

Report No.: EF/2009/C0015 Issue Date: Jan. 20, 2010

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# ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

# INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 15 SUBPART E REQUIREMENT **INDUSTRY CANADA RSS-210**

**Product Name: Rugged Mobile Computer** 

**Brand Name:** Janam **Model Name:** XG100 **Model Different:** N/A

FCC ID: UTW-XG100A

IC: 6914A-XG100A

EF/2009/C0015 **Report No.: Issue Date:** Jan. 20, 2010

**FCC Rule Part: §15.407** 

**IC Rule Part:** RSS-210 issue 7:2007, Annex 9

**Prepared for:** For FCC:

Janam Technologies LLC

100 Crossways Park West, Suite 105, Woodbury, NY 11797

USA

For IC:

Janam Technologies LLC

100 Crossways Park West, Suite 105, Woodbury, NY 11797

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SGS Taiwan Ltd. Prepared by:

**Electronics & Communication Laboratory** 

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# VERIFICATION OF COMPLIANCE

For FCC: **Applicant:** 

Janam Technologies LLC

100 Crossways Park West, Suite 105, Woodbury, NY 11797 USA

For IC:

Janam Technologies LLC

100 Crossways Park West, Suite 105, Woodbury, NY 11797 USA

Product Name: Rugged Mobile Computer

Brand Name: Janam

FCC ID: UTW-XG100A IC: 6914A-XG100A

Model No.: XG100 Model Difference: N/A

File Number: EF/2009/C0015

Date of test: Dec. 15, 2009 ~ Jan. 17, 2010

Date of EUT Received: Dec. 15, 2009

# 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 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 15.407 and RSS-210 issue 7: 2007 Annex 9. The test results of this report relate only to the tested sample identified in this report.

Test By:	Bondi Jin	Date	Jan. 20, 2010	
_	Bondi Liu/Engineer			
Prepared By:	Alex Hsieh	Date	Jan. 20, 2010	
Approved By:	Alex Hsieh/ Sr. Engineer  Vincent Su / Manager	Date	Jan. 20, 2010	

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# Version

Version No.	Date	Description
00	Jan. 20, 2010	Initial creation of document

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# 1. GENERAL INFORMATION

# 1.1. Product Description

#### General:

General:				
Type Name:	Rugged Mobile Computer			
Brand Name:	Janam			
Model Name:	XG100	XG100		
Model Difference:	N/A			
USB Cable	Two provide, Model No.	:: N/A		
	7.4 Vdc re-chargeable ba	attery or 9~12Vdc by AC/DC power adapter		
Power Supply:	Battery Model:	Model No. SNE102043,Supplier: Janam		
	Adaptor Model:	Model No. EA10302, Brand: EDAC		
Software Version	OAL 2.0			
Hardware Version	Beta			

WLAN: 802.11 a/b/g

WEATH. 002.11 a/ 0/g				
Frequency Range	2412MHz- 2462MHz \ 5745MHz- 5805 MHz	5180MHz- 5240MHz	5260MHz- 5320MHz	5500MHz- 5700MHz
Channel number	9 channels for 2.4G 4 channels for 5G	4 channels	4 channels	11 channels
Rated Power	802.11 a: 11.43 dBm 802.11 b: 16.77 dBm 802.11 g: 12.97 dBm	12.38 dBm	12.06 dBm	14.79 dBm
Modulation Technology	DSSS, OFDM	OFDM	OFDM	OFDM
Antenna Designation PIFA Anter		) dBi		
Type of Emission	17M5M5D	17M3M1D	17M4M1D	18M2M4D

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Modulation type	CCK, DQPSK, DBPSK for DSSS 64QAM. 16QAM, QPSK, BPSK for OFDM
Transition Rate:	802.11 a: 6/9/12/18/24/36/48/54 Mbps; 802.11 b: 1/2/5.5/11 Mbps; 802.11 g: 6/9/12/18/24/36/48/54 Mbps

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

# **Bluetooth:**

Bluetooth Version	<ul> <li>V1.1 (GFSK)</li> <li>V1.2 (GFSK)</li> <li>V2.0 (GFSK)</li> <li>V2.0 + EDR (GFSK + π/4DQPSK + 8DPSK)</li> <li>V2.1 + EDR (GFSK + π/4DQPSK + 8DPSK)</li> </ul>
Frequency Range	2402 – 2480MHz
Channel number	79 channels max.
Rated Power	2.84 dBm (Peak)
Modulation type	Frequency Hopping Spread Spectrum
Antenna Designation	PIFA Antenna / -5dBi.
Type of Emission	1M26F1D

The EUT is compliance with Bluetooth 2.0 with EDR.

This report applies for frequency bands 5150 MHz- 5250 MHz / 5250 MHz- 5350 MHz / 5470 MHz- 5725MHz

Note: Devices subject to this Section shall not be capable of transmitting in the band 5600-5650 MHz, so that Environment Canada and FCC weather radars operating in this band are protected.

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

This submittal(s) (test report) is intended for FCC ID: UTW-XG100A filing to comply with Section 15.407 of the FCC Part 15, Subpart E Rules and IC: 6914A-XG100A filing to comply with Industry Canada RSS-210 issue 7: 2007 Annex 9. 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: 2007.. 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-1.

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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#### 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 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 reguirements in Section 8 and 13 and Subclause 8.3.1.2 of ANSI C63.4-2003.

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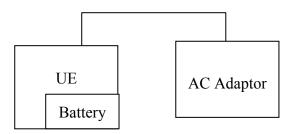


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# 2.4. Configuration of Tested System

Fig. 2-1 Configuration of Tested System



**Table 2-1 Equipment Used in Tested System** 

Item	Equipment	Mfr/Brand	Model/ Type No.	Series No.
1.	Test software	Summit_ Client utility	Version 02.02.09	N/A

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# SUMMARY OF TEST RESULT

FCC Rules	Description Of Test	Result
§15.207	AC Power Line Conducted	Compliant
RSS-Gen §7.2.2	Emission	
§15.407(a)	26 dB and 99% Emission Band-	N/A,
RSS 210 A9.2	width	Reference to module
RSS-Gen §4.4.1		report
§15.407(a)	Peak Output Power Measurement	Compliant
RSS 210 A9.2(1)		
§15.407(a)	Peak Power Spectral Density	N/A,
RSS 210 A9.2(1)	Measurement	Reference to module
		report
15.407(a)(6)	Peak Excursion Measurement	N/A,
		Reference to module
		report
§15.407(b)	Undesirable Emission – Con-	N/A,
RSS 210 A9.3	ducted Measurement	Reference to module
		report
§15.407(b)	Undesirable Emission – Radiated	Compliant
RSS 210 A9.3	Measurement	
§15.407(c)	Transmission in case of Absence	N/A,
RSS 210 A9.5(4)	of Information	Reference to module
		report
§15.407(g); RSS 210	Frequency Stability	N/A,
A9.5(5)		Reference to module
		report
§15.407(d)	Antenna Requirement	Compliant
RSS-210 issue 7,§A8.4		
§15.407(d)	TPC and DFS Measurement	N/A,
RSS 210 A9.4		Reference to module
		report

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# 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.

### FCC+IC:

Frequency Range 5150MHz-5250MHz

Channel lowest(5180MHz) · Mid(5220MHz) and Highest(5240MHz) with 20Mbps data rate are chosen for above items.

Frequency Range 5250MHz-5350MHz

Channel lowest(5260MHz) · Mid(5300MHz) and Highest(5320MHz) with 20Mbps data rate are chosen for above items.

Frequency Range 5470MHz-5725MHz

FCC: Channel lowest(5500MHz) · Mid(5580MHz) and Highest(5700MHz) with 20Mbps data rate are chosen for above items.



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# AC POWER LINE 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	Limits dB(uV)		
MHz	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

# 5.2. EUT Setup

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

#### **5.3.** 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.

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<sup>1.</sup> The lower limit shall apply at the transition frequencies

<sup>2.</sup> The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.



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# 5.4. Measurement Equipment Used:

Conducted Emission Test Site					
EQUIPMENT	LAST	CAL DUE.			
TYPE		NUMBER	NUMBER	CAL.	
EMI Test Receiver	R&S	ESCS30	828985/004	09/16/2009	09/15/2010
LISN	Rolf-Heine	NNB-2/16Z	99012	02/02/2009	02/01/2010
LISN	FCC	FCC-LISN-50/250-2 5-2-01	04034	02/02/2009	02/01/2010
Coaxial Cables	N/A	WK CE Cable	N/A	10/30/2009	10/29/2010

#### 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.

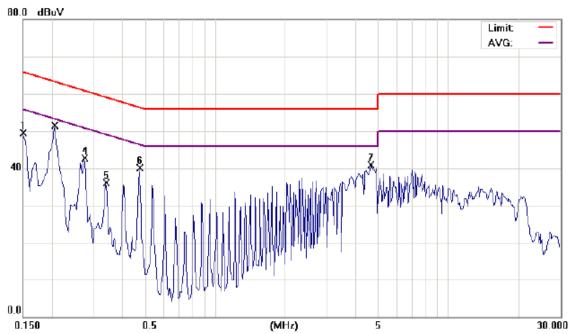


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# AC POWER LINE CONDUCTED EMISSION TEST DATA

Operation Mode:	WLAN Link			Test Date:	Jan. 15, 2010
Temperature:	23 °C	Humidity:	60%	Test By:	Bondi



Site SGS CONDUCTED #1

Limit: FCC Class B Conduction(QP)

EUT: Vertical Hand Held Terminal

M/N: XG100

Note: WLAN LINK mode

Phase:	L1	Temperature:	24 ℃
Power:	AC 120V/60Hz	Humidity:	59 %
Distance:		Air Pressure:	hpa

No. Mk.	Freq.	Reading Level	Factor	Measure- ment	Limit	Over		
	MHz	dBu∀	dB	dBu∀	dBu∀	dB	Detector	Comment
1	0.1500	49.32	0.18	49.50	66.00	-16.50	peak	
2 *	0.2048	50.09	0.12	50.21	63.41	-13.20	QP	
3	0.2048	39.67	0.12	39.79	53.41	-13.62	AVG	
4	0.2750	42.69	0.11	42.80	60.97	-18.17	peak	
5	0.3400	35.92	0.09	36.01	59.20	-23.19	peak	
6	0.4750	39.95	0.07	40.02	56.43	-16.41	peak	
7	4.6700	40.66	0.16	40.82	56.00	-15.18	peak	

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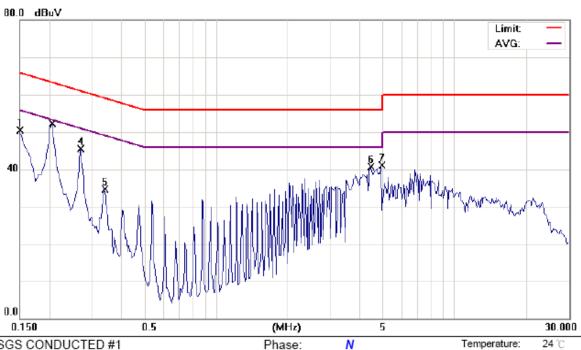
Humidity:

Air Pressure:

59 %

hpa

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Ν

AC 120V/60Hz

Site SGS CONDUCTED #1

Limit: FCC Class B Conduction(QP) EUT: Vertical Hand Held Terminal

M/N: XG100

Note: WLAN LINK mode

No. Mk.	Freq.	Reading Level	Factor	Measure- ment	Limit	Over		
	MHz	dBu∀	dB	dBu∀	dBu∀	dB	Detector	Comment
1	0.1500	50.35	0.20	50.55	66.00	-15.45	peak	
2 *	0.2033	52.09	0.14	52.23	63.47	-11.24	QP	
3	0.2033	39.03	0.14	39.17	53.47	-14.30	AVG	
4	0.2700	45.37	0.13	45.50	61.12	-15.62	peak	
5	0.3400	34.65	0.12	34.77	59.20	-24.43	peak	
6	4.4700	40.48	0.18	40.66	56.00	-15.34	peak	
7	4.9400	40.98	0.18	41.16	56.00	-14.84	peak	

Power:

Distance:

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# 26dB and 99% EMISSION BANDWIDTH MEASUREMENT

# **6.1 Standard Applicable**

According to §15.407(a). No Limit required. According to RSS 210 A9.2(1), No Limit required.

RSS-Gen §4.4.1, the transmitter shall be operated at its maximum carrier power measured under normal test conditions. The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts. The resolution bandwidth shall be set to as close to 1% of the selected span as is possible without being below 1%. The video bandwidth shall be set to 3 times the resolution bandwidth. Video averaging is not permitted. Where practical, a sampling detector shall be used since a peak or, peak hold, may produce a wider bandwidth than actual.

The trace data points are recovered and are directly summed in linear terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached and that frequency recorded. The process is repeated for the highest frequency data points. This frequency is recorded.

#### **6.2** 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 3.antenna port to the spectrum analyzer.
- 3. Set the spectrum analyzer as RBW=1% bandwidth, VBW =3\* RBW, Span= 50MHz, Sweep=auto
- 4. Mark the peak frequency and –26dB (upper and lower) frequency.
- 5. Repeat above procedures until all frequency measured were complete.



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**6.3** Measurement Equipment Used:

v.5 Measurement Equipment escu.										
Conducted Emission Test Site										
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.					
TYPE		NUMBER	NUMBER	CAL.						
Spectrum Analyzer	Agilent	E4446A	MY43360126	04/19/2008	04/18/2010					
Spectrum Analyzer	Agilent	E4440A	MY45304525	01/23/2009	01/22/2011					
DC Block	Agilent	BLK-18	155452	07/05/2009	07/04/2010					
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA	N/A	01/05/2010	01/04/2011					
Attenuator	Mini-Circuit	BW-S6W5	001	07/05/2009	07/04/2010					
Attenuator	Mini-Circuit	BW-S10W5	001	07/05/2009	07/04/2010					
Attenuator	Mini-Circuit	BW-S20W5	001	07/05/2009	07/04/2010					
Splitter	Agilent	11636B	N/A	07/05/2009	07/04/2010					
Spectrum Analyzer	Agilent	E4446A	MY43360126	04/19/2008	04/18/2010					

#### **6.4** Measurement Result

N/A. Refer to Elliott Laboratories. EMC Department WLAN module report Number: R74979 Rev 1



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#### 7. PEAK OUTPUT POWER MEASUREMENT

# 7.1 Standard Applicable

According to §15.407(a)

- 1. For the band 5.15-5.25 GHz, the maximum conducted power over the frequency of operation shall not exceed the lesser of 50 mW (17dBm) or 4 dBm + 10log B.
- 2. For the band 5.25-5.35 GHz and 5.47-5.725GMHz, the maximum conducted power over the frequency of operation shall not exceed the lesser of 250 mW (24dBm) or 11 dBm + 10log B.
- 3. For the band 5.725-5.825 GHz, the maximum conducted power over the frequency of operation shall not exceed the lesser of 1W (30dBm) or 17 dBm + 10log B.

# According to RSS-210 A9.2

- 1. For the band 5150-5250 MHz, the maximum equivalent isotropically radiated power (e.i.r.p.) shall not exceed 200 mW or 10 + 10 log10 B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.
- 2. For the bands 5250-5350 MHz and 5470-5725 MHz, the maximum conducted output power shall not exceed 250 mW or 11 + 10 log10 B, dBm, whichever power is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band. The maximum e.i.r.p. shall not exceed 1.0 W or

17 + 10 log10 B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz.

In addition, devices with maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

In addition to the above requirements, devices operating in the band 5250-5350 MHz with maximum e.i.r.p. greater than 200 mW shall comply with the following e.i.r.p. elevation mask where  $\theta$  is the angle above the local horizontal plane (of the earth) as shown below:



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- (i) -13 dB(W/MHz) for  $0o \le \theta < 8o$
- (ii) -13 0.716 ( $\theta$ -8) dB(W/MHz) for  $80 \le \theta < 400$
- (iii) -35.9 1.22 ( $\theta$ -40) dB(W/MHz) for  $40o \le \theta \le 45o$
- (iv) -42 dB(W/MHz) for  $\theta > 45$ o
- 3. For the band 5725-5825 MHz, the maximum conducted output power shall not exceed 1.0 W or

17 + 10 log10 B, dBm, whichever power is less. The power spectral density shall not exceed 17 dBm in any 1.0 MHz band. The maximum e.i.r.p. shall not exceed 4.0 W or 23 + 10 log10 B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz.

Fixed point-to-point systems for this band are permitted to have an e.i.r.p. greater than 4 W, provided that the higher e.i.r.p. is achieved by employing higher gain antennas, but not higher transmitter output powers. Point-to-multipoint systems, omni-directional applications and multiple co-located transmitters transmitting the same information are prohibited from exceeding 4 W e.i.r.p. However, remote stations of point-to-multipoint systems shall be permitted to operate at greater than 4 W e.i.r.p, under the same conditions as for point-to-point systems.

where B is the 26dB emission bandwidth in MHz.

### 7.2 Measurement Procedure

- Place the EUT on the table and set it in transmitting mode. 1.
- 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=1MHz, VBW=3MHz, ACP Bandwidth = 26dB Emission Bandwidth)
- 3. Record the max. reading.
- Repeat above procedures until all frequency measured were complete. 4.



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# 7.3 Measurement Equipment Used:

Conducted Emission Test Site									
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.				
TYPE		NUMBER	NUMBER	CAL.					
Spectrum Analyzer	Agilent	E4446A	MY43360126	04/19/2008	04/18/2010				
Spectrum Analyzer	Agilent	E4440A	MY45304525	01/23/2009	01/22/2011				
DC Block	Agilent	BLK-18	155452	07/05/2009	07/04/2010				
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA	N/A	01/05/2010	01/04/2011				
Attenuator	Mini-Circuit	BW-S6W5	001	07/05/2009	07/04/2010				
Attenuator	Mini-Circuit	BW-S10W5	001	07/05/2009	07/04/2010				
Attenuator	Mini-Circuit	BW-S20W5	001	07/05/2009	07/04/2010				

# 7.4 Measurement Result

#### UNII 1

Channel	Frequency (MHz)	Peak Power (dBm)	Limit (dBm)	Margin (dB)
Low	5180	11.33	17.00	-5.67
Mid	5220	11.63	24.00	-12.37
High	5240	12.38	24.00	-11.62

\*Note: Offset 0.5dB

#### UNII 2

Channel	Frequency (MHz)	Peak Power (dBm)	Limit (dBm)	Margin (dB)
Low	5260	11.92	24.00	-12.08
Mid	5300	12.06	24.00	-11.94
High	5320	11.29	24.00	-12.71

\*Note: Offset 0.5dB

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# UNII 3

Channel	Frequency (MHz)	Peak Power (dBm)	Limit (dBm)	Margin (dB)
Low	5500	14.26	24.00	-9.74
Mid	5580	14.79	24.00	-9.21
High	5700	10.95	24.00	-13.05

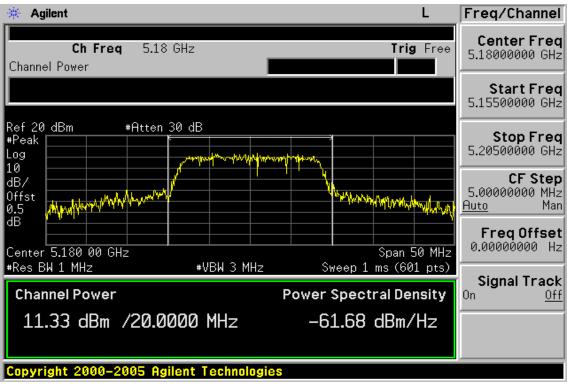
\*Note: Offset 0.5dB



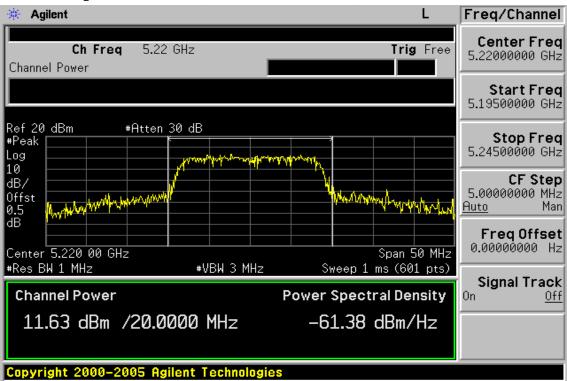
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# UNII 1 Peak Power Output Data Plot (CH Low 5180 MHz)



# Peak Power Output Data Plot (CH Mid 5220 MHz)



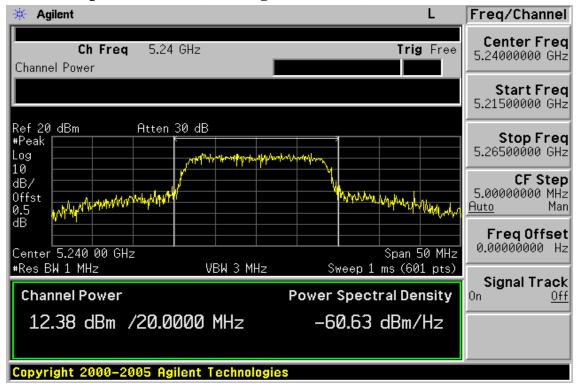
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# Peak Power Output Data Plot (CH High 5240 MHz)



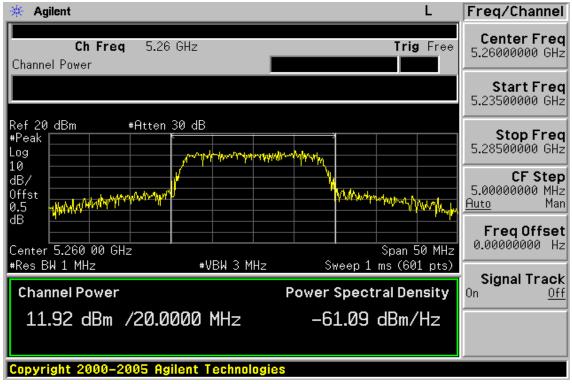
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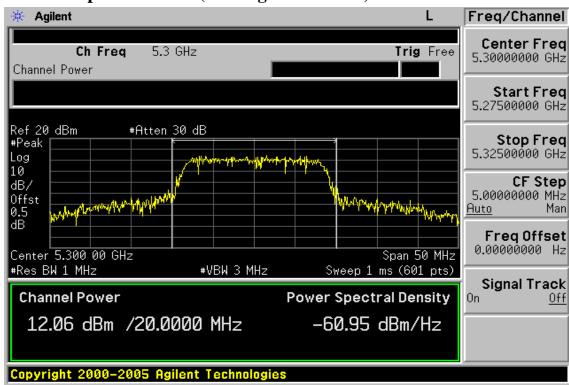
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UNII 2 Peak Power Output Data Plot (CH Low 5260 MHz)



# Peak Power Output Data Plot (CH High 5300 MHz)



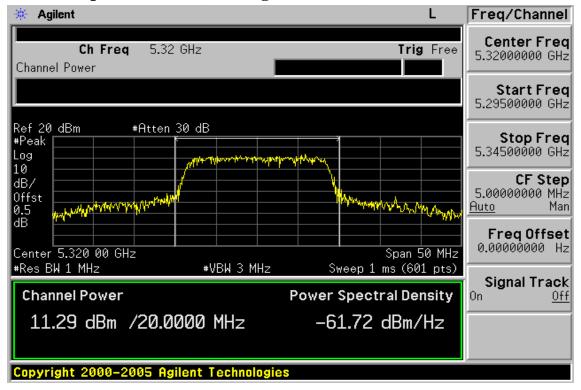
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# Peak Power Output Data Plot (CH High 5320 MHz)



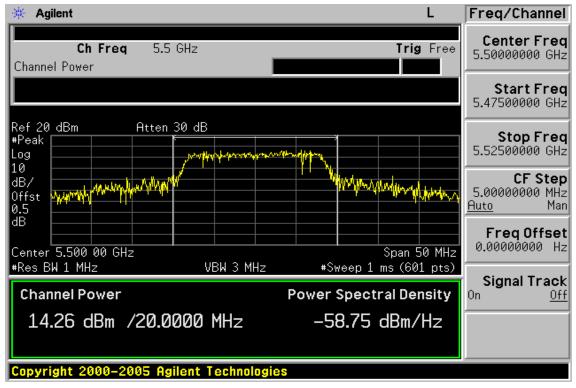
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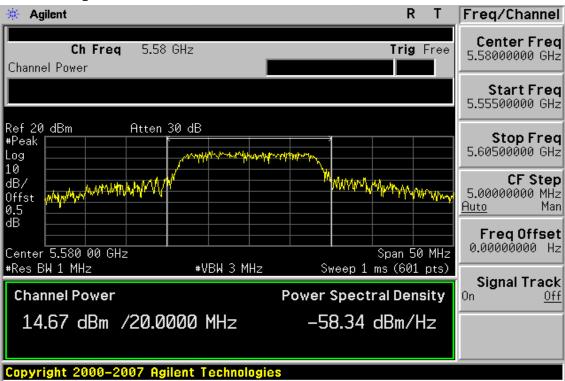
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UNII 3 Peak Power Output Data Plot (CH Low 5500 MHz)



# Peak Power Output Data Plot (CH Mid 5580 MHz)



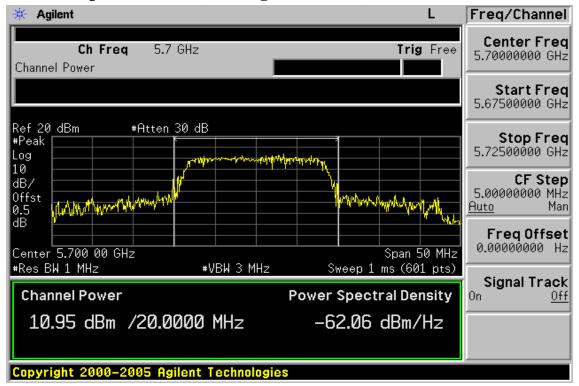
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# Peak Power Output Data Plot (CH High 5700 MHz)



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# PEAK POWER SPECTRAL DENSITY

# 8.1 Standard Applicable

According to §15.407(a)

- 1. For the band 5.15-5.25 GHz, the peak power spectral density shall not exceed 4 dBm in any 1-MHz band.
- 2. For the band 5.25-5.35 GHz and 5.47-5.725GMHz, the peak power spectral density shall not exceed 11 dBm in any 1-MHz band.
- 3. For the band 5.725-5.825 GHz, the peak power spectral density shall not exceed 17 dBm in any 1-MHz band.

Where B is the -26dBc emission bandwidth in MHz. If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### According to RSS-210 A9.2

- 1. For the band 5150-5250 MHz, the maximum equivalent isotropically radiated power (e.i.r.p.) shall not exceed 200 mW or 10 + 10 log10 B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.
- 2. For the bands 5250-5350 MHz and 5470-5725 MHz, the maximum conducted output power shall not exceed 250 mW or 11 + 10 log10 B, dBm, whichever power is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band. The maximum e.i.r.p. shall not exceed 1.0 W or

17 + 10 log10 B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz.

In addition, devices with maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

In addition to the above requirements, devices operating in the band 5250-5350 MHz with maximum e.i.r.p. greater than 200 mW shall comply with the following e.i.r.p. elevation mask where  $\theta$  is the angle above the local horizontal plane (of the earth) as shown below:



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- (i) -13 dB(W/MHz) for  $0o \le \theta < 8o$
- (ii) -13 0.716 (0-8) dB(W/MHz) for  $80 \le \theta < 400$
- (iii) -35.9 1.22 ( $\theta$ -40) dB(W/MHz) for  $40o \le \theta \le 45o$
- (iv) -42 dB(W/MHz) for  $\theta > 45$ o
- 3. For the band 5725-5825 MHz, the maximum conducted output power shall not exceed 1.0 W or

17 + 10 log10 B, dBm, whichever power is less. The power spectral density shall not exceed 17 dBm in any 1.0 MHz band. The maximum e.i.r.p. shall not exceed 4.0 W or 23 + 10 log10 B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz.

Fixed point-to-point systems for this band are permitted to have an e.i.r.p. greater than 4 W, provided that the higher e.i.r.p. is achieved by employing higher gain antennas, but not higher transmitter output powers. Point-to-multipoint systems, omni-directional applications and multiple co-located transmitters transmitting the same information are prohibited from exceeding 4 W e.i.r.p. However, remote stations of point-to-multipoint systems shall be permitted to operate at greater than 4 W e.i.r.p, under the same conditions as for point-to-point systems.

B is the 99% emission bandwidth in MHz.

#### **8.2** Measurement Procedure

- Place the EUT on the table and set it in transmitting mode. 1.
- 2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to Spectrum.
- Set RBW=1MHz, VBW=3MHz, Span=20MHz (Base Mode)/ 50MHz (Turbo Mode), Sweep 3. time = Auto, traces 100 sweeps of video averaging.
- 4. Record the max. reading.
- Repeat above procedures until all frequency measured were complete. 5.



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# 8.3 Measurement Equipment Used:

	Conducted Emission Test Site									
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.					
TYPE		NUMBER	NUMBER	CAL.						
Spectrum Analyzer	Agilent	E4446A	MY43360126	04/19/2008	04/18/2010					
Spectrum Analyzer	Agilent	E4440A	MY45304525	01/23/2009	01/22/2011					
DC Block	Agilent	BLK-18	155452	07/05/2009	07/04/2010					
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA	N/A	01/05/2010	01/04/2011					
Attenuator	Mini-Circuit	BW-S6W5	001	07/05/2009	07/04/2010					
Attenuator	Mini-Circuit	BW-S10W5	001	07/05/2009	07/04/2010					
Attenuator	Mini-Circuit	BW-S20W5	001	07/05/2009	07/04/2010					
Splitter	Agilent	11636B	N/A	07/05/2009	07/04/2010					
Spectrum Analyzer	Agilent	E4446A	MY43360126	04/19/2008	04/18/2010					

# 8.4 Measurement Result

N/A. Refer to Elliott Laboratories. EMC Department WLAN module report Number: R74979 Rev 1



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### 9. PEAK EXCURSION MEASUREMENT

# 9.1 Standard Applicable

15.407(a)(6) The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the peak transmit power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

# 9.2 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 spectrum.
- 3. Trace A, Set RBW=1MHz, VBW = 3MHz, Span = 26dBc, Max. hold.
- 4. Trace B, Set RBW=1MHz, VBW = 30KHz, Span = 26dBc, Max. hold...
- 5. Delta Mark trace A center frequency and trace B center frequency.
- 6. Repeat above procedures until all frequency measured were complete.



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# 9.3 Measurement Equipment Used:

Conducted Emission Test Site										
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.					
TYPE		NUMBER	NUMBER	CAL.						
Spectrum Analyzer	Agilent	E4446A	MY43360126	04/19/2008	04/18/2010					
Spectrum Analyzer	Agilent	E4440A	US41160416	01/23/2009	01/22/2011					
DC Block	Agilent	BLK-18	155452	07/05/2009	07/04/2010					
Attenuator	Mini-Circuit	BW-S20W5	N/A	07/05/2009	07/04/2010					
Attenuator	Mini-Circuit	BW-S10W5	N/A	07/05/2009	07/04/2010					
Attenuator	Mini-Circuit	BW-S6W5	N/A	07/05/2009	07/04/2010					
Splitter	Agilent	11636B	N/A	07/05/2009	07/04/2010					
DC Power Supply	НР	6038A	2929A-07548	06/27/2009	06/26/2011					
DC Power Supply	Topward	3303D	981327	10/26/2009	10/25/2011					

# 9.4 Test Results:

N/A. Refer to Elliott Laboratories. EMC Department WLAN module report Number: R74979 Rev 1



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#### 10. UNDESIRABLE EMISSION - CONDUCTED MEASUREMENT

# 10.1 Standard Applicable

According to §15.407(b),

- (b) Undesirable Emission Limits: Except as shown in Paragraph (b)(6) of this section, the peak emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:
  - (1) For transmitters operating in the 5.15-5.25 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz.
  - For transmitters operating in the 5.25-5.35 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz. Devices operating in the 5.25-5.35 GHz band that generate emissions in the 5.15-5.25 GHz band must meet all applicable technical requirements for operation in the 5.15-5.25 GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27 dBm/MHz in the 5.15-5.25 GHz band.
  - For transmitters operating in the 5.47-5.725 GHz band: all emissions outside of the 5.47-5.725 GHz band shall not exceed an EIRP of -27 dBm/MHz.
  - For transmitters operating in the 5.725-5.825 GHz band: all emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an EIRP of -17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an EIRP of -27 dBm/MHz.
  - The above emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.
  - Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in Section 15.209. Further, any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in Section 15.207.
  - The provisions of Section 15.205 of this part apply to intentional radiators operating under this section.
  - When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the upper and lower frequency block edges as the design of the equipment permits.



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#### 10.2 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 spectrum.
- Set Spectrum RBW=1MHz, VBW = 1MHz for peak measurement and 10Hz for average measurement.
- Set Spectrum at lower/upper band edge and the restricted band adjacent to the lower/upper 4. edge of the authorized band, with the transmitter set to the lowest/highest channel.
- 5. Set Spectrum over the 30MHz to 40GHz range with the transmitter set to the lowest, middle, and highest channels.

Conducted RF measurements of the transmitter output were made at the band edges and the adjacent restricted bands

Also, conducted RF measurements of the transmitter output over the 30 MHz to 40 GHz band were made in order to identify any spurious signals that require further investigation or measurements on the radiated emissions site.

10.3 Measurement Equipment Used:

1000 Medsurement Equipment Oscu.									
Conducted Emission Test Site									
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.				
TYPE		NUMBER	NUMBER	CAL.					
Spectrum Analyzer	Agilent	E4446A	MY43360126	04/19/2008	04/18/2010				
Spectrum Analyzer	Agilent	E4440A	MY45304525	01/23/2009	01/22/2011				
DC Block	Agilent	BLK-18	155452	07/05/2009	07/04/2010				
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA	N/A	01/05/2010	01/04/2011				
Attenuator	Mini-Circuit	BW-S6W5	001	07/05/2009	07/04/2010				
Attenuator	Mini-Circuit	BW-S10W5	001	07/05/2009	07/04/2010				
Attenuator	Mini-Circuit	BW-S20W5	001	07/05/2009	07/04/2010				
Splitter	Agilent	11636B	N/A	07/05/2009	07/04/2010				

#### **10.4** Measurement Result

N/A. Refer to Elliott Laboratories. EMC Department WLAN module report Number: R74979 Rev 1

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#### 11. UNDESIRABLE EMISSION - RADICTED MEASUREMENT

# 11.1 Standard Applicable

# According to §15.407(b),

(b) Undesirable Emission Limits: Except as shown in Paragraph (b)(6) of this section, the peak emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

- (1) For transmitters operating in the 5.15-5.25 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz.
- For transmitters operating in the 5.25-5.35 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz. Devices operating in the 5.25-5.35 GHz band that generate emissions in the 5.15-5.25 GHz band must meet all applicable technical requirements for operation in the 5.15-5.25 GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27 dBm/MHz in the 5.15-5.25 GHz band.
- For transmitters operating in the 5.47-5.725 GHz band: all emissions outside of the 5.47-5.725 GHz band shall not exceed an EIRP of -27 dBm/MHz.
- For transmitters operating in the 5.725-5.825 GHz band: all emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an EIRP of -17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an EIRP of -27 dBm/MHz.
- The above emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.
- Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in Section 15.209. Further, any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in Section 15.207.
- The provisions of Section 15.205 of this part apply to intentional radiators operating under this section.
- When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the upper and lower frequency block edges as the design of the equipment permits.



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#### According to RSS-210 A9.3

- For transmitters operating in the band 5150-5250 MHz, all emissions outside the band 5150-5350 MHz shall not exceed -27 dBm/MHz e.i.r.p.
- 2. For transmitters operating in the band 5250-5350 MHz, all emissions outside the band 5150-5350 MHz shall not exceed -27 dBm/MHz e.i.r.p. Devices operating in the band 5250-5350 MHz that generate emissions in the band 5150-5250 MHz shall not exceed an out-of-band emission limit of -27 dBm/MHz e.i.r.p. in the band 5150-5250 MHz in order to operate indoor/outdoor, or alternatively shall comply with the spectral power density for operation within the band 5150-5250 MHz and shall be labelled "for indoor use only".
- 3. For transmitters operating in the band 5470-5725 MHz, all emissions outside that band shall not exceed -27 dBm/MHz e.i.r.p.
- For transmitters operating in the band 5725-5825 MHz, all emissions within the frequency range from the band edges to 10 MHz above or below the band edges shall not exceed -17 dBm/MHz e.i.r.p. For frequencies more than 10 MHz above or below the band edges, emissions shall not exceed -27 dBm/MHz.



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#### §15.205- RESTRICTED BANDS OF OPERATIONS

(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz MHz		MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
<sup>1</sup> 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 -	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.52525	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	156.7 - 156.9	3260 - 3267	23.6 - 24.0
12.29 - 12.293	162.0125 - 167.17	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	167.72 - 173.2	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	240 - 285	3600 - 4400	$(^{2})$
13.36 - 13.41	322 - 335.4		

<sup>&</sup>lt;sup>1</sup> Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

(b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

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<sup>&</sup>lt;sup>2</sup> Above 38.6



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#### §15.209- RADIATED EMISSION LIMITS: GENERAL REQUIREMENTS

#### FCC PART 15.209

MEASURING DISTANCE OF 3 METER								
FREQUENCY RANGE	FIELD STRENGTH	FIELD STRENGTH						
(MHz)	(Microvolts/m)	(dBuV/m)						
30-88	100	40						
88-216	150	43.5						
216-960	200	46						
Above 960	500	54						

#### 11.2 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. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
- 6. Repeat above procedures until all frequency measured were complete.

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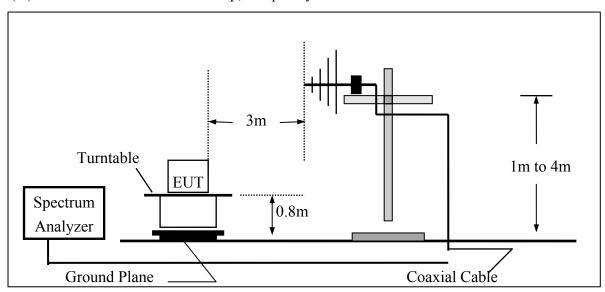


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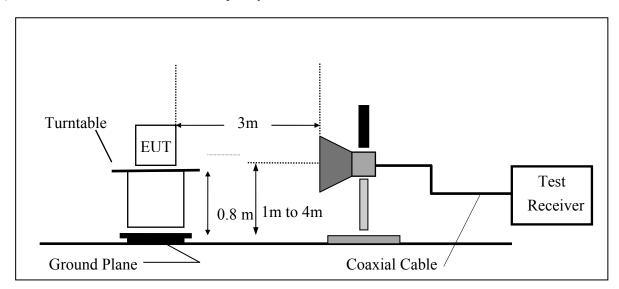
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#### 11.3 Test SET-UP (Block Diagram of Configuration)

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



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



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### 11.4 Measurement Equipment Used:

966 Chamber										
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.					
TYPE		NUMBER	NUMBER	CAL.						
Spectrum Analyzer	R&S	FSP 40	100034	02/12/2009	02/11/2010					
Loop antenna	MESSTEC	FLA30	03/10086	07/08/2009	07/07/2011					
Bilog Antenna	SCHWAZBECK	VULB9160	3136	09/15/2009	09/14/2010					
Horn antenna	SCHWAZBECK	BBHA 9120D	9120D-673	05/09/2008	05/08/2010					
Pre-Amplifier	Agilent	8447D	1937A02834	11/28/2009	11/27/2010					
Pre-Amplifier	Agilent	8449B	3008A01973	01/05/2010	01/04/2011					
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	Controller HD		N/A	N.C.R	N.C.R					
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-10M	10m	01/05/2010	01/04/2011					
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-3M	3m	01/05/2010	01/04/2011					
3m Site	SGS	966 chamber	N/A	11/08/2010	11/09/2011					
Spectrum Analyzer	R&S	FSP 40	100034	02/12/2009	02/11/2010					
Loop antenna	MESSTEC	FLA30	03/10086	07/08/2009	07/07/2011					
Bilog Antenna	SCHWAZBECK	VULB9160	3136	09/15/2009	09/14/2010					
Horn antenna	SCHWAZBECK	BBHA 9120D	9120D-673	05/09/2008	05/08/2010					
Pre-Amplifier	Agilent	8447D	1937A02834	11/28/2009	11/27/2010					
Pre-Amplifier	Pre-Amplifier Agilent		3008A01973	01/05/2010	01/04/2011					
Turn Table	HD	DT420	N/A	N.C.R	N.C.R					



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#### 11.5 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	

#### 11.6 Measurement Result

Refer to attach tabular data sheets.

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# UNII 1 Radiated Spurious Emission Measurement Result (below 1GHz)

Operation Mode TX CH Low Test Date Jan. 15, 2010

Fundamental Frequency 5180MHz Test By Bondi Temperature 25  $^{\circ}$ C Pol Ver./Hor Humidity 65  $^{\circ}$ 

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Mar- gin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
58.13	V	Peak	58.77	-26.70	32.07	40.00	-7.93
227.88	V	Peak	52.88	-28.94	23.94	46.00	-22.06
356.89	V	Peak	55.38	-25.72	29.66	46.00	-16.34
492.69	V	Peak	49.40	-23.57	25.83	46.00	-20.17
877.78	V	Peak	47.01	-18.35	28.66	46.00	-17.34
953.44	V	Peak	47.48	-17.45	30.03	46.00	-15.97
232.73	Н	Peak	59.98	-28.78	31.20	46.00	-14.80
356.89	Н	Peak	62.37	-25.72	36.65	46.00	-9.35
381.14	Н	Peak	59.27	-25.25	34.02	46.00	-11.98
405.39	Н	Peak	60.30	-24.75	35.55	46.00	-10.45
504.33	Н	Peak	55.55	-23.39	32.16	46.00	-13.84
948.59	Н	Peak	47.01	-17.47	29.54	46.00	-16.46

#### 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)

Operation Mode TX CH Mid Jan. 15, 2010 **Test Date** 

Fundamental Frequency 5220MHz Test By Bondi Temperature Pol Ver./Hor 25 °C

65 % Humidity

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Mar- gin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
58.13	V	Peak	58.90	-26.70	32.20	40.00	-7.80
356.89	V	Peak	54.78	-25.72	29.06	46.00	-16.94
381.14	V	Peak	51.31	-25.25	26.06	46.00	-19.94
405.39	V	Peak	50.70	-24.75	25.95	46.00	-20.05
492.69	V	Peak	48.89	-23.57	25.32	46.00	-20.68
953.44	V	Peak	46.44	-17.45	28.99	46.00	-17.01
240.49	Н	Peak	60.33	-28.59	31.74	46.00	-14.26
356.89	Н	Peak	61.88	-25.72	36.16	46.00	-9.84
381.14	Н	Peak	59.31	-25.25	34.06	46.00	-11.94
405.39	Н	Peak	61.12	-24.75	36.37	46.00	-9.63
504.33	Н	Peak	55.24	-23.39	31.85	46.00	-14.15
948.59	Н	Peak	46.69	-17.47	29.22	46.00	-16.78

- (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/OP 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)

Operation Mode TX CH High Jan. 15, 2010 **Test Date** 

Fundamental Frequency 5240MHz Test By Bondi Temperature Pol Ver./Hor 25 °C

65 % Humidity

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Mar- gin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
58.13	V	Peak	59.28	-26.70	32.58	40.00	-7.42
227.88	V	Peak	51.98	-28.94	23.04	46.00	-22.96
356.89	V	Peak	55.29	-25.72	29.57	46.00	-16.43
381.14	V	Peak	51.81	-25.25	26.56	46.00	-19.44
405.39	V	Peak	51.22	-24.75	26.47	46.00	-19.53
953.44	V	Peak	47.26	-17.45	29.81	46.00	-16.19
232.73	Н	Peak	59.14	-28.78	30.36	46.00	-15.64
356.89	Н	Peak	61.90	-25.72	36.18	46.00	-9.82
381.14	Н	Peak	59.49	-25.25	34.24	46.00	-11.76
405.39	Н	Peak	60.13	-24.75	35.38	46.00	-10.62
429.64	Н	Peak	55.80	-24.35	31.45	46.00	-14.55
504.33	Н	Peak	55.00	-23.39	31.61	46.00	-14.39

- (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/OP 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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# UNII 2 Radiated Spurious Emission Measurement Result (below 1GHz)

Operation Mode TX CH Low Test Date Jan. 15, 2010

Fundamental Frequency 5260MHz Temperature 5260MHz Test By Bondi Pol Ver./Hor

Humidity 65 %

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Mar- gin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
58.13	V	Peak	59.18	-26.70	32.48	40.00	-7.52
221.09	V	Peak	52.38	-29.67	22.71	46.00	-23.29
356.89	V	Peak	55.04	-25.72	29.32	46.00	-16.68
381.14	V	Peak	51.75	-25.25	26.50	46.00	-19.50
405.39	V	Peak	50.74	-24.75	25.99	46.00	-20.01
953.44	V	Peak	46.04	-17.45	28.59	46.00	-17.41
240.49	Н	Peak	59.81	-28.59	31.22	46.00	-14.78
356.89	Н	Peak	62.06	-25.72	36.34	46.00	-9.66
381.14	Н	Peak	59.82	-25.25	34.57	46.00	-11.43
405.39	Н	Peak	60.23	-24.75	35.48	46.00	-10.52
429.64	Н	Peak	56.07	-24.35	31.72	46.00	-14.28
504.33	Н	Peak	55.08	-23.39	31.69	46.00	-14.31

#### 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)

Operation Mode TX CH Mid Jan. 15, 2010 **Test Date** 

Fundamental Frequency 5300MHz Test By Bondi Temperature Pol Ver./Hor 25 °C

65 % Humidity

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Mar- gin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
58.13	V	Peak	59.32	-26.70	32.62	40.00	-7.38
133.79	V	Peak	49.67	-27.59	22.08	43.50	-21.42
221.09	V	Peak	53.86	-29.67	24.19	46.00	-21.81
356.89	V	Peak	55.07	-25.72	29.35	46.00	-16.65
381.14	V	Peak	51.37	-25.25	26.12	46.00	-19.88
953.44	V	Peak	47.98	-17.45	30.53	46.00	-15.47
232.73	Н	Peak	58.64	-28.78	29.86	46.00	-16.14
356.89	Н	Peak	61.81	-25.72	36.09	46.00	-9.91
381.14	Н	Peak	59.77	-25.25	34.52	46.00	-11.48
405.39	Н	Peak	60.17	-24.75	35.42	46.00	-10.58
504.33	Н	Peak	55.63	-23.39	32.24	46.00	-13.76
953.44	Н	Peak	47.76	-17.45	30.31	46.00	-15.69

- (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/OP 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)

Operation Mode TX CH High Jan. 15, 2010 **Test Date** 

Fundamental Frequency 5320MHz Test By Bondi Temperature Pol Ver./Hor 25 °C

65 % Humidity

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Mar- gin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
58.13	V	Peak	60.14	-26.70	33.44	40.00	-6.56
227.88	V	Peak	53.34	-28.94	24.40	46.00	-21.60
356.89	V	Peak	55.04	-25.72	29.32	46.00	-16.68
381.14	V	Peak	51.66	-25.25	26.41	46.00	-19.59
492.69	V	Peak	49.58	-23.57	26.01	46.00	-19.99
953.44	V	Peak	48.12	-17.45	30.67	46.00	-15.33
235.64	Н	Peak	59.63	-28.69	30.94	46.00	-15.06
356.89	Н	Peak	61.93	-25.72	36.21	46.00	-9.79
381.14	Н	Peak	59.10	-25.25	33.85	46.00	-12.15
405.39	Н	Peak	60.31	-24.75	35.56	46.00	-10.44
429.64	Н	Peak	56.26	-24.35	31.91	46.00	-14.09
504.33	Н	Peak	55.28	-23.39	31.89	46.00	-14.11

- (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/OP 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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# UNII 3 Radiated Spurious Emission Measurement Result (below 1GHz)

Operation Mode TX CH Low Test Date Jan. 15, 2010

Fundamental Frequency 5500MHz Test By Bondi

Fundamental Frequency 5500MHz Test By Bondi Temperature 25  $^{\circ}$ C Pol Ver./Hor Humidity 65  $^{\circ}$ 

	Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Mar- gin
_	(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
	58.13	V	Peak	59.35	-26.70	32.65	40.00	-7.35
	221.09	V	Peak	52.15	-29.67	22.48	46.00	-23.52
	356.89	V	Peak	55.26	-25.72	29.54	46.00	-16.46
	381.14	V	Peak	51.61	-25.25	26.36	46.00	-19.64
	405.39	V	Peak	50.82	-24.75	26.07	46.00	-19.93
	492.69	V	Peak	48.80	-23.57	25.23	46.00	-20.77
	240.49	Н	Peak	59.89	-28.59	31.30	46.00	-14.70
	356.89	Н	Peak	61.96	-25.72	36.24	46.00	-9.76
	381.14	Н	Peak	59.64	-25.25	34.39	46.00	-11.61
	405.39	Н	Peak	59.96	-24.75	35.21	46.00	-10.79
	504.33	Н	Peak	55.52	-23.39	32.13	46.00	-13.87
	955.38	Н	Peak	47.78	-17.45	30.33	46.00	-15.67

#### 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)

Operation Mode TX CH Mid Jan. 15, 2010 **Test Date** 

Fundamental Frequency 5580MHz Test By Bondi Temperature Pol Ver./Hor 25 °C

65 % Humidity

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Mar- gin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
58.13	V	Peak	58.67	-26.70	31.97	40.00	-8.03
232.73	V	Peak	52.49	-28.78	23.71	46.00	-22.29
356.89	V	Peak	55.13	-25.72	29.41	46.00	-16.59
381.14	V	Peak	51.30	-25.25	26.05	46.00	-19.95
492.69	V	Peak	49.49	-23.57	25.92	46.00	-20.08
95.3.44	V	Peak	47.31	-17.45	29.86	54.00	-24.14
240.90	Н	Peak	59.17	-28.59	30.58	46.00	-15.42
356.89	Н	Peak	61.92	-25.72	36.20	46.00	-9.80
381.14	Н	Peak	59.51	-25.25	34.26	46.00	-11.74
405.39	Н	Peak	59.99	-24.75	35.24	46.00	-10.76
504.33	Н	Peak	55.61	-23.39	32.22	46.00	-13.78
948.59	Н	Peak	46.65	-17.47	29.18	46.00	-16.82

- (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/OP 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)

Operation Mode TX CH High Jan. 15, 2010 **Test Date** 

Fundamental Frequency 5700MHz Test By Bondi Temperature Pol Ver./Hor 25 °C

65 % Humidity

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Mar- gin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
58.13	V	Peak	59.10	-26.70	32.40	40.00	-7.60
232.73	V	Peak	52.09	-28.78	23.31	46.00	-22.69
356.89	V	Peak	54.84	-25.72	29.12	46.00	-16.88
405.39	V	Peak	50.89	-24.75	26.14	46.00	-19.86
492.69	V	Peak	49.32	-23.57	25.75	46.00	-20.25
948.59	V	Peak	47.46	-17.47	29.99	46.00	-16.01
240.49	Н	Peak	59.42	-28.59	30.83	46.00	-15.17
356.89	Н	Peak	61.87	-25.72	36.15	46.00	-9.85
381.14	Н	Peak	59.39	-25.25	34.14	46.00	-11.86
405.39	Н	Peak	59.99	-24.75	35.24	46.00	-10.76
504.33	Н	Peak	55.34	-23.39	31.95	46.00	-14.05
955.38	Н	Peak	46.72	-17.45	29.27	46.00	-16.73

- (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/OP 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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### UNII 1 Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode TX CH Low **Test Date** Jan. 15, 2010 Fundamental Frequency 5180MHz Test By Bondi Temperature Pol Ver. 25 °C

60 % Humidity

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
1732.0	58.97		-12.76	46.21		74.00	54.00	-7.79	Peak
3454.0	46.13		-8.71	37.42		74.00	54.00	-16.58	Peak
6904.0	45.44		2.14	47.58		74.00	54.00	-6.42	Peak
7451.0	41.99		3.18	45.17		74.00	54.00	-8.83	Peak
10360.0						74.00	54.00		
15540.0						74.00	54.00		
20720.0						74.00	54.00		
25900.0						74.00	54.00		
31080.0						74.00	54.00		
36260.0						74.00	54.00		
41440.0						74.00	54.00		
46620.0						74.00	54.00		
51800.0						74.00	54.00		

#### Remark:

- (1) Measuring frequencies scanned 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<sub>o</sub>
- (4) Spectrum Peak Setting: 1GHz- 40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- Spectrum AV Setting: 1GHz-40GHz, RBW=1MHz, VBW=10Hz, Sweep time=200 ms.

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

TX CH Low Operation Mode **Test Date** Jan. 15, 2010 Fundamental Frequency 5180MHz Test By Bondi Temperature Pol Hor 25 °C

65 % Humidity

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
1744.0	59.91		-12.65	47.26		74.00	54.00	-6.74	Peak
3454.0	50.63		-8.71	41.92		74.00	54.00	-12.08	Peak
7104.5	42.47		2.76	45.23		74.00	54.00	-8.77	Peak
10360.0						74.00	54.00		
15540.0						74.00	54.00		
20720.0						74.00	54.00		
25900.0						74.00	54.00		
31080.0						74.00	54.00		
36260.0						74.00	54.00		
41440.0						74.00	54.00		
46620.0						74.00	54.00		
51800.0						74.00	54.00		

#### Remark:

- (1) Measuring frequencies scanned 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<sub>o</sub>
- (4) Spectrum Peak Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- Spectrum AV Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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

Operation Mode TX CH Mid Test Date Jan. 15, 2010 Fundamental Frequency 5220MHz Temperature 25  $^{\circ}$ C Pol Ver

Humidity 65 %

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
3472.0	45.47		-8.70	36.77		74.00	54.00	-17.23	Peak
7379.5	43.19		3.06	46.25		74.00	54.00	-7.75	Peak
10440.0						74.00	54.00		
15660.0						74.00	54.00		
20880.0						74.00	54.00		
26100.0						74.00	54.00		
31320.0						74.00	54.00		
36540.0						74.00	54.00		
41760.0						74.00	54.00		
46980.0						74.00	54.00		
52200.0						74.00	54.00		

#### Remark:

- (1) Measuring frequencies scanned 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<sub>o</sub>
- (4) Spectrum Peak Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- (5) Spectrum AV Setting: 1GHz-40GHz, RBW=1MHz, VBW=10Hz, Sweep time=200 ms.

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

Operation Mode TX CH Mid Test Date Jan. 15, 2010 Fundamental Frequency 5220MHz Test By Bondi Temperature 25  $^{\circ}$ C Pol Hor

Humidity 65 %

		Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
	Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	
	(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
_	1942.0	44.97		-12.12	32.85		74.00	54.00	-21.15	Peak
	3472.0	50.66		-8.70	41.96		74.00	54.00	-12.04	Peak
	7286.0	42.22		2.92	45.14		74.00	54.00	-8.86	Peak
	10440.0						74.00	54.00		
	15660.0						74.00	54.00		
	20880.0						74.00	54.00		
	26100.0						74.00	54.00		
	31320.0						74.00	54.00		
	36540.0						74.00	54.00		
	41760.0						74.00	54.00		
	46980.0						74.00	54.00		
	52200.0						74.00	54.00		

#### Remark:

- (1) Measuring frequencies scanned from 1GHz to the 10th harmonic of highest fundamental frequency<sub>o</sub>
- (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<sub>o</sub>
- (4) Spectrum Peak Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- (5) Spectrum AV Setting: 1GHz-40GHz, RBW=1MHz, VBW=10Hz, Sweep time=200 ms.

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

Operation Mode TX CH High **Test Date** Jan. 15, 2010 Fundamental Frequency 5240MHz Test By Bondi Temperature Pol Ver 25 °C

65 % Humidity

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
3484.0	44.86		-8.60	36.26		74.00	54.00	-17.74	Peak
7517.0	42.37		3.33	45.70		74.00	54.00	-8.30	Peak
10480.0						74.00	54.00		
15720.0						74.00	54.00		
20960.0						74.00	54.00		
26200.0						74.00	54.00		
31440.0						74.00	54.00		
36680.0						74.00	54.00		
41920.0						74.00	54.00		
47160.0						74.00	54.00		
52400.0						74.00	54.00		

- (1) Measuring frequencies scanned from 1GHz to the 10th harmonic of highest fundamental fre-
- (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<sub>o</sub>
- Spectrum Peak Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- Spectrum AV Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.



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

Operation Mode TX CH High **Test Date** Jan. 15, 2010 Fundamental Frequency 5240MHz Test By Bondi Temperature Pol Hor 25 °C

65 % Humidity

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
3484.0	50.21		-8.60	41.61		74.00	54.00	-12.39	Peak
7093.5	42.47		2.73	45.20		74.00	54.00	-8.80	Peak
10480.0						74.00	54.00		
15720.0						74.00	54.00		
20960.0						74.00	54.00		
26200.0						74.00	54.00		
31440.0						74.00	54.00		
36680.0						74.00	54.00		
41920.0						74.00	54.00		
47160.0						74.00	54.00		
52400.0						74.00	54.00		

- (1) Measuring frequencies scanned from 1GHz to the 10th harmonic of highest fundamental fre-
- (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<sub>o</sub>
- Spectrum Peak Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- Spectrum AV Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.



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### UNII 2 Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode TX CH Low Test Date Jan. 15, 2010 Fundamental Frequency 5260MHz Test By Bondi Temperature 25  $^{\circ}$ C Pol Ver.

Humidity 60 %

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
3502.0	45.71		-8.59	37.12		74.00	54.00	-16.88	Peak
7407.0	42.47		3.12	45.59		74.00	54.00	-8.41	Peak
10520.0						74.00	54.00		
15780.0						74.00	54.00		
21040.0						74.00	54.00		
26300.0						74.00	54.00		
31560.0						74.00	54.00		
36820.0						74.00	54.00		
42080.0						74.00	54.00		
47340.0						74.00	54.00		
52600.0						74.00	54.00		

#### Remark:

- (1) Measuring frequencies scanned 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<sub>o</sub>
- (4) Spectrum Peak Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- (5) Spectrum AV Setting: 1GHz-40GHz, RBW=1MHz, VBW=10Hz, Sweep time=200 ms.

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

Operation Mode TX CH Low Test Date Jan. 15, 2010 Fundamental Frequency 5260MHz Test By Bondi

Temperature 25 °C Pol Hor

Humidity 65 %

		Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
	Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	
_	(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
	1714.0	47.74		-12.79	34.95		74.00	54.00	-19.05	Peak
	3502.0	47.74		-8.59	39.15		74.00	54.00	-14.85	Peak
	7396.0	42.10		3.09	45.19		74.00	54.00	-8.81	Peak
	10520.0						74.00	54.00		
	15780.0						74.00	54.00		
	21040.0						74.00	54.00		
	26300.0						74.00	54.00		
	31560.0						74.00	54.00		
	36820.0						74.00	54.00		
	42080.0						74.00	54.00		
	47340.0						74.00	54.00		
	52600.0						74.00	54.00		

#### Remark:

- (1) Measuring frequencies scanned from 1GHz to the 10th harmonic of highest fundamental frequency<sub>o</sub>
- (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<sub>o</sub>
- (4) Spectrum Peak Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- (5) Spectrum AV Setting: 1GHz-40GHz, RBW=1MHz, VBW=10Hz, Sweep time=200 ms.

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

Operation Mode TX CH Mid Test Date Jan. 15, 2010

Fundamental Frequency 5300MHz for IC Test By Bondi Temperature 25  $^{\circ}$ C Pol Ver

Humidity 65 %

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
1732.0	52.15		-12.76	39.39		74.00	54.00	-14.61	Peak
3514.0	45.10		-8.47	36.63		74.00	54.00	-17.37	Peak
7066.0	42.77		2.72	45.49		74.00	54.00	-8.51	Peak
10600.0						74.00	54.00		
15900.0						74.00	54.00		
21200.0						74.00	54.00		
26500.0						74.00	54.00		
31800.0						74.00	54.00		
37100.0						74.00	54.00		
42400.0						74.00	54.00		
47700.0						74.00	54.00		
53000.0						74.00	54.00		

#### Remark:

- (1) Measuring frequencies scanned 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<sub>o</sub>
- (4) Spectrum Peak Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- (5) Spectrum AV Setting: 1GHz-40GHz, RBW=1MHz, VBW=10Hz, Sweep time=200 ms.

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

TX CH Mid Operation Mode Test Date Jan. 15, 2010 Fundamental Frequency 5300MHz Test By Bondi Temperature Pol Hor 25 °C

65 % Humidity

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
1732.0	59.23		-12.76	46.47		74.00	54.00	-7.53	Peak
3514.0	59.23		-8.47	50.76		74.00	54.00	-3.24	Peak
7462.0	42.44		3.21	45.65		74.00	54.00	-8.35	Peak
10600.0						74.00	54.00		
15900.0						74.00	54.00		
21200.0						74.00	54.00		
26500.0						74.00	54.00		
31800.0						74.00	54.00		
37100.0						74.00	54.00		
42400.0						74.00	54.00		
47700.0						74.00	54.00		
53000.0						74.00	54.00		

#### Remark:

- (1) Measuring frequencies scanned 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<sub>o</sub>
- (4) Spectrum Peak Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- Spectrum AV Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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

Operation Mode TX CH High **Test Date** Jan. 15, 2010 Fundamental Frequency 5320MHz Test By Bondi Temperature Pol Ver 25 °C

65 % Humidity

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
3544.0	44.51		-8.29	36.22		74.00	54.00	-17.78	Peak
7231.0	42.68		2.85	45.53		74.00	54.00	-8.47	Peak
10640.0						74.00	54.00		
15960.0						74.00	54.00		
21280.0						74.00	54.00		
26600.0						74.00	54.00		
31920.0						74.00	54.00		
37240.0						74.00	54.00		
42560.0						74.00	54.00		
47880.0						74.00	54.00		
53200.0						74.00	54.00		

- (1) Measuring frequencies scanned from 1GHz to the 10th harmonic of highest fundamental fre-
- (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<sub>o</sub>
- Spectrum Peak Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- Spectrum AV Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.



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

Operation Mode TX CH High **Test Date** Jan. 15, 2010 Fundamental Frequency 5320MHz Test By Bondi Temperature Pol Hor 25 °C

65 % Humidity

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
3544.0	50.43		-8.29	42.14		74.00	54.00	-11.86	Peak
7341.0	42.44		3.00	45.44		74.00	54.00	-8.56	Peak
10640.0						74.00	54.00		
15960.0						74.00	54.00		
21280.0						74.00	54.00		
26600.0						74.00	54.00		
31920.0						74.00	54.00		
37240.0						74.00	54.00		
42560.0						74.00	54.00		
47880.0						74.00	54.00		
53200.0						74.00	54.00		

- (1) Measuring frequencies scanned from 1GHz to the 10th harmonic of highest fundamental fre-
- (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<sub>o</sub>
- Spectrum Peak Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- Spectrum AV Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.



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## UNII 3 Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode TX CH Low Test Date Jan. 15, 2010 Fundamental Frequency 5500MHz Temperature 25  $^{\circ}\text{C}$  Pol Ver.

Humidity 60 %

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
3664.0	42.97		-7.65	35.32		74.00	54.00	-18.68	Peak
7396.0	42.74		3.09	45.83		74.00	54.00	-8.17	Peak
11000.0						74.00	54.00		
16500.0						74.00	54.00		
22000.0						74.00	54.00		
27500.0						74.00	54.00		
33000.0						74.00	54.00		
38500.0						74.00	54.00		
44000.0						74.00	54.00		
49500.0						74.00	54.00		
55000.0						74.00	54.00		

#### Remark:

- (1) Measuring frequencies scanned 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<sub>o</sub>
- (4) Spectrum Peak Setting: 1GHz- 40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- (5) Spectrum AV Setting: 1GHz-40GHz, RBW=1MHz, VBW=10Hz, Sweep time=200 ms.

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

TX CH Low Operation Mode **Test Date** Jan. 15, 2010 Fundamental Frequency 5500MHz Test By Bondi Temperature Pol Hor 25 °C

65 % Humidity

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
3664.0	51.08		-7.65	43.43		74.00	54.00	-10.57	Peak
7599.5	41.77		3.54	45.31		74.00	54.00	-8.69	Peak
11000.0						74.00	54.00		
16500.0						74.00	54.00		
22000.0						74.00	54.00		
27500.0						74.00	54.00		
33000.0						74.00	54.00		
38500.0						74.00	54.00		
44000.0						74.00	54.00		
49500.0						74.00	54.00		
55000.0						74.00	54.00		

- (1) Measuring frequencies scanned from 1GHz to the 10th harmonic of highest fundamental fre-
- (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<sub>o</sub>
- Spectrum Peak Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- Spectrum AV Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.



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

TX CH Mid Operation Mode **Test Date** Jan. 15, 2010 Fundamental Frequency 5580MHz Test By Bondi Temperature Pol Ver 25 °C

65 % Humidity

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
3724.0	44.49		-7.27	37.22		74.00	54.00	-16.78	Peak
7462.0	43.27		3.21	46.48		74.00	54.00	-7.52	Peak
11200.0						74.00	54.00		
16800.0						74.00	54.00		
22400.0						74.00	54.00		
28000.0						74.00	54.00		
33600.0						74.00	54.00		
39200.0						74.00	54.00		
44800.0						74.00	54.00		
50400.0						74.00	54.00		
56000.0						74.00	54.00		

- (1) Measuring frequencies scanned from 1GHz to the 10th harmonic of highest fundamental fre-
- (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<sub>o</sub>
- Spectrum Peak Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- Spectrum AV Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.



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

TX CH Mid Operation Mode **Test Date** Jan. 15, 2010 Fundamental Frequency 5580MHz Test By Bondi Temperature Pol Hor 25 °C

65 % Humidity

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
3724.0	51.76		-7.27	44.49		74.00	54.00	-9.51	Peak
7462.0	42.42		3.21	45.63		74.00	54.00	-8.37	Peak
11200.0						74.00	54.00		
16800.0						74.00	54.00		
22400.0						74.00	54.00		
28000.0						74.00	54.00		
33600.0						74.00	54.00		
39200.0						74.00	54.00		
44800.0						74.00	54.00		
50400.0						74.00	54.00		
56000.0						74.00	54.00		

- (1) Measuring frequencies scanned from 1GHz to the 10th harmonic of highest fundamental fre-
- (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<sub>o</sub>
- Spectrum Peak Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- Spectrum AV Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.



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

Operation Mode TX CH High **Test Date** Jan. 15, 2010 Fundamental Frequency 5700MHz Test By Bondi Temperature 25 °C Pol Ver

65 % Humidity

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
3802.0	45.49		-7.17	38.32		74.00	54.00	-15.68	Peak
7599.5	43.78		3.54	47.32		74.00	54.00	-6.68	Peak
11400.0						74.00	54.00		
17100.0						74.00	54.00		
22800.0						74.00	54.00		
28500.0						74.00	54.00		
34200.0						74.00	54.00		
39900.0						74.00	54.00		
45600.0						74.00	54.00		
51300.0						74.00	54.00		
57000.0						74.00	54.00		

- (1) Measuring frequencies scanned from 1GHz to the 10th harmonic of highest fundamental fre-
- (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<sub>o</sub>
- Spectrum Peak Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- Spectrum AV Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.



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

Operation Mode TX CH High **Test Date** Jan. 15, 2010 Fundamental Frequency 5700MHz Test By Bondi Temperature 25 °C Pol Hor

65 % Humidity

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
3802.0	53.76		-7.17	46.59		74.00	54.00	-7.41	Peak
7599.5	43.92		3.54	47.46		74.00	54.00	-6.54	Peak
11400.0						74.00	54.00		
17100.0						74.00	54.00		
22800.0						74.00	54.00		
28500.0						74.00	54.00		
34200.0						74.00	54.00		
39900.0						74.00	54.00		
45600.0						74.00	54.00		
51300.0						74.00	54.00		
57000.0						74.00	54.00		

- (1) Measuring frequencies scanned from 1GHz to the 10th harmonic of highest fundamental fre-
- (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<sub>o</sub>
- Spectrum Peak Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- Spectrum AV Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.



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# UNII 1 Radiated Spurious Emission Measurement Result (below 1GHz)

Operation Mode RX CH Low Test Date Jan. 15, 2010

Fundamental Frequency 5180MHz Test By Bondi

Fundamental Frequency 5180MHz Test By Bondi Temperature 25  $^{\circ}$ C Pol Ver./Hor Humidity 65  $^{\circ}$ 

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Margin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
58.13	V	Peak	59.54	-26.70	32.84	40.00	-7.16
133.79	V	Peak	52.03	-27.59	24.44	43.50	-19.06
218.18	V	Peak	53.01	-29.89	23.12	46.00	-22.88
356.89	V	Peak	56.64	-25.72	30.92	46.00	-15.08
381.14	V	Peak	52.54	-25.25	27.29	46.00	-18.71
405.39	V	Peak	50.89	-24.75	26.14	46.00	-19.86
332.64	Н	Peak	58.83	-26.15	32.68	46.00	-13.32
356.89	Н	Peak	63.78	-25.72	38.06	46.00	-7.94
381.14	Н	Peak	59.21	-25.25	33.96	46.00	-12.04
405.39	Н	Peak	60.16	-24.75	35.41	46.00	-10.59
429.64	Н	Peak	56.61	-24.35	32.26	46.00	-13.74
504.33	Н	Peak	57.40	-23.39	34.01	46.00	-11.99

#### 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)

Operation Mode RX CH Mid **Test Date** Jan. 15, 2010 Fundamental Frequency 5220MHz Test By Bondi Temperature Pol Ver./Hor 25 °C

65 % Humidity

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Margin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
58.13	V	Peak	60.29	-26.70	33.59	40.00	-6.41
133.79	V	Peak	52.80	-27.59	25.21	43.50	-18.29
213.33	V	Peak	53.80	-30.12	23.68	43.50	-19.82
356.89	V	Peak	57.37	-25.72	31.65	46.00	-14.35
381.14	V	Peak	52.89	-25.25	27.64	46.00	-18.36
504.33	V	Peak	48.19	-23.39	24.80	46.00	-21.20
235.64	Н	Peak	54.95	-28.69	26.26	46.00	-19.74
332.64	Н	Peak	58.92	-26.15	32.77	46.00	-13.23
356.89	Н	Peak	64.38	-25.72	38.66	46.00	-7.34
381.14	Н	Peak	59.90	-25.25	34.65	46.00	-11.35
405.39	Н	Peak	60.53	-24.75	35.78	46.00	-10.22
504.33	Н	Peak	57.73	-23.39	34.34	46.00	-11.66

#### 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/OP 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)

Operation Mode RX CH High Jan. 15, 2010 **Test Date** 

Fundamental Frequency 5240MHz Test By Bondi Temperature Pol Ver./Hor 25 °C

65 % Humidity

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Margin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
56.19	V	Peak	60.98	-26.54	34.44	40.00	-5.56
187.14	V	Peak	52.71	-29.50	23.21	43.50	-20.29
247.28	V	Peak	50.22	-28.49	21.73	46.00	-24.27
356.89	V	Peak	55.19	-25.72	29.47	46.00	-16.53
381.14	V	Peak	50.46	-25.25	25.21	46.00	-20.79
405.39	V	Peak	49.84	-24.75	25.09	46.00	-20.91
332.64	Н	Peak	58.13	-26.15	31.98	46.00	-14.02
356.89	Н	Peak	63.23	-25.72	37.51	46.00	-8.49
381.14	Н	Peak	60.37	-25.25	35.12	46.00	-10.88
405.39	Н	Peak	60.66	-24.75	35.91	46.00	-10.09
429.64	Н	Peak	56.37	-24.35	32.02	46.00	-13.98
504.33	Н	Peak	54.22	-23.39	30.83	46.00	-15.17

- (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/OP 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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Ver./Hor

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Pol

# UNII 2 Radiated Spurious Emission Measurement Result (below 1GHz)

Operation Mode RX CH Low Test Date Jan. 15, 2010 Fundamental Frequency 5260MHz Test By Bondi

Temperature 25 °C Humidity 65 %

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Margin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
58.13	V	Peak	60.09	-26.70	33.39	40.00	-6.61
133.79	V	Peak	52.21	-27.59	24.62	43.50	-18.88
216.24	V	Peak	54.74	-30.01	24.73	46.00	-21.27
356.89	V	Peak	57.11	-25.72	31.39	46.00	-14.61
381.14	V	Peak	52.78	-25.25	27.53	46.00	-18.47
405.39	V	Peak	51.79	-24.75	27.04	46.00	-18.96
332.64	Н	Peak	58.92	-26.15	32.77	46.00	-13.23
356.89	Н	Peak	63.61	-25.72	37.89	46.00	-8.11
381.14	Н	Peak	59.75	-25.25	34.50	46.00	-11.50
405.39	Н	Peak	60.15	-24.75	35.40	46.00	-10.60
429.64	Н	Peak	56.79	-24.35	32.44	46.00	-13.56
504.33	Н	Peak	57.05	-23.39	33.66	46.00	-12.34

## 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)

Operation Mode RX CH Mid Jan. 15, 2010 **Test Date** 

Fundamental Frequency 5300MHz Test By Bondi Temperature Pol Ver./Hor 25 °C

65 % Humidity

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Margin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
58.13	V	Peak	59.48	-26.70	32.78	40.00	-7.22
128.94	V	Peak	52.30	-27.84	24.46	43.50	-19.04
223.03	V	Peak	52.70	-29.55	23.15	46.00	-22.85
356.89	V	Peak	57.46	-25.72	31.74	46.00	-14.26
381.14	V	Peak	53.24	-25.25	27.99	46.00	-18.01
405.39	V	Peak	50.68	-24.75	25.93	46.00	-20.07
332.64	Н	Peak	58.83	-26.15	32.68	46.00	-13.32
356.89	Н	Peak	63.73	-25.72	38.01	46.00	-7.99
381.14	Н	Peak	59.81	-25.25	34.56	46.00	-11.44
405.39	Н	Peak	60.63	-24.75	35.88	46.00	-10.12
429.64	Н	Peak	57.03	-24.35	32.68	46.00	-13.32
504.33	Н	Peak	57.65	-23.39	34.26	46.00	-11.74

- (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/OP 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)

Operation Mode RX CH High Test Date Jan. 15, 2010 Fundamental Frequency 5320MHz Test By Bondi Temperature 25  $^{\circ}$ C Pol Ver./Hor

Humidity 65 %

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Margin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
56.19	V	Peak	60.98	-26.54	34.44	40.00	-5.56
187.14	V	Peak	52.71	-29.50	23.21	43.50	-20.29
247.28	V	Peak	50.22	-28.49	21.73	46.00	-24.27
356.89	V	Peak	55.19	-25.72	29.47	46.00	-16.53
381.14	V	Peak	50.46	-25.25	25.21	46.00	-20.79
405.39	V	Peak	49.84	-24.75	25.09	46.00	-20.91
332.64	Н	Peak	58.13	-26.15	31.98	46.00	-14.02
356.89	Н	Peak	63.23	-25.72	37.51	46.00	-8.49
381.14	Н	Peak	60.37	-25.25	35.12	46.00	-10.88
405.39	Н	Peak	60.66	-24.75	35.91	46.00	-10.09
429.64	Н	Peak	56.37	-24.35	32.02	46.00	-13.98
504.33	Н	Peak	54.22	-23.39	30.83	46.00	-15.17

## 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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## UNII 3 Radiated Spurious Emission Measurement Result (below 1GHz)

Operation Mode RX CH Low Test Date Jan. 15, 2010 Fundamental Frequency 5500MHz Test By Bondi

Temperature 25 °C Pol Humidity 65 %

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Margin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
46.49	V	Peak	55.28	-25.92	29.36	40.00	-10.64
133.79	V	Peak	50.19	-27.59	22.60	43.50	-20.90
225.79	V	Peak	51.52	-29.06	22.46	46.00	-23.54
356.89	V	Peak	57.18	-25.72	31.46	46.00	-14.54
381.14	V	Peak	53.26	-25.25	28.01	46.00	-17.99
405.39	V	Peak	51.49	-24.75	26.74	46.00	-19.26
225.64	Н	Peak	54.95	-28.69	26.26	46.00	-19.74
332.64	Н	Peak	58.92	-26.15	32.77	46.00	-13.23
356.89	Н	Peak	64.38	-25.72	38.66	46.00	-7.34
381.14	Н	Peak	59.90	-25.25	34.65	46.00	-11.35
405.39	Н	Peak	60.53	-24.75	35.78	46.00	-10.22
504.33	Н	Peak	57.73	-23.39	34.34	46.00	-11.66

## 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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Humidity

## FCC ID: UTW-XG100A IC: 6914A-XG100A

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

65 %

Operation Mode RX CH Mid Jan. 15, 2010 **Test Date** Fundamental Frequency 5580MHz Test By Bondi Temperature Pol Ver./Hor 25 °C

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	<b>Actual FS</b>	Limit3m	Safe Margin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
58.13	V	Peak	59.27	-26.70	32.57	40.00	-7.43
198.78	V	Peak	53.91	-30.41	23.50	43.50	-20.00
256.98	V	Peak	49.27	-28.20	21.07	46.00	-24.93
356.89	V	Peak	55.03	-25.72	29.31	46.00	-16.69
405.39	V	Peak	49.79	-24.75	25.04	46.00	-20.96
480.08	V	Peak	48.28	-23.76	24.52	46.00	-21.48
332.64	Н	Peak	58.83	-26.15	32.68	46.00	-13.32
356.89	Н	Peak	63.78	-25.72	38.06	46.00	-7.94
381.14	Н	Peak	59.21	-25.25	33.96	46.00	-12.04
405.39	Н	Peak	60.16	-24.75	35.41	46.00	-10.59
429.64	Н	Peak	56.61	-24.35	32.26	46.00	-13.74
504.33	Н	Peak	57.40	-23.39	34.01	46.00	-11.99

## 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/OP 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)

Operation Mode RX CH High Jan. 15, 2010 **Test Date** Fundamental Frequency 5700MHz Test By Bondi

Temperature Pol Ver./Hor 25 °C

65 % Humidity

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Margin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
58.13	V	Peak	59.27	-26.70	32.57	40.00	-7.43
198.78	V	Peak	53.91	-30.41	23.50	43.50	-20.00
256.98	V	Peak	49.27	-28.20	21.07	46.00	-24.93
356.89	V	Peak	55.03	-25.72	29.31	46.00	-16.69
405.39	V	Peak	49.79	-24.75	25.04	46.00	-20.96
480.08	V	Peak	48.28	-23.76	24.52	46.00	-21.48
276.38	Н	Peak	55.92	-27.67	28.25	46.00	-17.75
332.64	Н	Peak	58.48	-26.15	32.33	46.00	-13.67
356.89	Н	Peak	62.86	-25.72	37.14	46.00	-8.86
381.14	Н	Peak	60.10	-25.25	34.85	46.00	-11.15
405.39	Н	Peak	60.83	-24.75	36.08	46.00	-9.92
429.64	Н	Peak	56.71	-24.35	32.36	46.00	-13.64

- (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/OP 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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Pol

## UNII 1 Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode RX CH Low Jan. 15, 2010 **Test Date** Fundamental Frequency 5180MHz Test By Bondi

25 °C 65 % Humidity

Temperature

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
3454.0	47.43		-8.71	38.72		74.00	54.00	-15.28	
7517.0	42.72		3.33	46.05		74.00	54.00	-7.95	
10360.0						74.00	54.00		
15540.0						74.00	54.00		
20720.0						74.00	54.00		
25900.0						74.00	54.00		

- (1) Measuring frequencies scanned 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<sub>o</sub>
- Spectrum Peak Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- Spectrum AV Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.



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

RX CH Low Operation Mode **Test Date** Jan. 15, 2010 Fundamental Frequency 5180MHz Test By Bondi Temperature Pol Hor 25 °C

65 % Humidity

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
3454.0	49.21		-8.71	40.50		74.00	54.00	-13.50	
7891.0	41.79		4.37	46.16		74.00	54.00	-7.84	
10360.0						74.00	54.00		
15540.0						74.00	54.00		
20720.0						74.00	54.00		
25900.0						74.00	54.00		

- (1) Measuring frequencies scanned 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<sub>o</sub>
- Spectrum Peak Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- Spectrum AV Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.



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

RX CH Mid Operation Mode Test Date Jan. 15, 2010 Fundamental Frequency 5220MHz Test By Bondi Temperature Pol Ver 25 °C

65 % Humidity

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
3472.0	45.47		-8.70	36.77		74.00	54.00	-17.23	
7176.0	42.51		2.79	45.30		74.00	54.00	-8.70	
10440.0						74.00	54.00		
15660.0						74.00	54.00		
20880.0						74.00	54.00		
26100.0						74.00	54.00		

- (1) Measuring frequencies scanned 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<sub>o</sub>
- Spectrum Peak Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- Spectrum AV Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.



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

RX CH Mid Operation Mode **Test Date** Jan. 15, 2010 Fundamental Frequency 5220MHz Test By Bondi Temperature Pol Hor 25 °C 65 % Humidity

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
3472.0	50.66		-8.70	41.96		74.00	54.00	-12.04	
7396.0	41.97		3.09	45.06		74.00	54.00	-8.94	
10440.0						74.00	54.00		
15660.0						74.00	54.00		
20880.0						74.00	54.00		
26100.0						74.00	54.00		

- (1) Measuring frequencies scanned 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<sub>o</sub>
- Spectrum Peak Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- Spectrum AV Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.



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

RX CH High Operation Mode Test Date Jan. 15, 2010 Fundamental Frequency 5240MHz Test By Bondi Temperature Pol Ver 25 °C

65 % Humidity

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
3484.0	44.86		-8.60	36.26		74.00	54.00	-17.74	
7242.0	41.98		2.83	44.81		74.00	54.00	-9.19	
10480.0						74.00	54.00		
15720.0						74.00	54.00		
20960.0						74.00	54.00		
26200.0						74.00	54.00		

- (1) Measuring frequencies scanned 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<sub>o</sub>
- Spectrum Peak Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- Spectrum AV Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.



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

RX CH High Operation Mode Test Date Jan. 15, 2010 Fundamental Frequency 5240MHz Test By Bondi Temperature Pol Hor 25 °C

65 % Humidity

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
3484.0	50.21		-8.60	41.61		74.00	54.00	-12.39	
7423.5	41.99		3.15	45.14		74.00	54.00	-8.86	
10480.0						74.00	54.00		
15720.0						74.00	54.00		
20960.0						74.00	54.00		
26200.0						74.00	54.00		

- (1) Measuring frequencies scanned 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<sub>o</sub>
- Spectrum Peak Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- Spectrum AV Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.



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## UNII 2 Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode RX CH Low Jan. 15, 2010 **Test Date** Fundamental Frequency 5260MHz Test By Bondi Temperature Pol Ver. 25 °C

65 % Humidity

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
3502.0	45.71		-8.59	37.12		74.00	54.00	-16.88	
7242.0	42.45		2.83	45.28		74.00	54.00	-8.72	
10520.0						74.00	54.00		
15780.0						74.00	54.00		
21040.0						74.00	54.00		
26300.0						74.00	54.00		

- (1) Measuring frequencies scanned 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<sub>o</sub>
- Spectrum Peak Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- Spectrum AV Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.



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

RX CH Low Operation Mode **Test Date** Jan. 15, 2010 Fundamental Frequency 5260MHz Test By Bondi Temperature Pol Hor 25 °C

65 % Humidity

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
3502.0	50.95		-8.59	42.36		74.00	54.00	-11.64	
7066.0	42.21		2.72	44.93		74.00	54.00	-9.07	
10520.0						74.00	54.00		
15780.0						74.00	54.00		
21040.0						74.00	54.00		
26300.0						74.00	54.00		

- (1) Measuring frequencies scanned 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<sub>o</sub>
- Spectrum Peak Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- Spectrum AV Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.



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

RX CH Mid Operation Mode Test Date Jan. 15, 2010 Fundamental Frequency 5300MHz Test By Bondi Temperature Pol Ver 25 °C

65 % Humidity

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
4264.0	43.96		-6.53	37.43		74.00	54.00	-16.57	
7371.0	41.84		3.72	45.56		74.00	54.00	-8.44	
10600.0						74.00	54.00		
15900.0						74.00	54.00		
21200.0						74.00	54.00		
26500.0						74.00	54.00		

- (1) Measuring frequencies scanned 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<sub>o</sub>
- Spectrum Peak Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- Spectrum AV Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.



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

RX CH Mid Operation Mode **Test Date** Jan. 15, 2010 Fundamental Frequency 5300MHz Test By Bondi Temperature Pol Hor 25 °C

65 % Humidity

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
3514.0	50.17		-8.47	41.70		74.00	54.00	-12.30	
7242.0	42.28		2.83	45.11		74.00	54.00	-8.89	
10600.0						74.00	54.00		
15900.0						74.00	54.00		
21200.0						74.00	54.00		
26500.0						74.00	54.00		

- (1) Measuring frequencies scanned 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<sub>o</sub>
- Spectrum Peak Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- Spectrum AV Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.



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

RX CH High Jan. 15, 2010 Operation Mode **Test Date** Fundamental Frequency 5320MHz Test By Bondi Temperature Pol Ver 25 °C

65 % Humidity

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
1324.0	44.66		-14.24	30.42		74.00	54.00	-23.58	
3544.0	44.71		-8.29	36.42		74.00	54.00	-17.58	
7561.0	41.92		3.46	45.38		74.00	54.00	-8.62	
10640.0						74.00	54.00		
15960.0						74.00	54.00		
21280.0						74.00	54.00		
26600.0						74.00	54.00		

- (1) Measuring frequencies scanned from 1GHz to the 10th harmonic of highest fundamental frequency<sub>o</sub>
- (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
- (4) Spectrum Peak Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- Spectrum AV Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.



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

RX CH High Operation Mode Test Date Jan. 15, 2010 Fundamental Frequency 5320MHz Test By Bondi Temperature Pol Hor 25 °C

65 % Humidity

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
3544.0	48.62		-8.29	40.33		74.00	54.00	-13.67	
7572.0	42.04		3.48	45.52		74.00	54.00	-8.48	
10640.0						74.00	54.00		
15960.0						74.00	54.00		
21280.0						74.00	54.00		
26600.0						74.00	54.00		

- (1) Measuring frequencies scanned 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<sub>o</sub>
- Spectrum Peak Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- Spectrum AV Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.



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## UNII 3 Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode RX CH Low Jan. 15, 2010 **Test Date** Fundamental Frequency 5500MHz Test By Bondi Temperature Pol Ver. 25 °C

65 % Humidity

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
3814.0	42.93		-7.13	35.80		74.00	54.00	-18.20	
7627.0	41.41		3.61	45.02		74.00	54.00	-8.98	
11000.0						74.00	54.00		
16500.0						74.00	54.00		
22000.0						74.00	54.00		
27500.0						74.00	54.00		

- (1) Measuring frequencies scanned 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<sub>o</sub>
- Spectrum Peak Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- Spectrum AV Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.



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

RX CH Low Operation Mode **Test Date** Jan. 15, 2010 Fundamental Frequency 5500MHz Test By Bondi Temperature Pol Hor 25 °C

65 % Humidity

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
3664.0	50.17		-7.65	42.52		74.00	54.00	-11.48	
7379.5	42.37		3.06	45.43		74.00	54.00	-8.57	
11000.0						74.00	54.00		
16500.0						74.00	54.00		
22000.0						74.00	54.00		
27500.0						74.00	54.00		

- (1) Measuring frequencies scanned 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<sub>o</sub>
- Spectrum Peak Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- Spectrum AV Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.



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

RX CH Mid Operation Mode Test Date Jan. 15, 2010 Fundamental Frequency 5580MHz Test By Bondi Temperature 25 °C Pol Ver

65 % Humidity

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
4444.0	43.39		-6.21	37.18		74.00	54.00	-16.82	
7423.5	42.77		3.15	45.92		74.00	54.00	-8.08	
11200.0						74.00	54.00		
16800.0						74.00	54.00		
22400.0						74.00	54.00		
28000.0						74.00	54.00		

- (1) Measuring frequencies scanned 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<sub>o</sub>
- Spectrum Peak Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- Spectrum AV Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.



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

RX CH Mid Operation Mode **Test Date** Jan. 15, 2010 Fundamental Frequency 5580MHz Test By Bondi Temperature 25 °C Pol Hor

65 % Humidity

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
3724.0	50.76		-7.27	43.49		74.00	54.00	-10.51	
7352.0	42.18		3.04	45.22		74.00	54.00	-8.78	
11200.0						74.00	54.00		
16800.0						74.00	54.00		
22400.0						74.00	54.00		
28000.0						74.00	54.00		

- (1) Measuring frequencies scanned 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<sub>o</sub>
- Spectrum Peak Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- Spectrum AV Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.



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

RX CH High Operation Mode Test Date Jan. 15, 2010 Fundamental Frequency 5700MHz Test By Bondi Temperature Pol Ver 25 °C

65 % Humidity

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
3802.0	45.08		-7.17	37.91		74.00	54.00	-16.09	
7599.5	44.53		3.54	48.07		74.00	54.00	-5.93	
11400.0						74.00	54.00		
17100.0						74.00	54.00		
22800.0						74.00	54.00		
28500.0						74.00	54.00		

- (1) Measuring frequencies scanned 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<sub>o</sub>
- Spectrum Peak Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- Spectrum AV Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.



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

RX CH High Operation Mode Test Date Jan. 15, 2010 Fundamental Frequency 5700MHz Test By Bondi Temperature Pol Hor 25 °C

65 % Humidity

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
3802.0	53.36		-7.17	46.19		74.00	54.00	-7.81	
7423.5	43.04		3.54	46.58		74.00	54.00	-7.42	
11400.0						74.00	54.00		
17100.0						74.00	54.00		
22800.0						74.00	54.00		
28500.0						74.00	54.00		

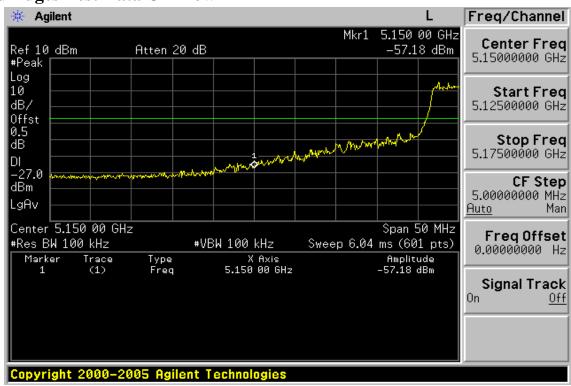
- (1) Measuring frequencies scanned from 1GHz to the 10th harmonic of highest fundamental frequency.
- (2) Data of measurement within this frequency range shown "-" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too 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<sub>o</sub>
- Spectrum Peak Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- Spectrum AV Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.



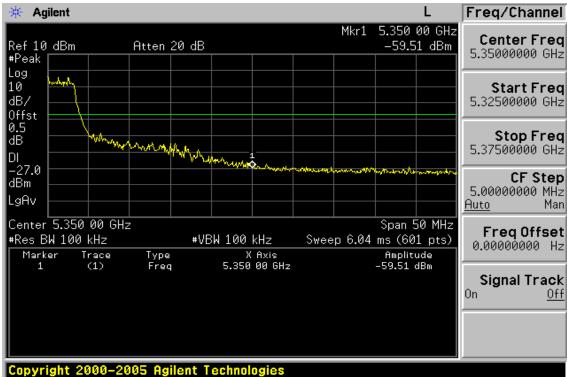
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UNII 1 **Band Edges Test Data CH-Low** 



## **Band Edges Test Data CH-High**



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#### **Radiated Emission:**

Jan. 15, 2010 Operation Mode TX CH Low Test Date Fundamental Frequency 5180 MHz Test By Bondi **Tmperature** Pol Ver. 25 °C

Humidity 65 %

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	Remark
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	dBuV/m	( <b>dB</b> )	
5150.00	49.33	38.71	6.76	56.09	45.47	74.00	54.00	-8.53	Av
Operation	Mode	TX C	H Low			Test	Date .	Jan. 15, 20	10
Fundamen	tal Frequer	ncy 5180	MHz			Test	By 1	Bondi	
Temperatu	re	25 °C				Pol	]	Hor.	
Humidity		65 %							

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	Remark
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m	( <b>dB</b> )	
5150.00	48.69	38.18	6.76	55.45	44.94	74.00	54.00	-9.06	Av

## Remark:

- 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.
- 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:**

Jan. 15, 2010 Operation Mode TX CH High Test Date Fundamental Frequency 5320 MHz Test By Bondi Temperature Pol Ver. 25 °C 65 % Humidity

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	Remark
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	dBuV/m	( <b>dB</b> )	
5350.00	51.29	38.86	7.18	58.47	46.04	74.00	54.00	-7.96	Av
Operation 1	Mode	TX C	H High			Test	Date .	Jan. 15, 20	10
Fundament	tal Frequer	ncy 5320	MHz			Test	By 1	Bondi	
Temperatu	re	25 °C				Pol	]	Hor.	
Humidity		65 %							

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	Remark
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m	( <b>dB</b> )	
5350.00	48.62	38.73	7.18	55.80	45.91	74.00	54.00	-8.09	Av

## Remark:

- 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.
- 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.

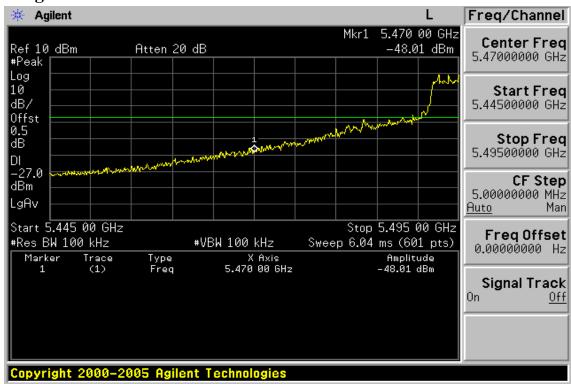
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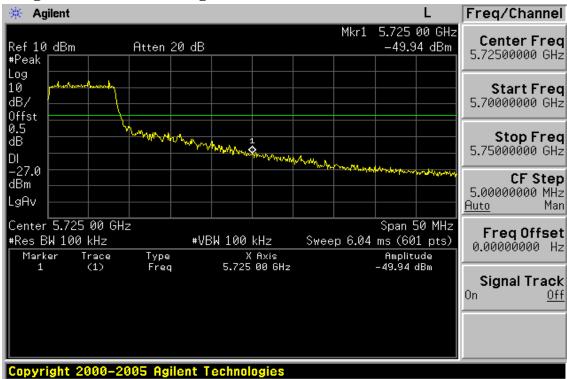
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UNII 2 **Band Edges Test Data CH-Low** 



## **Band Edges Test Data CH-High**



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#### **Radiated Emission:**

Jan. 15, 2010 Operation Mode TX CH Low Test Date Fundamental Frequency 5500MHz Test By Bondi **Tmperature** Pol Ver. 25 °C

Humidity 65 %

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	Remark
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	dBuV/m	( <b>dB</b> )	
5470.00	58.90	41.65	7.45	66.35	49.10	74.00	54.00	-4.90	Av
Operation 1	Mode	TX C	H Low			Test	Date J	Jan. 15, 20	10
Fundament	tal Frequer	ncy 5500	MHz			Test	By I	Bondi	
Temperatu	re	25 °C				Pol	I	Hor.	
Humidity		65 %							

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	Remark
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m	( <b>dB</b> )	
5470.00	56.01	41 01	7.45	63 46	48 46	74.00	54 00	-5 54	Av

## Remark:

- 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.
- 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:**

TX CH High Jan. 15, 2010 Operation Mode Test Date Fundamental Frequency 5700 MHz Test By Bondi Temperature Pol Ver. 25 °C

65 % Humidity

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	Remark
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	dBuV/m	( <b>dB</b> )	
5725.00	58.00	44.05	8.03	66.03	52.08	74.00	54.00	-1.92	Av
Operation 1	Mode	TX C	H High			Test	Date .	Jan. 15, 20	10
Fundament	tal Frequei	ncy 5240	MHz			Test	By 1	Bondi	
Temperatu	re	25 °C	,			Pol	]	Hor.	
Humidity		65 %							

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	Remark
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	)(dBuV/m)	(dB)	
5725.00	57.21	42.31	8.03	65 24	50.34	74.00	54 00	-3.66	Av

## Remark:

- 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.
- 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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## 12. TRANSMISSION IN THE ABSENCE OF DATA

## 12.1 Standard Applicable

According to §15.407(c)

The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signalling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application for equipment authorization a description of how this requirement is met.

## According to RSS-210 A9.5

The device shall automatically discontinue transmission in case of absence of information to transmit, or operational failure. A description on how this is done shall accompany the application for equipment certification. Note that this is not intended to prohibit transmission of control or signalling information or the use of repetitive codes where required by the technology.

#### **12.2 Result:**

No non-compliance noted:

Refer to the theory of operation.



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## 13. FREQUENCY STABILITY

## 13.1 Standard Applicable

According to §15.407 (g) Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

## According to A9.5

(5) The applicant shall ensure frequency stability by showing that an emission is maintained within the band of operation under all normal operating conditions as specified in the user's manual.

#### **13.2** Result:

No non-compliance noted:

±20ppm ppm was defined in product specification.



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## 14. ANTENNA REQUIREMENT

## 14.1 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.

## **14.2** Antenna Connected Construction

The directional gins of antenna used for transmitting is 0dBi for 2.4GHz, 0dBi for 5GHz 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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#### 15. TPC and DFS MEASUREMENT

## 15.1 TPC: Standard Applicable

According to §15.407(h)(1), Transmit power control (TPC). U-NII devices operating in the 5.25-5.35 GHz band and the 5.47-5.725 GHz band shall employ a TPC mechanism. The U-NII device is required to have the capability to operate at least 6 dB below the mean EIRP value of 30 dBm. A TPC mechanism is not required for systems with an e.i.r.p. of less than 500 mW.

**15.1.1. Result**: N/A, The output power is less than 500mW.

## 15.2 DFS: Standard Applicable

According to §15.407(h)(2), Radar Detection Function of Dynamic Frequency Selection (DFS). U-NII devices operating in the 5.25-5.35 GHz and 5.47-5.725 GHz bands shall employ a DFS radar detection. According to RSS-210 A9.4 Dynamic Frequency Selection (DFS) for devices operating in the bands 5250-5350 MHz and 5470-5725 MHz(devices subject to this Section shall not be capable of transmitting in the band 5600-5650 MHz, so that Environment Canada weather radars operating in this band are protected).

#### 15.2.1.Limit

Table 1: Applicability of DFS requirements prior to use of a channel

	Operational Mode						
Requirement	Master	Client(without radar detection)	Client(with radar detection)				
Non-occupancy Period	Yes	Yes	Yes				
DFS Detection Threshold	Yes	Not required	Yes				
Channel Availability Check Time	Yes	Not required	Not required				
Uniform Spareading	Yes	Not required	Not required				

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Table 2:Applicability of DFS requirements during normal operation

	Operational Mode						
Requirement	Master	Client(without radar detection)	Client(with radar detection)				
DFS Detection Threshold	Yes	Not required	Yes				
Cannel Closing Transmission time	Yes	Yes	Yes				
Channel Move time	Yes	Yes	Yes				

Table 3: Interference Threshold values, Master or Client incorporating In-Service Monitoring

·	
Maximum Transmit Power	Value
	(see note)
≥ 200 milliwatt	-64 dBm
< 200 milliwatt	-62 dBm

Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna Note 2: Throughout these test procedures an additional 1 dB has been added to the amplitude of the test transmission waveforms to account for variations in measurement equipment. This will ensure that the test signal is at or above the detection threshold level to trigger a DFS response.



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## Table 4: DFS Response requirement values

Parameter	Value
Non-occupancy period	Minimum 30 minutes
Channel Availability Check Time	60 seconds
Channel Move Time	10 seconds See Note 1.
Channel Closing Transmission Time	200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period. See Notes 1 and 2.
U-NII Detection Bandwidth	Minimum 80% of the 99% power bandwidth See Note 3.

Note 1: The instant that the Channel Move Time and the Channel Closing Transmission Time begins is as follows:

- For the Short pulse radar Test Signals this instant is the end of the Burst.
- For the Frequency Hopping radar Test Signal, this instant is the end of the last radar Burst generated.
- For the Long Pulse radar Test Signal this instant is the end of the 12 second period defining the radar transmission.

Note 2: The Channel Closing Transmission Time is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required to facilitate Channel changes (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions.

Note 3: During the *U-NII Detection Bandwidth* detection test, radar type 1 is used and for each frequency step the minimum percentage of detection is 90%. Measurements are performed with no data traffic.



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## **Table 5: Radar Test Waveforms**

#### **Short Pulse Radar**

Radar	Pulse Width	PRI	Number	Minimum	Minimum
Туре	(µsec)	(µsec)	of Pulses	Percentage of	Trials
				Successful	
				Detection	
1	1	1428	18	60%	30
2	1-5	150-230	23-29	60%	30
3	6-10	200-500	16-18	60%	30
4 11-20		200-500	12-16 60%		30
Aggreg	ate (Radar Types 1	80%	120		

## Long Pulse Radar

Radar Type	Pulse Width	Chirp Width	PRI (µsec)	Number of Pulses per	Number of Bursts	Minimum Percentage of	Minimum Trials
	(µsec)	(MHz)		Burst		Successful Detection	
5	50-100	5-20	1000- 2000	1-3	8-20	80%	30

## **Frequency Hopping Radar**

Radar Type	Pulse Width (µsec)	PRI (µsec)	Pulses per Hop	Hopping Rate (kHz)	Hopping Sequence Length (msec)	Minimum Percentage of Successful Detection	Minimum Trials
6	1	333	9	.333	300	70%	30

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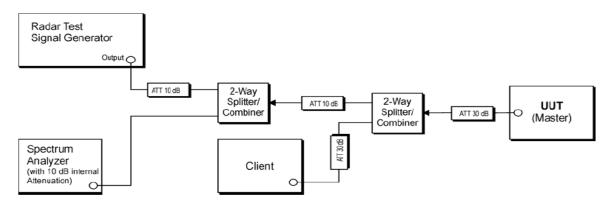


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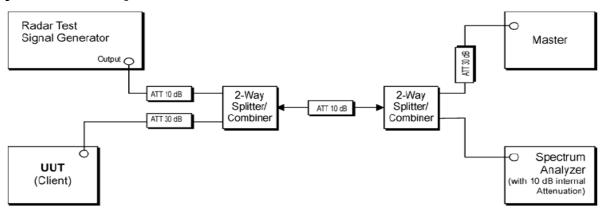
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## **15.2.2.Test Setup**

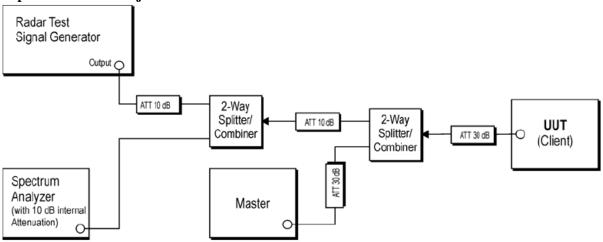
## Setup for Master with injection at the Master



## Setup for Client with injection at the Master



## Setup for Client with injection at the Client



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## 15.2.3. Test Equipment Used:

Conducted Emission Test Site								
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.			
Spectrum Analyzer	Agilent	E4446A	MY43360126	04/19/2008	04/18/2010			
Spectrum Analyzer	Agilent	E4440A	MY45304525	01/23/2009	01/22/2011			
DC Block	Agilent	BLK-18	155452	07/05/2009	07/04/2010			
Attenuator	Mini-Circuit	BW-S6W5	001	07/05/2009	07/04/2010			
Attenuator	Mini-Circuit	BW-S10W5	001	07/05/2009	07/04/2010			
Attenuator	Mini-Circuit	BW-S20W5	001	07/05/2009	07/04/2010			
Splitter	Mini-Circuit	ZFSC-2-10G	001	07/05/2009	07/04/2010			
Splitter	Mini-Circuit	ZFSC-2-10G	002	07/05/2009	07/04/2010			
Splitter	Agilent	POWER DI- VIDER	51818	07/05/2009	07/04/2010			
Splitter	Agilent	POWER DI- VIDER	51820	07/05/2009	07/04/2010			
Access point	CISCO	AIR-AP1252 G-A-K9	FTX122091Y2 FCC ID: LDK102062	N/A	N/A			
ESG VECTOR SIGNAL GENERATOR	Agilent	E4438C	MY45093613	N/A	N/A			



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## 15.2.4. Descriptoion of EUT:

EUT of operates over the 5250-5350MHz and 5470-5725MHz ranges.EUT is slave device it dose not have radar detection.EUT has a gain of 2.1dBi in the 5.8GHz Band.

The EUT utilizes the 802.11a architecture, with a nominal channel bandwidth of 20MHz

WLAN traffic is generated by streaming the mpeg file from the master to slave in full monitor video mode using the media player.

The rated output power of the master unit is >23dBm(EIRP).therefore the required interference threshold level is -64dBm.after correction for antenna gain and procedural adjustments, the required conducted threshold at the antenna port is -64+6=-58, the maste FCC ID: LDK102061

## 15.2.5. Test results

N/A. Refer to Elliott Laboratories. EMC Department DFS module report Number: R74895 Rev 1