

**MEASUREMENT REPORT**  
**of**  
***Wireless Cable Modem***  
***for***  
***Class II permissive change***

**Applicant** : ASUSTek Computer Inc.  
**EUT** : Wireless Cable Modem  
**Model No.** : DPC2434, DPC2434-C2  
**FCC ID** : MSQDPC2434

**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.

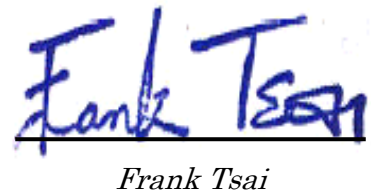
We further submit that the energy emitted by the sample EUT tested as described in the report is **in compliance with** the technical requirements set forth in the FCC Rules Part 15 Subpart C Section 15.247.

**Applicant** : ASUSTek Computer Inc.  
**Applicant Address** : 4F1., No. 150, Li-Te Rd., Peitou, Taipei, Taiwan, R.O.C.  
**Product Name** : Wireless Cable Modem  
**Model** : DPC2434, DPC2434-C2  
**Report No.** : A5415061121  
**Test Date** : September 13, October 20, November 30, 2006

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.**



## **Tables of Contents**

<b>I.</b>	<b>GENERAL</b> .....	4
	1.1 Introduction .....	4
	1.2 Description of EUT .....	4
	1.3 Test method .....	5
	1.4 Description of Support Equipment .....	6
	1.5 Configuration of System Under Test .....	9
	1.6 Verify the Frequency and Channel .....	11
	1.7 Test Procedure .....	12
	1.8 Location of the Test Site .....	12
	1.9 General Test Condition .....	12
<b>II.</b>	<b>Section 15.203 : Antenna Requirement</b> .....	13
<b>III.</b>	<b>Section 15.207 : Power Line Conducted Emissions for AC Powered Units</b> .....	14
	3.1 Test Condition & Setup .....	14
	3.2 List of Test Instruments .....	15
	3.3 Test Result of Conducted Emissions .....	16
	IEEE 802.11b TX mode (Adapter#1: 3A-152WU15) .....	16
	IEEE 802.11g TX mode (Adapter#1: 3A-152WU15) .....	18
	IEEE 802.11b TX mode (Adapter#2: 3A-152DU15) .....	19
	IEEE 802.11g TX mode (Adapter#2: 3A-152DU15) .....	21
<b>IV.</b>	<b>Section 15.247(a) : Technical Description of the EUT</b> .....	23
<b>V.</b>	<b>Section 15.247(c) : Spurious Emissions (Radiated)</b> .....	24
	5.1 Test Condition & Setup .....	24
	5.2 List of Test Instruments .....	26
	5.3 Test Result of Spurious Radiated Emissions .....	27
	IEEE 802.11b TX mode .....	27
	IEEE 802.11g TX mode .....	33
	5.4 Test Result of Bandedge.....	39
	IEEE 802.11b TX mode .....	40
	IEEE 802.11g TX mode .....	42

## **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**

<b>FCC ID</b>	:	MSQDPC2434
<b>Product Name</b>	:	Wireless Cable Modem
<b>Model Name</b>	:	DPC2434, DPC2434-C2
<b>Frequency Range</b>	:	2.412GHz ~ 2.462GHz
<b>Channel Spacing</b>	:	5MHz
<b>Support Channel</b>	:	11 Channels
<b>Modulation Skill</b>	:	DBPSK, DQPSK, CCK, OFDM
<b>Power Type</b>	:	Powered by the switching adapter, (1) Manufacture.: ENG ELECTRIC CO., LTD. Model: 3A-152WU15 I/P: 100-120VAC 50/60Hz 0.4A MAX. O/P: +15VDC 1.0A MAX. 191cm length, Non-shielded, no ferrite core  (2) Manufacture.: ENG ELECTRIC CO., LTD. Model: 3A-152DU15 I/P: 100-120VAC 50/60Hz 0.4A MAX. O/P: +15VDC 1.0A MAX. Primary: 65cm length, non-shielded, no ferrite core Secondary: 191cm length, non-shielded, no ferrite core
<b>Data Cable</b>	:	BNC Cable x 1, 30m length, shielded, no ferrite core RJ45 cable x 1, 30.0m length, non-shielded, no ferrite core RJ45 Cable x 3, 2.0m length, non-shielded, no ferrite core RJ11 Cable x 2, 7feet length, non-shielded, no ferrite core USB cable x 1, 1.5m 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 LAN1 to LAN3 and WAN ports are termination by RJ45 cables.
- 1.3.5 Connected the LAN4 port of EUT with the LAN 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 test and Radiated:
    - making EUT to the mode of continuous transmission

#### 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

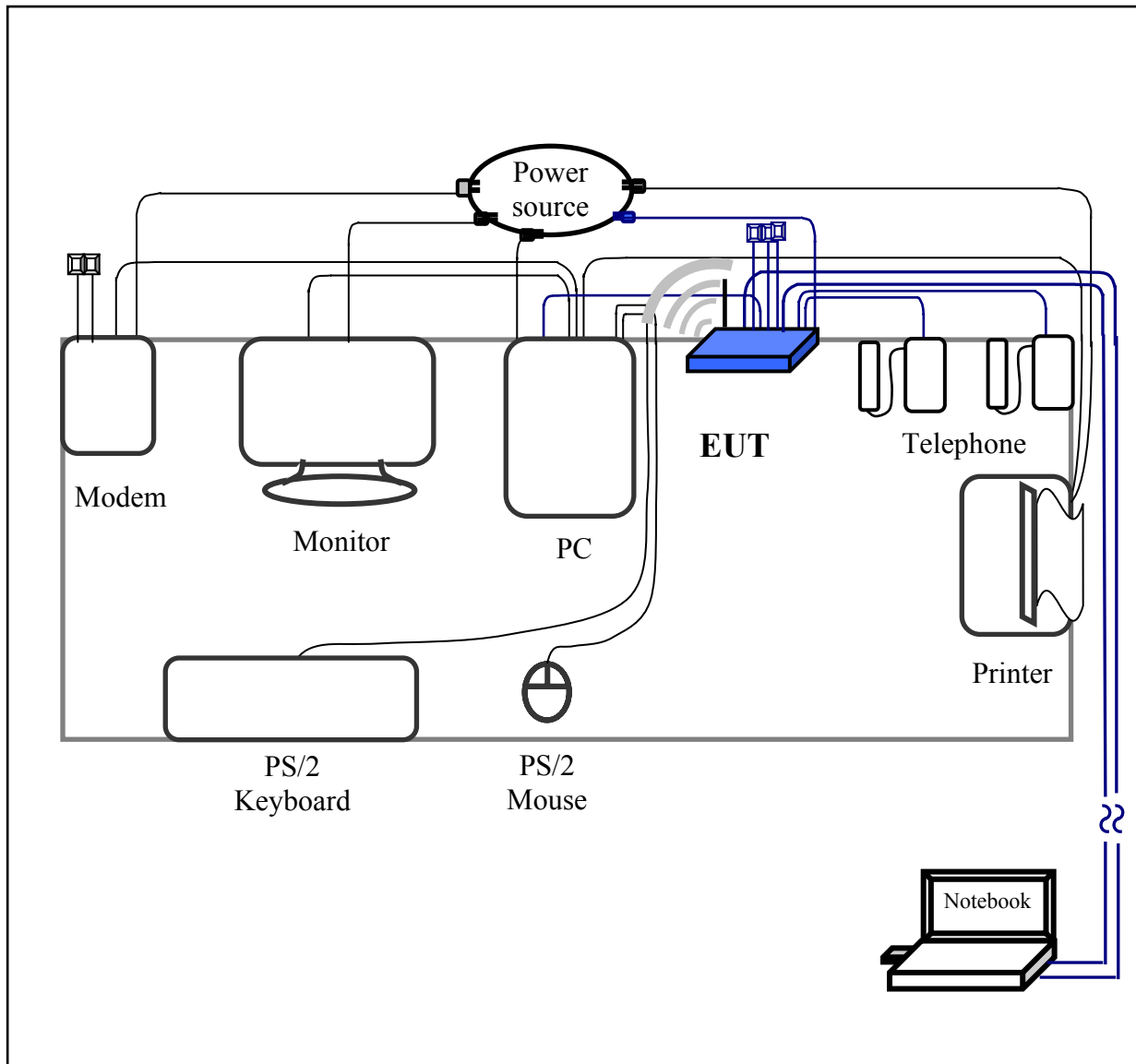
**WLAN Card : Gemtek Technology Co., Ltd.**  
Model No. : C911003  
FCC ID : MXF-C911003

**Telephone Set : Marcotolo Enterprise (H.K.) Ltd. ; Netvox Technology Co., Ltd.**  
Model No. : HTT-213 ; RS-802HF  
Serial No. : 2111011508, 2111009515 ; NTC210220; NTC210450  
FCC ID : Verification  
DGT : T90-T139-0 ; T89-T177-0  
Power type : By PSTN  
Data Cable : Non-shielded, 2.10m length, Plastic, No ferrite core



### 1.5 Configuration of System Under Test

#### 1.5.1 Conducted and Radiated for Unintentional



***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)

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

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	12/01/06
RF Filter Section	85460A	HP	3448A00217	12/01/06
LISN (EUT)	LISN-01	TRC	99-05	12/10/06
LISN (Support E.)	LISN-01	TRC	9912-03, 04	02/26/07
Pre-amplifier	15542 ZFL-500	Mini – Circuits	0 0117	05/20/07
6dB Attenuator	MCL BW-S6W2	Mini – Circuits	9915 – Conducted	05/20/07
10dB Attenuator	A5542 VAT010	Mini – Circuits	0215 – Conducted	05/20/07
Coaxial Cable (2.0 meter)	A30A30-0058-50FS-2M	Jyebao	SMA-08	05/20/07
Coaxial Cable (1.1 meter)	A30A30-0058-50FS-1M	Jyebao	SMA-09	05/20/07
Coaxial Cable (20 meter)	RG-214/U	Jyebao	NP-01	05/20/07
Coaxial Cable (20 meter)	RG-214/U	Jyebao	NP-02	05/20/07
Auto Switch Box (< 30MHz)	ASB-01	TRC	9904-01	05/20/07

**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

Test mode: IEEE 802.11b Channel 1 (Adapter#1: 3A-152WU15)

<i>Power Connected Emissions</i>					<i>Class B</i>		
<i>Conductor</i>	<i>Frequency (KHz)</i>	<i>Peak (dBµV)</i>	<i>QP (dBµV)</i>	<i>Average (dBµV)</i>	<i>QP-limit (dBµV)</i>	<i>AVG-limit (dBµV)</i>	<i>Margin (dB)</i>
Line 1	153.590	55.46	48.55	42.96	66.00	56.00	-13.04
	579.680	47.19	45.79	30.86	56.00	46.00	-10.21
	1033.140	46.55	45.31	35.21	56.00	46.00	-10.69
	1495.715	47.45	44.61	35.26	56.00	46.00	-10.74
	1932.010	47.88	46.01	32.97	56.00	46.00	-9.99
	2375.780	48.78	46.69	31.00	56.00	46.00	-9.31
Line 2	153.590	57.99	50.60	46.39	66.00	56.00	-9.61
	596.050	46.88	45.99	40.45	56.00	46.00	-5.55
	1025.030	46.69	44.50	32.13	56.00	46.00	-11.50
	1475.425	47.56	46.08	32.92	56.00	46.00	-9.92
	1784.035	46.52	43.84	30.17	56.00	46.00	-12.16
	2366.865	47.07	44.94	30.10	56.00	46.00	-11.06

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 (Adapter#1: 3A-152WU15)*

<i>Power Connected Emissions</i>					<i>Class B</i>		
<i>Conductor</i>	<i>Frequency (KHz)</i>	<i>Peak (dBµV)</i>	<i>QP (dBµV)</i>	<i>Average (dBµV)</i>	<i>QP-limit (dBµV)</i>	<i>AVG-limit (dBµV)</i>	<i>Margin (dB)</i>
Line 1	595.235	47.88	47.09	41.73	56.00	46.00	-4.27
	1024.445	47.28	45.70	36.90	56.00	46.00	-9.10
	1481.455	47.83	46.39	34.54	56.00	46.00	-9.61
	1915.765	48.18	46.00	32.17	56.00	46.00	-10.00
	2370.565	48.90	46.56	31.85	56.00	46.00	-9.44
	2649.585	45.64	43.09	27.76	56.00	46.00	-12.91
Line 2	153.500	58.15	48.45	44.65	66.00	56.00	-11.35
	592.535	47.37	46.49	40.95	56.00	46.00	-5.06
	1031.880	47.12	45.75	36.66	56.00	46.00	-9.34
	1495.985	48.04	45.00	33.65	56.00	46.00	-11.00
	1930.885	48.09	46.30	32.54	56.00	46.00	-9.70
	2212.800	47.13	44.90	28.47	56.00	46.00	-11.10

*Test mode: IEEE 802.11b Channel 11 (Adapter#1: 3A-152WU15)*

<i>Power Connected Emissions</i>					<i>Class B</i>		
<i>Conductor</i>	<i>Frequency (KHz)</i>	<i>Peak (dBµV)</i>	<i>QP (dBµV)</i>	<i>Average (dBµV)</i>	<i>QP-limit (dBµV)</i>	<i>AVG-limit (dBµV)</i>	<i>Margin (dB)</i>
Line 1	587.300	48.09	47.17	41.01	56.00	46.00	-4.99
	1019.835	47.45	45.42	32.40	56.00	46.00	-10.58
	1468.905	47.88	46.39	35.05	56.00	46.00	-9.61
	1911.220	48.32	46.19	31.84	56.00	46.00	-9.81
	2358.830	48.66	46.53	31.59	56.00	46.00	-9.47
	3970.290	43.78	41.35	26.22	56.00	46.00	-14.65
Line 2	153.950	55.26	47.16	41.88	66.00	56.00	-14.12
	577.235	47.37	45.91	30.86	56.00	46.00	-10.09
	1011.715	46.98	44.74	31.31	56.00	46.00	-11.26
	1473.130	48.00	46.48	35.23	56.00	46.00	-9.52
	1918.465	48.02	45.97	32.59	56.00	46.00	-10.03
	2359.525	47.26	44.98	30.51	56.00	46.00	-11.02

**Test mode: IEEE 802.11g Channel 1 (Adapter#1: 3A-152WU15)**

<b>Power Connected Emissions</b>					<b>Class B</b>		
<b>Conductor</b>	<b>Frequency (KHz)</b>	<b>Peak (dBμV)</b>	<b>QP (dBμV)</b>	<b>Average (dBμV)</b>	<b>QP-limit (dBμV)</b>	<b>AVG-limit (dBμV)</b>	<b>Margin (dB)</b>
Line 1	592.495	48.14	47.33	41.55	56.00	46.00	-4.45
	1023.050	47.24	45.29	30.53	56.00	46.00	-10.71
	1469.715	48.02	45.86	31.37	56.00	46.00	-10.14
	1933.125	48.69	46.82	33.01	56.00	46.00	-9.18
	2388.865	49.45	46.53	28.95	56.00	46.00	-9.47
	3987.810	43.64	40.94	19.78	56.00	46.00	-15.06
Line 2	595.600	47.59	46.70	40.99	56.00	46.00	-5.01
	744.525	45.08	43.12	35.82	56.00	46.00	-10.18
	1036.010	47.00	45.86	36.91	56.00	46.00	-9.09
	1472.010	48.07	46.30	30.90	56.00	46.00	-9.70
	2203.690	46.08	43.67	23.67	60.00	50.00	-12.33
	4090.580	46.72	41.62	16.64	60.00	50.00	-14.38

**Test mode: IEEE 802.11g Channel 6 (Adapter#1: 3A-152WU15)**

<b>Power Connected Emissions</b>					<b>Class B</b>		
<b>Conductor</b>	<b>Frequency (KHz)</b>	<b>Peak (dBμV)</b>	<b>QP (dBμV)</b>	<b>Average (dBμV)</b>	<b>QP-limit (dBμV)</b>	<b>AVG-limit (dBμV)</b>	<b>Margin (dB)</b>
Line 1	585.590	48.11	46.97	35.66	56.00	46.00	-9.03
	1042.725	47.28	46.19	37.52	56.00	46.00	-8.48
	1477.630	48.14	46.50	35.40	56.00	46.00	-9.50
	1927.015	48.62	47.00	31.83	56.00	46.00	-9.00
	2379.640	49.45	47.35	32.03	56.00	46.00	-8.65
	4037.270	43.66	40.39	22.84	56.00	46.00	-15.61
Line 2	598.675	47.56	46.73	41.02	56.60	46.60	-4.98
	1045.355	47.00	45.87	37.55	56.00	46.00	-8.45
	1480.060	48.04	46.63	31.84	56.00	46.00	-9.37
	1910.815	48.02	45.21	30.91	56.00	46.00	-10.79
	2218.360	46.12	44.09	27.40	56.00	46.00	-11.91
	4045.080	47.31	42.73	24.16	56.00	46.00	-13.27

*Test mode: IEEE 802.11g Channel 11 (Adapter#1: 3A-152WU15)*

<i>Power Connected Emissions</i>					<i>FCC Class B</i>		
<i>Conductor</i>	<i>Frequency (KHz)</i>	<i>Peak (dBμV)</i>	<i>QP (dBμV)</i>	<i>Average (dBμV)</i>	<i>QP-limit (dBμV)</i>	<i>AVG-limit (dBμV)</i>	<i>Margin (dB)</i>
Line 1	594.970	48.14	47.31	41.77	56.00	46.00	-4.23
	725.865	45.48	43.23	25.89	56.00	46.00	-12.77
	1057.010	47.40	38.16	35.55	56.00	46.00	-10.45
	1472.415	48.02	46.20	34.78	56.00	46.00	-9.80
	1934.385	48.53	46.76	33.36	56.00	46.00	-9.24
	2401.310	49.66	47.74	29.99	56.00	46.00	-8.26
Line 2	153.725	58.24	51.25	46.01	66.00	56.00	-9.99
	592.805	47.51	46.62	40.71	56.00	46.00	-5.29
	1052.060	47.07	41.38	36.49	56.00	46.00	-9.51
	1496.205	48.07	44.59	35.66	56.00	46.00	-10.34
	1927.825	48.18	46.27	33.31	56.00	46.00	-9.73
	2362.465	47.44	44.87	30.59	56.00	46.00	-11.13

*Test mode: IEEE 802.11b Channel 1 (Adapter#2: 3A-152DU15)*

<i>Power Connected Emissions</i>					<i>Class B</i>		
<i>Conductor</i>	<i>Frequency (KHz)</i>	<i>Peak (dBμV)</i>	<i>QP (dBμV)</i>	<i>Average (dBμV)</i>	<i>QP-limit (dBμV)</i>	<i>AVG-limit (dBμV)</i>	<i>Margin (dB)</i>
Line 1	155.180	62.02	59.74	54.10	65.91	55.91	-1.81
	605.290	45.65	44.63	36.01	56.00	46.00	-9.99
	1063.160	49.60	45.11	36.20	56.00	46.00	-9.80
	1523.355	47.33	45.96	34.76	56.00	46.00	-10.04
	1989.635	47.63	45.96	33.23	56.00	46.00	-10.04
	2418.600	46.88	44.41	29.74	56.00	46.00	-11.59
Line 2	153.725	57.10	55.28	51.23	66.00	56.00	-4.77
	605.860	47.98	47.18	41.66	56.00	46.00	-4.34
	1053.330	46.76	45.35	32.06	56.00	46.00	-10.65
	1515.030	46.92	45.45	34.18	56.00	46.00	-10.55
	1994.450	47.72	44.03	32.13	56.00	46.00	-11.97
	2403.390	48.14	45.12	29.70	56.00	46.00	-10.88

**Test mode: IEEE 802.11b Channel 6 (Adapter#2: 3A-152DU15)**

<b>Power Connected Emissions</b>					<b>Class B</b>		
<b>Conductor</b>	<b>Frequency (KHz)</b>	<b>Peak (dBμV)</b>	<b>QP (dBμV)</b>	<b>Average (dBμV)</b>	<b>QP-limit (dBμV)</b>	<b>AVG-limit (dBμV)</b>	<b>Margin (dB)</b>
Line 1	153.680	60.53	57.43	53.64	66.00	56.00	-2.36
	596.500	46.39	45.19	36.80	56.00	46.00	-9.20
	1055.165	47.07	45.80	36.94	56.00	46.00	-9.06
	1494.275	47.79	46.06	32.38	56.00	46.00	-9.94
	1972.995	48.04	46.16	32.54	56.00	46.00	-9.84
	3261.065	43.32	38.84	13.91	56.00	46.00	-17.16
Line 2	153.995	56.34	52.97	50.62	66.00	56.00	-5.38
	597.190	48.49	47.32	39.11	56.00	46.00	-6.89
	1053.150	47.26	45.93	37.10	56.00	46.00	-8.90
	1519.755	47.45	46.05	35.05	56.00	46.00	-9.95
	1967.010	48.04	46.01	32.14	56.00	46.00	-9.99
	2400.345	48.57	45.82	31.86	56.00	46.00	-10.18

**Test mode: IEEE 802.11b Channel 11 (Adapter#2: 3A-152DU15)**

<b>Power Connected Emissions</b>					<b>Class B</b>		
<b>Conductor</b>	<b>Frequency (KHz)</b>	<b>Peak (dBμV)</b>	<b>QP (dBμV)</b>	<b>Average (dBμV)</b>	<b>QP-limit (dBμV)</b>	<b>AVG-limit (dBμV)</b>	<b>Margin (dB)</b>
Line 1	154.545	60.16	56.97	52.12	65.94	55.94	-3.82
	598.525	46.72	45.61	37.93	56.00	46.00	-8.07
	1053.825	47.35	46.08	36.95	56.00	46.00	-9.05
	1503.675	48.04	46.64	32.59	56.00	46.00	-9.36
	1982.040	48.18	44.88	33.51	56.00	46.00	-11.12
	2237.345	46.97	44.63	23.49	56.00	46.00	-11.37
Line 2	154.635	55.32	52.46	48.60	65.94	55.94	-7.34
	605.080	48.67	47.84	42.48	56.00	46.00	-3.52
	1053.545	47.40	46.07	37.08	56.00	46.00	-8.92
	1497.470	47.40	45.88	30.91	56.00	46.00	-10.12
	1948.830	47.97	45.97	31.21	56.00	46.00	-10.03
	2401.315	48.36	46.17	31.73	56.00	46.00	-9.83

**Test mode: IEEE 802.11g Channel 1 (Adapter#2: 3A-152DU15)**

<b>Power Connected Emissions</b>					<b>Class B</b>		
<b>Conductor</b>	<b>Frequency (KHz)</b>	<b>Peak (dBμV)</b>	<b>QP (dBμV)</b>	<b>Average (dBμV)</b>	<b>QP-limit (dBμV)</b>	<b>AVG-limit (dBμV)</b>	<b>Margin (dB)</b>
Line 1	156.135	59.93	54.19	49.62	65.86	55.86	-6.24
	596.230	46.92	45.54	34.50	56.00	46.00	-10.46
	1057.190	47.47	46.21	36.01	56.00	46.00	-9.79
	1511.745	48.39	46.81	35.68	56.00	46.00	-9.19
	1966.965	48.36	46.61	33.44	56.00	46.00	-9.39
	2400.835	48.05	44.33	29.25	56.00	46.00	-11.67
Line 2	153.860	60.78	56.69	48.92	66.00	56.00	-7.08
	603.565	46.05	44.93	39.84	56.00	46.00	-6.16
	1055.715	46.09	43.94	36.65	56.00	46.00	-9.35
	1501.965	47.07	45.36	34.66	56.00	46.00	-10.64
	2219.155	46.38	43.87	27.82	60.00	50.00	-12.13
	2397.775	46.99	44.14	31.42	60.00	50.00	-11.86

**Test mode: IEEE 802.11g Channel 6 (Adapter#2: 3A-152DU15)**

<b>Power Connected Emissions</b>					<b>Class B</b>		
<b>Conductor</b>	<b>Frequency (KHz)</b>	<b>Peak (dBμV)</b>	<b>QP (dBμV)</b>	<b>Average (dBμV)</b>	<b>QP-limit (dBμV)</b>	<b>AVG-limit (dBμV)</b>	<b>Margin (dB)</b>
Line 1	153.725	59.94	57.19	52.44	66.00	56.00	-3.56
	606.370	46.96	46.12	40.34	56.00	46.00	-5.66
	1052.880	47.47	46.14	36.75	56.00	46.00	-9.25
	1509.840	48.18	46.82	34.89	56.00	46.00	-9.18
	1978.620	48.18	45.88	29.28	56.00	46.00	-10.12
	2402.655	47.30	44.43	31.42	56.00	46.00	-11.57
Line 2	154.545	55.04	51.93	47.55	65.94	55.94	-8.39
	596.455	48.82	47.78	40.91	56.00	46.00	-5.09
	1051.745	47.56	45.95	34.86	56.00	46.00	-10.05
	1510.650	47.72	46.32	32.22	56.00	46.00	-9.68
	1977.945	48.46	46.74	32.82	56.00	46.00	-9.26
	2418.600	48.62	46.46	30.70	56.00	46.00	-9.54

*Test mode: IEEE 802.11g Channel 11 (Adapter#2: 3A-152DU15)*

<i>Power Connected Emissions</i>					<i>FCC Class B</i>		
<i>Conductor</i>	<i>Frequency (KHz)</i>	<i>Peak (dBμV)</i>	<i>QP (dBμV)</i>	<i>Average (dBμV)</i>	<i>QP-limit (dBμV)</i>	<i>AVG-limit (dBμV)</i>	<i>Margin (dB)</i>
Line 1	153.635	60.08	57.08	53.68	66.00	56.00	-2.32
	610.255	46.92	44.47	40.80	56.00	46.00	-5.20
	900.290	44.16	42.88	34.12	56.00	46.00	-11.88
	1052.060	47.35	46.11	37.15	56.00	46.00	-8.85
	1498.910	48.09	46.58	34.65	56.00	46.00	-9.42
	1988.870	48.16	39.66	18.97	56.00	46.00	-16.34
Line 2	153.635	55.09	53.10	50.45	66.00	56.00	-5.55
	605.965	48.77	47.92	42.49	56.00	46.00	-3.51
	902.045	46.08	44.84	36.68	56.00	46.00	-9.32
	1062.620	47.47	46.12	37.63	56.00	46.00	-8.37
	1495.535	47.65	45.97	33.32	56.00	46.00	-10.03
	1968.855	48.14	46.25	32.28	56.00	46.00	-9.75

#### **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 (dB $\mu$ V/m) is determined by algebraically adding the measured reading in dB $\mu$ V, 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<sub>Ia</sub> : Actual Field Intensity

F<sub>Ir</sub> : 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<sub>Ia</sub> : Actual Field Intensity

F<sub>Ir</sub> : 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	Brand	Serial No.	Calibration Date
				Next time
EMI Receiver	8546A	HP	3520A00242	12/01/06
RF Filter Section	85460A	HP	3448A00217	12/01/06
Small Biconical Antenna	UBAA9114 & BBVU9135	SCHWARZECK	127	02/17/07
Pre-amplifier	PA1F	TRC	1FAC	05/20/07
Auto Switch Box (>30MHz)	ASB-01	TRC	9904-01	05/20/07
Coaxial Cable (Double shielded, 15 meter)	A30A30-0058-50FS-15M	JYEBAO	SMA-01	05/20/07
Coaxial Cable (1.1 meter)	A30A30-0058-50FS-1M	JYEBAO	SMA-02	05/20/07
Spectrum Analyzer	8564E	HP	3720A00840	02/07/07
Microwave Preampfier	84125C	HP	US36433002	02/07/07
Horn Antenna	3115	EMCO	9104-3668	01/23/07
Standard Guide Horn Antenna	84125-80008	HP	18-26.5GHz	02/09/07
Standard Guide Horn Antenna	84125-80001	HP	26.5-40GHz	02/09/07
Horn Antenna	1196E (3115)	HP (EMCO)	9704-5178	01/26/07
Pre-amplifier	PA2F	TRC	2F1GZ	06/20/07
Coaxial Cable (3 miter)	A30A30-0058-50FST118	JYEBAO	MSA-05	06/20/07
Coaxial Cable (1 meter)	A30A30-0058-50FST118	JYEBAO	MSA-04	06/20/07

**5.3 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 (dB)	Corrected Amplitude (dBμV/m)	Class B (3 m)	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Table ( )			Limit (dBμV/m)	Margin (dB)
83.35	27.00	1.00	100	0.49	27.49	40.00	-12.51
197.32	34.79	1.00	103	-3.52	31.27	43.50	-12.23
370.71	37.42	1.00	257	-2.08	35.34	46.00	-10.66
504.09	33.00	1.00	190	2.47	35.47	46.00	-10.53
625.34	28.82	1.00	45	7.18	36.00	46.00	-10.00
876.33	28.99	1.00	182	13.96	42.95	46.00	-3.05

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

Radiated Emission				Correction Factors (dB)	Corrected Amplitude (dBμV/m)	Class B (3 m)	
Frequency (MHz)	Amplitude (dBμV)	Ant. H. (m)	Table ( )			Limit (dBμV/m)	Margin (dB)
39.70	30.15	1.00	3	5.57	35.72	40.00	-4.28
67.59	33.63	1.00	126	1.50	35.13	40.00	-4.87
86.99	35.44	1.00	155	0.20	35.64	40.00	-4.36
125.79	38.02	1.00	198	-2.47	35.55	43.50	-7.95
165.80	40.71	1.00	248	-3.68	37.03	43.50	-6.47
876.33	27.22	1.00	213	13.96	41.18	46.00	-4.82

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
1608.33	1.00	334	37.67	---	14.20	51.87	---	73.96	53.96	-2.09
2681.25	1.00	146	35.17	---	9.83	45.00	---	73.96	53.96	-8.96
9650.42	1.00	132	36.77	---	11.47	48.24	---	73.96	53.96	-5.72
12061.04	1.00	325	38.94	---	9.81	48.75	---	73.96	53.96	-5.21
19296.25	1.00	266	46.83	---	1.60	48.43	---	73.96	53.96	-5.53
21708.12	1.00	62	46.42	---	2.87	49.29	---	73.96	53.96	-4.67

**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
1608.33	1.00	203	38.00	---	14.20	52.20	---	73.96	53.96	-1.76
2225.00	1.00	229	38.33	---	8.72	47.05	---	73.96	53.96	-6.91
2466.67	1.00	115	39.33	---	9.40	48.73	---	73.96	53.96	-5.23
7233.75	1.00	89	35.61	---	10.07	45.68	---	73.96	53.96	-8.28
9650.42	1.00	204	34.94	---	11.47	46.41	---	73.96	53.96	-7.55
12061.04	1.00	276	38.10	---	9.81	47.91	---	73.96	53.96	-6.05

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]*

<i>Radiated Emission</i>				<i>Correction Factors</i>	<i>Corrected Amplitude</i>	<i>Class B (3 m)</i>	
<i>Frequency (MHz)</i>	<i>Amplitude (dB<math>\mu</math>V)</i>	<i>Ant. H. (m)</i>	<i>Table ( )</i>			<i>Limit (dB<math>\mu</math>V/m)</i>	<i>Margin (dB)</i>
37.27	22.45	1.00	67	5.98	28.43	40.00	-11.57
164.59	33.06	1.00	240	-3.64	29.42	43.50	-14.08
368.29	37.40	1.00	263	-2.15	35.25	46.00	-10.75
504.09	32.04	1.00	177	2.47	34.51	46.00	-11.49
601.09	29.27	1.00	24	6.30	35.57	46.00	-10.43
876.33	29.13	1.00	161	13.96	43.09	46.00	-2.91

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

<i>Radiated Emission</i>				<i>Correction Factors</i>	<i>Corrected Amplitude</i>	<i>Class B (3 m)</i>	
<i>Frequency (MHz)</i>	<i>Amplitude (dB<math>\mu</math>V)</i>	<i>Ant. H. (m)</i>	<i>Table ( )</i>			<i>Limit (dB<math>\mu</math>V/m)</i>	<i>Margin (dB)</i>
36.06	30.01	1.00	218	6.19	36.20	40.00	-3.80
78.50	34.94	1.00	20	0.83	35.77	40.00	-4.23
86.99	35.69	1.00	327	0.20	35.89	40.00	-4.11
164.59	35.34	1.00	182	-3.64	31.70	43.50	-11.80
601.09	30.95	1.00	254	6.30	37.25	46.00	-8.75
876.33	27.94	1.00	305	13.96	41.90	46.00	-4.10

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

<i>Frequency</i>	<i>Ant. H.</i>	<i>Table</i>	<i>Amplitude</i>		<i>Correction Factor</i>	<i>Corrected Amplitude</i>		<i>Limit</i>		<i>Margin</i>
			<i>Peak / Ave.</i>			<i>Peak / Ave.</i>		<i>Peak / Ave.</i>		
<i>MHz</i>	<i>m</i>	<i>degree</i>	<i>dBμV</i>		<i>dB/m</i>	<i>dBμV/m</i>		<i>dBμV/m</i>		<i>dB</i>
1624.66	1.00	228	39.16	33.50	13.95	53.11	47.45	73.96	53.96	-6.51
2152.08	1.00	133	36.66	---	8.52	45.18	---	73.96	53.96	-8.78
2535.42	1.00	111	35.00	---	9.56	44.56	---	73.96	53.96	-9.40
9747.08	1.00	261	35.60	---	11.89	47.49	---	73.96	53.96	-6.47
12187.92	1.00	72	40.94	---	9.74	50.68	---	73.96	53.96	-3.28
21934.79	1.00	201	45.58	---	3.09	48.67	---	73.96	53.96	-5.29

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

<i>Frequency</i>	<i>Ant. H.</i>	<i>Table</i>	<i>Amplitude</i>		<i>Correction Factor</i>	<i>Corrected Amplitude</i>		<i>Limit</i>		<i>Margin</i>
			<i>Peak / Ave.</i>			<i>Peak / Ave.</i>		<i>Peak / Ave.</i>		
<i>MHz</i>	<i>m</i>	<i>degree</i>	<i>dBμV</i>		<i>dB/m</i>	<i>dBμV/m</i>		<i>dBμV/m</i>		<i>dB</i>
1624.65	1.00	198	38.66	35.83	13.95	52.61	49.78	73.96	53.96	-4.18
2241.67	1.00	222	38.33	---	8.77	47.10	---	73.96	53.96	-6.86
2512.50	1.00	360	38.00	---	9.51	47.51	---	73.96	53.96	-6.45
9747.08	1.00	92	35.94	---	11.89	47.83	---	73.96	53.96	-6.13
12187.92	1.00	176	39.27	---	9.74	49.01	---	73.96	53.96	-4.95
24371.46	1.00	119	45.44	---	3.26	48.70	---	73.96	53.96	-5.26

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

<b>Radiated Emission</b>				<b>Correction Factors</b>	<b>Corrected Amplitude</b>	<b>Class B (3 m)</b>	
<b>Frequency (MHz)</b>	<b>Amplitude (dBμV)</b>	<b>Ant. H. (m)</b>	<b>Table ( )</b>			<b>Limit (dBμV/m)</b>	<b>Margin (dB)</b>
97.90	31.95	1.00	287	-0.68	31.27	43.50	-12.23
203.39	35.37	1.00	172	-3.62	31.75	43.50	-11.75
367.07	37.89	1.00	195	-2.19	35.70	46.00	-10.30
502.87	31.93	1.00	198	2.41	34.34	46.00	-11.66
625.34	27.32	1.00	103	7.18	34.50	46.00	-11.50
875.11	27.97	1.00	216	13.92	41.89	46.00	-4.11

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

<b>Radiated Emission</b>				<b>Correction Factors</b>	<b>Corrected Amplitude</b>	<b>Class B (3 m)</b>	
<b>Frequency (MHz)</b>	<b>Amplitude (dBμV)</b>	<b>Ant. H. (m)</b>	<b>Table ( )</b>			<b>Limit (dBμV/m)</b>	<b>Margin (dB)</b>
34.85	31.28	1.00	190	6.43	37.71	40.00	-2.29
67.59	34.77	1.00	100	1.50	36.27	40.00	-3.73
168.22	38.00	1.00	233	-3.76	34.24	43.50	-9.26
199.75	41.41	1.00	293	-3.46	37.95	43.50	-5.55
601.09	32.10	1.00	103	6.30	38.40	46.00	-7.60
875.11	27.42	1.00	144	13.92	41.34	46.00	-4.66

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

<i>Frequency</i>	<i>Ant. H.</i>	<i>Table</i>	<i>Amplitude</i>		<i>Correction Factor</i>	<i>Corrected Amplitude</i>		<i>Limit</i>		<i>Margin</i>
			<i>Peak / Ave.</i>			<i>Peak / Ave.</i>		<i>Peak / Ave.</i>		
<i>MHz</i>	<i>m</i>	<i>degree</i>	<i>dBμV</i>		<i>dB/m</i>	<i>dBμV/m</i>		<i>dBμV/m</i>		<i>dB</i>
1641.67	1.00	189	40.83	36.62	13.68	54.51	50.30	73.96	53.96	-3.66
2539.58	1.00	99	35.84	---	9.56	45.40	---	73.96	53.96	-8.56
7384.79	1.00	17	35.28	---	10.42	45.70	---	73.96	53.96	-8.26
9849.79	1.00	241	35.28	---	11.93	47.21	---	73.96	53.96	-6.75
12308.75	1.00	334	36.94	---	9.56	46.50	---	73.96	53.96	-7.46
22157.92	1.00	143	46.25	---	3.25	49.50	---	73.96	53.96	-4.46

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

<i>Frequency</i>	<i>Ant. H.</i>	<i>Table</i>	<i>Amplitude</i>		<i>Correction Factor</i>	<i>Corrected Amplitude</i>		<i>Limit</i>		<i>Margin</i>
			<i>Peak / Ave.</i>			<i>Peak / Ave.</i>		<i>Peak / Ave.</i>		
<i>MHz</i>	<i>m</i>	<i>degree</i>	<i>dBμV</i>		<i>dB/m</i>	<i>dBμV/m</i>		<i>dBμV/m</i>		<i>dB</i>
1641.33	1.00	308	42.82	38.67	13.69	56.51	52.36	73.96	53.96	-1.60
2518.75	1.00	115	38.83	---	9.53	48.36	---	73.96	53.96	-5.60
7384.79	1.00	103	35.28	---	10.42	45.70	---	73.96	53.96	-8.26
9849.79	1.00	22	35.78	---	11.93	47.71	---	73.96	53.96	-6.25
12308.75	1.00	286	36.77	---	9.56	46.33	---	73.96	53.96	-7.63
22157.92	1.00	171	46.29	---	3.25	49.54	---	73.96	53.96	-4.42



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

<b>Radiated Emission</b>				<b>Correction Factors</b>	<b>Corrected Amplitude</b>	<b>Class B (3 m)</b>	
<b>Frequency (MHz)</b>	<b>Amplitude (dBμV)</b>	<b>Ant. H. (m)</b>	<b>Table ( )</b>			<b>Limit (dBμV/m)</b>	<b>Margin (dB)</b>
82.14	25.80	1.00	110	0.58	26.38	40.00	-13.62
202.17	34.78	1.00	233	-3.56	31.22	43.50	-12.28
367.07	38.90	1.00	207	-2.19	36.71	46.00	-9.29
504.09	31.77	1.00	190	2.47	34.24	46.00	-11.76
625.34	27.38	1.00	105	7.18	34.56	46.00	-11.44
876.33	26.79	1.00	163	13.96	40.75	46.00	-5.25

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

<b>Radiated Emission</b>				<b>Correction Factors</b>	<b>Corrected Amplitude</b>	<b>Class B (3 m)</b>	
<b>Frequency (MHz)</b>	<b>Amplitude (dBμV)</b>	<b>Ant. H. (m)</b>	<b>Table ( )</b>			<b>Limit (dBμV/m)</b>	<b>Margin (dB)</b>
56.67	32.01	1.00	350	2.69	34.70	40.00	-5.30
66.21	34.50	1.00	130	1.60	36.10	40.00	-3.90
168.22	39.87	1.00	233	-3.76	36.11	43.50	-7.39
197.32	37.00	1.00	0	-3.52	33.48	43.50	-10.02
601.09	30.70	1.00	350	6.30	37.00	46.00	-9.00
875.11	26.32	1.00	144	13.92	40.24	46.00	-5.76

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

<i>Frequency</i>	<i>Ant. H.</i>	<i>Table</i>	<i>Amplitude</i>		<i>Correction Factor</i>	<i>Corrected Amplitude</i>		<i>Limit</i>		<i>Margin</i>
			<i>Peak / Ave.</i>			<i>Peak / Ave.</i>		<i>Peak / Ave.</i>		
<i>MHz</i>	<i>m</i>	<i>degree</i>	<i>dBμV</i>		<i>dB/m</i>	<i>dBμV/m</i>		<i>dBμV/m</i>		<i>dB</i>
1608.33	1.00	216	38.00	---	14.20	52.20		73.96	53.96	-1.76
2527.08	1.00	194	35.00	---	9.54	44.54	---	73.96	53.96	-9.42
7233.75	1.00	15	34.11	---	10.07	44.18	---	73.96	53.96	-9.78
9650.42	1.00	144	34.61	---	11.47	46.08	---	73.96	53.96	-7.88
12061.04	1.00	314	38.27	---	9.81	48.08	---	73.96	53.96	-5.88
21708.12	1.00	58	46.34	---	2.87	49.21	---	73.96	53.96	-4.75

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

<i>Frequency</i>	<i>Ant. H.</i>	<i>Table</i>	<i>Amplitude</i>		<i>Correction Factor</i>	<i>Corrected Amplitude</i>		<i>Limit</i>		<i>Margin</i>
			<i>Peak / Ave.</i>			<i>Peak / Ave.</i>		<i>Peak / Ave.</i>		
<i>MHz</i>	<i>m</i>	<i>degree</i>	<i>dBμV</i>		<i>dB/m</i>	<i>dBμV/m</i>		<i>dBμV/m</i>		<i>dB</i>
1608.33	1.00	202	38.33	---	14.20	52.53		73.96	53.96	-1.43
2595.83	1.00	123	36.00	---	9.67	45.67	---	73.96	53.96	-8.29
7233.75	1.00	211	35.44	---	10.07	45.51	---	73.96	53.96	-8.45
9650.42	1.00	61	35.61	---	11.47	47.08	---	73.96	53.96	-6.88
12061.04	1.00	178	37.60	---	9.81	47.41	---	73.96	53.96	-6.55
21708.12	1.00	45	46.25	---	2.87	49.12	---	73.96	53.96	-4.84

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

<b>Radiated Emission</b>				<b>Correction Factors</b>	<b>Corrected Amplitude</b>	<b>Class B (3 m)</b>	
<b>Frequency (MHz)</b>	<b>Amplitude (dBμV)</b>	<b>Ant. H. (m)</b>	<b>Table ( )</b>			<b>Limit (dBμV/m)</b>	<b>Margin (dB)</b>
370.71	37.48	1.00	292	-2.08	35.40	46.00	-10.60
504.09	33.60	1.00	183	2.47	36.07	46.00	-9.93
533.19	32.39	1.00	10	3.81	36.20	46.00	-9.80
601.09	31.78	1.00	14	6.30	38.08	46.00	-7.92
875.11	26.99	1.00	219	13.92	40.91	46.00	-5.09
923.61	26.11	1.00	178	15.22	41.33	46.00	-4.67

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

<b>Radiated Emission</b>				<b>Correction Factors</b>	<b>Corrected Amplitude</b>	<b>Class B (3 m)</b>	
<b>Frequency (MHz)</b>	<b>Amplitude (dBμV)</b>	<b>Ant. H. (m)</b>	<b>Table ( )</b>			<b>Limit (dBμV/m)</b>	<b>Margin (dB)</b>
33.64	29.14	1.00	188	6.88	36.02	40.00	-3.98
66.21	33.34	1.00	149	1.60	34.94	40.00	-5.06
111.24	38.22	1.00	172	-1.91	36.31	43.50	-7.19
199.75	43.10	1.00	23	-3.46	39.64	43.50	-3.86
601.09	31.42	1.00	31	6.30	37.72	46.00	-8.28
875.11	26.41	1.00	194	13.92	40.33	46.00	-5.67

**Test mode: IEEE 802.11g CH06 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
1624.65	1.00	218	38.16	30.67	13.95	52.11	44.62	73.96	53.96	-9.34
2312.50	1.00	36	35.50	---	8.96	44.46	---	73.96	53.96	-9.50
3016.67	1.00	264	35.00	---	10.51	45.51	---	73.96	53.96	-8.45
9747.08	1.00	52	36.10	---	11.89	47.99	---	73.96	53.96	-5.97
12187.92	1.00	185	39.27	---	9.74	49.01	---	73.96	53.96	-4.95
21934.79	1.00	204	45.40	---	3.09	48.49	---	73.96	53.96	-5.47

**Test mode: IEEE 802.11g CH06 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
1624.66	1.00	320	38.82	33.33	13.95	52.77	47.28	73.96	53.96	-6.68
2293.75	1.00	302	38.50	---	8.91	47.41	---	73.96	53.96	-6.55
2525.00	1.00	127	38.16	---	9.54	47.70	---	73.96	53.96	-6.26
7312.29	1.00	216	34.61	---	10.30	44.91	---	73.96	53.96	-9.05
9747.08	1.00	269	35.94	---	11.89	47.83	---	73.96	53.96	-6.13
12187.92	1.00	72	38.77	---	9.74	48.51	---	73.96	53.96	-5.45

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

<i>Radiated Emission</i>				<i>Correction Factors</i>	<i>Corrected Amplitude</i>	<i>Class B (3 m)</i>	
<i>Frequency (MHz)</i>	<i>Amplitude (dBμV)</i>	<i>Ant. H. (m)</i>	<i>Table ( )</i>			<i>Limit (dBμV/m)</i>	<i>Margin (dB)</i>
67.59	30.55	1.00	112	1.50	32.05	40.00	-7.95
78.50	30.09	1.00	92	0.83	30.92	40.00	-9.08
369.50	37.84	1.00	200	-2.11	35.73	46.00	-10.27
504.09	33.06	1.00	194	2.47	35.53	46.00	-10.47
601.09	31.74	1.00	14	6.30	38.04	46.00	-7.96
876.33	27.41	1.00	69	13.96	41.37	46.00	-4.63

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

<i>Radiated Emission</i>				<i>Correction Factors</i>	<i>Corrected Amplitude</i>	<i>Class B (3 m)</i>	
<i>Frequency (MHz)</i>	<i>Amplitude (dBμV)</i>	<i>Ant. H. (m)</i>	<i>Table ( )</i>			<i>Limit (dBμV/m)</i>	<i>Margin (dB)</i>
33.64	29.04	1.00	178	6.88	35.92	40.00	-4.08
64.78	33.77	1.00	139	1.71	35.48	40.00	-4.52
198.54	44.63	1.00	162	-3.49	41.14	43.50	-2.36
502.87	32.71	1.00	188	2.41	35.12	46.00	-10.88
601.09	30.98	1.00	7	6.30	37.28	46.00	-8.72
876.33	26.93	1.00	141	13.94	40.87	46.00	-5.13

**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
1641.33	1.00	277	39.66	33.33	13.69	53.35	47.02	73.96	53.96	-6.94
2939.58	1.00	360	35.00	---	10.32	45.32	---	73.96	53.96	-8.64
8384.79	1.00	15	34.78	---	10.42	45.20	---	73.96	53.96	-8.76
9849.79	1.00	74	34.78	---	11.93	46.71	---	73.96	53.96	-7.25
12308.75	1.00	0	37.61	---	9.56	47.17	---	73.96	53.96	-6.79
22157.92	1.00	155	46.58	---	3.25	49.83	---	73.96	53.96	-4.13

**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
1641.32	1.00	223	41.99	35.67	13.69	55.68	49.25	73.96	53.96	-4.60
2535.42	1.00	234	36.16	---	9.56	45.72	---	73.96	53.96	-8.24
7384.79	1.00	152	35.11	---	10.42	45.53	---	73.96	53.96	-8.43
9849.79	1.00	255	34.78	---	11.93	46.71	---	73.96	53.96	-7.25
12308.75	1.00	280	37.61	---	9.56	47.17	---	73.96	53.96	-6.79
22157.92	1.00	162	46.48	---	3.25	49.73	---	73.96	53.96	-4.23

#### **5.4 Test Result of the Bandedge**

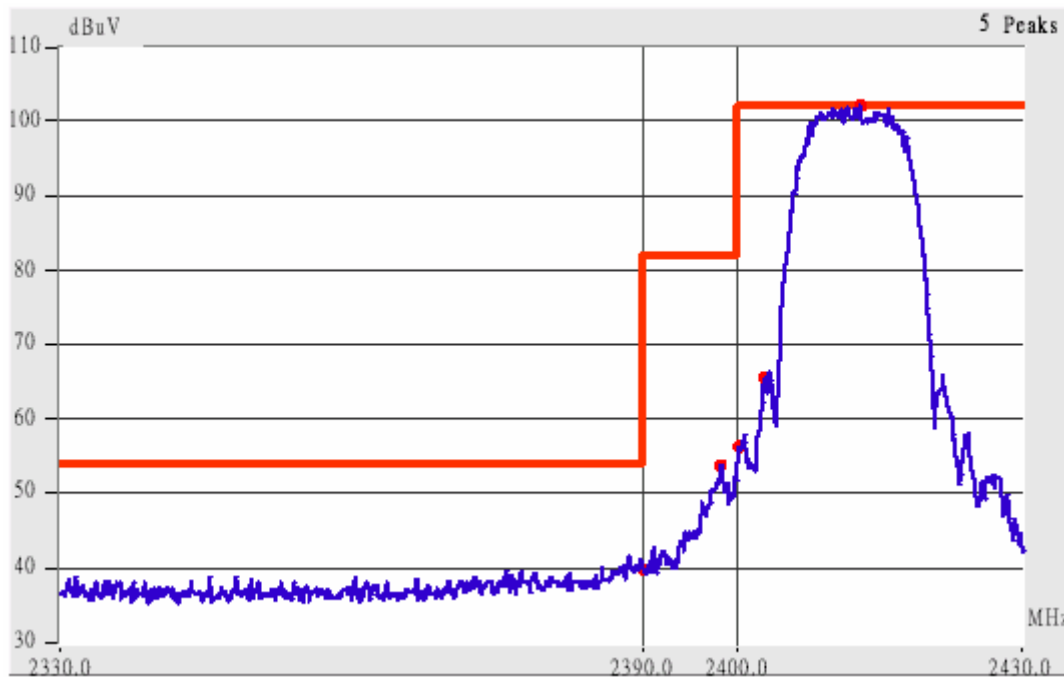
If any 100 kHz bandwidth outside these frequency bands, the radio frequency power that is produced by the modulation products of the spreading sequence, the information sequence and the carrier frequency shall be either *at least 20 dB below that in any 100 kHz bandwidth within the band that contains 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 10<sup>th</sup> 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**



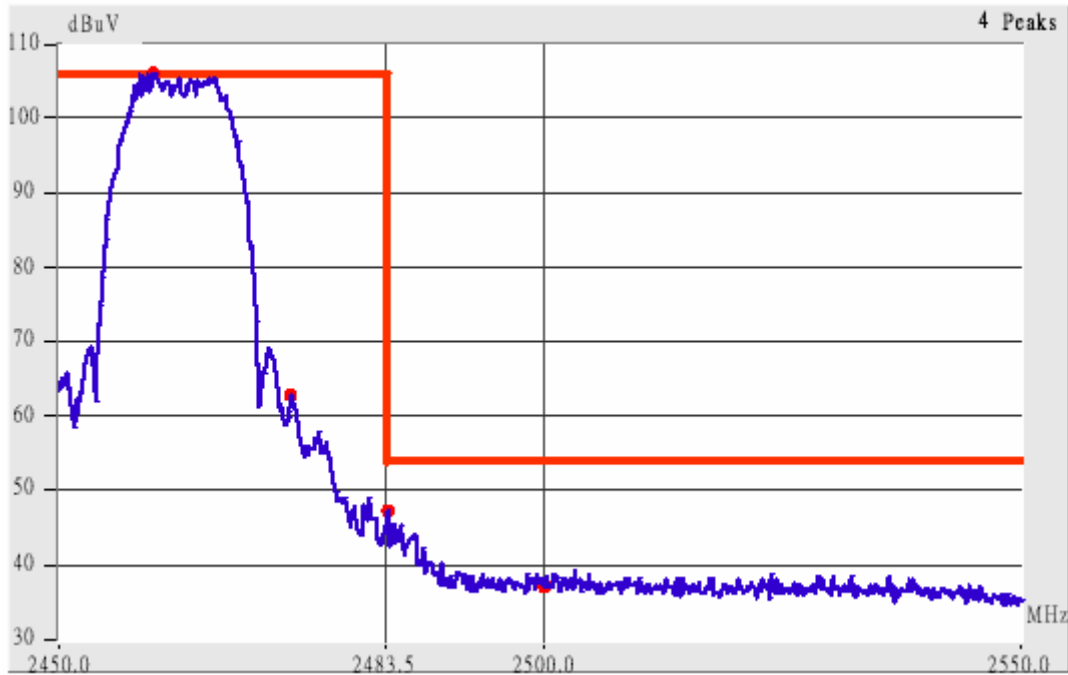
This is the hard copy of our bandedge measurement generated by our bandedge testing program. The plot shown above is the bandedge of channel 1.

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.

<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>	
2372.90	Hor	1.00	96	9.13	45.47	---	73.96	53.96	-8.49
2390.02	Hor	1.00	273	9.18	45.02	---	73.96	53.96	-8.94
2385.36	Ver	1.00	137	9.17	51.17	---	73.96	53.96	-2.79
2390.02	Ver	1.00	235	9.18	50.85	---	73.96	53.96	-3.11



**Channel 11 of IEEE 802.11b**

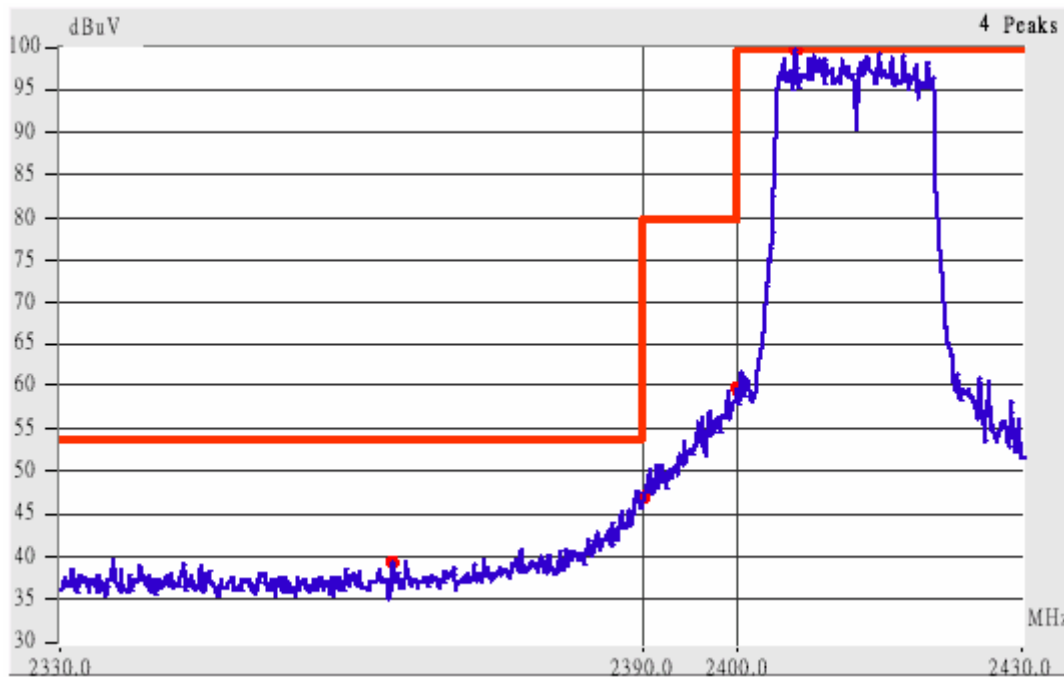


This is the hard copy of our bandedge measurement generated by our bandedge testing program. The plot shown above is the bandedge of channel 11.

- 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>	
2483.50	Hor	1.00	199	9.44	48.61	---	73.96	53.96	-5.35
2485.66	Hor	1.00	196	9.45	48.45	---	73.96	53.96	-5.51
2500.01	Ver	1.00	106	9.49	44.32	---	73.96	53.96	-9.64
2507.36	Ver	1.00	198	9.50	46.00	---	73.96	53.96	-7.96
2483.50	Ver	1.00	228	9.44	53.28	42.27	73.96	53.96	-11.69
2485.93	Ver	1.00	231	9.45	53.78	40.45	73.96	53.96	-13.51
2500.01	Ver	1.00	335	9.49	47.49	---	73.96	53.96	-6.47
2503.57	Ver	1.00	230	9.50	50.00	---	73.96	53.96	-3.96

**Channel 1 of IEEE 802.11g**

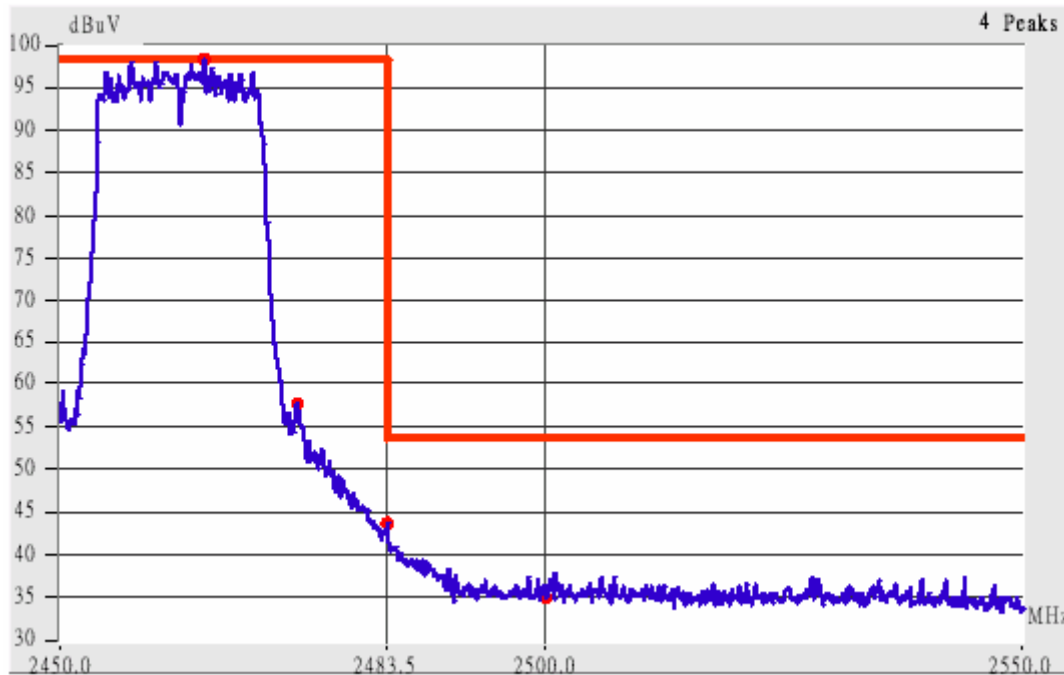


This is the hard copy of our bandedge measurement generated by our bandedge testing program. The plot shown above is the bandedge of channel 1.

- 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	28	9.17	45.84	---	73.96	53.96	-8.12
2390.02	Hor	1.00	175	9.18	45.68	---	73.96	53.96	-8.28
2384.49	Ver	1.00	136	9.17	49.83	---	73.96	53.96	-4.13
2390.02	Ver	1.00	268	9.18	52.18	---	73.96	53.96	-1.78

**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

<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>	
2483.50	Hor	1.00	197	9.44	46.61	---	73.96	53.96	-7.35
2487.12	Hor	1.00	218	9.45	47.62	---	73.96	53.96	-6.34
2500.01	Hor	1.00	199	9.49	44.16	---	73.96	53.96	-9.80
2511.62	Hor	1.00	130	9.51	43.01	---	73.96	53.96	-10.95
2483.50	Ver	1.00	207	9.44	52.61	---	73.96	53.96	-1.35
2487.29	Ver	1.00	308	9.45	50.79	---	73.96	53.96	-3.17
2500.01	Ver	1.00	218	9.49	46.82	---	73.96	53.96	-7.14
2514.88	Ver	1.00	213	9.52	48.35	---	73.96	53.96	-5.61