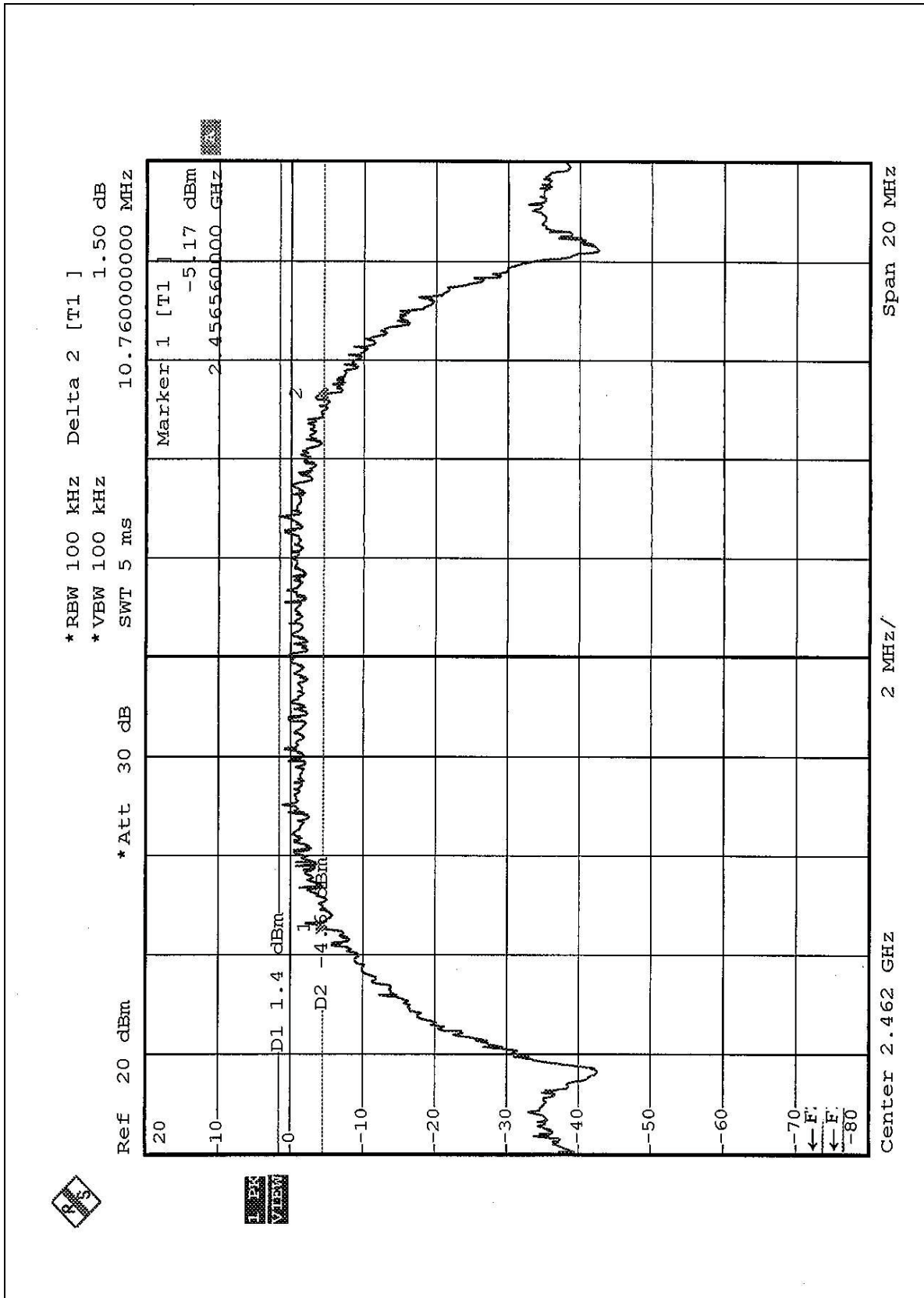
CH1



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CH11

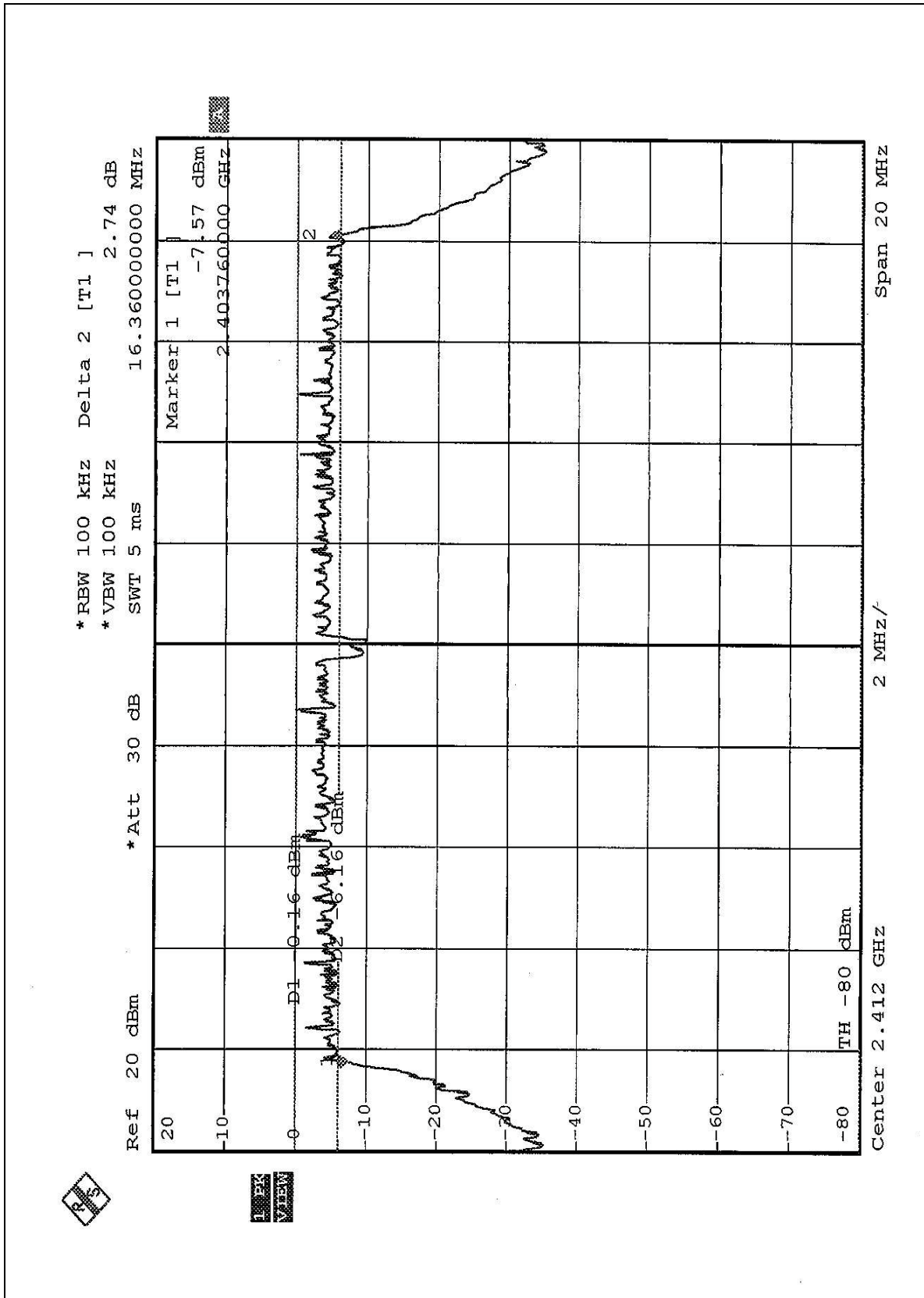




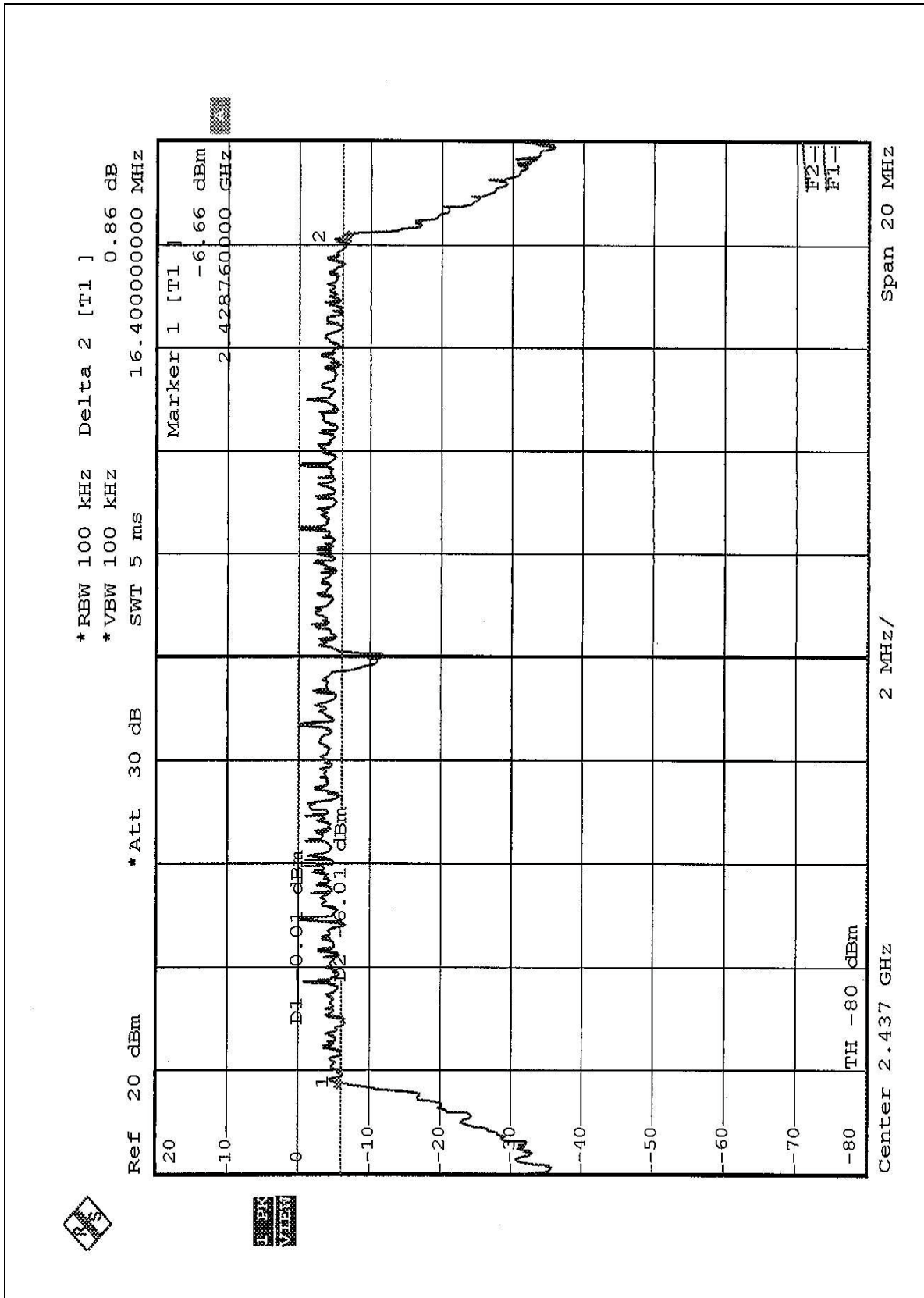
EUT	Wireless LAN 11a/g mini-PCI Adapter	MODEL	WMIB-111AG
MODULATION	OFDM	INPUT POWER (SYSTEM)	120Vac, 60Hz
ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH, 991hPa	TESTED BY	Steven Lu

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	16.36	0.5	PASS
6	2437	16.40	0.5	PASS
11	2462	16.36	0.5	PASS

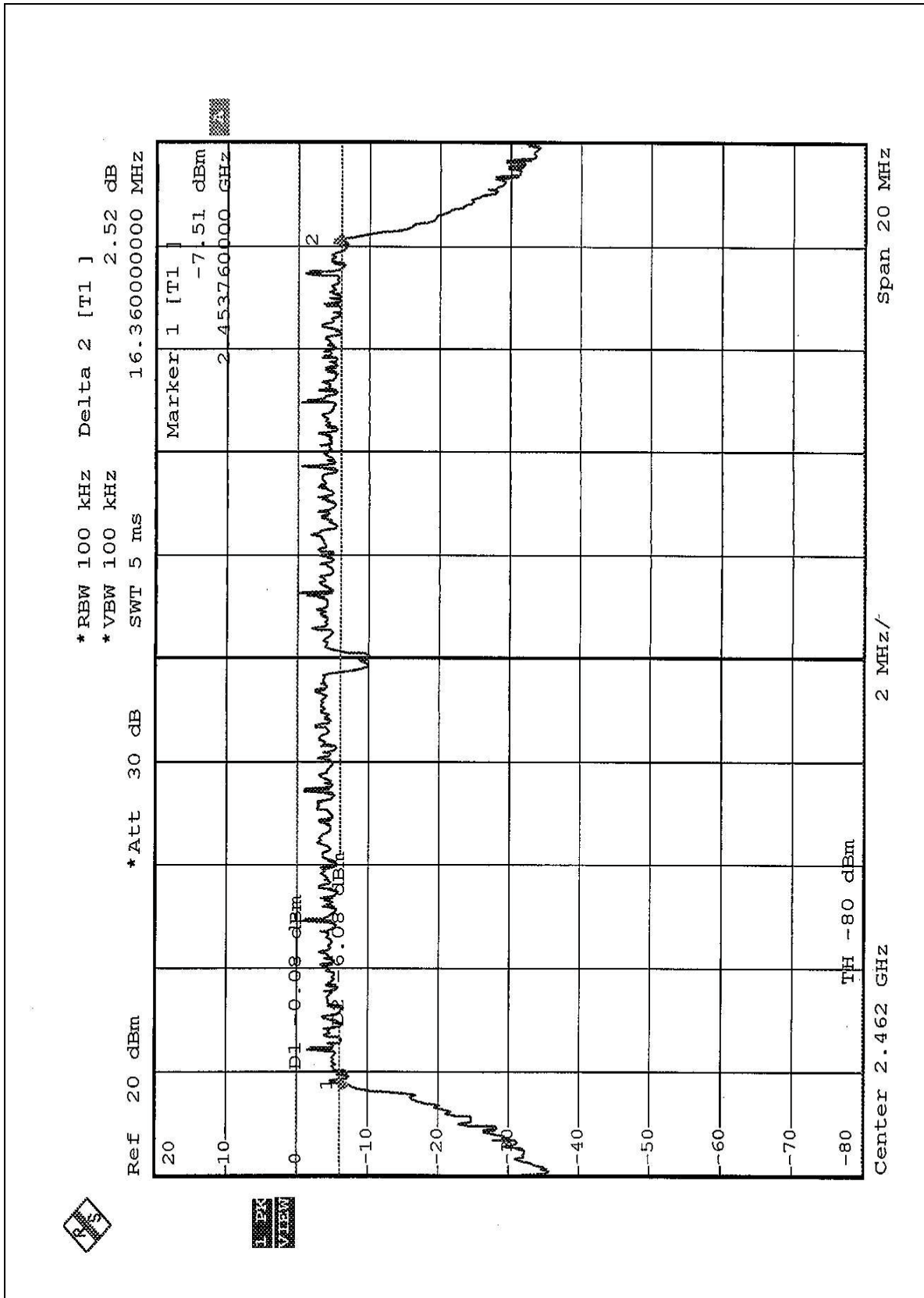
CH1



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	Aug. 12, 2004
R&S SIGNAL GENERATOR	SMP04	100011	May 28, 2004
TEKTRONIX OSCILLOSCOPE	TDS 220	B048470	Mar. 05, 2004
NARDA DETECTOR	4503A	FSCM99899	NA

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

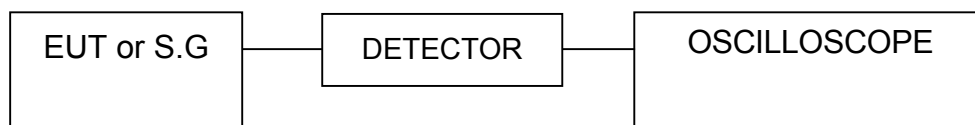
4.4.3 TEST PROCEDURES

1. A detector was used on the output port of the EUT. An oscilloscope was used to read the 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 DEVIATION FROM TEST STANDARD

No deviation

4.4.5 TEST SETUP



4.4.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6

4.4.7 TEST RESULTS

EUT	Wireless LAN 11a/g mini-PCI Adapter	MODEL	WMIB-111AG
MPDULATION	CCK	INPUT POWER (SYSTEM)	120Vac, 60Hz
ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH, 991hPa	TESTED BY	Steven Lu

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	13.5	30	PASS
6	2437	13.5	30	PASS
11	2462	13.5	30	PASS

EUT	Wireless LAN 11a/g mini-PCI Adapter	MODEL	WMIB-111AG
MPDULATION	OFDM	INPUT POWER (SYSTEM)	120Vac, 60Hz
ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH, 991hPa	TESTED BY	Steven Lu

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	13.5	30	PASS
6	2437	13.5	30	PASS
11	2462	13.5	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	Aug.12, 2004

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

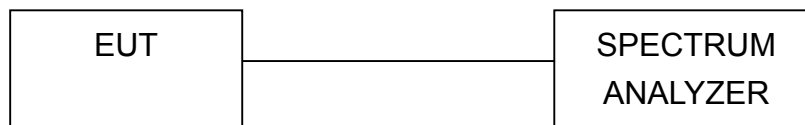
The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3kHz RBW and 30kHz VBW, set sweep time = span/3kHz. The power spectral density was measured and recorded.

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 CONDITION

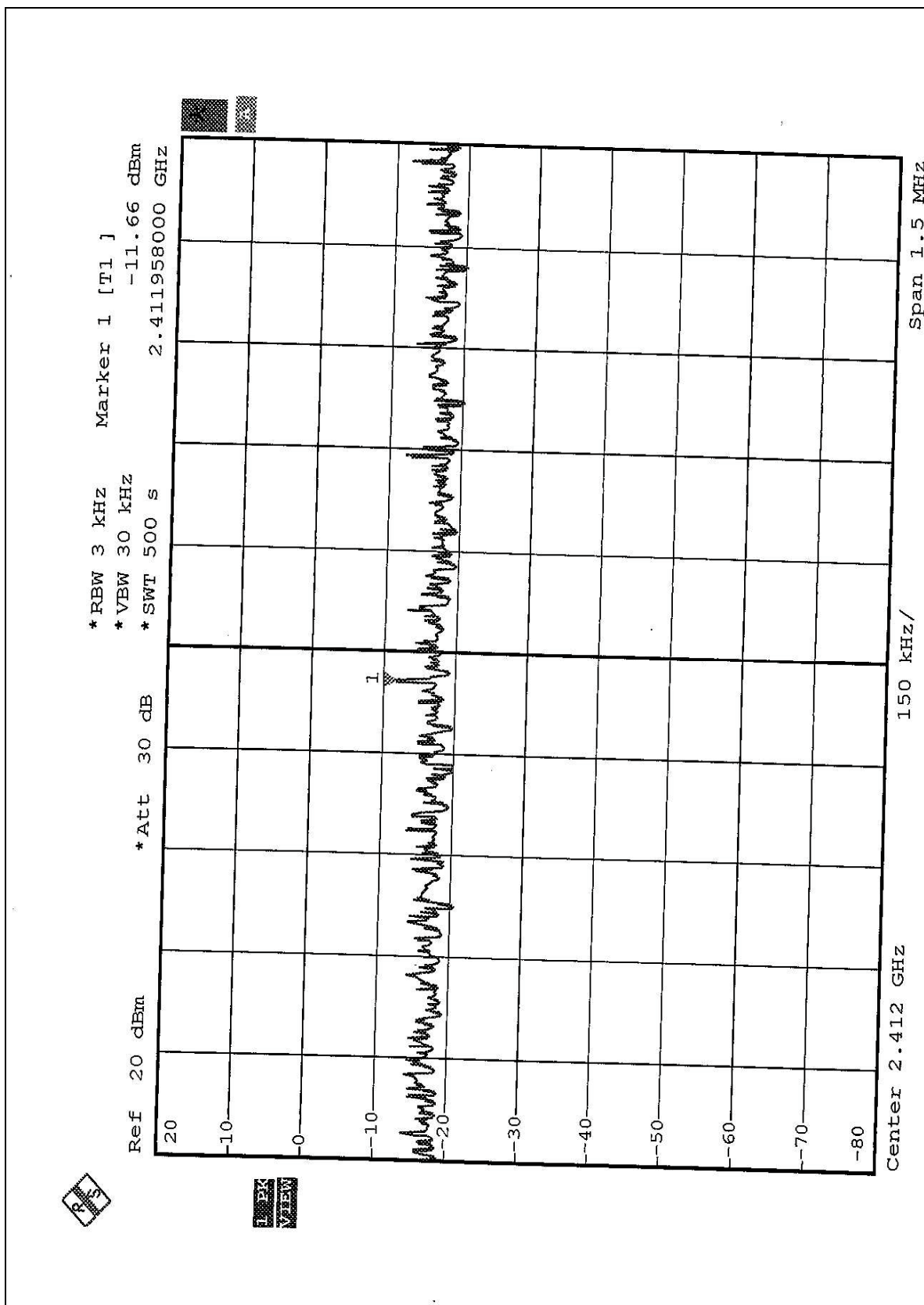
Same as Item 4.3.6

4.5.7 TEST RESULTS

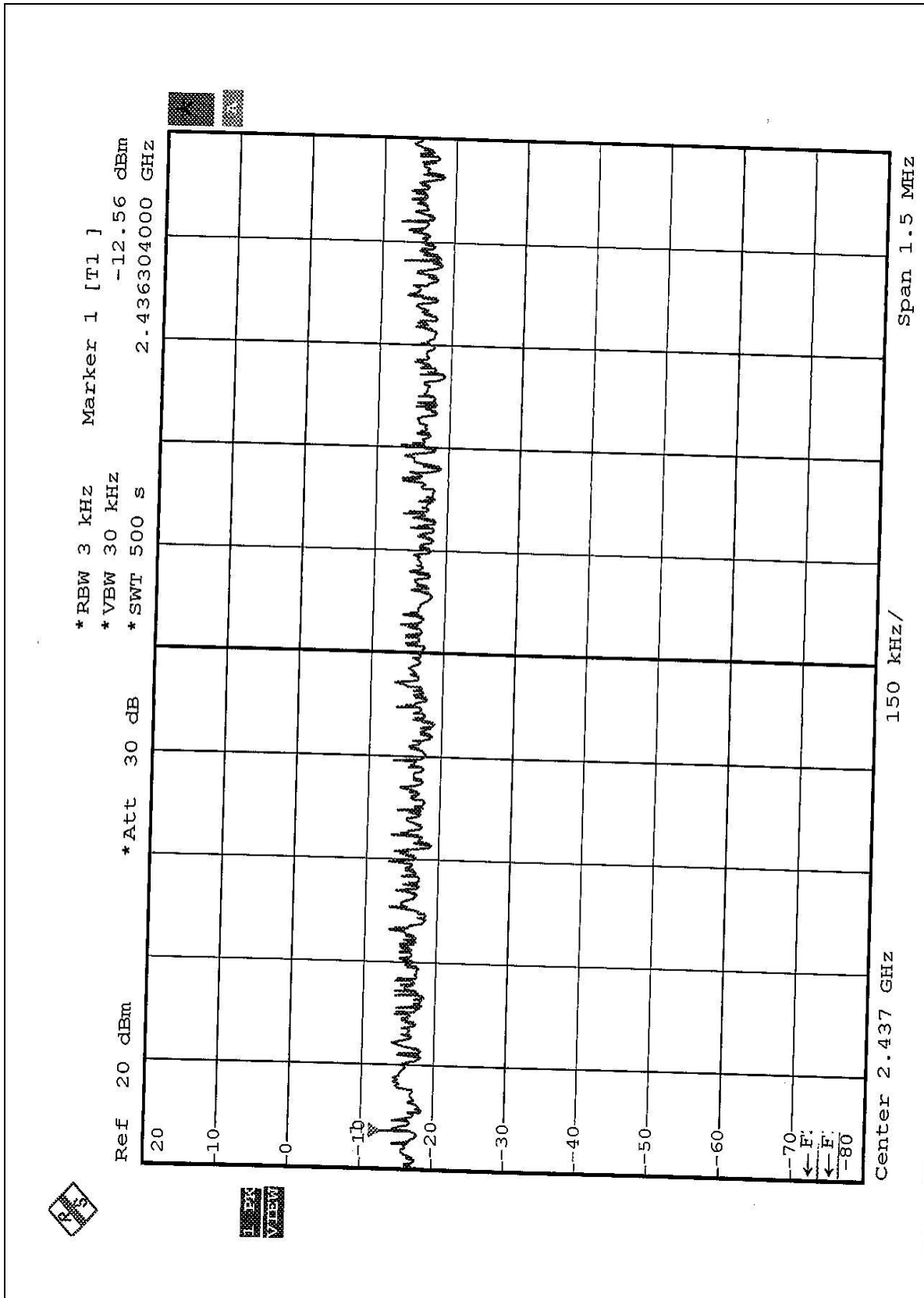
EUT	Wireless LAN 11a/g mini-PCI Adapter	MODEL	WMIB-111AG
MODULATION	CCK	INPUT POWER (SYSTEM)	120Vac, 60Hz
ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH, 991hPa	TESTED BY	Steven Lu

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-11.66	8	PASS
6	2437	-12.56	8	PASS
11	2462	-11.31	8	PASS

CH1



CH6



Ref 20 dBm

* RBW 3 kHz

* VBW 30 kHz

* SWT 500 S

* Att 30 dB

Marker 1 [T1]

-11.31 dBm

2.461958000 GHz

20

-10

0

-10

-30

-40

-50

-60

-70

-80

150 kHz

Center 2.462 GHz

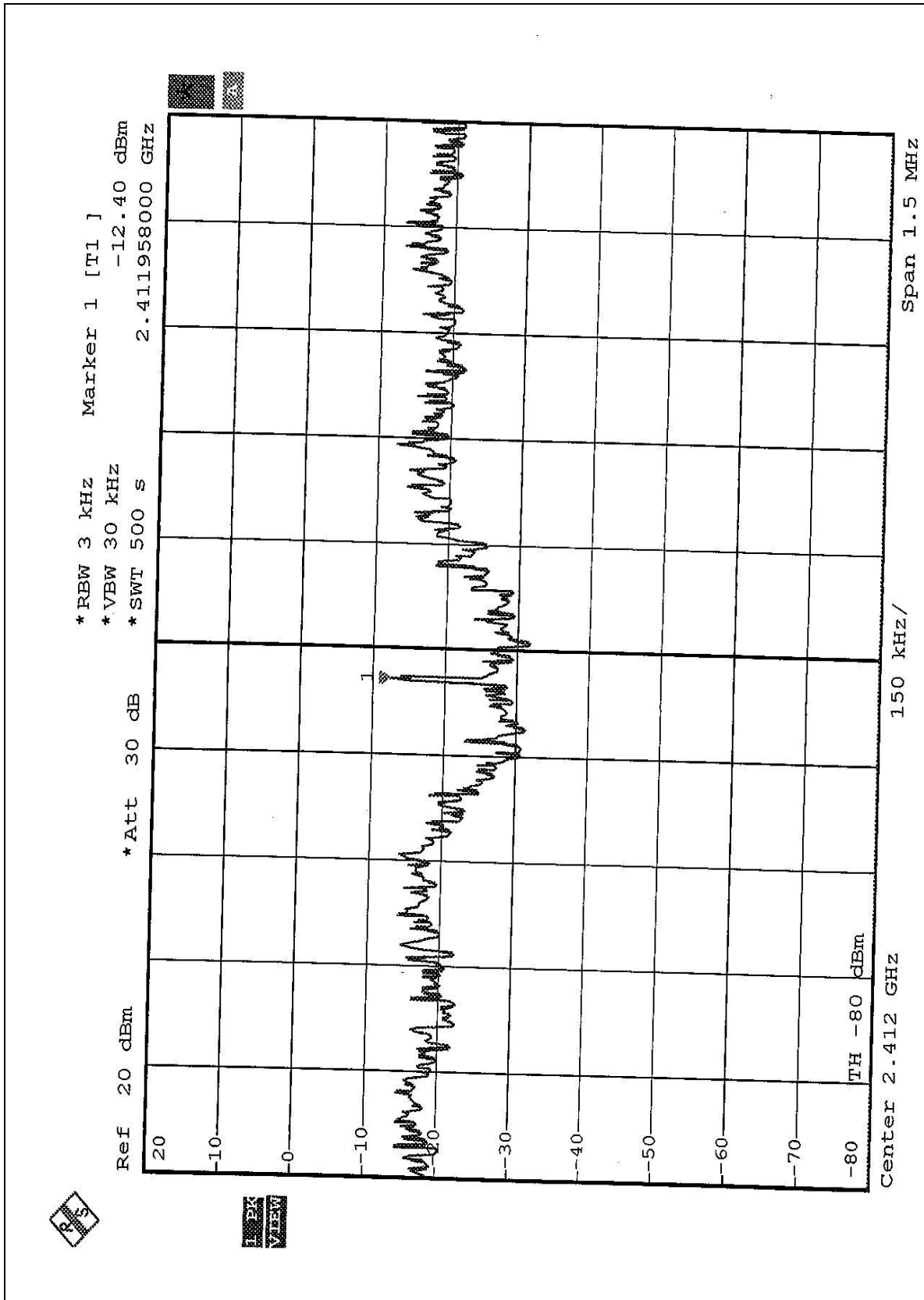
Span 1.5 MHz



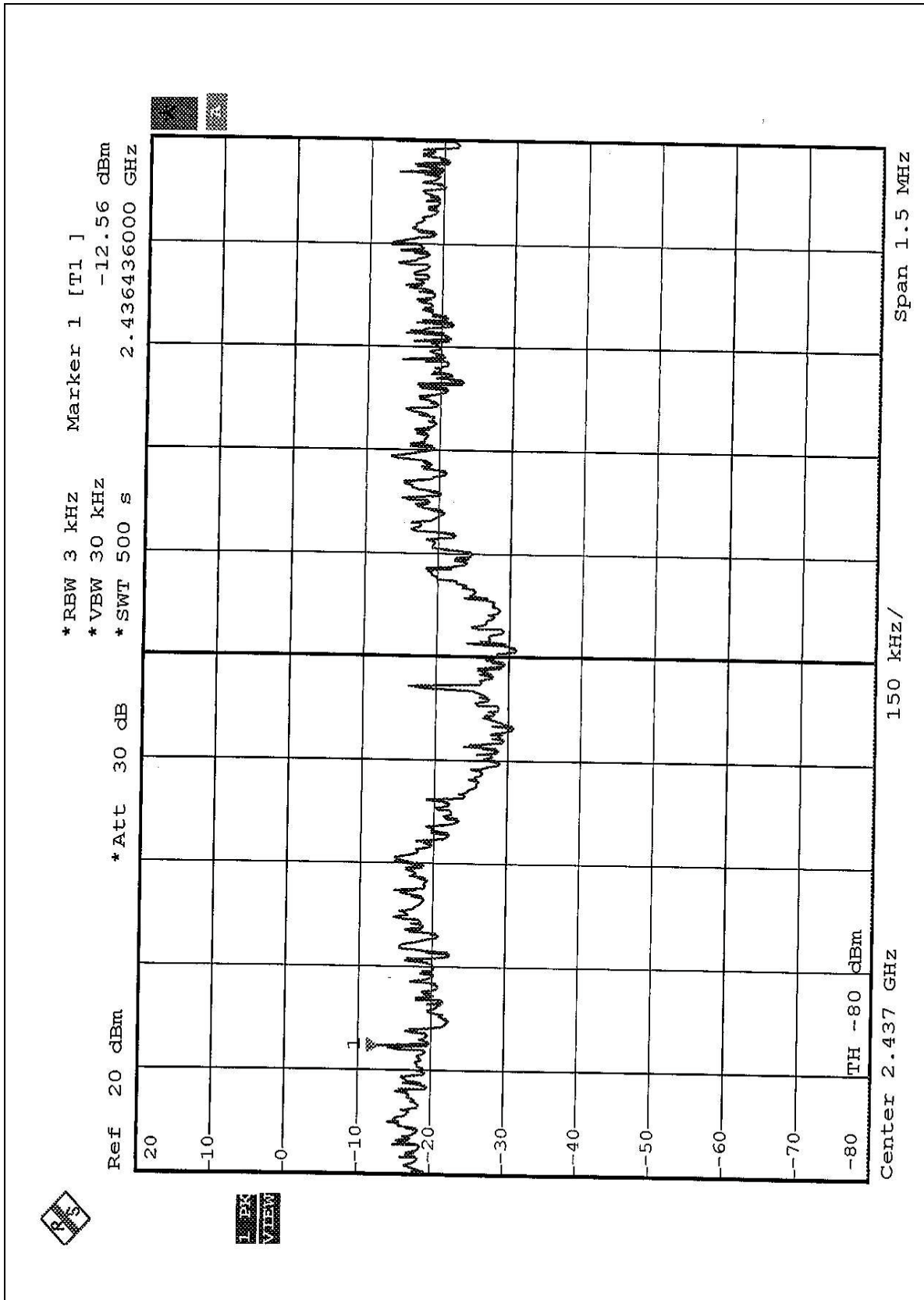
EUT	Wireless LAN 11a/g mini-PCI Adapter	MODEL	WMIB-111AG
MPDULATION	OFDM	INPUT POWER (SYSTEM)	120Vac, 60Hz
ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH, 991hPa	TESTED BY	Steven Lu

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-12.40	8	PASS
6	2437	-12.56	8	PASS
11	2462	-13.45	8	PASS

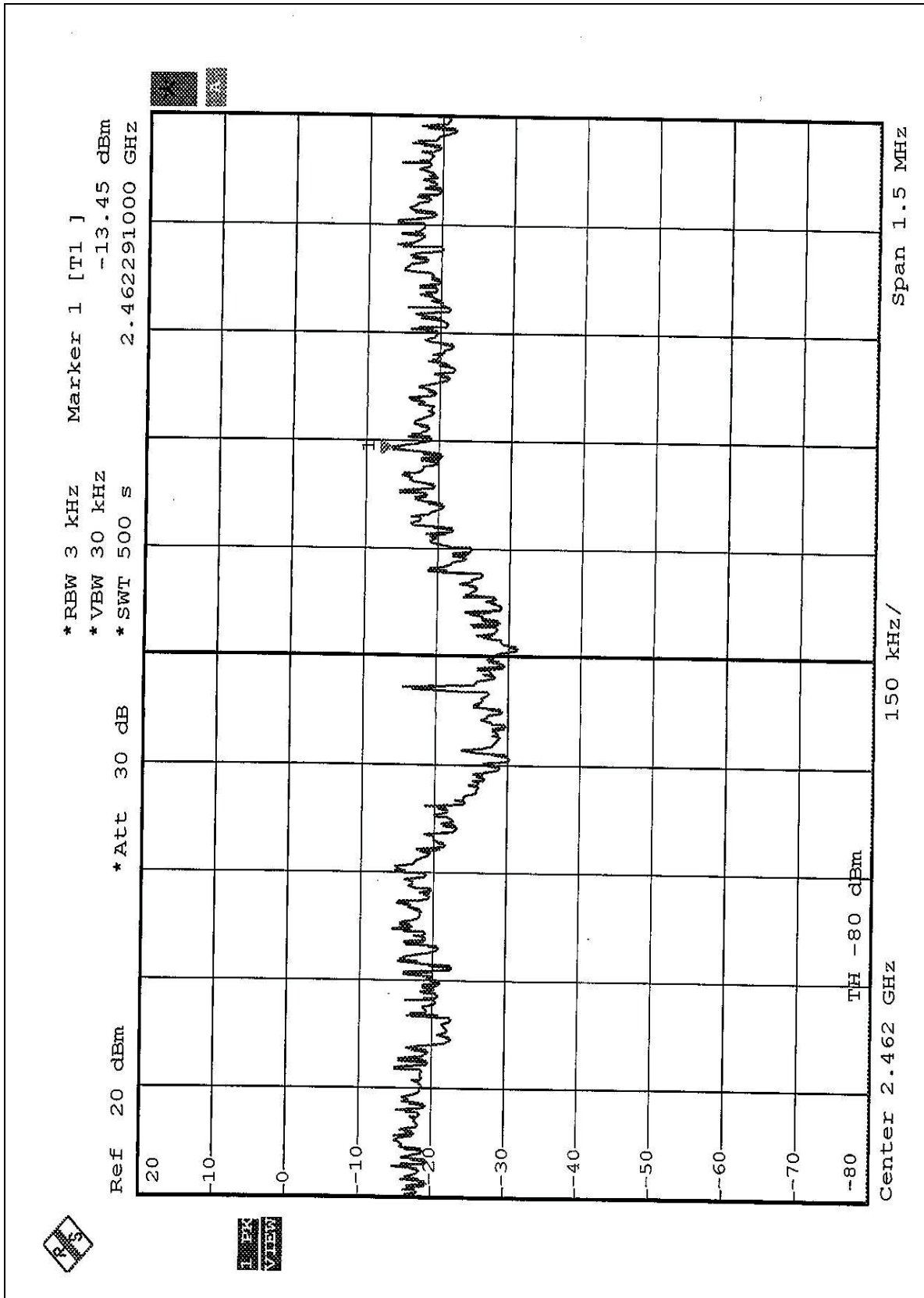
CH1



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	Aug.12, 2004

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 lose cable. Set both RBW and VBW of spectrum analyzer to 100kHz with suitable frequency span including 100MHz bandwidth from band edge. The band edges was measured and recorded.

4.6.4 DEVIATION FROM TEST STANDARD

No deviation

4.6.5 EUT OPERATING CONDITION

Same as Item 4.3.6



4.6.6 TEST RESULTS

The spectrum plots are attached on the following 8 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).

FOR MODULATION CCK

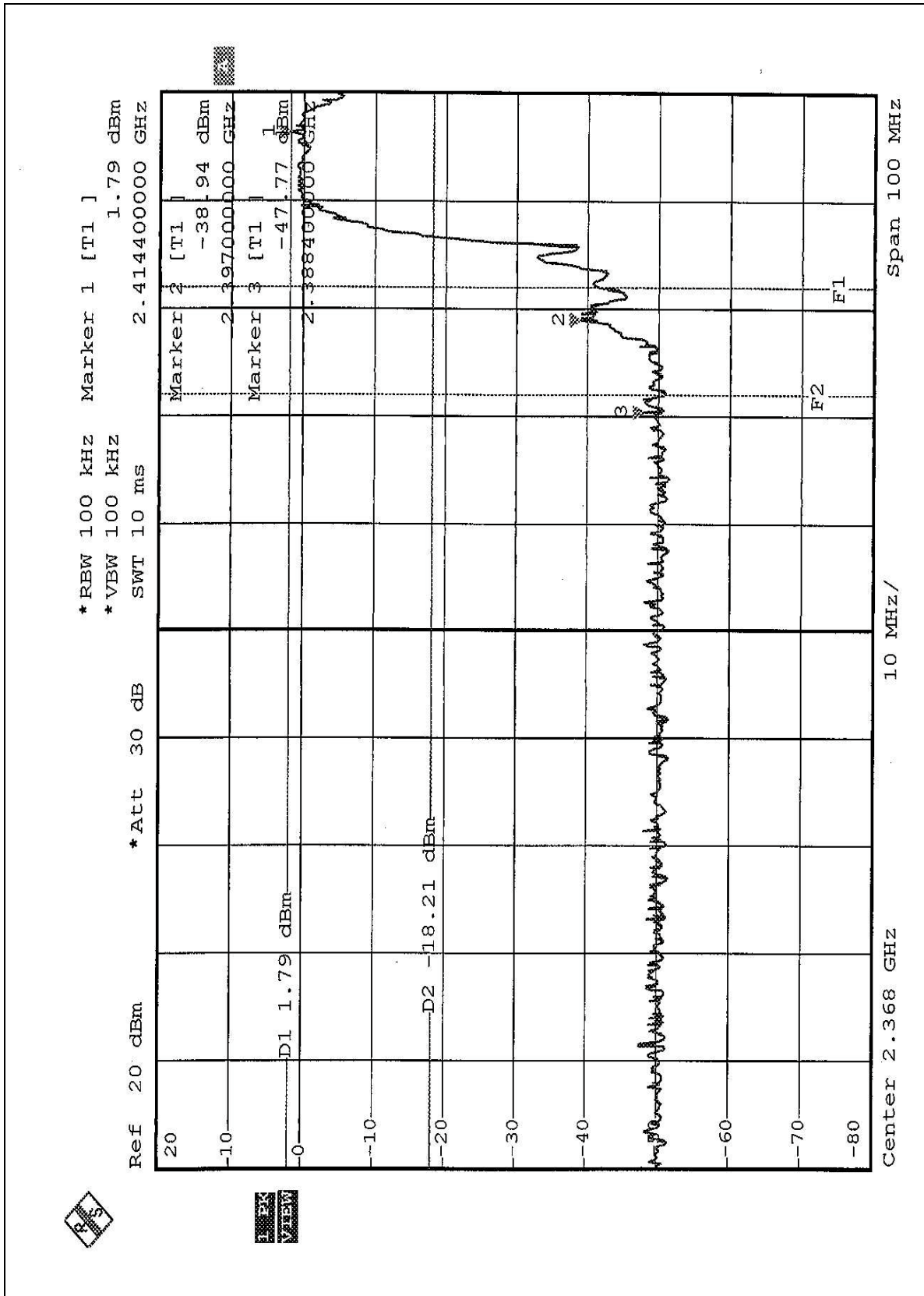
NOTE 1: The band edge emission plot of CCK technique on the following 1~2 pages show 49.56dB delta between carrier maximum power and local maximum emission in restrict band (2.3884GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 95.20dBuV/m, so the maximum field strength in restrict band is $95.20 - 49.56 = 45.64$ dBuV/m, which is under 54dBuV/m limit.

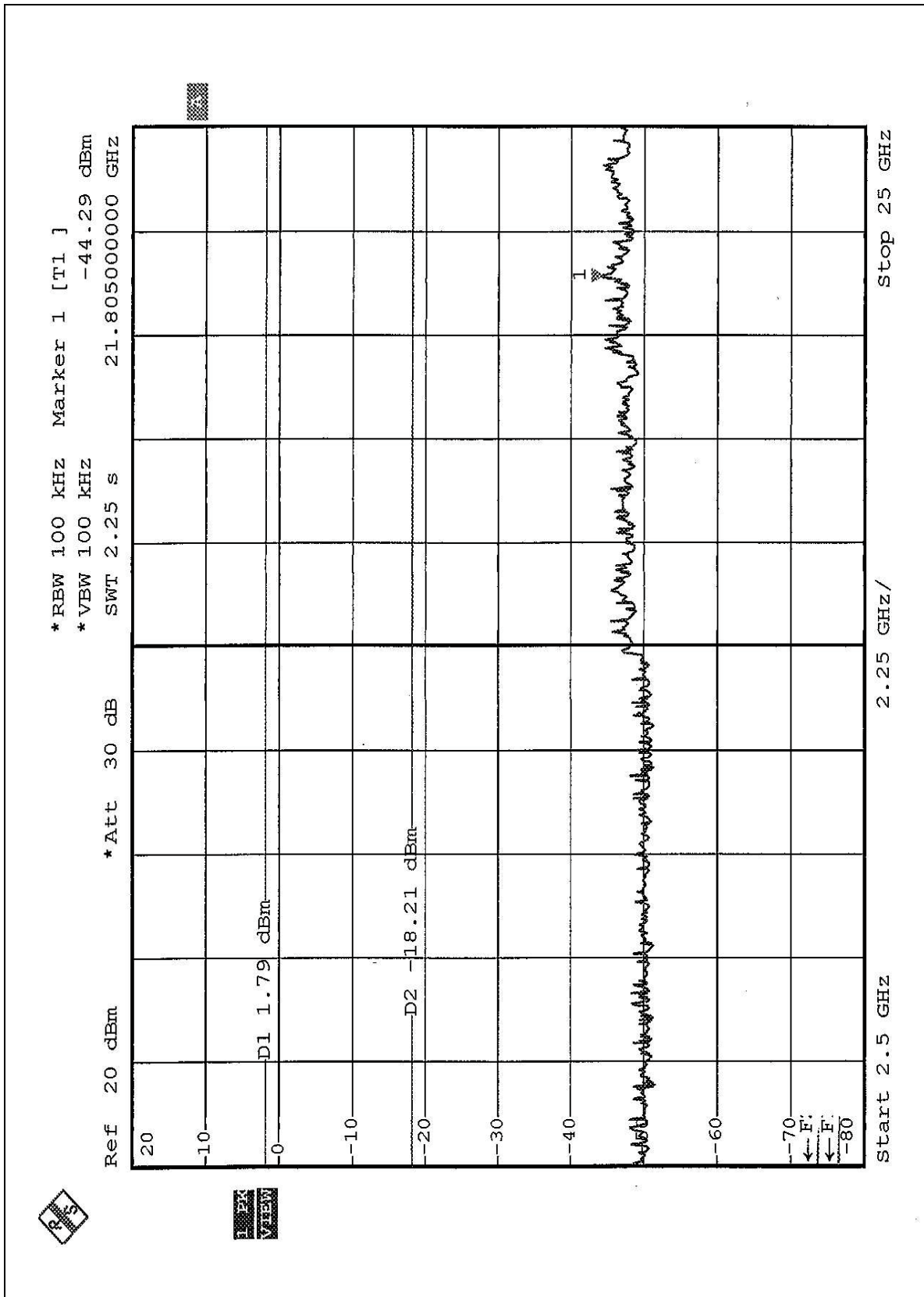
NOTE 2: The band edge emission plot of CCK technique on the following 3~4 pages show 49.71dB delta between carrier maximum power and local maximum emission in restrict band (2.4838GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 95.70dBuV/m, so the maximum field strength in restrict band is $95.70 - 49.71 = 45.99$ dBuV/m, which is under 54dBuV/m limit.

FOR MODULATION OFDM

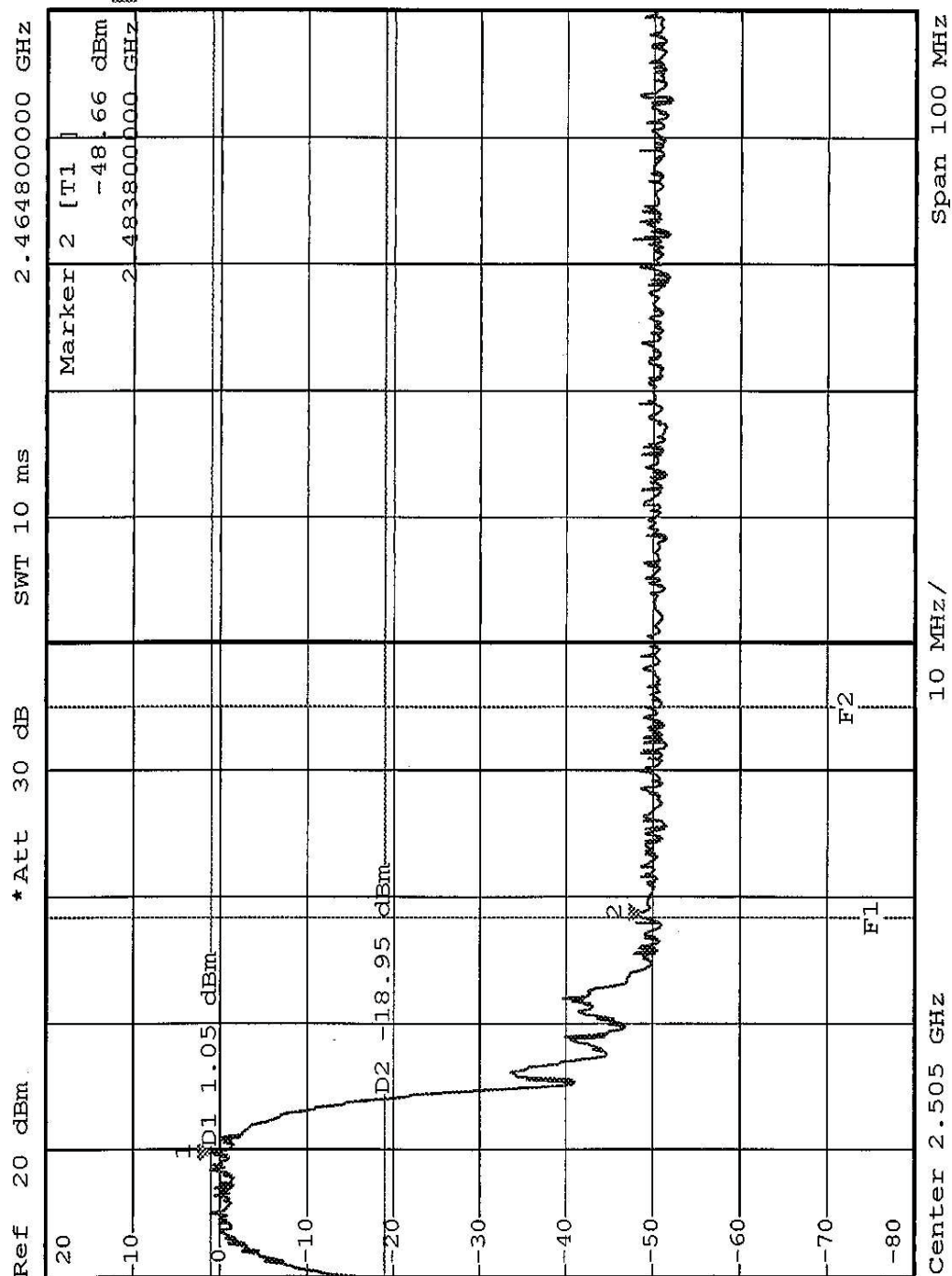
NOTE 1: The band edge emission plot of OFDM technique on the following 5~6 pages show 46.23dB delta between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 is 93.50dBuV/m, so the maximum field strength in restrict band is $93.50 - 46.23 = 47.27$ dBuV/m, which is under 54dBuV/m limit.

NOTE 2: The band edge emission plot of OFDM technique on the following 7~8 pages show 45.69dB delta between carrier maximum power and local maximum emission in restrict band (2.4840GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 is 93.50dBuV/m, so the maximum field strength in restrict band is $93.50 - 45.69 = 47.81$ dBuV/m, which is under 54dBuV/m limit.





*RBW 100 kHz Marker 1 [T1]
 *VBW 100 kHz 1.05 dBm
 SWT 10 ms 2.464800000 GHz



RF
VIEW