



FCC TEST REPORT

REPORT NO.: RF920320R02

MODEL NO.: WLL3020-D92

RECEIVED: Mar. 25, 2003

TESTED: Apr. 8, 2003 ~ Apr. 10, 2003

APPLICANT: Askey Computer Corp.

ADDRESS: 10F, No.119, ChienKang Rd., Chung-Ho,
Taipei, Taiwan, R.O.C.

ISSUED BY: Advance Data Technology Corporation

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

This test report consists of 68 pages in total. It may be duplicated completely for legal use with the approval of the applicant. It should not be reproduced except in full, without the written approval of our laboratory. The client should not use it to claim product endorsement by CNLA, NVLAP or any government agencies. The test results in the report only apply to the tested sample.



0528
ILAC MRA



Lab Code: 200102-0



Table of Contents

1	CERTIFICATION	4
2	SUMMARY OF TEST RESULTS.....	5
3	GENERAL INFORMATION	6
3.1	GENERAL DESCRIPTION OF EUT	6
3.2	DESCRIPTION OF TEST MODES	7
3.3	GENERAL DESCRIPTION OF APPLIED STANDARDS.....	7
3.4	DESCRIPTION OF SUPPORT UNITS.....	8
4	TEST TYPES AND RESULTS	9
4.1	CONDUCTED EMISSION MEASUREMENT	9
4.1.1	LIMITS OF CONDUCTED EMISSION MEASUREMENT	9
4.1.2	TEST INSTRUMENTS	9
4.1.3	TEST PROCEDURES.....	10
4.1.4	DEVIATION FROM TEST STANDARD	10
4.1.5	TEST SETUP.....	11
4.1.6	EUT OPERATING CONDITIONS.....	11
4.1.7	TEST RESULTS.....	12
4.2	RADIATED EMISSION MEASUREMENT	18
4.2.1	LIMITS OF RADIATED EMISSION MEASUREMENT	18
4.2.2	TEST INSTRUMENTS	19
4.2.3	TEST PROCEDURES.....	20
4.2.4	DEVIATION FROM TEST STANDARD	20
4.2.5	TEST SETUP	21
4.2.6	EUT OPERATING CONDITIONS.....	21
4.2.7	TEST RESULTS.....	22
4.3	6dB BANDWIDTH MEASUREMENT	30
4.3.1	LIMITS OF 6dB BANDWIDTH MEASUREMENT	30
4.3.2	TEST INSTRUMENTS	30
4.3.3	TEST PROCEDURE	31
4.3.4	DEVIATION FROM TEST STANDARD	31
4.3.5	TEST SETUP	31
4.3.6	EUT OPERATING CONDITIONS.....	31
4.3.7	TEST RESULTS.....	32
4.4	MAXIMUM PEAK OUTPUT POWER.....	41
4.4.1	LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT	41
4.4.2	TEST INSTRUMENTS	41
4.4.3	TEST PROCEDURES.....	42
4.4.4	DEVIATION FROM TEST STANDARD	42



4.4.5	TEST SETUP	42
4.4.6	EUT OPERATING CONDITIONS.....	42
4.4.7	TEST RESULTS.....	43
4.5	POWER SPECTRAL DENSITY MEASUREMENT	44
4.5.1	LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT	44
4.5.2	TEST INSTRUMENTS	44
4.5.3	TEST PROCEDURE	45
4.5.4	DEVIATION FROM TEST STANDARD	45
4.5.5	TEST SETUP	45
4.5.6	EUT OPERATING CONDITIONS.....	45
4.5.7	TEST RESULTS.....	46
4.6	BAND EDGES MEASUREMENT	55
4.6.1	LIMITS OF BAND EDGES MEASUREMENT	55
4.6.2	TEST INSTRUMENTS	55
4.6.3	TEST PROCEDURE	55
4.6.4	DEVIATION FROM TEST STANDARD	55
4.6.5	EUT OPERATING CONDITION	56
4.6.6	TEST RESULTS.....	56
4.7	ANTENNA REQUIREMENT.....	63
4.7.1	STANDARD APPLICABLE.....	63
4.7.2	ANTENNA CONNECTED CONSTRUCTION.....	63
5	PHOTOGRAPHS OF THE TEST CONFIGURATION	64
6	INFORMATION ON THE TESTING LABORATORIES.....	68



1 CERTIFICATION

PRODUCT : Wireless LAN Mini PCI Card
MODEL NO. : WLL3020-D92
BRAND NAME : Askey
APPLICANT : Askey Computer Corp.
STANDARDS : 47 CFR Part 15, Subpart C (Section 15.247),
ANSI C63.4-1992

We, **Advance Data Technology Corporation**, hereby certify that one sample of the designation has been tested in our facility from Apr. 8, 2003 to Apr. 10, 2003. The test record, data evaluation and Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions herein specified.

CHECKED BY : Emily Lu , **DATE :** April 17, 2003
Emily Lu

APPROVED BY : Dr. Alan Lane for , **DATE :** April 17, 2003
Dr. Alan Lane, Manager



2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: 47 CFR Part 15, Subpart C			
Standard Section	Test Type and Limit	Result	REMARK
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit Minimum passing margin is -14.74dBuV at 0.170MHz
15.247(a)(2)	Spectrum Bandwidth of a Direct Sequence Spread Spectrum System Limit: min. 500kHz	PASS	Meet the requirement of limit
15.247(b)	Maximum Peak Output Power Limit: max. 30dBm	PASS	Meet the requirement of limit
15.247(c)	Transmitter Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit Minimum passing margin is -1.4dBuV at 256.00MHz
15.247(d)	Power Spectral Density Limit: max. 8dBm	PASS	Meet the requirement of limit
15.247(c)	Band Edge Measurement Limit: 20 dB less than the peak value of fundamental frequency	PASS	Meet the requirement of limit



3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Wireless LAN Mini PCI Card
MODEL NO.	WLL3020-D92
POWER SUPPLY	3.3VDC from host equipment
MODULATION TYPE	DSSS, OFDM
TRANSFER RATE	up to 54Mbps
FREQUENCY RANGE	2412MHz ~ 2462MHz (*One turbo mode is provided at Channel 6.)
CHANNEL SPACING	5MHz
NUMBER OF CHANNEL	11
OUTPUT POWER	19.45dBm (*18.68dBm for turbo mode)
ANTENNA TYPE	Inverted F
DATA CABLE	NA
I/O PORTS	NA
ASSOCIATED DEVICES	NA

NOTE:

1. The Wireless LAN Card design is based on Atheros WLAN chipset. It supports 802.11g standards to provide maximum data rates of 54Mbps.
2. For more detailed features description, please refer to the manufacturer's specifications or User's Manual.



3.2 DESCRIPTION OF TEST MODES

Eleven channels are provided to this EUT and also one turbo mode at channel 6.

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, the worst case, was chosen for final test.
2. Above 1GHz, the channel 1, 6, and 11 were tested individually.
3. Transfer rate, 11Mbps with CCK technique, 6Mbps with OFDM technique and a turbo mode at channel 6, the worst cases, were chosen for final test.

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

FCC 47 CFR Part 15, Subpart C. (15.247)
ANSI C63.4 : 1992

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

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



3.4 DESCRIPTION OF SUPPORT UNITS

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

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK	DELL	PP01L	TW-09C748-12800-190-B220	FCC DoC APPROVED
2	PRINTER	EPSON	LQ-300+	DCGY017096	FCC DoC APPROVED
3	MODEM	ACEEX	1414	980020569	IFAXDM1414

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

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



4 TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

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

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
ROHDE & SCHWARZ Test Receiver	ESCS30	847793/022	Mar. 10, 2004
ROHDE & SCHWARZ Artificial Mains Network (for EUT)	ESH2-Z5	828075/003	July 23, 2003
ROHDE & SCHWARZ 200-A Four-line V-Network	ENV4200	830326/018	Oct. 30, 2003
* ROHDE & SCHWARZ 4-wire ISN	ENY41	838119/028	Nov. 29, 2003
* ROHDE & SCHWARZ 2-wire ISN	ENY22	837497/018	Nov. 29, 2003
EMCO-L.I.S.N. (for peripheral)	3825/2	90031627	July 23, 2003
Software	Cond-V2M1	NA	NA
RF cable (JYEBAO)	5D-FB	Cable-C05.01	July 19, 2003
LYNICS Terminator (For EMCO LISN)	0900510	E1-01-305	Feb. 23, 2004
LYNICS Terminator (For EMCO LISN)	0900510	E1-01-306	Feb. 23, 2004

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



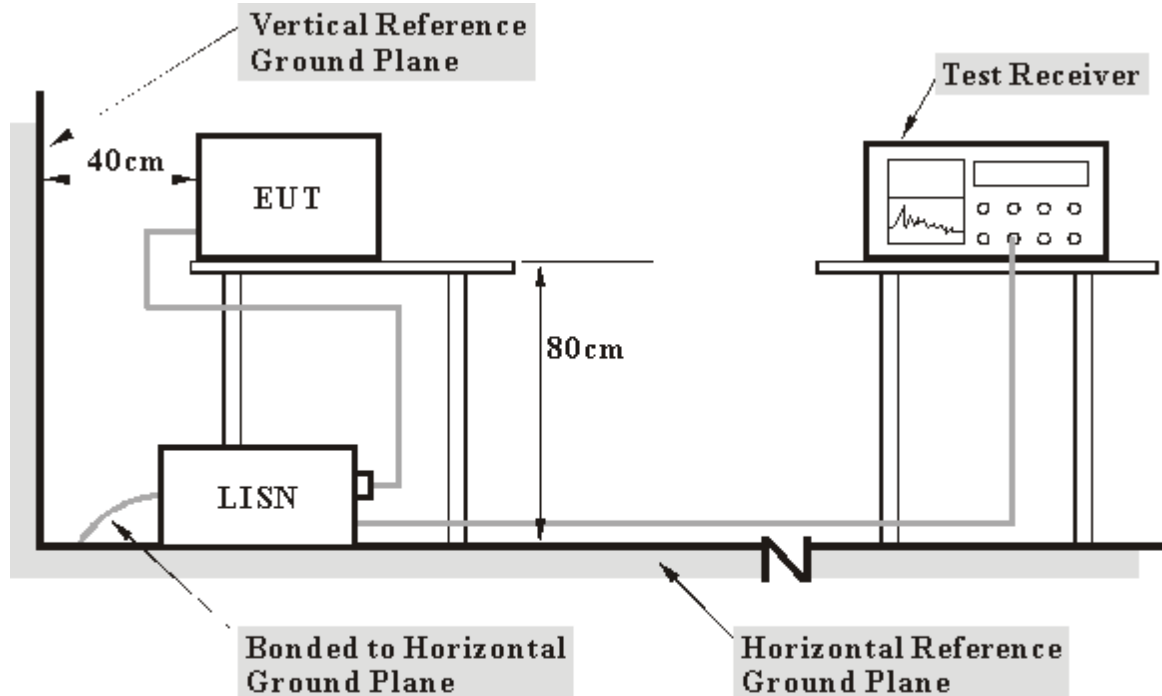
4.1.3 TEST PROCEDURES

- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- c. The frequency range from 150kHz to 30MHz was searched. Emission levels over 10dB under the prescribed limits could not be reported

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



- Note:**
1. Support units were connected to second LISN.
 2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

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

4.1.6 EUT OPERATING CONDITIONS

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



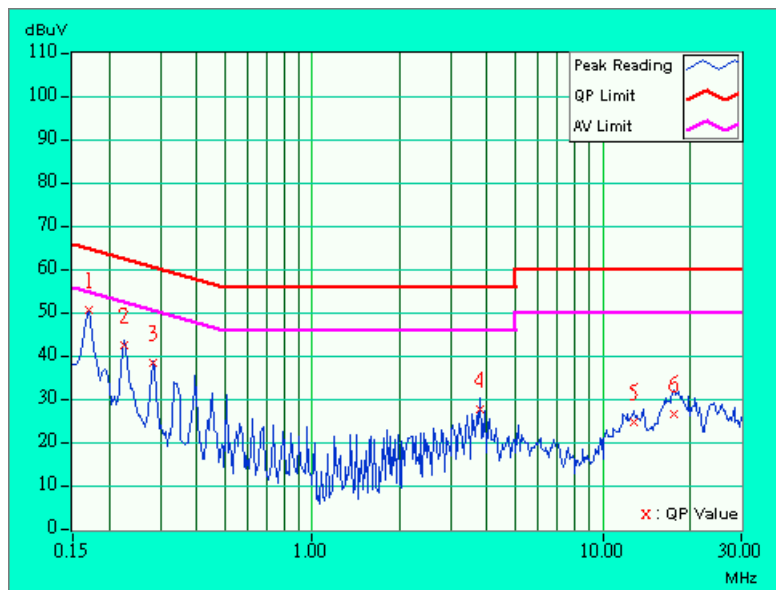
4.1.7 TEST RESULTS

EUT	Wireless LAN Mini PCI Card	MODEL	WLL3020-D92
MODE	Channel 1	6dB BANDWIDTH	9kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 991hPa	TESTED BY: Gary Chang	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.170	0.10	49.73	-	49.83	-	64.98	54.98	-15.15	-
2	0.224	0.10	41.61	-	41.71	-	62.66	52.66	-20.95	-
3	0.283	0.10	37.67	-	37.77	-	60.73	50.73	-22.96	-
4	3.789	0.38	26.87	-	27.25	-	56.00	46.00	-28.75	-
5	12.789	0.71	23.90	-	24.61	-	60.00	50.00	-35.39	-
6	17.523	0.95	25.74	-	26.69	-	60.00	50.00	-33.31	-

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.



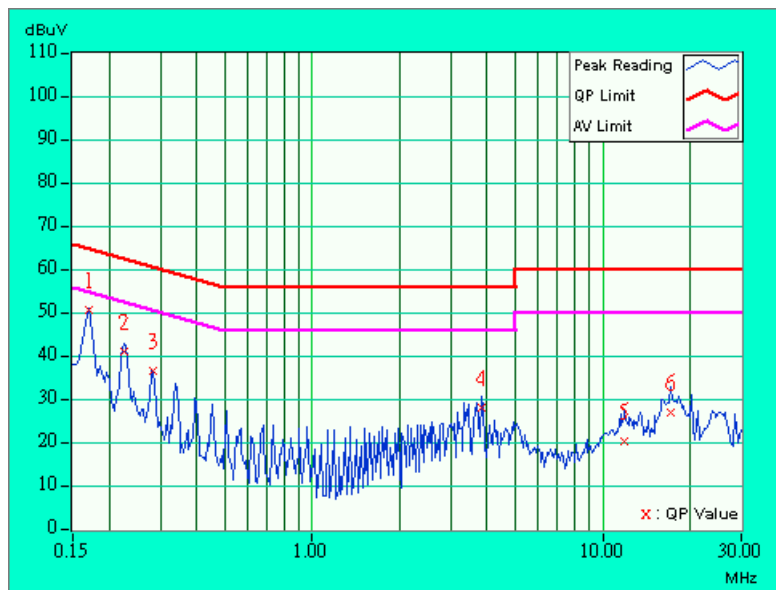


EUT	Wireless LAN Mini PCI Card	MODEL	WLL3020-D92
MODE	Channel 1	6dB BANDWIDTH	9kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 991hPa	TESTED BY: Gary Chang	

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]		Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.170	0.10	50.14	-	50.24	-	64.98	54.98	-14.74	-
2	0.224	0.10	40.50	-	40.60	-	62.66	52.66	-22.06	-
3	0.283	0.10	35.99	-	36.09	-	60.73	50.73	-24.64	-
4	3.840	0.29	27.70	-	27.99	-	56.00	46.00	-28.01	-
5	11.918	0.44	19.82	-	20.26	-	60.00	50.00	-39.74	-
6	17.176	0.63	26.38	-	27.01	-	60.00	50.00	-32.99	-

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.



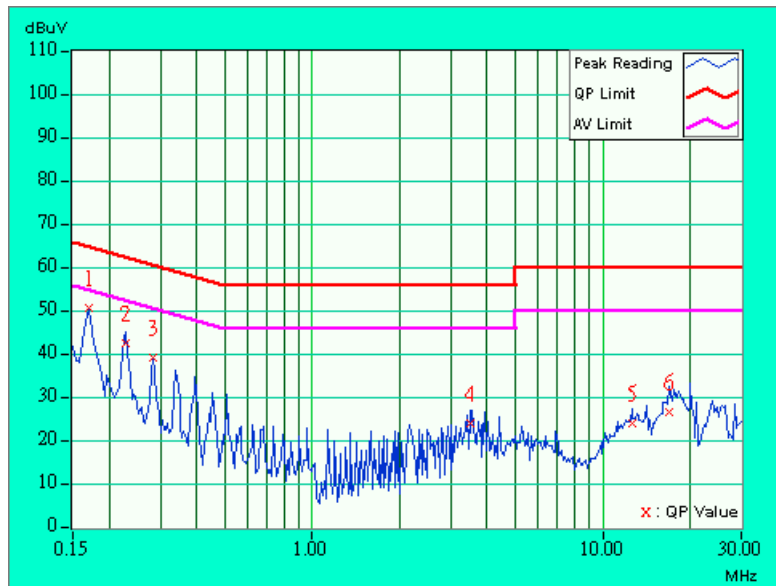


EUT	Wireless LAN Mini PCI Card	MODEL	WLL3020-D92
MODE	Channel 6	6dB BANDWIDTH	9kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 991hPa	TESTED BY: Gary Chang	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.170	0.10	49.86	-	49.96	-	64.98	54.98	-15.02	-
2	0.228	0.10	41.84	-	41.94	-	62.52	52.52	-20.58	-
3	0.283	0.10	38.23	-	38.33	-	60.73	50.73	-22.40	-
4	3.508	0.35	23.03	-	23.38	-	56.00	46.00	-32.62	-
5	12.629	0.71	23.01	-	23.72	-	60.00	50.00	-36.28	-
6	16.938	0.92	25.82	-	26.74	-	60.00	50.00	-33.26	-

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.



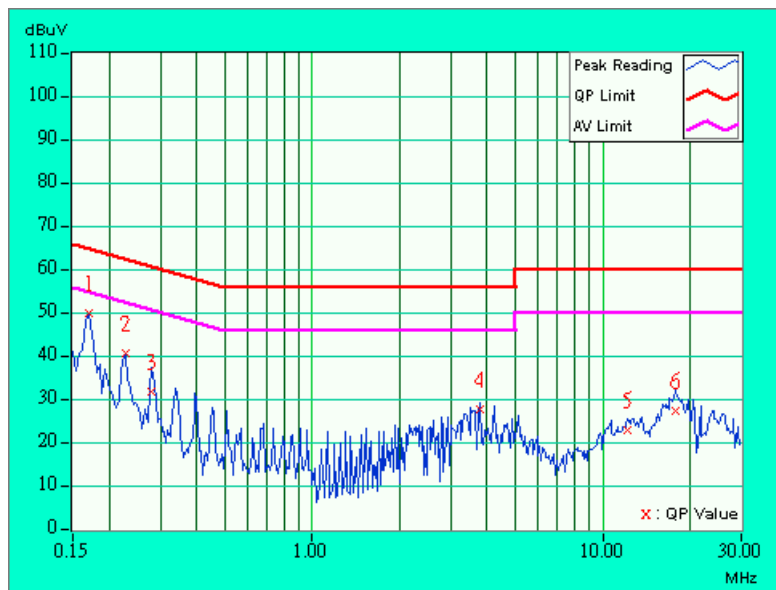


EUT	Wireless LAN Mini PCI Card	MODEL	WLL3020-D92
MODE	Channel 6	6dB BANDWIDTH	9kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 991hPa	TESTED BY: Gary Chang	

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]		Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.170	0.10	49.45	-	49.55	-	64.98	54.98	-15.43	-
2	0.228	0.10	40.24	-	40.34	-	62.52	52.52	-22.18	-
3	0.279	0.10	31.14	-	31.24	-	60.85	50.85	-29.61	-
4	3.793	0.29	27.12	-	27.41	-	56.00	46.00	-28.59	-
5	12.238	0.44	22.12	-	22.56	-	60.00	50.00	-37.44	-
6	17.738	0.66	26.76	-	27.42	-	60.00	50.00	-32.58	-

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.



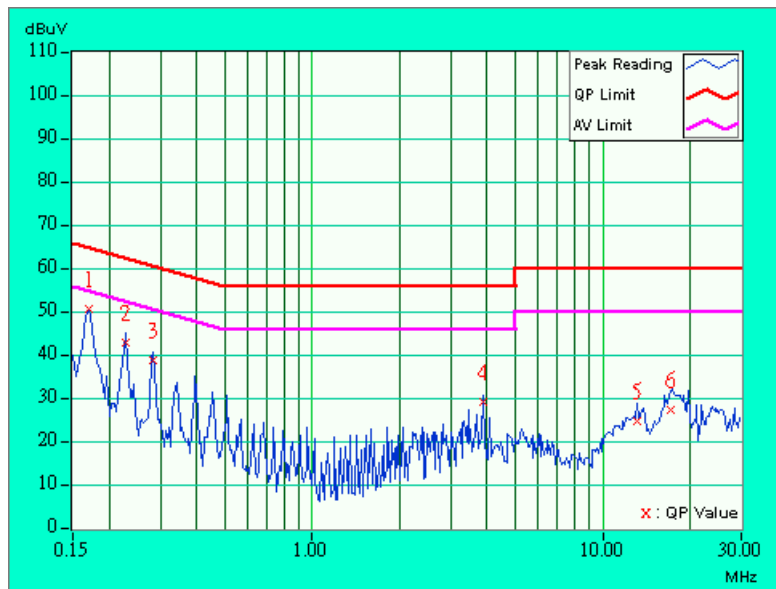


EUT	Wireless LAN Mini PCI Card	MODEL	WLL3020-D92
MODE	Channel 11	6dB BANDWIDTH	9kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 991hPa	TESTED BY: Gary Chang	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.170	0.10	49.68	-	49.78	-	64.98	54.98	-15.20	-
2	0.228	0.10	42.01	-	42.11	-	62.52	52.52	-20.41	-
3	0.283	0.10	37.78	-	37.88	-	60.73	50.73	-22.85	-
4	3.855	0.39	28.49	-	28.88	-	56.00	46.00	-27.12	-
5	13.164	0.73	23.85	-	24.58	-	60.00	50.00	-35.42	-
6	17.180	0.93	26.66	-	27.59	-	60.00	50.00	-32.41	-

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.



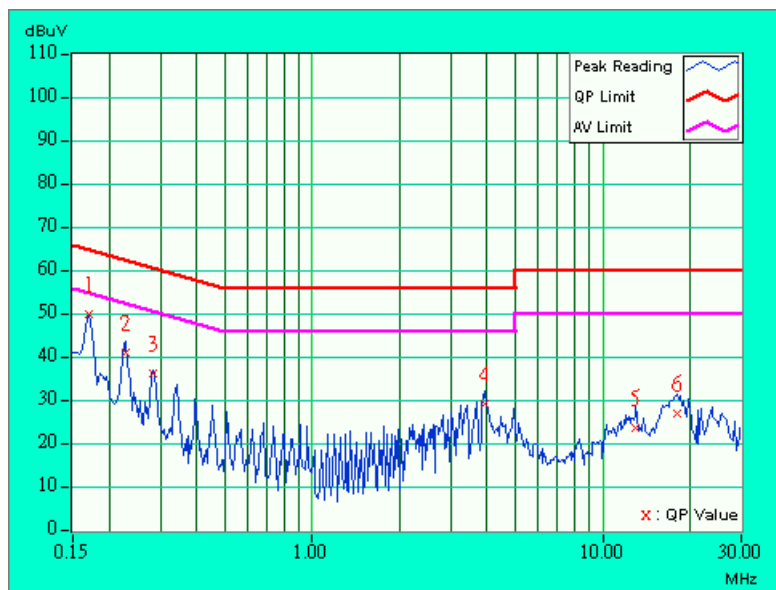


EUT	Wireless LAN Mini PCI Card	MODEL	WLL3020-D92
MODE	Channel 11	6dB BANDWIDTH	9kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 991hPa	TESTED BY: Gary Chang	

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]		Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.170	0.10	49.45	-	49.55	-	64.98	54.98	-15.43	-
2	0.228	0.10	40.28	-	40.38	-	62.52	52.52	-22.14	-
3	0.283	0.10	35.44	-	35.54	-	60.73	50.73	-25.19	-
4	3.910	0.30	28.73	-	29.03	-	56.00	46.00	-26.97	-
5	13.043	0.46	22.98	-	23.44	-	60.00	50.00	-36.56	-
6	18.082	0.68	26.32	-	27.00	-	60.00	50.00	-33.00	-

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	8590L	3544A01176	May 13, 2003
* HP Preamplifier	8447D	2944A08485	Apr. 29, 2003
* HP Preamplifier	8449B	3008A01201	Dec. 01, 2003
* HP Preamplifier	8449B	3008A01292	Aug. 07, 2003
*Spectrum Analyzer	8593E	3926A04191	Mar. 24, 2004
*Test Receiver	ESI7	838496/016	Feb. 23, 2004
SCHAFFNER Tunable Dipole Antenna	VHBA 9123	459	Nov. 22, 2003
SCHWARZBECK Tunable Dipole Antenna	UHA 9105	977	
* CHASE BILOG Antenna	CBL6112A	2221	Aug. 02, 2003
* SCHWARZBECK Horn Antenna	BBHA9120-D1	D130	July 03, 2003
* EMCO Horn Antenna	3115	9312-4192	Apr. 09, 2003
* EMCO Turn Table	1060	1115	NA
* SHOSHIN Tower	AP-4701	A6Y005	NA
* Software	ADT_Radiated_V5.09	NA	NA
* ANRITSU RF Switches	MP59B	M35046	Jul. 11. 2003
* TIMES RF cable	LMR-600	CABLE-ST5-01	Jul. 11. 2003

- NOTE:**
1. The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to NML/ROC and NIST/USA.
 2. "*" = These equipment are used for the final measurement.
 3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
 4. The test was performed in ADT Open Site No. 5.
 5. The VCCI Site Registration No. is R-1039.



4.2.3 TEST PROCEDURES

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

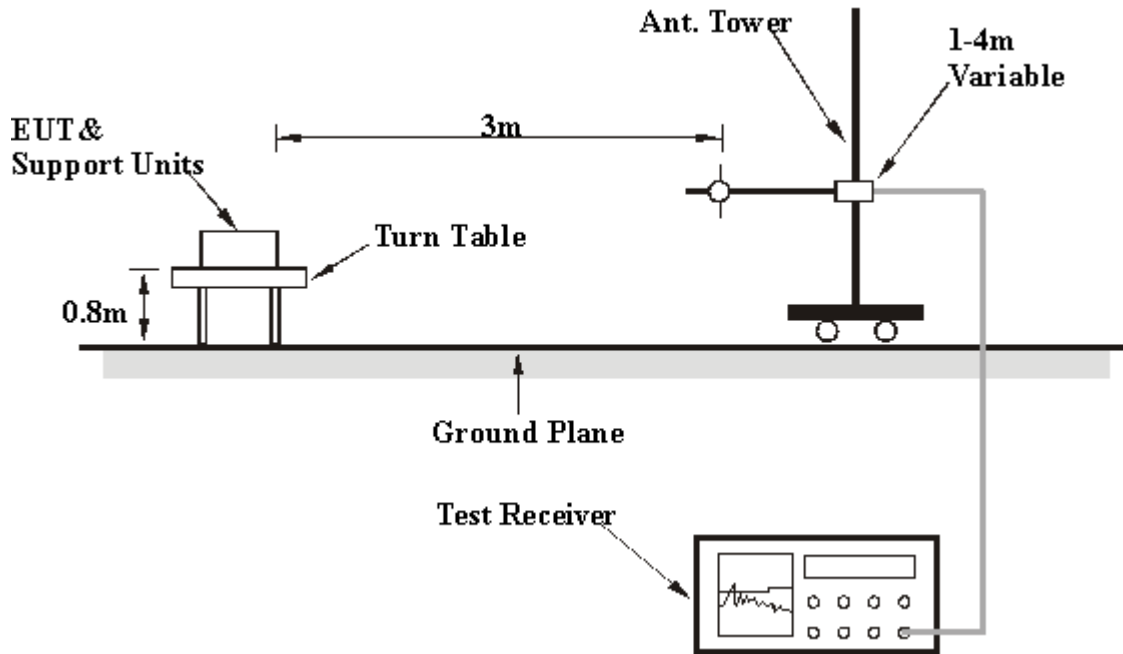
NOTE:

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

4.2.4 DEVIATION FROM TEST STANDARD

No deviation

4.2.5 TEST SETUP



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

4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6

4.2.7 TEST RESULTS

EUT	Wireless LAN Mini PCI Card	MODEL	WLL3020-D92
MODE	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: Gary Chang	

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	256.00	44.6 QP	46.00	-1.40	1.15 H	152	28.20	16.40
2	287.99	38.6 QP	46.00	-7.40	1.26 H	3	22.00	16.60
3	319.99	41.8 QP	46.00	-4.20	1.45 H	3	24.60	17.10
4	351.99	41.0 QP	46.00	-5.00	1.18 H	203	23.20	17.70
5	383.99	33.4 QP	46.00	-12.60	1.23 H	3	14.70	18.70
6	447.99	29.7 QP	46.00	-16.30	1.14 H	359	10.00	19.70
7	799.99	35.0 QP	46.00	-11.00	1.14 H	5	10.20	24.90

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	256.00	41.9 QP	46.00	-4.10	1.08 V	11	25.50	16.40
2	315.00	33.6 QP	46.00	-12.40	1.42 V	3	16.50	17.10
3	320.00	31.0 QP	46.00	-15.00	1.03 V	4	13.90	17.10
4	480.00	28.4 QP	46.00	-17.60	1.17 V	249	7.70	20.60
5	512.00	27.5 QP	46.00	-18.50	1.60 V	65	6.30	21.20
6	800.00	29.2 QP	46.00	-16.80	1.30 V	3	4.40	24.90
7	864.00	31.0 QP	46.00	-15.00	1.03 V	4	5.90	25.10

- 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 Mini PCI Card	MODEL	WLL3020-D92
MODE	CCK	FREQUENCY RANGE	Above 1000MHz
CHANNEL	Channel 1		
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 991hPa	TESTED BY: Gary Chang	

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2389.00	59.0 PK	74.00	-15.00	1.07 H	208	29.40	29.60
1	2389.00	51.7 AV	54.00	-2.30	1.07 H	208	22.10	29.60
2	*2412.00	107.8 PK			1.07 H	208	78.20	29.60
2	*2412.00	100.8 AV			1.07 H	208	71.20	29.60
3	3168.00	39.6 PK	74.00	-34.40	1.25 H	174	8.20	31.40
4	4824.00	47.4 PK	74.00	-26.60	1.36 H	72	12.40	35.00
5	6336.00	58.8 PK	87.80	-29.00	1.36 H	352	20.80	38.00
5	6336.00	56.0 AV	80.80	-24.80	1.36 H	352	18.00	31.40
6	7236.00	49.1 PK	74.00	-24.90	1.09 H	205	8.70	40.40

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	2389.00	51.0 PK	74.00	-23.00	1.37 V	352	21.40	29.60
1	2389.00	46.6 AV	54.00	-7.40	1.37 V	352	17.00	29.60
2	*2412.00	100.6 PK			1.37 V	352	71.00	29.60
2	*2412.00	94.6 AV			1.37 V	352	65.00	29.60
3	3168.00	41.3 PK	74.00	-32.70	1.07 V	353	9.90	31.40
4	4824.00	48.9 PK	74.00	-25.10	1.54 V	325	13.90	35.00
5	6336.00	64.2 PK	80.60	-16.40	1.27 V	25	26.20	38.00
5	6336.00	62.0 AV	74.60	-12.60	1.27 V	25	24.00	31.40
6	7235.00	49.3 PK	74.00	-24.70	1.31 V	9	8.90	40.40

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



EUT	Wireless LAN Mini PCI Card	MODEL	WLL3020-D92
MODE	CCK	FREQUENCY RANGE	Above 1000MHz
CHANNEL	Channel 6		
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa	TESTED BY: Steven Lu	

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	108.0 PK			1.20 H	332	78.30	29.70
1	*2437.00	100.5 AV			1.20 H	332	70.80	29.70
2	3168.00	39.8 PK	74.00	-34.20	1.32 H	50	8.40	31.40
3	4874.00	47.3 PK	74.00	-26.70	1.51 H	178	12.10	35.20
4	6336.00	57.5 PK	88.00	-30.50	1.21 H	63	19.50	38.00
4	6336.00	55.0 AV	80.50	-25.50	1.21 H	63	17.00	31.40
5	7311.00	48.9 PK	74.00	-25.10	1.07 H	35	8.40	40.50

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	100.8 PK			1.12 V	100	71.10	29.70
1	*2437.00	92.3 AV			1.12 V	100	62.60	29.70
2	3168.00	40.6 PK	74.00	-33.40	1.42 V	247	9.20	31.40
3	4874.00	49.6 PK	74.00	-24.40	1.22 V	283	14.40	35.20
4	6336.00	63.8 PK	80.80	-17.00	1.31 V	19	25.80	38.00
4	6336.00	60.0 AV	72.30	-12.30	1.31 V	19	22.00	31.40
5	7310.00	49.4 PK	74.00	-24.60	1.46 V	38	8.90	40.50

- 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 Mini PCI Card	MODEL	WLL3020-D92
MODE	CCK	FREQUENCY RANGE	Above 1000MHz
CHANNEL	Channel 11		
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa	TESTED BY: Steven Lu	

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	103.9 PK			1.15 H	32	74.10	29.80
1	*2462.00	96.8 AV			1.15 H	32	67.00	29.80
2	2483.60	58.4 PK	74.00	-15.60	1.15 H	32	28.50	29.90
2	2483.60	50.5 AV	54.00	-3.50	1.15 H	32	20.60	29.90
3	3168.00	39.6 PK	74.00	-34.40	1.05 H	81	8.20	31.40
4	4924.00	47.1 PK	74.00	-26.90	1.53 H	247	11.70	35.40
5	6336.00	57.5 PK	83.90	-26.40	1.33 H	5	19.50	38.00
5	6336.00	55.0 AV	76.80	-21.80	1.33 H	5	17.00	31.40
6	7386.00	51.3 PK	74.00	-22.70	1.21 H	54	10.60	40.60
6	7386.00	41.7 AV	54.00	-12.30	1.21 H	54	1.00	35.40

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	105.8 PK			1.04 V	342	76.00	29.80
1	*2462.00	98.8 AV			1.04 V	342	69.00	29.80
2	2483.60	59.0 PK	74.00	-15.00	1.04 V	342	29.10	29.90
2	2483.60	51.4 AV	54.00	-2.60	1.04 V	342	21.50	29.90
3	3168.00	41.3 PK	74.00	-32.70	1.06 V	51	9.90	31.40
4	4924.00	48.8 PK	74.00	-25.20	1.15 V	352	13.40	35.40
5	6336.00	61.5 PK	85.80	-24.30	1.20 V	52	23.50	38.00
5	6336.00	57.6 AV	78.80	-21.20	1.20 V	52	19.60	31.40
6	7386.00	51.5 PK	74.00	-22.50	1.44 V	250	10.80	40.60
6	7386.00	42.0 AV	54.00	-12.00	1.44 V	250	1.30	35.40

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



EUT	Wireless LAN Mini PCI Card	MODEL	WLL3020-D92
MODE	OFDM	FREQUENCY RANGE	Above 1000MHz
CHANNEL	Channel 1		
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa	TESTED BY: Steven Lu	

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	2389.00	56.0 PK	74.00	-18.00	1.40 H	305	26.40	29.60
1	2389.00	47.6 AV	54.00	-6.40	1.40 H	305	18.00	29.60
2	*2412.00	98.1 PK			1.40 H	305	68.50	29.60
2	*2412.00	89.7 AV			1.40 H	305	60.10	29.60
3	3168.00	40.6 PK	74.00	-33.40	1.10 H	204	9.20	31.40
4	4824.00	44.9 PK	74.00	-29.10	1.06 H	85	9.90	35.00
5	6336.00	57.5 PK	78.10	-20.60	1.37 H	152	19.50	38.00
5	6336.00	54.8 AV	69.70	-14.90	1.37 H	152	16.80	31.40
6	7236.00	49.1 PK	74.00	-24.90	1.30 H	254	8.70	40.40

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2389.00	59.0 PK	74.00	-15.00	1.78 V	154	29.40	29.60
1	2389.00	51.8 AV	54.00	-2.20	1.78 V	154	22.20	29.60
2	*2412.00	99.8 PK			1.78 V	154	70.20	29.60
2	*2412.00	92.8 AV			1.78 V	154	63.20	29.60
3	3168.00	41.3 PK	74.00	-32.70	1.39 V	61	9.90	31.40
4	4824.00	45.7 PK	74.00	-28.30	1.31 V	33	10.70	35.00
5	6336.00	60.0 PK	79.80	-19.80	1.44 V	50	22.00	38.00
5	6336.00	57.8 AV	72.80	-15.00	1.44 V	50	19.80	31.40
6	7237.00	49.1 PK	74.00	-24.90	1.12 V	78	8.70	40.50

- 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 Mini PCI Card	MODEL	WLL3020-D92
MODE	OFDM	FREQUENCY RANGE	Above 1000MHz
CHANNEL	Channel 6		
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa	TESTED BY: Steven Lu	

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	*2437.00	98.0 PK			1.26 H	1	68.30	29.70
1	*2437.00	88.5 AV			1.26 H	1	58.80	29.70
2	3168.00	39.8 PK	74.00	-34.20	1.04 H	94	8.40	31.40
3	4874.00	44.9 PK	74.00	-29.10	1.29 H	145	9.70	35.20
4	6336.00	58.5 PK	78.00	-19.50	1.71 H	54	20.50	38.00
4	6336.00	56.0 AV	68.50	-12.50	1.71 H	54	18.00	31.40
5	7310.00	49.2 PK	74.00	-24.80	1.31 H	224	8.70	40.50

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	*2437.00	99.0 PK			1.36 V	335	69.30	29.70
1	*2437.00	90.2 AV			1.36 V	335	60.50	29.70
2	3168.00	41.6 PK	74.00	-32.40	1.13 V	185	10.20	31.40
3	4874.00	46.1 PK	74.00	-27.90	1.43 V	127	10.90	35.20
4	6336.00	60.8 PK	79.00	-18.20	1.28 V	336	22.80	38.00
4	6336.00	58.0 AV	70.20	-12.20	1.28 V	336	20.00	31.40
5	7310.00	49.2 PK	74.00	-24.80	1.13 V	54	8.70	40.50

- 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 Mini PCI Card	MODEL	WLL3020-D92
MODE	OFDM	FREQUENCY RANGE	Above 1000MHz
CHANNEL	Channel 11		
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa	TESTED BY: Steven Lu	

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	100.4 PK			1.05 H	251	70.60	29.80
1	*2462.00	93.4 AV			1.05 H	251	63.60	29.80
2	2496.00	58.0 PK	74.00	-16.00	1.05 H	251	28.10	29.90
2	2496.00	51.2 AV	54.00	-2.80	1.05 H	251	21.30	29.90
3	3168.00	41.3 PK	74.00	-32.70	1.17 H	85	9.90	31.40
4	4924.00	46.1 PK	74.00	-27.90	1.10 H	154	10.70	35.40
5	6336.00	58.4 PK	80.40	-22.00	1.17 H	85	20.40	38.00
5	6336.00	55.8 AV	73.40	-17.60	1.17 H	85	17.80	31.40
6	7386.00	49.3 PK	74.00	-24.70	1.49 H	35	8.60	40.60

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	98.1 PK			1.32 V	204	68.30	29.80
1	*2462.00	90.5 AV			1.32 V	204	60.70	29.80
2	2496.00	54.0 PK	74.00	-20.00	1.22 V	225	24.10	29.90
2	2496.00	46.7 AV	54.00	-7.30	1.22 V	225	16.80	29.90
3	3168.00	39.3 PK	74.00	-34.70	1.25 V	184	7.90	31.40
4	4924.00	45.8 PK	74.00	-28.20	1.30 V	285	10.40	35.40
5	6336.00	60.5 PK	78.11	-17.60	1.48 V	288	22.50	38.00
5	6336.00	57.2 AV	70.50	-13.30	1.48 V	288	19.20	31.40
6	7386.00	48.9 PK	74.00	-25.10	1.10 V	335	8.20	40.60

- 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 Mini PCI Card	MODEL	WLL3020-D92
MODE	OFDM	FREQUENCY RANGE	Above 1000MHz
CHANNEL	Channel 6 (Turbo Mode)		
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	20deg. C, 60%RH, 991hPa	TESTED BY: Steven Lu	

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	*2437.00	99.5 PK			1.07 H	197	69.80	29.70
1	*2437.00	91.7 AV			1.07 H	197	62.00	29.70
2	2496.00	55.4 PK	74.00	-18.60	1.07 H	197	25.50	29.90
2	2496.00	47.9 AV	54.00	-6.10	1.07 H	197	18.00	29.90
3	3168.00	41.8 PK	74.00	-32.20	1.34 H	84	10.40	31.40
4	4874.00	45.6 PK	74.00	-28.40	1.12 H	264	10.40	35.20
5	6336.00	58.8 PK	79.50	-20.70	1.90 H	34	20.80	38.00
5	6336.00	55.0 AV	71.70	-16.70	1.90 H	34	17.00	31.40
6	7311.00	49.9 PK	74.00	-24.10	1.67 H	224	9.40	40.50

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	*2437.00	96.7 PK			1.80 V	351	67.00	29.70
1	*2437.00	87.1 AV			1.80 V	351	57.40	29.70
2	2496.00	52.4 PK	74.00	-21.60	1.80 V	351	22.50	29.90
2	2496.00	43.8 AV	54.00	-10.20	1.80 V	351	13.90	29.90
3	3168.00	40.0 PK	74.00	-34.00	1.08 V	251	8.60	31.40
4	4874.00	46.1 PK	74.00	-27.90	1.47 V	204	10.90	35.20
5	6336.00	61.5 PK	76.70	-15.20	1.19 V	31	23.50	38.00
5	6336.00	58.0 AV	67.10	-9.10	1.19 V	31	20.00	31.40
6	7311.00	48.9 PK	74.00	-25.10	1.14 V	92	8.40	40.50

- 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	July 24, 2003

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

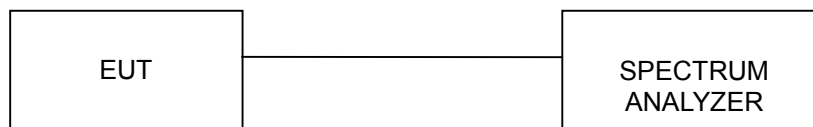
4.3.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100kHz RBW and 100kHz VBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

4.3.4 DEVIATION FROM TEST STANDARD

No deviation

4.3.5 TEST SETUP



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

4.3.6 EUT OPERATING CONDITIONS

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



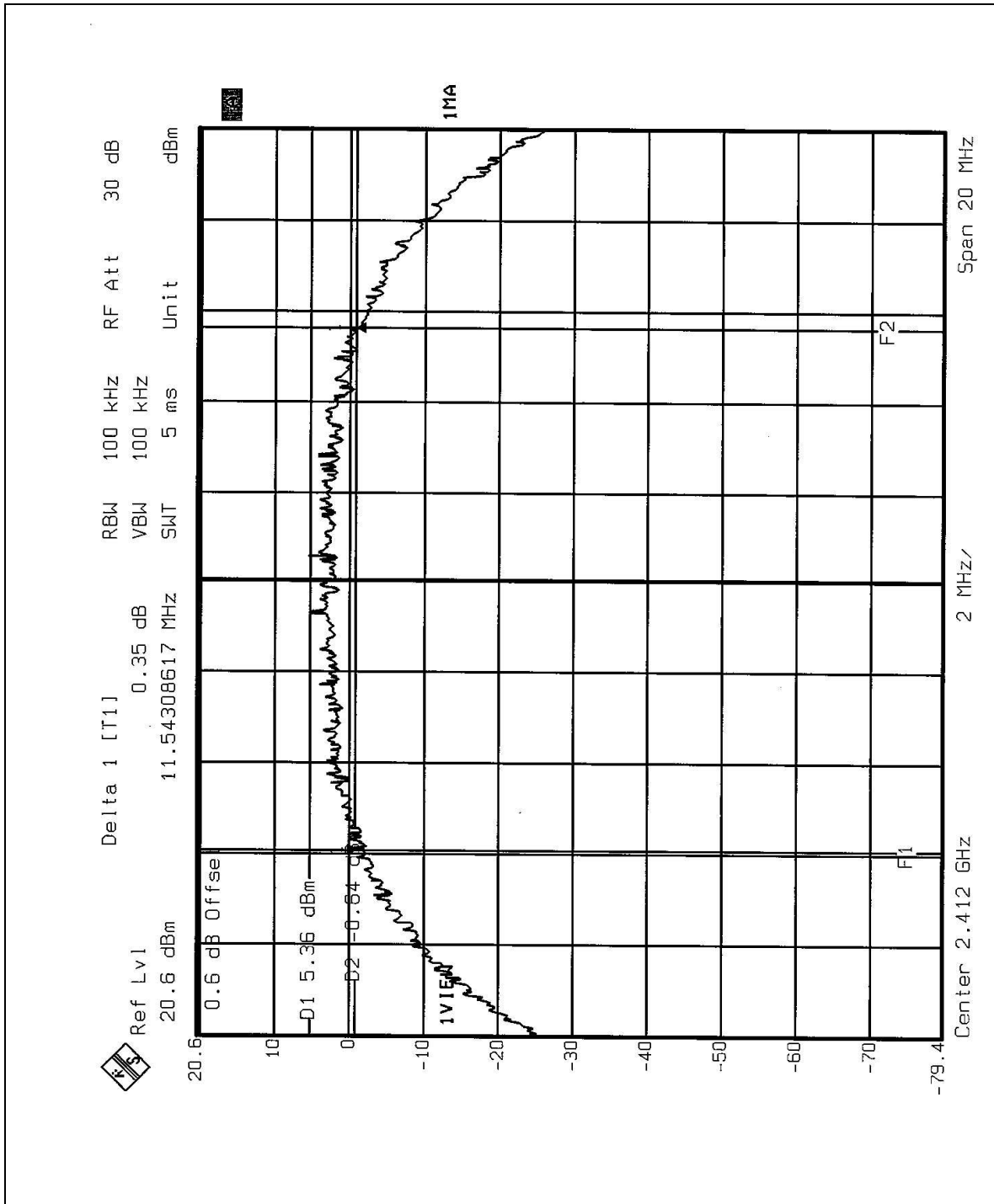
4.3.7 TEST RESULTS

EUT	Wireless LAN Mini PCI Card	MODEL	WLL3020-D92
		MODE	CCK
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	21deg. C, 68%RH, 991hPa
TESTED BY: Ansen Lei			

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	11.543	0.5	PASS
6	2437	12.064	0.5	PASS
11	2462	12.625	0.5	PASS

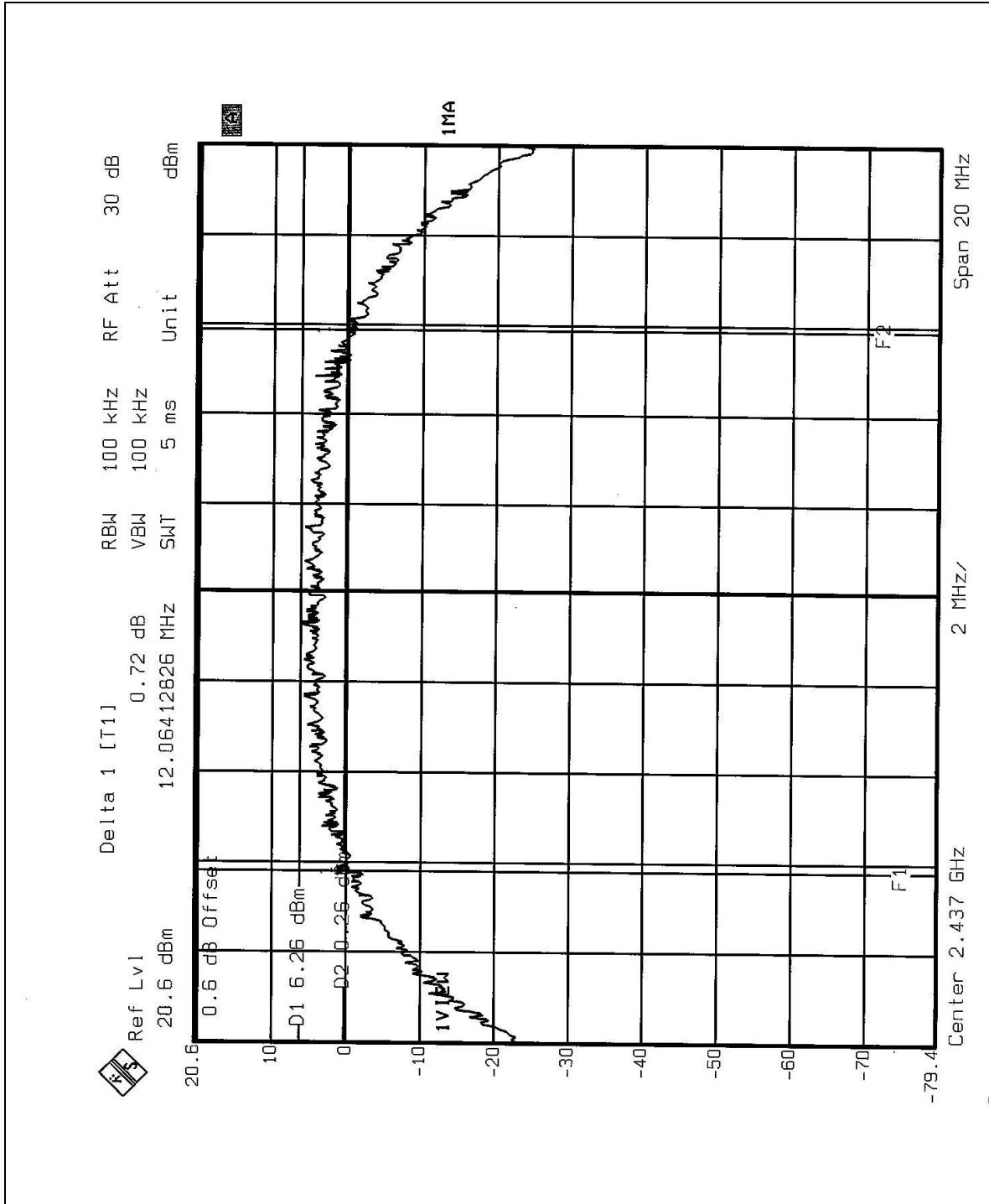


CH1



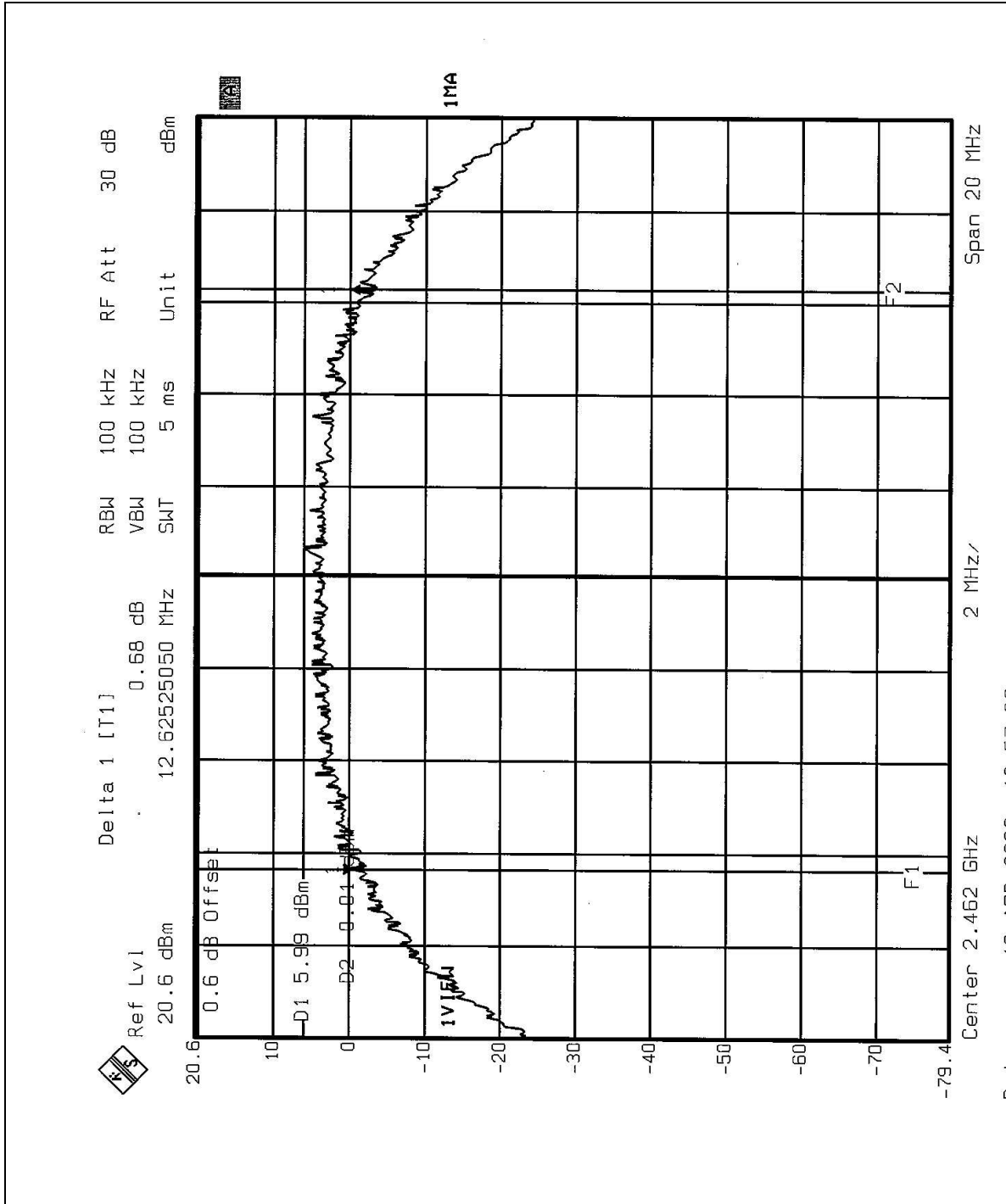


CH6





CH11

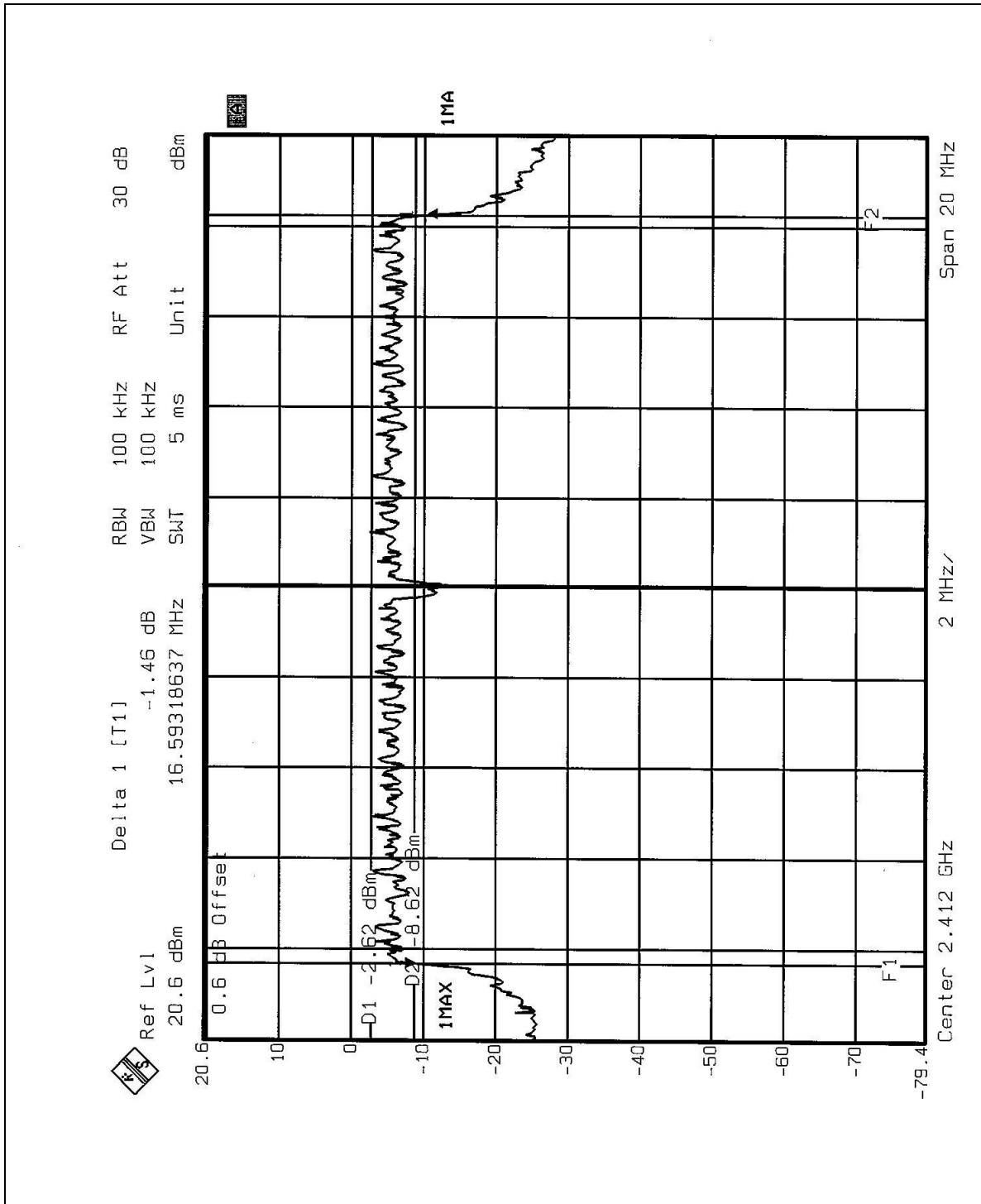




EUT	Wireless LAN Mini PCI Card	MODEL	WLL3020-D92
		MODE	OFDM
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	21deg. C, 68%RH, 991hPa
TESTED BY: Ansen Lei			

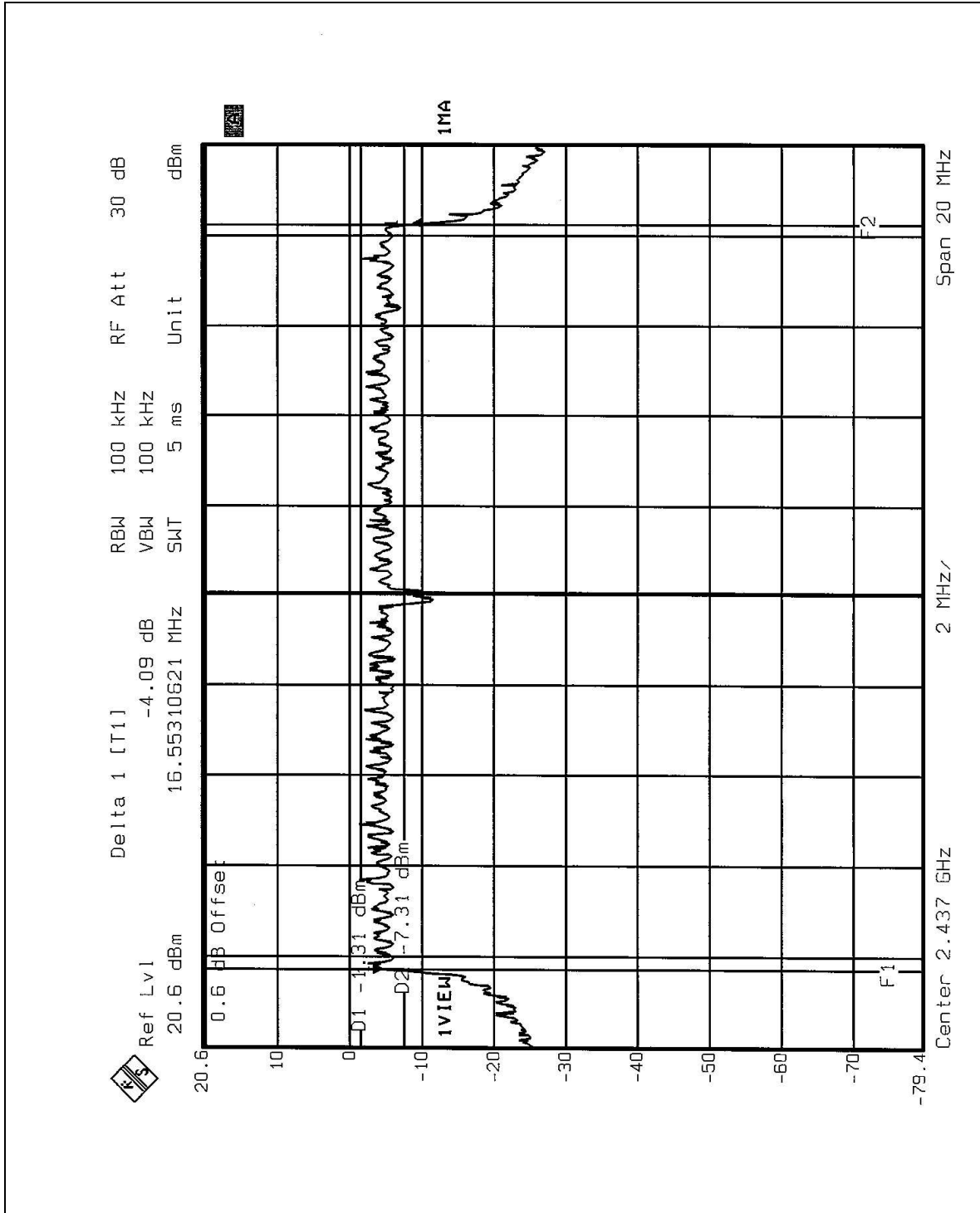
CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	16.593	0.5	PASS
6	2437	16.553	0.5	PASS
6 (Turbo Mode)	2437	32.786	0.5	PASS
11	2462	16.593	0.5	PASS

CH1



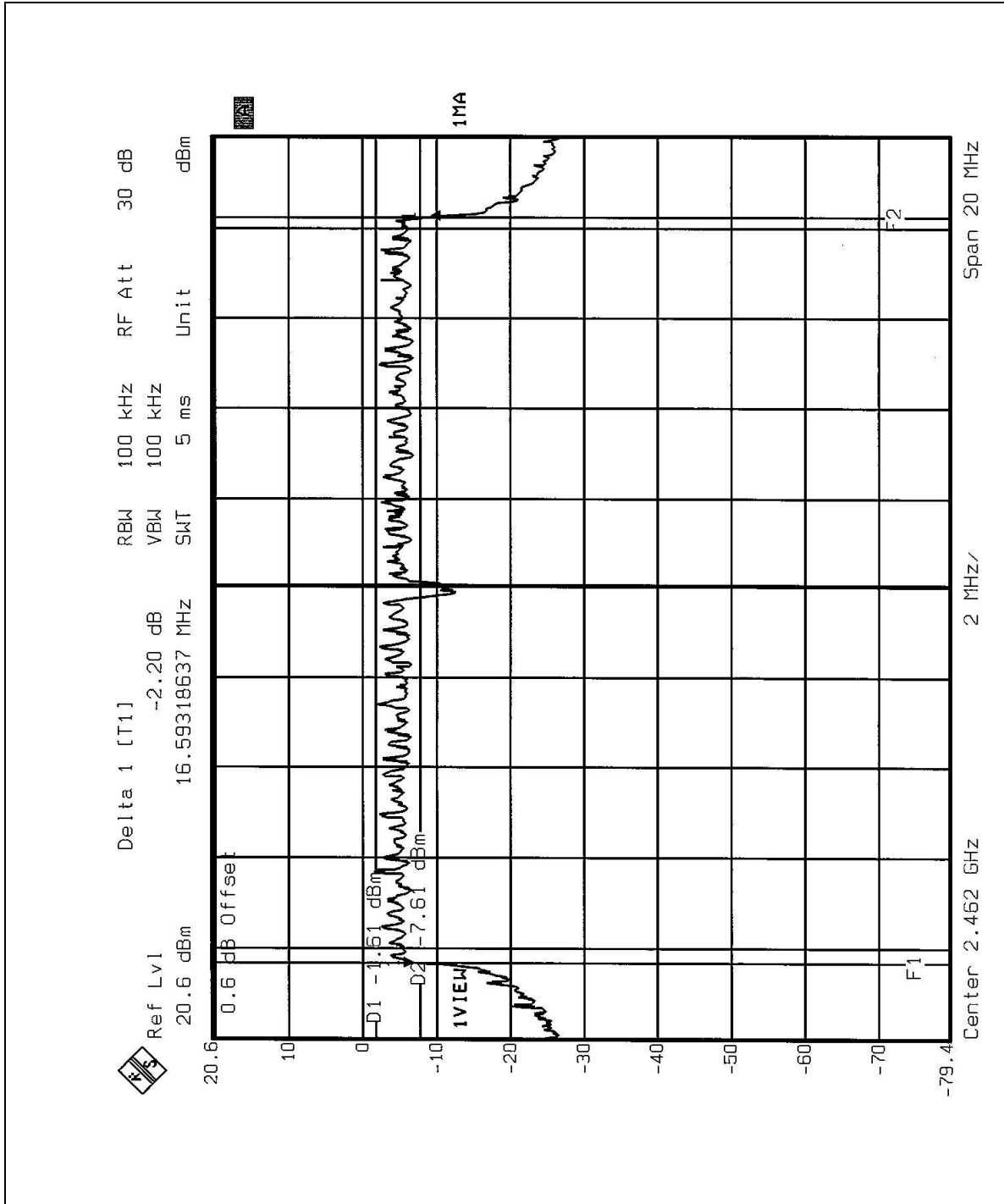


CH6



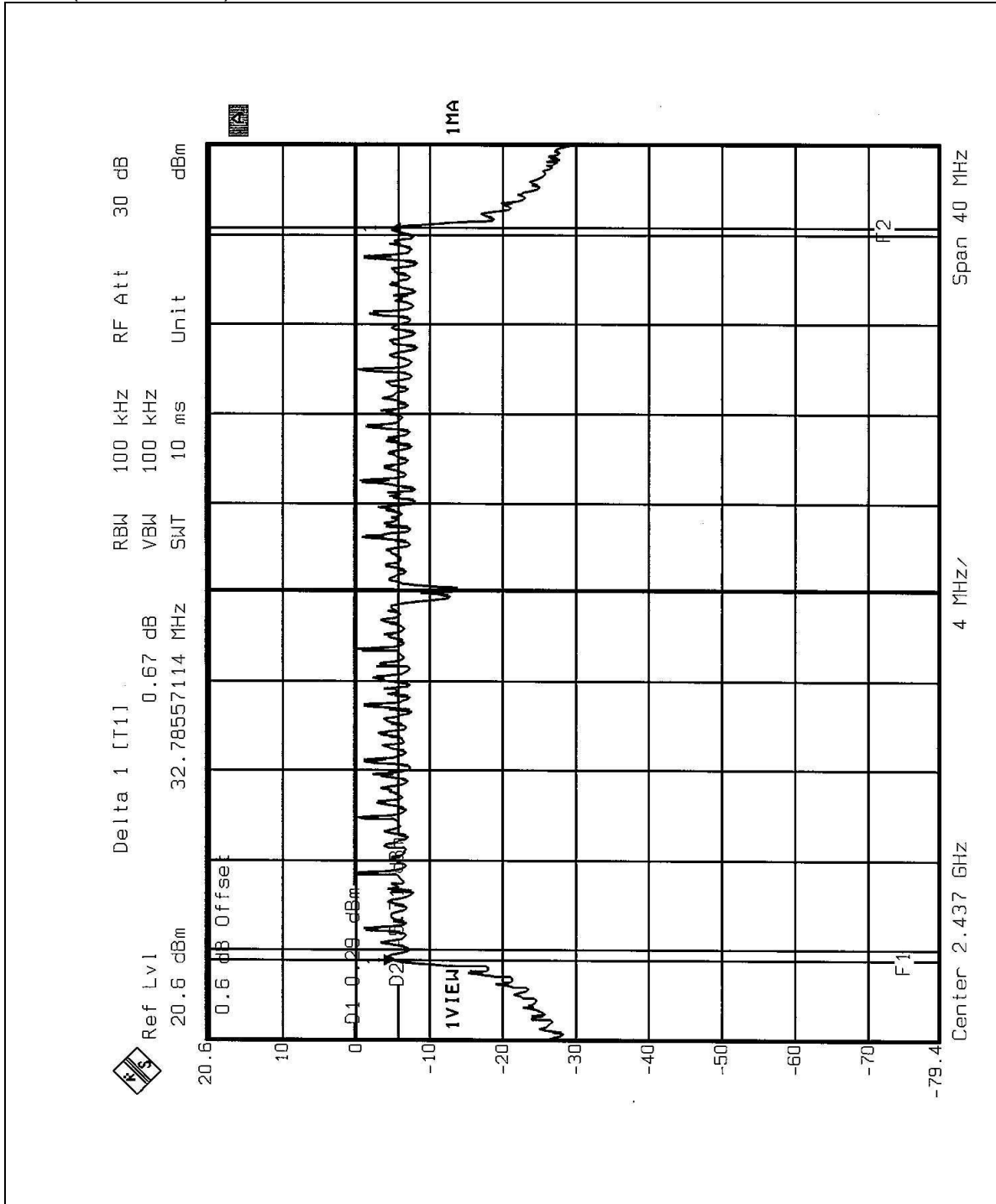


CH11





CH6 (Turbo Mode)





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
POWER METER	E4416A	GB41291118	July 30, 2003
PEAK POWER SENSOR	E9327A	US40440722	July 30, 2003

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



4.4.3 TEST PROCEDURES

The transmitter output was connected to the peak power meter.

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 Mini PCI Card	MODEL	WLL3020-D92
		MODE	CCK
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	21deg. C, 68%RH, 991hPa
TESTED BY: Ansen Lei			

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	18.19	30	PASS
6	2437	19.45	30	PASS
11	2462	18.68	30	PASS

EUT	Wireless LAN Mini PCI Card	MODEL	WLL3020-D92
		MODE	OFDM
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	21deg. C, 68%RH, 991hPa
TESTED BY: Ansen Lei			

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	17.53	30	PASS
6	2437	18.45	30	PASS
6 (Turbo Mode)	2437	18.68	30	PASS
11	2462	18.07	30	PASS



4.5 POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

4.5.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
SPECTRUM ANALYZER	FSEK30	100049	July 24, 2003

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

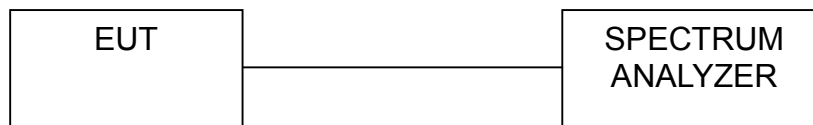
4.5.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3kHz RBW and 30kHz VBW, set sweep time=span/3kHz. The power spectral density was measured and recorded. The sweep time is allowed to be longer than span/3KHz for a full response of the mixer in the spectrum analyzer.

4.5.4 DEVIATION FROM TEST STANDARD

No deviation

4.5.5 TEST SETUP



4.5.6 EUT OPERATING CONDITIONS

Same as 4.3.6



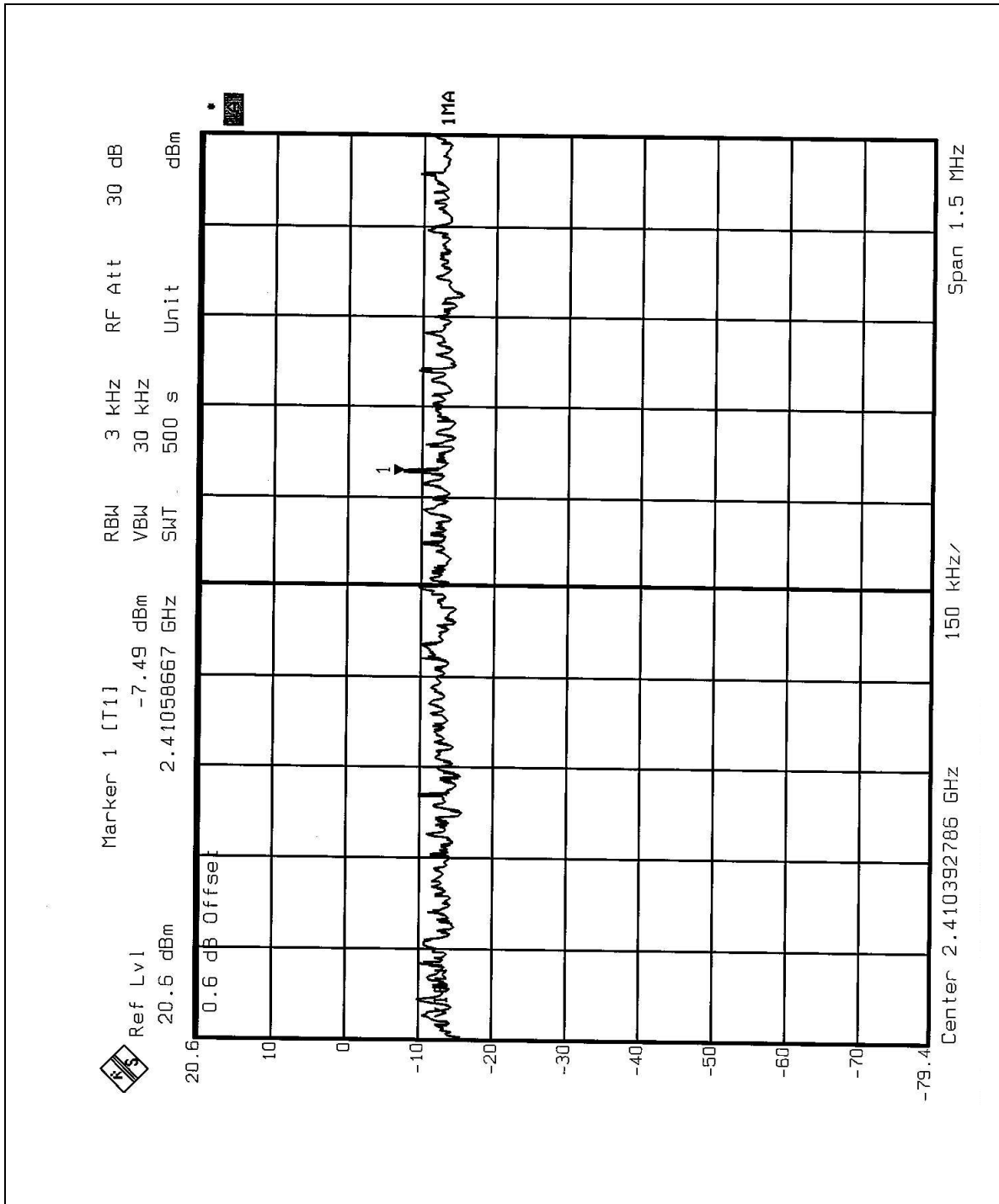
4.5.7 TEST RESULTS

EUT	Wireless LAN Mini PCI Card	MODEL	WLL3020-D92
		MODE	CCK
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	21deg. C, 68%RH, 991hPa
TESTED BY: Ansen Lei			

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-7.49	8	PASS
6	2437	-5.91	8	PASS
11	2462	-6.34	8	PASS

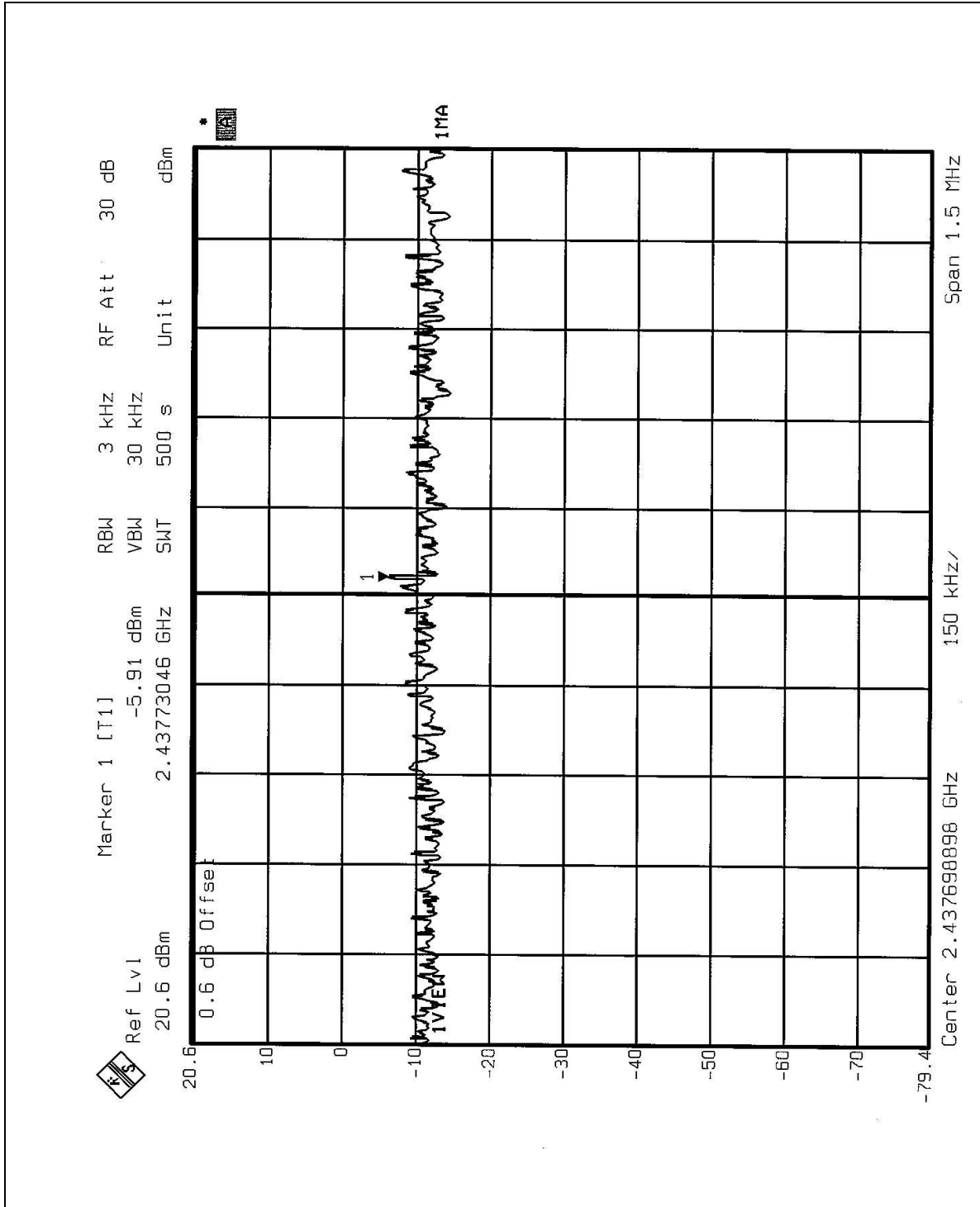


CH1



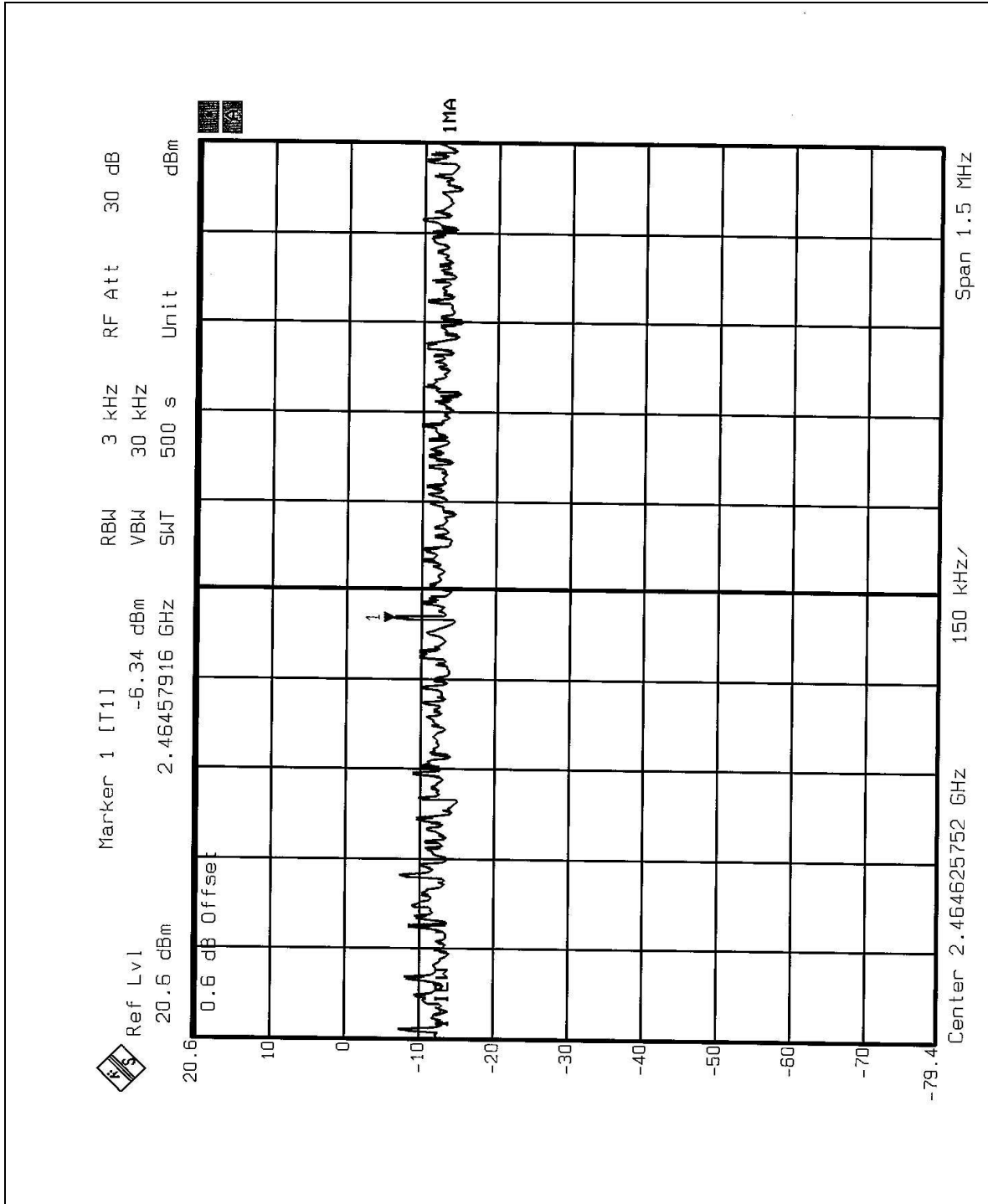


CH6





CH11



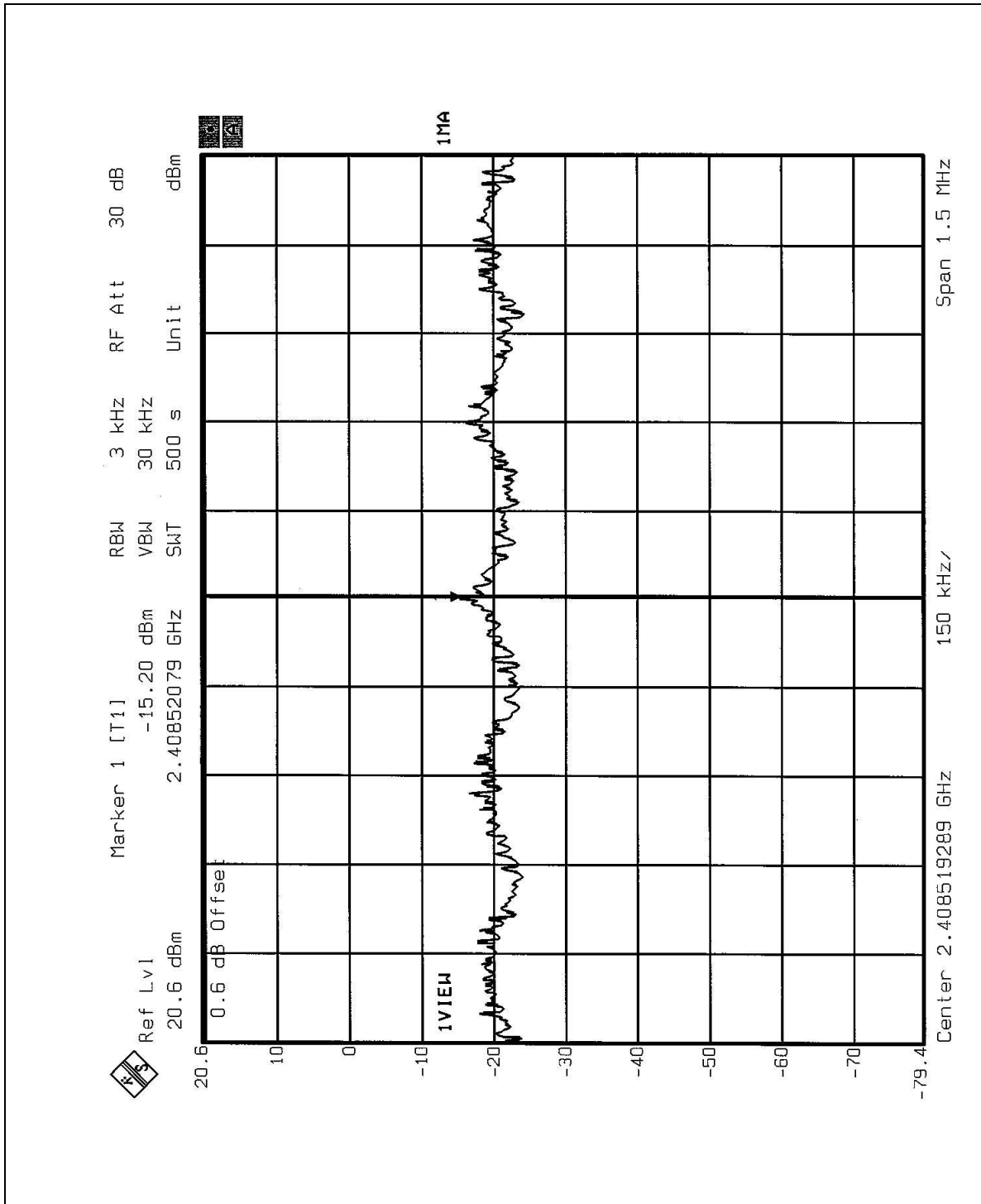


EUT	Wireless LAN Mini PCI Card	MODEL	WLL3020-D92
		MODE	OFDM
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	21deg. C, 68%RH, 991hPa
TESTED BY: Ansen Lei			

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN3 kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-15.20	8	PASS
6	2437	-14.47	8	PASS
6 (Turbo Mode)	2437	-15.75	8	PASS
11	2462	-14.44	8	PASS

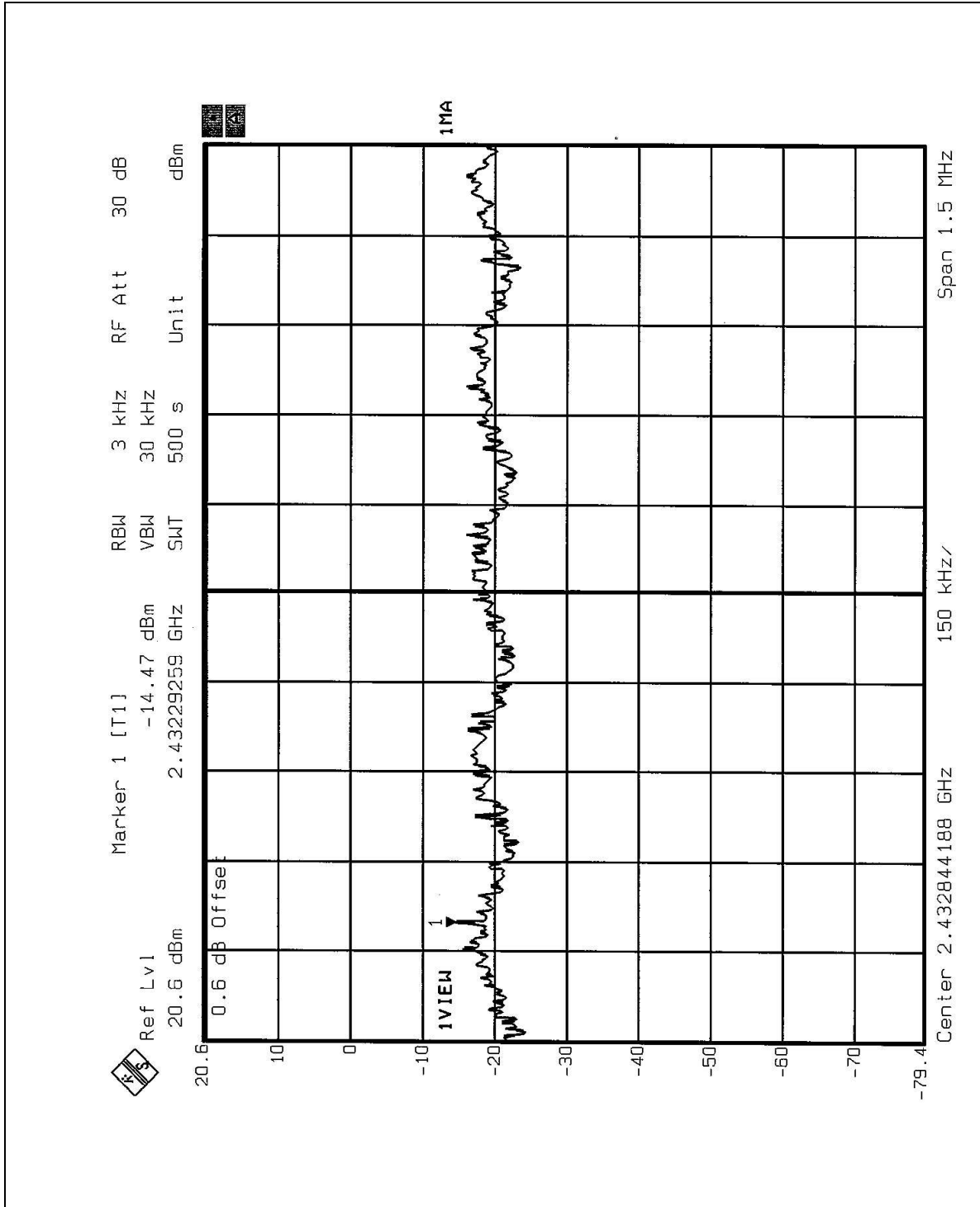


CH1



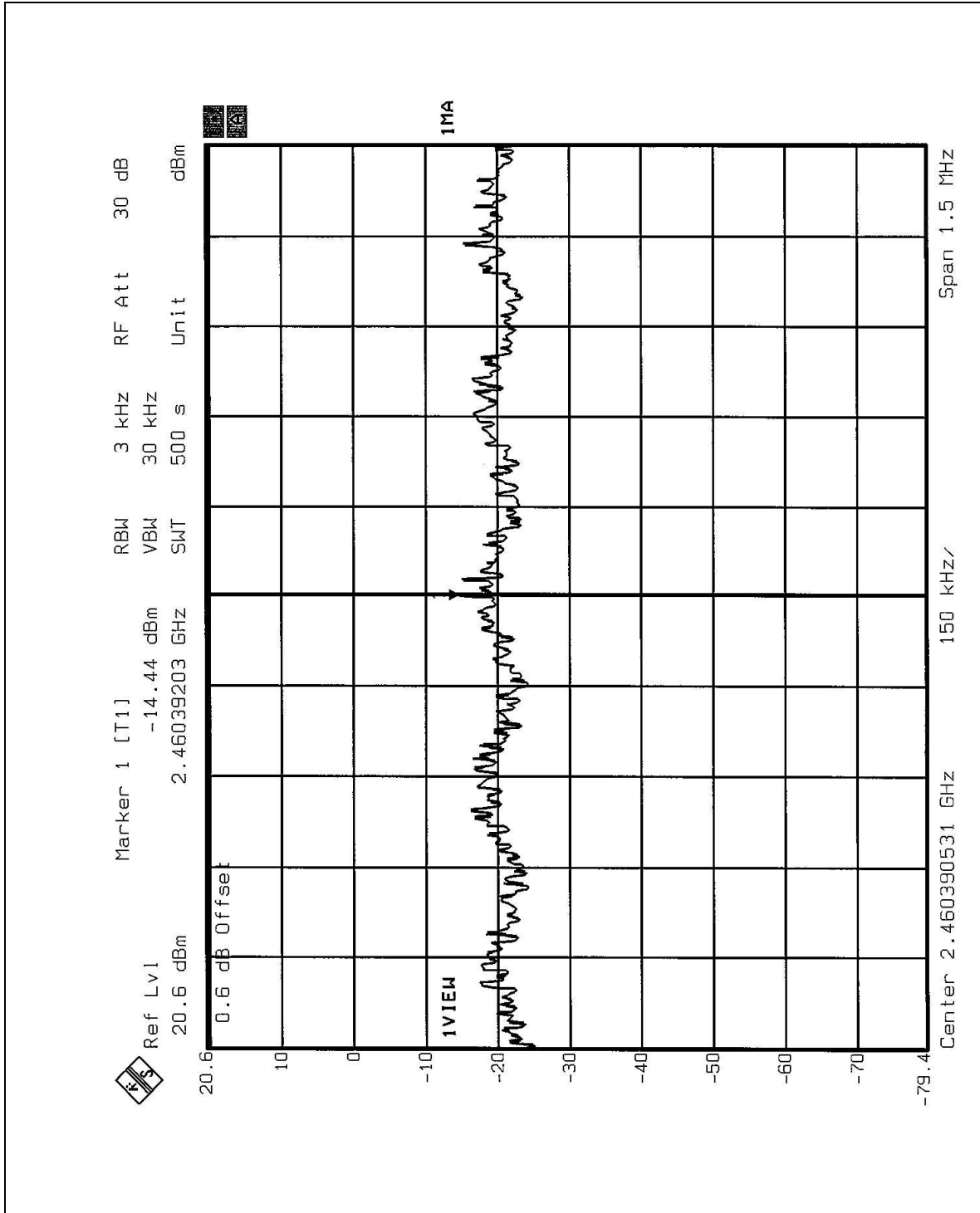


CH6





CH11





CH6 (Turbo Mode)

