

FCC TEST REPORT

REPORT NO.: RF930101R04C

MODEL NO.: WMP-G03

RECEIVED: Aug. 27, 2004

TESTED: Sep. 01 to 03, 2004

APPLICANT: Alpha Networks Inc.

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INDUSTRIAL PARK,HSINCHU,TAIWAN,R.O.C.

ISSUED BY: Advance Data Technology Corporation

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No. 2177-01

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1 CERTIFICATION

PRODUCT : IEEE802.11g Wireless MiniPCI Card
MODEL NO. : WMP-G03
BRAND : ALPHA
TESTED: Sep. 01 to 03, 2004
APPLICANT : Alpha Networks Inc.
STANDARDS : 47 CFR Part 15, Subpart C (Section 15.247),
ANSI C63.4-2001

The above equipment (Model: WMP-G03) 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 : Amanda Chu , **DATE:** Sep. 06, 2004
(Amanda Chu)

TECHNICAL
ACCEPTANCE : Hank Chung , **DATE:** Sep. 06, 2004
Responsible for RF (Hank Chung)

APPROVED BY : Eric Lin , **DATE:** Sep. 06, 2004
(Eric Lin, 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 -15.63dBuV at 0.158MHz
15.247(b)	Maximum Peak Output Power Limit: max. 30dBm	PASS	Meet the requirement of limit
15.247(c)	Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit Minimum passing margin is -1.30dBuV at 133.73MHz
15.247(c)	Band Edge Measurement Limit: 20dB less than the peak value of fundamental frequency	PASS	Meet the requirement of limit

NOTE: This report is prepared for FCC class II permissive change. Only conducted emission, radiated emission, Maximum Peak Output Power and Band Edge Measurement conducted emission were presented in this test report.

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	IEEE802.11g Wireless MiniPCI Card
MODEL NO.	WMP-G03
POWER SUPPLY	3.3Vdc from host equipment
MODULATION TYPE	BPSK, QPSK, CCK, 16QAM, 64QAM
RADIO TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11b: 11/5.5/2/1Mbps 802.11g: 54/48/36/24/18/12/9/6Mbps
FREQUENCY RANGE	2412MHz ~ 2462MHz
NUMBER OF CHANNEL	11
OUTPUT POWER	16.55dBm
DATA CABLE	NA
ANTENNA TYPE	Omni-Directional Antenna, Dipole Antenna
I/O PORTS	NA
ASSOCIATED DEVICES	NA

NOTE:

1. This report is prepared for FCC class II permissive change. The difference compared with the original design is as the following:

◆ Add two new antennas:

No.	Antenna Type	Gain (dBi)	Antenna Connector
1	Omni-Directional Antenna	3.7	SMA female
2	Dipole Antenna	5	SMA female

2. The above EUT information was declared by the manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

3.2 DESCRIPTION OF TEST MODES

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:

- Below 1GHz, the channel 1, 6, and 11 were pre-tested in chamber. The channel 11, the worst case, was chosen for final test.
- Above 1GHz, the channel 1, 6, and 11 were tested individually.
- 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.
- The EUT tested as the following test modes:

Test Mode	Antenna
Mode 1	With Antenna 1 x 2
Mode 2	With Antenna 1 and Antenna 2
- There are two test results presented in the following sections: The test result A is for CCK technique and the test result B is for OFDM technique.

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is an IEEE802.11g Wireless MiniPCI Card . According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

47 CFR Part 15, Subpart C. (15.247)

ANSI C63.4 : 2001

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

3.4 DESCRIPTION OF SUPPORT UNITS

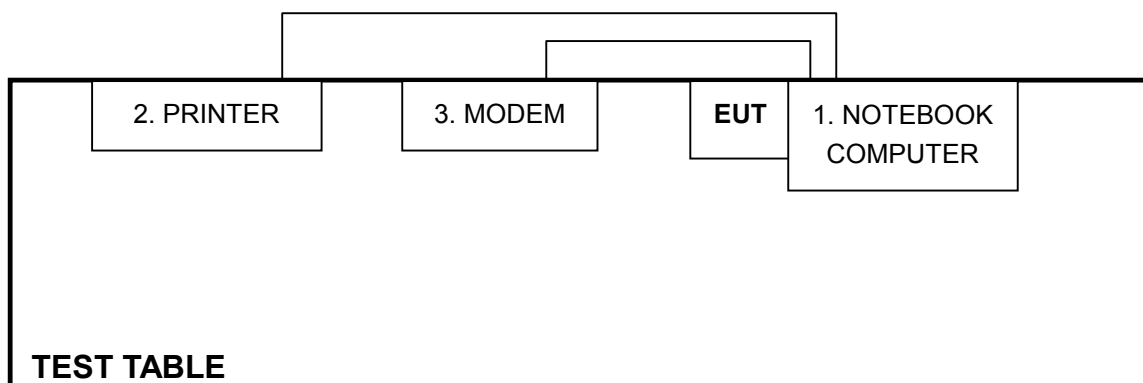
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	Notebook Computer	DELL	C600	6DRV601	FCC DoC
2	PRINTER	HP	C2642A	MY79F1C3MZ	B94C2642X
3	MODEM	ACEEX	1414	0206026776	IFAXDM1414

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA
2	1.8 m foil shielded wire, terminal by frame, PS2 Connector, w/o Core.
3	1.0 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).

3.5 CONFIGURATION OF SYSTEM UNDER TEST



NOTE: 1. Please refer to the photos of test configuration in Item 5 also.

4 TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	79	66	66 - 56	56 - 46
0.50 - 5.0	73	60	56	46
5.0 - 30.0	73	60	60	50

- NOTES:** (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.

4.1.1 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
*ROHDE & SCHWARZ Test Receiver	ESCS 30	847124/029	Dec. 04, 2004
*ROHDE & SCHWARZ LISN (for EUT)	ESHS-Z5	848773/004	Nov. 04, 2004
*KYORITSU LISN (for peripheral)	KNW-407	8/1395/12	Jul. 23, 2005
*RF Cable (JETBAO)	RG233/U	Cable_CA_01	Jul. 02, 2005
*Terminator(for KYORITSU)	50	3	May 10, 2005
*Software	Cond-V2e	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in ADT Shielded Room No. A.
3. The VCCI Class A Registration No. is C-817.
4. * = These equipment are used for the final measurement.
5. The measurement uncertainty is 2.53 dB, which is calculated as per the document CISPR 16-4



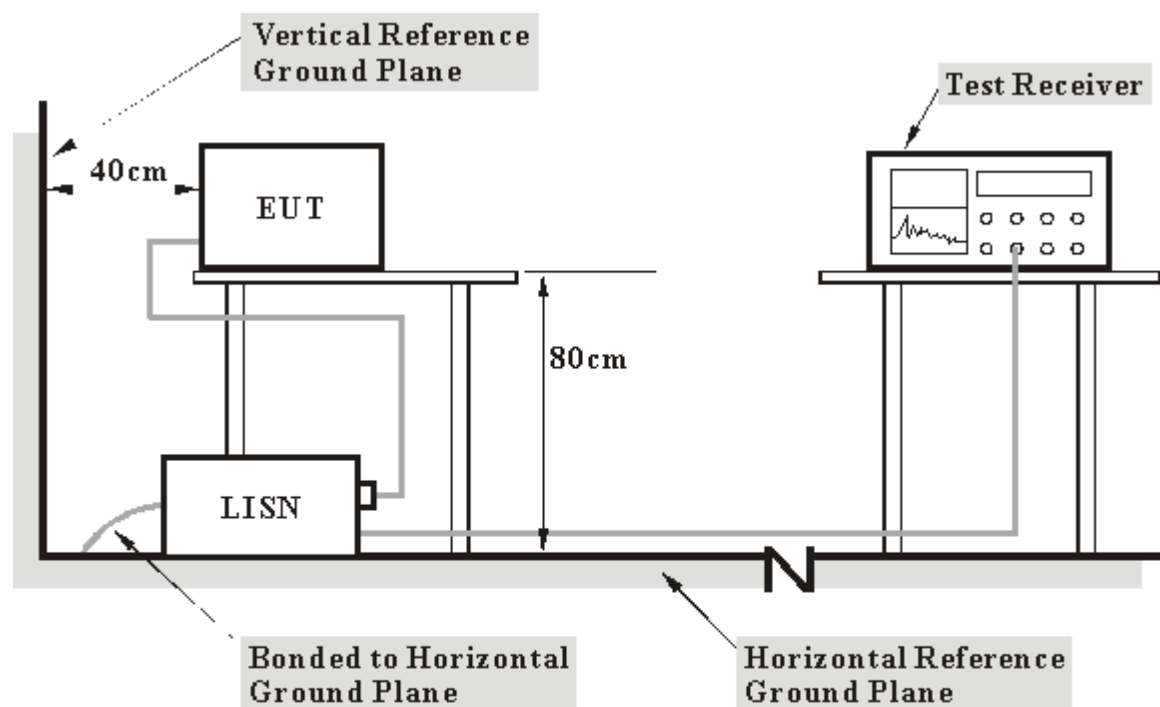
4.1.2 TEST PROCEDURES

- 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 over 10dB under the prescribed limits could not be reported

4.1.3 DEVIATION FROM TEST STANDARD

No deviation

4.1.4 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.



4.1.5 EUT OPERATING CONDITIONS

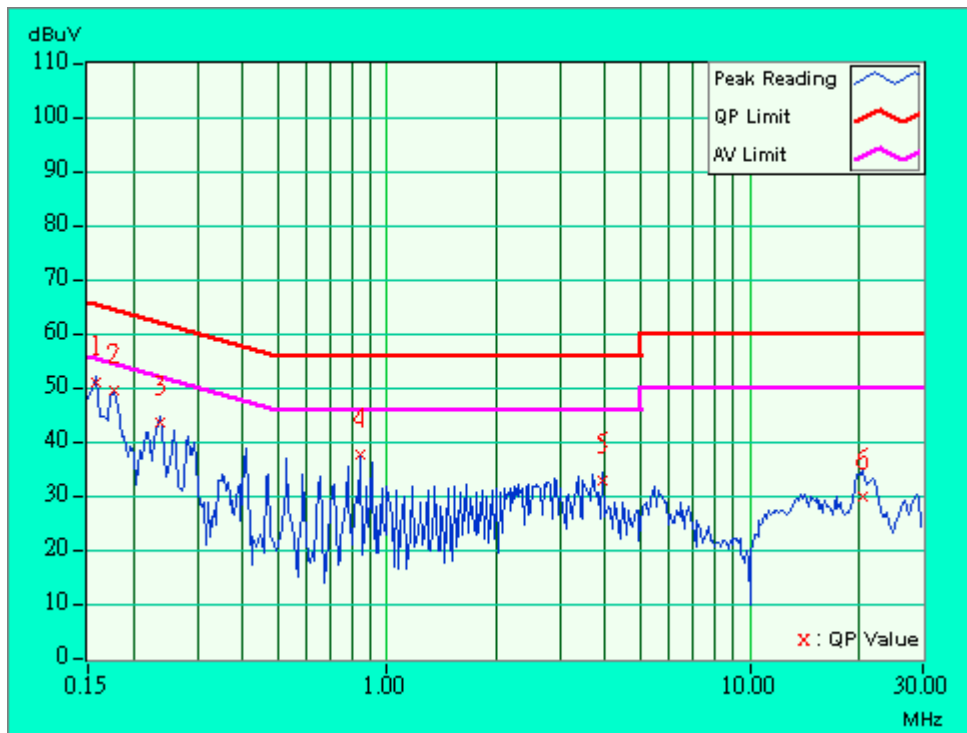
- a. Plug the EUT into the support unit 1 (Notebook computer) which placed on a testing table.
- b. The support unit 1 (Notebook computer) ran a test program “ CTxRx 2.1.0.0” to enable EUT under transmission condition continuously at specific channel frequency.
- c. Notebook computer sends "H" messages to modem.
- d. Notebook computer sends "H" messages to printer, and the printer prints them on paper.

4.1.6 TEST RESULTS

EUT	IEEE802.11g Wireless MiniPCI Card		
MODEL	WMP-G03	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	26 deg. C, 65%RH, 954 hPa	TESTED BY	Rex Huang

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.158	0.22	49.73	-	49.95	-	65.58	55.58	-15.63	-
2	0.177	0.25	48.11	-	48.36	-	64.61	54.61	-16.24	-
3	0.236	0.28	42.36	-	42.64	-	62.24	52.24	-19.60	-
4	0.841	0.27	36.26	-	36.53	-	56.00	46.00	-19.47	-
5	3.945	0.40	31.44	-	31.84	-	56.00	46.00	-24.16	-
6	20.418	1.40	28.78	-	30.18	-	60.00	50.00	-29.82	-

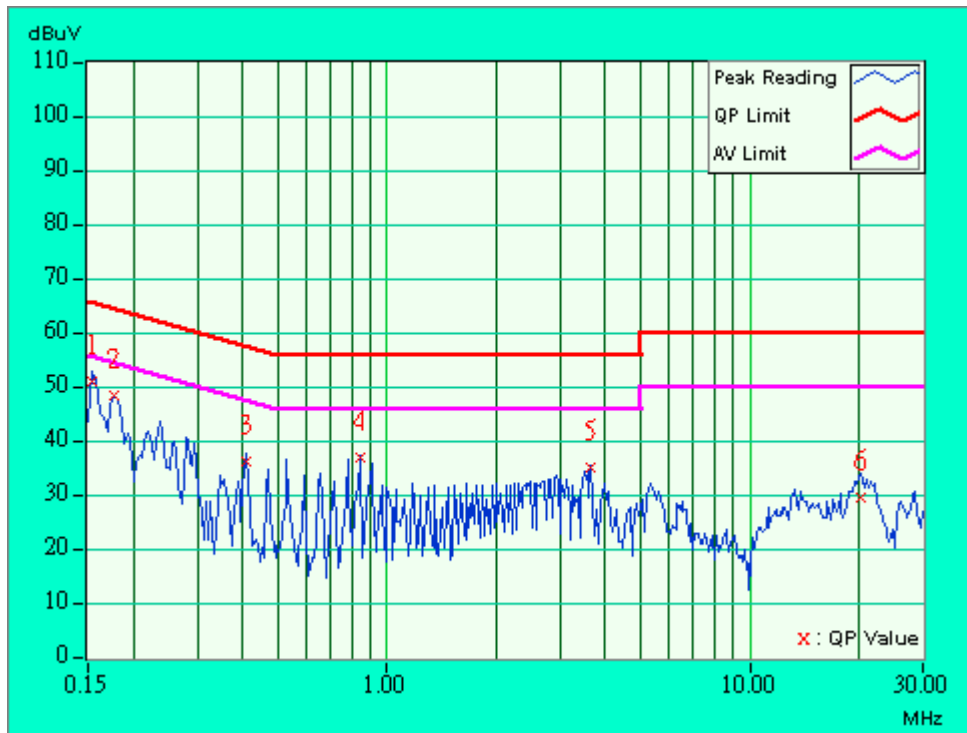
- NOTES:** (1) "": Undetectable
(2) Q.P. and AV. are abbreviations of quasi-peak and average.
(3) "-": The Quasi-peak reading value also meets an average limit, thus measurement with the average detector is unnecessary.
(4) The emission levels of other frequencies were very low against the limit.
(5)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



EUT	IEEE802.11g Wireless MiniPCI Card		
MODEL	WMP-G03	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	26 deg. C, 65%RH, 954 hPa	TESTED BY	Rex Huang

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.154	0.21	49.80	-	49.01	-	65.79	55.79	-16.78	-
2	0.177	0.25	47.25	-	47.50	-	64.61	54.61	-17.10	-
3	0.408	0.20	35.25	-	35.45	-	57.69	47.69	-22.24	-
4	0.845	0.27	35.67	-	35.94	-	56.00	46.00	-20.06	-
5	3.660	0.38	33.96	-	34.34	-	56.00	46.00	-21.66	-
6	20.281	1.20	28.26	-	29.46	-	60.00	50.00	-30.54	-

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



4.2 RADIATED EMISSION MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Field strength limits are at the distance of 3 meters, 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	8594ER	3829U04676	Sep. 01 ,2005
*ADVANTEST Spectrum Analyzer	R3271A	85060311	Jun 16, 2005
*CHASE RF Pre_Amplifier	CPA9232	1057	May. 10, 2005
*HP Pre_Amplifier	8449B	3008A01922	Oct. 13, 2004
*ROHDE & SCHWARZ Test Receiver	ESVS 10	849231 /019	Sep. 30, 2004
*CHASE Broadband Antenna	VULB9168	138	May.22, 2005
*Schwarzbeck Horn_Antenna	3115	5619	Jun. 16, 2005
*SCHWARZBECK Tunable Dipole Antenna	UHAP	897	Mar. 07, 2005
*SCHWARZBECK Tunable Dipole Antenna	VHAP	880	Mar. 07, 2005
*RF Switches (ARNITSU)	CS-201	1565157	Dec. 01, 2004
*RF CABLE (Chaintek) 1GHz-20GHz	SF102	22054-2	Feb. 09. 2005
*RF Cable(RICHTEC)	9913-30M	STCCAB-30M-1 GHz-021	Dec. 01, 2004
*Software	AS60P8	NA	NA
*CHANCE MOST Antenna Tower	AT-100	0203	NA
*CHANCE MOST Turn Table	TT-100	0203	NA

Note: 1. The calibration interval of the above test instruments is 12 months (36 months for Tunable Dipole Antenna) 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. C.
5. The FCC Site Registration No. is 656396.
6. The VCCI Site Registration No. is R-1626.
7. The CANADA Site Registration No. is IC 4824-3.
8. The measurement uncertainty is 3.56 dB, which is calculated as per the document CISPR 16-4



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 the quasi-peak method or average method as specified and then reported in Data sheet peak mode and QP mode.

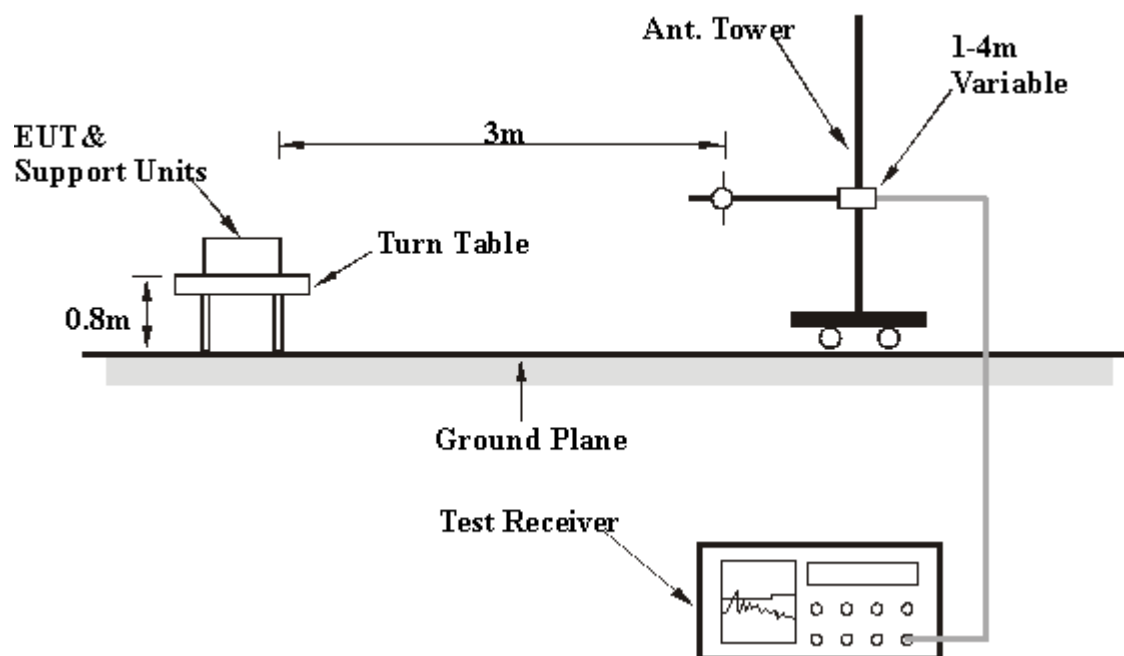
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 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	IEEE802.11g Wireless MiniPCI Card	MODEL	WMP-G03
MODE	Channel 11	FREQUENCY RANGE	30-1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION & BANDWIDTH	Quasi-Peak, 120kHz
ENVIRONMENTAL CONDITIONS	27 deg. C, 59%RH, 954 hPa	TESTED BY	Tony 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	133.63	42.00 QP	43.50	-1.50	2.26 H	98	29.40	12.60
2	166.94	34.70 QP	43.50	-8.80	2.33 H	100	23.90	10.70
3	200.40	32.90 QP	43.50	-10.60	1.73 H	237	23.40	9.50
4	234.10	35.40 QP	46.00	-10.60	1.32 H	223	23.50	12.00
5	240.00	32.00 QP	46.00	-14.00	1.06 H	324	19.30	12.80
6	300.77	37.90 QP	46.00	-8.10	1.00 H	224	22.70	15.20
7	334.13	41.70 QP	46.00	-4.30	1.00 H	239	25.50	16.30
8	400.64	37.00 QP	46.00	-9.00	1.00 H	113	18.60	18.40

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	133.49	36.70 QP	43.50	-6.80	1.01 V	72	24.10	12.60
2	200.25	25.60 QP	43.50	-17.90	1.15 V	152	16.00	9.60
3	240.00	22.80 QP	46.00	-23.20	2.03 V	187	10.10	12.80
4	267.26	32.40 QP	46.00	-13.60	1.31 V	289	17.70	14.70
5	301.51	31.10 QP	46.00	-14.90	1.02 V	107	15.90	15.30
6	320.00	28.90 QP	46.00	-17.10	1.49 V	111	13.10	15.80
7	326.38	35.40 QP	46.00	-10.60	1.92 V	233	19.30	16.00
8	333.88	31.80 QP	46.00	-14.20	1.36 V	215	15.50	16.30
9	400.00	26.70 QP	46.00	-19.30	1.12 V	182	8.30	18.40
10	480.00	27.30 QP	46.00	-18.70	1.53 V	285	7.10	20.20
11	520.00	26.40 QP	46.00	-19.60	1.56 V	157	4.80	21.50

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

4.2.8 TEST RESULTS (ANTENNA1) -DSSS

EUT	IEEE802.11g Wireless MiniPCI Card	MODEL	WMP-G03
MODE	Channel 1	FREQUENCY RANGE	1000~25000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION & BANDWIDTH	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	27 deg. C, 59%RH, 954 hPa	TESTED BY	Tony 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	2375.00	49.30 PK	74.00	-24.70	1.38 H	76	18.60	30.70
2	2390.00	49.50 PK	74.00	-24.50	1.78 H	33	15.70	33.80
3	*2412.00	107.20 PK			1.78 H	33	77.30	29.90
3	*2412.00	100.50 AV			1.78 H	33	70.60	29.90
4	4824.00	47.50 PK	74.00	-26.50	1.13 H	342	11.30	36.20
5	9648.00	52.50 PK	74.00	-21.50	1.72 H	358	7.60	44.90
5	9648.00	41.60 AV	54.00	-12.40	1.72 H	358	-3.40	44.90

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2375.00	48.50 PK	74.00	-25.50	1.77 V	0	17.80	30.70
2	2390.00	45.90 PK	74.00	-28.10	1.21 V	2	12.10	33.80
3	*2412.00	105.30 PK			1.21 V	2	75.40	29.90
3	*2412.00	98.20 AV			1.21 V	2	68.30	29.90
4	4824.00	53.30 PK	74.00	-20.70	1.13 V	269	17.00	36.20
4	4824.00	47.70 AV	54.00	-6.30	1.13 V	269	11.50	36.20
5	9648.00	52.10 PK	74.00	-21.90	1.21 V	0	7.20	44.90
5	9648.00	43.20 AV	54.00	-10.80	1.21 V	0	-1.70	44.90

- 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. The limit value is defined as per 15.247
 6. “ * ” : Fundamental frequency

EUT	IEEE802.11g Wireless MiniPCI Card	MODEL	WMP-G03
MODE	Channel 6	FREQUENCY RANGE	1000~25000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION & BANDWIDTH	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	27 deg. C, 59%RH, 954 hPa	TESTED BY	Tony 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	109.20 PK			1.48 H	33	79.20	30.00
1	*2437.00	102.60 AV			1.48 H	33	72.70	30.00
2	4874.00	49.50 PK	74.00	-24.50	1.63 H	25	13.00	36.50
3	9748.00	51.10 PK	74.00	-22.90	1.71 H	344	6.50	44.60
3	9748.00	40.60 AV	54.00	-13.40	1.71 H	344	-4.00	44.60

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	107.90 PK			1.41 V	357	77.90	30.00
1	*2437.00	101.00 AV			1.41 V	357	71.00	30.00
2	4874.00	52.50 PK	74.00	-21.50	2.00 V	290	16.00	36.50
2	4874.00	48.20 AV	54.00	-5.80	2.00 V	290	11.80	36.50
3	9748.00	52.60 PK	74.00	-21.40	1.74 V	89	8.00	44.60
3	9748.00	43.50 AV	54.00	-10.50	1.74 V	89	-1.10	44.60

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. The limit value is defined as per 15.247
 6. “ * ” : Fundamental frequency

EUT	IEEE802.11g Wireless MiniPCI Card	MODEL	WMP-G03
MODE	Channel 11	FREQUENCY RANGE	1000~25000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION & BANDWIDTH	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	27 deg. C, 59%RH, 954 hPa	TESTED BY	Tony 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	*2462.00	107.80 PK			1.42 H	21	77.80	30.10
1	*2462.00	101.10 AV			1.42 H	21	71.00	30.10
2	2483.50	50.10 PK	74.00	-23.90	1.42 H	21	19.90	30.10
3	4924.00	51.00 PK	74.00	-23.00	1.72 H	4	14.30	36.70
3	4924.00	45.80 AV	54.00	-8.20	1.72 H	4	9.20	36.70
4	9848.00	52.80 PK	74.00	-21.20	2.01 H	95	8.40	44.40
4	9848.00	43.10 AV	54.00	-10.90	2.01 H	95	-1.30	44.40

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	108.10 PK			1.42 V	356	78.00	30.10
1	*2462.00	101.30 AV			1.42 V	356	71.30	30.10
2	2483.50	50.10 PK	74.00	-23.90	1.42 V	356	20.00	30.10
3	4924.00	53.70 PK	74.00	-20.30	2.17 V	315	17.00	36.70
3	4924.00	49.70 AV	54.00	-4.30	2.17 V	315	13.00	36.70
4	9848.00	53.30 PK	74.00	-20.70	2.02 V	89	8.90	44.40
4	9848.00	44.20 AV	54.00	-9.80	2.02 V	89	-0.20	44.40

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. The limit value is defined as per 15.247
 6. “ * ” : Fundamental frequency

4.2.9 TEST RESULTS (MODE 1)-OFDM

EUT	IEEE802.11g Wireless MiniPCI Card	MODEL	WMP-G03
MODE	Channel 1	FREQUENCY RANGE	1000~25000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION & BANDWIDTH	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	27 deg. C, 59%RH, 954 hPa	TESTED BY	Tony 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	2375.00	50.30 PK	74.00	-23.70	1.78 H	101	19.60	30.70
2	2390.00	44.80 PK	74.00	-29.20	1.25 H	31	11.00	33.80
3	*2412.00	104.40 PK			1.25 H	31	74.50	29.90
3	*2412.00	96.50 AV			1.25 H	31	66.60	29.90
4	4824.00	49.60 PK	74.00	-24.40	1.94 H	37	13.40	36.20
5	9648.00	51.00 PK	74.00	-23.00	1.92 H	91	6.10	44.90
5	9648.00	40.40 AV	54.00	-13.60	1.92 H	91	-4.50	44.90

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2375.00	49.70 PK	74.00	-24.30	1.78 V	0	19.00	30.70
2	2390.00	43.00 PK	74.00	-31.00	1.20 V	357	9.20	33.80
3	*2412.00	102.50 PK			1.20 V	357	72.60	29.90
3	*2412.00	94.60 AV			1.20 V	357	64.80	29.90
4	4824.00	52.50 PK	74.00	-21.50	1.59 V	131	16.30	36.20
4	4824.00	49.30 AV	54.00	-4.70	1.59 V	131	13.00	36.20
5	9648.00	52.90 PK	74.00	-21.10	1.48 V	260	8.00	44.90
5	9648.00	45.40 AV	54.00	-8.60	1.48 V	260	0.50	44.90

- 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. The limit value is defined as per 15.247
 6. “ * ” : Fundamental frequency

EUT	IEEE802.11g Wireless MiniPCI Card	MODEL	WMP-G03
MODE	Channel 6	FREQUENCY RANGE	1000~25000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION & BANDWIDTH	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	27 deg. C, 59%RH, 954 hPa	TESTED BY	Tony 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	105.90 PK			1.50 H	28	75.90	30.00
1	*2437.00	97.80 AV			1.50 H	28	67.80	30.00
2	4874.00	51.10 PK	74.00	-22.90	1.60 H	19	14.60	36.50
2	4874.00	48.10 AV	54.00	-5.90	1.60 H	19	11.60	36.50
3	9748.00	53.10 PK	74.00	-20.90	1.62 H	3	8.50	44.60
3	9748.00	43.50 AV	54.00	-10.50	1.62 H	3	-1.20	44.60

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	104.70 PK			1.44 V	356	74.80	30.00
1	*2437.00	96.60 AV			1.44 V	356	66.60	30.00
2	4874.00	53.70 PK	74.00	-20.30	1.62 V	72	17.30	36.50
2	4874.00	51.80 AV	54.00	-2.20	1.62 V	72	15.30	36.50
3	9748.00	54.90 PK	74.00	-19.10	1.75 V	70	10.30	44.60
3	9748.00	48.80 AV	54.00	-5.20	1.75 V	70	4.20	44.60

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. The limit value is defined as per 15.247
 6. “ * ” : Fundamental frequency

EUT	IEEE802.11g Wireless MiniPCI Card	MODEL	WMP-G03
MODE	Channel 11	FREQUENCY RANGE	1000~25000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION & BANDWIDTH	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	27 deg. C, 59%RH, 954 hPa	TESTED BY	Tony 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	*2462.00	105.10 PK			1.17 H	339	75.00	30.10
1	*2462.00	97.20 AV			1.17 H	339	67.10	30.10
2	2483.50	52.30 PK	74.00	-21.70	1.17 H	339	22.20	30.10
2	2483.50	44.80 AV	54.00	-9.20	1.17 H	339	14.70	30.10
3	2498.00	53.00 PK	74.00	-21.00	1.18 H	329	21.40	31.60
3	2498.00	42.20 AV	54.00	-11.80	1.18 H	329	10.60	31.60
4	4924.00	49.30 PK	74.00	-24.70	1.71 H	36	12.60	36.70
5	9848.00	52.30 PK	74.00	-21.70	1.94 H	97	7.90	44.40
5	9848.00	42.30 AV	54.00	-11.70	1.94 H	97	-2.10	44.40

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	103.80 PK			1.40 V	22	73.80	30.10
1	*2462.00	96.00 AV			1.40 V	22	66.00	30.10
2	2483.50	50.10 PK	74.00	-23.90	1.40 V	22	20.00	30.10
3	2498.00	50.50 PK	74.00	-23.50	1.64 V	357	18.80	31.60
4	4924.00	53.00 PK	74.00	-21.00	1.48 V	80	16.30	36.70
4	4924.00	49.40 AV	54.00	-4.60	1.48 V	80	12.80	36.70
5	9848.00	53.10 PK	74.00	-20.90	1.80 V	63	8.70	44.40
5	9848.00	45.80 AV	54.00	-8.20	1.80 V	63	1.50	44.40

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. The limit value is defined as per 15.247
 6. “ * ” : Fundamental frequency

4.2.10 TEST RESULTS (MODE 2)

EUT	IEEE802.11g Wireless MiniPCI Card	MODEL	WMP-G03
MODE	Channel 11	FREQUENCY RANGE	30-1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION & BANDWIDTH	Quasi-Peak, 120kHz
ENVIRONMENTAL CONDITIONS	27 deg. C, 59%RH, 954 hPa	TESTED BY	Tony 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	133.73	42.20 QP	43.50	-1.30	1.84 H	78	29.60	12.60
2	167.24	36.30 QP	43.50	-7.20	1.69 H	89	25.60	10.70
3	200.00	40.40 QP	43.50	-3.10	1.75 H	248	30.90	9.60
4	234.01	38.80 QP	46.00	-7.20	1.23 H	263	26.80	12.00
5	240.00	39.00 QP	46.00	-7.00	1.35 H	255	26.20	12.80
6	299.92	37.10 QP	46.00	-8.90	1.00 H	71	21.90	15.20
7	326.25	40.70 QP	46.00	-5.30	1.00 H	106	24.70	16.00
8	360.00	27.20 QP	46.00	-18.80	1.01 H	223	10.10	17.10
9	399.99	34.10 QP	46.00	-11.90	1.00 H	48	15.70	18.40
10	480.00	26.40 QP	46.00	-19.60	1.31 H	109	6.20	20.20
11	719.99	32.20 QP	46.00	-13.80	1.43 H	115	7.40	24.80
12	759.99	27.30 QP	46.00	-18.70	1.31 H	114	1.20	26.00

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	133.49	34.70 QP	43.50	-8.80	1.00 V	50	22.10	12.60
2	200.99	28.50 QP	43.50	-15.00	1.23 V	80	18.90	9.50
3	234.01	28.50 QP	46.00	-17.50	2.01 V	133	16.50	12.00
4	240.00	30.00 QP	46.00	-16.00	1.82 V	178	17.30	12.80
5	267.27	34.20 QP	46.00	-11.80	2.41 V	325	19.50	14.70
6	301.56	30.60 QP	46.00	-15.40	1.82 V	259	15.40	15.30
7	325.75	36.30 QP	46.00	-9.70	2.06 V	261	20.30	16.00
8	400.00	30.10 QP	46.00	-15.90	1.45 V	205	11.70	18.40
9	480.00	31.20 QP	46.00	-14.80	1.63 V	199	11.00	20.20
10	720.00	25.90 QP	46.00	-20.10	1.43 V	186	1.10	24.80

- 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.

4.2.11 TEST RESULTS (ANTENNA2) -DSSS

EUT	IEEE802.11g Wireless MiniPCI Card	MODEL	WMP-G03
MODE	Channel 1	FREQUENCY RANGE	1000~25000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION & BANDWIDTH	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	27 deg. C, 59%RH, 954 hPa	TESTED BY	Tony 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	2375.00	40.90 PK	74.00	-33.10	1.11 H	342	10.20	30.70
2	2390.00	37.60 PK	74.00	-36.40	1.41 H	45	3.80	33.80
3	*2412.00	96.10 PK			1.41 H	45	66.20	29.90
3	*2412.00	89.10 AV			1.41 H	45	59.20	29.90
4	4824.00	50.30 PK	74.00	-23.70	1.73 H	349	14.10	36.20
5	9648.00	50.90 PK	74.00	-23.10	1.77 H	18	6.00	44.90

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2375.00	52.00 PK	74.00	-22.00	1.41 V	34	21.30	30.70
1	2375.00	40.90 AV	54.00	-13.10	1.41 V	34	10.20	30.70
2	2390.00	51.10 PK	74.00	-22.90	1.43 V	276	17.30	33.80
2	2390.00	43.50 AV	54.00	-10.50	1.43 V	276	9.70	33.80
3	*2412.00	109.70 PK			1.43 V	276	79.80	29.90
3	*2412.00	102.80 AV			1.43 V	276	72.90	29.90
4	4824.00	51.20 PK	74.00	-22.80	1.24 V	356	15.00	36.20
4	4824.00	48.30 AV	54.00	-5.70	1.24 V	356	12.10	36.20
5	9648.00	41.60 PK	74.00	-32.40	1.24 V	5	-3.30	44.90

- 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. The limit value is defined as per 15.247
 6. “ * ” : Fundamental frequency

EUT	IEEE802.11g Wireless MiniPCI Card	MODEL	WMP-G03
MODE	Channel 6	FREQUENCY RANGE	1000~25000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION & BANDWIDTH	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	27 deg. C, 59%RH, 954 hPa	TESTED BY	Tony 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	98.90 PK			1.40 H	48	68.90	30.00
1	*2437.00	92.20 AV			1.40 H	48	62.20	30.00
2	4874.00	53.50 PK	74.00	-20.50	1.64 H	2	17.00	36.50
2	4874.00	49.40 AV	54.00	-4.60	1.64 H	2	13.00	36.50
3	9748.00	48.90 PK	74.00	-25.10	1.54 H	12	4.30	44.60

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	111.90 PK			1.34 V	336	81.90	30.00
1	*2437.00	104.90 AV			1.34 V	336	74.90	30.00
2	4874.00	52.10 PK	74.00	-21.90	1.38 V	355	15.60	36.50
2	4874.00	49.40 AV	54.00	-4.60	1.38 V	355	13.00	36.50
3	9748.00	52.70 PK	74.00	-21.30	1.61 V	78	8.10	44.60
3	9748.00	44.00 AV	54.00	-10.00	1.61 V	78	-0.60	44.60

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. The limit value is defined as per 15.247
 6. “ * ” : Fundamental frequency

EUT	IEEE802.11g Wireless MiniPCI Card	MODEL	WMP-G03
MODE	Channel 11	FREQUENCY RANGE	1000~25000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION & BANDWIDTH	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	27 deg. C, 59%RH, 954 hPa	TESTED BY	Tony 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	*2462.00	96.80 PK			1.17 H	22	66.70	30.10
1	*2462.00	90.10 AV			1.17 H	22	60.00	30.10
2	2483.50	31.10 PK	74.00	-42.90	1.17 H	22	0.90	30.10
3	4924.00	53.50 PK	74.00	-20.50	1.40 H	1	16.80	36.70
3	4924.00	48.90 AV	54.00	-5.10	1.40 H	1	12.20	36.70
4	9848.00	51.80 PK	74.00	-22.20	1.47 H	24	7.40	44.40
4	9848.00	41.20 AV	54.00	-12.80	1.47 H	24	-3.20	44.40

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	111.40 PK			1.18 V	334	81.30	30.10
1	*2462.00	104.80 AV			1.18 V	334	74.80	30.10
2	2483.50	53.20 PK	74.00	-20.80	1.18 V	334	23.10	30.10
2	2483.50	46.00 AV	54.00	-8.00	1.18 V	334	15.80	30.10
3	4924.00	56.30 PK	74.00	-17.70	1.41 V	92	19.60	36.70
3	4924.00	50.10 AV	54.00	-3.90	1.41 V	92	13.40	36.70
4	9848.00	53.90 PK	74.00	-20.10	1.40 V	0	9.60	44.40
4	9848.00	47.40 AV	54.00	-6.60	1.40 V	0	3.00	44.40

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. The limit value is defined as per 15.247
 6. “ * ” : Fundamental frequency

4.2.12 TEST RESULTS (MODE 2)-OFDM

EUT	IEEE802.11g Wireless MiniPCI Card	MODEL	WMP-G03
MODE	Channel 1	FREQUENCY RANGE	1000~25000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION & BANDWIDTH	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	27 deg. C, 59%RH, 954 hPa	TESTED BY	Tony 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	2375.00	41.30 PK	74.00	-32.70	1.61 H	160	10.60	30.70
2	2390.00	40.10 PK	74.00	-33.90	1.10 H	356	6.30	33.80
3	*2412.00	92.40 PK			1.10 H	356	62.50	29.90
3	*2412.00	85.30 AV			1.10 H	356	55.40	29.90
4	4824.00	46.80 PK	74.00	-27.20	2.16 H	304	10.60	36.20
5	9648.00	51.40 PK	74.00	-22.60	1.55 H	212	6.50	44.90
5	9648.00	41.60 AV	54.00	-12.40	1.55 H	212	-3.30	44.90

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2375.00	53.00 PK	74.00	-21.00	1.61 V	142	22.30	30.70
1	2375.00	42.50 AV	54.00	-11.50	1.61 V	142	11.80	30.70
2	2390.00	56.30 PK	74.00	-17.70	1.09 V	332	22.50	33.80
2	2390.00	48.00 AV	54.00	-6.00	1.09 V	332	14.20	33.80
3	*2412.00	108.10 PK			1.09 V	332	78.20	29.90
3	*2412.00	100.40 AV			1.09 V	332	70.50	29.90
4	4824.00	49.00 PK	74.00	-25.00	1.92 V	342	12.80	36.20
5	9648.00	54.90 PK	74.00	-19.10	1.33 V	19	10.00	44.90
5	9648.00	50.10 AV	54.00	-3.90	1.33 V	19	5.20	44.90

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. The limit value is defined as per 15.247
6. " * " : Fundamental frequency

EUT	IEEE802.11g Wireless MiniPCI Card	MODEL	WMP-G03
MODE	Channel 6	FREQUENCY RANGE	1000~25000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION & BANDWIDTH	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	27 deg. C, 59%RH, 954 hPa	TESTED BY	Tony 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	97.50 PK			1.15 H	351	67.60	30.00
1	*2437.00	89.20 AV			1.15 H	351	59.20	30.00
2	4874.00	57.10 PK	74.00	-16.90	1.62 H	23	20.60	36.50
2	4874.00	46.80 AV	54.00	-7.20	1.62 H	23	10.30	36.50
3	9748.00	51.30 PK	74.00	-22.70	1.80 H	7	6.70	44.60
3	9748.00	41.00 AV	54.00	-13.00	1.80 H	7	-3.60	44.60

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	108.20 PK			1.14 V	357	78.20	30.00
1	*2437.00	100.30 AV			1.14 V	357	70.30	30.00
2	4874.00	59.40 PK	74.00	-14.60	1.60 V	158	23.00	36.50
2	4874.00	51.10 AV	54.00	-2.90	1.60 V	158	14.70	36.50
3	9748.00	52.70 PK	74.00	-21.30	1.63 V	63	8.10	44.60
3	9748.00	43.20 AV	54.00	-10.80	1.63 V	63	-1.40	44.60

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. The limit value is defined as per 15.247
 6. “ * ” : Fundamental frequency

EUT	IEEE802.11g Wireless MiniPCI Card	MODEL	WMP-G03
MODE	Channel 11	FREQUENCY RANGE	1000~25000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION & BANDWIDTH	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	27 deg. C, 59%RH, 954 hPa	TESTED BY	Tony 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	*2462.00	94.70 PK			1.11 H	356	64.70	30.10
1	*2462.00	86.60 AV			1.11 H	356	56.50	30.10
2	2483.50	42.10 PK	74.00	-31.90	1.11 H	356	11.90	30.10
3	2498.00	41.40 PK	74.00	-32.60	2.03 H	23	9.80	31.60
4	4924.00	45.90 PK	74.00	-28.10	1.94 H	324	9.20	36.70
5	9848.00	51.70 PK	74.00	-22.30	1.94 H	10	7.40	44.40
5	9848.00	40.80 AV	54.00	-13.20	1.94 H	10	-3.50	44.40

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	107.80 PK			1.66 V	145	77.80	30.10
1	*2462.00	100.10 AV			1.66 V	145	70.10	30.10
2	2483.50	55.20 PK	74.00	-18.80	1.66 V	145	25.10	30.10
2	2483.50	47.70 AV	54.00	-6.30	1.66 V	145	17.60	30.10
3	2498.00	53.20 PK	74.00	-20.80	1.66 V	133	21.60	31.60
3	2498.00	42.70 AV	54.00	-11.30	1.66 V	133	11.00	31.60
4	4924.00	51.80 PK	74.00	-22.20	1.44 V	36	15.10	36.70
4	4924.00	47.30 AV	54.00	-6.70	1.44 V	36	10.60	36.70
5	9848.00	52.90 PK	74.00	-21.10	1.97 V	69	8.50	44.40
5	9848.00	45.40 AV	54.00	-8.60	1.97 V	69	1.00	44.40

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. The limit value is defined as per 15.247
 6. “ * ” : Fundamental frequency

4.3 MAXIMUM PEAK OUTPUT POWER

4.3.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 30dBm.

4.3.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSP40	100037	May 06, 2005
R&S SIGNAL GENERATOR	SMP04	100011	May 28, 2005
TEKTRONIX OSCILLOSCOPE	TDS 220	B027241	Jun. 29, 2005
NARDA DETECTOR	4503A	FSCM99899	NA

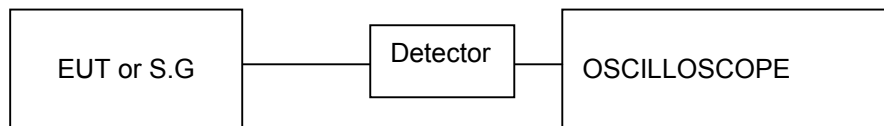
Note:

1. The measurement uncertainty is 1.25dB, which is calculated as per the document ETSI TR 100 028.
2. 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 PROCEDURES

1. A detector was used on the output port of the EUT. An oscilloscope was used to read the peak 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 peak reading on oscilloscope. Record the power level.

4.3.4 TEST SETUP



4.3.5 EUT OPERATING CONDITIONS

Same as Item 4.3.6

4.3.6 TEST RESULTS-DSSS

EUT	IEEE802.11g Wireless MiniPCI Card		
MODEL	WMP-G03	ENVIRONMENTAL CONDITIONS	28 deg. C, 65%RH, 954 hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Tony Chen

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	16.21	30	PASS
6	2437	16.55	30	PASS
11	2462	16.35	30	PASS

4.3.7 TEST RESULTS-OFDM

EUT	IEEE802.11g Wireless MiniPCI Card		
MODEL	WMP-G03	ENVIRONMENTAL CONDITIONS	28 deg. C, 65%RH, 954 hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	TESTED BY	Tony Chen

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	16.21	30	PASS
6	2437	16.43	30	PASS
11	2462	16.28	30	PASS

4.4 BAND EDGES MEASUREMENT

4.4.1 LIMITS OF BAND EDGES MEASUREMENT

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

4.4.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSP40	100037	May. 06, 2005

Note:

1. The measurement uncertainty is 2.79dB, which is calculated as per the document ETSI TR 100 028
2. 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 PROCEDURE

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

4.4.4 DEVIATION FROM TEST STANDARD

No deviation

4.4.5 EUT OPERATING CONDITION

Same as Item 4.3.6

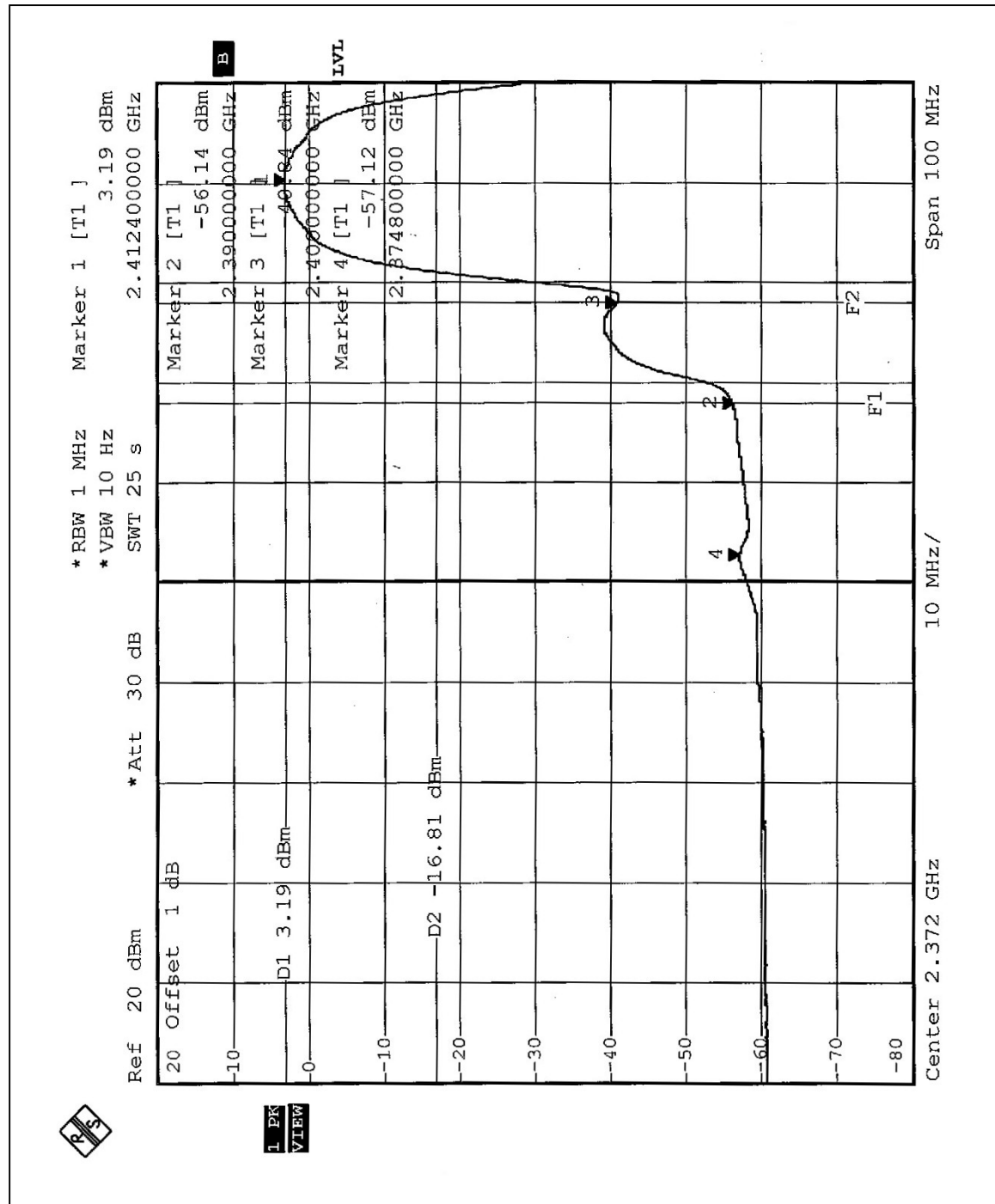
4.4.6 TEST RESULTS (MODE 1)-DSSS

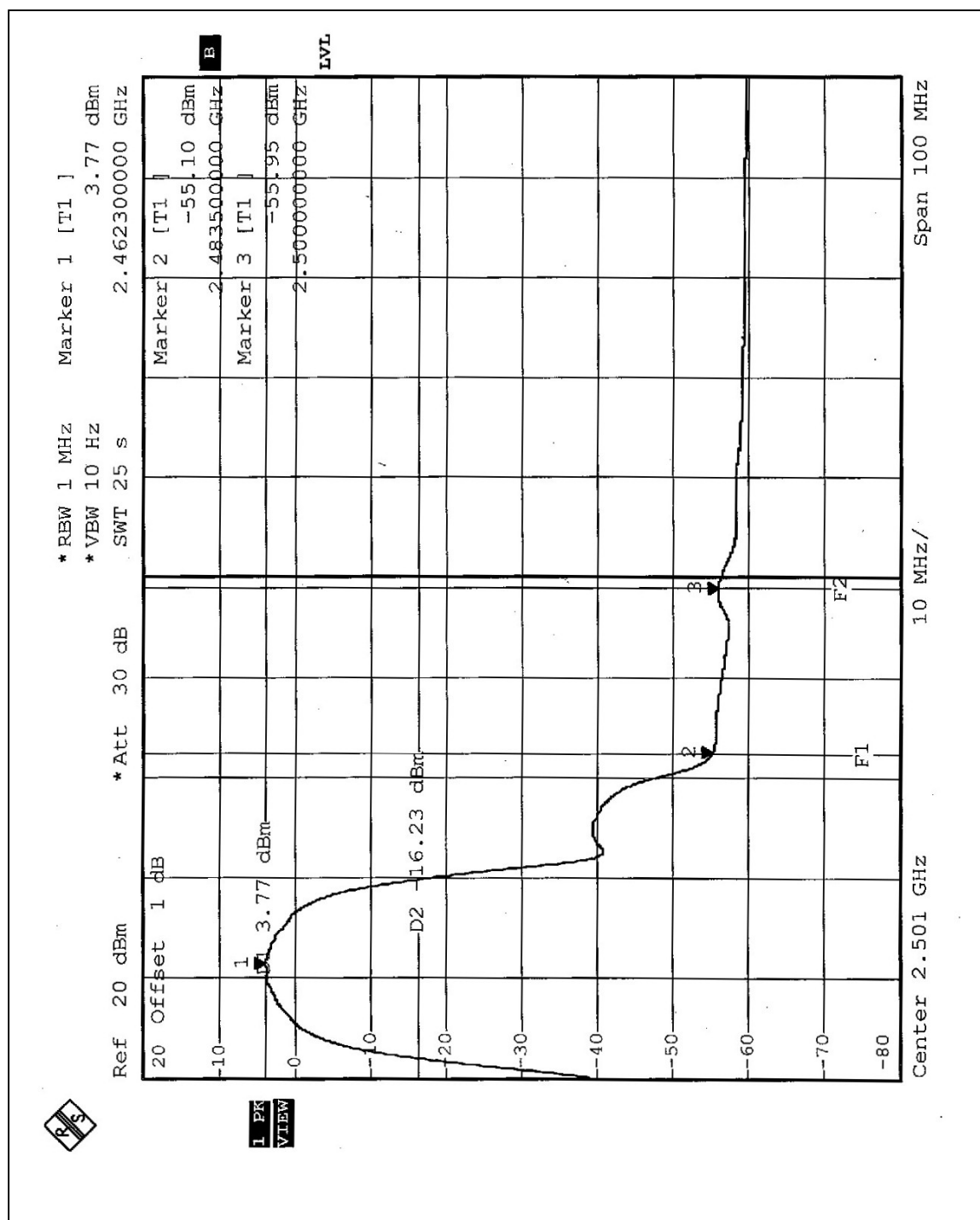
The spectrum plots are attached on the following 2 pages. D1 line indicates the highest level, D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(C).

Note - The delta method is only used up to 2 MHz away from the restricted bandage, The radiated emissions which located in other restricted frequency band, the result, please refer to 4.2.

NOTE (1): The band edge emission plot on the following first page shows 59.33dB 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 is 100.5dBuV/m, so the maximum field strength in restrict band is $100.5 - 59.33 = 41.17$ dBuV/m which is under 54 dBuV/m limit.

NOTE (2): The band edge emission plot on the following second page shows 58.87dB 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. is 101.3dBuV/m, so the maximum field strength in restrict band is $101.3 - 58.87 = 42.43$ dBuV/m which is under 54 dBuV/m limit.







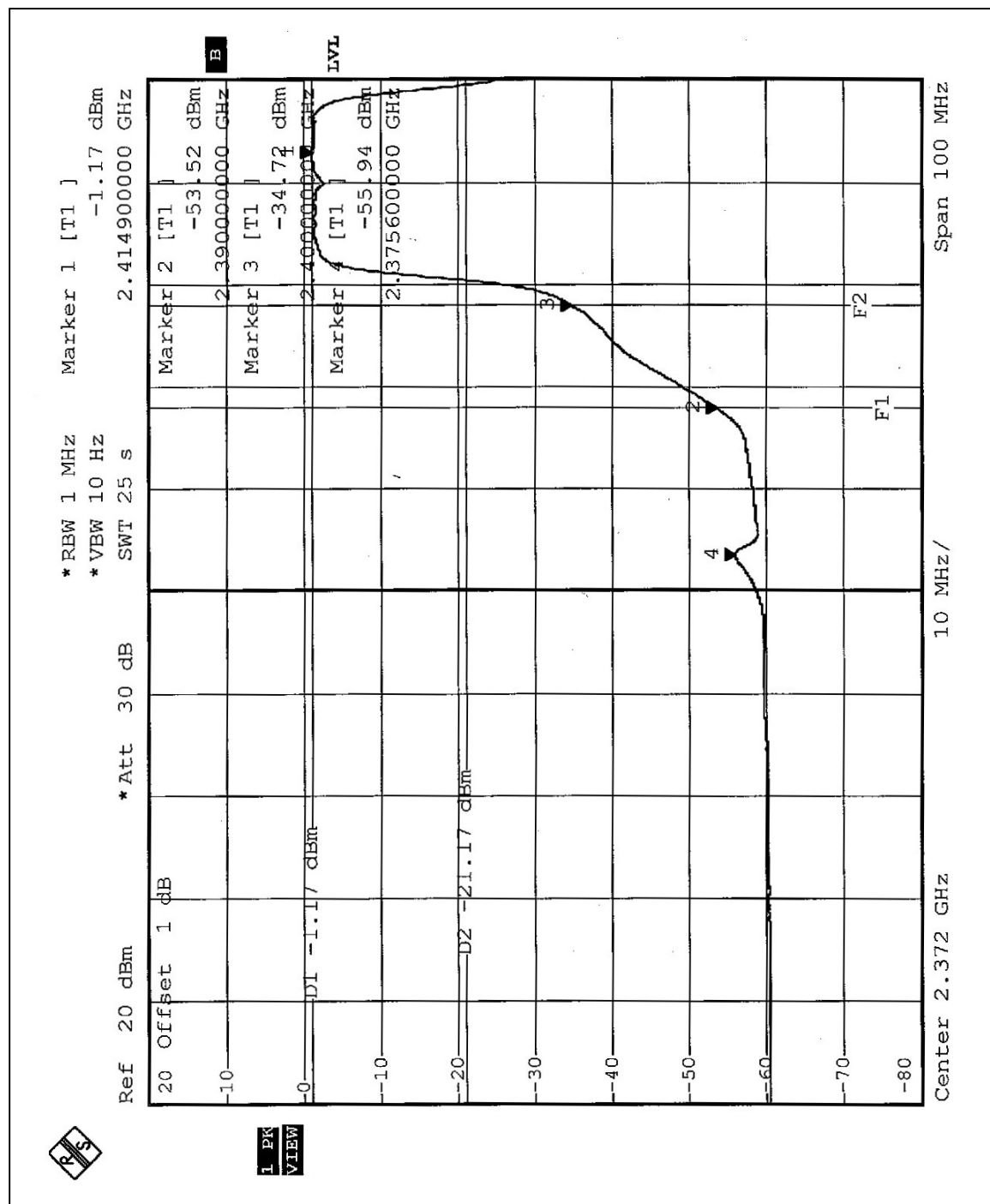
4.4.7 TEST RESULTS (MODE 1)-OFDM

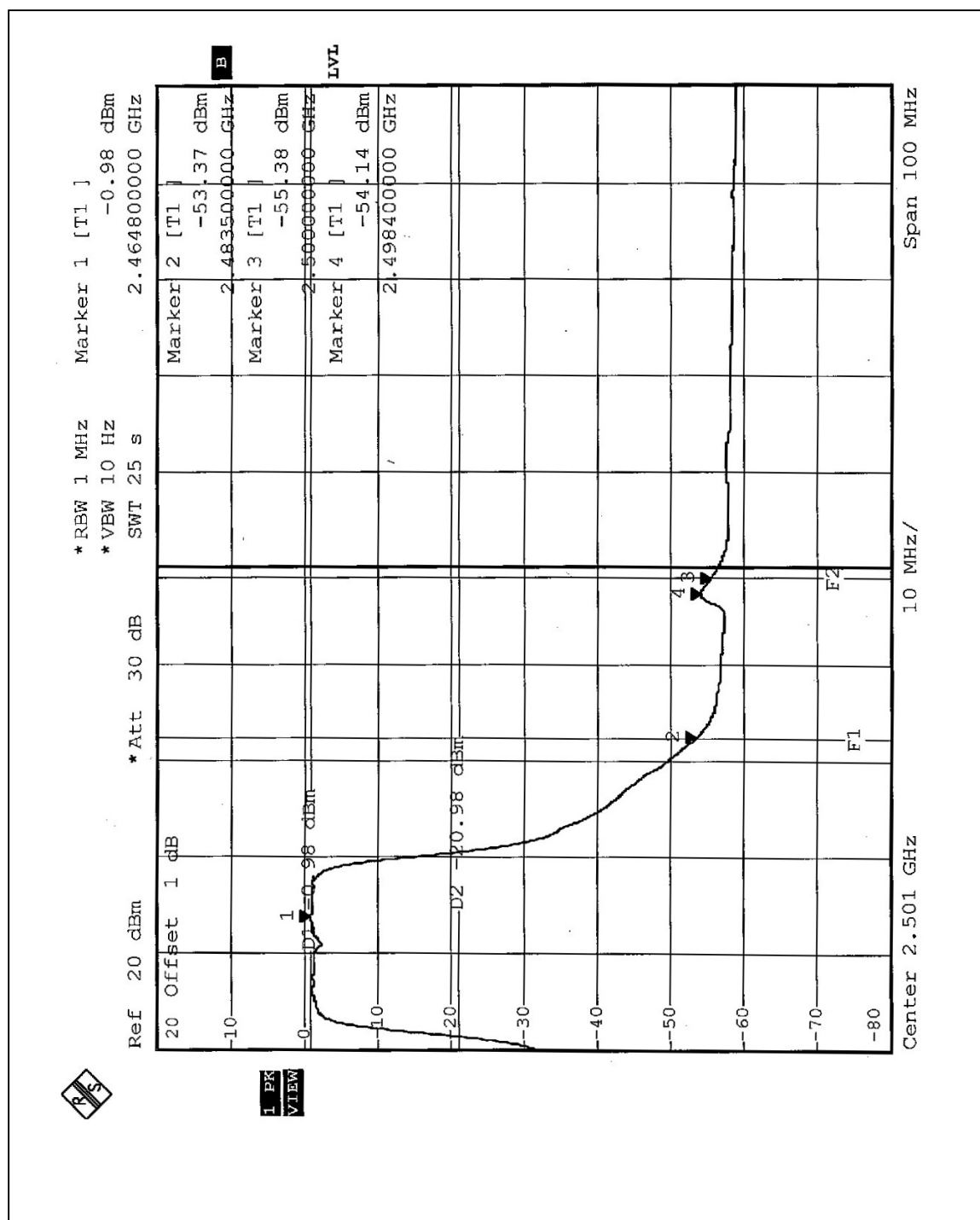
The spectrum plots are attached on the following 2 pages. D1 line indicates the highest level, D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(C).

Note - The delta method is only used up to 2 MHz away from the restricted bandage, The radiated emissions which located in other restricted frequency band, the result, please refer to 4.2.

NOTE (1): The band edge emission plot on the following first page shows 52.35dB 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 is 96.5dBuV/m, so the maximum field strength in restrict band is $96.5 - 52.35 = 44.15$ dBuV/m which is under 54 dBuV/m limit.

NOTE (2): The band edge emission plot on the following second page shows 52.39dB 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. is 97.2dBuV/m, so the maximum field strength in restrict band is $97.2 - 52.39 = 44.81$ dBuV/m which is under 54 dBuV/m limit.







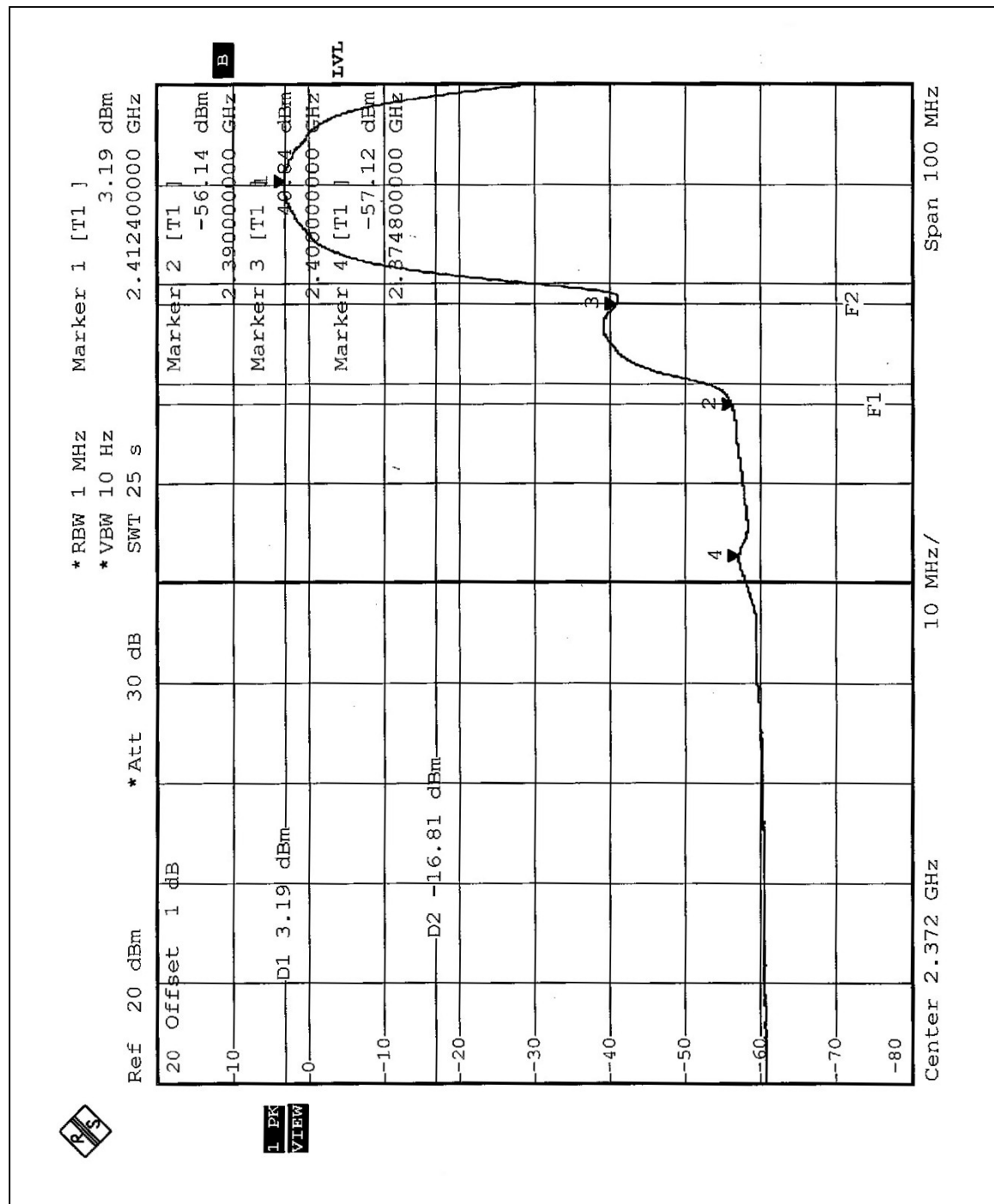
4.4.8 TEST RESULTS (MODE 2)-DSSS

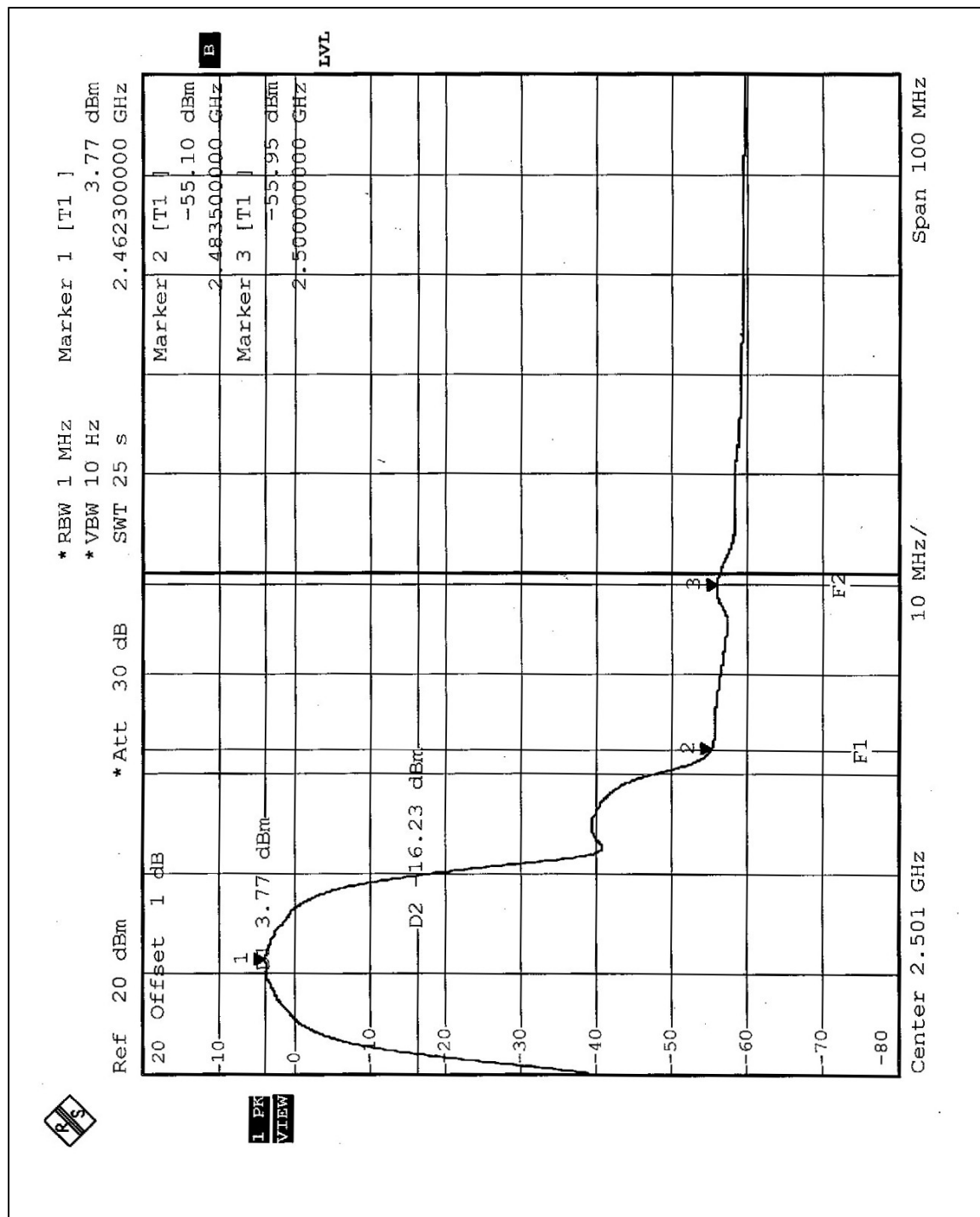
The spectrum plots are attached on the following 2 pages. D1 line indicates the highest level, D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(C).

Note - The delta method is only used up to 2 MHz away from the restricted bandage, The radiated emissions which located in other restricted frequency band, the result, please refer to 4.2.

NOTE (1): The band edge emission plot on the following first page shows 59.33dB 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 is 102.8dBuV/m, so the maximum field strength in restrict band is $102.8 - 59.33 = 43.47$ dBuV/m which is under 54 dBuV/m limit.

NOTE (2): The band edge emission plot on the following second page shows 58.87dB 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. is 104.8dBuV/m, so the maximum field strength in restrict band is $104.8 - 58.87 = 45.93$ dBuV/m which is under 54 dBuV/m limit.





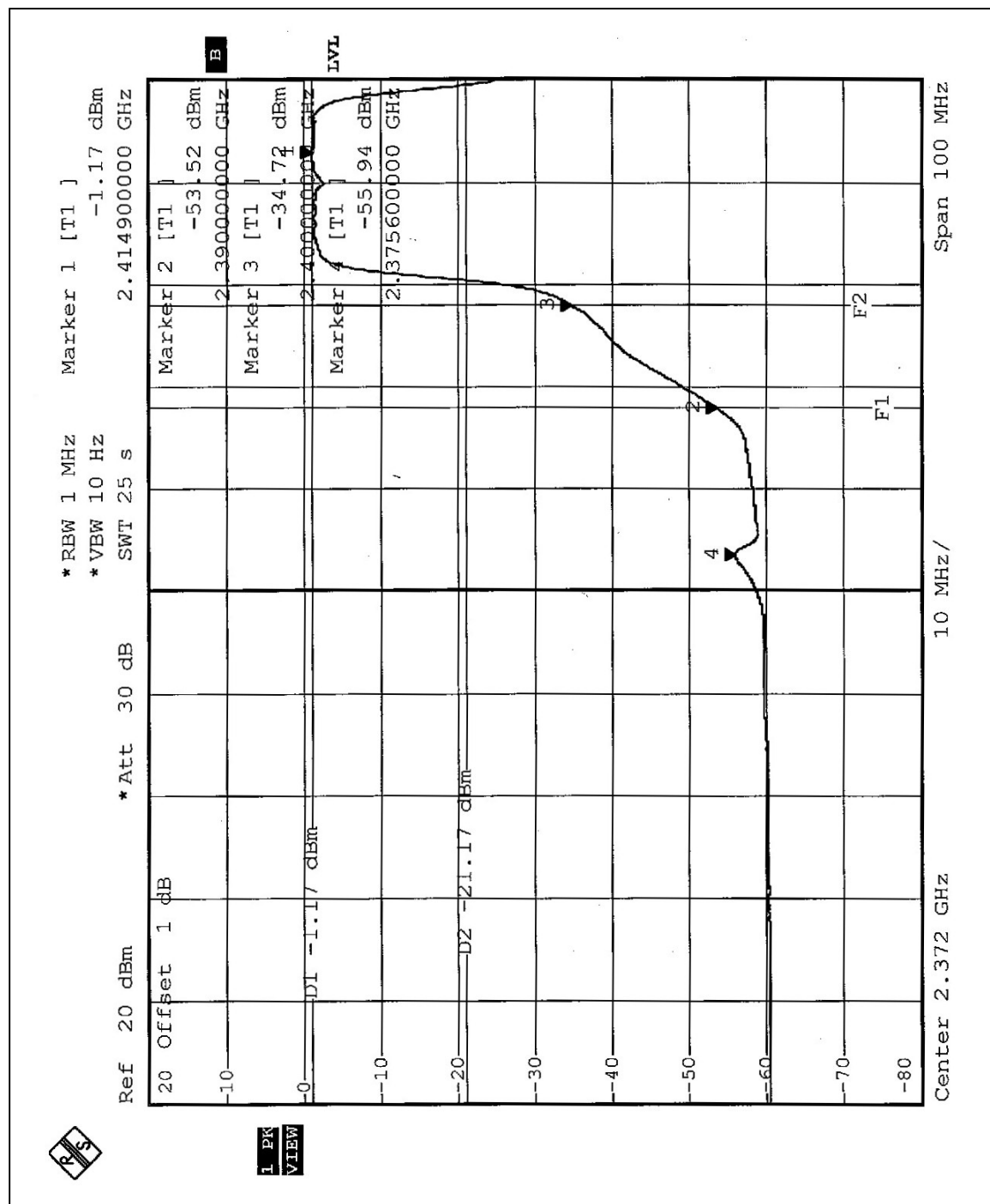
4.4.9 TEST RESULTS (MODE 2)-OFDM

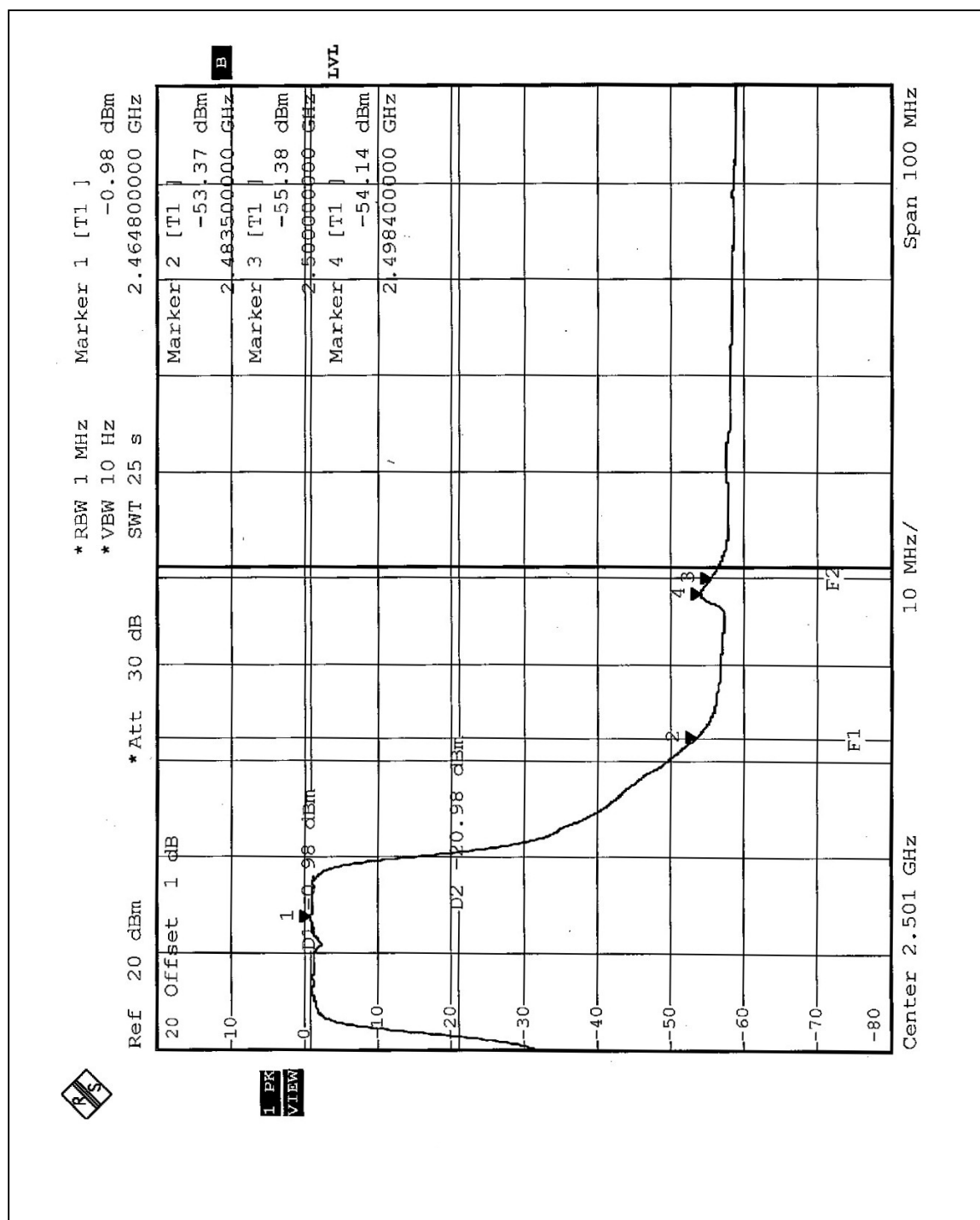
The spectrum plots are attached on the following 2 pages. D1 line indicates the highest level, D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(C).

Note - The delta method is only used up to 2 MHz away from the restricted bandage, The radiated emissions which located in other restricted frequency band, the result, please refer to 4.2.

NOTE (1): The band edge emission plot on the following first page shows 52.35dB 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 is 100.4dBuV/m, so the maximum field strength in restrict band is $100.4 - 52.35 = 48.05$ dBuV/m which is under 54 dBuV/m limit.

NOTE (2): The band edge emission plot on the following second page shows 52.39dB 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. is 100.1dBuV/m, so the maximum field strength in restrict band is $100.1 - 52.39 = 47.71$ dBuV/m which is under 54 dBuV/m limit.







4.5 ANTENNA REQUIREMENT

4.5.1 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.

4.5.2 ANTENNA CONNECTED CONSTRUCTION

The antenna used in this product is Omni-Directional Antenna and Dipole Antenna with SMA female connector. The maximum Gain of the antenna is 5dBi.

5 PHOTOGRAPHS OF THE TEST CONFIGURATION

CONDUCTED EMISSION TEST (MODE 1)



CONDUCTED EMISSION TEST (MODE 2)



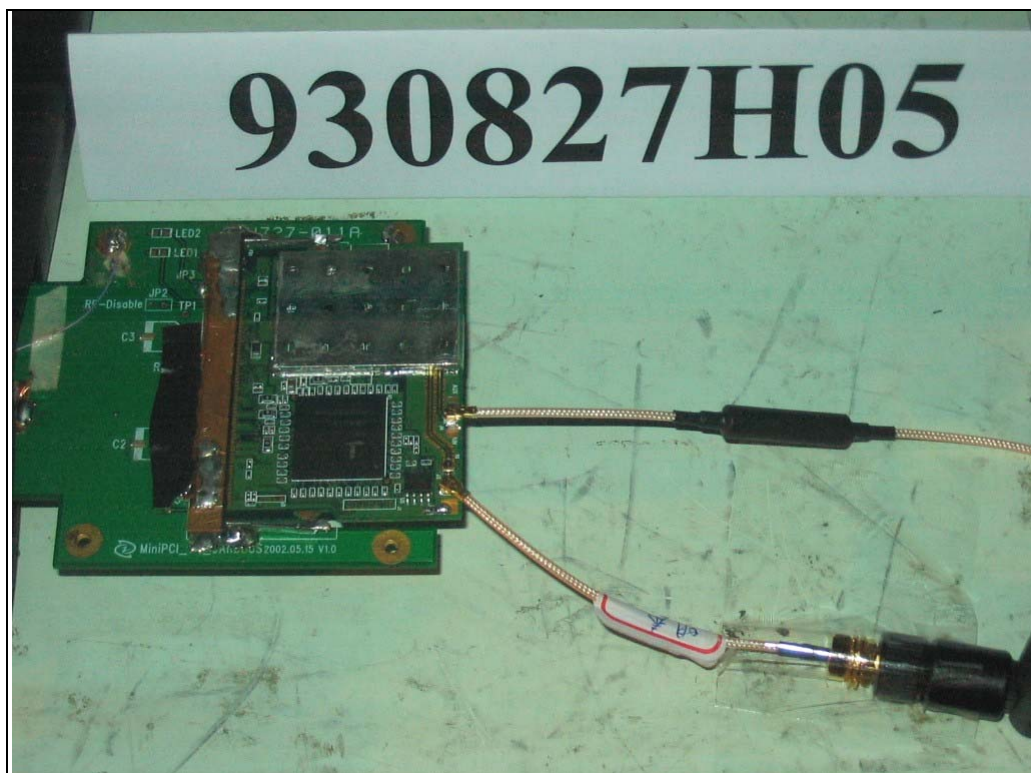
RADIATED EMISSION TEST(MODE 1)





RADIATED EMISSION TEST(MODE 2)







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, A2LA
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:

Tel: 886-2-26052180

Fax: 886-2-26052943

Hsin Chu EMC/RF Lab:

Tel: 886-3-5935343

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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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