

FCC Test Report (Class II Permissive Change)

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	Aug. 24, 2015
Issued Date	Oct. 14, 2015
Report No.	1580639R-RFUSP63V00
Report Version	V1.0



The test results relate only to the samples tested.

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

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Test Report

Issued Date: Oct. 14, 2015

Report No.: 1580639R-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
EUT Test 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

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TABLE OF CONTENTS

Description	Page
1. GENERAL INFORMATION.....	5
1.1. EUT Description.....	5
1.2. Operational Description	8
1.3. Tested System Details.....	9
1.4. Configuration of tested System	9
1.5. EUT Exercise Software	9
1.6. Test Facility	10
2. Conducted Emission.....	11
2.1. Test Equipment.....	11
2.2. Test Setup	11
2.3. Limits	12
2.4. Test Procedure	12
2.5. Uncertainty	12
2.6. Test Result of Conducted Emission.....	13
3. Maximun conducted output power	33
3.1. Test Equipment.....	33
3.2. Test Setup	33
3.3. Limits	34
3.4. Test Procedur	35
3.5. Uncertainty	35
3.6. Test Result of Maximum conducted output power.....	36
4. Peak Power Spectral Density.....	246
4.1. Test Equipment.....	246
4.2. Test Setup	246
4.3. Limits	246
4.4. Test Procedure	247
4.5. Uncertainty	247
4.6. Test Result of Peak Power Spectral Density	248
5. Radiated Emission.....	418
5.1. Test Equipment.....	418
5.2. Test Setup	418
5.3. Limits	419
5.4. Test Procedure	420
5.5. Uncertainty	420
5.6. Test Result of Radiated Emission.....	421
6. Band Edge	586
6.1. Test Equipment.....	586
6.2. Test Setup	587
6.3. Limits	588
6.4. Test Procedure	588
6.5. Uncertainty	588
6.6. Test Result of Band Edge	589

7.	Frequency Stability.....	806
7.1.	Test Equipment.....	806
7.2.	Test Setup	806
7.3.	Limits	806
7.4.	Test Procedure	806
7.5.	Uncertainty	806
7.6.	Test Result of Frequency Stability.....	807
8.	EMI Reduction Method During Compliance Testing	847
Attachment 1: EUT Test Photographs		
Attachment 2: EUT Detailed Photographs		

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: 5260-5320MHz, 5500-5700MHz 802.11n-40MHz: 5270-5310MHz, 5510-5670MHz 802.11ac-20MHz: 5720MHz, 802.11ac-40MHz: 5710MHz, 802.11ac-80MHz: 5290MHz, 5530-5690MHz
Number of Channels	802.11a/n-20MHz: 15, n-40MHz: 7 802.11ac-20MHz: 1, 802.11ac-40MHz: 1, 802.11ac-80MHz: 4
Data Rate	802.11a: 6-54Mbps, 802.11n: up to 300Mbps 802.11ac-80MHz: up to 866.7MHz
Type of Modulation	802.11a/n: OFDM, BPSK, QPSK, 16QAM, 64QAM, 256QAM
Channel Control	Auto
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
2.	Mars	MA-WB55-20	External Antenna (Sector)	20dBi
3	Andrew	PX3F-52-N7A	External Antenna (Grid DISH)	33.5dBi
4	Smartant	SAA08-220570	External Antenna (Omni)	10dBi
5	Proxim	N/A	External Antenna (Dipole)	5dBi

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 52:	5260 MHz	Channel 56:	5280 MHz	Channel 60:	5300 MHz	Channel 64:	5320 MHz
Channel 100:	5500 MHz	Channel 104:	5520 MHz	Channel 108:	5540 MHz	Channel 112:	5560 MHz
Channel 116:	5580 MHz	Channel 120:	5600 MHz	Channel 124:	5620 MHz	Channel 128:	5640 MHz
Channel 132:	5660 MHz	Channel 136:	5680 MHz	Channel 140:	5700 MHz		

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

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 54:	5270 MHz	Channel 62:	5310 MHz	Channel 102:	5510 MHz	Channel 110:	5550 MHz
Channel 118:	5590 MHz	Channel 126:	5630 MHz	Channel 134:	5670 MHz		

802.11ac-20MHz Center Working Frequency of Each Channel:

Channel	Frequency
Channel 144:	5720 MHz

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

Channel	Frequency
Channel 142:	5710 MHz

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

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 58:	5290 MHz	Channel 106:	5530 MHz	Channel 122:	5610 MHz	Channel 138:	5690 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. At result of pretests, module supports dual-channel transmission, only the worst case is shown in the report. (802.11a/n/ac is chain A+chain B)
4. This is requesting a Class II permissive change for FCC ID: HZB-NGP1058W. Originally granted on 10/30/2014.
The differences are listed as below:
 - Add the frequency band from 5.25GHz~5.35GHz, 5.47GHz~5.725GHz by software.
This change can't be made by end user.
 - All other hardware is identical with original granted.
5. 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 、802.11ac(20M-BW) is 14.4Mbps 、802.11ac(40M-BW) is 30Mbps and 802.11ac(80M-BW) is 65Mbps)
6. 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.
7. 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 Antenna) Mode 2: Transmit (802.11n-20BW 14.4Mbps)(Dipole Antenna) Mode 3: Transmit (802.11n-40BW 30Mbps)(Dipole Antenna) Mode 4: Transmit (802.11ac-20BW-14.4Mbps)(Dipole Antenna) Mode 5: Transmit (802.11ac-40BW-30Mbps)(Dipole Antenna) Mode 6: Transmit (802.11ac-80BW-65Mbps)(Dipole Antenna) Mode 7: Transmit (802.11a-6Mbps)(Grid DISH Antenna) Mode 8: Transmit (802.11n-20BW 14.4Mbps)(Grid DISH Antenna) Mode 9: Transmit (802.11n-40BW 30Mbps)(Grid DISH Antenna) Mode 10 Transmit (802.11ac-20BW-14.4Mbps)(Grid DISH Antenna) Mode 11: Transmit (802.11ac-40BW-30Mbps)(Grid DISH Antenna) Mode 12: Transmit (802.11ac-80BW-65Mbps)(Grid DISH Antenna) Mode 13: Transmit (802.11a-6Mbps)(Omni Antenna) Mode 14: Transmit (802.11n-20BW 14.4Mbps)(Omni Antenna) Mode 15: Transmit (802.11n-40BW 30Mbps)(Omni Antenna) Mode 16: Transmit (802.11ac-20BW-14.4Mbps)(Omni Antenna) Mode 17: Transmit (802.11ac-40BW-30Mbps)(Omni Antenna) Mode 18: Transmit (802.11ac-80BW-65Mbps)(Omni Antenna) Mode 19: Transmit (802.11a-6Mbps)(Panel Antenna) Mode 20: Transmit (802.11n-20BW 14.4Mbps)(Panel Antenna) Mode 21: Transmit (802.11n-40BW 30Mbps)(Panel Antenna) Mode 22: Transmit (802.11ac-20BW-14.4Mbps)(Panel Antenna) Mode 23: Transmit (802.11ac-40BW-30Mbps)(Panel Antenna) Mode 24: Transmit (802.11ac-80BW-65Mbps)(Panel Antenna) Mode 25: Transmit (802.11a-6Mbps)(Sector Antenna) Mode 26: Transmit (802.11n-20BW 14.4Mbps)(Sector Antenna) Mode 27: Transmit (802.11n-40BW 30Mbps)(Sector Antenna) Mode 28: Transmit (802.11ac-20BW-14.4Mbps)(Sector Antenna) Mode 29: Transmit (802.11ac-40BW-30Mbps)(Sector Antenna) Mode 30: Transmit (802.11ac-80BW-65Mbps)(Sector Antenna)
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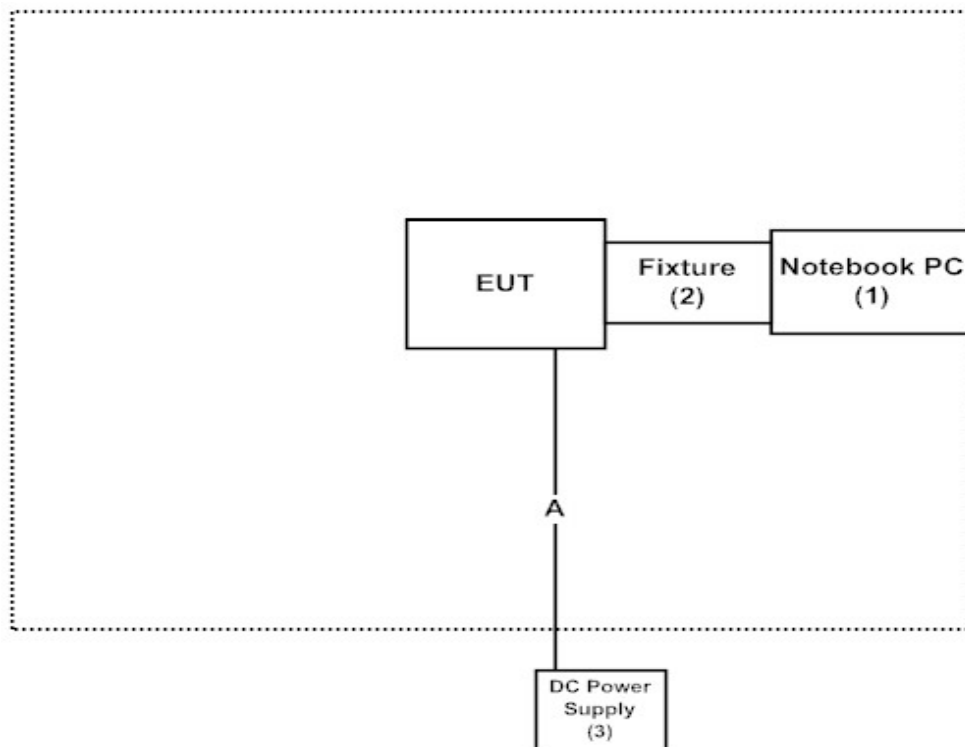
1.3. Tested System Details

List of support equipment and cables used during testing:

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

1.6. Test Facility

Ambient conditions in the laboratory:

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

The related certificate for our laboratories 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/>

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2. Conducted Emission

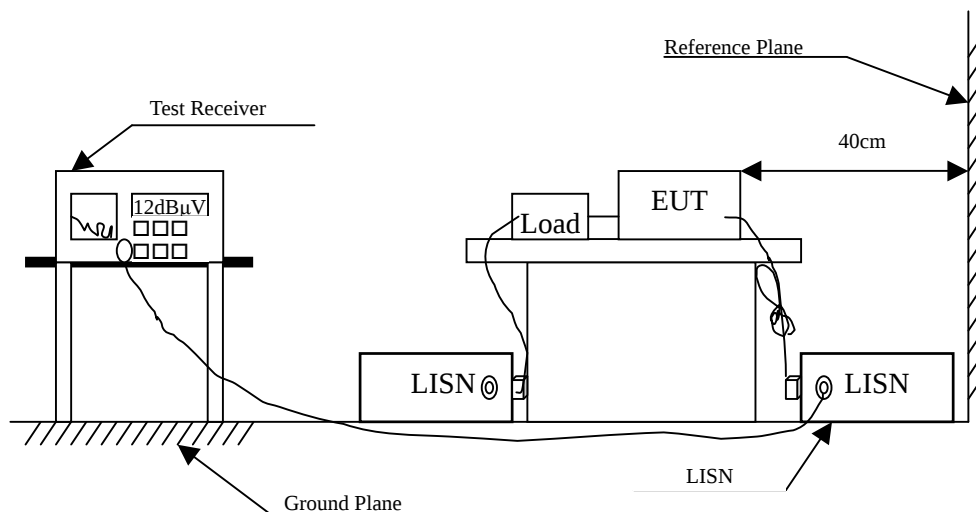
2.1. Test Equipment

	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.	Remark
X	Test Receiver	R & S	ESCS 30 / 825442/018	Sep., 2015	
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 equipment is calibrated once a year or as required by manufacturer.
2. All equipment is calibrated to traceable calibration procedures.
3. 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 investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

The EUT was setup to ANSI C63.4, 2014; 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 6: Transmit (802.11ac-80BW-65Mbps)(Dipole Antenna) (5290MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBμV	dBμV	dB	dBμV
LINE 1					
Quasi-Peak					
0.162	9.697	48.000	57.697	-7.960	65.657
0.177	9.698	47.070	56.768	-8.461	65.229
0.205	9.699	42.680	52.379	-12.050	64.429
0.244	9.701	37.500	47.201	-16.113	63.314
0.271	9.702	34.620	44.322	-18.221	62.543
10.966	9.880	19.210	29.090	-30.910	60.000
Average					
0.162	9.697	37.610	47.307	-8.350	55.657
0.177	9.698	23.270	32.968	-22.261	55.229
0.205	9.699	28.970	38.669	-15.760	54.429
0.244	9.701	13.650	23.351	-29.963	53.314
0.271	9.702	21.500	31.202	-21.341	52.543
10.966	9.880	12.620	22.500	-27.500	50.000

Note:

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

Product : 802.11 ac PCIe Module
Test Item : Conducted Emission Test
Power Line : Line 2
Test Mode : Mode 6: Transmit (802.11ac-80BW-65Mbps)(Dipole Antenna) (5290MHz)

Frequency MHz	Correct Factor dB	Reading Level dBμV	Measurement Level dBμV	Margin dB	Limit dBμV
LINE 2					
Quasi-Peak					
0.177	9.678	46.820	56.498	-8.731	65.229
0.205	9.679	43.180	52.859	-11.570	64.429
0.244	9.681	37.120	46.801	-16.513	63.314
0.271	9.682	34.660	44.342	-18.201	62.543
0.330	9.685	27.520	37.205	-23.652	60.857
10.966	9.900	18.950	28.850	-31.150	60.000
Average					
0.177	9.678	41.150	50.828	-4.401	55.229
0.205	9.679	32.700	42.379	-12.050	54.429
0.244	9.681	31.040	40.721	-12.593	53.314
0.271	9.682	21.300	30.982	-21.561	52.543
0.330	9.685	16.450	26.135	-24.722	50.857
10.966	9.900	15.030	24.930	-25.070	50.000

Note:

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

Product : 802.11 ac PCIe Module
Test Item : Conducted Emission Test
Power Line : Line 1
Test Mode : Mode 6: Transmit (802.11ac-80BW-65Mbps)(Dipole Antenna) (5530MHz)

Frequency MHz	Correct Factor dB	Reading Level dBμV	Measurement Level dBμV	Margin dB	Limit dBμV
LINE 1					
Quasi-Peak					
0.158	9.697	47.920	57.617	-8.154	65.771
0.173	9.697	46.000	55.697	-9.646	65.343
0.189	9.698	44.560	54.258	-10.628	64.886
0.205	9.699	41.690	51.389	-13.040	64.429
0.252	9.701	37.540	47.241	-15.845	63.086
11.115	9.880	19.320	29.200	-30.800	60.000
Average					
0.158	9.697	29.140	38.837	-16.934	55.771
0.173	9.697	30.530	40.227	-15.116	55.343
0.189	9.698	18.100	27.798	-27.088	54.886
0.205	9.699	35.840	45.539	-8.890	54.429
0.252	9.701	19.530	29.231	-23.855	53.086
11.115	9.880	13.770	23.650	-26.350	50.000

Note:

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

Product : 802.11 ac PCIe Module
Test Item : Conducted Emission Test
Power Line : Line 2-Dipole
Test Mode : Mode 6: Transmit (802.11ac-80BW-65Mbps)(Dipole Antenna) (5530MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBμV	dBμV	dB	dBμV
LINE 2					
Quasi-Peak					
0.158	9.677	47.650	57.327	-8.444	65.771
0.205	9.679	42.600	52.279	-12.150	64.429
0.252	9.681	36.930	46.611	-16.475	63.086
0.361	9.686	23.900	33.586	-26.385	59.971
0.615	9.698	23.150	32.848	-23.152	56.000
11.115	9.900	20.400	30.300	-29.700	60.000
Average					
0.158	9.677	40.200	49.877	-5.894	55.771
0.205	9.679	34.540	44.219	-10.210	54.429
0.252	9.681	17.340	27.021	-26.065	53.086
0.361	9.686	5.100	14.786	-35.185	49.971
0.615	9.698	15.230	24.928	-21.072	46.000
11.115	9.900	14.910	24.810	-25.190	50.000

Note:

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

Product : 802.11 ac PCIe Module
 Test Item : Conducted Emission Test
 Power Line : Line 1
 Test Mode : Mode 12: Transmit (802.11ac-80BW-65Mbps)(Grid DISH Antenna) (5290MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBμV	dBμV	dB	dBμV
LINE 1					
Quasi-Peak					
0.158	9.697	47.780	57.477	-8.294	65.771
0.193	9.698	44.920	54.618	-10.153	64.771
0.232	9.700	38.330	48.030	-15.627	63.657
0.263	9.702	34.500	44.202	-18.569	62.771
0.279	9.702	33.100	42.802	-19.512	62.314
10.728	9.880	19.270	29.150	-30.850	60.000
Average					
0.158	9.697	26.290	35.987	-19.784	55.771
0.193	9.698	33.820	43.518	-11.253	54.771
0.232	9.700	16.670	26.370	-27.287	53.657
0.263	9.702	14.430	24.132	-28.639	52.771
0.279	9.702	26.460	36.162	-16.152	52.314
10.728	9.880	14.060	23.940	-26.060	50.000

Note:

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

Product : 802.11 ac PCIe Module
 Test Item : Conducted Emission Test
 Power Line : Line 2
 Test Mode : Mode 12: Transmit (802.11ac-80BW-65Mbps)(Grid DISH Antenna) (5290MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBμV	dBμV	dB	dBμV
LINE 2					
Quasi-Peak					
0.158	9.677	51.540	61.217	-4.554	65.771
0.197	9.679	43.060	52.739	-11.918	64.657
0.228	9.680	38.710	48.390	-15.381	63.771
0.259	9.681	35.460	45.141	-17.745	62.886
0.623	9.698	22.690	32.388	-23.612	56.000
11.166	9.910	20.060	29.970	-30.030	60.000
Average					
0.158	9.677	37.460	47.137	-8.634	55.771
0.197	9.679	28.630	38.309	-16.348	54.657
0.228	9.680	25.270	34.950	-18.821	53.771
0.259	9.681	22.070	31.751	-21.135	52.886
0.623	9.698	19.920	29.618	-16.382	46.000
11.166	9.910	13.740	23.650	-26.350	50.000

Note:

- All Reading Levels are Quasi-Peak and average value.
- “ ” means the worst emission level.
- 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)(Grid DISH Antenna) (5530MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBμV	dBμV	dB	dBμV
LINE 1					
Quasi-Peak					
0.166	9.697	46.150	55.847	-9.696	65.543
0.181	9.698	46.930	56.628	-8.486	65.114
0.201	9.699	42.820	52.519	-12.024	64.543
0.220	9.700	41.060	50.760	-13.240	64.000
0.232	9.700	39.190	48.890	-14.767	63.657
11.025	9.880	19.220	29.100	-30.900	60.000
Average					
0.166	9.697	35.860	45.557	-9.986	55.543
0.181	9.698	34.700	44.398	-10.716	55.114
0.201	9.699	33.850	43.549	-10.994	54.543
0.220	9.700	36.060	45.760	-8.240	54.000
0.232	9.700	23.310	33.010	-20.647	53.657
11.025	9.880	11.980	21.860	-28.140	50.000

Note:

- All Reading Levels are Quasi-Peak and average value.
- “ ” means the worst emission level.
- 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)(Grid DISH Antenna) (5530MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBμV	dBμV	dB	dBμV
LINE 2					
Quasi-Peak					
0.177	9.678	46.340	56.018	-9.211	65.229
0.205	9.679	41.800	51.479	-12.950	64.429
0.255	9.681	36.800	46.481	-16.519	63.000
0.330	9.685	27.640	37.325	-23.532	60.857
0.619	9.698	22.850	32.548	-23.452	56.000
10.701	9.900	18.780	28.680	-31.320	60.000
Average					
0.177	9.678	32.780	42.458	-12.771	55.229
0.205	9.679	27.300	36.979	-17.450	54.429
0.255	9.681	23.760	33.441	-19.559	53.000
0.330	9.685	13.300	22.985	-27.872	50.857
0.619	9.698	18.990	28.688	-17.312	46.000
10.701	9.900	18.800	28.700	-21.300	50.000

Note:

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

Product : 802.11 ac PCIe Module
Test Item : Conducted Emission Test
Power Line : Line 1
Test Mode : Mode 18: Transmit (802.11ac-80BW-65Mbps)(Omni Antenna) (5290MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBμV	dBμV	dB	dBμV
LINE 1					
Quasi-Peak					
0.162	9.697	46.150	55.847	-9.810	65.657
0.177	9.698	45.650	55.348	-9.881	65.229
0.212	9.699	40.700	50.399	-13.830	64.229
0.240	9.700	36.840	46.540	-16.889	63.429
0.314	9.704	28.420	38.124	-23.190	61.314
10.822	9.880	20.410	30.290	-29.710	60.000
Average					
0.162	9.697	31.440	41.137	-14.520	55.657
0.177	9.698	32.030	41.728	-13.501	55.229
0.212	9.699	26.980	36.679	-17.550	54.229
0.240	9.700	23.020	32.720	-20.709	53.429
0.314	9.704	16.210	25.914	-25.400	51.314
10.822	9.880	14.160	24.040	-25.960	50.000

Note:

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

Product : 802.11 ac PCIe Module
Test Item : Conducted Emission Test
Power Line : Line 2
Test Mode : Mode 18: Transmit (802.11ac-80BW-65Mbps)(Omni Antenna) (5290MHz)

Frequency MHz	Correct Factor dB	Reading Level dBμV	Measurement Level dBμV	Margin dB	Limit dBμV
LINE 2					
Quasi-Peak					
0.170	9.677	44.990	54.667	-10.762	65.429
0.181	9.678	46.200	55.878	-9.236	65.114
0.216	9.679	40.940	50.619	-13.495	64.114
0.236	9.680	37.690	47.370	-16.173	63.543
0.267	9.682	33.590	43.272	-19.385	62.657
10.806	9.900	19.500	29.400	-30.600	60.000
Average					
0.170	9.677	30.560	40.237	-15.192	55.429
0.181	9.678	33.160	42.838	-12.276	55.114
0.216	9.679	27.590	37.269	-16.845	54.114
0.236	9.680	24.130	33.810	-19.733	53.543
0.267	9.682	20.940	30.622	-22.035	52.657
10.806	9.900	13.040	22.940	-27.060	50.000

Note:

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

Product : 802.11 ac PCIe Module
Test Item : Conducted Emission Test
Power Line : Line 1
Test Mode : Mode 18: Transmit (802.11ac-80BW-65Mbps)(Omni Antenna) (5530MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBμV	dBμV	dB	dBμV
LINE 1					
Quasi-Peak					
0.162	9.697	45.750	55.447	-10.210	65.657
0.177	9.698	45.250	54.948	-10.281	65.229
0.212	9.699	40.300	49.999	-14.230	64.229
0.240	9.701	36.339	46.040	-17.389	63.429
0.314	9.704	25.820	35.524	-25.790	61.314
10.822	9.880	19.310	29.190	-30.810	60.000
Average					
0.162	9.697	30.840	40.537	-15.120	55.657
0.177	9.698	30.930	40.628	-14.601	55.229
0.212	9.699	26.380	36.079	-18.150	54.229
0.240	9.701	21.919	31.620	-21.809	53.429
0.314	9.704	15.610	25.314	-26.000	51.314
10.822	9.880	13.060	22.940	-27.060	50.000

Note:

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

Product : 802.11 ac PCIe Module
Test Item : Conducted Emission Test
Power Line : Line 2
Test Mode : Mode 18: Transmit (802.11ac-80BW-65Mbps)(Omni Antenna) (5530MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBμV	dBμV	dB	dBμV
LINE 2					
Quasi-Peak					
0.170	9.677	43.390	53.067	-12.362	65.429
0.181	9.678	42.500	52.178	-12.936	65.114
0.216	9.679	39.840	49.519	-14.595	64.114
0.236	9.680	35.590	45.270	-18.273	63.543
0.267	9.682	34.690	44.372	-18.285	62.657
10.806	9.900	21.600	31.500	-28.500	60.000
Average					
0.170	9.677	29.460	39.137	-16.292	55.429
0.181	9.678	32.060	41.738	-13.376	55.114
0.216	9.679	25.990	35.669	-18.445	54.114
0.236	9.680	23.030	32.710	-20.833	53.543
0.267	9.682	21.040	30.722	-21.935	52.657
10.806	9.900	14.140	24.040	-25.960	50.000

Note:

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

Product : 802.11 ac PCIe Module
Test Item : Conducted Emission Test
Power Line : Line 1
Test Mode : Mode 24: Transmit (802.11ac-80BW-65Mbps)(Panel Antenna) (5290MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBμV	dBμV	dB	dBμV
LINE 1					
Quasi-Peak					
0.162	9.697	51.040	60.737	-4.920	65.657
0.201	9.699	41.540	51.239	-13.304	64.543
0.252	9.701	37.150	46.851	-16.235	63.086
0.326	9.704	28.060	37.764	-23.207	60.971
0.482	9.712	20.560	30.272	-26.242	56.514
0.627	9.718	12.750	22.468	-33.532	56.000
Average					
0.162	9.697	38.570	48.267	-7.390	55.657
0.201	9.699	32.930	42.629	-11.914	54.543
0.252	9.701	34.110	43.811	-9.275	53.086
0.326	9.704	19.440	29.144	-21.827	50.971
0.482	9.712	8.940	18.652	-27.862	46.514
0.627	9.718	-0.920	8.798	-37.202	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 24: Transmit (802.11ac-80BW-65Mbps)(Panel Antenna) (5290MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBμV	dBμV	dB	dBμV
LINE 2					
Quasi-Peak					
0.173	9.677	46.130	55.807	-9.536	65.343
0.205	9.679	41.040	50.719	-13.710	64.429
0.252	9.681	34.990	44.671	-18.415	63.086
0.310	9.684	27.770	37.454	-23.975	61.429
0.435	9.689	16.650	26.339	-31.518	57.857
0.654	9.699	15.470	25.169	-30.831	56.000
Average					
0.173	9.677	31.830	41.507	-13.836	55.343
0.205	9.679	26.730	36.409	-18.020	54.429
0.252	9.681	21.520	31.201	-21.885	53.086
0.310	9.684	6.700	16.384	-35.045	51.429
0.435	9.689	8.400	18.089	-29.768	47.857
0.654	9.699	11.580	21.279	-24.721	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 24: Transmit (802.11ac-80BW-65Mbps)(Panel Antenna) (5530MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBμV	dBμV	dB	dBμV
LINE 1					
Quasi-Peak					
0.166	9.697	47.590	57.287	-8.256	65.543
0.209	9.699	41.160	50.859	-13.455	64.314
0.236	9.700	36.680	46.380	-17.163	63.543
0.255	9.701	34.820	44.521	-18.479	63.000
0.314	9.704	29.470	39.174	-22.140	61.314
0.603	9.717	14.050	23.767	-32.233	56.000
Average					
0.166	9.697	33.330	43.027	-12.516	55.543
0.209	9.699	26.860	36.559	-17.755	54.314
0.236	9.700	23.000	32.700	-20.843	53.543
0.255	9.701	21.760	31.461	-21.539	53.000
0.314	9.704	24.880	34.584	-16.730	51.314
0.603	9.717	5.070	14.787	-31.213	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 24: Transmit (802.11ac-80BW-65Mbps)(Panel Antenna) (5530MHz)

Frequency MHz	Correct Factor dB	Reading Level dBμV	Measurement Level dBμV	Margin dB	Limit dBμV
LINE 2					
Quasi-Peak					
0.166	9.677	47.090	56.767	-8.776	65.543
0.193	9.678	41.000	50.678	-14.093	64.771
0.228	9.680	37.840	47.520	-16.251	63.771
0.287	9.683	30.790	40.473	-21.613	62.086
0.345	9.685	23.520	33.205	-27.224	60.429
0.634	9.698	12.530	22.228	-33.772	56.000
Average					
0.166	9.677	32.680	42.357	-13.186	55.543
0.193	9.678	27.100	36.778	-17.993	54.771
0.228	9.680	29.450	39.130	-14.641	53.771
0.287	9.683	24.310	33.993	-18.093	52.086
0.345	9.685	19.010	28.695	-21.734	50.429
0.634	9.698	9.450	19.148	-26.852	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 30: Transmit (802.11ac-80BW-65Mbps)(Sector Antenna) (5290MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBμV	dBμV	dB	dBμV
LINE 1					
Quasi-Peak					
0.158	9.697	47.780	57.477	-8.294	65.771
0.193	9.698	44.920	54.618	-10.153	64.771
0.232	9.700	38.330	48.030	-15.627	63.657
0.263	9.702	34.500	44.202	-18.569	62.771
0.279	9.702	33.100	42.802	-19.512	62.314
10.728	9.880	19.270	29.150	-30.850	60.000
Average					
0.158	9.697	26.290	35.987	-19.784	55.771
0.193	9.698	33.820	43.518	-11.253	54.771
0.232	9.700	16.670	26.370	-27.287	53.657
0.263	9.702	14.430	24.132	-28.639	52.771
0.279	9.702	26.460	36.162	-16.152	52.314
10.728	9.880	14.060	23.940	-26.060	50.000

Note:

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

Product : 802.11 ac PCIe Module
Test Item : Conducted Emission Test
Power Line : Line 2
Test Mode : Mode 30: Transmit (802.11ac-80BW-65Mbps)(Sector Antenna) (5290MHz)

Frequency MHz	Correct Factor dB	Reading Level dBμV	Measurement Level dBμV	Margin dB	Limit dBμV
LINE 2					
Quasi-Peak					
0.158	9.677	51.540	61.217	-4.554	65.771
0.197	9.679	43.060	52.739	-11.918	64.657
0.228	9.680	38.710	48.390	-15.381	63.771
0.259	9.681	35.460	45.141	-17.745	62.886
0.623	9.698	22.690	32.388	-23.612	56.000
11.166	9.910	20.060	29.970	-30.030	60.000
Average					
0.158	9.677	37.460	47.137	-8.634	55.771
0.197	9.679	28.630	38.309	-16.348	54.657
0.228	9.680	25.270	34.950	-18.821	53.771
0.259	9.681	22.070	31.751	-21.135	52.886
0.623	9.698	19.920	29.618	-16.382	46.000
11.166	9.910	13.740	23.650	-26.350	50.000

Note:

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

Product : 802.11 ac PCIe Module
Test Item : Conducted Emission Test
Power Line : Line 1
Test Mode : Mode 30: Transmit (802.11ac-80BW-65Mbps)(Sector Antenna) (5530MHz)

Frequency MHz	Correct Factor dB	Reading Level dBμV	Measurement Level dBμV	Margin dB	Limit dBμV
LINE 1					
Quasi-Peak					
0.166	9.697	46.150	55.847	-9.696	65.543
0.181	9.698	46.930	56.628	-8.486	65.114
0.201	9.699	42.820	52.519	-12.024	64.543
0.220	9.700	41.060	50.760	-13.240	64.000
0.232	9.700	39.190	48.890	-14.767	63.657
11.025	9.880	19.220	29.100	-30.900	60.000
Average					
0.166	9.697	35.860	45.557	-9.986	55.543
0.181	9.698	34.700	44.398	-10.716	55.114
0.201	9.699	33.850	43.549	-10.994	54.543
0.220	9.700	36.060	45.760	-8.240	54.000
0.232	9.700	23.310	33.010	-20.647	53.657
11.025	9.880	11.980	21.860	-28.140	50.000

Note:

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

Product : 802.11 ac PCIe Module
 Test Item : Conducted Emission Test
 Power Line : Line 2
 Test Mode : Mode 30: Transmit (802.11ac-80BW-65Mbps)(Sector Antenna) (5530MHz)

Frequency	Correct	Reading	Measurement	Margin	Limit
MHz	Factor	Level	Level		
	dB	dBμV	dBμV	dB	dBμV
LINE 2					
Quasi-Peak					
0.177	9.678	46.340	56.018	-9.211	65.229
0.205	9.679	41.800	51.479	-12.950	64.429
0.255	9.681	36.800	46.481	-16.519	63.000
0.330	9.685	27.640	37.325	-23.532	60.857
0.619	9.698	22.850	32.548	-23.452	56.000
10.701	9.900	18.780	28.680	-31.320	60.000
Average					
0.177	9.678	32.780	42.458	-12.771	55.229
0.205	9.679	27.300	36.979	-17.450	54.429
0.255	9.681	23.760	33.441	-19.559	53.000
0.330	9.685	13.300	22.985	-27.872	50.857
0.619	9.698	18.990	28.688	-17.312	46.000
10.701	9.900	18.800	28.700	-21.300	50.000

Note:

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

3. Maximun conducted output power

3.1. Test Equipment

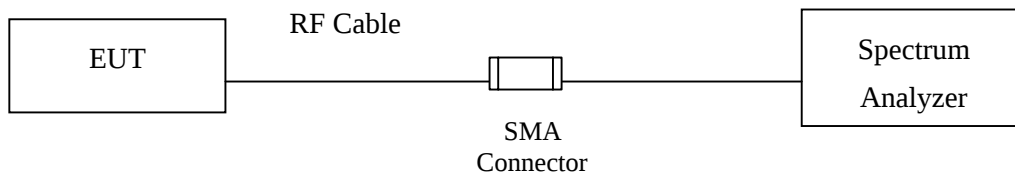
	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Power Meter	Anritsu	ML2495A/6K00003357	May, 2015
X	Power Sensor	Anritsu	MA2411B/0738448	Jun., 2015
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2015

Note:

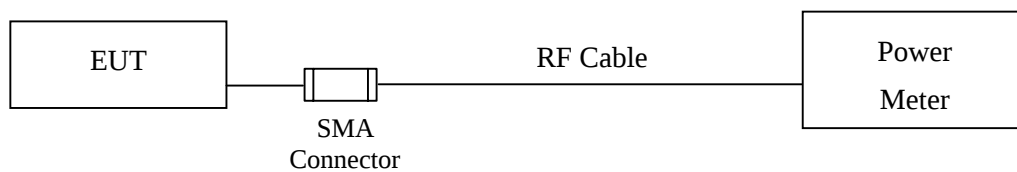
1. All equipment is calibrated once a year or as required by manufacturer.
2. All equipment is calibrated to traceable calibration procedures.
3. The test instruments marked with “X” are used to measure the final test results.

3.2. Test Setup

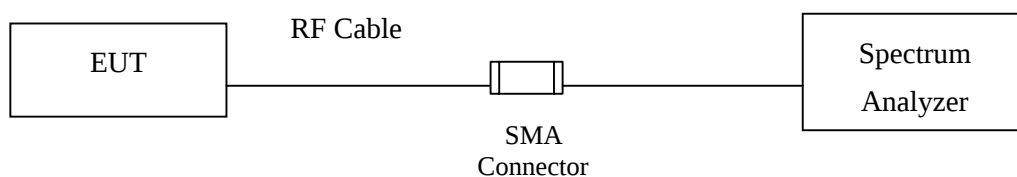
99% Occupied Bandwidth



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-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

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

3.3.2. For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 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 colocated 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 ($BW \leq 40\text{MHz}$) 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 ($BW=80\text{MHz}$) Maximum conducted output power using KDB 789033 section E)2)b)
Method SA-1 (trace averaging with the EUT transmitting at full power throughout each sweep).

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

3.5. Uncertainty

$\pm 1.27 \text{ dB}$

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 Antenna)

CHAIN A

Cable loss=1dB		Maximum conducted output power							
Channel No.	Frequency (MHz)	Data Rate (Mbps)							
		6	9	12	18	24	36	48	54
		Measurement Level (dBm)							
52	5260	14.85	--	--	--	--	--	--	--
60	5300	15.11	14.85	14.67	14.53	14.35	14.27	14.2	14.16
64	5320	15.02	--	--	--	--	--	--	--
100	5500	10.68	--	--	--	--	--	--	--
116	5580	20.02	19.88	19.74	19.62	19.45	19.37	19.3	19.23
140	5700	10.13	--	--	--	--	--	--	--

Note: 1.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)							
		6	9	12	18	24	36	48	54
		Measurement Level (dBm)							
52	5260	13.88	13.72	13.61	13.47	13.41	13.32	13.18	13.12
60	5300	13.74	--	--	--	--	--	--	--
64	5320	13.52	--	--	--	--	--	--	--
100	5500	5.15	--	--	--	--	--	--	--
116	5580	15.69	15.61	15.48	15.42	15.37	15.19	15.05	14.82
140	5700	10.58	--	--	--	--	--	--	--

Note: 1.Maximum conducted output power Value =Reading value on average power meter + cable loss

Maximum conducted output power measurement:

CHAIN A+B

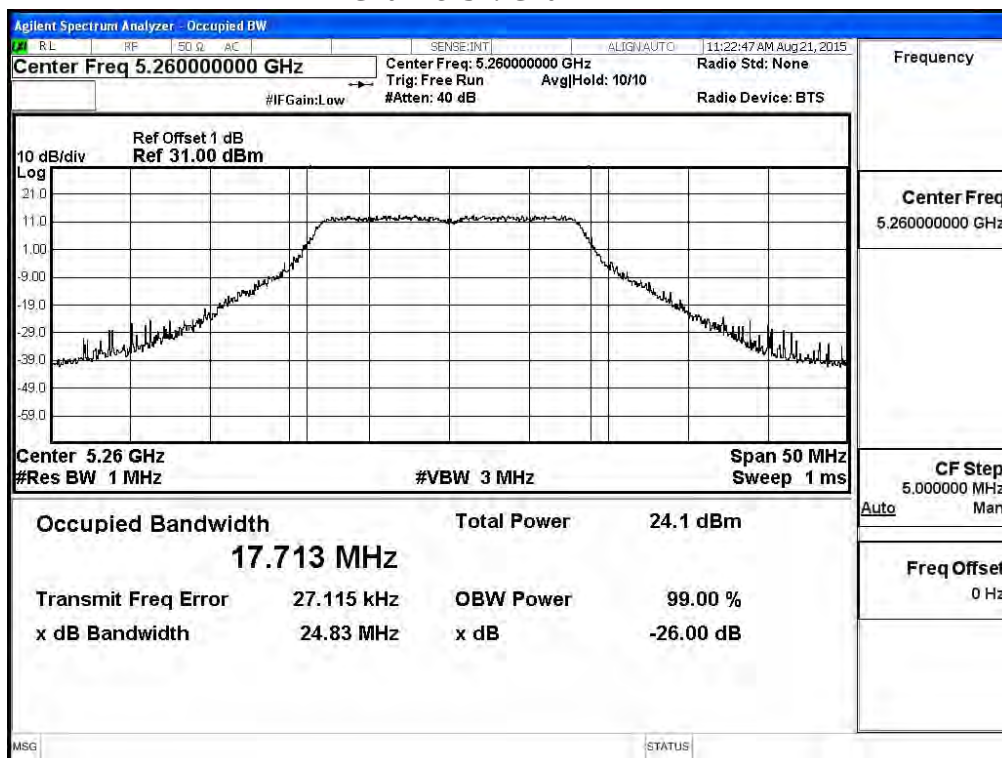
Channel Number	Frequency (MHz)	99% Bandwidth (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Total Power (dBm)	Output power Limit	
						(dBm)	dBm+10log(BW)
52	5260	17.649	14.85	13.88	17.40	24	23.47
60	5300	17.575	15.11	13.74	17.49	24	23.45
64	5320	17.609	15.02	13.52	17.34	24	23.46
100	5500	17.672	10.68	5.15	11.75	24	23.47
116	5580	17.577	20.02	15.69	21.38	24	23.45
140	5700	17.611	10.13	10.58	13.37	24	23.46

Note:

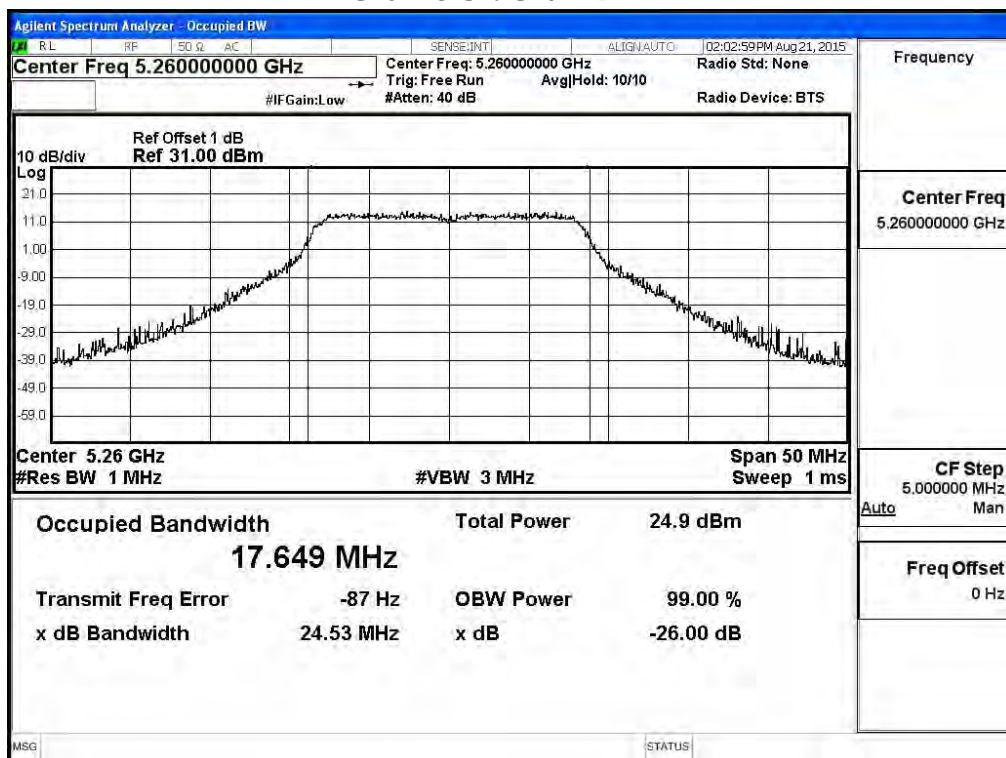
1. Power Output Value = Reading value on average power meter + cable loss.
2. Output Power (dBm) = 10LOG (Chain A Power (mW) + Chain B Power (mW)).
3. 99% Bandwidth is the bandwidth of chain A or chain B whichever is less bandwidth, output power limitation is more stringent.

99% Occupied Bandwidth:

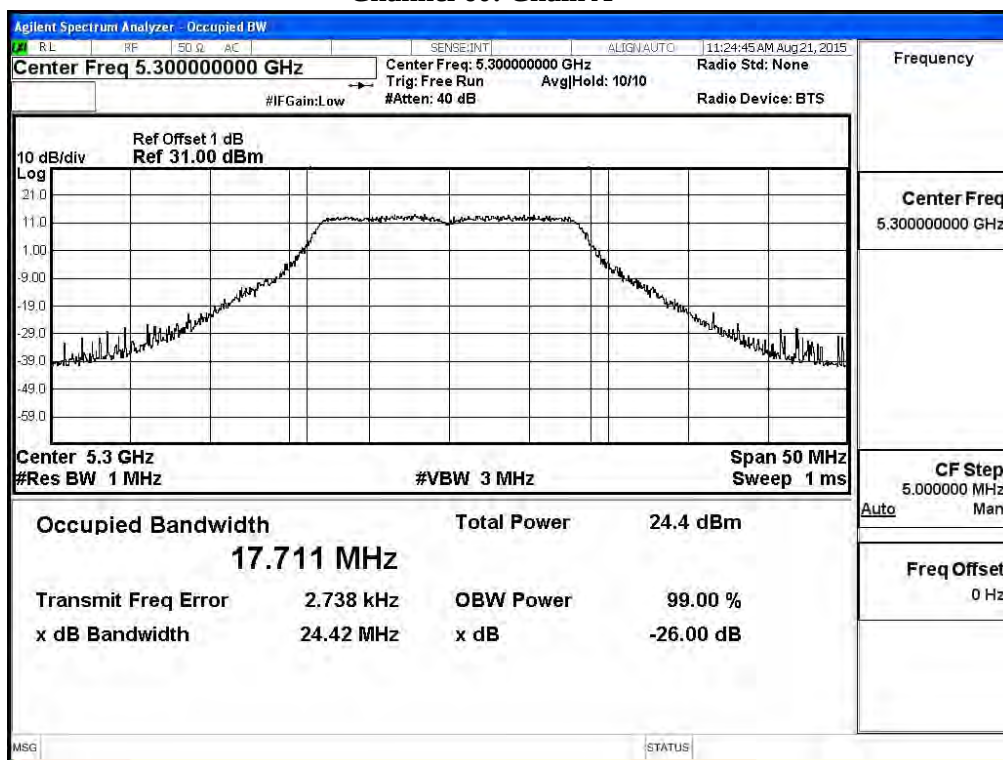
Channel 52: Chain A



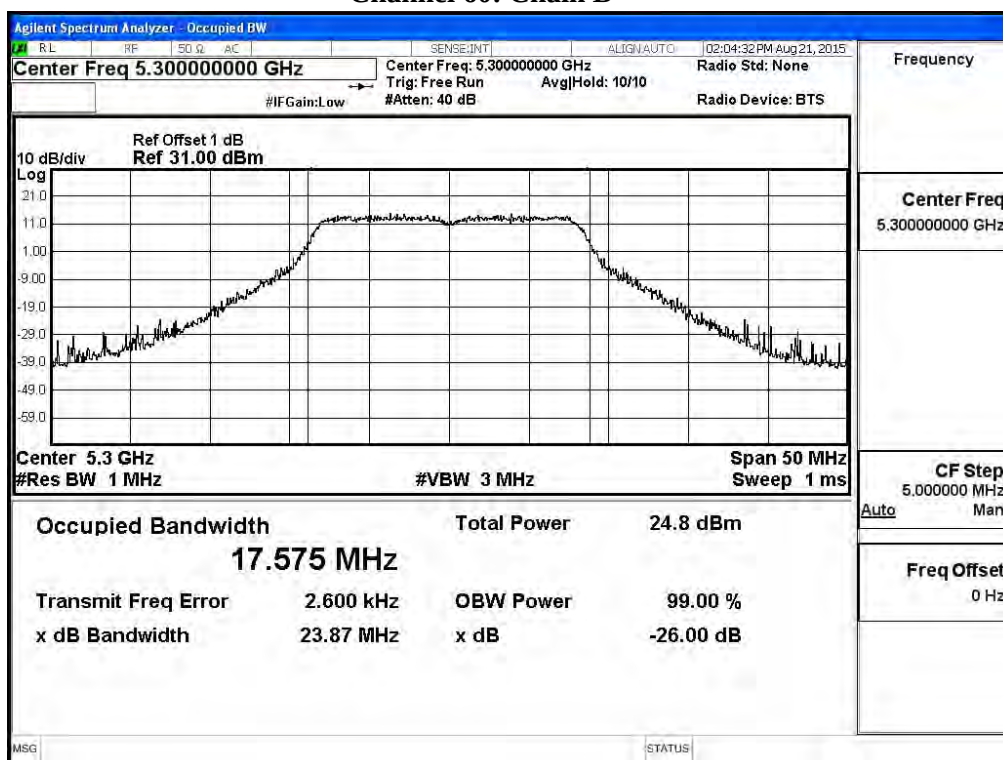
Channel 52: Chain B



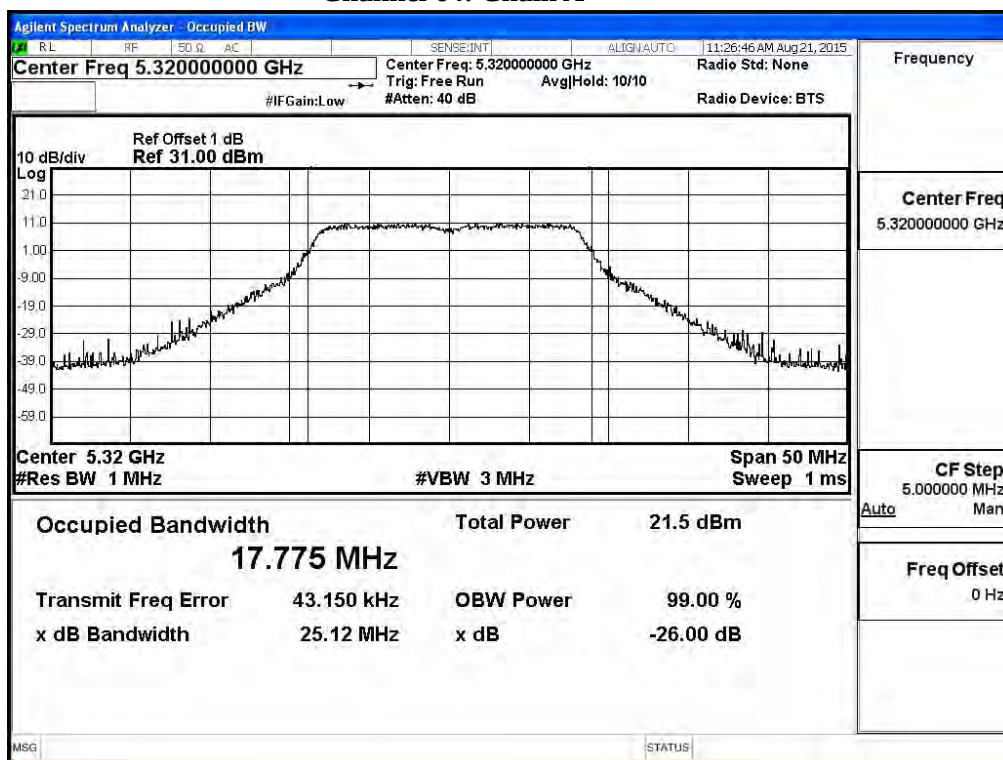
Channel 60: Chain A



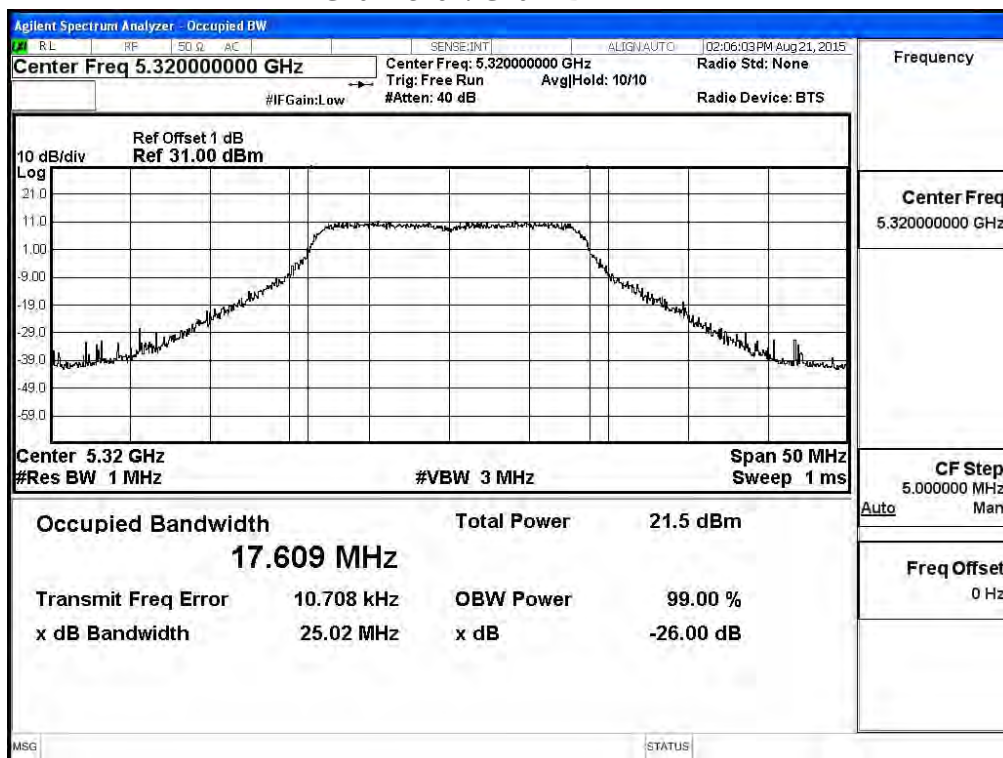
Channel 60: Chain B



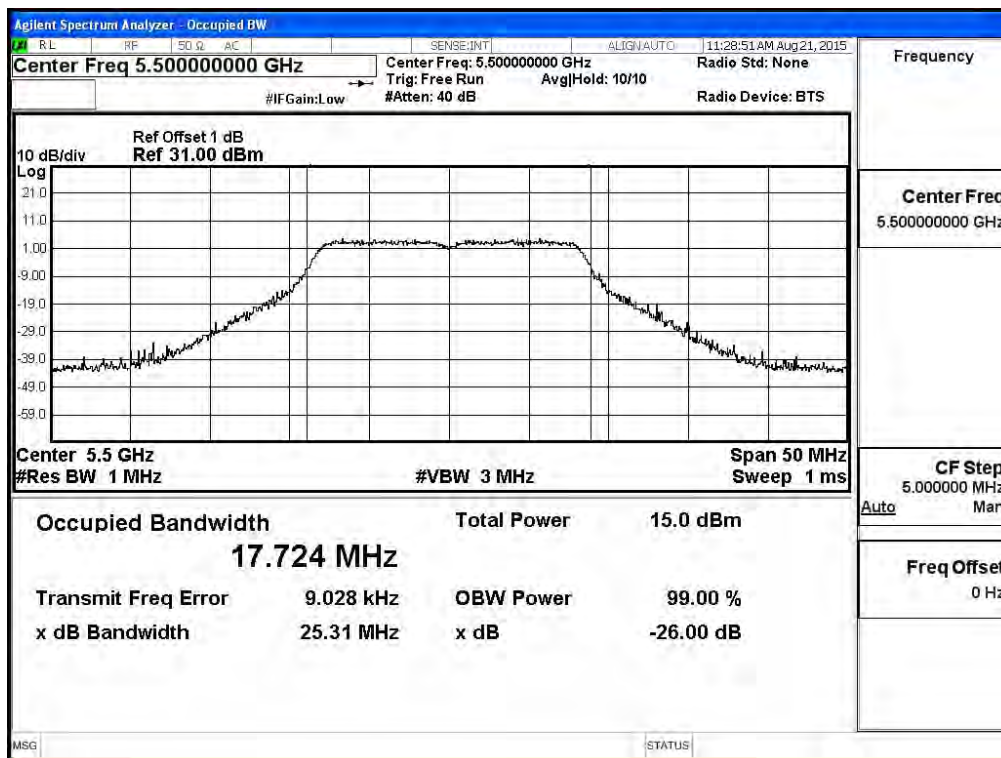
Channel 64: Chain A



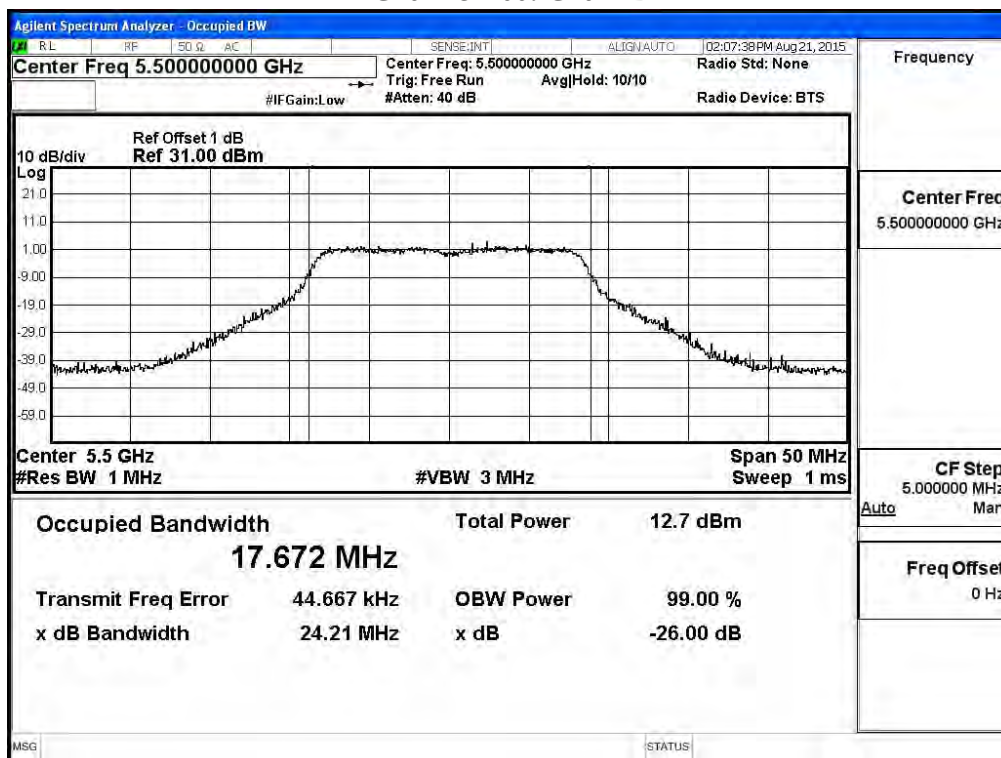
Channel 64: Chain B



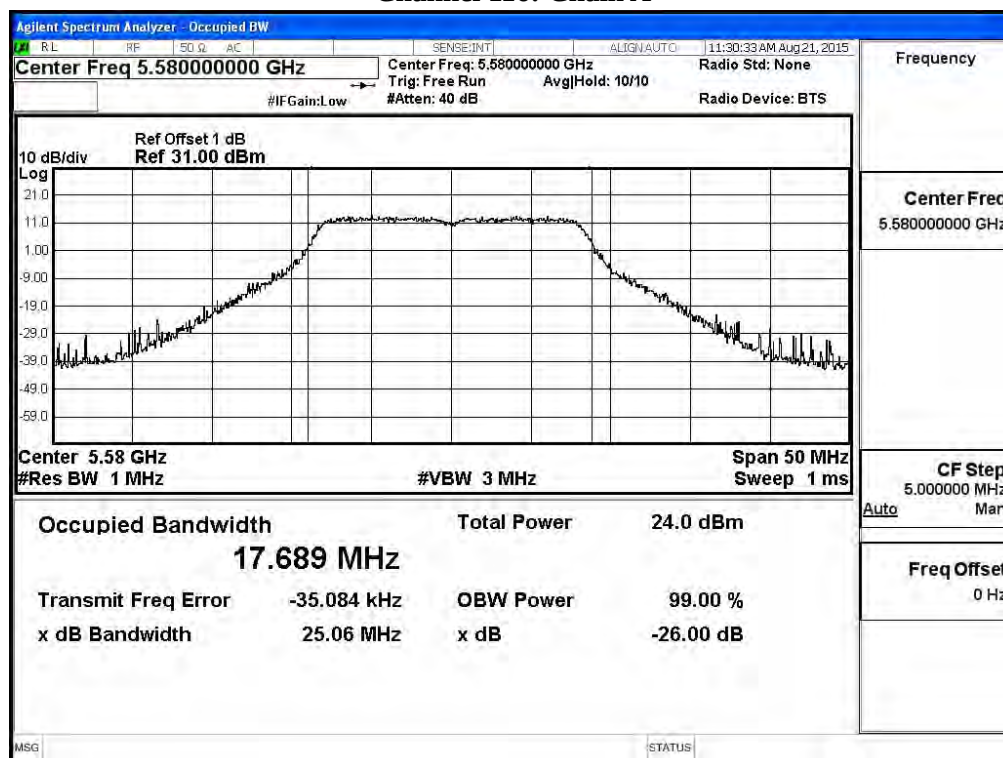
Channel 100: Chain A



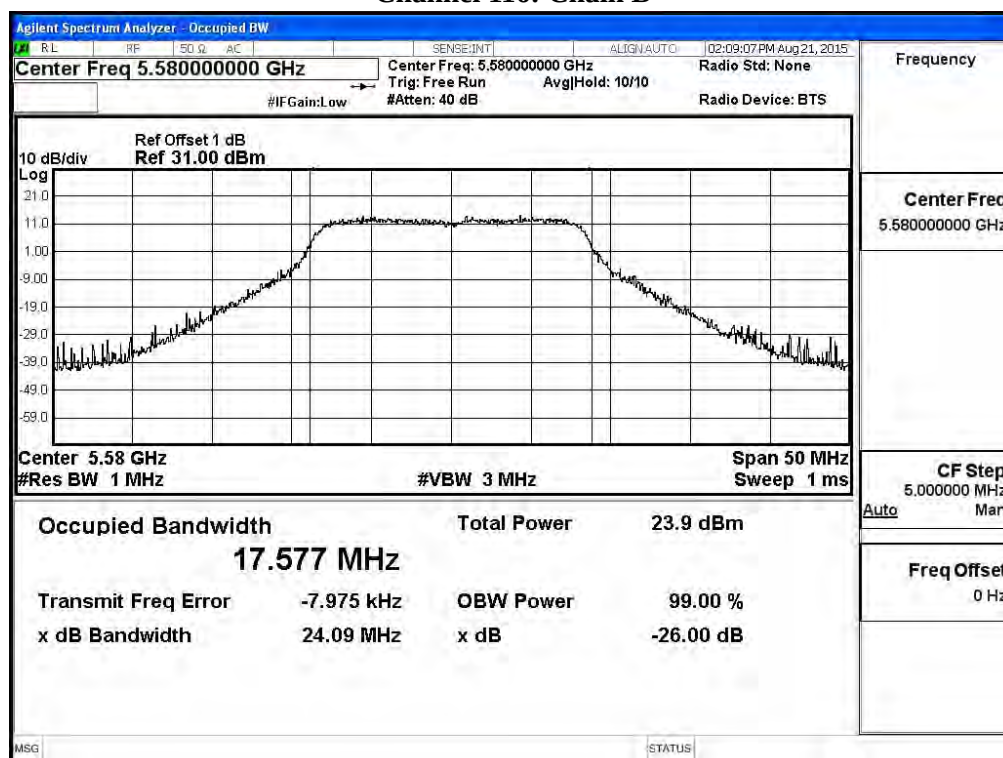
Channel 100: Chain B



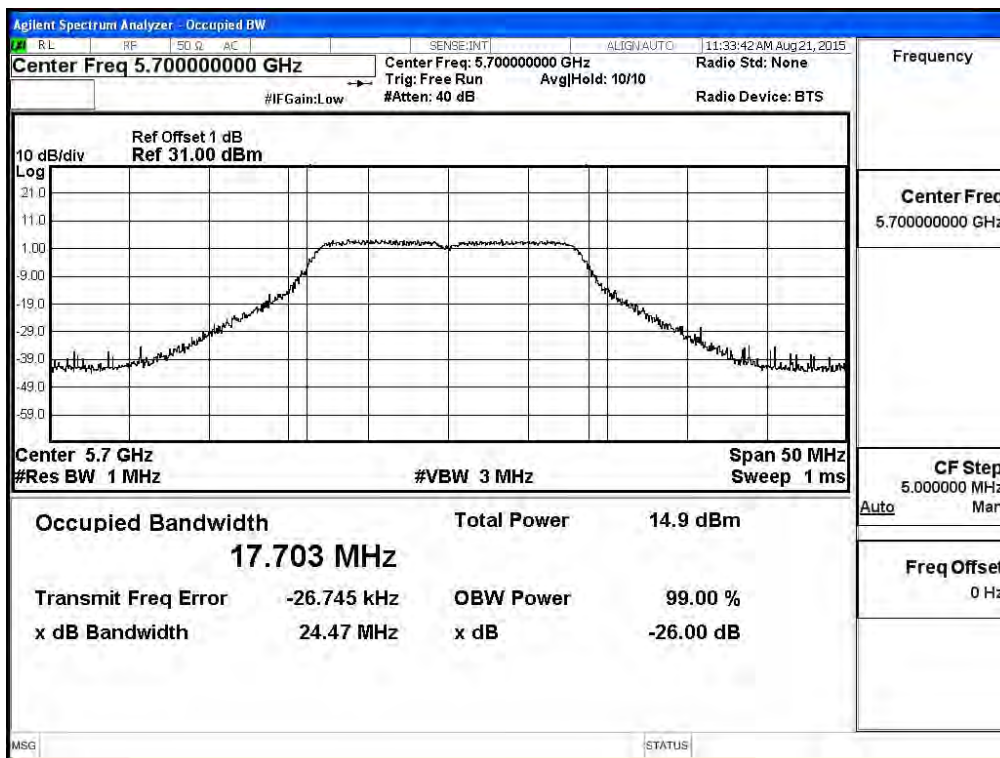
Channel 116: Chain A



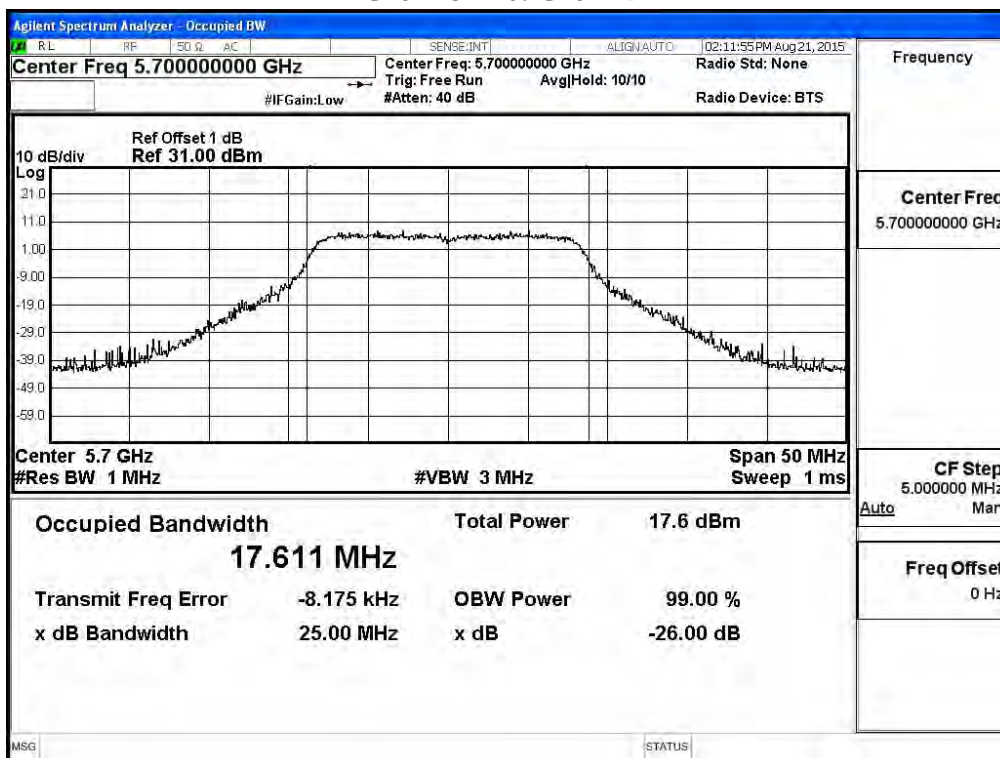
Channel 116: Chain B



Channel 140: Chain A



Channel 140: Chain B



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)(Dipole Antenna)

CHAIN A

Cable loss=1dB		Maximum conducted output power							
Channel No.	Frequency (MHz)	Data Rate (Mbps)							
		14.4	28.9	43.3	57.8	86.7	115.6	130	144.4
		Measurement Level (dBm)							
52	5260	14.92	--	--	--	--	--	--	--
60	5300	15.19	15.05	14.92	14.81	14.69	14.6	14.53	14.41
64	5320	15.03	--	--	--	--	--	--	--
100	5500	10.47	--	--	--	--	--	--	--
116	5580	20.03	19.91	19.78	19.69	19.58	19.46	19.35	19.27
140	5700	9.96	--	--	--	--	--	--	--

Note: 1.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)							
		14.4	28.9	43.3	57.8	86.7	115.6	130	144.4
		Measurement Level (dBm)							
52	5260	13.88	13.75	13.62	13.5	13.44	13.32	13.26	13.1
60	5300	13.72	--	--	--	--	--	--	--
64	5320	13.59	--	--	--	--	--	--	--
100	5500	5.14	--	--	--	--	--	--	--
116	5580	15.64	15.52	15.29	15.21	15.14	15.02	14.9	14.82
140	5700	10.63	--	--	--	--	--	--	--

Note: 1.Maximum conducted output power Value =Reading value on average power meter + cable loss

Maximum conducted output power measurement:

CHAIN A+B

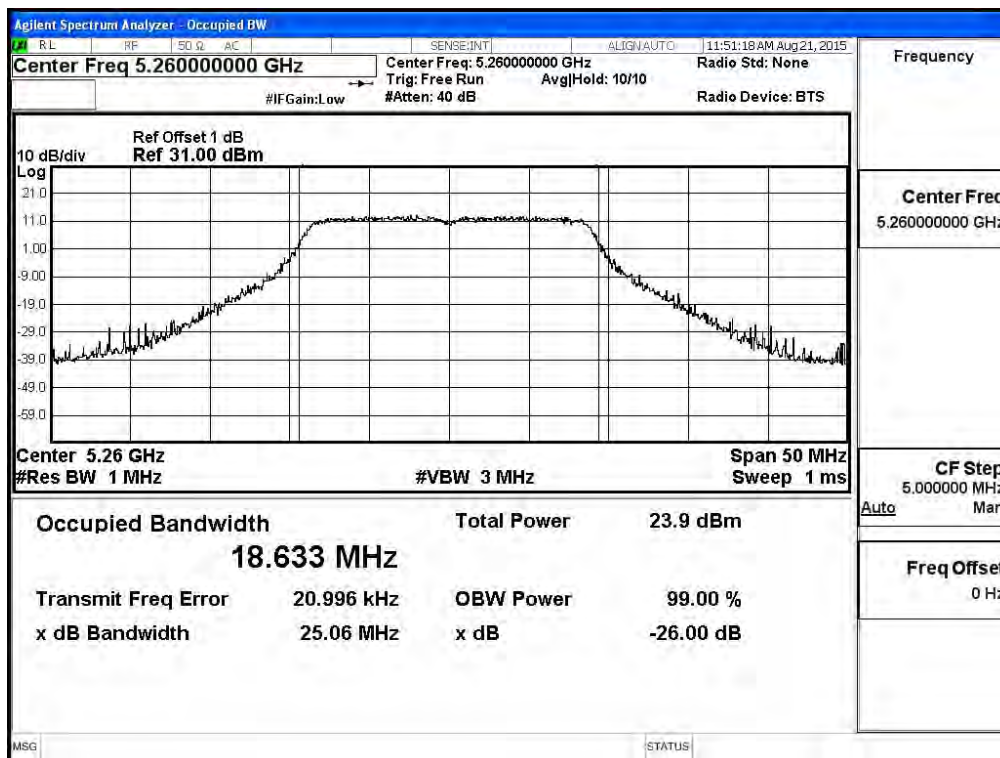
Channel Number	Frequency (MHz)	99% Bandwidth (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Total Power (dBm)	Output power Limit	
						(dBm)	dBm+10log(BW)
52	5260	18.633	14.92	13.88	17.44	24	23.70
60	5300	18.702	15.19	13.72	17.53	24	23.72
64	5320	18.752	15.03	13.59	17.38	24	23.73
100	5500	18.756	10.47	5.14	11.59	24	23.73
116	5580	18.730	20.03	15.64	21.38	24	23.73
140	5700	18.768	9.96	10.63	13.32	24	23.73

Note:

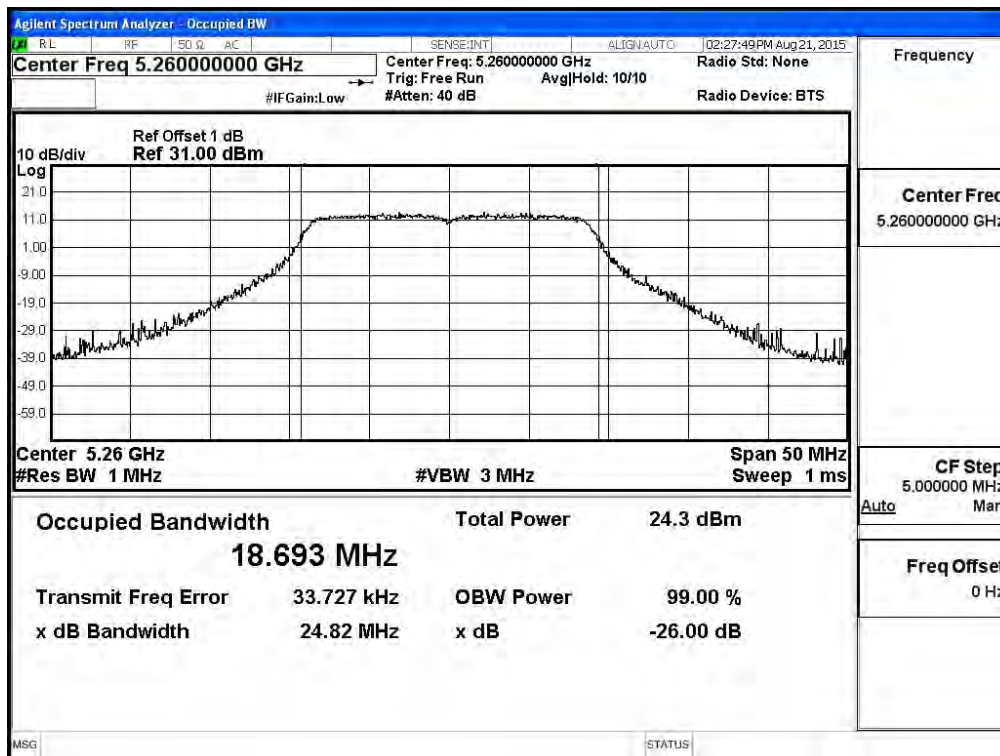
1. Power Output Value =Reading value on average power meter + cable loss.
2. Output Power (dBm) = 10LOG (Chain A Power (mW) + Chain B Power (mW)).
3. 99% Bandwidth is the bandwidth of chain A or chain B whichever is less bandwidth, output power limitation is more stringent.

99% Occupied Bandwidth:

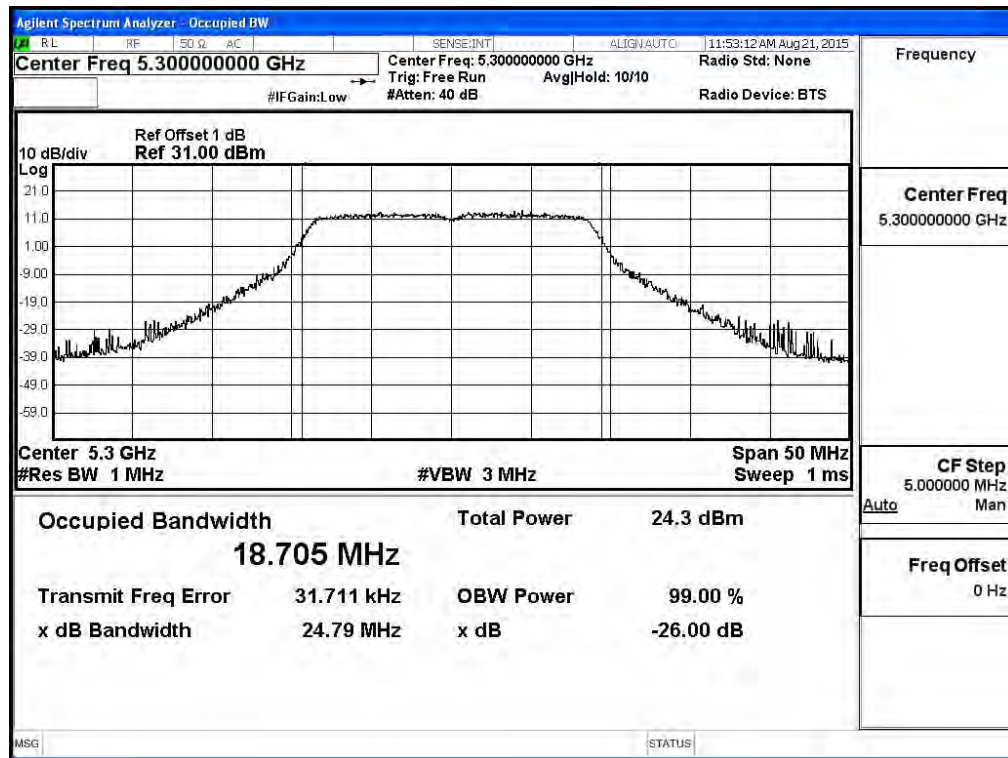
Channel 52: Chain A



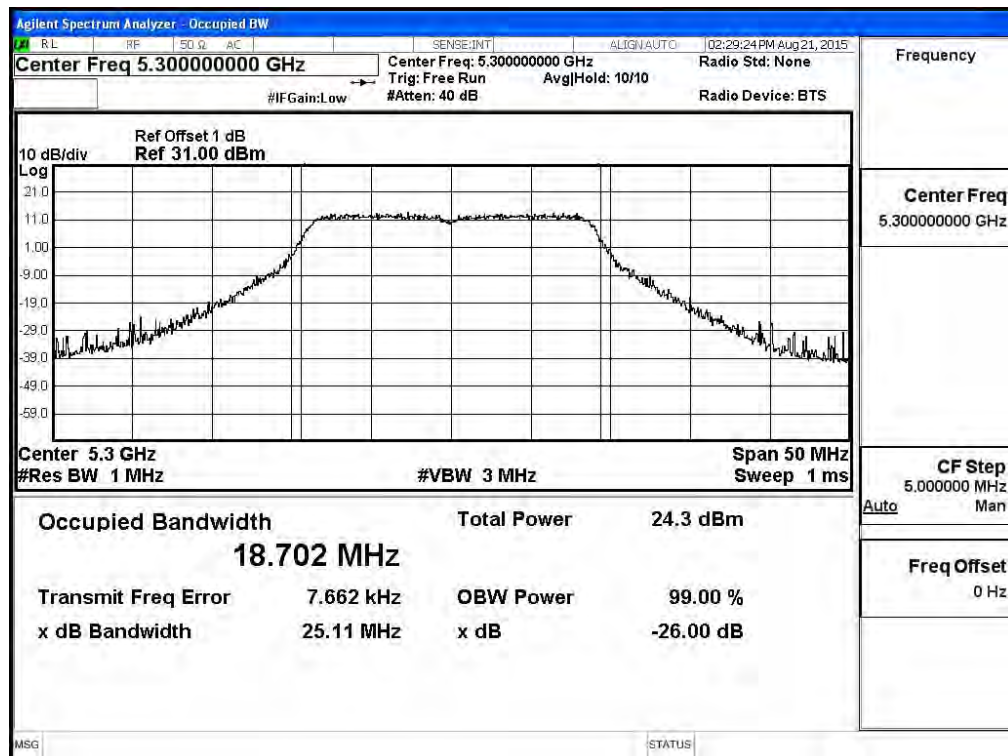
Channel 52: Chain B



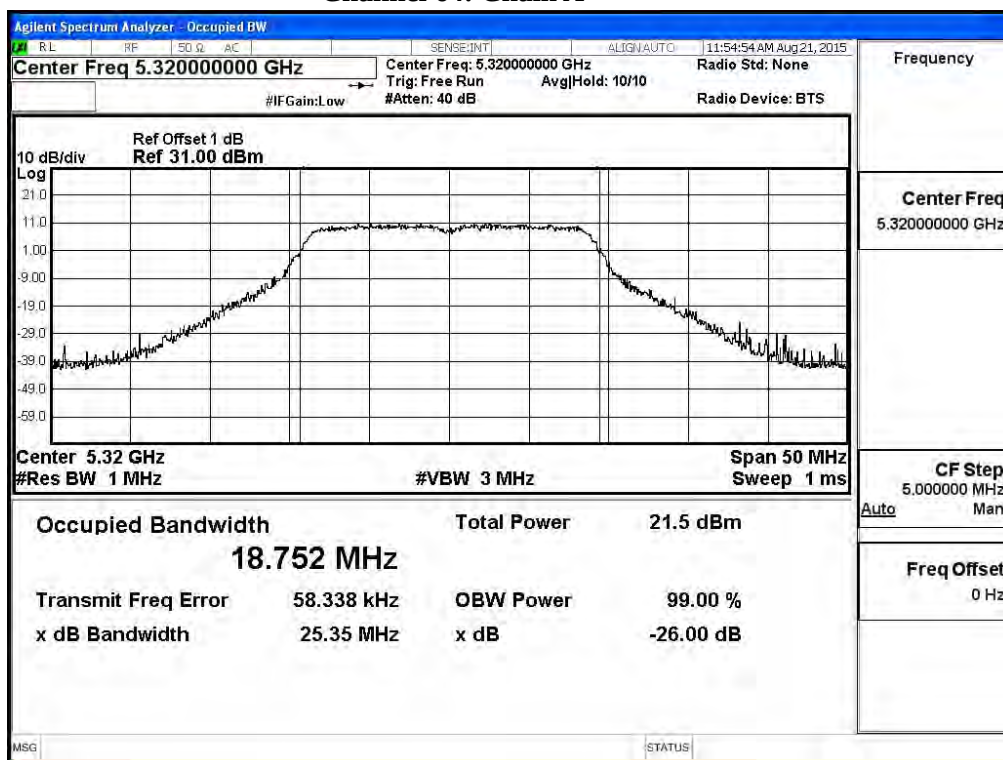
Channel 60: Chain A



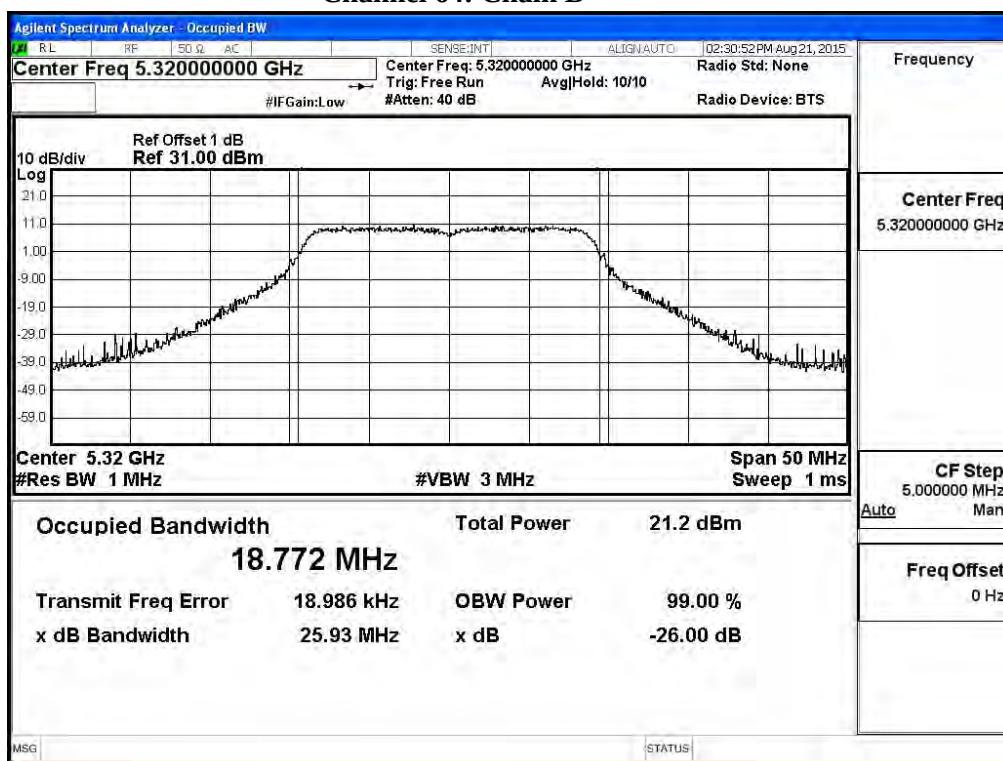
Channel 60: Chain B



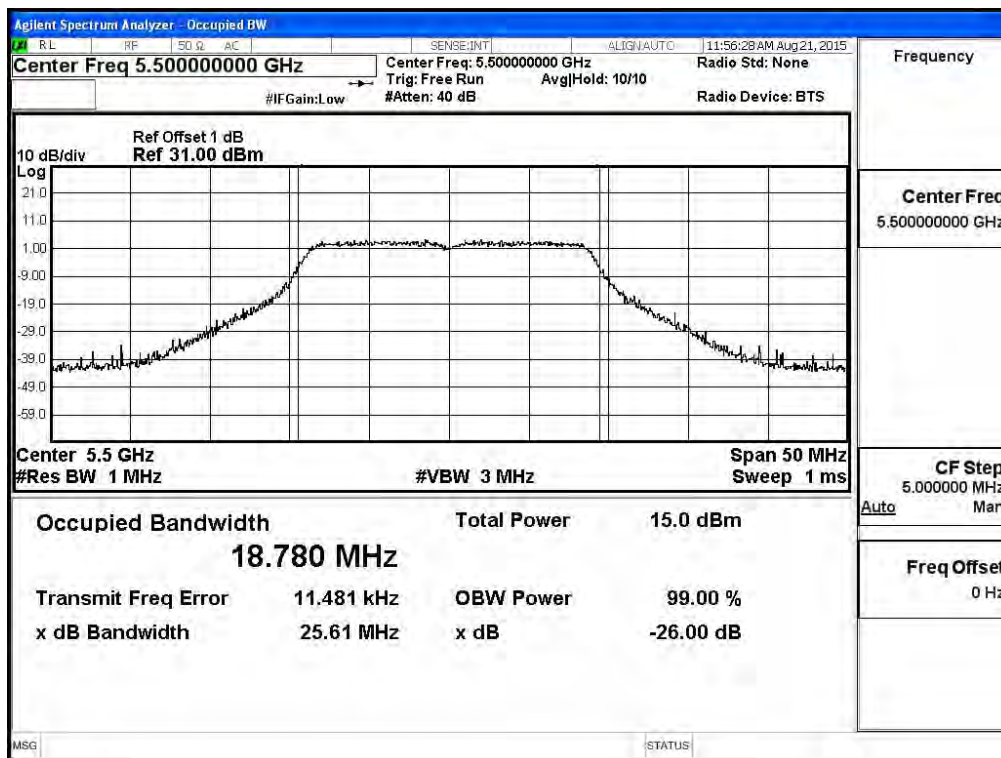
Channel 64: Chain A



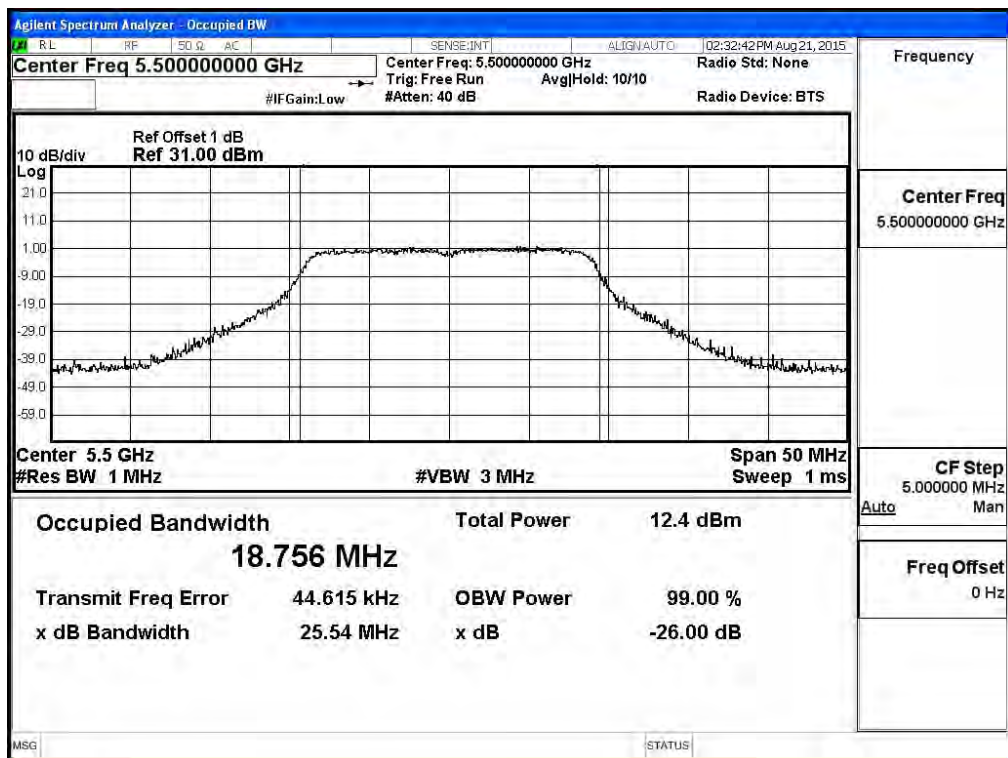
Channel 64: Chain B



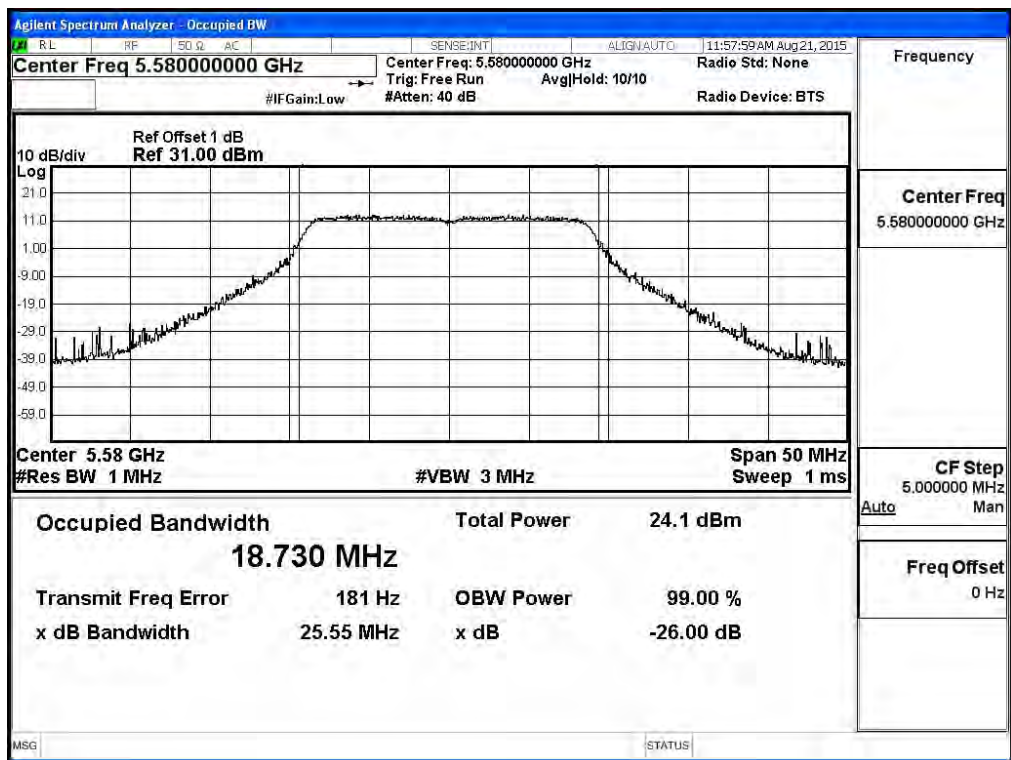
Channel 100: Chain A



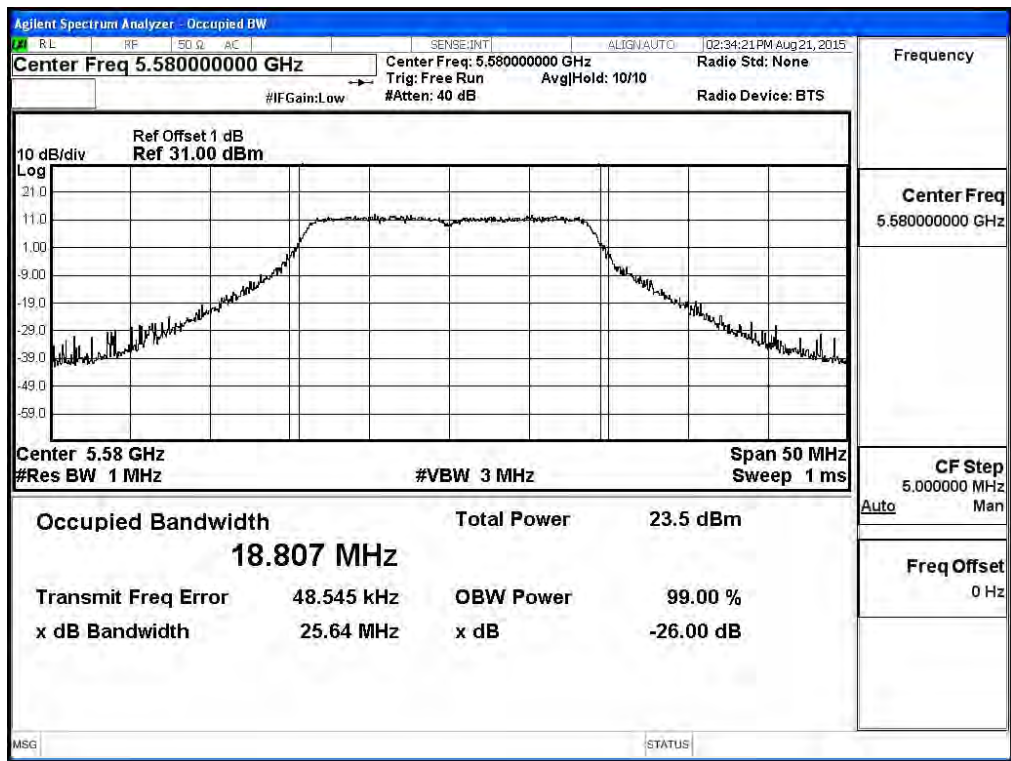
Channel 100: Chain B



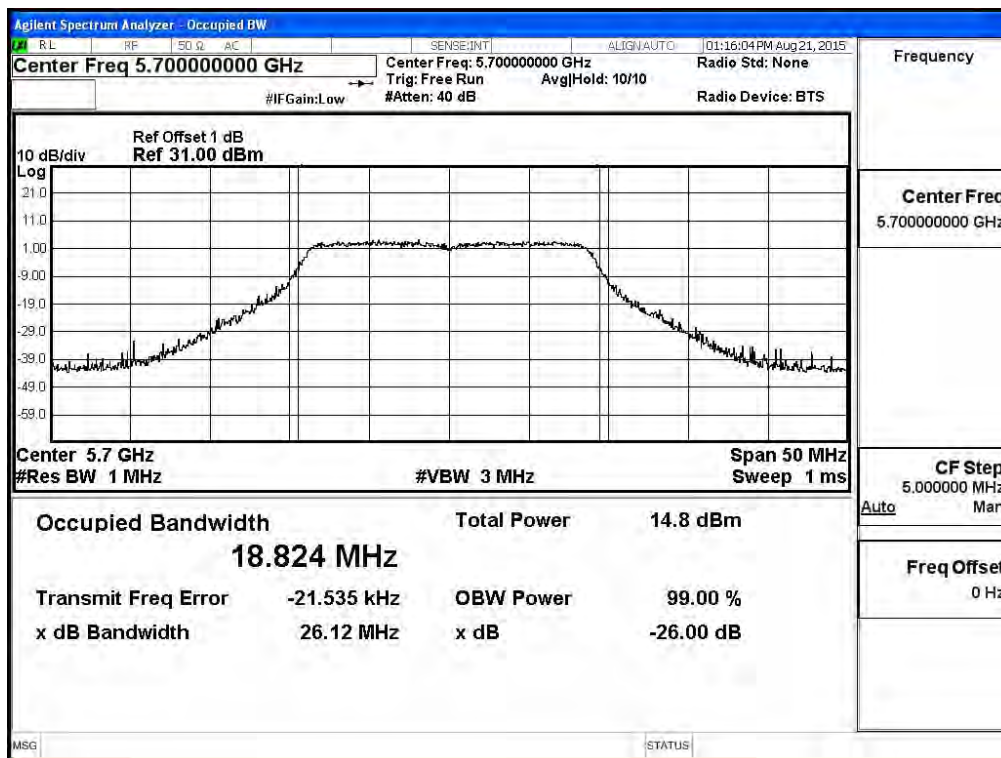
Channel 116: Chain A



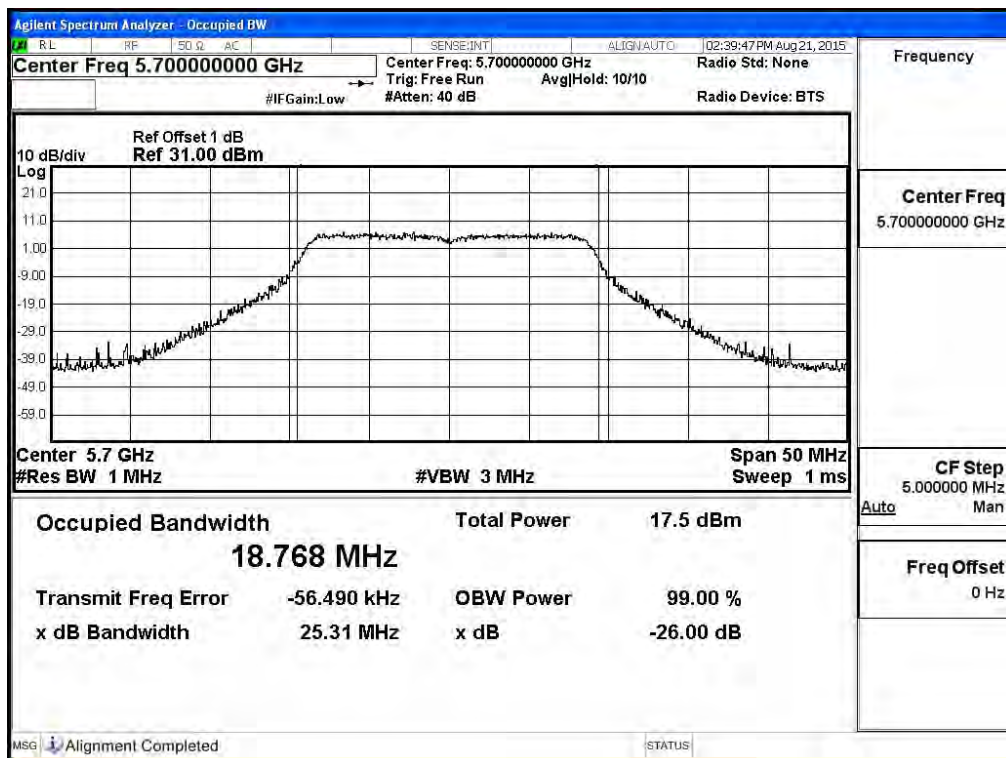
Channel 116: Chain B



Channel 140: Chain A



Channel 140: Chain B



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)(Dipole Antenna)

CHAIN A

Cable loss=1dB		Maximum conducted output power							
Channel No.	Frequency (MHz)	Data Rate (Mbps)							
		30	60	90	120	180	240	270	300
		Measurement Level (dBm)							
54	5270	15.02	14.9	14.78	14.67	14.52	14.4	14.27	14.18
62	5310	14.98	--	--	--	--	--	--	--
102	5510	10.07	--	--	--	--	--	--	--
110	5550	20.23	20.13	20.07	19.92	19.79	19.65	19.53	19.42
134	5670	13.16	--	--	--	--	--	--	--

Note: 1.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)							
		30	60	90	120	180	240	270	300
		Measurement Level (dBm)							
54	5270	13.69	13.6	13.53	13.4	13.14	12.99	12.91	12.83
62	5310	13.65	--	--	--	--	--	--	--
102	5510	4.73	--	--	--	--	--	--	--
110	5550	15.23	15.14	15.06	14.89	14.81	14.73	14.62	14.51
134	5670	12.74	--	--	--	--	--	--	--

Note: 1.Maximum conducted output power Value =Reading value on average power meter + cable loss

Maximum conducted output power measurement:

CHAIN A+B

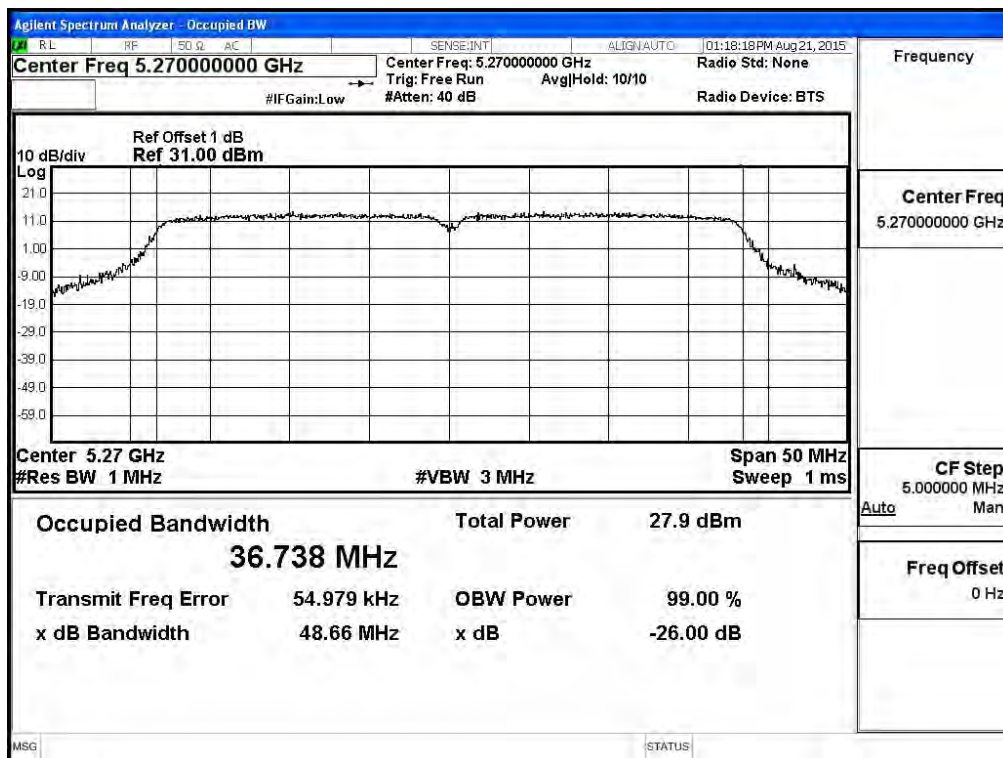
Channel Number	Frequency (MHz)	99% Bandwidth (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Total Power (dBm)	Output Power Limit	
						(dBm)	dBm+10log(BW)
54	5270	36.738	15.02	13.69	17.42	24	26.65
62	5310	36.869	14.98	13.65	17.38	24	26.67
102	5510	36.977	10.07	4.73	11.18	24	26.68
110	5550	36.853	20.23	15.23	21.42	24	26.66
134	5670	36.723	13.16	12.74	15.97	24	26.65

Note:

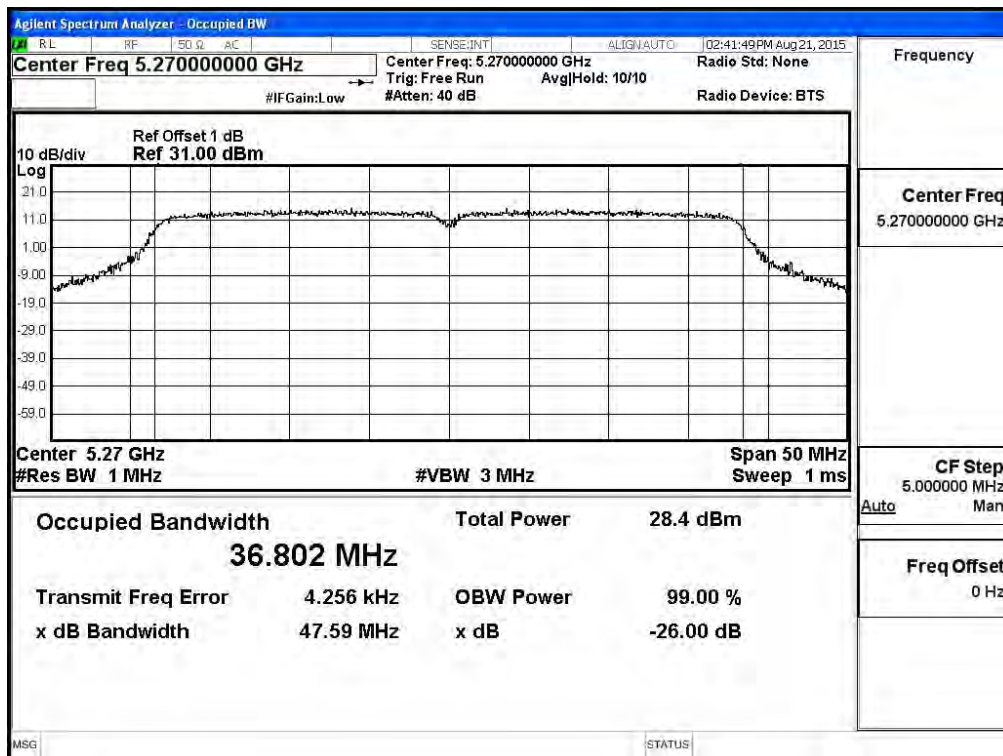
1. Power Output Value =Reading value on average power meter + cable loss.
2. Output Power (dBm) = 10LOG (Chain A Power (mW) + Chain B Power (mW)).
3. 99% Bandwidth is the bandwidth of chain A or chain B whichever is less bandwidth, output power limitation is more stringent.

99% Occupied Bandwidth:

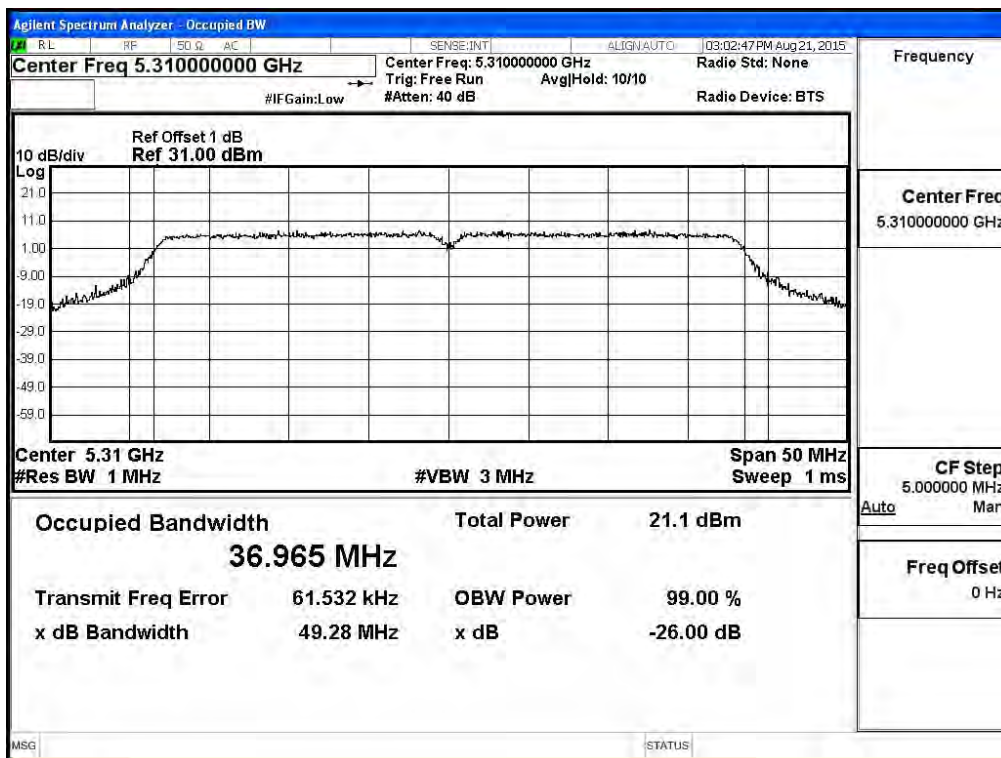
Channel 54: Chain A



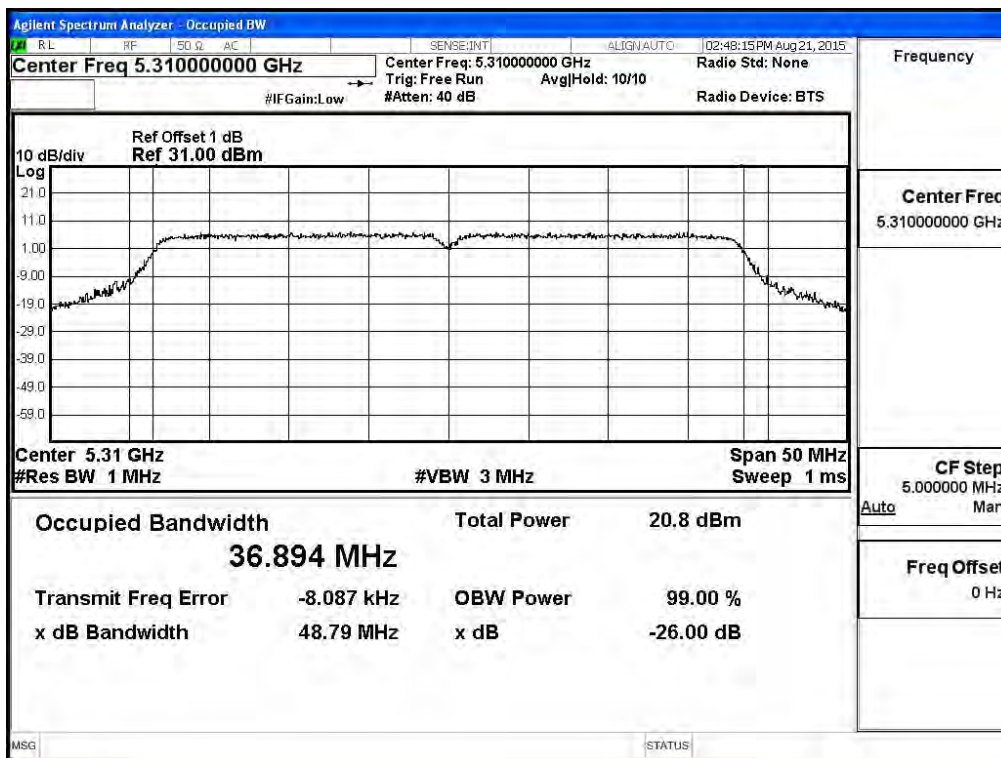
Channel 54: Chain B



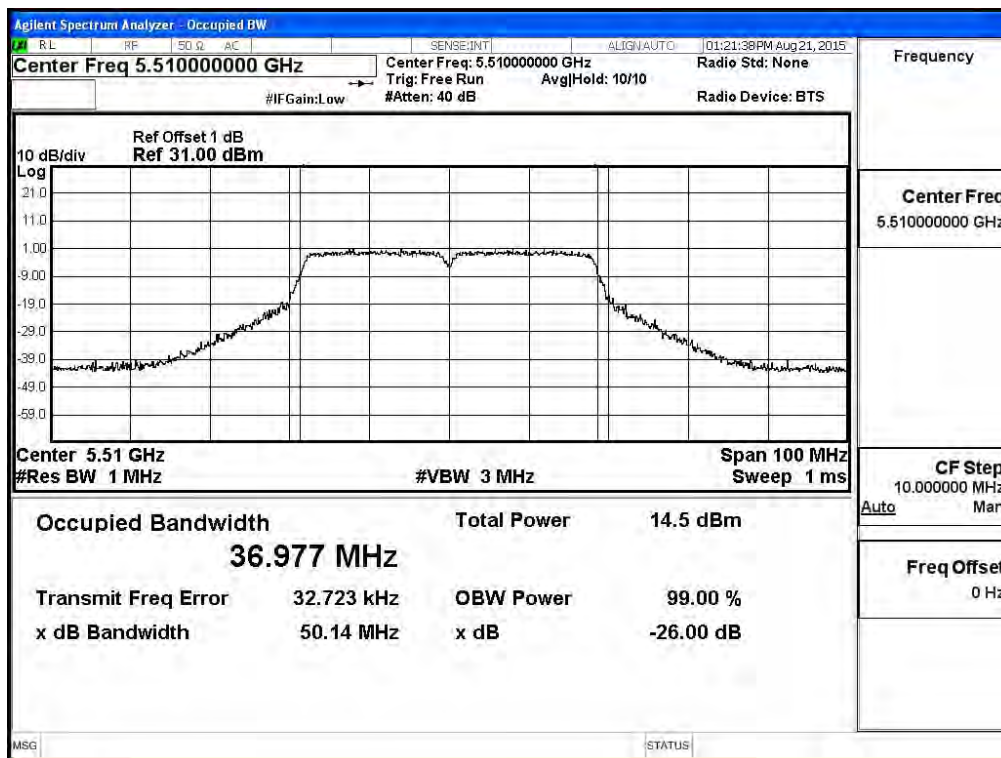
Channel 62: Chain A



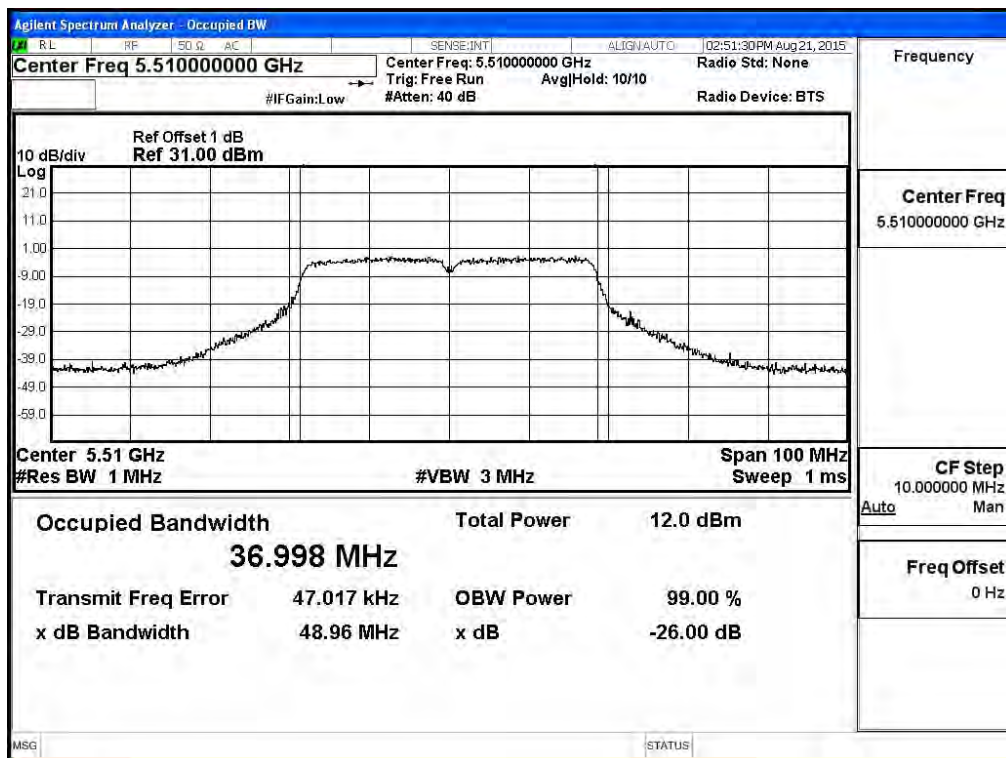
Channel 62: Chain B



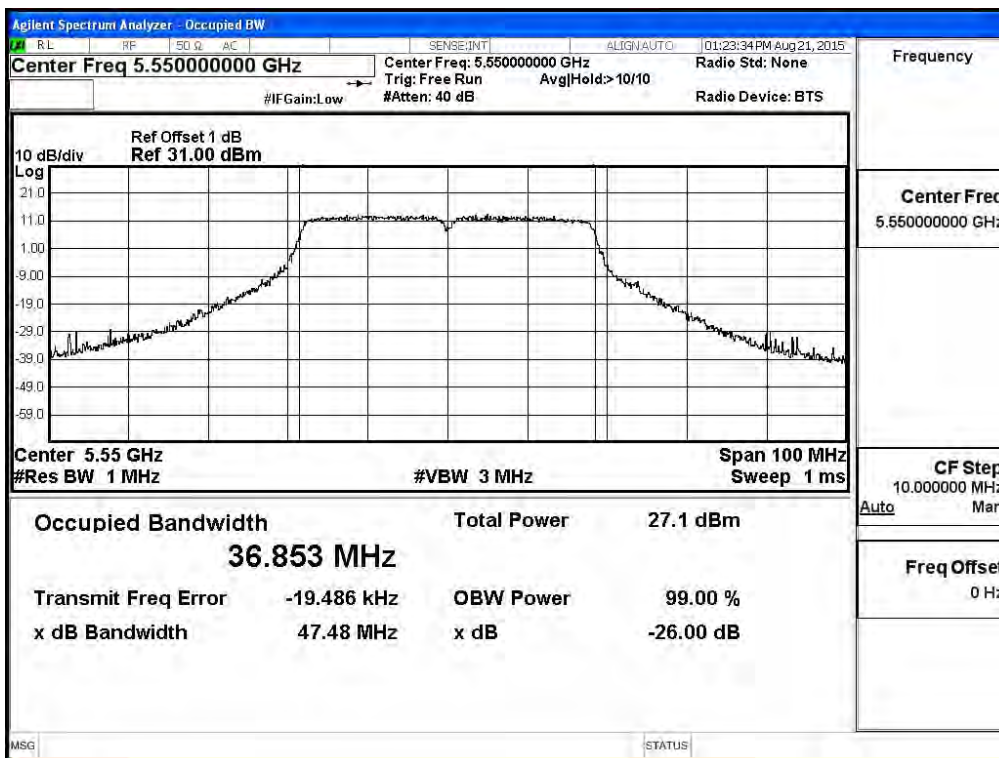
Channel 102: Chain A



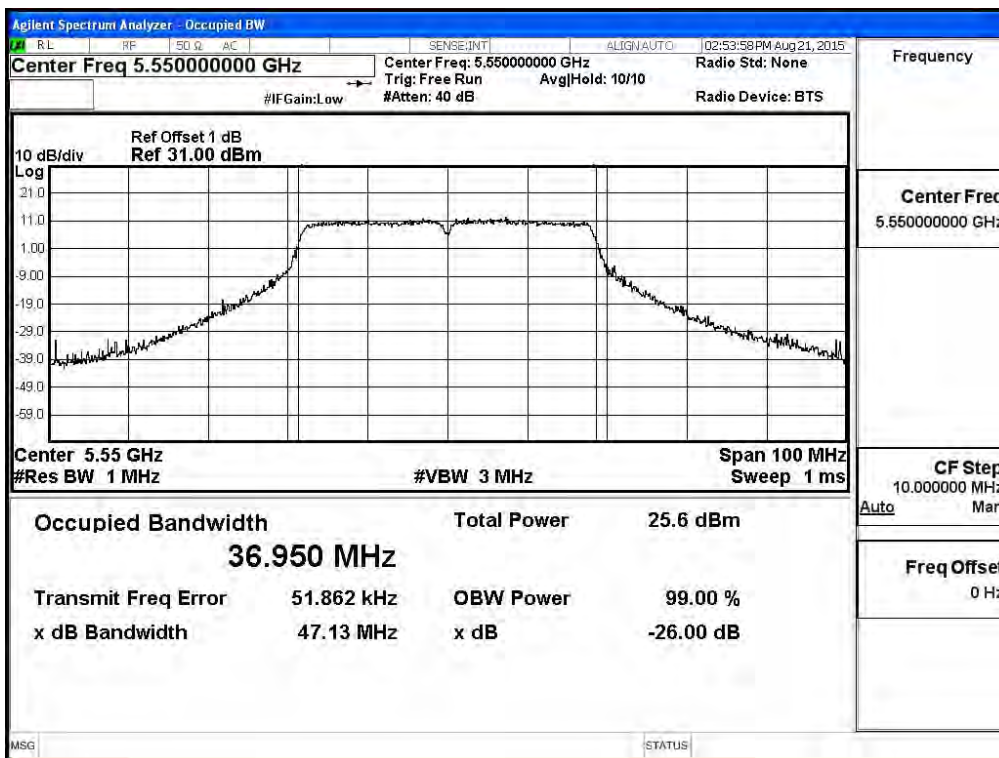
Channel 102: Chain B



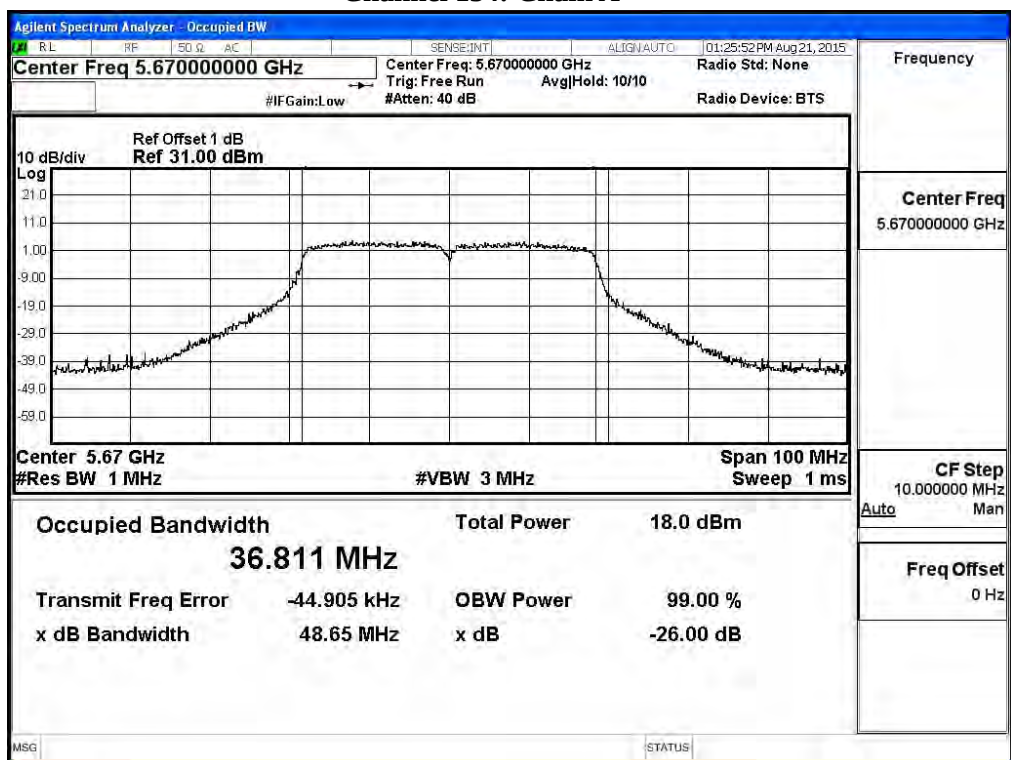
Channel 110: Chain A



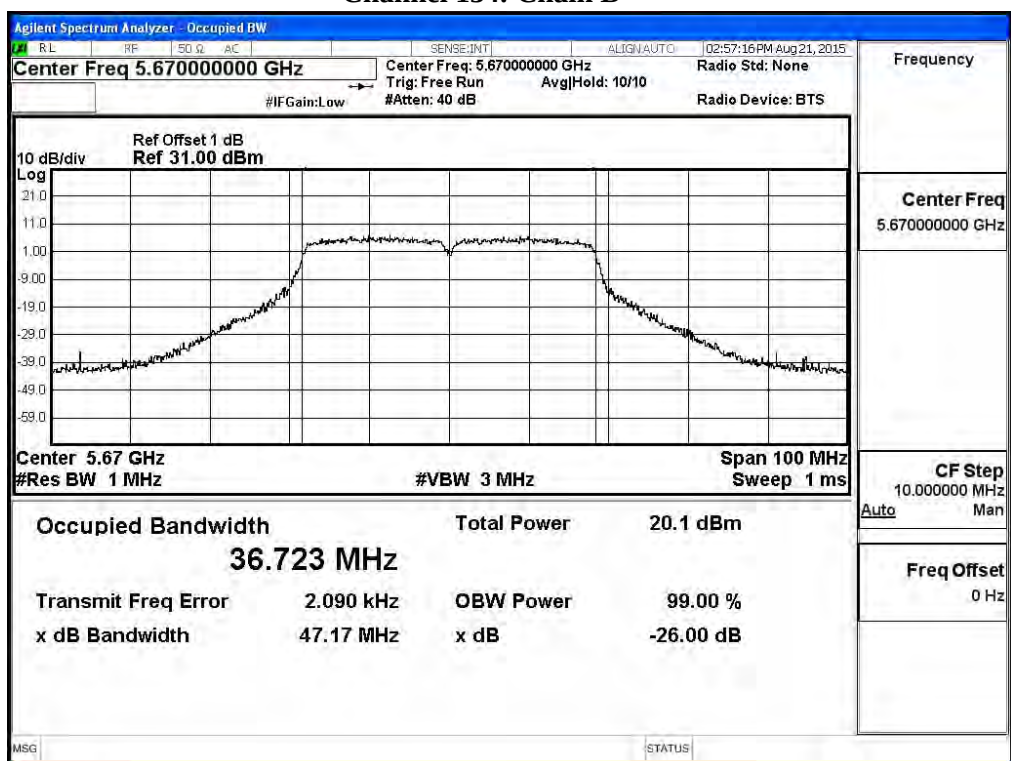
Channel 110: Chain B



Channel 134: Chain A



Channel 134: Chain B



Product : 802.11 ac PCIe Module
Test Item : Maximum conducted output power
Test Site : No.3 OATS
Test Mode : Mode 4: Transmit (802.11ac-20BW-14.4Mbps)(Dipole Antenna)

Chain A

Cable loss=1dB		Maximum conducted output power								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								
		VTH0	VTH1	VTH2	VTH3	VTH4	VTH5	VTH6	VTH7	VTH8
		Measurement Level (dBm)								
144 (Band3)	5720	14.74	14.68	14.57	14.42	14.35	14.18	14.11	14.05	13.97
144 (Band4)	5720	8.81	8.77	8.62	8.54	8.41	8.3	8.22	8.13	8.05

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)								
		VTH0	VTH1	VTH2	VTH3	VTH4	VTH5	VTH6	VTH7	VTH8
		Measurement Level (dBm)								
144 (Band3)	5720	17.16	17.07	16.99	16.92	16.78	16.69	16.58	16.45	16.4
144 (Band4)	5720	11.75	11.67	11.54	11.47	11.35	11.26	11.11	11.02	10.91

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

Maximum conducted output power Measurement:

CHAIN A+B

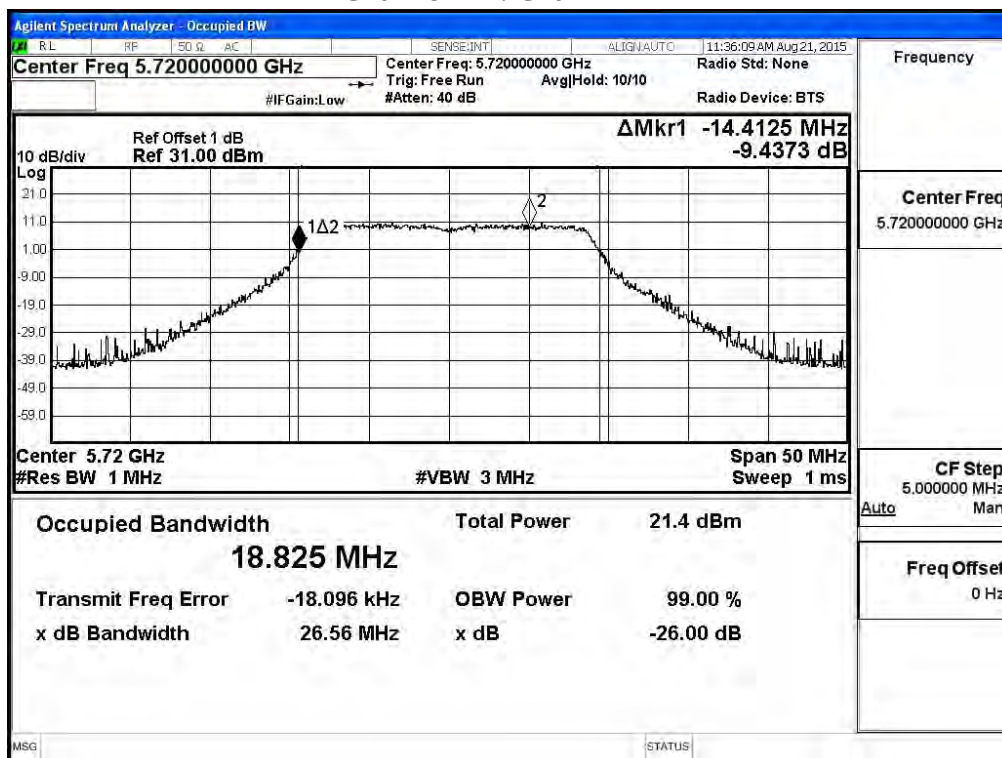
Channel No	Frequency Range (MHz)	99% Bandwidth (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	Output Power Limit		Result
						(dBm)	dBm+10log(BW)	
144(Band3)	5720	14.387	14.74	17.16	19.13	24	22.58	Pass
144(Band4)	5720	4.388	8.81	11.75	13.53	30	17.42	Pass

Note:

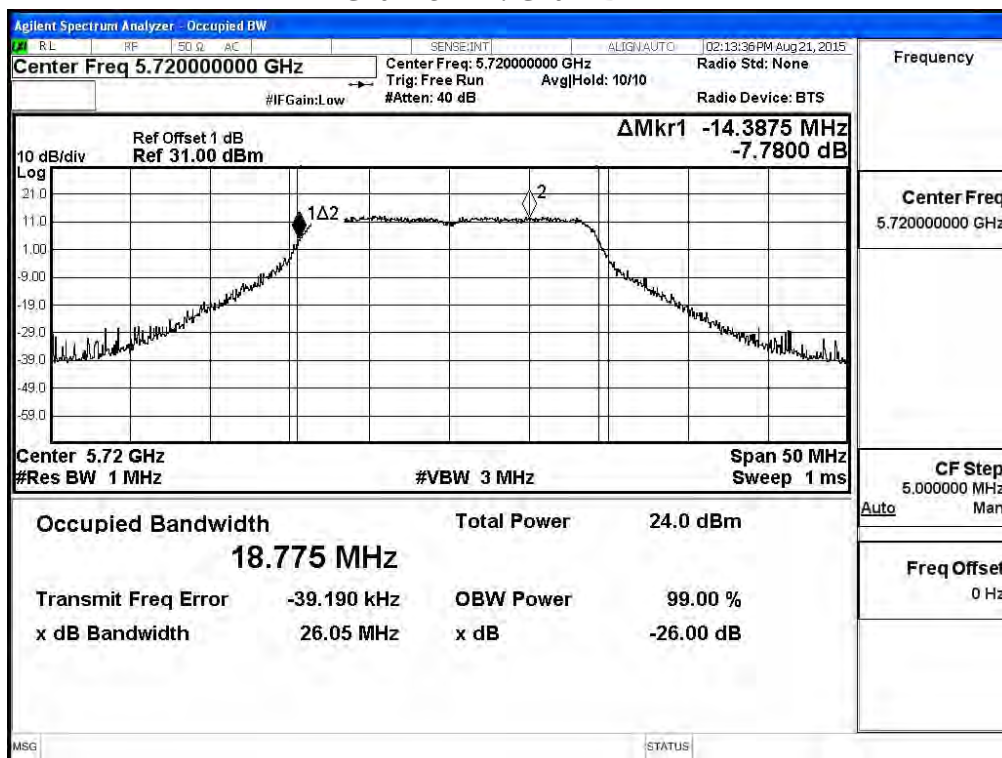
1. Power Output Value =Reading value on average power meter + cable loss
2. Output Power (dBm) = 10LOG (Chain A Power (mW) + Chain B Power (mW))
3. 99% Bandwidth is the bandwidth of chain A or chain B whichever is less bandwidth, output power limitation is more stringent.

99% Occupied Bandwidth:

Channel 144: Chain A

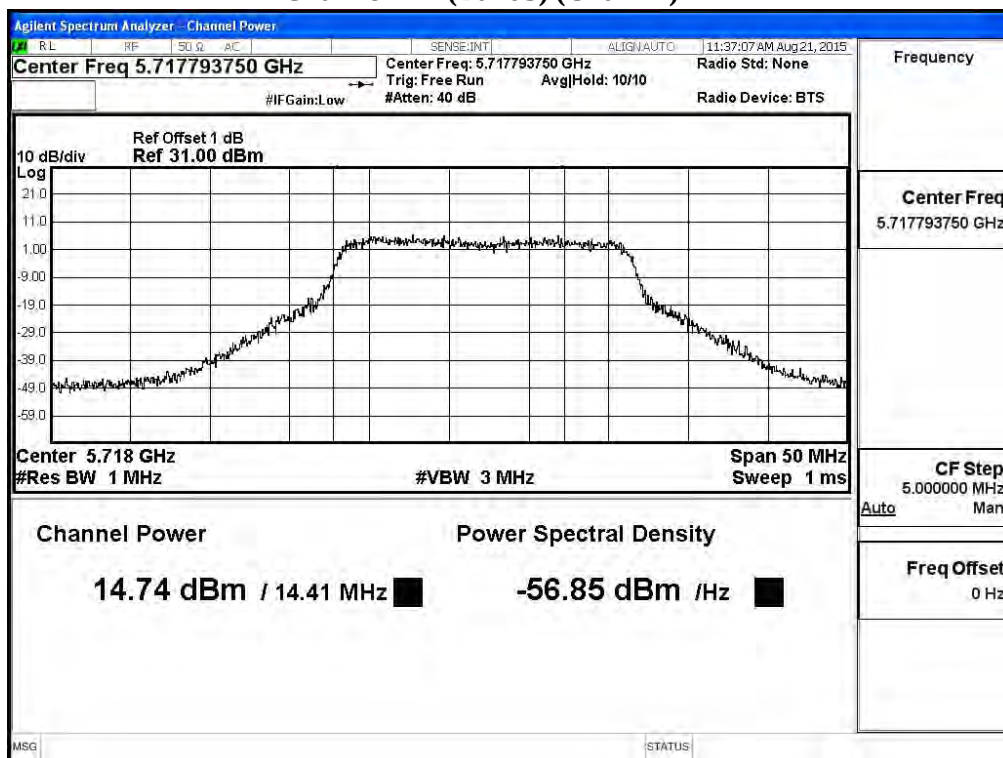


Channel 144: Chain B

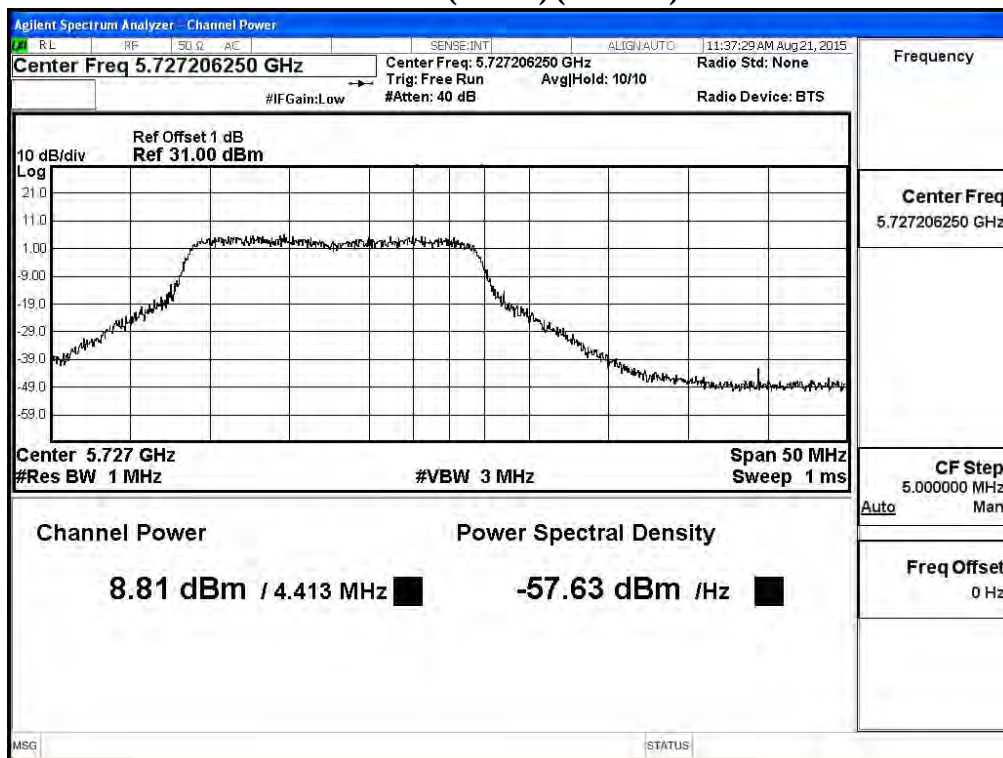


Maximum conducted output power:

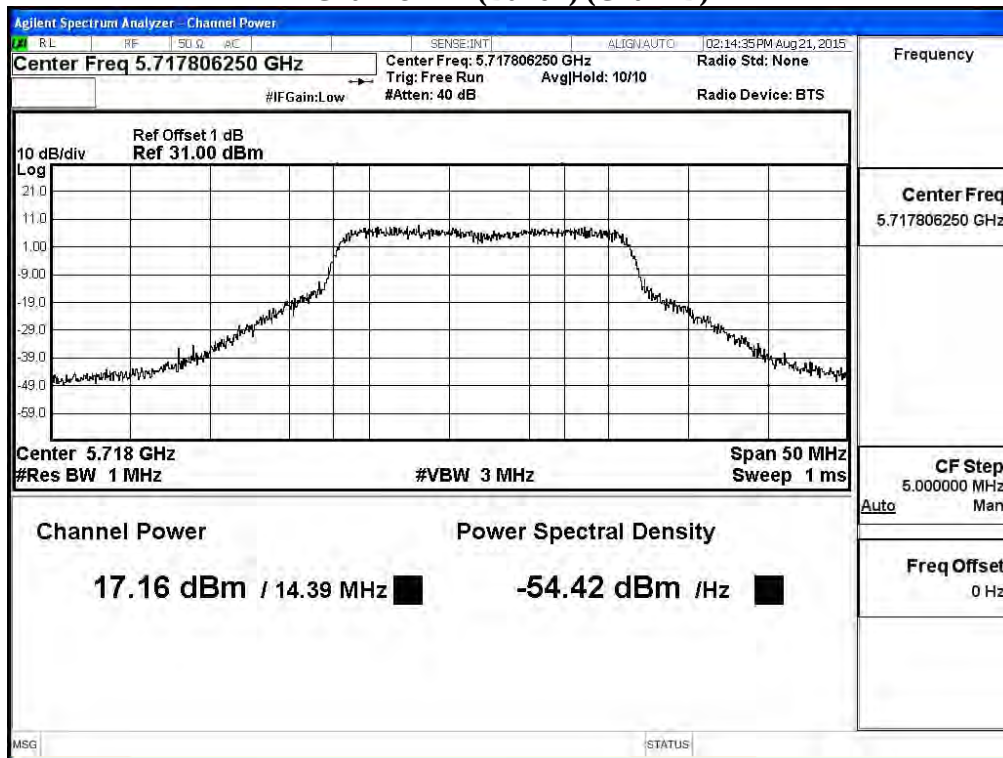
Channel 144 (Band3) (Chain A)



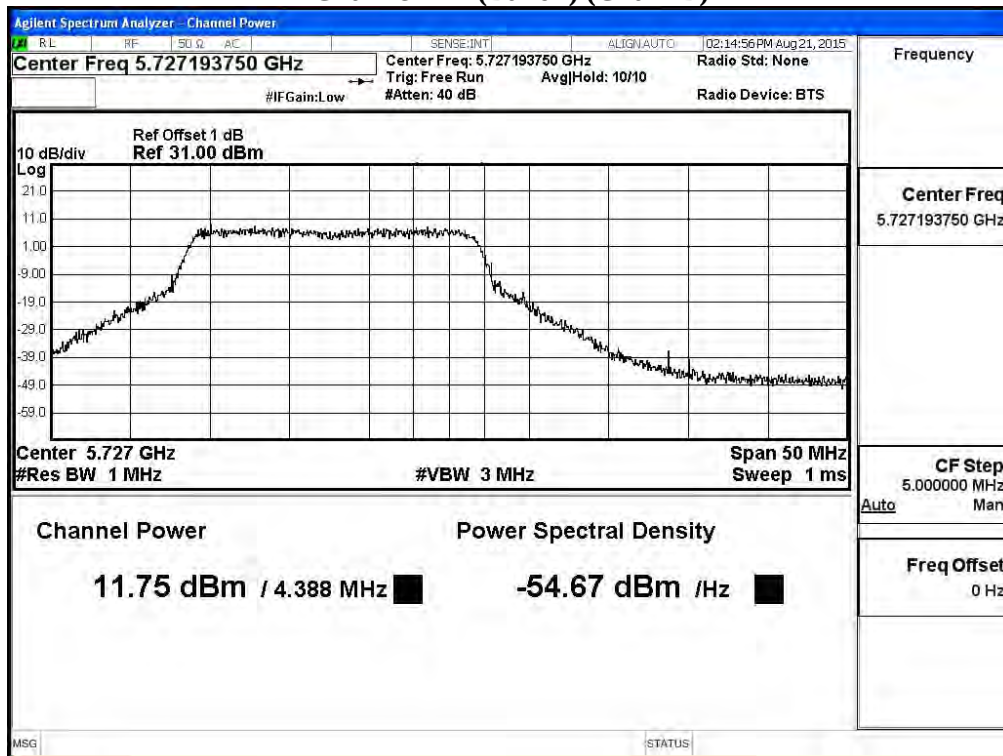
Channel 144 (Band3) (Chain A)



Channel 144 (Band4) (Chain B)



Channel 144 (Band4) (Chain B)



Product : 802.11 ac PCIe Module
Test Item : Maximum conducted output power
Test Site : No.3 OATS
Test Mode : Mode 5: Transmit (802.11ac-40BW-30Mbps)(Dipole Antenna)

Chain A

Cable loss=1dB		Maximum conducted output power								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								
		VTH0	VTH1	VTH2	VTH3	VTH4	VTH5	VTH6	VTH7	VTH8
		Measurement Level (dBm)								
142F(Band3)	5710	17.82	17.74	17.65	17.52	17.41	17.28	17.22	17.16	17.07
142F(Band4)	5710	6.79	6.69	6.57	6.5	6.41	6.32	6.18	6.11	6.05

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)								
		VTH0	VTH1	VTH2	VTH3	VTH4	VTH5	VTH6	VTH7	VTH8
		Measurement Level (dBm)								
142F(Band3)	5710	20.59	20.51	20.39	20.27	20.19	20.11	20.03	19.96	19.88
142F(Band4)	5710	10.09	10.02	9.87	9.74	9.68	9.55	9.48	9.42	9.37

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

Maximum conducted output power Measurement:

CHAIN A+B

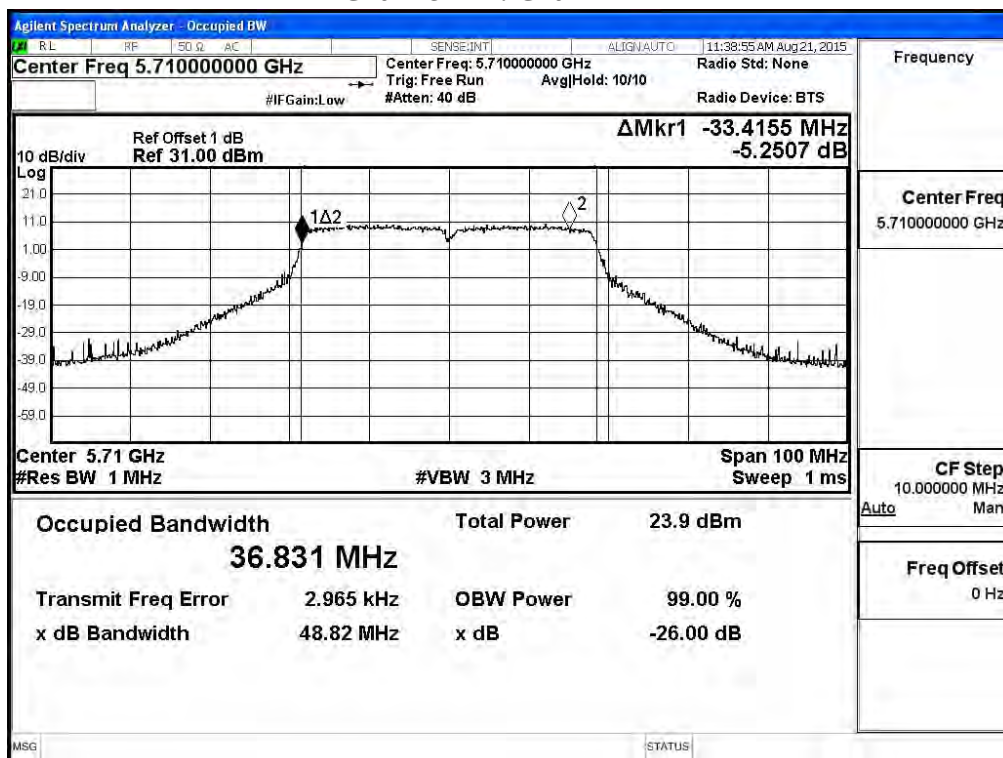
Channel No	Frequency Range (MHz)	99% Bandwidth (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	Output Power Limit		Result
						(dBm)	dBm+10log(BW)	
142F(Band3)	5710	33.416	17.82	20.59	22.43	24	26.24	Pass
142F(Band4)	5710	3.415	6.79	10.09	11.76	30	--	Pass

Note:

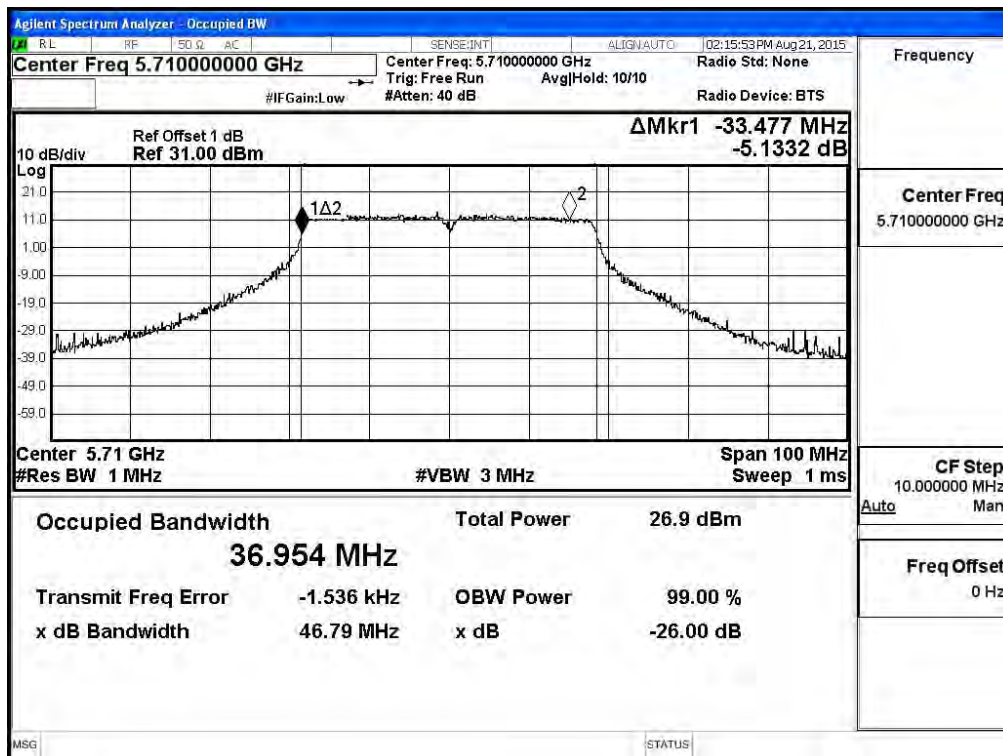
1. Power Output Value =Reading value on average power meter + cable loss
2. Output Power (dBm) = 10LOG (Chain A Power (mW) + Chain B Power (mW))
3. 99% Bandwidth is the bandwidth of chain A or chain B whichever is less bandwidth, output power limitation is more stringent.

99% Occupied Bandwidth:

Channel 142: Chain A

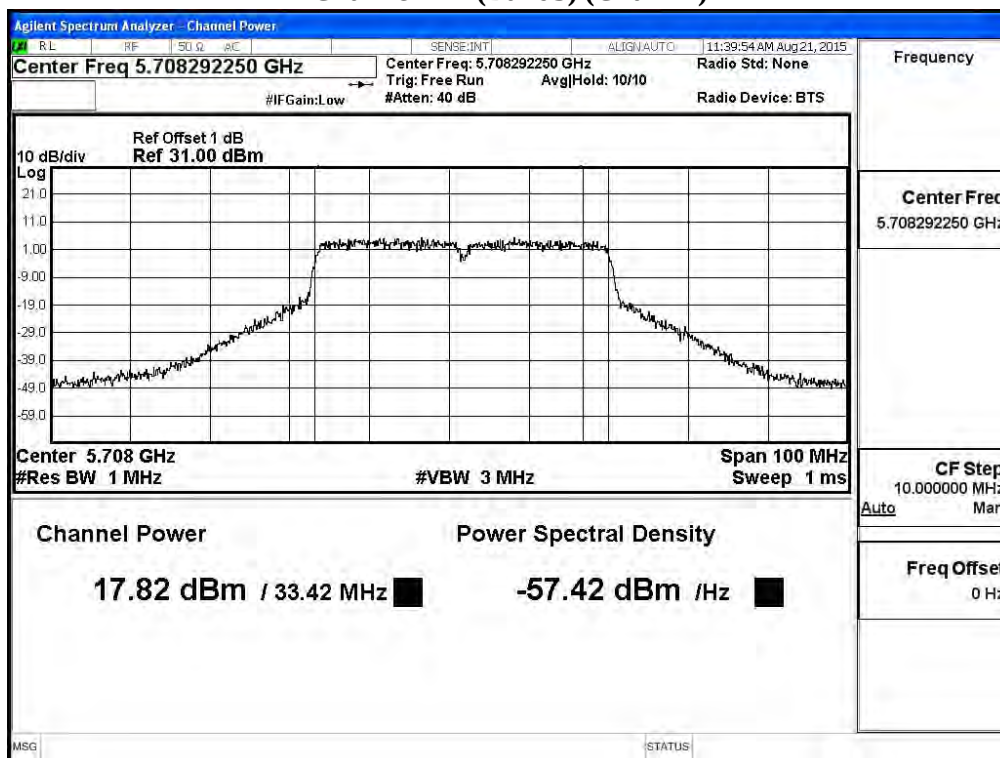


Channel 142: Chain B

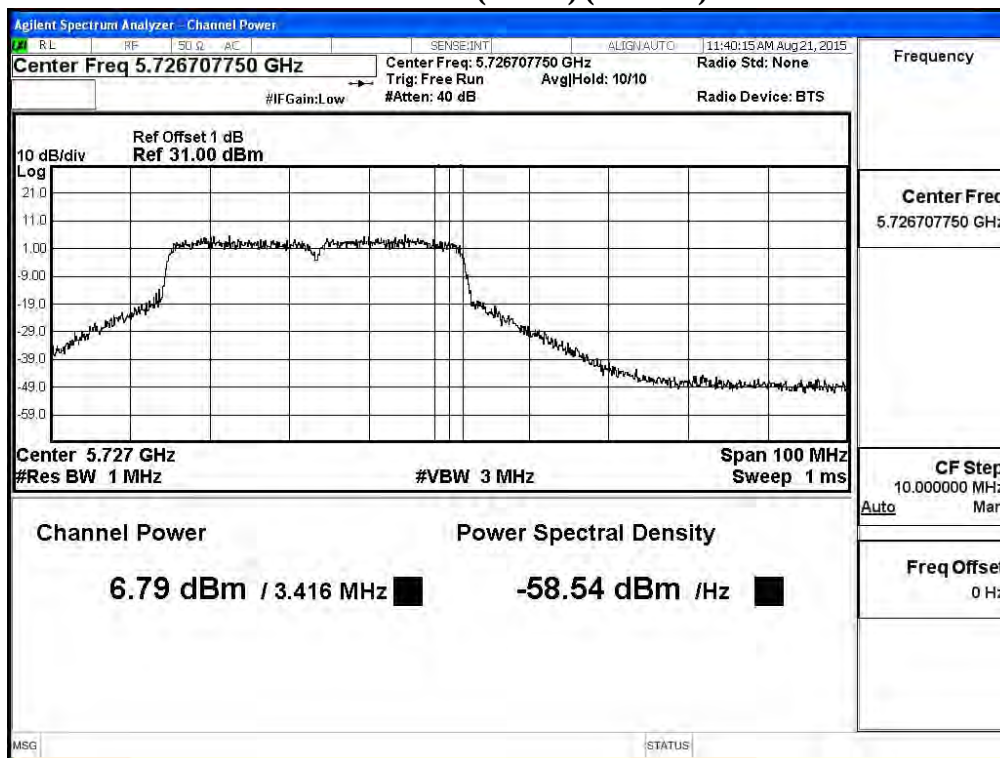


Maximum conducted output power:

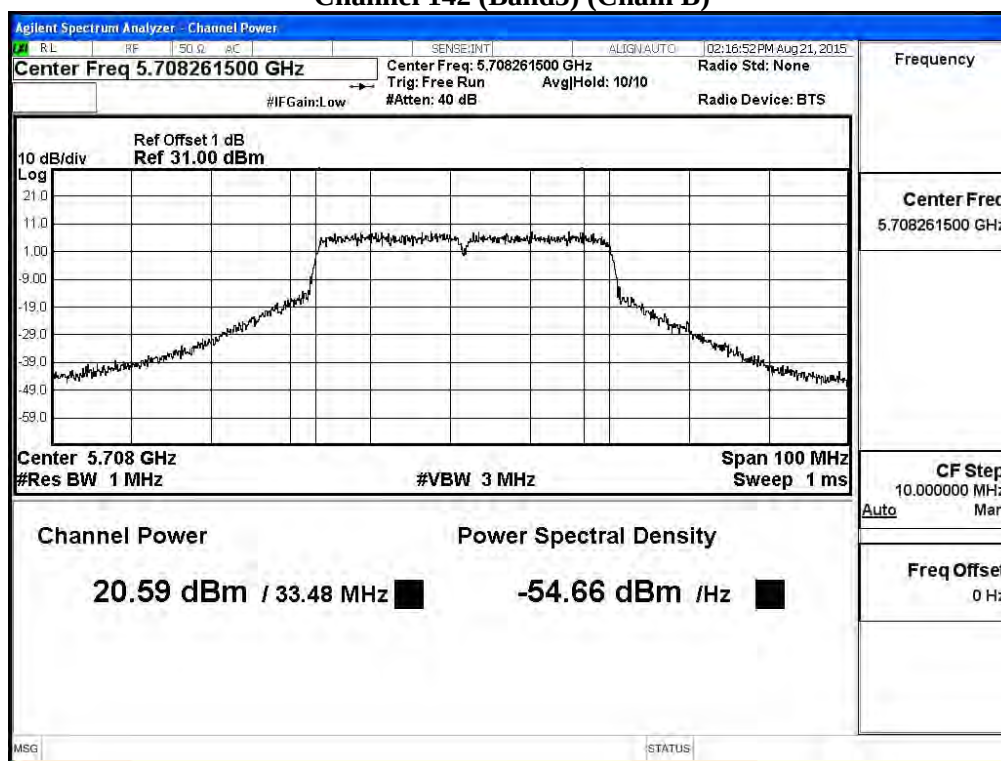
Channel 142 (Band3) (Chain A)



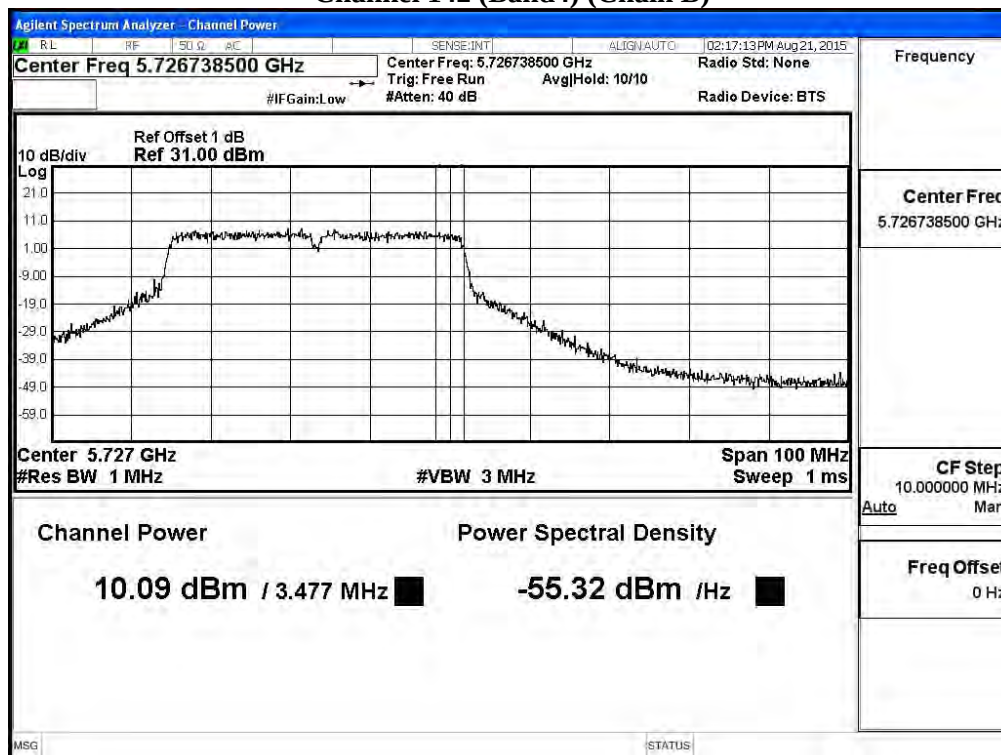
Channel 142 (Band4) (Chain A)



Channel 142 (Band3) (Chain B)



Channel 142 (Band4) (Chain B)



Product : 802.11 ac PCIe Module
Test Item : Maximum conducted output power
Test Site : No.3 OATS
Test Mode : Mode 6: Transmit (802.11ac-80BW-65Mbps)(Dipole Antenna)

Chain A

Cable loss=1dB		Maximum conducted output power									
Channel No	Frequency (MHz)	Data Rate (Mbps)									
		VTH0	VTH1	VTH2	VTH3	VTH4	VTH5	VTH6	VTH7	VTH8	VTH9
58	5290	6.14	6.07	5.99	5.91	5.83	5.74	5.65	5.53	5.44	5.32
106	5530	7.59	7.52	7.45	7.32	7.26	7.19	7.1	7.01	6.91	6.78
122	5610	20.48	20.4	20.28	20.19	20.11	20.07	19.96	19.82	19.76	19.65
138(Band3)	5690	19.56	19.49	19.42	19.37	19.28	19.23	19.15	19.05	18.92	18.79
138(Band4)	5690	4.14	4.05	3.98	3.87	3.75	3.69	3.62	3.54	3.46	3.35

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)									
		VTH0	VTH1	VTH2	VTH3	VTH4	VTH5	VTH6	VTH7	VTH8	VTH9
58	5290	6.17	6.08	5.99	5.9	5.78	5.71	5.63	5.51	5.45	5.34
106	5530	5.52	5.39	5.31	5.24	5.15	5.04	4.96	4.88	4.79	4.71
122	5610	20.52	20.44	20.32	20.23	20.15	20.11	20	19.86	19.8	19.69
138(Band3)	5690	19.34	19.27	19.19	19.11	19.02	18.93	18.87	18.75	18.65	18.54
138(Band4)	5690	5.7	5.61	5.55	5.47	5.41	5.34	5.25	5.16	5.02	4.88

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

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

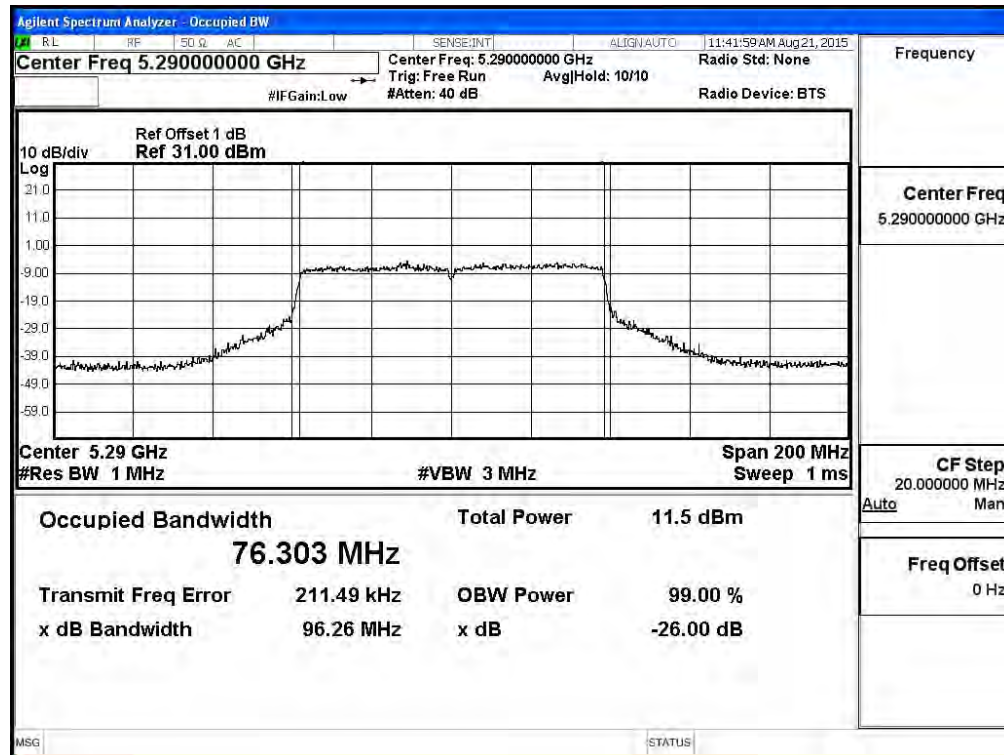
Channel No	Frequency Range (MHz)	99% Bandwidth (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	Output Power Limit		Result
						(dBm)	dBm+10log(BW)	
58	5290	76.303	6.14	6.17	9.17	24	29.83	Pass
106	5530	75.928	7.59	5.52	9.69	24	29.80	Pass
122	5610	76.001	20.48	20.52	23.51	24	29.81	Pass
138(Band3)	5690	73.065	19.56	19.34	22.46	24	29.64	Pass
138(Band4)	5690	3.065	4.14	5.70	8.00	30	21.86	Pass

Note:

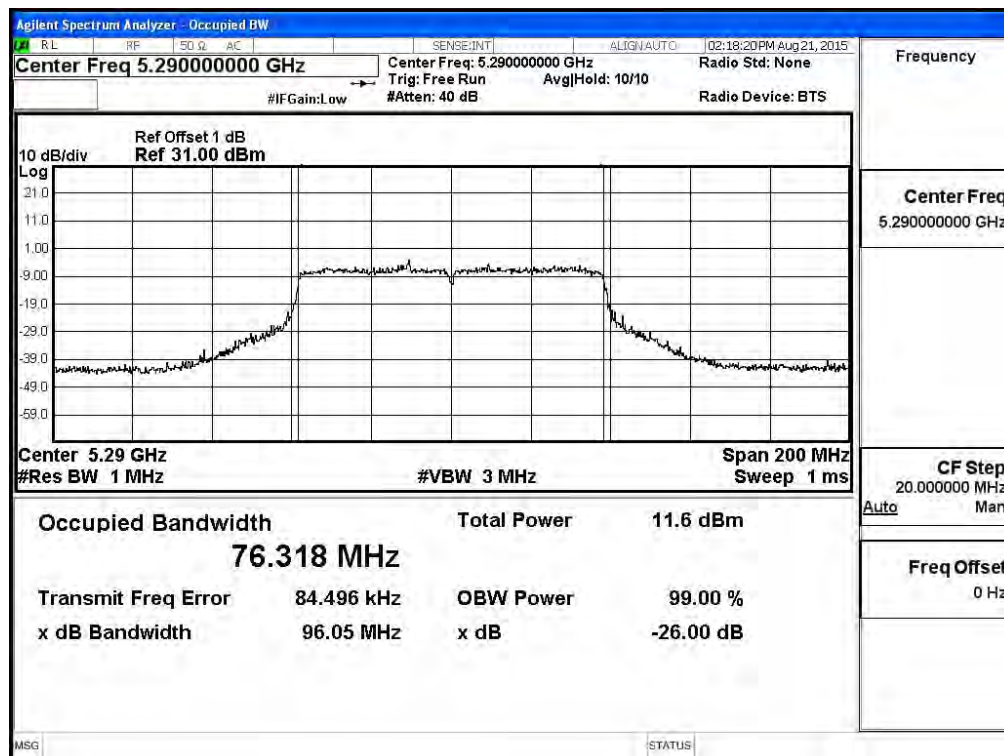
1. Power Output Value =Reading value on average power meter + cable loss
2. Output Power (dBm) = 10LOG (Chain A Power (mW) + Chain B Power (mW))
3. 99% Bandwidth is the bandwidth of chain A or chain B whichever is less bandwidth, output power limitation is more stringent.

99% Occupied Bandwidth:

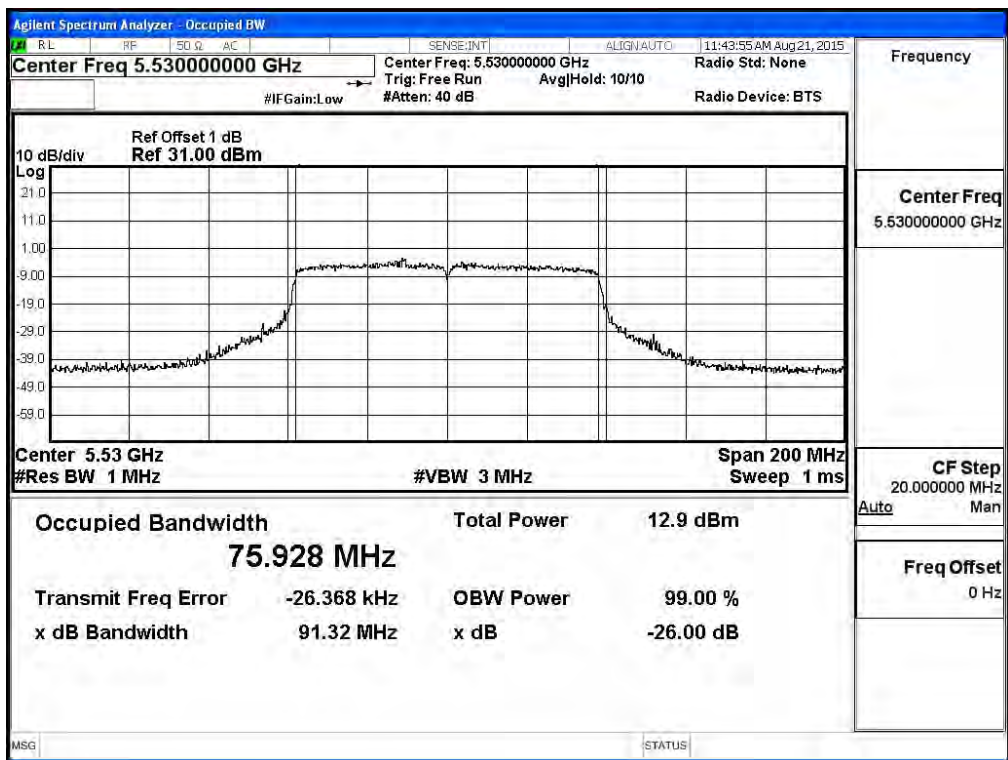
Channel 58: Chain A



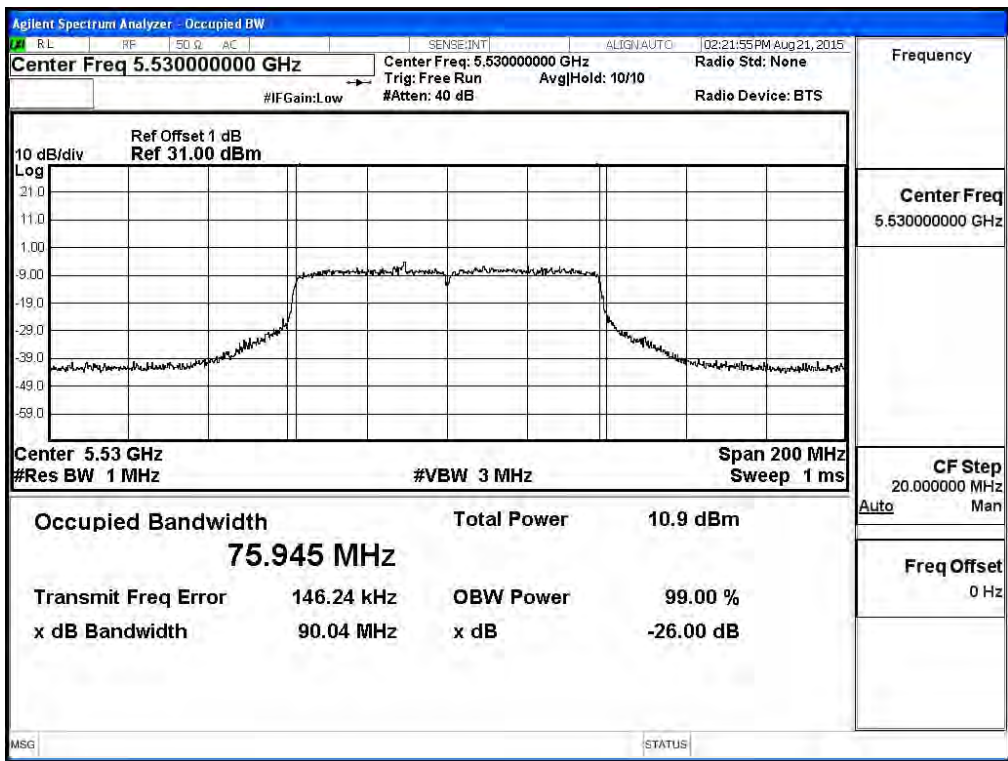
Channel 58: Chain B



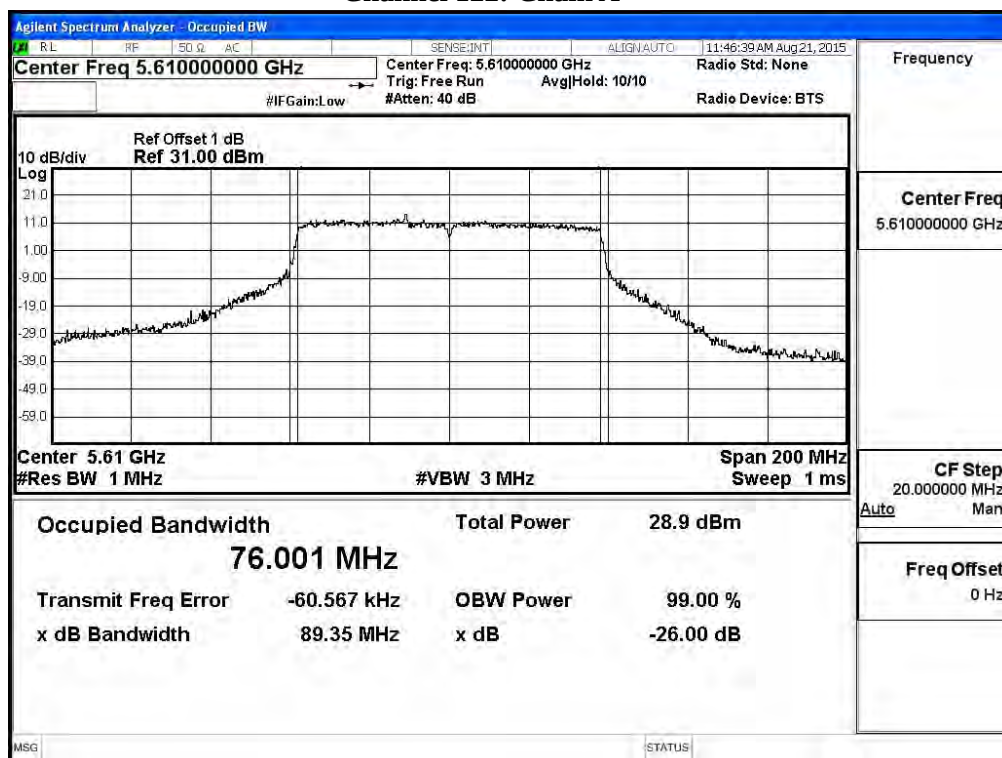
Channel 106: Chain A



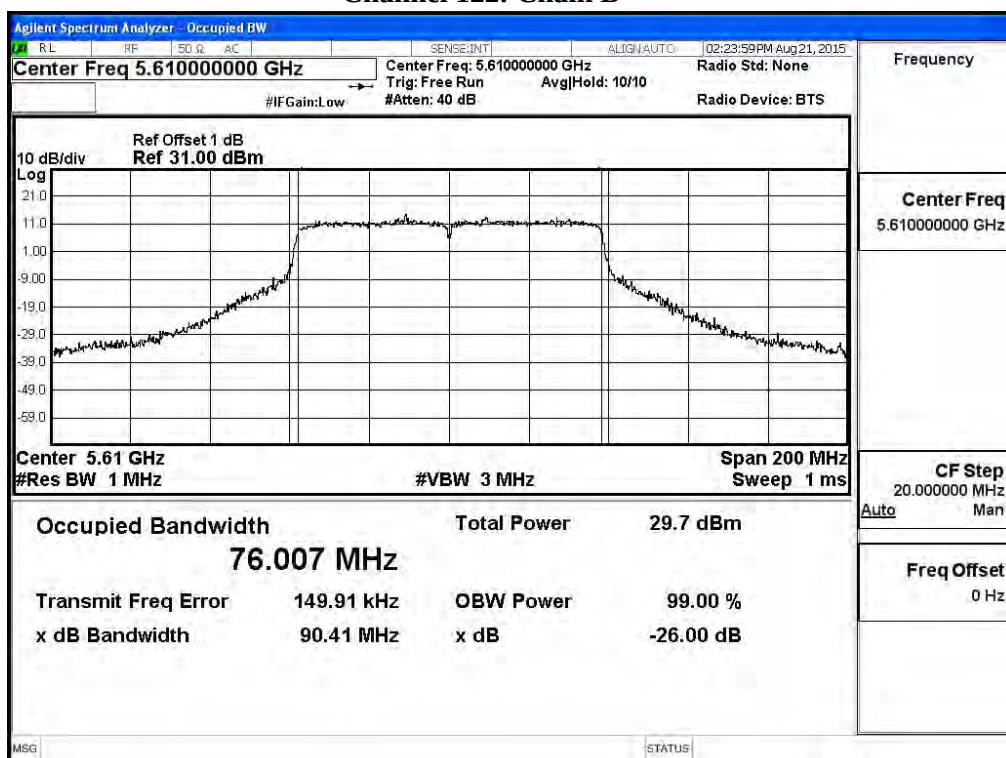
Channel 106: Chain B



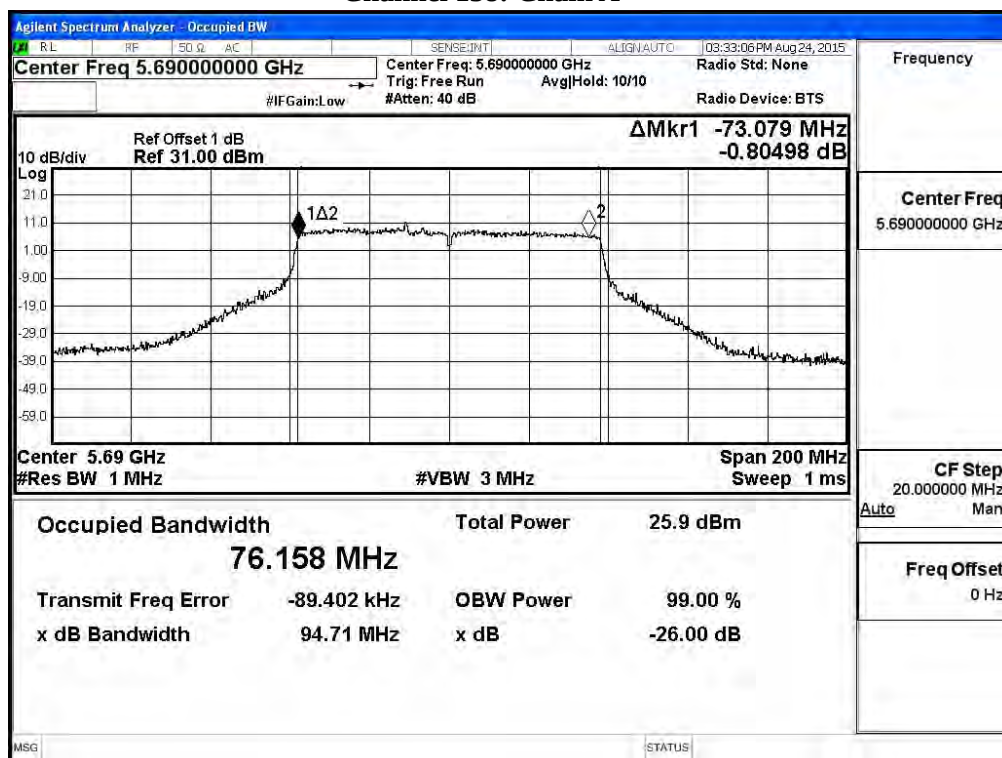
Channel 122: Chain A



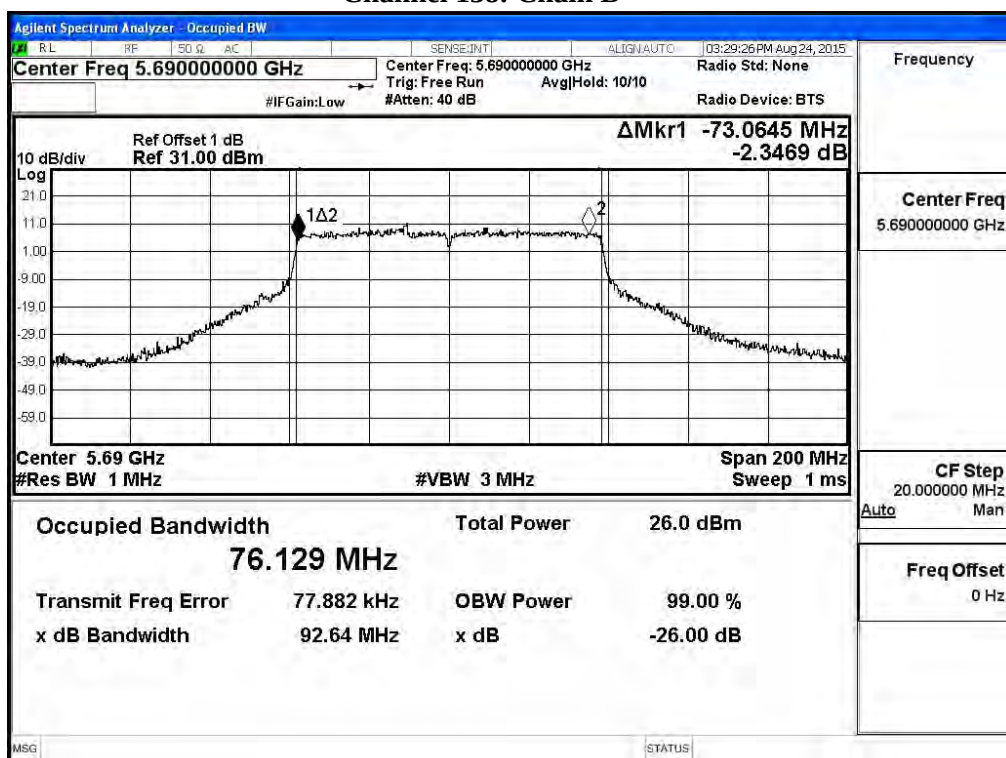
Channel 122: Chain B



Channel 138: Chain A

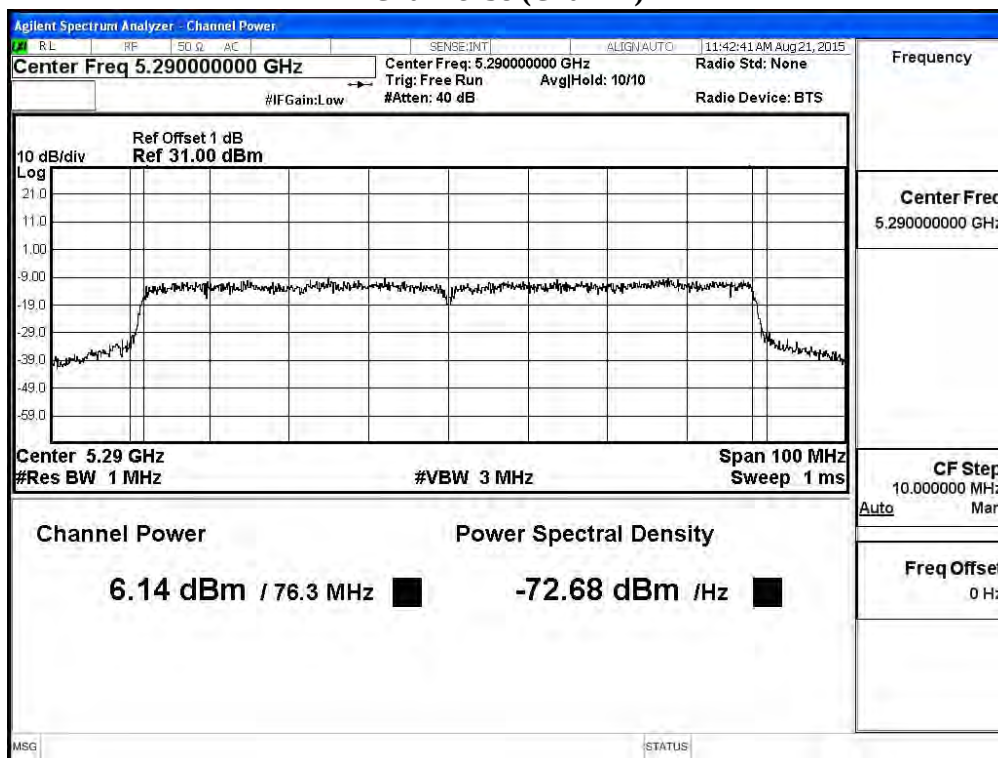


Channel 138: Chain B

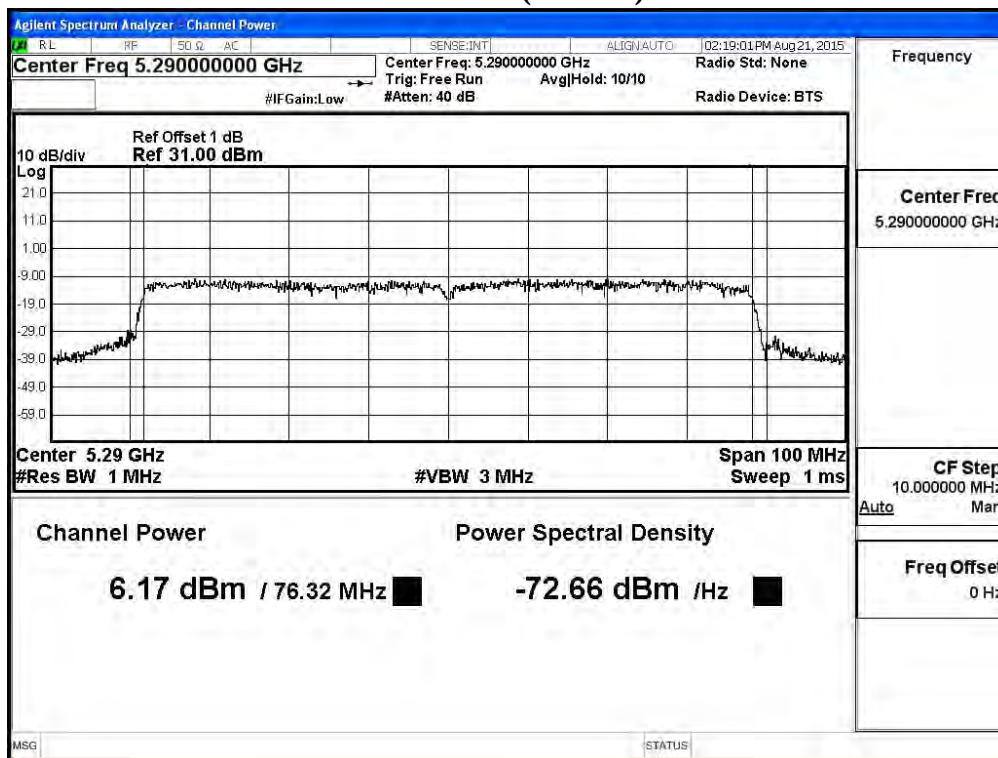


Maximum conducted output power:

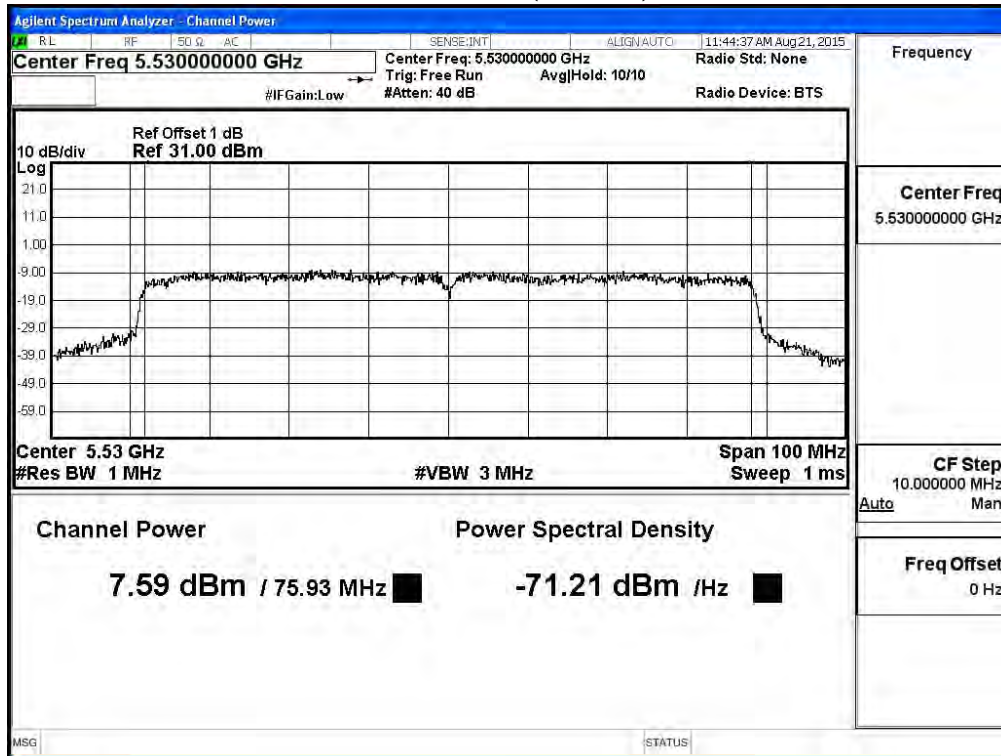
Channel 58 (Chain A)



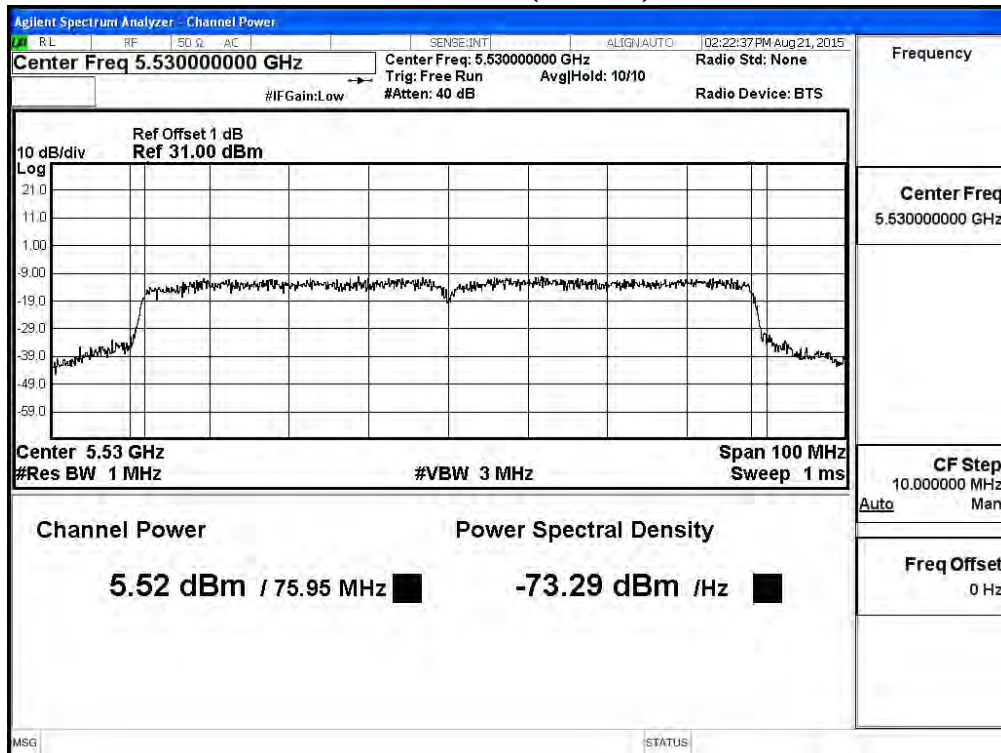
Channel 58 (Chain B)



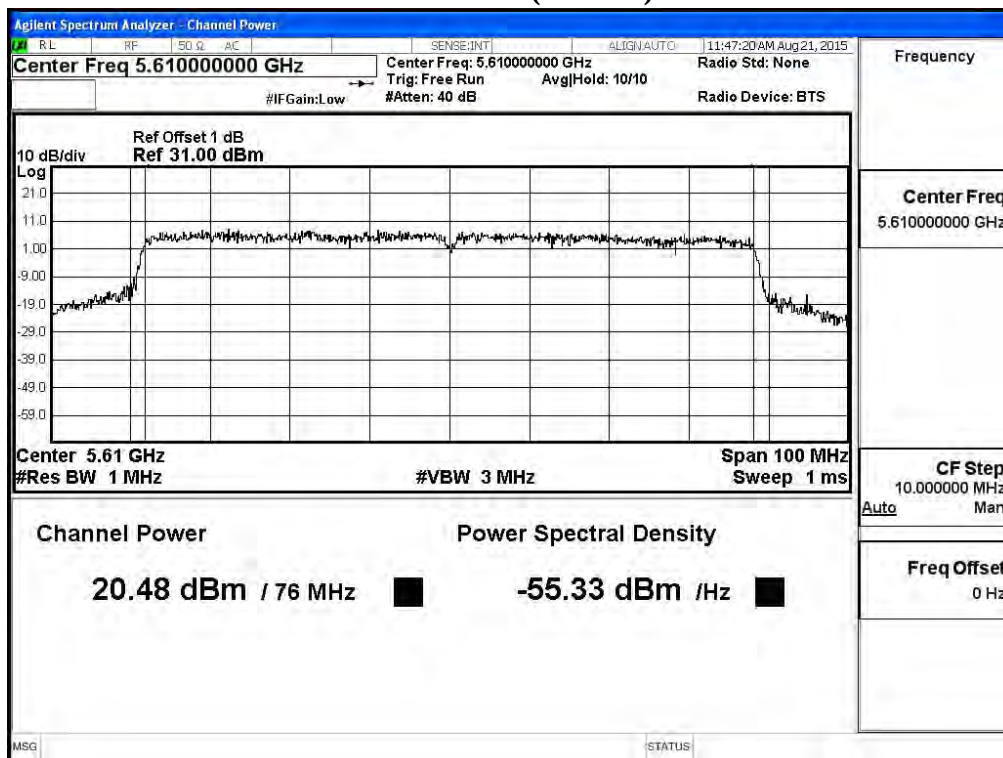
Channel 106 (Chain A)



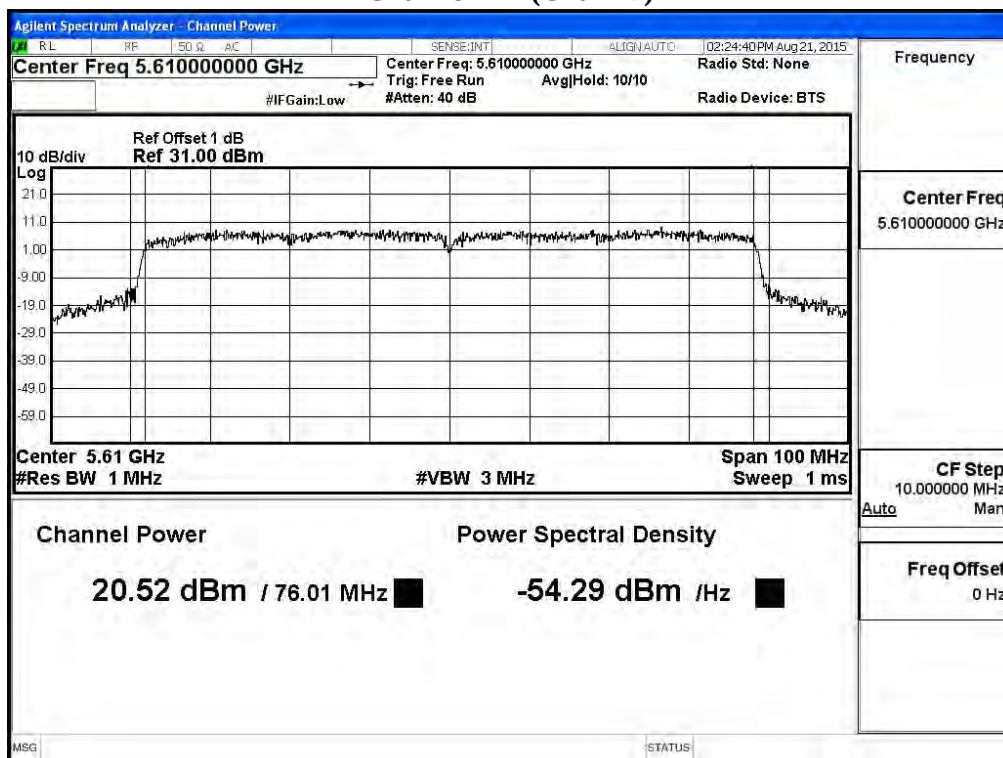
Channel 106 (Chain B)



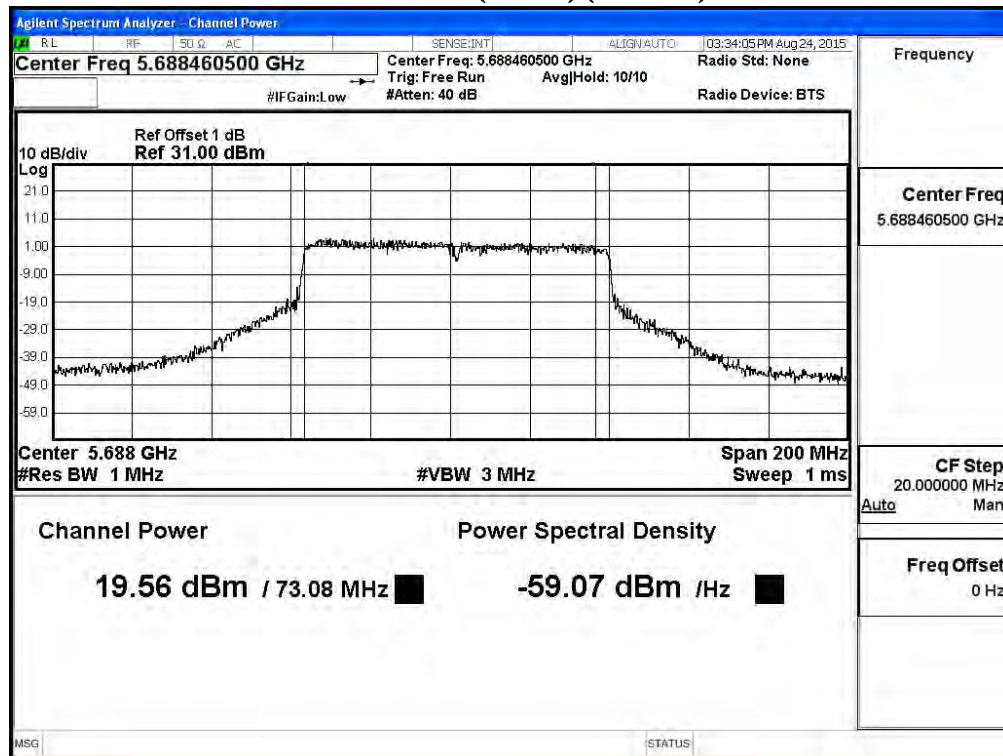
Channel 122 (Chain A)



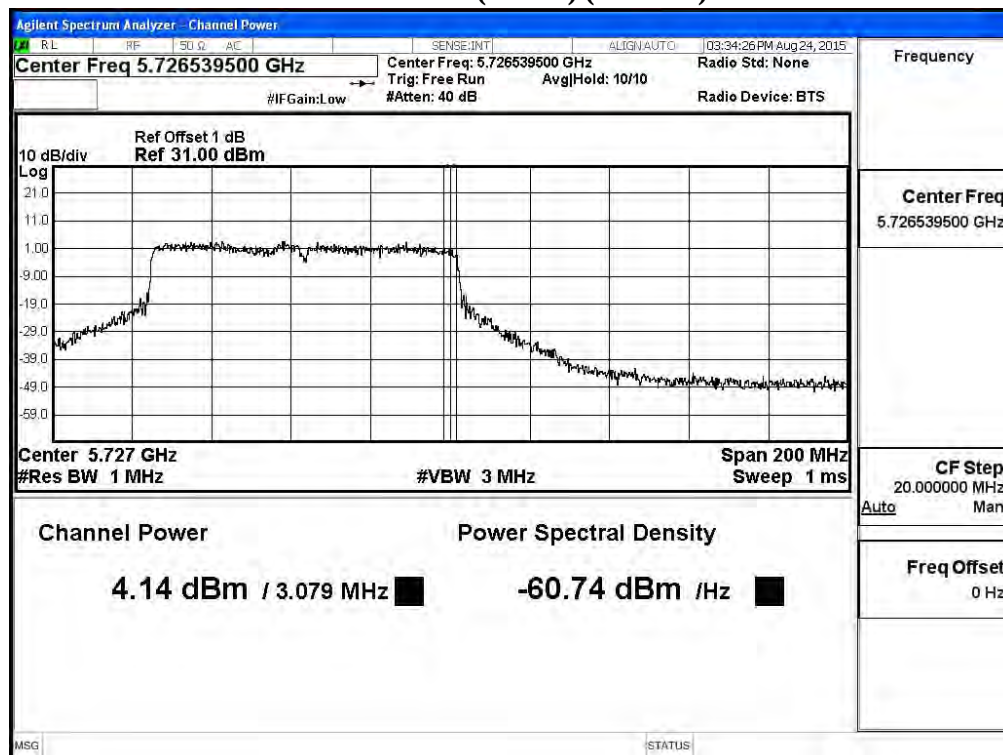
Channel 122 (Chain B)



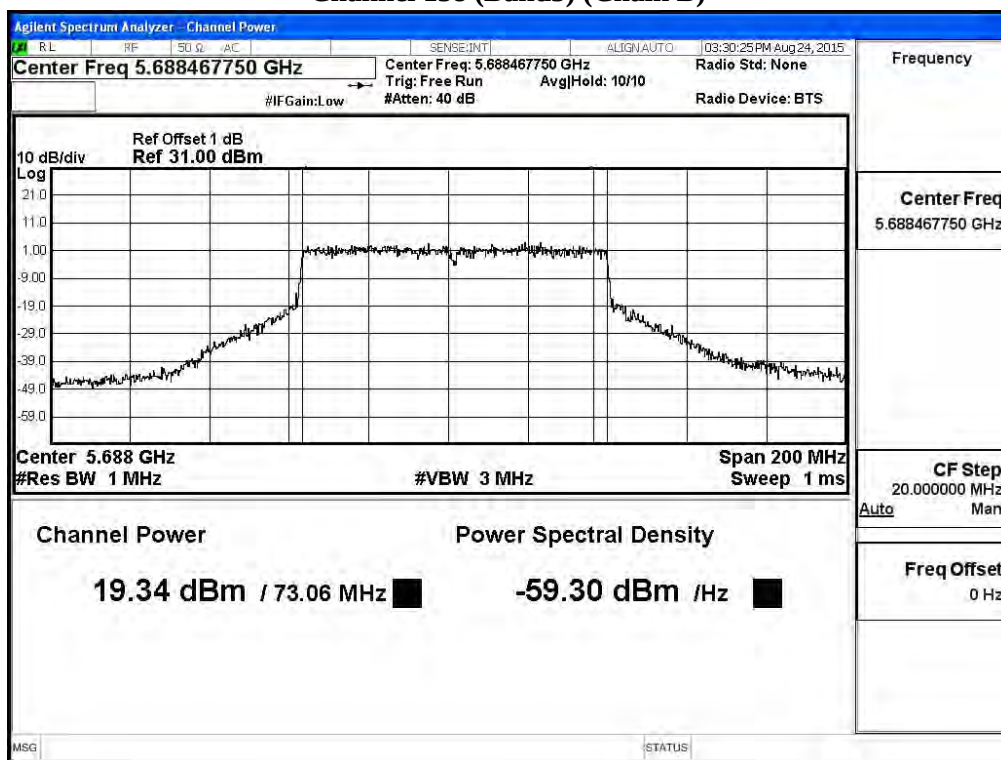
Channel 138 (Band3) (Chain A)



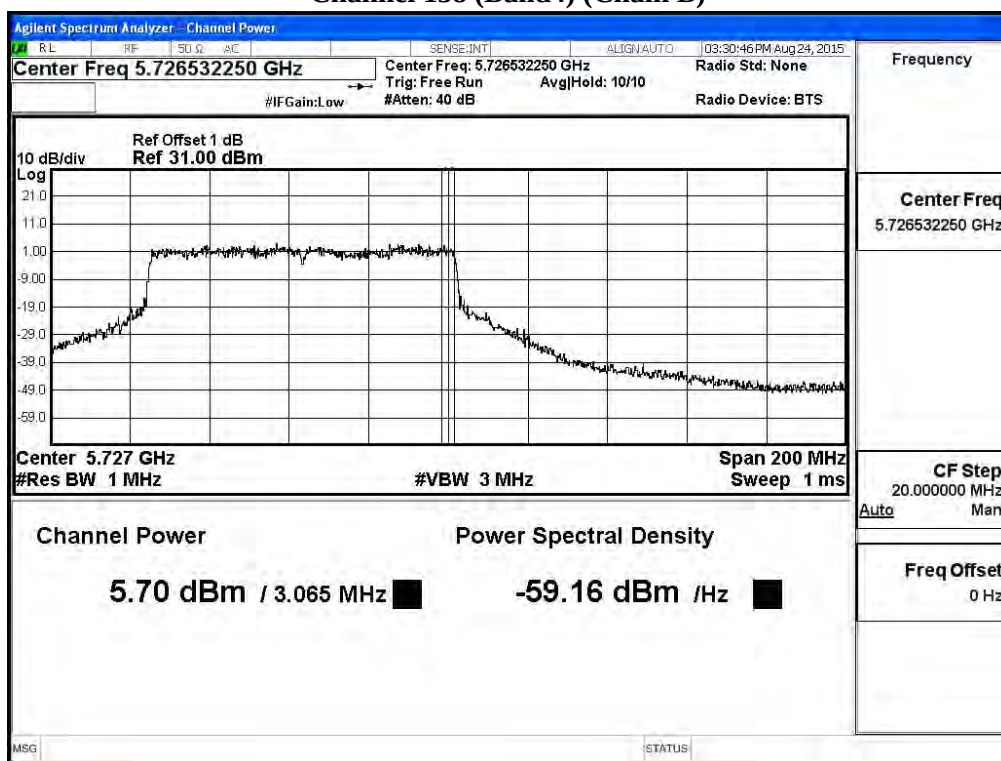
Channel 138 (Band4) (Chain A)



Channel 138 (Band3) (Chain B)



Channel 138 (Band4) (Chain B)



Product : 802.11 ac PCIe Module
Test Item : Maximum conducted output power
Test Site : No.3 OATS
Test Mode : Mode 7: Transmit (802.11a-6Mbps)(Grid DISH Antenna)

CHAIN A

Cable loss=1dB		Maximum conducted output power							
Channel No.	Frequency (MHz)	Data Rate (Mbps)							
		6	9	12	18	24	36	48	54
		Measurement Level (dBm)							
52	5260	-8.47	-8.61	-8.78	-8.87	-8.99	-9.11	-9.19	-9.3
60	5300	-9.45	--	--	--	--	--	--	--
64	5320	-9.17	--	--	--	--	--	--	--
100	5500	-8.34	-8.45	-8.56	-8.65	-8.77	-8.9	-9.02	-9.13
116	5580	-8.91	--	--	--	--	--	--	--
140	5700	-11.33	--	--	--	--	--	--	--

Note: 1.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)							
		6	9	12	18	24	36	48	54
		Measurement Level (dBm)							
52	5260	-9.61	-9.72	-9.86	-9.94	-10.07	-10.18	-10.31	-10.4
60	5300	-10.78	--	--	--	--	--	--	--
64	5320	-10.59	--	--	--	--	--	--	--
100	5500	-13.85	--	--	--	--	--	--	--
116	5580	-13.51	--	--	--	--	--	--	--
140	5700	-10.7	-10.82	-10.95	-11.04	-11.15	-11.29	-11.4	-11.52

Note: 1.Maximum conducted output power Value =Reading value on average power meter + cable loss

**Maximum conducted output power measurement:
CHAIN A+B**

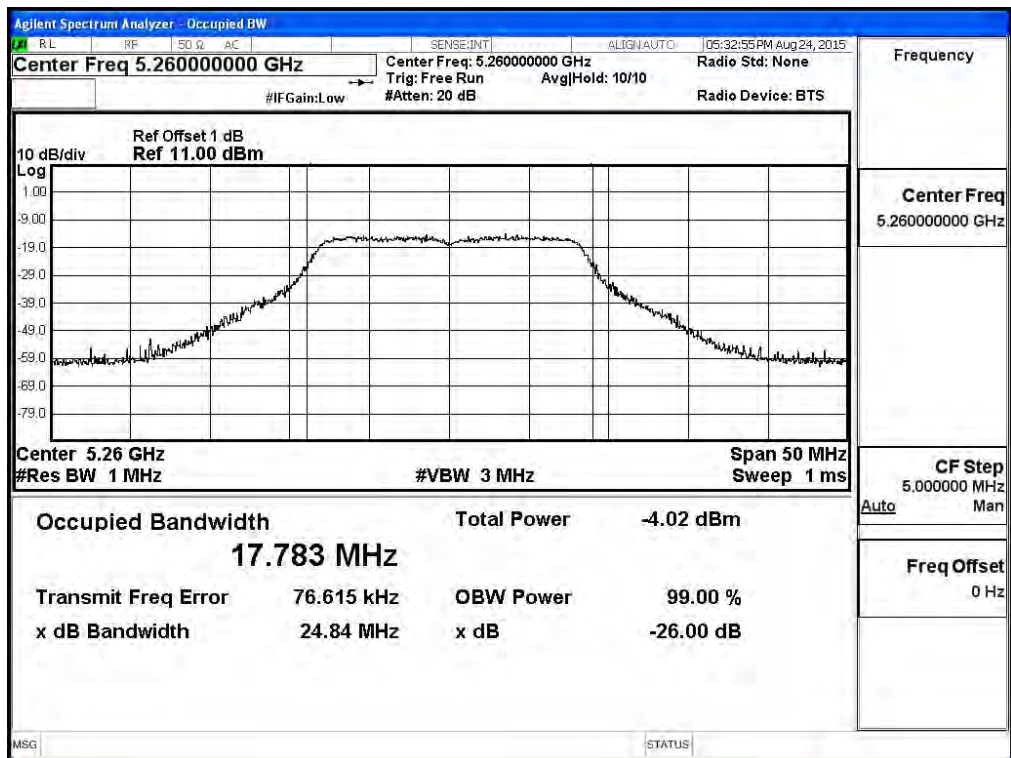
Channel Number	Frequency (MHz)	99% Bandwidth (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Total Power (dBm)	Output power Limit	
						(dBm)	dBm+10log(BW)
52	5260	17.589	-8.47	-9.61	-5.99	-3.5	23.45
60	5300	17.623	-9.45	-10.78	-7.05	-3.5	23.46
64	5320	17.730	-9.17	-10.59	-6.81	-3.5	23.49
100	5500	17.570	-8.34	-13.85	-7.26	-3.5	23.45
116	5580	17.633	-8.91	-13.51	-7.62	-3.5	23.46
140	5700	17.739	-11.33	-10.70	-7.99	-3.5	23.49

Note:

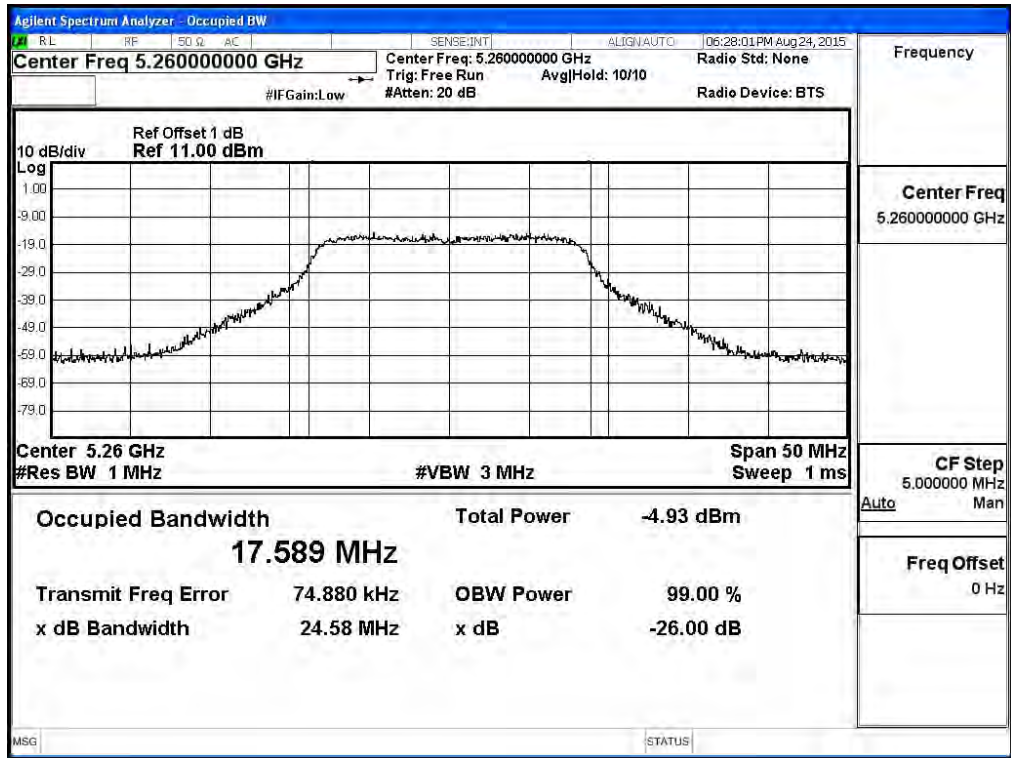
1. Power Output Value = Reading value on average power meter + cable loss
2. Output Power (dBm) = 10LOG (Chain A Power (mW) + Chain B Power (mW))
3. 99% Bandwidth is the bandwidth of chain A or chain B whichever is less bandwidth, output power limitation is more stringent.

99% Occupied Bandwidth:

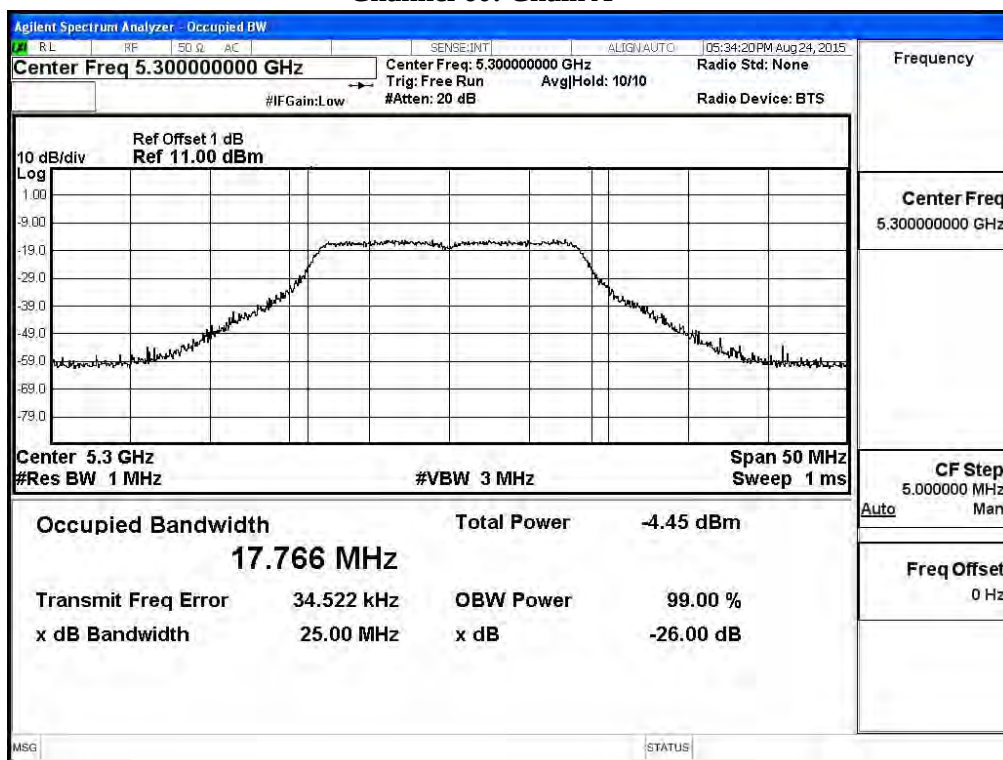
Channel 52: Chain A



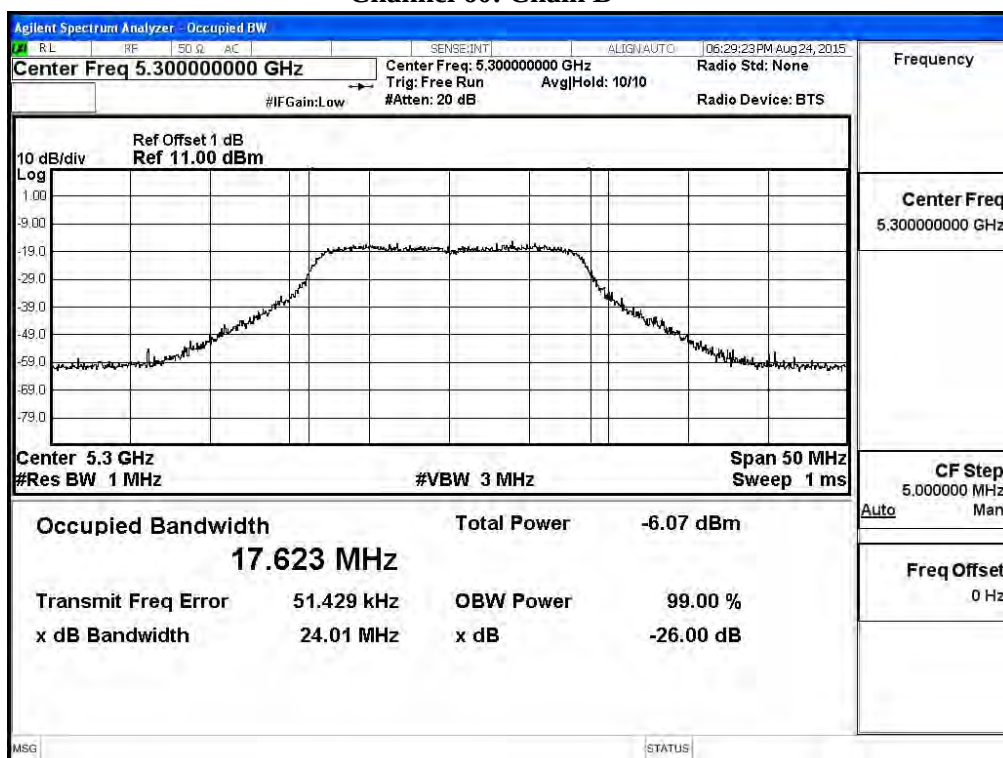
Channel 52: Chain B



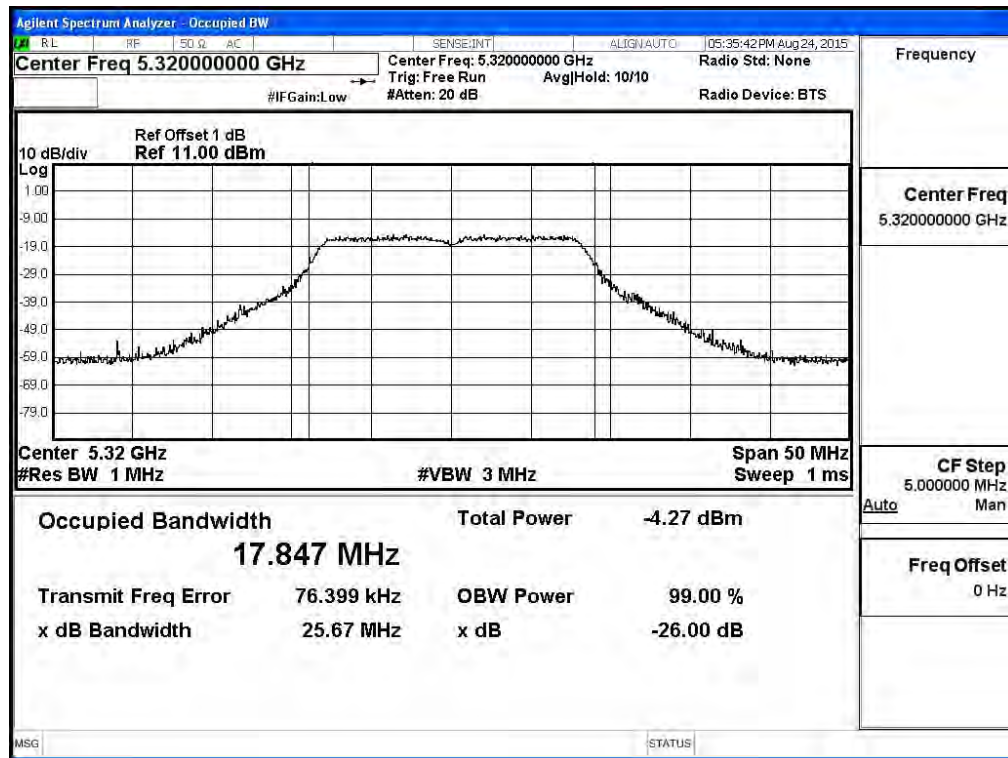
Channel 60: Chain A



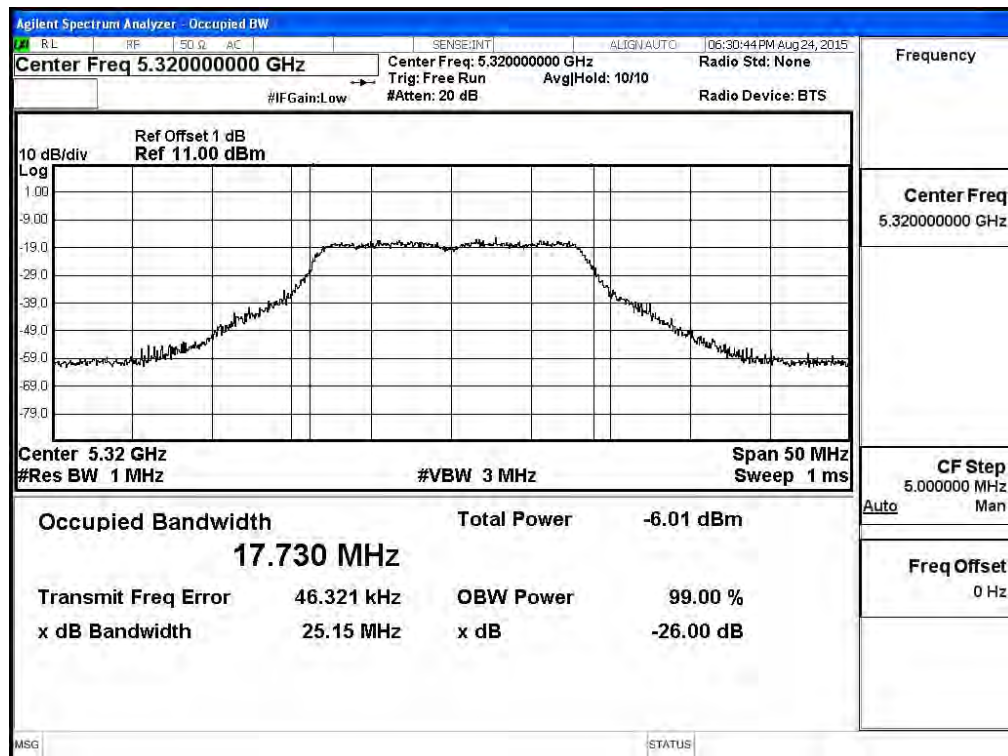
Channel 60: Chain B



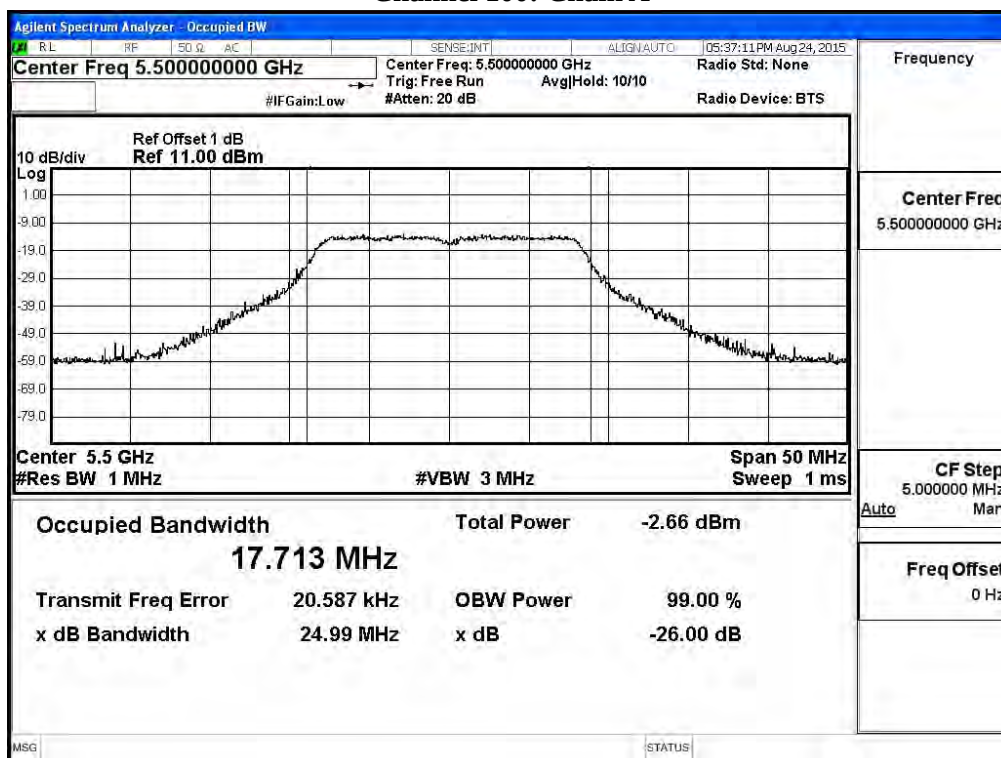
Channel 64: Chain A



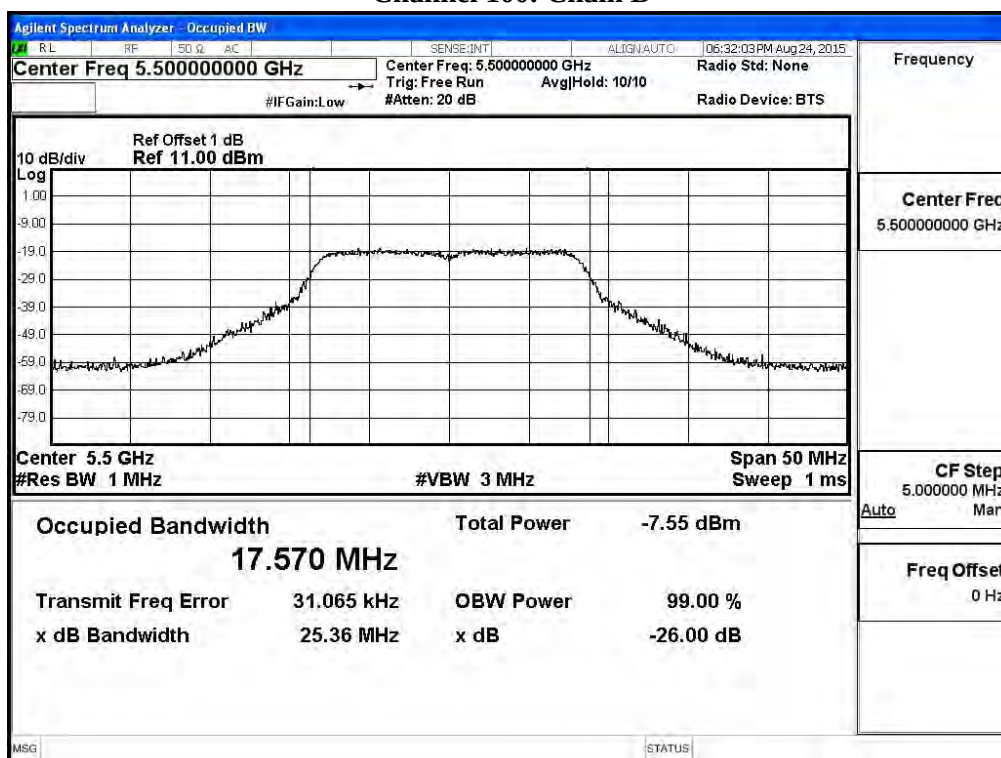
Channel 64: Chain B



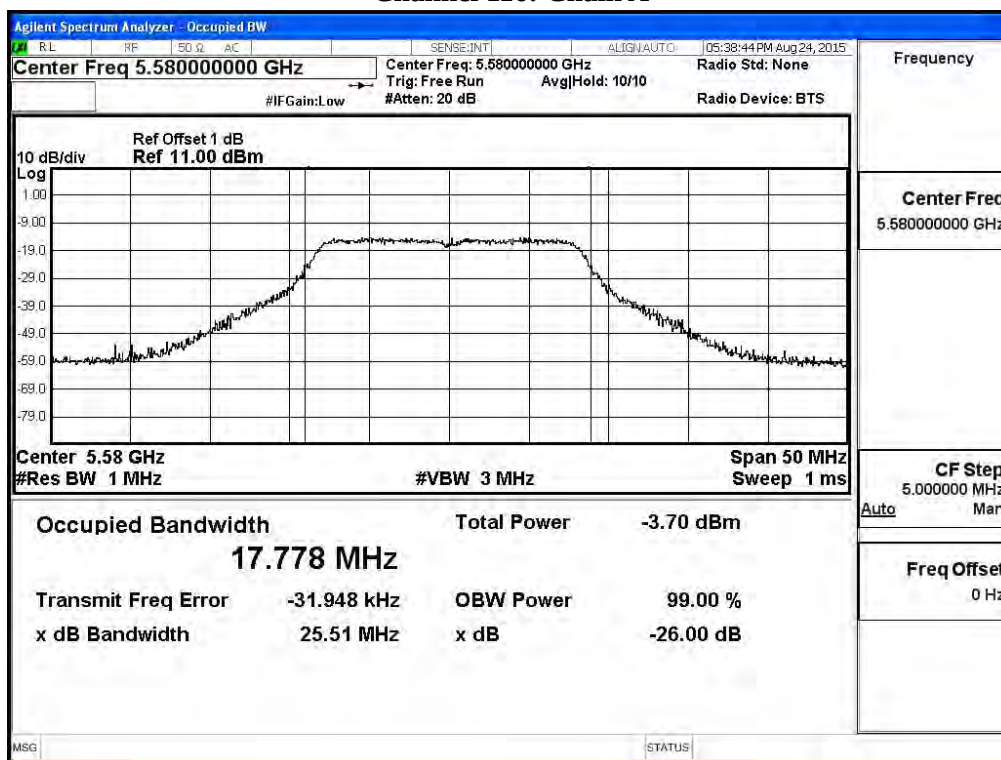
Channel 100: Chain A



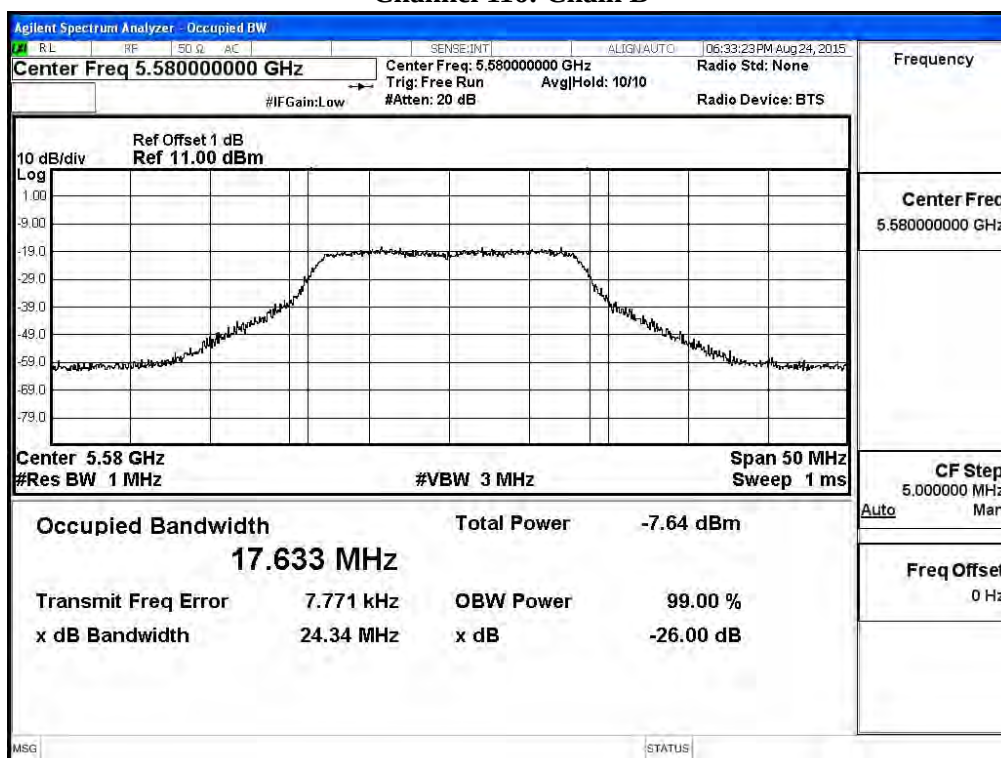
Channel 100: Chain B



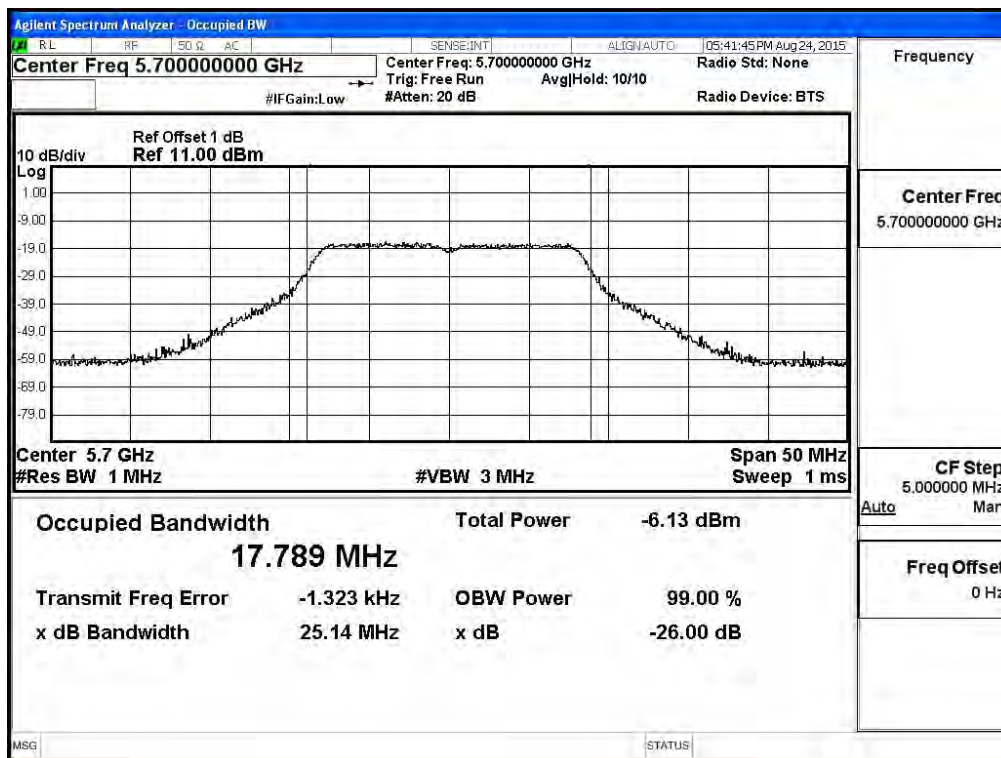
Channel 116: Chain A



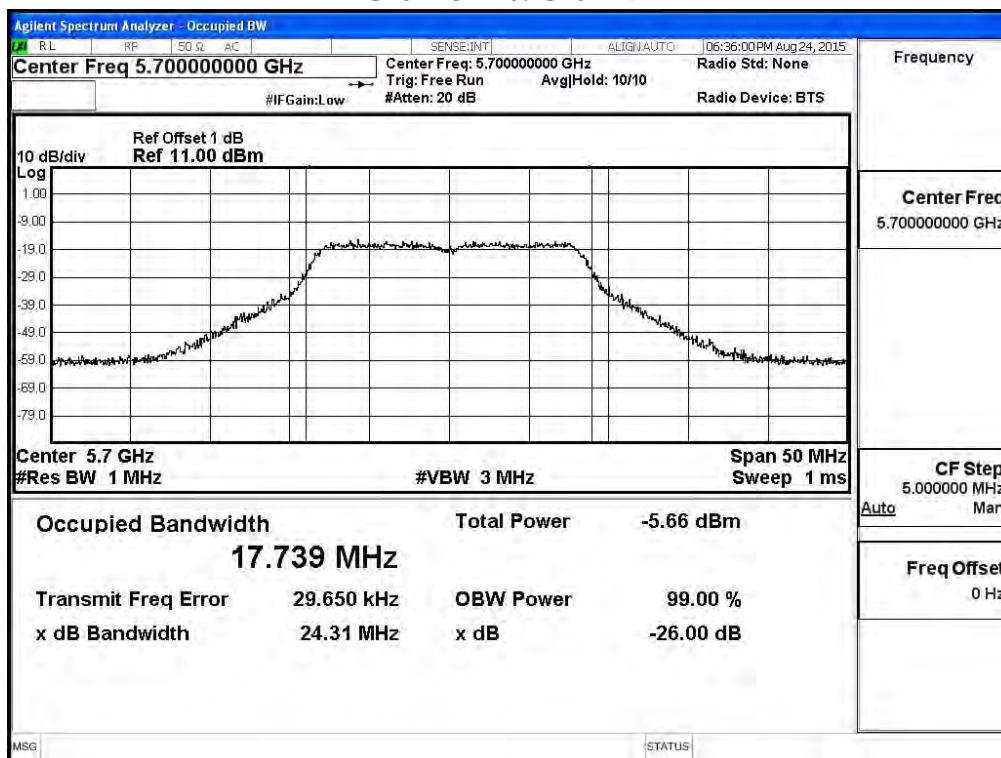
Channel 116: Chain B



Channel 140: Chain A



Channel 140: Chain B



Product : 802.11 ac PCIe Module
Test Item : Maximum conducted output power
Test Site : No.3 OATS
Test Mode : Mode 8: Transmit (802.11n-20BW 14.4Mbps)(Grid DISH Antenna)

CHAIN A

Cable loss=1dB		Maximum conducted output power							
Channel No.	Frequency (MHz)	Data Rate (Mbps)							
		14.4	28.9	43.3	57.8	86.7	115.6	130	144.4
		Measurement Level (dBm)							
52	5260	-8.79	-8.83	-8.95	-9.01	-9.12	-9.33	-9.41	-9.58
60	5300	-9.56	--	--	--	--	--	--	--
64	5320	-9.36	--	--	--	--	--	--	--
100	5500	-8.52	--	--	--	--	--	--	--
116	5580	-8.03	-8.07	-8.15	-8.22	-8.35	-8.51	-8.62	-8.77
140	5700	-11.47	--	--	--	--	--	--	--

Note: 1.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)							
		14.4	28.9	43.3	57.8	86.7	115.6	130	144.4
		Measurement Level (dBm)							
52	5260	-9.94	-10.07	-10.2	-10.32	-10.38	-10.5	-10.56	-10.72
60	5300	-10.94	--	--	--	--	--	--	--
64	5320	-10.85	--	--	--	--	--	--	--
100	5500	-14.09	--	--	--	--	--	--	--
116	5580	-12.71	--	--	--	--	--	--	--
140	5700	-10.86	-10.98	-11.21	-11.29	-11.36	-11.48	-11.6	-11.68

Note: 1.Maximum conducted output power Value =Reading value on average power meter + cable loss

**Maximum conducted output power measurement:
CHAIN A+B**

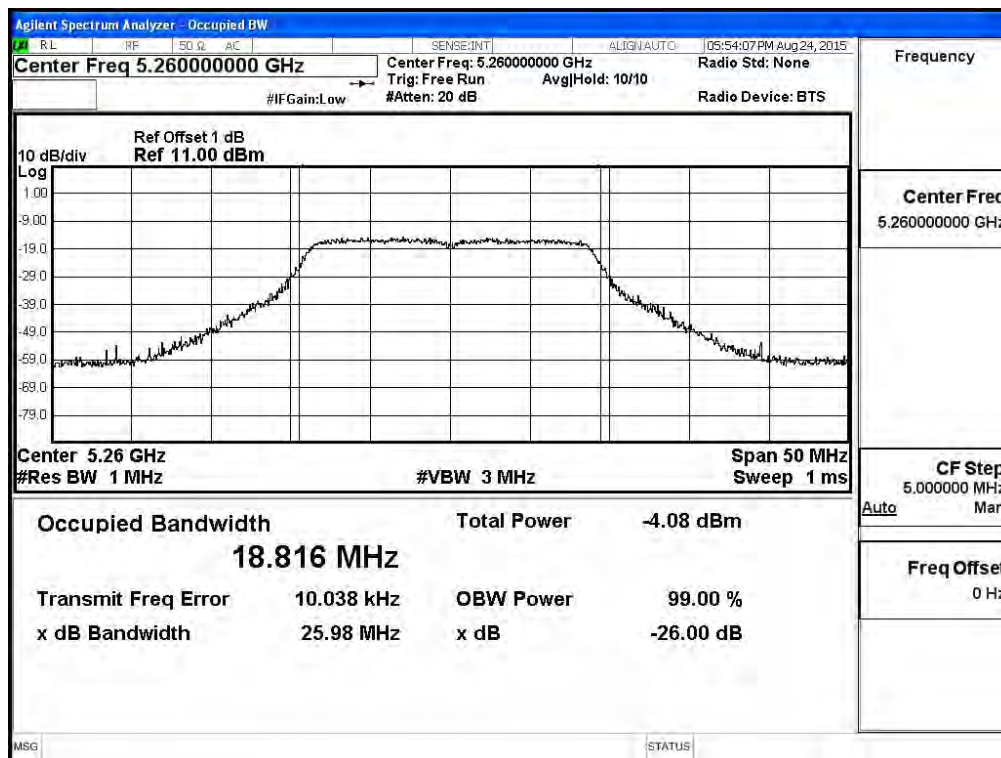
Channel Number	Frequency (MHz)	99% Bandwidth (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Total Power (dBm)	Output power Limit	
						(dBm)	dBm+10log(BW)
52	5260	18.816	-5.13	-9.94	-3.89	-3.5	23.75
60	5300	18.672	-9.56	-10.94	-7.19	-3.5	23.71
64	5320	18.783	-9.36	-10.85	-7.03	-3.5	23.74
100	5500	18.784	-8.52	-14.09	-7.46	-3.5	23.74
116	5580	18.686	-4.07	-12.71	-3.51	-3.5	23.72
140	5700	18.790	-11.47	-10.86	-8.14	-3.5	23.74

Note:

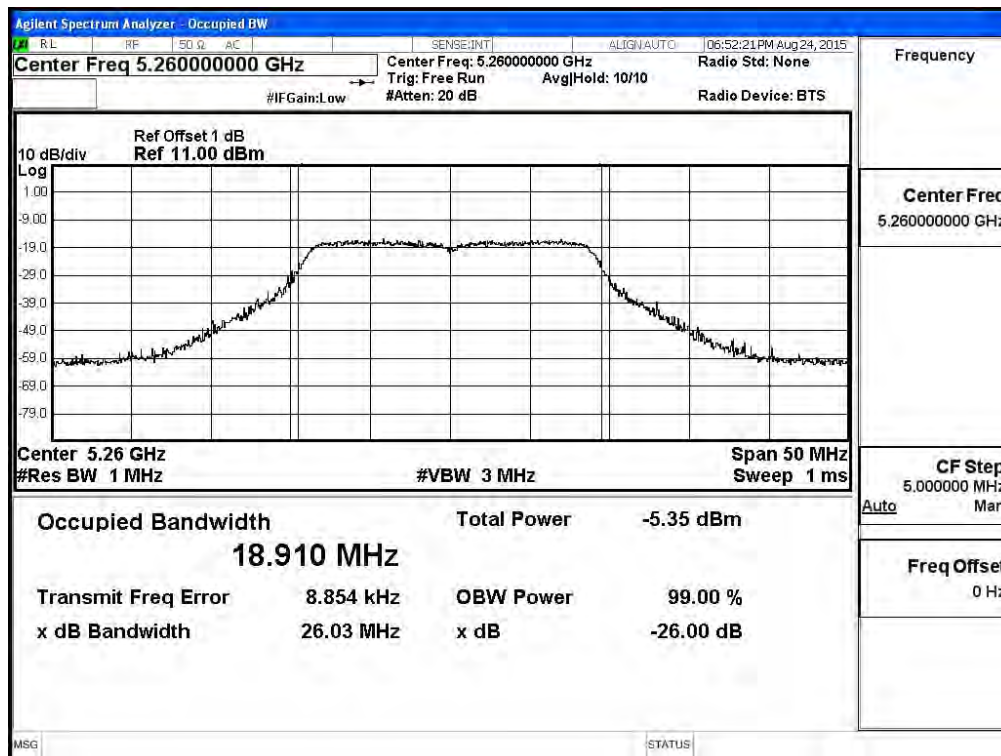
1. Power Output Value =Reading value on average power meter + cable loss
2. Output Power (dBm) = 10LOG (Chain A Power (mW) + Chain B Power (mW))
3. 99% Bandwidth is the bandwidth of chain A or chain B whichever is less bandwidth, output power limitation is more stringent.

99% Occupied Bandwidth:

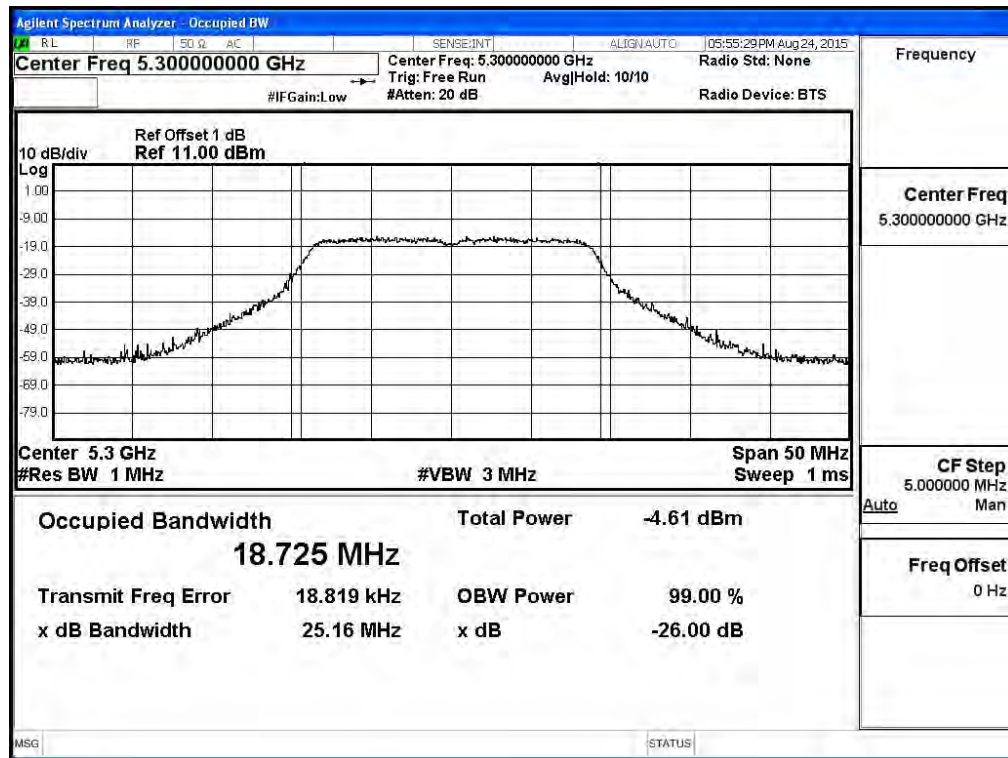
Channel 52: Chain A



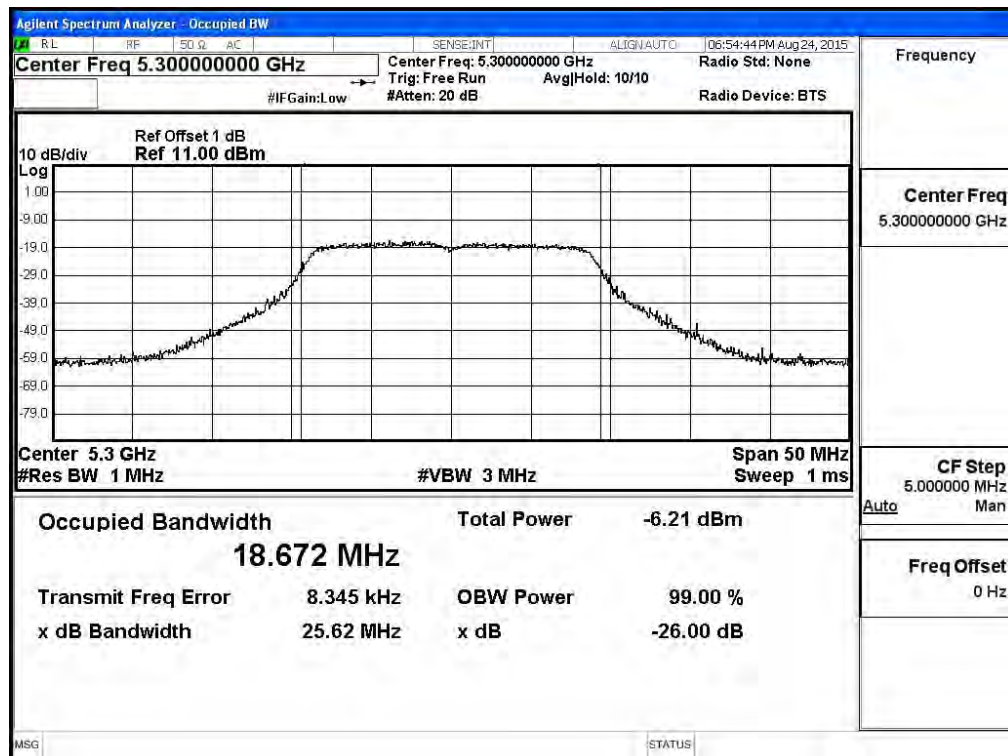
Channel 52: Chain B



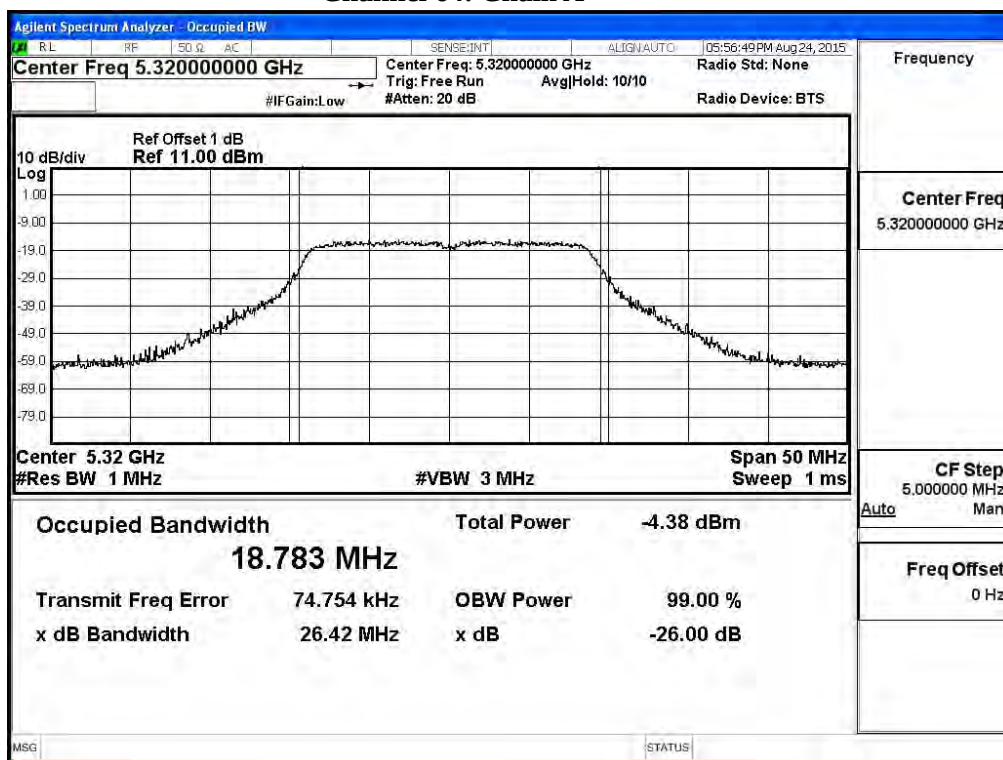
Channel 60: Chain A



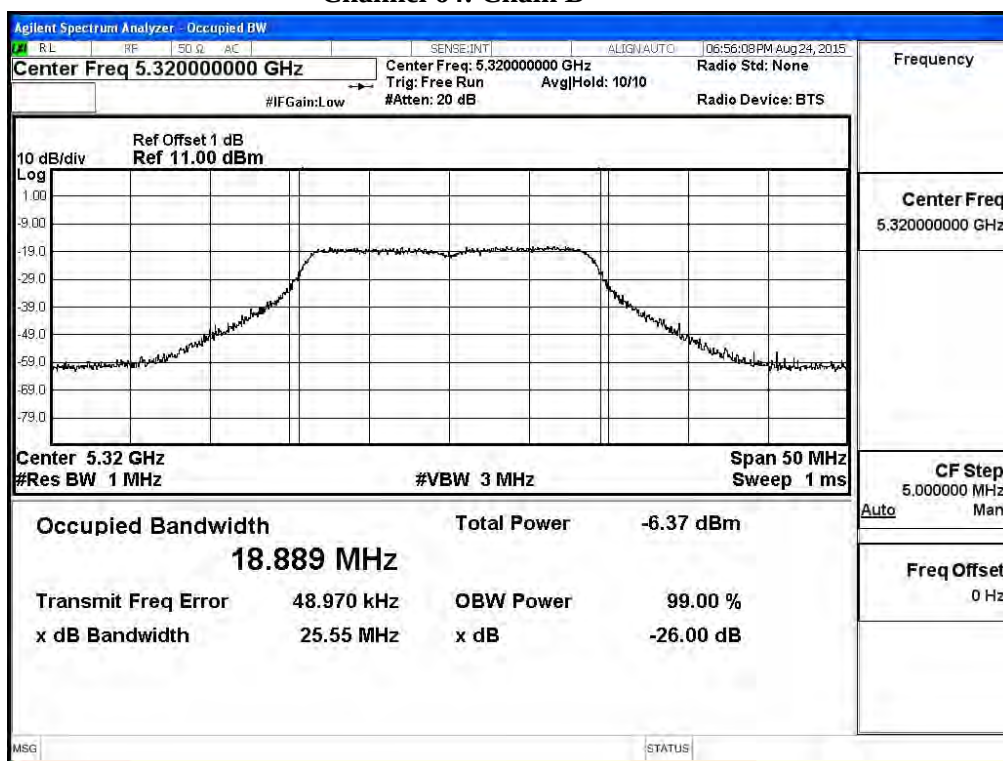
Channel 60: Chain B



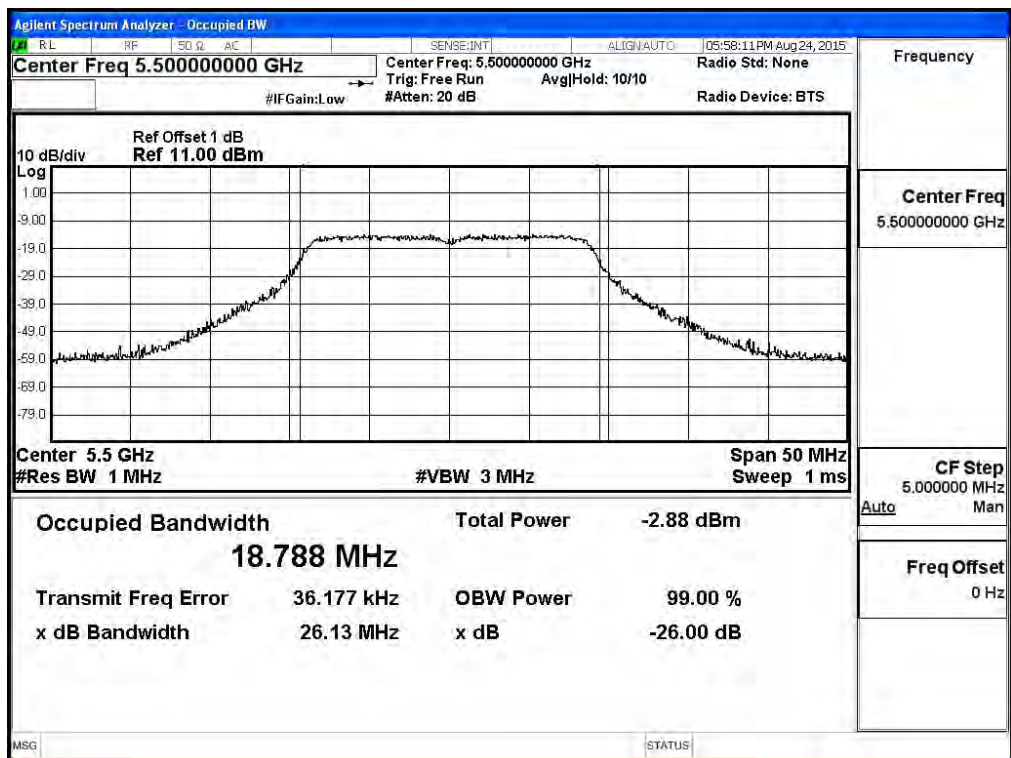
Channel 64: Chain A



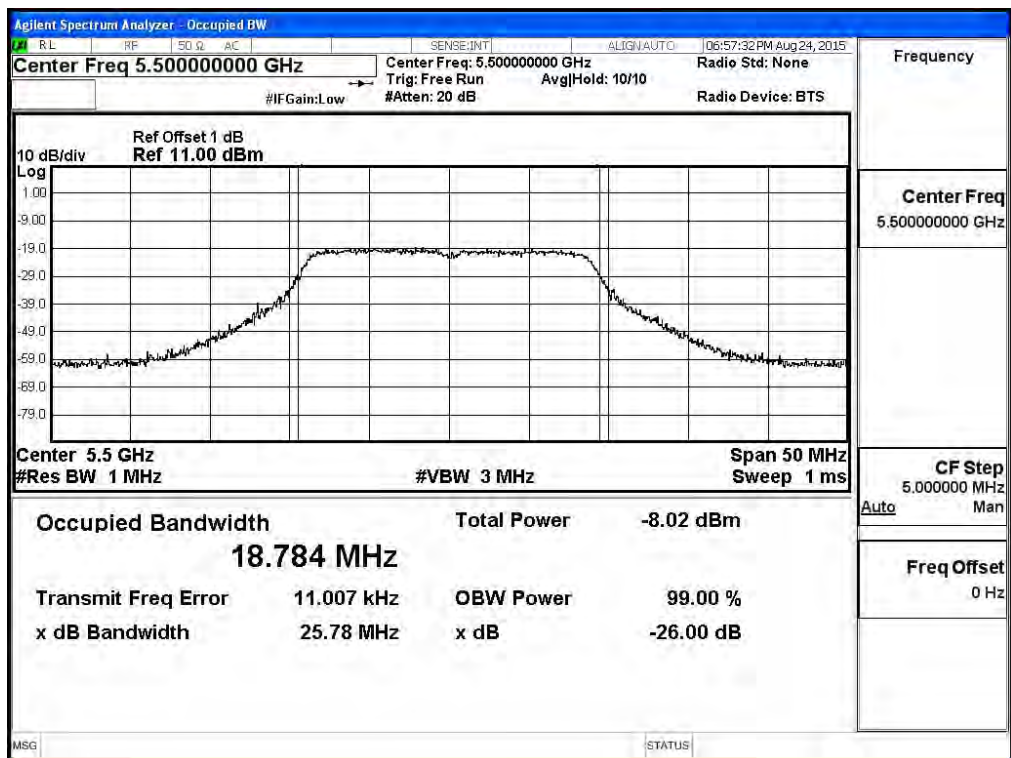
Channel 64: Chain B



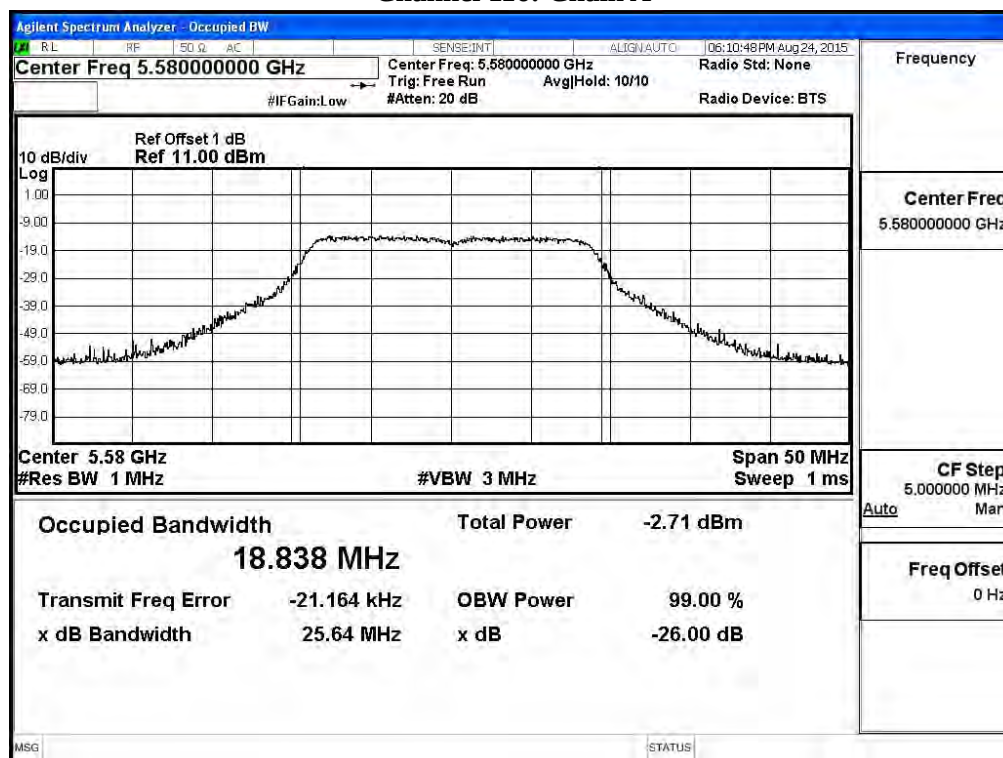
Channel 100: Chain A



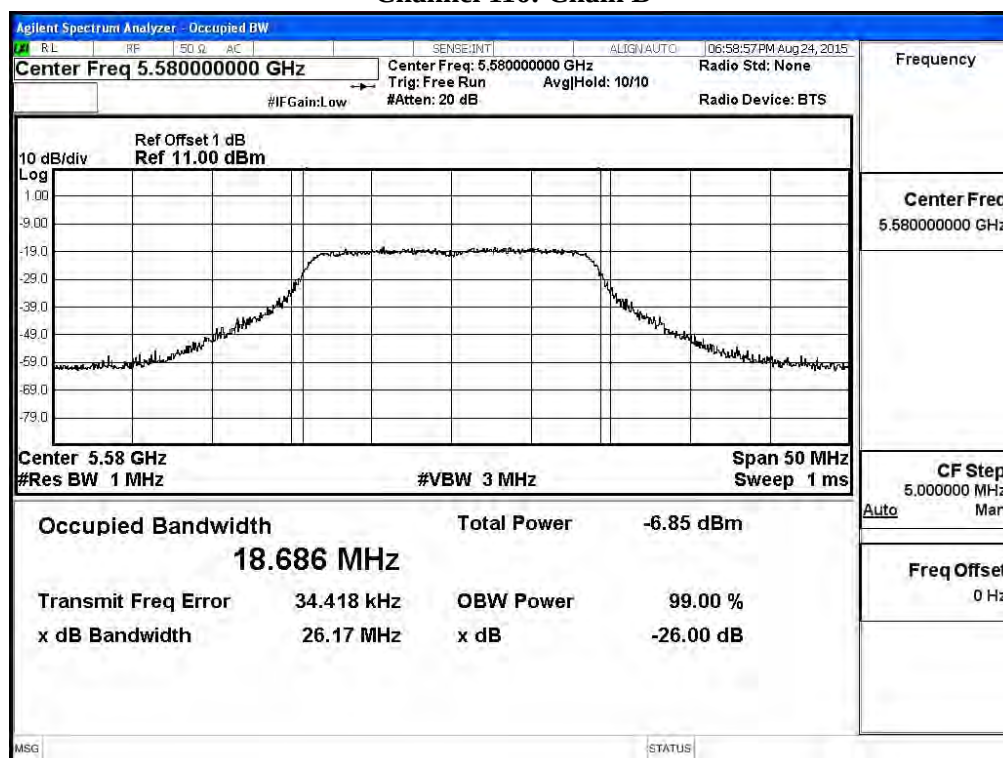
Channel 100: Chain B



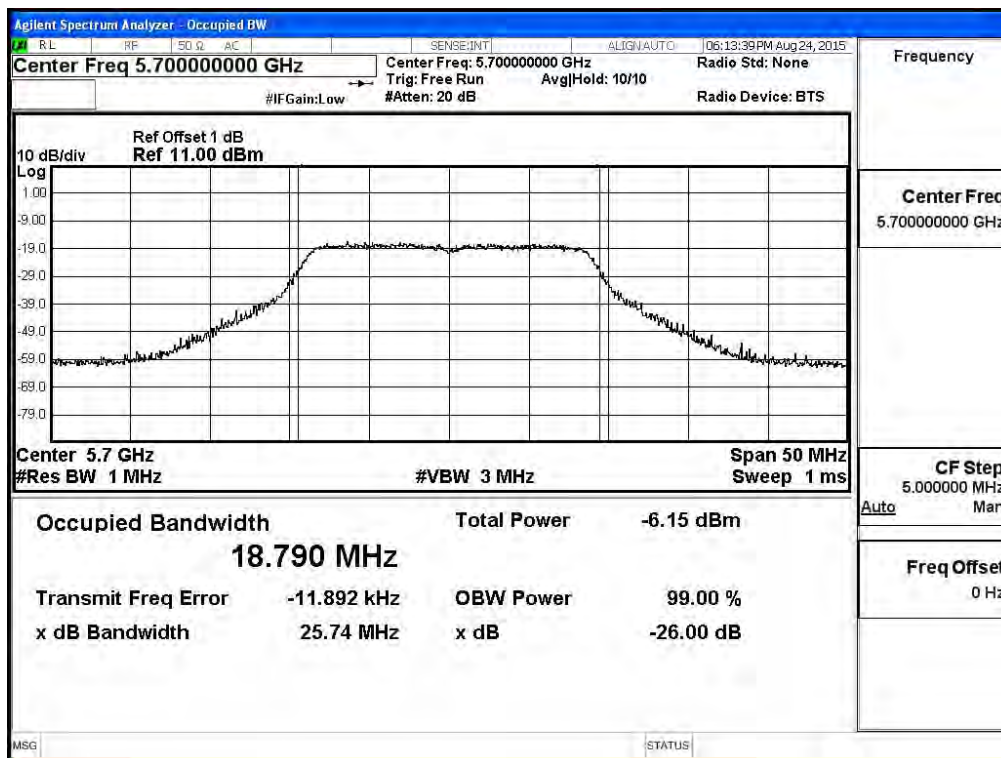
Channel 116: Chain A



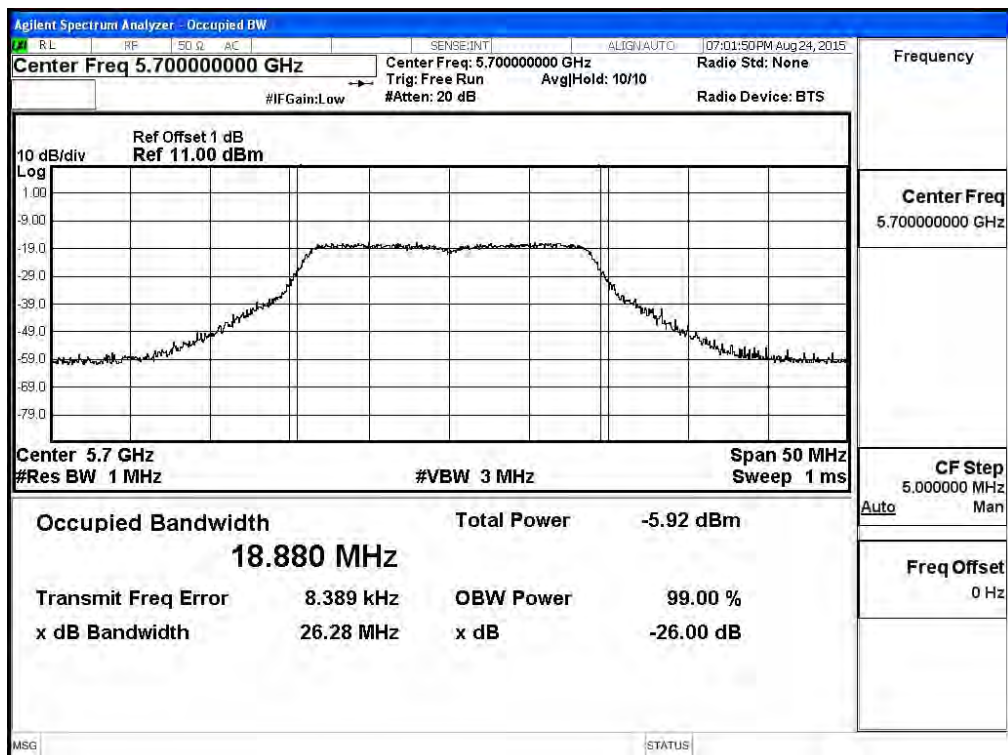
Channel 116: Chain B



Channel 140: Chain A



Channel 140: Chain B



Product : 802.11 ac PCIe Module
Test Item : Maximum conducted output power
Test Site : No.3 OATS
Test Mode : Mode 9: Transmit (802.11n-40BW 30Mbps)(Grid DISH Antenna)

CHAIN A

Cable loss=1dB		Maximum conducted output power							
Channel No.	Frequency (MHz)	Data Rate (Mbps)							
		30	60	90	120	180	240	270	300
		Measurement Level (dBm)							
54	5270	-6.28	--	--	--	--	--	--	--
62	5310	-5.91	-6.03	-6.15	-6.26	-6.41	-6.53	-6.66	-6.75
102	5510	-4.98	-5.08	-5.14	-5.29	-5.42	-5.56	-5.68	-5.79
110	5550	-4.99	--	--	--	--	--	--	--
134	5670	-7.01	--	--	--	--	--	--	--

Note: 1.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)							
		30	60	90	120	180	240	270	300
		Measurement Level (dBm)							
54	5270	-7.43	--	--	--	--	--	--	--
62	5310	-7.41	-7.5	-7.57	-7.7	-7.96	-8.11	-8.19	-8.27
102	5510	-10.53	--	--	--	--	--	--	--
110	5550	-10.35	--	--	--	--	--	--	--
134	5670	-7.69	-7.78	-7.86	-8.03	-8.11	-8.19	-8.3	-8.41

Note: 1.Maximum conducted output power Value =Reading value on average power meter + cable loss

Maximum conducted output power measurement:

CHAIN A+B

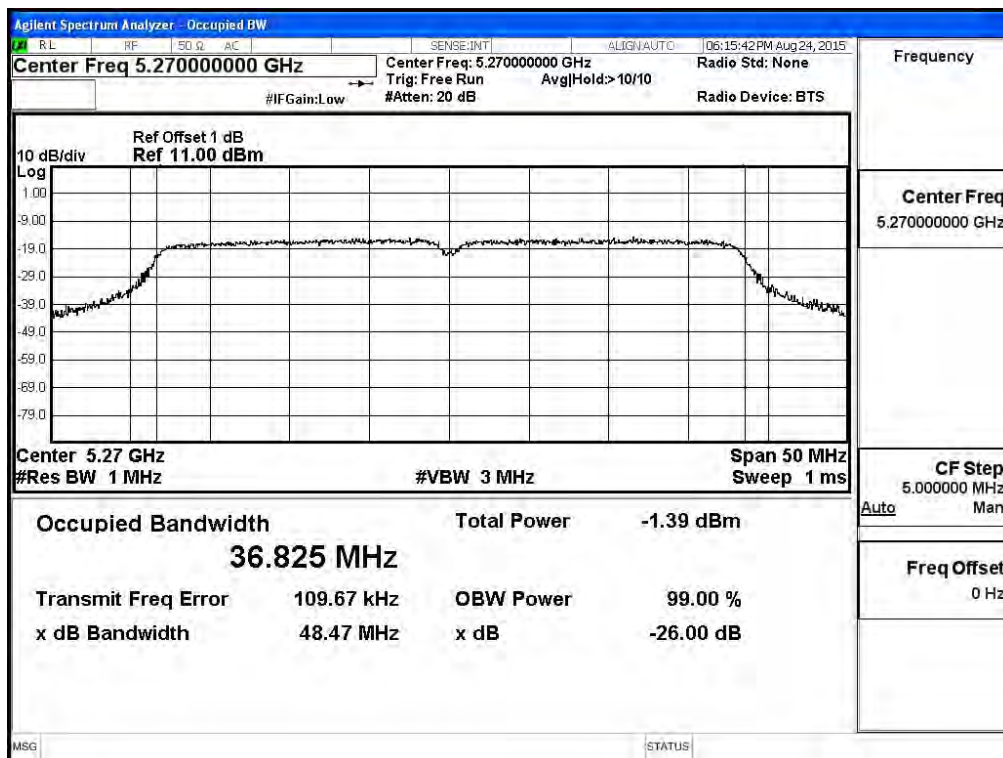
Channel Number	Frequency (MHz)	99% Bandwidth (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Total Power (dBm)	Output Power Limit	
						(dBm)	dBm+10log(BW)
54	5270	36.825	-6.28	-7.43	-3.81	-3.5	26.66
62	5310	36.733	-5.91	-7.41	-3.59	-3.5	26.65
102	5510	36.941	-4.98	-10.53	-3.91	-3.5	26.68
110	5550	36.904	-4.99	-10.35	-3.88	-3.5	26.67
134	5670	36.938	-7.01	-7.69	-4.33	-3.5	26.67

Note:

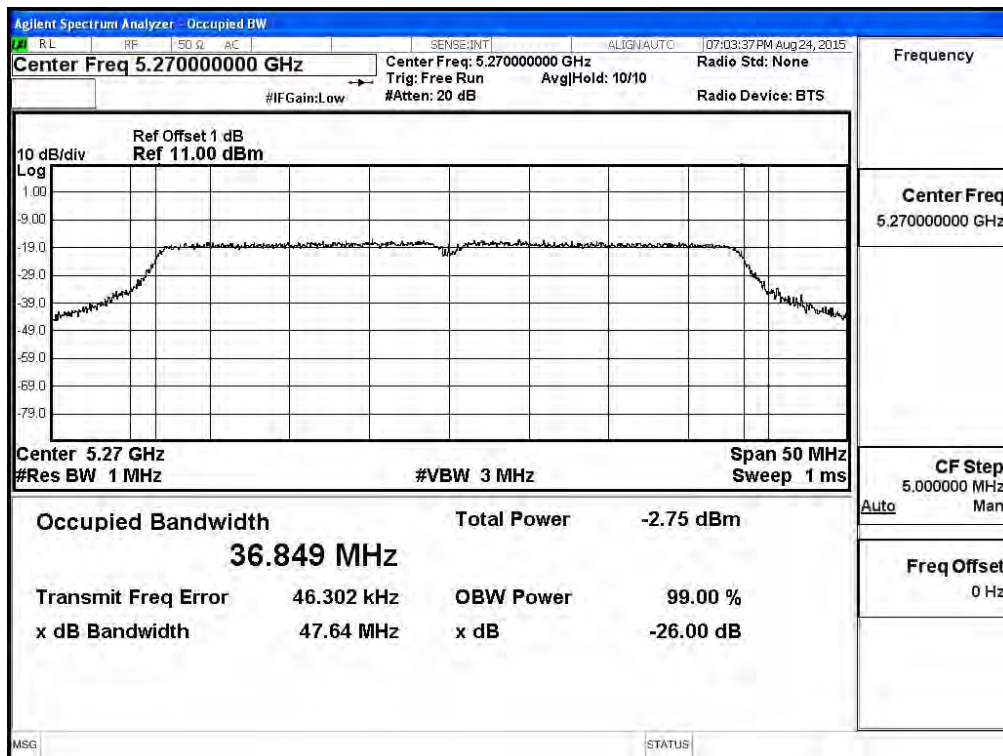
1. Power Output Value =Reading value on average power meter + cable loss
2. Output Power (dBm) = 10LOG (Chain A Power (mW) + Chain B Power (mW))
3. 99% Bandwidth is the bandwidth of chain A or chain B whichever is less bandwidth, output power limitation is more stringent.

99% Occupied Bandwidth:

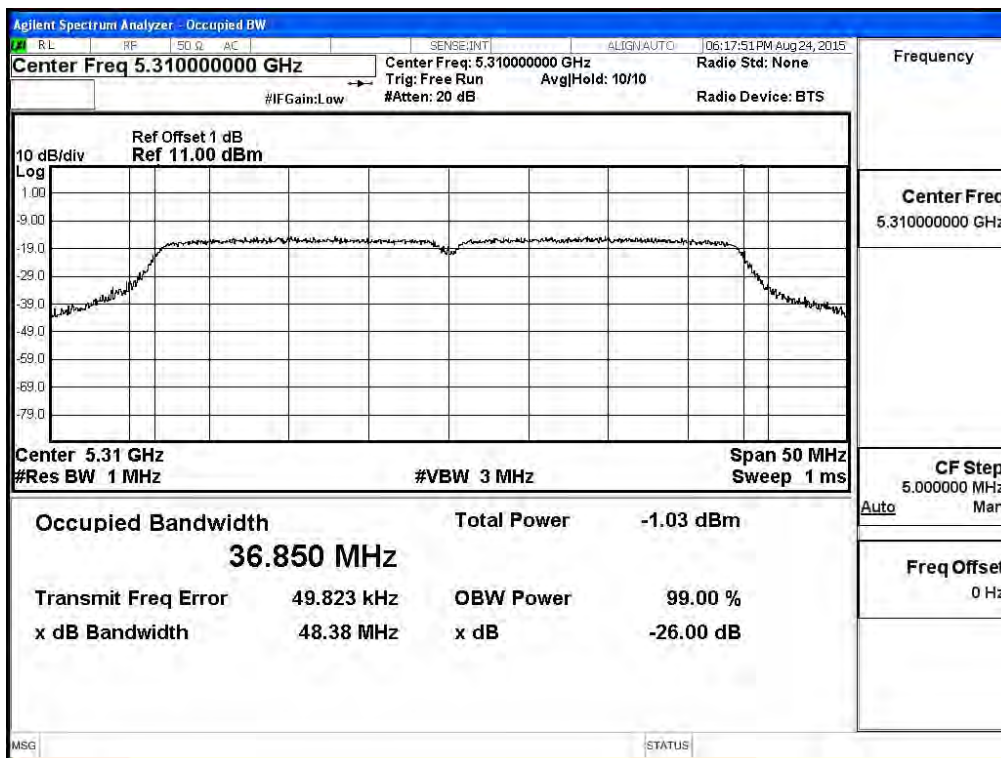
Channel 54: Chain A



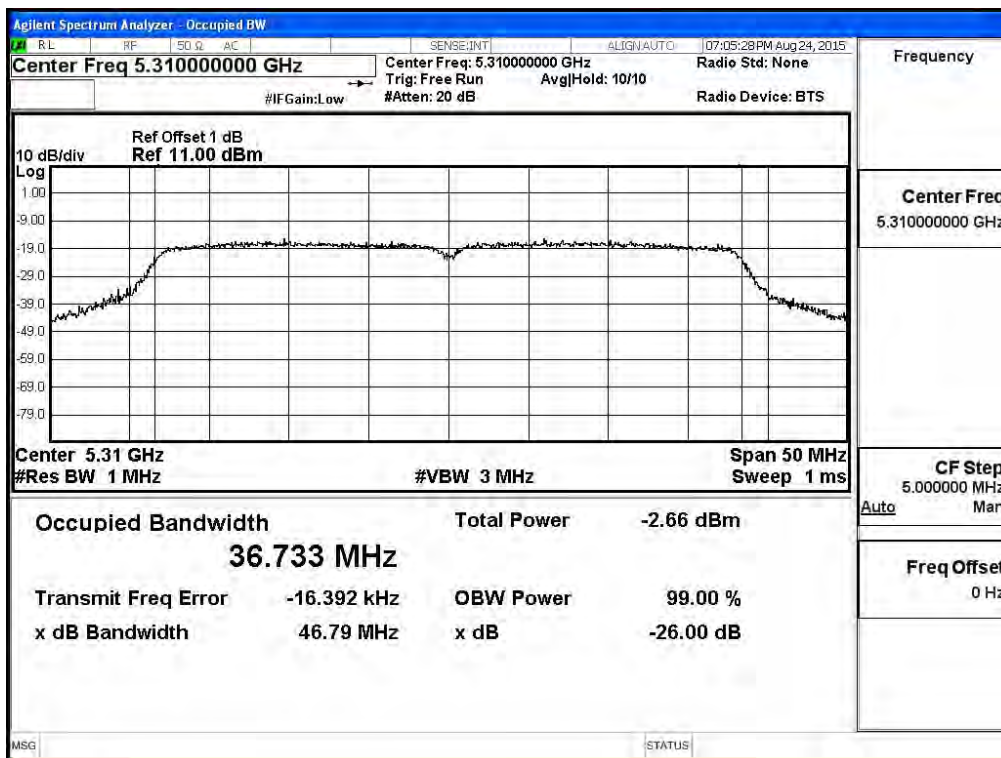
Channel 54: Chain B



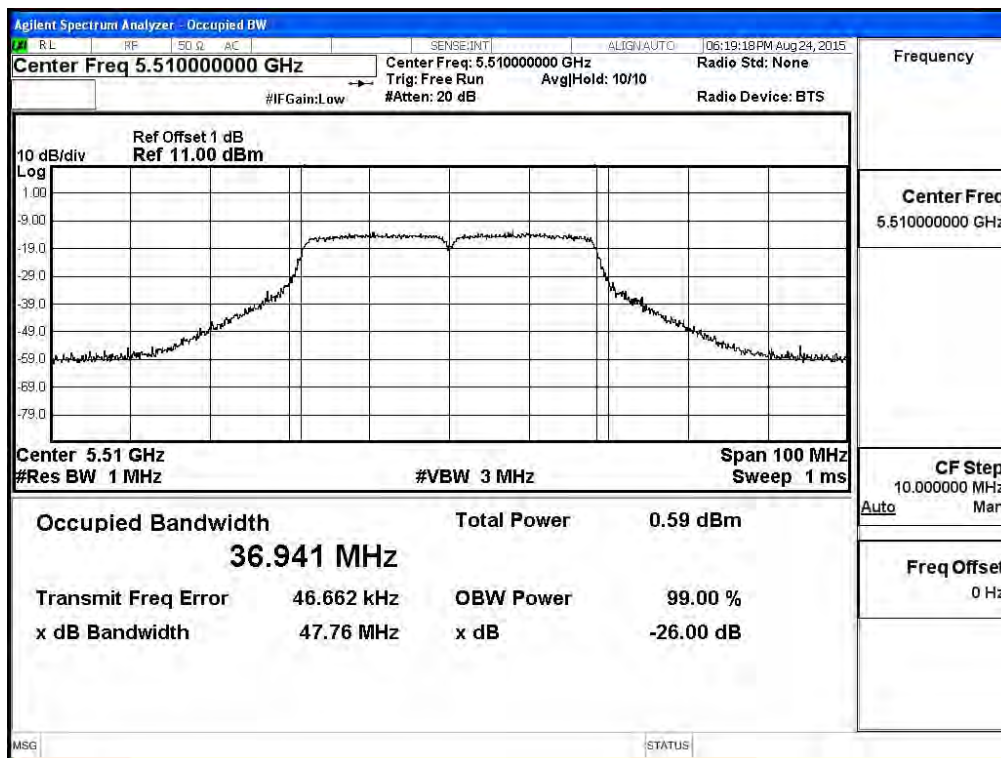
Channel 62: Chain A



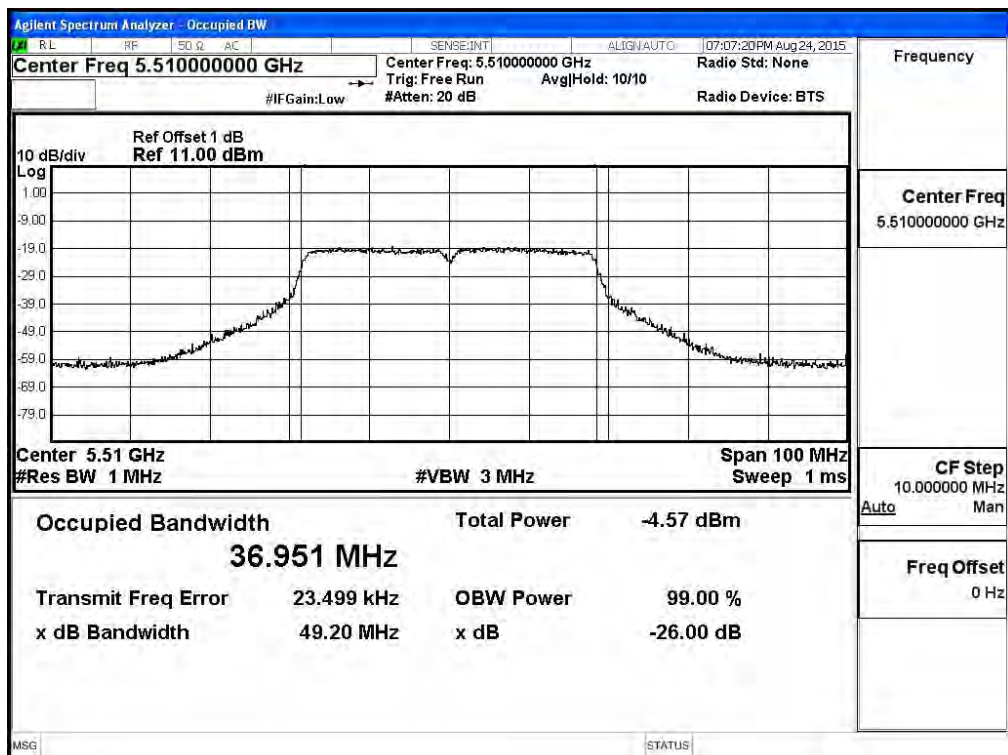
Channel 62: Chain B



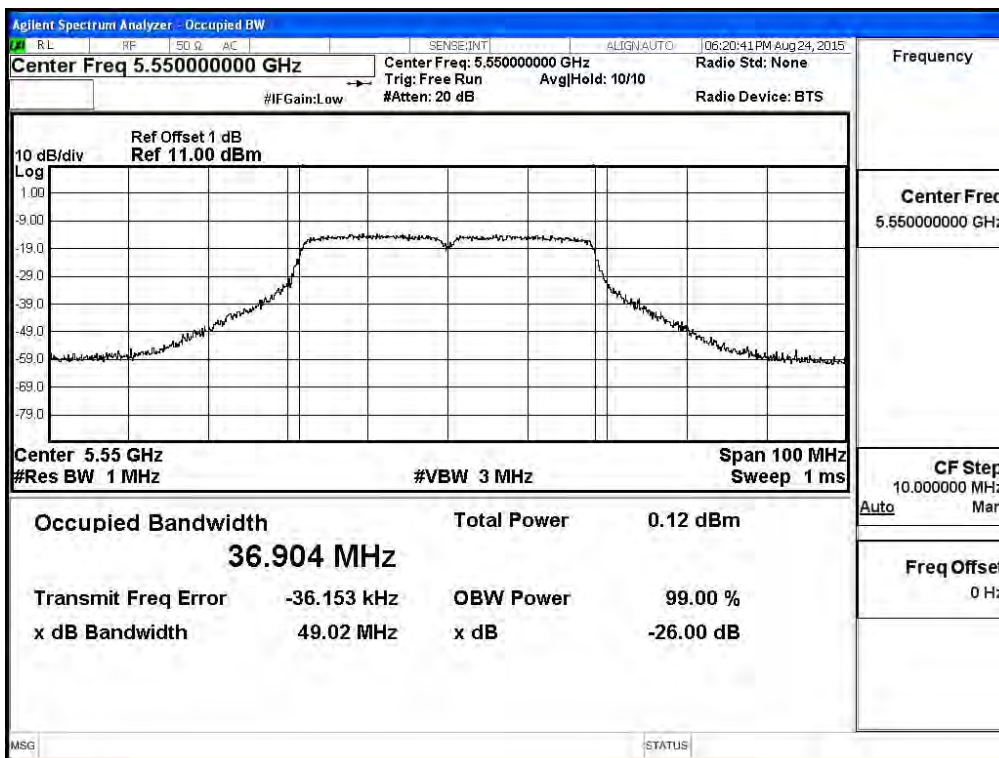
Channel 102: Chain A



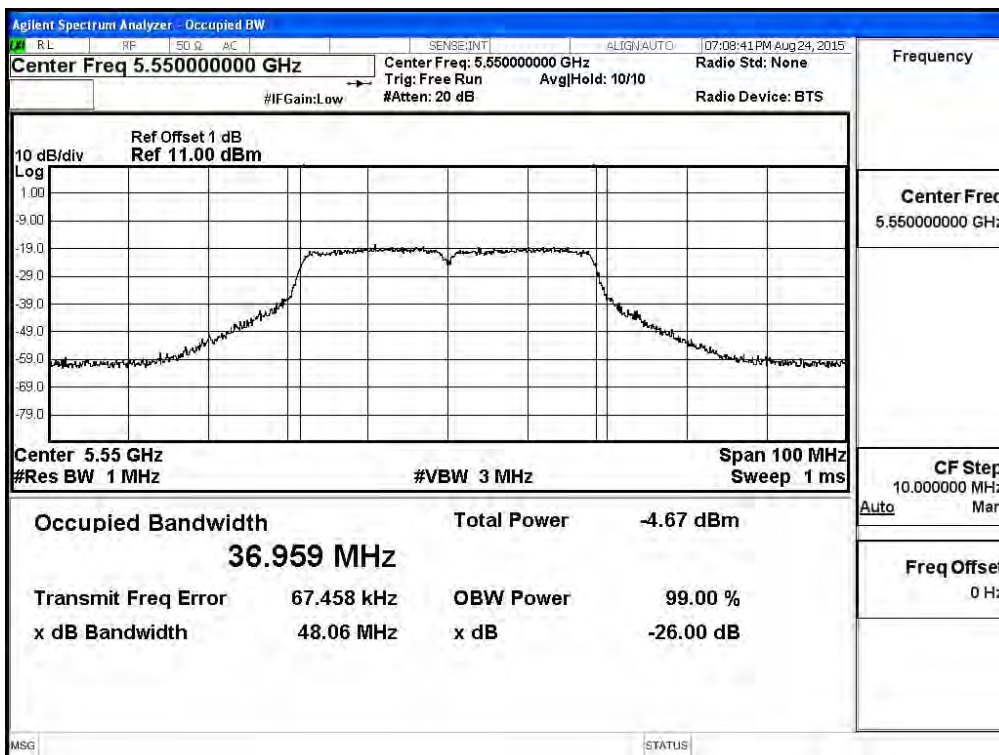
Channel 102: Chain B



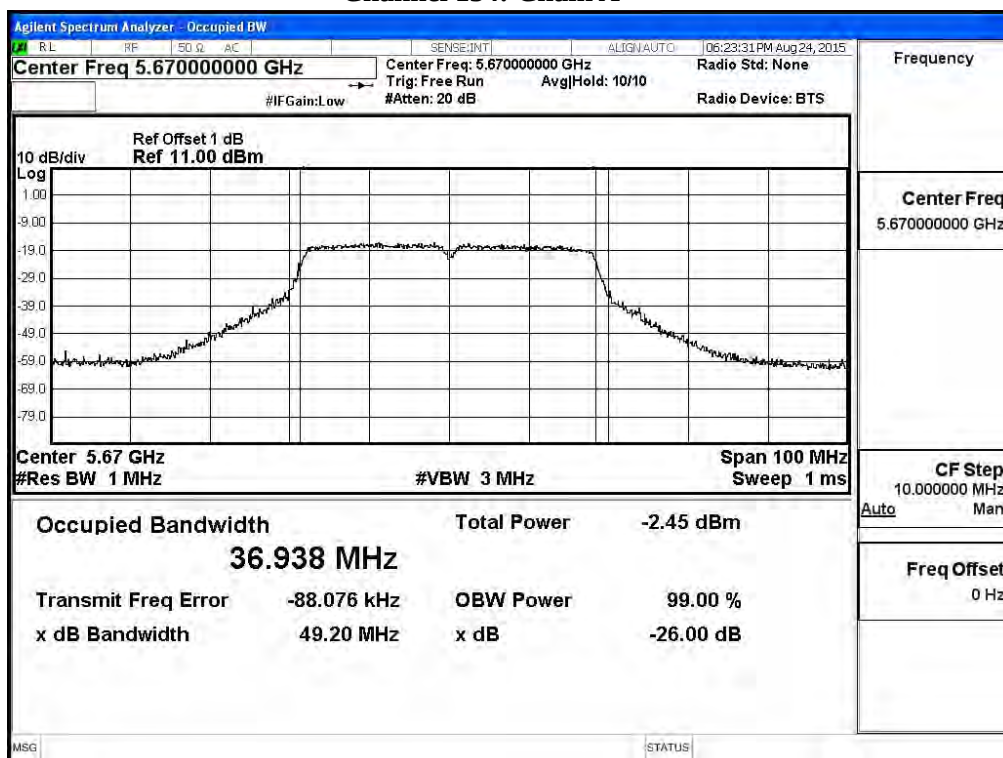
Channel 110: Chain A



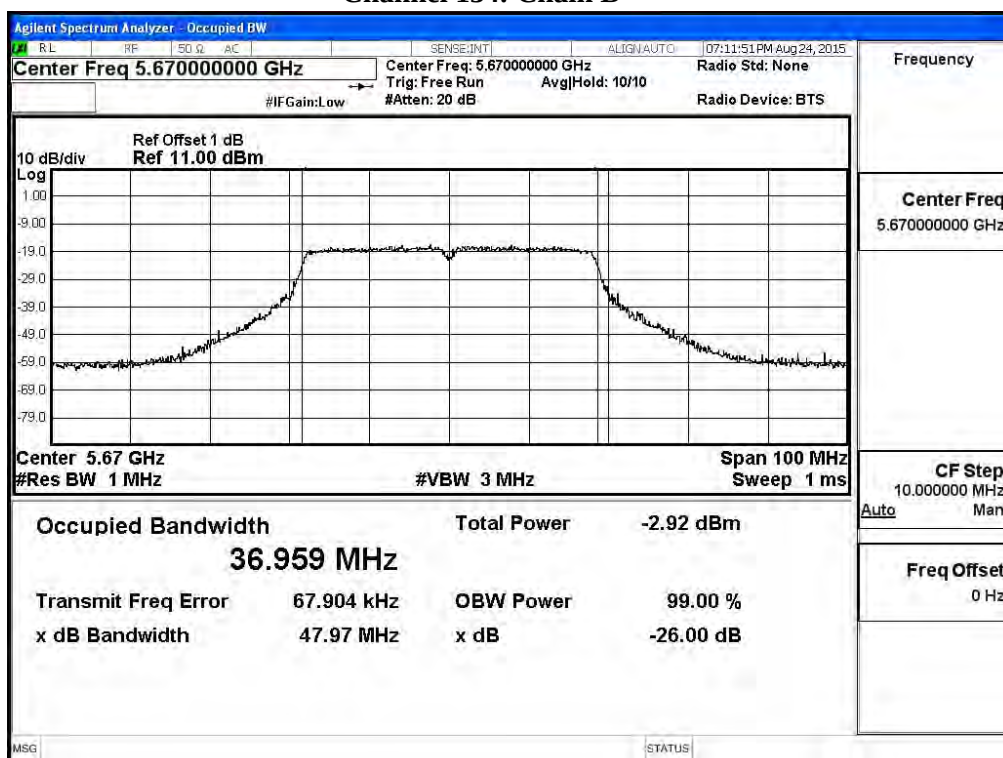
Channel 110: Chain B



Channel 134: Chain A



Channel 134: Chain B



Product : 802.11 ac PCIe Module
Test Item : Maximum conducted output power
Test Site : No.3 OATS
Test Mode : Mode 10 Transmit (802.11ac-20BW-14.4Mbps)(Grid DISH Antenna)

Chain A

Cable loss=1dB		Maximum conducted output power								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								
		VTH0	VTH1	VTH2	VTH3	VTH4	VTH5	VTH6	VTH7	VTH8
		Measurement Level (dBm)								
144 (Band3)	5720	-11.54	-11.62	-11.69	-11.86	-12.03	-12.11	-12.19	-12.25	-12.31
144 (Band4)	5720	-16.56	-16.64	-16.72	-16.76	-16.84	-16.95	-17.14	-17.26	-17.34

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)								
		VTH0	VTH1	VTH2	VTH3	VTH4	VTH5	VTH6	VTH7	VTH8
		Measurement Level (dBm)								
144 (Band3)	5720	-10.58	-10.66	-10.78	-10.88	-11	-11.09	-11.22	-11.3	-11.41
144 (Band4)	5720	-16.45	-16.54	-16.6	-16.73	-16.81	-16.9	-17.04	-17.15	-17.22

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

Maximum conducted output power Measurement:

CHAIN A+B

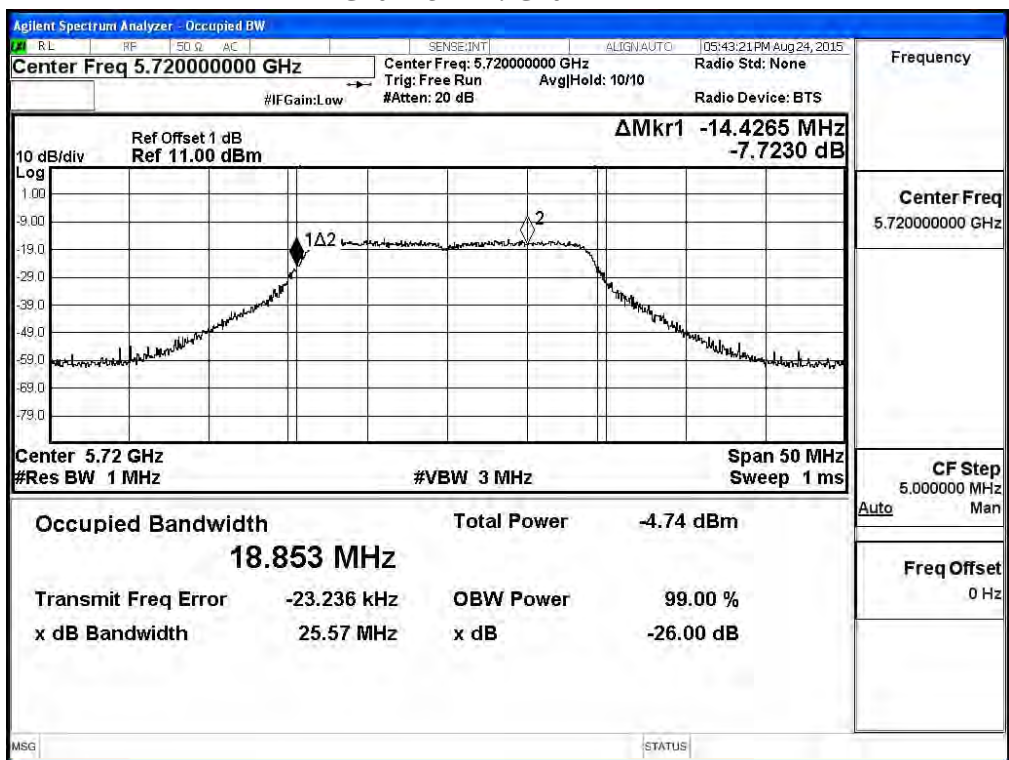
Channel No	Frequency Range (MHz)	99% Bandwidth (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	Output Power Limit		Result
						(dBm)	dBm+10log(BW)	
144(Band3)	5720	14.373	-11.54	-10.58	-8.02	-3.5	22.58	Pass
144(Band4)	5720	4.374	-16.56	-16.45	-13.49	30	17.41	Pass

Note:

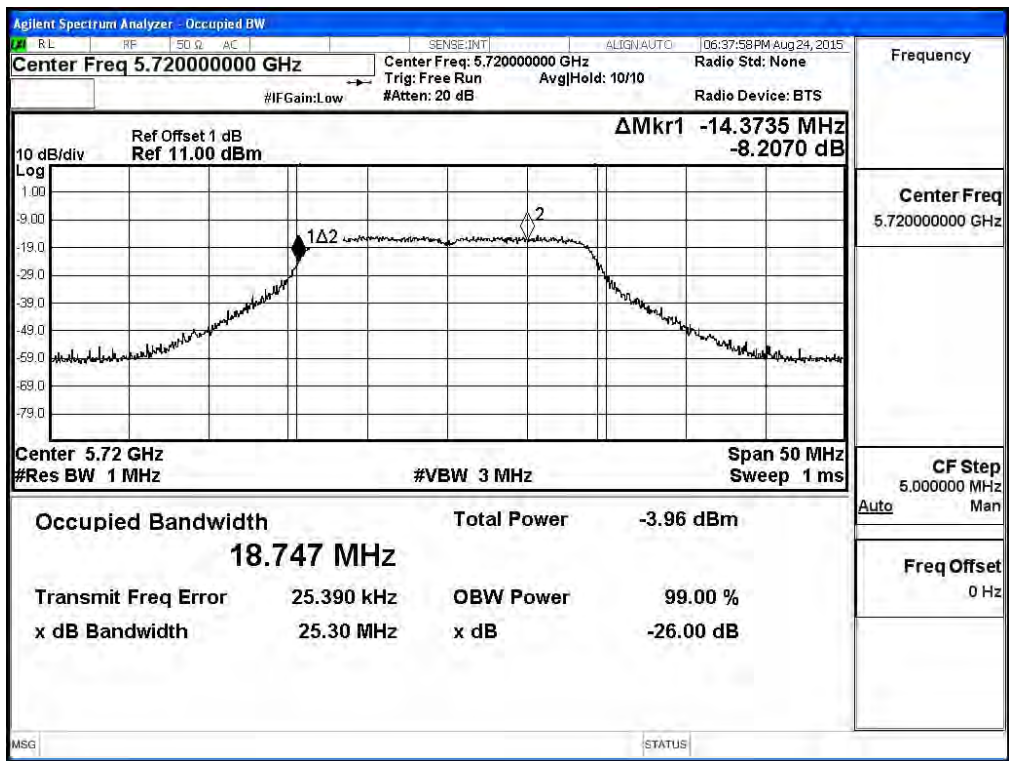
1. Power Output Value =Reading value on average power meter + cable loss
2. Output Power (dBm) = 10LOG (Chain A Power (mW) + Chain B Power (mW))
3. 99% Bandwidth is the bandwidth of chain A or chain B whichever is less bandwidth, output power limitation is more stringent.

99% Occupied Bandwidth:

Channel 144: Chain A

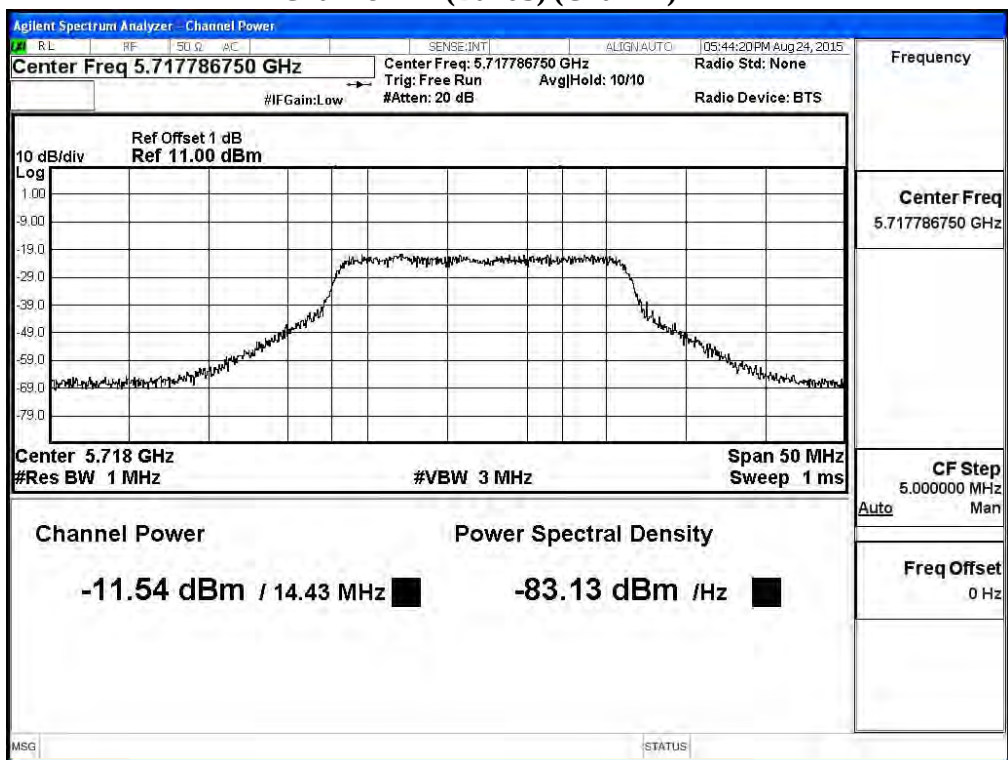


Channel 144: Chain B

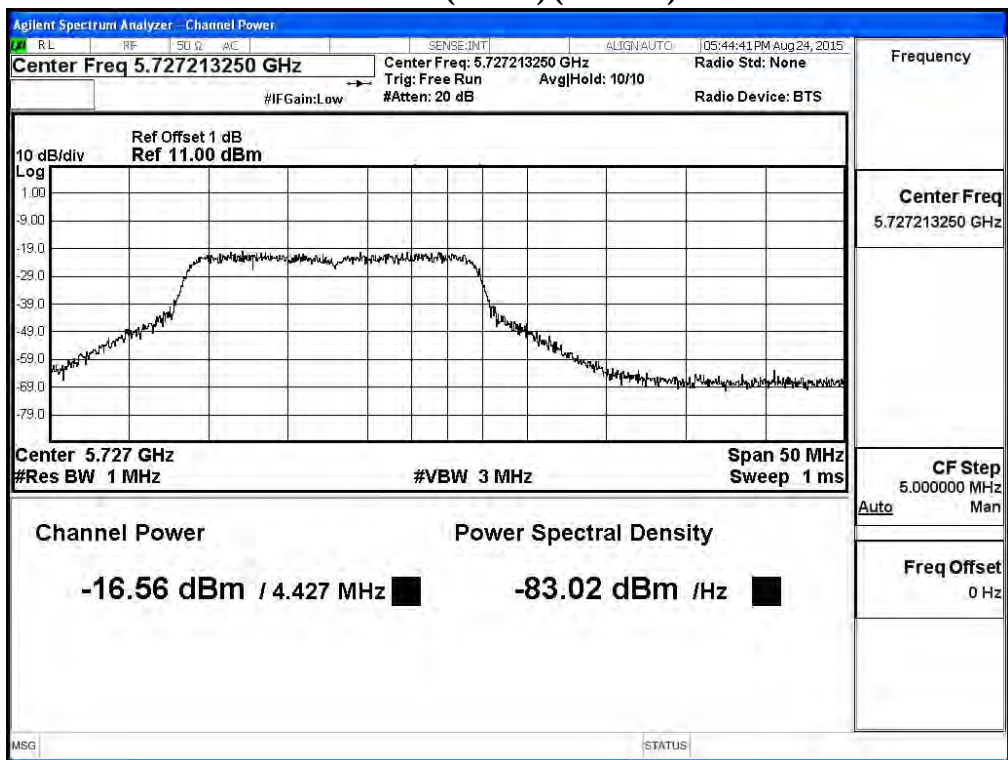


Maximum conducted output power:

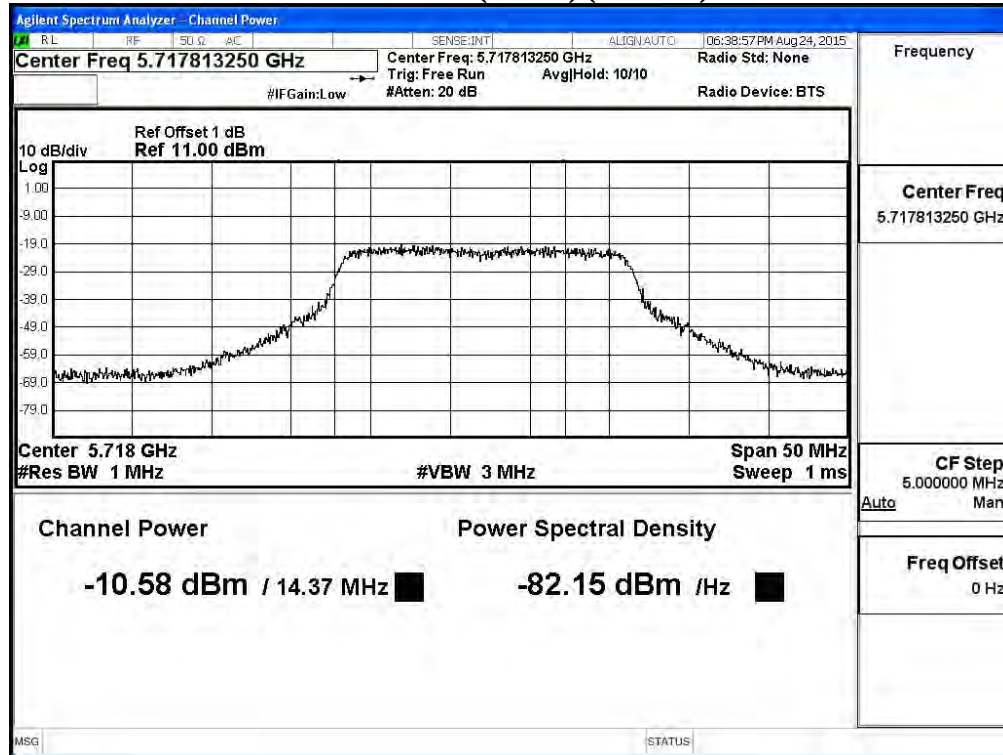
Channel 144 (Band3) (Chain A)



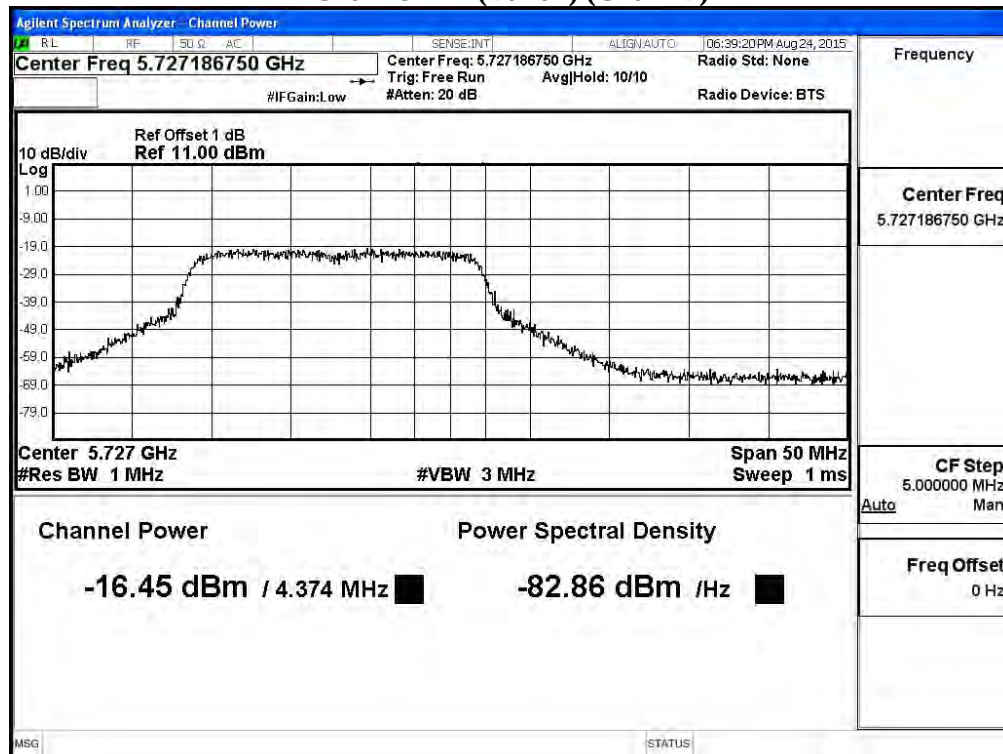
Channel 144 (Band3) (Chain A)



Channel 144 (Band4) (Chain B)



Channel 144 (Band4) (Chain B)



Product : 802.11 ac PCIE Module
Test Item : Maximum conducted output power
Test Site : No.3 OATS
Test Mode : Mode 11: Transmit (802.11ac-40BW-30Mbps)(Grid DISH Antenna)

Chain A

Cable loss=1dB		Maximum conducted output power								
Channel No.	Frequency (MHz)	Data Rate (Mbps)								
		VTH0	VTH1	VTH2	VTH3	VTH4	VTH5	VTH6	VTH7	VTH8
		Measurement Level (dBm)								
142F(Band3)	5710	-12.24	-12.32	-12.4	-12.47	-12.55	-12.63	-12.72	-12.81	-12.93
142F(Band4)	5710	-22.67	-22.78	-23	-23.08	-23.15	-23.22	-23.29	-23.35	-23.4

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)								
		VTH0	VTH1	VTH2	VTH3	VTH4	VTH5	VTH6	VTH7	VTH8
		Measurement Level (dBm)								
142F(Band3)	5710	-11.98	-12.06	-12.15	-12.24	-12.35	-12.43	-12.52	-12.6	-12.68
142F(Band4)	5710	-21.66	-21.74	-21.82	-21.94	-22.07	-22.15	-22.24	-22.36	-22.39

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

Maximum conducted output power Measurement:

CHAIN A+B

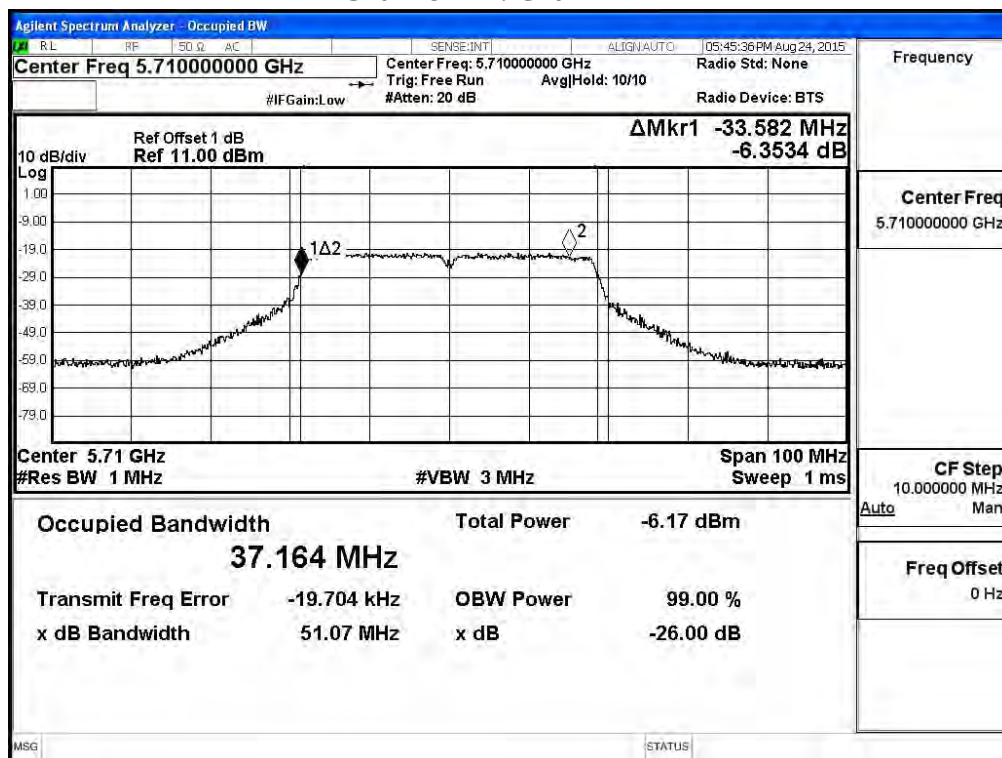
Channel No	Frequency Range (MHz)	99% Bandwidth (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	Output Power Limit		Result
						(dBm)	dBm+10log(BW)	
142F(Band3)	5710	33.568	-12.24	-11.98	-9.10	-3.5	26.26	Pass
142F(Band4)	5710	3.567	-22.67	-21.66	-19.13	30	16.52	Pass

Note:

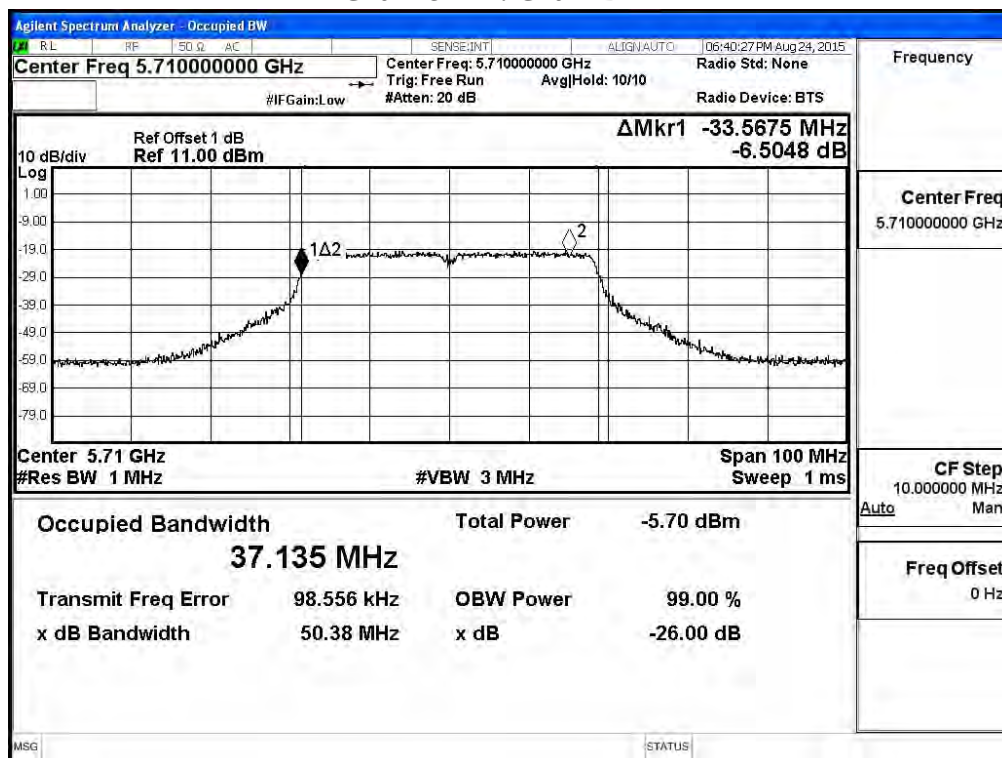
1. Power Output Value =Reading value on average power meter + cable loss.
2. Output Power (dBm) = 10LOG (Chain A Power (mW) + Chain B Power (mW)).
3. 99% Bandwidth is the bandwidth of chain A or chain B whichever is less bandwidth, output power limitation is more stringent.

99% Occupied Bandwidth:

Channel 142: Chain A

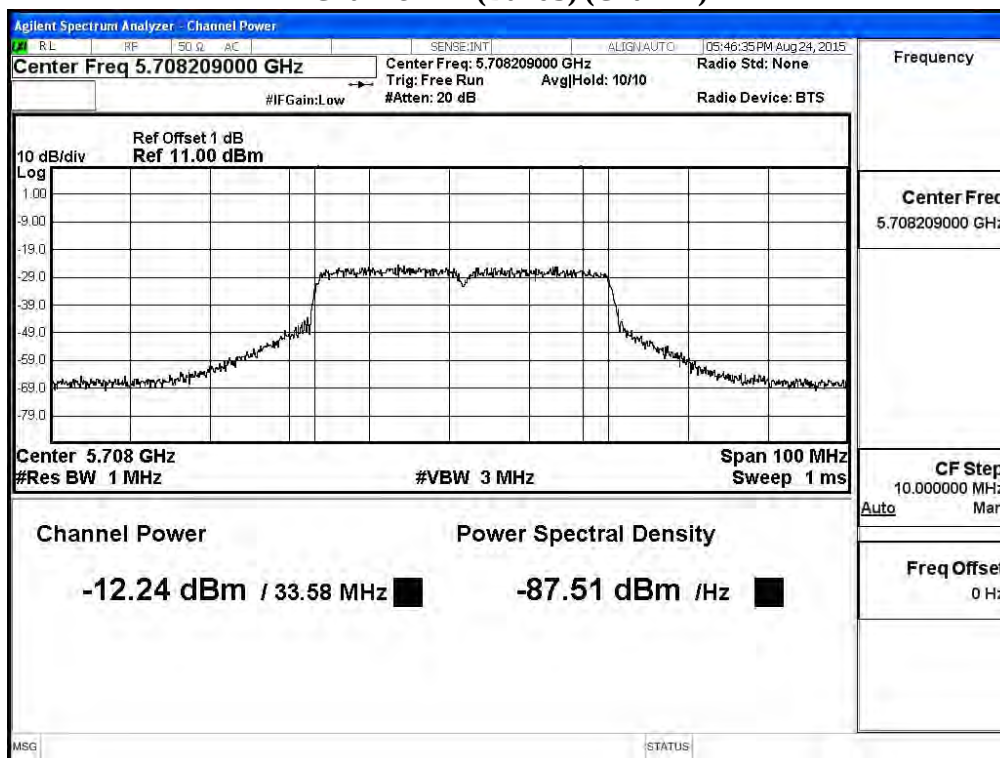


Channel 142: Chain B

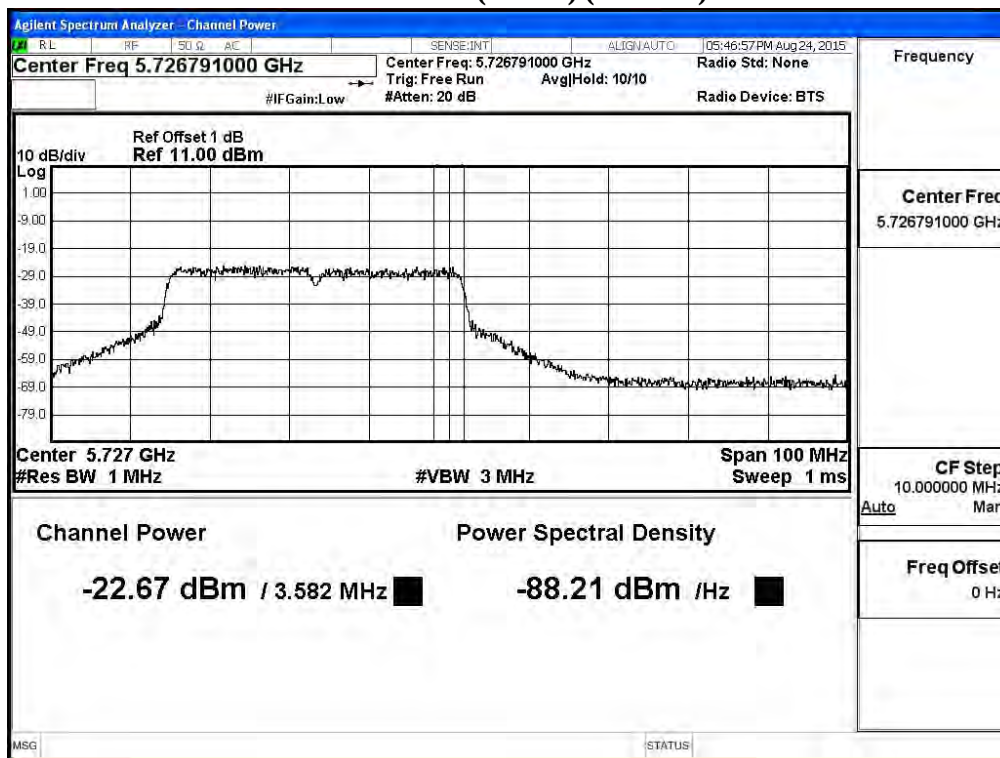


Maximum conducted output power:

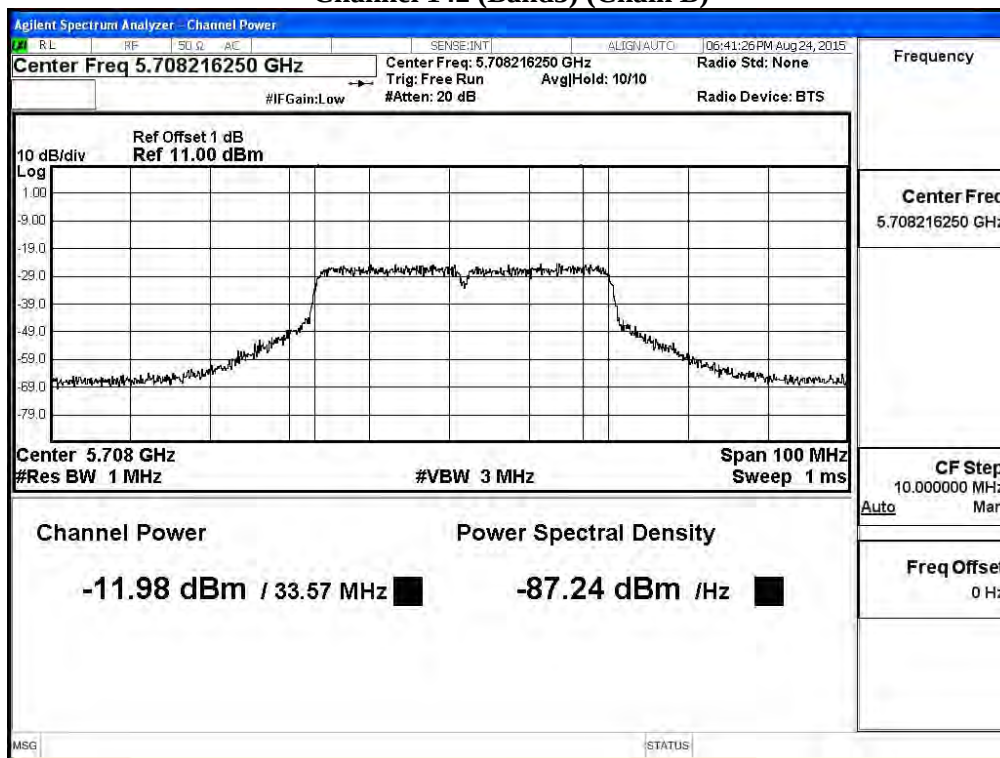
Channel 142 (Band3) (Chain A)



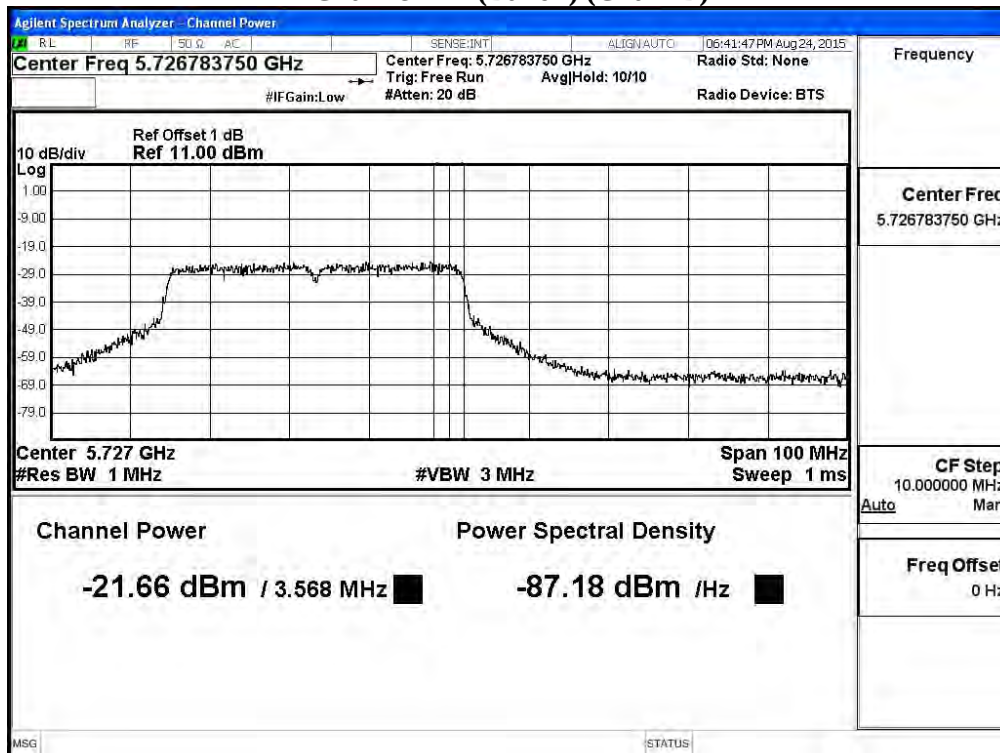
Channel 142 (Band4) (Chain A)



Channel 142 (Band3) (Chain B)



Channel 142 (Band4) (Chain B)



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)(Grid DISH Antenna)

Chain A

Cable loss=1dB		Maximum conducted output power									
Channel No	Frequency (MHz)	Data Rate (Mbps)									
		VTH0	VTH1	VTH2	VTH3	VTH4	VTH5	VTH6	VTH7	VTH8	VTH9
58	5290	-7.49	-7.57	-7.64	-7.71	-7.84	-7.9	-8.02	-8.1	-8.21	-8.28
106	5530	-6.82	-6.91	-6.98	-7.08	-7.16	-7.21	-7.32	-7.4	-7.49	-7.58
122	5610	-6.89	-6.97	-7.09	-7.18	-7.26	-7.3	-7.41	-7.55	-7.61	-7.72
138(Band3)	5690	-6.67	-6.74	-6.83	-6.89	-6.99	-7.06	-7.14	-7.26	-7.34	-7.45
138(Band4)	5690	-22.59	-22.86	-22.93	-23.02	-23.1	-23.27	-23.37	-23.43	-23.49	-23.55

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)									
		VTH0	VTH1	VTH2	VTH3	VTH4	VTH5	VTH6	VTH7	VTH8	VTH9
58	5290	-6.26	-6.34	-6.42	-6.51	-6.6	-6.68	-6.75	-6.82	-6.93	-7
106	5530	-7.99	-8.07	-8.14	-8.24	-8.33	-8.41	-8.45	-8.62	-8.68	-8.75
122	5610	-6.9	-6.98	-7.1	-7.19	-7.27	-7.31	-7.42	-7.56	-7.62	-7.73
138(Band3)	5690	-6.61	-6.69	-6.76	-6.87	-6.96	-7.02	-7.1	-7.16	-7.28	-7.37
138(Band4)	5690	-20.81	-20.92	-21.05	-21.12	-21.25	-21.34	-21.48	-21.55	-21.67	-21.78

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

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

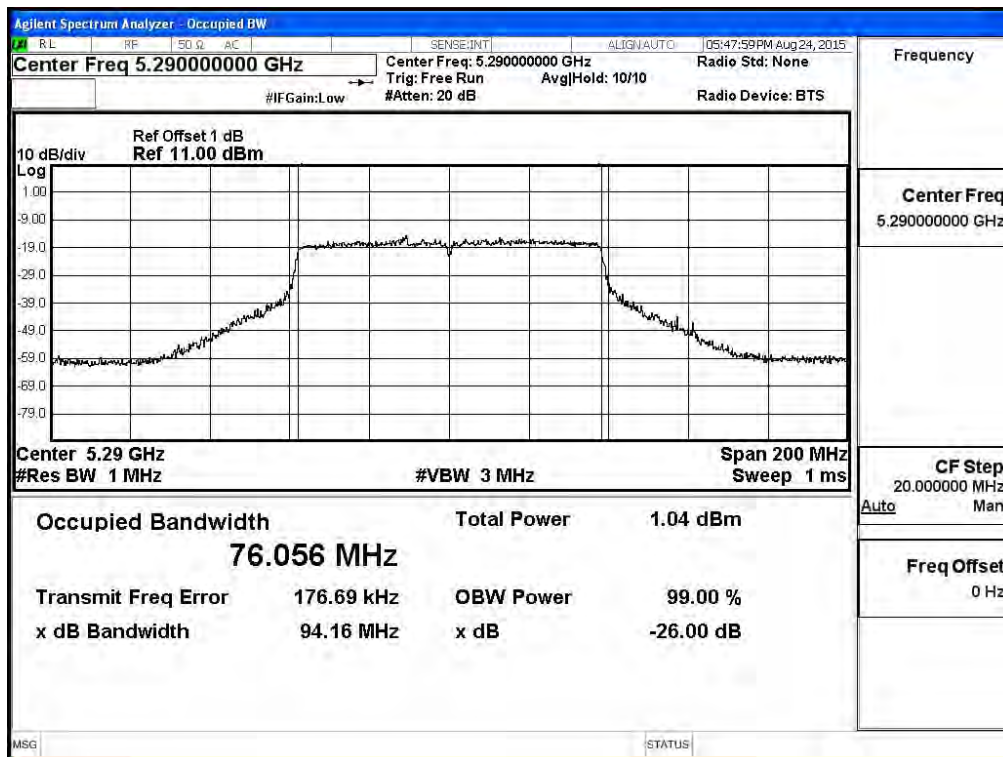
Channel No	Frequency Range (MHz)	99% Bandwidth (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	Output Power Limit		Result
						(dBm)	dBm+10log(BW)	
58	5290	76.056	-7.49	-6.26	-3.82	-3.5	29.81	Pass
106	5530	75.874	-6.82	-7.99	-4.36	-3.5	29.80	Pass
122	5610	76.156	-6.89	-6.90	-3.88	-3.5	29.82	Pass
138(Band3)	5690	72.991	-6.67	-6.61	-3.63	-3.5	29.63	Pass
138(Band4)	5690	2.991	-22.59	-20.81	-18.60	30	21.76	Pass

Note:

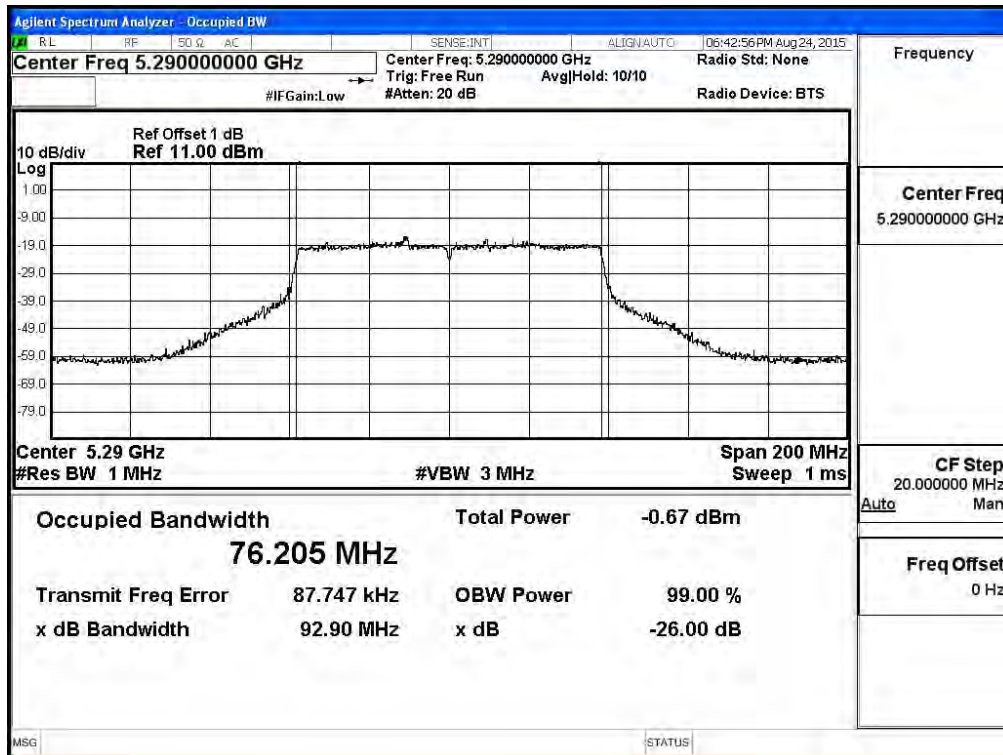
1. Power Output Value = Reading value on average power meter + cable loss.
2. Output Power (dBm) = 10LOG (Chain A Power (mW) + Chain B Power (mW)).
3. 99% Bandwidth is the bandwidth of chain A or chain B whichever is less bandwidth, output power limitation is more stringent.

99% Occupied Bandwidth:

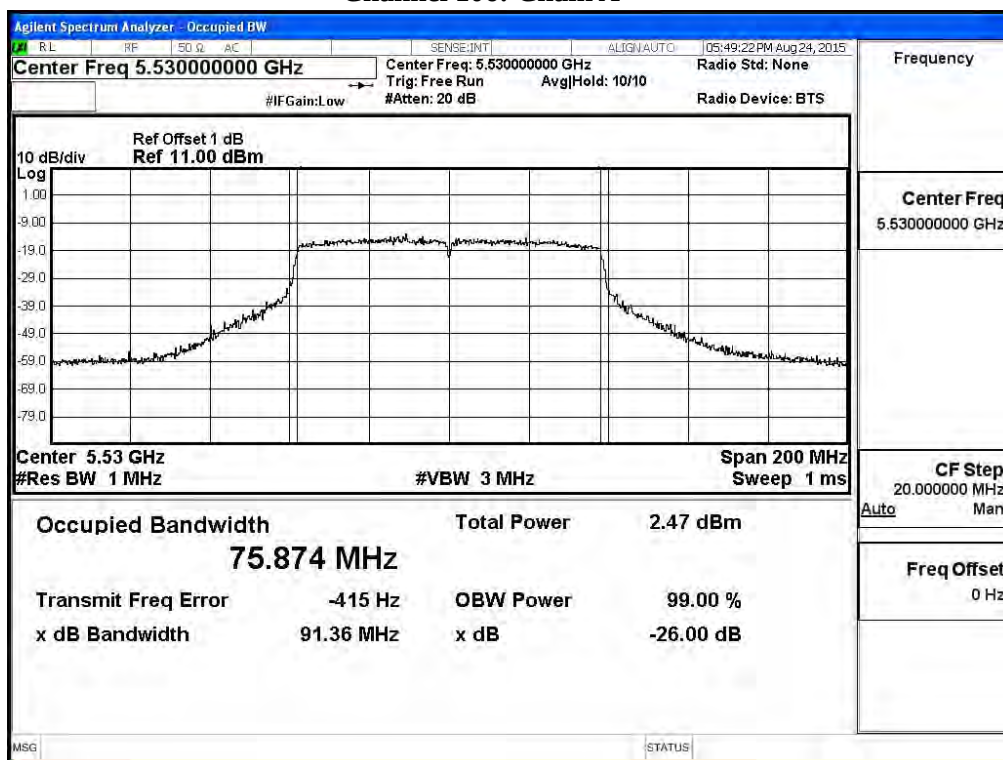
Channel 58: Chain A



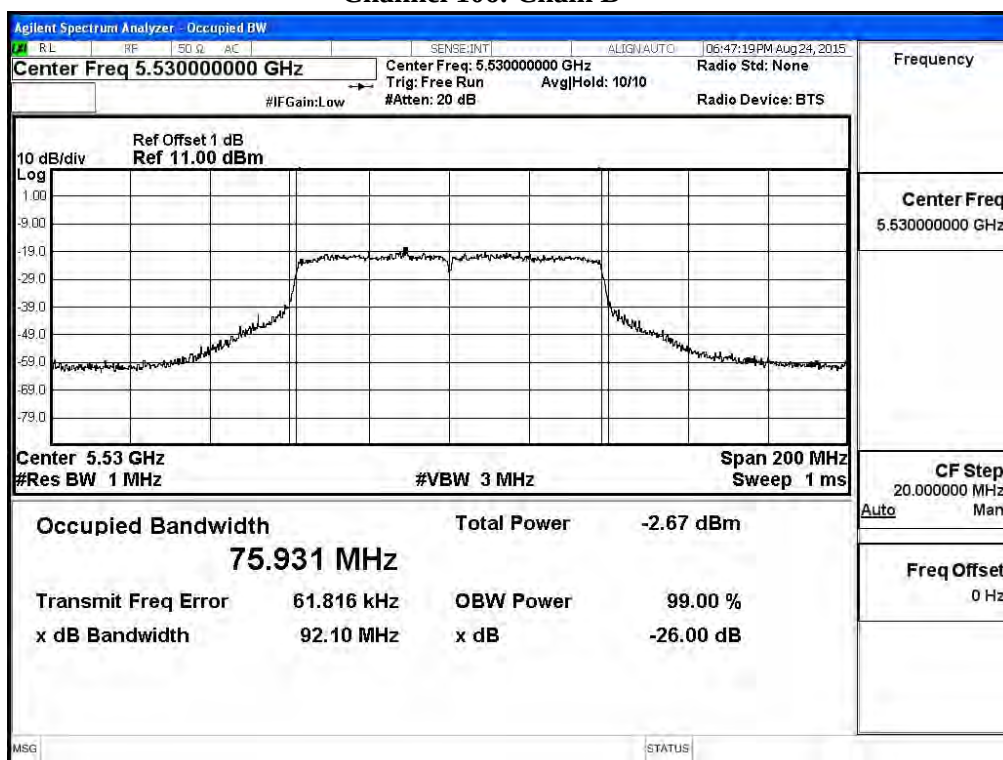
Channel 58: Chain B



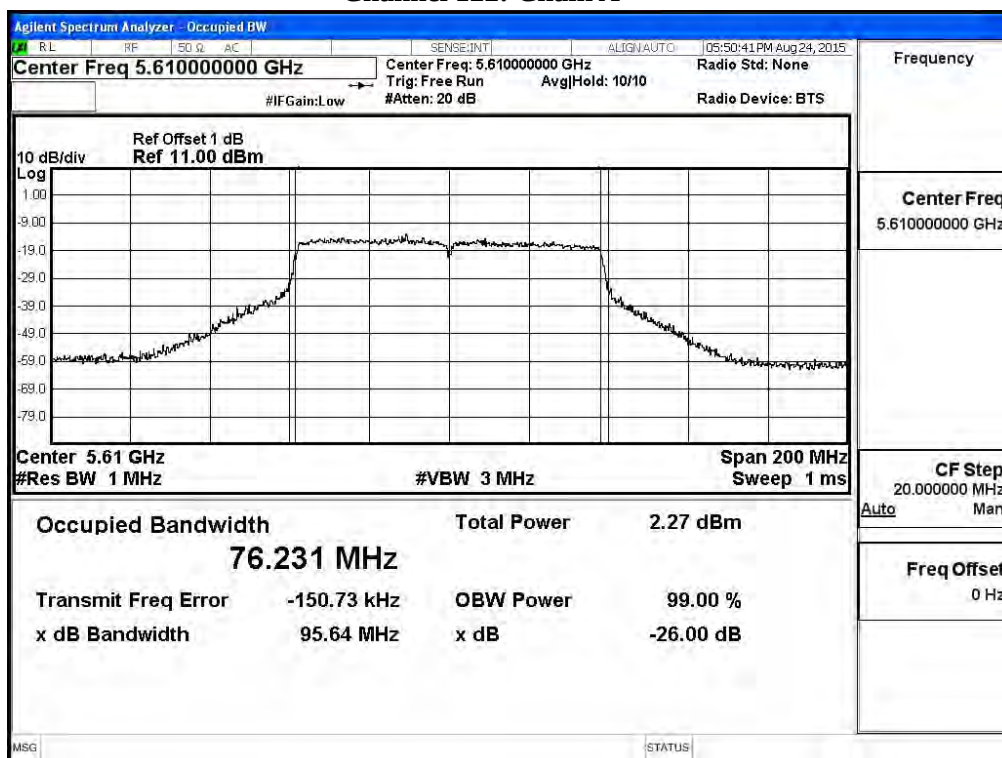
Channel 106: Chain A



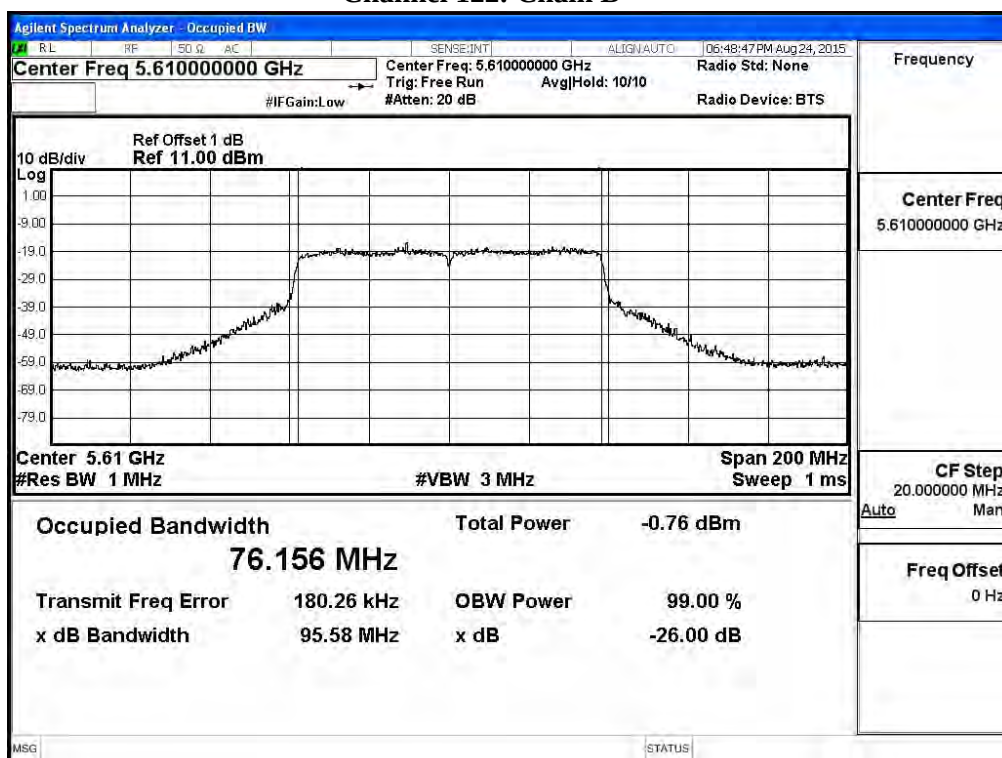
Channel 106: Chain B



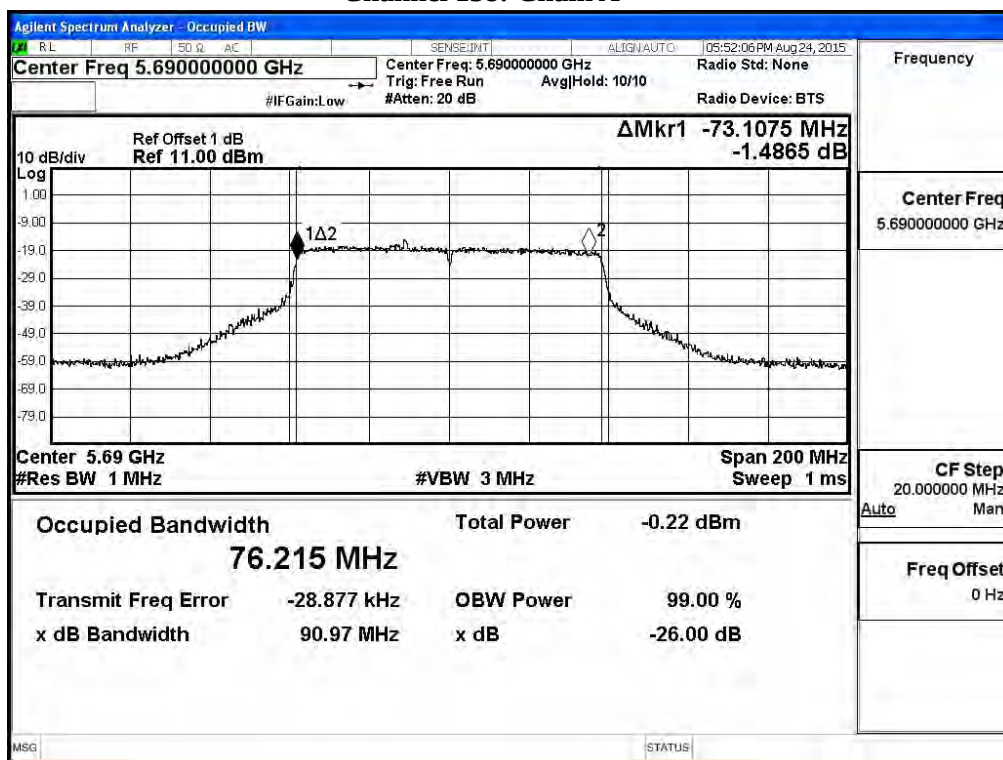
Channel 122: Chain A



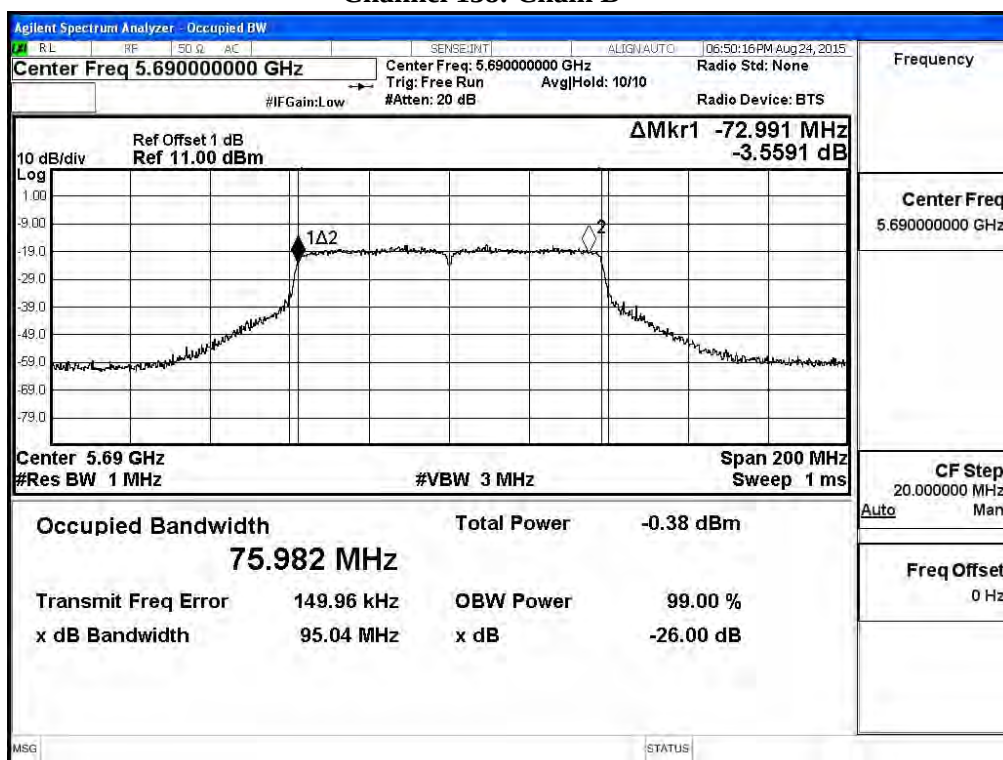
Channel 122: Chain B



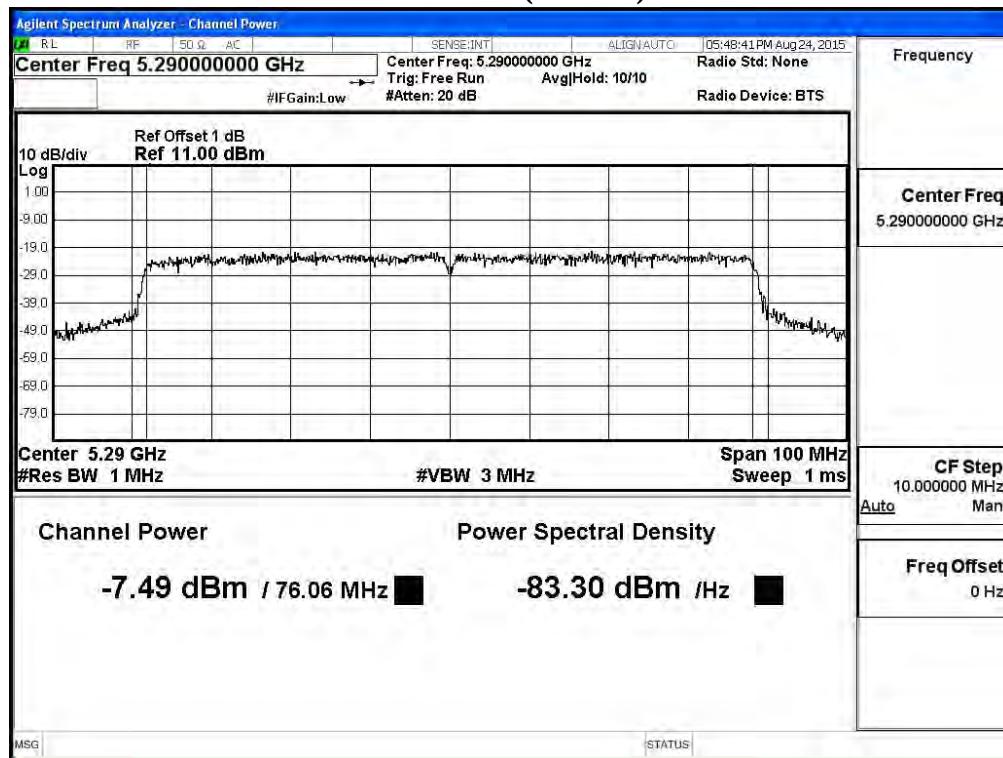
Channel 138: Chain A



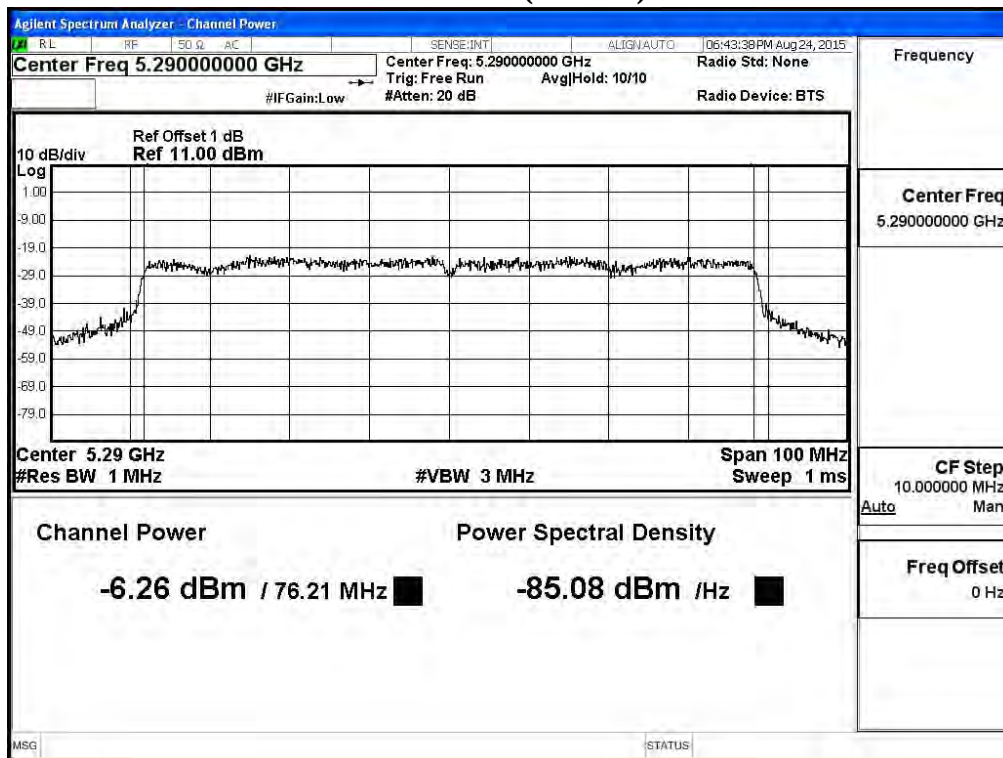
Channel 138: Chain B



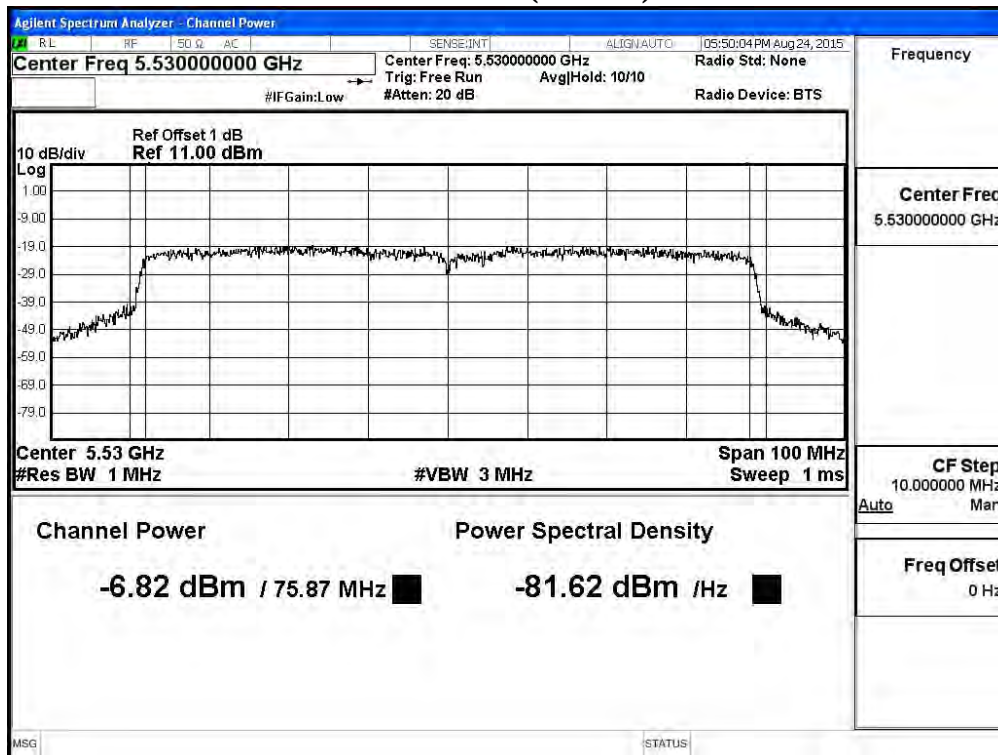
Maximum conducted output power:
 Channel 58 (Chain A)



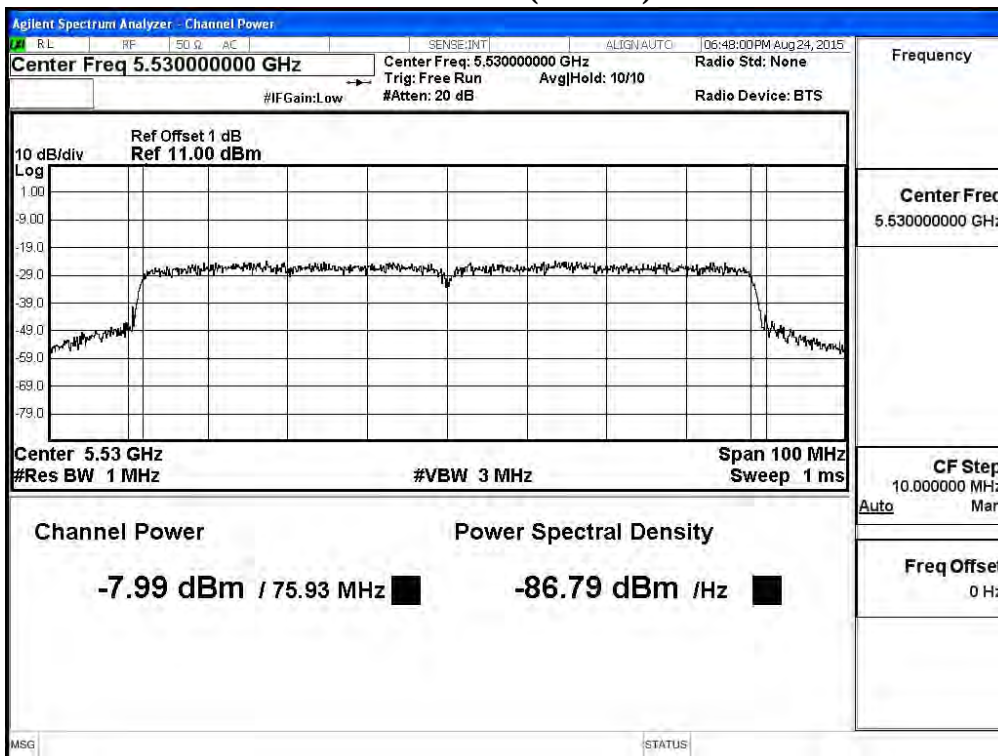
Channel 58 (Chain B)



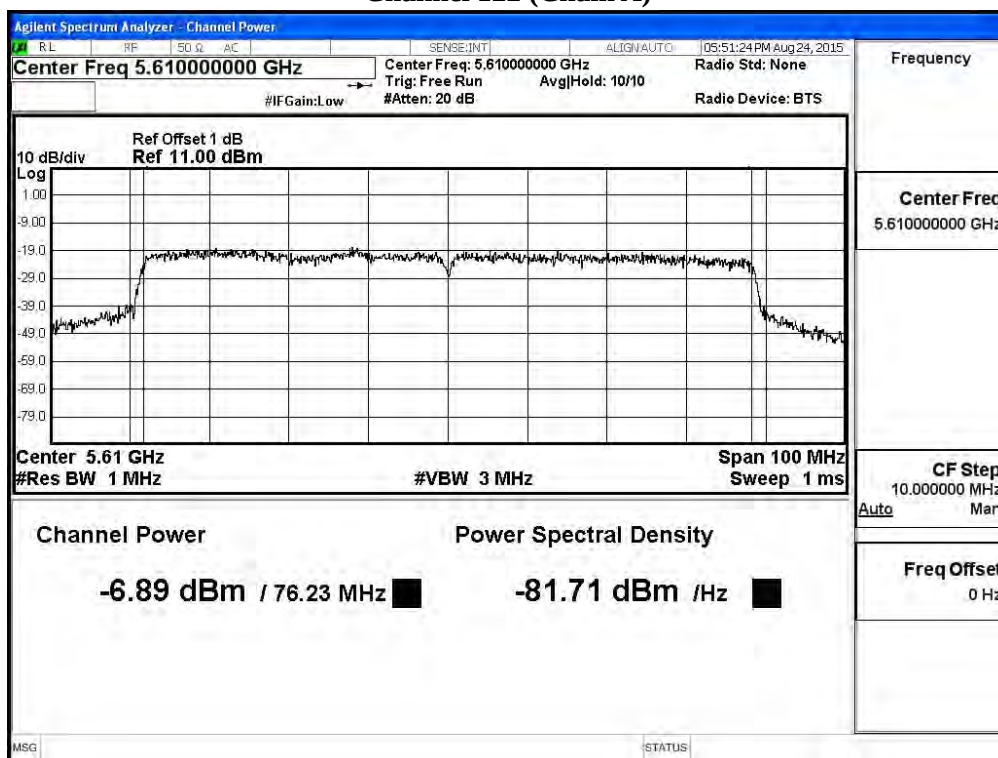
Channel 106 (Chain A)



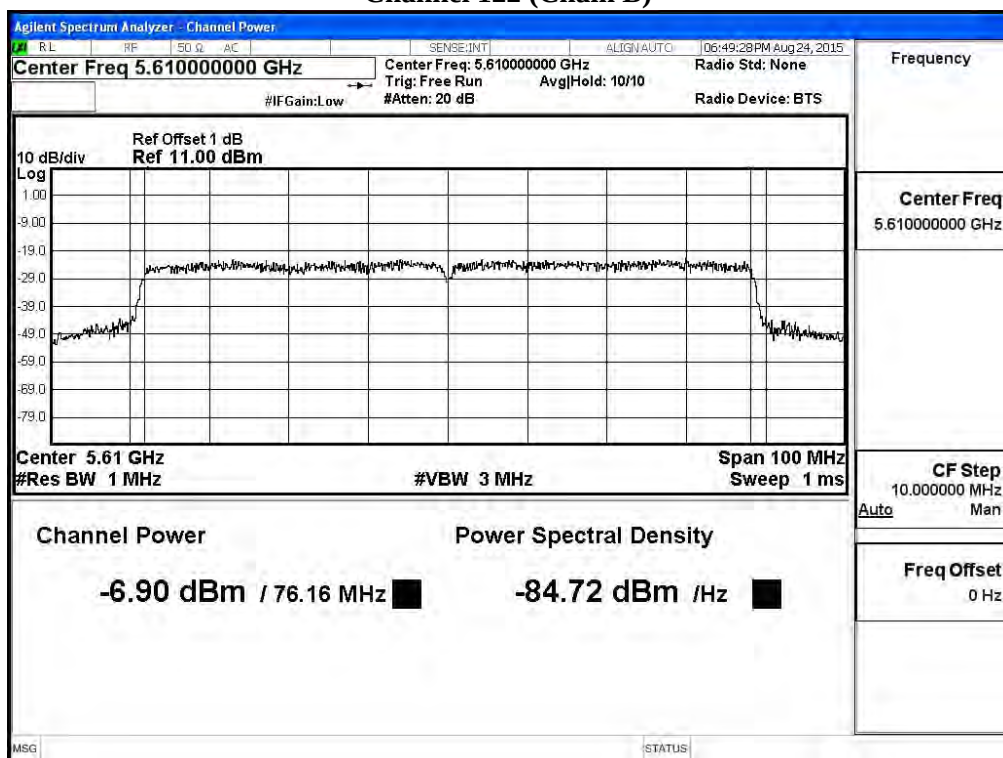
Channel 106 (Chain B)



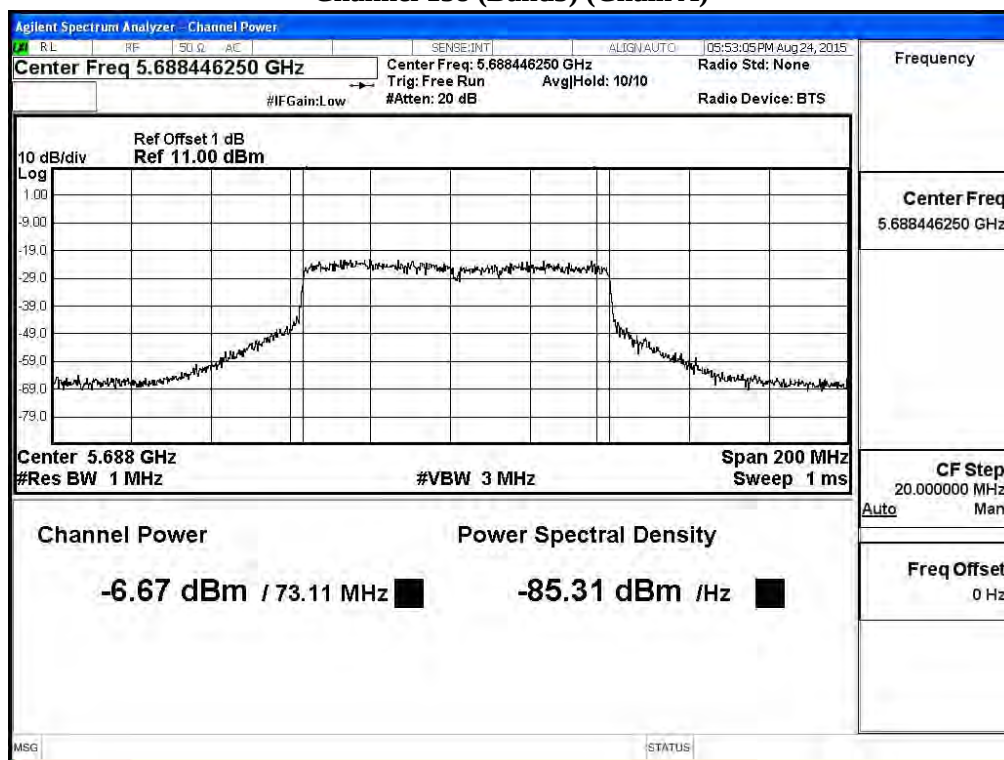
Channel 122 (Chain A)



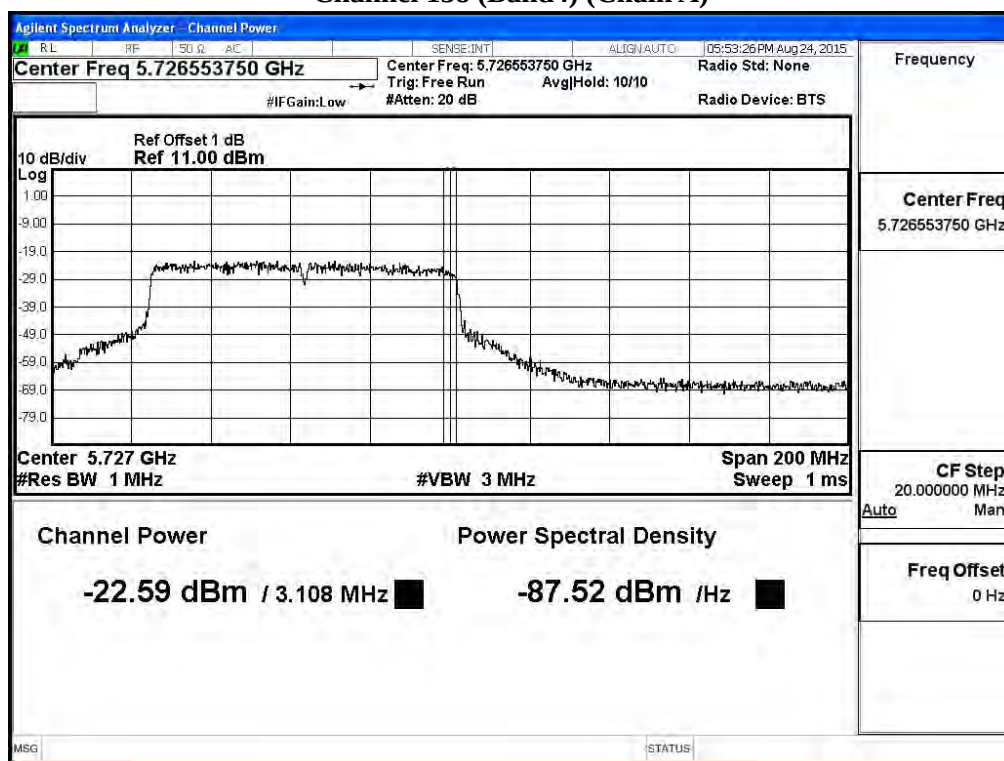
Channel 122 (Chain B)



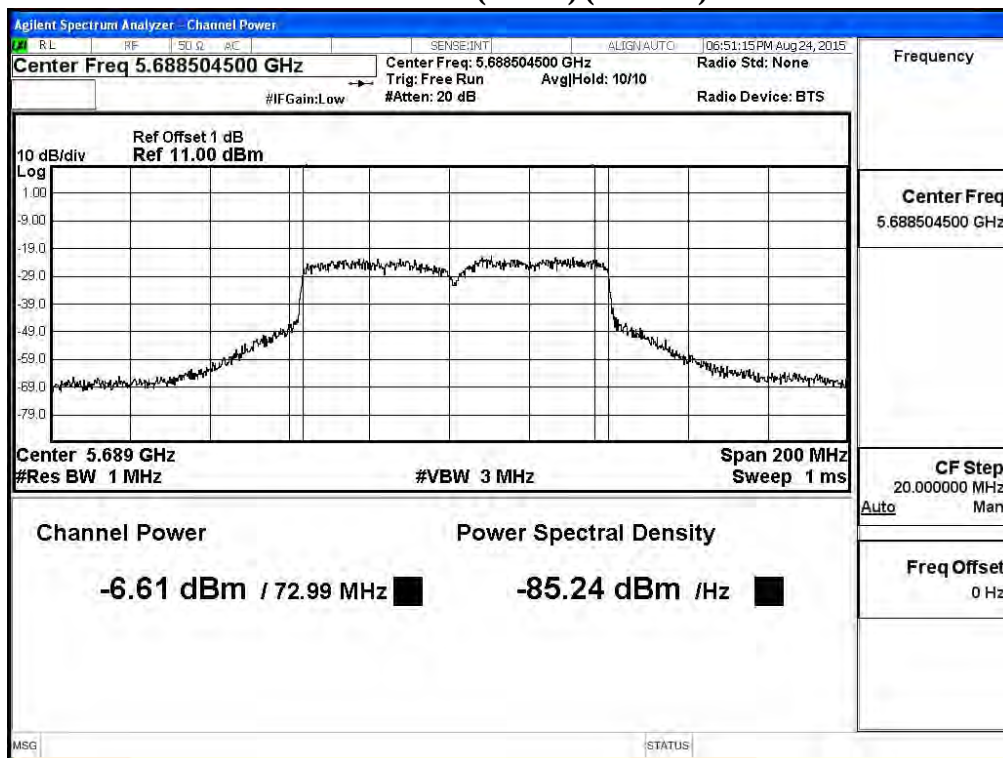
Channel 138 (Band3) (Chain A)



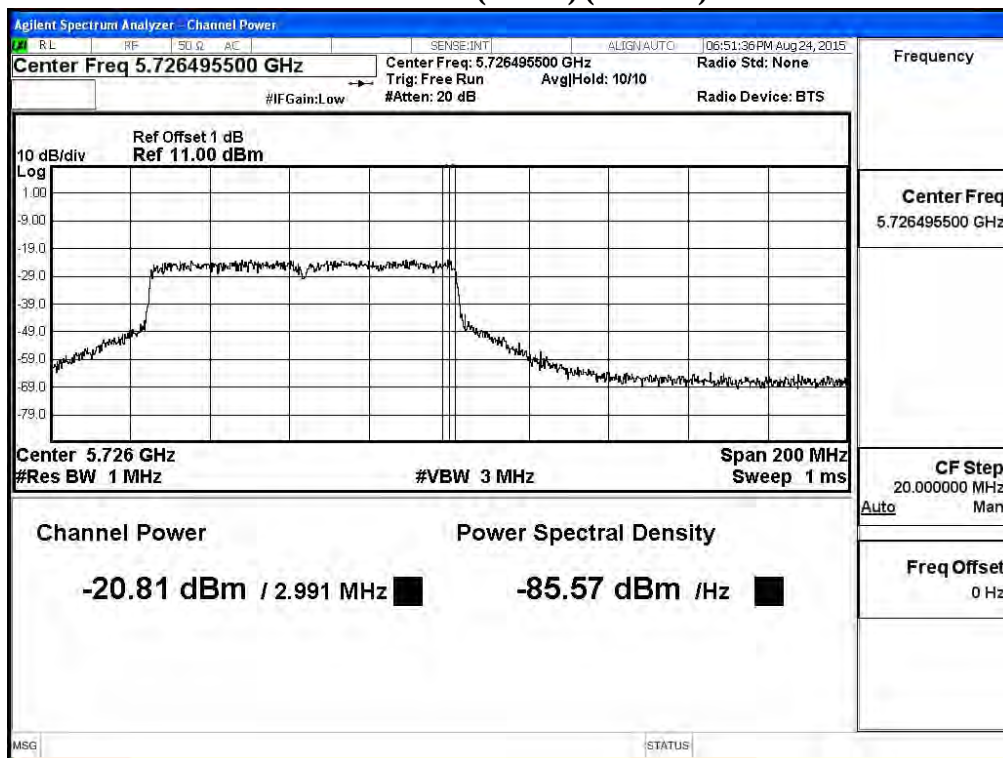
Channel 138 (Band4) (Chain A)



Channel 138 (Band3) (Chain B)



Channel 138 (Band4) (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)(Omni Antenna)

CHAIN A

Cable loss=1dB		Maximum conducted output power							
Channel No.	Frequency (MHz)	Data Rate (Mbps)							
		6	9	12	18	24	36	48	54
		Measurement Level (dBm)							
52	5260	9.88	9.74	9.57	9.48	9.36	9.24	9.16	9.05
60	5300	9.79	--	--	--	--	--	--	--
64	5320	9.82	--	--	--	--	--	--	--
100	5500	9.19	--	--	--	--	--	--	--
116	5580	15.66	15.55	15.44	15.35	15.23	15.1	14.98	14.87
140	5700	9.89	--	--	--	--	--	--	--

Note: 1.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)							
		6	9	12	18	24	36	48	54
		Measurement Level (dBm)							
52	5260	8.87	8.76	8.62	8.54	8.41	8.3	8.17	8.08
60	5300	8.68	--	--	--	--	--	--	--
64	5320	8.67	--	--	--	--	--	--	--
100	5500	3.75	--	--	--	--	--	--	--
116	5580	11.37	11.25	11.12	11.03	10.92	10.78	10.67	10.55
140	5700	10.57	--	--	--	--	--	--	--

Note: 1.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)	99% Bandwidth (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Total Power (dBm)	Output power Limit	
						(dBm)	dBm+10log(BW)
52	5260	17.581	9.88	8.87	12.41	20	23.45
60	5300	17.646	9.79	8.68	12.28	20	23.47
64	5320	17.590	9.82	8.67	12.29	20	23.45
100	5500	17.603	9.19	3.75	10.28	20	23.46
116	5580	17.611	15.66	11.37	17.03	20	23.46
140	5700	17.616	9.89	10.57	13.25	20	23.46

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)).
3. 99% Bandwidth is the bandwidth of chain A or chain B whichever is less bandwidth, output power limitation is more stringent.