

# FCC Test Report

Product Name	Access Point/Sensor
Model No	W-68
FCC ID	TOR-W68

Applicant	AirTight Networks, Inc.
Address	339 N. Bernardo Avenue, Suite #200, Mountain View, California, USA

Date of Receipt	Sep. 30, 2014
Issued Date	Oct. 20, 2014
Report No.	14A0075R-RFUSP05V00
Report Version	V1.0



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration report of the equipment and evaluated measurement uncertainty herein.

This report must not be used to claim product endorsement by TAF or any agency of the government.

The test report shall not be reproduced without the written approval of Quietek Corporation.

# Test Report

Issued Date: Oct. 20, 2014

Report No.: 14A0075R-RFUSP05V00



Product Name	Access Point/Sensor
Applicant	AirTight Networks, Inc.
Address	339 N. Bernardo Avenue, Suite #200, Mountain View, California, USA
Manufacturer	Lite-On Network Communication (Dongguan) Limited
Model No.	W-68
FCC ID.	TOR-W68
EUT Rated Voltage	DC 48V
EUT Test Voltage	DC 48V
Trade Name	AirTight
Applicable Standard	FCC CFR Title 47 Part 15 Subpart E: 2014 ANSI C63.10: 2009, 789033 D02 General UNII Test Procedures New Rules v01
Test Result	Complied

Documented By : Joanne Lin  
( Senior Adm. Specialist / Joanne Lin )

Tested By : Andy Lin  
( Engineer / Andy Lin )

Approved By : Vincent Lin  
( Director / Vincent Lin )

## TABLE OF CONTENTS

Description	Page
<b>1. GENERAL INFORMATION.....</b>	<b>5</b>
1.1. EUT Description.....	5
1.2. Operational Description .....	7
1.3. Tested System Details.....	8
1.4. Configuration of tested System .....	9
1.5. EUT Exercise Software .....	9
1.6. Test Facility .....	10
<b>2. Conducted Emission .....</b>	<b>11</b>
2.1. Test Equipment.....	11
2.2. Test Setup .....	11
2.3. Limits .....	12
2.4. Test Procedure .....	12
2.5. Uncertainty .....	12
2.6. Test Result of Conducted Emission.....	13
<b>3. Maximun conducted output power.....</b>	<b>17</b>
3.1. Test Equipment.....	17
3.2. Test Setup .....	17
3.3. Limits .....	18
3.4. Test Procedur.....	19
3.5. Uncertainty .....	19
3.6. Test Result of Maximum conducted output power.....	20
<b>4. Peak Power Spectral Density .....</b>	<b>30</b>
4.1. Test Equipment.....	30
4.2. Test Setup .....	30
4.3. Limits .....	30
4.4. Test Procedure .....	31
4.5. Uncertainty .....	31
4.6. Test Result of Peak Power Spectral Density .....	32
<b>5. Radiated Emission.....</b>	<b>54</b>
5.1. Test Equipment.....	54
5.2. Test Setup .....	54
5.3. Limits .....	55
5.4. Test Procedure .....	56
5.5. Uncertainty .....	56
5.6. Test Result of Radiated Emission.....	57
<b>6. Band Edge.....</b>	<b>83</b>

---

6.1.	Test Equipment.....	83
6.2.	Test Setup .....	84
6.3.	Limits .....	85
6.4.	Test Procedure .....	85
6.5.	Uncertainty .....	85
6.6.	Test Result of Band Edge .....	86
<b>7.</b>	<b>Occupied Bandwidth.....</b>	<b>109</b>
7.1.	Test Equipment.....	109
7.2.	Test Setup .....	109
7.3.	Limits .....	109
7.4.	Test Procedure .....	109
7.5.	Uncertainty .....	109
7.6.	Test Result of Occupied Bandwidth .....	110
<b>8.</b>	<b>Frequency Stability .....</b>	<b>128</b>
8.1.	Test Equipment.....	128
8.2.	Test Setup .....	128
8.3.	Limits .....	128
8.4.	Test Procedure .....	128
8.5.	Uncertainty .....	128
8.6.	Test Result of Frequency Stability.....	129
<b>9.</b>	<b>EMI Reduction Method During Compliance Testing.....</b>	<b>133</b>

Attachment 1: EUT Test Photographs

Attachment 2: EUT Detailed Photographs

## 1. GENERAL INFORMATION

### 1.1. EUT Description

Product Name	Access Point/Sensor
Trade Name	AirTight
FCC ID.	TOR-W68
Model No.	W-68
Frequency Range	802.11a/n-20MHz: 5180-5240MHz, 5745-5825MHz 802.11n-40MHz: 5190-5230, 5755-5795MHz 802.11ac-80MHz: 5210, 5775MHz
Number of Channels	802.11a/n-20MHz: 9; 802.11n-40MHz: 4; 802.11ac-80MHz: 2
Data Rate	802.11a: 6 - 54Mbps 802.11n: up to 300Mbps 802.11ac-80MHz: up to 866.7MHz
Channel Control	Auto
Type of Modulation	802.11a/n:OFDM, BPSK, QPSK, 16QAM, 64QAM, 256QAM
Antenna type	PIFA / Monopole Antenna
Antenna Gain	Refer to the table "Antenna List"

#### Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	LITE-ON	30100006036D (Ant2)	PIFA	4.1 dBi For 5.150~5.250GHz
		30100006046D (Ant4)	Monopole	5.0 dBi For 5.725~5.850GHz

Note: The antenna of EUT is conform to FCC 15.203

## 802.11a/n-20MHz Center Working Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 36:	5180 MHz	Channel 40:	5200 MHz	Channel 44:	5220 MHz	Channel 48:	5240 MHz
Channel 149:	5745 MHz	Channel 153:	5765 MHz	Channel 157:	5785 MHz	Channel 161:	5805 MHz
Channel 165:	5825 MHz						

## 802.11n-40MHz Center Working Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 38:	5190 MHz	Channel 46:	5230 MHz	Channel 151:	5755 MHz	Channel 159:	5795 MHz

## 802.11ac-80MHz Center Working Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 42:	5210 MHz	Channel 155:	5775 MHz				

## Note:

1. This device is an Access Point/Sensor with a built-in 802.11a/b/g/n/ac WLAN transceiver.
2. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
3. At result of pretests, module supports dual-channel transmission, only the worst case is shown in the report. (802.11a/n/ac is chain A+ chain B)
4. Lowest and highest data rates are tested in each mode. Only worst case is shown in the report. (802.11a is 6Mbps 、 802.11n-20BW is 14.4Mbps 、 802.11n-40BW is 30Mbps and 802.11ac(80M-BW) is 65 Mbps)
5. These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15 Subpart E for Unlicensed National Information Infrastructure devices.
6. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.

Test Mode	Mode 1: Transmit (802.11a-6Mbps) Mode 2: Transmit (802.11n-20BW 14.4Mbps) Mode 3: Transmit (802.11n-40BW 30Mbps) Mode 4 Transmit (802.11ac-80BW-65Mbps)
-----------	--

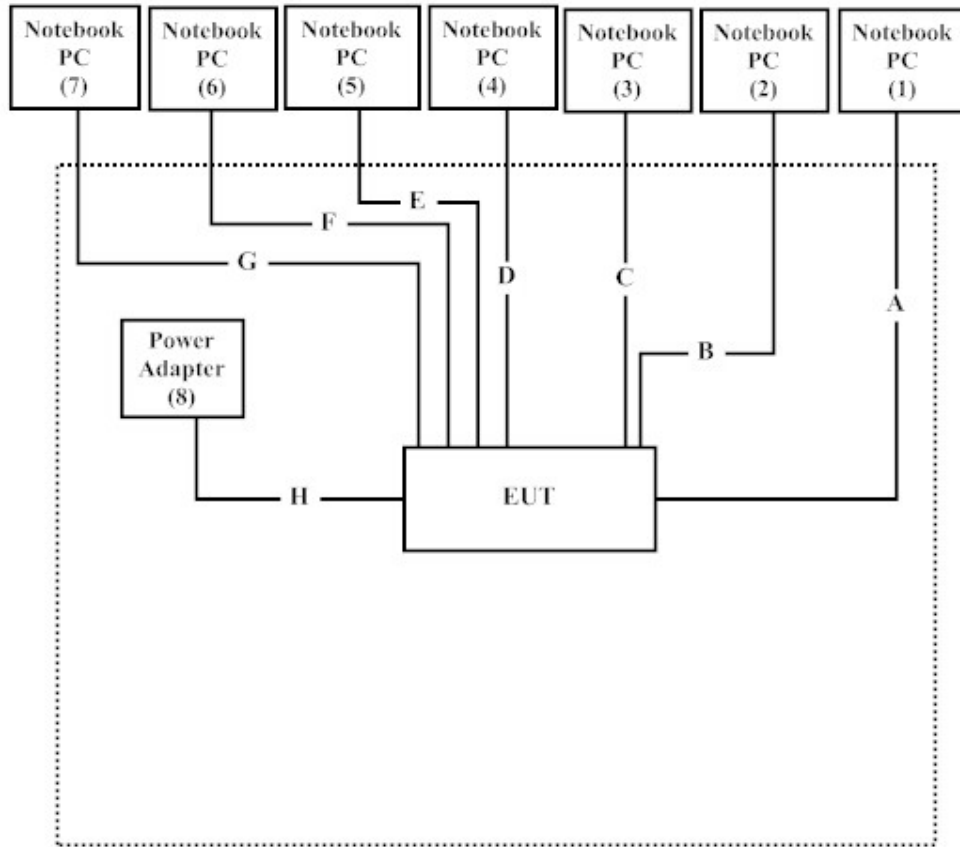
### 1.3. Tested System Details

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

Product	Manufacturer	Model No.	Serial No.	Power Cord	
1	Notebook PC	DELL	PPT	N/A	Non-Shielded, 0.8m
2	Notebook PC	DELL	PP18L	36119001664	Non-Shielded, 0.8m
3	Notebook PC	DELL	PP18L	42649348672	Non-Shielded, 0.8m
4	Notebook PC	DELL	PP04X	2D2ZM1S	Non-Shielded, 0.8m
5	Notebook PC	DELL	PP04X	C8YYM1S	Non-Shielded, 0.8m
6	Notebook PC	DELL	PP04X	7607342512	Non-Shielded, 0.8m
7	Notebook PC	DELL	D630	00144-023-351-375	Non-Shielded, 0.8m
8	Power Adapter	HOIOTO	PO25-1AD207A	N/A	N/A

Signal Cable Type	Signal cable Description	
A	LAN Cable	Non-Shielded, 3 m
B	LAN Cable	Non-Shielded, 3 m
C	LAN Cable	Non-Shielded, 3 m
D	LAN Cable	Non-Shielded, 3 m
E	LAN Cable	Non-Shielded, 3 m
F	LAN Cable	Non-Shielded, 3 m
G	LAN Cable	Non-Shielded, 3 m
H	Power Cable	Shielded, 1.2m, with one ferrite core bonded.

### 1.4. Configuration of tested System



### 1.5. EUT Exercise Software

1. Setup the EUT as shown in Section 1.4
2. Execute software “ART2-GUI (v2.3)” on the EUT.
3. Configure the test mode, the test channel, and the data rate.
4. Press “OK” to start the continuous Transmit.
5. Verify that the EUT works properly.



## 1.6. Test Facility

Ambient conditions in the laboratory:

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	20-35
Humidity (%RH)	25-75	50-65
Barometric pressure (mbar)	860-1060	950-1000

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

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

Site Description: File on  
Federal Communications Commission  
FCC Engineering Laboratory  
7435 Oakland Mills Road  
Columbia, MD 21046  
Registration Number: 92195

Site Name: Quietek Corporation  
Site Address: No.5-22, Ruishukeng,  
Linkou Dist. New Taipei City 24451,  
Taiwan, R.O.C.  
TEL: 886-2-8601-3788 / FAX : 886-2-8601-3789  
E-Mail : [service@quietek.com](mailto:service@quietek.com)

FCC Accreditation Number: TW1014

## 2. Conducted Emission

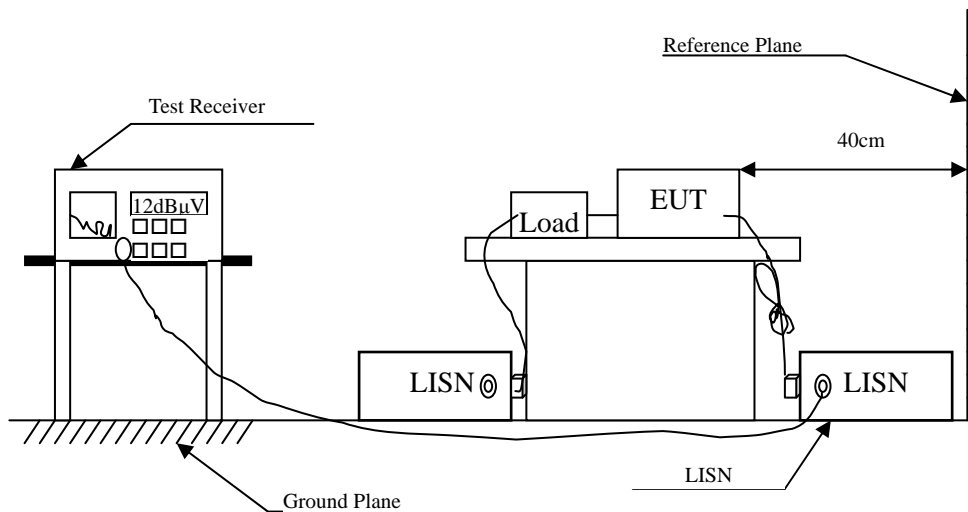
### 2.1. Test Equipment

	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.	Remark
X	Test Receiver	R & S	ESCS 30 / 825442/018	Sep., 2014	
X	Artificial Mains Network	R & S	ENV4200 / 848411/10	Feb., 2014	Peripherals
X	LISN	R & S	ESH3-Z5 / 825562/002	Feb., 2014	EUT
	DC LISN	Schwarzbeck	8226 / 176	Mar., 2014	EUT
X	Pulse Limiter	R & S	ESH3-Z2 / 357.8810.52	Feb., 2014	
	No.1 Shielded Room				

Note:

1. All equipments are calibrated every one year.
2. The test instruments marked by “X” are used to measure the final test results.

### 2.2. Test Setup



**2.3. Limits**

<b>FCC Part 15 Subpart C Paragraph 15.207 (dBμV) Limit</b>		
Frequency MHz	Limits	
	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 and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm /50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10:2009 on conducted measurement.

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

The EUT was setup to ANSI C63.10, 2009; tested to UNII test procedure of FCC KDB-789033 for compliance to FCC 47CFR Subpart E requirements.

**2.5. Uncertainty**

± 2.26 dB

## 2.6. Test Result of Conducted Emission

Product : Access Point/Sensor  
 Test Item : Conducted Emission Test  
 Power Line : Line 1  
 Test Mode : Mode 4 Transmit (802.11ac-80BW-65Mbps) (5210MHz)

Frequency MHz	Correct Factor dB	Reading Level dB $\mu$ V	Measurement Level dB $\mu$ V	Margin dB	Limit dB $\mu$ V
<b>LINE 1</b>					
<b>Quasi-Peak</b>					
0.205	9.651	36.160	45.811	-18.618	64.429
0.334	9.658	26.010	35.668	-25.075	60.743
0.884	9.688	16.690	26.378	-29.622	56.000
1.205	9.705	15.640	25.345	-30.655	56.000
2.673	9.791	16.650	26.441	-29.559	56.000
17.189	10.126	37.050	47.176	-12.824	60.000
<b>Average</b>					
0.205	9.651	18.220	27.871	-26.558	54.429
0.334	9.658	11.330	20.988	-29.755	50.743
0.884	9.688	3.610	13.298	-32.702	46.000
1.205	9.705	3.630	13.335	-32.665	46.000
2.673	9.791	6.400	16.191	-29.809	46.000
17.189	10.126	31.950	42.076	-7.924	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "■" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Access Point/Sensor  
 Test Item : Conducted Emission Test  
 Power Line : Line 2  
 Test Mode : Mode 4 Transmit (802.11ac-80BW-65Mbps) (5210MHz)

Frequency MHz	Correct Factor dB	Reading Level dBμV	Measurement Level dBμV	Margin dB	Limit dBμV
<b>LINE 2</b>					
<b>Quasi-Peak</b>					
0.209	9.661	35.530	45.191	-19.123	64.314
0.353	9.659	27.320	36.979	-23.221	60.200
0.545	9.669	20.450	30.119	-25.881	56.000
1.220	9.716	17.600	27.316	-28.684	56.000
3.236	9.813	19.850	29.663	-26.337	56.000
17.939	10.171	36.350	46.521	-13.479	60.000
<b>Average</b>					
0.209	9.661	16.560	26.221	-28.093	54.314
0.353	9.659	14.050	23.709	-26.491	50.200
0.545	9.669	7.090	16.759	-29.241	46.000
1.220	9.716	6.480	16.196	-29.804	46.000
3.236	9.813	9.550	19.363	-26.637	46.000
17.939	10.171	31.300	41.471	-8.529	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "■" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Access Point/Sensor  
 Test Item : Conducted Emission Test  
 Power Line : Line 1  
 Test Mode : Mode 4 Transmit (802.11ac-80BW-65Mbps) (5775MHz)

Frequency MHz	Correct Factor dB	Reading Level dB $\mu$ V	Measurement Level dB $\mu$ V	Margin dB	Limit dB $\mu$ V
<b>LINE 1</b>					
<b>Quasi-Peak</b>					
0.205	9.651	35.730	45.381	-19.048	64.429
0.244	9.653	27.370	37.023	-26.291	63.314
0.357	9.659	24.810	34.469	-25.617	60.086
0.662	9.676	14.730	24.406	-31.594	56.000
1.545	9.734	16.950	26.684	-29.316	56.000
17.220	10.126	36.970	47.096	-12.904	60.000
<b>Average</b>					
0.205	9.651	17.890	27.541	-26.888	54.429
0.244	9.653	8.490	18.143	-35.171	53.314
0.357	9.659	12.150	21.809	-28.277	50.086
0.662	9.676	9.230	18.906	-27.094	46.000
1.545	9.734	5.310	15.044	-30.956	46.000
17.220	10.126	31.690	41.816	-8.184	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "■" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Access Point/Sensor  
 Test Item : Conducted Emission Test  
 Power Line : Line 2  
 Test Mode : Mode 4 Transmit (802.11ac-80BW-65Mbps) (5775MHz)

Frequency MHz	Correct Factor dB	Reading Level dB $\mu$ V	Measurement Level dB $\mu$ V	Margin dB	Limit dB $\mu$ V
<b>LINE 2</b>					
<b>Quasi-Peak</b>					
0.181	9.659	36.920	46.579	-18.535	65.114
0.236	9.662	27.610	37.272	-26.271	63.543
0.361	9.659	25.540	35.199	-24.772	59.971
1.185	9.714	19.750	29.464	-26.536	56.000
8.498	9.966	27.970	37.936	-22.064	60.000
17.236	10.157	36.430	46.587	-13.413	60.000
<b>Average</b>					
0.181	9.659	16.980	26.639	-28.475	55.114
0.236	9.662	7.360	17.022	-36.521	53.543
0.361	9.659	12.110	21.769	-28.202	49.971
1.185	9.714	7.800	17.514	-28.486	46.000
8.498	9.966	21.790	31.756	-18.244	50.000
17.236	10.157	31.410	41.567	-8.433	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "■" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

### 3. Maximun conducted output power

#### 3.1. Test Equipment

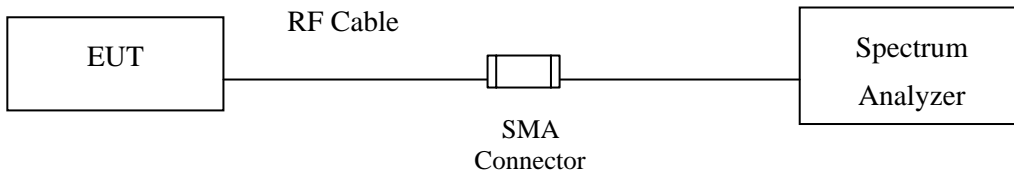
	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Power Meter	Anritsu	ML2495A/6K00003357	May, 2014
X	Power Sensor	Anritsu	MA2411B/0738448	Jun., 2014
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2014

Note:

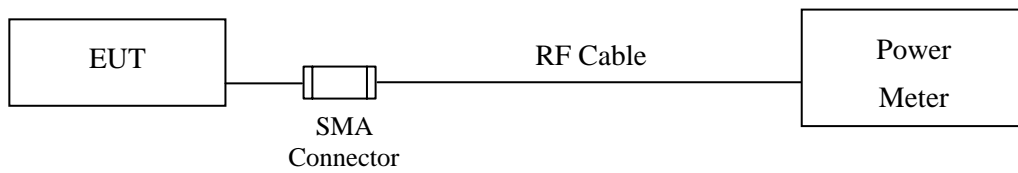
1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
2. The test instruments marked with “X” are used to measure the final test results.

#### 3.2. Test Setup

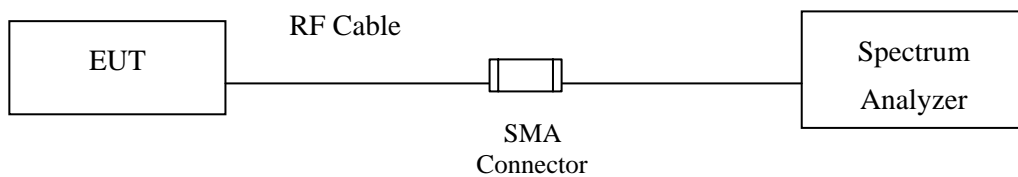
##### 26dBc Occupied Bandwidth



##### Conduction Power Measurement (for 802.11a)



##### Conduction Power Measurement (for 802.11ac)





### 3.3. Limits

#### 3.3.1. For the band 5.15-5.25 GHz,

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W, provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

3.3.2. For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or  $11 \text{ dBm} + 10 \log B$ , where B is the 26 dB emission bandwidth in megahertz. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

3.3.3. For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point UNII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any

corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

### 3.4. Test Procedur

As an alternative to FCC KDB-789033, the EUT maximum conducted output power was measured with an average power meter employing a video bandwidth greater than 6dB BW of the emission under test. Maximum conducted output power was read directly from the meter across all data rates, and across three channels within each sub-band. Special care was used to make sure that the EUT was transmitting in continuous mode. This method exceeds the limitations of FCC KDB-789033, and provides more accurate measurements.

802.11an (BW  $\leq$  40MHz) Maximum conducted output power using KDB 789033 section E)3)b) Method PM-G (Measurement using a gated RF average power meter)

Note: the power meter have a video bandwidth that is greater than or equal to the measurement bandwidth, (Anritsu/ MA2411B video bandwidth: 65MHz)

802.11ac (BW=80MHz) Maximum conducted output power using KDB 789033 section E)2)b) Method SA-1 (trace averaging with the EUT transmitting at full power throughout each sweep).

When transmitted signals consist of two or more non-contiguous spectrum segments (e.g., 80+80 MHz mode) or when a single spectrum segment of a transmission crosses the boundary between two adjacent U-NII bands, KDB 644545 D01 section F) procedure is used for measurements.

### 3.5. Uncertainty

$\pm 1.27$  dB

### 3.6. Test Result of Maximum conducted output power

Product : Access Point/Sensor  
 Test Item : Maximum conducted output power  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmit (802.11a-6Mbps)

#### CHAIN A

Cable loss=1dB		Maximum conducted output power								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		6	9	12	18	24	36	48	54	
		Measurement Level (dBm)								
36	5180	18.99	--	--	--	--	--	--	--	<30dBm
44	5220	19.24	19.13	19.05	18.98	18.87	18.7	18.66	18.59	<30dBm
48	5240	19.23	--	--	--	--	--	--	--	<30dBm
149	5745	19.23	--	--	--	--	--	--	--	<30dBm
157	5785	18.88	18.75	18.62	18.52	18.49	18.3	18.24	18.11	<30dBm
165	5825	18.87	--	--	--	--	--	--	--	<30dBm

Note: Maximum conducted output power Value =Reading value on average power meter + cable loss

#### CHAIN B

Cable loss=1dB		Maximum conducted output power								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		6	9	12	18	24	36	48	54	
		Measurement Level (dBm)								
36	5180	19.00	--	--	--	--	--	--	--	<30dBm
44	5220	19.20	18.92	18.79	18.62	18.55	18.47	18.39	18.21	<30dBm
48	5240	19.20	--	--	--	--	--	--	--	<30dBm
149	5745	19.11	--	--	--	--	--	--	--	<30dBm
157	5785	19.27	19.22	19.14	19.1	19.02	18.92	18.88	18.74	<30dBm
165	5825	19.25	--	--	--	--	--	--	--	<30dBm

Note: Maximum conducted output power Value =Reading value on average power meter + cable loss

**Maximum conducted output power Measurement:**
**(CHAIN A+ B)**

Channel Number	Frequency (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	Output Power Limit
					(dBm)
36	5180	18.99	19.00	22.01	30
44	5220	19.24	19.20	22.23	30
48	5240	19.23	19.20	22.23	30
149	5745	19.23	19.11	22.18	30
157	5785	18.88	19.27	22.09	30
165	5825	18.87	19.25	22.07	30

Note:

1. Power Output Value = Reading value on average power meter + cable loss
2. Output Power (dBm) = 10LOG (Chain A Power (mW)+ Chain B Power (mW))

Product : Access Point/Sensor  
 Test Item : Maximum conducted output power  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmit (802.11n-20BW 14.4Mbps)

**CHAIN A**

Cable loss=1dB		Maximum conducted output power								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		14.4	28.9	43.3	57.8	86.7	115.6	130	144.4	
		Measurement Level (dBm)								
36	5180	19.19	--	--	--	--	--	--	--	<30dBm
44	5220	19.02	18.92	18.81	18.74	18.69	18.61	18.55	18.49	<30dBm
48	5240	18.87	--	--	--	--	--	--	--	<30dBm
149	5745	19.04	--	--	--	--	--	--	--	<30dBm
157	5785	19.15	19.04	18.89	18.77	18.69	18.61	18.52	18.44	<30dBm
165	5825	18.81	--	--	--	--	--	--	--	<30dBm

Note: Maximum conducted output power Value =Reading value on average power meter + cable loss

**CHAIN B**

Cable loss=1dB		Maximum conducted output power								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		14.4	28.9	43.3	57.8	86.7	115.6	130	144.4	
		Measurement Level (dBm)								
36	5180	19.03	--	--	--	--	--	--	--	<30dBm
44	5220	18.84	18.62	18.53	18.41	18.32	18.26	18.21	18.11	<30dBm
48	5240	18.48	--	--	--	--	--	--	--	<30dBm
149	5745	19.22	--	--	--	--	--	--	--	<30dBm
157	5785	19.23	19.17	19.12	19.02	18.92	18.87	18.62	18.55	<30dBm
165	5825	19.07	--	--	--	--	--	--	--	<30dBm

Note: Maximum conducted output power Value =Reading value on average power meter + cable loss

**Maximum conducted output power Measurement:**
**(CHAIN A+ B)**

Channel Number	Frequency (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	Output Power Limit
					(dBm)
36	5180	19.19	19.03	22.12	30
44	5220	19.02	18.84	21.94	30
48	5240	18.87	18.48	21.69	30
149	5745	19.04	19.22	22.14	30
157	5785	19.15	19.23	22.20	30
165	5825	18.81	19.07	21.95	30

Note:

1. Power Output Value = Reading value on average power meter + cable loss
2. Output Power (dBm) = 10LOG (Chain A Power (mW)+ Chain B Power (mW))

Product : Access Point/Sensor  
 Test Item : Maximum conducted output power  
 Test Site : No.3 OATS  
 Test Mode : Mode 3: Transmit (802.11n-40BW 30Mbps)

**CHAIN A**

Cable loss=1dB		Maximum conducted output power								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		30	60	90	120	180	240	270	300	
		Measurement Level (dBm)								
38	5190	15.29	--	--	--	--	--	--	--	<30dBm
46	5230	19.14	19.08	18.92	18.84	18.77	18.69	18.61	18.50	<30dBm
151	5755	18.87	--	--	--	--	--	--	--	<30dBm
159	5795	18.71	18.68	18.59	18.47	18.41	18.32	18.24	18.21	<30dBm

Note: Maximum conducted output power Value =Reading value on average power meter + cable loss

**CHAIN B**

Cable loss=1dB		Maximum conducted output power								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		30	60	90	120	180	240	270	300	
		Measurement Level (dBm)								
38	5190	15.41	--	--	--	--	--	--	--	<30dBm
46	5230	18.92	18.81	18.7	18.62	18.57	18.44	18.39	18.32	<30dBm
151	5755	19.03	--	--	--	--	--	--	--	<30dBm
159	5795	18.83	18.79	18.7	18.65	18.58	18.51	18.44	18.37	<30dBm

Note: Maximum conducted output power Value =Reading value on average power meter + cable loss

**Maximum conducted output power Measurement:**
**(CHAIN A+ B)**

Channel Number	Frequency (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	Output Power Limit
					(dBm)
38	5190	15.29	15.41	18.36	30
46	5230	19.14	18.92	22.04	30
151	5755	18.87	19.03	21.96	30
159	5795	18.71	18.83	21.78	30

Note:

1. Power Output Value =Reading value on average power meter + cable loss
2. Output Power (dBm) = 10LOG (Chain A Power (mW)+ Chain B Power (mW))

Product : Access Point/Sensor  
 Test Item : Maximum conducted output power  
 Test Site : No.3 OATS  
 Test Mode : Mode 4 Transmit (802.11ac-80BW-65Mbps)

**Chain A**

Cable loss=1dB		Maximum conducted output power										
Channel No	Frequency (MHz)	Data Rate (Mbps)										Required Limit
		VTH0	VTH1	VTH2	VTH3	VTH4	VTH5	VTH6	VTH7	VTH8	VTH9	
42	5210	15.71	15.62	15.58	15.44	15.37	15.29	15.21	15.15	15.11	15.08	<30dBm
155	5775	18.90	18.55	18.47	18.41	18.32	18.29	18.19	18.11	18.05	17.58	<30dBm

Note: Maximum conducted output power Value =Reading value on average power meter + cable loss

**Chain B**

Cable loss=1dB		Maximum conducted output power										
Channel No	Frequency (MHz)	Data Rate (Mbps)										Required Limit
		VTH0	VTH1	VTH2	VTH3	VTH4	VTH5	VTH6	VTH7	VTH8	VTH9	
42	5210	15.39	15.3	15.24	15.17	15.1	15.05	14.98	14.85	14.77	14.62	<30dBm
155	5775	19.38	18.88	18.76	18.65	18.57	18.44	18.37	18.26	18.16	18.10	<30dBm

Note: Maximum conducted output power Value =Reading value on average power meter + cable loss

**Maximum conducted output power Measurement:  
(CHAIN A+ B)**

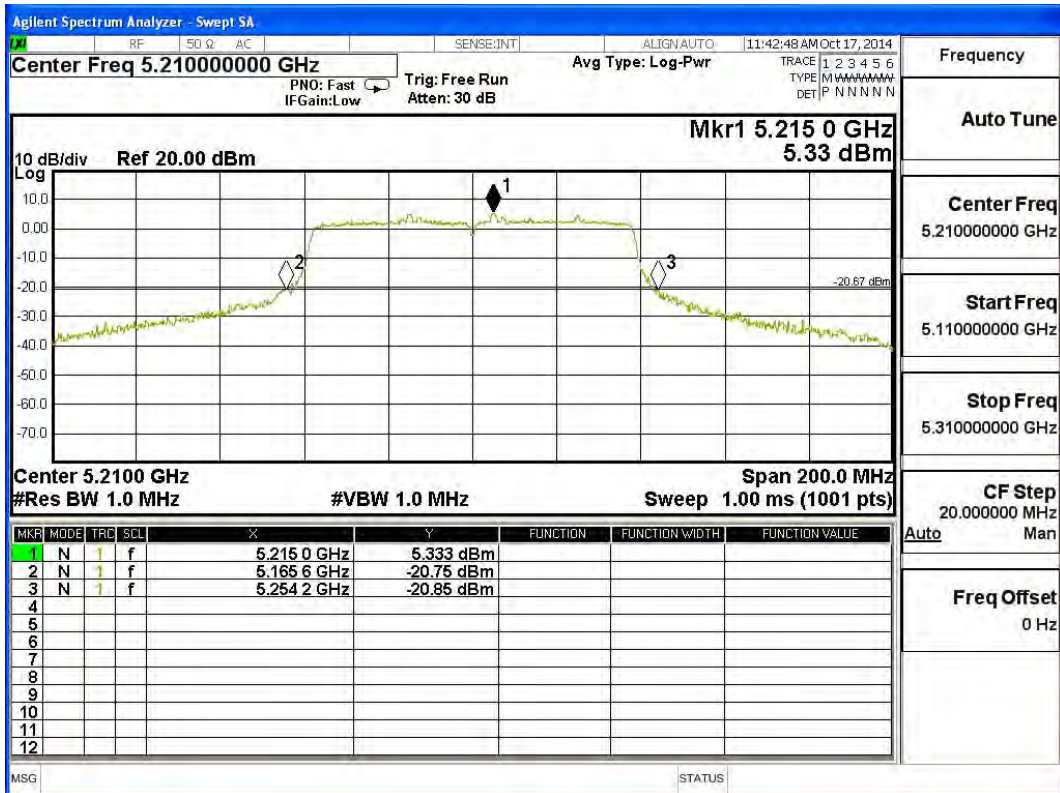
Channel Number	Frequency (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	Output Power Limit
					(dBm)
42	5210	15.71	15.39	18.56	30
155	5775	18.90	19.38	22.16	30

Note:

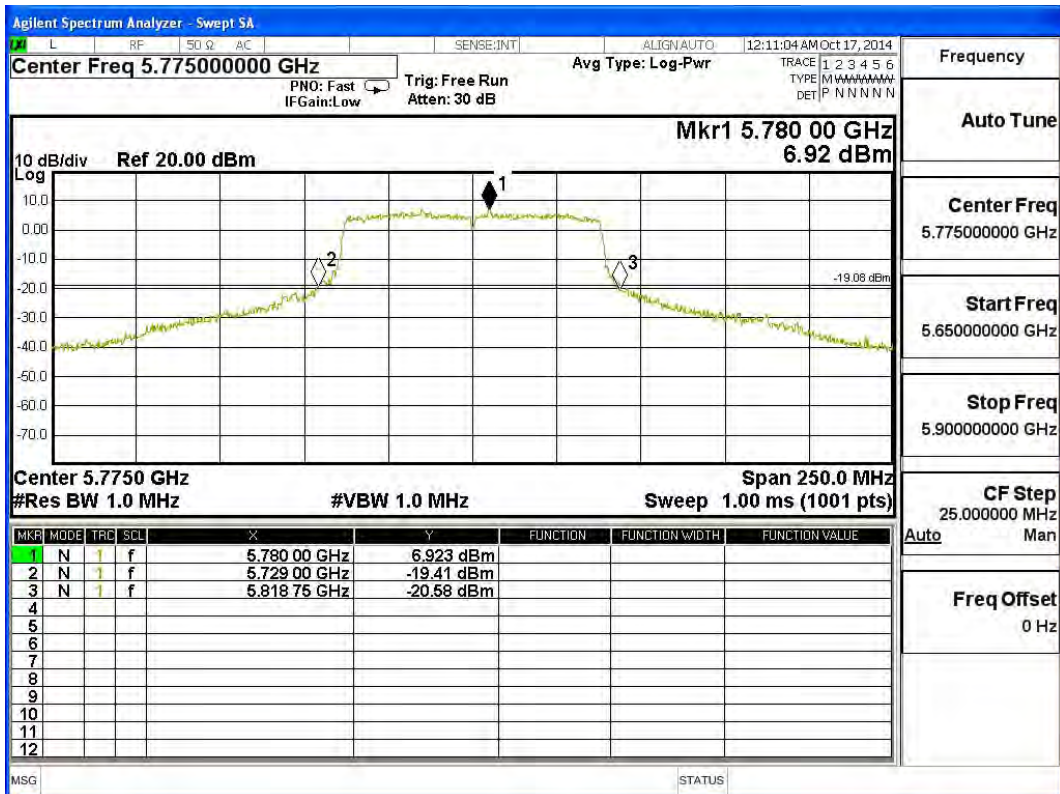
1. Power Output Value =Reading value on average power meter + cable loss
2. Output Power (dBm) = 10LOG (Chain A Power (mW)+ Chain B Power (mW))



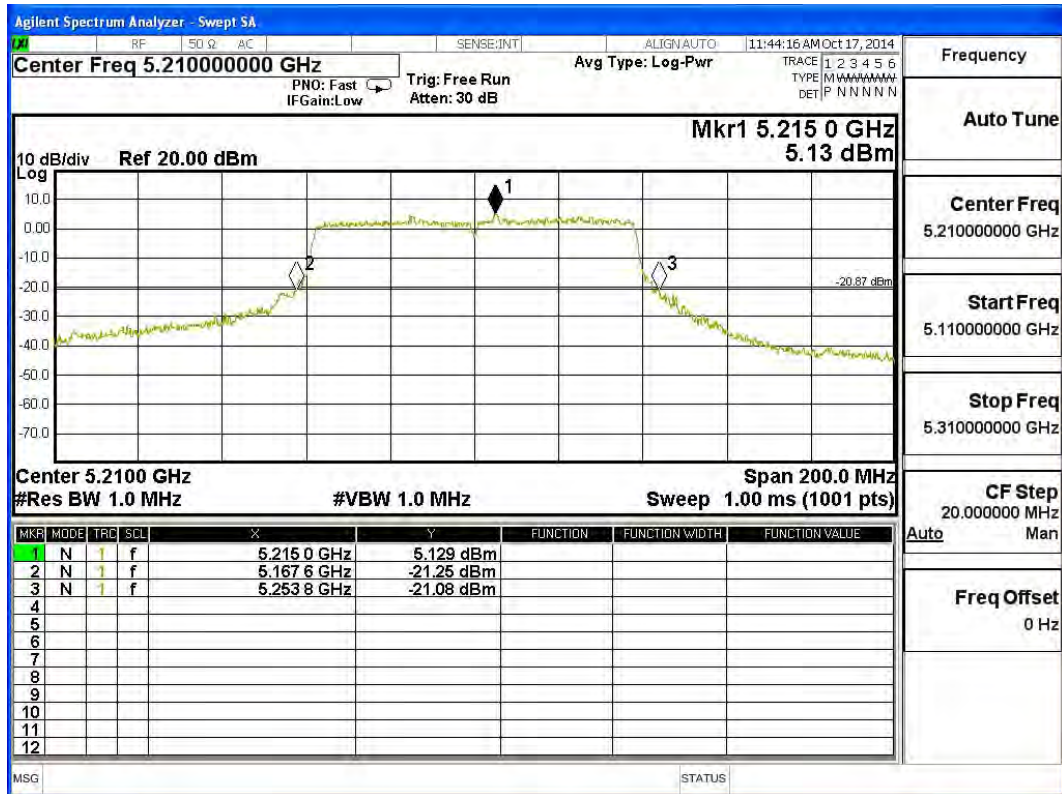
### 26dBc Occupied Bandwidth: Channel 42 – Chain A



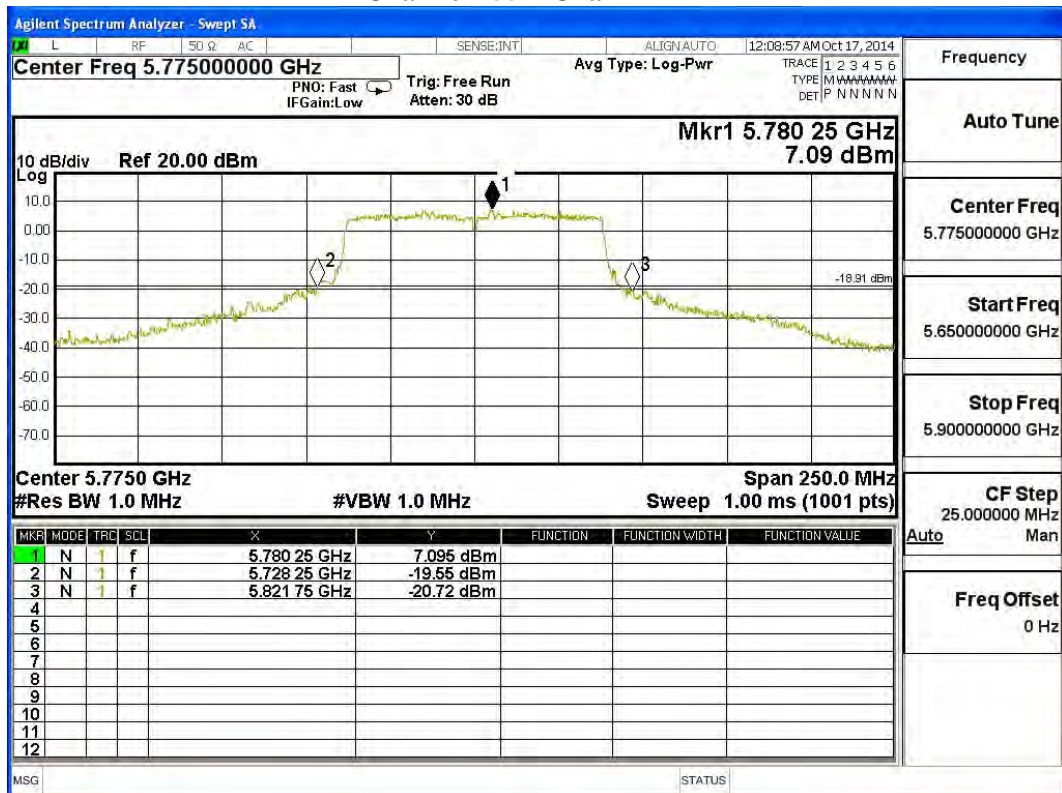
### Channel 155 – Chain A



### 26dBc Occupied Bandwidth: Channel 42 – Chain B

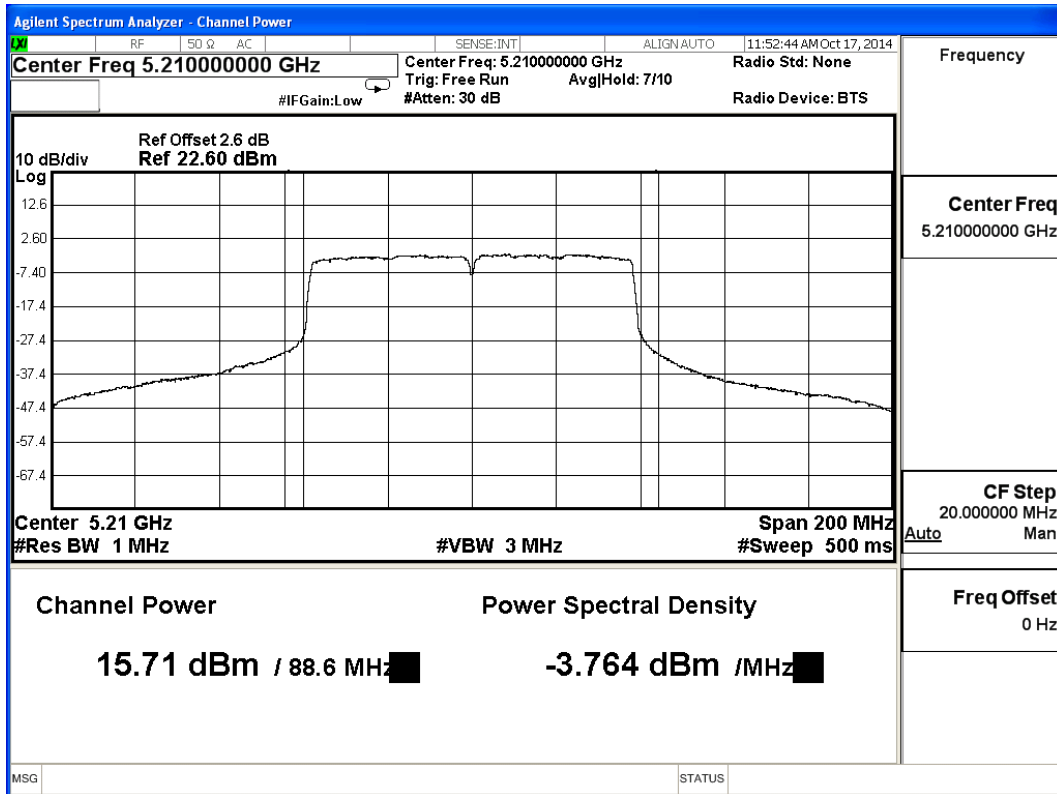


### Channel 155 – Chain B



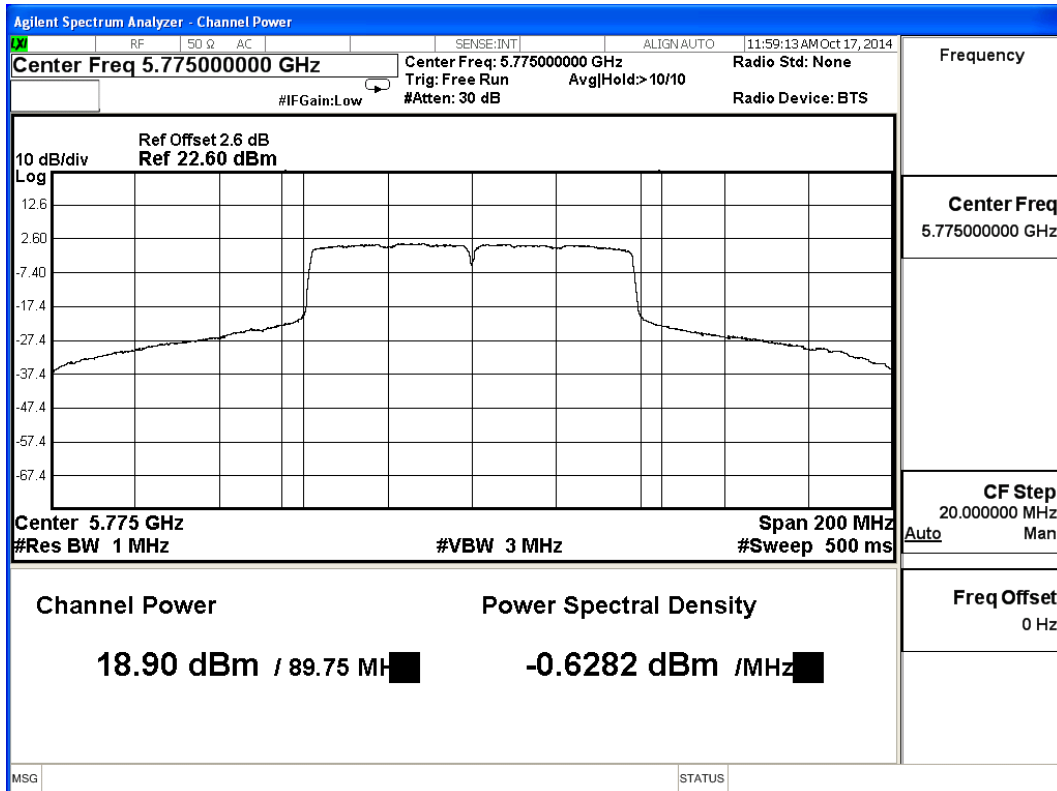
**Maximum conducted output power:**

**Channel 42 – Chain A**

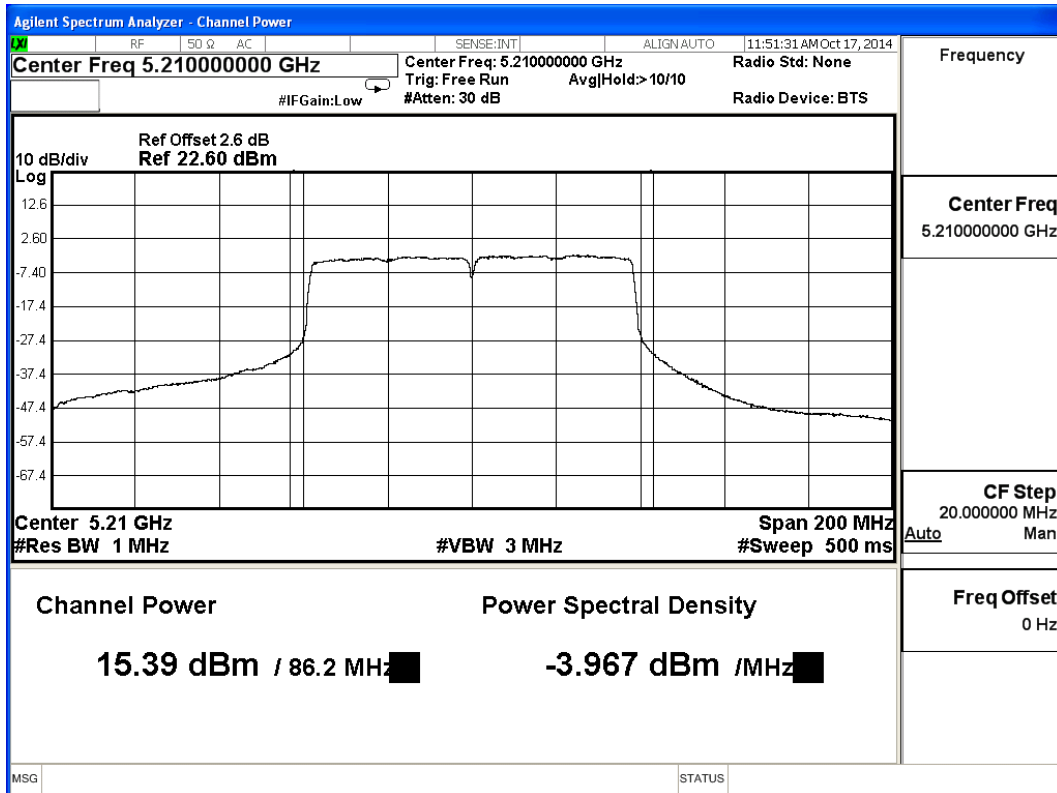


**Maximum conducted output power:**

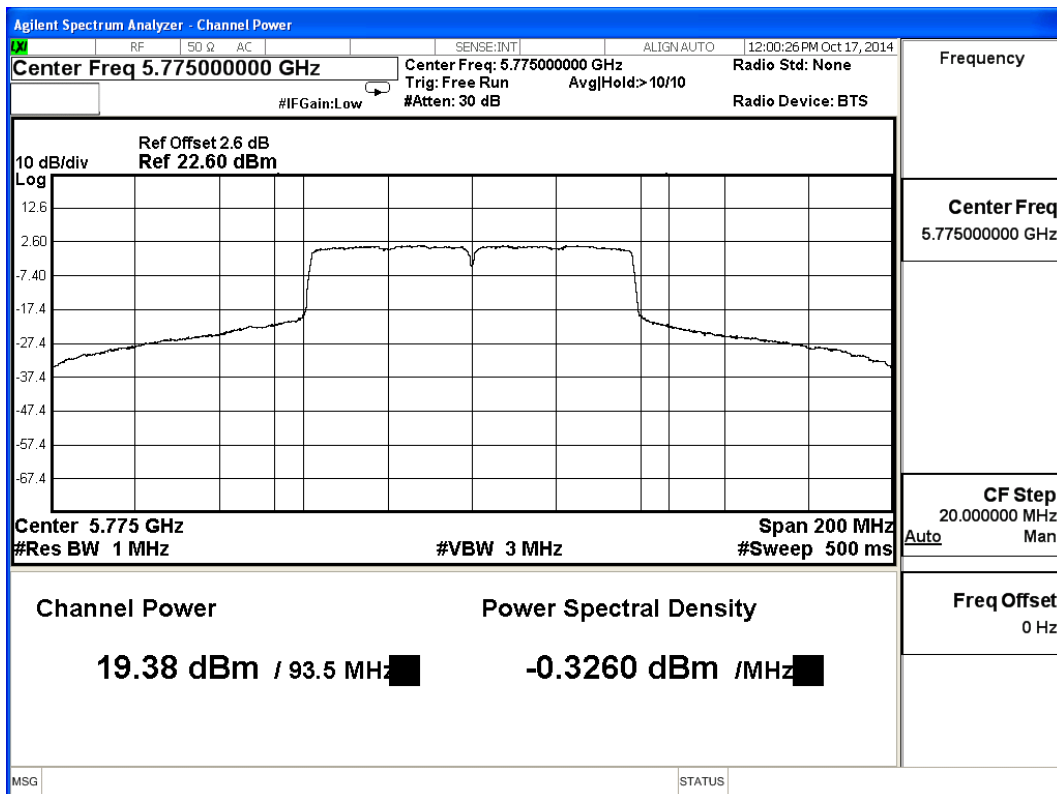
**Channel 155 – Chain A**



**Maximum conducted output power:  
Channel 42 – Chain B**



**Maximum conducted output power:  
Channel 155 – Chain B**



#### 4. Peak Power Spectral Density

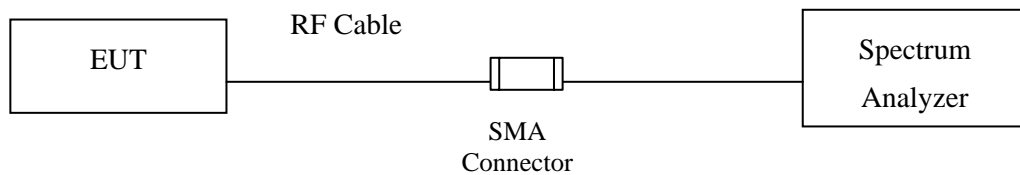
##### 4.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun., 2014
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun., 2014
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr, 2014

Note:

1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
2. The test instruments marked with “X” are used to measure the final test results.

##### 4.2. Test Setup



##### 4.3. Limits

- (1) For the band 5.15-5.25 GHz,
  - (i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
  - (ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
  - (iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the

equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations. (iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.+

- (2) For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
- (3) For the band 5.725-5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point UNII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

#### 4.4. Test Procedure

The EUT was setup to ANSI C63.10, 2009; tested to DTS test procedure of FCC KDB-789033 for compliance to FCC 47CFR Subpart E requirements.

The Peak Power Spectral Density using KDB 789033 section F) procedure, Create an average power spectrum for the EUT operating mode being tested by following the instructions in section E)2) for measuring maximum conducted output power using a spectrum analyzer.

SA-1 method is selected to run the test.

For the band 5.725-5.85 GHz, Scale the observed power level to an equivalent value in 500 kHz by adjusting (increase) the measured power by a bandwidth correction factor (BWCF) where  $BWCF = 10\log(500\text{ kHz}/100\text{ kHz}) = 6.98\text{ dB}$ .

#### 4.5. Uncertainty

± 1.27 dB

#### 4.6. Test Result of Peak Power Spectral Density

Product : Access Point/Sensor  
 Test Item : Peak Power Spectral Density  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmit (802.11a-6Mbps)

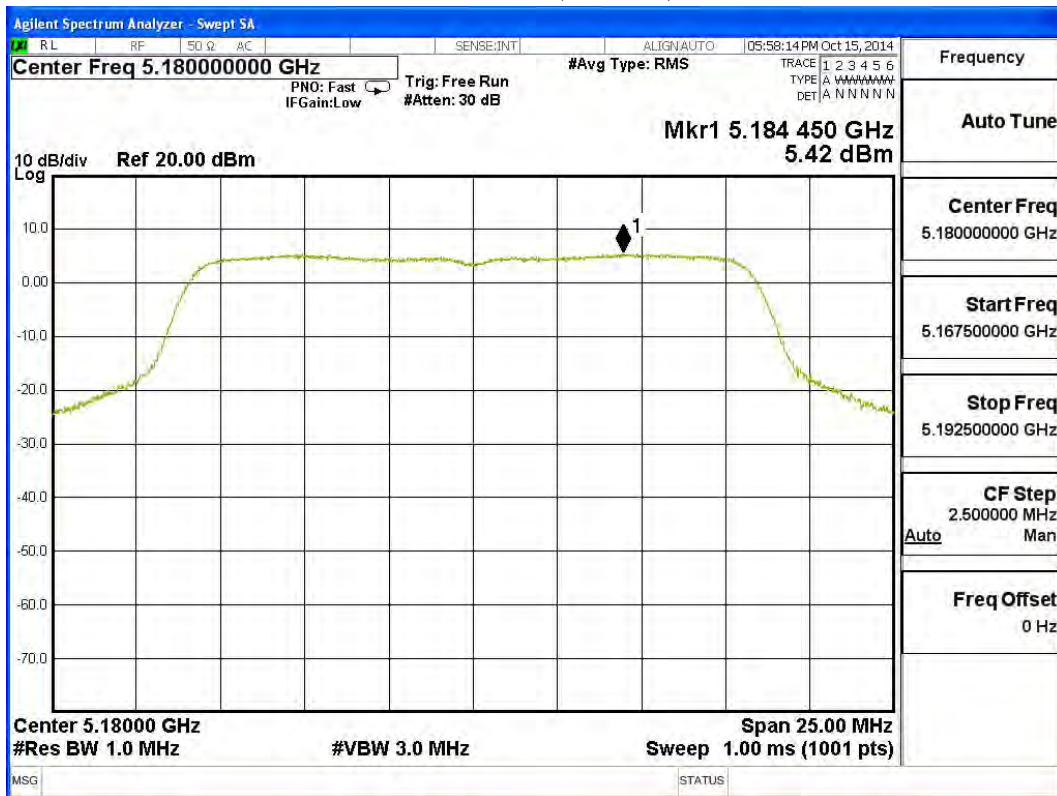
Channel Number	Frequency (MHz)	Data Rate (Mbps)	Chain (dBm)	Measurement Level (dBm)	Limit (dBm)	Required Limit (dBm)	Result
36	5180	6	A	5.420	8.430	17	Pass
			B	5.160	8.170	17	Pass
44	5220	6	A	5.410	8.420	17	Pass
			B	5.310	8.320	17	Pass
48	5240	6	A	5.340	8.350	17	Pass
			B	5.200	8.210	17	Pass

Note 1: The quantity  $10 \cdot \log 2$  (two antennas) is added to the spectrum peak value according to document 662911 D01.

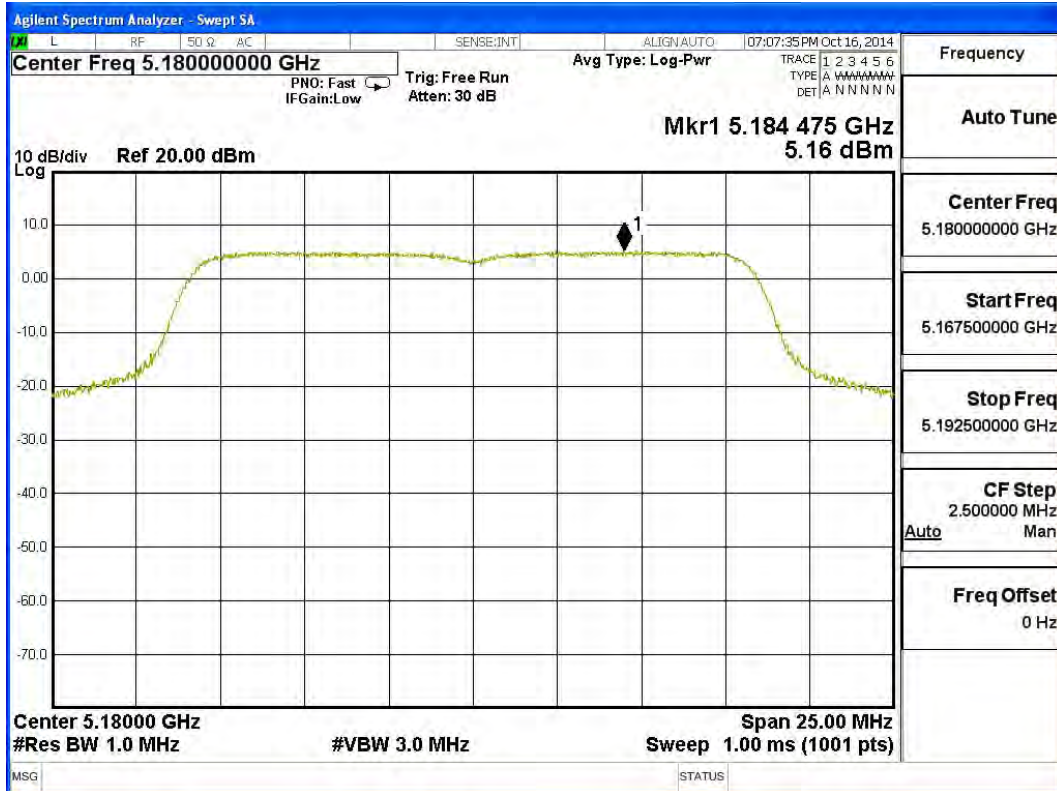
Channel Number	Frequency (MHz)	Data Rate (Mbps)	Chain (dBm)	PPSD (dBm)	BWCF (dB)	Total PPSD (dBm)	Required Limit (dBm)	Result
149	5745	6	A	5.840	6.980	15.830	<30	Pass
			B	3.920	6.980	13.910	<30	Pass
157	5785	6	A	5.900	6.980	15.890	<30	Pass
			B	5.260	6.980	15.250	<30	Pass
165	5825	6	A	6.560	6.980	16.550	<30	Pass
			B	5.610	6.980	15.600	<30	Pass

Note 1: The quantity  $10 \cdot \log 2$  (two antennas) is added to the spectrum peak value according to document 662911 D01.

**Channel 36: (Chain A)**

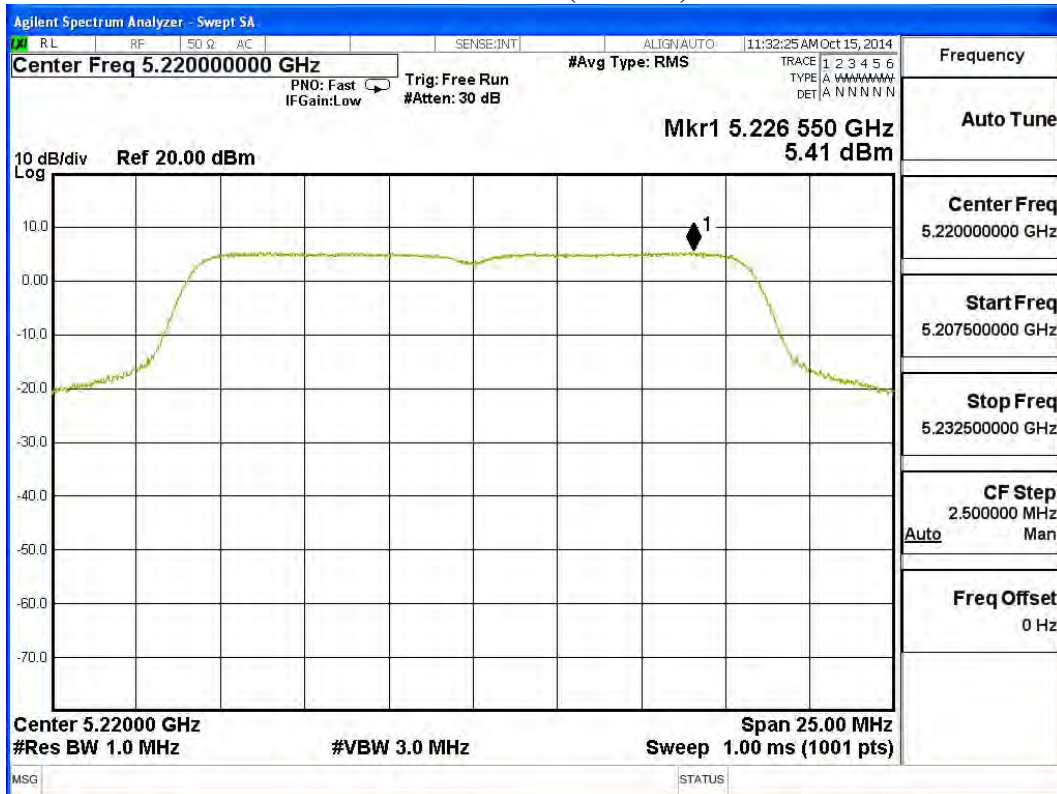


**Channel 36: (Chain B)**

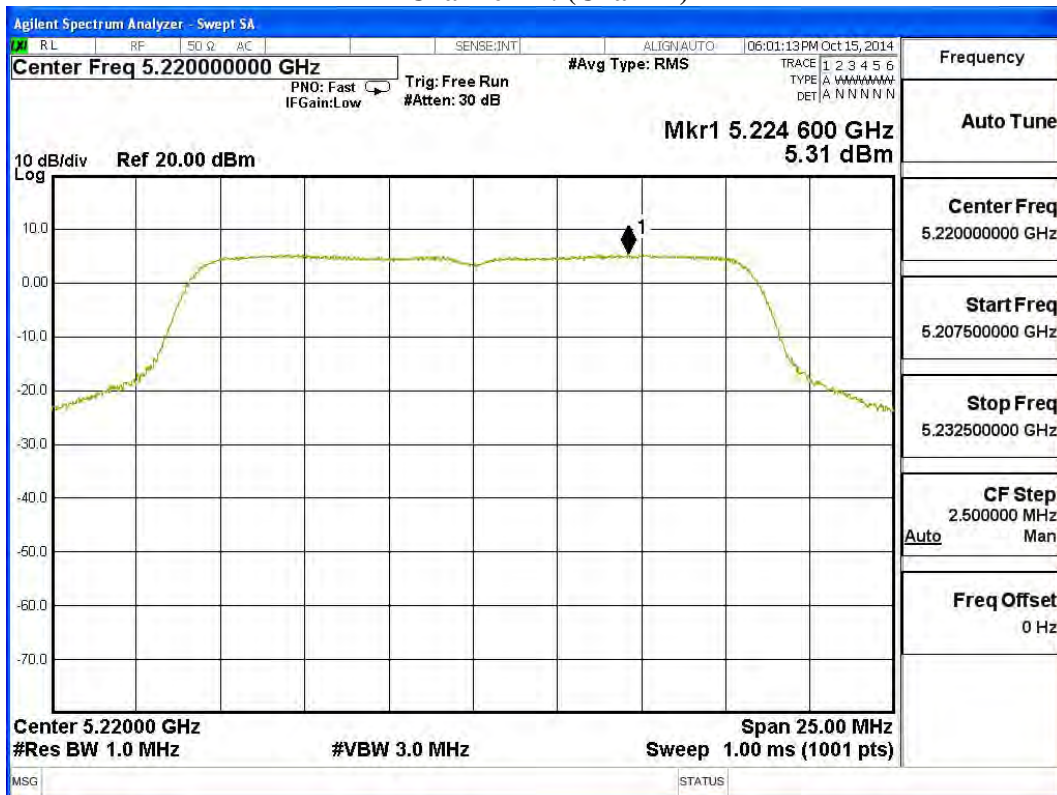




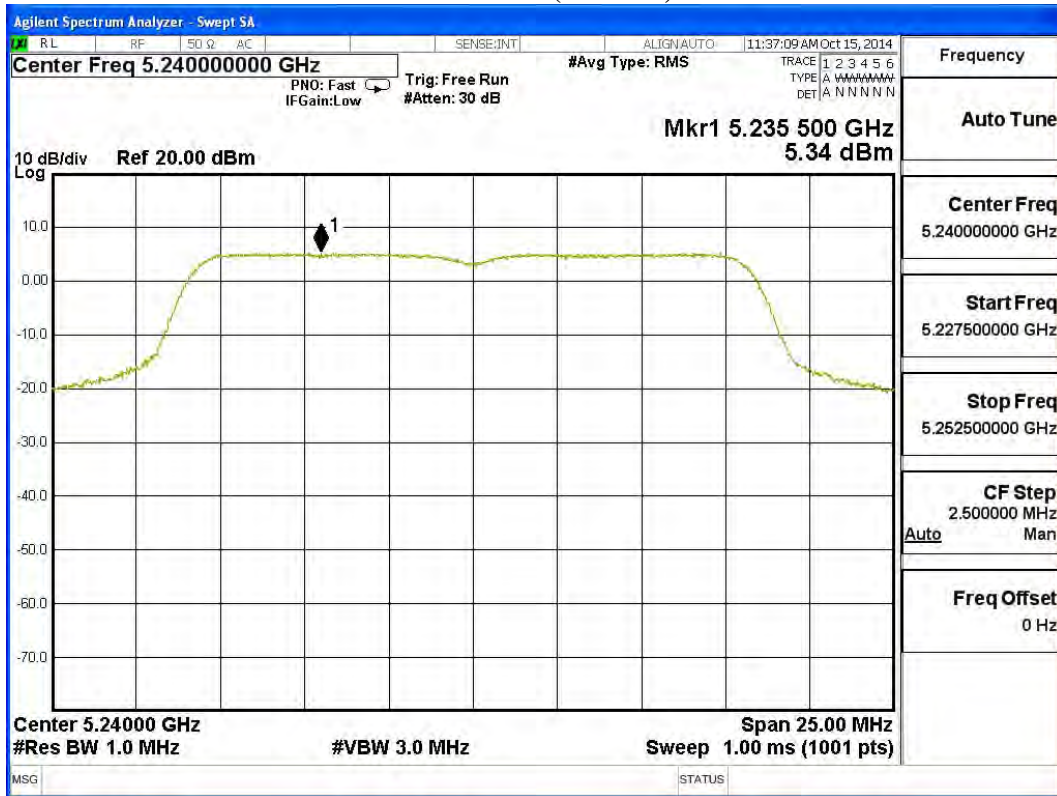
### Channel 44: (Chain A)



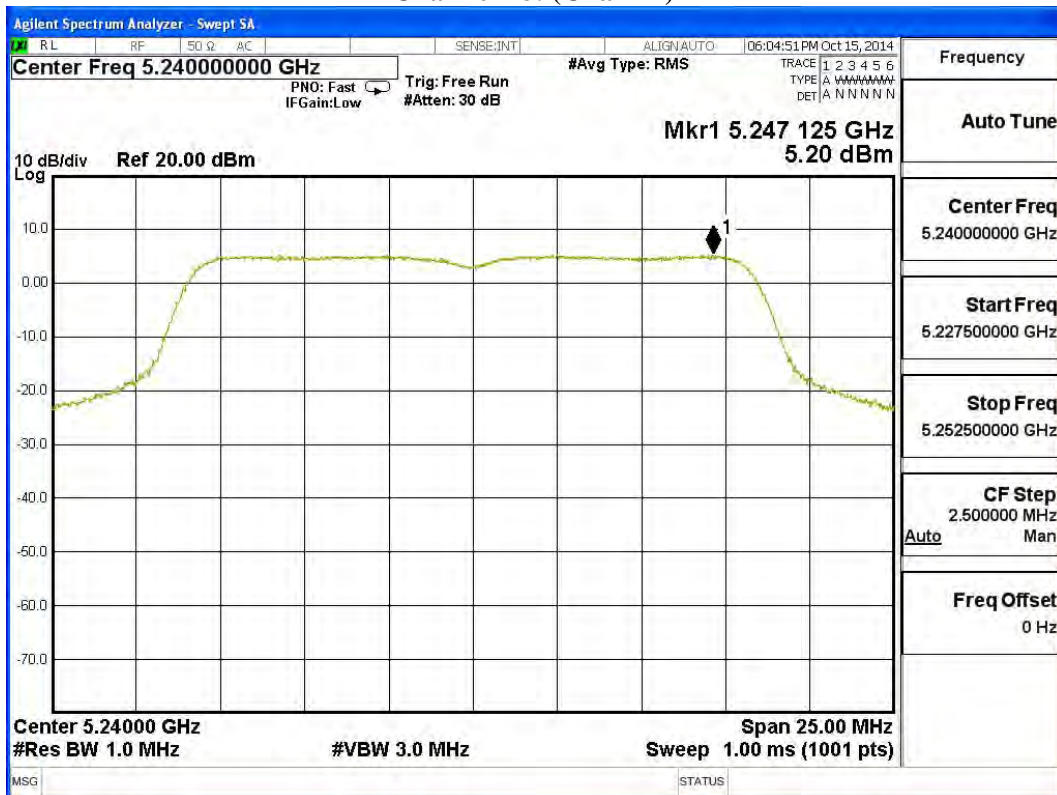
### Channel 44: (Chain B)



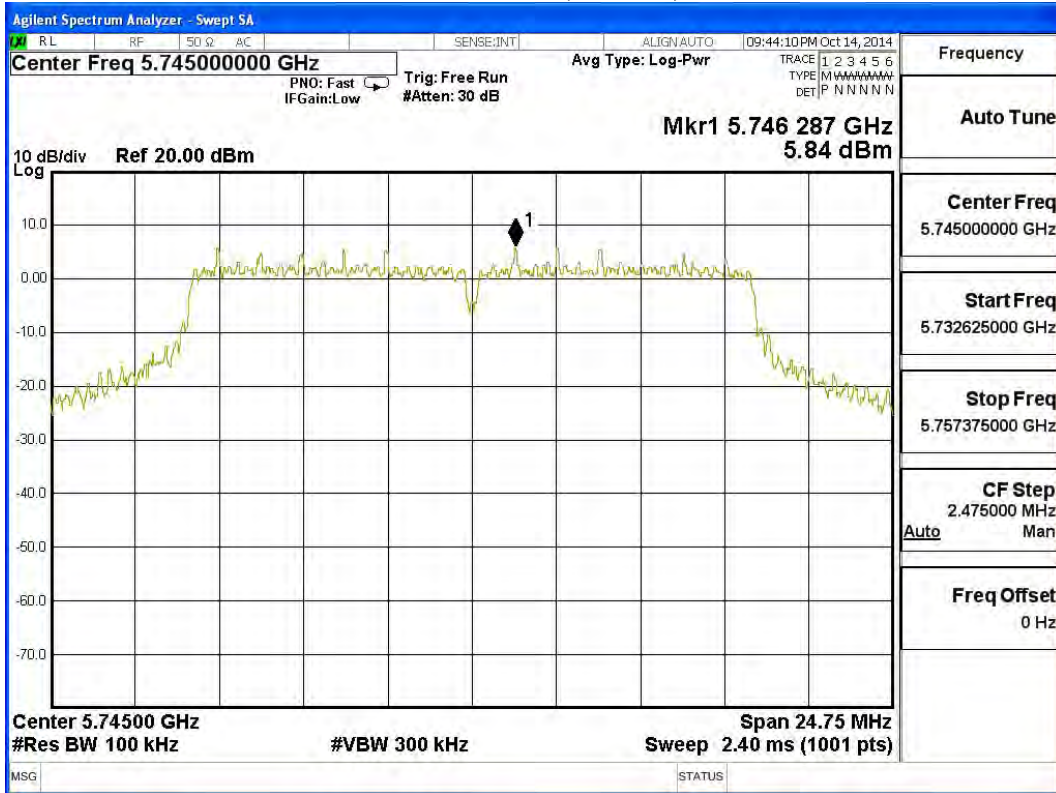
**Channel 48: (Chain A)**



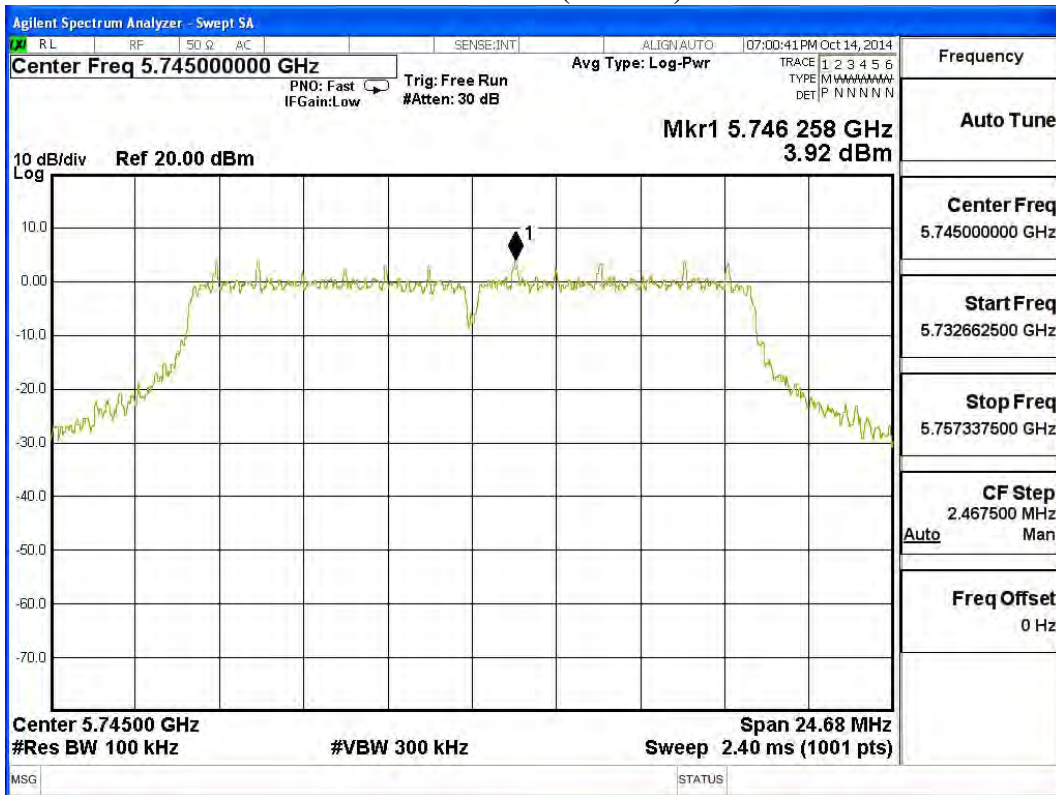
**Channel 48: (Chain B)**



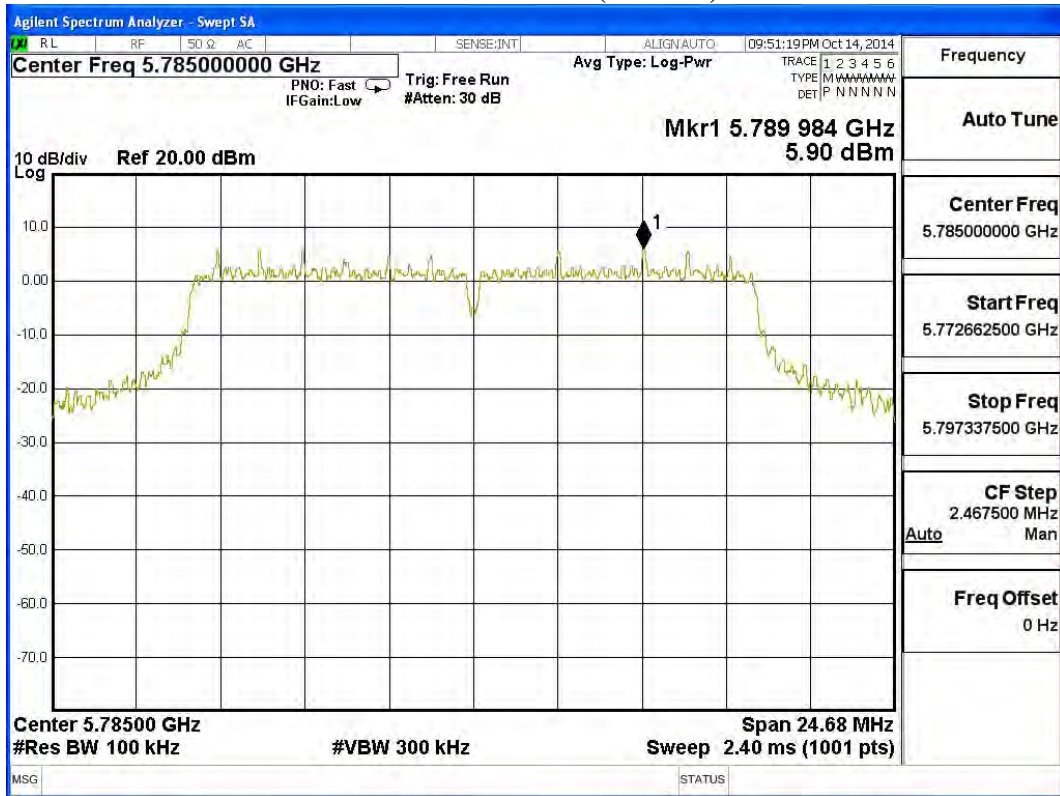
### Channel 149: (Chain A)



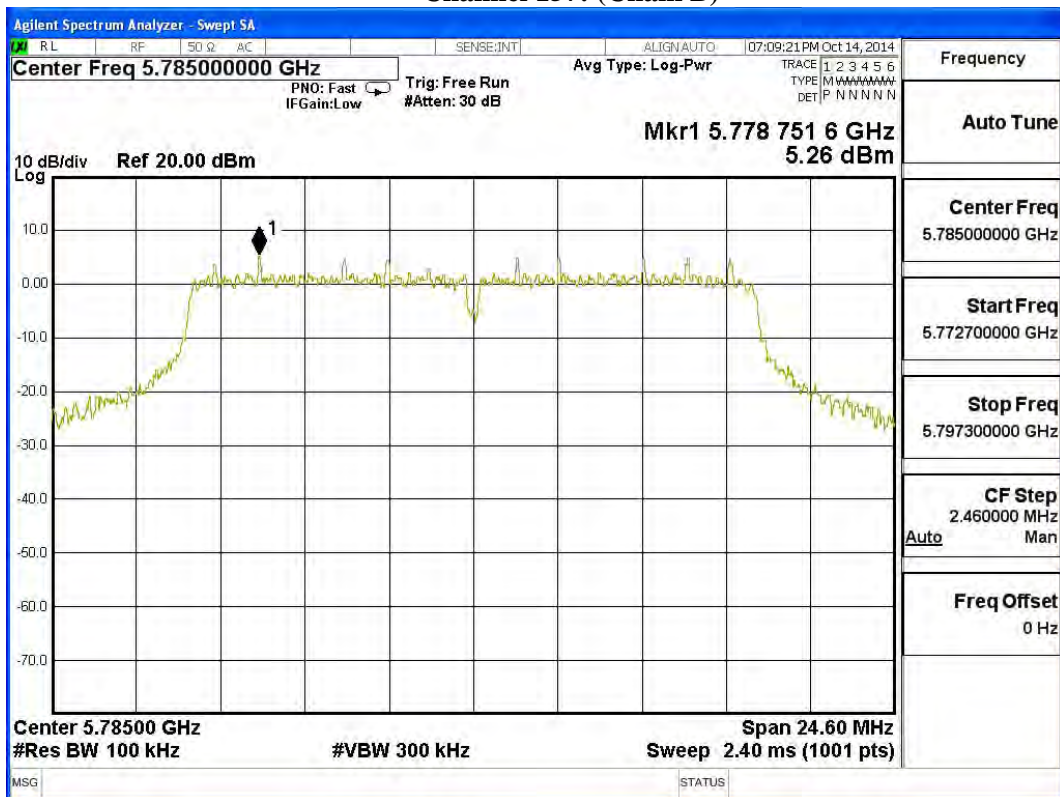
### Channel 149: (Chain B)



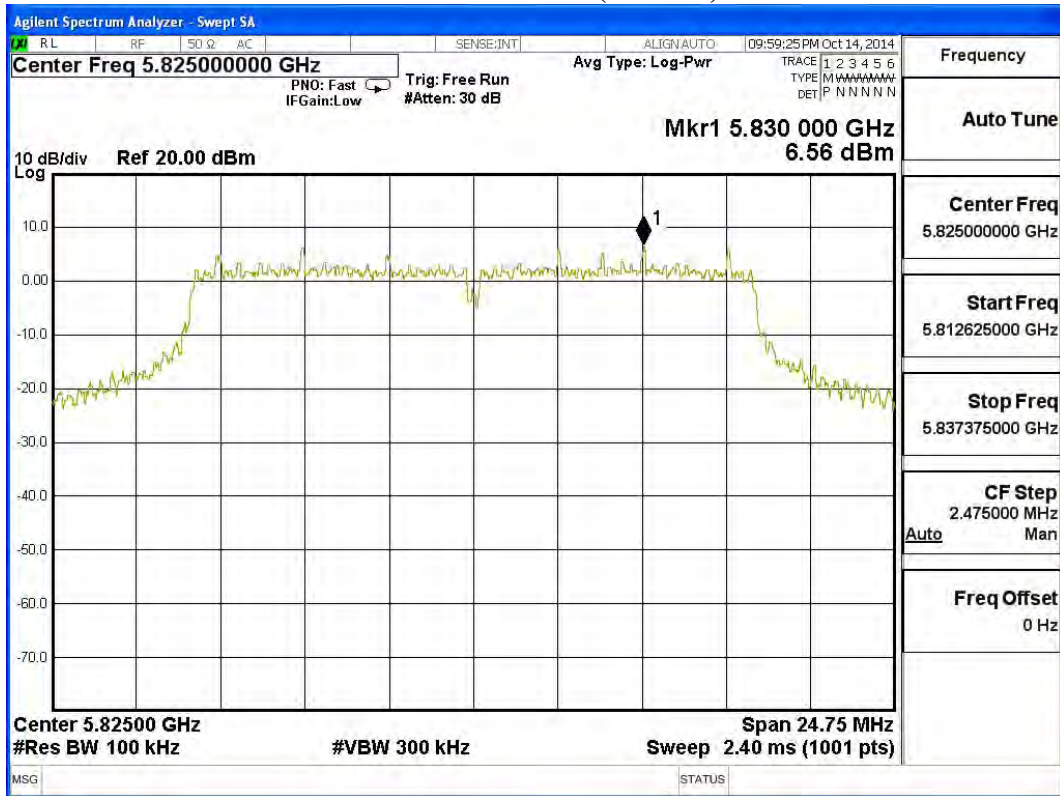
### Channel 157: (Chain A)



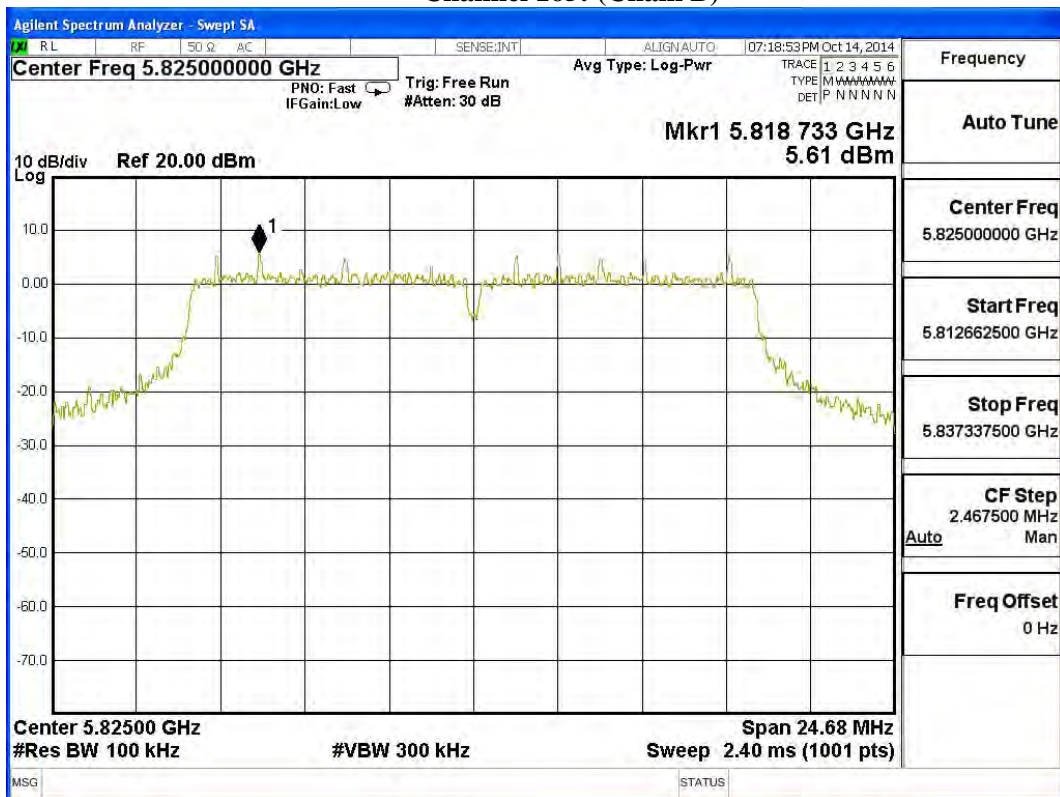
### Channel 157: (Chain B)



### Channel 165: (Chain A)



### Channel 165: (Chain B)



Product : Access Point/Sensor  
 Test Item : Peak Power Spectral Density  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmit (802.11n-20BW 14.4Mbps)

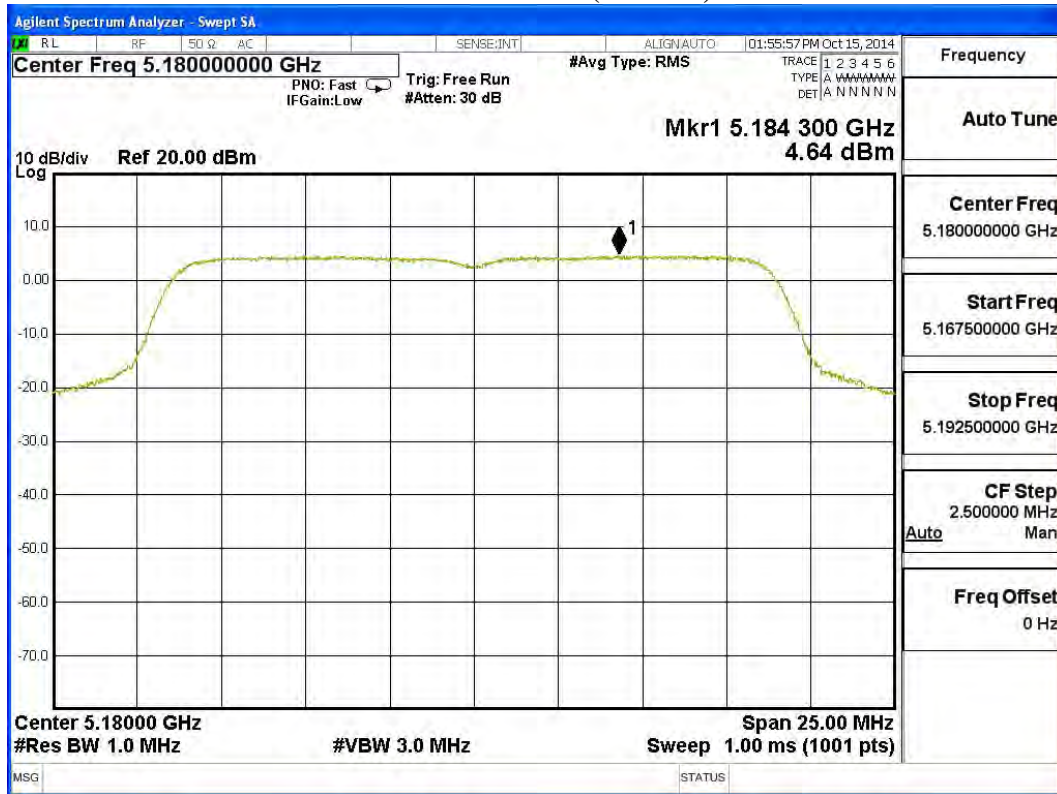
Channel Number	Frequency (MHz)	Chain	PPSD (dBm)	Total PPSD (dBm)	Required Limit (dBm)	Result
36	5180	A	4.640	7.650	17	Pass
		B	4.870	7.880	17	Pass
44	5220	A	3.590	6.600	17	Pass
		B	4.790	7.800	17	Pass
48	5240	A	4.740	7.750	17	Pass
		B	4.710	7.720	17	Pass

Note 1: The quantity  $10 \cdot \log 2$  (two antennas) is added to the spectrum peak value according to document 662911 D01.

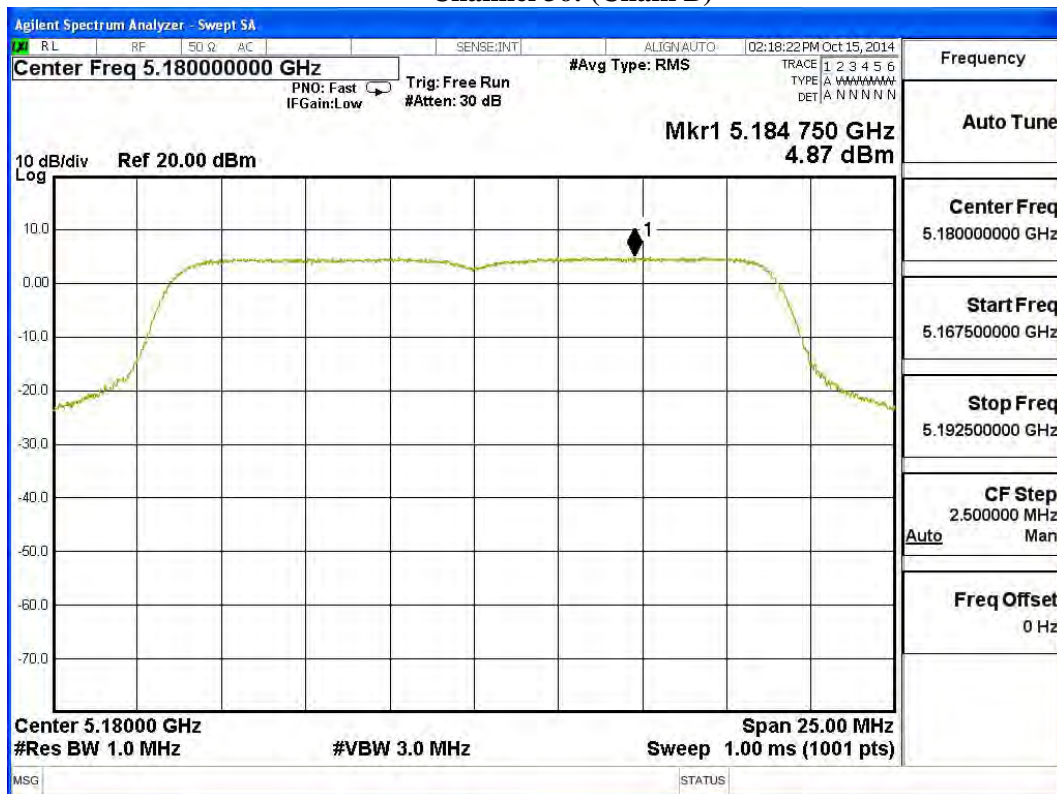
Channel Number	Frequency (MHz)	Chain	PPSD (dBm)	BWCF (dB)	Total PPSD (dBm)	Required Limit (dBm)	Result
149	5745	A	5.850	6.980	15.840	<30	Pass
		B	6.040	6.980	16.030	<30	Pass
157	5785	A	5.970	6.980	15.960	<30	Pass
		B	6.440	6.980	16.430	<30	Pass
165	5825	A	5.580	6.980	15.570	<30	Pass
		B	6.390	6.980	16.380	<30	Pass

Note 1: The quantity  $10 \cdot \log 2$  (two antennas) is added to the spectrum peak value according to document 662911 D01.

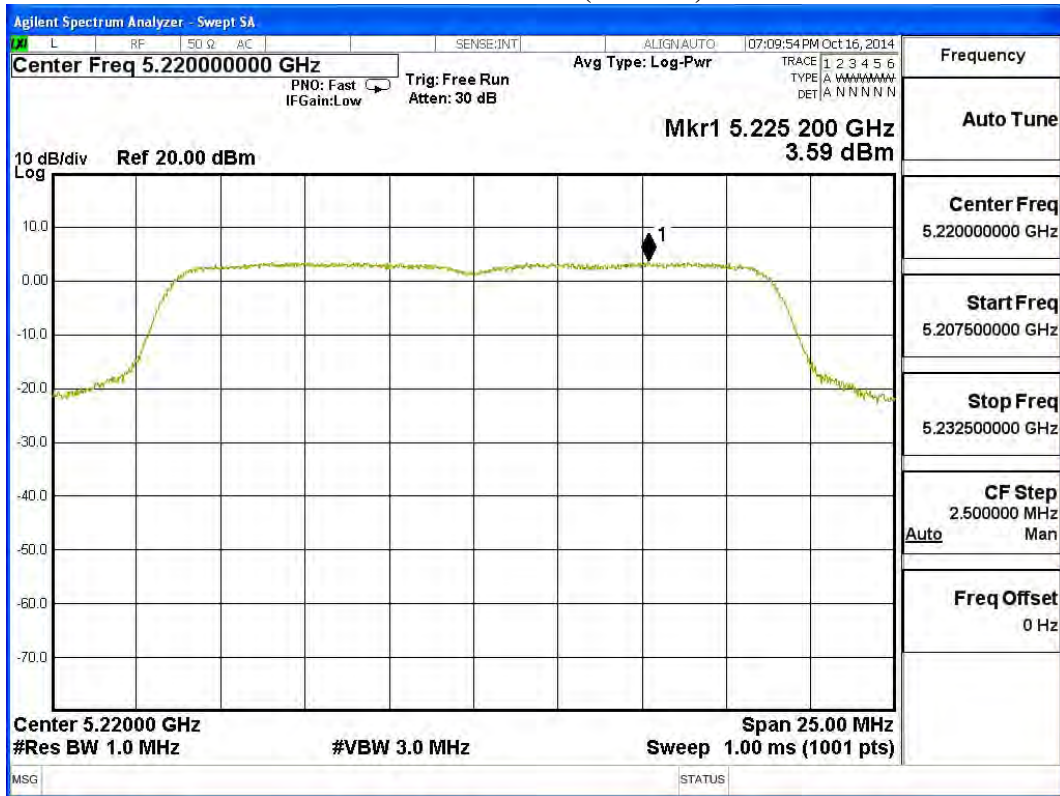
**Channel 36: (Chain A)**



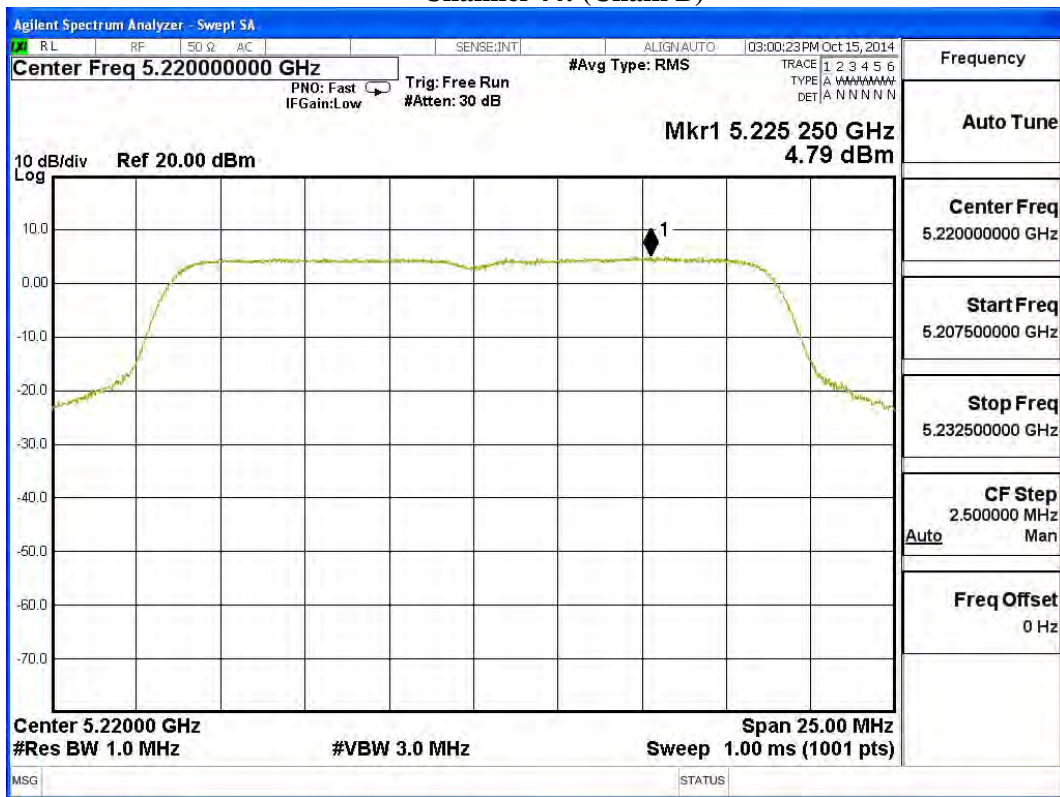
**Channel 36: (Chain B)**



**Channel 44: (Chain A)**

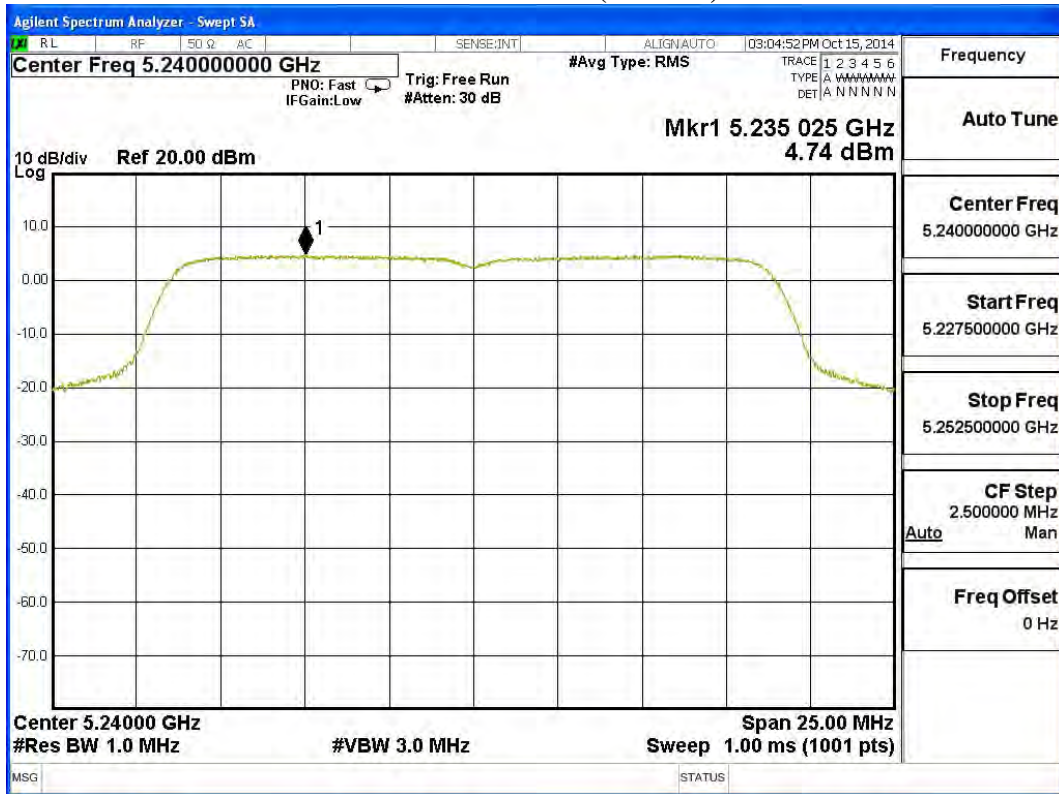


**Channel 44: (Chain B)**

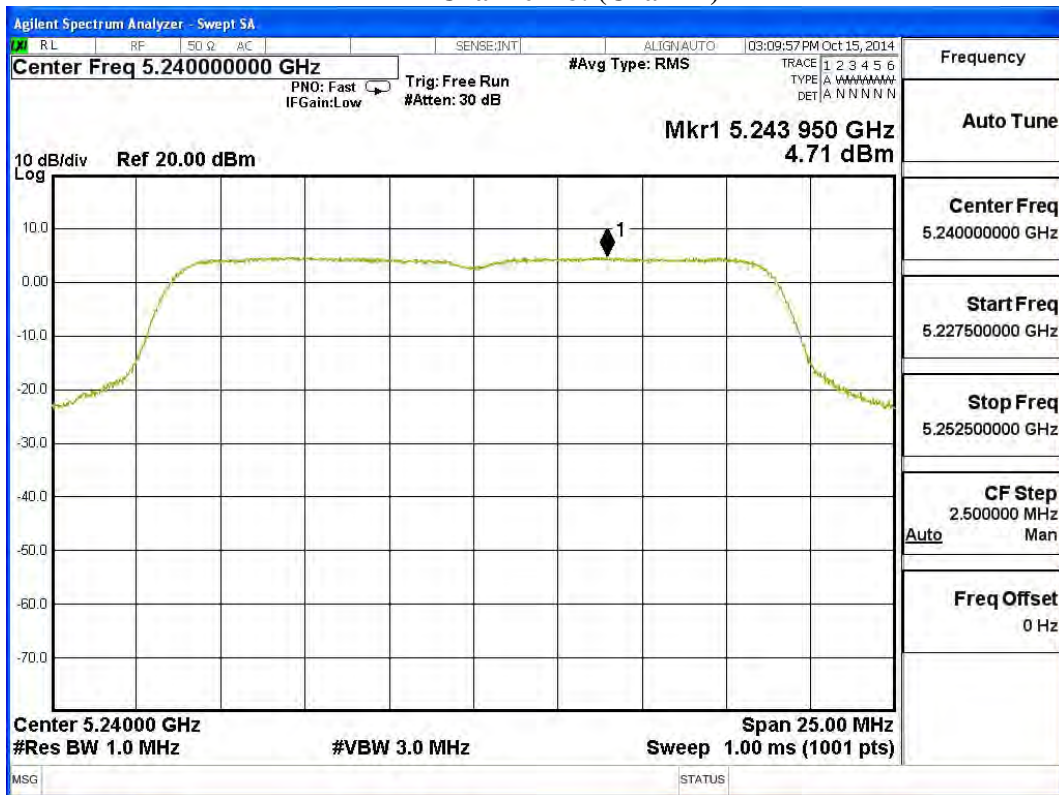




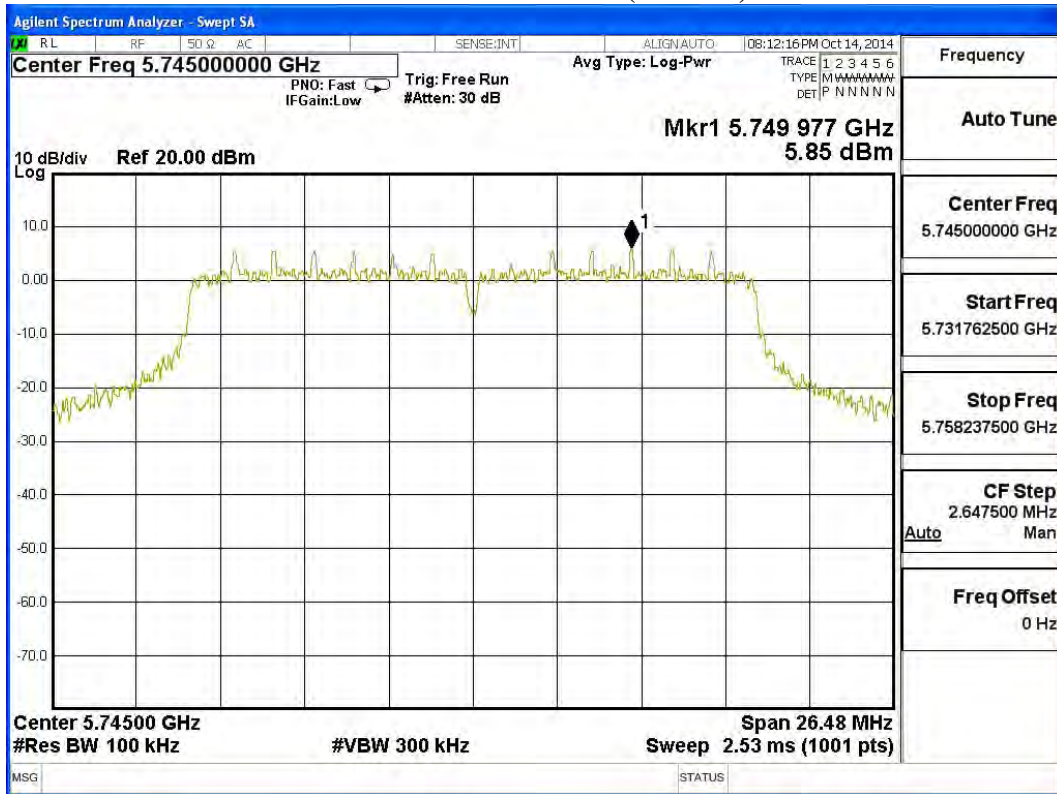
**Channel 48: (Chain A)**



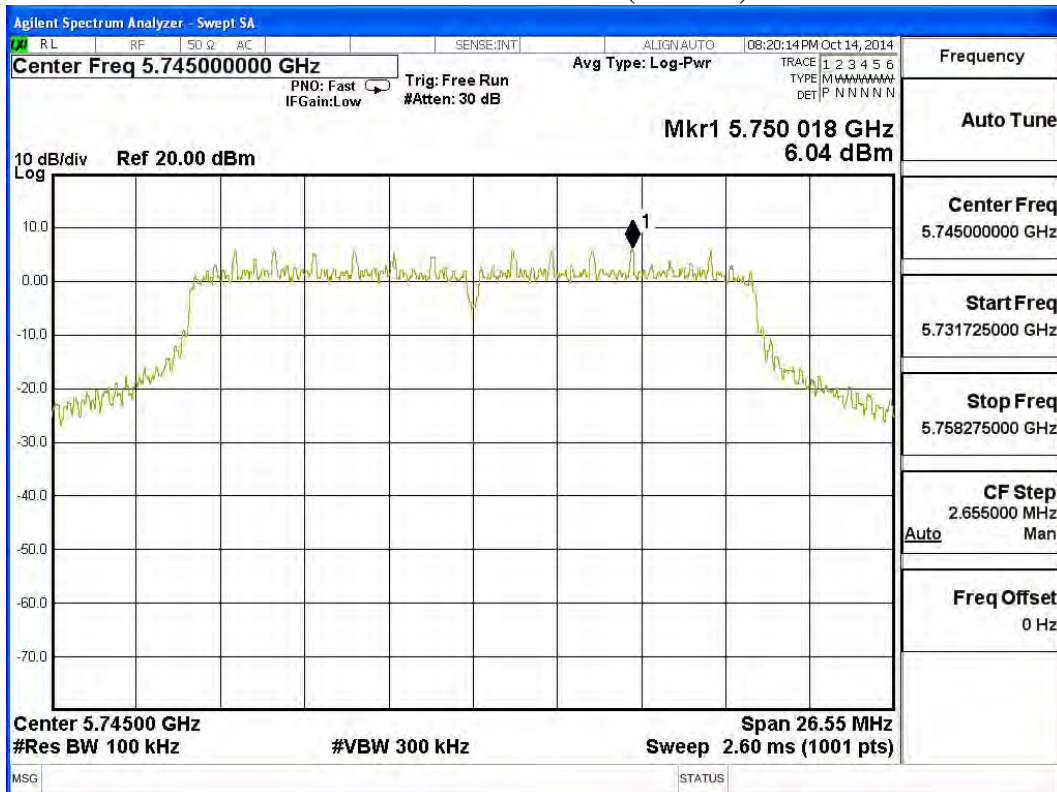
**Channel 48: (Chain B)**



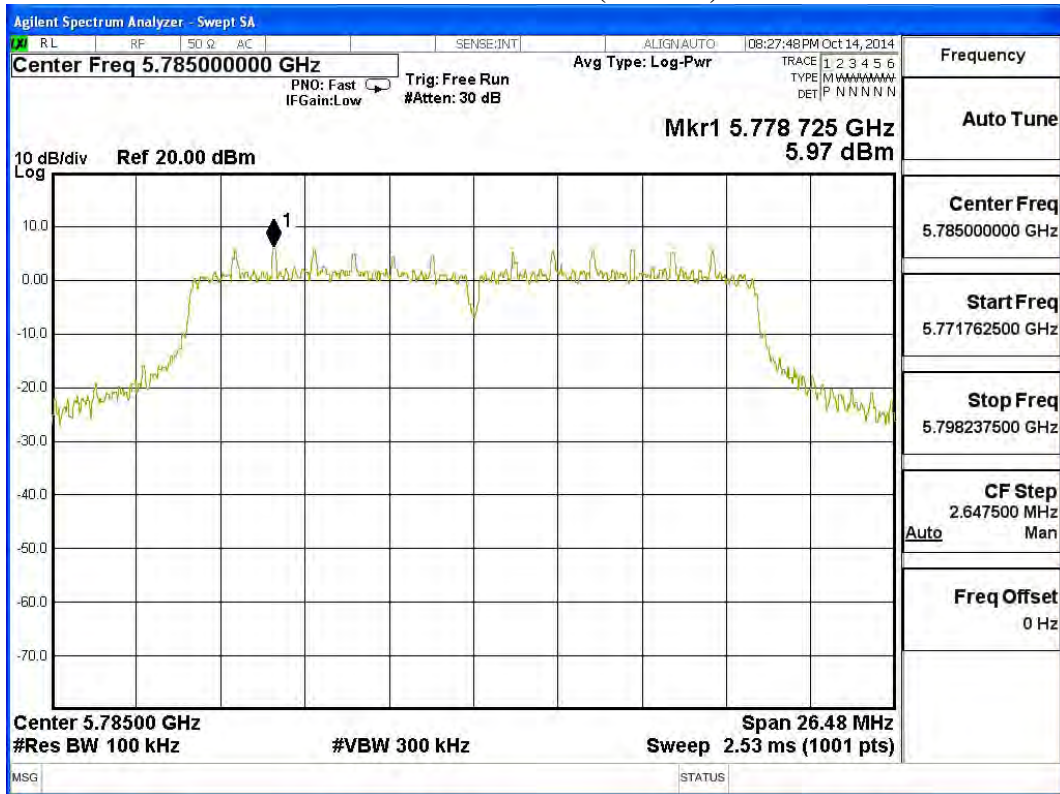
### Channel 149: (Chain A)



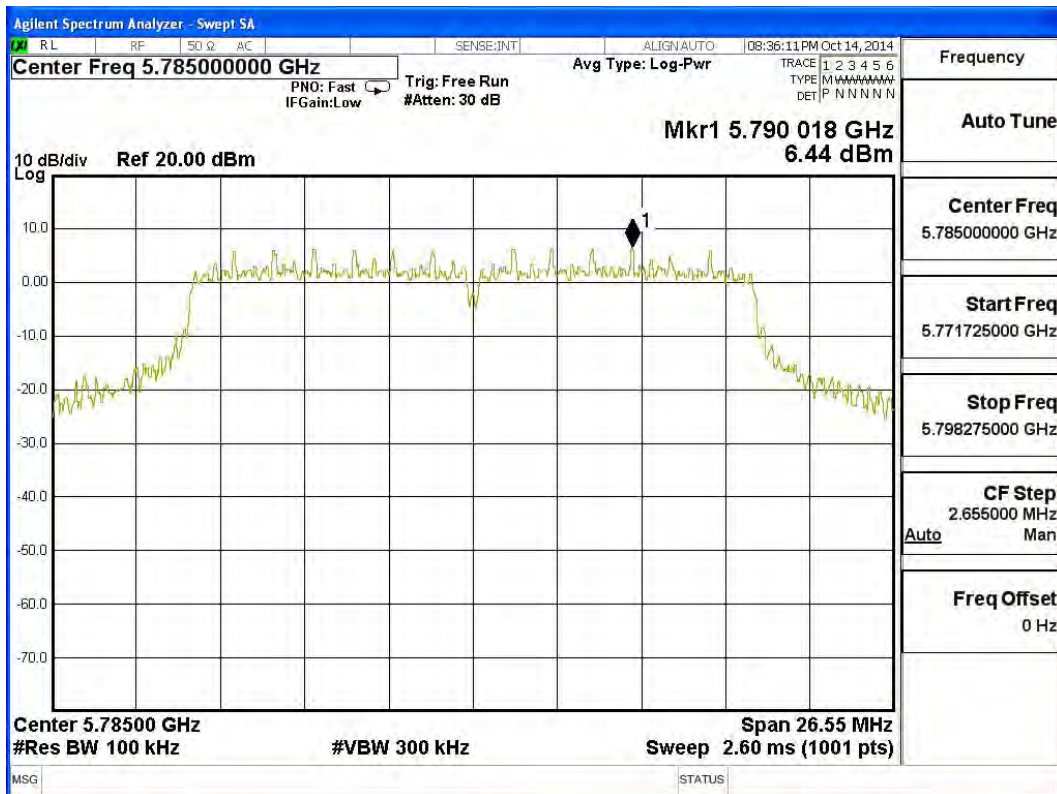
### Channel 149: (Chain B)



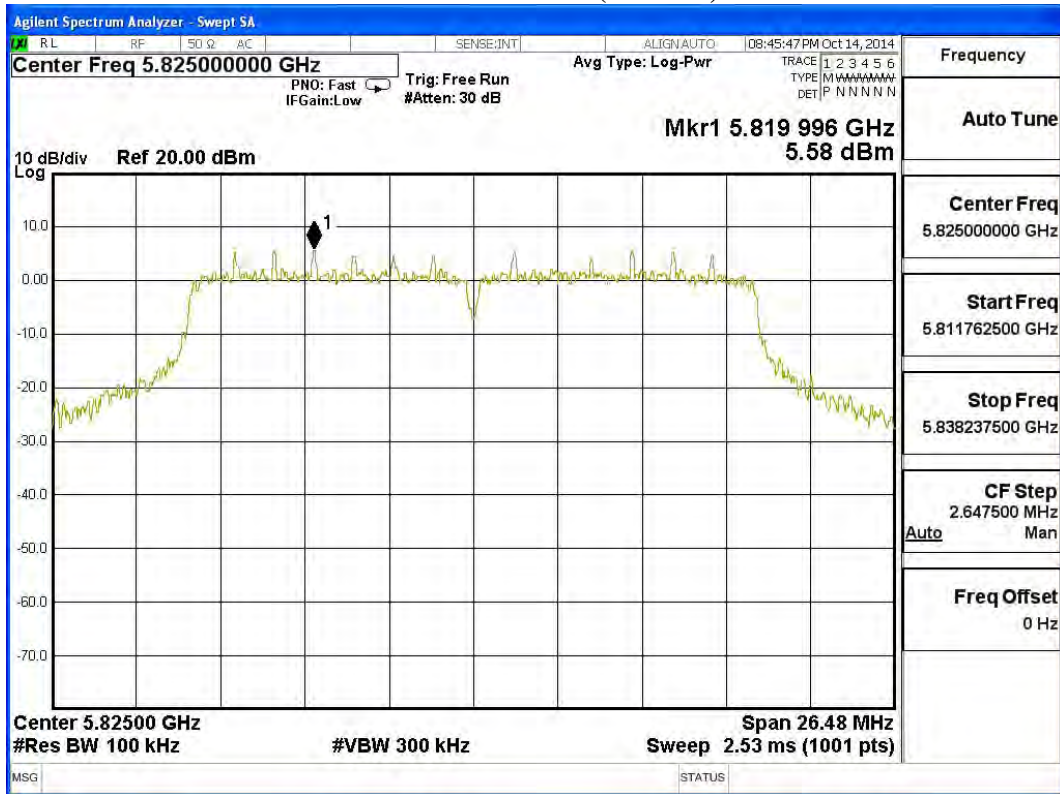
### Channel 157: (Chain A)



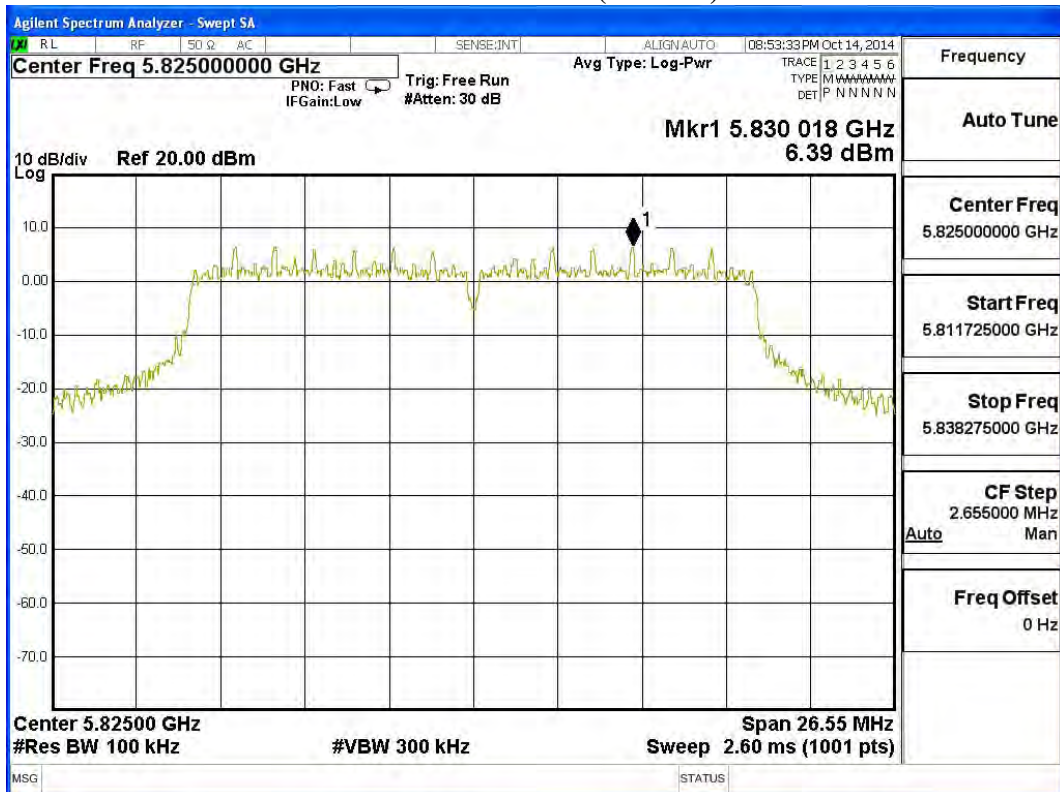
### Channel 157: (Chain B)



### Channel 165: (Chain A)



### Channel 165: (Chain B)



Product : Access Point/Sensor  
 Test Item : Peak Power Spectral Density  
 Test Site : No.3 OATS  
 Test Mode : Mode 3: Transmit (802.11n-40BW 30Mbps)

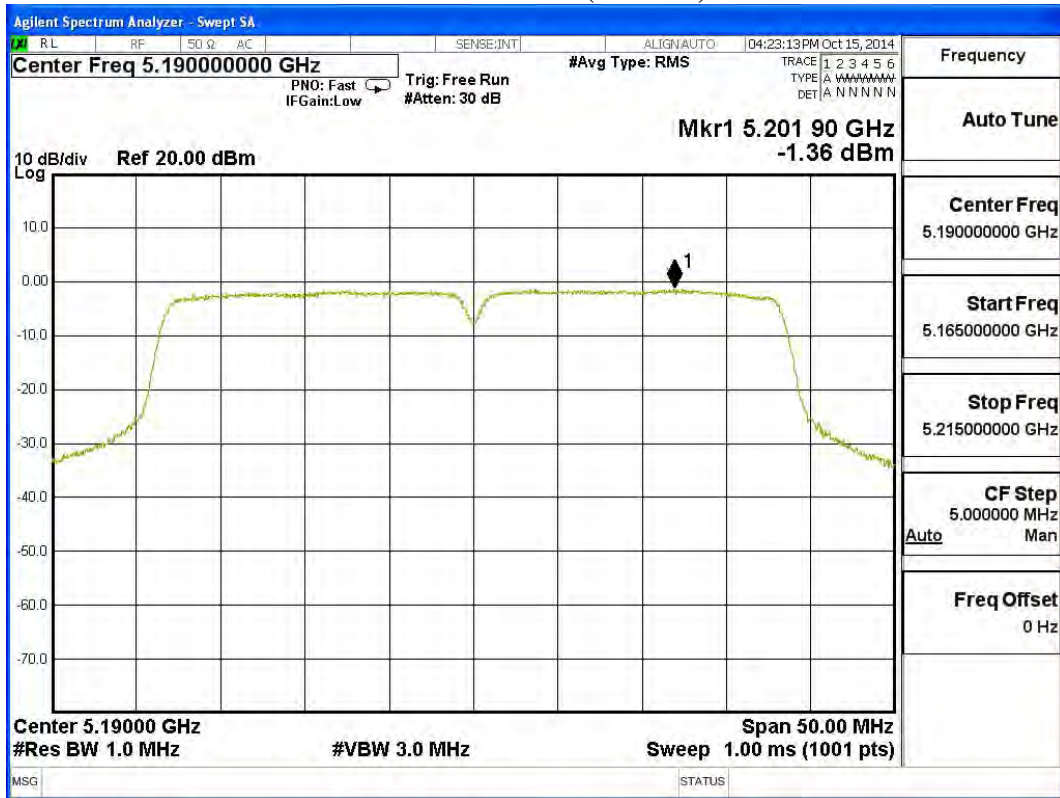
Channel Number	Frequency (MHz)	Chain	PPSD (dBm)	Total PPSD (dBm) <sup>1</sup>	Required Limit (dBm)	Result
38	5190	A	-1.360	1.650	17	Pass
		B	-1.660	1.350	17	Pass
46	5230	A	2.260	5.270	17	Pass
		B	2.130	5.140	17	Pass

Note 1: The quantity  $10 \cdot \log 2$  (two antennas) is added to the spectrum peak value according to document 662911 D01.

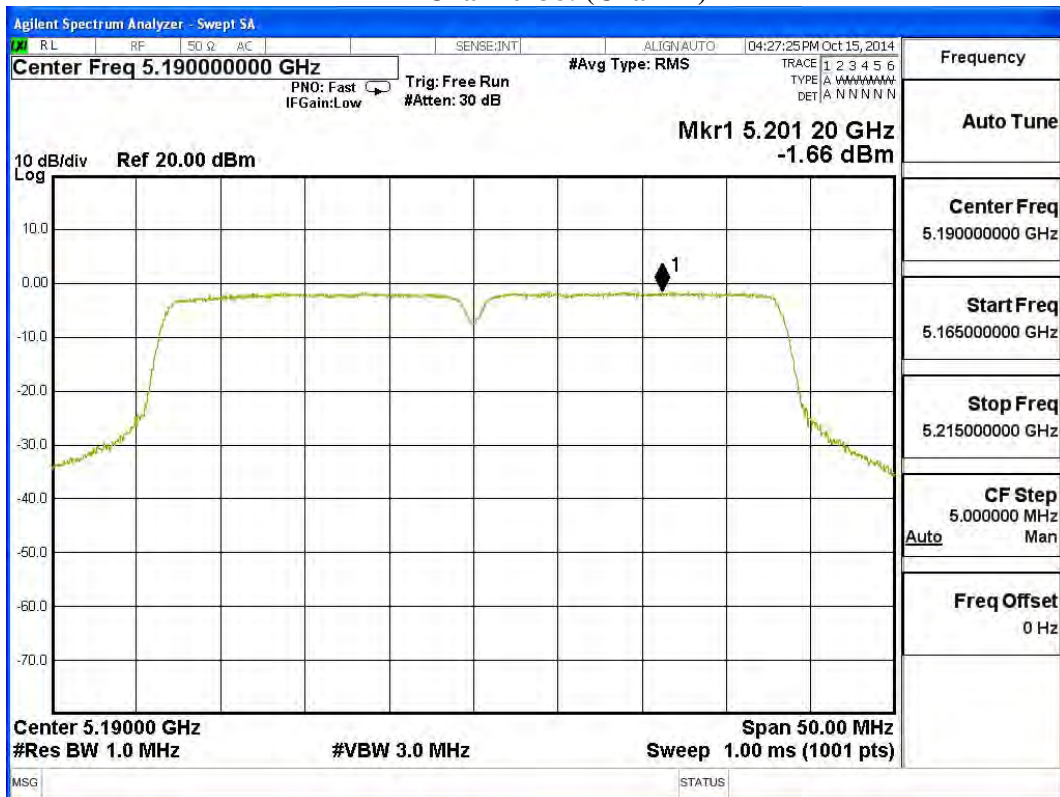
Channel Number	Frequency (MHz)	Chain	PPSD (dBm)	BWCF (dB)	Total PPSD (dBm) <sup>1</sup>	Required Limit (dBm)	Result
151	5755	A	2.560	6.980	12.550	<30	Pass
		B	3.450	6.980	13.440	<30	Pass
159	5795	A	3.280	6.980	13.270	<30	Pass
		B	3.750	6.980	13.740	<30	Pass

Note 1: The quantity  $10 \cdot \log 2$  (two antennas) is added to the spectrum peak value according to document 662911 D01.

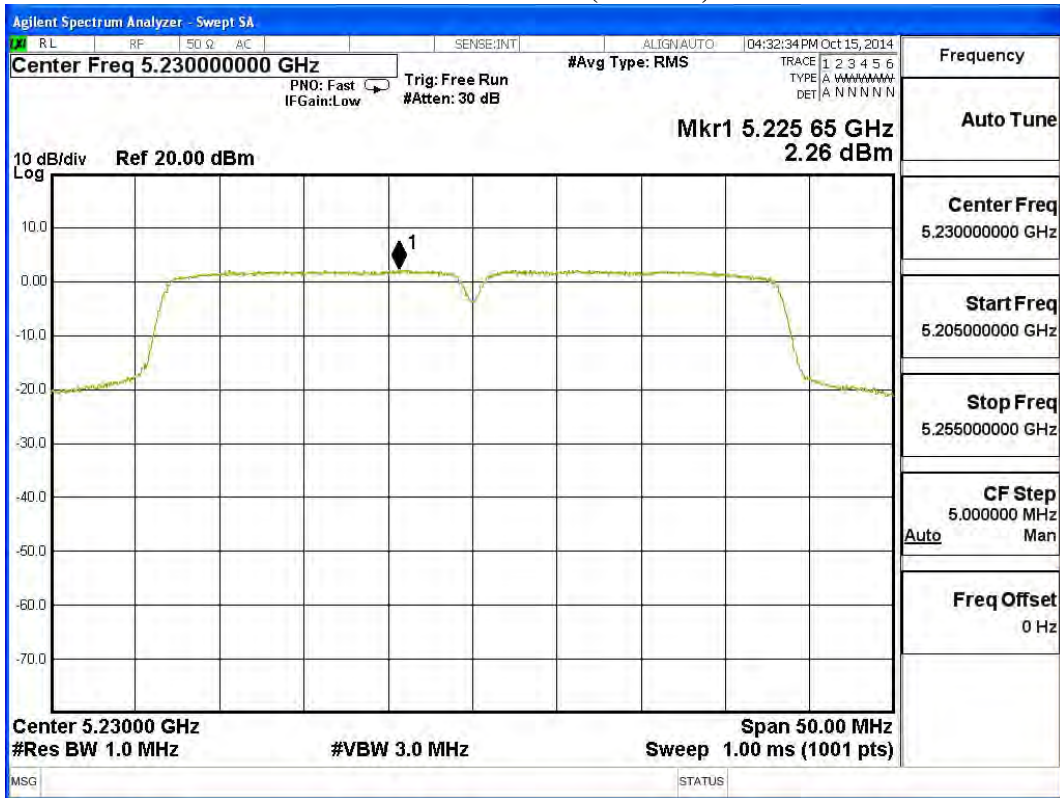
**Channel 38: (Chain A)**



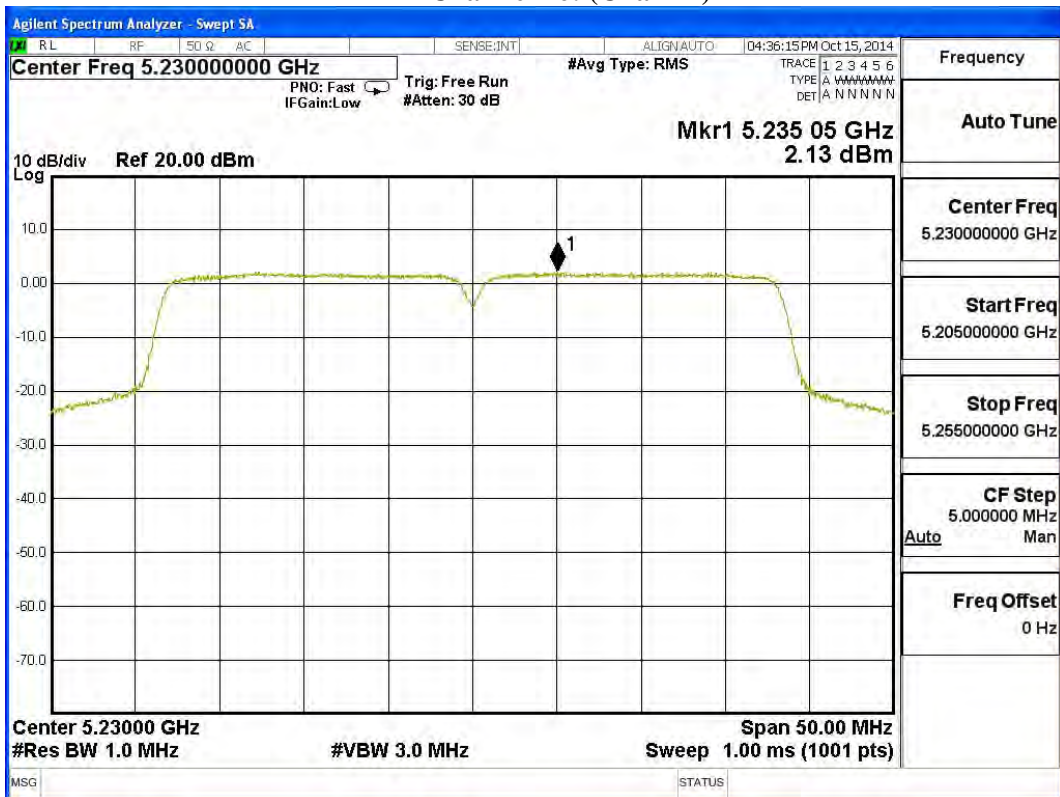
**Channel 38: (Chain B)**



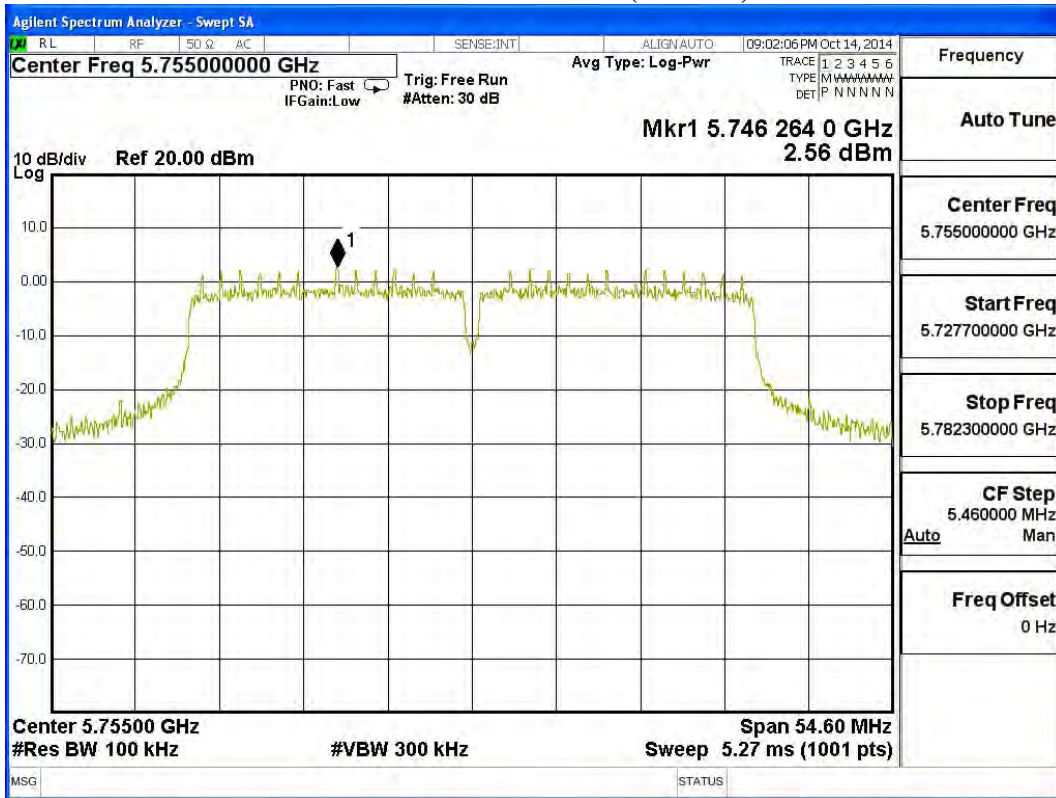
### Channel 46: (Chain A)



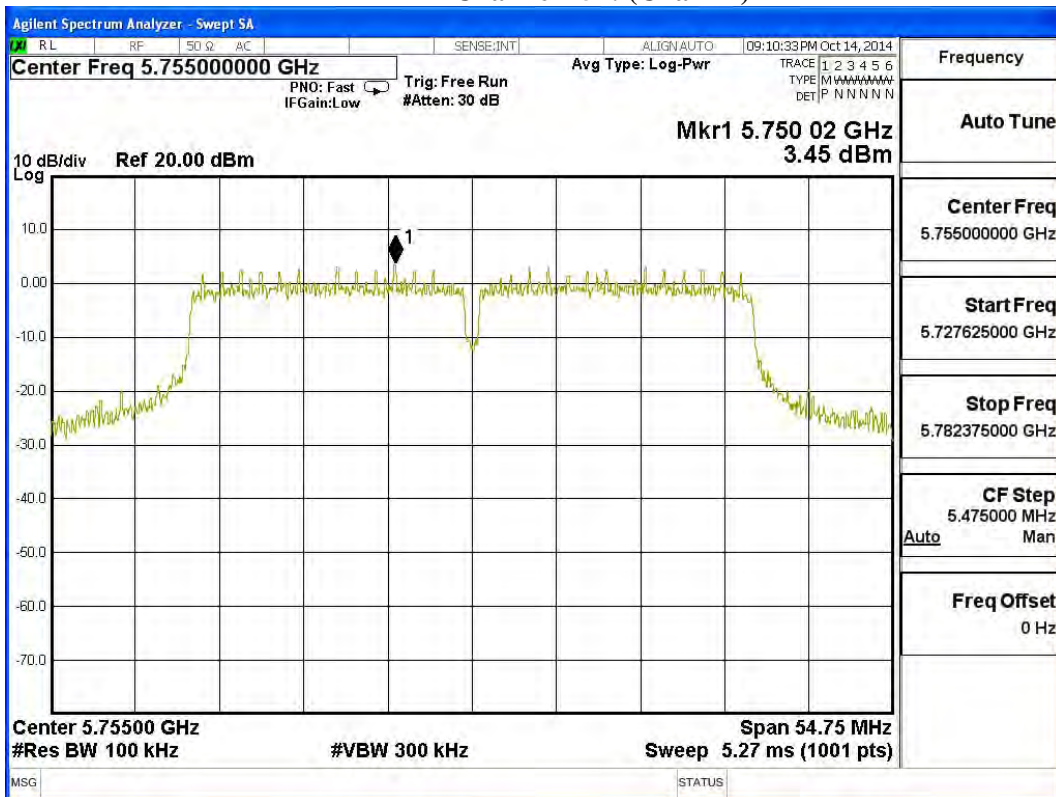
### Channel 46: (Chain B)



### Channel 151: (Chain A)

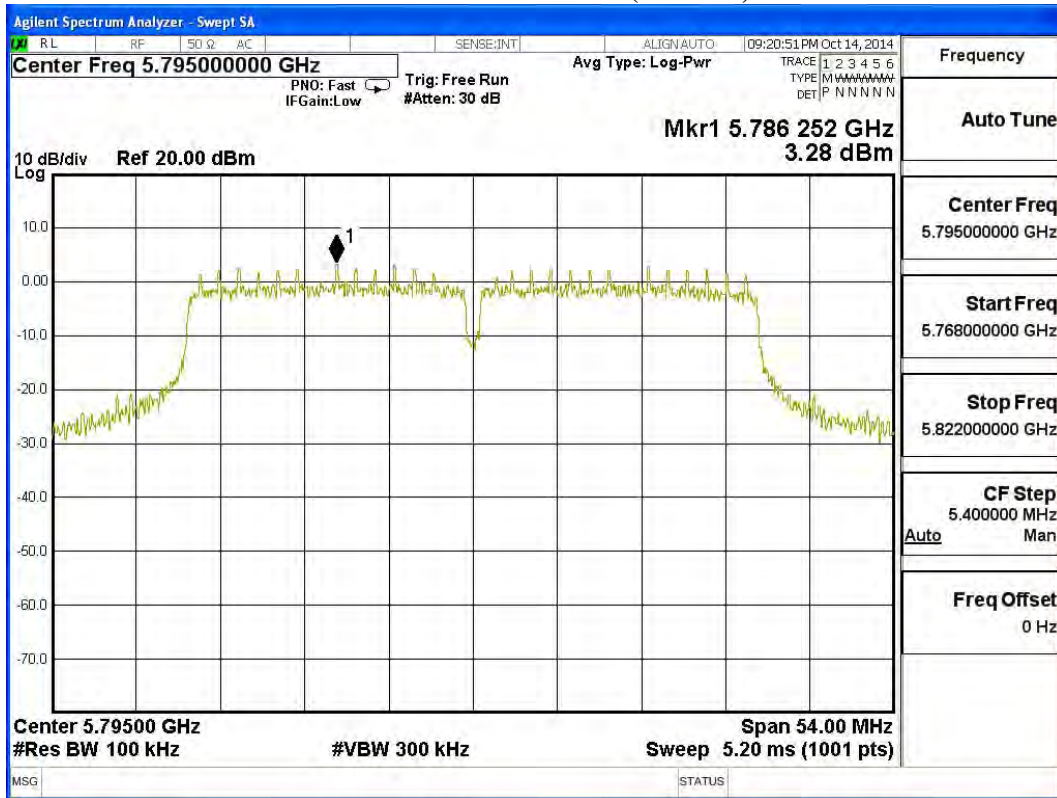


### Channel 151: (Chain B)

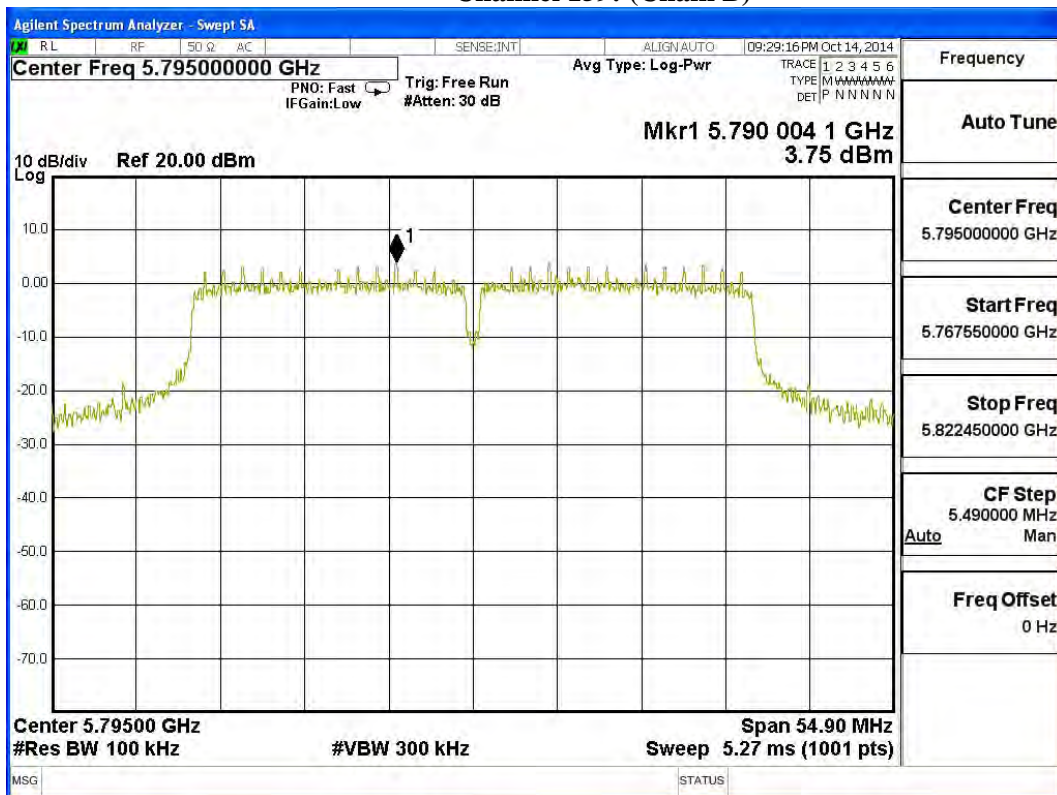




### Channel 159: (Chain A)



### Channel 159: (Chain B)



Product : Access Point/Sensor  
 Test Item : Peak Power Spectral Density  
 Test Site : No.3 OATS  
 Test Mode : Mode 4 Transmit (802.11ac-80BW-65Mbps)

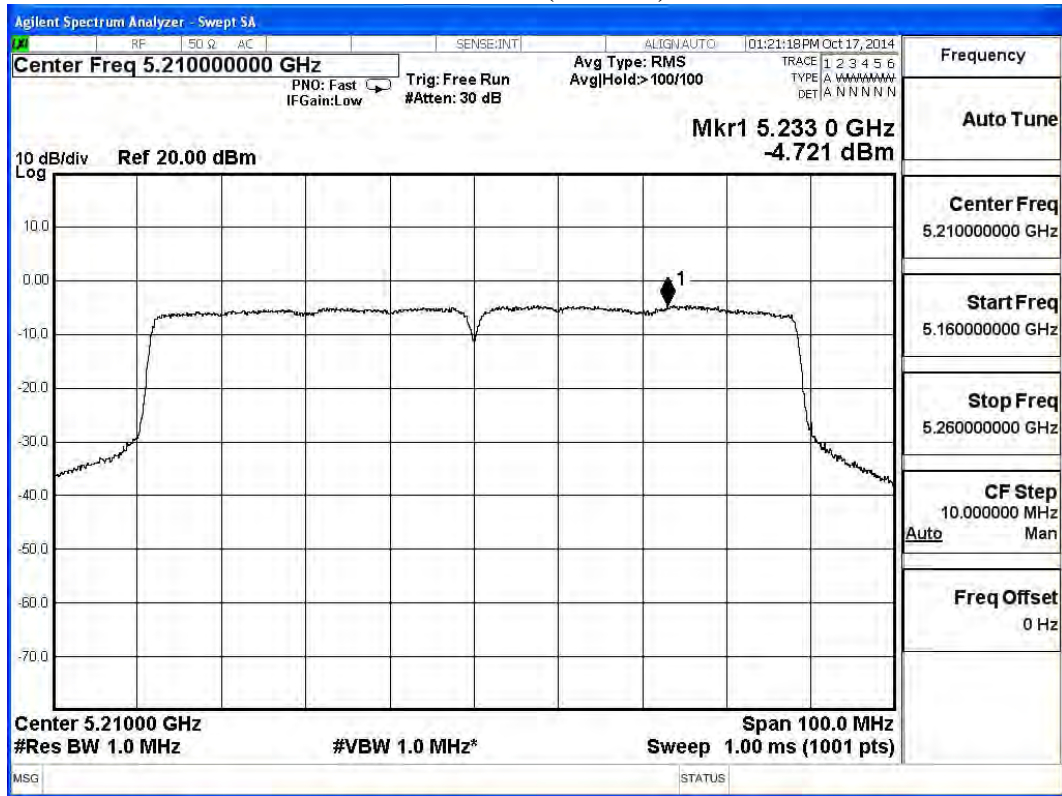
Channel Number	Frequency (MHz)	Chain	PPSD (dBm)	Total PPSD (dBm) <sup>1</sup>	Required Limit (dBm)	Result
42	5210	A	-4.721	-1.711	17	Pass
		B	-4.729	-1.719	17	Pass

Note 1: The quantity  $10 \cdot \log 2$  (two antennas) is added to the spectrum peak value according to document 662911 D01.

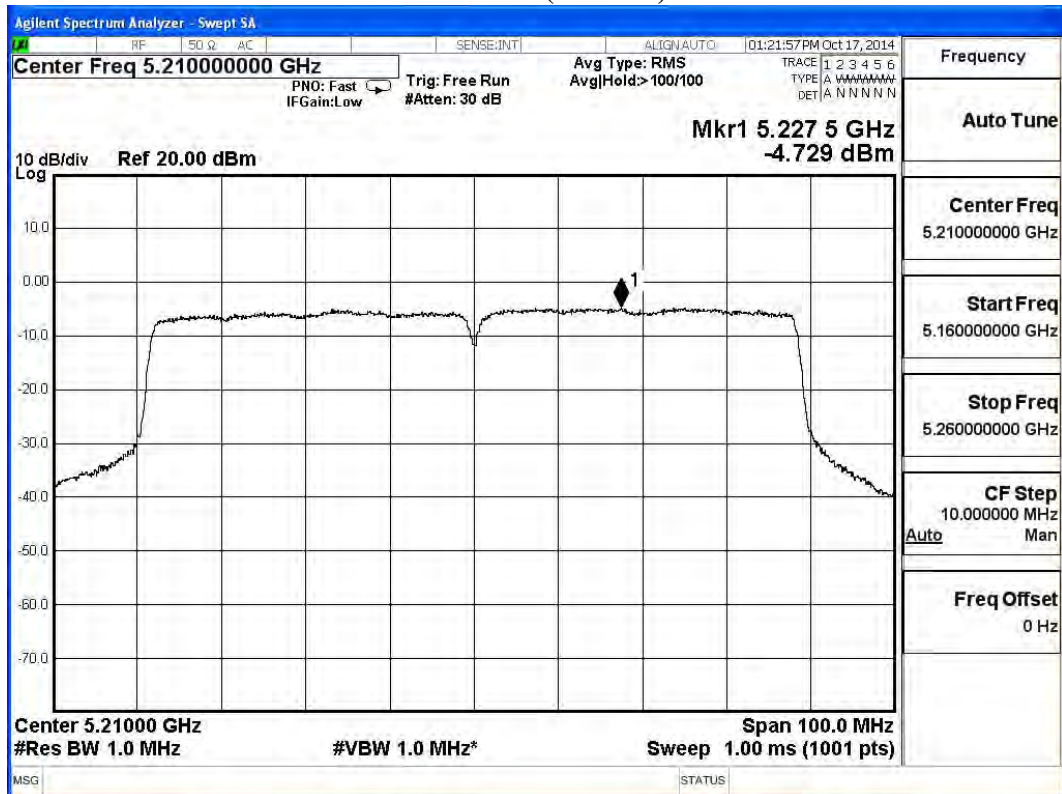
Channel Number	Frequency (MHz)	Chain	PPSD (dBm)	BWCF (dB)	Total PPSD (dBm) <sup>1</sup>	Required Limit (dBm)	Result
155	5775	A	5.706	6.980	15.696	<30	Pass
		B	6.398	6.980	16.388	<30	Pass

Note 1: The quantity  $10 \cdot \log 2$  (two antennas) is added to the spectrum peak value according to document 662911 D01.

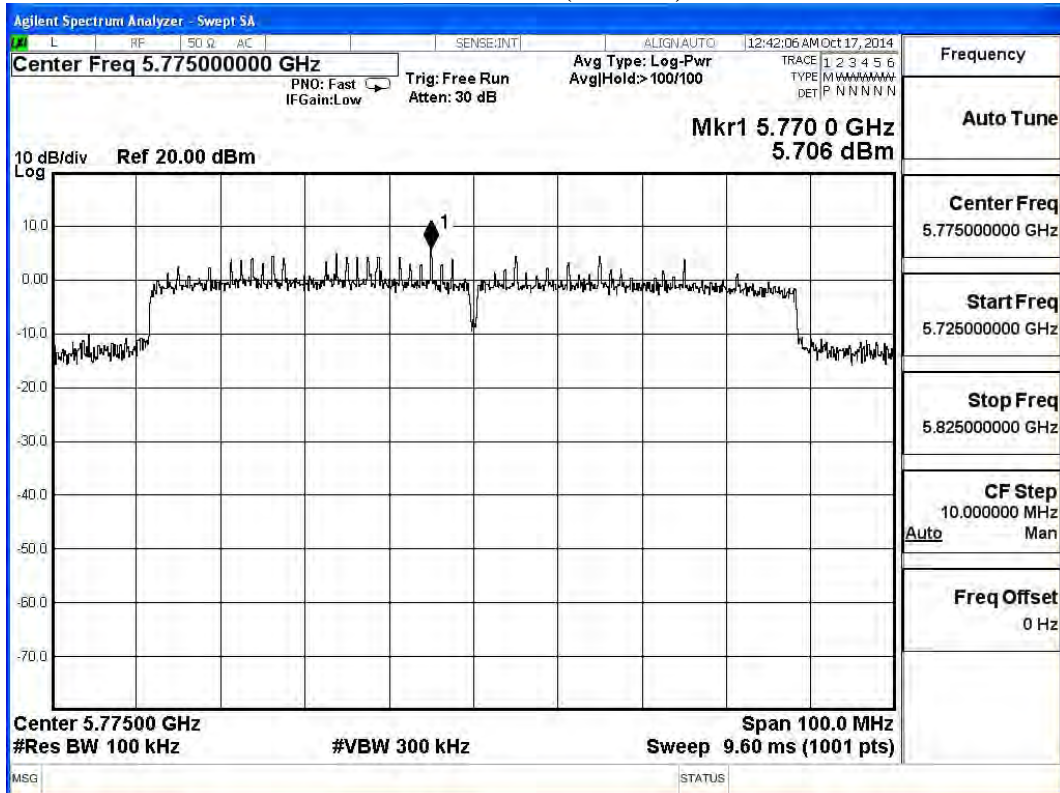
**Channel 42: (Chain A)**



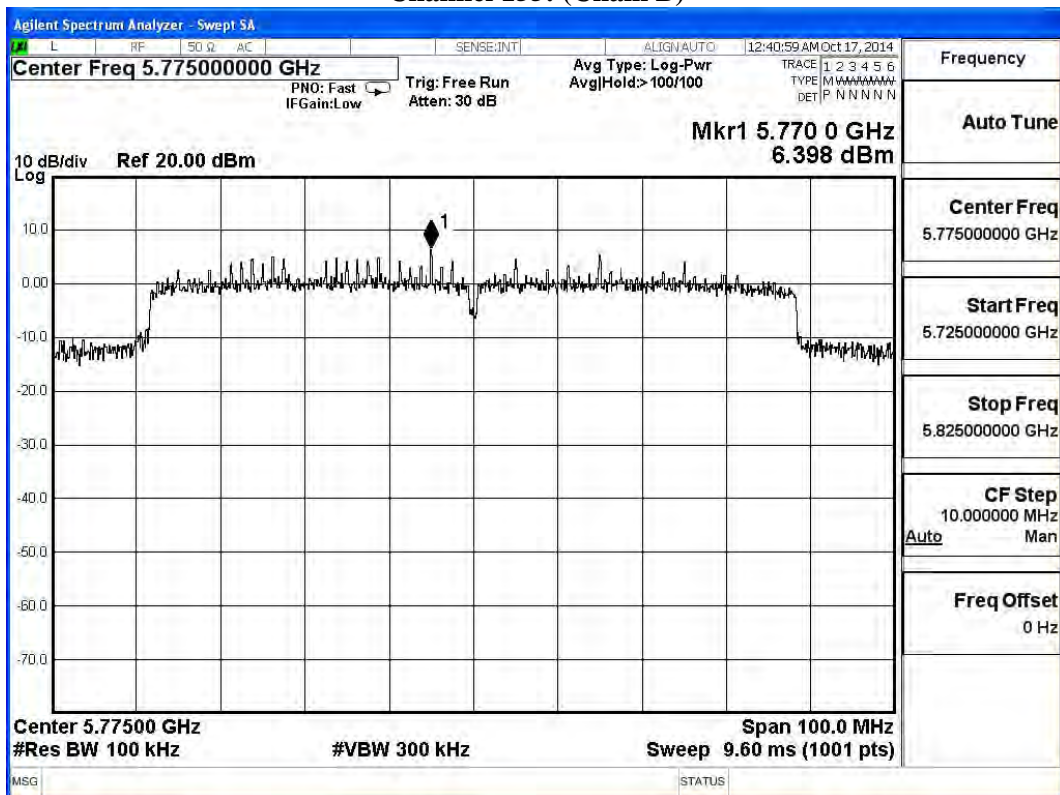
**Channel 42: (Chain B)**



### Channel 155: (Chain A)



### Channel 155: (Chain B)



## 5. Radiated Emission

### 5.1. Test Equipment

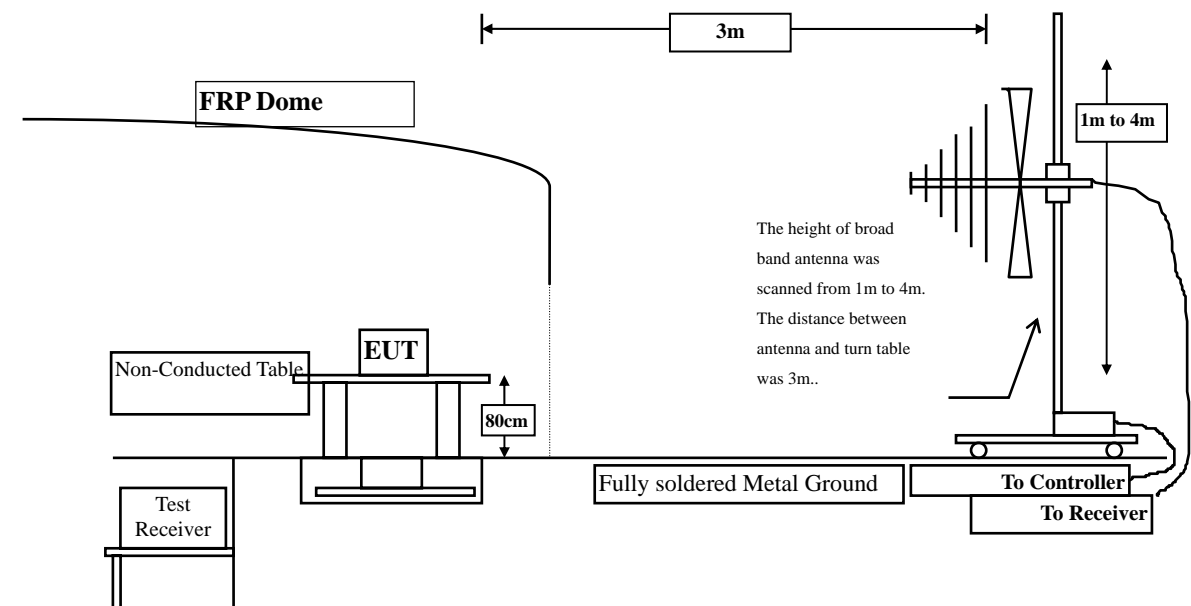
The following test equipments are used during the radiated emission test:

Test Site	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
☒ Site # 3	X Loop Antenna	Teseq	HLA6121 / 37133	Sep., 2014
	X Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2014
	X Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2014
	X Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2014
	X Pre-Amplifier	QTK	QTK-AMP-03 / 0003	May, 2014
	X Pre-Amplifier	QTK	AP-180C / CHM_0906076	Sep., 2014
	X Pre-Amplifier	MITEQ	AMF-4D-180400-45-6P/ 925975	Mar., 2014
	X Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2014
	X Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2014
	X Coaxial Cable	Quietek	QTK-CABLE/ CAB5	Feb., 2014
	X Controller	Quietek	QTK-CONTROLLER/ CTRL3	N/A
	X Coaxial Switch	Anritsu	MP59B/6200265729	N/A

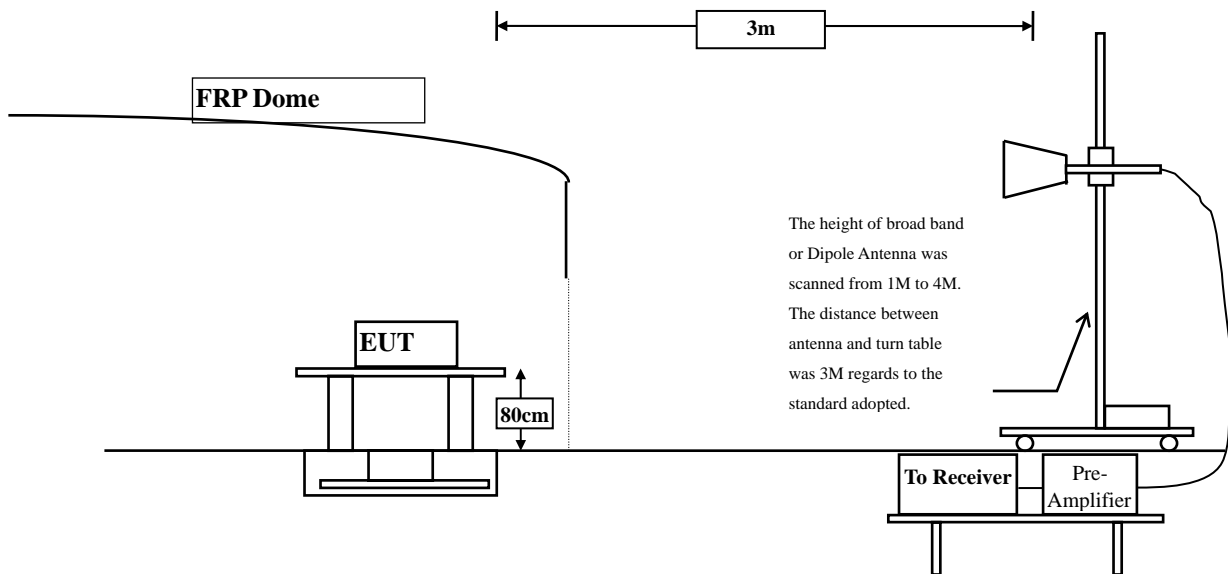
- Note:
1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
  2. The test instruments marked with “X” are used to measure the final test results.

### 5.2. Test Setup

Radiated Emission Below 1GHz



Radiated Emission Above 1GHz



5.3. Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

FCC Part 15 Subpart C Paragraph 15.209(a) Limits		
Frequency MHz	Field strength (microvolts/meter)	Measurement distance (meter)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Remarks: E field strength (dBµV/m) = 20 log E field strength (uV/m)

#### 5.4. Test Procedure

The EUT was setup according to ANSI C63.10, 2009 and tested according to FCC KDB-789033 test procedure for compliance to FCC 47CFR 15. 407 requirements.

The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 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 is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10, 2009 on radiated measurement.

The resolution bandwidth below 30MHz setting on the field strength meter is 9kHz and 30MHz~1GHz is 120kHz and above 1GHz is 1MHz.

Radiated emission measurements below 30MHz are made using Loop Antenna and 30MHz~1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas.

The measurement is divided into the Preliminary Measurement and the Final Measurement.

The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB bandwidth of the antenna.

The worst radiated emission is measured in the Open Area Test Site on the Final Measurement.

The measurement frequency range form 9KHz - 10th Harmonic of fundamental was investigated.

#### 5.5. Uncertainty

± 3.8 dB below 1GHz

± 3.9 dB above 1GHz

## 5.6. Test Result of Radiated Emission

Product : Access Point/Sensor  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5180MHz)

Frequency MHz	Correct Factor dB	Reading Level dB $\mu$ V	Measurement Level dB $\mu$ V/m	Margin dB	Limit dB $\mu$ V/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
6160.000	12.617	50.310	62.927	-11.073	74.000
10360.000	12.930	37.930	50.860	-23.140	74.000
15540.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
<b>Average Detector:</b>					
6160.000	12.617	23.720	36.337	-17.663	54.000
<b>Vertical</b>					
<b>Peak Detector:</b>					
6160.000	14.264	55.330	69.594	-4.406	74.000
10360.000	13.724	37.700	51.424	-22.576	74.000
15540.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
<b>Average Detector:</b>					
6160.000	14.264	24.550	38.814	-15.186	54.000

Note:

- All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- Measurement Level = Reading Level + Correct Factor.
- Correct Factor = Antenna factor + Cable loss – Amplifier gain.
- The average measurement was not performed when the peak measured data under the limit of average detection.
- The emission levels of other frequencies are very lower than the limit and not show in test report.



Product : Access Point/Sensor  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5220MHz)

Frequency MHz	Correct Factor dB	Reading Level dB $\mu$ V	Measurement Level dB $\mu$ V/m	Margin dB	Limit dB $\mu$ V/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
6230.000	7.494	48.790	56.284	-17.716	74.000
10440.000	13.322	37.800	51.122	-22.878	74.000
15660.000	*	*	*	*	74.000
20880.000	*	*	*	*	74.000
26100.000	*	*	*	*	74.000
<b>Average Detector:</b>					
6230.000	7.494	23.700	31.194	-22.806	54.000
<b>Vertical</b>					
<b>Peak Detector:</b>					
6230.000	9.410	54.050	63.460	-10.540	74.000
10440.000	14.245	38.270	52.515	-21.485	74.000
15660.000	*	*	*	*	74.000
20880.000	*	*	*	*	74.000
26100.000	*	*	*	*	74.000
<b>Average Detector:</b>					
6230.000	9.410	25.440	34.850	-19.150	54.000

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 = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss - Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Access Point/Sensor  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5240MHz)

Frequency MHz	Correct Factor dB	Reading Level dB $\mu$ V	Measurement Level dB $\mu$ V/m	Margin dB	Limit dB $\mu$ V/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
6230.000	7.494	48.490	55.984	-18.016	74.000
10480.000	13.693	37.390	51.084	-22.916	74.000
15720.000	*	*	*	*	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	74.000
<b>Average</b>					
<b>Detector:</b>					
6230.000	7.494	24.330	31.824	-22.176	54.000
<b>Vertical</b>					
<b>Peak Detector:</b>					
6230.000	9.410	54.070	63.480	-10.520	74.000
10480.000	14.620	37.450	52.071	-21.929	74.000
15720.000	*	*	*	*	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	74.000
<b>Average</b>					
<b>Detector:</b>					
6230.000	9.410	25.700	35.110	-18.890	54.000

Note:

- All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- Measurement Level = Reading Level + Correct Factor.
- Correct Factor = Antenna factor + Cable loss – Amplifier gain.
- The average measurement was not performed when the peak measured data under the limit of average detection.
- The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Access Point/Sensor  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5745MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
6230.000	7.494	48.850	56.344	-17.656	74.000
11490.000	17.106	36.170	53.277	-20.723	74.000
17235.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
<b>Average</b>					
<b>Detector:</b>					
6230.000	7.494	24.790	32.284	-21.716	54.000
<b>Vertical</b>					
<b>Peak Detector:</b>					
6230.000	9.410	54.230	63.640	-10.360	74.000
11490.000	18.034	35.800	53.835	-20.165	74.000
17235.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
<b>Average</b>					
<b>Detector:</b>					
6230.000	9.410	25.490	34.900	-19.100	54.000

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 = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Access Point/Sensor  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5785MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
11570.000	16.809	35.850	52.659	-21.341	74.000
17355.000	*	*	*	*	74.000
20800.000	*	*	*	*	74.000
26000.000	*	*	*	*	74.000
31200.000	*	*	*	*	74.000
36400.000	*	*	*	*	74.000
<b>Average Detector:</b>					
--					
<b>Vertical</b>					
<b>Peak Detector:</b>					
11570.000	17.698	36.030	53.728	-20.272	74.000
17355.000	*	*	*	*	74.000
20800.000	*	*	*	*	74.000
26000.000	*	*	*	*	74.000
31200.000	*	*	*	*	74.000
36400.000	*	*	*	*	74.000
<b>Average Detector:</b>					
--					

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 = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Access Point/Sensor  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5825MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
6230.000	7.494	49.010	56.504	-17.496	74.000
11650.000	16.158	34.580	50.738	-23.262	74.000
17475.000	*	*	*	*	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	74.000
31440000	*	*	*	*	74.000
36680.000	*	*	*	*	74.000
<b>Average Detector:</b>					
6230.000	7.494	24.960	32.454	-21.546	54.000
<b>Vertical</b>					
<b>Peak Detector:</b>					
6230.000	9.410	54.030	63.440	-10.560	74.000
11650.000	17.274	34.460	51.735	-22.265	74.000
17475.000	*	*	*	*	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	74.000
31440000	*	*	*	*	74.000
36680.000	*	*	*	*	74.000
<b>Average Detector:</b>					
6230.000	9.410	25.710	35.120	-18.880	54.000

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 = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Access Point/Sensor  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmit (802.11n-20BW 14.4Mbps) (5180MHz)

Frequency MHz	Correct Factor dB	Reading Level dB $\mu$ V	Measurement Level dB $\mu$ V/m	Margin dB	Limit dB $\mu$ V/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
10360.000	12.930	38.020	50.950	-23.050	74.000
15540.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
<b>Average Detector:</b>					
--					
<b>Vertical</b>					
<b>Peak Detector:</b>					
10360.000	13.724	38.080	51.804	-22.196	74.000
15540.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
<b>Average Detector:</b>					
--					

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 = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Access Point/Sensor  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmit (802.11n-20BW 14.4Mbps) (5220MHz)

Frequency MHz	Correct Factor dB	Reading Level dB $\mu$ V	Measurement Level dB $\mu$ V/m	Margin dB	Limit dB $\mu$ V/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
6230.000	7.494	49.600	57.094	-16.906	74.000
10440.000	13.322	37.640	50.962	-23.038	74.000
15660.000	*	*	*	*	74.000
20880.000	*	*	*	*	74.000
26100.000	*	*	*	*	74.000
<b>Average Detector:</b>					
6230.000	7.494	24.890	32.384	-21.616	54.000
<b>Vertical</b>					
<b>Peak Detector:</b>					
6230.000	9.410	55.160	64.570	-9.430	74.000
10440.000	14.245	38.210	52.455	-21.545	74.000
15660.000	*	*	*	*	74.000
20880.000	*	*	*	*	74.000
26100.000	*	*	*	*	74.000
<b>Average Detector:</b>					
6230.000	9.410	24.740	34.150	-19.850	54.000

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 = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss - Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Access Point/Sensor  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmit (802.11n-20BW 14.4Mbps) (5240MHz)

Frequency MHz	Correct Factor dB	Reading Level dB $\mu$ V	Measurement Level dB $\mu$ V/m	Margin dB	Limit dB $\mu$ V/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
6230.000	7.494	50.140	57.634	-16.366	74.000
10480.000	13.693	38.620	52.314	-21.686	74.000
15720.000	*	*	*	*	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	74.000
<b>Average Detector:</b>					
6230.000	7.494	24.310	31.804	-22.196	54.000
<b>Vertical</b>					
<b>Peak Detector:</b>					
6230.000	9.410	54.280	63.690	-10.310	74.000
10480.000	14.620	37.090	51.711	-22.289	74.000
15720.000	*	*	*	*	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	74.000
<b>Average Detector:</b>					
6230.000	9.410	24.980	34.390	-19.610	54.000

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 = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.



Product : Access Point/Sensor  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmit (802.11n-20BW 14.4Mbps) (5745MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
6230.000	7.494	49.420	56.914	-17.086	74.000
11490.000	17.106	36.070	53.177	-20.823	74.000
17235.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
<b>Average Detector:</b>					
6230.000	7.494	24.370	31.864	-22.136	54.000
<b>Vertical</b>					
<b>Peak Detector:</b>					
6230.000	9.410	55.070	64.480	-9.520	74.000
11490.000	18.034	35.820	53.855	-20.145	74.000
17235.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
<b>Average Detector:</b>					
6230.000	9.410	25.470	34.880	-19.120	54.000

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 = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss - Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Access Point/Sensor  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmit (802.11n-20BW 14.4Mbps) (5785MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
11570.000	16.809	35.600	52.409	-21.591	74.000
17355.000	*	*	*	*	74.000
20880.000	*	*	*	*	74.000
26100.000	*	*	*	*	74.000
31320.000	*	*	*	*	74.000
36540.000	*	*	*	*	74.000
<b>Average Detector:</b>					
--					
<b>Vertical</b>					
<b>Peak Detector:</b>					
11570.000	17.698	35.830	53.528	-20.472	74.000
17355.000	*	*	*	*	74.000
20880.000	*	*	*	*	74.000
26100.000	*	*	*	*	74.000
31320.000	*	*	*	*	74.000
36540.000	*	*	*	*	74.000
<b>Average Detector:</b>					
--					

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 = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Access Point/Sensor  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmit (802.11n-20BW 14.4Mbps) (5825MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
6230.000	7.494	49.570	57.064	-16.936	74.000
11650.000	16.158	34.570	50.728	-23.272	74.000
17475.000	*	*	*	*	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	74.000
31440.000	*	*	*	*	74.000
36680.000	*	*	*	*	74.000
<b>Average Detector:</b>					
6230.000	7.494	24.600	32.094	-21.906	54.000
<b>Vertical</b>					
<b>Peak Detector:</b>					
6230.000	9.410	54.490	63.900	-10.100	74.000
11650.000	17.274	34.720	51.995	-22.005	74.000
17475.000	*	*	*	*	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	74.000
31440.000	*	*	*	*	74.000
36680.000	*	*	*	*	74.000
<b>Average Detector:</b>					
6230.000	9.410	25.110	34.520	-19.480	54.000

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 = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Access Point/Sensor  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 3: Transmit (802.11n-40BW 30Mbps) (5190MHz)

Frequency MHz	Correct Factor dB	Reading Level dB $\mu$ V	Measurement Level dB $\mu$ V/m	Margin dB	Limit dB $\mu$ V/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
6230.000	7.494	49.550	57.044	-16.956	74.000
10380.000	12.939	38.250	51.189	-22.811	74.000
15570.000	*	*	*	*	74.000
20760.000	*	*	*	*	74.000
25950.000	*	*	*	*	74.000
<b>Average Detector:</b>					
6230.000	7.494	24.680	32.174	-21.826	54.000
<b>Vertical</b>					
<b>Peak Detector:</b>					
6230.000	9.410	55.720	65.130	-8.870	74.000
10380.000	13.796	38.130	51.926	-22.074	74.000
15570.000	*	*	*	*	74.000
20760.000	*	*	*	*	74.000
25950.000	*	*	*	*	74.000
<b>Average Detector:</b>					
6230.000	9.410	24.630	34.040	-19.960	54.000

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 = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss - Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Access Point/Sensor  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 3: Transmit (802.11n-40BW 30Mbps) (5230MHz)

Frequency MHz	Correct Factor dB	Reading Level dB $\mu$ V	Measurement Level dB $\mu$ V/m	Margin dB	Limit dB $\mu$ V/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
10460.000	13.508	37.590	51.098	-22.902	74.000
15690.000	*	*	*	*	74.000
20920.000	*	*	*	*	74.000
26150.000	*	*	*	*	74.000
<b>Average Detector:</b>					
--					
<b>Vertical</b>					
<b>Peak Detector:</b>					
10460.000	14.433	37.690	52.123	-21.877	74.000
15690.000	*	*	*	*	74.000
20920.000	*	*	*	*	74.000
26150.000	*	*	*	*	74.000
<b>Average Detector:</b>					
--					

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 = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss - Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Access Point/Sensor  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 3: Transmit (802.11n-40BW 30Mbps) (5755MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
6230.000	7.494	49.630	57.124	-16.876	74.000
11510.000	17.124	35.880	53.004	-20.996	74.000
17265.000	*	*	*	*	74.000
20760.000	*	*	*	*	74.000
25950.000	*	*	*	*	74.000
31140.000	*	*	*	*	74.000
36330.000	*	*	*	*	74.000
<b>Average Detector:</b>					
6230.000	7.494	24.660	32.154	-21.846	54.000
<b>Vertical</b>					
<b>Peak Detector:</b>					
6230.000	9.410	54.580	63.990	-10.010	74.000
11510.000	18.081	35.520	53.601	-20.399	74.000
17265.000	*	*	*	*	74.000
20760.000	*	*	*	*	74.000
25950.000	*	*	*	*	74.000
31140.000	*	*	*	*	74.000
36330.000	*	*	*	*	74.000
<b>Average Detector:</b>					
6230.000	9.410	24.590	34.000	-20.000	54.000

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 = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Access Point/Sensor  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 3: Transmit (802.11n-40BW 30Mbps) (5795MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
11590.000	16.701	35.440	52.140	-21.860	74.000
17385.000	*	*	*	*	74.000
20920.000	*	*	*	*	74.000
26150.000	*	*	*	*	74.000
31380.000	*	*	*	*	74.000
36610.000	*	*	*	*	74.000
<b>Average Detector:</b>					
--					
<b>Vertical</b>					
<b>Peak Detector:</b>					
11590.000	17.567	35.140	52.706	-21.294	74.000
17385.000	*	*	*	*	74.000
20920.000	*	*	*	*	74.000
26150.000	*	*	*	*	74.000
31380.000	*	*	*	*	74.000
36610.000	*	*	*	*	74.000
<b>Average Detector:</b>					
--					

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 = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Access Point/Sensor  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 4 Transmit (802.11ac-80BW-65Mbps) (5210MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
10420.000	13.135	37.800	50.935	-23.065	74.000
11550.000	*	*	*	*	74.000
17325.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
<b>Average Detector:</b>					
--					
<b>Vertical</b>					
<b>Peak Detector:</b>					
10420.000	14.057	37.720	51.777	-22.223	74.000
11550.000	*	*	*	*	74.000
17325.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
<b>Average Detector:</b>					
--					

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 = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.



Product : Access Point/Sensor  
 Test Item : Harmonic Radiated Emission Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 4 Transmit (802.11ac-80BW-65Mbps) (5775MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Limit dBuV/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
6200.000	7.758	49.430	57.189	-16.811	74.000
11550.000	16.914	35.310	52.224	-21.776	74.000
17325.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
<b>Average</b>					
<b>Detector:</b>					
6200.000	7.758	23.730	31.489	-22.511	54.000
<b>Vertical</b>					
<b>Peak Detector:</b>					
11550.000	17.826	35.420	53.245	-20.755	74.000
17325.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
<b>Average</b>					
<b>Detector:</b>					

--

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 = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Access Point/Sensor  
 Test Item : General Radiated Emission  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5220MHz)

Frequency MHz	Correct Factor dB	Reading Level dB $\mu$ V	Measurement Level dB $\mu$ V/m	Margin dB	Limit dB $\mu$ V/m
<b>Horizontal</b>					
<b>Peak Detector</b>					
161.920	-11.626	47.213	35.588	-7.912	43.500
392.780	-2.096	36.327	34.231	-11.769	46.000
483.960	-0.688	36.919	36.232	-9.768	46.000
600.360	3.977	33.950	37.927	-8.073	46.000
712.880	3.569	27.806	31.375	-14.625	46.000
961.200	6.450	43.499	49.949	-4.051	54.000

<b>Vertical</b>					
<b>Peak Detector</b>					
111.480	-0.954	35.740	34.786	-8.714	43.500
181.320	-9.512	44.271	34.759	-8.741	43.500
222.060	-8.789	43.212	34.423	-11.577	46.000
286.080	-8.097	45.106	37.009	-8.991	46.000
365.620	-2.179	34.574	32.395	-13.605	46.000
747.800	2.166	30.672	32.838	-13.162	46.000

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 = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. No emission found between lowest internal used/generated frequency to 30MHz.

Product : Access Point/Sensor  
 Test Item : General Radiated Emission  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmit (802.11n-20BW 14.4Mbps) (5785MHz)

Frequency MHz	Correct Factor dB	Reading Level dB $\mu$ V	Measurement Level dB $\mu$ V/m	Margin dB	Limit dB $\mu$ V/m
<b>Horizontal</b>					
<b>Peak Detector</b>					
134.760	-7.473	45.851	38.378	-5.122	43.500
462.620	3.589	37.276	40.865	-5.135	46.000
598.420	3.524	35.198	38.722	-7.278	46.000
666.320	1.879	36.476	38.355	-7.645	46.000
800.180	6.417	33.109	39.526	-6.474	46.000
957.320	6.615	29.553	36.168	-9.832	46.000
<b>Vertical</b>					
<b>Peak Detector</b>					
111.480	-3.439	41.499	38.061	-5.439	43.500
299.660	-4.061	42.259	38.198	-7.802	46.000
666.320	-0.951	38.277	37.326	-8.674	46.000
796.300	2.639	35.926	38.565	-7.435	46.000
897.180	0.937	36.630	37.567	-8.433	46.000
957.320	3.015	31.693	34.708	-11.292	46.000

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 = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss - Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. No emission found between lowest internal used/generated frequency to 30MHz.

Product : Access Point/Sensor  
 Test Item : General Radiated Emission  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmit (802.11n-20BW 14.4Mbps) (5220MHz)

Frequency MHz	Correct Factor dB	Reading Level dB $\mu$ V	Measurement Level dB $\mu$ V/m	Margin dB	Limit dB $\mu$ V/m
<b>Horizontal</b>					
<b>Peak Detector</b>					
171.620	-10.242	44.542	34.300	-9.200	43.500
406.360	-2.500	35.772	33.272	-12.728	46.000
559.620	1.664	33.160	34.824	-11.176	46.000
608.120	4.384	29.852	34.236	-11.764	46.000
720.640	3.511	31.804	35.315	-10.685	46.000
961.200	6.450	43.648	50.098	-3.902	54.000
<b>Vertical</b>					
<b>Peak Detector</b>					
159.980	-6.185	38.478	32.293	-11.207	43.500
288.020	-8.189	44.244	36.055	-9.945	46.000
390.840	-3.099	37.207	34.108	-11.892	46.000
509.180	-0.158	31.207	31.049	-14.951	46.000
687.660	2.444	27.477	29.921	-16.079	46.000
961.200	7.260	36.351	43.611	-10.389	54.000

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 = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss - Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. No emission found between lowest internal used/generated frequency to 30MHz.

Product : Access Point/Sensor  
 Test Item : General Radiated Emission  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmit (802.11n-20BW 14.4Mbps) (5785MHz)

Frequency MHz	Correct Factor dB	Reading Level dB $\mu$ V	Measurement Level dB $\mu$ V/m	Margin dB	Limit dB $\mu$ V/m
<b>Horizontal</b>					
<b>Peak Detector</b>					
134.760	-7.473	45.210	37.737	-5.763	43.500
365.620	0.382	42.174	42.556	-3.444	46.000
536.340	3.239	37.783	41.022	-4.978	46.000
800.180	6.417	31.655	38.072	-7.928	46.000
833.160	6.616	33.366	39.982	-6.018	46.000
955.380	6.596	30.199	36.795	-9.205	46.000
<b>Vertical</b>					
<b>Peak Detector</b>					
111.480	-3.439	40.500	37.062	-6.438	43.500
299.660	-4.061	41.931	37.870	-8.130	46.000
359.800	-1.316	37.850	36.534	-9.466	46.000
598.420	1.114	33.735	34.849	-11.151	46.000
796.300	2.639	34.991	37.630	-8.370	46.000
957.320	3.015	32.241	35.256	-10.744	46.000

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 = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss - Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. No emission found between lowest internal used/generated frequency to 30MHz.

Product : Access Point/Sensor  
 Test Item : General Radiated Emission  
 Test Site : No.3 OATS  
 Test Mode : Mode 3: Transmit (802.11n-40BW 30Mbps) (5190MHz)

Frequency MHz	Correct Factor dB	Reading Level dB $\mu$ V	Measurement Level dB $\mu$ V/m	Margin dB	Limit dB $\mu$ V/m
<b>Horizontal</b>					
<b>Peak Detector</b>					
101.780	-7.141	42.502	35.361	-8.139	43.500
152.220	-10.135	40.694	30.559	-12.941	43.500
369.500	-1.098	35.487	34.389	-11.611	46.000
468.440	1.195	33.790	34.985	-11.015	46.000
600.360	3.977	36.226	40.203	-5.797	46.000
961.200	6.450	42.479	48.929	-5.071	54.000

<b>Vertical</b>					
<b>Peak Detector</b>					
119.240	-3.541	34.451	30.910	-12.590	43.500
237.580	-8.970	49.206	40.236	-5.764	46.000
357.860	-3.734	40.629	36.895	-9.105	46.000
480.080	-4.359	35.967	31.608	-14.392	46.000
687.660	2.444	28.304	30.748	-15.252	46.000
831.220	2.561	33.565	36.126	-9.874	46.000

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 = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss - Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. No emission found between lowest internal used/generated frequency to 30MHz.

Product : Access Point/Sensor  
 Test Item : General Radiated Emission  
 Test Site : No.3 OATS  
 Test Mode : Mode 3: Transmit (802.11n-40BW 30Mbps) (5755MHz)

Frequency MHz	Correct Factor dB	Reading Level dB $\mu$ V	Measurement Level dB $\mu$ V/m	Margin dB	Limit dB $\mu$ V/m
<b>Horizontal</b>					
<b>Peak Detector</b>					
134.760	-7.473	45.597	38.124	-5.376	43.500
359.800	-0.226	41.537	41.311	-4.689	46.000
460.680	4.030	35.894	39.924	-6.076	46.000
600.360	3.472	36.160	39.632	-6.368	46.000
854.500	7.380	32.122	39.502	-6.498	46.000
930.160	7.530	30.408	37.938	-8.062	46.000
<b>Vertical</b>					
<b>Peak Detector</b>					
111.480	-3.439	41.112	37.674	-5.826	43.500
299.660	-4.061	42.357	38.296	-7.704	46.000
600.360	1.302	33.112	34.414	-11.586	46.000
664.380	-0.978	38.036	37.058	-8.942	46.000
796.300	2.639	35.199	37.838	-8.162	46.000
901.060	1.858	35.042	36.900	-9.100	46.000

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 = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. No emission found between lowest internal used/generated frequency to 30MHz.

Product : Access Point/Sensor  
 Test Item : General Radiated Emission  
 Test Site : No.3 OATS  
 Test Mode : Mode 4 Transmit (802.11ac-80BW-65Mbps) (5210MHz)

Frequency MHz	Correct Factor dB	Reading Level dB $\mu$ V	Measurement Level dB $\mu$ V/m	Margin dB	Limit dB $\mu$ V/m
<b>Horizontal</b>					
<b>Peak Detector</b>					
145.430	-7.730	35.217	27.487	-16.013	43.500
288.990	-5.513	34.018	28.505	-17.495	46.000
445.160	-0.432	35.396	34.964	-11.036	46.000
593.570	3.492	36.997	40.489	-5.511	46.000
741.980	3.892	33.645	37.537	-8.463	46.000
890.390	6.515	28.174	34.689	-11.311	46.000
<b>Vertical</b>					
<b>Peak Detector</b>					
84.320	-4.204	34.902	30.698	-9.302	40.000
126.030	-3.719	31.069	27.351	-16.149	43.500
296.750	-4.521	32.887	28.366	-17.634	46.000
445.160	-6.402	37.550	31.148	-14.852	46.000
682.810	1.817	25.857	27.674	-18.326	46.000
844.800	2.462	23.074	25.536	-20.464	46.000

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 = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss - Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. No emission found between lowest internal used/generated frequency to 30MHz.



Product : Access Point/Sensor  
 Test Item : General Radiated Emission  
 Test Site : No.3 OATS  
 Test Mode : Mode 4 Transmit (802.11ac-80BW-65Mbps) (5775MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level	dB	dB $\mu$ V/m
	dB	dB $\mu$ V	dB $\mu$ V/m		

### Horizontal

#### Peak Detector

309.360	-3.740	40.208	36.468	-9.532	46.000
400.540	-2.276	36.097	33.821	-12.179	46.000
499.480	0.048	32.258	32.306	-13.694	46.000
600.360	3.977	27.098	31.075	-14.925	46.000
668.260	2.016	30.454	32.470	-13.530	46.000
798.240	5.148	26.122	31.270	-14.730	46.000

### Vertical

#### Peak Detector

109.540	-0.418	32.944	32.526	-10.974	43.500
212.360	-7.981	39.360	31.379	-12.121	43.500
332.640	-4.914	36.304	31.390	-14.610	46.000
499.480	-0.852	32.115	31.263	-14.737	46.000
623.640	-2.631	29.711	27.080	-18.920	46.000
868.080	0.641	33.224	33.865	-12.135	46.000

#### 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 = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss - Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. No emission found between lowest internal used/generated frequency to 30MHz.

## 6. Band Edge

### 6.1. Test Equipment

#### RF Conducted Measurement

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

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun., 2014
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun., 2014
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2014

Note:

1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
2. The test instruments marked with "X" are used to measure the final test results.

#### RF Radiated Measurement:

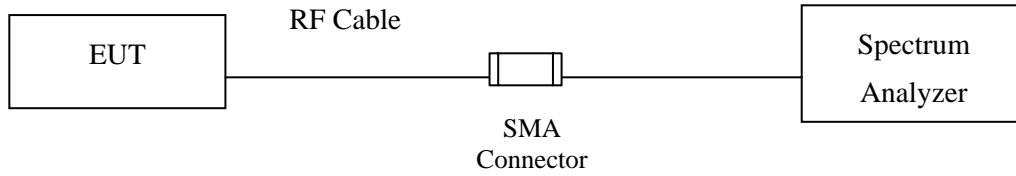
The following test equipments are used during the band edge tests:

Test Site	Equipment	Manufacturer	Model No./Serial No.	Last Cal.	
☒ Site # 3		Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2014
	X	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2014
		Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2014
		Pre-Amplifier	QTK	QTK-AMP-03 / 0003	May, 2014
	X	Pre-Amplifier	QTK	AP-180C / CHM_0906076	Sep., 2014
		Pre-Amplifier	MITEQ	AMF-4D-180400-45-6P/ 925975	Mar., 2014
	X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2014
		Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2014
	X	Coaxial Cable	Quietek	QTK-CABLE/ CAB5	Feb., 2014
	X	Controller	Quietek	QTK-CONTROLLER/ CTRL3	N/A
	X	Coaxial Switch	Anritsu	MP59B/6200265729	N/A

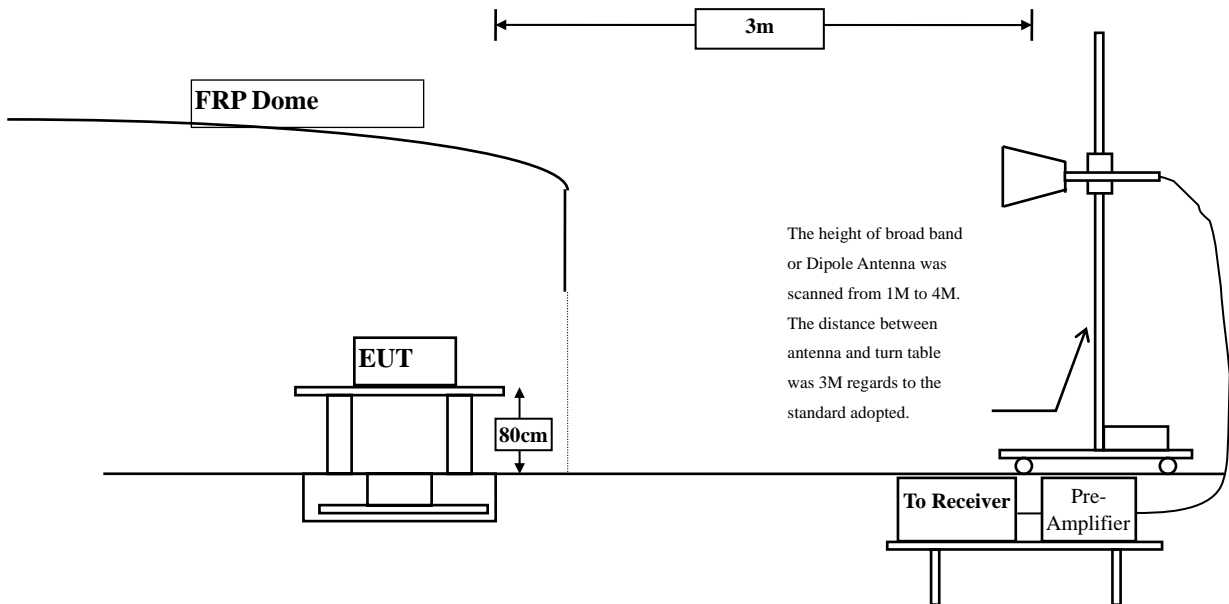
- Note:
1. All instruments are calibrated every one year.
  2. The test instruments marked by "X" are used to measure the final test results.

## 6.2. Test Setup

### RF Conducted Measurement:



### RF Radiated Measurement:



### 6.3. 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	dBµV/m@3m
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

- Remarks :
1. RF Voltage (dBµV) = 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.

### 6.4. 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 C63.10:2009 on radiated measurement.

The bandwidth below 1GHz setting on the field strength meter is 120 kHz, above 1GHz are 1 MHz. The EUT was setup to ANSI C63.10, 2009; tested to DTS test procedure of FCC KDB-789033 for compliance to FCC 47CFR Subpart E requirements.

### 6.5. Uncertainty

- ± 3.8 dB below 1GHz
- ± 3.9 dB above 1GHz

### 6.6. Test Result of Band Edge

Product : Access Point/Sensor  
 Test Item : Band Edge Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmit (802.11a-6Mbps)-Channel 36 (5180MHz)

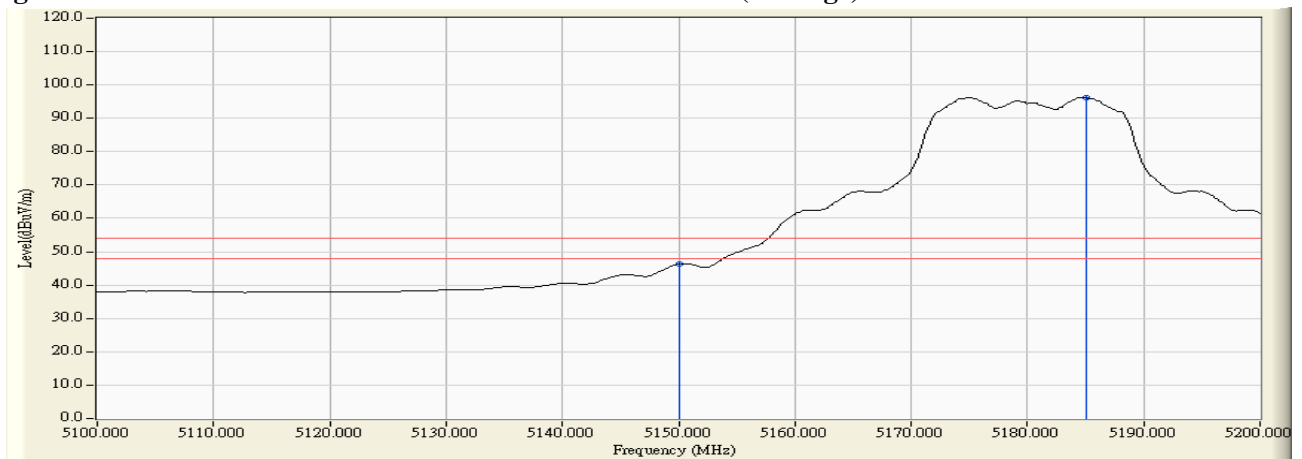
#### RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
36 (Peak)	5150.000	3.340	59.297	62.637	74.00	54.00	Pass
36 (Peak)	5185.000	3.217	104.764	107.980	--	--	--
36 (Average)	5150.000	3.340	42.844	46.184	74.00	54.00	Pass
36 (Average)	5185.000	3.217	93.066	96.282	--	--	--

Figure Channel 36: Horizontal (Peak)



Figure Channel 36: Horizontal (Average)



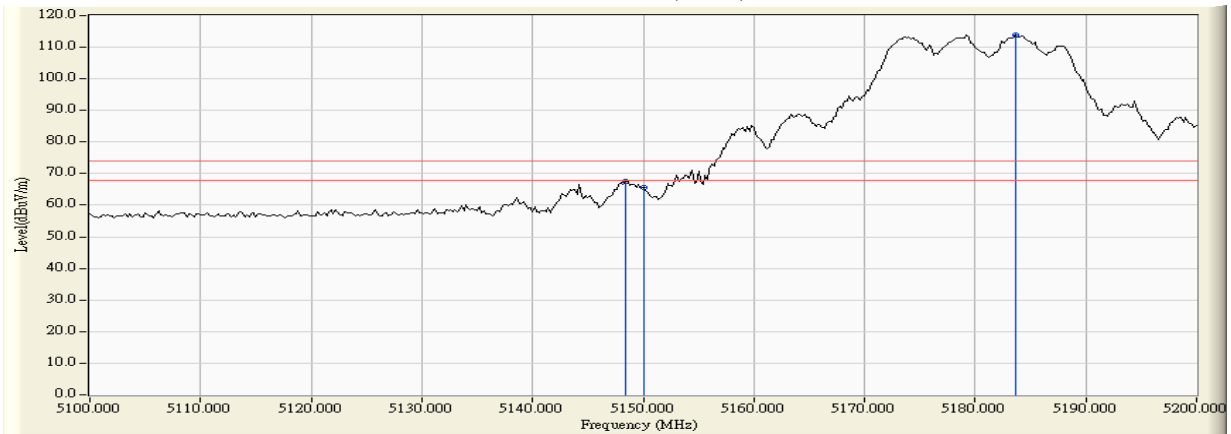
- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.  
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.  
 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.  
 4. “ \* ”, means this data is the worst emission level.  
 5. Measurement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

Product : Access Point/Sensor  
 Test Item : Band Edge Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmit (802.11a-6Mbps)-Channel 36 (5180MHz)

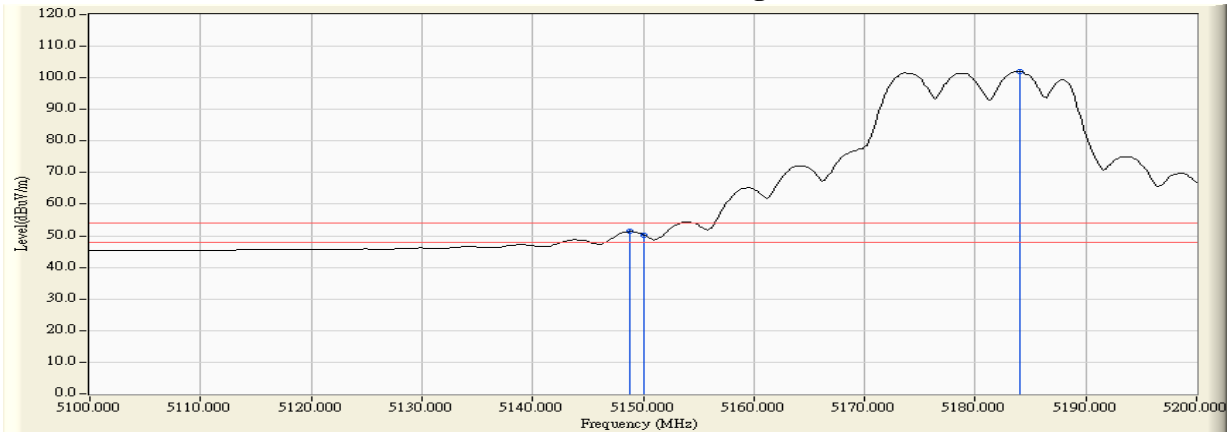
**RF Radiated Measurement (Vertical):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
36 (Peak)	5148.400	5.256	62.259	67.515	74.00	54.00	Pass
36 (Peak)	5150.000	5.260	60.221	65.481	74.00	54.00	Pass
36 (Peak)	5183.600	5.351	108.671	114.022	--	--	--
36 (Average)	5148.800	5.257	46.122	51.379	74.00	54.00	Pass
36 (Average)	5150.000	5.260	45.058	50.318	74.00	54.00	Pass
36 (Average)	5184.000	5.352	96.665	102.017	--	--	--

**Figure Channel 36: Vertical (Peak)**



**Figure Channel 36: Vertical (Average)**



**Note:**

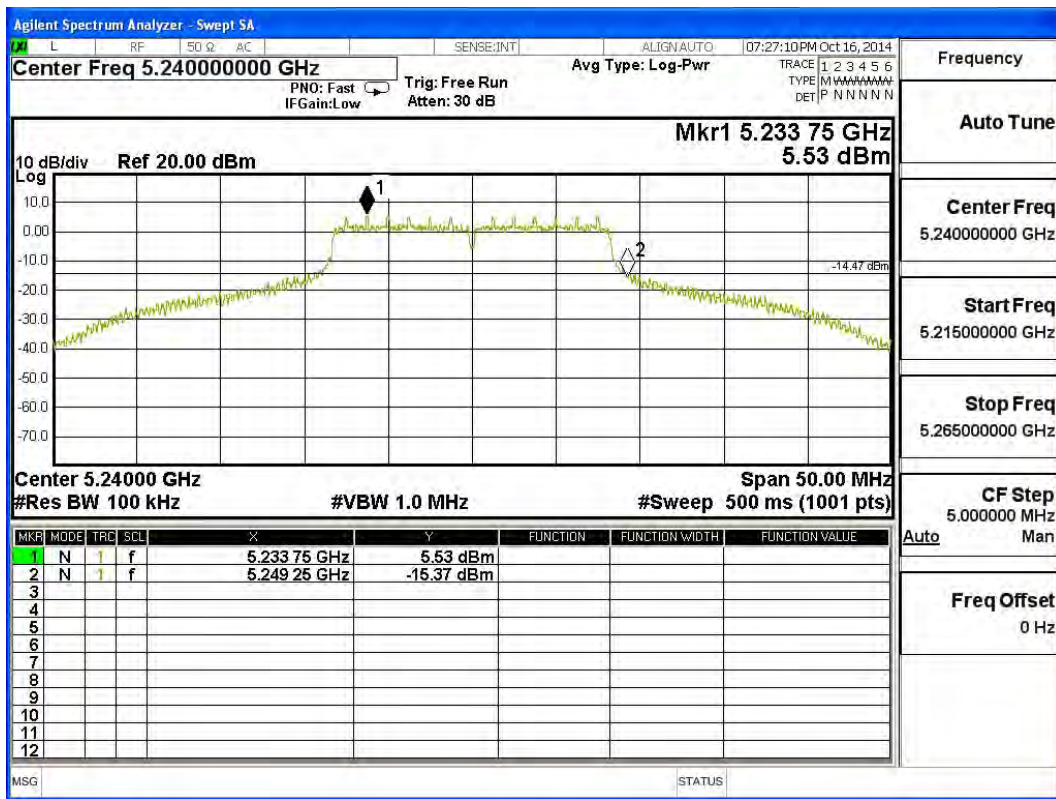
1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading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

Product : Access Point/Sensor  
 Test Item : Band Edge Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmit (802.11a-6Mbps)-Channel 48

**Chain A**

Test Frequency (MHz)	Measurement Level (20dB BW) (MHz)	Limit (MHz)	Result
5240	5249.25	<5250	PASS

NOTE: Accordance with 15.215 requirement.

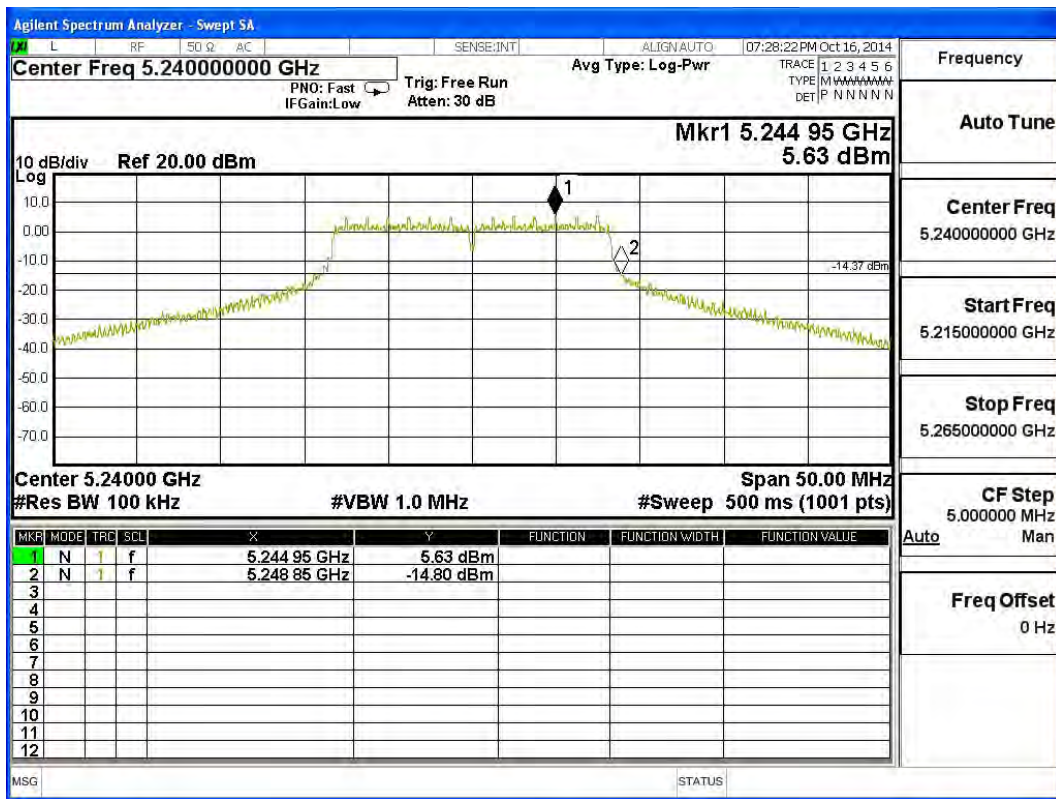


Product : Access Point/Sensor  
 Test Item : Band Edge Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmit (802.11a-6Mbps)-Channel 48

**Chain B**

Test Frequency (MHz)	Measurement Level (20dB BW) (MHz)	Limit (MHz)	Result
5240	5248.85	<5250	PASS

NOTE: Accordance with 15.215 requirement.





Product : Access Point/Sensor  
 Test Item : Band Edge Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmit (802.11a-6Mbps)-Channel 149

**RF Radiated Measurement:**

	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
Horizontal	5715.000	18.644	-73.880	-55.236	-28.236	-27.000	Pass
Horizontal	5725.000	19.372	-65.410	-46.038	-19.038	-17.000	Pass

	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
Vertical	5715.000	19.296	-71.240	-51.944	-24.944	-27.000	Pass
Vertical	5725.000	19.372	-60.830	-41.458	-24.458	-17.000	Pass

Product : Access Point/Sensor  
 Test Item : Band Edge Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmit (802.11a-6Mbps)-Channel 165

**RF Radiated Measurement:**

	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
Horizontal	5850.000	19.292	-70.250	-50.958	-33.958	-17.000	Pass
Horizontal	5860.000	19.415	-76.140	-56.725	-29.725	-27.000	Pass

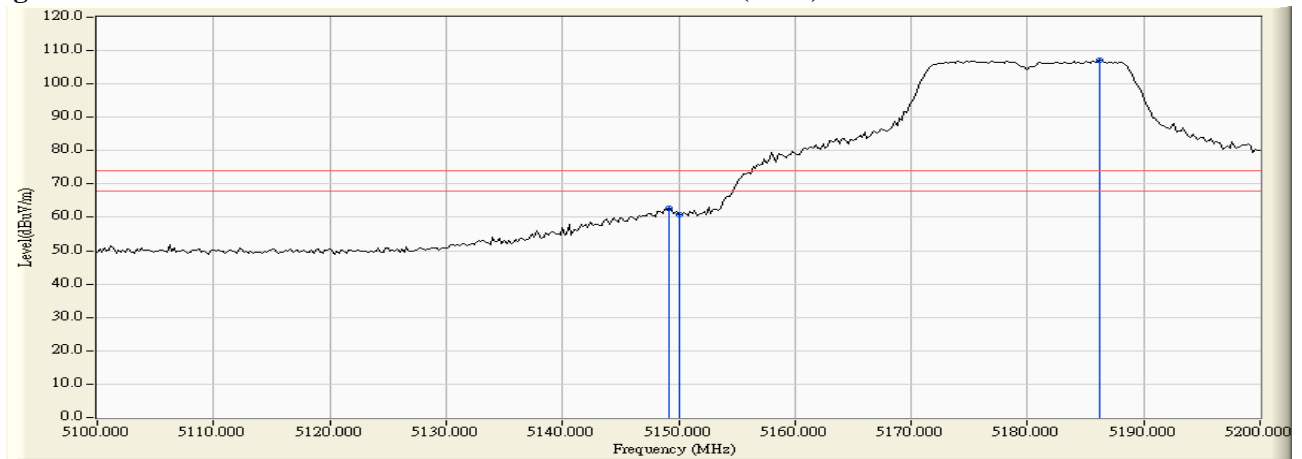
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
Vertical	5850.000	20.512	-66.770	-46.258	-29.258	-17.000	Pass
Vertical	5860.000	20.635	-73.010	-52.375	-25.375	-27.000	Pass

Product : Access Point/Sensor  
 Test Item : Band Edge Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmit (802.11n-20BW 14.4Mbps) -Channel 36 (5180MHz)

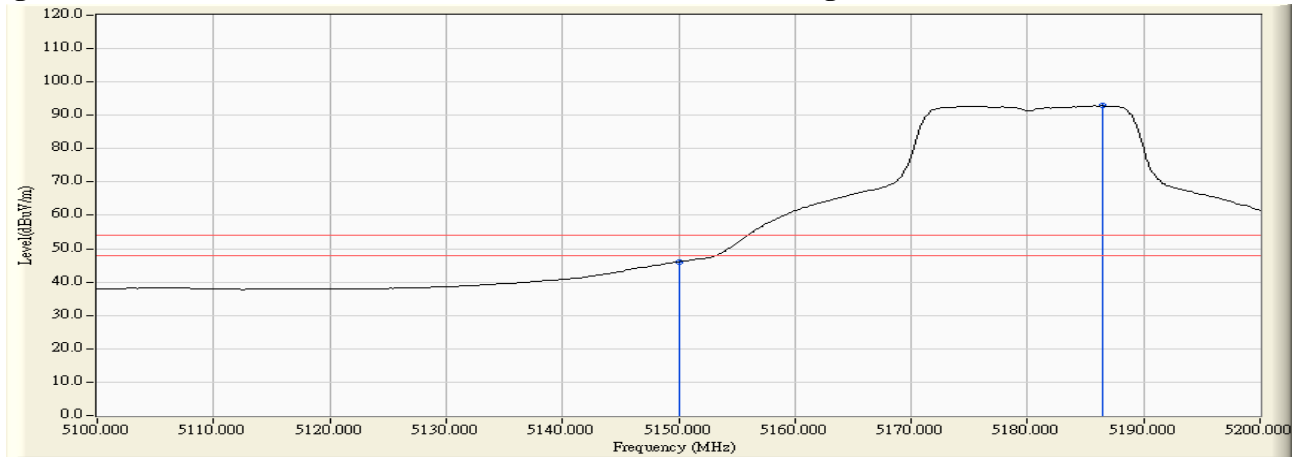
**RF Radiated Measurement (Horizontal):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
36 (Peak)	5149.200	3.343	59.235	62.578	74.00	54.00	Pass
36 (Peak)	5150.000	3.340	57.329	60.669	74.00	54.00	Pass
36 (Peak)	5186.200	3.213	103.897	107.109	--	--	--
36 (Average)	5150.000	3.340	42.752	46.092	74.00	54.00	Pass
36 (Average)	5186.400	3.211	89.627	92.839	--	--	--

**Figure Channel 36: Horizontal (Peak)**



**Figure Channel 36: Horizontal (Average)**



**Note:**

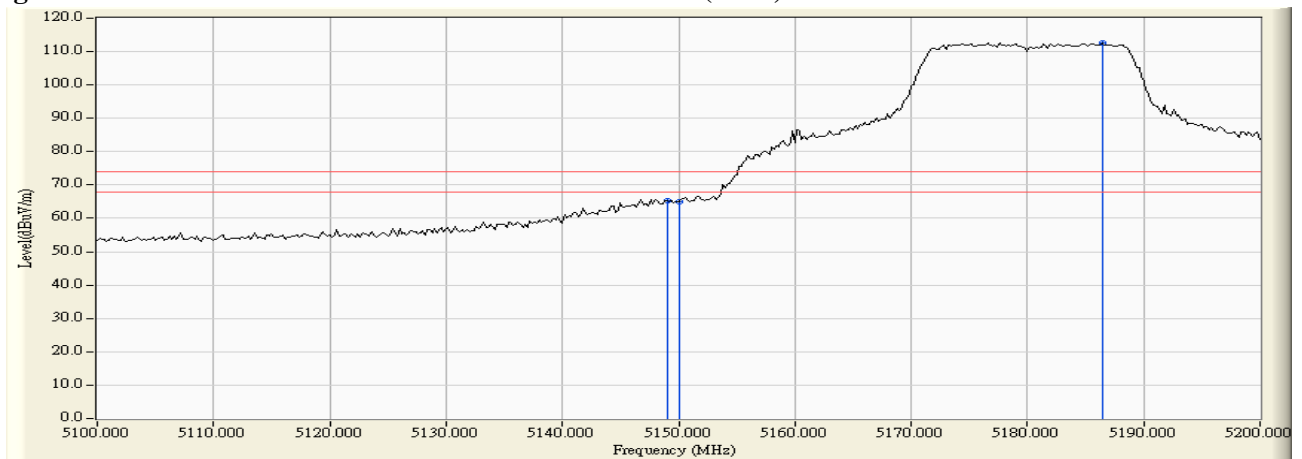
1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading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

Product : Access Point/Sensor  
 Test Item : Band Edge Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmit (802.11n-20BW 14.4Mbps) -Channel 36 (5180MHz)

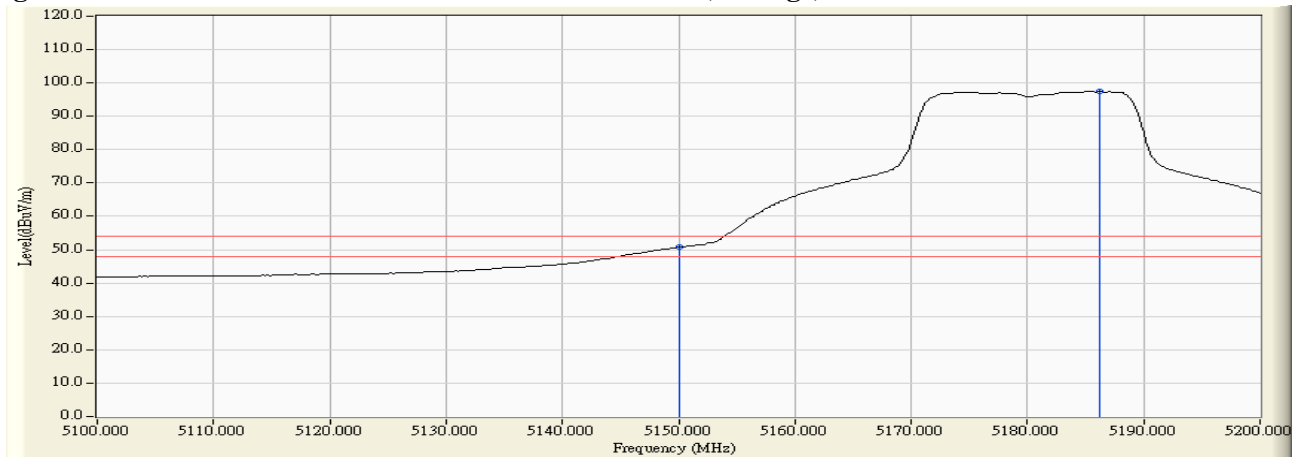
**RF Radiated Measurement (Vertical):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
36 (Peak)	5149.000	5.257	60.068	65.325	74.00	54.00	Pass
36 (Peak)	5150.000	5.260	59.807	65.067	74.00	54.00	Pass
36 (Peak)	5186.400	5.359	107.234	112.593	--	--	--
36 (Average)	5150.000	5.260	45.415	50.675	74.00	54.00	Pass
36 (Average)	5186.200	5.360	92.049	97.408	--	--	--

**Figure Channel 36: Vertical (Peak)**



**Figure Channel 36: Vertical (Average)**



**Note:**

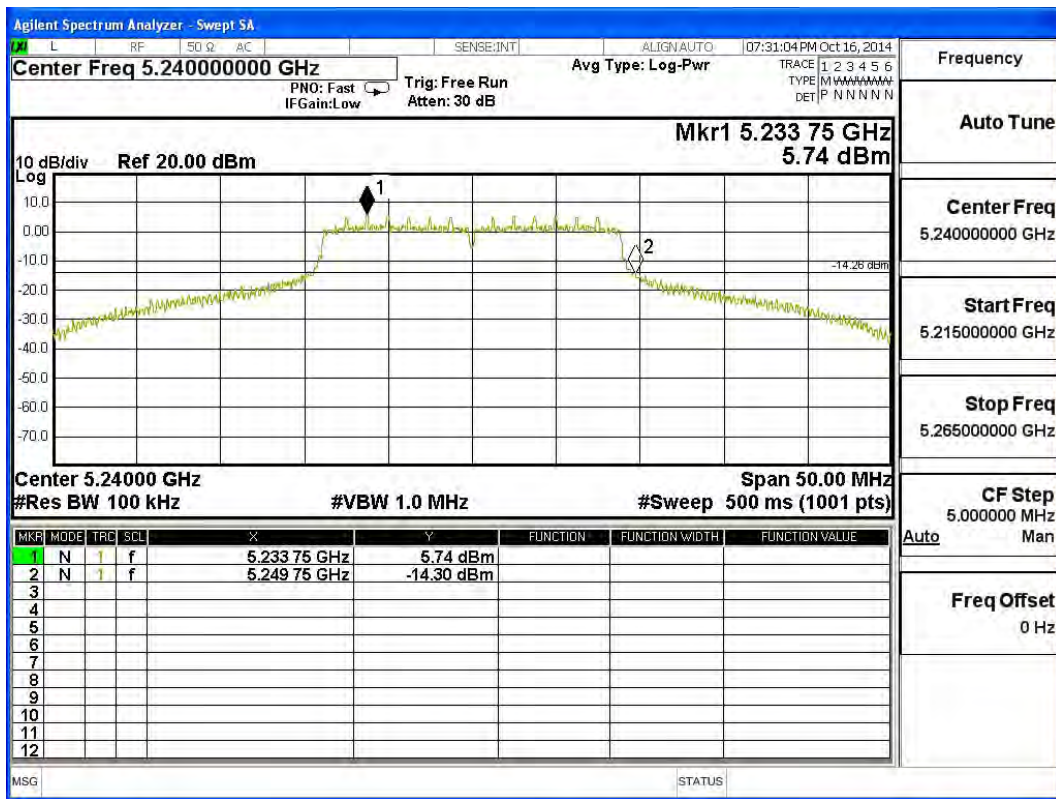
1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading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

Product : Access Point/Sensor  
 Test Item : Band Edge Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmit (802.11n-20BW 14.4Mbps) Channel 48

**Chain A**

Test Frequency (MHz)	Measurement Level (20dB BW) (MHz)	Limit (MHz)	Result
5240	5249.75	<5250	PASS

NOTE: Accordance with 15.215 requirement.

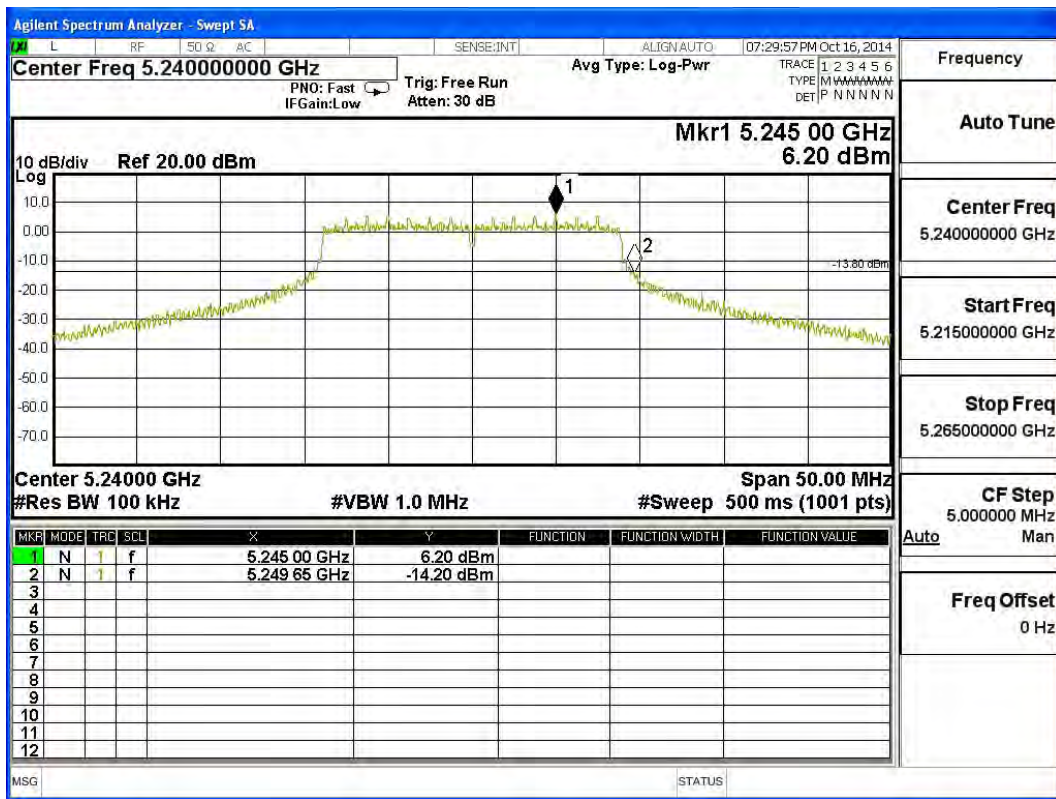


Product : Access Point/Sensor  
 Test Item : Band Edge Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmit (802.11n-20BW 14.4Mbps)-Channel 48

**Chain B**

Test Frequency (MHz)	Measurement Level (20dB BW) (MHz)	Limit (MHz)	Result
5240	5249.65	<5250	PASS

NOTE: Accordance with 15.215 requirement.



Product : Access Point/Sensor  
 Test Item : Band Edge Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmit (802.11n-20BW 14.4Mbps) -Channel 149

**RF Radiated Measurement:**

	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
Horizontal	5715.000	18.644	-73.810	-55.166	-28.166	-27.000	Pass
Horizontal	5725.000	18.649	-64.510	-45.861	-28.861	-17.000	Pass

	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
Vertical	5715.000	19.296	-69.360	-50.064	-23.064	-27.000	Pass
Vertical	5725.000	19.372	-57.890	-38.518	-21.518	-17.000	Pass

Product : Access Point/Sensor  
 Test Item : Band Edge Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmit (802.11n-20BW 14.4Mbps) -Channel 165

**RF Radiated Measurement:**

	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
Horizontal	5850.000	19.292	-70.920	-51.628	-34.628	-17.000	Pass
Horizontal	5860.000	19.415	-77.520	-58.105	-31.105	-27.000	Pass

	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
Vertical	5850.000	20.512	-66.370	-45.858	-28.858	-17.000	Pass
Vertical	5860.000	20.635	-72.100	-51.465	-24.465	-27.000	Pass

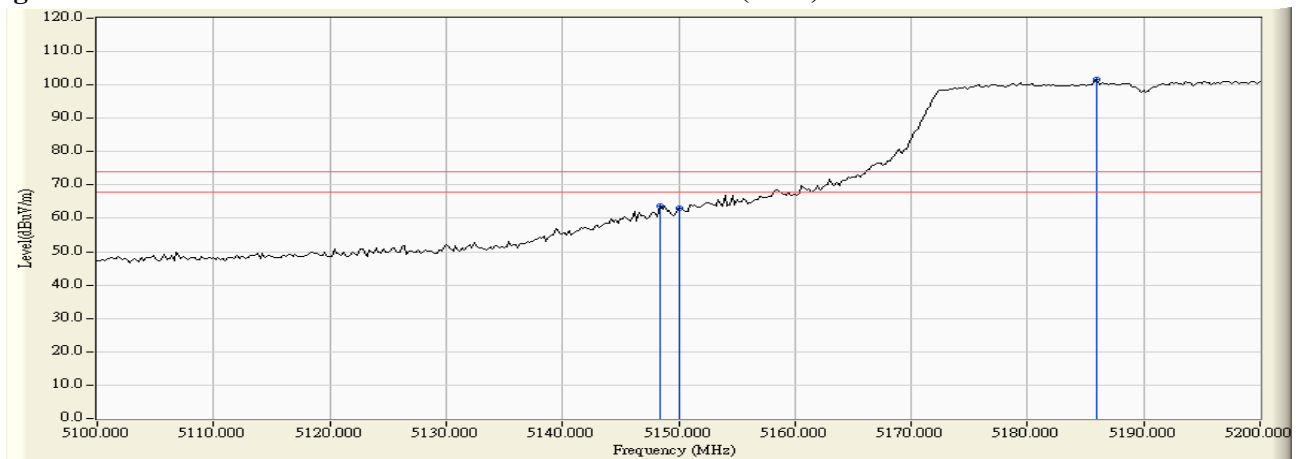


Product : Access Point/Sensor  
 Test Item : Band Edge Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 3: Transmit (802.11n-40BW 30Mbps) -Channel 38 (5190MHz)

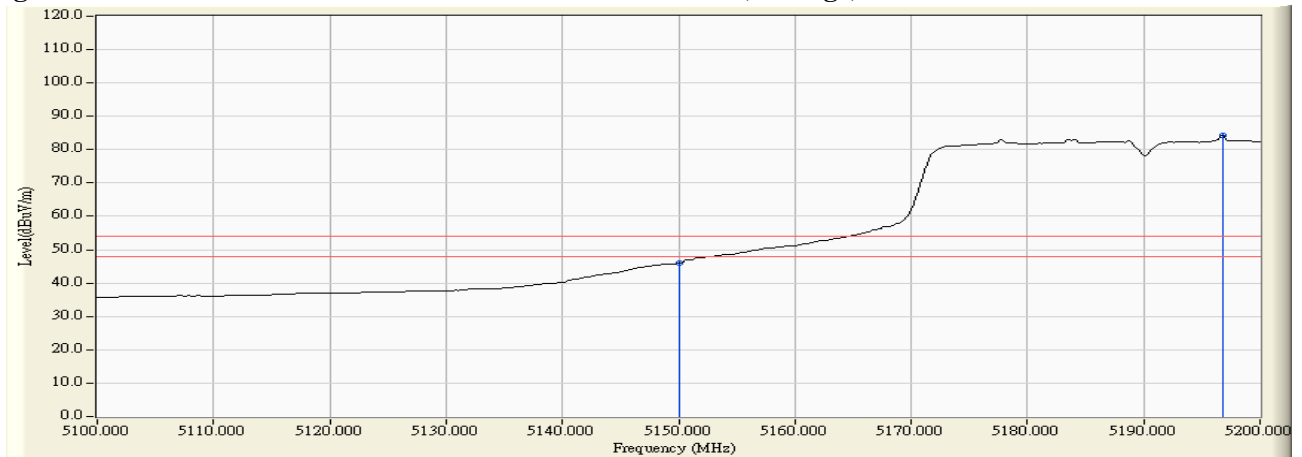
**RF Radiated Measurement (Horizontal):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
38 (Peak)	5148.400	3.346	60.449	63.795	74.00	54.00	Pass
38 (Peak)	5150.000	3.340	59.589	62.929	74.00	54.00	Pass
38 (Peak)	5186.000	3.214	98.352	101.565	--	--	--
38 (Average)	5150.000	3.340	42.594	45.934	74.00	54.00	Pass
38 (Average)	5196.800	3.165	80.980	84.146	--	--	--

**Figure Channel 38: Horizontal (Peak)**



**Figure Channel 38: Horizontal (Average)**



**Note:**

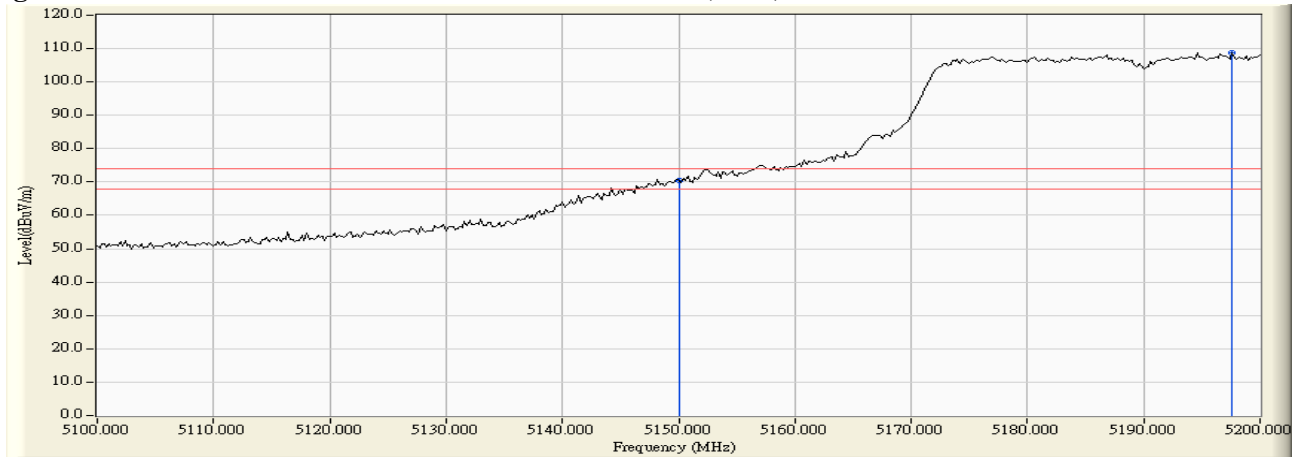
1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading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

Product : Access Point/Sensor  
 Test Item : Band Edge Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 3: Transmit (802.11n-40BW 30Mbps) -Channel 38 (5190MHz)

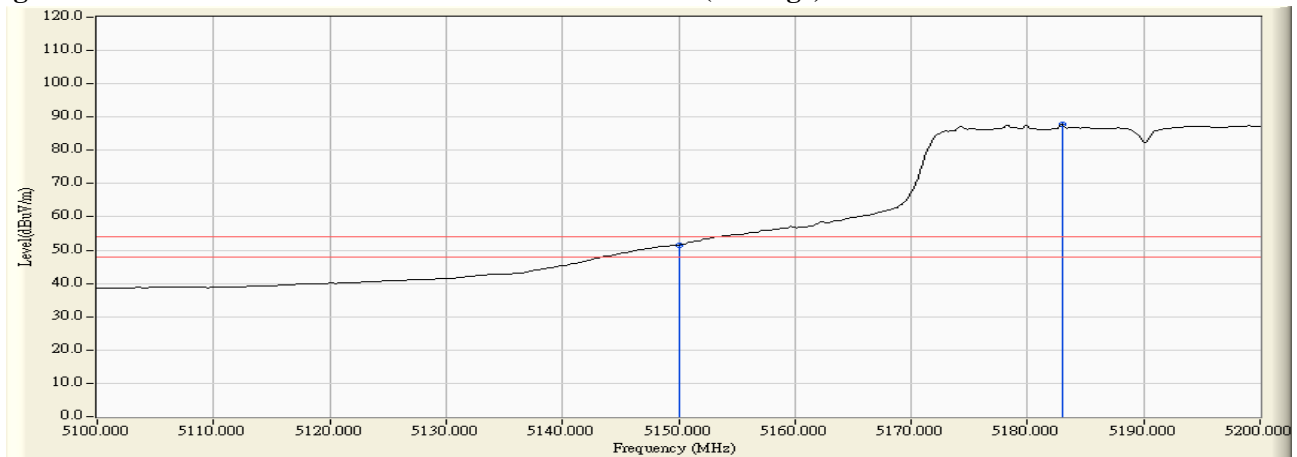
**RF Radiated Measurement (Vertical):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
38 (Peak)	5150.000	5.260	65.288	70.548	74.00	54.00	Pass
38 (Peak)	5197.600	5.380	103.494	108.874	--	--	--
38 (Average)	5150.000	5.260	46.314	51.574	74.00	54.00	Pass
38 (Average)	5183.000	5.350	82.325	87.675	--	--	--

**Figure Channel 38: Vertical (Peak)**



**Figure Channel 38: Vertical (Average)**



**Note:**

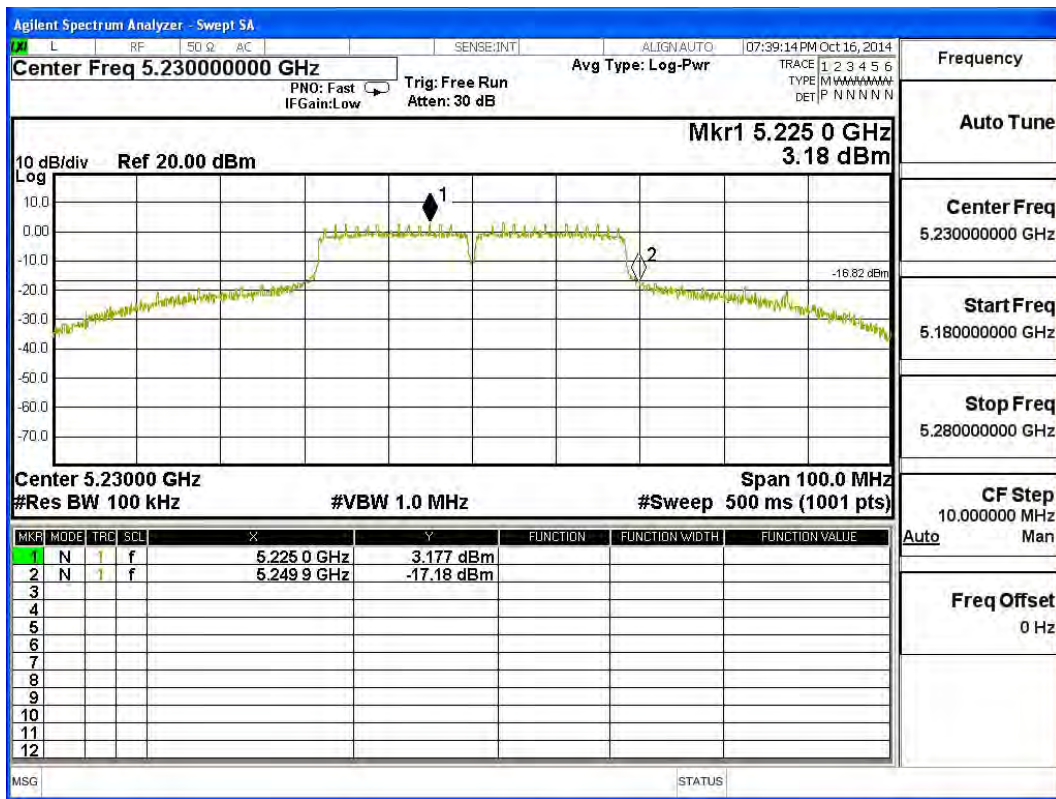
1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading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

Product : Access Point/Sensor  
 Test Item : Band Edge Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 3: Transmit (802.11n-40BW 30Mbps)-Channel 46

**Chain A**

Test Frequency (MHz)	Measurement Level (20dB BW) (MHz)	Limit (MHz)	Result
5230	5249.90	<5250	PASS

NOTE: Accordance with 15.215 requirement.

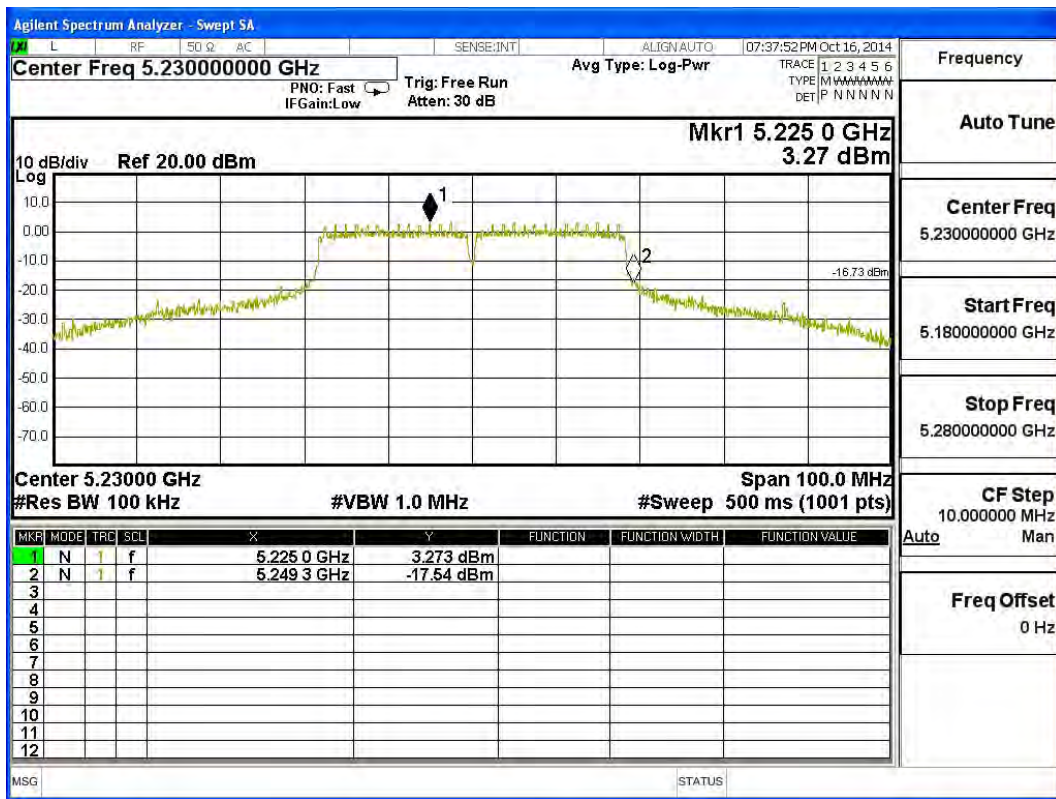


Product : Access Point/Sensor  
 Test Item : Band Edge Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 3: Transmit (802.11n-40BW 30Mbps)-Channel 46

**Chain B**

Test Frequency (MHz)	Measurement Level (20dB BW) (MHz)	Limit (MHz)	Result
5230	5249.30	<5250	PASS

NOTE: Accordance with 15.215 requirement.



Product : Access Point/Sensor  
 Test Item : Band Edge Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 3: Transmit (802.11n-40BW 30Mbps) -Channel 151

**RF Radiated Measurement :**

	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
Horizontal	5715.000	18.644	-62.500	-43.856	-16.856	-27.000	Pass
Horizontal	5725.000	18.649	-60.230	-41.581	-24.581	-17.000	Pass

	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
Vertical	5715.000	19.296	-56.850	-37.554	-10.554	-27.000	Pass
Vertical	5725.000	19.372	-52.510	-33.138	-16.138	-17.000	Pass

Product : Access Point/Sensor  
 Test Item : Band Edge Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 3: Transmit (802.11n-40BW 30Mbps) -Channel 159

**RF Radiated Measurement:**

	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
Horizontal	5850.000	19.292	-71.840	-52.548	-35.548	-17.000	Pass
Horizontal	5860.000	19.415	-73.660	-54.245	-27.245	-27.000	Pass

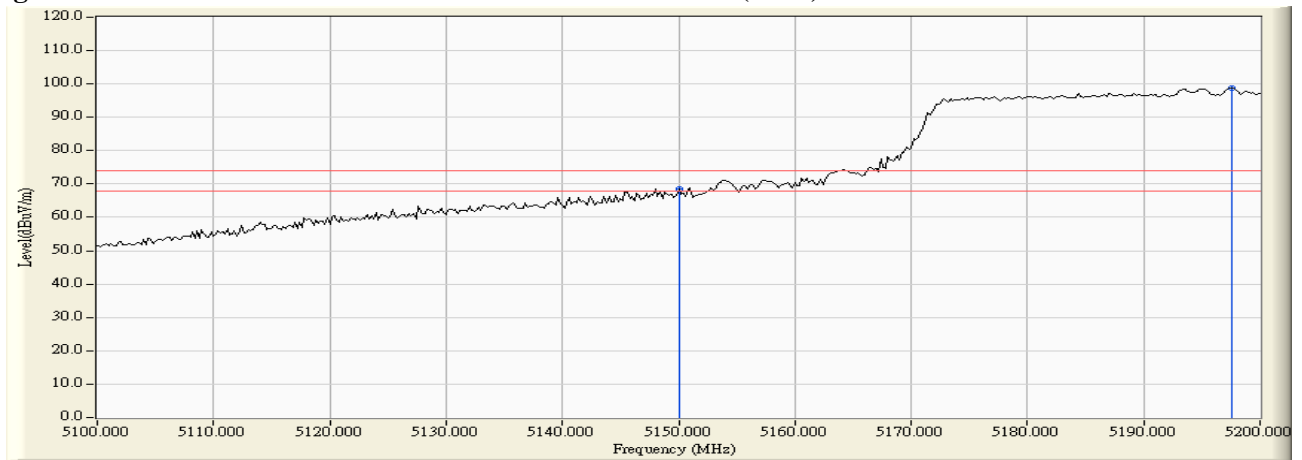
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
Vertical	5850.000	20.512	-68.480	-47.968	-30.968	-17.000	Pass
Vertical	5860.000	20.635	-69.190	-48.555	-21.555	-27.000	Pass

Product : Access Point/Sensor  
 Test Item : Band Edge Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 4 Transmit (802.11ac-80BW-65Mbps) -Channel 42 (5210MHz)

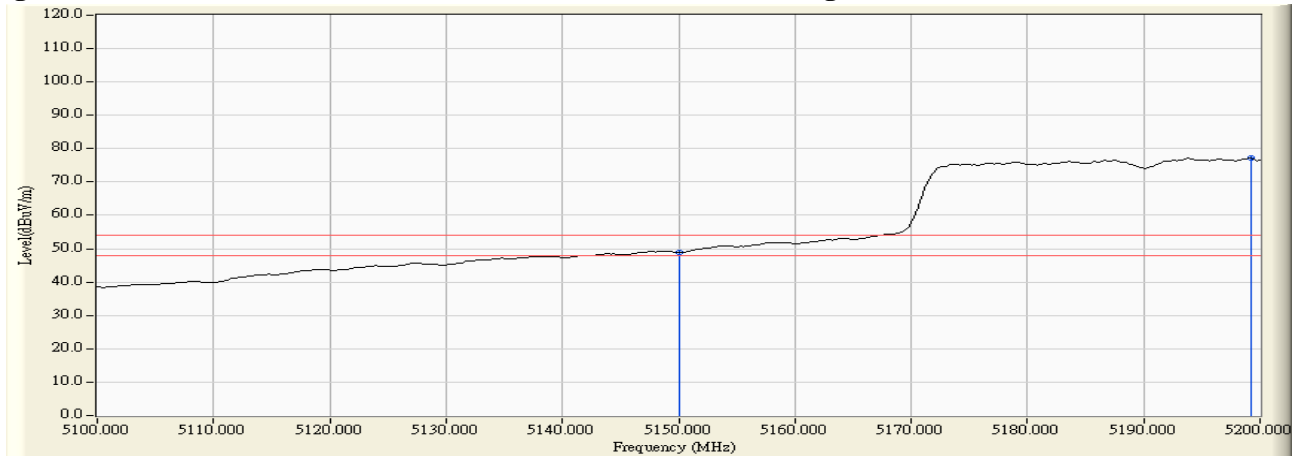
**RF Radiated Measurement (Horizontal):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
42 (Peak)	5150.000	3.340	65.258	68.598	74.00	54.00	Pass
42 (Peak)	5197.600	3.162	95.540	98.702	--	--	--
42 (Average)	5150.000	3.340	45.525	48.865	74.00	54.00	Pass
42 (Average)	5199.200	3.157	74.089	77.247	--	--	--

**Figure Channel 42: Horizontal (Peak)**



**Figure Channel 42: Horizontal (Average)**



**Note:**

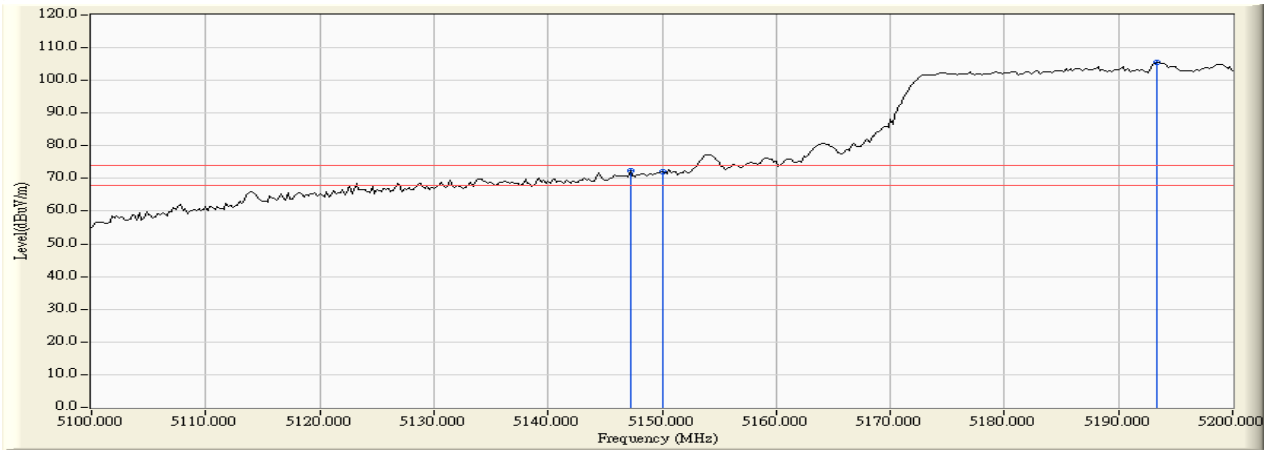
1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ \* ”, means this data is the worst emission level.
5. Measurement Level = Reading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

Product : Access Point/Sensor  
 Test Item : Band Edge Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 4 Transmit (802.11ac-80BW-65Mbps) -Channel 42 (5210MHz)

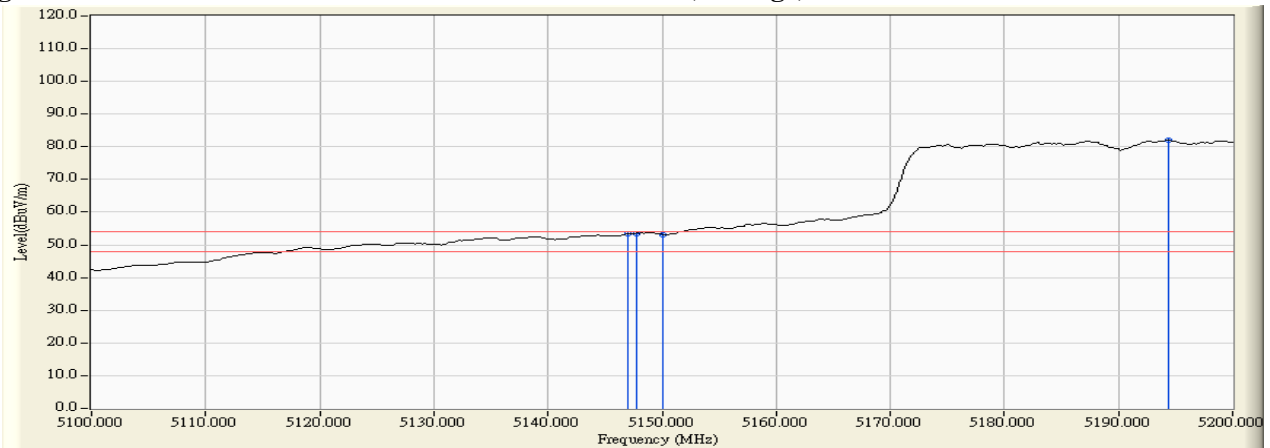
**RF Radiated Measurement (Vertical):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
42 (Peak)	5147.200	5.252	67.140	72.392	74.00	54.00	Pass
42 (Peak)	5150.000	5.260	66.743	72.003	74.00	54.00	Pass
42 (Peak)	5193.400	5.373	100.120	105.493	--	--	--
42 (Average)	5147.000	5.252	48.104	53.356	74.00	54.00	Pass
42 (Average)	5147.800	5.254	48.091	53.345	74.00	54.00	Pass
42 (Average)	5150.000	5.260	47.857	53.117	74.00	54.00	Pass
42 (Average)	5194.400	5.375	76.617	81.992	--	--	--

**Figure Channel 42: Vertical (Peak)**



**Figure Channel 42: Vertical (Average)**



**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, 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.

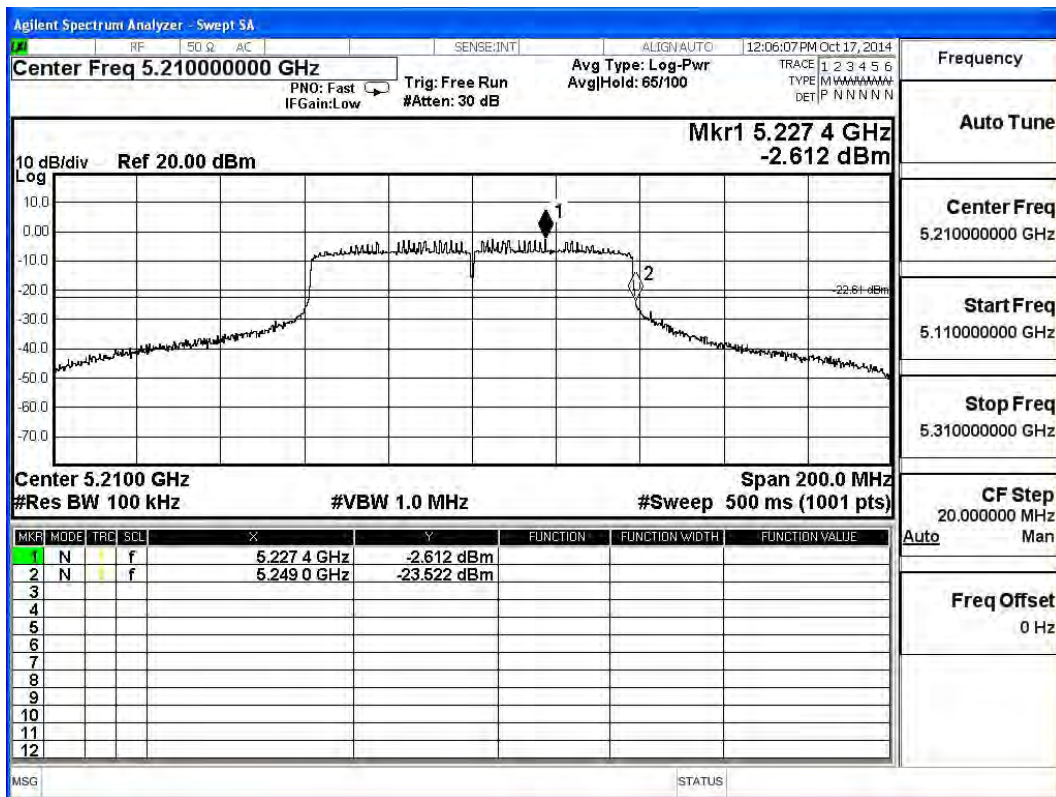


Product : Access Point/Sensor  
 Test Item : Band Edge Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 4 Transmit (802.11ac-80BW-65Mbps) -Channel 42

**Chain A**

Test Frequency (MHz)	Measurement Level (20dB BW) (MHz)	Limit (MHz)	Result
5210	5249.00	<5250	PASS

NOTE: Accordance with 15.215 requirement.

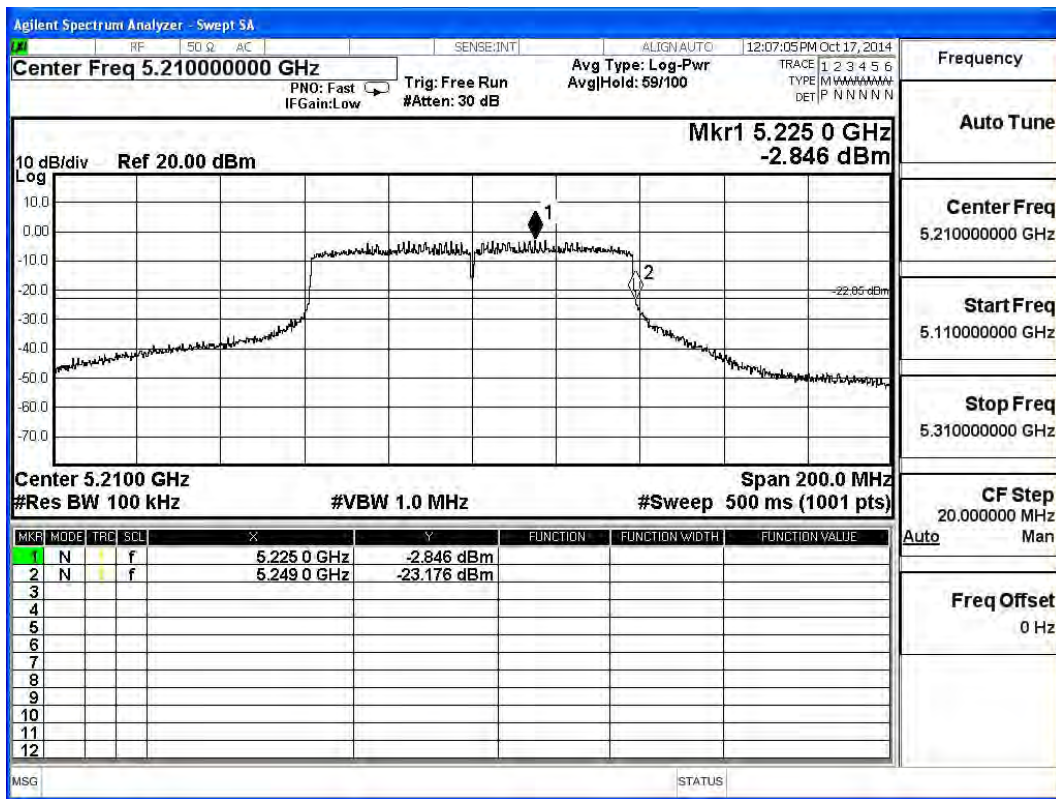


Product : Access Point/Sensor  
 Test Item : Band Edge Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 4 Transmit (802.11ac-80BW-65Mbps)-Channel 42

**Chain B**

Test Frequency (MHz)	Measurement Level (20dB BW) (MHz)	Limit (MHz)	Result
5210	5249.00	<5250	PASS

NOTE: Accordance with 15.215 requirement.



Product : Access Point/Sensor  
 Test Item : Band Edge Data  
 Test Site : No.3 OATS  
 Test Mode : Mode 4 Transmit (802.11ac-80BW-65Mbps)-Channel 155

**RF Radiated Measurement:**

	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
Horizontal	5715.000	18.644	-63.860	-45.216	-18.216	-27.000	Pass
Horizontal	5725.000	18.649	-64.020	-45.371	-28.371	-17.000	Pass
Horizontal	5850.000	19.292	-66.150	-46.858	-29.858	-17.000	Pass
Horizontal	5860.000	19.415	-69.890	-50.475	-23.475	-27.000	Pass

	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBm)	Measure Level (dBm/m)	Margin (dB)	Limit (dBm/m)	Result
Vertical	5715.000	19.296	-57.820	-38.524	-11.524	-27.000	Pass
Vertical	5725.000	19.372	-56.680	-37.308	-20.308	-17.000	Pass
Vertical	5850.000	20.512	-63.440	-42.928	-25.928	-17.000	Pass
Vertical	5860.000	20.635	-62.790	-42.155	-15.155	-27.000	Pass

## 7. Occupied Bandwidth

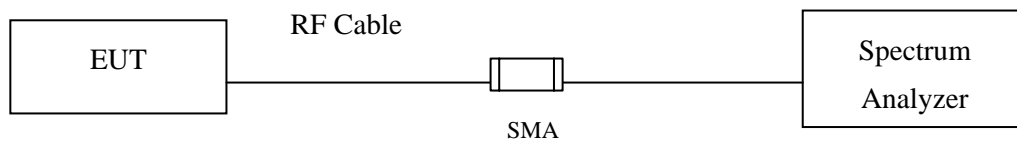
### 7.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun., 2014
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun., 2014
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2014

Note:

1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
2. The test instruments marked with “X” are used to measure the final test results.

### 7.2. Test Setup



### 7.3. Limits

For the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz

### 7.4. Test Procedure

The EUT was setup to ANSI C63.10, 2009; tested to UNII test procedure of FCC KDB-789033 for compliance to FCC 47CFR Subpart E requirements.

### 7.5. Uncertainty

± 150Hz

## 7.6. Test Result of Occupied Bandwidth

Product : Access Point/Sensor  
Test Item : Occupied Bandwidth Data  
Test Site : No.3 OATS  
Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5745MHz)

Channel No.	Frequency (MHz)	Chain (dBm)	Measurement Level (kHz)	Required Limit (kHz)	Result
149	5745.00	A	16500	>500	Pass
		B	16450	>500	Pass

Figure Channel 149: (Chain A)

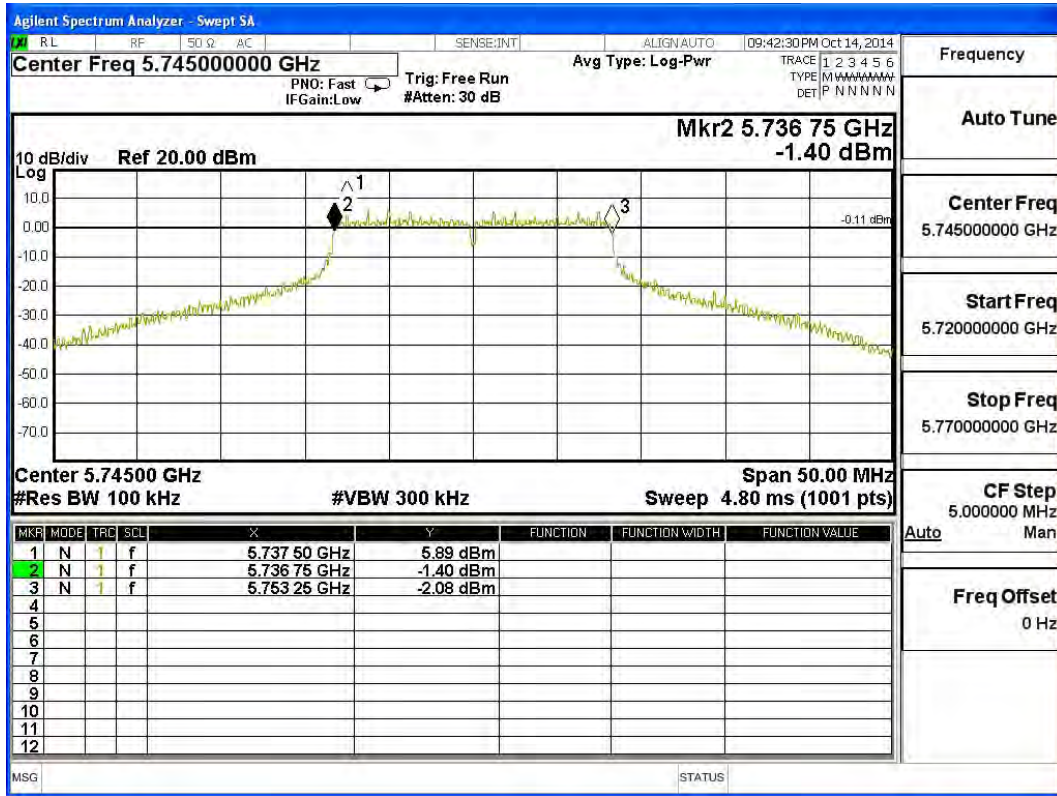
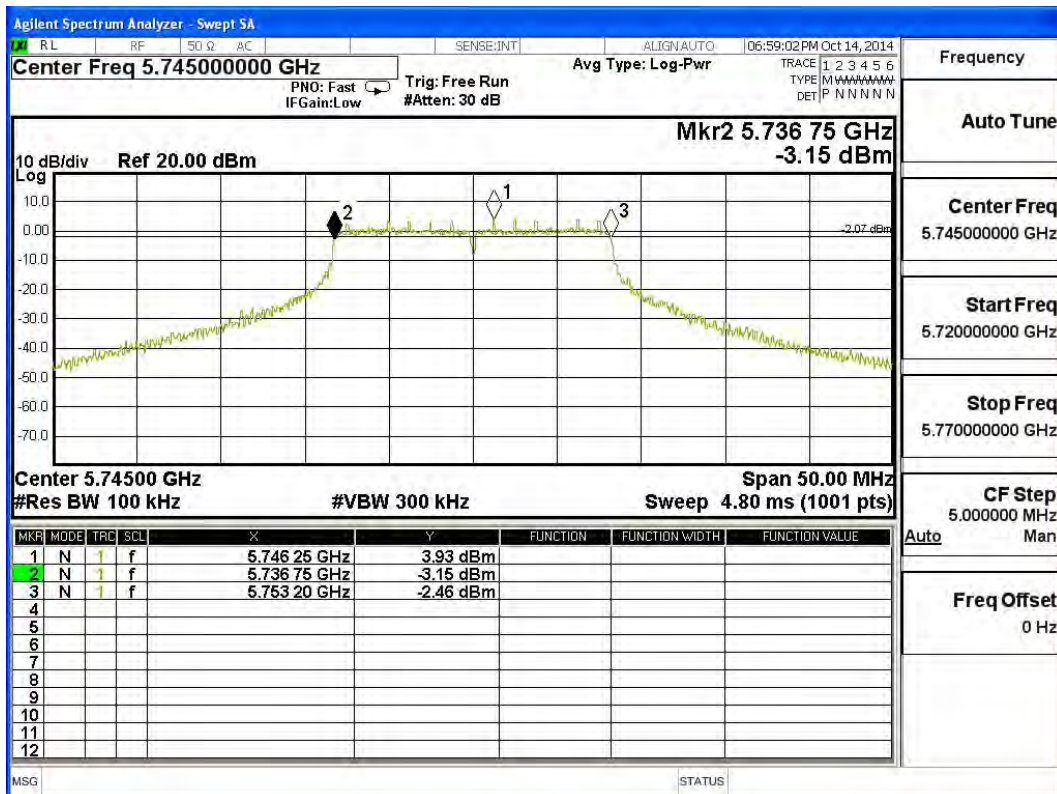


Figure Channel 149: (Chain B)



Product : Access Point/Sensor  
Test Item : Occupied Bandwidth Data  
Test Site : No.3 OATS  
Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5785MHz)

Channel No.	Frequency (MHz)	Chain (dBm)	Measurement Level (kHz)	Required Limit (kHz)	Result
157	5785.00	A	16450	>500	Pass
		B	16400	>500	Pass

Figure Channel 157: (Chain A)

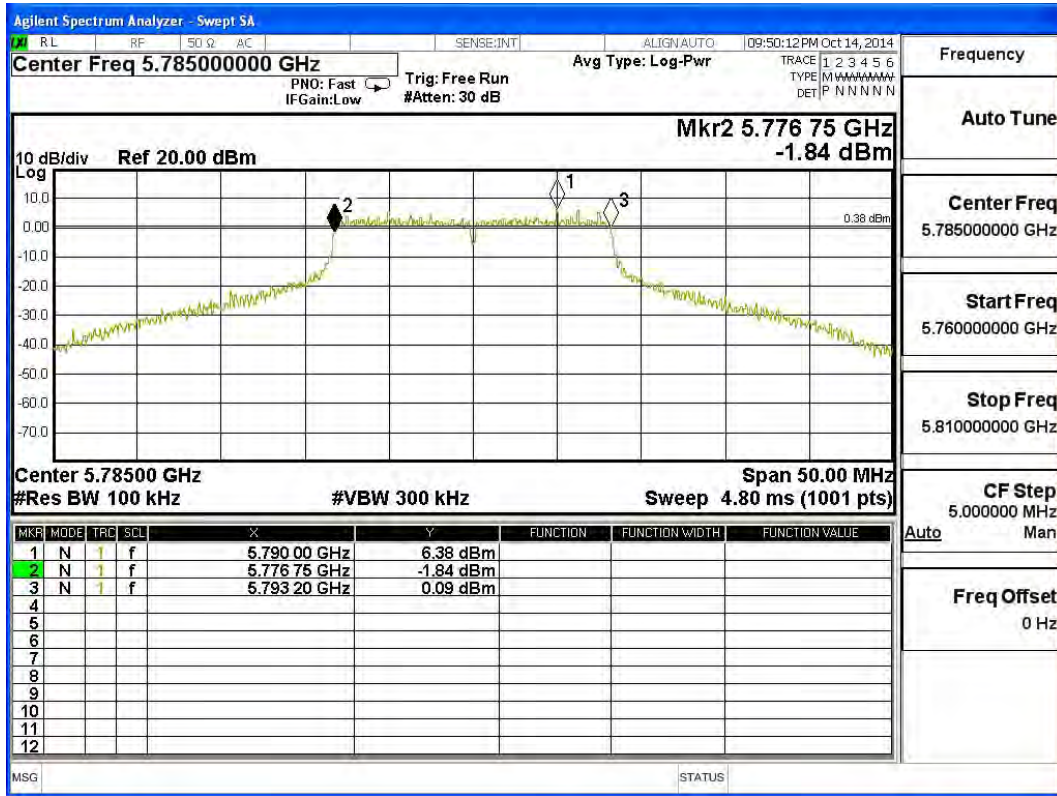
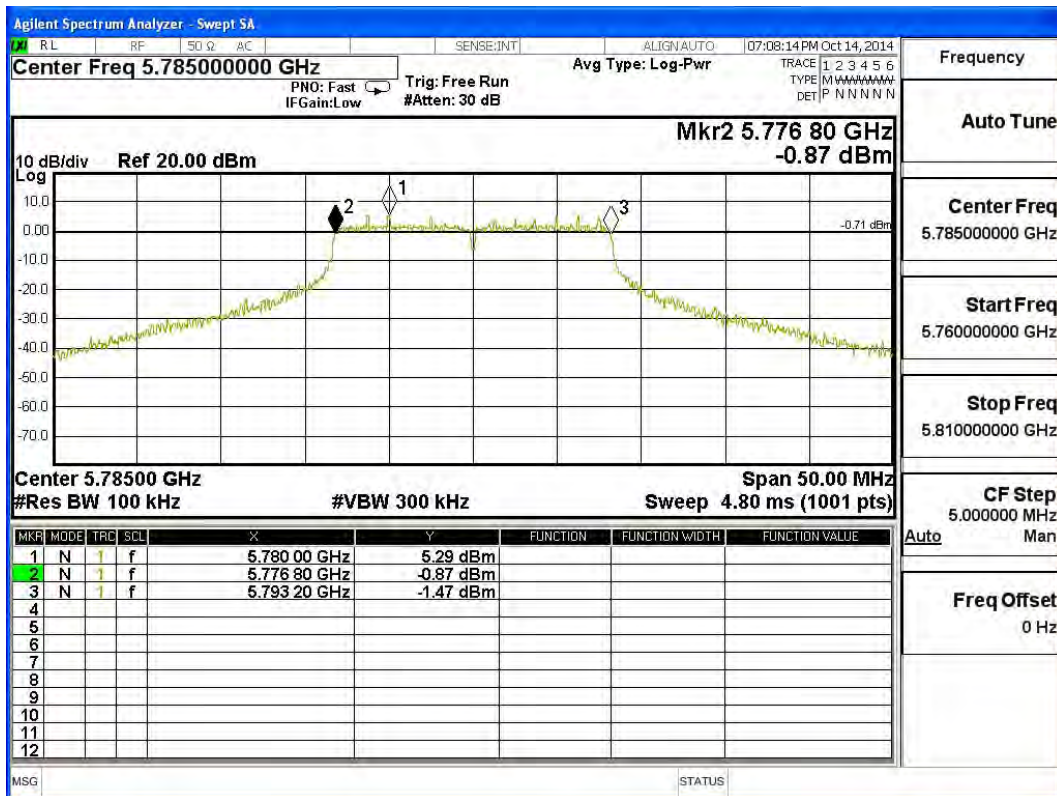


Figure Channel 157: (Chain B)





Product : Access Point/Sensor  
Test Item : Occupied Bandwidth Data  
Test Site : No.3 OATS  
Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5825MHz)

Channel No.	Frequency (MHz)	Chain (dBm)	Measurement Level (kHz)	Required Limit (kHz)	Result
165	5825.00	A	16500	>500	Pass
		B	16450	>500	Pass

Figure Channel 165: (Chain A)

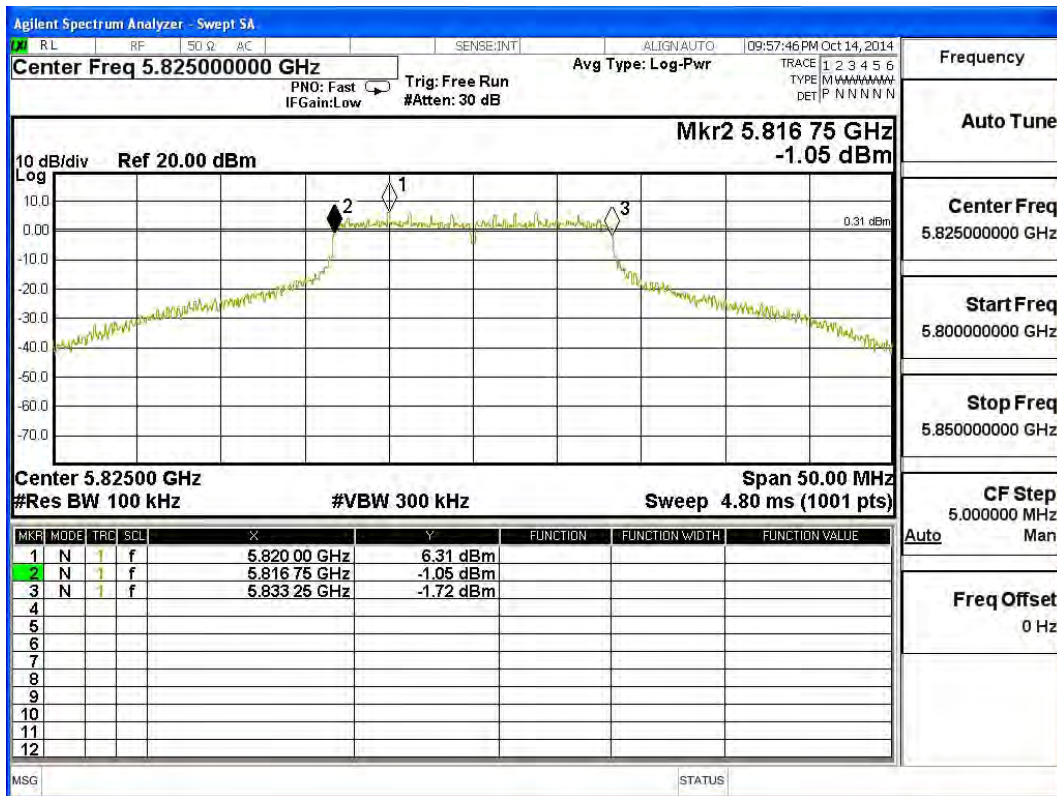
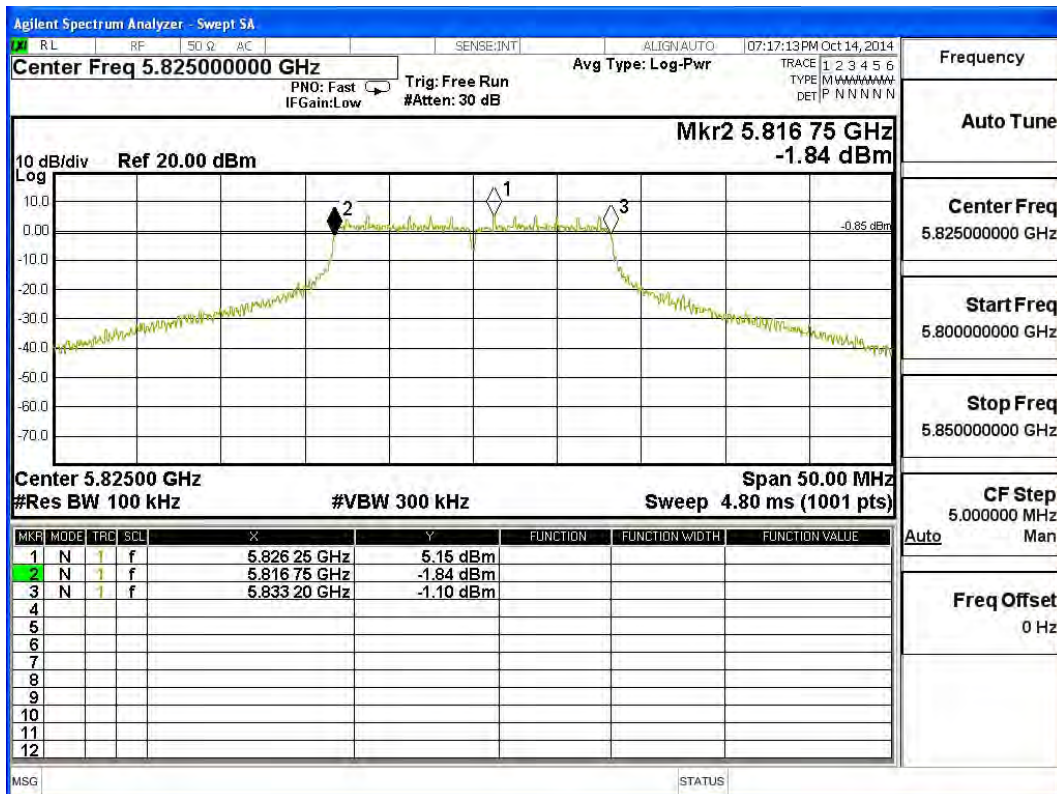


Figure Channel 165: (Chain B)



Product : Access Point/Sensor  
Test Item : Occupied Bandwidth Data  
Test Site : No.3 OATS  
Test Mode : Mode 2: Transmit (802.11n-20BW 14.4Mbps) (5745MHz)

Channel No.	Frequency (MHz)	Chain (dBm)	Measurement Level (kHz)	Required Limit (kHz)	Result
149	5745.00	A	17650	>500	Pass
		B	17700	>500	Pass

Figure Channel 149: (Chain A)

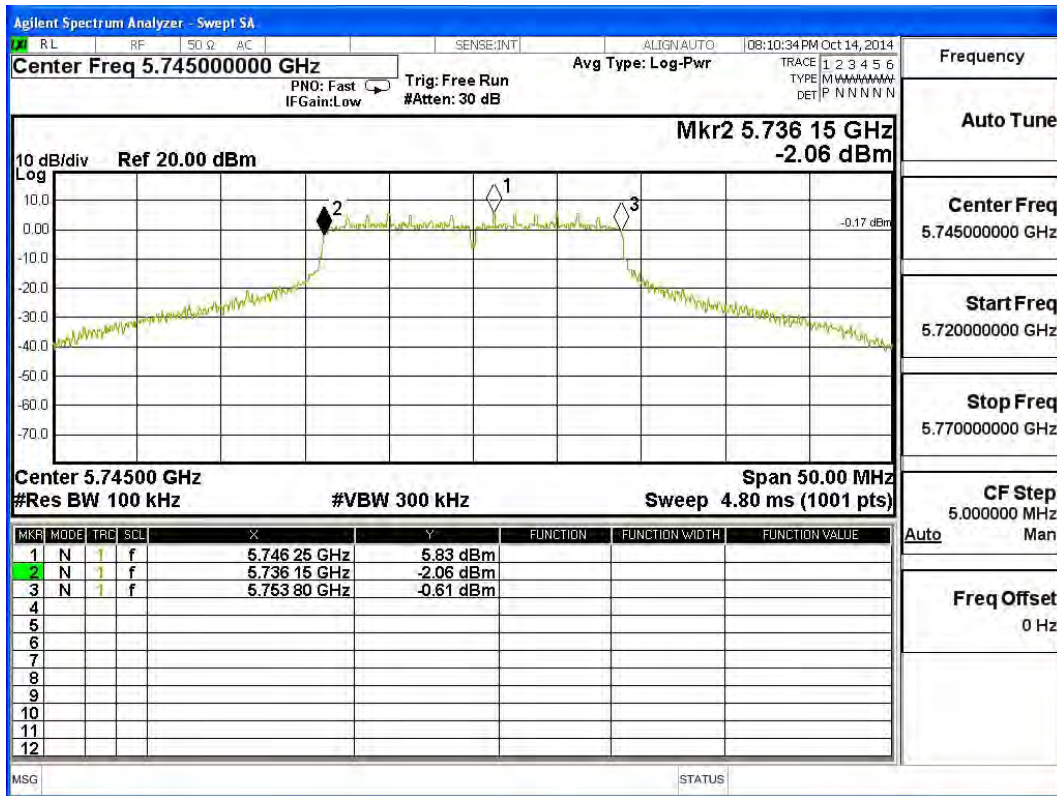
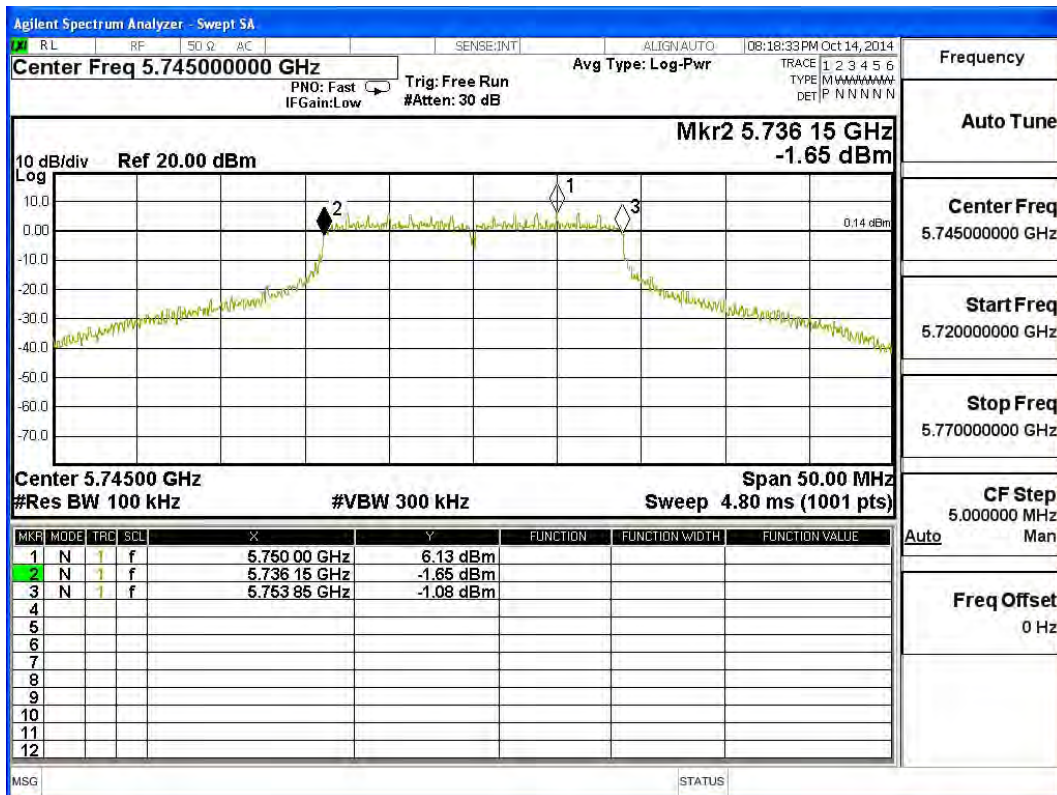


Figure Channel 149: (Chain B)



Product : Access Point/Sensor  
Test Item : Occupied Bandwidth Data  
Test Site : No.3 OATS  
Test Mode : Mode 2: Transmit (802.11n-20BW 14.4Mbps) (5785MHz)

Channel No.	Frequency (MHz)	Chain (dBm)	Measurement Level (kHz)	Required Limit (kHz)	Result
157	5785.00	A	17650	>500	Pass
		B	17700	>500	Pass

Figure Channel 157: (Chain A)

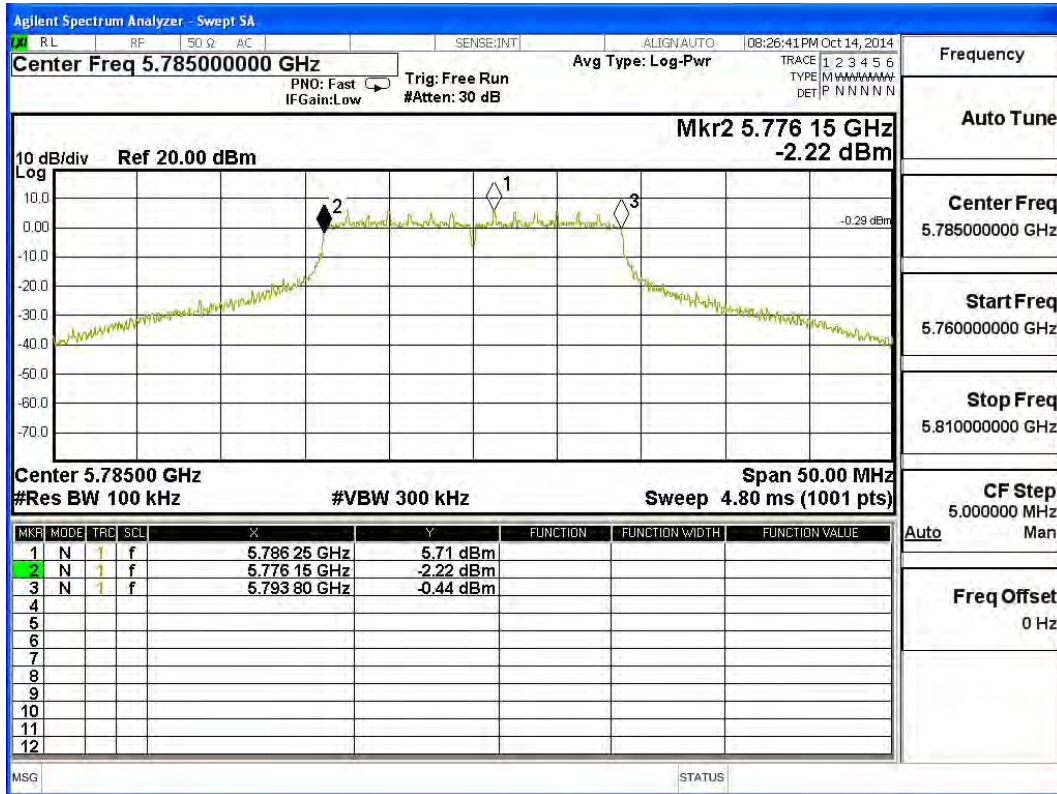
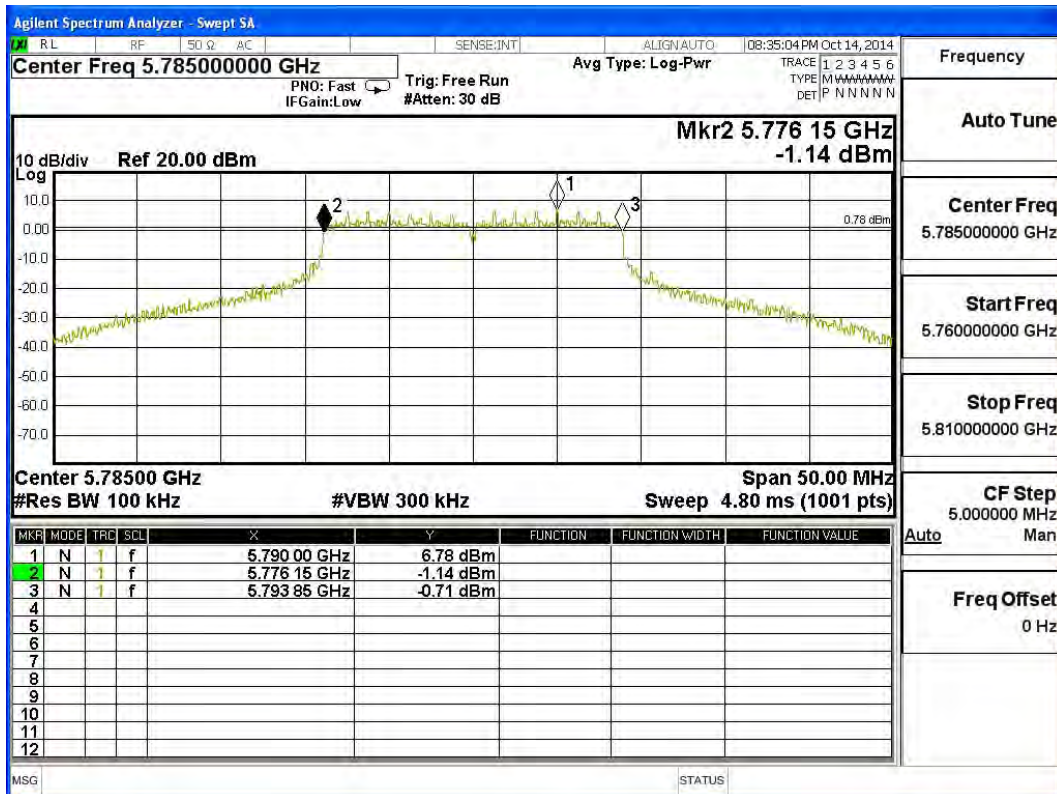


Figure Channel 157: (Chain B)



Product : Access Point/Sensor  
Test Item : Occupied Bandwidth Data  
Test Site : No.3 OATS  
Test Mode : Mode 2: Transmit (802.11n-20BW 14.4Mbps) (5825MHz)

Channel No.	Frequency (MHz)	Chain (dBm)	Measurement Level (kHz)	Required Limit (kHz)	Result
165	5825.00	A	17650	>500	Pass
		B	17700	>500	Pass

Figure Channel 165: (Chain A)

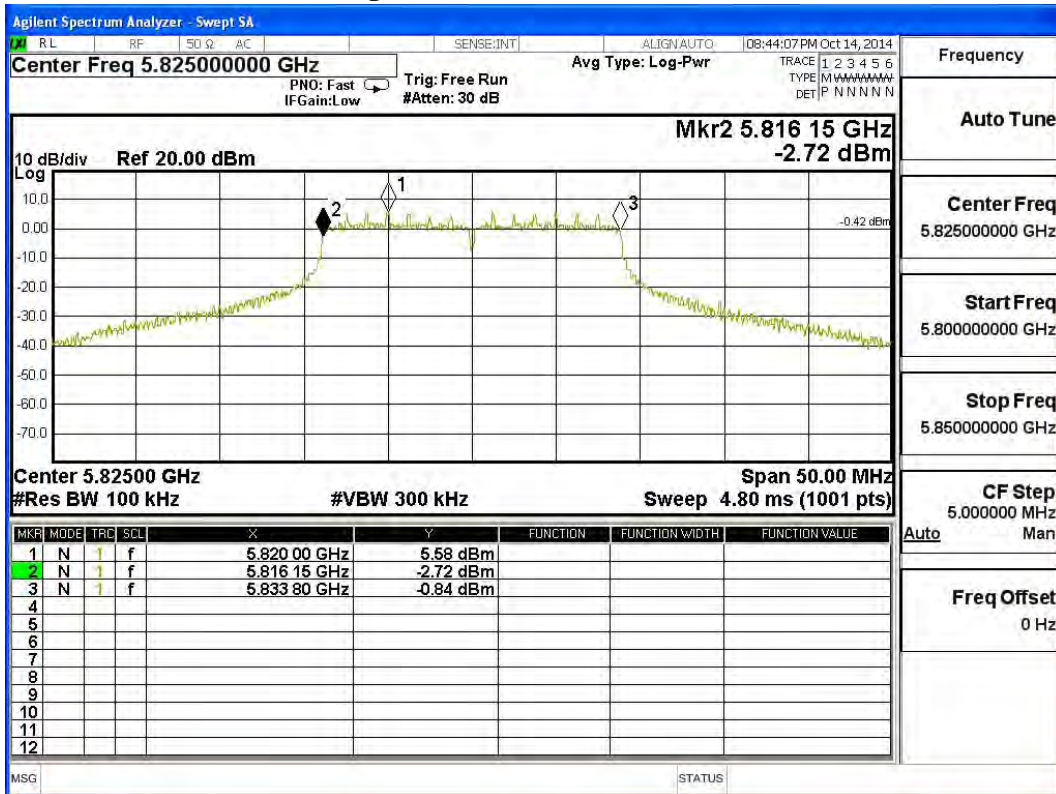
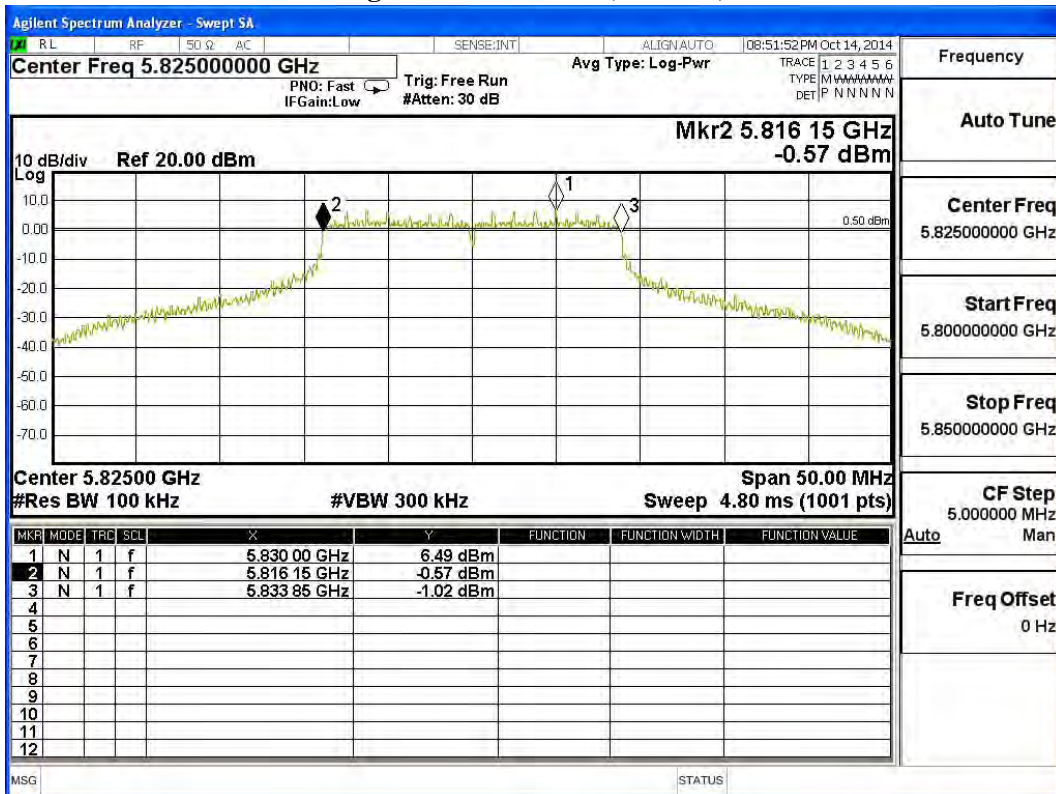


Figure Channel 165: (Chain B)





Product : Access Point/Sensor  
Test Item : Occupied Bandwidth Data  
Test Site : No.3 OATS  
Test Mode : Mode 3: Transmit (802.11n-40BW 30Mbps) (5755MHz)

Channel No.	Frequency (MHz)	Chain (dBm)	Measurement Level (kHz)	Required Limit (kHz)	Result
151	5755.00	A	36400	>500	Pass
		B	36500	>500	Pass

Figure Channel 151: (Chain A)

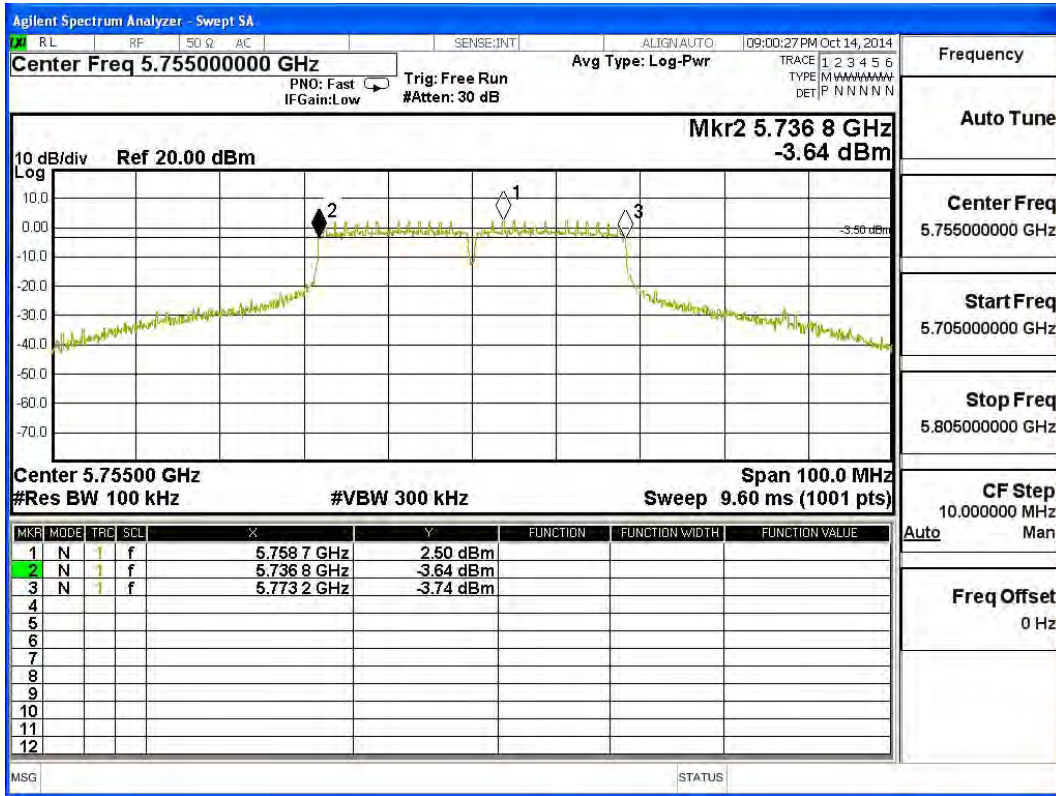
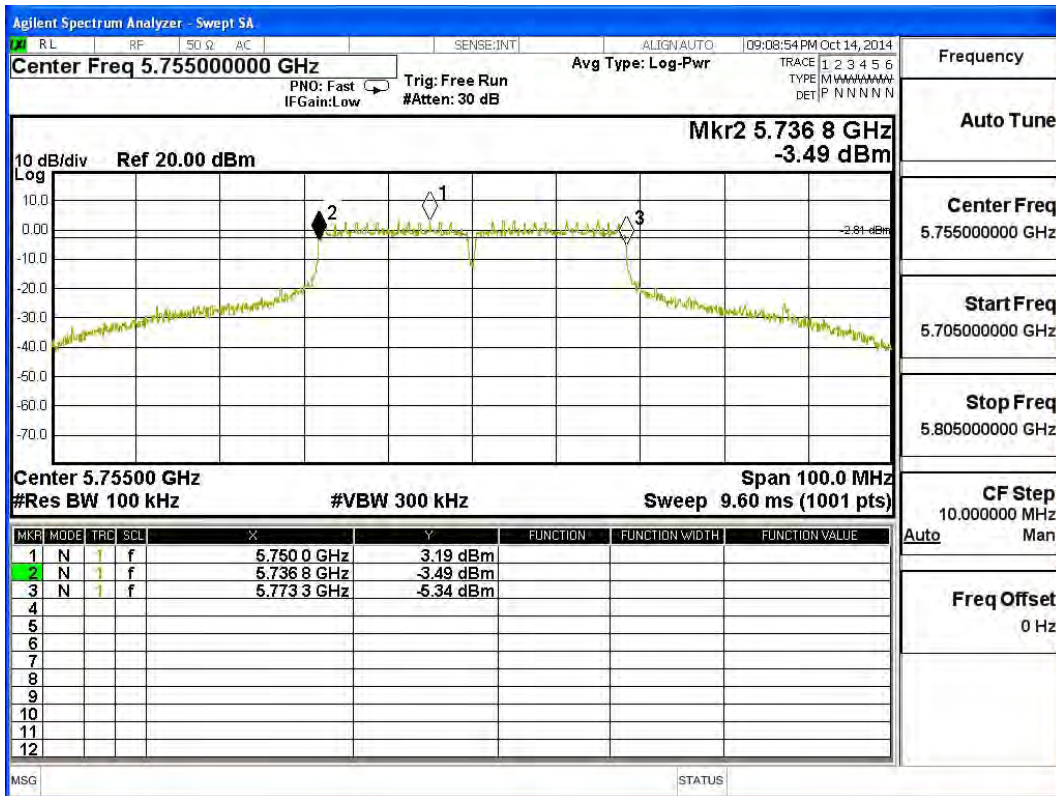


Figure Channel 151: (Chain B)



Product : Access Point/Sensor  
Test Item : Occupied Bandwidth Data  
Test Site : No.3 OATS  
Test Mode : Mode 3: Transmit (802.11n-40BW 30Mbps) (5795MHz)

Channel No.	Frequency (MHz)	Chain (dBm)	Measurement Level (kHz)	Required Limit (kHz)	Result
159	5795.00	A	36000	>500	Pass
		B	36600	>500	Pass

Figure Channel 159: (Chain A)

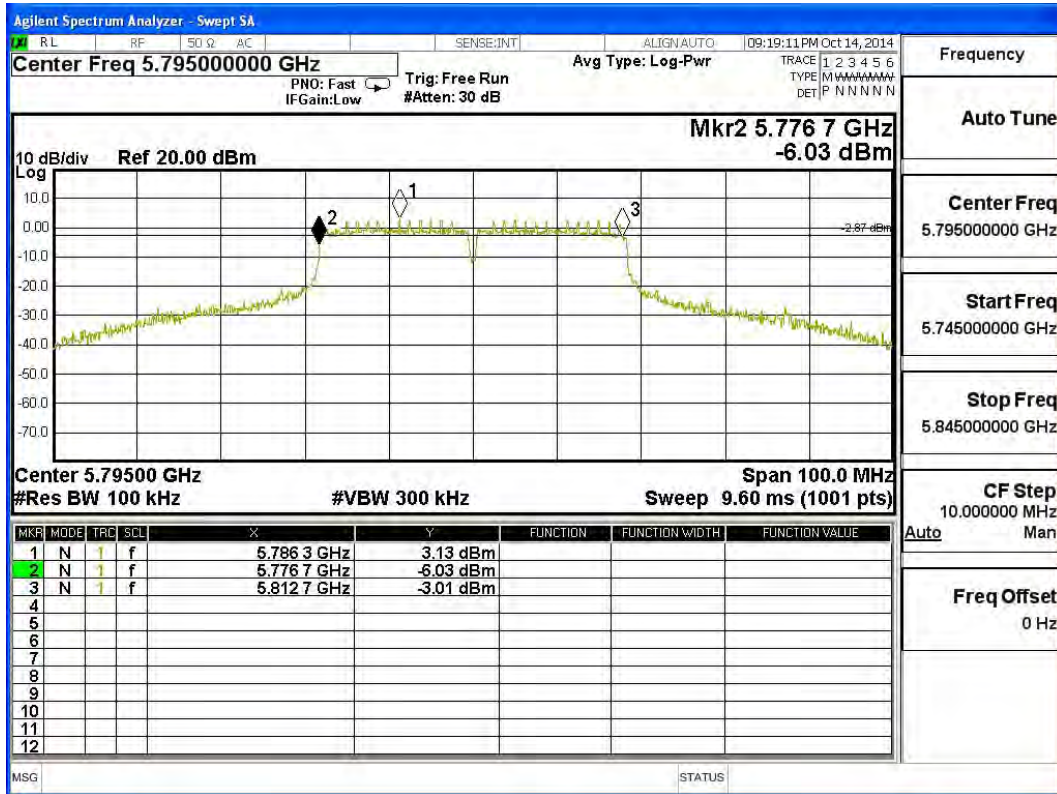
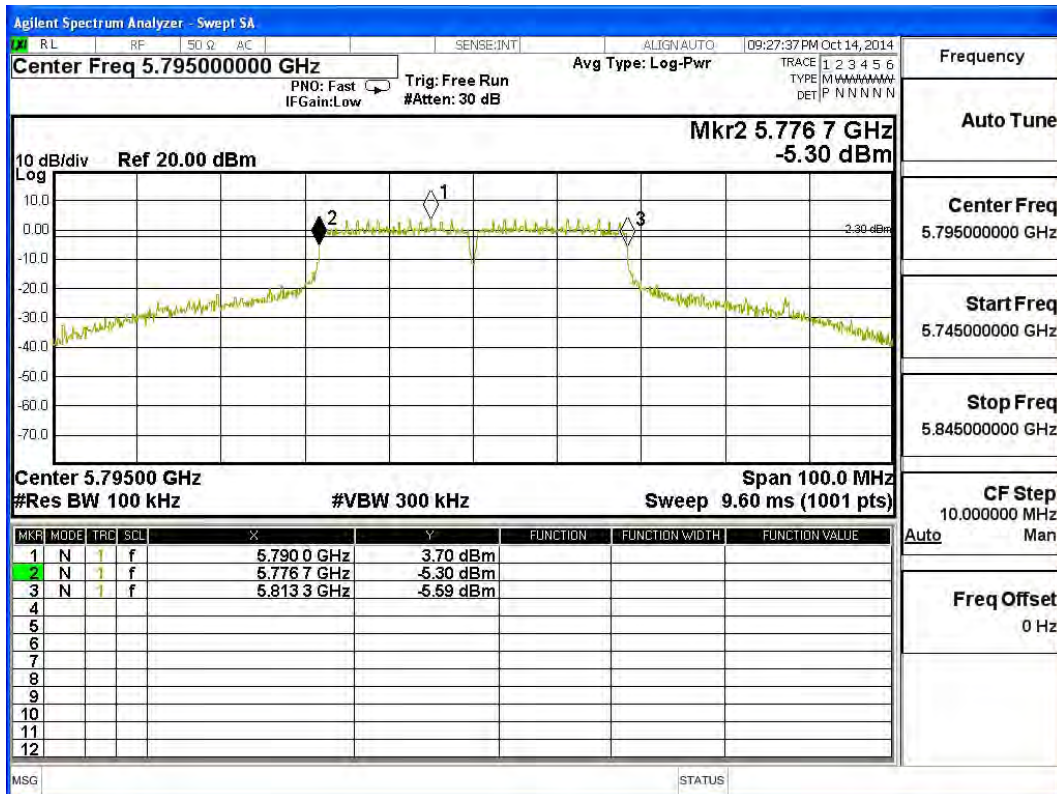


Figure Channel 159: (Chain B)



Product : Access Point/Sensor  
Test Item : Occupied Bandwidth Data  
Test Site : No.3 OATS  
Test Mode : Mode 4 Transmit (802.11ac-80BW-65Mbps) (5775MHz)

Channel No.	Frequency (MHz)	Chain (dBm)	Measurement Level (kHz)	Required Limit (kHz)	Result
155	5775.00	A	69000	>500	Pass
		B	73200	>500	Pass

Figure Channel 155: (Chain A)

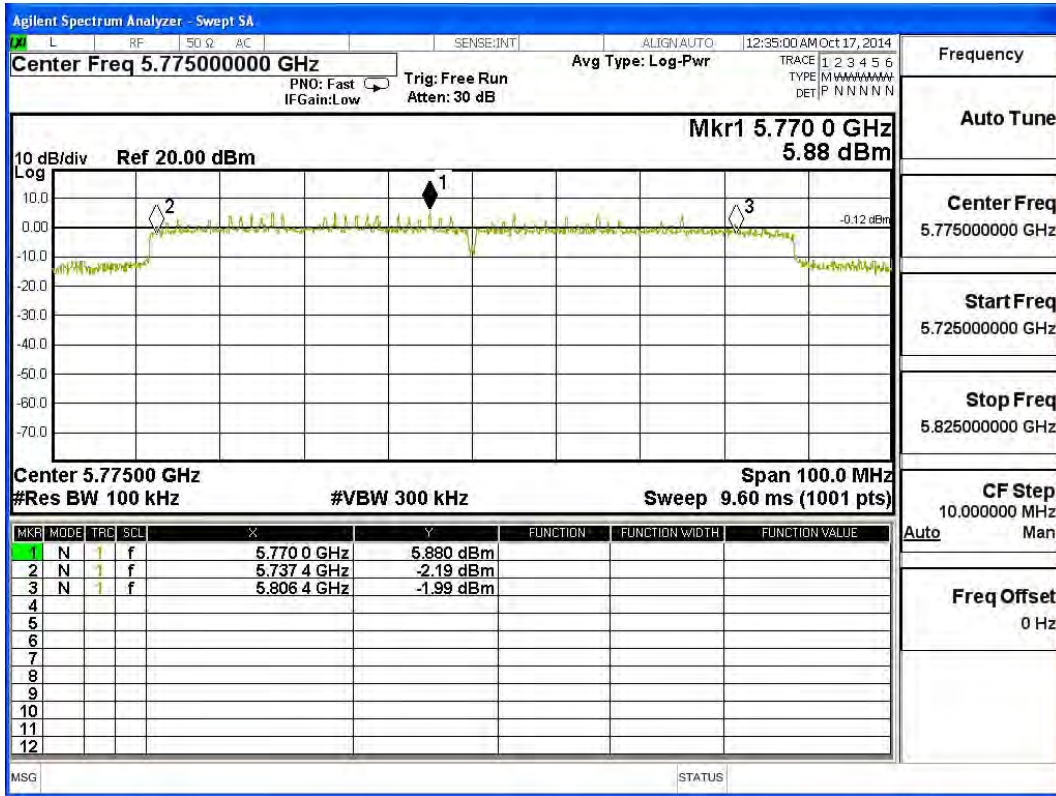
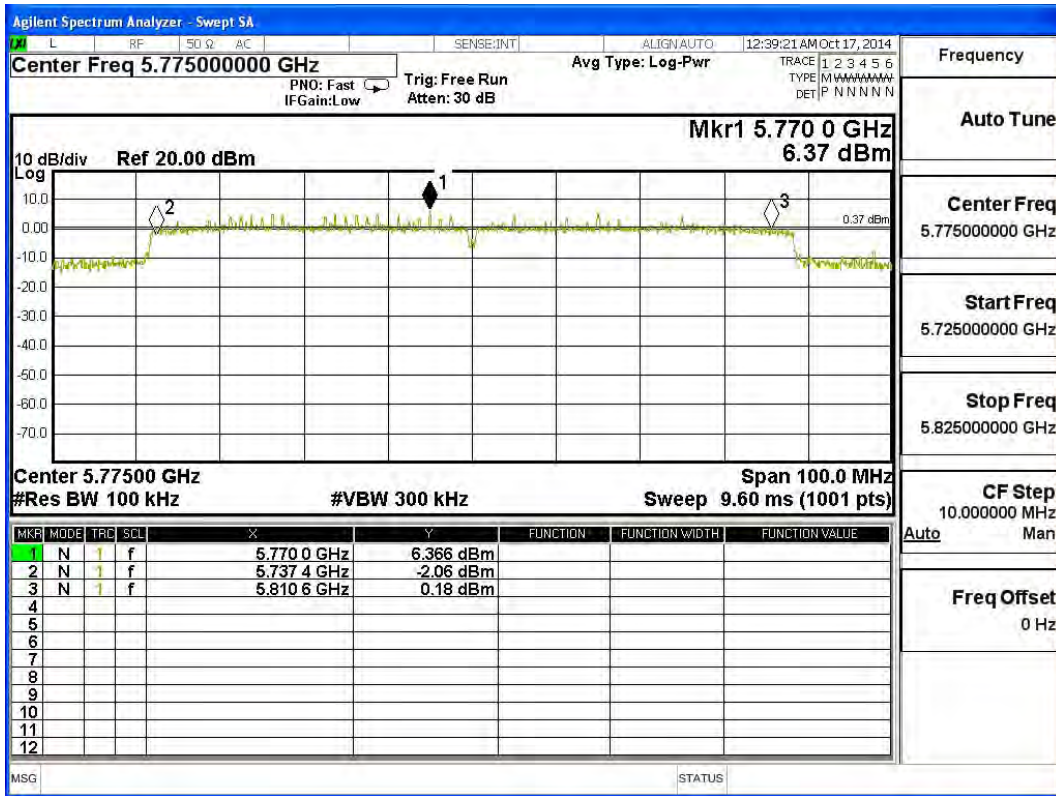


Figure Channel 155: (Chain B)



## 8. Frequency Stability

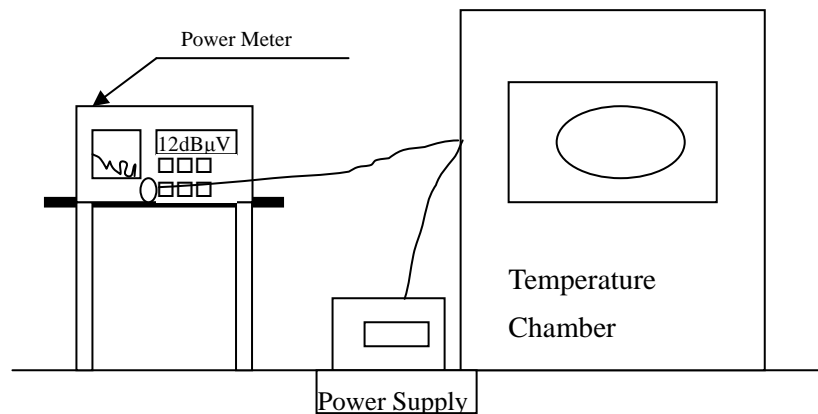
### 8.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun., 2014
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun., 2014
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2014

Note:

1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
2. The test instruments marked with “X” are used to measure the final test results.

### 8.2. Test Setup



### 8.3. Limits

Manufactures of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified

### 8.4. Test Procedure

The EUT was setup to ANSI C63.10, 2009; tested to DTS test procedure of FCC KDB-789033 for compliance to FCC 47CFR Subpart E requirements.

### 8.5. Uncertainty

± 150 Hz

## 8.6. Test Result of Frequency Stability

Product : Access Point/Sensor  
 Test Item : Frequency Stability  
 Test Site : Temperature Chamber  
 Test Mode : Carrier Wave

### Chain A

Test Conditions		Channel	Frequency (MHz)	Frequency (MHz)	$\Delta F$ (MHz)
Tnom (20) oC	Vnom (120)V	36	5180.0000	5180.0021	-0.0021
		38	5190.0000	5190.0041	-0.0041
		42	5210.0000	5210.0123	-0.0123
		44	5220.0000	5220.0052	-0.0052
		46	5230.0000	5230.0069	-0.0069
		48	5240.0000	5240.0095	-0.0095
		149	5745.0000	5745.0123	-0.0123
		151	5755.0000	5755.0086	-0.0086
		155	5775.0000	5775.0094	-0.0094
		157	5785.0000	5785.0096	-0.0096
		159	5795.0000	5795.0094	-0.0094
		165	5825.0000	5825.0092	-0.0092
Test Conditions		Channel	Frequency (MHz)	Frequency (MHz)	$\Delta F$ (MHz)
Tnom (50) oC	Vnom (138)V	36	5180.0000	5180.0055	-0.0055
		38	5190.0000	5190.0032	-0.0032
		155	5775.0000	5775.0011	-0.0011
		44	5220.0000	5220.0050	-0.0050
		46	5230.0000	5230.0071	-0.0071
		48	5240.0000	5240.0066	-0.0066
		149	5745.0000	5745.0110	-0.0110
		151	5755.0000	5755.0082	-0.0082
		155	5775.0000	5775.0101	-0.0101
		157	5785.0000	5785.0096	-0.0096
		159	5795.0000	5795.0089	-0.0089
		165	5825.0000	5825.0088	-0.0088



Test Conditions		Channel	Frequency (MHz)	Frequency (MHz)	$\Delta F$ (MHz)
Tnom (50) oC	Vnom (102)V	36	5180.0000	5180.0049	-0.0049
		38	5190.0000	5190.0058	-0.0058
		42	5210.0000	5210.0098	-0.0098
		44	5220.0000	5220.0086	-0.0086
		46	5230.0000	5230.0105	-0.0105
		48	5240.0000	5240.0095	-0.0095
		149	5745.0000	5745.0110	-0.0110
		151	5755.0000	5755.0082	-0.0082
		155	5775.0000	5775.0101	-0.0101
		157	5785.0000	5785.0096	-0.0096
		159	5795.0000	5795.0089	-0.0089
		165	5825.0000	5825.0088	-0.0088
Test Conditions		Channel	Frequency (MHz)	Frequency (MHz)	$\Delta F$ (MHz)
Tnom (0) oC	Vnom (138)V	36	5180.0000	5180.0038	-0.0038
		38	5190.0000	5190.0077	-0.0077
		42	5210.0000	5210.0098	-0.0098
		44	5220.0000	5220.0029	-0.0029
		46	5230.0000	5230.0079	-0.0079
		48	5240.0000	5240.0102	-0.0102
		149	5745.0000	5745.0109	-0.0109
		151	5755.0000	5755.0092	-0.0092
		155	5775.0000	5775.0085	-0.0085
		157	5785.0000	5785.0089	-0.0089
		159	5795.0000	5795.0083	-0.0083
		165	5825.0000	5825.0081	-0.0081
Test Conditions		Channel	Frequency (MHz)	Frequency (MHz)	$\Delta F$ (MHz)
Tnom (0) oC	Vnom (102)V	36	5180.0000	5180.0038	-0.0038
		38	5190.0000	5190.0077	-0.0077
		42	5210.0000	5210.0098	-0.0098
		44	5220.0000	5220.0029	-0.0029
		46	5230.0000	5230.0079	-0.0079
		48	5240.0000	5240.0102	-0.0102
		149	5745.0000	5745.0109	-0.0109
		151	5755.0000	5755.0092	-0.0092
		155	5775.0000	5775.0085	-0.0085
		157	5785.0000	5785.0089	-0.0089
		159	5795.0000	5795.0083	-0.0083
		165	5825.0000	5825.0081	-0.0081

**Chain B**

Test Conditions		Channel	Frequency (MHz)	Frequency (MHz)	$\Delta F$ (MHz)
Tnom (20) oC	Vnom (120)V	36	5180.0000	5180.0039	-0.0039
		38	5190.0000	5190.0045	-0.0045
		42	5210.0000	5210.0123	-0.0123
		44	5220.0000	5220.0079	-0.0079
		46	5230.0000	5230.0070	-0.0070
		48	5240.0000	5240.0111	-0.0111
		149	5745.0000	5745.0099	-0.0099
		151	5755.0000	5755.0103	-0.0103
		155	5775.0000	5775.0089	-0.0089
		157	5785.0000	5785.0103	-0.0103
		159	5795.0000	5795.0094	-0.0094
		165	5825.0000	5825.0086	-0.0086
Test Conditions		Channel	Frequency (MHz)	Frequency (MHz)	$\Delta F$ (MHz)
Tnom (50) oC	Vnom (138)V	36	5180.0000	5180.0044	-0.0044
		38	5190.0000	5190.0123	-0.0123
		42	5210.0000	5210.0098	-0.0098
		44	5220.0000	5220.0162	-0.0162
		46	5230.0000	5230.0105	-0.0105
		48	5240.0000	5240.0098	-0.0098
		149	5745.0000	5745.0103	-0.0103
		151	5755.0000	5755.0101	-0.0101
		155	5775.0000	5775.0093	-0.0093
		157	5785.0000	5785.0099	-0.0099
		159	5795.0000	5795.0090	-0.0090
		165	5825.0000	5825.0091	-0.0091

Test Conditions		Channel	Frequency (MHz)	Frequency (MHz)	$\Delta F$ (MHz)
Tnom (50) oC	Vnom (102)V	36	5180.0000	5180.0149	-0.0149
		38	5190.0000	5190.0116	-0.0116
		42	5210.0000	5210.0098	-0.0098
		44	5220.0000	5220.0107	-0.0107
		46	5230.0000	5230.0117	-0.0117
		48	5240.0000	5240.0152	-0.0152
		149	5745.0000	5745.0103	-0.0103
		151	5755.0000	5755.0101	-0.0101
		155	5775.0000	5775.0093	-0.0093
		157	5785.0000	5785.0099	-0.0099
		159	5795.0000	5795.0090	-0.0090
		165	5825.0000	5825.0091	-0.0091
Test Conditions		Channel	Frequency (MHz)	Frequency (MHz)	$\Delta F$ (MHz)
Tnom (0) oC	Vnom (138)V	36	5180.0000	5180.0097	-0.0097
		38	5190.0000	5190.0123	-0.0123
		42	5210.0000	5210.0098	-0.0098
		44	5220.0000	5220.0138	-0.0138
		46	5230.0000	5230.0180	-0.0180
		48	5240.0000	5240.0149	-0.0149
		149	5745.0000	5745.0094	-0.0094
		151	5755.0000	5755.0097	-0.0097
		155	5775.0000	5775.0076	-0.0076
		157	5785.0000	5785.0091	-0.0091
		159	5795.0000	5795.0084	-0.0084
		165	5825.0000	5825.0083	-0.0083
Test Conditions		Channel	Frequency (MHz)	Frequency (MHz)	$\Delta F$ (MHz)
Tnom (0) oC	Vnom (102)V	36	5180.0000	5180.0134	-0.0134
		38	5190.0000	5190.0120	-0.0120
		42	5210.0000	5210.0098	-0.0098
		44	5220.0000	5220.0160	-0.0160
		46	5230.0000	5230.0084	-0.0084
		48	5240.0000	5240.0071	-0.0071
		149	5745.0000	5745.0094	-0.0094
		151	5755.0000	5755.0097	-0.0097
		155	5775.0000	5775.0076	-0.0076
		157	5785.0000	5785.0091	-0.0091
		159	5795.0000	5795.0084	-0.0084
		165	5825.0000	5825.0083	-0.0083

## 9. EMI Reduction Method During Compliance Testing

No modification was made during testing.

## Attachment 1: EUT Test Photographs

## Attachment 2: EUT Detailed Photographs