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FCC RADIO TEST REPORT

Applicant's company	**Xirrus, Inc.**
Applicant Address	2101 Corporate Center Drive, Thousand Oaks, CA 91320 USA
FCC ID	**SK6-XDR240**
Manufacturer's company	**Lite-On Network Communication (Dongguan) Limited**
Manufacturer Address	30#Keji Rd.,Yin Hu Industrial Area, Qingxi Town, DongGuan City, Guangdong, China

Product Name	Wireless Access Point Radio module
Brand Name	XIRRUS
Model No.	XDR240
Test Rule Part(s)	47 CFR FCC Part 15 Subpart E § 15.407
Test Freq. Range	5250 ~ 5350MHz / 5470 ~ 5725MHz
Received Date	Dec. 10, 2015
Final Test Date	May 12, 2016
Submission Type	Class II Change

Statement

Test result included is for the IEEE 802.11n and IEEE 802.11a/ac of the product.

The test result in this report refers exclusively to the presented test model / sample.

Without written approval of SPORTON International Inc., the test report shall not be reproduced except in full.

The measurements and test results shown in this test report were made in accordance with the procedures and found in compliance with the limit given in **ANSI C63.10-2013**, **47 CFR FCC Part 15 Subpart E, KDB789033 D02 v01r02, KDB662911 D01 v02r01, KDB644545 D03 v01.**

The test equipment used to perform the test is calibrated and traceable to NML/ROC.

Testing Laboratory
1190

Table of Contents

History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR5D1826-01	Rev. 01	Initial issue of report	Jun. 02, 2016

1. VERIFICATION OF COMPLIANCE

Product Name	:	Wireless Access Point Radio module
Brand Name	:	XIRRUS
Model No.	:	XDR240
Applicant	:	Xirrus, Inc.
Test Rule Part(s)	:	47 CFR FCC Part 15 Subpart E § 15.407

Sporton International as requested by the applicant to evaluate the EMC performance of the product sample received on Dec. 10, 2015 would like to declare that the tested sample has been evaluated and found to be in compliance with the tested rule parts. The data recorded as well as the test configuration specified is true and accurate for showing the sample's EMC nature.

Sam Chen

SPORTON INTERNATIONAL INC.

2. SUMMARY OF THE TEST RESULT

Applied Standard: 47 CFR FCC Part 15 Subpart E				
Part	**Rule Section**	**Description of Test**	**Result**	**Under Limit**
4.1	15.407(a)	26dB Spectrum Bandwidth and 99% Occupied Bandwidth	Complies	-
4.2	15.407(e)	6dB Spectrum Bandwidth	Complies	-
4.3	15.407(a)	Maximum Conducted Output Power	Complies	0.04 dB
4.4	15.407(a)	Power Spectral Density	Complies	0.03 dB
4.5	15.407(b)	Radiated Emissions	Complies	2.65 dB
4.6	15.407(b)	Band Edge Emissions	Complies	0.02 dB
4.7	15.407(g)	Frequency Stability	Complies	-
4.8	15.203	Antenna Requirements	Complies	-

Note: 1. The EUT is a limited module which only limited to the Wireless Access Point (brand: XIRRUS / model: XD4240).

2. The EUT was installed to the Wireless Access Point (brand: XIRRUS / model: XD4240) to perform all the tests.

3. GENERAL INFORMATION

3.1. Product Details

Items	Description
Product Type	WLAN (4TX, 4RX)
Radio Type	Intentional Transceiver
Power Type	From host system
Modulation	IEEE 802.11a: OFDM IEEE 802.11n/ac: see the below table
Data Modulation	IEEE 802.11a/n: OFDM (BPSK / QPSK / 16QAM / 64QAM) IEEE 802.11ac: OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM, 1024QAM)
Data Rate (Mbps)	IEEE 802.11a: OFDM (6/9/12/18/24/36/48/54) IEEE 802.11n/ac: see the below table
Frequency Range	5250 ~ 5350MHz / 5470 ~ 5725MHz
Channel Number	16 for 20MHz bandwidth ; 8 for 40MHz bandwidth 4 for 80MHz bandwidth
Channel Band Width (99%)	For non-beamforming function: Band 2: IEEE 802.11a: 16.50 MHz IEEE 802.11ac MCS0/Nss1 (VHT20): 18.06 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 36.61 MHz IEEE 802.11ac MCS0/Nss1 (VHT80): 75.25 MHz Band 3: IEEE 802.11a: 16.76 MHz IEEE 802.11ac MCS0/Nss1 (VHT20): 18.23 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 36.76 MHz IEEE 802.11ac MCS0/Nss1 (VHT80): 75.25 MHz For beamforming function: Band 2: IEEE 802.11ac MCS0/Nss1 (VHT20): 18.15 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 37.05 MHz IEEE 802.11ac MCS0/Nss1 (VHT80): 75.83 MHz Band 3: IEEE 802.11ac MCS0/Nss1 (VHT20): 18.15 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 36.90 MHz IEEE 802.11ac MCS0/Nss1 (VHT80): 75.83 MHz

Maximum Conducted Output Power	For non-beamforming function: Band 2: IEEE 802.11a: 20.35 dBm IEEE 802.11ac MCS0/Nss1 (VHT20): 20.35 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 23.41 dBm IEEE 802.11ac MCS0/Nss1 (VHT80): 17.84 dBm Band 3: IEEE 802.11a: 18.85 dBm IEEE 802.11ac MCS0/Nss1 (VHT20): 19.00 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 21.90 dBm IEEE 802.11ac MCS0/Nss1 (VHT80): 22.03 dBm For beamforming function: Band 2: IEEE 802.11ac MCS0/Nss1 (VHT20): 18.58 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 18.57 dBm IEEE 802.11ac MCS0/Nss1 (VHT80): 17.04 dBm Band 3: IEEE 802.11ac MCS0/Nss1 (VHT20): 18.67 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 18.67 dBm IEEE 802.11ac MCS0/Nss1 (VHT80): 18.70 dBm
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

Items	Description	
Communication Mode	☒ IP Based (Load Based)	☐ Frame Based
TPC Function	☒ With TPC	☐ Without TPC
Weather Band (5600~5650MHz)	☒ With 5600~5650MHz	☐ Without 5600~5650MHz
Beamforming Function	☒ With beamforming	☐ Without beamforming
	The product has beamforming function for 802.11n in 5GHz band / 802.11ac in 2.4GHz band and 5GHz band.	
Operate Condition	☒ Indoor	☐ Outdoor

Antenna and Band width

Antenna	Four (TX)		
Band width Mode	20 MHz	40 MHz	80 MHz
IEEE 802.11a	V	X	X
IEEE 802.11n	V	V	X
IEEE 802.11ac	V	V	V

IEEE 11n/ac Spec.

Protocol	Number of Transmit Chains (NTX)	Data Rate / MCS
802.11n (HT20)	4	MCS 0-31
802.11n (HT40)	4	MCS 0-31
802.11ac (VHT20)	4	MCS0-11/Nss1-4
802.11ac (VHT40)	4	MCS0-11/Nss1-4
802.11ac (VHT80)	4	MCS0-11/Nss1-4

Note 1: IEEE Std. 802.11n modulation consists of HT20 and HT40 (HT: High Throughput). Then EUT supports HT20 and HT40.

Note 2: IEEE Std. 802.11ac modulation consists of VHT20, VHT40, VHT80 and VHT160 (VHT: Very High Throughput). Then EUT supports VHT20, VHT40 and VHT80.

Note 3: Modulation modes consist of below configuration:
HT20/HT40: IEEE 802.11n, VHT20/VHT40/VHT80: IEEE 802.11ac

3.2. Accessories

N/A

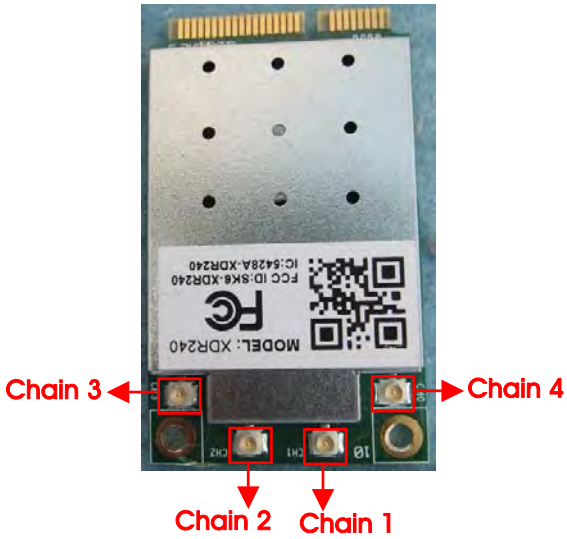
3.3. Table for Filed Antenna

Ant.	Brand	Model No.	Type	Connector	Gain (dBi)				
					2.4GHz Band	5GHz Band 1	5GHz Band 2	5GHz Band 3	5GHz Band 4
1	Walsin	30100006976D	PIFA	I-PEX	-3.0	3.8	2.8	4.2	4.3
2	Walsin	30100006976D	PIFA	I-PEX	-1.1	4.6	4.8	5.6	2.4
3	Walsin	30100006976D	PIFA	I-PEX	-0.6	4.6	4.0	5.5	4.7
4	Walsin	30100006976D	PIFA	I-PEX	3.9	1.5	3.1	5.5	5.2

Note: The EUT has four antennas (4TX, 4RX).

Chain 1, Chain 2, Chain 3 and Chain 4 could transmit/receive simultaneously.

Chain 1: Connect to Ant. 1, Chain 2: Connect to Ant. 2, Chain 3: Connect to Ant. 3, Chain 4: Connect to Ant. 4.



3.4. Table for Carrier Frequencies

There are three bandwidth systems.

For 20MHz bandwidth systems, use Channel 52, 56, 60, 64, 100, 104, 108, 112, 116, 120, 124, 128, 132, 136, 140, 144.

For 40MHz bandwidth systems, use Channel 54, 62, 102, 110, 118, 126, 134, 142.

For 80MHz bandwidth systems, use Channel 58, 106, 122, 138.

Frequency Band	Channel No.	Frequency	Channel No.	Frequency
5250~5350 MHz Band 2	52	5260 MHz	60	5300 MHz
	54	5270 MHz	62	5310 MHz
	56	5280 MHz	64	5320 MHz
	58	5290 MHz	-	-
5470~5725 MHz Band 3	100	5500 MHz	124	5620 MHz
	102	5510 MHz	126	5630 MHz
	104	5520 MHz	128	5640 MHz
	106	5530 MHz	132	5660 MHz
	108	5540 MHz	134	5670 MHz
	110	5550 MHz	136	5680 MHz
	112	5560 MHz	138	5690 MHz
	116	5580 MHz	140	5700 MHz
	118	5590 MHz	142	5710 MHz
	120	5600 MHz	144	5720 MHz
	122	5610 MHz	-	-

3.5. Table for Test Modes

Preliminary tests were performed in different data rate to find the worst radiated emission. The data rate shown in the table below is the worst-case rate with respect to the specific test item. Investigation has been done on all the possible configurations for searching the worst cases. The following table is a list of the test modes shown in this test report.

Test Items	Mode		Data Rate	Channel	Chain
Max. Conducted Output Power	For non-beamforming function:				
	11a/BPSK	Band 2-3	6Mbps	52/60/64/100/116/140/144	1+2+3+4
	11ac VHT20	Band 2-3	MCS0/Nss1	52/60/64/100/116/140/144	1+2+3+4
	11ac VHT40	Band 2-3	MCS0/Nss1	54/62/102/110/134/142	1+2+3+4
	11ac VHT80	Band 2-3	MCS0/Nss1	58/106/122/138	1+2+3+4
	For beamforming function:				
	11ac VHT20	Band 2-3	MCS0/Nss1	52/60/64/100/116/140/144	1+2+3+4
	11ac VHT40	Band 2-3	MCS0/Nss1	54/62/102/110/134/142	1+2+3+4
	11ac VHT80	Band 2-3	MCS0/Nss1	58/106/122/138	1+2+3+4
Power Spectral Density	For non-beamforming function:				
	11a/BPSK	Band 2-3	6Mbps	52/60/64/100/116/140/144	1+2+3+4
	11ac VHT20	Band 2-3	MCS0/Nss1	52/60/64/100/116/140/144	1+2+3+4
	11ac VHT40	Band 2-3	MCS0/Nss1	54/62/102/110/134/142	1+2+3+4
	11ac VHT80	Band 2-3	MCS0/Nss1	58/106/122/138	1+2+3+4
	For beamforming function:				
	11ac VHT20	Band 2-3	MCS0/Nss1	52/60/64/100/116/140/144	1+2+3+4
	11ac VHT40	Band 2-3	MCS0/Nss1	54/62/102/110/134/142	1+2+3+4
	11ac VHT80	Band 2-3	MCS0/Nss1	58/106/122/138	1+2+3+4

26dB Spectrum Bandwidth 99% Occupied Bandwidth Measurement	For non-beamforming function:				
	11a/BPSK	Band 2-3	6Mbps	52/60/64/100/ 116/140/144	1+2+3+4
	11ac VHT20	Band 2-3	MCS0/Nss1	52/60/64/100/ 116/140/144	1+2+3+4
	11ac VHT40	Band 2-3	MCS0/Nss1	54/62/102/110/ 134/142	1+2+3+4
	11ac VHT80	Band 2-3	MCS0/Nss1	58/106/122/138	1+2+3+4
	For beamforming function:				
	11ac VHT20	Band 2-3	MCS0/Nss1	52/60/64/100/ 116/140/144	1+2+3+4
	11ac VHT40	Band 2-3	MCS0/Nss1	54/62/102/110/ 134/142	1+2+3+4
	11ac VHT80	Band 2-3	MCS0/Nss1	58/106/122/138	1+2+3+4
6dB Spectrum Bandwidth Measurement	For non-beamforming function:				
	11a/BPSK	Band 4	6Mbps	144	1+2+3+4
	11ac VHT20	Band 4	MCS0/Nss1	144	1+2+3+4
	11ac VHT40	Band 4	MCS0/Nss1	142	1+2+3+4
	11ac VHT80	Band 4	MCS0/Nss1	138	1+2+3+4
	For beamforming function:				
	11ac VHT20	Band 4	MCS0/Nss1	144	1+2+3+4
	11ac VHT40	Band 4	MCS0/Nss1	142	1+2+3+4
	11ac VHT80	Band 4	MCS0/Nss1	138	1+2+3+4
Radiated Emission Above 1GHz	For non-beamforming function:				
	11a/BPSK	Band 2-3	6Mbps	52/60/64/100/ 116/140/144	1+2+3+4
	11ac VHT20	Band 2-3	MCS0/Nss1	52/60/64/100/ 116/140/144	1+2+3+4
	11ac VHT40	Band 2-3	MCS0/Nss1	54/62/102/110/ 134/142	1+2+3+4
	11ac VHT80	Band 2-3	MCS0/Nss1	58/106/122/138	1+2+3+4
	For beamforming function:				
	11ac VHT20	Band 2-3	MCS0/Nss1	52/60/64/100/ 116/140/144	1+2+3+4
	11ac VHT40	Band 2-3	MCS0/Nss1	54/62/102/110/ 134/142	1+2+3+4
	11ac VHT80	Band 2-3	MCS0/Nss1	58/106/122/138	1+2+3+4

Band Edge Emission	For non-beamforming function:				
	11a/BPSK	Band 2-3	6Mbps	52/60/64/100/116/140/144	1+2+3+4
	11ac VHT20	Band 2-3	MCS0/Nss1	52/60/64/100/116/140/144	1+2+3+4
	11ac VHT40	Band 2-3	MCS0/Nss1	54/62/102/110/134/142	1+2+3+4
	11ac VHT80	Band 2-3	MCS0/Nss1	58/106/122/138	1+2+3+4
	For beamforming function:				
	11ac VHT20	Band 2-3	MCS0/Nss1	52/60/64/100/116/140/144	1+2+3+4
	11ac VHT40	Band 2-3	MCS0/Nss1	54/62/102/110/134/142	1+2+3+4
	11ac VHT80	Band 2-3	MCS0/Nss1	58/106/122/138	1+2+3+4
Frequency Stability	20 MHz	Band 2-3	-	60/116	1
	40 MHz	Band 2-3	-	62/110	1
	80 MHz	Band 2-3	-	58/106	1

Note: 1. VHT20/VHT40 covers HT20/HT40, due to same modulation. The power setting for 802.11n HT20 and HT40 are the same or lower than 802.11ac VHT20 and VHT40.

2. There are two functions of EUT, one is beamforming function, and the other is non-beamforming function for 802.11n in 5GHz band / 802.11ac in 2.4GHz band and 5GHz band. All test results were recorded in the report.

The following test modes were performed for all tests:

For Radiated Emission test above 1GHz:

The EUT was performed at X axis, Y axis and Z axis position for Radiated emission above 1GHz test, and the worst case was found at Y axis. So the measurement will follow this same test configuration.

Note: The Wireless Access Point (brand: XIRRUS / model: XD4240) will install four radio modules. These four radios will be operated in different bands. If they are used in the same band, the output power of each radio will be reduced to make sure that total power is equal to max output power of single radio module.

3.6. Table for Testing Locations

Test Site Location					
Address:	No.8, Lane 724, Bo-ai St., Jhubei City, Hsinchu County 302, Taiwan, R.O.C.				
TEL:	886-3-656-9065				
FAX:	886-3-656-9085				
Test Site No.	**Site Category**	**Location**	**FCC Designation No.**	**IC File No.**	**VCCI Reg. No**
03CH01-CB	SAC	Hsin Chu	TW0006	IC 4086D	-
TH01-CB	OVEN Room	Hsin Chu	-	-	-

Open Area Test Site (OATS); Semi Anechoic Chamber (SAC).

3.7. Table for Class II Change

This product is an extension of original one reported under Sporton project number: FR5D1826AB

Below is the table for the change of the product with respect to the original one.

Modifications	Performance Checking
Adding 5GHz Band 2 and Band 3 (5250~5350 MHz, 5470~5725 MHz) for this device.	1. 26dB Bandwidth and 99% Occupied Bandwidth Measurement 2. 6dB Spectrum Bandwidth Measurement 3. Maximum Conducted Output Power Measurement 4. Power Spectral Density Measurement 5. Radiated Emissions above 1GHz 6. Band Edge Emissions Measurement 7. Frequency Stability Measurement

3.8. Table for Supporting Units

For Test Site No: 03CH01-CB

For non-beamforming function:

Support Unit	Brand	Model	FCC ID
Notebook	DELL	E4300	DoC
Wireless Access Point	XIRRUS	XD4240	SK6-XDR240
PoE	Microsemi	PD-9501-10G	N/A

For beamforming function:

Support Unit	Brand	Model	FCC ID
Notebook*2	DELL	E4300	DoC
Wireless Access Point	XIRRUS	XD4240	SK6-XDR240
PoE	Microsemi	PD-9501-10G	N/A
WLAN ac Dongle (RX Device)	Broadcom	Bcm4366	DoC

For Test Site No: TH01-CB

Support Unit	Brand	Model	FCC ID
Notebook	DELL	E6430	DoC
Wireless Access Point	XIRRUS	XD4240	SK6-XDR240
PoE	Microsemi	PD-9501-10G	N/A

3.9. Table for Parameters of Test Software Setting

During testing, Channel and Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

Test Function	Non-beamforming function						
Test Software Version	Xircon V1.0.2.25						
Mode	Test Frequency (MHz)						
	NCB: 20MHz						
	5260 MHz	5300 MHz	5320 MHz	5500 MHz	5580 MHz	5700 MHz	5720 MHz
802.11a	58	58	58	50	50	50	52
802.11ac MCS0/Nss1 VHT20	58	58	58	51	51	51	54
Mode	NCB: 40MHz						
802.11ac MCS0/Nss1 VHT40	5270 MHz	5310 MHz	5510 MHz	5550 MHz	5670 MHz	5710 MHz	
	70	53	57	61	62	64	
Mode	NCB: 80MHz						
802.11ac MCS0/Nss1 VHT80	5290 MHz		5530 MHz		5610 MHz	5690 MHz	
	49		59		62	70	

Test Function	Beamforming function						
Test Software Version	Xircon V1.0.2.25						
Mode	Test Frequency (MHz)						
	NCB: 20MHz						
	5260 MHz	5300 MHz	5320 MHz	5500 MHz	5580 MHz	5700 MHz	5720 MHz
802.11ac MCS0/Nss1 VHT20	50	49	49	50	48	48	53
Mode	NCB: 40MHz						
802.11ac MCS0/Nss1 VHT40	5270 MHz	5310 MHz	5510 MHz	5550 MHz	5670 MHz	5710 MHz	
	50	49	51	52	52	54	
Mode	NCB: 80MHz						
802.11ac MCS0/Nss1 VHT80	5290 MHz		5530 MHz		5610 MHz	5690 MHz	
	42		47		50	49	

3.10. EUT Operation during Test

For non-beamforming mode:

The EUT was programmed to be in continuously transmitting mode.

For beamforming mode:

For Conducted Mode:

The EUT was programmed to be in continuously transmitting mode.

For Radiated Mode:

During the test, the following programs under WIN XP were executed.

The program was executed as follows:

1. During the test, the EUT operation to normal function.
2. Executed command fixed test channel under DOS.
3. Executed "Lantest.exe " to link with the remote workstation to receive and transmit packet by RX Device and transmit duty cycle no less 98%

3.11. Duty Cycle

For non-beamforming function:

Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11a	2.064	2.092	98.66%	0.06	0.01
802.11ac MCS0/Nss1 VHT20	1.920	1.950	98.46%	0.07	0.01
802.11ac MCS0/Nss1 VHT40	0.916	0.976	93.85%	0.28	1.09
802.11ac MCS0/Nss1 VHT80	0.430	0.480	89.58%	0.48	2.33

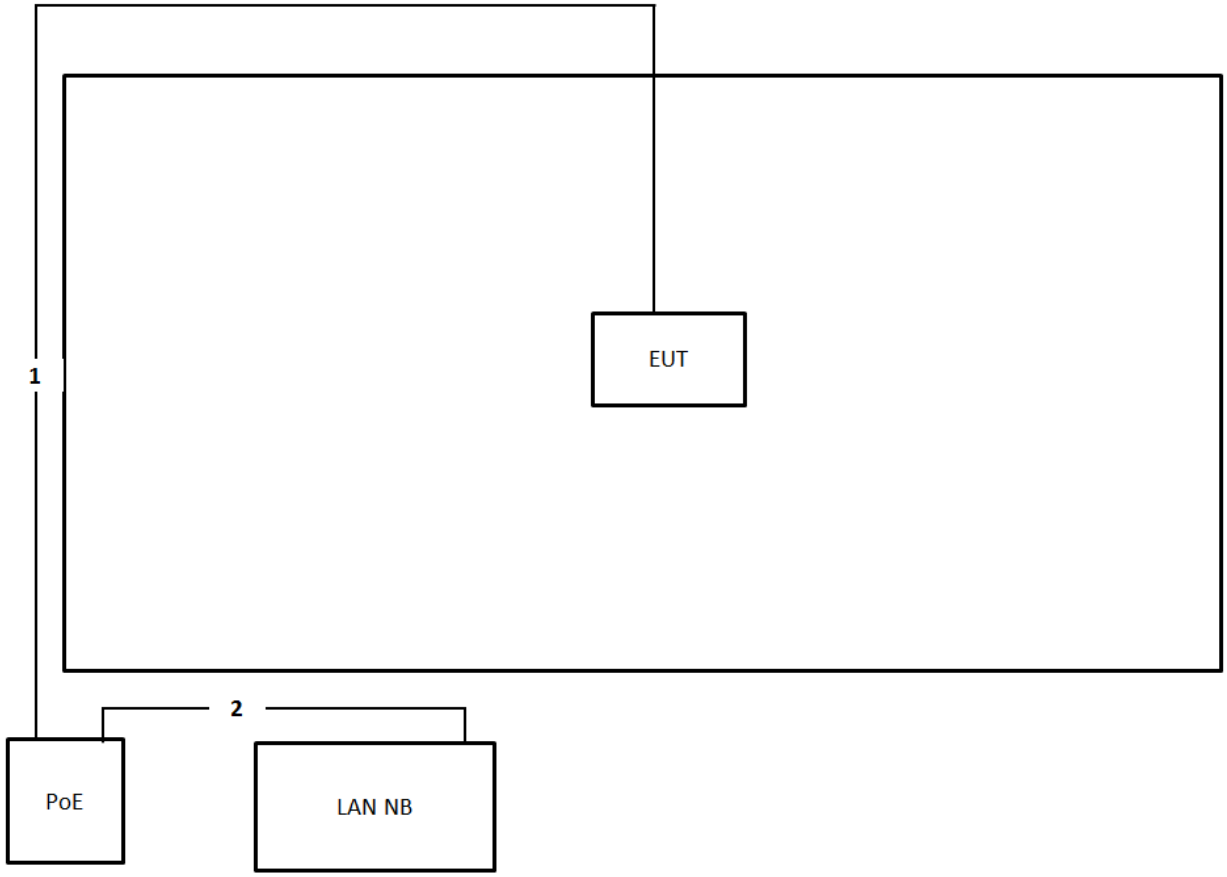
For beamforming function:

Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11ac MCS0/Nss1 VHT20	3.834	4.212	91.03%	0.41	0.26
802.11ac MCS0/Nss1 VHT40	3.640	4.020	90.55%	0.43	0.27
802.11ac MCS0/Nss1 VHT80	3.384	3.784	89.43%	0.49	0.30

3.12. Test Configurations

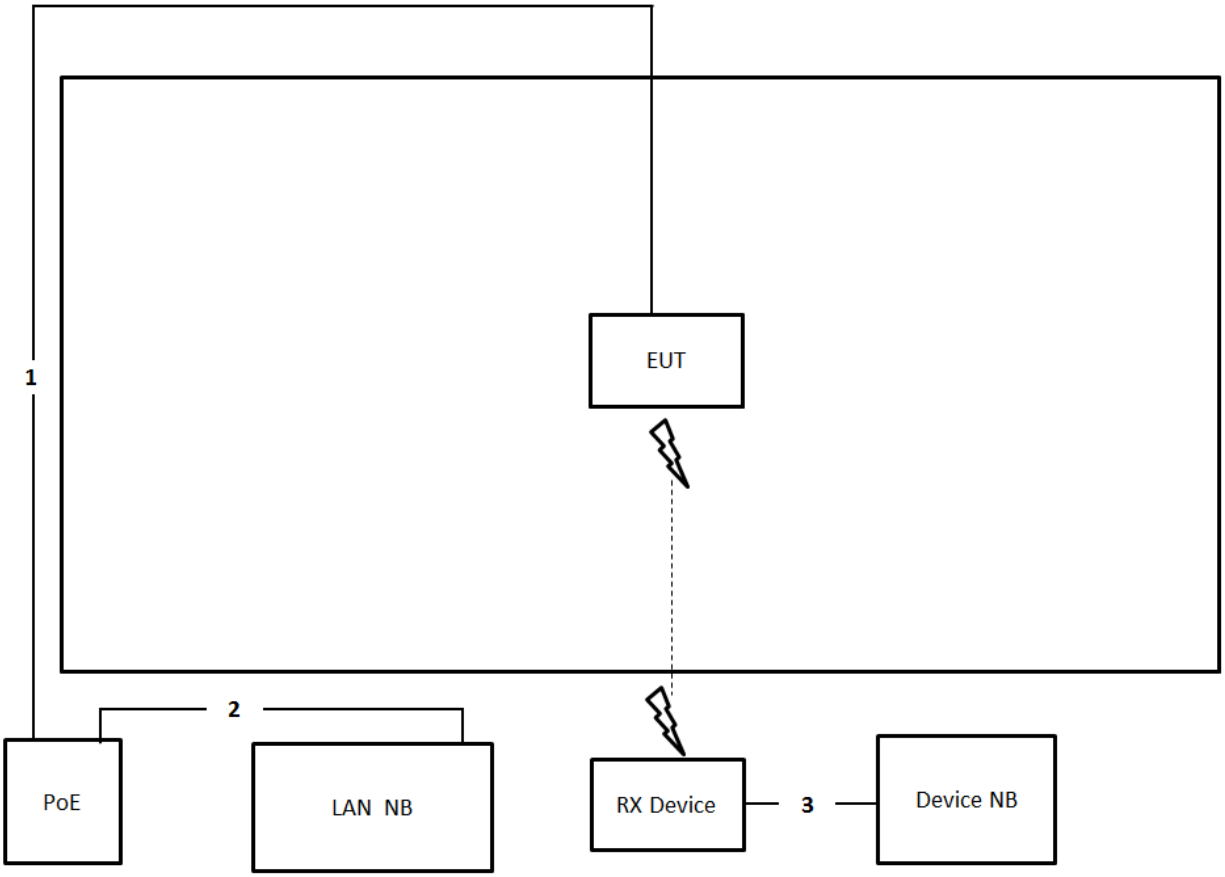
3.12.1. Radiation Emissions Test Configuration

For non-beamforming function:



Item	Connection	Shielded	Length
1	RJ-45 cable	No	10m
2	RJ-45 cable	No	1.5m

For beamforming function:



Item	Connection	Shielded	Length
1	RJ-45 cable	No	10m
2	RJ-45 cable	No	1.5m
3	RJ-45 cable	No	1.5m

4. TEST RESULT

4.1. 26dB Bandwidth and 99% Occupied Bandwidth Measurement

4.1.1. Limit

No restriction limits.

4.1.2. Measuring Instruments and Setting

Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

26dB Bandwidth	
Spectrum Parameters	**Setting**
Attenuation	Auto
Span Frequency	> 26dB Bandwidth
RBW	Approximately 1% of the emission bandwidth
VBW	VBW > RBW
Detector	Peak
Trace	Max Hold
Sweep Time	Auto
99% Occupied Bandwidth	
Spectrum Parameters	**Setting**
Span	1.5 times to 5.0 times the OBW
RBW	1 % to 5 % of the OBW
VBW	≥ 3 x RBW
Detector	Peak
Trace	Max Hold

4.1.3. Test Procedures

For Radiated 26dB Bandwidth and 99% Occupied Bandwidth Measurement:

1. The transmitter was radiated to the spectrum analyzer in peak hold mode.
2. Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

4.1.4. Test Setup Layout

For Radiated 26dB Bandwidth and 99% Occupied Bandwidth Measurement:

This test setup layout is the same as that shown in section 4.5.4.

4.1.5. Test Deviation

There is no deviation with the original standard.

4.1.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.1.7. Test Result of 26dB Bandwidth and 99% Occupied Bandwidth

Temperature	25℃	Humidity	59%
Test Engineer	Serway Li	Test Function	Non-beamforming function

Mode	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11a	5260 MHz	20.70	16.41
	5300 MHz	20.70	16.50
	5320 MHz	20.61	16.41
	5500 MHz	20.87	16.76
	5580 MHz	20.70	16.41
	5700 MHz	20.70	16.58
802.11ac MCS0/Nss1 VHT20	5260 MHz	21.13	17.89
	5300 MHz	21.30	18.06
	5320 MHz	21.57	17.97
	5500 MHz	21.30	18.15
	5580 MHz	21.13	17.97
	5700 MHz	21.39	18.23
802.11ac MCS0/Nss1 VHT40	5270 MHz	40.58	36.61
	5310 MHz	40.58	36.61
	5510 MHz	40.73	36.61
	5550 MHz	40.58	36.76
	5670 MHz	40.73	36.76
802.11ac MCS0/Nss1 VHT80	5290 MHz	78.26	75.25
	5530 MHz	78.84	75.25
	5610 MHz	78.55	74.96

Straddle Channel

Mode	Frequency	26dB BW (MHz)	99% OBW (MHz)	26dB BW F1 (MHz)	99% OBW T1 (MHz)	UNII 2C 26dB BW (MHz)	UNII 3 26dB BW (MHz)	UNII 2C 99% BW (MHz)	UNII 3 99% BW (MHz)
802.11a	5720 MHz	20.26	17.28	5710.78	5712.19	14.22	6.04	12.81	4.46
802.11ac MCS0/Nss1 VHT20	5720 MHz	21.04	17.97	5709.74	5711.32	15.26	5.78	13.68	4.29
802.11ac MCS0/Nss1 VHT40	5710 MHz	40.29	36.90	5690.00	5691.91	35.00	5.29	33.09	3.81
802.11ac MCS0/Nss1 VHT80	5690 MHz	80.87	76.12	5649.71	5652.37	75.29	5.58	72.63	3.49

Temperature	25℃	Humidity	59%
Test Engineer	Serway Li	Test Function	Beamforming function

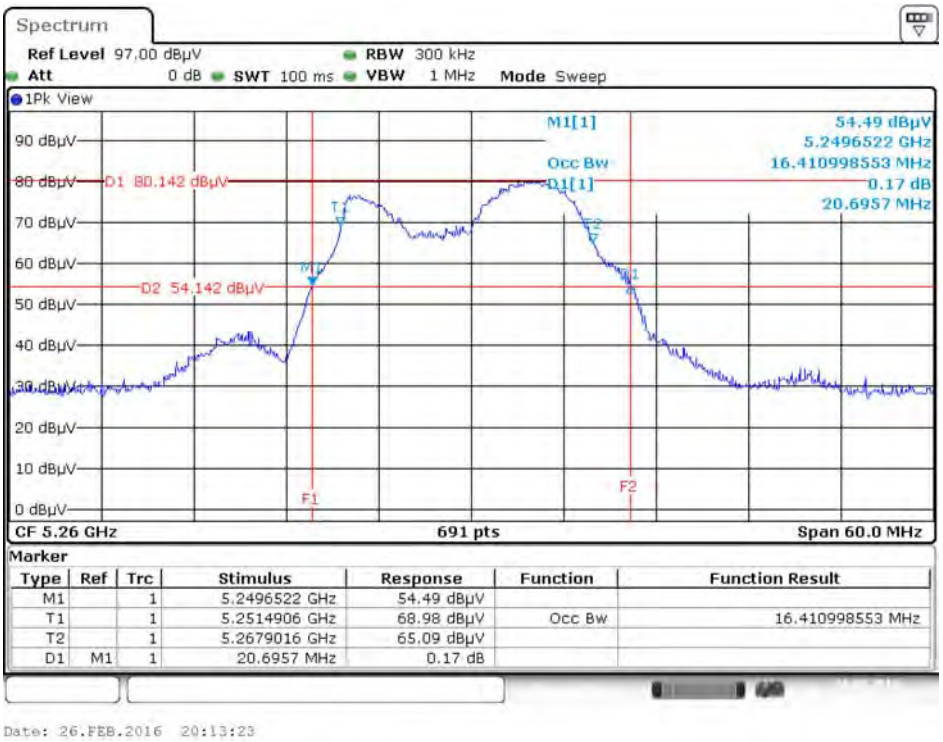
Mode	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11ac MCS0/Nss1 VHT20	5260 MHz	21.91	18.15
	5300 MHz	22.17	18.06
	5320 MHz	22.00	18.15
	5500 MHz	21.65	18.06
	5580 MHz	22.00	18.15
	5700 MHz	21.83	18.15
802.11ac MCS0/Nss1 VHT40	5270 MHz	41.16	37.05
	5310 MHz	44.06	37.05
	5510 MHz	40.87	36.90
	5550 MHz	41.16	36.90
	5670 MHz	40.73	36.90
802.11ac MCS0/Nss1 VHT80	5290 MHz	82.32	75.83
	5530 MHz	82.03	75.83
	5610 MHz	82.32	75.83

Straddle Channel

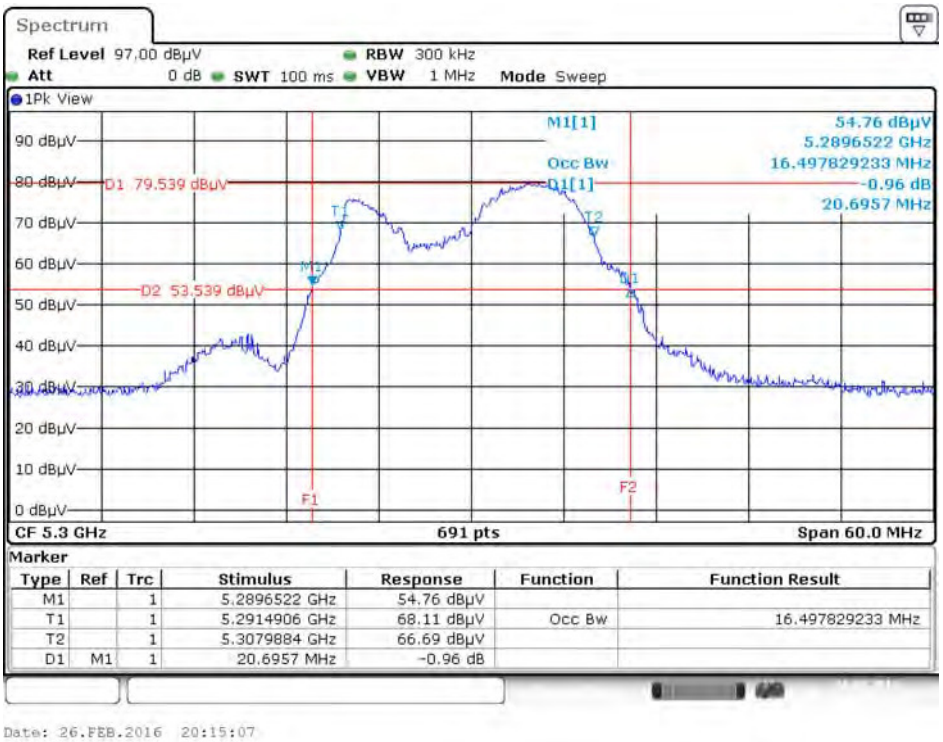
Mode	Frequency	26dB BW (MHz)	99% OBW (MHz)	26dB BW F1 (MHz)	99% OBW T1 (MHz)	UNII 2C 26dB BW (MHz)	UNII 3 26dB BW (MHz)	UNII 2C 99% BW (MHz)	UNII 3 99% BW (MHz)
802.11ac MCS0/Nss1 VHT20	5720 MHz	21.22	18.15	5709.39	5710.97	15.61	5.61	14.03	4.12
802.11ac MCS0/Nss1 VHT40	5710 MHz	40.44	36.61	5689.86	5691.91	35.15	5.29	33.09	3.52
802.11ac MCS0/Nss1 VHT80	5690 MHz	79.42	75.54	5650.58	5652.37	74.42	5.00	72.63	2.92

For non-beamforming function:

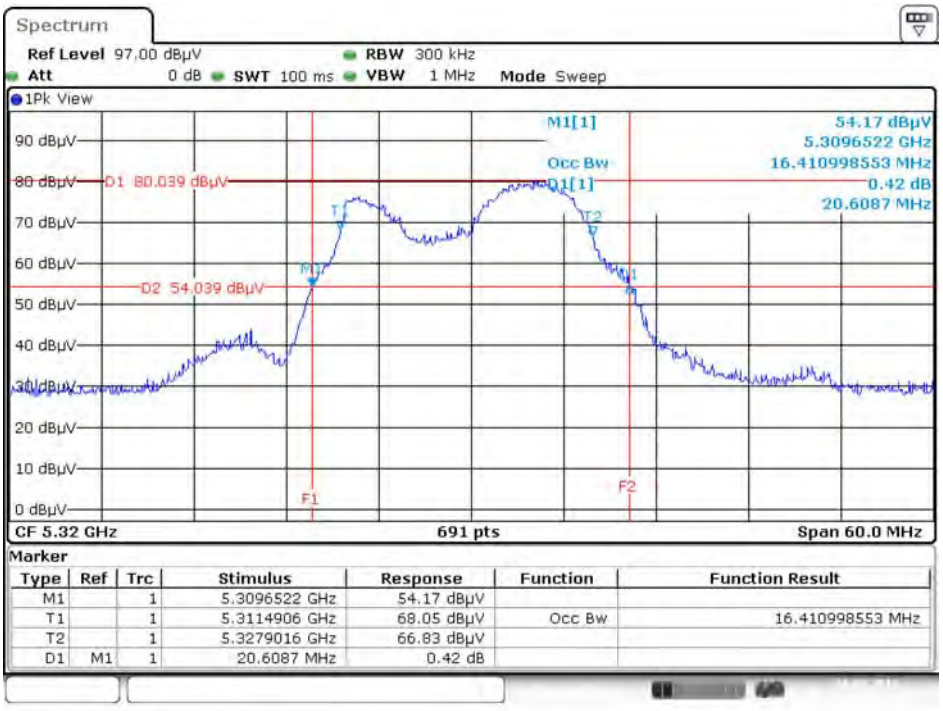
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5260 MHz



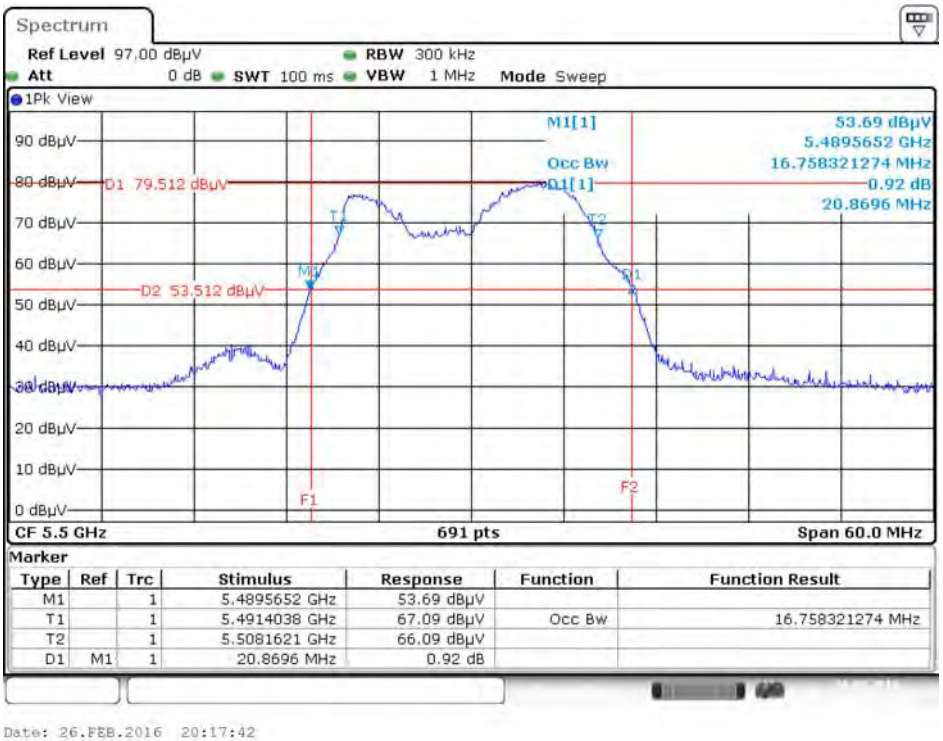
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5300 MHz



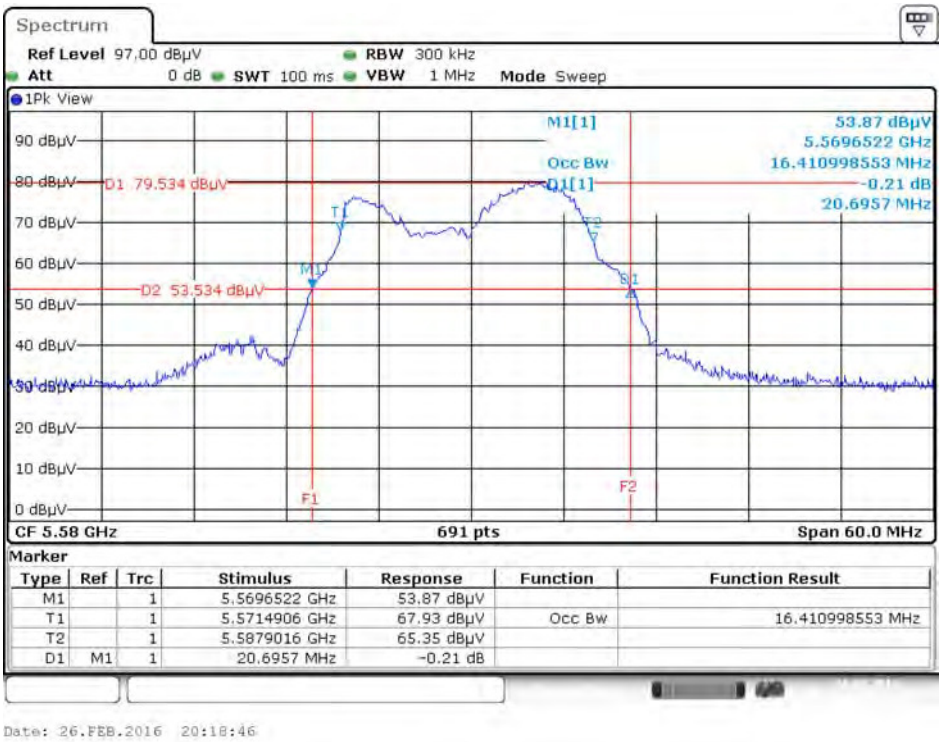
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5320 MHz



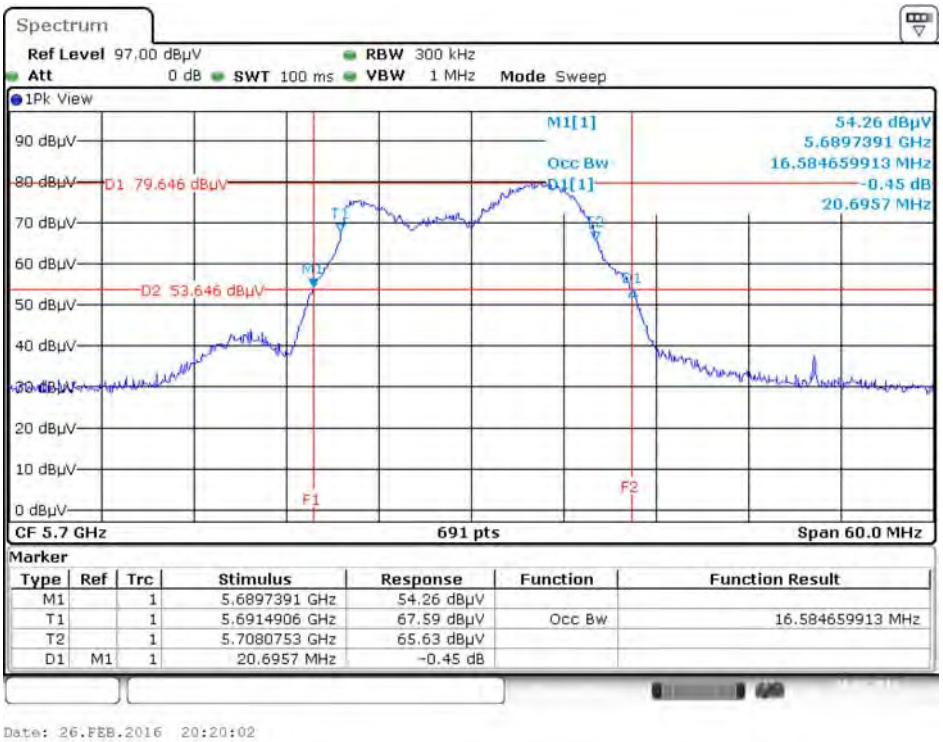
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5500 MHz



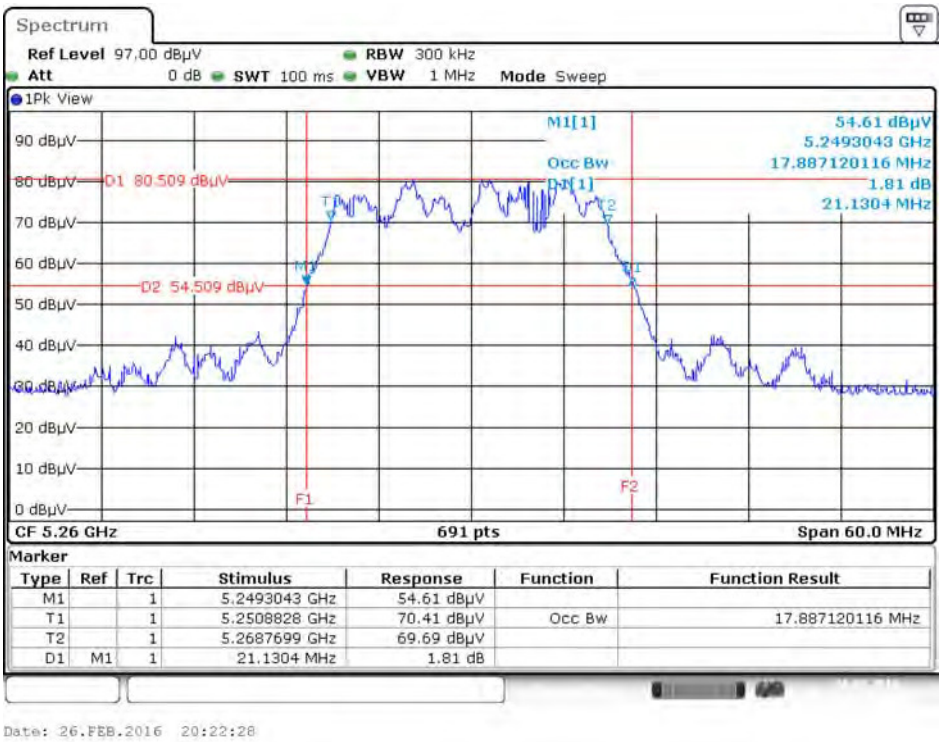
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5580 MHz



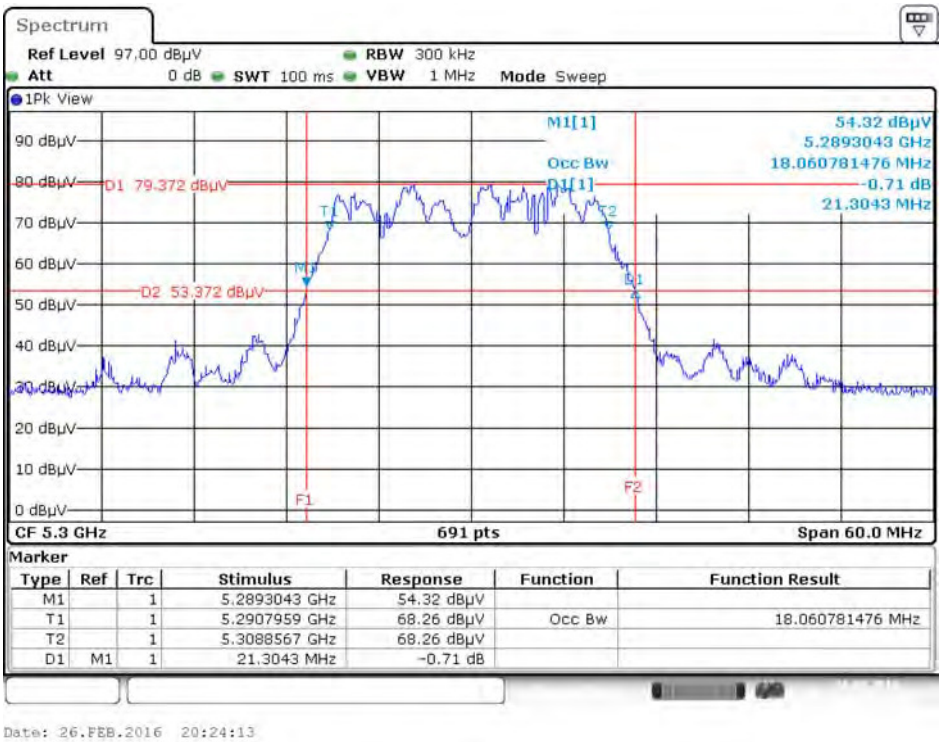
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5700 MHz



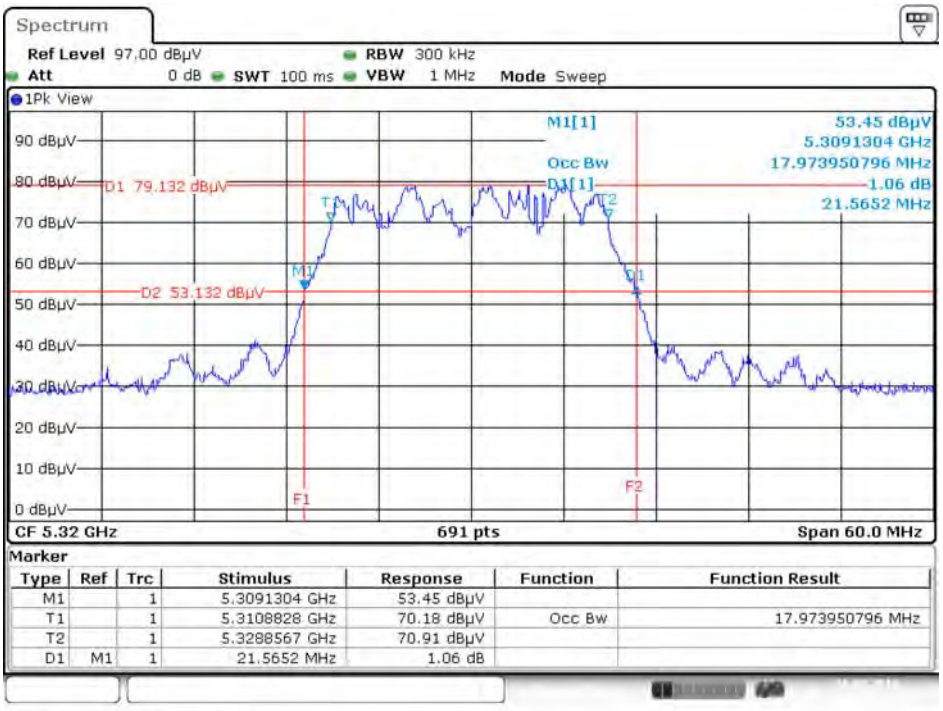
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5260 MHz



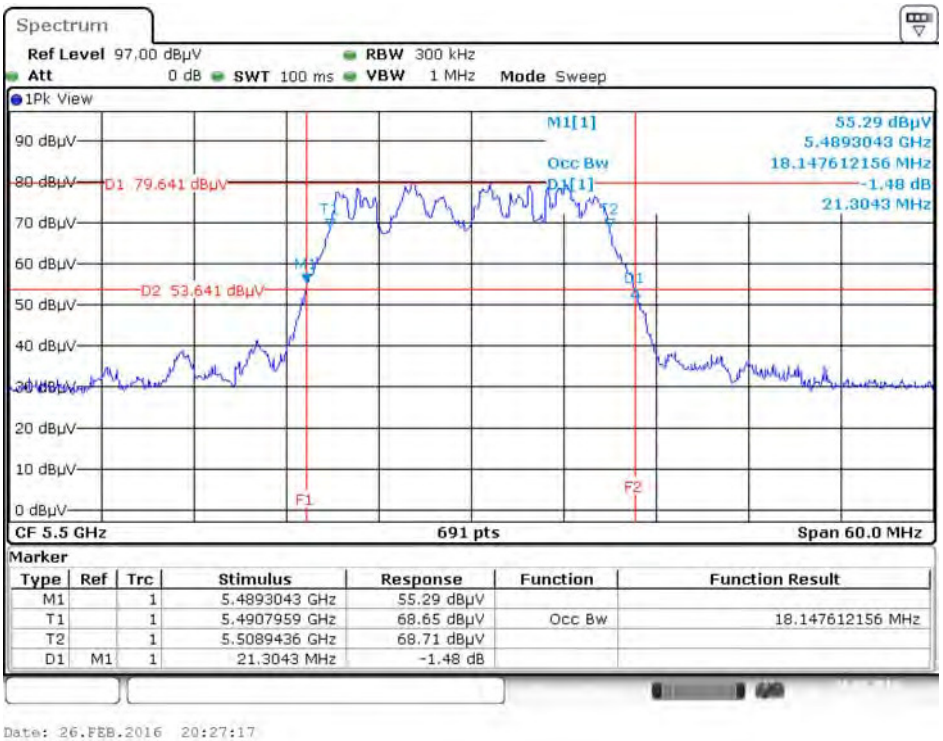
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5300 MHz



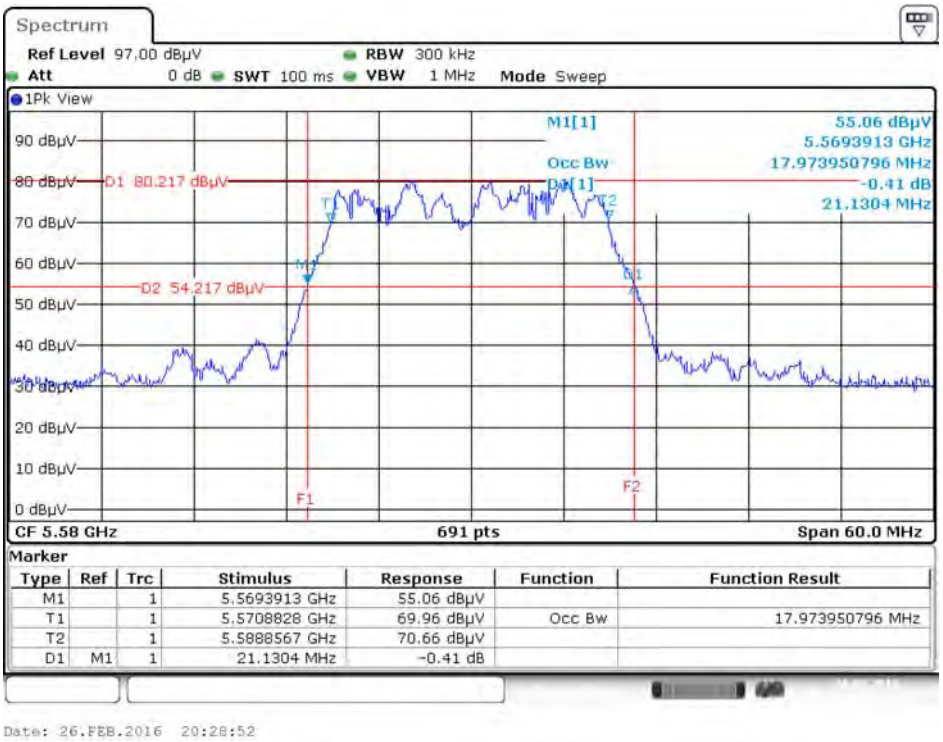
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5320 MHz



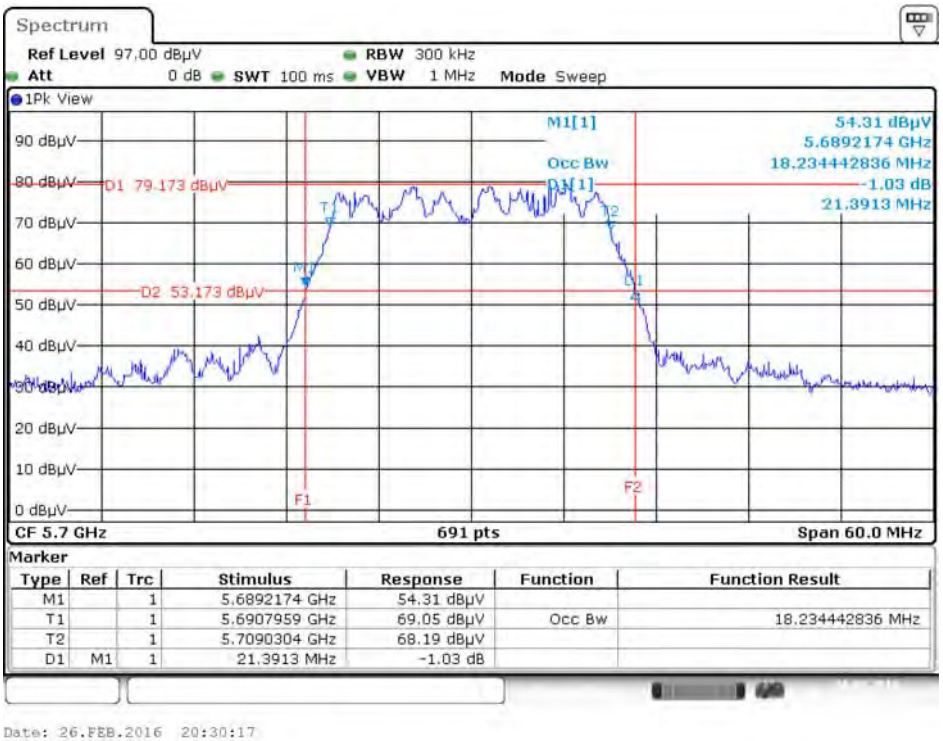
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5500 MHz



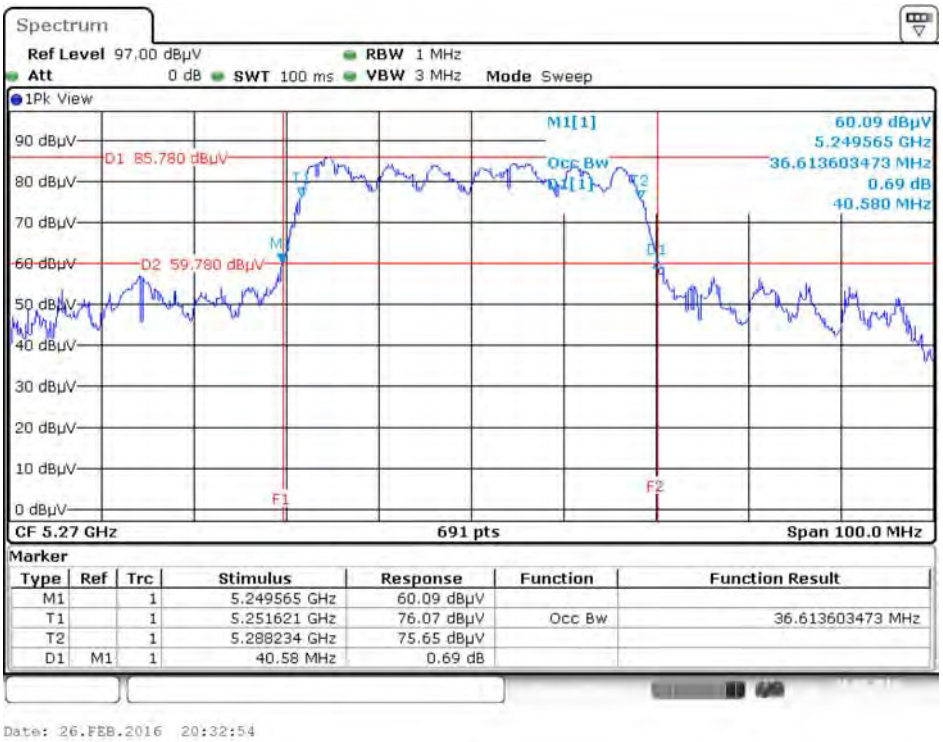
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5580 MHz



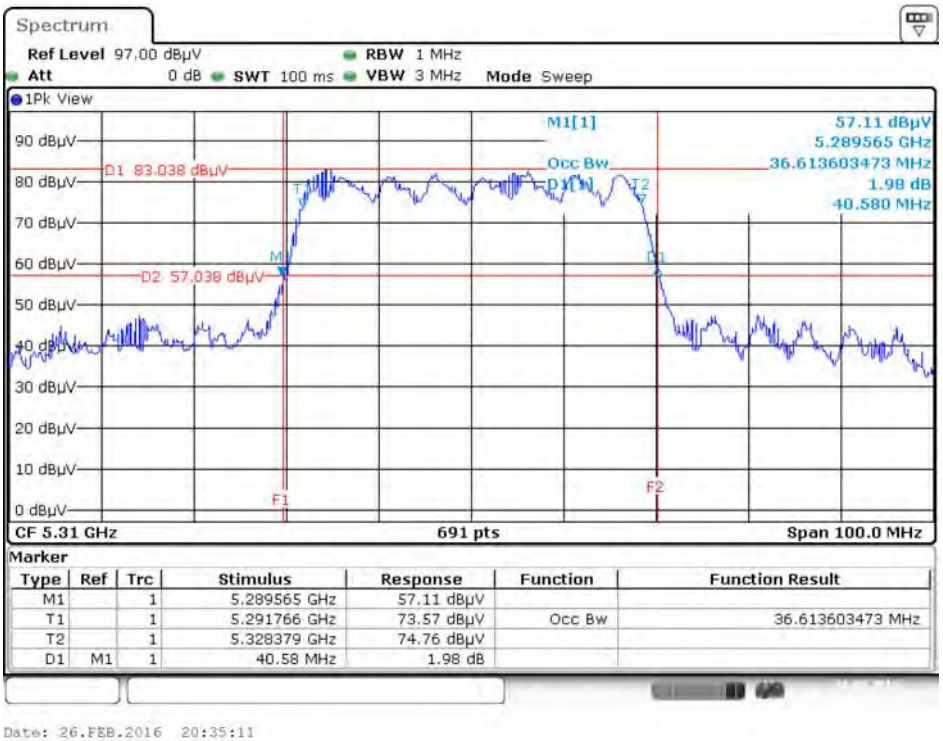
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5700 MHz



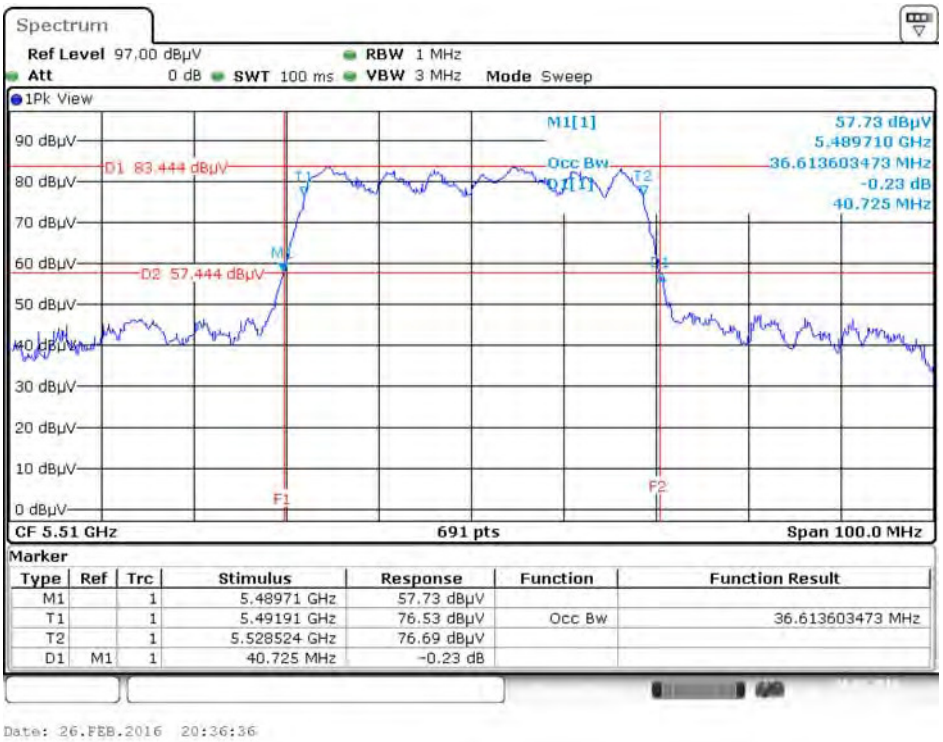
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5270 MHz



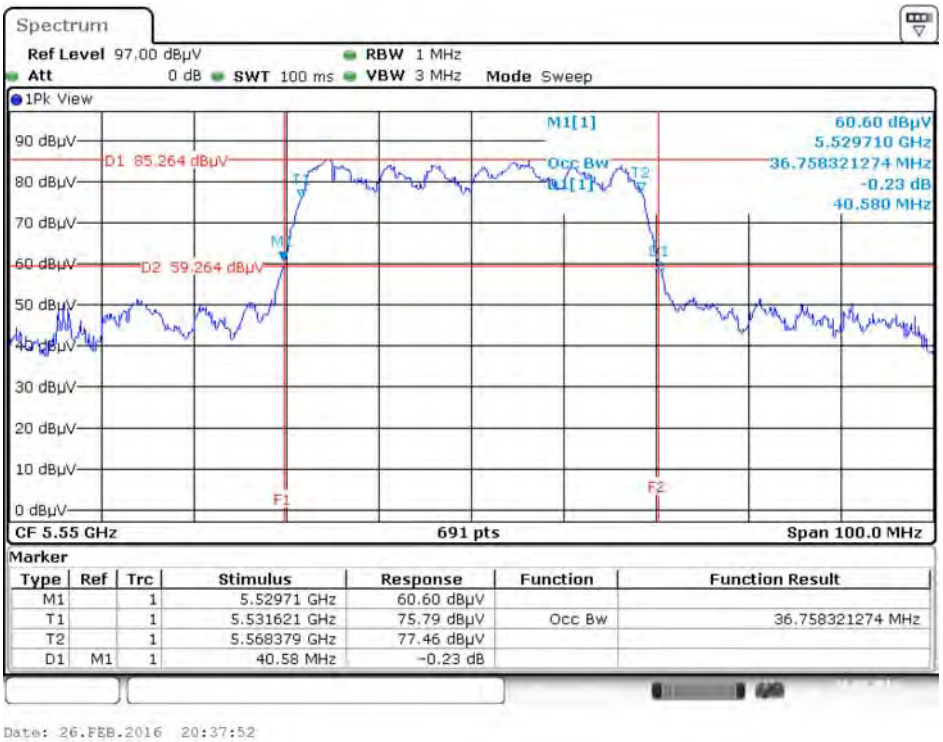
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5310 MHz



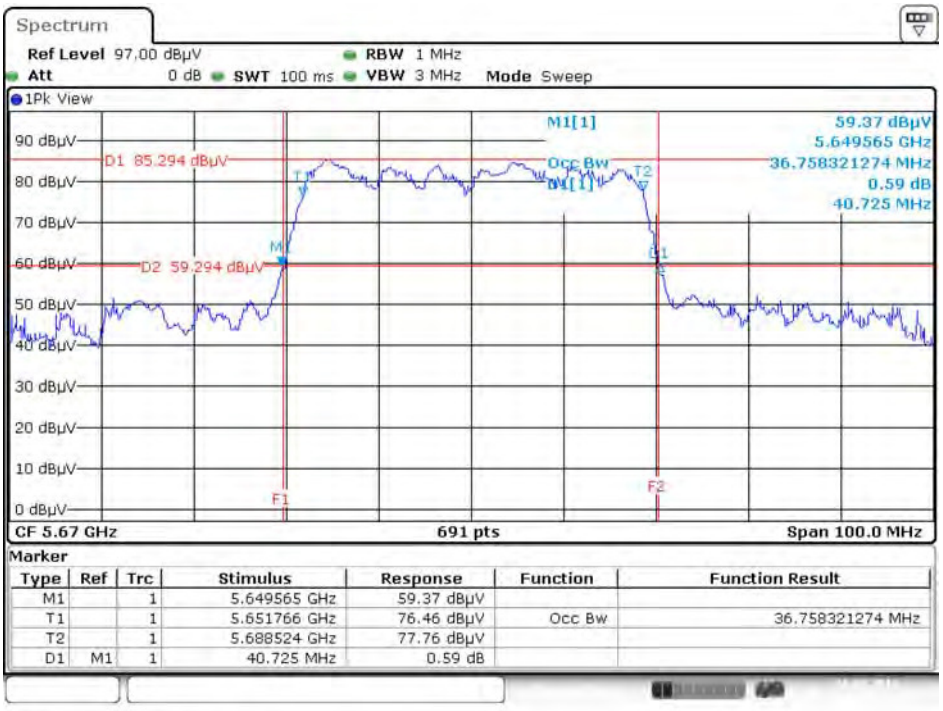
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5510 MHz



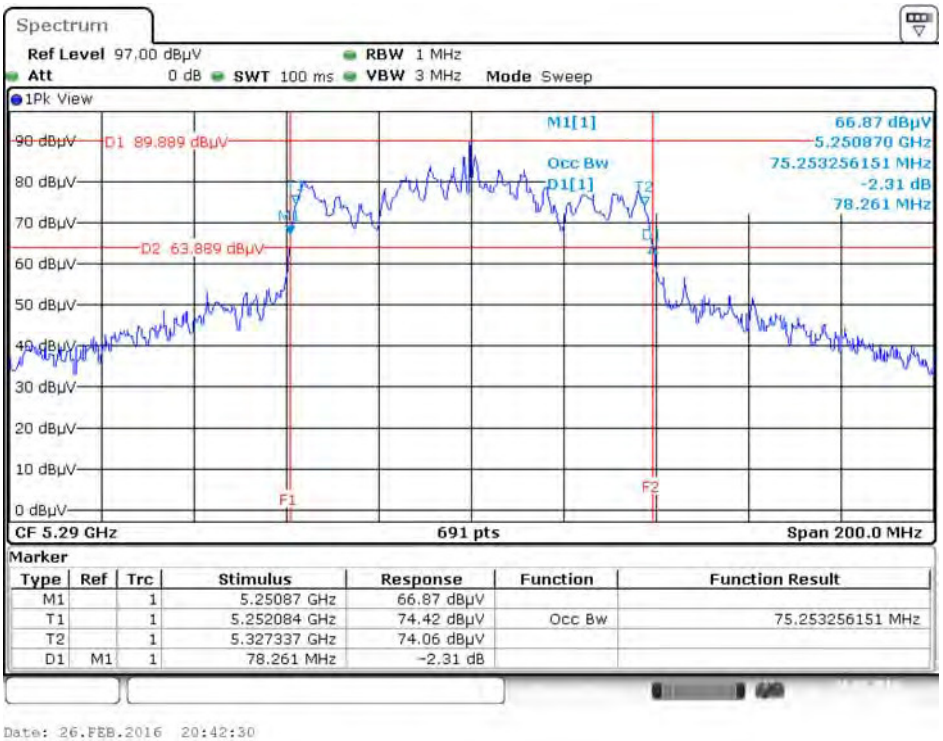
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5550 MHz



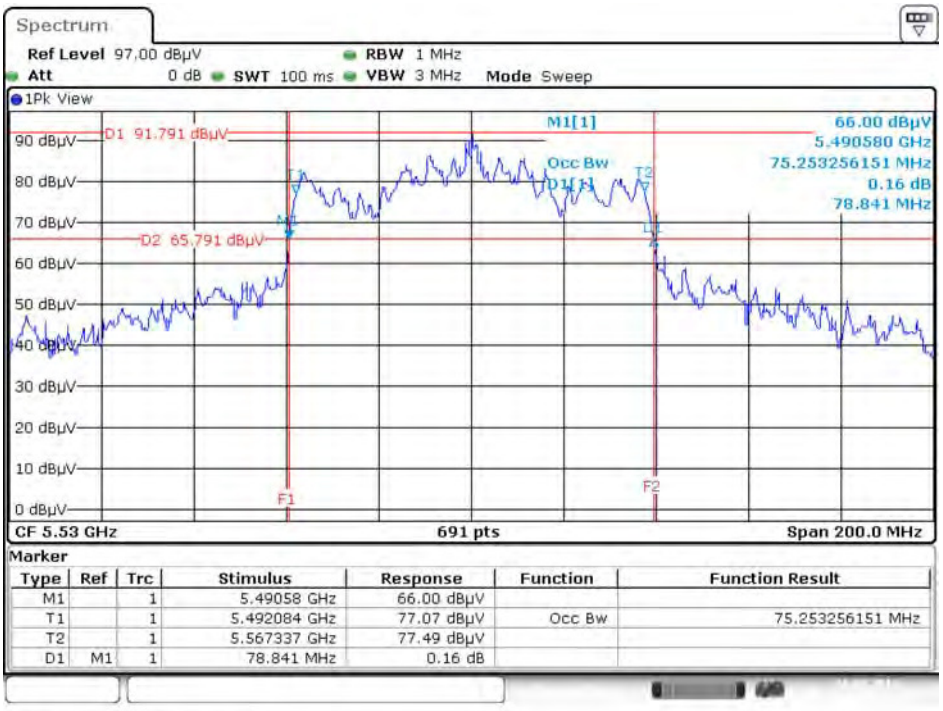
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5670 MHz



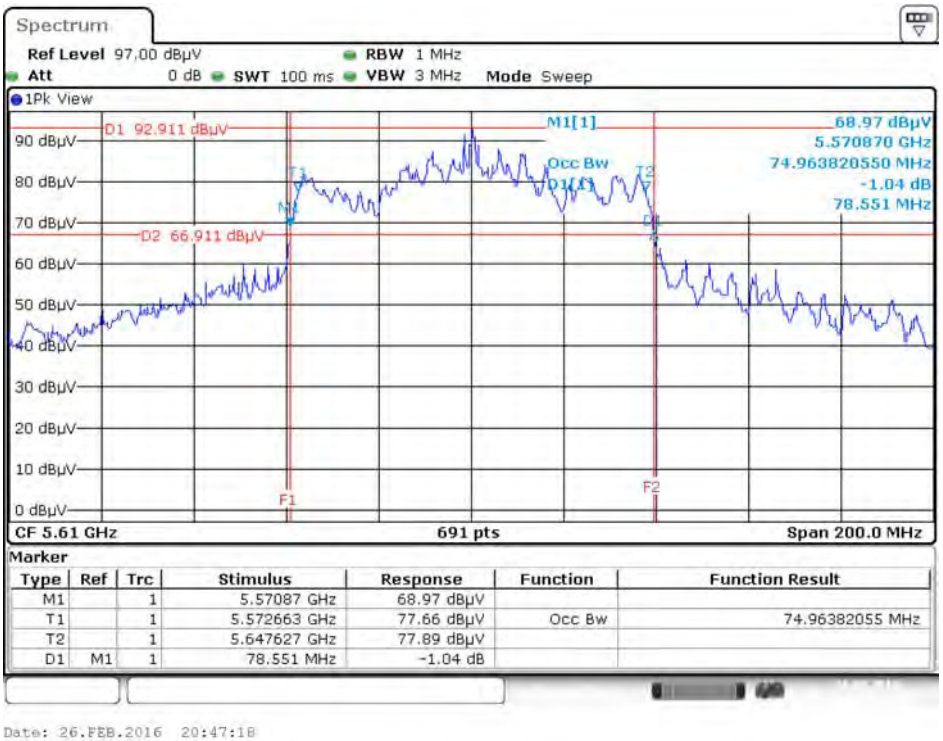
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5290 MHz



26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5530 MHz

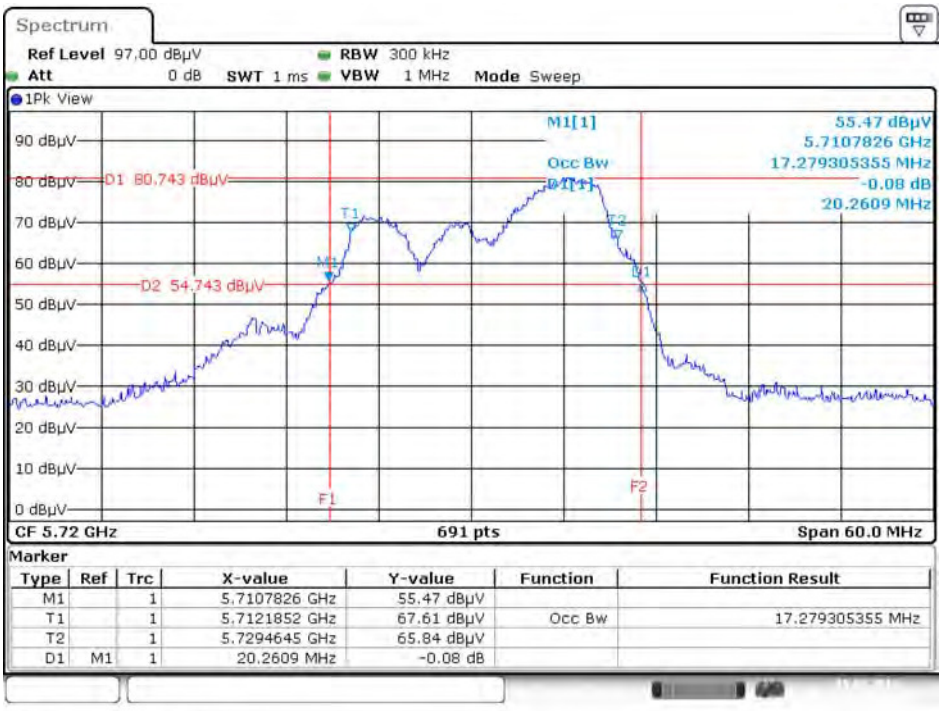


26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5610 MHz



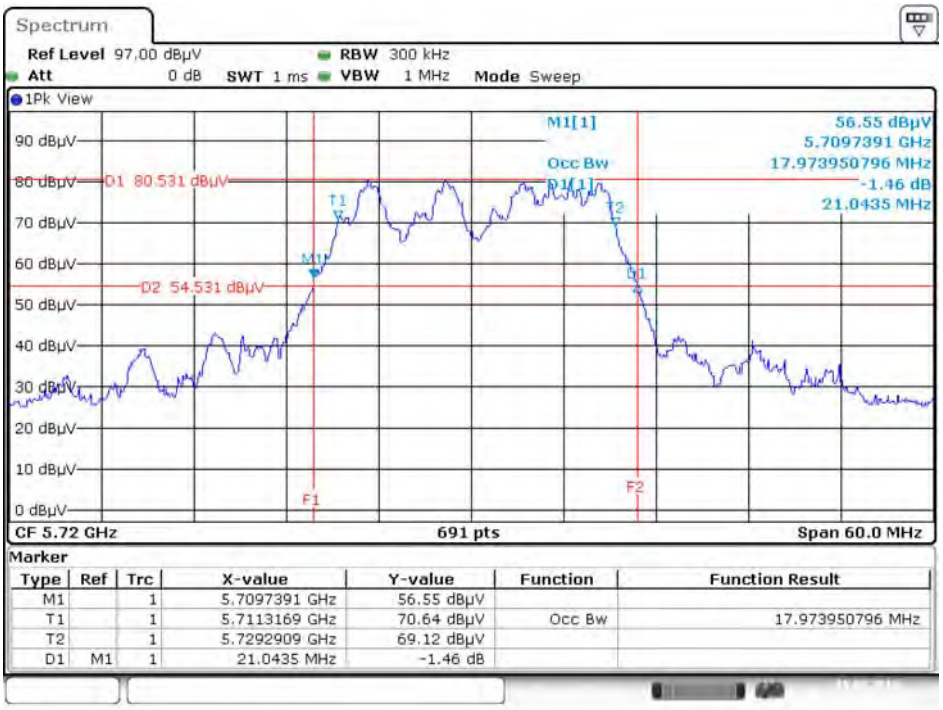
Straddle Channel

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5720 MHz



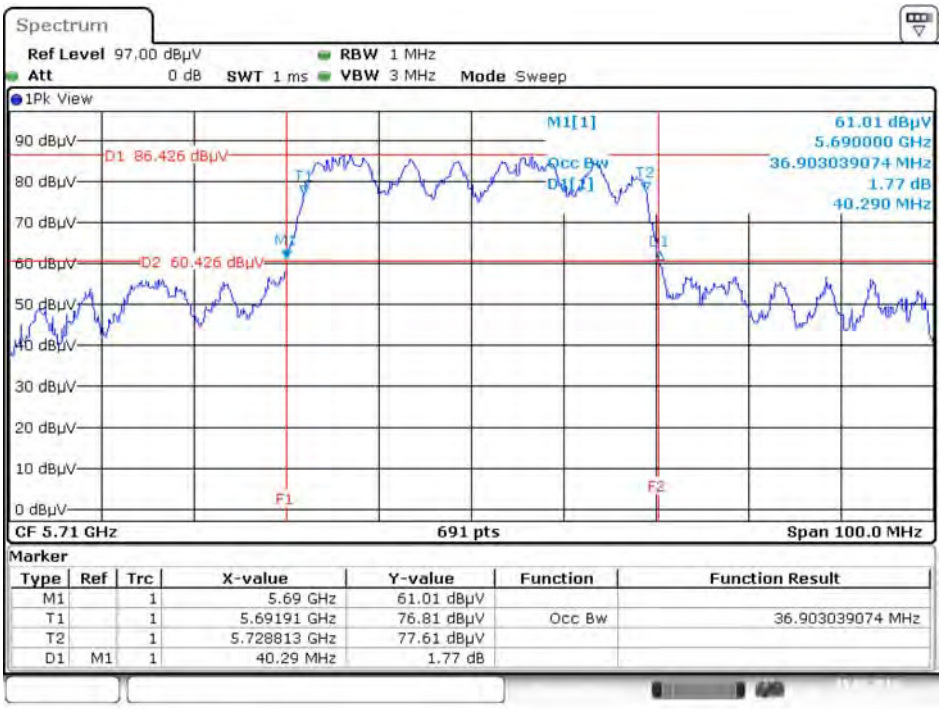
Date: 15.FEB.2016 22:02:03

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5720 MHz



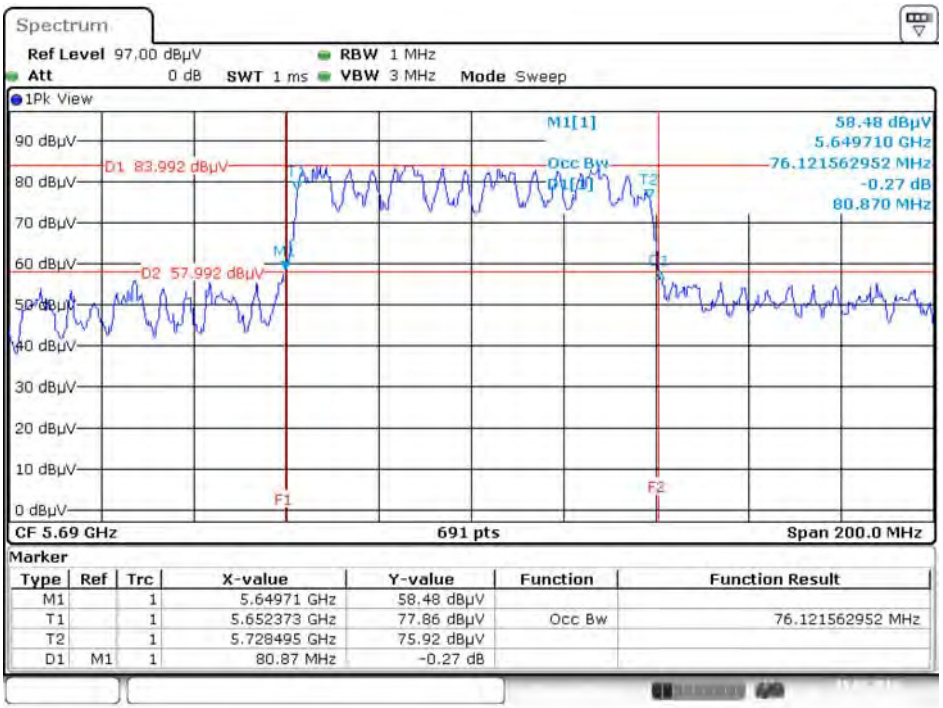
Date: 15.FEB.2016 22:04:51

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5710 MHz



Date: 15.FEB.2016 22:06:36

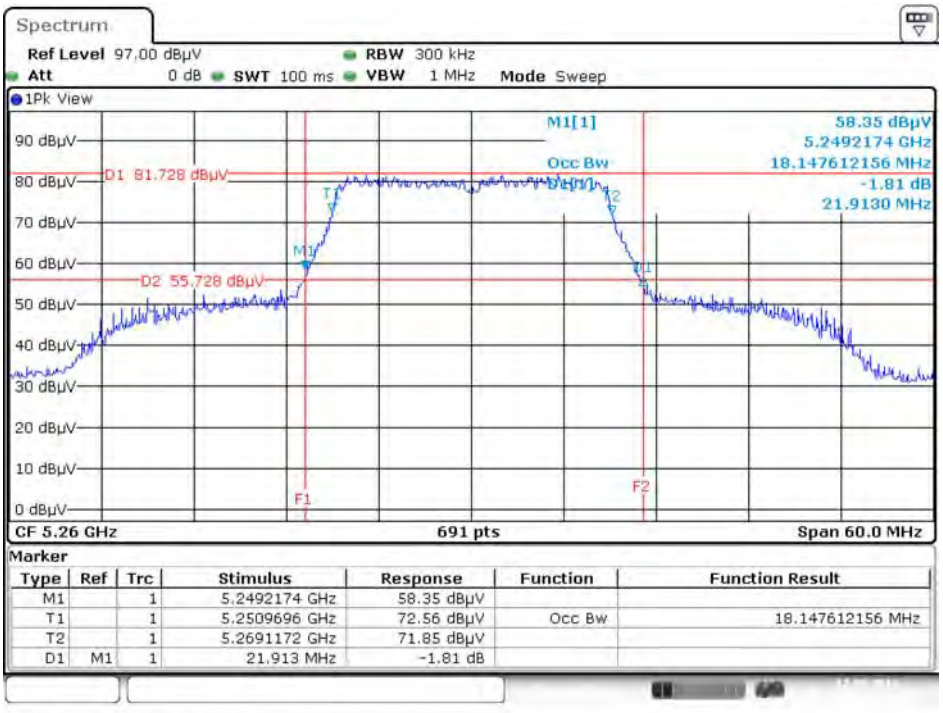
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5690 MHz



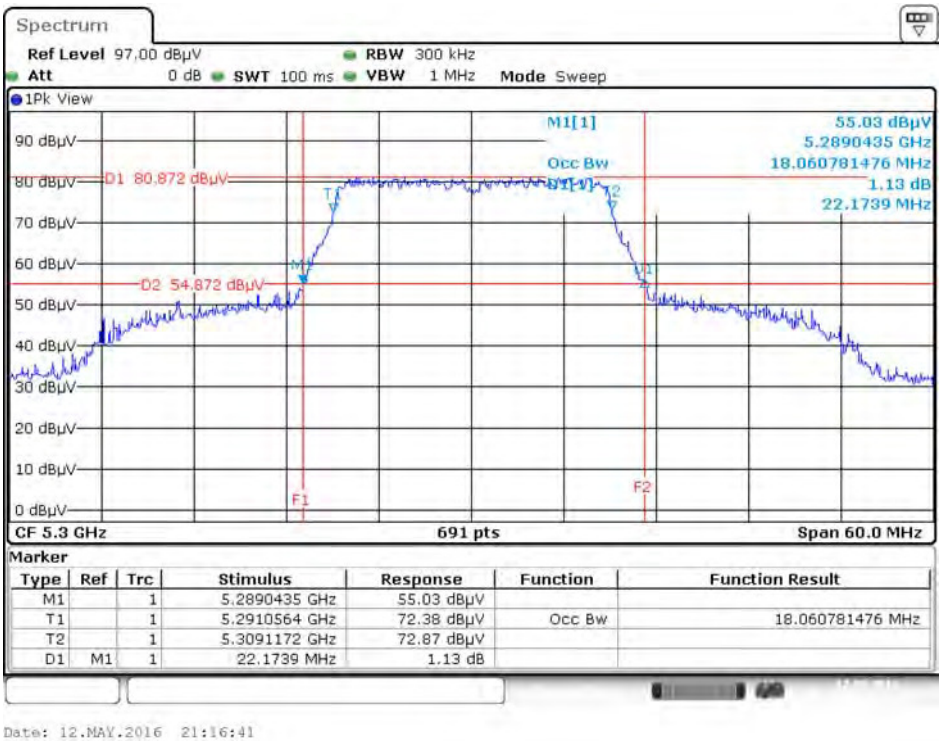
Date: 15.FEB.2016 22:14:56

For beamforming function:

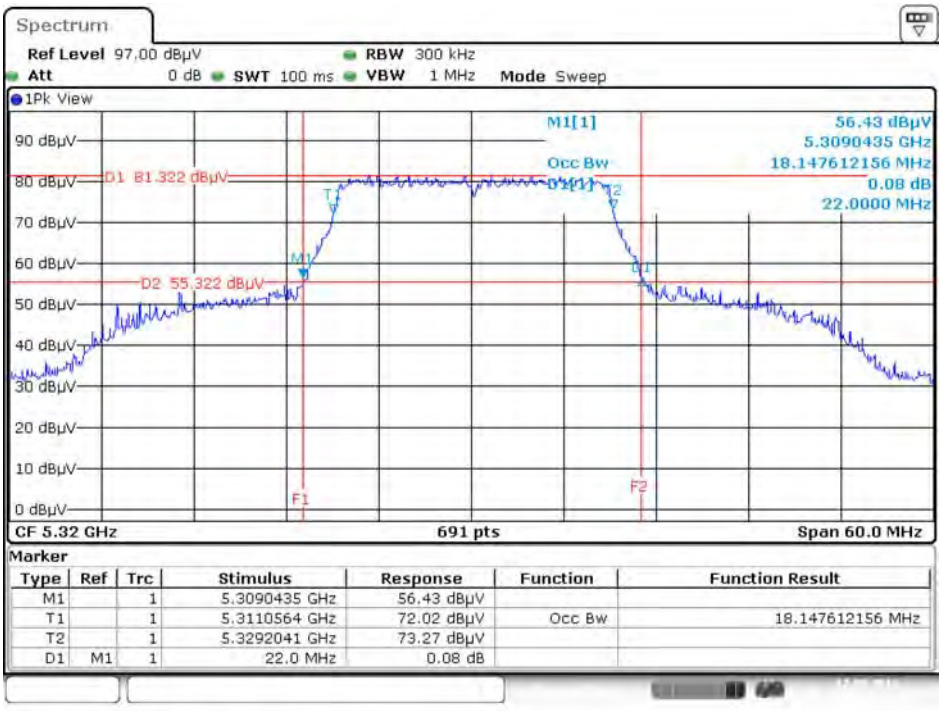
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5260 MHz



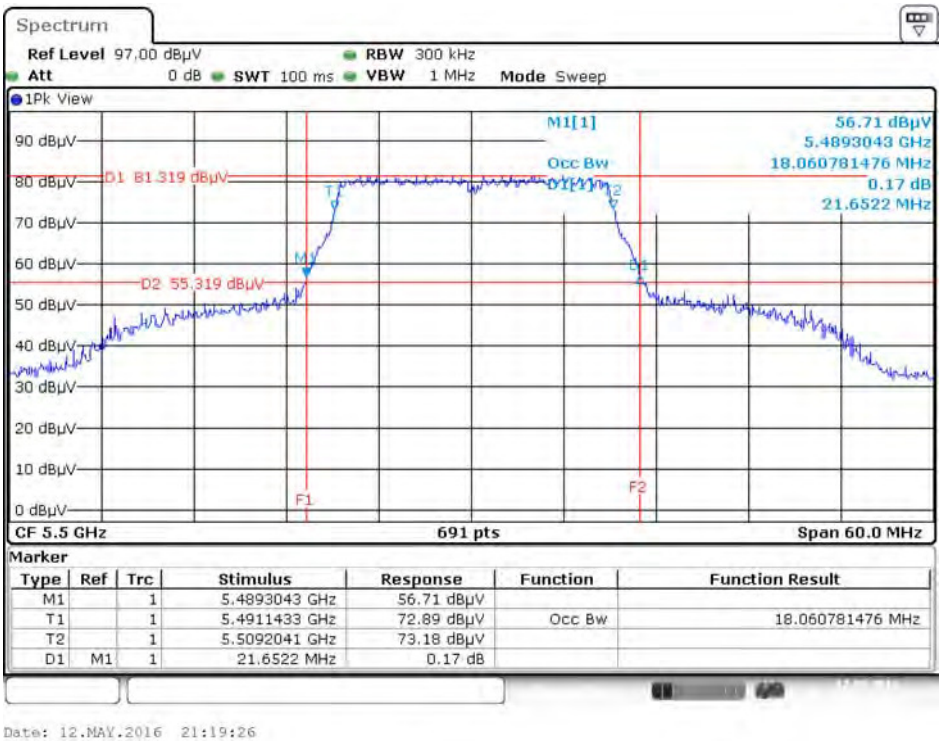
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5300 MHz



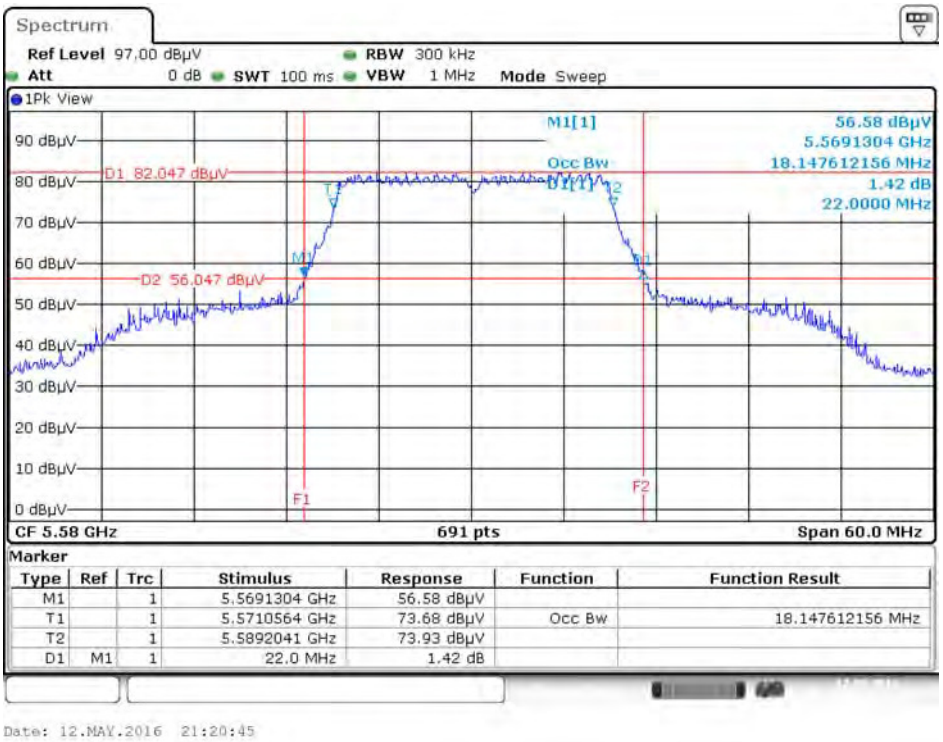
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5320 MHz



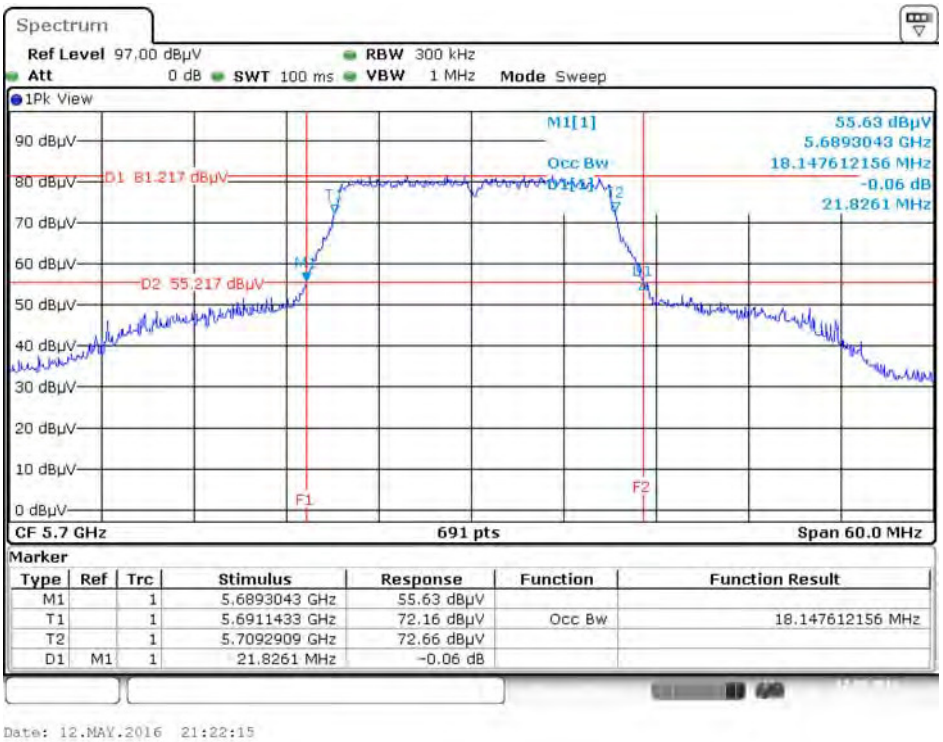
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5500 MHz



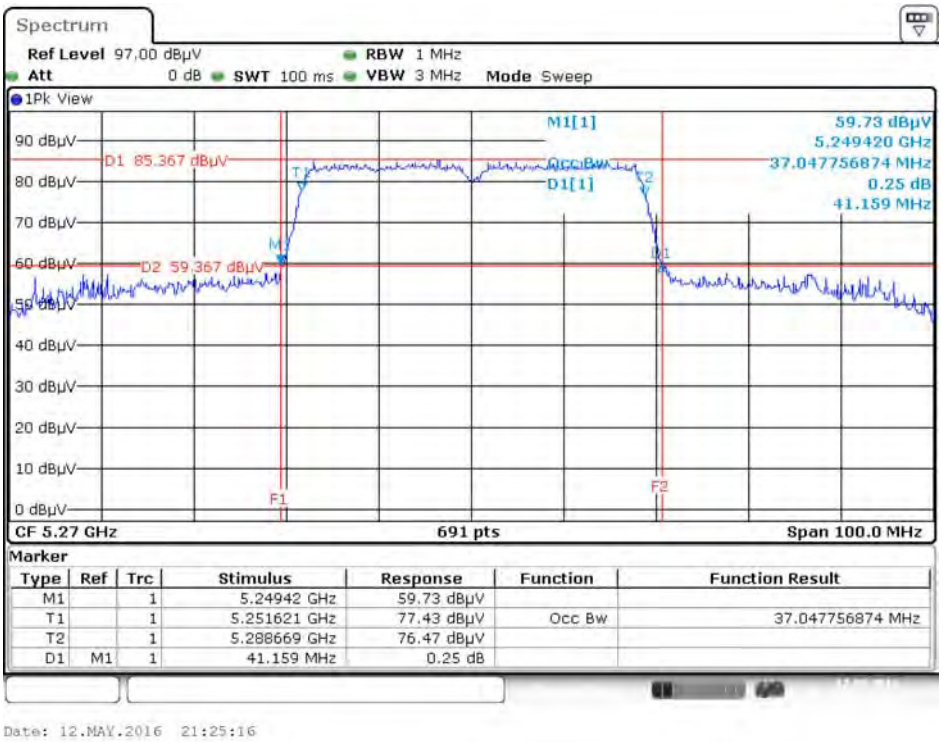
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5580 MHz



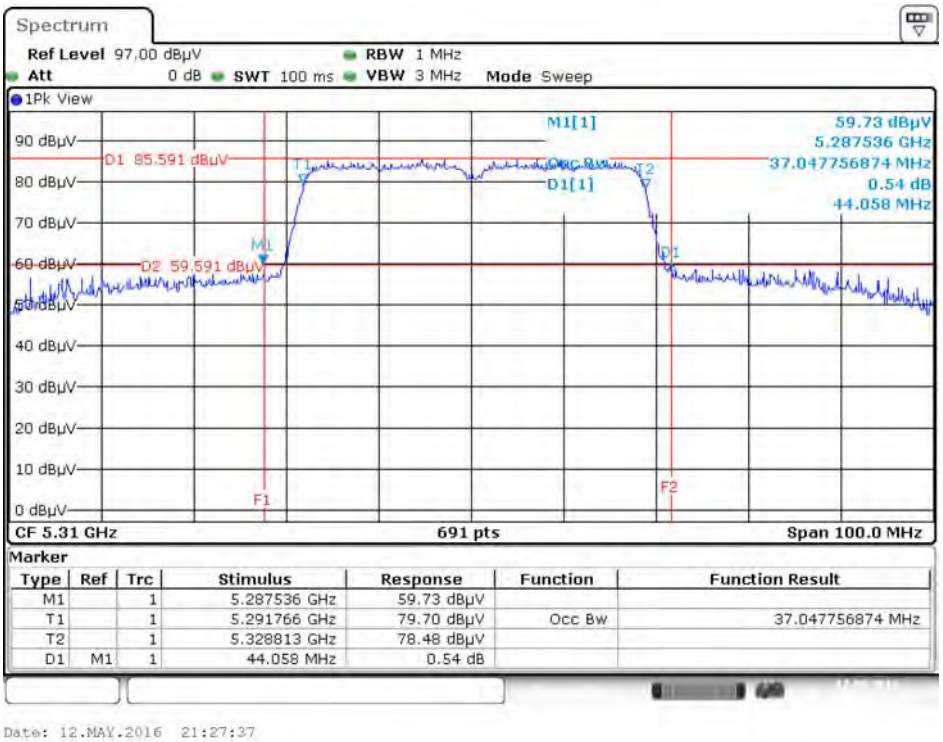
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5700 MHz



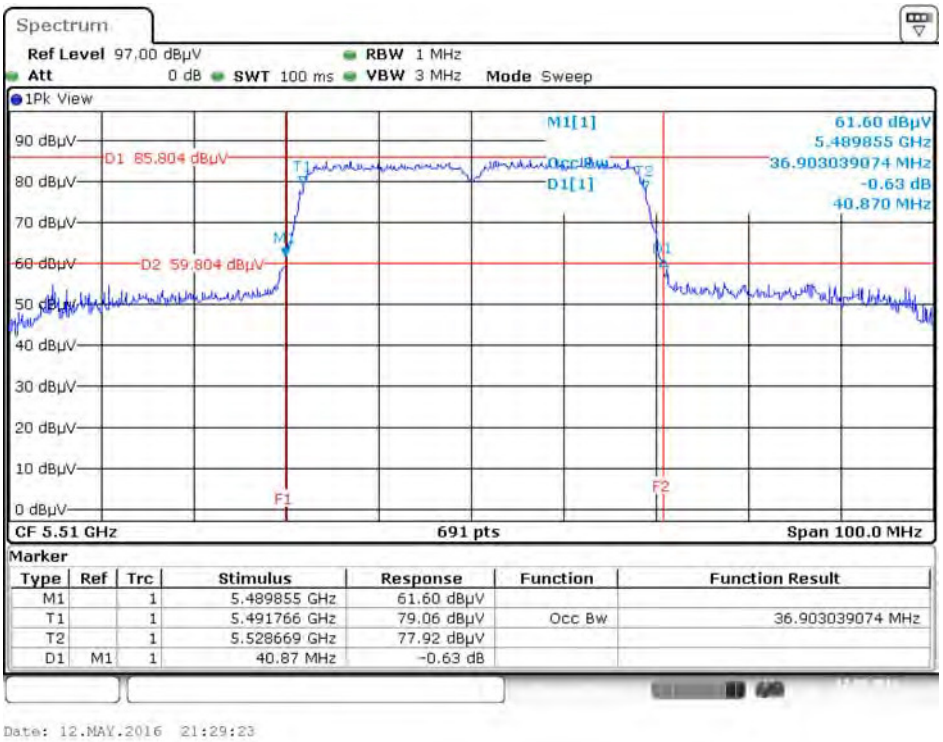
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5270 MHz



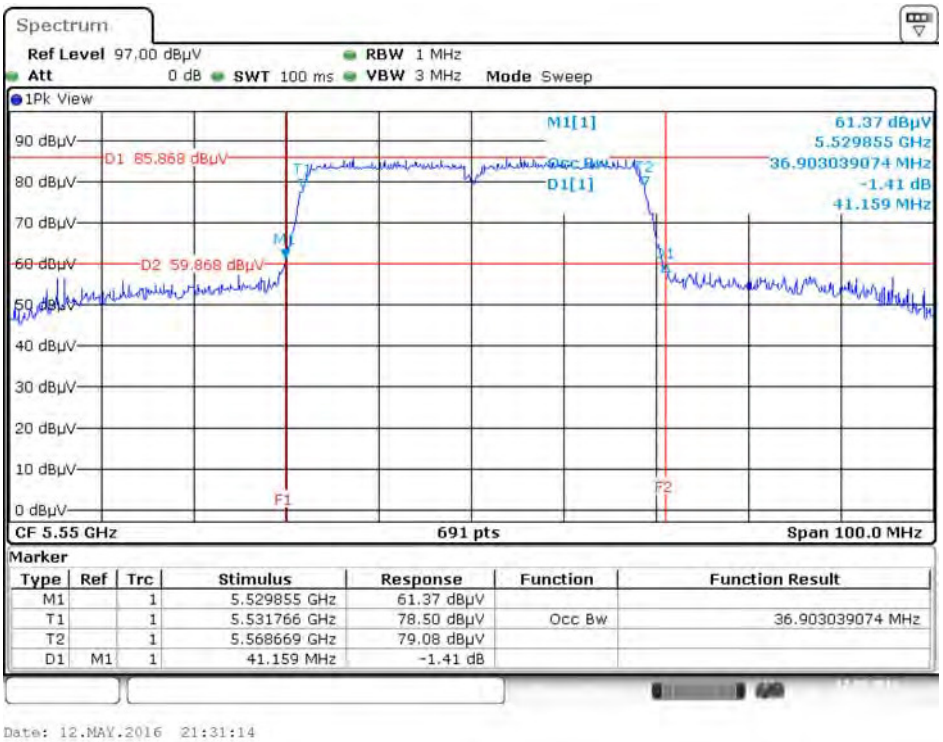
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5310 MHz



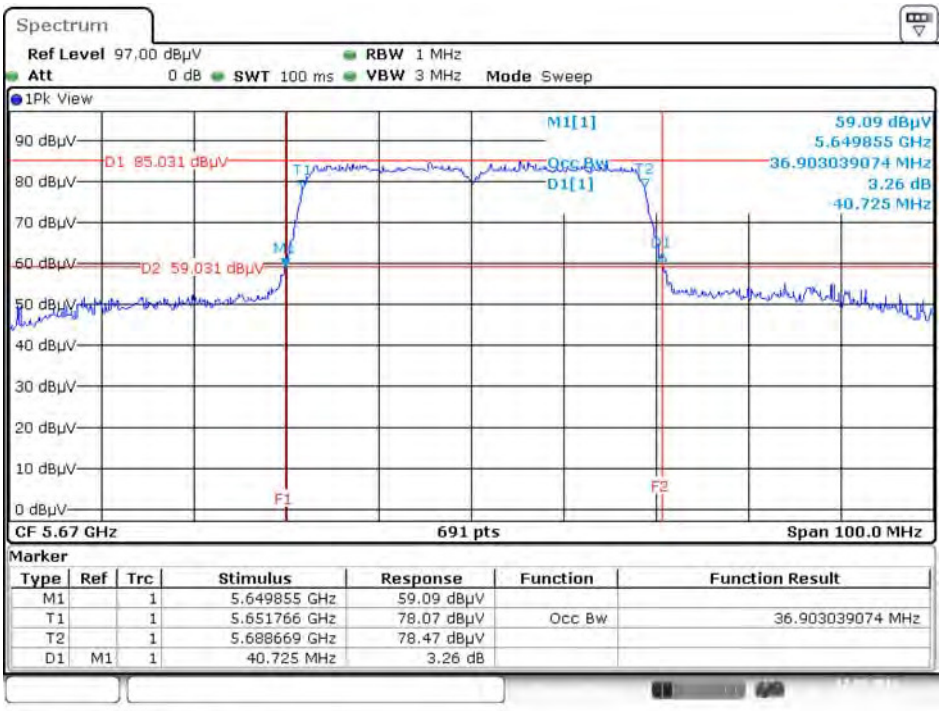
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5510 MHz



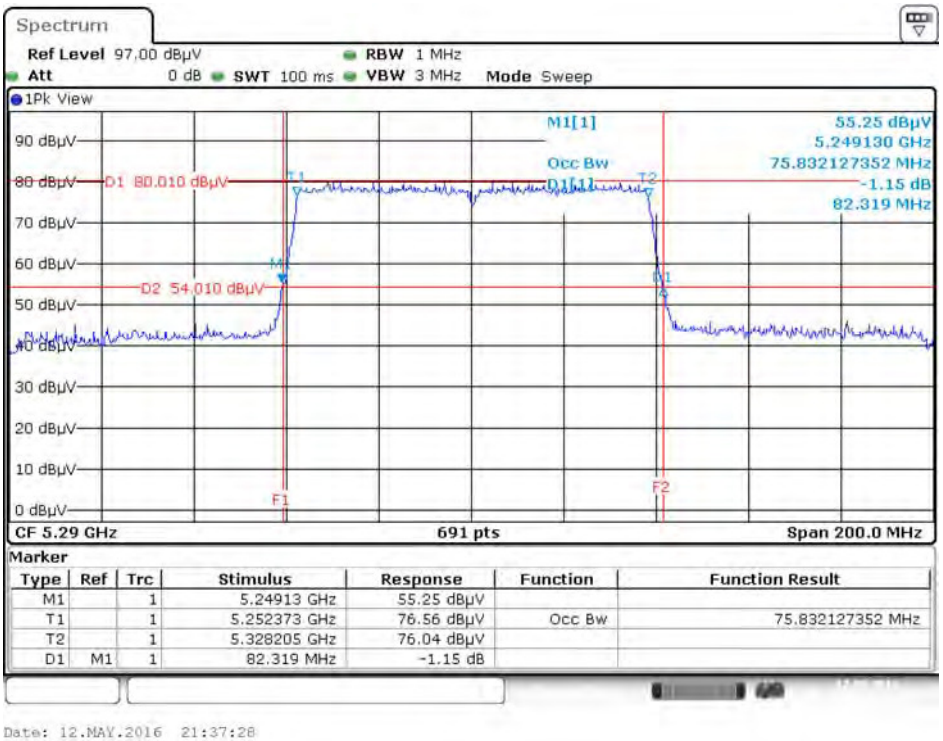
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5550 MHz



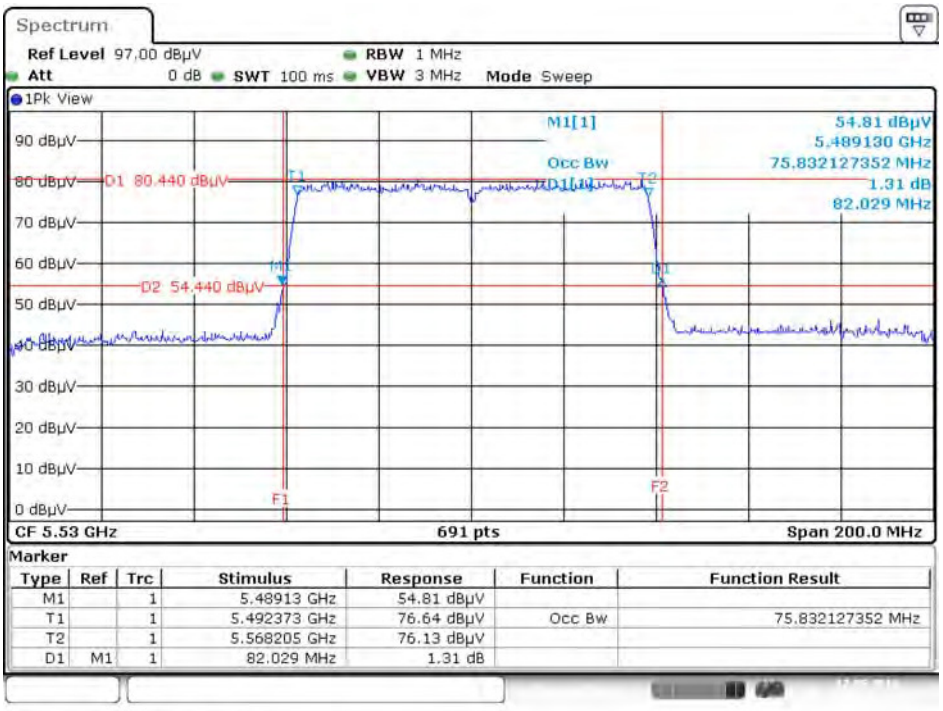
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5670 MHz



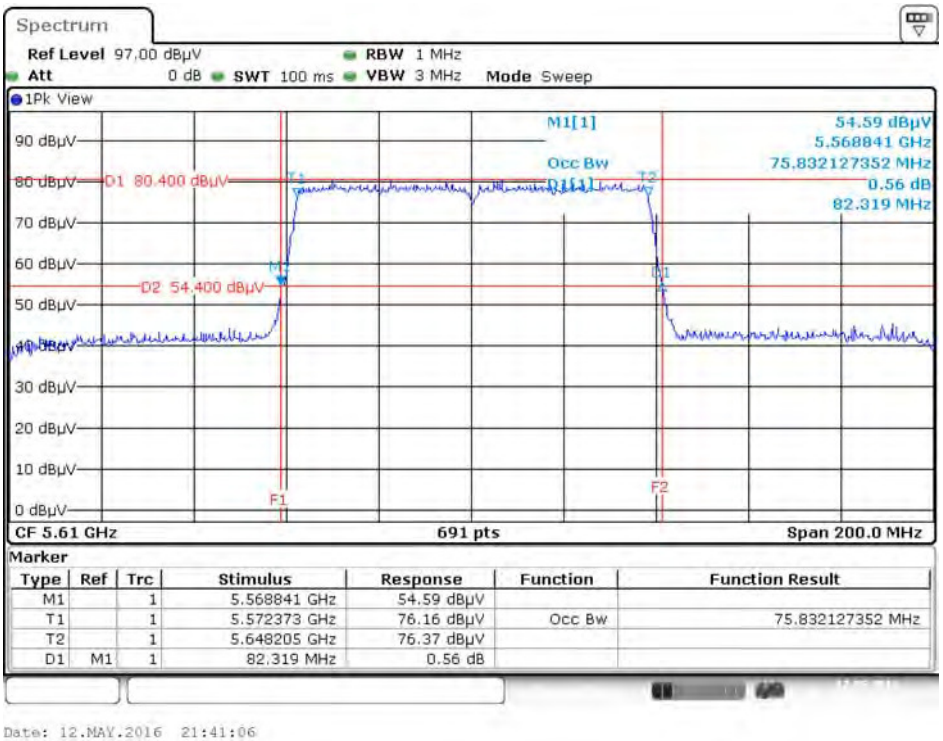
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5290 MHz



26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5530 MHz

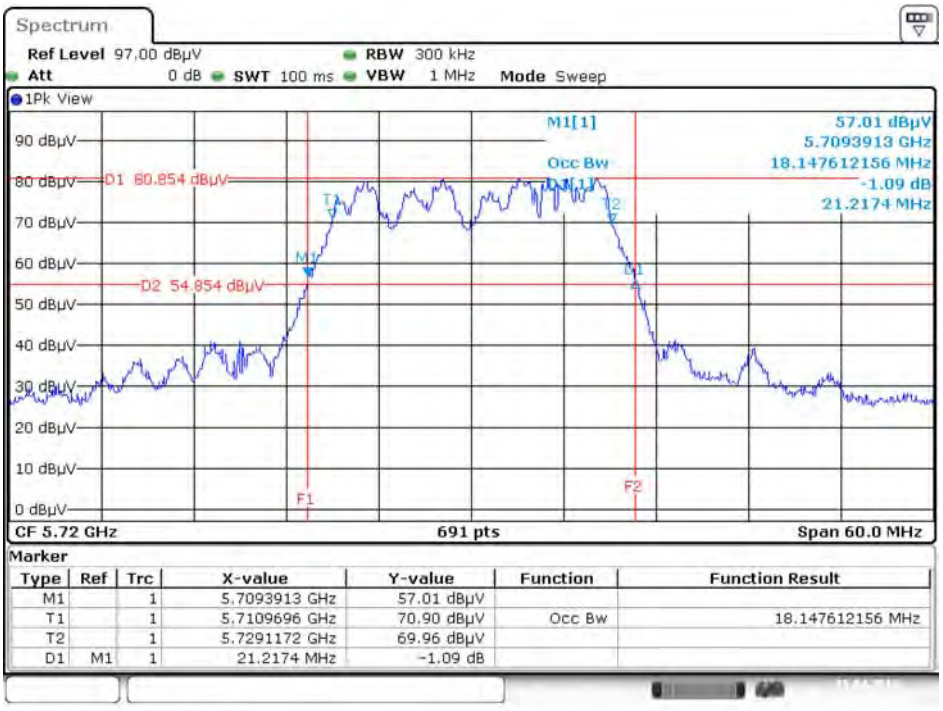


26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5610 MHz



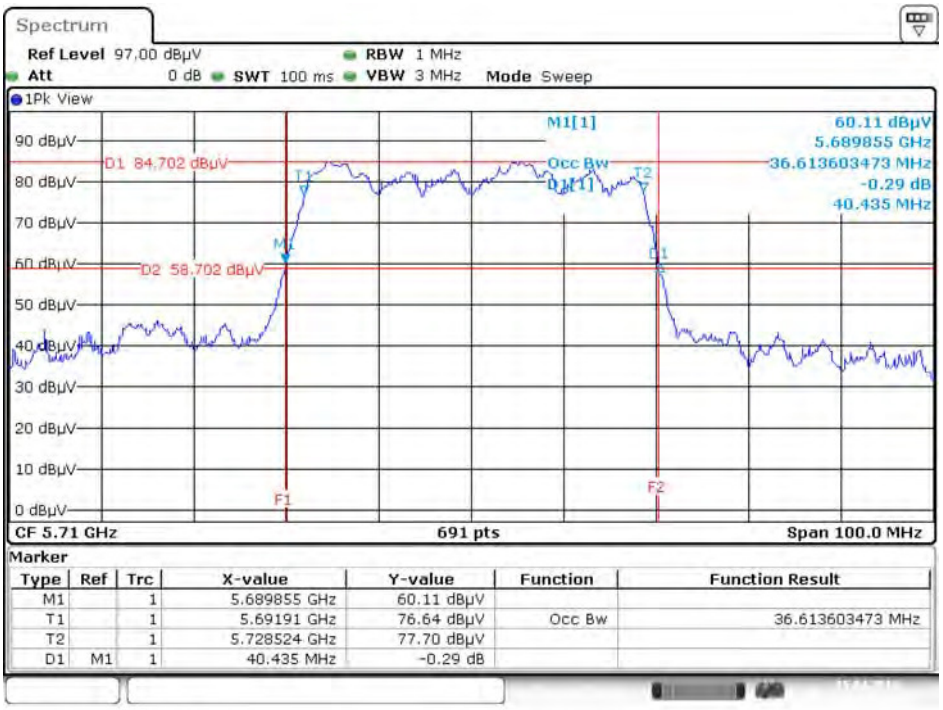
Straddle Channel

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5720 MHz



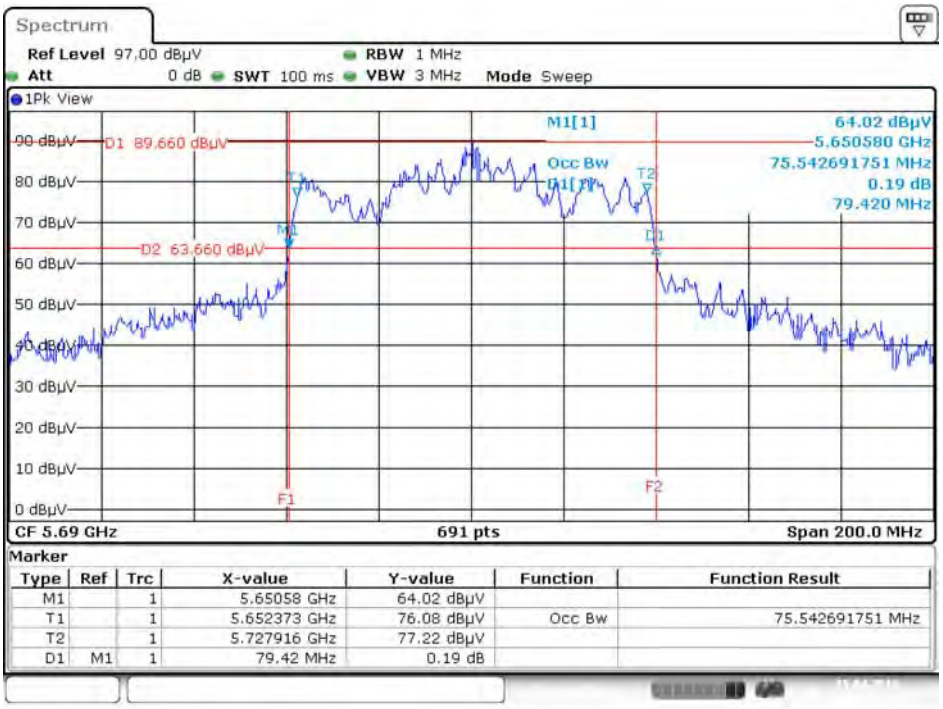
Date: 15.APR.2016 22:39:52

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5710 MHz



Date: 15.APR.2016 22:41:42

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5690 MHz



4.2. 6dB Spectrum Bandwidth Measurement

4.2.1. Limit

For digital modulation systems, the minimum 6dB bandwidth shall be at least 500 kHz.

4.2.2. Measuring Instruments and Setting

Please refer to section 5 of equipments list in this report. The following table is the setting of spectrum analyzer.

6dB Spectrum Bandwidth	
Spectrum Parameters	**Setting**
Attenuation	Auto
Span Frequency	> 6dB Bandwidth
RBW	100kHz
VBW	≥ 3 x RBW
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

4.2.3. Test Procedures

For Radiated 6dB Bandwidth Measurement:

1. The transmitter was radiated to the spectrum analyzer in peak hold mode.
2. Test was performed in accordance with KDB789033 D02 v01r02 for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - section (C) Emission Bandwidth.
3. Multiple antenna system was performed in accordance with KDB662911 D01 v02r01 Emissions Testing of Transmitters with Multiple Outputs in the Same Band.
4. Measured the spectrum width with power higher than 6dB below carrier.

4.2.4. Test Setup Layout

For Radiated 6dB Bandwidth Measurement:

This test setup layout is the same as that shown in section 4.5.4.

4.2.5. Test Deviation

There is no deviation with the original standard.

4.2.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.2.7. Test Result of 6dB Spectrum Bandwidth

Temperature	25°C	Humidity	59%
Test Engineer	Serway Li	Test Function	Non-beamforming function

Straddle Channel

Mode	Frequency	6dB BW (MHz)	6dB BW M1 (MHz)	UNII 3 BW (MHz)	Min. Limit (kHz)	Test Result
802.11a	5720 MHz	14.43	5711.88	1.32	500.00	Complies
802.11ac MCS0/Nss1 VHT20	5720 MHz	15.42	5711.19	1.61	500.00	Complies
802.11ac MCS0/Nss1 VHT40	5710 MHz	35.83	5692.38	3.20	500.00	Complies
802.11ac MCS0/Nss1 VHT80	5690 MHz	75.07	5652.61	2.68	500.00	Complies

Temperature	25°C	Humidity	59%
Test Engineer	Serway Li	Test Function	Beamforming function

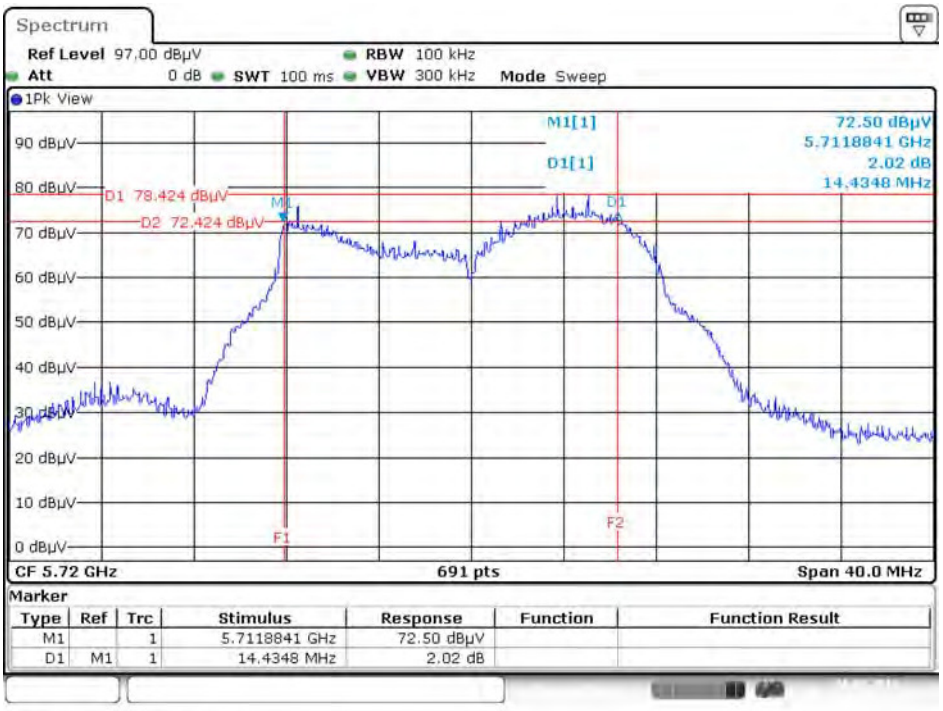
Straddle Channel

Mode	Frequency	6dB BW (MHz)	6dB BW M1 (MHz)	UNII 3 BW (MHz)	Min. Limit (kHz)	Test Result
802.11ac MCS0/Nss1 VHT20	5720 MHz	17.62	5711.48	4.10	500.00	Complies
802.11ac MCS0/Nss1 VHT40	5710 MHz	36.29	5692.03	3.32	500.00	Complies
802.11ac MCS0/Nss1 VHT80	5690 MHz	75.94	5652.61	3.55	500.00	Complies

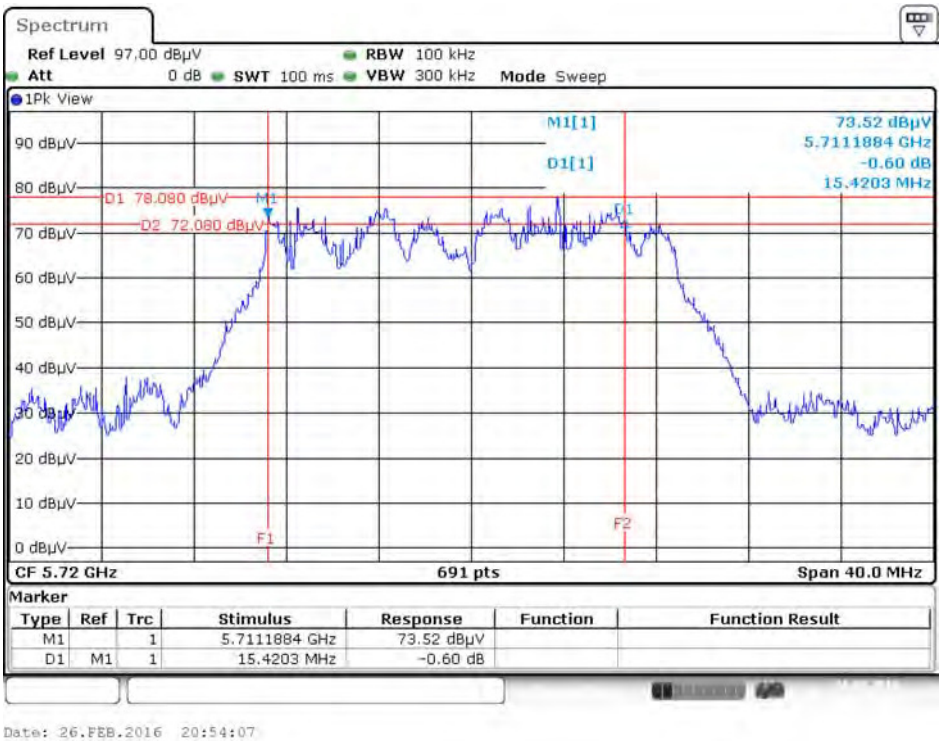
Straddle Channel

For non-beamforming function:

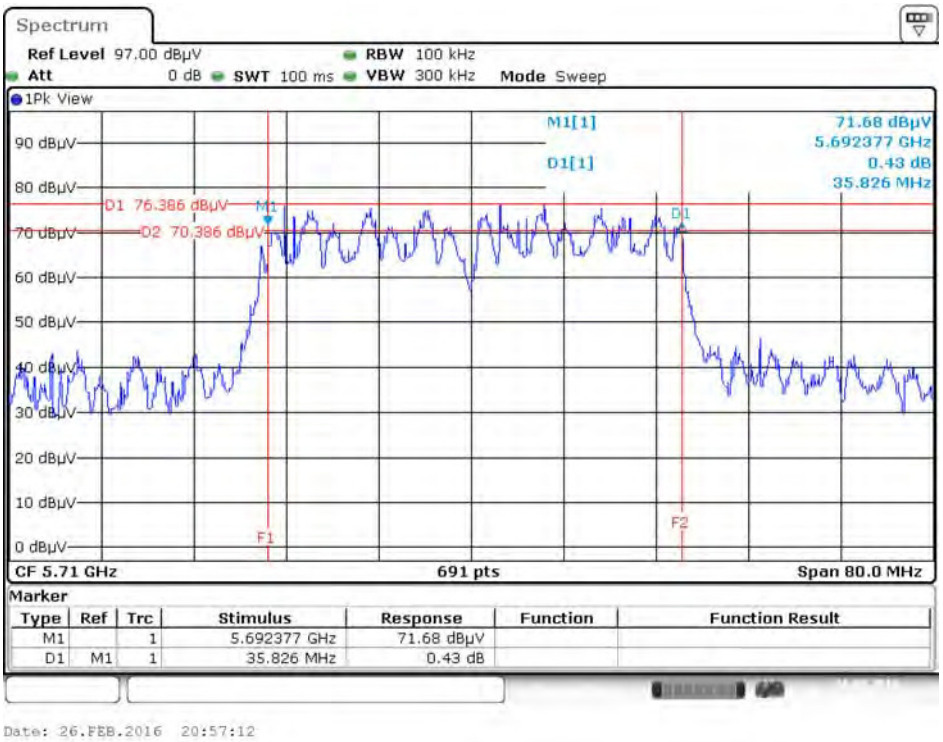
6 dB Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5720 MHz



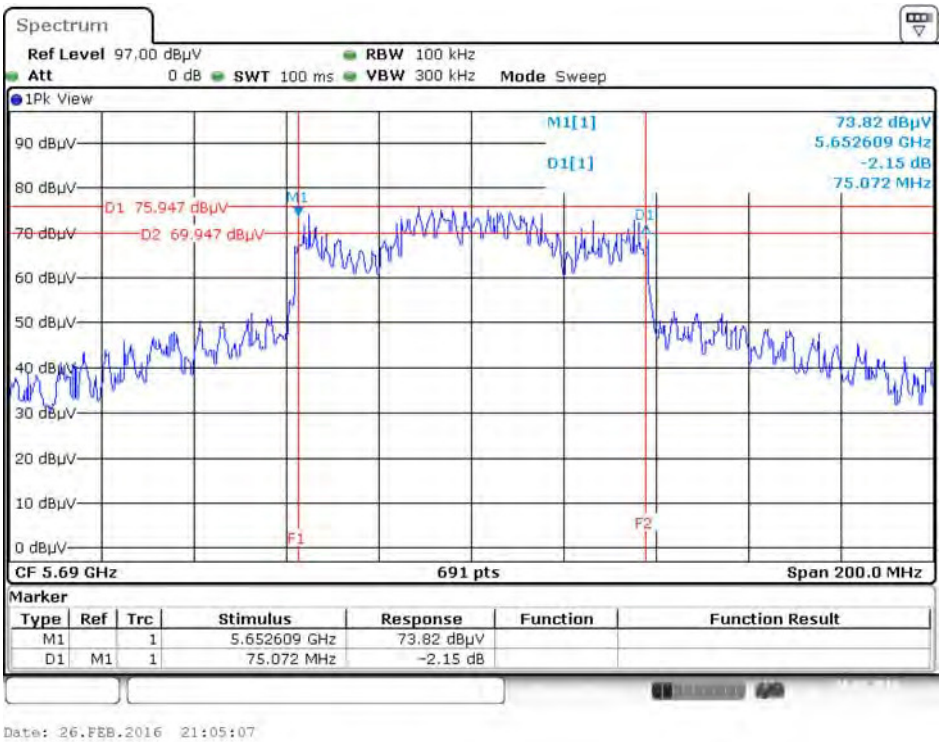
6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5720 MHz



6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5710 MHz

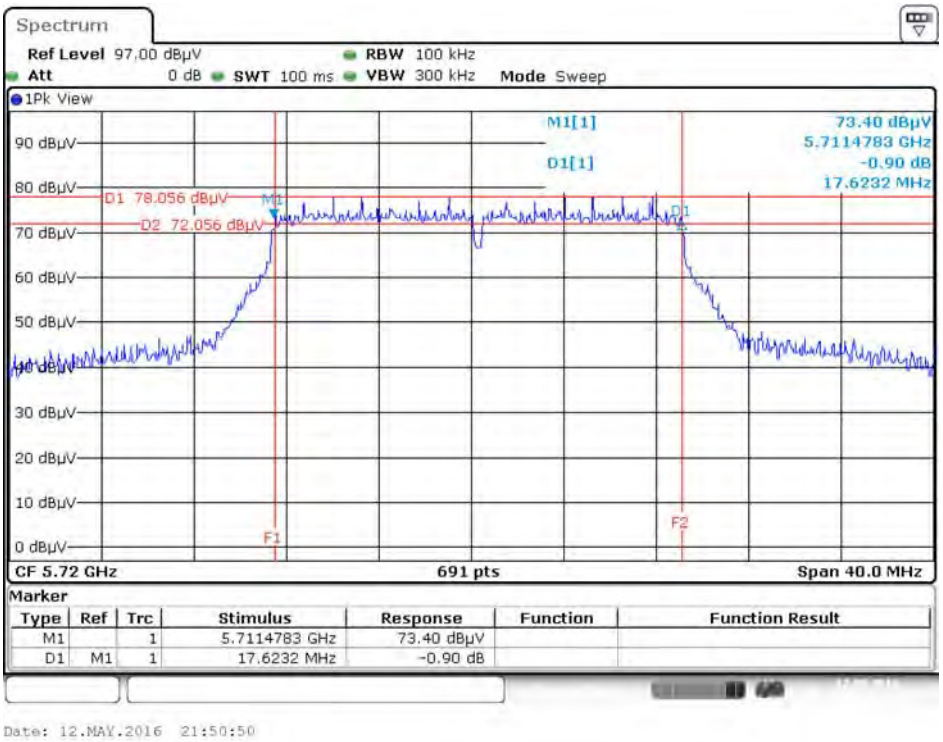


6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5690 MHz

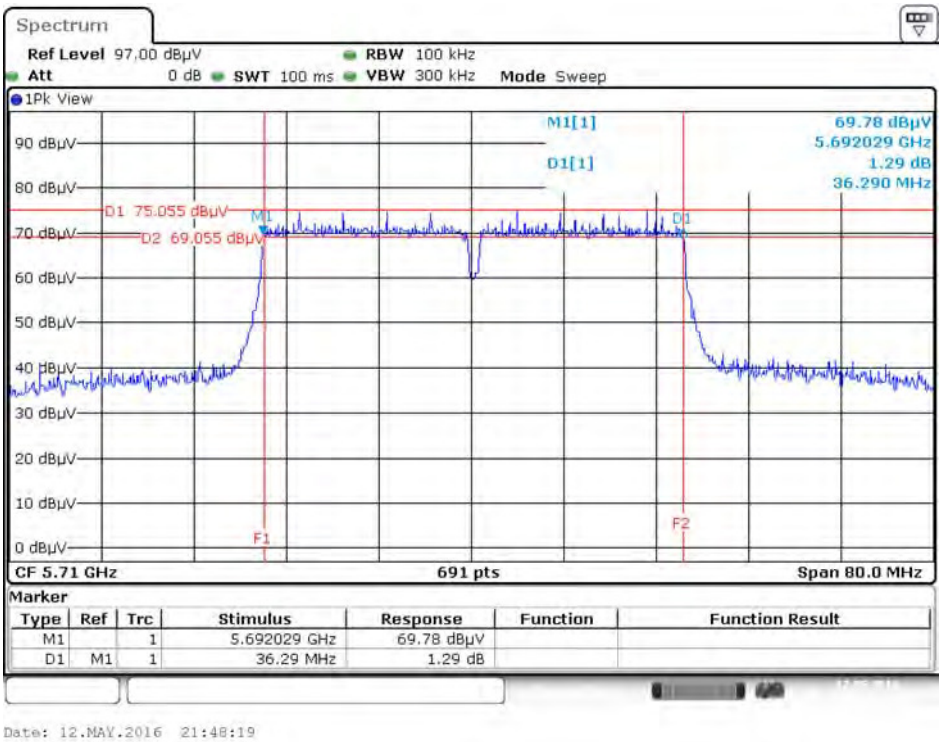


For beamforming function:

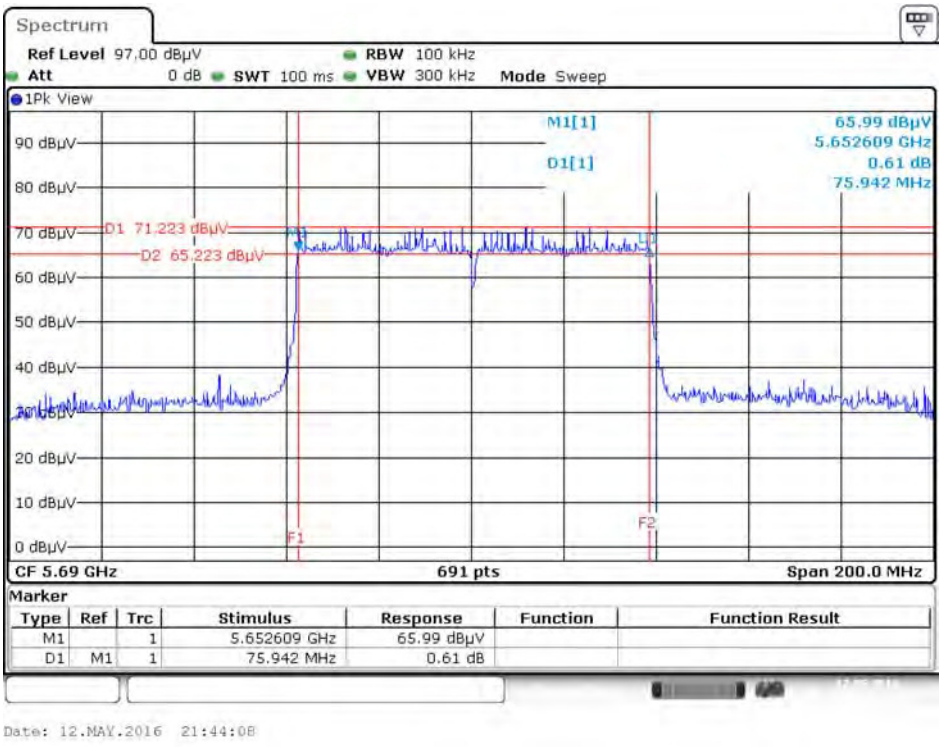
6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5720 MHz



6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5710 MHz



6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5690 MHz



4.3. Maximum Conducted Output Power Measurement

4.3.1. Limit

Frequency Band		Limit
☒	5.25-5.35 GHz	The maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW (24dBm) 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, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
☒	5.470-5.725 GHz	

4.3.2. Measuring Instruments and Setting

For other channel:

Please refer to section 5 of equipments list in this report The following table is the setting of the power meter.

Power Meter Parameter	Setting
Detector	AVERAGE

For straddle channel:

Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Encompass the entire emissions bandwidth (EBW) of the signal
RBW	1000 kHz
VBW	3000 kHz
Detector	RMS
Trace	Average Sweep count 100
Sweep Time	Auto

4.3.3. Test Procedures

For other channel:

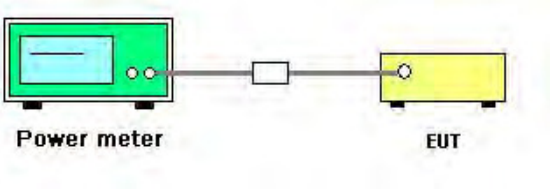
1. The transmitter output (antenna port) was connected to the power meter.
2. Test was performed in accordance with KDB789033 D02 v01r02 for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - section (E) Maximum conducted output power =>3. Measurement using a Power Meter (PM) =>b) Method PM-G (Measurement using a gated RF average power meter).
3. Multiple antenna systems was performed in accordance with KDB662911 D01 v02r01 Emissions Testing of Transmitters with Multiple Outputs in the Same Band.
4. When measuring maximum conducted output power with multiple antenna systems,add every result of the values by mathematic formula.

For straddle channel:

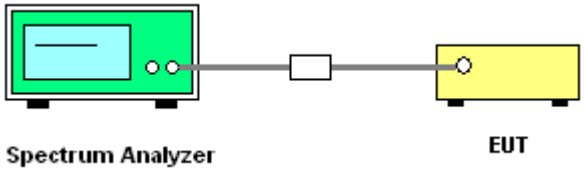
1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. Test was performed in accordance with FCC Public Notice DA 02-2138, August 30, 2002.

4.3.4. Test Setup Layout

For other channel:



For straddle channel:



4.3.5. Test Deviation

There is no deviation with the original standard.

4.3.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.3.7. Test Result of Maximum Conducted Output Power

Temperature	25°C	Humidity	59%
Test Engineer	Serway Li	Test Date	Feb. 15, 2016 ~ Feb. 26, 2016
Test Function	Non-beamforming function		

Mode	Frequency	Conducted Power (dBm)					Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Chain 4	Total		
802.11a	5260 MHz	13.95	14.57	14.26	14.34	20.31	23.98	Complies
	5300 MHz	13.92	14.53	14.28	14.54	20.35	23.98	Complies
	5320 MHz	13.93	14.47	14.14	14.55	20.30	23.98	Complies
	5500 MHz	12.53	12.58	12.55	13.25	18.76	23.98	Complies
	5580 MHz	12.52	12.96	12.68	13.14	18.85	23.98	Complies
	5700 MHz	12.75	12.77	12.41	13.25	18.83	23.98	Complies
802.11ac MCS0/Nss1 VHT20	5260 MHz	14.01	14.37	14.18	14.58	20.31	23.98	Complies
	5300 MHz	14.03	14.55	14.29	14.44	20.35	23.98	Complies
	5320 MHz	13.98	14.23	14.21	14.73	20.32	23.98	Complies
	5500 MHz	13.08	12.84	12.67	13.25	18.99	23.98	Complies
	5580 MHz	12.94	13.10	12.68	13.11	18.98	23.98	Complies
	5700 MHz	12.88	12.96	12.59	13.46	19.00	23.98	Complies
802.11ac MCS0/Nss1 VHT40	5270 MHz	16.94	17.32	17.27	17.98	23.41	23.98	Complies
	5310 MHz	13.93	13.28	13.36	13.14	19.46	23.98	Complies
	5510 MHz	14.63	14.12	14.47	14.24	20.39	23.98	Complies
	5550 MHz	15.38	15.53	15.63	16.41	21.78	23.98	Complies
	5670 MHz	15.69	15.71	15.63	16.42	21.90	23.98	Complies
802.11ac MCS0/Nss1 VHT80	5290 MHz	12.13	11.64	11.74	11.75	17.84	23.98	Complies
	5530 MHz	14.72	14.23	14.55	14.74	20.59	23.98	Complies
	5610 MHz	16.38	15.35	15.76	16.44	22.03	23.98	Complies

Straddle Channel

Mode	Frequency	Conducted Power (dBm)					Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Chain 4	Total		
802.11a	5720 MHz (UNII 2C)	11.99	11.45	11.32	12.14	17.76	22.53	Complies
	5720 MHz (UNII 3)	5.86	5.67	5.59	6.07	11.82	30.00	Complies
802.11ac	5720 MHz (UNII 2C)	12.18	11.70	11.74	12.31	18.01	22.84	Complies
MCS0/Nss1 VHT20	5720 MHz (UNII 3)	6.66	6.43	6.36	6.84	12.60	30.00	Complies
802.11ac	5710 MHz (UNII 2C)	15.39	15.19	15.05	15.96	21.43	23.98	Complies
MCS0/Nss1 VHT40	5710 MHz (UNII 3)	5.31	5.29	5.13	6.11	11.50	30.00	Complies
802.11ac	5690 MHz (UNII 2C)	15.73	15.67	16.00	16.49	22.01	23.98	Complies
MCS0/Nss1 VHT80	5690 MHz (UNII 3)	2.32	1.97	2.83	2.99	8.57	30.00	Complies

Note :

(UNII 2C)

For 802.11a

5720 MHz power limit=11+10log(B);11+10log(14.22)=22.53dBm<23.98dBm, so limit=22.53dBm.

For 802.11ac VHT20

5720 MHz power limit=11+10log(B);11+10log(15.26)=22.84dBm<23.98dBm, so limit=22.84dBm.

Temperature	25°C	Humidity	59%
Test Engineer	Serway Li	Test Date	Apr. 15, 2016 ~ May 12, 2016
Test Function	Beamforming function		

Mode	Frequency	Conducted Power (dBm)					Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Chain 4	Total		
802.11ac MCS0/Nss1 VHT20	5260 MHz	13.10	12.42	12.49	11.97	18.53	20.25	Complies
	5300 MHz	13.37	12.35	12.52	11.86	18.58	20.25	Complies
	5320 MHz	13.40	12.19	12.76	11.55	18.55	20.25	Complies
	5500 MHz	13.47	12.44	12.94	11.51	18.67	18.74	Complies
	5580 MHz	13.25	12.79	12.14	12.35	18.67	18.74	Complies
	5700 MHz	13.16	12.46	12.44	12.45	18.66	18.74	Complies
802.11ac MCS0/Nss1 VHT40	5270 MHz	13.45	12.64	12.16	11.77	18.57	20.25	Complies
	5310 MHz	13.52	12.41	11.82	11.36	18.38	20.25	Complies
	5510 MHz	13.64	12.64	11.89	11.73	18.56	18.74	Complies
	5550 MHz	13.61	12.62	12.04	12.15	18.67	18.74	Complies
	5670 MHz	13.03	12.80	11.66	12.79	18.62	18.74	Complies
802.11ac MCS0/Nss1 VHT80	5290 MHz	11.69	11.13	10.89	10.26	17.04	20.25	Complies
	5530 MHz	12.76	12.10	11.60	11.43	18.02	18.74	Complies
	5610 MHz	13.12	12.83	12.36	12.35	18.70	18.74	Complies

Note: $Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$

5250~5350 MHz directional gain=9.73dBi >6dBi, so limit=23.98 – (9.73 – 6)=20.25dBm.

5470~5725 MHz directional gain=11.24dBi >6dBi, so limit=23.98 – (11.24 – 6)=18.74dBm.

Straddle Channel

Mode	Frequency	Conducted Power (dBm)					Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Chain 4	Total		
802.11ac	5720 MHz (UNII 2C)	11.25	11.35	11.61	12.06	17.60	17.69	Complies
MCS0/Nss1 VHT20	5720 MHz (UNII 3)	5.68	5.67	6.14	6.70	12.09	25.77	Complies
802.11ac	5710 MHz (UNII 2C)	12.55	12.62	12.01	12.66	18.49	18.74	Complies
MCS0/Nss1 VHT40	5710 MHz (UNII 3)	2.74	2.70	2.13	3.21	8.73	25.77	Complies
802.11ac	5690 MHz (UNII 2C)	12.56	12.56	12.68	12.84	18.68	18.74	Complies
MCS0/Nss1 VHT80	5690 MHz (UNII 3)	-1.75	-1.76	-1.20	-0.93	4.63	25.77	Complies

Note:

(UNII 2C)

For 802.11ac VHT20:

5720 MHz=11+10log(B);11+10log(15.61)-(11.24-6)=17.69dBm<23.98dBm, so limit=17.69dBm.

For 802.11ac VHT40 / 802.11ac VHT80:

$$= Directional Gain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$$ =11.24dBi > 6dBi, So Limit =23.98-(11.24-6)=18.74dBm.

(UNII 3)

For 802.11ac VHT20 / 802.11ac VHT40 / 802.11ac VHT80:

$$= Directional Gain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$$ =10.23dBi > 6dBi, So Limit =30-(10.23-6)=25.77dBm.

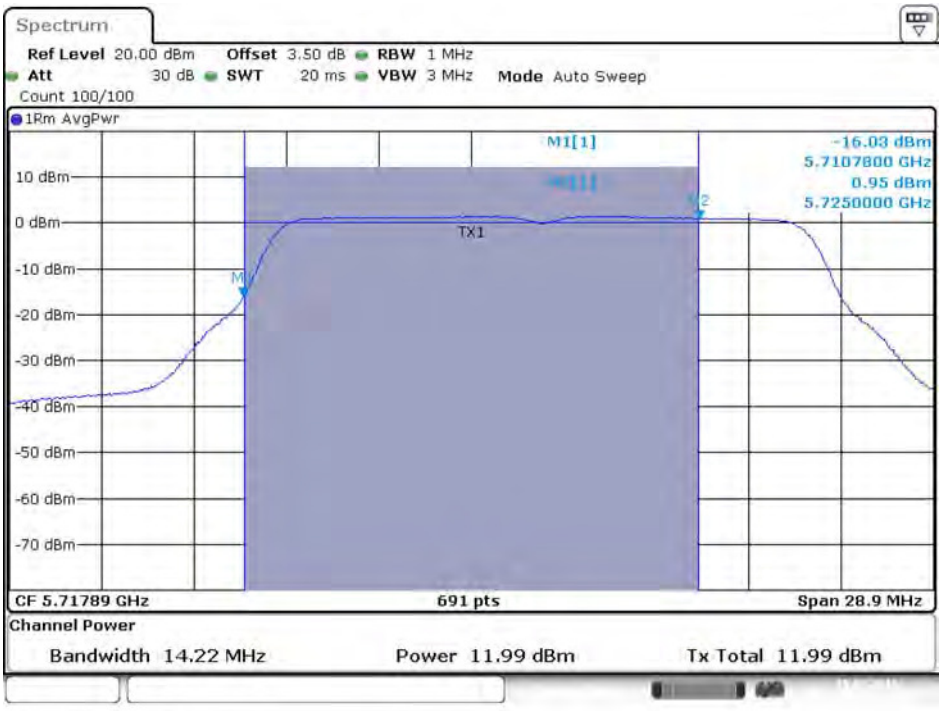
Note: All the test values were listed in the report.

For plots, only the channel with worse result was shown.

Straddle Channel

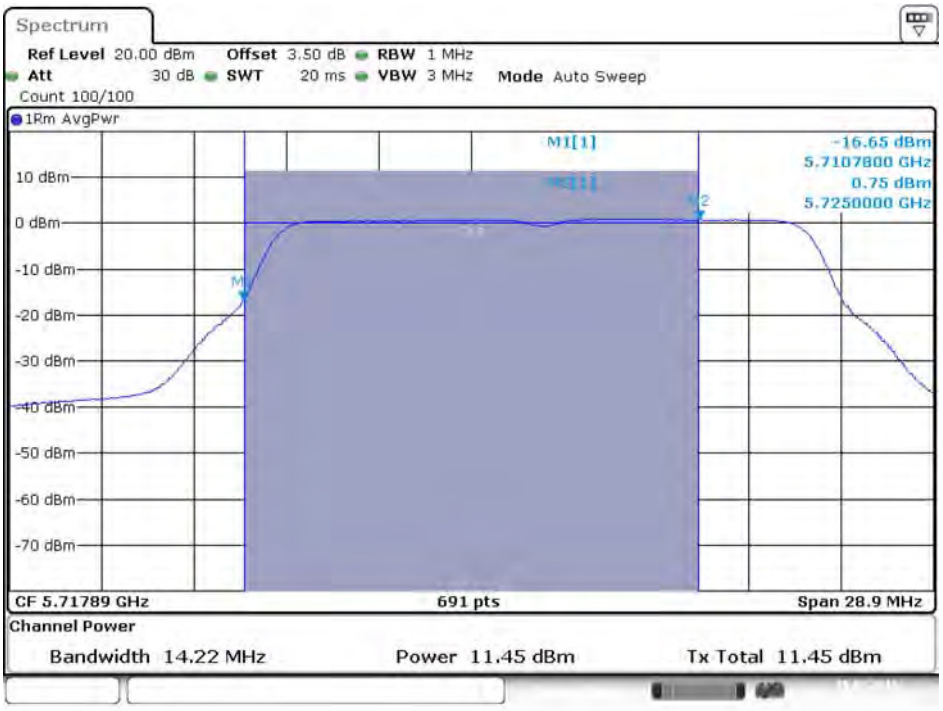
For non-beamforming function:

Conducted Output Power Plot on Configuration IEEE 802.11a / Chain 1 / 5720 MHz (UNII 2C)



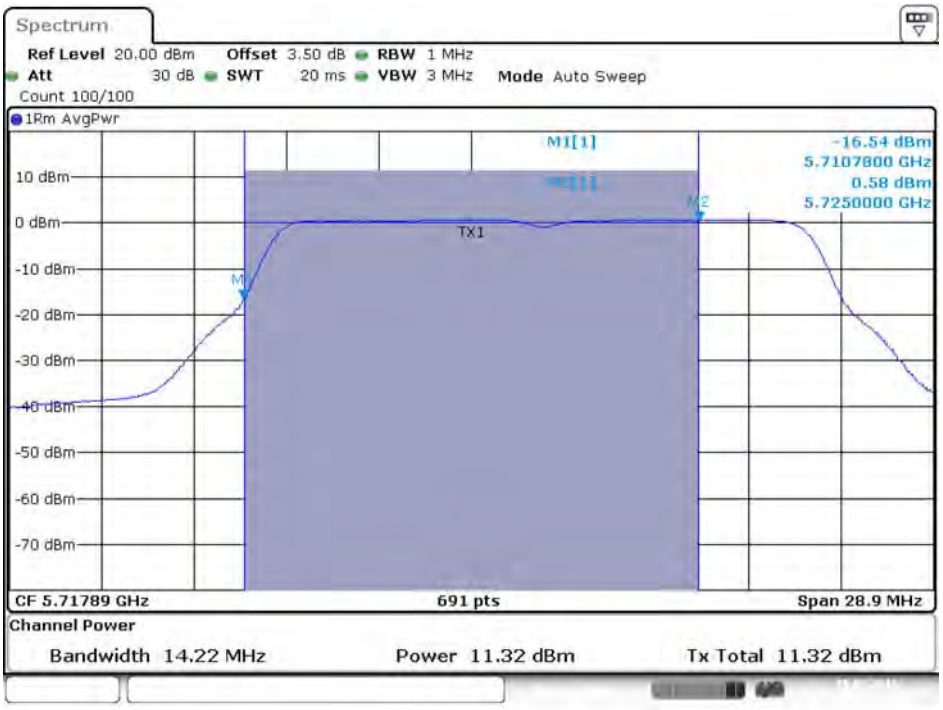
Date: 15.FEB.2016 22:23:31

Conducted Output Power Plot on Configuration IEEE 802. 11a / Chain 2 / 5720 MHz (UNII 2C)



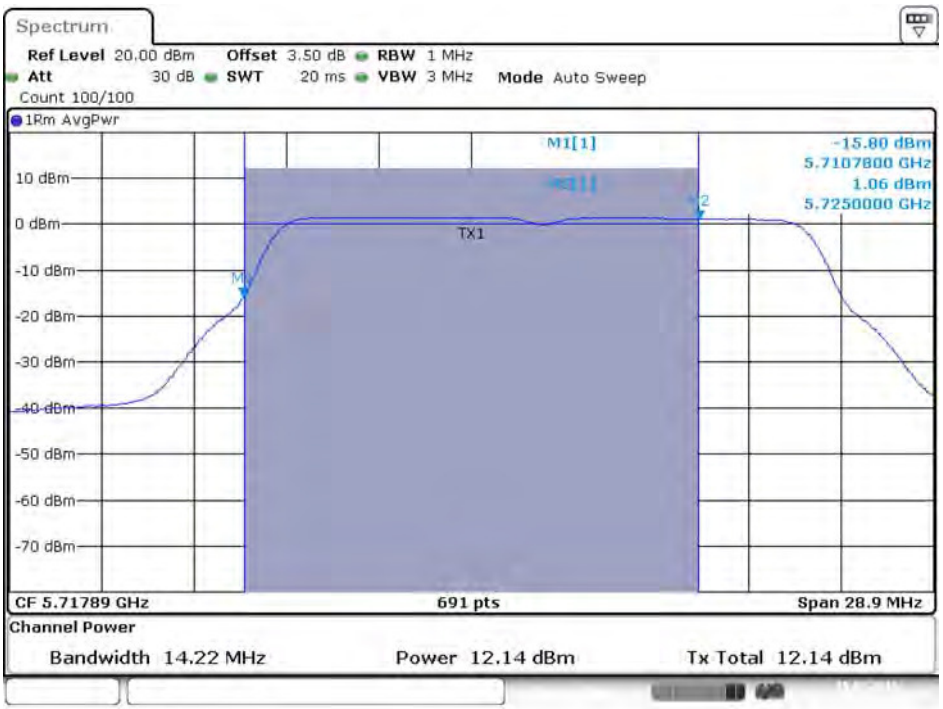
Date: 15.FEB.2016 22:23:38

Conducted Output Power Plot on Configuration IEEE 802. 11a / Chain 3 / 5720 MHz (UNII 2C)



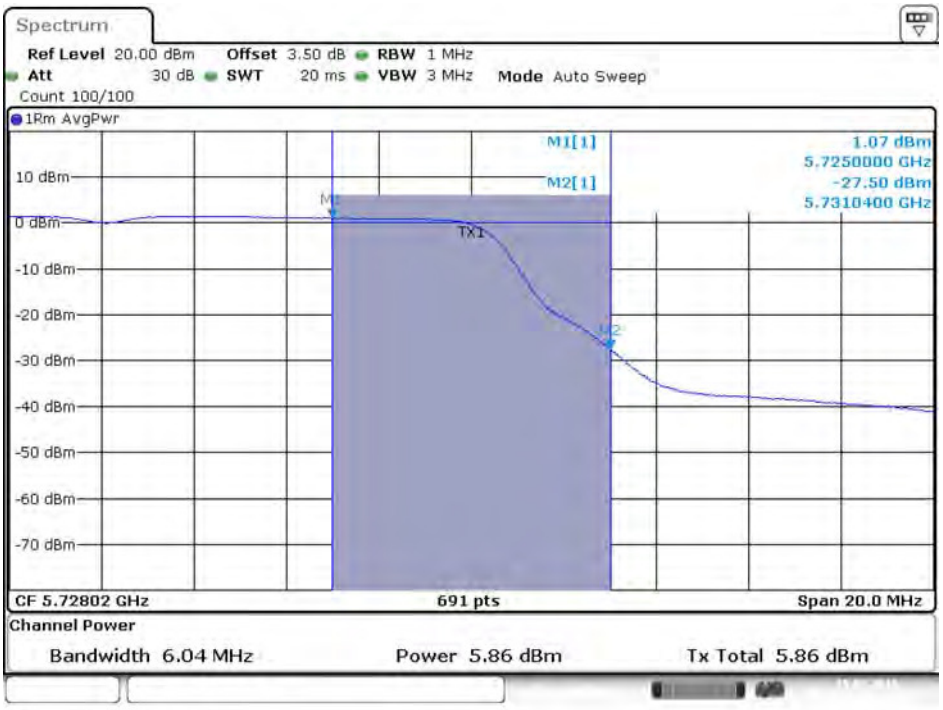
Date: 15.FEB.2016 22:23:46

Conducted Output Power Plot on Configuration IEEE 802.11a / Chain 4 / 5720 MHz (UNII 2C)



Date: 15.FEB.2016 22:23:53

Conducted Output Power Plot on Configuration IEEE 802. 11a / Chain 1 / 5720 MHz (UNII 3)



Date: 15.FEB.2016 22:23:34

Conducted Output Power Plot on Configuration IEEE 802. 11a / Chain 2 / 5720 MHz (UNII 3)

Date: 15.FEB.2016 22:23:42

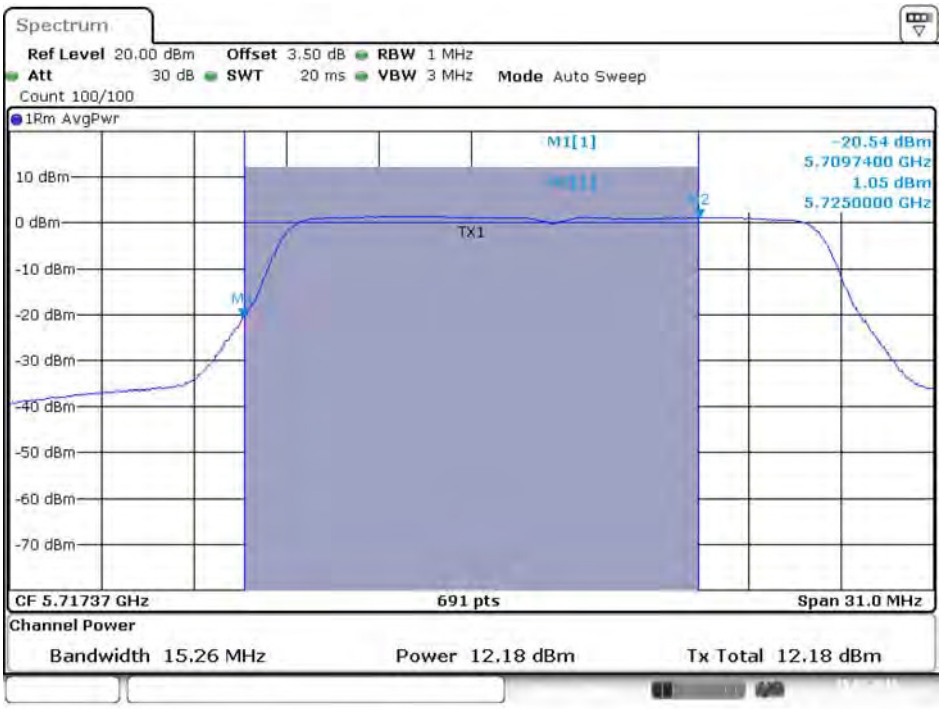
Conducted Output Power Plot on Configuration IEEE 802. 11a / Chain 3 / 5720 MHz (UNII 3)

Date: 15.FEB.2016 22:23:49

Conducted Output Power Plot on Configuration IEEE 802. 11a / Chain 4 / 5720 MHz (UNII 3)

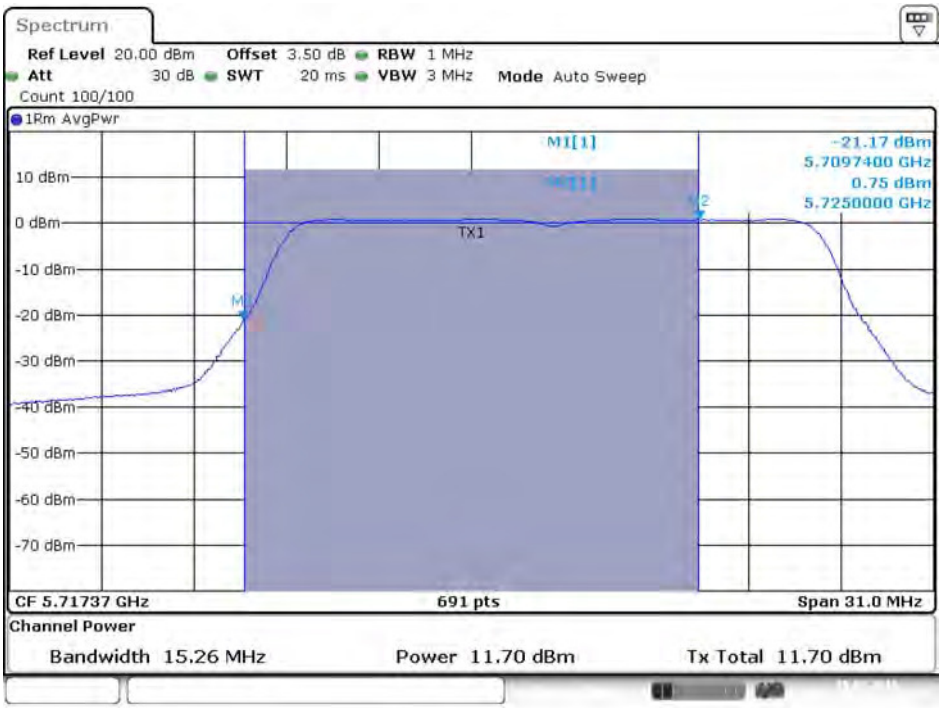
Date: 15.FEB.2016 22:23:56

Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 / 5720 MHz (UNII 2C)



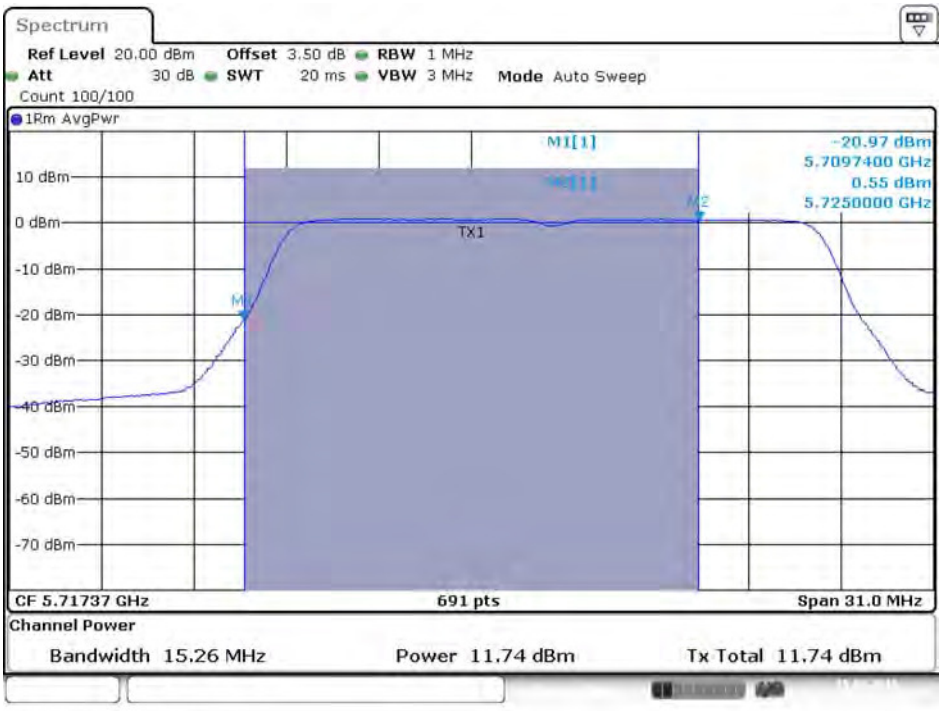
Date: 15.FEB.2016 22:35:49

Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 2 / 5720 MHz (UNII 2C)



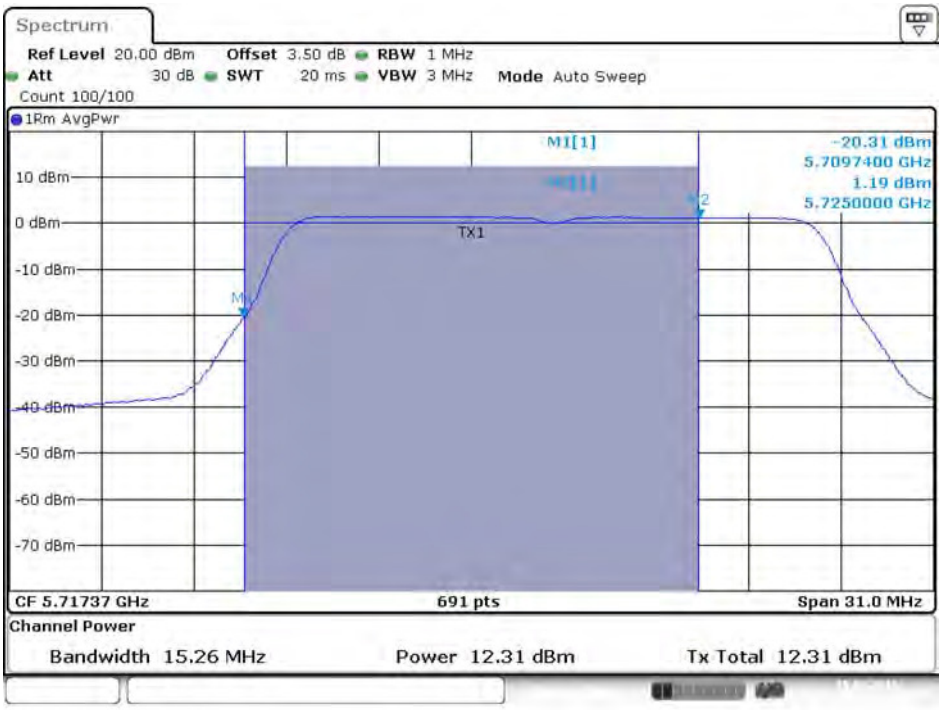
Date: 15.FEB.2016 22:35:56

Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 / 5720 MHz (UNII 2C)



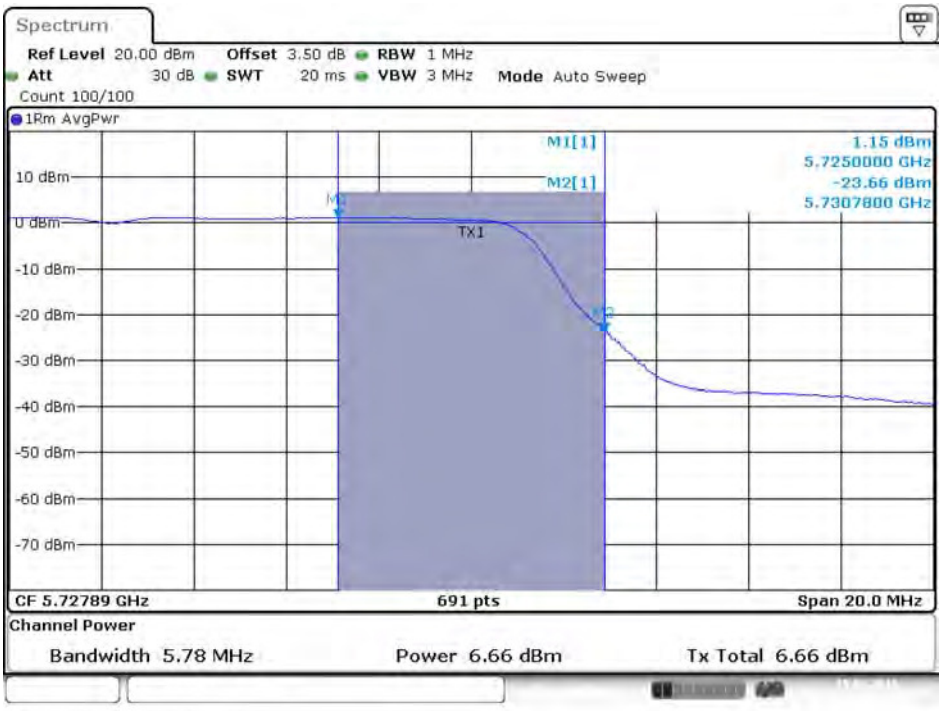
Date: 15.FEB.2016 22:36:03

Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4 / 5720 MHz (UNII 2C)



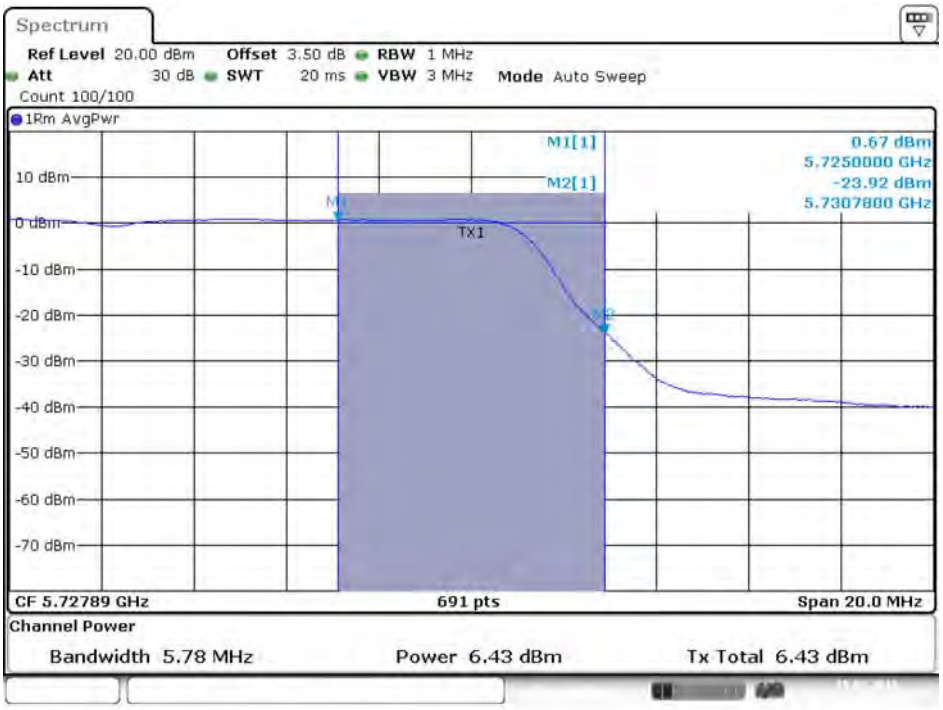
Date: 15.FEB.2016 22:36:10

Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 / 5720 MHz (UNII 3)



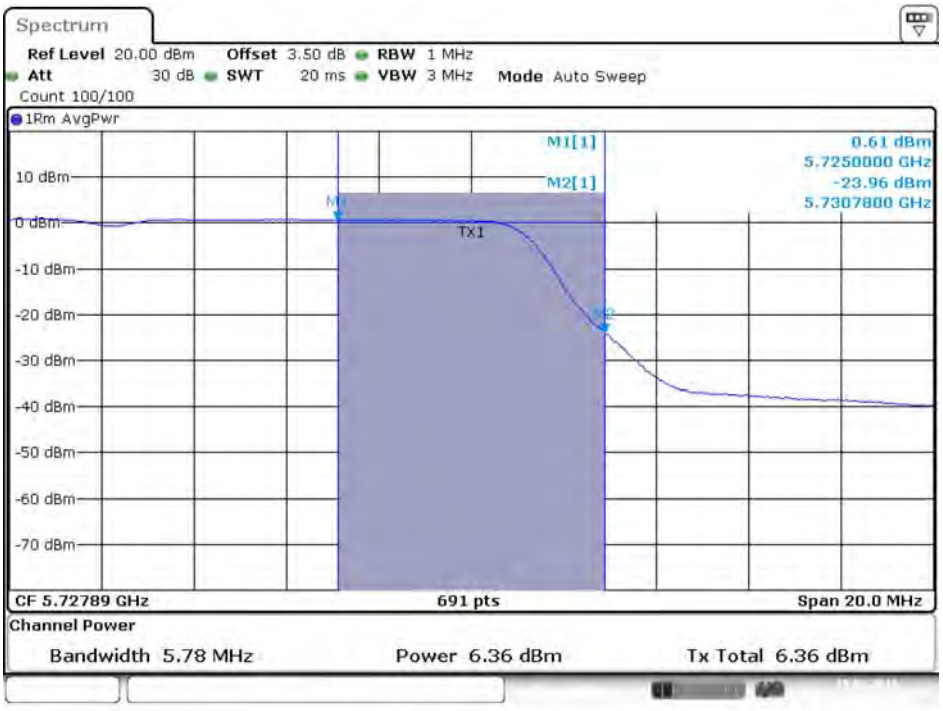
Date: 15.FEB.2016 22:35:52

Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 2 / 5720 MHz (UNII 3)



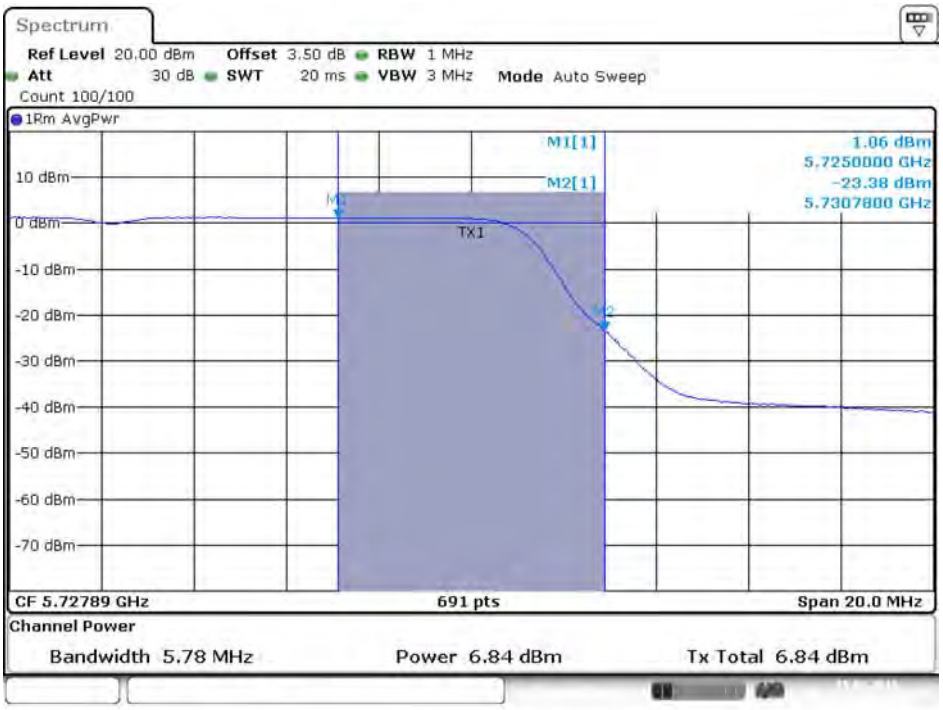
Date: 15.FEB.2016 22:35:59

Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 / 5720 MHz (UNII 3)



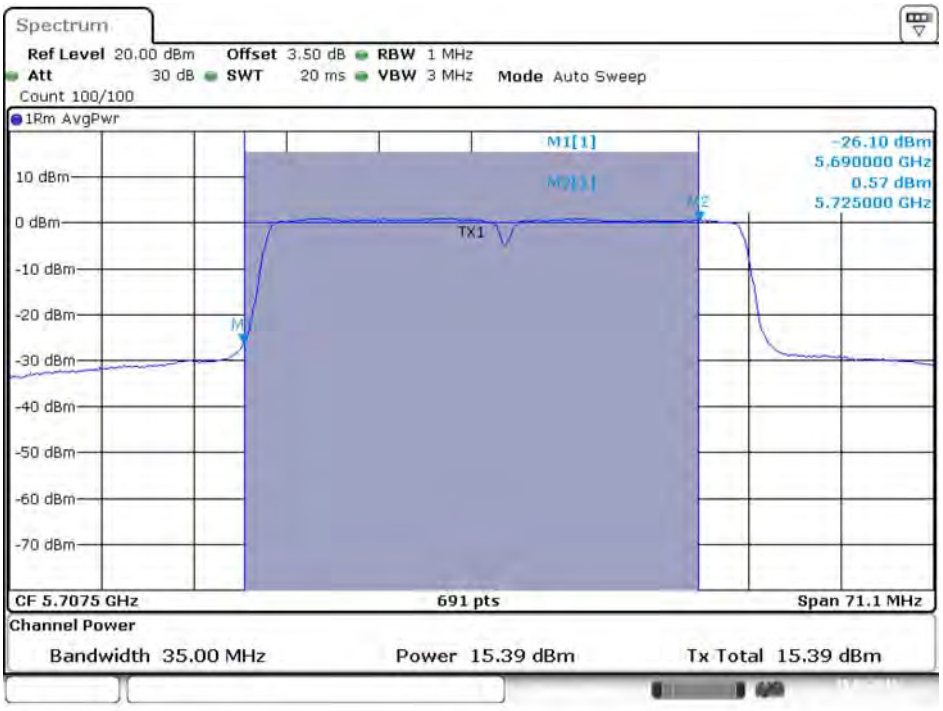
Date: 15.FEB.2016 22:36:06

Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4 / 5720 MHz (UNII 3)



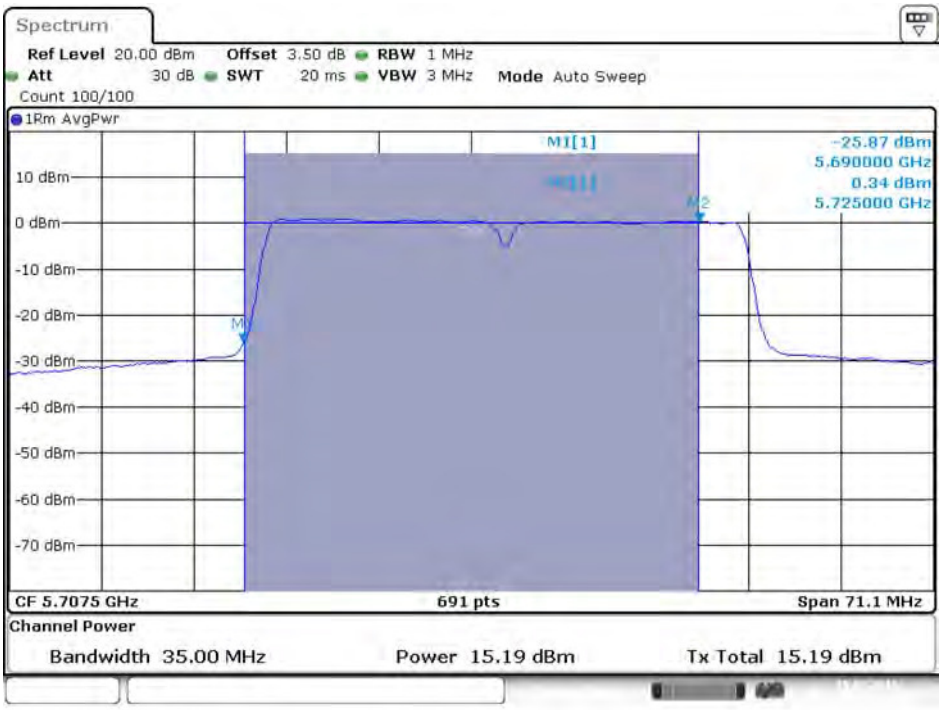
Date: 15.FEB.2016 22:36:13

Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 / 5710 MHz (UNII 2C)



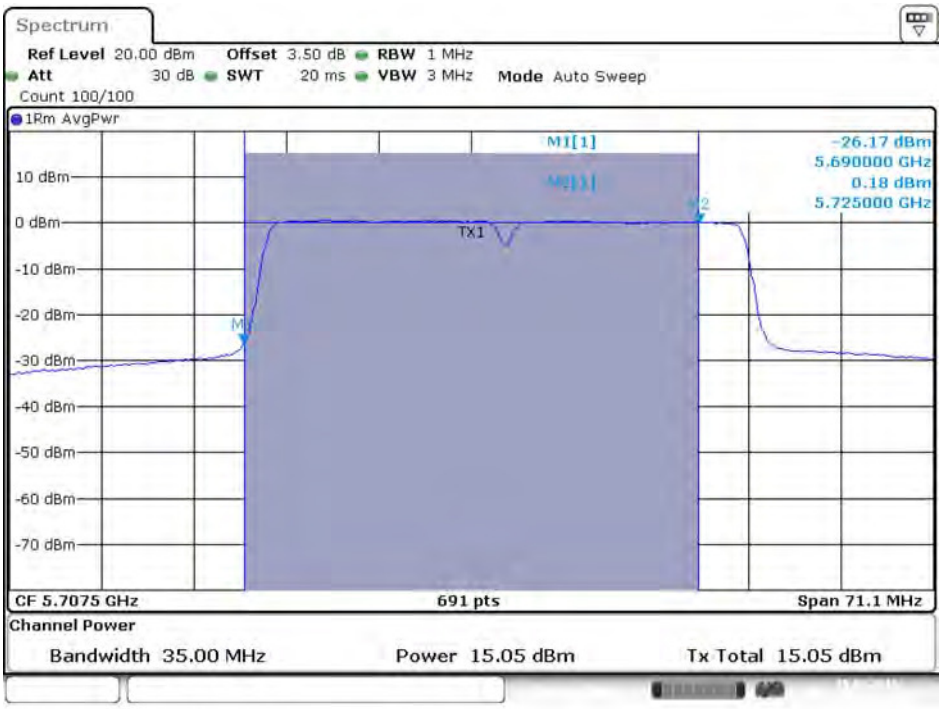
Date: 15.FEB.2016 22:39:48

Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 2 / 5710 MHz (UNII 2C)



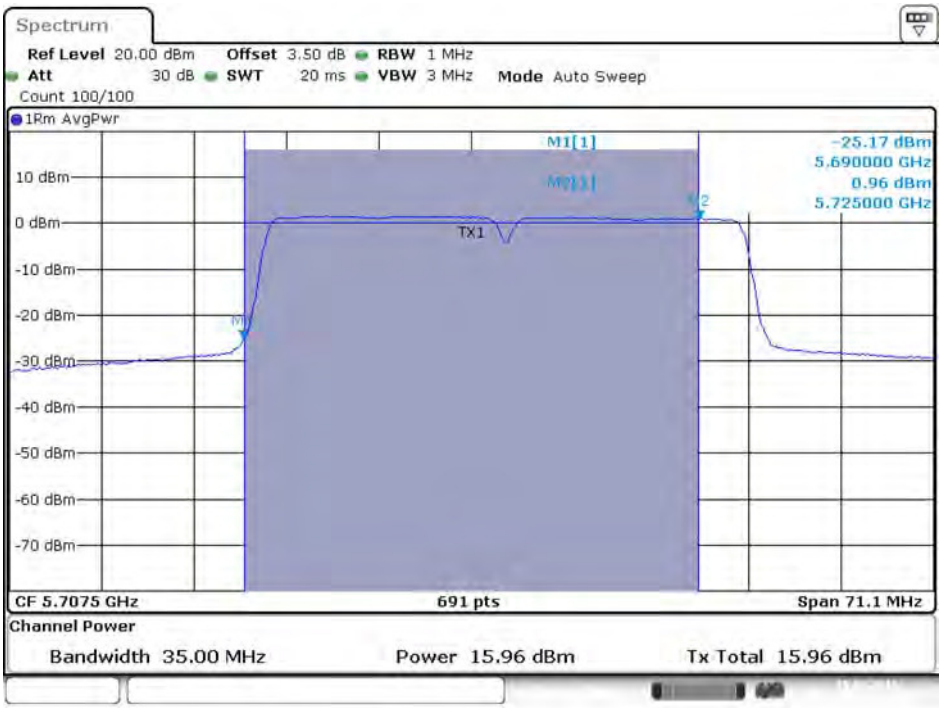
Date: 15.FEB.2016 22:39:55

Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 3 / 5710 MHz (UNII 2C)



Date: 15.FEB.2016 22:40:02

Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 4 / 5710 MHz (UNII 2C)



Date: 15.FEB.2016 22:40:09

Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 / 5710 MHz (UNII 3)

Date: 15.FEB.2016 22:39:51

Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 2 / 5710 MHz (UNII 3)

Date: 15.FEB.2016 22:39:58

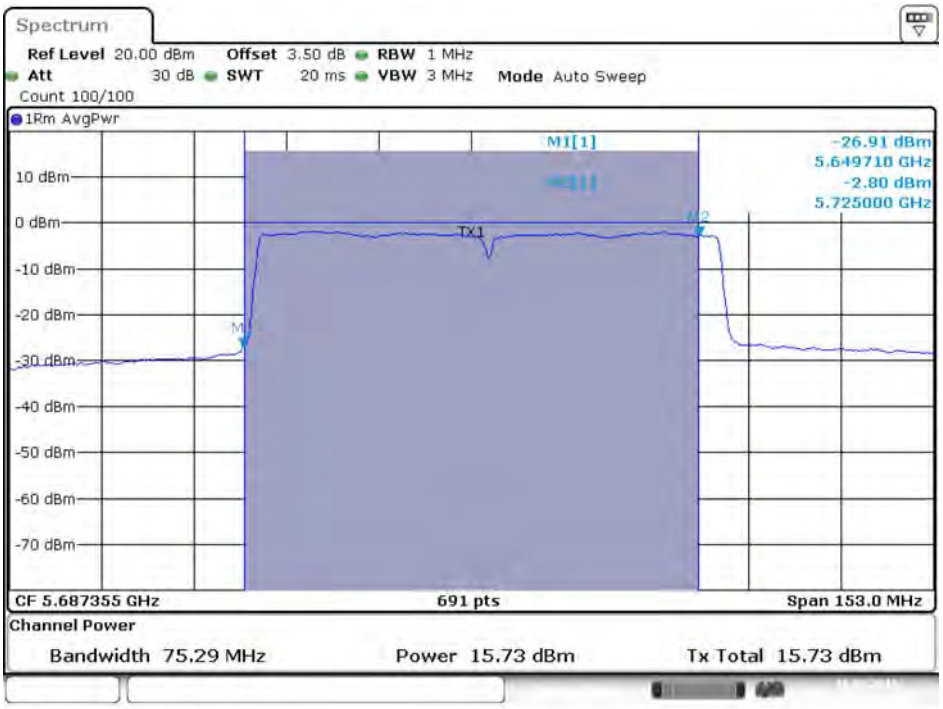
Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 3 / 5710 MHz (UNII 3)

Date: 15.FEB.2016 22:40:05

Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 4 / 5710 MHz (UNII 3)

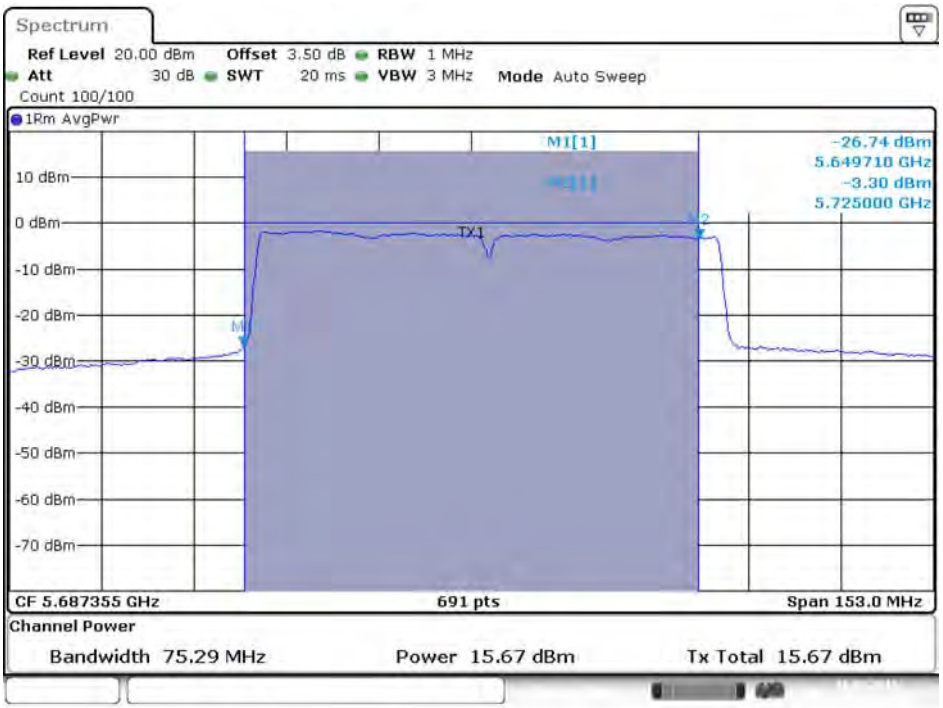
Date: 15.FEB.2016 22:40:12

Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 / 5690 MHz (UNII 2C)



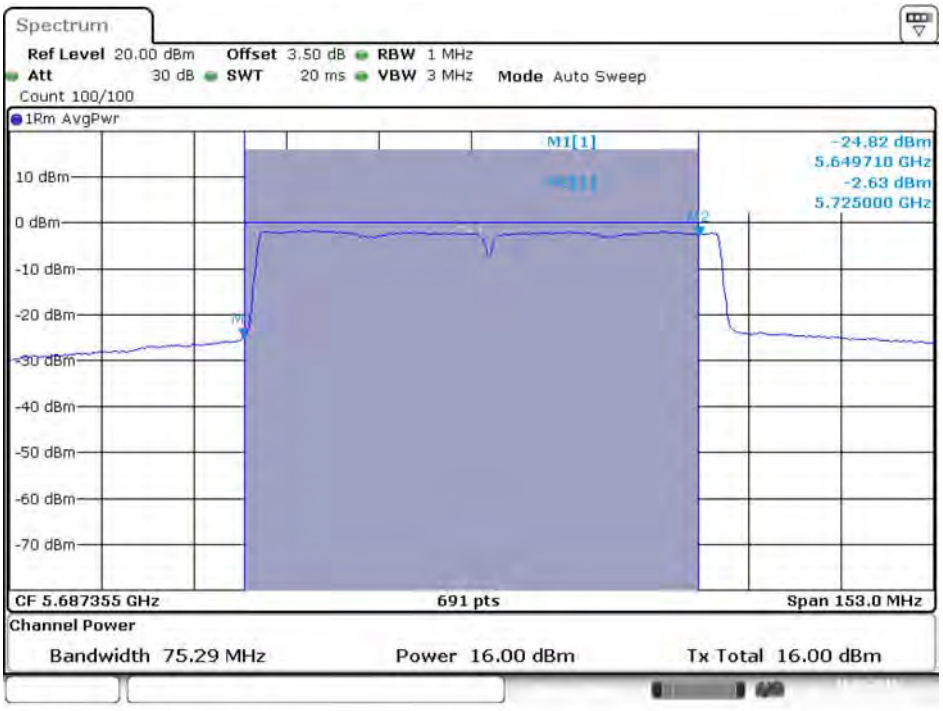
Date: 16.FEB.2016 15:26:00

Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 2 / 5690 MHz (UNII 2C)



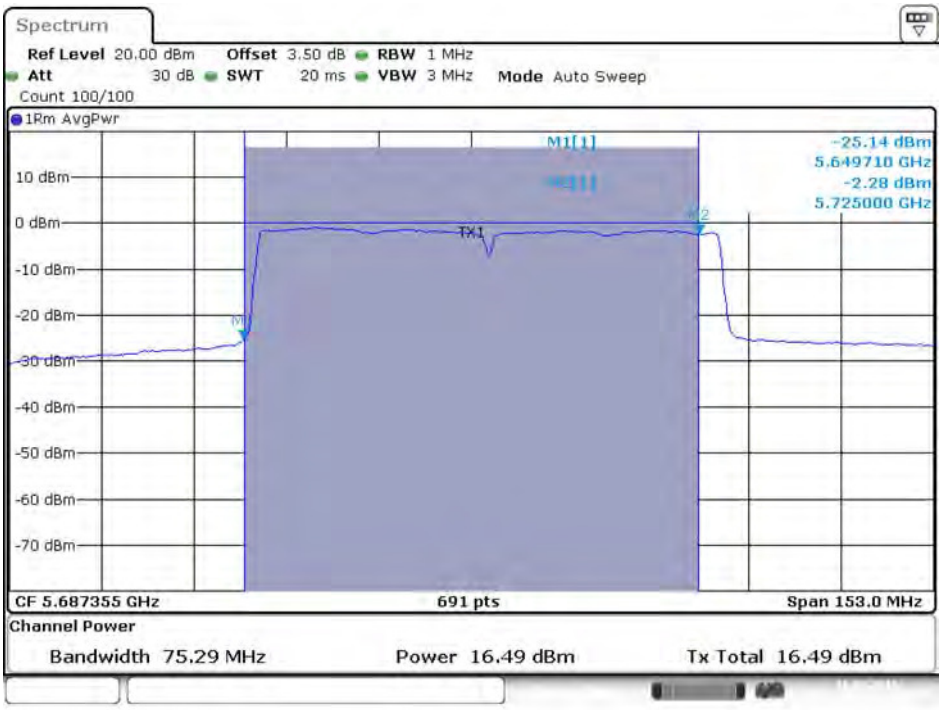
Date: 16.FEB.2016 15:26:07

Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 3 / 5690 MHz (UNII 2C)



Date: 16.FEB.2016 15:26:14

Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 4 / 5690 MHz (UNII 2C)



Date: 16.FEB.2016 15:26:21

Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 / 5690 MHz (UNII 3)

Date: 16.FEB.2016 15:26:03

Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 2 / 5690 MHz (UNII 3)

Date: 16.FEB.2016 15:26:10

Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 3 / 5690 MHz (UNII 3)

Date: 16.FEB.2016 15:26:17

Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 4 / 5690 MHz (UNII 3)

Date: 16.FEB.2016 15:26:24

For beamforming function:

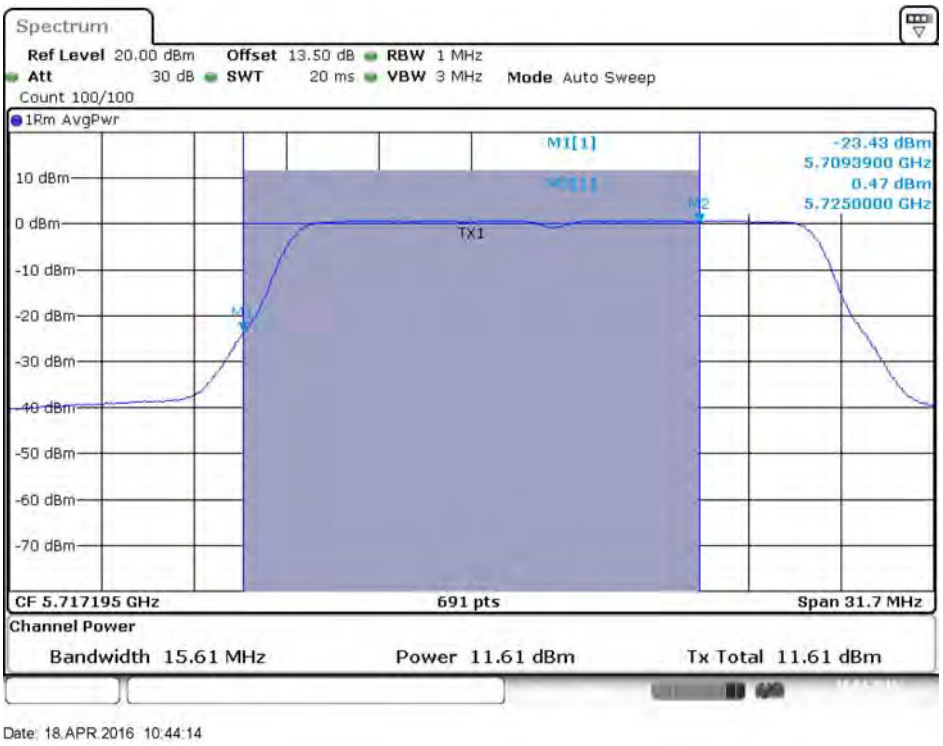
Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 / 5720 MHz (UNII 2C)

Date: 18.APR.2016 10:44:00

Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 2 / 5720 MHz (UNII 2C)

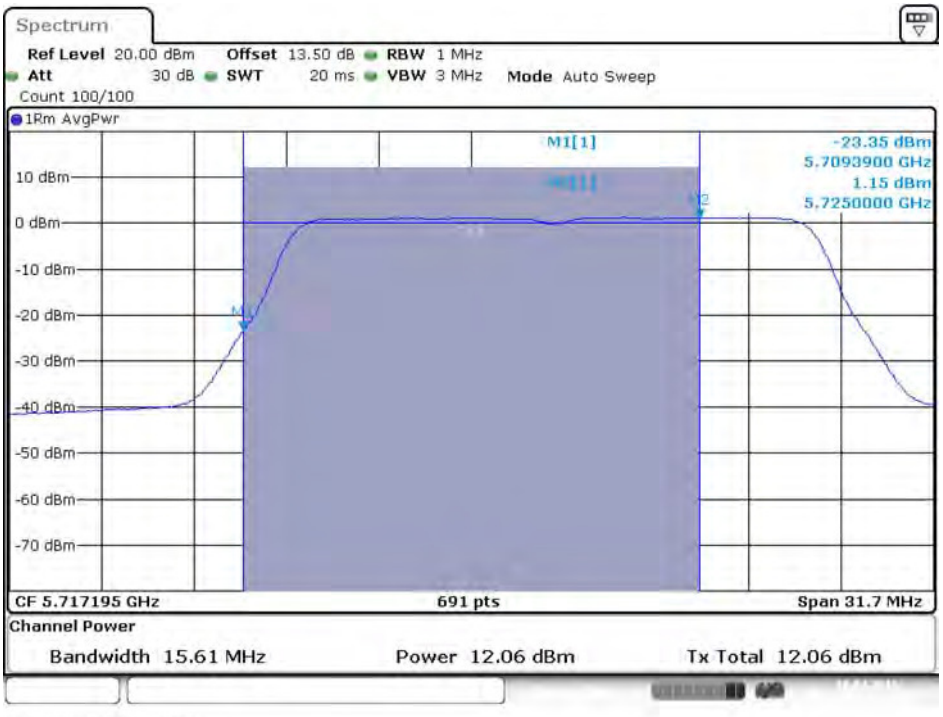
Date: 18.APR.2016 10:44:07

Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 / 5720 MHz (UNII 2C)



Date: 18.APR.2016 10:44:14

Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4 / 5720 MHz (UNII 2C)



Date: 18.APR.2016 10:44:21

Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 / 5720 MHz (UNII 3)

Date: 18.APR.2016 10:44:03

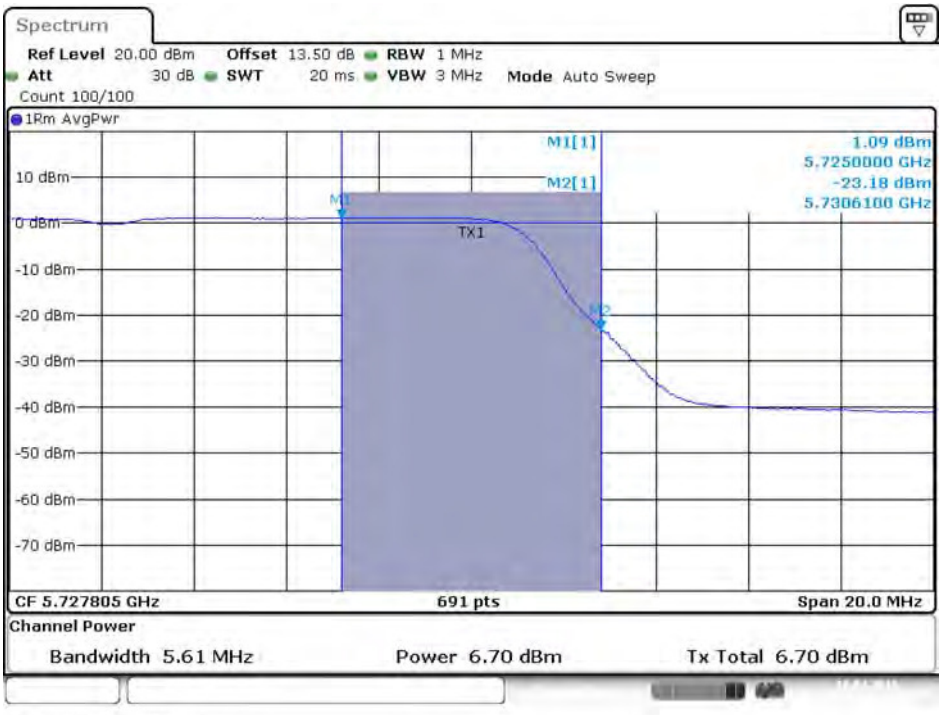
Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 2 / 5720 MHz (UNII 3)

Date: 18.APR.2016 10:44:10

Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 / 5720 MHz (UNII 3)

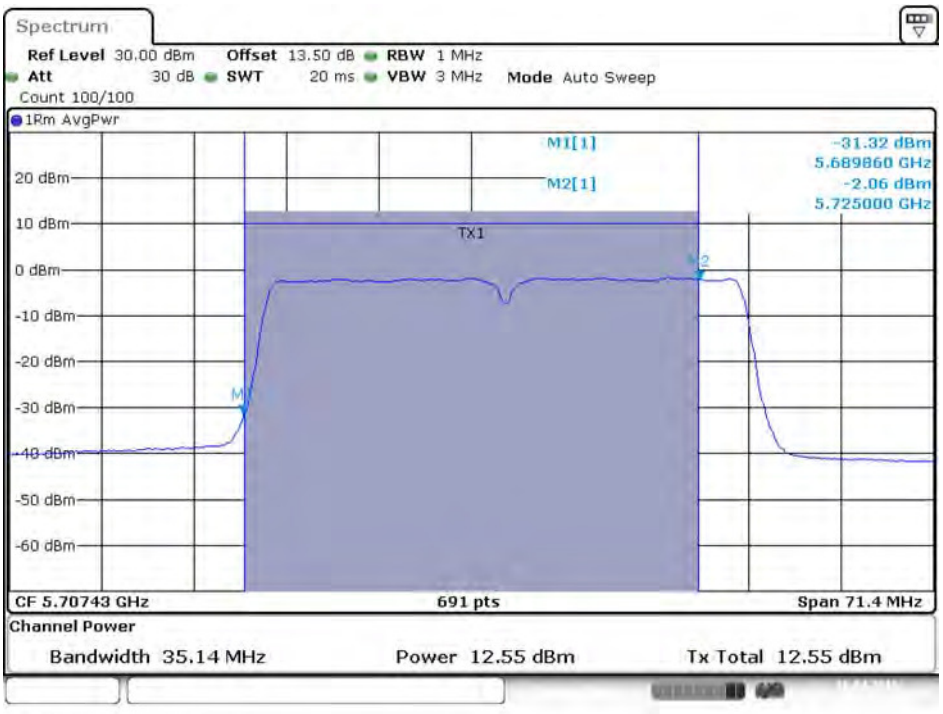
Date: 18.APR.2016 10:44:18

Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4 / 5720 MHz (UNII 3)



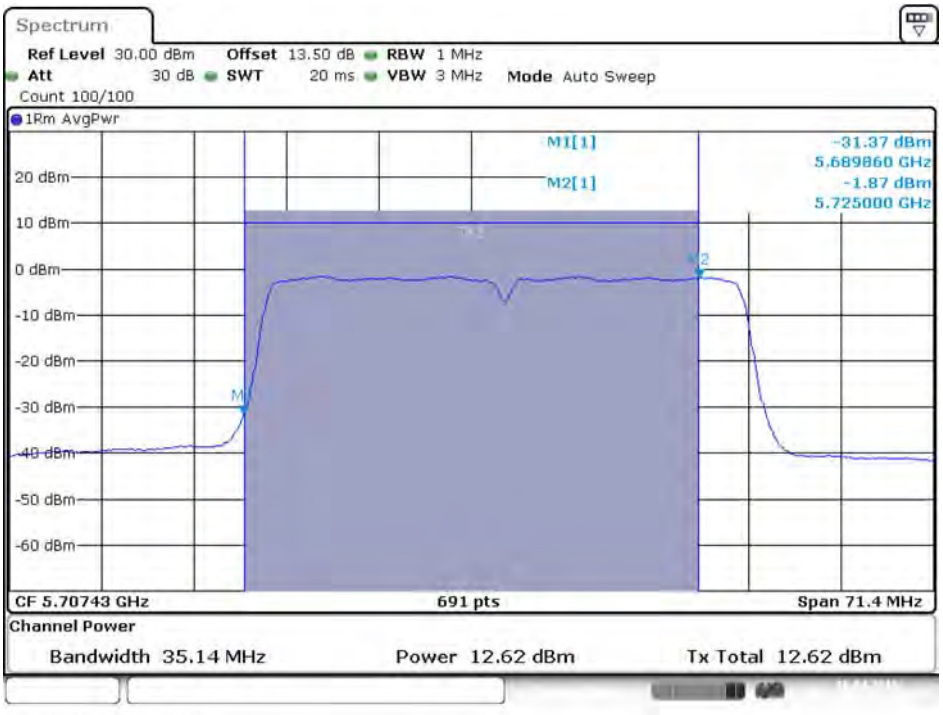
Date: 18.APR.2016 10:44:25

Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 / 5710 MHz (UNII 2C)



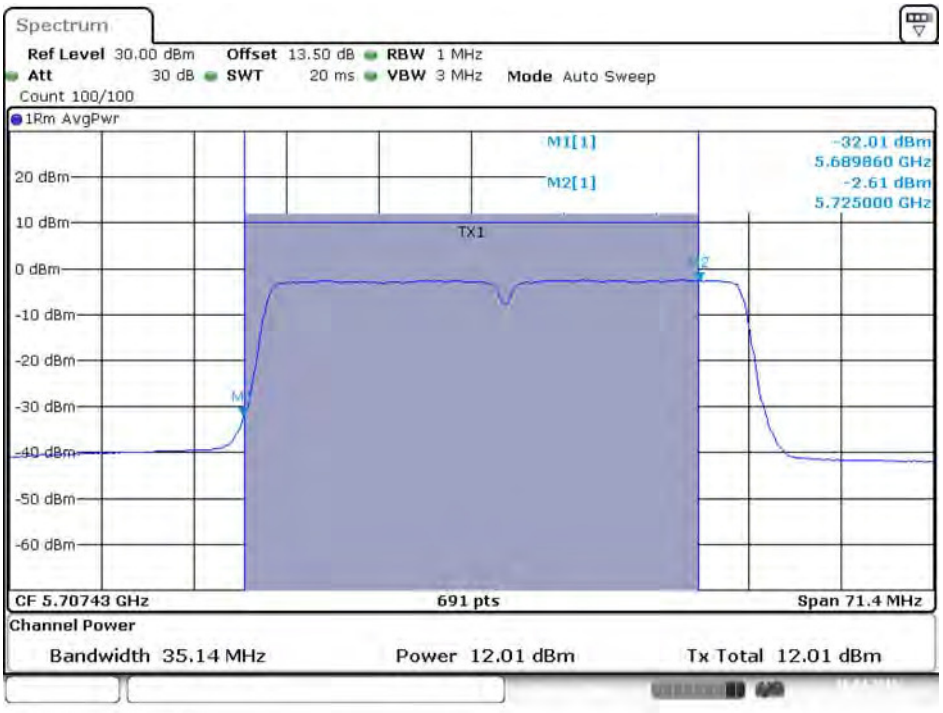
Date: 16.APR.2016 00:21:14

Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 2 / 5710 MHz (UNII 2C)



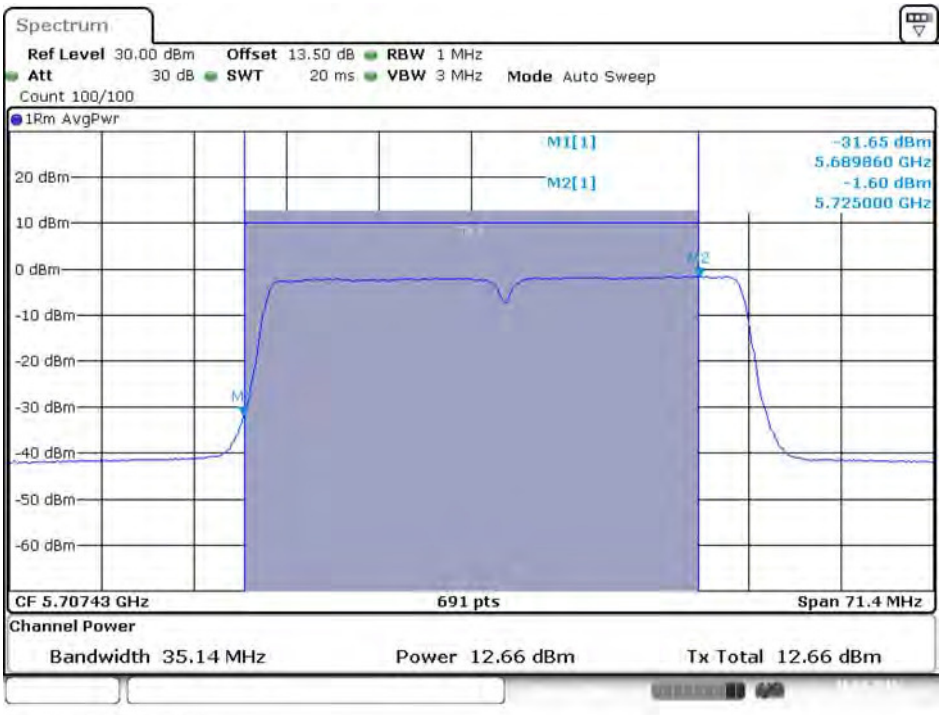
Date: 16.APR.2016 00:21:22

Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 3 / 5710 MHz (UNII 2C)



Date: 16.APR.2016 00:21:29

Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 4 / 5710 MHz (UNII 2C)



Date: 16.APR.2016 00:21:36

Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 / 5710 MHz (UNII 3)

Date: 16.APR.2016 00:21:18

Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 2 / 5710 MHz (UNII 3)

Date: 16.APR.2016 00:21:25

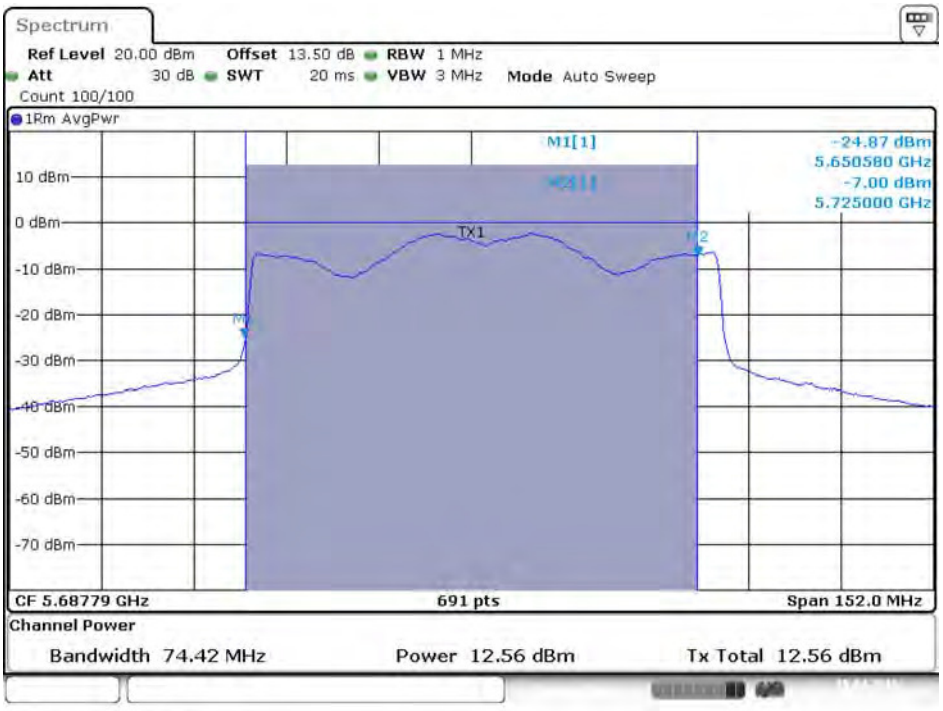
Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 3 / 5710 MHz (UNII 3)

Date: 16.APR.2016 00:21:32

Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 4 / 5710 MHz (UNII 3)

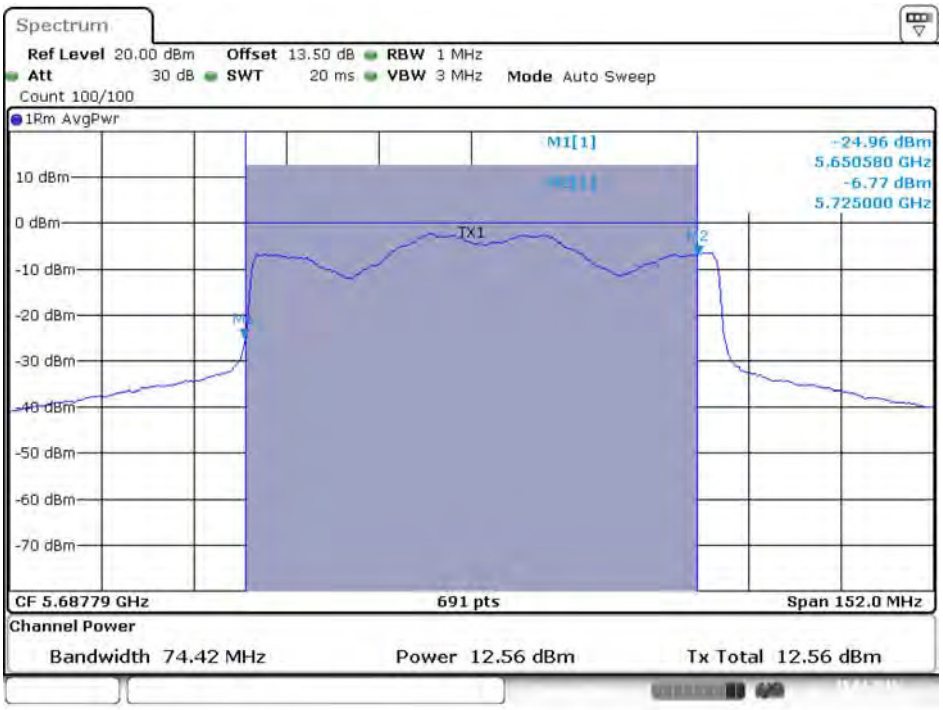
Date: 16.APR.2016 00:21:39

Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 / 5690 MHz (UNII 2C)



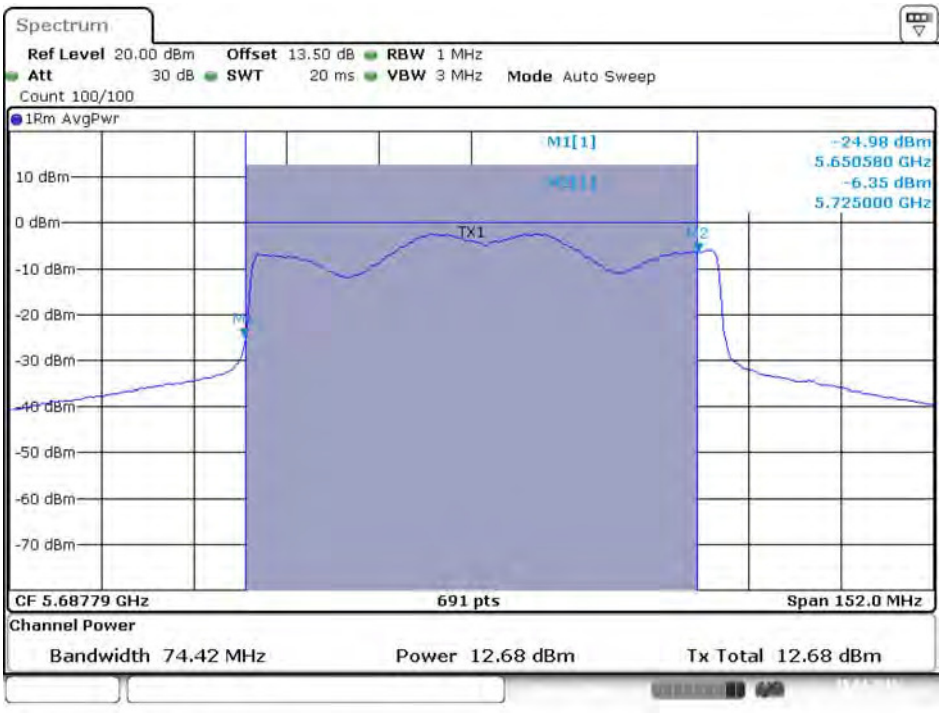
Date: 15.APR.2016 23:09:24

Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 2 / 5690 MHz (UNII 2C)



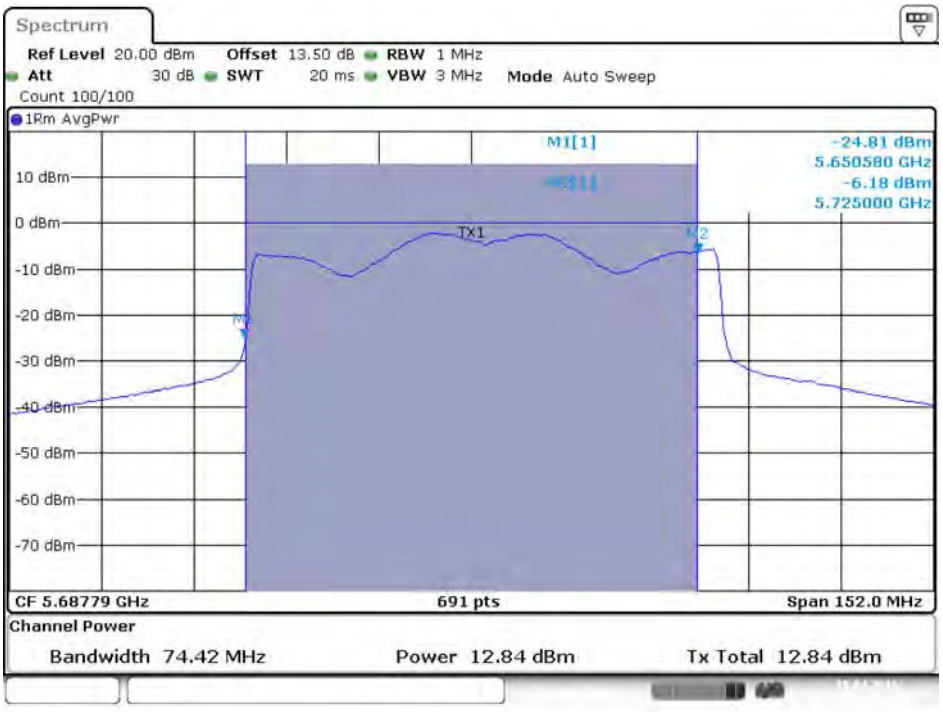
Date: 15.APR.2016 23:09:32

Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 3 / 5690 MHz (UNII 2C)



Date: 15.APR.2016 23:09:38

Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 4 / 5690 MHz (UNII 2C)



Date: 15.APR.2016 23:09:46

Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 / 5690 MHz (UNII 3)

Date: 15.APR.2016 23:09:28

Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 2 / 5690 MHz (UNII 3)

Date: 15.APR.2016 23:09:35

Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 3 / 5690 MHz (UNII 3)

Date: 15.APR.2016 23:09:42

Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 4 / 5690 MHz (UNII 3)

Date: 15.APR.2016 23:09:49

4.4. Power Spectral Density Measurement

4.4.1. Limit

The following table is power spectral density limits and decrease power density limit rule refer to section 4.3.1.

Frequency Band		Limit
☒	5.25-5.35 GHz	11 dBm/MHz
☒	5.470-5.725 GHz	11 dBm/MHz

4.4.2. Measuring Instruments and Setting

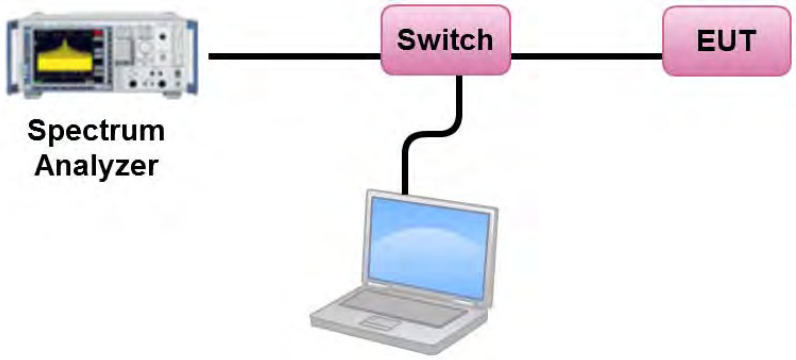
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Encompass the entire emissions bandwidth (EBW) of the signal
RBW	1000 kHz
VBW	3000 kHz
Detector	RMS
Trace	AVERAGE
Sweep Time	Auto
Trace Average	100 times

4.4.3. Test Procedures

1. The transmitter output (antenna port) was connected RF switch to the spectrum analyzer.
2. Test was performed in accordance with KDB789033 D02 v01r02 for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - section (F) Maximum Power Spectral Density (PSD).
3. Multiple antenna systems was performed in accordance KDB662911 D01 v02r01 in-Band Power Spectral Density (PSD) Measurements and sum the spectra across the outputs.

4.4.4. Test Setup Layout



4.4.5. Test Deviation

There is no deviation with the original standard.

4.4.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.4.7. Test Result of Power Spectral Density

Temperature	25°C	Humidity	59%
Test Engineer	Serway Li	Test Date	Feb. 15, 2016 ~ Feb. 26, 2016
Test Function	Non-beamforming function		

Mode	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
802.11a	5260 MHz	7.10	7.27	Complies
	5300 MHz	7.22	7.27	Complies
	5320 MHz	7.14	7.27	Complies
	5500 MHz	5.65	5.76	Complies
	5580 MHz	5.71	5.76	Complies
	5700 MHz	5.70	5.76	Complies
802.11ac MCS0/Nss1 VHT20	5260 MHz	7.10	7.27	Complies
	5300 MHz	7.20	7.27	Complies
	5320 MHz	7.18	7.27	Complies
	5500 MHz	5.73	5.76	Complies
	5580 MHz	5.68	5.76	Complies
	5700 MHz	5.69	5.76	Complies
802.11ac MCS0/Nss1 VHT40	5270 MHz	7.19	7.27	Complies
	5310 MHz	3.24	7.27	Complies
	5510 MHz	4.24	5.76	Complies
	5550 MHz	5.70	5.76	Complies
	5670 MHz	5.71	5.76	Complies
802.11ac MCS0/Nss1 VHT80	5290 MHz	-1.18	7.27	Complies
	5530 MHz	1.48	5.76	Complies
	5610 MHz	2.82	5.76	Complies

Note: $Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$

5250~5350 MHz directional gain=9.73dBi >6dBi, so limit=11 – (9.73 – 6)=7.27 dBm/MHz.

5470~5725 MHz directional gain=11.24dBi >6dBi, so limit=11 – (11.24 – 6)=5.76 dBm/MHz.

Straddle Channel

Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3 + Chain 4

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
144	5720 MHz (UNII 2C)	5.62	5.76	Complies

Note: $Directiona\,lGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =11.24dBi >6dBi, so the limit 11-(11.24-6)=5.76dBm/MHz.

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
144	5720 MHz (UNII 3)	5.40	-3.01	2.39	25.77	Complies

Note: $Directiona\,lGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =10.23dBi >6dBi, so the limit 30-(10.23-6)=25.77dBm/500kHz.

Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
144	5720 MHz (UNII 2C)	5.68	5.76	Complies

Note: $Directiona\,lGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =11.24dBi >6dBi, so the limit 11-(11.24-6)=5.76dBm/MHz.

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
144	5720 MHz (UNII 3)	5.64	-3.01	2.63	25.77	Complies

Note: $Directiona\,lGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =10.23dBi >6dBi, so the limit 30-(10.23-6)=25.77dBm/500kHz.

Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
142	5710 MHz (UNII 2C)	5.60	5.76	Complies

Note: $Directiona\,lGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =11.24dBi >6dBi, so the limit 11-(11.24-6)=5.76dBm/MHz.

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
142	5710 MHz (UNII 3)	5.18	-3.01	2.17	25.77	Complies

Note: $Directiona\,lGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =10.23dBi >6dBi, so the limit 30-(10.23-6)=25.77dBm/500kHz.

Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
138	5690 MHz (UNII 2C)	3.03	5.76	Complies

Note: $Directiona\,lGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =11.24dBi >6dBi, so the limit 11-(11.24-6)=5.76dBm/MHz.

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
138	5690 MHz (UNII 3)	2.22	-3.01	-0.79	25.77	Complies

Note: $Directiona\,lGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =10.23dBi >6dBi, so the limit 30-(10.23-6)=25.77dBm/500kHz.

Temperature	25°C	Humidity	59%
Test Engineer	Serway Li	Test Date	Apr. 15, 2016 ~ May 12, 2016
Test Function	Beamforming function		

Mode	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
802.11ac MCS0/Nss1 VHT20	5260 MHz	5.21	7.27	Complies
	5300 MHz	5.02	7.27	Complies
	5320 MHz	5.24	7.27	Complies
	5500 MHz	5.18	5.76	Complies
	5580 MHz	5.04	5.76	Complies
	5700 MHz	5.19	5.76	Complies
802.11ac MCS0/Nss1 VHT40	5270 MHz	2.40	7.27	Complies
	5310 MHz	2.21	7.27	Complies
	5510 MHz	2.38	5.76	Complies
	5550 MHz	2.55	5.76	Complies
	5670 MHz	2.51	5.76	Complies
802.11ac MCS0/Nss1 VHT80	5290 MHz	-0.46	7.27	Complies
	5530 MHz	-0.60	5.76	Complies
	5610 MHz	-0.50	5.76	Complies

Note: $Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$

5250~5350 MHz directional gain=9.73dBi >6dBi, so limit=11 – (9.73 – 6)=7.27 dBm/MHz.

5470~5725 MHz directional gain=11.24dBi >6dBi, so limit=11 – (11.24 – 6)=5.76 dBm/MHz.

Straddle Channel

Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
144	5720 MHz (UNII 2C)	5.30	5.76	Complies

Note: $Directiona\,lGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =11.24dBi >6dBi, so the limit 11-(11.24-6)=5.76dBm/MHz.

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
144	5720 MHz (UNII 3)	5.16	-3.01	2.15	25.77	Complies

Note: $Directiona\,lGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =10.23dBi >6dBi, so the limit 30-(10.23-6)=25.77dBm/500kHz.

Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
142	5710 MHz (UNII 2C)	2.47	5.76	Complies

Note: $Directiona\,lGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =11.24dBi >6dBi, so the limit 11-(11.24-6)=5.76dBm/MHz.

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
142	5710 MHz (UNII 3)	2.48	-3.01	-0.53	25.77	Complies

Note: $Directiona\,lGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =10.23dBi >6dBi, so the limit 30-(10.23-6)=25.77dBm/500kHz.

Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
138	5690 MHz (UNII 2C)	2.28	5.76	Complies

Note: $Directiona\,lGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =11.24dBi >6dBi, so the limit 11-(11.24-6)=5.76dBm/MHz.

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
138	5690 MHz (UNII 3)	-1.26	-3.01	-4.27	25.77	Complies

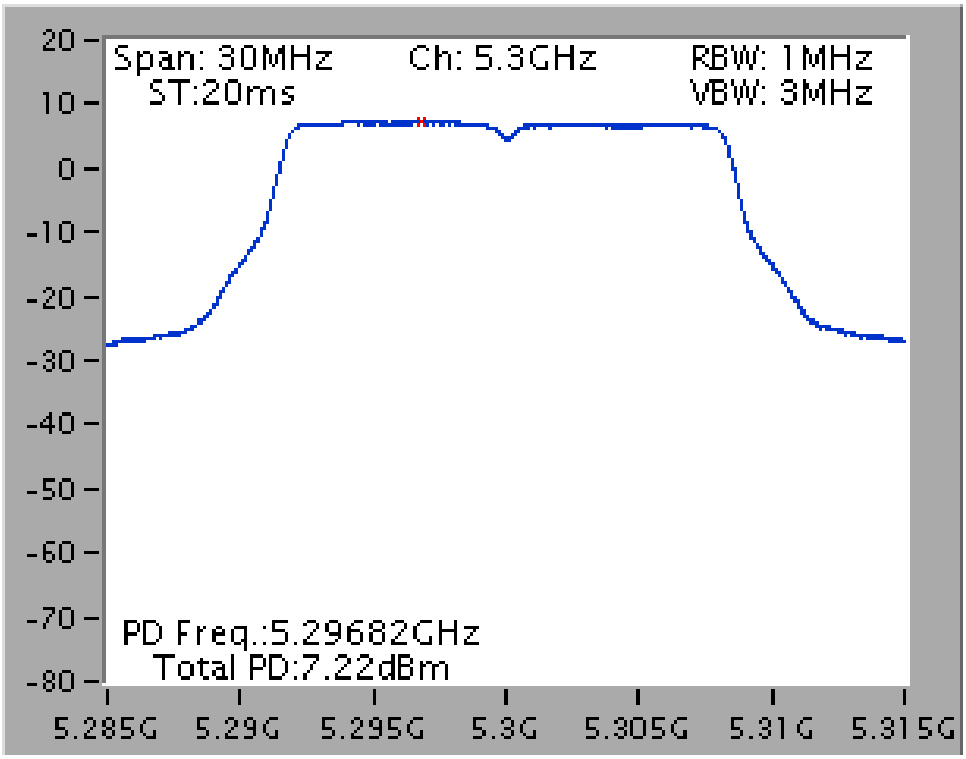
Note: $Directiona\,lGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =10.23dBi >6dBi, so the limit 30-(10.23-6)=25.77dBm/500kHz.

Note: All the test values were listed in the report.

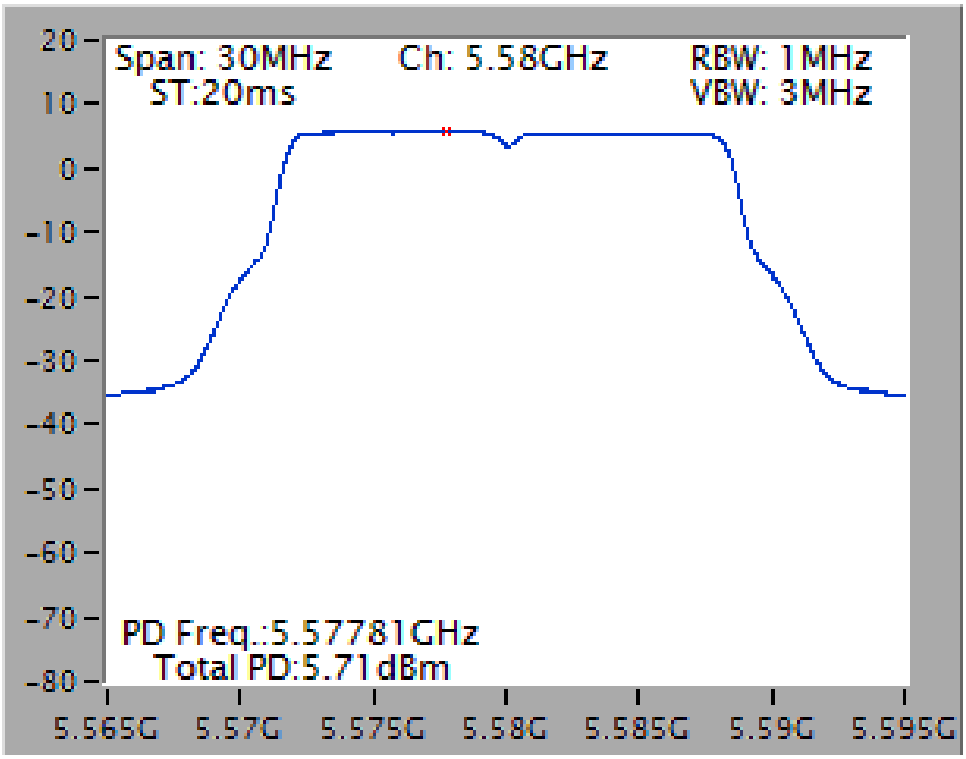
For plots, only the channel with worse result was shown.

For non-beamforming function:

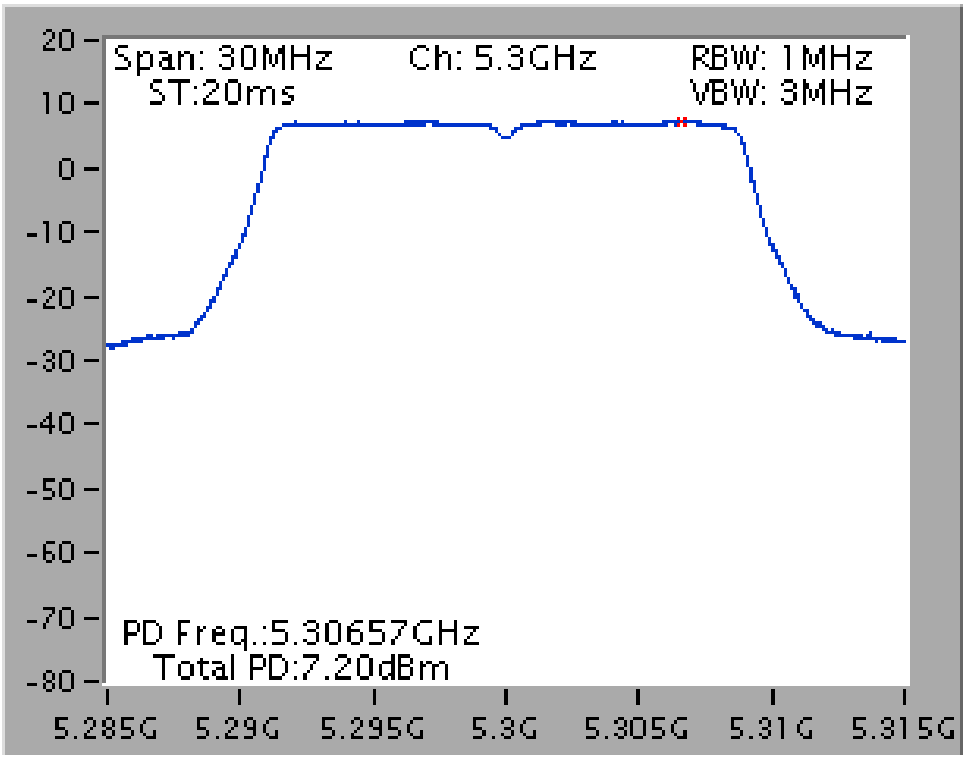
Power Density Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5300 MHz



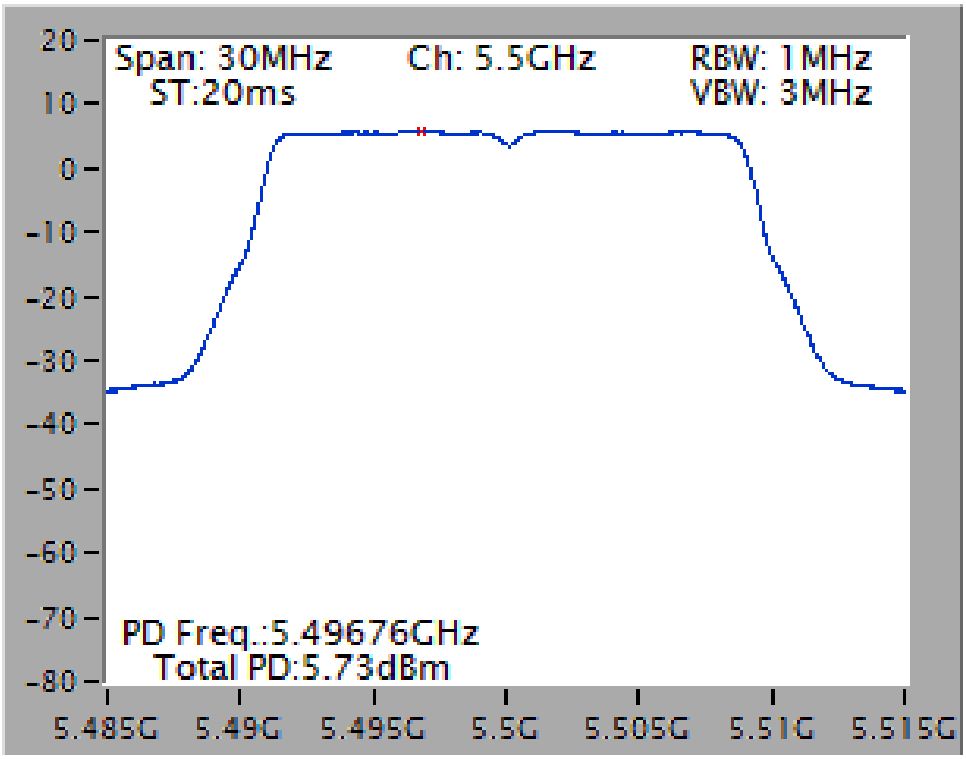
Power Density Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5580 MHz



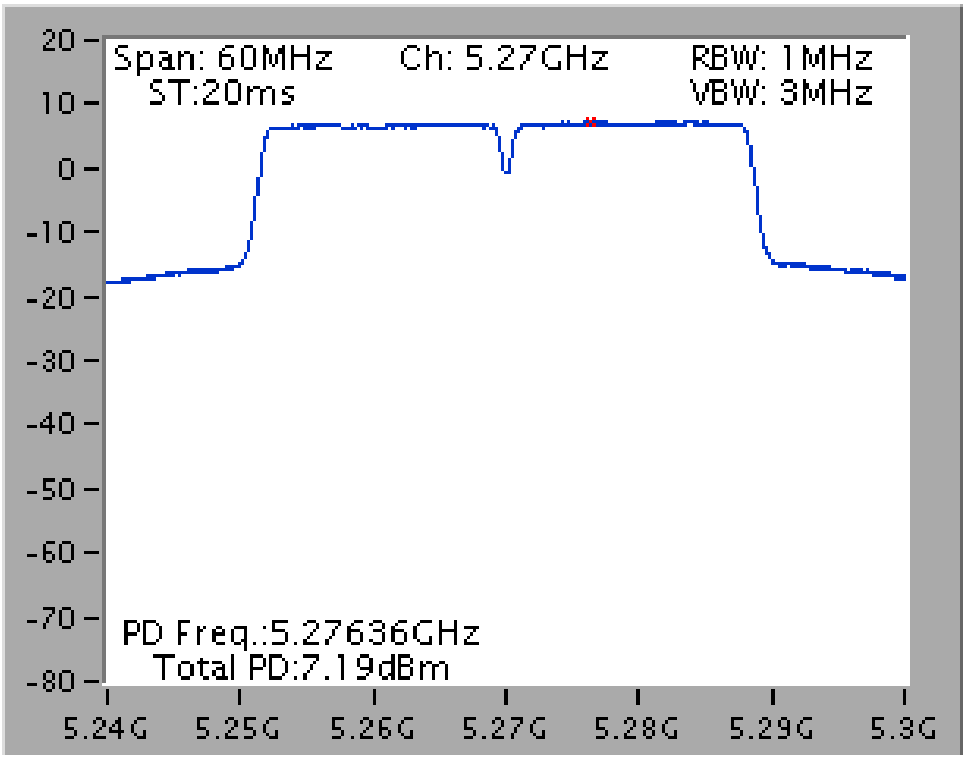
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5300 MHz



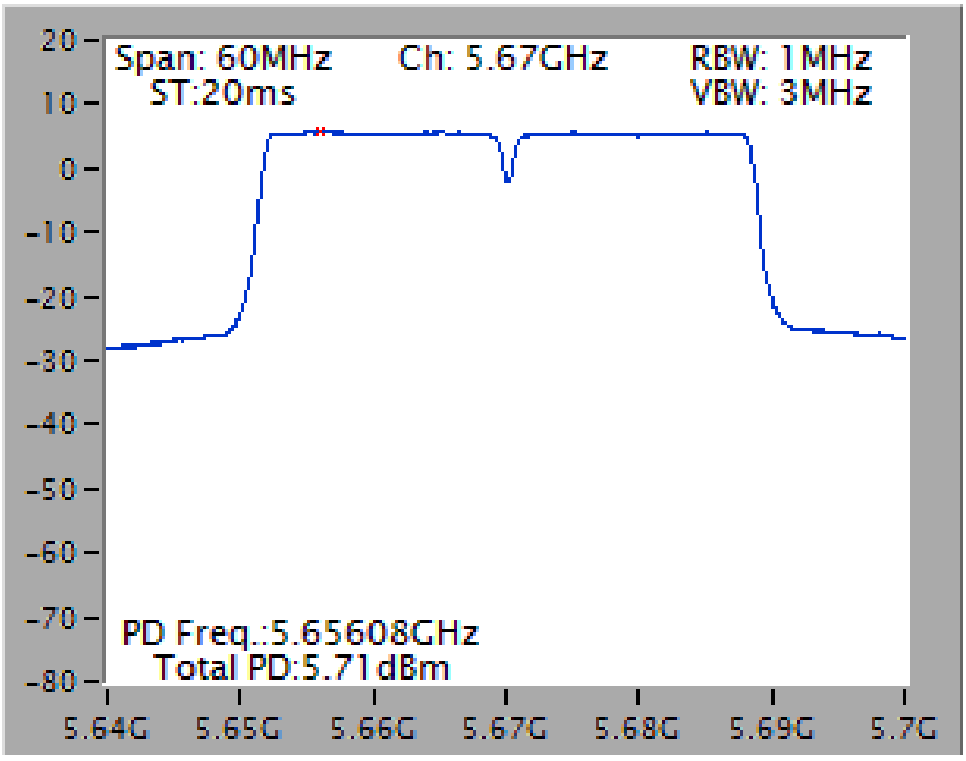
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5500 MHz



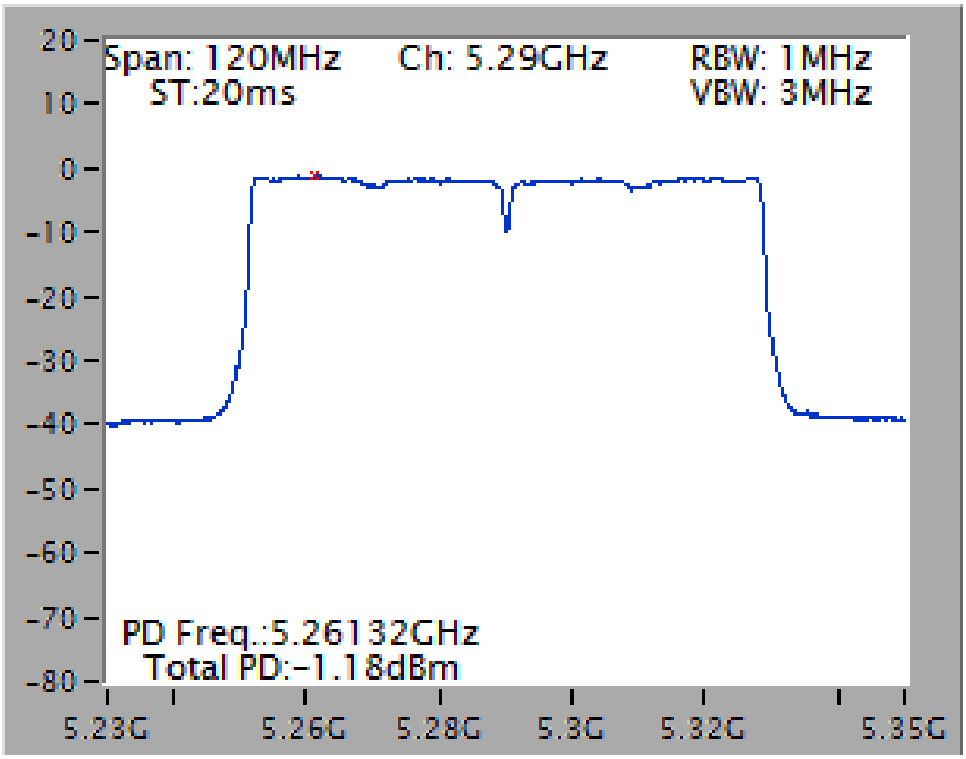
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5270 MHz



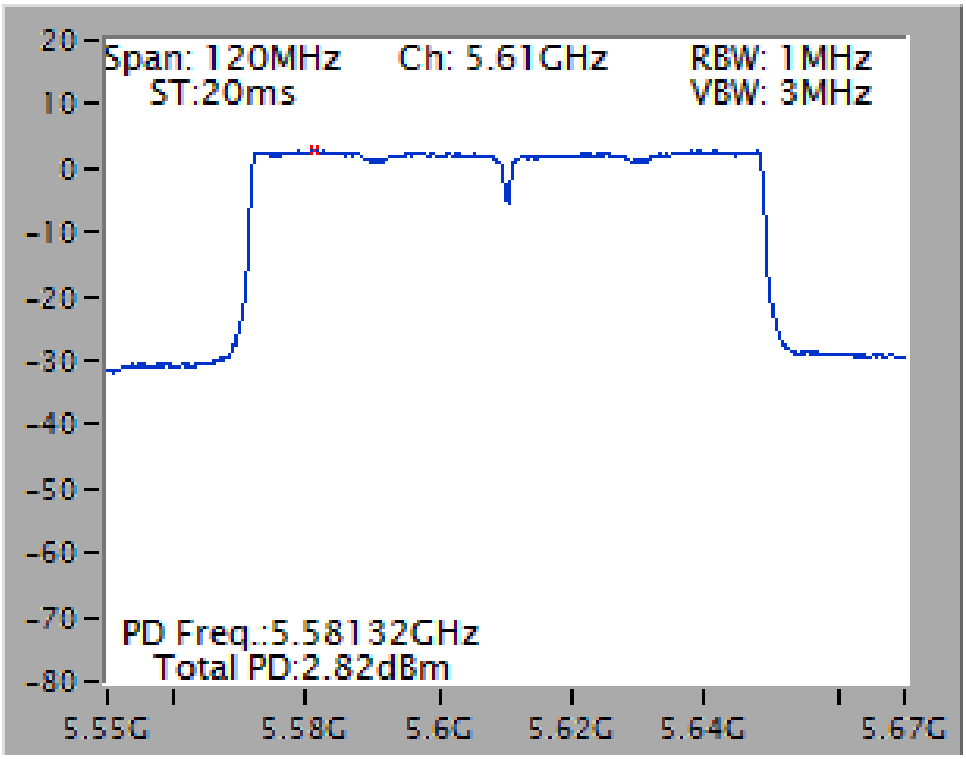
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5670 MHz



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5290 MHz

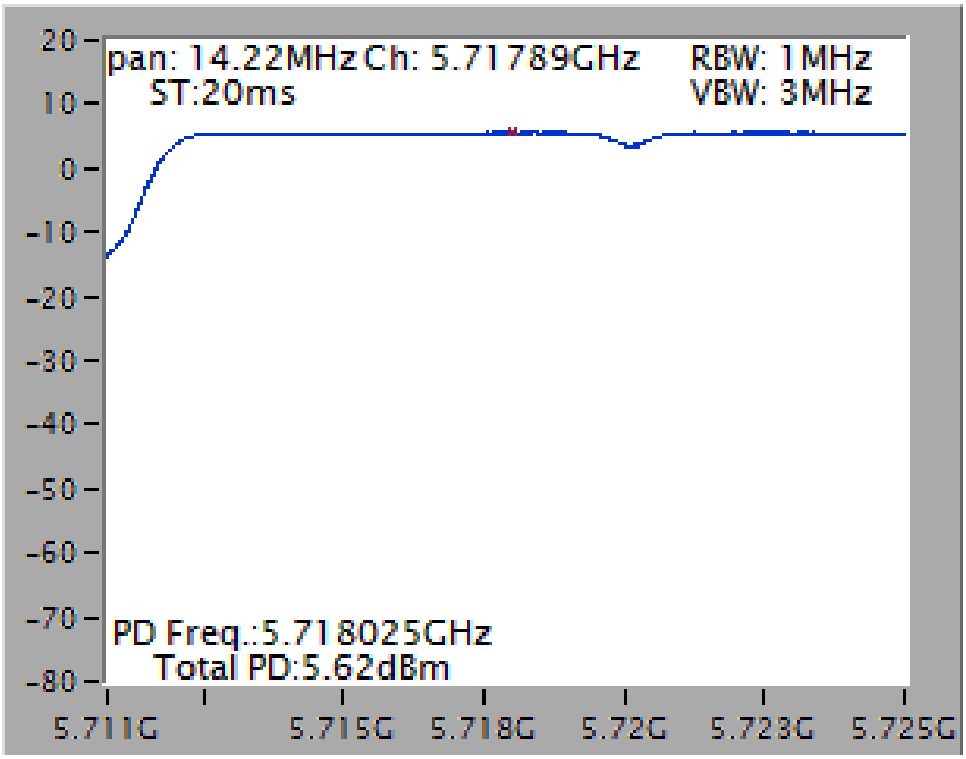


Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5610 MHz

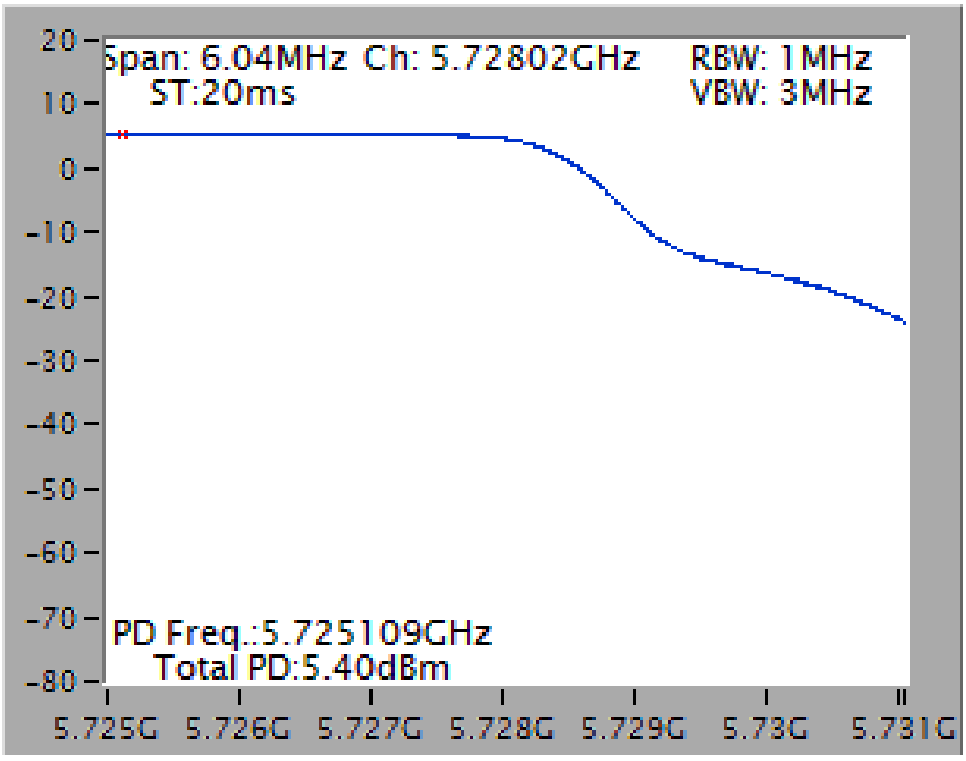


Straddle Channel

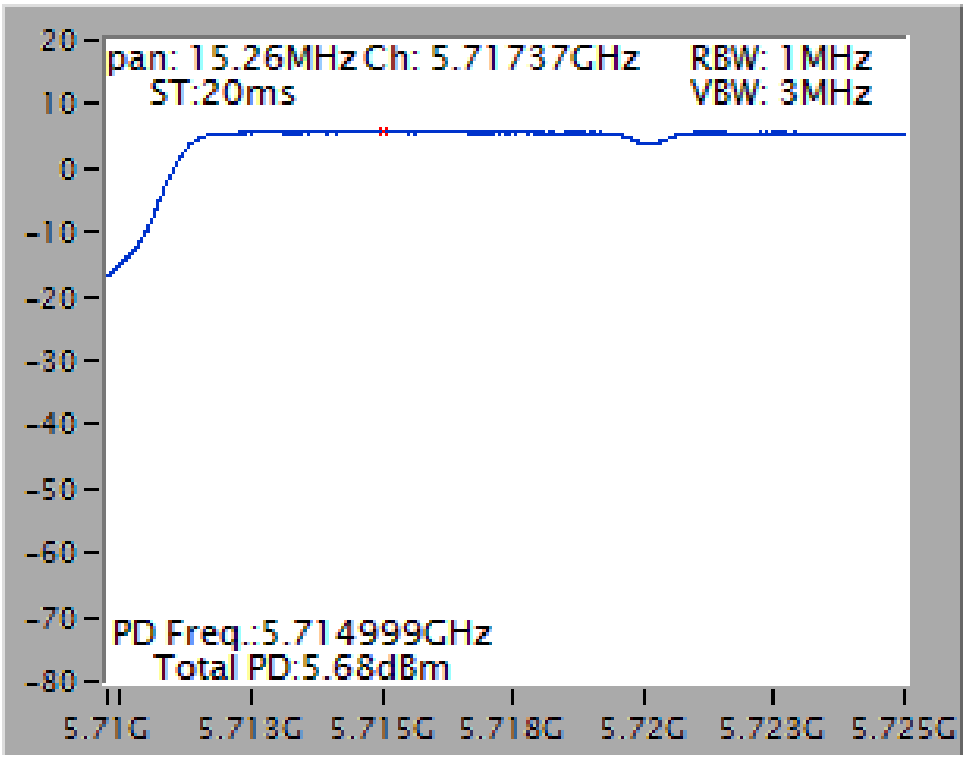
Power Density Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5720 MHz (UNII 2C)



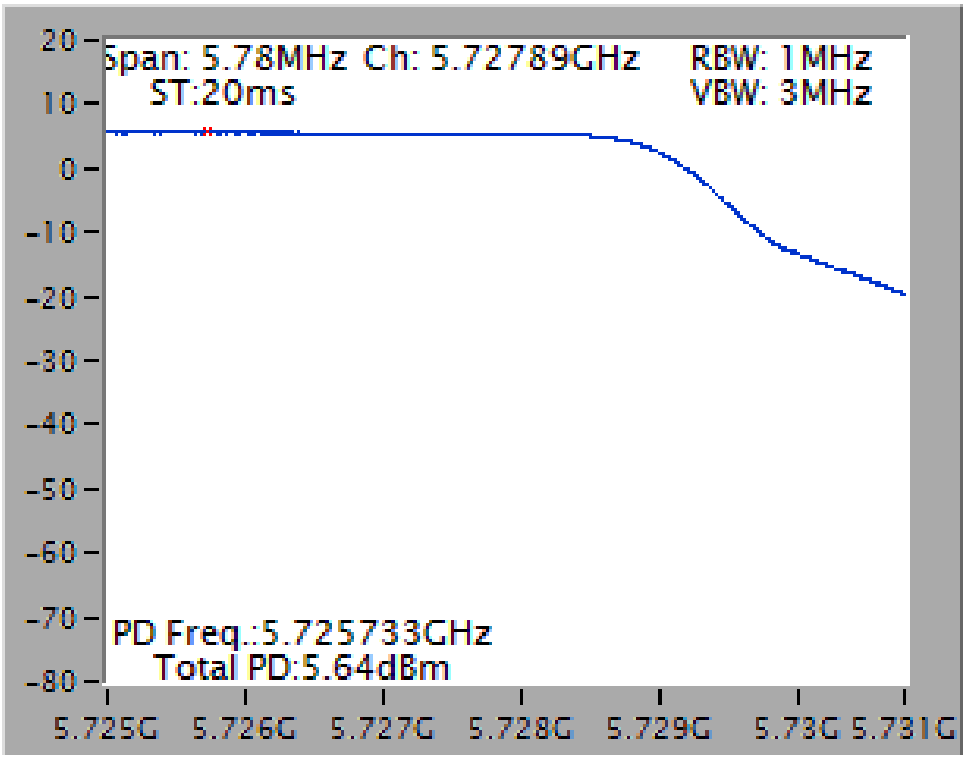
Power Density Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5720 MHz (UNII 3)



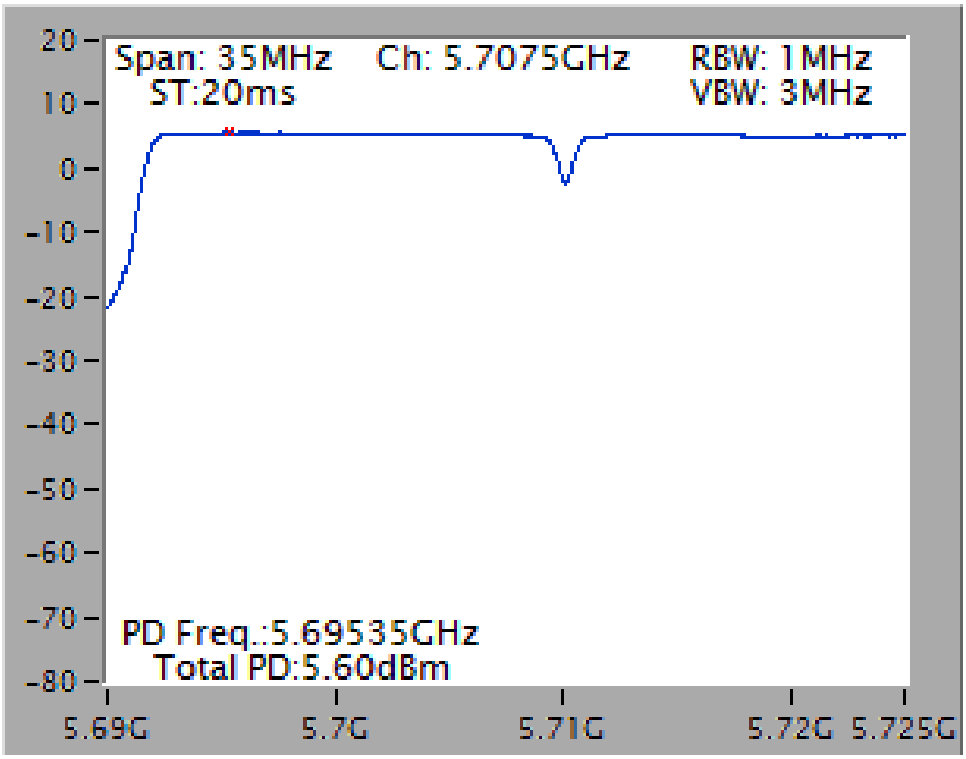
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5720 MHz (UNII 2C)



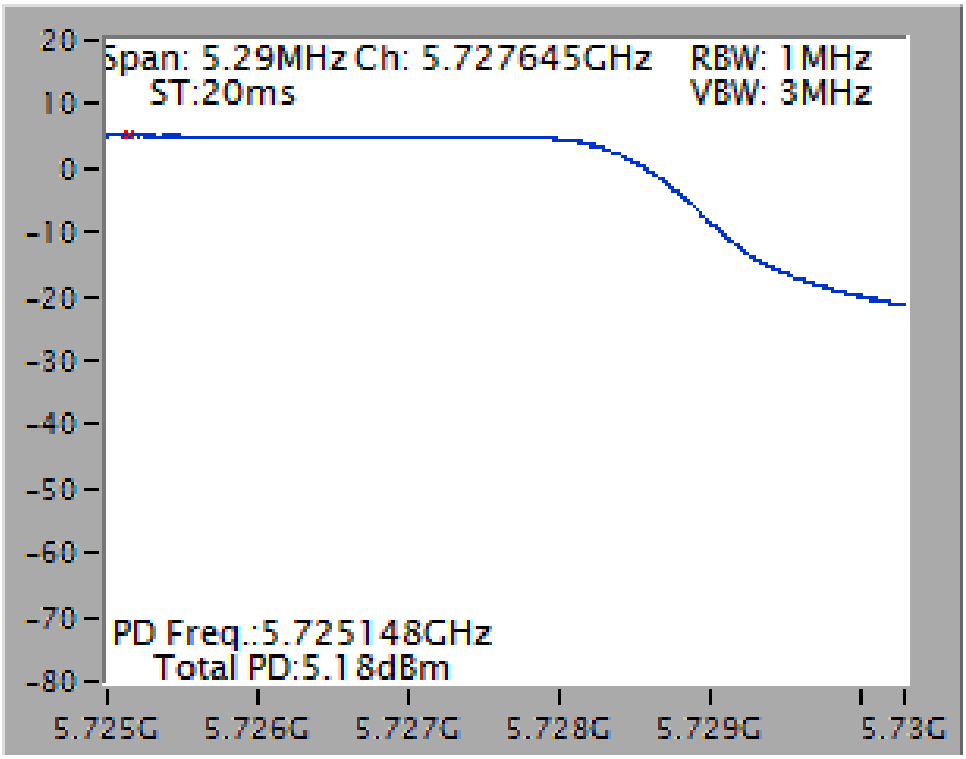
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5720 MHz (UNII 3)



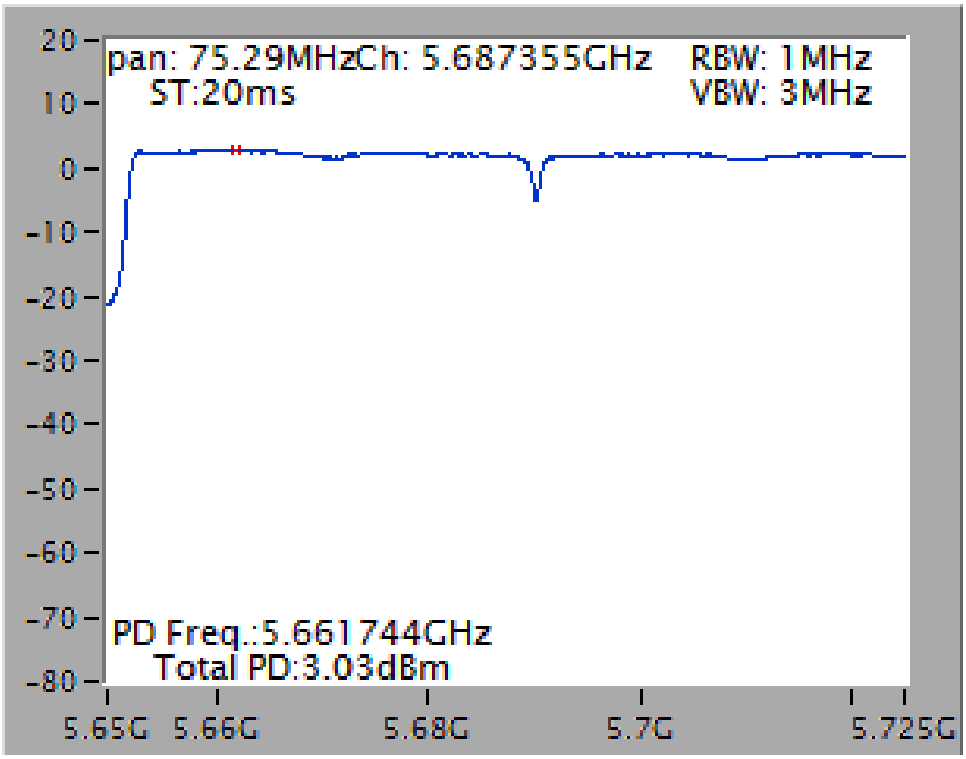
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5710 MHz (UNII 2C)



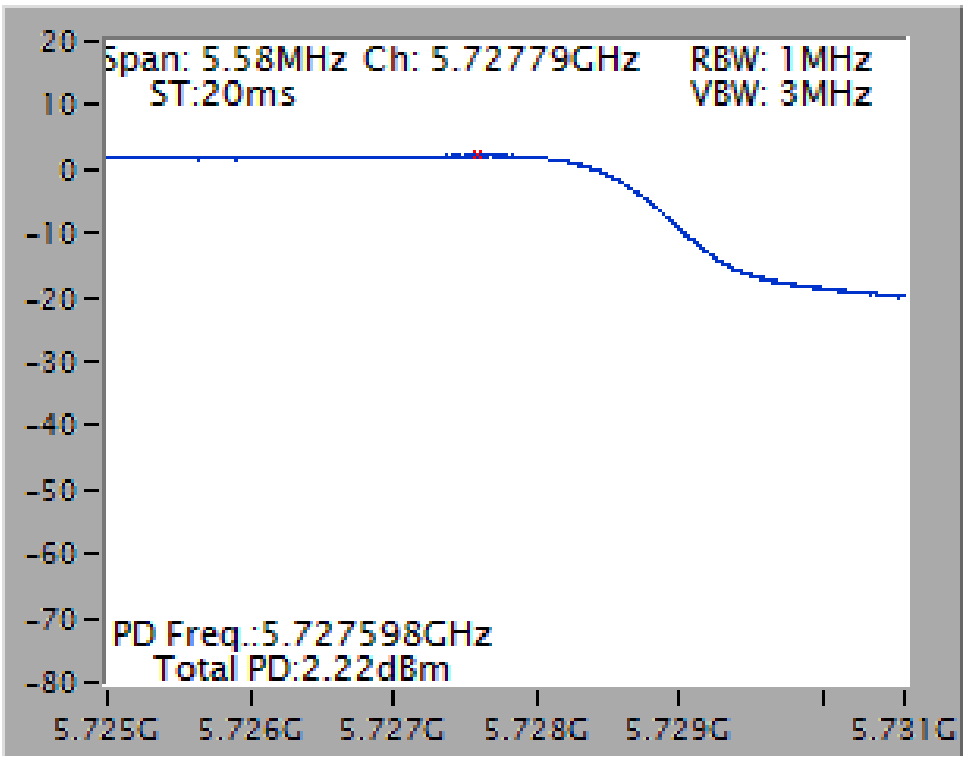
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5710 MHz (UNII 3)



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5690 MHz (UNII 2C)

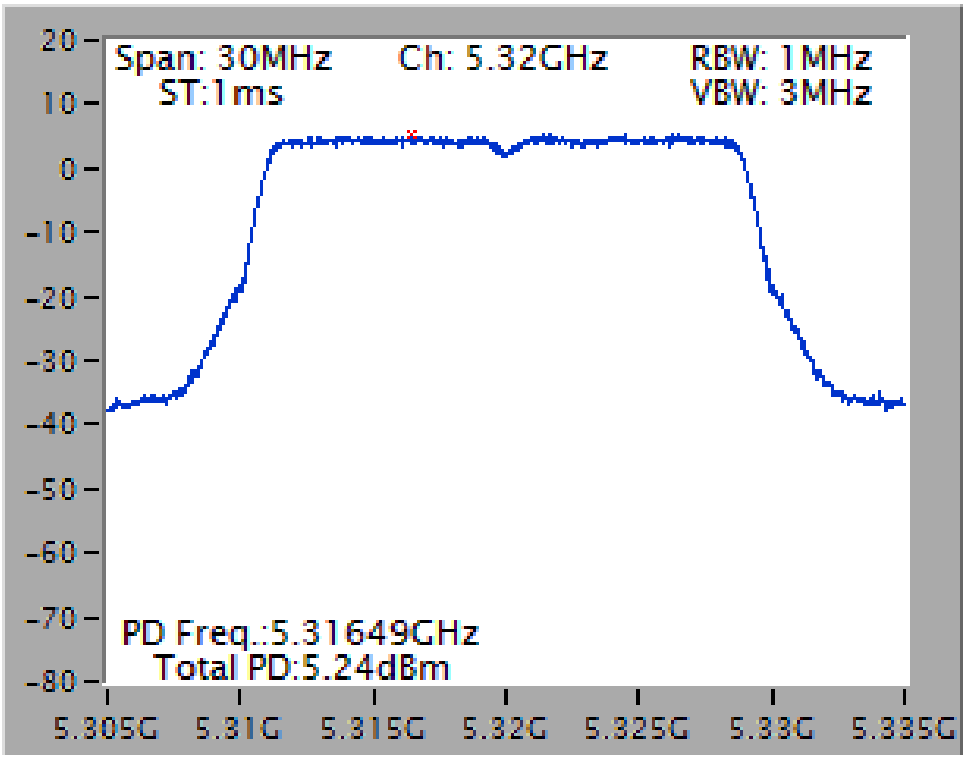


Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5690 MHz (UNII 3)

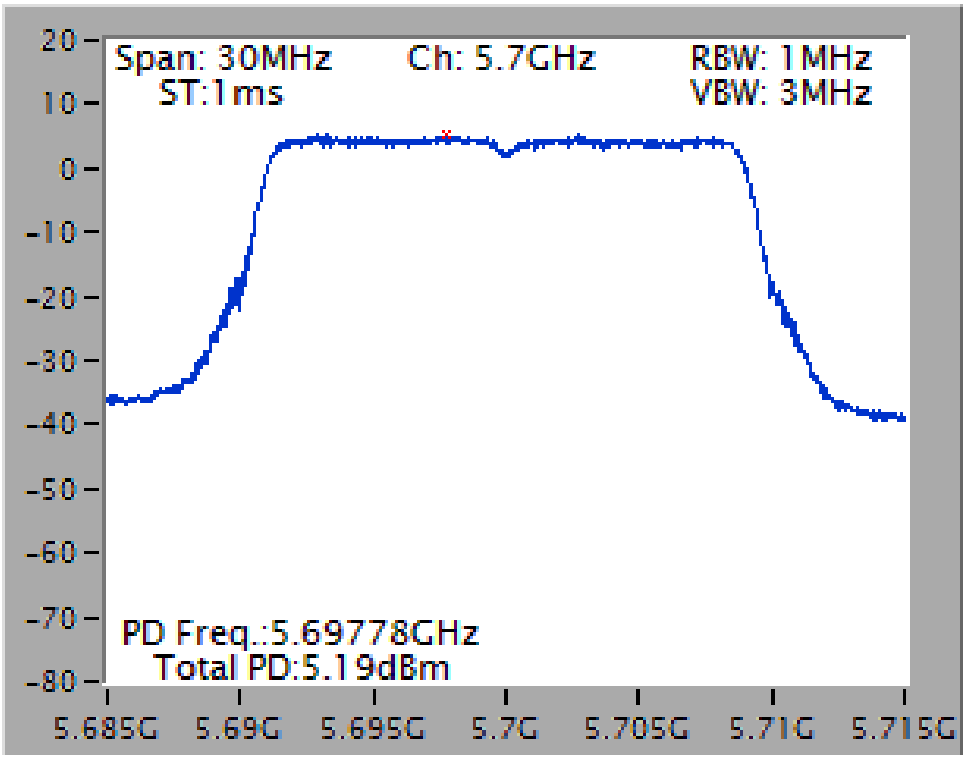


For beamforming function:

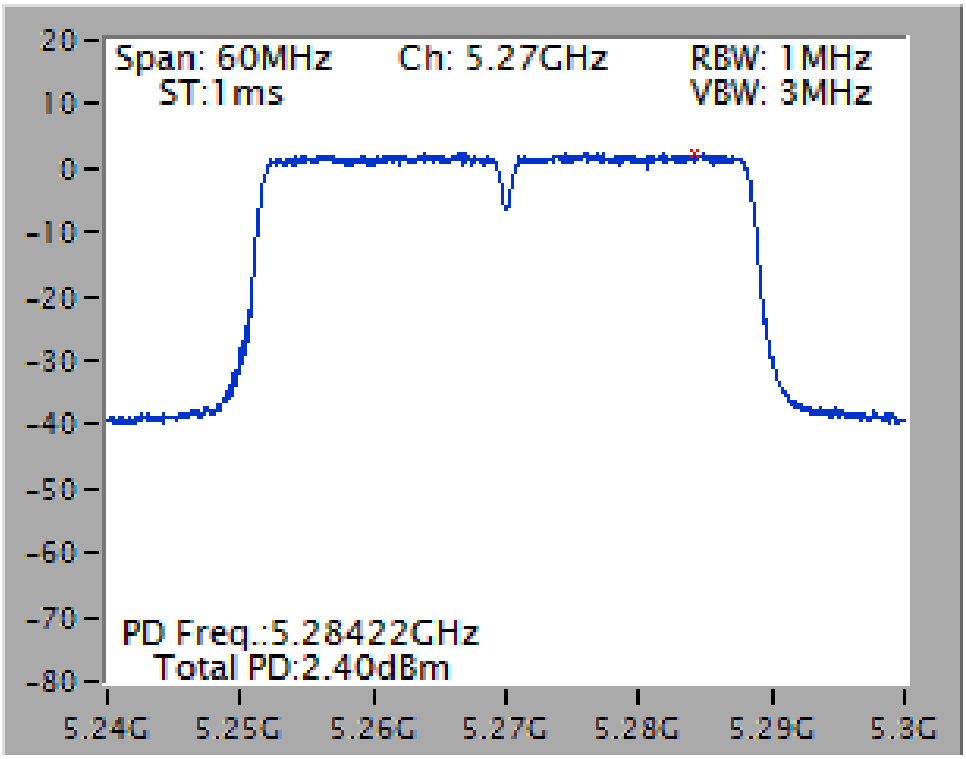
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5320 MHz



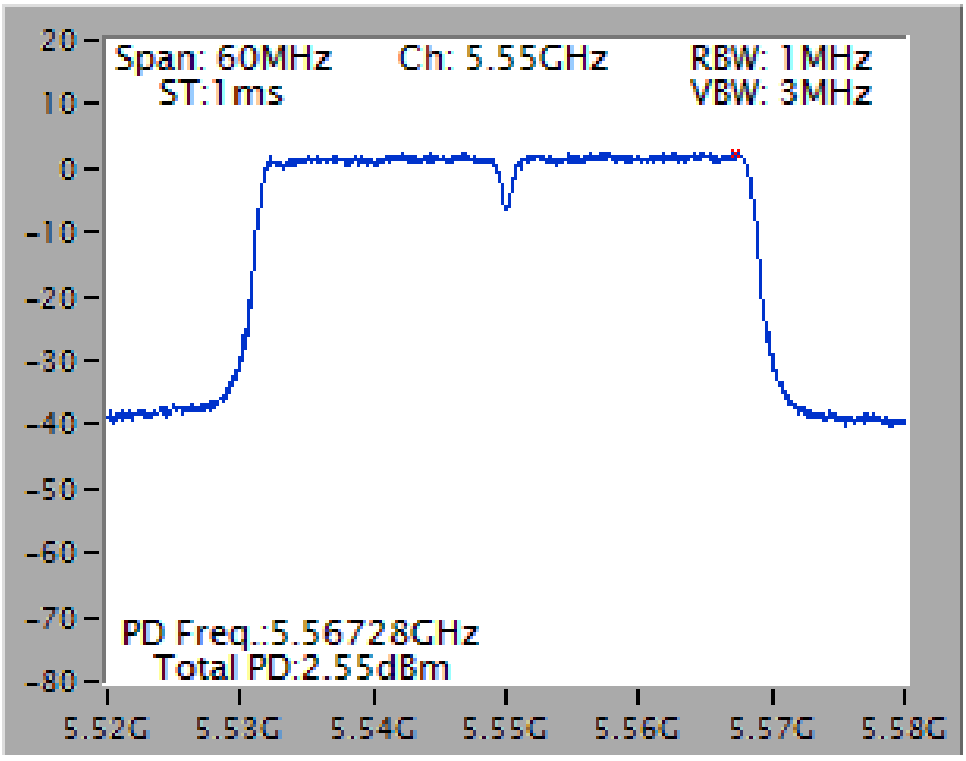
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5700 MHz



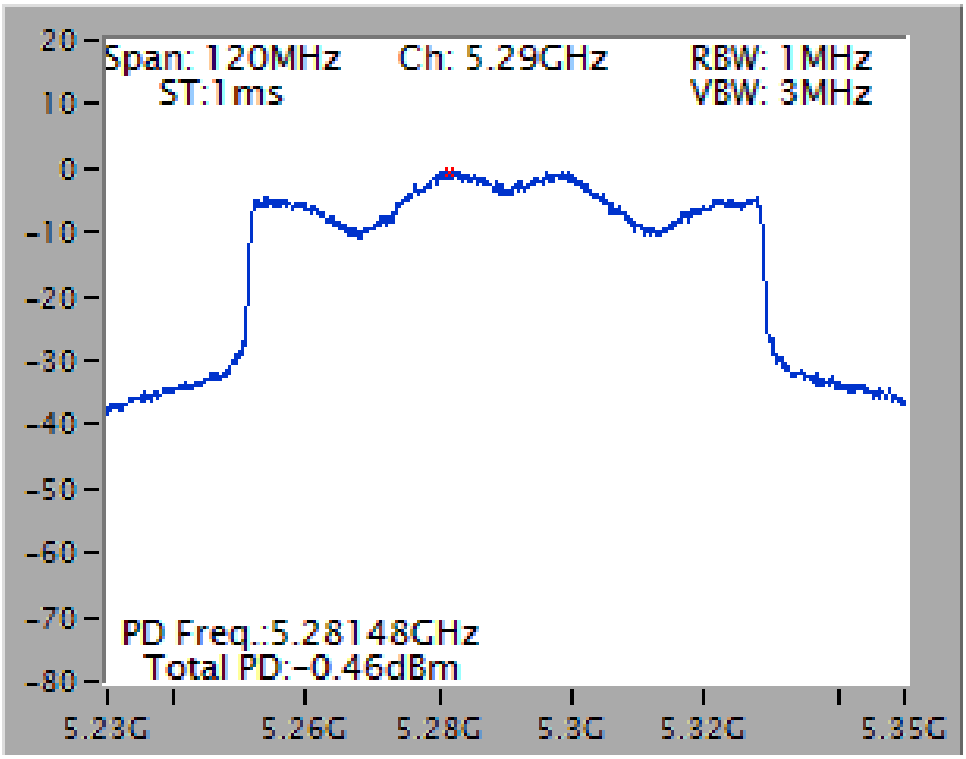
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5270 MHz



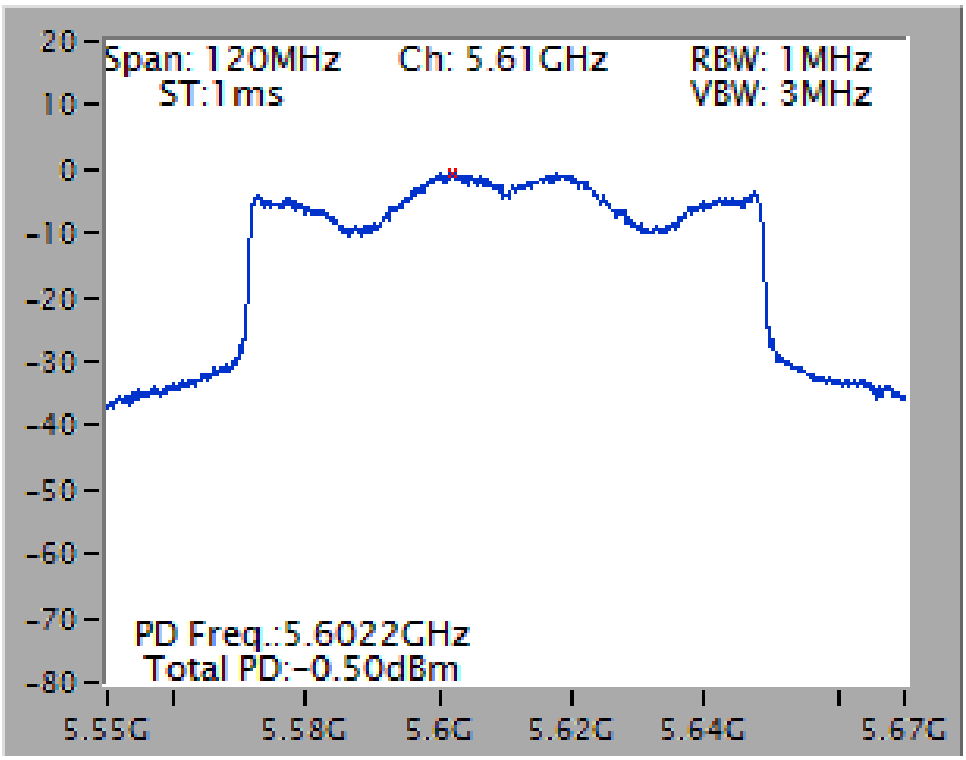
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5550 MHz



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5290 MHz

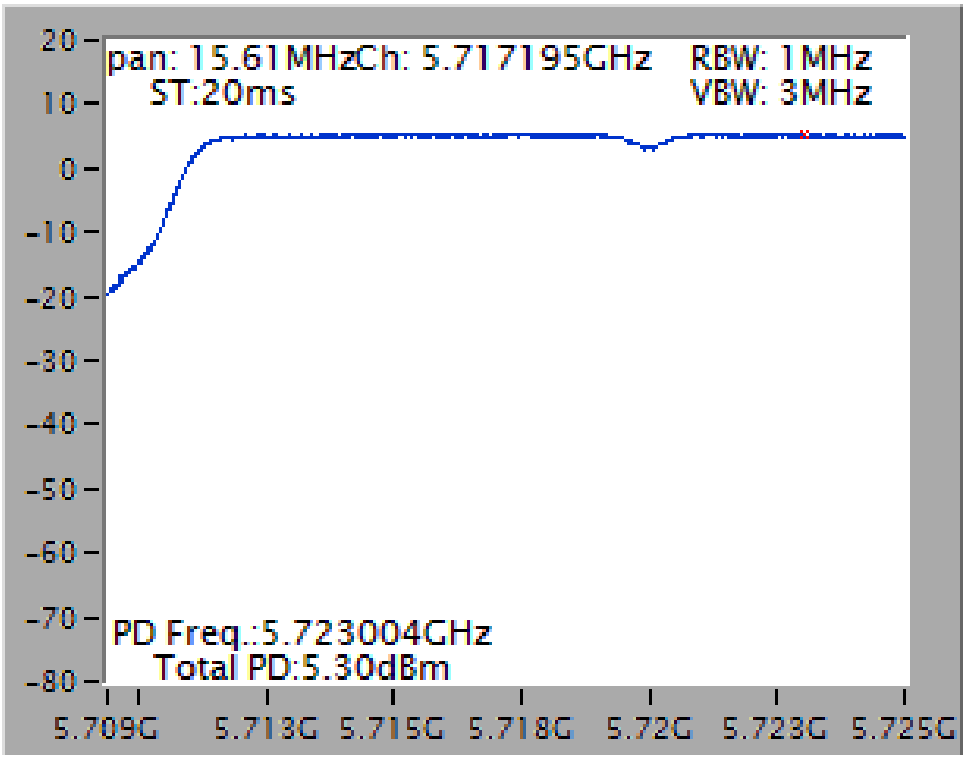


Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5610 MHz

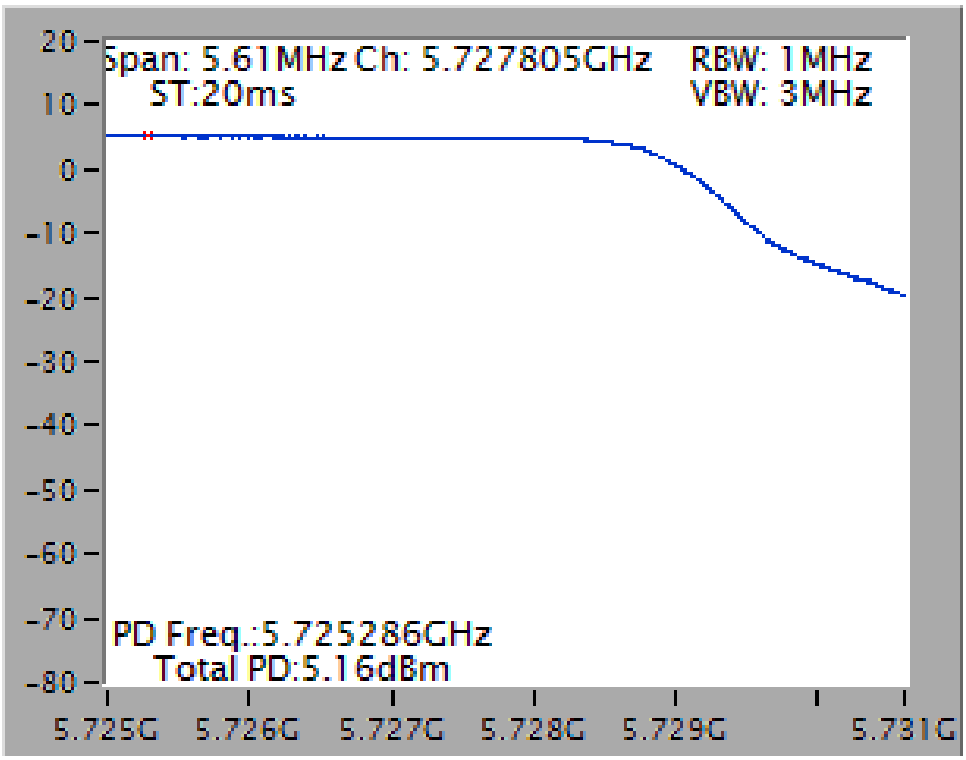


Straddle Channel

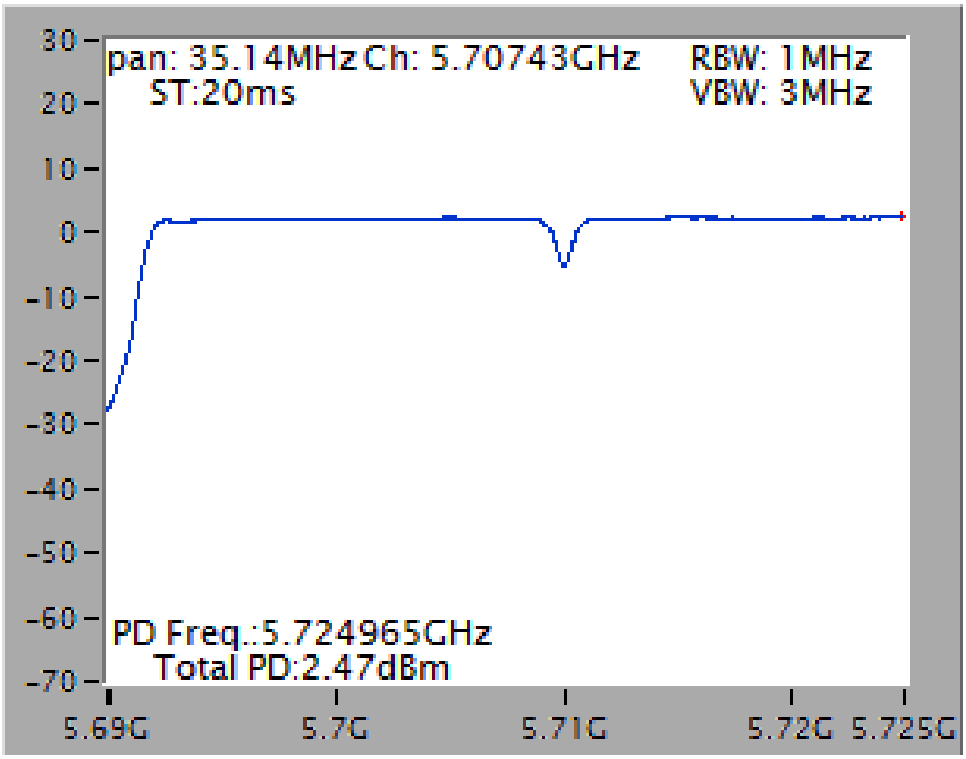
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5720 MHz (UNII 2C)



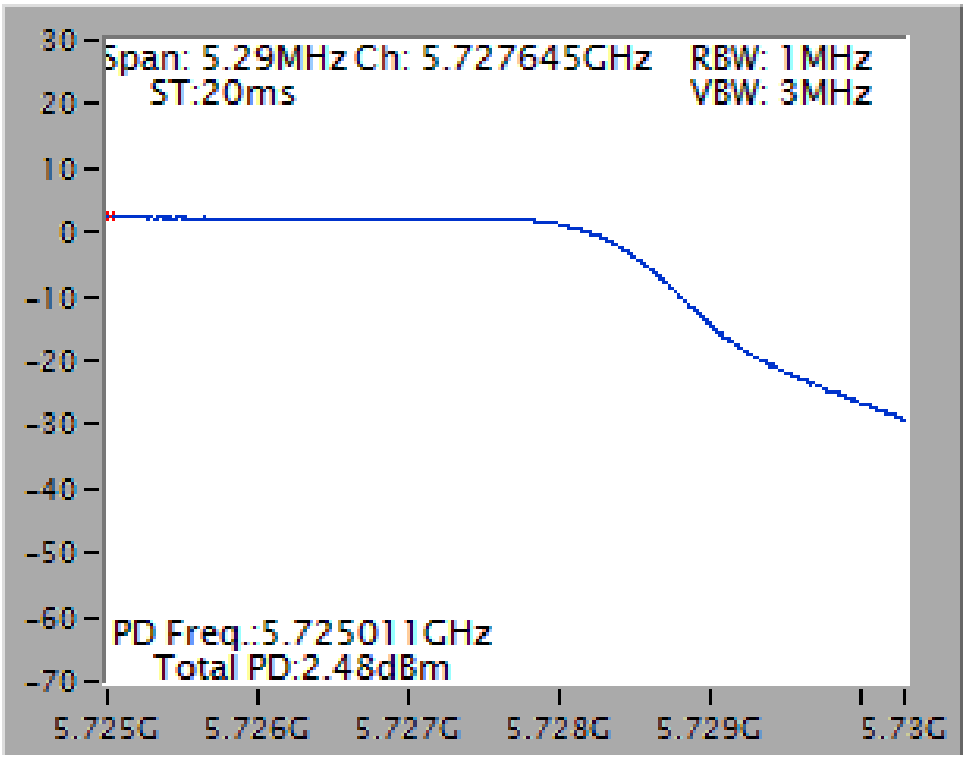
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5720 MHz (UNII 3)



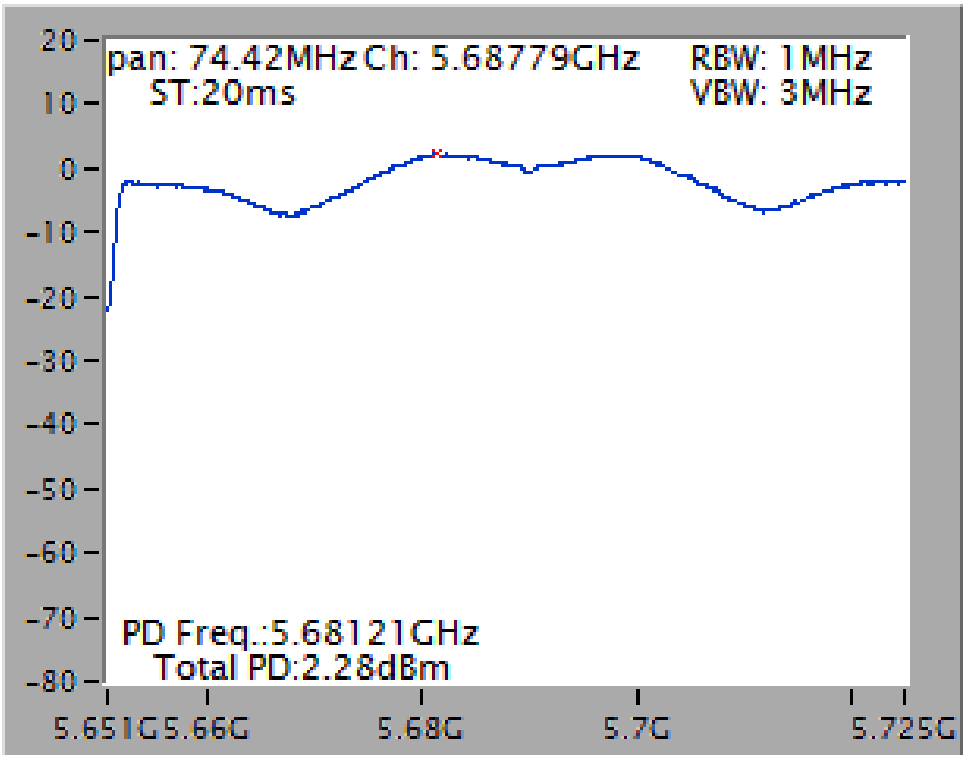
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5710 MHz (UNII 2C)



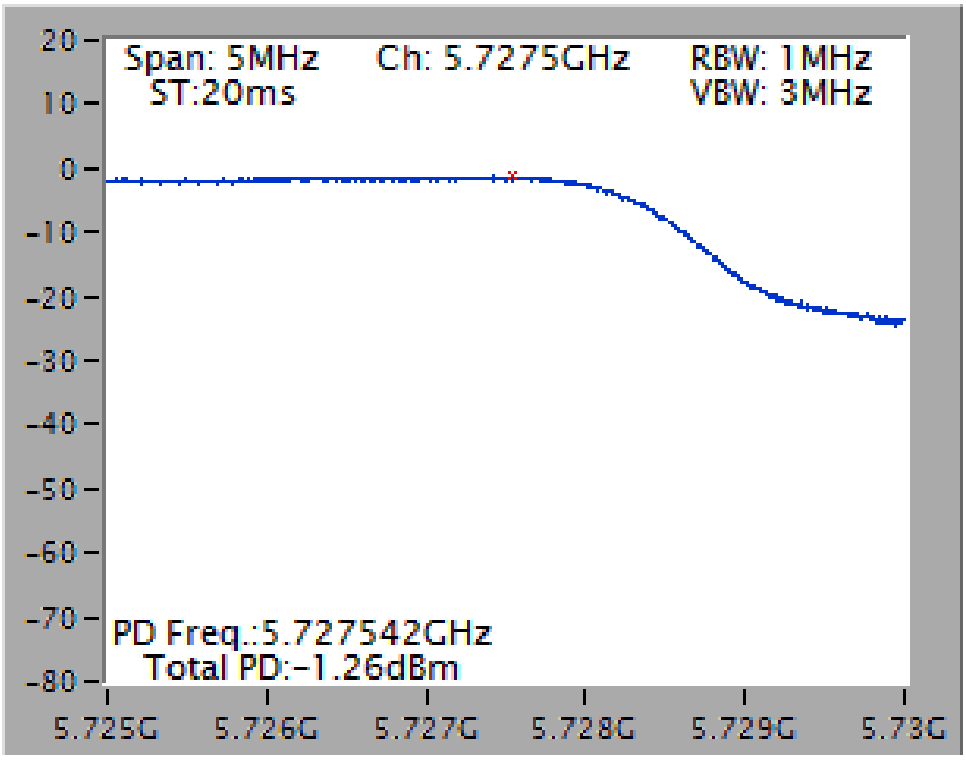
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5710 MHz (UNII 3)



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5690 MHz (UNII 2C)



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5690 MHz (UNII 3)



4.5. Radiated Emissions Measurement

4.5.1. Limit

For transmitters operating in the 5.25-5.35 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

For transmitters operating in the 5.470-5.725 GHz band: all emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

In addition, In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(kHz)	300
0.490~1.705	24000/F(kHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

4.5.2. Measuring Instruments and Setting

Please refer to section 5 of equipments list in this report. The following table is the setting of spectrum analyzer and receiver.

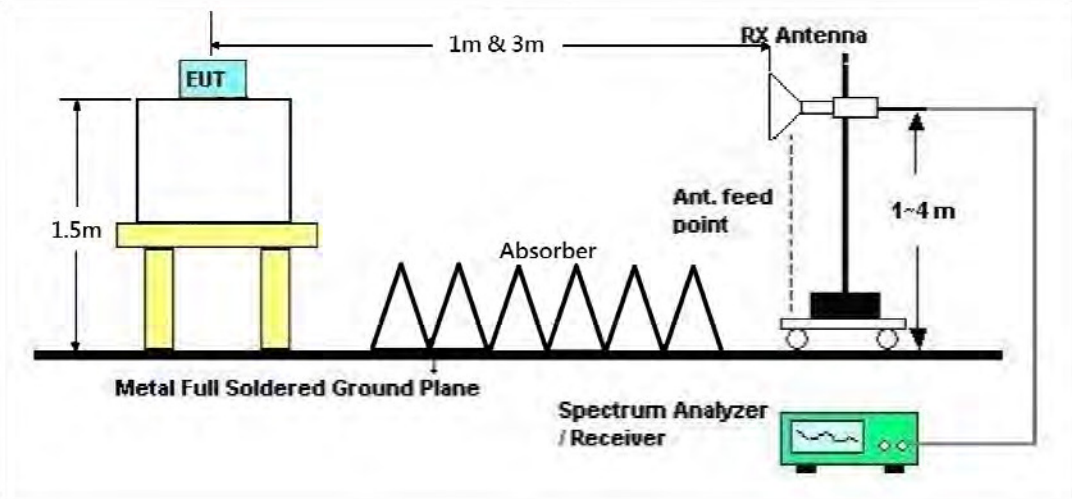
Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	40 GHz
RBW / VBW (Emission in restricted band)	1MHz / 3MHz for Peak, 1MHz / 1/T for Average
RBW / VBW (Emission in non-restricted band)	1MHz / 3MHz for peak

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RBW 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RBW 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RBW 120kHz for QP

4.5.3. Test Procedures

1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 1m & 3m far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. For emissions above 1GHz, use 1MHz VBW and 3MHz RBW for peak reading. Then 1MHz RBW and 1/T VBW for average reading in spectrum analyzer.
7. If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
8. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
9. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High – Low scan is not required in this case.

4.5.4. Test Setup Layout



4.5.5. Test Deviation

There is no deviation with the original standard.

4.5.6. EUT Operation during Test

For Non-beamforming mode:

The EUT was programmed to be in continuously transmitting mode.

For beamforming mode:

The EUT was programmed to be in beamforming transmitting mode.

4.5.7. Results for Radiated Emissions (1GHz~40GHz)

Temperature	22°C	Humidity	54%
Test Engineer	Taka Hsu	Configurations	IEEE 802.11a CH 52 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Feb. 04, 2016	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15779.43	51.31	54.00	-2.69	30.76	16.51	37.76	33.72	114	34	Average	HORIZONTAL
2	15779.97	64.79	74.00	-9.21	44.24	16.51	37.76	33.72	114	34	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15779.05	64.56	74.00	-9.44	44.01	16.51	37.76	33.72	122	69	Peak	VERTICAL
2	15779.88	51.04	54.00	-2.96	30.49	16.51	37.76	33.72	122	69	Average	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Taka Hsu	Configurations	IEEE 802.11a CH 60 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Feb. 04, 2016	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10599.73	58.88	74.00	-15.12	41.20	12.75	38.40	33.47	123	114	Peak	HORIZONTAL
2	10600.68	45.08	54.00	-8.92	27.40	12.75	38.40	33.47	123	114	Average	HORIZONTAL
3	15897.64	64.08	74.00	-9.92	43.74	16.60	37.55	33.81	115	102	Peak	HORIZONTAL
4	15899.09	51.22	54.00	-2.78	30.88	16.60	37.55	33.81	115	102	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10599.15	58.27	74.00	-15.73	40.59	12.75	38.40	33.47	129	142	Peak	VERTICAL
2	10602.25	45.31	54.00	-8.69	27.63	12.75	38.40	33.47	129	142	Average	VERTICAL
3	15901.73	51.07	54.00	-2.93	30.73	16.60	37.55	33.81	146	157	Average	VERTICAL
4	15901.85	64.43	74.00	-9.57	44.09	16.60	37.55	33.81	146	157	Peak	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Taka Hsu	Configurations	IEEE 802.11a CH 64 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Feb. 04, 2016	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10638.35	45.02	54.00	-8.98	27.25	12.80	38.40	33.43	141	176	Average	HORIZONTAL
2	10639.06	58.25	74.00	-15.75	40.48	12.80	38.40	33.43	141	176	Peak	HORIZONTAL
3	15961.12	51.15	54.00	-2.85	30.90	16.63	37.47	33.85	133	189	Average	HORIZONTAL
4	15961.71	64.72	74.00	-9.28	44.47	16.63	37.47	33.85	133	189	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10638.41	58.00	74.00	-16.00	40.23	12.80	38.40	33.43	115	204	Peak	VERTICAL
2	10641.72	45.08	54.00	-8.92	27.31	12.80	38.40	33.43	115	204	Average	VERTICAL
3	15962.44	51.14	54.00	-2.86	30.89	16.63	37.47	33.85	122	196	Average	VERTICAL
4	15962.45	64.49	74.00	-9.51	44.24	16.63	37.47	33.85	122	196	Peak	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Taka Hsu	Configurations	IEEE 802.11a CH 100 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Feb. 04, 2016	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10997.96	45.80	54.00	-8.20	27.15	13.44	38.40	33.19	108	37	Average	HORIZONTAL
2	11002.27	59.29	74.00	-14.71	40.64	13.44	38.40	33.19	108	37	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10998.10	45.75	54.00	-8.25	27.10	13.44	38.40	33.19	129	88	Average	VERTICAL
2	11001.87	59.66	74.00	-14.34	41.01	13.44	38.40	33.19	129	88	Peak	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Taka Hsu	Configurations	IEEE 802.11a CH 116 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Feb. 04, 2016	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11159.84	59.65	74.00	-14.35	40.46	13.71	38.67	33.19	136	112	Peak	HORIZONTAL
2	11161.26	46.03	54.00	-7.97	26.84	13.71	38.67	33.19	136	112	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11158.64	46.60	54.00	-7.40	27.41	13.71	38.67	33.19	152	143	Average	VERTICAL
2	11161.89	60.51	74.00	-13.49	41.32	13.71	38.67	33.19	152	143	Peak	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Taka Hsu	Configurations	IEEE 802.11a CH 140 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Feb. 04, 2016	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11400.02	47.25	54.00	-6.75	27.31	14.08	39.04	33.18	174	158	Average	HORIZONTAL
2	11402.17	61.70	74.00	-12.30	41.76	14.08	39.04	33.18	174	158	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11397.70	47.46	54.00	-6.54	27.52	14.08	39.04	33.18	166	168	Average	VERTICAL
2	11401.03	61.13	74.00	-12.87	41.19	14.08	39.04	33.18	166	168	Peak	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Taka Hsu	Configurations	IEEE 802.11a CH 144 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Feb. 04, 2016	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11438.78	47.55	54.00	-6.45	27.51	14.13	39.09	33.18	146	285	Average	HORIZONTAL
2	11440.93	61.16	74.00	-12.84	41.12	14.13	39.09	33.18	146	285	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11438.33	61.29	74.00	-12.71	41.25	14.13	39.09	33.18	136	332	Peak	VERTICAL
2	11439.45	47.21	54.00	-6.79	27.17	14.13	39.09	33.18	136	332	Average	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Taka Hsu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 52 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Feb. 04, 2016	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15781.13	50.99	54.00	-3.01	30.44	16.51	37.76	33.72	143	348	Average	HORIZONTAL
2	15781.96	64.33	74.00	-9.67	43.82	16.54	37.69	33.72	143	348	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15780.27	51.06	54.00	-2.94	30.51	16.51	37.76	33.72	129	321	Average	VERTICAL
2	15781.67	64.30	74.00	-9.70	43.75	16.51	37.76	33.72	129	321	Peak	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Taka Hsu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 60 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Feb. 04, 2016	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10600.36	58.44	74.00	-15.56	40.76	12.75	38.40	33.47	157	296	Peak	HORIZONTAL
2	10602.00	45.16	54.00	-8.84	27.48	12.75	38.40	33.47	157	296	Average	HORIZONTAL
3	15899.75	63.98	74.00	-10.02	43.64	16.60	37.55	33.81	169	284	Peak	HORIZONTAL
4	15900.54	51.03	54.00	-2.97	30.69	16.60	37.55	33.81	169	284	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10597.56	45.20	54.00	-8.80	27.52	12.75	38.40	33.47	152	263	Average	VERTICAL
2	10602.43	58.33	74.00	-15.67	40.65	12.75	38.40	33.47	152	263	Peak	VERTICAL
3	15898.43	64.50	74.00	-9.50	44.16	16.60	37.55	33.81	175	273	Peak	VERTICAL
4	15902.36	51.04	54.00	-2.96	30.70	16.60	37.55	33.81	175	273	Average	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Taka Hsu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 64 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Feb. 04, 2016	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10639.46	44.92	54.00	-9.08	27.15	12.80	38.40	33.43	141	279	Average	HORIZONTAL
2	10642.19	58.08	74.00	-15.92	40.31	12.80	38.40	33.43	141	279	Peak	HORIZONTAL
3	15959.27	51.20	54.00	-2.80	30.95	16.63	37.47	33.85	163	284	Average	HORIZONTAL
4	15961.58	64.84	74.00	-9.16	44.59	16.63	37.47	33.85	163	284	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10638.53	45.13	54.00	-8.87	27.36	12.80	38.40	33.43	152	223	Average	VERTICAL
2	10638.74	58.11	74.00	-15.89	40.34	12.80	38.40	33.43	152	223	Peak	VERTICAL
3	15958.51	64.58	74.00	-9.42	44.33	16.63	37.47	33.85	176	261	Peak	VERTICAL
4	15959.85	51.35	54.00	-2.65	31.10	16.63	37.47	33.85	176	261	Average	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Taka Hsu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 100 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Feb. 04, 2016	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11000.55	46.02	54.00	-7.98	27.37	13.44	38.40	33.19	133	219	Average	HORIZONTAL
2	11001.45	59.31	74.00	-14.69	40.66	13.44	38.40	33.19	133	219	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10997.94	45.94	54.00	-8.06	27.29	13.44	38.40	33.19	112	199	Average	VERTICAL
2	11001.19	59.04	74.00	-14.96	40.39	13.44	38.40	33.19	112	199	Peak	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Taka Hsu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 116 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Feb. 04, 2016	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11160.92	59.33	74.00	-14.67	40.14	13.71	38.67	33.19	118	216	Peak	HORIZONTAL
2	11161.54	46.72	54.00	-7.28	27.53	13.71	38.67	33.19	118	216	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11158.89	46.39	54.00	-7.61	27.20	13.71	38.67	33.19	125	246	Average	VERTICAL
2	11160.06	58.28	74.00	-15.72	39.09	13.71	38.67	33.19	125	246	Peak	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Taka Hsu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 140 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Feb. 04, 2016	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11397.66	47.20	54.00	-6.80	27.26	14.08	39.04	33.18	134	221	Average	HORIZONTAL
2	11400.79	60.67	74.00	-13.33	40.73	14.08	39.04	33.18	134	221	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11400.28	47.52	54.00	-6.48	27.58	14.08	39.04	33.18	152	241	Average	VERTICAL
2	11401.02	59.94	74.00	-14.06	40.00	14.08	39.04	33.18	152	241	Peak	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Taka Hsu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 144 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Feb. 04, 2016	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11439.25	47.78	54.00	-6.22	27.74	14.13	39.09	33.18	143	286	Average	HORIZONTAL
2	11441.44	60.53	74.00	-13.47	40.49	14.13	39.09	33.18	143	286	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11439.35	47.65	54.00	-6.35	27.61	14.13	39.09	33.18	129	276	Average	VERTICAL
2	11440.29	60.93	74.00	-13.07	40.89	14.13	39.09	33.18	129	276	Peak	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Taka Hsu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 54 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Feb. 04, 2016	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15809.73	50.81	54.00	-3.19	30.30	16.54	37.69	33.72	137	336	Average	HORIZONTAL
2	15809.90	63.95	74.00	-10.05	43.44	16.54	37.69	33.72	137	336	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15809.73	50.79	54.00	-3.21	30.28	16.54	37.69	33.72	155	310	Average	VERTICAL
2	15812.40	63.99	74.00	-10.01	43.48	16.54	37.69	33.72	155	310	Peak	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Taka Hsu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 62 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Feb. 04, 2016	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10618.01	58.08	74.00	-15.92	40.38	12.75	38.40	33.45	167	285	Peak	HORIZONTAL
2	10619.66	45.16	54.00	-8.84	27.46	12.75	38.40	33.45	167	285	Average	HORIZONTAL
3	15928.14	51.06	54.00	-2.94	30.81	16.63	37.47	33.85	155	247	Average	HORIZONTAL
4	15930.61	65.38	74.00	-8.62	45.13	16.63	37.47	33.85	155	247	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10618.25	57.82	74.00	-16.18	40.12	12.75	38.40	33.45	136	201	Peak	VERTICAL
2	10620.82	45.03	54.00	-8.97	27.33	12.75	38.40	33.45	136	201	Average	VERTICAL
3	15931.15	64.27	74.00	-9.73	44.02	16.63	37.47	33.85	143	215	Peak	VERTICAL
4	15932.40	51.14	54.00	-2.86	30.89	16.63	37.47	33.85	143	215	Average	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Taka Hsu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 102 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Feb. 04, 2016	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11018.10	45.72	54.00	-8.28	27.07	13.44	38.40	33.19	141	22	Average	HORIZONTAL
2	11021.22	58.69	74.00	-15.31	40.04	13.44	38.40	33.19	141	22	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11017.86	59.12	74.00	-14.88	40.47	13.44	38.40	33.19	132	56	Peak	VERTICAL
2	11018.00	46.08	54.00	-7.92	27.43	13.44	38.40	33.19	132	56	Average	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Taka Hsu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 110 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Feb. 04, 2016	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11099.18	60.33	74.00	-13.67	41.36	13.60	38.56	33.19	168	288	Peak	HORIZONTAL
2	11099.37	46.92	54.00	-7.08	27.95	13.60	38.56	33.19	168	288	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11099.43	60.30	74.00	-13.70	41.33	13.60	38.56	33.19	132	157	Peak	VERTICAL
2	11099.86	47.03	54.00	-6.97	28.06	13.60	38.56	33.19	132	157	Average	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Taka Hsu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 134 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Feb. 04, 2016	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11339.78	46.92	54.00	-7.08	27.20	13.97	38.93	33.18	166	45	Average	HORIZONTAL
2	11340.02	60.11	74.00	-13.89	40.39	13.97	38.93	33.18	166	45	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11341.66	60.50	74.00	-13.50	40.78	13.97	38.93	33.18	127	115	Peak	VERTICAL
2	11341.71	47.15	54.00	-6.85	27.43	13.97	38.93	33.18	127	115	Average	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Taka Hsu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 142 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Feb. 04, 2016	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11418.79	47.68	54.00	-6.32	27.64	14.13	39.09	33.18	169	293	Average	HORIZONTAL
2	11418.80	61.25	74.00	-12.75	41.21	14.13	39.09	33.18	169	293	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11418.53	61.00	74.00	-13.00	40.96	14.13	39.09	33.18	122	181	Peak	VERTICAL
2	11419.38	47.82	54.00	-6.18	27.78	14.13	39.09	33.18	122	181	Average	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Taka Hsu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 58 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Feb. 04, 2016	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15868.97	64.41	74.00	-9.59	44.03	16.57	37.62	33.81	171	216	Peak	HORIZONTAL
2	15870.67	50.97	54.00	-3.03	30.59	16.57	37.62	33.81	171	216	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15869.27	64.13	74.00	-9.87	43.75	16.57	37.62	33.81	146	349	Peak	VERTICAL
2	15872.50	51.09	54.00	-2.91	30.71	16.57	37.62	33.81	146	349	Average	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Taka Hsu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 106 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Feb. 04, 2016	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11058.10	46.72	54.00	-7.28	27.97	13.49	38.45	33.19	157	163	Average	HORIZONTAL
2	11060.67	59.86	74.00	-14.14	40.99	13.55	38.51	33.19	157	163	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11059.52	59.76	74.00	-14.24	41.01	13.49	38.45	33.19	129	100	Peak	VERTICAL
2	11059.54	46.55	54.00	-7.45	27.80	13.49	38.45	33.19	129	100	Average	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Taka Hsu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 122 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Feb. 04, 2016	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11218.46	46.55	54.00	-7.45	27.26	13.76	38.72	33.19	182	249	Average	HORIZONTAL
2	11218.92	60.20	74.00	-13.80	40.91	13.76	38.72	33.19	182	249	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11218.26	46.55	54.00	-7.45	27.26	13.76	38.72	33.19	138	25	Average	VERTICAL
2	11220.87	59.68	74.00	-14.32	40.39	13.76	38.72	33.19	138	25	Peak	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Taka Hsu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 138 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Feb. 04, 2016	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11380.12	61.20	74.00	-12.80	41.36	14.03	38.99	33.18	150	350	Peak	HORIZONTAL
2	11381.43	47.36	54.00	-6.64	27.52	14.03	38.99	33.18	150	350	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11381.92	60.95	74.00	-13.05	41.11	14.03	38.99	33.18	127	115	Peak	VERTICAL
2	11382.05	47.32	54.00	-6.68	27.48	14.03	38.99	33.18	127	115	Average	VERTICAL

Note:

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Temperature	22°C	Humidity	54%
Test Engineer	Taka Hsu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 52 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Apr. 14, 2016	Test Function	Beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15782.88	47.45	54.00	-6.55	33.96	11.01	38.34	35.86	149	360	Average	HORIZONTAL
2	15788.16	59.85	74.00	-14.15	46.36	11.01	38.34	35.86	149	360	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15772.52	58.63	74.00	-15.37	45.13	11.01	38.35	35.86	189	229	Peak	VERTICAL
2	15789.36	46.76	54.00	-7.24	33.27	11.01	38.34	35.86	189	229	Average	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Taka Hsu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 60 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Apr. 14, 2016	Test Function	Beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15895.36	58.97	74.00	-15.03	45.50	11.01	38.32	35.86	164	202	Peak	HORIZONTAL
2	15900.00	46.85	54.00	-7.15	33.38	11.01	38.32	35.86	164	202	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15894.48	45.82	54.00	-8.18	32.35	11.01	38.32	35.86	120	154	Average	VERTICAL
2	15898.64	58.09	74.00	-15.91	44.62	11.01	38.32	35.86	120	154	Peak	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Taka Hsu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 64 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Apr. 14, 2016	Test Function	Beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15953.20	46.75	54.00	-7.25	33.29	11.01	38.31	35.86	146	168	Average	HORIZONTAL
2	15955.64	58.96	74.00	-15.04	45.50	11.01	38.31	35.86	146	168	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15960.88	59.40	74.00	-14.60	45.94	11.01	38.31	35.86	157	148	Peak	VERTICAL
2	15966.80	45.93	54.00	-8.07	32.48	11.01	38.30	35.86	157	148	Average	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Taka Hsu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 100 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Apr. 14, 2016	Test Function	Beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10991.60	44.27	54.00	-9.73	30.46	10.51	39.27	35.97	192	116	Average	HORIZONTAL
2	10991.92	56.53	74.00	-17.47	42.72	10.51	39.27	35.97	192	116	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10990.64	54.82	74.00	-19.18	41.01	10.51	39.27	35.97	250	151	Peak	VERTICAL
2	10991.88	43.22	54.00	-10.78	29.41	10.51	39.27	35.97	250	151	Average	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Taka Hsu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 116 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Apr. 14, 2016	Test Function	Beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11154.80	57.51	74.00	-16.49	43.69	10.51	39.27	35.96	231	149	Peak	HORIZONTAL
2	11165.84	43.77	54.00	-10.23	29.95	10.51	39.27	35.96	231	149	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11166.64	43.89	54.00	-10.11	30.07	10.51	39.27	35.96	201	179	Average	VERTICAL
2	11169.76	54.44	74.00	-19.56	40.62	10.51	39.27	35.96	201	179	Peak	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Taka Hsu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 140 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Apr. 14, 2016	Test Function	Beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11401.60	55.25	74.00	-18.75	41.45	10.51	39.22	35.93	180	154	Peak	HORIZONTAL
2	11402.88	43.65	54.00	-10.35	29.85	10.51	39.22	35.93	180	154	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11403.16	42.59	54.00	-11.41	28.79	10.51	39.22	35.93	193	107	Average	VERTICAL
2	11407.68	55.82	74.00	-18.18	42.02	10.51	39.22	35.93	193	107	Peak	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Taka Hsu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 144 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Apr. 14, 2016	Test Function	Beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11432.08	42.24	54.00	-11.76	28.45	10.51	39.21	35.93	189	121	Average	HORIZONTAL
2	11439.68	54.65	74.00	-19.35	40.86	10.51	39.21	35.93	189	121	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11434.00	42.21	54.00	-11.79	28.42	10.51	39.21	35.93	184	160	Average	VERTICAL
2	11441.16	56.00	74.00	-18.00	42.21	10.51	39.21	35.93	184	160	Peak	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Taka Hsu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 54 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Apr. 14, 2016	Test Function	Beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15816.32	59.80	74.00	-14.20	46.31	11.01	38.34	35.86	167	166	Peak	HORIZONTAL
2	15817.68	46.39	54.00	-7.61	32.90	11.01	38.34	35.86	167	166	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15808.08	58.62	74.00	-15.38	45.13	11.01	38.34	35.86	174	174	Peak	VERTICAL
2	15813.64	46.26	54.00	-7.74	32.77	11.01	38.34	35.86	174	174	Average	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Taka Hsu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 62 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Apr. 14, 2016	Test Function	Beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15934.48	58.27	74.00	-15.73	44.81	11.01	38.31	35.86	161	153	Peak	HORIZONTAL
2	15937.84	45.02	54.00	-8.98	31.56	11.01	38.31	35.86	161	153	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15932.80	44.02	54.00	-9.98	30.56	11.01	38.31	35.86	154	170	Average	VERTICAL
2	15932.84	58.81	74.00	-15.19	45.35	11.01	38.31	35.86	154	170	Peak	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Taka Hsu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 102 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Apr. 14, 2016	Test Function	Beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11010.84	55.02	74.00	-18.98	41.18	10.51	39.30	35.97	189	145	Peak	HORIZONTAL
2	11028.84	41.77	54.00	-12.23	27.94	10.51	39.29	35.97	189	145	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11012.72	54.70	74.00	-19.30	40.86	10.51	39.30	35.97	165	106	Peak	VERTICAL
2	11029.32	41.93	54.00	-12.07	28.10	10.51	39.29	35.97	165	106	Average	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Taka Hsu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 110 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Apr. 14, 2016	Test Function	Beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11095.12	55.46	74.00	-18.54	41.63	10.51	39.28	35.96	184	81	Peak	HORIZONTAL
2	11101.48	41.88	54.00	-12.12	28.05	10.51	39.28	35.96	184	81	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11096.36	41.90	54.00	-12.10	28.07	10.51	39.28	35.96	160	137	Average	VERTICAL
2	11103.80	54.69	74.00	-19.31	40.86	10.51	39.28	35.96	160	137	Peak	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Taka Hsu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 134 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Apr. 14, 2016	Test Function	Beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11335.76	55.04	74.00	-18.96	41.24	10.51	39.23	35.94	145	164	Peak	HORIZONTAL
2	11336.12	42.37	54.00	-11.63	28.57	10.51	39.23	35.94	145	164	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11344.64	55.35	74.00	-18.65	41.55	10.51	39.23	35.94	181	183	Peak	VERTICAL
2	11347.72	42.45	54.00	-11.55	28.65	10.51	39.23	35.94	181	183	Average	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Taka Hsu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 142 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Apr. 14, 2016	Test Function	Beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11417.08	42.62	54.00	-11.38	28.82	10.51	39.22	35.93	156	168	Average	HORIZONTAL
2	11427.76	55.45	74.00	-18.55	41.66	10.51	39.21	35.93	156	168	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11419.08	55.57	74.00	-18.43	41.78	10.51	39.21	35.93	124	199	Peak	VERTICAL
2	11420.48	42.61	54.00	-11.39	28.82	10.51	39.21	35.93	124	199	Average	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Taka Hsu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 58 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Apr. 14, 2016	Test Function	Beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15869.44	58.49	74.00	-15.51	45.01	11.01	38.33	35.86	146	171	Peak	HORIZONTAL
2	15872.96	44.86	54.00	-9.14	31.38	11.01	38.33	35.86	146	171	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15869.00	45.03	54.00	-8.97	31.55	11.01	38.33	35.86	178	145	Average	VERTICAL
2	15879.36	58.43	74.00	-15.57	44.96	11.01	38.32	35.86	178	145	Peak	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Taka Hsu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 106 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Apr. 14, 2016 ~ Apr. 15, 2016	Test Function	Beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11052.60	41.84	54.00	-12.16	28.01	10.51	39.29	35.97	165	188	Average	HORIZONTAL
2	11069.24	55.53	74.00	-18.47	41.69	10.51	39.29	35.96	165	188	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11051.48	41.90	54.00	-12.10	28.07	10.51	39.29	35.97	149	166	Average	VERTICAL
2	11056.32	55.05	74.00	-18.95	41.22	10.51	39.29	35.97	149	166	Peak	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Taka Hsu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 122 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Apr. 15, 2016	Test Function	Beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11211.12	42.18	54.00	-11.82	28.36	10.51	39.26	35.95	173	203	Average	HORIZONTAL
2	11211.84	55.26	74.00	-18.74	41.44	10.51	39.26	35.95	173	203	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11220.32	55.44	74.00	-18.56	41.62	10.51	39.26	35.95	108	273	Peak	VERTICAL
2	11229.60	42.09	54.00	-11.91	28.28	10.51	39.25	35.95	108	273	Average	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Taka Hsu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 138 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Apr. 15, 2016	Test Function	Beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11381.04	55.74	74.00	-18.26	41.94	10.51	39.23	35.94	116	262	Peak	HORIZONTAL
2	11382.48	42.43	54.00	-11.57	28.63	10.51	39.23	35.94	116	262	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11370.88	42.46	54.00	-11.54	28.66	10.51	39.23	35.94	128	237	Average	VERTICAL
2	11378.00	55.55	74.00	-18.45	41.75	10.51	39.23	35.94	128	237	Peak	VERTICAL

Note:

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

4.6. Band Edge Emissions Measurement

4.6.1. Limit

For transmitters operating in the 5.25-5.35 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

For transmitters operating in the 5.470-5.725 GHz band: all emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

In addition, In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(kHz)	300
0.490~1.705	24000/F(kHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

4.6.2. Measuring Instruments and Setting

Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	100 MHz
RBW / VBW (Emission in restricted band)	1MHz / 3MHz for Peak, 1MHz / 1/T for Average
RBW / VBW (Emission in non-restricted band)	1MHz / 3MHz for Peak

4.6.3. Test Procedures

1. The test procedure is the same as section 4.5.3.

4.6.4. Test Setup Layout

This test setup layout is the same as that shown in section 4.5.4.

4.6.5. Test Deviation

There is no deviation with the original standard.

4.6.6. EUT Operation during Test

For Non-beamforming mode:

The EUT was programmed to be in continuously transmitting mode.

For beamforming mode:

The EUT was programmed to be in beamforming transmitting mode.

4.6.7. Test Result of Band Edge and Fundamental Emissions

Temperature	22°C	Humidity	54%
Test Engineer	Taka Hsu	Configurations	IEEE 802.11a CH 52, 60, 64 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Feb. 04, 2016	Test Function	Non-beamforming function

Channel 52

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5147.80	45.34	54.00	-8.66	36.37	8.15	33.74	32.92	291	292	Average	HORIZONTAL
2	5150.00	56.94	74.00	-17.06	47.97	8.15	33.74	32.92	291	292	Peak	HORIZONTAL
3	5262.40	106.92			97.64	8.26	33.94	32.92	291	292	Average	HORIZONTAL
4	5263.00	117.71			108.43	8.26	33.94	32.92	291	292	Peak	HORIZONTAL
5	5350.60	57.96	74.00	-16.04	48.62	8.20	34.06	32.92	291	292	Peak	HORIZONTAL
6	5353.60	46.45	54.00	-7.55	37.11	8.20	34.06	32.92	291	292	Average	HORIZONTAL

Item 3, 4 are the fundamental frequency at 5260 MHz.

Channel 60

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5301.20	107.39			98.09	8.24	33.98	32.92	330	295	Average	HORIZONTAL
2	5302.00	118.28			108.98	8.24	33.98	32.92	330	295	Peak	HORIZONTAL
3	5350.00	53.91	54.00	-0.09	44.57	8.20	34.06	32.92	330	295	Average	HORIZONTAL
4	5350.40	71.59	74.00	-2.41	62.25	8.20	34.06	32.92	330	295	Peak	HORIZONTAL

Item 1, 2 are the fundamental frequency at 5300 MHz.

Channel 64

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5327.20	102.24			92.91	8.22	34.03	32.92	254	185	Average	HORIZONTAL
2	5327.60	112.65			103.32	8.22	34.03	32.92	254	185	Peak	HORIZONTAL
3	5350.00	53.42	54.00	-0.58	44.08	8.20	34.06	32.92	254	185	Average	HORIZONTAL
4	5350.40	70.41	74.00	-3.59	61.07	8.20	34.06	32.92	254	185	Peak	HORIZONTAL

Item 1, 2 are the fundamental frequency at 5320 MHz.

Temperature	22°C	Humidity	54%
Test Engineer	Taka Hsu	Configurations	IEEE 802.11a CH 100, 116, 140, 144 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Feb. 04, 2016	Test Function	Non-beamforming function

Channel 100

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5460.00	63.49	74.00	-10.51	53.83	8.36	34.23	32.93	243	286	Peak	HORIZONTAL
2	5460.00	48.83	54.00	-5.17	39.17	8.36	34.23	32.93	243	286	Average	HORIZONTAL
3	5469.60	68.09	68.20	-0.11	58.36	8.41	34.25	32.93	243	286	Peak	HORIZONTAL
4	5492.40	103.09			93.28	8.46	34.28	32.93	243	286	Average	HORIZONTAL
5	5492.80	112.92			103.11	8.46	34.28	32.93	243	286	Peak	HORIZONTAL

Item 4, 5 are the fundamental frequency at 5500 MHz.

Channel 116

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5460.00	57.02	74.00	-16.98	47.36	8.36	34.23	32.93	261	282	Peak	HORIZONTAL
2	5460.00	46.89	54.00	-7.11	37.23	8.36	34.23	32.93	261	282	Average	HORIZONTAL
3	5470.00	58.01	74.00	-15.99	48.28	8.41	34.25	32.93	261	282	Peak	HORIZONTAL
4	5470.00	47.19	54.00	-6.81	37.46	8.41	34.25	32.93	261	282	Average	HORIZONTAL
5	5572.20	104.55			94.46	8.70	34.34	32.95	261	282	Average	HORIZONTAL
6	5572.80	115.18			105.09	8.70	34.34	32.95	261	282	Peak	HORIZONTAL
7	5725.00	56.83	74.00	-17.17	46.91	8.47	34.44	32.99	261	282	Peak	HORIZONTAL
8	5725.00	46.11	54.00	-7.89	36.19	8.47	34.44	32.99	261	282	Average	HORIZONTAL

Item 5, 6 are the fundamental frequency at 5580 MHz.

Channel 140

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5705.80	111.14			101.18	8.51	34.43	32.98	281	235	Peak	VERTICAL
2	5706.00	101.93			91.97	8.51	34.43	32.98	281	235	Average	VERTICAL
3	5725.20	67.75	68.20	-0.45	57.83	8.47	34.44	32.99	281	235	Peak	VERTICAL

Item 1, 2 are the fundamental frequency at 5700 MHz.

Channel 144

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5722.40	103.54			93.62	8.47	34.44	32.99	256	294	Average	HORIZONTAL
2	5723.00	114.52			104.60	8.47	34.44	32.99	256	294	Peak	HORIZONTAL
3	5850.00	57.45	68.20	-10.75	47.40	8.56	34.51	33.02	256	294	Peak	HORIZONTAL

Item 1, 2 are the fundamental frequency at 5720 MHz.

Temperature	22°C	Humidity	54%
Test Engineer	Taka Hsu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 52, 60, 64 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Feb. 04, 2016	Test Function	Non-beamforming function

Channel 52

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5150.00	56.76	74.00	-17.24	47.79	8.15	33.74	32.92	247	288	Peak	HORIZONTAL
2	5150.00	45.65	54.00	-8.35	36.68	8.15	33.74	32.92	247	288	Average	HORIZONTAL
3	5266.00	118.62			109.34	8.26	33.94	32.92	247	288	Peak	HORIZONTAL
4	5266.00	107.93			98.65	8.26	33.94	32.92	247	288	Average	HORIZONTAL
5	5350.00	58.04	74.00	-15.96	48.70	8.20	34.06	32.92	247	288	Peak	HORIZONTAL
6	5351.20	47.55	54.00	-6.45	38.21	8.20	34.06	32.92	247	288	Average	HORIZONTAL

Item 3, 4 are the fundamental frequency at 5260 MHz.

Channel 60

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5305.60	117.31			108.01	8.24	33.98	32.92	330	289	Peak	HORIZONTAL
2	5305.60	107.28			97.98	8.24	33.98	32.92	330	289	Average	HORIZONTAL
3	5350.40	73.90	74.00	-0.10	64.56	8.20	34.06	32.92	330	289	Peak	HORIZONTAL
4	5350.40	52.74	54.00	-1.26	43.40	8.20	34.06	32.92	330	289	Average	HORIZONTAL

Item 1, 2 are the fundamental frequency at 5300 MHz.

Channel 64

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5312.00	104.06			94.74	8.23	34.01	32.92	231	290	Average	HORIZONTAL
2	5327.20	114.83			105.50	8.22	34.03	32.92	231	290	Peak	HORIZONTAL
3	5351.20	53.48	54.00	-0.52	44.14	8.20	34.06	32.92	231	290	Average	HORIZONTAL
4	5352.00	71.78	74.00	-2.22	62.44	8.20	34.06	32.92	231	290	Peak	HORIZONTAL

Item 1, 2 are the fundamental frequency at 5320 MHz.

Temperature	22°C	Humidity	54%
Test Engineer	Taka Hsu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 100, 116, 140, 144 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Feb. 04, 2016	Test Function	Non-beamforming function

Channel 100

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5454.80	64.74	74.00	-9.26	55.08	8.36	34.23	32.93	247	287	Peak	HORIZONTAL
2	5459.00	49.84	54.00	-4.16	40.18	8.36	34.23	32.93	247	287	Average	HORIZONTAL
3	5469.00	70.46	74.00	-3.54	60.73	8.41	34.25	32.93	247	287	Peak	HORIZONTAL
4	5469.20	53.80	54.00	-0.20	44.07	8.41	34.25	32.93	247	287	Average	HORIZONTAL
5	5505.60	114.39			104.51	8.51	34.30	32.93	247	287	Peak	HORIZONTAL
6	5506.20	103.44			93.56	8.51	34.30	32.93	247	287	Average	HORIZONTAL

Item 5, 6 are the fundamental frequency at 5500 MHz.

Channel 116

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5446.20	58.84	74.00	-15.16	49.25	8.32	34.20	32.93	306	281	Peak	HORIZONTAL
2	5457.60	46.71	54.00	-7.29	37.05	8.36	34.23	32.93	306	281	Average	HORIZONTAL
3	5463.00	59.86	74.00	-14.14	50.20	8.36	34.23	32.93	306	281	Peak	HORIZONTAL
4	5467.80	47.48	54.00	-6.52	37.75	8.41	34.25	32.93	306	281	Average	HORIZONTAL
5	5581.20	116.81			106.66	8.75	34.35	32.95	306	281	Peak	HORIZONTAL
6	5586.00	106.27			96.12	8.75	34.35	32.95	306	281	Average	HORIZONTAL
7	5725.00	57.34	74.00	-16.66	47.42	8.47	34.44	32.99	306	281	Peak	HORIZONTAL
8	5725.00	46.11	54.00	-7.89	36.19	8.47	34.44	32.99	306	281	Average	HORIZONTAL

Item 5, 6 are the fundamental frequency at 5580 MHz.

Channel 140

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5696.60	109.65			99.65	8.56	34.42	32.98	305	224	Peak	VERTICAL
2	5697.80	99.87			89.87	8.56	34.42	32.98	305	224	Average	VERTICAL
3	5725.00	53.83	54.00	-0.17	43.91	8.47	34.44	32.99	305	224	Average	VERTICAL
4	5725.60	71.33	74.00	-2.67	61.41	8.47	34.44	32.99	305	224	Peak	VERTICAL

Item 1, 2 are the fundamental frequency at 5700 MHz.

Channel 144

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5715.80	116.19			106.24	8.51	34.43	32.99	312	279	Peak	HORIZONTAL
2	5715.80	105.69			95.74	8.51	34.43	32.99	312	279	Average	HORIZONTAL
3	5862.20	59.81	68.20	-8.39	49.68	8.64	34.52	33.03	312	279	Peak	HORIZONTAL

Item 1, 2 are the fundamental frequency at 5720 MHz.

Temperature	22°C	Humidity	54%
Test Engineer	Taka Hsu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 54, 62 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Feb. 04, 2016	Test Function	Non-beamforming function

Channel 54

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5285.60	113.51			104.22	8.25	33.96	32.92	330	298	Peak	HORIZONTAL
2	5285.60	103.64			94.35	8.25	33.96	32.92	330	298	Average	HORIZONTAL
3	5351.00	53.56	54.00	-0.44	44.22	8.20	34.06	32.92	330	298	Average	HORIZONTAL
4	5354.60	64.16	74.00	-9.84	54.81	8.19	34.08	32.92	330	298	Peak	HORIZONTAL

Item 1, 2 are the fundamental frequency at 5270 MHz.

Channel 62

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5295.60	107.98			98.68	8.24	33.98	32.92	330	293	Peak	HORIZONTAL
2	5295.60	97.60			88.30	8.24	33.98	32.92	330	293	Average	HORIZONTAL
3	5350.40	66.83	74.00	-7.17	57.49	8.20	34.06	32.92	330	293	Peak	HORIZONTAL
4	5350.40	53.57	54.00	-0.43	44.23	8.20	34.06	32.92	330	293	Average	HORIZONTAL

Item 1, 2 are the fundamental frequency at 5310 MHz.

Temperature	22°C	Humidity	54%
Test Engineer	Taka Hsu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 102, 110, 134, 142 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Feb. 04, 2016	Test Function	Non-beamforming function

Channel 102

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5456.00	62.00	74.00	-12.00	52.34	8.36	34.23	32.93	262	288	Peak	HORIZONTAL
2	5460.00	49.35	54.00	-4.65	39.69	8.36	34.23	32.93	262	288	Average	HORIZONTAL
3	5465.60	69.46	74.00	-4.54	59.73	8.41	34.25	32.93	262	288	Peak	HORIZONTAL
4	5470.00	53.85	54.00	-0.15	44.12	8.41	34.25	32.93	262	288	Average	HORIZONTAL
5	5495.60	96.37			86.49	8.51	34.30	32.93	262	288	Average	HORIZONTAL
6	5521.20	107.05			97.11	8.56	34.31	32.93	262	288	Peak	HORIZONTAL

Item 5, 6 are the fundamental frequency at 5510 MHz.

Channel 110

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5458.20	53.30	54.00	-0.70	43.64	8.36	34.23	32.93	254	290	Average	HORIZONTAL
2	5459.40	65.75	74.00	-8.25	56.09	8.36	34.23	32.93	254	290	Peak	HORIZONTAL
3	5468.40	67.78	68.20	-0.42	58.05	8.41	34.25	32.93	254	290	Peak	HORIZONTAL
4	5535.60	101.64			91.65	8.61	34.32	32.94	254	290	Average	HORIZONTAL
5	5545.80	112.62			102.58	8.65	34.33	32.94	254	290	Peak	HORIZONTAL

Item 4, 5 are the fundamental frequency at 5550 MHz.

Channel 134

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5676.40	109.71			99.68	8.60	34.41	32.98	301	280	Peak	HORIZONTAL
2	5686.00	99.80			89.77	8.60	34.41	32.98	301	280	Average	HORIZONTAL
3	5726.00	68.04	74.00	-5.96	58.12	8.47	34.44	32.99	301	280	Peak	HORIZONTAL
4	5726.40	53.51	54.00	-0.49	43.59	8.47	34.44	32.99	301	280	Average	HORIZONTAL

Item 1, 2 are the fundamental frequency at 5670 MHz.

Channel 142

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5696.00	101.74			91.74	8.56	34.42	32.98	263	282	Average	HORIZONTAL
2	5706.00	112.02			102.06	8.51	34.43	32.98	263	282	Peak	HORIZONTAL
3	5854.00	68.06	68.20	-0.14	58.01	8.56	34.51	33.02	263	282	Peak	HORIZONTAL

Item 1, 2 are the fundamental frequency at 5710 MHz.

Temperature	22°C	Humidity	54%
Test Engineer	Taka Hsu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 58, 106, 122, 138 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Feb. 04, 2016	Test Function	Non-beamforming function

Channel 58

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5098.00	56.45	74.00	-17.55	47.72	7.97	33.67	32.91	248	292	Peak	HORIZONTAL
2	5133.00	45.65	54.00	-8.35	36.76	8.09	33.72	32.92	248	292	Average	HORIZONTAL
3	5282.00	95.83			86.54	8.25	33.96	32.92	248	292	Average	HORIZONTAL
4	5301.00	105.52			96.22	8.24	33.98	32.92	248	292	Peak	HORIZONTAL
5	5351.00	64.77	74.00	-9.23	55.43	8.20	34.06	32.92	248	292	Peak	HORIZONTAL
6	5351.00	53.93	54.00	-0.07	44.59	8.20	34.06	32.92	248	292	Average	HORIZONTAL

Item 3, 4 are the fundamental frequency at 5290 MHz.

Channel 106

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5459.00	67.13	74.00	-6.87	57.47	8.36	34.23	32.93	252	286	Peak	HORIZONTAL
2	5460.00	53.90	54.00	-0.10	44.24	8.36	34.23	32.93	252	286	Average	HORIZONTAL
3	5470.00	67.28	68.20	-0.92	57.55	8.41	34.25	32.93	252	286	Peak	HORIZONTAL
4	5521.00	97.12			87.18	8.56	34.31	32.93	252	286	Average	HORIZONTAL
5	5530.00	108.20			98.21	8.61	34.32	32.94	252	286	Peak	HORIZONTAL
6	5753.00	58.05	68.20	-10.15	48.17	8.43	34.45	33.00	252	286	Peak	HORIZONTAL

Item 4, 5 are the fundamental frequency at 5530 MHz.

Channel 122

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5460.00	62.50	74.00	-11.50	52.84	8.36	34.23	32.93	245	282	Peak	HORIZONTAL
2	5460.00	52.03	54.00	-1.97	42.37	8.36	34.23	32.93	245	282	Average	HORIZONTAL
3	5470.00	65.21	68.20	-2.99	55.48	8.41	34.25	32.93	245	282	Peak	HORIZONTAL
4	5611.00	112.43			102.26	8.76	34.37	32.96	245	282	Peak	HORIZONTAL
5	5621.00	101.45			91.28	8.76	34.37	32.96	245	282	Average	HORIZONTAL
6	5726.00	67.81	68.20	-0.39	57.89	8.47	34.44	32.99	245	282	Peak	HORIZONTAL

Item 4, 5 are the fundamental frequency at 5610 MHz.

Channel 138

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5691.00	111.31			101.31	8.56	34.42	32.98	246	274	Peak	HORIZONTAL
2	5696.00	100.79			90.79	8.56	34.42	32.98	246	274	Average	HORIZONTAL
3	5851.00	66.64	68.20	-1.56	56.59	8.56	34.51	33.02	246	274	Peak	HORIZONTAL

Item 1, 2 are the fundamental frequency at 5690 MHz.

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

Temperature	22°C	Humidity	54%
Test Engineer	Taka Hsu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 52, 60, 64 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Apr. 12, 2016	Test Function	Beamforming function

Channel 52

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5120.80	47.46	54.00	-6.54	40.06	7.48	34.82	34.90	206	174	Average	HORIZONTAL
2	5140.00	59.22	74.00	-14.78	51.81	7.48	34.84	34.91	206	174	Peak	HORIZONTAL
3	5254.00	102.36			94.80	7.51	34.96	34.91	206	174	Average	HORIZONTAL
4	5264.20	113.08			105.50	7.52	34.97	34.91	206	174	Peak	HORIZONTAL
5	5359.00	61.07	74.00	-12.93	53.36	7.56	35.06	34.91	206	174	Peak	HORIZONTAL
6	5397.40	48.29	54.00	-5.71	40.54	7.58	35.09	34.92	206	174	Average	HORIZONTAL

Item 3, 4 are the fundamental frequency at 5260 MHz.

Channel 60

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5304.00	112.70			105.08	7.53	35.00	34.91	214	189	Peak	HORIZONTAL
2	5306.80	93.89			86.27	7.53	35.00	34.91	214	189	Average	HORIZONTAL
3	5350.00	48.67	54.00	-5.33	40.97	7.56	35.05	34.91	214	189	Average	HORIZONTAL
4	5350.00	62.91	74.00	-11.09	55.21	7.56	35.05	34.91	214	189	Peak	HORIZONTAL

Item 1, 2 are the fundamental frequency at 5300 MHz.

Channel 64

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5318.00	99.79			92.14	7.54	35.02	34.91	236	178	Average	HORIZONTAL
2	5324.40	112.11			104.44	7.55	35.03	34.91	236	178	Peak	HORIZONTAL
3	5350.00	53.97	54.00	-0.03	46.27	7.56	35.05	34.91	236	178	Average	HORIZONTAL
4	5350.00	70.20	74.00	-3.80	62.50	7.56	35.05	34.91	236	178	Peak	HORIZONTAL

Item 1, 2 are the fundamental frequency at 5320 MHz.

Temperature	22°C	Humidity	54%
Test Engineer	Taka Hsu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 100, 116, 140, 144 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Apr. 12, 2016 ~ Apr. 13, 2016	Test Function	Beamforming function

Channel 100

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5458.80	63.30	74.00	-10.70	55.38	7.69	35.15	34.92	209	250	Peak	HORIZONTAL
2	5460.00	50.25	54.00	-3.75	42.33	7.69	35.15	34.92	209	250	Average	HORIZONTAL
3	5468.80	69.48	74.00	-4.52	61.51	7.72	35.17	34.92	209	250	Peak	HORIZONTAL
4	5470.00	53.85	54.00	-0.15	45.88	7.72	35.17	34.92	209	250	Average	HORIZONTAL
5	5494.40	108.68			100.67	7.75	35.18	34.92	209	250	Peak	HORIZONTAL
6	5502.80	98.14			90.09	7.77	35.20	34.92	209	250	Average	HORIZONTAL

Item 5, 6 are the fundamental frequency at 5500 MHz.

Channel 116

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5415.00	63.77	74.00	-10.23	55.97	7.61	35.11	34.92	199	57	Peak	HORIZONTAL
2	5422.00	53.97	54.00	-0.03	46.13	7.64	35.12	34.92	199	57	Average	HORIZONTAL
3	5467.00	61.86	74.00	-12.14	53.89	7.72	35.17	34.92	199	57	Peak	HORIZONTAL
4	5469.00	49.40	54.00	-4.60	41.43	7.72	35.17	34.92	199	57	Average	HORIZONTAL
5	5573.00	113.34			105.18	7.88	35.21	34.93	199	57	Peak	HORIZONTAL
6	5587.00	103.07			94.87	7.91	35.22	34.93	199	57	Average	HORIZONTAL
7	5747.00	51.67	54.00	-2.33	43.59	7.77	35.25	34.94	199	57	Average	HORIZONTAL
8	5819.00	63.72	74.00	-10.28	55.67	7.74	35.26	34.95	199	57	Peak	HORIZONTAL

Item 5, 6 are the fundamental frequency at 5580 MHz.

Channel 140

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5696.53	108.34			101.93	8.43	34.36	36.38	272	210	Peak	HORIZONTAL
2	5706.95	97.46			91.00	8.43	34.41	36.38	272	210	Average	HORIZONTAL
3	5725.00	53.67	54.00	-0.33	47.17	8.42	34.45	36.37	272	210	Average	HORIZONTAL
4	5725.00	72.85	74.00	-1.15	66.35	8.42	34.45	36.37	272	210	Peak	HORIZONTAL

Item 1, 2 are the fundamental frequency at 5700 MHz.

Channel 144

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5712.47	100.78			94.31	8.43	34.41	36.37	274	208	Average	HORIZONTAL
2	5717.11	111.85			105.38	8.43	34.41	36.37	274	208	Peak	HORIZONTAL
3	5877.21	65.55	74.00	-8.45	58.64	8.38	34.87	36.34	274	208	Peak	HORIZONTAL
4	5877.79	52.46	54.00	-1.54	45.55	8.38	34.87	36.34	274	208	Average	HORIZONTAL

Item 1, 2 are the fundamental frequency at 5720 MHz.

Temperature	22°C	Humidity	54%
Test Engineer	Taka Hsu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 54, 62 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Apr. 14, 2016	Test Function	Beamforming function

Channel 54

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5092.00	61.67	74.00	-12.33	57.29	7.83	33.06	36.51	228	65	Peak	HORIZONTAL
2	5096.00	49.71	54.00	-4.29	45.33	7.83	33.06	36.51	228	65	Average	HORIZONTAL
3	5256.00	104.23			99.45	7.90	33.36	36.48	228	65	Average	HORIZONTAL
4	5256.00	115.44			110.66	7.90	33.36	36.48	228	65	Peak	HORIZONTAL
5	5350.00	53.53	54.00	-0.47	48.58	7.88	33.53	36.46	228	65	Average	HORIZONTAL
6	5351.00	72.13	74.00	-1.87	67.18	7.88	33.53	36.46	228	65	Peak	HORIZONTAL

Item 3, 4 are the fundamental frequency at 5270 MHz.

Channel 62

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5313.20	98.05			93.16	7.89	33.47	36.47	210	60	Average	HORIZONTAL
2	5314.40	108.38			103.49	7.89	33.47	36.47	210	60	Peak	HORIZONTAL
3	5350.00	53.98	54.00	-0.02	49.03	7.88	33.53	36.46	210	60	Average	HORIZONTAL
4	5350.00	69.65	74.00	-4.35	64.70	7.88	33.53	36.46	210	60	Peak	HORIZONTAL

Item 1, 2 are the fundamental frequency at 5310 MHz.

Temperature	22°C	Humidity	54%
Test Engineer	Taka Hsu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 102, 110, 134, 142 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Apr. 14, 2016	Test Function	Beamforming function

Channel 102

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5459.20	63.09	74.00	-10.91	57.76	8.05	33.72	36.44	187	59	Peak	HORIZONTAL
2	5460.00	49.40	54.00	-4.60	44.07	8.05	33.72	36.44	187	59	Average	HORIZONTAL
3	5465.60	66.60	74.00	-7.40	61.19	8.10	33.75	36.44	187	59	Peak	HORIZONTAL
4	5470.00	53.72	54.00	-0.28	48.30	8.10	33.75	36.43	187	59	Average	HORIZONTAL
5	5523.20	98.87			93.20	8.24	33.85	36.42	187	59	Average	HORIZONTAL
6	5524.80	109.28			103.61	8.24	33.85	36.42	187	59	Peak	HORIZONTAL

Item 5, 6 are the fundamental frequency at 5510 MHz.

Channel 110

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5455.00	64.42	74.00	-9.58	59.09	8.05	33.72	36.44	212	67	Peak	HORIZONTAL
2	5460.00	51.73	54.00	-2.27	46.40	8.05	33.72	36.44	212	67	Average	HORIZONTAL
3	5468.00	66.89	74.00	-7.11	61.48	8.10	33.75	36.44	212	67	Peak	HORIZONTAL
4	5470.00	53.86	54.00	-0.14	48.44	8.10	33.75	36.43	212	67	Average	HORIZONTAL
5	5545.00	115.40			109.55	8.33	33.94	36.42	212	67	Peak	HORIZONTAL
6	5546.00	105.18			99.33	8.33	33.94	36.42	212	67	Average	HORIZONTAL
7	5726.00	62.21	74.00	-11.79	55.71	8.42	34.45	36.37	212	67	Peak	HORIZONTAL
8	5728.00	49.88	54.00	-4.12	43.38	8.42	34.45	36.37	212	67	Average	HORIZONTAL

Item 5, 6 are the fundamental frequency at 5550 MHz.

Channel 134

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5684.00	112.08			105.71	8.44	34.31	36.38	214	72	Peak	HORIZONTAL
2	5687.00	102.95			96.58	8.44	34.31	36.38	214	72	Average	HORIZONTAL
3	5729.00	53.67	54.00	-0.33	47.17	8.42	34.45	36.37	214	72	Average	HORIZONTAL
4	5744.00	69.29	74.00	-4.71	62.74	8.42	34.50	36.37	214	72	Peak	HORIZONTAL

Item 1, 2 are the fundamental frequency at 5670 MHz.

Channel 142

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5714.80	104.87			98.40	8.43	34.41	36.37	199	68	Average	HORIZONTAL
2	5719.60	115.34			108.87	8.43	34.41	36.37	199	68	Peak	HORIZONTAL
3	5855.20	68.54	74.00	-5.46	61.71	8.39	34.78	36.34	199	68	Peak	HORIZONTAL
4	5856.40	53.87	54.00	-0.13	46.99	8.39	34.83	36.34	199	68	Average	HORIZONTAL

Item 1, 2 are the fundamental frequency at 5710 MHz.

Temperature	22°C	Humidity	54%
Test Engineer	Taka Hsu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 58, 106, 122, 138 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Apr. 14, 2016	Test Function	Beamforming function

Channel 58

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5096.00	46.15	54.00	-7.85	41.77	7.83	33.06	36.51	224	66	Average	HORIZONTAL
2	5101.00	58.52	74.00	-15.48	54.10	7.84	33.09	36.51	224	66	Peak	HORIZONTAL
3	5264.00	93.67			88.86	7.90	33.39	36.48	224	66	Average	HORIZONTAL
4	5313.00	103.62			98.73	7.89	33.47	36.47	224	66	Peak	HORIZONTAL
5	5354.00	53.66	54.00	-0.34	48.71	7.88	33.53	36.46	224	66	Average	HORIZONTAL
6	5354.00	65.57	74.00	-8.43	60.62	7.88	33.53	36.46	224	66	Peak	HORIZONTAL

Item 3, 4 are the fundamental frequency at 5290 MHz.

Channel 106

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5460.00	53.03	54.00	-0.97	47.70	8.05	33.72	36.44	199	55	Average	HORIZONTAL
2	5460.00	67.36	74.00	-6.64	62.03	8.05	33.72	36.44	199	55	Peak	HORIZONTAL
3	5470.00	53.88	54.00	-0.12	48.46	8.10	33.75	36.43	199	55	Average	HORIZONTAL
4	5470.00	68.66	74.00	-5.34	63.24	8.10	33.75	36.43	199	55	Peak	HORIZONTAL
5	5496.00	106.12			100.56	8.19	33.80	36.43	199	55	Peak	HORIZONTAL
6	5544.00	94.46			88.61	8.33	33.94	36.42	199	55	Average	HORIZONTAL
7	5743.00	47.47	54.00	-6.53	40.92	8.42	34.50	36.37	199	55	Average	HORIZONTAL
8	5745.00	60.90	74.00	-13.10	54.35	8.42	34.50	36.37	199	55	Peak	HORIZONTAL

Item 5, 6 are the fundamental frequency at 5530 MHz.

Channel 122

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5456.00	65.34	74.00	-8.66	60.01	8.05	33.72	36.44	211	69	Peak	HORIZONTAL
2	5460.00	50.32	54.00	-3.68	44.99	8.05	33.72	36.44	211	69	Average	HORIZONTAL
3	5469.00	51.38	54.00	-2.62	45.97	8.10	33.75	36.44	211	69	Average	HORIZONTAL
4	5470.00	64.45	74.00	-9.55	59.03	8.10	33.75	36.43	211	69	Peak	HORIZONTAL
5	5575.00	111.17			105.21	8.38	33.99	36.41	211	69	Peak	HORIZONTAL
6	5593.00	99.22			93.08	8.47	34.08	36.41	211	69	Average	HORIZONTAL
7	5736.00	53.61	54.00	-0.39	47.11	8.42	34.45	36.37	211	69	Average	HORIZONTAL
8	5768.00	71.07	74.00	-2.93	64.47	8.41	34.55	36.36	211	69	Peak	HORIZONTAL

Item 5, 6 are the fundamental frequency at 5610 MHz.

Channel 138

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5695.00	111.30			104.89	8.43	34.36	36.38	205	68	Peak	HORIZONTAL
2	5719.00	100.32			93.85	8.43	34.41	36.37	205	68	Average	HORIZONTAL
3	5853.00	53.89	54.00	-0.11	47.06	8.39	34.78	36.34	205	68	Average	HORIZONTAL
4	5858.00	69.70	74.00	-4.30	62.82	8.39	34.83	36.34	205	68	Peak	HORIZONTAL

Item 1, 2 are the fundamental frequency at 5690 MHz.

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

4.7. Frequency Stability Measurement

4.7.1. Limit

In-band emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

The transmitter center frequency tolerance shall be ± 20 ppm maximum for the 5 GHz band (IEEE 802.11n specification).

4.7.2. Measuring Instruments and Setting

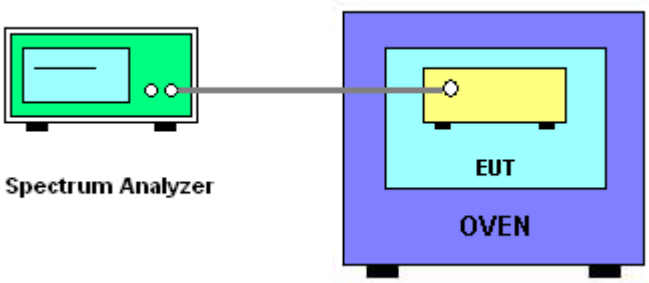
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Entire absence of modulation emissions bandwidth
RBW	10 kHz
VBW	10 kHz
Sweep Time	Auto

4.7.3. Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. EUT have transmitted absence of modulation signal and fixed channelize.
3. Set the spectrum analyzer span to view the entire absence of modulation emissions bandwidth.
4. Set RBW = 10 kHz, VBW = 10 kHz with peak detector and maxhold settings.
5. fc is declaring of channel frequency. Then the frequency error formula is (fc-f)/fc × 10^6 ppm and the limit is less than ±20ppm (IEEE 802.11nspecification).
6. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.
7. The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value
8. Extreme temperature is 0°C~50°C.

4.7.4. Test Setup Layout



4.7.5. Test Deviation

There is no deviation with the original standard.

4.7.6. EUT Operation during Test

The EUT was programmed to be in continuously un-modulation transmitting mode.

4.7.7. Test Result of Frequency Stability

Temperature	25°C	Humidity	59%
Test Engineer	Serway Li	Test Date	Feb. 15, 2016 ~ Feb. 26, 2016

Mode: 20 MHz / Chain 1

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5300 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5299.9831	5299.9821	5299.9816	5299.9815
110.00	5299.9822	5299.9816	5299.9806	5299.9803
93.50	5299.9821	5299.9820	5299.9813	5299.9803
Max. Deviation (MHz)	0.0179	0.0184	0.0194	0.0197
Max. Deviation (ppm)	3.38	3.47	3.66	3.72
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5300 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
0	5299.9859	5299.9853	5299.9846	5299.9842
10	5299.9840	5299.9831	5299.9824	5299.9816
20	5299.9822	5299.9814	5299.9804	5299.9800
30	5299.9816	5299.9808	5299.9805	5299.9804
40	5299.9802	5299.9797	5299.9796	5299.9787
50	5299.9791	5299.9787	5299.9784	5299.9779
Max. Deviation (MHz)	0.0209	0.0213	0.0216	0.0221
Max. Deviation (ppm)	3.94	4.02	4.08	4.17
Result	Complies			

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5580 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5579.9835	5579.9827	5579.9817	5579.9813
110.00	5579.9826	5579.9823	5579.9817	5579.9816
93.50	5579.9819	5579.9816	5579.9815	5579.9811
Max. Deviation (MHz)	0.0181	0.0184	0.0185	0.0189
Max. Deviation (ppm)	3.24	3.30	3.32	3.39
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5580 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
0	5579.9850	5579.9845	5579.9842	5579.9833
10	5579.9843	5579.9834	5579.9828	5579.9822
20	5579.9826	5579.9822	5579.9818	5579.9813
30	5579.9823	5579.9822	5579.9813	5579.9807
40	5579.9816	5579.9813	5579.9807	5579.9799
50	5579.9803	5579.9802	5579.9798	5579.9797
Max. Deviation (MHz)	0.0197	0.0198	0.0202	0.0203
Max. Deviation (ppm)	3.53	3.55	3.62	3.64
Result	Complies			

Mode: 40 MHz / Chain 1

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5310 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5309.9824	5309.9823	5309.9819	5309.9813
110.00	5309.9817	5309.9809	5309.9800	5309.9792
93.50	5309.9813	5309.9810	5309.9808	5309.9803
Max. Deviation (MHz)	0.0187	0.0191	0.0200	0.0208
Max. Deviation (ppm)	3.52	3.60	3.77	3.92
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5310 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
0	5309.9830	5309.9828	5309.9818	5309.9809
10	5309.9819	5309.9813	5309.9804	5309.9797
20	5309.9817	5309.9807	5309.9797	5309.9789
30	5309.9812	5309.9811	5309.9801	5309.9792
40	5309.9792	5309.9782	5309.9779	5309.9775
50	5309.9789	5309.9786	5309.9776	5309.9767
Max. Deviation (MHz)	0.0211	0.0218	0.0224	0.0233
Max. Deviation (ppm)	3.97	4.11	4.22	4.39
Result	Complies			

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5550 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5549.9834	5549.9831	5549.9823	5549.9814
110.00	5549.9825	5549.9822	5549.9817	5549.9816
93.50	5549.9823	5549.9817	5549.9811	5549.9809
Max. Deviation (MHz)	0.0177	0.0183	0.0189	0.0191
Max. Deviation (ppm)	3.19	3.30	3.41	3.44
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5550 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
0	5549.9840	5549.9830	5549.9827	5549.9824
10	5549.9835	5549.9833	5549.9824	5549.9822
20	5549.9825	5549.9818	5549.9815	5549.9809
30	5549.9821	5549.9811	5549.9809	5549.9807
40	5549.9819	5549.9816	5549.9807	5549.9802
50	5549.9804	5549.9798	5549.9794	5549.9786
Max. Deviation (MHz)	0.0196	0.0202	0.0206	0.0214
Max. Deviation (ppm)	3.53	3.64	3.71	3.86
Result	Complies			

Mode: 80 MHz / Chain 1

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5290 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5289.9821	5289.9818	5289.9811	5289.9807
110.00	5289.9816	5289.9815	5289.9807	5289.9805
93.50	5289.9812	5289.9806	5289.9801	5289.9794
Max. Deviation (MHz)	0.0188	0.0194	0.0199	0.0206
Max. Deviation (ppm)	3.55	3.67	3.76	3.89
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5290 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
0	5289.9835	5289.9831	5289.9826	5289.9821
10	5289.9826	5289.9819	5289.9815	5289.9809
20	5289.9816	5289.9809	5289.9807	5289.9805
30	5289.9811	5289.9810	5289.9802	5289.9795
40	5289.9807	5289.9801	5289.9797	5289.9789
50	5289.9806	5289.9802	5289.9795	5289.9794
Max. Deviation (MHz)	0.0194	0.0199	0.0205	0.0211
Max. Deviation (ppm)	3.67	3.76	3.88	3.99
Result	Complies			

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5530 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5529.9836	5529.9835	5529.9826	5529.9823
110.00	5529.9831	5529.9828	5529.9820	5529.9813
93.50	5529.9824	5529.9817	5529.9807	5529.9805
Max. Deviation (MHz)	0.0176	0.0183	0.0193	0.0195
Max. Deviation (ppm)	3.18	3.31	3.49	3.53
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5530 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
0	5529.9843	5529.9833	5529.9830	5529.9829
10	5529.9839	5529.9833	5529.9831	5529.9822
20	5529.9831	5529.9828	5529.9823	5529.9816
30	5529.9829	5529.9821	5529.9811	5529.9810
40	5529.9813	5529.9810	5529.9809	5529.9804
50	5529.9794	5529.9793	5529.9791	5529.9782
Max. Deviation (MHz)	0.0206	0.0207	0.0209	0.0218
Max. Deviation (ppm)	3.73	3.74	3.78	3.94
Result	Complies			

4.8. Antenna Requirements

4.8.1. Limit

Except for special regulations, the Low-power Radio-frequency Devices must not be equipped with any jacket for installing an antenna with extension cable. An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. Further, this requirement does not apply to intentional radiators that must be professionally installed.

4.8.2. Antenna Connector Construction

Please refer to section 3.3 in this test report; antenna connector complied with the requirements.

5. LIST OF MEASURING EQUIPMENTS

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Horn Antenna	EMCO	3115	00075790	750MHz ~ 18GHz	Oct. 22, 2015	Radiation (03CH01-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Jul. 21, 2015	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Jan. 18, 2016	Radiation (03CH01-CB)
Pre-Amplifier	WM	TF-130N-R1	923365	26GHz ~ 40GHz	Nov. 13, 2015	Radiation (03CH01-CB)
Spectrum Analyzer	R&S	FSP40	100056	9kHz ~ 40GHz	Oct. 27, 2015	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-16	N/A	1 GHz ~ 18 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-17	N/A	1 GHz ~ 18 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G-1	N/A	18GHz ~ 40 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G-2	N/A	18GHz ~ 40 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
Test Software	Audix	E3	6.2009-I0-7	N/A	N/A	Radiation (03CH01-CB)
Spectrum analyzer	R&S	FSV40	100979	9kHz~40GHz	Dec. 09, 2015	Conducted (TH01-CB)
Temp. and Humidity Chamber	Ten Billion	TTH-D3SP	TBN-931011	-30~100 degree	Jun. 02, 2015	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-6	1 GHz – 26.5 GHz	Nov. 02, 2015	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-7	1 GHz – 26.5 GHz	Nov. 02, 2015	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-8	1 GHz – 26.5 GHz	Nov. 02, 2015	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-9	1 GHz – 26.5 GHz	Nov. 02, 2015	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-10	1 GHz – 26.5 GHz	Nov. 02, 2015	Conducted (TH01-CB)
Power Sensor	Agilent	U2021XA	MY53410001	50MHz~18GHz	Nov. 02, 2015	Conducted (TH01-CB)

Note: Calibration Interval of instruments listed above is one year.

6. MEASUREMENT UNCERTAINTY

Test Items	Uncertainty	Remark
Radiated Emission (1GHz ~ 18GHz)	3.7 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	3.5 dB	Confidence levels of 95%
Conducted Emission	1.7 dB	Confidence levels of 95%