



FCC TEST REPORT

REPORT NO.: RF920930R01

MODEL NO.: GL2454MP-0T1

RECEIVED: September 30, 2003

TESTED: October 2~October 16, 2003

APPLICANT: GLOBAL SUN TECHNOLOGY INC.

ADDRESS: NO.13 Tung Yuan Rd., Jung Li Industrial Park
Jung Li City, Tao Yuan Hsien, Taiwan

ISSUED BY: Advance Data Technology Corporation

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

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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 (mode 1) 22

4.2.8 TEST RESULTS (mode 2) 29

4.2.9 TEST RESULTS (mode 3) 36

4.3 6dB BANDWIDTH MEASUREMENT 43

4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT 43

4.3.2 TEST INSTRUMENTS 43

4.3.3 TEST PROCEDURE 44

4.3.4 DEVIATION FROM TEST STANDARD 44

4.3.5 TEST SETUP 44

4.3.6 EUT OPERATING CONDITIONS 44

4.3.7 TEST RESULTS 45

4.4 MAXIMUM PEAK OUTPUT POWER 53

4.4.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT 53

4.4.2 TEST INSTRUMENTS 53



4.4.3	TEST PROCEDURES.....	54
4.4.4	DEVIATION FROM TEST STANDARD	54
4.4.5	TEST SETUP	54
4.4.6	EUT OPERATING CONDITIONS.....	54
4.4.7	TEST RESULTS.....	55
4.5	POWER SPECTRAL DENSITY MEASUREMENT.....	56
4.5.1	LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT	56
4.5.2	TEST INSTRUMENTS	56
4.5.3	TEST PROCEDURE	57
4.5.4	DEVIATION FROM TEST STANDARD	57
4.5.5	TEST SETUP	57
4.5.6	EUT OPERATING CONDITIONS.....	57
4.5.7	TEST RESULTS.....	58
4.6	BAND EDGES MEASUREMENT	66
4.6.1	LIMITS OF BAND EDGES MEASUREMENT	66
4.6.2	TEST INSTRUMENTS	66
4.6.3	TEST PROCEDURE	66
4.6.4	DEVIATION FROM TEST STANDARD	66
4.6.5	EUT OPERATING CONDITION	67
4.6.6	TEST RESULTS.....	67
4.7	ANTENNA REQUIREMENT	72
4.7.1	STANDARD APPLICABLE	72
4.7.2	ANTENNA CONNECTED CONSTRUCTION.....	72
5	PHOTOGRAPHS OF THE TEST CONFIGURATION.....	73
6	INFORMATION ON THE TESTING LABORATORIES	83



1 CERTIFICATION

PRODUCT : 2.4GHz Wireless Mini PCI
MODEL NO. : GL2454MP-0T1
BRAND NAME : GLOBAL SUN
APPLICANT : GLOBAL SUN TECHNOLOGY INC.
STANDARDS : 47 CFR Part 15, Subpart C (Section 15.247),
ANSI C63.4-1992

We, **Advance Data Technology Corporation**, hereby certify that one sample of the designation has been tested in our facility from October 2, 2003 to October 16, 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.

PREPARED BY: Stacy Hsueh , **DATE:** October 23, 2003
Stacy Hsueh

APPROVED BY: Ellis Wu , **DATE:** October 23, 2003
Ellis Wu / 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 -11.86dB at 25.230MHz
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 -1.32dB at 2619.00MHz
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	2.4GHz Wireless Mini PCI
MODEL NO.	GL2454MP-0T1
POWER SUPPLY	3.3VDC from host equipment
MODULATION TYPE	BPSK, QPSK, CCK, 16QAM, 64QAM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	up to 54Mbps
FREQUENCY RANGE	2412MHz ~ 2462MHz
CHANNEL SPACING	5MHz
NUMBER OF CHANNEL	11
OUTPUT POWER	17.13dBm
ANTENNA TYPE	Dipole antenna(with 2dBi gain and 5dBi gain)
DATA CABLE	NA
I/O PORTS	NA

NOTE:

1. Fully compatible with the 802.11g standard to provide a wireless data rate of up to 54Mbps.
2. The EUT complies with IEEE 802.11g draft standards, and backwards compatible with IEEE 802.11b products.
3. Six sets of antennas were provided to this EUT. Please refer to the following for details and refer to EUT photo for outer appearances.

Item	Antenna Type	Antenna Gain (dBi)	Internal connector	External connector
1	Dipole	5	UFL	Reversed SMA
2	Dipole	2	NA	Reversed SMA
3	Dipole	2	NA	Reversed SMA
4	Dipole	2	MMCX	NA
5	Dipole	2	NA	Reversed SMA
6	Inverted F	2	NA	NA

*Item 1, 2, & 6, the worst case, were chosen for final test.

4. For more detailed features description, please refer to the manufacturer's specifications or User's Manual.



3.2 DESCRIPTION OF TEST MODES

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 and 6Mbps with OFDM technique, the worst cases, were chosen for final test.
4. For "Radiated Emission Measurement test (section 4.2)", three test results were provided to this EUT. The test result A was tested with Antenna item 1 (please refer to NOTE 1 of section 3.1), the test result B was tested with Antenna item 2, and the test result C was tested with Antenna item 6.

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a 2.4GHz Wireless Mini PCI. 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- 12800-193- C800	FCC DoC
2	PRINTER	EPSON	LQ-300+	DCGY017070	FCC DoC Approved
3	MODEM	ACEEX	1414	980020519	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	ESCS 30	838251/021	Jan. 20, 2004
ROHDE & SCHWARZ Artificial Mains Network (for EUT)	ESH3-Z5	100218	Dec. 18, 2003
ROHDE & SCHWARZ Artificial Mains Network (for peripherals)	ESH3-Z5	100219	Dec. 18, 2003
ROHDE & SCHWARZ Artificial Mains Network (for peripherals)	ESH3-Z5	100220	Dec. 18, 2003
ROHDE & SCHWARZ 4-wire ISN	ENY41	837032/016	Nov. 29 2003
ROHDE & SCHWARZ 2-wire ISN	ENY22	837497/016	Nov. 29 2003
Software	Cond-V2M3	NA	NA
RF cable (JYEBAO)	5D-FB	Cable-C10.01	May 01, 2004
SUHNER Terminator (For ROHDE & SCHWARZ LISN)	65BNC-5001	E1-010770	Mar. 24, 2004
SUHNER Terminator (For ROHDE & SCHWARZ LISN)	65BNC-5001	E1-010773	Apr. 06, 2004

- NOTE:**
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. “*”: These equipment are used for conducted telecom port test only (if tested).
 3. The test was performed in ADT Shielded Room No. 10.
 4. The VCCI Site Registration No. is C-1312



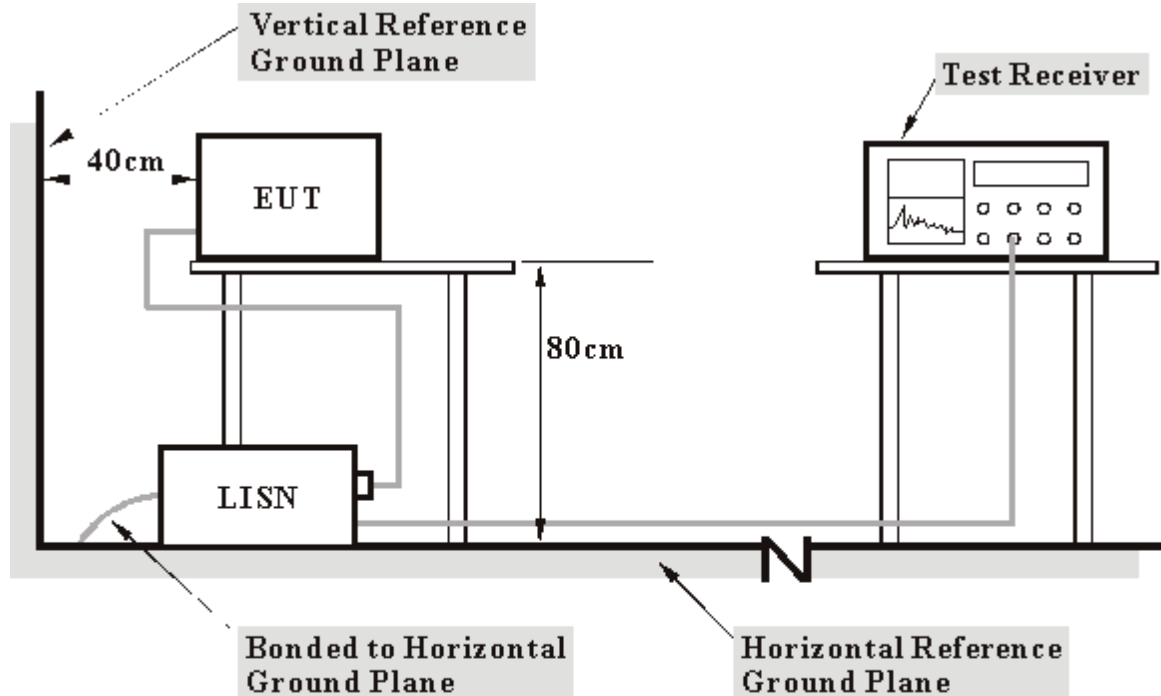
4.1.3 TEST PROCEDURES

- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- c. The frequency range from 150kHz to 30MHz was searched. Emission levels 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 modem.
- e. The computer system sent "H" messages to printer, and the printer prints them on paper.
- f. Repeat steps b-e.



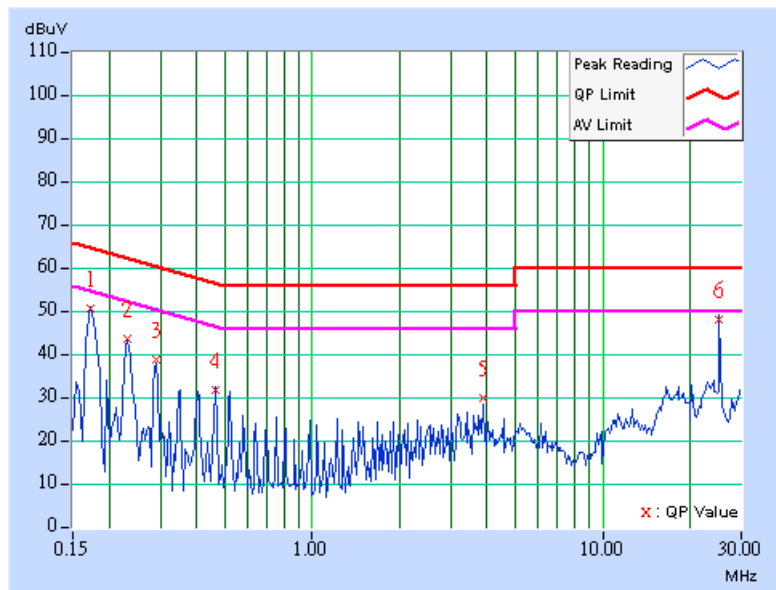
4.1.7 TEST RESULTS

EUT	2.4GHz Wireless Mini PCI	MODEL	GL2454MP-0T1
MODE	Channel 01	6dB BANDWIDTH	9kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 991hPa	TESTED BY: Steven Lu	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.173	0.06	49.70	-	49.76	-	64.79	54.79	-15.04	-
2	0.232	0.06	42.83	-	42.89	-	62.38	52.38	-19.49	-
3	0.291	0.06	37.83	-	37.89	-	60.51	50.51	-22.62	-
4	0.463	0.07	31.00	-	31.07	-	56.65	46.65	-25.58	-
5	3.879	0.22	28.96	-	29.18	-	56.00	46.00	-26.82	-
6	25.230	0.89	47.25	-	48.14	-	60.00	50.00	-11.86	-

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.



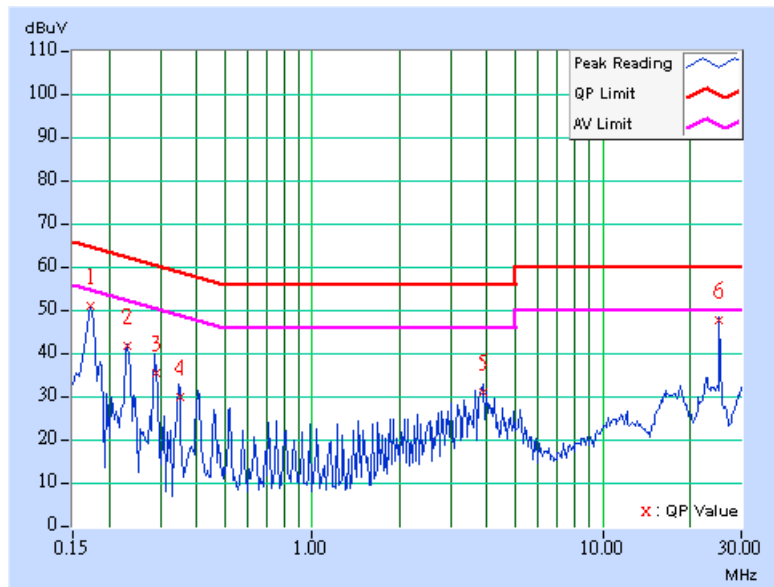


EUT	2.4GHz Wireless Mini PCI	MODEL	GL2454MP-0T1
MODE	Channel 01	6dB BANDWIDTH	9kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 991hPa	TESTED BY: Steven Lu	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.173	0.05	50.21	-	50.26	-	64.79	54.79	-14.53	-
2	0.232	0.05	41.28	-	41.33	-	62.38	52.38	-21.05	-
3	0.289	0.05	34.75	-	34.80	-	60.55	50.55	-25.75	-
4	0.350	0.05	29.32	-	29.37	-	58.97	48.97	-29.60	-
5	3.871	0.20	30.34	-	30.54	-	56.00	46.00	-25.46	-
6	25.230	0.73	46.98	-	47.71	-	60.00	50.00	-12.29	-

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.



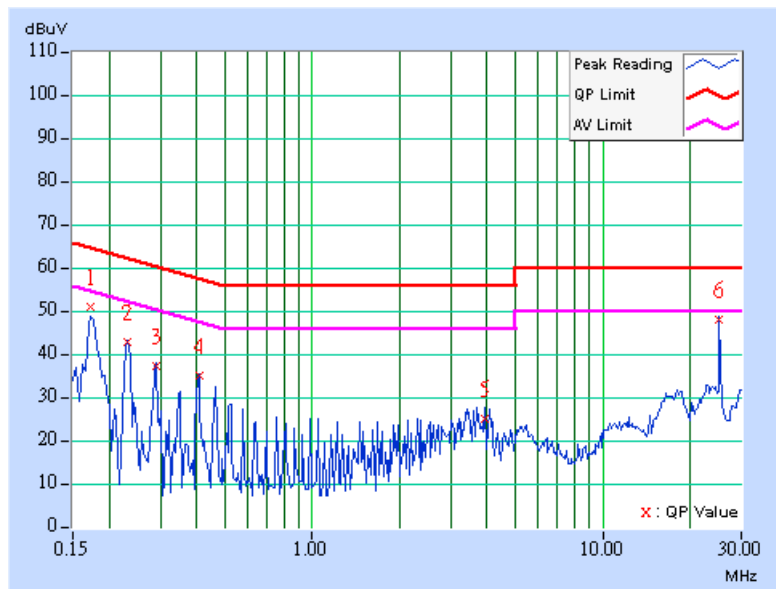


EUT	2.4GHz Wireless Mini PCI	MODEL	GL2454MP-0T1
MODE	Channel 06	6dB BANDWIDTH	9kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 991hPa	TESTED BY: Steven Lu	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.173	0.06	50.17	-	50.23	-	64.79	54.79	-14.57	-
2	0.232	0.06	42.07	-	42.13	-	62.38	52.38	-20.25	-
3	0.291	0.06	36.56	-	36.62	-	60.51	50.51	-23.89	-
4	0.408	0.06	34.35	-	34.41	-	57.69	47.69	-23.28	-
5	3.939	0.22	24.16	-	24.38	-	56.00	46.00	-31.62	-
6	25.230	0.89	47.13	-	48.02	-	60.00	50.00	-11.98	-

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.



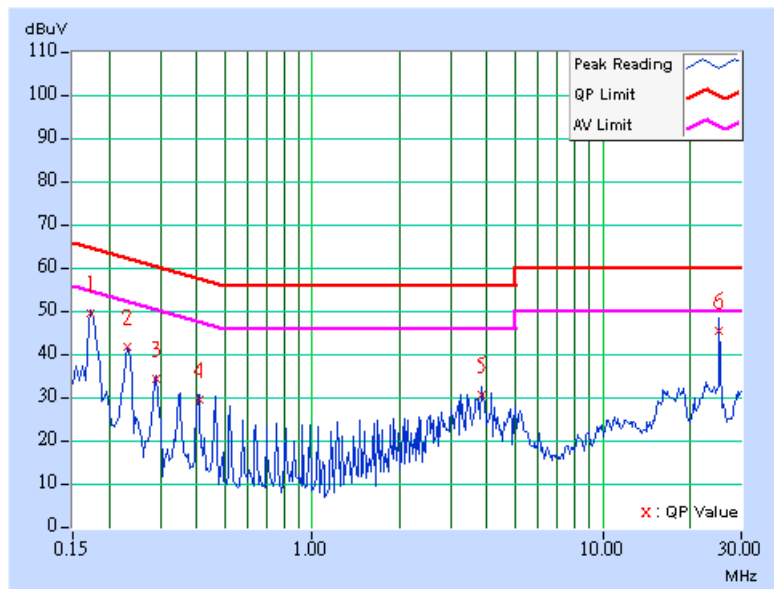


EUT	2.4GHz Wireless Mini PCI	MODEL	GL2454MP-0T1
MODE	Channel 06	6dB BANDWIDTH	9kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 991hPa	TESTED BY: Steven Lu	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.173	0.05	48.78	-	48.83	-	64.79	54.79	-15.96	-
2	0.232	0.05	41.28	-	41.33	-	62.38	52.38	-21.05	-
3	0.291	0.05	33.82	-	33.87	-	60.51	50.51	-26.64	-
4	0.408	0.05	28.99	-	29.04	-	57.69	47.69	-28.65	-
5	3.828	0.20	29.84	-	30.04	-	56.00	46.00	-25.96	-
6	25.230	0.73	44.95	-	45.68	-	60.00	50.00	-14.32	-

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.



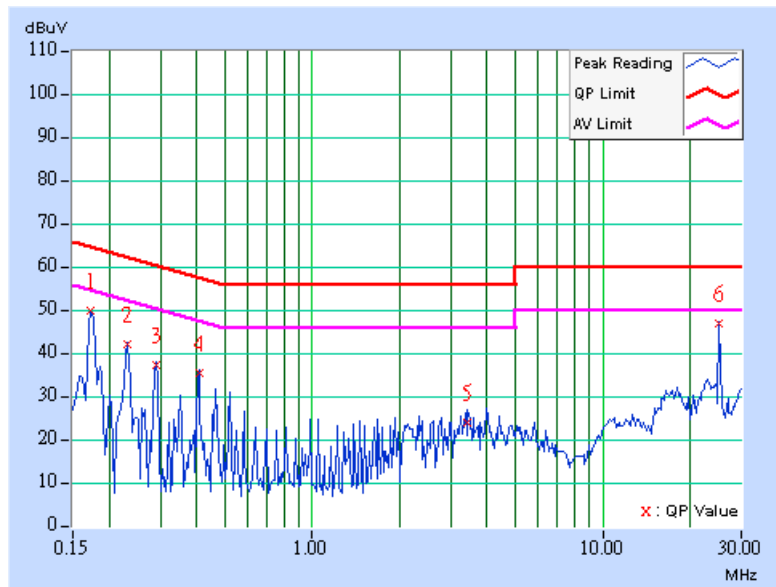


EUT	2.4GHz Wireless Mini PCI	MODEL	GL2454MP-0T1
MODE	Channel 11	6dB BANDWIDTH	9kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 991hPa	TESTED BY: Steven Lu	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.173	0.06	48.94	-	49.00	-	64.79	54.79	-15.80	-
2	0.232	0.06	41.24	-	41.30	-	62.38	52.38	-21.08	-
3	0.291	0.06	36.52	-	36.58	-	60.51	50.51	-23.93	-
4	0.408	0.06	34.76	-	34.82	-	57.69	47.69	-22.87	-
5	3.426	0.21	23.19	-	23.40	-	56.00	46.00	-32.60	-
6	25.230	0.89	46.20	-	47.09	-	60.00	50.00	-12.91	-

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.



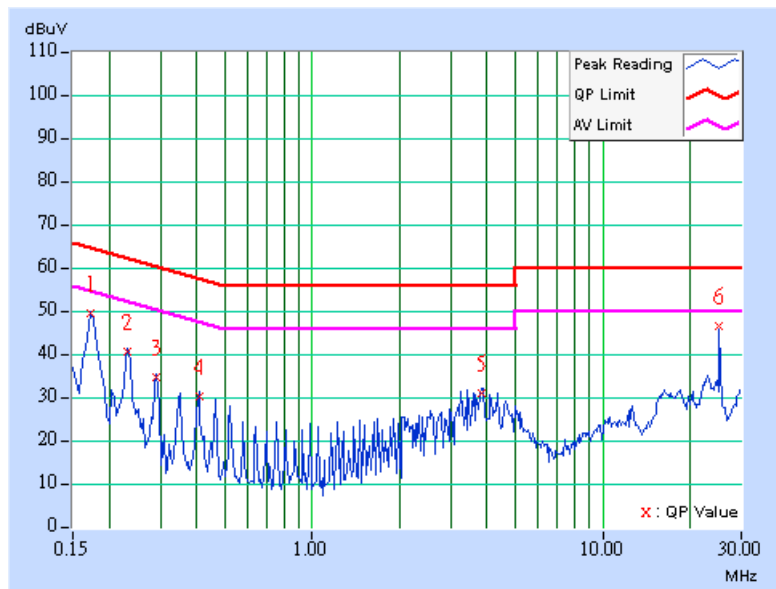


EUT	2.4GHz Wireless Mini PCI	MODEL	GL2454MP-0T1
MODE	Channel 11	6dB BANDWIDTH	9kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 991hPa	TESTED BY: Steven Lu	

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.173	0.05	48.88	-	48.93	-	64.79	54.79	-15.86	-
2	0.232	0.05	40.15	-	40.20	-	62.38	52.38	-22.18	-
3	0.291	0.05	34.00	-	34.05	-	60.51	50.51	-26.46	-
4	0.408	0.05	29.82	-	29.87	-	57.69	47.69	-27.82	-
5	3.832	0.20	30.35	-	30.55	-	56.00	46.00	-25.45	-
6	25.230	0.73	46.08	-	46.81	-	60.00	50.00	-13.19	-

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.





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	8594E	3911A07465	Jul. 07, 2004
*HP Preamplifier	8447D	2944A10386	Aug. 12, 2004
* HP Preamplifier	8449B	3008A01201	Dec. 01, 2003
* HP Preamplifier	8449B	3008A01292	Aug. 11, 2004
SCHAFFNER Tunable Dipole Antenna	VHBA 9123	459	Nov. 22, 2003
SCHWARZBECK Tunable Dipole Antenna	UHA 9105	977	
SCHAFFNER TEST RECEIVER	SCR 3501	409	Jan. 26, 2004
* SCHAFFNER BILOG Antenna	CBL6111C	2727	Jul. 15, 2004
* SCHWARZBECK Horn Antenna	BBHA9120-D1	D130	Jun 30, 2004
* EMCO Horn Antenna	3115	9312-4192	Mar. 23 2004
* ADT. Turn Table	TT100	0201	NA
* ADT. Tower	AT100	0201	NA
* Software	ADT_Radiated_V 5.14	NA	NA
* ANRITSU RF Switches	MP59B	6100237246	Oct. 30, 2003
* TIMES RF cable	LMR-600	CABLE-ST10-01	Oct. 30, 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. 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.

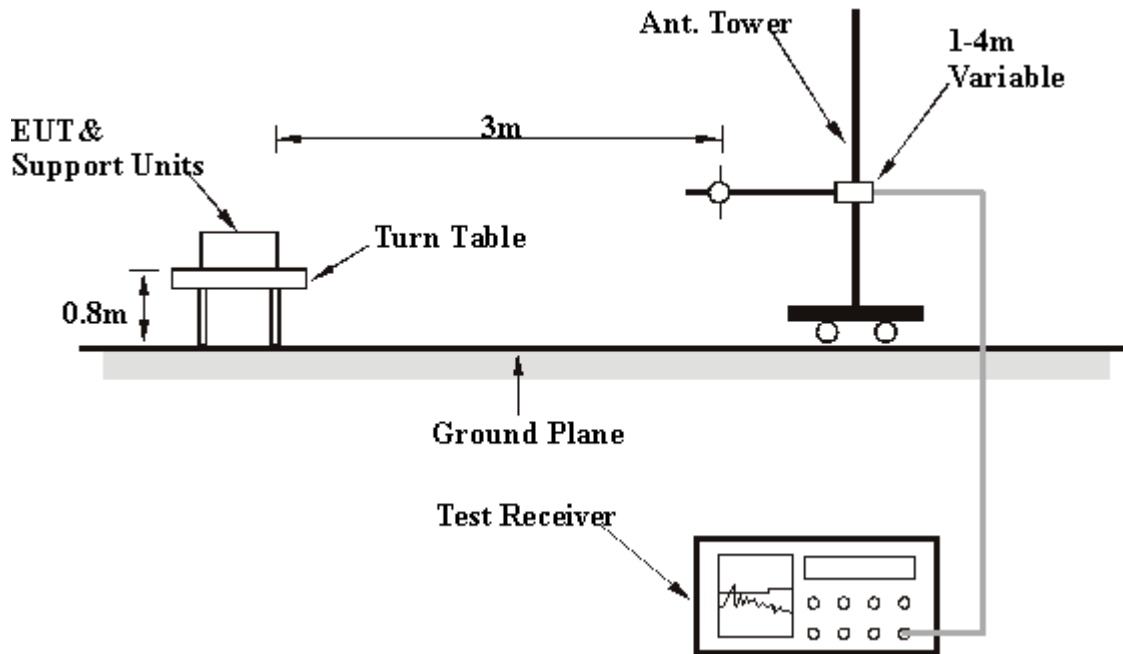
NOTE:

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 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 (mode 1)

EUT	2.4GHz Wireless Mini PCI	MODEL	GL2454MP-0T1
CHANNEL	Channel 11	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	30deg. C, 55%RH, 991hPa	TESTED BY: Jamison Chen	

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	165.00	16.88 QP	43.50	-26.62	1.00 H	255	7.24	9.64
2	240.05	24.94 QP	46.00	-21.06	1.00 H	319	13.07	11.87
3	265.22	19.12 QP	46.00	-26.88	1.00 H	267	5.23	13.89
4	315.53	20.74 QP	46.00	-25.26	1.00 H	308	5.82	14.92
5	365.66	20.73 QP	46.00	-25.27	1.00 H	264	4.69	16.04
6	466.16	21.75 QP	46.00	-24.25	1.00 H	275	3.15	18.60
7	491.53	24.83 QP	46.00	-21.17	1.00 H	199	5.55	19.28
8	541.25	24.72 QP	46.00	-21.28	1.00 H	265	4.23	20.49
9	565.95	25.41 QP	46.00	-20.59	1.00 H	235	4.42	20.99
10	591.26	25.04 QP	46.00	-20.96	1.00 H	277	3.60	21.44
11	641.47	28.77 QP	46.00	-17.23	1.00 H	266	6.43	22.34
12	741.71	25.52 QP	46.00	-20.48	1.00 H	260	1.65	23.87

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	165.01	17.21 QP	43.50	-26.29	1.00 V	195	7.57	9.64
2	240.03	24.69 QP	46.00	-21.31	1.00 V	328	12.82	11.87
3	265.25	19.96 QP	46.00	-26.04	1.00 V	209	6.07	13.89
4	315.51	21.16 QP	46.00	-24.84	1.00 V	255	6.24	14.92
5	365.65	20.26 QP	46.00	-25.74	1.00 V	273	4.22	16.04
6	466.19	20.09 QP	46.00	-25.91	1.00 V	279	1.49	18.60
7	491.52	22.20 QP	46.00	-23.80	1.00 V	228	2.92	19.28
8	541.25	22.71 QP	46.00	-23.29	1.00 V	258	2.22	20.49
9	566.25	24.91 QP	46.00	-21.09	1.00 V	229	3.92	20.99
10	591.26	22.91 QP	46.00	-23.09	1.00 V	295	1.47	21.44
11	641.48	28.63 QP	46.00	-17.37	1.00 V	268	6.29	22.34
12	741.72	25.45 QP	46.00	-20.55	1.00 V	273	1.58	23.87

- 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	MODEL	GL2454MP-0T1
MODE	CCK	FREQUENCY RANGE	Above 1000MHz
CHANNEL	Channel 01		
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	30deg. C, 60%RH, 991hPa	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	2200.00	43.60 PK	74.00	-30.40	1.44 H	99	10.32	33.28
2	2390.00	51.10 PK	74.00	-22.90	1.44 H	99	17.57	33.53
2	2390.00	38.93 AV	54.00	-15.07	1.44 H	99	5.40	33.53
3	*2412.00	103.60 PK			1.44 H	99	70.00	33.60
3	*2412.00	91.43 AV			1.44 H	99	57.83	33.60
4	3155.00	51.09 PK	74.00	-22.91	1.15 H	148	14.68	36.41
4	3155.00	39.12 AV	54.00	-14.88	1.15 H	148	2.71	36.41
5	4824.00	52.77 PK	74.00	-21.23	1.35 H	347	12.21	40.56
5	4824.00	39.64 AV	54.00	-14.36	1.35 H	347	-0.92	40.56

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	2200.00	53.72 PK	74.00	-20.28	1.04 V	199	20.44	33.28
1	2200.00	41.27 AV	54.00	-12.73	1.04 V	199	7.99	33.28
2	2390.00	61.23 PK	74.00	-12.77	1.04 V	199	27.69	33.53
2	2390.00	48.77 AV	54.00	-5.23	1.04 V	199	15.24	33.53
3	*2412.00	113.72 PK			1.04 V	199	80.12	33.60
3	*2412.00	101.27 AV			1.04 V	199	67.67	33.60
4	3158.00	59.00 PK	74.00	-15.00	1.11 V	179	22.58	36.42
4	3158.00	47.97 AV	54.00	-6.03	1.11 V	179	11.55	36.42
5	4824.00	52.47 PK	74.00	-21.53	1.04 V	199	11.91	40.56
5	4824.00	40.07 AV	54.00	-13.93	1.04 V	199	-0.49	40.56
6	7236.00	57.87 PK	74.00	-16.13	1.30 V	67	13.06	44.81
6	7236.00	45.53 AV	54.00	-8.47	1.30 V	67	0.72	44.81

- 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	MODEL	GL2454MP-0T1
MODE	CCK	FREQUENCY RANGE	Above 1000MHz
CHANNEL	Channel 06		
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	30deg. C, 60%RH, 991hPa	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	2259.00	45.83 PK	74.00	-28.17	1.18 H	209	12.61	33.22
2	*2437.00	105.66 PK			1.18 H	209	72.00	33.66
2	*2437.00	92.99 AV			1.18 H	209	59.33	33.66
3	4874.00	52.82 PK	74.00	-21.18	1.28 H	85	12.08	40.74
3	4874.00	39.85 AV	54.00	-14.15	1.28 H	85	-0.89	40.74

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	2259.00	54.16 PK	74.00	-19.84	1.19 V	142	20.94	33.22
1	2259.00	41.66 AV	54.00	-12.34	1.19 V	142	8.44	33.22
2	*2437.00	113.99 PK			1.19 V	142	80.33	33.66
2	*2437.00	101.49 AV			1.19 V	142	67.83	33.66
3	4874.00	51.95 PK	74.00	-22.05	1.25 V	360	11.21	40.74
3	4874.00	39.45 AV	54.00	-14.55	1.25 V	360	-1.29	40.74

- 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	MODEL	GL2454MP-0T1
MODE	CCK	FREQUENCY RANGE	Above 1000MHz
CHANNEL	Channel 11		
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	30deg. C, 60%RH, 991hPa	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	2300.00	53.54 PK	74.00	-20.46	1.20 H	65	20.36	33.18
1	2300.00	41.37 AV	54.00	-12.63	1.20 H	65	8.19	33.18
2	*2462.00	105.21 PK			1.20 H	65	71.50	33.71
2	*2462.00	93.04 AV			1.20 H	65	59.33	33.71
3	2483.50	52.54 PK	74.00	-21.46	1.20 H	65	18.78	33.76
3	2483.50	40.37 AV	54.00	-13.63	1.20 H	65	6.61	33.76
4	3209.00	52.92 PK	74.00	-21.08	1.74 H	57	16.42	36.50
4	3209.00	39.25 AV	54.00	-14.75	1.74 H	57	2.75	36.50
5	4924.00	53.03 PK	74.00	-20.97	1.14 H	311	12.11	40.92
5	4924.00	40.16 AV	54.00	-13.84	1.14 H	311	-0.76	40.92

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	2300.00	64.71 PK	74.00	-9.29	1.13 V	6	31.53	33.18
1	2300.00	52.04 AV	54.00	-1.96	1.13 V	6	18.86	33.18
2	*2462.00	116.38 PK			1.13 V	6	82.67	33.71
2	*2462.00	103.71 AV			1.13 V	6	70.00	33.71
3	2483.50	63.71 PK	74.00	-10.29	1.13 V	6	29.95	33.76
3	2483.50	51.04 AV	54.00	-2.96	1.13 V	6	17.28	33.76
4	3200.00	61.58 PK	74.00	-12.42	1.35 V	179	25.08	36.50
4	3200.00	50.58 AV	54.00	-3.42	1.35 V	179	14.08	36.50
5	4924.00	55.16 PK	74.00	-18.84	1.57 V	324	14.24	40.92
5	4924.00	40.33 AV	54.00	-13.67	1.57 V	324	-0.59	40.92

- 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	MODEL	GL2454MP-0T1
MODE	OFDM	FREQUENCY RANGE	Above 1000MHz
CHANNEL	Channel 01		
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	30deg. C, 60%RH, 991hPa	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	2390.00	47.60 PK	74.00	-26.40	1.00 H	154	14.07	33.53
2	*2412.00	98.27 PK			1.00 H	154	64.67	33.60
2	*2412.00	84.77 AV			1.00 H	154	51.17	33.60
3	4824.00	48.14 PK	74.00	-25.86	1.53 H	147	7.58	40.56

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	57.13 PK	74.00	-16.87	1.05 V	239	23.60	33.53
1	2390.00	46.60 AV	54.00	-7.40	1.05 V	239	13.07	33.53
2	*2412.00	107.80 PK			1.05 V	239	74.20	33.60
2	*2412.00	97.27 AV			1.05 V	239	63.67	33.60
3	4824.00	47.47 PK	74.00	-26.53	1.00 V	26	6.91	40.56

- 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	MODEL	GL2454MP-0T1
MODE	OFDM	FREQUENCY RANGE	Above 1000MHz
CHANNEL	Channel 06		
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	30deg. C, 60%RH, 991hPa	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	2257.00	37.66 PK	74.00	-36.34	1.00 H	28	4.44	33.22
2	*2437.00	96.66 PK			1.00 H	28	63.00	33.66
2	*2437.00	86.99 AV			1.00 H	28	53.33	33.66
3	4874.00	52.65 PK	74.00	-21.35	1.20 H	47	11.91	40.74
3	4874.00	40.45 AV	54.00	-13.55	1.20 H	47	-0.29	40.74

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	2257.00	50.90 PK	74.00	-23.10	1.20 V	143	17.68	33.22
2	*2437.00	109.99 PK			1.20 V	143	76.33	33.66
2	*2437.00	98.66 AV			1.20 V	143	65.00	33.66
3	4874.00	52.15 PK	74.00	-21.85	1.00 V	342	11.41	40.74
3	4874.00	39.98 AV	54.00	-14.02	1.00 V	342	-0.76	40.74

- 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	MODEL	GL2454MP-0T1
MODE	OFDM	FREQUENCY RANGE	Above 1000MHz
CHANNEL	Channel 11		
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	30deg. C, 60%RH, 991hPa	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	2312.00	52.04 PK	74.00	-21.96	1.41 H	149	18.81	33.23
1	2312.00	36.71 AV	54.00	-17.29	1.41 H	149	3.48	33.23
2	*2462.00	97.04 PK			1.41 H	149	63.33	33.71
2	*2462.00	81.71 AV			1.41 H	149	48.00	33.71
3	2483.50	56.88 PK	74.00	-17.12	1.41 H	149	23.12	33.76
3	2483.50	41.55 AV	54.00	-12.45	1.41 H	149	7.79	33.76
4	4924.00	53.03 PK	74.00	-20.97	1.23 H	52	12.11	40.92
4	4924.00	39.93 AV	54.00	-14.07	1.23 H	52	-0.99	40.92

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	2312.00	63.04 PK	74.00	-10.96	1.18 V	141	29.81	33.23
1	2312.00	47.71 AV	54.00	-6.29	1.18 V	141	14.48	33.23
2	*2462.00	108.04 PK			1.18 V	141	74.33	33.71
2	*2462.00	92.71 AV			1.18 V	141	59.00	33.71
3	2483.50	67.88 PK	74.00	-6.12	1.18 V	141	34.12	33.76
3	2483.50	52.50 AV	54.00	-1.50	1.18 V	141	18.74	33.76
4	4924.00	53.13 PK	74.00	-20.87	1.00 V	141	12.21	40.92
4	4924.00	40.16 AV	54.00	-13.84	1.00 V	141	-0.76	40.92

- 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



4.2.8 TEST RESULTS (mode 2)

EUT	2.4GHz Wireless Mini PCI	MODEL	GL2454MP-0T1
CHANNEL	Channel 11	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 55%RH, 991hPa	TESTED BY: Jamison Chen	

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	180.41	24.15 QP	43.50	-19.35	1.00 H	291	15.08	9.07
2	270.32	27.48 QP	46.00	-18.52	1.00 H	285	13.74	13.74
3	360.83	28.55 QP	46.00	-17.45	1.00 H	8	12.70	15.85
4	451.01	20.88 QP	46.00	-25.12	1.00 H	277	2.69	18.19
5	540.67	24.79 QP	46.00	-21.21	1.00 H	270	4.31	20.48
6	630.00	22.12 QP	46.00	-23.88	1.00 H	296	-0.01	22.13
7	720.07	28.06 QP	46.00	-17.94	1.00 H	300	4.79	23.27
8	810.98	24.98 QP	46.00	-21.02	1.00 H	218	0.85	24.13
9	902.04	27.75 QP	46.00	-18.25	1.00 H	276	2.43	25.32

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	179.74	27.06 QP	43.50	-16.44	1.00 V	175	17.99	9.07
2	270.33	18.85 QP	46.00	-27.15	1.00 V	166	5.11	13.74
3	360.32	19.77 QP	46.00	-26.23	1.00 V	175	3.94	15.83
4	450.00	21.71 QP	46.00	-24.29	1.00 V	183	3.55	18.16
5	540.71	22.96 QP	46.00	-23.04	1.00 V	187	2.48	20.48
6	630.01	24.55 QP	46.00	-21.45	1.00 V	221	2.42	22.13
7	720.01	28.09 QP	46.00	-17.91	1.00 V	273	4.82	23.27
8	810.00	23.00 QP	46.00	-23.00	1.00 V	290	-1.10	24.10
9	902.04	27.96 QP	46.00	-18.04	1.00 V	325	2.64	25.32

- 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	MODEL	GL2454MP-0T1
MODE	CCK	FREQUENCY RANGE	Above 1000MHz
CHANNEL	Channel 01		
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 55%RH, 991hPa	TESTED BY: Jamison Chen	

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	53.66 PK	74.00	-20.34	1.13 H	201	20.10	33.55
1	2390.00	46.65 AV	54.00	-7.35	1.13 H	201	13.09	33.55
2	*2412.00	103.33 PK			1.13 H	201	69.67	33.66
2	*2412.00	94.99 AV			1.13 H	201	61.33	33.66
3	2619.00	55.50 PK	74.00	-18.50	1.13 H	201	20.94	34.56
3	2619.00	47.82 AV	54.00	-6.18	1.13 H	201	13.26	34.56
4	2785.00	53.00 PK	74.00	-21.00	1.13 H	201	17.97	35.03
4	2785.00	45.32 AV	54.00	-8.68	1.13 H	201	10.29	35.03
5	4824.00	51.03 PK	74.00	-22.97	1.08 H	192	9.90	41.13
5	4824.00	39.03 AV	54.00	-14.97	1.08 H	192	-2.10	41.13

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	58.49 PK	74.00	-15.51	1.11 V	206	24.94	33.55
1	2390.00	48.33 AV	54.00	-5.67	1.11 V	206	14.77	33.55
2	*2412.00	109.66 PK			1.11 V	206	76.00	33.66
2	*2412.00	101.16 AV			1.11 V	206	67.50	33.66
3	2619.00	58.16 PK	74.00	-15.84	1.11 V	206	23.60	34.56
3	2619.00	50.33 AV	54.00	-3.67	1.11 V	206	15.77	34.56
4	2785.00	55.83 PK	74.00	-18.17	1.11 V	206	20.80	35.03
4	2785.00	43.33 AV	54.00	-10.67	1.11 V	206	8.30	35.03
5	4824.00	51.53 PK	74.00	-22.47	1.11 V	206	10.40	41.13
5	4824.00	39.20 AV	54.00	-14.80	1.11 V	206	-1.93	41.13

- 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	MODEL	GL2454MP-0T1
MODE	CCK	FREQUENCY RANGE	Above 1000MHz
CHANNEL	Channel 06		
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 55%RH, 991hPa	TESTED BY: Jamison Chen	

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	102.58 PK			1.05 H	187	68.83	33.75
1	*2437.00	94.08 AV			1.05 H	187	60.33	33.75
2	2612.00	56.58 PK	74.00	-17.42	1.05 H	187	22.04	34.54
2	2612.00	51.91 AV	54.00	-2.09	1.05 H	187	17.37	34.54
3	4874.00	51.98 PK	74.00	-22.02	1.00 H	177	10.72	41.26
3	4874.00	39.31 AV	54.00	-14.69	1.00 H	177	-1.95	41.26

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	109.25 PK			1.04 V	187	75.50	33.75
1	*2437.00	100.75 AV			1.04 V	187	67.00	33.75
2	2612.00	58.42 PK	74.00	-15.58	1.04 V	187	23.88	34.54
2	2612.00	50.80 AV	54.00	-3.20	1.04 V	187	16.26	34.54
3	4874.00	52.31 PK	74.00	-21.69	1.02 V	173	11.05	41.26
3	4874.00	39.65 AV	54.00	-14.35	1.02 V	173	-1.61	41.26

- 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	MODEL	GL2454MP-0T1
MODE	CCK	FREQUENCY RANGE	Above 1000MHz
CHANNEL	Channel 11		
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 55%RH, 991hPa	TESTED BY: Jamison Chen	

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	2305.00	58.02 PK	74.00	-15.98	1.04 H	249	24.93	33.09
1	2305.00	50.68 AV	54.00	-3.32	1.04 H	249	17.59	33.09
2	*2462.00	105.18 PK			1.04 H	249	71.33	33.85
2	*2462.00	96.68 AV			1.04 H	249	62.83	33.85
3	2483.50	58.35 PK	74.00	-15.65	1.04 H	249	24.41	33.94
3	2483.50	50.68 AV	54.00	-3.32	1.04 H	249	16.74	33.94
4	2619.00	58.68 PK	74.00	-15.32	1.04 H	249	24.12	34.56
4	2619.00	52.00 AV	54.00	-2.00	1.04 H	249	17.44	34.56
5	2835.00	58.69 PK	74.00	-15.31	1.04 H	249	23.19	35.50
5	2835.00	49.51 AV	54.00	-4.49	1.04 H	249	14.01	35.50
6	4924.00	51.29 PK	74.00	-22.71	1.03 H	155	9.89	41.39
6	4924.00	39.29 AV	54.00	-14.71	1.03 H	155	-2.11	41.39

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	2305.00	58.68 PK	74.00	-15.32	1.11 V	123	25.59	33.09
1	2305.00	49.68 AV	54.00	-4.32	1.11 V	123	16.59	33.09
2	*2462.00	108.68 PK			1.11 V	123	74.83	33.85
2	*2462.00	100.18 AV			1.11 V	123	66.33	33.85
3	2483.50	57.52 PK	74.00	-16.48	1.11 V	123	23.58	33.94
3	2483.50	48.85 AV	54.00	-5.15	1.11 V	123	14.91	33.94
4	2619.00	61.52 PK	74.00	-12.48	1.11 V	123	26.96	34.56
4	2619.00	52.68 AV	54.00	-1.32	1.11 V	123	18.12	34.56
5	2835.00	57.18 PK	74.00	-16.82	1.11 V	123	21.68	35.50
5	2835.00	45.51 AV	54.00	-8.49	1.11 V	123	10.01	35.50
6	4924.00	52.46 PK	74.00	-21.54	1.04 V	165	11.06	41.39
6	4924.00	39.46 AV	54.00	-14.54	1.04 V	165	-1.94	41.39

- 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	MODEL	GL2454MP-0T1
MODE	OFDM	FREQUENCY RANGE	Above 1000MHz
CHANNEL	Channel 01		
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 55%RH, 991hPa	TESTED BY: Jamison Chen	

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	*2412.00	100.49 PK			1.20 H	220	66.83	33.66
1	*2412.00	91.33 AV			1.20 H	220	57.67	33.66
2	2412.00	57.82 PK	74.00	-16.18	1.20 H	220	24.16	33.66
2	2412.00	48.33 AV	54.00	-5.67	1.20 H	220	14.67	33.66
3	4824.00	51.53 PK	74.00	-22.47	1.18 H	175	10.40	41.13
3	4824.00	39.03 AV	54.00	-14.97	1.18 H	175	-2.10	41.13

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	62.83 PK	74.00	-11.17	1.43 V	204	29.27	33.55
1	2390.00	45.16 AV	54.00	-8.84	1.43 V	204	11.60	33.55
2	*2412.00	106.66 PK			1.43 V	204	73.00	33.66
2	*2412.00	97.33 AV			1.43 V	204	63.67	33.66
3	4824.00	51.87 PK	74.00	-22.13	1.20 V	136	10.74	41.13
3	4824.00	39.20 AV	54.00	-14.80	1.20 V	136	-1.93	41.13

- 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	MODEL	GL2454MP-0T1
MODE	OFDM	FREQUENCY RANGE	Above 1000MHz
CHANNEL	Channel 06		
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 55%RH, 991hPa	TESTED BY: Jamison Chen	

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	2257.00	37.34 PK	74.00	-36.66	1.22 H	223	4.31	33.03
2	*2437.00	96.58 PK			1.22 H	223	62.83	33.75
2	*2437.00	87.42 AV			1.22 H	223	53.67	33.75
3	4874.00	51.66 PK	74.00	-22.34	1.10 H	172	10.39	41.26
3	4874.00	39.33 AV	54.00	-14.67	1.10 H	172	-1.94	41.26

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	2257.00	49.85 PK	74.00	-24.15	1.00 V	170	16.82	33.03
2	*2437.00	105.08 PK			1.00 V	170	71.33	33.75
2	*2437.00	95.92 AV			1.00 V	170	62.17	33.75
3	4874.00	52.13 PK	74.00	-21.87	1.22 V	223	10.87	41.26
3	4874.00	40.21 AV	54.00	-13.79	1.22 V	223	-1.05	41.26

- 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	MODEL	GL2454MP-0T1
MODE	OFDM	FREQUENCY RANGE	Above 1000MHz
CHANNEL	Channel 11		
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 55%RH, 991hPa	TESTED BY: Jamison Chen	

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	2312.00	54.02 PK	74.00	-19.98	1.11 H	204	20.89	33.13
1	2312.00	49.01 AV	54.00	-4.99	1.11 H	204	15.88	33.13
2	*2462.00	97.52 PK			1.11 H	204	63.67	33.85
2	*2462.00	88.35 AV			1.11 H	204	54.50	33.85
3	2483.50	52.19 PK	74.00	-21.81	1.11 H	204	18.25	33.94
3	2483.50	49.18 AV	54.00	-4.82	1.11 H	204	15.24	33.94
4	4924.00	51.79 PK	74.00	-22.21	1.00 H	114	10.39	41.39
4	4924.00	39.46 AV	54.00	-14.54	1.00 H	114	-1.94	41.39

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	2312.00	54.35 PK	74.00	-19.65	1.00 V	254	21.22	33.13
1	2312.00	46.02 AV	54.00	-7.98	1.00 V	254	12.89	33.13
2	*2462.00	103.52 PK			1.00 V	254	69.67	33.85
2	*2462.00	94.18 AV			1.00 V	254	60.33	33.85
3	2483.50	55.19 PK	74.00	-18.81	1.00 V	254	21.25	33.94
3	2483.50	46.68 AV	54.00	-7.32	1.00 V	254	12.74	33.94
4	2626.00	56.02 PK	74.00	-17.98	1.00 V	254	21.45	34.57
4	2626.00	48.02 AV	54.00	-5.98	1.00 V	254	13.45	34.57
5	4924.00	51.96 PK	74.00	-22.04	1.01 V	118	10.56	41.39
5	4924.00	39.63 AV	54.00	-14.37	1.01 V	118	-1.77	41.39

- 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 (mode 3)

EUT	2.4GHz Wireless Mini PCI	MODEL	GL2454MP-0T1
CHANNEL	Channel 11	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	30deg. C, 60%RH, 991hPa	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	44.74	30.45 QP	40.00	-9.55	1.27 H	203	19.59	10.86
2	133.49	31.59 QP	43.50	-11.91	2.06 H	18	19.83	11.76
3	166.99	30.07 QP	43.50	-13.43	2.06 H	205	20.51	9.56
4	200.39	36.43 QP	43.50	-7.07	1.54 H	138	27.10	9.33
5	240.03	35.07 QP	46.00	-10.93	1.48 H	121	23.20	11.87
6	300.69	33.07 QP	46.00	-12.93	1.11 H	28	18.37	14.70
7	401.50	31.57 QP	46.00	-14.43	1.00 H	94	14.16	17.41
8	460.60	24.39 QP	46.00	-21.61	2.03 H	166	5.94	18.45
9	535.00	26.30 QP	46.00	-19.70	1.76 H	249	5.96	20.34

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	85.10	26.93 QP	40.00	-13.07	1.05 V	250	19.01	7.92
2	134.20	32.41 QP	43.50	-11.09	1.00 V	247	20.66	11.75
3	167.10	24.46 QP	43.50	-19.04	1.00 V	202	14.90	9.56
4	200.55	26.47 QP	43.50	-17.03	1.06 V	231	17.12	9.35
5	358.10	31.01 QP	46.00	-14.99	1.46 V	179	15.27	15.74
6	460.60	30.43 QP	46.00	-15.57	2.14 V	154	11.98	18.45
7	525.78	28.73 QP	46.00	-17.27	1.00 V	202	8.61	20.12

- 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.



EUT	2.4GHz Wireless Mini PCI	MODEL	GL2454MP-0T1
MODE	CCK	FREQUENCY RANGE	Above 1000MHz
CHANNEL	Channel 01		
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	30deg. C, 60%RH, 991hPa	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	2390.00	53.60 PK	74.00	-20.40	1.00 H	137	20.07	33.53
1	2390.00	41.48 AV	54.00	-12.52	1.00 H	137	7.95	33.53
2	*2412.00	107.40 PK			1.00 H	137	73.80	33.60
2	*2412.00	95.28 AV			1.00 H	137	61.68	33.60
3	2616.00	53.10 PK	74.00	-20.90	1.00 H	137	18.75	34.35
3	2616.00	40.98 AV	54.00	-13.02	1.00 H	137	6.63	34.35
4	4824.00	46.80 PK	74.00	-27.20	1.23 H	57	6.24	40.56

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	50.47 PK	74.00	-23.53	1.00 V	360	16.94	33.53
2	*2412.00	104.27 PK			1.00 V	360	70.67	33.60
2	*2412.00	92.27 AV			1.00 V	360	58.67	33.60
3	2616.00	49.97 PK	74.00	-24.03	1.00 V	360	15.62	34.35
4	4924.00	50.43 PK	74.00	-23.57	1.27 V	85	9.51	40.92

- 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	MODEL	GL2454MP-0T1
MODE	CCK	FREQUENCY RANGE	Above 1000MHz
CHANNEL	Channel 06		
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	30deg. C, 60%RH, 991hPa	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	*2437.00	109.96 PK			1.18 H	160	76.30	33.66
1	*2437.00	97.33 AV			1.18 H	160	63.67	33.66
2	4874.00	50.25 PK	74.00	-23.75	1.45 H	78	9.51	40.74

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	103.86 PK			1.00 V	360	70.20	33.66
1	*2437.00	91.83 AV			1.00 V	360	58.17	33.66
2	4874.00	49.95 PK	74.00	-24.05	1.06 V	54	9.21	40.74

- 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	MODEL	GL2454MP-0T1
MODE	CCK	FREQUENCY RANGE	Above 1000MHz
CHANNEL	Channel 11		
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	30deg. C, 60%RH, 991hPa	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	*2462.00	101.86 PK			1.79 H	64	72.03	29.83
1	*2462.00	95.04 AV			1.79 H	64	65.21	29.83
2	2483.50	40.67 PK	74.00	-33.33	1.79 H	64	10.77	29.90
3	4924.00	46.38 PK	74.00	-27.62	1.47 H	326	10.71	35.67

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	111.13 PK			1.13 V	196	81.30	29.83
1	*2462.00	104.26 AV			1.13 V	196	74.43	29.83
2	2483.50	49.94 PK	74.00	-24.06	1.13 V	196	20.04	29.90
3	4924.00	47.38 PK	74.00	-26.62	1.19 V	269	11.71	35.67

- 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	MODEL	GL2454MP-0T1
MODE	OFDM	FREQUENCY RANGE	Above 1000MHz
CHANNEL	Channel 01		
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	30deg. C, 60%RH, 991hPa	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	2390.00	57.77 PK	74.00	-16.23	1.00 H	123	24.24	33.53
1	2390.00	46.60 AV	54.00	-7.40	1.00 H	123	13.07	33.53
2	*2412.00	103.27 PK			1.00 H	123	69.67	33.60
2	*2412.00	92.10 AV			1.00 H	123	58.50	33.60
3	4823.00	49.08 PK	74.00	-24.92	1.00 H	360	8.52	40.55

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	56.77 PK	74.00	-17.23	1.00 V	157	23.24	33.53
1	2390.00	45.60 AV	54.00	-8.40	1.00 V	157	12.07	33.53
2	*2412.00	102.27 PK			1.00 V	157	68.67	33.60
2	*2412.00	91.10 AV			1.00 V	157	57.50	33.60
3	4824.00	48.20 PK	74.00	-25.80	1.32 V	146	7.64	40.56

- 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	MODEL	GL2454MP-0T1
MODE	OFDM	FREQUENCY RANGE	Above 1000MHz
CHANNEL	Channel 06		
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	30deg. C, 60%RH, 991hPa	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	2263.00	48.34 PK	74.00	-25.66	1.00 H	125	15.12	33.22
2	*2437.00	103.99 PK			1.00 H	125	70.33	33.66
2	*2437.00	93.16 AV			1.00 H	125	59.50	33.66
3	2626.00	50.32 PK	74.00	-23.68	1.00 H	125	15.95	34.37
4	4874.00	48.91 PK	74.00	-25.09	1.42 H	26	8.17	40.74

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	2263.00	44.84 PK	74.00	-29.16	1.00 V	8	11.62	33.22
2	*2437.00	100.49 PK			1.00 V	8	66.83	33.66
2	*2437.00	89.99 AV			1.00 V	8	56.33	33.66
3	2626.00	46.82 PK	74.00	-27.18	1.00 V	8	12.45	34.37
4	4874.00	49.16 PK	74.00	-24.84	1.12 V	142	8.42	40.74

- 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	MODEL	GL2454MP-0T1
MODE	OFDM	FREQUENCY RANGE	Above 1000MHz
CHANNEL	Channel 11		
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	30deg. C, 60%RH, 991hPa	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	2314.00	61.62 PK	74.00	-12.38	1.00 H	360	28.39	33.23
1	2314.00	51.57 AV	54.00	-2.43	1.00 H	360	18.34	33.23
2	*2462.00	102.04 PK			1.00 H	360	68.33	33.71
2	*2462.00	92.54 AV			1.00 H	360	58.83	33.71
3	2483.50	58.88 PK	74.00	-15.12	1.00 H	360	25.12	33.76
3	2483.50	49.38 AV	54.00	-4.62	1.00 H	360	15.62	33.76
4	4924.00	48.30 PK	74.00	-25.70	1.00 H	24	7.39	40.92

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	1314.00	58.88 PK	74.00	-15.12	1.00 V	12	29.01	29.87
1	1314.00	49.21 AV	54.00	-4.79	1.00 V	12	19.34	29.87
2	*2462.00	99.71 PK			1.00 V	42	66.00	33.71
2	*2462.00	90.04 AV			1.00 V	42	56.33	33.71
3	2483.50	56.55 PK	74.00	-17.45	1.00 V	12	22.79	33.76
3	2483.50	46.88 AV	54.00	-7.12	1.00 V	12	13.12	33.76
4	4924.00	48.63 PK	74.00	-25.37	1.00 V	42	7.72	40.92

- 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	August 12, 2004

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

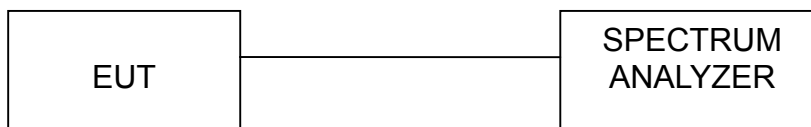
4.3.3 TEST PROCEDURE

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

4.3.4 DEVIATION FROM TEST STANDARD

No deviation

4.3.5 TEST SETUP



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.



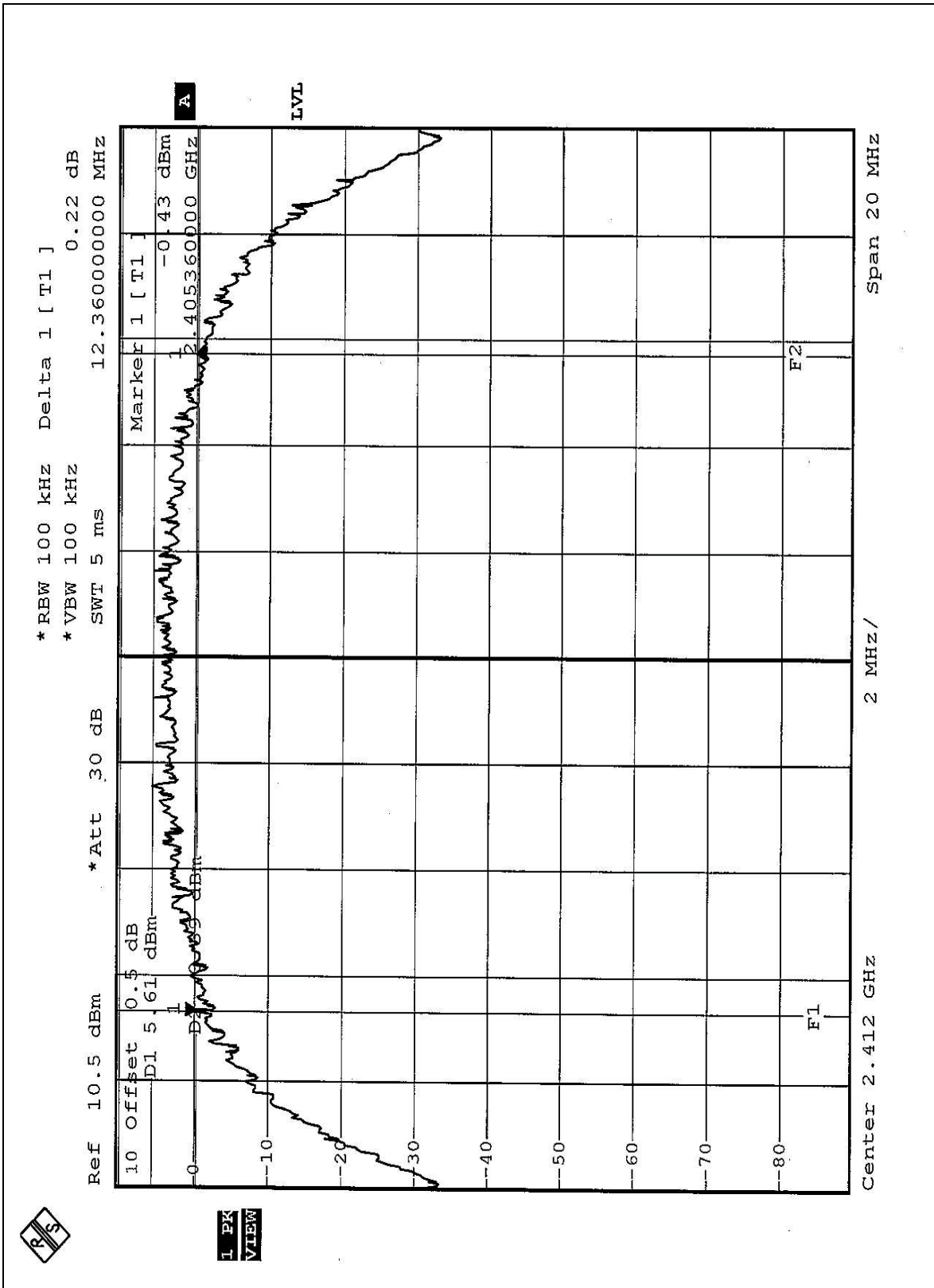
4.3.7 TEST RESULTS

EUT	2.4GHz Wireless Mini PCI	MODEL	GL2454MP-0T1
MODE	CCK	ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY: Jamison Chen	

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	12.36	0.5	PASS
6	2437	12.56	0.5	PASS
11	2462	12.36	0.5	PASS

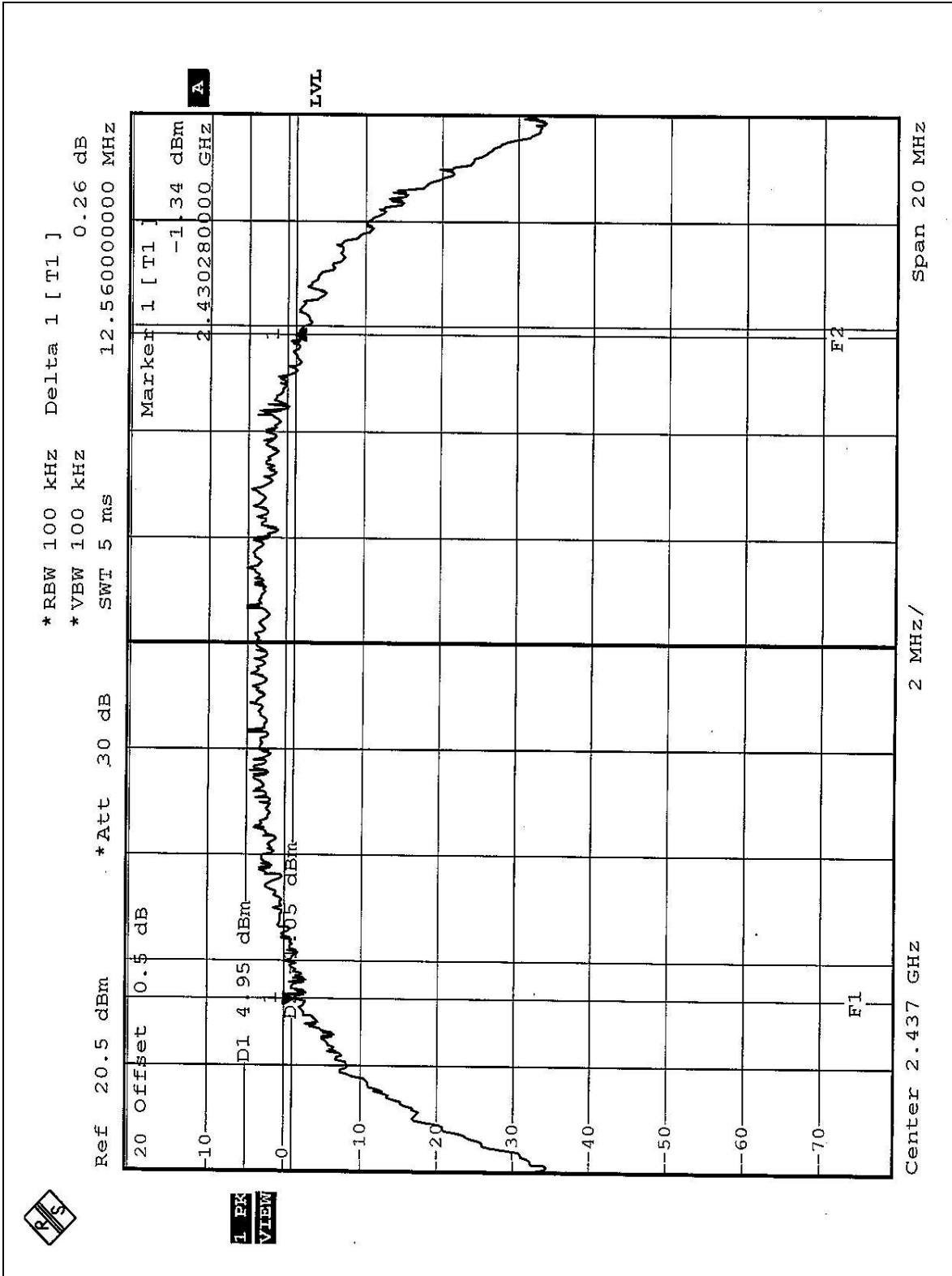


CH1



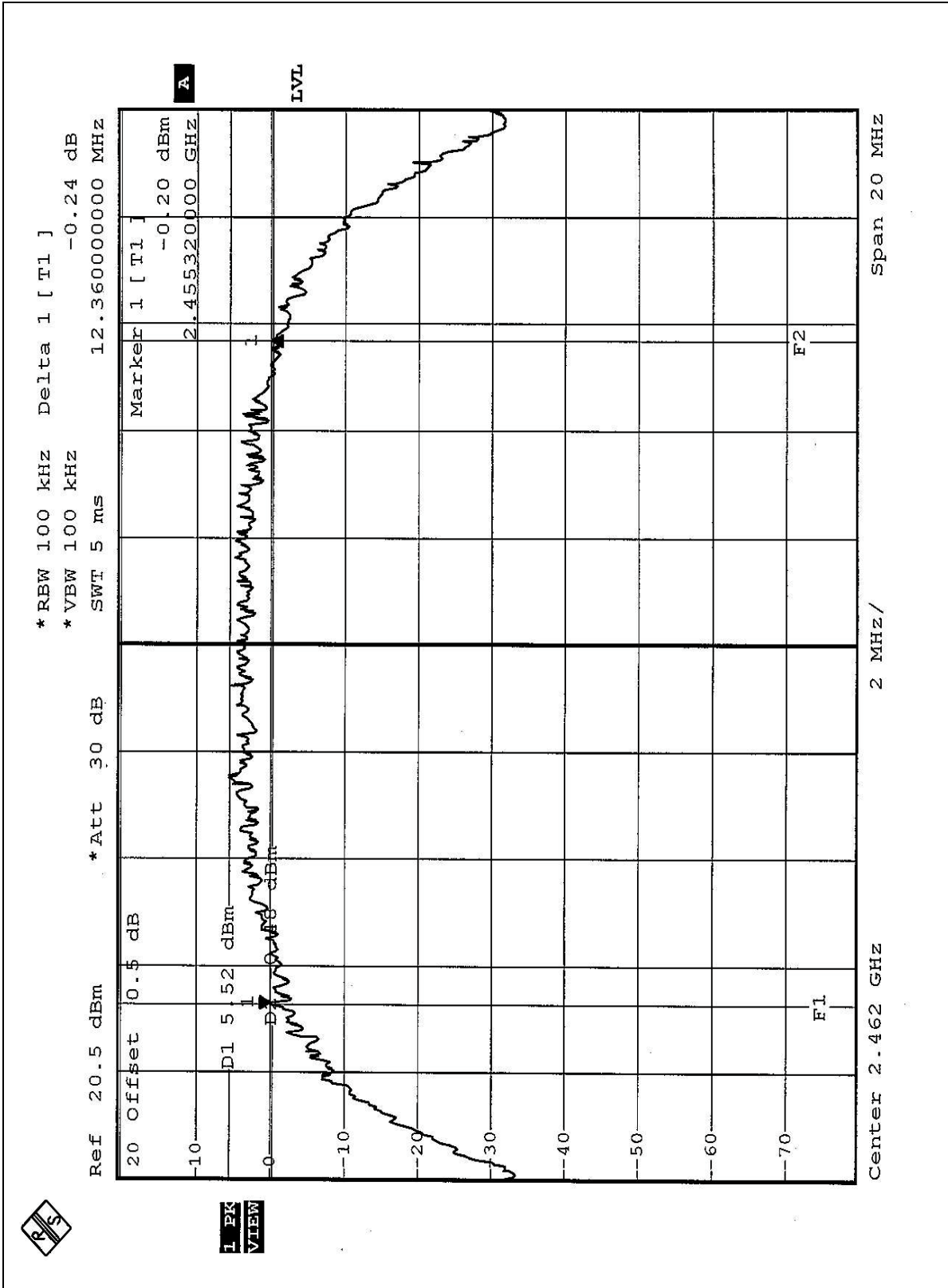


CH6





CH11



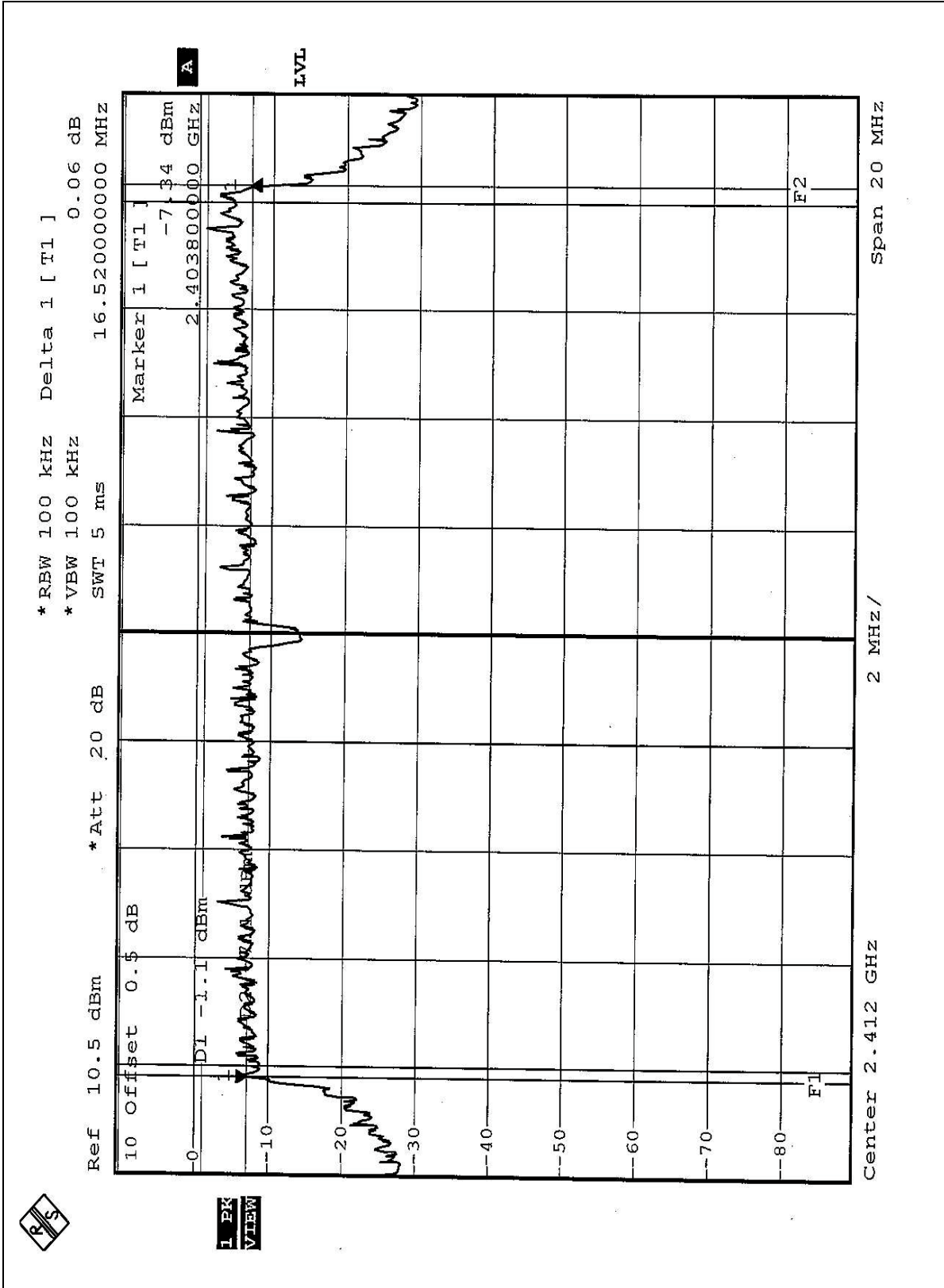


EUT	2.4GHz Wireless Mini PCI	MODEL	GL2454MP-0T1
MODE	OFDM	ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY: Jamison Chen	

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	16.52	0.5	PASS
6	2437	16.40	0.5	PASS
11	2462	16.48	0.5	PASS

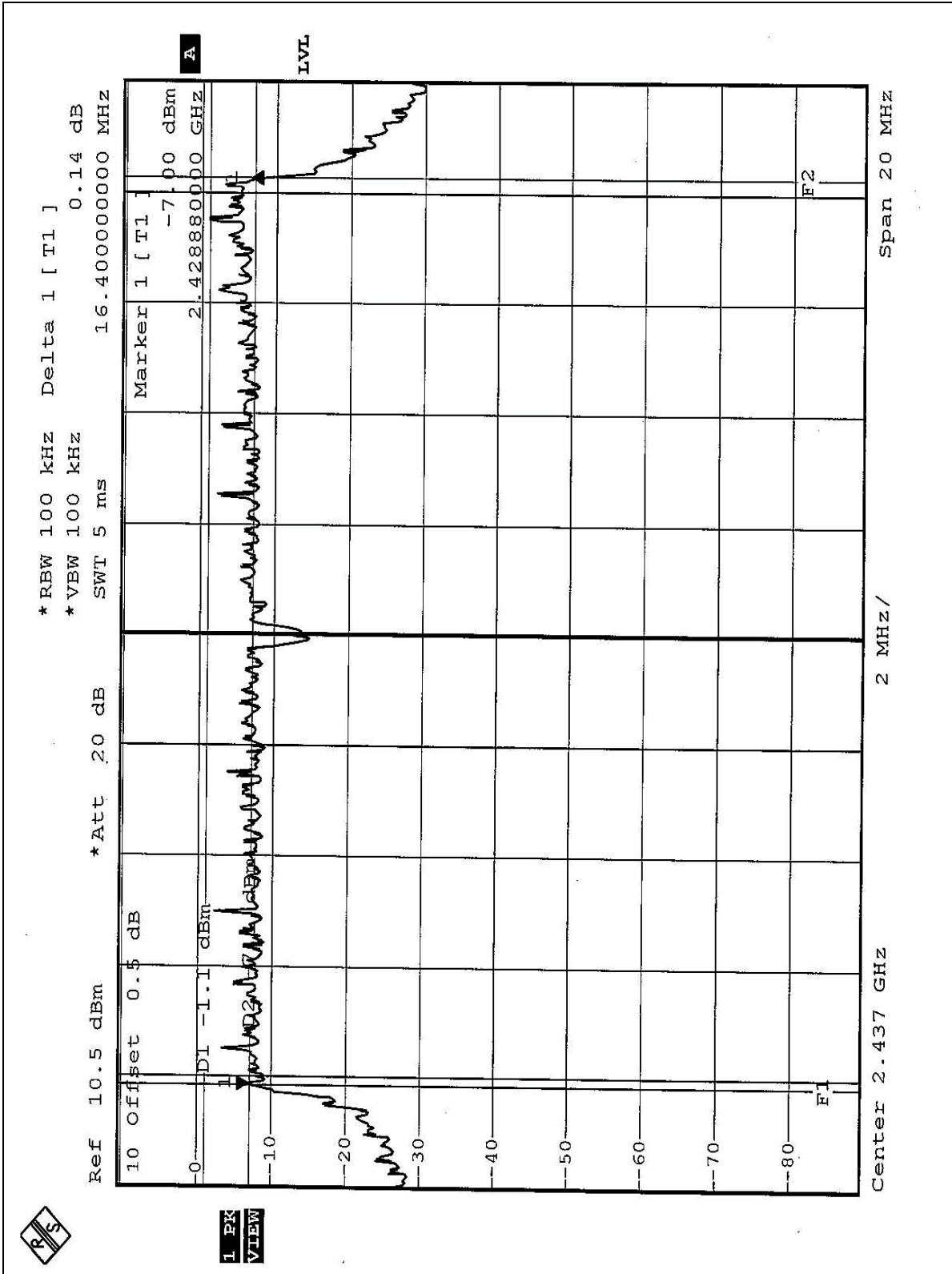


CH1



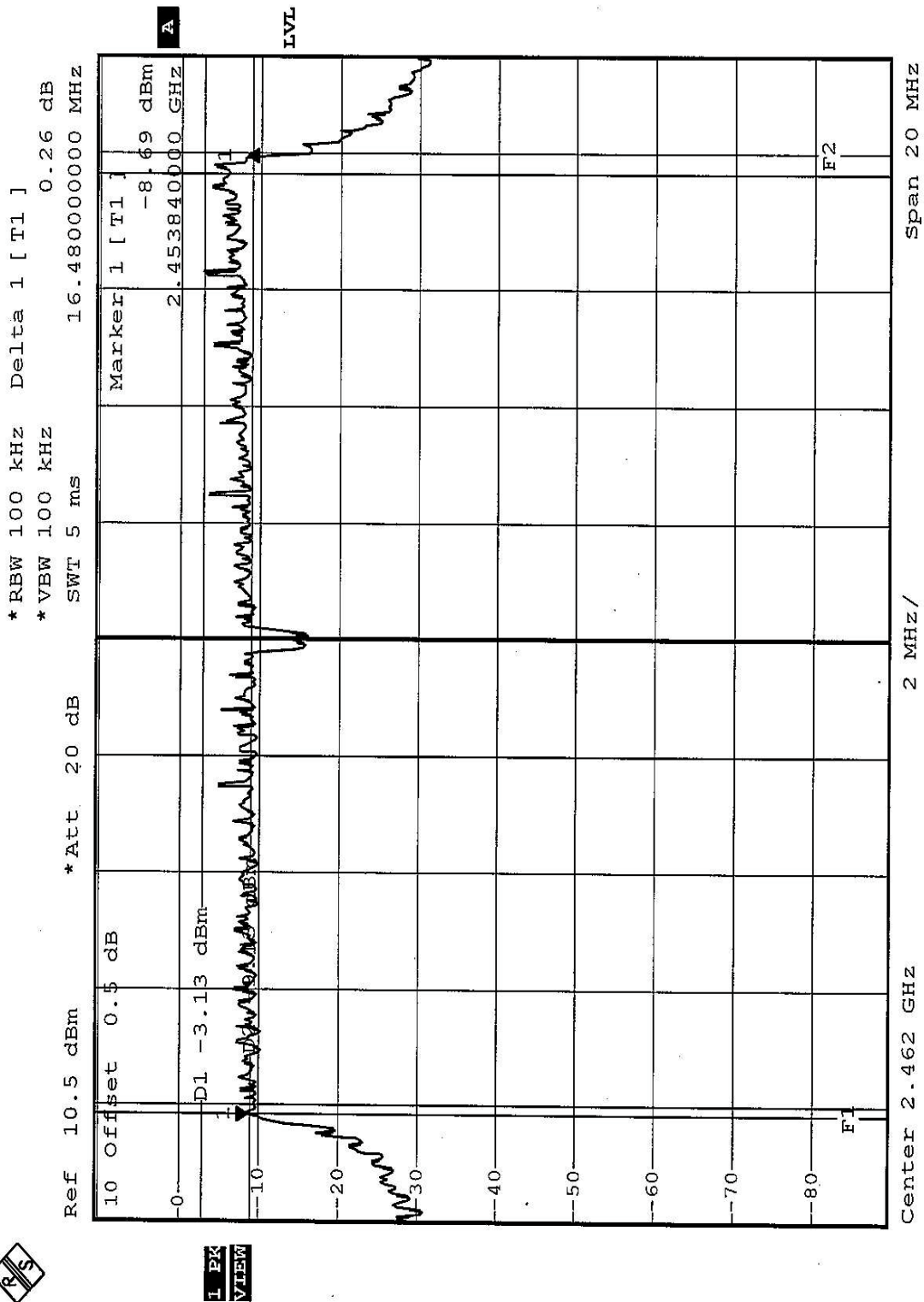


CH6





CH11



L 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 Until
R&S SPECTRUM ANALYZER	FSEK30	100049	Aug. 12, 2004
R&S SIGNAL GENERATOR	SMP04	100011	May 28, 2004
TEKTRONIX OSCILLOSCOPE	TDS 220	B048470	Mar. 05, 2004
NARDA DETECTOR	4503A	FSCM99899	NA

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



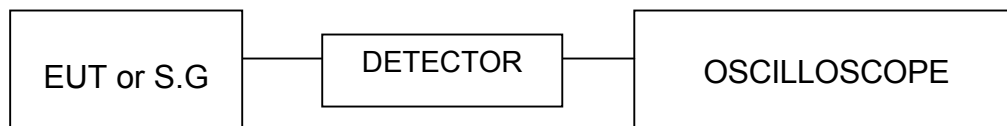
4.4.3 TEST PROCEDURES

1. A detector was used on the output port of the EUT. An oscilloscope was used to read the response of the detector.
2. Replaced the EUT by the signal generator . The center frequency of the S.G was adjusted to the center frequency of the measured channel.
3. Adjusted the power to have the same reading on oscilloscope. Record the power level.

4.4.4 DEVIATION FROM TEST STANDARD

No deviation

4.4.5 TEST SETUP



4.4.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6



4.4.7 TEST RESULTS

EUT	2.4GHz Wireless Mini PCI	MODEL	GL2454MP-0T1
MODE	CCK	ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY: Jamison Chen	

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	16.30	30	PASS
6	2437	16.50	30	PASS
11	2462	17.10	30	PASS

EUT	2.4GHz Wireless Mini PCI	MODEL	GL2454MP-0T1
MODE	OFDM	ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY: Jamison Chen	

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	17.13	30	PASS
6	2437	16.72	30	PASS
11	2462	16.30	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	August 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.

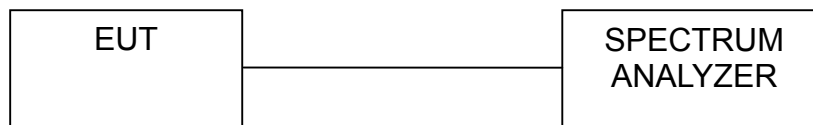
4.5.3 TEST PROCEDURE

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



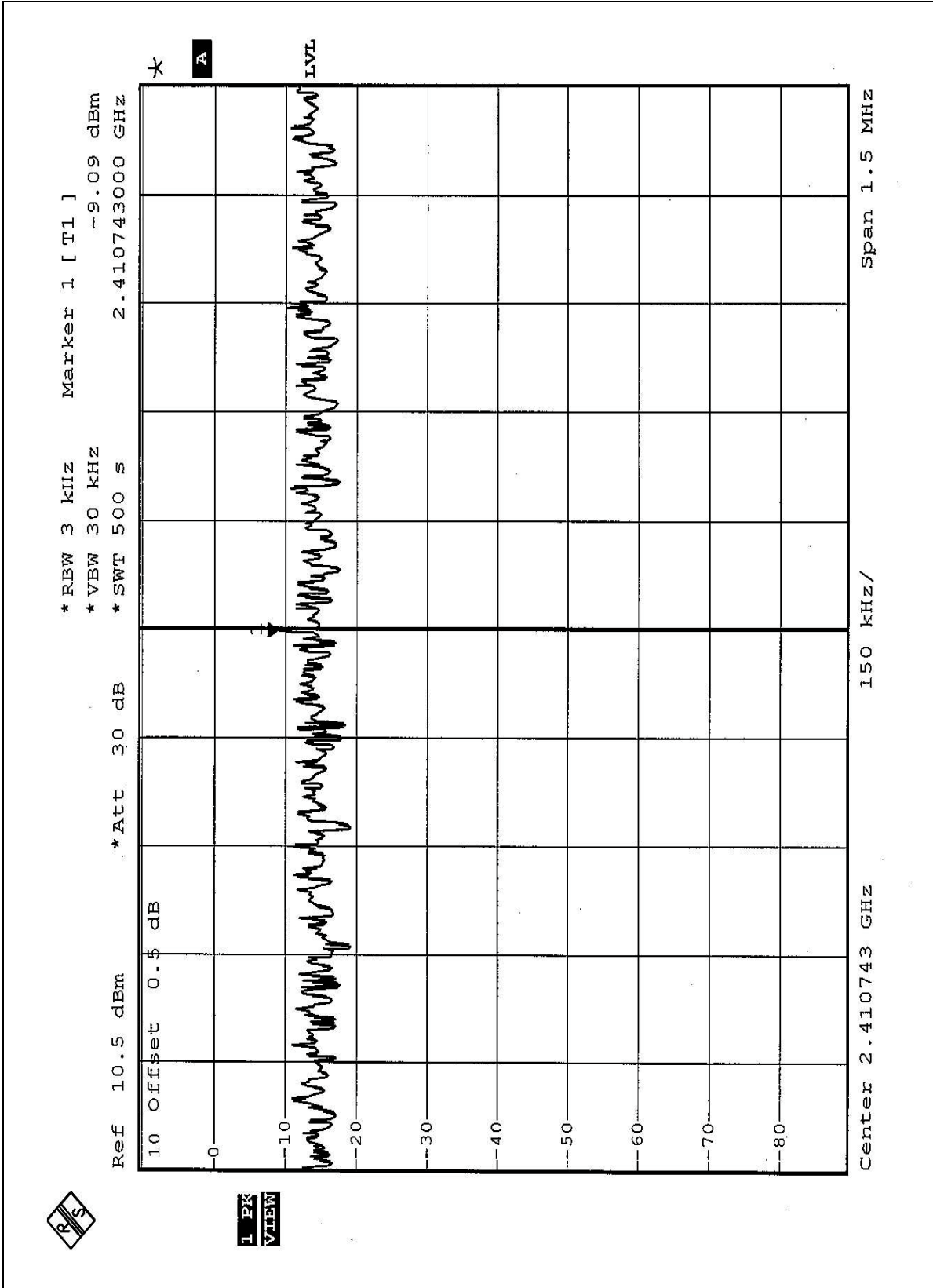
4.5.7 TEST RESULTS

EUT	2.4GHz Wireless Mini PCI	MODEL	GL2454MP-0T1
MODE	CCK	ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY: Jamison Chen	

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN3 kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-9.09	8	PASS
6	2437	-8.95	8	PASS
11	2462	-10.40	8	PASS

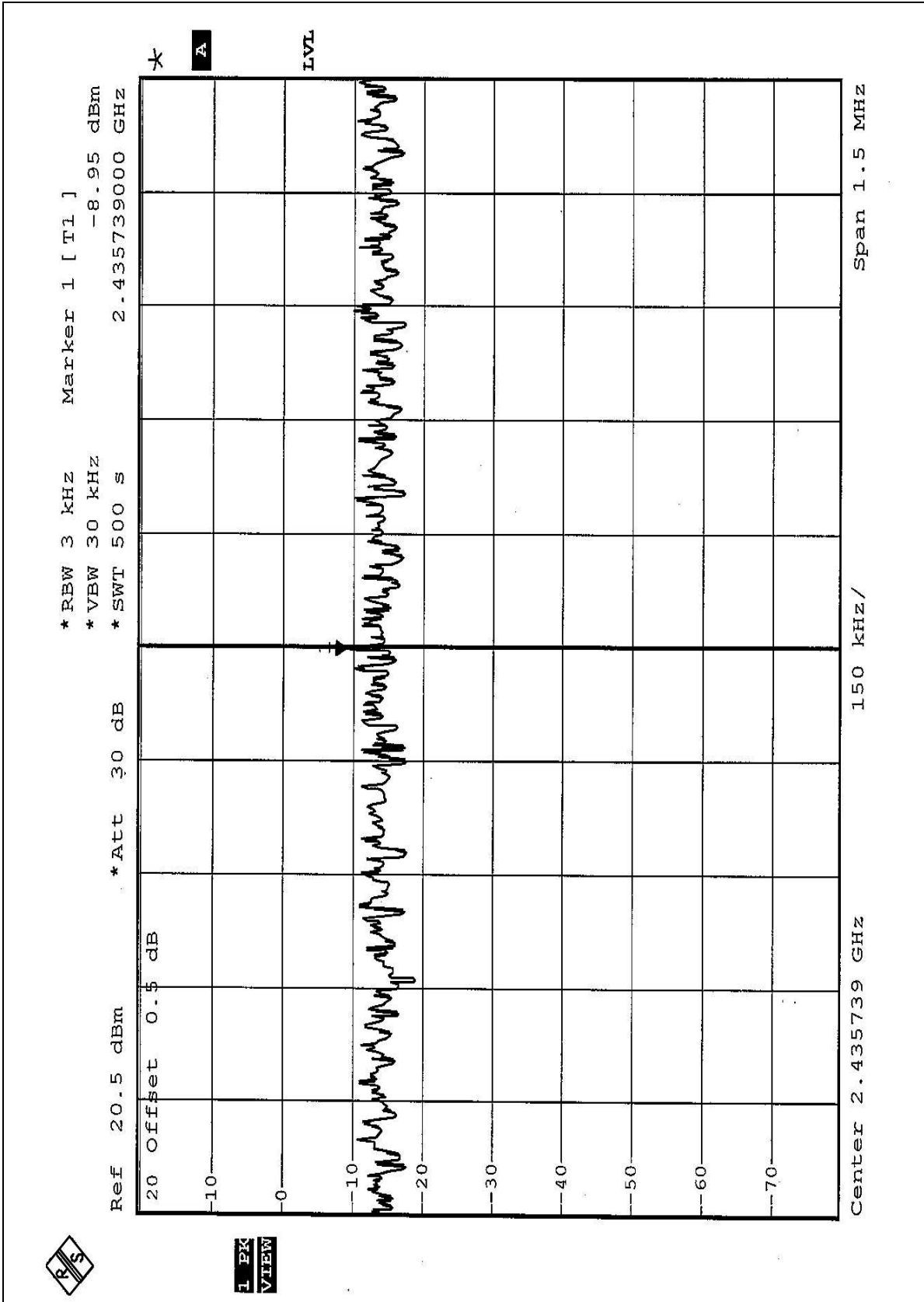


CH1



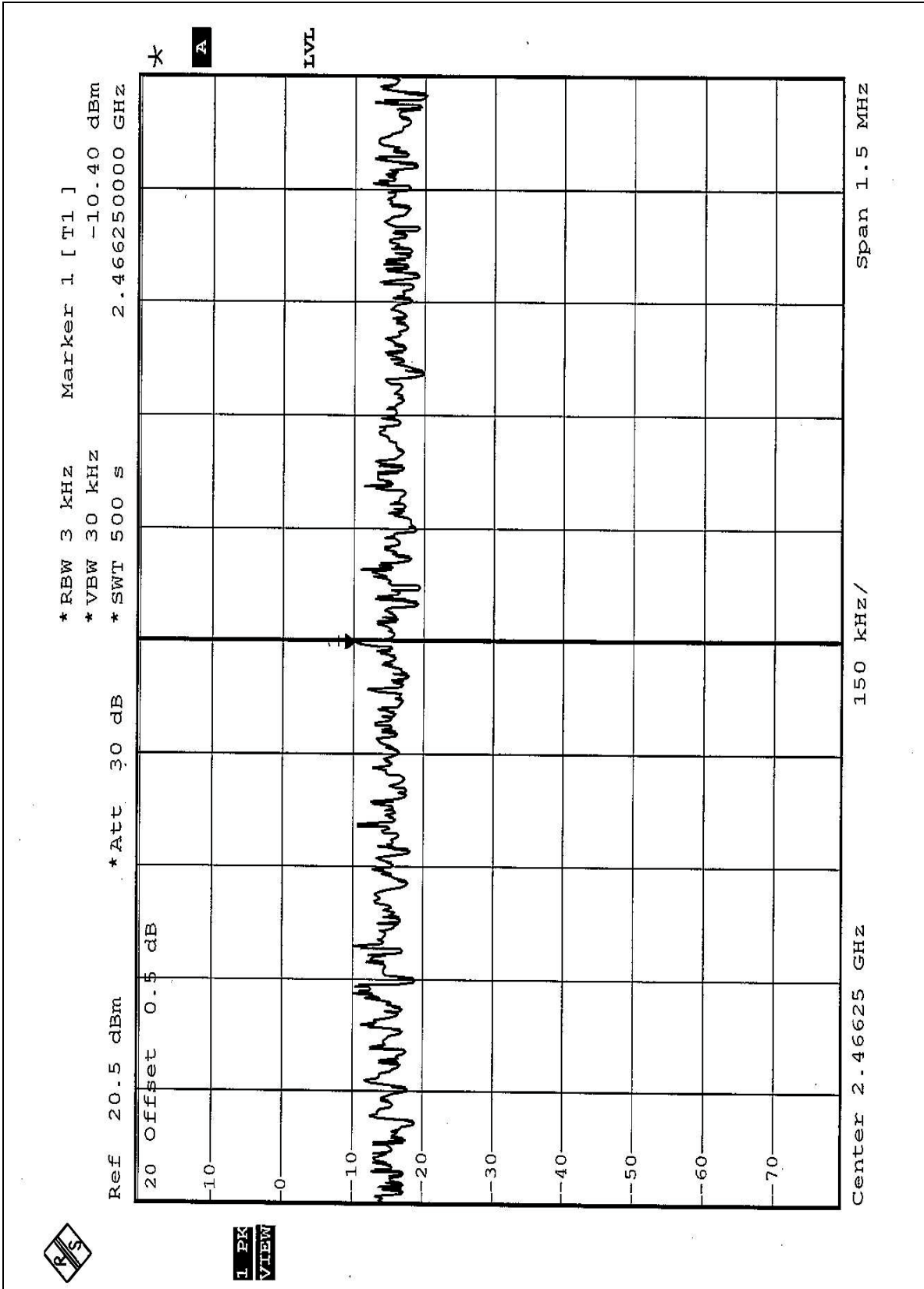


CH6





CH11



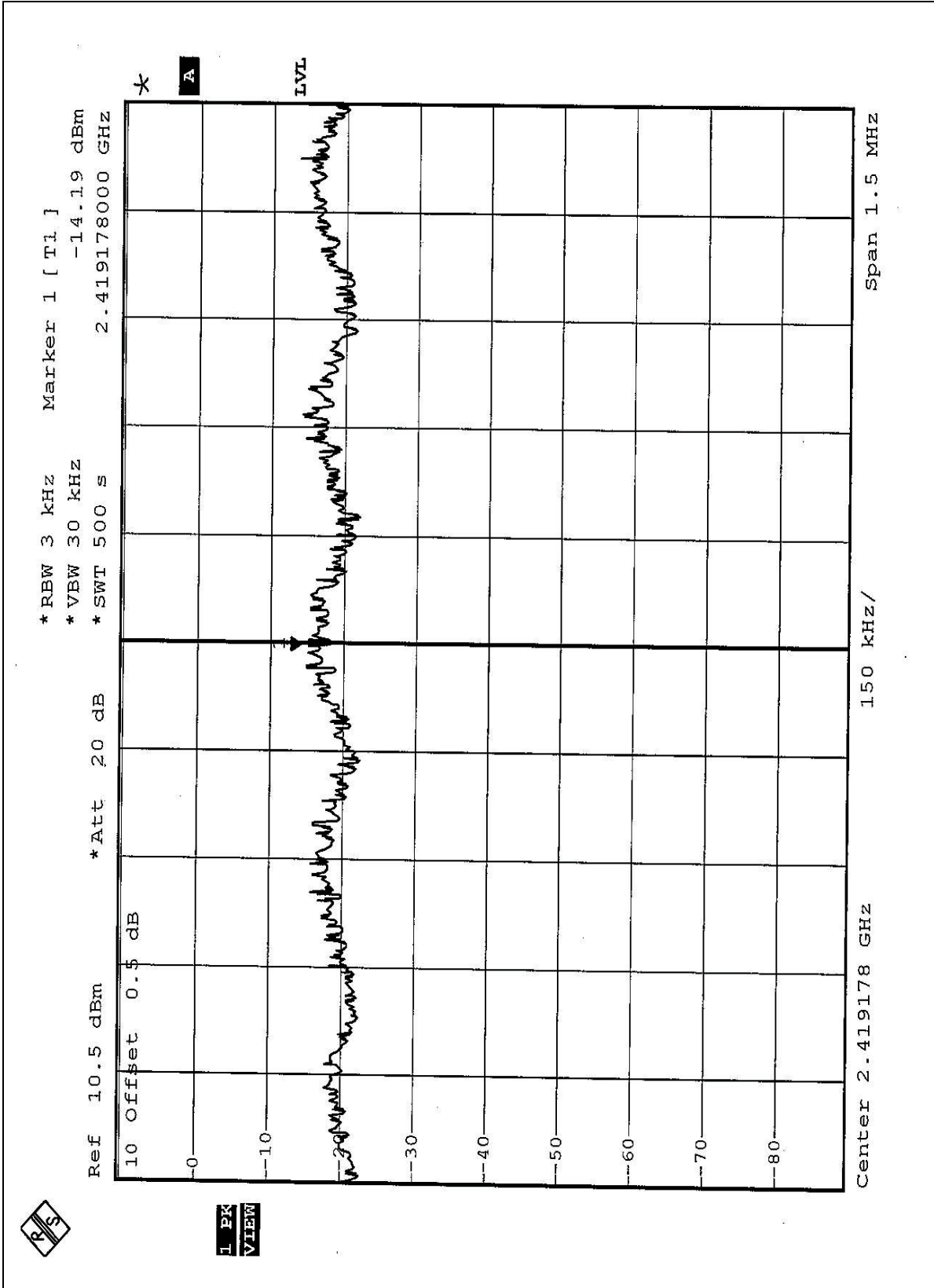


EUT	2.4GHz Wireless Mini PCI	MODEL	GL2454MP-0T1
MODE	OFDM	ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH, 991hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY: Jamison Chen	

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-14.19	8	PASS
6	2437	-15.38	8	PASS
11	2462	-15.44	8	PASS

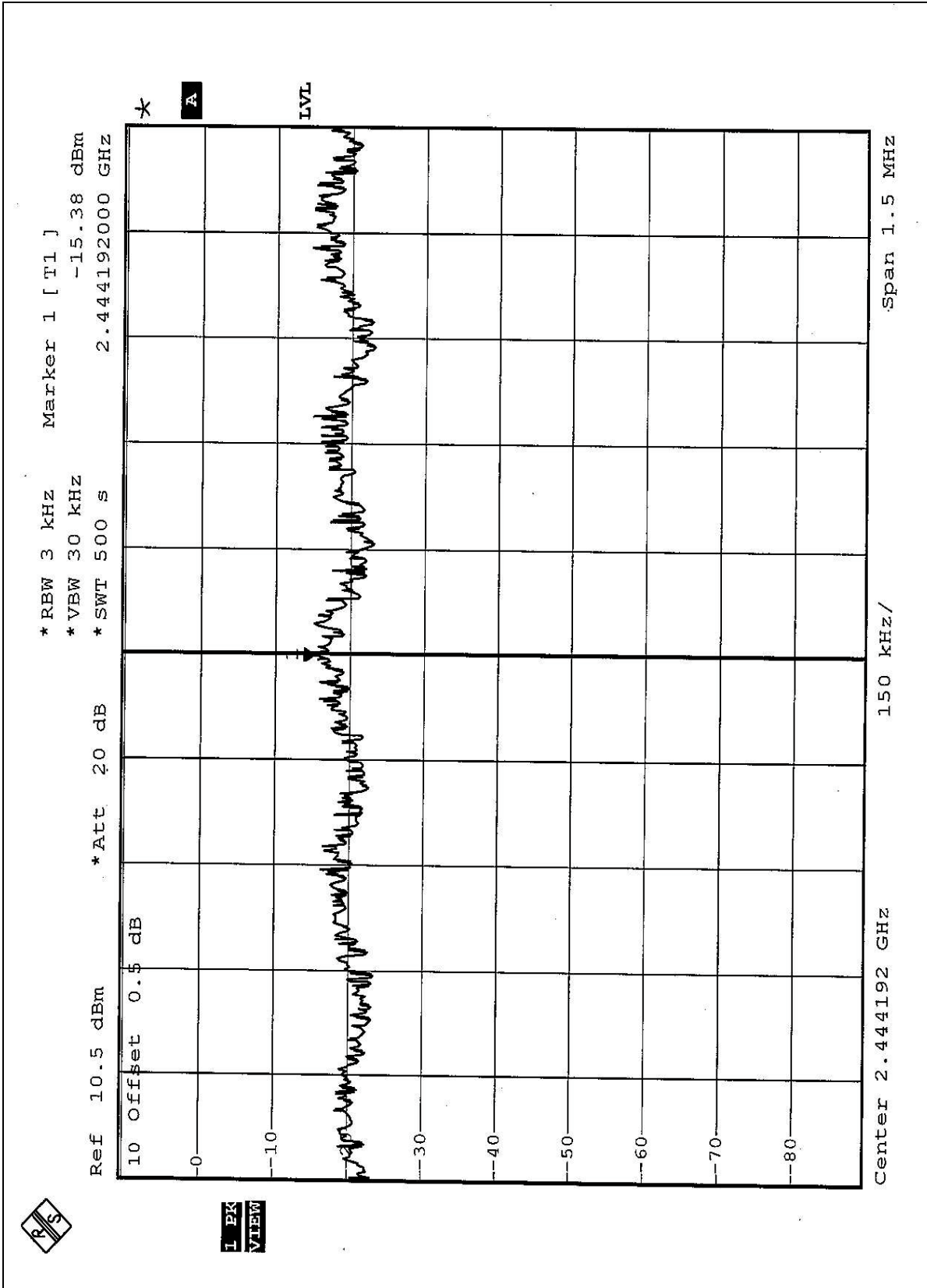


CH1



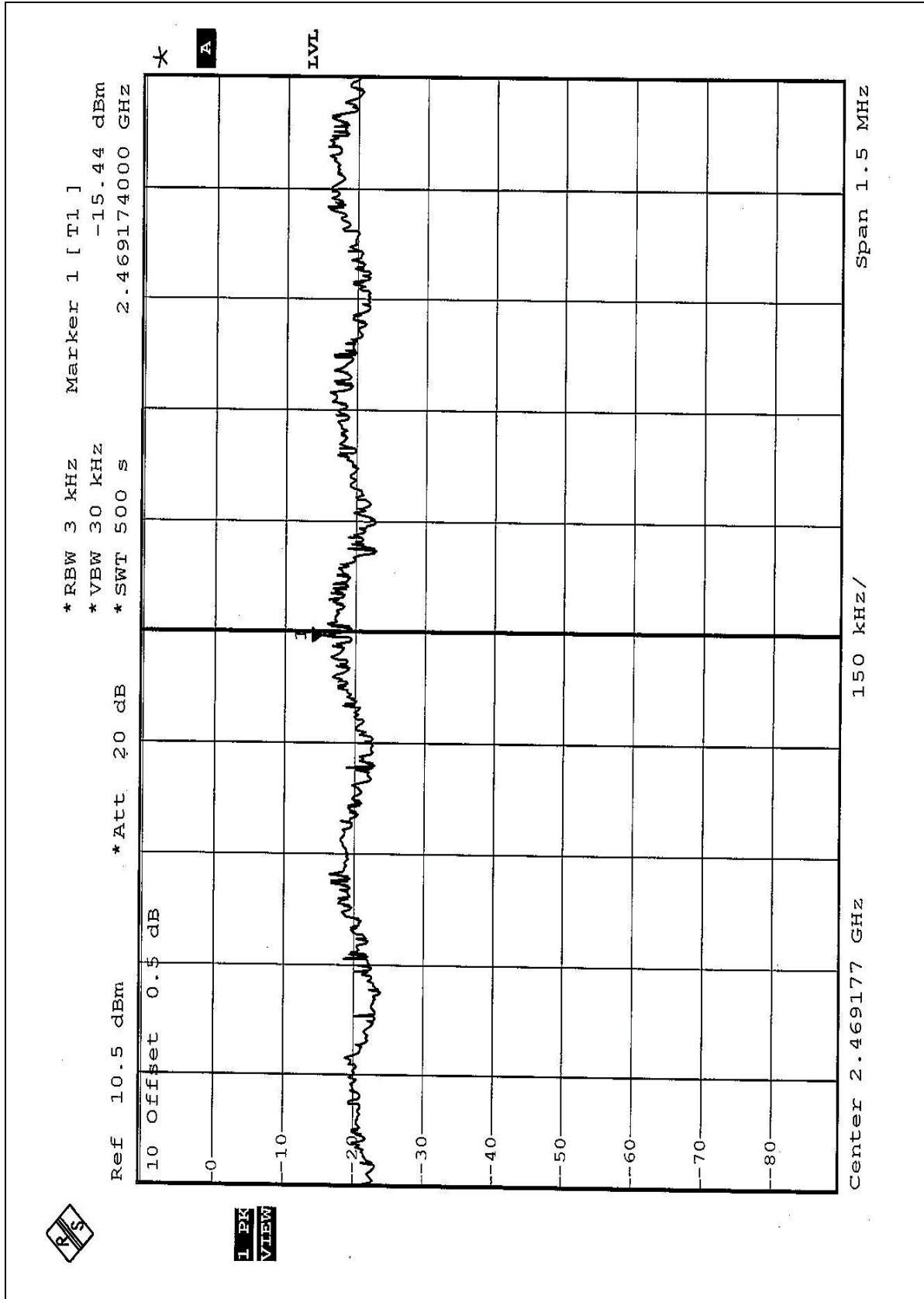


CH6





CH11





4.6 BAND EDGES MEASUREMENT

4.6.1 LIMITS OF BAND EDGES MEASUREMENT

Below -20dB of the highest emission level of operating band (in 100KHz Resolution Bandwidth).

4.6.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
SPECTRUM ANALYZER	FSEK30	100049	August 12, 2004

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

4.6.3 TEST PROCEDURE

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

4.6.4 DEVIATION FROM TEST STANDARD

No deviation



4.6.5 EUT OPERATING CONDITION

Same as Item 4.3.6

4.6.6 TEST RESULTS

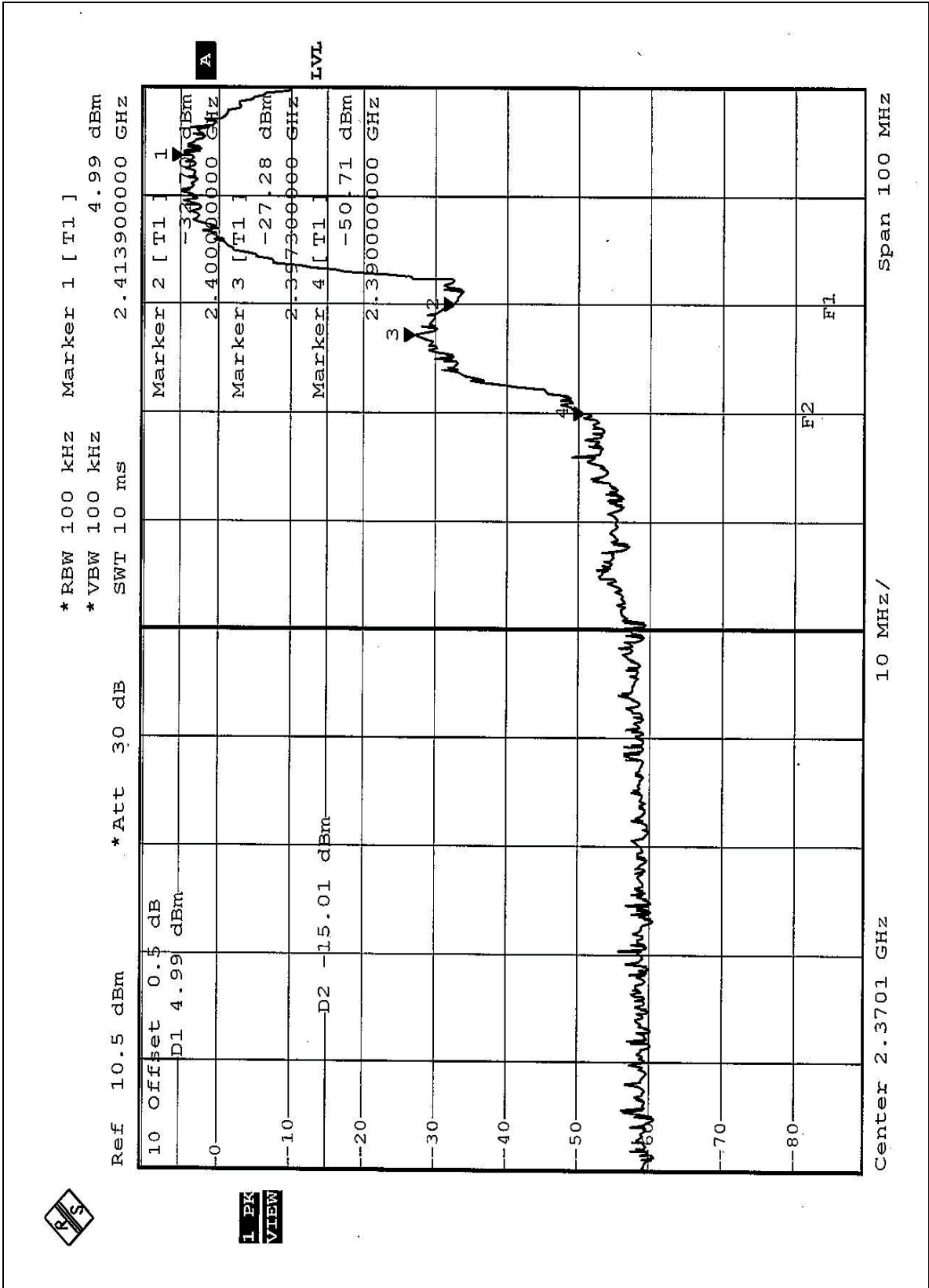
The spectrum plots are attached on the following 4 pages. D2 line indicates the highest level, D1 line indicates the 20dB offset below D2. It shows compliance with the requirement in part 15.247(C).

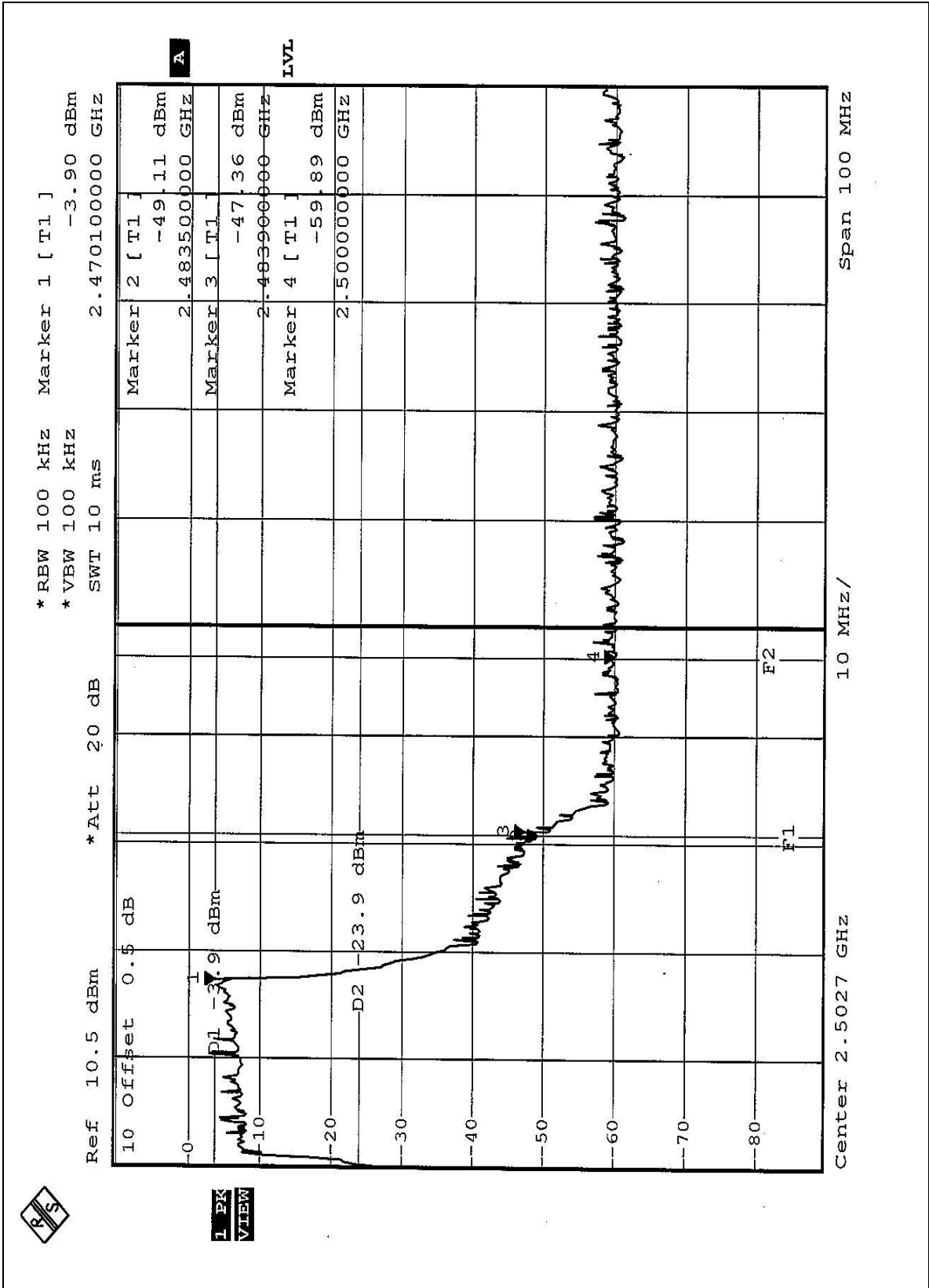
NOTE1: The band edge emission plot of CCK technique on the following page shows 55.70dB delta between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 (Page 23) is 101.27dBuV/m, so the maximum field strength in restrict band is $101.27 - 55.70 = 45.57$ dBuV/m which is under 54dBuV/m limit.

NOTE2: The band edge emission plot of CCK on the following page shows 51.83dB delta between carrier maximum power and local maximum emission in restrict band (2.4841GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 (Page 25) is 103.71dBuV/m, so the maximum field strength in restrict band is $103.71 - 51.83 = 51.88$ dBuV/m which is under 54 dBuV/m limit.

NOTE3: The band edge emission plot of OFDM technique on the following page shows 48.36dB delta between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2.7 (Page 33) is 97.33dBuV/m, so the maximum field strength in restrict band is $97.33 - 48.36 = 48.97$ dBuV/m which is under 54 dBuV/m limit.

NOTE4: The band edge emission plot of OFDM on the following page shows 43.46dB delta between carrier maximum power and local maximum emission in restrict band (2.4839GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2.7 (Page 35) is 94.18dBuV/m, so the maximum field strength in restrict band is $94.18 - 43.46 = 50.72$ dBuV/m which is under 54dBuV/m limit.







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 antenna types used in this product are Dipole Antenna and Inverted F. The maximum Gain of this antenna is 5dBi.

5 PHOTOGRAPHS OF THE TEST CONFIGURATION CONDUCTED EMISSION TEST

(Mode 1)





(Mode 2)





(Mode 3)





RADIATED EMISSION TEST (Mode 1)





(Mode 2)





(Mode 3)







6 INFORMATION ON THE TESTING LABORATORIES

We, ADT Corp., were founded in 1988 to provide our best service in EMC 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
Germany	TUV Rheinland
Japan	VCCI
New Zealand	MoC
Norway	NEMKO
R.O.C.	BSMI, DGT, CNLA

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:

Lin Kou EMC Lab:

Tel: 886-2-26052180

Fax: 886-2-26052943

Hsin Chu EMC Lab:

Tel: 886-35-935343

Fax: 886-35-935342

Lin Kou Safety Lab:

Tel: 886-2-26093195

Fax: 886-2-26093184

Lin Kou RF&Telecom Lab

Tel: 886-3-3270910

Fax: 886-3-3270892

Email: service@mail.adt.com.tw

Web Site: www.adt.com.tw

The address and road map of all our labs can be found in our web site also.