

# ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

## INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 15 SUBPART C REQUIREMENT AND INDUSTRY CANADA RSS 210

OF

**Product Name:** Tablet Device  
**Brand Name:** SONY  
**Model Name:** SGPT112US/S; SGPT112CA/S;  
SGPT111US/S; SGPT111CA/S  
**Model No. of WLAN  
Modular:** LBEE69QSYC  
**Model Difference:** For marketing purpose only  
**FCC ID:** AK8SGPT111US  
**IC:** 409B-SGPT111CA  
**Report No.:** EF/2011/40006  
**Issue Date:** Apr. 13, 2011  
**FCC Rule Part:** §15.247  
**IC Rule Part:** RSS-210 issue 8:2010, Annex 8  
**Prepared for:** Sony Corporation  
1-7-1 Konan Minato-Ku, Tokyo, 108-0075 Japan  
SGS Taiwan Ltd.  
**Prepared by:** Electronics & Communication Laboratory  
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## VERIFICATION OF COMPLIANCE

**Applicant:** Sony Corporation  
1-7-1 Konan Minato-Ku, Tokyo, 108-0075 Japan

**Product Name:** Tablet Device

**Brand Name:** SONY

**Model No. of WLAN Modular:** LBEE69QSYC

**FCC ID:** AK8SGPT111US  
**IC:** 409B-SGPT111CA

**Model No.:** SGPT112US/S; SGPT112CA/S;  
SGPT111US/S; SGPT111CA/S

**Model Difference:** For marketing purpose only

**File Number:** EF/2011/40006

**Date of test:** Mar. 24, 2011 ~ Apr. 05, 2011

**Date of EUT Received:** Mar. 24, 2011

### We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd. Electronics & Communication Laboratory The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4 (2003) and RSS-Gen. issue 3 the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rules Part 15.247 and IC RSS 210 issue 8: 2010 Annex 8.

The test results of this report relate only to the tested sample identified in this report.

*Test By:*



*Date:*

Apr. 13, 2011

*Jason Wu / Engineer*

*Prepared By:*



*Date:*

Apr. 13, 2011

*Celine Chou / Clerk*

*Approved By:*



*Date:*

Apr. 13, 2011

*Jim Chang / Supervisor*

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## Version

Version No.	Date	Description
00	Apr. 13, 2011	Initial creation of document

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## 1 GENERAL INFORMATION

### 1.1 Product Description

General:

Product Name:	Tablet Device	
Brand Name:	N/A	
Model Name:	SGPT112US/S; SGPT112CA/S; SGPT111US/S; SGPT111CA/S	
Model Difference:	For marketing purpose only	
WLAN Module FCC ID:	VPYLBSY	
WLAN Module IC :	772C-LBSY	
Power Supply:	3.7Vdc Re-chargeable Li-ion battery or 10.5Vdc by AC/DC power adapter	
	Battery:	Model: SGPBP02, Supplier: SONY
	Adapter:	Model: SGPAC10V1, Supplier: SONY
Data Cable:	Model: N/A, Supplier: N/A	

**Bluetooth:**

Bluetooth FCC Modular Report:	Supplier: UL Japan, Inc. Report Owner: Murata Manufacturing Co., Ltd. Model: LBEE69QSYC Report Number: 31CE0169-HO-02-B-R1
Bluetooth IC Modular Report:	Supplier: UL Japan, Inc. Report Owner: Murata Manufacturing Co., Ltd. Model: LBEE69QSYC Report Number: 31CE0169-HO-02-D-R1
Bluetooth Version:	<input type="checkbox"/> V1.1 (GFSK) <input type="checkbox"/> V1.2 (GFSK) <input type="checkbox"/> V2.0 (GFSK) <input type="checkbox"/> V2.0 + EDR (GFSK + $\pi/4$ DQPSK + 8DPSK) <input checked="" type="checkbox"/> V2.1 + EDR (GFSK + $\pi/4$ DQPSK + 8DPSK)
Frequency Range:	2402 – 2480MHz
Channel number:	79 channels max.
Rated Power:	-0.10dBm (Peak)
Modulation type:	Frequency Hopping Spread Spectrum
Antenna Designation:	PIFA Antenna / 0.65dBi.
Type of Emission (IC):	1M2D1D

The EUT is compliance with Bluetooth V2.1 + EDR (GFSK +  $\pi/4$ DQPSK + 8DPSK) standard.

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**WLAN: 802.11 b/g/n**

Wi-Fi	Frequency Range	Channels	Rated Power	Modulation Technology	Type of Emission (IC)
11b/g	2412-2462	11	b : 15.75dBm g : 20.42dBm	DSSS, OFDM	b : 13M57G1D g : 17M16G1D
11n	HT20 2412-2462	11	n : 19.74dBm	OFDM	18M20G1D
WLAN FCC Modular Report:			Supplier: UL Japan, Inc. Report Owner: Murata Manufacturing Co., Ltd. Model: LBEE69QSYC Report Number: 31CE0169-HO-02-A-R1		
WLAN IC Modular Report:			Supplier: UL Japan, Inc. Report Owner: Murata Manufacturing Co., Ltd. Model: LBEE69QSYC Report Number: 31CE0169-HO-02-C-R1		
Antenna Designation:			PIFA Antenna with 0.65 dBi peak gain		
Modulation type:			CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM		
Transition Rate:			802.11 b: 1/2/5.5/11 Mbps 802.11 g: 6/9/12/18/24/36/48/54 Mbps 802.11 n HT20: 6.5/13/19.5/26/39/52/58.5/65 Mbps		

The EUT is compliance with IEEE 802.11 b/g/n Standard.

**GPS:**

Receiver Frequency:	L1 Band, 1575.42MHz
Frequency Conversion oscillator:	32.768KHz
Antenna Designation:	PIFA Antenna / 0.65dBi.

This test report applies for Bluetooth.

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## 1.2 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: AK8SGPT111US filing to comply with Section 15.247 of the FCC Part 15C, Subpart C Rules. And IC: 409B-SGPPT111CA filing to comply with Industry Canada RSS-210 issue 8:2010, Annex 8. The composite system (digital device) is compliance with Subpart B is authorized under a DoC procedure.

## 1.3 Test Methodology

Both conducted and radiated testing were performed according to the procedures in ANSI C63.4 (2003) and RSS-Gen: 2010. Radiated testing was performed at an antenna to EUT distance 3 meters.

## 1.4 Test Facility

The measurement facilities used to collect the 3m Radiated Emission and AC power line conducted data are located on the address of SGS Taiwan Ltd. Electronics & Communication Laboratory No. 134, Wu Kung Rd., Wuku Industrial Zone, Taipei Country, Taiwan which are constructed and calibrated to meet the FCC requirements in documents ANSI C63.4: 2003. FCC Registration Number are: 990257 and 236194, Canada Registration Number: 4620A-4.

The 10 m Open Area Test Sites located on the address of SGS Taiwan Ltd. Electronics & Communication Laboratory No. 29, Pau-Tou-Tsuo Valley Chia-Pau Tsuen, Linkou Hsiang, Taipei county, which is constructed and calibrated to meet the CISPR 22/EN 55022 requirements. SGS Site No. 1(3 &10 meters) and FCC Registration Number: 94644.

## 1.5 Special Accessories

Not available for this EUT intended for grant.

## 1.6 Equipment Modifications

Not available for this EUT intended for grant.

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## 2 SYSTEM TEST CONFIGURATION

### 2.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

### 2.2 EUT Exercise

The EUT (Transmitter) was operated in the engineering mode to fix the Tx and RX frequency that was for the purpose of the measurements.

### 2.3 Test Procedure

#### 2.3.1 Conducted Emissions

The EUT is a placed on as turn table which is 0.8 m above ground plane. According to the requirements in Section 7 and 13 of ANSI C63.4-2003. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-Peak and Average detector mode.

#### 2.3.2 Radiated Emissions

The EUT is a placed on as turn table which is 0.8 m above ground plane. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter (EUT) was rotated through three orthogonal axes and measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made "while keeping the antenna in the 'cone of radiation' from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response." is still within the 3dB illumination BW of the measurement antenna. according to the requirements in Section 8 and 13 and Subclause 8.3.1.2 of ANSI C63.4-2003.

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## 2.4 Configuration of Tested System

Fig. 2-1 Radiated Emission Configuration

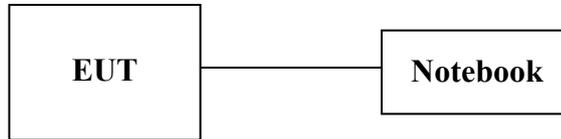


Table 2-1 Equipment Used in Tested System

Item	Equipment	Mfr/Brand	Model/ Type No.	Series No.
1.	Notebook	Lenovo	L412	0585AD9

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### 3 SUMMARY OF TEST RESULTS

FCC Rules	Description Of Test	Result
§15.207(a)/ RSS-Gen §7.2.2	AC Power line Conducted Emis- sion	Compliant
§15.247(b)/ RSS-210 §A8.4(4)	Output Power	Compliant
§15.247(c)/ RSS-210 §A8.4(4)	100 KHz Bandwidth Of Frequency Band Edges	Compliant
§15.247(c)/ RSS-210 §A8.4(4)	Spurious Emission	Compliant
§15.203/ RSS-GEN §7.1.2.	Antenna Requirement	Compliant

### 4 DESCRIPTION OF TEST MODES

The EUT has been tested under operating condition.

Test program used to control the EUT for staying in continuous transmitting and receiving mode is programmed.

802.11 b mode: Channel low (2412MHz)·mid (2437MHz) and high (2462MHz) with 1Mbps data rate are chosen for above testing.

802.11 g mode: Channel low (2412MHz)·mid (2437MHz) and high (2462MHz) with 6Mbps data rate are chosen for above testing.

802.11 n mode(20M): Channel low (2412MHz) · mid (2437MHz) and high (2462MHz) with 6.5 Mbps data rate are chosen for conducted power testing.

The field strength of radiation emission was measured as EUT stand-up position (H mode) and lie down position (E1, E2 mode) for 802.11b/g/n WLAN Transmitter for channel Low, Mid and High, the worst case H position was reported.

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## 1 CONDUCTED EMISSION TEST

### 5.1. Standard Applicable:

According to §15.207 and RSS-Gen §7.2.2, frequency range within 150KHz to 30MHz shall not exceed the Limit table as below.

Frequency range MHz	Limits dB(uV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50

Note

- The lower limit shall apply at the transition frequencies
- The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.

### 5.2. Measurement Equipment Used:

Conducted Emission Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
EMI Test Receiver	R&S	ESCS30	828985/004	09/15/2010	09/14/2011
LISN	Rolf-Heine	NNB-2/16Z	99012	02/02/2011	02/01/2012
LISN	FCC	FCC-LISN-50/250-25-2-01	04034	02/02/2011	02/01/2012
Coaxial Cables	N/A	WK CE Cable	N/A	11/28/2010	11/27/2011

### 5.3. EUT Setup:

- The conducted emission tests were performed in the test site, using the setup in accordance with the ANSI C63.4-2003.
- The AC/DC Power adaptor of EUT was plug-in LISN. The EUT was placed flushed with the rear of the table.
- The LISN was connected with 120Vac/60Hz power source.

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#### 5.4. Measurement Procedure:

1. The EUT was placed on a table which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured were complete.

#### 5.5. Measurement Result:

The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range. Significant peaks are then marked as shown on the following data page, and these signals are then quasi-peaked.

Note: Refer to next page for measurement data and plots.

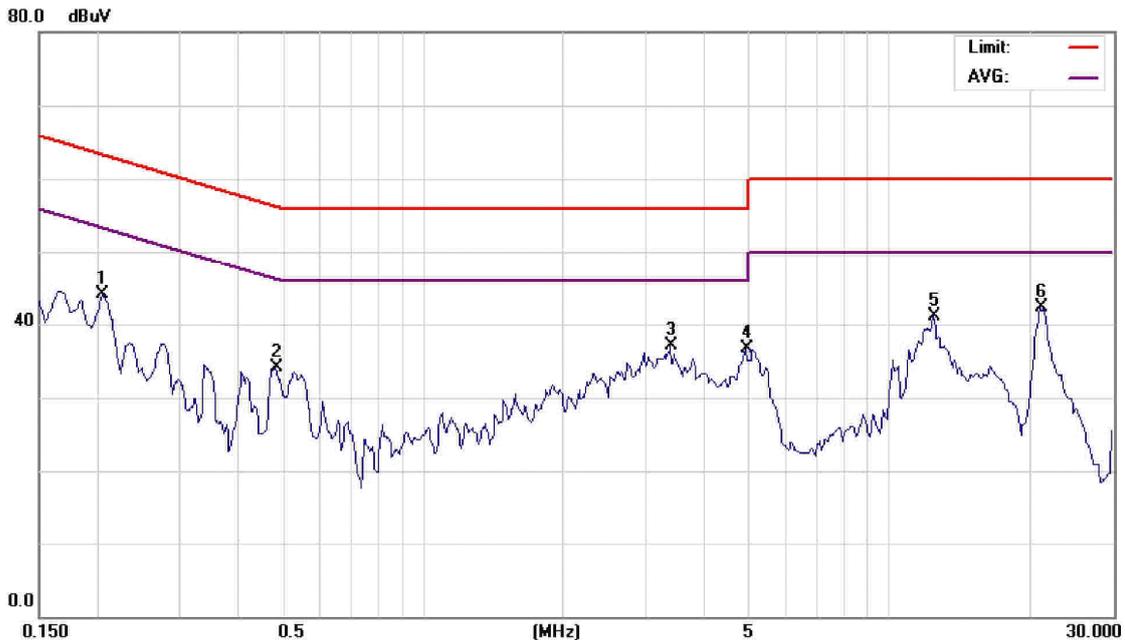
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### AC POWER LINE CONDUCTED EMISSION TEST DATA

Operation Mode:	WLAN Mode		Test Date:	Apr. 04, 2011	
Temperature:	23 °C	Humidity:	58 %	Test By:	Jason



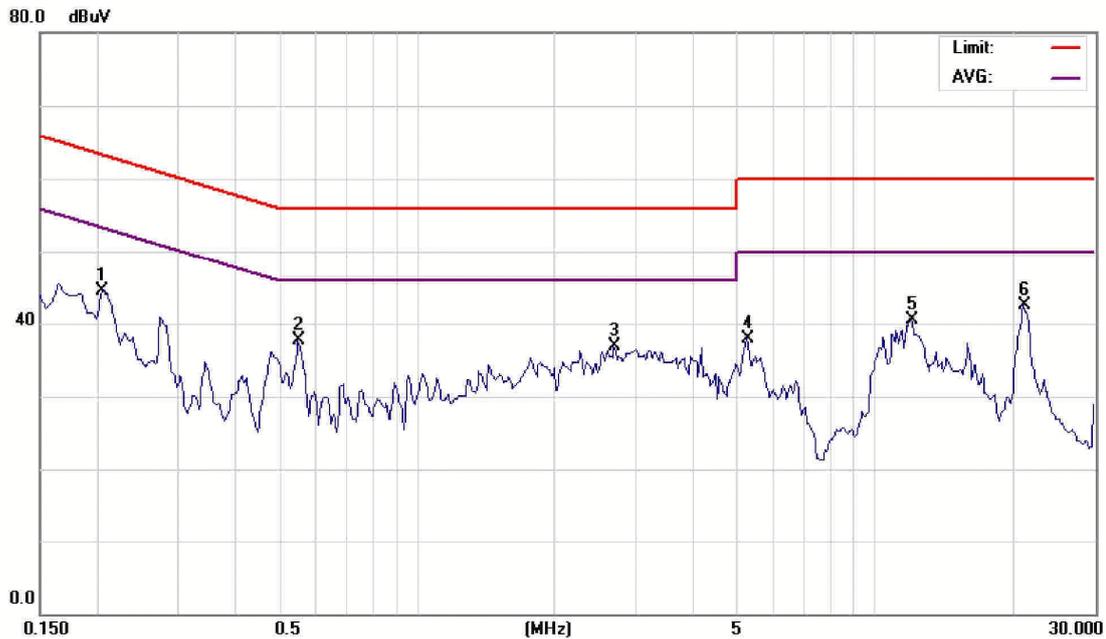
Site: SGS CONDUCTED #1  
Limit: CISPR22/11/EN55022 Class B  
EUT: TabletDevice  
M/N: SGPT112US/S  
Note: WLANOperation  
Phase: L1  
Power: AC 120V/60Hz  
Distance:  
Temperature: 24 °C  
Humidity: 58%  
Air Pressure: hpa

No.	Mk.	Freq. MHz	Reading Level dBuV	Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.2050	43.94	0.07	44.01	63.41	-19.40	peak	
2		0.4850	34.07	0.06	34.13	56.25	-22.12	peak	
3		3.4000	37.03	0.08	37.11	56.00	-18.89	peak	
4		4.9500	36.53	0.10	36.63	56.00	-19.37	peak	
5		12.5000	40.80	0.21	41.01	60.00	-18.99	peak	
6	*	21.2400	41.89	0.43	42.32	60.00	-17.68	peak	

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Site	SGS CONDUCTED #1	Phase:	<b>N</b>	Temperature:	24 °C
Limit:	CISPR22/11/EN55022 Class B	Power:	AC 120V/60Hz	Humidity:	58%
EUT:	TabletDevice	Distance:		Air Pressure:	hpa
M/N:	SGPT112US/S				
Note:	WLANOperation				

No.	Mk.	Freq.	Reading Level	Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.2050	44.36	0.08	44.44	63.41	-18.97	peak	
2		0.5500	37.64	0.06	37.70	56.00	-18.30	peak	
3		2.7000	36.85	0.08	36.93	56.00	-19.07	peak	
4		5.2600	37.80	0.10	37.90	60.00	-22.10	peak	
5		12.0000	40.25	0.17	40.42	60.00	-19.58	peak	
6	*	21.2000	42.29	0.31	42.60	60.00	-17.40	peak	

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## 5 OUTPUT POWER MEASUREMENT

### 5.1 Standard Applicable:

According to §15.247(a)(2), (b)

(3) For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

(4) The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(c) Operation with directional antenna gains greater than 6 dBi.

(1) Fixed point-to-point operation:

(i) Systems operating in the 2400-2483.5 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

(ii) Systems operating in the 5725-5850 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted output power.

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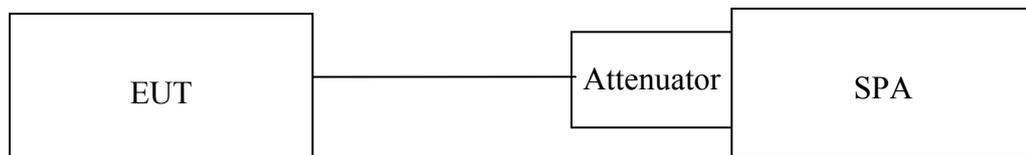
According to RSS-210 issue 8, §A8.4(4), for systems employing digital modulation techniques operating in the bands 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz, the maximum peak conducted output power shall not exceed 1 W. Except as provided in Section A8.4 (5), the e.i.r.p. shall not exceed 4 W.

As an alternative to a peak power measurement, compliance can be based on a measurement of the maximum conducted output power. The maximum conducted output power is the total transmit power delivered to all antennas and antenna elements, averaged across all symbols in the signalling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or transmitting at a reduced power level. If multiple modes of operation are implemented, the maximum conducted output power is the highest total transmit power occurring in any mode.

## 5.2 Measurement Equipment Used:

Conducted Emission Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	Agilent	E4446A	MY43360126	04/19/2010	04/18/2012
Spectrum Analyzer	Agilent	E4440A	MY45304525	01/25/2011	01/24/2012
Spectrum Analyzer	R&S	FSP 40	100034	02/22/2011	02/21/2012
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA	N/A	01/05/2011	01/04/2012
Attenuator	Mini-Circuit	BW-S6W5	N/A	07/05/2010	07/04/2011

## 5.3 Test Set-up:



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#### 5.4 Measurement Procedure:

1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the power meter or spectrum. (Channel power function, RBW =1, VBW = 3MHz, Bandwidth=26dB Emission Bandwidth)
3. Peak power is then measured using internal channel power integration function of SPA.
4. Power is integrated over a bandwidth greater than or equal to 26dBc bandwidth
5. Record the max.reading.
6. Repeat above procedures until all frequency measured was completed.

#### 5.5 Measurement Result:

Mode	Channel	Frequency(MHz)	Data Rate (Mbps)	Peak Power (dBm)	Average Power (dBm)
802.11b	1	2412	1	15.51	12.92
802.11b	6	2437	1	15.75	13.34
802.11b	11	2462	1	15.30	12.91
<hr/>					
802.11g	1	2412	6	20.42	10.89
802.11g	6	2437	6	19.87	10.77
802.11g	11	2462	6	19.80	10.63
<hr/>					
802.11n(20MHz)	1	2412	HT0	19.74	10.68
802.11n(20MHz)	6	2437	HT0	19.21	10.65
802.11n(20MHz)	11	2462	HT0	19.13	10.55
<hr/>					

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## 6 100KHz BANDWIDTH OF BAND EDGES MEASUREMENT

### 6.1 Standard Applicable:

According to §15.247(c), in any 100 KHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100KHz bandwidth within the band that contains the highest level of the desired power, In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in 15.209(a).

According to RSS-210 issue 8, §A8.5, In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the radio frequency power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under section A8.4(4), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Tables 2 and 3 is not required. In addition, radiated emissions which fall in the restricted bands of Table 1 must also comply with the radiated emission limits specified in Tables 2 and 3.

### 6.2 Measurement Equipment Used:

#### 6.2.1. Conducted Emission at antenna port:

Refer to section 6.2 for details.

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**6.2.2. Radiated emission:**

966 Chamber					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	R&S	FSP 40	100034	02/12/2011	02/11/2012
Loop antenna	MESSTEC	FLA30	03/10086	07/08/2009	07/07/2011
Bilog Antenna	SCHWAZBECK	VULB9160	3158	11/29/2009	11/28/2011
Horn antenna	SCHWAZBECK	BBHA 9120D	9120D-673	05/09/2010	05/08/2012
Pre-Amplifier	Agilent	8447D	1937A02834	11/30/2010	11/29/2011
Pre-Amplifier	Agilent	8449B	3008A01973	01/05/2011	01/04/2012
Turn Table	HD	DT420	N/A	N.C.R	N.C.R
Antenna Tower	HD	MA240-N	240/657	N.C.R	N.C.R
Controller	HD	HD100	N/A	N.C.R	N.C.R
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-10M	10m	01/05/2011	01/04/2012
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-3M	3m	01/05/2011	01/04/2012
3m Site	SGS	966 chamber	N/A	11/08/2010	11/09/2011

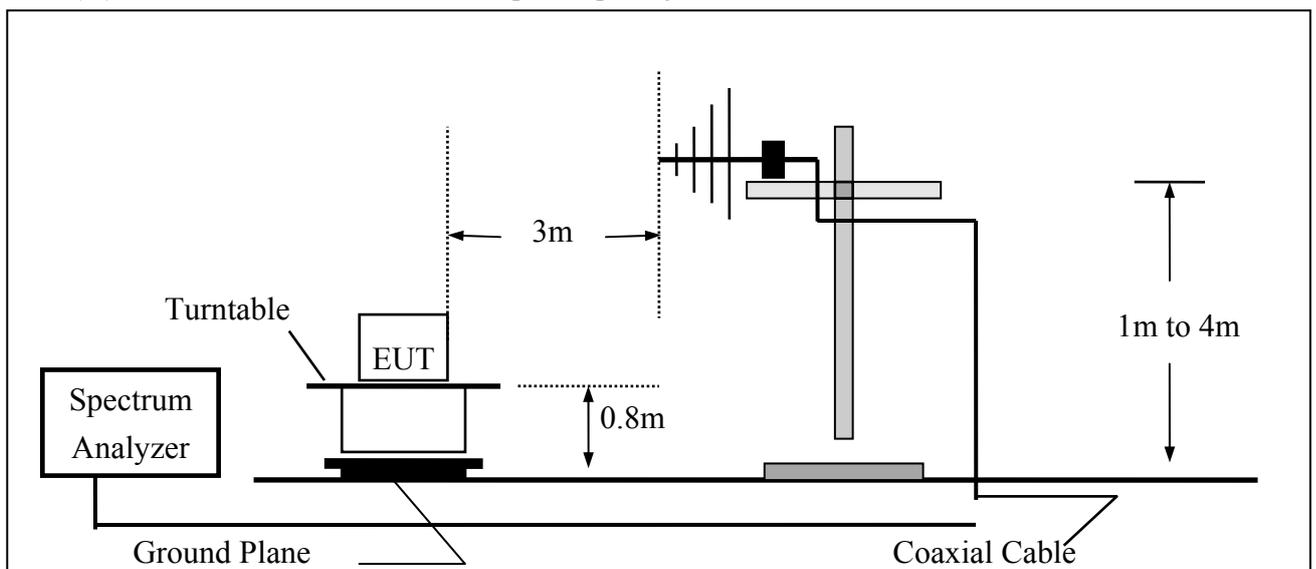
**6.3 Test SET-UP:**

**6.3.1 Conducted Emission at antenna port:**

Refer to section 6.3 for details.

**6.3.2 Radiated emission:**

(A) Radiated Emission Test Set-Up, Frequency Below 1000MHz

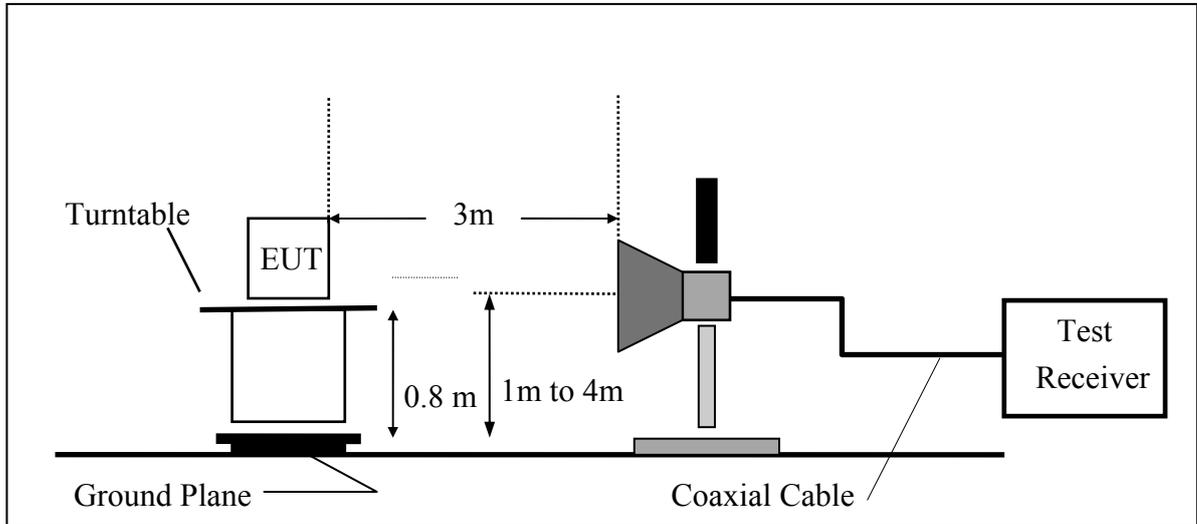


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(B) Radiated Emission Test Set-UP Frequency Over 1 GHz



**6.4 Measurement Procedure:**

1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set center frequency of spectrum analyzer = operating frequency.
4. Set the spectrum analyzer as RBW, VBW=100KHz, Span=25MHz, Sweep = auto
5. Mark Peak, 2.390GHz and 2.4835GHz, 5,725 and 5,850GHz and record the max. level.
6. Repeat above procedures until all frequency measured were complete.

**6.5 Field Strength Calculation:**

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor(if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CL - AG$$

Where	FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
	RA = Reading Amplitude	AG = Amplifier Gain
	AF = Antenna Factor	

**6.6 Measurement Result:**

Note: Refer to next page spectrum analyzer data chart and tabular data sheets.

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**Radiated Emission: 802.11 b mode**

Operation Mode	TX CH Low	Test Date	Apr. 04, 2011
Fundamental Frequency	2412 MHz	Test By	Jason
Temperature	25 °C	Pol	Ver.
Humidity	65 %		

Freq. (MHz)	Peak	AV	Ant./CL CF(dB)	Actual FS		Peak	AV	Margin (dB)	Remark
	Reading (dBuV)	Reading (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Limit (dBuV/m)	Limit (dBuV/m)		
2390.00	50.21	---	-0.67	49.54	---	74.00	54.00	-4.46	Peak

Operation Mode	TX CH Low	Test Date	Apr. 04, 2011
Fundamental Frequency	2412 MHz	Test By	Jason
Temperature	25 °C	Pol	Hor.
Humidity	65 %		

Freq. (MHz)	Peak	AV	Ant./CL CF(dB)	Actual FS		Peak	AV	Margin (dB)	Remark
	Reading (dBuV)	Reading (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Limit (dBuV/m)	Limit (dBuV/m)		
2390.00	50.35	---	-0.67	49.68	---	74.00	54.00	-4.32	Peak

Remark :

- (1) Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (2) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- (3) Spectrum Peak Setting: 1GHz- 40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- (4) Spectrum AV Setting: 1GHz- 40GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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Operation Mode	TX CH High	Test Date	Apr. 04, 2011
Fundamental Frequency	2462 MHz	Test By	Jason
Temperature	25 °C	Pol	Ver.
Humidity	65 %		

Freq. (MHz)	Peak	AV	Ant./CL CF(dB)	Actual FS		Peak	AV	Margin (dB)	Remark
	Reading (dBuV)	Reading (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Limit (dBuV/m)	Limit (dBuV/m)		
2483.50	49.24	---	-0.52	48.72	---	74.00	54.00	-5.28	Peak

Operation Mode	TX CH High	Test Date	Apr. 04, 2011
Fundamental Frequency	2462 MHz	Test By	Jason
Temperature	25 °C	Pol	Hor.
Humidity	65 %		

Freq. (MHz)	Peak	AV	Ant./CL CF(dB)	Actual FS		Peak	AV	Margin (dB)	Remark
	Reading (dBuV)	Reading (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Limit (dBuV/m)	Limit (dBuV/m)		
2483.50	50.92	---	-0.52	50.40	---	74.00	54.00	-3.60	Peak

Remark :

- (1) Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (2) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- (3) Spectrum Peak Setting: 1GHz- 40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- (4) Spectrum AV Setting: 1GHz- 40GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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**Radiated Emission: 802.11 g mode**

Operation Mode	TX CH Low	Test Date	Apr. 04, 2011
Fundamental Frequency	2412 MHz	Test By	Jason
Temperature	25 °C	Pol	Ver.
Humidity	65 %		

Freq. (MHz)	Peak	AV	Ant./CL CF(dB)	Actual FS		Peak	AV	Margin (dB)	Remark
	Reading (dBuV)	Reading (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Limit (dBuV/m)	Limit (dBuV/m)		
2390.00	59.75	47.55	-0.67	59.08	46.88	74.00	54.00	-7.12	Avg

Operation Mode	TX CH Low	Test Date	Apr. 04, 2011
Fundamental Frequency	2412 MHz	Test By	Jason
Temperature	25 °C	Pol	Hor.
Humidity	65 %		

Freq. (MHz)	Peak	AV	Ant./CL CF(dB)	Actual FS		Peak	AV	Margin (dB)	Remark
	Reading (dBuV)	Reading (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Limit (dBuV/m)	Limit (dBuV/m)		
2390.00	65.72	51.11	-0.67	65.05	50.44	74.00	54.00	-3.56	Avg

Remark :

- (1) Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (2) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- (3) Spectrum Peak Setting: 1GHz- 40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- (4) Spectrum AV Setting: 1GHz- 40GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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Operation Mode	TX CH High	Test Date	Apr. 04, 2011
Fundamental Frequency	2462 MHz	Test By	Jason
Temperature	25 °C	Pol	Ver.
Humidity	65 %		

Freq. (MHz)	Peak	AV	Ant./CL CF(dB)	Actual FS		Peak	AV	Margin (dB)	Remark
	Reading (dBuV)	Reading (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Limit (dBuV/m)	Limit (dBuV/m)		
2483.50	60.62	46.85	-0.52	60.10	46.33	74.00	54.00	-7.67	Avg

Operation Mode	TX CH High	Test Date	Apr. 04, 2011
Fundamental Frequency	2462 MHz	Test By	Jason
Temperature	25 °C	Pol	Hor.
Humidity	65 %		

Freq. (MHz)	Peak	AV	Ant./CL CF(dB)	Actual FS		Peak	AV	Margin (dB)	Remark
	Reading (dBuV)	Reading (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Limit (dBuV/m)	Limit (dBuV/m)		
2483.50	64.99	51.24	-0.52	64.47	50.72	74.00	54.00	-3.28	Avg

Remark :

- (1) Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (2) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- (3) Spectrum Peak Setting: 1GHz- 40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- (4) Spectrum AV Setting: 1GHz- 40GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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**Radiated Emission: 802.11 n\_20M mode**

Operation Mode	TX CH Low	Test Date	Apr. 04, 2011
Fundamental Frequency	2412 MHz	Test By	Jason
Temperature	25 °C	Pol	Ver.
Humidity	65 %		

Freq. (MHz)	Peak	AV	Ant./CL CF(dB)	Actual FS		Peak	AV	Margin (dB)	Remark
	Reading (dBuV)	Reading (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Limit (dBuV/m)	Limit (dBuV/m)		
2390.00	61.78	48.65	-0.67	61.11	47.98	74.00	54.00	-6.02	Avg

Operation Mode	TX CH Low	Test Date	Apr. 04, 2011
Fundamental Frequency	2412 MHz	Test By	Jason
Temperature	25 °C	Pol	Hor.
Humidity	65 %		

Freq. (MHz)	Peak	AV	Ant./CL CF(dB)	Actual FS		Peak	AV	Margin (dB)	Remark
	Reading (dBuV)	Reading (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Limit (dBuV/m)	Limit (dBuV/m)		
2390.00	65.56	51.82	-0.67	64.89	51.15	74.00	54.00	-2.85	Avg

Remark :

- (1) Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (2) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- (3) Spectrum Peak Setting: 1GHz- 40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- (4) Spectrum AV Setting: 1GHz- 40GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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Operation Mode	TX CH High	Test Date	Apr. 04, 2011
Fundamental Frequency	2462 MHz	Test By	Jason
Temperature	25 °C	Pol	Ver.
Humidity	65 %		

Freq. (MHz)	Peak	AV	Ant./CL CF(dB)	Actual FS		Peak	AV	Margin (dB)	Remark
	Reading (dBuV)	Reading (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Limit (dBuV/m)	Limit (dBuV/m)		
2483.50	63.81	49.50	-0.52	63.29	48.98	74.00	54.00	-5.02	Avg

Operation Mode	TX CH High	Test Date	Apr. 04, 2011
Fundamental Frequency	2462 MHz	Test By	Jason
Temperature	25 °C	Pol	Hor.
Humidity	65 %		

Freq. (MHz)	Peak	AV	Ant./CL CF(dB)	Actual FS		Peak	AV	Margin (dB)	Remark
	Reading (dBuV)	Reading (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Limit (dBuV/m)	Limit (dBuV/m)		
2483.50	68.15	52.51	-0.52	67.63	51.99	74.00	54.00	-2.01	Avg

Remark :

- (1) Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (2) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- (3) Spectrum Peak Setting: 1GHz- 40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- (4) Spectrum AV Setting: 1GHz- 40GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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## 7 SPURIOUS RADIATED EMISSION TEST

### 7.1 Standard Applicable

According to §15.247(c), all other emissions outside these bands shall not exceed the general radiated emission limits specified in §15.209(a). And according to §15.33(a)(1), for an intentional radiator operates below 10GHz, the frequency range of measurements: to the tenth harmonic of the highest fundamental frequency or to 40GHz, whichever is lower.

According to RSS-210 issue 8,§A8.5, In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the radio frequency power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under section A8.4(4), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Tables 2 and 3 is not required. In addition, radiated emissions which fall in the restricted bands of Table 1 must also comply with the radiated emission limits specified in Tables 2 and 3

### 7.2 Measurement Equipment Used:

#### 7.2.1. Conducted Emission at antenna port:

Refer to section 6.2 for details.

#### 7.2.2. Radiated emission:

Refer to section 7.2.2 for details.

### 7.3 Test SET-UP:

#### 7.3.1. Conducted Emission at antenna port:

Refer to section 6.3 for details.

#### 7.3.2. Radiated emission:

Refer to section 7.3 for details.

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#### 7.4 Measurement Procedure:

1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. The turn table shall rotate 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emissions.
4. When measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made “while keeping the antenna in the ‘cone of radiation’ from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response.” is still within the 3dB illumination BW of the measurement antenna.
5. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
6. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
7. Repeat above procedures until all frequency measured were complete.

#### 7.5 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor(if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CL - AG$$

Where	FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
	RA = Reading Amplitude	AG = Amplifier Gain
	AF = Antenna Factor	

#### 7.6 Measurement Result:

Note: Refer to next page spectrum analyzer data chart and tabular data sheets.

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### Radiated Spurious Emission Measurement Result (below 1GHz) (802.11b)

Operation Mode	802.11b TX CH Low	Test Date	Apr. 04, 2011
Fundamental Frequency	2412MHz	Test By	Jason
Temperature	25 °C	Pol	Ver./Hor
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
90.14	V	Peak	52.74	-17.48	35.26	43.50	-8.24
148.34	V	Peak	43.72	-12.36	31.36	43.50	-12.14
277.35	V	Peak	47.19	-13.01	34.18	46.00	-11.82
361.74	V	Peak	41.94	-11.40	30.54	46.00	-15.46
542.16	V	Peak	40.97	-8.31	32.66	46.00	-13.34
728.40	V	Peak	39.08	-4.78	34.30	46.00	-11.70
90.14	H	Peak	53.86	-17.48	36.38	43.50	-7.12
148.34	H	Peak	51.74	-12.36	39.38	43.50	-4.12
243.40	H	Peak	52.99	-13.99	39.00	46.00	-7.00
277.35	H	Peak	48.96	-13.01	35.95	46.00	-10.05
542.16	H	Peak	42.93	-8.31	34.62	46.00	-11.38
720.64	H	Peak	40.28	-4.92	35.36	46.00	-10.64

Remark :

- 1 Measuring frequencies from 30 MHz to the 1GHz ◦
- 2 Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.
- 3 Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 4 The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

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Operation Mode	802.11b TX CH Mid	Test Date	Apr. 04, 2011
Fundamental Frequency	2437MHz	Test By	Jason
Temperature	25 °C	Pol	Ver./Hor
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
90.14	V	Peak	52.24	-17.48	34.76	43.50	-8.74
291.90	V	Peak	47.39	-12.64	34.75	46.00	-11.25
354.95	V	Peak	42.29	-11.50	30.79	46.00	-15.21
542.16	V	Peak	41.54	-8.31	33.23	46.00	-12.77
623.64	V	Peak	40.91	-6.51	34.40	46.00	-11.60
694.45	V	Peak	38.26	-5.35	32.91	46.00	-13.09
148.34	H	Peak	43.58	-12.36	31.22	43.50	-12.28
212.36	H	Peak	55.25	-15.58	39.67	43.50	-3.83
277.35	H	Peak	47.77	-13.01	34.76	46.00	-11.24
542.16	H	Peak	40.66	-8.31	32.35	46.00	-13.65
660.50	H	Peak	38.95	-5.79	33.16	46.00	-12.84
720.64	H	Peak	40.27	-4.92	35.35	46.00	-10.65

Remark :

- 1 Measuring frequencies from 30 MHz to the 1GHz °
- 2 Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.
- 3 Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 4 The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

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Operation Mode	802.11b TX CH High	Test Date	Apr. 04, 2011
Fundamental Frequency	2462MHz	Test By	Jason
Temperature	25 °C	Pol	Ver./Hor
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
63.95	V	Peak	43.48	-15.26	28.22	40.00	-11.78
209.45	V	Peak	47.91	-15.71	32.20	43.50	-11.30
277.35	V	Peak	47.50	-13.01	34.49	46.00	-11.51
542.16	V	Peak	41.44	-8.31	33.13	46.00	-12.87
623.64	V	Peak	39.97	-6.51	33.46	46.00	-12.54
728.40	V	Peak	41.84	-4.78	37.06	46.00	-8.94
148.34	H	Peak	42.87	-12.36	30.51	43.50	-12.99
212.60	H	Peak	53.88	-15.58	38.30	43.50	-5.20
277.35	H	Peak	49.31	-13.01	36.30	46.00	-9.70
542.16	H	Peak	41.52	-8.31	33.21	46.00	-12.79
660.50	H	Peak	38.77	-5.79	32.98	46.00	-13.02
728.40	H	Peak	44.99	-4.78	40.21	46.00	-5.79

Remark :

- 1 Measuring frequencies from 30 MHz to the 1GHz ◦
- 2 Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.
- 3 Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 4 The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

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### Radiated Spurious Emission Measurement Result (below 1GHz) (802.11g)

Operation Mode	802.11g TX CH Low	Test Date	Apr. 04, 2011
Fundamental Frequency	2412MHz	Test By	Jason
Temperature	25 °C	Pol	Ver./Hor
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
66.86	V	Peak	45.52	-16.00	29.52	40.00	-10.48
209.45	V	Peak	46.82	-15.71	31.11	43.50	-12.39
277.35	V	Peak	47.29	-13.01	34.28	46.00	-11.72
542.16	V	Peak	42.37	-8.31	34.06	46.00	-11.94
623.64	V	Peak	41.56	-6.51	35.05	46.00	-10.95
728.40	V	Peak	43.50	-4.78	38.72	46.00	-7.28
148.34	H	Peak	44.11	-12.36	31.75	43.50	-11.75
212.36	H	Peak	55.03	-15.58	39.45	43.50	-4.05
277.35	H	Peak	48.68	-13.01	35.67	46.00	-10.33
354.95	H	Peak	42.29	-11.50	30.79	46.00	-15.21
542.16	H	Peak	42.40	-8.31	34.09	46.00	-11.91
728.40	H	Peak	40.25	-4.78	35.47	46.00	-10.53

Remark :

- 1 Measuring frequencies from 30 MHz to the 1GHz ◦
- 2 Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.
- 3 Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 4 The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

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Operation Mode	802.11g TX CH Mid	Test Date	Apr. 04, 2011
Fundamental Frequency	2437MHz	Test By	Jason
Temperature	25 °C	Pol	Ver./Hor
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
63.95	V	Peak	43.58	-15.26	28.32	40.00	-11.68
163.86	V	Peak	40.97	-12.35	28.62	43.50	-14.88
277.35	V	Peak	46.97	-13.01	33.96	46.00	-12.04
542.16	V	Peak	41.69	-8.31	33.38	46.00	-12.62
623.64	V	Peak	42.37	-6.51	35.86	46.00	-10.14
757.50	V	Peak	38.96	-4.24	34.72	46.00	-11.28
63.95	H	Peak	43.57	-15.26	28.31	40.00	-11.69
209.45	H	Peak	55.44	-15.71	39.73	43.50	-3.77
277.35	H	Peak	49.55	-13.01	36.54	46.00	-9.46
354.95	H	Peak	42.99	-11.50	31.49	46.00	-14.51
542.16	H	Peak	42.09	-8.31	33.78	46.00	-12.22
720.64	H	Peak	40.10	-4.92	35.18	46.00	-10.82

Remark :

- 1 Measuring frequencies from 30 MHz to the 1GHz ◦
- 2 Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.
- 3 Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 4 The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

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Operation Mode	802.11g TX CH High	Test Date	Apr. 04, 2011
Fundamental Frequency	2462MHz	Test By	Jason
Temperature	25 °C	Pol	Ver./Hor
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
63.95	V	Peak	43.10	-15.26	27.84	40.00	-12.16
160.95	V	Peak	40.54	-11.98	28.56	43.50	-14.94
277.35	V	Peak	46.62	-13.01	33.61	46.00	-12.39
542.16	V	Peak	42.45	-8.31	34.14	46.00	-11.86
623.64	V	Peak	41.07	-6.51	34.56	46.00	-11.44
728.40	V	Peak	41.07	-4.78	36.29	46.00	-9.71
212.36	H	Peak	56.31	-15.58	40.73	43.50	-2.77
277.35	H	Peak	48.42	-13.10	35.32	46.00	-10.68
330.70	H	Peak	44.41	-11.85	32.56	46.00	-13.44
542.16	H	Peak	42.22	-8.31	33.91	46.00	-12.09
720.64	H	Peak	39.93	-4.92	35.01	46.00	-10.99
757.50	H	Peak	39.56	-4.24	35.32	46.00	-10.68

Remark :

- 1 Measuring frequencies from 30 MHz to the 1GHz °
- 2 Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.
- 3 Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 4 The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

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**Radiated Spurious Emission Measurement Result (below 1GHz) (802.11n\_20M)**

Operation Mode	802.11n_20M TX CH Low	Test Date	Apr. 04, 2011
Fundamental Frequency	2412MHz	Test By	Jason
Temperature	25 °C	Pol	Ver./Hor
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
63.95	V	Peak	43.41	-15.26	28.15	40.00	-11.85
209.45	V	Peak	44.89	-15.71	29.18	43.50	-14.32
277.35	V	Peak	47.83	-13.01	34.82	46.00	-11.18
291.90	V	Peak	45.27	-12.64	32.63	46.00	-13.37
542.16	V	Peak	40.84	-8.31	32.53	46.00	-13.47
623.64	V	Peak	42.27	-6.51	35.76	46.00	-10.24
138.64	H	Peak	44.62	-13.10	31.52	43.50	-11.98
212.36	H	Peak	55.56	-15.58	39.98	43.50	-3.52
277.35	H	Peak	48.47	-13.01	35.46	46.00	-10.54
330.70	H	Peak	42.58	-11.85	30.73	46.00	-15.27
542.16	H	Peak	42.50	-8.31	34.19	46.00	-11.81
728.40	H	Peak	41.98	-4.78	37.20	46.00	-8.80

Remark :

- 1 Measuring frequencies from 30 MHz to the 1GHz °
- 2 Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.
- 3 Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 4 The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

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Operation Mode	802.11n_20M TX CH Mid	Test Date	Apr. 04, 2011
Fundamental Frequency	2437MHz	Test By	Jason
Temperature	25 °C	Pol	Ver./Hor
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
160.95	V	Peak	39.32	-11.98	27.34	43.50	-16.16
209.45	V	Peak	45.84	-15.71	30.13	43.50	-13.37
277.35	V	Peak	47.55	-13.01	34.54	46.00	-11.46
354.95	V	Peak	39.96	-11.50	28.46	46.00	-17.54
623.64	V	Peak	40.72	-6.51	34.21	46.00	-11.79
694.45	V	Peak	38.06	-5.35	32.71	46.00	-13.29
148.34	H	Peak	43.10	-12.36	30.74	43.50	-12.76
212.36	H	Peak	54.85	-15.58	39.27	43.50	-4.23
241.46	H	Peak	49.32	-14.03	35.29	46.00	-10.71
277.35	H	Peak	48.06	-13.01	35.05	46.00	-10.95
338.46	H	Peak	43.69	-11.76	31.93	46.00	-14.07
710.94	H	Peak	38.19	-5.10	33.09	46.00	-12.91

Remark :

- 1 Measuring frequencies from 30 MHz to the 1GHz °
- 2 Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.
- 3 Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 4 The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

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Operation Mode	802.11n_20M TX CH High	Test Date	Apr. 04, 2011
Fundamental Frequency	2462MHz	Test By	Jason
Temperature	25 °C	Pol	Ver./Hor
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
160.95	V	Peak	40.27	-11.98	28.29	43.50	-15.21
277.35	V	Peak	46.44	-13.01	33.43	46.00	-12.57
354.95	V	Peak	40.33	-11.50	28.83	46.00	-17.17
623.64	V	Peak	41.76	-6.51	35.25	46.00	-10.75
679.90	V	Peak	38.66	-5.55	33.11	46.00	-12.89
762.35	V	Peak	37.50	-4.15	33.35	46.00	-12.65
138.64	H	Peak	43.72	-13.10	30.62	43.50	-12.88
209.45	H	Peak	54.96	-15.71	39.25	43.50	-4.25
277.35	H	Peak	48.93	-13.01	35.92	46.00	-10.08
338.46	H	Peak	43.30	-11.76	31.54	46.00	-14.46
623.64	H	Peak	36.83	-6.51	30.32	46.00	-15.68
710.94	H	Peak	37.63	-5.10	32.53	46.00	-13.47

Remark :

- 1 Measuring frequencies from 30 MHz to the 1GHz °
- 2 Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.
- 3 Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 4 The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

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### Radiated Spurious Emission Measurement Result (above 1GHz) (802.11b)

Operation Mode	802.11b TX CH Low	Test Date	Apr. 04, 2011
Fundamental Frequency	2412MHz	Test By	Jason
Temperature	25 °C	Pol	Ver.
Humidity	65 %		

Freq. (MHz)	Peak	AV	Ant./CL CF(dB)	Actual FS		Peak	AV	Margin (dB)	Remark
	Reading (dBuV)	Reading (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Limit (dBuV/m)	Limit (dBuV/m)		
1247.0	47.39	---	-5.03	42.36	---	74.00	54.00	-11.64	Peak
1507.0	45.62	---	-4.52	41.10	---	74.00	54.00	-12.90	Peak
4824.0	----					74.00	54.00		
4978.0	39.47	---	5.66	45.13	---	74.00	54.00	-8.87	Peak
7236.0	----					74.00	54.00		
9648.0	----					74.00	54.00		
12060.0	----					74.00	54.00		
14472.0	----					74.00	54.00		
16884.0	----					74.00	54.00		
19296.0	----					74.00	54.00		
21708.0	----					74.00	54.00		
24120.0	----					74.00	54.00		

Remark:

- 1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.
- 2 Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- 4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- 5 Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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Operation Mode	802.11b TX CH Low	Test Date	Apr. 04, 2011
Fundamental Frequency	2412MHz	Test By	Jason
Temperature	25 °C	Pol	Hor
Humidity	65 %		

Freq. (MHz)	Peak	AV	Ant./CL CF(dB)	Actual FS		Peak	AV	Margin (dB)	Remark
	Reading (dBuV)	Reading (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Limit (dBuV/m)	Limit (dBuV/m)		
1292.5	44.05	---	-4.87	39.18	---	74.00	54.00	-14.82	Peak
4822.0	44.30	---	5.24	49.54	---	74.00	54.00	-4.46	Peak
7236.0	----					74.00	54.00		
9648.0	----					74.00	54.00		
12060.0	----					74.00	54.00		
14472.0	----					74.00	54.00		
16884.0	----					74.00	54.00		
19296.0	----					74.00	54.00		
21708.0	----					74.00	54.00		
24120.0	----					74.00	54.00		

Remark:

- 1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.
- 2 Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- 4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- 5 Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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Operation Mode	802.11b TX CH Mid	Test Date	Apr. 04, 2011
Fundamental Frequency	2437MHz	Test By	Jason
Temperature	25 °C	Pol	Ver
Humidity	65 %		

Freq. (MHz)	Peak	AV	Ant./CL CF(dB)	Actual FS		Peak	AV	Margin (dB)	Remark
	Reading (dBuV)	Reading (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Limit (dBuV/m)	Limit (dBuV/m)		
1247.0	46.95	---	-5.03	41.92	---	74.00	54.00	-12.08	Peak
1507.0	45.94	---	-4.52	41.42	---	74.00	54.00	-12.58	Peak
2007.5	43.55	---	-2.97	40.58	---	74.00	54.00	-13.42	Peak
4824.0	----					74.00	54.00		
4978.0	40.28	---	5.66	45.94	---	74.00	54.00	-8.06	Peak
7311.0	----					74.00	54.00		
9748.0	----					74.00	54.00		
12185.0	----					74.00	54.00		
14622.0	----					74.00	54.00		
17059.0	----					74.00	54.00		
19496.0	----					74.00	54.00		
21933.0	----					74.00	54.00		
24370.0	----					74.00	54.00		

Remark:

- 1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.
- 2 Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- 4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- 5 Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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Operation Mode	802.11b TX CH Mid	Test Date	Apr. 04, 2011
Fundamental Frequency	2437MHz	Test By	Jason
Temperature	25 °C	Pol	Hor
Humidity	65 %		

Freq. (MHz)	Peak	AV	Ant./CL CF(dB)	Actual FS		Peak	AV	Margin (dB)	Remark
	Reading (dBuV)	Reading (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Limit (dBuV/m)	Limit (dBuV/m)		
1507.0	44.70	---	-4.52	40.18	---	74.00	54.00	-13.82	Peak
4824.0	----					74.00	54.00		
4887.0	39.17	---	5.41	44.58	---	74.00	54.00	-9.42	Peak
7311.0	----					74.00	54.00		
9748.0	----					74.00	54.00		
12185.0	----					74.00	54.00		
14622.0	----					74.00	54.00		
17059.0	----					74.00	54.00		
19496.0	----					74.00	54.00		
21933.0	----					74.00	54.00		
24370.0	----					74.00	54.00		

Remark:

- 1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.
- 2 Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- 4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- 5 Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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Operation Mode	802.11b TX CH High	Test Date	Apr. 04, 2011
Fundamental Frequency	2462MHz	Test By	Jason
Temperature	25 °C	Pol	Ver
Humidity	65 %		

Freq. (MHz)	Peak	AV	Ant./CL CF(dB)	Actual FS		Peak	AV	Margin (dB)	Remark
	Reading (dBuV)	Reading (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Limit (dBuV/m)	Limit (dBuV/m)		
1247.0	47.05	---	-5.03	42.02	---	74.00	54.00	-11.98	Peak
1487.5	45.92	---	-4.63	41.29	---	74.00	54.00	-12.71	Peak
1910.0	43.81	---	-3.10	40.71	---	74.00	54.00	-13.29	Peak
4924.0	----					74.00	54.00		
4997.5	41.12	---	5.70	46.82	---	74.00	54.00	-7.18	Peak
7386.0	----					74.00	54.00		
9848.0	----					74.00	54.00		
12310.0	----					74.00	54.00		
14772.0	----					74.00	54.00		
17234.0	----					74.00	54.00		
19696.0	----					74.00	54.00		
22158.0	----					74.00	54.00		
24620.0	----					74.00	54.00		

Remark:

- 1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.
- 2 Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- 4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- 5 Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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Operation Mode	802.11b TX CH High	Test Date	Apr. 04, 2011
Fundamental Frequency	2462MHz	Test By	Jason
Temperature	25 °C	Pol	Hor
Humidity	65 %		

Freq. (MHz)	Peak	AV	Ant./CL CF(dB)	Actual FS		Peak	AV	Margin (dB)	Remark
	Reading (dBuV)	Reading (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Limit (dBuV/m)	Limit (dBuV/m)		
1650.0	43.60	---	-4.00	39.60	---	74.00	54.00	-14.40	Peak
4932.5	39.75	---	5.52	45.27	---	74.00	54.00	-8.73	Peak
7386.0	----					74.00	54.00		
9848.0	----					74.00	54.00		
12310.0	----					74.00	54.00		
14772.0	----					74.00	54.00		
17234.0	----					74.00	54.00		
19696.0	----					74.00	54.00		
22158.0	----					74.00	54.00		
24620.0	----					74.00	54.00		

Remark:

- 1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.
- 2 Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- 4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- 5 Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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### Radiated Spurious Emission Measurement Result (above 1GHz) (802.11g)

Operation Mode	802.11g TX CH Low	Test Date	Apr. 04, 2011
Fundamental Frequency	2412MHz	Test By	Jason
Temperature	25 °C	Pol	Ver.
Humidity	65 %		

Freq. (MHz)	Peak	AV	Ant./CL CF(dB)	Actual FS		Peak	AV	Margin (dB)	Remark
	Reading (dBuV)	Reading (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Limit (dBuV/m)	Limit (dBuV/m)		
1247.0	47.00	---	-5.03	41.97	---	74.00	54.00	-12.03	Peak
1487.5	44.38	---	-4.63	39.75	---	74.00	54.00	-14.25	Peak
2137.5	45.33	---	-2.18	43.15	---	74.00	54.00	-10.85	Peak
4822.0	37.67	---	5.24	42.91	---	74.00	54.00	-11.09	Peak
4978.0	39.71	---	5.66	45.37	---	74.00	54.00	-8.63	Peak
7236.0	----					74.00	54.00		
9648.0	----					74.00	54.00		
12060.0	----					74.00	54.00		
14472.0	----					74.00	54.00		
16884.0	----					74.00	54.00		
19296.0	----					74.00	54.00		
21708.0	----					74.00	54.00		
24120.0	----					74.00	54.00		

Remark:

- 1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.
- 2 Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- 4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- 5 Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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Operation Mode	802.11g TX CH Low	Test Date	Apr. 04, 2011
Fundamental Frequency	2412MHz	Test By	Jason
Temperature	25 °C	Pol	Hor
Humidity	65 %		

Freq. (MHz)	Peak	AV	Ant./CL CF(dB)	Actual FS		Peak	AV	Margin (dB)	Remark
	Reading (dBuV)	Reading (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Limit (dBuV/m)	Limit (dBuV/m)		
1702.0	41.67	---	-3.75	37.92	---	74.00	54.00	-16.08	Peak
4822.0	40.15	---	5.24	45.39	---	74.00	54.00	-8.61	Peak
7236.0	----					74.00	54.00		
9648.0	----					74.00	54.00		
12060.0	----					74.00	54.00		
14472.0	----					74.00	54.00		
16884.0	----					74.00	54.00		
19296.0	----					74.00	54.00		
21708.0	----					74.00	54.00		
24120.0	----					74.00	54.00		

Remark:

- 1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.
- 2 Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- 4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- 5 Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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Operation Mode	802.11g TX CH Mid	Test Date	Apr. 04, 2011
Fundamental Frequency	2437MHz	Test By	Jason
Temperature	25 °C	Pol	Ver
Humidity	65 %		

Freq. (MHz)	Peak	AV	Ant./CL CF(dB)	Actual FS		Peak	AV	Margin (dB)	Remark
	Reading (dBuV)	Reading (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Limit (dBuV/m)	Limit (dBuV/m)		
1247.0	46.04	---	-5.03	41.01	---	74.00	54.00	-12.99	Peak
1507.0	44.92	---	-4.52	40.40	---	74.00	54.00	-13.60	Peak
4824.0	---	---	---	---	---	74.00	54.00		
4978.0	39.32	---	5.66	44.98	---	74.00	54.00	-9.02	Peak
7311.0	---	---	---	---	---	74.00	54.00		
9748.0	---	---	---	---	---	74.00	54.00		
12185.0	---	---	---	---	---	74.00	54.00		
14622.0	---	---	---	---	---	74.00	54.00		
17059.0	---	---	---	---	---	74.00	54.00		
19496.0	---	---	---	---	---	74.00	54.00		
21933.0	---	---	---	---	---	74.00	54.00		
24370.0	---	---	---	---	---	74.00	54.00		

Remark:

- 1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.
- 2 Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- 4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- 5 Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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Operation Mode	802.11g TX CH Mid	Test Date	Apr. 04, 2011
Fundamental Frequency	2437MHz	Test By	Jason
Temperature	25 °C	Pol	Hor
Humidity	65 %		

Freq. (MHz)	Peak	AV	Ant./CL CF(dB)	Actual FS		Peak	AV	Margin (dB)	Remark
	Reading (dBuV)	Reading (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Limit (dBuV/m)	Limit (dBuV/m)		
1507.0	43.14	---	-4.52	38.62	---	74.00	54.00	-15.38	Peak
4705.0	38.43	---	4.90	43.33	---	74.00	54.00	-10.67	Peak
4824.0	----					74.00	54.00		
4874.0	36.66	---	5.38	42.04	---	74.00	54.00	-11.96	Peak
7311.0	----					74.00	54.00		
9748.0	----					74.00	54.00		
12185.0	----					74.00	54.00		
14622.0	----					74.00	54.00		
17059.0	----					74.00	54.00		
19496.0	----					74.00	54.00		
21933.0	----					74.00	54.00		
24370.0	----					74.00	54.00		

Remark:

- 1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.
- 2 Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- 4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- 5 Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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Operation Mode	802.11g TX CH High	Test Date	Apr. 04, 2011
Fundamental Frequency	2462MHz	Test By	Jason
Temperature	25 °C	Pol	Ver
Humidity	65 %		

Freq. (MHz)	Peak	AV	Ant./CL CF(dB)	Actual FS		Peak	AV	Margin (dB)	Remark
	Reading (dBuV)	Reading (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Limit (dBuV/m)	Limit (dBuV/m)		
1312.0	48.11	---	-4.73	43.38	---	74.00	54.00	-10.62	Peak
2007.5	43.44	---	-2.97	40.47	---	74.00	54.00	-13.53	Peak
4926.0	36.91	---	5.52	42.43	---	74.00	54.00	-11.57	Peak
4997.5	39.40	---	5.70	45.10	---	74.00	54.00	-8.90	Peak
7386.0	----					74.00	54.00		
9848.0	----					74.00	54.00		
12310.0	----					74.00	54.00		
14772.0	----					74.00	54.00		
17234.0	----					74.00	54.00		
19696.0	----					74.00	54.00		
22158.0	----					74.00	54.00		
24620.0	----					74.00	54.00		

Remark:

- 1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.
- 2 Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- 4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- 5 Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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Operation Mode	802.11g TX CH High	Test Date	Apr. 04, 2011
Fundamental Frequency	2462MHz	Test By	Jason
Temperature	25 °C	Pol	Hor
Humidity	65 %		

Freq. (MHz)	Peak	AV	Ant./CL CF(dB)	Actual FS		Peak	AV	Margin (dB)	Remark
	Reading (dBuV)	Reading (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Limit (dBuV/m)	Limit (dBuV/m)		
1702.0	42.24	---	-3.75	38.49	---	74.00	54.00	-15.51	Peak
4926.0	37.49	---	5.52	43.01	---	74.00	54.00	-10.99	Peak
4978.0	37.99	---	5.66	43.65	---	74.00	54.00	-10.35	Peak
7386.0	----					74.00	54.00		
9848.0	----					74.00	54.00		
12310.0	----					74.00	54.00		
14772.0	----					74.00	54.00		
17234.0	----					74.00	54.00		
19696.0	----					74.00	54.00		
22158.0	----					74.00	54.00		
24620.0	----					74.00	54.00		

Remark:

- 1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.
- 2 Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- 4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- 5 Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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### Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n\_20M)

Operation Mode	802.11n_20M TX CH Low	Test Date	Apr. 04, 2011
Fundamental Frequency	2412MHz	Test By	Jason
Temperature	25 °C	Pol	Ver.
Humidity	65 %		

Freq. (MHz)	Peak	AV	Ant./CL CF(dB)	Actual FS		Peak	AV	Margin (dB)	Remark
	Reading (dBuV)	Reading (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Limit (dBuV/m)	Limit (dBuV/m)		
1247.0	47.33	---	-5.03	42.30	---	74.00	54.00	-11.70	Peak
2007.5	44.16	---	-2.97	41.19	---	74.00	54.00	-12.81	Peak
4822.5	37.33	---	5.24	42.57	---	74.00	54.00	-11.43	Peak
4978.0	40.05	---	5.66	45.71	---	74.00	54.00	-8.29	Peak
7236.0	----					74.00	54.00		
9648.0	----					74.00	54.00		
12060.0	----					74.00	54.00		
14472.0	----					74.00	54.00		
16884.0	----					74.00	54.00		
19296.0	----					74.00	54.00		
21708.0	----					74.00	54.00		
24120.0	----					74.00	54.00		

Remark:

- 1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.
- 2 Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- 4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- 5 Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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Operation Mode	802.11n_20M TX CH Low	Test Date	Apr. 04, 2011
Fundamental Frequency	2412MHz	Test By	Jason
Temperature	25 °C	Pol	Hor
Humidity	65 %		

Freq. (MHz)	Peak	AV	Ant./CL CF(dB)	Actual FS		Peak	AV	Margin (dB)	Remark
	Reading (dBuV)	Reading (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Limit (dBuV/m)	Limit (dBuV/m)		
1487.5	42.91	---	-4.63	38.28	---	74.00	54.00	-15.72	Peak
4822.0	39.01	---	5.24	44.25	---	74.00	54.00	-9.75	Peak
7236.0	----					74.00	54.00		
9648.0	----					74.00	54.00		
12060.0	----					74.00	54.00		
14472.0	----					74.00	54.00		
16884.0	----					74.00	54.00		
19296.0	----					74.00	54.00		
21708.0	----					74.00	54.00		
24120.0	----					74.00	54.00		

Remark:

- 1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.
- 2 Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- 4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- 5 Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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Operation Mode	802.11n_20M TX CH Mid	Test Date	Apr. 04, 2011
Fundamental Frequency	2437MHz	Test By	Jason
Temperature	25 °C	Pol	Ver
Humidity	65 %		

Freq. (MHz)	Peak	AV	Ant./CL CF(dB)	Actual FS		Peak	AV	Margin (dB)	Remark
	Reading (dBuV)	Reading (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Limit (dBuV/m)	Limit (dBuV/m)		
4874.0	37.05	---	5.38	42.43	---	74.00	54.00	-11.57	Peak
4997.5	40.96	---	5.70	46.66	---	74.00	54.00	-7.34	Peak
7311.0	----					74.00	54.00		
9748.0	----					74.00	54.00		
12185.0	----					74.00	54.00		
14622.0	----					74.00	54.00		
17059.0	----					74.00	54.00		
19496.0	----					74.00	54.00		
21933.0	----					74.00	54.00		
24370.0	----					74.00	54.00		

Remark:

- 1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.
- 2 Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- 4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- 5 Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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Operation Mode	802.11n_20M TX CH Mid	Test Date	Apr. 04, 2011
Fundamental Frequency	2437MHz	Test By	Jason
Temperature	25 °C	Pol	Hor
Humidity	65 %		

Freq. (MHz)	Peak	AV	Ant./CL CF(dB)	Actual FS		Peak	AV	Margin (dB)	Remark
	Reading (dBuV)	Reading (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Limit (dBuV/m)	Limit (dBuV/m)		
1702.0	42.35	---	-3.75	38.60	---	74.00	54.00	-15.40	Peak
4783.0	37.80	---	5.14	42.94	---	74.00	54.00	-11.06	Peak
4874.0	36.84	---	5.38	42.22	---	74.00	54.00	-11.78	Peak
7311.0	----					74.00	54.00		
9748.0	----					74.00	54.00		
12185.0	----					74.00	54.00		
14622.0	----					74.00	54.00		
17059.0	----					74.00	54.00		
19496.0	----					74.00	54.00		
21933.0	----					74.00	54.00		
24370.0	----					74.00	54.00		

Remark:

- 1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.
- 2 Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- 4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- 5 Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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Operation Mode	802.11n_20M TX CH High	Test Date	Apr. 04, 2011
Fundamental Frequency	2462MHz	Test By	Jason
Temperature	25 °C	Pol	Ver
Humidity	65 %		

Freq. (MHz)	Peak	AV	Ant./CL CF(dB)	Actual FS		Peak	AV	Margin (dB)	Remark
	Reading (dBuV)	Reading (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Limit (dBuV/m)	Limit (dBuV/m)		
1247.0	47.32	---	-5.03	42.29	---	74.00	54.00	-11.71	Peak
1507.0	45.18	---	-4.52	40.66	---	74.00	54.00	-13.34	Peak
2118.0	43.12	---	-2.35	40.77	---	74.00	54.00	-13.23	Peak
4924.0	----					74.00	54.00		
4978.0	39.58	---	5.66	45.24	---	74.00	54.00	-8.76	Peak
7386.0	----					74.00	54.00		
9848.0	----					74.00	54.00		
12310.0	----					74.00	54.00		
14772.0	----					74.00	54.00		
17234.0	----					74.00	54.00		
19696.0	----					74.00	54.00		
22158.0	----					74.00	54.00		
24620.0	----					74.00	54.00		

Remark:

- 1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.
- 2 Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- 4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- 5 Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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Operation Mode	802.11n_20M TX CH High	Test Date	Apr. 04, 2011
Fundamental Frequency	2462MHz	Test By	Jason
Temperature	25 °C	Pol	Hor
Humidity	65 %		

Freq. (MHz)	Peak	AV	Ant./CL CF(dB)	Actual FS		Peak	AV	Margin (dB)	Remark
	Reading (dBuV)	Reading (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Limit (dBuV/m)	Limit (dBuV/m)		
1507.0	43.36	---	-4.52	38.84	---	74.00	54.00	-15.16	Peak
4913.0	38.26	---	5.47	43.73	---	74.00	54.00	-10.27	Peak
4924.0	---					74.00	54.00		
7386.0	----					74.00	54.00		
9848.0	----					74.00	54.00		
12310.0	----					74.00	54.00		
14772.0	----					74.00	54.00		
17234.0	----					74.00	54.00		
19696.0	----					74.00	54.00		
22158.0	----					74.00	54.00		
24620.0	----					74.00	54.00		

Remark:

- 1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.
- 2 Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- 4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- 5 Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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### Radiated Spurious Emission Measurement Result (below 1GHz) (802.11b)

Operation Mode	802.11b RX CH Low	Test Date	Apr. 04, 2011
Fundamental Frequency	2412MHz	Test By	Jason
Temperature	25 °C	Pol	Ver./Hor
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
66.86	V	Peak	44.30	-16.00	28.30	40.00	-11.70
209.45	V	Peak	47.13	-15.71	31.42	43.50	-12.08
277.35	V	Peak	46.03	-13.01	33.02	46.00	-12.98
542.16	V	Peak	41.78	-8.31	33.47	46.00	-12.53
623.64	V	Peak	40.37	-6.51	33.86	46.00	-12.14
728.40	V	Peak	41.20	-4.78	36.42	46.00	-9.58
138.64	H	Peak	44.14	-13.10	31.04	43.50	-12.46
212.36	H	Peak	53.87	-15.58	38.29	43.50	-5.21
277.35	H	Peak	48.54	-13.01	35.53	46.00	-10.47
338.46	H	Peak	42.56	-11.76	30.80	46.00	-15.20
542.16	H	Peak	41.27	-8.31	32.96	46.00	-13.04
728.40	H	Peak	45.57	-4.78	40.79	46.00	-5.21

Remark :

- 1 Measuring frequencies from 30 MHz to the 1GHz °
- 2 Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.
- 3 Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 4 The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

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Operation Mode	802.11b RX CH Mid	Test Date	Apr. 04, 2011
Fundamental Frequency	2437MHz	Test By	Jason
Temperature	25 °C	Pol	Ver./Hor
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
209.45	V	Peak	47.14	-15.71	31.43	43.50	-12.07
277.35	V	Peak	47.24	-13.01	34.23	46.00	-11.77
542.16	V	Peak	40.96	-8.31	32.65	46.00	-13.35
623.64	V	Peak	40.07	-6.51	33.56	46.00	-12.44
757.50	V	Peak	38.42	-4.24	34.18	46.00	-11.82
936.95	V	Peak	36.28	-1.70	34.58	46.00	-11.42
148.34	H	Peak	43.92	-12.36	31.56	43.50	-11.94
212.36	H	Peak	56.20	-15.58	40.62	43.50	-2.88
277.35	H	Peak	49.23	-13.01	36.22	46.00	-9.78
330.70	H	Peak	43.23	-11.85	31.38	46.00	-14.62
542.16	H	Peak	41.21	-8.31	32.90	46.00	-13.10
720.64	H	Peak	39.84	-4.92	34.92	46.00	-11.08

Remark :

- 1 Measuring frequencies from 30 MHz to the 1GHz °
- 2 Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.
- 3 Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 4 The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

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Operation Mode	802.11b RX CH High	Test Date	Apr. 04, 2011
Fundamental Frequency	2462MHz	Test By	Jason
Temperature	25 °C	Pol	Ver./Hor
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
63.95	V	Peak	43.17	-15.26	27.91	40.00	-12.09
209.45	V	Peak	46.64	-15.71	30.93	43.50	-12.57
277.35	V	Peak	46.50	-13.01	33.49	46.00	-12.51
354.95	V	Peak	42.05	-11.50	30.55	46.00	-15.45
542.16	V	Peak	41.90	-8.31	33.59	46.00	-12.41
623.64	V	Peak	39.43	-6.51	32.92	46.00	-13.08
66.86	H	Peak	43.55	-16.00	27.55	40.00	-12.45
212.36	H	Peak	56.30	-15.58	40.72	43.50	-2.78
277.35	H	Peak	48.58	-13.01	35.57	46.00	-10.43
338.46	H	Peak	43.90	-11.76	32.14	46.00	-13.86
542.16	H	Peak	42.01	-8.31	33.70	46.00	-12.30
720.64	H	Peak	40.63	-4.92	35.71	46.00	-10.29

Remark :

- 1 Measuring frequencies from 30 MHz to the 1GHz °
- 2 Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.
- 3 Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 4 The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

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### Radiated Spurious Emission Measurement Result (below 1GHz) (802.11g)

Operation Mode	802.11g RX CH Low	Test Date	Apr. 04, 2011
Fundamental Frequency	2412MHz	Test By	Jason
Temperature	25 °C	Pol	Ver./Hor
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
66.86	V	Peak	43.34	-16.00	27.34	40.00	-12.66
209.45	V	Peak	46.03	-15.71	30.32	43.50	-13.18
277.35	V	Peak	47.47	-13.01	34.46	46.00	-11.54
542.16	V	Peak	40.74	-8.31	32.43	46.00	-13.57
623.64	V	Peak	43.09	-6.51	36.58	46.00	-9.42
728.40	V	Peak	45.29	-4.78	40.51	46.00	-5.49
212.36	H	Peak	53.71	-15.58	38.13	43.50	-5.37
277.35	H	Peak	49.39	-13.01	36.38	46.00	-9.62
330.70	H	Peak	43.80	-11.85	31.95	46.00	-14.05
542.16	H	Peak	41.86	-8.31	33.55	46.00	-12.45
720.64	H	Peak	40.14	-4.92	35.22	46.00	-10.78
757.50	H	Peak	39.50	-4.24	35.26	46.00	-10.74

Remark :

- 1 Measuring frequencies from 30 MHz to the 1GHz °
- 2 Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.
- 3 Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 4 The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

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Operation Mode	802.11g RX CH Mid	Test Date	Apr. 04, 2011
Fundamental Frequency	2437MHz	Test By	Jason
Temperature	25 °C	Pol	Ver./Hor
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
163.86	V	Peak	41.74	-12.35	29.39	43.50	-14.11
277.35	V	Peak	46.34	-13.01	33.33	46.00	-12.67
542.16	V	Peak	42.50	-8.31	34.19	46.00	-11.81
623.64	V	Peak	40.97	-6.51	34.46	46.00	-11.54
694.45	V	Peak	38.30	-5.35	32.95	46.00	-13.05
757.50	V	Peak	38.12	-4.24	33.88	46.00	-12.12
212.36	H	Peak	54.77	-15.58	39.19	43.50	-4.31
277.35	H	Peak	48.93	-13.01	35.92	46.00	-10.08
338.46	H	Peak	43.03	-11.76	31.27	46.00	-14.73
542.16	H	Peak	41.33	-8.31	33.02	46.00	-12.98
720.64	H	Peak	40.18	-4.92	35.26	46.00	-10.74
757.50	H	Peak	38.80	-4.24	34.56	46.00	-11.44

Remark :

- 1 Measuring frequencies from 30 MHz to the 1GHz °
- 2 Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.
- 3 Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 4 The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

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Operation Mode	802.11g RX CH High	Test Date	Apr. 04, 2011
Fundamental Frequency	2462MHz	Test By	Jason
Temperature	25 °C	Pol	Ver./Hor
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
160.95	V	Peak	41.00	-11.98	29.02	43.50	-14.48
277.35	V	Peak	46.98	-13.01	33.97	46.00	-12.03
542.16	V	Peak	41.73	-8.31	33.42	46.00	-12.58
623.64	V	Peak	41.66	-6.51	35.15	46.00	-10.85
710.94	V	Peak	38.05	-5.10	32.95	46.00	-13.05
757.50	V	Peak	38.67	-4.24	34.43	46.00	-11.57
63.95	H	Peak	43.37	-15.26	28.11	40.00	-11.89
148.34	H	Peak	44.09	-12.36	31.73	43.50	-11.77
209.45	H	Peak	55.89	-15.71	40.18	43.50	-3.32
277.35	H	Peak	48.85	-13.01	35.84	46.00	-10.16
542.16	H	Peak	42.78	-8.31	34.47	46.00	-11.53
728.40	H	Peak	42.43	-4.78	37.65	46.00	-8.35

Remark :

- 1 Measuring frequencies from 30 MHz to the 1GHz °
- 2 Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.
- 3 Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 4 The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

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### Radiated Spurious Emission Measurement Result (below 1GHz) (802.11n\_20M)

Operation Mode	802.11n_20M RX CH Low	Test Date	Apr. 04, 2011
Fundamental Frequency	2412MHz	Test By	Jason
Temperature	25 °C	Pol	Ver./Hor
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
63.95	V	Peak	40.93	-15.26	25.67	40.00	-14.33
209.45	V	Peak	45.39	-15.71	29.68	43.50	-13.82
277.35	V	Peak	46.83	-13.01	33.82	46.00	-12.18
354.95	V	Peak	40.33	-11.50	28.83	46.00	-17.17
623.64	V	Peak	42.18	-6.51	35.67	46.00	-10.33
679.90	V	Peak	38.56	-5.55	33.01	46.00	-12.99
90.14	H	Peak	44.66	-17.48	27.18	43.50	-16.32
180.35	H	Peak	44.63	-14.38	30.25	43.50	-13.25
212.36	H	Peak	53.92	-15.58	38.34	43.50	-5.16
277.35	H	Peak	48.69	-13.01	35.68	46.00	-10.32
338.46	H	Peak	43.34	-11.76	31.58	46.00	-14.42
623.64	H	Peak	38.59	-6.51	32.08	46.00	-13.92

Remark :

- 1 Measuring frequencies from 30 MHz to the 1GHz °
- 2 Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.
- 3 Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 4 The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

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Operation Mode	802.11n_20M RX CH Mid	Test Date	Apr. 04, 2011
Fundamental Frequency	2437MHz	Test By	Jason
Temperature	25 °C	Pol	Ver./Hor
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
160.95	V	Peak	39.63	-11.98	27.65	43.50	-15.85
209.45	V	Peak	45.75	-15.71	30.04	43.50	-13.46
277.35	V	Peak	46.80	-13.01	33.79	46.00	-12.21
354.95	V	Peak	40.87	-11.50	29.37	46.00	-16.63
623.64	V	Peak	40.77	-6.51	34.26	46.00	-11.74
694.45	V	Peak	38.61	-5.35	33.26	46.00	-12.74
148.34	H	Peak	42.82	-12.36	30.46	43.50	-13.04
212.36	H	Peak	52.11	-15.58	36.53	43.50	-6.97
277.35	H	Peak	48.17	-13.01	35.16	46.00	-10.84
338.46	H	Peak	42.80	-11.76	31.04	46.00	-14.96
623.64	H	Peak	38.56	-6.51	32.05	46.00	-13.95
710.94	H	Peak	37.87	-5.10	32.77	46.00	-13.23

Remark :

- 1 Measuring frequencies from 30 MHz to the 1GHz °
- 2 Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.
- 3 Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 4 The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

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Operation Mode	802.11n_20M RX CH High	Test Date	Apr. 04, 2011
Fundamental Frequency	2462MHz	Test By	Jason
Temperature	25 °C	Pol	Ver./Hor
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/QP)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)
156.10	V	Peak	38.65	-12.01	26.64	43.50	-16.86
277.35	V	Peak	47.97	-13.01	34.96	46.00	-11.04
354.95	V	Peak	40.81	-11.50	29.31	46.00	-16.69
532.46	V	Peak	38.30	-8.48	29.82	46.00	-16.18
623.64	V	Peak	39.33	-6.51	32.82	46.00	-13.18
710.94	V	Peak	38.69	-5.10	33.59	46.00	-12.41
90.14	H	Peak	44.22	-17.48	26.74	43.50	-16.76
148.34	H	Peak	44.12	-12.36	31.76	43.50	-11.74
212.36	H	Peak	53.03	-15.58	37.45	43.50	-6.05
277.35	H	Peak	49.28	-13.01	36.27	46.00	-9.73
338.46	H	Peak	43.91	-11.73	32.18	46.00	-13.82
679.90	H	Peak	37.62	-5.55	32.07	46.00	-13.93

Remark :

- 1 Measuring frequencies from 30 MHz to the 1GHz °
- 2 Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak/QP detector mode.
- 3 Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 4 The IF bandwidth of SPA between 30MHz to 1GHz was 100KHz.

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### Radiated Spurious Emission Measurement Result (above 1GHz) (802.11\_b)

Operation Mode	802.11b RX CH Low	Test Date	Apr. 04, 2011
Fundamental Frequency	2412MHz	Test By	Jason
Temperature	25 °C	Pol	Ver. / Hor
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL CF(dB)	Actual FS		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1247.0	V	46.26	---	-5.03	41.23	---	74.00	54.00	-12.77	Peak
1487.5	V	46.00	---	-4.63	41.37	---	74.00	54.00	-12.63	Peak
2137.5	V	43.02	---	-2.18	40.84	---	74.00	54.00	-13.16	Peak
4824.0	V	----					74.00	54.00		
4978.0	V	40.56	---	5.66	46.22	---	74.00	54.00	-7.78	Peak
7236.0	V	----					74.00	54.00		
9648.0	V	----					74.00	54.00		
12060.0	V	----					74.00	54.00		
1585.0	H	42.00	---	-4.18	37.82	---	74.00	54.00	-16.18	Peak
4718.0	H	39.00	---	4.97	43.97	---	74.00	54.00	-10.03	Peak
4824.0	H	----					74.00	54.00		
7236.0	H	----					74.00	54.00		
9648.0	H	----					74.00	54.00		
12060.0	H	----					74.00	54.00		

Remark:

- 1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.
- 2 Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- 4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- 5 Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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Operation Mode	802.11b RX CH Mid	Test Date	Apr. 04, 2011
Fundamental Frequency	2437MHz	Test By	Jason
Temperature	25 °C	Pol	Ver. / Hor
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Peak	AV	Actual FS	Peak	AV	Margin	Remark		
		Reading (dBuV)	Reading (dBuV)		Ant./CL CF(dB)	Peak (dBuV/m)			AV (dBuV/m)	Limit (dBuV/m)
1247.0	V	46.67	---	-5.03	41.64	---	74.00	54.00	-12.36	Peak
1507.0	V	45.42	---	-4.52	40.90	---	74.00	54.00	-13.10	Peak
2137.5	V	43.37	---	-2.18	41.19	---	74.00	54.00	-12.81	Peak
4874.0	V	----					74.00	54.00		
7311.0	V	----					74.00	54.00		
9748.0	V	----					74.00	54.00		
12185.0	V	----					74.00	54.00		
1507.0	H	43.26	---	-4.52	38.74	---	74.00	54.00	-15.26	Peak
4477.5	H	38.32	---	4.32	42.64	---	74.00	54.00	-11.36	Peak
4874.0	H	----					74.00	54.00		
7311.0	H	----					74.00	54.00		
9748.0	H	----					74.00	54.00		
12185.0	H	----					74.00	54.00		

Remark:

- 1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.
- 2 Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- 4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- 5 Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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Operation Mode	802.11b RX CH High	Test Date	Apr. 04, 2011
Fundamental Frequency	2462MHz	Test By	Jason
Temperature	25 °C	Pol	Ver. / Hor
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Peak	AV	Actual FS	Peak	AV	Margin	Remark		
		Reading (dBuV)	Reading (dBuV)		Ant./CL CF(dB)	Limit (dBuV/m)			Limit (dBuV/m)	
1247.0	V	45.80	---	-5.03	40.77	---	74.00	54.00	-13.23	Peak
1780.0	V	48.29	---	-3.44	44.85	---	74.00	54.00	-9.15	Peak
2495.0	V	42.22	---	-0.15	42.07	---	74.00	54.00	-11.93	Peak
4924.0	V	----					74.00	54.00		
7386.0	V	----					74.00	54.00		
9848.0	V	----					74.00	54.00		
12310.0	V	----					74.00	54.00		
1487.5	H	44.07	---	-4.63	39.44	---	74.00	54.00	-14.56	Peak
1897.0	H	42.43	---	-3.12	39.31	---	74.00	54.00	-14.69	Peak
4924.0	H	----					74.00	54.00		
7386.0	H	----					74.00	54.00		
9848.0	H	----					74.00	54.00		
12310.0	H	----					74.00	54.00		

Remark:

- 1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.
- 2 Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- 4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- 5 Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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### Radiated Spurious Emission Measurement Result (above 1GHz) (802.11g)

Operation Mode	802.11g RX CH Low	Test Date	Apr. 04, 2011
Fundamental Frequency	2412MHz	Test By	Jason
Temperature	25 °C	Pol	Ver. / Hor
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Peak	AV	Actual FS	Peak	AV	Limit (dBuV/m)	Limit	Margin (dB)	Remark
		Reading (dBuV)	Reading (dBuV)		Ant./CL CF(dB)	Peak (dBuV/m)		AV (dBuV/m)		
1273.0	V	50.37	---	-4.89	45.48	---	74.00	54.00	-8.52	Peak
1507.0	V	45.19	---	-4.52	40.67	---	74.00	54.00	-13.33	Peak
2007.5	V	43.23	---	-2.97	40.26	---	74.00	54.00	-13.74	Peak
4824.0	V	----					74.00	54.00		
7236.0	V	----					74.00	54.00		
9648.0	V	----					74.00	54.00		
12060.0	V	----					74.00	54.00		
1507.0	H	43.51	---	-4.52	38.99	---	74.00	54.00	-15.01	Peak
4263.0	H	38.70	---	3.55	42.25	---	74.00	54.00	-11.75	Peak
4824.0	H	----					74.00	54.00		
7236.0	H	----					74.00	54.00		
9648.0	H	----					74.00	54.00		
12060.0	H	----					74.00	54.00		

Remark:

- 1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.
- 2 Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- 4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- 5 Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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Operation Mode	802.11g RX CH Mid	Test Date	Apr. 04, 2011
Fundamental Frequency	2437MHz	Test By	Jason
Temperature	25 °C	Pol	Ver. / Hor
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Peak	AV	Actual FS Ant./CL CF(dB)	Peak	AV	Peak	AV	Margin (dB)	Remark
		Reading (dBuV)	Reading (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Limit (dBuV/m)	Limit (dBuV/m)		
1247.0	V	46.42	---	-5.03	41.39	---	74.00	54.00	-12.61	Peak
1507.0	V	45.70	---	-4.52	41.18	---	74.00	54.00	-12.82	Peak
4874.0	V	----					74.00	54.00		
4978.0	V	40.78	---	5.66	46.44	---	74.00	54.00	-7.56	Peak
7311.0	V	----					74.00	54.00		
9748.0	V	----					74.00	54.00		
12185.0	V	----					74.00	54.00		
1507.0	H	43.74	---	-4.52	39.22	---	74.00	54.00	-14.78	Peak
4263.0	H	38.99	---	3.55	42.54	---	74.00	54.00	-11.46	Peak
4874.0	H	----					74.00	54.00		
7311.0	H	----					74.00	54.00		
9748.0	H	----					74.00	54.00		
12185.0	H	----					74.00	54.00		

Remark:

- 1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.
- 2 Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- 4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- 5 Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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Operation Mode	802.11g RX CH High	Test Date	Apr. 04, 2011
Fundamental Frequency	2462MHz	Test By	Jason
Temperature	25 °C	Pol	Ver. / Hor
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Peak	AV	Actual FS Ant./CL CF(dB)	Peak	AV	Peak	AV	Margin (dB)	Remark
		Reading (dBuV)	Reading (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Limit (dBuV/m)	Limit (dBuV/m)		
1247.0	V	45.98	---	-5.03	40.95	---	74.00	54.00	-13.05	Peak
1897.0	V	45.26	---	-3.12	42.14	---	74.00	54.00	-11.86	Peak
4924.0	V	----					74.00	54.00		
4997.5	V	40.22	---	5.70	45.92	---	74.00	54.00	-8.08	Peak
7386.0	V	----					74.00	54.00		
9848.0	V	----					74.00	54.00		
12310.0	V	----					74.00	54.00		
1507.0	H	42.79	---	-4.52	38.27	---	74.00	54.00	-15.73	Peak
4924.0	H	----					74.00	54.00		
4997.5	H	38.21	---	5.70	43.91	---	74.00	54.00	-10.09	Peak
7386.0	H	----					74.00	54.00		
9848.0	H	----					74.00	54.00		
12310.0	H	----					74.00	54.00		

Remark:

- 1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.
- 2 Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- 4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- 5 Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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### Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n\_20M)

Operation Mode	802.11n_20M RX CH Low	Test Date	Apr. 04, 2011
Fundamental Frequency	2412MHz	Test By	Jason
Temperature	25 °C	Pol	Ver. / Hor
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Peak	AV	Actual FS	Peak	AV	Limit (dBuV/m)	Limit	Margin (dB)	Remark
		Reading (dBuV)	Reading (dBuV)		Ant./CL CF(dB)	Peak (dBuV/m)		AV (dBuV/m)		
1273.0	V	51.37	---	-4.89	46.48	---	74.00	54.00	-7.52	Peak
1858.0	V	49.94	---	-3.13	46.81	---	74.00	54.00	-7.19	Peak
4824.0	V	----					74.00	54.00		
4997.5	V	40.57	---	5.70	46.27	---	74.00	54.00	-7.73	Peak
7236.0	V	----					74.00	54.00		
9648.0	V	----					74.00	54.00		
12060.0	V	----					74.00	54.00		
1780.0	H	43.59	---	-3.44	40.15	---	74.00	54.00	-13.85	Peak
2937.0	H	41.85	---	0.59	42.44	---	74.00	54.00	-11.56	Peak
4824.0	H	----					74.00	54.00		
7236.0	H	----					74.00	54.00		
9648.0	H	----					74.00	54.00		
12060.0	H	----					74.00	54.00		

Remark:

- 1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.
- 2 Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- 4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- 5 Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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Operation Mode	802.11n_20M RX CH Mid	Test Date	Apr. 04, 2011
Fundamental Frequency	2437MHz	Test By	Jason
Temperature	25 °C	Pol	Ver. / Hor
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Peak	AV	Actual FS	Peak	AV	Limit	Limit	Margin	Remark
		Reading (dBuV)	Reading (dBuV)		Ant./CL CF(dB)	Peak (dBuV/m)		AV (dBuV/m)		
1292.5	V	48.80	---	-4.87	43.93	---	74.00	54.00	-10.07	Peak
1793.0	V	46.24	---	-3.41	42.83	---	74.00	54.00	-11.17	Peak
4874.0	V	----					74.00	54.00		
4978.0	V	39.99	---	5.66	45.65	---	74.00	54.00	-8.35	Peak
7311.0	V	----					74.00	54.00		
9748.0	V	----					74.00	54.00		
12185.0	V	----					74.00	54.00		
1507.0	H	42.50	---	-4.52	37.98	---	74.00	54.00	-16.02	Peak
2755.0	H	41.38	---	0.07	41.45	---	74.00	54.00	-12.55	Peak
4874.0	H	----					74.00	54.00		
7311.0	H	----					74.00	54.00		
9748.0	H	----					74.00	54.00		
12185.0	H	----					74.00	54.00		

Remark:

- 1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.
- 2 Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- 4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- 5 Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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Operation Mode	802.11n_20M RX CH High	Test Date	Apr. 04, 2011
Fundamental Frequency	2462MHz	Test By	Jason
Temperature	25 °C	Pol	Ver. / Hor
Humidity	65 %		

Freq. (MHz)	Ant.Pol. H/V	Peak	AV	Actual FS	Peak	AV	Limit	Limit	Margin	Remark
		Reading (dBuV)	Reading (dBuV)		Ant./CL CF(dB)	Peak (dBuV/m)		AV (dBuV/m)		
1325.0	V	47.90	---	-4.80	43.10	---	74.00	54.00	-10.90	Peak
1812.5	V	46.40	---	-3.24	43.16	---	74.00	54.00	-10.84	Peak
2677.0	V	43.82	---	0.14	43.96	---	74.00	54.00	-10.04	Peak
4924.0	V	----					74.00	54.00		
4997.5	V	40.26	---	5.70	45.96	---	74.00	54.00	-8.04	Peak
7386.0	V	----					74.00	54.00		
9848.0	V	----					74.00	54.00		
12310.0	V	----					74.00	54.00		
1832.0	H	42.57	---	-3.08	39.49	---	74.00	54.00	-14.51	Peak
4783.0	H	38.13	---	5.14	43.27	---	74.00	54.00	-10.73	Peak
4924.0	H	----					74.00	54.00		
7386.0	H	----					74.00	54.00		
9848.0	H	----					74.00	54.00		
12310.0	H	----					74.00	54.00		

Remark:

- 1 Measuring frequencies from 1GHz to the 10th harmonic of highest fundamental frequency.
- 2 Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- 4 Spectrum Peak Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- 5 Spectrum AV Setting : 1GHz- 26GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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## 8. ANTENNA REQUIREMENT

### 8.1. Standard Applicable:

According to §15.203, Antenna requirement.

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of Sections 15.211, 15.213, 15.217, 15.219, or 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with Section 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this Part are not exceeded.

According to RSS-GEN 7.1.4, a transmitter can only be sold or operated with antennas with which it was certified. A transmitter may be certified with multiple antenna types. An antenna type comprises antennas having similar in-band and out-of-band radiation patterns. Testing shall be performed using the highest-gain antenna of each combination of transmitter and antenna type for which certification is being sought, with the transmitter output power set at the maximum level. Any antenna of the same type and having equal or lesser gain as an antenna that had been successfully tested for certification with the transmitter, will also be considered certified with the transmitter, and may be used and marketed with the transmitter. The manufacturer shall include with the application for certification a list of acceptable antenna types to be used with the transmitter.

When a measurement at the antenna connector is used to determine RF output power, the effective gain of the device's antenna shall be stated, based on measurement or on data from the antenna manufacturer. Any antenna gain in excess of 6 dBi (6 dB above isotropic gain) shall be added to the measured RF output power before using the power limits specified in RSS-210 or RSS-310 for devices of RF output powers of 10 milliwatts or less. For devices of output powers greater than 10 milliwatts, except devices subject to RSS-210 Annex 8 (Frequency Hopping and Digital Modulation Systems Operating in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz Bands) or RSS-210 Annex 9 (Local Area Network Devices), the total antenna gain shall be added to the measured RF output power before using the specified power limits. For devices subject to RSS-210 Annex 8 or Annex 9, the antenna gain shall not be added.

### 8.2. Antenna Connected Construction:

The directional gain of antenna used for transmitting is 0.65 dBi and the antenna connector is designed with unique type RF connector and no consideration of replacement. Please see EUT photo and antenna spec. for details.

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