

# FCC Test Report

Product Name	Access Point
Model No	RM5-AC-PTMP, R5AC-PTMP
FCC ID	SWX-RM5ACPTMP

Applicant	Ubiquiti Networks.,Inc
Address	12F, No. 105, Song Ren Rd., Sin Yi District, Taipei 110, Taiwan

Date of Receipt	Mar. 14, 2014
Issued Date	July 03, 2014
Report No.	1430290R-RFUSP08V00-A
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 of the equipment and evaluated measurement uncertainty herein.

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Issued Date: July 03, 2014

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Product Name	Access Point
Applicant	Ubiquiti Networks.,Inc
Address	12F, No. 105, Song Ren Rd., Sin Yi District, Taipei 110, Taiwan
Manufacturer	Ubiquiti Networks.,Inc
Model No.	RM5-AC-PTMP, R5AC-PTMP
FCC ID.	SWX-RM5ACPTMP
EUT Rated Voltage	DC 24V (Power by POE)
EUT Test Voltage	AC 120V/60Hz
Trade Name	UBIQUITI
Applicable Standard	FCC CFR Title 47 Part 15 Subpart E: 2014 ANSI C63.10: 2009, KDB 789033 D02 General UNII Test Procedures New Rules v01
Test Result	Complied

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( Senior Adm. Specialist / Genie Chang )

Tested By : Jack Hsu  
( Engineer / Jack Hsu )

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 .....	8
1.5. EUT Exercise Software .....	8
1.6. Test Facility .....	9
<b>2. Conducted Emission.....</b>	<b>10</b>
2.1. Test Equipment.....	10
2.2. Test Setup .....	10
2.3. Limits .....	11
2.4. Test Procedure .....	11
2.5. Uncertainty .....	11
2.6. Test Result of Conducted Emission.....	12
<b>3. Maximun conducted output power .....</b>	<b>18</b>
3.1. Test Equipment.....	18
3.2. Test Setup .....	18
3.3. Limits .....	19
3.4. Test Procedur .....	20
3.5. Uncertainty .....	20
3.6. Test Result of Maximum conducted output power.....	21
<b>4. Peak Power Spectral Density.....</b>	<b>36</b>
4.1. Test Equipment.....	36
4.2. Test Setup .....	36
4.3. Limits .....	36
4.4. Test Procedure .....	37
4.5. Uncertainty .....	37
4.6. Test Result of Peak Power Spectral Density .....	38
<b>5. Radiated Emission.....</b>	<b>71</b>
5.1. Test Equipment.....	71
5.2. Test Setup .....	71
5.3. Limits .....	72
5.4. Test Procedure .....	73
5.5. Uncertainty .....	73
5.6. Test Result of Radiated Emission.....	74
<b>6. Band Edge .....</b>	<b>113</b>
6.1. Test Equipment.....	113
6.2. Test Setup .....	113
6.3. Limits .....	114
6.4. Test Procedure .....	114
6.5. Uncertainty .....	114
6.6. Test Result of Band Edge .....	115
<b>7. Occupied Bandwidth.....</b>	<b>136</b>

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7.1.	Test Equipment.....	136
7.2.	Test Setup .....	136
7.3.	Limits .....	136
7.4.	.Test Procedure .....	136
7.5.	Uncertainty .....	136
7.6.	Test Result of Occupied Bandwidth .....	137
<b>8.</b>	<b>Frequency Stability.....</b>	<b>164</b>
8.1.	Test Equipment.....	164
8.2.	Test Setup .....	164
8.3.	Limits .....	164
8.4.	Test Procedure .....	164
8.5.	Uncertainty .....	164
8.6.	Test Result of Frequency Stability.....	165
<b>9.</b>	<b>EMI Reduction Method During Compliance Testing .....</b>	<b>171</b>
Attachment 1:	EUT Test Photographs	
Attachment 2:	EUT Detailed Photographs	

## 1. GENERAL INFORMATION

### 1.1. EUT Description

Product Name	Access Point
Trade Name	UBIQUITI
FCC ID.	SWX-RM5ACPTMP
Model No.	RM5-AC-PTMP, R5AC-PTMP
Frequency Range	802.11a/n-20MHz:5745-5825MHz 802.11n-40MHz:5755-5795MHz 802.11ac-80MHz: 5775MHz
Number of Channels	802.11a/n-20MHz: 5, n-40MHz: 2, ac-80MHz: 1
Data Rate	802.11a: 6-54Mbps, 802.11n: up to 300Mbps 802.11ac: up to 866.7Mbps
Channel Control	Auto
Type of Modulation	802.11a/n:OFDM, BPSK, QPSK, 16QAM, 64QAM, 256QAM
Antenna type	Dish / Sector / Omni Antenna
Antenna Gain	Refer to the table "Antenna List"
Power Adapter (POE)	MFR: UBIQUITI, M/N: GP-A240-050G Input: AC 100-240V~50/60Hz MAX0.3A Output: DC 24V, 0.5A

#### Antenna List

No.	Manufacturer	Part No.	Antenna type	Peak Gain
1.	Ubiquiti Networks.,Inc	AMO-5G34(Main)(Aux)	Dish Antenna	34dBi for 5.725~5.85GHz
2.	Ubiquiti Networks.,Inc	AMO-5G20(Main)(Aux)	Sector Antenna	20dBi for 5.725~5.85GHz
3.	Ubiquiti Networks.,Inc	AMO-5G13(Main)(Aux)	Omni Antenna	13dBi for 5.725~5.85GHz

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 149:	5745 MHz	Channel 153:	5765 MHz	Channel 157:	5785 MHz	Channel 161:	5805 MHz
Channel 165:	5825 MHz						

802.11n-40MHz (5G Band) Center Working Frequency of Each Channel:

Channel	Frequency	Channel	Frequency
Channel 151:	5755 MHz	Channel 159:	5795 MHz

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

Channel	Frequency
Channel 155:	5775 MHz

Note:

1. This device is a Access Point with a built-in IEEE 802.11 a/n/ac WLAN transceiver.
2. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
3. 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, 802.11ac-80BW is 65Mbps)
4. At result of pretests, module supports dual-channel transmission, only the worst case is shown in the report. (802.11a is chain B)
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. This product is for the professional installation of equipment, according to different antennas with different transmit power, installed by the manufacturer.

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)
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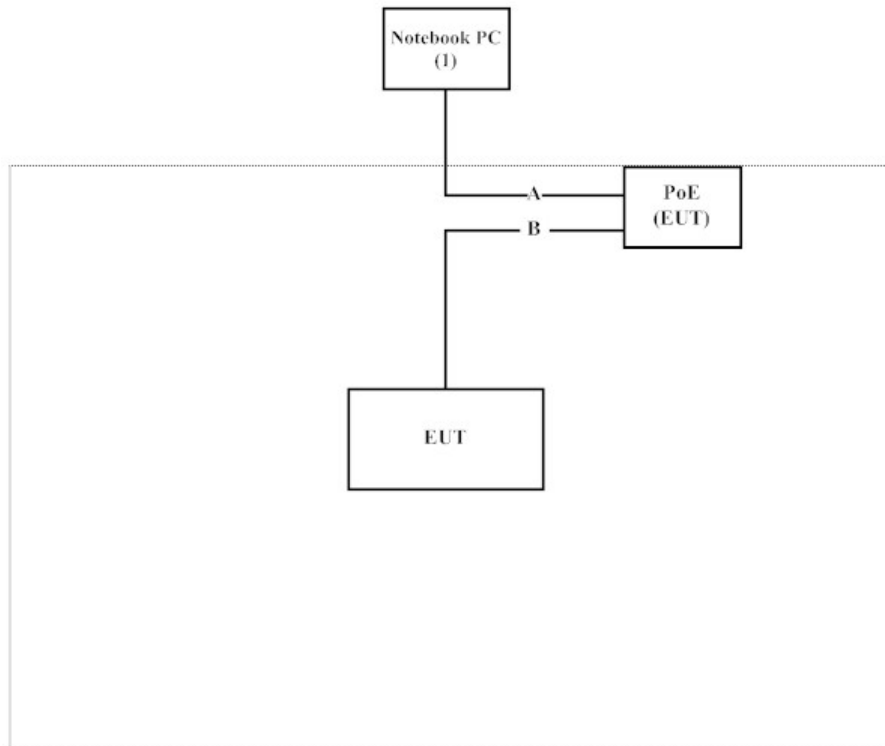
### 1.3. Tested System Details

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

Signal Cable Type	Signal cable Description
A LAN Cable	Shielded, 1.8m
B LAN Cable	Shielded, 1.8m

### 1.4. Configuration of tested System



### 1.5. EUT Exercise Software

- (1) Setup the EUT and peripherals as shown in section 1.4.
- (2) Execute “Art2-GUI V2.3” program on the Notebook PC.
- (3) Configure the test mode, the test channel, and the data rate.
- (4) Start the continuous transmission.
- (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  
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FCC Accreditation Number: TW1014



## 2. Conducted Emission

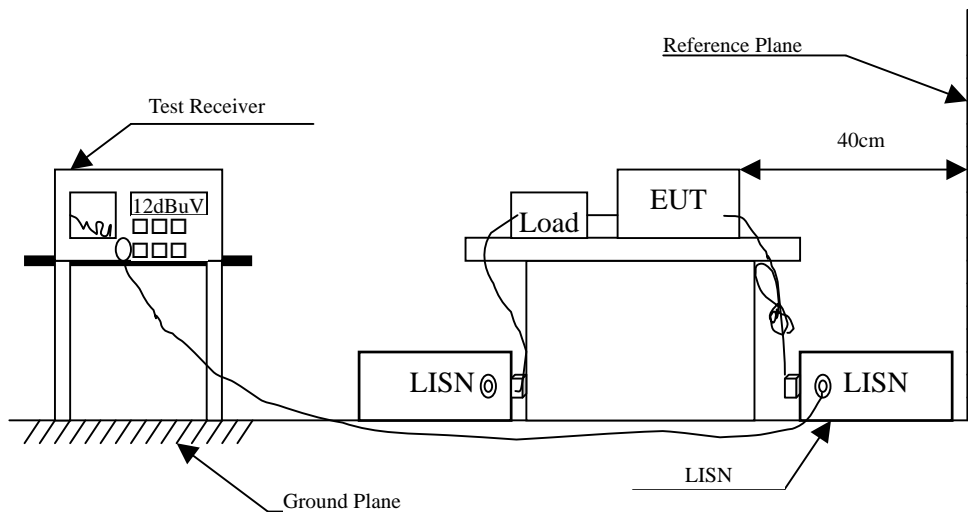
### 2.1. Test Equipment

	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.	Remark
X	Test Receiver	R & S	ESCS 30 / 825442/018	Sep., 2013	
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 (dBuV) 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 investigated 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 DTS 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  
 Test Item : Conducted Emission Test  
 Power Line : Line 1  
 Test Mode : Mode 4: Transmit (802.11ac-80BW-65Mbps) (5775MHz) - Dish Antenna

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
<b>LINE 1</b>					
<b>Quasi-Peak</b>					
0.162	9.548	42.130	51.678	-13.979	65.657
0.388	9.587	35.520	45.107	-14.093	59.200
0.806	9.596	25.620	35.216	-20.784	56.000
1.509	9.638	26.290	35.928	-20.072	56.000
2.912	9.700	20.370	30.070	-25.930	56.000
14.920	10.160	21.790	31.950	-28.050	60.000
<b>Average</b>					
0.162	9.548	31.970	41.518	-14.139	55.657
0.388	9.587	28.520	38.107	-11.093	49.200
0.806	9.596	18.990	28.586	-17.414	46.000
1.509	9.638	18.400	28.038	-17.962	46.000
2.912	9.700	11.720	21.420	-24.580	46.000
14.920	10.160	7.300	17.460	-32.540	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  
 Test Item : Conducted Emission Test  
 Power Line : Line 2  
 Test Mode : Mode 4: Transmit (802.11ac-80BW-65Mbps) (5775MHz) - Dish Antenna

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
<b>LINE 2</b>					
<b>Quasi-Peak</b>					
0.166	9.587	39.790	49.377	-16.166	65.543
0.197	9.589	35.690	45.279	-19.378	64.657
0.384	9.597	35.600	45.197	-14.117	59.314
0.873	9.619	27.200	36.819	-19.181	56.000
11.974	10.070	14.230	24.300	-35.700	60.000
15.045	10.230	13.250	23.480	-36.520	60.000
<b>Average</b>					
0.166	9.587	30.970	40.557	-14.986	55.543
0.197	9.589	26.920	36.509	-18.148	54.657
0.384	9.597	28.410	38.007	-11.307	49.314
0.873	9.619	20.420	30.039	-15.961	46.000
11.974	10.070	-0.600	9.470	-40.530	50.000
15.045	10.230	2.300	12.530	-37.470	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  
 Test Item : Conducted Emission Test  
 Power Line : Line 1  
 Test Mode : Mode 4: Transmit (802.11ac-80BW-65Mbps) (5775MHz) - Sector Antenna

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
<b>LINE 1</b>					
<b>Quasi-Peak</b>					
0.158	9.747	41.100	50.847	-14.924	65.771
0.166	9.745	40.390	50.135	-15.408	65.543
0.209	9.739	32.280	42.019	-22.295	64.314
0.259	9.741	26.130	35.871	-27.015	62.886
0.673	9.760	25.780	35.540	-20.460	56.000
3.127	9.860	22.680	32.540	-23.460	56.000
<b>Average</b>					
0.158	9.747	19.050	28.797	-26.974	55.771
0.166	9.745	32.040	41.785	-13.758	55.543
0.209	9.739	11.650	21.389	-32.925	54.314
0.259	9.741	7.110	16.851	-36.035	52.886
0.673	9.760	10.330	20.090	-25.910	46.000
3.127	9.860	16.290	26.150	-19.850	46.000

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  
 Test Item : Conducted Emission Test  
 Power Line : Line 2  
 Test Mode : Mode 4: Transmit (802.11ac-80BW-65Mbps) (5775MHz) - Sector Antenna

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
<b>LINE 2</b>					
<b>Quasi-Peak</b>					
0.166	9.747	40.350	50.097	-15.446	65.543
0.201	9.749	32.920	42.669	-21.874	64.543
0.212	9.749	31.850	41.599	-22.630	64.229
0.255	9.751	26.190	35.941	-27.059	63.000
0.478	9.751	24.570	34.321	-22.308	56.629
0.677	9.760	25.600	35.360	-20.640	56.000
<b>Average</b>					
0.166	9.747	30.000	39.747	-15.796	55.543
0.201	9.749	22.590	32.339	-22.204	54.543
0.212	9.749	25.280	35.029	-19.200	54.229
0.255	9.751	5.800	15.551	-37.449	53.000
0.478	9.751	19.080	28.831	-17.798	46.629
0.677	9.760	10.090	19.850	-26.150	46.000

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  
 Test Item : Conducted Emission Test  
 Power Line : Line 1  
 Test Mode : Mode 4: Transmit (802.11ac-80BW-65Mbps) (5775MHz) - Omni Antenna

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
<b>LINE 1</b>					
<b>Quasi-Peak</b>					
0.162	9.746	41.260	51.006	-14.651	65.657
0.216	9.739	31.060	40.799	-23.315	64.114
0.255	9.741	26.190	35.931	-27.069	63.000
0.470	9.751	24.610	34.361	-22.496	56.857
0.744	9.763	22.090	31.853	-24.147	56.000
3.002	9.858	22.730	32.588	-23.412	56.000
<b>Average</b>					
0.162	9.746	25.870	35.616	-20.041	55.657
0.216	9.739	22.100	31.839	-22.275	54.114
0.255	9.741	15.570	25.311	-27.689	53.000
0.470	9.751	14.900	24.651	-22.206	46.857
0.744	9.763	8.560	18.323	-27.677	46.000
3.002	9.858	12.130	21.988	-24.012	46.000

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  
 Test Item : Conducted Emission Test  
 Power Line : Line 2  
 Test Mode : Mode 4: Transmit (802.11ac-80BW-65Mbps) (5775MHz) - Omni Antenna

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
<b>LINE 2</b>					
<b>Quasi-Peak</b>					
0.158	9.747	41.100	50.847	-14.924	65.771
0.197	9.749	31.950	41.699	-22.958	64.657
0.220	9.750	28.780	38.530	-25.470	64.000
0.259	9.751	26.090	35.841	-27.045	62.886
0.658	9.759	24.590	34.349	-21.651	56.000
0.841	9.778	19.720	29.498	-26.502	56.000
<b>Average</b>					
0.158	9.747	33.490	43.237	-12.534	55.771
0.197	9.749	23.850	33.599	-21.058	54.657
0.220	9.750	2.580	12.330	-41.670	54.000
0.259	9.751	9.390	19.141	-33.745	52.886
0.658	9.759	10.100	19.859	-26.141	46.000
0.841	9.778	8.520	18.298	-27.702	46.000

Note:

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



### 3. Maximun conducted output power

#### 3.1. Test Equipment

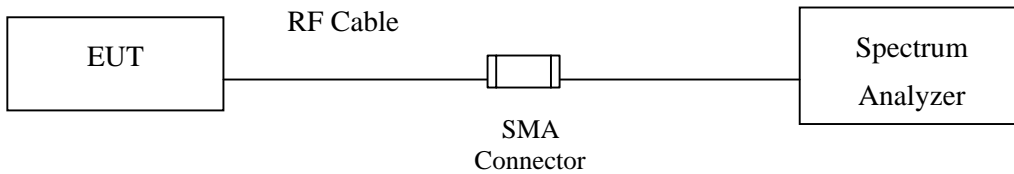
	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Power Meter	Anritsu	ML2495A/6K00003357	May, 2014
X	Power Sensor	Anritsu	MA2411B/0738448	Jun, 2014
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2014

Note:

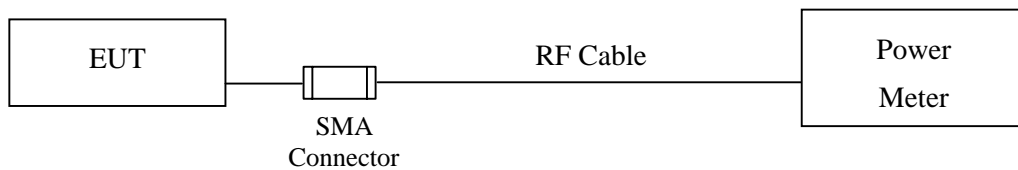
1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
2. The test instruments marked with “X” are used to measure the final test results.

#### 3.2. Test Setup

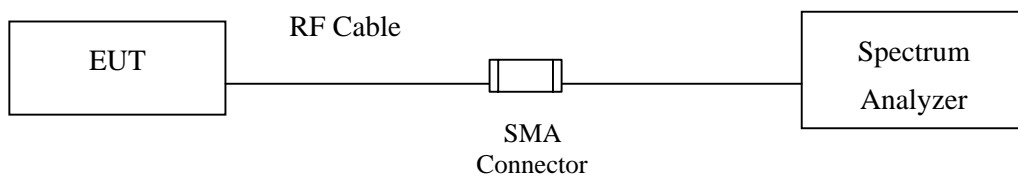
##### 26dBc Occupied Bandwidth



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



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



### 3.3. Limits

- (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.
- (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) 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  
 Test Item : Maximum conducted output power  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmit (802.11a-6Mbps) - Dish Antenna

#### 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)								
149	5745	1.25	--	--	--	--	--	--	--	<2dBm
157	5785	1.52	1.38	1.24	1.1	0.96	0.82	0.68	0.54	<2dBm
165	5825	1.67	--	--	--	--	--	--	--	<2dBm

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)								
149	5745	1.31	--	--	--	--	--	--	--	<2dBm
157	5785	1.69	1.51	1.38	1.22	1.06	0.91	0.75	0.60	<2dBm
165	5825	1.72	--	--	--	--	--	--	--	<2dBm

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

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

**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)								
149	5745	-1.45	--	--	--	--	--	--	--	<2dBm
157	5785	-1.32	-1.43	-1.59	-1.72	-1.85	-1.99	-2.12	-2.26	<2dBm
165	5825	-1.31	--	--	--	--	--	--	--	<2dBm

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)								
149	5745	-2.12	--	--	--	--	--	--	--	<2dBm
157	5785	-1.01	-1.16	-1.33	-1.49	-1.65	-1.81	-1.97	-2.13	<2dBm
165	5825	-1.22	--	--	--	--	--	--	--	<2dBm

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)
149	5745	-1.45	-2.12	1.24	2
157	5785	-1.32	-1.01	1.85	2
165	5825	-1.31	-1.22	1.75	2

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  
 Test Item : Maximum conducted output power  
 Test Site : No.3 OATS  
 Test Mode : Mode 3: Transmit (802.11n-40BW-30Mbps) - Dish Antenna

**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)								
151	5755	-1.3	--	--	--	--	--	--	--	<2dBm
159	5795	-1.44	-1.58	-1.76	-1.91	-2.07	-2.23	-2.39	-2.55	<2dBm

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)								
151	5755	-1.86	--	--	--	--	--	--	--	<2dBm
159	5795	-1.86	-1.99	-2.14	-2.28	-2.42	-2.56	-2.70	-2.84	<2dBm

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)
151	5755	-1.30	-1.86	1.44	2
159	5795	-1.44	-1.86	1.37	2

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  
 Test Item : Maximum conducted output power  
 Test Site : No.3 OATS  
 Test Mode : Mode 4: Transmit (802.11ac-80BW-65Mbps) - Dish Antenna

**CHAIN A**

Cable loss=1dB		Maximum conducted output power										
Channel No	Frequency (MHz)	Data Rate (Mbps)										Required Limit
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9	
155	5775	-1.11	-1.23	-1.39	-1.52	-1.66	-1.80	-1.94	-2.08	-2.22	-2.36	<2dBm

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
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9	
155	5775	-1.44	-1.58	-1.73	-1.87	-2.02	-2.16	-2.31	-2.45	-2.60	-2.74	<2dBm

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

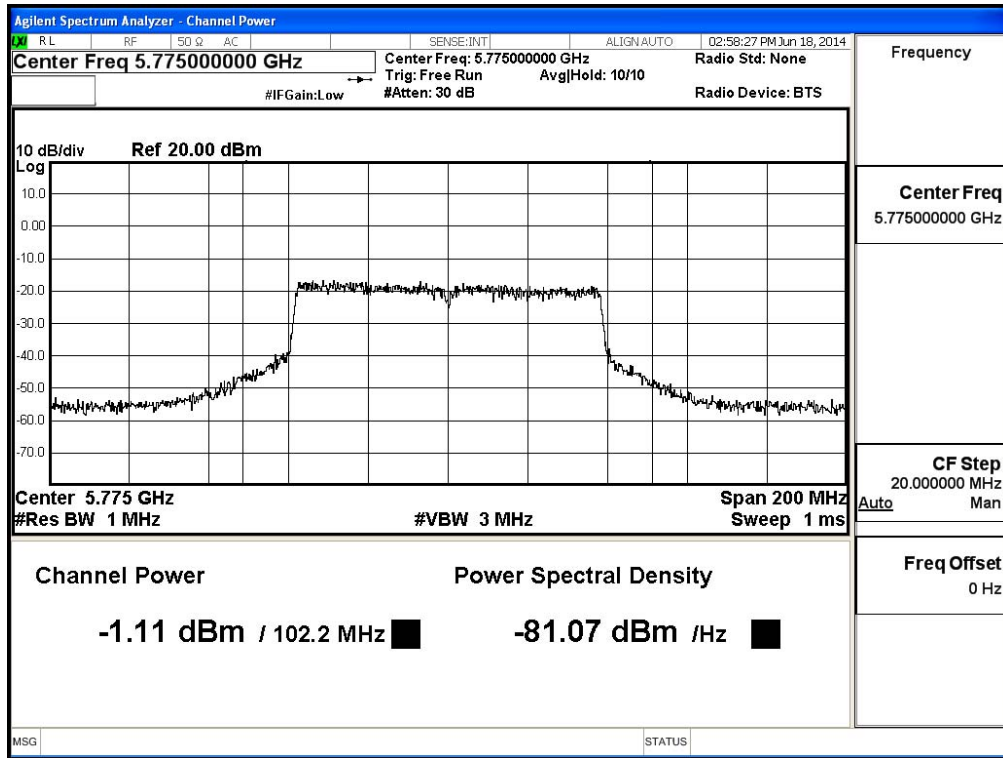
**Maximum conducted output power Measurement:**
**(CHAIN A+ B)**

Channel Number	Frequency (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	Output Power Limit
					(dBm)
155	5775	-1.11	-1.44	1.74	2

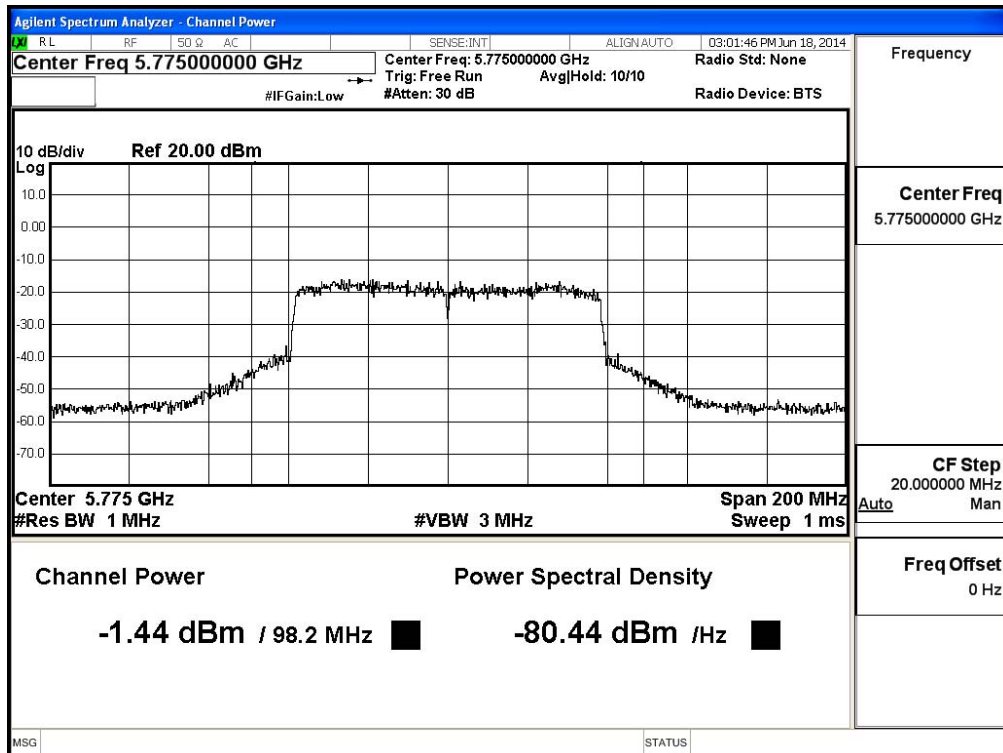
Note:

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))

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



**Channel 155– Chain B**





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

**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)								
149	5745	15.43	--	--	--	--	--	--	--	<16dBm
157	5785	15.27	15.12	14.96	14.81	14.65	14.50	14.34	14.19	<16dBm
165	5825	15.14	--	--	--	--	--	--	--	<16dBm

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)								
149	5745	15.72	--	--	--	--	--	--	--	<16dBm
157	5785	15.54	15.39	15.22	15.06	14.90	14.74	14.58	14.42	<16dBm
165	5825	15.39	--	--	--	--	--	--	--	<16dBm

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

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

**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)								
149	5745	12.30	--	--	--	--	--	--	--	<16dBm
157	5785	12.71	12.63	12.48	12.38	12.26	12.15	12.03	11.92	<16dBm
165	5825	12.81	--	--	--	--	--	--	--	<16dBm

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)								
149	5745	12.39	--	--	--	--	--	--	--	<16dBm
157	5785	12.48	12.31	12.19	12.04	11.89	11.75	11.60	11.46	<16dBm
165	5825	12.65	--	--	--	--	--	--	--	<16dBm

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)
149	5745	12.30	12.39	15.36	16
157	5785	12.71	12.48	15.61	16
165	5825	12.81	12.65	15.74	16

Note:

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

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

**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)								
151	5755	12.25	--	--	--	--	--	--	--	<16dBm
159	5795	12.67	12.55	12.36	12.22	12.06	11.91	11.75	11.60	<16dBm

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)								
151	5755	12.46	--	--	--	--	--	--	--	<16dBm
159	5795	12.37	12.18	12.04	11.87	11.70	11.54	11.37	11.21	<16dBm

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)
151	5755	12.25	12.46	15.37	16
159	5795	12.67	12.37	15.53	16

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  
 Test Item : Maximum conducted output power  
 Test Site : No.3 OATS  
 Test Mode : Mode 4: Transmit (802.11ac-80BW-65Mbps) - Sector Antenna

**CHAIN A**

Cable loss=1dB		Maximum conducted output power										
Channel No	Frequency (MHz)	Data Rate (Mbps)										Required Limit
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9	
155	5775	12.79	12.63	12.49	12.34	12.19	12.04	11.89	11.74	11.59	11.44	<16dBm

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
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9	
155	5775	12.99	12.83	12.69	12.54	12.39	12.24	12.09	11.94	11.79	11.64	<16dBm

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

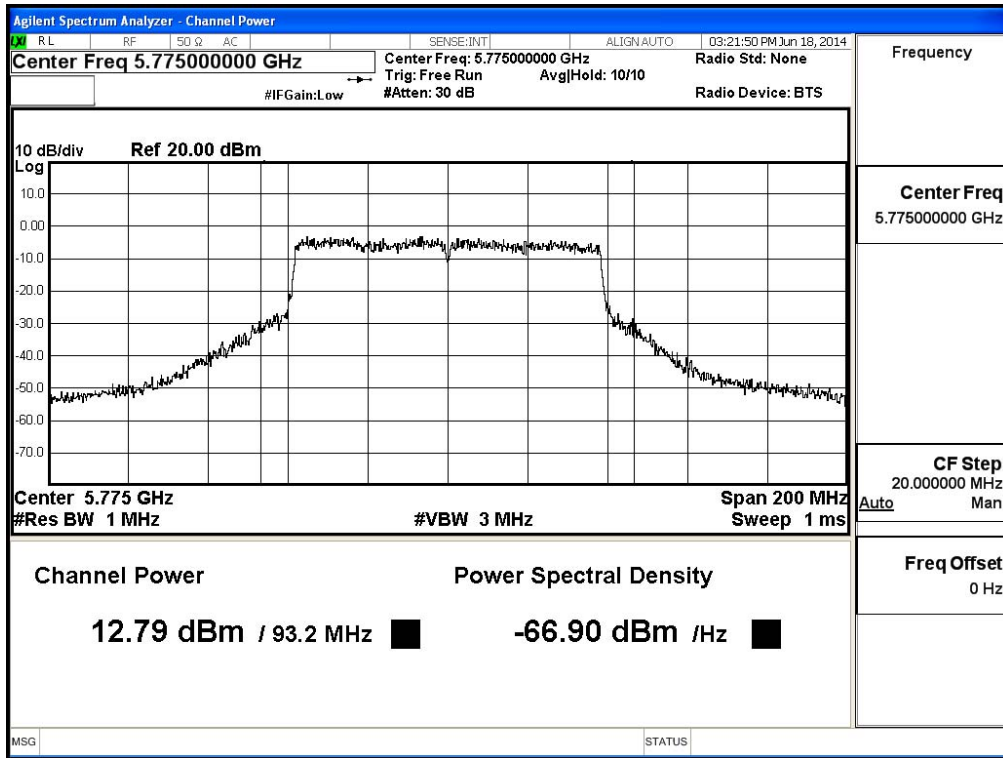
**Maximum conducted output power Measurement:**
**(CHAIN A+ B)**

Channel Number	Frequency (MHz)	Chain A Power	Chain B Power	Output Power (dBm)	Output Power Limit
		(dBm)	(dBm)		(dBm)
155	5775	12.79	12.99	15.90	16

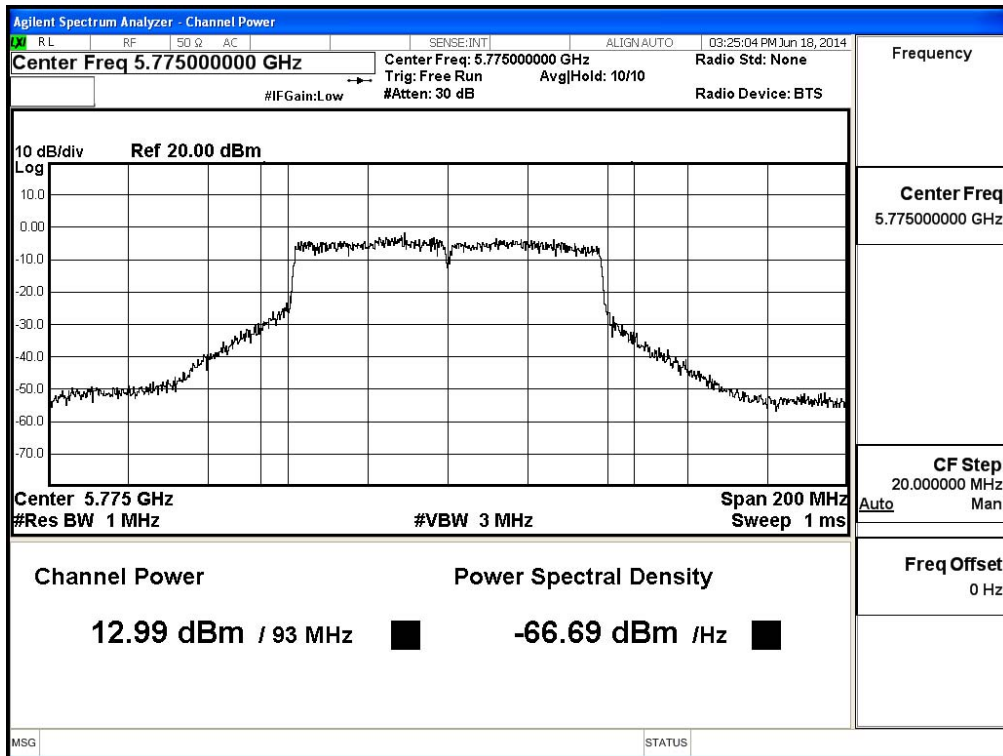
Note:

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))

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



**Channel 155– Chain B**



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

**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)								
149	5745	22.23	--	--	--	--	--	--	--	<23dBm
157	5785	22.32	22.19	22.05	21.92	21.78	21.65	21.51	21.38	<23dBm
165	5825	22.16	--	--	--	--	--	--	--	<23dBm

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)								
149	5745	22.72	--	--	--	--	--	--	--	<23dBm
157	5785	22.83	22.67	22.55	22.40	22.26	22.12	21.98	21.84	<23dBm
165	5825	22.33	--	--	--	--	--	--	--	<23dBm

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

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

**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)								
149	5745	18.13	--	--	--	--	--	--	--	<23dBm
157	5785	18.14	18.02	17.89	17.77	17.64	17.52	17.39	17.27	<23dBm
165	5825	18.56	--	--	--	--	--	--	--	<23dBm

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)								
149	5745	18.61	--	--	--	--	--	--	--	<23dBm
157	5785	18.56	18.40	18.27	18.12	17.98	17.83	17.69	17.54	<23dBm
165	5825	18.70	--	--	--	--	--	--	--	<23dBm

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)
149	5745	18.13	18.61	21.39	23
157	5785	18.14	18.56	21.37	23
165	5825	18.56	18.70	21.64	23

Note:

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

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

**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)								
151	5755	18.47	--	--	--	--	--	--	--	<23dBm
159	5795	18.61	18.49	18.23	18.06	17.87	17.68	17.49	17.30	<23dBm

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)								
151	5755	18.79	--	--	--	--	--	--	--	<23dBm
159	5795	18.25	18.11	18.02	17.90	17.78	17.67	17.55	17.44	<23dBm

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)
151	5755	18.47	18.79	21.64	23
159	5795	18.61	18.25	21.44	23

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  
 Test Item : Maximum conducted output power  
 Test Site : No.3 OATS  
 Test Mode : Mode 4: Transmit (802.11ac-80BW-65Mbps) - Omni Antenna

**CHAIN A**

Cable loss=1dB		Maximum conducted output power										
Channel No	Frequency (MHz)	Data Rate (Mbps)										Required Limit
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9	
155	5775	18.13	17.97	17.79	17.62	17.45	17.28	17.11	16.94	16.77	16.60	<23dBm

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
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9	
155	5775	18.84	18.68	18.54	18.39	18.24	18.09	17.94	17.79	17.64	17.49	<23dBm

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

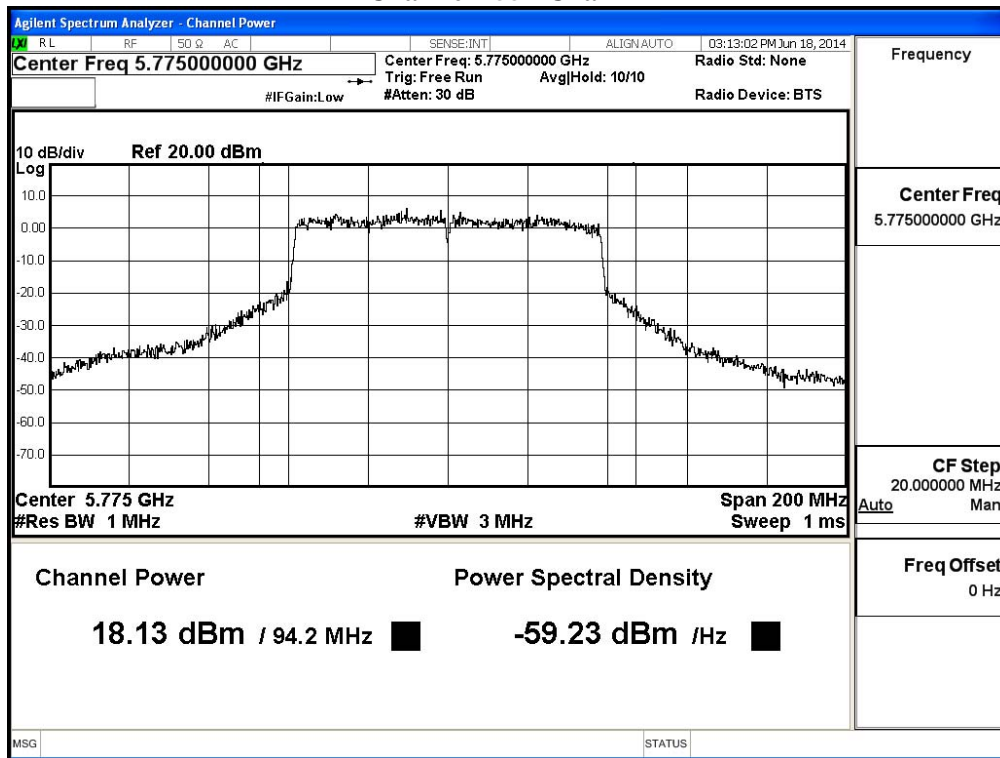
**Maximum conducted output power Measurement:**
**(CHAIN A+ B)**

Channel Number	Frequency (MHz)	Chain A Power	Chain B Power	Output Power (dBm)	Output Power Limit
		(dBm)	(dBm)		(dBm)
155	5775	18.13	18.84	21.51	23

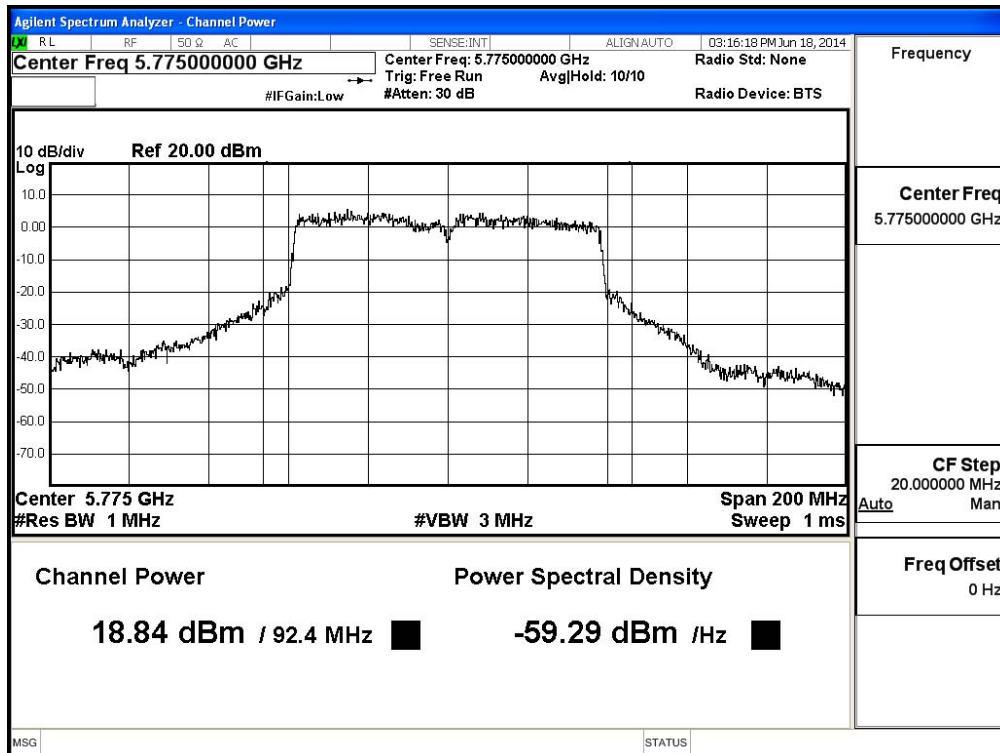
Note:

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))

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



**Channel 155– Chain B**



## 4. Peak Power Spectral Density

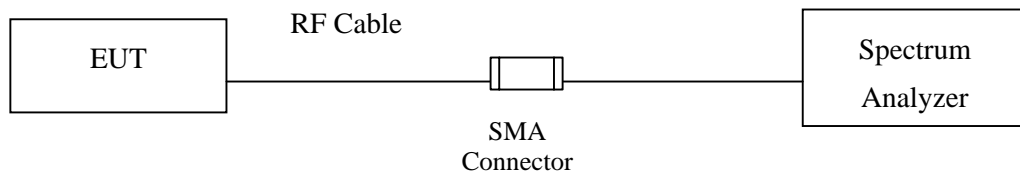
### 4.1. Test Equipment

	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.

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

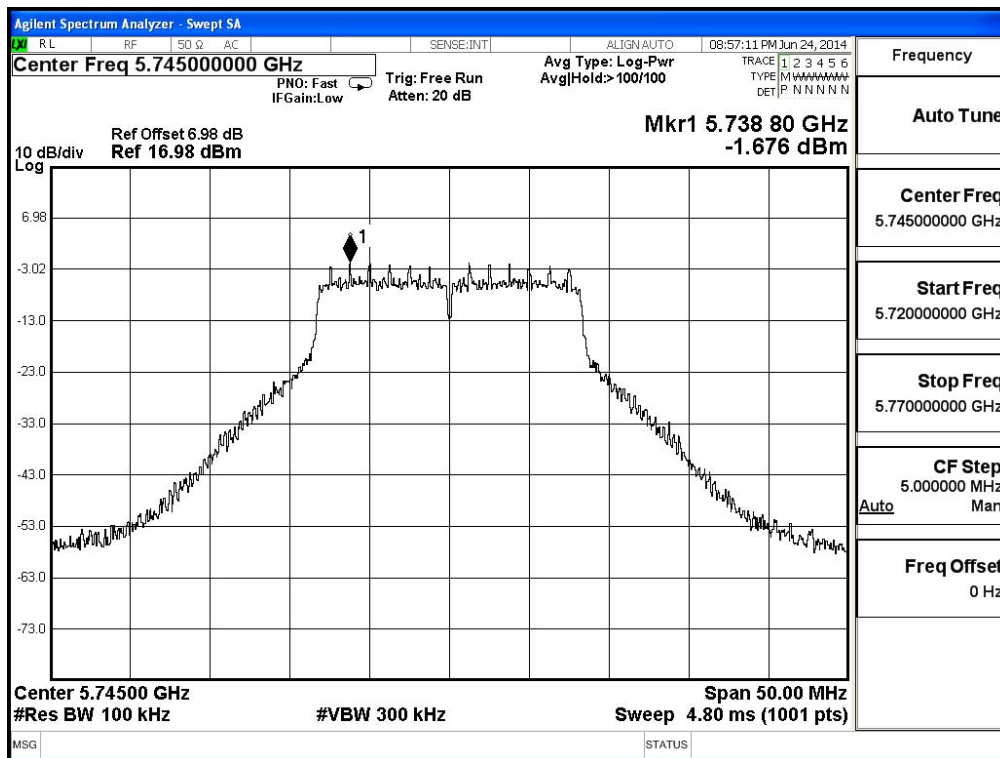
± 1.27 dB

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

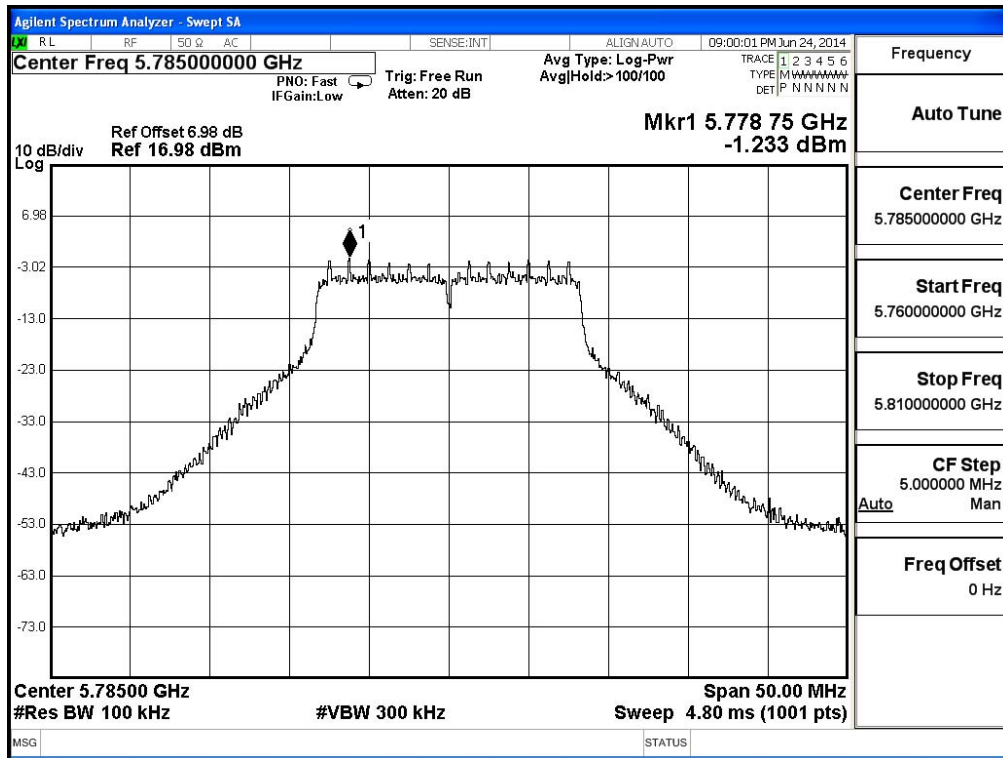
Product : Access Point  
 Test Item : Peak Power Spectral Density  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmit (802.11a-6Mbps) - Dish Antenna

Channel Number	Frequency (MHz)	Data Rate (Mbps)	Measurement Level (dBm)	Required Limit (dBm)	Result
149	5745	6	-1.676	<2	Pass
157	5785	6	-1.233	<2	Pass
165	5825	6	-0.478	<2	Pass

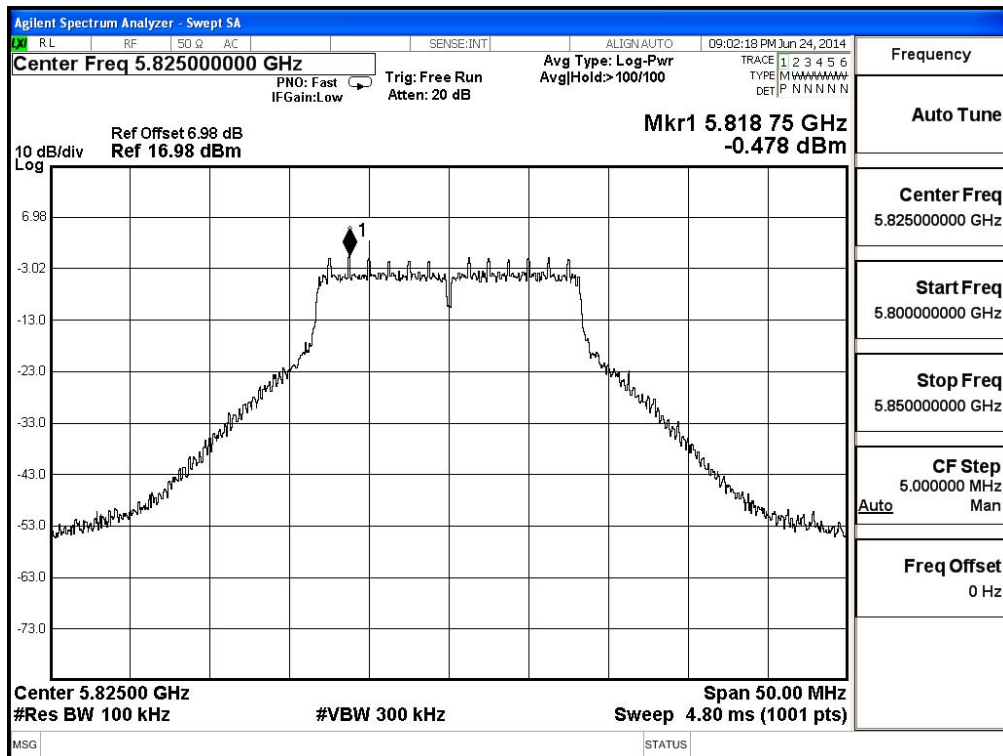
**Channel 149:**



**Channel 157:**



**Channel 165:**

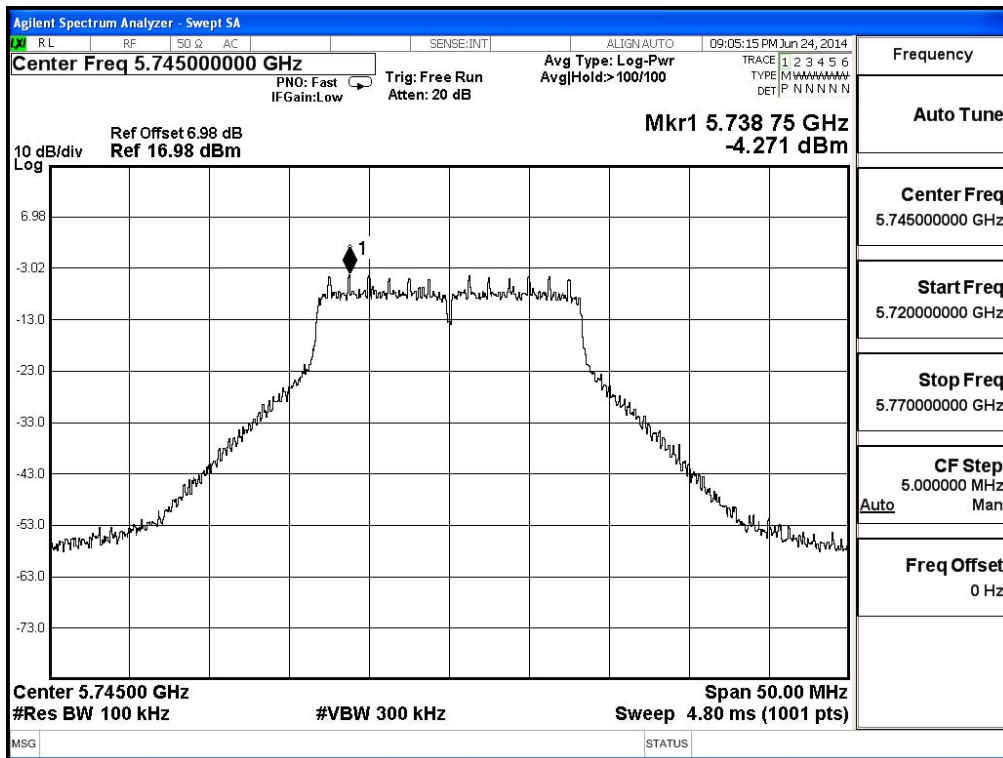


Product : Access Point  
 Test Item : Peak Power Spectral Density  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmit (802.11n-20BW-14.4Mbps) - Dish Antenna

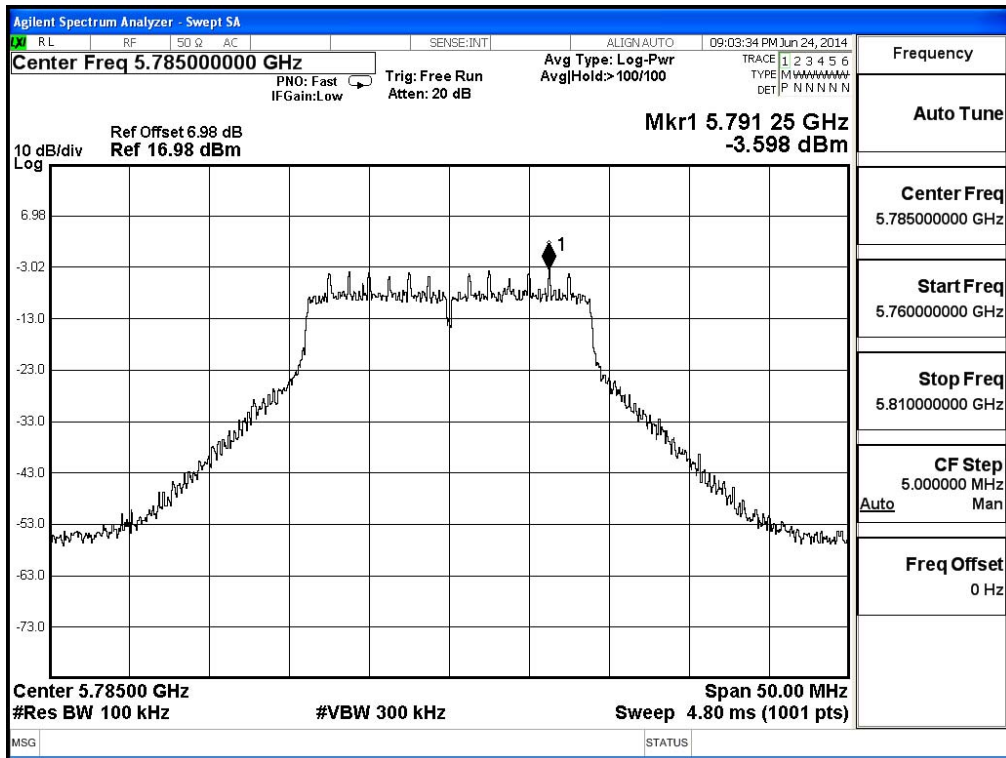
Channel Number	Frequency (MHz)	Chain	PPSD/MHz (dBm)	Total PPSD/MHz (dBm) <sub>1</sub>	Required Limit (dBm)	Result
149	5745	A	-4.271	-1.261	<2	Pass
		B	-4.702	-1.692	<2	Pass
157	5785	A	-3.598	-0.588	<2	Pass
		B	-3.906	-0.896	<2	Pass
165	5825	A	-3.533	-0.523	<2	Pass
		B	-3.049	-0.039	<2	Pass

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

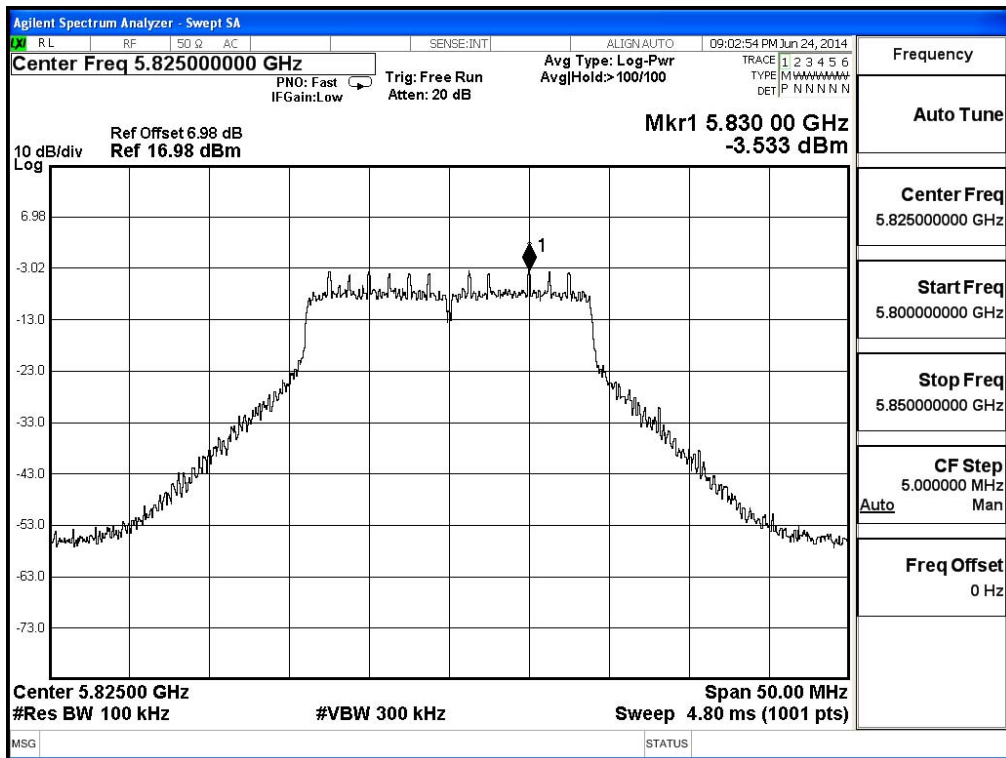
**Channel 149 – Chain A**



**Channel 157 – Chain A**

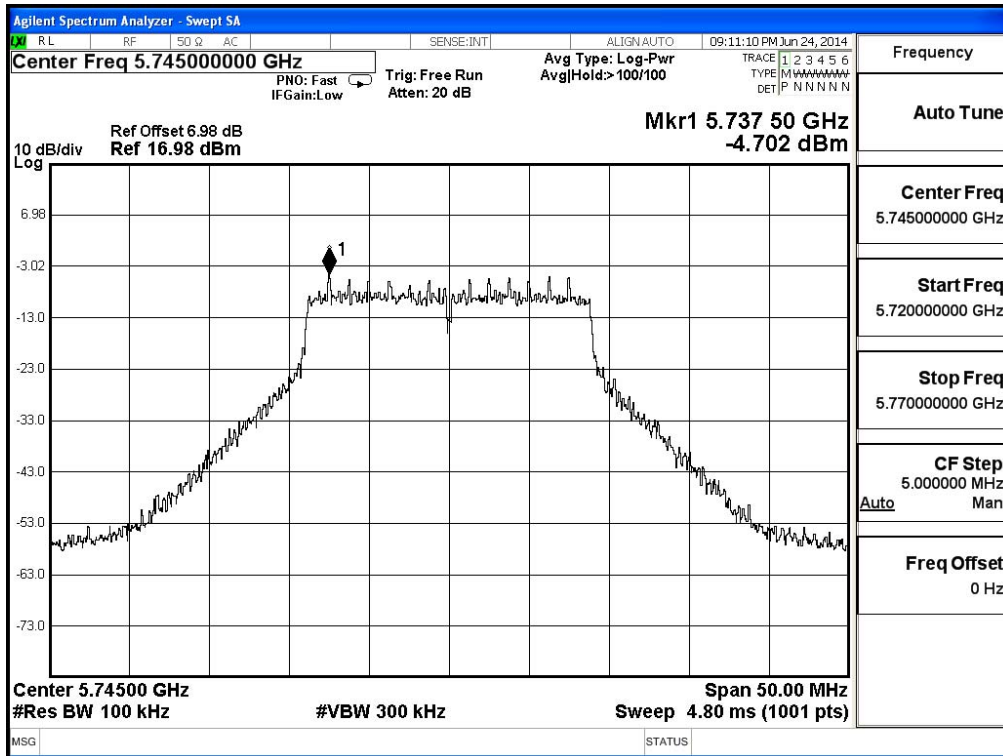


**Channel 165 – Chain A**

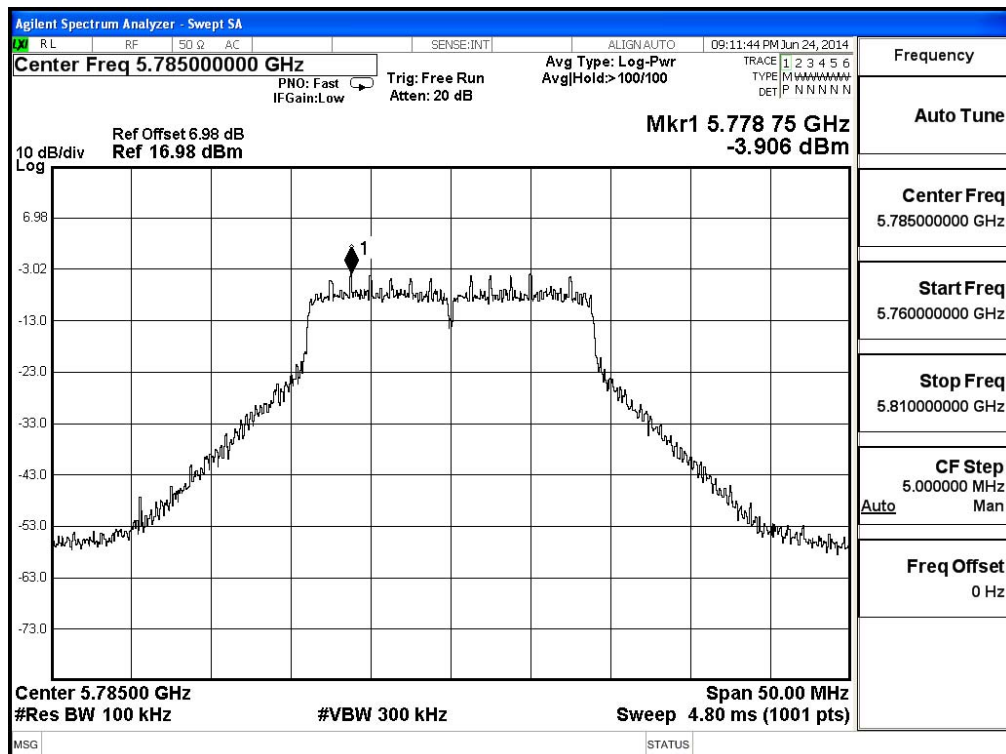




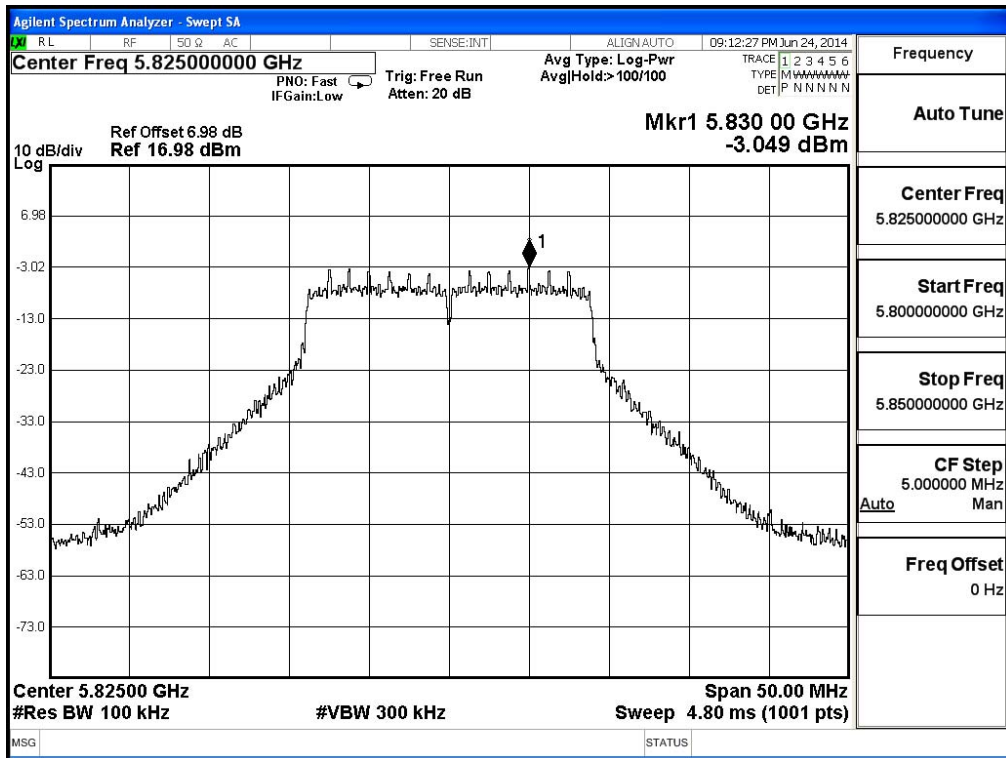
### Channel 149 – Chain B



### Channel 157 – Chain B



**Channel 165 – Chain B**

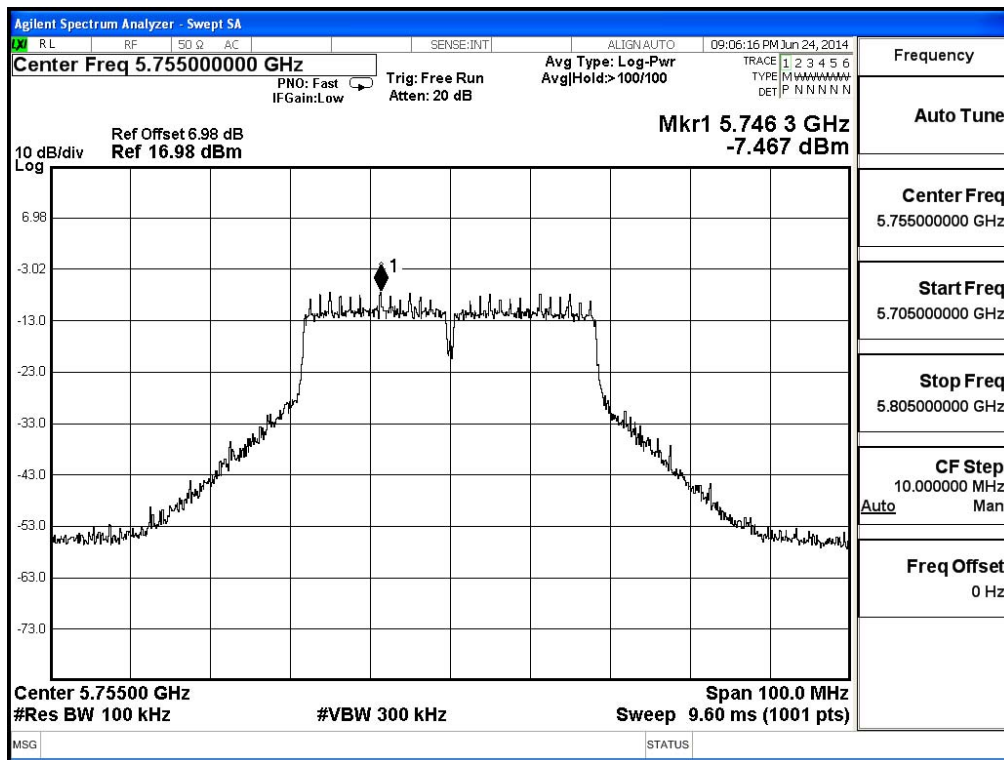


Product : Access Point  
 Test Item : Peak Power Spectral Density  
 Test Site : No.3 OATS  
 Test Mode : Mode 3: Transmit (802.11n-40BW-30Mbps) - Dish Antenna

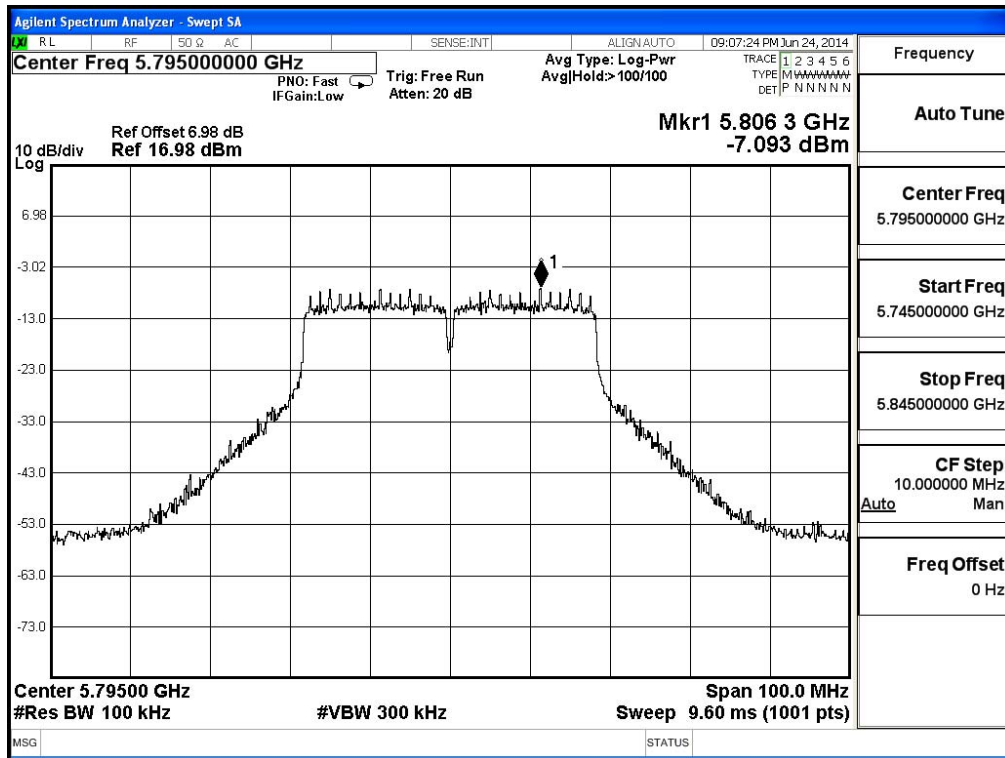
Channel Number	Frequency (MHz)	Chain	PPSD/MHz (dBm)	Total PPSD/MHz (dBm) <sub>i</sub>	Required Limit (dBm)	Result
151	5755	A	-7.467	-4.457	<2	Pass
		B	-7.041	-4.031	<2	Pass
159	5795	A	-7.093	-4.083	<2	Pass
		B	-7.082	-4.072	<2	Pass

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

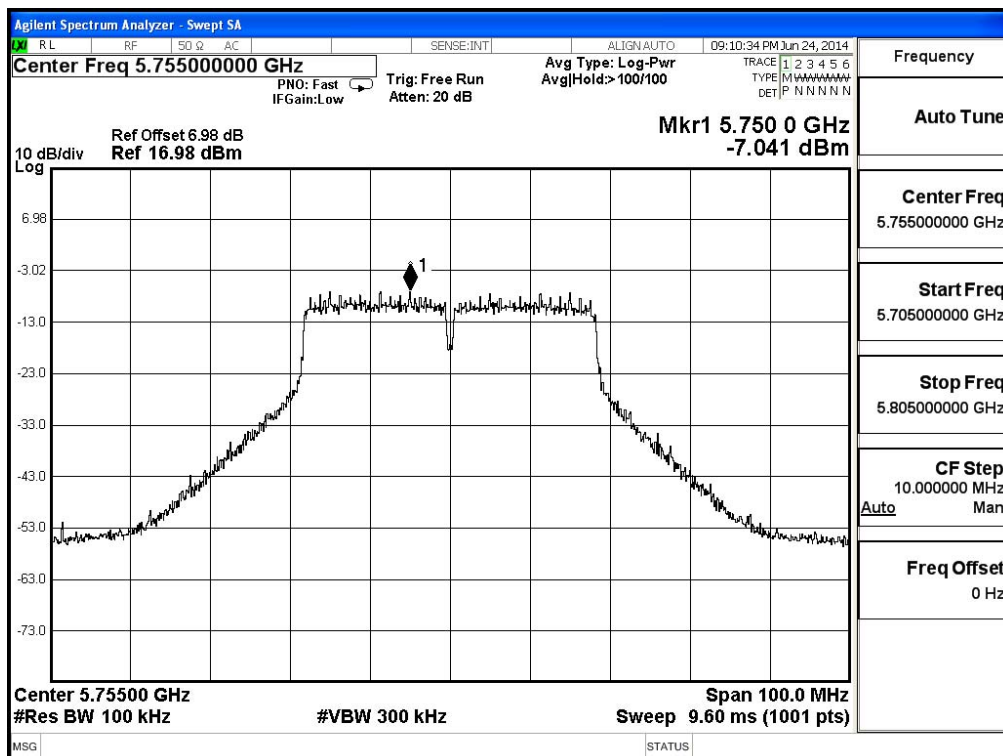
**Channel 151 – Chain A**



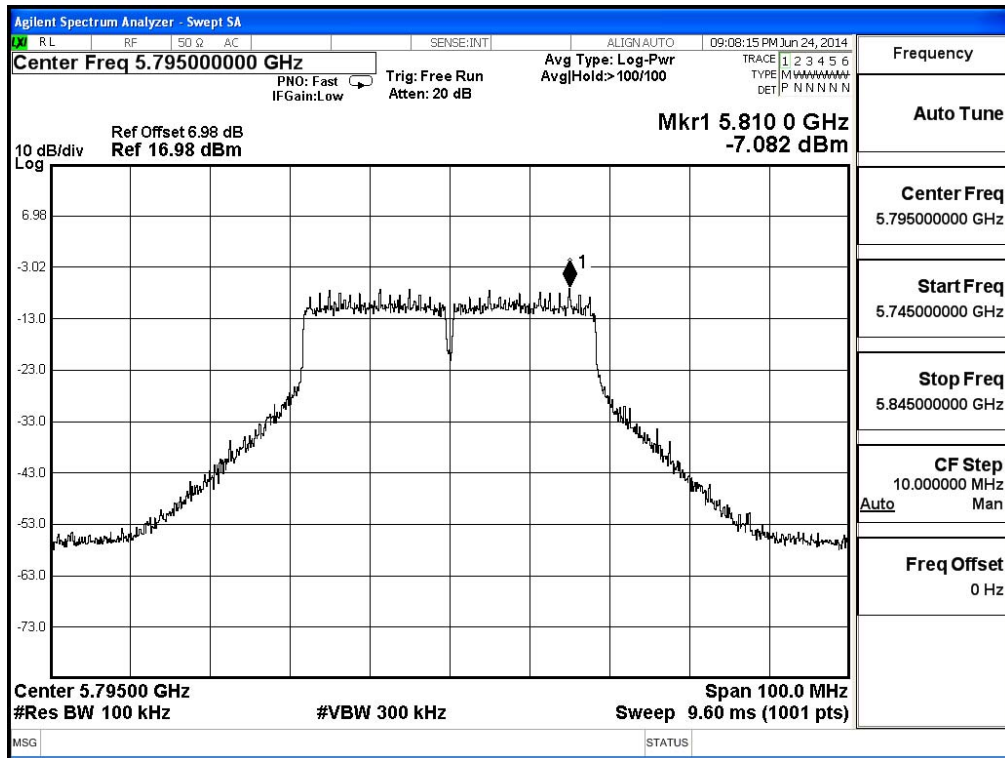
### Channel 159 – Chain A



### Channel 151 – Chain B



**Channel 159 – Chain B**

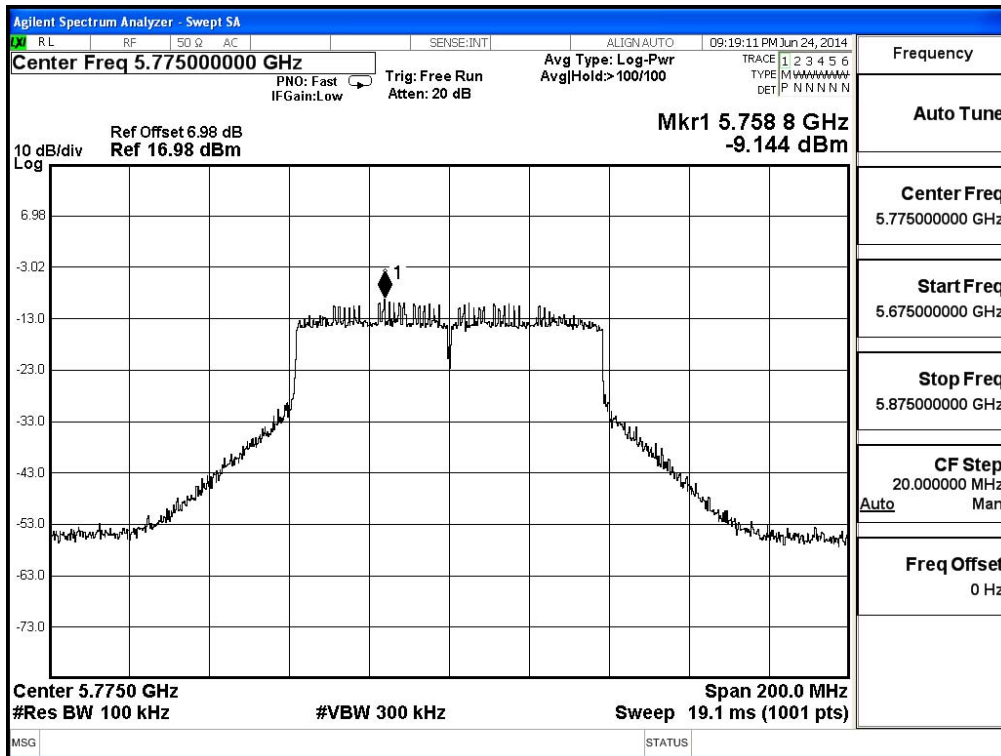


Product : Access Point  
 Test Item : Peak Power Spectral Density  
 Test Site : No.3 OATS  
 Test Mode : Mode 4: Transmit (802.11ac-80BW-65Mbps) - Dish Antenna

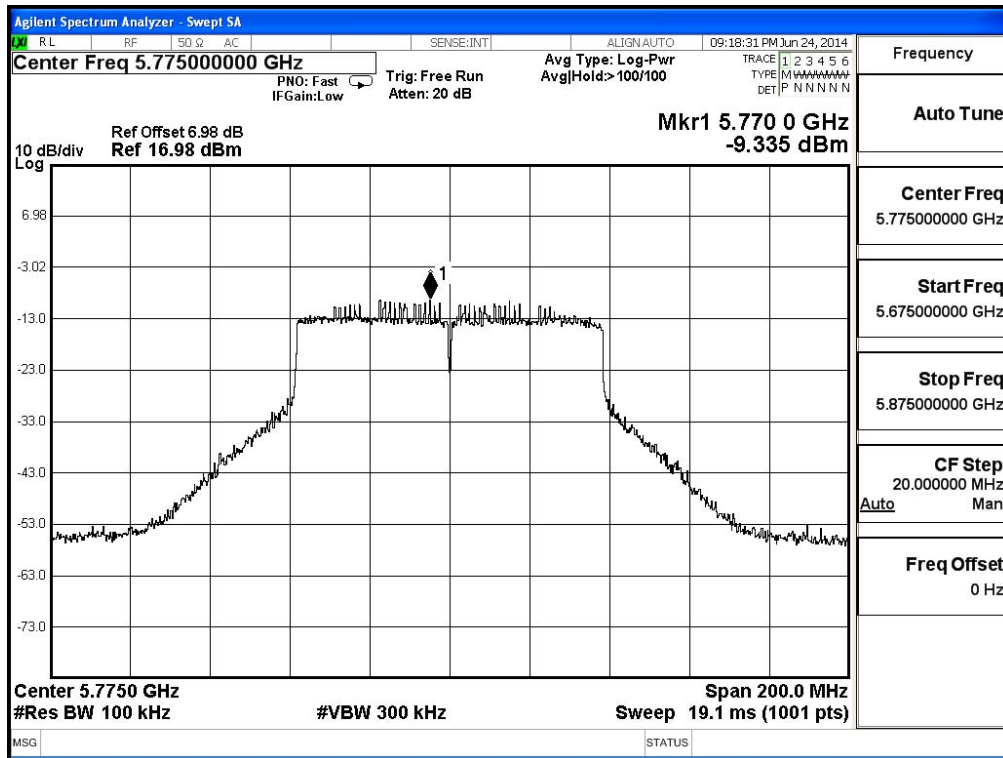
Channel Number	Frequency (MHz)	Chain	PPSD/MHz (dBm)	Total PPSD/MHz (dBm) <sub>1</sub>	Required Limit (dBm)	Result
155	5775	A	-9.144	-6.134	<2	Pass
		B	-9.335	-6.325	<2	Pass

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

**Channel 155: CHAIN A**



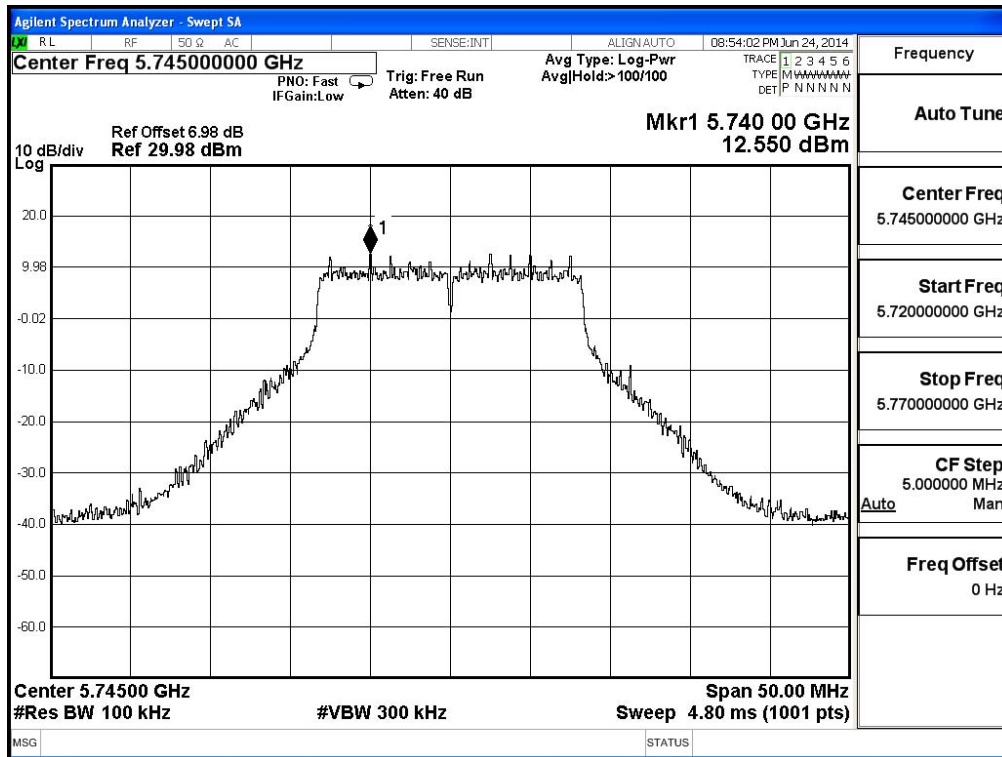
**Channel 155: CHAIN B**



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

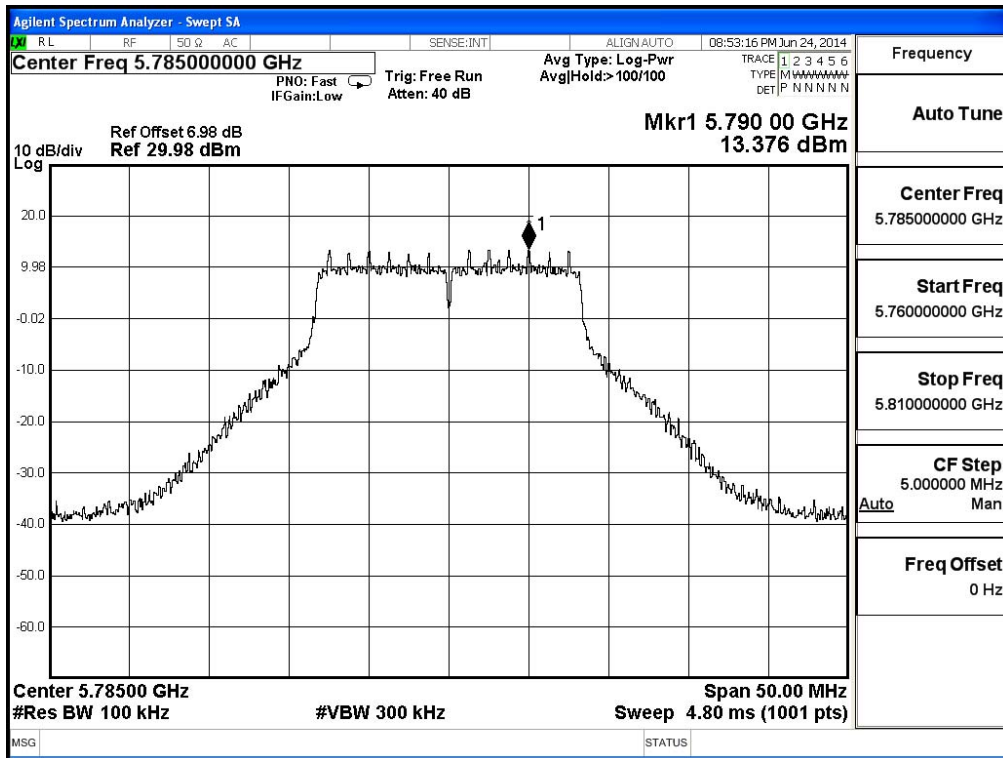
Channel Number	Frequency (MHz)	Data Rate (Mbps)	Measurement Level (dBm)	Required Limit (dBm)	Result
149	5745	6	12.550	<16	Pass
157	5785	6	13.376	<16	Pass
165	5825	6	12.836	<16	Pass

**Channel 149:**

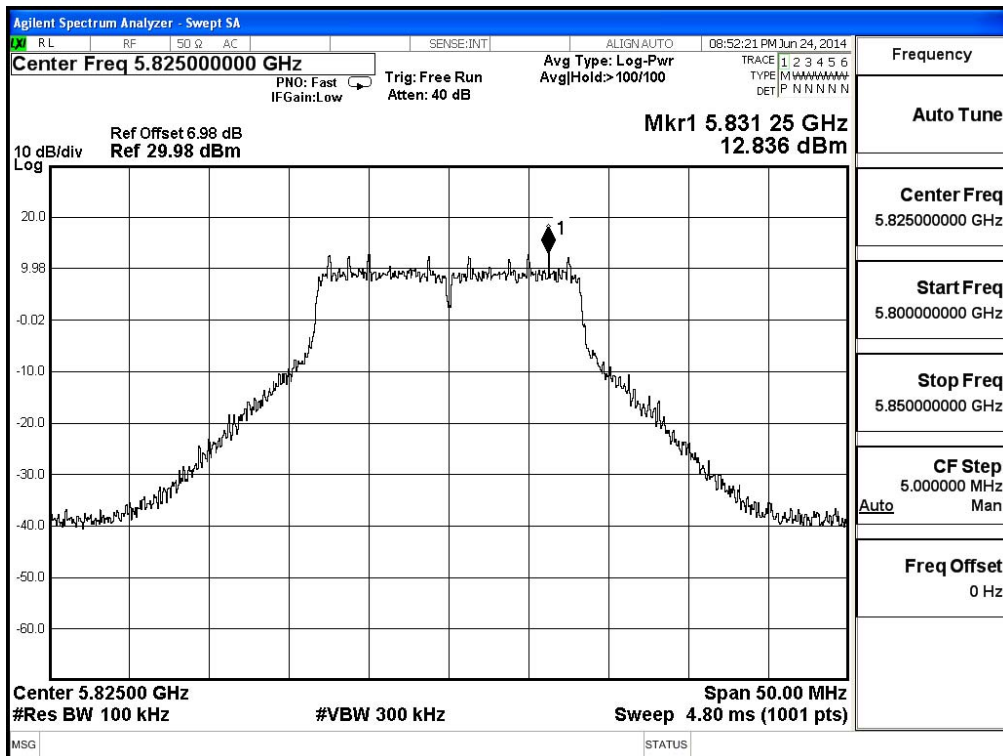




**Channel 157:**



**Channel 165:**

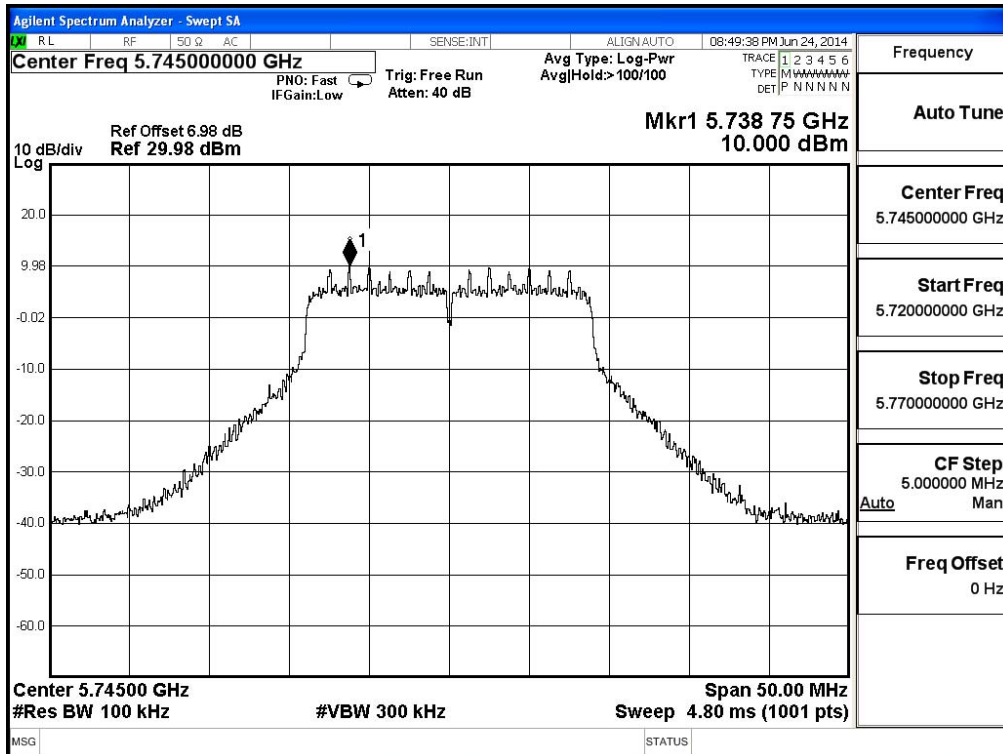


Product : Access Point  
 Test Item : Peak Power Spectral Density  
 Test Site : No.3 OATS  
 Test Mode : Mode 2: Transmit (802.11n-20BW-14.4Mbps) - Sector Antenna

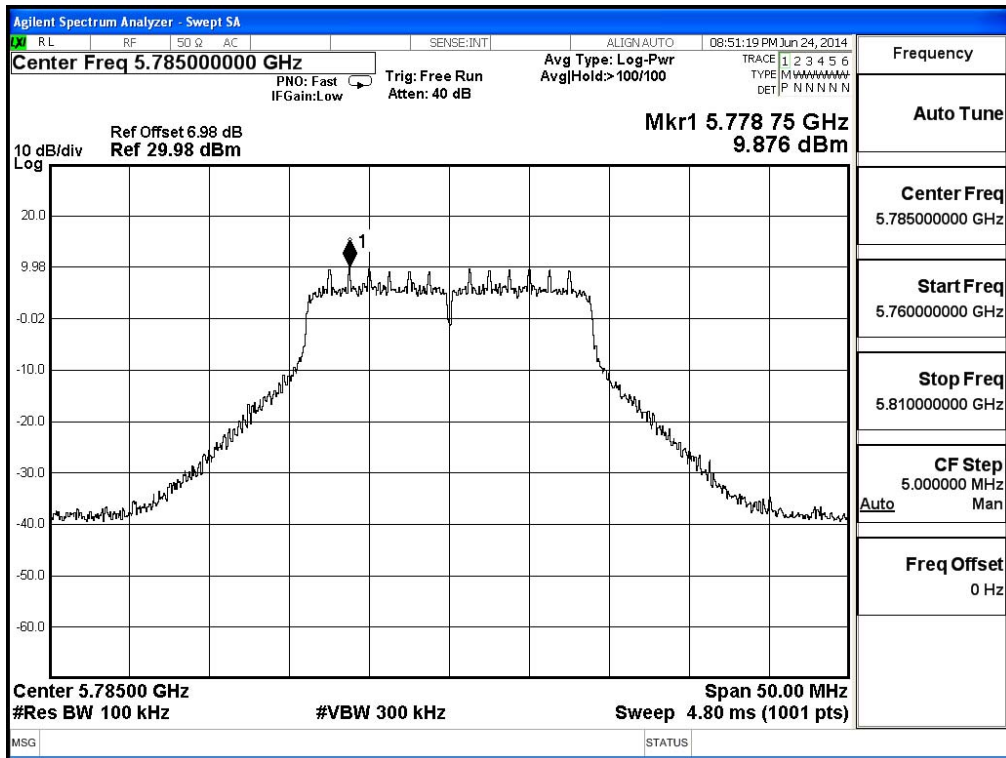
Channel Number	Frequency (MHz)	Chain	PPSD/MHz (dBm)	Total PPSD/MHz (dBm) <sub>1</sub>	Required Limit (dBm)	Result
149	5745	A	10.000	13.010	<16	Pass
		B	10.047	13.057	<16	Pass
157	5785	A	9.876	12.886	<16	Pass
		B	10.393	13.403	<16	Pass
165	5825	A	10.090	13.100	<16	Pass
		B	10.228	13.238	<16	Pass

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

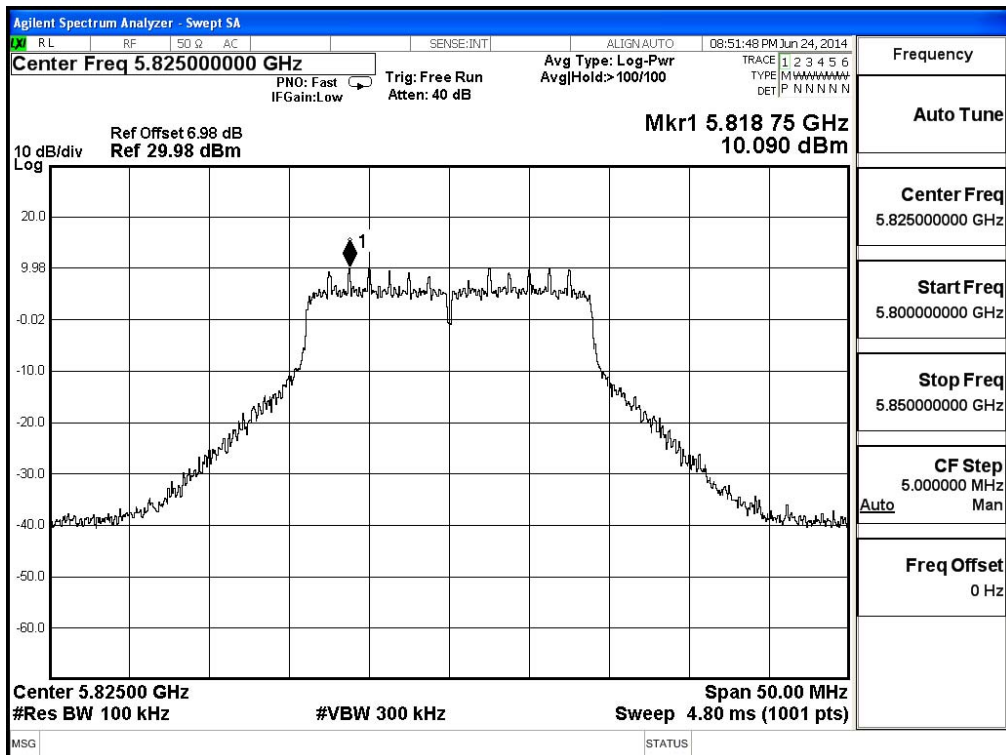
**Channel 149 – Chain A**



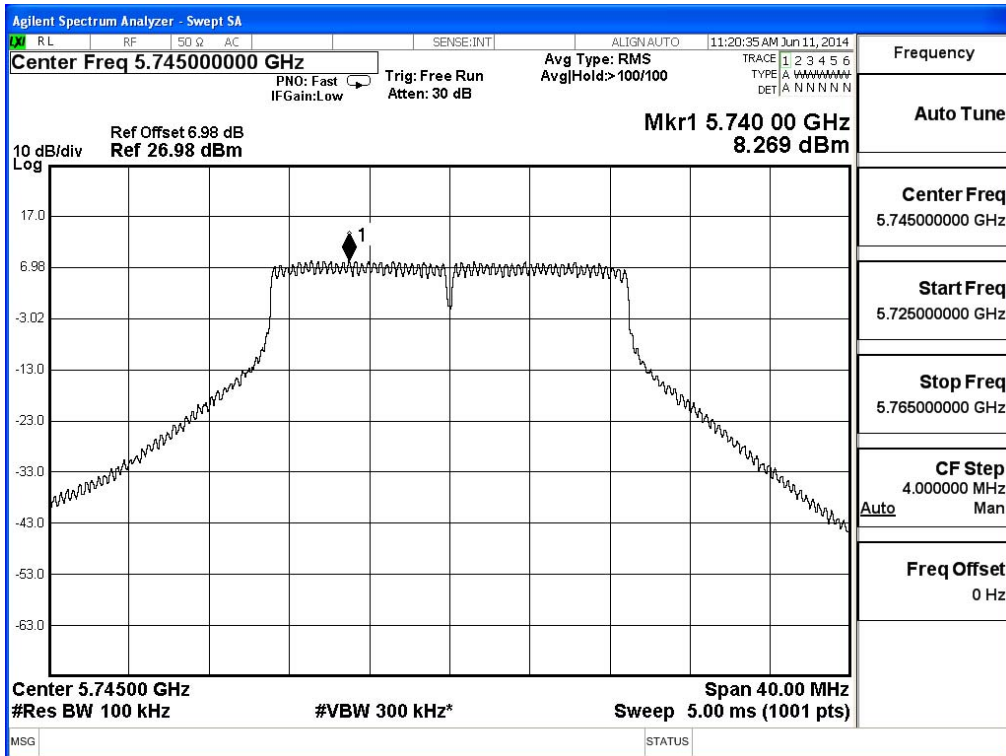
### Channel 157 – Chain A



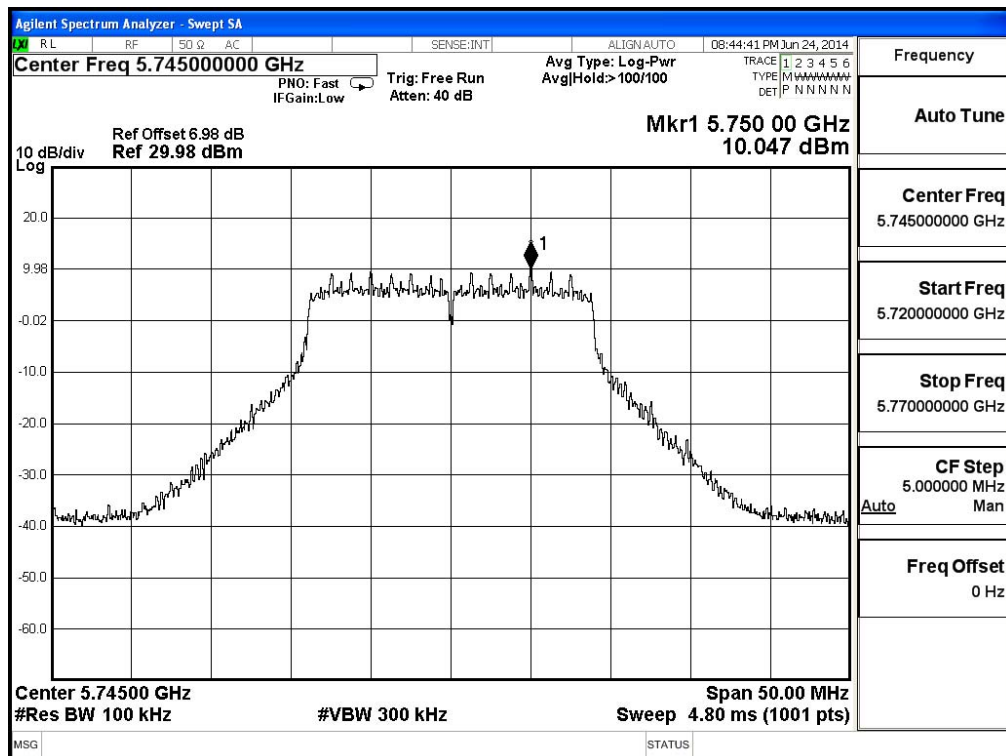
### Channel 165 – Chain A



### Channel 149 – Chain B



### Channel 157 – Chain B



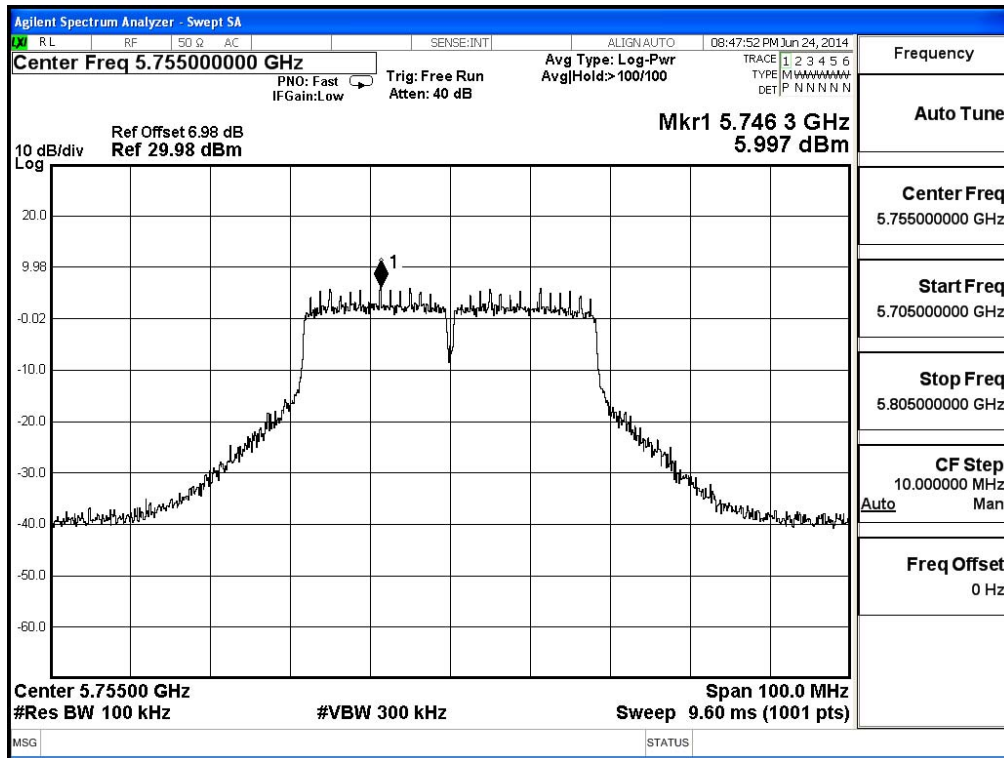


Product : Access Point  
 Test Item : Peak Power Spectral Density  
 Test Site : No.3 OATS  
 Test Mode : Mode 3: Transmit (802.11n-40BW-30Mbps) - Sector Antenna

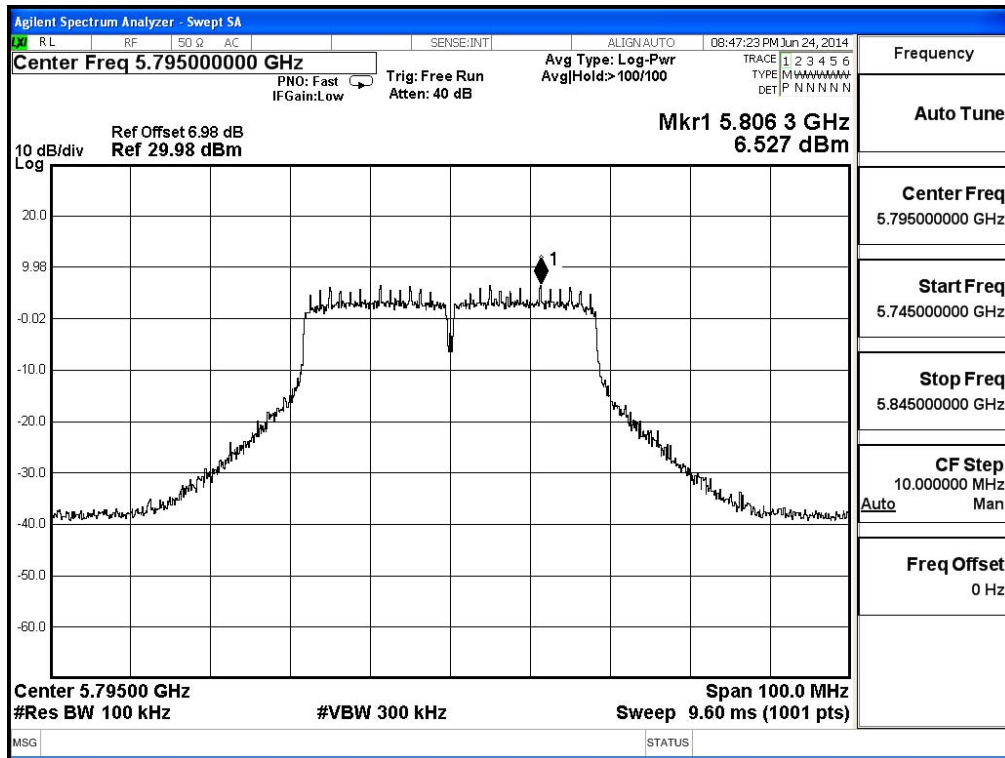
Channel Number	Frequency (MHz)	Chain	PPSD/MHz (dBm)	Total PPSD/MHz (dBm) <sub>i</sub>	Required Limit (dBm)	Result
151	5755	A	5.997	9.007	<16	Pass
		B	6.061	9.071	<16	Pass
159	5795	A	6.572	9.582	<16	Pass
		B	5.907	8.917	<16	Pass

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

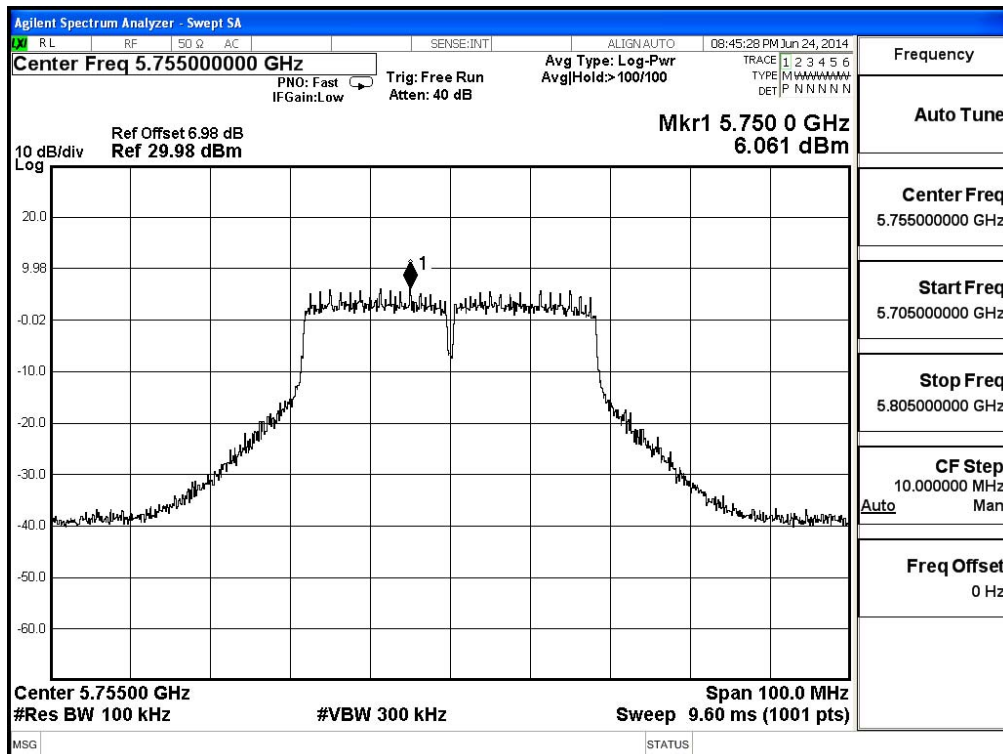
**Channel 151 – Chain A**



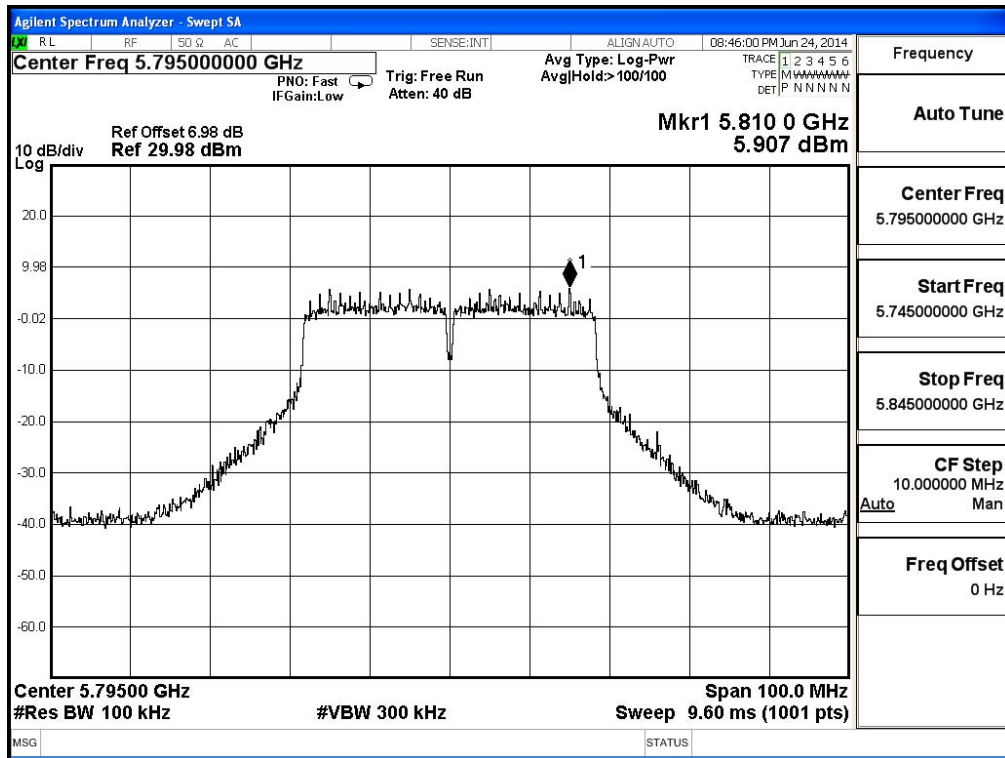
### Channel 159 – Chain A



### Channel 151 – Chain B



**Channel 159 – Chain B**



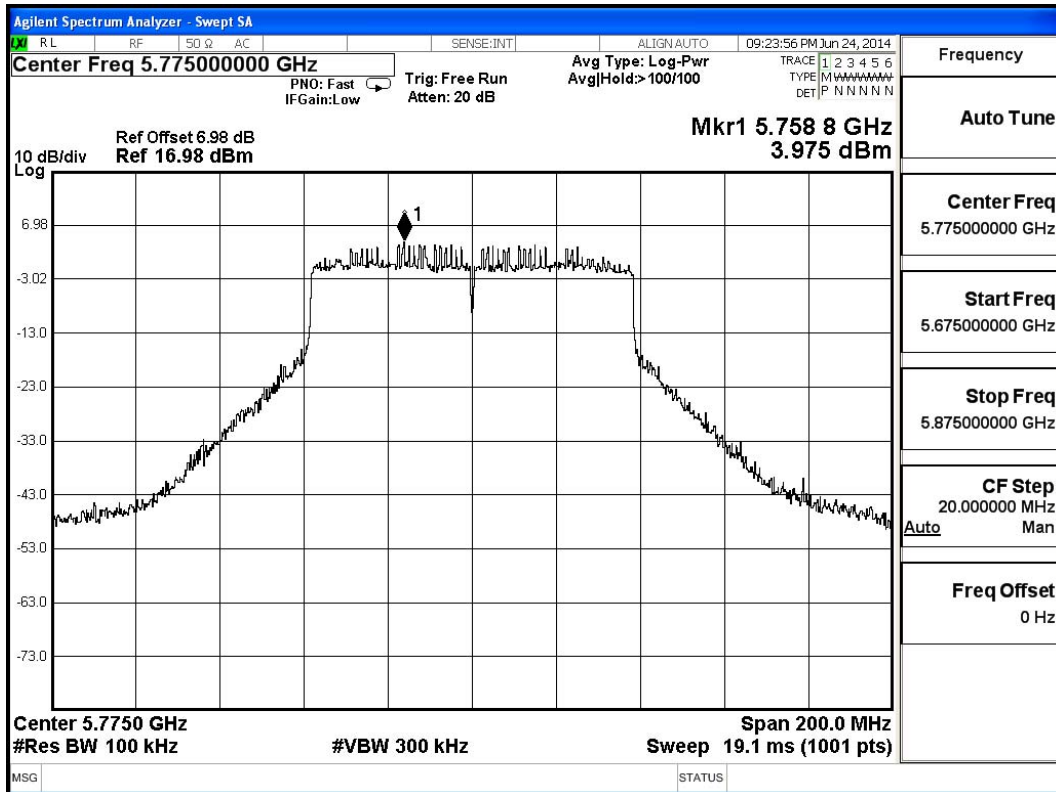


Product : Access Point  
 Test Item : Peak Power Spectral Density  
 Test Site : No.3 OATS  
 Test Mode : Mode 4: Transmit (802.11ac-80BW-65Mbps) - Sector Antenna

Channel Number	Frequency (MHz)	Chain	PPSD/MHz (dBm)	Total PPSD/MHz (dBm) <sub>1</sub>	Required Limit (dBm)	Result
155	5775	A	3.975	6.985	<16	Pass
		B	4.608	7.618	<16	Pass

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

**Channel 155: CHAIN A**

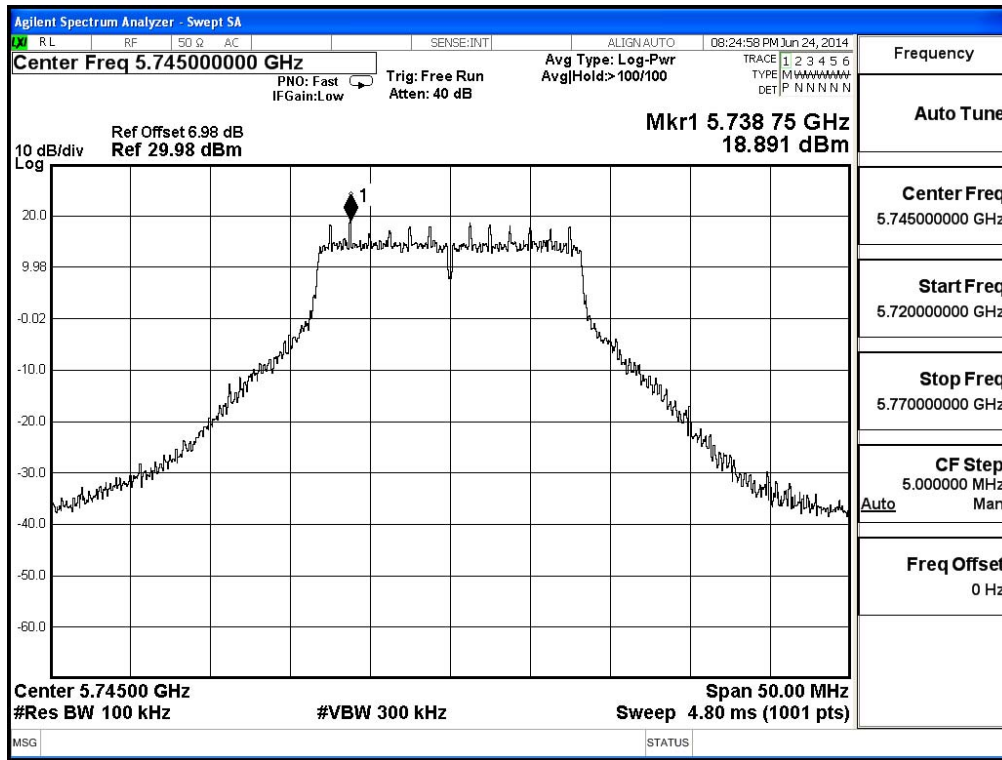




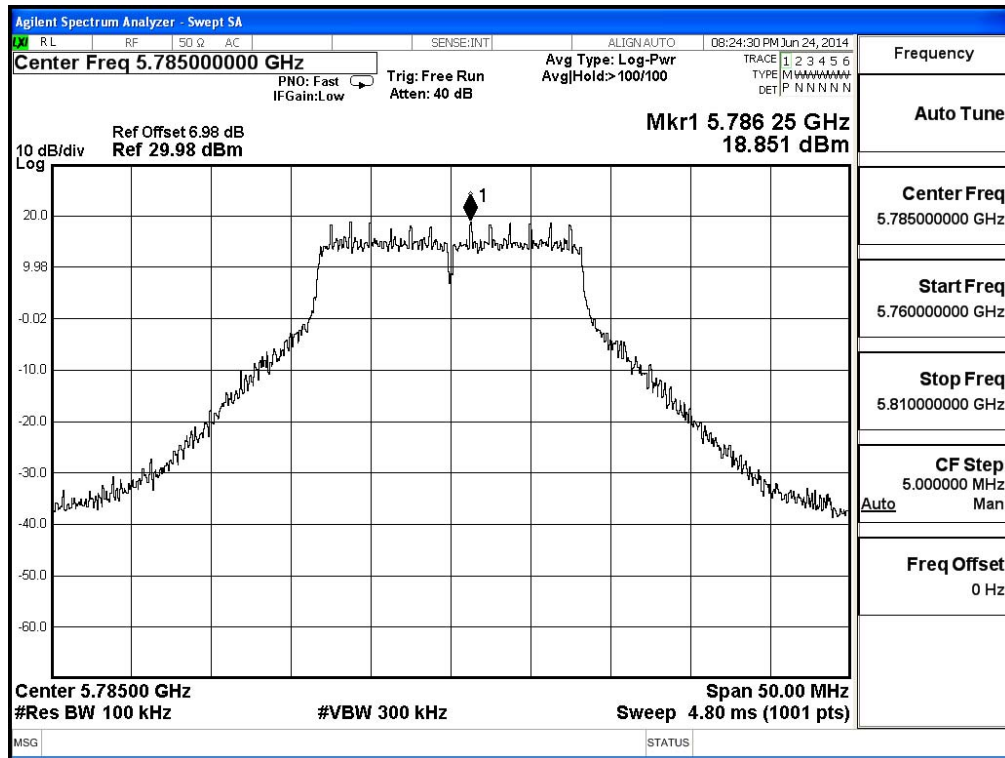
Product : Access Point  
 Test Item : Peak Power Spectral Density  
 Test Site : No.3 OATS  
 Test Mode : Mode 1: Transmit (802.11a-6Mbps) - Omni Antenna

Channel Number	Frequency (MHz)	Data Rate (Mbps)	Measurement Level (dBm)	Required Limit (dBm)	Result
149	5745	6	18.891	<23	Pass
157	5785	6	18.851	<23	Pass
165	5825	6	19.187	<23	Pass

**Channel 149:**



**Channel 157:**



**Channel 165:**

