

MEASUREMENT REPORT
of
Wireless Cable Modem
for
Class II permissive change

Applicant : ASUSTek Computer Inc.
EUT : Wireless Cable Modem
Model No. : DPR2320
FCC ID : MSQDPR2320

Tested by :

Training Research Co., Ltd.

TEL : 886-2-26935155

FAX : 886-2-26934440

No. 255, Nanyang Street, Shijr, Taipei Hsien 221, Taiwan, R.O.C.

CERTIFICATION

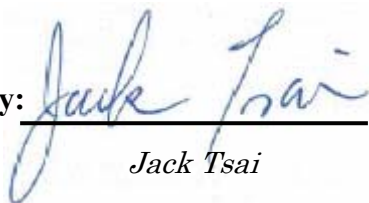
We here by verify that:

The test data, data evaluation, test procedures and equipment configurations shown in this report were made mainly in accordance with the procedures given in ANSI C63.4 (2003) as a reference. All test were conducted by **Training Research Co., Ltd.**, 255 Nanyang Street, Shijr, Taipei Hsien 221, Taiwan, R.O.C. Also, we attest to the accuracy of each.

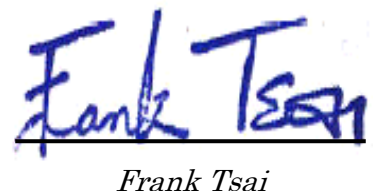
We further submit that the energy emitted by the sample EUT tested as described in the report is **in compliance with** the technical requirements set forth in the FCC Rules Part 15 Subpart C Section 15.247.

Applicant : ASUSTek Computer Inc.
Applicant Address : 4F1., No. 150, Li-Te Rd., Peitou, Taipei, Taiwan, R.O.C.
Product Name : Wireless Cable Modem
Model : DPR2320
Report No. : P5515080061
Test Date : October 12, 2006, March 31, 2008

Prepared by:


 Jack Tsai

Approved by:


 Frank Tsai

Conditions of issue :

- (1) **This test report shall not be reproduced except in full, without written approval of TRC. And the test result contained within this report only relate to the sample submitted for testing.**
- (2) **This report must not be used by the client to claim product endorsement by NVLAP or any agency of U.S. Government.**
- (3) **This test report, measurements made by TRC are traceable to the NIST only Conducted and Radiated Method.**



NVLAP LAB CODE 200174-0

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I . GENERAL

1.1 Introduction

The following measurement report is submitted on behalf of applicant in support that the certification in accordance with Part 2 Subpart J and Part 15 Subpart A and C of the Commission's Rules and Regulations.

1.2 Description of EUT

FCC ID	:	MSQDPR2320
Product Name	:	Wireless Cable Modem
Model Name	:	DPR2320
Frequency Range	:	2.412GHz ~ 2.462GHz
Channel Spacing	:	5MHz
Support Channel	:	11 Channels
Modulation Skill	:	DBPSK, DQPSK, CCK, OFDM

Power Type : Powered by the switching adapter,

(1)Manufacture: OEM
Model: AD-121ANDT
I/P: 120VAC 60Hz 25W
O/P: 12VDC 1A
Primary: 187cm length, non-shielded, no ferrite core
Secondary: 190cm length, non-shielded, no ferrite core

(2)Model: AD-48121000D
I/P: 120VAC 60Hz 0.3A
O/P: 12VDC 1000mA
Primary: 192cm length, non-shielded, no ferrite core
Secondary: 190cm length, non-shielded, no ferrite core

(3)Model: POD-4812100
I/P: 230VAC 50Hz
O/P: 12VDC 1000mA 12VA
192cm length, non-shielded, no ferrite core

Data Cable : BNC Cable x 1, 30m length, shielded, no ferrite core
RJ45 Cable x 1, 30m length, non-shielded, no ferrite core
USB Cable x 1, 1.88m length, shielded, no ferrite core

1.3 Test method

- 1.3.1 The DC-In connected to AC mains supply by switching adapter.
- 1.3.2 The USB port connected to PC.
- 1.3.3 The BNC port of EUT connected to far-end Simulator.
- 1.3.4 The LAN port of EUT connected to far-end LAN port of notebook PC.
- 1.3.5 Connected the USB port of EUT with the USB cable to USB port of PC. Using PC and software provided by the manufacturer to control EUT, the test is performed under the specific conditions.
- 1.3.6 Set different data rate and channel (CH01/CH06/CH11) being tested and repeat the procedures above.
 - (a) Conducted and radiated test:
 - making EUT to the mode of continuous transmission

Notes: (1), (2) and (3) adapters were pre-tested, the (1) adapter worst case one, was chosen for final test.

1.4 Description of Support Equipment

In order to construct the minimum testing, following equipment were used as the support units.

PC : **HP, IBM 8434**
 Model No. : Pavilion t1000; IVG
 Serial No. : TWL3320051; 99CCZA3
 FCC ID : DoC (Declaration of Confirmation) Approved
 BSMI : R33001; R33026
 Power type : 100 ~ 127VAC/6A, 200 ~ 240VAC/3A, 50 ~ 60Hz, Switching
 Power cord : Non-shielded, 1.8m length, Plastic hood, No ferrite core

Monitor : **HP 15' Color Monitor**
 Model No. : D8894A
 Serial No. : CN02364355
 FCC ID : ARSCM356N
 BSMI : 3882A031
 Power type : 100 ~ 240 VAC / 1.5A, 50 ~ 60 Hz, Switching
 Power cord : Non-shielded, 1.80m length, Plastic hood, No ferrite core
 Data cable : Shielded, 1.50m length, Plastic hood, with ferrite core

Printer : **EPSON**
 Model No. : B241A
 Serial No. : FAPY155090
 FCC ID : N/A, DoC Approved
 BSMI : R33126
 Power type : Switching adaptor
 Power cord : Non-shielded, 198cm length, No ferrite core
 Data cable : Shielded, 1.50m length, No ferrite core

PS/2 Mouse : **HP**
 Model No. : M-UR89, M-S69
 Serial No. : LZS21750238, 334684-002 323614-001
 FCC ID : DoC Approved
 BSMI : 3892D767, R41126
 Power type : By PC
 Power cord : Shielded, 1.90m length, No ferrite core

PS/2 Keyboard : HP

Model No. : 5187-0343, KB0133
Serial No. : 265987-AB1 Tch 323686-AB1, B69360MGAPW0HF
FCC ID : DoC Approved
BSMI : 3892C981, R31310
Power type : By PC
Data cable : Shielded, 1.85m length, no ferrite core

Modem : ACEEX

Model No. : DM-1414
Serial No. : 9010583
FCC ID : IFAXDM1414
Power type : Linear
Power cord : Non-shielded, 1.9m length, No ferrite cord
Data cable : RS232, Shielded, 1.2m length, No ferrite core
RJ11C x 2, 7' length non-shielded, No ferrite core

LAN Card : D-Link

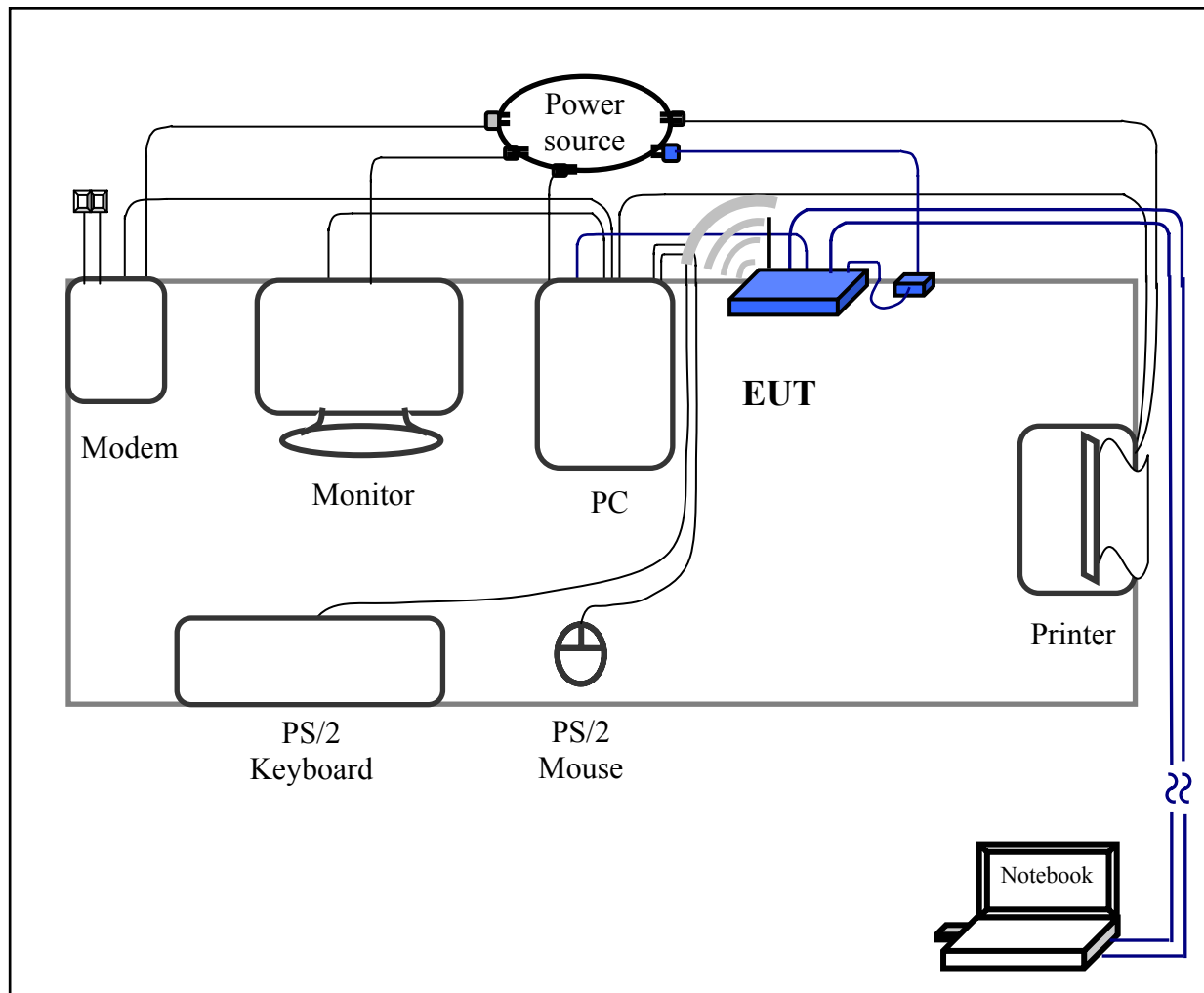
Model No. : DFE-530TX
Serial No. : 0050BAE3158B, 0050BAE32FF3
FCC ID : DoC Approved

PC : **IBM ThinkPad T43**
Model No. : 2668-IVE
Serial No. : L3TGYY
FCC ID : N/A, DoC Approved
BSMI : R33B65
DGT : ETC093LPD0126, CTL093LPD0257
Power adaptor : **IBM**
Part No. : 92P1018
Serial No. : 11S92P1018Z1ZAPU57M9W6 REV: D
FCC ID : N/A, DoC Approved
BSMI : D33030
Power type : 100 ~ 240VAC / 50 ~ 60Hz, 1.0 ~ 0.4A, Switching
Power cord : Primary: Non-shielded, 1.0m length, Plastic hood, No ferrite core
Secondary: Shielded, 1.84m length, Plastic hood, ferrite core

WLAN Card : **Gemtek Technology Co., Ltd.**
Model No. : C911003
FCC ID : MXF-C911003

1.5 Configuration of System Under Test

1.5.1 Conducted and Radiated Emission Test



Connections of Equipment

- PC:**
- *Parallel Port a printer
 - *VGA Port a monitor
 - *Serial Port an external modem
 - *PS/2-key Port a PS/2 keyboard
 - *PS/2-mouse Port a PS/2 mouse
 - *USB Port **EUT**

The tests below are carried with the EUT transmitter set at high power in TDD mode. The EUT is forced to select of output power level and channel number by LAN port.

The setting up procedure was recorded in 1.3 test method.

1.6 Verify the Frequency and Channel

Channel	Frequency (GHz)
1	2.412
2	2.417
3	2.422
4	2.427
5	2.432
6	2.437
7	2.442
8	2.447
9	2.452
10	2.457
11	2.462

Note:

1. This is for confirming that all frequencies are in 2.412GHz to 2.462GHz.
2. Section 15.31(m): Measurements on intentional radiators or receivers shall be performed at three frequencies for operating frequency range over 10 MHz
(The locations of these frequencies one near the top, one near the middle and one near the bottom.)
3. After test, the EUT operating frequencies are in 2.412GHz to 2.462GHz. So all the items as followed in testing report are need to test these three frequencies:
Top: Channel – 1; Middle: Channel – 6; Bottom: Channel – 11.

1.7 Test Procedure

All measurements contained in this report were performed mainly according to the techniques described in ANSI C63.4 (2003) and the pre-setup was written on 1.3 test method, the detail setup was written on each test item.

1.8 Location of the Test Site

The radiated emissions measurements required by the rules were performed on the **three-meter, Anechoic Chamber (FCC Registration Number: 93906)** maintained by *Training Research Co., Ltd.* 1F, No. 255 Nanyang Street, Shijr, Taipei Hsien 221, Taiwan, R.O.C. Complete description and measurement data have been placed on file with the commission. The conducted power line emissions tests and other test items were performed in a anechoic chamber also located at Training Research Co., Ltd.

No. 255 Nanyang Street, Shijr, Taipei Hsien 221, Taiwan, R.O.C. *Training Research Co., Ltd.* is listed by the FCC as a facility available to do measurement work for others on a contract basis.

1.9 General Test Condition

The conditions under which the EUT operates were varied to determine their effect on the equipment's emission characteristics. The final configuration of the test system and the mode of operation used during these tests were chosen as that which produced the highest emission levels. However, only those conditions, which the EUT was considered likely to encounter in normal use were investigated.

In test, they were set in high power and continuously transmitting mode that controlled by computer. The ch01, ch06 and ch11 of EUT were all tested. The setting up procedure is recorded on 1.3 test method.

II. Section 15.203: Antenna requirement

The EUT has one detachable antenna, the antennas are affixed to the EUT using a unique connector, which allows for replacement of a broken antenna, but does not use a standard antenna jack or electrical connector. The antenna requirement stated in Section 15.203 is inapplicable to this EUT.

The EUT can be equipped with two kinds of antennas, the custom antenna specification of list as below: (please refer to antenna specification of RF Exposure Calculations)

External antenna:

Manufacturer	:	WHA YU INDUSTRIAL CO., LTD.
Part No	:	C660-510003-A
Connector	:	SMA Plug Reverse
Antenna Type	:	Dipole Antenna
Antenna Gain	:	1.80dBi

Internal antenna:

Manufacturer	:	WHA YU INDUSTRIAL CO., LTD.
Part No	:	C660-520100-A
Connector	:	I-PEX
Antenna Type	:	PCB
Antenna Gain	:	2.00dBi

III. Section 15.207: Power Line Conducted Emissions for AC Powered Units

3.1 Test Condition & Setup

The power line conducted emission measurements were performed in an anechoic chamber. The EUT was assembled on a wooden table, which is 80 centimeters high, was placed 40 centimeters from the backwall and at least 1 meter from the sidewall.

Power was fed to the EUT from the public utility power grid through a line filter and Line Impedance Stabilization Networks (LISNs). The LISN housing, measuring instrumentation case, ground plane, etc., were electrically bonded together at the same RF potential. The Spectrum analyzer (or EMI receiver) was connected to the AC line through an isolation transformer. The 50-ohm output of the LISN was connected to the spectrum analyzer directly. Conducted emission levels were in the CISPR quasi-peak and average detection mode. The analyzer's 6 dB bandwidth was set to 9 KHz. No post-detector video filter was used.

The spectrum was scanned from 150 KHz to 30 MHz. The physical arrangement of the test system and associated cabling was varied (within the scope of arrangements likely to be encountered in actual use) to determine the effect on the unit's emanations in amplitude and frequency. All spurious emission frequencies were observed. The highest emission amplitudes relative to the appropriate limit were measured and have been recorded in paragraph 4.3

There is a test condition apply in this test item, the test procedure description as <1.3>. Three channels were tested, one in the top (CH01), one in the middle (CH06) and the other in bottom (CH11).

3.2 List of Test Instruments

Instrument Name	Model	Brand	Serial No.	Calibration Date
				Next time
EMI Receiver	8546A	HP	3520A00242	09/05/08
RF Filter Section	85460A	HP	3448A00217	09/05/08
LISN (EUT)	LISN-01	TRC	99-05	05/10/08
LISN (Support E.)	LISN-01	TRC	9912-03, 04	06/22/08
Pre-amplifier	15542 ZFL-500	Mini – Circuits	0 0117	05/04/08
6dB Attenuator	MCL BW-S6W2	Mini – Circuits	9915 – Conducted	04/10/08
10dB Attenuator	A5542 VAT010	Mini – Circuits	0215 – Conducted	04/10/08
Coaxial Cable (2.0 meter)	A30A30-0058-50FS-2M	Jyebao	SMA-08	04/10/08
Coaxial Cable (1.1 meter)	A30A30-0058-50FS-1M	Jyebao	SMA-09	04/10/08
Coaxial Cable (20 meter)	RG-214/U	Jyebao	NP-01	04/10/08
Coaxial Cable (20 meter)	RG-214/U	Jyebao	NP-02	04/10/08
Auto Switch Box (< 30MHz)	ASB-01	TRC	9904-01	04/10/08

3.3 Test Result of Power Line Conducted Emissions

The following table shows a summary of the highest emissions of power line conducted emissions on the LIVE and NETURAL conductors of the EUT power cord. Show as follows.

Test Conditions: Temperature : 25 °C Humidity : 73 % RH

Adapter#1: AD-121ANDT

Test mode: IEEE 802.11b Channel 1

Power Connected Emissions					Class B		
Conductor	Frequency (KHz)	Peak (dBμV)	QP (dBμV)	Average (dBμV)	QP-limit (dBμV)	AVG-limit (dBμV)	Margin (dB)
Line 1	160.725	61.05	54.82	20.79	65.60	55.60	-10.78
	270.045	57.75	51.84	17.66	62.31	52.31	-10.47
	421.180	55.12	48.90	15.38	58.00	48.00	-9.10
	524.135	50.70	43.44	9.49	56.00	46.00	-12.56
	13360.000	45.28	---	---	60.00	50.00	-4.72
	18240.000	44.86	---	---	60.00	50.00	-5.14
Line 2	166.000	60.82	54.67	20.54	65.29	55.29	-10.62
	282.315	57.63	51.46	17.44	61.97	51.97	-10.51
	434.315	55.32	48.71	14.71	57.63	47.63	-8.92
	651.000	41.28	---	---	56.00	46.00	-4.72
	14120.000	44.98	---	---	60.00	50.00	-5.02
	18240.000	43.08	---	---	60.00	50.00	-6.92

NOTE:

(1)Margin = Peak Amplitude – Limit, The reading amplitudes are all under limit.

(2)A "+" sign in the margin column means the emission is OVER the Class B Limit
and "-" sign of means UNDER the Class B limit

Test mode: IEEE 802.11b Channel 6

Power Connected Emissions					Class B		
Conductor	Frequency (KHz)	Peak (dBμV)	QP (dBμV)	Average (dBμV)	QP-limit (dBμV)	AVG-limit (dBμV)	Margin (dB)
Line 1	165.985	61.08	54.64	20.75	65.37	55.37	-10.73
	270.270	57.79	51.66	17.68	62.31	52.31	-10.65
	385.135	55.55	49.53	15.50	59.03	49.03	-9.50
	633.000	42.29	---	---	56.00	46.00	-3.71
	13360.000	45.07	---	---	60.00	50.00	-4.93
	18240.000	44.60	---	---	60.00	50.00	-5.40
Line 2	160.180	60.82	54.79	20.71	65.63	55.63	-10.84
	188.090	60.08	53.49	19.37	64.66	54.66	-11.17
	299.900	57.34	51.20	17.41	61.49	51.49	-10.29
	443.000	54.90	48.25	14.34	57.37	47.37	-9.12
	14190.000	44.68	---	---	60.00	50.00	-5.32
	19620.000	42.11	---	---	60.00	50.00	-7.89

Test mode: IEEE 802.11b Channel 11

Power Connected Emissions					Class B		
Conductor	Frequency (KHz)	Peak (dBμV)	QP (dBμV)	Average (dBμV)	QP-limit (dBμV)	AVG-limit (dBμV)	Margin (dB)
Line 1	160.725	60.82	54.85	20.68	65.60	55.60	-10.75
	220.630	59.00	52.89	18.91	63.74	53.74	-10.85
	340.995	56.41	50.33	16.25	60.43	50.43	-10.10
	466.585	53.58	46.77	12.99	56.71	46.71	-9.94
	13360.000	44.79	---	---	60.00	50.00	-5.21
	18240.000	44.51	---	---	60.00	50.00	-5.49
Line 2	164.500	60.93	54.63	20.62	65.37	55.37	-10.74
	265.360	58.15	51.91	17.83	62.46	52.46	-10.55
	417.810	55.59	49.14	15.22	58.11	48.11	-8.97
	485.000	53.20	46.02	12.02	56.17	46.17	-10.15
	13360.000	43.13	---	---	60.00	50.00	-6.87
	14120.000	44.28	---	---	60.00	50.00	-5.72

Test mode: IEEE 802.11g Channel 1

Power Connected Emissions					Class B		
Conductor	Frequency (KHz)	Peak (dBμV)	QP (dBμV)	Average (dBμV)	QP-limit (dBμV)	AVG-limit (dBμV)	Margin (dB)
Line 1	168.225	60.78	54.58	20.63	65.23	55.23	-10.65
	253.495	58.27	52.14	18.11	62.80	52.80	-10.66
	347.935	56.31	50.12	16.22	60.14	50.14	-10.02
	457.360	53.85	47.21	13.10	56.97	46.97	-9.76
	14120.000	45.28	---	---	60.00	50.00	-4.72
	18240.000	44.51	---	---	60.00	50.00	-5.49
Line 2	171.225	60.77	54.36	20.26	65.14	55.14	-10.78
	253.585	58.24	52.16	18.23	62.80	52.80	-10.64
	309.485	57.14	51.09	17.20	61.23	51.23	-10.14
	457.180	54.46	47.75	13.67	56.97	46.97	-9.22
	14190.000	44.52	---	---	60.00	50.00	-5.48
	19620.000	42.44	---	---	60.00	50.00	-7.56

Test mode: IEEE 802.11g Channel 6

Power Connected Emissions					Class B		
Conductor	Frequency (KHz)	Peak (dBμV)	QP (dBμV)	Average (dBμV)	QP-limit (dBμV)	AVG-limit (dBμV)	Margin (dB)
Line 1	164.495	61.00	54.67	20.89	65.40	55.40	-10.73
	240.125	58.51	52.52	18.33	63.20	53.20	-10.68
	314.495	56.96	50.79	17.21	61.06	51.06	-10.27
	438.045	54.59	48.05	14.00	57.51	47.51	-9.46
	14190.000	45.49	---	---	60.00	50.00	-4.51
	18240.000	44.37	---	---	60.00	50.00	-5.63
Line 2	168.225	60.96	54.47	20.36	65.23	55.23	-10.76
	262.270	58.11	51.96	18.01	62.54	52.54	-10.58
	343.765	56.67	50.52	16.51	60.23	50.23	-9.71
	390.350	56.11	49.87	15.87	58.91	48.91	-9.04
	476.315	53.73	46.63	12.71	56.43	46.43	-9.80
	14120.000	44.33	---	---	60.00	50.00	-5.67

Test mode: IEEE 802.11g Channel 11

Power Connected Emissions					FCC Class B		
Conductor	Frequency (KHz)	Peak (dBμV)	QP (dBμV)	Average (dBμV)	QP-limit (dBμV)	AVG-limit (dBμV)	Margin (dB)
Line 1	166.720	60.85	54.57	20.82	65.29	55.29	-10.72
	213.090	59.09	53.08	19.14	63.94	53.94	-10.86
	350.855	56.32	50.20	16.08	60.03	50.03	-9.83
	462.945	53.68	46.81	13.00	56.83	46.83	-10.02
	13290.000	44.10	---	---	60.00	50.00	-5.90
	18240.000	43.98	---	---	60.00	50.00	-6.02
Line 2	164.545	60.95	54.62	20.65	65.37	55.37	-10.75
	253.990	58.41	52.22	18.43	62.80	52.80	-10.58
	346.135	56.74	50.63	16.55	60.14	50.14	-9.51
	417.765	55.68	49.31	15.27	58.11	48.11	-8.80
	14190.000	44.84	---	---	60.00	50.00	-5.16
	18240.000	42.31	---	---	60.00	50.00	-7.69

Adapter#2: AD-48121000D

Test mode: IEEE 802.11b Channel 1

Power Connected Emissions					Class B		
Conductor	Frequency (KHz)	Peak (dBμV)	QP (dBμV)	Average (dBμV)	QP-limit (dBμV)	AVG-limit (dBμV)	Margin (dB)
Line 1	1598.000	29.29	---	---	56.00	46.00	-16.71
	2394.000	29.22	---	---	56.00	46.00	-16.78
	4484.000	34.10	---	---	56.00	46.00	-11.90
	9370.000	32.68	---	---	60.00	50.00	-17.32
	13990.000	42.62	---	---	60.00	50.00	-7.38
	19620.000	43.51	---	---	60.00	50.00	-6.49
Line 2	1598.000	27.04	---	---	56.00	46.00	-18.96
	2394.000	29.45	---	---	56.00	46.00	-16.55
	4484.000	33.83	---	---	56.00	46.00	-12.17
	9680.000	30.63	---	---	60.00	50.00	-19.37
	14120.000	43.45	---	---	60.00	50.00	-6.55
	18240.000	45.42	---	---	60.00	50.00	-4.58

Test mode: IEEE 802.11b Channel 6

Power Connected Emissions					Class B		
Conductor	Frequency (KHz)	Peak (dBμV)	QP (dBμV)	Average (dBμV)	QP-limit (dBμV)	AVG-limit (dBμV)	Margin (dB)
Line 1	2394.000	29.01	---	---	56.00	46.00	-16.99
	4484.000	34.03	---	---	56.00	46.00	-11.97
	5390.000	34.46	---	---	60.00	50.00	-15.54
	9370.000	32.75	---	---	60.00	50.00	-17.25
	14190.000	43.03	---	---	60.00	50.00	-6.97
	19620.000	45.69	---	---	60.00	50.00	-4.31
Line 2	1598.000	27.84	---	---	56.00	46.00	-18.16
	2394.000	29.30	---	---	56.00	46.00	-16.70
	4484.000	34.36	---	---	56.00	46.00	-11.64
	9370.000	31.04	---	---	60.00	50.00	-18.96
	14120.000	43.91	---	---	60.00	50.00	-6.09
	19620.000	43.75	---	---	60.00	50.00	-6.25

Test mode: IEEE 802.11b Channel 11

Power Connected Emissions					Class B		
Conductor	Frequency (KHz)	Peak (dBμV)	QP (dBμV)	Average (dBμV)	QP-limit (dBμV)	AVG-limit (dBμV)	Margin (dB)
Line 1	2394.000	30.75	---	---	56.00	46.00	-15.25
	4484.000	33.17	---	---	56.00	46.00	-12.83
	5570.000	35.83	---	---	60.00	50.00	-14.17
	9930.000	31.77	---	---	60.00	50.00	-18.23
	14190.000	43.89	---	---	60.00	50.00	-6.11
	18840.000	44.66	---	---	60.00	50.00	-5.34
Line 2	1598.000	27.63	---	---	56.00	46.00	-18.37
	2394.000	28.30	---	---	56.00	46.00	-17.70
	4484.000	33.34	---	---	56.00	46.00	-12.66
	9370.000	31.04	---	---	60.00	50.00	-18.96
	14190.000	43.45	---	---	60.00	50.00	-6.55
	19620.000	46.28	---	---	60.00	50.00	-3.72

Test mode: IEEE 802.11g Channel 1

Power Connected Emissions					Class B		
Conductor	Frequency (KHz)	Peak (dBμV)	QP (dBμV)	Average (dBμV)	QP-limit (dBμV)	AVG-limit (dBμV)	Margin (dB)
Line 1	1598.000	32.55	---	---	56.00	46.00	-13.45
	2394.000	31.77	---	---	56.00	46.00	-14.23
	5390.000	34.73	---	---	60.00	50.00	-15.27
	9930.000	31.21	---	---	60.00	50.00	-18.79
	14190.000	42.40	---	---	60.00	50.00	-7.60
	19620.000	45.34	---	---	60.00	50.00	-4.66
Line 2	2394.000	29.09	---	---	56.00	46.00	-16.91
	4484.000	32.89	---	---	56.00	46.00	-13.11
	5570.000	32.96	---	---	60.00	50.00	-17.04
	9370.000	31.22	---	---	60.00	50.00	-18.78
	14320.000	43.00	---	---	60.00	50.00	-7.00
	18920.000	43.81	---	---	60.00	50.00	-6.19

Test mode: IEEE 802.11g Channel 6

Power Connected Emissions					Class B		
Conductor	Frequency (KHz)	Peak (dBμV)	QP (dBμV)	Average (dBμV)	QP-limit (dBμV)	AVG-limit (dBμV)	Margin (dB)
Line 1	1598.000	30.08	---	---	56.00	46.00	-15.92
	2394.000	30.58	---	---	56.00	46.00	-15.42
	5570.000	34.05	---	---	60.00	50.00	-15.95
	9370.000	33.46	---	---	60.00	50.00	-16.54
	14190.000	43.96	---	---	60.00	50.00	-6.04
	19620.000	46.39	---	---	60.00	50.00	-3.61
Line 2	1208.000	26.22	---	---	56.00	46.00	-19.78
	2394.000	25.30	---	---	56.00	46.00	-20.70
	4666.000	33.04	---	---	56.00	46.00	-12.96
	9930.000	31.05	---	---	60.00	50.00	-18.95
	14120.000	42.71	---	---	60.00	50.00	-7.29
	18920.000	44.55	---	---	60.00	50.00	-5.45

Test mode: IEEE 802.11g Channel 11

Power Connected Emissions					FCC Class B		
Conductor	Frequency (KHz)	Peak (dBμV)	QP (dBμV)	Average (dBμV)	QP-limit (dBμV)	AVG-limit (dBμV)	Margin (dB)
Line 1	1598.000	29.22	---	---	56.00	46.00	-16.78
	2394.000	29.45	---	---	56.00	46.00	-16.55
	4619.000	31.96	---	---	56.00	46.00	-14.04
	9370.000	31.78	---	---	60.00	50.00	-18.22
	14190.000	43.86	---	---	60.00	50.00	-6.14
	18920.000	45.46	---	---	60.00	50.00	-4.54
Line 2	2394.000	27.79	---	---	56.00	46.00	-18.21
	4484.000	31.99	---	---	56.00	46.00	-14.01
	5570.000	33.93	---	---	60.00	50.00	-16.07
	9370.000	31.65	---	---	60.00	50.00	-18.35
	14320.000	43.46	---	---	60.00	50.00	-6.54
	18240.000	45.56	---	---	60.00	50.00	-4.44

Adapter#3: POD-4812100

Test mode: IEEE 802.11b Channel 1

Power Connected Emissions					Class B		
Conductor	Frequency (KHz)	Peak (dBμV)	QP (dBμV)	Average (dBμV)	QP-limit (dBμV)	AVG-limit (dBμV)	Margin (dB)
Line 1	509.000	30.96	---	---	56.00	46.00	-15.04
	1598.000	32.16	---	---	56.00	46.00	-13.84
	2394.000	33.74	---	---	56.00	46.00	-12.26
	12190.000	31.50	---	---	60.00	50.00	-18.50
	16230.000	39.10	---	---	60.00	50.00	-10.90
	24800.000	38.98	---	---	60.00	50.00	-11.02
Line 2	195.000	32.83	---	---	64.71	54.71	-21.88
	475.000	30.03	---	---	56.71	46.71	-16.68
	2394.000	30.28	---	---	56.00	46.00	-15.72
	9680.000	31.59	---	---	56.00	46.00	-14.41
	16230.000	36.43	---	---	60.00	50.00	-13.57
	23120.000	38.91	---	---	60.00	50.00	-11.09

Test mode: IEEE 802.11b Channel 6

Power Connected Emissions					Class B		
Conductor	Frequency (KHz)	Peak (dBμV)	QP (dBμV)	Average (dBμV)	QP-limit (dBμV)	AVG-limit (dBμV)	Margin (dB)
Line 1	475.000	30.85	---	---	56.71	46.71	-15.86
	1598.000	28.71	---	---	56.00	46.00	-17.29
	2394.000	29.13	---	---	56.00	46.00	-16.87
	11880.000	30.31	---	---	60.00	50.00	-19.69
	16230.000	39.48	---	---	60.00	50.00	-10.52
	25610.000	39.47	---	---	60.00	50.00	-10.53
Line 2	167.000	33.98	---	---	65.51	55.51	-21.53
	384.000	29.88	---	---	59.31	49.31	-19.43
	1598.000	26.41	---	---	56.00	46.00	-19.59
	14120.000	32.38	---	---	60.00	50.00	-17.62
	17000.000	41.27	---	---	60.00	50.00	-8.73
	23120.000	39.15	---	---	60.00	50.00	-10.85

Test mode: IEEE 802.11b Channel 11

Power Connected Emissions					Class B		
Conductor	Frequency (KHz)	Peak (dBμV)	QP (dBμV)	Average (dBμV)	QP-limit (dBμV)	AVG-limit (dBμV)	Margin (dB)
Line 1	421.000	30.88	---	---	58.26	48.26	-17.38
	1598.000	27.44	---	---	56.00	46.00	-18.56
	2394.000	28.90	---	---	56.00	46.00	-17.10
	11880.000	30.98	---	---	60.00	50.00	-19.02
	16230.000	39.58	---	---	60.00	50.00	-10.42
	25860.000	37.01	---	---	60.00	50.00	-12.99
Line 2	182.000	33.19	---	---	65.09	55.09	-21.90
	380.000	30.19	---	---	59.43	49.43	-19.24
	1598.000	28.39	---	---	56.00	46.00	-17.61
	2394.000	28.30	---	---	56.00	46.00	-17.70
	16230.000	36.81	---	---	60.00	50.00	-13.19
	23120.000	39.49	---	---	60.00	50.00	-10.51

Test mode: IEEE 802.11g Channel 1

Power Connected Emissions					Class B		
Conductor	Frequency (KHz)	Peak (dBμV)	QP (dBμV)	Average (dBμV)	QP-limit (dBμV)	AVG-limit (dBμV)	Margin (dB)
Line 1	206.000	33.61	---	---	64.40	54.40	-20.79
	439.000	31.24	---	---	57.74	47.74	-16.50
	1598.000	29.70	---	---	56.00	46.00	-16.30
	2394.000	27.66	---	---	56.00	46.00	-18.34
	16230.000	39.52	---	---	60.00	50.00	-10.48
	26000.000	38.33	---	---	60.00	50.00	-11.67
Line 2	187.000	32.66	---	---	64.94	54.94	-22.28
	413.000	29.90	---	---	58.49	48.49	-18.59
	2394.000	25.00	---	---	56.00	46.00	-21.00
	5290.000	27.06	---	---	60.00	50.00	-22.94
	16230.000	36.33	---	---	60.00	50.00	-13.67
	23120.000	39.22	---	---	60.00	50.00	-10.78

Test mode: IEEE 802.11g Channel 6

Power Connected Emissions					Class B		
Conductor	Frequency (KHz)	Peak (dBμV)	QP (dBμV)	Average (dBμV)	QP-limit (dBμV)	AVG-limit (dBμV)	Margin (dB)
Line 1	471.000	31.37	---	---	56.83	46.83	-15.46
	1038.000	36.08	---	---	56.00	46.00	-9.92
	6330.000	44.63	---	---	60.00	50.00	-5.37
	6740.000	46.62	---	---	60.00	50.00	-3.38
	16230.000	39.31	---	---	60.00	50.00	-10.69
	25150.000	46.75	---	---	60.00	50.00	-3.25
Line 2	185.000	33.18	---	---	65.00	55.00	-21.82
	405.000	30.09	---	---	58.71	48.71	-18.62
	1598.000	28.63	---	---	56.00	46.00	-17.37
	2394.000	30.56	---	---	56.00	46.00	-15.44
	16230.000	36.62	---	---	60.00	50.00	-13.38
	23120.000	37.76	---	---	60.00	50.00	-12.24

Test mode: IEEE 802.11g Channel 11

Power Connected Emissions					FCC Class B		
Conductor	Frequency (KHz)	Peak (dBμV)	QP (dBμV)	Average (dBμV)	QP-limit (dBμV)	AVG-limit (dBμV)	Margin (dB)
Line 1	218.000	32.90	---	---	64.06	54.06	-21.16
	466.000	31.30	---	---	56.97	46.97	-15.67
	1598.000	29.36	---	---	56.00	46.00	-16.64
	2394.000	31.09	---	---	56.00	46.00	-14.91
	16160.000	38.67	---	---	60.00	50.00	-11.33
	26000.000	37.82	---	---	60.00	50.00	-12.18
Line 2	413.000	29.67	---	---	58.49	48.49	-18.82
	745.000	41.42	---	---	56.00	46.00	-4.58
	1598.000	26.41	---	---	56.00	46.00	-19.59
	2394.000	28.85	---	---	56.00	46.00	-17.15
	16230.000	36.55	---	---	60.00	50.00	-13.45
	23120.000	38.91	---	---	60.00	50.00	-11.09

IV. Section 15.247 (a): Technical description of the EUT

Direct Sequence System is a spread spectrum system in which the carrier has been modulated by a high speed spreading code and an information data stream. The high speed code sequence dominates the “modulating function” and is the direct cause of the wide spreading of the transmitted signal. In the operational description demonstrates the operation principles of the Baseband processor employed by the EUT, shows that which is a complete DSSS baseband processor and meets the definition of the direct sequence spread spectrum system.

V. Section 15.247 (C): Spurious Emissions (Radiated)

5.1 Test Condition & Setup

We'd performed the test by the *radiated emission* skill: The EUT was placed in an anechoic chamber, and set the EUT transmitting continuously and scanned at 3-meter distance to determine its emission characteristics. The physical arrangement of the EUT was varied (within the scope of arrangements likely to be encountered in actual use) to determine the effect on the unit's emanations in amplitude, directivity, and frequency. The exact system configuration, which produced the highest emissions was noted so it could be reproduced later during the final tests. For the measurement above 1GHz, according to the guidance we'd set the spectrum analyzer's 6dB bandwidth RBW to 1MHz.

This was done to ensure that the final measurements would demonstrate the worst-case interference potential of the EUT.

Final radiation measurements were made on a three-meter, anechoic chamber. The EUT system was placed on a nonconductive turntable, which is 0.8 meters height, top surface 1.0 x 1.5 meter.

The spectrum was examined from 30MHz to 1000MHz using an Hewlett Packard 85460A EMI Receiver, SCHWARZECK whole range Small Biconical Antenna (Model No.: UBAA9114 & BBVU9135) is used to measure frequency from 30 MHz to 1GHz. The final test is used the HP 85460A spectrum and 8564E spectrum was examined from 1GHz to 25GHz using an Hewlett Packard Spectrum Analyzer, EMCO/HP Horn Antenna (Model 3115 / 84125-80008) for 1G - 25GHz.

At each frequency, the EUT was rotated 360 degrees, and the antenna was raised and lowered from one to four meters to find the maximum emission levels. Measurements were taken using both horizontal and vertical antenna polarization.

Appropriate preamplifiers were used for improving sensitivity and precautions were taken to avoid overloading or desensitizing the spectrum analyzer. There are two spectrum analyzers use on this testing, HP 85460A for frequency 30MHz to 1000MHz, and 8564E for frequency 1GHz to 25GHz. No post-detector video filters were used in the test. The spectrum analyzer's 6dB bandwidth was set to 120KHz (spectrum was examined from 30 MHz to 1000 MHz), the spectrum analyzer's 6 dB bandwidth was set to 1 MHz (spectrum was examined from 1GHz to 25GHz) and the analyzer was operated in the maximum hold mode. There is a test condition applies in this test item, the test procedure description as the following:

Three channels were tested, one in the top (CH01), one in the middle (CH06) and the other in bottom (CH11). The setting up procedure is recorded on <1.3>

With the transmitter operating from a AC source and using the internal of EUT, radiates spurious emissions falling within the restricted bands of 15.209 were measured at operating frequencies corresponding to upper, middle and bottom channels in the 2400 ~ 2483.5 MHz band.

The actual field intensity in decibels referenced to 1 microvolt per meter (dBμV/m) is determined by algebraically adding the measured reading in dBμV, the antenna factor (dB), and cable loss (dB) at the appropriate frequency. Since the EUT was set to transmit continuously, no *duty cycle* is present.

For frequency between 30MHz to 1000MHz

$$F_{Ia} \text{ (dBuV/m)} = F_{Ir} \text{ (dB}\mu\text{V)} + \text{Correction Factors}$$

F_{Ia} : Actual Field Intensity

F_{Ir} : Reading of the Field Intensity

Correction Factors = Antenna Factor + (Cable Loss – Amplifier Gain) + Switching Box Loss

For frequency between 1GHz to 25GHz

$$F_{Ia} \text{ (dB}\mu\text{V/m)} = F_{Ir} \text{ (dB}\mu\text{V)} + \text{Correction Factor}$$

F_{Ia} : Actual Field Intensity

F_{Ir} : Reading of the Field Intensity

Correction Factors = Antenna Factor + (Cable Loss – Amplifier Gain) + Switching Box Loss

5.2 List of Test Instruments

Instrument Name	Model No.	Brand	Serial No.	Calibration Date
				Next time
EMI Receiver	8546A	HP	3520A00242	09/05/08
RF Filter Section	85460A	HP	3448A00217	09/05/08
Small Biconical Antenna	UBAA9114 & BBVU9135	SCHWARZECK	127	06/07/08
Pre-amplifier	PA1F	TRC	1FAC	05/08/08
Coaxial Cable (Double shielded, 15 meter)	A30A30-0058-50FS-15M	JYEBAO	SMA-01	05/08/08
Coaxial Cable (1.1 meter)	A30A30-0058-50FS-1M	JYEBAO	SMA-02	05/08/08
Spectrum Analyzer	8564E	HP	3720A00840	03/17/09
Microwave Preamplifier	84125C	HP	US36433002	11/07/08
Horn Antenna	3115	EMCO	9104-3668	05/05/08
Standard Guide Horn Antenna	84125-80008	HP	18-26.5GHz	12/14/08
Standard Guide Horn Antenna	84125-80001	HP	26.5-40GHz	12/14/08
Horn Antenna	1196E (3115)	HP (EMCO)	9704-5178	05/12/08
Pre-amplifier	PA2F	TRC	2F1GZ	04/10/08
Coaxial Cable (3 miter)	A30A30-0058-50FST118	JYEBAO	MSA-05	04/10/08
Coaxial Cable (1 meter)	A30A30-0058-50FST118	JYEBAO	MSA-04	04/10/08

8.3 Test Result of Spurious Radiated Emissions

The highest peak values of radiated emissions from the EUT at various antenna heights, antenna polarizations, EUT orientation, etc. are recorded on the following.

Test Conditions: Temperature : 23 ° C Humidity : 68 % RH

Test mode: IEEE 802.11b CH01 for 30MHz to 1GHz [Horizontal]

Radiated Emission				Correction Factors	Corrected Amplitude	Class B (3 m)	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Table ()			Limit (dBμV/m)	Margin (dB)
202.17	32.74	1.00	129	-3.29	29.45	43.50	-14.05
251.89	32.76	1.00	196	-3.29	29.47	46.00	-16.53
302.81	42.63	1.00	245	-2.86	39.77	46.00	-6.23
353.74	41.45	1.00	206	-2.18	39.27	46.00	-6.73
453.16	30.32	1.00	217	1.22	31.54	46.00	-14.46
804.79	23.03	1.00	182	11.79	34.82	46.00	-11.18

Test mode: IEEE 802.11b CH01 for 30MHz to 1GHz [Vertical]

Radiated Emission				Correction Factors	Corrected Amplitude	Class B (3 m)	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Table ()			Limit (dBμV/m)	Margin (dB)
103.96	38.16	1.00	63	-1.06	37.10	43.50	-6.40
150.04	36.54	1.00	196	-4.39	32.15	43.50	-11.35
301.60	33.76	1.00	220	-2.88	30.88	46.00	-15.12
353.74	34.40	1.00	283	-2.18	32.22	46.00	-13.78
601.09	28.53	1.00	151	6.49	35.02	46.00	-10.98
804.79	26.93	1.00	295	11.79	38.72	46.00	-7.28

Note:

1. Margin = Amplitude – limit, if margin is minus means under limit.
2. Corrected Amplitude = Reading Amplitude + Correction Factors
3. Correction factor = Antenna factor + (Cable Loss – Amplitude gain) + Switching Box Loss

Test mode: IEEE 802.11b CH01 for 1GHz to 25GHz [Horizontal]

Frequency	Ant. H.	Table	Amplitude		Correction Factor	Corrected Amplitude		Limit		Margin
			Peak / Ave.			Peak / Ave.		Peak / Ave.		
MHz	m	degree	dBμV		dB/m	dBμV/m		dBμV/m		dB
2306.25	1.00	121	37.81	---	8.95	46.76	---	73.96	53.96	-7.20
2529.17	1.00	253	37.42	---	9.54	46.96	---	73.96	53.96	-7.00
12061.42	1.00	13	35.38	---	11.47	46.85	---	73.96	53.96	-7.11
19296.25	1.00	224	47.58	---	1.60	49.18	---	73.96	53.96	-4.78
21708.12	1.00	53	45.67	---	2.87	48.54	---	73.96	53.96	-5.42
24120.00	1.00	279	46.46	---	3.40	49.86	---	73.96	53.96	-4.10

Test mode: IEEE 802.11b CH01 for 1GHz to 25GHz [Vertical]

Frequency	Ant. H.	Table	Amplitude		Correction Factor	Corrected Amplitude		Limit		Margin
			Peak / Ave.			Peak / Ave.		Peak / Ave.		
MHz	m	degree	dBμV		dB/m	dBμV/m		dBμV/m		dB
2237.50	1.00	45	38.56	---	8.75	47.31	---	73.96	53.96	-6.65
2497.92	1.00	191	41.25	---	9.48	50.73	---	73.96	53.96	-3.23
9650.42	1.00	6	35.54	---	11.47	47.01	---	73.96	53.96	-6.95
19296.25	1.00	237	47.45	---	1.60	49.05	---	73.96	53.96	-4.91
21708.12	1.00	39	45.44	---	2.87	48.31	---	73.96	53.96	-5.65
24120.00	1.00	270	46.91	---	3.40	50.31	---	73.96	53.96	-3.65

Note:

1. Margin = Corrected - Limit.
2. The EUT utilizes a *permanently attached antenna*. In addition the spurious RF radiated emissions levels do comply with the *20dBc limit* both at its bandedges and other spurious emissions.
3. As stated in Section 15.35(b), for any frequencies above 1000MHz, radiated limits shown are based upon the use of measurement instrumentation employing an average detector function. As the results of our test, the peak amplitudes are already below the FCC limit. Thus the average amplitudes of the rest are omitted.

Test mode: IEEE 802.11b CH06 for 30MHz to 1GHz [Horizontal]

Radiated Emission				Correction Factors	Corrected Amplitude	Class B (3 m)	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Table ()			Limit (dBμV/m)	Margin (dB)
202.17	31.87	1.00	143	-3.39	28.48	43.50	-15.02
304.02	44.27	1.00	250	-2.85	41.42	46.00	-4.58
352.52	42.29	1.00	207	-2.21	40.08	46.00	-5.92
380.41	39.98	1.00	200	-1.55	38.43	46.00	-7.57
495.60	30.17	1.00	317	1.69	31.86	46.00	-14.14
804.79	24.02	1.00	218	11.79	35.81	46.00	-10.19

Test mode: IEEE 802.11b CH06 for 30MHz to 1GHz [Vertical]

Radiated Emission				Correction Factors	Corrected Amplitude	Class B (3 m)	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Table ()			Limit (dBμV/m)	Margin (dB)
106.39	39.29	1.00	94	-1.38	37.91	43.50	-5.59
150.04	35.10	1.00	199	-4.39	30.71	43.50	-12.79
353.74	34.63	1.00	287	-2.18	32.45	46.00	-13.55
601.09	28.16	1.00	155	6.49	34.65	46.00	-11.35
650.80	26.26	1.00	169	8.03	34.29	46.00	-11.71
804.79	26.49	1.00	299	11.79	38.28	46.00	-7.72

Test mode: IEEE 802.11b CH06 for 1GHz to 25GHz [Horizontal]

Frequency	Ant. H.	Table	Amplitude Peak / Ave.		Correction Factor	Corrected Amplitude Peak / Ave.		Limit Peak / Ave.		Margin
MHz	m	degree	dBμV		dB/m	dBμV/m		dBμV/m		dB
2108.33	1.00	109	38.47	---	8.39	46.86	---	73.96	53.96	-7.10
9747.08	1.00	220	35.67	---	11.89	47.56	---	73.96	53.96	-6.40
12187.92	1.00	345	38.55	---	9.74	48.29	---	73.96	53.96	-5.67
19494.58	1.00	348	46.90	---	1.69	48.59	---	73.96	53.96	-5.37
21934.79	1.00	34	45.54	---	3.09	48.63	---	73.96	53.96	-5.33
24371.46	1.00	207	47.50	---	3.26	50.76	---	73.96	53.96	-3.20

Test mode: IEEE 802.11b CH06 for 1GHz to 25GHz [Vertical]

Frequency	Ant. H.	Table	Amplitude Peak / Ave.		Correction Factor	Corrected Amplitude Peak / Ave.		Limit Peak / Ave.		Margin
MHz	m	degree	dBμV		dB/m	dBμV/m		dBμV/m		dB
2245.83	1.00	51	39.76	---	8.78	48.54	---	73.96	53.96	-5.42
2508.33	1.00	223	39.90	---	9.51	49.41	---	73.96	53.96	-4.55
12187.92	1.00	346	38.34	---	9.74	48.08	---	73.96	53.96	-5.88
19494.58	1.00	342	47.06	---	1.69	48.75	---	73.96	53.96	-5.21
21934.79	1.00	51	45.73	---	3.09	48.82	---	73.96	53.96	-5.14
24371.46	1.00	226	47.25	---	3.26	50.51	---	73.96	53.96	-3.45

Test mode: IEEE 802.11b CH11 for 30MHz to 1GHz [Horizontal]

Radiated Emission				Correction Factors	Corrected Amplitude	Class B (3 m)	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Table ()			Limit (dBμV/m)	Margin (dB)
302.81	43.54	1.00	254	-2.86	40.68	46.00	-5.32
353.74	42.68	1.00	229	-2.18	40.50	46.00	-5.50
382.84	38.70	1.00	229	-1.49	37.21	46.00	-8.79
483.47	29.42	1.00	208	1.56	30.98	46.00	-15.02
550.16	25.78	1.00	215	5.06	30.84	46.00	-15.16
750.23	21.86	1.00	276	10.05	31.91	46.00	-14.09

Test mode: IEEE 802.11b CH11 for 30MHz to 1GHz [Vertical]

Radiated Emission				Correction Factors	Corrected Amplitude	Class B (3 m)	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Table ()			Limit (dBμV/m)	Margin (dB)
106.39	40.24	1.00	89	-1.38	38.86	43.50	-4.64
150.04	34.93	1.00	210	-4.39	30.54	43.50	-12.96
302.81	34.30	1.00	214	-2.86	31.44	46.00	-14.56
353.74	33.81	1.00	267	-2.18	31.63	46.00	-14.37
601.09	28.04	1.00	160	6.49	34.53	46.00	-11.47
804.79	25.94	1.00	299	11.79	37.73	46.00	-8.27

Test mode: IEEE 802.11b CH11 for 1GHz to 25GHz [Horizontal]

Frequency	Ant. H.	Table	Amplitude		Correction Factor	Corrected Amplitude		Limit		Margin
			Peak / Ave.			Peak / Ave.		Peak / Ave.		
MHz	m	degree	dBμV		dB/m	dBμV/m		dBμV/m		dB
1641.32	1.00	188	41.83	33.76	13.69	55.52	47.45	73.96	53.96	-6.51
2577.08	1.00	30	38.34	---	9.63	47.97	---	73.96	53.96	-5.99
12308.75	1.00	256	37.30	---	9.56	46.86	---	73.96	53.96	-7.10
19696.46	1.00	79	46.71	---	1.81	48.52	---	73.96	53.96	-5.44
22157.92	1.00	230	45.39	---	3.25	48.64	---	73.96	53.96	-5.32
24619.37	1.00	46	46.71	---	3.01	49.72	---	73.96	53.96	-4.24

Test mode: IEEE 802.11b CH11 for 1GHz to 25GHz [Vertical]

Frequency	Ant. H.	Table	Amplitude		Correction Factor	Corrected Amplitude		Limit		Margin
			Peak / Ave.			Peak / Ave.		Peak / Ave.		
MHz	m	degree	dBμV		dB/m	dBμV/m		dBμV/m		dB
1641.32	1.00	30	39.27	35.82	13.69	52.96	49.51	73.96	53.96	-4.45
2306.25	1.00	128	40.56	---	8.95	49.51	---	73.96	53.96	-4.45
2360.42	1.00	108	42.73	---	9.10	51.83	---	73.96	53.96	-2.13
12308.75	1.00	250	37.17	---	9.56	46.73	---	73.96	53.96	-7.23
22157.92	1.00	216	45.86	---	3.25	49.11	---	73.96	53.96	-4.85
24619.37	1.00	49	46.64	---	3.01	49.65	---	73.96	53.96	-4.31

Test mode: IEEE 802.11g CH01 for 30MHz to 1GHz [Horizontal]

Radiated Emission				Correction Factors	Corrected Amplitude	Class B (3 m)	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Table ()			Limit (dBμV/m)	Margin (dB)
202.17	31.88	1.00	129	-3.39	28.49	43.50	-15.01
304.02	43.78	1.00	269	-2.85	40.93	46.00	-5.07
353.74	42.43	1.00	227	-2.18	40.25	46.00	-5.75
379.20	40.49	1.00	206	-1.58	38.91	46.00	-7.09
483.47	30.51	1.00	339	1.56	32.07	46.00	-13.93
650.80	22.96	1.00	29	8.03	30.99	46.00	-15.01

Test mode: IEEE 802.11g CH01 for 30MHz to 1GHz [Vertical]

Radiated Emission				Correction Factors	Corrected Amplitude	Class B (3 m)	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Table ()			Limit (dBμV/m)	Margin (dB)
105.17	39.72	1.00	119	-1.22	38.50	43.50	-5.00
150.04	35.31	1.00	217	-4.39	30.92	43.50	-12.58
302.81	34.81	1.00	270	-2.86	31.95	46.00	-14.05
353.74	34.14	1.00	290	-2.18	31.96	46.00	-14.04
601.09	28.84	1.00	160	6.49	35.33	46.00	-10.67
804.79	25.69	1.00	302	11.79	37.48	46.00	-8.52

Test mode: IEEE 802.11g CH01 for 1GHz to 25GHz [Horizontal]

Frequency	Ant. H.	Table	Amplitude		Correction Factor	Corrected Amplitude		Limit		Margin
			Peak / Ave.			Peak / Ave.		Peak / Ave.		
MHz	m	degree	dBμV		dB/m	dBμV/m		dBμV/m		dB
2310.42	1.00	2	39.50	---	8.96	48.46	---	73.96	53.96	-5.50
2510.42	1.00	270	39.07	---	9.51	48.58	---	73.96	53.96	-5.38
9650.42	1.00	10	35.54	---	11.47	47.01	---	73.96	53.96	-6.95
19296.25	1.00	236	47.21	---	1.60	48.81	---	73.96	53.96	-5.15
21708.12	1.00	55	45.75	---	2.87	48.62	---	73.96	53.96	-5.34
24120.00	1.00	273	46.89	---	3.40	50.29	---	73.96	53.96	-3.67

Test mode: IEEE 802.11g CH01 for 1GHz to 25GHz [Vertical]

Frequency	Ant. H.	Table	Amplitude		Correction Factor	Corrected Amplitude		Limit		Margin
			Peak / Ave.			Peak / Ave.		Peak / Ave.		
MHz	m	degree	dBμV		dB/m	dBμV/m		dBμV/m		dB
2214.58	1.00	116	37.56	---	8.69	46.25	---	73.96	53.96	-7.71
9650.42	1.00	20	35.27	---	11.47	46.74	---	73.96	53.96	-7.22
12061.04	1.00	320	36.46	---	9.81	46.27	---	73.96	53.96	-7.69
19296.25	1.00	246	47.47	---	1.60	49.07	---	73.96	53.96	-4.89
21708.12	1.00	44	45.64	---	2.87	48.51	---	73.96	53.96	-5.45
24120.00	1.00	254	46.50	---	3.40	49.90	---	73.96	53.96	-4.06

Test mode: IEEE 802.11g CH06 for 30MHz to 1GHz [Horizontal]

Radiated Emission				Correction Factors	Corrected Amplitude	Class B (3 m)	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Table ()			Limit (dBμV/m)	Margin (dB)
302.81	43.61	1.00	244	-2.86	40.75	46.00	-5.25
352.52	41.89	1.00	229	-2.21	39.68	46.00	-6.32
403.45	33.92	1.00	265	-0.92	33.00	46.00	-13.00
482.26	31.12	1.00	335	1.54	32.66	46.00	-13.34
650.80	24.62	1.00	269	8.03	32.65	46.00	-13.35
804.79	22.69	1.00	156	11.79	34.48	46.00	-11.52

Test mode: IEEE 802.11g CH06 for 30MHz to 1GHz [Vertical]

Radiated Emission				Correction Factors	Corrected Amplitude	Class B (3 m)	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Table ()			Limit (dBμV/m)	Margin (dB)
106.39	38.62	1.00	109	-1.38	37.24	43.50	-6.26
150.04	36.26	1.00	215	-4.39	31.87	43.50	-11.63
302.81	34.18	1.00	328	-2.86	31.32	46.00	-14.68
353.74	34.14	1.00	286	-2.18	31.96	46.00	-14.04
601.09	28.37	1.00	156	6.49	34.86	46.00	-11.14
804.79	24.32	1.00	327	11.79	36.11	46.00	-9.89

Test mode: IEEE 802.11g CH06 for 1GHz to 25GHz [Horizontal]

Frequency	Ant. H.	Table	Amplitude Peak / Ave.		Correction Factor	Corrected Amplitude Peak / Ave.		Limit Peak / Ave.		Margin
MHz	m	degree	dBμV		dB/m	dBμV/m		dBμV/m		dB
1624.65	1.00	196	38.52	34.86	13.95	52.47	48.81	73.96	53.96	-5.15
2335.42	1.00	63	38.78	---	9.03	47.81	---	73.96	53.96	-6.15
12187.92	1.00	343	38.18	---	9.74	47.92	---	73.96	53.96	-6.04
19494.58	1.00	344	46.86	---	1.69	48.55	---	73.96	53.96	-5.41
21934.79	1.00	43	45.69	---	3.09	48.78	---	73.96	53.96	-5.18
24371.46	1.00	235	47.58	---	3.26	50.84	---	73.96	53.96	-3.12

Test mode: IEEE 802.11g CH06 for 1GHz to 25GHz [Vertical]

Frequency	Ant. H.	Table	Amplitude Peak / Ave.		Correction Factor	Corrected Amplitude Peak / Ave.		Limit Peak / Ave.		Margin
MHz	m	degree	dBμV		dB/m	dBμV/m		dBμV/m		dB
1625.00	1.00	231	37.86	---	13.94	51.80	---	73.96	53.96	-2.16
2243.75	1.00	131	39.15	---	8.77	47.92	---	73.96	53.96	-6.04
12187.92	1.00	346	38.49	---	9.74	48.23	---	73.96	53.96	-5.73
19494.58	1.00	342	47.12	---	1.69	48.81	---	73.96	53.96	-5.15
21934.79	1.00	20	45.64	---	3.09	48.73	---	73.96	53.96	-5.23
24371.46	1.00	216	47.41	---	3.26	50.67	---	73.96	53.96	-3.29

Test mode: IEEE 802.11g CH11 for 30MHz to 1GHz [Horizontal]

Radiated Emission				Correction Factors	Corrected Amplitude	Class B (3 m)	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Table ()			Limit (dBμV/m)	Margin (dB)
203.39	31.40	1.00	120	-3.38	28.02	43.50	-15.48
302.81	42.94	1.00	268	-2.86	40.08	46.00	-5.92
353.74	42.89	1.00	219	-2.18	40.71	46.00	-5.29
404.66	33.62	1.00	261	-0.87	32.75	46.00	-13.25
483.47	29.65	1.00	32	1.56	31.21	46.00	-14.79
804.79	23.40	1.00	225	11.79	35.19	46.00	-10.81

Test mode: IEEE 802.11g CH11 for 30MHz to 1GHz [Vertical]

Radiated Emission				Correction Factors	Corrected Amplitude	Class B (3 m)	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Table ()			Limit (dBμV/m)	Margin (dB)
108.81	39.23	1.00	100	-1.70	37.53	43.50	-5.97
150.04	35.12	1.00	196	-4.39	30.73	43.50	-12.77
302.81	34.51	1.00	349	-2.86	31.65	46.00	-14.35
353.74	34.16	1.00	274	-2.18	31.98	46.00	-14.02
442.25	31.68	1.00	150	0.84	32.52	46.00	-13.48
804.79	26.47	1.00	269	11.79	38.26	46.00	-7.74

Test mode: IEEE 802.11g CH11 for 1GHz to 25GHz [Horizontal]

Frequency	Ant. H.	Table	Amplitude		Correction Factor	Corrected Amplitude		Limit		Margin
			Peak / Ave.			Peak / Ave.		Peak / Ave.		
MHz	m	degree	dBμV		dB/m	dBμV/m		dBμV/m		dB
1641.32	1.00	166	41.21	37.38	13.69	54.90	51.07	73.96	53.96	-2.89
2889.58	1.00	82	35.94	---	10.22	46.16	---	73.96	53.96	-7.80
12308.75	1.00	234	37.36	---	9.56	46.92	---	73.96	53.96	-7.04
19696.46	1.00	68	46.38	---	1.81	48.19	---	73.96	53.96	-5.77
22157.92	1.00	245	45.74	---	3.25	48.99	---	73.96	53.96	-4.97
24619.37	1.00	53	46.44	---	3.01	49.45	---	73.96	53.96	-4.51

Test mode: IEEE 802.11g CH11 for 1GHz to 25GHz [Vertical]

Frequency	Ant. H.	Table	Amplitude		Correction Factor	Corrected Amplitude		Limit		Margin
			Peak / Ave.			Peak / Ave.		Peak / Ave.		
MHz	m	degree	dBμV		dB/m	dBμV/m		dBμV/m		dB
2229.17	1.00	114	38.96	---	8.73	47.69	---	73.96	53.96	-6.27
2602.08	1.00	342	38.59	---	9.68	48.27	---	73.96	53.96	-5.69
12308.75	1.00	250	37.23	---	9.56	46.79	---	73.96	53.96	-7.17
19696.46	1.00	79	46.91	---	1.81	48.72	---	73.96	53.96	-5.24
22157.92	1.00	223	45.47	---	3.25	48.72	---	73.96	53.96	-5.24
24619.37	1.00	53	46.60	---	3.01	49.61	---	73.96	53.96	-4.35

5.4 Test Result of the Bandedge

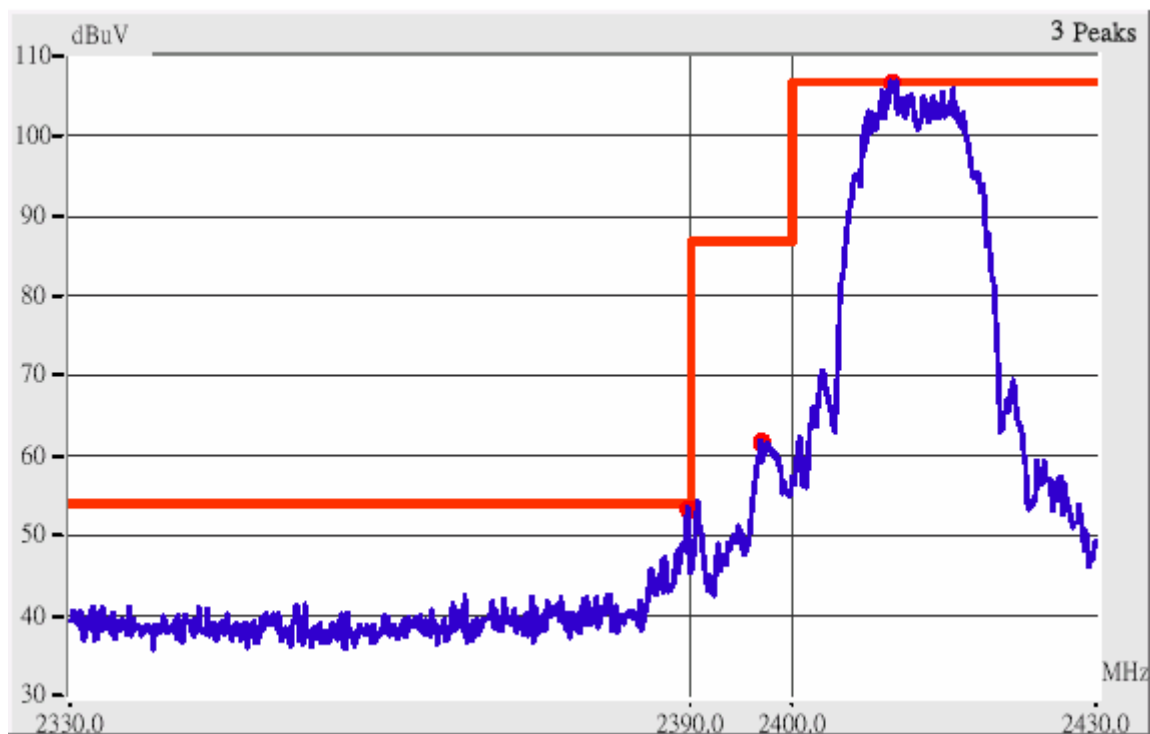
If any 100 kHz bandwidth outside these frequency bands, the radio frequency power that is produced by the modulation products of the spreading sequence, the information sequence and the carrier frequency shall be either *at least 20 dB below that in any 100 kHz bandwidth within the band that contains the highest level of the desired power or shall not exceed the general levels specified in §15.209(a)*,

We perform this section by the *radiated manner*, the RBW is set to 100kHz and VBW>RBW. We'd made the observation *up to 10th harmonics and the criterion is all the harmonic/spurious emissions must be 20dB below the highest emission level measured*. If the emissions fall in the restricted bands stated in the Part15.205(a) must also *comply with the radiated emission limits specified in Part15.209(a)*. (*Peak mode: RBW=VBW=1MHz, Average mode: RBW=1MHz; VBW=10Hz*)

The following pages show our observations referring to the channel 1 and 11 respectively.

Test Condition & Setup: same as < 8.1 >

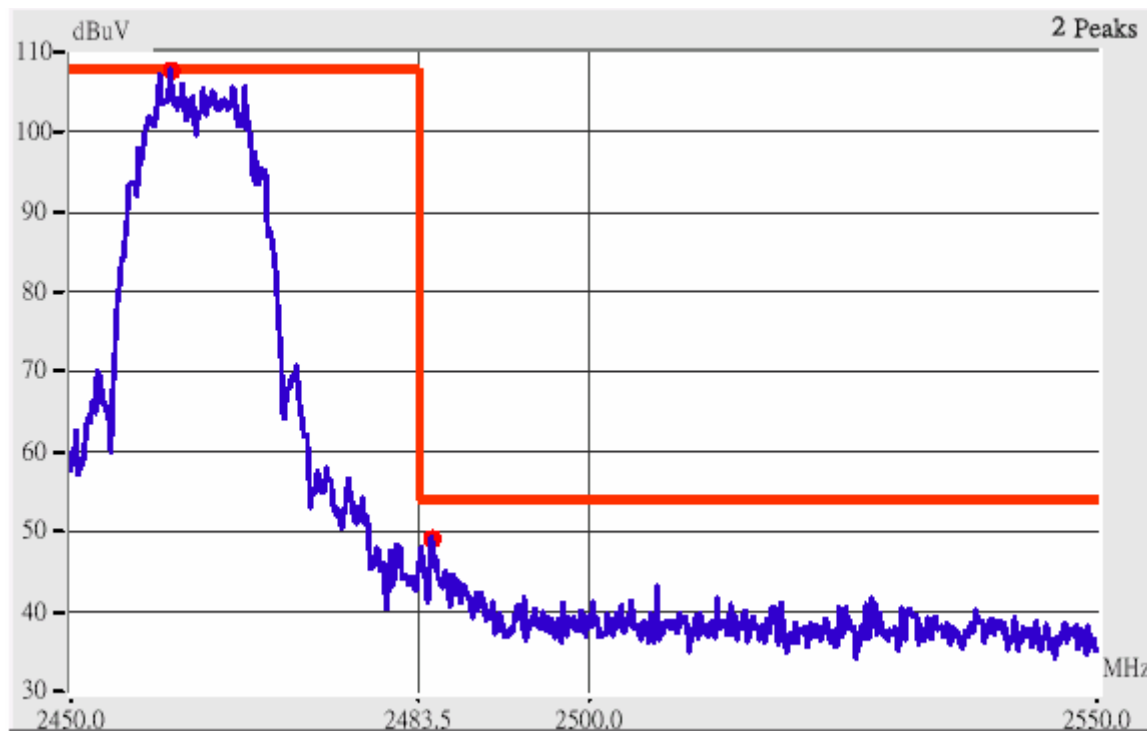
Channel 1 of IEEE 802.11b



This is the hard copy of our bandedge measurement generated by our bandedge testing program. The plot shown above is the bandedge of channel 1.

1. The lobe left by the fundamental side is already 20dB below the highest emission level.
2. The emissions recorded in the restricted band is do comply with the Part 15.209(a) – as below.

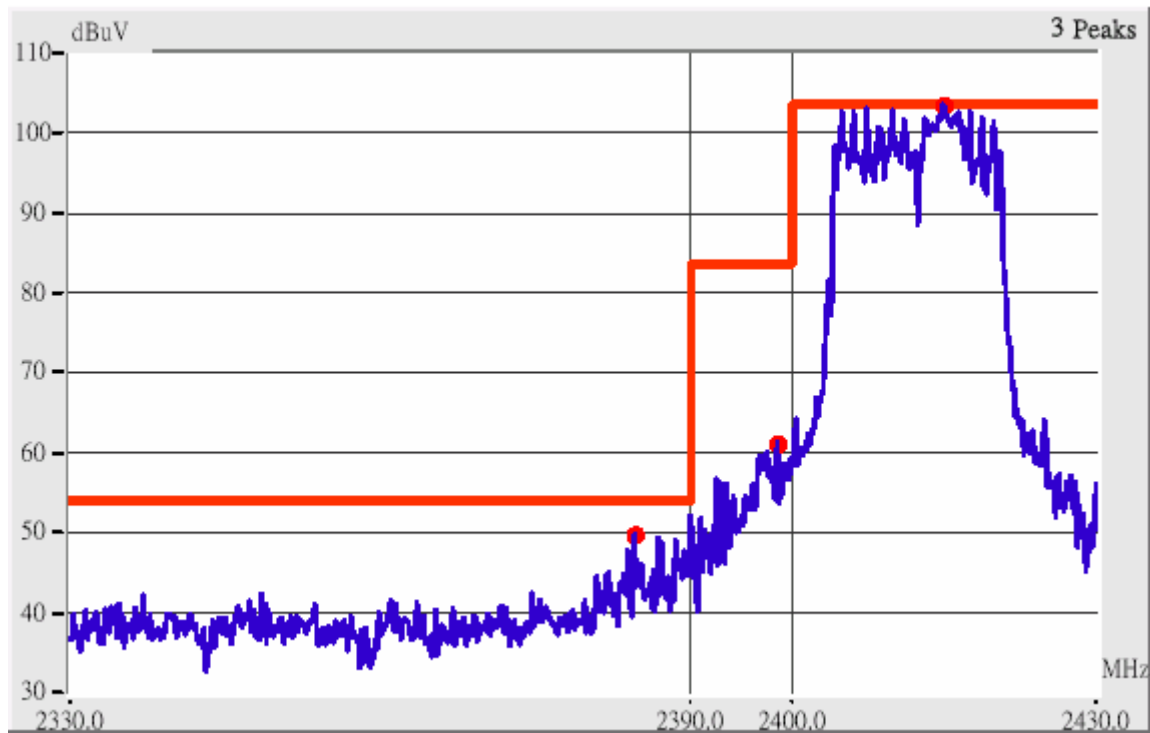
Radiated Emission					Corrected Amplitude		Class B (3m)		
Frequency (MHz)	Ant. P.	Ant. H. (m)	Table ()	Factors (dB)	(dBμV/m)		Limit (dBμV/m)		Margin (dB)
					Peak	Average	Peak	Ave.	
2381.73	Hor	1.00	6	9.16	47.14	---	73.96	53.96	-6.82
2390.02	Hor	1.00	210	9.18	49.53	---	73.96	53.96	-4.43
2384.11	Ver	1.00	193	9.17	52.09	---	73.96	53.96	-1.87
2390.39	Ver	1.00	25	9.18	57.41	39.43	73.96	53.96	-14.53

Channel 11 of IEEE 802.11b

This is the hard copy of our bandedge measurement generated by our bandedge testing program. The plot shown above is the bandedge of channel 11.

3. The lobe right by the fundamental side is already 20dB below the highest emission level.
4. The emissions recorded in the restricted band is do comply with the Part 15.209(a) – as below

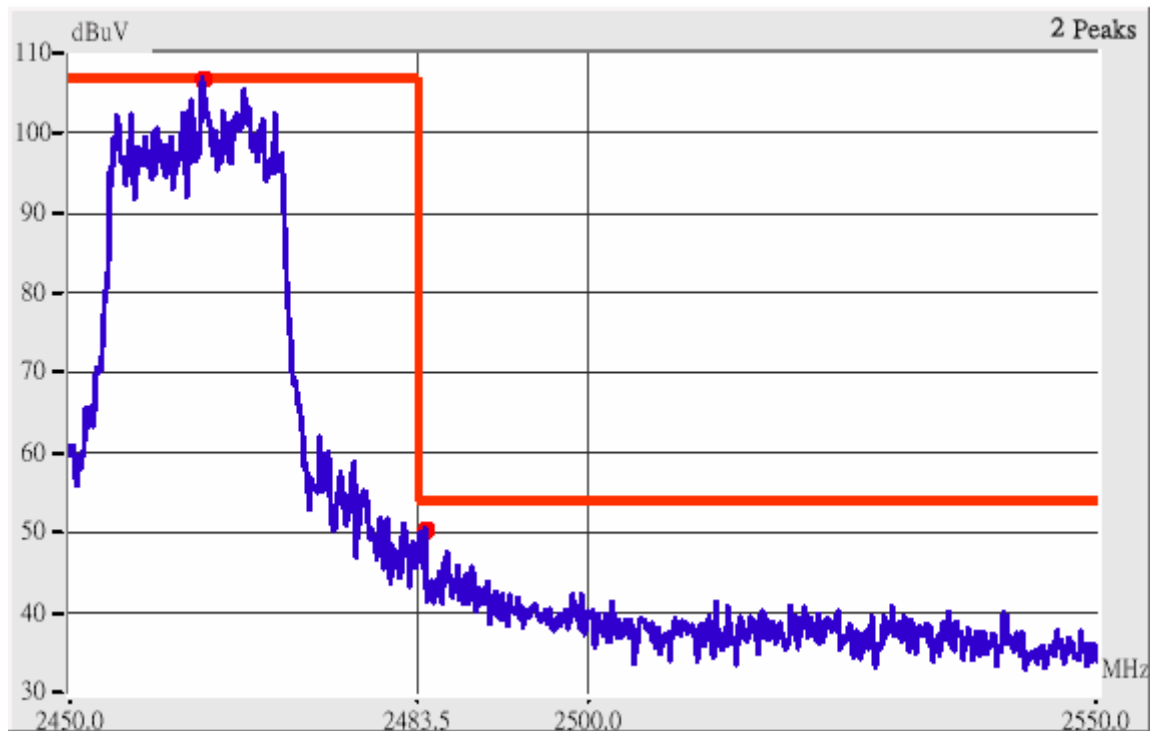
<i>Radiated Emission</i>					<i>Corrected Amplitude</i>		<i>Class B (3m)</i>		
<i>Frequency (MHz)</i>	<i>Ant. P.</i>	<i>Ant. H. (m)</i>	<i>Table ()</i>	<i>Factors (dB)</i>	<i>(dBμV/m)</i>		<i>Limit (dBμV/m)</i>		<i>Margin (dB)</i>
					<i>Peak</i>	<i>Average</i>	<i>Peak</i>	<i>Ave.</i>	
2483.46	Hor	1.00	249	9.44	53.92	40.23	73.96	53.96	-13.73
2491.24	Hor	1.00	156	9.47	53.76	36.93	73.96	53.96	-17.03
2500.01	Hor	1.00	242	9.49	52.89	---	73.96	53.96	-1.07
2510.86	Hor	1.00	254	9.51	50.97	---	73.96	53.96	-2.99
2483.43	Ver	1.00	214	9.44	56.62	41.47	73.96	53.96	-12.49
2492.13	Ver	1.00	196	9.47	51.52	---	73.96	53.96	-2.44
2500.01	Ver	1.00	224	9.49	49.18	---	73.96	53.96	-4.78
2518.32	Ver	1.00	80	9.52	52.65	---	73.96	53.96	-1.31

Channel 1 of IEEE 802.11g

This is the hard copy of our bandedge measurement generated by our bandedge testing program. The plot shown above is the bandedge of channel 1.

5. The lobe left by the fundamental side is already 20dB below the highest emission level.
6. The emissions recorded in the restricted band is do comply with the Part 15.209(a) – as below.

<i>Radiated Emission</i>					<i>Corrected Amplitude</i>		<i>Class B (3m)</i>		
<i>Frequency (MHz)</i>	<i>Ant. P.</i>	<i>Ant. H. (m)</i>	<i>Table ()</i>	<i>Factors (dB)</i>	<i>(dBμV/m)</i>		<i>Limit (dBμV/m)</i>		<i>Margin (dB)</i>
					<i>Peak</i>	<i>Average</i>	<i>Peak</i>	<i>Ave.</i>	
2385.90	Hor	1.00	298	9.17	49.49	---	73.96	53.96	-4.47
2390.19	Hor	1.00	275	9.18	54.96	35.33	73.96	53.96	-18.63
2384.47	Ver	1.00	113	9.17	59.59	32.91	73.96	53.96	-14.37
2390.53	Ver	1.00	57	9.18	62.10	36.02	73.96	53.96	-11.86

Channel 11 of IEEE 802.11g

This is the hard copy of our bandedge measurement generated by our bandedge testing program. The plot shown above is the bandedge of channel 11.

7. The lobe right by the fundamental side is already 20dB below the highest emission level.
8. The emissions recorded in the restricted band is do comply with the Part 15.209(a) – as below

Radiated Emission					Corrected Amplitude		Class B (3m)		
Frequency (MHz)	Ant. P.	Ant. H. (m)	Table ()	Factors (dB)	(dBμV/m)		Limit (dBμV/m)		Margin (dB)
					Peak	Average	Peak	Ave.	
2482.92	Hor	1.00	138	9.44	60.38	37.24	73.96	53.96	-13.58
2488.48	Hor	1.00	158	9.46	56.16	35.51	73.96	53.96	-17.80
2500.01	Hor	1.00	149	9.49	47.83	---	73.96	53.96	-6.13
2507.42	Hor	1.00	74	9.50	49.63	---	73.96	53.96	-4.33
2483.26	Ver	1.00	105	9.44	63.16	35.91	73.96	53.96	-10.80
2488.86	Ver	1.00	76	9.46	62.47	35.15	73.96	53.96	-11.49
2500.01	Ver	1.00	200	9.49	50.74	---	73.96	53.96	-3.22
2513.13	Ver	1.00	197	9.51	50.10	---	73.96	53.96	-3.86