

Report No.: EH/2011/40020 Issue Date: May. 25, 2011

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# ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

# INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 15 SUBPART E REQUIREMENT

OF

**Product Name:** QD8

**Marketing Name: BF-01C** 

**Brand Name:** NTT Docomo

Model Name: BF-01C

**Model Different:** N/A

**Report No.:** EH/2011/40020

**Issue Date:** May. 25, 2011

**FCC Rule Part:** §15.407

FCC ID: HFS-QD8

Prepared for: Quanta Computer Inc.

No.188, Wen Hwa 2nd Road, Kuei Shan

Hsiang Tao Yuan Shien, Taiwan

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:** Quanta Computer Inc.

No.188, Wen Hwa 2nd Road, Kuei Shan Hsiang Tao Yuan Shien, Taiwan

**Product Name:** QD8

**Marketing Name:** BF-01C

**Brand Name:** NTT Docomo

Model No.: BF-01C

**Model Difference:** N/A

File Number: EH/2011/40020

Date of test: Apr. 14, 2011 ~ May. 25, 2011

Date of EUT Received: Apr. 14, 2011

# We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd. Electronics & Communication Laboratory The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4 (2003) and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rules Part 15.407.

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

Test By:	Jay- Lin.	Date:	May. 25, 2011	
Prepared By:	Jay Lin / Engineer  Cherry Cherr	Date:	May. 25, 2011	
Approved By:	Cherry Chen / Clerk  Jim Chang / Supervisor	Date:	May. 25, 2011	

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# Version

Version No.	Date	Description
00	May. 25, 2011	Initial creation of document

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# **GENERAL INFORMATION**

# 1.1. Product Description

#### General:

General:			
Product Name:	QD8		
Marketing Name:	BF-01C		
Brand Name:	NTT Docor	no	
Model Name:	BF-01C		
Model Difference:	N/A		
Data cable:	Model: N/A, Supplier: N/A		
	3.7V Li-Ior	Battery or 5V by AC/DC power adapter	
Power Supply	Battery: Model: O31A, Supplier: BUFFALO		
	Adaptor:	Adaptor: Model: FU05-9050100-A1, Supplier: LEADER	

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WLAN: 802.11 a/b/g/n

Wi-Fi	Frequency Range	Channels	Rated Power	Modulation Technology	Type of Emission
11a (5Ghz)	5180-5320	9	a: 16.17 dBm		16M48D1D
11n	HT20 5180-5320	9	HT20: 16.19dBm	OFDM	17M70D1D
(5GHz)	HT40 5190-5310	7	HT40: 15.65dBm		36M20D1D
Antenna	Designation	PIFA Antenna5G: 3dBi			
Modulation type			CCK, DQPSK, DBPSK for DSSS 64QAM. 16QAM, QPSK, BPSK for OFDM		
Transitio	Transition Rate:		802.11 a: 6/9/12/18/24/36/48/54 Mbps; 802.11 n_20MHz: 6.5 – 72.2Mbps 802.11 n_40MHz: 13.5 - 135Mbps		

The 5G max antenna gain is 3.0dBi which was choosing for Radiated Spurious Emission test. The EUT is compliance with IEEE 802.11 a/n Standard.

This report applies for frequency bands 5150 MHz- 5250 MHz, 5250MHz-5350MHz.

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

This submittal(s) (test report) is intended to comply with Section 15.407 of the FCC Part 15, Subpart E Rules. The composite system (digital device) is compliance with Subpart B is authorized under a DoC procedure.

#### 1.3. Test Methodology

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

## 1.4. Test Facility

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

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

#### 1.5. Special Accessories

Not available for this EUT intended for grant.

## 1.6. Equipment Modifications

Not available for this EUT intended for grant.

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# 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 30 MHz using CISPR Quasi-Peak and Average detector mode.

#### 2.3.2 Radiated Emissions

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

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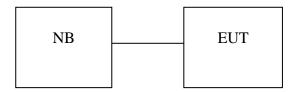


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# 2.4. Configuration of Tested System

Fig. 2-1 Configuration of Tested System



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

Item	Equipment	Mfr/Brand	Model/ Type No.	Series No.
1.	Notebook	HP	ProBook 4411S	CNU9316V4C

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## SUMMARY OF TEST RESULT

FCC Rules	<b>Description Of Test</b>	Result
§15.207	AC Power Line Conducted	Refer to EMC data.
	Emission	
§15.407(a)	26 dB Emission Bandwidth	Compliant
§15.407(a)	Peak Output Power Measurement	Compliant
§15.407(a)	Peak Power Spectral Density	Compliant
	Measurement	
15.407(a)(6)	Peak Excursion Measurement	Compliant
§15.407(b)	Undesirable Emission – Con-	Compliant
	ducted Measurement	
§15.407(b)	Undesirable Emission – Radiated	Compliant
	Measurement	
§15.407©	Transmission in case of Absence	Compliant
	of Information	
§15.407(g)	Frequency Stability	Compliant
§15.407(a)	Antenna Requirement	Compliant
§15.407(d)	TPC and DFS Measurement	Compliant
MPE	Maximum Permissible Exposure	Compliant

#### **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.

#### a mode:

5150MHz-5250MHz: Channel lowest(5180MHz) \cdot Mid(5220MHz) and Highest(5240MHz). 5250MHz-5350MHz:Channel lowest(5260MHz) · Mid(5300MHz) and Highest(5320MHz). with 6Mbps data rate are chosen for full testing.

#### n HT 20 mode:

5150MHz-5250MHz: Channel lowest(5180MHz) \cdot Mid(5220MHz) and Highest(5240MHz). 5250MHz-5350MHz:Channel lowest(5260MHz) \cdot Mid(5300MHz) and Highest(5320MHz). with 6.5Mbps data rate are chosen for full testing

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n HT 40 mode:

5150MHz-5250MHz: Channel lowest(5190MHz) · Highest(5230MHz). 5250MHz-5350MHz:Channel lowest(5270MHz) · Highest(5310MHz). 5470MHz-5725MHz: Channel lowest (5510MHz) \cdot Highest(5670MHz)

with 13.5Mbps data rate are chosen for full testing

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#### AC POWER LINE CONDUCTED EMISSION TEST

# 5.1. Standard Applicable

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

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

#### Note

# 5.2. EUT Setup

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

#### 5.3. Measurement Procedure

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

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

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



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# 5.4. Measurement Equipment Used:

Conducted Emission Test Site						
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.	
TYPE		NUMBER	NUMBER	CAL.		
EMI Test Receiver	R&S	ESCS30	828985/004	09/23/2010	09/22/2011	
LISN	Rolf-Heine	NNB-2/16Z	99012	02/02/2011	02/01/2012	
LISN	FCC	FCC-LISN-50/250-25-2-01	04034	02/02/2011	02/01/2012	
Coaxial Cables	N/A	WK CE Cable	N/A	11/28/2010	11/27/2011	

#### 5.5. Measurement Result

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

Note: Refer to EMC data.

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## **26dB EMISSION BANDWIDTH MEASUREMENT**

# **6.1 Standard Applicable**

According to §15.407(a). No Limit required.

## **6.2** Measurement Procedure

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
- 3. Set the spectrum analyzer as RBW=100KHz, VBW =3\* RBW, Span= 50MHz, Sweep=auto
- 4. Mark the peak frequency and –26dB (upper and lower) frequency.
- 5. Repeat above procedures until all frequency measured were complete.

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# **6.3** Measurement Equipment Used:

ole illeusurement Equipment escat						
Conducted Emission Test Site						
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.	
TYPE		NUMBER	NUMBER	CAL.		
Spectrum Analyzer	Agilent	E4446A	MY43360126	04/19/2010	04/18/2012	
Spectrum Analyzer	Agilent	E4440A	MY45304525	01/25/2011	01/24/2012	
DC Block	Agilent	BLK-18	155452	07/05/2010	07/04/2011	
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA	N/A	01/05/2011	01/04/2012	
Attenuator	Mini-Circuit	BW-S6W5	001	07/05/2010	07/04/2011	
Attenuator	Mini-Circuit	BW-S10W5	001	07/05/2010	07/04/2011	
Attenuator	Mini-Circuit	BW-S20W5	001	07/05/2010	07/04/2011	
Splitter	Agilent	11636B	N/A	07/05/2010	07/04/2011	

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#### **6.4** Measurement Result

UNII, 5150~5250 MHz

Frequency (MHz)	26dB Bandwidth (B) (MHz)	10 Log (B) (dB)
5180	19.88	12.98
5220	19.69	12.94
5240	19.73	12.95

#### UNII, 5250~5350 MHz

Frequency (MHz)	26dB Bandwidth (B) (MHz)	10 Log (B) (dB)
5260	19.68	12.94
5300	19.76	12.96
5320	19.70	12.95

#### UNII HT20, 5150~5250 MHz

Frequency (MHz)	26dB Bandwidth (B) (MHz)	10 Log (B) (dB)
5180	20.06	13.02
5220	20.16	13.04
5240	20.20	13.05

## UNII HT20, 5250~5350 MHz

Frequency (MHz)	26dB Bandwidth (B) (MHz)	10 Log (B) (dB)
5260	20.11	13.03
5300	20.16	13.05
5320	20.27	13.07

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#### UNII HT40, 5150~5250 MHz

Frequency (MHz)	26dB Bandwidth (B) (MHz)	10 Log (B) (dB)
5190	39.59	15.98
5230	40.07	16.03

#### UNII HT40, 5250~5350 MHz

Frequency (MHz)	26dB Bandwidth (B) (MHz)	10 Log (B) (dB)
5270	39.95	16.02
5310	39.81	16.00

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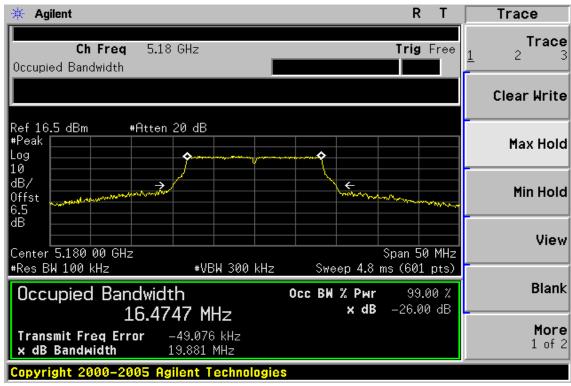
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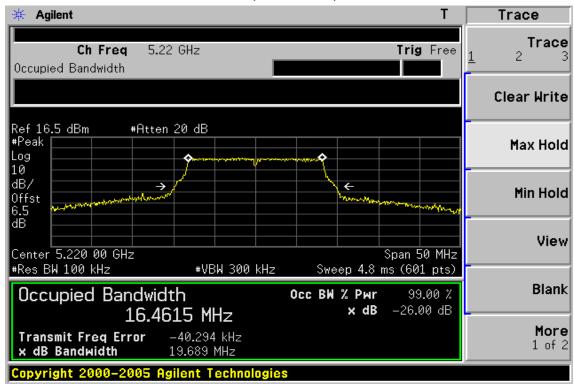
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# UNII, 5150~5250 MHz 26dB Band Width Test Data CH-Low (5180MHz)



# 26dB Band Width Test Data CH-Mid (5220MHz)



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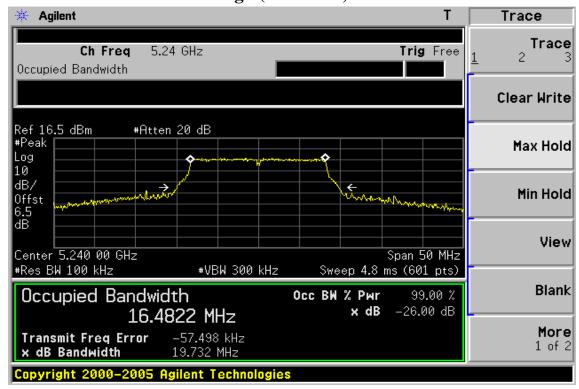
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# 26dB Band Width Test Data CH-High (5240MHz)



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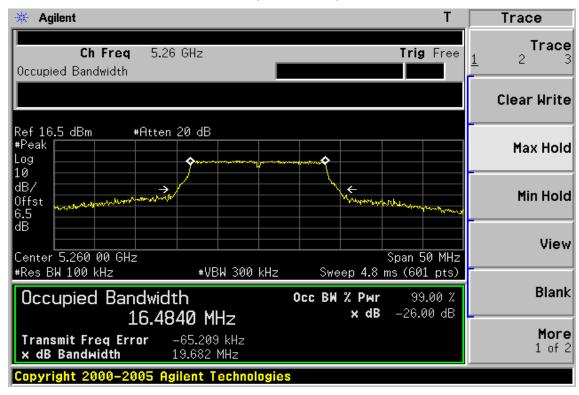
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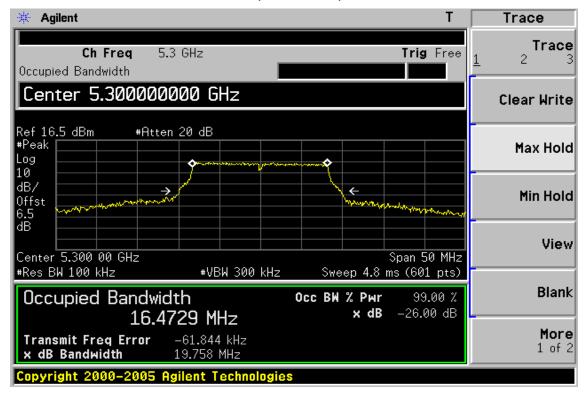
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# UNII, 5250~5350 MHz 26dB Band Width Test Data CH-Mid (5260MHz)



# 26dB Band Width Test Data CH-Mid (5300MHz)



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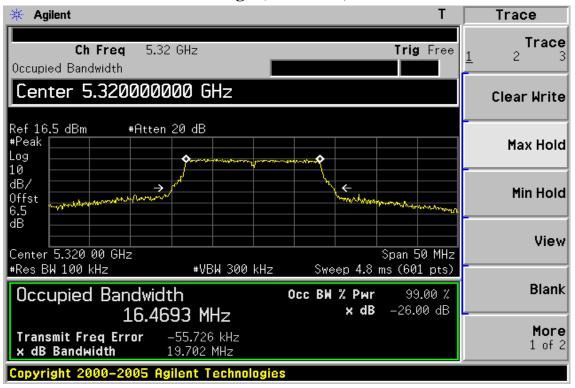
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# 26dB Band Width Test Data CH-High (5320MHz)



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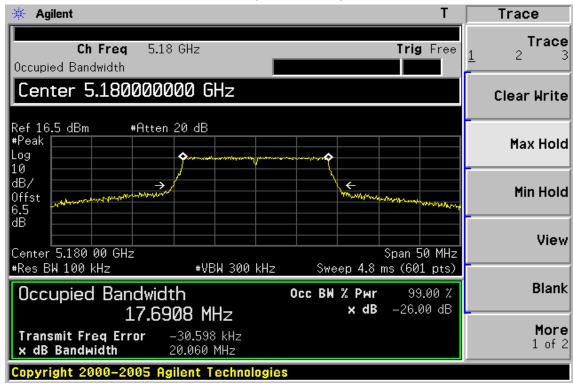
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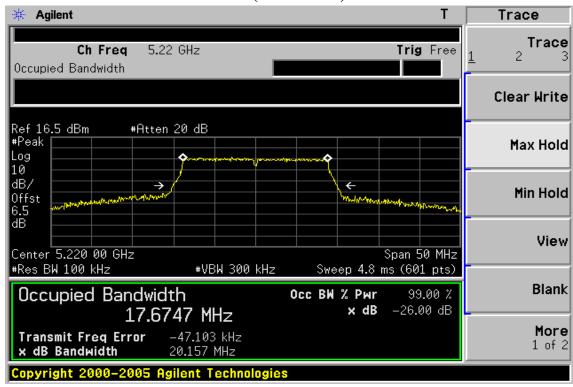
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# UNII, HT 20, 5150~5250 MHz 26dB Band Width Test Data CH-Low (5180 MHz)



# 26dB Band Width Test Data CH-Low (5220 MHz)



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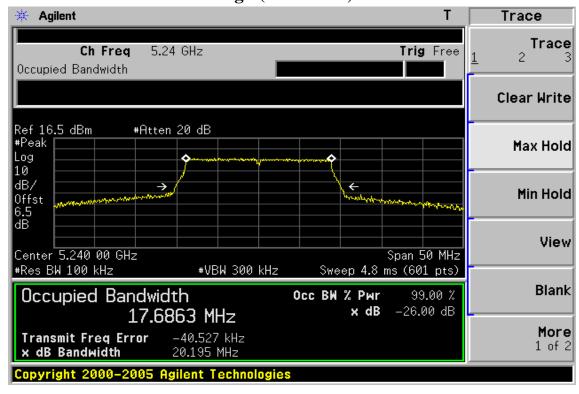
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# 26dB Band Width Test Data CH-High (5240 MHz)



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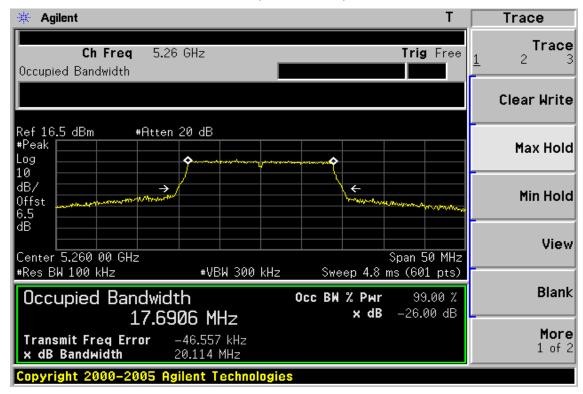
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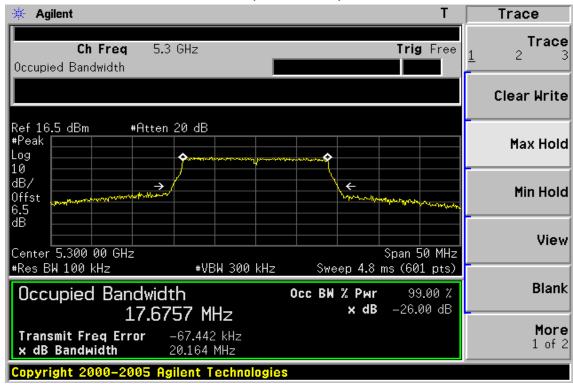
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# UNII, HT 20, 5250~5350 MHz 26dB Band Width Test Data CH-Mid (5260 MHz)



# 26dB Band Width Test Data CH-Mid (5300 MHz)



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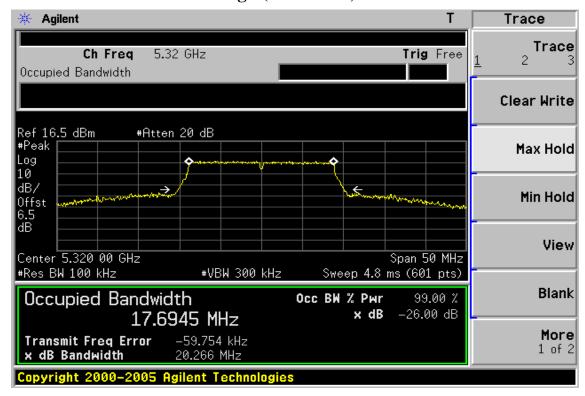
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# 26dB Band Width Test Data CH-High (5320 MHz)



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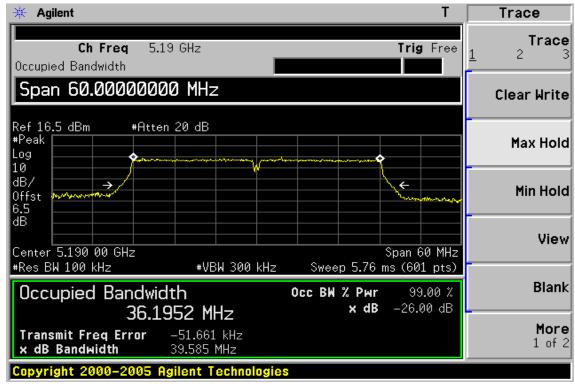
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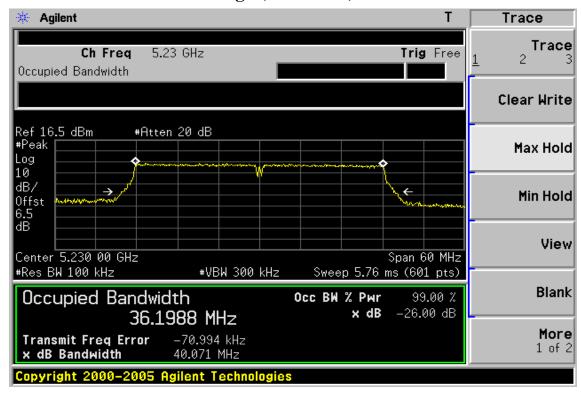
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# UNII, HT 40, 5150~5250 MHz 26dB Band Width Test Data CH-Low (5190 MHz)



# 26dB Band Width Test Data CH-High (5230 MHz)



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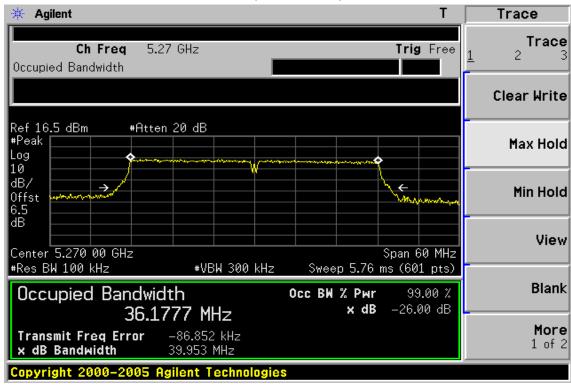
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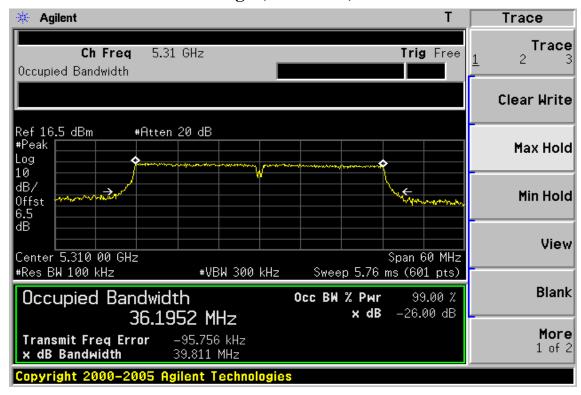
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# UNII, HT 40, 5250~5350 MHz 26dB Band Width Test Data CH-Low (5270 MHz)



# 26dB Band Width Test Data CH-High (5310 MHz)



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#### 7. PEAK OUTPUT POWER MEASUREMENT

# 7.1 Standard Applicable

According to §15.407(a)

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

# 7.2 Measurement Procedure

- 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, ACP Bandwidth = 26dB Emission Bandwidth)
- 3. Record the max. reading.
- 4. Repeat above procedures until all frequency measured were complete.

## 7.3 Measurement Equipment Used:

The Manager emone Equipment essent										
Conducted Emission Test Site										
EQUIPMENT MFR MODEL SERIAL LAST										
TYPE		NUMBER	NUMBER	CAL.						
Spectrum Analyzer	Agilent	E4446A	MY43360126	04/19/2010	04/18/2012					
Spectrum Analyzer	Agilent	E7405A	US41160416	01/25/2011	01/24/2012					
Spectrum Analyzer	R&S	FSP 40	100034	02/12/2011	02/11/2012					
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA	N/A	N/A	N/A					
Attenuator	Mini-Circuit	BW-S6W5	N/A	07/05/2010	07/04/2011					

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# 7.4 Measurement Result

	ole $loss = 0$												
СН	Frequency (MHz)		Data Rate										
	(1 <b>V1112</b> )	6	9	12	18	24	36	48	54	Required Limit			
36	5180	15.52	15.47	15.46	15.41	15.40	15.37	15.33	15.17	50mWatt = 17 dBm			
44	5220	15.50	15.46	15.44	15.43	15.39	15.35	15.31	15.27	50mWatt = 17 dBm			
48	5240	16.17	16.09	16.04	15.97	15.91	15.83	15.77	15.69	50mWatt = 17 dBm			
52	5260	15.86	15.83	15.79	15.71	15.63	15.57	15.55	15.48	250mWatt = 24 dBm			
60	5300	15.49	15.47	15.35	15.33	15.28	15.26	15.21	15.17	250mWatt = 24 dBm			
64	5320	15.16	15.15	15.13	15.14	15.11	15.06	15.04	15.01	250mWatt= 24 dBm			

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#### UNII HT20

Cab	ole loss = 0	Peak Power Output											
СН	Frequency (MHz)		Data Rate										
	(IVIIIZ)	6.5	13	19.5	26	39	52	58.5	65	72	Limit		
36	5180	15.46	15.44	15.42	15.41	15.38	15.36	15.35	15.33	15.28	50mWatt= 17 dBm		
44	5220	15.46	15.42	15.41	15.39	15.36	15.33	15.32	15.29	15.25	50mWatt= 17 dBm		
48	5240	16.19	16.18	16.15	16.13	16.12	16.09	16.08	16.05	16.01	50mWatt= 17 dBm		
52	5260	15.92	15.89	15.88	15.86	15.85	15.82	15.81	15.79	15.75	250mWatt = 24 dBm		
60	5300	15.53	15.52	15.50	15.49	15.47	15.45	15.41	15.39	15.36	250mWatt = 24 dBm		
64	5320	15.19	15.17	15.15	15.14	15.11	15.08	15.07	15.03	14.98	250mWatt = 24 dBm		

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#### UNII HT40

Cal	ole loss = 0		Peak Power Output										
СН	Frequency (MHz)		Data Rate										
		13.5	27	40.5	54	81	108	121.5	135				
38	5190	15.24	15.23	15.21	15.20	15.18	15.15	15.14	15.12	50mWatt= 17 dBm			
46	5230	15.26	15.25	15.23	15.22	15.19	15.18	15.16	15.11	50mWatt= 17 dBm			
54	5270	15.65	15.61	15.60	15.57	15.55	15.54	15.51	15.48	50mWatt= 17 dBm			
62	5310	15.28	15.27	15.24	15.23	15.21	15.19	15.16	15.15	250mWatt = 24 dBm			

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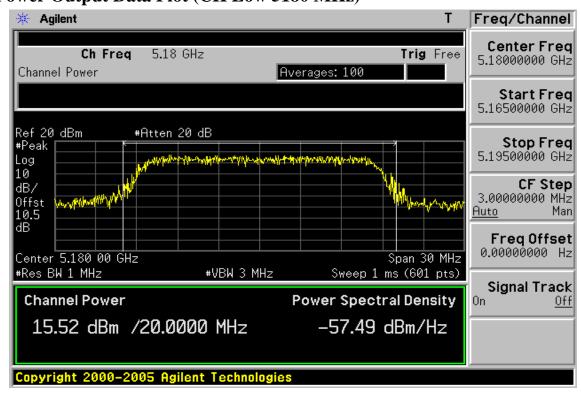
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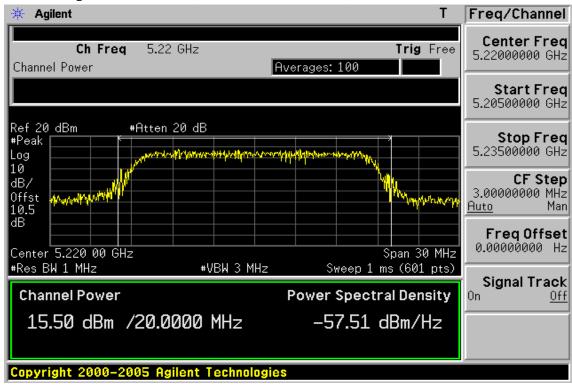
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# UNII, 5150~5250 MHz Peak Power Output Data Plot (CH Low 5180 MHz)



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



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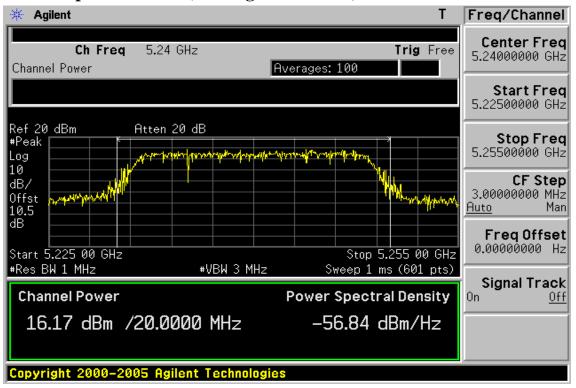
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# Peak Power Output Data Plot (CH High 5240 MHz)



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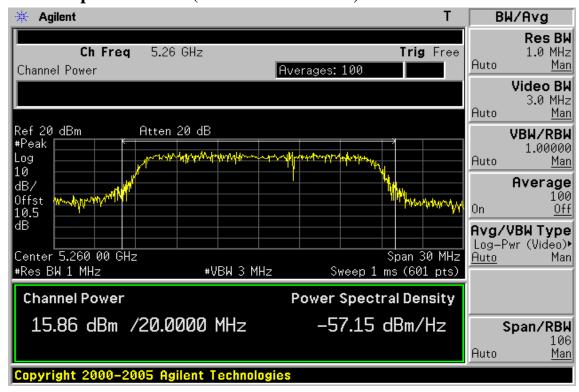
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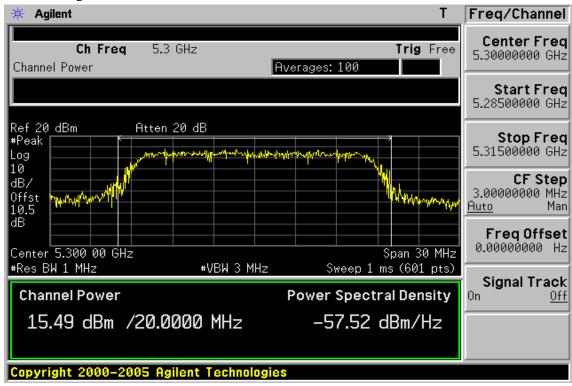
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# UNII, 5250~5350 MHz Peak Power Output Data Plot (CH Low 5260 MHz)



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



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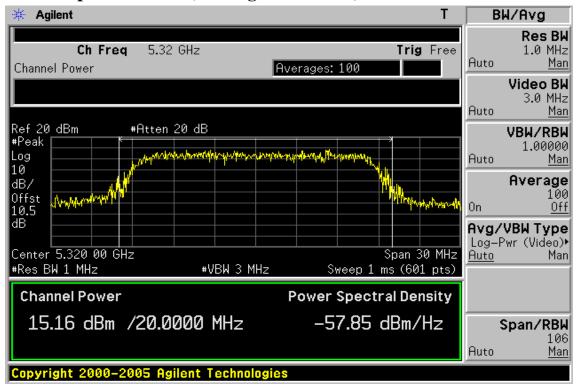
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# Peak Power Output Data Plot (CH High 5320 MHz)



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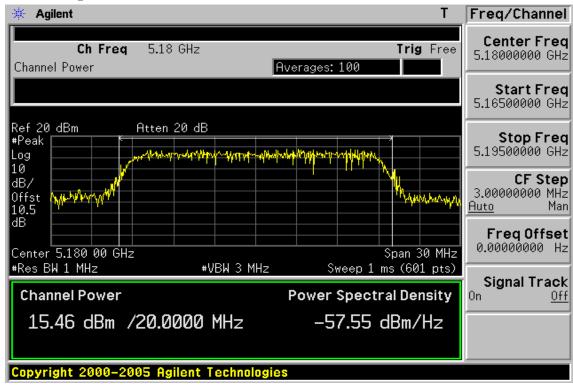
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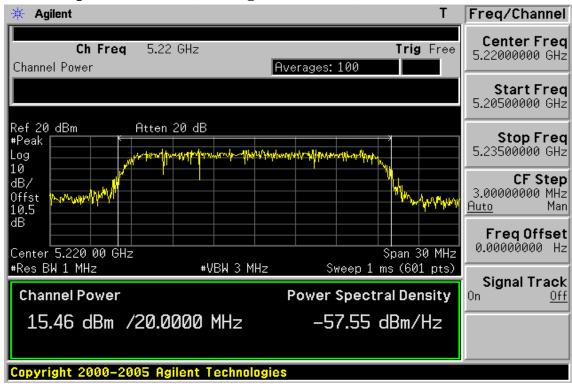
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# UNII HT20, 5150~5250 MHz Peak Power Output Data Plot (CH Mid 5180 MHz)



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



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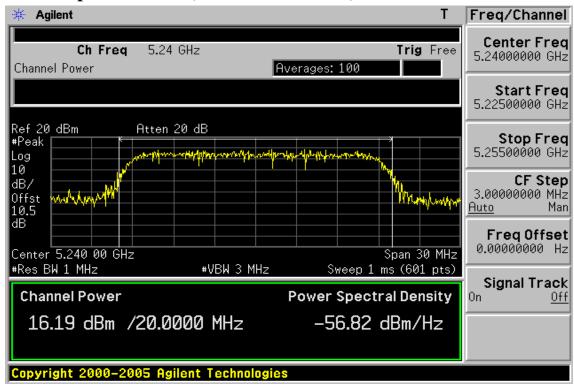
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## Peak Power Output Data Plot (CH Low 5240 MHz)



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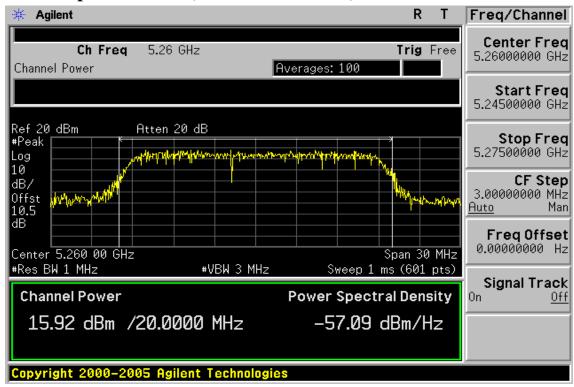
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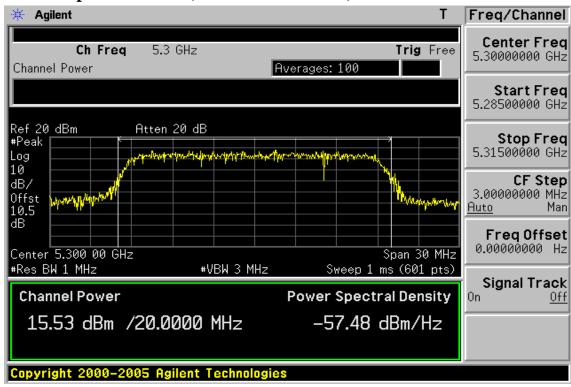
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# UNII HT20, 5250~5350 MHz Peak Power Output Data Plot (CH Low 5260 MHz)



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



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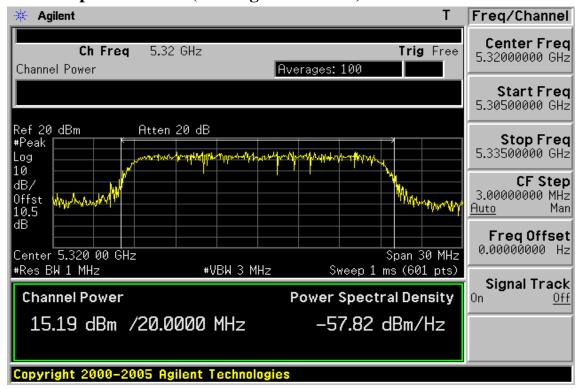
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#### Peak Power Output Data Plot (CH High 5320 MHz)



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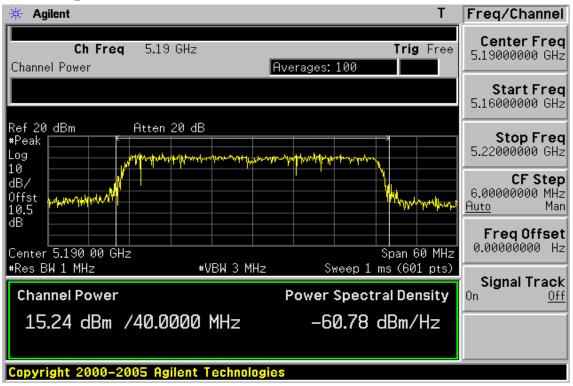
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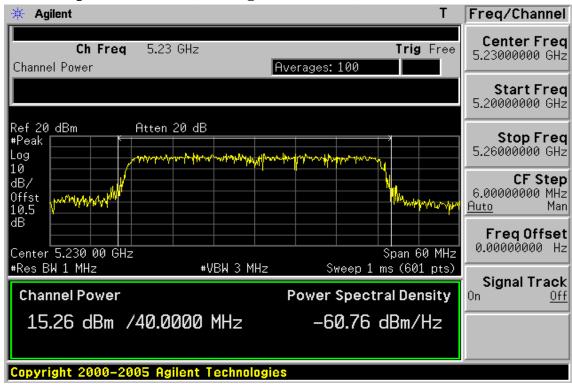
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# UNII HT40, 5190~5230 MHz Peak Power Output Data Plot (CH Low 5190 MHz)



## Peak Power Output Data Plot (CH High 5230 MHz)



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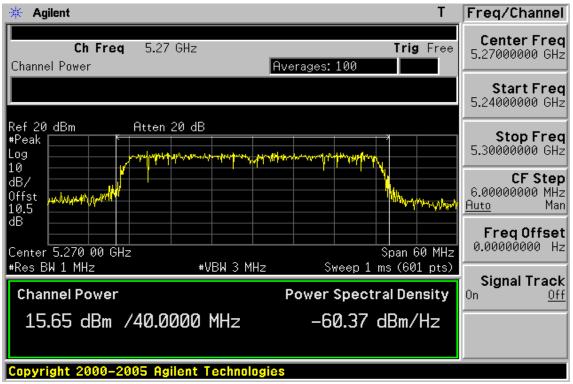
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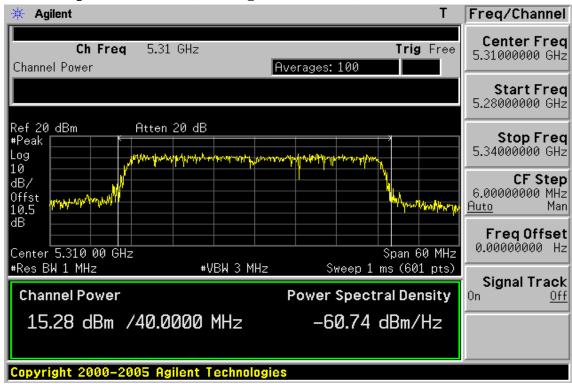
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# UNII HT40, 5250~5350 MHz Peak Power Output Data Plot (CH Low 5270 MHz)



## Peak Power Output Data Plot (CH High 5310 MHz)



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#### 8. PEAK POWER SPECTRAL DENSITY

### 8.1 Standard Applicable

According to §15.407(a)

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

#### **8.2** Measurement Procedure

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

**8.3** Measurement Equipment Used:

5.5 Weastrement Equipment Oscu.						
Conducted Emission Test Site						
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.	
TYPE		NUMBER	NUMBER	CAL.		
Spectrum Analyzer	Agilent	E4446A	MY43360126	04/19/2010	04/18/2012	
Spectrum Analyzer	Agilent	E4440A	MY45304525	01/25/2011	01/24/2012	
DC Block	Agilent	BLK-18	155452	07/05/2010	07/04/2011	
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA	N/A	01/05/2011	01/04/2012	
Attenuator	Mini-Circuit	BW-S6W5	001	07/05/2010	07/04/2011	
Attenuator	Mini-Circuit	BW-S10W5	001	07/05/2010	07/04/2011	
Attenuator	Mini-Circuit	BW-S20W5	001	07/05/2010	07/04/2011	
Splitter	Agilent	11636B	N/A	07/05/2010	07/04/2011	

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#### 8.4 Measurement Result

UNII, 5150~5250 MHz

Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
5180	-0.69	4.00	-4.69
5220	-0.96	4.00	-4.96
5240	-0.01	4.00	-4.01

UNII, 5250~5350 MHz

Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
5260	-0.20	11.00	-11.20
5300	-0.94	11.00	-11.94
5320	-0.21	11.00	-11.21

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#### UNII HT20, 5150~5250 MHz

Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
5180	-0.90	4.00	-4.90
5220	-1.28	4.00	-5.28
5240	-0.07	4.00	-4.07

#### UNII HT20, 5250~5350 MHz

Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
5260	-0.67	11.00	-11.67
5300	-1.46	11.00	-12.46
5320	-0.07	11.00	-11.07

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#### UNII HT40, 5150~5250 MHz

Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
5190	-3.47	4.00	-7.47
5230	-3.19	4.00	-7.19

#### UNII HT40, 5250~5350 MHz

Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
5270	-3.59	11.00	-14.59
5310	-2.85	11.00	-13.85

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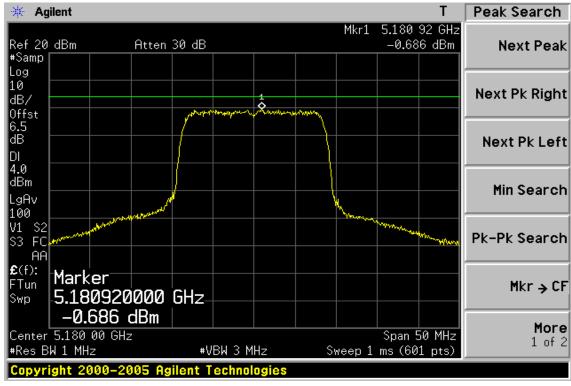
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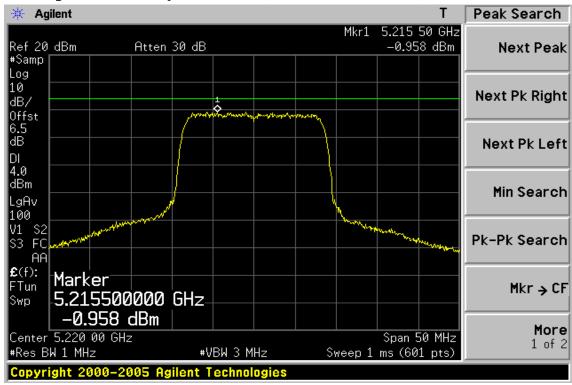
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# UNII, 5150~5250 MHz Peak Power Spectral Density Data Plot (CH Low 5180 MHz)



## Peak Power Spectral Density Data Plot (CH Mid 5220 MHz)



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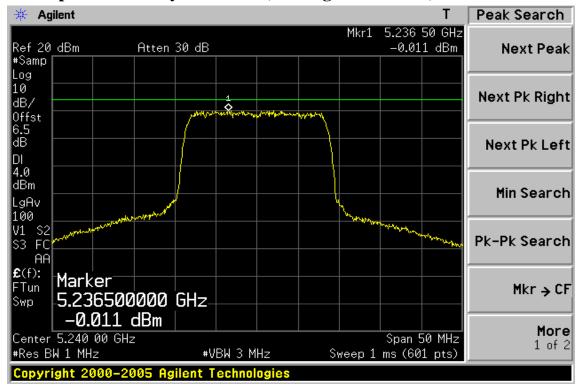
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## Peak Power Spectral Density Data Plot (CH High 5240 MHz)



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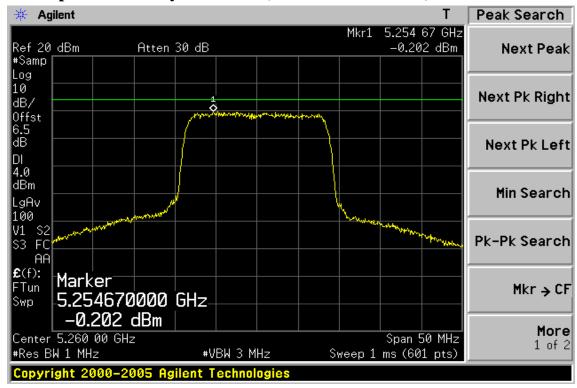


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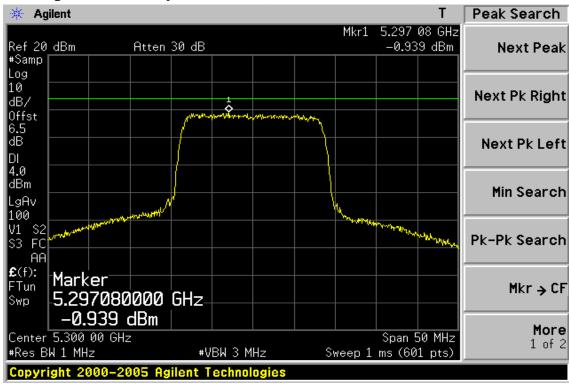
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#### UNII, 5250~5350 MHz

## Peak Power Spectral Density Data Plot (CH Low 5260 MHz)



## Peak Power Spectral Density Data Plot (CH Mid 5300 MHz)



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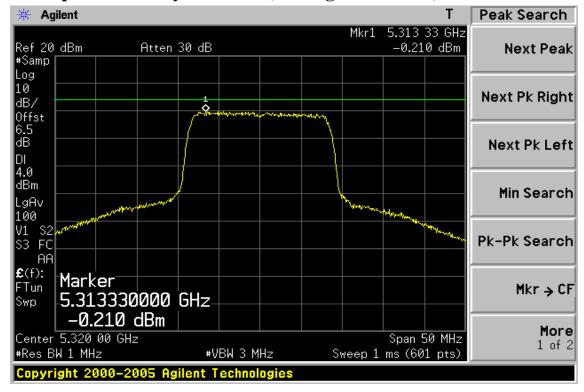
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## Peak Power Spectral Density Data Plot (CH High 5320 MHz)



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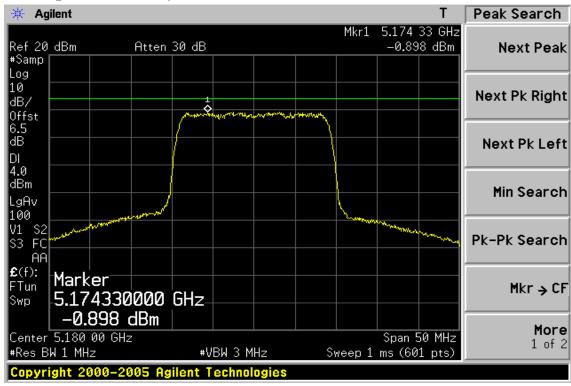


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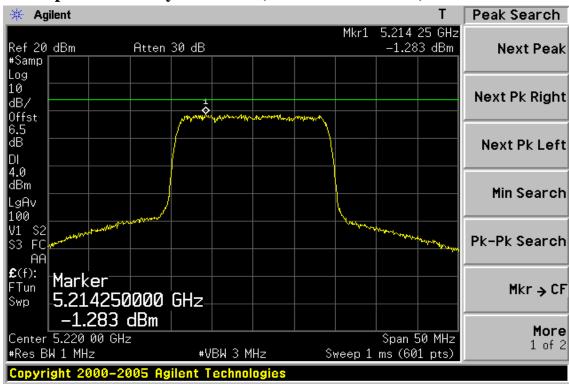
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#### UNII HT20, 5150~5250 MHz

## Peak Power Spectral Density Data Plot (CH Low 5180 MHz)



#### Peak Power Spectral Density Data Plot (CH Mid 5220 MHz)



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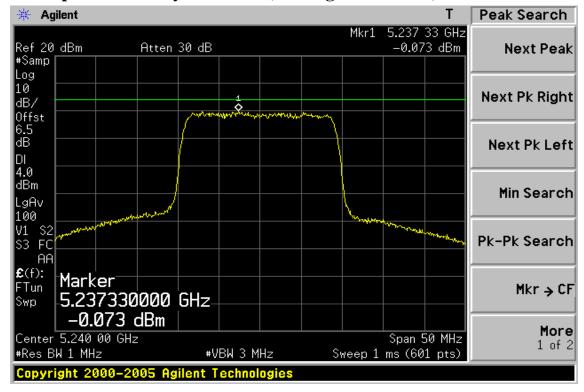
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## Peak Power Spectral Density Data Plot (CH High 5240 MHz)



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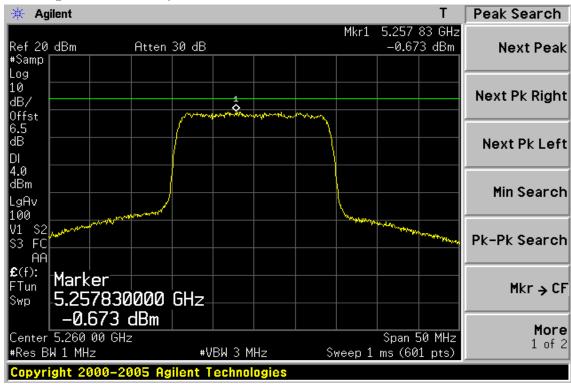


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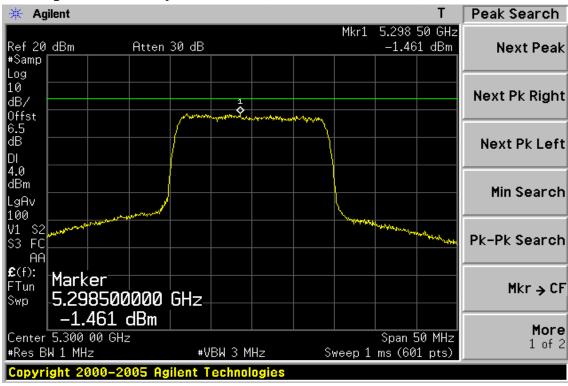
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#### UNII HT20, 5250~5350 MHz

## Peak Power Spectral Density Data Plot (CH Low 5260MHz)



## Peak Power Spectral Density Data Plot (CH Mid 5300 MHz)



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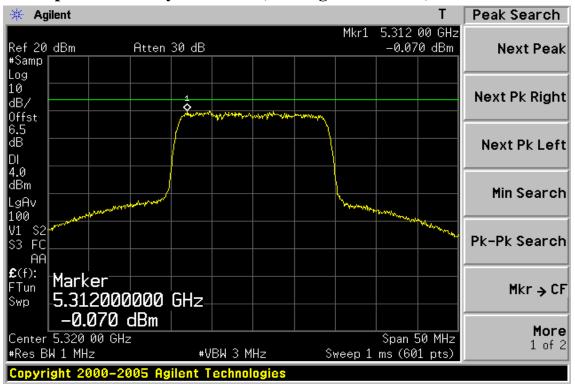
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## Peak Power Spectral Density Data Plot (CH High 5320 MHz)



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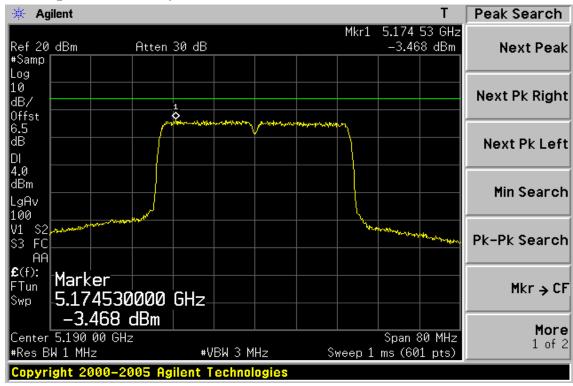


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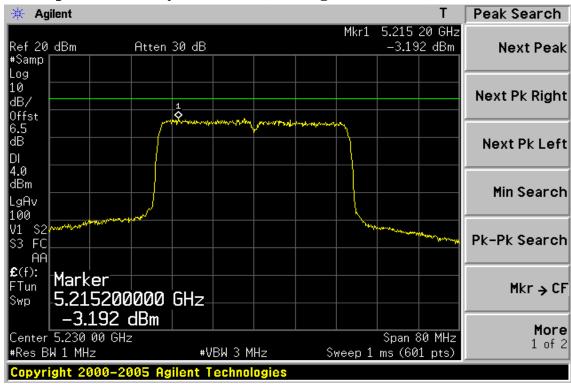
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#### UNII HT40, 5150~5250 MHz

## Peak Power Spectral Density Data Plot (CH Low 5190 MHz)



## Peak Power Spectral Density Data Plot (CH High 5230 MHz)



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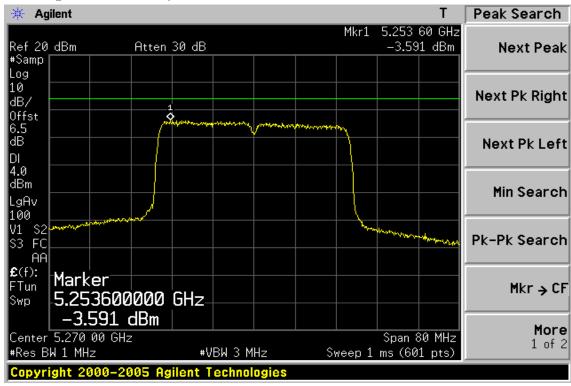


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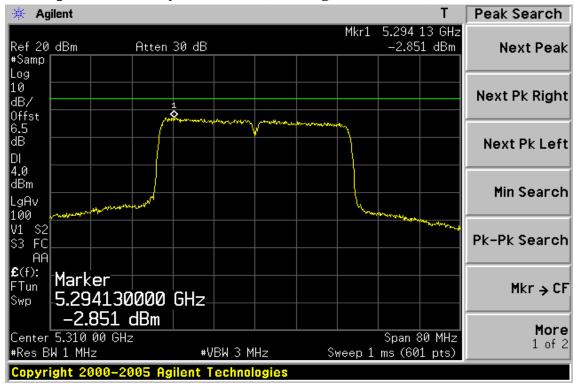
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#### UNII HT40, 5250~5350 MHz

## Peak Power Spectral Density Data Plot (CH Low 5270MHz)



## Peak Power Spectral Density Data Plot (CH High 5310 MHz)



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#### PEAK EXCURSION MEASUREMENT

#### 9.1 Standard Applicable

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

#### 9.2 Measurement Procedure

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to spectrum.
- 3. Trace A, Set RBW=1MHz, VBW = 3MHz, Span = 26dBc, Max. hold.
- 4. Trace B, Set RBW=1MHz, VBW = 30KHz, Span = 26dBc, Max. hold..
- 5. Delta Mark trace A center frequency and trace B center frequency.
- 6. Repeat above procedures until all frequency measured were complete.

#### 9.3 Measurement Equipment Used:

Conducted Emission Test Site						
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.	
TYPE		NUMBER	NUMBER	CAL.		
Spectrum Analyzer	Agilent	E4446A	MY43360126	04/19/2010	04/18/2012	
Spectrum Analyzer	Agilent	E4440A	MY45304525	01/25/2011	01/24/2012	
DC Block	Agilent	BLK-18	155452	07/05/2010	07/04/2011	
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA	N/A	01/05/2011	01/04/2012	
Attenuator	Mini-Circuit	BW-S6W5	001	07/05/2010	07/04/2011	
Attenuator	Mini-Circuit	BW-S10W5	001	07/05/2010	07/04/2011	
Attenuator	Mini-Circuit	BW-S20W5	001	07/05/2010	07/04/2011	
Splitter	Agilent	11636B	N/A	07/05/2010	07/04/2011	

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#### 9.4 Test Results:

UNII, 5150~5250 MHz

Channel	Frequency (MHz)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Low	5180	6.79	13.00	-6.21
Mid	5220	6.35	13.00	-6.65
High	5240	7.24	13.00	-5.76

UNII, 5250~5350 MHz

Channel	Frequency (MHz)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Low	5260	7.20	13.00	-5.80
Mid	5300	7.04	13.00	-5.96
High	5320	7.04	13.00	-5.96

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#### UNII HT20, 5150~5250 MHz

Channel	Frequency (MHz)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Low	5180	7.41	13.00	-5.59
Mid	5220	6.59	13.00	-6.41
High	5240	7.02	13.00	-5.98

#### UNII HT20, 5250~5350 MHz

Channel	Frequency (MHz)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Low	5260	7.72	13.00	-5.28
Mid	5300	6.30	13.00	-6.70
High	5320	7.30	13.00	-5.70

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## UNII HT40, 5150~5250 MHz

Channel	Frequency (MHz)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Low	5190	6.82	13.00	-6.18
High	5230	6.74	13.00	-6.26

#### UNII HT40, 5250~5350 MHz

Channel	Frequency (MHz)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Low	5270	8.11	13.00	-4.89
High	5310	7.48	13.00	-5.52

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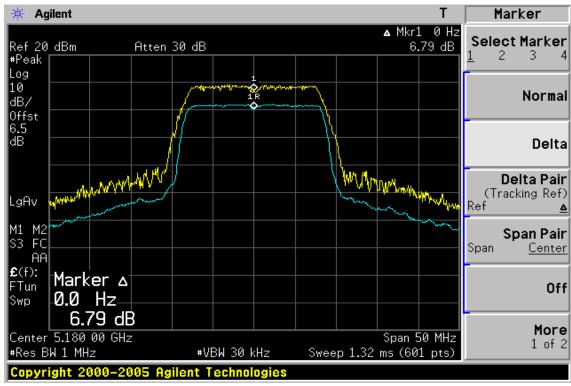


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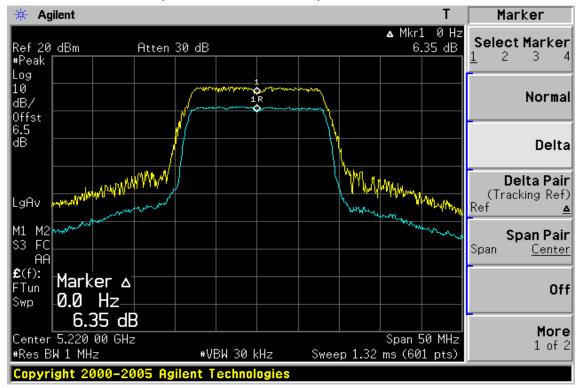
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# UNII, 5150~5250 MHz

## Peak Excursion Data Plot (CH Low 5180 MHz)



#### Peak Excursion Data Plot (CH Mid 5220 MHz)



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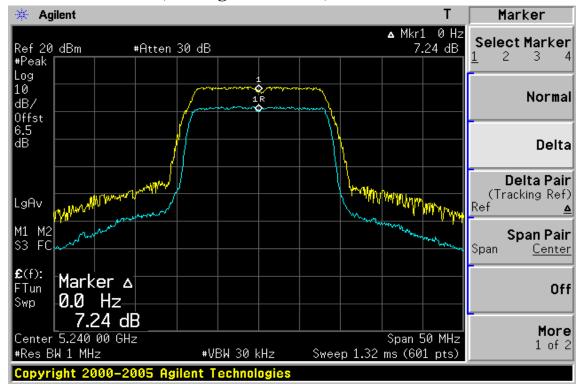
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## Peak Excursion Data Plot (CH High 5240 MHz)



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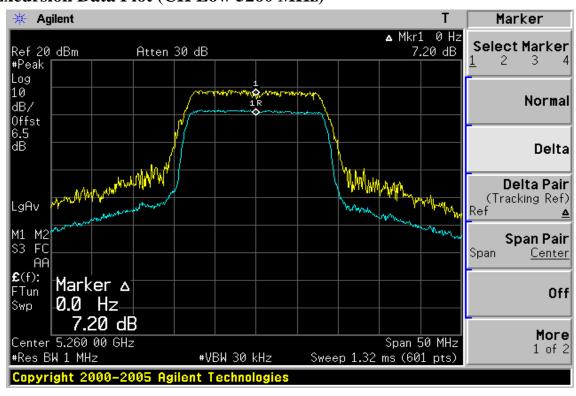
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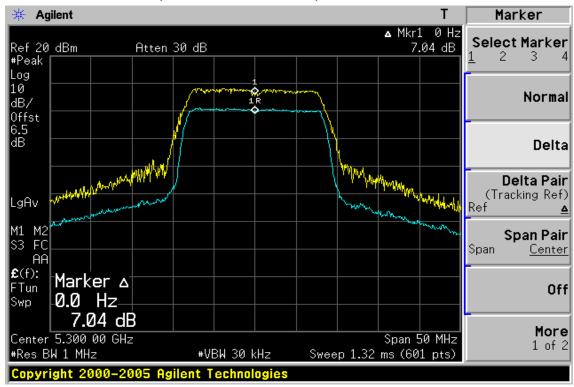
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## UNII, 5250~5350 MHz Peak Excursion Data Plot (CH Low 5260 MHz)



#### Peak Excursion Data Plot (CH Mid 5300 MHz)



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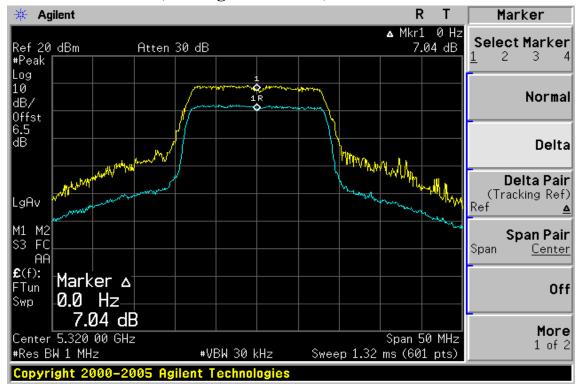
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## Peak Excursion Data Plot (CH High 5320 MHz)



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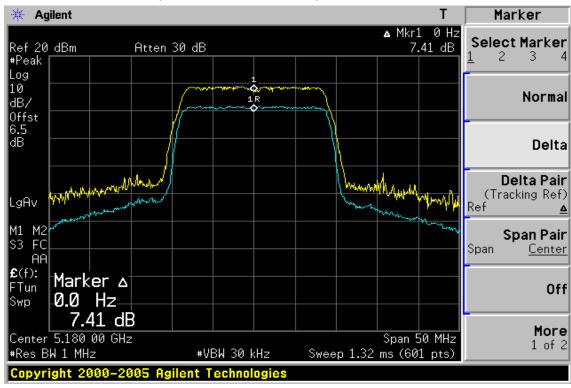
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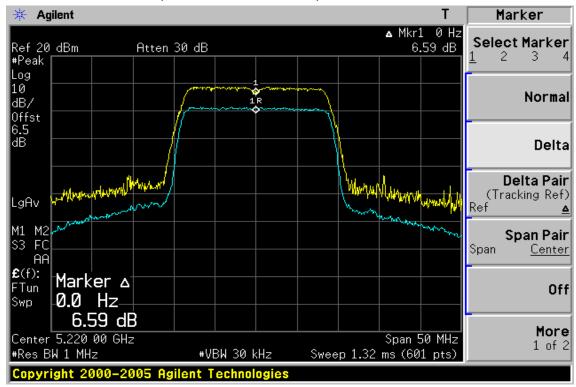
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# UNII, HT20, 5150~5250 MHz Peak Excursion Data Plot (CH Low 5180 MHz)



#### Peak Excursion Data Plot (CH Mid 5220 MHz)



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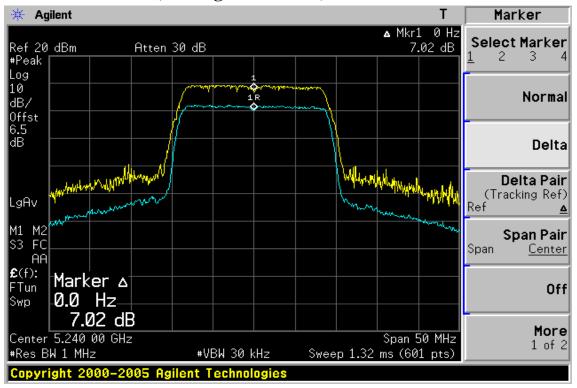
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## Peak Excursion Data Plot (CH High 5240 MHz)



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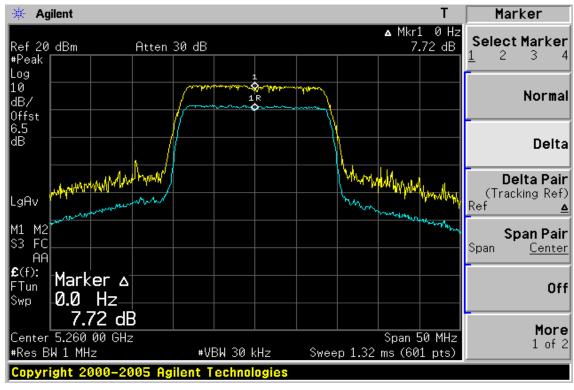
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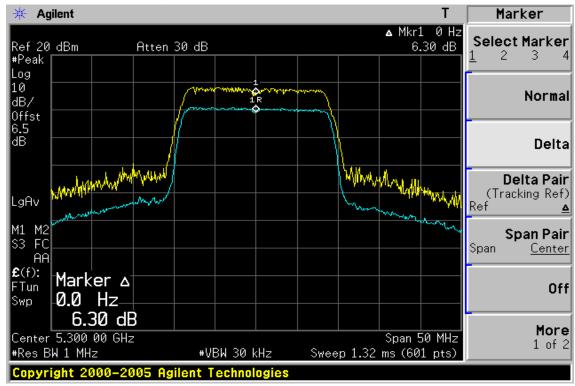
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# UNII, HT20, 5250~5350 MHz Peak Excursion Data Plot (CH Low 5260MHz)



## Peak Excursion Data Plot (CH Mid 5300MHz)



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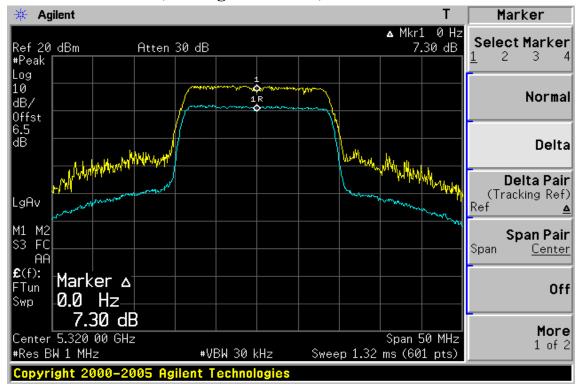
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## Peak Excursion Data Plot (CH High 5320MHz)



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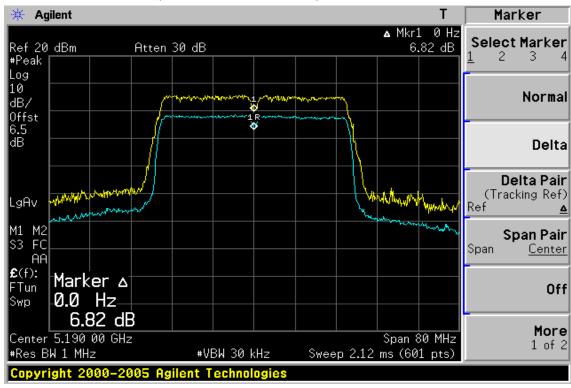
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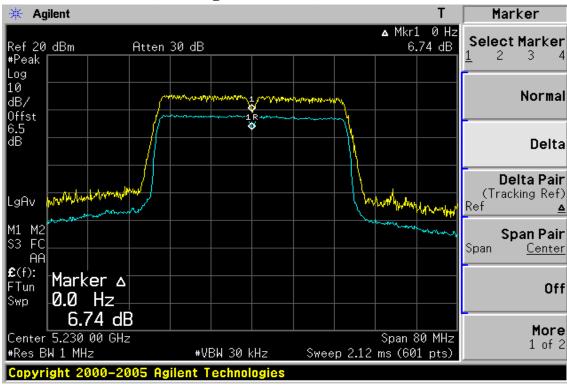
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# UNII, HT40, 5150~5250 MHz Peak Excursion Data Plot (CH Low 5190 MHz)



## Peak Excursion Data Plot (CH High 5230 MHz)



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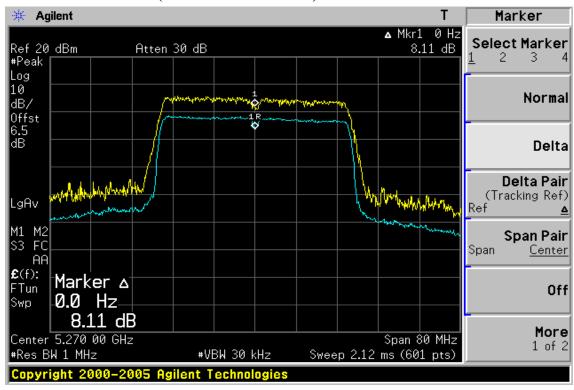
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# UNII, HT40, 5250~5350 MHz Peak Excursion Data Plot (CH Low 5270MHz)



## Peak Excursion Data Plot (CH High 5310MHz)



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#### 10. UNDESIRABLE EMISSION - CONDUCTED MEASUREMENT

#### 10.1 Standard Applicable

According to §15.407(b),

- (b) Undesirable Emission Limits: Except as shown in Paragraph (b)(6) of this section, the peak emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:
  - For transmitters operating in the 5.15-5.25 GHz band: all emissions outside of the 5.15-5.35 GHz (1) band shall not exceed an EIRP of -27 dBm/MHz.
  - For transmitters operating in the 5.25-5.35 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz. Devices operating in the 5.25-5.35 GHz band that generate emissions in the 5.15-5.25 GHz band must meet all applicable technical requirements for operation in the 5.15-5.25 GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27 dBm/MHz in the 5.15-5.25 GHz band.
  - For transmitters operating in the 5.47-5.725 GHz band: all emissions outside of the 5.47-5.725 GHz band shall not exceed an EIRP of -27 dBm/MHz.
  - For transmitters operating in the 5.725-5.825 GHz band: all emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an EIRP of -17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an EIRP of -27 dBm/MHz.
  - The above emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.
  - Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in Section 15.209. Further, any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in Section 15.207.
  - The provisions of Section 15.205 of this part apply to intentional radiators operating under this (7) section.
  - When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the upper and lower frequency block edges as the design of the equipment permits.

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#### **10.2** Measurement Procedure

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to spectrum.
- Set Spectrum RBW=1MHz, VBW = 1MHz for peak measurement and 10Hz for average meas-3. urement.
- Set Spectrum at lower/upper band edge and the restricted band adjacent to the lower/upper edge of the authorized band, with the transmitter set to the lowest/highest channel.
- Set Spectrum over the 30MHz to 40GHz range with the transmitter set to the lowest, middle, 5. and highest channels.

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

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

10.3 Measurement Equipment Used:

10.5 Weasurement Equipment Oscu.									
Conducted Emission Test Site									
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.				
TYPE		NUMBER	NUMBER	CAL.					
Spectrum Analyzer	Agilent	E4446A	MY43360126	04/19/2010	04/18/2012				
Spectrum Analyzer	Agilent	E4440A	MY45304525	01/25/2011	01/24/2012				
DC Block	Agilent	BLK-18	155452	07/05/2010	07/04/2011				
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA	N/A	01/05/2011	01/04/2012				
Attenuator	Mini-Circuit	BW-S6W5	001	07/05/2010	07/04/2011				
Attenuator	Mini-Circuit	BW-S10W5	001	07/05/2010	07/04/2011				
Attenuator	Mini-Circuit	BW-S20W5	001	07/05/2010	07/04/2011				
Splitter	Agilent	11636B	N/A	07/05/2010	07/04/2011				
Spectrum Analyzer	R&S	FSP 40	100034	02/12/2011	02/11/2012				

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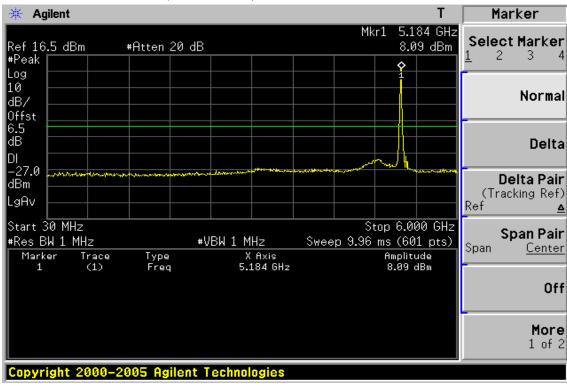
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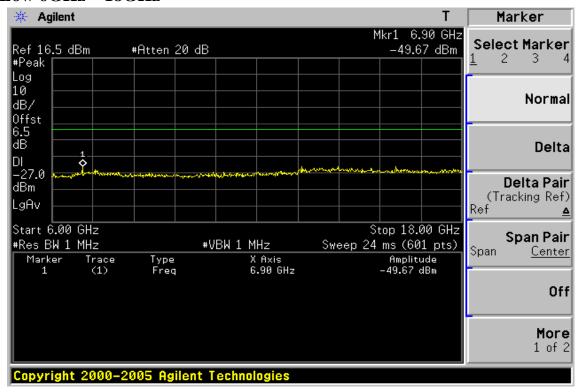
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## UNII, 5150~5250 MHz Ch Low 30MHz – 6GHz (5180 MHz)



#### Ch Low 6GHz – 18GHz



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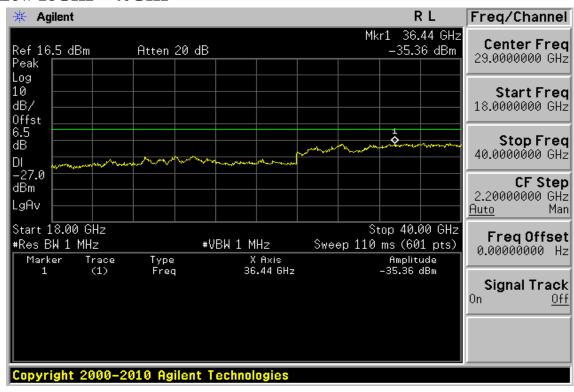
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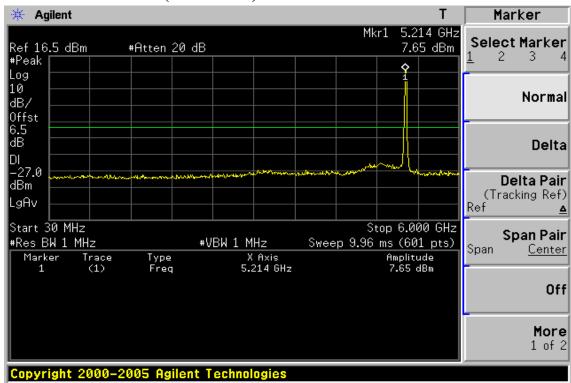
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#### Ch Low 18GHz – 40GHz



### **Ch Mid 30MHz – 6GHz (5220 MHz)**



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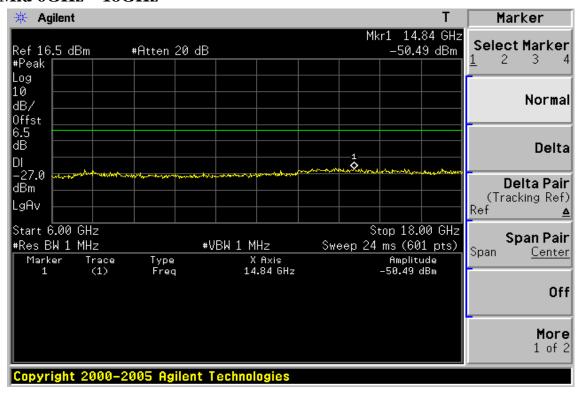
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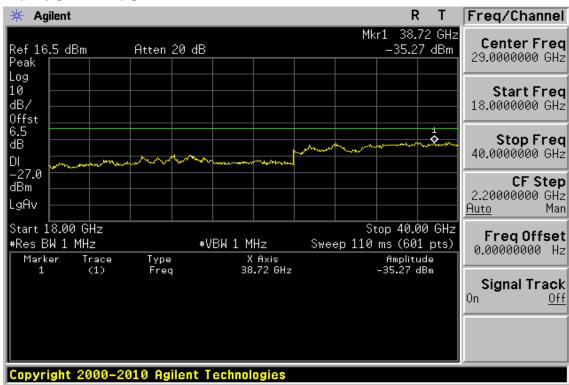
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#### Ch Mid 6GHz – 18GHz



#### Ch Mid 18GHz – 40GHz



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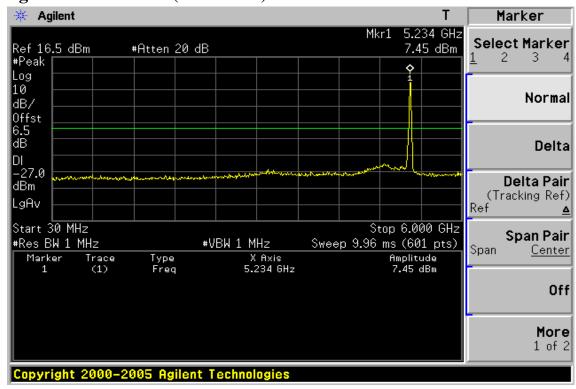
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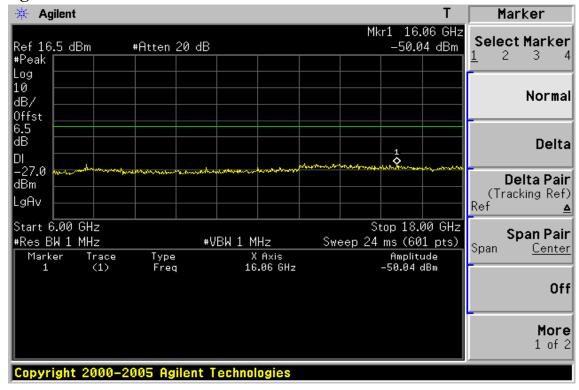
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## **Ch High 30MHz – 6GHz (5240 MHz)**



## Ch High 6GHz – 18GHz



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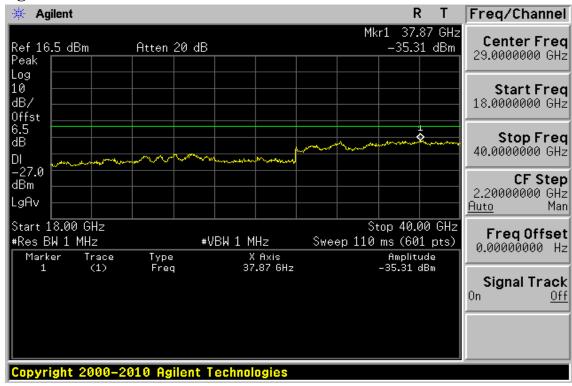
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## Ch High 18GHz – 40GHz



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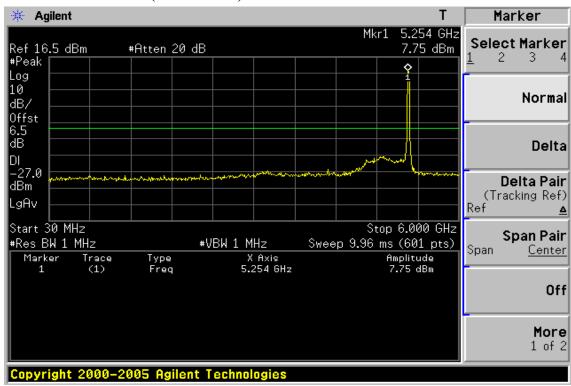
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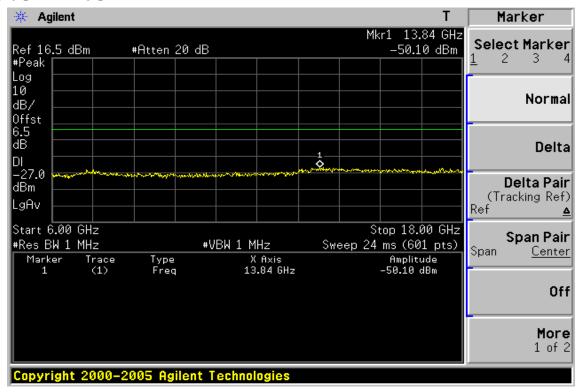
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## UNII, 5250~5350 MHz **Ch Low 30MHz – 6GHz (5260 MHz)**



#### Ch Low 6GHz - 18GHz



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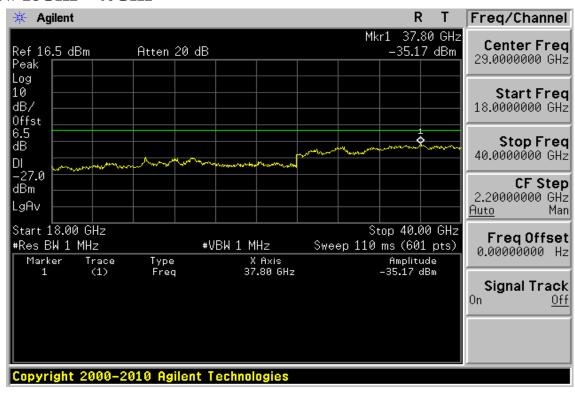
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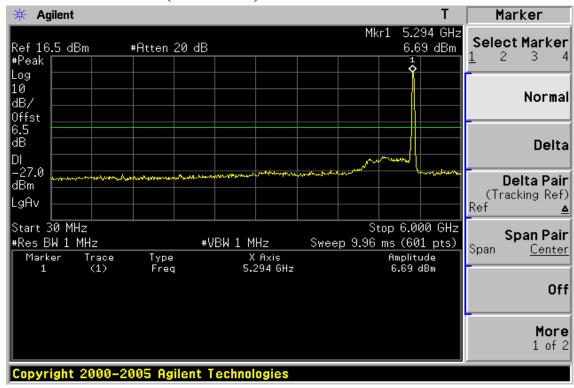
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#### Ch Low 18GHz - 40GHz



#### Ch Mid 30MHz – 6GHz (5300 MHz)



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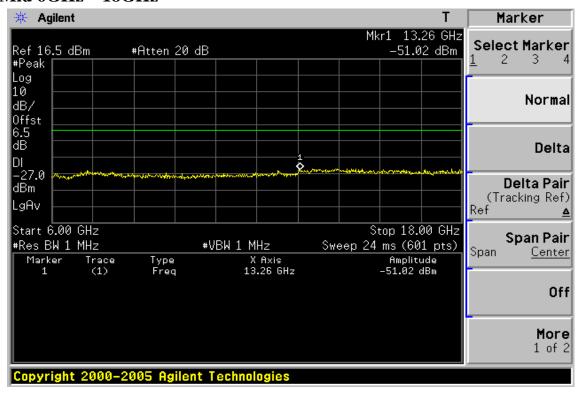
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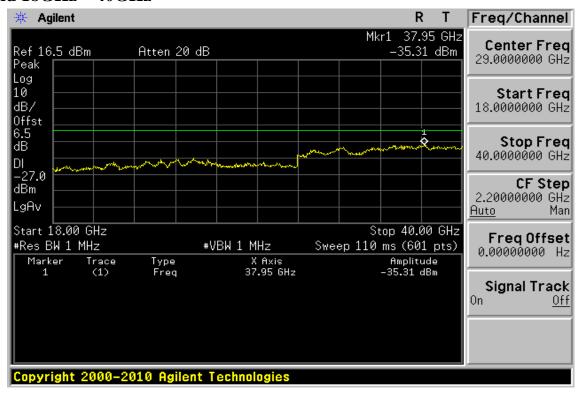
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#### Ch Mid 6GHz – 18GHz



#### Ch Mid 18GHz – 40GHz



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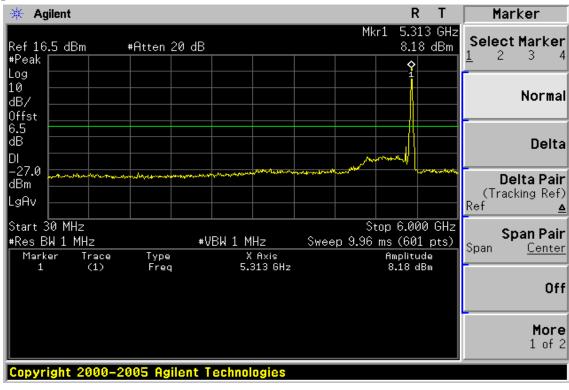
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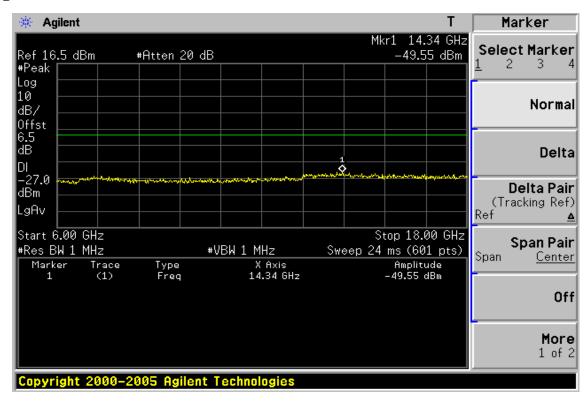
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### **Ch High 30MHz – 6GHz (5320 MHz)**



## Ch High 6GHz – 18GHz



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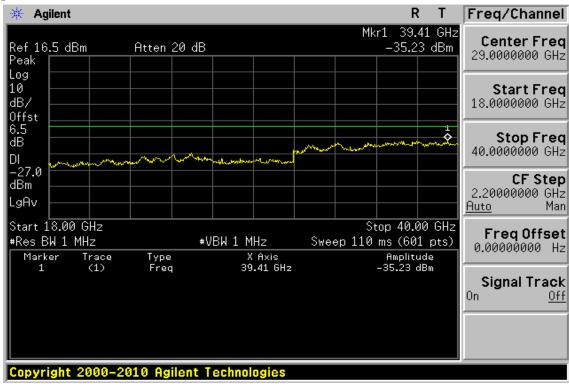
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## Ch High 18GHz - 40GHz



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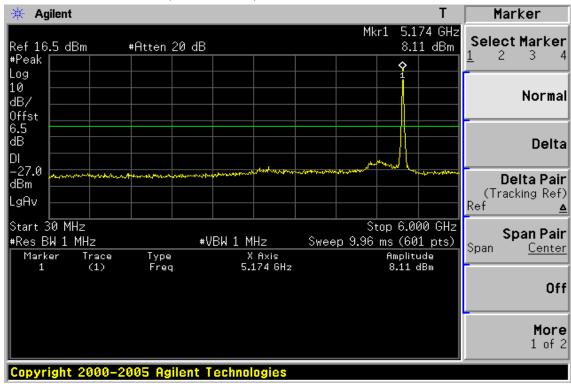


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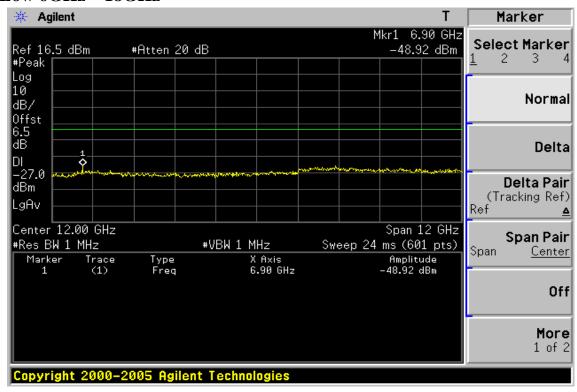
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# UNII HT20, 5150~5250 MHz

Ch Low 30MHz – 6GHz (5180 MHz)



#### Ch Low 6GHz – 18GHz



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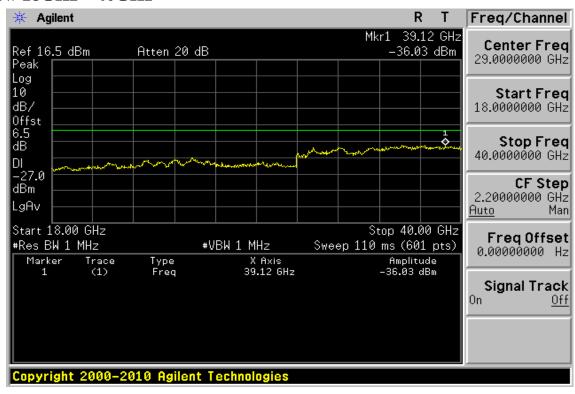
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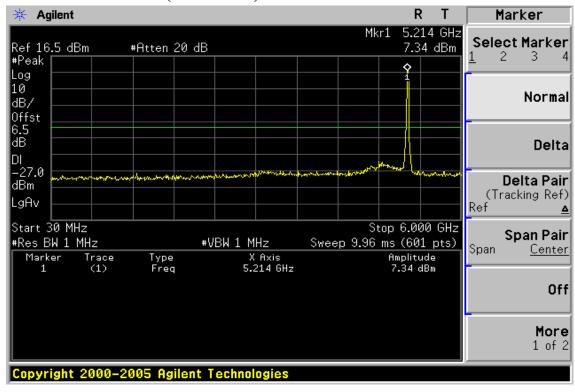
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#### Ch Low 18GHz – 40GHz



### **Ch Mid 30MHz – 6GHz (5220 MHz)**



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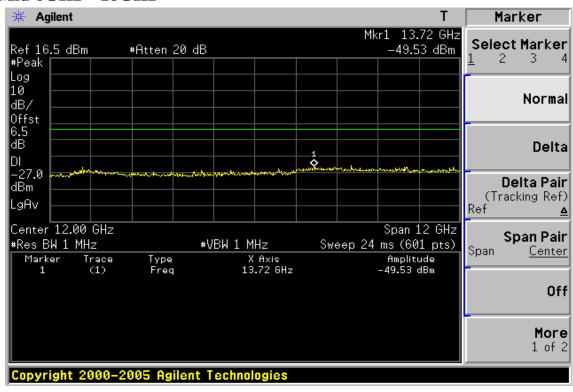
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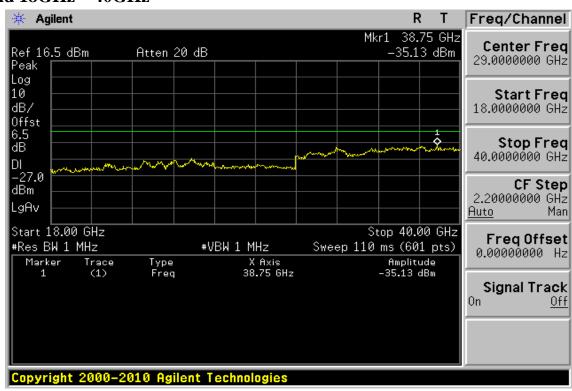
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#### Ch Mid 6GHz – 18GHz



#### Ch Mid 18GHz – 40GHz



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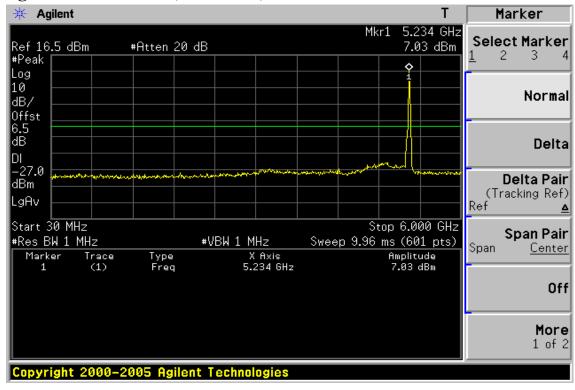
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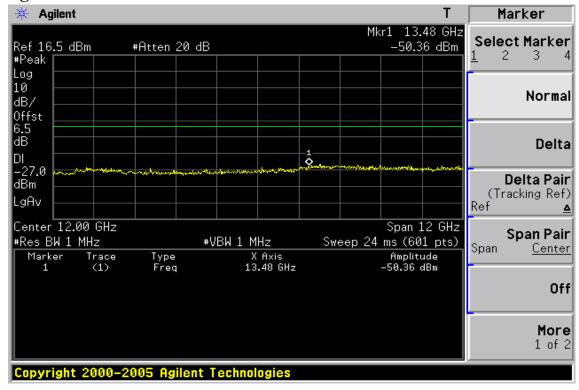
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## **Ch High 30MHz – 6GHz (5240 MHz)**



## Ch High 6GHz – 18GHz



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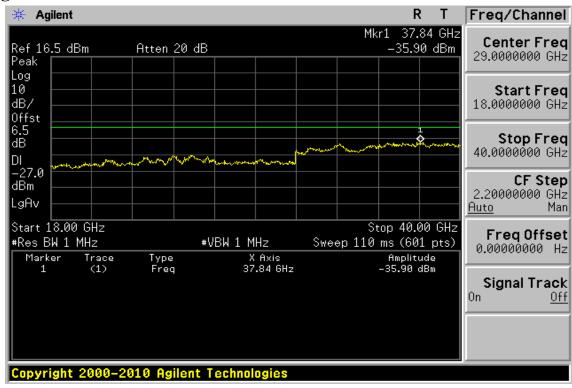
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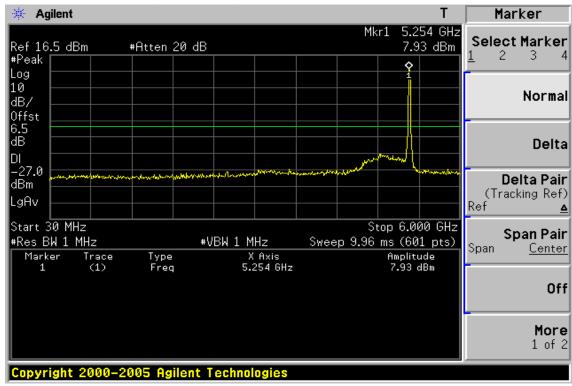
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## Ch High 18GHz – 40GHz



## UNII HT20, 5250~5350 MHz Ch Low 30MHz – 6GHz (5260 MHz)



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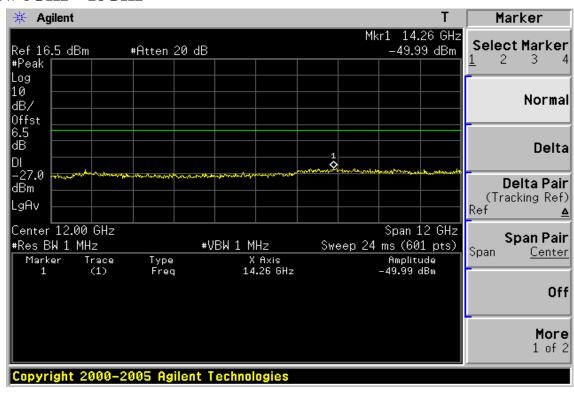
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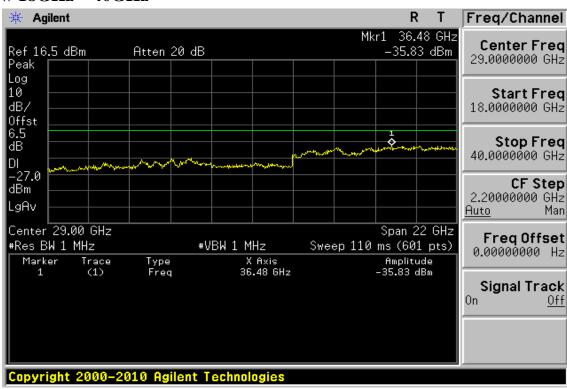
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### Ch Low 6GHz - 18GHz



#### Ch Low 18GHz – 40GHz



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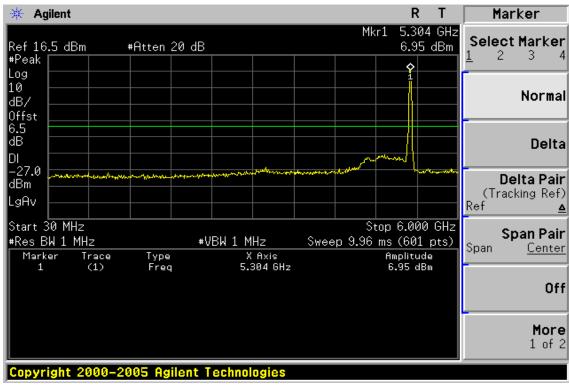
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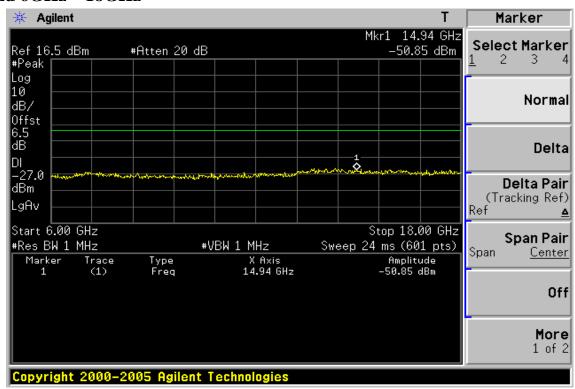
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### Ch Mid 30MHz – 6GHz (5300 MHz)



#### Ch Mid 6GHz – 18GHz



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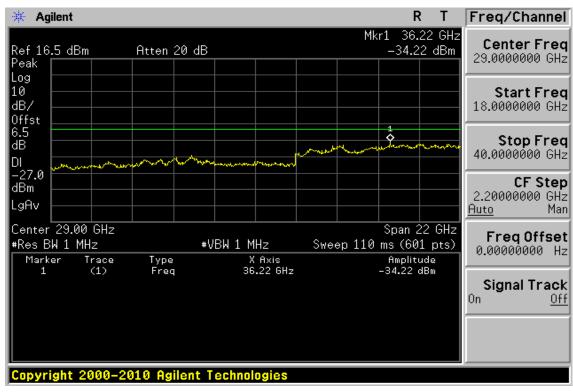
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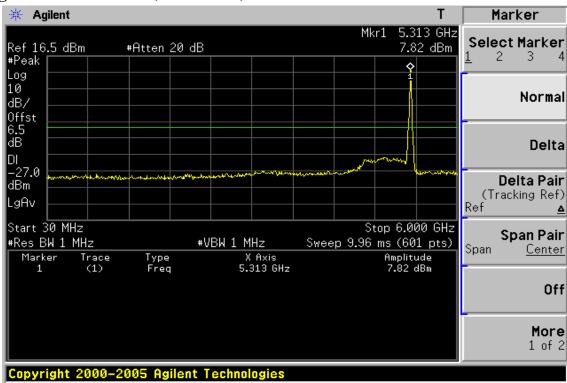
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### Ch Mid 18GHz - 40GHz



### **Ch High 30MHz – 6GHz (5320 MHz)**



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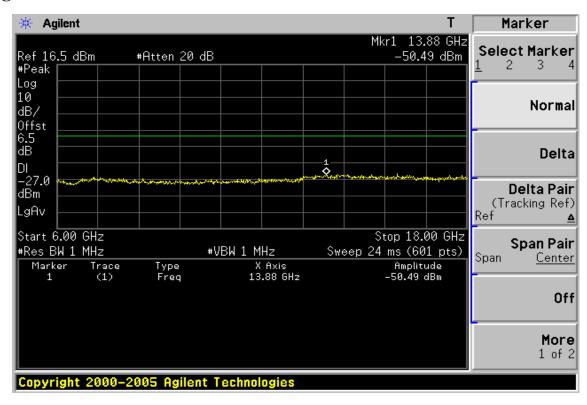
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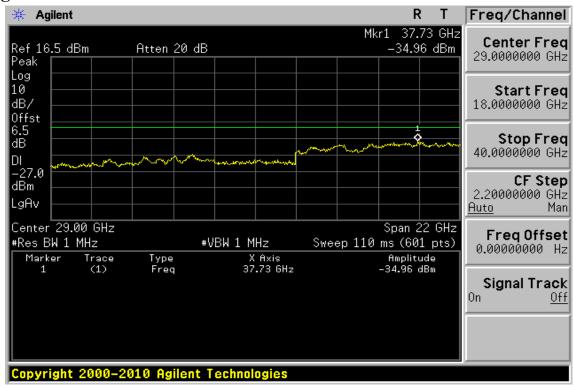
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## Ch High 6GHz – 18GHz



## Ch High 18GHz - 40GHz



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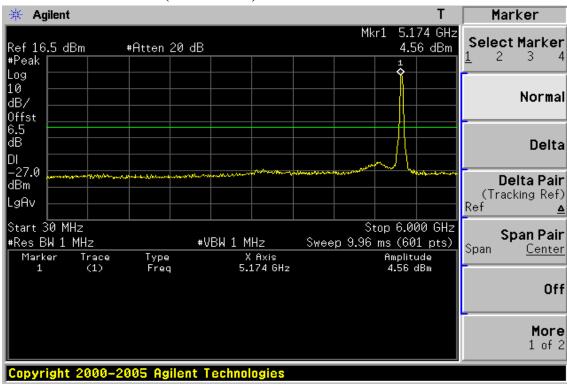
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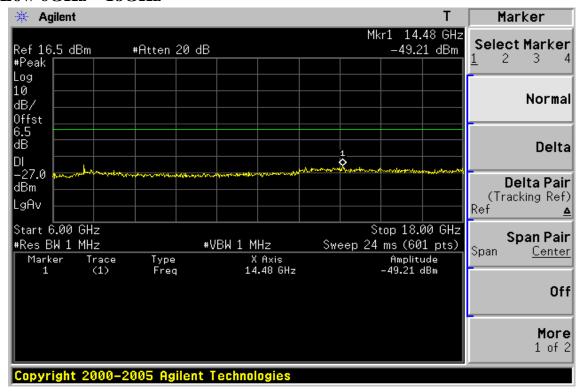
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## UNII HT40, 5150~5250 MHz Ch Low 30MHz - 6GHz (5190 MHz)



#### Ch Low 6GHz – 18GHz



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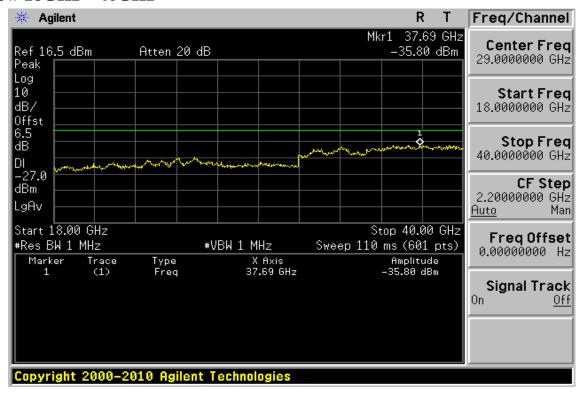
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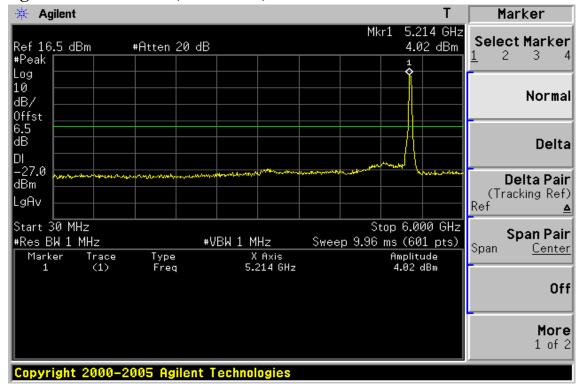
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#### Ch Low 18GHz – 40GHz



## **Ch High 30MHz – 6GHz (5230 MHz)**



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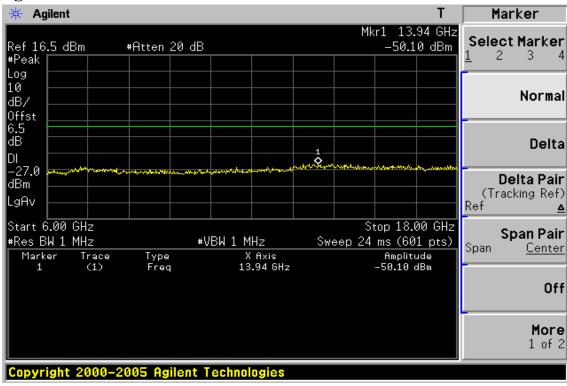
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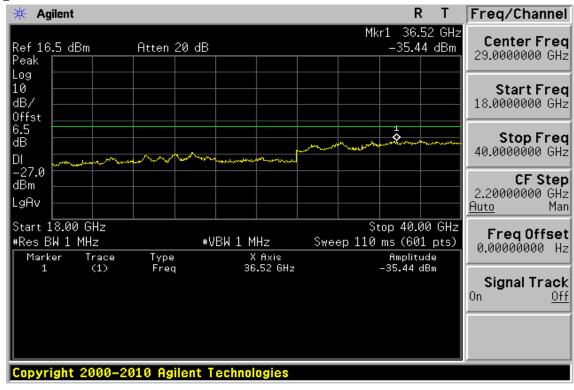
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## Ch High 6GHz – 18GHz



## Ch High 18GHz – 40GHz



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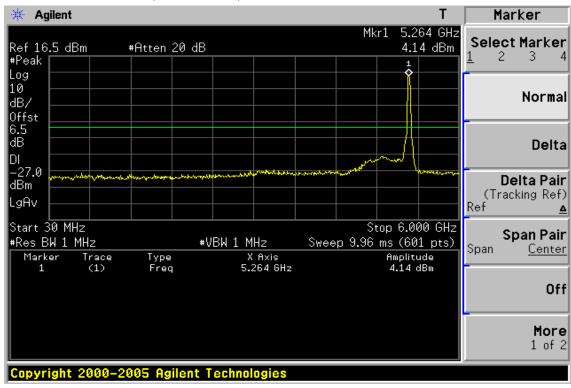
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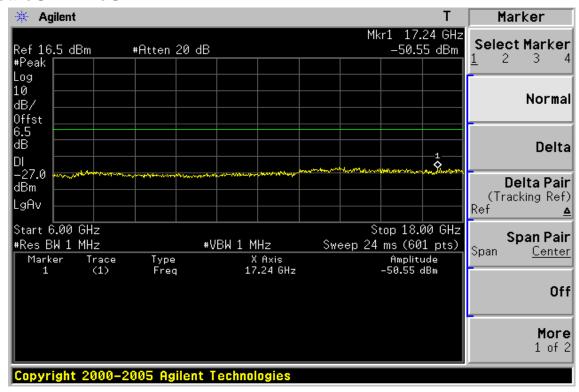
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## UNII HT40, 5250~5350 MHz Ch Low 30MHz - 6GHz (5270 MHz)



#### Ch Low 6GHz - 18GHz



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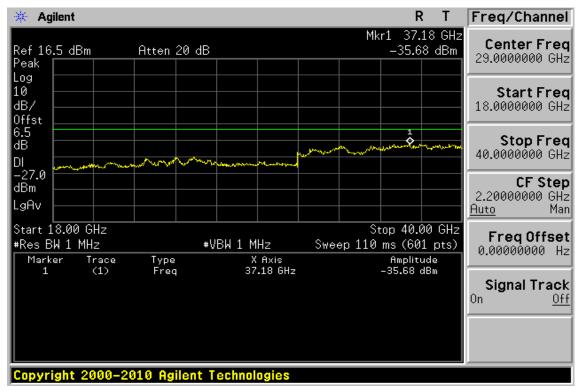
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#### Ch Low 18GHz - 40GHz



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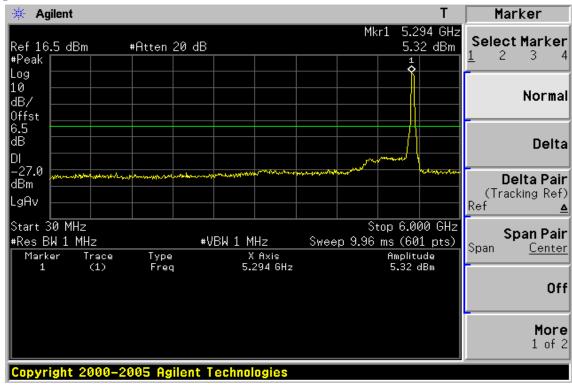
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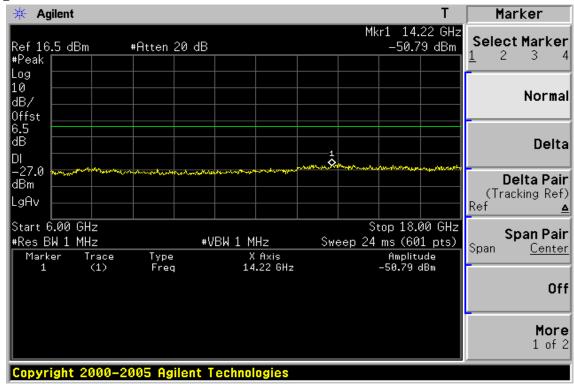
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## **Ch High 30MHz – 6GHz (5310 MHz)**



## Ch High 6GHz – 18GHz



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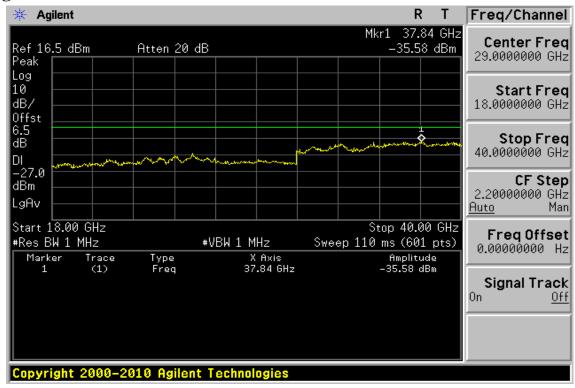
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## Ch High 18GHz – 40GHz



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#### 11. UNDESIRABLE EMISSION - RADICTED MEASUREMENT

#### 11.1 Standard Applicable

#### According to §15.407(b),

- (b) Undesirable Emission Limits: Except as shown in Paragraph (b)(6) of this section, the peak emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:
  - For transmitters operating in the 5.15-5.25 GHz band: all emissions outside of the 5.15-5.35 GHz (1) band shall not exceed an EIRP of -27 dBm/MHz.
  - For transmitters operating in the 5.25-5.35 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz. Devices operating in the 5.25-5.35 GHz band that generate emissions in the 5.15-5.25 GHz band must meet all applicable technical requirements for operation in the 5.15-5.25 GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27 dBm/MHz in the 5.15-5.25 GHz band.
  - For transmitters operating in the 5.47-5.725 GHz band: all emissions outside of the 5.47-5.725 GHz band shall not exceed an EIRP of -27 dBm/MHz.
  - For transmitters operating in the 5.725-5.825 GHz band: all emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an EIRP of -17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an EIRP of -27 dBm/MHz.
  - The above emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.
  - Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in Section 15.209. Further, any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in Section 15.207.
  - The provisions of Section 15.205 of this part apply to intentional radiators operating under this (7) section.
  - When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the upper and lower frequency block edges as the design of the equipment permits.

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#### §15.205- RESTRICTED BANDS OF OPERATIONS

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

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

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

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

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



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

#### FCC PART 15.209

1 CC 11 ICT 15:20)							
MEASURING DISTANCE OF 3 METER							
FREQUENCY RANGE FIELD STRENGTH FIELD STRENGTH							
(MHz)	(Microvolts/m)	(dBuV/m)					
30-88	100	40					
88-216	150	43.5					
216-960	200	46					
Above 960	500	54					

## 11.2 EUT Setup

- The radiated emission tests were performed in the 3 meter open-test site, using the setup in ac-1. cordance with the ANSI C63.4-2009
- 2. The EUT was put in the front of the test table. The host PC system was placed on the center of the back edge on the test table. The peripherals like modem, monitor printer, K/B, and mouse were placed on the side of the host PC system. The rear of the EUT and peripherals were placed flushed with the rear of the tabletop.
- 3. The keyboard was placed directly in the front of the monitor, flushed with the front tabletop. The mouse was placed next to the Keyboard, flushed with the back of keyboard.
- 4. The spacing between the peripherals was 10 centimeters.
- 5. External I/O cables were draped along the edge of the test table and bundle when necessary.
- The host PC system was connected with 120Vac/60Hz power source. 6.

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#### 11.3 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.
- Maximum procedure was performed on the six highest emissions to ensure EUT compliance. 4.
- 5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
- Repeat above procedures until all frequency measured were complete. 6.

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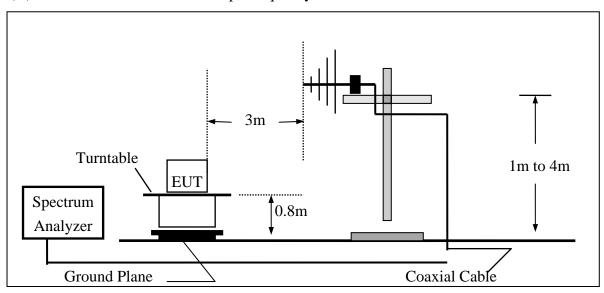


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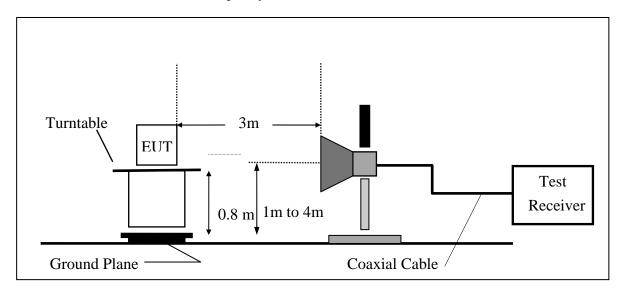
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## 11.4 Test SET-UP (Block Diagram of Configuration)

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



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



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## 11.5 Measurement Equipment Used:

966 Chamber								
<b>EQUIPMENT</b>	MFR	MODEL SERIAL		LAST	CAL DUE.			
TYPE		NUMBER	NUMBER	CAL.				
Spectrum Analyzer	R&S	FSP 40	100034	02/12/2011	02/11/2012			
Loop antenna	MESSTEC	FLA30	03/10086	07/08/2009	07/07/2011			
Bilog Antenna	SCHWAZBECK	VULB9160	3158	11/29/2009	11/28/2011			
Horn antenna	SCHWAZBECK	BBHA 9120D	9120D-673	03/09/2011	03/08/2013			
Pre-Amplifier	Agilent	8447D	1937A02834	11/28/2010	11/28/2011			
Pre-Amplifier	Agilent	8449B	3008A01973	01/05/2011	01/04/2012			
Turn Table	HD	DT420	N/A	N.C.R	N.C.R			
Antenna Tower	HD	MA240-N	240/657	N.C.R	N.C.R			
Controller	HD	HD100	N/A	N.C.R	N.C.R			
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-10M	10m	01/05/2011	01/04/2012			
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-3M	3m	01/05/2011	01/04/2012			
3m Site	SGS	966 chamber	N/A	11/08/2010	11/09/2011			

## 11.6 Field Strength Calculation

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

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

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

#### 11.7 Measurement Result

Refer to attach tabular data sheets.

#### **NOTE:**

The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 100kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.

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#### Radiated Spurious Emission Measurement Result (below 1GHz) UNII, 5150~5250 MHz

Operation Mode TX CH Low Test Date May. 25, 2011

Fundamental Frequency 5180MHz Test By Jay

Pol Ver./Hor **Temperature** 25 °C

Humidity 65 %

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	<b>Actual FS</b>	Limit3m	Safe Mar- gin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
68.80	V	Peak	40.72	-16.38	24.34	40.00	-15.66
149.31	V	Peak	39.00	-12.35	26.65	43.50	-16.85
318.09	V	Peak	27.91	-12.02	15.89	46.00	-30.11
459.71	V	Peak	30.14	-9.68	20.46	46.00	-25.54
820.55	V	Peak	28.77	-3.43	25.34	46.00	-20.66
959.26	V	Peak	28.11	-1.54	26.57	46.00	-19.43
51.34	Н	Peak	28.62	-13.93	14.69	40.00	-25.31
160.95	Н	Peak	28.10	-11.98	16.12	43.50	-27.38
287.05	Н	Peak	29.37	-12.77	16.60	46.00	-29.40
516.94	Н	Peak	28.71	-8.81	19.90	46.00	-26.10
779.81	Н	Peak	28.81	-3.86	24.95	46.00	-21.05
917.55	Н	Peak	29.05	-1.98	27.07	46.00	-18.93

### Remark:

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

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

Operation Mode TX CH Mid **Test Date** May. 25, 2011

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

Humidity 65 %

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Mar- gin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
68.80	V	Peak	40.55	-16.38	24.17	40.00	-15.83
146.40	V	Peak	38.50	-12.51	25.99	43.50	-17.51
306.45	V	Peak	27.77	-12.29	15.48	46.00	-30.52
505.30	V	Peak	29.65	-9.02	20.63	46.00	-25.37
833.16	V	Peak	28.76	-3.35	25.41	46.00	-20.59
963.14	V	Peak	28.21	-1.55	26.66	54.00	-27.34
32.91	Н	Peak	30.03	-14.14	15.89	40.00	-24.11
153.19	Н	Peak	28.70	-12.18	16.52	43.50	-26.98
287.05	Н	Peak	29.31	-12.77	16.54	46.00	-29.46
513.06	Н	Peak	8.68	-8.88	-0.20	46.00	-46.20
830.25	Н	Peak	28.02	-3.37	24.65	46.00	-21.35
970.90	Н	Peak	27.83	-1.55	26.28	54.00	-27.72

### Remark:

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

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

Operation Mode TX CH High **Test Date** May. 25, 2011

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

Humidity 65 %

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Mar- gin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
61.04	V	Peak	39.20	-14.90	24.30	40.00	-15.70
148.34	V	Peak	38.85	-12.36	26.49	43.50	-17.01
318.09	V	Peak	27.65	-12.02	15.63	46.00	-30.37
515.00	V	Peak	29.13	-8.84	20.29	46.00	-25.71
835.10	V	Peak	28.47	-3.35	25.12	46.00	-20.88
888.45	V	Peak	28.70	-2.57	26.13	46.00	-19.87
59.10	Н	Peak	29.92	-14.52	15.40	40.00	-24.60
151.25	Н	Peak	28.30	-12.20	16.10	43.50	-27.40
287.05	Н	Peak	28.82	-12.77	16.05	46.00	-29.95
517.91	Н	Peak	28.85	-8.81	20.04	46.00	-25.96
838.01	Н	Peak	28.89	-3.34	25.55	46.00	-20.45
959.26	Н	Peak	28.83	-1.54	27.29	46.00	-18.71

### Remark:

- (1) Measuring frequencies from 30 MHz to the 1GHz  $\circ$
- (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) UNII, 5250MHz-5350MHz

Operation Mode TX CH Low **Test Date** May. 25, 2011

Fundamental Frequency 5260MHz Test By Jay

Temperature Pol Ver./Hor 25 °C

Humidity 65 %

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Mar- gin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
68.80	V	Peak	40.58	-16.38	24.20	40.00	-15.80
149.31	V	Peak	39.32	-12.35	26.97	43.50	-16.53
328.76	V	Peak	27.37	-11.87	15.50	46.00	-30.50
515.00	V	Peak	30.39	-8.84	21.55	46.00	-24.45
835.10	V	Peak	28.25	-3.35	24.90	46.00	-21.10
959.26	V	Peak	28.35	-1.54	26.81	46.00	-19.19
32.91	Н	Peak	30.45	-14.14	16.31	40.00	-23.69
156.10	Н	Peak	29.27	-12.01	17.26	43.50	-26.24
287.05	Н	Peak	29.22	-12.77	16.45	46.00	-29.55
516.94	Н	Peak	28.64	-8.81	19.83	46.00	-26.17
837.04	Н	Peak	29.09	-3.34	25.75	46.00	-20.25
990.30	Н	Peak	28.14	-1.56	26.58	54.00	-27.42

#### Remark:

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

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

Operation Mode TX CH Mid **Test Date** May. 25, 2011

Fundamental Frequency 5300MHz Test By Jay

**Temperature** Pol Ver./Hor 25 °C

Humidity 65 %

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Mar- gin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
61.04	V	Peak	39.23	-14.90	24.33	40.00	-15.67
148.34	V	Peak	38.96	-12.36	26.60	43.50	-16.90
327.79	V	Peak	27.36	-11.90	15.46	46.00	-30.54
505.30	V	Peak	29.97	-9.02	20.95	46.00	-25.05
789.51	V	Peak	28.66	-3.76	24.90	46.00	-21.10
883.60	V	Peak	29.34	-2.66	26.68	46.00	-19.32
51.34	Н	Peak	29.05	-13.93	15.12	40.00	-24.88
160.95	Н	Peak	28.20	-11.98	16.22	43.50	-27.28
287.05	Н	Peak	30.10	-12.77	17.33	46.00	-28.67
515.00	Н	Peak	29.38	-8.84	20.54	46.00	-25.46
810.85	Н	Peak	28.00	-3.56	24.44	46.00	-21.56
915.61	Н	Peak	28.69	-2.02	26.67	46.00	-19.33

### 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)

Operation Mode TX CH High **Test Date** May. 25, 2011

Fundamental Frequency 5320MHz Test By Jay

**Temperature** Pol Ver./Hor 25 °C

Humidity 65 %

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Mar- gin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
66.86	V	Peak	40.42	-16.00	24.42	40.00	-15.58
148.34	V	Peak	38.99	-12.36	26.63	43.50	-16.87
319.06	V	Peak	28.30	-12.03	16.27	46.00	-29.73
517.91	V	Peak	30.63	-8.81	21.82	46.00	-24.18
830.25	V	Peak	28.58	-3.37	25.21	46.00	-20.79
964.11	V	Peak	28.04	-1.54	26.50	54.00	-27.50
39.70	Н	Peak	28.26	-13.38	14.88	40.00	-25.12
149.31	Н	Peak	29.03	-12.35	16.68	43.50	-26.82
287.05	Н	Peak	28.86	-12.77	16.09	46.00	-29.91
449.04	Н	Peak	30.12	-9.78	20.34	46.00	-25.66
781.75	Н	Peak	28.77	-3.84	24.93	46.00	-21.07
973.81	Н	Peak	27.62	-1.55	26.07	54.00	-27.93

### 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) UNII HT20, 5150~5250 MHz

Operation Mode TX CH Low Test Date May. 25, 2011

Fundamental Frequency 5180MHz Test By Jay

Temperature Pol Ver./Hor 25 °C

Humidity 65 %

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Mar- gin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
61.04	V	Peak	39.28	-14.90	24.38	40.00	-15.62
144.46	V	Peak	39.20	-12.66	26.54	43.50	-16.96
327.79	V	Peak	28.59	-11.90	16.69	46.00	-29.31
515.00	V	Peak	30.24	-8.84	21.40	46.00	-24.60
837.04	V	Peak	28.38	-3.34	25.04	46.00	-20.96
964.11	V	Peak	28.05	-1.54	26.51	54.00	-27.49
44.55	Н	Peak	28.23	-13.62	14.61	40.00	-25.39
149.31	Н	Peak	28.80	-12.35	16.45	43.50	-27.05
287.05	H	Peak	29.72	-12.77	16.95	46.00	-29.05
482.99	H	Peak	29.55	-9.38	20.17	46.00	-25.83
755.56	Н	Peak	29.79	-4.27	25.52	46.00	-20.48
983.51	Н	Peak	27.87	-1.54	26.33	54.00	-27.67

#### Remark:

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

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

Operation Mode TX CH Mid **Test Date** May. 25, 2011

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

Humidity 65 %

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Mar- gin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
61.04	V	Peak	39.38	-14.90	24.48	40.00	-15.52
148.34	V	Peak	39.28	-12.36	26.92	43.50	-16.58
319.06	V	Peak	28.21	-12.03	16.18	46.00	-29.82
503.36	V	Peak	29.47	-9.05	20.42	46.00	-25.58
791.45	V	Peak	28.61	-3.74	24.87	46.00	-21.13
925.31	V	Peak	28.67	-1.81	26.86	46.00	-19.14
49.40	Н	Peak	28.59	-13.93	14.66	40.00	-25.34
144.46	Н	Peak	28.64	-12.66	15.98	43.50	-27.52
287.05	Н	Peak	29.45	-12.77	16.68	46.00	-29.32
513.06	Н	Peak	30.03	-8.88	21.15	46.00	-24.85
839.95	Н	Peak	28.42	-3.34	25.08	46.00	-20.92
970.90	Н	Peak	27.89	-1.55	26.34	54.00	-27.66

# Remark:

- (1) Measuring frequencies from 30 MHz to the 1GHz  $\circ$
- (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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f (886-2) 2298-0488

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

Operation Mode TX CH High **Test Date** May. 25, 2011

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

Humidity 65 %

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Mar- gin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
66.86	V	Peak	39.80	-16.00	23.80	40.00	-16.20
146.74	V	Peak	38.83	-12.51	26.32	43.50	-17.18
321.00	V	Peak	27.87	-11.99	15.88	46.00	-30.12
507.24	V	Peak	29.64	-8.98	20.66	46.00	-25.34
759.44	V	Peak	29.86	-4.22	25.64	46.00	-20.36
919.49	V	Peak	28.61	-1.96	26.65	46.00	-19.35
59.10	Н	Peak	29.59	-14.52	15.07	40.00	-24.93
156.10	Н	Peak	28.44	-12.01	16.43	43.50	-27.07
287.05	Н	Peak	29.57	-12.77	16.80	46.00	-29.20
516.94	Н	Peak	28.25	-8.81	19.44	46.00	-26.56
833.16	Н	Peak	28.04	-3.35	24.69	46.00	-21.31
954.41	Н	Peak	28.17	-1.53	26.64	46.00	-19.36

# Remark:

- (1) Measuring frequencies from 30 MHz to the 1GHz  $\circ$
- (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) UNII HT20, 5250~5350 MHz

Operation Mode TX CH Low **Test Date** May. 25, 2011

Fundamental Frequency 5260MHz Test By Jay

**Temperature** Pol Ver./Hor 25 °C

Humidity 65 %

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Mar- gin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
59.10	V	Peak	39.15	-14.52	24.63	40.00	-15.37
148.34	V	Peak	39.06	-12.36	26.70	43.50	-16.80
287.05	V	Peak	28.03	-12.77	15.26	46.00	-30.74
510.15	V	Peak	30.06	-8.91	21.15	46.00	-24.85
823.46	V	Peak	28.28	-3.39	24.89	46.00	-21.11
930.16	V	Peak	29.56	-1.76	27.80	46.00	-18.20
56.19	Н	Peak	28.89	-13.62	15.27	40.00	-24.73
143.49	Н	Peak	28.78	-11.98	16.80	43.50	-26.70
287.05	Н	Peak	29.19	-11.88	17.31	46.00	-28.69
500.45	Н	Peak	29.22	-8.77	20.45	46.00	-25.55
837.04	Н	Peak	28.48	-3.70	24.78	46.00	-21.22
920.46	Н	Peak	28.54	-1.54	27.00	46.00	-19.00

### Remark:

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

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

Operation Mode TX CH Mid **Test Date** May. 25, 2011

Fundamental Frequency 5300MHz Test By Jay

**Temperature** Pol Ver./Hor 25 °C

Humidity 65 %

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Mar- gin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
66.86	V	Peak	40.19	-16.00	24.19	40.00	-15.81
149.31	V	Peak	39.50	-12.35	27.15	43.50	-16.35
309.36	V	Peak	28.53	-12.26	16.27	46.00	-29.73
515.00	V	Peak	29.77	-8.84	20.93	46.00	-25.07
822.49	V	Peak	28.69	-3.42	25.27	46.00	-20.73
961.20	V	Peak	28.18	-1.54	26.64	54.00	-27.36
41.46	Н	Peak	29.22	-13.51	15.71	40.00	-24.29
159.01	Н	Peak	28.25	-11.99	16.26	43.50	-27.24
298.69	Н	Peak	29.48	-12.45	17.03	46.00	-28.97
510.15	Н	Peak	28.29	-8.91	19.38	46.00	-26.62
838.01	Н	Peak	30.45	-3.34	27.11	46.00	-18.89
964.11	Н	Peak	28.67	-1.54	27.13	54.00	-26.87

### Remark:

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

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

Operation Mode TX CH High **Test Date** May. 25, 2011

Fundamental Frequency 5320MHz Test By Jay

**Temperature** Pol Ver./Hor 25 °C

Humidity 65 %

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Mar- gin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
66.86	V	Peak	40.03	-16.00	24.03	40.00	-15.97
148.34	V	Peak	38.38	-12.36	26.02	43.50	-17.48
321.00	V	Peak	27.14	-11.99	15.15	46.00	-30.85
519.85	V	Peak	29.58	-8.77	20.81	46.00	-25.19
839.95	V	Peak	28.54	-3.34	25.20	46.00	-20.80
961.20	V	Peak	28.57	-1.54	27.03	54.00	-26.97
39.70	Н	Peak	29.21	-13.38	15.83	40.00	-24.17
141.55	Н	Peak	29.20	-12.95	16.25	43.50	-27.25
287.05	Н	Peak	29.99	-12.77	17.22	46.00	-28.78
513.06	Н	Peak	28.90	-8.88	20.02	46.00	-25.98
762.35	Н	Peak	30.36	-4.15	26.21	46.00	-19.79
934.04	Н	Peak	28.23	-1.72	26.51	46.00	-19.49

### 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) UNII HT40, 5150~5250 MHz

Operation Mode TX CH Low Test Date May. 25, 2011

Fundamental Frequency 5190MHz Test By Jay

Pol **Temperature** 25 °C Ver./Hor

Humidity 65 %

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Mar- gin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
59.10	V	Peak	38.90	-14.52	24.38	40.00	-15.62
149.31	V	Peak	39.21	-12.35	26.86	43.50	-16.64
311.30	V	Peak	28.48	-12.22	16.26	46.00	-29.74
510.15	V	Peak	29.25	-8.91	20.34	46.00	-25.66
757.50	V	Peak	28.74	-4.24	24.50	46.00	-21.50
966.05	V	Peak	27.97	-1.54	26.43	54.00	-27.57
57.16	Н	Peak	29.03	-14.37	14.66	40.00	-25.34
143.49	Н	Peak	28.97	-12.80	16.17	43.50	-27.33
287.05	Н	Peak	30.38	-12.77	17.61	46.00	-28.39
479.11	Н	Peak	30.33	-9.43	20.90	46.00	-25.10
789.51	Н	Peak	29.33	-3.76	25.57	46.00	-20.43
959.26	Н	Peak	27.91	-1.54	26.37	46.00	-19.63

# Remark:

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

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

Operation Mode TX CH High **Test Date** May. 25, 2011

Fundamental Frequency 5230MHz Test By Jay Pol Ver./Hor **Temperature** 25 °C

Humidity 65 %

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Mar- gin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
61.04	V	Peak	39.20	-14.90	24.30	40.00	-15.70
149.31	V	Peak	38.87	-12.35	26.52	43.50	-16.98
318.09	V	Peak	28.25	-12.02	16.23	46.00	-29.77
512.09	V	Peak	29.94	-8.88	21.06	46.00	-24.94
839.95	V	Peak	28.68	-3.34	25.34	46.00	-20.66
951.50	V	Peak	29.19	-1.53	27.66	46.00	-18.34
46.49	Н	Peak	28.53	-13.76	14.77	40.00	-25.23
153.19	Н	Peak	30.57	-12.18	18.39	43.50	-25.11
287.05	Н	Peak	29.77	-12.77	17.00	46.00	-29.00
513.06	Н	Peak	29.15	-8.88	20.27	46.00	-25.73
839.95	Н	Peak	28.37	-3.34	25.03	46.00	-20.97
964.11	Н	Peak	28.91	-1.54	27.37	54.00	-26.63

# Remark:

- (1) Measuring frequencies from 30 MHz to the 1GHz  $\circ$
- (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) UNII HT40, 5250~5350 MHz

Operation Mode TX CH Low **Test Date** May. 25, 2011

Fundamental Frequency 5270MHz Test By Jay

**Temperature** Pol Ver./Hor 25 °C

Humidity 65 %

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Mar- gin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
59.10	V	Peak	38.98	-14.52	24.46	40.00	-15.54
148.34	V	Peak	39.01	-12.36	26.65	43.50	-16.85
287.05	V	Peak	28.84	-12.77	16.07	46.00	-29.93
519.85	V	Peak	29.28	-8.77	20.51	46.00	-25.49
838.01	V	Peak	28.53	-3.34	25.19	46.00	-20.81
990.30	V	Peak	28.43	-1.56	26.87	54.00	-27.13
39.70	Н	Peak	25.85	-13.38	12.47	40.00	-27.53
159.01	Н	Peak	27.88	-11.99	15.89	43.50	-27.61
314.21	Н	Peak	29.05	-12.14	16.91	46.00	-29.09
510.15	Н	Peak	29.16	-8.91	20.25	46.00	-25.75
839.95	Н	Peak	28.27	-3.34	24.93	46.00	-21.07
977.69	Н	Peak	28.09	-1.53	26.56	54.00	-27.44

### Remark:

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

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

Operation Mode TX CH High **Test Date** May. 25, 2011

Fundamental Frequency 5310MHz Test By Jay

**Temperature** Pol Ver./Hor 25 °C

Humidity 65 %

Freq.	Ant.Pol.	Detector Mode	Reading	Factor	Actual FS	Limit3m	Safe Mar- gin
(MHz)	H/V	(PK/QP)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
65.89	V	Peak	39.93	-15.63	24.30	40.00	-15.70
151.25	V	Peak	38.73	-12.20	26.53	43.50	-16.97
314.21	V	Peak	28.74	-12.14	16.60	46.00	-29.40
510.15	V	Peak	30.30	-8.91	21.39	46.00	-24.61
837.04	V	Peak	28.54	-3.34	25.20	46.00	-20.80
983.51	V	Peak	28.63	-1.54	27.09	54.00	-26.91
41.64	Н	Peak	29.19	-13.51	15.68	40.00	-24.32
144.46	Н	Peak	28.84	-12.66	16.18	43.50	-27.32
287.05	Н	Peak	29.18	-12.77	16.41	46.00	-29.59
512.09	Н	Peak	28.77	-8.88	19.89	46.00	-26.11
754.59	Н	Peak	29.70	-4.27	25.43	46.00	-20.57
977.69	Н	Peak	28.37	-1.53	26.84	54.00	-27.16

### 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) UNII, 5150~5250 MHz

Operation Mode TX CH Low Test Date May. 25, 2011

Fundamental Frequency 5180MHz Test By Jay Pol Ver. **Temperature** 25 °C

Humidity 60 %

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
7090.5	36.44		11.61	48.05		74.00	54.00	-5.95	Peak
10360.0	22.79		18.46	41.25		74.00	54.00	-12.75	Peak
15540.0						74.00	54.00		
20720.0						74.00	54.00		
25900.0						74.00	54.00		
31080.0						74.00	54.00		
36260.0						74.00	54.00		
41440.0						74.00	54.00		
46620.0						74.00	54.00		
51800.0						74.00	54.00		

### Remark:

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

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

Operation Mode TX CH Low **Test Date** May. 25, 2011

Fundamental Frequency 5180MHz Test By Jay Pol Hon. **Temperature** 25 °C

Humidity 60 %

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
7123.0	33.95		11.72	45.67		74.00	54.00	-8.33	Peak
10360.0	22.51		18.39	40.90		74.00	54.00	-13.10	Peak
15540.0						74.00	54.00		
20720.0						74.00	54.00		
25900.0						74.00	54.00		
31080.0						74.00	54.00		
36260.0						74.00	54.00		
41440.0						74.00	54.00		
46620.0						74.00	54.00		
51800.0						74.00	54.00		

### Remark:

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

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

Operation Mode TX CH Mid **Test Date** May. 25, 2011

Fundamental Frequency 5220MHz Test By Jay **Temperature** Pol Ver. 25 °C

Humidity 60 %

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
7090.5	36.40		11.61	48.01		74.00	54.00	-5.99	Peak
10440.0	22.46		18.26	40.72		74.00	54.00	-13.28	Peak
15660.0						74.00	54.00		
20880.0						74.00	54.00		
26100.0						74.00	54.00		
31320.0						74.00	54.00		
36540.0						74.00	54.00		
41760.0						74.00	54.00		
46980.0						74.00	54.00		
52200.0						74.00	54.00		

### Remark:

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

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

Operation Mode TX CH Mid **Test Date** May. 25, 2011

Fundamental Frequency 5220MHz Test By Jay **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	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
7090.5	33.70		11.61	45.31		74.00	54.00	-8.69	Peak
10440.0	22.16		18.26	40.42		74.00	54.00	-13.58	Peak
15660.0						74.00	54.00		
20880.0						74.00	54.00		
26100.0						74.00	54.00		
31320.0						74.00	54.00		
36540.0						74.00	54.00		
41760.0						74.00	54.00		
46980.0						74.00	54.00		
52200.0						74.00	54.00		

#### Remark:

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

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

Operation Mode TX CH High **Test Date** May. 25, 2011

Fundamental Frequency 5240MHz Test By Jay Pol Ver. **Temperature** 25 °C

Humidity 60 %

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
7090.5	35.71		11.61	47.32		74.00	54.00	-6.68	Peak
10480.0	22.58		18.31	40.89		74.00	54.00	-13.11	Peak
15720.0						74.00	54.00		
20960.0						74.00	54.00		
26200.0						74.00	54.00		
31440.0						74.00	54.00		
36680.0						74.00	54.00		
41920.0						74.00	54.00		
47160.0						74.00	54.00		
52400.0						74.00	54.00		

### Remark:

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

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

Operation Mode TX CH High **Test Date** May. 25, 2011

Fundamental Frequency 5240MHz Test By Jay **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	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
6863.0	34.12		11.09	45.21		74.00	54.00	-8.79	Peak
10480.0	22.92		18.25	41.17		74.00	54.00	-12.83	Peak
15720.0						74.00	54.00		
20960.0						74.00	54.00		
26200.0						74.00	54.00		
31440.0						74.00	54.00		
36680.0						74.00	54.00		
41920.0						74.00	54.00		
47160.0						74.00	54.00		
52400.0						74.00	54.00		

#### Remark:

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

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# Radiated Spurious Emission Measurement Result (above 1GHz) UNII, 5250~5350 MHz

Operation Mode TX CH Low **Test Date** May. 25, 2011

Fundamental Frequency 5260MHz Test By Jay **Temperature** Ver 25 °C Pol

Humidity 65 %

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
7090.5	36.31		11.61	47.92		74.00	54.00	-6.08	Peak
10520.0	22.97		18.30	41.27		74.00	54.00	-12.73	Peak
15780.0						74.00	54.00		
21040.0						74.00	54.00		
26300.0						74.00	54.00		
31560.0						74.00	54.00		
36820.0						74.00	54.00		
42080.0						74.00	54.00		
47340.0						74.00	54.00		
52600.0						74.00	54.00		

#### Remark:

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

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# Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode TX CH Low **Test Date** May. 25, 2011

Fundamental Frequency 5260MHz Test By Jay **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	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
6993.0	34.30		11.28	45.58		74.00	54.00	-8.42	Peak
10520.0	22.10		18.51	40.61		74.00	54.00	-13.39	Peak
15780.0						74.00	54.00		
21040.0						74.00	54.00		
26300.0						74.00	54.00		
31560.0						74.00	54.00		
36820.0						74.00	54.00		
42080.0						74.00	54.00		
47340.0						74.00	54.00		
52600.0						74.00	54.00		

#### Remark:

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

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

Operation Mode TX CH Mid **Test Date** May. 25, 2011

Fundamental Frequency 5300MHz Test By Jay **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	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
7090.5	35.96		11.61	47.57		74.00	54.00	-6.43	Peak
10600.0	22.56		18.70	41.26		74.00	54.00	-12.74	Peak
15900.0						74.00	54.00		
21200.0						74.00	54.00		
26500.0						74.00	54.00		
31800.0						74.00	54.00		
37100.0						74.00	54.00		
42400.0						74.00	54.00		
47700.0						74.00	54.00		
53000.0						74.00	54.00		

#### Remark:

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

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

Operation Mode TX CH Mid **Test Date** May. 25, 2011

Fundamental Frequency 5300MHz Test By Jay **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	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
6869.5	33.96		11.09	45.05		74.00	54.00	-8.95	Peak
10600.0	22.73		18.19	40.92		74.00	54.00	-13.08	Peak
15900.0						74.00	54.00		
21200.0						74.00	54.00		
26500.0						74.00	54.00		
31800.0						74.00	54.00		
37100.0						74.00	54.00		
42400.0						74.00	54.00		
47700.0						74.00	54.00		
53000.0						74.00	54.00		

#### Remark:

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

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

Operation Mode TX CH High **Test Date** May. 25, 2011

Fundamental Frequency 5320MHz Test By Jay **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	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
7090.5	37.36		11.61	48.97		74.00	54.00	-5.03	Peak
10640.0	22.05		18.46	40.51		74.00	54.00	-13.49	Peak
15960.0						74.00	54.00		
21280.0						74.00	54.00		
26600.0						74.00	54.00		
31920.0						74.00	54.00		
37240.0						74.00	54.00		
42560.0						74.00	54.00		
47880.0						74.00	54.00		
53200.0						74.00	54.00		

#### Remark:

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

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

Operation Mode TX CH High **Test Date** May. 25, 2011

Fundamental Frequency 5320MHz Test By Jay 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	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
6739.5	34.22		10.94	45.16		74.00	54.00	-8.84	Peak
10640.0	22.59		18.44	41.03		74.00	54.00	-12.97	Peak
15960.0						74.00	54.00		
21280.0						74.00	54.00		
26600.0						74.00	54.00		
31920.0						74.00	54.00		
37240.0						74.00	54.00		
42560.0						74.00	54.00		
47880.0						74.00	54.00		
53200.0						74.00	54.00		

### Remark:

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

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# Radiated Spurious Emission Measurement Result (above 1GHz) UNII HT20, 5150~5250 MHz

Operation Mode TX CH Low **Test Date** May. 25, 2011

Fundamental Frequency 5180MHz Test By Jay Temperature Pol Ver. 25 °C

Humidity 60 %

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
7090.5	37.15		11.61	48.76		74.00	54.00	-5.24	Peak
10360.0	22.55		18.32	40.87		74.00	54.00	-13.13	Peak
15540.0						74.00	54.00		
20720.0						74.00	54.00		
25900.0						74.00	54.00		
31080.0						74.00	54.00		
36260.0						74.00	54.00		
41440.0						74.00	54.00		
46620.0						74.00	54.00		
51800.0						74.00	54.00		

#### Remark:

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

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

Operation Mode TX CH Low Test Date May. 25, 2011

Fundamental Frequency 5180MHz Test By Jay 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	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
6869.5	34.88		11.09	45.97		74.00	54.00	-8.03	Peak
10360.0	22.88		18.19	41.07		74.00	54.00	-12.93	Peak
15540.0						74.00	54.00		
20720.0						74.00	54.00		
25900.0						74.00	54.00		
31080.0						74.00	54.00		
36260.0						74.00	54.00		
41440.0						74.00	54.00		
46620.0						74.00	54.00		
51800.0						74.00	54.00		

#### Remark:

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

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# Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode TX CH Mid **Test Date** May. 25, 2011

Fundamental Frequency 5220MHz Test By Jay Temperature Pol Ver. 25 °C

Humidity 60 %

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
7090.5	37.00		11.61	48.61		74.00	54.00	-5.39	Peak
10440.0	23.10		18.19	41.29		74.00	54.00	-12.71	Peak
15660.0						74.00	54.00		
20880.0						74.00	54.00		
26100.0						74.00	54.00		
31320.0						74.00	54.00		
36540.0						74.00	54.00		
41760.0						74.00	54.00		
46980.0						74.00	54.00		
52200.0						74.00	54.00		

### Remark:

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

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

Operation Mode TX CH Mid **Test Date** May. 25, 2011

Fundamental Frequency 5220MHz Test By Jay 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	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
7142.5	33.50		11.79	45.29		74.00	54.00	-8.71	Peak
10440.0	22.21		18.33	40.54		74.00	54.00	-13.46	Peak
15660.0						74.00	54.00		
20880.0						74.00	54.00		
26100.0						74.00	54.00		
31320.0						74.00	54.00		
36540.0						74.00	54.00		
41760.0						74.00	54.00		
46980.0						74.00	54.00		
52200.0						74.00	54.00		

#### Remark:

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

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

Operation Mode TX CH High **Test Date** May. 25, 2011

Fundamental Frequency 5240MHz Test By Jay Pol Ver. **Temperature** 25 °C

Humidity 60 %

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
7090.5	36.31		11.61	47.92		74.00	54.00	-6.08	Peak
10480.0	22.38		18.19	40.57		74.00	54.00	-13.43	Peak
15720.0						74.00	54.00		
20960.0						74.00	54.00		
26200.0						74.00	54.00		
31440.0						74.00	54.00		
36680.0						74.00	54.00		
41920.0						74.00	54.00		
47160.0						74.00	54.00		
52400.0						74.00	54.00		

### Remark:

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

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

Operation Mode TX CH High **Test Date** May. 25, 2011

Fundamental Frequency 5240MHz Test By Jay 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	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
6817.5	34.70		11.02	45.72		74.00	54.00	-8.28	Peak
10480.0	23.06		18.19	41.25		74.00	54.00	-12.75	Peak
15720.0						74.00	54.00		
20960.0						74.00	54.00		
26200.0						74.00	54.00		
31440.0						74.00	54.00		
36680.0						74.00	54.00		
41920.0						74.00	54.00		
47160.0						74.00	54.00		
52400.0						74.00	54.00		

### Remark:

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

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Radiated Spurious Emission Measurement Result (above 1GHz) UNII HT20, 5250~5350 MHz

May. 25, 2011 Operation Mode TX CH Low Test Date

Fundamental Frequency 5260MHz Test By Jay Pol Ver **Temperature** 25 °C

Humidity 65 %

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
7090.5	36.13		11.61	47.74		74.00	54.00	-6.26	Peak
10520.0	22.40		18.19	40.59		74.00	54.00	-13.41	Peak
15780.0						74.00	54.00		
21040.0						74.00	54.00		
26300.0						74.00	54.00		
31560.0						74.00	54.00		
36820.0						74.00	54.00		
42080.0						74.00	54.00		
47340.0						74.00	54.00		
52600.0						74.00	54.00		

### Remark:

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

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# Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode TX CH Low Test Date May. 25, 2011

Fundamental Frequency 5260MHz Test By Jay 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	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
7045.0	34.02		11.45	45.47		74.00	54.00	-8.53	Peak
10520.0	22.60		18.41	41.01		74.00	54.00	-12.99	Peak
15780.0						74.00	54.00		
21040.0						74.00	54.00		
26300.0						74.00	54.00		
31560.0						74.00	54.00		
36820.0						74.00	54.00		
42080.0						74.00	54.00		
47340.0						74.00	54.00		
52600.0						74.00	54.00		

#### Remark:

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

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Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode TX CH Low **Test Date** May. 25, 2011

Fundamental Frequency 5300MHz Test By Jay Pol Ver **Temperature** 25 °C

Humidity 65 %

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
7090.5	36.57		11.61	48.18		74.00	54.00	-5.82	Peak
10600.0	22.23		18.26	40.49		74.00	54.00	-13.51	Peak
15900.0						74.00	54.00		
21200.0						74.00	54.00		
26500.0						74.00	54.00		
31800.0						74.00	54.00		
37100.0						74.00	54.00		
42400.0						74.00	54.00		
47700.0						74.00	54.00		
53000.0						74.00	54.00		

### Remark:

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

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

Operation Mode TX CH Mid **Test Date** May. 25, 2011

Fundamental Frequency 5300MHz Test By Jay 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	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
6863.0	34.13		11.09	45.22		74.00	54.00	-8.78	Peak
10600.0	22.06		18.38	40.44		74.00	54.00	-13.56	Peak
15900.0						74.00	54.00		
21200.0						74.00	54.00		
26500.0						74.00	54.00		
31800.0						74.00	54.00		
37100.0						74.00	54.00		
42400.0						74.00	54.00		
47700.0						74.00	54.00		
53000.0						74.00	54.00		

### Remark:

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

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

Operation Mode TX CH High **Test Date** May. 25, 2011

Fundamental Frequency 5320MHz Test By Jay 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	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
7090.5	36.86		11.61	48.47		74.00	54.00	-5.53	Peak
10640.0	22.86		17.89	40.75		74.00	54.00	-13.25	Peak
15960.0						74.00	54.00		
21280.0						74.00	54.00		
26600.0						74.00	54.00		
31920.0						74.00	54.00		
37240.0						74.00	54.00		
42560.0						74.00	54.00		
47880.0						74.00	54.00		
53200.0						74.00	54.00		

#### Remark:

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

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

Operation Mode TX CH High **Test Date** May. 25, 2011

Fundamental Frequency 5320MHz Test By Jay 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	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
7064.5	34.72		11.51	46.23		74.00	54.00	-7.77	Peak
10640.0	23.35		18.33	41.68		74.00	54.00	-12.32	Peak
15960.0						74.00	54.00		
21280.0						74.00	54.00		
26600.0						74.00	54.00		
31920.0						74.00	54.00		
37240.0						74.00	54.00		
42560.0						74.00	54.00		
47880.0						74.00	54.00		
53200.0						74.00	54.00		

### Remark:

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

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### Radiated Spurious Emission Measurement Result (above 1GHz) UNII HT40, 5150~5250 MHz

Operation Mode TX CH Low Test Date May. 25, 2011

Fundamental Frequency 5190MHz Test By Jay **Temperature** Pol Ver. 25 °C

Humidity 60 %

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
7090.5	37.92		11.61	49.53		74.00	54.00	-4.47	Peak
10380.0	23.10		18.19	41.29		74.00	54.00	-12.71	Peak
15570.0						74.00	54.00		
20760.0						74.00	54.00		
25950.0						74.00	54.00		
31140.0						74.00	54.00		
36330.0						74.00	54.00		
41520.0						74.00	54.00		
46710.0						74.00	54.00		
51900.0						74.00	54.00		

#### Remark:

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

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

Operation Mode TX CH Low Test Date May. 25, 2011

Fundamental Frequency 5190MHz Test By Jay **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	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
7123.0	33.69		11.72	45.41		74.00	54.00	-8.59	Peak
10380.0	21.98		18.33	40.31		74.00	54.00	-13.69	Peak
15570.0						74.00	54.00		
20760.0						74.00	54.00		
25950.0						74.00	54.00		
31140.0						74.00	54.00		
36330.0						74.00	54.00		
41520.0						74.00	54.00		
46710.0						74.00	54.00		
51900.0						74.00	54.00		

#### Remark:

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

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

Operation Mode TX CH High **Test Date** May. 25, 2011

Fundamental Frequency 5230MHz Test By Jay **Temperature** Pol Ver. 25 °C

Humidity 60 %

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
7090.5	36.73		11.61	48.34		74.00	54.00	-5.66	Peak
10640.0	22.60		17.85	40.45		74.00	54.00	-13.55	Peak
15690.0						74.00	54.00		
20920.0						74.00	54.00		
26150.0						74.00	54.00		
31380.0						74.00	54.00		
36610.0						74.00	54.00		
41840.0						74.00	54.00		
47070.0						74.00	54.00		
52300.0						74.00	54.00		

#### Remark:

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

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

Operation Mode TX CH High **Test Date** May. 25, 2011

Fundamental Frequency 5230MHz Test By Jay **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	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
7155.5	34.07		11.82	45.89		74.00	54.00	-8.11	Peak
10640.0	22.57		18.19	40.76		74.00	54.00	-13.24	Peak
15690.0						74.00	54.00		
20920.0						74.00	54.00		
26150.0						74.00	54.00		
31380.0						74.00	54.00		
36610.0						74.00	54.00		
41840.0						74.00	54.00		
47070.0						74.00	54.00		
52300.0						74.00	54.00		

#### Remark:

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

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#### Radiated Spurious Emission Measurement Result (above 1GHz) UNII HT40, 5250~5350 MHz

May. 25, 2011 Operation Mode TX CH Low Test Date

Fundamental Frequency 5270MHz Test By Jay Pol **Temperature** 25 °C Ver

Humidity 65 %

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
7090.5	36.30		11.61	47.91		74.00	54.00	-6.09	Peak
10540.0	22.72		18.25	40.97		74.00	54.00	-13.03	Peak
15810.0						74.00	54.00		
21080.0						74.00	54.00		
26350.0						74.00	54.00		
31620.0						74.00	54.00		
36890.0						74.00	54.00		
42160.0						74.00	54.00		
47430.0						74.00	54.00		
52700.0						74.00	54.00		

#### Remark:

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

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

Operation Mode TX CH Low Test Date May. 25, 2011

Fundamental Frequency 5270MHz Test By Jay **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	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
6980.0	34.83		11.22	46.05		74.00	54.00	-7.95	Peak
10540.0	22.41		18.41	40.82		74.00	54.00	-13.18	Peak
15810.0						74.00	54.00		
21080.0						74.00	54.00		
26350.0						74.00	54.00		
31620.0						74.00	54.00		
36890.0						74.00	54.00		
42160.0						74.00	54.00		
47430.0						74.00	54.00		
52700.0						74.00	54.00		

#### Remark:

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

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Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode TX CH High **Test Date** May. 25, 2011

Fundamental Frequency 5310MHz Test By Jay Pol Ver **Temperature** 25 °C

Humidity 65 %

	Peak	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{AV}$	Limit	Limit	Margin	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
7090.5	37.12		11.61	48.73		74.00	54.00	-5.27	Peak
10620.0	23.35		18.06	41.41		74.00	54.00	-12.59	Peak
15930.0						74.00	54.00		
21240.0						74.00	54.00		
26550.0						74.00	54.00		
31860.0						74.00	54.00		
37170.0						74.00	54.00		
42480.0						74.00	54.00		
47790.0						74.00	54.00		
53100.0						74.00	54.00		

#### Remark:

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

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

Operation Mode TX CH High **Test Date** May. 25, 2011

Fundamental Frequency 5310MHz Test By Jay **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	
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
7175.0	33.95		11.88	45.83		74.00	54.00	-8.17	Peak
10620.0	22.60		18.12	40.72		74.00	54.00	-13.28	Peak
10480.0						74.00	54.00		
15930.0						74.00	54.00		
21240.0						74.00	54.00		
26550.0						74.00	54.00		
31860.0						74.00	54.00		
37170.0						74.00	54.00		
42480.0						74.00	54.00		
47790.0						74.00	54.00		
53100.0									

#### Remark:

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

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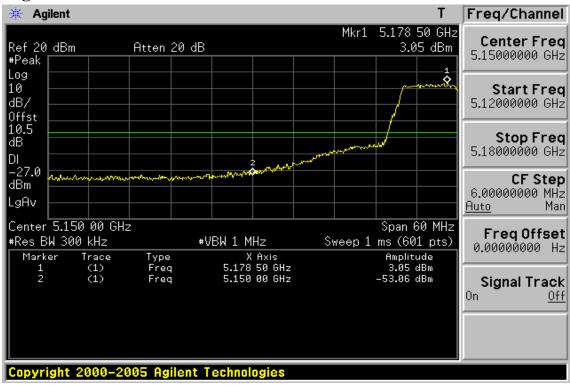
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# UNII, 5150~5350 MHz **Band Edges Test Data CH-Low**



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



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#### **Radiated Emission:**

Operation Mode TX CH Low Test Date May. 25, 2011

Fundamental Frequency 5180 MHz Test By Jay Temperature Pol Ver. 25 °C

Humidity 65 %

	Pea k	$\mathbf{AV}$		Actu	al FS	P ea k	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	AV	Limit	Limit	Margin	Remark
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m	( <b>dB</b> )	
5150.00	41.80	-	6.20	48.00	-	74.00	54.00	-26.00	PK
Operation 1	Mode	TX C	H Low			Test	Date 1	May. 25, 20	011
Fundament	al Frequen	cy 5180	MHz			Test	By J	ay	
Temperatu	re	25 °C				Pol	I	Hor.	
Humidity		65 %							

	Pea k	$\mathbf{AV}$		Actu	al FS	P ea k	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	AV	Limit	Limit	Margin	Remark
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
5150.00	44.28	-	6.20	50.48	-	74.00	54.00	-23.52	PK

#### 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.
- 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:**

Operation Mode TX CH High Test Date May. 25, 2011

Fundamental Frequency 5320MHz Test By Jay Temperature Pol Ver. 25 °C

Humidity 65 %

	Pea k	$\mathbf{AV}$		Actu	al FS	P ea k	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{A}\mathbf{V}$	Limit	Limit	Margin	Remark
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m	( <b>dB</b> )	
5350.00	39.25	-	6.59	45.84	-	74.00	54.00	-28.16	PK
Operation I	Mode	TX C	H High			Test	Date N	May. 25, 20	011
Fundament	al Frequen	cy 5320N	MHz			Test	By J	ay	
Temperatur	re	25 °C				Pol	ŀ	lor.	
Humidity		65 %							

	<b>Pea k</b>	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{A}\mathbf{V}$	Limit	Limit	Margin	Remark
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
5350.00	38.30	-	6.59	44.89	-	74.00	54.00	-29.11	PK

#### 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.
- 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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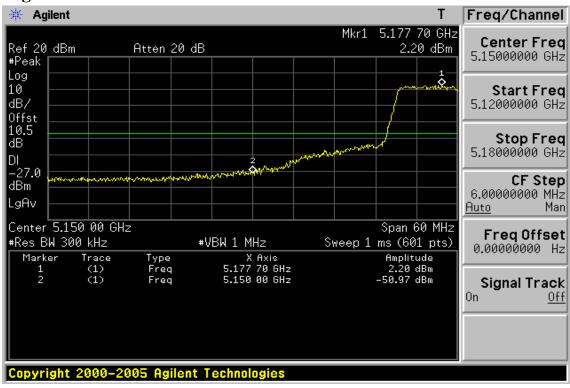
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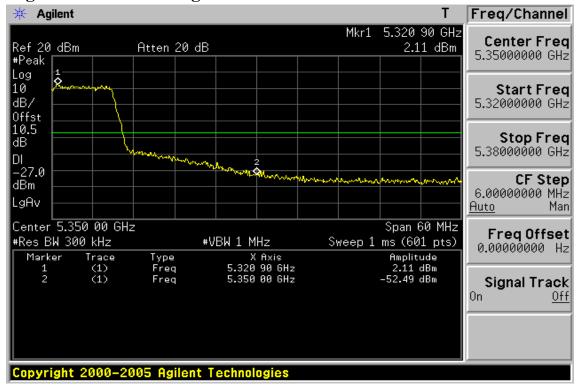
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# UNII HT20, 5150~5350 MHz **Band Edges Test Data CH-Low**



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



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**Radiated Emission: HT20** 

Operation Mode TX CH Low Test Date May. 25, 2011

Fundamental Frequency 5180MHz Test By Jay **Tmperature** Pol Ver. 25 °C

Humidity 65 %

	Pea k	$\mathbf{AV}$		Actu	al FS	P ea k	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{A}\mathbf{V}$	Limit	Limit	Margin	Remark
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	dBuV/m	<b>(dB)</b>	
5150.00	45.17	-	6.20	51.37	-	74.00	54.00	-22.63	PK
Operation I	Mode	TX C	H Low			Test	Date N	May. 25, 20	011
Fundament	al Frequen	cy 5180	MHz			Test	By J	ay	
Temperatur	re	25 °C				Pol	F	lor.	
Humidity		65 %							

		Pea k	$\mathbf{AV}$		Actu	al FS	P ea k	$\mathbf{AV}$		
	Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{A}\mathbf{V}$	Limit	Limit	Margin	Remark
	(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
,	5150.00	42 59	_	6.20	48 79	_	74.00	54.00	-25 21	PK

#### 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.
- 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: HT20**

Operation Mode TX CH High Test Date May. 25, 2011

Fundamental Frequency 5320 MHz Test By Jay Temperature Pol Ver. 25 °C

Humidity 65 %

	Pea k	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	AV	Limit	Limit	Margin	Remark
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m	) <b>(dB)</b>	
5350.00	39.88	-	6.59	46.47	-	74.00	54.00	-27.53	PK
Operation I	Mode	TX C	H High			Test	Date N	May. 25, 20	011
Fundament	al Frequen	cy 5320	MHz			Test	By J	ay	
Temperatur	re	25 °C				Pol	I	Ior.	
Humidity		65 %							

	<b>Pea k</b>	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{A}\mathbf{V}$	Limit	Limit	Margin	Remark
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	( <b>dB</b> )	
5350.00	37.25	_	6.59	43.84	-	74.00	54.00	-30.16	PK

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

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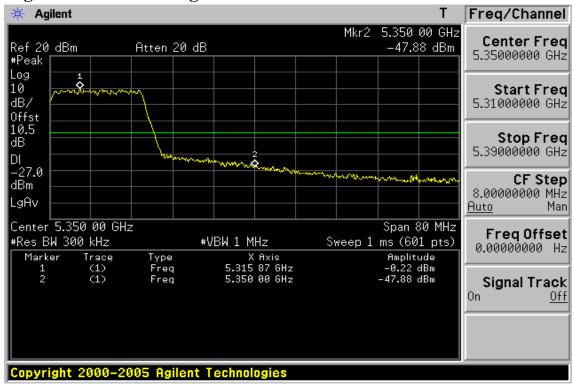
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# UNII HT40, 5150~5350 MHz **Band Edges Test Data CH-Low**



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



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**Radiated Emission: HT40** 

Operation Mode TX CH Low **Test Date** May. 25, 2011

Fundamental Frequency 5190MHz Test By Jay **Tmperature** Pol Ver. 25 °C

Humidity 65 %

	Pea k	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{A}\mathbf{V}$	Limit	Limit	Margin	Remark
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	dBuV/m	) ( <b>dB</b> )	
5150.00	49.73	35.39	6.20	55.93	41.59	74.00	54.00	-12.41	AV
Operation I	Mode	TX C	H Low			Test	Date N	May. 25, 20	011
Fundament	al Frequen	icy 5190]	MHz			Test	By J	ay	
Temperatur	re	25 °C				Pol	F	lor.	
Humidity		65 %							

	Pea k	$\mathbf{AV}$		Actu	al FS	P ea k	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{A}\mathbf{V}$	Limit	Limit	Margin	Remark
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
5150.00	45.14	32.74	6.20	51.34	38.94	74.00	54.00	-15.06	ΑV

#### 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: HT40**

Operation Mode TX CH High **Test Date** May. 25, 2011

Fundamental Frequency 5310 MHz Test By Jay Temperature Pol Ver. 25 °C

Humidity 65 %

	Pea k	$\mathbf{AV}$		Actu	al FS	P ea k	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	$\mathbf{A}\mathbf{V}$	Limit	Limit	Margin	Remark
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m	( <b>dB</b> )	
5350.00	43.21	-	6.59	49.80	-	74.00	54.00	-24.20	PK
Operation I	Mode	TX C	H High			Test	Date N	May. 25, 20	011
Fundament	al Frequen	cy 5310 l	MHz			Test	By J	ay	
Temperatur	re	25 °C				Pol	I	lor.	
Humidity		65 %							

	Pea k	$\mathbf{AV}$		Actu	al FS	Peak	$\mathbf{AV}$		
Freq.	Reading	Reading	Ant./CL	Peak	AV	Limit	Limit	Margin	Remark
(MHz)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
5350.00	38.74	-	6.59	45.33	-	74.00	54.00	-28.67	ΑV

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

## 12.1 Standard Applicable

According to §15.407(c)

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

#### **12.2 Result:**

No non-compliance noted:

Refer to the theory of operation.

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# 13. FREQUENCY STABILITY

# 13.1 Standard Applicable

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

### **13.2 Result:**

No non-compliance noted:

±20ppm ppm was defined in product specification.

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# 14. ANTENNA REQUIREMENT

## 14.1 Standard Applicable

According to §15.203, Antenna requirement.

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

#### 14.2 Antenna Connected Construction

The directional gins of antenna used for transmitting is 3.0dBi for 5GHz, and the antenna connector is designed with unique type RF connector and no consideration of replacement. Please see EUT photo and antenna spec.for details.

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## 15. TPC and DFS MEASUREMENT

## 15.1 TPC: Standard Applicable

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

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

## 15.2 DFS: Standard Applicable

According to §15.407(h)(2), Radar Detection Function of Dynamic Frequency Selection (DFS). U-NII devices operating in the 5.25-5.35 GHz and 5.47-5.725 GHz bands shall employ a DFS radar detection.

#### 15.2.1.Limit

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

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

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Table 2:Applicability of DFS requirements during normal operation

	Operational Mode						
Requirement	Master	Client(without radar detection)	Client(with radar				
Cannel Closing Transmission time	Yes	Yes	Yes				
Channel Move time	Yes	Yes	Yes				

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

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

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

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## Table 4: DFS Response requirement values

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

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

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

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

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

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

#### **Short Pulse Radar**

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

## **Long Pulse Radar**

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

## **Frequency Hopping Radar**

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

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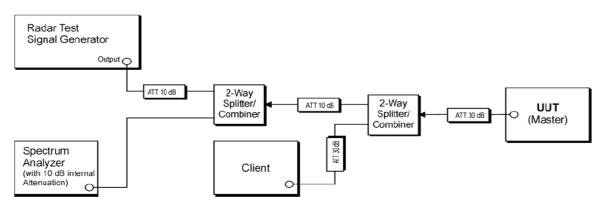


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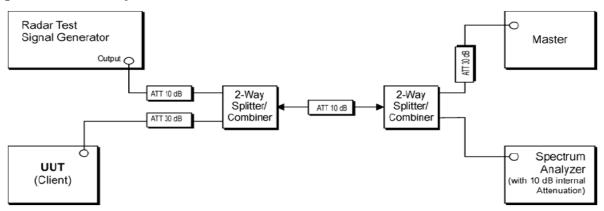
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## 15.2.2.Test Setup

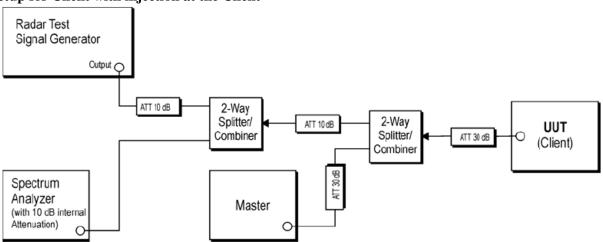
### Setup for Master with injection at the Master



#### Setup for Client with injection at the Master



## Setup for Client with injection at the Client



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# 15.2.3. Test Equipment Used:

Conducted Emission Test Site								
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.			
TYPE		NUMBER	NUMBER	CAL.				
Spectrum Analyzer	Agilent	E4446A	MY43360126	04/19/2010	04/18/2012			
Spectrum Analyzer	Agilent	E4440A	MY45304525	01/25/2011	01/24/2012			
DC Block	Agilent	BLK-18	155452	07/05/2010	07/04/2011			
Attenuator	Mini-Circuit	BW-S6W5	001	07/05/2010	07/04/2011			
Attenuator	Mini-Circuit	BW-S10W5	001	07/05/2010	07/04/2011			
Attenuator	Mini-Circuit	BW-S20W5	001	07/05/2010	07/04/2011			
Splitter	Mini-Circuit	ZFSC-2-10G	001	07/05/2010	07/04/2011			
Splitter	Mini-Circuit	ZFSC-2-10G	002	07/05/2010	07/04/2011			
Splitter	Agilent	POWER DI- VIDER	51818	07/05/2010	07/04/2011			
Splitter	Agilent	POWER DI- VIDER	51820	07/05/2010	07/04/2011			
Access point	CISCO	AIR-AP1252 G-A-K9	FTX122091Y2 FCC ID: LDK102062	N/A	N/A			
ESG VECTOR SIGNAL GENERATOR	Agilent	E4438C	MY45093613	07/08/2010	07/07/2011			

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## 15.2.4. Description of EUT:

EUT of operates over the 5250-5350MHz and 5470-5725MHz ranges. EUT is slave device it dose not have radar detection. EUT has a gain of 3dBi in the 5GHz Band.

The EUT utilizes the 802.11a architecture, with a nominal channel bandwidth of 20MHz WLAN traffic is generated by streaming the mpeg file from the master to slave in full monitor video mode using the media player.

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

## 15.2.5. Measurement procedure:

Test results demonstrating an associated client link is established with the master on a test frequency;

The client and DFS-certified master device are associated, and a movie can be streamed as specified in the DFS Order for a non-occupancy period test;

The test frequency has been monitored to ensure no transmission of any type has occurred for 30 minutes. Note: If the client moves with the master, the device is considered compliant if nothing appears in the client non-occupancy period test. For devices that shut down (rather than moving channels), no beacons should appear;

An analyzer plot that contains a single 30-minute sweep on the original channel.

15.2.6. Test results Refer to next page for plots.

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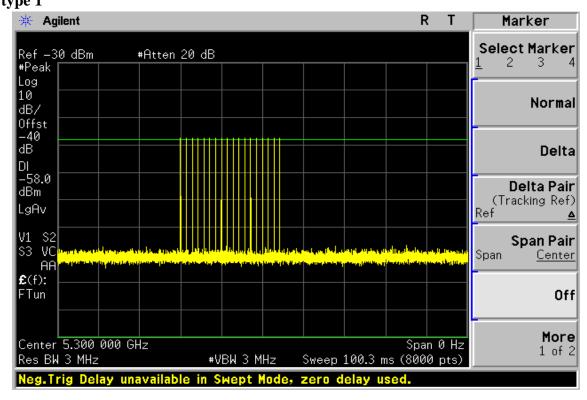
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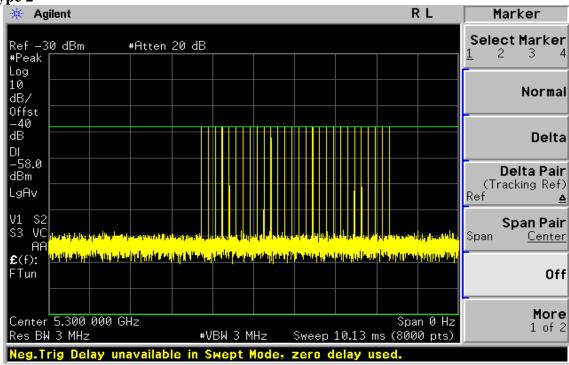
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# Calibration plots for each of the required radar waveforms Radar type 1



## Radar type 2



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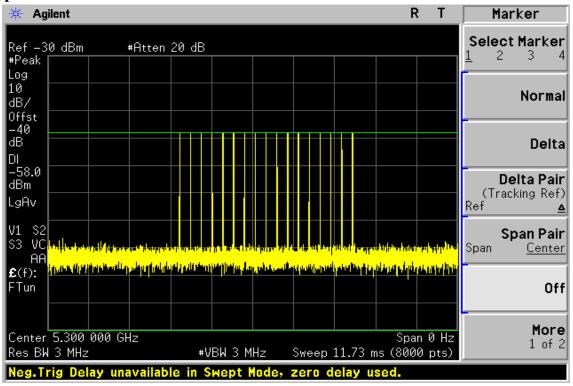
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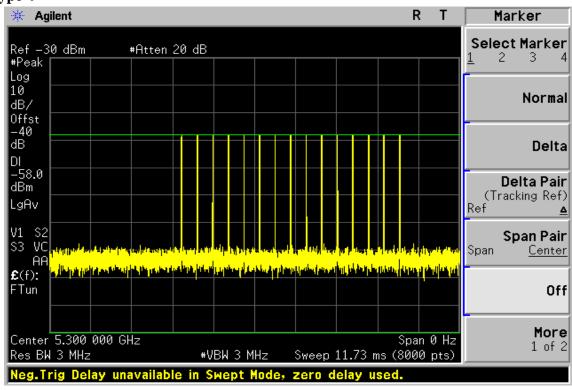
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## Radar type 3



## Radar type 4



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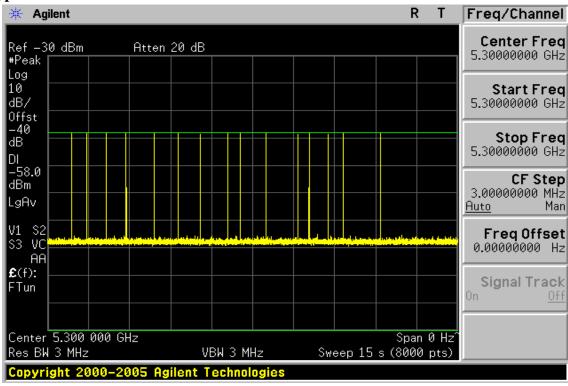
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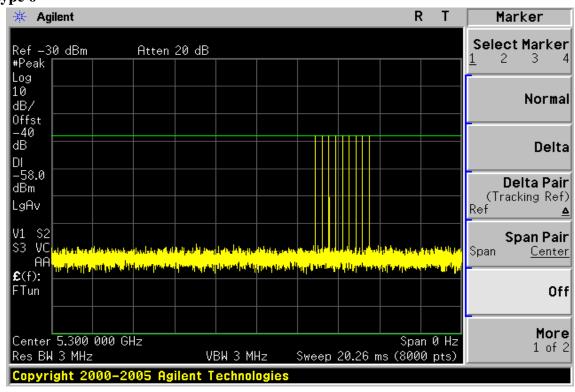
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## Radar type 5



## Radar type 6



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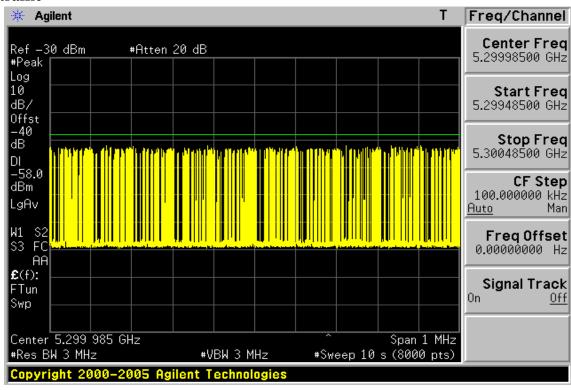
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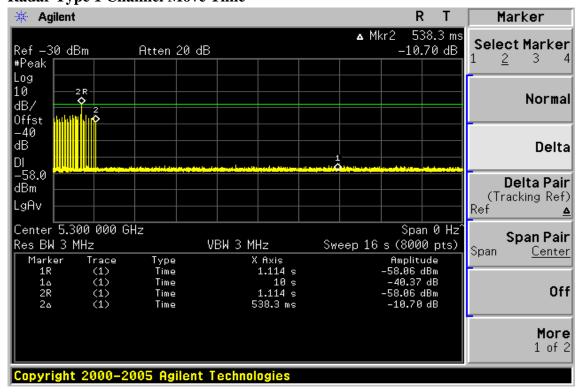
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#### **WLAN** traffic



## **Radar Type 1 Channel Move Time**



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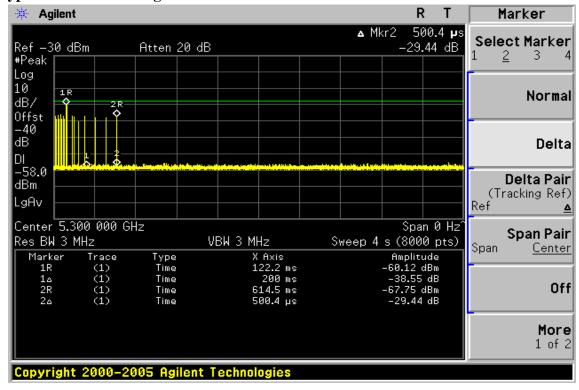
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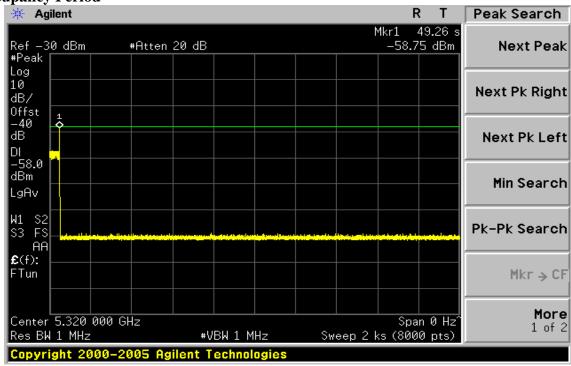
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# **Radar Type 1 Channel Closing Transmission Time**



500.2us \* 3=1.5ms

### **Non-occupancy Period**



~ End of Report ~

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