

Report No.: ER/2009/C0018-05

**Issue Date: Jun. 21, 2012** 

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## ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

## INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 15 SUBPART C REQUIREMENT

OF

**Product Name:** High Power Wireless-300N 600mW USB

Adapter

**Brand Name:** N/A

**UA600** Model No.:

**Model Different:** N/A

**FCC ID: ZTT-UA600** 

**Report No.:** ER/2009/C0018-05

**Issue Date:** Jun. 21, 2012

**FCC Rule Part:** §15.247, DTS

**Prepared for: Amped Wireless** 

13089 Peyton Dr. #C307, Chino Hills

California 91709 United States

Prepared by: SGS Taiwan Ltd.

**Electronics & Communication Laboratory** 

No. 134, Wu Kung Rd., Wuku Industrial

Zone, Taipei County, Taiwan.





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## VERIFICATION OF COMPLIANCE

**Applicant:** Amped Wireless

13089 Peyton Dr. #C307, Chino Hills California 91709 United States

**Product Name:** High Power Wireless-300N 600mW USB Adapter

**Brand Name:** N/A

FCC ID: ZTT-UA600

Model No.: UA600

**Model Difference:** N/A

**File Number:** EH/2009/C0018-05

**Date of test:** Dec. 21, 2009 ~ Jan. 22, 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 15.247.

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

Test By:	Jazz Huang	Date:	Jun. 21, 2012	
Prepared By:	Jazz Huang / Engineer Judy Hfu	Date:	Jun. 21, 2012	
Approved By:	Judy Hsu / Clerk  Jim Chang / Supervisor	Date:	Jun. 21, 2012	

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## Version

Version No.	Date	Description
00	Jun. 21, 2012	Initial creation of document

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### **GENERAL INFORMATION**

## 1.1 Product Description

## General:

General.	·
Product Name:	High Power Wireless-300N 600mW USB Adapter
Brand Name:	N/A
Model No.:	UA600
Model Difference:	N/A
Power Supply	5Vdc by USB Data Cable

#### WLAN:

Frequency Range & Channel number:	802.11 b/g: 2412 – 2462 MHz, 11 channels 802.11 n_20MHz: 2412 – 2462 MHz, 11 channels 802.11 n_40MHz: 2422 – 2452 MHz, 9 channels		
Rated Power:	802.11 b: 16.96 dBm 802.11 g: 15.08 dBm 802.11 n_20MHz: 13.89 dBm 802.11 n_40MHz: 14.03 dBm		
Modulation type:	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM		
Transmission Rate:	802.11 b: 1/2/5.5/11 Mbps; 802.11 g: 6/9/12/18/24/36/48/54 Mbps 802.11 n_20MHz: 6.5 – 135Mbps 802.11 n_40MHz: 13.5 - 300Mbps		
Hardware version	N/A		
Software version	N/A		
Antenna Designation:	Main: Dipole Antenna type Gain: 5.05 dBi Aux: Printed Antenna type (RX only) Gain: 1.2dB		

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

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

This submittal(s) (test report) is intended for **FCC ID: <u>ZTT-UA600</u>** filing to comply with Section 15.247 of the FCC Part 15, Subpart E Rules.

#### 1.3 Test Methodology

Both conducted and radiated testing were performed according to the procedures in ANSI C63.4 (2003): 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 requirements in Section 8 and 13 of ANSI C63.4-2003.

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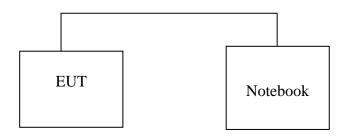
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## **Configuration of Tested System**

Fig. 2-1 AC Power line and Radiated Emission Configuration



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

Item	Equipment	Mfr/Brand	Model/ Type No.	Series No.	Data Cable	Power Cord
1.	Notebook	IBM	T43	L3LHHN6	Un-shielded	shielded

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### SUMMARY OF TEST RESULTS

FCC Rules	Description Of Test	Result
§15.207(a)	AC Power Line Conducted Emission	Compliant
§15.247(b)	Peak Output Power	Compliant
§15.247(b)	6dB Bandwidth	Compliant
§15.247(c)	100 KHz Bandwidth of	Compliant
§13.247(c)	Frequency Band Edges	Compliant
§15.247(c)	TX Spurious Emission	Compliant
§15.247	Peak Power Density	Compliant
§15.203	Antenna Requirement	Compliant

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#### 4 DESCRIPTION OF TEST MODES

The EUT has been tested under operating condition.

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

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

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

802.11 n\_20MHz: Lowest (2412MHz), Mid (2437MHz) and high (2462MHz) with 6.5 Mbps highest data rate are chosen for above testing.

802.11 n\_40MHz: Lowest (2422MHz), Mid(2437MHz) and high (2452MHz) with 13.5 Mbps highest data rate are chosen for above testing.

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## CONDUCTED EMISSION TEST

#### **5.1 Standard Applicable:**

According to §15.207, 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

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

#### 5.2 **Measurement Equipment Used:**

	AC Power	Line Conducted E	mission Test S	ite	
EQUIPMENT	MFR	MODEL	SERIAL	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-50/250-25-2-01	04034	02/02/2009	02/01/2010
Coaxial Cables	N/A	WK CE Cable	N/A	10/30/2009	10/29/2010

#### 5.3 **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 EUT was placed flushed with the rear of the table.
- 3. The LISN was connected with 120Vac/60Hz power source.

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#### 5.4 **Measurement Procedure:**

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

#### **Measurement Result:** 5.5

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

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

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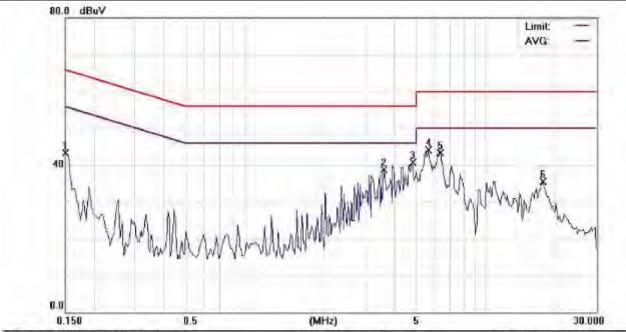
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### AC POWER LINE CONDUCTED EMISSION TEST DATA

Operation Mode:	OPERTION			Test Date:	Jan. 20, 2010
Temperature:	25 ℃	Humidity:	62%	Test By:	Jazz



Site SGS CONDUCTED #1

Phase: L1 Temperature 25 0

Limit: FCC Class B Conduction(QP)

AC 120V/60Hz Power.

Humidity:

EUT: High Power Wireless-300N 600mW USB Adapter Distance:

Air Pressure hpa

M/N: UA600 Note: OPERTION

No.	Mk.	Freq.	Reading Level	Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1500	42.95	0.45	43,40	66.00	-22.60	peak	
2		3,6200	37,78	0.95	38.73	56.00	-17.27	peak	
3		4.8000	39.70	1.00	40,70	56.00	-15.30	peak	
4		5.6400	43.03	1.02	44.05	60.00	-15.95	peak	
5		6,3521	42.32	1.04	43.36	60.00	-16.64	peak	
6		17.6800	34.34	1.22	35.56	60.00	-24.44	peak	

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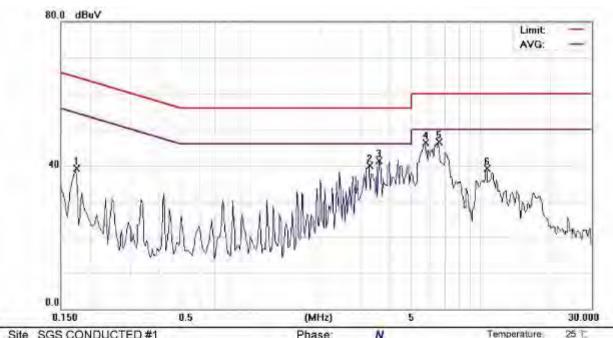
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Humidity:

Air Pressure



Site SGS CONDUCTED #1 Phase: AC 120V/60Hz Limit: FCC Class B Conduction(QP) Power.

EUT: High Power Wireless-300N 600mW USB Adapter Distance:

M/N: UA600 Note: OPERTION

No.	Mk.	Freq.	Reading Level	Factor	Measure- ment	Limit	Over			
	MHz	MHz dBuV dB	dB	dBuV	dBuV	dB	Detector	Comment		
1		0.1750	38.53	0.48	39.01	64.72	-25.71	peak		
2		3.2800	38.97	0.93	39.90	56.00	-16.10	peak		
3		3.6200	40.38	0.95	41.33	56.00	-14.67	peak		
4		5.7200	45.28	1.03	46.31	60.00	-13.69	peak		
5	*	6.5600	45.37	1.05	46.42	60.00	-13.58	peak		
6		10.6000	37.95	1.14	39.09	60.00	-20.91	peak		

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#### 6 OUTPUT POWER MEASUREMENT

## **6.1 Standard Applicable:**

According to §15.247(a)(2), (b)

- (3) For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.
- (4) The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
- (c) Operation with directional antenna gains greater than 6 dBi.
- (1) Fixed point-to-point operation:
- (i) Systems operating in the 2400-2483.5 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.
- (ii) Systems operating in the 5725-5850 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted output power.

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## **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	01/23/2010	01/22/2012		
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		

#### **Measurement Procedure:** 6.3

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the power meter or spectrum. (Channel power function, RBW=1MHz, VBW = 3MHz,Bandwidth=26dB occupied Bandwidth)
- 3. Record the max. reading.
- 4. Repeat above procedures until all frequency measured were complete.

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#### 6.4 **Measurement Result:**

802.11b

Frequency (MHz)	Reading Power (dBm)	Cable Loss	Output Power (dBm)	Output Power (W)	Limit (W)
2412.00	16.96	0.00	16.96	0.04966	1
2437.00	16.88	0.00	16.88	0.04875	1
2462.00	16.80	0.00	16.80	0.04786	1

802.11g

Frequency (MHz)	Reading Power (dBm)	Cable Loss	Output Power (dBm)	Output Power (W)	Limit (W)
2412.00	15.02	0.00	15.02	0.03177	1
2437.00	14.83	0.00	14.83	0.03041	1
2462.00	15.08	0.00	15.08	0.03221	1

802.11n\_20M

Frequency (MHz)	Reading Power (dBm)	Cable Loss	Output Power (dBm)	Output Power (W)	Limit (W)
2412.00	13.89	0.00	13.89	0.02449	1
2437.00	13.87	0.00	13.87	0.02438	1
2462.00	13.74	0.00	13.74	0.02366	1

802.11n\_40M

Frequency (MHz)	Reading Power (dBm)	Cable Loss	Output Power (dBm)	Output Power (W)	Limit (W)
2422.00	13.92	0.00	13.92	0.02466	1
2437.00	13.93	0.00	13.93	0.02472	1
2452.00	14.03	0.00	14.03	0.02529	1

offset: 0.2dB

Note: Refer to next page for plots.

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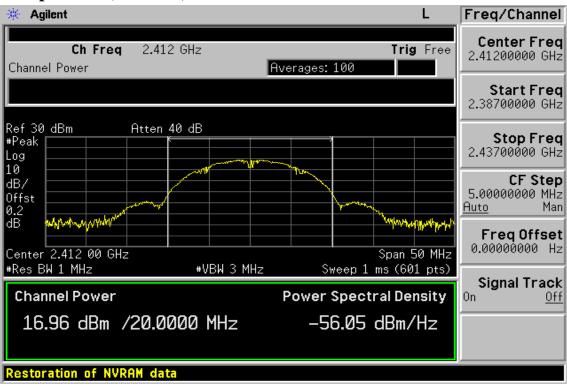
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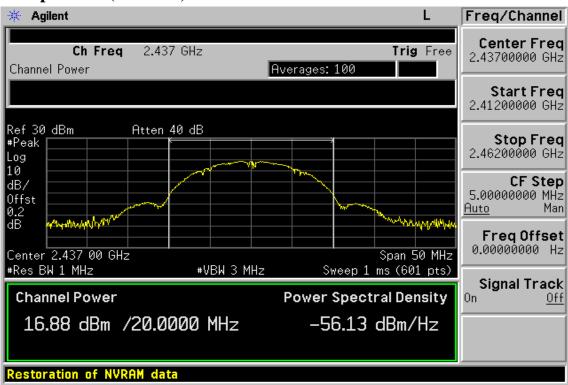
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## 802.11b, 1Mbps

## **Power Output Plot (CH Low)**



## **Power Output Plot (CH Mid)**



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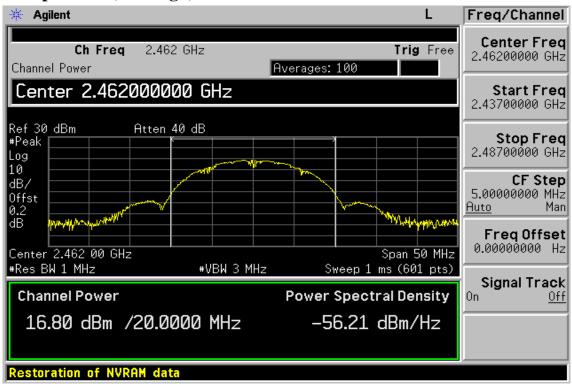


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## **Power Output Plot (CH High)**



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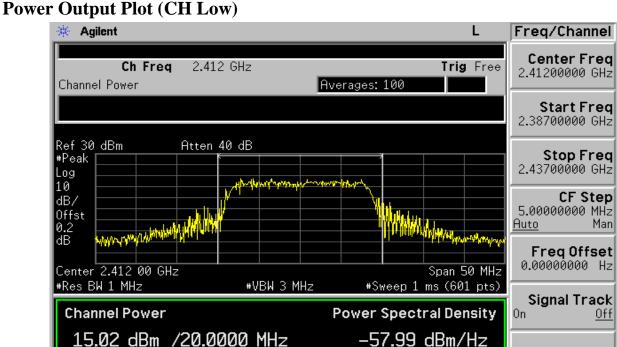


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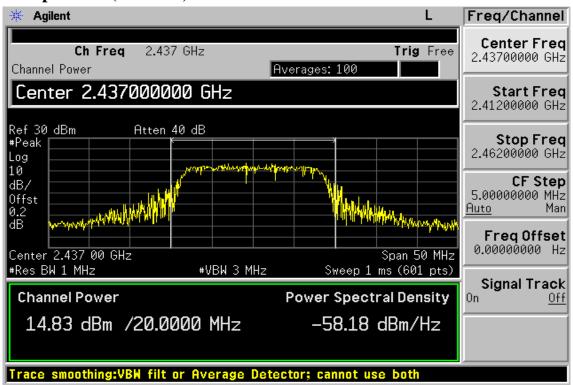
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# 802.11g, 6Mbps



## **Power Output Plot (CH Mid)**

Restoration of NVRAM data



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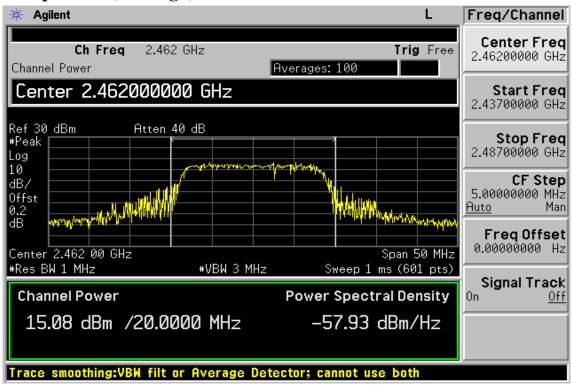


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## **Power Output Plot (CH High)**



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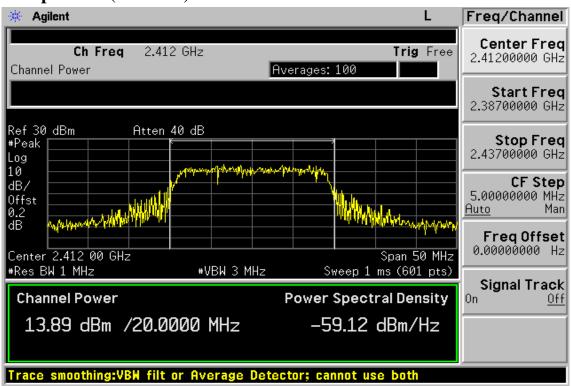


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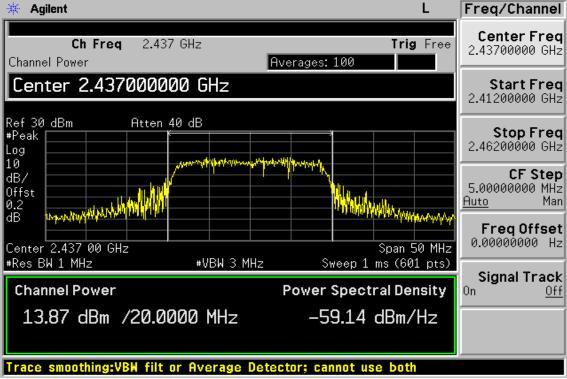
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## 802.11n\_20M, 6.5Mbps **Power Output Plot (CH Low)**



## **Power Output Plot (CH Mid)**



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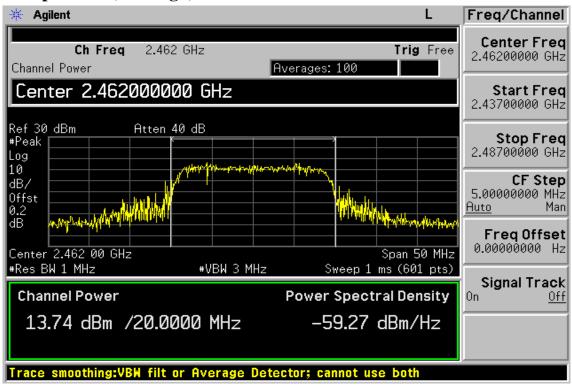


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## **Power Output Plot (CH High)**



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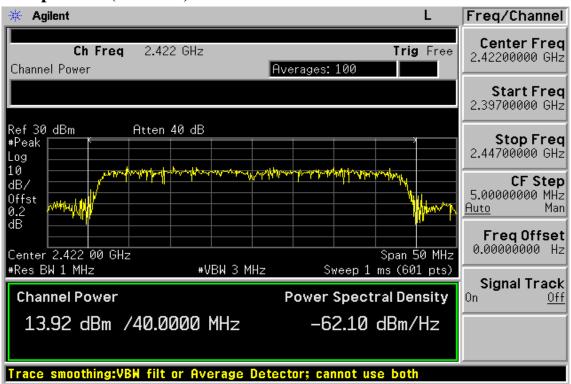


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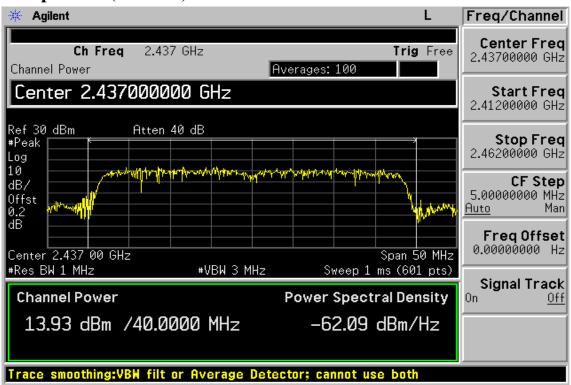
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## 802.11n\_40M, 13.5Mbps **Power Output Plot (CH Low)**



## **Power Output Plot (CH Mid)**



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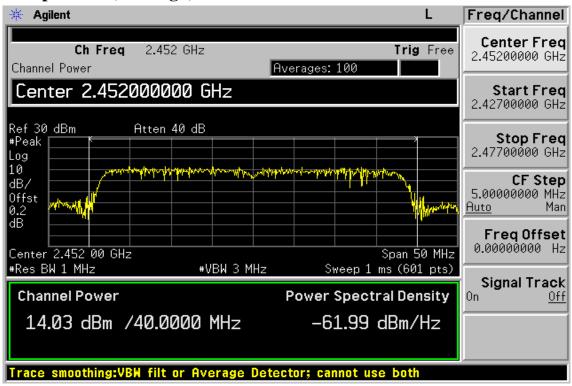


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## **Power Output Plot (CH High)**



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#### 7 6dB Bandwidth

## 7.1 Standard Applicable:

According to §15.247(a)(2), Systems using digital modulation techniques may operate in the 902 - 928 MHz,2400 - 2483.5 MHz, and 5725 - 5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500kHz.

## 7.2 Measurement Equipment Used:

Refer to section 6.2 for details.

## 7.3 Test Set-up:

Refer to section 6.3 for details.

#### 7.4 Measurement Procedure:

- 1.Place the EUT on the table and set it in transmitting mode.
- 2.Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
- 3.Set the spectrum analyzer as RBW=100KHz, VBW = RBW, Span= 50MHz, Sweep=auto
- 4. Mark the peak frequency and –6dB (upper and lower) frequency.
- 5. Repeat above procedures until all frequency measured were complete.

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#### 7.5 **Measurement Result:**

#### 802.11b

Frequency (MHz)	Bandwidth (MHz)	Bandwidth (KHz)	Result
2412	10.118	> 500	PASS
2437	10.085	> 500	PASS
2462	10.109	> 500	PASS

#### 802.11g

Frequency (MHz)	Bandwidth (MHz)	Bandwidth (KHz)	Result
2412	16.594	> 500	PASS
2437	16.581	> 500	PASS
2462	16.551	> 500	PASS

### 802.11n 20M

<del>-</del>			
Frequency (MHz)	Bandwidth (MHz)	Bandwidth (KHz)	Result
2412	17.728	> 500	PASS
2437	17.778	> 500	PASS
2462	17.762	> 500	PASS

#### 802.11n 40M

_			
Frequency (MHz)	Bandwidth (MHz)	Bandwidth (KHz)	Result
2422	36.428	> 500	PASS
2437	36.450	> 500	PASS
2452	36.434	> 500	PASS

Note: Refer to next page for plots.

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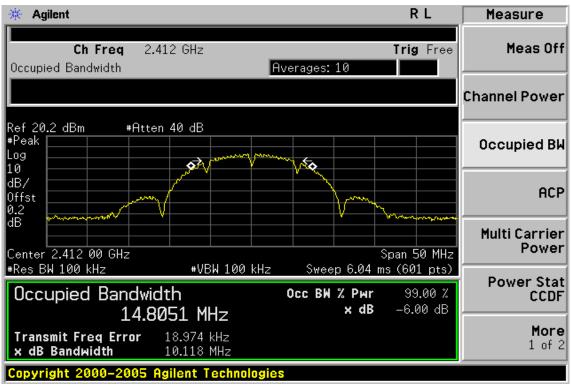


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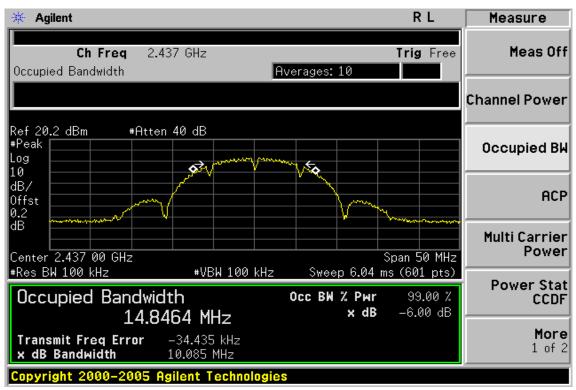
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802.11b 6dB Band Width Test Data CH-Low



#### 6dB Band Width Test Data CH-Mid



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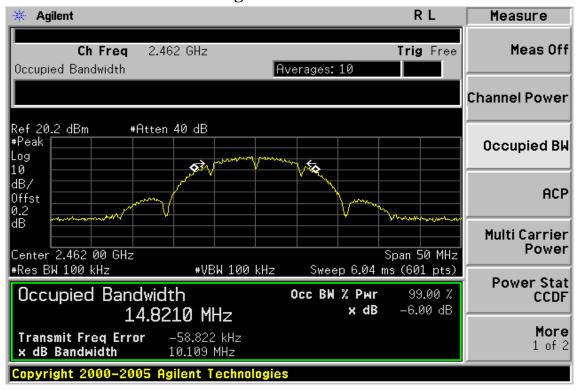


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## 6dB Band Width Test Data CH-High



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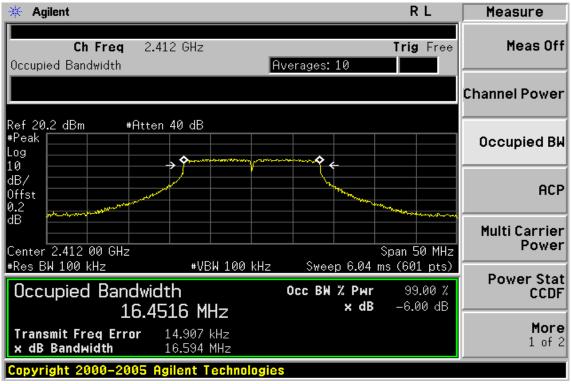


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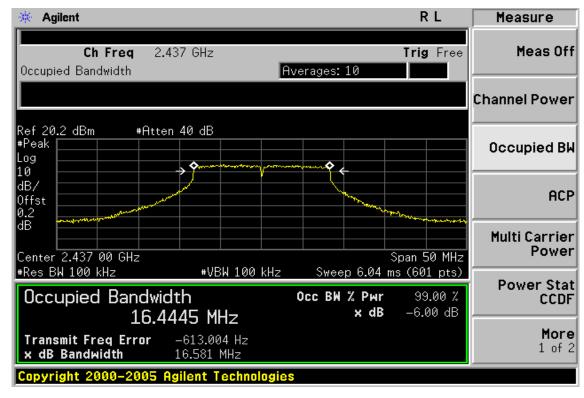
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802.11g 6dB Band Width Test Data CH-Low



#### 6dB Band Width Test Data CH-Mid



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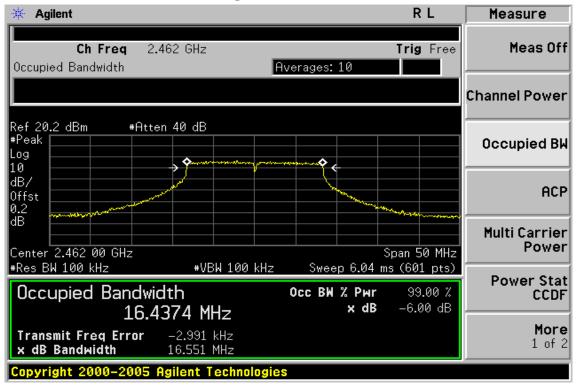


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## 6dB Band Width Test Data CH-High



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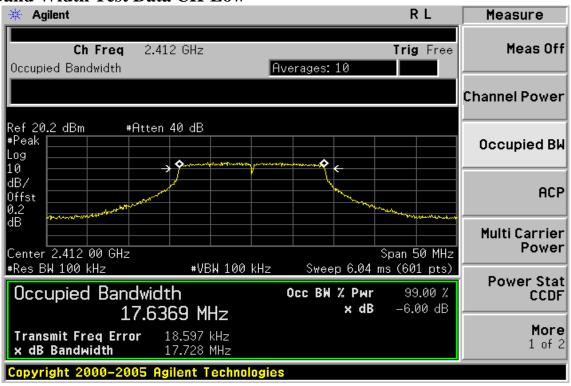


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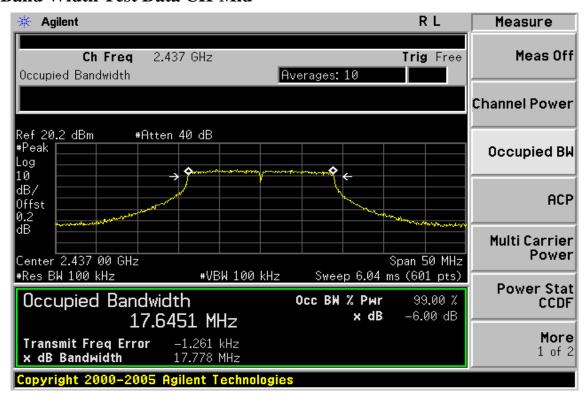
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## 802.11n 20M 6dB Band Width Test Data CH-Low



#### 6dB Band Width Test Data CH-Mid



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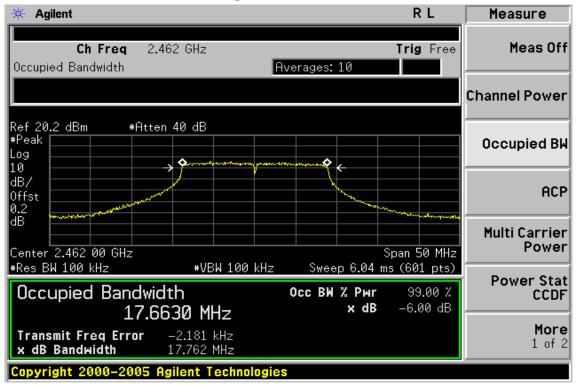


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## 6dB Band Width Test Data CH-High



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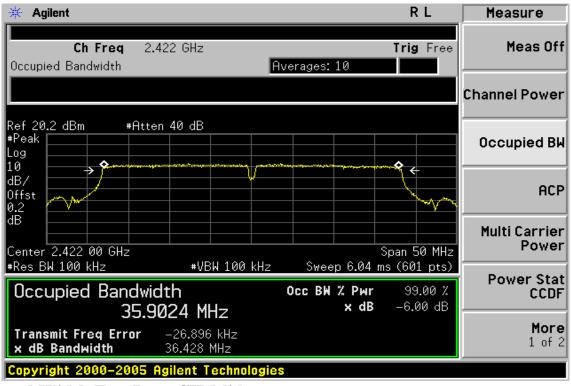


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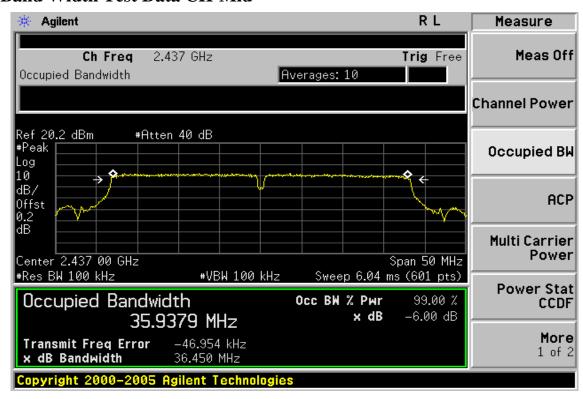
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## 802.11n 40M 6dB Band Width Test Data CH-Low



#### 6dB Band Width Test Data CH-Mid



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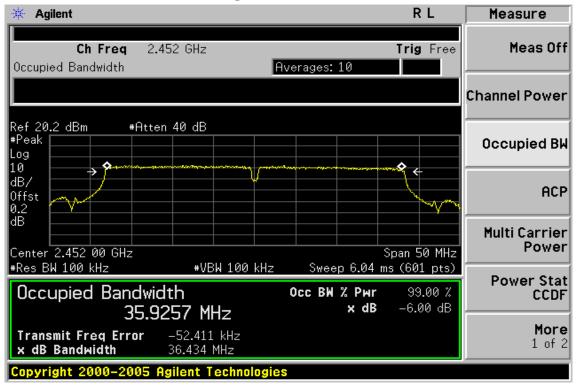


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## 6dB Band Width Test Data CH-High



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## 8 100KHz BANDWIDTH OF BAND EDGES MEASUREMENT

## 8.1 Standard Applicable:

According to §15.247(c), in any 100 KHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100KHz bandwidth within the band that contains the highest level of the desired power, In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in15.209(a).

## 8.2 Measurement Equipment Used:

## 8.2.1 Conducted Emission at antenna port:

Refer to section 6.2 for details.

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#### 8.2.2 **Radiated emission:**

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						
Spectrum Analyzer	Agilent	E4446A	MY43360126	04/19/2008	04/18/2010						
Bilog Antenna	SCHWAZBECK	VULB9160	9160-3136	11/15/2009	11/14/2010						
Horn antenna	SCHWAZBECK	BBHA 9120D	9120D-673	05/09/2008	05/08/2010						
Pre-Amplifier	Agilent	8447D	1937A02834	11/30/2008	11/29/2009						
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	HD	HD100	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	11/08/2009	11/09/2010						

#### 8.3 **Test SET-UP:**

#### 8.3.1 **Conducted Emission at antenna port:**

Refer to section 6.3 for details.

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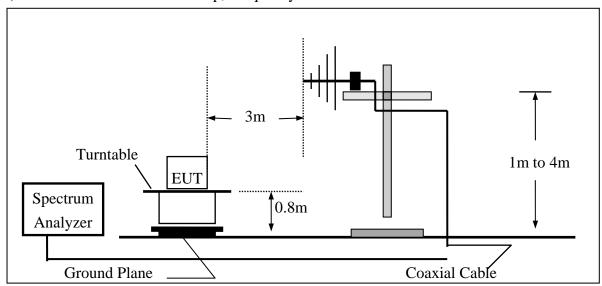
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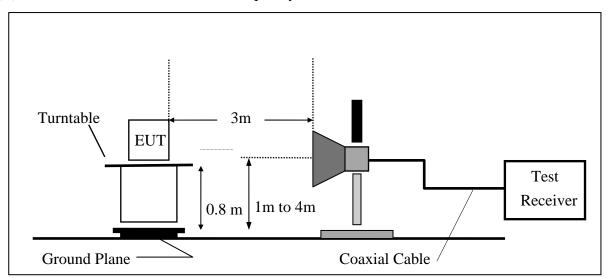
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#### **8.3.2** Radiated emission:

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



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



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#### **Measurement Procedure:**

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
- 3. Set center frequency of spectrum analyzer = operating frequency.
- 4. Set the spectrum analyzer as RBW, VBW=100KHz, Span=50MHz, Sweep = auto
- 5. Mark Peak, 2.390GHz and 2.4835GHz and record the max. level.
- 6. Repeat above procedures until all frequency measured were complete.

#### **Field Strength Calculation:** 8.5

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	

## **Measurement Result:**

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

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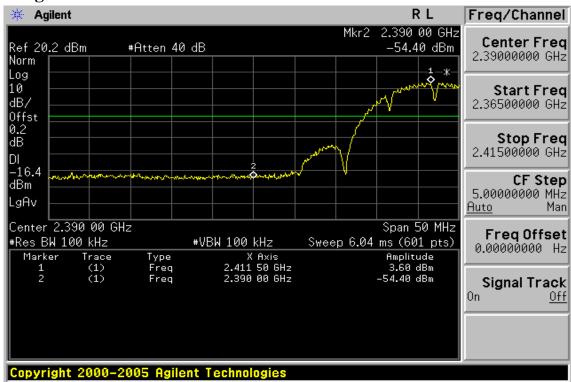


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802.11b **Band Edges Test Data CH-Low** 



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



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Radiated Emission: 802.11 b mode

TX CH Low Operation Mode Test Date Jan. 20, 2010

Fundamental Frequency 2412 MHz Test By Jazz Temperature 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)	(dB uV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
2390.00	53.31		-1.39	51.92		74.00	54.00	-2.08	Peak

Operation Mode TX CH Low Test Date Jan. 20, 2010

Fundamental Frequency 2412 MHz Test By Jazz Temperature Pol Hor. 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)	(dB uV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
2390.00	52.70		-1.39	51.31		74.00	54.00	-2.69	Peak

#### 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.
- (2) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- (3) Spectrum Peak Setting: 1GHz- 40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- (4) Spectrum AV Setting: 1GHz- 40GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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Radiated Emission: 802.11 b mode

Operation Mode TX CH High Test Date Jan. 20, 2010

Fundamental Frequency 2462 MHz Test By Jazz Temperature 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)	(dB uV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
2483.56	58.20	48.25	-0.92	57.28	47.33	74.00	54.00	-6.67	AV

Operation Mode TX CH High Test Date Jan. 20, 2010

Fundamental Frequency 2462 MHz Test By Jazz Temperature Pol Hor. 25 °C

Humidity 65 %

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{A}\mathbf{V}$		
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)	
		, ,	` ,	` ,	` ,				

#### 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.
- (2) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- (3) Spectrum Peak Setting: 1GHz- 40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- (4) Spectrum AV Setting: 1GHz-40GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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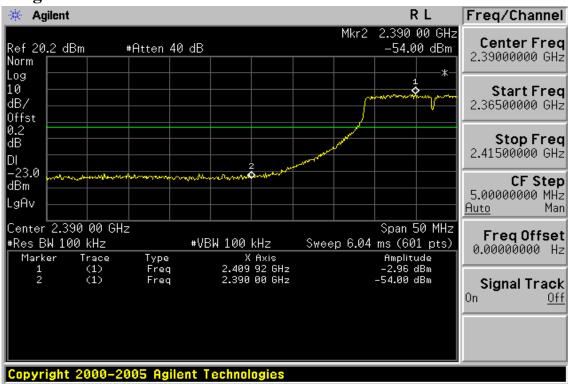


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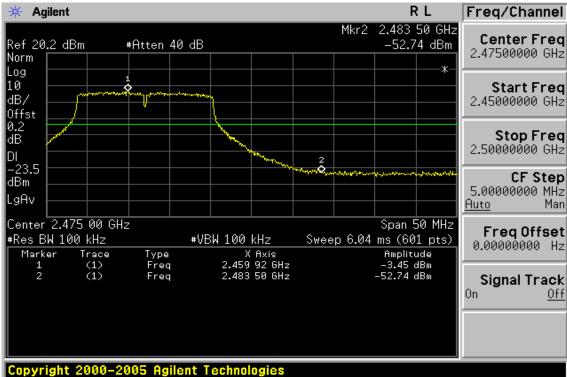
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802.11g **Band Edges Test Data CH-Low** 



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



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Radiated Emission: 802.11 g mode

Operation Mode TX CH Low Test Date Jan. 20, 2010

Fundamental Frequency 2412 MHz Test By Jazz Temperature 25 °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	Remark
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dB uV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m	( <b>dB</b> )	
2390.00	53.67		-1.39	52.28		74.00	54.00	-1.72	Peak
Operation 1	Mode	TX C	H Low			Test	Date J	an. 20, 20	10
Fundament	tal Frequer	ncy 2412	MHz			Test	By J	azz	
Temperatu	re	25 ℃				Pol	I	lor.	
Humidity		65 %							

Peak AVActual FS Peak AVReading Reading Ant./CL **Peak**  $\mathbf{AV}$ Margin Remark Freq. Limit Limit (MHz)(dBuV) (dBuV) CF(dB) (dBuV/m) (dBuV/m) (dBuV/m)(dB)-1.39 2390.00 52.66 51.27 74.00 54.00 -2.73Peak

#### Remark:

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

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Radiated Emission: 802.11 g mode

Operation Mode TX CH High Test Date Jan. 20, 2010

Fundamental Frequency 2462 MHz Test By Jazz Temperature 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)	(dB uV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
2483.56	58.35	46.63	-0.92	57.43	45.71	74.00	54.00	-8.29	AV

Operation Mode TX CH High Test Date Jan. 20, 2010

Fundamental Frequency 2462 MHz Test By Jazz Temperature Pol Hor. 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)	(dB uV/m)	(dBuV/m	)(dBuV/m	)(dBuV/m	( <b>dB</b> )	
2483.56	54.16	44.13	-0.92	53.24	43.21	74.00	54.00	-10.79	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.
- (2) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- (3) Spectrum Peak Setting: 1GHz- 40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- (4) Spectrum AV Setting: 1GHz- 40GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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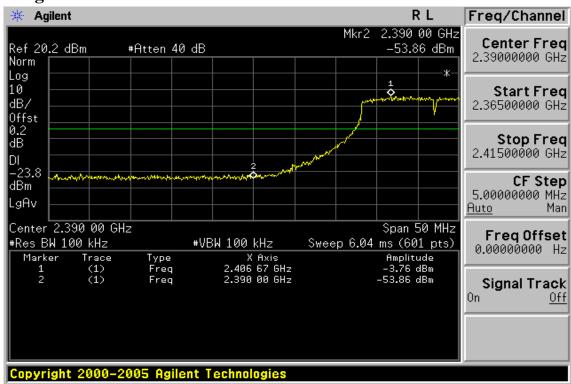
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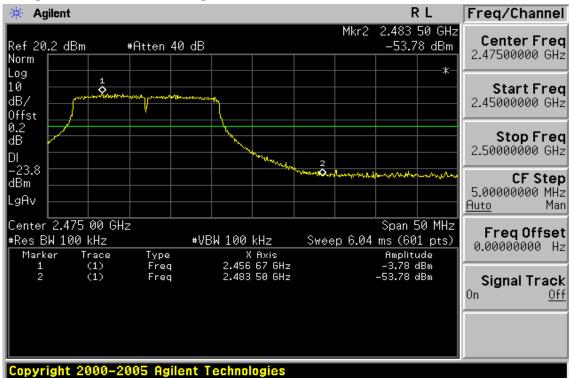
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## 802.11n 20M

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



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



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Radiated Emission: 802.11 n 20M mode

TX CH Low Operation Mode Test Date Jan. 20, 2010

Fundamental Frequency 2412 MHz Test By Jazz Temperature 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)	(dB uV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m	( <b>dB</b> )	
2390.00	55.46	43.54	-1.39	54.07	42.15	74.00	54.00	-11.85	AV
Operation 1	Mode	TX C	H Low			Test	Date J	Jan. 20, 20	10
Fundament	tal Frequer	ncy 2412	MHz			Test	By J	lazz –	
Temperatu	re	25 ℃				Pol	]	Hor.	
Humidity		65 %							

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{A}\mathbf{V}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	Remark
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dB uV/m)	(dBuV/m	)(dBuV/m)	(dBuV/m)	(dB)	
2390.00	52.82		-1.39	51.43		74.00	54.00	-2.57	Peak

#### 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.
- (2) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- (3) Spectrum Peak Setting: 1GHz- 40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- (4) Spectrum AV Setting: 1GHz- 40GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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Radiated Emission: 802.11 n 20M mode

Operation Mode TX CH High Test Date Jan. 20, 2010

Fundamental Frequency 2462 MHz Test By Jazz Temperature 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)	(dB uV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
2483.56	56.31	44.17	-0.92	55.39	43.25	74.00	54.00	-10.75	ΑV

Operation Mode TX CH High Test Date Jan. 20, 2010

Fundamental Frequency 2462 MHz Test By Jazz Temperature Pol Hor. 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)	(dB uV/m)	(dBuV/m	)(dBuV/m	)(dBuV/m	( <b>dB</b> )	
2483.56	54.16	43.16	-0.92	53.24	42.24	74.00	54.00	-11.76	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.
- (2) Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- (3) Spectrum Peak Setting: 1GHz- 40GHz, RBW= 1MHz, VBW= 3MHz, Sweep time= 200 ms.
- (4) Spectrum AV Setting: 1GHz- 40GHz, RBW= 1MHz, VBW= 10Hz, Sweep time= 200 ms.

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# 802.11n 40M

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



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



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Radiated Emission: 802.11 n 40M mode

Operation Mode TX CH Low Test Date Jan. 20, 2010

Fundamental Frequency 2422 MHz Test By Jazz Temperature 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)	(dB uV/m)	(dBuV/m)	)(dBuV/m)	(dBuV/m	( <b>dB</b> )	
2390.00	55.68	44.80	-1.39	54.29	43.41	74.00	54.00	-10.59	AV

Operation Mode TX CH Low Test Date Jan. 20, 2010

Fundamental Frequency 2442 MHz Test By Jazz Temperature Pol Hor. 25 ℃

Humidity 65 %

	Peak	$\mathbf{AV}$		Actu	ıal FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	Remark
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dB uV/m)	(dBuV/m)	(dBuV/m	)(dBuV/m)	(dB)	
2390.00	53.00		-1.39	51.61		74.00	54.00	-2.39	Peak

### 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: 802.11 n 40M mode

Operation Mode TX CH High Test Date Jan. 20, 2010

Fundamental Frequency 2452 MHz Test By Jazz Temperature 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)	(dB uV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
2483.56	65.65	46.36	-0.92	64.73	45.44	74.00	54.00	-8.56	AV

TX CH High Operation Mode Test Date Jan. 20, 2010

Test By Fundamental Frequency 2452 MHz Jazz Temperature Pol Hor. 25 °C

Humidity 65 %

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{A}\mathbf{V}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	Remark
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dB uV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
2483.56	54.21	44.12	-0.92	53.29	43.20	74.00	54.00	-10.80	AV

#### Remark:

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

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## SPURIOUS RADIATED EMISSION TEST

#### 9.1 **Standard Applicable**

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

## **Measurement Equipment Used:**

### 9.2.1. Conducted Emission at antenna port:

Refer to section 6.2 for details.

#### 9.2.2. Radiated emission:

Refer to section 8.2 for details.

#### 9.3 **Test SET-UP:**

## 9.3.1. Conducted Emission at antenna port:

Refer to section 6.3 for details.

#### 9.3.2. Radiated emission:

Refer to section 8.3 for details.

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#### 9.4 Measurement Procedure:

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

## 9.5 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	

## 9.6 Measurement Result:

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

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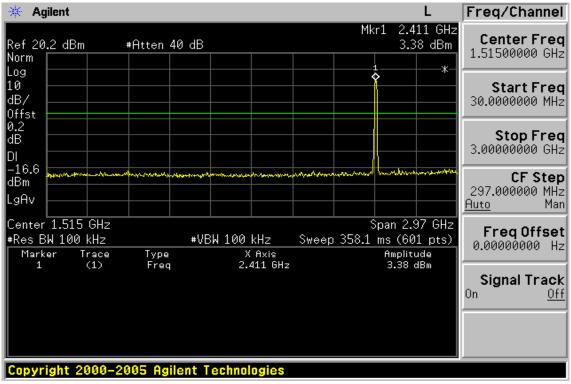


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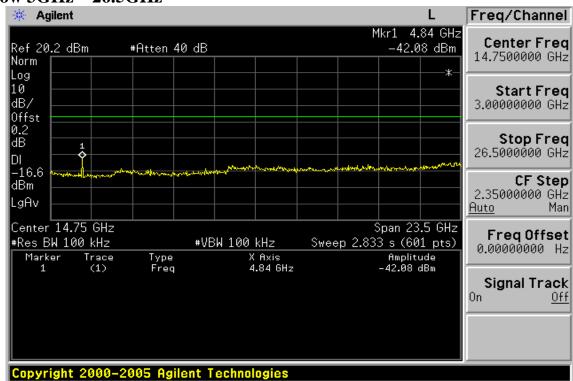
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# **Conducted Spurious Emission Measurement Result (802.11b)** Ch Low 30MHz - 3GHz



## Ch Low 3GHz – 26.5GHz



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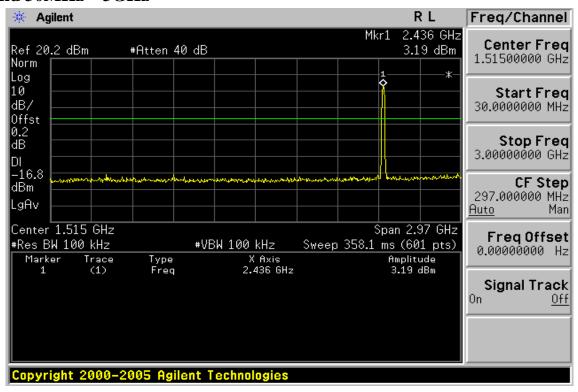


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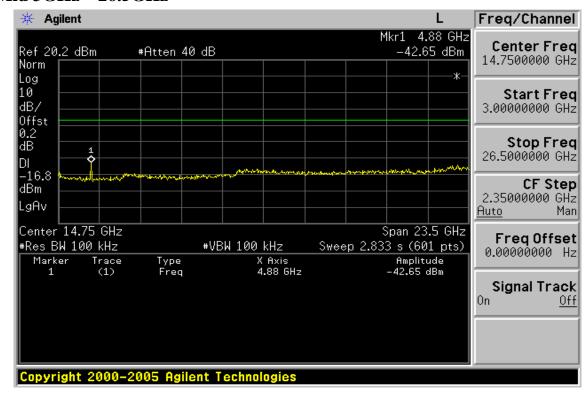
**Issue Date: Jun. 21, 2012** 

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### Ch Mid 30MHz - 3GHz



#### **Ch Mid 3GHz – 26.5GHz**



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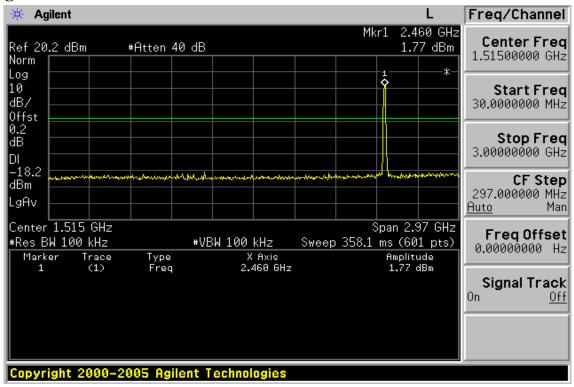


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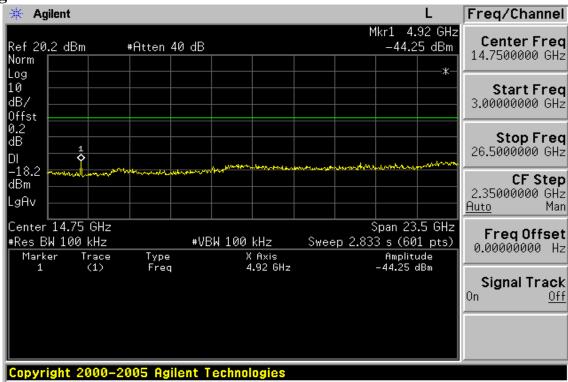
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# Ch High 30MHz - 3GHz



## Ch High 3GHz – 26.5GHz



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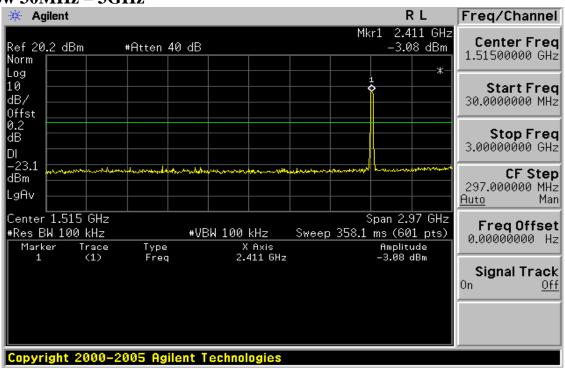


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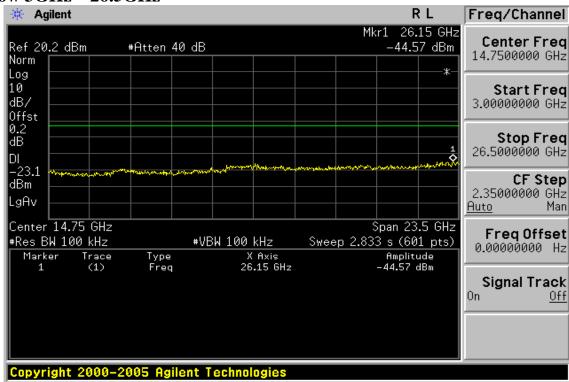
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# **Conducted Spurious Emission Measurement Result (802.11g)** Ch Low 30MHz - 3GHz



## Ch Low 3GHz - 26.5GHz



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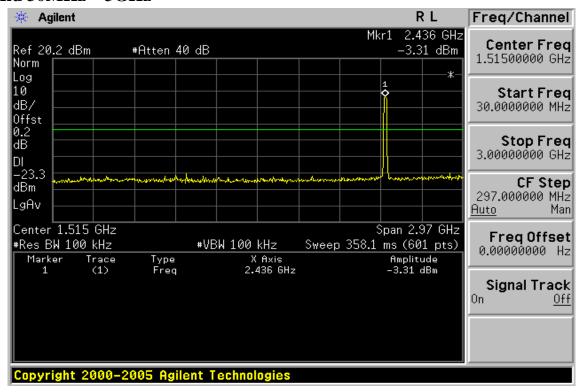


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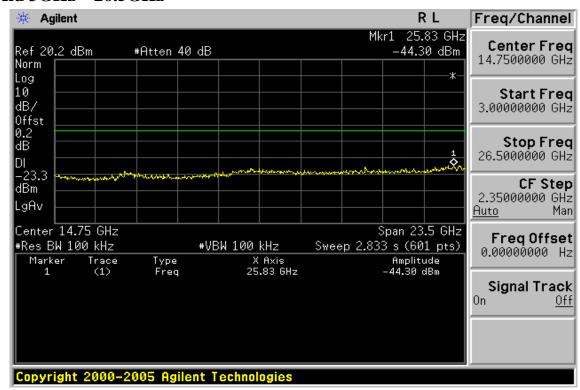
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### Ch Mid 30MHz - 3GHz



#### **Ch Mid 3GHz – 26.5GHz**



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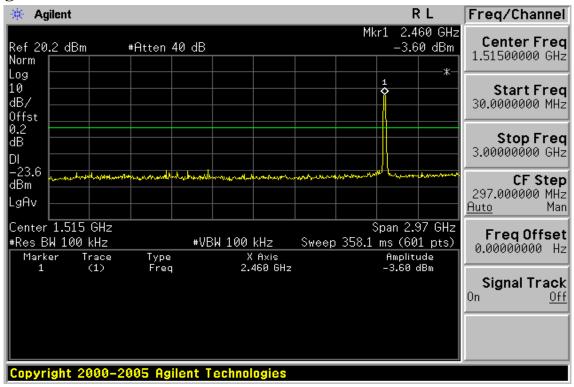


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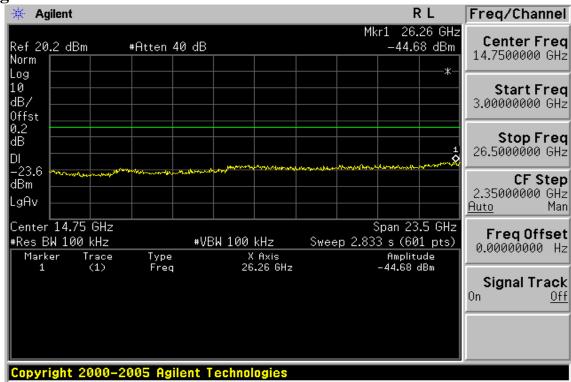
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# Ch High 30MHz - 3GHz



## Ch High 3GHz – 26.5GHz



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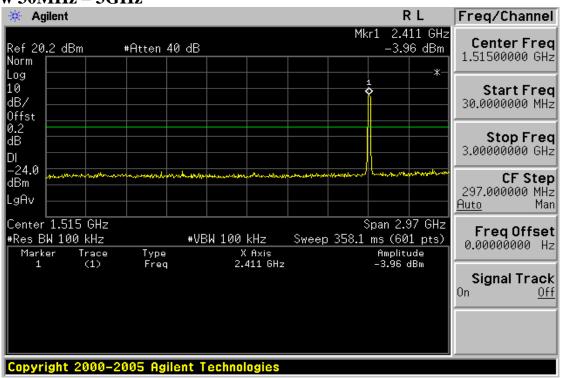


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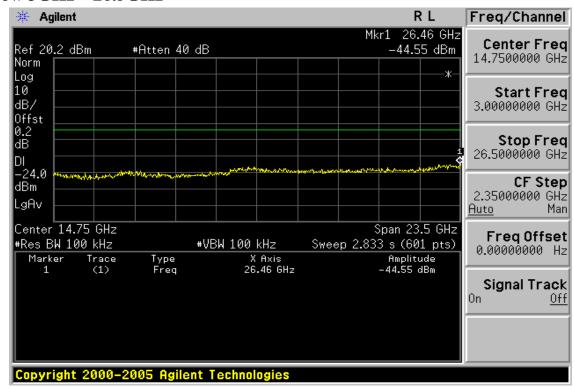
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# **Conducted Spurious Emission Measurement Result (802.11n\_20M)** Ch Low 30MHz - 3GHz



### Ch Low 3GHz – 26.5GHz



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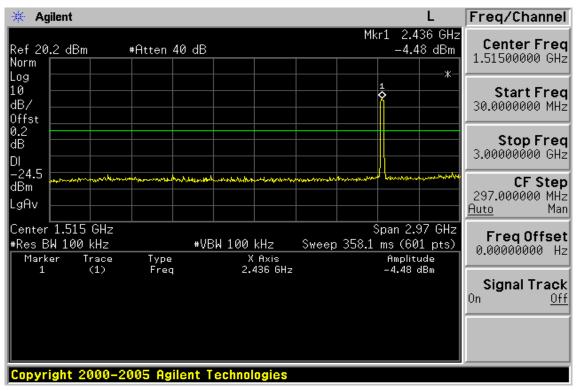


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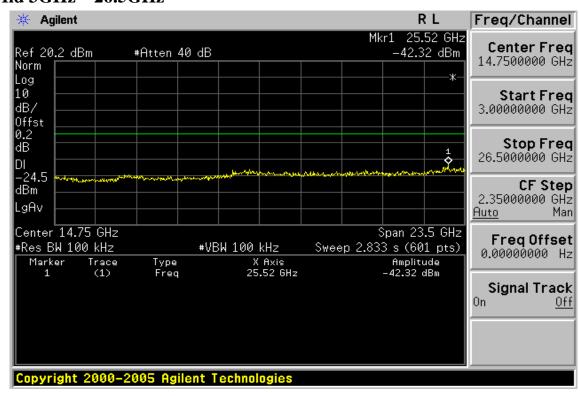
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## Ch Mid 30MHz - 3GHz



#### Ch Mid 3GHz – 26.5GHz



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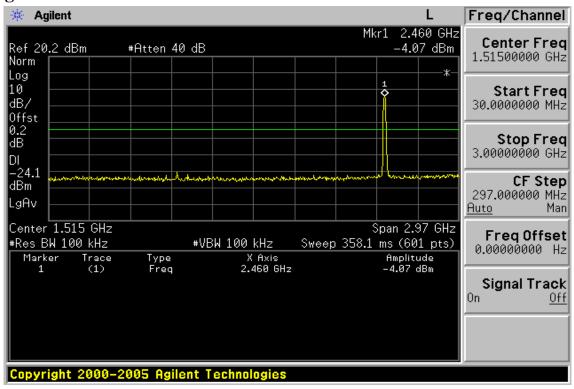


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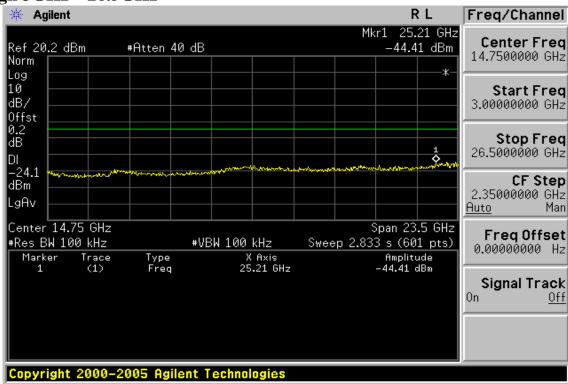
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## Ch High 30MHz - 3GHz



## Ch High 3GHz – 26.5GHz



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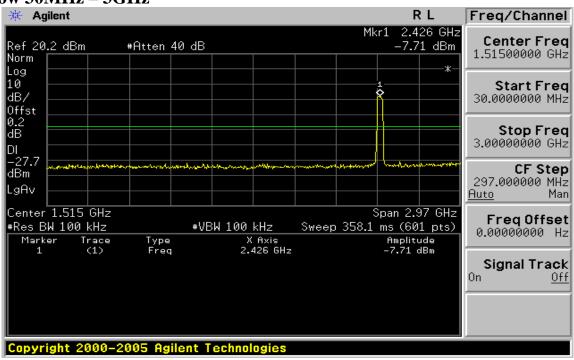


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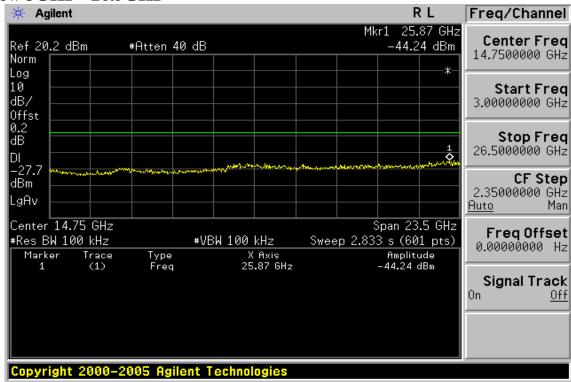
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# **Conducted Spurious Emission Measurement Result (802.11n\_40M)** Ch Low 30MHz - 3GHz



### Ch Low 3GHz – 26.5GHz



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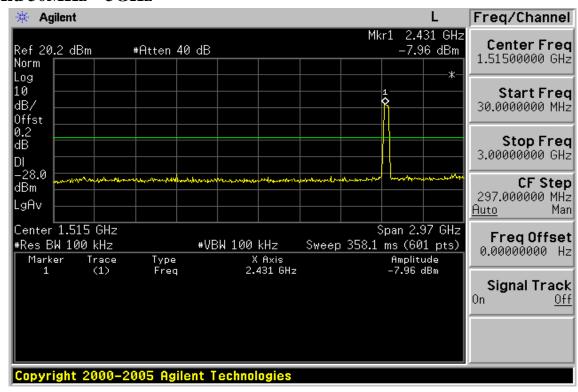


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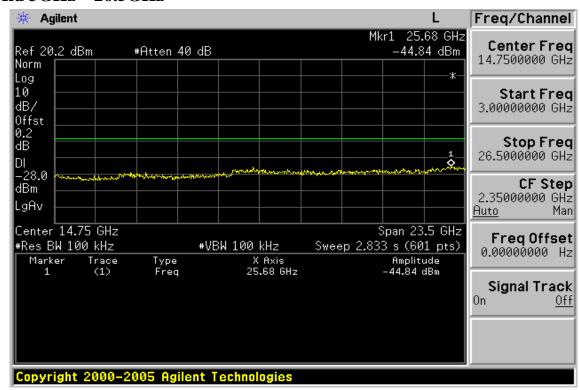
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### Ch Mid 30MHz - 3GHz



#### **Ch Mid 3GHz – 26.5GHz**



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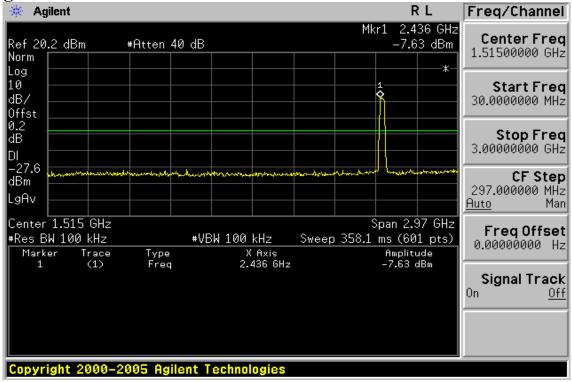


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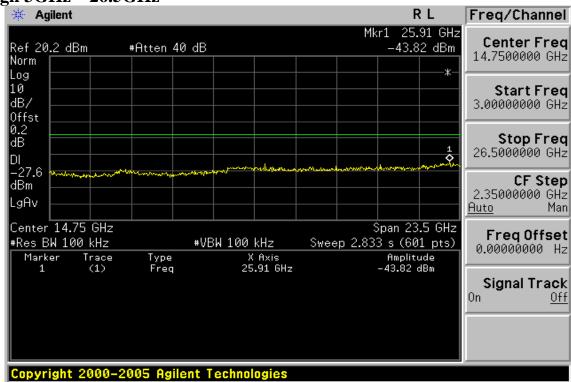
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## Ch High 30MHz – 3GHz



## Ch High 3GHz – 26.5GHz



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

Operation Mode 802.11b TX CH Low Test Date Jan. 20, 2010

Fundamental Frequency 2412MHz Test By Jazz Temperature Pol Ver./Hor 25 ℃

Humidity 65 %

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)
198.78	V	Peak	56.92	-31.30	25.62	43.50	-17.88
444.19	V	Peak	52.12	-25.15	26.97	46.00	-19.03
492.69	V	Peak	51.86	-24.86	27.00	46.00	-19.00
565.44	V	Peak	50.54	-23.46	27.08	46.00	-18.92
727.43	V	Peak	48.30	-20.94	27.36	46.00	-18.64
798.24	V	Peak	50.98	-20.21	30.77	46.00	-15.23
158.04	Н	Peak	49.27	-26.99	22.28	43.50	-21.22
261.83	Н	Peak	50.18	-29.61	20.57	46.00	-25.43
358.83	Н	Peak	53.68	-26.91	26.77	46.00	-19.23
400.54	Н	Peak	51.86	-26.04	25.82	46.00	-20.18
436.43	Н	Peak	48.92	-25.34	23.58	46.00	-22.42
798.24	Н	Peak	47.29	-20.21	27.08	46.00	-18.92
Remark:							

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

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

Operation Mode 802.11b TX CH Mid Test Date Jan. 20, 2010

Fundamental Frequency 2437MHz Test By Jazz Pol Ver./Hor Temperature 25 ℃

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)
198.78	V	Peak	56.44	-31.30	25.14	43.50	-18.36
358.83	V	Peak	53.56	-26.91	26.65	46.00	-19.35
439.34	V	Peak	51.72	-25.25	26.47	46.00	-19.53
565.44	V	Peak	50.53	-23.46	27.07	46.00	-18.93
727.43	V	Peak	49.27	-20.94	28.33	46.00	-17.67
798.24	V	Peak	51.05	-20.21	30.84	46.00	-15.16
195.78	Н	Peak	54.58	-31.30	23.28	43.50	-20.22
261.83	Н	Peak	54.58	-29.61	24.97	46.00	-21.03
358.83	Н	Peak	53.78	-26.91	26.87	46.00	-19.13
439.34	Н	Peak	52.31	-25.25	27.06	46.00	-18.94
480.08	Н	Peak	53.16	-24.94	28.22	46.00	-17.78
647.89	Н	Peak	45.56	-21.93	23.63	46.00	-22.37
795.33	Н	Peak	47.85	-20.22	27.63	46.00	-18.37

#### 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.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。

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

802.11b TX CH High Operation Mode Test Date Jan. 20, 2010

Fundamental Frequency 2462MHz Test By Jazz Temperature Pol Ver./Hor 25 °C

Humidity 65 %

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)
358.83	V	Peak	51.98	-26.91	25.07	46.00	-20.93
439.34	V	Peak	53.59	-25.25	28.34	46.00	-17.66
565.44	V	Peak	50.81	-23.46	27.35	46.00	-18.65
630.43	V	Peak	49.36	-22.28	27.08	46.00	-18.92
727.43	V	Peak	48.74	-20.94	27.80	46.00	-18.20
798.24	V	Peak	53.52	-20.21	33.31	46.00	-12.69
159.98	Н	Peak	51.52	-26.99	24.53	43.50	-18.97
198.78	Н	Peak	54.97	-31.30	23.67	43.50	-19.83
274.44	Н	Peak	61.13	-29.18	31.95	46.00	-14.05
358.83	Н	Peak	54.44	-26.91	27.53	46.00	-18.47
480.08	Н	Peak	52.04	-24.94	27.10	46.00	-18.90
798.24	Н	Peak	50.00	-20.21	29.79	46.00	-16.21
Remark:							

#### Remark :

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

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

802.11g TX CH Low Operation Mode Test Date Jan. 20, 2010

Fundamental Frequency 2412MHz Test By Jazz Temperature Pol Ver./Hor 25 °C

Humidity 65 %

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)
198.78	V	Peak	57.40	-31.30	26.10	43.50	-17.40
358.83	V	Peak	54.19	-26.91	27.28	46.00	-18.72
434.49	V	Peak	52.13	-25.24	26.89	46.00	-19.11
565.44	V	Peak	50.84	-23.46	27.38	46.00	-18.62
727.43	V	Peak	48.69	-20.94	27.75	46.00	-18.25
798.24	V	Peak	50.27	-20.21	30.06	46.00	-15.94
198.78	Н	Peak	56.10	-31.30	24.80	43.50	-18.70
261.83	Н	Peak	55.60	-29.61	25.99	46.00	-20.01
358.83	Н	Peak	56.46	-26.91	29.55	46.00	-16.45
436.43	Н	Peak	51.87	-25.34	26.53	46.00	-19.47
480.08	Н	Peak	50.87	-24.94	25.93	46.00	-20.07
798.24	Н	Peak	49.28	-20.21	29.07	46.00	-16.93

#### Remark:

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

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

802.11g TX CH Mid Operation Mode Test Date Jan. 20, 2010

Fundamental Frequency 2437MHz Test By Jazz Temperature Pol Ver./Hor 25 °C

Humidity 65 %

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)
198.78	V	Peak	55.59	-31.30	24.29	43.50	-19.21
358.83	V	Peak	54.24	-26.91	27.33	46.00	-18.67
436.43	V	Peak	52.61	-25.34	27.27	46.00	-18.73
565.44	V	Peak	50.78	-23.46	27.32	46.00	-18.68
727.43	V	Peak	48.56	-20.94	27.62	46.00	-18.38
798.24	V	Peak	51.44	-20.21	31.23	46.00	-14.77
261.83	Н	Peak	55.31	-29.61	25.70	46.00	-20.30
358.83	Н	Peak	57.04	-26.91	30.13	46.00	-15.87
431.58	Н	Peak	52.86	-25.29	27.57	46.00	-18.43
492.69	Н	Peak	51.43	-24.86	26.57	46.00	-19.43
798.24	Н	Peak	48.28	-20.21	28.07	46.00	-17.93
880.69	Н	Peak	48.73	-19.31	29.42	46.00	-16.58
Remark:							

#### Remark:

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

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

Operation Mode 802.11g TX CH High Test Date Jan. 20, 2010

Fundamental Frequency 2462MHz Test By Jazz Temperature Pol Ver./Hor 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)
358.83	V	Peak	54.46	-26.91	27.55	46.00	-18.45
434.49	V	Peak	53.75	-25.24	28.51	46.00	-17.49
565.44	V	Peak	51.43	-23.46	27.97	46.00	-18.03
630.43	V	Peak	49.12	-22.28	26.84	46.00	-19.16
727.43	V	Peak	49.08	-20.94	28.14	46.00	-17.86
798.24	V	Peak	51.05	-20.21	30.84	46.00	-15.16
261.83	Н	Peak	55.55	-29.61	25.94	46.00	-20.06
358.83	Н	Peak	56.90	-26.91	29.99	46.00	-16.01
436.43	Н	Peak	51.88	-25.34	26.54	46.00	-19.46
480.08	Н	Peak	51.16	-24.94	26.22	46.00	-19.78
635.28	Н	Peak	45.84	-22.21	23.63	46.00	-22.37
798.24	Н	Peak	48.70	-20.21	28.49	46.00	-17.51

#### 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.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。

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## Radiated Spurious Emission Measurement Result (below 1GHz) (802.11n 20M)

Operation Mode 802.11n\_20M TX CH Low Test Date Jan. 20, 2010

Fundamental Frequency 2412MHz Test By Jazz Temperature Pol Ver./Hor 25 °C

Humidity 65 %

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)
358.83	V	Peak	54.65	-26.91	27.74	46.00	-18.26
434.49	V	Peak	52.06	-25.24	26.82	46.00	-19.18
492.69	V	Peak	51.18	-24.86	26.32	46.00	-19.68
565.44	V	Peak	51.30	-23.46	27.84	46.00	-18.16
630.43	V	Peak	49.85	-22.28	27.57	46.00	-18.43
798.24	V	Peak	52.09	-20.21	31.88	46.00	-14.12
198.78	Н	Peak	55.48	-31.30	24.18	43.50	-19.32
261.83	Н	Peak	56.58	-29.61	26.97	46.00	-19.03
358.83	Н	Peak	56.93	-26.91	30.02	46.00	-15.98
441.28	Н	Peak	51.59	-25.20	26.39	46.00	-19.61
492.69	Н	Peak	51.32	-24.86	26.46	46.00	-19.54
798.24	Н	Peak	48.22	-20.21	28.01	46.00	-17.99

#### 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.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。

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## Radiated Spurious Emission Measurement Result (below 1GHz) (802.11n 20M)

Operation Mode 802.11n\_20M TX CH Mid Test Date Jan. 20, 2010

Fundamental Frequency 2437MHz Test By Jazz Temperature Pol Ver./Hor 25 °C

Humidity 65 %

Freq.	Mode		Reading	Factor	Actual FS	Limit3m	Safe Margin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
358.83	V	Peak	53.95	-26.91	27.04	46.00	-18.96
431.58	V	Peak	51.72	-25.29	26.43	46.00	-19.57
480.08	V	Peak	51.24	-24.94	26.30	46.00	-19.70
565.44	V	Peak	50.66	-23.46	27.20	46.00	-18.80
630.43	V	Peak	49.24	-22.28	26.96	46.00	-19.04
798.24	V	Peak	52.75	-20.21	32.54	46.00	-13.46
261.83	Н	Peak	55.80	-29.61	26.19	46.00	-19.81
358.83	Н	Peak	57.10	-26.91	30.19	46.00	-15.81
436.43	Н	Peak	50.95	-25.34	25.61	46.00	-20.39
480.08	Н	Peak	51.10	-24.94	26.16	46.00	-19.84
633.34	Н	Peak	45.91	-22.23	23.68	46.00	-22.32
798.24	Н	Peak	48.27	-20.21	28.06	46.00	-17.94

#### Remark:

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

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## Radiated Spurious Emission Measurement Result (below 1GHz) (802.11n 20M)

Operation Mode 802.11n\_20M TX CH High Test Date Jan. 20, 2010

Fundamental Frequency 2462MHz Test By Jazz Temperature Pol Ver./Hor 25 °C

Humidity 65 %

	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)
	198.78	V	Peak	56.26	-31.30	24.96	43.50	-18.54
	358.83	V	Peak	53.77	-26.91	26.86	46.00	-19.14
	436.43	V	Peak	52.03	-25.34	26.69	46.00	-19.31
	480.08	V	Peak	52.26	-24.94	27.32	46.00	-18.68
	565.44	V	Peak	50.57	-23.46	27.11	46.00	-18.89
	798.24	V	Peak	51.75	-20.21	31.54	46.00	-14.46
	159.98	Н	Peak	51.13	-26.99	24.14	43.50	-19.36
	261.83	Н	Peak	56.12	-29.61	26.51	46.00	-19.49
	358.83	Н	Peak	56.31	-26.91	29.40	46.00	-16.60
	441.28	Н	Peak	52.04	-25.20	26.84	46.00	-19.16
	480.08	Н	Peak	51.78	-24.94	26.84	46.00	-19.16
	798.24	Н	Peak	48.62	-20.21	28.41	46.00	-17.59

#### Remark:

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

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## Radiated Spurious Emission Measurement Result (below 1GHz) (802.11n 40M)

Operation Mode 802.11n\_40M TX CH Low Test Date Jan. 20, 2010

Fundamental Frequency 2422MHz Test By Jazz Temperature Pol Ver./Hor 25 °C

Humidity 65 %

Freq.	Freq. Ant.Pol.		Reading	Factor	Actual FS	Limit3m	Safe Margin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
198.78	V	Peak	56.16	-31.30	24.86	43.50	-18.64
358.83	V	Peak	54.00	-26.91	27.09	46.00	-18.91
436.43	V	Peak	51.60	-25.34	26.26	46.00	-19.74
480.08	V	Peak	51.48	-24.94	26.54	46.00	-19.46
565.44	V	Peak	51.41	-23.46	27.95	46.00	-18.05
798.24	V	Peak	51.17	-20.21	30.96	46.00	-15.04
158.04	Н	Peak	50.50	-26.99	23.51	43.50	-19.99
261.83	Н	Peak	56.32	-29.61	26.71	46.00	-19.29
358.83	Н	Peak	56.22	-26.91	29.31	46.00	-16.69
434.49	Н	Peak	52.76	-25.24	27.52	46.00	-18.48
480.08	Н	Peak	51.86	-24.94	26.92	46.00	-19.08
798.24	Н	Peak	48.17	-20.21	27.96	46.00	-18.04

#### Remark:

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

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## Radiated Spurious Emission Measurement Result (below 1GHz) (802.11n 40M)

802.11n\_40M TX CH Mid Operation Mode Test Date Jan. 20, 2010

Fundamental Frequency 2437MHz Test By Jazz Temperature Pol Ver./Hor 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)
358.83	V	Peak	53.89	-26.91	26.98	46.00	-19.02
436.43	V	Peak	51.71	-25.34	26.37	46.00	-19.63
480.08	V	Peak	52.62	-24.94	27.68	46.00	-18.32
565.44	V	Peak	50.31	-23.46	26.85	46.00	-19.15
630.43	V	Peak	49.24	-22.28	26.96	46.00	-19.04
798.24	V	Peak	54.98	-20.21	34.77	46.00	-11.23
264.74	Н	Peak	56.26	-29.48	26.78	46.00	-19.22
358.83	Н	Peak	56.77	-26.91	29.86	46.00	-16.14
439.34	Н	Peak	51.44	-25.25	26.19	46.00	-19.81
480.08	Н	Peak	51.99	-24.94	27.05	46.00	-18.95
696.39	Н	Peak	45.46	-21.28	24.18	46.00	-21.82
798.24	Н	Peak	49.88	-20.21	29.67	46.00	-16.33
Remark:							

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

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## Radiated Spurious Emission Measurement Result (below 1GHz) (802.11n 40M)

Operation Mode 802.11n\_40M TX CH High Test Date Jan. 20, 2010

Fundamental Frequency 2452MHz Test By Jazz Temperature Pol Ver./Hor 25 °C

Humidity 65 %

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)
358.83	V	Peak	54.47	-26.91	27.56	46.00	-18.44
436.43	V	Peak	51.11	-25.34	25.77	46.00	-20.23
480.88	V	Peak	52.15	-24.94	27.21	46.00	-18.79
565.44	V	Peak	50.65	-23.46	27.19	46.00	-18.81
630.43	V	Peak	49.08	-22.28	26.80	46.00	-19.20
798.24	V	Peak	52.65	-20.21	32.44	46.00	-13.56
261.83	Н	Peak	55.98	-29.61	26.37	46.00	-19.63
358.83	Н	Peak	56.59	-26.91	29.68	46.00	-16.32
431.58	Н	Peak	51.88	-25.29	26.59	46.00	-19.41
480.08	Н	Peak	52.33	-24.94	27.39	46.00	-18.61
636.25	Н	Peak	45.26	-22.21	23.05	46.00	-22.95
798.24	Н	Peak	50.31	-20.21	30.10	46.00	-15.90

#### Remark:

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

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

Operation Mode 802.11b TX CH Low Test Date Jan.20, 2010

Fundamental Frequency 2412MHz Test By Jazz 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	Remark
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
4815.5	58.30		-6.01	52.29		74.00	54.00	-1.71	Peak
7236.0						74.00	54.00		
9648.0						74.00	54.00		
12060.0						74.00	54.00		
14472.0						74.00	54.00		
16884.0						74.00	54.00		
19296.0						74.00	54.00		
21708.0						74.00	54.00		
24120.0						74.00	54.00		

#### Remark:

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

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

Operation Mode 802.11b TX CH Low Test Date Jan.20, 2010

Fundamental Frequency 2412MHz Test By Jazz 25 °C Pol Hor Temperature

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)	
4815.5	49.83		-6.01	43.82		74.00	54.00	-10.18	Peak
7236.0						74.00	54.00		
9648.0						74.00	54.00		
12060.0						74.00	54.00		
14472.0						74.00	54.00		
16884.0						74.00	54.00		
19296.0						74.00	54.00		
21708.0						74.00	54.00		
24120.0						74.00	54.00		

#### Remark:

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

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

Operation Mode 802.11b TX CH Mid Test Date Jan.20, 2010

Fundamental Frequency 2437MHz Test By Jazz 25 °C Pol Ver Temperature

Humidity 65 %

Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	Remark
(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
58.71		-5.97	52.74		74.00	54.00	-1.26	Peak
					74.00	54.00		
					74.00	54.00		
					74.00	54.00		
					74.00	54.00		
					74.00	54.00		
					74.00	54.00		
					74.00	54.00		
					74.00	54.00		
	Reading (dBuV)  58.71	Reading (dBuV)         Reading (dBuV)           58.71	Reading         Reading         Ant./CL           (dBuV)         CF(dB)           58.71          -5.97	Reading (dBuV)         Ant./CL (dBuV/m)           58.71          -5.97         52.74 </td <td>Reading (dBuV)         Ant./CL (dBuV/m)         Peak (dBuV/m)         AV           58.71          -5.97         52.74   </td> <td>Reading         Reading         Ant./CL         Peak         AV         Limit           fdBuV)         CF(dB)         (dBuV/m)         (dBuV/m)         (dBuV/m)           58.71          74.00             74.00             74.00             74.00             74.00             74.00          </td> <td>Reading (dBuV)         Ant./CL (dBuV)         Peak (dBuV)         AV (dBuV)         Limit (dBuV)         Limit (dBuV)           58.71          -5.97         52.74          74.00         54.00             74.00         54.00         54.00             74.00         54.00             74.00         54.00            74.00         54.00            74.00         54.00            74.00         54.00            74.00         54.00            74.00         54.00            74.00         54.00            74.00         54.00            74.00         54.00</td> <td>Reading (dBuV)         Ant./CL (dBuV)         Peak (dBuV)         AV (dBuV)         Limit (dBuV)         Limit (dBuV)         Margin (dBuV)           58.71          -5.97         52.74          74.00         54.00         -1.26             74.00         54.00         -1.26             74.00         54.00         -1.26             74.00         54.00         -1.26             74.00         54.00         -1.26             74.00         54.00         -1.26             74.00         54.00         -1.26             74.00         54.00         -1.26             74.00         54.00         -1.26             74.00         54.00         -1.26             74.00         54.00         -1.26             74.00         54.00         -1.26             74.00         54.00         -1.26          </td>	Reading (dBuV)         Ant./CL (dBuV/m)         Peak (dBuV/m)         AV           58.71          -5.97         52.74	Reading         Reading         Ant./CL         Peak         AV         Limit           fdBuV)         CF(dB)         (dBuV/m)         (dBuV/m)         (dBuV/m)           58.71          74.00             74.00             74.00             74.00             74.00             74.00	Reading (dBuV)         Ant./CL (dBuV)         Peak (dBuV)         AV (dBuV)         Limit (dBuV)         Limit (dBuV)           58.71          -5.97         52.74          74.00         54.00             74.00         54.00         54.00             74.00         54.00             74.00         54.00            74.00         54.00            74.00         54.00            74.00         54.00            74.00         54.00            74.00         54.00            74.00         54.00            74.00         54.00            74.00         54.00	Reading (dBuV)         Ant./CL (dBuV)         Peak (dBuV)         AV (dBuV)         Limit (dBuV)         Limit (dBuV)         Margin (dBuV)           58.71          -5.97         52.74          74.00         54.00         -1.26             74.00         54.00         -1.26             74.00         54.00         -1.26             74.00         54.00         -1.26             74.00         54.00         -1.26             74.00         54.00         -1.26             74.00         54.00         -1.26             74.00         54.00         -1.26             74.00         54.00         -1.26             74.00         54.00         -1.26             74.00         54.00         -1.26             74.00         54.00         -1.26             74.00         54.00         -1.26

#### Remark:

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

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

Operation Mode 802.11b TX CH Mid Test Date Jan.20, 2010

Fundamental Frequency 2437MHz Test By Jazz 25 °C Pol Hor Temperature

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)	
4861.0	52.33		-5.97	46.36		74.00	54.00	-7.64	Peak
7311.0						74.00	54.00		
9748.0						74.00	54.00		
12185.0						74.00	54.00		
14622.0						74.00	54.00		
17059.0						74.00	54.00		
19496.0						74.00	54.00		
21933.0						74.00	54.00		
24370.0						74.00	54.00		

#### Remark:

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

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

Operation Mode 802.11b TX CH High Test Date Jan.20, 2010

Fundamental Frequency 2462MHz Test By Jazz 25 °C Pol Ver Temperature

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)	
4926.0	58.29		-5.91	52.38		74.00	54.00	-1.62	Peak
7386.0						74.00	54.00		
9848.0						74.00	54.00		
12310.0						74.00	54.00		
14772.0						74.00	54.00		
17234.0						74.00	54.00		
19696.0						74.00	54.00		
22158.0						74.00	54.00		
24620.0						74.00	54.00		

## Remark:

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

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

Operation Mode 802.11b TX CH High Test Date Jan. 20, 2010

Fundamental Frequency 2462MHz Test By Jazz 25 °C Pol Hor Temperature

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)	
4926.0	53.58		-5.91	47.67		74.00	54.00	-6.33	Peak
7386.0						74.00	54.00		
9848.0						74.00	54.00		
12310.0						74.00	54.00		
14772.0						74.00	54.00		
17234.0						74.00	54.00		
19696.0						74.00	54.00		
22158.0						74.00	54.00		
24620.0						74.00	54.00		

#### Remark:

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

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

Operation Mode 802.11g TX CH Low Test Date Jan. 20, 2010

Fundamental Frequency 2412MHz Test By Jazz 25 °C Pol Ver. Temperature

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)	
4815.5	49.07		-6.01	43.06		74.00	54.00	-10.94	Peak
7236.0						74.00	54.00		
9648.0						74.00	54.00		
12060.0						74.00	54.00		
14472.0						74.00	54.00		
16884.0						74.00	54.00		
19296.0						74.00	54.00		
21708.0						74.00	54.00		
24120.0						74.00	54.00		

#### Remark:

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

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

Operation Mode 802.11g TX CH Low Test Date Jan. 20, 2010

Fundamental Frequency 2412MHz Test By Jazz 25 °C Pol Hor Temperature

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)	
4815.5	45.51		-6.01	39.50		74.00	54.00	-14.50	Peak
7236.0						74.00	54.00		
9648.0						74.00	54.00		
12060.0						74.00	54.00		
14472.0						74.00	54.00		
16884.0						74.00	54.00		
19296.0						74.00	54.00		
21708.0						74.00	54.00		
24120.0						74.00	54.00		

#### Remark:

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

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

Operation Mode 802.11g TX CH Mid Test Date Jan. 20, 2010

Fundamental Frequency 2437MHz Test By Jazz 25 °C Pol Ver Temperature

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)	
4861.0	49.87		-5.97	43.90		74.00	54.00	-10.10	Peak
7311.0						74.00	54.00		
9748.0						74.00	54.00		
12185.0						74.00	54.00		
14622.0						74.00	54.00		
17059.0						74.00	54.00		
19496.0						74.00	54.00		
21933.0						74.00	54.00		
24370.0						74.00	54.00		

#### Remark:

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

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

Operation Mode 802.11g TX CH Mid Test Date Jan. 20, 2010

Fundamental Frequency 2437MHz Test By Jazz 25 °C Pol Hor Temperature

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)	
4861.0	45.62		-5.97	39.65		74.00	54.00	-14.35	Peak
7311.0						74.00	54.00		
9748.0						74.00	54.00		
12185.0						74.00	54.00		
14622.0						74.00	54.00		
17059.0						74.00	54.00		
19496.0						74.00	54.00		
21933.0						74.00	54.00		
24370.0						74.00	54.00		

## Remark:

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

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

Operation Mode 802.11g TX CH High Test Date Jan. 20, 2010

Fundamental Frequency 2462MHz Test By Jazz 25 °C Pol Ver Temperature

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)	
4926.0	50.30		-5.91	44.39		74.00	54.00	-9.61	Peak
7386.0						74.00	54.00		
9848.0						74.00	54.00		
12310.0						74.00	54.00		
14772.0						74.00	54.00		
17234.0						74.00	54.00		
19696.0						74.00	54.00		
22158.0						74.00	54.00		
24620.0						74.00	54.00		

#### Remark:

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

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

Operation Mode 802.11g TX CH High Test Date Jan. 20, 2010

Fundamental Frequency 2462MHz Test By Jazz 25 °C Pol Hor Temperature

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)	
4926.0	45.28		-5.91	39.37		74.00	54.00	-14.63	Peak
7386.0						74.00	54.00		
9848.0						74.00	54.00		
12310.0						74.00	54.00		
14772.0						74.00	54.00		
17234.0						74.00	54.00		
19696.0						74.00	54.00		
22158.0						74.00	54.00		
24620.0						74.00	54.00		

#### Remark:

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

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## Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n 20M)

Operation Mode 802.11n\_20M TX CH Low Test Date Jan. 20, 2010

Fundamental Frequency 2412MHz Test By Jazz 25 °C Pol Ver. Temperature

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)	
4815.5	49.40		-6.01	43.39		74.00	54.00	-10.61	Peak
7236.0						74.00	54.00		
9648.0						74.00	54.00		
12060.0						74.00	54.00		
14472.0						74.00	54.00		
16884.0						74.00	54.00		
19296.0						74.00	54.00		
21708.0						74.00	54.00		
24120.0						74.00	54.00		

#### Remark:

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

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## Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n 20M)

Operation Mode 802.11n\_20M TX CH Low Test Date Jan. 20, 2010

Fundamental Frequency 2412MHz Test By Jazz 25 °C Pol Temperature 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)	
4815.5	44.61		-6.01	38.60		74.00	54.00	-15.40	Peak
7236.0						74.00	54.00		
9648.0						74.00	54.00		
12060.0						74.00	54.00		
14472.0						74.00	54.00		
16884.0						74.00	54.00		
19296.0						74.00	54.00		
21708.0						74.00	54.00		
24120.0						74.00	54.00		

#### Remark:

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

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## Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n 20M)

Operation Mode 802.11n\_20M TX CH Mid Test Date Jan. 20, 2010

Fundamental Frequency 2437MHz Test By Jazz 25 °C Pol Ver Temperature

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)	
4861.0	47.96		-5.97	41.99		74.00	54.00	-12.01	Peak
7311.0						74.00	54.00		
9748.0						74.00	54.00		
12185.0						74.00	54.00		
14622.0						74.00	54.00		
17059.0						74.00	54.00		
19496.0						74.00	54.00		
21933.0						74.00	54.00		
24370.0						74.00	54.00		

#### Remark:

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

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## Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n 20M)

Operation Mode 802.11n\_20M TX CH Mid Test Date Jan. 20, 2010

Fundamental Frequency 2437MHz Test By Jazz 25 °C Pol Temperature 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)	
4861.0	45.62		-5.97	39.65		74.00	54.00	-14.35	Peak
7311.0						74.00	54.00		
9748.0						74.00	54.00		
12185.0						74.00	54.00		
14622.0						74.00	54.00		
17059.0						74.00	54.00		
19496.0						74.00	54.00		
21933.0						74.00	54.00		
24370.0						74.00	54.00		

#### Remark:

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

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## Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n 20M)

Operation Mode 802.11n\_20M TX CH High Test Date Jan. 20, 2010

Fundamental Frequency 2462MHz Test By Jazz 25 °C Pol Ver Temperature

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)	
4926.0	47.50		-5.91	41.59		74.00	54.00	-12.41	Peak
7386.0						74.00	54.00		
9848.0						74.00	54.00		
12310.0						74.00	54.00		
14772.0						74.00	54.00		
17234.0						74.00	54.00		
19696.0						74.00	54.00		
22158.0						74.00	54.00		
24620.0						74.00	54.00		

#### Remark:

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

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## Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n 20M)

Operation Mode 802.11n\_20M TX CH High Test Date Jan. 20, 2010

Fundamental Frequency 2462MHz Test By Jazz 25 °C Pol Temperature 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)	
4926.0	44.89		-5.91	38.98		74.00	54.00	-15.02	Peak
7386.0						74.00	54.00		
9848.0						74.00	54.00		
12310.0						74.00	54.00		
14772.0						74.00	54.00		
17234.0						74.00	54.00		
19696.0						74.00	54.00		
22158.0						74.00	54.00		
24620.0						74.00	54.00		

#### Remark:

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

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## Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n 40M)

Operation Mode 802.11n\_40M TX CH Low Test Date Jan. 20, 2010

Fundamental Frequency 2422MHz Test By Jazz 25 °C Pol Ver. Temperature

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)	
	4848.0	48.20		-5.98	42.22		74.00	54.00	-11.78	Peak
	7266.0						74.00	54.00		
	9688.0						74.00	54.00		
	12110.0						74.00	54.00		
	14532.0						74.00	54.00		
	16954.0						74.00	54.00		
	19376.0						74.00	54.00		
	21798.0						74.00	54.00		
	24220.0						74.00	54.00		

#### Remark:

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

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## Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n 40M)

Operation Mode 802.11n\_40M TX CH Low Test Date Jan. 20, 2010

Fundamental Frequency 2422MHz Test By Jazz 25 °C Pol Temperature 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)	
4848.0	44.80		-5.98	38.82		74.00	54.00	-15.18	Peak
7266.0						74.00	54.00		
9688.0						74.00	54.00		
12110.0						74.00	54.00		
14532.0						74.00	54.00		
16954.0						74.00	54.00		
19376.0						74.00	54.00		
21798.0						74.00	54.00		
24220.0						74.00	54.00		

#### Remark:

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

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#### Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n 40M)

Operation Mode 802.11n\_40M TX CH Mid Test Date Jan. 20, 2010

Fundamental Frequency 2437MHz Test By Jazz 25 °C Pol Ver Temperature

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)	
4861.0	48.77		-5.97	42.80		74.00	54.00	-11.20	Peak
7311.0						74.00	54.00		
9748.0						74.00	54.00		
12185.0						74.00	54.00		
14622.0						74.00	54.00		
17059.0						74.00	54.00		
19496.0						74.00	54.00		
21933.0						74.00	54.00		
24370.0						74.00	54.00		

#### Remark:

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

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## Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n 40M)

Operation Mode 802.11n\_40M TX CH Mid Test Date Jan. 20, 2010

Fundamental Frequency 2437MHz Test By Jazz 25 °C Pol Temperature 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)	
4861.0	44.20		-5.97	38.23		74.00	54.00	-15.77	Peak
7311.0						74.00	54.00		
9748.0						74.00	54.00		
12185.0						74.00	54.00		
14622.0						74.00	54.00		
17059.0						74.00	54.00		
19496.0						74.00	54.00		
21933.0						74.00	54.00		
24370.0						74.00	54.00		

#### Remark:

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

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## Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n 40M)

Operation Mode 802.11n\_40M TX CH High Test Date Jan. 20, 2010

Fundamental Frequency 2452MHz Test By Jazz 25 °C Pol Ver Temperature

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)	
4893.5	49.60		-5.94	43.66		74.00	54.00	-10.34	Peak
7356.0						74.00	54.00		
9808.0						74.00	54.00		
12260.0						74.00	54.00		
14712.0						74.00	54.00		
17164.0						74.00	54.00		
19616.0						74.00	54.00		
22068.0						74.00	54.00		
24520.0						74.00	54.00		

#### Remark:

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

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## Radiated Spurious Emission Measurement Result (above 1GHz) (802.11n 40M)

Operation Mode 802.11n\_40M TX CH High Test Date Jan. 20, 2010

Fundamental Frequency 2452MHz Test By Jazz 25 °C Pol Temperature 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)	
4893.5	45.19		-5.94	39.25		74.00	54.00	-14.75	Peak
7356.0						74.00	54.00		
9808.0						74.00	54.00		
12260.0						74.00	54.00		
14712.0						74.00	54.00		
17164.0						74.00	54.00		
19616.0						74.00	54.00		
22068.0						74.00	54.00		
24520.0						74.00	54.00		

#### Remark:

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

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## 10 Peak Power Spectral Density

## 10.1 Standard Applicable:

According to §15.247(e) For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

## 10.2 Measurement Equipment Used:

Refer to section 6.2 for details.

## 10.3 Test Set-up:

Refer to section 6.3 for details.

### **10.4 Measurement Procedure:**

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
- 3. Set the spectrum analyzer as RBW = 3KHz, VBW = 10KHz, Span = 300KHz, Sweep=100s
- 4. Record the max. reading.
- 5. Repeat above procedures until all frequency measured were complete.

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## 10.5 Measurement Result:

### 802.11b

Frequency	<b>RF Power Density</b>	Cable loss	<b>RF Power Density</b>	Maximum Limit
MHz	Reading (dBm)	(dB)	Level (dBm)	(dBm)
2412	-11.22	0.00	-11.22	8
2437	-16.31	0.00	-16.31	8
2462	-11.62	0.00	-16.62	8

#### 802.11g

Frequency MHz	- v		RF Power Density Level (dBm)	Maximum Limit (dBm)	
2412	-17.18	0.00	-17.18	8	
2437	-17.67	0.00	-17.67	8	
2462	-15.98	0.00	-15.98	8	

### 802.11n\_20M

Frequency	<b>RF Power Density</b>	Cable loss	<b>RF Power Density</b>	<b>Maximum Limit</b>
MHz	Reading (dBm)	(dB)	Level (dBm)	(dBm)
2412	-16.98	0.00	-16.98	8
2437	-18.32	0.00	-18.32	8
2462	-16.45	0.00	-16.45	8

### 802.11n\_40M

Frequency	<b>RF Power Density</b>	Cable loss	<b>RF Power Density</b>	<b>Maximum Limit</b>
MHz	Reading (dBm)	(dB)	Level (dBm)	(dBm)
2422	-15.97	0.00	-15.97	8
2437	-17.28	0.00	-17.28	8
2452	-18.85	0.00	-18.85	8

Note: Refer to next page for plots.

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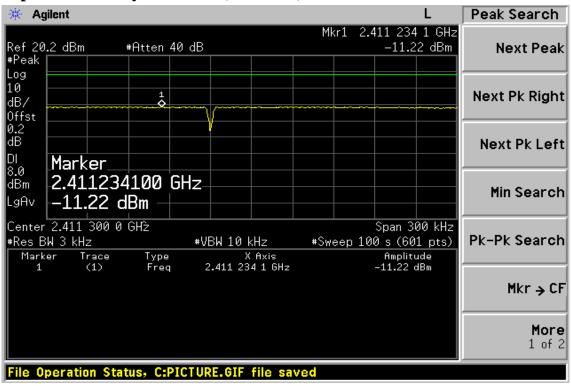


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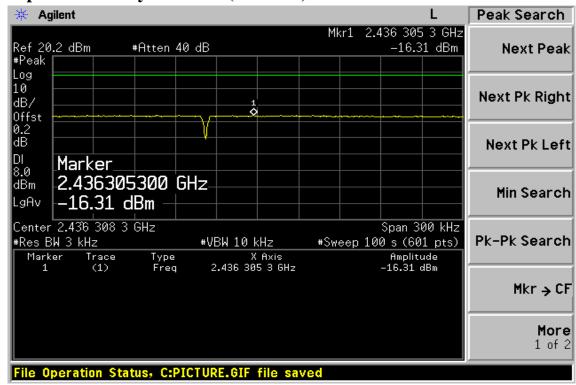
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802.11b **Power Spectral Density Test Plot (CH-Low)** 



## **Power Spectral Density Test Plot (CH-Mid)**



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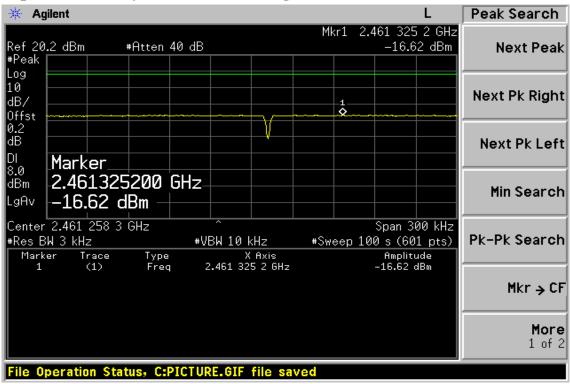


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# **Power Spectral Density Test Plot (CH-High)**



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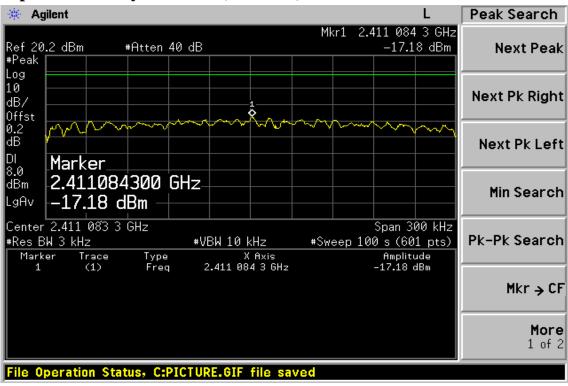


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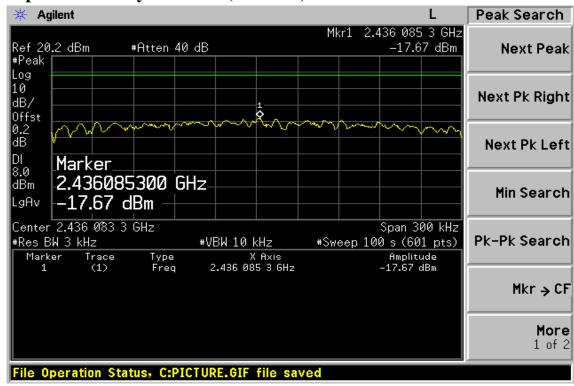
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802.11g **Power Spectral Density Test Plot (CH-Low)** 



## **Power Spectral Density Test Plot (CH-Mid)**



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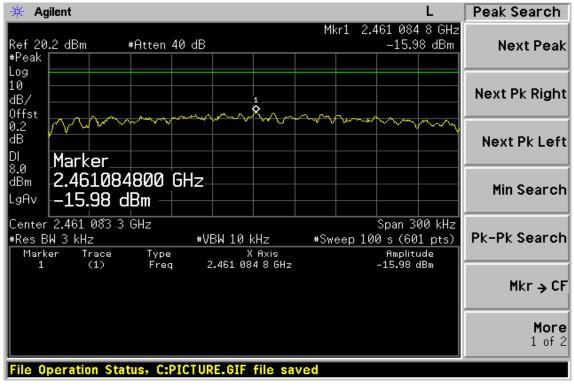


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# **Power Spectral Density Test Plot (CH-High)**



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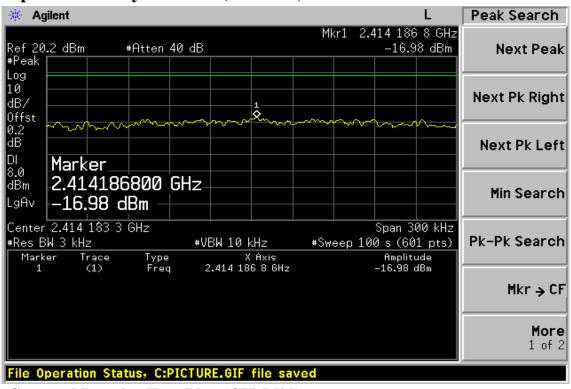


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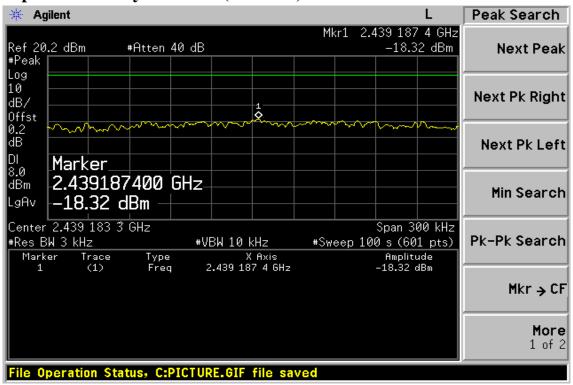
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# 802.11n 20M **Power Spectral Density Test Plot (CH-Low)**



## **Power Spectral Density Test Plot (CH-Mid)**



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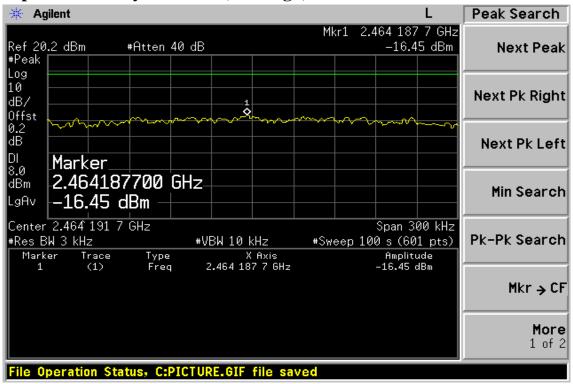


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## **Power Spectral Density Test Plot (CH-High)**



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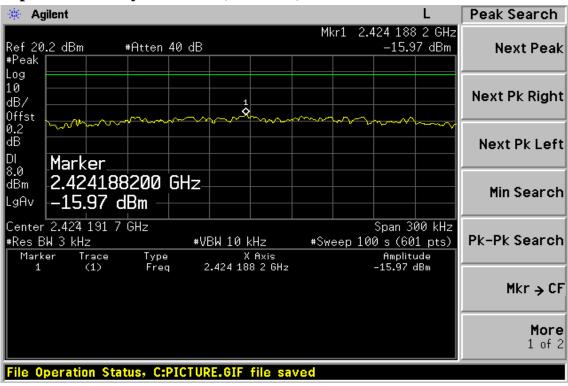


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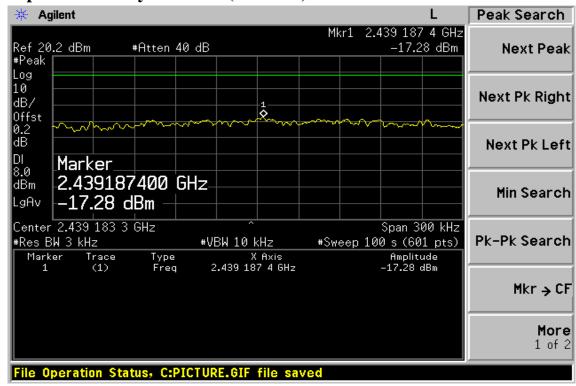
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# 802.11n 40M **Power Spectral Density Test Plot (CH-Low)**



## **Power Spectral Density Test Plot (CH-Mid)**



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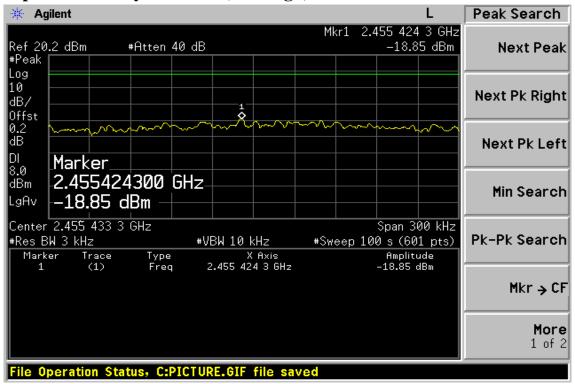


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## **Power Spectral Density Test Plot (CH-High)**



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## 11 ANTENNA REQUIREMENT

## 11.1 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.

### 11.2 Antenna Connected Construction:

The directional gains of antenna used for transmitting is 5.05dBi, and the antenna connector is designed with permanent attachment and no consideration of replacement. Please see EUT photo for details.

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# 12 Maximum Permissible Exposure (MPE)

# 12.1 Standard Applicable

According to §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

This is a Mobile device, the MPE is required.

According to §1.1310 and §2.1093 RF exposure is calculated.

Limits for Maximum Permissive Exposure (MPE)

Frequency Range	Electric Field	Magnetic Field	Power Density	Averaging Time			
(MHz)	Strength (V/m)	Strength (A/m)	$(mW/cm^2)$	(minute)			
Limits for General Population/Uncontrolled Exposure							
0.3-1.34	614	1.63	*(100)	30			
1.34-30	824/f	2.19/f	$*(180/f^2)$	30			
30-300	27.5	0.073	0.2	30			
300-1500	/	/	F/1500	30			
1500-15000	/	/	1.0	30			

F = frequency in MHz

\* = Plane-wave equipment power density

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# 12.2 Maximum Permissible Exposure (MPE) Evaluation

#### 802.11b Power Table

Frequency (MHz)	Reading Power (dBm)	Cable Loss	Output Power (dBm)	Output Power (W)	Limit (W)
2412.00	16.96	0.00	16.96	0.04966	1
2437.00	16.88	0.00	16.88	0.04875	1
2462.00	16.80	0.00	16.80	0.04786	1

## MPE Prediction (802.11b)

Prediction of MPE limit at a given distance

Equation from page 18 of OET Bulletin 65, Edition 97-01

 $S=PG/4 \pi R^2$ 

Where: S = Power density

P = Power input to antenna

G = Power gain of the antenna in the direction of interest relative to an isotropic radiator

R = Distance to the center of radiation of the antenna

Maximum peak output power at antenna input terminal:	16.96	(dBm)
Maximum peak output power at antenna input terminal:	49.65923215	(mW)
Duty cycle:	100	(%)
Maximum Pav :	49.65923215	(mW)
Antenna gain (typical):	5.05	(dBi)
Maximum antenna gain:	3.19889511	(numeric)
Prediction distance:	20	(cm)
Prediction frequency:	2412	(MHz)
MPE limit for uncontrolled exposure at prediction	1	(mW/cm2)
Power density at predication frequency at 20 (cm)	0.0316192	(mW/cm^2)

#### **Measurement Result**

The predicted power density level at 20 cm is 0.0316 mW/cm<sup>2</sup>. This is below the uncontrolled exposure limit of 1 mW/cm<sup>2</sup> at 2412MHz.

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## 802.11g Power Table

Frequency (MHz)	Reading Power (dBm)	Cable Loss	Output Power (dBm)	Output Power (W)	Limit (W)
2412.00	15.02	0.00	15.02	0.03177	1
2437.00	14.83	0.00	14.83	0.03041	1
2462.00	15.08	0.00	15.08	0.03221	1

## MPE Prediction (802.11g)

Prediction of MPE limit at a given distance

Equation from page 18 of OET Bulletin 65, Edition 97-01

 $S=PG/4 \pi R^2$ 

Where: S = Power density

P = Power input to antenna

G = Power gain of the antenna in the direction of interest relative to an isotropic radiator

R = Distance to the center of radiation of the antenna

Maximum peak output power at antenna input terminal:	15.08	(dBm)
Maximum peak output power at antenna input terminal:	32.21068791	(mW)
Duty cycle:	100	(%)
Maximum Pav :	32.21068791	(mW)
Antenna gain (typical):	5.05	(dBi)
Maximum antenna gain:	3.19889511	(numeric)
Prediction distance:	20	(cm)
Prediction frequency:	2462	(MHz)
MPE limit for uncontrolled exposure at prediction	1	(mW/cm2)
Power density at predication frequency at 20 (cm)	0.0205093	(mW/cm^2)

### **Measurement Result**

The predicted power density level at 20 cm is 0.0205 mW/cm<sup>2</sup>. This is below the uncontrolled exposure limit of 1 mW/cm<sup>2</sup> at 2462.

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## **802.11n\_20M Power Table**

Frequency (MHz)	Reading Power (dBm)	Cable Loss	Output Power (dBm)	Output Power (W)	Limit (W)
2412.00	13.89	0.00	13.89	0.02449	1
2437.00	13.87	0.00	13.87	0.02438	1
2462.00	13.74	0.00	13.74	0.02366	1

### MPE Prediction (802.11n 20M)

Prediction of MPE limit at a given distance

Equation from page 18 of OET Bulletin 65, Edition 97-01

 $S=PG/4 \pi R^2$ 

Where: S = Power density

P = Power input to antenna

G = Power gain of the antenna in the direction of interest relative to an isotropic radiator

R = Distance to the center of radiation of the antenna

Maximum peak output power at antenna input terminal:	13.89	(dBm)
Maximum peak output power at antenna input terminal:	24.49063242	(mW)
Duty cycle:	100	(%)
Maximum Pav :	24.49063242	(mW)
Antenna gain (typical):	5.05	(dBi)
Maximum antenna gain:	3.19889511	(numeric)
Prediction distance:	20	(cm)
Prediction frequency:	2462	(MHz)
MPE limit for uncontrolled exposure at prediction	1	(mW/cm2)
Power density at predication frequency at 20 (cm)	0.0155937	(mW/cm^2)

## **Measurement Result**

The predicted power density level at 20 cm is 0.0156 mW/cm<sup>2</sup>. This is below the uncontrolled exposure limit of 1 mW/cm<sup>2</sup> at 2462.

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## **802.11n\_40M Power Table**

Frequency (MHz)	Reading Power (dBm)	Cable Loss	Output Power (dBm)	Output Power (W)	Limit (W)
2422.00	13.92	0.00	13.92	0.02466	1
2437.00	13.93	0.00	13.93	0.02472	1
2452.00	14.03	0.00	14.03	0.02529	1

### MPE Prediction (802.11n 40M)

Prediction of MPE limit at a given distance

Equation from page 18 of OET Bulletin 65, Edition 97-01

 $S=PG/4 \pi R^2$ 

Where: S = Power density

P = Power input to antenna

G = Power gain of the antenna in the direction of interest relative to an isotropic radiator

R = Distance to the center of radiation of the antenna

Maximum peak output power at antenna input terminal:	14.03	(dBm)
Maximum peak output power at antenna input terminal:	25.29297996	(mW)
Duty cycle:	100	(%)
Maximum Pav :	25.29297996	(mW)
Antenna gain (typical):	5.05	(dBi)
Maximum antenna gain:	3.19889511	(numeric)
Prediction distance:	20	(cm)
Prediction frequency:	2437	(MHz)
MPE limit for uncontrolled exposure at prediction	1	(mW/cm2)
Power density at predication frequency at 20 (cm)	0.0161046	(mW/cm^2)

### **Measurement Result**

The predicted power density level at 20 cm is 0.0161 mW/cm<sup>2</sup>. This is below the uncontrolled exposure limit of 1 mW/cm<sup>2</sup> at 2437.

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