FCC Test Report

Product Name	Access Point
Model No	RM5-AC-PTP, R5AC-PTP
FCC ID	SWX-RM5ACPTP

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	June 12, 2014
Report No.	1430290R-RFUSP08V00
Report Version	V1.0

Testing Laboratory
0914

Test Report

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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-PTP, R5AC-PTP
FCC ID.	SWX-RM5ACPTP
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, FCC KDB-789033
Test Result	Complied

Documented By : Genie Chang

(Senior Adm. Specialist / Genie Chang)

Tested By : Jack Hsu

(Engineer / Jack Hsu)

Approved By :

(Director / Vincent Lin)

TABLE OF CONTENTS

1. GENERAL INFORMATION

1.1. EUT Description

Product Name	Access Point
Trade Name	UBIQUITI
FCC ID.	SWX-RM5ACPTP
Model No.	RM5-AC-PTP, R5AC-PTP
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 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-5G13(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

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 Fixed Point-to-point 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 A)
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.

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)

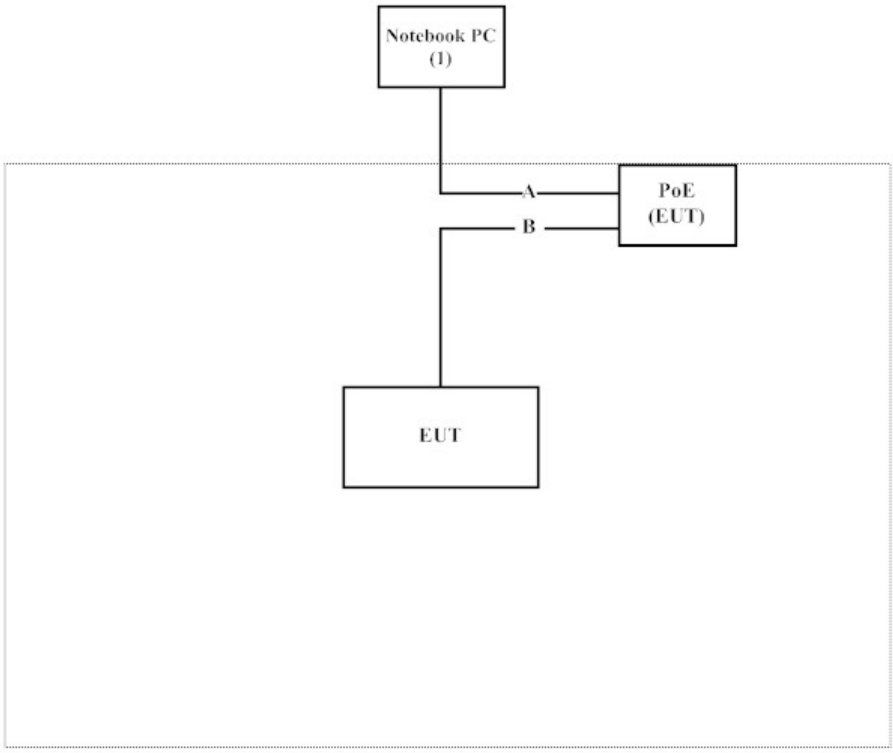
1.3. Tested System Datails

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 1.3.
(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
Site Address: No. 5-22, Ruei-Shu Valley, Ruei-Ping Tsuen,
Lin-Kou Shiang, Taipei,
Taiwan, R.O.C.
TEL: 886-2-8601-3788 / FAX : 886-2-8601-3789
E-Mail : service@quietek.com

FCC Accreditation Number: TW1014

2. Conducted Emission

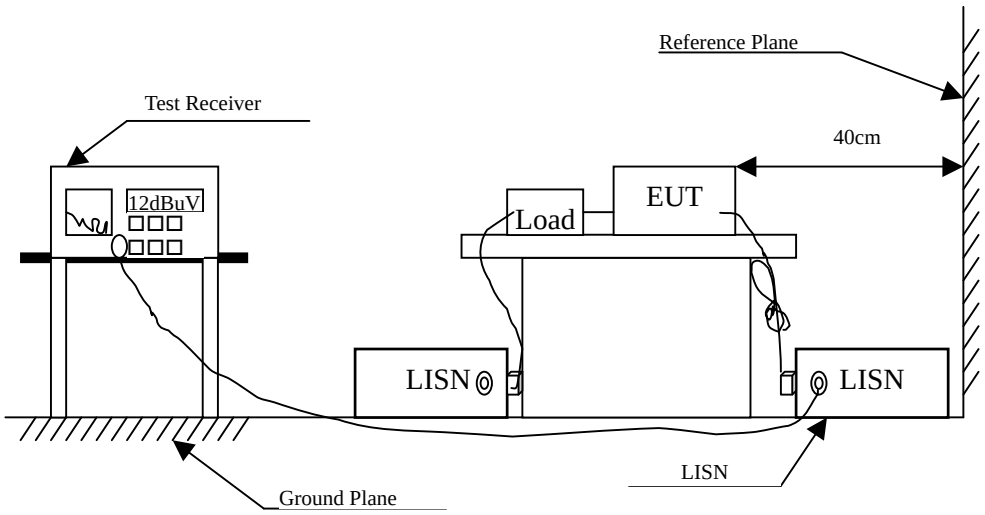
2.1. Test Equipment

	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.	Remark
X	Test Receiver	R & S	ESCS 30 / 825442/018	Sep., 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

FCC Part 15 Subpart C Paragraph 15.207 (dBuV) Limit		
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 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)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
LINE 1					
Quasi-Peak					
0.185	9.739	44.560	54.299	-10.701	65.000
0.252	9.741	34.580	44.321	-18.765	63.086
0.380	9.747	29.900	39.647	-19.782	59.429
0.517	9.753	28.800	38.553	-17.447	56.000
2.541	9.850	26.420	36.270	-19.730	56.000
8.740	9.920	24.170	34.090	-25.910	60.000
Average					
0.185	9.739	37.280	47.019	-7.981	55.000
0.252	9.741	27.430	37.171	-15.915	53.086
0.380	9.747	21.260	31.007	-18.422	49.429
0.517	9.753	18.770	28.523	-17.477	46.000
2.541	9.850	16.310	26.160	-19.840	46.000
8.740	9.920	16.280	26.200	-23.800	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)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
LINE 2					
Quasi-Peak					
0.193	9.748	42.320	52.068	-12.703	64.771
0.248	9.751	33.500	43.251	-19.949	63.200
0.380	9.747	28.780	38.527	-20.902	59.429
0.517	9.753	27.010	36.763	-19.237	56.000
2.443	9.850	27.480	37.330	-18.670	56.000
16.041	10.020	22.400	32.420	-27.580	60.000
Average					
0.193	9.748	25.130	34.878	-19.893	54.771
0.248	9.751	27.740	37.491	-15.709	53.200
0.380	9.747	19.740	29.487	-19.942	49.429
0.517	9.753	18.440	28.193	-17.807	46.000
2.443	9.850	14.890	24.740	-21.260	46.000
16.041	10.020	15.380	25.400	-24.600	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

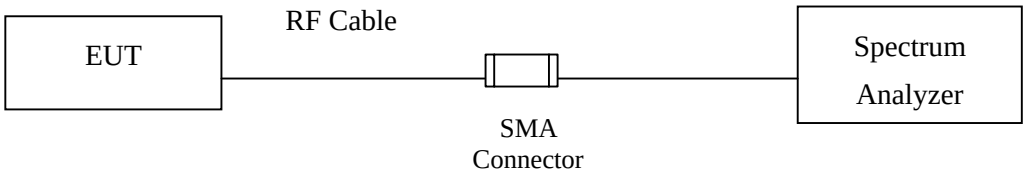
	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Power Meter	Anritsu	ML2495A/6K00003357	May, 2014
X	Power Sensor	Anritsu	MA2411B/0738448	Jun, 2014
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2014

Note:

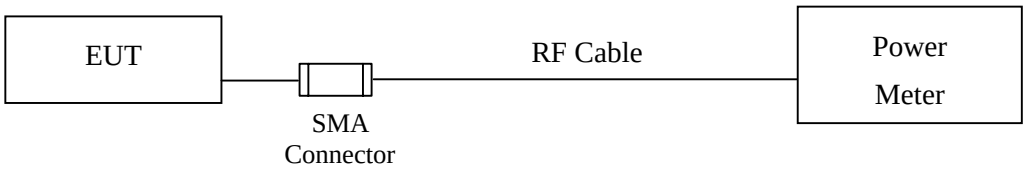
1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
2. The test instruments marked with "X" are used to measure the final test results.

3.2. Test Setup

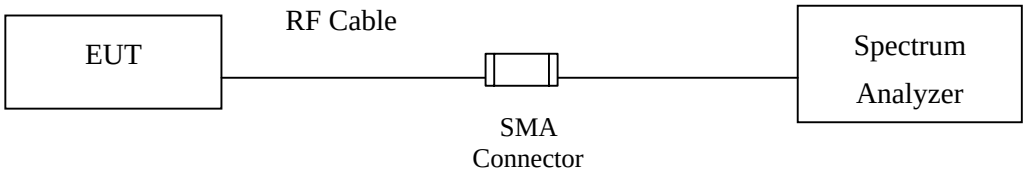
26dBc Occupied Bandwidth



Conduction Power Measurement (for 802.11an)



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-topoint 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 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≦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

± 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)

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	23.58	--	--	--	--	--	--	--	<30dBm
157	5785	24.02	23.89	23.66	23.50	23.32	23.14	22.96	22.78	<30dBm
165	5825	24.42	--	--	--	--	--	--	--	<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)								
149	5745	22.87	--	--	--	--	--	--	--	<30dBm
157	5785	23.81	23.68	23.51	23.37	23.22	23.07	22.92	22.77	<30dBm
165	5825	24.10	--	--	--	--	--	--	--	<30dBm

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)

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	21.32	--	--	--	--	--	--	--	<30dBm
157	5785	21.71	21.62	21.49	21.39	21.28	21.17	21.06	20.95	<30dBm
165	5825	21.54	--	--	--	--	--	--	--	<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)								
149	5745	22.24	--	--	--	--	--	--	--	<30dBm
157	5785	22.21	22.13	21.97	21.86	21.74	21.62	21.50	21.38	<30dBm
165	5825	22.06	--	--	--	--	--	--	--	<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)
149	5745	21.32	22.24	24.81	30
157	5785	21.71	22.21	24.98	30
165	5825	21.54	22.06	24.82	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
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)								
151	5755	20.95	--	--	--	--	--	--	--	<30dBm
159	5795	21.32	21.20	21.05	20.92	20.79	20.65	20.52	20.38	<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)								
151	5755	21.49	--	--	--	--	--	--	--	<30dBm
159	5795	20.95	20.82	20.67	20.53	20.39	20.25	20.11	19.97	<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)
151	5755	20.95	21.49	24.24	30
159	5795	21.32	20.95	24.15	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
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
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9	
155	5775	20.04	19.88	19.71	19.55	19.38	19.22	19.05	18.89	18.72	18.56	<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
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9	
155	5775	20.62	20.51	20.38	20.26	20.14	20.02	19.90	19.78	19.66	19.54	<30dBm

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

Maximum conducted output power Measurement:

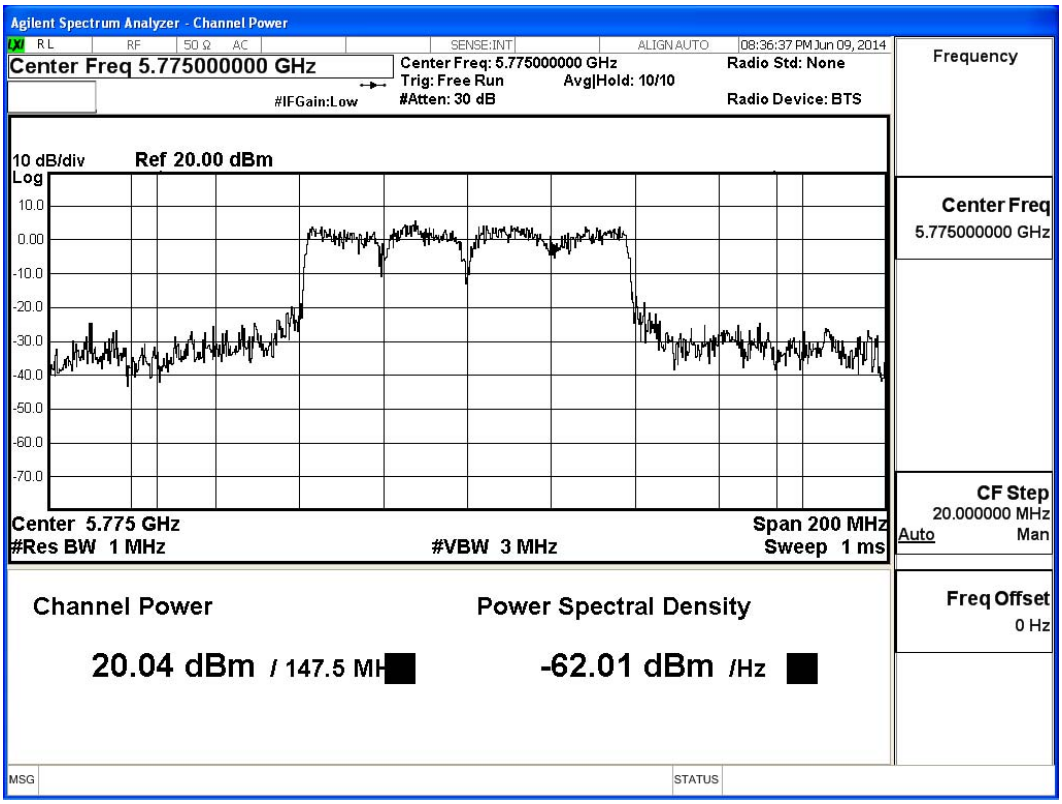
(CHAIN A+ B)

Channel Number	Frequency (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	Output Power Limit (dBm)
155	5775	20.04	20.62	23.35	30

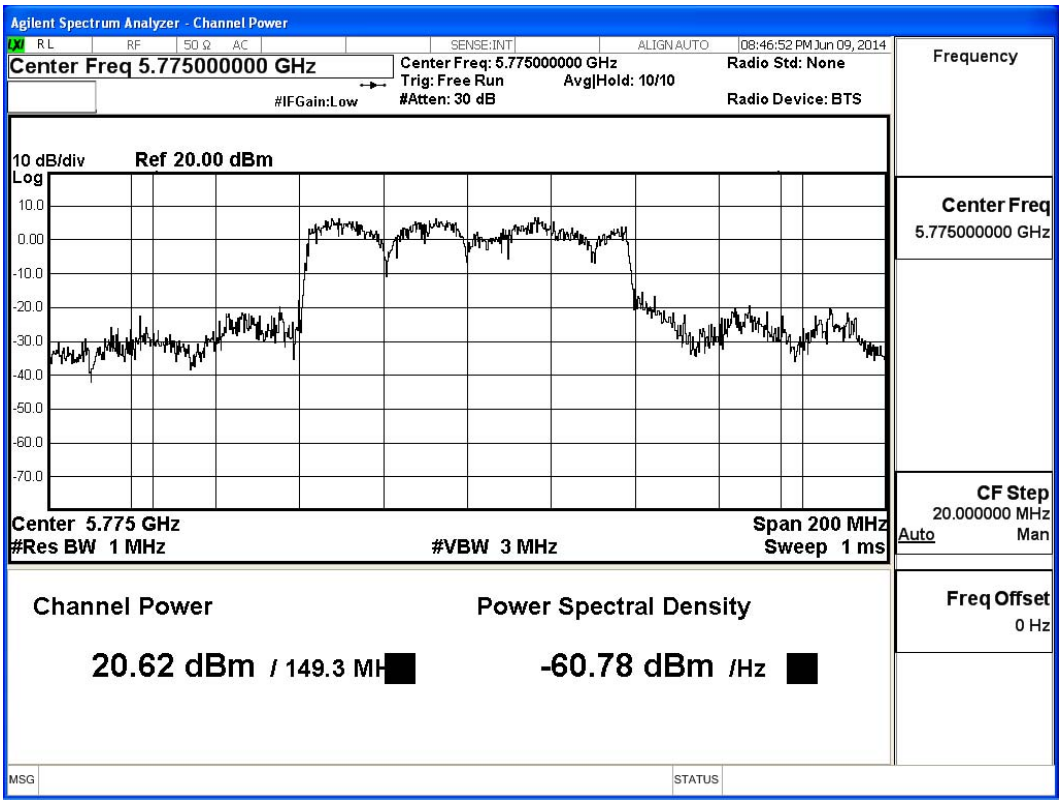
Note:

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))

Maximum conducted output power:
Channel 155– Chain A



Channel 155– Chain B



4. Peak Power Spectral Density

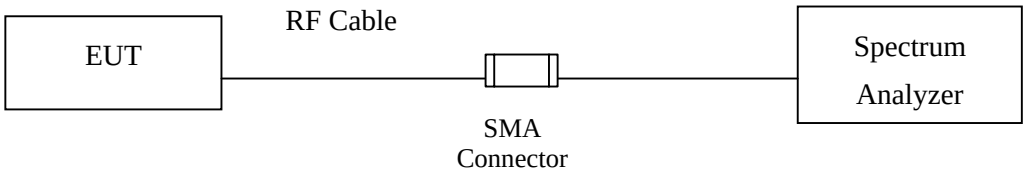
4.1. Test Equipment

	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-topoint 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 = 10log (500 kHz/100 kHz = 6.98 dB).

4.5. Uncertainty

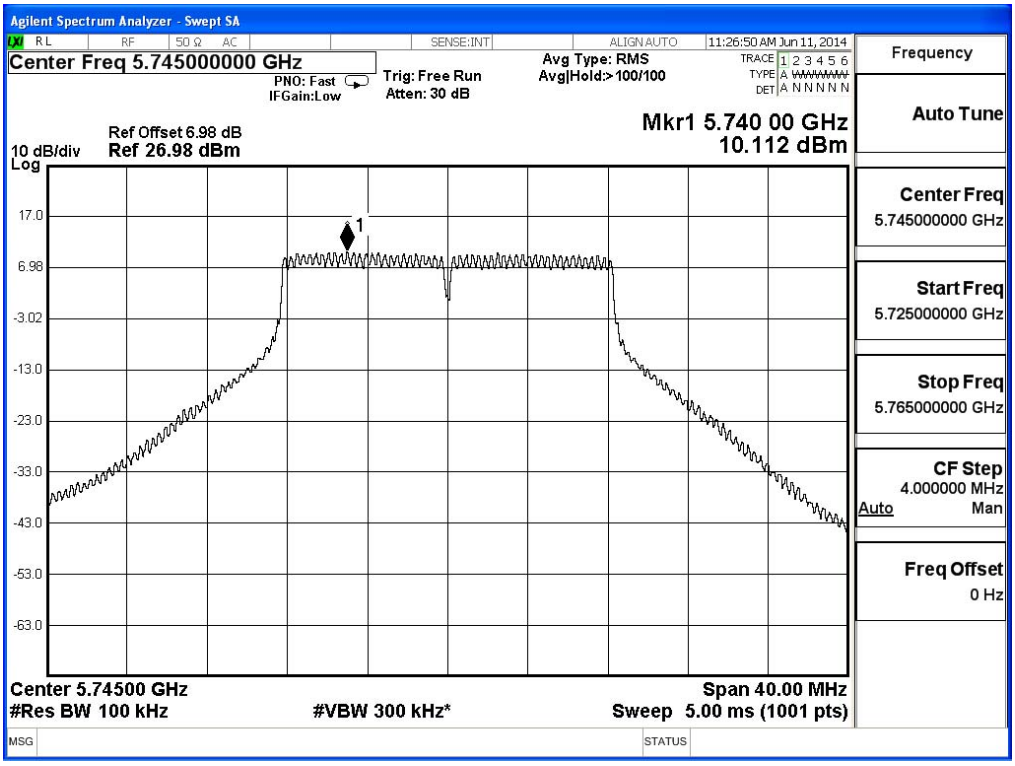
± 1.27 dB

4.6. Test Result of Peak Power Spectral Density

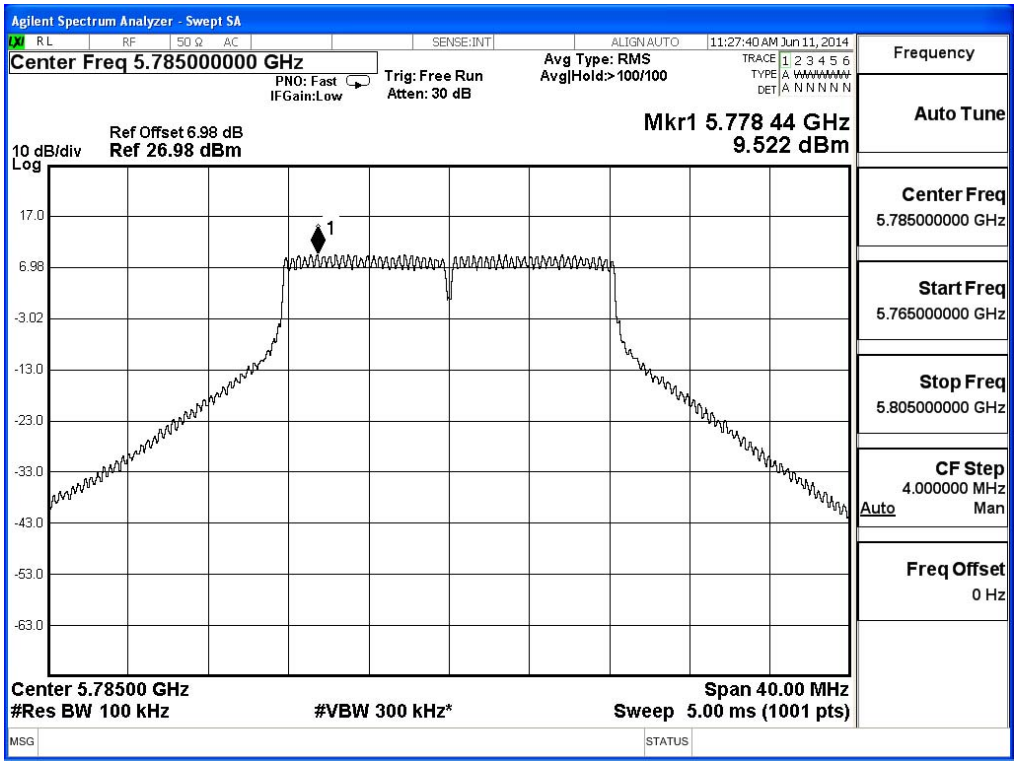
Product : Access Point
Test Item : Peak Power Spectral Density
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps)

Channel Number	Frequency (MHz)	Data Rata (Mbps)	Measurement Level (dBm)	Required Limit (dBm)	Result
149	5745	6	10.112	<30	Pass
157	5785	6	9.522	<30	Pass
165	5825	6	10.288	<30	Pass

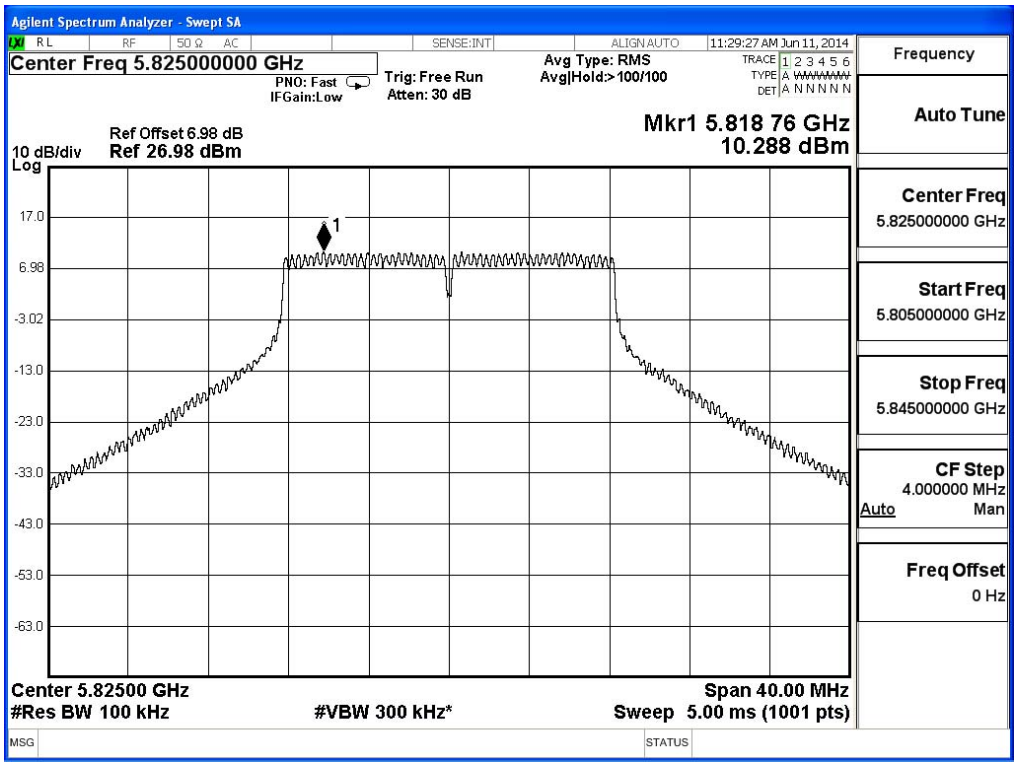
Channel 149:



Channel 157:



Channel 165:

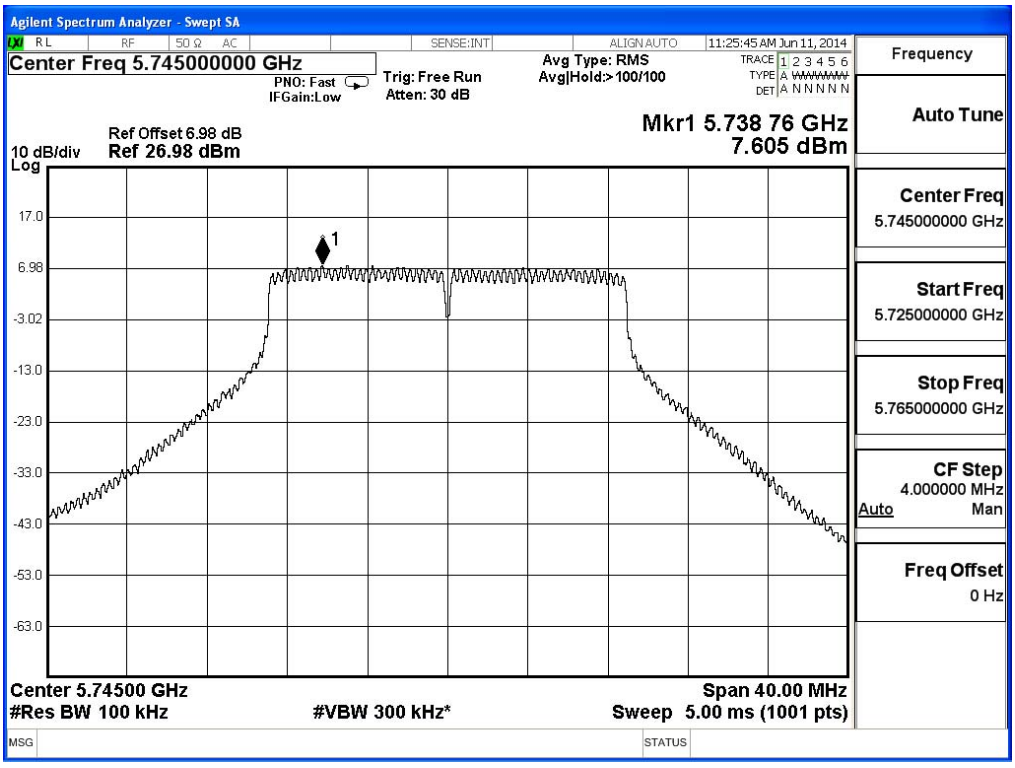


Product : Access Point
Test Item : Peak Power Spectral Density
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW-14.4Mbps)

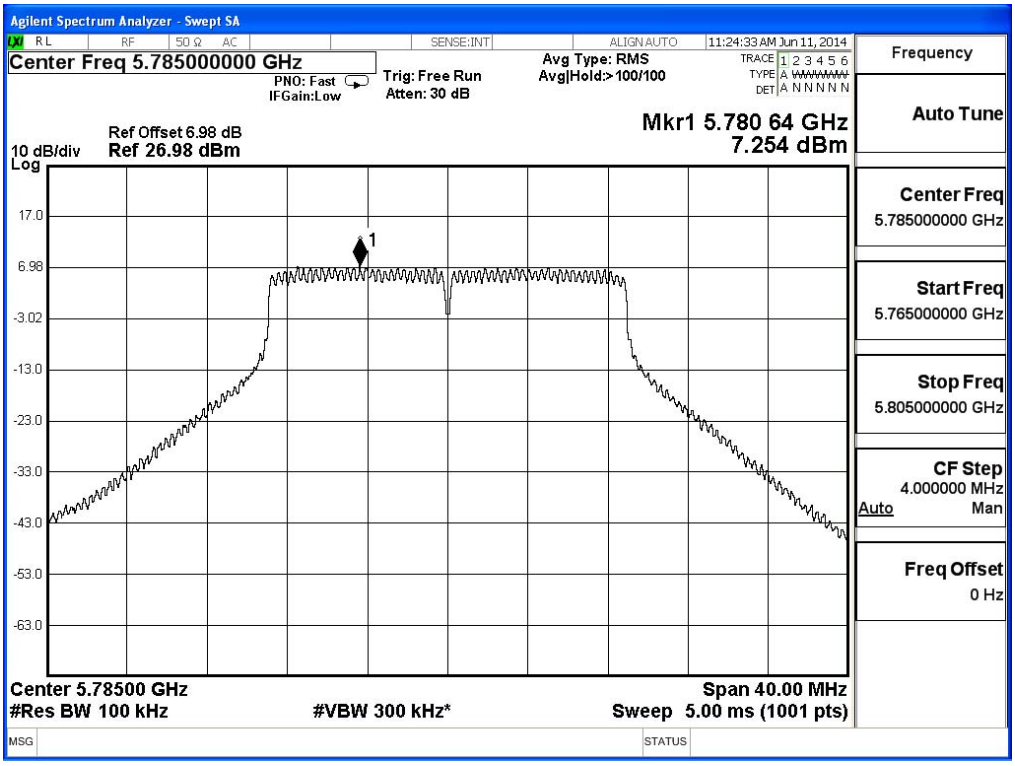
Channel Number	Frequency (MHz)	Chain	PPSD/MHz (dBm)	Total PPSD/MHz (dBm)1	Required Limit (dBm)	Result
149	5745	A	7.605	10.615	<30	Pass
		B	8.269	11.279	<30	Pass
157	5785	A	7.254	10.264	<30	Pass
		B	7.629	10.639	<30	Pass
165	5825	A	7.157	10.167	<30	Pass
		B	6.868	9.878	<30	Pass

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

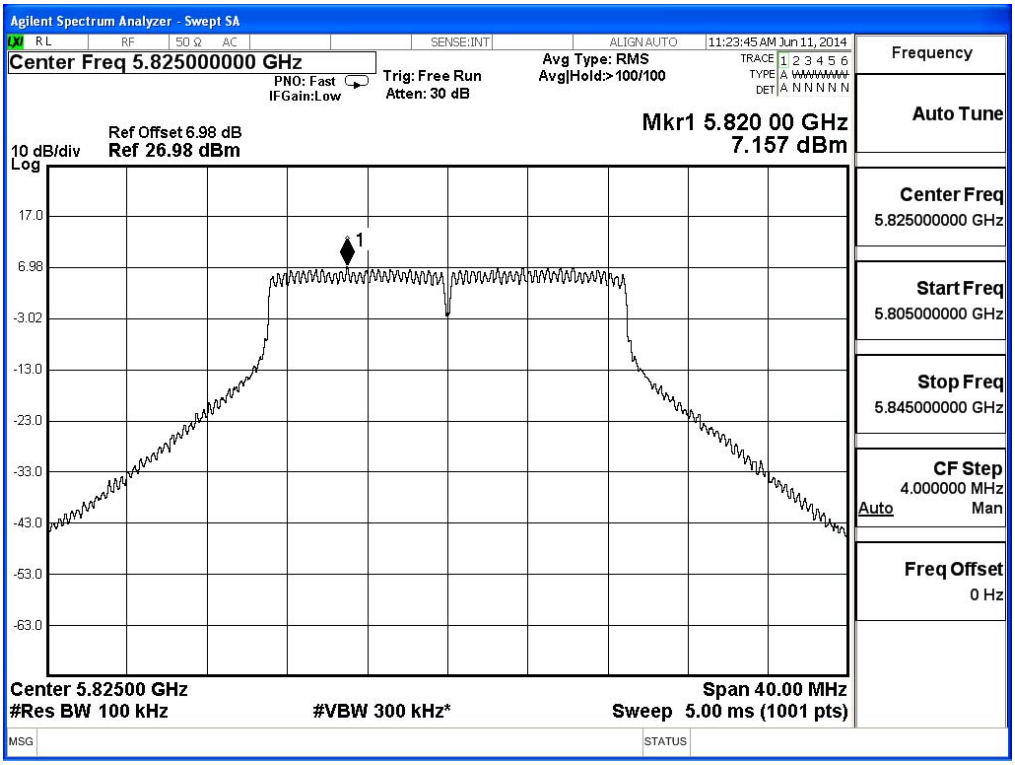
Channel 149 – Chain A



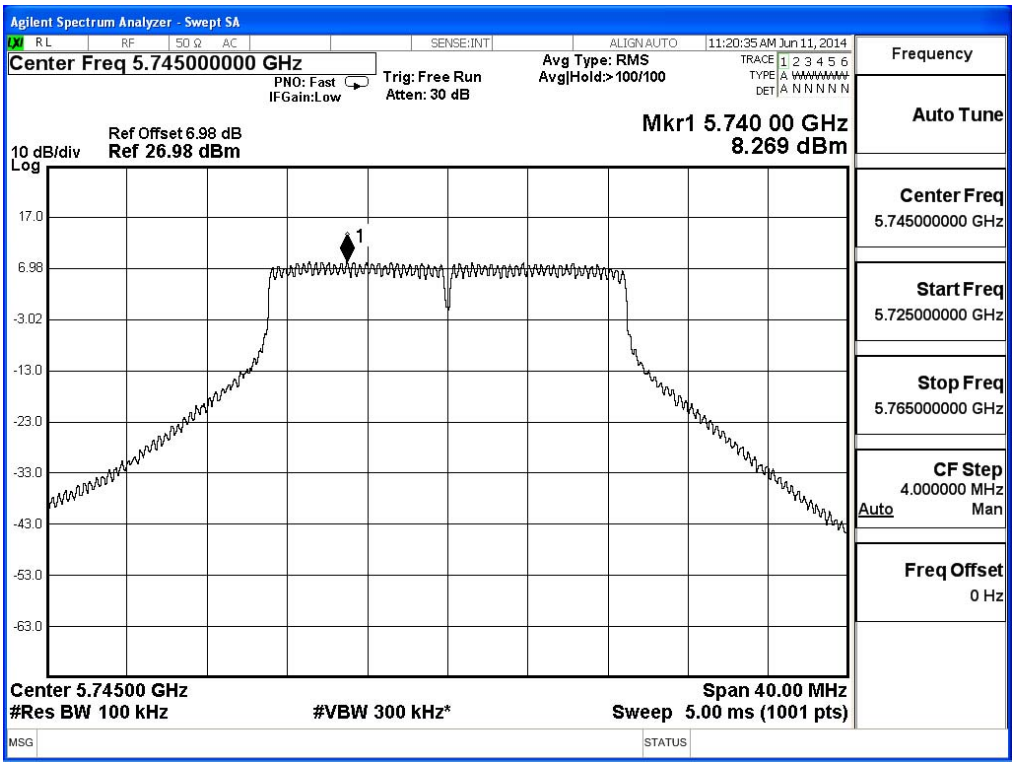
Channel 157 – Chain A



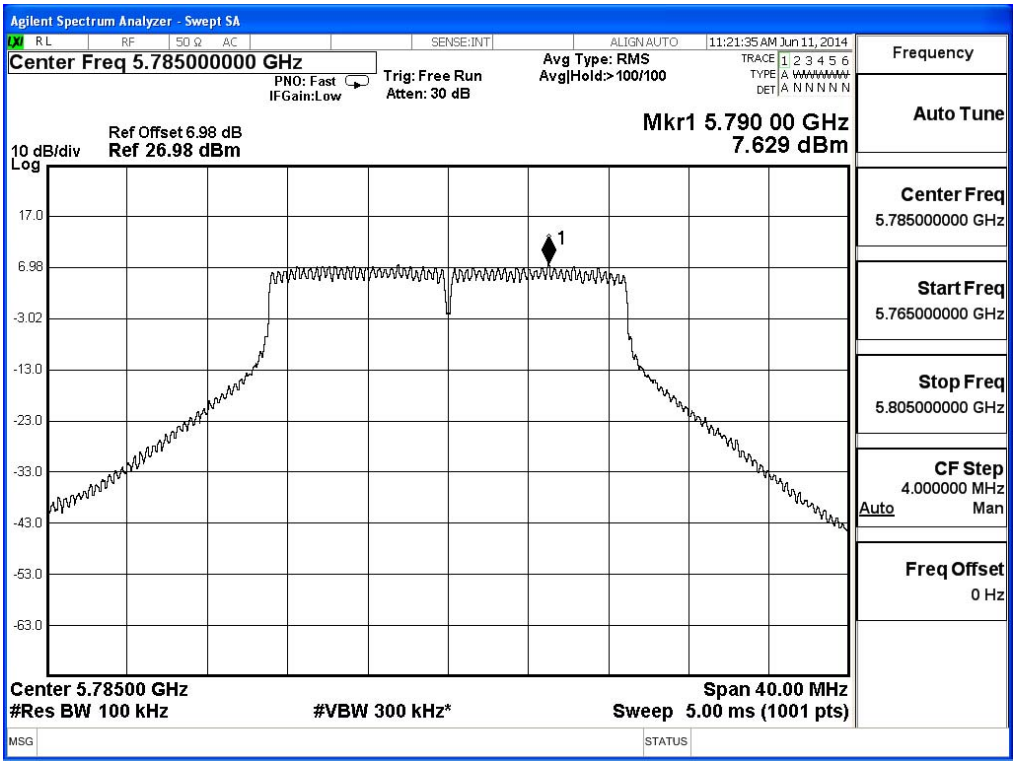
Channel 165 – Chain A



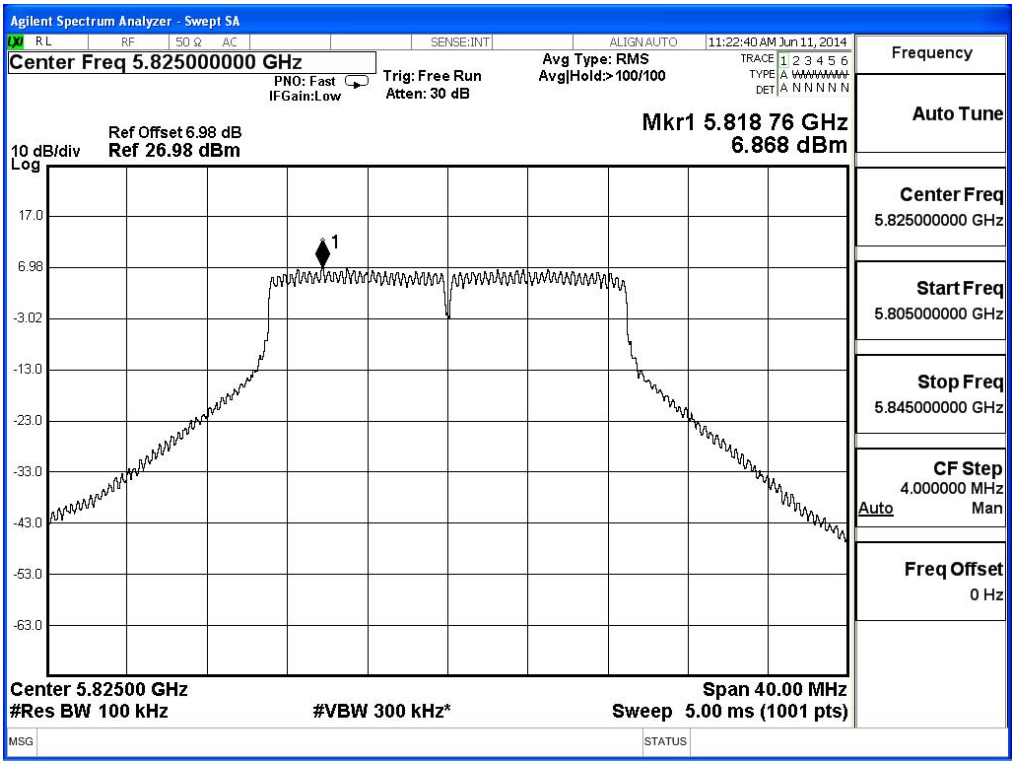
Channel 149 – Chain B



Channel 157 – Chain B



Channel 165 – Chain B

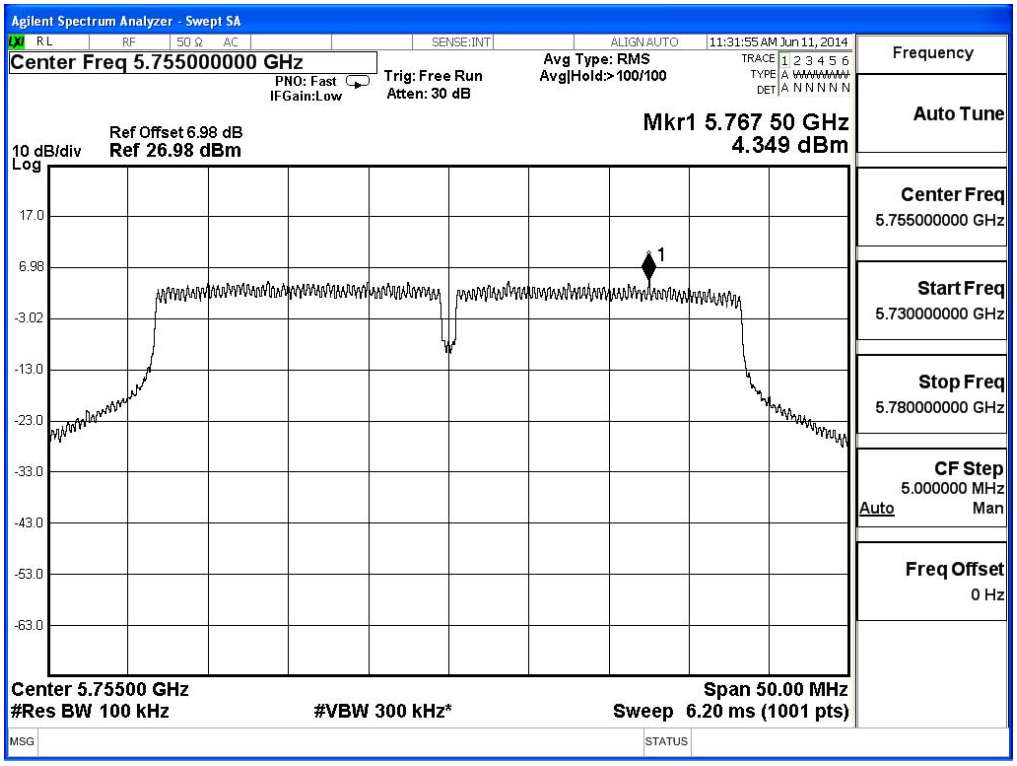


Product : Access Point
Test Item : Peak Power Spectral Density
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit (802.11n-40BW-30Mbps)

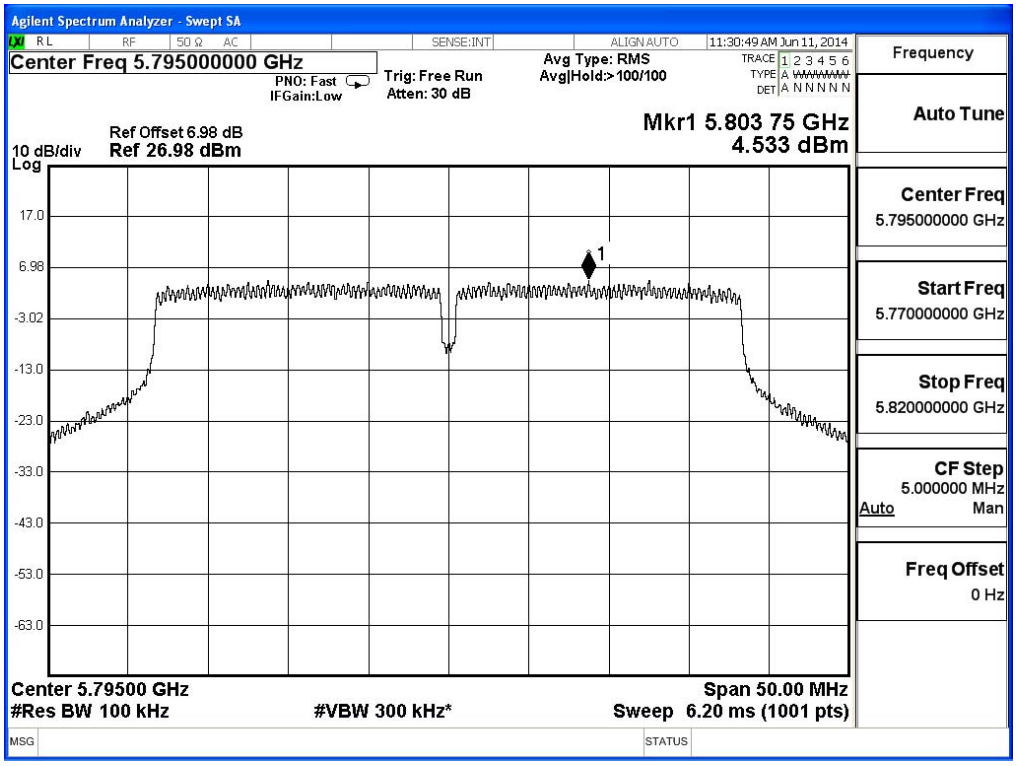
Channel Number	Frequency (MHz)	Chain	PPSD/MHz (dBm)	Total PPSD/MHz (dBm)[1]	Required Limit (dBm)	Result
151	5755	A	4.349	7.359	<30	Pass
		B	5.152	8.162	<30	Pass
159	5795	A	4.533	7.543	<30	Pass
		B	3.998	7.008	<30	Pass

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

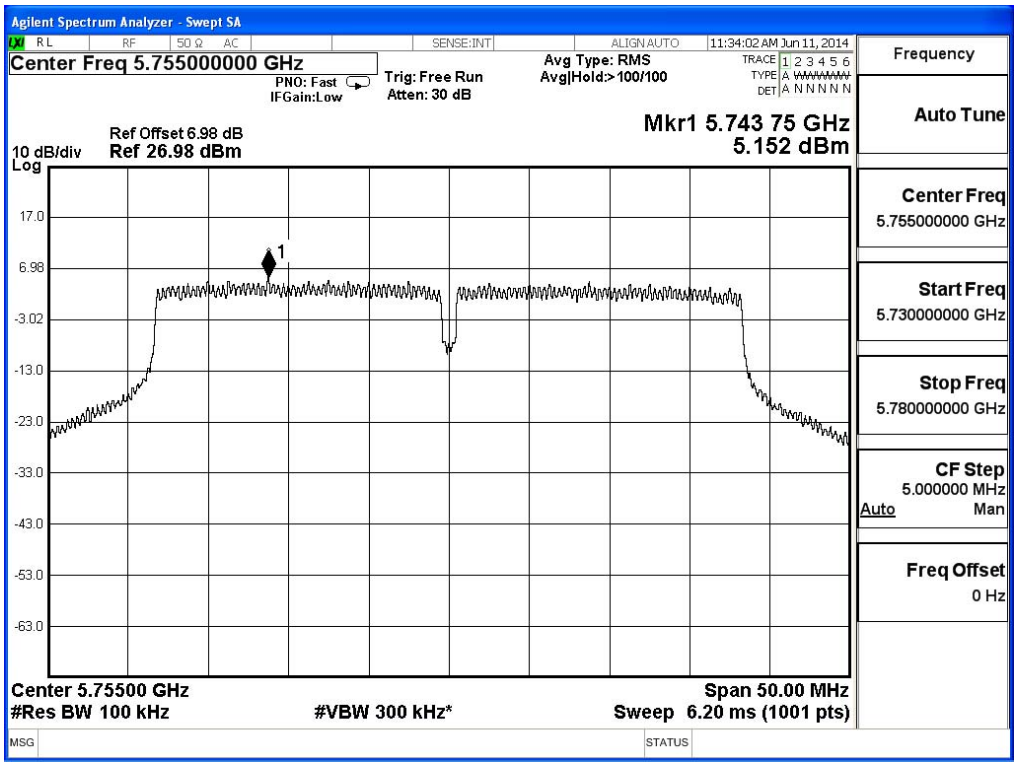
Channel 151 – Chain A



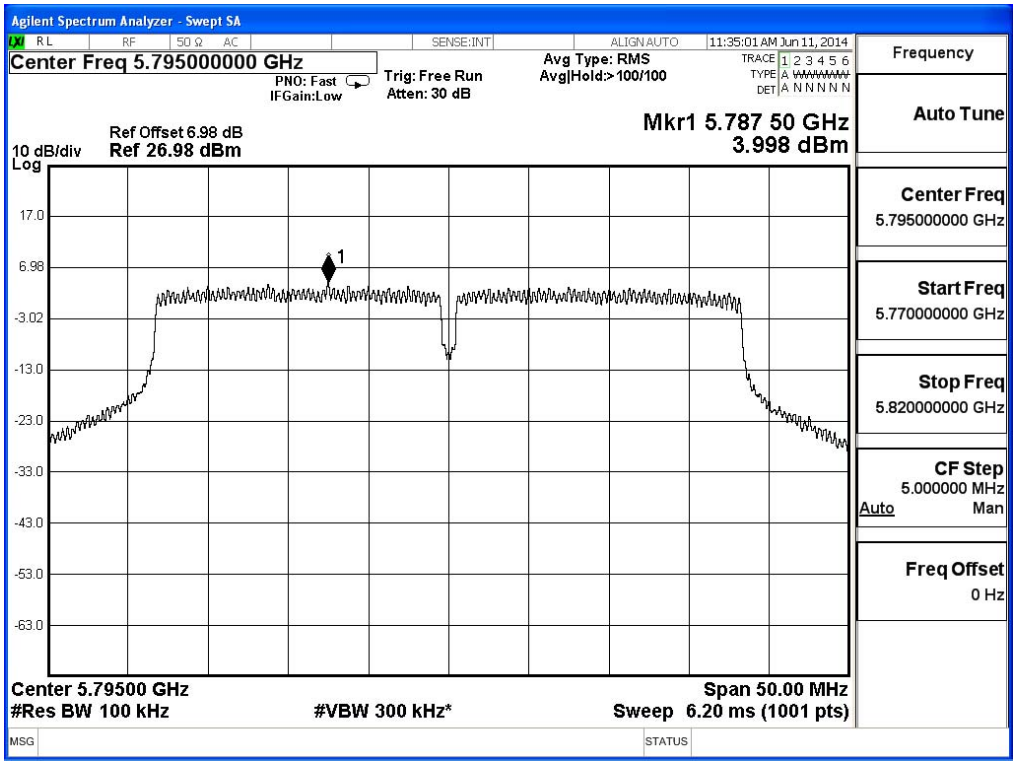
Channel 159 – Chain A



Channel 151 – Chain B



Channel 159 – Chain B

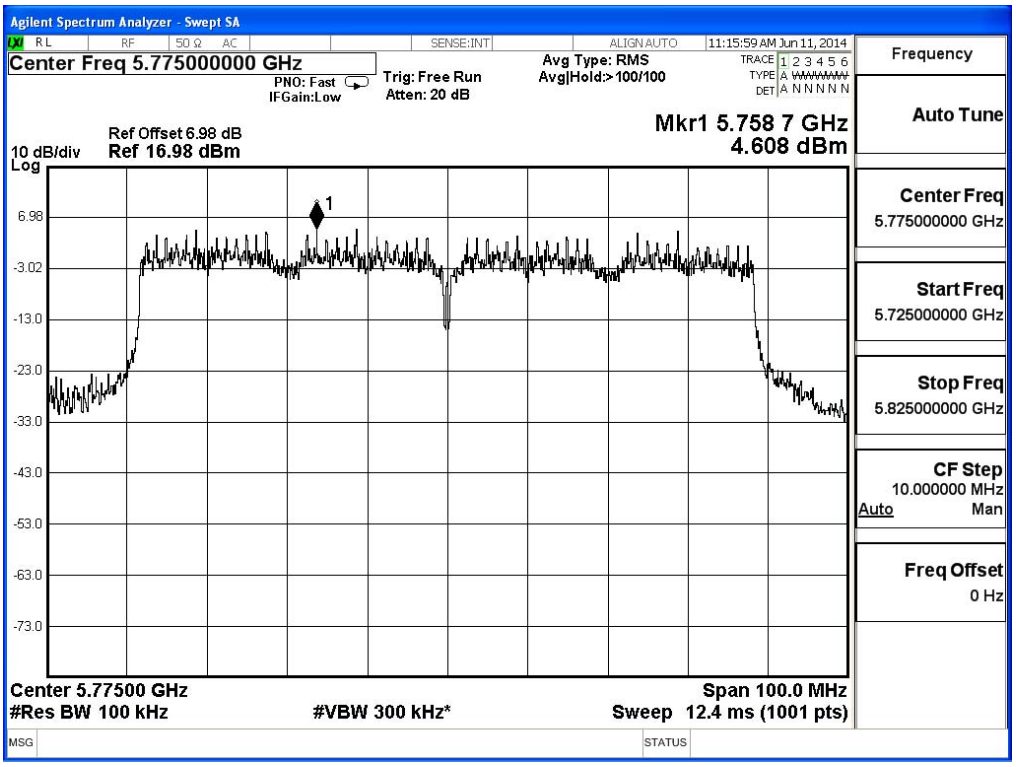


Product : Access Point
Test Item : Peak Power Spectral Density
Test Site : No.3 OATS
Test Mode : Mode 4: Transmit (802.11ac-80BW-65Mbps)

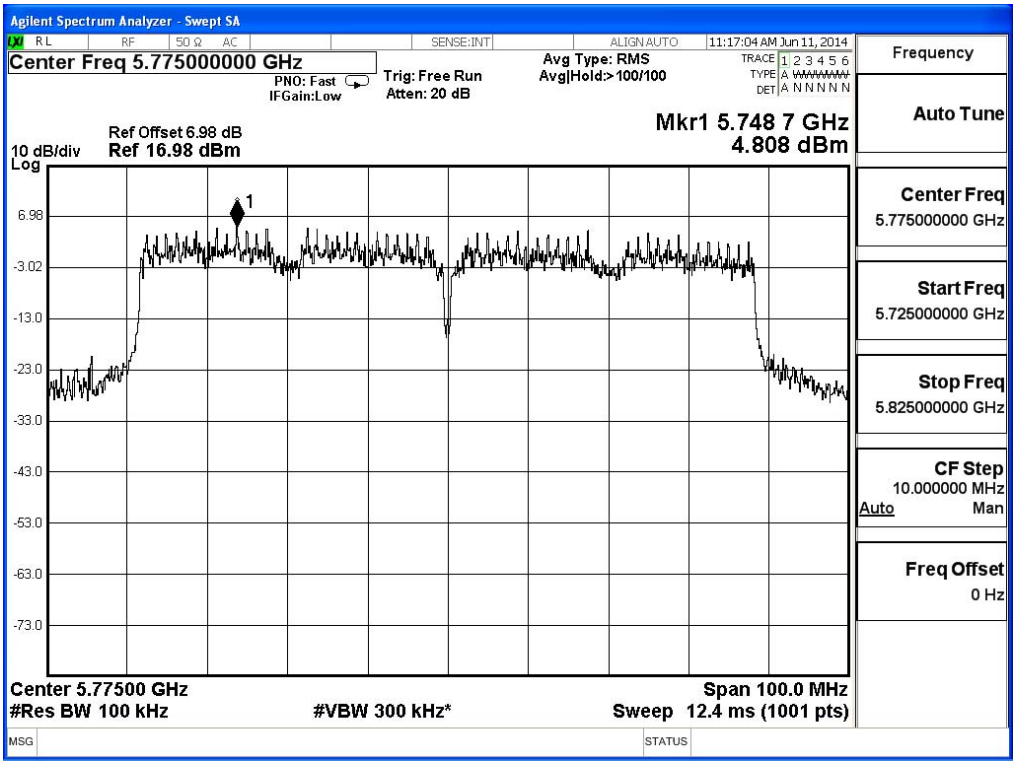
Channel Number	Frequency (MHz)	Chain	PPSD/MHz (dBm)	Total PPSD/MHz (dBm)1	Required Limit (dBm)	Result
155	5775	A	4.608	7.618	<30	Pass
		B	4.808	7.818	<30	Pass

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

Channel 155: CHAIN A



Channel 155: CHAIN B



5. Radiated Emission

5.1. Test Equipment

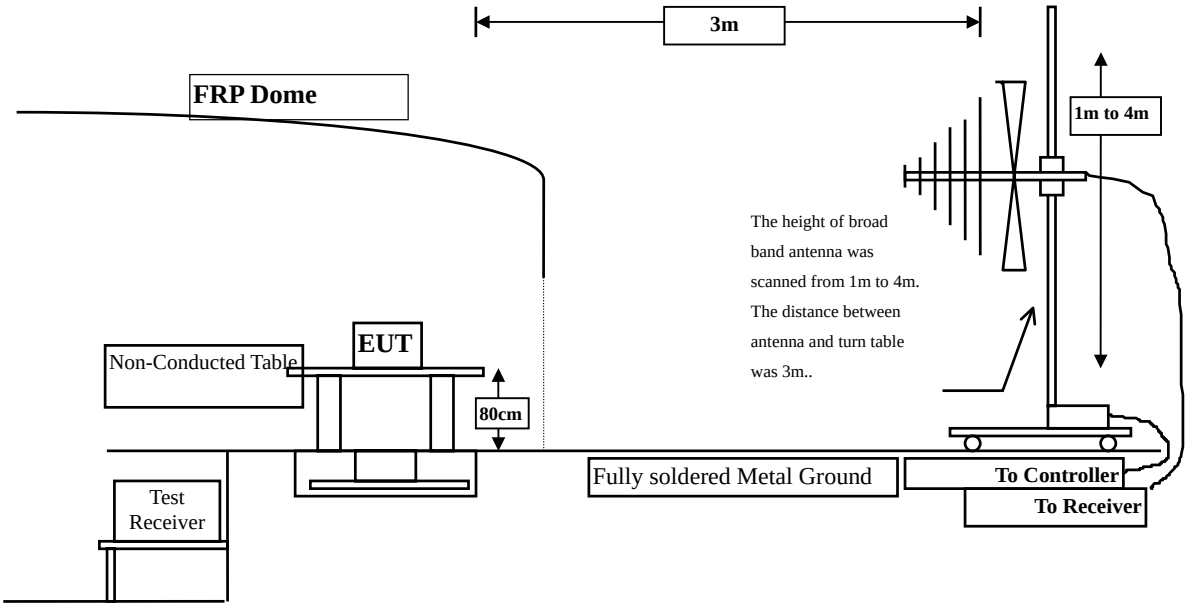
The following test equipments are used during the radiated emission test:

Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
☒Site # 3	X	Loop Antenna	Teseq	HLA6120 / 26739	Jul., 2013
	X	Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2013
	X	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2013
	X	Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2013
	X	Pre-Amplifier	QTK	QTK-AMP-03 / 0003	May, 2014
	X	Pre-Amplifier	QTK	AP-180C / CHM_0906076	Sep., 2013
	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., 2013
	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

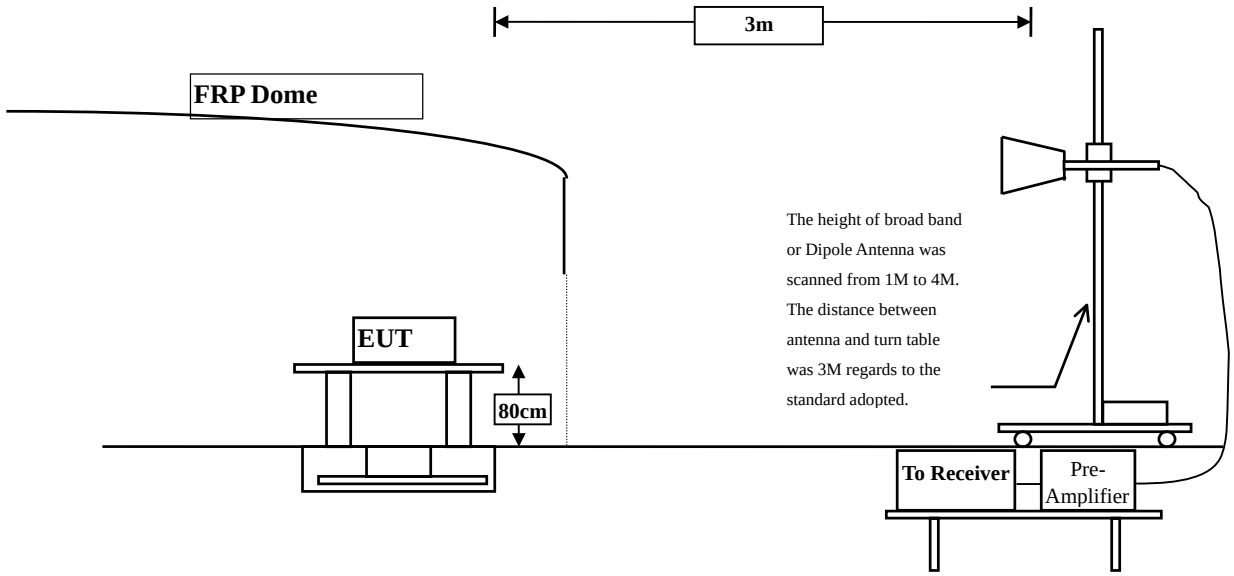
Note: 1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
2. The test instruments marked with "X" are used to measure the final test results.

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 (dBuV/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
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5745MHz) – Dish Antenna

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4516.000	1.839	67.890	69.729	-4.271	74.000
11490.000	17.196	35.120	52.317	-21.683	74.000
17235.000	15.516	55.220	70.736	-3.264	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
Average					
Detector:					
4516.000	1.839	29.760	31.599	-22.401	54.000
17235.000	15.516	37.080	52.596	-1.404	54.000
Vertical					
Peak Detector:					
4516.000	5.196	65.120	70.317	-3.683	74.000
11490.000	18.124	33.910	52.035	-21.965	
17235.000	18.123	52.420	70.543	-3.457	
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
Average					
Detector:					
4516.000	5.196	25.242	30.439	-23.561	54.000
17235.000	18.123	34.860	52.983	-1.017	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
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5785MHz) - Dish Antenna

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4557.000	1.934	66.870	68.805	-5.195	74.000
11570.000	16.899	34.100	50.999	-23.001	74.000
17355.000	16.336	54.890	71.226	-2.774	74.000
20800.000	*	*	*	*	74.000
26000.000	*	*	*	*	74.000
31200.000	*	*	*	*	74.000
36400.000	*	*	*	*	74.000
Average					
Detector:					
4557.000	1.934	32.340	34.275	-19.725	54.000
17355.000	16.336	37.100	53.436	-0.564	54.000
Vertical					
Peak Detector:					
4557.000	5.525	57.940	63.466	-10.534	74.000
11570.000	17.788	35.080	52.868	-21.132	74.000
17355.000	19.301	51.760	71.061	-2.939	74.000
20800.000	*	*	*	*	74.000
26000.000	*	*	*	*	74.000
31200.000	*	*	*	*	74.000
36400.000	*	*	*	*	74.000
Average					
Detector:					
4557.000	5.525	25.300	30.826	-23.174	54.000
17355.000	19.301	32.920	52.221	-1.779	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
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5825MHz) - Dish Antenna

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4597.000	2.030	63.300	65.330	-8.670	74.000
11650.000	16.325	35.984	52.310	-21.690	74.000
17475.000	17.429	53.070	70.499	-3.501	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	74.000
31440000	*	*	*	*	74.000
36680.000	*	*	*	*	74.000
Average Detector:					
4597.000	2.030	28.300	30.330	-23.670	54.000
17475.000	17.429	34.070	51.499	-2.501	54.000
Vertical					
Peak Detector:					
4597.000	5.836	56.040	61.875	-12.125	74.000
11650.000	17.441	34.350	51.792	-22.208	74.000
17475.000	20.133	44.260	64.393	-9.607	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	74.000
31440000	*	*	*	*	74.000
36680.000	*	*	*	*	74.000
Average Detector:					
4597.000	5.836	25.570	31.405	-22.595	54.000
17475.000	20.133	29.300	49.433	-4.567	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
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW-14.4Mbps) (5745MHz) - Dish Antenna

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4517.000	1.842	66.570	68.412	-5.588	74.000
11490.000	17.196	35.800	52.997	-21.003	74.000
17235.000	15.516	57.020	72.536	-1.464	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
Average Detector:					
4517.000	1.842	28.530	30.372	-23.628	54.000
17235.000	15.516	37.880	53.396	-0.604	54.000
Vertical					
Peak Detector:					
4517.000	5.205	62.100	67.304	-6.696	74.000
11490.000	18.124	35.480	53.605	-20.395	74.000
17235.000	18.123	49.010	67.133	-6.867	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
Average Detector:					
4517.000	5.205	26.870	32.074	-21.926	54.000
17235.000	18.123	33.140	51.263	-2.737	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
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW-14.4Mbps) (5785MHz) - Dish Antenna

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4557.000	1.934	68.620	70.555	-3.445	74.000
11570.000	16.899	34.900	51.799	-22.201	74.000
17355.000	16.336	56.455	72.791	-1.209	74.000
20880.000	*	*	*	*	74.000
26100.000	*	*	*	*	74.000
31320.000	*	*	*	*	74.000
36540.000	*	*	*	*	74.000
Average					
Detector:					
4557.000	1.934	31.930	33.865	-20.135	54.000
17355.000	16.336	36.250	52.586	-1.414	54.000
Vertical					
Peak Detector:					
4557.000	5.525	60.250	65.776	-8.224	74.000
11570.000	17.788	34.810	52.598	-21.402	74.000
17355.000	19.301	46.845	66.146	-7.854	74.000
20880.000	*	*	*	*	74.000
26100.000	*	*	*	*	74.000
31320.000	*	*	*	*	74.000
36540.000	*	*	*	*	74.000
Average					
Detector:					
4557.000	5.525	26.920	32.446	-21.554	54.000
17355.000	19.301	30.420	49.721	-4.279	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
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW-14.4Mbps) (5825MHz) - Dish Antenna

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4597.000	2.030	66.960	68.990	-5.010	74.000
11650.000	16.325	35.690	52.016	-21.984	74.000
17475.000	17.429	51.650	69.079	-4.921	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	74.000
31440.000	*	*	*	*	74.000
36680.000	*	*	*	*	74.000
Average Detector:					
4597.000	2.030	28.300	30.330	-23.670	54.000
17475.000	17.429	34.170	51.599	-2.401	54.000
Vertical					
Peak Detector:					
4597.000	5.836	56.440	62.275	-11.725	74.000
11650.000	17.441	34.750	52.192	-21.808	74.000
17475.000	20.133	44.360	64.493	-9.507	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	74.000
31440.000	*	*	*	*	74.000
36680.000	*	*	*	*	74.000
Average Detector:					
4597.000	5.836	26.520	32.355	-21.645	54.000
17475.000	20.133	30.640	50.773	-3.227	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
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit (802.11n-40BW-30Mbps) (5755MHz) - Dish Antenna

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4555.000	1.930	66.010	67.940	-6.060	74.000
11510.000	17.214	35.010	52.224	-21.776	74.000
17265.000	15.674	54.360	70.034	-3.966	74.000
20760.000	*	*	*	*	74.000
25950.000	*	*	*	*	74.000
31140.000	*	*	*	*	74.000
36330.000	*	*	*	*	74.000
Average Detector:					
4555.000	1.930	31.010	32.940	-21.060	54.000
17265.000	15.674	37.310	52.984	-1.016	54.000
Vertical					
Peak Detector:					
4555.000	5.509	57.520	63.030	-10.970	74.000
11510.000	18.171	34.033	52.204	-21.796	74.000
17265.000	18.261	49.110	67.371	-6.629	74.000
20760.000	*	*	*	*	74.000
25950.000	*	*	*	*	74.000
31140.000	*	*	*	*	74.000
36330.000	*	*	*	*	74.000
Average Detector:					
4555.000	5.509	28.030	33.540	-20.460	54.000
17265.000	18.261	32.350	50.611	-3.389	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.

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

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4595.000	2.022	66.840	68.862	-5.138	74.000
11590.000	16.791	35.620	52.410	-21.590	74.000
17385.000	16.595	54.295	70.889	-3.111	74.000
20920.000	*	*	*	*	74.000
26150.000	*	*	*	*	74.000
31380.000	*	*	*	*	74.000
36610.000	*	*	*	*	74.000
Average Detector:					
4595.000	2.022	29.260	31.282	-22.718	54.000
17385.000	16.595	34.220	50.814	-3.186	54.000
Vertical					
Peak Detector:					
4595.000	5.819	58.830	64.649	-9.351	74.000
11590.000	17.657	33.680	51.336	-22.664	74.000
17385.000	19.780	46.355	66.134	-7.866	74.000
20920.000	*	*	*	*	74.000
26150.000	*	*	*	*	74.000
31380.000	*	*	*	*	74.000
36610.000	*	*	*	*	74.000
Average Detector:					
4595.000	5.819	24.960	30.779	-23.221	54.000
17385.000	19.780	31.360	51.139	-2.861	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
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 4: Transmit (802.11ac-80BW-65Mbps) (5775MHz) - Dish Antenna

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4576.000	1.978	65.330	67.308	-6.692	74.000
11550.000	17.004	35.210	52.214	-21.786	74.000
17325.000	16.075	43.340	59.416	-14.584	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
Average					
Detector:					
4576.000	1.978	40.280	42.258	-11.742	54.000
17325.000	16.075	35.200	51.276	-2.724	54.000
Vertical					
Peak Detector:					
4576.000	5.677	61.080	66.757	-7.243	74.000
11550.000	17.916	35.290	53.205	-20.795	74.000
17325.000	18.821	40.700	59.521	-14.479	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
Average					
Detector:					
4576.000	5.677	33.100	38.777	-15.223	54.000
17325.000	18.821	29.700	48.521	-5.479	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
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5745MHz) - Sector Antenna

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4516.000	1.839	70.490	72.329	-1.671	74.000
11490.000	17.196	36.620	53.817	-20.183	74.000
17235.000	15.516	55.920	71.436	-2.564	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
Average Detector:					
4516.000	1.839	31.360	33.199	-20.801	54.000
17235.000	15.516	37.780	53.296	-0.704	54.000
Vertical					
Peak Detector:					
4516.000	5.196	66.320	71.517	-2.483	74.000
11490.000	18.124	35.510	53.635	-20.365	74.000
17235.000	18.123	52.120	70.243	-3.757	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
Average Detector:					
4516.000	1.839	26.400	28.239	-45.761	54.000
17235.000	18.123	34.960	53.083	-0.917	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
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5785MHz) - Sector Antenna

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4557.000	1.934	66.970	68.905	-5.095	74.000
11570.000	16.899	35.100	51.999	-22.001	74.000
17355.000	16.336	55.990	72.326	-1.674	74.000
20800.000	*	*	*	*	74.000
26000.000	*	*	*	*	74.000
31200.000	*	*	*	*	74.000
36400.000	*	*	*	*	74.000
Average					
Detector:					
4557.000	1.934	32.140	34.075	-19.925	54.000
17355.000	16.336	37.300	53.636	-0.364	54.000
Vertical					
Peak Detector:					
4557.000	5.525	57.740	63.266	-10.734	74.000
11570.000	17.788	35.280	53.068	-20.932	74.000
17355.000	19.301	51.660	70.961	-3.039	74.000
26000.000	*	*	*	*	74.000
31200.000	*	*	*	*	74.000
36400.000	*	*	*	*	74.000
Average					
Detector:					
4557.000	5.525	25.000	30.526	-23.474	54.000
17355.000	19.301	32.720	52.021	-1.979	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
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5825MHz) - Sector Antenna

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4597.000	2.030	64.680	66.710	-7.290	74.000
11650.000	16.325	35.330	51.656	-22.344	74.000
17475.000	17.429	53.370	70.799	-3.201	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	74.000
31440000	*	*	*	*	74.000
36680.000	*	*	*	*	74.000
Average					
Detector:					
4597.000	2.030	29.150	31.180	-22.820	54.000
17475.000	17.429	35.270	52.699	-1.301	54.000
Vertical					
Peak Detector:					
4597.000	5.836	57.550	63.385	-10.615	74.000
11650.000	17.441	34.990	52.432	-21.568	74.000
17475.000	20.133	43.620	63.753	-10.247	74.000
26200.000	*	*	*	*	74.000
31440000	*	*	*	*	74.000
36680.000	*	*	*	*	74.000
Average					
Detector:					
4597.000	5.836	25.370	31.205	-22.795	54.000
17475.000	20.133	29.100	49.233	-4.767	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
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW-14.4Mbps) (5745MHz) - Sector Antenna

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4517.000	1.842	66.670	68.512	-5.488	74.000
11490.000	17.196	35.600	52.797	-21.203	74.000
17235.000	15.516	57.220	72.736	-1.264	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
Average Detector:					
4517.000	1.842	28.230	30.072	-23.928	54.000
17235.000	15.516	38.080	53.596	-0.404	54.000
Vertical					
Peak Detector:					
4517.000	5.205	62.300	67.504	-6.496	74.000
11490.000	18.124	35.680	53.805	-20.195	74.000
17235.000	18.123	48.710	66.833	-7.167	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
Average Detector:					
4517.000	5.205	26.570	31.774	-22.226	54.000
17235.000	18.123	32.740	50.863	-3.137	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
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW-14.4Mbps) (5785MHz) - Sector Antenna

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4557.000	1.934	68.820	70.755	-3.245	74.000
11570.000	16.899	35.400	52.299	-21.701	74.000
17355.000	16.336	56.754	73.091	-0.909	74.000
20880.000	*	*	*	*	74.000
26100.000	*	*	*	*	74.000
31320.000	*	*	*	*	74.000
36540.000	*	*	*	*	74.000
Average					
Detector:					
4557.000	1.934	32.130	34.065	-19.935	54.000
17355.000	16.336	35.850	52.186	-1.814	54.000
Vertical					
Peak Detector:					
4557.000	5.525	60.450	65.976	-8.024	74.000
11570.000	17.788	34.610	52.398	-21.602	74.000
17355.000	19.301	46.546	65.846	-8.154	74.000
26100.000	*	*	*	*	74.000
31320.000	*	*	*	*	74.000
36540.000	*	*	*	*	74.000
Average					
Detector:					
4557.000	5.525	26.720	32.246	-21.754	54.000
17355.000	19.301	30.120	49.421	-4.579	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
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW-14.4Mbps) (5825MHz) - Sector Antenna

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4597.000	2.030	67.160	69.190	-4.810	74.000
11650.000	16.325	35.290	51.616	-22.384	74.000
17475.000	17.429	51.350	68.779	-5.221	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	74.000
31440.000	*	*	*	*	74.000
36680.000	*	*	*	*	74.000
Average					
Detector:					
4597.000	2.030	28.100	30.130	-23.870	54.000
17475.000	17.429	33.770	51.199	-2.801	54.000
Vertical					
Peak Detector:					
4597.000	5.836	56.240	62.075	-11.925	74.000
11650.000	17.441	34.550	51.992	-22.008	74.000
17475.000	20.133	44.060	64.193	-9.807	74.000
26200.000	*	*	*	*	74.000
31440.000	*	*	*	*	74.000
36680.000	*	*	*	*	74.000
Average					
Detector:					
4597.000	5.836	26.320	32.155	-21.845	54.000
17475.000	20.133	29.440	49.573	-4.427	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
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit (802.11n-40BW-30Mbps) (5755MHz) - Sector Antenna

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4555.000	1.930	66.310	68.240	-5.760	74.000
11510.000	17.214	35.610	52.824	-21.176	74.000
17265.000	15.674	55.260	70.934	-3.066	74.000
20760.000	*	*	*	*	74.000
25950.000	*	*	*	*	74.000
31140.000	*	*	*	*	74.000
36330.000	*	*	*	*	74.000
Average					
Detector:					
4555.000	1.930	30.110	32.040	-21.960	54.000
17265.000	15.674	37.510	53.184	-0.816	54.000
Vertical					
Peak Detector:					
4555.000	5.509	56.720	62.230	-11.770	74.000
11510.000	18.171	35.233	53.404	-20.596	74.000
17265.000	18.261	47.310	65.571	-8.429	74.000
25950.000	*	*	*	*	74.000
31140.000	*	*	*	*	74.000
36330.000	*	*	*	*	74.000
Average					
Detector:					
4555.000	5.509	26.330	31.840	-22.160	54.000
17265.000	18.261	30.550	48.811	-5.189	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
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit (802.11n-40BW-30Mbps) (5795MHz) - Sector Antenna

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4595.000	2.022	68.540	70.562	-3.438	74.000
11590.000	16.791	35.620	52.410	-21.590	74.000
17385.000	16.595	56.295	72.889	-1.111	74.000
20920.000	*	*	*	*	74.000
26150.000	*	*	*	*	74.000
31380.000	*	*	*	*	74.000
36610.000	*	*	*	*	74.000
Average					
Detector:					
4595.000	2.022	27.660	29.682	-24.318	54.000
17385.000	16.595	35.320	51.914	-2.086	54.000
Vertical					
Peak Detector:					
4595.000	5.819	60.330	66.149	-7.851	74.000
11590.000	17.657	34.780	52.436	-21.564	74.000
17385.000	16.595	46.440	63.034	-10.966	74.000
26150.000	*	*	*	*	74.000
31380.000	*	*	*	*	74.000
36610.000	*	*	*	*	74.000
Average					
Detector:					
4595.000	5.819	26.560	32.379	-21.621	54.000
17385.000	19.780	29.660	49.439	-4.561	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
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 4: Transmit (802.11ac-80BW-65Mbps) (5775MHz) - Sector Antenna

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4576.000	1.978	68.930	70.908	-3.092	74.000
11550.000	17.004	34.760	51.764	-22.236	74.000
17325.000	16.075	50.386	66.462	-7.538	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
Average					
Detector:					
4576.000	1.978	47.880	49.858	-4.142	54.000
17325.000	16.075	33.144	49.220	-4.780	54.000
Vertical					
Peak Detector:					
4576.000	5.677	54.430	60.107	-13.893	74.000
11550.000	17.916	35.860	53.775	-20.225	74.000
17325.000	18.821	44.910	63.731	-10.269	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
Average					
Detector:					
4576.000	5.677	36.410	42.087	-11.913	54.000
17325.000	18.821	33.600	52.421	-1.579	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
Test Item : General Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5785MHz) - Dish Antenna

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector					
105.660	-6.673	48.912	42.239	-1.261	43.500
303.540	-3.074	46.695	43.621	-2.379	46.000
460.680	1.589	37.414	39.003	-6.997	46.000
606.180	4.666	37.568	42.234	-3.766	46.000
728.400	3.452	36.599	40.051	-5.949	46.000
844.800	5.601	37.485	43.086	-2.914	46.000
Vertical					
Peak Detector					
111.480	-0.954	41.109	40.155	-3.345	43.500
243.400	-8.451	49.741	41.290	-4.710	46.000
381.140	-1.558	44.767	43.209	-2.791	46.000
540.220	0.121	38.135	38.256	-7.744	46.000
681.840	1.484	37.844	39.328	-6.672	46.000
842.860	3.074	37.868	40.942	-5.058	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
Test Item : General Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW-14.4Mbps) (5785MHz) - Dish Antenna

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector					
111.480	-7.914	49.109	41.195	-2.305	43.500
243.400	-6.441	49.241	42.800	-3.200	46.000
373.380	-1.163	43.964	42.801	-3.199	46.000
515.000	1.610	38.187	39.797	-6.203	46.000
654.680	2.147	37.716	39.863	-6.137	46.000
829.280	6.344	37.317	43.661	-2.339	46.000
Vertical					
Peak Detector					
111.480	-0.954	42.609	41.655	-1.845	43.500
251.160	-7.505	51.397	43.892	-2.108	46.000
381.140	-1.558	43.767	42.209	-3.791	46.000
540.220	0.121	38.135	38.256	-7.744	46.000
681.840	1.484	37.844	39.328	-6.672	46.000
840.920	2.961	37.360	40.321	-5.679	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
Test Item : General Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit (802.11n-40BW-30Mbps) (5755MHz) - Dish Antenna

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector					
111.480	-7.914	46.609	38.695	-4.805	43.500
303.540	-3.074	45.695	42.621	-3.379	46.000
466.500	0.794	42.383	43.176	-2.824	46.000
596.480	4.017	37.211	41.228	-4.772	46.000
712.880	3.569	37.360	40.929	-5.071	46.000
854.500	6.626	37.911	44.537	-1.463	46.000
Vertical					
Peak Detector					
152.220	-6.215	46.831	40.616	-2.884	43.500
295.780	-7.455	50.719	43.264	-2.736	46.000
460.680	-3.221	47.514	44.293	-1.707	46.000
606.180	-1.594	43.168	41.574	-4.426	46.000
709.000	0.058	44.014	44.072	-1.928	46.000
844.800	3.181	37.581	40.762	-5.238	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
Test Item : General Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 4: Transmit (802.11ac-80BW-65Mbps) (5775MHz) - Dish Antenna

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector					
103.720	-6.751	46.028	39.276	-4.224	43.500
245.340	-6.346	49.899	43.553	-2.447	46.000
458.740	0.833	40.605	41.438	-4.562	46.000
549.920	2.943	38.937	41.880	-4.120	46.000
681.840	2.844	36.697	39.541	-6.459	46.000
854.500	6.626	37.374	44.000	-2.000	46.000
Vertical					
Peak Detector					
43.580	-2.986	38.321	35.335	-4.665	40.000
156.100	-6.201	47.859	41.657	-1.843	43.500
332.640	-4.914	46.251	41.337	-4.663	46.000
540.220	0.121	42.735	42.856	-3.144	46.000
720.640	-0.099	41.066	40.967	-5.033	46.000
883.600	2.566	41.235	43.800	-2.200	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
Test Item : General Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps) (5785MHz) - Sector Antenna

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector					
103.720	-6.751	46.028	39.276	-4.224	43.500
245.340	-6.346	49.899	43.553	-2.447	46.000
458.740	0.833	40.605	41.438	-4.562	46.000
549.920	2.943	38.937	41.880	-4.120	46.000
681.840	2.844	36.697	39.541	-6.459	46.000
854.500	6.626	37.374	44.000	-2.000	46.000
Vertical					
Peak Detector					
43.580	-2.986	38.321	35.335	-4.665	40.000
156.100	-6.201	47.859	41.657	-1.843	43.500
332.640	-4.914	46.251	41.337	-4.663	46.000
540.220	0.121	42.735	42.856	-3.144	46.000
720.640	-0.099	41.066	40.967	-5.033	46.000
883.600	2.566	41.235	43.800	-2.200	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
Test Item : General Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW-14.4Mbps) (5785MHz) - Sector Antenna

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector					
43.580	-4.496	40.321	35.825	-4.175	40.000
105.660	-6.673	45.912	39.239	-4.261	43.500
255.040	-5.098	47.722	42.624	-3.376	46.000
470.380	1.226	40.187	41.413	-4.587	46.000
635.280	2.141	39.148	41.288	-4.712	46.000
864.200	5.671	38.234	43.905	-2.095	46.000
Vertical					
Peak Detector					
105.660	-0.253	41.412	41.159	-2.341	43.500
202.660	-7.739	49.660	41.921	-1.579	43.500
344.280	-3.171	45.607	42.437	-3.563	46.000
507.240	-0.471	43.141	42.670	-3.330	46.000
664.380	-1.918	43.459	41.541	-4.459	46.000
844.800	3.181	37.585	40.766	-5.234	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
Test Item : General Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit (802.11n-40BW-30Mbps) (5755MHz) - Sector Antenna

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector					
105.660	-6.673	47.912	41.239	-2.261	43.500
175.500	-10.017	49.155	39.137	-4.363	43.500
303.540	-3.074	47.195	44.121	-1.879	46.000
458.740	0.833	41.325	42.158	-3.842	46.000
610.060	4.101	37.089	41.190	-4.810	46.000
815.700	5.271	38.052	43.323	-2.677	46.000
Vertical					
Peak Detector					
111.480	-0.954	41.609	40.655	-2.845	43.500
243.400	-8.451	51.241	42.790	-3.210	46.000
381.140	-1.558	41.267	39.709	-6.291	46.000
507.240	-0.471	42.641	42.170	-3.830	46.000
681.840	1.484	40.856	42.340	-3.660	46.000
844.800	3.181	41.185	44.366	-1.634	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
Test Item : General Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 4: Transmit (802.11ac-80BW-65Mbps) (5775MHz) - Sector Antenna

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector					
105.660	-6.673	47.912	41.239	-2.261	43.500
175.500	-10.017	49.155	39.137	-4.363	43.500
303.540	-3.074	47.195	44.121	-1.879	46.000
458.740	0.833	41.325	42.158	-3.842	46.000
610.060	4.101	37.089	41.190	-4.810	46.000
815.700	5.271	38.052	43.323	-2.677	46.000
Vertical					
Peak Detector					
111.480	-0.954	41.609	40.655	-2.845	43.500
243.400	-8.451	51.241	42.790	-3.210	46.000
381.140	-1.558	41.267	39.709	-6.291	46.000
507.240	-0.471	42.641	42.170	-3.830	46.000
681.840	1.484	40.856	42.340	-3.660	46.000
844.800	3.181	41.185	44.366	-1.634	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 Radiated Measurement:

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

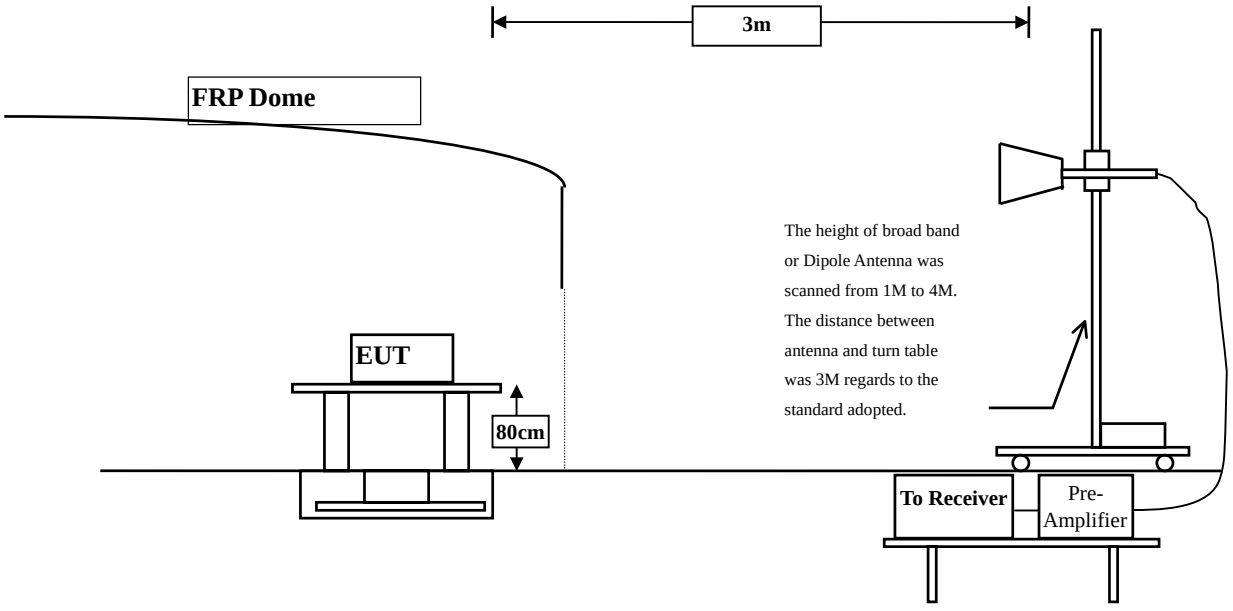
Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
☒Site # 3		Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2013
	X	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2013
		Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2013
		Pre-Amplifier	QTK	QTK-AMP-03 / 0003	May, 2014
	X	Pre-Amplifier	QTK	AP-180C / CHM_0906076	Sep., 2013
		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., 2013
	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 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:

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

Remarks : 1. RF Voltage (dBuV) = 20 log RF Voltage (uV)

2. In the Above Table, the tighter limit applies at the band edges.

3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

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
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps)-Channel 149 – Dish Antenna

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	-69.840	-51.196	-24.196	-27.000	Pass
Horizontal	5725.000	18.649	-70.030	-51.381	-34.381	-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	-71.880	-52.584	-25.584	-27.000	Pass
Vertical	5725.000	19.372	-71.210	-51.838	-34.838	-17.000	Pass

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

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	-69.230	-49.938	-32.938	-17.000	Pass
Horizontal	5860.000	19.415	-67.150	-47.735	-20.735	-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	-67.150	-46.638	-29.638	-17.000	Pass
Vertical	5860.000	20.635	-69.360	-48.725	-21.725	-27.000	Pass

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

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	-70.260	-51.616	-24.616	-27.000	Pass
Horizontal	5725.000	18.649	-69.980	-51.331	-34.331	-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	-72.590	-53.294	-26.294	-27.000	Pass
Vertical	5725.000	19.372	-73.410	-54.038	-37.038	-17.000	Pass

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

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	-67.150	-47.858	-30.858	-17.000	Pass
Horizontal	5860.000	19.415	-69.500	-50.085	-23.085	-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	-69.150	-48.638	-31.638	-17.000	Pass
Vertical	5860.000	20.635	-68.110	-47.475	-20.475	-27.000	Pass

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

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	-72.380	-53.736	-26.736	-27.000	Pass
Horizontal	5725.000	18.649	-73.490	-54.841	-37.841	-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	-72.720	-53.424	-26.424	-27.000	Pass
Vertical	5725.000	19.372	-73.540	-54.168	-37.168	-17.000	Pass

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

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	-67.150	-47.858	-30.858	-17.000	Pass
Horizontal	5860.000	19.415	-68.150	-48.735	-21.735	-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	-68.150	-47.638	-30.638	-17.000	Pass
Vertical	5860.000	20.635	-68.260	-47.625	-20.625	-27.000	Pass

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

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	-62.440	-43.796	-16.796	-27.000	Pass
Horizontal	5725.000	18.649	-60.380	-41.731	-24.731	-17.000	Pass
Horizontal	5850.000	19.292	-64.580	-45.288	-28.288	-17.000	Pass
Horizontal	5860.000	19.415	-62.580	-43.165	-16.165	-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	-64.380	-45.084	-18.084	-27.000	Pass
Vertical	5725.000	19.372	-61.560	-42.188	-25.188	-17.000	Pass
Vertical	5850.000	20.512	-67.360	-46.848	-29.848	-17.000	Pass
Vertical	5860.000	20.635	-65.390	-44.755	-17.755	-27.000	Pass

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

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	-68.370	-49.726	-22.726	-27.000	Pass
Horizontal	5725.000	18.649	-70.130	-51.481	-34.481	-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	-71.620	-52.324	-25.324	-27.000	Pass
Vertical	5725.000	19.372	-73.410	-54.038	-37.038	-17.000	Pass

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

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	-68.590	-49.298	-32.298	-17.000	Pass
Horizontal	5860.000	19.415	-69.320	-49.905	-22.905	-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	-66.230	-45.718	-28.718	-17.000	Pass
Vertical	5860.000	20.635	-62.150	-41.515	-14.515	-27.000	Pass

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

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	-66.720	-48.076	-21.076	-27.000	Pass
Horizontal	5725.000	18.649	-68.100	-49.451	-32.451	-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	-66.290	-46.994	-19.994	-27.000	Pass
Vertical	5725.000	19.372	-69.230	-49.858	-32.858	-17.000	Pass

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

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	-69.230	-49.938	-32.938	-17.000	Pass
Horizontal	5860.000	19.415	-67.290	-47.875	-20.875	-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	-68.150	-47.638	-30.638	-17.000	Pass
Vertical	5860.000	20.635	-69.230	-48.595	-21.595	-27.000	Pass

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

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	-69.240	-50.596	-23.596	-27.000	Pass
Horizontal	5725.000	18.649	-71.050	-52.401	-35.401	-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	-69.810	-50.514	-23.514	-27.000	Pass
Vertical	5725.000	19.372	-70.940	-51.568	-34.568	-17.000	Pass

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

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	-69.150	-49.858	-32.858	-17.000	Pass
Horizontal	5860.000	19.415	-67.150	-47.735	-20.735	-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	-68.260	-47.748	-30.748	-17.000	Pass
Vertical	5860.000	20.635	-67.150	-46.515	-19.515	-27.000	Pass

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

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	-66.380	-47.736	-20.736	-27.000	Pass
Horizontal	5725.000	18.649	-62.840	-44.191	-27.191	-17.000	Pass
Horizontal	5850.000	19.292	-63.290	-43.998	-26.998	-17.000	Pass
Horizontal	5860.000	19.415	-68.360	-48.945	-21.945	-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	-67.230	-47.934	-20.934	-27.000	Pass
Vertical	5725.000	19.372	-62.390	-43.018	-26.018	-17.000	Pass
Vertical	5850.000	20.512	-64.220	-43.708	-26.708	-17.000	Pass
Vertical	5860.000	20.635	-67.290	-46.655	-19.655	-27.000	Pass

7. Occupied Bandwidth

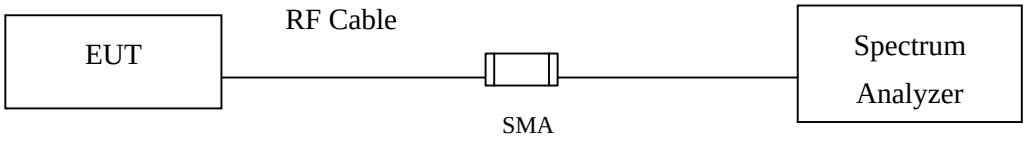
7.1. Test Equipment

	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 DTS test procedure of FCC KDB-789033 for compliance to FCC 47CFR Subpart E requirements.

7.5. Uncertainty

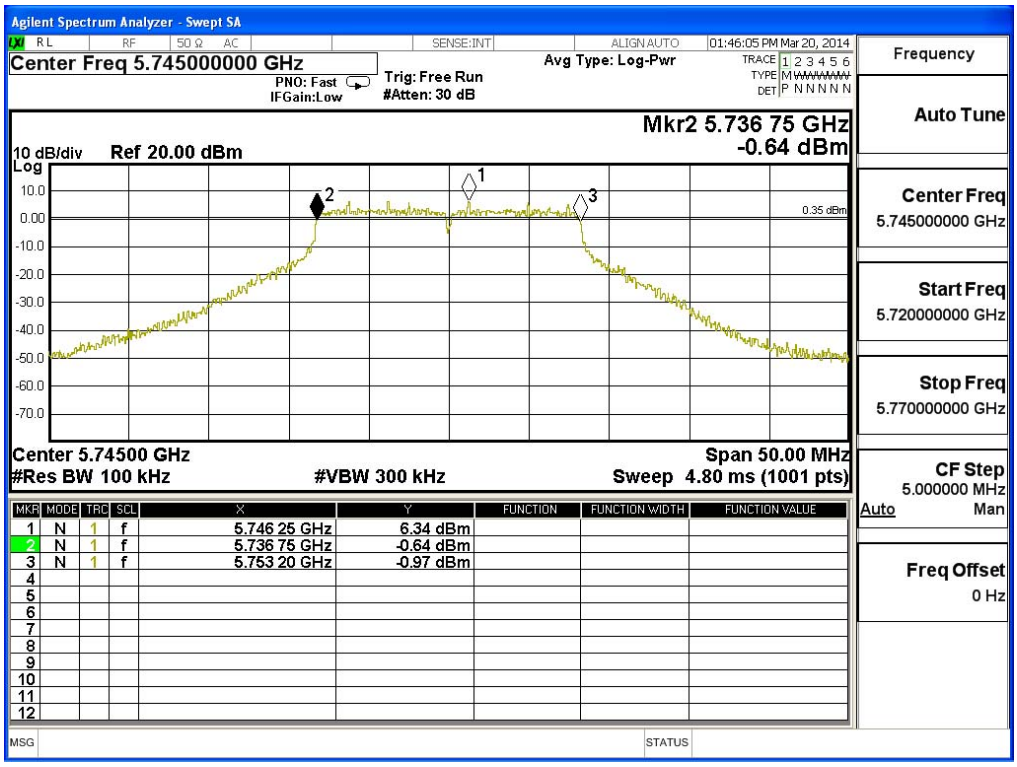
± 150Hz

7.6. Test Result of Occupied Bandwidth

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

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
149	5745.00	16450	>500	Pass

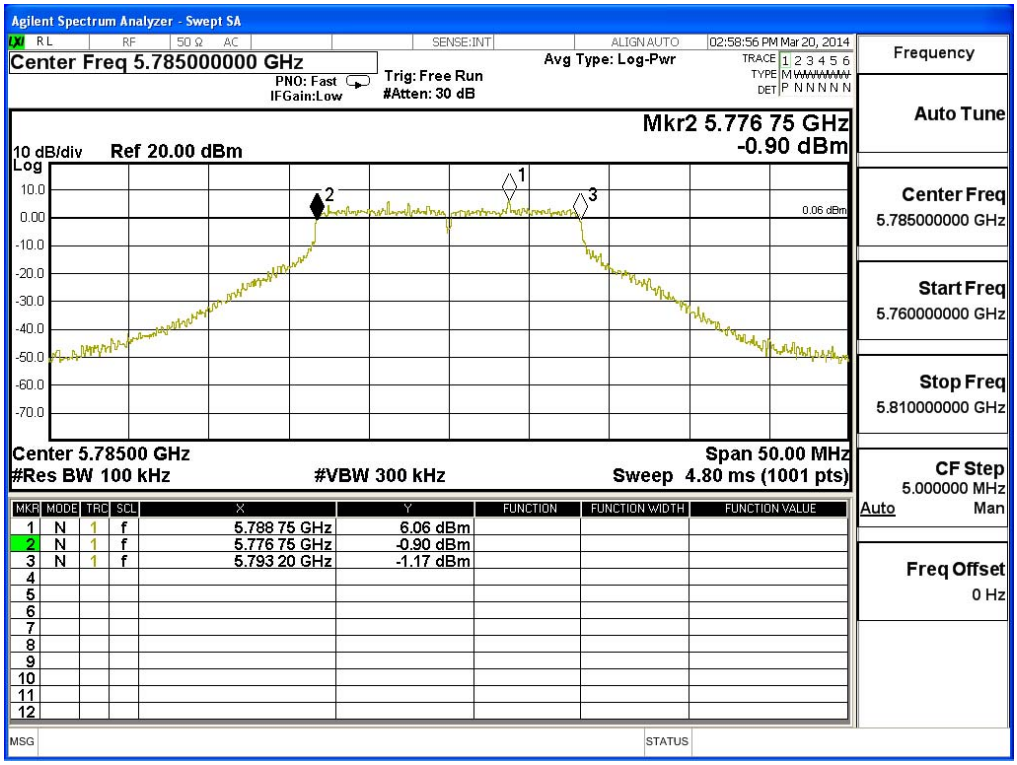
Figure Channel 149:



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

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
157	5785.00	16450	>500	Pass

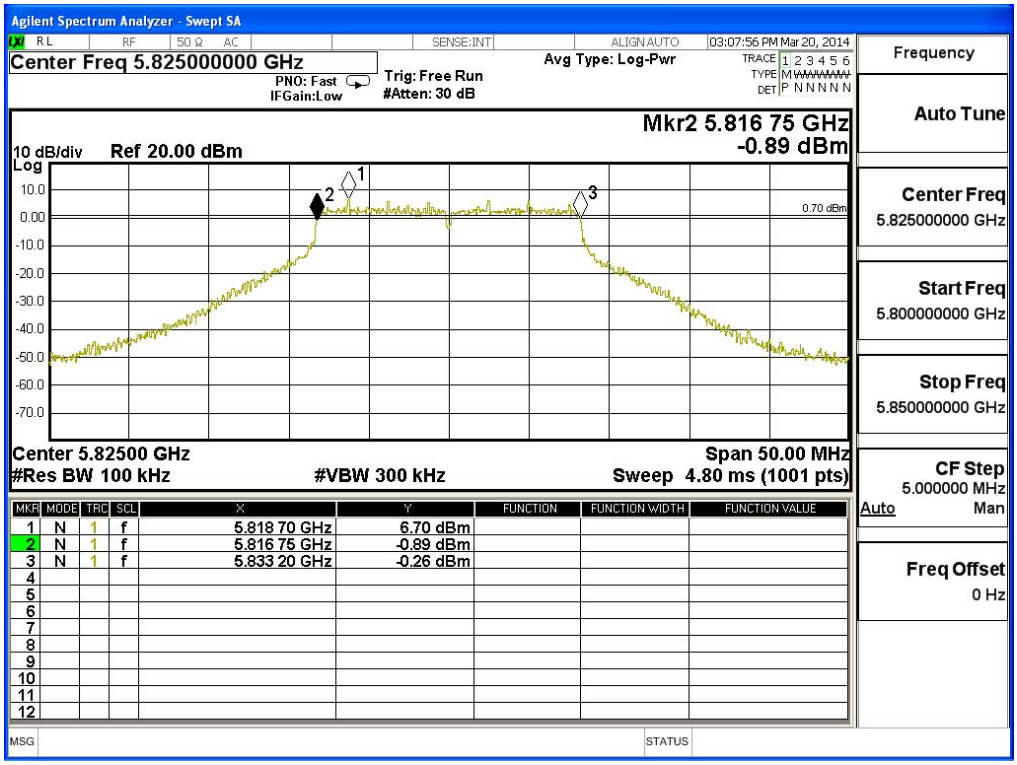
Figure Channel 157:



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

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
165	5825.00	16450	>500	Pass

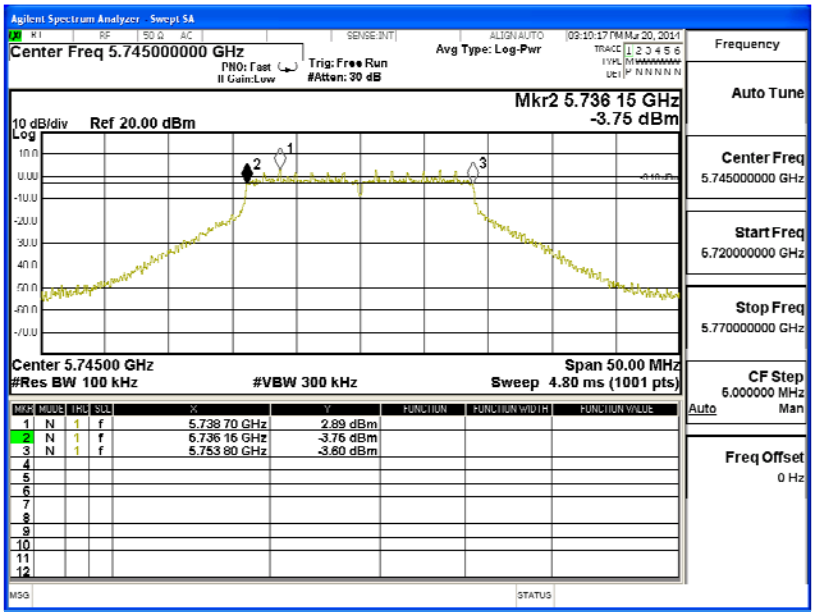
Figure Channel 165:



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

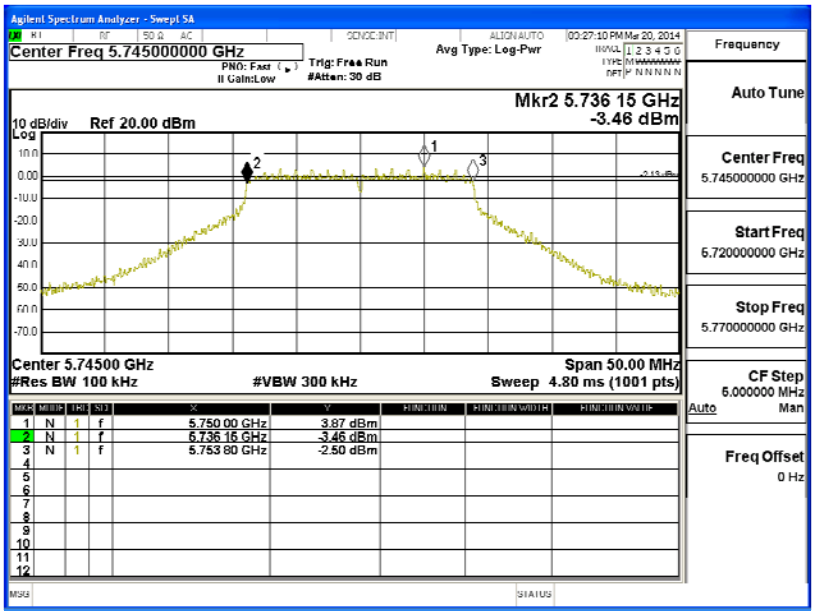
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
149	5745.00	17650	>500	Pass

Figure Channel 149: (Chain A)



Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
149	5745.00	17650	>500	Pass

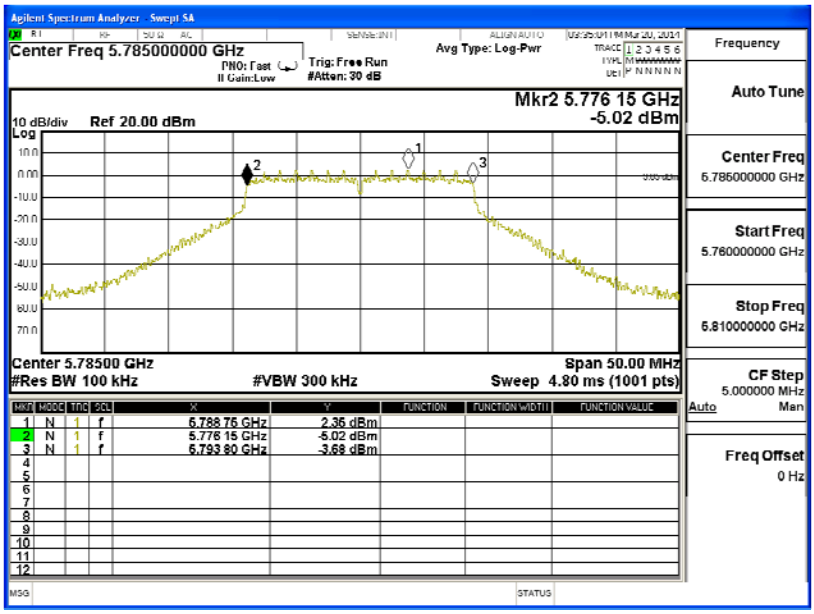
Figure Channel 149: (Chain B)



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

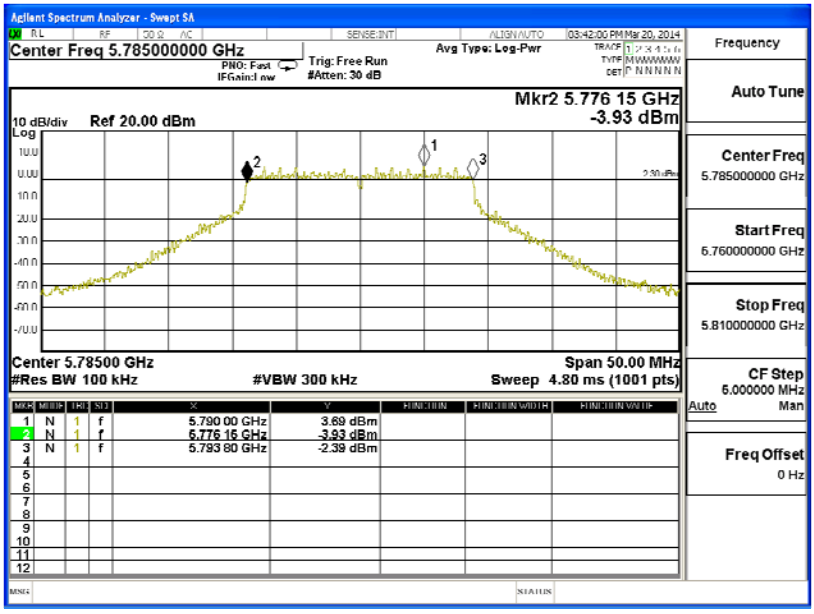
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
157	5785.00	17650	>500	Pass

Figure Channel 157: (Chain A)



Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
157	5785.00	17650	>500	Pass

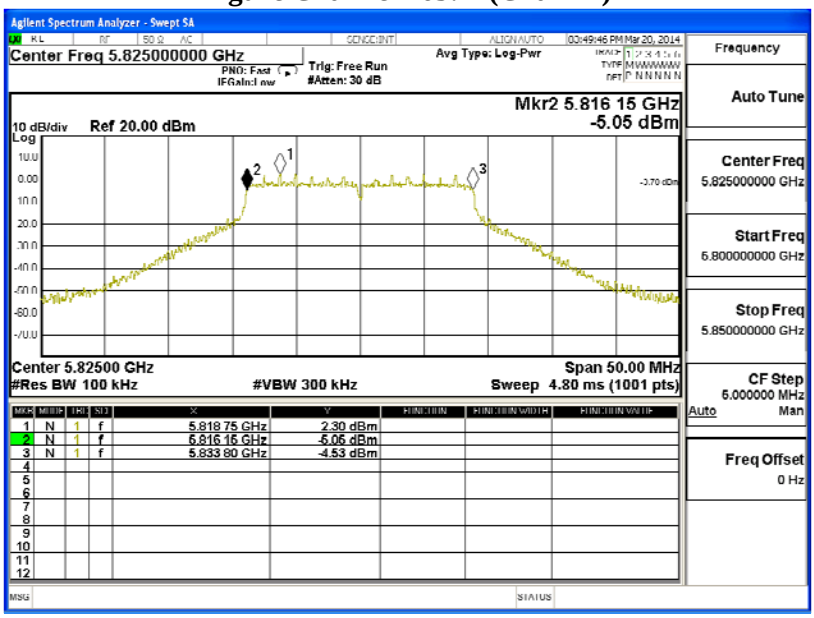
Figure Channel 157: (Chain B)



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

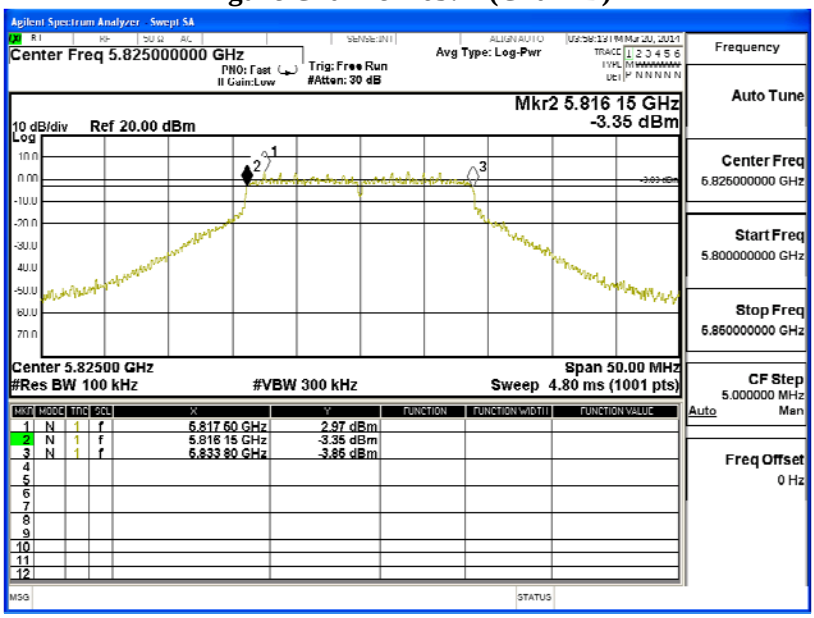
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
165	5825.00	17650	>500	Pass

Figure Channel 165: (Chain A)



Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
165	5825.00	17650	>500	Pass

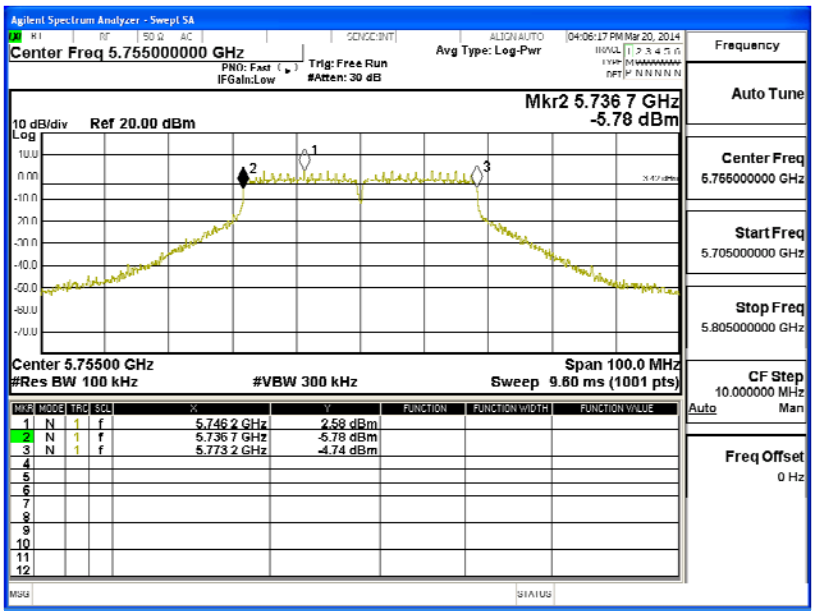
Figure Channel 165: (Chain B)



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

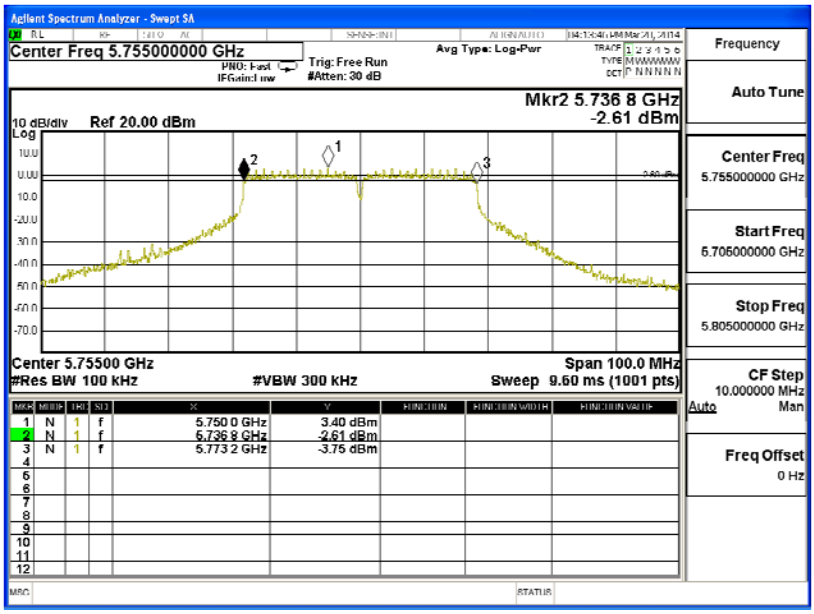
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
151	5755.00	36500	>500	Pass

Figure Channel 151: (Chain A)



Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
151	5755.00	36400	>500	Pass

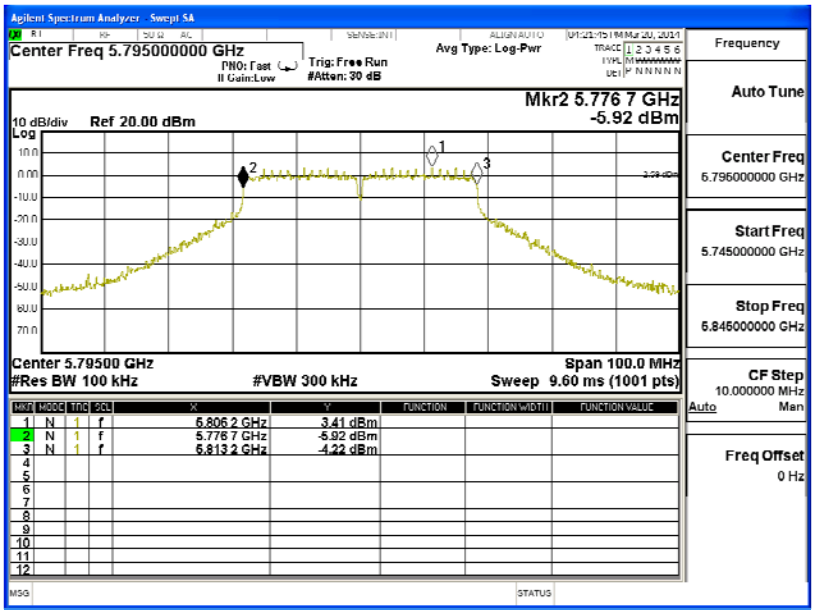
Figure Channel 151: (Chain B)



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

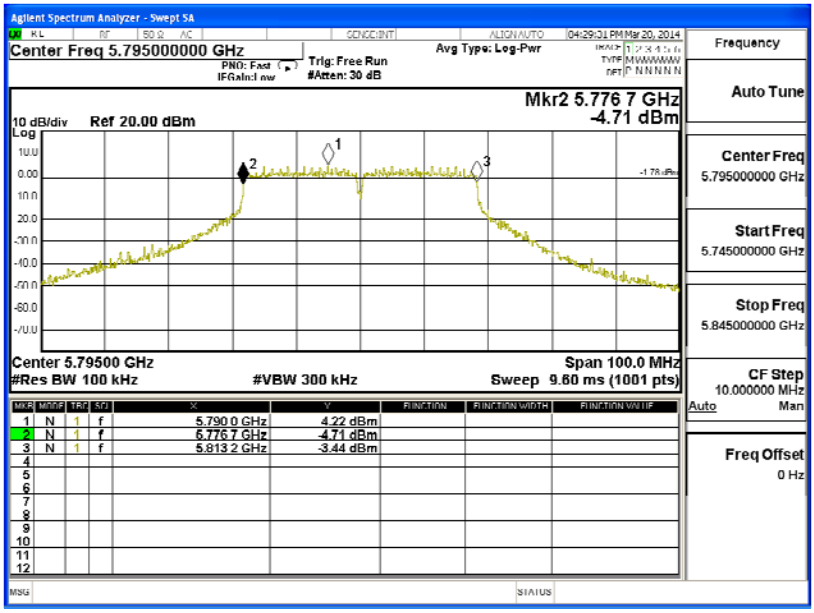
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
159	5795.00	36500	>500	Pass

Figure Channel 159: (Chain A)



Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
159	5795.00	36500	>500	Pass

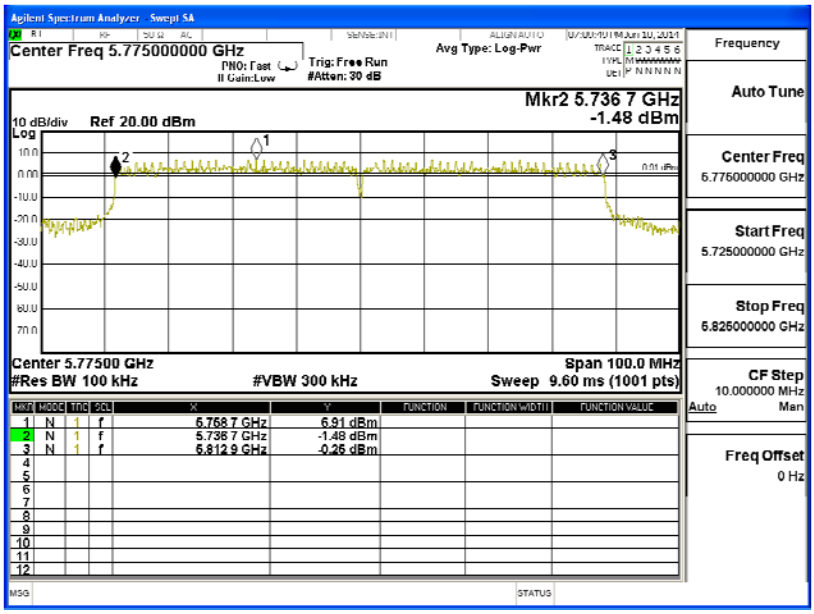
Figure Channel 159: (Chain B)



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

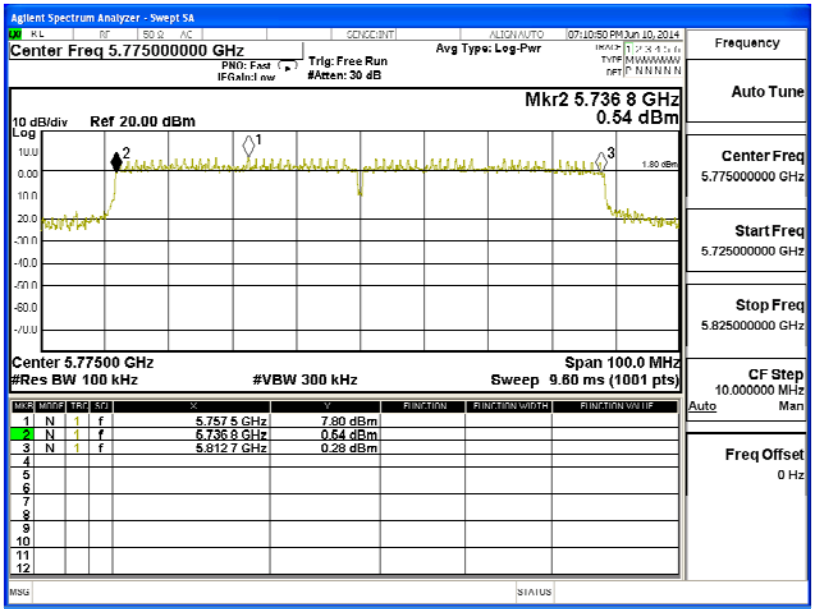
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
155	5775.00	76200	>500	Pass

Figure Channel 155: (Chain A)



Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
155	5775.00	75900	>500	Pass

Figure Channel 155: (Chain B)



8. Frequency Stability

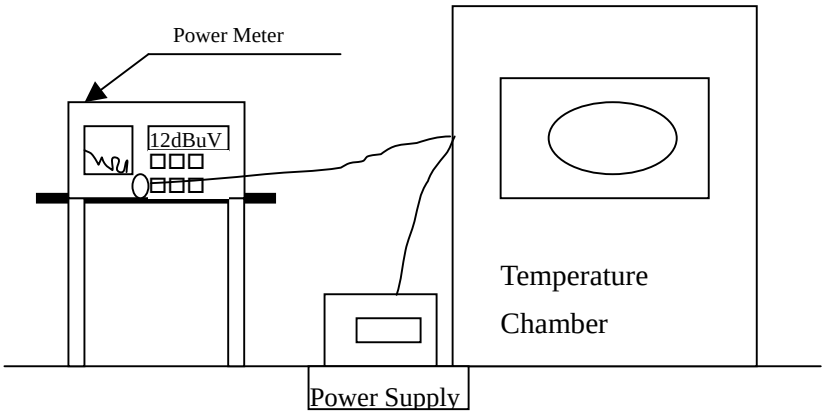
8.1. Test Equipment

	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
Test Item : Frequency Stability
Test Site : Temperature Chamber
Test Mode : Carrier Wave

Chain A

Test Conditions		Channel	Frequency (MHz)	Frequency (MHz)	△F (MHz)
Tnom (20) °C	Vnom (120)V	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
Tmax (50) °C	Vmax (138)V	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
Tmax (50) °C	Vmin (102)V	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
Tmin (0) °C	Vmax (138)V	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
Tmin (0) °C	Vmin (102)V	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)	△F (MHz)
Tnom (20) °C	Vnom (120)V	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
Tmax (50) °C	Vmax (138)V	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
Tmax (50) °C	Vmin (102)V	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
Tmin (0) °C	Vmax (138)V	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
Tmin (0) °C	Vmin (102)V	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.