FCC Test Report

Product Name	802.11 ac PCIe Module
Model No	NGP1058
FCC ID	HZB-NGP1058W

Applicant	Proxim Wireless Corporation
Address	47633 Westinghouse Drive,Fremont City,California,United States 94539

Date of Receipt	June 29, 2015
Issued Date	Sep. 14, 2015
Report No.	1570043R-RFUSP63V00
Report Version	V1.0

Test Report

Issued Date: Sep. 14, 2015
Report No.: 1570043R-RFUSP63V00

Product Name	802.11 ac PCIe Module
Applicant	Proxim Wireless Corporation
Address	47633 Westinghouse Drive,Fremont City,California,United States 94539
Manufacturer	Compex Systems Pte Ltd
Model No.	NGP1058
FCC ID.	HZB-NGP1058W
EUT Rated Voltage	DC 5V, 1.5A
HOST voltage	AC 120V/60Hz
Trade Name	Proxim
Applicable Standard	FCC CFR Title 47 Part 15 Subpart E: 2014 ANSI C63.4: 2014, ANSI C63.10: 2013 789033 D02 General UNII Test Procedures New Rules v01
Test Result	Complied

Documented By : Genie Chang
(Senior Adm. Specialist / Genie Chang)

Tested By : Benjamin Pan
(Engineer / Benjamin Pan)

Approved By :
(Director / Vincent Lin)

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Description Page

1. GENERAL INFORMATION

1.1. EUT Description

Product Name	802.11 ac PCIe Module
Trade Name	Proxim
FCC ID.	HZB-NGP1058W
Model No.	NGP1058
Frequency Range	802.11a/n-20MHz: 5180-5240MHz 802.11n-40MHz: 5190-5230MHz 802.11ac-80MHz: 5210
Number of Channels	802.11a/n-20MHz: 4, n-40MHz: 2; 802.11ac-80MHz: 1
Data Speed	802.11a: 6 - 54Mbps 802.11n: up to 300Mbps 802.11ac-80MHz: up to 866.7MHz
Channel Control	Auto
Type of Modulation	802.11a/n:OFDM, BPSK, QPSK, 16QAM, 64QAM, 256QAM
Antenna Type	Dipole / Grid DISH / Omni / Panel / Sector
Antenna Gain	Refer to the table “Antenna List”
Contain Module	Atheros / QCA9882

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1.	Mars	MA-WA55-30	External Antenna (Panel)	30dBi for 5.15~5.25GHz
2.	Mars	MA-WB55-20	External Antenna (Sector)	20dBi for 5.15~5.25GHz
3	Andrew	PX3F-52-N7A	External Antenna (Grid DISH)	33.5dBi for 5.15~5.25GHz
4	Smartant	SAA08-220570	External Antenna (Omni)	10dBi for 5.15~5.25GHz
5	Proxim	N/A	External Antenna (Dipole)	5dBi for 5.15~5.25GHz

Note: The antenna of EUT is conform to FCC 15.203

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

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 36:	5180 MHz	Channel 40:	5200 MHz	Channel 44:	5220 MHz	Channel 48:	5240 MHz

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

Channel	Frequency	Channel	Frequency
Channel 38:	5190 MHz	Channel 46:	5230 MHz

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

Channel	Frequency
Channel 42:	5210 MHz

Note:

1. This device is an 802.11 ac PCIe Module with a built-in 802.11a/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(20M-BW) is 14.4Mbps、802.11n(40M-BW) is 30Mbps and 802.11ac(80M-BW) is 65 Mbps)
4. 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.
5. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.

Test Mode	Mode 1: Transmit (802.11a-6Mbps)(Dipole Antanna) Mode 2: Transmit (802.11n-20BW 14.4Mbps)(5G Band)(Dipole Antenna) Mode 3: Transmit (802.11n-40BW 30Mbps)(5G Band)(Dipole Antenna) Mode 4: Transmit (802.11ac-80BW-65Mbps)(5G Band)(Dipole Antenna) Mode 5: Transmit (802.11a_6Mbps)(Grid DISH Antenna) Mode 6: Transmit (802.11n-20BW_14.4Mbps)(5G Band)(Grid DISH Antenna) Mode 7: Transmit (802.11n-40BW_30Mbps)(5G Band)(Grid DISH Antenna) Mode 8: Transmit (802.11ac-80BW_65Mbps)(5G Band)(Grid DISH Antenna) Mode 9: Transmit (802.11a_6Mbps)(Omni Antenna) Mode 10: Transmit (802.11n-20BW_14.4Mbps)(5G Band)(Omni Antenna) Mode 11: Transmit (802.11n-40BW_30Mbps)(5G Band)(Omni Antenna) Mode 12: Transmit (802.11ac-80BW_65Mbps)(5G Band)(Omni Antenna) Mode 13: Transmit (802.11a_6Mbps)(Panel Antenna) Mode 14: Transmit (802.11n-20BW_14.4Mbps)(5G Band)(Panel Antenna) Mode 15: Transmit (802.11n-40BW_30Mbps)(5G Band)(Panel Antenna) Mode 16: Transmit (802.11ac-80BW_65Mbps)(5G Band)(Panel Antenna) Mode 17: Transmit (802.11a_6Mbps)(Sector Antenna) Mode 18: Transmit (802.11n-20BW_14.4Mbps)(5G Band)(Sector Antenna) Mode 19: Transmit (802.11n-40BW_30Mbps)(5G Band)(Sector Antenna) Mode 20: Transmit (802.11ac-80BW_65Mbps)(5G Band)(Sector Antenna)

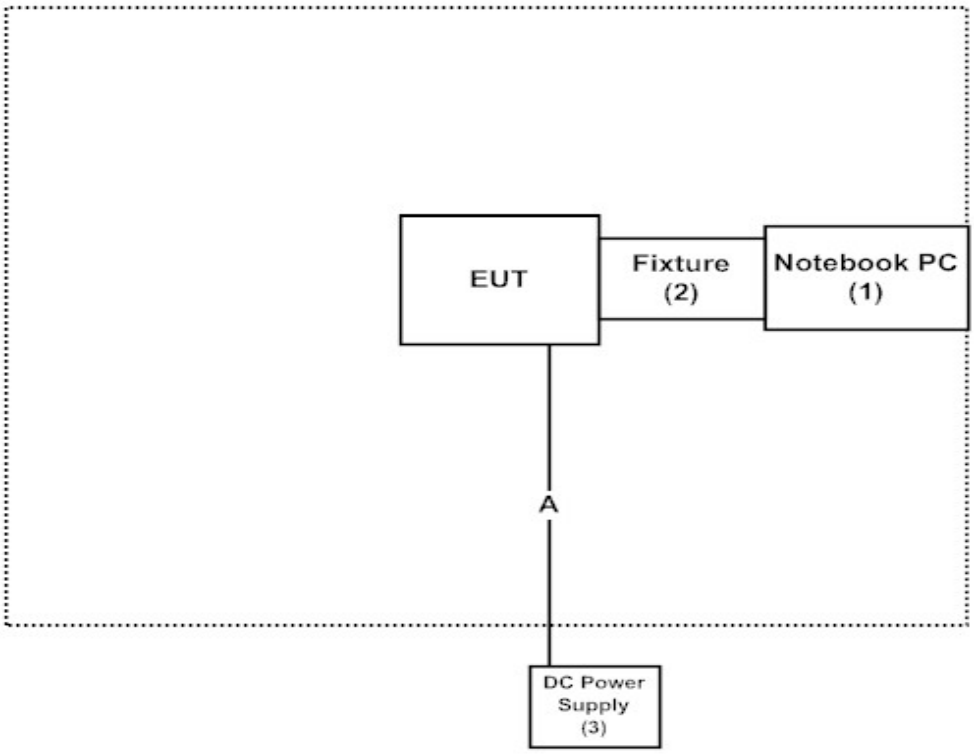
1.3. Tested System Datails

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	PP18L	36119001664	Non-Shielded, 0.8m
(2)	Fixture	Proxin	N/A	N/A	N/A
(3)	DC Power Supply	Gwinstek	SPD-3606	N/A	N/A

Signal Cable Type		Signal cable Description
A	DC Power Cable	Non-Shielded, 1.8m

1.4. Configuration of tested System



1.5. EUT Exercise Software

(1) Setup the EUT as shown on 1.4
(2) Execute “Art2-GUI V2.3” program on the EUT.
(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://www.quietek.com/chinese/about/certificates.aspx?bval=5

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

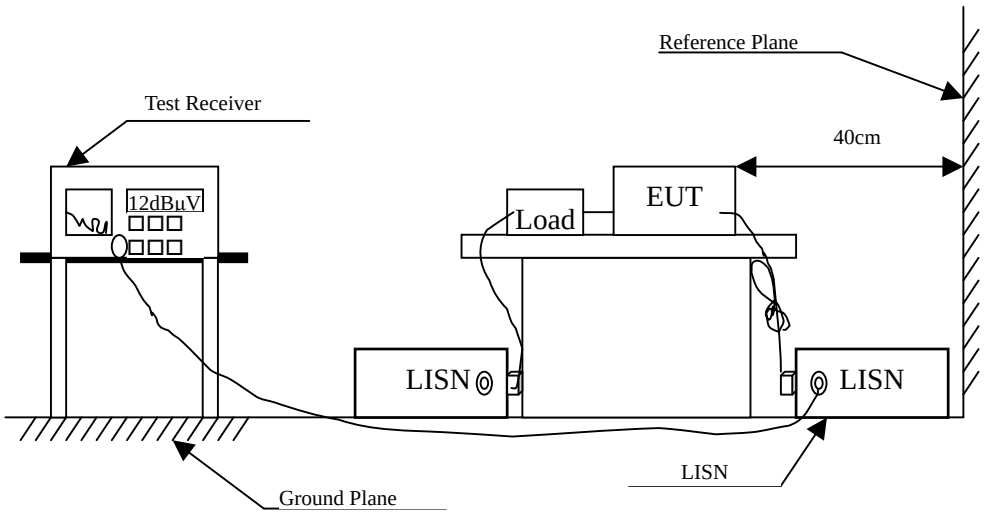
2.1. Test Equipment

	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.	Remark
X	Test Receiver	R & S	ESCS 30 / 825442/018	Sep., 2014	
X	Artificial Mains Network	R & S	ENV4200 / 848411/10	Feb., 2015	Peripherals
X	LISN	R & S	ESH3-Z5 / 825562/002	Feb., 2015	EUT
	DC LISN	Schwarzbeck	8226 / 176	Mar, 2015	EUT
X	Pulse Limiter	R & S	ESH3-Z2 / 357.8810.52	Feb., 2015	
	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 (dBμV) 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 C63.10:2013 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, 2013; tested to UNII test procedure of FCC KDB-789033 for compliance to FCC 47CFR Subpart E requirements.

2.5. Uncertainty

± 2.26 dB

2.6. Test Result of Conducted Emission

Product : 802.11 ac PCIe Module
Test Item : Conducted Emission Test
Power Line : Line 1
Test Mode : Mode 4: Transmit (802.11ac-80BW-65Mbps)(5G Band)(Dipole Antenna) (5210MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBµV	dBµV	dB	dBµV
LINE 1					
Quasi-Peak					
0.162	9.790	49.590	59.380	-6.277	65.657
0.193	9.790	44.770	54.560	-10.211	64.771
0.248	9.790	36.530	46.320	-16.880	63.200
0.306	9.790	30.110	39.900	-21.643	61.543
0.662	9.790	34.680	44.470	-11.530	56.000
0.689	9.790	29.810	39.600	-16.400	56.000
Average					
0.162	9.790	35.800	45.590	-10.067	55.657
0.193	9.790	31.440	41.230	-13.541	54.771
0.248	9.790	23.060	32.850	-20.350	53.200
0.306	9.790	16.530	26.320	-25.223	51.543
0.662	9.790	25.410	35.200	-10.800	46.000
0.689	9.790	20.520	30.310	-15.690	46.000

Note:

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

Product : 802.11 ac PCIe Module
Test Item : Conducted Emission Test
Power Line : Line 2
Test Mode : Mode 4: Transmit (802.11ac-80BW-65Mbps)(5G Band)(Dipole Antenna) (5210MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBµV	dBµV	dB	dBµV
LINE 2					
Quasi-Peak					
0.166	9.770	47.070	56.840	-8.703	65.543
0.197	9.770	43.030	52.800	-11.857	64.657
0.228	9.770	38.990	48.760	-15.011	63.771
0.275	9.770	32.520	42.290	-20.139	62.429
0.334	9.770	25.360	35.130	-25.613	60.743
0.666	9.770	26.900	36.670	-19.330	56.000
Average					
0.166	9.770	32.600	42.370	-13.173	55.543
0.197	9.770	29.730	39.500	-15.157	54.657
0.228	9.770	25.700	35.470	-18.301	53.771
0.275	9.770	20.130	29.900	-22.529	52.429
0.334	9.770	12.540	22.310	-28.433	50.743
0.666	9.770	18.890	28.660	-17.340	46.000

Note:

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

Product : 802.11 ac PCIe Module
Test Item : Conducted Emission Test
Power Line : Line 1
Test Mode : Mode 8: Transmit (802.11ac-80BW_65Mbps)(5G Band)(Grid DISH Antenna) (5210MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBµV	dBµV	dB	dBµV
LINE 1					
Quasi-Peak					
0.173	9.790	48.300	58.090	-7.253	65.343
0.189	9.790	43.900	53.690	-11.196	64.886
0.216	9.790	41.510	51.300	-12.814	64.114
0.248	9.790	36.530	46.320	-16.880	63.200
0.306	9.790	29.670	39.460	-22.083	61.543
0.662	9.790	26.020	35.810	-20.190	56.000
Average					
0.173	9.790	36.020	45.810	-9.533	55.343
0.189	9.790	28.840	38.630	-16.256	54.886
0.216	9.790	28.920	38.710	-15.404	54.114
0.248	9.790	23.450	33.240	-19.960	53.200
0.306	9.790	16.740	26.530	-25.013	51.543
0.662	9.790	14.620	24.410	-21.590	46.000

Note:

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

Product : 802.11 ac PCIe Module
Test Item : Conducted Emission Test
Power Line : Line 2
Test Mode : Mode 8: Transmit (802.11ac-80BW_65Mbps)(5G Band)(Grid DISH Antenna) (5210MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBµV	dBµV	dB	dBµV
LINE 2					
Quasi-Peak					
0.158	9.770	48.430	58.200	-7.571	65.771
0.166	9.770	49.550	59.320	-6.223	65.543
0.197	9.770	43.090	52.860	-11.797	64.657
0.236	9.770	37.180	46.950	-16.593	63.543
0.275	9.770	32.050	41.820	-20.609	62.429
0.709	9.773	27.880	37.653	-18.347	56.000
Average					
0.158	9.770	34.910	44.680	-11.091	55.771
0.166	9.770	37.380	47.150	-8.393	55.543
0.197	9.770	29.170	38.940	-15.717	54.657
0.236	9.770	24.350	34.120	-19.423	53.543
0.275	9.770	20.050	29.820	-22.609	52.429
0.709	9.773	19.550	29.323	-16.677	46.000

Note:

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

Product : 802.11 ac PCIe Module
Test Item : Conducted Emission Test
Power Line : Line 1
Test Mode : Mode 12: Transmit (802.11ac-80BW_65Mbps)(5G Band)(Omni Antenna) (5210MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBµV	dBµV	dB	dBµV
LINE 1					
Quasi-Peak					
0.162	9.790	47.800	57.590	-8.067	65.657
0.173	9.790	48.320	58.110	-7.233	65.343
0.216	9.790	41.810	51.600	-12.514	64.114
0.275	9.790	32.170	41.960	-20.469	62.429
0.314	9.790	27.740	37.530	-23.784	61.314
0.673	9.790	26.420	36.210	-19.790	56.000
Average					
0.162	9.790	33.130	42.920	-12.737	55.657
0.173	9.790	35.650	45.440	-9.903	55.343
0.216	9.790	28.970	38.760	-15.354	54.114
0.275	9.790	19.890	29.680	-22.749	52.429
0.314	9.790	15.080	24.870	-26.444	51.314
0.673	9.790	15.270	25.060	-20.940	46.000

Note:

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

Product : 802.11 ac PCIe Module
Test Item : Conducted Emission Test
Power Line : Line 2
Test Mode : Mode 12: Transmit (802.11ac-80BW_65Mbps)(5G Band)(Omni Antenna) (5210MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBµV	dBµV	dB	dBµV
LINE 2					
Quasi-Peak					
0.166	9.770	49.590	59.360	-6.183	65.543
0.205	9.770	42.910	52.680	-11.749	64.429
0.224	9.770	37.840	47.610	-16.276	63.886
0.287	9.770	31.830	41.600	-20.486	62.086
0.330	9.770	26.170	35.940	-24.917	60.857
0.713	9.775	26.100	35.875	-20.125	56.000
Average					
0.166	9.770	37.540	47.310	-8.233	55.543
0.205	9.770	30.120	39.890	-14.539	54.429
0.224	9.770	24.320	34.090	-19.796	53.886
0.287	9.770	19.180	28.950	-23.136	52.086
0.330	9.770	13.600	23.370	-27.487	50.857
0.713	9.775	16.250	26.025	-19.975	46.000

Note:

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

Product : 802.11 ac PCIe Module
Test Item : Conducted Emission Test
Power Line : Line 1
Test Mode : Mode 16: Transmit (802.11ac-80BW_65Mbps)(5G Band)(Panel Antenna) (5210MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBµV	dBµV	dB	dBµV
LINE 1					
Quasi-Peak					
0.166	9.790	47.960	57.750	-7.793	65.543
0.205	9.790	42.080	51.870	-12.559	64.429
0.259	9.790	35.840	45.630	-17.256	62.886
0.298	9.790	30.330	40.120	-21.651	61.771
0.709	9.790	28.450	38.240	-17.760	56.000
0.736	9.790	24.050	33.840	-22.160	56.000
Average					
0.166	9.790	34.480	44.270	-11.273	55.543
0.205	9.790	27.920	37.710	-16.719	54.429
0.259	9.790	23.500	33.290	-19.596	52.886
0.298	9.790	17.860	27.650	-24.121	51.771
0.709	9.790	20.380	30.170	-15.830	46.000
0.736	9.790	15.360	25.150	-20.850	46.000

Note:

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

Product : 802.11 ac PCIe Module
Test Item : Conducted Emission Test
Power Line : Line 2
Test Mode : Mode 16: Transmit (802.11ac-80BW_65Mbps)(5G Band)(Panel Antenna) (5210MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBµV	dBµV	dB	dBµV
LINE 2					
Quasi-Peak					
0.162	9.770	49.420	59.190	-6.467	65.657
0.205	9.770	42.750	52.520	-11.909	64.429
0.236	9.770	36.810	46.580	-16.963	63.543
0.283	9.770	32.300	42.070	-20.130	62.200
0.322	9.770	27.270	37.040	-24.046	61.086
0.713	9.775	28.110	37.885	-18.115	56.000
Average					
0.162	9.770	37.380	47.150	-8.507	55.657
0.205	9.770	30.200	39.970	-14.459	54.429
0.236	9.770	24.220	33.990	-19.553	53.543
0.283	9.770	19.510	29.280	-22.920	52.200
0.322	9.770	14.410	24.180	-26.906	51.086
0.713	9.775	17.620	27.395	-18.605	46.000

Note:

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

Product : 802.11 ac PCIe Module
Test Item : Conducted Emission Test
Power Line : Line 1
Test Mode : Mode 20: Transmit (802.11ac-80BW_65Mbps)(5G Band)(Sector Antenna) (5210MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBµV	dBµV	dB	dBµV
LINE 1					
Quasi-Peak					
0.166	9.790	47.960	57.750	-7.793	65.543
0.205	9.790	42.080	51.870	-12.559	64.429
0.259	9.790	35.840	45.630	-17.256	62.886
0.298	9.790	30.330	40.120	-21.651	61.771
0.709	9.790	28.450	38.240	-17.760	56.000
0.736	9.790	24.050	33.840	-22.160	56.000
Average					
0.166	9.790	34.480	44.270	-11.273	55.543
0.205	9.790	27.920	37.710	-16.719	54.429
0.259	9.790	23.500	33.290	-19.596	52.886
0.298	9.790	17.860	27.650	-24.121	51.771
0.709	9.790	20.380	30.170	-15.830	46.000
0.736	9.790	15.360	25.150	-20.850	46.000

Note:

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

Product : 802.11 ac PCIe Module
Test Item : Conducted Emission Test
Power Line : Line 2
Test Mode : Mode 20: Transmit (802.11ac-80BW_65Mbps)(5G Band)(Sector Antenna) (5210MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBµV	dBµV	dB	dBµV
LINE 2					
Quasi-Peak					
0.162	9.770	49.420	59.190	-6.467	65.657
0.205	9.770	42.750	52.520	-11.909	64.429
0.236	9.770	36.810	46.580	-16.963	63.543
0.283	9.770	32.300	42.070	-20.130	62.200
0.322	9.770	27.270	37.040	-24.046	61.086
0.713	9.775	28.110	37.885	-18.115	56.000
Average					
0.162	9.770	37.380	47.150	-8.507	55.657
0.205	9.770	30.200	39.970	-14.459	54.429
0.236	9.770	24.220	33.990	-19.553	53.543
0.283	9.770	19.510	29.280	-22.920	52.200
0.322	9.770	14.410	24.180	-26.906	51.086
0.713	9.775	17.620	27.395	-18.605	46.000

Note:

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

3. Maximun conducted output power

3.1. Test Equipment

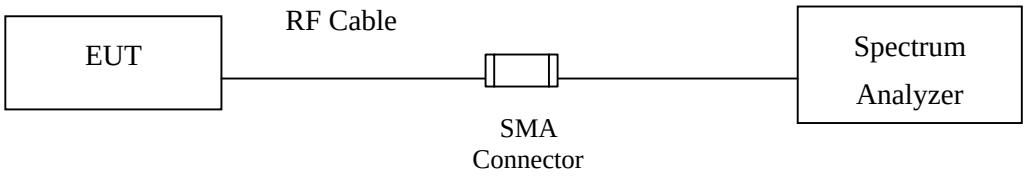
	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Power Meter	Anritsu	ML2495A/6K00003357	May, 2015
X	Power Sensor	Anritsu	MA2411B/0738448	Jun., 2015
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2015

Note:

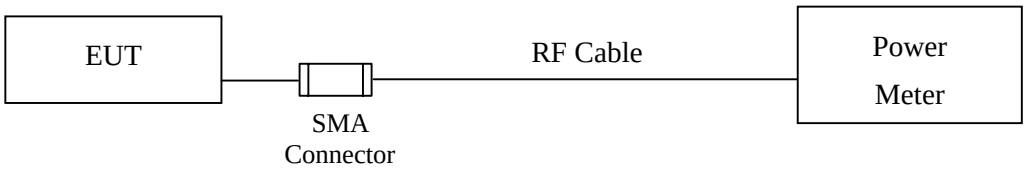
1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
2. The test instruments marked with "X" are used to measure the final test results.

3.2. Test Setup

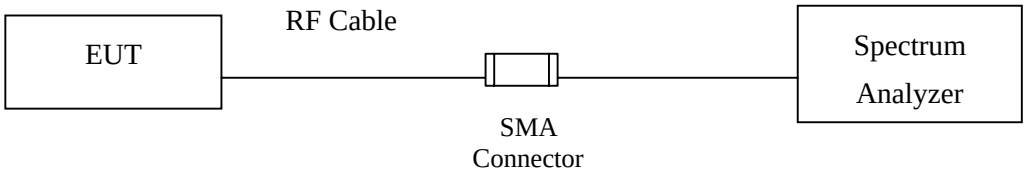
26dBc Occupied Bandwidth



Conduction Power Measurement (for 802.11an)



Conduction Power Measurement (for 802.11ac)



3.3. Limits

3.3.1. For the band 5.15-5.25 GHz,

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

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

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-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.

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

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

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

3.4. Test Procedure

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 the 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 : 802.11 ac PCIe Module
Test Item : Maximum conducted output power
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps)(Dipole Antanna)

CHAIN A

Cable loss=1dB		Maximum conducted output power								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		6	9	12	18	24	36	48	54	
		Measurement Level (dBm)								
36	5180	12.46	12.31	12.18	12.04	11.9	11.77	11.71	11.59	<30dBm
44	5220	12.05	--	--	--	--	--	--	--	<30dBm
48	5240	12.28	--	--	--	--	--	--	--	<30dBm

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

CHAIN B

Cable loss=1dB		Maximum conducted output power								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		6	9	12	18	24	36	48	54	
		Measurement Level (dBm)								
36	5180	12.14	12	11.88	11.75	11.59	11.49	11.4	11.35	<30dBm
44	5220	11.95	--	--	--	--	--	--	--	<30dBm
48	5240	11.97	--	--	--	--	--	--	--	<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)
36	5180	12.46	12.14	15.31	30
44	5220	12.05	11.95	15.01	30
48	5240	12.28	11.97	15.14	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 : 802.11 ac PCIe Module
Test Item : Maximum conducted output power
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW 14.4Mbps)(5G Band)(Dipole Antenna)

CHAIN A

Cable loss=1dB		Maximum conducted output power								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		14.4	28.9	43.3	57.8	86.7	115.6	130	144.4	
		Measurement Level (dBm)								
36	5180	12.45	12.27	12.11	11.95	11.77	11.61	11.54	11.46	<30dBm
44	5220	11.82	--	--	--	--	--	--	--	<30dBm
48	5240	12.05	--	--	--	--	--	--	--	<30dBm

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

CHAIN B

Cable loss=1dB		Maximum conducted output power								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		14.4	28.9	43.3	57.8	86.7	115.6	130	144.4	
		Measurement Level (dBm)								
36	5180	12.14	11.98	11.82	11.66	11.51	11.37	11.25	11.15	<30dBm
44	5220	11.75	--	--	--	--	--	--	--	<30dBm
48	5240	11.97	--	--	--	--	--	--	--	<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)
36	5180	12.45	12.14	15.31	30
44	5220	11.82	11.75	14.80	30
48	5240	12.05	11.97	15.02	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 : 802.11 ac PCIe Module
Test Item : Maximum conducted output power
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit (802.11n-40BW 30Mbps)(5G Band)(Dipole Antenna)

CHAIN A

Cable loss=1dB		Maximum conducted output power								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		30	60	90	120	180	240	270	300	
		Measurement Level (dBm)								
38	5190	11.82	--	--	--	--	--	--	--	<30dBm
46	5230	12.29	12.16	12.01	11.84	11.7	11.55	11.38	11.35	<30dBm

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

CHAIN B

Cable loss=1dB		Maximum conducted output power								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		30	60	90	120	180	240	270	300	
		Measurement Level (dBm)								
38	5190	11.63	--	--	--	--	--	--	--	<30dBm
46	5230	12.02	11.87	11.73	11.54	11.3	11.08	10.93	10.8	<30dBm

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

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

Channel Number	Frequency (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	Output Power Limit (dBm)
38	5190	11.82	11.63	14.74	30
46	5230	12.29	12.02	15.17	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 : 802.11 ac PCIe Module
Test Item : Maximum conducted output power
Test Site : No.3 OATS
Test Mode : Mode 4: Transmit (802.11ac-80BW-65Mbps)(5G Band)(Dipole Antenna)

Chain A

Cable loss=1dB		Maximum conducted output power										
Channel No	Frequency (MHz)	Data Rate (Mbps)										Required Limit
		VTH0	VTH1	VTH2	VTH3	VTH4	VTH5	VTH6	VTH7	VTH8	VTH9	
42	5210	11.02	10.98	10.92	10.87	10.81	10.78	10.71	10.69	10.61	10.54	<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
		VTH0	VTH1	VTH2	VTH3	VTH4	VTH5	VTH6	VTH7	VTH8	VTH9	
42	5210	11.26	11.2	11.14	11.11	11.05	10.98	10.92	10.87	10.81	10.74	<30dBm

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

Maximum conducted output power Measurement:

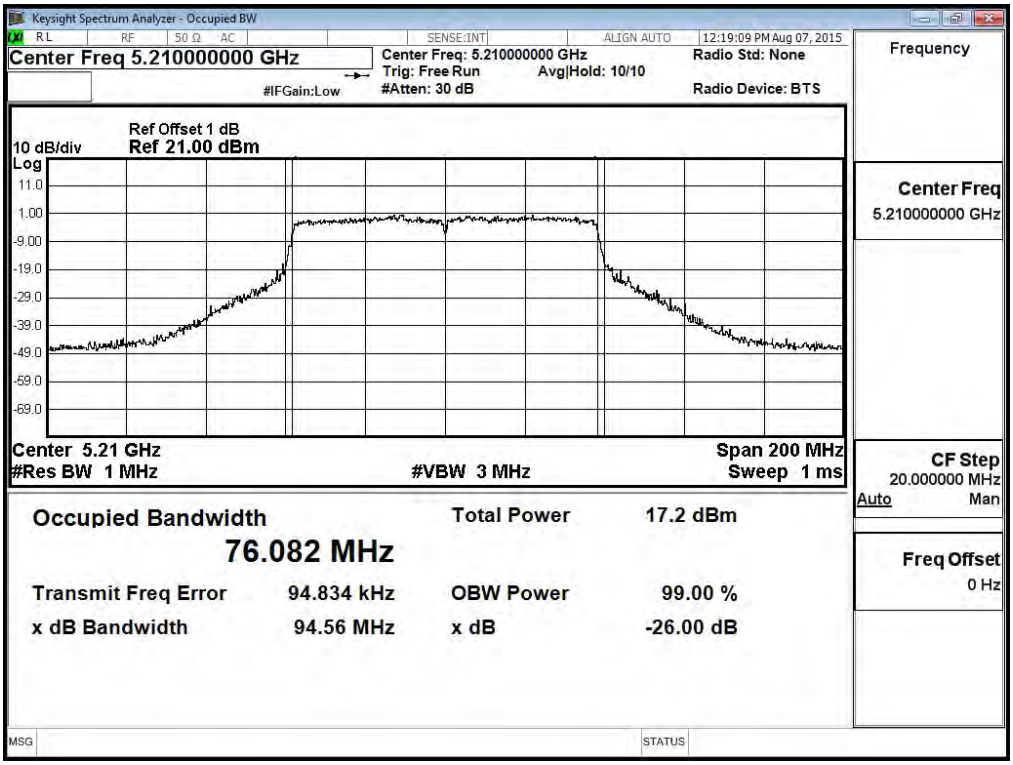
Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	Output Power Limit (dBm)	Result
42	5210	76.082	11.02	11.26	14.15	30	Pass

Note:

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

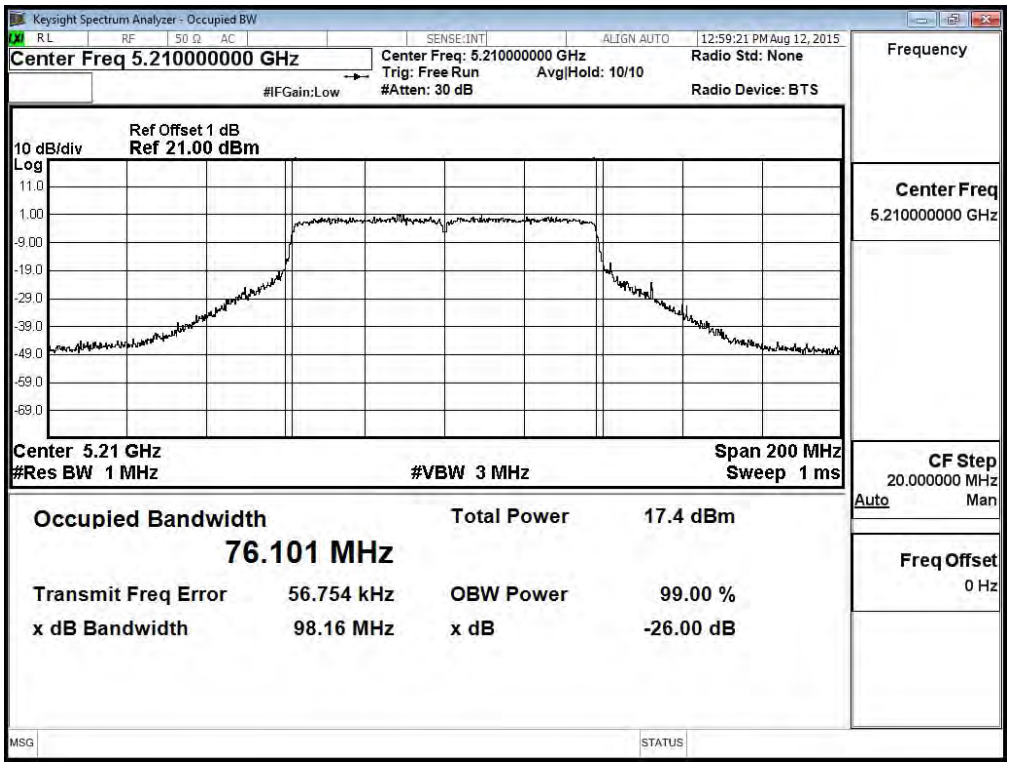
26dBc Occupied Bandwidth:

Channel 42 – Chain A



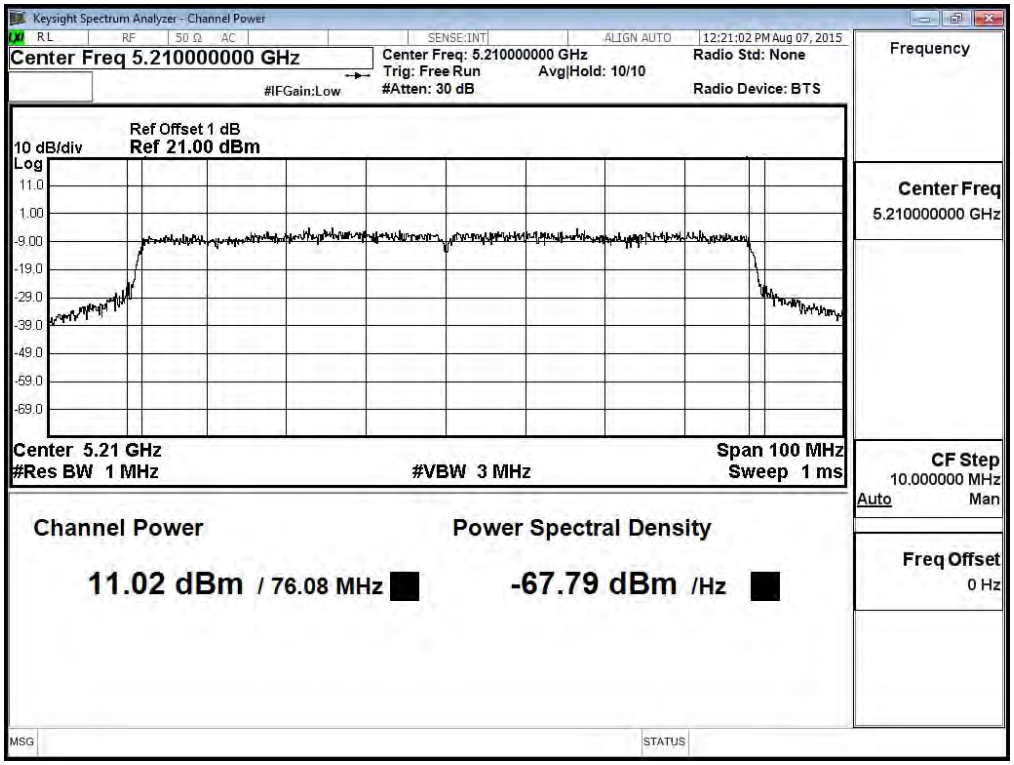
26dBc Occupied Bandwidth:

Channel 42 – Chain B



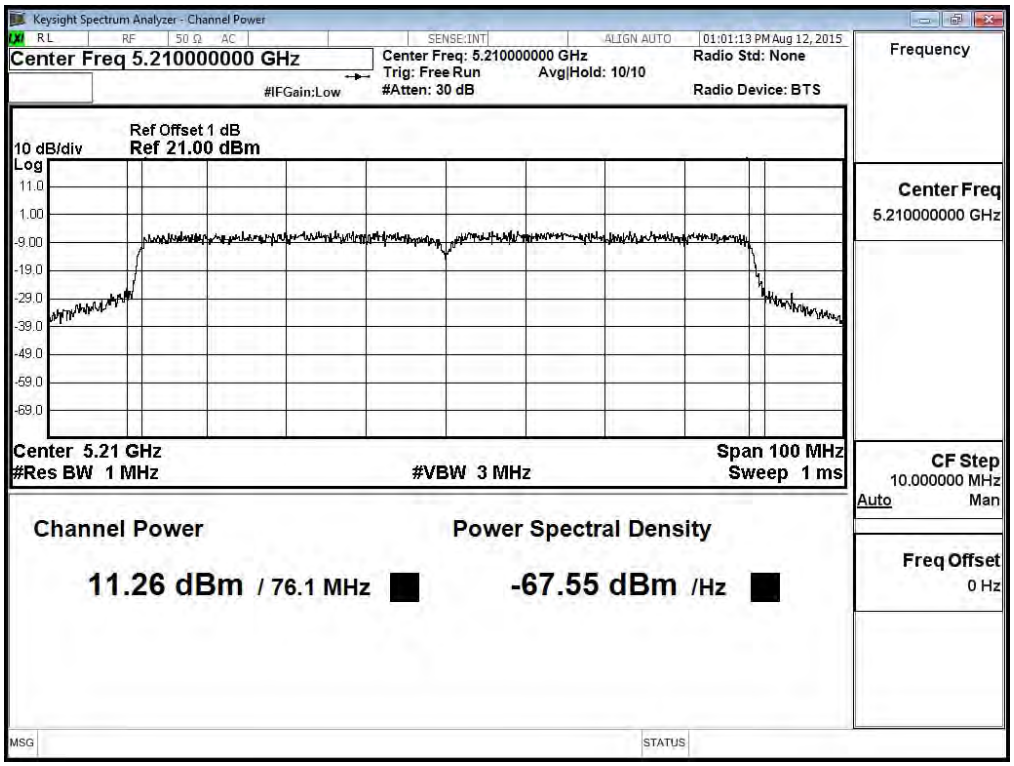
Maximum conducted output power:

Channel 42 – Chain A



Maximum conducted output power:

Channel 42 – Chain B



Product : 802.11 ac PCIe Module
Test Item : Maximum conducted output power
Test Site : No.3 OATS
Test Mode : Mode 5: Transmit (802.11a_6Mbps)(Grid DISH Antenna)

CHAIN A

Cable loss=1dB		Maximum conducted output power								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		6	9	12	18	24	36	48	54	
		Measurement Level (dBm)								
36	5180	13.38	--	--	--	--	--	--	--	<19.5dBm
44	5220	14.37	--	--	--	--	--	--	--	<19.5dBm
48	5240	14.66	14.52	14.34	14.15	14.02	13.99	13.94	13.87	<19.5dBm

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

CHAIN B

Cable loss=1dB		Maximum conducted output power								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		6	9	12	18	24	36	48	54	
		Measurement Level (dBm)								
36	5180	12.77	--	--	--	--	--	--	--	<19.5dBm
44	5220	14.45	14.31	14.15	13.96	13.82	13.78	13.72	13.63	<19.5dBm
48	5240	14.28	--	--	--	--	--	--	--	<19.5dBm

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

Maximum conducted output power Measurement:

(CHAIN A+ B)

Channel Number	Frequency (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	Output Power Limit (dBm)
36	5180	13.38	12.77	16.10	19.5
44	5220	14.37	14.45	17.42	19.5
48	5240	14.66	14.28	17.48	19.5

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 : 802.11 ac PCIe Module
Test Item : Maximum conducted output power
Test Site : No.3 OATS
Test Mode : Mode 6: Transmit (802.11n-20BW_14.4Mbps)(5G Band)(Grid DISH Antenna)

CHAIN A

Cable loss=1dB		Maximum conducted output power								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		14.4	28.9	43.3	57.8	86.7	115.6	130	144.4	
		Measurement Level (dBm)								
36	5180	12.69	--	--	--	--	--	--	--	<19.5dBm
44	5220	14.21	14.06	13.97	13.78	13.59	13.47	13.42	13.38	<19.5dBm
48	5240	13.96	--	--	--	--	--	--	--	<19.5dBm

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

CHAIN B

Cable loss=1dB		Maximum conducted output power								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		14.4	28.9	43.3	57.8	86.7	115.6	130	144.4	
		Measurement Level (dBm)								
36	5180	12.75	--	--	--	--	--	--	--	<19.5dBm
44	5220	13.94	13.88	13.75	13.64	13.52	13.38	13.23	13.11	<19.5dBm
48	5240	13.72	--	--	--	--	--	--	--	<19.5dBm

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

Maximum conducted output power Measurement:

(CHAIN A+ B)

Channel Number	Frequency (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	Output Power Limit (dBm)
36	5180	12.69	12.75	15.73	19.5
44	5220	14.21	13.94	17.09	19.5
48	5240	13.96	13.72	16.85	19.5

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 : 802.11 ac PCIe Module
Test Item : Maximum conducted output power
Test Site : No.3 OATS
Test Mode : Mode 7: Transmit (802.11n-40BW_30Mbps)(5G Band)(Grid DISH Antenna)

CHAIN A

Cable loss=1dB		Maximum conducted output power								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		30	60	90	120	180	240	270	300	
		Measurement Level (dBm)								
38	5190	10.79	--	--	--	--	--	--	--	<19.5dBm
46	5230	13.97	13.85	13.72	13.59	13.45	13.33	13.22	13.08	<19.5dBm

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

CHAIN B

Cable loss=1dB		Maximum conducted output power								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		30	60	90	120	180	240	270	300	
		Measurement Level (dBm)								
38	5190	10.93	--	--	--	--	--	--	--	<19.5dBm
46	5230	13.54	13.42	13.28	13.16	13.05	13.01	12.92	12.86	<19.5dBm

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

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

Channel Number	Frequency (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	Output Power Limit (dBm)
38	5190	10.79	10.93	13.87	19.5
46	5230	13.97	13.54	16.77	19.5

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 : 802.11 ac PCIe Module
Test Item : Maximum conducted output power
Test Site : No.3 OATS
Test Mode : Mode 8: Transmit (802.11ac-80BW_65Mbps)(5G Band)(Grid DISH Antenna)

Chain A

Cable loss=1dB		Maximum conducted output power										
Channel No	Frequency (MHz)	Data Rate (Mbps)										Required Limit
		VTH0	VTH1	VTH2	VTH3	VTH4	VTH5	VTH6	VTH7	VTH8	VTH9	
42	5210	1.52	1.45	1.39	1.33	1.29	1.25	1.19	1.14	1.09	1.01	<19.5dBm

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

Chain B

Cable loss=1dB		Maximum conducted output power										
Channel No	Frequency (MHz)	Data Rate (Mbps)										Required Limit
		VTH0	VTH1	VTH2	VTH3	VTH4	VTH5	VTH6	VTH7	VTH8	VTH9	
42	5210	2.5	2.45	2.43	2.39	2.31	2.28	2.22	2.18	2.12	1.99	<19.5dBm

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

Maximum conducted output power Measurement:

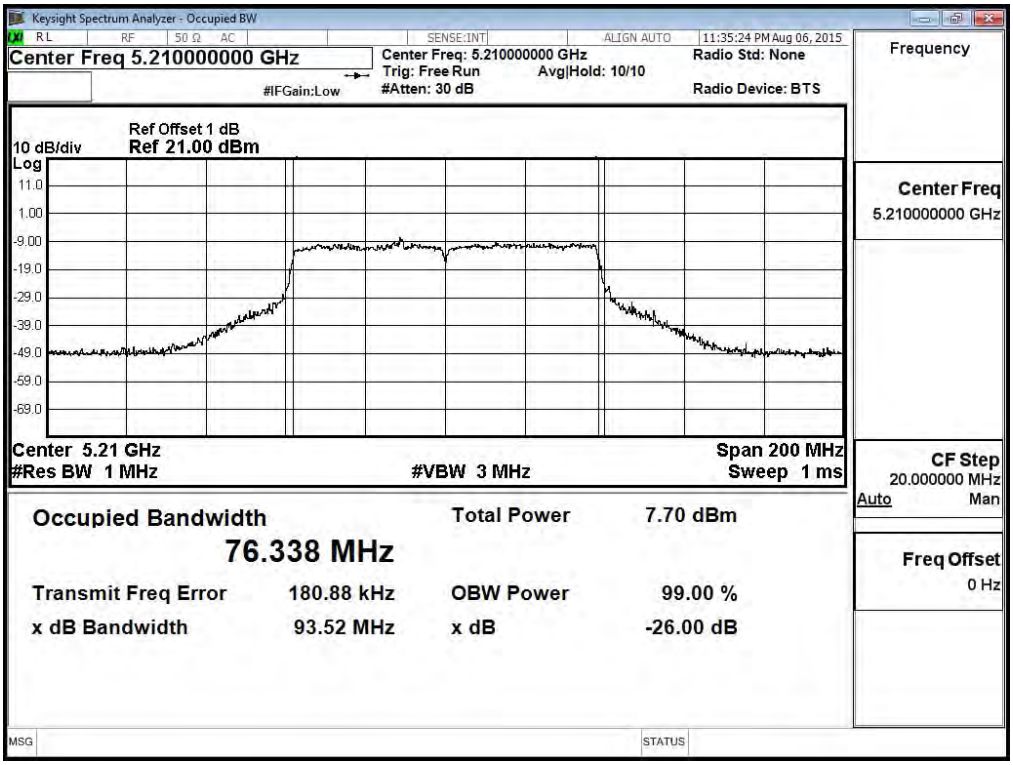
Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	Output Power Limit (dBm)	Result
42	5210	76.232	1.52	2.50	5.05	19.5	Pass

Note:

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

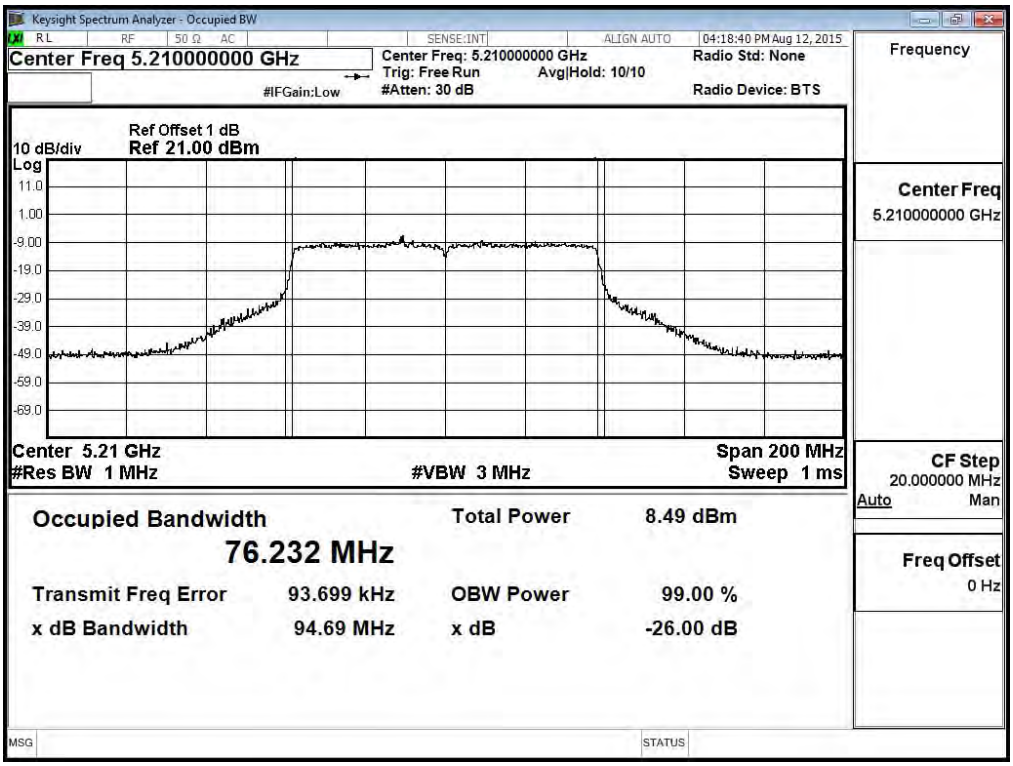
26dBc Occupied Bandwidth:

Channel 42 – Chain A



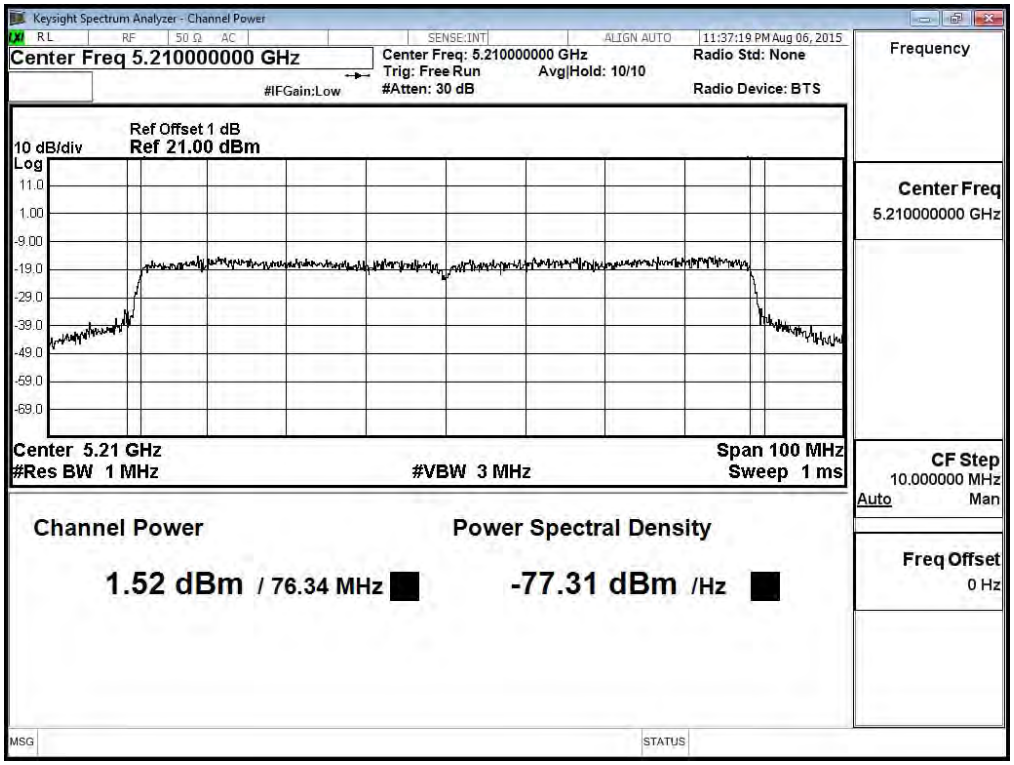
26dBc Occupied Bandwidth:

Channel 42 – Chain B



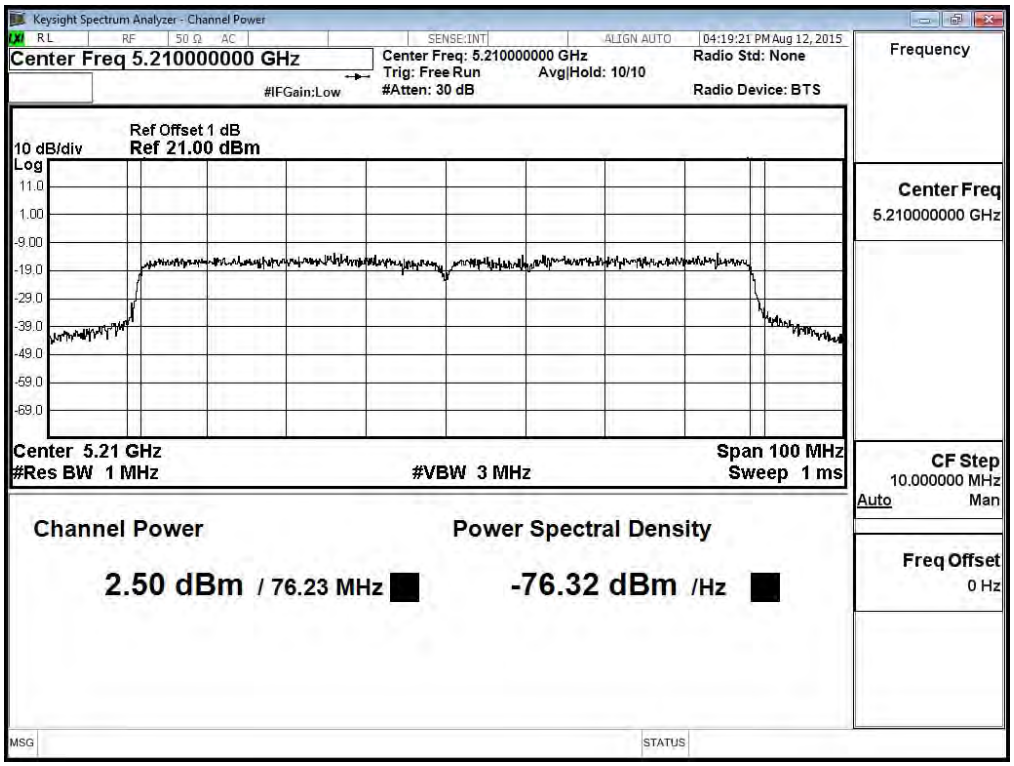
Maximum conducted output power:

Channel 42 – Chain A



Maximum conducted output power:

Channel 42 – Chain B



Product : 802.11 ac PCIe Module
Test Item : Maximum conducted output power
Test Site : No.3 OATS
Test Mode : Mode 9: Transmit (802.11a_6Mbps)(Omni Antenna)

CHAIN A

Cable loss=1dB		Maximum conducted output power								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		6	9	12	18	24	36	48	54	
		Measurement Level (dBm)								
36	5180	18.96	--	--	--	--	--	--	--	<26dBm
44	5220	20.12	--	--	--	--	--	--	--	<26dBm
48	5240	20.21	20.1	19.95	19.78	19.6	19.52	19.38	19.26	<26dBm

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

CHAIN B

Cable loss=1dB		Maximum conducted output power								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		6	9	12	18	24	36	48	54	
		Measurement Level (dBm)								
36	5180	18.98	--	--	--	--	--	--	--	<26dBm
44	5220	20.62	--	--	--	--	--	--	--	<26dBm
48	5240	20.74	20.55	20.43	20.29	20.15	19.92	19.79	19.65	<26dBm

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

Maximum conducted output power Measurement:

(CHAIN A+ B)

Channel Number	Frequency (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	Output Power Limit (dBm)
36	5180	18.96	18.98	21.98	26
44	5220	20.12	20.62	23.39	26
48	5240	20.21	20.74	23.49	26

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 : 802.11 ac PCIe Module
Test Item : Maximum conducted output power
Test Site : No.3 OATS
Test Mode : Mode 10: Transmit (802.11n-20BW_14.4Mbps)(5G Band)(Omni Antenna)

CHAIN A

Cable loss=1dB		Maximum conducted output power								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		14.4	28.9	43.3	57.8	86.7	115.6	130	144.4	
		Measurement Level (dBm)								
36	5180	18.76	--	--	--	--	--	--	--	<26dBm
44	5220	20.32	20.2	20.09	19.97	19.86	19.75	19.66	19.57	<26dBm
48	5240	20.29	--	--	--	--	--	--	--	<26dBm

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

CHAIN B

Cable loss=1dB		Maximum conducted output power								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		14.4	28.9	43.3	57.8	86.7	115.6	130	144.4	
		Measurement Level (dBm)								
36	5180	18.83	--	--	--	--	--	--	--	<26dBm
44	5220	20.47	20.35	20.24	20.11	20.04	19.89	19.83	19.69	<26dBm
48	5240	20.36	--	--	--	--	--	--	--	<26dBm

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

Maximum conducted output power Measurement:

(CHAIN A+ B)

Channel Number	Frequency (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	Output Power Limit (dBm)
36	5180	18.76	18.83	21.81	26
44	5220	20.32	20.47	23.41	26
48	5240	20.29	20.36	23.34	26

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 : 802.11 ac PCIe Module
Test Item : Maximum conducted output power
Test Site : No.3 OATS
Test Mode : Mode 11: Transmit (802.11n-40BW_30Mbps)(5G Band)(Omni Antenna)

CHAIN A

Cable loss=1dB		Maximum conducted output power								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		30	60	90	120	180	240	270	300	
		Measurement Level (dBm)								
38	5190	17.61	--	--	--	--	--	--	--	<26dBm
46	5230	20.45	20.3	20.19	20.05	19.96	19.83	19.74	19.69	<26dBm

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

CHAIN B

Cable loss=1dB		Maximum conducted output power								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		30	60	90	120	180	240	270	300	
		Measurement Level (dBm)								
38	5190	17.48	--	--	--	--	--	--	--	<26dBm
46	5230	19.85	19.73	19.6	19.47	19.35	19.24	19.11	19.06	<26dBm

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

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

Channel Number	Frequency (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	Output Power Limit (dBm)
38	5190	17.61	17.48	20.56	26
46	5230	20.45	19.85	23.17	26

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 : 802.11 ac PCIe Module
Test Item : Maximum conducted output power
Test Site : No.3 OATS
Test Mode : Mode 12: Transmit (802.11ac-80BW_65Mbps)(5G Band)(Omni Antenna)

Chain A

Cable loss=1dB		Maximum conducted output power										
Channel No	Frequency (MHz)	Data Rate (Mbps)										Required Limit
		VTH0	VTH1	VTH2	VTH3	VTH4	VTH5	VTH6	VTH7	VTH8	VTH9	
42	5210	9.99	9.91	9.84	9.76	9.69	9.63	9.59	9.52	9.48	9.44	<26dBm

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

Chain B

Cable loss=1dB		Maximum conducted output power										
Channel No	Frequency (MHz)	Data Rate (Mbps)										Required Limit
		VTH0	VTH1	VTH2	VTH3	VTH4	VTH5	VTH6	VTH7	VTH8	VTH9	
42	5210	10.08	10.01	9.95	9.87	9.78	9.72	9.68	9.64	9.62	9.58	<26dBm

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

Maximum conducted output power Measurement:

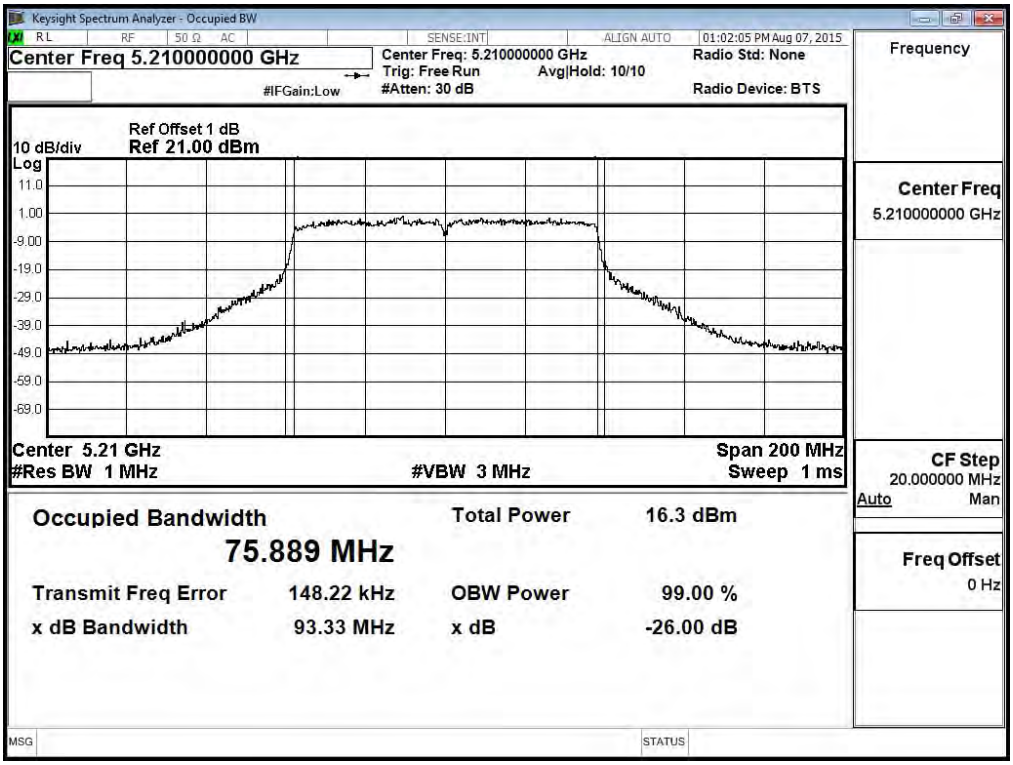
Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	Output Power Limit (dBm)	Result
42	5210	75.889	9.99	10.08	13.05	26	Pass

Note:

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

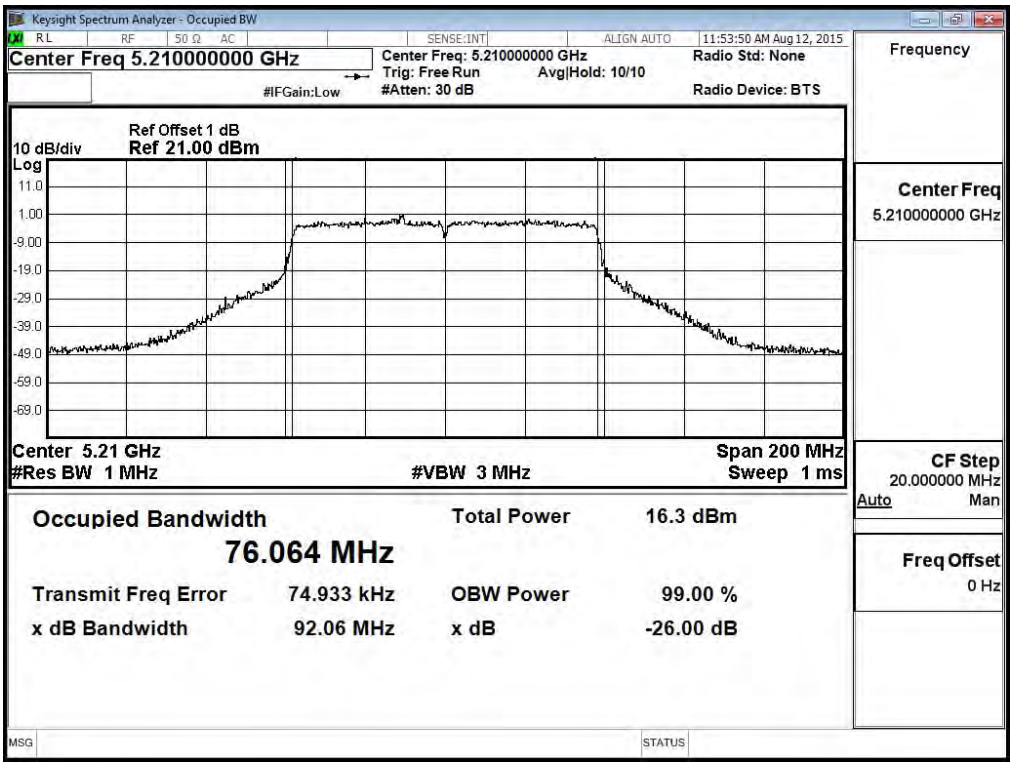
26dBc Occupied Bandwidth:

Channel 42 – Chain A



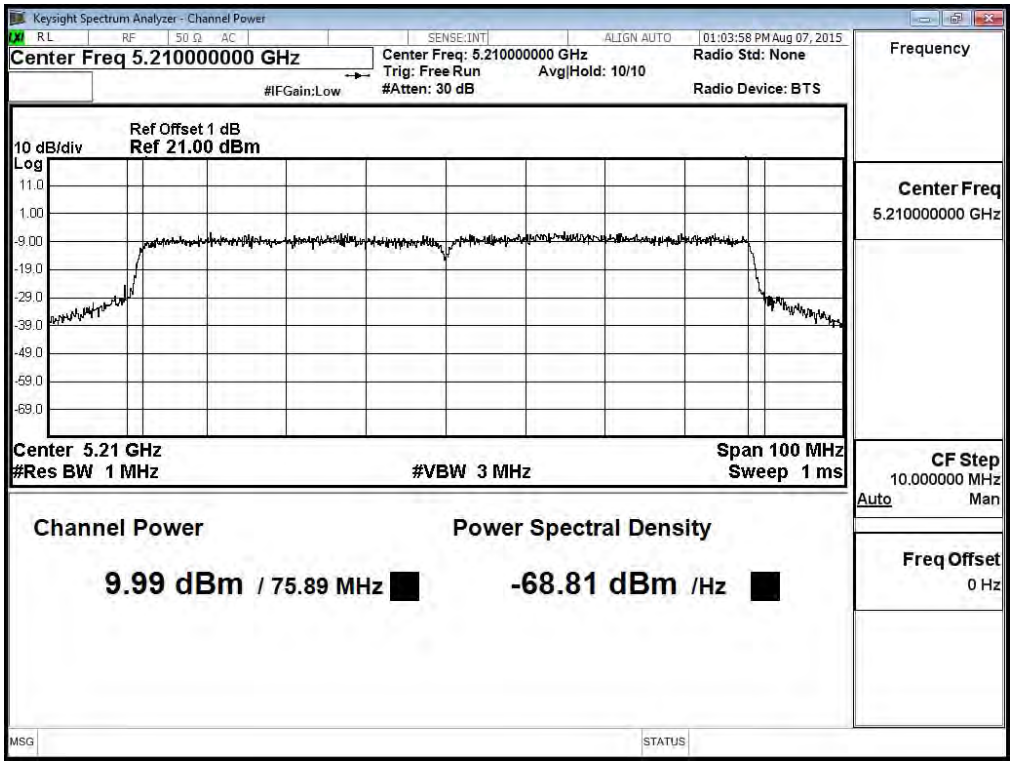
26dBc Occupied Bandwidth:

Channel 42 – Chain B



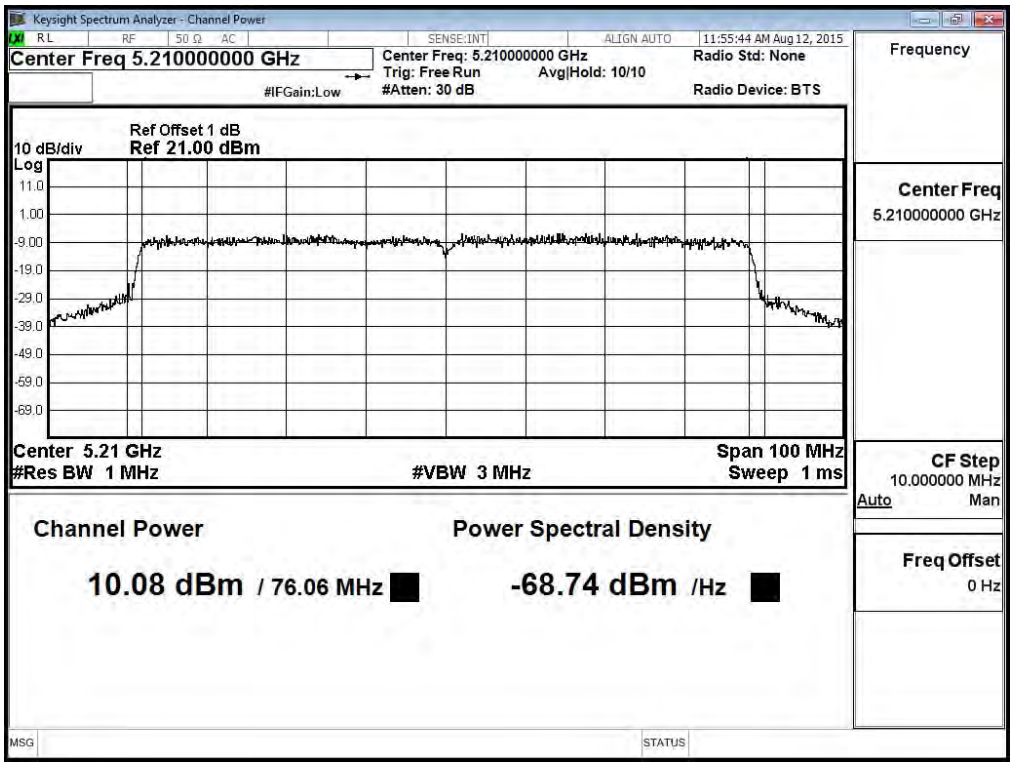
Maximum conducted output power:

Channel 42 – Chain A



Maximum conducted output power:

Channel 42 – Chain B



Product : 802.11 ac PCIe Module
Test Item : Maximum conducted output power
Test Site : No.3 OATS
Test Mode : Mode 13: Transmit (802.11a_6Mbps)(Panel Antenna)

CHAIN A

Cable loss=1dB		Maximum conducted output power								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		6	9	12	18	24	36	48	54	
		Measurement Level (dBm)								
36	5180	12.97	--	--	--	--	--	--	--	<23dBm
44	5220	13.1	--	--	--	--	--	--	--	<23dBm
48	5240	13.25	13.09	12.96	12.81	12.65	12.52	12.35	12.24	<23dBm

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

CHAIN B

Cable loss=1dB		Maximum conducted output power								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		6	9	12	18	24	36	48	54	
		Measurement Level (dBm)								
36	5180	12.77	--	--	--	--	--	--	--	<23dBm
44	5220	13.02	--	--	--	--	--	--	--	<23dBm
48	5240	13.05	12.91	12.74	12.6	12.44	12.3	12.14	11.97	<23dBm

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

Maximum conducted output power Measurement:

(CHAIN A+ B)

Channel Number	Frequency (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	Output Power Limit (dBm)
36	5180	12.97	12.77	15.88	23
44	5220	13.10	13.02	16.07	23
48	5240	13.25	13.05	16.16	23

Note:

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

Product : 802.11 ac PCIe Module
Test Item : Maximum conducted output power
Test Site : No.3 OATS
Test Mode : Mode 14: Transmit (802.11n-20BW_14.4Mbps)(5G Band)(Panel Antenna)

CHAIN A

Cable loss=1dB		Maximum conducted output power								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		14.4	28.9	43.3	57.8	86.7	115.6	130	144.4	
		Measurement Level (dBm)								
36	5180	12.73	--	--	--	--	--	--	--	<23dBm
44	5220	13.11	--	--	--	--	--	--	--	<23dBm
48	5240	13.12	12.93	12.82	12.7	12.56	12.49	12.39	12.29	<23dBm

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

CHAIN B

Cable loss=1dB		Maximum conducted output power								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		14.4	28.9	43.3	57.8	86.7	115.6	130	144.4	
		Measurement Level (dBm)								
36	5180	12.78	--	--	--	--	--	--	--	<23dBm
44	5220	12.63	--	--	--	--	--	--	--	<23dBm
48	5240	13.05	12.88	12.77	12.65	12.52	12.37	12.31	12.24	<23dBm

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

Maximum conducted output power Measurement:

(CHAIN A+ B)

Channel Number	Frequency (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	Output Power Limit (dBm)
36	5180	12.73	12.78	15.77	23
44	5220	13.11	12.63	15.89	23
48	5240	13.12	13.05	16.10	23

Note:

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

Product : 802.11 ac PCIe Module
Test Item : Maximum conducted output power
Test Site : No.3 OATS
Test Mode : Mode 15: Transmit (802.11n-40BW_30Mbps)(5G Band)(Panel Antenna)

CHAIN A

Cable loss=1dB		Maximum conducted output power								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		30	60	90	120	180	240	270	300	
		Measurement Level (dBm)								
38	5190	10.26	--	--	--	--	--	--	--	<23dBm
46	5230	13.32	13.22	13.09	12.96	12.85	12.72	12.64	12.5	<23dBm

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

CHAIN B

Cable loss=1dB		Maximum conducted output power								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		30	60	90	120	180	240	270	300	
		Measurement Level (dBm)								
38	5190	10.42	--	--	--	--	--	--	--	<23dBm
46	5230	12.98	12.89	12.81	12.68	12.55	12.41	12.32	12.21	<23dBm

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

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

Channel Number	Frequency (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	Output Power Limit (dBm)
38	5190	10.26	10.42	13.35	23
46	5230	13.32	12.98	16.16	23

Note:

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

Product : 802.11 ac PCIe Module
Test Item : Maximum conducted output power
Test Site : No.3 OATS
Test Mode : Mode 16: Transmit (802.11ac-80BW_65Mbps)(5G Band)(Panel Antenna)

Chain A

Cable loss=1dB		Maximum conducted output power										
Channel No	Frequency (MHz)	Data Rate (Mbps)										Required Limit
		VTH0	VTH1	VTH2	VTH3	VTH4	VTH5	VTH6	VTH7	VTH8	VTH9	
42	5210	2.45	2.41	2.37	2.33	2.29	2.24	2.18	2.13	2.08	1.96	<23dBm

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

Chain B

Cable loss=1dB		Maximum conducted output power										
Channel No	Frequency (MHz)	Data Rate (Mbps)										Required Limit
		VTH0	VTH1	VTH2	VTH3	VTH4	VTH5	VTH6	VTH7	VTH8	VTH9	
42	5210	3.33	3.28	3.22	3.17	3.12	3.06	3.01	2.98	2.92	2.86	<23dBm

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

Maximum conducted output power Measurement:

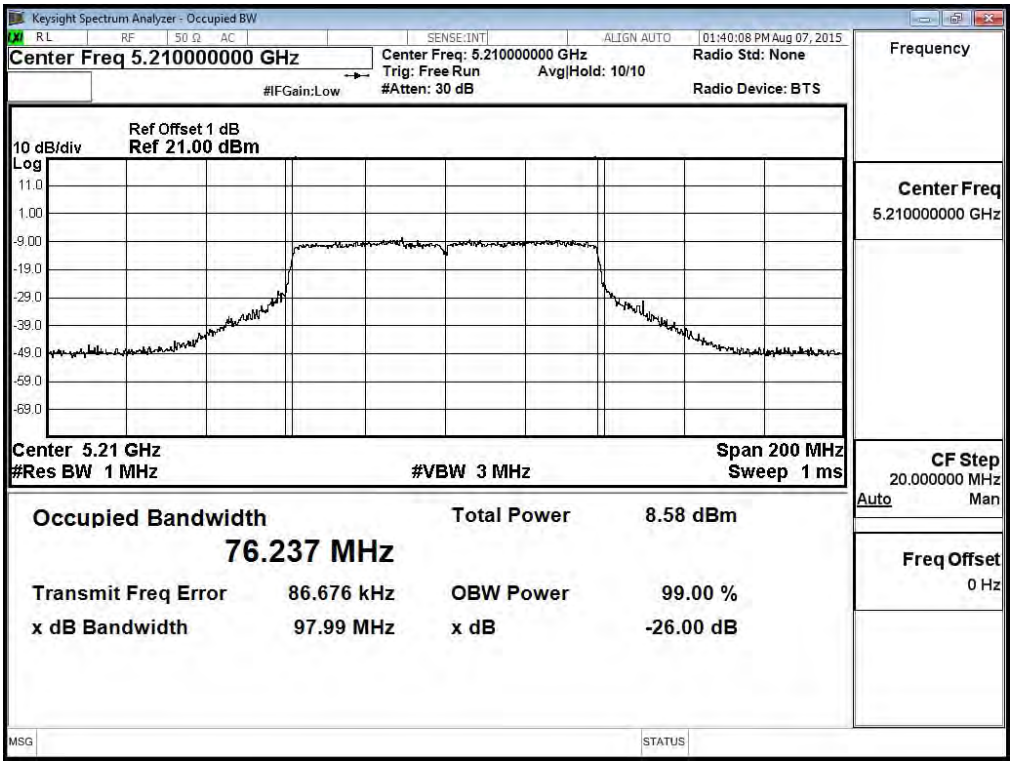
Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	Output Power Limit (dBm)	Result
42	5210	76.237	2.45	3.33	5.92	23	Pass

Note:

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

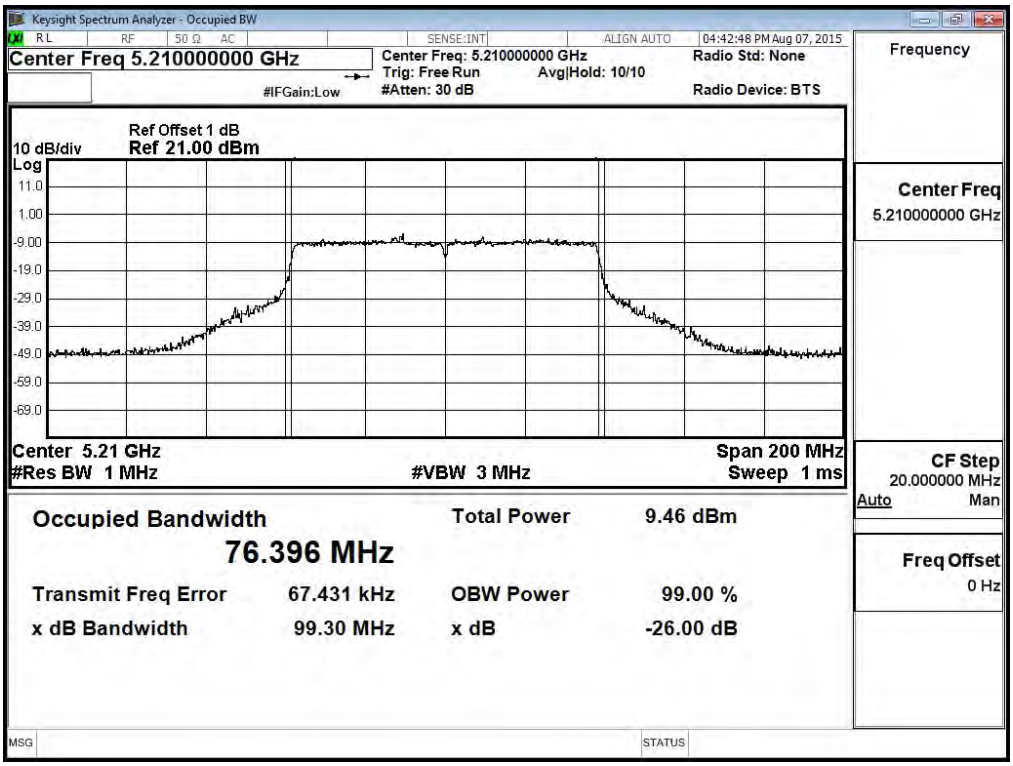
26dBc Occupied Bandwidth:

Channel 42 – Chain A



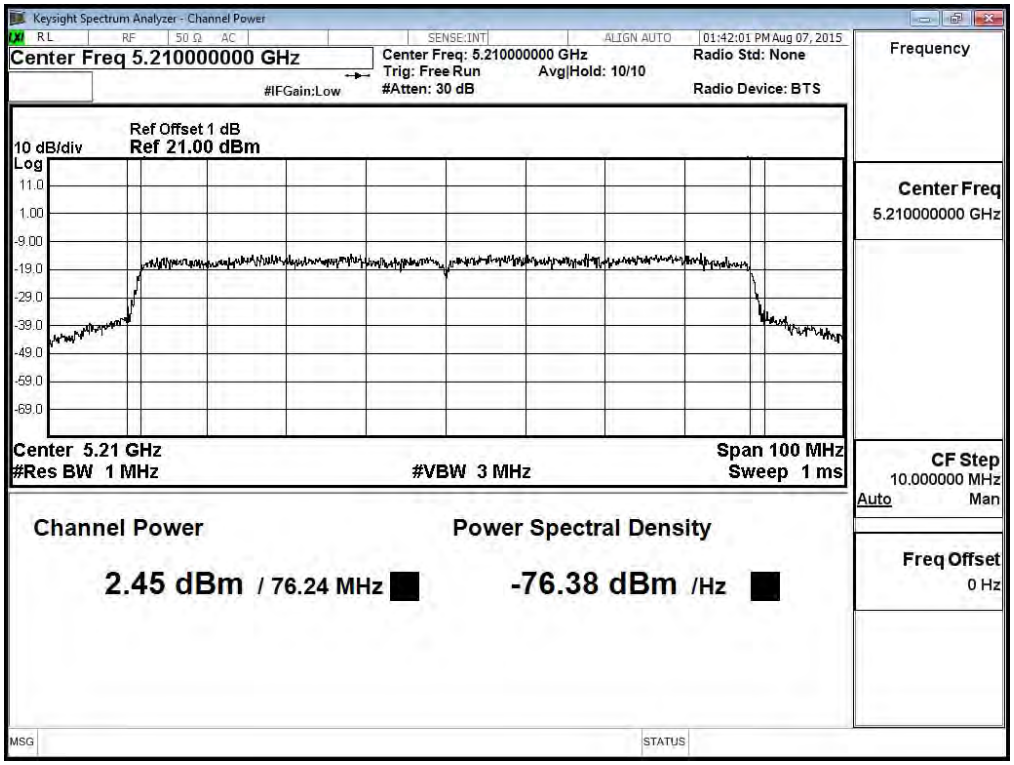
26dBc Occupied Bandwidth:

Channel 42 – Chain B



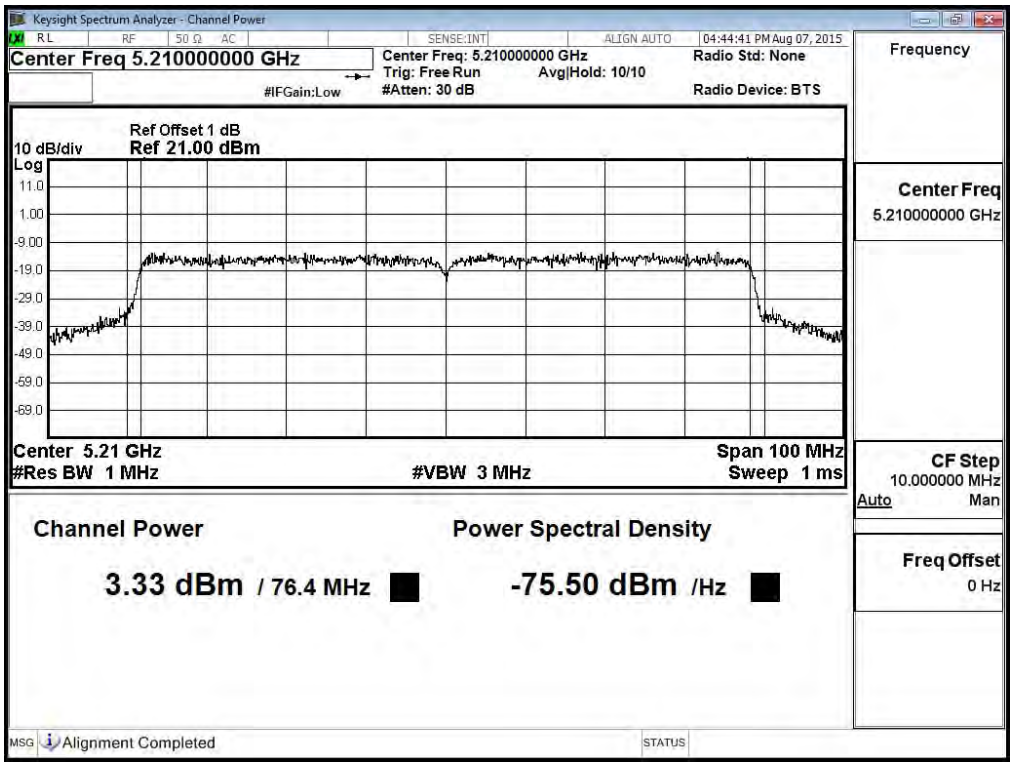
Maximum conducted output power:

Channel 42 – Chain A



Maximum conducted output power:

Channel 42 – Chain B



Product : 802.11 ac PCIe Module
Test Item : Maximum conducted output power
Test Site : No.3 OATS
Test Mode : Mode 17: Transmit (802.11a_6Mbps)(Sector Antenna)

CHAIN A

Cable loss=1dB		Maximum conducted output power								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		6	9	12	18	24	36	48	54	
		Measurement Level (dBm)								
36	5180	11.57	--	--	--	--	--	--	--	<30dBm
44	5220	18.58	--	--	--	--	--	--	--	<30dBm
48	5240	18.74	18.59	18.46	18.32	18.18	18.05	17.99	17.87	<30dBm

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

CHAIN B

Cable loss=1dB		Maximum conducted output power								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		6	9	12	18	24	36	48	54	
		Measurement Level (dBm)								
36	5180	11.41	--	--	--	--	--	--	--	<30dBm
44	5220	18.5	--	--	--	--	--	--	--	<30dBm
48	5240	18.59	18.45	18.33	18.2	18.04	17.94	17.85	17.8	<30dBm

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

Maximum conducted output power Measurement:

(CHAIN A+ B)

Channel Number	Frequency (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	Output Power Limit (dBm)
36	5180	11.57	11.41	14.50	30
44	5220	18.58	18.50	21.55	30
48	5240	18.74	18.59	21.68	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 : 802.11 ac PCIe Module
Test Item : Maximum conducted output power
Test Site : No.3 OATS
Test Mode : Mode 18: Transmit (802.11n-20BW_14.4Mbps)(5G Band)(Sector Antenna)

CHAIN A

Cable loss=1dB		Maximum conducted output power								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		14.4	28.9	43.3	57.8	86.7	115.6	130	144.4	
		Measurement Level (dBm)								
36	5180	11.24	--	--	--	--	--	--	--	<30dBm
44	5220	18.59	--	--	--	--	--	--	--	<30dBm
48	5240	18.71	18.53	18.37	18.21	18.03	17.87	17.8	17.72	<30dBm

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

CHAIN B

Cable loss=1dB		Maximum conducted output power								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		14.4	28.9	43.3	57.8	86.7	115.6	130	144.4	
		Measurement Level (dBm)								
36	5180	11.29	--	--	--	--	--	--	--	<30dBm
44	5220	18.34	--	--	--	--	--	--	--	<30dBm
48	5240	18.37	18.21	18.05	17.89	17.74	17.6	17.48	17.38	<30dBm

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

Maximum conducted output power Measurement:

(CHAIN A+ B)

Channel Number	Frequency (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	Output Power Limit (dBm)
36	5180	11.24	11.29	14.28	30
44	5220	18.59	18.34	21.48	30
48	5240	18.71	18.37	21.55	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 : 802.11 ac PCIe Module
Test Item : Maximum conducted output power
Test Site : No.3 OATS
Test Mode : Mode 19: Transmit (802.11n-40BW_30Mbps)(5G Band)(Sector Antenna)

CHAIN A

Cable loss=1dB		Maximum conducted output power								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		30	60	90	120	180	240	270	300	
		Measurement Level (dBm)								
38	5190	9.29	--	--	--	--	--	--	--	<30dBm
46	5230	18.98	18.85	18.7	18.53	18.39	18.24	18.07	18.04	<30dBm

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

CHAIN B

Cable loss=1dB		Maximum conducted output power								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								Required Limit
		30	60	90	120	180	240	270	300	
		Measurement Level (dBm)								
38	5190	9.43	--	--	--	--	--	--	--	<30dBm
46	5230	18.46	18.31	18.17	17.98	17.74	17.52	17.37	17.24	<30dBm

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

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

Channel Number	Frequency (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	Output Power Limit (dBm)
38	5190	9.29	9.43	12.37	30
46	5230	18.98	18.46	21.74	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 : 802.11 ac PCIe Module
Test Item : Maximum conducted output power
Test Site : No.3 OATS
Test Mode : Mode 20: Transmit (802.11ac-80BW_65Mbps)(5G Band)(Sector Antenna)

Chain A

Cable loss=1dB		Maximum conducted output power										
Channel No	Frequency (MHz)	Data Rate (Mbps)										Required Limit
		VTH0	VTH1	VTH2	VTH3	VTH4	VTH5	VTH6	VTH7	VTH8	VTH9	
42	5210	1.67	1.64	1.6	1.58	1.54	1.49	1.42	1.34	1.29	1.21	<30dBm

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

Chain B

Cable loss=1dB		Maximum conducted output power										
Channel No	Frequency (MHz)	Data Rate (Mbps)										Required Limit
		VTH0	VTH1	VTH2	VTH3	VTH4	VTH5	VTH6	VTH7	VTH8	VTH9	
42	5210	2.27	2.22	2.18	2.15	2.11	2.07	2.04	1.99	1.91	1.88	<30dBm

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

Maximum conducted output power Measurement:

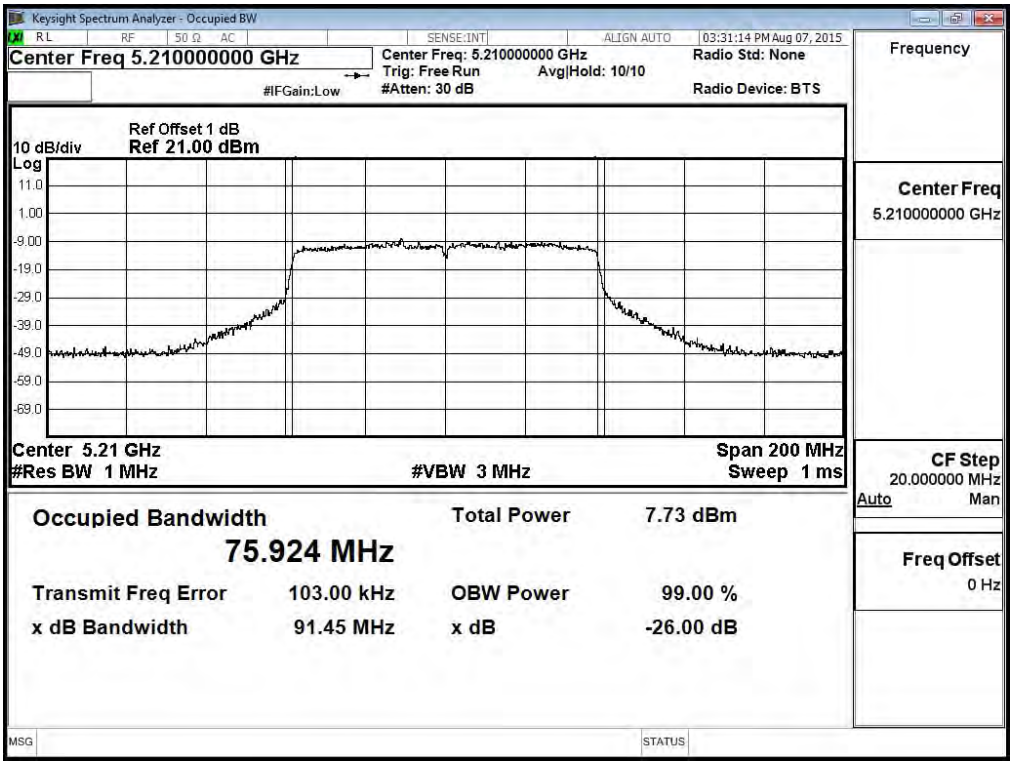
Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	Output Power Limit (dBm)	Result
42	5210	75.924	1.67	2.27	4.99	30	Pass

Note:

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

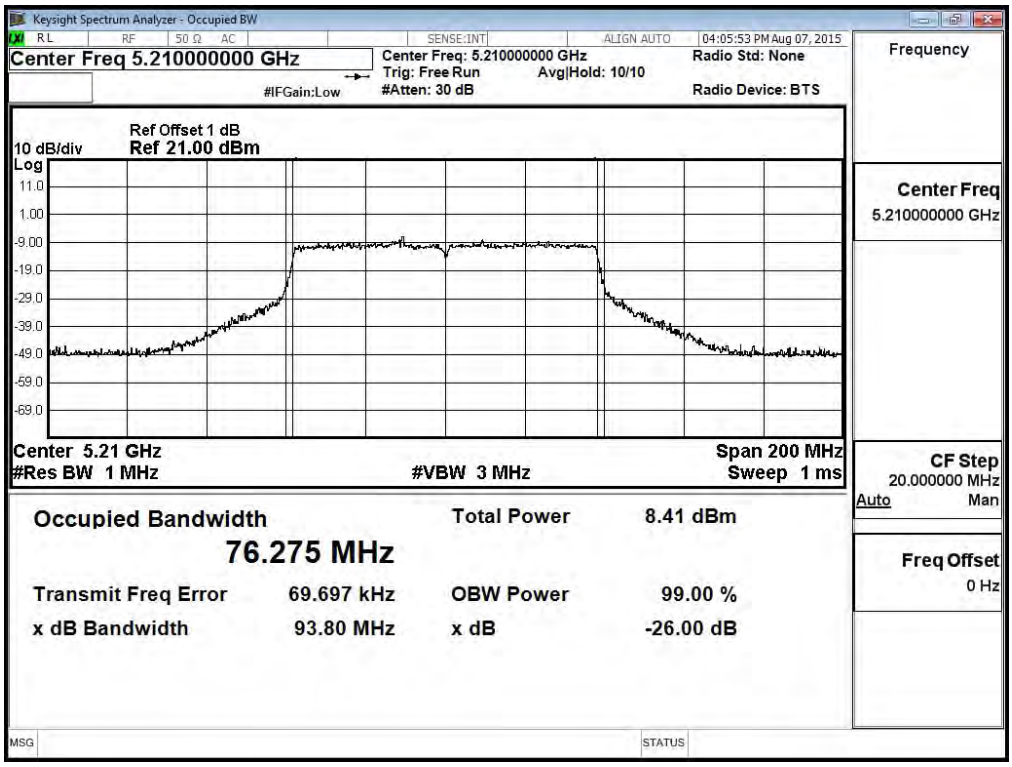
26dBc Occupied Bandwidth:

Channel 42 – Chain A



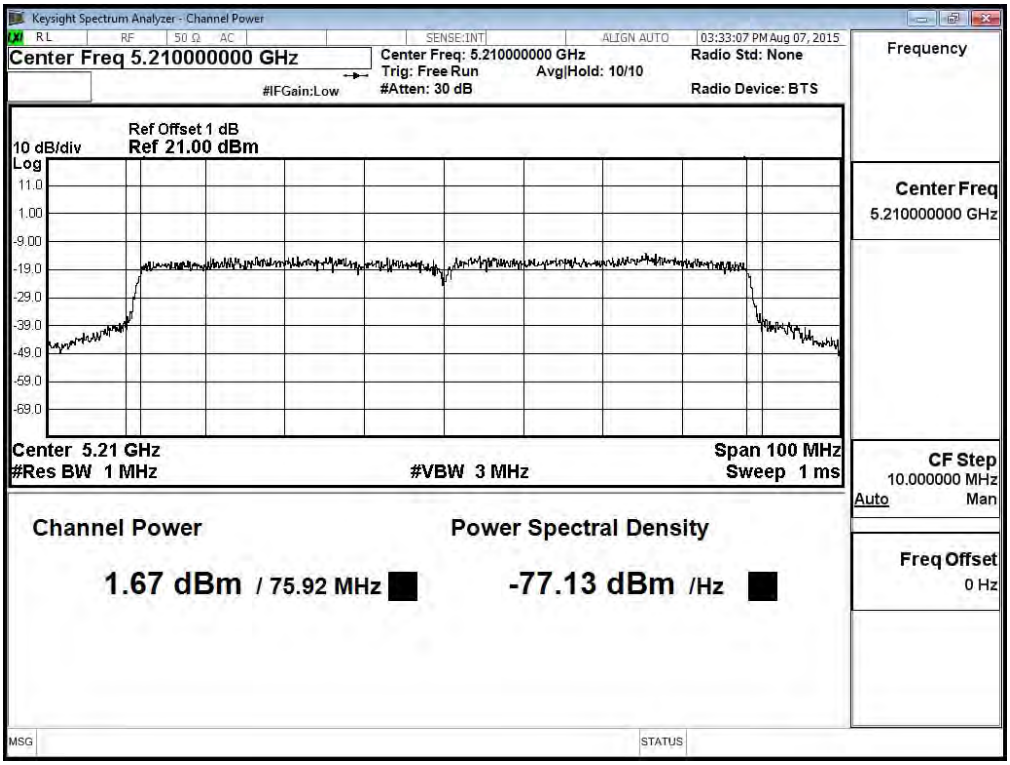
26dBc Occupied Bandwidth:

Channel 42 – Chain B



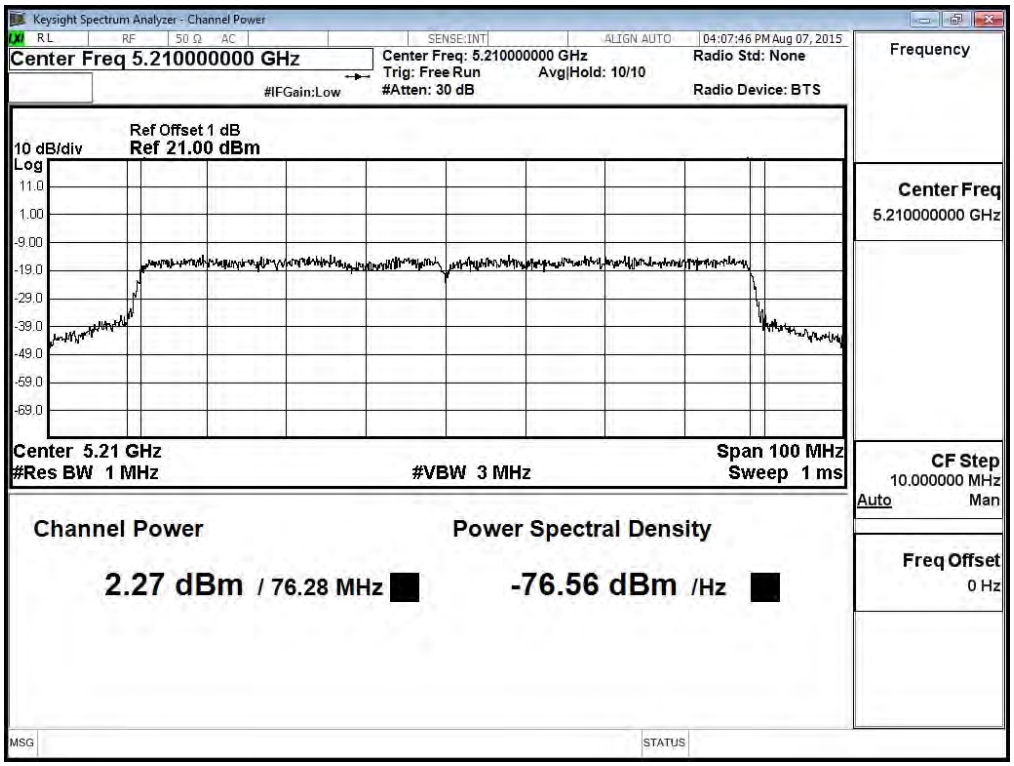
Maximum conducted output power:

Channel 42 – Chain A



Maximum conducted output power:

Channel 42 – Chain B



4. Peak Power Spectral Density

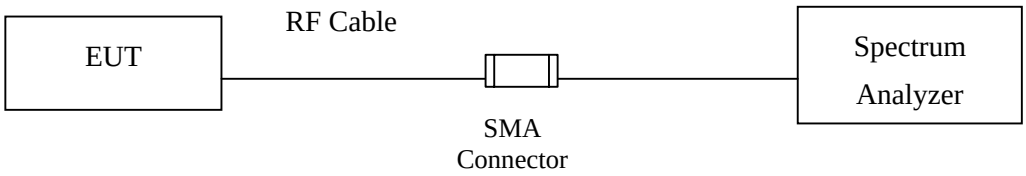
4.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun., 2015
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun., 2015
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr, 2015

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, 2013; tested to UNII test procedure of FCC KDB-789033 for compliance to FCC 47CFR Subpart E requirements.
The Peak Power Spectral Density using KDB 789033 section F) procedure, Create an average power spectrum for the EUT operating mode being tested by following the instructions in section E)2) for measuring maximum conducted output power using a spectrum analyzer.
SA-1 method is selected to run the test.
For the band 5.725-5.85 GHz, Scale the observed power level to an equivalent value in 500 kHz by adjusting (increase) the measured power by a bandwidth correction factor (BWCF) where BWCF = 10log (500 kHz/100 kHz) = 6.98 dB.

4.5. Uncertainty

± 1.27 dB

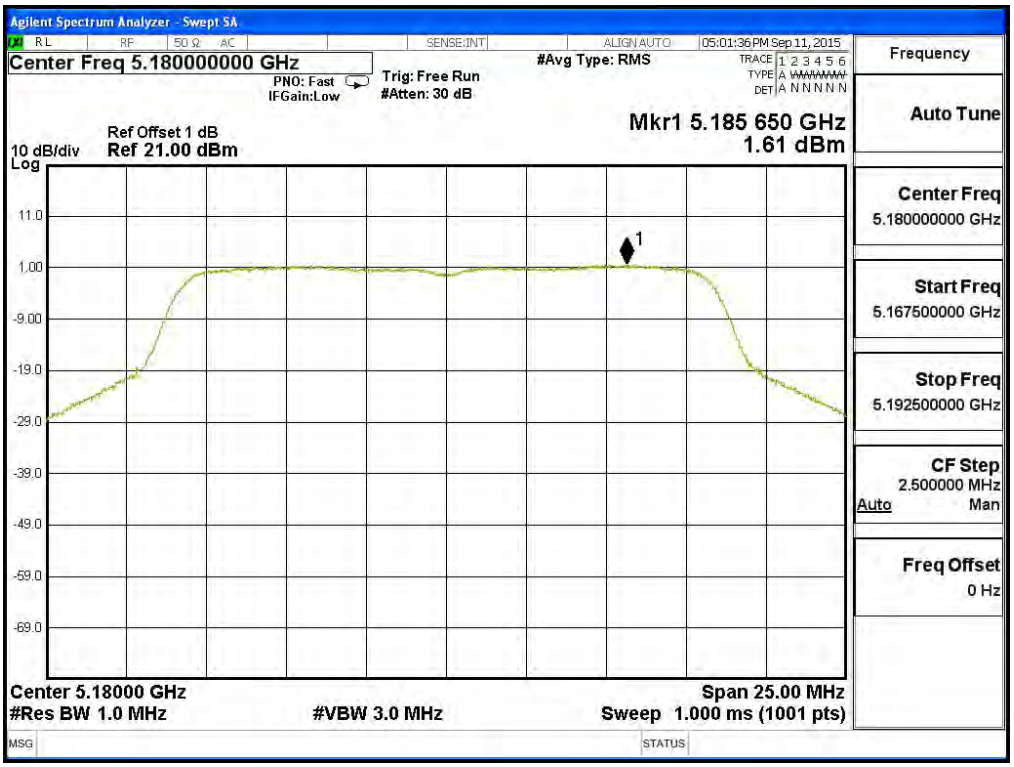
4.6. Test Result of Peak Power Spectral Density

Product : 802.11 ac PCIe Module
Test Item : Peak Power Spectral Density
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps)(Dipole Antanna)

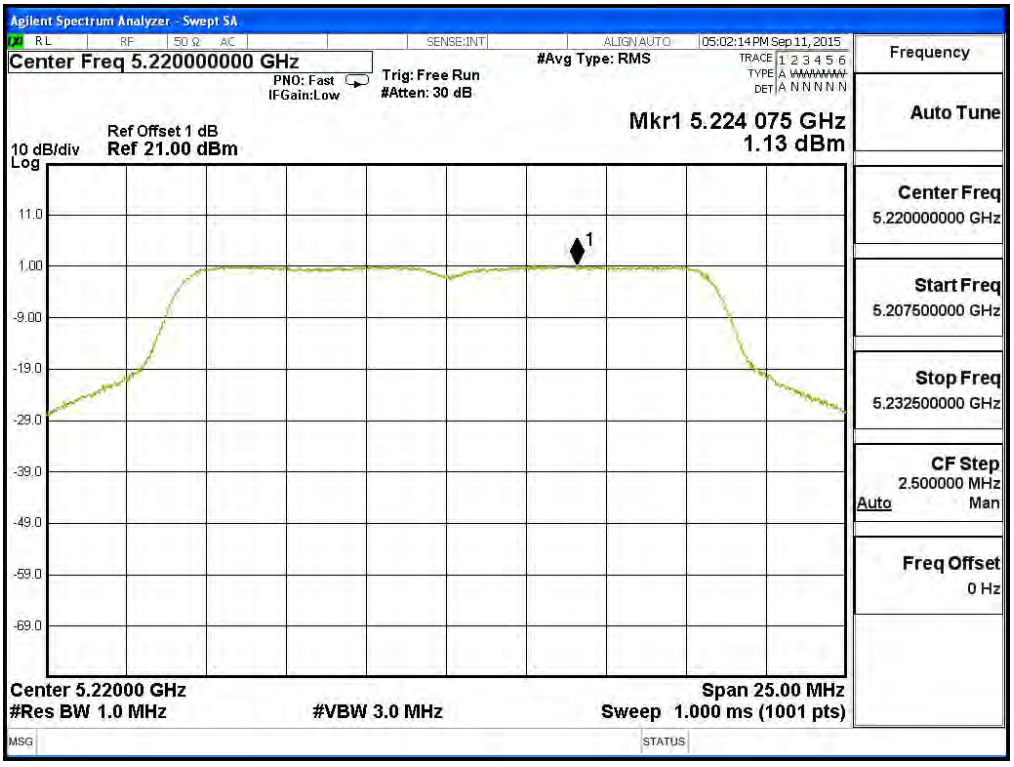
Channel Number	Frequency (MHz)	Chain	PPSD (dBm)	Total PPSD (dBm)1	Required Limit (dBm)	Result
36	5180	A	1.605	4.615	17	Pass
		B	1.090	4.100	17	Pass
44	5220	A	1.132	4.142	17	Pass
		B	0.639	3.649	17	Pass
48	5240	A	0.587	3.597	17	Pass
		B	0.592	3.602	17	Pass

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

Channel 36 – Chain A

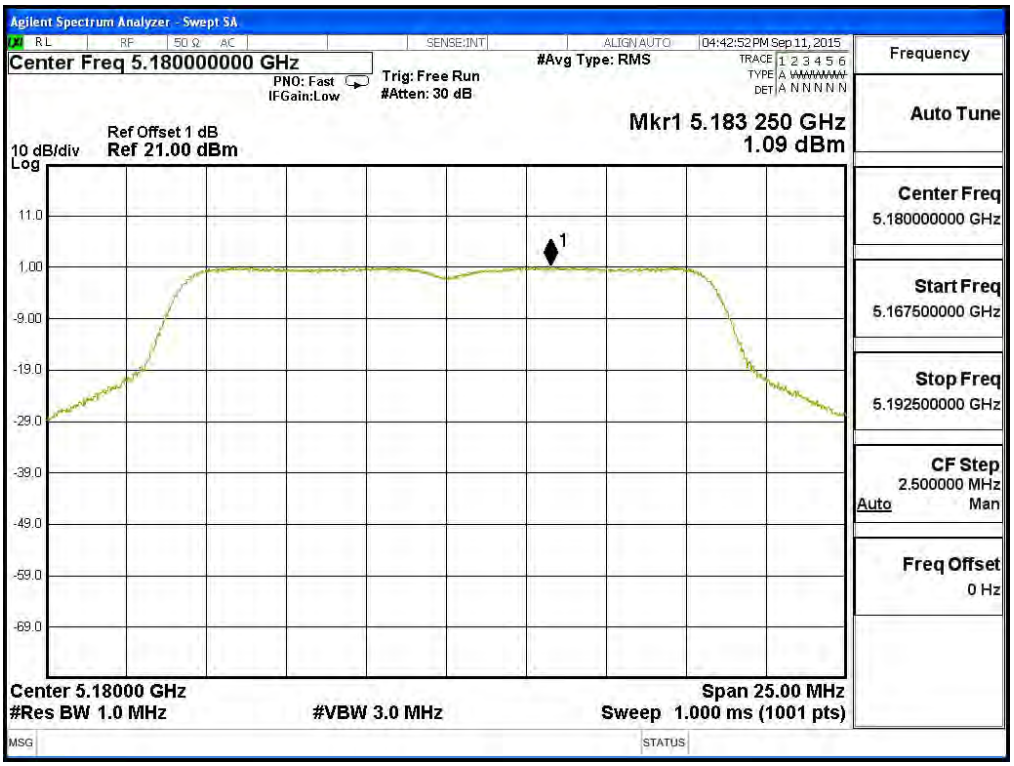


Channel 44 – Chain A

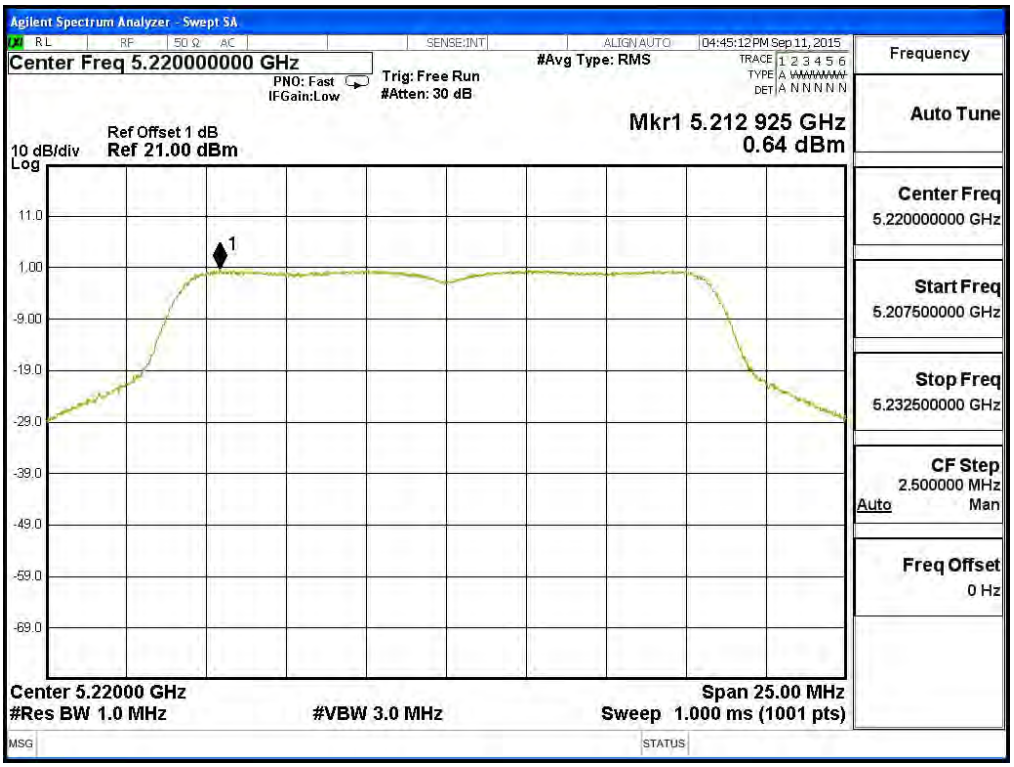


Channel 48 – Chain A

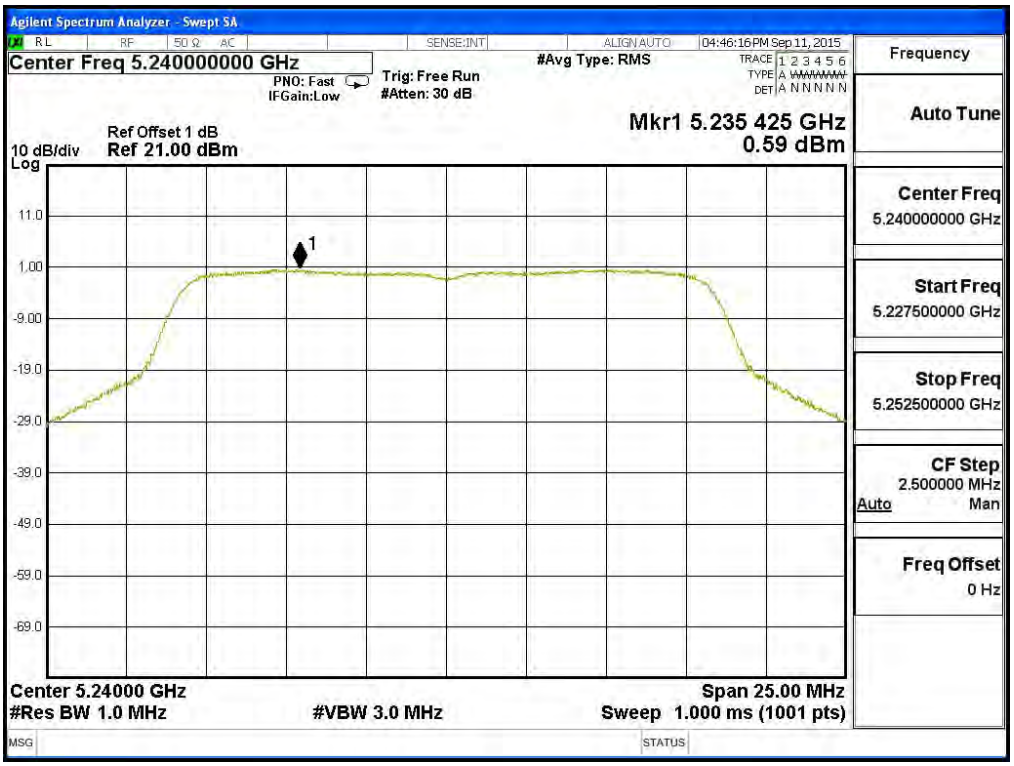
Channel 36 – Chain B



Channel 44 – Chain B



Channel 48 – Chain B

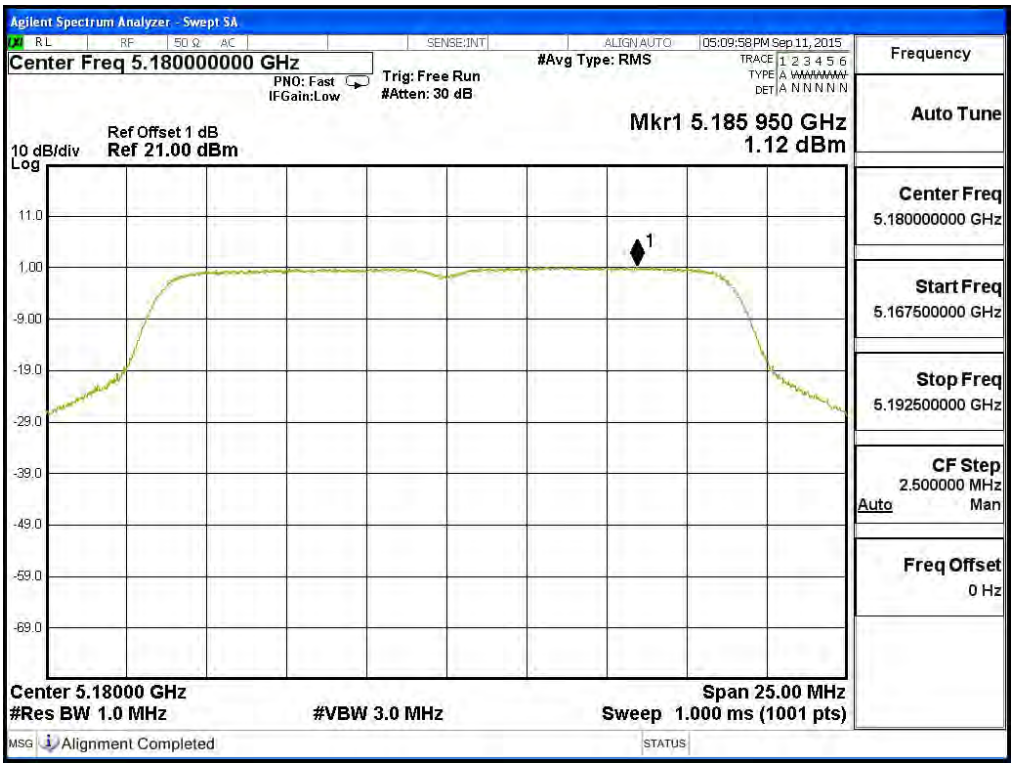


Product : 802.11 ac PCIe Module
Test Item : Peak Power Spectral Density
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW 14.4Mbps)(5G Band)(Dipole Antenna)

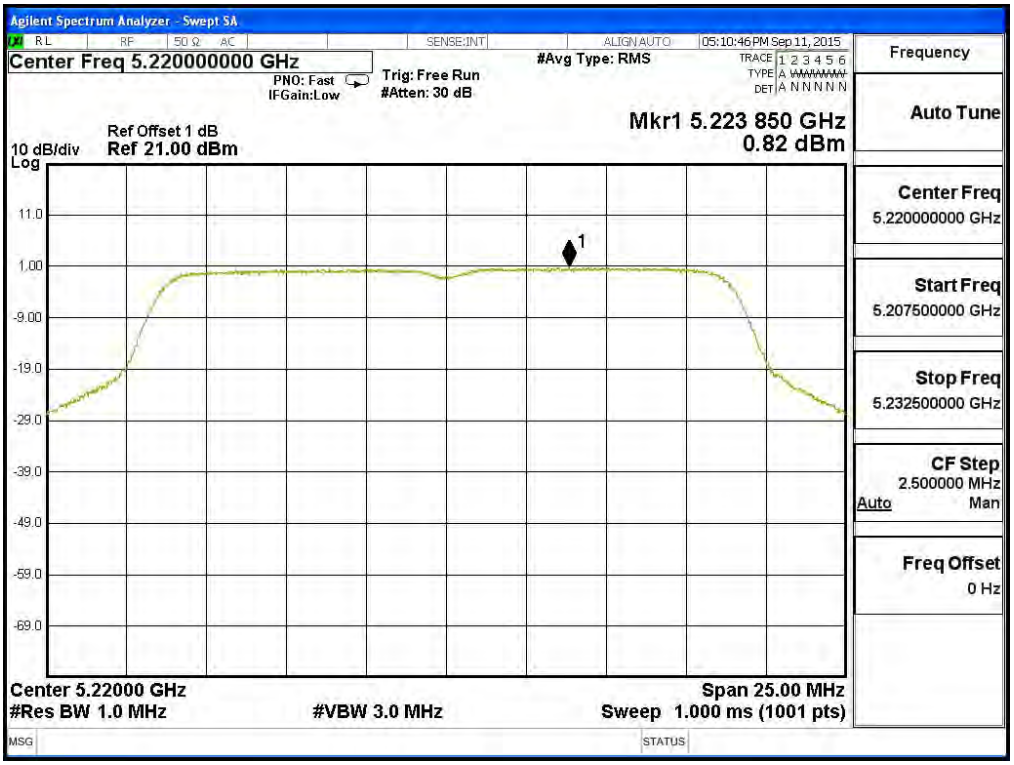
Channel Number	Frequency (MHz)	Chain	PPSD (dBm)	Total PPSD (dBm)1	Required Limit (dBm)	Result
36	5180	A	1.118	4.128	17	Pass
		B	0.796	3.806	17	Pass
44	5220	A	0.818	3.828	17	Pass
		B	-0.014	2.996	17	Pass
48	5240	A	1.094	4.104	17	Pass
		B	0.231	3.241	17	Pass

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

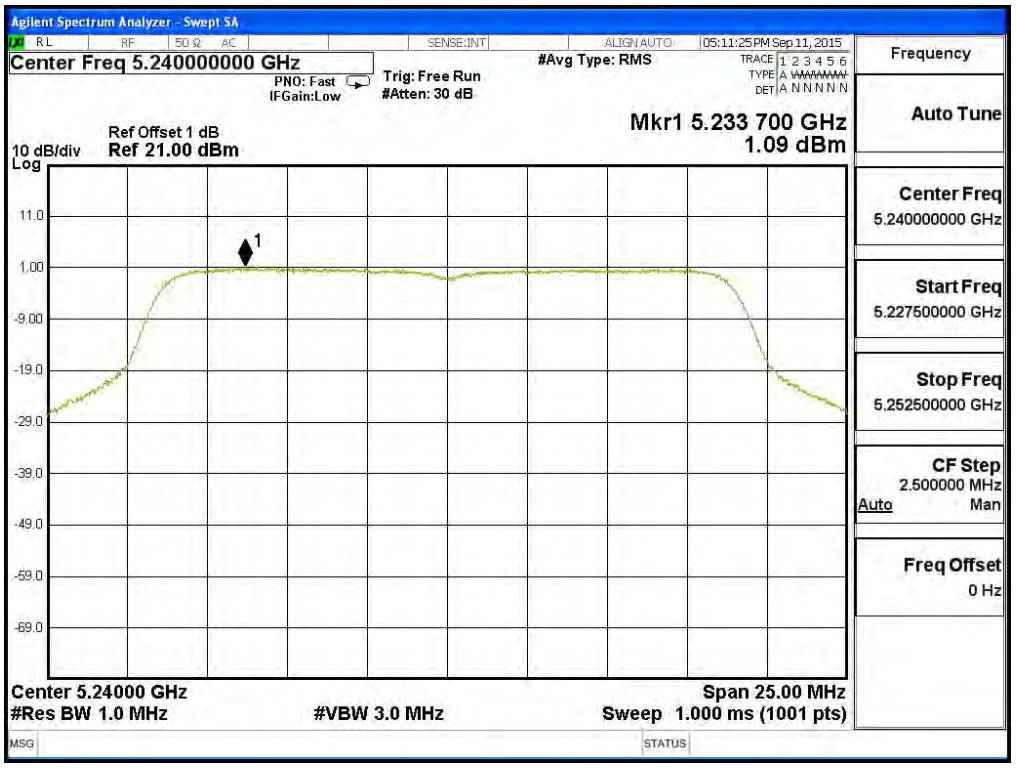
Channel 36 – Chain A



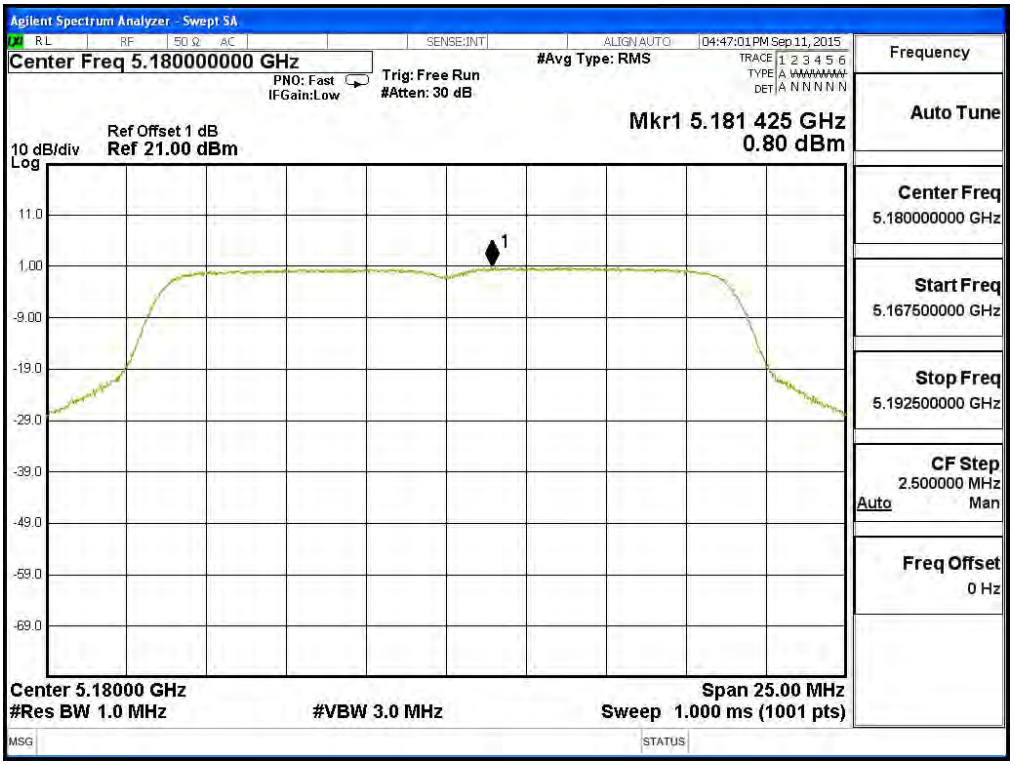
Channel 44 – Chain A



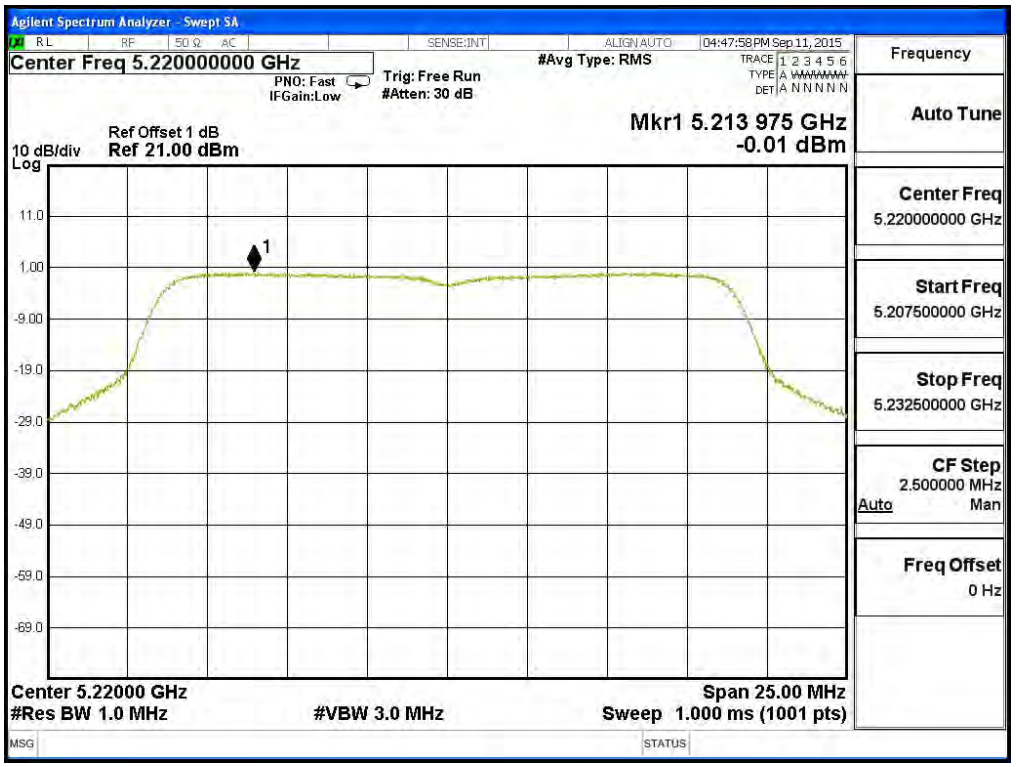
Channel 48 – Chain A



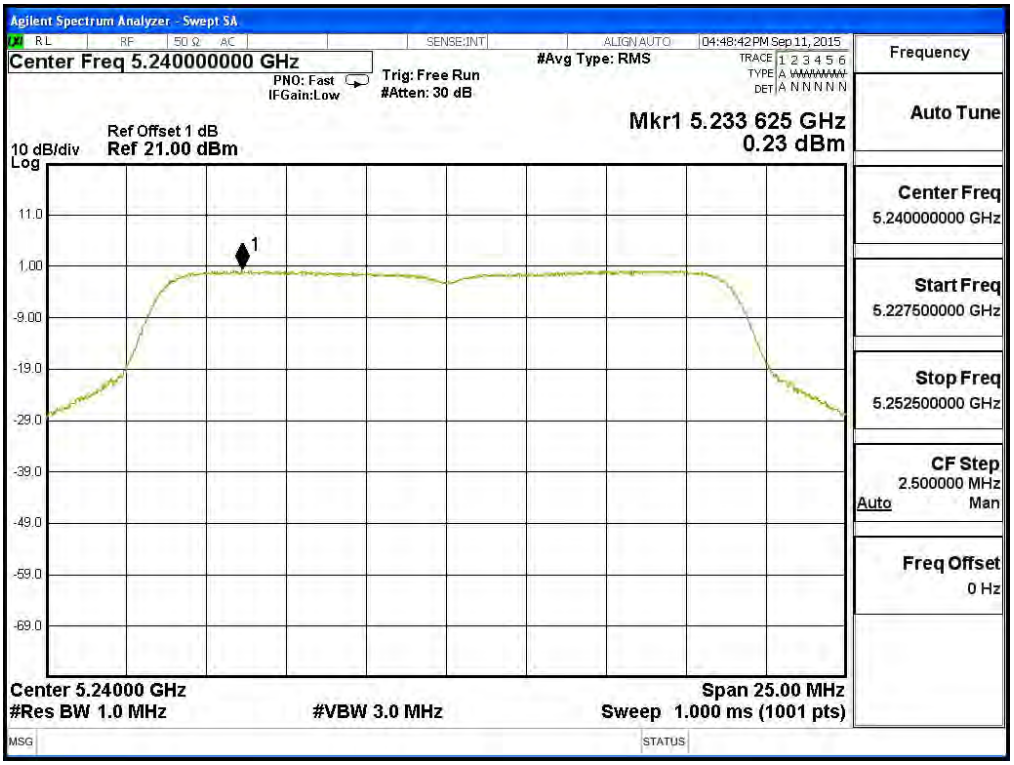
Channel 36 – Chain B



Channel 44 – Chain B



Channel 48 – Chain B

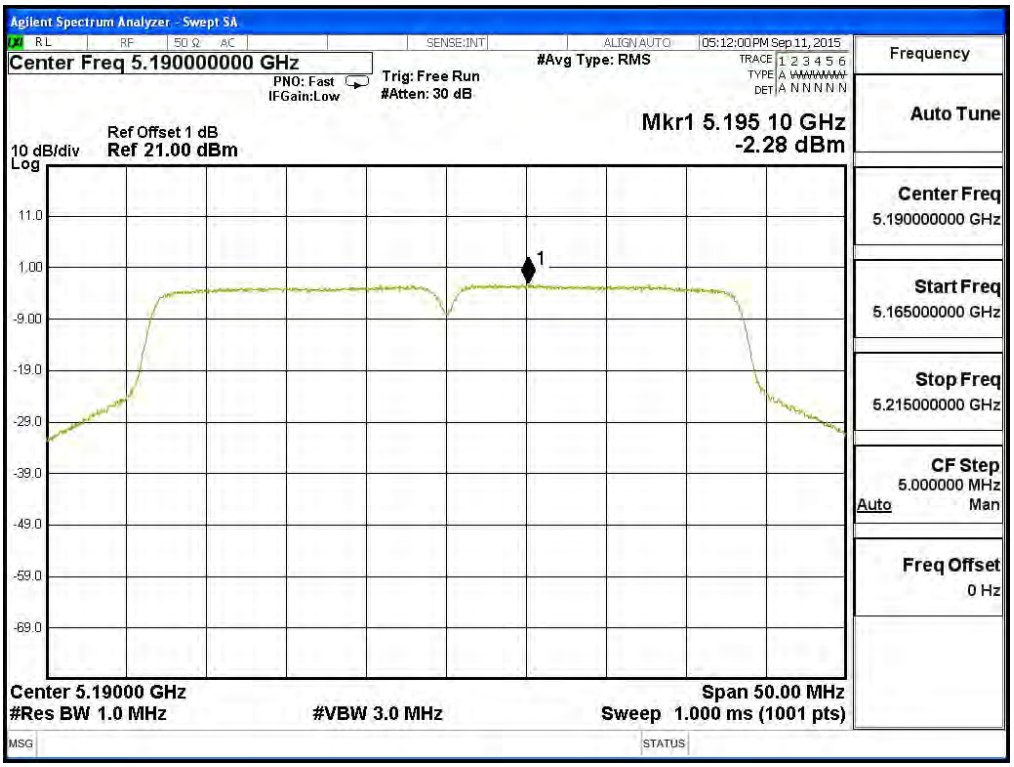


Product : 802.11 ac PCIe Module
Test Item : Peak Power Spectral Density
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit (802.11n-40BW 30Mbps)(5G Band)(Dipole Antenna)

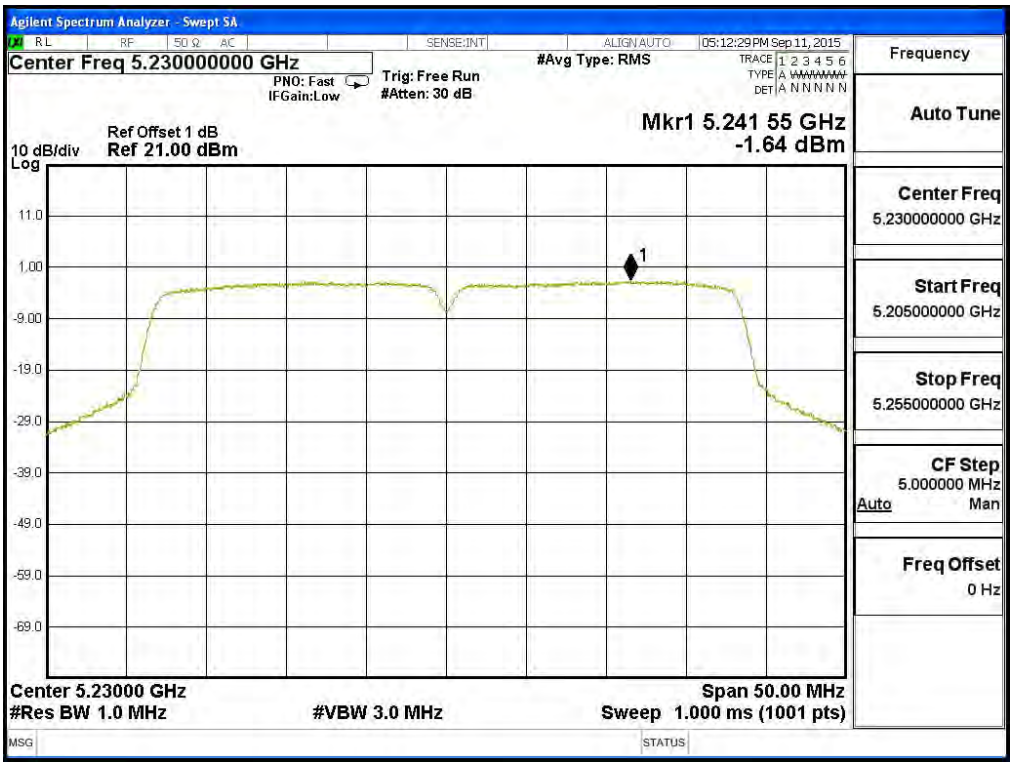
Channel Number	Frequency (MHz)	Chain	PPSD (dBm)	Total PPSD (dBm)1	Required Limit (dBm)	Result
38	5190	A	-2.276	0.734	17	Pass
		B	-2.653	0.357	17	Pass
46	5230	A	-1.644	1.366	17	Pass
		B	-2.246	0.764	17	Pass

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

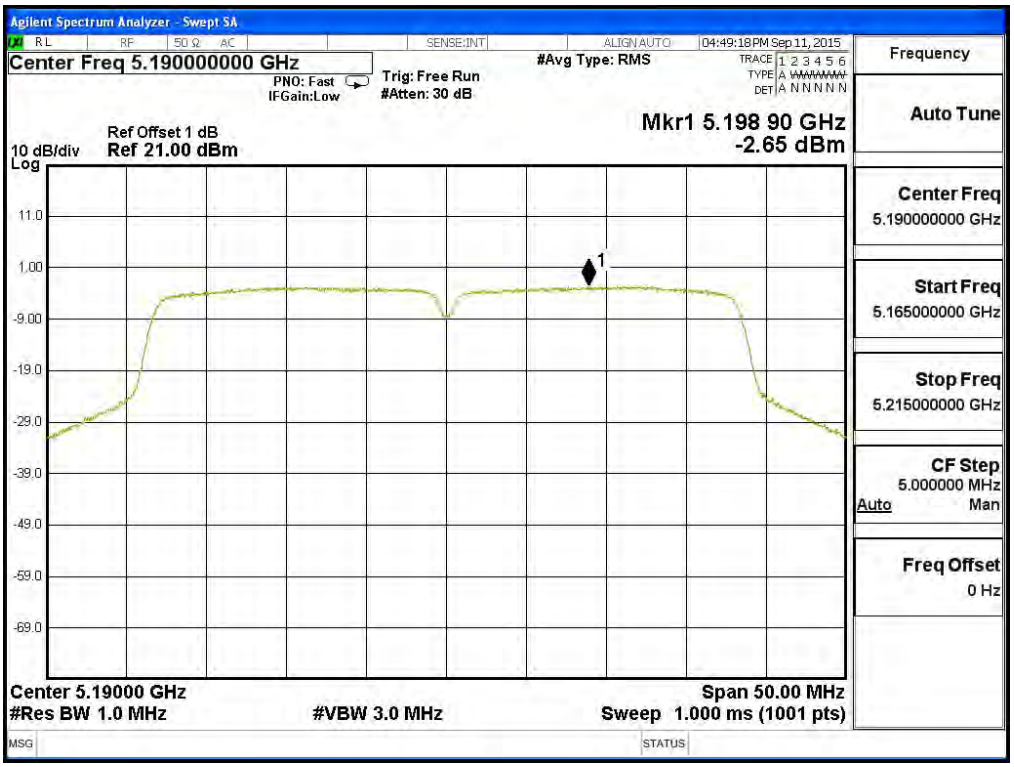
Channel 38 – Chain A



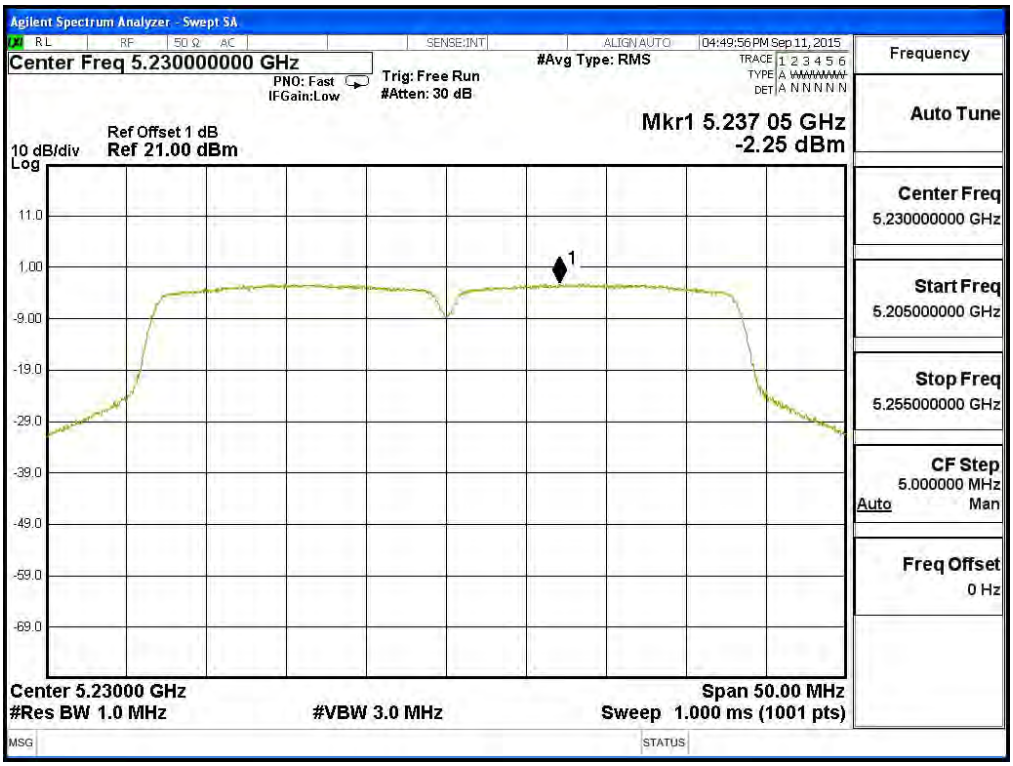
Channel 46 – Chain A



Channel 38 – Chain B



Channel 46 – Chain B

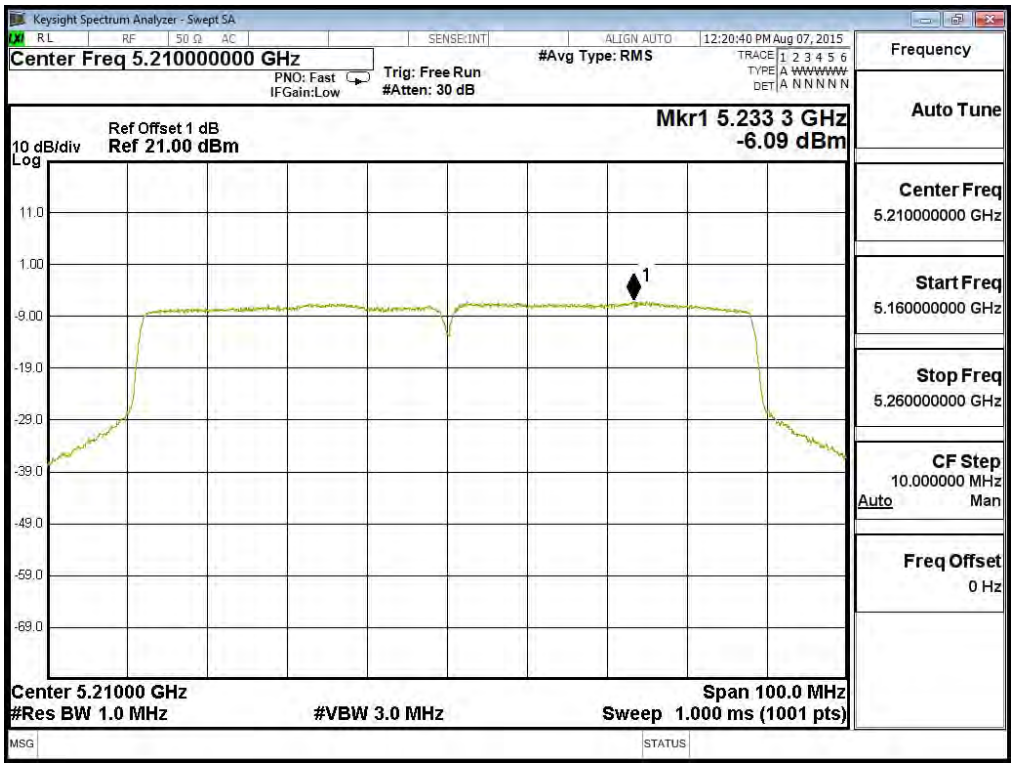


Product : 802.11 ac PCIe Module
Test Item : Peak Power Spectral Density
Test Site : No.3 OATS
Test Mode : Mode 4: Transmit (802.11ac-80BW-65Mbps)(5G Band)(Dipole Antenna)

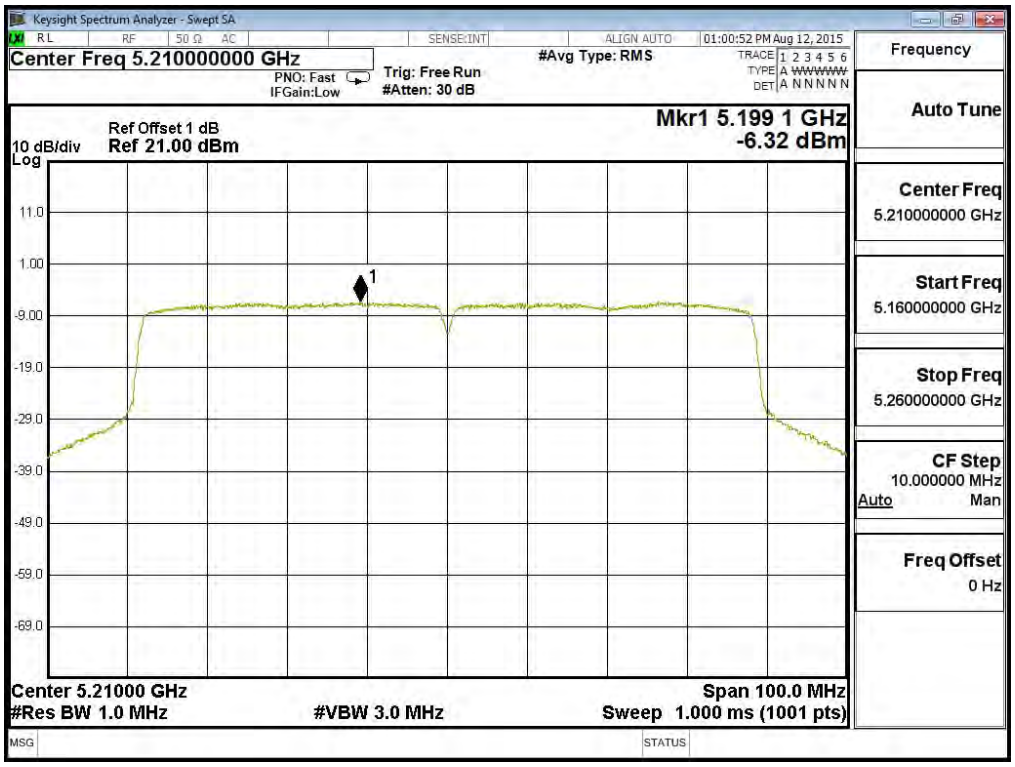
Channel Number	Frequency (MHz)	Chain	PPSD (dBm)	Total PPSD (dBm)1	Required Limit (dBm)	Result
42	5210	A	-6.090	-3.080	17	Pass
		B	-6.322	-3.312	17	Pass

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

Channel 42 – Chain A



Channel 42 – Chain B

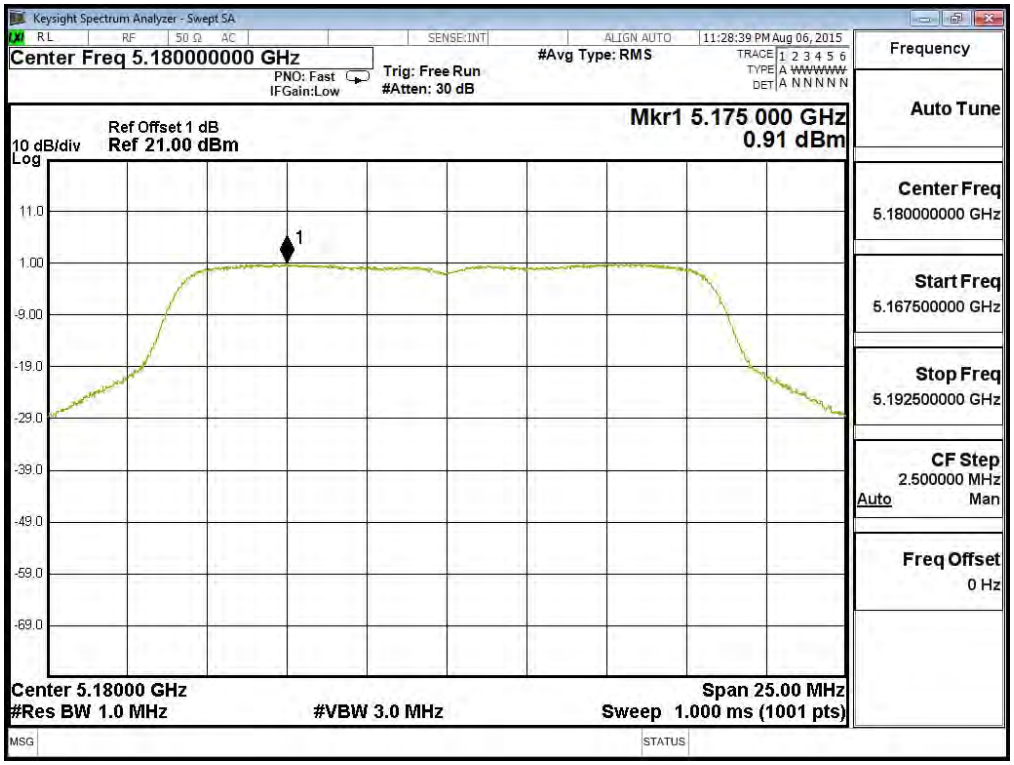


Product : 802.11 ac PCIe Module
Test Item : Peak Power Spectral Density
Test Site : No.3 OATS
Test Mode : Mode 5: Transmit (802.11a_6Mbps)(Grid DISH Antenna)

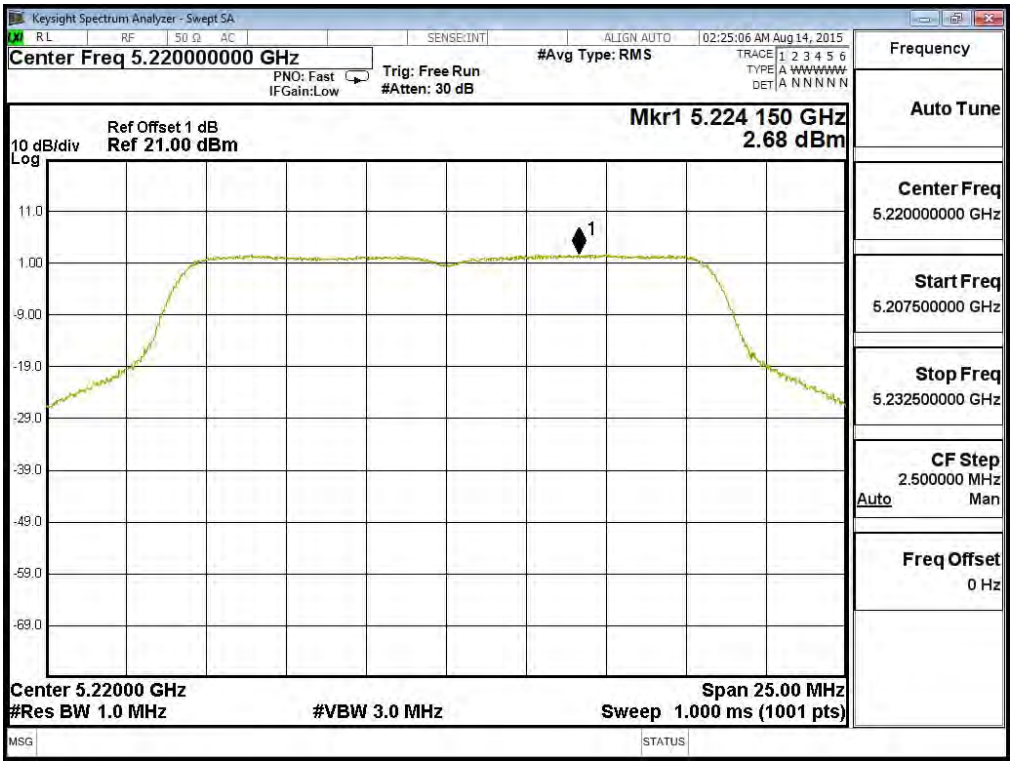
Channel Number	Frequency (MHz)	Chain	PPSD (dBm)	Total PPSD (dBm)1	Required Limit (dBm)	Result
36	5180	A	0.907	3.917	6.5	Pass
		B	1.851	4.861	6.5	Pass
44	5220	A	2.678	5.688	6.5	Pass
		B	2.737	5.747	6.5	Pass
48	5240	A	2.664	5.674	6.5	Pass
		B	2.611	5.621	6.5	Pass

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

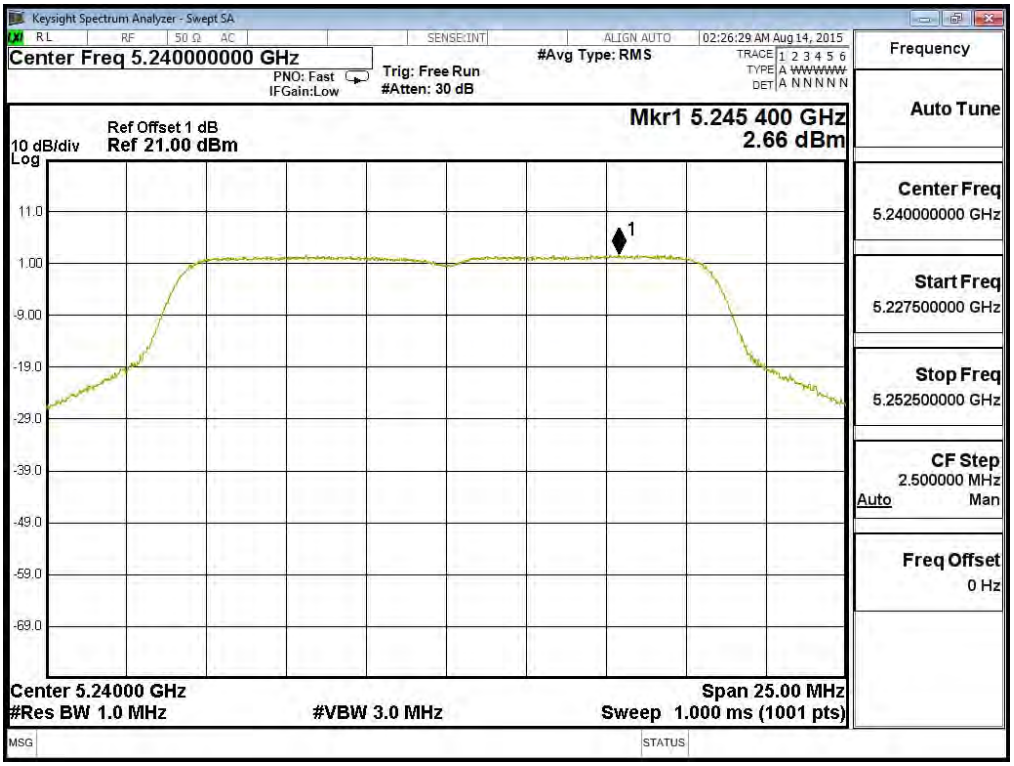
Channel 36 – Chain A



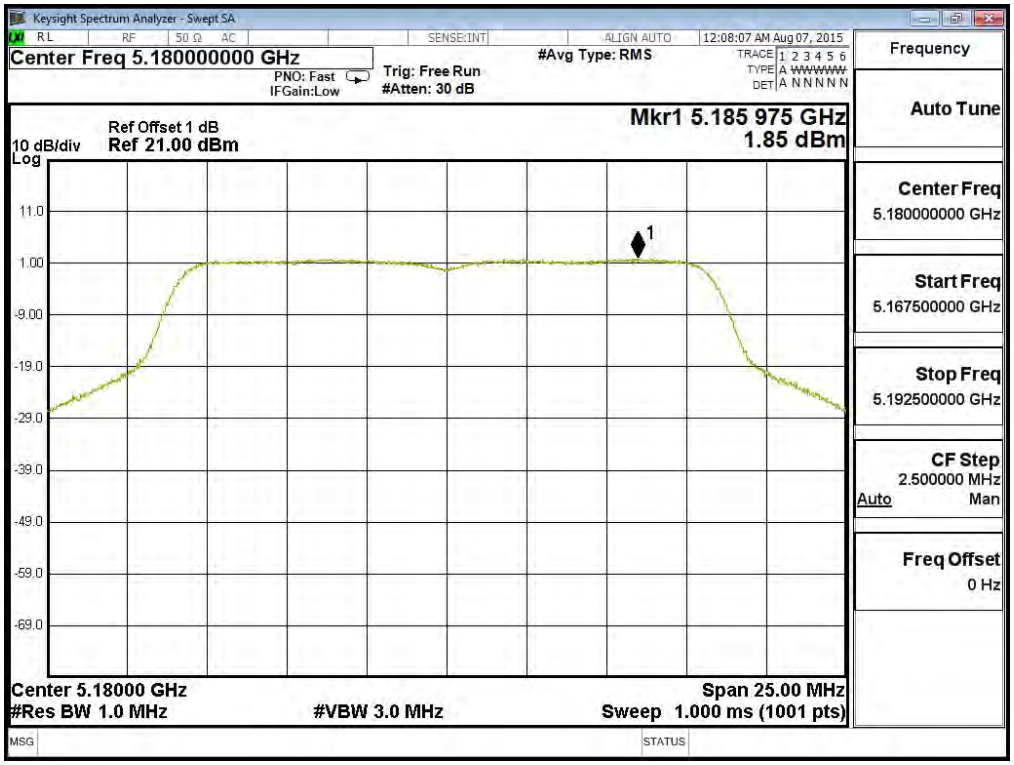
Channel 44 – Chain A



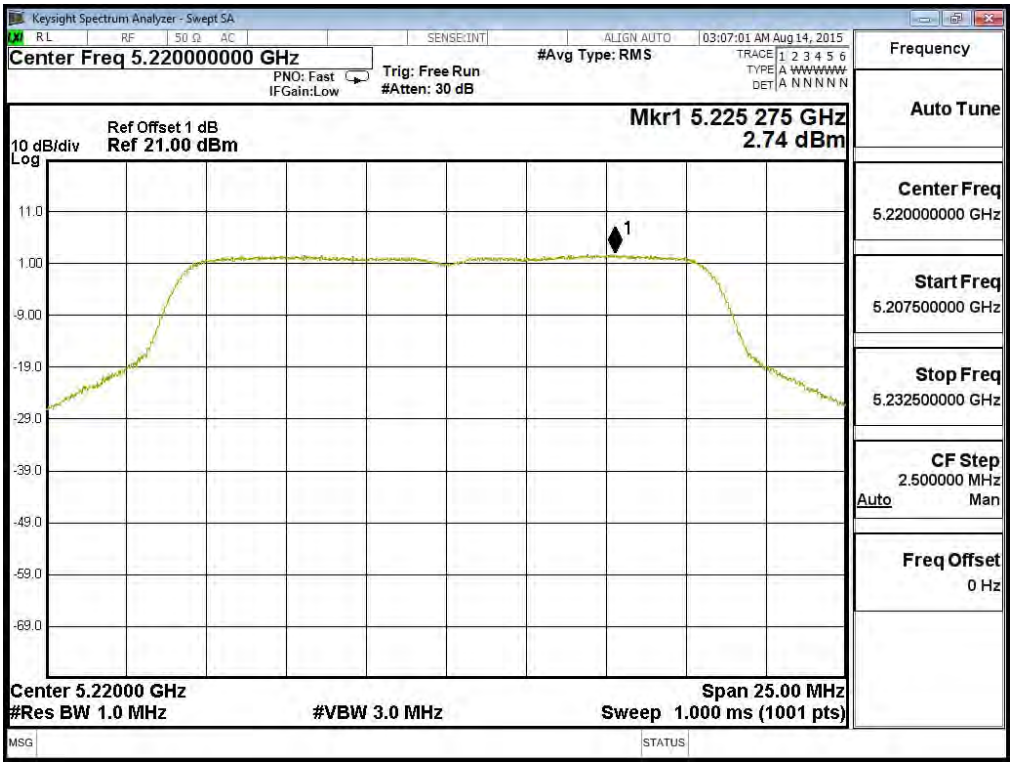
Channel 48 – Chain A



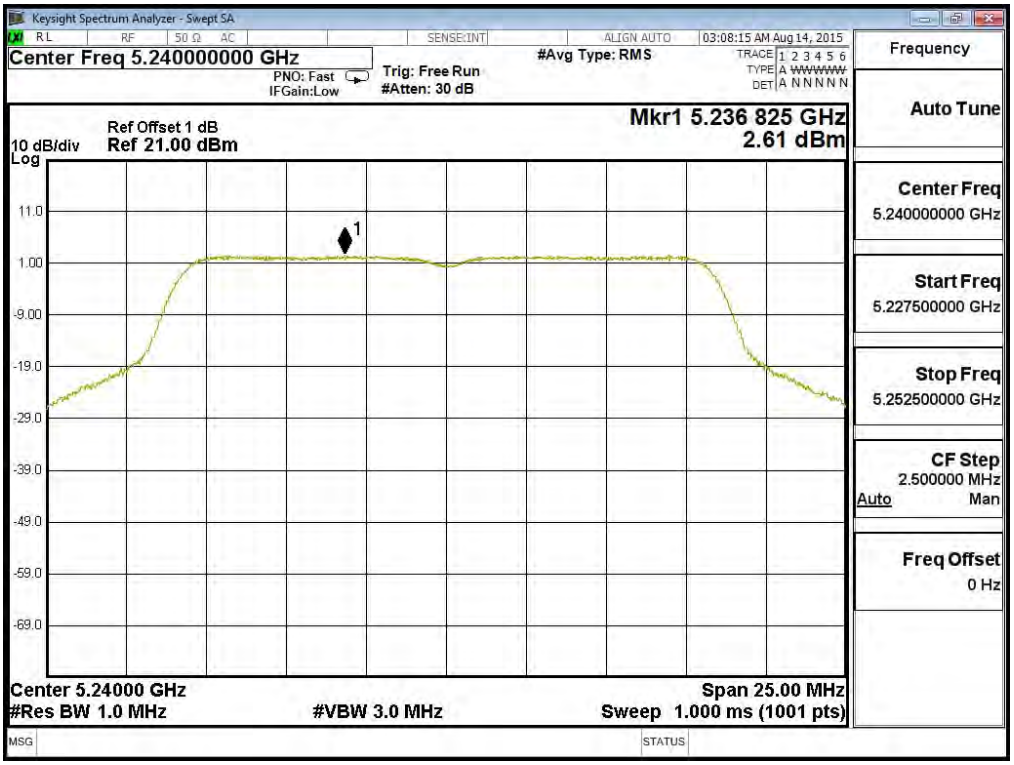
Channel 36 – Chain B



Channel 44 – Chain B



Channel 48 – Chain B

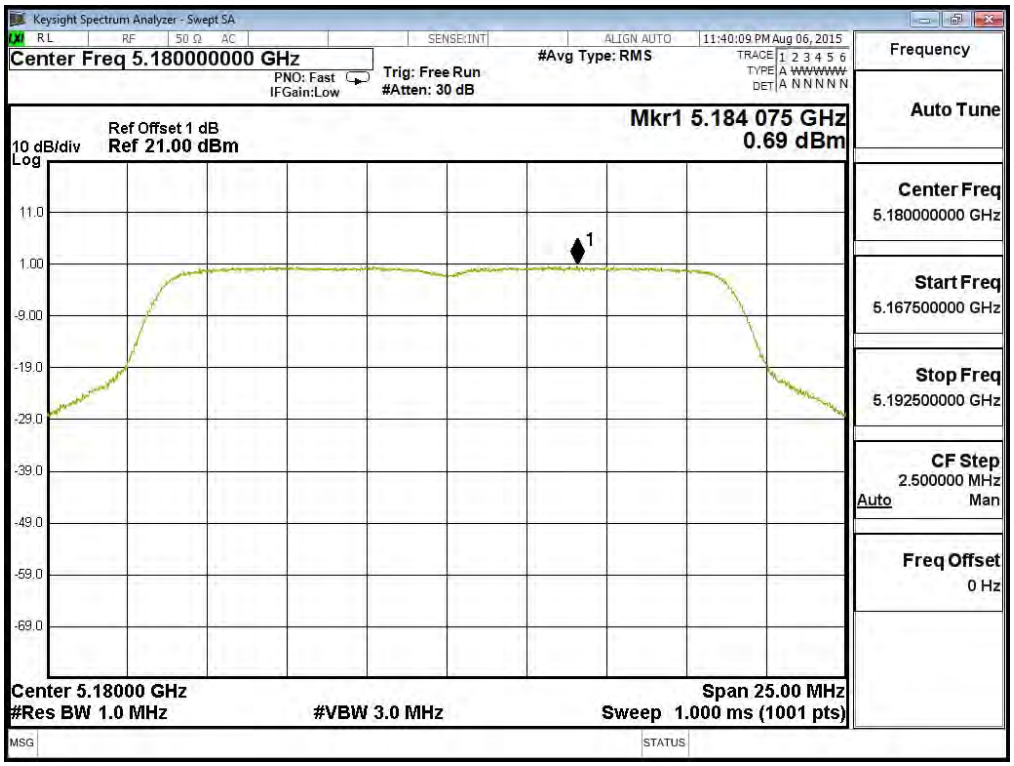


Product : 802.11 ac PCIe Module
Test Item : Peak Power Spectral Density
Test Site : No.3 OATS
Test Mode : Mode 6: Transmit (802.11n-20BW_14.4Mbps)(5G Band)(Grid DISH Antenna)

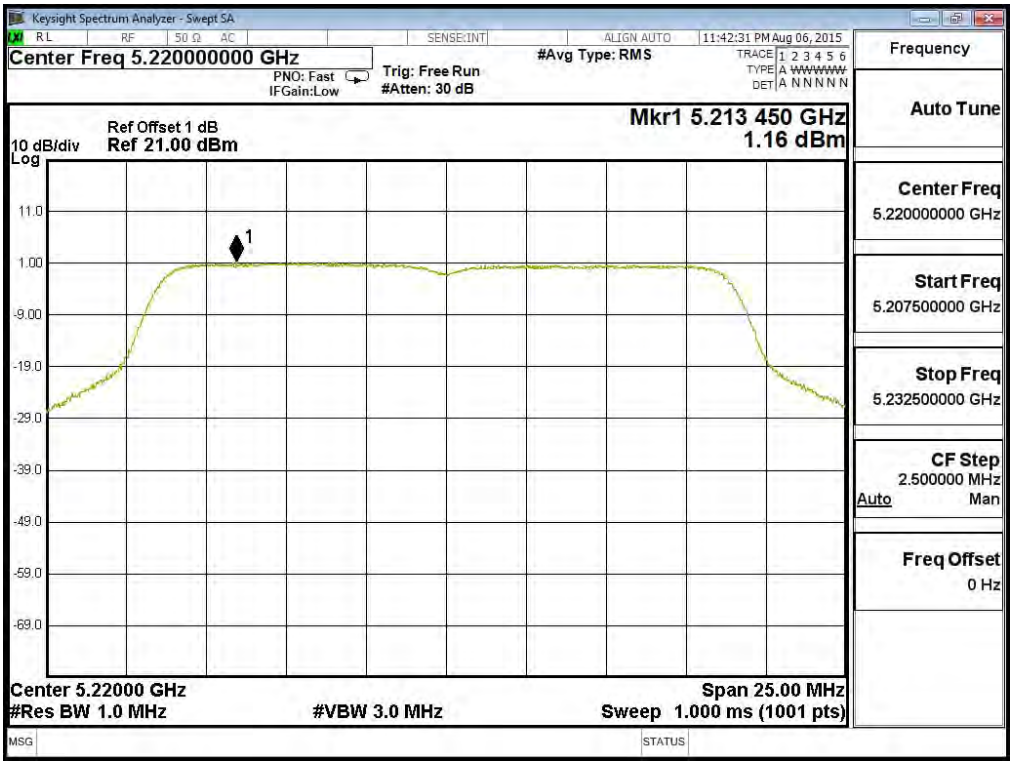
Channel Number	Frequency (MHz)	Chain	PPSD (dBm)	Total PPSD (dBm)1	Required Limit (dBm)	Result
36	5180	A	0.693	3.703	6.5	Pass
		B	1.676	4.686	6.5	Pass
44	5220	A	1.163	4.173	6.5	Pass
		B	2.340	5.350	6.5	Pass
48	5240	A	1.100	4.110	6.5	Pass
		B	2.065	5.075	6.5	Pass

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

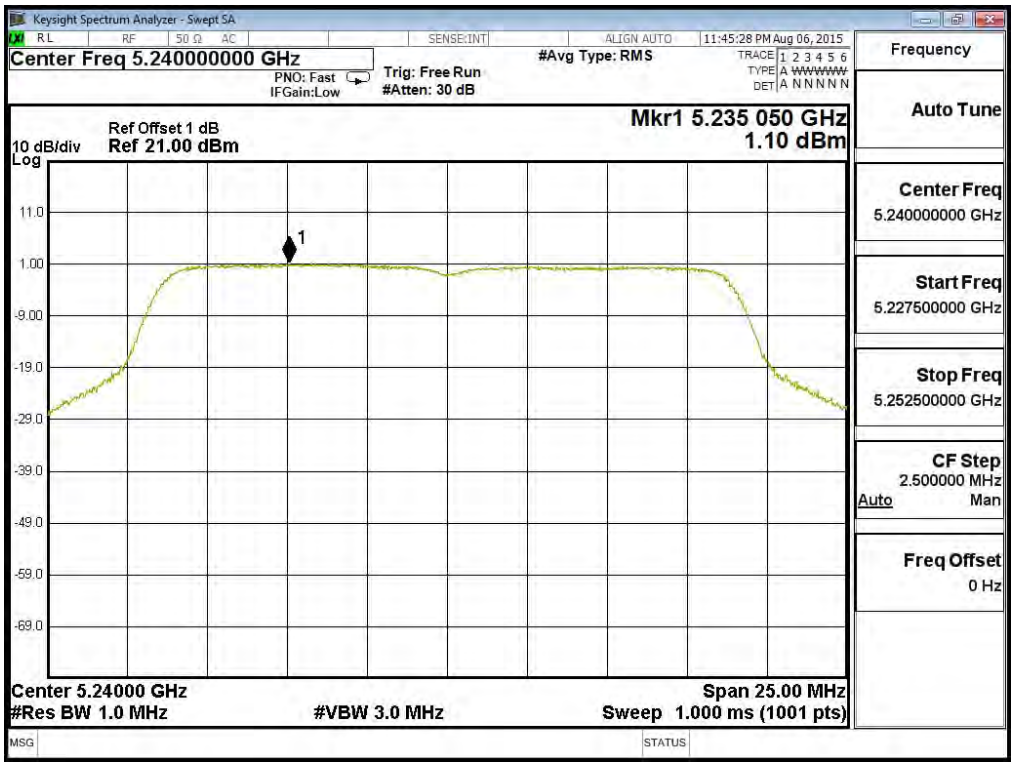
Channel 36 – Chain A



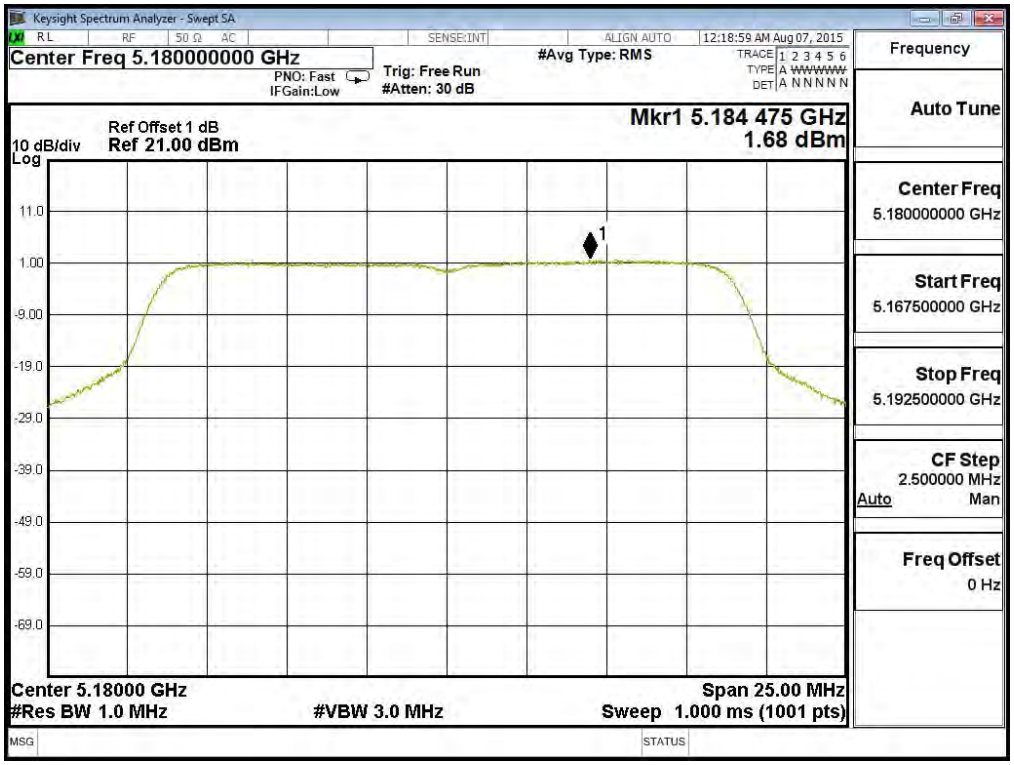
Channel 44 – Chain A



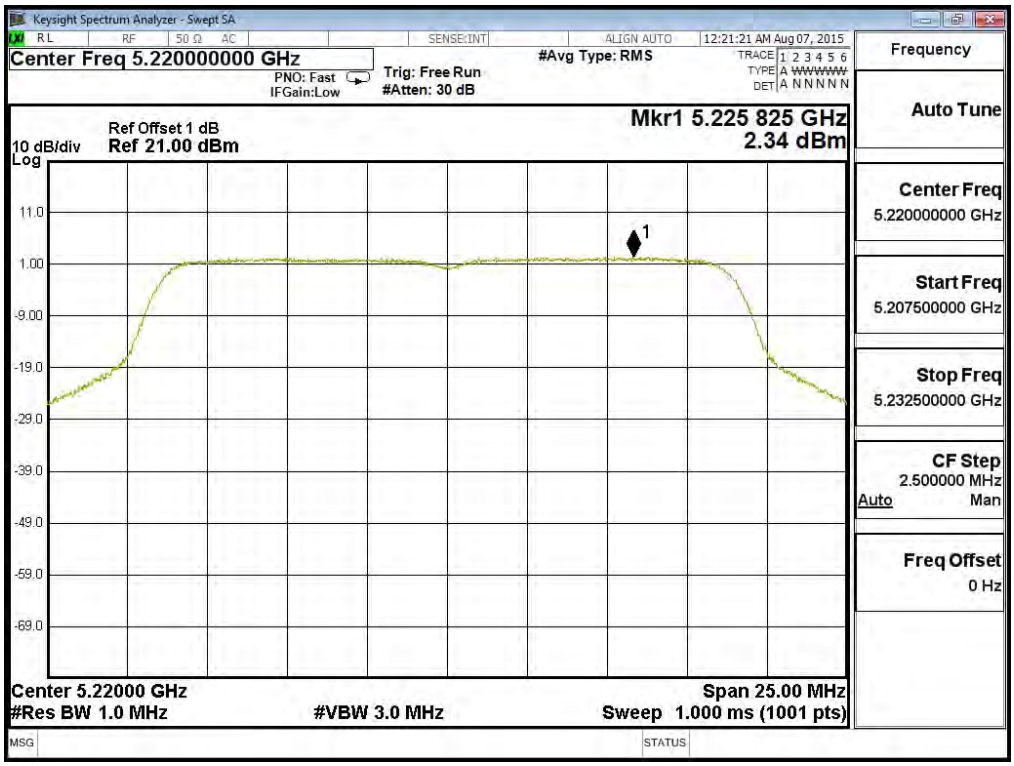
Channel 48 – Chain A



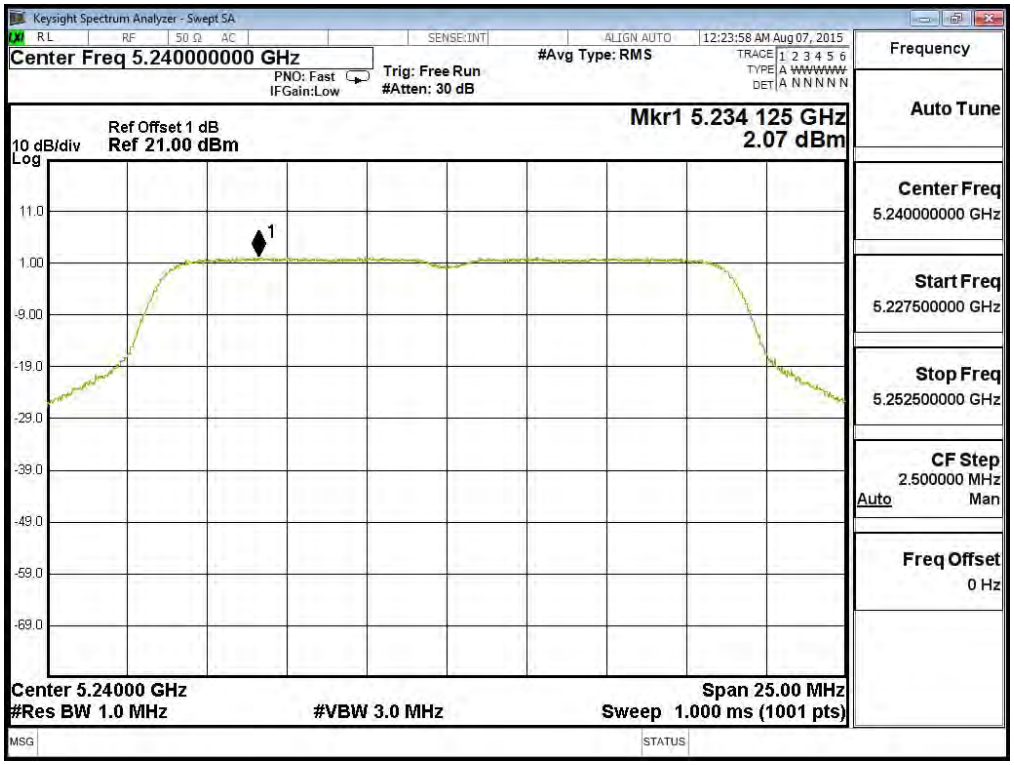
Channel 36 – Chain B



Channel 44 – Chain B



Channel 48 – Chain B

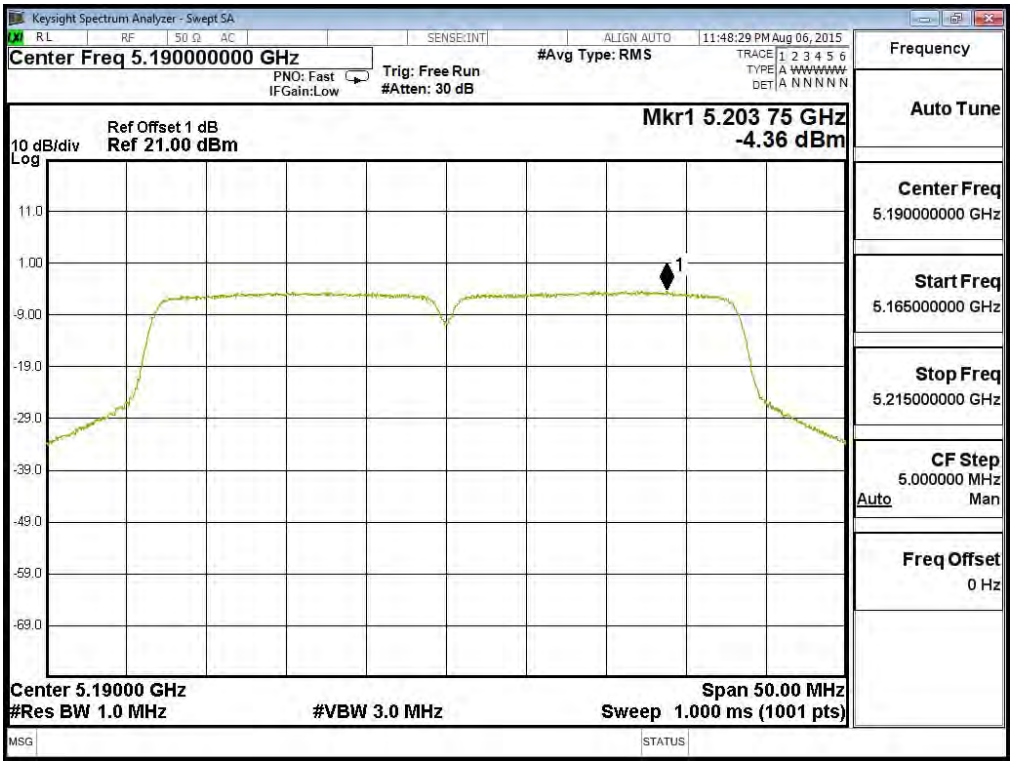


Product : 802.11 ac PCIe Module
Test Item : Peak Power Spectral Density
Test Site : No.3 OATS
Test Mode : Mode 7: Transmit (802.11n-40BW_30Mbps)(5G Band)(Grid DISH Antenna)

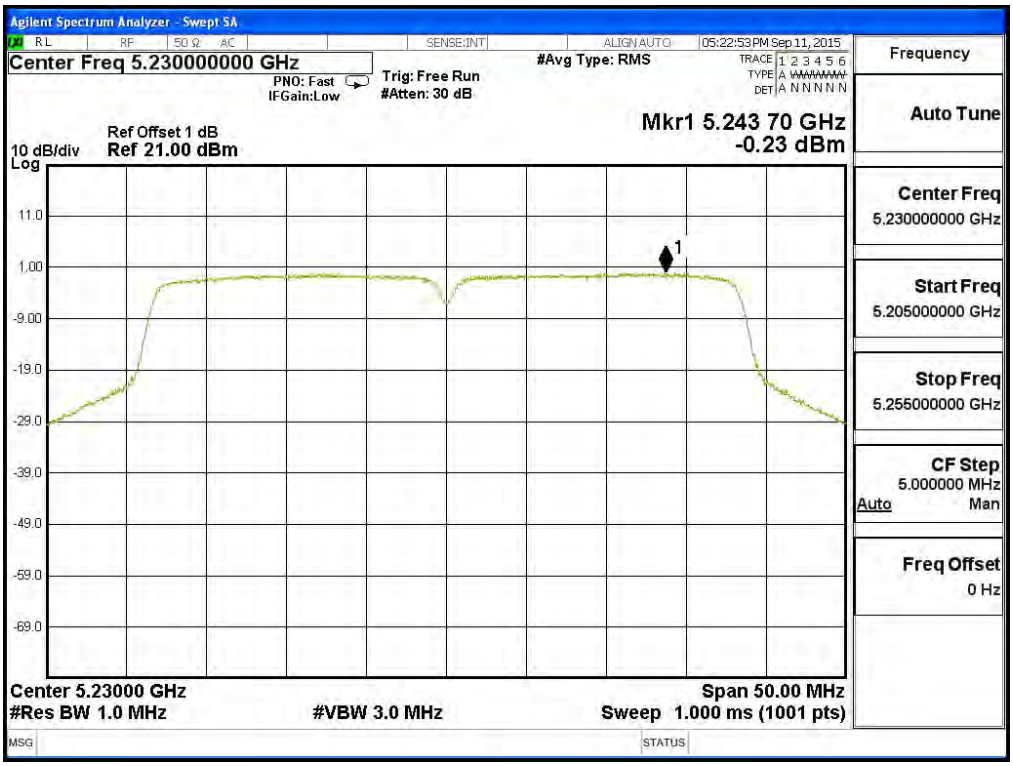
Channel Number	Frequency (MHz)	Chain	PPSD (dBm)	Total PPSD (dBm)1	Required Limit (dBm)	Result
38	5190	A	-4.355	-1.345	6.5	Pass
		B	-3.450	-0.440	6.5	Pass
46	5230	A	-0.226	2.784	6.5	Pass
		B	-1.297	1.713	6.5	Pass

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

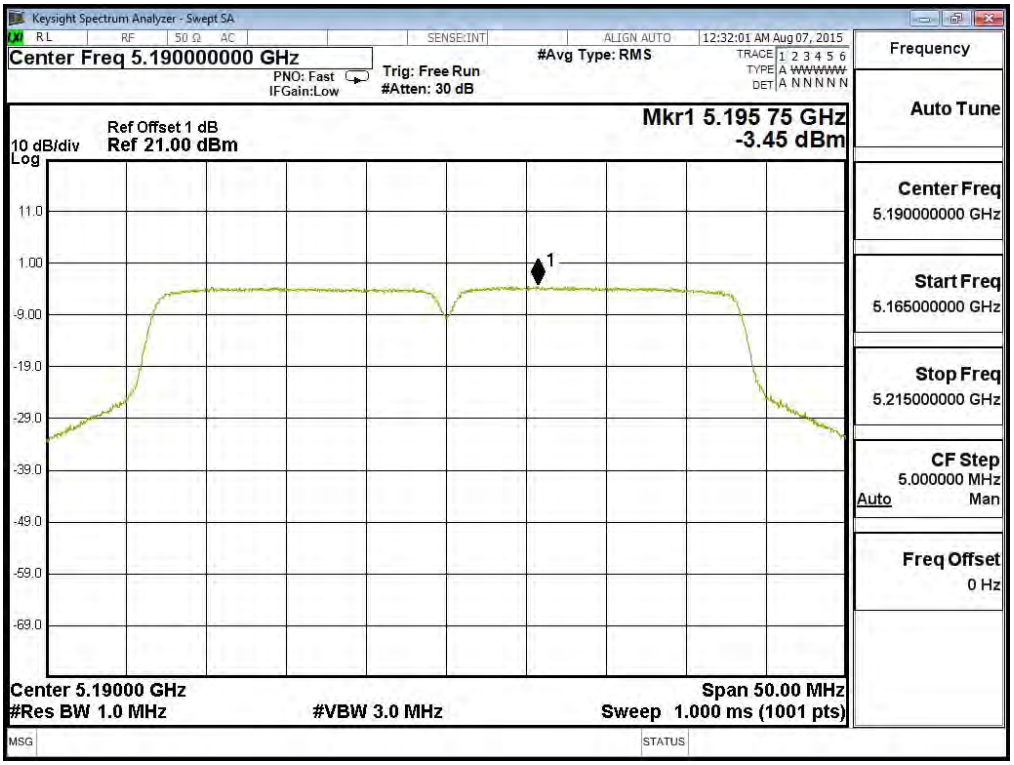
Channel 38 – Chain A



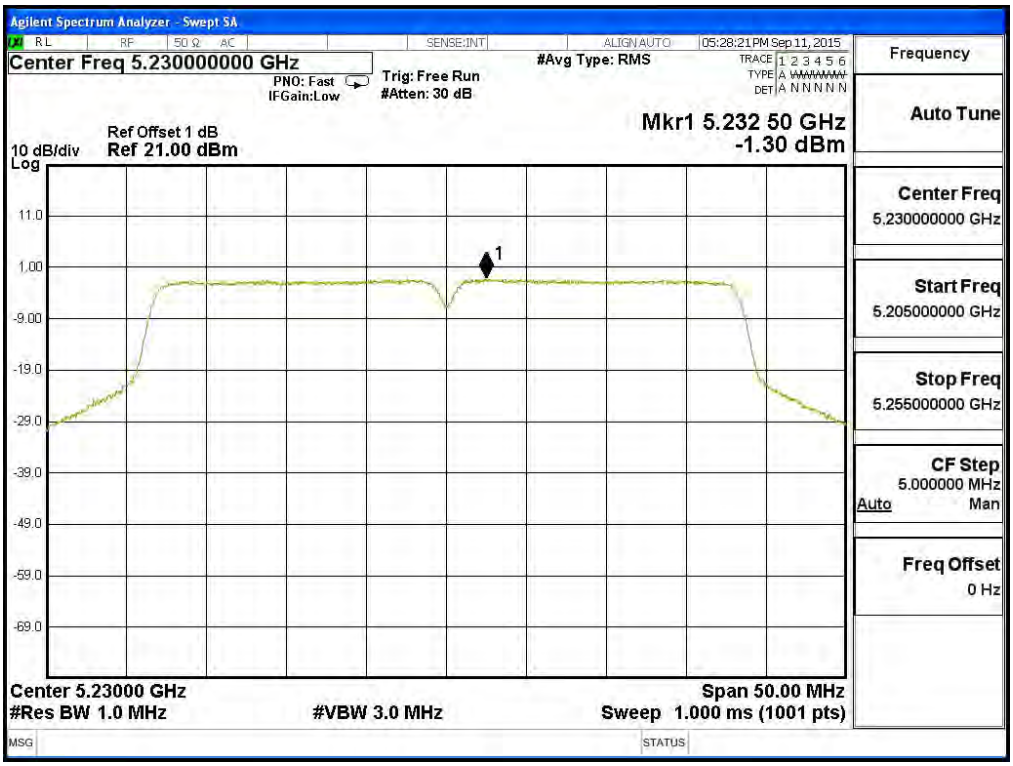
Channel 46 – Chain A



Channel 38 – Chain B



Channel 46 – Chain B

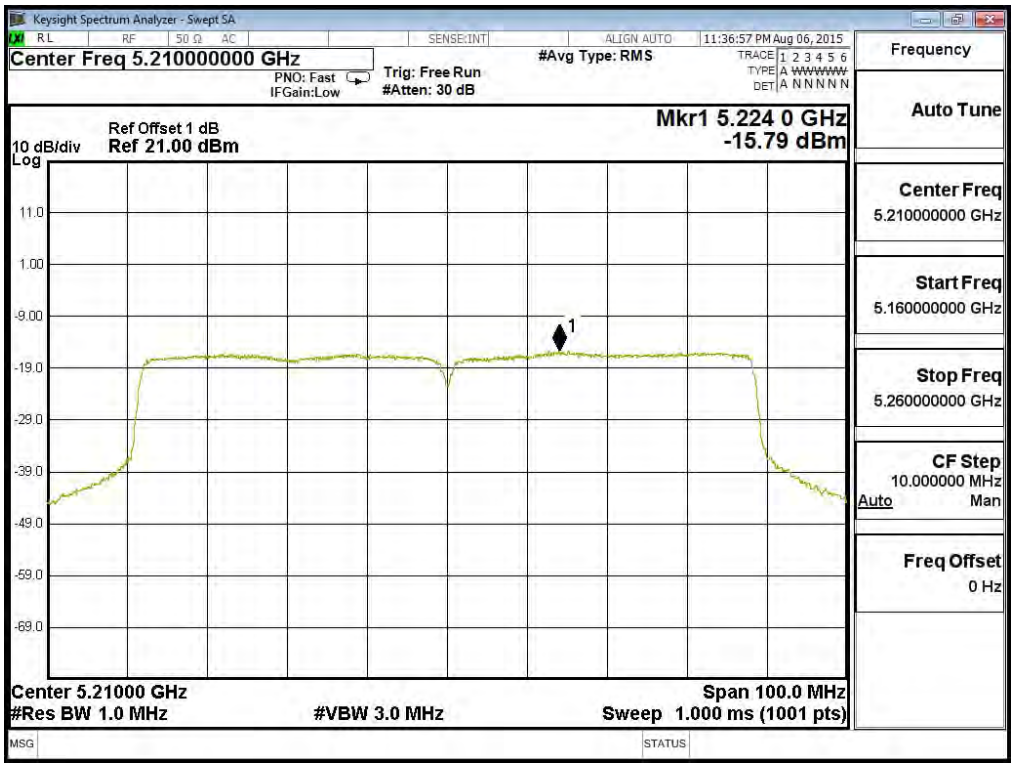


Product : 802.11 ac PCIe Module
Test Item : Peak Power Spectral Density
Test Site : No.3 OATS
Test Mode : Mode 8: Transmit (802.11ac-80BW_65Mbps)(5G Band)(Grid DISH Antenna)

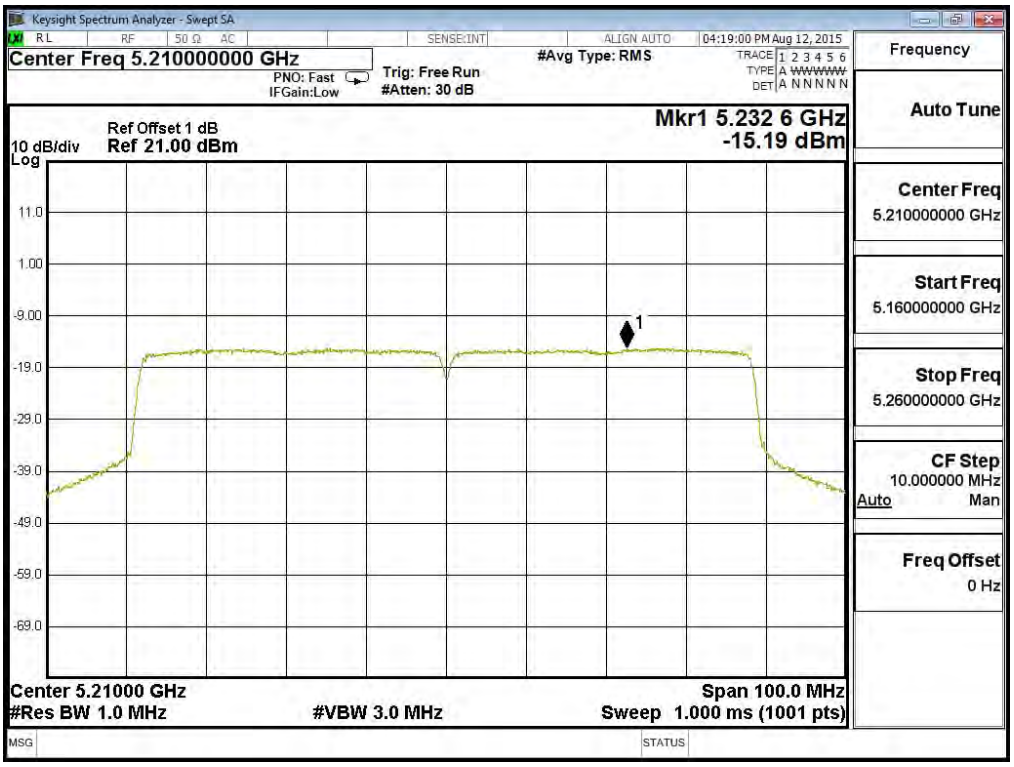
Channel Number	Frequency (MHz)	Chain	PPSD (dBm)	Total PPSD (dBm)1	Required Limit (dBm)	Result
42	5210	A	-15.793	-12.783	6.5	Pass
		B	-15.188	-12.178	6.5	Pass

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

Channel 42 – Chain A



Channel 42 – Chain B

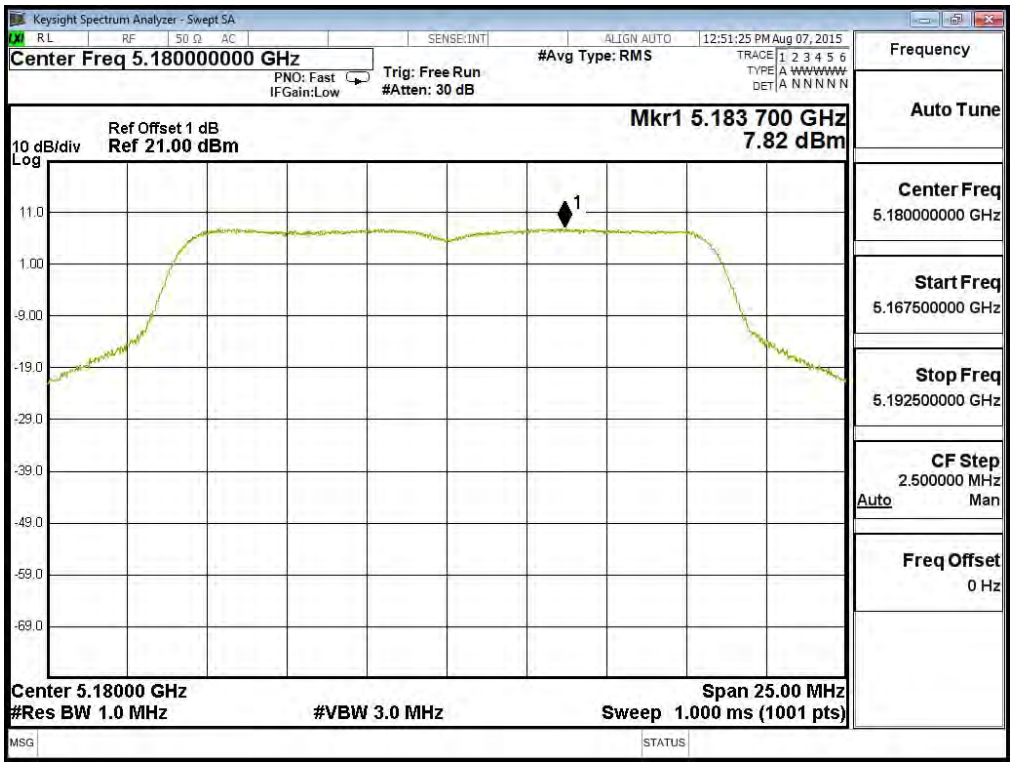


Product : 802.11 ac PCIe Module
Test Item : Peak Power Spectral Density
Test Site : No.3 OATS
Test Mode : Mode 9: Transmit (802.11a_6Mbps)(Omni Antenna)

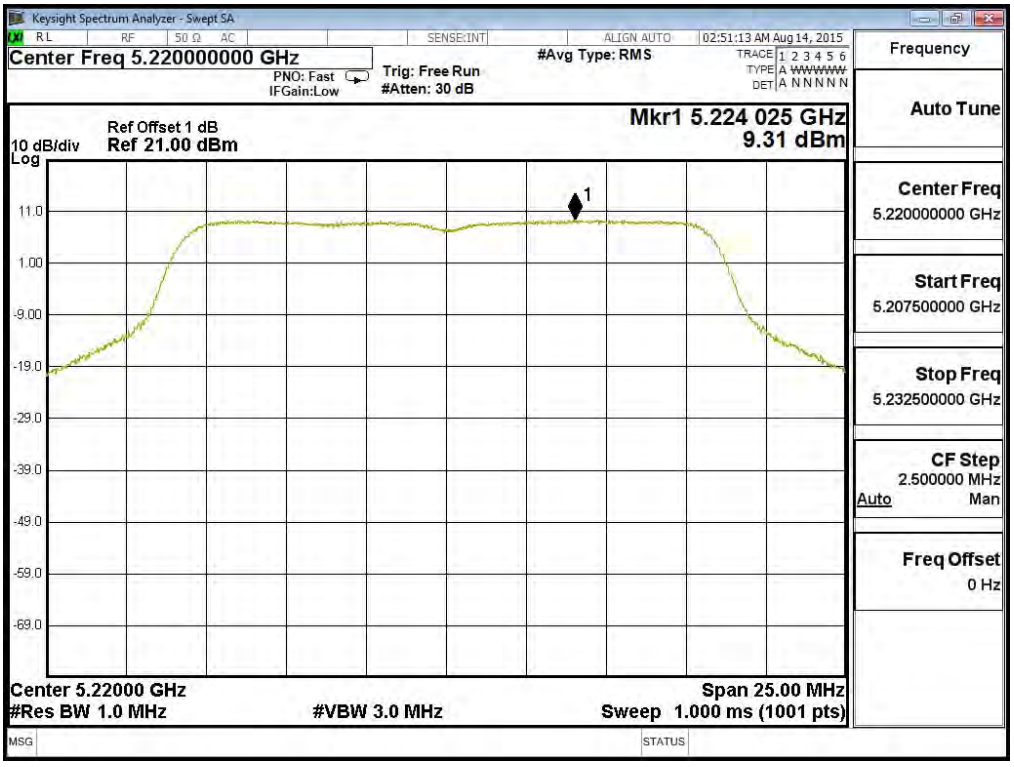
Channel Number	Frequency (MHz)	Chain	PPSD (dBm)	Total PPSD (dBm)1	Required Limit (dBm)	Result
36	5180	A	7.821	10.831	13	Pass
		B	7.541	10.551	13	Pass
44	5220	A	9.305	12.315	13	Pass
		B	9.084	12.094	13	Pass
48	5240	A	9.254	12.264	13	Pass
		B	9.130	12.140	13	Pass

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

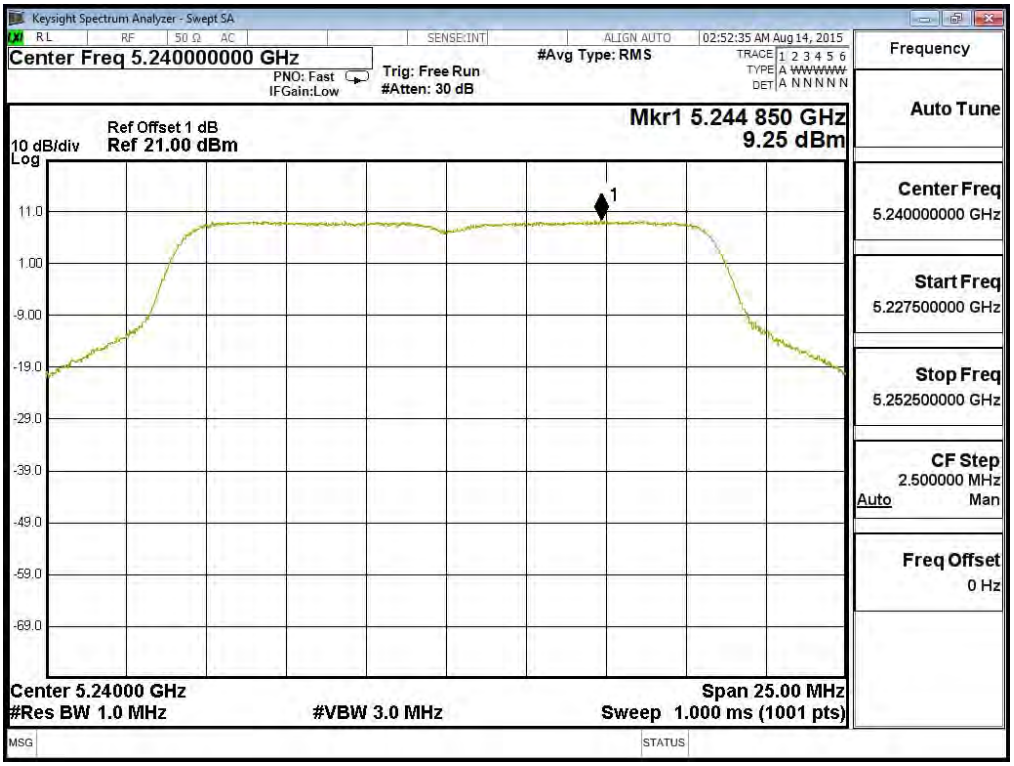
Channel 36 – Chain A



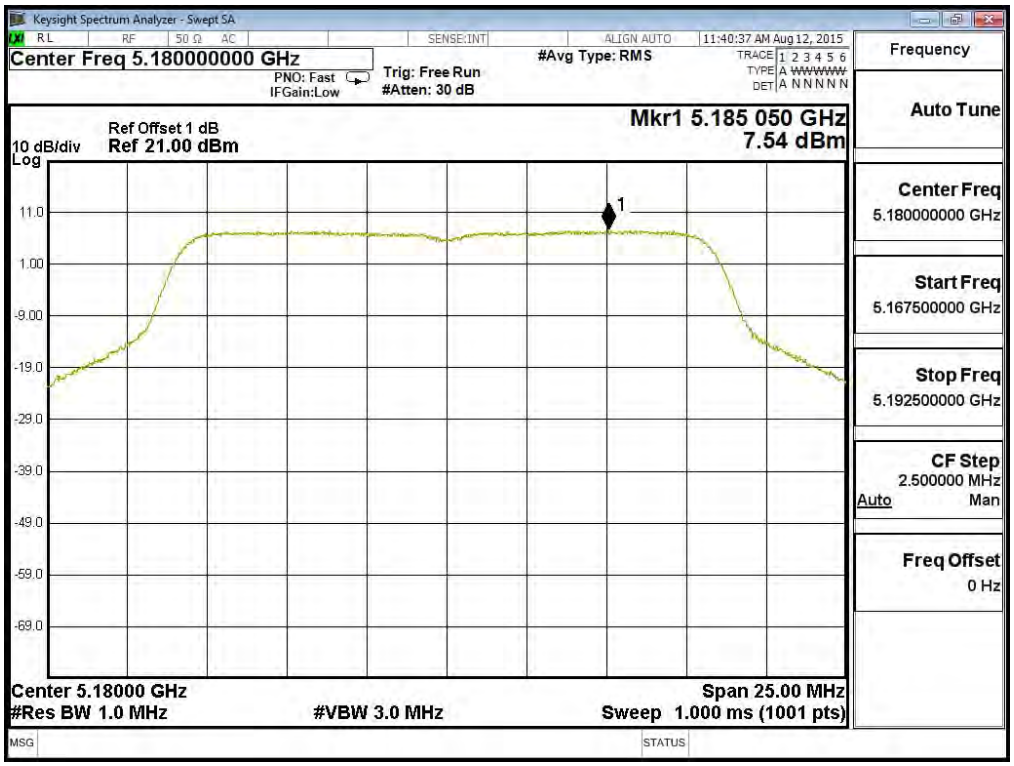
Channel 44 – Chain A



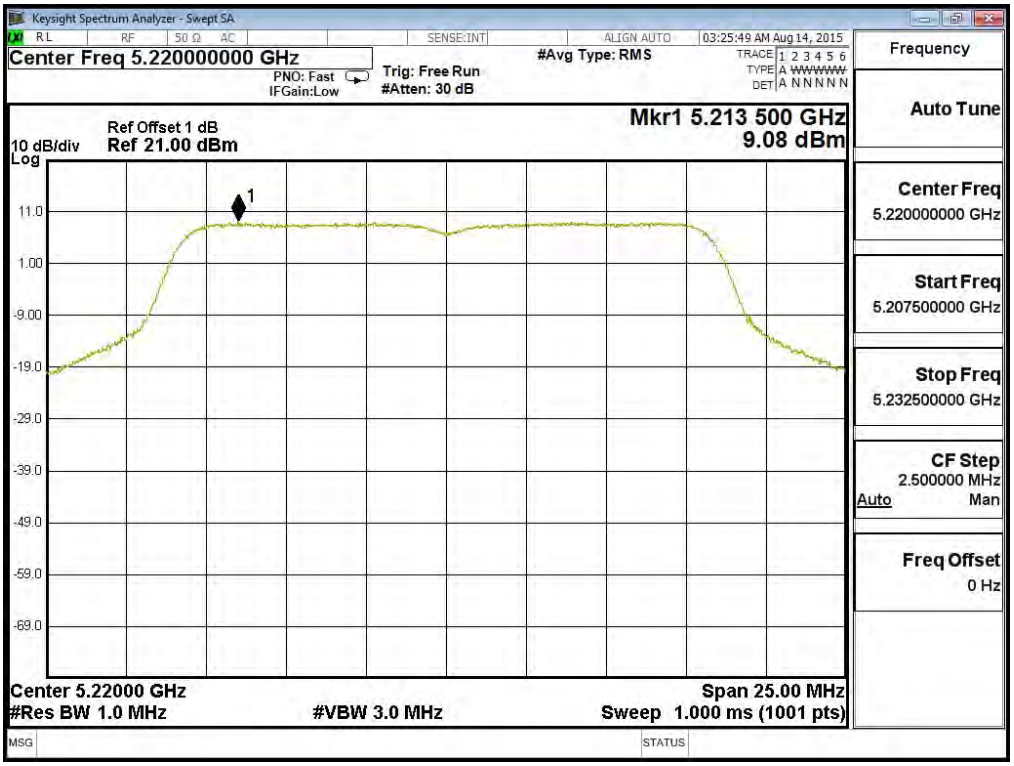
Channel 48 – Chain A



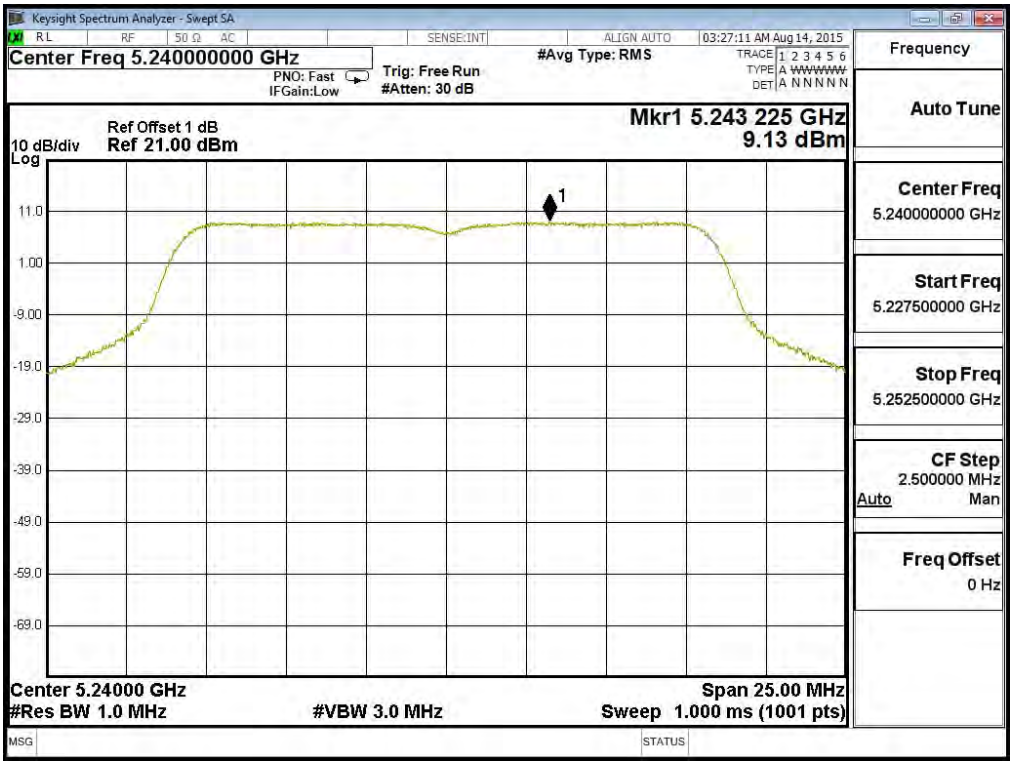
Channel 36 – Chain B



Channel 44 – Chain B



Channel 48 – Chain B

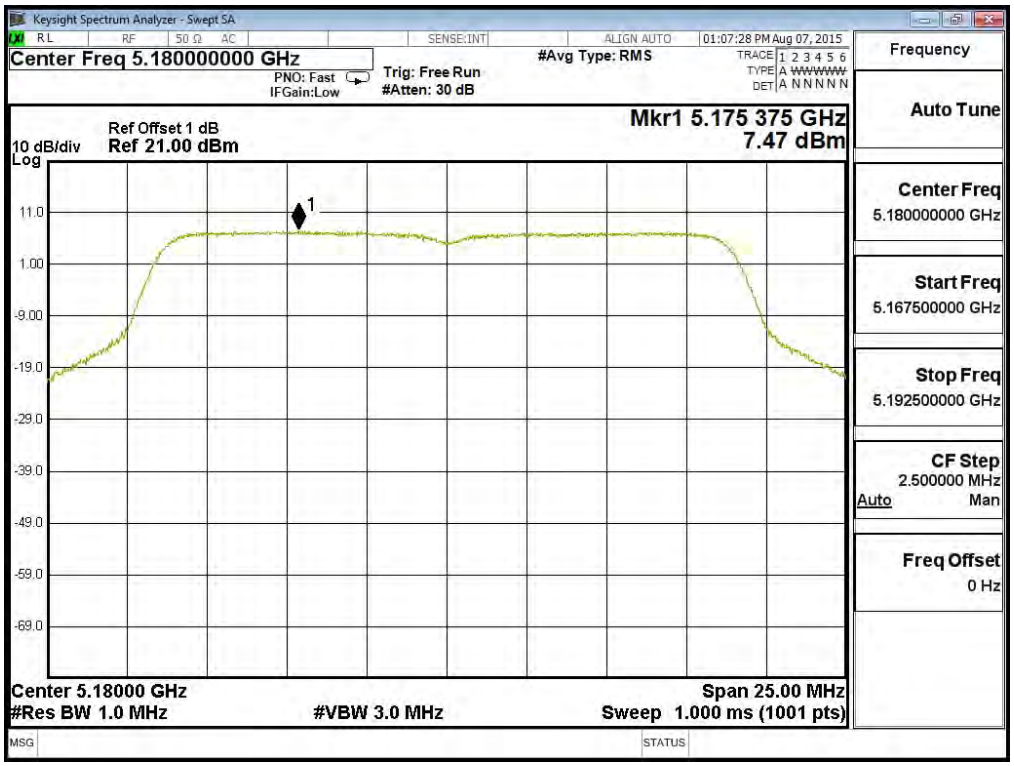


Product : 802.11 ac PCIe Module
Test Item : Peak Power Spectral Density
Test Site : No.3 OATS
Test Mode : Mode 10: Transmit (802.11n-20BW_14.4Mbps)(5G Band)(Omni Antenna)

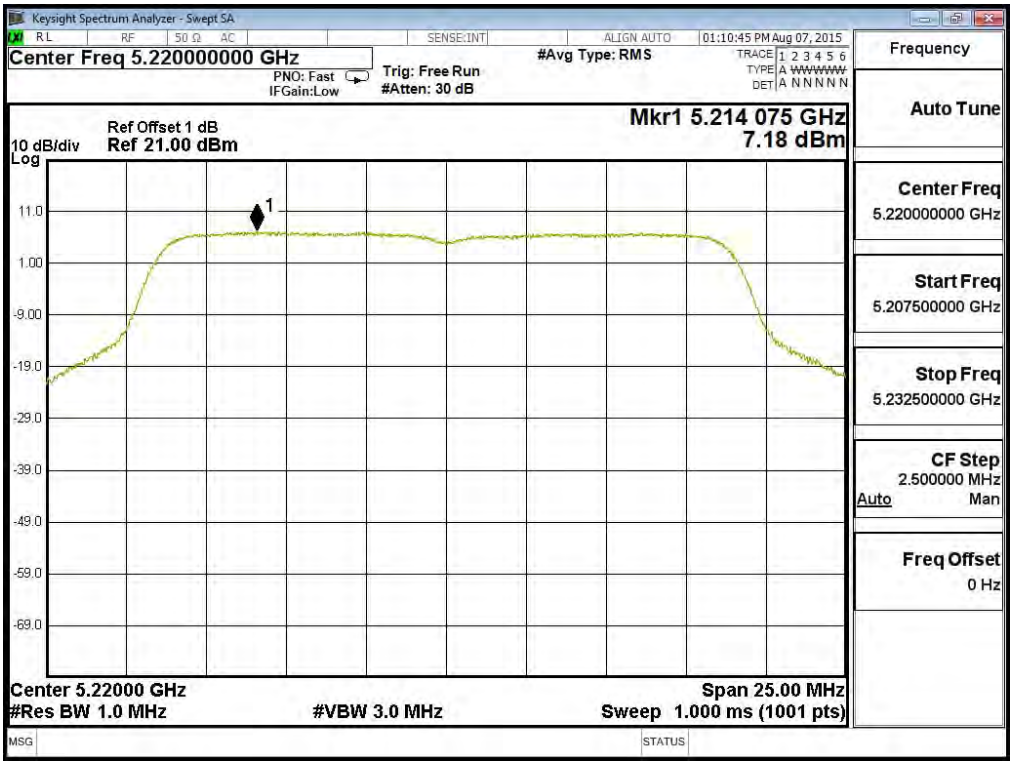
Channel Number	Frequency (MHz)	Chain	PPSD (dBm)	Total PPSD (dBm)1	Required Limit (dBm)	Result
36	5180	A	7.466	10.476	13	Pass
		B	7.148	10.158	13	Pass
44	5220	A	7.180	10.190	13	Pass
		B	9.106	11.762	13	Pass
48	5240	A	7.043	10.053	13	Pass
		B	8.966	11.761	13	Pass

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

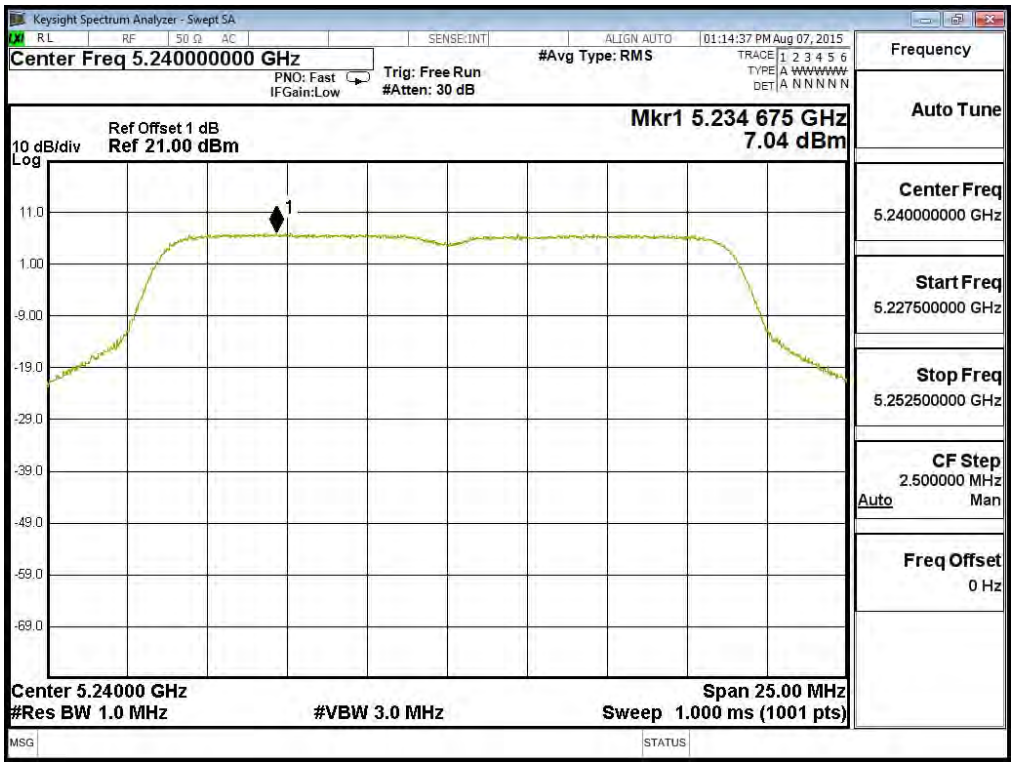
Channel 36 – Chain A



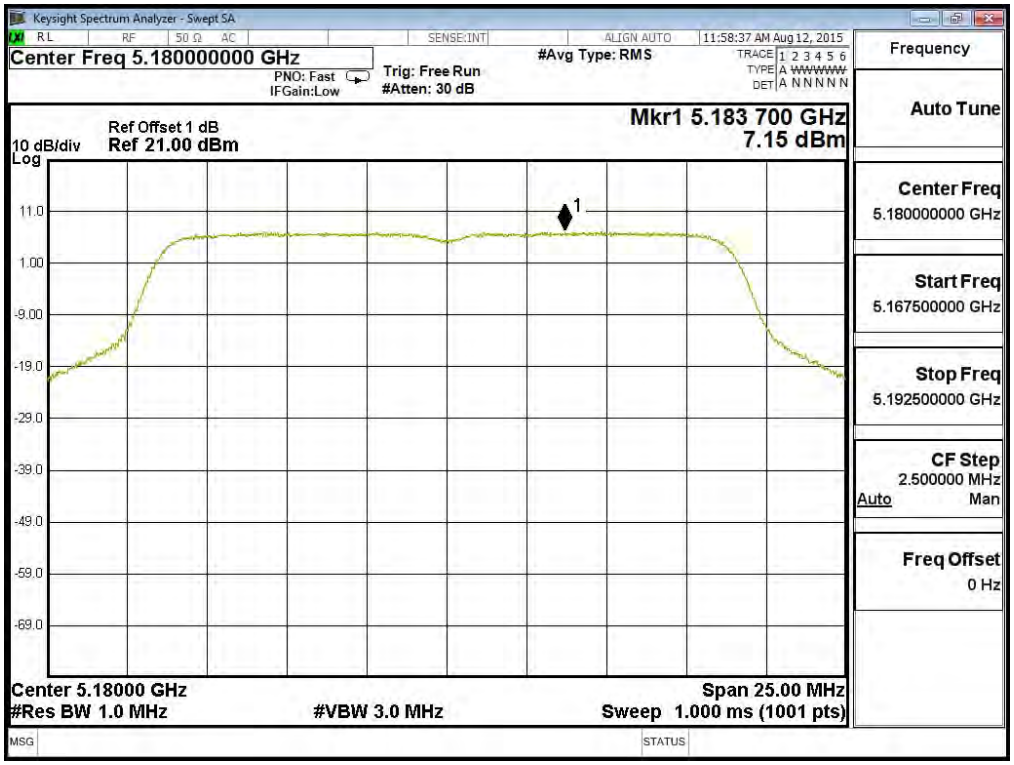
Channel 44 – Chain A



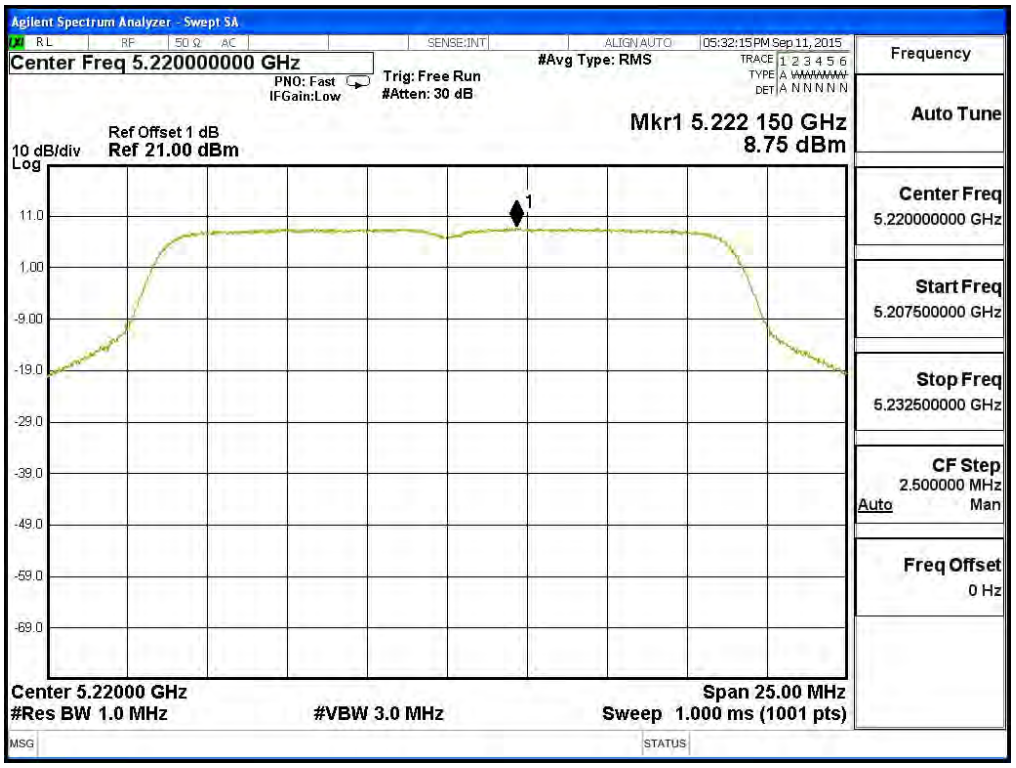
Channel 48 – Chain A



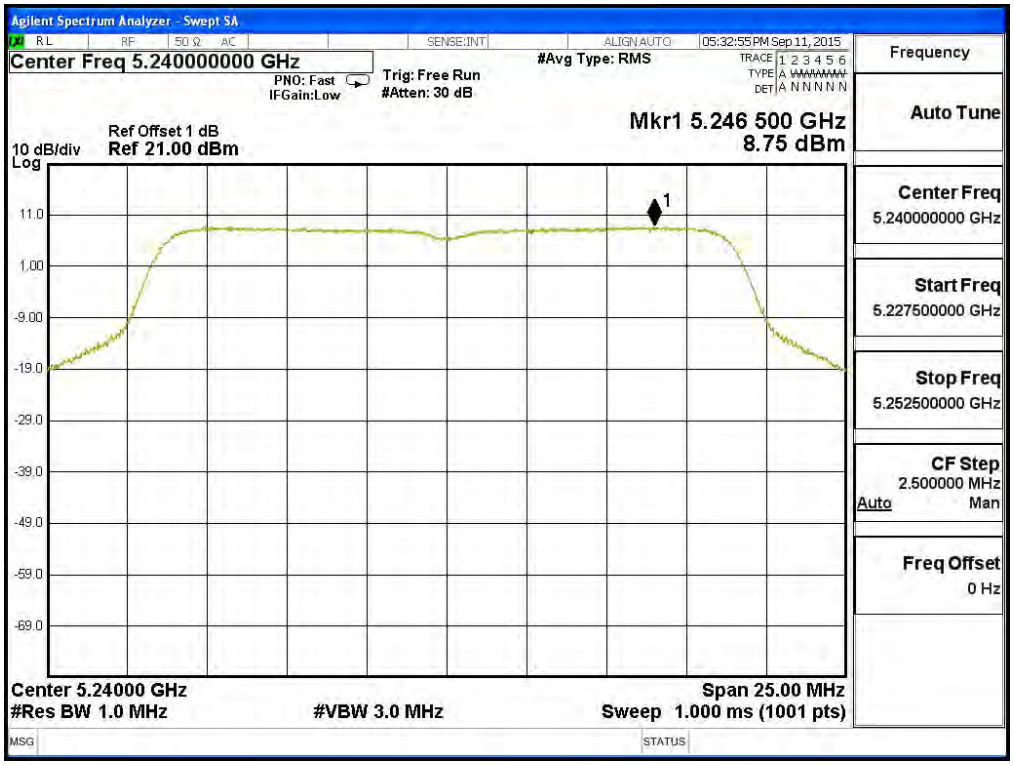
Channel 36 – Chain B



Channel 44 – Chain B



Channel 48 – Chain B

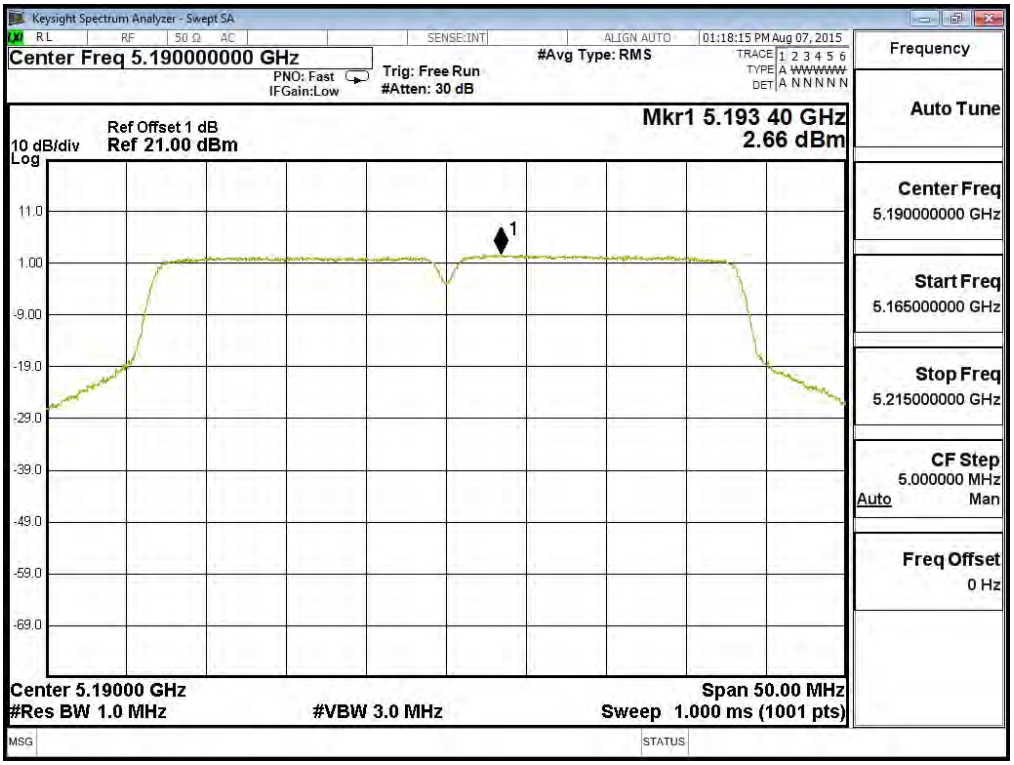


Product : 802.11 ac PCIe Module
Test Item : Peak Power Spectral Density
Test Site : No.3 OATS
Test Mode : Mode 11: Transmit (802.11n-40BW_30Mbps)(5G Band)(Omni Antenna)

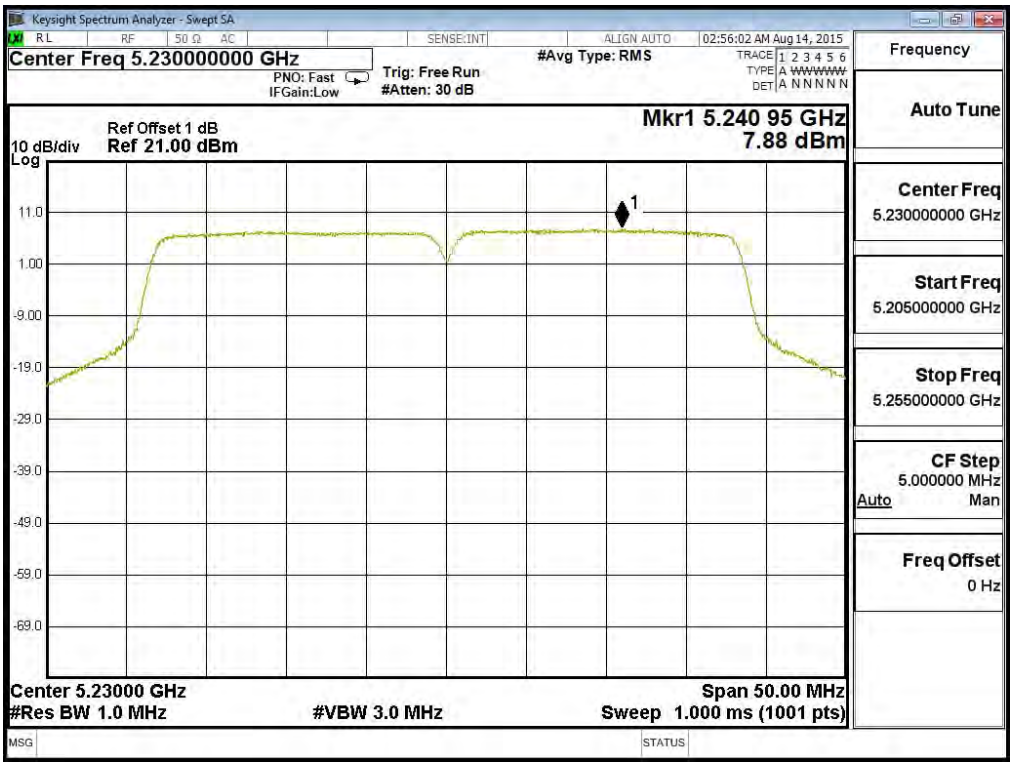
Channel Number	Frequency (MHz)	Chain	PPSD (dBm)	Total PPSD (dBm)1	Required Limit (dBm)	Result
38	5190	A	2.660	5.670	13	Pass
		B	2.727	5.737	13	Pass
46	5230	A	6.214	9.224	13	Pass
		B	5.179	8.189	13	Pass

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

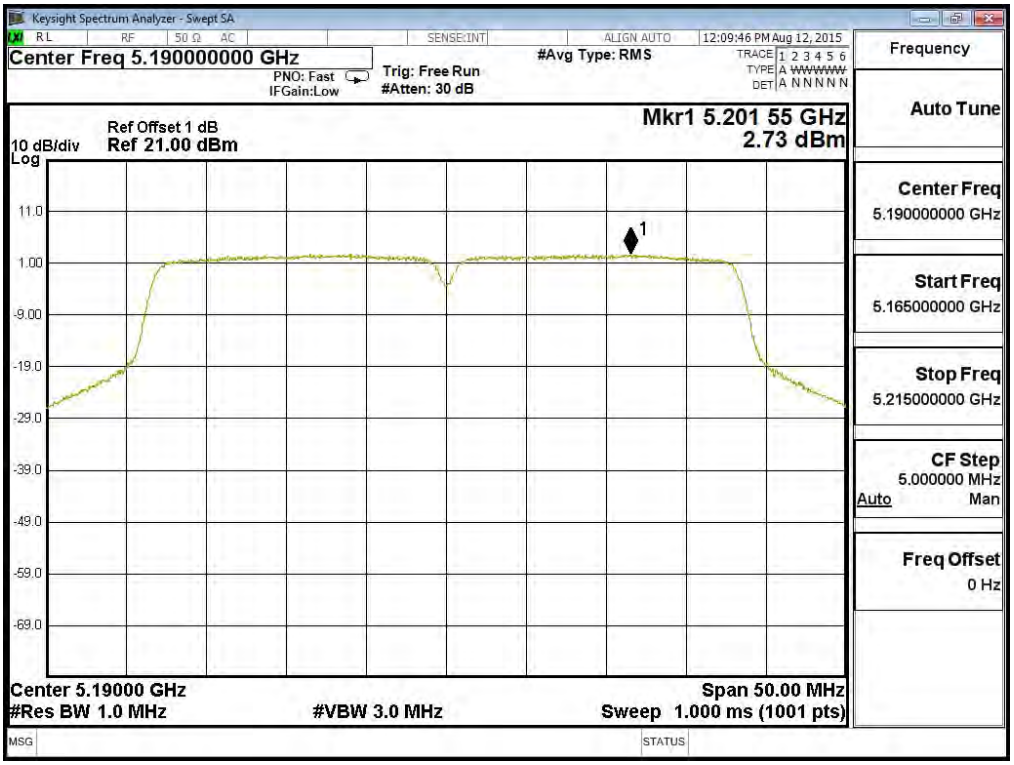
Channel 38 – Chain A



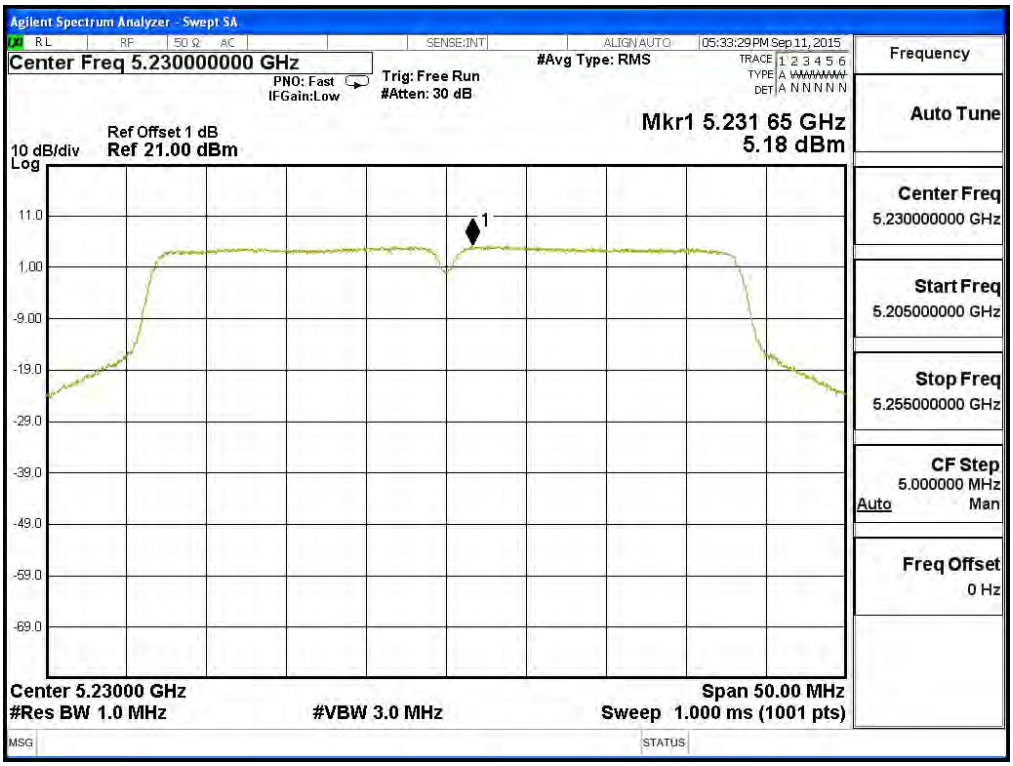
Channel 46 – Chain A



Channel 38 – Chain B



Channel 46 – Chain B

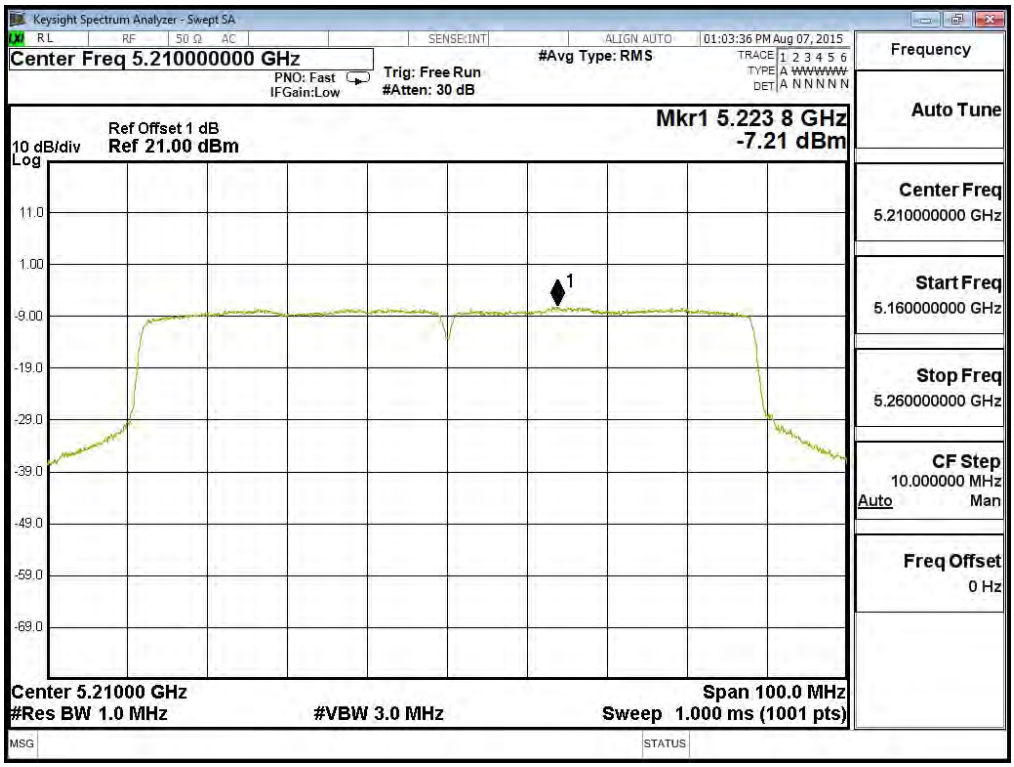


Product : 802.11 ac PCIe Module
Test Item : Peak Power Spectral Density
Test Site : No.3 OATS
Test Mode : Mode 12: Transmit (802.11ac-80BW_65Mbps)(5G Band)(Omni Antenna)

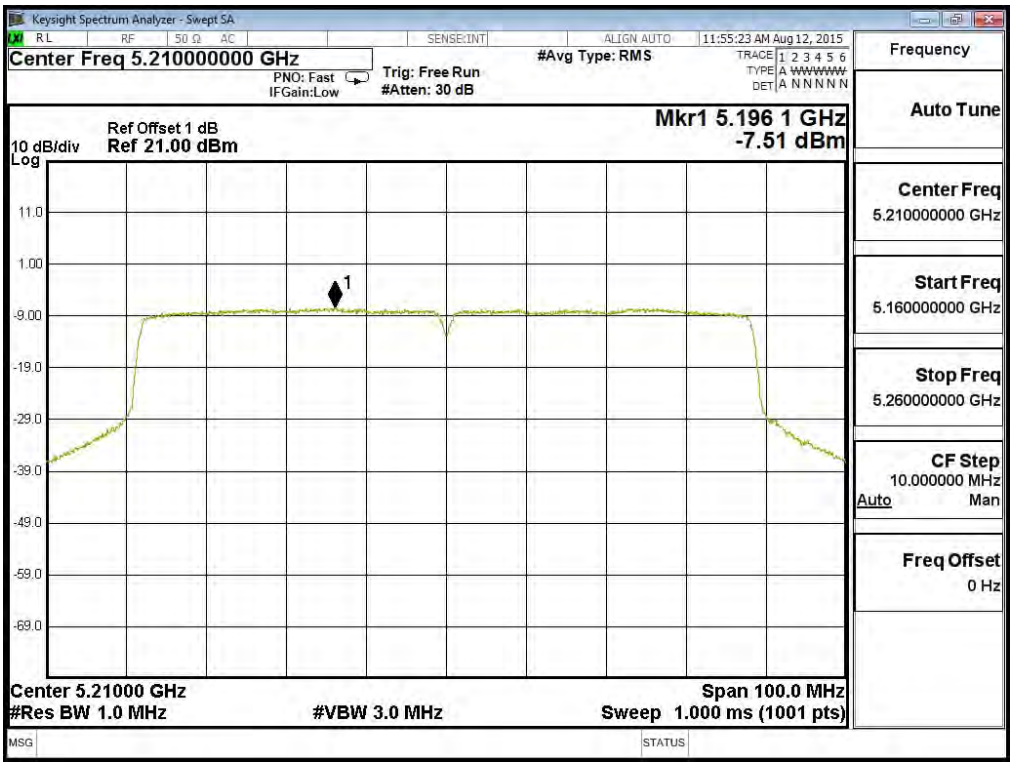
Channel Number	Frequency (MHz)	Chain	PPSD (dBm)	Total PPSD (dBm)1	Required Limit (dBm)	Result
42	5210	A	-7.210	-4.200	13	Pass
		B	-7.510	-4.500	13	Pass

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

Channel 42 – Chain A



Channel 42 – Chain B

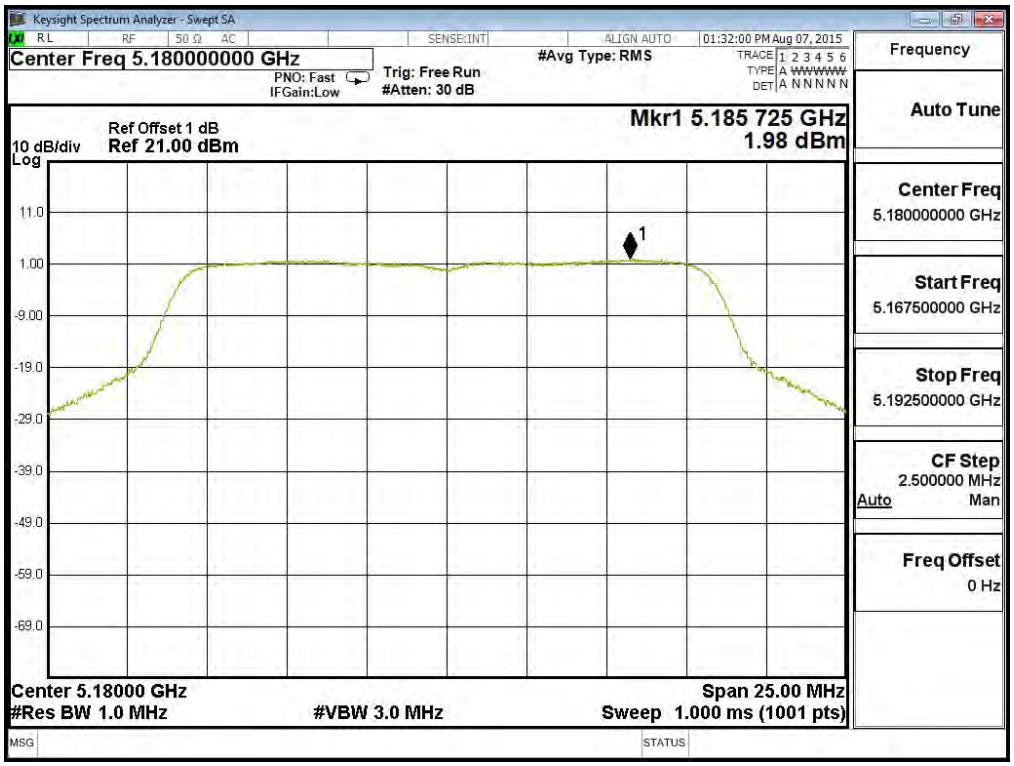


Product : 802.11 ac PCIe Module
Test Item : Peak Power Spectral Density
Test Site : No.3 OATS
Test Mode : Mode 13: Transmit (802.11a_6Mbps)(Panel Antenna)

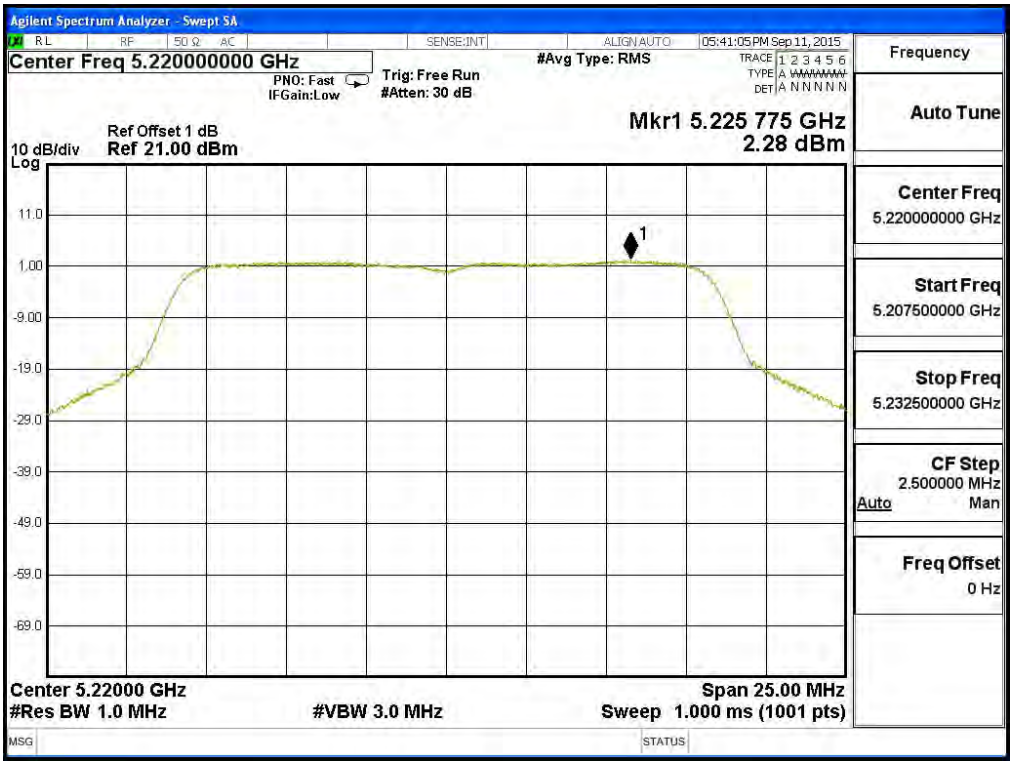
Channel Number	Frequency (MHz)	Chain	PPSD (dBm)	Total PPSD (dBm)1	Required Limit (dBm)	Result
36	5180	A	1.977	4.987	10	Pass
		B	2.590	5.600	10	Pass
44	5220	A	1.276	4.286	10	Pass
		B	2.280	5.290	10	Pass
48	5240	A	1.582	4.592	10	Pass
		B	2.210	5.220	10	Pass

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

Channel 36 – Chain A

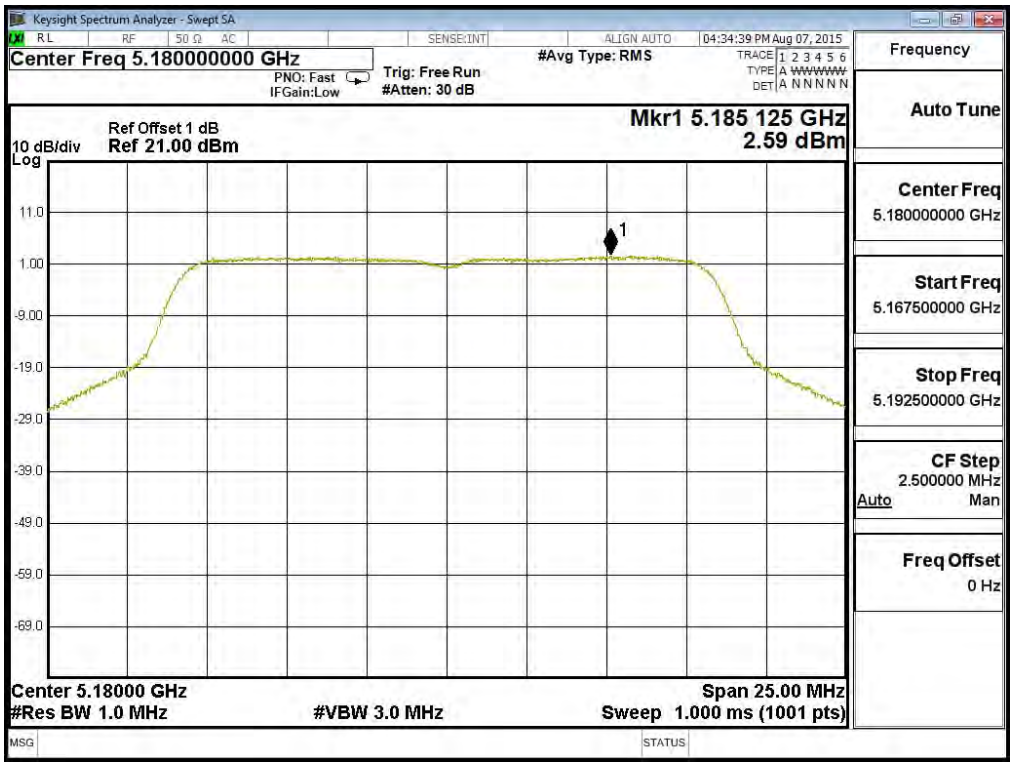


Channel 44 – Chain A

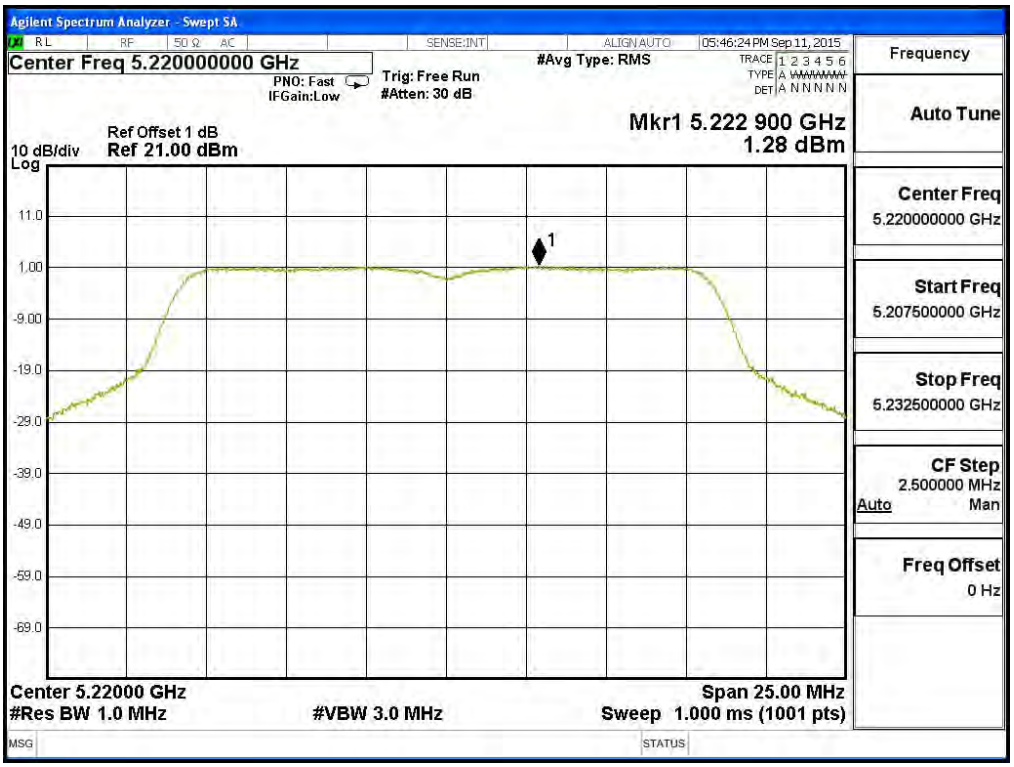


Channel 48 – Chain A

Channel 36 – Chain B



Channel 44 – Chain B



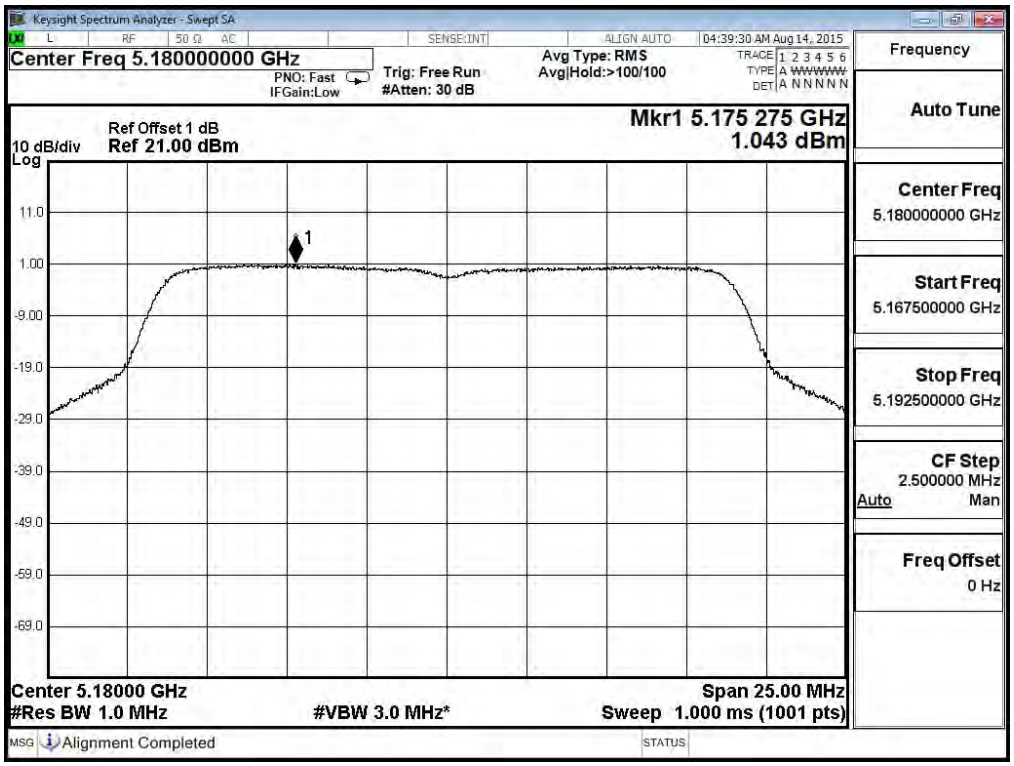
Channel 48 – Chain B

Product : 802.11 ac PCIe Module
Test Item : Peak Power Spectral Density
Test Site : No.3 OATS
Test Mode : Mode 14: Transmit (802.11n-20BW_14.4Mbps)(5G Band)(Panel Antenna)

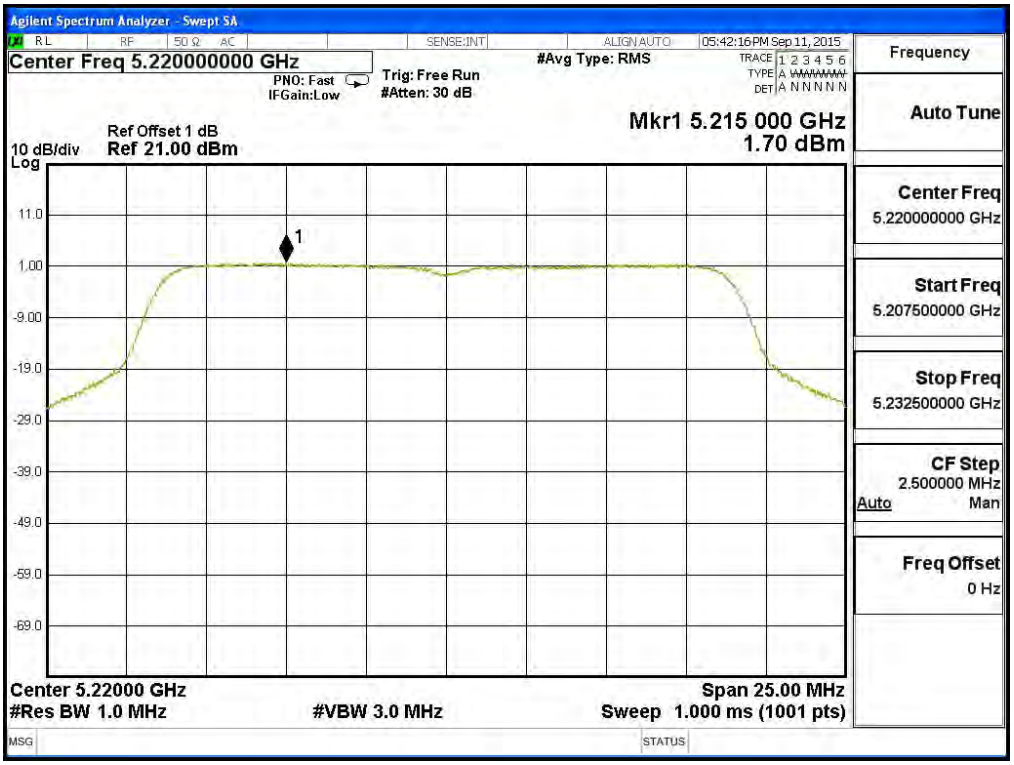
Channel Number	Frequency (MHz)	Chain	PPSD (dBm)	Total PPSD (dBm)1	Required Limit (dBm)	Result
36	5180	A	1.043	4.053	10	Pass
		B	2.120	5.130	10	Pass
44	5220	A	1.130	4.140	10	Pass
		B	1.696	4.706	10	Pass
48	5240	A	1.279	4.289	10	Pass
		B	1.848	4.858	10	Pass

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

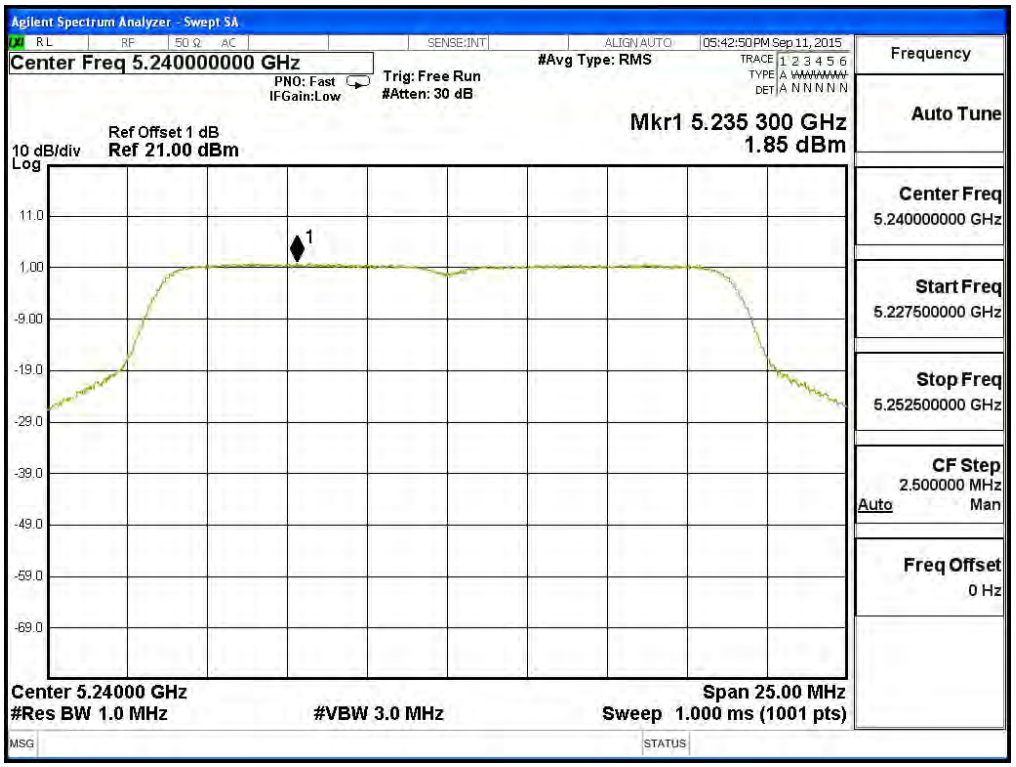
Channel 36 – Chain A



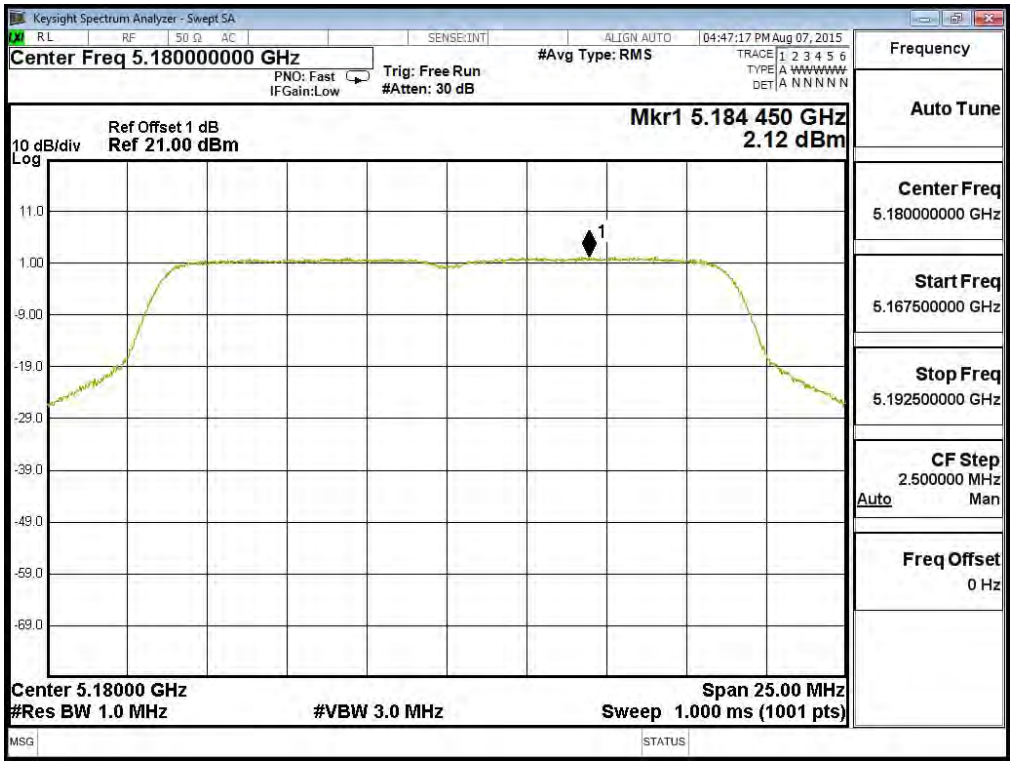
Channel 44 – Chain A



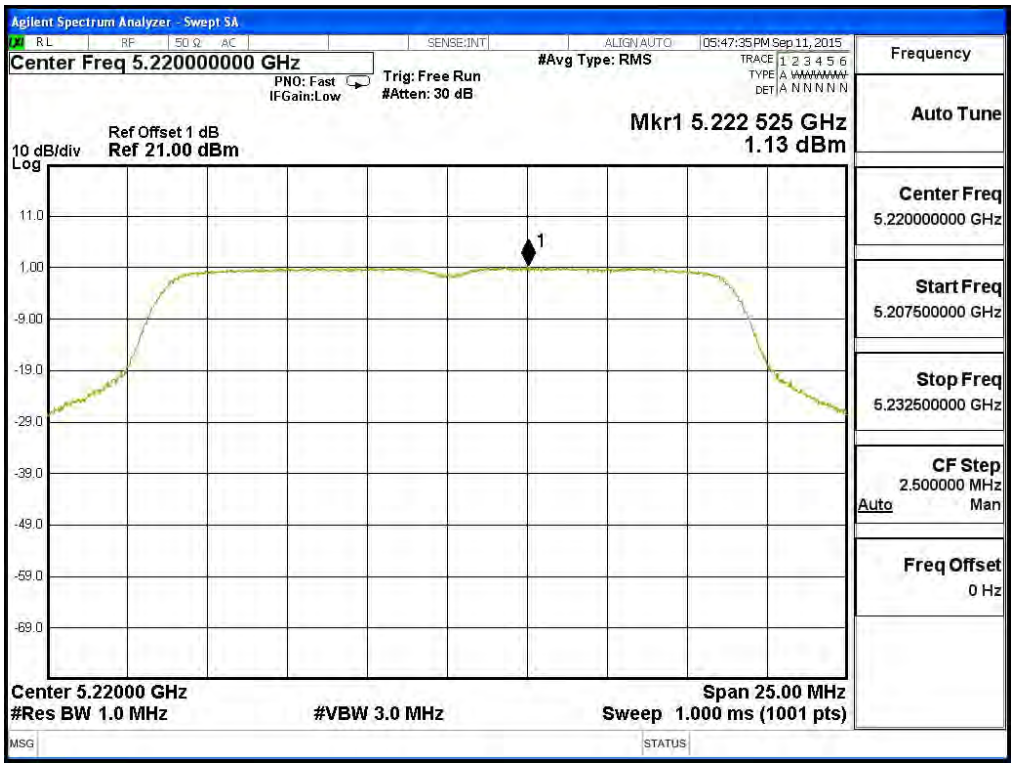
Channel 48 – Chain A



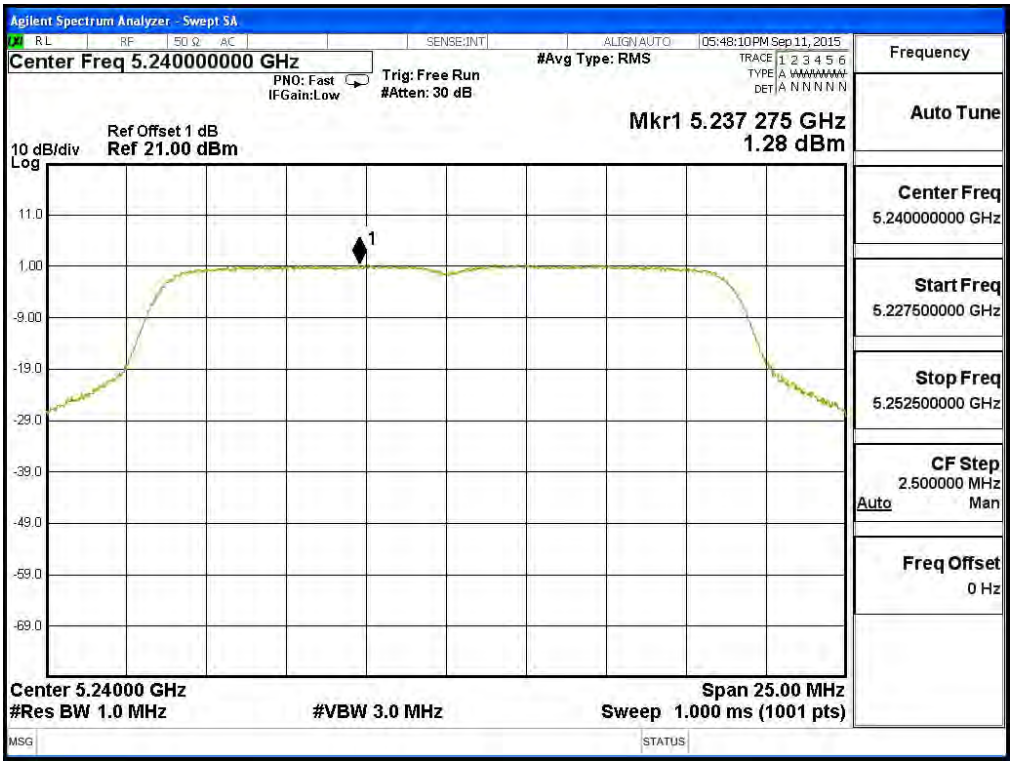
Channel 36 – Chain B



Channel 44 – Chain B



Channel 48 – Chain B

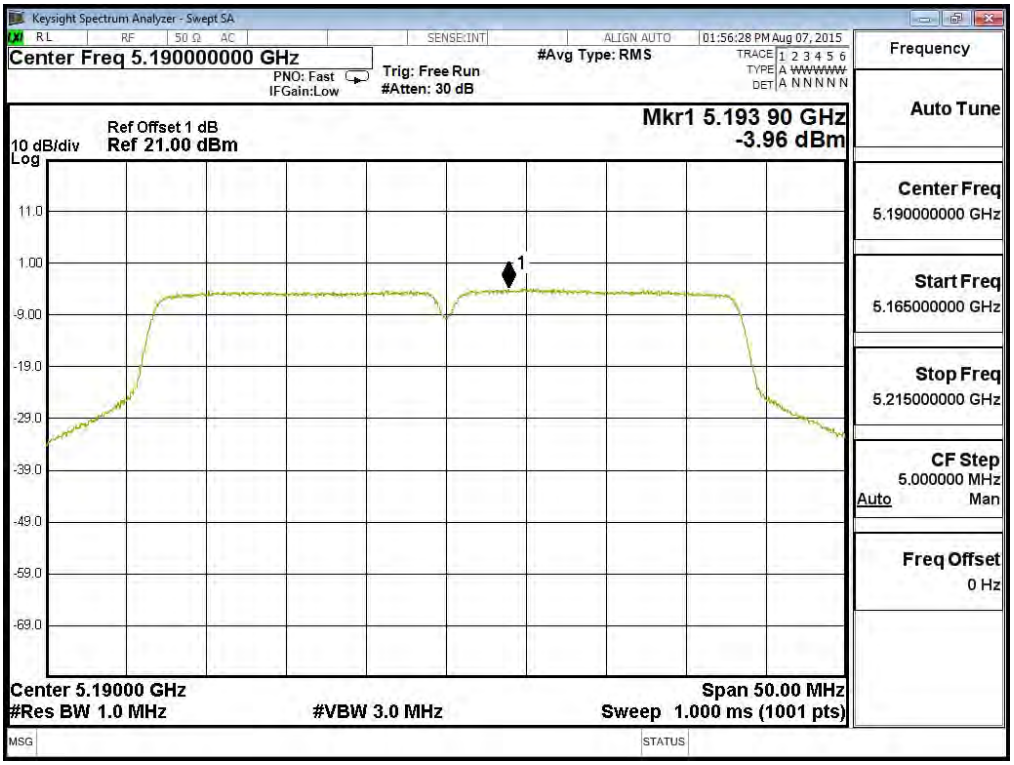


Product : 802.11 ac PCIe Module
Test Item : Peak Power Spectral Density
Test Site : No.3 OATS
Test Mode : Mode 15: Transmit (802.11n-40BW_30Mbps)(5G Band)(Panel Antenna)

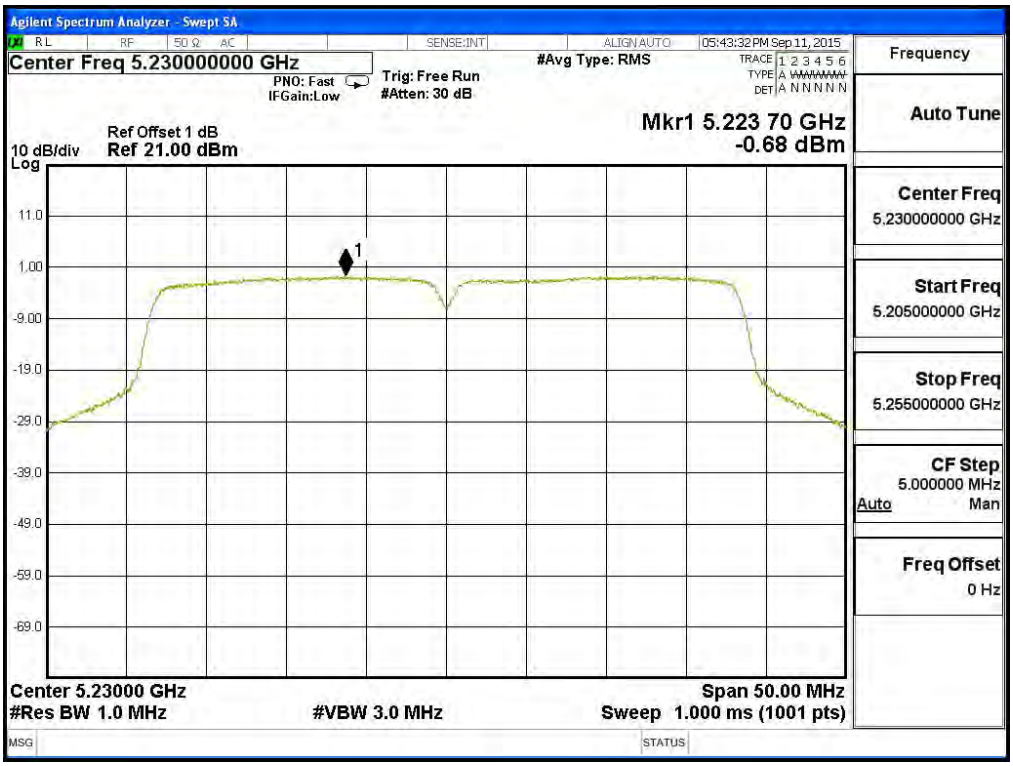
Channel Number	Frequency (MHz)	Chain	PPSD (dBm)	Total PPSD (dBm)1	Required Limit (dBm)	Result
38	5190	A	-3.959	-0.949	10	Pass
		B	-3.320	-0.310	10	Pass
46	5230	A	-1.509	1.501	10	Pass
		B	-0.676	2.334	10	Pass

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

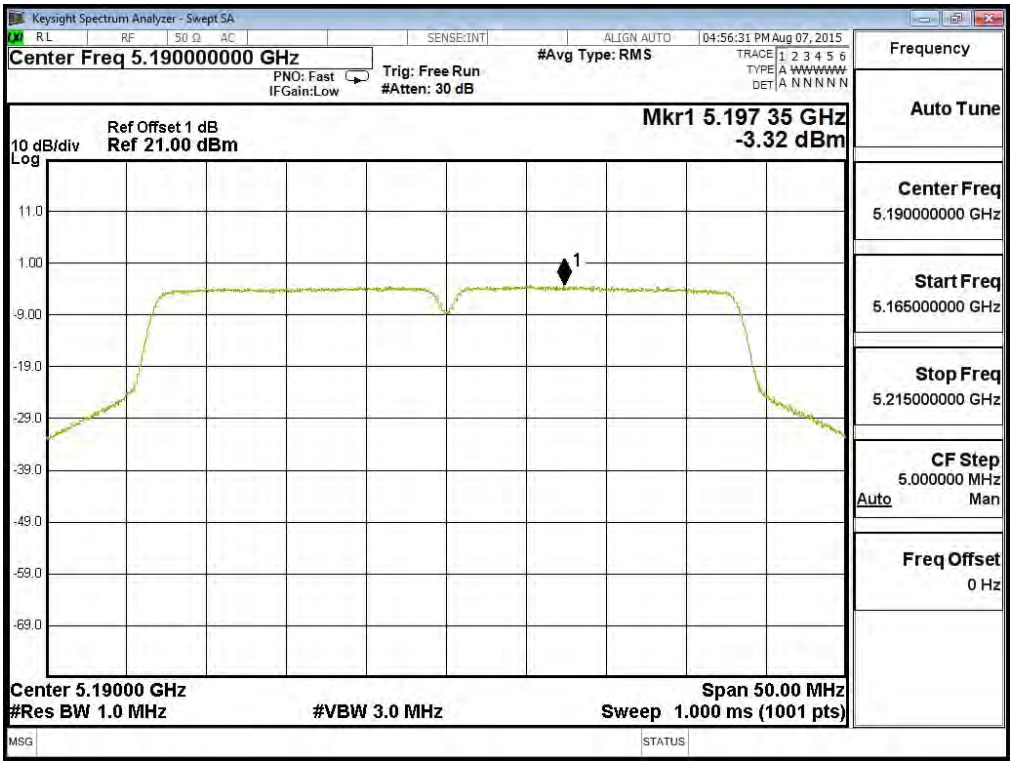
Channel 38 – Chain A



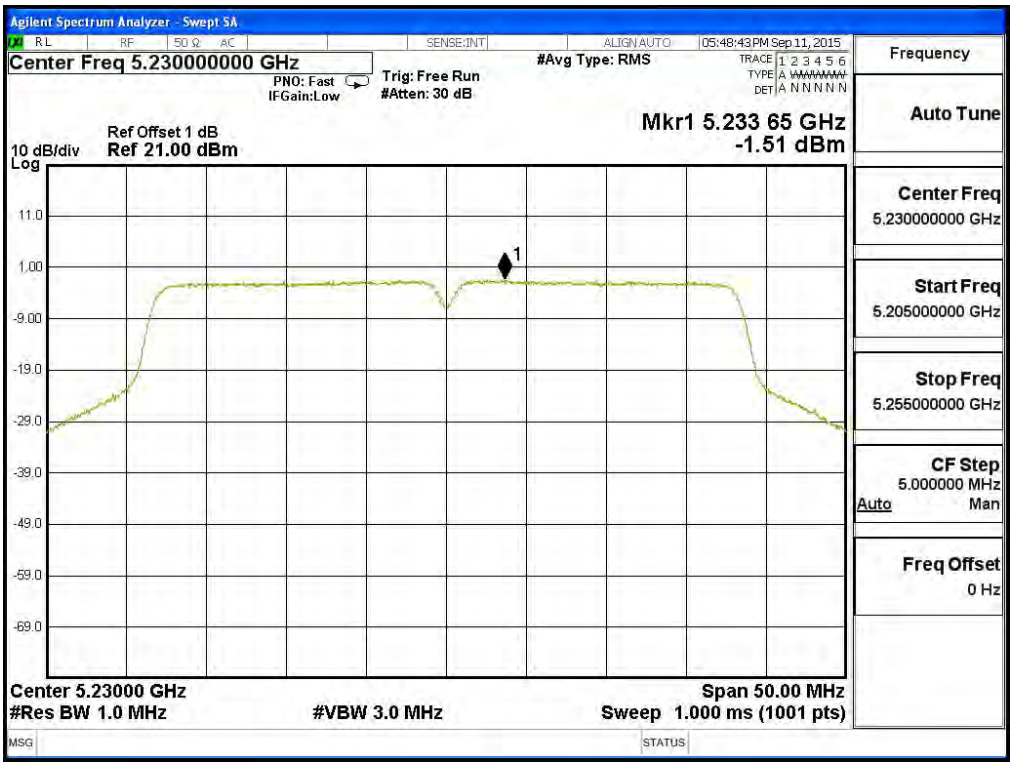
Channel 46 – Chain A



Channel 38 – Chain B



Channel 46 – Chain B

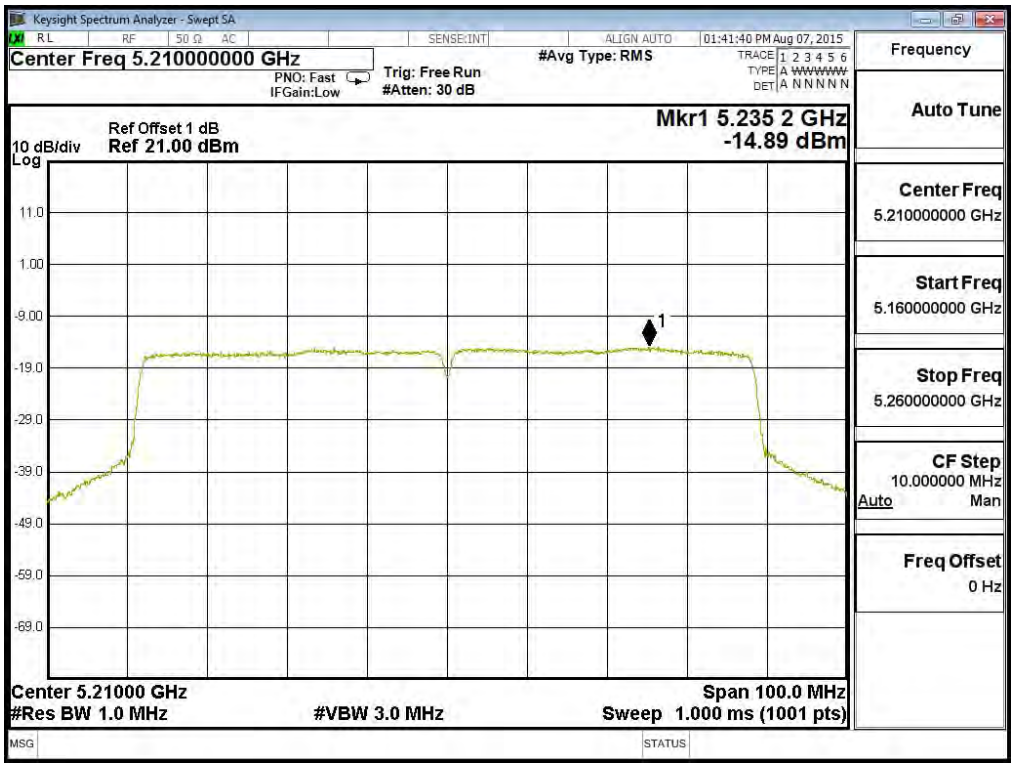


Product : 802.11 ac PCIe Module
Test Item : Peak Power Spectral Density
Test Site : No.3 OATS
Test Mode : Mode 16: Transmit (802.11ac-80BW_65Mbps)(5G Band)(Panel Antenna)

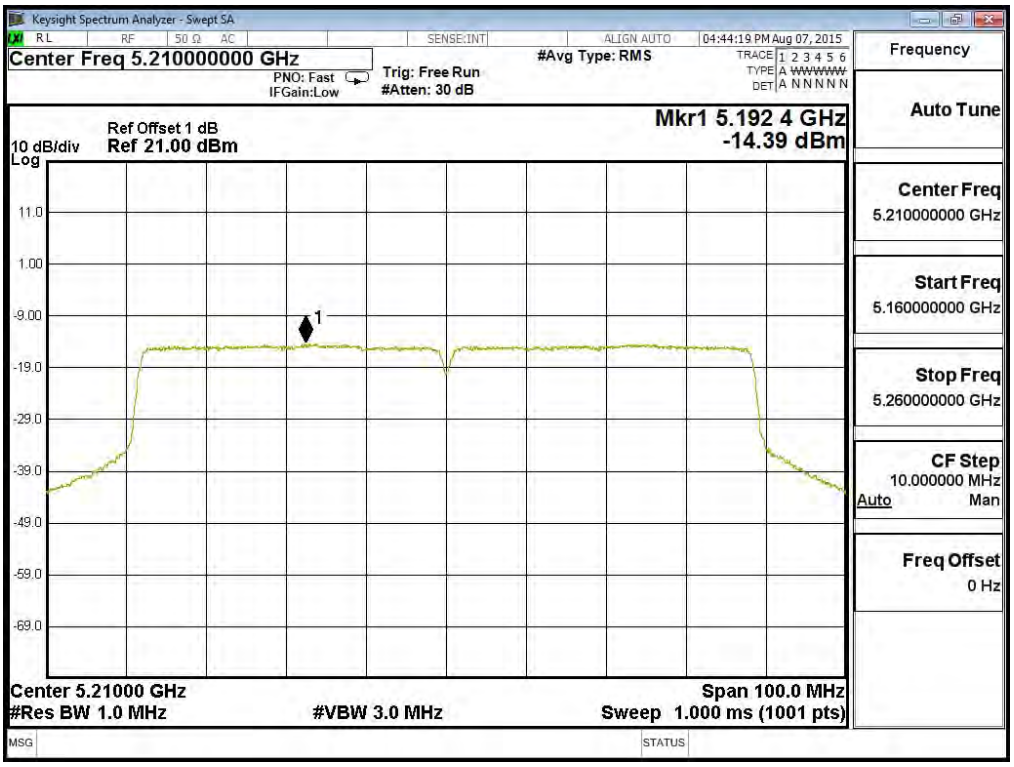
Channel Number	Frequency (MHz)	Chain	PPSD (dBm)	Total PPSD (dBm)1	Required Limit (dBm)	Result
42	5210	A	-14.890	-11.880	10	Pass
		B	-14.390	-11.380	10	Pass

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

Channel 42 – Chain A



Channel 42 – Chain B

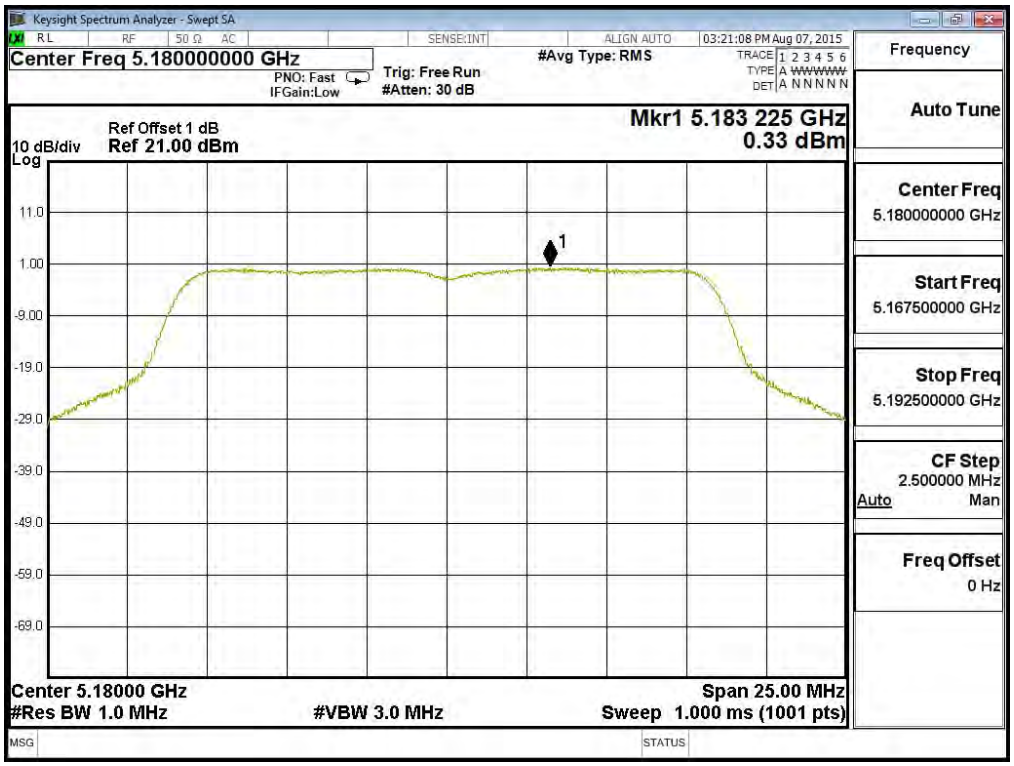


Product : 802.11 ac PCIe Module
Test Item : Peak Power Spectral Density
Test Site : No.3 OATS
Test Mode : Mode 17: Transmit (802.11a_6Mbps)(Sector Antenna)

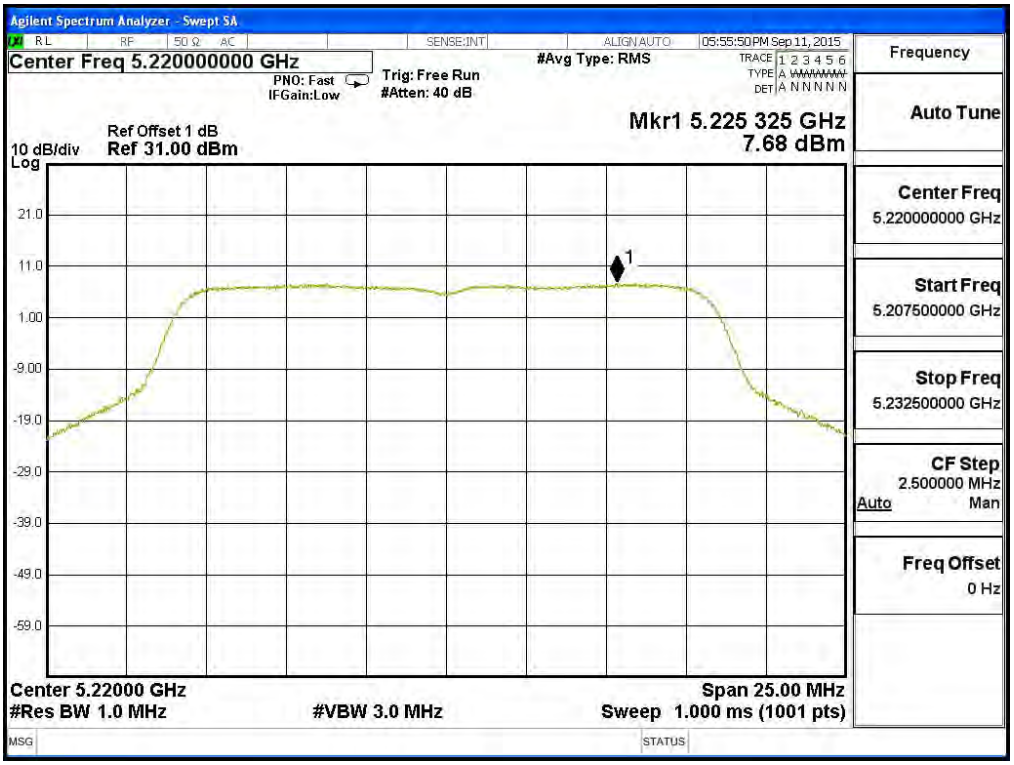
Channel Number	Frequency (MHz)	Chain	PPSD (dBm)	Total PPSD (dBm)1	Required Limit (dBm)	Result
36	5180	A	0.326	3.336	17	Pass
		B	0.080	3.090	17	Pass
44	5220	A	7.680	10.690	17	Pass
		B	7.183	10.193	17	Pass
48	5240	A	7.750	10.760	17	Pass
		B	7.321	10.331	17	Pass

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

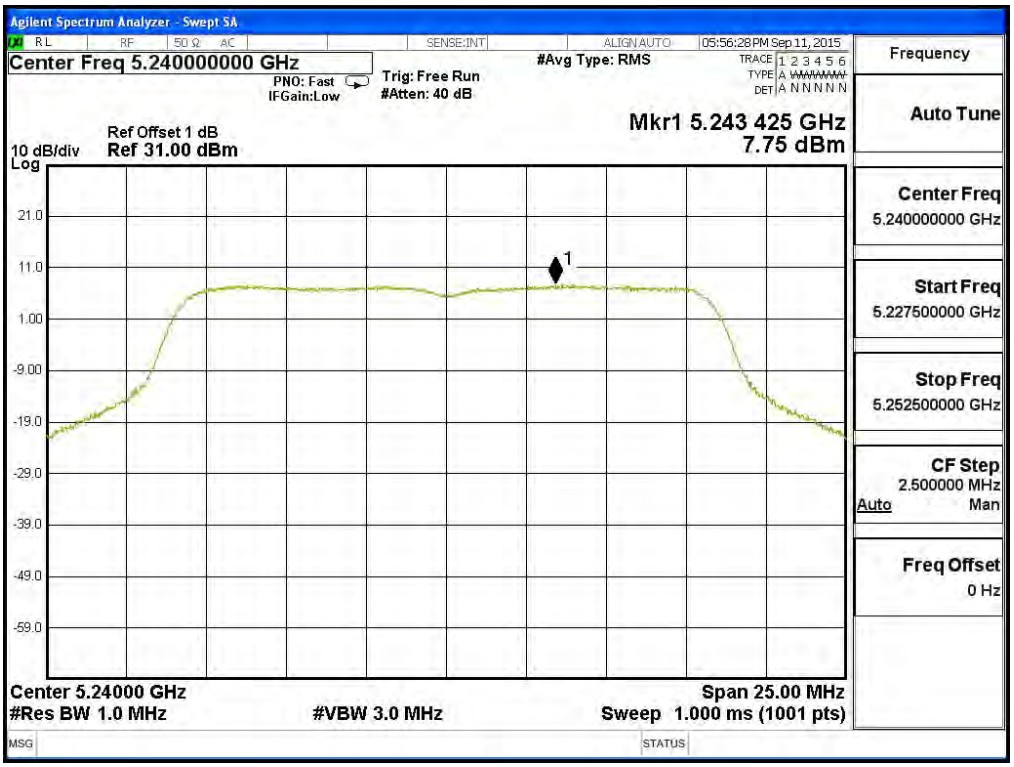
Channel 36 – Chain A



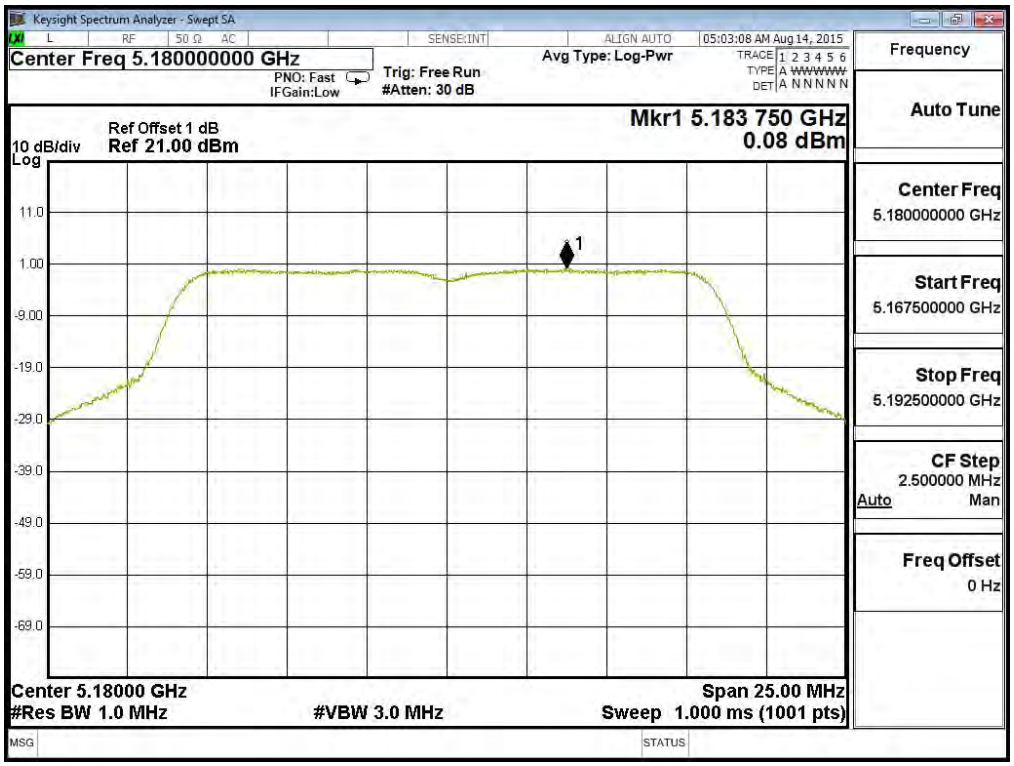
Channel 44 – Chain A



Channel 48 – Chain A



Channel 36 – Chain B



Channel 44 – Chain B

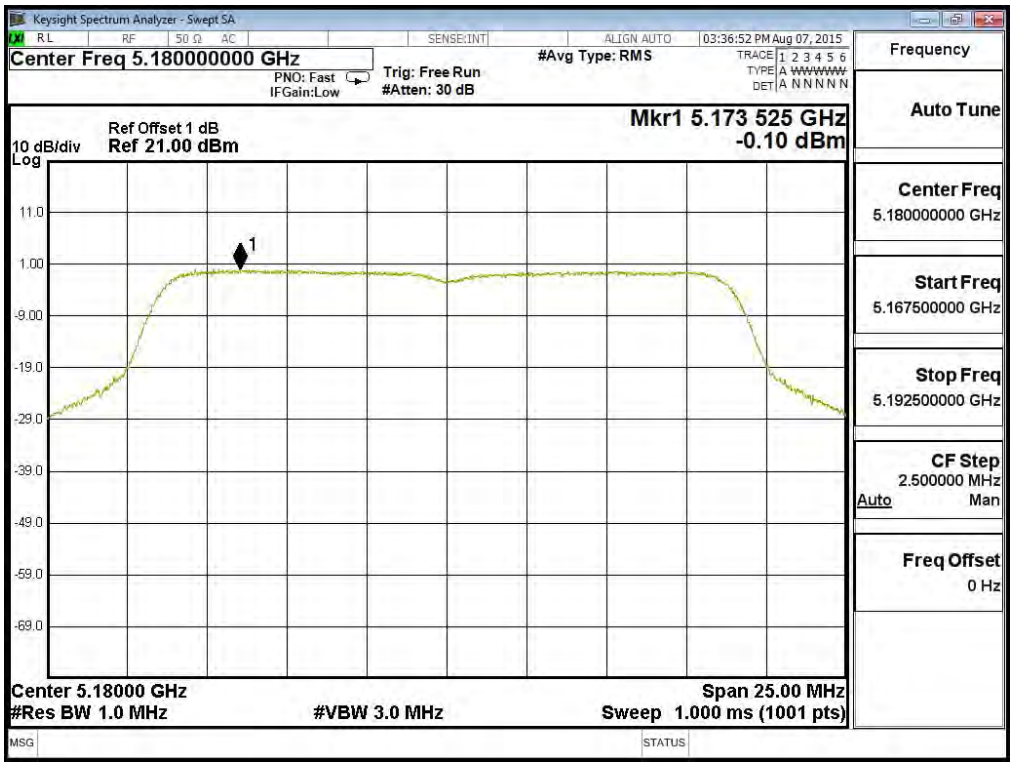
Channel 48 – Chain B

Product : 802.11 ac PCIe Module
Test Item : Peak Power Spectral Density
Test Site : No.3 OATS
Test Mode : Mode 18: Transmit (802.11n-20BW_14.4Mbps)(5G Band)(Sector Antenna)

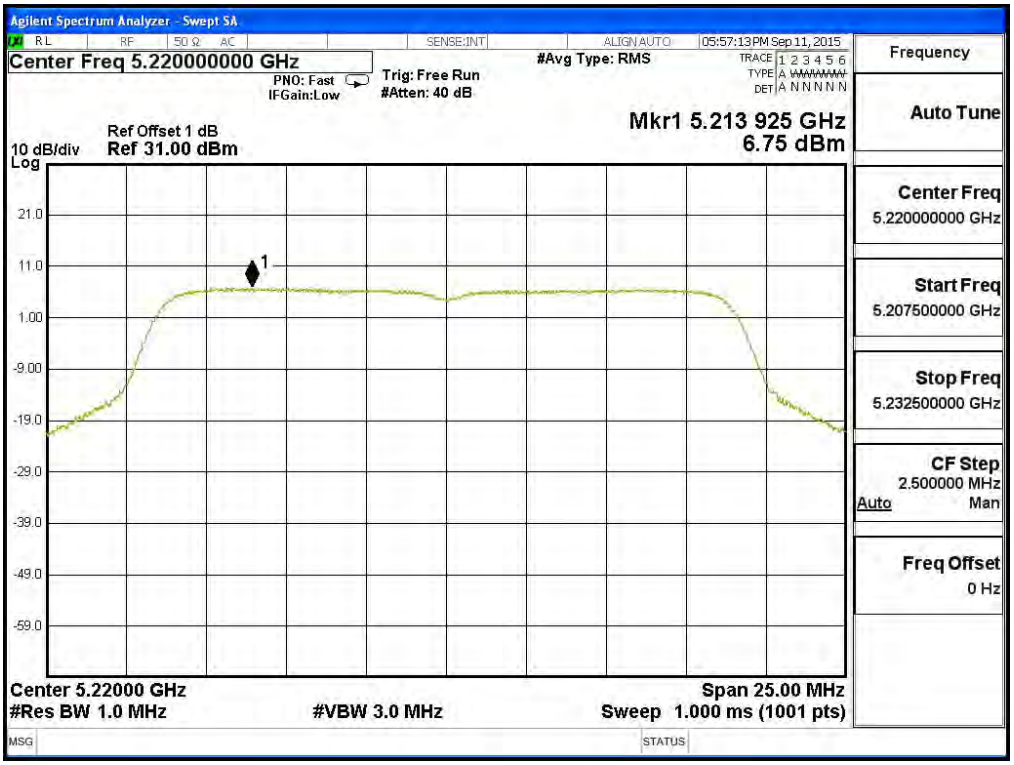
Channel Number	Frequency (MHz)	Chain	PPSD (dBm)	Total PPSD (dBm)1	Required Limit (dBm)	Result
36	5180	A	-0.098	2.912	17	Pass
		B	-0.270	2.740	17	Pass
44	5220	A	6.750	9.760	17	Pass
		B	6.978	9.988	17	Pass
48	5240	A	6.840	9.850	17	Pass
		B	6.948	9.958	17	Pass

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

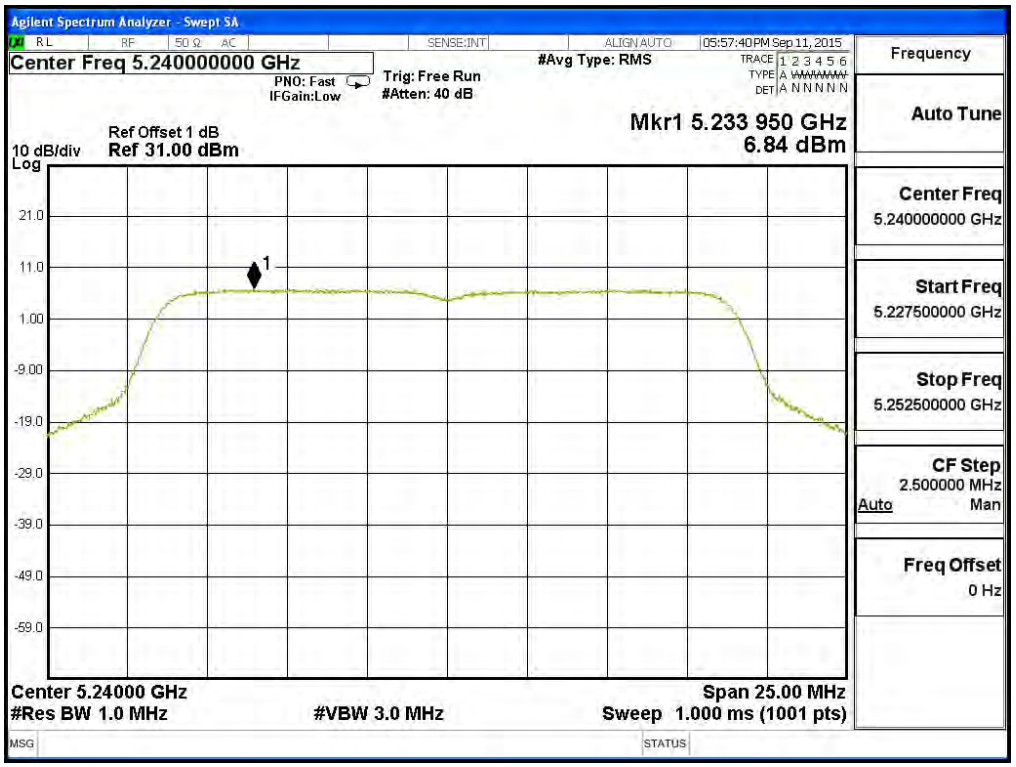
Channel 36 – Chain A



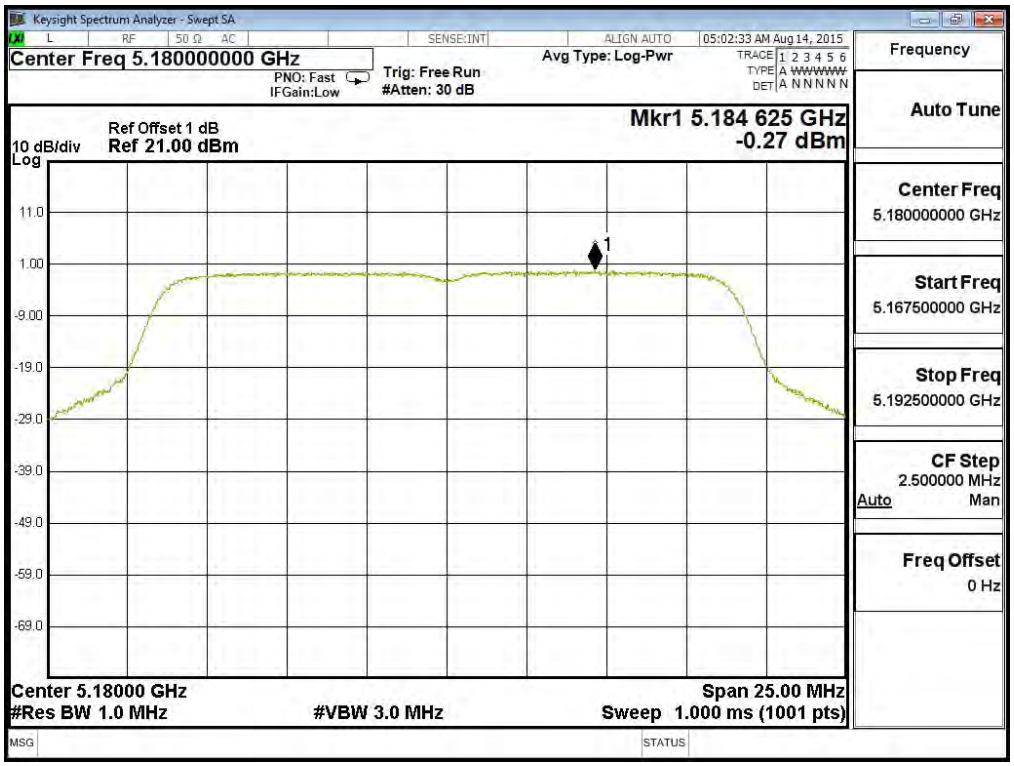
Channel 44 – Chain A



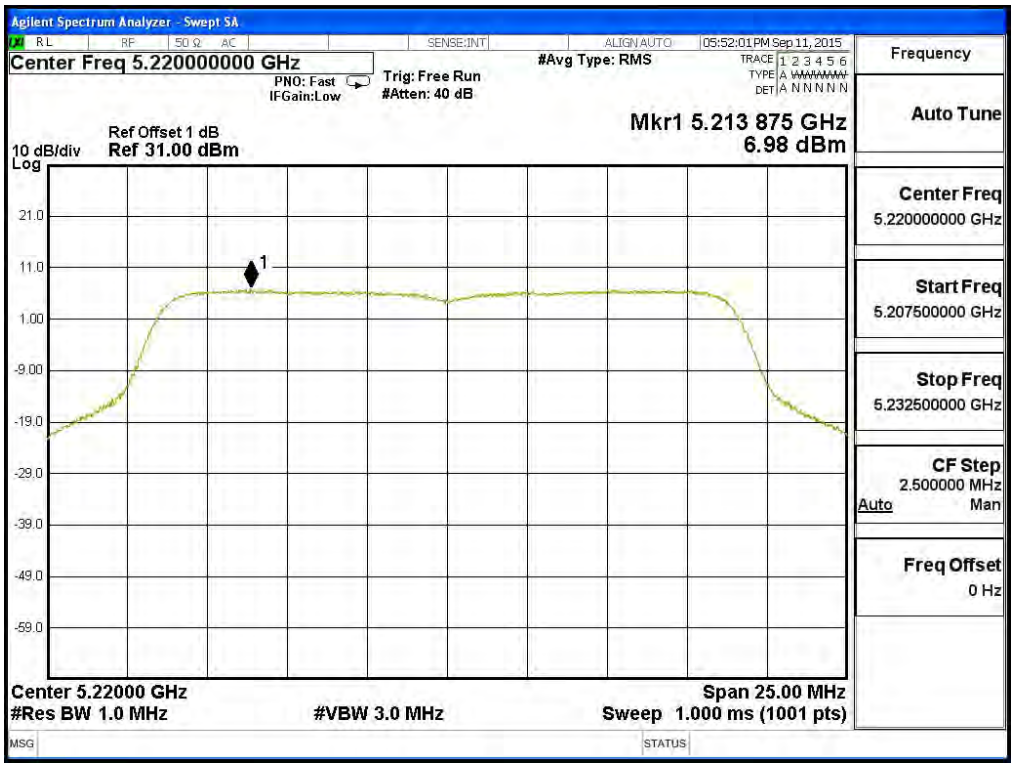
Channel 48 – Chain A



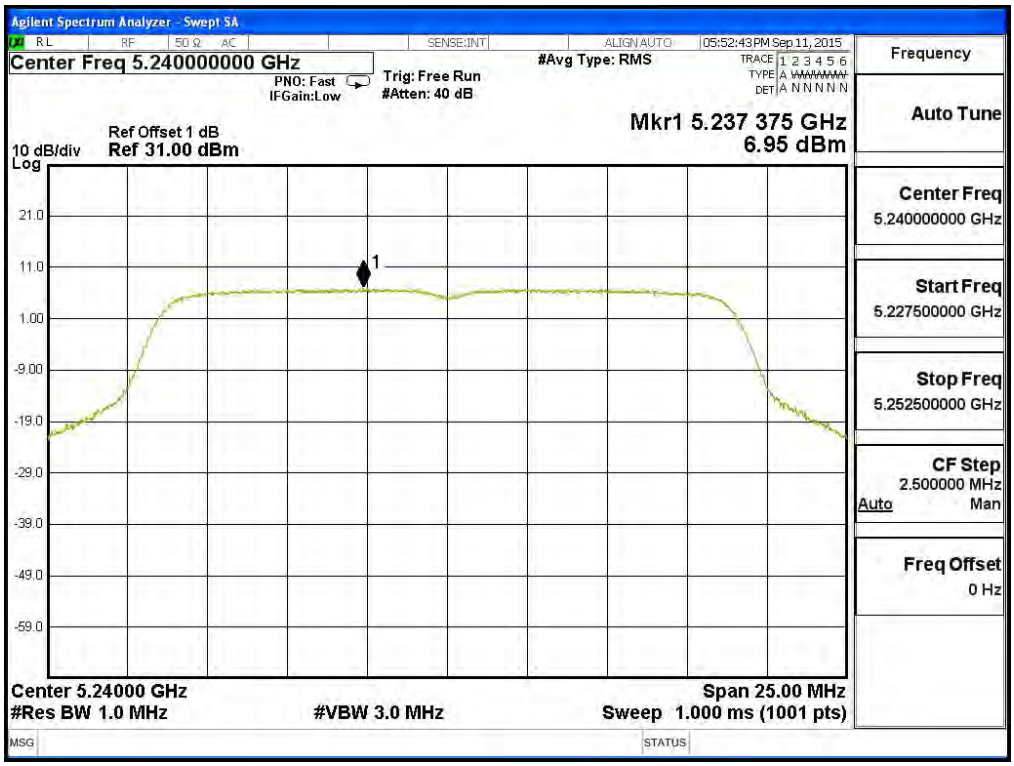
Channel 36 – Chain B



Channel 44 – Chain B



Channel 48 – Chain B

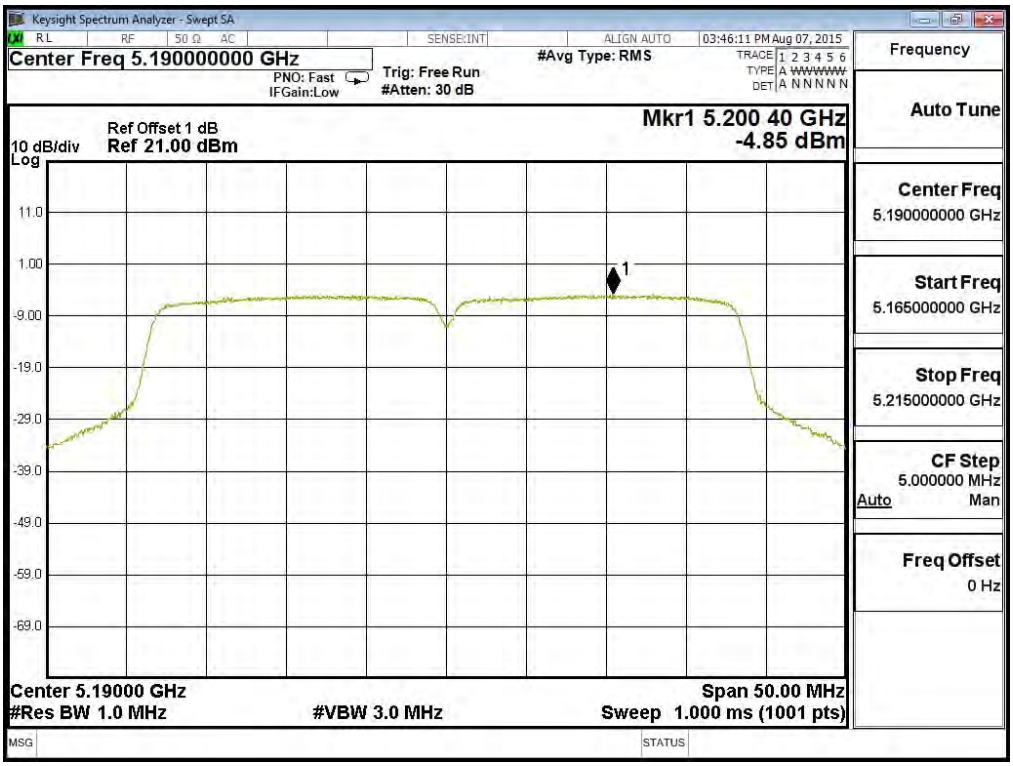


Product : 802.11 ac PCIe Module
Test Item : Peak Power Spectral Density
Test Site : No.3 OATS
Test Mode : Mode 19: Transmit (802.11n-40BW_30Mbps)(5G Band)(Sector Antenna)

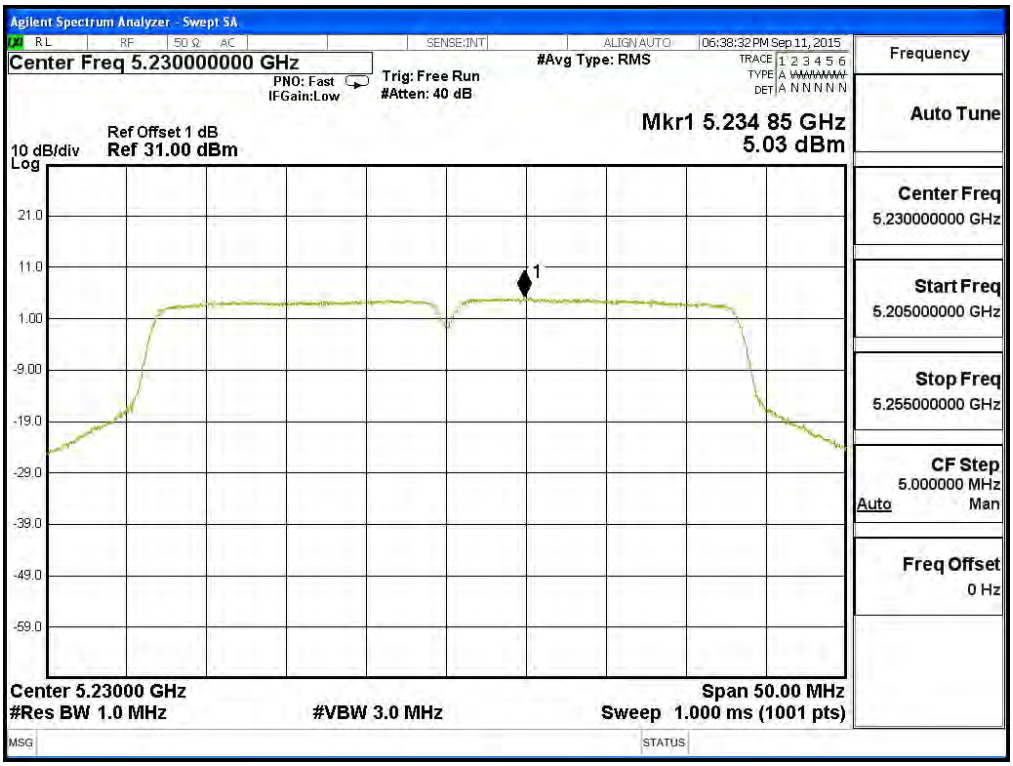
Channel Number	Frequency (MHz)	Chain	PPSD (dBm)	Total PPSD (dBm)1	Required Limit (dBm)	Result
38	5190	A	-4.850	-1.840	17	Pass
		B	-4.377	-1.367	17	Pass
46	5230	A	5.030	8.040	17	Pass
		B	4.302	7.312	17	Pass

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

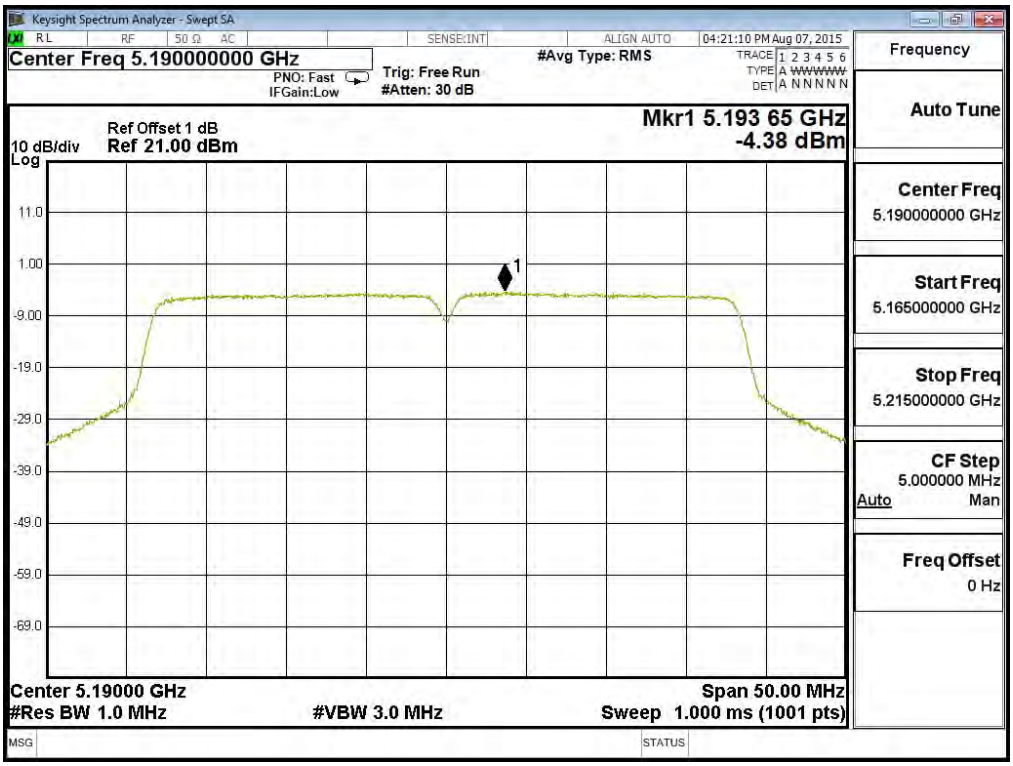
Channel 38 – Chain A



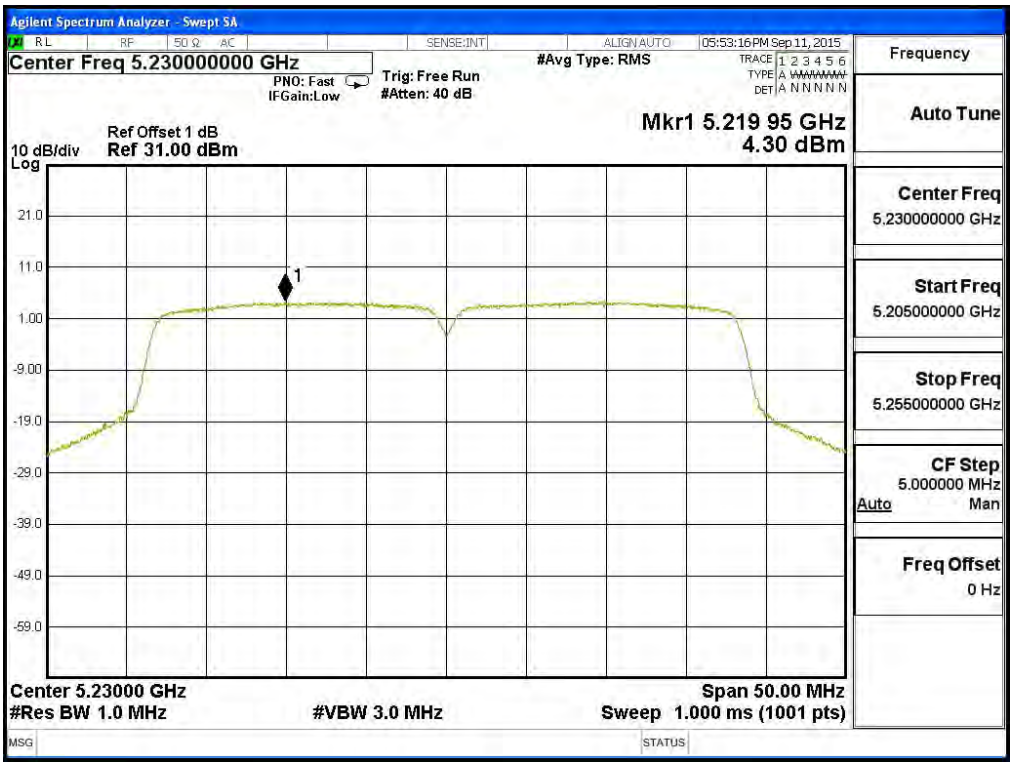
Channel 46 – Chain A



Channel 38 – Chain B



Channel 46 – Chain B

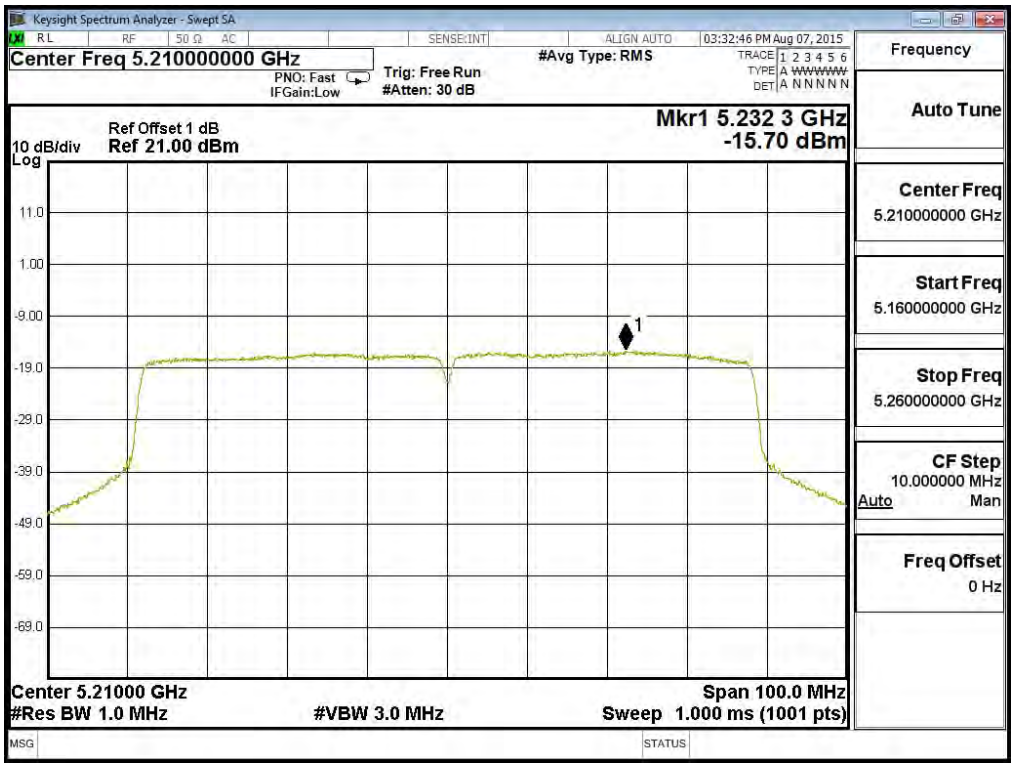


Product : 802.11 ac PCIe Module
Test Item : Peak Power Spectral Density
Test Site : No.3 OATS
Test Mode : Mode 20: Transmit (802.11ac-80BW_65Mbps)(5G Band)(Sector Antenna)

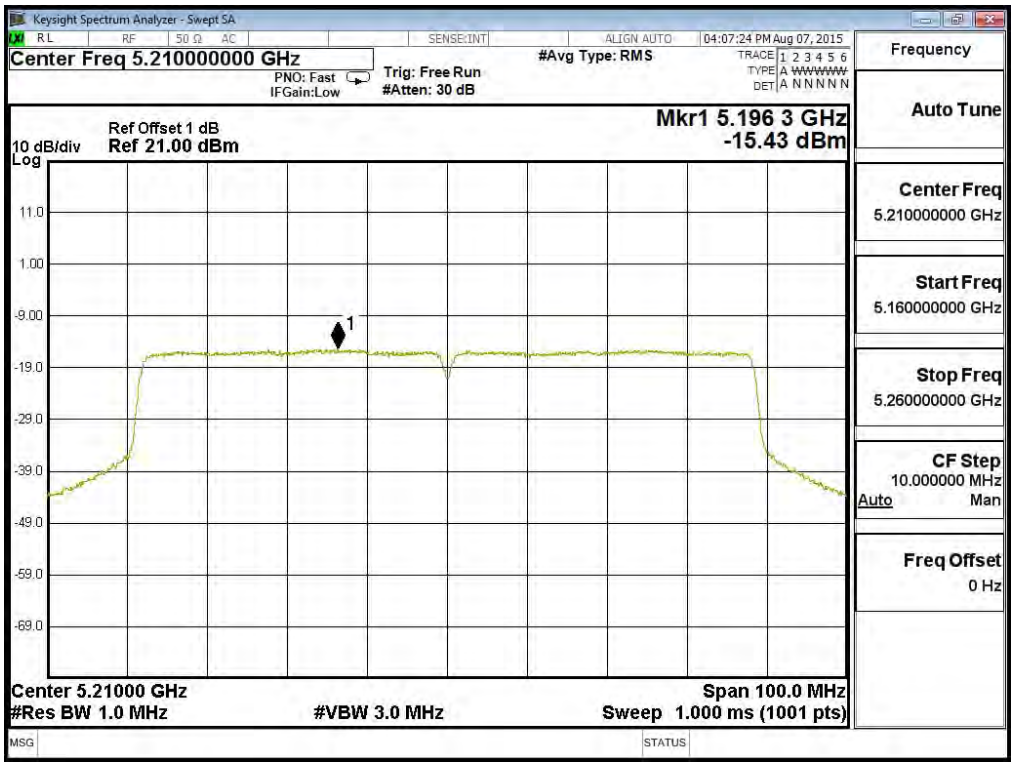
Channel Number	Frequency (MHz)	Chain	PPSD (dBm)	Total PPSD (dBm)1	Required Limit (dBm)	Result
42	5210	A	-15.700	-12.690	17	Pass
		B	-15.430	-12.420	17	Pass

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

Channel 42 – Chain A



Channel 42 – Chain B



5. Radiated Emission

5.1. Test Equipment

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

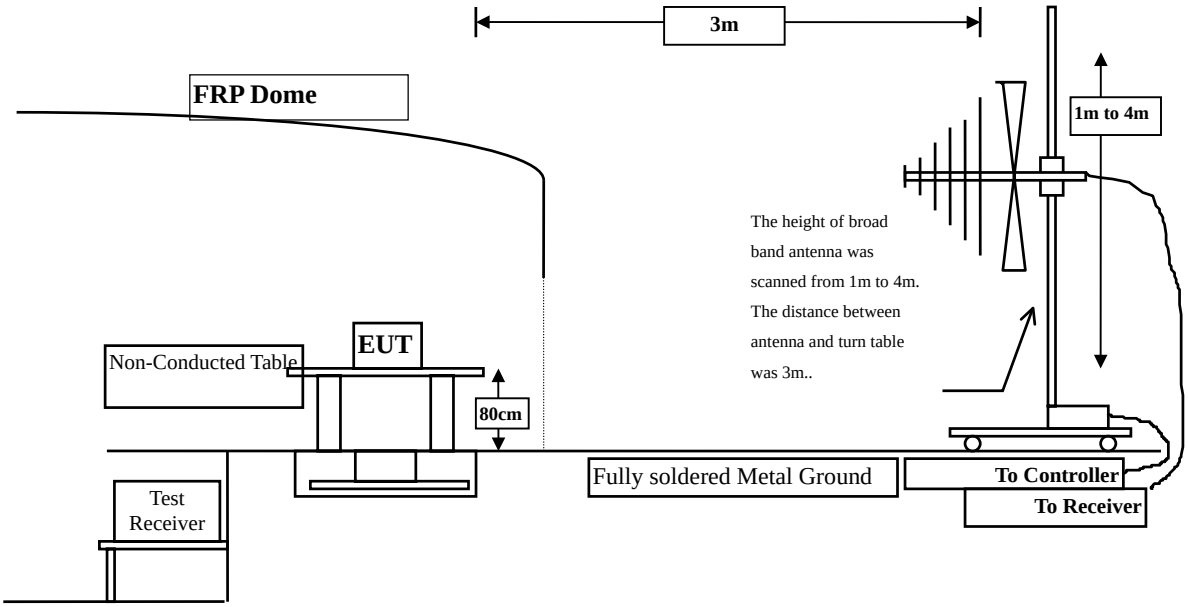
Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
☒Site # 3	X	Magnetic Loop Antenna	Teseq	HLA6121/ 37133	Sep, 2014
	X	Bilog Antenna	Schaffner Chase	CBL6112B/ 2707	Jun, 2015
	X	EMI Test Receiver	R&S	ESCS 30/838251/ 001	Jun, 2015
	X	Coaxial Cable	QTK(Arnist)	RG 214/ LC003-RG	Jun, 2015
	X	Coaxial signal switch	Arnist	MP59B/ 6200798682	Jun, 2015

Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
☒CB # 8	X	Spectrum Analyzer	R&S	FSP40/ 100339	Oct, 2014
	X	Horn Antenna	ETS-Lindgren	3117/ 35205	Mar, 2015
	X	Horn Antenna	Schwarzbeck	BBHA9170/209	Jan, 2015
	X	Horn Antenna	TRC	AH-0801/95051	Aug, 2015
	X	Pre-Amplifier	EMCI	EMC012630SE/980210	Jan, 2015
	X	Pre-Amplifier	MITEQ	JS41-001040000-58-5P/153945	Jul, 2015
	X	Pre-Amplifier	NARDA	DBL-1840N506/013	Jul, 2015

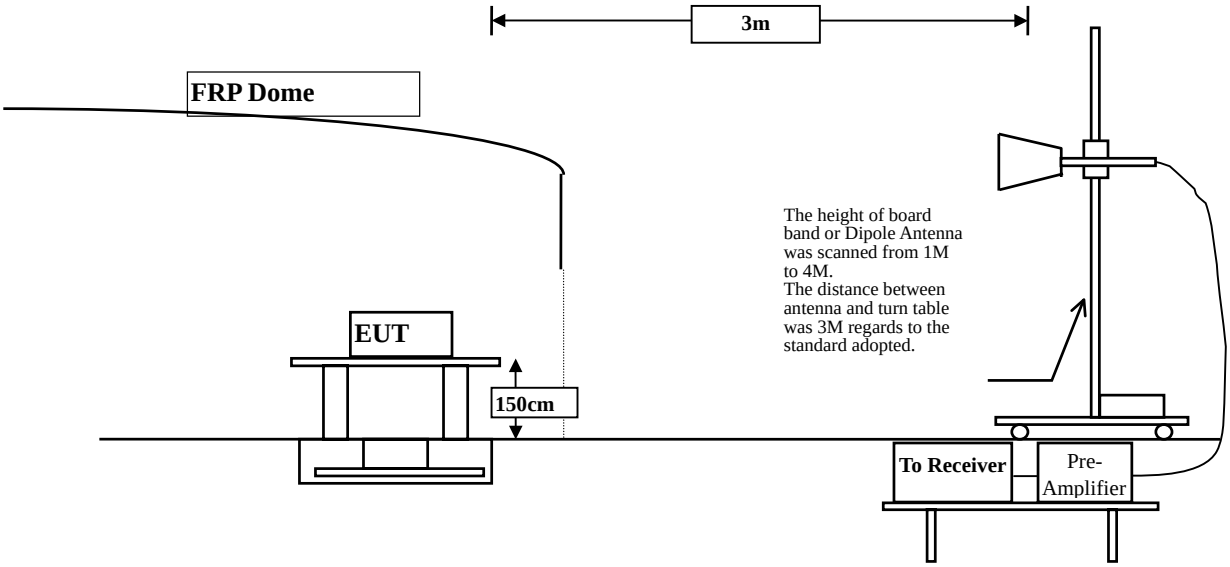
Note: 1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
2. The test instruments marked with "X" are used to measure the final test results.

5.2. Test Setup

Radiated Emission Below 1GHz



Radiated Emission Above 1GHz



5.3. Limits

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

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

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

5.4. Test Procedure

The EUT was setup according to ANSI C63.10, 2013 and tested according to FCC KDB-789033 test procedure for compliance to FCC 47CFR 15. 407 requirements.

Measuring the frequency range below 1GHz, the EUT is placed on a turn table which is 0.8 meter above ground,when measuring the frequency range above 1GHz, the EUT is placed on a turn table which is 1.5 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 between 1 meter and 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: 2013 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 : 802.11 ac PCIe Module
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps)(Dipole Antanna) (5180MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10360.000	12.930	33.920	46.850	-27.150	74.000
15540.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
10360.000	13.724	33.580	47.304	-26.696	74.000
15540.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

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 : 802.11 ac PCIe Module
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps)(Dipole Antanna) (5220MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10440.000	13.322	34.850	48.172	-25.828	74.000
15660.000	*	*	*	*	74.000
20880.000	*	*	*	*	74.000
26100.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
10440.000	14.245	42.170	56.415	-17.585	74.000
15660.000	*	*	*	*	74.000
20880.000	*	*	*	*	74.000
26100.000	*	*	*	*	74.000
Average Detector:					
10440.000	14.245	27.000	41.245	-12.755	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 : 802.11 ac PCIe Module
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps)(Dipole Antanna) (5240MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10480.000	13.693	33.990	47.684	-26.316	74.000
15720.000	*	*	*	*	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	74.000
Average					
Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
10480.000	14.620	41.900	56.521	-17.479	74.000
15720.000	*	*	*	*	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	74.000
Average					
Detector:					
10480.000	14.620	26.900	41.521	-12.479	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 : 802.11 ac PCIe Module
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW 14.4Mbps)(5G Band)(Dipole Antenna) (5180MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10360.000	12.930	33.090	46.020	-27.980	74.000
15540.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
10360.000	13.724	34.270	47.994	-26.006	74.000
15540.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

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 : 802.11 ac PCIe Module
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW 14.4Mbps)(5G Band)(Dipole Antenna) (5220MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10440.000	13.322	33.850	47.172	-26.828	74.000
15660.000	*	*	*	*	74.000
20880.000	*	*	*	*	74.000
26100.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
10440.000	14.245	38.880	53.125	-20.875	74.000
15660.000	*	*	*	*	74.000
20880.000	*	*	*	*	74.000
26100.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

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 : 802.11 ac PCIe Module
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW 14.4Mbps)(5G Band)(Dipole Antenna) (5240MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10480.000	13.693	33.510	47.204	-26.796	74.000
15720.000	*	*	*	*	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
10480.000	14.620	39.500	54.121	-19.879	74.000
15720.000	*	*	*	*	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	74.000
Average Detector:					
10480.000	14.620	22.810	37.431	-16.569	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 : 802.11 ac PCIe Module
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit (802.11n-40BW 30Mbps)(5G Band)(Dipole Antenna) (5190MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10380.000	13.796	32.980	46.776	-27.224	74.000
15570.000	*	*	*	*	74.000
20760.000	*	*	*	*	74.000
25950.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
10380.000	13.796	33.080	46.876	-27.124	74.000
15570.000	*	*	*	*	74.000
20760.000	*	*	*	*	74.000
25950.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

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 : 802.11 ac PCIe Module
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit (802.11n-40BW 30Mbps)(5G Band)(Dipole Antenna) (5230MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10460.000	13.508	33.460	46.968	-27.032	74.000
15690.000	*	*	*	*	74.000
20920.000	*	*	*	*	74.000
26150.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
10460.000	14.433	37.470	51.903	-22.097	74.000
15690.000	*	*	*	*	74.000
20920.000	*	*	*	*	74.000
26150.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

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 : 802.11 ac PCIe Module
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 4: Transmit (802.11ac-80BW-65Mbps)(5G Band)(Dipole Antenna) (5210MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
10420.000	13.135	33.270	46.405	-27.595	74.000
11550.000	*	*	*	*	74.000
17325.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
10420.000	14.057	33.320	47.377	-26.623	74.000
11550.000	*	*	*	*	74.000
17325.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

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 : 802.11 ac PCIe Module
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 5: Transmit (802.11a_6Mbps)(Grid DISH Antenna) (5180MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10360.000	12.930	33.430	46.360	-27.640	74.000
15540.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
10360.000	13.724	33.890	47.614	-26.386	74.000
15540.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

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 : 802.11 ac PCIe Module
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 5: Transmit (802.11a_6Mbps)(Grid DISH Antenna) (5220MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10440.000	13.322	33.400	46.722	-27.278	74.000
15660.000	*	*	*	*	74.000
20880.000	*	*	*	*	74.000
26100.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
10440.000	14.245	40.230	54.475	-19.525	74.000
15660.000	*	*	*	*	74.000
20880.000	*	*	*	*	74.000
26100.000	*	*	*	*	74.000
Average Detector:					
10440.000	14.245	23.860	38.105	-15.895	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 : 802.11 ac PCIe Module
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 5: Transmit (802.11a_6Mbps)(Grid DISH Antenna) (5240MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10480.000	13.693	41.700	55.394	-18.606	74.000
15720.000	*	*	*	*	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	74.000
Average					
Detector:					
10480.000	13.693	25.060	38.754	-15.246	54.000
Vertical					
Peak Detector:					
10480.000	14.620	40.450	55.071	-18.929	74.000
15720.000	*	*	*	*	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	74.000
Average					
Detector:					
10480.000	14.620	24.210	38.831	-15.169	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 : 802.11 ac PCIe Module
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 6: Transmit (802.11n-20BW_14.4Mbps)(5G Band)(Grid DISH Antenna) (5180MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10360.000	12.930	33.080	46.010	-27.990	74.000
15540.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
10360.000	13.724	33.400	47.124	-26.876	74.000
15540.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

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 : 802.11 ac PCIe Module
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 6: Transmit (802.11n-20BW_14.4Mbps)(5G Band)(Grid DISH Antenna) (5220MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10440.000	13.322	33.320	46.642	-27.358	74.000
15660.000	*	*	*	*	74.000
20880.000	*	*	*	*	74.000
26100.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
10440.000	14.245	33.090	47.335	-26.665	74.000
15660.000	*	*	*	*	74.000
20880.000	*	*	*	*	74.000
26100.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

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 : 802.11 ac PCIe Module
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 6: Transmit (802.11n-20BW_14.4Mbps)(5G Band)(Grid DISH Antenna) (5240MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10480.000	13.693	33.970	47.664	-26.336	74.000
15720.000	*	*	*	*	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
10480.000	14.620	33.730	48.351	-25.649	74.000
15720.000	*	*	*	*	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

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 : 802.11 ac PCIe Module
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 7: Transmit (802.11n-40BW_30Mbps)(5G Band)(Grid DISH Antenna) (5190MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10380.000	12.939	33.110	46.049	-27.951	74.000
15570.000	*	*	*	*	74.000
20760.000	*	*	*	*	74.000
25950.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
10380.000	13.796	33.380	47.176	-26.824	74.000
15570.000	*	*	*	*	74.000
20760.000	*	*	*	*	74.000
25950.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

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 : 802.11 ac PCIe Module
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 7: Transmit (802.11n-40BW_30Mbps)(5G Band)(Grid DISH Antenna) (5230MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10460.000	13.508	33.430	46.938	-27.062	74.000
15690.000	*	*	*	*	74.000
20920.000	*	*	*	*	74.000
26150.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
10460.000	14.433	33.770	48.203	-25.797	74.000
15690.000	*	*	*	*	74.000
20920.000	*	*	*	*	74.000
26150.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

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 : 802.11 ac PCIe Module
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 8: Transmit (802.11ac-80BW_65Mbps)(5G Band)(Grid DISH Antenna) (5210MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
10420.000	13.135	32.810	45.945	-28.055	74.000
11550.000	*	*	*	*	74.000
17325.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
10420.000	14.057	33.420	47.477	-26.523	74.000
11550.000	*	*	*	*	74.000
17325.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

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.v

Product : 802.11 ac PCIe Module
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 9: Transmit (802.11a_6Mbps)(Omni Antenna) (5180MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10360.000	12.930	33.760	46.690	-27.310	74.000
15540.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
10360.000	13.724	34.210	47.934	-26.066	74.000
15540.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

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 : 802.11 ac PCIe Module
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 9: Transmit (802.11a_6Mbps)(Omni Antenna) (5220MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10440.000	13.322	34.340	47.662	-26.338	74.000
15660.000	*	*	*	*	74.000
20880.000	*	*	*	*	74.000
26100.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
10440.000	14.245	36.200	50.445	-23.555	74.000
15660.000	*	*	*	*	74.000
20880.000	*	*	*	*	74.000
26100.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

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 : 802.11 ac PCIe Module
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 9: Transmit (802.11a_6Mbps)(Omni Antenna) (5240MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10480.000	13.693	33.900	47.594	-26.406	74.000
15720.000	*	*	*	*	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	74.000
Average					
Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
10480.000	14.620	33.230	47.851	-26.149	74.000
15720.000	*	*	*	*	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	74.000
Average					
Detector:					
*	*	*	*	*	*

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 : 802.11 ac PCIe Module
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 10: Transmit (802.11n-20BW_14.4Mbps)(5G Band)(Omni Antenna) (5180MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10360.000	12.930	33.380	46.310	-27.690	74.000
15540.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
10360.000	13.724	33.280	47.004	-26.996	74.000
15540.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

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 : 802.11 ac PCIe Module
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 10: Transmit (802.11n-20BW_14.4Mbps)(5G Band)(Omni Antenna) (5220MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10440.000	13.322	32.990	46.312	-27.688	74.000
15660.000	*	*	*	*	74.000
20880.000	*	*	*	*	74.000
26100.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
10440.000	14.245	32.720	46.965	-27.035	74.000
15660.000	*	*	*	*	74.000
20880.000	*	*	*	*	74.000
26100.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

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 : 802.11 ac PCIe Module
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 10: Transmit (802.11n-20BW_14.4Mbps)(5G Band)(Omni Antenna) (5240MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10480.000	13.693	33.300	46.994	-27.006	74.000
15720.000	*	*	*	*	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
10480.000	14.620	33.630	48.251	-25.749	74.000
15720.000	*	*	*	*	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

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 : 802.11 ac PCIe Module
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 11: Transmit (802.11n-40BW_30Mbps)(5G Band)(Omni Antenna) (5190MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10360.000	12.930	32.850	45.780	-28.220	74.000
15570.000	*	*	*	*	74.000
20760.000	*	*	*	*	74.000
25950.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
10380.000	13.796	32.770	46.566	-27.434	74.000
15570.000	*	*	*	*	74.000
20760.000	*	*	*	*	74.000
25950.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

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 : 802.11 ac PCIe Module
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 11: Transmit (802.11n-40BW_30Mbps)(5G Band)(Omni Antenna) (5230MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10460.000	13.508	33.300	46.808	-27.192	74.000
15690.000	*	*	*	*	74.000
20920.000	*	*	*	*	74.000
26150.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
10460.000	14.433	33.200	47.633	-26.367	74.000
15690.000	*	*	*	*	74.000
20920.000	*	*	*	*	74.000
26150.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

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 : 802.11 ac PCIe Module
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 12: Transmit (802.11ac-80BW_65Mbps)(5G Band)(Omni Antenna) (5210MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
10420.000	13.135	33.150	46.285	-27.715	74.000
11550.000	*	*	*	*	74.000
17325.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
10420.000	14.057	32.880	46.937	-27.063	74.000
11550.000	*	*	*	*	74.000
17325.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

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 : 802.11 ac PCIe Module
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 13: Transmit (802.11a_6Mbps)(Panel Antenna) (5180MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10360.000	12.930	33.680	46.610	-27.390	74.000
15540.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
10360.000	13.724	33.770	47.494	-26.506	74.000
15540.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

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 : 802.11 ac PCIe Module
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 13: Transmit (802.11a_6Mbps)(Panel Antenna) (5220MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10440.000	13.322	33.380	46.702	-27.298	74.000
15660.000	*	*	*	*	74.000
20880.000	*	*	*	*	74.000
26100.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
10440.000	14.245	39.320	53.565	-20.435	74.000
15660.000	*	*	*	*	74.000
20880.000	*	*	*	*	74.000
26100.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

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 : 802.11 ac PCIe Module
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 13: Transmit (802.11a_6Mbps)(Panel Antenna) (5240MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10480.000	13.693	33.500	47.194	-26.806	74.000
15720.000	*	*	*	*	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	74.000
Average					
Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
10480.000	14.620	34.750	49.371	-24.629	74.000
15720.000	*	*	*	*	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	74.000
Average					
Detector:					
*	*	*	*	*	*

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 : 802.11 ac PCIe Module
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 14: Transmit (802.11n-20BW_14.4Mbps)(5G Band)(Panel Antenna) (5180MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10360.000	12.930	34.420	47.350	-26.650	74.000
15540.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
10360.000	13.724	33.380	47.104	-26.896	74.000
15540.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

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 : 802.11 ac PCIe Module
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 14: Transmit (802.11n-20BW_14.4Mbps)(5G Band)(Panel Antenna) (5220MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10440.000	13.322	33.390	46.712	-27.288	74.000
15660.000	*	*	*	*	74.000
20880.000	*	*	*	*	74.000
26100.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
10440.000	14.245	36.400	50.645	-23.355	74.000
15660.000	*	*	*	*	74.000
20880.000	*	*	*	*	74.000
26100.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

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 : 802.11 ac PCIe Module
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 14: Transmit (802.11n-20BW_14.4Mbps)(5G Band)(Panel Antenna) (5240MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10480.000	13.693	33.420	47.114	-26.886	74.000
15720.000	*	*	*	*	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
10480.000	14.620	33.630	48.251	-25.749	74.000
15720.000	*	*	*	*	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

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 : 802.11 ac PCIe Module
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 15: Transmit (802.11n-40BW_30Mbps)(5G Band)(Panel Antenna) (5190MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10380.000	12.939	33.220	46.159	-27.841	74.000
15570.000	*	*	*	*	74.000
20760.000	*	*	*	*	74.000
25950.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
10380.000	13.796	33.760	47.556	-26.444	74.000
15570.000	*	*	*	*	74.000
20760.000	*	*	*	*	74.000
25950.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

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 : 802.11 ac PCIe Module
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 15: Transmit (802.11n-40BW_30Mbps)(5G Band)(Panel Antenna) (5230MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10460.000	13.508	33.230	46.738	-27.262	74.000
15690.000	*	*	*	*	74.000
20920.000	*	*	*	*	74.000
26150.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
10460.000	14.433	34.800	49.233	-24.767	74.000
15690.000	*	*	*	*	74.000
20920.000	*	*	*	*	74.000
26150.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

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 : 802.11 ac PCIe Module
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 16: Transmit (802.11ac-80BW_65Mbps)(5G Band)(Panel Antenna) (5210MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
10420.000	13.135	33.190	46.325	-27.675	74.000
11550.000	*	*	*	*	74.000
17325.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
10420.000	14.057	32.750	46.807	-27.193	74.000
11550.000	*	*	*	*	74.000
17325.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

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 : 802.11 ac PCIe Module
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 17: Transmit (802.11a_6Mbps)(Sector Antenna) (5180MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10360.000	12.930	33.280	46.210	-27.790	74.000
15540.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
10360.000	13.724	33.300	47.024	-26.976	74.000
15540.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

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 : 802.11 ac PCIe Module
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 17: Transmit (802.11a_6Mbps)(Sector Antenna) (5220MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10440.000	13.322	43.930	57.252	-16.748	74.000
15660.000	*	*	*	*	74.000
20880.000	*	*	*	*	74.000
26100.000	*	*	*	*	74.000
Average Detector:					
10440.000	13.322	27.550	40.872	-13.128	54.000
Vertical					
Peak Detector:					
10440.000	14.245	43.640	57.885	-16.115	74.000
15660.000	*	*	*	*	74.000
20880.000	*	*	*	*	74.000
26100.000	*	*	*	*	74.000
Average Detector:					
10440.000	14.245	27.260	41.505	-12.495	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 : 802.11 ac PCIe Module
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 17: Transmit (802.11a_6Mbps)(Sector Antenna) (5240MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10480.000	13.693	43.450	57.144	-16.856	74.000
15720.000	*	*	*	*	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	74.000
Average					
Detector:					
10480.000	13.693	26.810	40.504	-13.496	54.000
Vertical					
Peak Detector:					
10480.000	14.620	40.790	55.411	-18.589	74.000
15720.000	*	*	*	*	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	74.000
Average					
Detector:					
10480.000	14.620	24.840	39.461	-14.539	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 : 802.11 ac PCIe Module
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 18: Transmit (802.11n-20BW_14.4Mbps)(5G Band)(Sector Antenna) (5180MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10360.000	12.930	33.310	46.240	-27.760	74.000
15540.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
10360.000	13.724	33.290	47.014	-26.986	74.000
15540.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

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 : 802.11 ac PCIe Module
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 18: Transmit (802.11n-20BW_14.4Mbps)(5G Band)(Sector Antenna) (5220MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10440.000	13.322	43.670	56.992	-17.008	74.000
15660.000	*	*	*	*	74.000
20880.000	*	*	*	*	74.000
26100.000	*	*	*	*	74.000
Average Detector:					
10440.000	13.322	27.640	40.962	-13.038	54.000
Vertical					
Peak Detector:					
10440.000	14.245	41.690	55.935	-18.065	74.000
15660.000	*	*	*	*	74.000
20880.000	*	*	*	*	74.000
26100.000	*	*	*	*	74.000
Average Detector:					
10440.000	14.245	25.350	39.595	-14.405	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 : 802.11 ac PCIe Module
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 18: Transmit (802.11n-20BW_14.4Mbps)(5G Band)(Sector Antenna) (5240MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10480.000	13.693	42.460	56.154	-17.846	74.000
15720.000	*	*	*	*	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	74.000
Average Detector:					
10480.000	13.693	25.250	38.944	-15.056	54.000
Vertical					
Peak Detector:					
10480.000	14.620	40.350	54.971	-19.029	74.000
15720.000	*	*	*	*	74.000
20960.000	*	*	*	*	74.000
26200.000	*	*	*	*	74.000
Average Detector:					
10480.000	14.620	23.990	38.611	-15.389	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 : 802.11 ac PCIe Module
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 19: Transmit (802.11n-40BW_30Mbps)(5G Band)(Sector Antenna) (5190MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10380.000	12.939	33.360	46.299	-27.701	74.000
15570.000	*	*	*	*	74.000
20760.000	*	*	*	*	74.000
25950.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
10380.000	13.796	33.290	47.086	-26.914	74.000
15570.000	*	*	*	*	74.000
20760.000	*	*	*	*	74.000
25950.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

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 : 802.11 ac PCIe Module
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 19: Transmit (802.11n-40BW_30Mbps)(5G Band)(Sector Antenna) (5230MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector:					
10460.000	13.508	40.710	54.218	-19.782	74.000
15690.000	*	*	*	*	74.000
20920.000	*	*	*	*	74.000
26150.000	*	*	*	*	74.000
Average Detector:					
10460.000	13.508	24.870	38.378	-15.622	54.000
Vertical					
Peak Detector:					
10460.000	14.433	39.170	53.603	-20.397	74.000
15690.000	*	*	*	*	74.000
20920.000	*	*	*	*	74.000
26150.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

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 : 802.11 ac PCIe Module
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 20: Transmit (802.11ac-80BW_65Mbps)(5G Band)(Sector Antenna) (5210MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
10420.000	13.135	33.270	46.405	-27.595	74.000
11550.000	*	*	*	*	74.000
17325.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*
Vertical					
Peak Detector:					
10420.000	14.057	33.040	47.097	-26.903	74.000
11550.000	*	*	*	*	74.000
17325.000	*	*	*	*	74.000
20720.000	*	*	*	*	74.000
25900.000	*	*	*	*	74.000
31080.000	*	*	*	*	74.000
36260.000	*	*	*	*	74.000
Average Detector:					
*	*	*	*	*	*

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 : 802.11 ac PCIe Module
Test Item : General Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps)(Dipole Antanna) (5220MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector					
193.720	12.266	47.060	36.817	-6.683	43.500
324.510	17.771	42.690	38.172	-7.828	46.000
408.890	22.300	38.833	38.953	-7.047	46.000
518.280	25.212	34.094	37.296	-8.704	46.000
716.630	25.476	35.761	39.568	-6.432	46.000
899.120	27.147	30.801	36.518	-9.482	46.000
Vertical					
Peak Detector					
65.810	10.152	43.847	31.419	-8.581	40.000
260.690	17.536	42.160	37.293	-8.707	46.000
325.420	19.270	42.638	39.618	-6.382	46.000
518.240	22.647	34.200	34.836	-11.164	46.000
715.170	20.088	37.508	35.924	-10.076	46.000
898.930	23.006	28.595	30.172	-15.828	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 : 802.11 ac PCIe Module
Test Item : General Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11n-20BW 14.4Mbps)(5G Band)(Dipole Antenna) (5220MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector					
98.790	-9.998	47.912	37.914	-5.586	43.500
227.380	-8.992	44.785	35.793	-10.207	46.000
402.810	0.916	35.563	36.479	-9.521	46.000
584.530	3.265	32.561	35.826	-10.174	46.000
762.620	5.124	30.497	35.621	-10.379	46.000
969.450	7.371	24.797	32.168	-21.832	54.000
Vertical					
Peak Detector					
66.710	-12.434	46.518	34.083	-5.917	40.000
227.530	-6.184	44.702	38.517	-7.483	46.000
388.290	-0.721	38.654	37.934	-8.066	46.000
520.180	0.995	38.266	39.261	-6.739	46.000
699.140	0.035	34.350	34.386	-11.614	46.000
899.050	1.621	29.808	31.429	-14.571	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 : 802.11 ac PCIe Module
Test Item : General Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit (802.11n-40BW 30Mbps)(5G Band)(Dipole Antenna) (5190MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector					
98.680	-10.010	48.277	38.267	-5.233	43.500
200.910	-9.875	41.741	31.866	-11.634	43.500
322.430	-4.542	43.715	39.172	-6.828	46.000
516.720	3.199	33.229	36.428	-9.572	46.000
724.590	3.835	33.684	37.519	-8.481	46.000
891.170	6.314	25.737	32.051	-13.949	46.000
Vertical					
Peak Detector					
99.210	-6.184	43.130	36.946	-6.554	43.500
194.720	-5.671	43.488	37.817	-5.683	43.500
322.960	-3.610	42.793	39.183	-6.817	46.000
516.430	0.278	34.262	34.539	-11.461	46.000
713.680	-1.481	36.105	34.624	-11.376	46.000
899.430	1.747	29.725	31.472	-14.528	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 : 802.11 ac PCIe Module
Test Item : General Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 4: Transmit (802.11ac-80BW-65Mbps)(5G Band)(Dipole Antenna) (5210MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector					
98.170	-10.067	47.980	37.914	-5.586	43.500
227.430	-8.969	45.701	36.731	-9.269	46.000
326.710	-4.500	42.687	38.187	-7.813	46.000
583.940	3.292	32.349	35.642	-10.358	46.000
777.290	5.168	34.691	39.859	-6.141	46.000
926.620	6.901	25.617	32.518	-13.482	46.000
Vertical					
Peak Detector					
96.120	-6.803	40.982	34.179	-9.321	43.500
195.470	-5.678	43.604	37.926	-5.574	43.500
325.710	-2.966	42.684	39.718	-6.282	46.000
519.380	0.861	38.380	39.241	-6.759	46.000
780.260	2.756	34.827	37.583	-8.417	46.000
899.540	1.782	31.080	32.862	-13.138	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 : 802.11 ac PCIe Module
Test Item : General Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 5: Transmit (802.11a_6Mbps)(Grid DISH Antenna) (5220MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector					
195.430	-10.477	48.650	38.172	-5.328	43.500
257.640	-5.430	39.957	34.528	-11.472	46.000
396.890	0.784	36.043	36.827	-9.173	46.000
583.910	3.294	32.092	35.386	-10.614	46.000
715.270	3.797	37.621	41.419	-4.581	46.000
912.520	6.454	30.187	36.641	-9.359	46.000
Vertical					
Peak Detector					
67.510	-12.431	45.129	32.698	-7.302	40.000
261.340	-4.888	43.317	38.429	-7.571	46.000
394.720	-1.697	36.403	34.706	-11.294	46.000
517.960	0.581	37.582	38.163	-7.837	46.000
700.890	-0.470	37.750	37.281	-8.719	46.000
960.170	3.183	25.633	28.817	-25.183	54.000

Note:

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

Product : 802.11 ac PCIe Module
Test Item : General Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 6: Transmit (802.11n-20BW_14.4Mbps)(5G Band)(Grid DISH Antenna) (5220MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector					
98.470	-10.033	45.964	35.931	-7.569	43.500
257.840	-5.431	43.114	37.683	-8.317	46.000
358.140	-0.637	36.135	35.497	-10.503	46.000
518.310	3.202	34.092	37.294	-8.706	46.000
700.620	2.803	36.709	39.512	-6.488	46.000
916.980	6.519	29.307	35.826	-10.174	46.000
Vertical					
Peak Detector					
71.340	-10.972	41.156	30.184	-9.816	40.000
258.790	-4.908	43.326	38.419	-7.581	46.000
398.560	-2.364	37.647	35.283	-10.717	46.000
520.170	0.994	34.838	35.832	-10.168	46.000
700.820	-0.455	36.146	35.691	-10.309	46.000
969.410	3.917	26.611	30.528	-23.472	54.000

Note:

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

Product : 802.11 ac PCIe Module
Test Item : General Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 7: Transmit (802.11n-40BW_30Mbps)(5G Band)(Grid DISH Antenna) (5190MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector					
66.310	-13.287	46.466	33.179	-6.821	40.000
192.740	-10.048	45.486	35.438	-8.062	43.500
409.480	0.010	37.802	37.812	-8.188	46.000
584.630	3.261	31.325	34.586	-11.414	46.000
794.890	6.387	31.884	38.271	-7.729	46.000
915.220	6.410	29.524	35.934	-10.066	46.000
Vertical					
Peak Detector					
66.170	-12.432	45.273	32.841	-7.159	40.000
258.410	-4.927	43.852	38.924	-7.076	46.000
398.930	-2.441	36.848	34.406	-11.594	46.000
518.860	0.758	39.538	40.297	-5.703	46.000
665.720	-0.958	36.641	35.683	-10.317	46.000
899.640	1.814	29.698	31.512	-14.488	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 : 802.11 ac PCIe Module
Test Item : General Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 8: Transmit (802.11ac-80BW_65Mbps)(5G Band)(Grid DISH Antenna) (5210MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector					
192.730	-10.046	45.959	35.913	-7.587	43.500
260.290	-5.457	43.038	37.581	-8.419	46.000
403.810	0.906	37.731	38.637	-7.363	46.000
584.240	3.279	31.113	34.392	-11.608	46.000
718.560	3.817	34.452	38.269	-7.731	46.000
925.420	6.684	29.130	35.814	-10.186	46.000
Vertical					
Peak Detector					
65.710	-12.424	45.531	33.108	-6.892	40.000
291.930	-5.268	44.528	39.260	-6.740	46.000
398.410	-2.338	36.962	34.624	-11.376	46.000
518.480	0.684	37.845	38.529	-7.471	46.000
793.520	2.673	33.143	35.816	-10.184	46.000
928.170	3.632	26.749	30.381	-15.619	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 : 802.11 ac PCIe Module
Test Item : General Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 9: Transmit (802.11a_6Mbps)(Omni Antenna) (5220MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector					
67.520	-13.958	42.652	28.694	-11.306	40.000
257.930	-5.432	43.904	38.472	-7.528	46.000
388.170	1.071	38.846	39.917	-6.083	46.000
518.380	3.202	37.961	41.163	-4.837	46.000
712.610	3.791	34.738	38.529	-7.471	46.000
984.790	8.143	25.138	33.281	-20.719	54.000
Vertical					
Peak Detector					
98.710	-6.280	43.772	37.492	-6.008	43.500
257.930	-4.953	44.669	39.716	-6.284	46.000
394.560	-1.659	39.343	37.684	-8.316	46.000
518.280	0.644	36.887	37.531	-8.469	46.000
747.420	1.597	36.582	38.179	-7.821	46.000
898.170	1.294	31.988	33.283	-12.717	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 : 802.11 ac PCIe Module
Test Item : General Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 10: Transmit (802.11n-20BW_14.4Mbps)(5G Band)(Omni Antenna) (5220MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector					
99.840	-9.873	45.290	35.417	-8.083	43.500
258.790	-5.440	43.273	37.834	-8.166	46.000
357.420	-0.846	40.026	39.179	-6.821	46.000
518.610	3.202	34.479	37.681	-8.319	46.000
712.530	3.791	34.607	38.398	-7.602	46.000
968.270	7.328	27.194	34.521	-19.479	54.000
Vertical					
Peak Detector					
98.570	-6.307	44.798	38.491	-5.009	43.500
257.810	-4.959	43.136	38.176	-7.824	46.000
400.430	-2.835	38.702	35.867	-10.133	46.000
518.390	0.666	36.952	37.618	-8.382	46.000
777.120	2.126	33.794	35.920	-10.080	46.000
948.240	3.210	27.033	30.243	-15.757	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 : 802.11 ac PCIe Module
Test Item : General Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 11: Transmit (802.11n-40BW_30Mbps)(5G Band)(Omni Antenna) (5190MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector					
98.620	-10.016	45.629	35.612	-7.888	43.500
321.490	-4.557	37.504	32.948	-13.052	46.000
518.340	3.202	35.279	38.481	-7.519	46.000
712.910	3.792	34.737	38.529	-7.471	46.000
798.530	6.410	29.387	35.797	-10.203	46.000
968.760	7.347	26.947	34.294	-19.706	54.000
Vertical					
Peak Detector					
98.630	-6.295	42.822	36.527	-6.973	43.500
257.910	-4.954	43.891	38.937	-7.063	46.000
388.290	-0.721	35.338	34.618	-11.382	46.000
518.170	0.623	30.860	31.483	-14.517	46.000
798.420	2.627	30.565	33.192	-12.808	46.000
968.380	3.917	25.923	29.841	-24.159	54.000

Note:

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

Product : 802.11 ac PCIe Module
Test Item : General Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 12: Transmit (802.11ac-80BW_65Mbps)(5G Band)(Omni Antenna) (5210MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector					
194.370	-10.370	44.889	34.519	-8.981	43.500
388.910	1.034	40.242	41.276	-4.724	46.000
518.460	3.202	35.519	38.721	-7.279	46.000
712.630	3.791	36.823	40.614	-5.386	46.000
812.190	6.282	32.100	38.382	-7.618	46.000
983.580	7.902	25.285	33.187	-20.813	54.000
Vertical					
Peak Detector					
59.370	-11.318	46.990	35.672	-4.328	40.000
200.730	-5.675	42.589	36.914	-6.586	43.500
324.520	-3.203	42.359	39.157	-6.843	46.000
518.490	0.686	31.797	32.483	-13.517	46.000
776.840	2.053	32.778	34.831	-11.169	46.000
921.910	3.220	29.076	32.296	-13.704	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 : 802.11 ac PCIe Module
Test Item : General Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 13: Transmit (802.11a_6Mbps)(Panel Antenna) (5220MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector					
98.690	-10.009	45.732	35.723	-7.777	43.500
297.930	-4.758	42.319	37.561	-8.439	46.000
518.460	3.202	35.095	38.297	-7.703	46.000
683.120	2.815	31.999	34.814	-11.186	46.000
795.380	6.388	35.231	41.619	-4.381	46.000
970.210	7.374	26.811	34.186	-19.814	54.000
Vertical					
Peak Detector					
98.620	-6.297	44.469	38.172	-5.328	43.500
194.290	-5.668	43.305	37.637	-5.863	43.500
390.410	-0.751	37.571	36.819	-9.181	46.000
617.840	0.953	32.640	33.593	-12.407	46.000
795.760	2.644	35.654	38.298	-7.702	46.000
919.380	2.833	29.593	32.426	-13.574	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 : 802.11 ac PCIe Module
Test Item : General Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 14: Transmit (802.11n-20BW_14.4Mbps)(5G Band)(Panel Antenna) (5220MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector					
197.840	-10.134	44.651	34.517	-8.983	43.500
388.160	1.071	36.768	37.839	-8.161	46.000
527.380	3.098	33.320	36.418	-9.582	46.000
689.410	3.610	34.562	38.172	-7.828	46.000
780.590	5.248	32.735	37.983	-8.017	46.000
985.270	8.212	26.414	34.626	-19.374	54.000
Vertical					
Peak Detector					
98.720	-6.278	43.092	36.814	-6.686	43.500
257.930	-4.953	43.646	38.693	-7.307	46.000
390.280	-0.748	39.185	38.438	-7.562	46.000
518.410	0.670	39.502	40.172	-5.828	46.000
689.650	2.298	34.627	36.926	-9.074	46.000
841.390	2.309	32.450	34.759	-11.241	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 : 802.11 ac PCIe Module
Test Item : General Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 15: Transmit (802.11n-40BW_30Mbps)(5G Band)(Panel Antenna) (5190MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector					
98.930	-9.982	43.130	33.148	-10.352	43.500
259.170	-5.443	46.075	40.631	-5.369	46.000
388.260	1.066	40.517	41.583	-4.417	46.000
598.810	3.509	33.415	36.924	-9.076	46.000
777.490	5.168	33.324	38.492	-7.508	46.000
983.720	7.932	26.884	34.816	-19.184	54.000
Vertical					
Peak Detector					
98.530	-6.315	42.027	35.712	-7.788	43.500
198.720	-5.707	44.642	38.934	-4.566	43.500
292.140	-5.238	42.667	37.429	-8.571	46.000
520.390	1.022	30.564	31.586	-14.414	46.000
781.590	2.765	29.127	31.891	-14.109	46.000
966.810	3.886	25.293	29.178	-24.822	54.000

Note:

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

Product : 802.11 ac PCIe Module
Test Item : General Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 16: Transmit (802.11ac-80BW_65Mbps)(5G Band)(Panel Antenna) (5210MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector					
98.610	-10.017	44.834	34.816	-8.684	43.500
258.730	-5.439	43.568	38.129	-7.871	46.000
389.170	1.024	38.557	39.581	-6.419	46.000
518.490	3.202	35.162	38.364	-7.636	46.000
712.380	3.790	36.838	40.628	-5.372	46.000
912.540	6.453	26.489	32.942	-13.058	46.000
Vertical					
Peak Detector					
53.790	-11.508	46.129	34.621	-5.379	40.000
257.630	-4.969	45.263	40.294	-5.706	46.000
390.270	-0.747	40.563	39.816	-6.184	46.000
681.950	1.644	33.545	35.189	-10.811	46.000
812.160	2.856	32.618	35.473	-10.527	46.000
962.490	3.494	28.884	32.378	-21.622	54.000

Note:

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

Product : 802.11 ac PCIe Module
Test Item : General Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 17: Transmit (802.11a_6Mbps)(Sector Antenna) (5220MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector					
59.430	-11.914	43.431	31.517	-8.483	40.000
225.680	-9.749	44.377	34.628	-11.372	46.000
326.170	-4.506	41.348	36.842	-9.158	46.000
516.810	3.199	34.975	38.174	-7.826	46.000
715.290	3.797	37.993	41.791	-4.209	46.000
899.520	5.759	32.154	37.913	-8.087	46.000
Vertical					
Peak Detector					
77.120	-6.248	38.763	32.514	-7.486	40.000
194.580	-5.671	44.298	38.628	-4.872	43.500
385.260	-0.503	34.877	34.374	-11.626	46.000
518.930	0.773	34.504	35.276	-10.724	46.000
780.490	2.762	35.087	37.849	-8.151	46.000
899.610	1.805	32.377	34.181	-11.819	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 : 802.11 ac PCIe Module
Test Item : General Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 18: Transmit (802.11n-20BW_14.4Mbps)(5G Band)(Sector Antenna) (5220MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector					
57.690	-11.857	45.029	33.172	-6.828	40.000
203.760	-10.376	42.960	32.584	-10.916	43.500
388.120	1.073	34.346	35.419	-10.581	46.000
518.370	3.202	38.091	41.293	-4.707	46.000
712.510	3.791	36.035	39.826	-6.174	46.000
899.840	5.792	29.849	35.641	-10.359	46.000
Vertical					
Peak Detector					
69.480	-12.424	46.236	33.812	-6.188	40.000
260.270	-4.861	43.124	38.263	-7.737	46.000
518.720	0.731	36.458	37.189	-8.811	46.000
682.190	1.693	33.856	35.548	-10.452	46.000
780.580	2.764	33.727	36.491	-9.509	46.000
899.360	1.725	32.352	34.076	-11.924	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 : 802.11 ac PCIe Module
Test Item : General Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 19: Transmit (802.11n-40BW_30Mbps)(5G Band)(Sector Antenna) (5190MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector					
65.170	-12.707	43.628	30.921	-9.079	40.000
195.720	-10.480	42.070	31.589	-11.911	43.500
357.510	-0.820	38.992	38.172	-7.828	46.000
580.490	3.489	29.775	33.264	-12.736	46.000
780.930	5.268	33.349	38.618	-7.382	46.000
899.840	5.792	32.701	38.493	-7.507	46.000
Vertical					
Peak Detector					
61.720	-11.720	45.139	33.419	-6.581	40.000
187.380	-5.608	38.395	32.786	-10.714	43.500
291.930	-5.268	44.440	39.172	-6.828	46.000
518.290	0.646	38.196	38.842	-7.158	46.000
615.410	1.583	31.378	32.961	-13.039	46.000
844.690	2.456	29.237	31.694	-14.306	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 : 802.11 ac PCIe Module
Test Item : General Radiated Emission
Test Site : No.3 OATS
Test Mode : Mode 20: Transmit (802.11ac-80BW_65Mbps)(5G Band)(Sector Antenna) (5210MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV/m	dB	dBμV/m
Horizontal					
Peak Detector					
59.070	-11.900	44.072	32.172	-7.828	40.000
192.890	-10.081	43.376	33.296	-10.204	43.500
390.710	0.967	37.852	38.819	-7.181	46.000
518.340	3.202	35.359	38.561	-7.439	46.000
719.120	3.819	35.264	39.084	-6.916	46.000
914.860	6.410	31.516	37.926	-8.074	46.000
Vertical					
Peak Detector					
79.810	-5.051	38.581	33.529	-6.471	40.000
195.420	-5.677	42.495	36.817	-6.683	43.500
393.680	-1.449	39.622	38.172	-7.828	46.000
518.190	0.627	37.664	38.291	-7.709	46.000
715.540	-1.537	38.123	36.586	-9.414	46.000
913.760	-0.608	32.081	31.473	-14.527	46.000

Note:

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

6. Band Edge

6.1. Test Equipment

RF Conducted Measurement

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

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2015
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2015
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2015

Note:

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

RF Radiated Measurement:

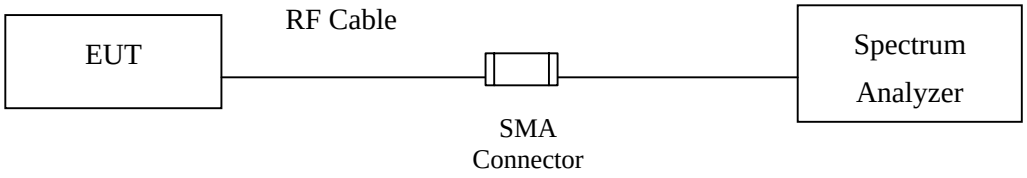
The following test equipments are used during the band edge tests:

Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
☒CB # 8	X	Spectrum Analyzer	R&S	FSP40/ 100339	Oct, 2014
	X	Horn Antenna	ETS-Lindgren	3117/ 35205	Mar, 2015
	X	Horn Antenna	Schwarzbeck	BBHA9170/209	Jan, 2015
	X	Horn Antenna	TRC	AH-0801/95051	Aug, 2015
	X	Pre-Amplifier	EMCI	EMC012630SE/980210	Jan, 2015
	X	Pre-Amplifier	MITEQ	JS41-001040000-58-5P/153945	Jul, 2015
	X	Pre-Amplifier	NARDA	DBL-1840N506/013	Jul, 2015

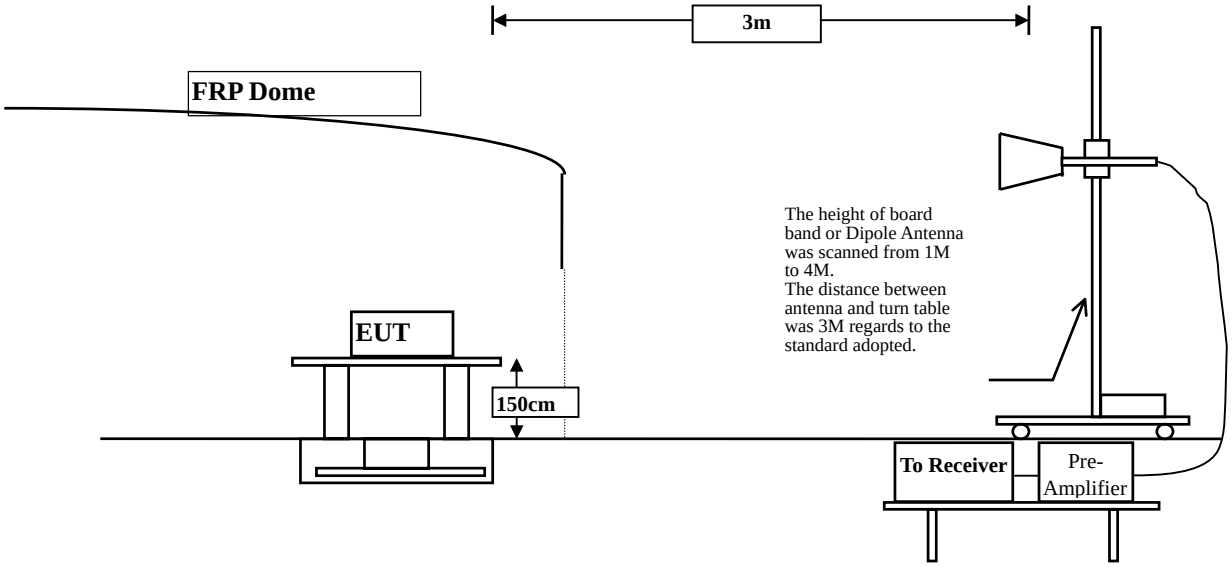
Note: 1. All instruments are calibrated every one year.
2. The test instruments marked by "X" are used to measure the final test results.

6.2. Test Setup

RF Conducted Measurement:



RF Radiated Measurement:



6.3. Limits

The provisions of Section 15.205 of this part apply to intentional radiators operating under this section.

Radiated emissions which fall in the restricted bands, as defined in Section 15.205, must also comply with the radiated emission limits specified in Section 15.209:

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

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

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

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

6.4. Test Procedure

The EUT is placed on a turn table which is 1.5 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 C63.10:2013 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, 2013; tested to UNII 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 : 802.11 ac PCIe Module
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps)(Dipole Antanna)-Channel 36

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
36 (Peak)	5150.000	35.135	32.353	67.488	83.54	63.540	Pass
36 (Peak)	5185.072	34.938	78.683	113.621	--	--	--
36 (Average)	5150.000	35.135	17.288	52.423	83.54	63.540	Pass
36 (Average)	5185.507	34.935	66.806	101.741	--	--	Pass

Figure Channel 36: Horizontal (Peak)

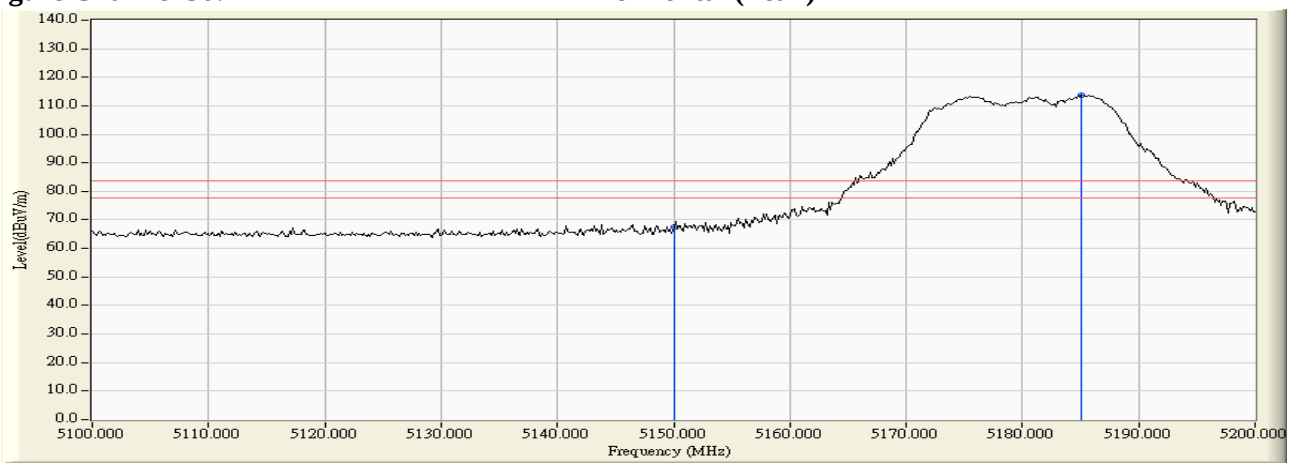
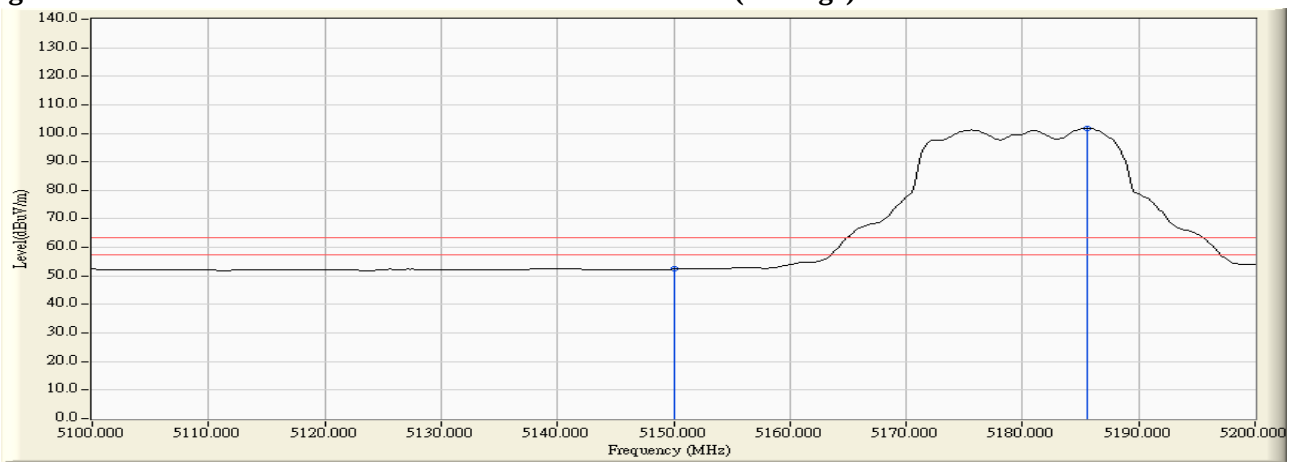


Figure Channel 36: Horizontal (Average)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. The antenna distance is 1m, average limit is 54dBuV + 9.54dB = 63.54dBuV, peak limit is 74dBuV + 9.54dB = 83.54dBuV.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : 802.11 ac PCIe Module
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps)(Dipole Antanna)-Channel 36

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
36 (Peak)	5149.855	37.054	45.364	82.419	83.54	63.540	Pass
36 (Peak)	5150.000	37.055	44.445	81.500	83.54	63.540	Pass
36 (Peak)	5183.913	37.077	91.258	128.334	--	--	--
36 (Average)	5150.000	37.055	20.791	57.846	83.54	63.540	Pass
36 (Average)	5183.913	37.077	78.735	115.811	--	--	--

Figure Channel 36: Vertical (Peak)

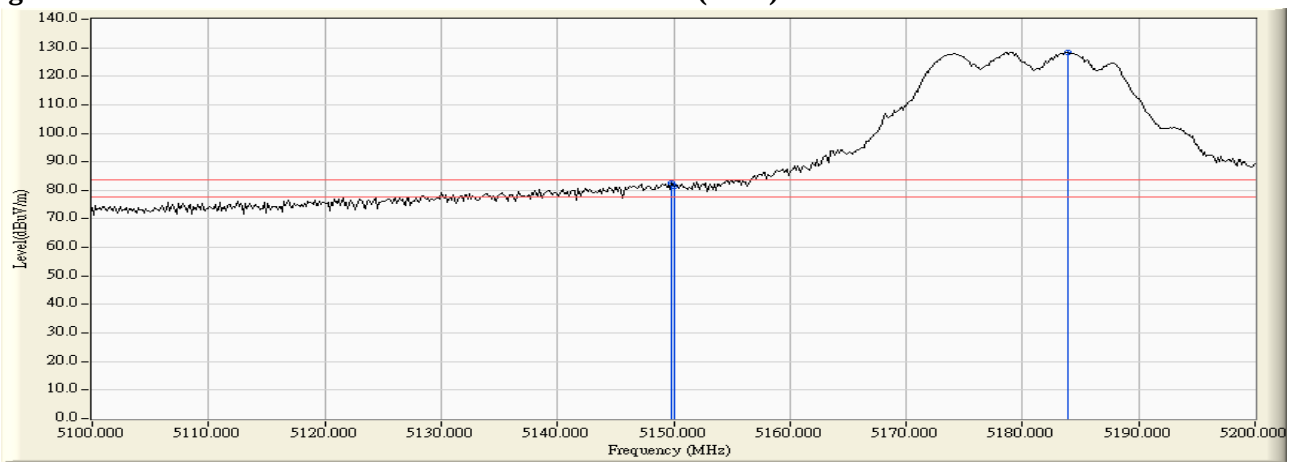
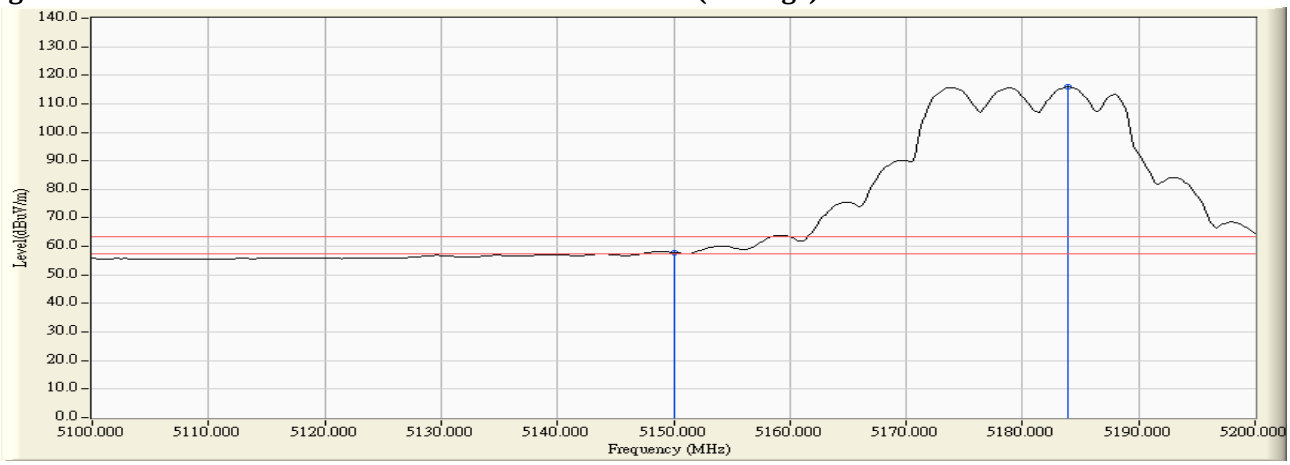


Figure Channel 36: Vertical (Average)



Note:

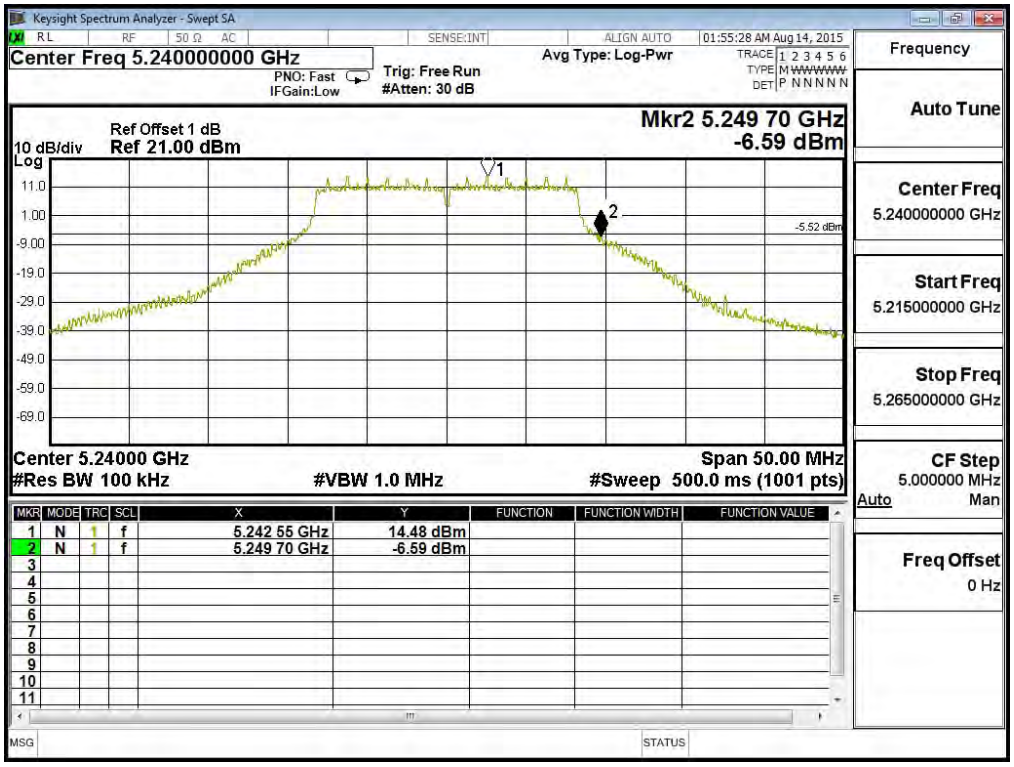
1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. The antenna distance is 1m, average limit is 54dBuV + 9.54dB = 63.54dBuV, peak limit is 74dBuV + 9.54dB = 83.54dBuV.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : 802.11 ac PCIe Module
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps)(Dipole Antanna)-Channel 48

Chain A

Test Frequency (MHz)	Measurement Level (20dB BW) (MHz)	Limit (MHz)	Result
5240	5249.70	<5250	PASS

NOTE: Accordance with 15.215 requirement.



Product : 802.11 ac PCIe Module
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11a-6Mbps)(Dipole Antanna)-Channel 48

Chain B

Test Frequency (MHz)	Measurement Level (20dB BW) (MHz)	Limit (MHz)	Result
5240	5248.45	<5250	PASS

NOTE: Accordance with 15.215 requirement.