FCC TEST REPORT

REPORT NO.: RF930202R01A
MODEL NO.: WLL3041
RECEIVED: NA
TESTED: 03 February, 2004 ~ 27 May, 2004

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.

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1 CERTIFICATION

PRODUCT :	2.4GHz Wireless Mini PCI Card
MODEL NO.:	WLL3041
BRAND:	Askey
TESTED :	03 February, 2004 ~ 27 May, 2004
APPLICANT :	ASKEY COMPUTER CORP.
TEST ITEM:	ENGINEERING SAMPLE
STANDARDS :	FCC Part 15, Subpart C (Section 15.247), ANSI C63.4-2001

The above equipment has been tested by **Advance Data Technology Corporation**, 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: _____ , **DATE:** May 27, 2004

Stacy Hsueh

APPROVED BY: _____ , **DATE:** May 27, 2004

Cody Chang /
Supervisor

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 –9.84dB at 0.186MHz
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 –0.61dB at 2483.50MHz
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

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

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	2.4GHz Wireless Mini PCI Card
MODEL NO.	WLL3041
POWER SUPPLY	3.3Vdc from host equipment
MODULATION TYPE	BPSK, QPSK, CCK, 16QAM, 64QAM
RADIO TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11b: 11 / 5.5 / 2 / 1 Mbps 802.11g: 54 / 48 / 36 / 24 / 18 / 12 / 9 / 6 Mbps
FREQUENCY RANGE	2412MHz ~ 2462MHz
NUMBER OF CHANNEL	11
MAXIMUM OUTPUT POWER	15.08dBm
ANTENNA TYPE	PCB antenna with 3dBi antenna gain Dipole antenna with 3dBi antenna gain
DATA CABLE	NA
I/O PORTS	NA
ASSOCIATED DEVICES	NA

NOTE:

1. This is a duplicate report of RF921224R03A, the only difference is changing the applicant, model name and FCC ID.
2. The EUT operates in the 2.4GHz frequency spectrum with throughput of up to 54Mbps.
3. The EUT complies with IEEE 802.11g draft standards, and backward compatible with IEEE 802.11b products.
4. The above EUT information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

3.2 DESCRIPTION OF TEST MODES

Eleven channels are provided to this EUT.

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

NOTE:

1. Below 1GHz, the channel 1, 6, and 11 were pre-tested in chamber. The channel 11, worst case one, was chosen for final test.
2. Above 1GHz, the channel 1, 6, and 11 were tested individually.
3. From our experience and technical viewpoint, we have chosen data rates 11Mbps for CCK technique and 6Mbps for OFDM technique, as the worst cases for the test among other data rates.
4. Two test results were presented in the following sections, the test result A was for CCK technique and the test result B was for OFDM technique.
5. For radiated emission measurement test, two test modes were show in the report. The test mode A was for Dipole antenna, and test mode B was for PCB antenna.

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a 2.4GHz Wireless 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)
ANSI C63.4:2001

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

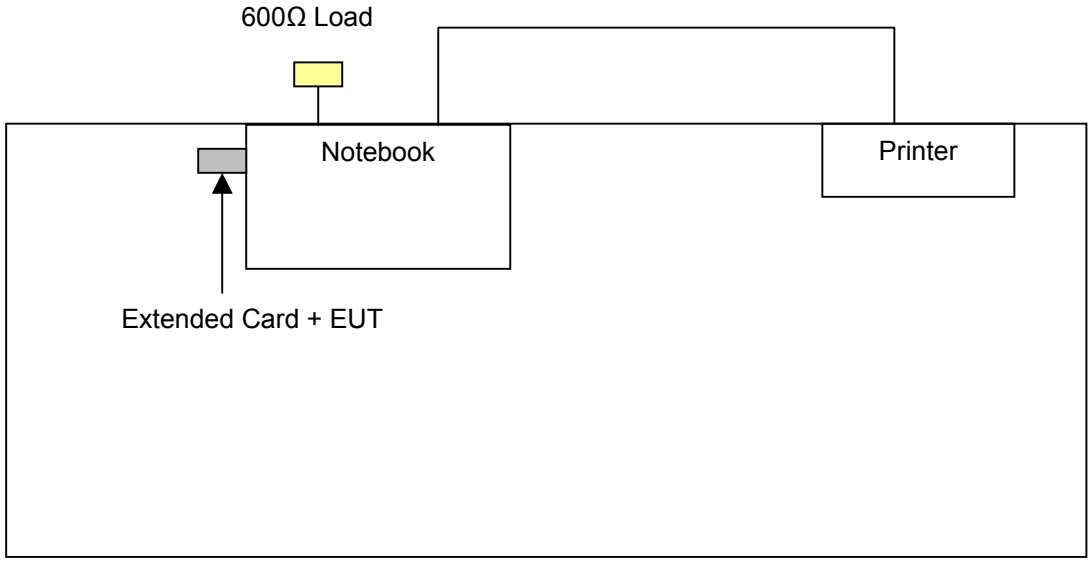
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK	Compaq	N800C	470048-515	FCC DoC Approved
2	PRINTER	EPSON	LQ-300+	DCGY017096	FCC DoC Approved
3	600Ω LOAD	NA	NA	NA	NA

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	NA

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

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 0.5-5 5-30	66 to 56 56 60	56 to 46 46 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 ON
ROHDE & SCHWARZ Test Receiver	ESHS 30	828765/002	July 15, 2004
ROHDE & SCHWARZ Artificial Mains Network (for EUT)	ESH3-Z5	835239/001	Apr. 28, 2004
ROHDE & SCHWARZ Artificial Mains Network (for peripherals)	ESH3-Z5	835239/002	Apr. 28, 2004
ROHDE & SCHWARZ 4-wire ISN	ENY41	935154/007	Apr. 30, 2004
ROHDE & SCHWARZ 2-wire ISN	ENY22	833823/026	Apr. 30, 2004
Software	Cond-V2M3	NA	NA
RF cable (JYEBAO)	5D-FB	Cable-C09.01	May 23, 2004
SUHNER Terminator (For ROHDE & SCHWARZ LISN)	65BNC-5001	E1-010789	Jun. 04, 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. 9.
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.

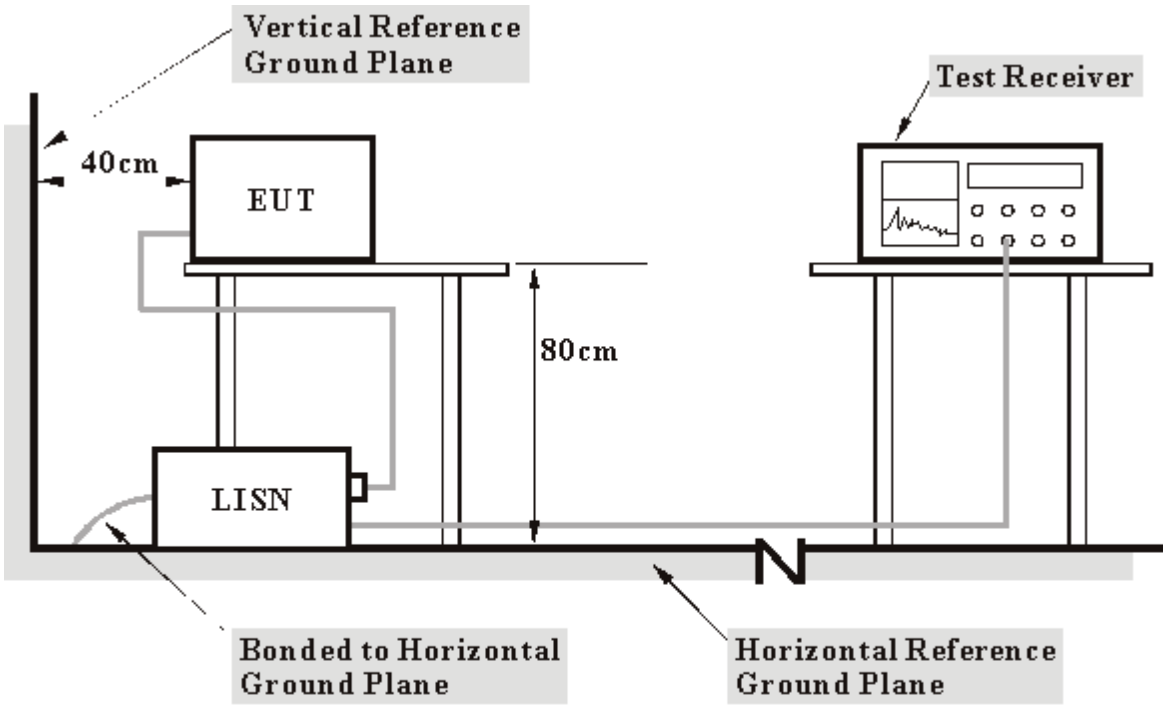
b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

c. The frequency range from 150 kHz to 30 MHz was searched. Emission levels 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

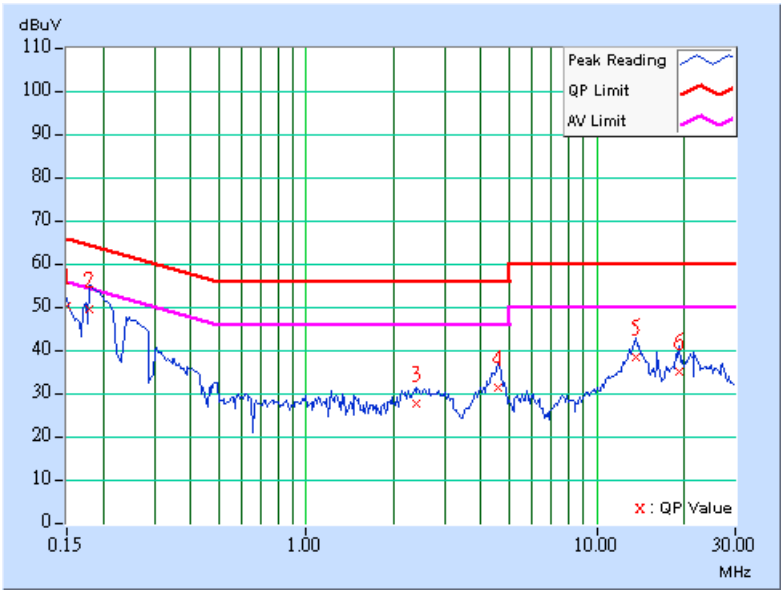
a. Plug the EUT a notebook computer system placed on a testing table.
b. The computer system ran a test program (provided by manufacturer) to enable EUT under transmission/receiving condition continuously at specific channel frequency.
c. The computer system sent "H" messages to its screen.
d. The computer system sent "H" messages to printer, and the printer prints them on paper.
e. Step c ~ d is repeated.

4.1.7 TEST RESULTS

EUT	2.4GHz Wireless Mini PCI Card	**MODEL**	WLL3041
MODE	Channel 1	**6dB BANDWIDTH**	9kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**PHASE**	Line (L)
ENVIRONMENTAL CONDITIONS	20deg. C, 80%RH, 991 hPa	**TESTED BY**: Jun Wu	

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	0.150	0.10	49.13	-	49.23	-	66.00	56.00	-16.77	-
2	0.180	0.10	48.45	-	48.55	-	64.49	54.49	-15.94	-
3	2.380	0.22	26.69	-	26.91	-	56.00	46.00	-29.09	-
4	4.588	0.33	30.39	-	30.72	-	56.00	46.00	-25.28	-
5	13.619	0.82	37.34	-	38.16	-	60.00	50.00	-21.84	-
6	19.124	1.06	34.21	-	35.27	-	60.00	50.00	-24.73	-

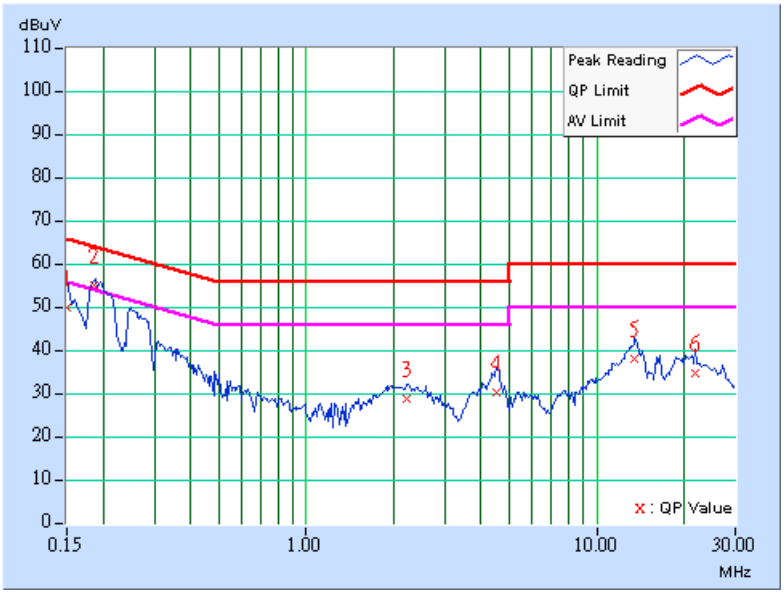
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



EUT	2.4GHz Wireless Mini PCI Card	**MODEL**	WLL3041
MODE	Channel 1	**6dB BANDWIDTH**	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**PHASE**	Neutral (N)
ENVIRONMENTAL CONDITIONS	20deg. C, 80%RH, 991 hPa	**TESTED BY**: Jun Wu	

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	0.150	0.10	48.99	-	49.09	-	66.00	56.00	-16.91	-
2	**0.186**	**0.10**	**54.27**	**38.41**	**54.37**	**38.51**	**64.21**	**54.21**	**-9.84**	**-15.70**
3	2.230	0.20	27.82	-	28.02	-	56.00	46.00	-27.98	-
4	4.507	0.23	29.58	-	29.81	-	56.00	46.00	-26.19	-
5	13.559	0.71	37.11	-	37.82	-	60.00	50.00	-22.18	-
6	21.905	0.94	33.90	-	34.84	-	60.00	50.00	-25.16	-

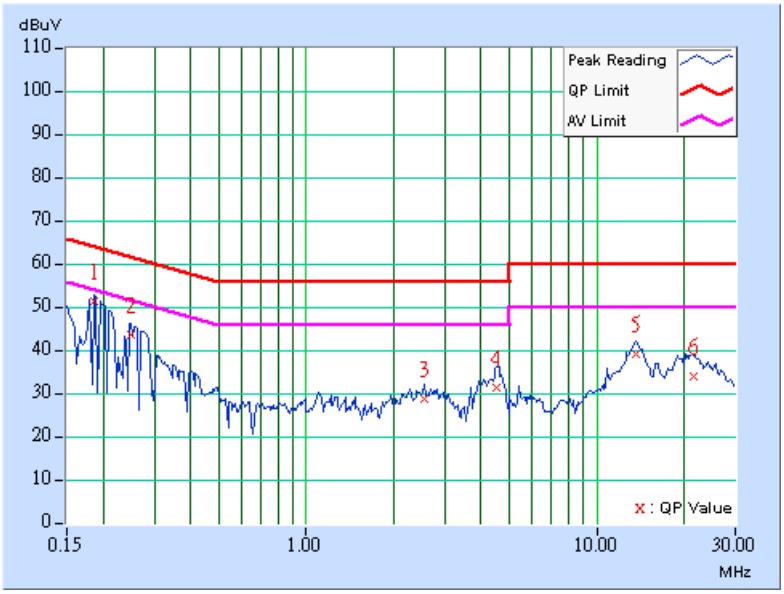
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



EUT	2.4GHz Wireless Mini PCI Card	**MODEL**	WLL3041
MODE	Channel 6	**6dB BANDWIDTH**	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**PHASE**	Line (L)
ENVIRONMENTAL CONDITIONS	20deg. C, 80%RH, 991 hPa	**TESTED BY**: Jun Wu	

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	0.186	0.10	50.16	-	50.26	-	64.21	54.21	-13.95	-
2	0.249	0.12	42.52	-	42.64	-	61.79	51.79	-19.15	-
3	2.545	0.23	27.82	-	28.05	-	56.00	46.00	-27.95	-
4	4.531	0.33	30.16	-	30.49	-	56.00	46.00	-25.51	-
5	13.667	0.82	37.93	-	38.75	-	60.00	50.00	-21.25	-
6	21.542	1.16	32.87	-	34.03	-	60.00	50.00	-25.97	-

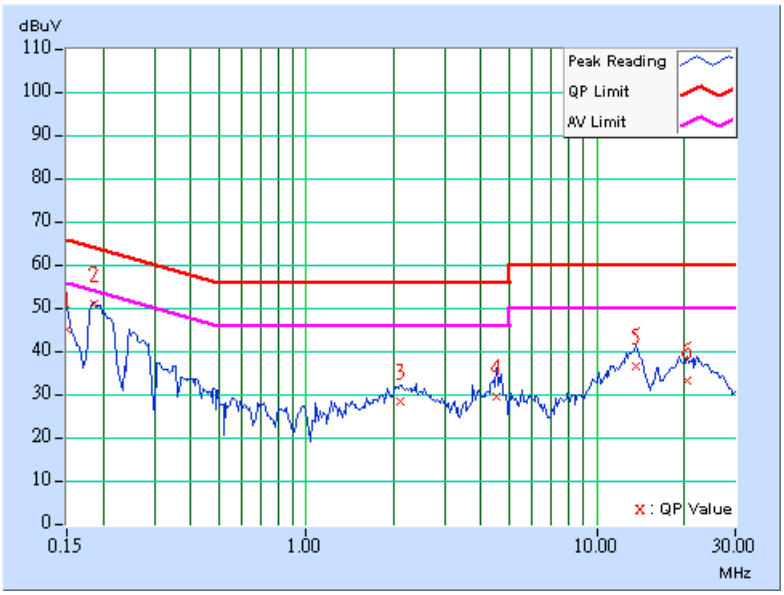
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



EUT	2.4GHz Wireless Mini PCI Card	**MODEL**	WLL3041
MODE	Channel 6	**6dB BANDWIDTH**	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**PHASE**	Neutral (N)
ENVIRONMENTAL CONDITIONS	20deg. C, 80%RH, 991 hPa	**TESTED BY**: Jun Wu	

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	0.150	0.10	44.09	-	44.19	-	66.00	56.00	-21.81	-
2	0.186	0.10	50.10	-	50.20	-	64.21	54.21	-14.01	-
3	2.101	0.20	27.72	-	27.92	-	56.00	46.00	-28.08	-
4	4.525	0.23	28.84	-	29.07	-	56.00	46.00	-26.93	-
5	13.655	0.72	35.85	-	36.57	-	60.00	50.00	-23.43	-
6	20.585	0.91	32.39	-	33.30	-	60.00	50.00	-26.70	-

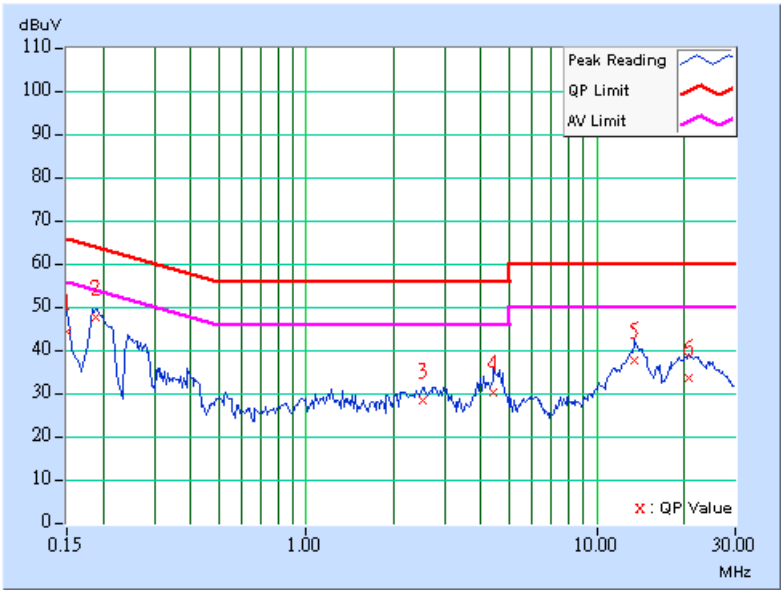
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



EUT	2.4GHz Wireless Mini PCI Card	**MODEL**	WLL3041
MODE	Channel 11	**6dB BANDWIDTH**	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**PHASE**	Line (L)
ENVIRONMENTAL CONDITIONS	20deg. C, 80%RH, 991 hPa	**TESTED BY**: Jun Wu	

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	0.150	0.10	43.24	-	43.34	-	66.00	56.00	-22.66	-
2	0.189	0.10	46.58	-	46.68	-	64.08	54.08	-17.40	-
3	2.518	0.23	27.44	-	27.67	-	56.00	46.00	-28.33	-
4	4.411	0.32	29.13	-	29.45	-	56.00	46.00	-26.55	-
5	13.553	0.81	36.61	-	37.42	-	60.00	50.00	-22.58	-
6	20.831	1.13	32.68	-	33.81	-	60.00	50.00	-26.19	-

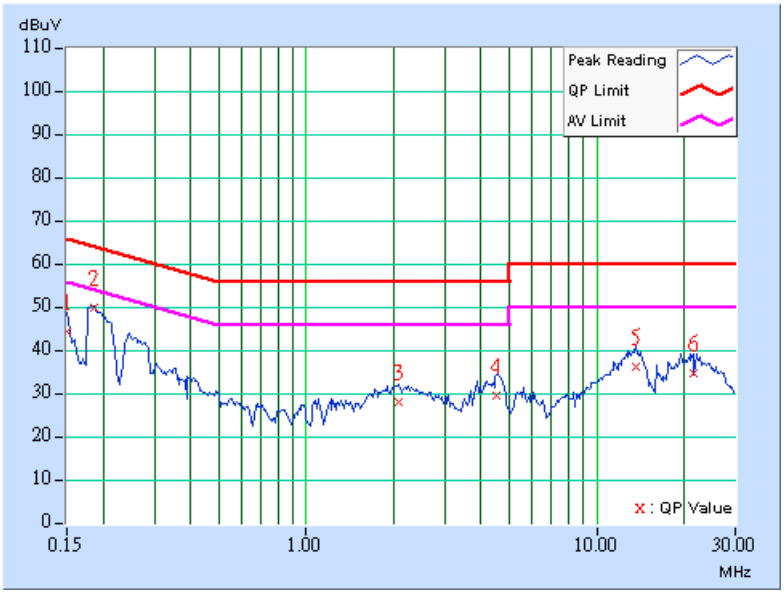
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



EUT	2.4GHz Wireless Mini PCI Card	**MODEL**	WLL3041
MODE	Channel 11	**6dB BANDWIDTH**	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**PHASE**	Neutral (N)
ENVIRONMENTAL CONDITIONS	20deg. C, 80%RH, 991 hPa	**TESTED BY**: Jun Wu	

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	0.150	0.10	43.44	-	43.54	-	66.00	56.00	-22.46	-
2	0.186	0.10	49.13	-	49.23	-	64.21	54.21	-14.98	-
3	2.074	0.20	27.32	-	27.52	-	56.00	46.00	-28.48	-
4	4.543	0.23	28.69	-	28.92	-	56.00	46.00	-27.08	-
5	13.712	0.72	35.44	-	36.16	-	60.00	50.00	-23.84	-
6	21.485	0.93	33.86	-	34.79	-	60.00	50.00	-25.21	-

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 ON
* 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 SCHWARZBECK Tunable Dipole Antenna	VHBA 9123 UHA 9105	459 977	Jun. 26, 2004
* 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 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.

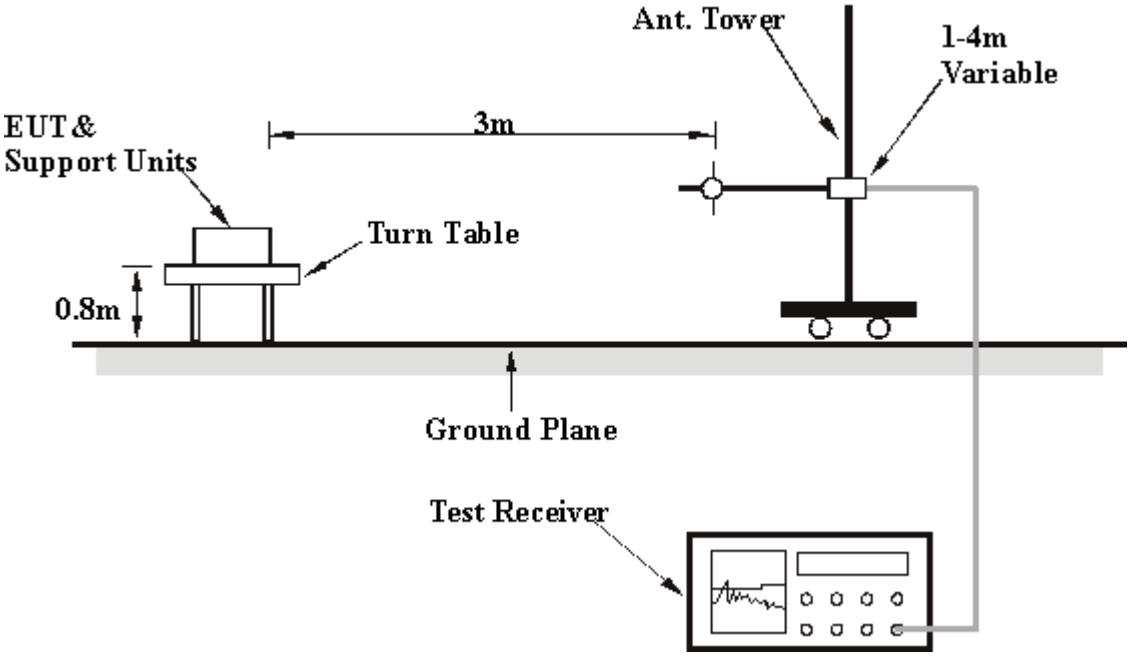
NOTE:

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 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

Mode A

EUT	2.4GHz Wireless Mini PCI Card	**MODEL**	WLL3041
MODE	Channel 11	**FREQUENCY RANGE**	Below 1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION**	Quasi-Peak
ENVIRONMENTAL CONDITIONS	20 deg. C, 70 % RH, 991 hPa	**TESTED BY**: Martin Lee	

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	99.92	39.84 QP	43.50	-3.66	1.83 H	56	29.34	10.50
2	117.30	35.91 QP	43.50	-7.59	1.42 H	359	23.72	12.19
3	141.30	37.86 QP	43.50	-5.64	1.56 H	252	25.46	12.40
4	166.54	41.30 QP	43.50	-2.20	1.92 H	208	30.76	10.54
5	191.42	36.38 QP	43.50	-7.12	1.35 H	3	26.08	10.30
6	195.54	37.33 QP	43.50	-6.17	1.00 H	269	26.95	10.38
7	199.86	36.03 QP	43.50	-7.47	1.31 H	333	25.56	10.47
8	203.92	37.99 QP	43.50	-5.51	1.22 H	315	27.25	10.74
9	221.20	40.13 QP	46.00	-5.87	1.90 H	175	28.20	11.93
10	233.29	32.86 QP	46.00	-13.14	1.32 H	5	20.09	12.77
11	252.05	33.84 QP	46.00	-12.16	1.57 H	0	19.59	14.25
12	270.25	38.26 QP	46.00	-7.74	2.01 H	0	23.06	15.20
13	283.20	38.13 QP	46.00	-7.87	1.00 H	41	22.46	15.67
14	298.60	35.92 QP	46.00	-10.08	1.30 H	0	19.68	16.24
15	322.80	38.67 QP	46.00	-7.33	1.00 H	101	21.93	16.74
16	368.30	42.61 QP	46.00	-3.39	1.77 H	78	24.55	18.06
17	667.50	36.83 QP	46.00	-9.17	1.52 H	344	11.09	25.73
18	798.80	33.17 QP	46.00	-12.83	1.44 H	182	5.97	27.20

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

EUT	2.4GHz Wireless Mini PCI Card	**MODEL**	WLL3041
MODE	Channel 11	**FREQUENCY RANGE**	Below 1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION**	Quasi-Peak
ENVIRONMENTAL CONDITIONS	22 deg. C, 70 % RH, 991 hPa	**TESTED BY**: Martin Lee	

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	48.25	35.95 QP	40.00	-4.05	1.00 V	296	26.96	8.99
2	54.24	31.04 QP	40.00	-8.96	1.65 V	215	24.03	7.01
3	111.99	27.04 QP	43.50	-16.46	2.00 V	311	15.37	11.67
4	133.24	29.97 QP	43.50	-13.53	2.00 V	57	17.48	12.49
5	140.87	31.49 QP	43.50	-12.01	1.86 V	20	19.06	12.43
6	165.74	35.24 QP	43.50	-8.26	2.00 V	275	24.68	10.56
7	233.50	25.69 QP	46.00	-20.31	1.00 V	8	12.91	12.78
8	274.63	27.77 QP	46.00	-18.23	2.28 V	313	12.41	15.36
9	343.80	36.05 QP	46.00	-9.95	1.00 V	171	18.90	17.15
10	368.30	32.67 QP	46.00	-13.33	1.26 V	64	14.61	18.06
11	434.80	33.02 QP	46.00	-12.98	1.49 V	356	12.94	20.08
12	529.30	34.00 QP	46.00	-12.00	1.52 V	247	11.26	22.74
13	667.50	36.39 QP	46.00	-9.61	1.80 V	21	10.66	25.73
14	805.70	33.59 QP	46.00	-12.41	1.66 V	75	6.17	27.42

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.

Mode B

EUT	2.4GHz Wireless Mini PCI Card	**MODEL**	WLL3041
MODE	Channel 11	**FREQUENCY RANGE**	Below 1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION**	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 60 % RH, 991 hPa	**TESTED BY**: Vincent Yang	

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	99.90	38.80 QP	43.50	-4.70	1.75 H	34	27.67	11.13
2	117.90	36.20 QP	43.50	-7.30	1.52 H	345	23.63	12.57
3	142.10	38.40 QP	43.50	-5.10	1.51 H	241	26.56	11.84
4	166.40	40.70 QP	43.50	-2.80	1.85 H	225	30.43	10.27
5	192.40	35.80 QP	43.50	-7.70	1.37 H	32	25.60	10.20
6	195.40	36.80 QP	43.50	-6.70	1.04 H	325	26.55	10.25
7	199.50	35.40 QP	43.50	-8.10	1.21 H	360	25.10	10.30
8	203.40	36.40 QP	43.50	-7.10	1.02 H	334	25.88	10.52
9	221.10	39.80 QP	46.00	-6.20	1.85 H	162	28.20	11.60
10	233.29	33.00 QP	46.00	-13.00	1.05 H	61	20.65	12.35
11	251.50	32.80 QP	46.00	-13.20	1.50 H	33	19.22	13.58
12	276.20	37.60 QP	46.00	-8.40	1.92 H	2	22.71	14.89
13	285.00	37.20 QP	46.00	-8.80	1.32 H	62	22.12	15.09
14	298.50	35.40 QP	46.00	-10.60	1.12 H	62	20.01	15.39
15	322.70	37.10 QP	46.00	-8.90	1.05 H	131	21.31	15.79
16	367.10	41.80 QP	46.00	-4.20	1.72 H	68	24.94	16.86
17	667.10	36.20 QP	46.00	-9.80	1.41 H	341	14.09	22.11
18	798.10	32.50 QP	46.00	-13.50	1.42 H	35	9.17	23.33

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	2.4GHz Wireless Mini PCI Card	**MODEL**	WLL3041
MODE	Channel 11	**FREQUENCY RANGE**	Below 1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION**	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 60 % RH, 991 hPa	**TESTED BY**: Vincent Yang	

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	47.50	35.10 QP	40.00	-4.90	1.02 V	228	25.02	10.08
2	54.50	32.10 QP	40.00	-7.90	1.52 V	34	23.45	8.65
3	112.00	28.10 QP	43.50	-15.40	1.32 V	62	16.00	12.10
4	133.80	30.50 QP	43.50	-13.00	1.82 V	227	18.26	12.24
5	141.50	28.50 QP	43.50	-15.00	1.62 V	35	16.61	11.89
6	164.50	35.10 QP	43.50	-8.40	1.62 V	52	24.79	10.31
7	345.20	35.40 QP	46.00	-10.60	1.36 V	62	19.25	16.15
8	433.80	32.80 QP	46.00	-13.20	1.52 V	77	14.45	18.35
9	528.40	33.40 QP	46.00	-12.60	1.51 V	34	13.13	20.27
10	667.10	35.80 QP	46.00	-10.20	1.74 V	85	13.69	22.11
11	807.00	32.40 QP	46.00	-13.60	1.62 V	37	8.97	23.43

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.

4.2.8. TEST RESULTS (A)

Mode A

EUT	2.4GHz Wireless Mini PCI Card	**MODEL**	WLL3041
MODE	Channel 1	**FREQUENCY RANGE**	Above 1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	15 deg. C, 70 % RH, 991 hPa	**TESTED BY**: Vincent Lin	

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	1608.00	49.33 PK	74.00	-24.67	1.08 H	300	21.37	27.96
2	2386.00	42.57 PK	74.00	-31.43	1.00 H	334	12.27	30.30
3	*2412.00	96.74 PK			1.00 H	334	66.33	30.41
3	*2412.00	90.24 AV			1.00 H	334	59.83	30.41
4	3216.00	50.00 PK	74.00	-24.00	1.06 H	321	17.27	32.73
5	4824.00	44.50 PK	74.00	-29.50	1.02 H	298	9.00	35.50
6	7236.00	51.17 PK	74.00	-22.83	1.00 H	330	10.05	41.12
6	7236.00	38.44 AV	54.00	-15.56	1.00 H	330	-2.68	41.12

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	1608.00	45.43 PK	74.00	-28.57	1.14 V	152	17.47	27.96
2	2386.00	57.57 PK	74.00	-16.43	1.08 V	139	27.27	30.30
2	2386.00	49.57 AV	54.00	-4.43	1.08 V	139	19.27	30.30
3	*2412.00	111.74 PK			1.08 V	139	81.33	30.41
3	*2412.00	103.74 AV			1.08 V	139	73.33	30.41
4	3216.00	45.16 PK	74.00	-28.84	1.22 V	148	12.43	32.73
5	4824.00	44.89 PK	74.00	-29.11	1.18 V	225	9.39	35.50
6	7236.00	53.40 PK	74.00	-20.60	1.20 V	221	12.28	41.12
6	7236.00	40.19 AV	54.00	-13.81	1.20 V	221	-0.93	41.12

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	2.4GHz Wireless Mini PCI Card	**MODEL**	WLL3041
MODE	Channel 6	**FREQUENCY RANGE**	Above 1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	15 deg. C, 70 % RH, 991 hPa	**TESTED BY**: Vincent Lin	

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	1624.00	39.95 PK	74.00	-34.05	1.00 H	244	11.98	27.98
2	*2437.00	99.50 PK			1.00 H	143	69.00	30.50
2	*2437.00	91.67 AV			1.00 H	143	61.17	30.50
3	3248.00	41.07 PK	74.00	-32.93	1.18 H	81	8.22	32.85
4	4874.00	45.66 PK	74.00	-28.34	1.41 H	74	9.90	35.76
5	7311.00	51.88 PK	74.00	-22.12	1.06 H	177	10.64	41.24
5	7311.00	38.84 AV	54.00	-15.16	1.06 H	177	-2.40	41.24

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	1624.00	42.17 PK	74.00	-31.83	1.15 V	138	14.19	27.98
2	*2437.00	111.50 PK			1.07 V	142	81.00	30.50
2	*2437.00	104.17 AV			1.07 V	142	73.67	30.50
3	3248.00	42.33 PK	74.00	-31.67	1.31 V	154	9.48	32.85
4	4874.00	47.23 PK	74.00	-26.77	1.11 V	221	11.47	35.76
5	7311.00	52.37 PK	74.00	-21.63	1.22 V	229	11.13	41.24
5	7311.00	39.13 AV	54.00	-14.87	1.22 V	229	-2.11	41.24

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	2.4GHz Wireless Mini PCI Card	**MODEL**	WLL3041
MODE	Channel 11	**FREQUENCY RANGE**	Above 1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	15 deg. C, 70 % RH, 991 hPa	**TESTED BY**: Vincent Lin	

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	1641.00	47.84 PK	74.00	-26.16	1.14 H	319	19.84	28.00
2	*2462.00	97.26 PK			1.00 H	348	66.67	30.59
2	*2462.00	90.76 AV			1.00 H	348	60.17	30.59
3	2483.50	46.33 PK	74.00	-27.67	1.00 H	348	15.66	30.67
4	3282.00	48.80 PK	74.00	-25.20	1.45 H	332	15.83	32.97
5	4924.00	42.35 PK	74.00	-31.65	1.24 H	298	6.36	35.99
6	7386.00	49.86 PK	74.00	-24.14	1.14 H	277	8.17	41.69

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	1641.00	44.02 PK	74.00	-29.98	1.00 V	88	16.02	28.00
2	*2462.00	109.65 PK			1.07 V	142	79.06	30.59
2	*2462.00	102.76 AV			1.07 V	142	72.17	30.59
3	2483.50	58.72 PK	74.00	-15.28	1.07 V	142	28.05	30.67
3	2483.50	51.83 AV	54.00	-2.17	1.07 V	142	21.16	30.67
4	3282.00	43.71 PK	74.00	-30.29	1.16 V	160	10.74	32.97
5	4924.00	44.87 PK	74.00	-29.13	1.20 V	179	8.89	35.99
6	7386.00	51.31 PK	74.00	-22.69	1.00 V	166	9.62	41.69
6	7386.00	38.79 AV	54.00	-15.21	1.00 V	166	-2.90	41.69

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.

Mode B

EUT	2.4GHz Wireless Mini PCI Card	**MODEL**	WLL3041
MODE	Channel 1	**FREQUENCY RANGE**	Above 1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 60 % RH, 991 hPa	**TESTED BY**: Vincent Yang	

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	1608.00	43.76 PK	74.00	-30.24	1.04 H	330	15.69	28.08
1	1608.00	38.07 AV	54.00	-15.93	1.04 H	330	10.00	28.08
2	2386.00	52.66 PK	74.00	-21.34	1.06 H	172	21.85	30.81
2	2386.00	44.56 AV	54.00	-9.44	1.06 H	172	13.75	30.81
3	*2412.00	110.37 PK			1.06 H	172	79.47	30.90
3	*2412.00	103.44 AV			1.06 H	172	72.54	30.90
4	3216.00	47.00 PK	74.00	-27.00	1.41 H	68	12.67	34.32
4	3216.00	37.23 AV	54.00	-16.77	1.41 H	68	2.90	34.32
5	4824.00	50.54 PK	74.00	-23.46	2.10 H	7	13.47	37.07
5	4824.00	45.01 AV	54.00	-8.99	2.10 H	7	7.94	37.07
6	9648.00	54.57 PK	74.00	-19.43	1.03 H	360	9.78	44.79
6	9648.00	43.70 AV	54.00	-10.30	1.03 H	360	-1.09	44.79

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	1608.00	43.45 PK	74.00	-30.55	1.00 V	256	15.38	28.08
1	1608.00	38.19 AV	54.00	-15.81	1.00 V	256	10.12	28.08
2	2386.00	46.38 PK	74.00	-27.62	1.34 V	246	15.57	30.81
2	2386.00	39.86 AV	54.00	-14.14	1.34 V	246	9.05	30.81
3	*2412.00	104.09 PK			1.34 V	246	73.19	30.90
3	*2412.00	97.57 AV			1.34 V	246	66.67	30.90
4	3216.00	48.62 PK	74.00	-25.38	1.03 V	268	14.29	34.32
4	3216.00	41.11 AV	54.00	-12.89	1.03 V	268	6.78	34.32
5	4824.00	49.33 PK	74.00	-24.67	1.00 V	34	12.26	37.07
5	4824.00	43.65 AV	54.00	-10.35	1.00 V	34	6.58	37.07
6	9648.00	57.80 PK	74.00	-16.20	1.00 V	337	13.01	44.79
6	9648.00	51.90 AV	54.00	-2.10	1.00 V	337	7.11	44.79

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	2.4GHz Wireless Mini PCI Card	**MODEL**	WLL3041
MODE	Channel 6	**FREQUENCY RANGE**	Above 1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 60 % RH, 991 hPa	**TESTED BY**: Vincent Yang	

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	1624.50	40.89 PK	74.00	-33.11	1.59 H	345	12.77	28.13
2	*2437.00	108.70 PK			1.00 H	24	77.73	30.97
2	*2437.00	101.81 AV			1.00 H	24	70.84	30.97
3	3248.50	46.29 PK	74.00	-27.71	1.11 H	123	11.94	34.35
4	4874.00	50.80 PK	74.00	-23.20	1.57 H	21	13.49	37.31
4	4874.00	43.23 AV	54.00	-10.77	1.57 H	21	5.92	37.31
5	9748.00	52.66 PK	74.00	-21.34	1.21 H	31	8.17	44.49
5	9748.00	45.53 AV	54.00	-8.47	1.21 H	31	1.04	44.49

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	1624.00	43.30 PK	74.00	-30.70	1.26 V	82	15.18	28.13
2	*2437.00	102.76 PK			1.01 V	245	71.79	30.97
2	*2437.00	95.14 AV			1.01 V	245	64.17	30.97
3	3249.50	45.15 PK	74.00	-28.85	1.35 V	31	10.80	34.35
4	4874.00	48.54 PK	74.00	-25.46	1.06 V	31	11.23	37.31
5	9748.00	53.83 PK	74.00	-20.17	1.29 V	31	9.34	44.49
5	9748.00	46.69 AV	54.00	-7.31	1.29 V	31	2.20	44.49

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	2.4GHz Wireless Mini PCI Card	MODEL	WLL3041
MODE	Channel 11	FREQUENCY RANGE	Above 1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 60 % RH, 991 hPa	**TESTED BY**: Vincent Yang	

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	1641.00	43.40 PK	74.00	-30.60	1.35 H	130	15.21	28.18
1	1641.00	38.89 AV	54.00	-15.11	1.35 H	130	10.70	28.18
2	*2462.00	108.32 PK			1.00 H	3	77.29	31.03
2	*2462.00	100.72 AV			1.00 H	3	69.69	31.03
3	2483.50	88.48 PK	74.00	14.48	1.00 H	3	57.39	31.09
3	2483.50	80.88 AV	54.00	26.88	1.00 H	3	49.79	31.09
4	3282.00	47.65 PK	74.00	-26.35	1.00 H	117	13.27	34.38
4	3282.00	39.81 AV	54.00	-14.19	1.00 H	117	5.43	34.38
5	4924.00	52.59 PK	74.00	-21.41	2.04 H	25	15.08	37.52
5	4924.00	48.47 AV	54.00	-5.53	2.04 H	25	10.96	37.52
6	9848.00	53.24 PK	74.00	-20.76	1.00 H	357	8.88	44.36
6	9848.00	40.55 AV	54.00	-13.45	1.00 H	357	-3.81	44.36

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	1641.00	43.03 PK	74.00	-30.97	1.01 V	259	14.84	28.18
1	1641.00	38.90 AV	54.00	-15.10	1.01 V	259	10.71	28.18
2	*2462.00	102.52 PK			1.01 V	242	71.49	31.03
2	*2462.00	94.94 AV			1.01 V	242	63.91	31.03
3	2483.50	51.59 PK	74.00	-22.41	1.01 V	242	20.50	31.09
3	2483.50	44.01 AV	54.00	-9.99	1.01 V	242	12.92	31.09
4	3282.00	46.57 PK	74.00	-27.43	1.03 V	270	12.19	34.38
4	3282.00	38.01 AV	54.00	-15.99	1.03 V	270	3.63	34.38
5	4924.00	50.31 PK	74.00	-23.69	1.34 V	320	12.80	37.52
5	4924.00	44.69 AV	54.00	-9.31	1.34 V	320	7.18	37.52
6	9648.00	55.67 PK	74.00	-18.33	1.03 V	342	10.88	44.79
6	9648.00	47.70 AV	54.00	-6.30	1.03 V	342	2.91	44.79

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

4.2.9. TEST RESULTS (B)

Mode A

EUT	2.4GHz Wireless Mini PCI Card	**MODEL**	WLL3041
MODE	Channel 1	**FREQUENCY RANGE**	Above 1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	15 deg. C, 70 % RH, 991 hPa	**TESTED BY**: Vincent Lin	

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	1608.00	44.75 PK	74.00	-29.25	1.11 H	125	16.79	27.96
2	2390.00	48.50 PK	74.00	-25.50	1.24 H	162	18.18	30.32
3	*2412.00	97.08 PK			1.24 H	162	66.67	30.41
3	*2412.00	91.91 AV			1.24 H	162	61.50	30.41
4	3216.00	44.25 PK	74.00	-29.75	1.15 H	131	11.52	32.73
5	4824.00	50.63 PK	74.00	-23.37	1.16 H	224	15.13	35.50
6	7236.00	48.87 PK	74.00	-25.13	1.14 H	231	7.75	41.12

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	1608.00	42.75 PK	74.00	-31.25	1.00 V	177	14.79	27.96
2	2390.00	59.16 PK	74.00	-14.84	1.35 V	157	28.84	30.32
2	2390.00	52.50 AV	54.00	-1.50	1.35 V	157	22.18	30.32
3	*2412.00	107.74 PK			1.35 V	157	77.33	30.41
3	*2412.00	101.08 AV			1.35 V	157	70.67	30.41
4	3216.00	53.68 PK	74.00	-20.32	1.00 V	177	20.95	32.73
4	3216.00	44.58 AV	54.00	-9.42	1.00 V	177	11.85	32.73
5	4824.00	51.08 PK	74.00	-22.92	1.22 V	244	15.58	35.50
5	4824.00	45.57 AV	54.00	-8.43	1.22 V	244	10.08	35.50
6	7236.00	50.36 PK	74.00	-23.64	1.49 V	217	9.24	41.12

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	2.4GHz Wireless Mini PCI Card	MODEL	WLL3041
MODE	Channel 6	FREQUENCY RANGE	Above 1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	15 deg. C, 70 % RH, 991 hPa	TESTED BY: Vincent Lin	

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	1624.00	43.95 PK	74.00	-30.05	1.00 H	119	15.98	27.98
2	*2437.00	98.67 PK			1.21 H	298	68.17	30.50
2	*2437.00	91.83 AV			1.21 H	298	61.33	30.50
3	3248.00	43.61 PK	74.00	-30.39	1.00 H	222	10.76	32.85
4	4874.00	44.95 PK	74.00	-29.05	1.06 H	277	9.19	35.76
5	7311.00	49.52 PK	74.00	-24.48	1.10 H	244	8.28	41.24

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	1624.00	46.69 PK	74.00	-27.31	1.36 V	248	18.71	27.98
2	*2437.00	107.83 PK			1.38 V	139	77.33	30.50
2	*2437.00	101.83 AV			1.38 V	139	71.33	30.50
3	3248.00	44.43 PK	74.00	-29.57	1.10 V	181	11.58	32.85
4	4874.00	51.69 PK	74.00	-22.31	1.00 V	188	15.93	35.76
4	4874.00	46.37 AV	54.00	-7.63	1.00 V	188	10.60	35.76
5	7311.00	51.73 PK	74.00	-22.27	1.22 V	168	10.49	41.24
5	7311.00	38.87 AV	54.00	-15.13	1.22 V	168	-2.37	41.24

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	2.4GHz Wireless Mini PCI Card	**MODEL**	WLL3041
MODE	Channel 11	**FREQUENCY RANGE**	Above 1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	15 deg. C, 70 % RH, 991 hPa	**TESTED BY**: Vincent Lin	

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	1641.00	42.77 PK	74.00	-31.23	1.12 H	123	14.77	28.00
2	*2462.00	98.42 PK			1.43 H	116	67.83	30.59
2	*2462.00	91.62 AV			1.43 H	116	61.03	30.59
3	2483.50	49.89 PK	74.00	-24.11	1.43 H	116	19.22	30.67
4	3284.00	41.76 PK	74.00	-32.24	1.21 H	117	8.78	32.98
5	4924.00	43.49 PK	74.00	-30.51	1.11 H	128	7.50	35.99
6	7386.00	50.98 PK	74.00	-23.02	1.13 H	125	9.29	41.69

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	1641.00	43.66 PK	74.00	-30.34	1.22 V	243	15.66	28.00
2	*2462.00	107.92 PK			1.37 V	143	77.33	30.59
2	*2462.00	101.92 AV			1.37 V	143	71.33	30.59
3	2483.50	59.39 PK	74.00	-14.61	1.37 V	143	28.72	30.67
3	**2483.50**	**53.39 AV**	**54.00**	**-0.61**	**1.37 V**	**143**	**22.72**	**30.67**
4	3284.00	42.87 PK	74.00	-31.13	1.07 V	19	9.89	32.98
5	4924.00	44.87 PK	74.00	-29.13	1.32 V	152	8.89	35.99
6	7386.00	51.45 PK	74.00	-22.55	1.12 V	96	9.76	41.69
6	7386.00	39.29 AV	54.00	-14.71	1.12 V	96	-2.40	41.69

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.

Mode B

EUT	2.4GHz Wireless Mini PCI Card	**MODEL**	WLL3041
MODE	Channel 1	**FREQUENCY RANGE**	Above 1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 60 % RH, 991 hPa	**TESTED BY**: Vincent Yang	

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	1608.00	41.22 PK	74.00	-32.78	1.08 H	345	13.15	28.08
2	2390.00	58.60 PK	74.00	-15.40	1.54 H	26	27.77	30.83
2	2390.00	51.62 AV	54.00	-2.38	1.54 H	26	20.79	30.83
3	*2412.00	107.22 PK			1.54 H	26	76.32	30.90
3	*2412.00	100.20 AV			1.54 H	26	69.30	30.90
4	3216.00	46.00 PK	74.00	-28.00	1.51 H	57	11.67	34.32
5	4824.00	45.57 PK	74.00	-28.43	1.31 H	34	8.50	37.07
6	9648.00	55.20 PK	74.00	-18.80	1.05 H	62	10.41	44.79
6	9648.00	48.90 AV	54.00	-5.10	1.05 H	62	4.11	44.79

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	1608.00	40.99 PK	74.00	-33.01	1.17 V	34	12.92	28.08
2	2390.00	54.83 PK	74.00	-19.17	1.32 V	96	24.00	30.83
2	2390.00	45.03 AV	54.00	-8.97	1.32 V	96	14.20	30.83
3	*2412.00	102.28 PK			1.32 V	96	71.38	30.90
3	*2412.00	95.42 AV			1.32 V	96	64.52	30.90
4	3216.00	44.58 PK	74.00	-29.42	1.64 V	4	10.25	34.32
5	4824.00	45.86 PK	74.00	-28.14	1.22 V	341	8.79	37.07
6	9648.00	54.64 PK	74.00	-19.36	1.02 V	13	9.85	44.79
6	9648.00	48.54 AV	54.00	-5.46	1.02 V	13	3.75	44.79

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	2.4GHz Wireless Mini PCI Card	**MODEL**	WLL3041
MODE	Channel 6	**FREQUENCY RANGE**	Above 1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 60 % RH, 991 hPa	**TESTED BY**: Vincent Yang	

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	1624.50	41.48 PK	74.00	-32.52	1.45 H	360	13.36	28.13
2	*2437.00	107.06 PK			1.00 H	16	76.09	30.97
2	*2437.00	99.47 AV			1.00 H	16	68.50	30.97
3	3249.50	45.80 PK	74.00	-28.20	1.20 H	21	11.45	34.35
4	4874.00	47.05 PK	74.00	-26.95	1.43 H	31	9.74	37.31
5	9748.00	50.83 PK	74.00	-23.17	1.17 H	276	6.34	44.49
5	9748.00	42.14 AV	54.00	-11.86	1.17 H	276	-2.35	44.49

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	1624.50	42.91 PK	74.00	-31.09	1.50 V	60	14.79	28.13
2	*2437.00	101.92 PK			1.37 V	246	70.95	30.97
2	*2437.00	94.37 AV			1.37 V	246	63.40	30.97
3	3249.50	46.73 PK	74.00	-27.27	1.15 V	311	12.38	34.35
4	4874.00	46.45 PK	74.00	-27.55	1.36 V	11	9.14	37.31
5	9748.00	53.83 PK	74.00	-20.17	1.09 V	31	9.34	44.49
5	9748.00	47.33 AV	54.00	-6.67	1.09 V	31	2.84	44.49

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	2.4GHz Wireless Mini PCI Card	**MODEL**	WLL3041
MODE	Channel 11	**FREQUENCY RANGE**	Above 1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	15 deg. C, 70 % RH, 991 hPa	**TESTED BY**: Vincent Lin	

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	1641.00	42.44 PK	74.00	-31.56	1.09 H	319	14.26	28.18
2	*2462.00	105.51 PK			1.56 H	18	74.48	31.03
2	*2462.00	98.03 AV			1.56 H	18	67.00	31.03
3	2483.50	57.01 PK	74.00	-16.99	1.56 H	18	25.92	31.09
3	2483.50	49.97 AV	54.00	-4.03	1.56 H	18	18.88	31.09
4	3282.00	46.34 PK	74.00	-27.66	1.22 H	224	11.96	34.38
5	4924.00	46.93 PK	74.00	-27.07	1.25 H	34	9.42	37.52

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	1641.00	44.71 PK	74.00	-29.29	1.28 V	307	16.52	28.18
2	*2462.00	101.15 PK			1.02 V	249	70.12	31.03
2	*2462.00	91.59 AV			1.02 V	249	60.56	31.03
3	2483.50	53.00 PK	74.00	-21.00	1.02 V	249	21.91	31.09
3	2483.50	42.50 AV	54.00	-11.50	1.02 V	249	11.41	31.09
4	3282.00	46.09 PK	74.00	-27.91	1.14 V	77	11.71	34.38
5	4924.00	48.53 PK	74.00	-25.47	1.11 V	64	11.01	37.52
6	9848.00	53.58 PK	74.00	-20.42	2.20 V	18	9.22	44.36
6	9848.00	42.68 AV	54.00	-11.32	2.20 V	18	-1.68	44.36

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.

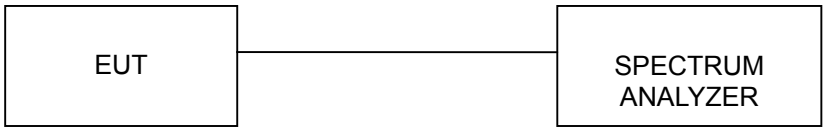
4.3.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100 kHz 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

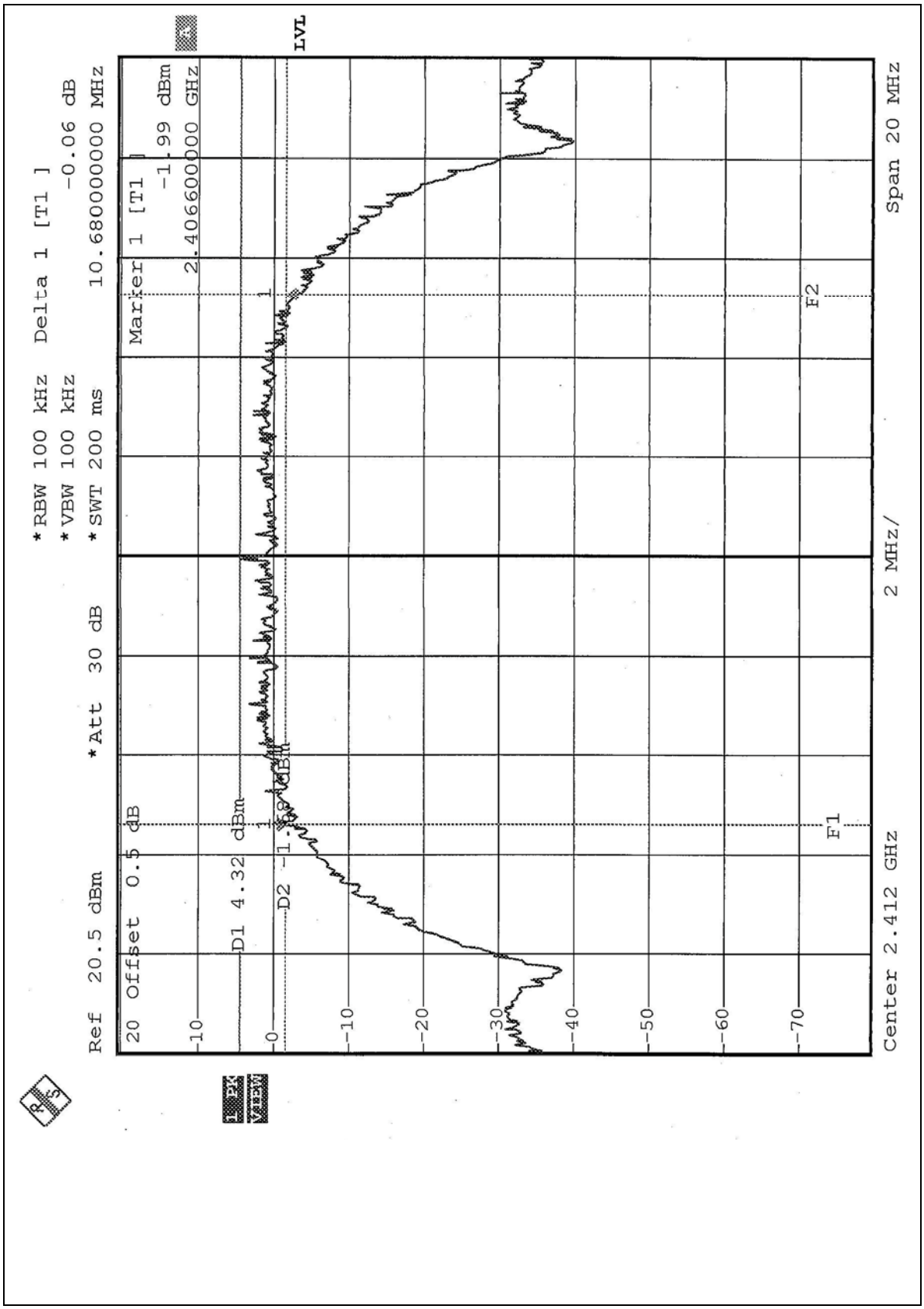
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.3.7 TEST RESULTS (A)

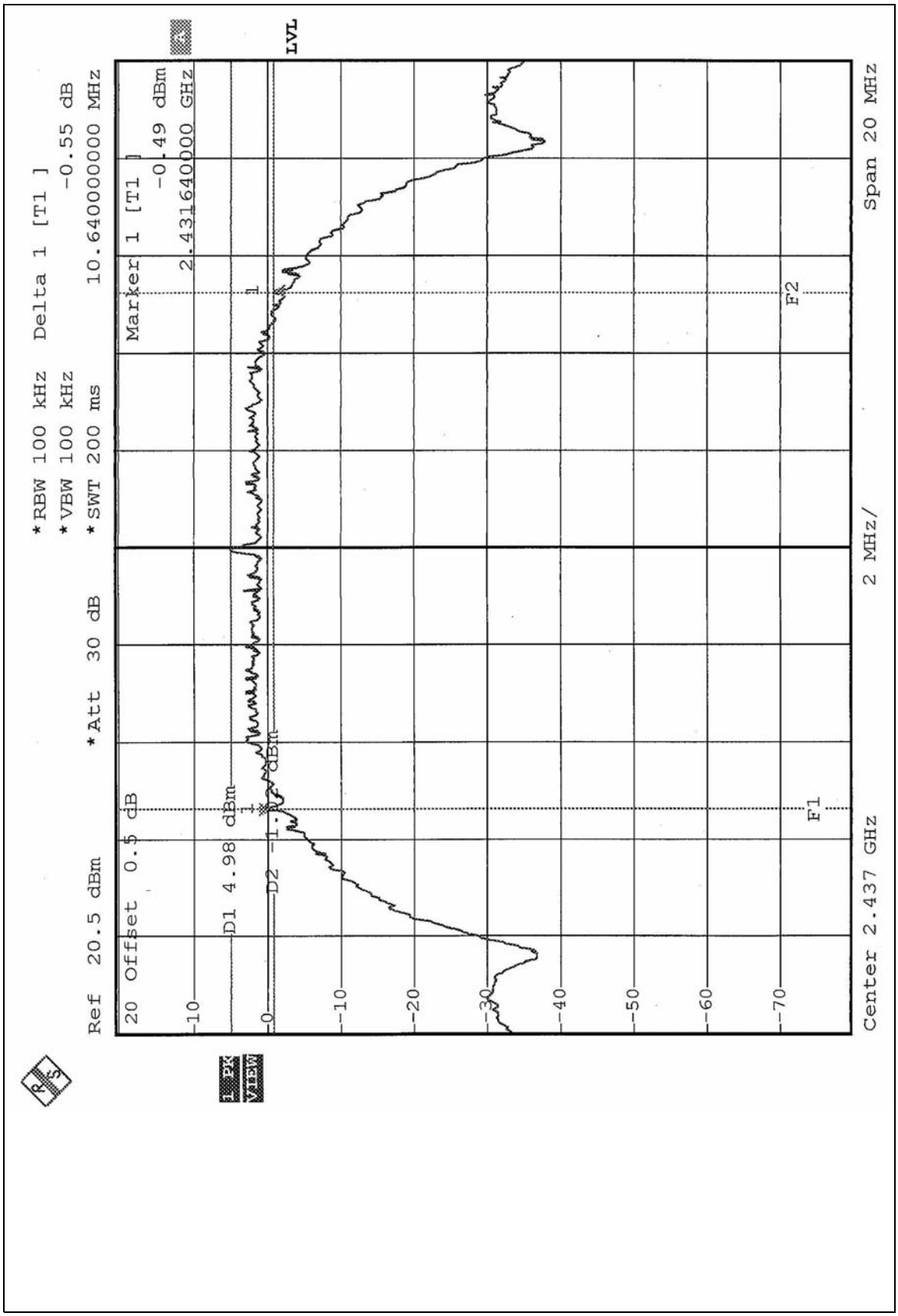
EUT	2.4GHz Wireless Mini PCI Card	**MODEL**	WLL3041
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	18deg. C, 64%RH, 991 hPa
TESTED BY: Ansen Lei			

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	10.68	0.5	PASS
6	2437	10.64	0.5	PASS
11	2462	10.60	0.5	PASS

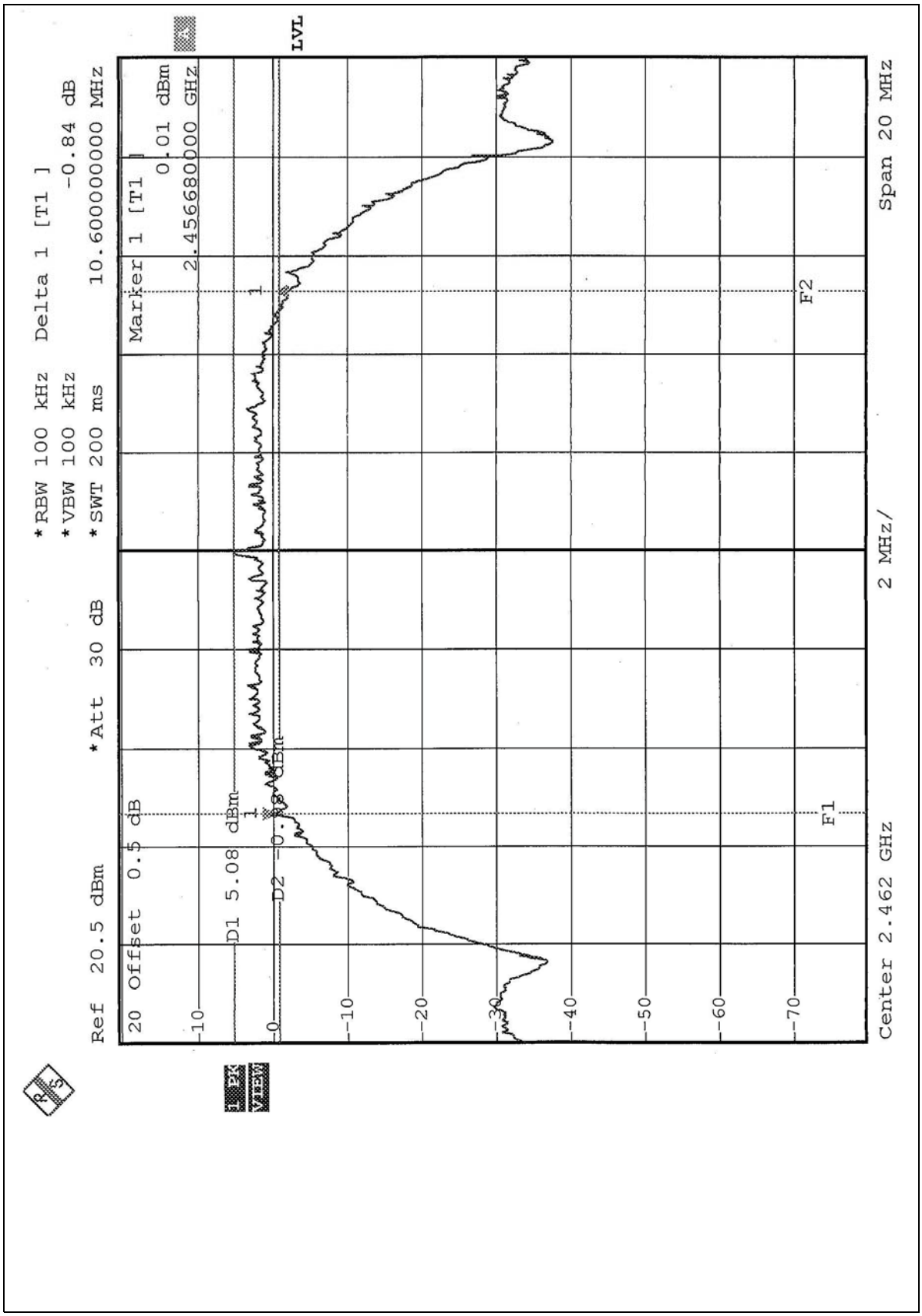
CH1


RBW 100 kHz
VBW 100 kHz
SWT 200 ms
Delta 1 [T1]
-0.06 dB
10.680000000 MHz
Marker 1 [T1]
-1.99 dBm
2.406600000 GHz
Ref 20.5 dBm
Offset 0.5 dB
Att 30 dB
D1 4.32 dBm
D2 -1.68 dBm
F1
F2
Center 2.412 GHz
2 MHz/
Span 20 MHz

CH6


*RBW 100 kHz
Delta 1 [T1]
-0.55 dB
*VBW 100 kHz
*SWT 200 ms
10.640000000 MHz
Ref 20.5 dBm
*Att 30 dB
Offset 0.5 dB
Marker 1 [T1]
-0.49 dBm
2.431640000 GHz
D1 4.98 dBm
D2 -1.51 dBm
F1
F2
Center 2.437 GHz
2 MHz/
Span 20 MHz
LVL
1PK
VIEW

CH11

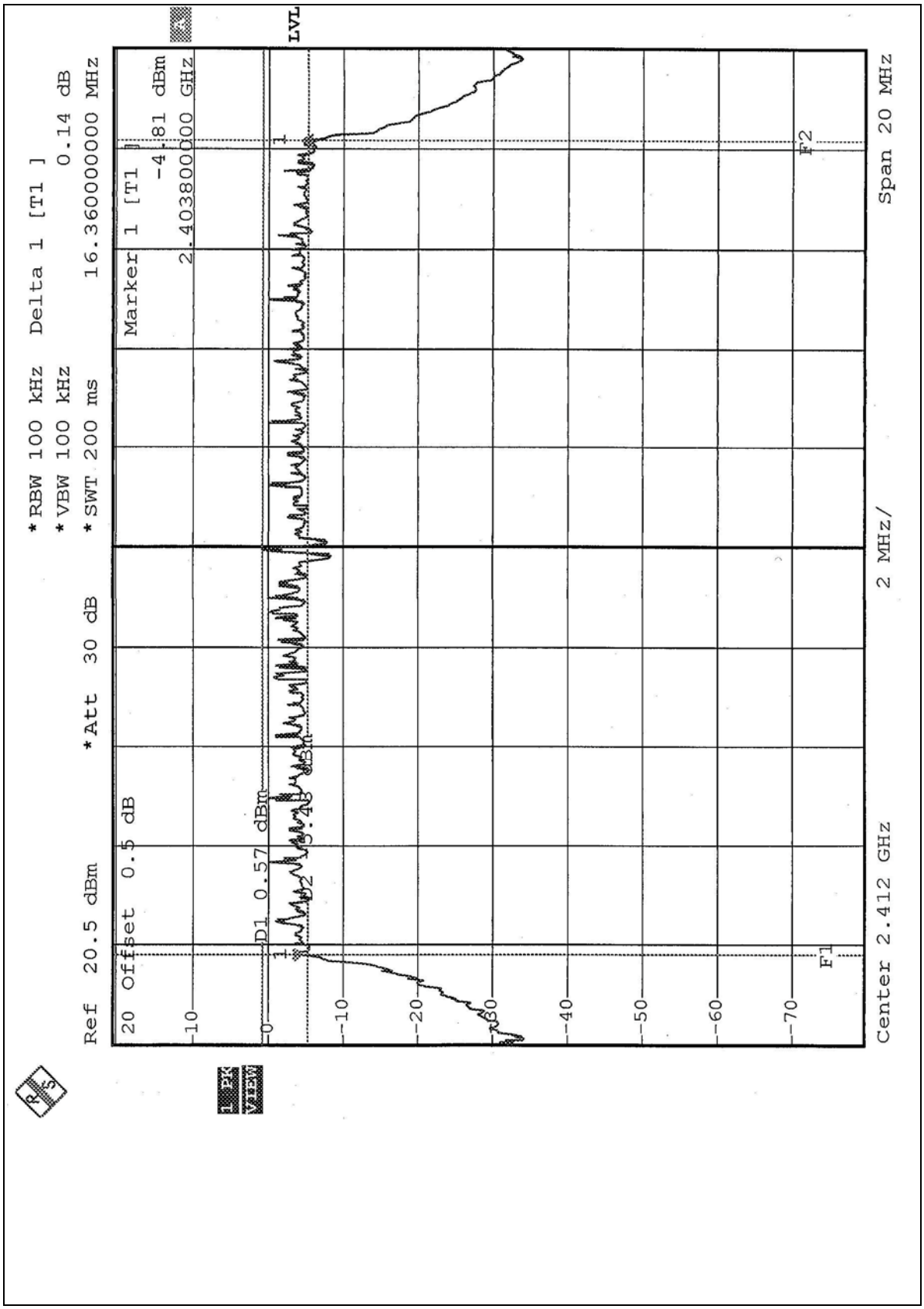

LVL
Ref 20.5 dBm
20 Offset 0.5 dB
*Att 30 dB
*SWT 200 ms
*VBW 100 kHz
*RBW 100 kHz
Delta 1 [T1]
-0.84 dB
10.600000000 MHz
Marker 1 [T1]
0.01 dBm
2.456680000 GHz
D1 5.08 dBm
D2 -0.92 dBm
F1
F2
Center 2.462 GHz
2 MHz/
Span 20 MHz

4.3.8 TEST RESULTS (B)

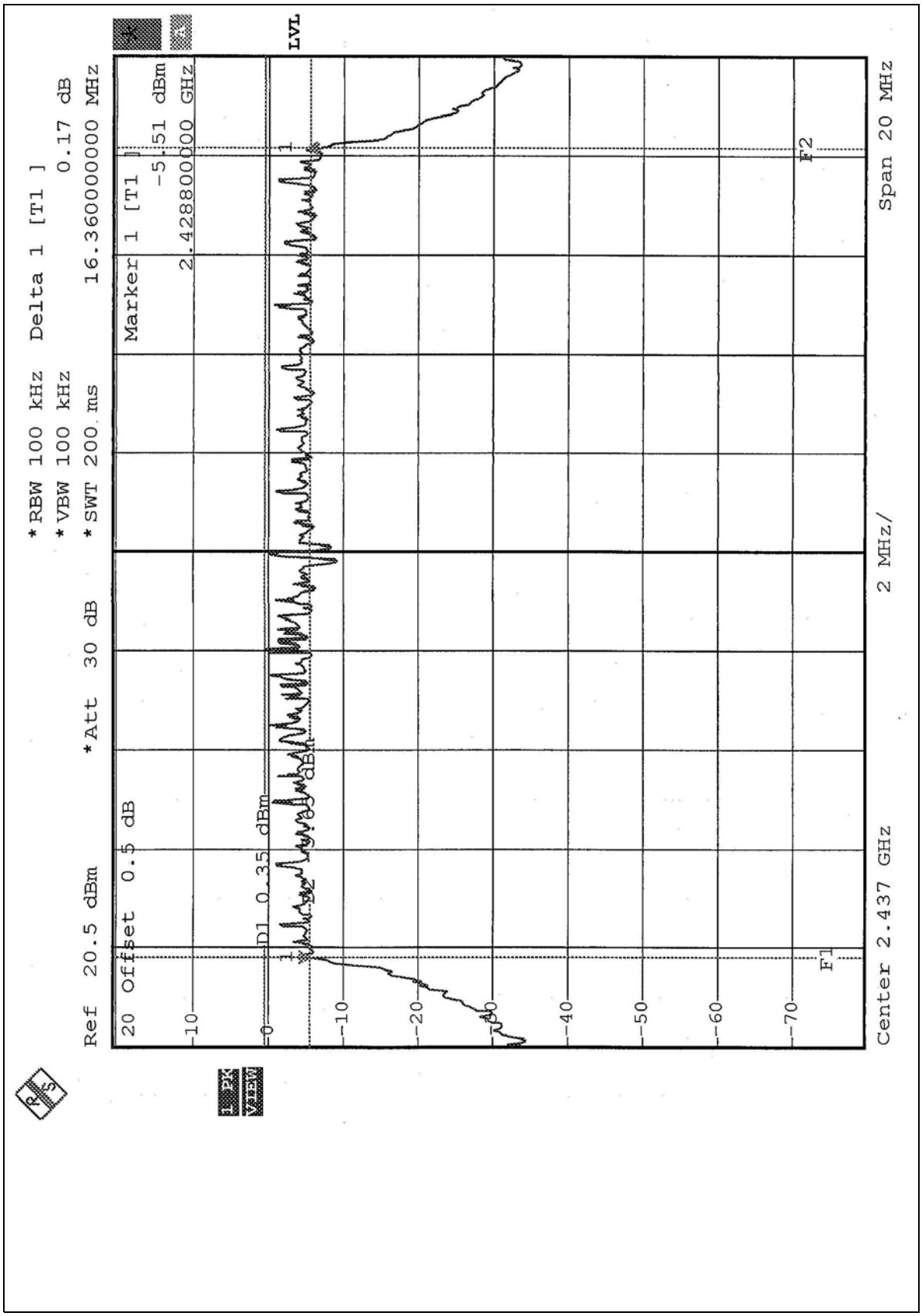
EUT	2.4GHz Wireless Mini PCI Card	**MODEL**	WLL3041
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	18deg. C, 64%RH, 991 hPa
TESTED BY: Ansen Lei			

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

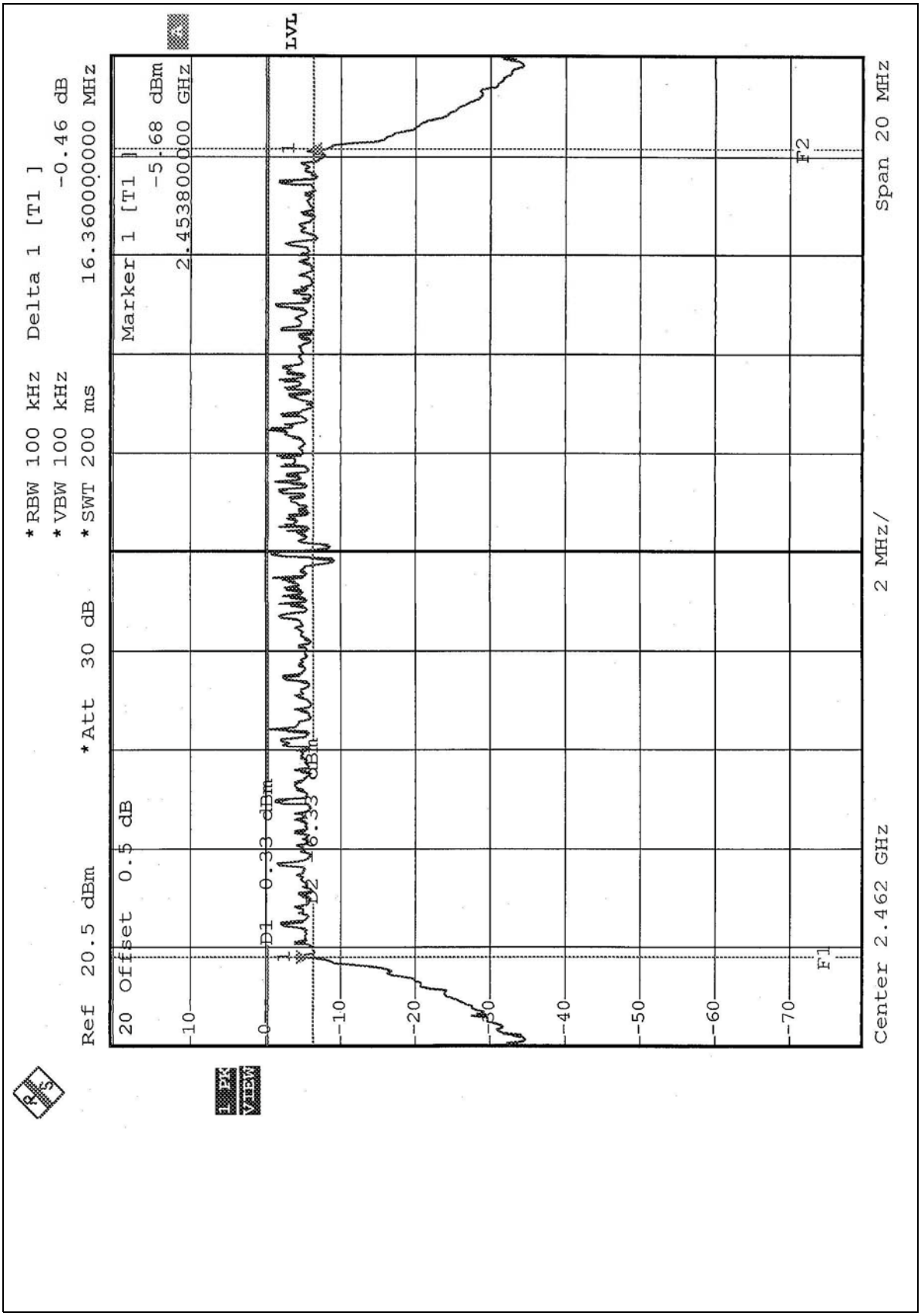
CH1


Ref 20.5 dBm
20 Offset 0.5 dB
*RBW 100 kHz
*VBW 100 kHz
*SWT 200 ms
*Att 30 dB
Delta 1 [T1]
0.14 dB
16.360000000 MHz
Marker 1 [T1]
-4.81 dBm
2.403800000 GHz
D1 0.57 dBm
Center 2.412 GHz
2 MHz/
Span 20 MHz
F1
F2
LVL

CH6


*RBW 100 kHz
*VBW 100 kHz
*SWT 200 ms
Delta 1 [T1]
0.17 dB
16.360000000 MHz
Marker 1 [T1]
-5.51 dBm
2.42880000 GHz
*Att 30 dB
Offset 0.5 dB
Ref 20.5 dBm
D1 0.35 dBm
LVL
Center 2.437 GHz
2 MHz/
Span 20 MHz
F1
F2
1 PK
VIEW

CH11


RBW 100 kHz
VBW 100 kHz
SWT 200 ms
Delta 1 [T1]
-0.46 dB
16.360000000 MHz
Marker 1 [T1]
-5.68 dBm
2.453800000 GHz
Ref 20.5 dBm
Offset 0.5 dB
Att 30 dB
D1 0.33 dBm
Center 2.462 GHz
2 MHz/
Span 20 MHz
F1
F2
LVL
1 PK
VIEW

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 On
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 (A)

EUT	2.4GHz Wireless Mini PCI Card	**MODEL**	WLL3041
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	18deg. C, 64%RH, 991 hPa
TESTED BY: Ansen Lei			

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	14.61	30	PASS
6	2437	14.54	30	PASS
11	2462	14.53	30	PASS

4.4.8 TEST RESULTS (B)

EUT	2.4GHz Wireless Mini PCI Card	**MODEL**	WLL3041
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	18deg. C, 64%RH, 991 hPa
TESTED BY: Ansen Lei			

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	15.04	30	PASS
6	2437	15.08	30	PASS
11	2462	15.00	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 CONDITIONS

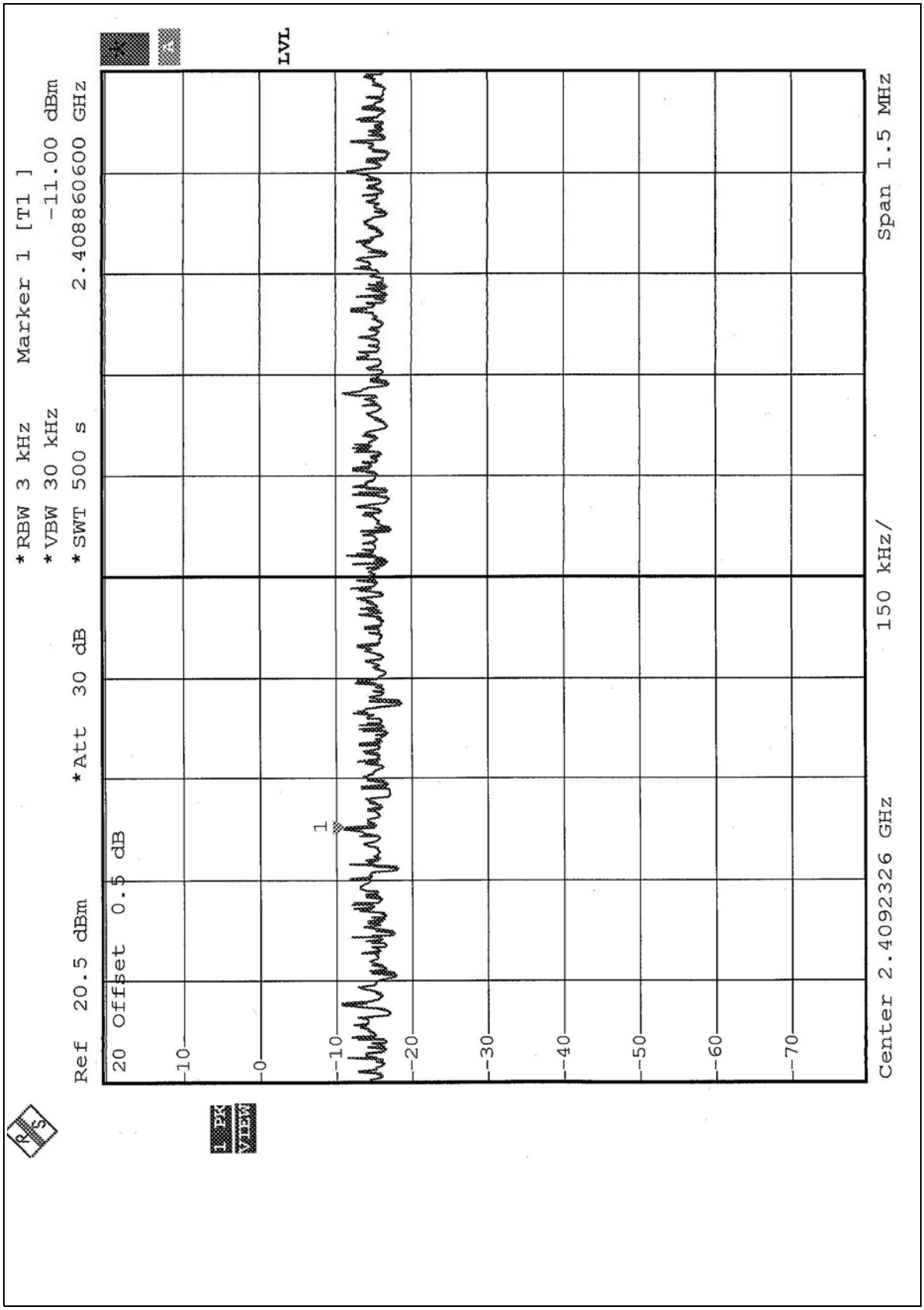
Same as 4.3.6

4.5.7 TEST RESULTS (A)

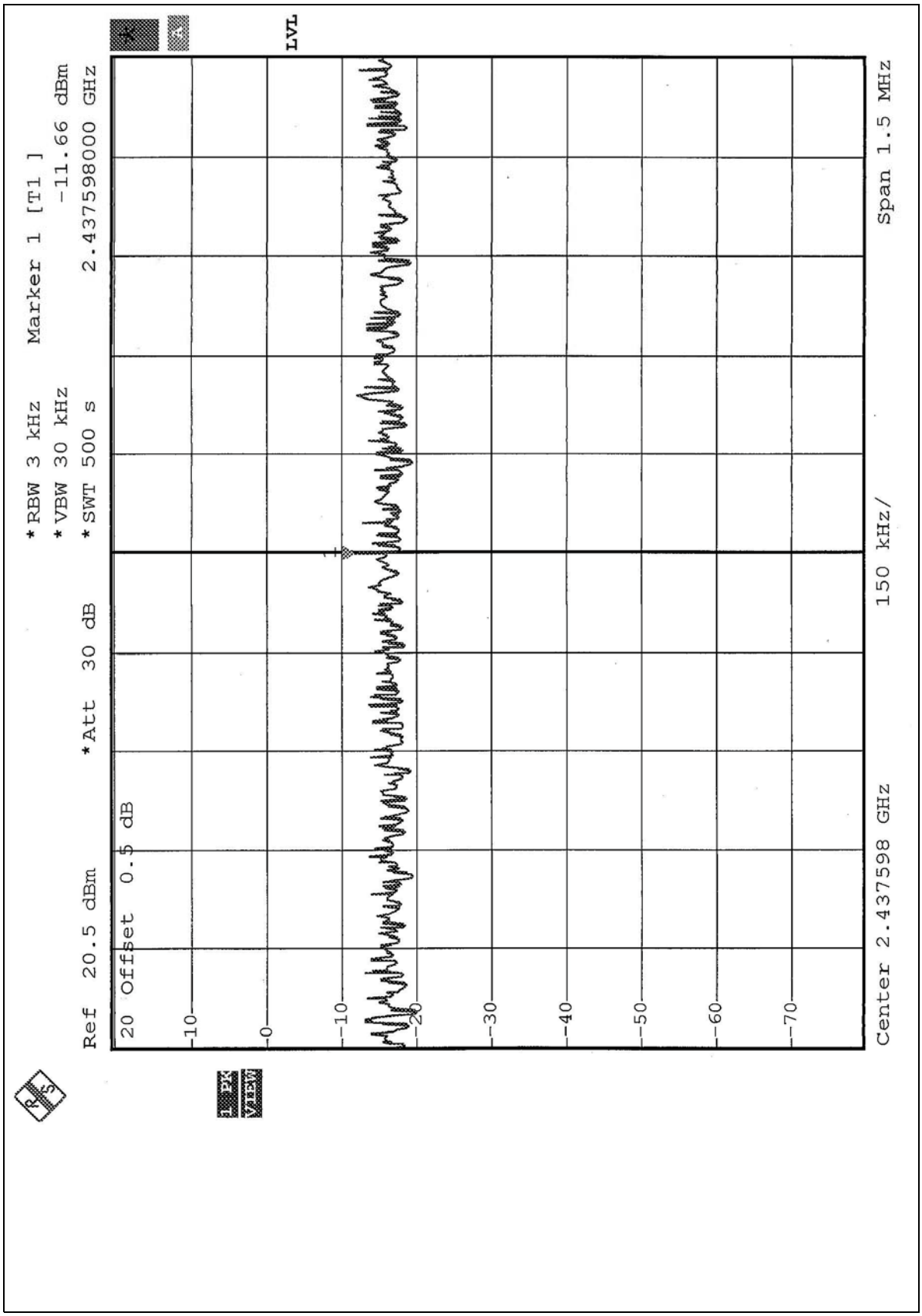
EUT	2.4GHz Wireless Mini PCI Card	**MODEL**	WLL3041
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	18deg. C, 64%RH, 991 hPa
TESTED BY: Ansen Lei			

CHANNEL NUMBER	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 KHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-11.00	8	PASS
6	2437	-11.66	8	PASS
11	2462	-11.27	8	PASS

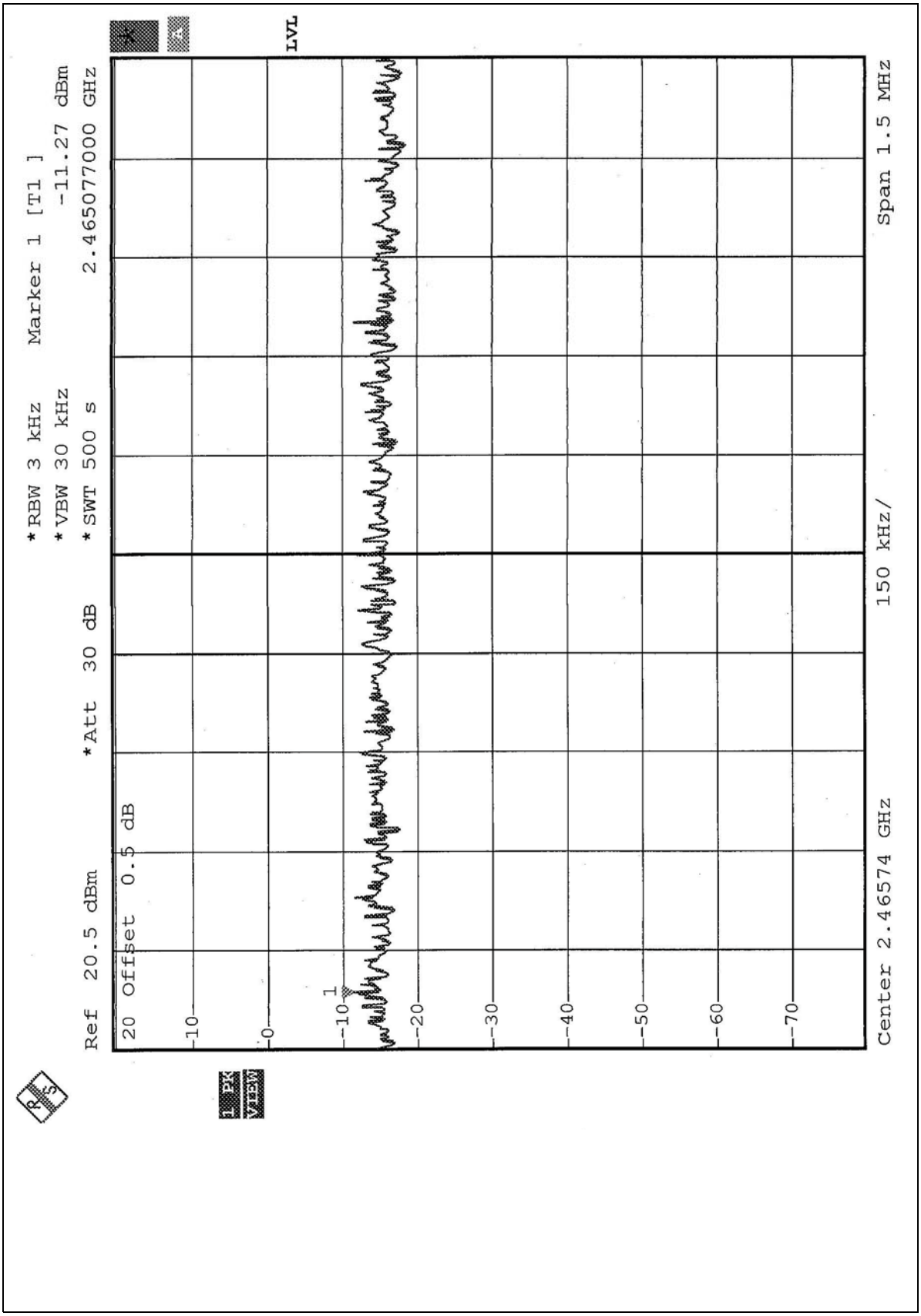
CH1


*RBW 3 kHz
*VBW 30 kHz
*SWT 500 s
Marker 1 [T1]
-11.00 dBm
2.408860600 GHz
Ref 20.5 dBm
20 Offset 0.5 dB
*Att 30 dB
LVL
1
Center 2.4092326 GHz
150 kHz/
Span 1.5 MHz
1 PK
VIEW

CH6


*RBW 3 kHz
*VBW 30 kHz
*SWT 500 s
Marker 1 [T1]
-11.66 dBm
2.437598000 GHz
Ref 20.5 dBm
20 Offset 0.5 dB
*Att 30 dB
LVL
Center 2.437598 GHz
150 kHz/
Span 1.5 MHz
1 PK
VIEW

CH11

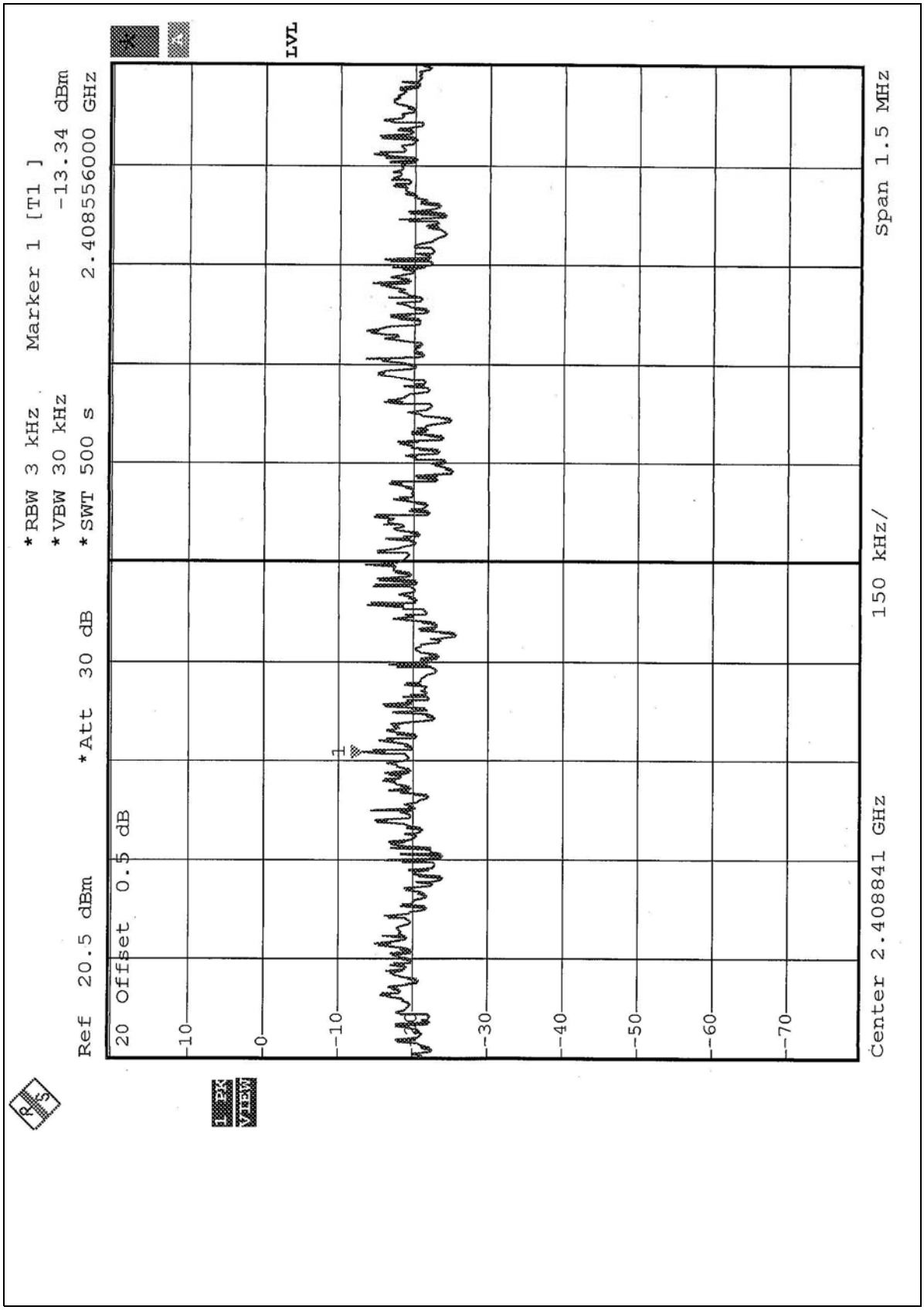

RBW 3 kHz
VBW 30 kHz
SWT 500 s
Marker 1 [T1]
-11.27 dBm
2.465077000 GHz
Ref 20.5 dBm
Offset 0.5 dB
Att 30 dB
LVL
Center 2.46574 GHz
150 kHz/
Span 1.5 MHz
1 PK
VIEW

4.5.8 TEST RESULTS (B)

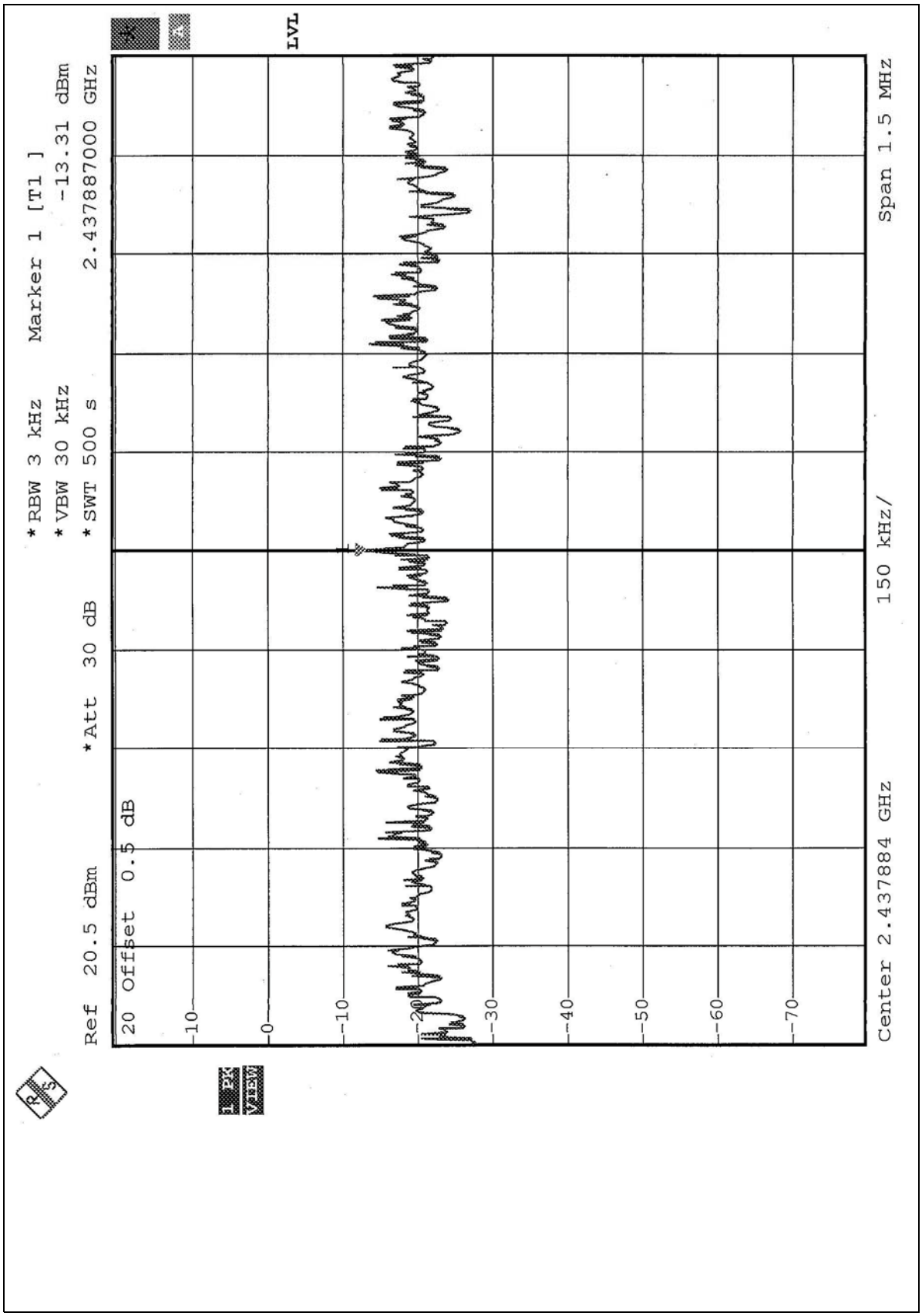
EUT	2.4GHz Wireless Mini PCI Card	**MODEL**	WLL3041
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	18deg. C, 64%RH, 991 hPa
TESTED BY: Ansen Lei			

CHANNEL NUMBER	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 KHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-13.34	8	PASS
6	2437	-13.31	8	PASS
11	2462	-14.88	8	PASS

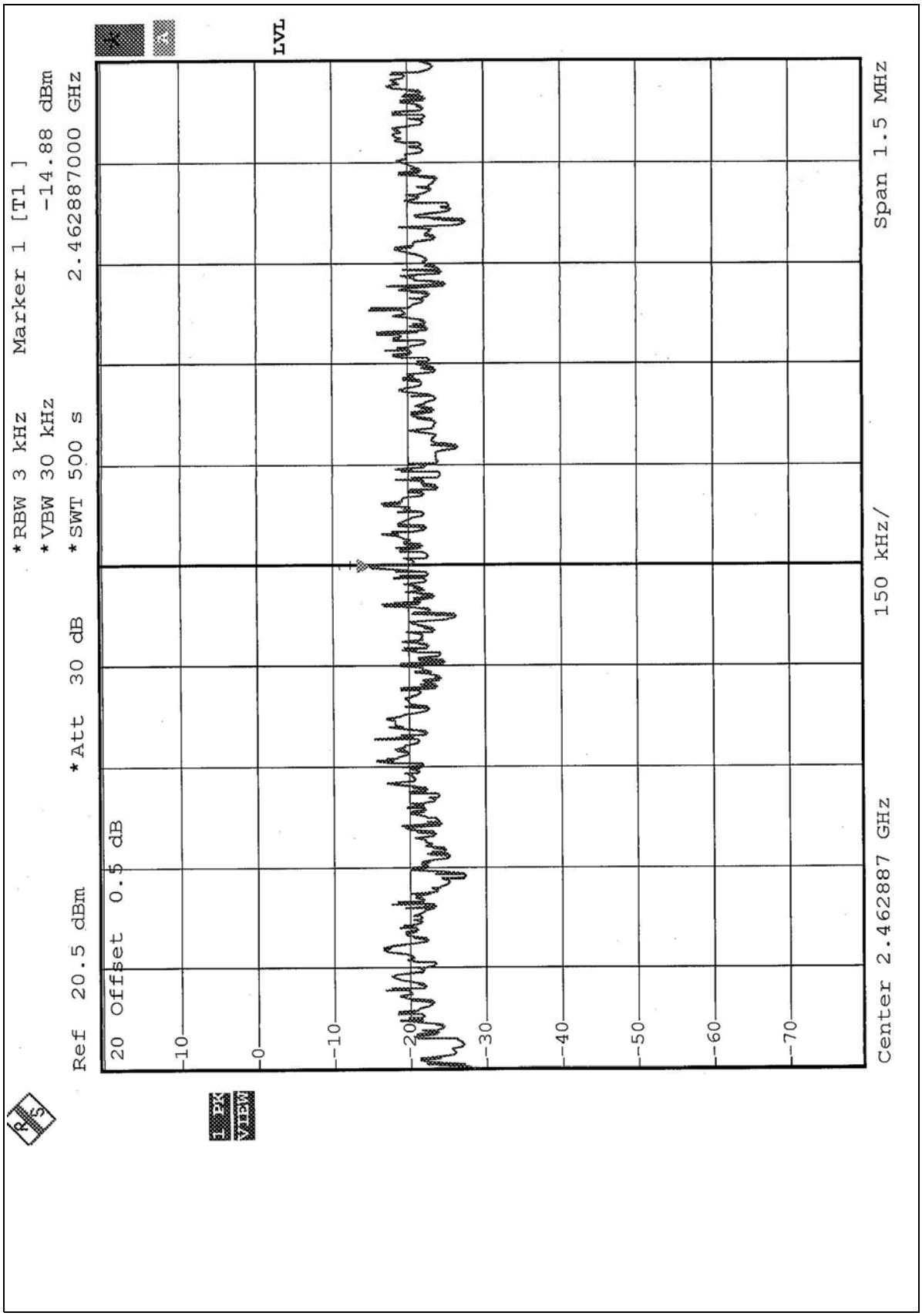
CH1


RBW 3 kHz
VBW 30 kHz
SWT 500 s
Marker 1 [T1]
-13.34 dBm
2.408556000 GHz
Ref 20.5 dBm
Offset 0.5 dB
Att 30 dB
Center 2.408841 GHz
150 kHz/
Span 1.5 MHz
LVL
1 PK
MAXH
VBW

CH6


Ref 20.5 dBm
20 Offset 0.5 dB
*Att 30 dB
*RBW 3 kHz
*VBW 30 kHz
*SWT 500 s
Marker 1 [T1]
-13.31 dBm
2.437887000 GHz
LVL
Center 2.437884 GHz
150 kHz/
Span 1.5 MHz
1 PK
VIEW

CH11


Marker 1 [T1]
-14.88 dBm
2.462887000 GHz
*RBW 3 kHz
*VBW 30 kHz
*SWT 500 s
*Att 30 dB
Offset 0.5 dB
Ref 20.5 dBm
Center 2.462887 GHz
150 kHz/
Span 1.5 MHz
LVL
10
0
-10
-20
-30
-40
-50
-60
-70

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 1MHz and 1kHz 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 (A)

The spectrum plots are attached on the following 4 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).

Mode A

NOTE:

The band edge emission plot on the following 1 ~ 2 page shows 54.17dB delta between carrier maximum power and local maximum emission in restrict band (2.3866GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.8 is 103.74dBuV/m, so the maximum field strength in restrict band is 103.74 – 54.17 = 49.57dBuV/m which is under 54 dBuV/m limit.

NOTE:

The band edge emission plot on the following 3 ~ 4 page shows 49.58dB 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 4.2.8 is 102.76dBuV/m, so the maximum field strength in restrict band is 102.76 – 49.58 = 53.18dBuV/m which is under 54 dBuV/m limit.

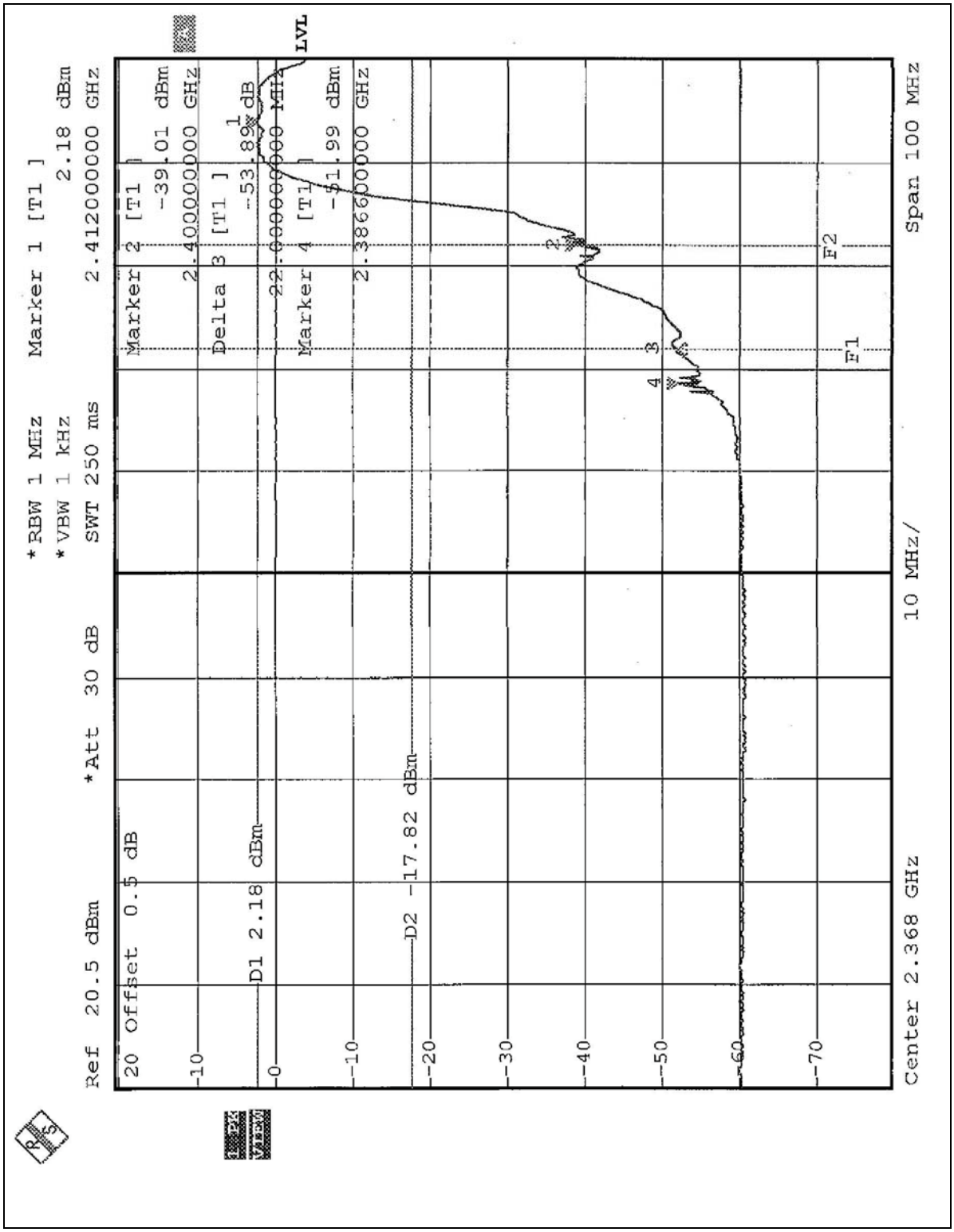
Mode B

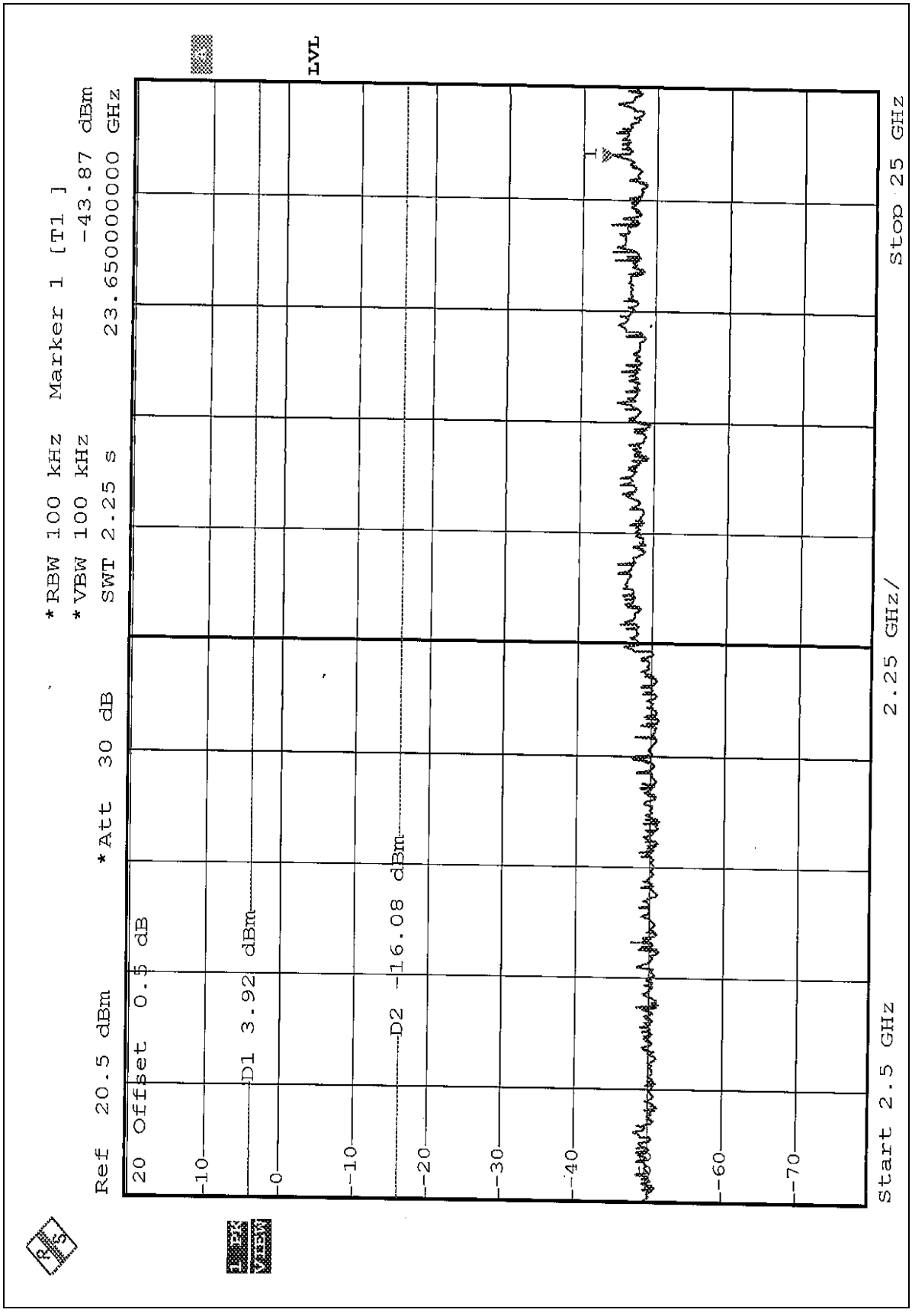
NOTE:

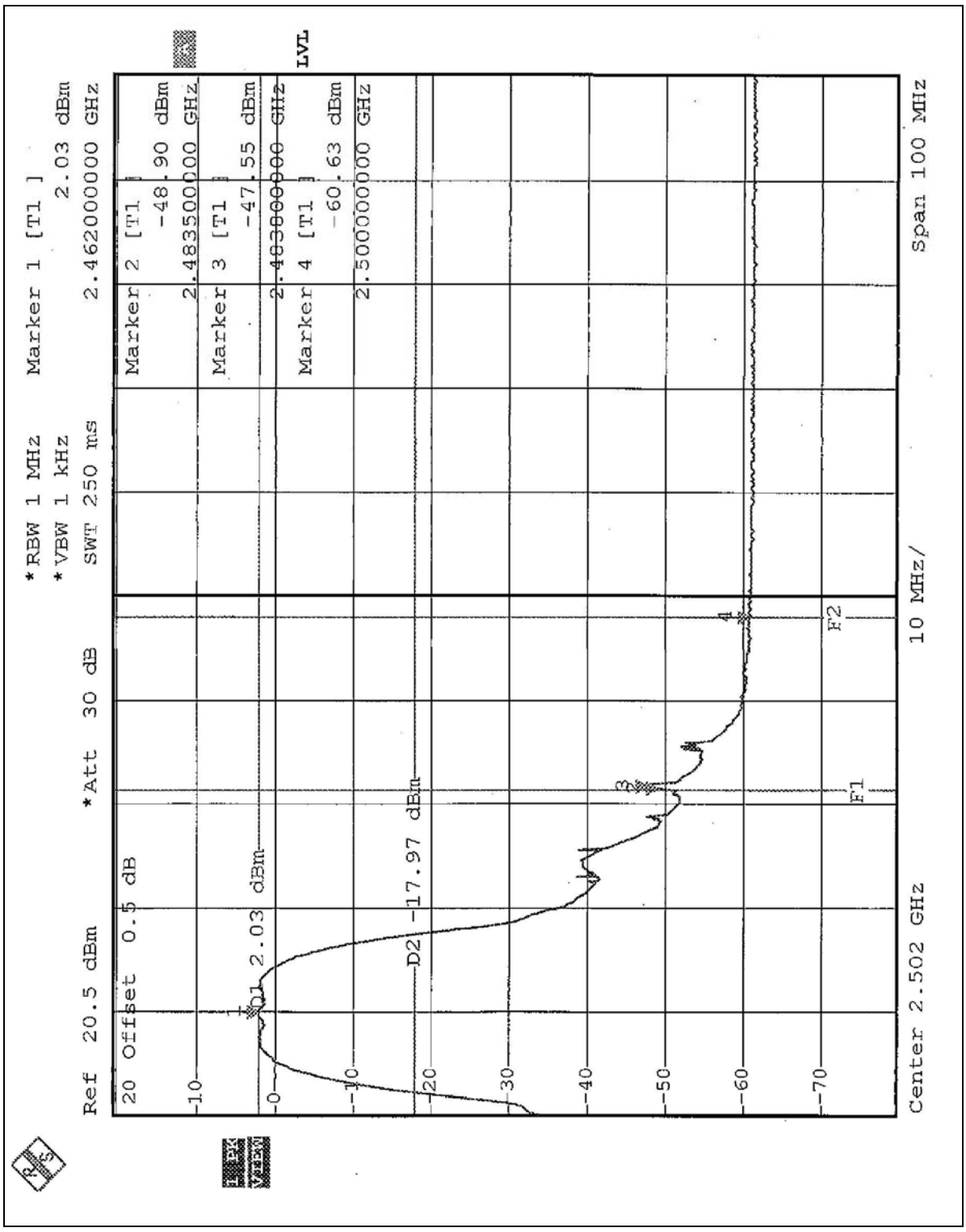
The band edge emission plot on the following 1 ~ 2 page shows 54.17dB delta between carrier maximum power and local maximum emission in restrict band (2.3866GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.8 is 103.44dBuV/m, so the maximum field strength in restrict band is 103.44 – 54.17 = 49.27dBuV/m which is under 54 dBuV/m limit.

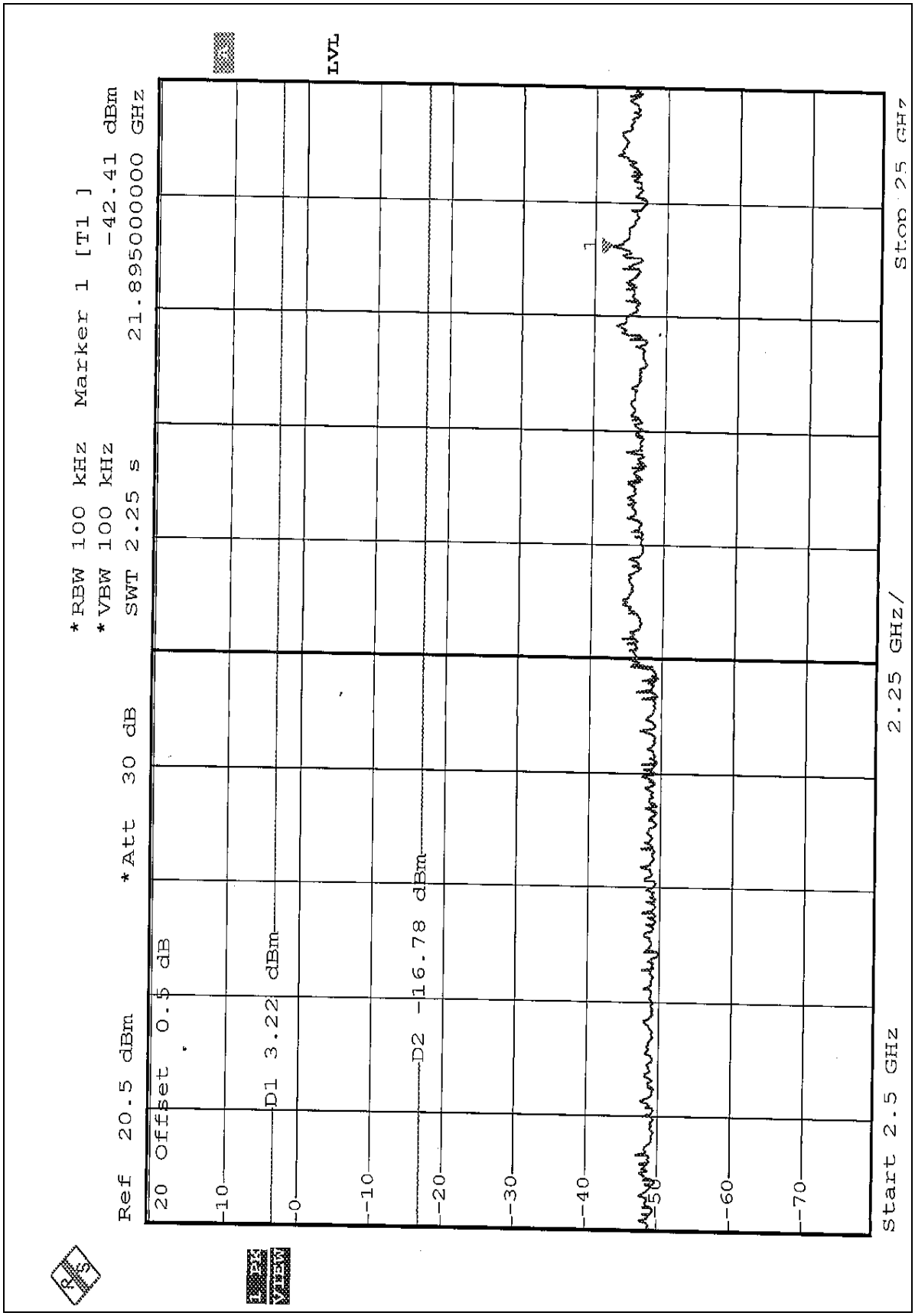
NOTE:

The band edge emission plot on the following 3 ~ 4 page shows 49.58dB 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 4.2.8 is 100.72dBuV/m, so the maximum field strength in restrict band is 100.72 – 49.58 = 51.14dBuV/m which is under 54 dBuV/m limit.


*RBW 1 MHz
*VBW 1 kHz
SWT 250 ms
Marker 1 [T1]
2.18 dBm
2.412000000 GHz
Marker 2 [T1]
-39.01 dBm
2.400000000 GHz
Delta 3 [T1]
-53.89 dB
22.000000000 MHz
Marker 4 [T1]
-51.99 dBm
2.386000000 GHz
Ref 20.5 dBm
20 Offset 0.5 dB
*Att 30 dB
D1 2.18 dBm
D2 -17.82 dBm
Center 2.368 GHz
10 MHz/
Span 100 MHz
F1
F2
LVL


Ref 20.5 dBm
*Att 30 dB
*RBW 100 kHz
*VBW 100 kHz
SWT 2.25 s
Marker 1 [T1]
-43.87 dBm
23.650000000 GHz
20 Offset 0.5 dB
D1 3.92 dBm
D2 -16.08 dBm
Start 2.5 GHz
2.25 GHz/
Stop 25 GHz
LVL
1
10
0
-10
-20
-30
-40
-60
-70
RBW
VBW


Ref 20.5 dBm
20 Offset 0.5 dB
*Att 30 dB
*RBW 1 MHz
*VBW 1 kHz
SWT 250 ms
Marker 1 [T1]
2.03 dBm
2.462000000 GHz
Marker 2 [T1]
-48.90 dBm
2.483500000 GHz
Marker 3 [T1]
-47.55 dBm
2.463000000 GHz
Marker 4 [T1]
-60.63 dBm
2.500000000 GHz
LVL
D1 2.03 dBm
D2 -17.97 dBm
F1
F2
Center 2.502 GHz
10 MHz/
Span 100 MHz


RBW 100 kHz
VBW 100 kHz
SWT 2.25 s
Marker 1 [T1]
-42.41 dBm
21.895000000 GHz
Ref 20.5 dBm
Offset 0.5 dB
Att 30 dB
D1 3.22 dBm
D2 -16.78 dBm
Start 2.5 GHz
2.25 GHz/
Stop 2.5 GHz
LVL

4.6.7 TEST RESULTS (B)

The spectrum plots are attached on the following 4 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).

Mode A

NOTE:

The band edge emission plot on the following 1 ~ 2 page shows 48.58dB 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 4.2.9 is 101.08dBuV/m, so the maximum field strength in restrict band is 101.08 – 48.58 = 52.50dBuV/m which is under 54 dBuV/m limit.

NOTE:

The band edge emission plot on the following 3 ~ 4 page shows 48.63dB delta between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.9 is 101.92dBuV/m, so the maximum field strength in restrict band is 101.92 – 48.63 = 53.29dBuV/m which is under 54 dBuV/m limit.

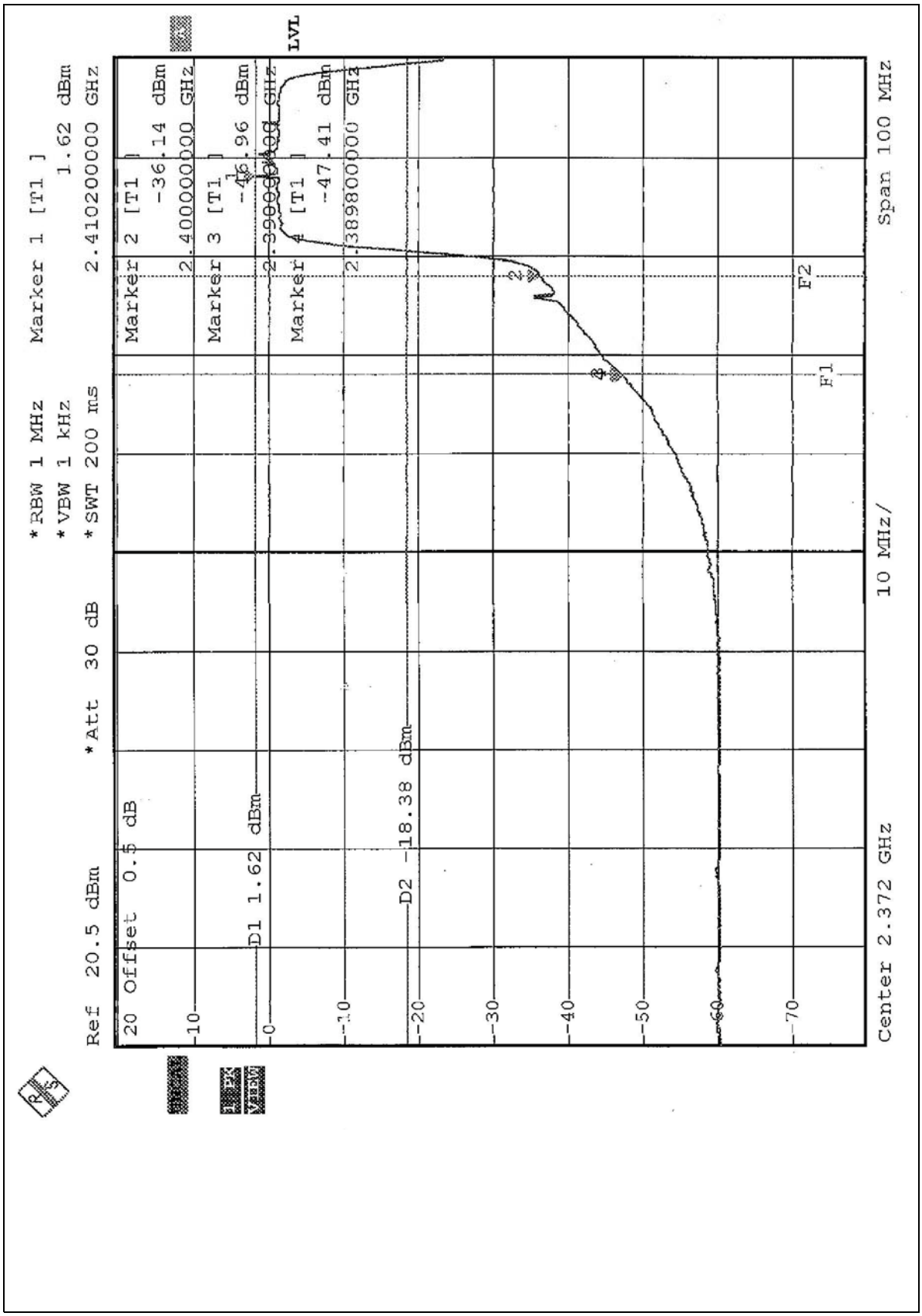
Mode B

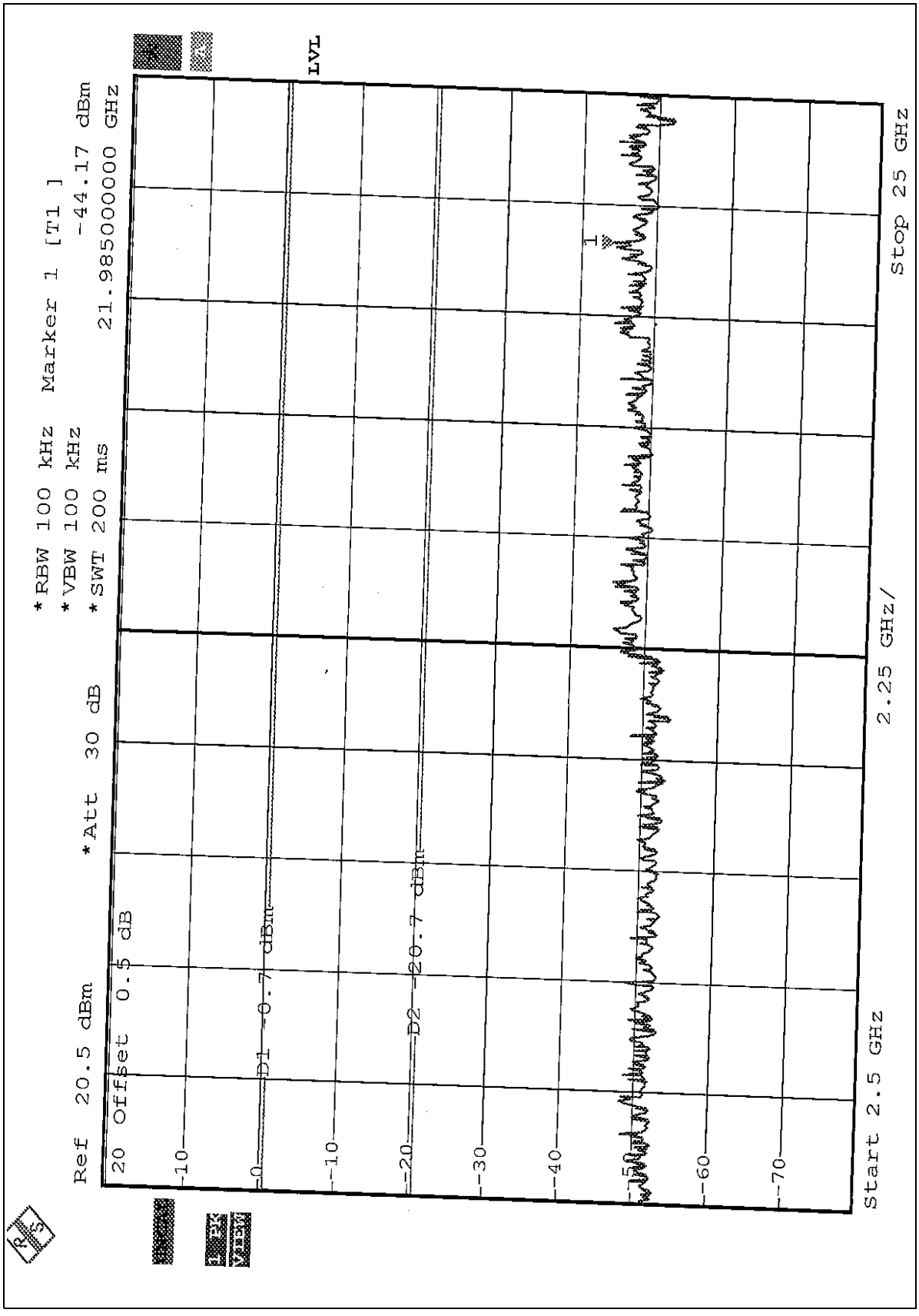
NOTE:

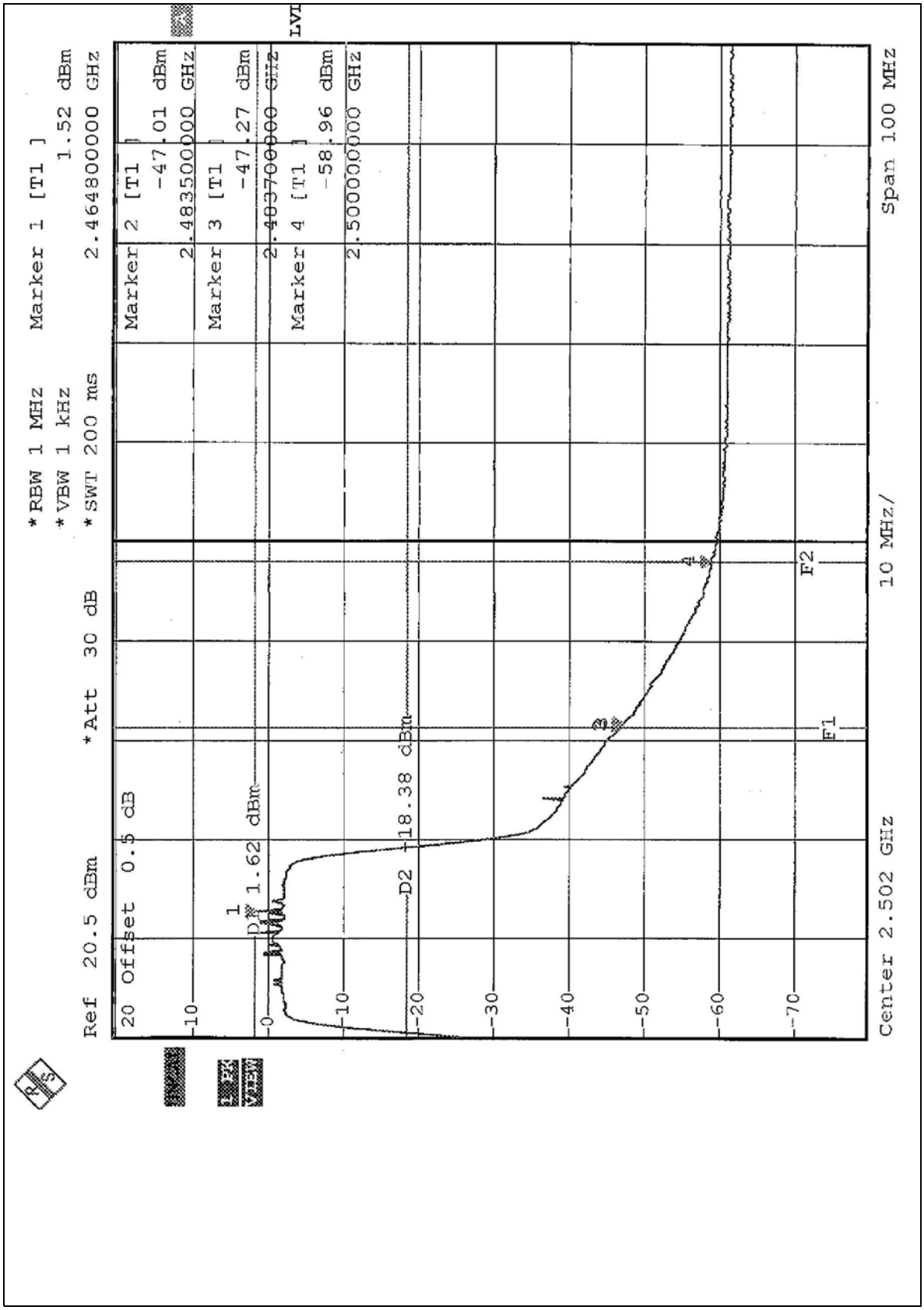
The band edge emission plot on the following 1 ~ 2 page shows 48.58dB delta between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.9 is 100.20dBuV/m, so the maximum field strength in restrict band is 100.20 – 48.58 = 51.62dBuV/m which is under 54 dBuV/m limit.

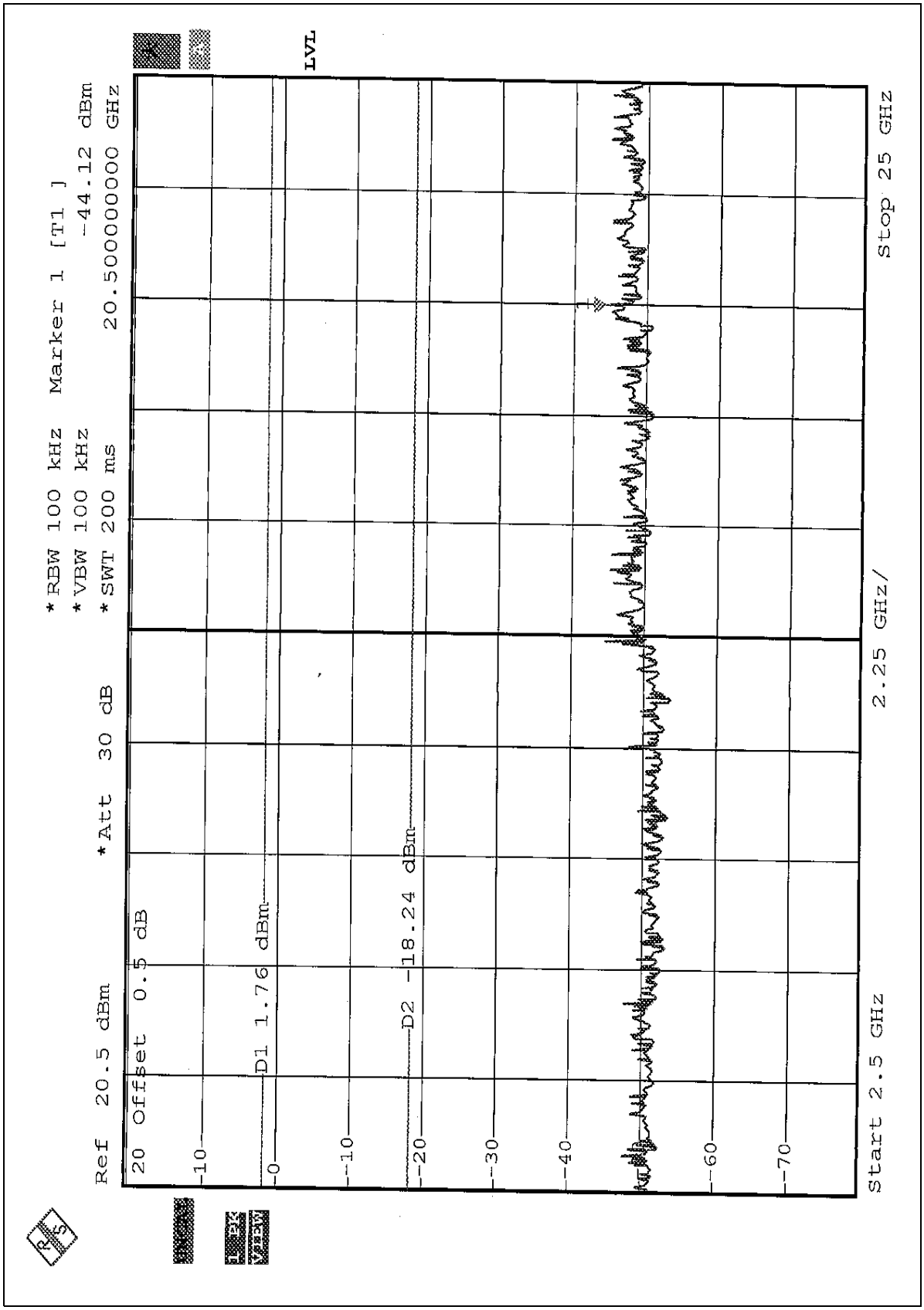
NOTE:

The band edge emission plot on the following 3 ~ 4 page shows 48.63dB delta between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.9 is 98.03dBuV/m, so the maximum field strength in restrict band is 98.03 – 48.63 = 49.40dBuV/m which is under 54 dBuV/m limit.


*RBW 1 MHz
*VBW 1 kHz
*SWT 200 ms
Marker 1 [T1]
1.62 dBm
2.410200000 GHz
Marker 2 [T1]
-36.14 dBm
2.400000000 GHz
Marker 3 [T1]
-46.96 dBm
2.390000000 GHz
Marker 4 [T1]
-47.41 dBm
2.389800000 GHz
Ref 20.5 dBm
*Att 30 dB
20 Offset 0.5 dB
D1 1.62 dBm
D2 -18.38 dBm
LVL
F1
F2
Center 2.372 GHz
10 MHz/
Span 100 MHz


RBW 100 kHz
VBW 100 kHz
SWT 200 ms
Marker 1 [T1]
-44.17 dBm
21.98500000 GHz
Att 30 dB
Ref 20.5 dBm
Offset 0.5 dB
D1 -0.7 dBm
D2 -20.7 dBm
LVL
Start 2.5 GHz
2.25 GHz/
Stop 25 GHz


*RBW 1 MHz
*VBW 1 kHz
*SWT 200 ms
Marker 1 [T1]
1.52 dBm
2.464800000 GHz
Ref 20.5 dBm
20 Offset 0.5 dB
*Att 30 dB
Marker 2 [T1]
-47.01 dBm
2.483500000 GHz
Marker 3 [T1]
-47.27 dBm
2.403700000 GHz
Marker 4 [T1]
-58.96 dBm
2.500000000 GHz
D1 1.62 dBm
D2 +18.38 dBm
F1
F2
Center 2.502 GHz
10 MHz/
Span 100 MHz


Ref 20.5 dBm
20 Offset 0.5 dB
*Att 30 dB
*RBW 100 kHz
*VBW 100 kHz
*SWT 200 ms
Marker 1 [T1]
-44.12 dBm
20.500000000 GHz
D1 1.76 dBm
D2 -18.24 dBm
LVL
Start 2.5 GHz
2.25 GHz/
Stop 25 GHz

4.7 ANTENNA REQUIREMENT

4.7.1 STANDARD APPLICABLE

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

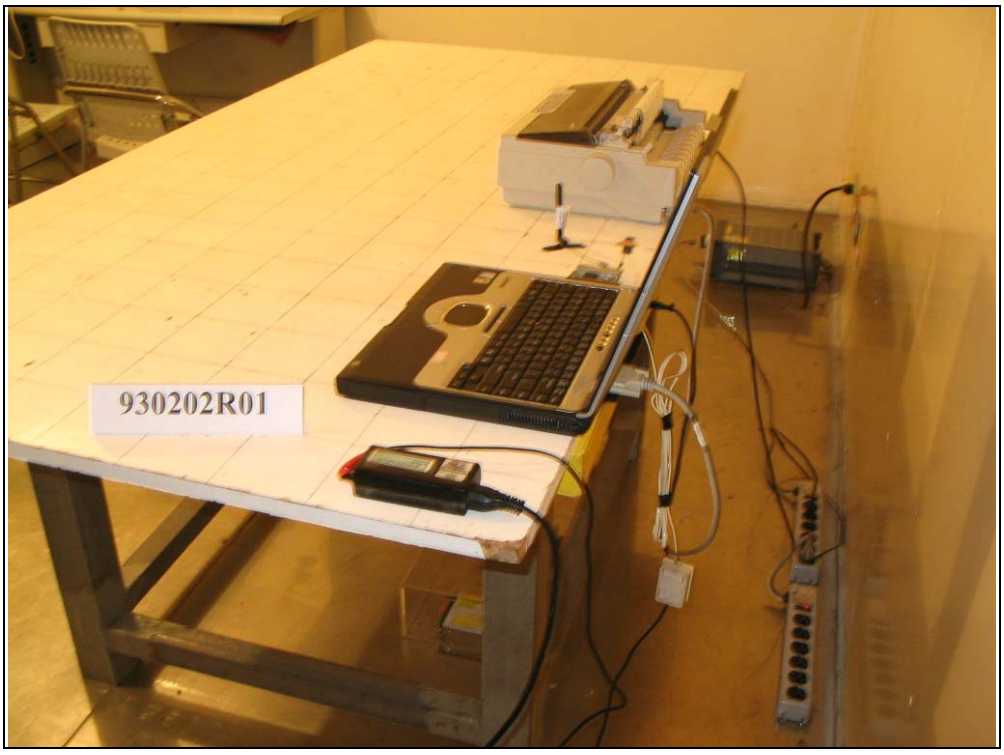
And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

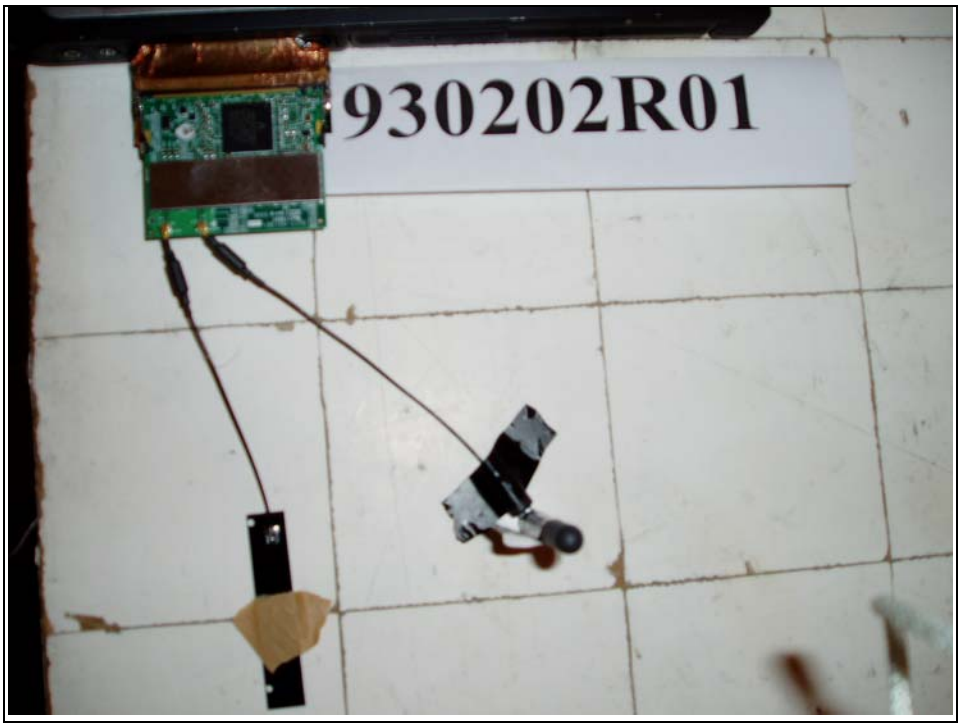
4.7.2 ANTENNA CONNECTED CONSTRUCTION

The maximum Gain antenna used in this product is PCB antenna and Dipole antenna with UFL antenna connector. And the maximum Gain of these antennas is 3dBi.

5 PHOTOGRAPHS OF THE TEST CONFIGURATION

CONDUCTED EMISSION TEST




930202R01

RADIATED EMISSION TEST


930202R01

6 INFORMATION ON THE TESTING LABORATORIES

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

USA	FCC, NVLAP, UL
Germany	TUV Rheinland
Japan	VCCI
Norway	NEMKO
Canada	INDUSTRY CANADA , CSA
R.O.C.	CNLA, BSMI, DGT
Netherlands	Telefication
Singapore	PSB , GOST-ASIA(MOU)
Russia	CERTIS(MOU)

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site: www.adt.com.tw/index.5/phtml. If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab:
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The address and road map of all our labs can be found in our web site also.

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