

# FCC Test Report

Product Name : 802.11ac Dual Band Router

Model No. : RT-AC52U

FCC ID. : MSQ-RTAC52U

Applicant : ASUSTeK COMPUTER INC.

Address : 4F, No. 150, Li-Te Rd., Peitou, Taipei, Taiwan, R.O.C.

Date of Receipt : 2013/09/10

Issued Date : 2013/11/01

Report No. : 139449R-RFUSP46V01

Report Version : V1.0



The test results relate only to the samples tested.

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# Test Report Certification

Issued Date : 2013/11/01

Report No. : 139449R-RFUSP46V01



Product Name : 802.11ac Dual Band Router  
 Applicant : ASUSTeK COMPUTER INC.  
 Address : 4F, No. 150, Li-Te Rd., Peitou, Taipei, Taiwan, R.O.C.  
 Manufacturer : Datamax Electronics(DongGuan)Co.,Ltd.  
 Model No. : RT-AC52U  
 FCC ID. : MSQ-RTAC52U  
 EUT Voltage : AC 100-240V, 50-60Hz  
 Trade Name : ASUS  
 Applicable Standard : FCC CFR Title 47 Part 15 Subpart E Section 15.407: 2012  
 ANSI C63.4: 2009  
 Test Result : Complied

The test results relate only to the samples tested.

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 ( Roy Wang / Director )

**Laboratory Information**

We, **Quietek Corporation**, are an independent RF consultancy that was established the whole facility in our laboratories. The test facility has been accredited/accepted (audited or listed) by the following related bodies in compliance with ISO 17025 specified testing scopes:

<b>Taiwan R.O.C.</b>	<b>:</b>	<b>TAF, Accreditation Number: 1313</b>
<b>USA</b>	<b>:</b>	<b>FCC, Registration Number: 365520</b>
<b>Canada</b>	<b>:</b>	<b>IC, Submission No: 150981</b>

The related certificate for our laboratories about the test site and management system can be downloaded from Quietek Corporation's Web Site:<http://www.quietek.com/tw/ctg/cts/accreditations.htm>

The address and introduction of Quietek Corporation's laboratories can be founded in our Web site :  
<http://www.quietek.com/>

If you have any comments, Please don't hesitate to contact us. Our contact information is as below:

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## 1. General Information

### 1.1. EUT Description

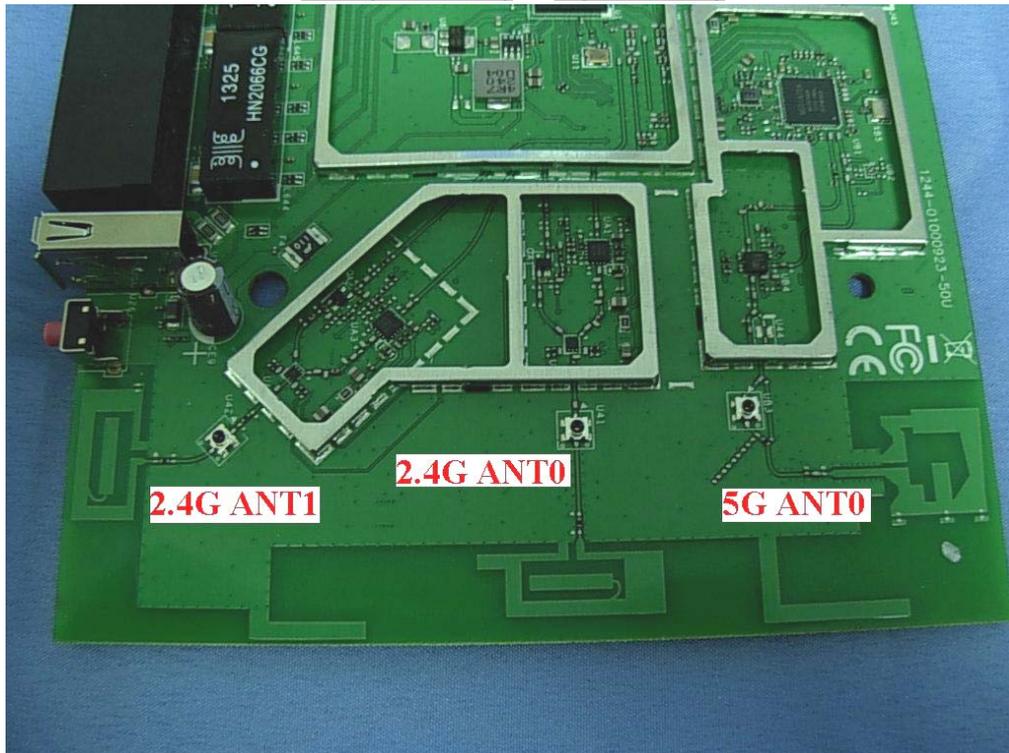
Product Name	802.11ac Dual Band Router	
Product Type	WLAN (5G:1TX, 1RX)	
Trade Name	ASUS	
Model No.	RT-AC52U	
Frequency Range/ Channel Number	IEEE 802.11a/(20MHz)	5180~5240MHz / 4 Channels
	IEEE 802.11n (40MHz)	5190~5230MHz / 2 Channels
	IEEE 802.11ac (80MHz)	5210~5210MHz / 1 Channel
Type of Modulation	IEEE 802.11a/n/ac	Orthogonal Frequency Division Multiplexing
Data Speed	IEEE 802.11a	6Mbps,9Mbps,12Mbps,18Mbps,24Mbps,36Mbps,48Mbps,54Mbps
	IEEE 802.11n	Support a subset of the combination of GI, MCS 0~MCS 7 and bandwidth defined in 802.11n
	IEEE 802.11ac	Support a subset of the combination of GI, MCS 0~MCS 9 and bandwidth defined in 802.11ac
Antenna Gain	Ant0: 3.47 dBi	
Antenna Type	PCL Antenna	

Component	
RJ 45 Cable	Non-Shielded, 1m
Power Adapter	DVE · DSA-12PFA-09 FUS 120100 I/P: 100-240V, 50-60Hz 0.5A O/P: +12V $\equiv$ 1A Cable In: Non-Shielded, 1.6m

**ANT-TX / RX & Bandwidth**

ANT-TX / RX	TX			RX		
	20MHz	40MHz	80MHz	20MHz	40MHz	80MHz
IEEE802.11a	✓			✓		
IEEE802.11n	✓	✓		✓	✓	
IEEE802.11ac	✓	✓	✓	✓	✓	✓

**2.4G(2TX /2RX) , 5G(1TX /1RX)**



IEEE 802.11n

MCS Index	Modulation	R	N <sub>BPSCS</sub>	N <sub>CBPS</sub>		N <sub>DBPS</sub>		Data Rate(Mb/s)			
				20MHz	40MHz	20MHz	40MHz	800ns GI		400ns GI	
								20MHz	40MHz	20MHz	40MHz
0	BPSK	1/2	1	52	108	26	54	6.5	13.5	7.2	15.0
1	QPSK	1/2	2	104	216	52	108	13.0	27.0	14.4	30.0
2	QPSK	3/4	2	104	216	78	162	19.5	40.5	21.7	45.0
3	16-QAM	1/2	4	208	432	104	216	26.0	54.0	28.9	60.0
4	16-QAM	3/4	4	208	432	156	324	39.0	81.0	43.3	90.0
5	64-QAM	2/3	6	312	648	208	432	52.0	108.0	57.8	120.0
6	64-QAM	3/4	6	312	648	234	486	58.5	121.5	65.0	135.0
7	64-QAM	5/6	6	312	648	260	540	65.0	135.0	72.2	150.0

Note 1: Support of 400ns GI is optional on transmit and receive.

Table 1 – MCS parameters for TX Antenna number = 1

MCS Index	Modulation	R	N <sub>BPSCS</sub>	N <sub>CBPS</sub>		N <sub>DBPS</sub>		Data Rate(Mb/s)			
				20MHz	40MHz	20MHz	40MHz	800ns GI		400ns GI	
								20MHz	40MHz	20MHz	40MHz
8	BPSK	1/2	1	104	216	52	108	13.0	27.0	14.4	30.0
9	QPSK	1/2	2	208	432	104	216	26.0	54.0	28.9	60.0
10	QPSK	3/4	2	208	432	156	324	39.0	81.0	43.3	90.0
11	16-QAM	1/2	4	416	864	208	432	52.0	108.0	57.8	120.0
12	16-QAM	3/4	4	416	864	312	648	78.0	162.0	86.7	180.0
13	64-QAM	2/3	6	624	1296	416	864	104.0	216.0	115.6	240.0
14	64-QAM	3/4	6	624	1296	468	972	117.0	243.0	130.0	270.0
15	64-QAM	5/6	6	624	1296	520	1080	130.0	270.0	144.4	300.0

Note 1: Support of 400ns GI is optional on transmit and receive.

Table 2 – MCS parameters for TX Antenna number = 2

Symbol	Explanation
R	Code rate
N <sub>BPSC</sub>	Number of coded bits per single carrier
N <sub>CBPS</sub>	Number of coded bits per symbol
N <sub>DBPS</sub>	Number of data bits per symbol
GI	guard interval

**Draft IEEE 802.11ac Data Rate**

Spatial Streams (Note1)	MCS Index	Modulation type	Coding rate	Data Rate(Mb/s)							
				20 MHz		40 MHz		80 MHz		160 MHz	
				Guard Interval		Guard Interval		Guard Interval		Guard Interval	
				800ns	400ns	800ns	400ns	800ns	400ns	800ns	400ns
1	0	BPSK	1/2	6.5	7.2	13.5	15	29.3	32.5	58.5	65
	1	QPSK	1/2	13	14.4	27	30	58.5	65	117	130
	2	QPSK	3/4	19.5	21.7	40.5	45	87.8	97.5	175.5	195
	3	16-QAM	1/2	26	28.9	54	60	117	130	234	260
	4	16-QAM	3/4	39	43.3	81	90	175.5	195	351	390
	5	64-QAM	2/3	52	57.8	108	120	234	260	468	520
	6	64-QAM	3/4	58.5	65	121.5	135	263.3	292.5	526.5	585
	7	64-QAM	5/6	65	72.2	135	150	292.5	325	585	650
	8	256-QAM	3/4	78	86.7	162	180	351	390	702	780
	9	256-QAM	5/6	N/A	N/A	180	200	390	433.3	780	866.7

Table 3 – MCS parameters

### IEEE 802.11a & IEEE 802.11n (20MHz)

Working Frequency of Each Channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
36	5180MHz	40	5200MHz	44	5220MHz	48	5240MHz

### IEEE 802.11n (40MHz)

Working Frequency of Each Channel			
Channel	Frequency	Channel	Frequency
38	5190MHz	46	5230MHz

### IEEE 802.11ac (80MHz)

Working Frequency of Each Channel	
Channel	Frequency
42	5210 MHz

**Note:**

1. This device is a 802.11ac Dual Band Router including 2.4GHz b/g/n(2x2) and 5GHz a/n (1x1) transmitting and receiving function.
2. These test results on a sample of the device are for the purpose of demonstrating Compliance with Part 15 Subpart E Paragraph 15.407.
3. Regards to the frequency band operation; the lowest , middle and highest frequency of channel were selected to perform the test, and then shown on this report.
4. The function of the 2.4GHz and 5.8GHz transmitting is measured and makes a test report of the report number: 139449R-RFUSP42V01.
5. This device has USB and Ethernet ports, which can be connected to computer. The receiving function receiving was tested and its test report number is 139449R-RFUSP37V02 under Declaration of Conformity.

### 1.3. Test Mode

Quietek has verified the construction and function in typical operation. The preliminary tests were performed in different data rate, and to find the worst condition, which was shown in this test report. The following table is the final test mode.

TX	Mode 1: Transmit
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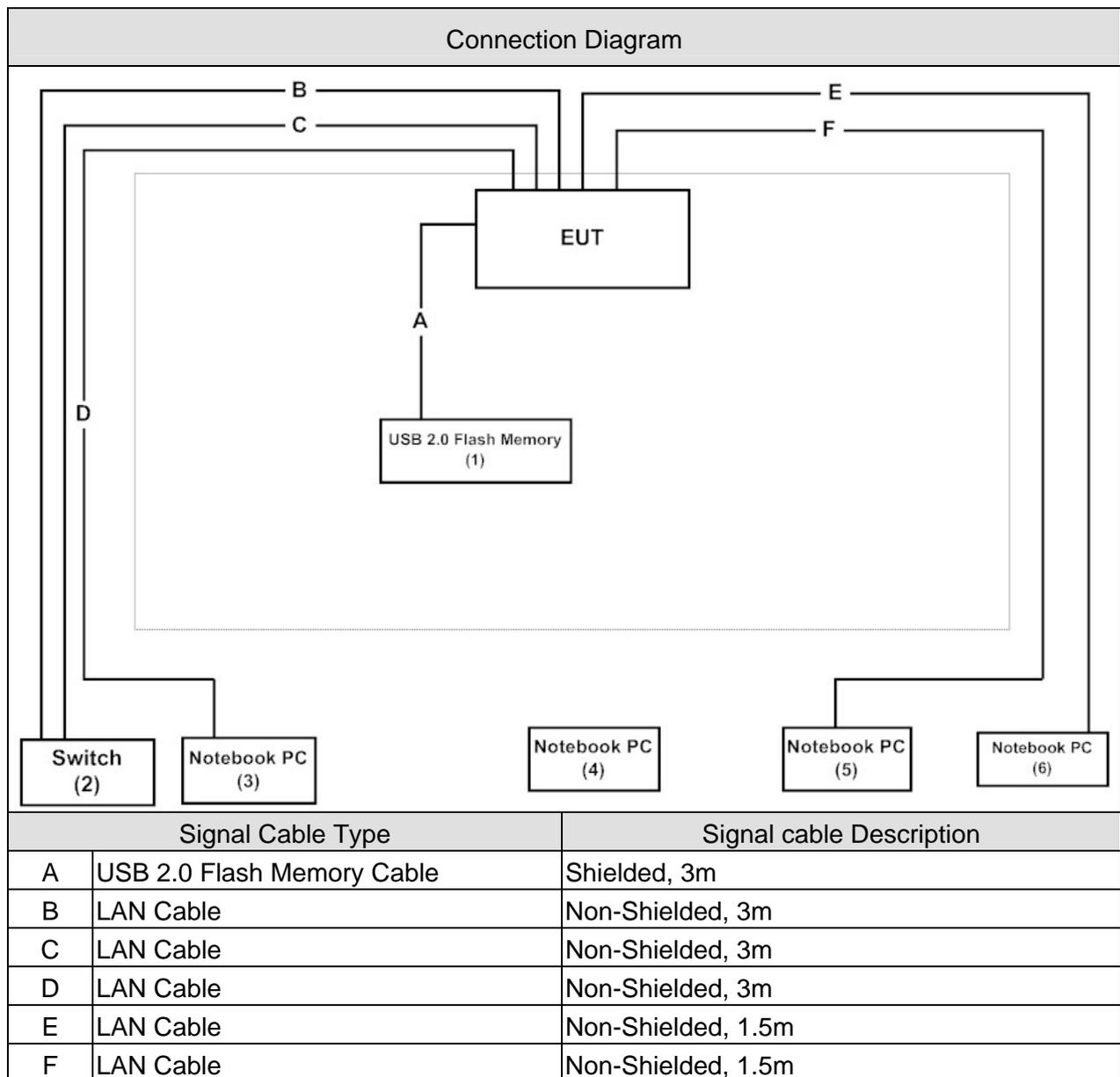
Test Items	Modulation	Channel	Antenna	Result
Conducted Emission	11ac (80MHz)	42	0	Complies
99 % & 26dB Bandwidth	a	36/44/48	0	Complies
	11n (20MHz)	36/44/48	0	Complies
	11n (40MHz)	38/46	0	Complies
	11ac (80MHz)	42	0	Complies
Peak Transmit Output	a	36/44/48	0	Complies
	11n (20MHz)	36/44/48	0	Complies
	11n (40MHz)	38/46	0	Complies
	11ac (80MHz)	42	0	Complies
Peak Power Spectrum Density	a	36/44/48	0	Complies
	11n (20MHz)	36/44/48	0	Complies
	11n (40MHz)	38/46	0	Complies
	11ac (80MHz)	42	0	Complies
Power Excursion	a	36/44/48	0	Complies
	11n (20MHz)	36/44/48	0	Complies
	11n (40MHz)	38/46	0	Complies
	11ac (80MHz)	42	0	Complies
Radiated Emission	a	36/44/48	0	Complies
	11n (20MHz)	36/44/48	0	Complies
	11n (40MHz)	38/46	0	Complies
	11ac (80MHz)	42	0	Complies
Band Edge	a	36	0	Complies
	11n (20MHz)	36	0	Complies
	11n (40MHz)	38	0	Complies
	11ac (80MHz)	42	0	Complies
Frequency Stability	a	36/44/48	0	Complies
	11n (20MHz)	36/44/48	0	Complies
	11n (40MHz)	38/46	0	Complies
	11ac (80MHz)	42	0	Complies

#### 1.4. Tested System Details

The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product	Manufacturer	Model No.	Serial No.	FCC ID	Power Cord
1 USB 2.0 Flash Memory	Apacer	AH223	N/A	DoC	--
2 Switch	D-Link	DGS1216T	F360298000076	DoC	Non-Shielded, 1.8m
3 Notebook PC	HP	HSTNN-146C	CNU8253S1X	DoC	Non-Shielded, 1.8m
4 Notebook PC	ACER	MS2296	LUSCV02139115 0332C2000	DoC	Non-Shielded, 2.5m one ferrite core bonded
5 Notebook PC	DELL	Vostro3400	7F808N1	DoC	Non-Shielded, 1.8m
6 Notebook PC	HP Compaq	NX6320FF	CNU7020BXT	DoC	Non-Shielded, 1.8m

### 1.5. Configuration of tested System



### 1.6. EUT Exercise Software

1	Test system is in accord with EUT user manual (refer to 1.5 configuration of tested system)
2	Execute the test program "RT5x9xQA" on the Notebook.
3	Configure the test mode, the test channel, and the data rate.
4	Press "Start TX" to start the continuous transmitting.
5	Verify that the EUT works properly.

## 1.7. Test Facility

Ambient conditions in the laboratory:

Items	Test Item	Required (IEC 68-1)	Actual
Temperature (°C)	FCC PART 15 C 15.407 Conducted Emission	15 - 35	20
Humidity (%RH)		25 - 75	50
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.407 99 % & 26dB Bandwidth	15 - 35	25
Humidity (%RH)		25 - 75	48
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.407 Peal Transmit Power	15 - 35	25
Humidity (%RH)		25 - 75	65
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.407 Peak Power Spectrum	15 - 35	24
Humidity (%RH)		25 - 75	49
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.407 Power Excursion	15 - 35	25
Humidity (%RH)		25 - 75	48
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.407 Radiated Emission	15 - 35	25
Humidity (%RH)		25 - 75	48
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.407 Band Edge	15 - 35	25
Humidity (%RH)		25 - 75	48
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.407 Frequency Stability	15 - 35	25
Humidity (%RH)		25 - 75	48
Barometric pressure (mbar)		860 - 1060	950-1000

2. Conducted Emission

2.1. Test Equipment

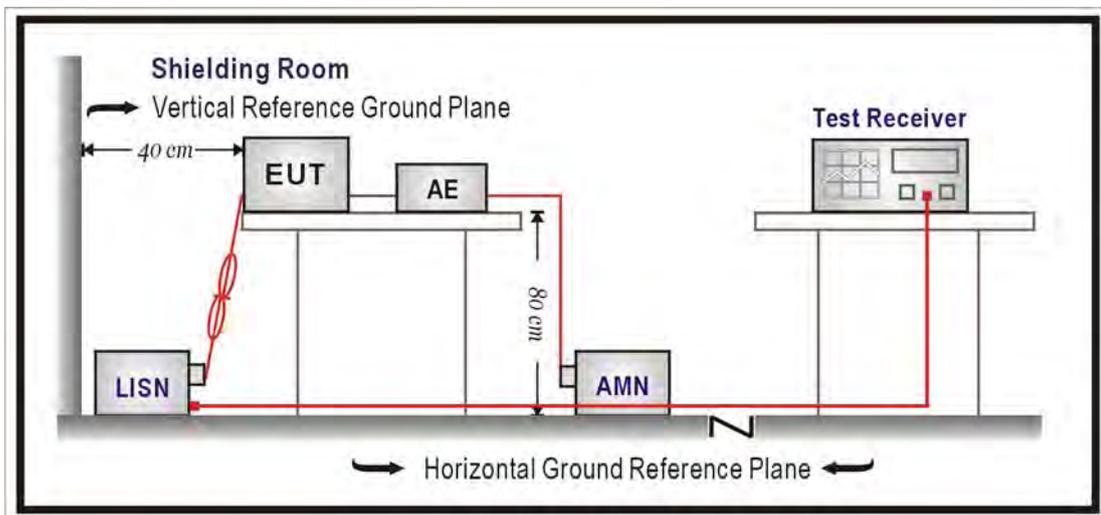
The following test equipments are used during the test:

Conducted Emission / SR3

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
LISN	R&S	ENV216	100096	2014/08/01
LISN	R&S	ESH3-Z5	836679/022	2014/01/20
Test Receiver	R&S	ESCS 30	825442/017	2014/01/01

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

2.2. Test Setup



**2.3. Limits**

<b>FCC Part 15 Subpart C Paragraph 15.207 Limits (dBuV)</b>		
Frequency MHz	QP	AV
0.15 - 0.50	66-56	56-46
0.50 - 5.0	56	46
5.0 - 30	60	50

Remarks: In the above table, the tighter limit applies at the band edges.

**2.4. Test Procedure**

The EUT was setup according to ANSI C63.4: 2009. The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface. The EUT and simulators are connected to the main power through a line impedance stabilization network (LISN). The LISN provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs.)

Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.

The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.

Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.

**2.5. Test Specification**

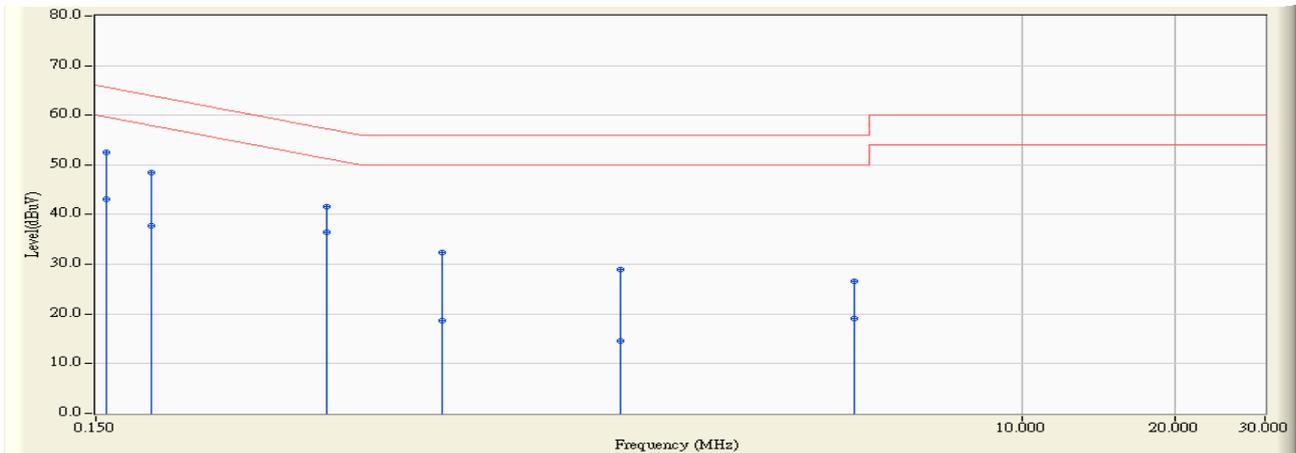
According to FCC Part 15 Subpart C Paragraph 15.207: 2012

**2.6. Uncertainty**

The measurement uncertainty is defined as  $\pm 2.26$  dB.

## 2.7. Test Result

Site : SR3	Time : 2013/10/28 - 18:58
Limit : CISPR_B_00M_QP	Margin : 6
Probe : SR3_LISN(16A)-3_0813 - Line1	Power : AC 120V/60Hz
EUT : 802.11ac Dual Band Router	Note : Mode 1: Transmit_802.11ac80MHz_5210MHz

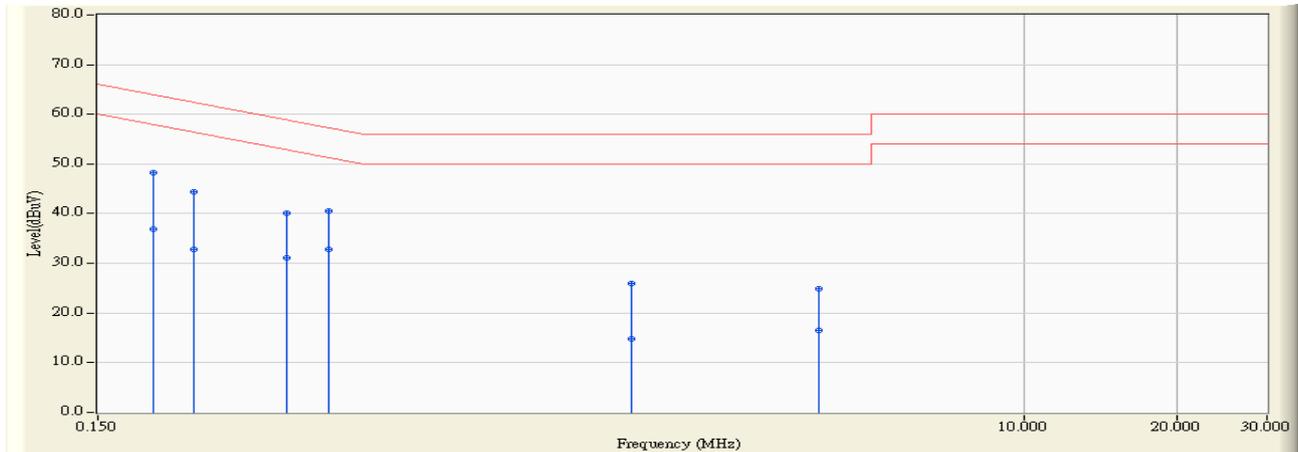


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	0.158	9.641	42.960	52.600	-12.978	65.578	QUASIPeAK
2	0.158	9.641	33.500	43.140	-12.438	55.578	AVERAGE
3	0.193	9.653	38.860	48.513	-15.395	63.908	QUASIPeAK
4	0.193	9.653	28.170	37.823	-16.085	53.908	AVERAGE
5	0.427	9.789	31.720	41.509	-15.795	57.304	QUASIPeAK
6	*	9.789	26.610	36.399	-10.905	47.304	AVERAGE
7	0.720	9.884	22.410	32.294	-23.706	56.000	QUASIPeAK
8	0.720	9.884	8.870	18.754	-27.246	46.000	AVERAGE
9	1.615	9.950	19.080	29.030	-26.970	56.000	QUASIPeAK
10	1.615	9.950	4.630	14.580	-31.420	46.000	AVERAGE
11	4.673	10.100	16.430	26.530	-29.470	56.000	QUASIPeAK
12	4.673	10.100	8.990	19.090	-26.910	46.000	AVERAGE

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : SR3	Time : 2013/10/28 - 19:00
Limit : CISPR_B_00M_QP	Margin : 6
Probe : SR3_LISN(16A)-3_0813 - Line2	Power : AC 120V/60Hz
EUT : 802.11ac Dual Band Router	Note : Mode 1: Transmit_802.11ac80MHz_5210MHz



	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	0.193	9.653	38.600	48.253	-15.655	63.908	QUASPEAK
2	0.193	9.653	27.260	36.913	-16.995	53.908	AVERAGE
3	0.232	9.679	34.640	44.319	-18.058	62.377	QUASPEAK
4	0.232	9.679	23.030	32.709	-19.668	52.377	AVERAGE
5	0.353	9.739	30.410	40.149	-18.739	58.889	QUASPEAK
6	0.353	9.739	21.440	31.179	-17.709	48.889	AVERAGE
7	0.427	9.779	30.790	40.569	-16.735	57.304	QUASPEAK
8	* 0.427	9.779	23.140	32.919	-14.385	47.304	AVERAGE
9	1.681	9.940	16.040	25.980	-30.020	56.000	QUASPEAK
10	1.681	9.940	4.910	14.850	-31.150	46.000	AVERAGE
11	3.947	10.023	14.910	24.933	-31.067	56.000	QUASPEAK
12	3.947	10.023	6.570	16.593	-29.407	46.000	AVERAGE

**Note:**

1. All Reading Levels are Quasi-Peak and average value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

**3. 99% & 26dB Bandwidth**

**3.1. Test Equipment**

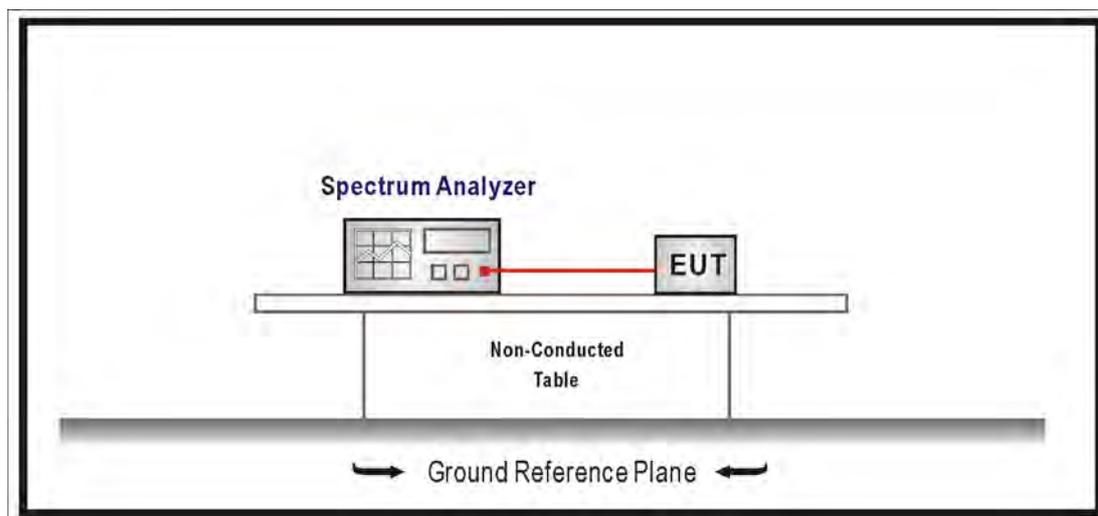
The following test equipments are used during the radiated emission tests:

**99% & 26dB Bandwidth / SR7**

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	Agilent	N9010A-EXA	US47140172	2014/08/05

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

**3.2. Test Setup**



**3.3. Limits**

No Required

**3.4. Test Procedure**

The EUT was tested according to U-NII test procedure of KDB 789033. Set RBW 1% of the emission bandwidth, VBW equal to 3 times the RBW.

**3.5. Uncertainty**

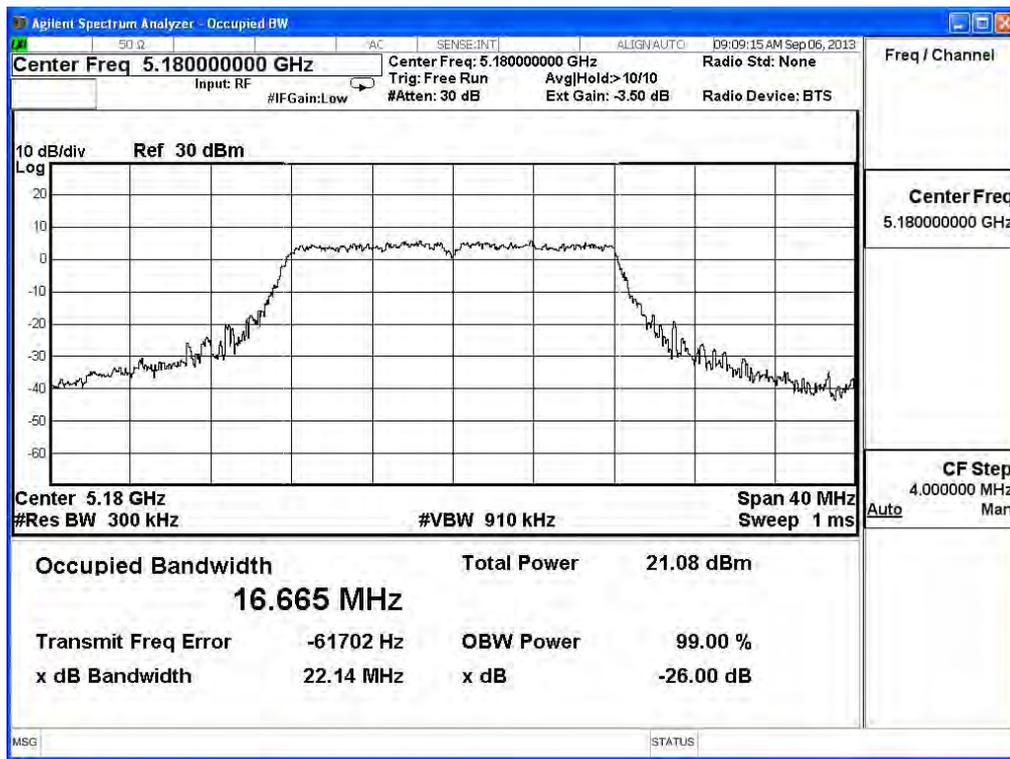
The measurement uncertainty is defined as  $\pm 150\text{Hz}$

3.6. Test Result

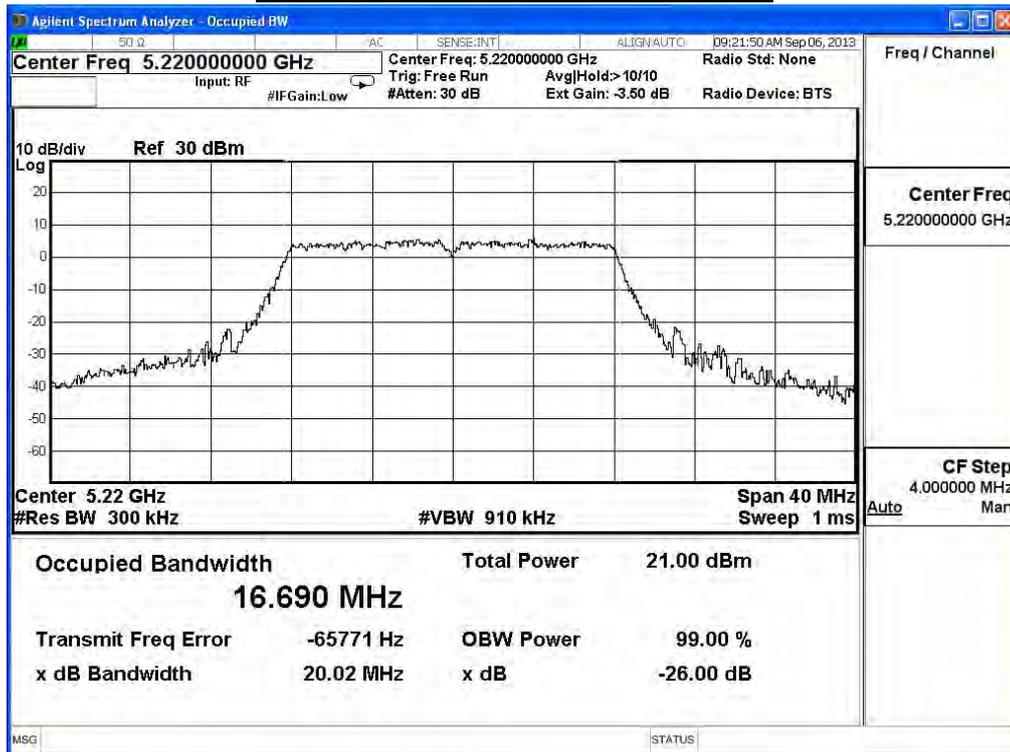
Product	802.11ac Dual Band Router		
Test Item	99% & 26dB Bandwidth		
Test Mode	Mode 1: Transmit		
Date of Test	2013/09/26	Test Site	SR7

802.11a					
Channel No.	Frequency (MHz)	26dB BW (MHz)	99 % OBW (MHz)	Required Limit (MHz)	Result
36	5180	22.14	16.67	--	Pass
44	5220	20.02	16.69	--	Pass
48	5240	20.11	16.74	--	Pass

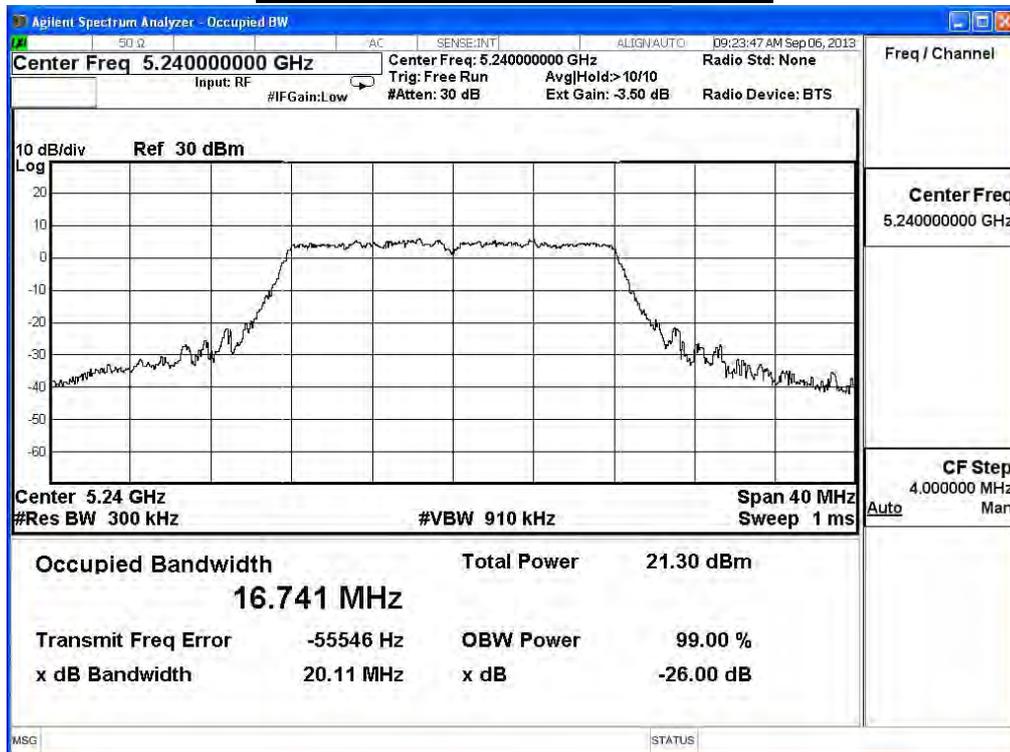
**99% & 26dB Bandwidth – Channel 36**



**99% & 26dB Bandwidth – Channel 44**

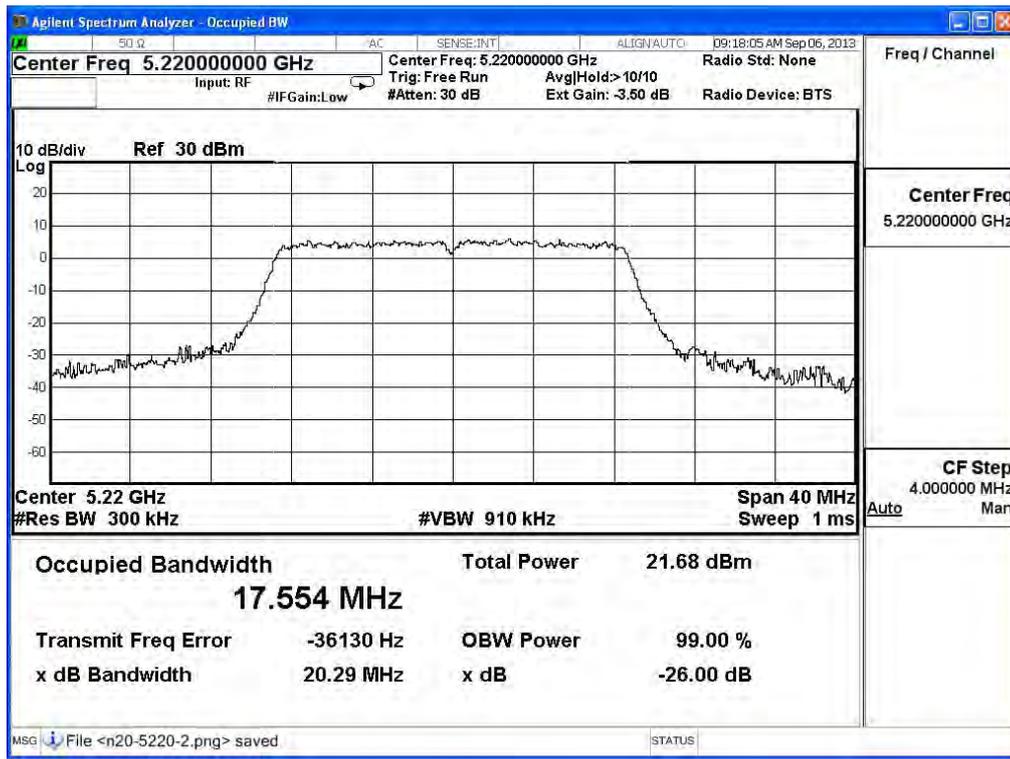


**99% & 26dB Bandwidth – Channel 48**

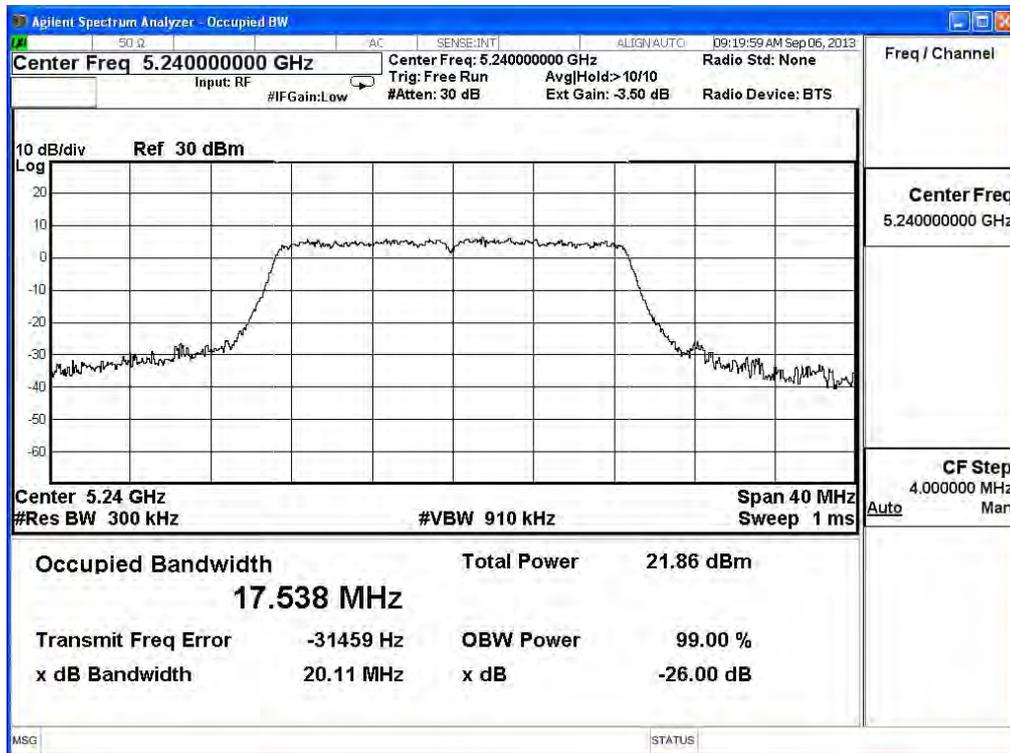




**99% & 26dB Bandwidth – Channel 44**



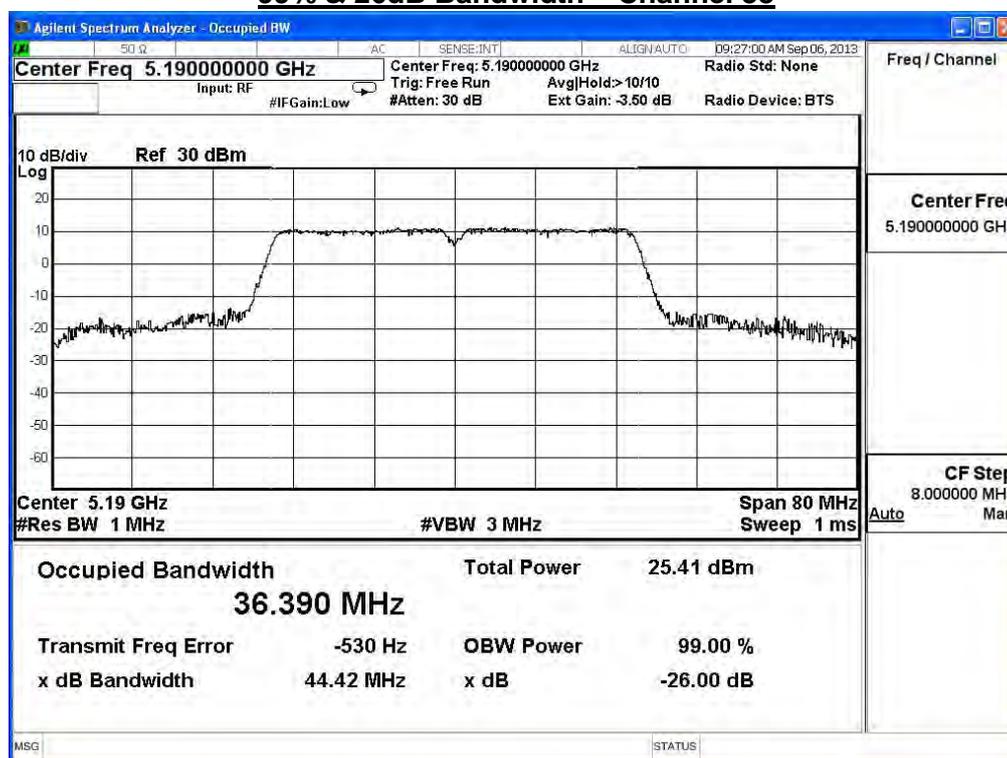
**99% & 26dB Bandwidth – Channel 48**



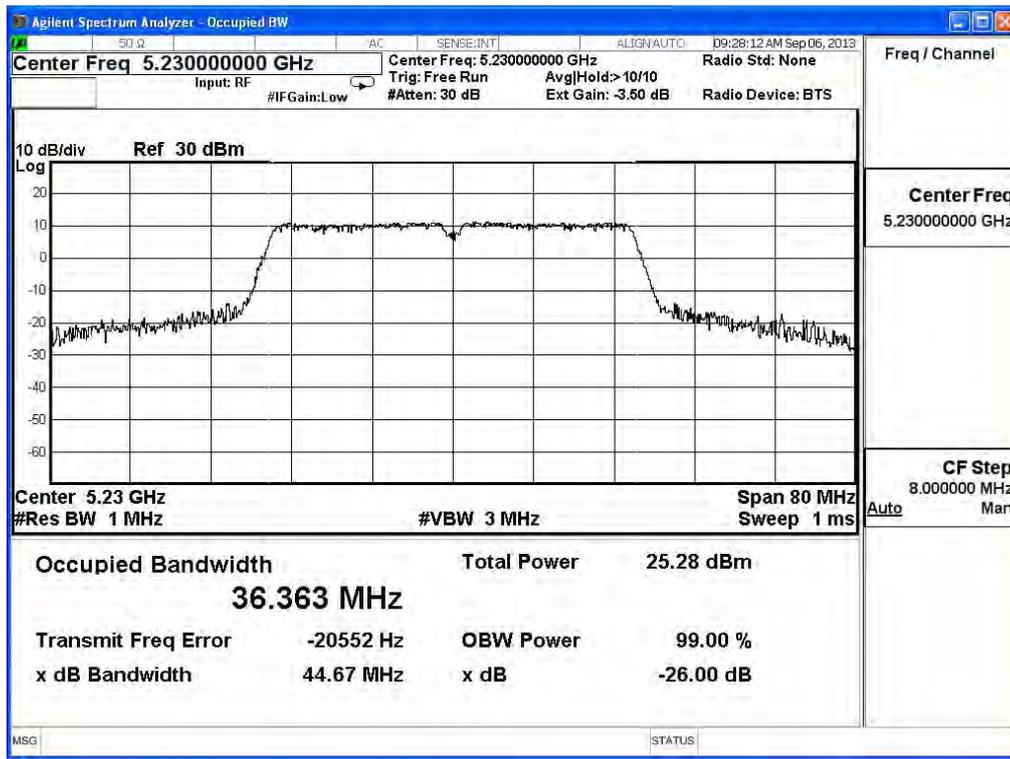
Product	802.11ac Dual Band Router		
Test Item	99% & 26dB Bandwidth		
Test Mode	Mode 1: Transmit		
Date of Test	2013/05/29	Test Site	SR7

802.11n_40M(ANT 0)					
Channel No.	Frequency (MHz)	26dB BW (MHz)	99 % OBW (MHz)	Required Limit (MHz)	Result
38	5190	44.42	36.39	--	Pass
46	5230	44.67	36.36	--	Pass

### 99% & 26dB Bandwidth – Channel 38



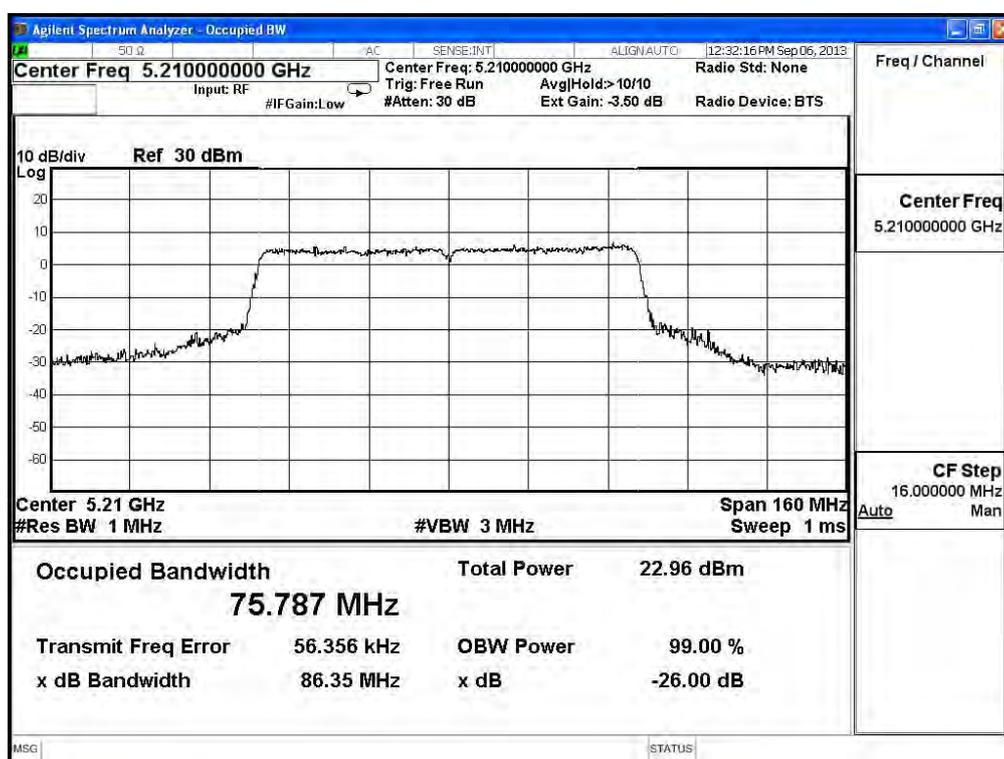
**99% & 26dB Bandwidth – Channel 46**



Product	802.11ac Dual Band Router		
Test Item	99% & 26dB Bandwidth		
Test Mode	Mode 1: Transmit		
Date of Test	2013/09/26	Test Site	SR7

802.11ac_80M(ANT 0)					
Channel No.	Frequency (MHz)	26dB BW (MHz)	99 % OBW (MHz)	Required Limit (MHz)	Result
42	5210	86.35	75.79	--	Pass

### 99% & 26dB Bandwidth – Channel 42



**4. Peak Transmit Output**

**4.1. Test Equipment**

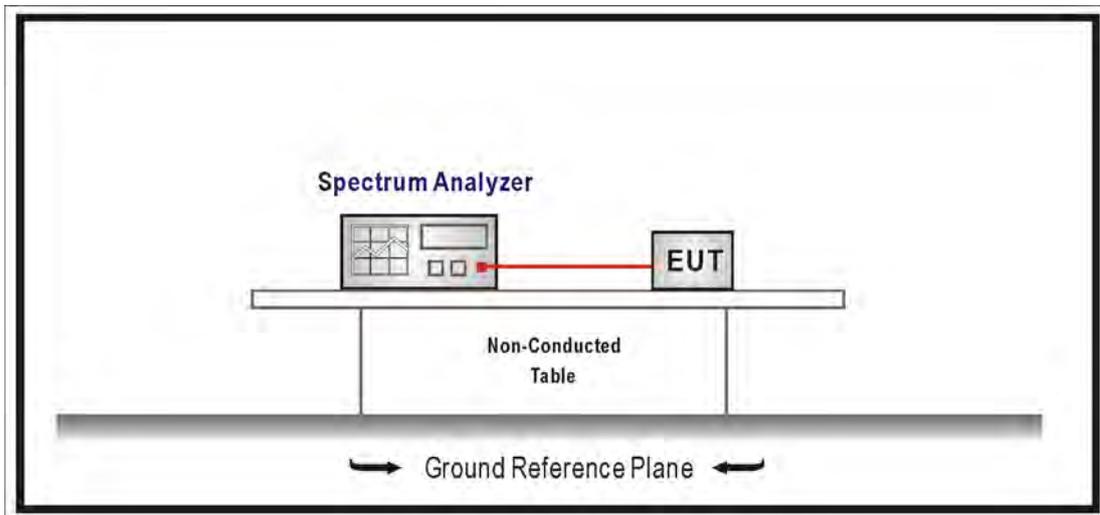
The following test equipments are used during the radiated emission tests:

**Peak Transmit Output / SR7**

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	Agilent	N9010A-EXA	US47140172	2014/08/05

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

**4.2. Test Setup**



### 4.3. Limits

1. For the band 5.15-5.25 GHz, the peak transmit power over the frequency band of operation shall not exceed the lesser of 50 mW or  $4 \text{ dBm} + 10\log B$ , where B is the 26dB emission bandwidth in MHz. If transmitting antenna of directional gain greater than 6 dBi are used, the peak transmit power shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.
2. For the band 5.25-5.35 GHz, the peak transmit power over the frequency band of operation shall not exceed the lesser of 250 mW or  $11 \text{ dBm} + 10\log B$ , where B is the 26dB emission bandwidth in MHz. If transmitting antenna of directional gain greater than 6 dBi are used, the peak transmit power shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.
3. For the band 5.725-5.825 GHz, the peak transmit power over the frequency band of operation shall not exceed the lesser of 1W or  $17 \text{ dBm} + 10\log B$ , where B is the 26dB emission bandwidth in MHz. If transmitting antenna of directional gain greater than 6 dBi are used, the peak transmit power shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.

### 4.4. Test Procedure

The EUT was setup to ANSI C63.4, 2009; tested to U-NII test procedure of KDB 789033 for compliance to FCC 47CFR Subpart E requirements. The Method SA-1 of the Maximum conducted output power was used.

Set RBW=1MHz, VBW=3MHz with RMS detector and trace average 100 traces in power averaging mode. Set span to encompass the entire emission bandwidth (EBW) of the signal. Compute power by integrating the spectrum across the 26 dB EBW of the signal.

### 4.5. Uncertainty

The measurement uncertainty is defined as  $\pm 1.27 \text{ dB}$

4.6. Test Result

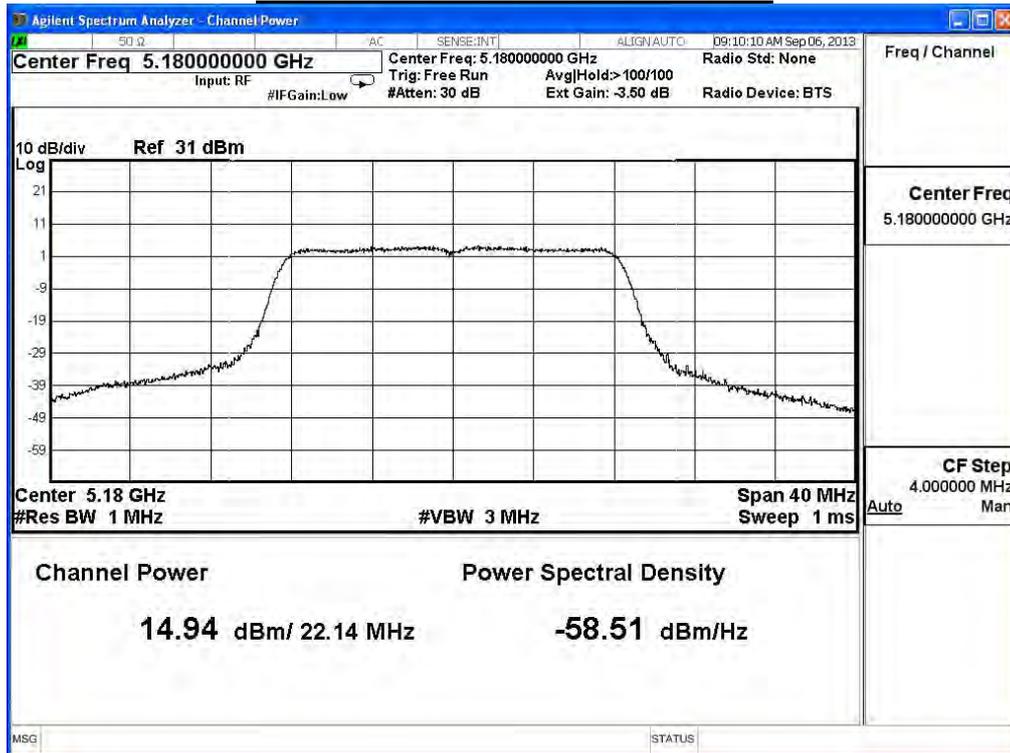
Product	802.11ac Dual Band Router		
Test Item	Peak Transmit Output		
Test Mode	Mode 1: Transmit		
Date of Test	2013/09/26	Test Site	SR7

802.11a						
Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Required Limit		Result
				Fixed Limit (dBm)	4+10logB Limit (dBm)	
36	5180	22.14	14.94	≤17	17.45	Pass
44	5220	20.02	14.59	≤17	17.01	Pass
48	5240	20.11	14.78	≤17	17.03	Pass

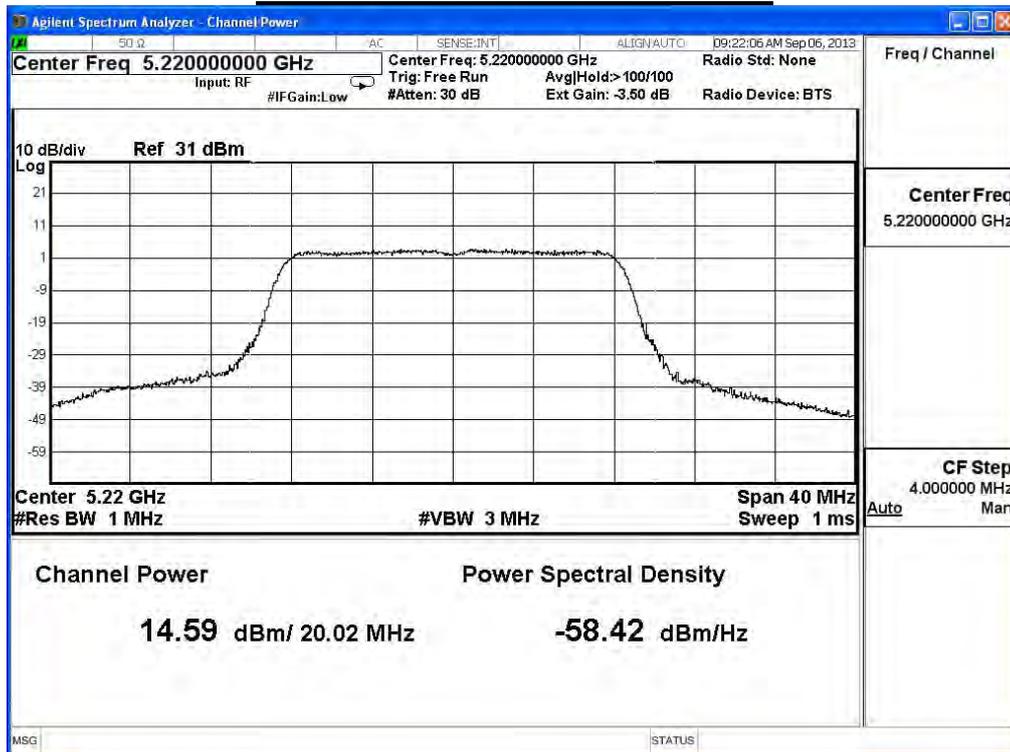
The worst emission of data rate is 6 Mbps.

Peak Power Output (dBm)									
Channel No	Frequency (MHz)	Data Rate							Required Limit
		6	12	18	24	36	48	54	
36	5180	14.94	--	--	--	--	--	--	17dBm or 4dBm+10logB
44	5220	14.59	14.49	14.39	14.29	14.17	14.05	13.93	
48	5240	14.78	--	--	--	--	--	--	

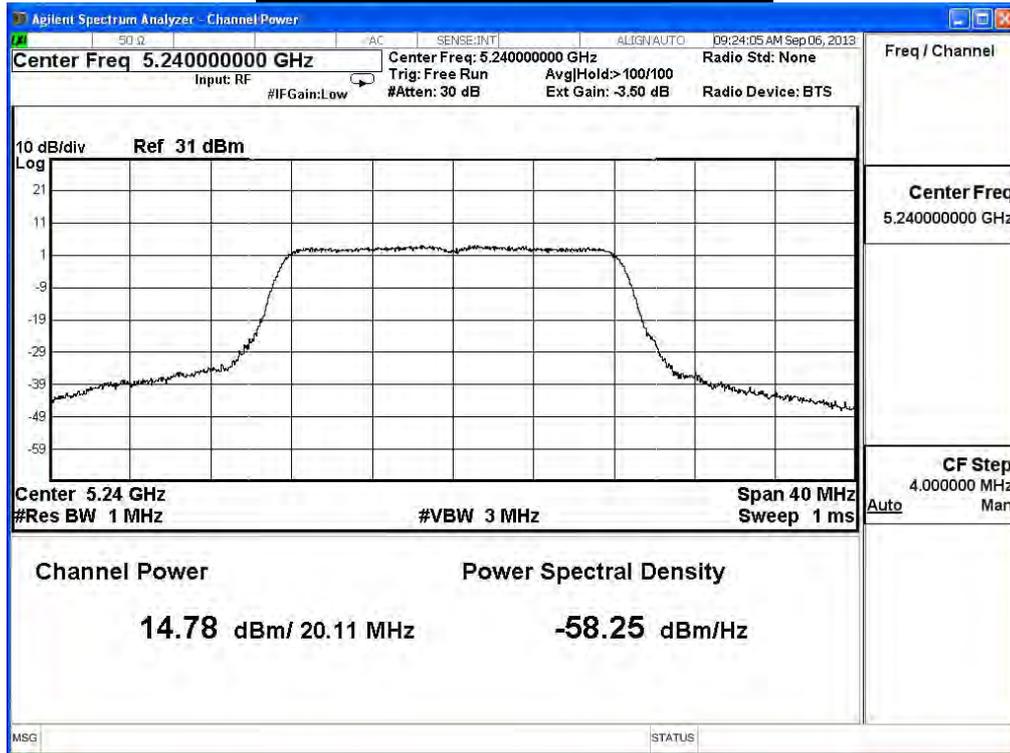
### Peak transmit Power - Channel 36



### Peak transmit Power - Channel 44



Peak transmit Power - Channel 48



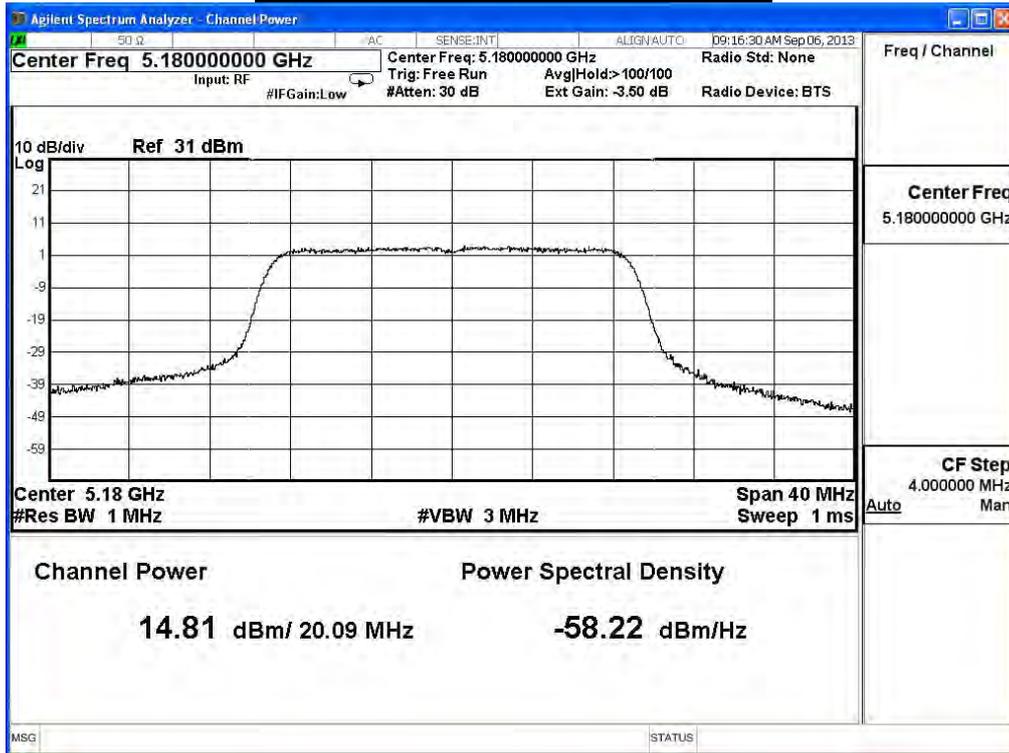
Product	802.11ac Dual Band Router		
Test Item	Peak Transmit Output		
Test Mode	Mode 1: Transmit		
Date of Test	2013/09/26	Test Site	SR7

IEEE 802.11n(20MHz)_ANT 0						
Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Required Limit		Result
				Fixed Limit (dBm)	4+10logB Limit (dBm)	
36	5180	20.09	14.81	≤17	17.03	Pass
44	5220	20.29	14.97	≤17	17.07	Pass
48	5240	20.11	15.13	≤17	17.03	Pass

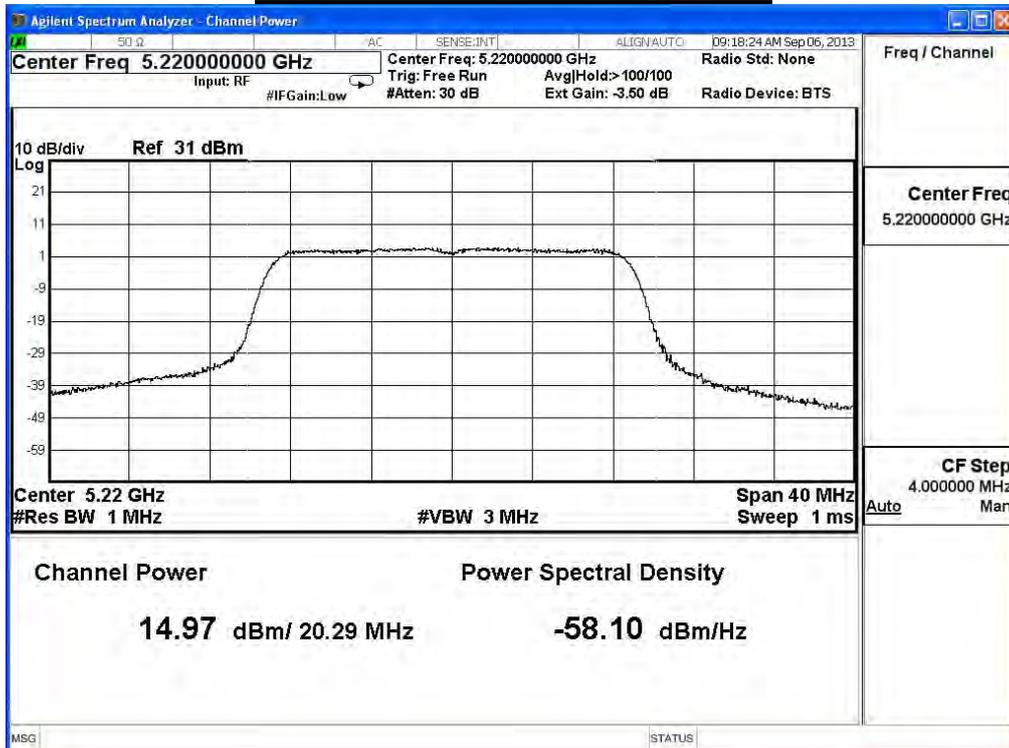
The worst emission of data rate is 19.5Mbps.

Peak Power Output (dBm)										
MCS Index		0	1	2	3	4	5	6	7	Required Limit
Channel No	Frequency (MHz)	Data Rate								
		19.5	39	58.5	78	117	156	175.5	195	
36	5180	14.81	--	--	--	--	--	--	--	17dBm or 4dBm+10logB
44	5220	14.97	14.77	14.57	14.47	14.27	14.15	14.03	13.91	
48	5240	15.13	--	--	--	--	--	--	--	

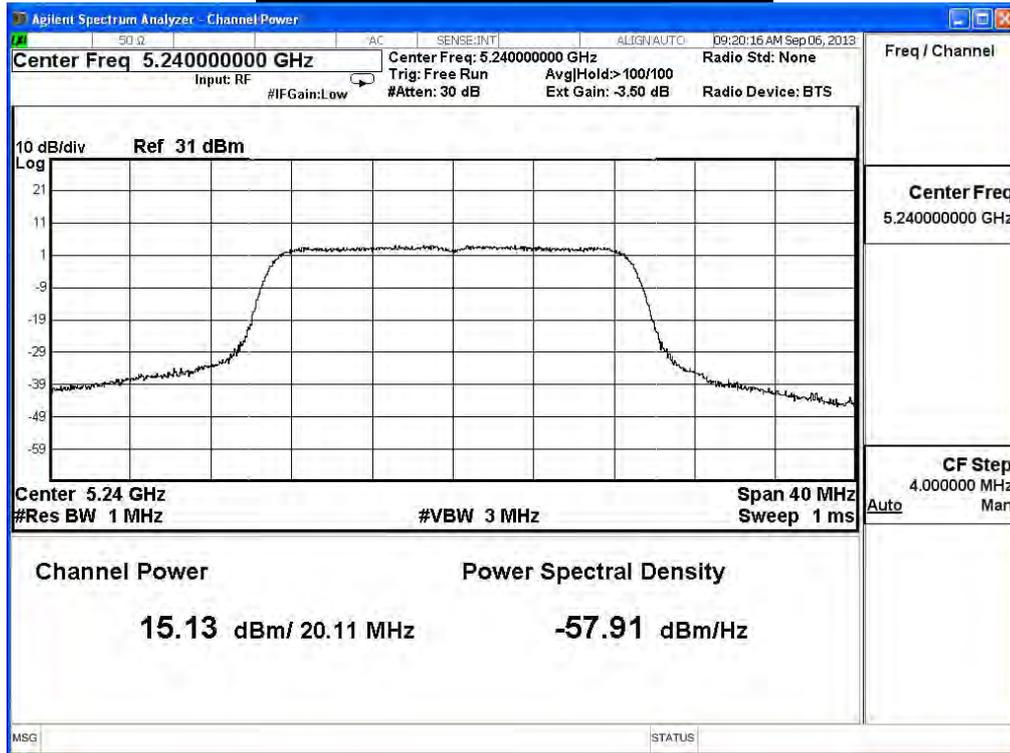
### Peak transmit Power - Channel 36



### Peak transmit Power - Channel 44



Peak transmit Power - Channel 48



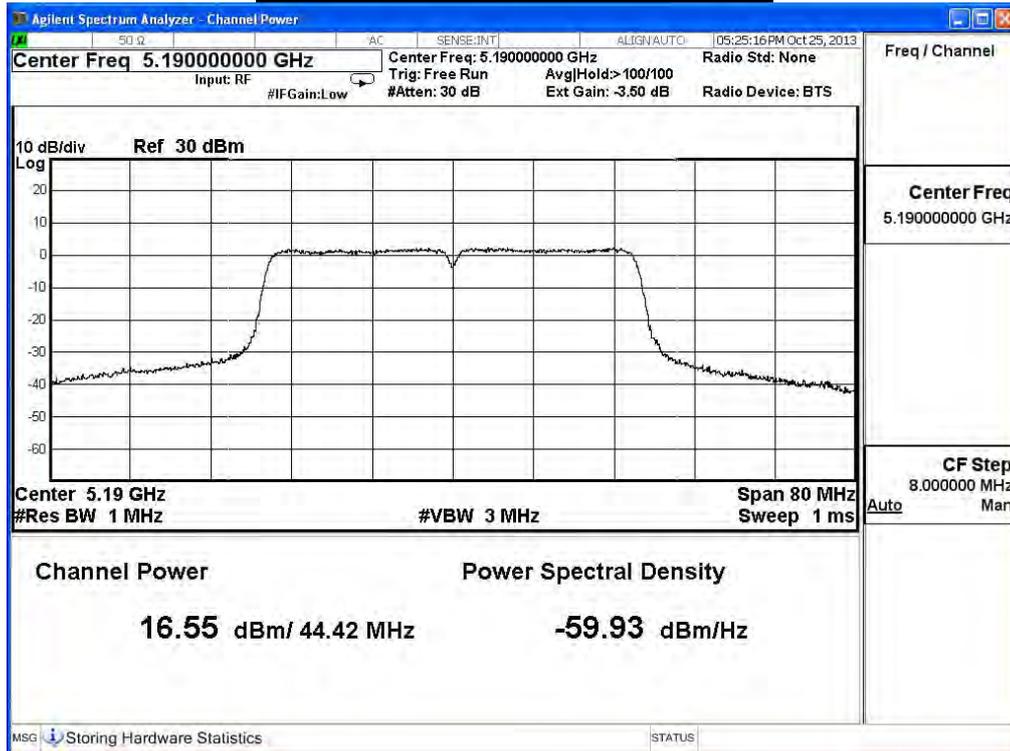
Product	802.11ac Dual Band Router		
Test Item	Peak Transmit Output		
Test Mode	Mode 1: Transmit		
Date of Test	2013/09/26	Test Site	SR7

IEEE 802.11n(40MHz)_ANT 0						
Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Required Limit		Result
				Fixed Limit (dBm)	4+10logB Limit (dBm)	
38	5190	44.42	16.55	≤17	20.48	Pass
46	5230	44.67	16.93	≤17	20.50	Pass

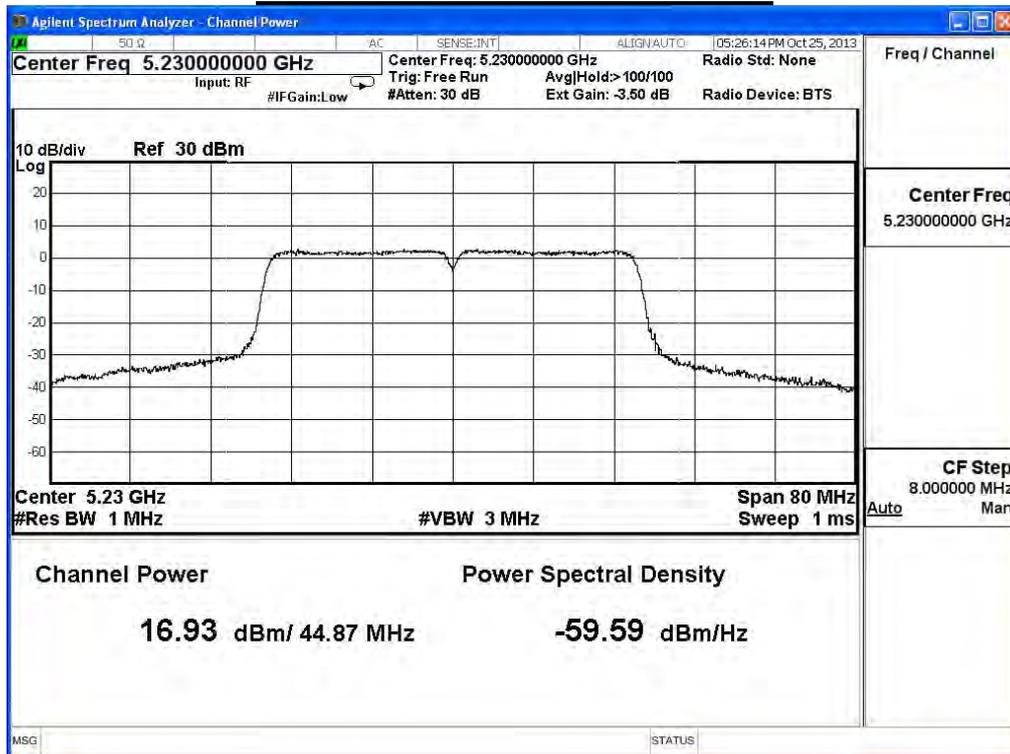
The worst emission of data rate is 40.5Mbps.

Peak Power Output (dBm)										
MCS Index		0	1	2	3	4	5	6	7	Required Limit
Channel No	Frequency (MHz)	Data Rate								
		40.5	81.0	121.5	162.0	243.0	324.0	364.5	405.0	
38	5190	16.55	--	--	--	--	--	--	--	17dBm or 4dBm+10logB
46	5230	16.93	16.92	16.91	16.89	16.85	16.82	16.80	16.78	

### Peak transmit Power - Channel 38



### Peak transmit Power - Channel 46



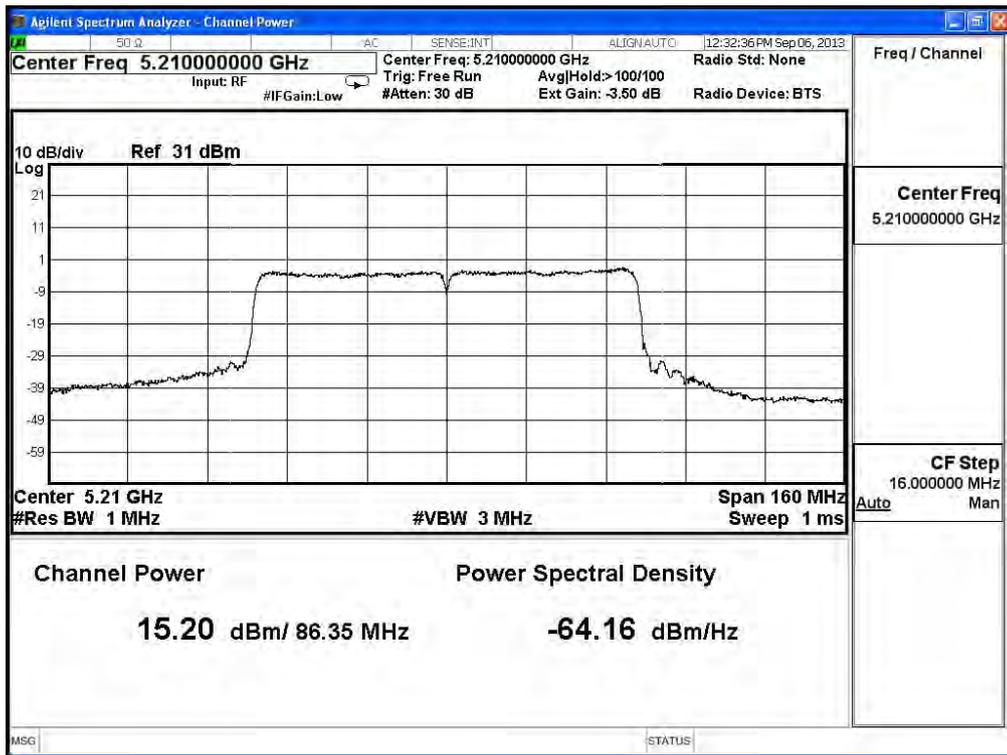
Product	802.11ac Dual Band Router		
Test Item	Peak Transmit Output		
Test Mode	Mode 1: Transmit		
Date of Test	2013/09/26	Test Site	SR7

IEEE 802.11ac(80MHz)_ANT 0					
Channel No.	Frequency (MHz)	Total Output Power		Required Limit (dBm)	Result
		(mW)	(dBm)		
42	5210	33.11	15.20	≤17	Pass

IEEE 802.11 ac(80MHz) Antenna 0

Peak Power Output (dBm)											
MCS Index		0	1	2	3	4	5	6	7	8	9
Channel No	Frequency (MHz)	Data Rate									
		87.9	175.5	263.4	351	526.5	702	789.9	877.5	1053	1170
42	5210	15.2	15.00	14.80	14.70	14.60	14.40	14.16	13.92	13.80	13.68

**Peak transmit Power - Channel 42**



**5. Peak Power Spectrum Density**

**5.1. Test Equipment**

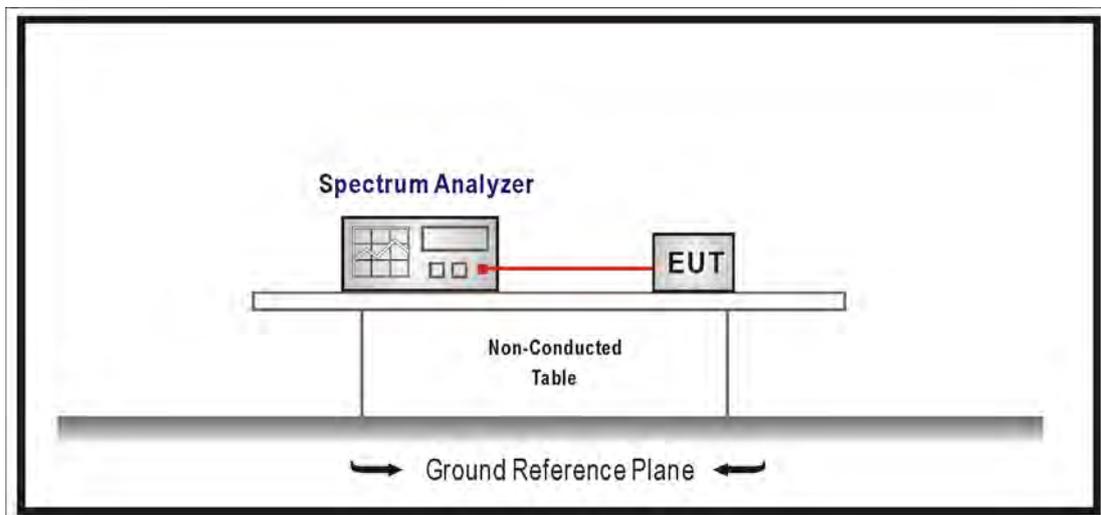
The following test equipments are used during the radiated emission tests:

**Peak Power Spectrum Density / SR7**

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	Agilent	N9010A-EXA	US47140172	2014/08/05

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

**5.2. Test Setup**



**5.3. Limits**

1. For the band 5.15-5.25 GHz, the peak power spectral density shall not exceed 4 dBm in any 1-MHz band. If transmitting antenna of directional gain greater than 6 dBi are used, the peak power spectral density shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.
2. For the band 5.25-5.35 GHz, the peak power spectral density shall not exceed 11 dBm in any 1-MHz band. If transmitting antenna of directional gain greater than 6 dBi are used, the peak power spectral density shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.
3. For the band 5.725-5.825 GHz, the peak power spectral density shall not exceed 17 dBm in any 1-MHz band. If transmitting antenna of directional gain greater than 6 dBi are used, the peak power spectral density shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.

#### 5.4. Test Procedure

The EUT was setup to ANSI C63.4, 2009; tested to U-NII test procedure of KDB 789033 for compliance to FCC 47CFR Subpart E requirements.

Set RBW=1MHz, VBW=3MHz with RMS detector. The PPSD is the highest level found across the emission in any 1-MHz band after 100 sweeps of averaging.

#### 5.5. Uncertainty

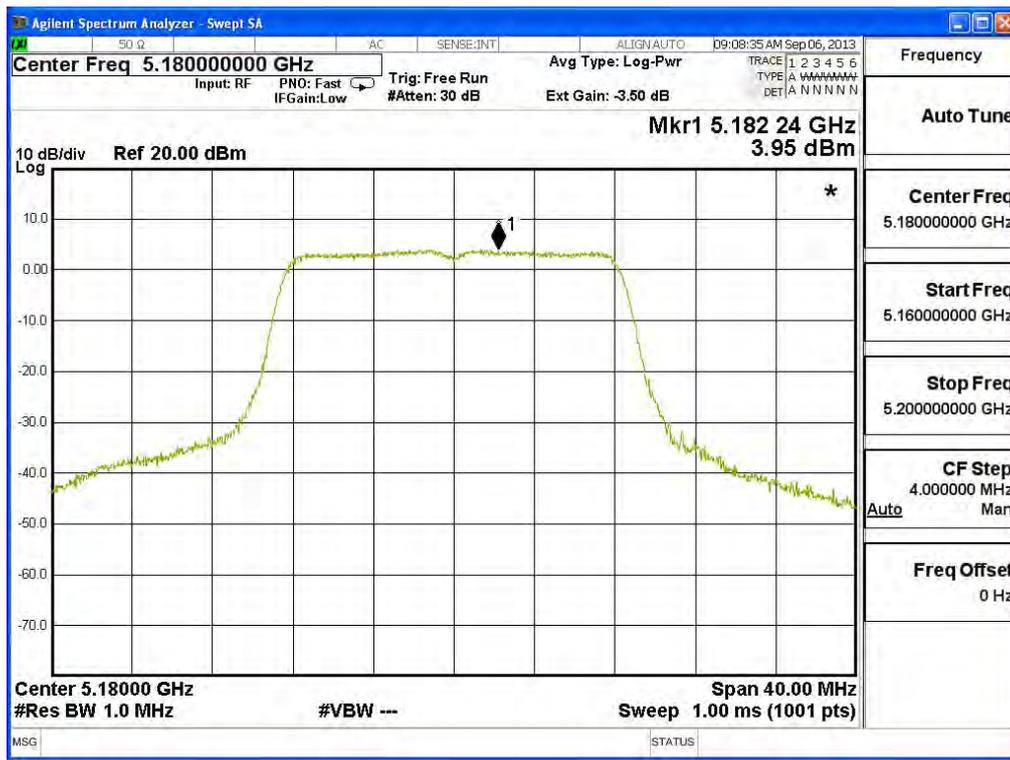
The measurement uncertainty is defined as  $\pm 1.27$  dB

5.6. Test Result

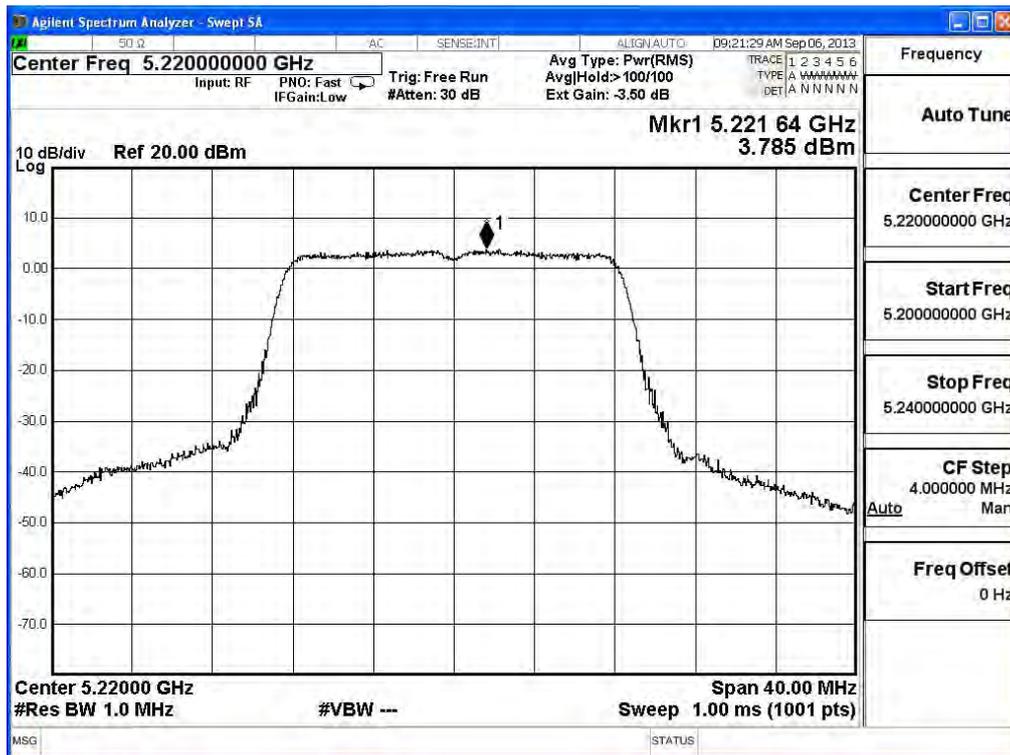
Product	802.11ac Dual Band Router		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 1: Transmit		
Date of Test	2013/09/26	Test Site	SR7

IEEE 802.11a				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
36	5180	3.95	≤ 4	Pass
44	5220	3.79	≤ 4	Pass
48	5240	3.92	≤ 4	Pass

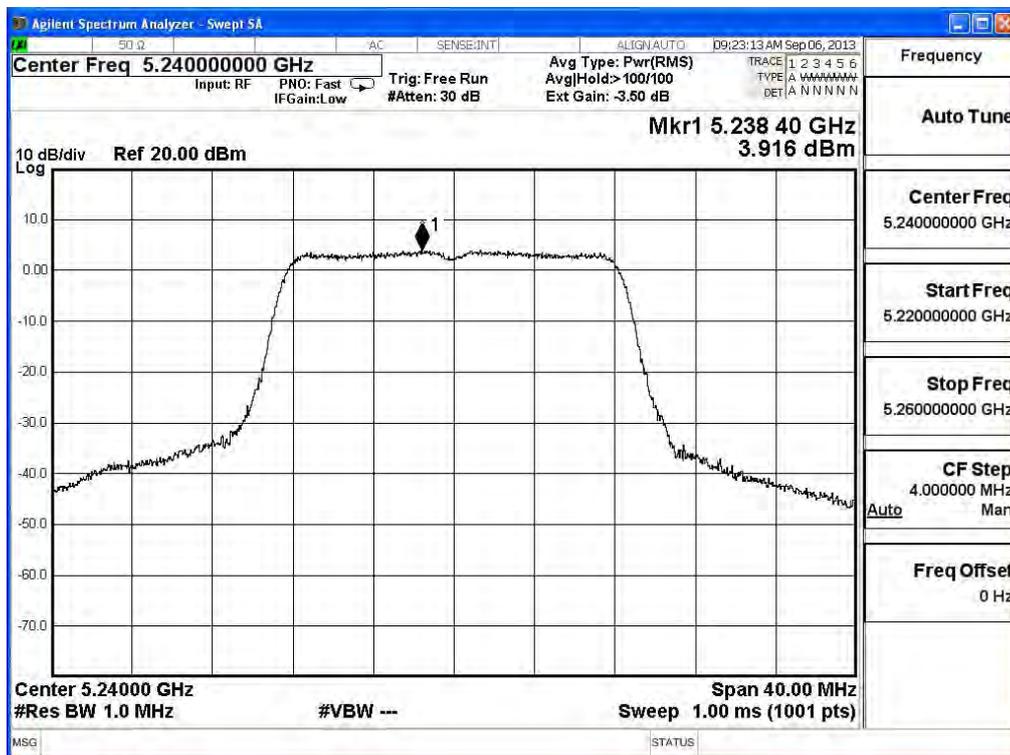
**Peak Power Spectral Density – Channel 36**



**Peak Power Spectral Density – Channel 44**



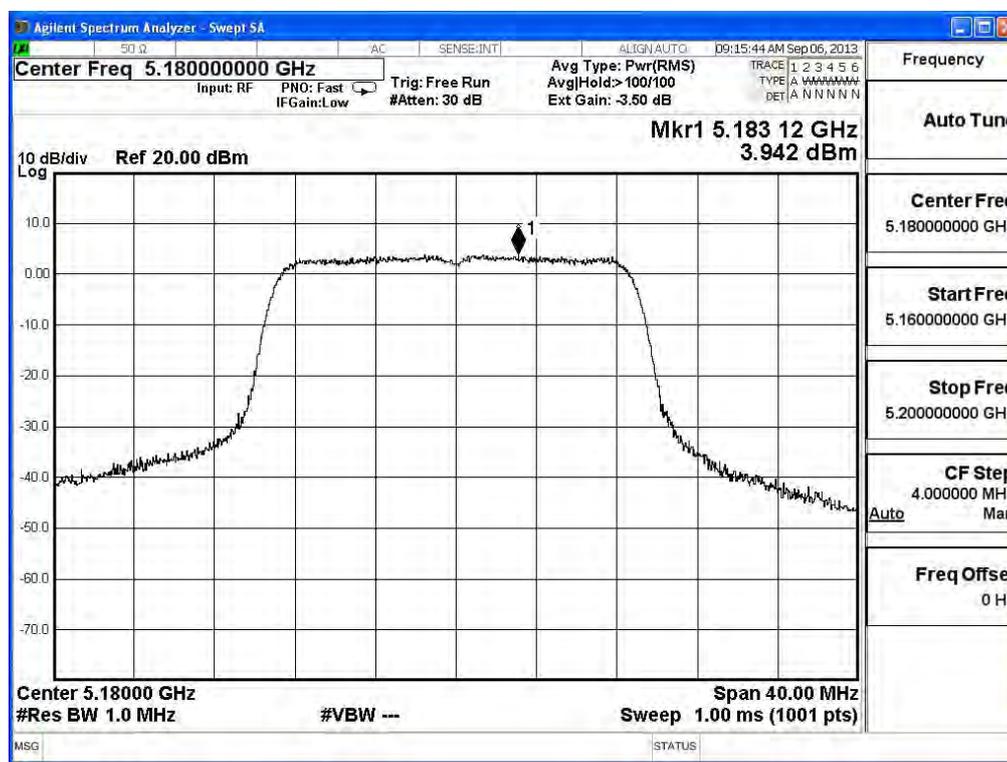
**Peak Power Spectral Density – Channel 48**



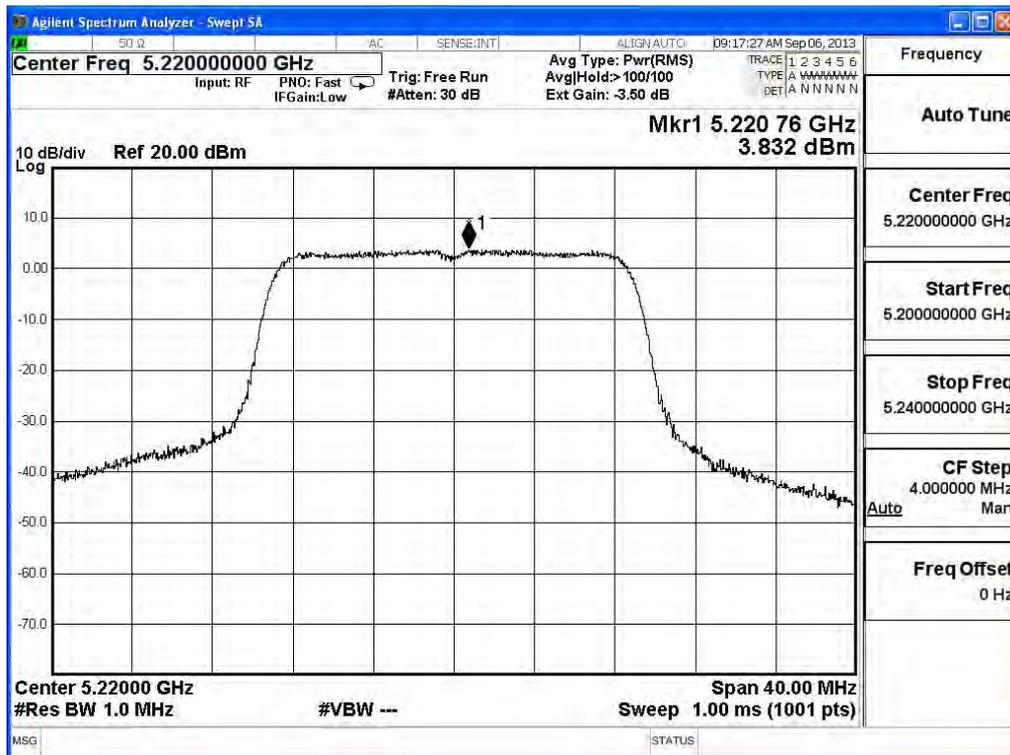
Product	802.11ac Dual Band Router		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 1: Transmit		
Date of Test	2013/09/26	Test Site	SR7

IEEE 802.11n_20M(ANT 0)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
36	5180	3.94	≤ 4	Pass
44	5220	3.83	≤ 4	Pass
48	5240	3.99	≤ 4	Pass

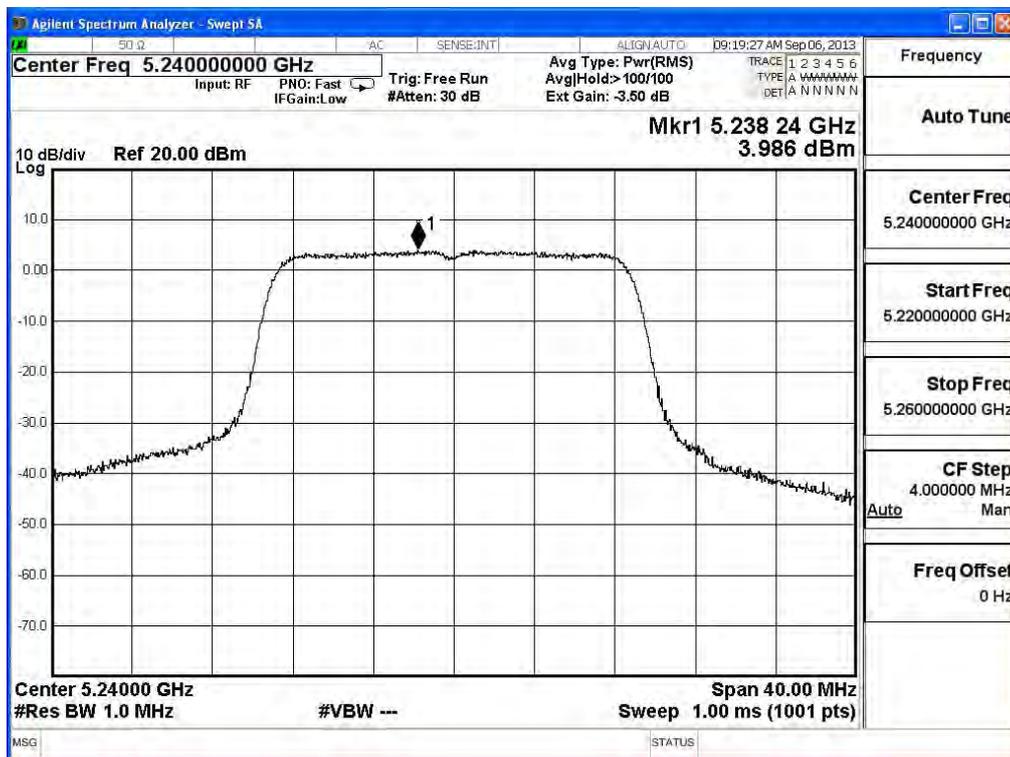
### Peak Power Spectral Density – Channel 36



**Peak Power Spectral Density – Channel 44**



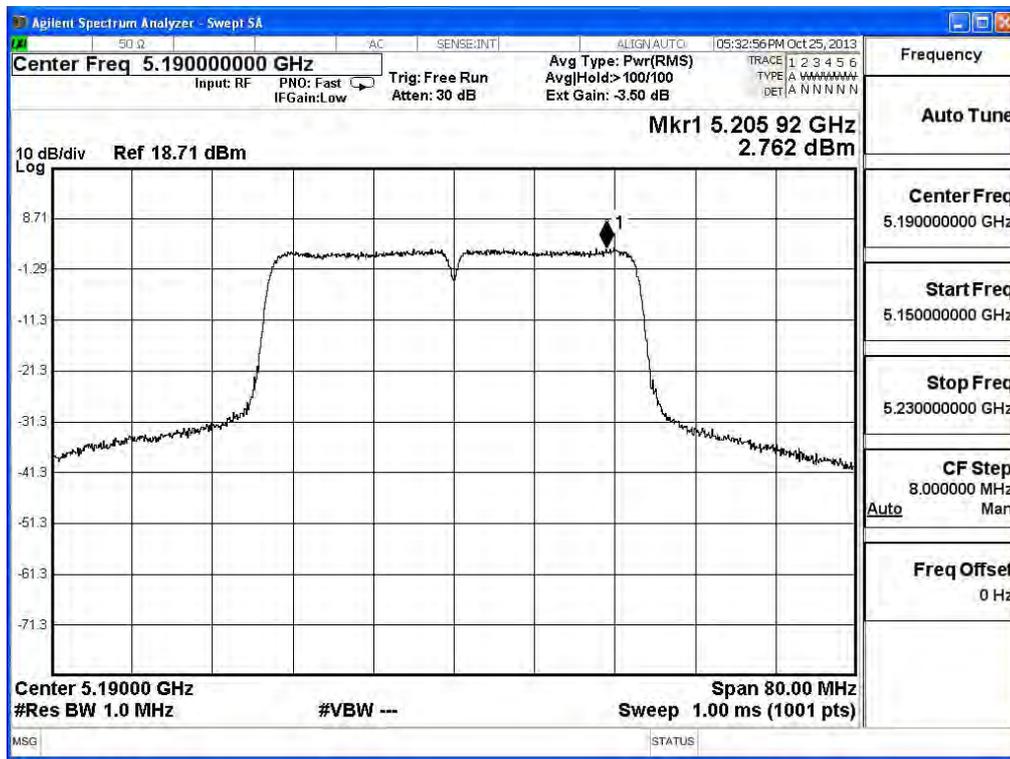
**Peak Power Spectral Density – Channel 48**



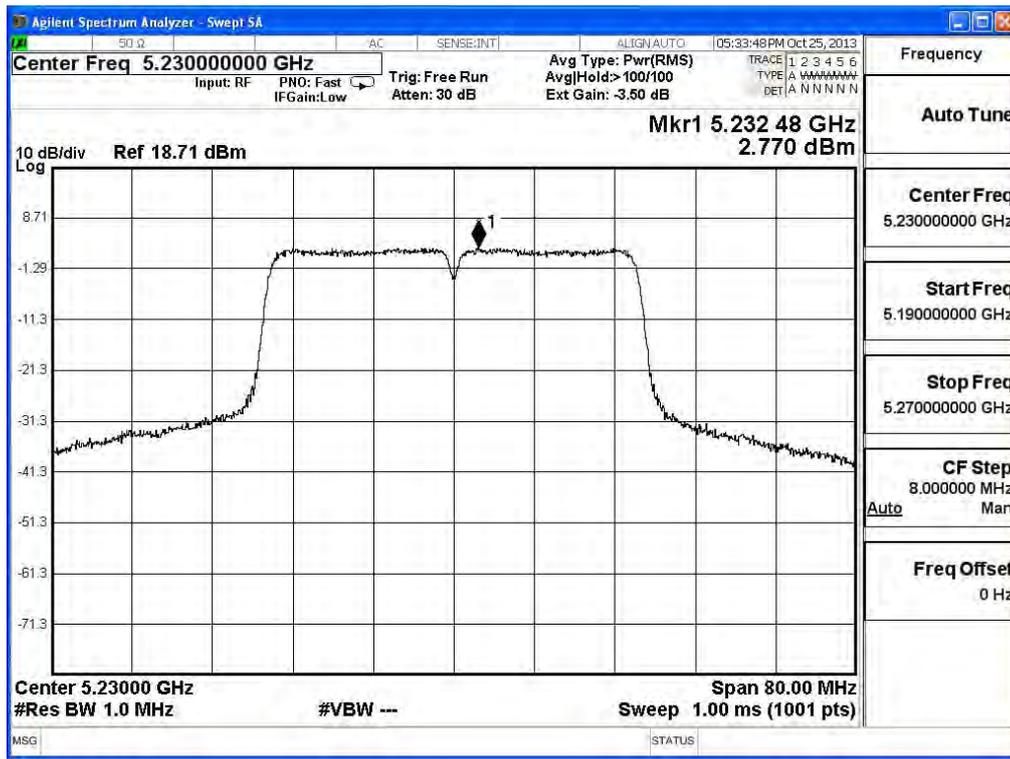
Product	802.11ac Dual Band Router		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 1: Transmit		
Date of Test	2013/09/26	Test Site	SR7

IEEE 802.11n_40M(ANT 0)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
38	5190	2.76	≤ 4	Pass
46	5230	2.77	≤ 4	Pass

### Peak Power Spectral Density – Channel 38



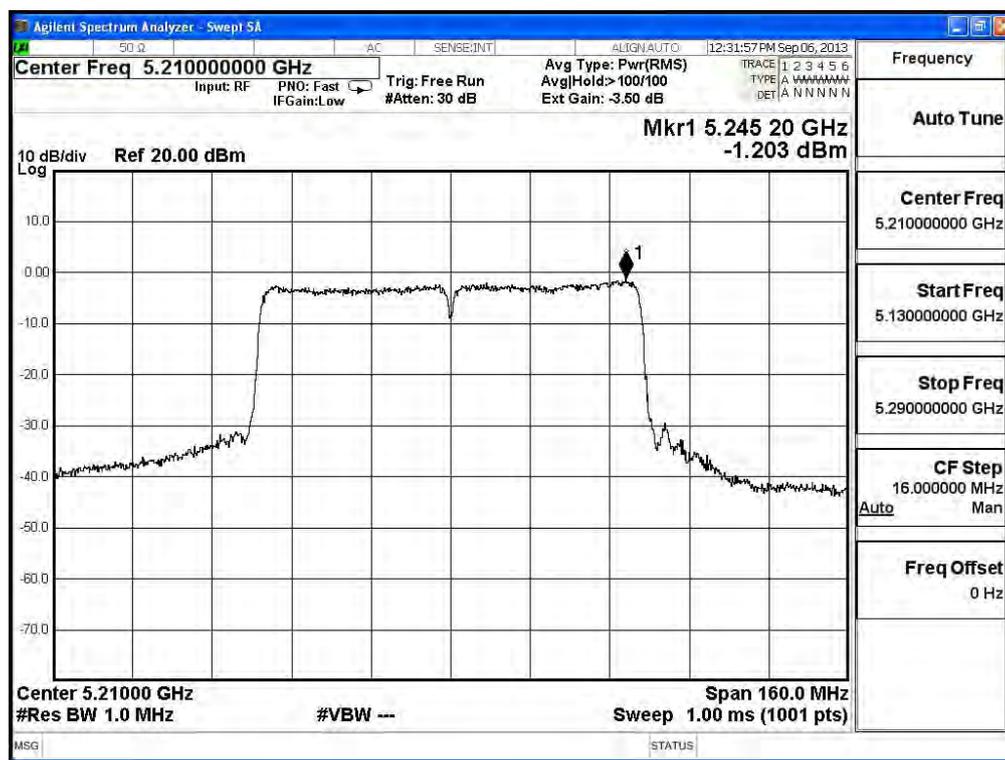
**Peak Power Spectral Density – Channel 46**



Product	802.11ac Dual Band Router		
Test Item	Peak Power Spectral Density		
Test Mode	Mode 1: Transmit		
Date of Test	2013/09/26	Test Site	SR7

IEEE 802.11ac_80M(ANT 0)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Required Limit (dBm)	Result
42	5210	-1.20	≤ 4	Pass

### Peak Power Spectral Density – Channel 42



**6. Peak Excursion**

**6.1. Test Equipment**

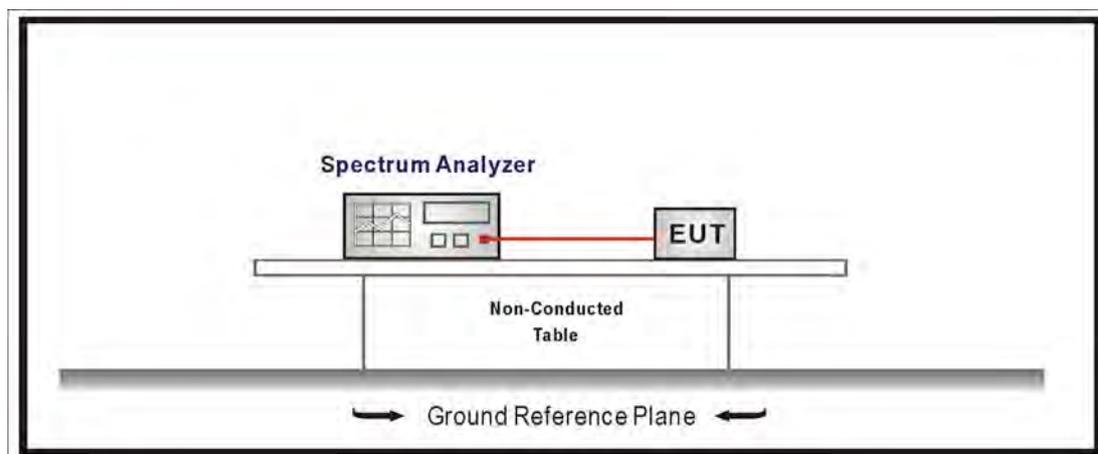
The following test equipments are used during the radiated emission tests:

**Peak Excursion / SR7**

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	Agilent	N9010A-EXA	US47140172	2014/08/05

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

**6.2. Test Setup**



**6.3. Limits**

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.

**6.4. Test Procedure**

The EUT was setup to ANSI C63.4, 2009; tested to U-NII test procedure of KDB 789033 for compliance to FCC 47CFR Subpart E requirements.

1<sup>st</sup> Trace:

Set RBW = 1MHz, VBW = 3MHz with peak detector and max-hold settings.

2<sup>nd</sup> Trace:

Set RBW = 1MHz, VBW = 3MHz with RMS detector and trace average 100 traces in power averaging mode.

**6.5. Uncertainty**

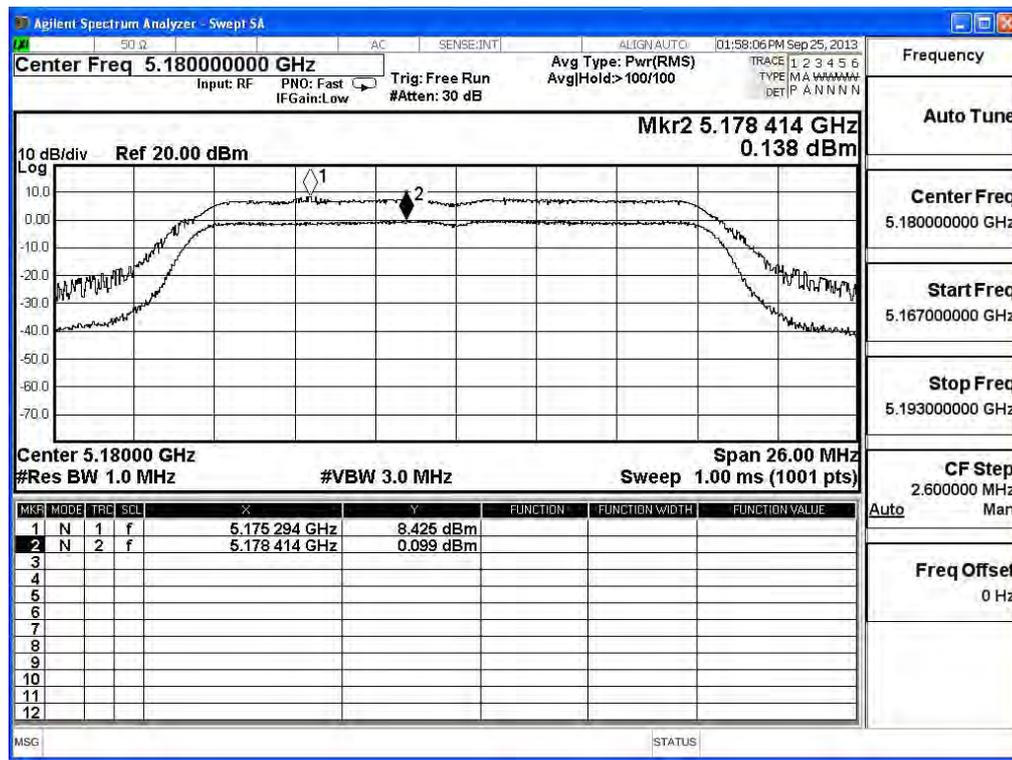
The measurement uncertainty is defined as  $\pm 1.27$  dB

6.6. Test Result

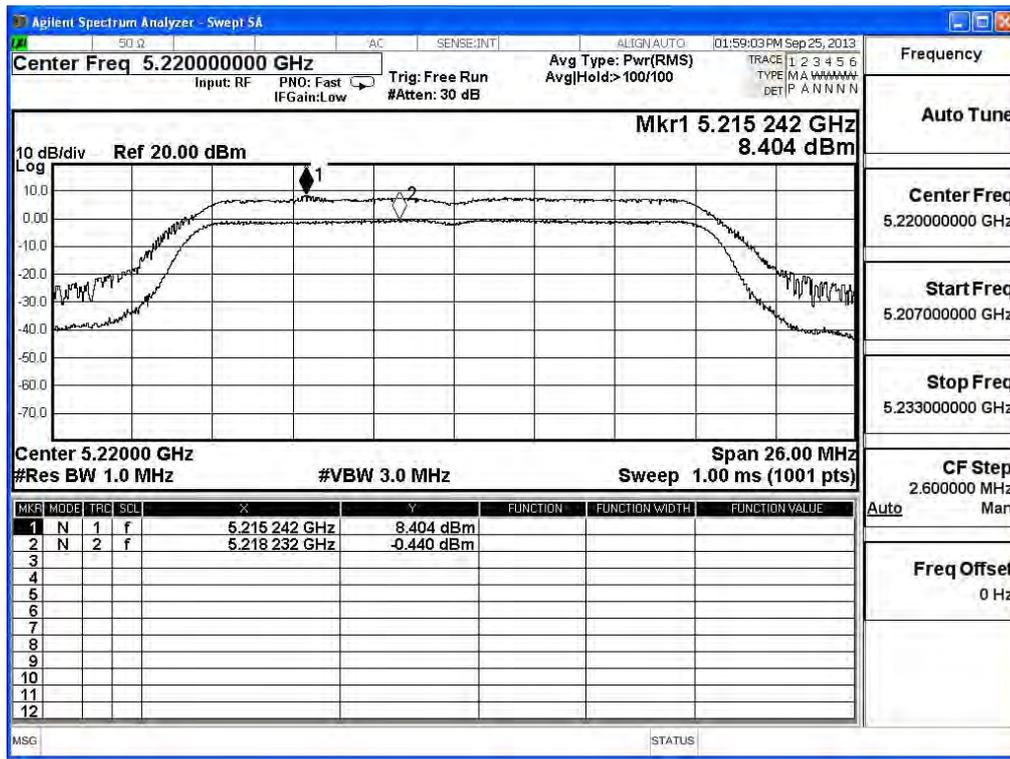
Product	802.11ac Dual Band Router		
Test Item	Peak Excursion		
Test Mode	Mode 1: Transmit		
Date of Test	2013/10/28	Test Site	SR7

IEEE 802.11a				
Channel No.	Frequency (MHz)	Measure Level (dB)	Required Limit (dB)	Result
36	5180	8.33	≤ 13	Pass
44	5220	8.84	≤ 13	Pass
48	5240	8.48	≤ 13	Pass

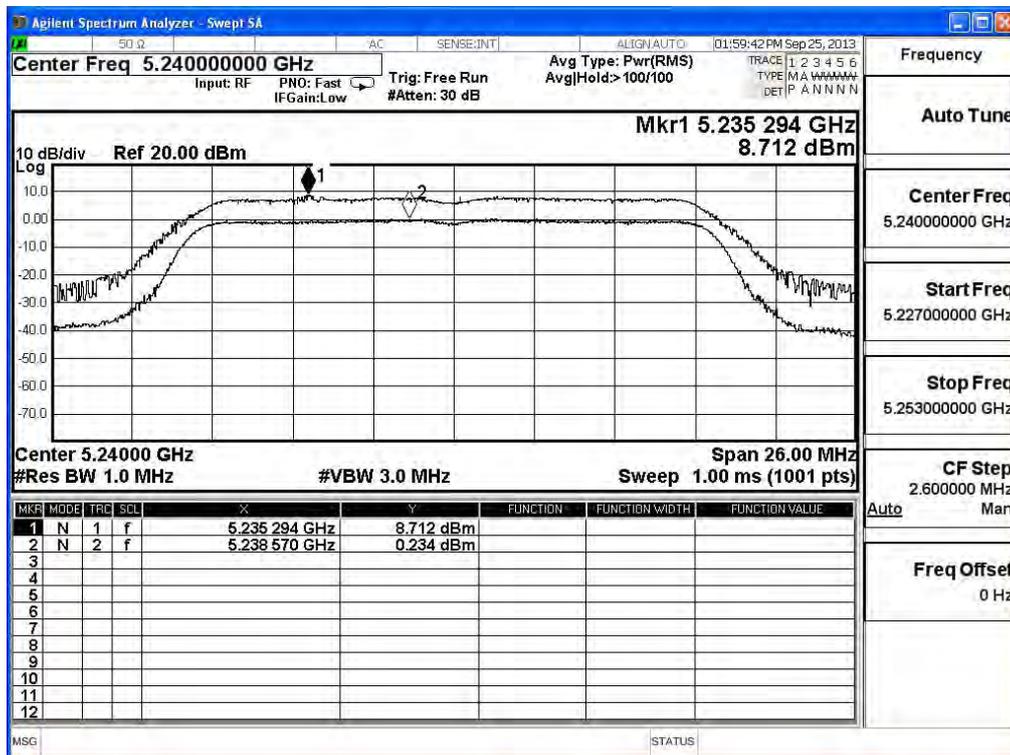
**Power Excursion – Channel 36**



**Power Excursion – Channel 44**



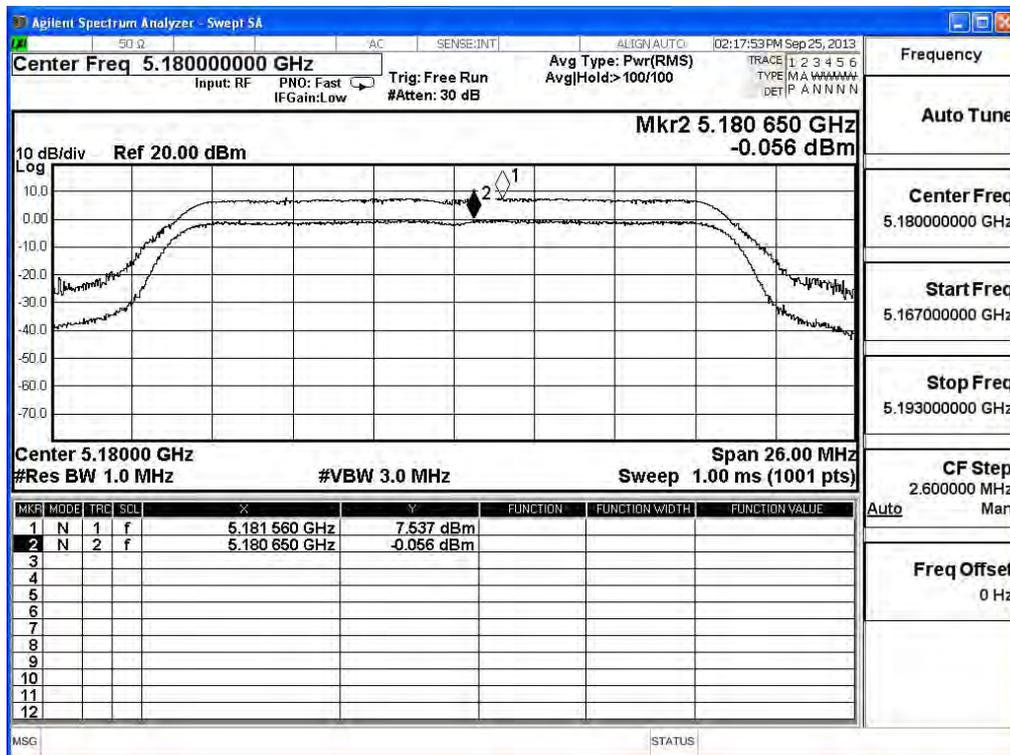
**Power Excursion – Channel 48**



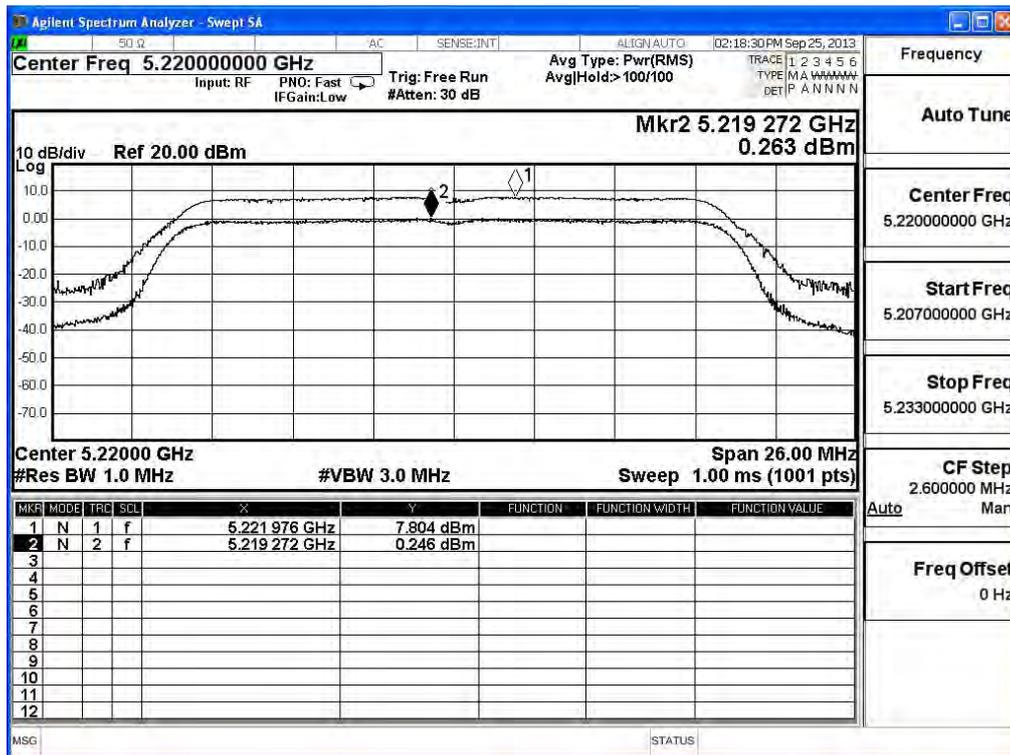
Product	802.11ac Dual Band Router		
Test Item	Peak Excursion		
Test Mode	Mode 1: Transmit		
Date of Test	2013/10/28	Test Site	SR7

IEEE 802.11n_20M(ANT 0)				
Channel No.	Frequency (MHz)	Measure Level (dB)	Required Limit (dB)	Result
36	5180	7.59	≤ 13	Pass
44	5220	7.56	≤ 13	Pass
48	5240	7.45	≤ 13	Pass

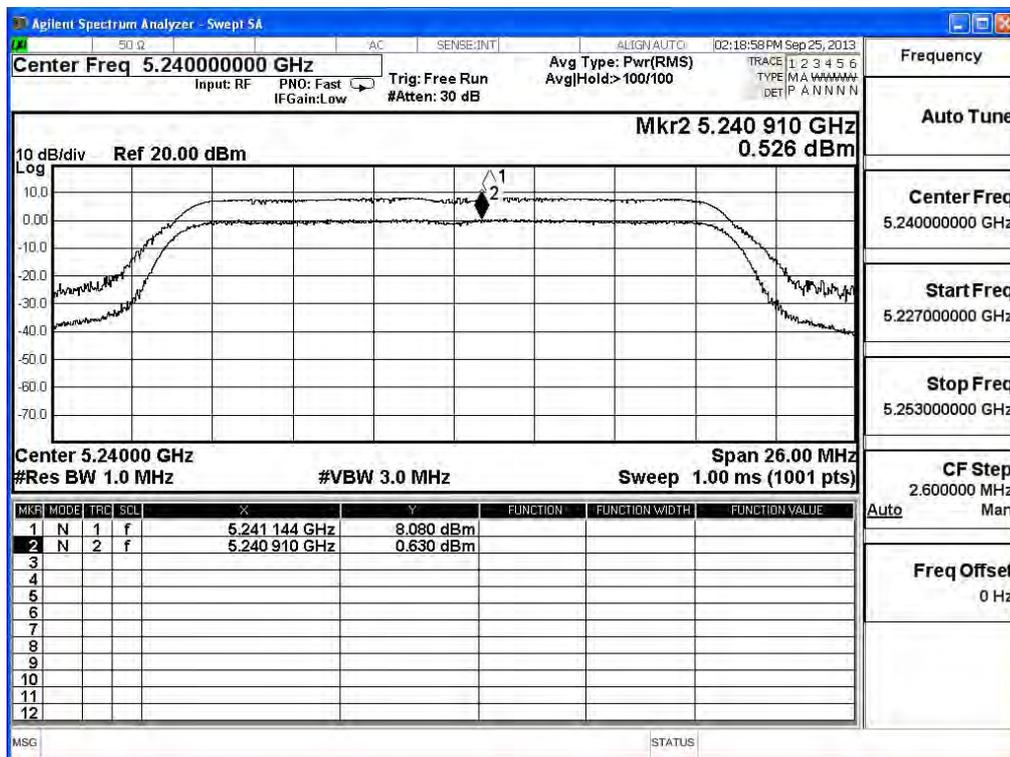
### Power Excursion – Channel 36



**Power Excursion – Channel 44**



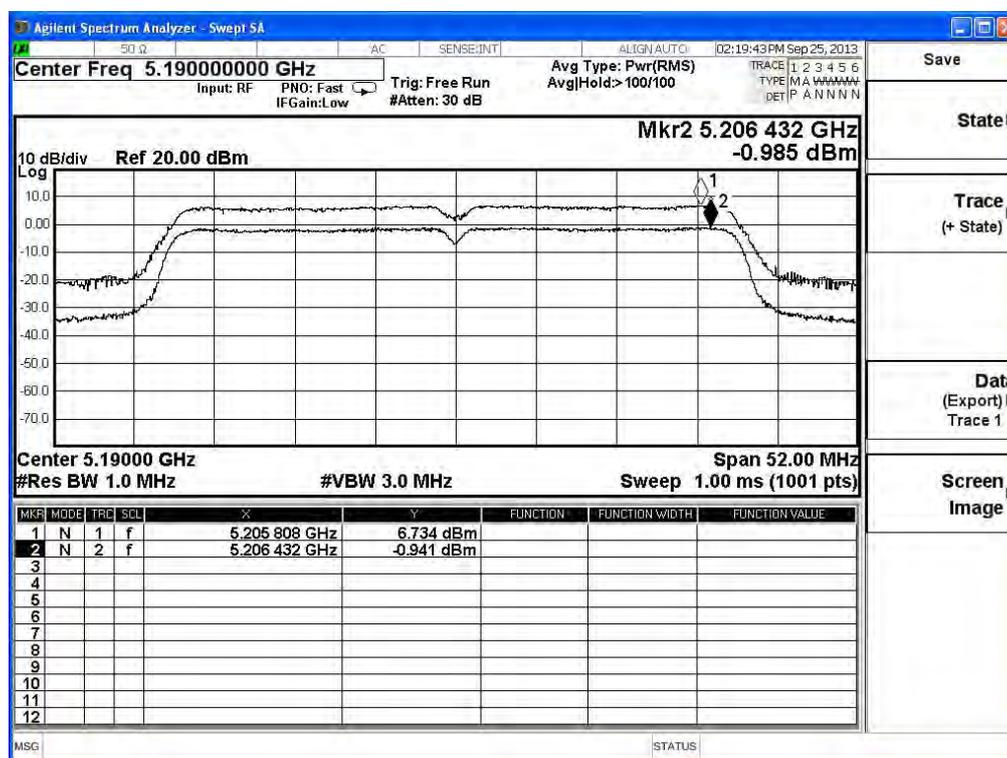
**Power Excursion – Channel 48**



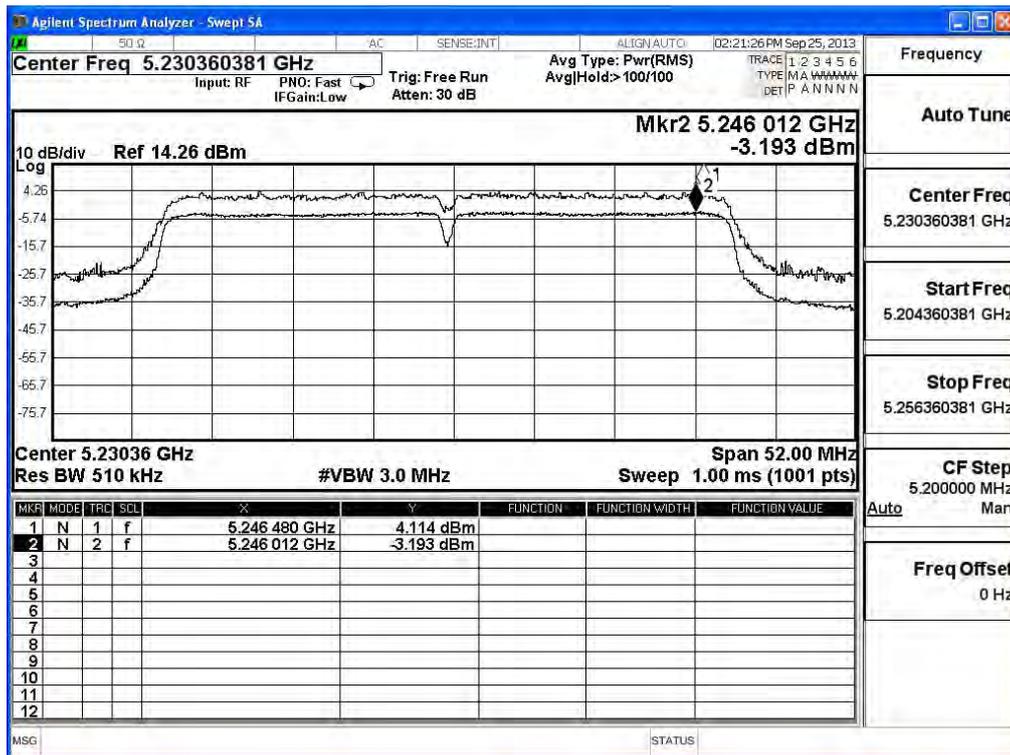
Product	802.11ac Dual Band Router		
Test Item	Peak Excursion		
Test Mode	Mode 1: Transmit		
Date of Test	2013/10/28	Test Site	SR7

IEEE 802.11n_40M(ANT 0)				
Channel No.	Frequency (MHz)	Measure Level (dB)	Required Limit (dB)	Result
38	5190	7.68	≤ 13	Pass
46	5230	7.31	≤ 13	Pass

### Power Excursion – Channel 38



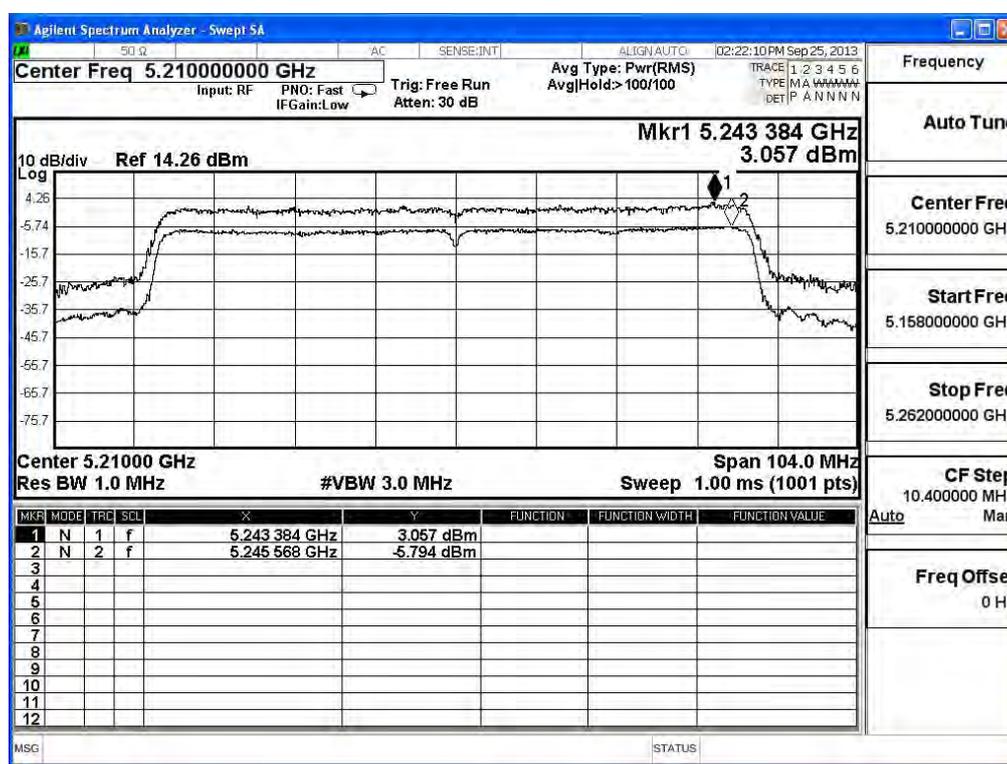
**Power Excursion – Channel 46**



Product	802.11ac Dual Band Router		
Test Item	Peak Excursion		
Test Mode	Mode 1: Transmit		
Date of Test	2013/10/28	Test Site	SR7

IEEE 802.11ac_80M(ANT 0)				
Channel No.	Frequency (MHz)	Measure Level (dB)	Required Limit (dB)	Result
42	5210	8.85	≤ 13	Pass

### Power Excursion – Channel 42



7. Radiated Emission

7.1. Test Equipment

The following test equipments are used during the radiated emission test:

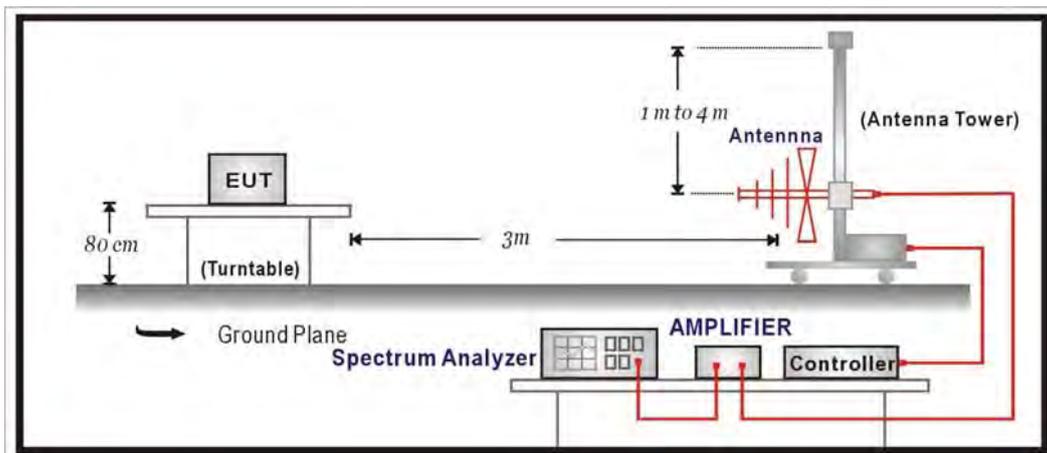
Radiated Emission / CB1

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Bilog Antenna	SCHAFFNER	CBL6112B	2895(CB1)	2014/08/14
Double Ridged Guide Horn Antenna	Schwarzback	BBHA 9120	D743	2014/02/17
Pre-Amplifier	MITEQ	AMF-4D	888003	2014/06/09
Pre-Amplifier	QuieTek	AP-025C	CHM-0706049	2014/02/19
Spectrum Analyzer	Agilent	E4440A	MY46187335	2014/01/27
k Type Cable	Huber Suhner	Sucoflex 102	25623/2	2014/02/21

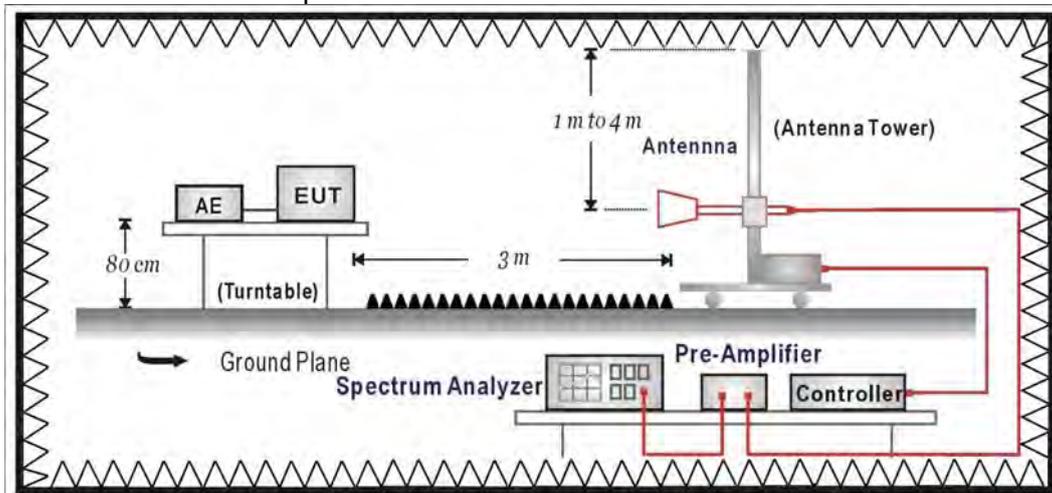
Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

7.2. Test Setup

Under 1GHz Test Setup:



Above 1GHz Test Setup:



**7.3. Limits**

➤ **General Radiated Emission Limits**

The provisions of Section 15.205 of this part apply to intentional radiators operating under this section. Radiated emissions which fall in the restricted bands, as defined in Section 15.205, must also comply with the radiated emission limits specified in Section 15.209:

<b>FCC Part 15 Subpart C Paragraph 15.209 Limits</b>		
Frequency MHz	uV/m @3m	dBuV/m@3m
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

Remark:

1. RF Voltage (dBuV) = 20 log RF Voltage (uV)
2. In the Above Table, the tighter limit applies at the band edges.
3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

➤ **Unwanted Emission out of the restricted bands Limits**

<b>FCC Part 15 Subpart C Paragraph 15.407(b) Limits</b>		
Frequency (MHz)	EIRP Limit (dBm)	Equivalent Field Strength (dBuV/m@3m)
5150~5250	-27	68.3
5250~5350	-27	68.3
5470~5725	-27	68.3
5725~5825	-27 (Note1)	68.3
	-17 (Note2)	78.3

Remark:

1. For frequencies more than 10 MHz above or below the band edges.
2. For frequency range from the band edges to 10 MHz above or below the band edges.
3. 
$$uV/m = \frac{1000000\sqrt{30 \times EIRP}}{3}$$
, RF Voltage (dBuV/m) = 20 log RF Voltage (uV/m)

#### 7.4. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.4: 2009 on radiated measurement.

The additional notch filter below 1GHz was used to measure the level of harmonics radiated emission during field strength of harmonics measurement.

The bandwidth below 1GHz setting on the field strength meter is 120 KHz, above 1GHz are 1 MHz.

The frequency range from 30MHz to 10th harmonics is checked.

#### 7.5. Uncertainty

The measurement uncertainty

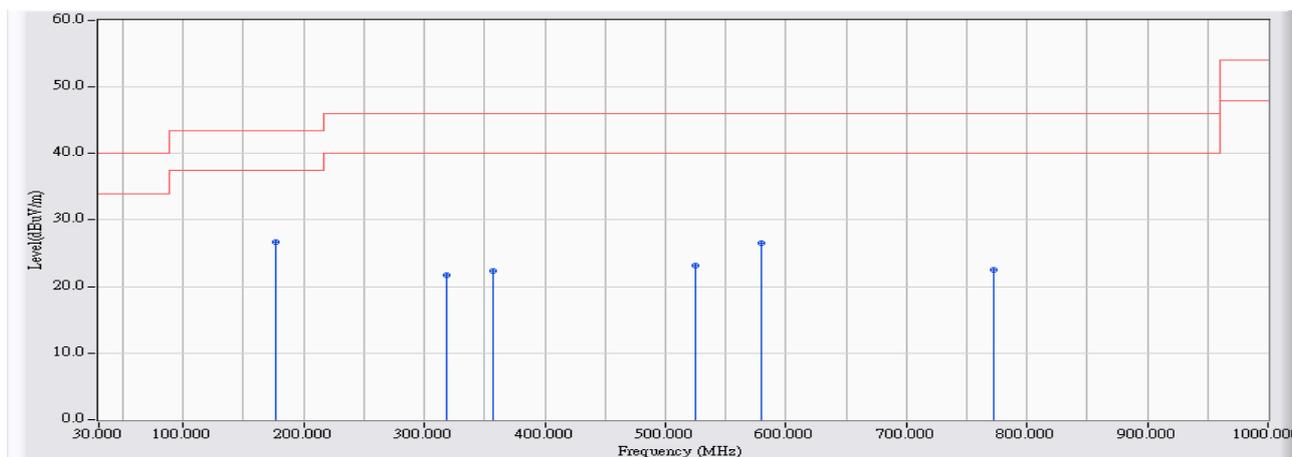
30MHz~1GHz as  $\pm 3.43\text{dB}$

1GHz~26.5GHz as  $\pm 3.65\text{dB}$

## 7.6. Test Result

### 30MHz-1GHz Spurious

Site : CB1	Time : 2013/10/28 - 15:49
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB1_FCC_EFS_30-1G-2_1011 - HORIZONTAL	Power : AC 120V /60Hz
EUT : 802.11ac Dual Band Router	Note : 802.11a_5220MHz

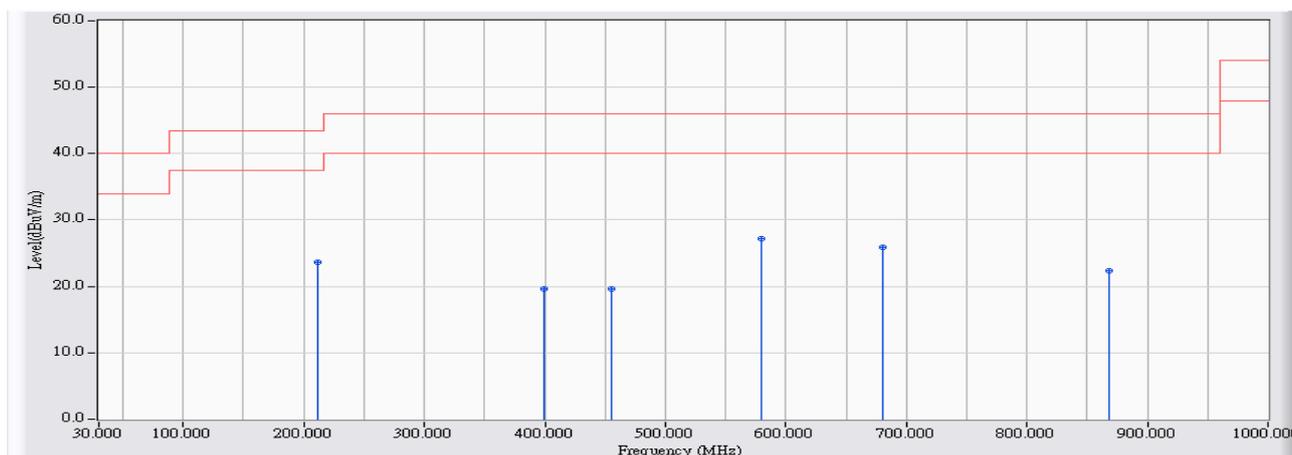


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	176.470	-24.584	51.308	26.723	-16.777	43.500	QUASPEAK
2		319.060	-19.571	41.255	21.684	-24.316	46.000	QUASPEAK
3		356.890	-18.625	40.957	22.333	-23.667	46.000	QUASPEAK
4		524.700	-15.592	38.766	23.174	-22.826	46.000	QUASPEAK
5		579.990	-15.537	42.091	26.554	-19.446	46.000	QUASPEAK
6		773.020	-13.969	36.420	22.450	-23.550	46.000	QUASPEAK

Note:

1. All Reading Levels are Quasi-Peak value.
2. “ \* ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : CB1	Time : 2013/10/28 - 15:50
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB1_FCC_EFS_30-1G-2_1011 - VERTICAL	Power : AC 120V /60Hz
EUT : 802.11ac Dual Band Router	Note : 802.11a_5220MHz

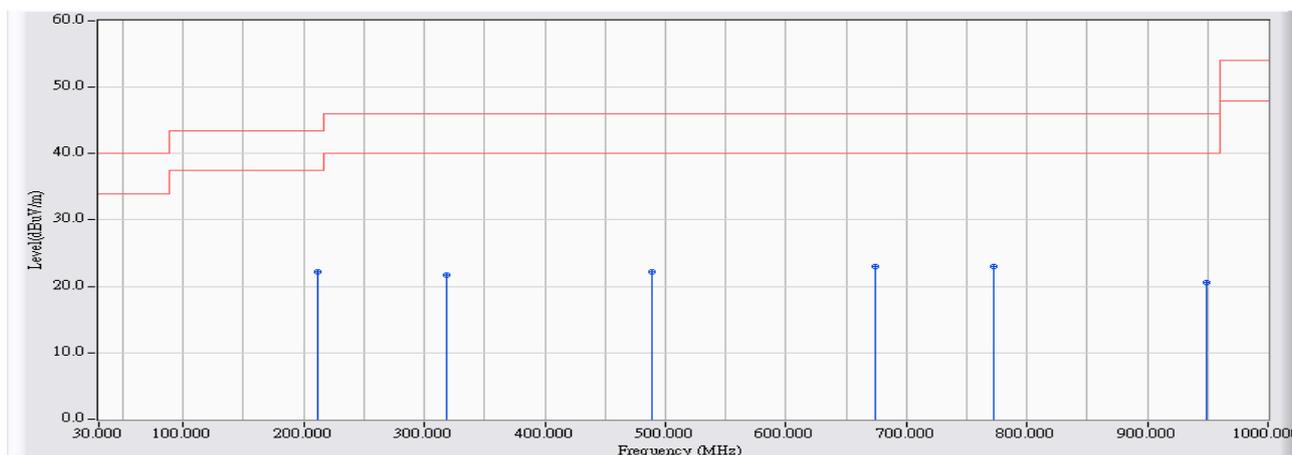


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	211.390	-23.965	47.557	23.592	-19.908	43.500	QUASPEAK
2	399.570	-17.557	37.154	19.597	-26.403	46.000	QUASPEAK
3	454.860	-16.488	36.173	19.685	-26.315	46.000	QUASPEAK
4	* 579.990	-15.537	42.741	27.204	-18.796	46.000	QUASPEAK
5	680.870	-15.105	41.077	25.972	-20.028	46.000	QUASPEAK
6	868.080	-13.410	35.706	22.296	-23.704	46.000	QUASPEAK

**Note:**

1. All Reading Levels are Quasi-Peak value.
2. “ \* ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : CB1	Time : 2013/10/28 - 15:51
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB1_FCC_EFS_30-1G-2_1011 - HORIZONTAL	Power : AC 120V /60Hz
EUT : 802.11ac Dual Band Router	Note : 802.11n20_5220MHz

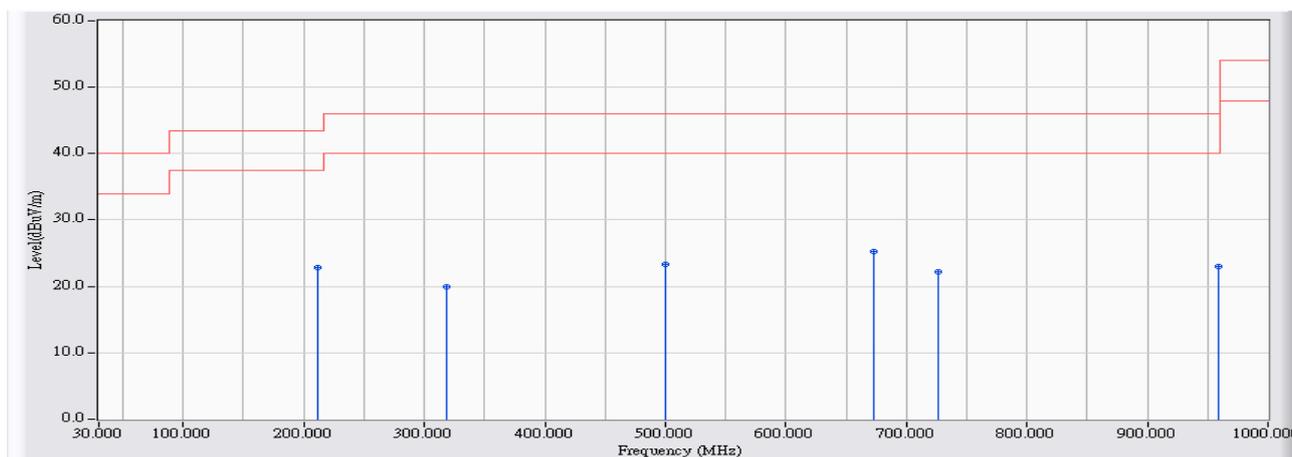


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	211.390	-23.965	46.212	22.247	-21.253	43.500	QUASPEAK
2		319.060	-19.571	41.220	21.649	-24.351	46.000	QUASPEAK
3		488.810	-15.833	37.995	22.162	-23.838	46.000	QUASPEAK
4		674.080	-15.139	38.188	23.049	-22.951	46.000	QUASPEAK
5		773.020	-13.969	36.951	22.981	-23.019	46.000	QUASPEAK
6		949.560	-12.973	33.626	20.654	-25.346	46.000	QUASPEAK

**Note:**

1. All Reading Levels are Quasi-Peak value.
2. “ \* ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : CB1	Time : 2013/10/28 - 15:53
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB1_FCC_EFS_30-1G-2_1011 - VERTICAL	Power : AC 120V /60Hz
EUT : 802.11ac Dual Band Router	Note : 802.11n20_5220MHz

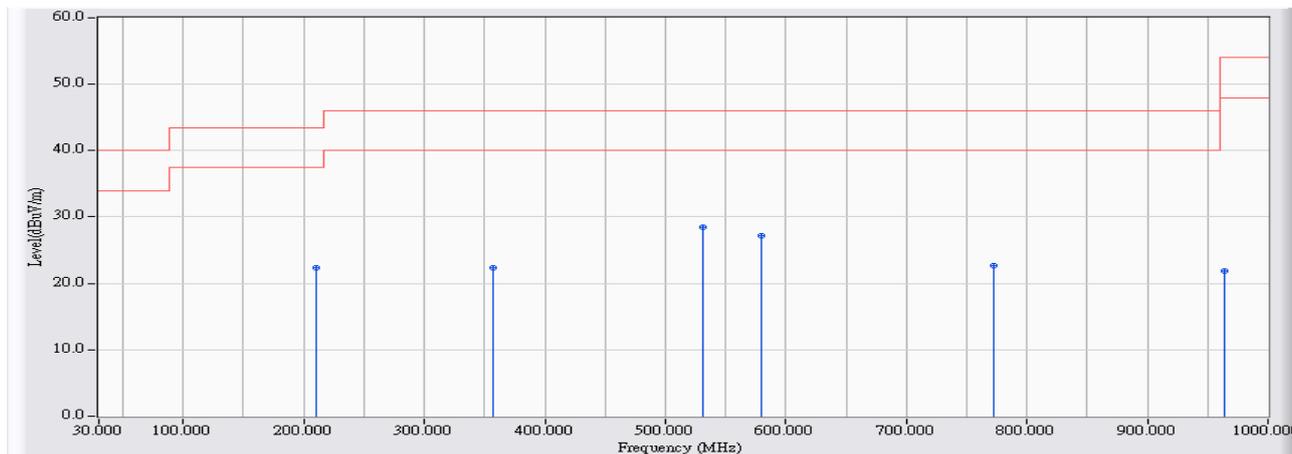


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	211.390	-23.965	46.814	22.849	-20.651	43.500	QUASPEAK
2		319.060	-19.571	39.582	20.011	-25.989	46.000	QUASPEAK
3		500.450	-15.617	38.879	23.262	-22.738	46.000	QUASPEAK
4		673.110	-15.144	40.453	25.309	-20.691	46.000	QUASPEAK
5		726.460	-14.632	36.787	22.156	-23.844	46.000	QUASPEAK
6		959.260	-12.903	35.940	23.037	-22.963	46.000	QUASPEAK

**Note:**

1. All Reading Levels are Quasi-Peak value.
2. “ \* ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : CB1	Time : 2013/10/28 - 15:54
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB1_FCC_EFS_30-1G-2_1011 - HORIZONTAL	Power : AC 120V /60Hz
EUT : 802.11ac Dual Band Router	Note : 802.11n40_5190MHz

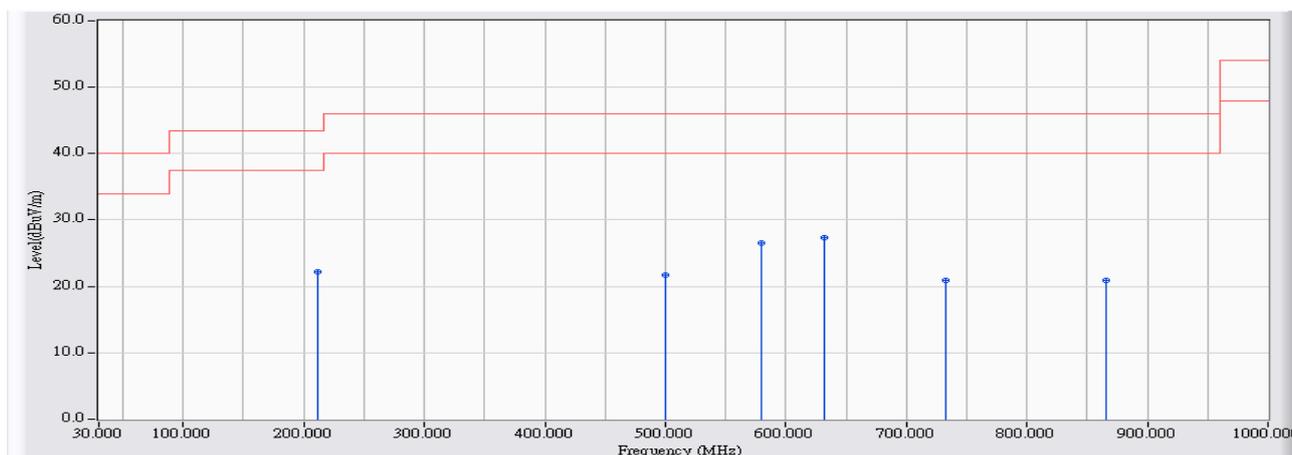


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	210.420	-24.039	46.451	22.412	-21.088	43.500	QUASPEAK
2	356.890	-18.625	40.905	22.281	-23.719	46.000	QUASPEAK
3	* 531.490	-15.585	44.066	28.481	-17.519	46.000	QUASPEAK
4	579.990	-15.537	42.670	27.133	-18.867	46.000	QUASPEAK
5	773.020	-13.969	36.667	22.697	-23.303	46.000	QUASPEAK
6	964.110	-12.868	34.681	21.813	-32.187	54.000	QUASPEAK

**Note:**

1. All Reading Levels are Quasi-Peak value.
2. “ \* ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : CB1	Time : 2013/10/28 - 15:56
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB1_FCC_EFS_30-1G-2_1011 - VERTICAL	Power : AC 120V /60Hz
EUT : 802.11ac Dual Band Router	Note : 802.11n40_5190MHz

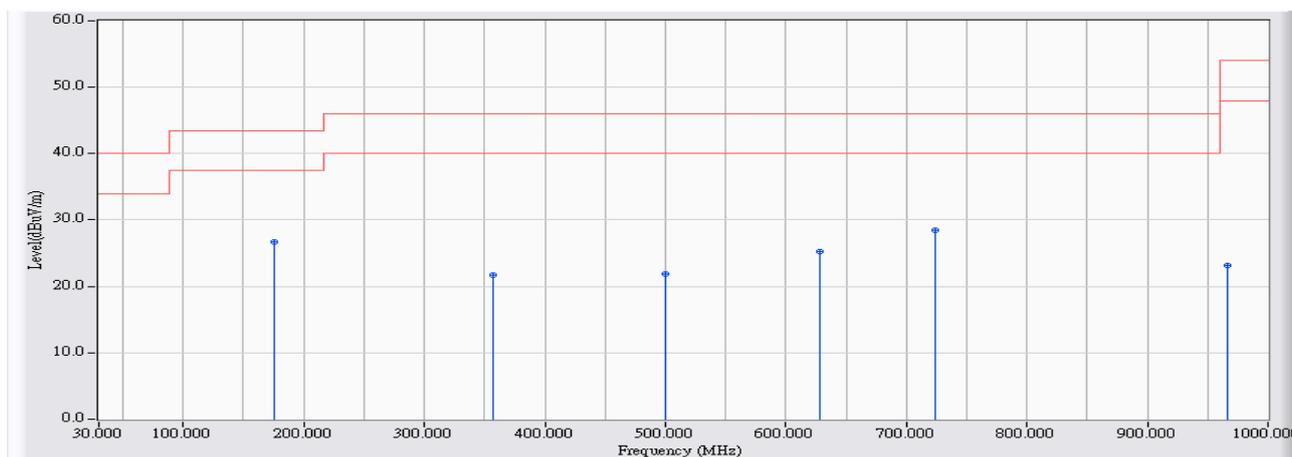


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	211.390	-23.965	46.171	22.206	-21.294	43.500	QUASPEAK
2	500.450	-15.617	37.343	21.726	-24.274	46.000	QUASPEAK
3	579.990	-15.537	42.110	26.573	-19.427	46.000	QUASPEAK
4	* 631.400	-15.357	42.745	27.388	-18.612	46.000	QUASPEAK
5	732.280	-14.549	35.484	20.935	-25.065	46.000	QUASPEAK
6	866.140	-13.416	34.405	20.990	-25.010	46.000	QUASPEAK

**Note:**

1. All Reading Levels are Quasi-Peak value.
2. “ \* ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : CB1	Time : 2013/10/28 - 15:57
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB1_FCC_EFS_30-1G-2_1011 - HORIZONTAL	Power : AC 120V /60Hz
EUT : 802.11ac Dual Band Router	Note : 802.11ac80_5210MHz

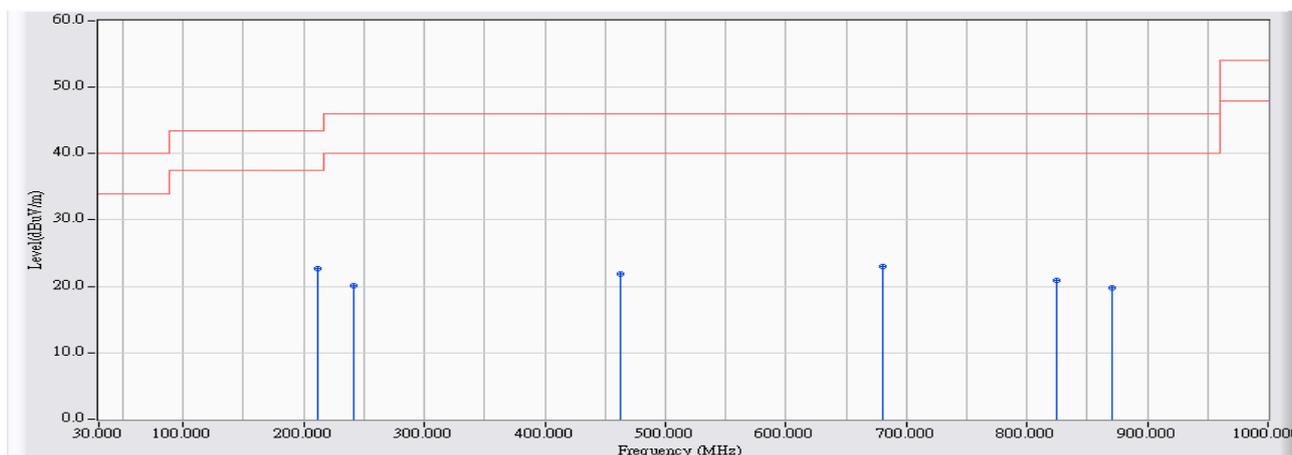


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	175.500	-24.542	51.210	26.668	-16.832	43.500	QUASPEAK
2		356.890	-18.625	40.266	21.642	-24.358	46.000	QUASPEAK
3		500.450	-15.617	37.454	21.837	-24.163	46.000	QUASPEAK
4		628.490	-15.372	40.677	25.306	-20.694	46.000	QUASPEAK
5		724.520	-14.659	43.093	28.434	-17.566	46.000	QUASPEAK
6		967.020	-12.848	36.061	23.214	-30.786	54.000	QUASPEAK

**Note:**

1. All Reading Levels are Quasi-Peak value.
2. “ \* ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : CB1	Time : 2013/10/28 - 15:59
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB1_FCC_EFS_30-1G-2_1011 - VERTICAL	Power : AC 120V /60Hz
EUT : 802.11ac Dual Band Router	Note : 802.11ac80_5210MHz



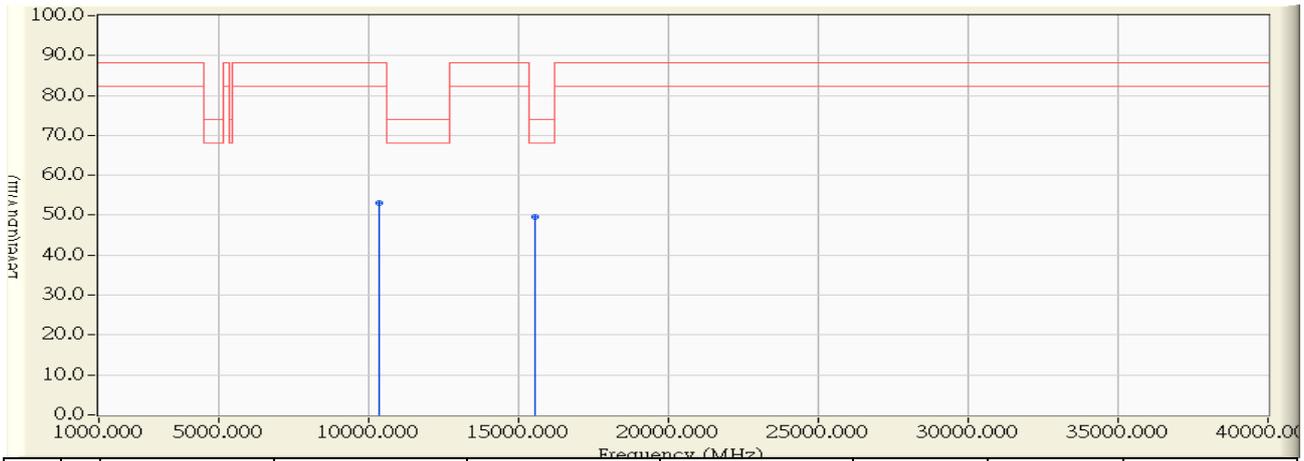
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	211.390	-23.965	46.671	22.706	-20.794	43.500	QUASPEAK
2		241.460	-21.669	41.786	20.117	-25.883	46.000	QUASPEAK
3		462.620	-16.338	38.247	21.909	-24.091	46.000	QUASPEAK
4		680.870	-15.105	38.162	23.057	-22.943	46.000	QUASPEAK
5		824.430	-13.522	34.502	20.979	-25.021	46.000	QUASPEAK
6		870.990	-13.402	33.188	19.785	-26.215	46.000	QUASPEAK

**Note:**

1. All Reading Levels are Quasi-Peak value.
2. “ \* ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

## Harmonic & Spurious:

Site : CB1	Time : 2013/09/24 - 15:33
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V /60Hz
EUT : 802.11ac Dual Band Router	Note : 802.11a_5180MHz

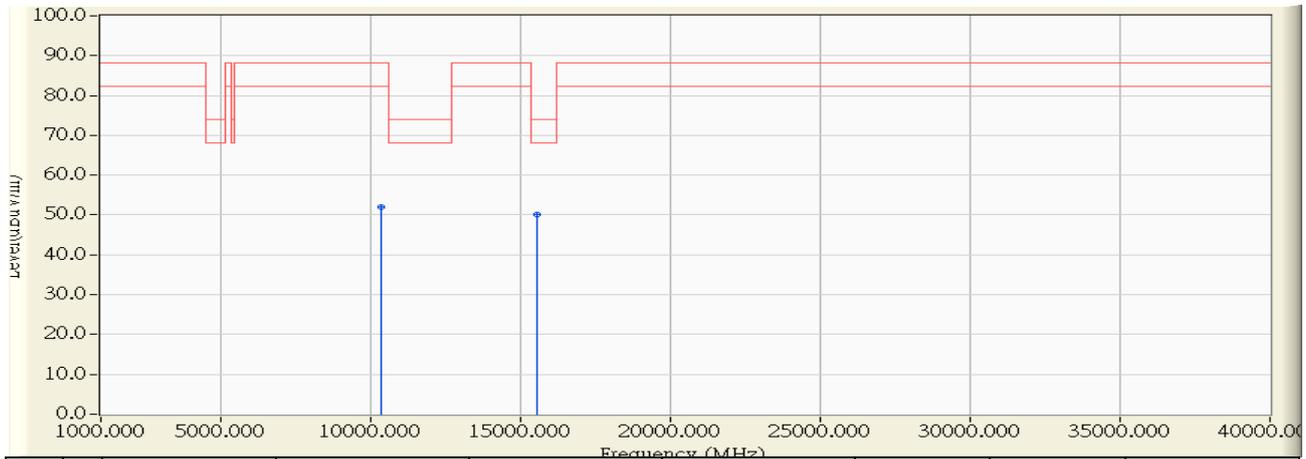


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	10360.000	10.432	42.520	52.952	-35.348	88.300	PEAK
2	* 15540.000	11.109	38.380	49.489	-24.511	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " \* ", means this data is the worst emission level.
5. " # ", means the frequency is out of the restricted band.
6. Measurement Level = Reading Level + Correct Factor.
7. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	Time : 2013/09/24 - 15:39
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V /60Hz
EUT : 802.11ac Dual Band Router	Note : 802.11a_5180MHz

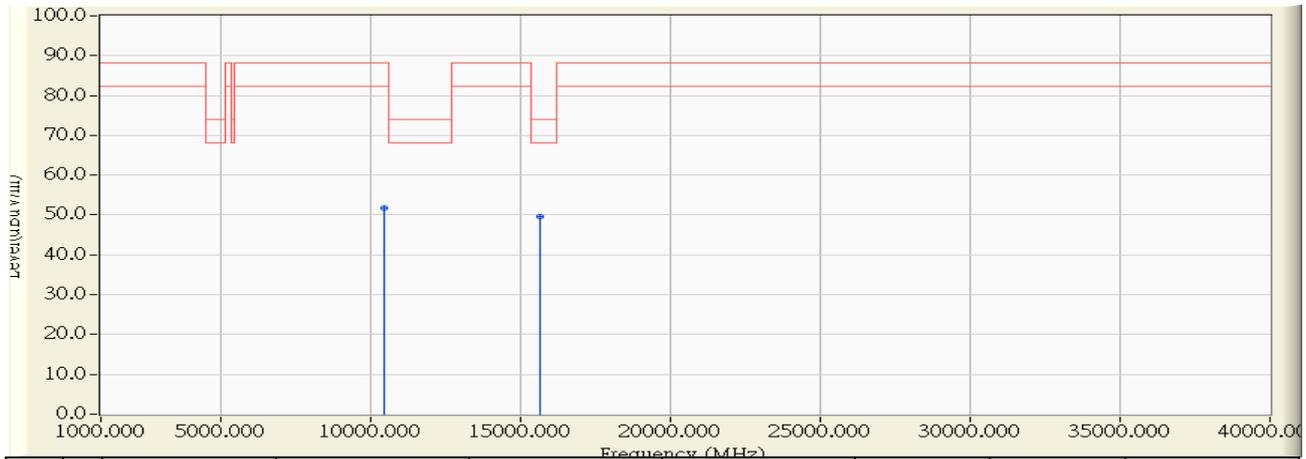


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	10360.000	10.432	41.660	52.092	-36.208	88.300	PEAK
2	* 15540.000	11.109	39.110	50.219	-23.781	74.000	PEAK

**Note:**

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. “ # ”, means the frequency is out of the restricted band.
6. Measurement Level = Reading Level + Correct Factor.
7. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	Time : 2013/09/24 - 15:50
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V /60Hz
EUT : 802.11ac Dual Band Router	Note : 802.11a_5220MHz

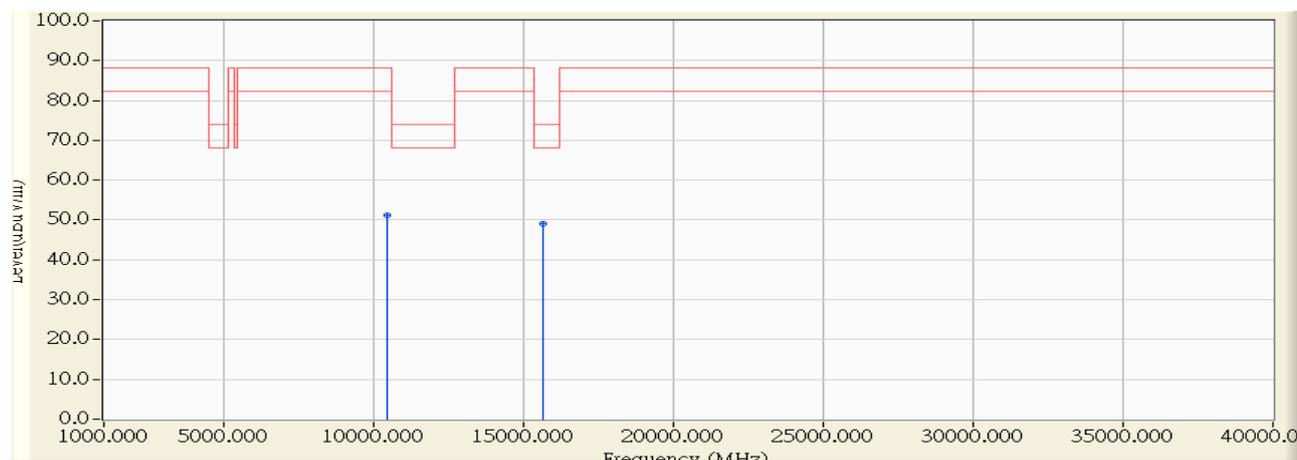


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	10440.000	10.194	41.570	51.764	-36.536	88.300	PEAK
2	* 15660.000	10.975	38.540	49.515	-24.485	74.000	PEAK

**Note:**

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. “ # ”, means the frequency is out of the restricted band.
6. Measurement Level = Reading Level + Correct Factor.
7. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	Time : 2013/09/24 - 15:53
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V /60Hz
EUT : 802.11ac Dual Band Router	Note : 802.11a_5220MHz

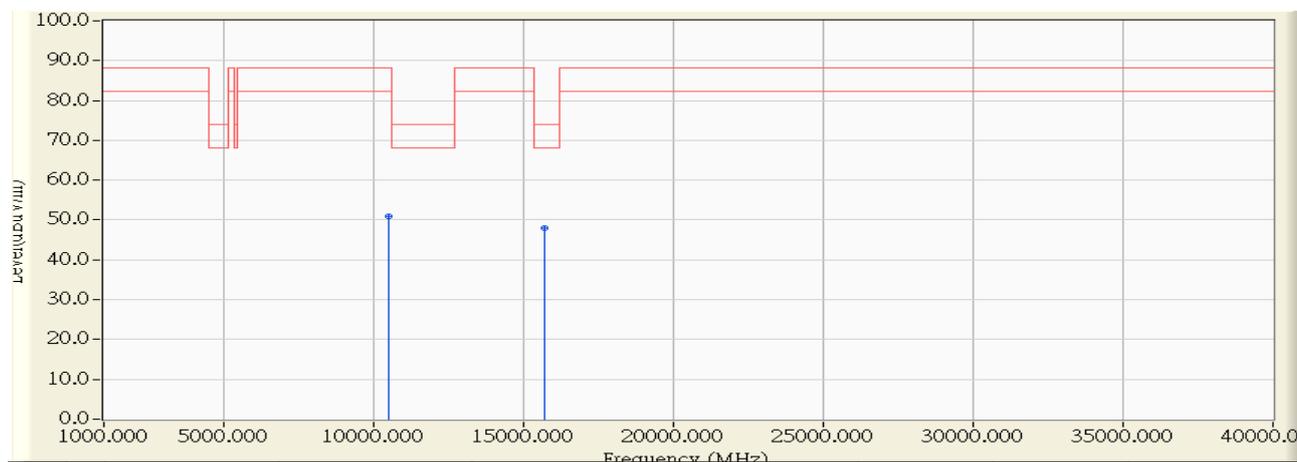


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	10440.000	10.194	40.940	51.134	-37.166	88.300	PEAK
2	* 15660.000	10.975	38.100	49.075	-24.925	74.000	PEAK

**Note:**

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. “ # ”, means the frequency is out of the restricted band.
6. Measurement Level = Reading Level + Correct Factor.
7. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	Time : 2013/09/24 - 15:57
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V /60Hz
EUT : 802.11ac Dual Band Router	Note : 802.11a_5240MHz

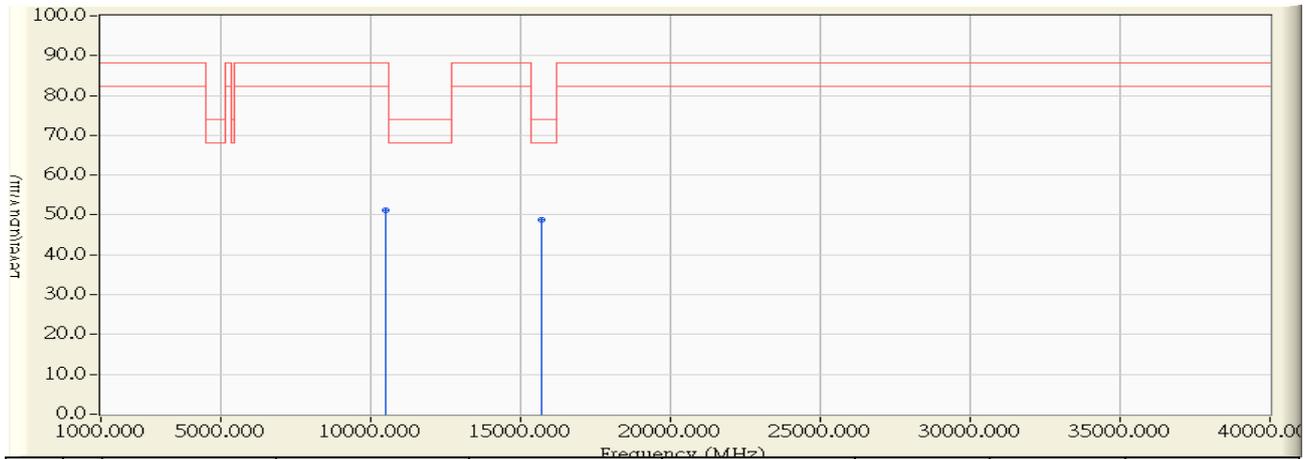


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	10480.000	10.075	40.810	50.885	-37.415	88.300	PEAK
2	* 15720.000	10.908	37.090	47.998	-26.002	74.000	PEAK

**Note:**

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. “ # ”, means the frequency is out of the restricted band.
6. Measurement Level = Reading Level + Correct Factor.
7. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	Time : 2013/09/24 - 15:59
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V /60Hz
EUT : 802.11ac Dual Band Router	Note : 802.11a_ 5240MHz

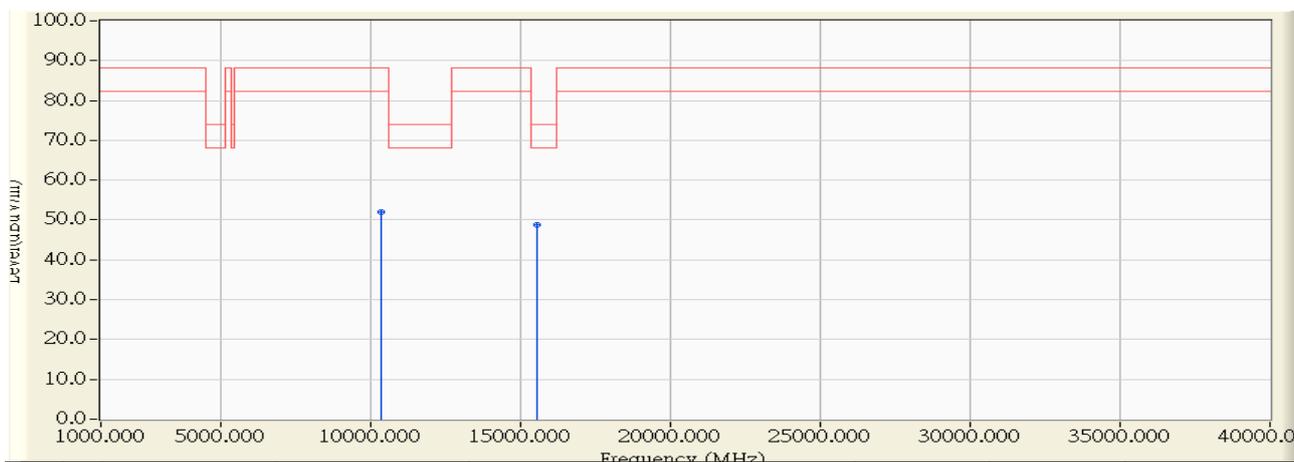


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	10480.000	10.075	41.150	51.225	-37.075	88.300	PEAK
2	* 15720.000	10.908	37.900	48.808	-25.192	74.000	PEAK

**Note:**

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. “ # ”, means the frequency is out of the restricted band.
6. Measurement Level = Reading Level + Correct Factor.
7. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	Time : 2013/09/24 - 16:02
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V /60Hz
EUT : 802.11ac Dual Band Router	Note : 802.11n20_5180MHz

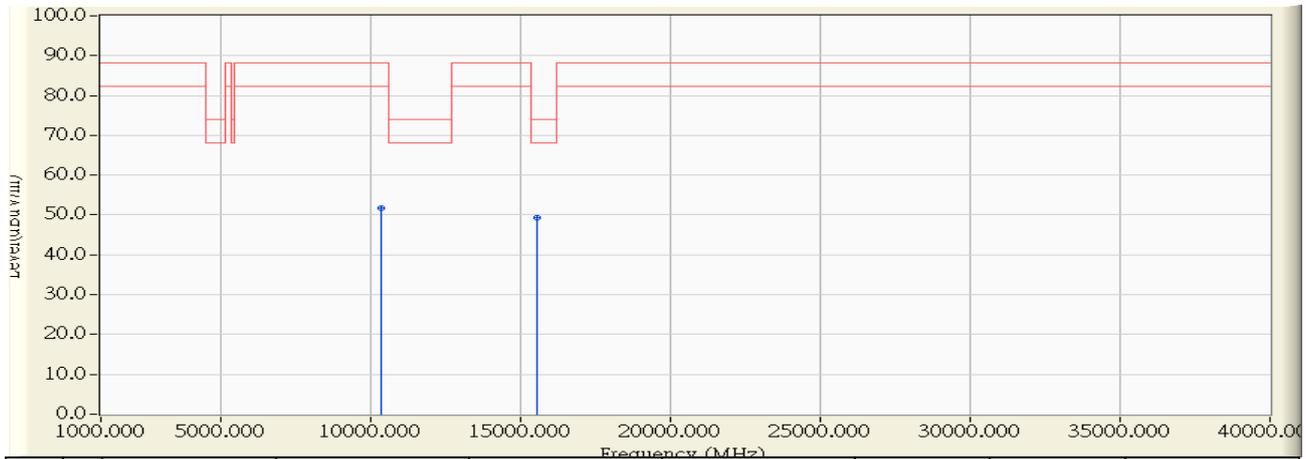


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	10360.000	10.432	41.590	52.022	-36.278	88.300	PEAK
2	* 15540.000	11.109	37.720	48.829	-25.171	74.000	PEAK

**Note:**

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. “ # ”, means the frequency is out of the restricted band.
6. Measurement Level = Reading Level + Correct Factor.
7. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	Time : 2013/09/24 - 16:04
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V /60Hz
EUT : 802.11ac Dual Band Router	Note : 802.11n20_5180MHz

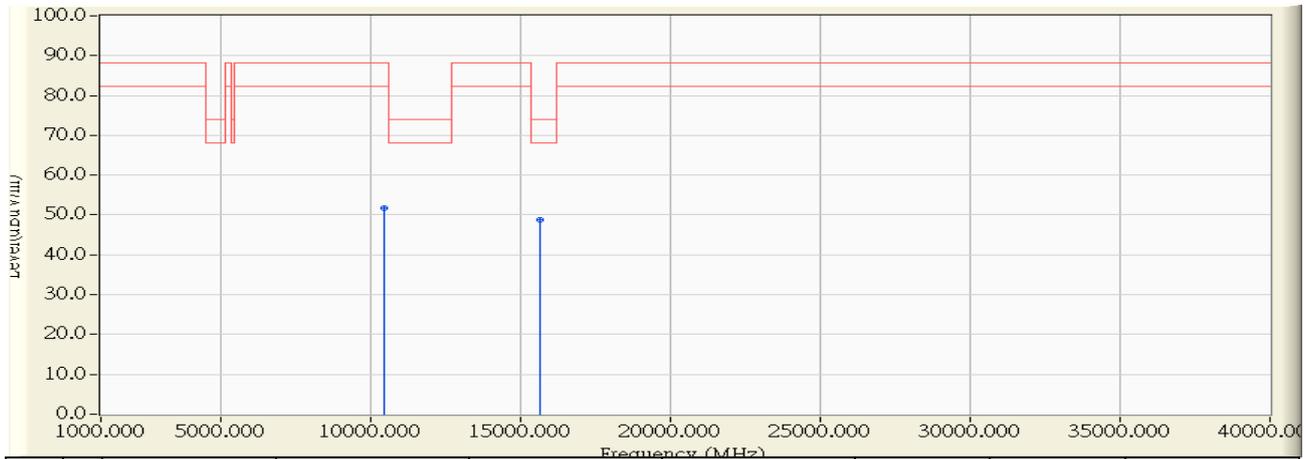


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	10360.000	10.432	41.390	51.822	-36.478	88.300	PEAK
2	* 15540.000	11.109	38.320	49.429	-24.571	74.000	PEAK

**Note:**

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. “ # ”, means the frequency is out of the restricted band.
6. Measurement Level = Reading Level + Correct Factor.
7. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	Time : 2013/09/24 - 16:07
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V /60Hz
EUT : 802.11ac Dual Band Router	Note : 802.11n20_5220MHz

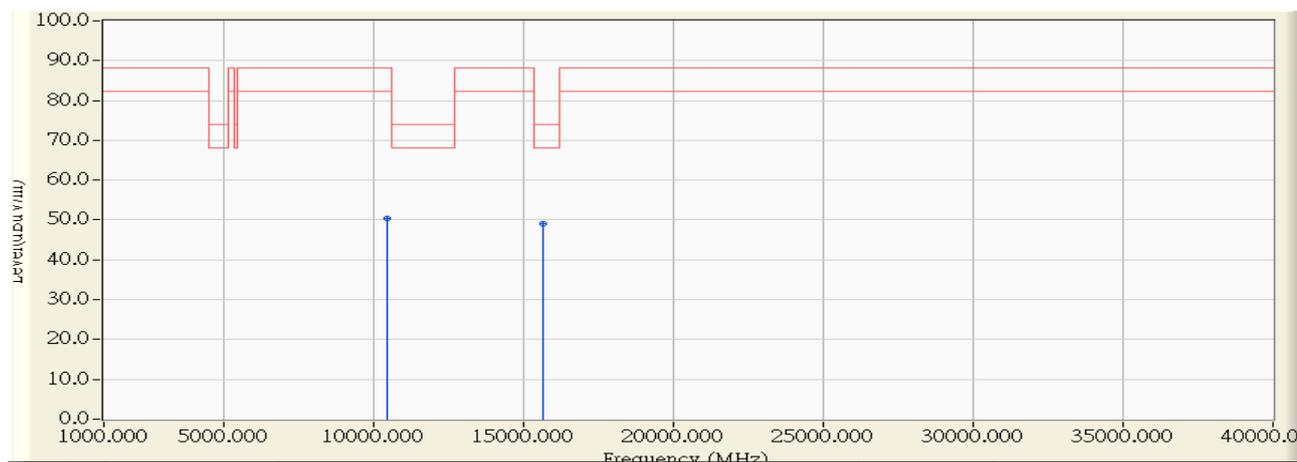


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	10440.000	10.194	41.540	51.734	-36.566	88.300	PEAK
2	* 15660.000	10.975	37.710	48.685	-25.315	74.000	PEAK

**Note:**

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. “ # ”, means the frequency is out of the restricted band.
6. Measurement Level = Reading Level + Correct Factor.
7. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	Time : 2013/09/24 - 16:09
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V /60Hz
EUT : 802.11ac Dual Band Router	Note : 802.11n20_5220MHz

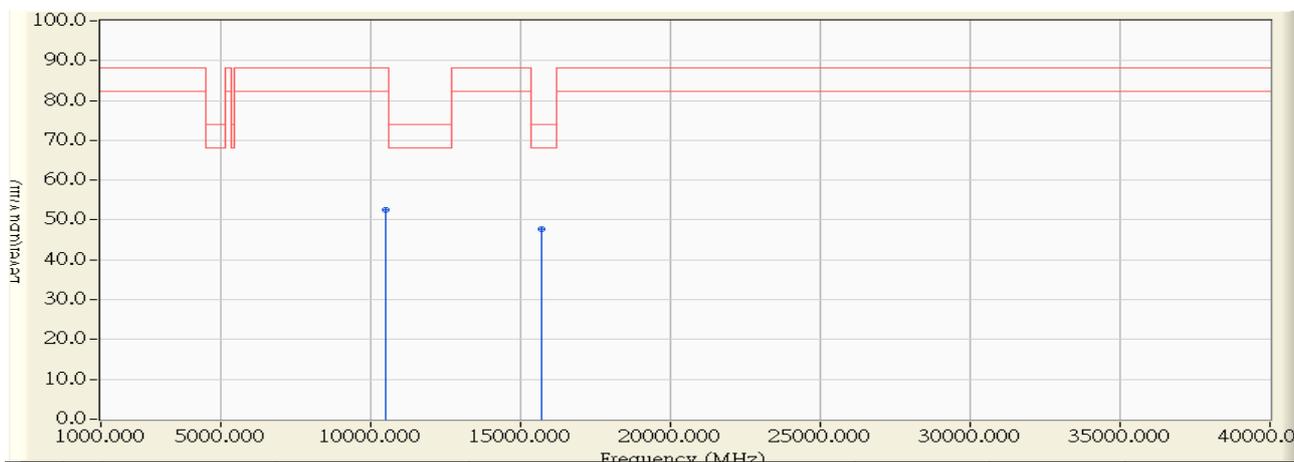


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	10440.000	10.194	40.110	50.304	-37.996	88.300	PEAK
2	* 15660.000	10.975	38.090	49.065	-24.935	74.000	PEAK

**Note:**

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. “ # ”, means the frequency is out of the restricted band.
6. Measurement Level = Reading Level + Correct Factor.
7. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	Time : 2013/09/24 - 16:11
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V /60Hz
EUT : 802.11ac Dual Band Router	Note : 802.11n20_5240MHz

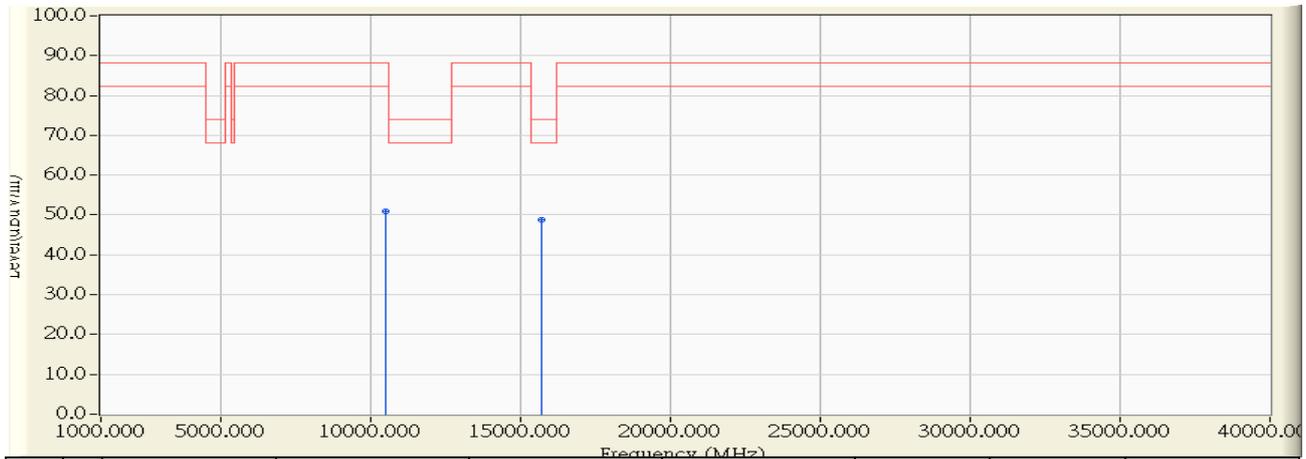


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	10480.000	10.075	42.540	52.615	-35.685	88.300	PEAK
2	* 15720.000	10.908	36.940	47.848	-26.152	74.000	PEAK

**Note:**

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. “ # ”, means the frequency is out of the restricted band.
6. Measurement Level = Reading Level + Correct Factor.
7. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	Time : 2013/09/24 - 16:13
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V /60Hz
EUT : 802.11ac Dual Band Router	Note : 802.11n20_5240MHz

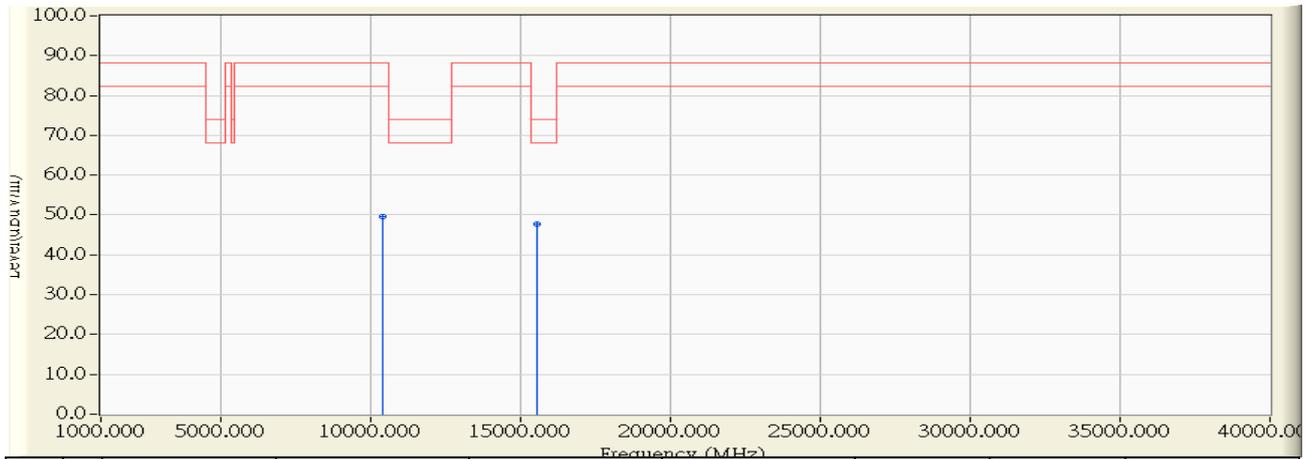


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	10480.000	10.075	40.800	50.875	-37.425	88.300	PEAK
2	* 15720.000	10.908	37.760	48.668	-25.332	74.000	PEAK

**Note:**

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. “ # ”, means the frequency is out of the restricted band.
6. Measurement Level = Reading Level + Correct Factor.
7. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	Time : 2013/09/24 - 16:15
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V /60Hz
EUT : 802.11ac Dual Band Router	Note : 802.11n40_5190MHz

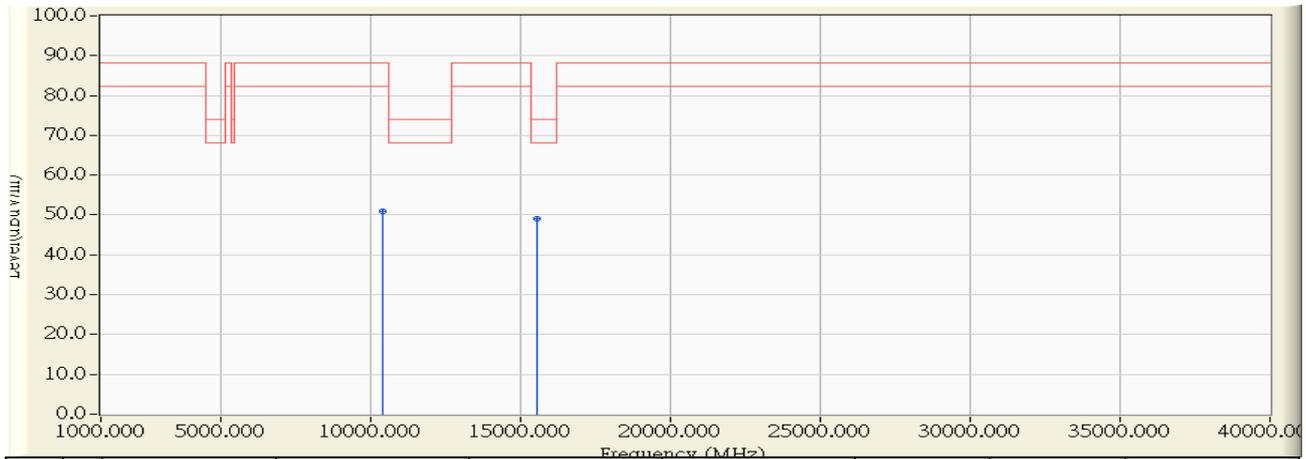


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	10380.000	10.373	39.160	49.533	-38.767	88.300	PEAK
2	* 15570.000	11.076	36.520	47.596	-26.404	74.000	PEAK

**Note:**

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. “ # ”, means the frequency is out of the restricted band.
6. Measurement Level = Reading Level + Correct Factor.
7. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	Time : 2013/09/24 - 16:16
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V /60Hz
EUT : 802.11ac Dual Band Router	Note : 802.11n40_5190MHz

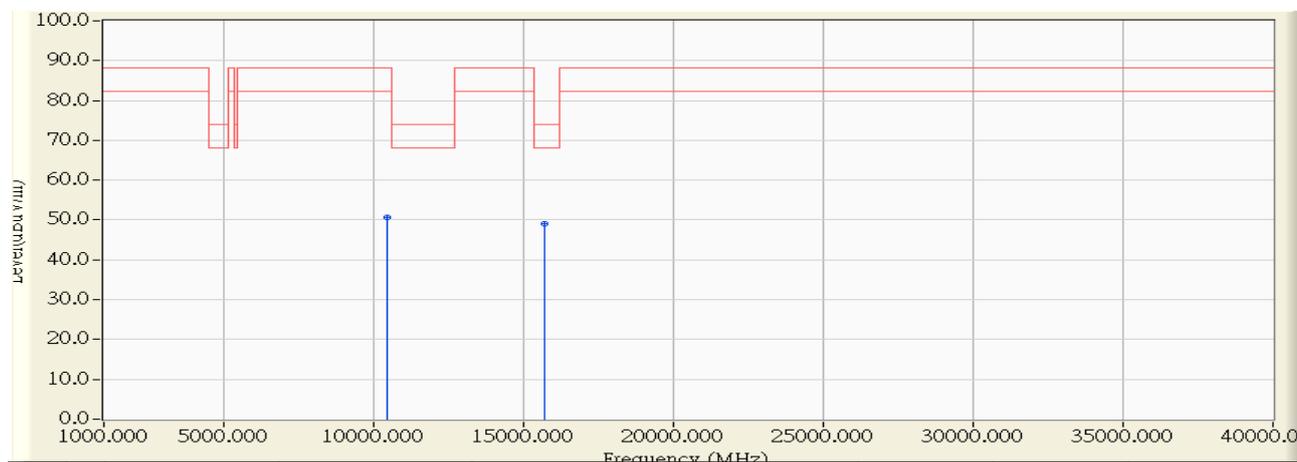


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	10380.000	44.945	5.998	50.943	-23.027	73.970	PEAK
2		15570.000	11.076	37.980	49.056	-24.944	74.000	PEAK

**Note:**

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. “ # ”, means the frequency is out of the restricted band.
6. Measurement Level = Reading Level + Correct Factor.
7. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	Time : 2013/09/24 - 16:19
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V /60Hz
EUT : 802.11ac Dual Band Router	Note : 802.11n40_5230MHz

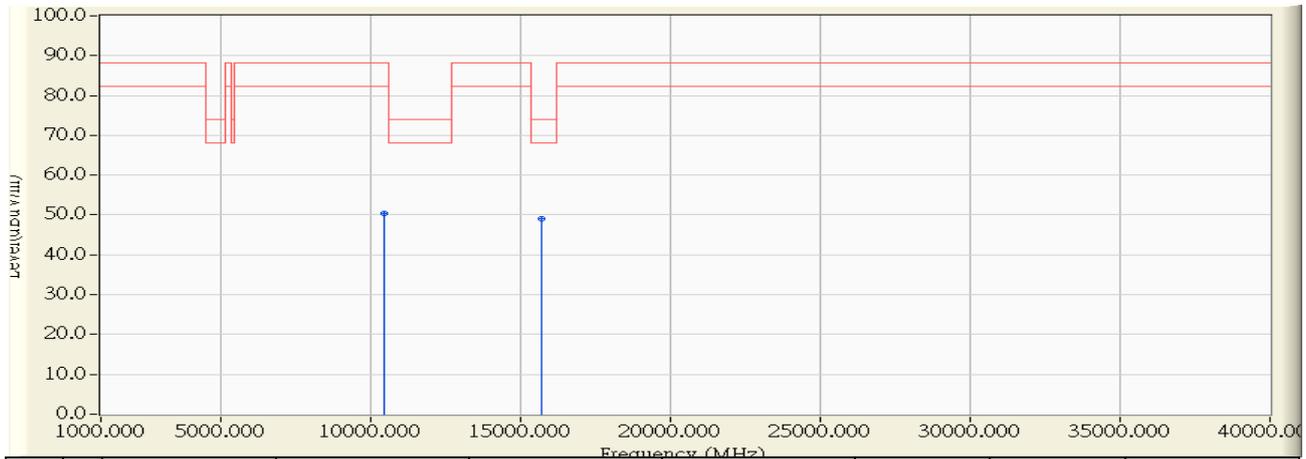


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	10460.000	10.134	40.630	50.764	-37.536	88.300	PEAK
2	* 15690.000	10.942	38.140	49.082	-24.918	74.000	PEAK

**Note:**

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. “ # ”, means the frequency is out of the restricted band.
6. Measurement Level = Reading Level + Correct Factor.
7. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	Time : 2013/09/24 - 16:20
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V /60Hz
EUT : 802.11ac Dual Band Router	Note : 802.11n40_5230MHz

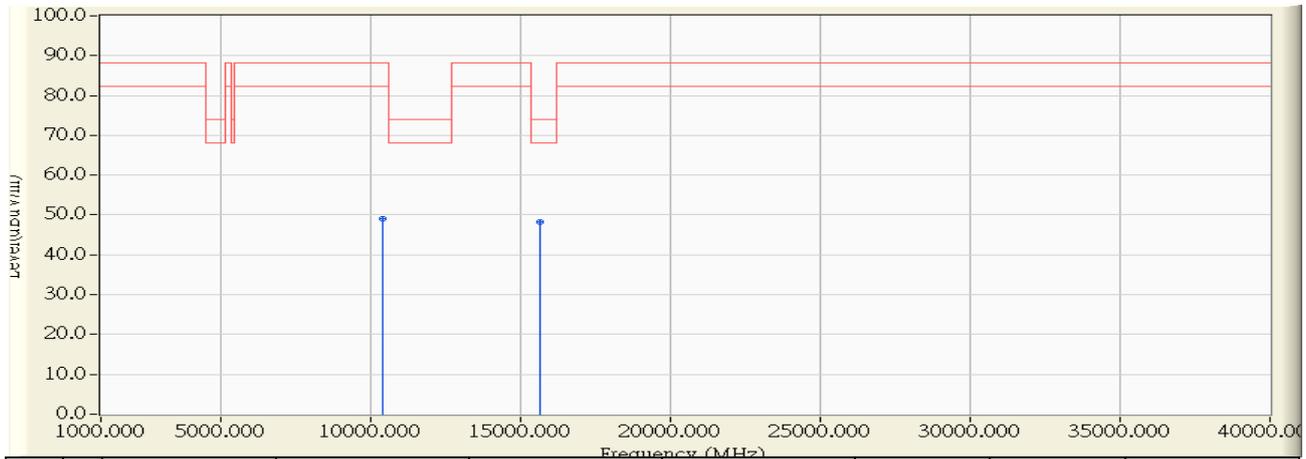


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	10460.000	10.134	40.150	50.284	-38.016	88.300	PEAK
2	* 15690.000	10.942	38.140	49.082	-24.918	74.000	PEAK

**Note:**

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. “ # ”, means the frequency is out of the restricted band.
6. Measurement Level = Reading Level + Correct Factor.
7. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	Time : 2013/09/24 - 16:23
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V /60Hz
EUT : 802.11ac Dual Band Router	Note : 802.11ac80_ 5210MHz

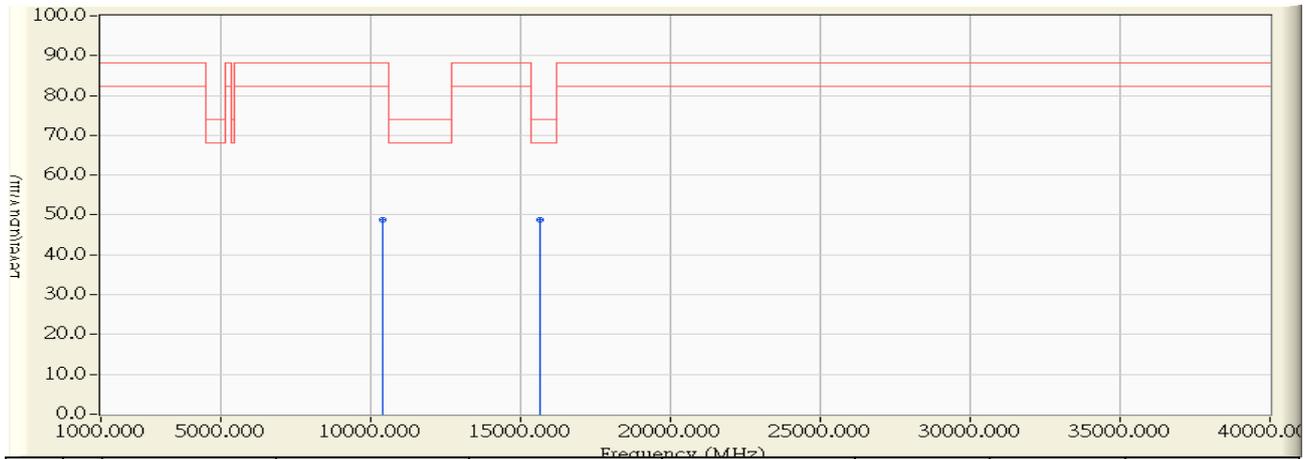


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	10420.000	10.254	38.780	49.034	-39.266	88.300	PEAK
2	* 15630.000	11.009	37.340	48.349	-25.651	74.000	PEAK

**Note:**

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. “ # ”, means the frequency is out of the restricted band.
6. Measurement Level = Reading Level + Correct Factor.
7. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	Time : 2013/09/24 - 16:24
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V /60Hz
EUT : 802.11ac Dual Band Router	Note : 802.11ac80_5210MHz



	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	10420.000	44.802	38.480	48.734	-39.566	88.300	PEAK
2	* 15630.000	45.153	37.870	48.879	-25.121	74.000	PEAK

**Note:**

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. “ # ”, means the frequency is out of the restricted band.
6. Measurement Level = Reading Level + Correct Factor.
7. The average measurement was not performed when the peak measured data under the limit of average detection.

8. Band Edge

8.1. Test Equipment

The following test equipments are used during the band edge tests:

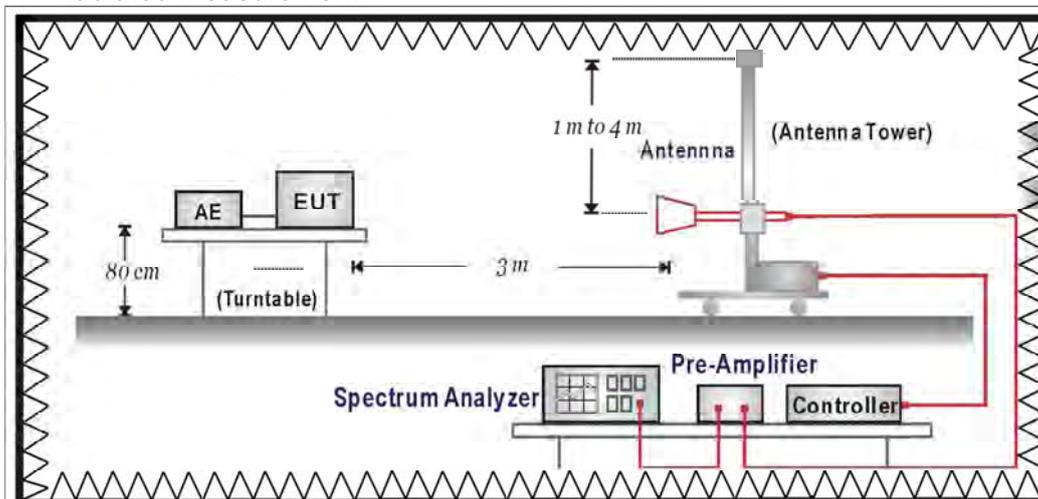
**Radiated Emission Band Edge / CB1**

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Double Ridged Guide Horn Antenna	Schwarzback	BBHA 9120	D743	2014/02/17
Spectrum Analyzer	Agilent	E4440A	MY46187335	2014/01/27
k Type Cable	Huber Suhner	Sucoflex 102	25623/2	2014/02/21

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

8.2. Test Setup

RF Radiated Measurement:



**8.3. Limits**

➤ **General Radiated Emission Limits**

The provisions of Section 15.205 of this part apply to intentional radiators operating under this section. Radiated emissions which fall in the restricted bands, as defined in Section 15.205, must also comply with the radiated emission limits specified in Section 15.209:

<b>FCC Part 15 Subpart C Paragraph 15.209 Limits</b>		
Frequency MHz	uV/m @3m	dBuV/m@3m
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

Remark:

4. RF Voltage (dBuV) = 20 log RF Voltage (uV)
5. In the Above Table, the tighter limit applies at the band edges.
6. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

➤ **Unwanted Emission out of the restricted bands Limits**

<b>FCC Part 15 Subpart C Paragraph 15.407(b) Limits</b>		
Frequency (MHz)	EIRP Limit (dBm)	Equivalent Field Strength (dBuV/m@3m)
5150~5250	-27	68.3
5250~5350	-27	68.3
5470~5725	-27	68.3
5725~5825	-27 (Note1)	68.3
	-17 (Note2)	78.3

Remark:

4. For frequencies more than 10 MHz above or below the band edges.
5. For frequency range from the band edges to 10 MHz above or below the band edges.

6. 
$$uV/m = \frac{1000000 \sqrt{30 \times EIRP}}{3}$$
, RF Voltage (dBuV/m) = 20 log RF Voltage (uV/m)

#### **8.4. Test Procedure**

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.4: 2009 on radiated measurement.

The bandwidth below 1GHz setting on the field strength meter is 120 KHz, above 1GHz are 1 MHz.

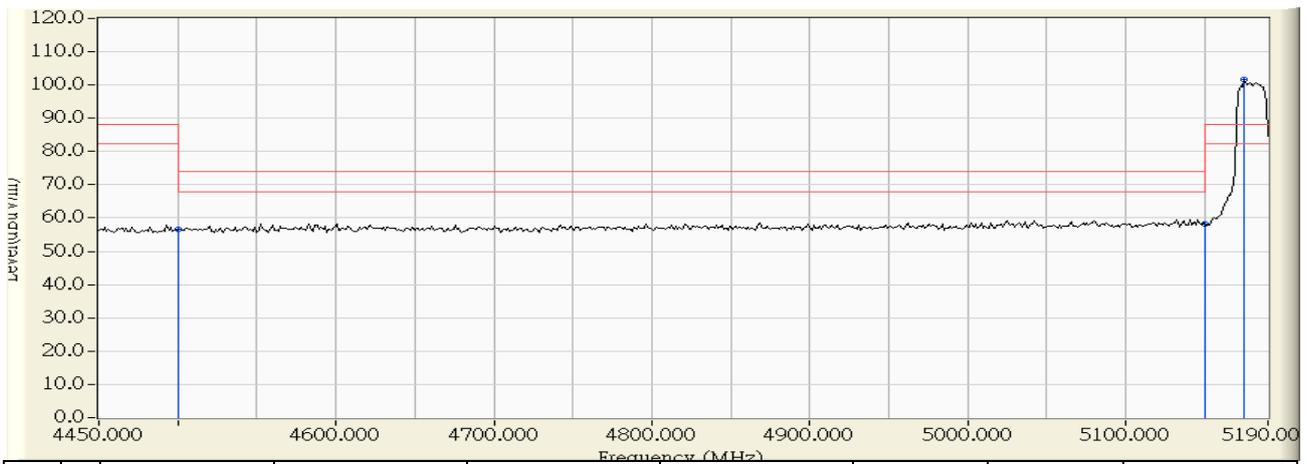
#### **8.5. Uncertainty**

The measurement uncertainty is defined as  $\pm 3.65\text{dB}$

8.6. Test Result

Radiated is defined as

Site : CB1	Time : 2013/09/06 - 10:27
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V / 60Hz
EUT : 802.11ac Dual Band Router	Note : 802.11a_5180MHz

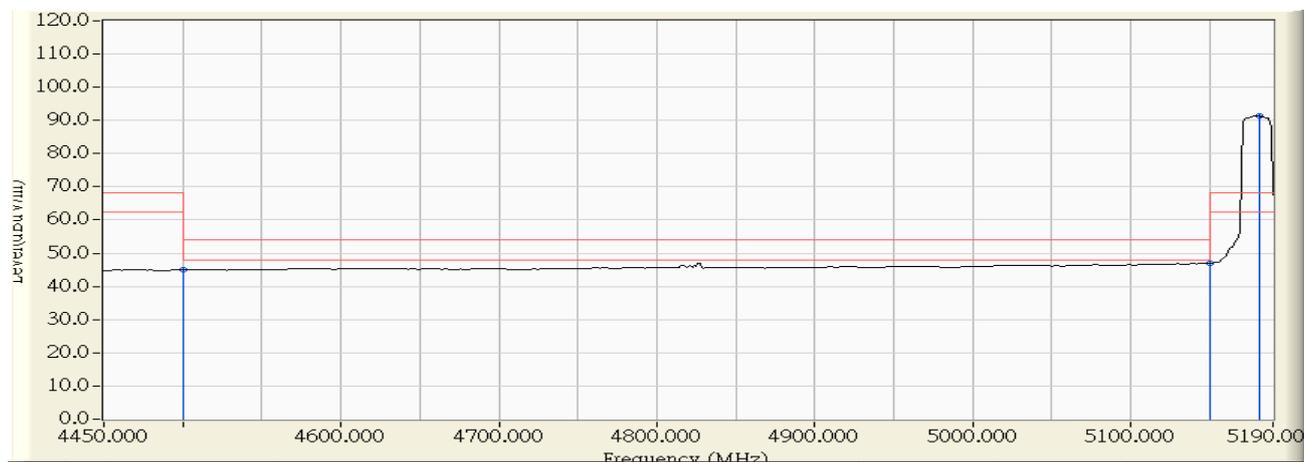


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	4500.000	-1.406	57.955	56.550	-17.450	74.000	PEAK
2	5150.000	0.975	57.238	58.213	-15.787	74.000	PEAK
3	* 5175.200	1.170	100.588	101.759	13.459	88.300	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	Time : 2013/09/06 - 10:28
Limit : FCC_SpartE_15.407_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V / 60Hz
EUT : 802.11ac Dual Band Router	Note : 802.11a_5180MHz

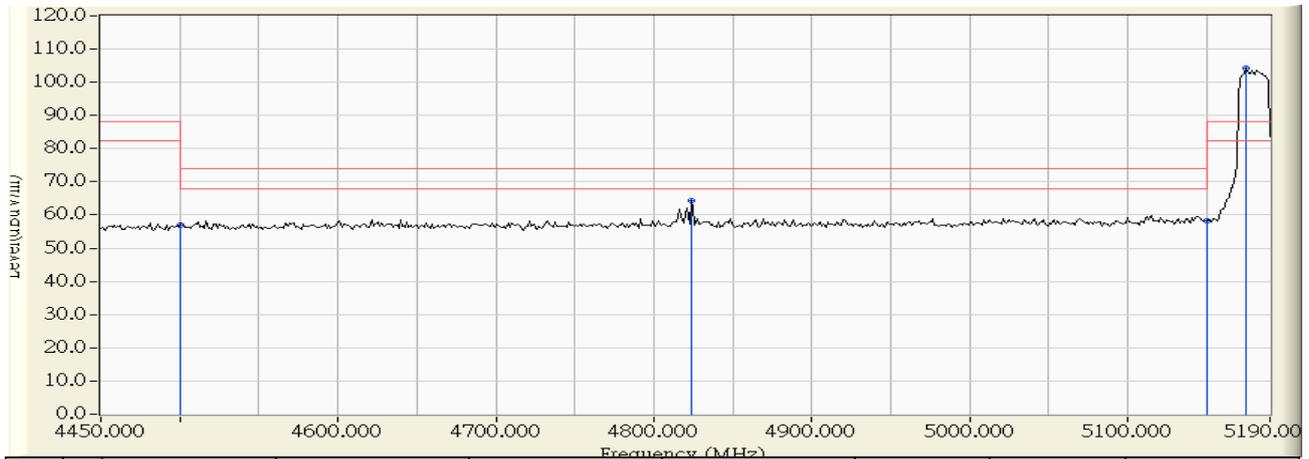


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	4500.000	-1.406	46.397	44.992	-9.008	54.000	AVERAGE
2	5150.000	0.975	46.062	47.037	-6.963	54.000	AVERAGE
3	* 5181.367	1.219	90.217	91.436	23.136	68.300	AVERAGE

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	Time : 2013/09/06 - 10:31
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V / 60Hz
EUT : 802.11ac Dual Band Router	Note : 802.11a_ 5180MHz

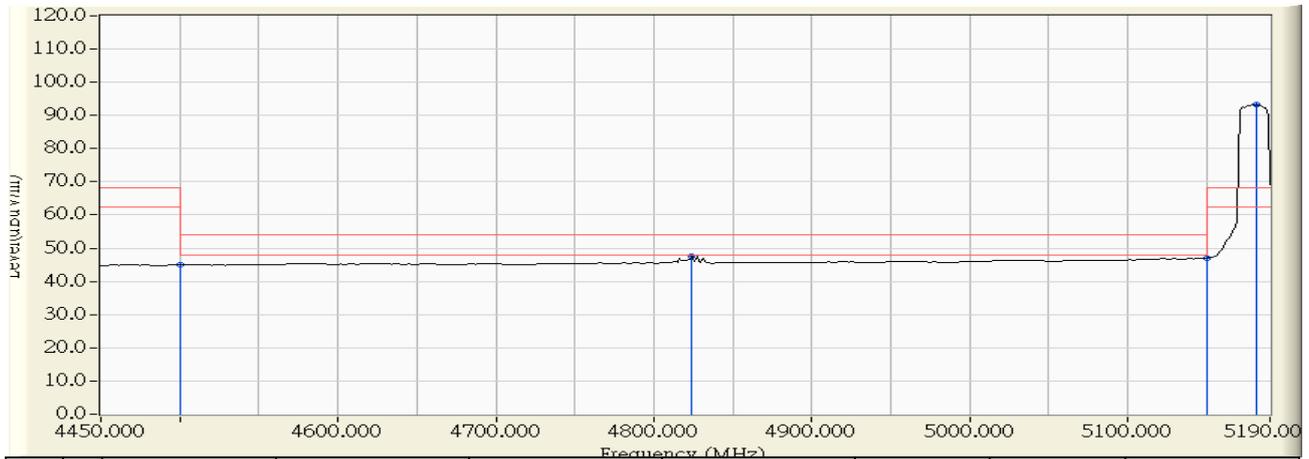


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	4500.000	-1.406	58.471	57.066	-16.934	74.000	PEAK
2	4823.700	-0.617	64.816	64.199	-9.801	74.000	PEAK
3	5150.000	0.975	57.346	58.321	-15.679	74.000	PEAK
4	* 5175.200	1.170	102.962	104.133	15.833	88.300	PEAK

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	Time : 2013/09/06 - 10:33
Limit : FCC_SpartE_15.407_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V / 60Hz
EUT : 802.11ac Dual Band Router	Note : 802.11a_ 5180MHz

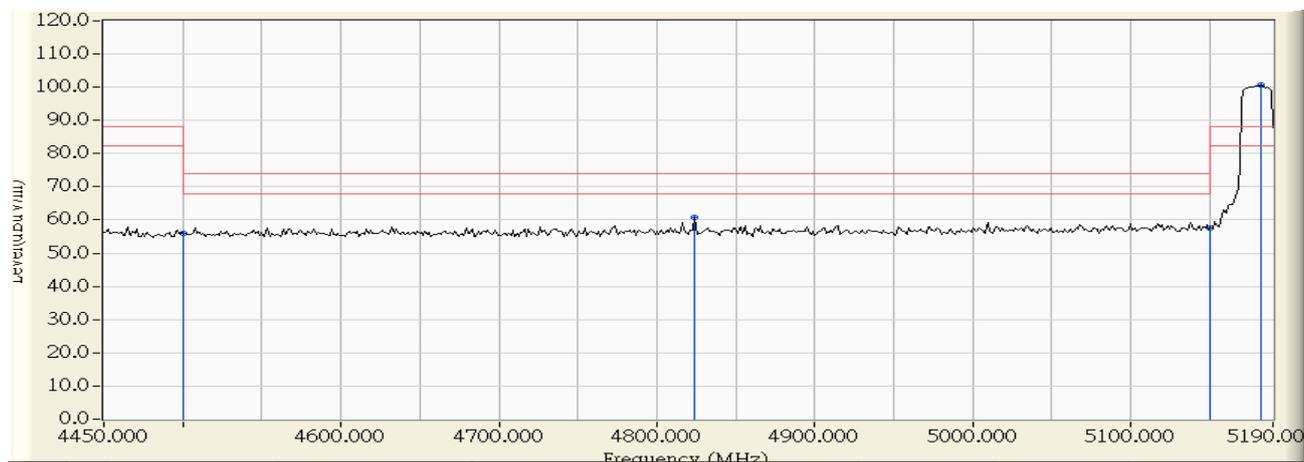


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	4500.000	-1.406	46.374	44.969	-9.031	54.000	AVERAGE
2	4823.700	-0.617	48.320	47.703	-6.297	54.000	AVERAGE
3	5150.000	0.975	46.101	47.076	-6.924	54.000	AVERAGE
4	* 5181.367	1.219	91.968	93.187	24.887	68.300	AVERAGE

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	Time : 2013/09/06 - 10:36
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V / 60Hz
EUT : 802.11ac Dual Band Router	Note : 802.11n20_5180MHz

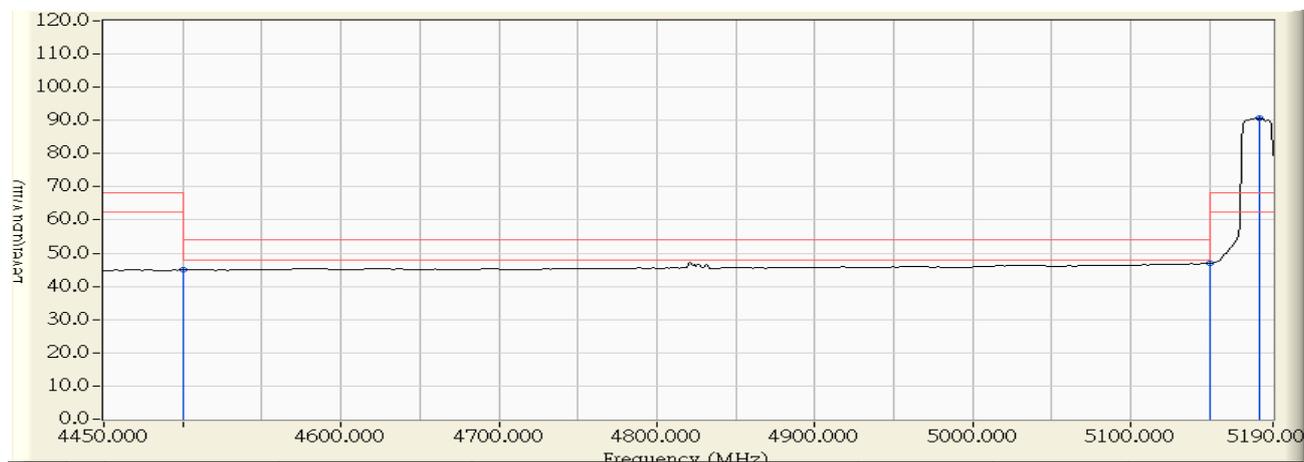


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	4500.000	-1.406	57.367	55.962	-18.038	74.000	PEAK
2	4823.700	-0.617	61.285	60.668	-13.332	74.000	PEAK
3	5150.000	0.975	56.657	57.632	-16.368	74.000	PEAK
4	* 5182.600	1.227	99.404	100.632	12.332	88.300	PEAK

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	Time : 2013/09/06 - 10:37
Limit : FCC_SpartE_15.407_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V / 60Hz
EUT : 802.11ac Dual Band Router	Note : 802.11n20_5180MHz

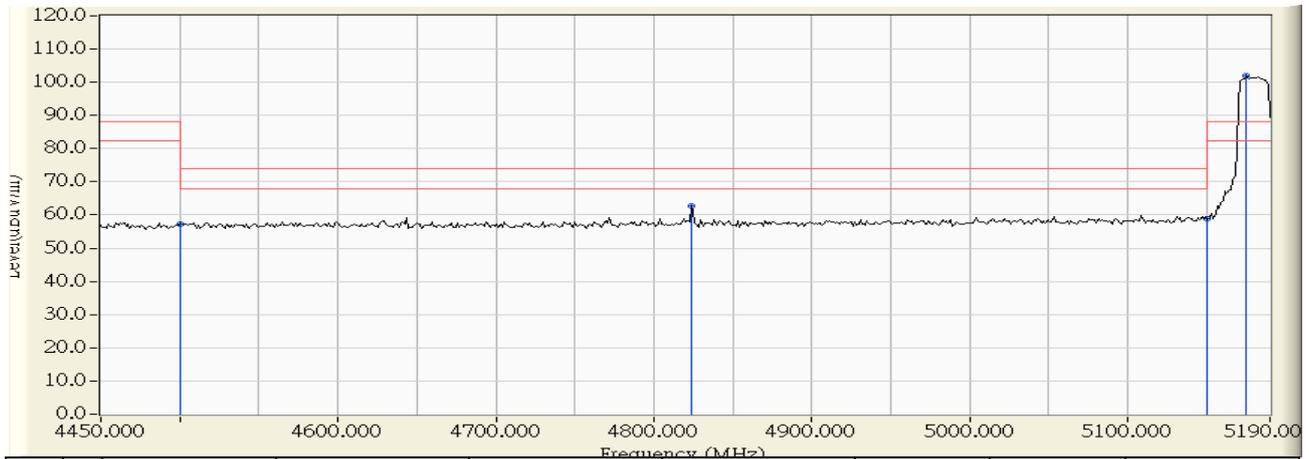


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	4500.000	-1.406	46.386	44.981	-9.019	54.000	AVERAGE
2	5150.000	0.975	45.991	46.966	-7.034	54.000	AVERAGE
3	* 5181.367	1.219	89.408	90.627	22.327	68.300	AVERAGE

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	Time : 2013/09/06 - 10:39
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V / 60Hz
EUT : 802.11ac Dual Band Router	Note : 802.11n20_5180MHz

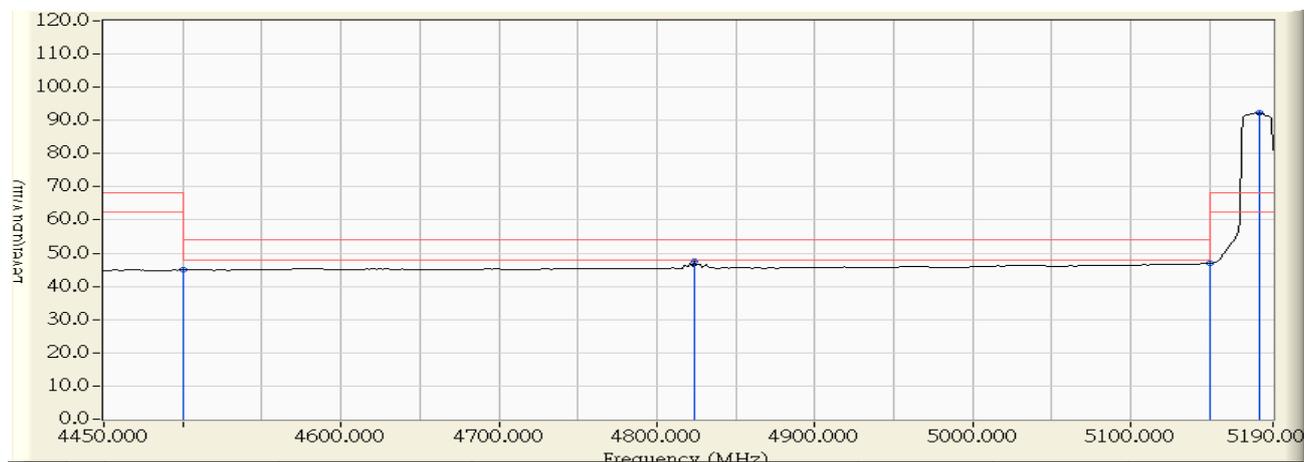


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	4500.000	-1.406	58.708	57.303	-16.697	74.000	PEAK
2	4823.700	-0.617	63.420	62.803	-11.197	74.000	PEAK
3	5150.000	0.975	57.898	58.873	-15.127	74.000	PEAK
4	* 5175.200	1.170	100.889	102.060	13.760	88.300	PEAK

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	Time : 2013/09/06 - 10:41
Limit : FCC_SpartE_15.407_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V / 60Hz
EUT : 802.11ac Dual Band Router	Note : 802.11n20_5180MHz

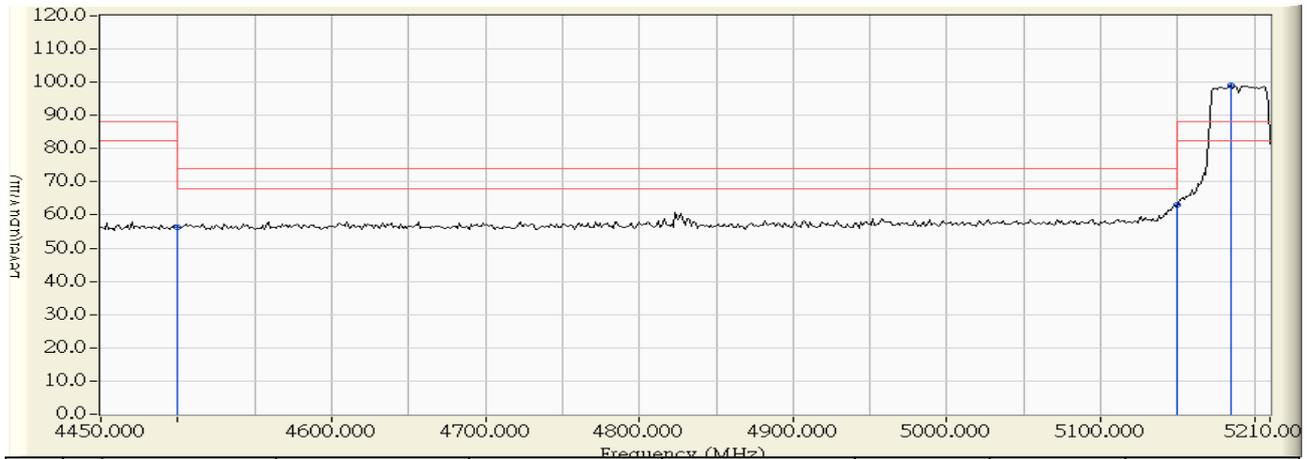


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	4500.000	-1.406	46.333	44.928	-9.072	54.000	AVERAGE
2	4823.700	-0.617	48.087	47.470	-6.530	54.000	AVERAGE
3	5150.000	0.975	46.067	47.042	-6.958	54.000	AVERAGE
4	* 5181.367	1.219	90.964	92.183	23.883	68.300	AVERAGE

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	Time : 2013/09/06 - 11:22
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V / 60Hz
EUT : 802.11ac Dual Band Router	Note : 802.11n40_5190MHz

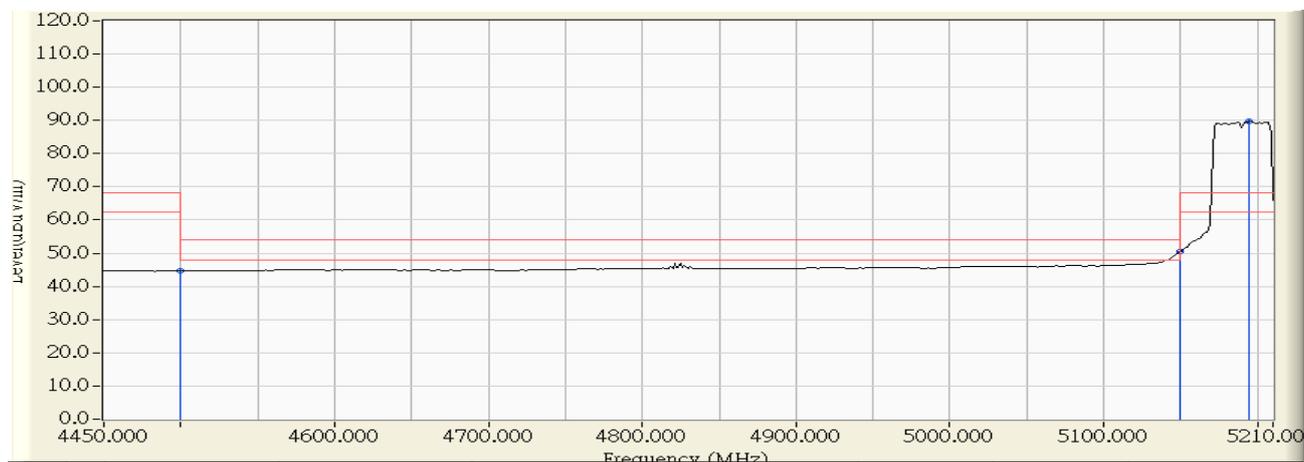


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	4500.000	-1.406	57.803	56.398	-17.602	74.000	PEAK
2	5150.000	0.975	62.134	63.109	-10.891	74.000	PEAK
3	* 5184.667	1.245	97.873	99.117	10.817	88.300	PEAK

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	Time : 2013/09/06 - 11:23
Limit : FCC_SpartE_15.407_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V / 60Hz
EUT : 802.11ac Dual Band Router	Note : 802.11n40_5190MHz

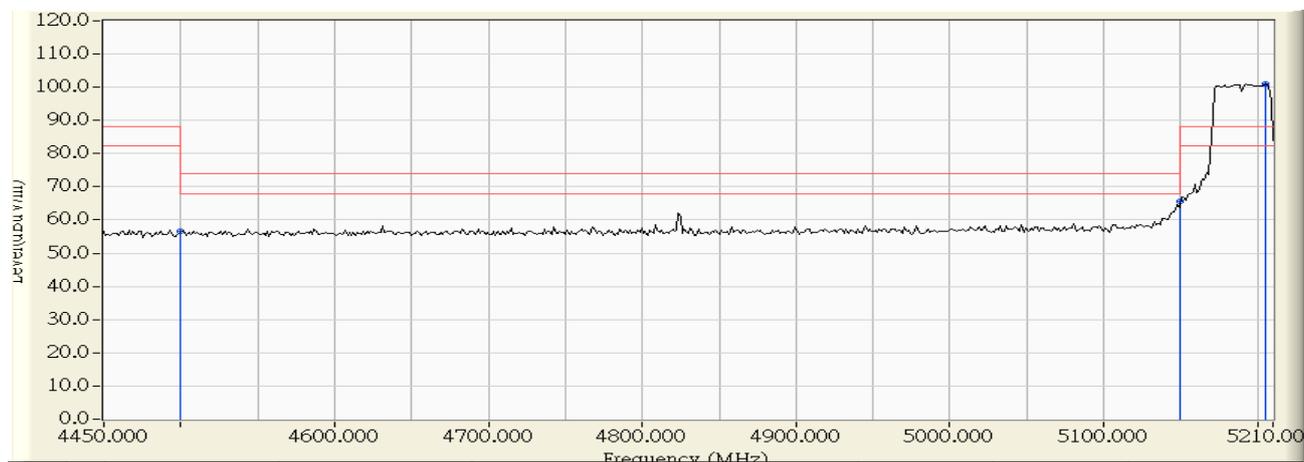


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	4500.000	-1.406	46.161	44.756	-9.244	54.000	AVERAGE
2	5150.000	0.975	49.481	50.456	-3.544	54.000	AVERAGE
3	* 5194.800	1.323	88.318	89.641	21.341	68.300	AVERAGE

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	Time : 2013/09/06 - 11:26
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V / 60Hz
EUT : 802.11ac Dual Band Router	Note : 802.11n40_5190MHz

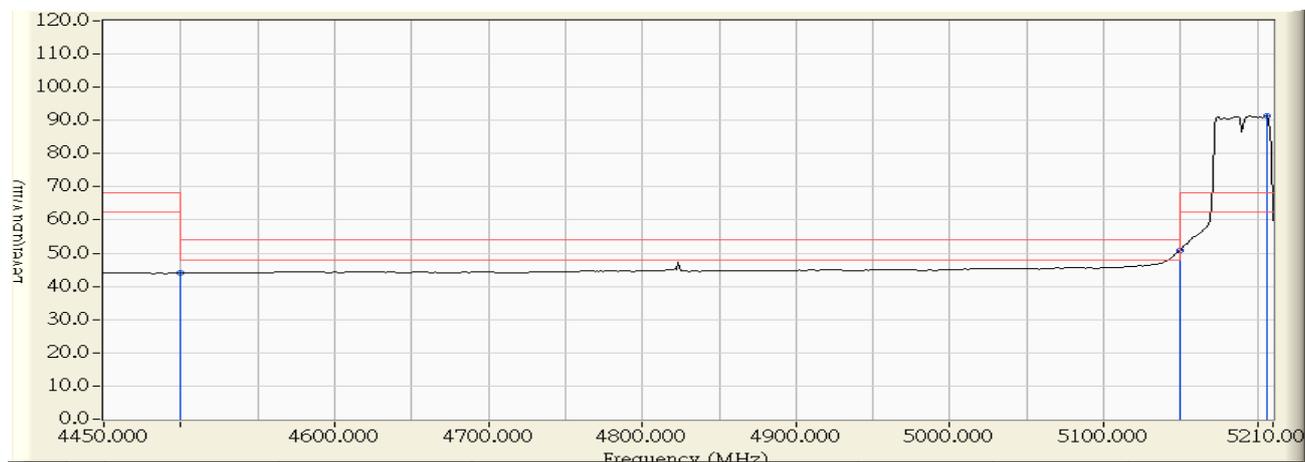


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	4500.000	-1.406	57.911	56.506	-17.494	74.000	PEAK
2	5150.000	0.975	64.746	65.721	-8.279	74.000	PEAK
3	* 5204.933	1.402	99.681	101.082	12.782	88.300	PEAK

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	Time : 2013/09/06 - 11:27
Limit : FCC_SpartE_15.407_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V / 60Hz
EUT : 802.11ac Dual Band Router	Note : 802.11n40_5190MHz

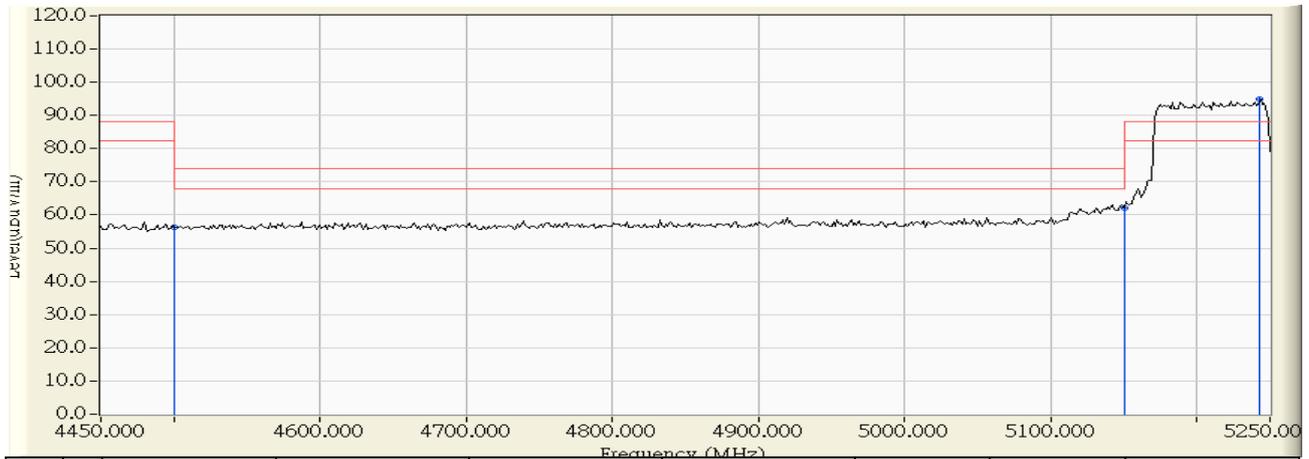


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	4500.000	-1.406	45.501	44.096	-9.904	54.000	AVERAGE
2	5150.000	0.975	49.970	50.945	-3.055	54.000	AVERAGE
3	* 5206.200	1.412	90.009	91.420	23.120	68.300	AVERAGE

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	Time : 2013/09/06 - 11:18
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V / 60Hz
EUT : 802.11ac Dual Band Router	Note : 802.11ac80_5210MHz

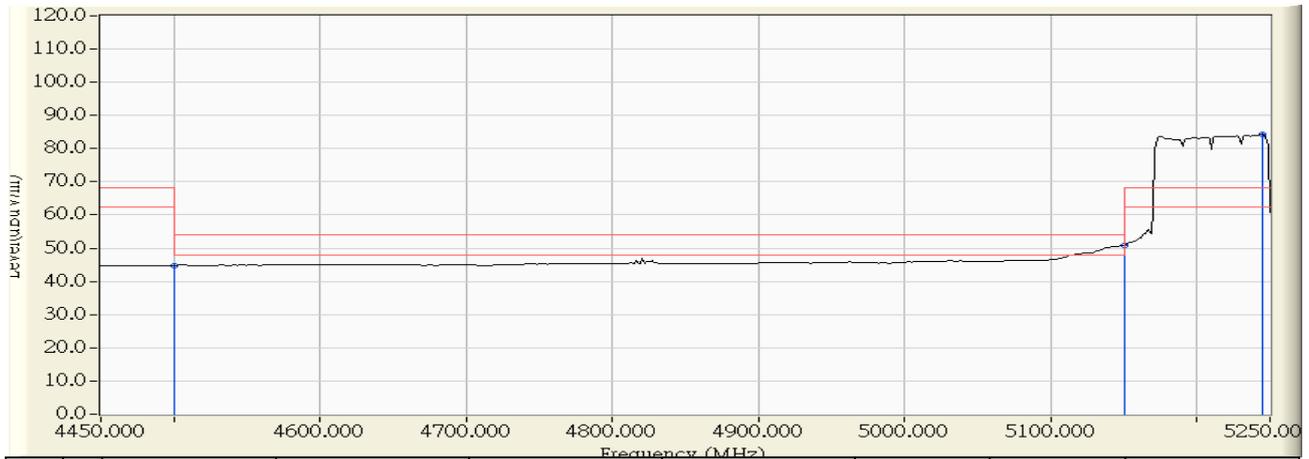


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	4500.000	-1.406	57.837	56.432	-17.568	74.000	PEAK
2	5150.000	0.975	61.252	62.227	-11.773	74.000	PEAK
3	* 5243.333	1.699	93.271	94.970	6.670	88.300	PEAK

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	Time : 2013/09/06 - 11:20
Limit : FCC_SpartE_15.407_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V / 60Hz
EUT : 802.11ac Dual Band Router	Note : 802.11ac80_ 5210MHz

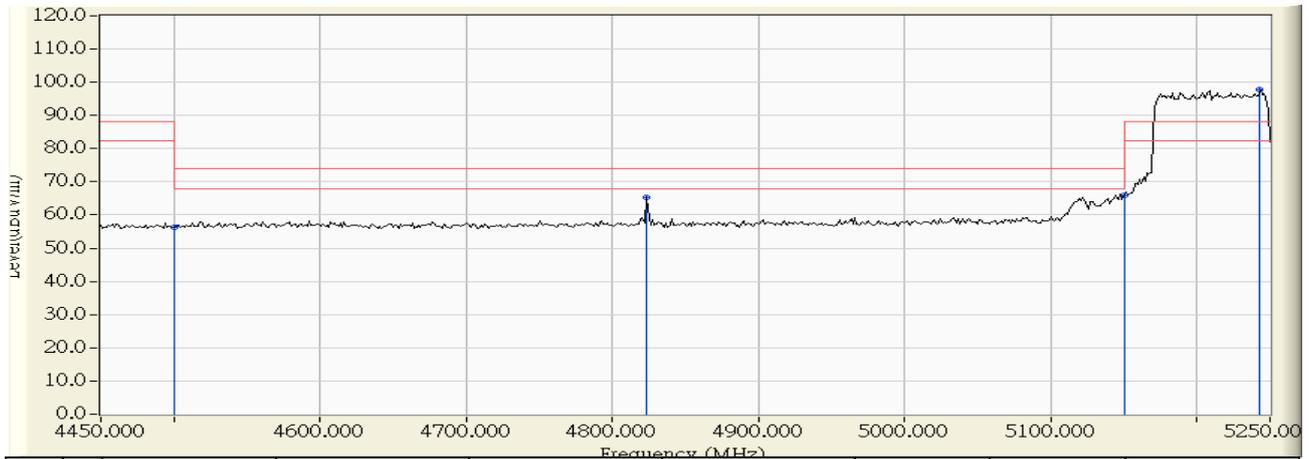


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	4500.000	-1.406	46.205	44.800	-9.200	54.000	AVERAGE
2	5150.000	0.975	49.902	50.877	-3.123	54.000	AVERAGE
3	* 5244.667	1.710	82.596	84.305	16.005	68.300	AVERAGE

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	Time : 2013/09/06 - 11:17
Limit : FCC_SpartE_15.407_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V / 60Hz
EUT : 802.11ac Dual Band Router	Note : 802.11ac80_5210MHz

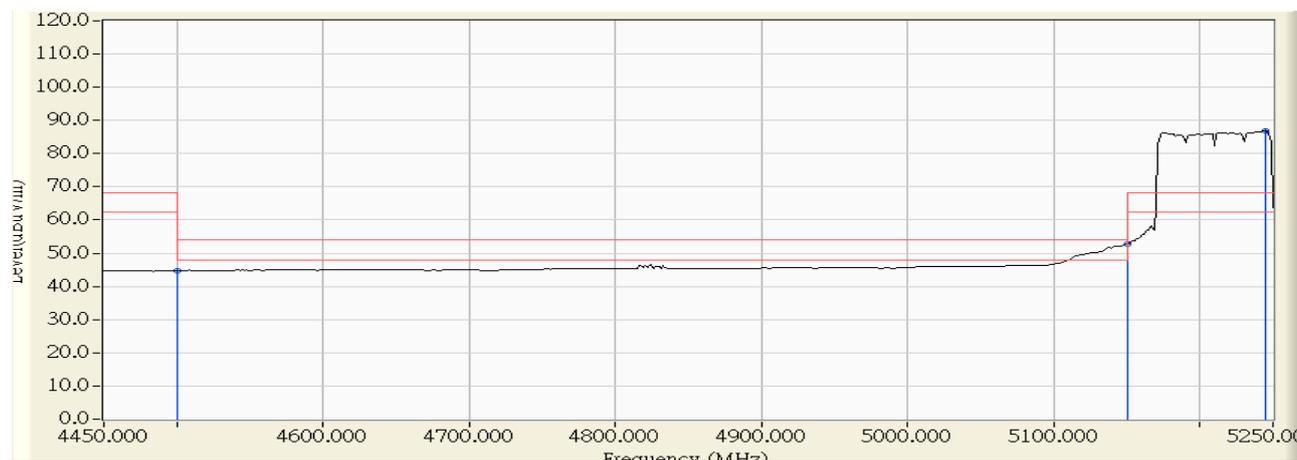


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	4500.000	-1.406	57.798	56.393	-17.607	74.000	PEAK
2	4823.333	-0.618	65.850	65.232	-8.768	74.000	PEAK
3	5150.000	0.975	64.834	65.809	-8.191	74.000	PEAK
4	* 5243.333	1.699	96.028	97.727	9.427	88.300	PEAK

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Site : CB1	Time : 2013/09/06 - 11:16
Limit : FCC_SpartE_15.407_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V / 60Hz
EUT : 802.11ac Dual Band Router	Note : 802.11ac80_ 5210MHz



	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	4500.000	-1.406	46.197	44.792	-9.208	54.000	AVERAGE
2	5150.000	0.975	51.728	52.703	-1.297	54.000	AVERAGE
3	* 5244.667	1.710	85.241	86.950	18.650	68.300	AVERAGE

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 1MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

**9. Frequency Stability**

**9.1. Test Equipment**

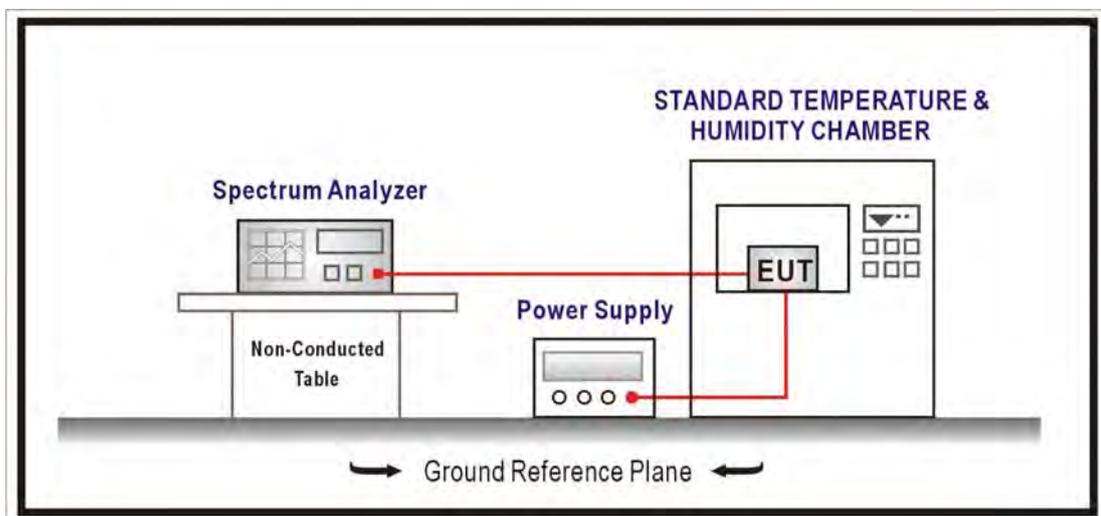
The following test equipments are used during the radiated emission tests:

**Frequency Stability / SR7**

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	Agilent	N9010A-EXA	US47140172	2014/08/05
Standard Temperature & Humidity Chamber	WIT	TH-1S-B	1082101	2014/01/27

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

**9.2. Test Setup**



**9.3. Limits**

Manufactures of all 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

**9.4. Test Procedure**

The EUT was setup to ANSI C63.4, 2009; tested to U-NII test procedure of KDB 789033 for compliance to FCC 47CFR Subpart E requirements.

**9.5. Uncertainty**

The measurement uncertainty is defined as  $\pm 150$  Hz

**9.6. Test Result**

Product	802.11ac Dual Band Router		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit - 802.11a - 5180MHz		
Date of Test	2013/10/28	Test Site	SR7

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5180.7461	144.0429	PASS
-10		5180.6821	131.6744	PASS
0		5180.2943	56.8150	PASS
10		5180.1644	31.7370	PASS
20		5180.6933	133.8338	PASS
30		5180.0099	1.9205	PASS
40		5180.3831	73.9639	PASS
50		5180.5103	98.5199	PASS

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5180.0392	7.5769	PASS
	120	5180.3324	64.1702	PASS
	138	5180.0043	0.8308	PASS

Product	802.11ac Dual Band Router		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit - 802.11a - 5240MHz		
Date of Test	2013/10/28	Test Site	SR7

Temperature Interval (oC)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5240.3116	59.4657	PASS
-10		5240.1044	19.9158	PASS
0		5240.3146	60.0369	PASS
10		5240.2581	49.2505	PASS
20		5240.8265	157.7284	PASS
30		5240.1305	24.9118	PASS
40		5240.5975	114.0287	PASS
50		5240.0016	0.3107	PASS

Temperature Interval (oC)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5240.6078	115.9847	PASS
	120	5240.0143	2.7270	PASS
	138	5240.1270	24.2292	PASS

Product	802.11ac Dual Band Router		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit - 802.11n_20M - 5180MHz(Ant.0)		
Date of Test	2013/10/28	Test Site	SR7

Temperature Interval (oC)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5180.6801	131.2955	PASS
-10		5180.4029	77.7894	PASS
0		5180.5000	96.5323	PASS
10		5180.7687	148.3975	PASS
20		5180.2142	41.3429	PASS
30		5180.1604	30.9733	PASS
40		5180.7681	148.2834	PASS
50		5180.6067	117.1226	PASS

Temperature Interval (oC)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5180.7250	139.9521	PASS
	120	5180.8878	171.3808	PASS
	138	5180.4342	83.8293	PASS

Product	802.11ac Dual Band Router		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit - 802.11n_20M - 5240MHz(Ant.0)		
Date of Test	2013/10/28	Test Site	SR7

Temperature Interval (oC)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5240.6375	121.6528	PASS
-10		5240.1609	30.7128	PASS
0		5240.1520	29.0079	PASS
10		5240.0812	15.4971	PASS
20		5240.7075	135.0282	PASS
30		5240.1057	20.1649	PASS
40		5240.1334	25.4568	PASS
50		5240.4113	78.4958	PASS

Temperature Interval (oC)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5240.6833	130.4041	PASS
	120	5240.8384	159.9992	PASS
	138	5240.0488	9.3076	PASS

Product	802.11ac Dual Band Router		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit - 802.11n_40M - 5190MHz(Ant.0)		
Date of Test	2013/10/28	Test Site	SR7

Temperature Interval (oC)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5190.2084	40.1549	PASS
-10		5190.3939	75.9039	PASS
0		5190.6233	120.0998	PASS
10		5190.3623	69.8117	PASS
20		5190.4096	78.9299	PASS
30		5190.0174	3.3613	PASS
40		5190.0864	16.6390	PASS
50		5190.5684	109.5146	PASS

Temperature Interval (oC)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5190.6378	122.8982	PASS
	120	5190.7642	147.2379	PASS
	138	5190.2098	40.4166	PASS

Product	802.11ac Dual Band Router		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit - 802.11n_40M - 5230MHz(Ant.0)		
Date of Test	2013/10/28	Test Site	SR7

Temperature Interval (oC)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5230.3247	62.0754	PASS
-10		5230.8890	169.9800	PASS
0		5230.8937	170.8784	PASS
10		5230.8621	164.8397	PASS
20		5230.3262	62.3647	PASS
30		5230.5196	99.3456	PASS
40		5230.4957	94.7783	PASS
50		5230.4568	87.3358	PASS

Temperature Interval (oC)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5230.4313	82.4608	PASS
	120	5230.8534	163.1685	PASS
	138	5230.1620	30.9674	PASS

Product	802.11ac Dual Band Router		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit - 802.11ac_80M -5210MHz(ANT.0)		
Date of Test	2013/10/28	Test Site	SR7

Temperature Interval (oC)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	120	5210.5622	107.9133	PASS
-10		5210.2003	38.4376	PASS
0		5210.4427	84.9766	PASS
10		5210.3227	61.9381	PASS
20		5210.5011	96.1858	PASS
30		5210.5674	108.8975	PASS
40		5210.2938	56.3981	PASS
50		5210.5327	102.2540	PASS

Temperature Interval (oC)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	102	5210.0690	13.2385	PASS
	120	5210.4195	80.5272	PASS
	138	5210.3567	68.4553	PASS