SPORTON International Inc.
No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.
Ph: 886-3-327-3456 / FAX: 886-3-327-0973 / www.sporton.com.tw

FCC RADIO TEST REPORT

Applicant's company	**Linksys LLC**
Applicant Address	121 Theory, Drive Irvine CA 92617, USA
FCC ID	**Q87-WRT3200ACM**
Manufacturer's company	**Wistron NeWeb Corporation**
Manufacturer Address	20 Park Ave. II, Hsinchu Science Park, Hsinchu 308, Taiwan

Product Name	Dual-band gigabit Wi-Fi Router
Brand Name	LINKSYS
Model No.	WRT3200ACM
Test Rule Part(s)	47 CFR FCC Part 15 Subpart E § 15.407
Test Freq. Range	5150 ~ 5350MHz / 5470 ~ 5725MHz / 5725 ~ 5850 MHz
Received Date	Mar. 23, 2016
Final Test Date	May 27, 2016
Submission Type	Original Equipment

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, ET Docket No. 13–49; FCC 16–24.**

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

Testing Laboratory
1190

Table of Contents

1. VERIFICATION OF COMPLIANCE 1
2. SUMMARY OF THE TEST RESULT 2
3. GENERAL INFORMATION 3
3.1. Product Details 3
3.2. Accessories 6
3.3. Table for Filed Antenna 7
3.4. Table for Carrier Frequencies 8
3.5. Table for Test Modes 9
3.6. Table for Testing Locations 13
3.7. Table for Supporting Units 14
3.8. Table for Parameters of Test Software Setting 15
3.9. EUT Operation during Test 16
3.10. Duty Cycle 17
3.11. Test Configurations 18
4. TEST RESULT 22
4.1. AC Power Line Conducted Emissions Measurement 22
4.2. 26dB Bandwidth and 99% Occupied Bandwidth Measurement 28
4.3. 6dB Spectrum Bandwidth Measurement 77
4.4. Maximum Conducted Output Power Measurement 88
4.5. Power Spectral Density Measurement 129
4.6. Radiated Emissions Measurement 170
4.7. Band Edge Emissions Measurement 265
4.8. Frequency Stability Measurement 304
4.9. Antenna Requirements 319
5. LIST OF MEASURING EQUIPMENTS 320
6. MEASUREMENT UNCERTAINTY 321
APPENDIX A. TEST PHOTOS ..... A1 ~ A4
APPENDIX B. RADIATED EMISSION CO-LOCATION REPORT ..... B1 ~ B3

History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR640850AB	Rev. 01	Initial issue of report	Jul. 06, 2016

1. VERIFICATION OF COMPLIANCE

Product Name	:	Dual-band gigabit Wi-Fi Router
Brand Name	:	LINKSYS
Model No.	:	WRT3200ACM
Applicant	:	Linksys LLC
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 Mar. 23, 2016 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**
4.1	15.207	AC Power Line Conducted Emissions	Complies
4.2	15.407(a)	26dB Spectrum Bandwidth and 99% Occupied Bandwidth	Complies
4.3	15.407(e)	6dB Spectrum Bandwidth	Complies
4.4	15.407(a)	Maximum Conducted Output Power	Complies
4.5	15.407(a)	Power Spectral Density	Complies
4.6	15.407(b)	Radiated Emissions	Complies
4.7	15.407(b)	Band Edge Emissions	Complies
4.8	15.407(g)	Frequency Stability	Complies
4.9	15.203	Antenna Requirements	Complies

3. GENERAL INFORMATION

3.1. Product Details

Items	Description
Product Type	WLAN (4TX, 4RX)
Radio Type	Intentional Transceiver
Power Type	From power adapter
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)
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	5150 ~ 5350MHz / 5470 ~ 5725MHz / 5725 ~ 5850 MHz
Channel Number	25 for 20MHz bandwidth ; 12 for 40MHz bandwidth 6 for 80MHz bandwidth ; 2 for 160MHz bandwidth
Channel Band Width (99%)	For non-beamforming function: Band 1: IEEE 802.11a: 16.93 MHz IEEE 802.11ac MCS0/Nss1 (VHT20): 17.89 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 36.61 MHz IEEE 802.11ac MCS0/Nss1 (VHT80): 76.12 MHz IEEE 802.11ac MCS0/Nss1 (VHT160): 155.43 MHz Band 2: IEEE 802.11a: 16.85 MHz IEEE 802.11ac MCS0/Nss1 (VHT20): 17.80 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 36.61 MHz IEEE 802.11ac MCS0/Nss1 (VHT80): 76.12 MHz IEEE 802.11ac MCS0/Nss1 (VHT160): 155.43 MHz Band 3: IEEE 802.11a: 16.85 MHz IEEE 802.11ac MCS0/Nss1 (VHT20): 17.80 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 36.47 MHz IEEE 802.11ac MCS0/Nss1 (VHT80): 76.41 MHz IEEE 802.11ac MCS0/Nss1 (VHT160): 155.43 MHz Band 4: IEEE 802.11a: 16.85 MHz IEEE 802.11ac MCS0/Nss1 (VHT20): 17.80 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 36.61 MHz IEEE 802.11ac MCS0/Nss1 (VHT80): 76.12 MHz For beamforming function: Band 1: IEEE 802.11a: 16.93 MHz IEEE 802.11ac MCS0/Nss1 (VHT20): 17.80 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 36.32 MHz IEEE 802.11ac MCS0/Nss1 (VHT80): 75.54 MHz IEEE 802.11ac MCS0/Nss1 (VHT160): 155.43 MHz

	Band 2: IEEE 802.11a: 16.85 MHz IEEE 802.11ac MCS0/Nss1 (VHT20): 17.80 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 36.32 MHz IEEE 802.11ac MCS0/Nss1 (VHT80): 76.12 MHz IEEE 802.11ac MCS0/Nss1 (VHT160): 155.43 MHz Band 3: IEEE 802.11a: 16.85 MHz IEEE 802.11ac MCS0/Nss1 (VHT20): 17.80 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 36.47 MHz IEEE 802.11ac MCS0/Nss1 (VHT80): 76.12 MHz IEEE 802.11ac MCS0/Nss1 (VHT160): 154.99 MHz Band 4: IEEE 802.11a: 16.93 MHz IEEE 802.11ac MCS0/Nss1 (VHT20): 17.80 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 36.61 MHz IEEE 802.11ac MCS0/Nss1 (VHT80): 76.12 MHz
Maximum Conducted Output Power	For non-beamforming function: Band 1: IEEE 802.11a: 29.20 dBm IEEE 802.11ac MCS0/Nss1 (VHT20): 29.39 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 28.41 dBm IEEE 802.11ac MCS0/Nss1 (VHT80): 22.63 dBm IEEE 802.11ac MCS0/Nss1 (VHT160): 23.89 dBm Band 2: IEEE 802.11a: 23.93 dBm IEEE 802.11ac MCS0/Nss1 (VHT20): 23.97 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 23.16 dBm IEEE 802.11ac MCS0/Nss1 (VHT80): 18.10 dBm IEEE 802.11ac MCS0/Nss1 (VHT160): 23.89 dBm Band 3: IEEE 802.11a: 23.51 dBm IEEE 802.11ac MCS0/Nss1 (VHT20): 23.95 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 23.87 dBm IEEE 802.11ac MCS0/Nss1 (VHT80): 23.96 dBm IEEE 802.11ac MCS0/Nss1 (VHT160): 23.38 dBm Band 4: IEEE 802.11a: 28.61 dBm IEEE 802.11ac MCS0/Nss1 (VHT20): 28.81 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 28.32 dBm IEEE 802.11ac MCS0/Nss1 (VHT80): 27.73 dBm For beamforming function: Band 1: IEEE 802.11a: 27.99 dBm IEEE 802.11ac MCS0/Nss1 (VHT20): 28.14 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 28.14 dBm IEEE 802.11ac MCS0/Nss1 (VHT80): 20.80 dBm IEEE 802.11ac MCS0/Nss1 (VHT160): 21.97 dBm

	Band 2: IEEE 802.11a: 21.45 dBm IEEE 802.11ac MCS0/Nss1 (VHT20): 22.18 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 21.56 dBm IEEE 802.11ac MCS0/Nss1 (VHT80): 22.18 dBm IEEE 802.11ac MCS0/Nss1 (VHT160): 21.97 dBm Band 3: IEEE 802.11a: 21.90 dBm IEEE 802.11ac MCS0/Nss1 (VHT20): 22.15 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 22.05 dBm IEEE 802.11ac MCS0/Nss1 (VHT80): 22.11 dBm IEEE 802.11ac MCS0/Nss1 (VHT160): 22.14 dBm Band 4: IEEE 802.11a: 27.78 dBm IEEE 802.11ac MCS0/Nss1 (VHT20): 27.94 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 27.75 dBm IEEE 802.11ac MCS0/Nss1 (VHT80): 27.54 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 802.11a/g/n/ac in 2.4GHz and 5GHz.	

Note: For non-beamforming function, the EUT supports STBC mode only.

Antenna and Band width

Antenna	Four (TX)			
Band width Mode	20 MHz	40 MHz	80 MHz	160 MHz
IEEE 802.11a	V	X	X	X
IEEE 802.11n	V	V	X	X
IEEE 802.11ac	V	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	MCS 0-9/Nss1-4
802.11ac (VHT40)	4	MCS 0-9/Nss1-4
802.11ac (VHT80)	4	MCS 0-9/Nss1-4
802.11ac (VHT160)	4	MCS 0-9/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 VHT80 and VHT160 for 5GHz. Note 3: Modulation modes consist of below configuration: HT20/HT40: IEEE 802.11n, VHT20/VHT40/VHT80/VHT160: IEEE 802.11ac		

3.2. Accessories

Power	Brand	Model No.	Rating
Adapter 1	LEI	MU42-3120300-A1	INPUT: 100-240Vac, 50/60Hz, 1.5A OUTPUT: 12Vdc, 3A
Adapter 2	CWT	2ABN036F US	INPUT: 100-240Vac, 50/60Hz, 1.0A OUTPUT: 12.0Vdc, 3.0A

3.3. Table for Filed Antenna

Ant.	Brand	Part Number	Type	Connector	Gain (dBi)		Cable Loss (dB)		True Gain (dBi)	
					2.4GHz	5GHz	2.4GHz	5GHz	2.4GHz	5GHz
1	WNC	08.22450.002	Dipole	I-PEX	2.52	3.81	1.10	2.30	1.42	1.51
2	WNC	08.22450.002	Dipole	I-PEX	2.52	3.81	1.50	2.40	1.02	1.41
3	WNC	08.22450.002	Dipole	I-PEX	2.52	3.81	1.60	2.10	0.92	1.71
4	WNC	08.22450.002	Dipole	I-PEX	2.52	3.81	1.60	1.60	0.92	2.21
Ant.	Brand	Model No.	Type	Connector	Gain (dBi)					
					Bluetooth		5GHz			
5	WNC	81XKAA15.GAV	PIFA	I-PEX	3.60		5.10			

Note: 1. The EUT has five antennas.

2. The EUT has three radios. (Radio 1 supports 2.4GHz WLAN TX/RX function, Radio 2 supports 5GHz WLAN TX/RX function, Radio 3 supports Bluetooth TX/RX function and 5GHz WLAN RX function.)

3. For Radio 1:

For 2.4GHz WLAN function (4TX/4RX):

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

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

4. For Radio 2:

For 5GHz WLAN function (4TX/4RX):

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

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

4. For Radio 3:

For Bluetooth function (1TX/1RX):

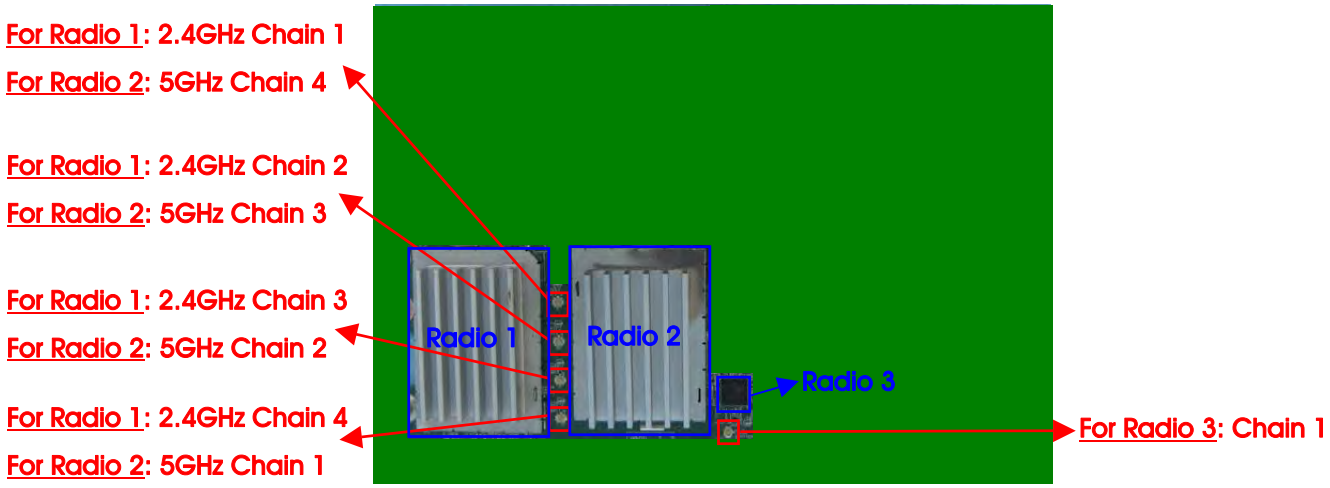
Chain 1: Connect to Ant. 5

Only Chain 1 can be used as transmitting/receiving functions.

For 5GHz WLAN function (1RX):

Chain 1: Connect to Ant. 5

Only Chain 1 can be used as receiving function.



3.4. Table for Carrier Frequencies

There are four bandwidth systems.

For 20MHz bandwidth systems, use Channel 36, 40, 44, 48, 52, 56, 60, 64, 100, 104, 108, 112, 116, 120, 124, 128, 132, 136, 140, 144, 149, 153, 157, 161, 165.

For 40MHz bandwidth systems, use Channel 38, 46, 54, 62, 102, 110, 118, 126, 134, 142, 151, 159.

For 80MHz bandwidth systems, use Channel 42, 58, 106, 122, 138, 155.

For 160MHz bandwidth systems, use Channel 50, 114.

Frequency Band	Channel No.	Frequency	Channel No.	Frequency
5150~5350 MHz Band 1~2	36	5180 MHz	52	5260 MHz
	38	5190 MHz	54	5270 MHz
	40	5200 MHz	56	5280 MHz
	42	5210 MHz	58	5290 MHz
	44	5220 MHz	60	5300 MHz
	46	5230 MHz	62	5310 MHz
	48	5240 MHz	64	5320 MHz
	50	5250 MHz	-	-
5470~5725 MHz Band 3	100	5500 MHz	122	5610 MHz
	102	5510 MHz	124	5620 MHz
	104	5520 MHz	126	5630 MHz
	106	5530 MHz	128	5640 MHz
	108	5540 MHz	132	5660 MHz
	110	5550 MHz	134	5670 MHz
	112	5560 MHz	136	5680 MHz
	114	5570 MHz	138	5690 MHz
	116	5580 MHz	140	5700 MHz
	118	5590 MHz	142	5710 MHz
	120	5600 MHz	144	5720 MHz
5725~5850 MHz Band 4	149	5745 MHz	157	5785 MHz
	151	5755 MHz	159	5795 MHz
	153	5765 MHz	161	5805 MHz
	155	5775 MHz	165	5825 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
AC Power Conducted Emission	Normal Link		-	-	-
Max. Conducted Output Power	11a/BPSK	Band 1~4	6Mbps	36/40/48/52/60/64/100/116/140/144/149/157/165	1+2+3+4
	11ac VHT20	Band 1~4	MCS0/Nss1	36/40/48/52/60/64/100/116/140/144/149/157/165	1+2+3+4
	11ac VHT40	Band 1~4	MCS0/Nss1	38/46/54/62/102/110/134/142/151/159	1+2+3+4
	11ac VHT80	Band 1~4	MCS0/Nss1	42/58/106/122/138/155	1+2+3+4
	11ac VHT160	Band 1~3	MCS0/Nss1	50/114	1+2+3+4
Power Spectral Density	11a/BPSK	Band 1~4	6Mbps	36/40/48/52/60/64/100/116/140/144/149/157/165	1+2+3+4
	11ac VHT20	Band 1~4	MCS0/Nss1	36/40/48/52/60/64/100/116/140/144/149/157/165	1+2+3+4
	11ac VHT40	Band 1~4	MCS0/Nss1	38/46/54/62/102/110/134/142/151/159	1+2+3+4
	11ac VHT80	Band 1~4	MCS0/Nss1	42/58/106/122/138/155	1+2+3+4
	11ac VHT160	Band 1~3	MCS0/Nss1	50/114	1+2+3+4

26dB Spectrum Bandwidth & 99% Occupied Bandwidth Measurement	11a/BPSK	Band 1~4	6Mbps	36/40/48/52/60/64/100/116/140/144/149/157/165	1+2+3+4
	11ac VHT20	Band 1~4	MCS0/Nss1	36/40/48/52/60/64/100/116/140/144/149/157/165	1+2+3+4
	11ac VHT40	Band 1~4	MCS0/Nss1	38/46/54/62/102/110/134/142/151/159	1+2+3+4
	11ac VHT80	Band 1~4	MCS0/Nss1	42/58/106/122/138/155	1+2+3+4
	11ac VHT160	Band 1~3	MCS0/Nss1	50/114	1+2+3+4
6dB Spectrum Bandwidth Measurement	11a/BPSK	Band 4	6Mbps	144/149/157/165	1+2+3+4
	11ac VHT20	Band 4	MCS0/Nss1	144/149/157/165	1+2+3+4
	11ac VHT40	Band 4	MCS0/Nss1	142/151/159	1+2+3+4
	11ac VHT80	Band 4	MCS0/Nss1	138/155	1+2+3+4
Radiated Emission Below 1GHz	Normal Link		-	-	-
Radiated Emission Above 1GHz	11a/BPSK	Band 1~4	6Mbps	36/40/48/52/60/64/100/116/140/144/149/157/165	1+2+3+4
	11ac VHT20	Band 1~4	MCS0/Nss1	36/40/48/52/60/64/100/116/140/144/149/157/165	1+2+3+4
	11ac VHT40	Band 1~4	MCS0/Nss1	38/46/54/62/102/110/134/142/151/159	1+2+3+4
	11ac VHT80	Band 1~4	MCS0/Nss1	42/58/106/122/138/155	1+2+3+4
	11ac VHT160	Band 1~3	MCS0/Nss1	50/114	1+2+3+4

Band Edge Emission	11a/BPSK	Band 1~4	6Mbps	36/40/48/52/60/64/100/116/140/144/149/157/165	1+2+3+4
	11ac VHT20	Band 1~4	MCS0/Nss1	36/40/48/52/60/64/100/116/140/144/149/157/165	1+2+3+4
	11ac VHT40	Band 1~4	MCS0/Nss1	38/46/54/62/102/110/134/142/151/159	1+2+3+4
	11ac VHT80	Band 1~4	MCS0/Nss1	42/58/106/122/138/155	1+2+3+4
	11ac VHT160	Band 1~3	MCS0/Nss1	50/114	1+2+3+4
Frequency Stability	20 MHz	Band 1~4	-	40/60/116/157	1
	40 MHz	Band 1~4	-	38/62/110/151	1
	80 MHz	Band 1~4	-	42/58/106/155	1
	160 MHz	Band 1~3	-	50/114	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 802.11a/n/ac in 2.4GHz and 5GHz. All test results were recorded in the report.

3. For non-beamforming function, the EUT supports STBC mode only.

The following test modes were performed for all tests:

AC Power Conducted Emission	
Test Mode	Description
1	EUT + Adapter 1
2	EUT + Adapter 2
Mode 2 generated the worst test result, so it was recorded in this report.	

Radiated Emission Below 1GHz	
Test Mode	Description
1	EUT Y axis + Adapter 1
2	EUT Z axis + Adapter 1
Mode 1 has been evaluated to be the worst case among Mode 1~2, thus measurement for Mode 3 will follow this same test mode.	
3	EUT Y axis + Adapter 2
Mode 1 generated the worst test result, so it was recorded in this report.	

Radiated Emission Above 1GHz and Band Edge Emission	
There are two modes of EUT, one is EUT Y axis, and the other is EUT Z axis. EUT Z axis has been evaluated to be the worst case after evaluating. Consequently, measurement will follow this same test mode.	
Test Mode	Description
1	EUT Z axis

Radiated Emission Co-location	
The 2.4GHz and 5GHz WLAN function share a common antenna; therefore Radiated Emission Co-location (please refer to Appendix B) test is added for simultaneously transmit between 2.4GHz WLAN function and 5GHz WLAN function.	
Test Mode	Description
1	EUT Y axis (2.4GHz WLAN function + 5GHz WLAN function)
2	EUT Z axis (2.4GHz WLAN function + 5GHz WLAN function)
Mode 1 generated the worst test result, so it was recorded in this report.	

Co-location MPE
The EUT could be applied with 2.4GHz WLAN function, 5GHz WLAN function and Bluetooth function; therefore Co-location Maximum Permissible Exposure (Please refer to FA640850) test is added for simultaneously transmit between 2.4GHz WLAN function, 5GHz WLAN function and Bluetooth function.

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	-
CO01-CB	Conduction	Hsin Chu	TW0006	IC 4086D	-
TH01-CB	OVEN Room	Hsin Chu	-	-	-

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

3.7. Table for Supporting Units

For Test Site No: 03CH01-CB (below 1GHz)

Support Unit	Brand	Model	FCC ID
NB*4	DELL	E4300	DoC
NB	Apple	Mac Book	DoC
CBT Bluetooth tester (Bluetooth base station)	Anritsu	MT8852B	DoC
Flash disk3.0	Transcend	JetFlash 790	DoC
eSATA disk	Hitachi	HTS545032B9A30	DoC

For Test Site No: 03CH01-CB (above 1GHz)

For non-beamforming function:

Support Unit	Brand	Model	FCC ID
NB	DELL	E4300	DoC

For beamforming function:

Support Unit	Brand	Model	FCC ID
NB*2	DELL	E4300	DoC
Dual-band gigabit Wi-Fi Router (Rx Device)	LINKSYS	WRT3200ACM	Q87-WRT3200ACM

For Test Site No: CO01-CB

Support Unit	Brand	Model	FCC ID
NB*5	DELL	E6430	DoC
CBT Bluetooth tester (Bluetooth base station)	Anritsu	MT8852B	DoC
Flash disk3.0	Transcend	JetFlash 790	DoC
eSATA disk	Hitachi	HTS545032B9A30	DoC

For Test Site No: TH01-CB

Support Unit	Brand	Model	FCC ID
NB	DELL	E4300	DoC

3.8. 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	DutApiMimoApApp												
Mode	Test Frequency (MHz)												
	NCB: 20MHz												
	5180 MHz	5200 MHz	5240 MHz	5260 MHz	5300 MHz	5320 MHz	5500 MHz	5580 MHz	5700 MHz	5720 MHz	5745 MHz	5785 MHz	5825 MHz
802.11a	21	25	25	18	18	18	18	18	16	17	25	25	25
802.11ac MCS0/Nss1 VHT20	22	25	25	18	18	18	18	18	15	17	25	25	25
Mode	NCB: 40MHz												
802.11ac MCS0/Nss1 VHT40	5190 MHz	5230 MHz	5270 MHz	5310 MHz	5510 MHz	5550 MHz	5670 MHz	5710 MHz	5755 MHz	5795 MHz			
	18	25	17	15	15	18	17	18	25	25			
Mode	NCB: 80MHz												
802.11ac MCS0/Nss1 VHT80	5210 MHz		5290 MHz		5530 MHz		5610 MHz		5690 MHz		5775 MHz		
	17		12		13		17		18		25		
Mode	NCB: 160MHz												
802.11ac MCS0/Nss1 VHT160	5250 MHz						5570 MHz						
	18						17						

Test Function	Beamforming function												
Test Software Version	DutApiMimoApApp												
Mode	Test Frequency (MHz)												
	NCB: 20MHz												
	5180 MHz	5200 MHz	5240 MHz	5260 MHz	5300 MHz	5320 MHz	5500 MHz	5580 MHz	5700 MHz	5720 MHz	5745 MHz	5785 MHz	5825 MHz
802.11a	20	22	22	16	16	16	16	17	16	16	23	22	23
802.11ac MCS0/Nss1 VHT20	20	22	22	16	16	16	16	16	15	16	23	23	23
Mode	NCB: 40MHz												
802.11ac MCS0/Nss1 VHT40	5190 MHz	5230 MHz	5270 MHz	5310 MHz	5510 MHz	5550 MHz	5670 MHz	5710 MHz	5755 MHz	5795 MHz			
	15	23	16	16	16	16	16	16	23	22			
Mode	NCB: 80MHz												
802.11ac MCS0/Nss1 VHT80	5210 MHz		5290 MHz		5530 MHz		5610 MHz		5690 MHz		5775 MHz		
	15		17		16		16		16		22		
Mode	NCB: 160MHz												
802.11ac MCS0/Nss1 VHT160	5250 MHz						5570 MHz						
	16						16						

3.9. EUT Operation during Test

For non-beamforming function:

The EUT was programmed to be in continuously transmitting mode.

For beamforming function:

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 Telnet.
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%

3.10. Duty Cycle

For non-beamforming function:

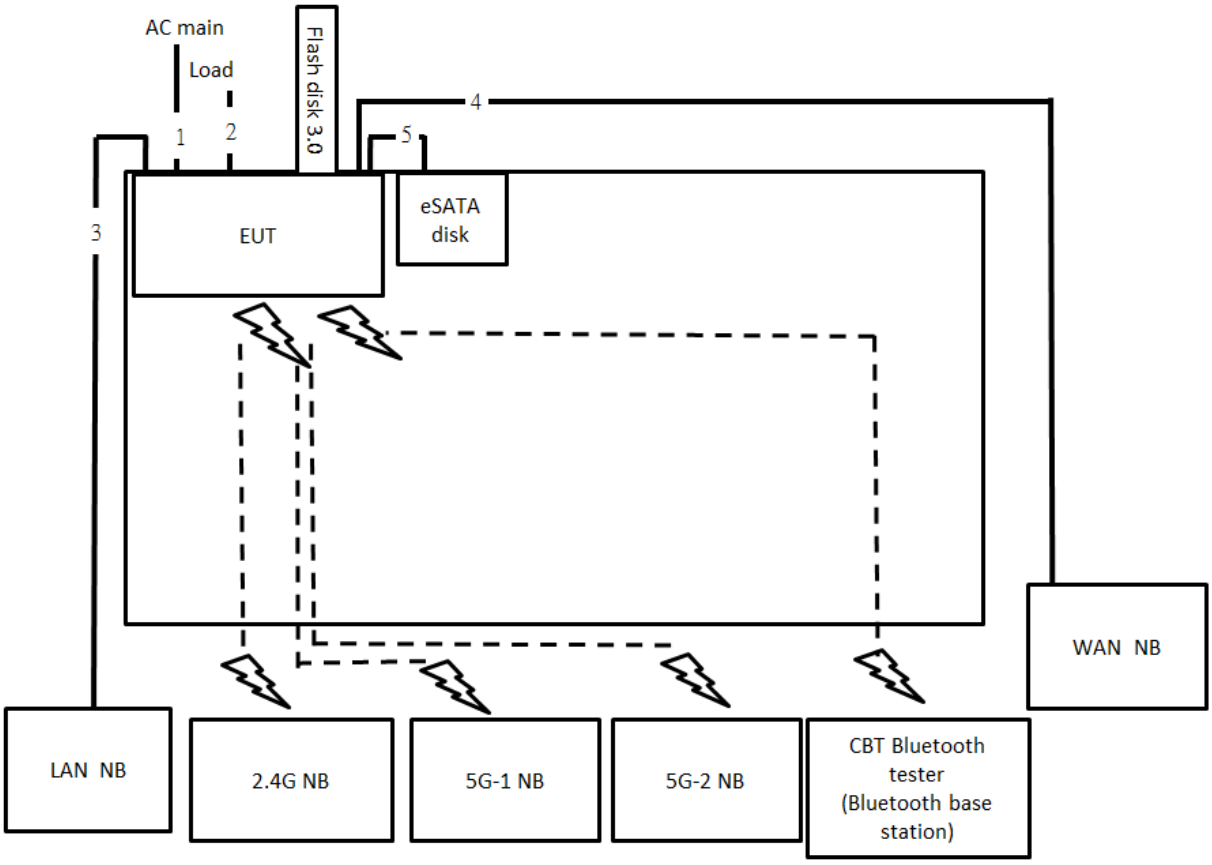
Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Min. VBW (kHz)
802.11a	1.398	1.416	98.73	0.06	0.01
802.11ac MCS0/Nss1 VHT20	1.308	1.338	97.76	0.10	0.76
802.11ac MCS0/Nss1 VHT40	0.640	0.684	93.57	0.29	1.56
802.11ac MCS0/Nss1 VHT80	0.334	0.352	94.89	0.23	2.99
802.11ac MCS0/Nss1 VHT160	0.192	0.208	92.31	0.35	5.21

For beamforming function:

Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Min. VBW (kHz)
802.11a	1.398	1.416	98.73	0.06	0.01
802.11ac MCS0/Nss1 VHT20	5.160	5.640	91.49	0.39	0.19
802.11ac MCS0/Nss1 VHT40	4.980	5.280	94.32	0.25	0.20
802.11ac MCS0/Nss1 VHT80	5.340	5.700	93.68	0.28	0.19
802.11ac MCS0/Nss1 VHT160	5.370	5.760	93.23	0.30	0.19

3.11. Test Configurations

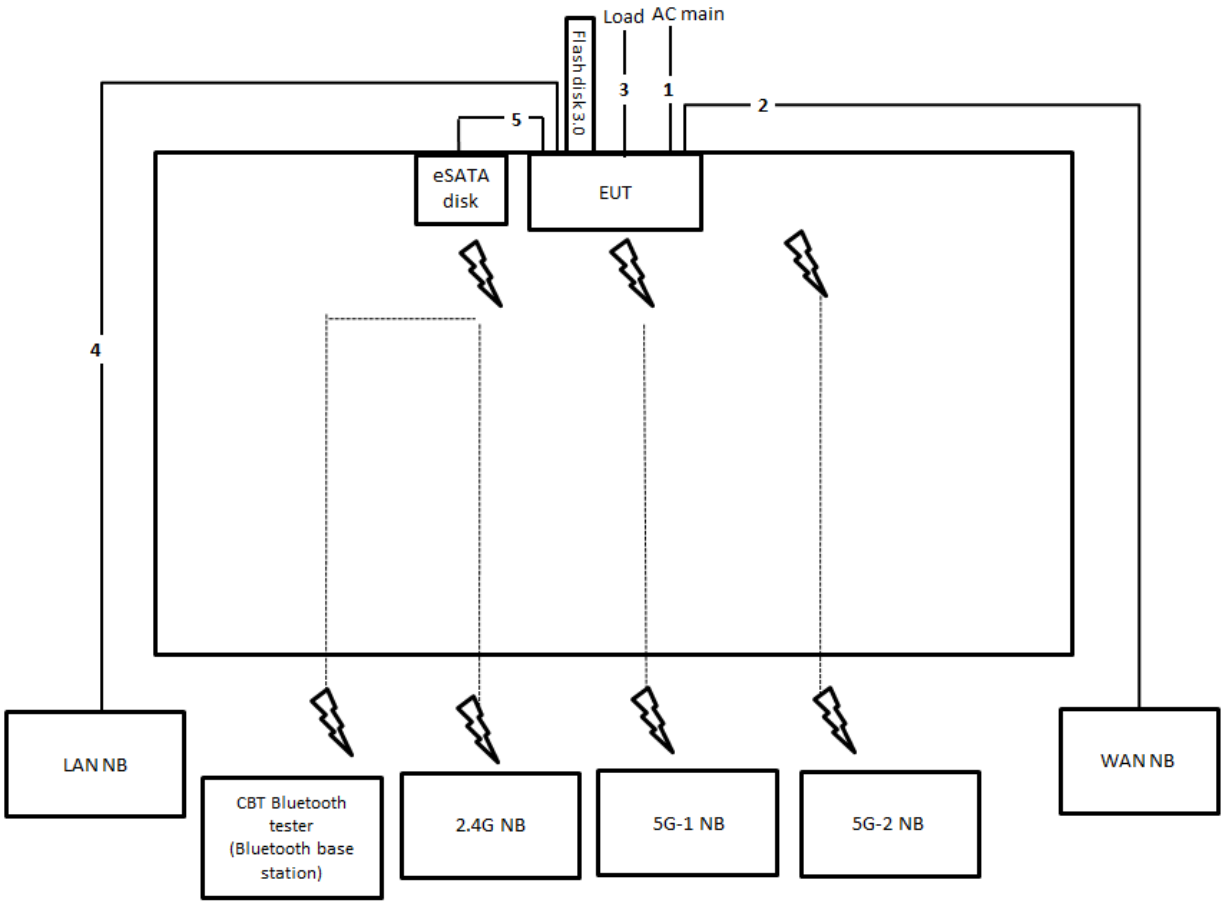
3.11.1. AC Power Line Conduction Emissions Test Configuration



Item	Connection	Shielded	Length
1	Power cable	No	1.5m
2	RJ-45 cable*3	No	1.5m
3	RJ-45 cable	No	10m
4	RJ-45 cable	No	10m
5	USB cable	Yes	0.5m

3.11.2. Radiation Emissions Test Configuration

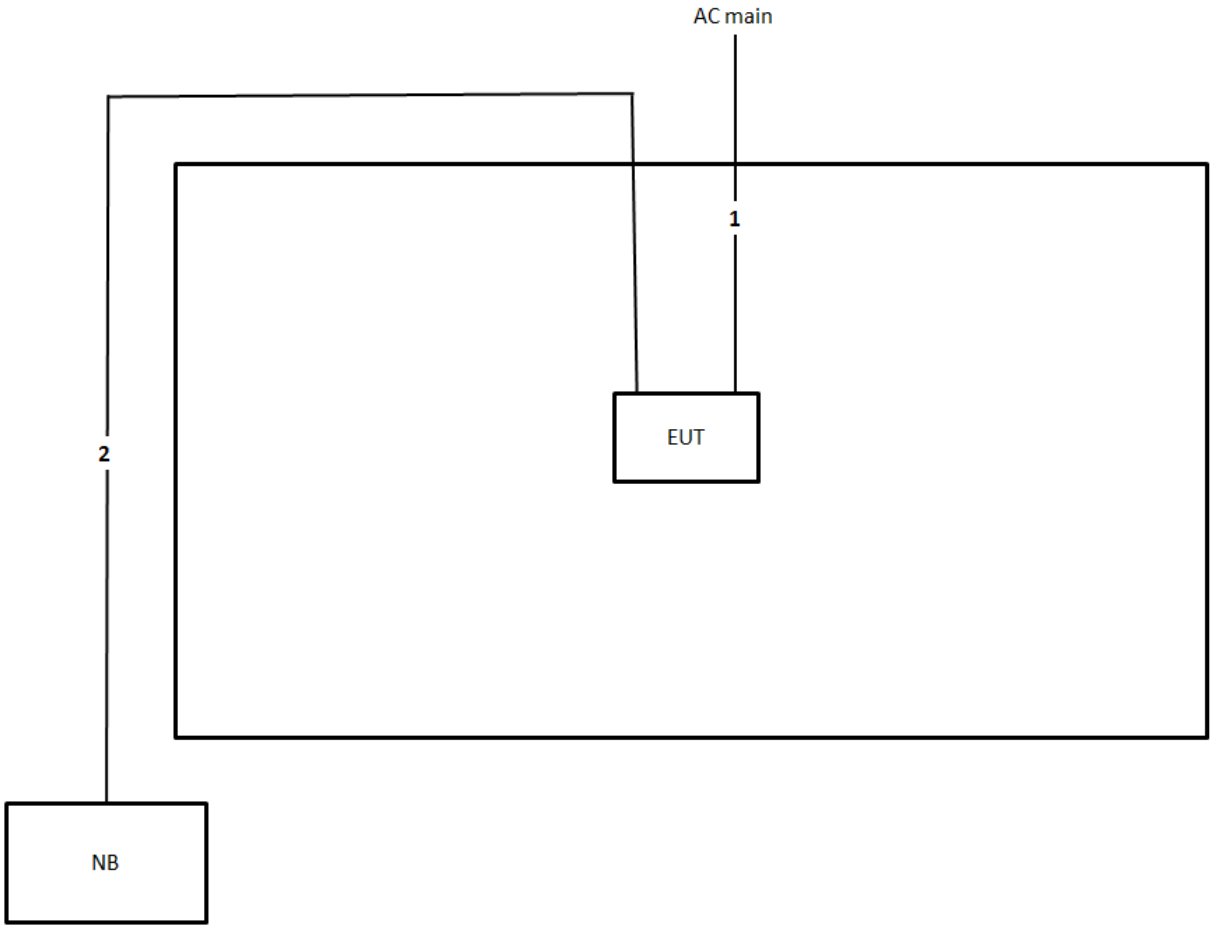
Test Configuration: 30MHz~1GHz



Item	Connection	Shielded	Length
1	Power cable	No	1.5m
2	RJ-45 cable	No	10m
3	RJ-45 cable*3	No	1.5m
4	RJ-45 cable	No	10m
5	USB cable	Yes	0.5m

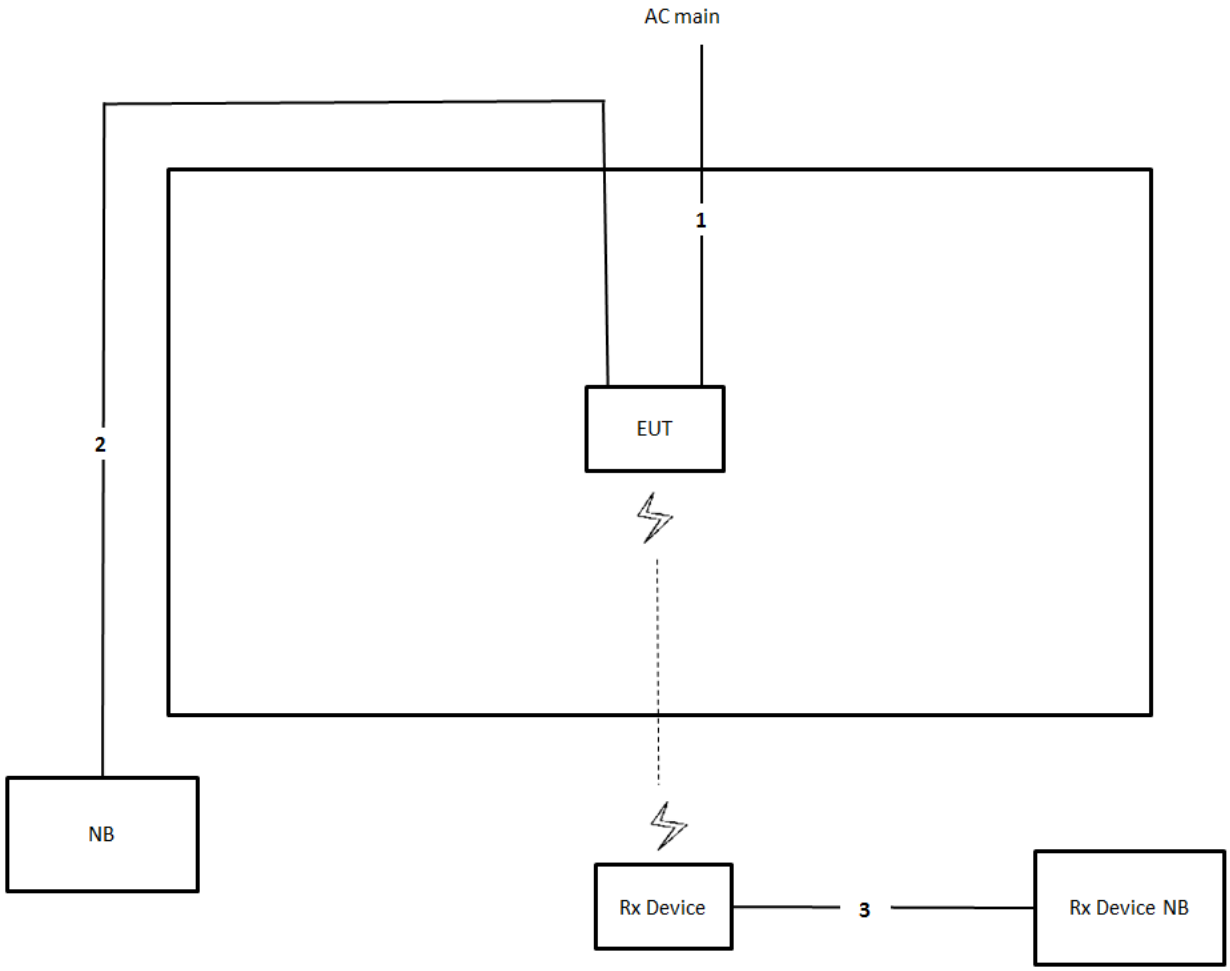
Test Configuration: above 1GHz

For non-beamforming function:



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

For beamforming function:



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

4. TEST RESULT

4.1. AC Power Line Conducted Emissions Measurement

4.1.1. Limit

For this product that is designed to connect to the AC power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed below limits table.

Frequency (MHz)	QP Limit (dBuV)	AV Limit (dBuV)
0.15~0.5	66~56	56~46
0.5~5	56	46
5~30	60	50

4.1.2. Measuring Instruments and Setting

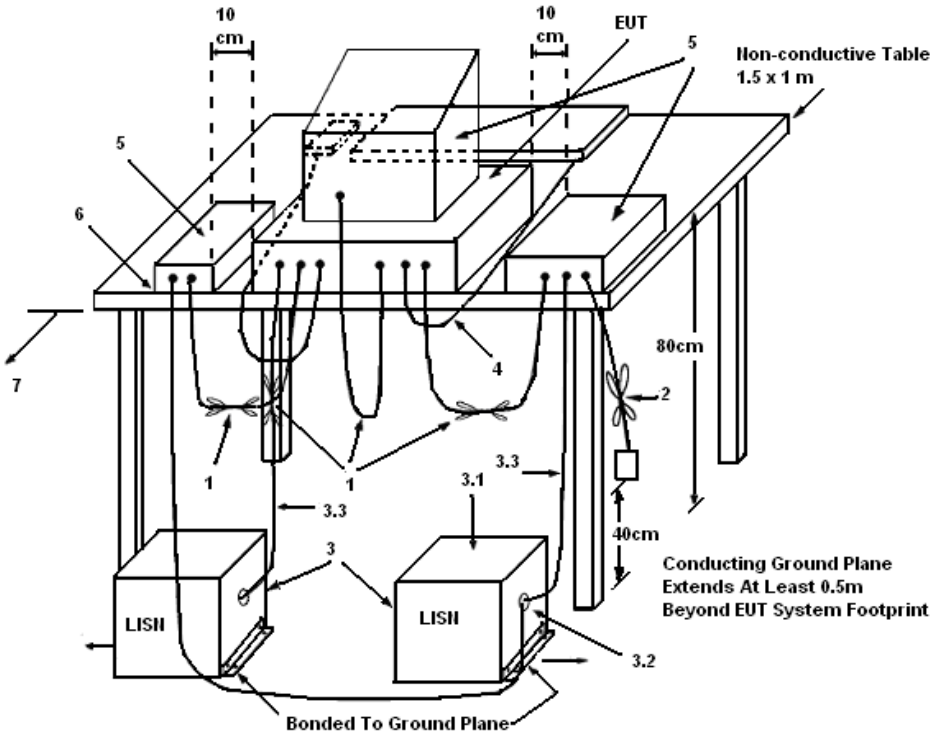
Please refer to section 5 of equipments list in this report. The following table is the setting of the receiver.

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

4.1.3. Test Procedures

1. Configure the EUT according to ANSI C63.10. The EUT or host of EUT has to be placed 0.4 meter far from the conducting wall of the shielding room and at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT or host of EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connected to the other LISNs. The LISN should provide 50uH/50ohms coupling impedance.
4. The frequency range from 150 kHz to 30 MHz was searched.
5. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. The measurement has to be done between each power line and ground at the power terminal.

4.1.4. Test Setup Layout



LEGEND:

(1) Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

(2) I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

(3) EUT connected to one LISN. Unused LISN measuring port connectors shall be terminated in 50 Ω. LISN can be placed on top of, or immediately beneath, reference ground plane.

(3.1) All other equipment powered from additional LISN(s).

(3.2) Multiple outlet strip can be used for multiple power cords of non-EUT equipment.

(3.3) LISN at least 80 cm from nearest part of EUT chassis.

(4) Cables of hand-operated devices, such as keyboards, mice, etc., shall be placed as for normal use.

(5) Non-EUT components of EUT system being tested.

(6) Rear of EUT, including peripherals, shall all be aligned and flush with rear of tabletop.

(7) Rear of tabletop shall be 40 cm removed from a vertical conducting plane that is bonded to the ground plane.

4.1.5. Test Deviation

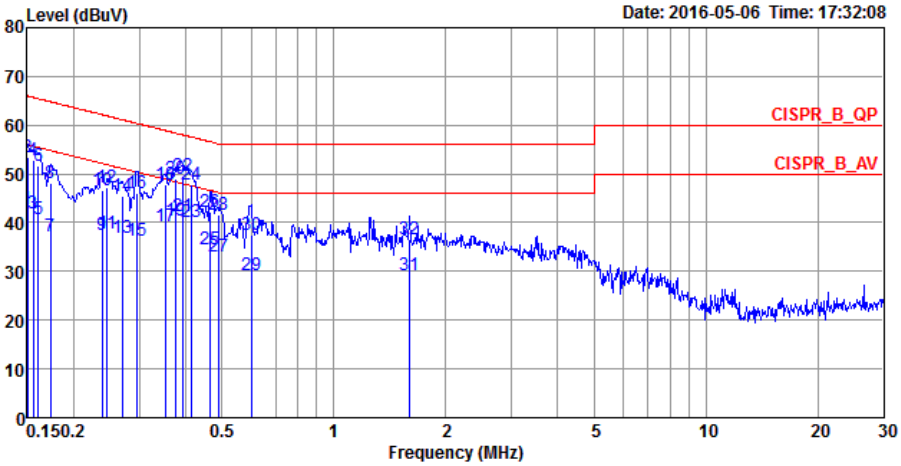
There is no deviation with the original standard.

4.1.6. EUT Operation during Test

The EUT was placed on the test table and programmed in normal function.

4.1.7. Results of AC Power Line Conducted Emissions Measurement

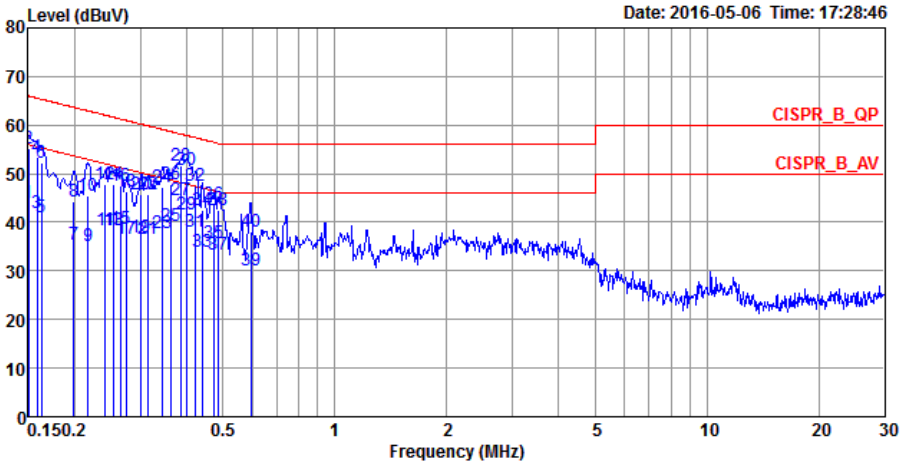
Temperature	22°C	Humidity	62%
Test Engineer	Deven Huang	Phase	Line
Configuration	Normal Link	Test Mode	Mode 2



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.1500	42.76	-13.24	56.00	32.72	10.02	0.02	LINE	Average
2	0.1500	53.53	-12.47	66.00	43.49	10.02	0.02	LINE	QP
3	0.1557	41.90	-13.79	55.69	31.86	10.02	0.02	LINE	Average
4	0.1557	52.70	-12.99	65.69	42.66	10.02	0.02	LINE	QP
5	0.1607	40.83	-14.60	55.43	30.79	10.02	0.02	LINE	Average
6	0.1607	51.59	-13.84	65.43	41.55	10.02	0.02	LINE	QP
7	0.1731	37.18	-17.63	54.81	27.14	10.02	0.02	LINE	Average
8	0.1731	48.19	-16.62	64.81	38.15	10.02	0.02	LINE	QP
9	0.2378	37.48	-14.69	52.17	27.53	9.92	0.03	LINE	Average
10	0.2378	46.75	-15.42	62.17	36.80	9.92	0.03	LINE	QP
11	0.2455	37.78	-14.13	51.91	27.83	9.92	0.03	LINE	Average
12	0.2455	47.22	-14.69	61.91	37.27	9.92	0.03	LINE	QP
13	0.2701	36.85	-14.27	51.12	26.90	9.92	0.03	LINE	Average
14	0.2701	45.47	-15.65	61.12	35.52	9.92	0.03	LINE	QP
15	0.2955	36.31	-14.06	50.37	26.35	9.92	0.04	LINE	Average
16	0.2955	45.93	-14.44	60.37	35.97	9.92	0.04	LINE	QP
17	0.3520	39.40	-9.51	48.91	29.44	9.92	0.04	LINE	Average

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
18	0.3520	47.73	-11.18	58.91	37.77	9.92	0.04	LINE	QP
19	0.3771	40.58	-7.76	48.34	30.62	9.92	0.04	LINE	Average
20	0.3771	48.88	-9.46	58.34	38.92	9.92	0.04	LINE	QP
21	0.3914	41.39	-6.64	48.03	31.43	9.92	0.04	LINE	Average
22	0.3914	49.57	-8.46	58.03	39.61	9.92	0.04	LINE	QP
23	0.4127	40.15	-7.44	47.59	30.19	9.92	0.04	LINE	Average
24	0.4127	47.93	-9.66	57.59	37.97	9.92	0.04	LINE	QP
25	0.4661	34.39	-12.19	46.58	24.43	9.92	0.04	LINE	Average
26	0.4661	42.29	-14.29	56.58	32.33	9.92	0.04	LINE	QP
27	0.4889	33.06	-13.13	46.19	23.10	9.92	0.04	LINE	Average
28	0.4889	41.74	-14.45	56.19	31.78	9.92	0.04	LINE	QP
29	0.6011	29.21	-16.79	46.00	19.24	9.93	0.04	LINE	Average
30	0.6011	37.41	-18.59	56.00	27.44	9.93	0.04	LINE	QP
31	1.6020	29.31	-16.69	46.00	19.30	9.95	0.06	LINE	Average
32	1.6020	36.67	-19.33	56.00	26.66	9.95	0.06	LINE	QP

Temperature	22°C	Humidity	62%
Test Engineer	Deven Huang	Phase	Neutral
Configuration	Normal Link	Test Mode	Mode 2



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.1500	43.96	-12.04	56.00	33.92	10.02	0.02	NEUTRAL	Average
2	0.1500	55.29	-10.71	66.00	45.25	10.02	0.02	NEUTRAL	QP
3	0.1582	41.92	-13.64	55.56	31.88	10.02	0.02	NEUTRAL	Average
4	0.1582	53.34	-12.22	65.56	43.30	10.02	0.02	NEUTRAL	QP
5	0.1624	40.91	-14.43	55.34	30.87	10.02	0.02	NEUTRAL	Average
6	0.1624	52.37	-12.97	65.34	42.33	10.02	0.02	NEUTRAL	QP
7	0.1986	35.53	-18.14	53.67	25.59	9.92	0.02	NEUTRAL	Average
8	0.1986	44.42	-19.25	63.67	34.48	9.92	0.02	NEUTRAL	QP
9	0.2174	35.16	-17.76	52.92	25.22	9.92	0.02	NEUTRAL	Average
10	0.2174	45.41	-17.51	62.92	35.47	9.92	0.02	NEUTRAL	QP
11	0.2416	38.47	-13.57	52.04	28.52	9.92	0.03	NEUTRAL	Average
12	0.2416	47.88	-14.16	62.04	37.93	9.92	0.03	NEUTRAL	QP
13	0.2535	38.40	-13.24	51.64	28.45	9.92	0.03	NEUTRAL	Average
14	0.2535	47.70	-13.94	61.64	37.75	9.92	0.03	NEUTRAL	QP
15	0.2658	38.79	-12.46	51.25	28.84	9.92	0.03	NEUTRAL	Average
16	0.2658	47.41	-13.84	61.25	37.46	9.92	0.03	NEUTRAL	QP
17	0.2759	36.47	-14.47	50.94	26.51	9.92	0.04	NEUTRAL	Average

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
18	0.2759	46.34	-14.60	60.94	36.38	9.92	0.04	NEUTRAL	QP
19	0.3003	37.01	-13.23	50.24	27.05	9.92	0.04	NEUTRAL	Average
20	0.3003	45.62	-14.62	60.24	35.66	9.92	0.04	NEUTRAL	QP
21	0.3149	36.74	-13.10	49.84	26.78	9.92	0.04	NEUTRAL	Average
22	0.3149	45.86	-13.98	59.84	35.90	9.92	0.04	NEUTRAL	QP
23	0.3446	37.74	-11.35	49.09	27.78	9.92	0.04	NEUTRAL	Average
24	0.3446	47.34	-11.75	59.09	37.38	9.92	0.04	NEUTRAL	QP
25	0.3615	39.39	-9.30	48.69	29.43	9.92	0.04	NEUTRAL	Average
26	0.3615	47.91	-10.78	58.69	37.95	9.92	0.04	NEUTRAL	QP
27	0.3852	44.45	-3.72	48.17	34.49	9.92	0.04	NEUTRAL	Average
28	0.3852	51.57	-6.60	58.17	41.61	9.92	0.04	NEUTRAL	QP
29	0.3997	41.59	-6.27	47.86	31.63	9.92	0.04	NEUTRAL	Average
30	0.3997	50.66	-7.20	57.86	40.70	9.92	0.04	NEUTRAL	QP
31	0.4215	37.93	-9.49	47.42	27.97	9.92	0.04	NEUTRAL	Average
32	0.4215	47.56	-9.86	57.42	37.60	9.92	0.04	NEUTRAL	QP
33	0.4421	33.99	-13.03	47.02	24.03	9.92	0.04	NEUTRAL	Average
34	0.4421	42.41	-14.61	57.02	32.45	9.92	0.04	NEUTRAL	QP
35	0.4711	35.87	-10.62	46.49	25.91	9.92	0.04	NEUTRAL	Average
36	0.4711	43.79	-12.70	56.49	33.83	9.92	0.04	NEUTRAL	QP
37	0.4863	33.49	-12.74	46.23	23.53	9.92	0.04	NEUTRAL	Average
38	0.4863	42.49	-13.74	56.23	32.53	9.92	0.04	NEUTRAL	QP
39	0.5948	30.14	-15.86	46.00	20.17	9.93	0.04	NEUTRAL	Average
40	0.5948	38.05	-17.95	56.00	28.08	9.93	0.04	NEUTRAL	QP

Note:

Level = Read Level + LISN Factor + Cable Loss.

4.2. 26dB Bandwidth and 99% Occupied Bandwidth Measurement

4.2.1. Limit

No restriction limits.

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 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

4.2.3. 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%.

4.2.4. Test Setup Layout

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

This test setup layout is the same as that shown in section 4.6.4.

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 26dB Bandwidth and 99% Occupied Bandwidth

Temperature	22°C	Humidity	64%
Test Engineer	Akina Chiu	Test Function	Non-beamforming function

Mode	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11a	5180 MHz	20.00	16.76
	5200 MHz	20.35	16.93
	5240 MHz	22.43	16.93
	5260 MHz	19.91	16.85
	5300 MHz	20.00	16.85
	5320 MHz	19.83	16.85
	5500 MHz	19.74	16.76
	5580 MHz	19.91	16.76
	5700 MHz	20.26	16.85
	5745 MHz	20.43	16.76
	5785 MHz	19.91	16.85
	5825 MHz	20.00	16.76
802.11ac MCS0/Nss1 VHT20	5180 MHz	19.91	17.71
	5200 MHz	22.61	17.89
	5240 MHz	21.13	17.80
	5260 MHz	20.35	17.80
	5300 MHz	20.00	17.71
	5320 MHz	20.09	17.71
	5500 MHz	20.00	17.80
	5580 MHz	20.17	17.80
	5700 MHz	19.91	17.80
	5745 MHz	20.17	17.80
	5785 MHz	20.35	17.80
	5825 MHz	20.35	17.71

Mode	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11ac MCS0/Nss1 VHT40	5190 MHz	41.01	36.47
	5230 MHz	51.59	36.61
	5270 MHz	41.45	36.61
	5310 MHz	41.16	36.32
	5510 MHz	41.88	36.47
	5550 MHz	41.88	36.47
	5670 MHz	42.32	36.32
	5755 MHz	41.59	36.61
	5795 MHz	41.30	36.61
802.11ac MCS0/Nss1 VHT80	5210 MHz	82.03	76.12
	5290 MHz	82.03	76.12
	5530 MHz	81.16	76.41
	5610 MHz	82.03	76.41
	5775 MHz	81.74	76.12
802.11ac MCS0/Nss1 VHT160	5250 MHz	161.74	155.43
	5570 MHz	161.30	155.43

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	19.83	16.85	5710.09	5711.58	14.91	4.91	13.42	3.42
802.11ac MCS0/Nss1 VHT20	5720 MHz	20.17	17.80	5709.91	5711.14	15.09	5.09	13.86	3.94
802.11ac MCS0/Nss1 VHT40	5710 MHz	42.61	36.47	5689.28	5691.77	35.73	6.88	33.23	3.23
802.11ac MCS0/Nss1 VHT80	5690 MHz	81.45	76.41	5649.42	5651.80	75.58	5.87	73.20	3.21

Temperature	22℃	Humidity	64%
Test Engineer	Akina Chiu	Test Function	Beamforming function

Mode	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11a	5180 MHz	19.74	16.76
	5200 MHz	20.17	16.85
	5240 MHz	19.91	16.93
	5260 MHz	19.91	16.85
	5300 MHz	19.83	16.85
	5320 MHz	19.83	16.85
	5500 MHz	19.91	16.85
	5580 MHz	19.83	16.76
	5700 MHz	19.83	16.85
	5745 MHz	19.91	16.93
	5785 MHz	19.91	16.85
	5825 MHz	19.91	16.85
802.11ac MCS0/Nss1 VHT20	5180 MHz	20.00	17.80
	5200 MHz	20.09	17.80
	5240 MHz	20.09	17.80
	5260 MHz	20.00	17.80
	5300 MHz	20.09	17.80
	5320 MHz	20.00	17.80
	5500 MHz	19.91	17.80
	5580 MHz	19.91	17.80
	5700 MHz	20.00	17.80
	5745 MHz	19.91	17.71
	5785 MHz	20.26	17.80
	5825 MHz	20.00	17.80

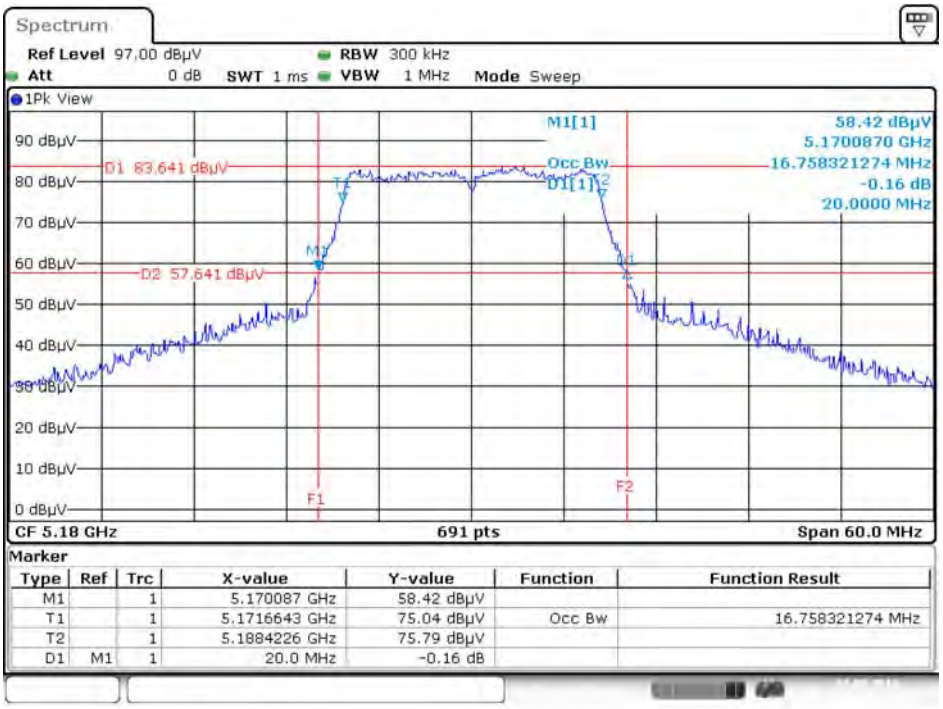
Mode	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11ac MCS0/Nss1 VHT40	5190 MHz	40.73	36.32
	5230 MHz	40.44	36.32
	5270 MHz	40.44	36.32
	5310 MHz	40.73	36.18
	5510 MHz	40.73	36.32
	5550 MHz	40.29	36.47
	5670 MHz	40.44	36.32
	5755 MHz	40.73	36.61
	5795 MHz	40.58	36.32
802.11ac MCS0/Nss1 VHT80	5210 MHz	81.16	75.54
	5290 MHz	81.45	76.12
	5530 MHz	81.16	76.12
	5610 MHz	81.16	76.12
	5775 MHz	80.87	76.12
802.11ac MCS0/Nss1 VHT160	5250 MHz	161.30	155.43
	5570 MHz	162.17	154.99

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	19.65	17.02	5710.09	5711.49	14.91	4.74	13.51	3.51
802.11ac MCS0/Nss1 VHT20	5720 MHz	20.09	17.71	5709.83	5711.06	15.17	4.91	13.94	3.77
802.11ac MCS0/Nss1 VHT40	5710 MHz	40.58	36.32	5689.86	5691.91	35.15	5.43	33.09	3.23
802.11ac MCS0/Nss1 VHT80	5690 MHz	81.45	76.12	5649.13	5652.08	75.87	5.58	72.92	3.21

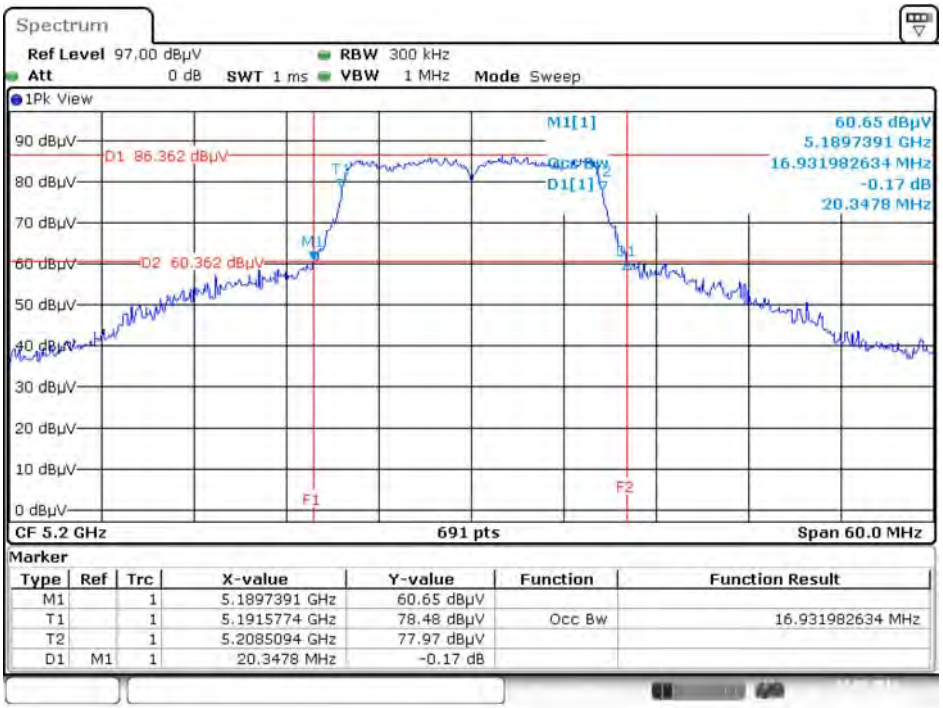
For non-beamforming function:

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5180 MHz



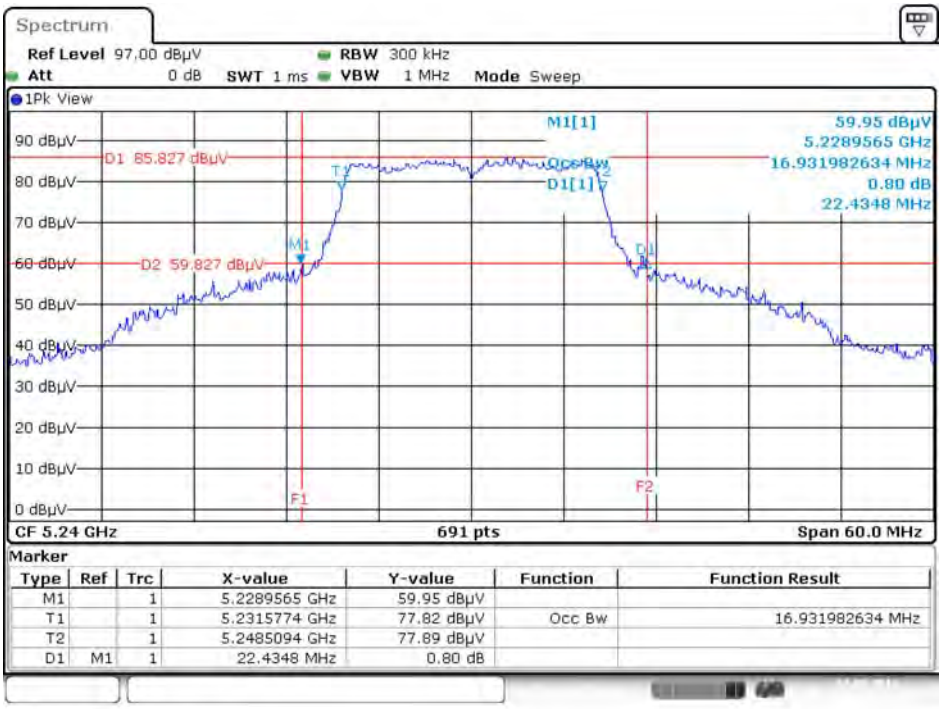
Date: 23.MAY.2016 17:10:40

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5200 MHz



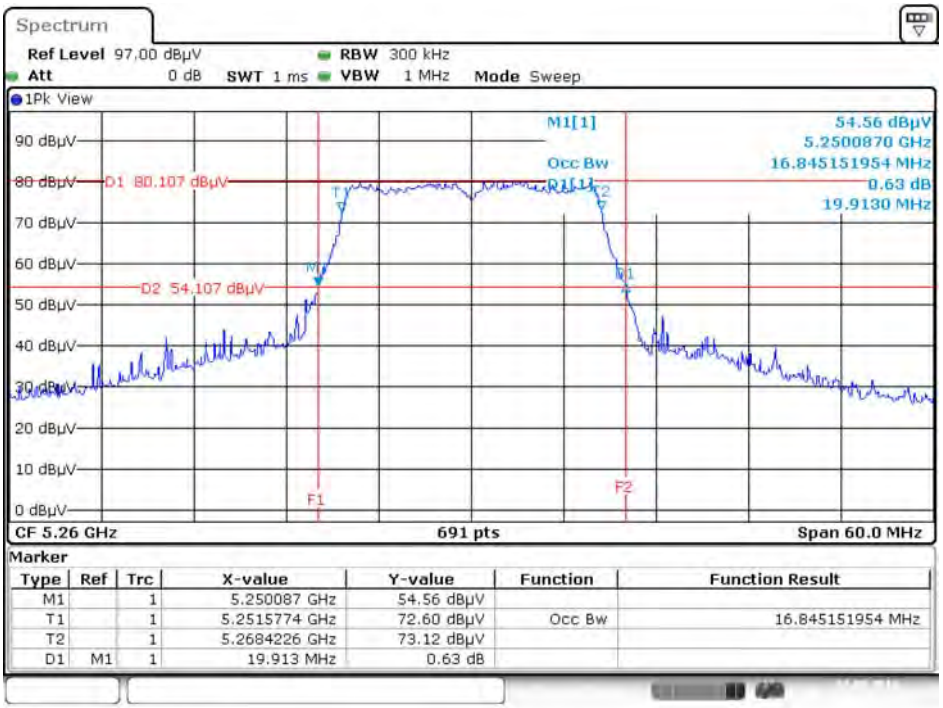
Date: 23.MAY.2016 17:11:38

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5240 MHz



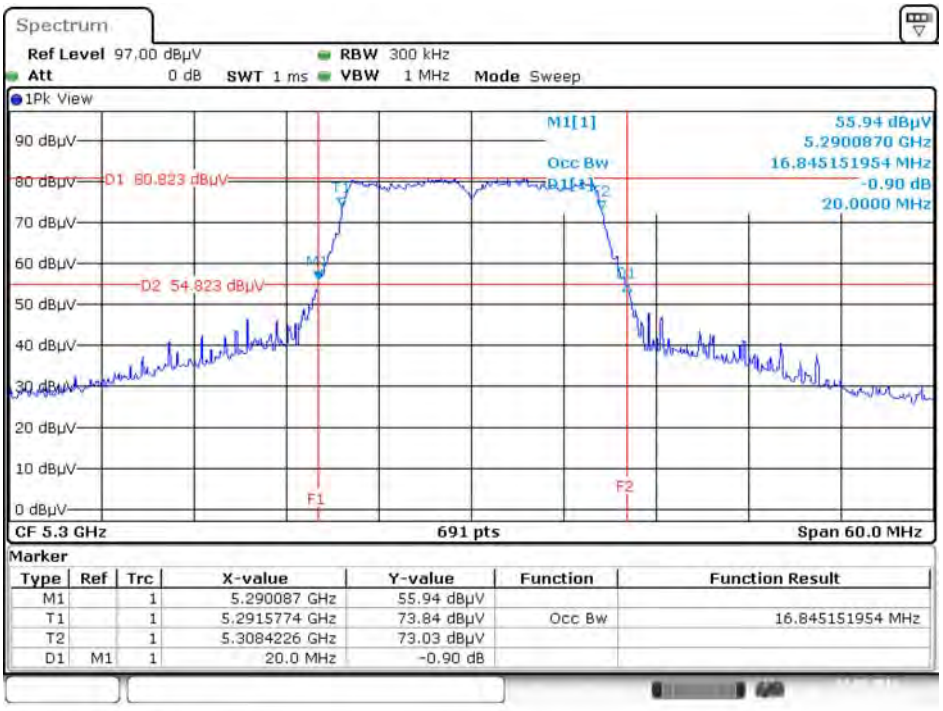
Date: 23.MAY.2016 17:16:19

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



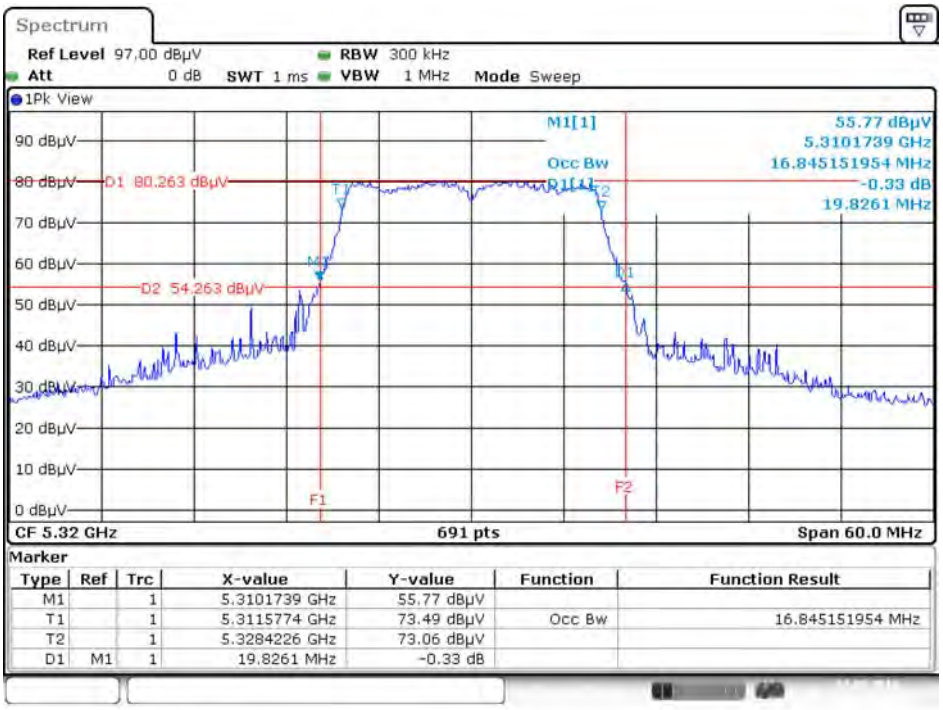
Date: 23.MAY.2016 17:15:26

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



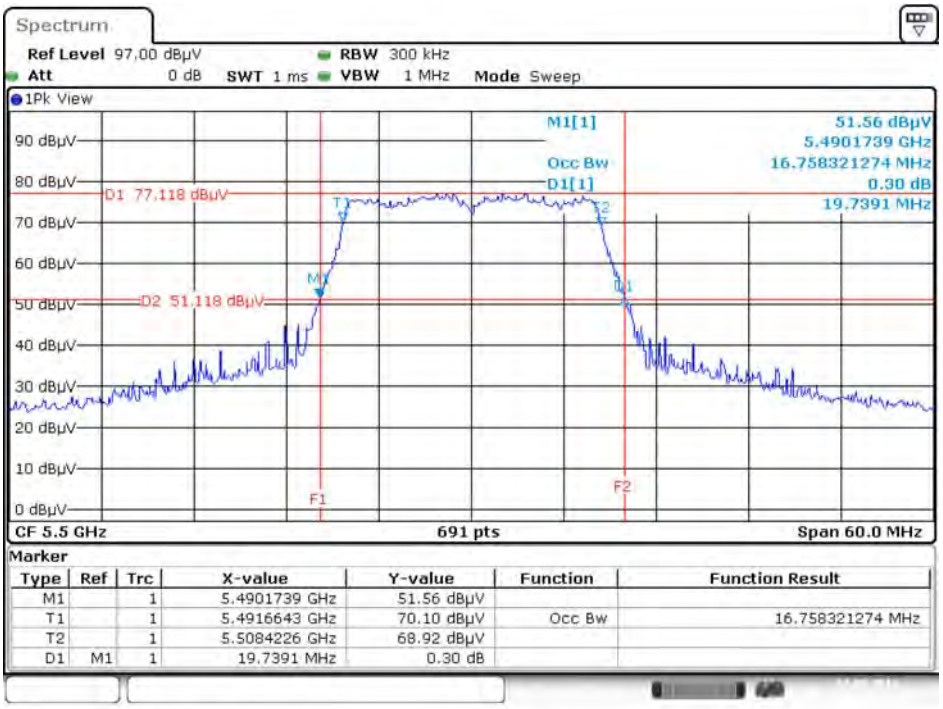
Date: 23.MAY.2016 17:19:52

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



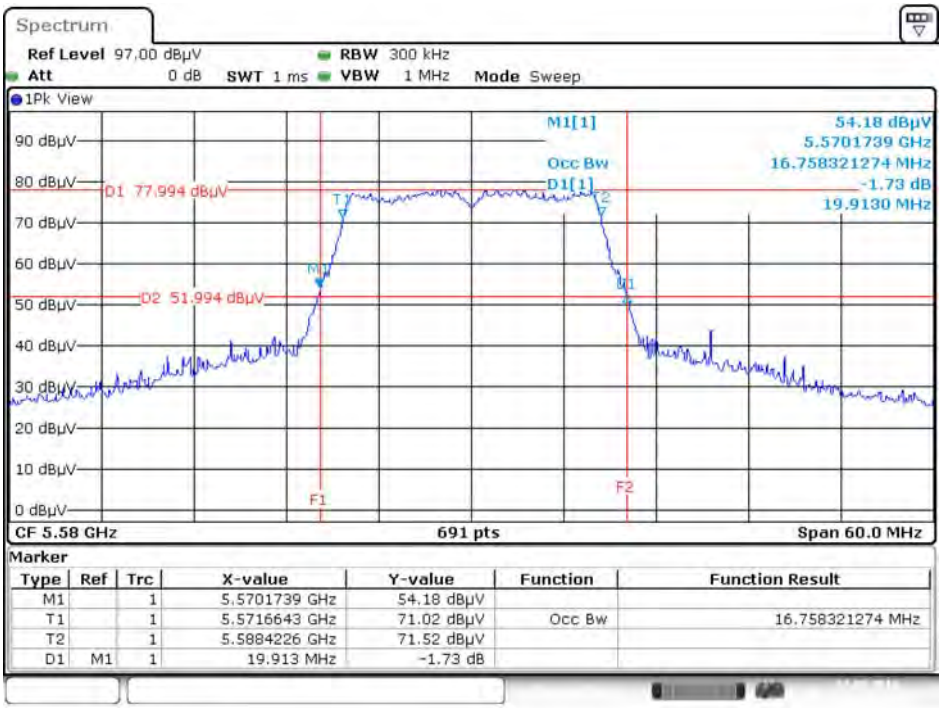
Date: 23.MAY.2016 17:20:30

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



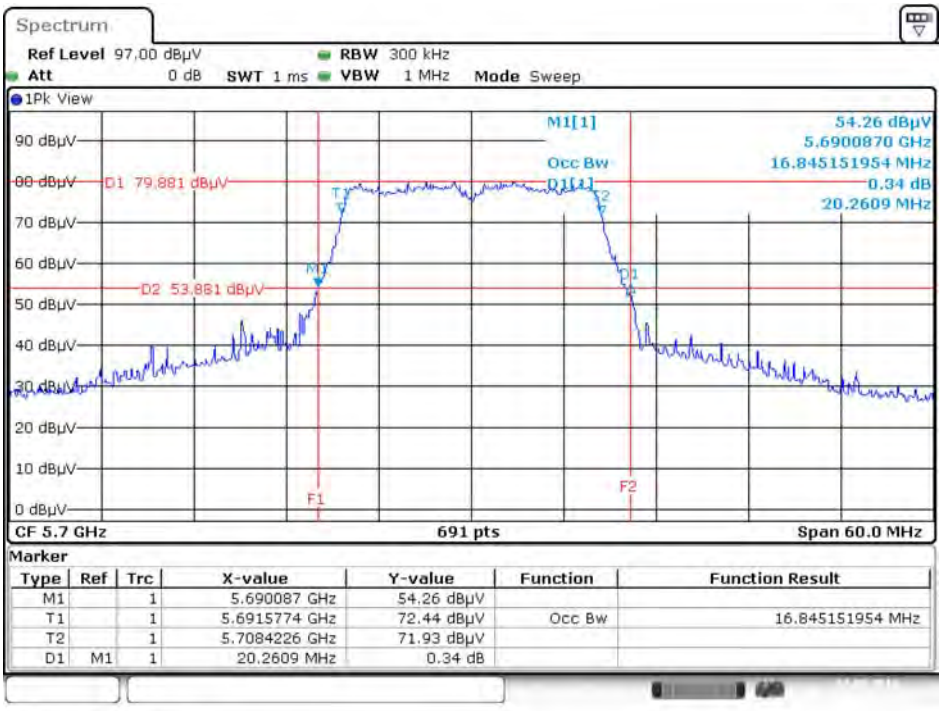
Date: 23.MAY.2016 17:21:14

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



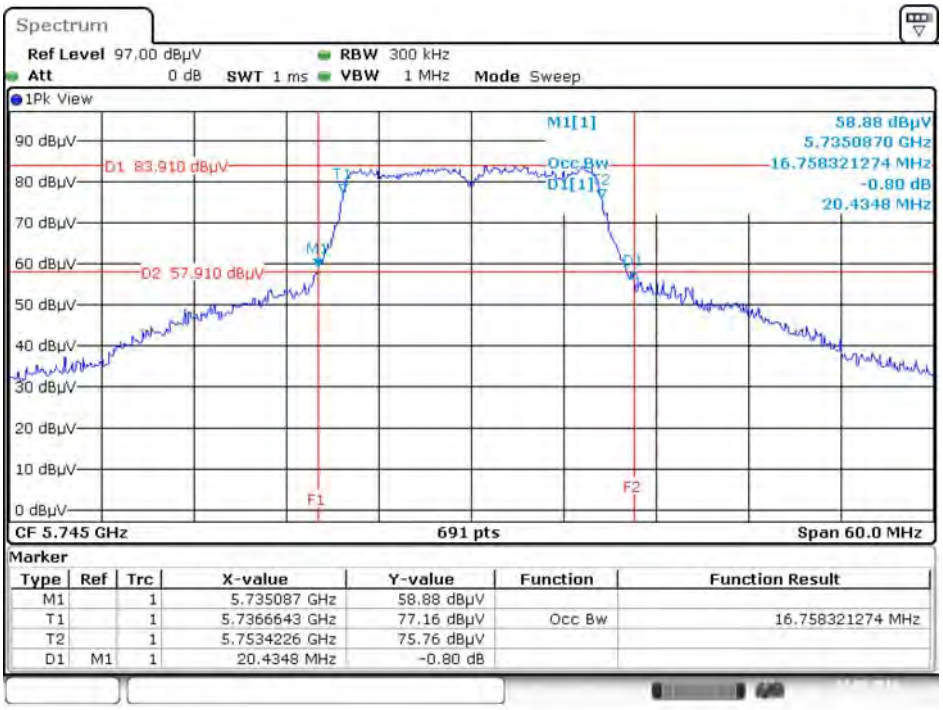
Date: 23.MAY.2016 17:22:21

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



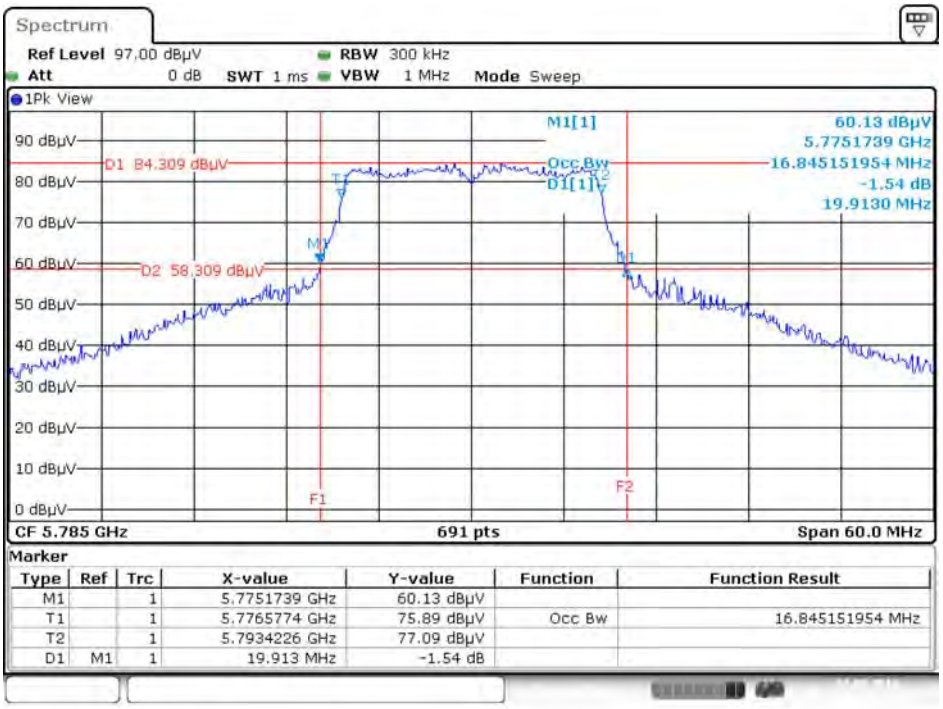
Date: 23.MAY.2016 17:23:14

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5745 MHz



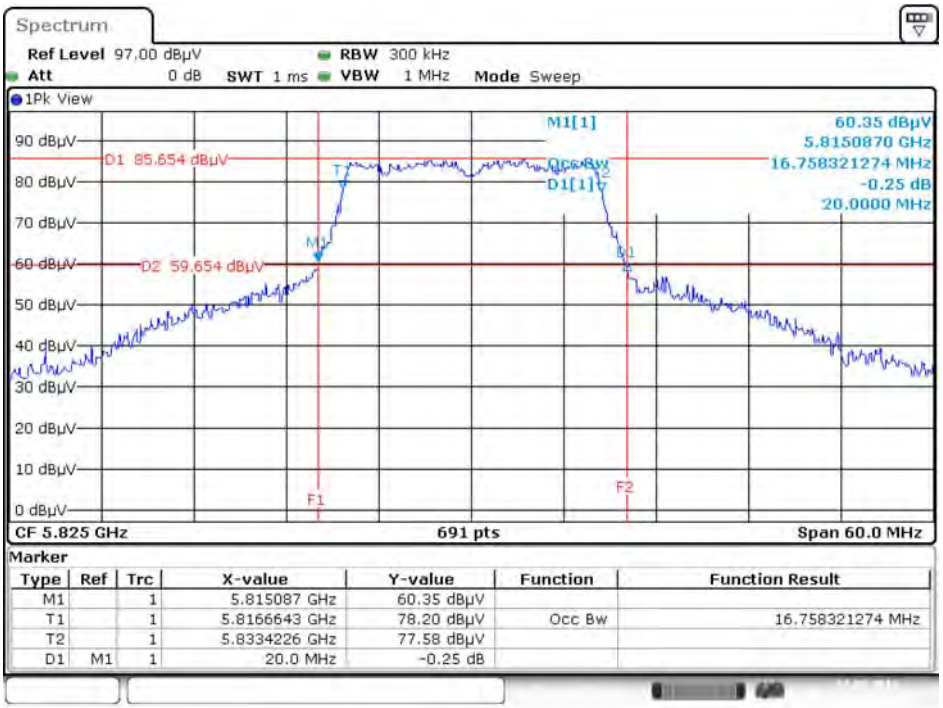
Date: 23.MAY.2016 17:23:59

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5785 MHz



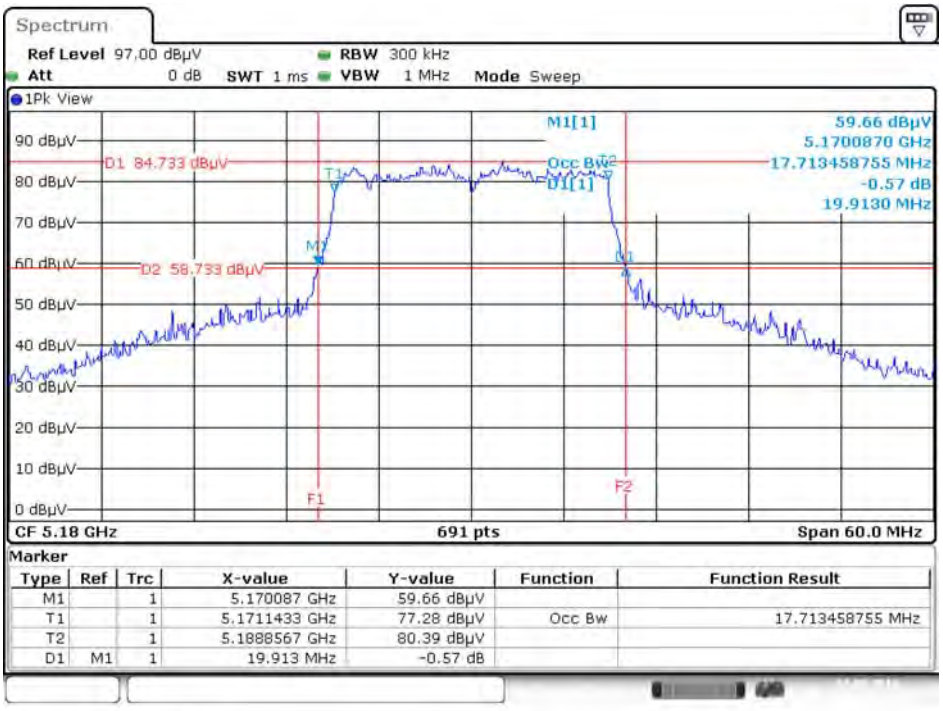
Date: 23.MAY.2016 17:27:50

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5825 MHz



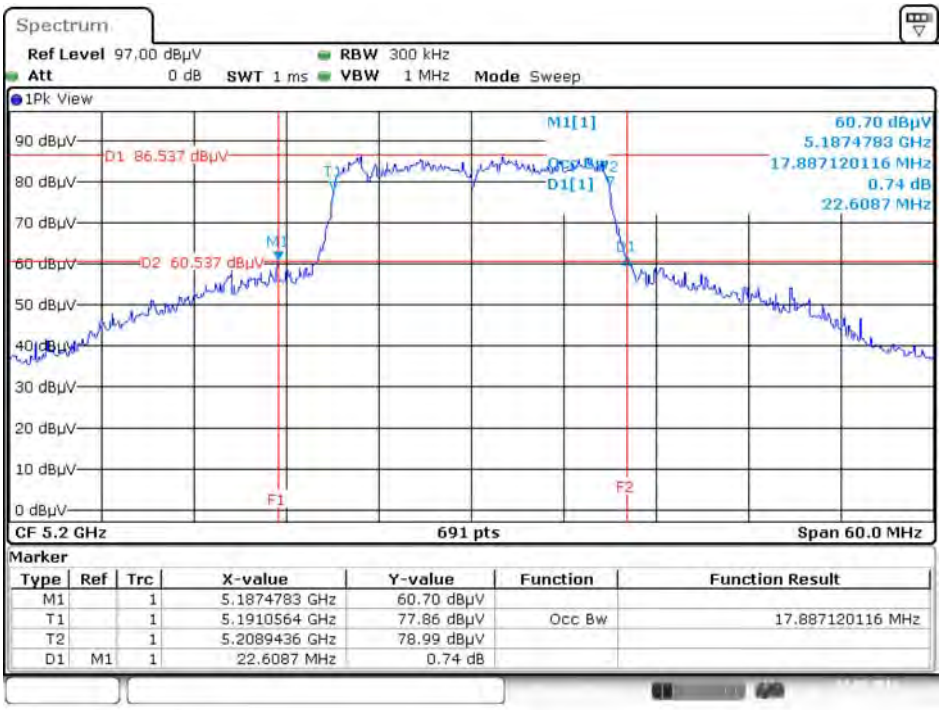
Date: 23.MAY.2016 17:31:27

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5180 MHz



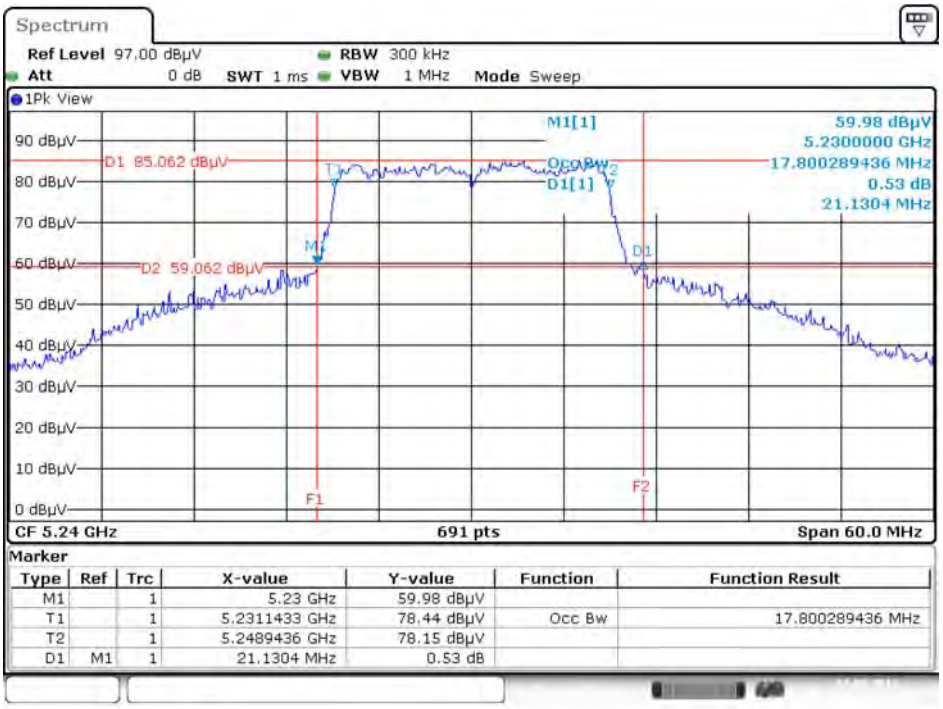
Date: 23.MAY.2016 18:12:45

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5200 MHz



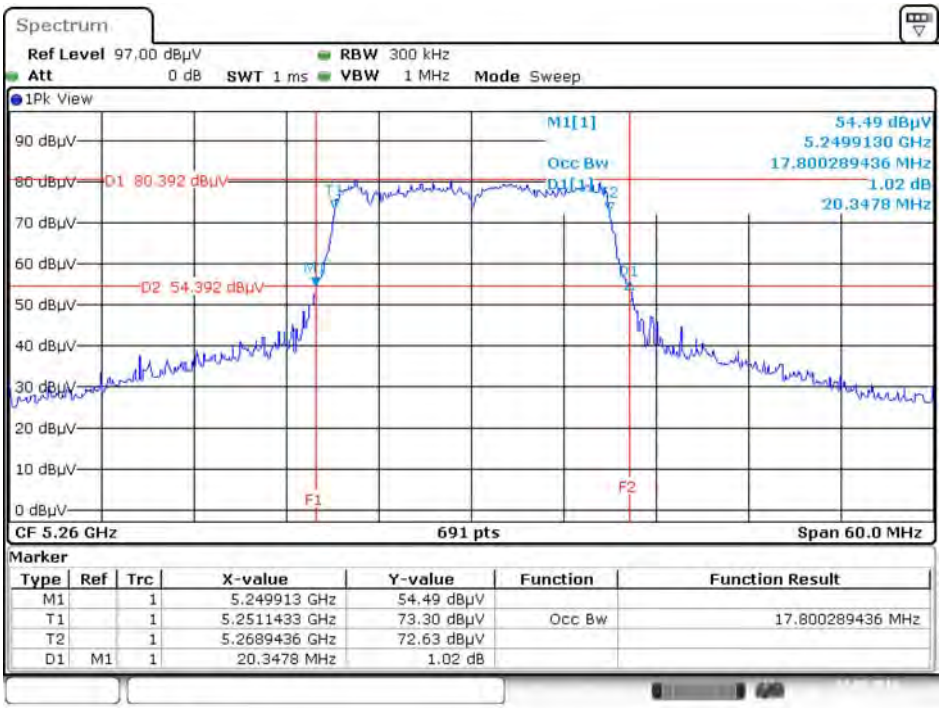
Date: 23.MAY.2016 18:12:11

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5240 MHz



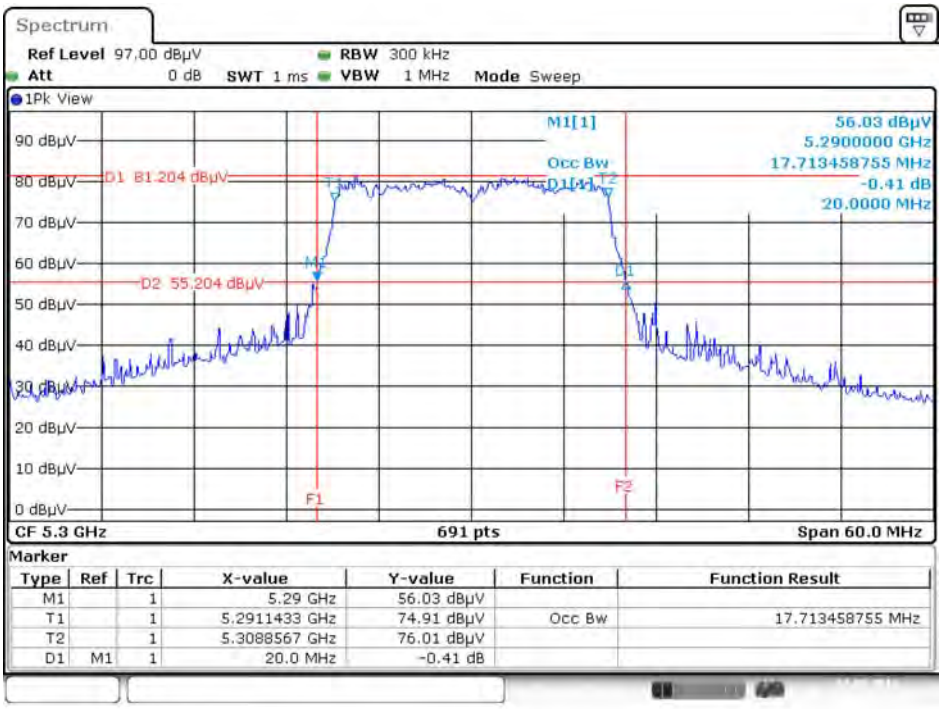
Date: 23.MAY.2016 18:11:33

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



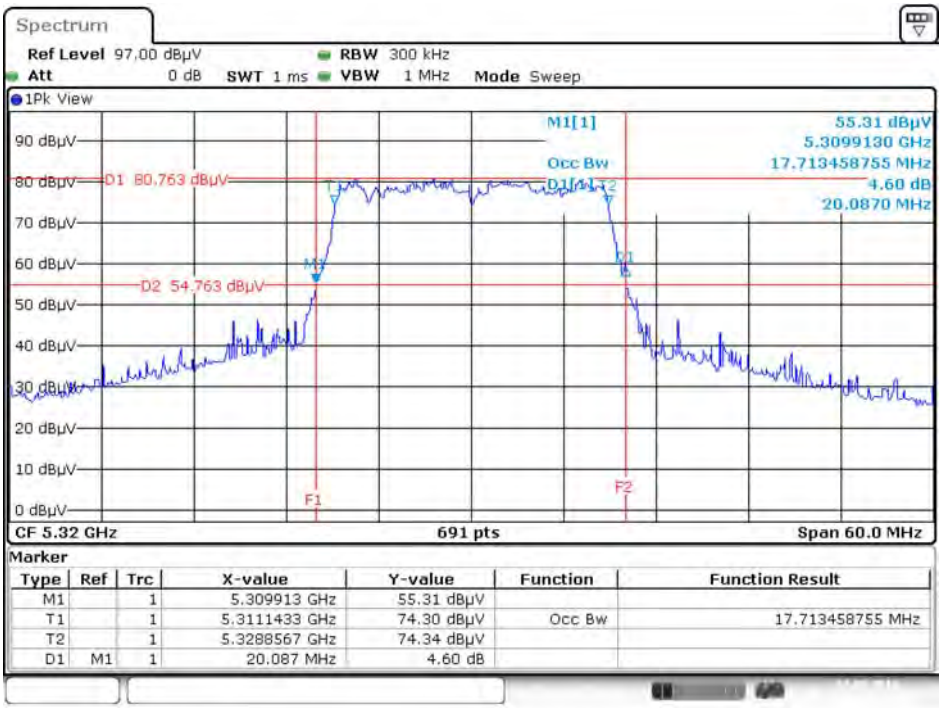
Date: 23.MAY.2016 18:10:40

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



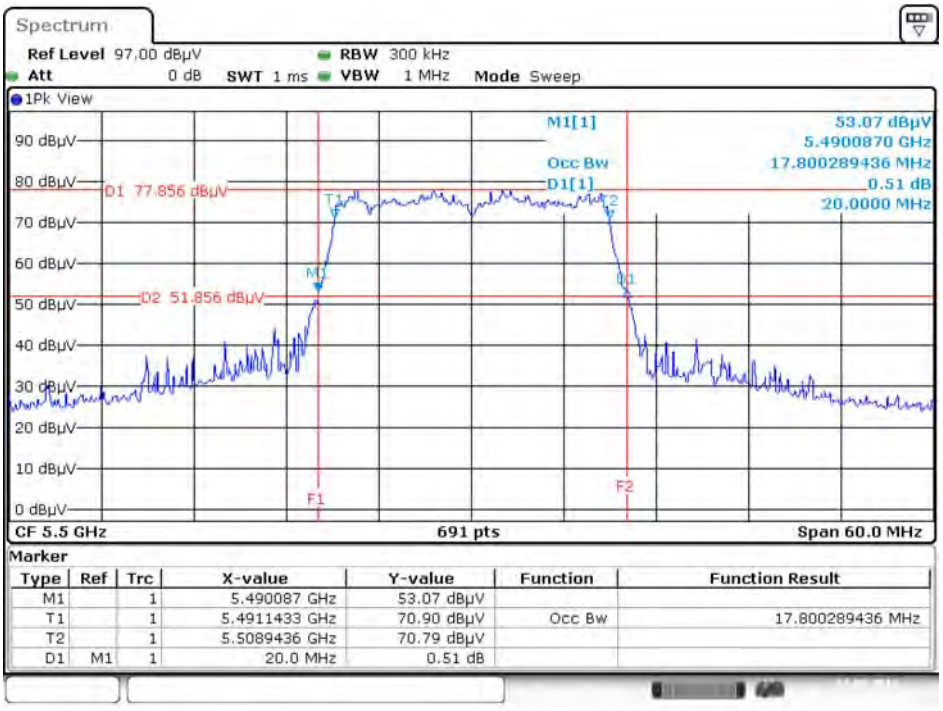
Date: 23.MAY.2016 18:09:57

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



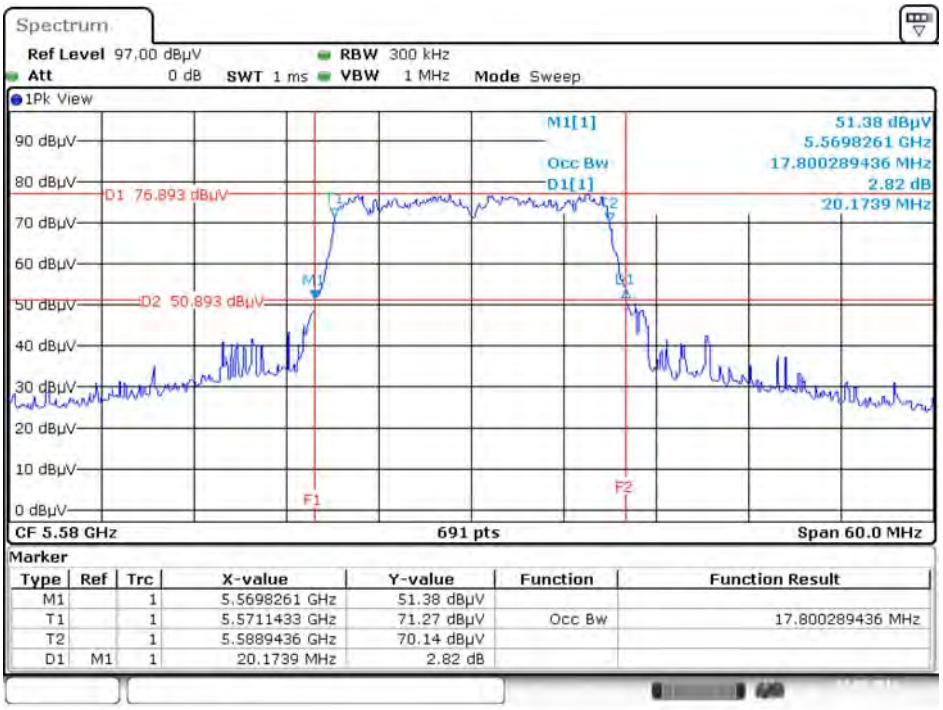
Date: 23.MAY.2016 18:09:23

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



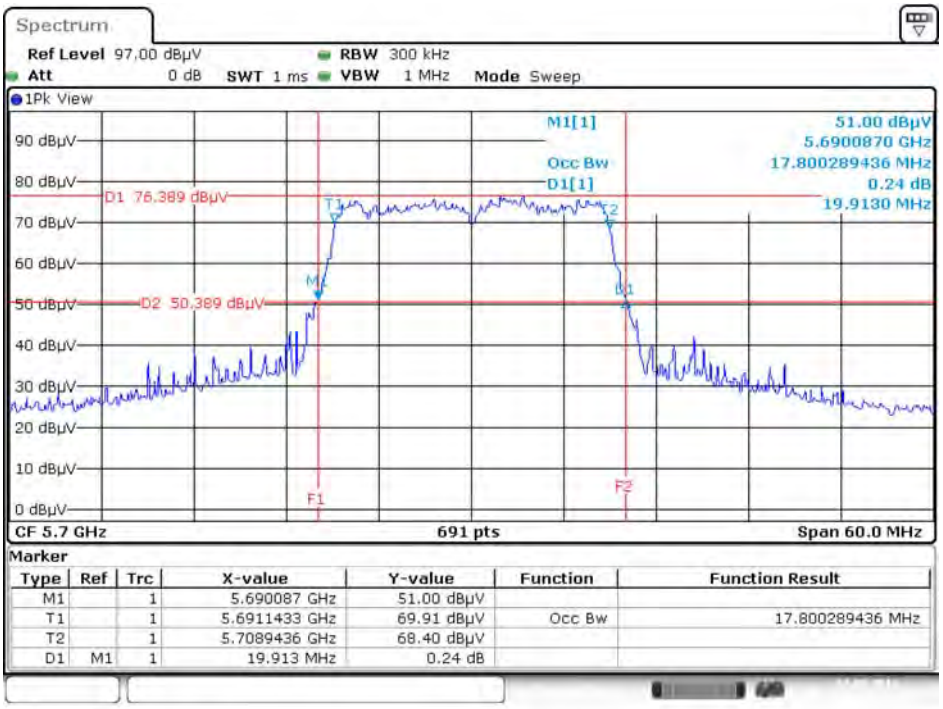
Date: 23.MAY.2016 18:07:57

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



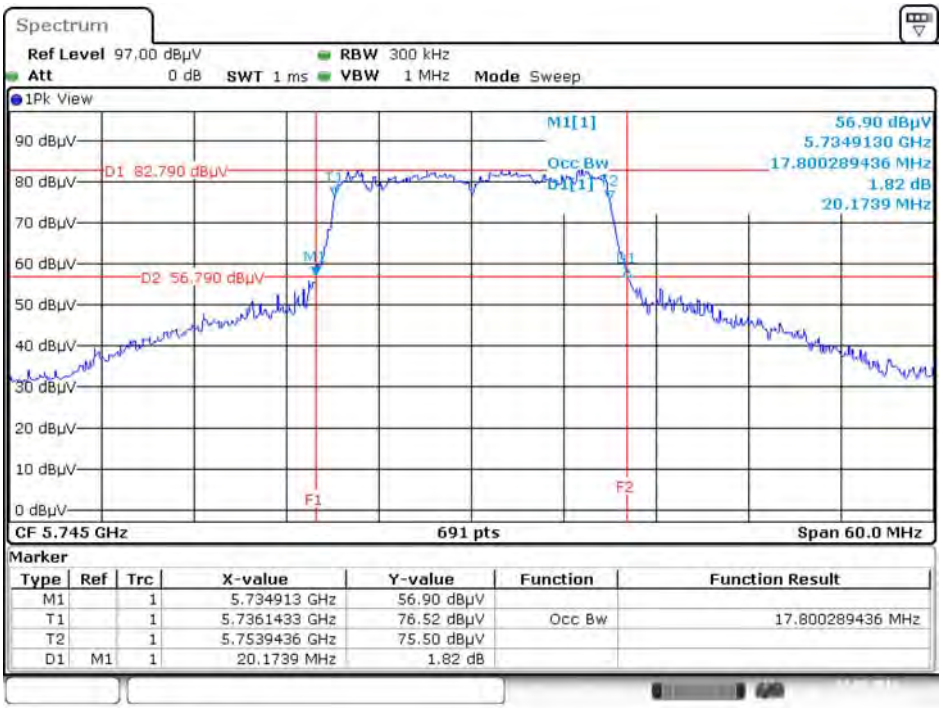
Date: 23.MAY.2016 18:07:19

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



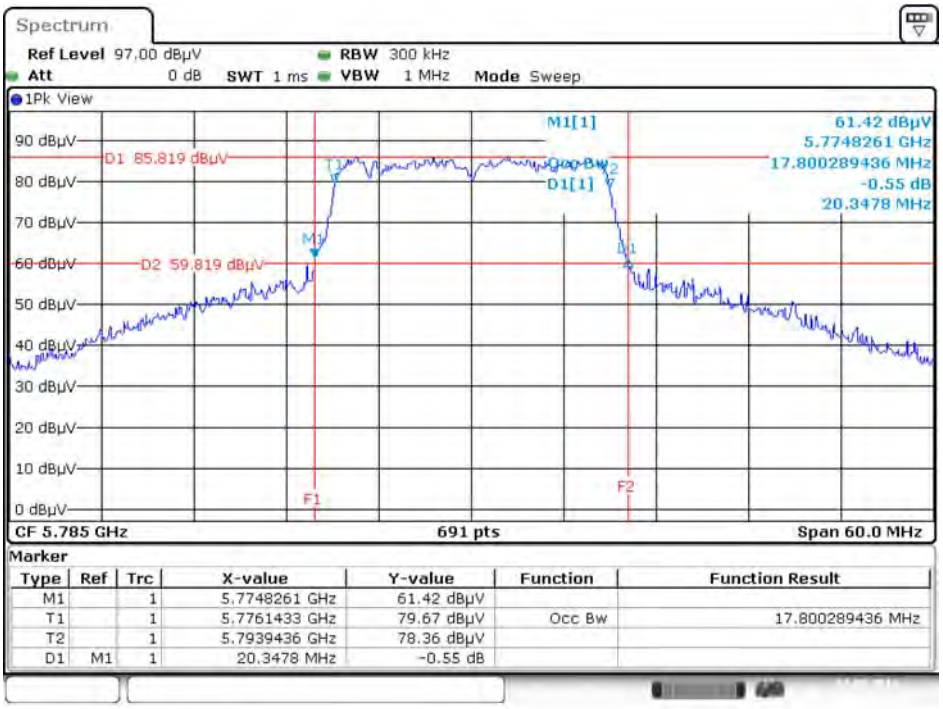
Date: 23.MAY.2016 18:06:24

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5745 MHz



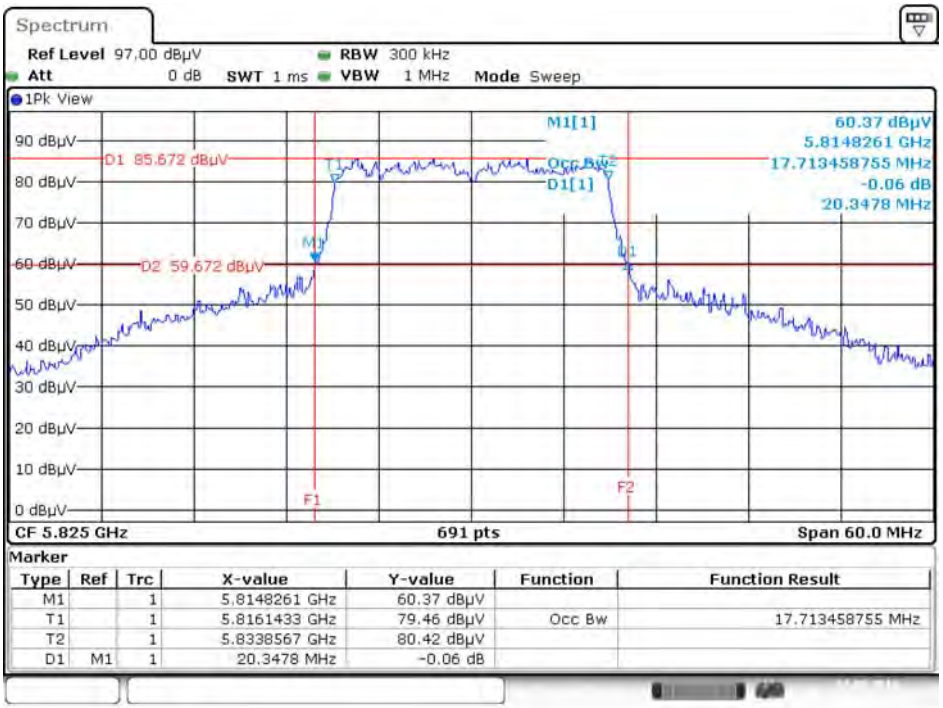
Date: 23.MAY.2016 18:04:43

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5785 MHz



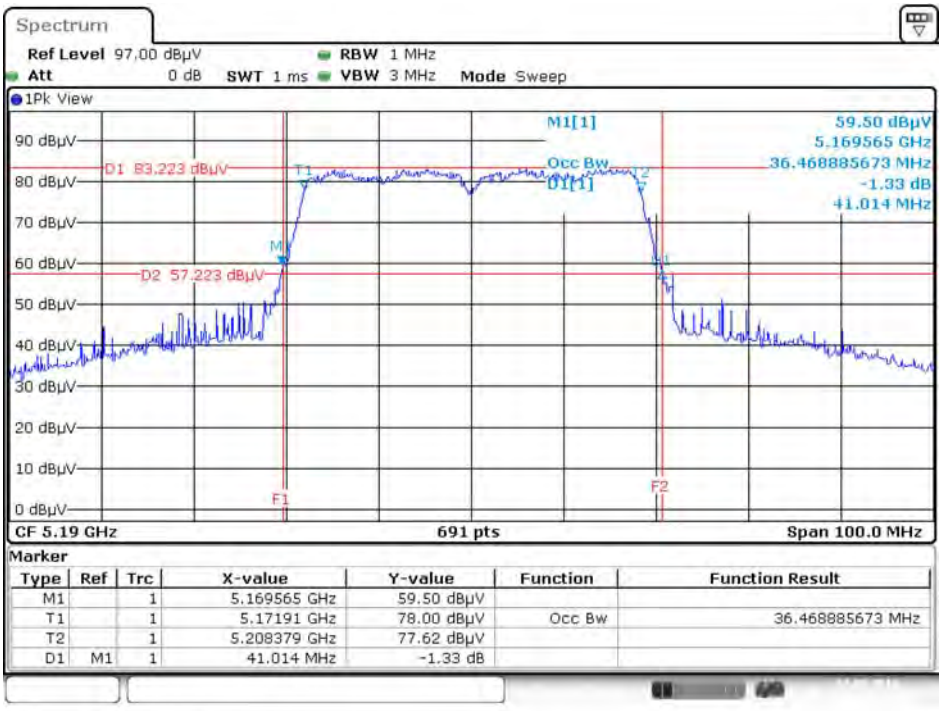
Date: 23.MAY.2016 18:04:01

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5825 MHz



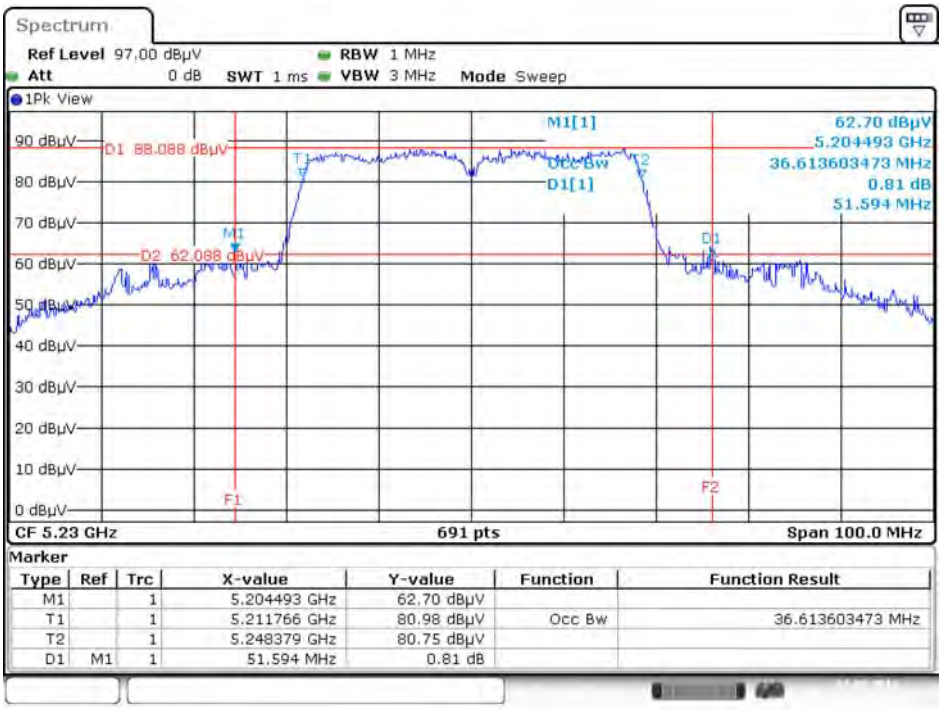
Date: 23.MAY.2016 18:03:05

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5190 MHz



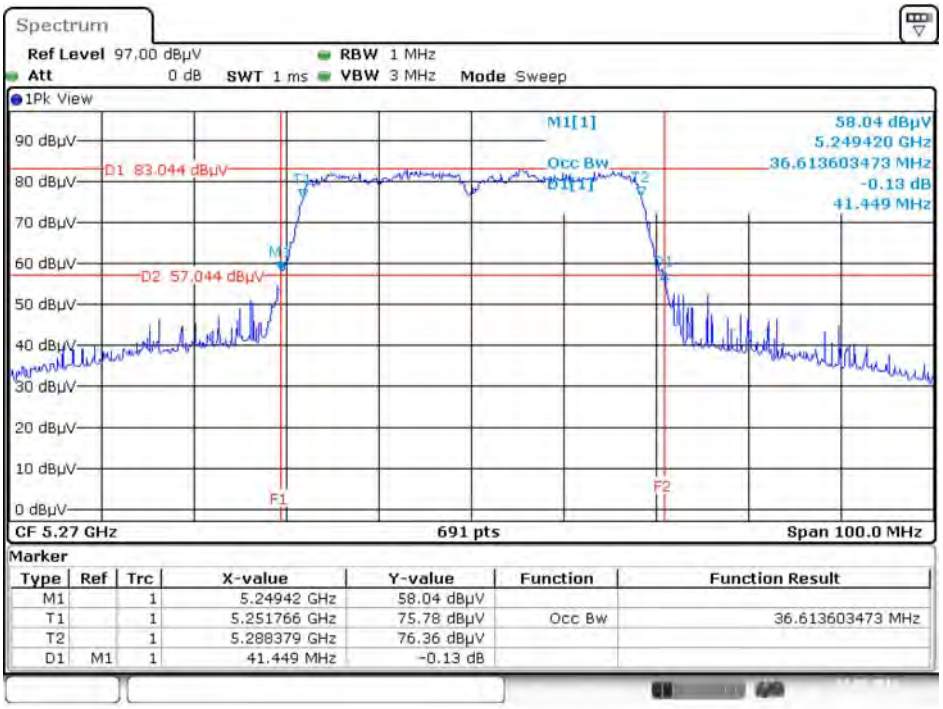
Date: 23.MAY.2016 18:13:47

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5230 MHz



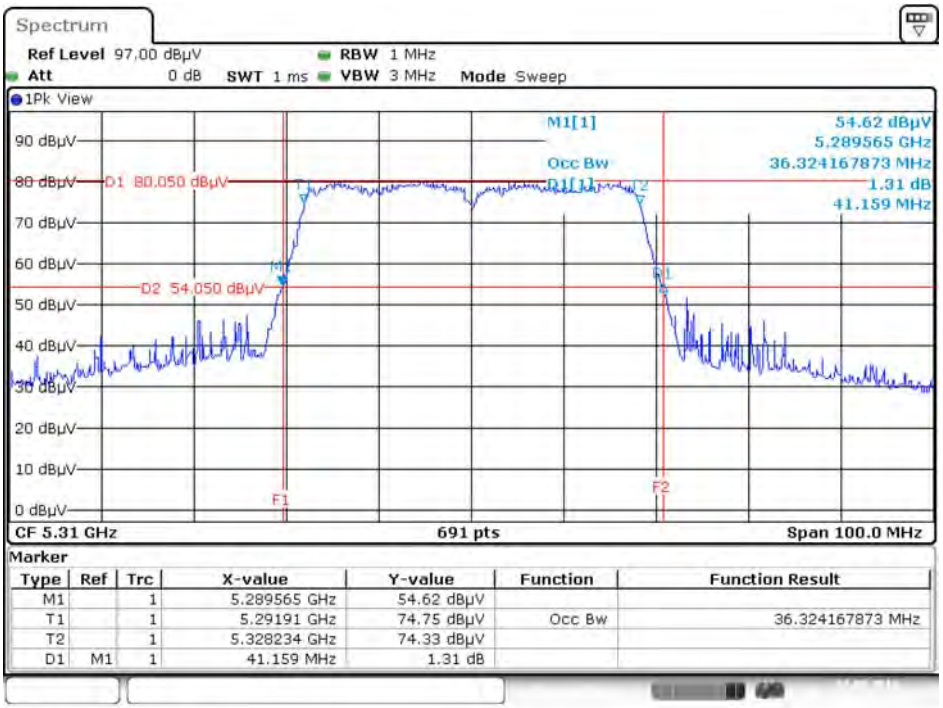
Date: 23.MAY.2016 18:14:32

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



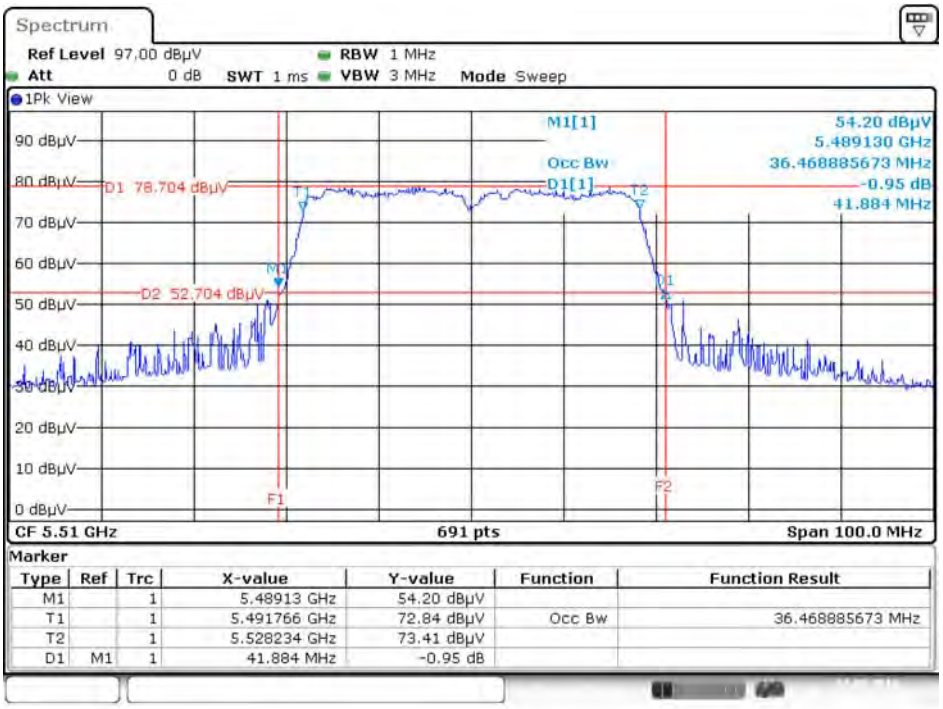
Date: 23.MAY.2016 18:21:37

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



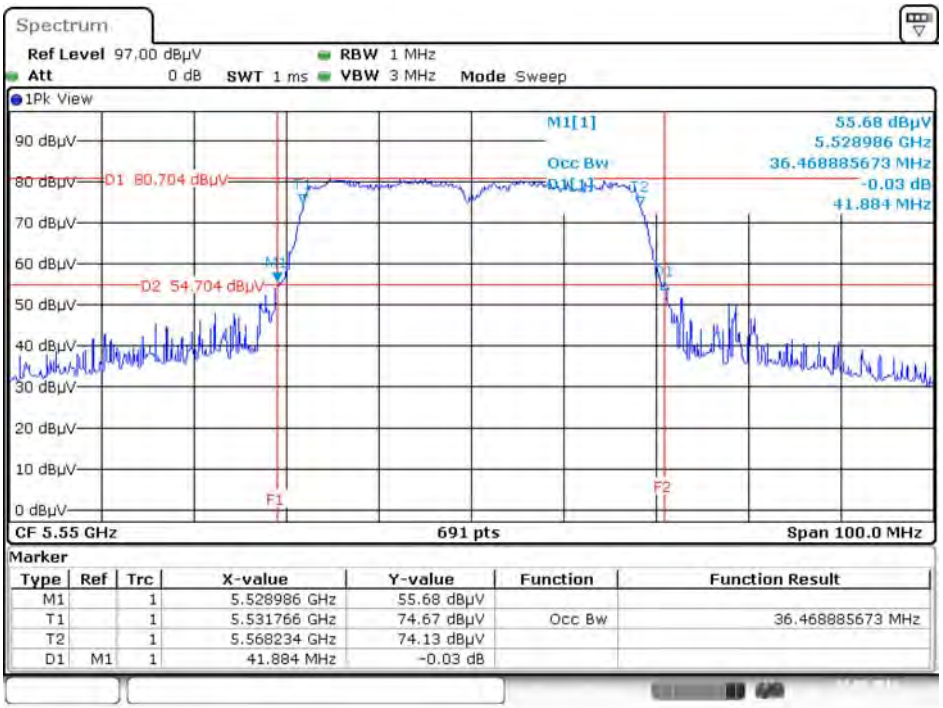
Date: 23.MAY.2016 18:22:28

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



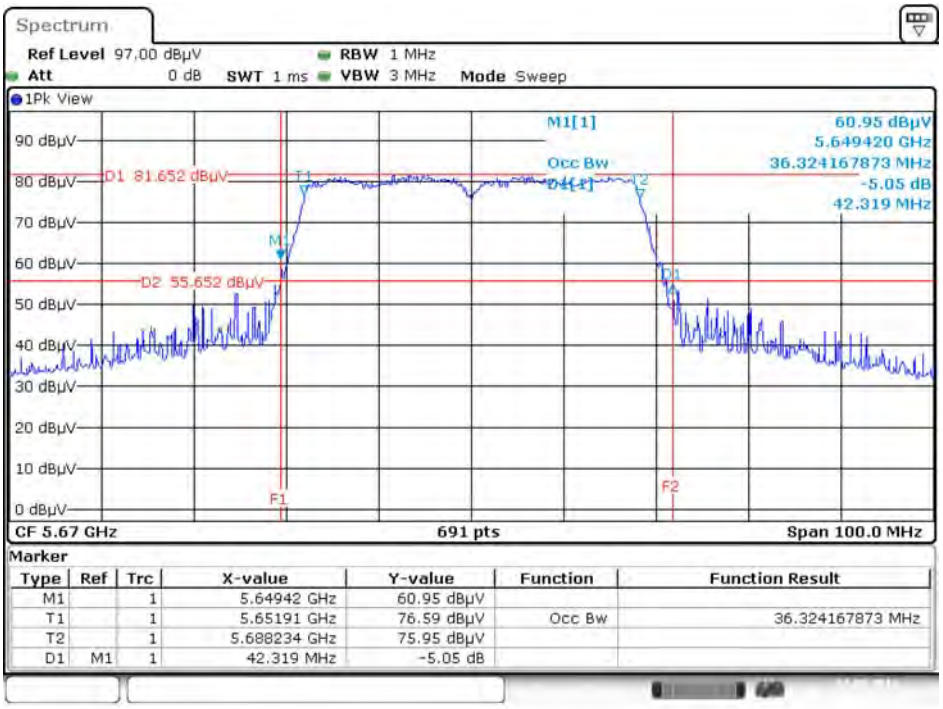
Date: 23.MAY.2016 18:24:24

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



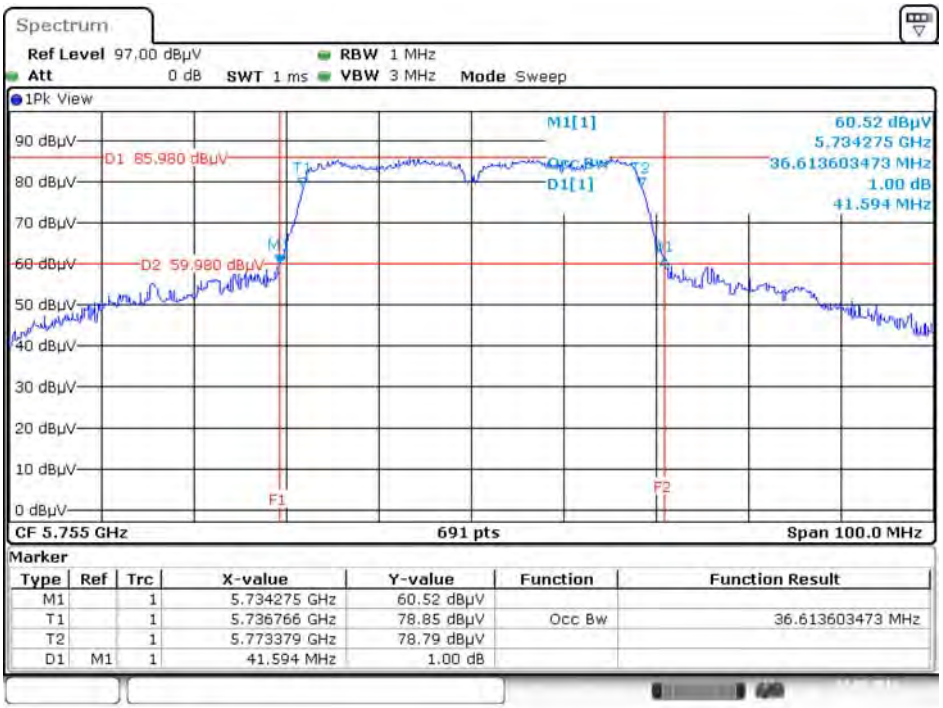
Date: 23.MAY.2016 18:25:23

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



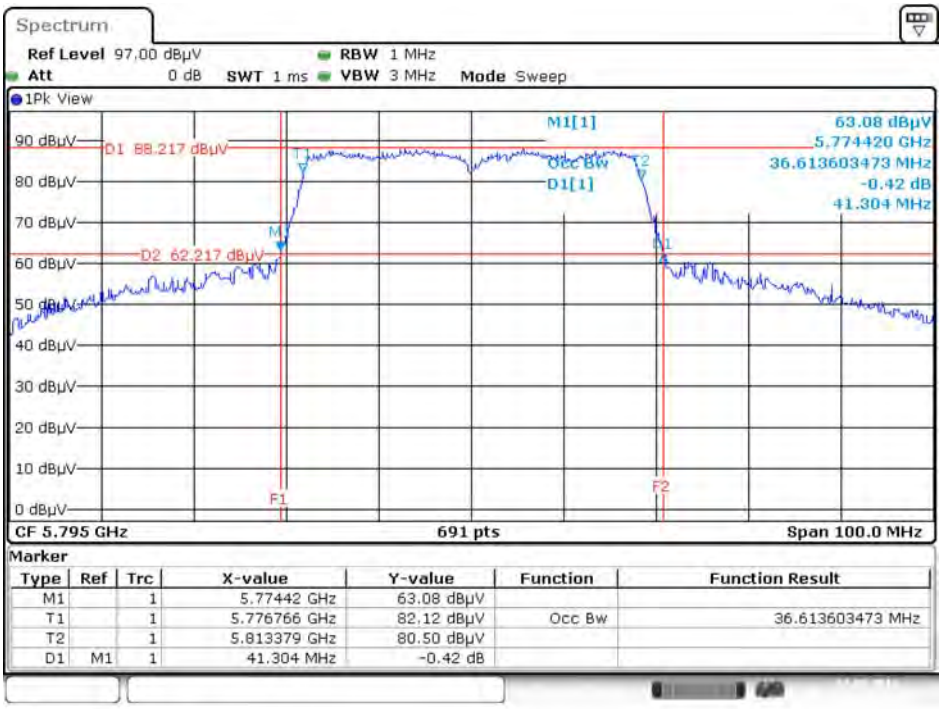
Date: 23.MAY.2016 18:26:15

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5755 MHz



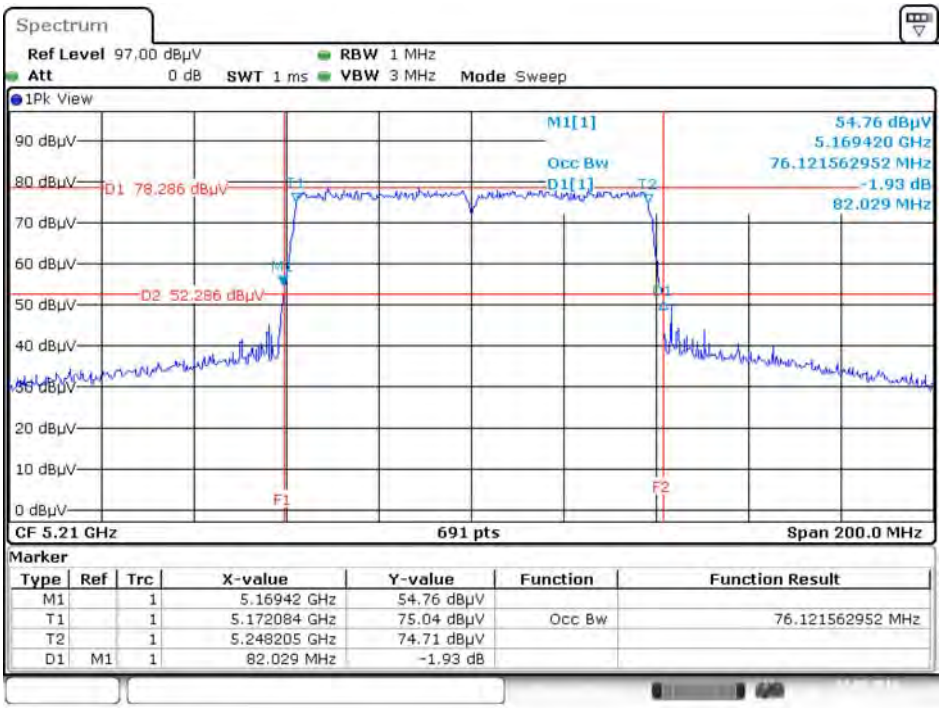
Date: 23.MAY.2016 18:26:53

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5795 MHz



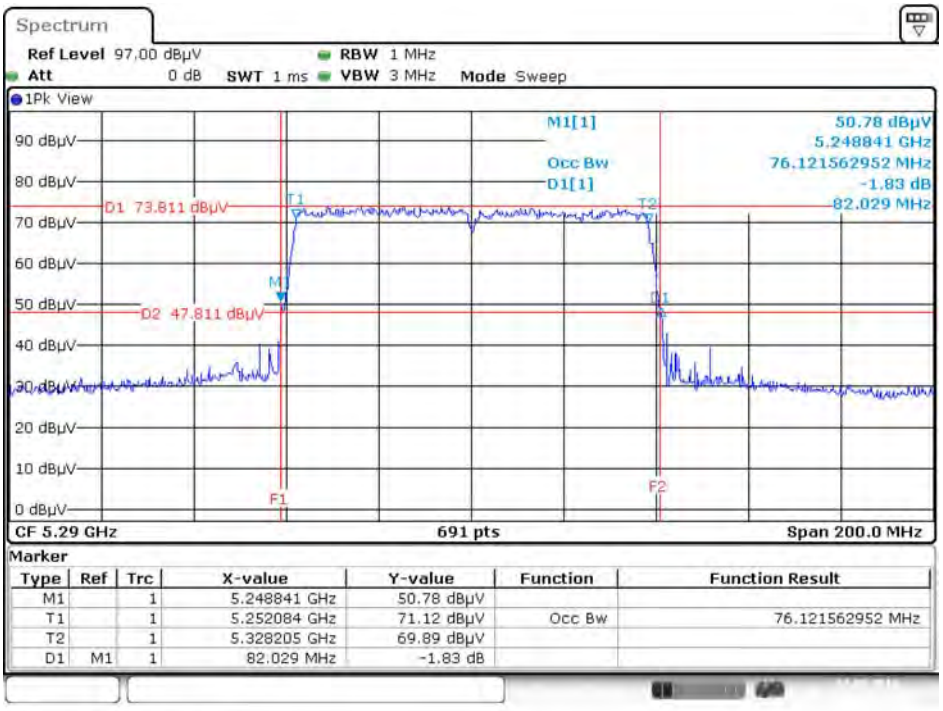
Date: 23.MAY.2016 18:27:32

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5210 MHz



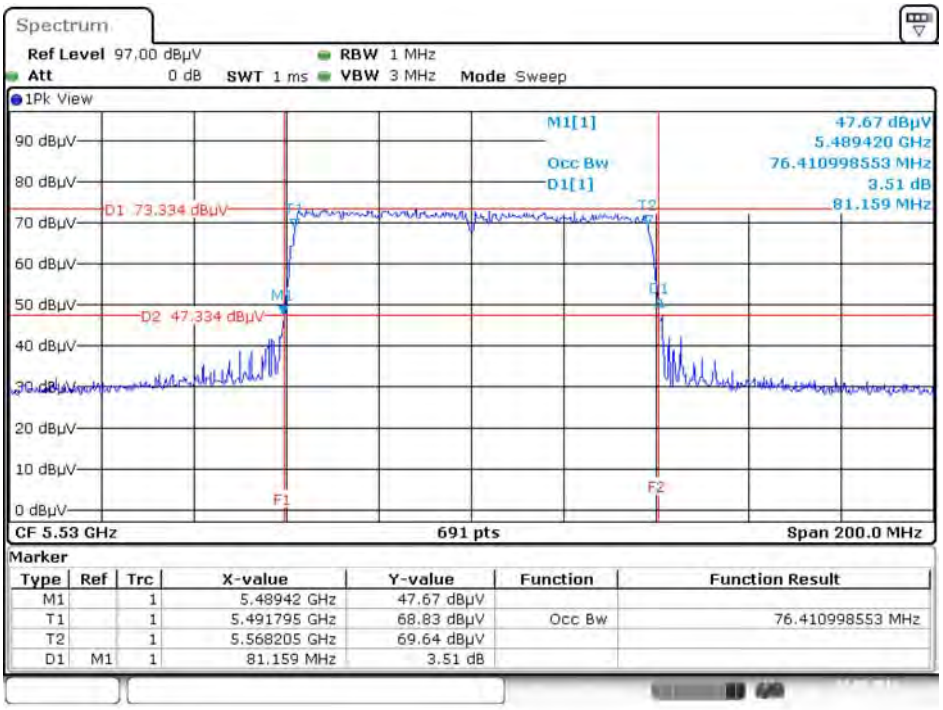
Date: 23.MAY.2016 18:28:59

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



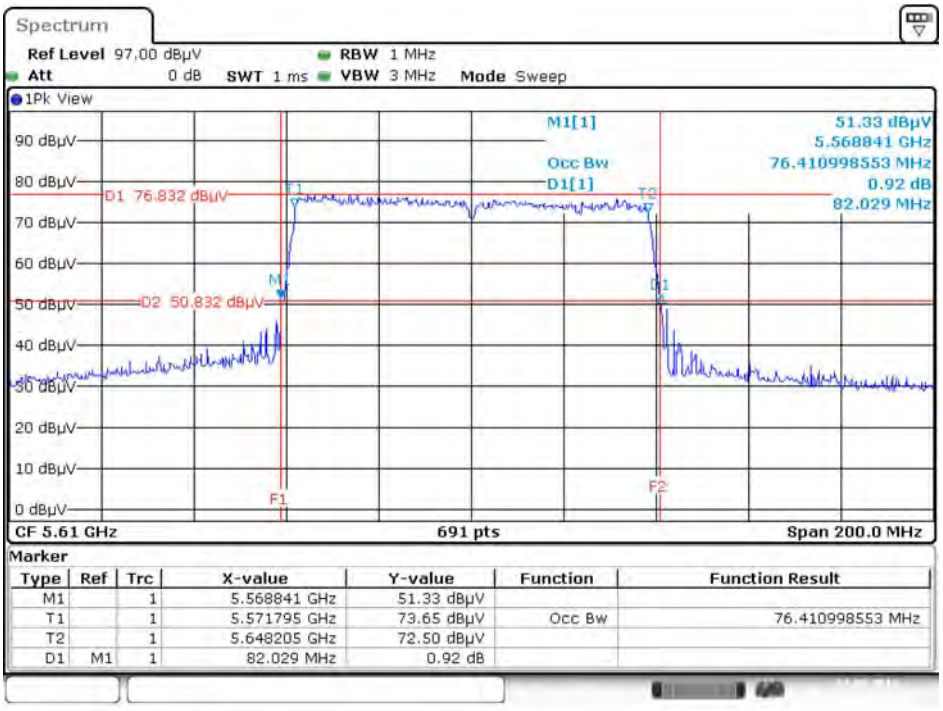
Date: 23.MAY.2016 18:29:45

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



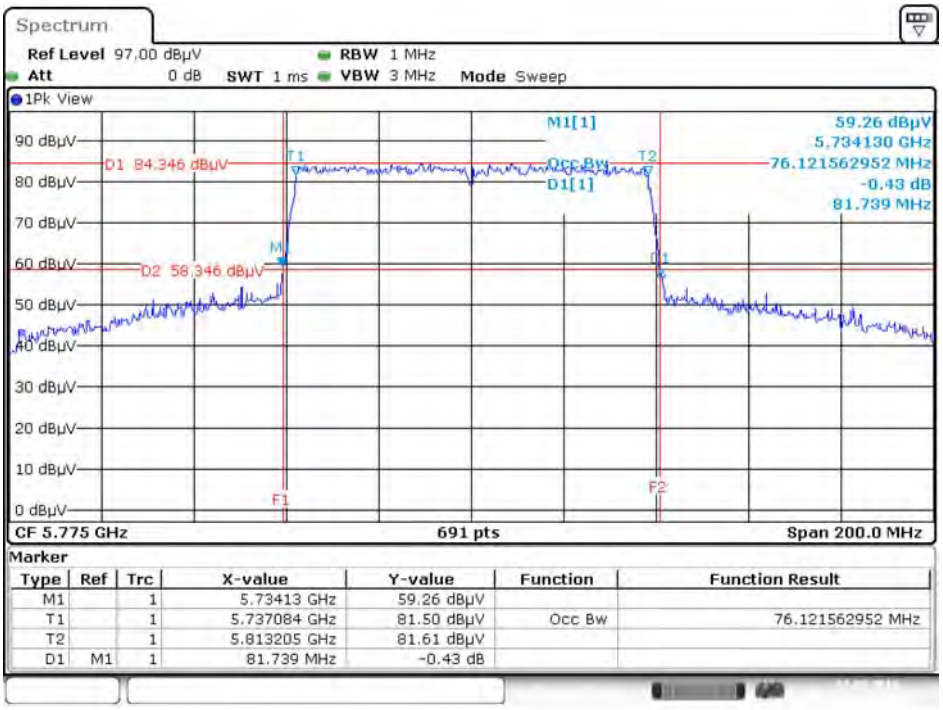
Date: 23.MAY.2016 18:30:30

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



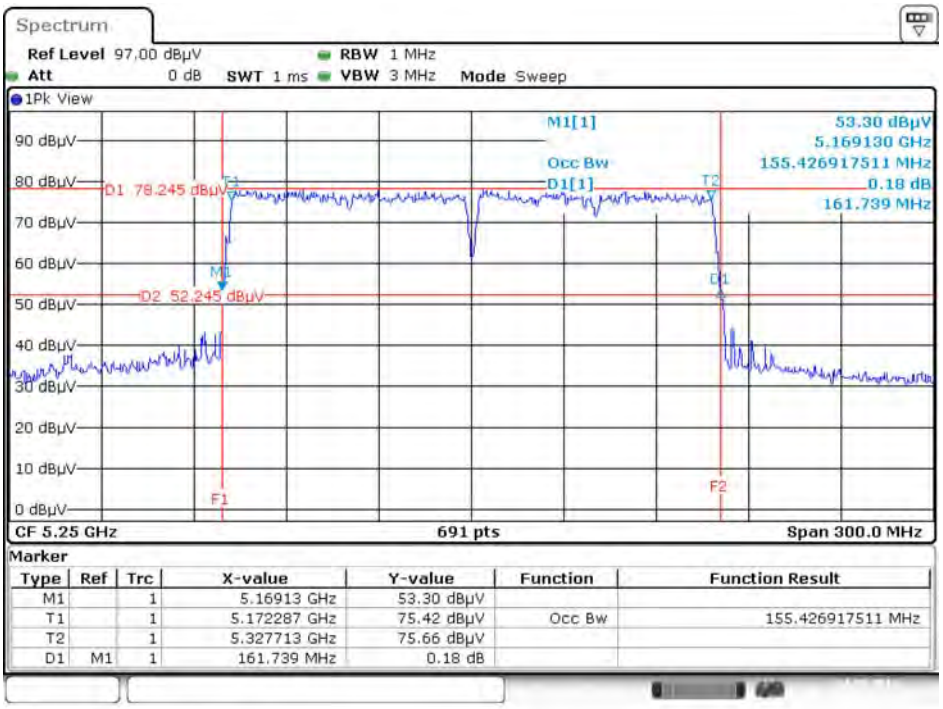
Date: 23.MAY.2016 18:32:11

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5775 MHz



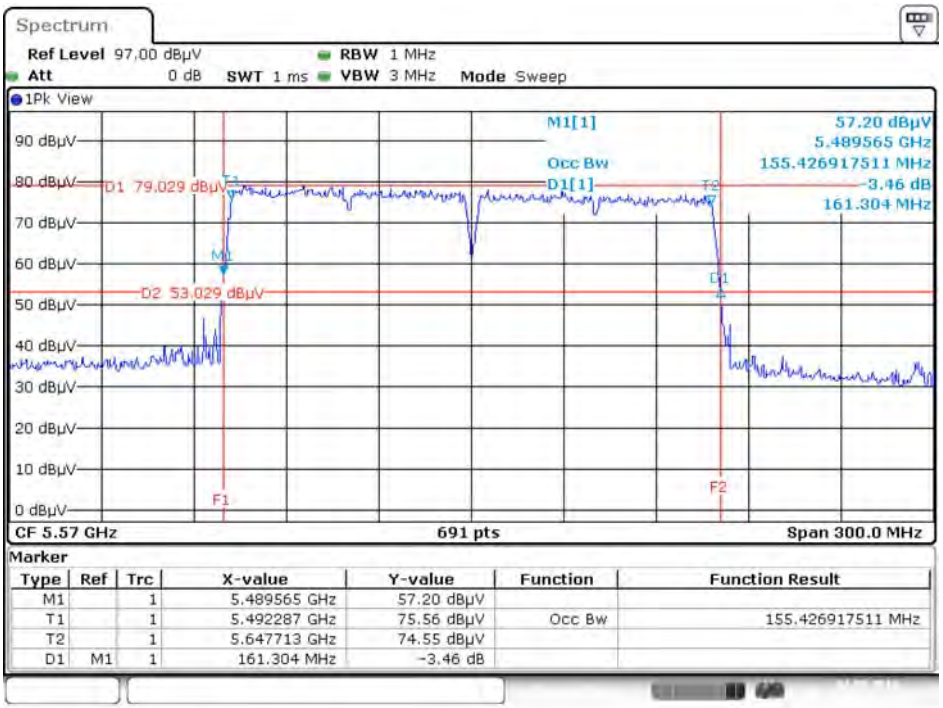
Date: 23.MAY.2016 18:32:58

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT160 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5250 MHz



Date: 24.MAY.2016 18:26:10

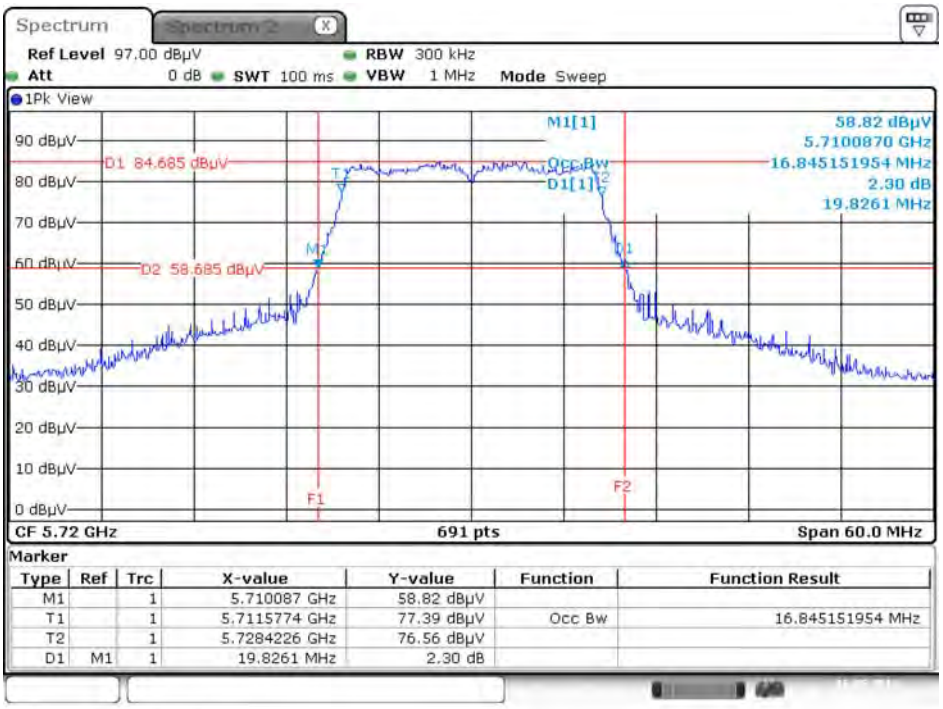
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT160 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5570 MHz



Date: 24.MAY.2016 18:24:45

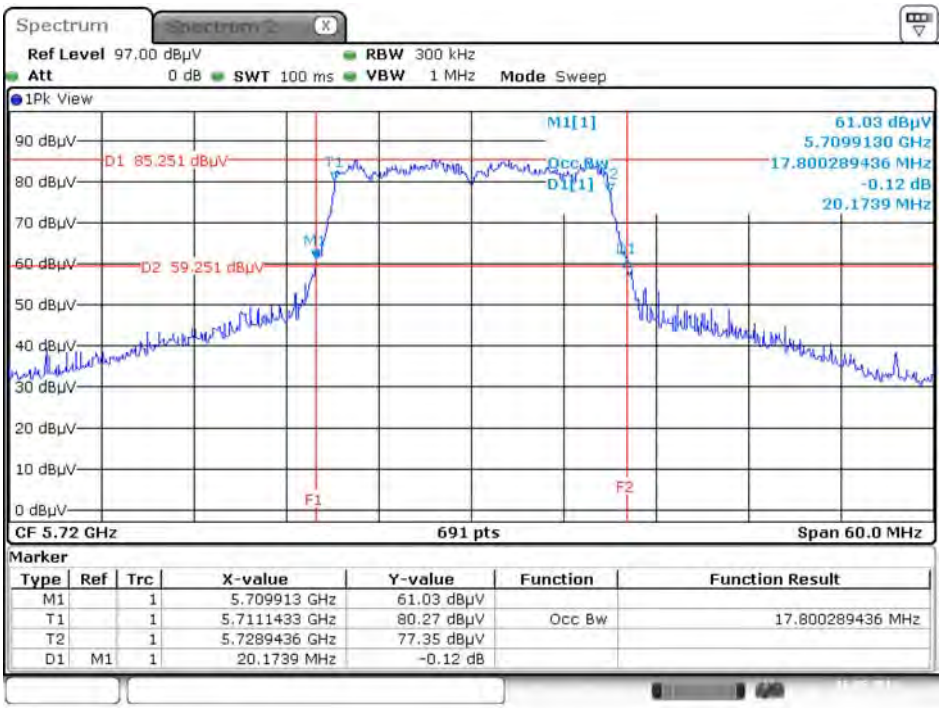
Straddle Channel

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



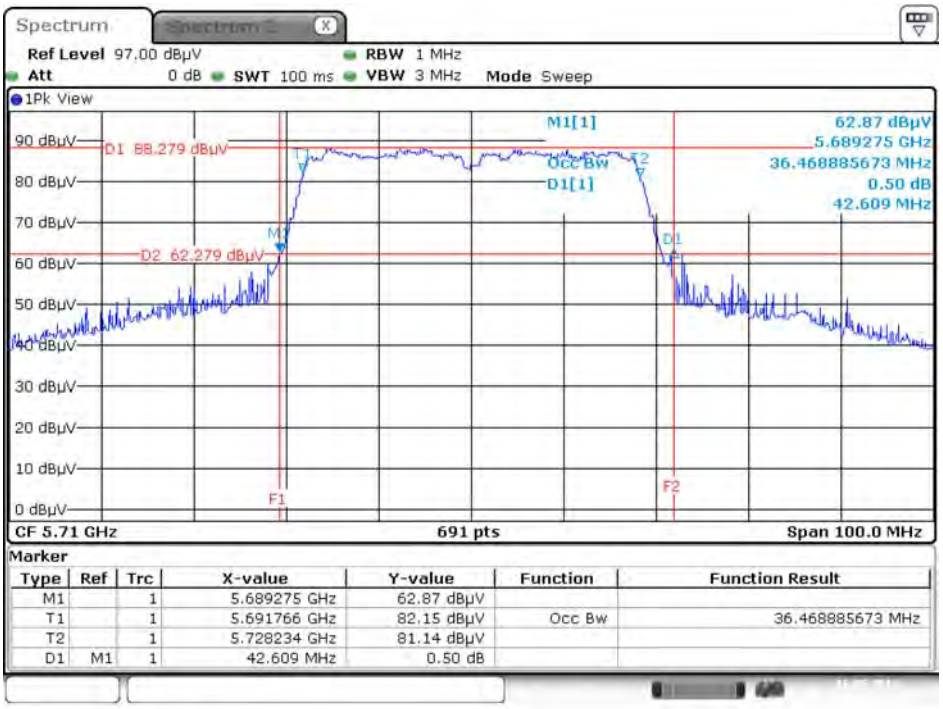
Date: 16.MAY.2016 22:14:22

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



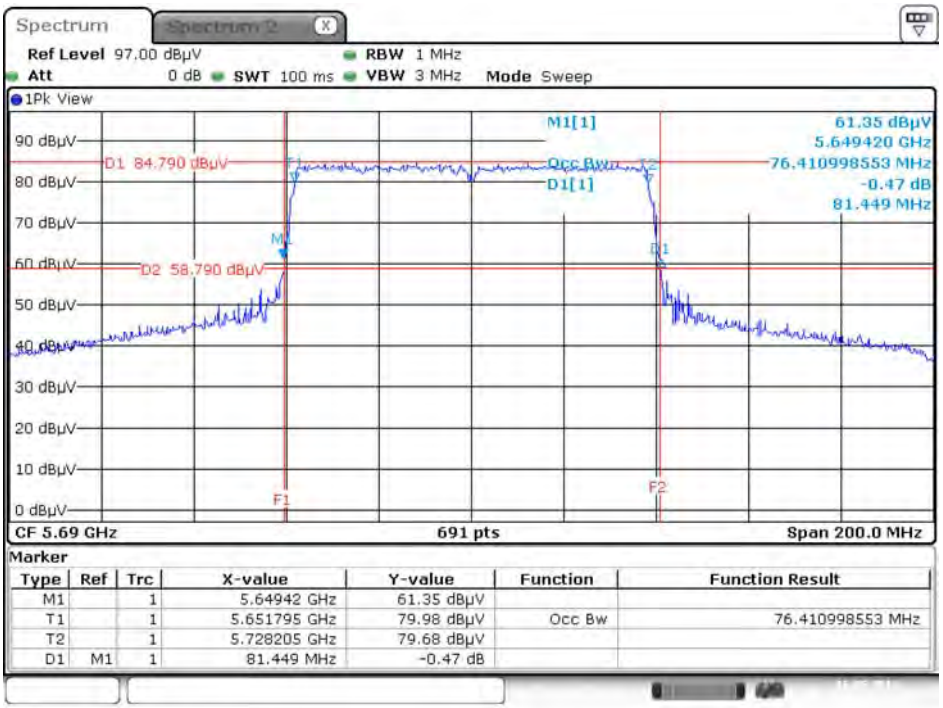
Date: 16.MAY.2016 22:19:19

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: 16.MAY.2016 22:24:13

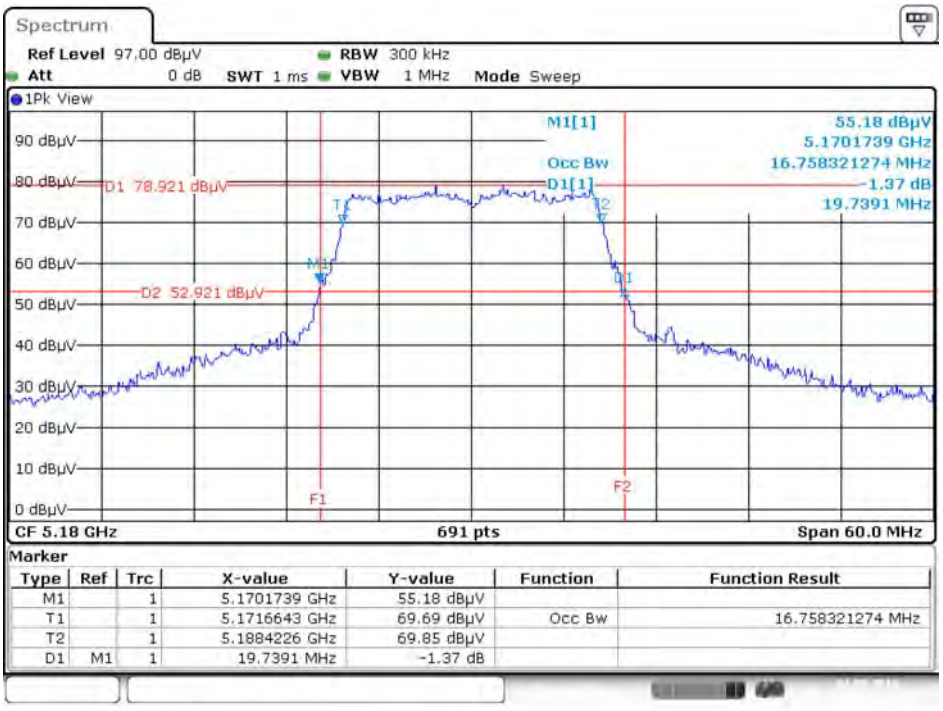
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5690 MHz



Date: 16.MAY.2016 22:28:06

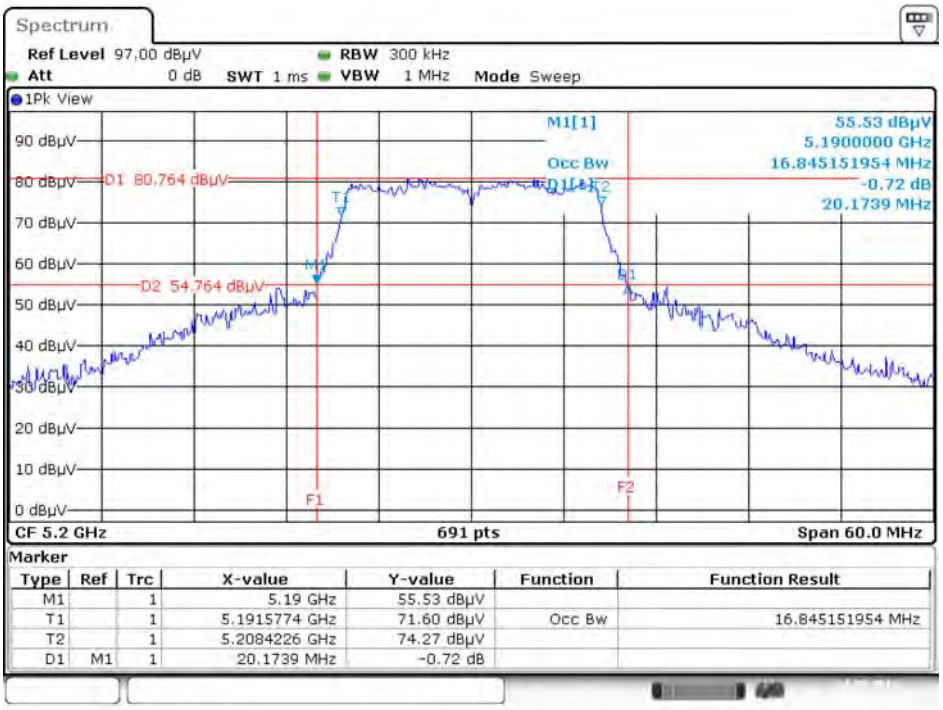
For beamforming function:

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5180 MHz



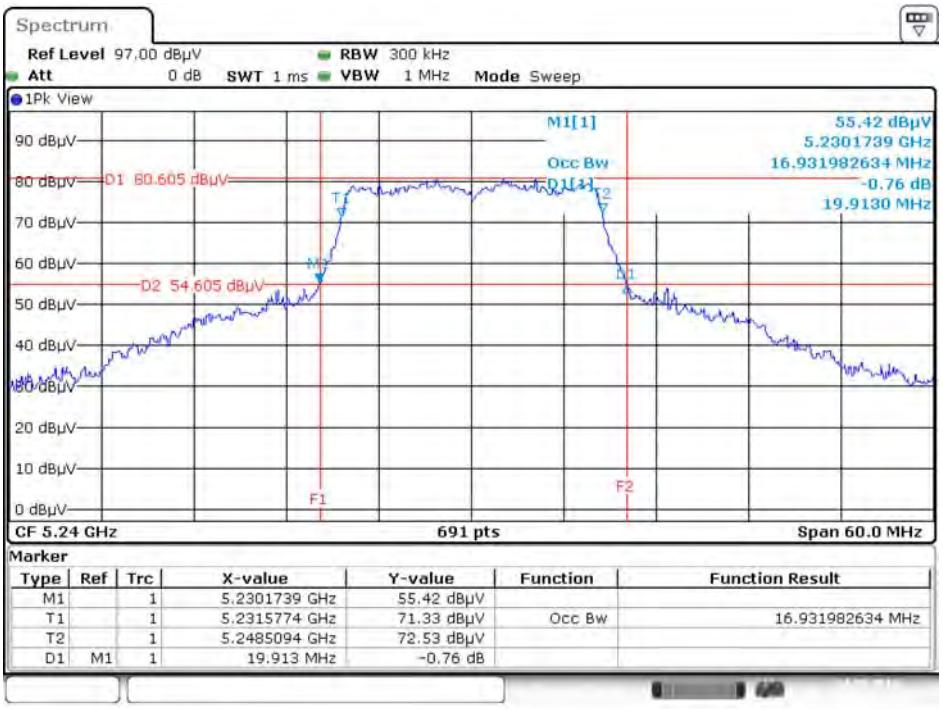
Date: 24.MAY.2016 17:01:40

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5200 MHz



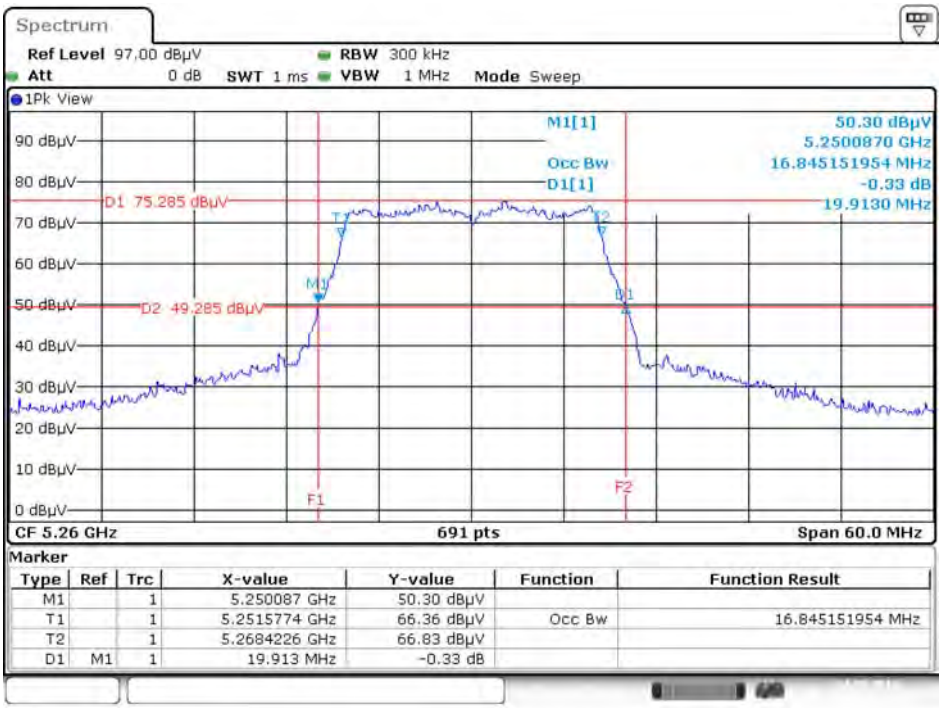
Date: 24.MAY.2016 17:01:04

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5240 MHz



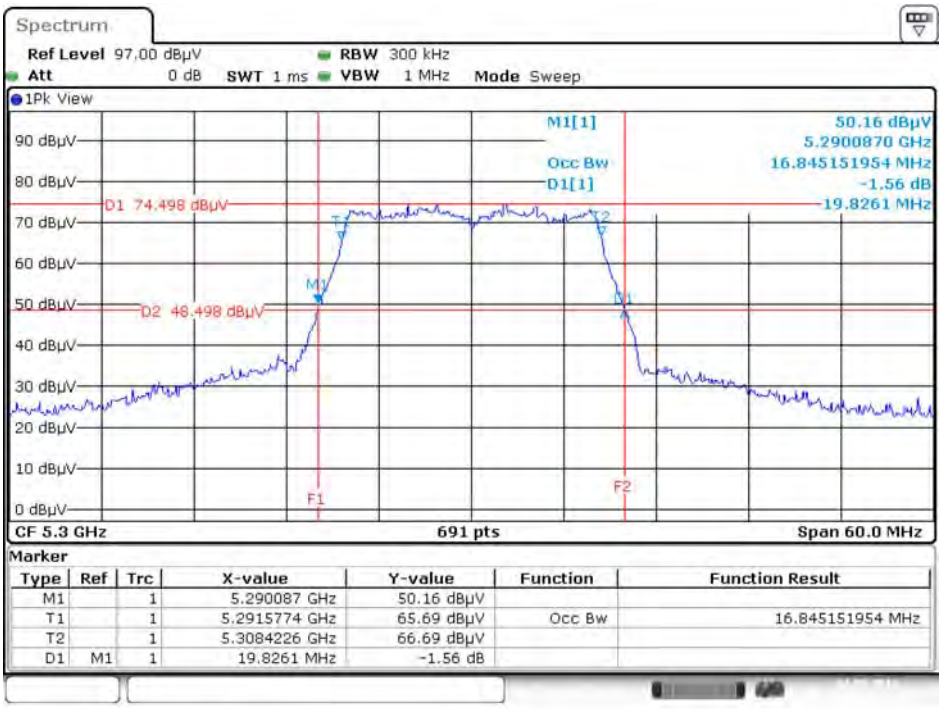
Date: 24.MAY.2016 17:00:20

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



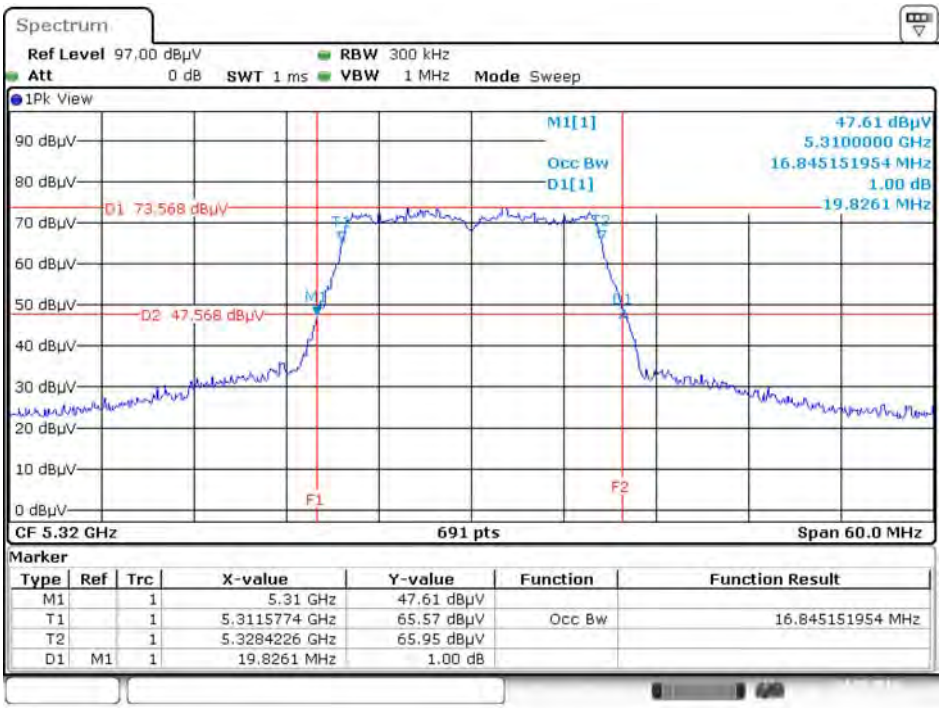
Date: 24.MAY.2016 16:59:39

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



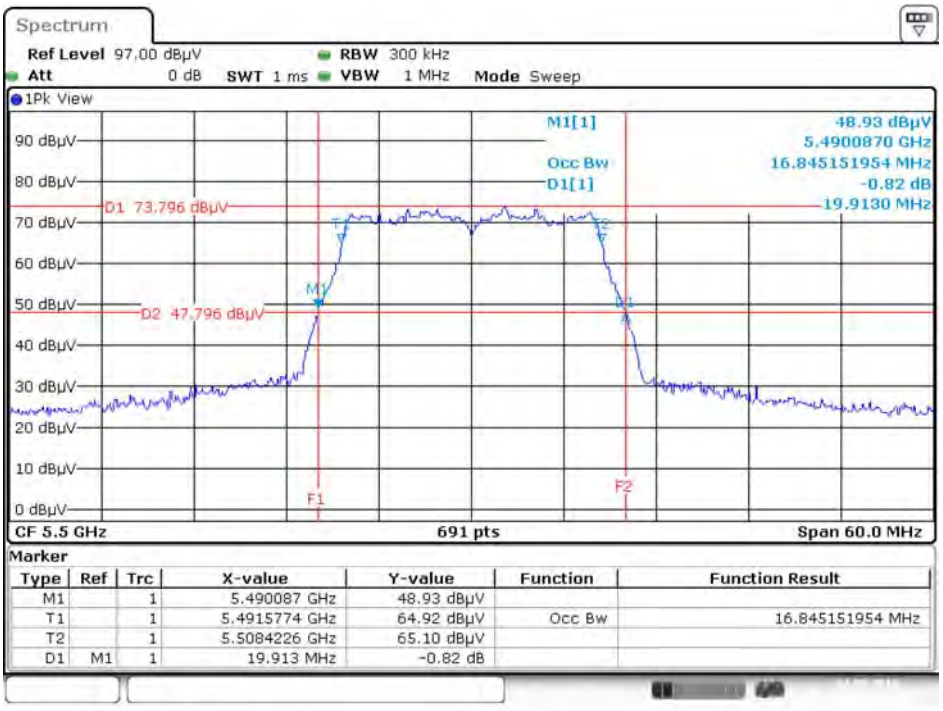
Date: 24.MAY.2016 16:59:01

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



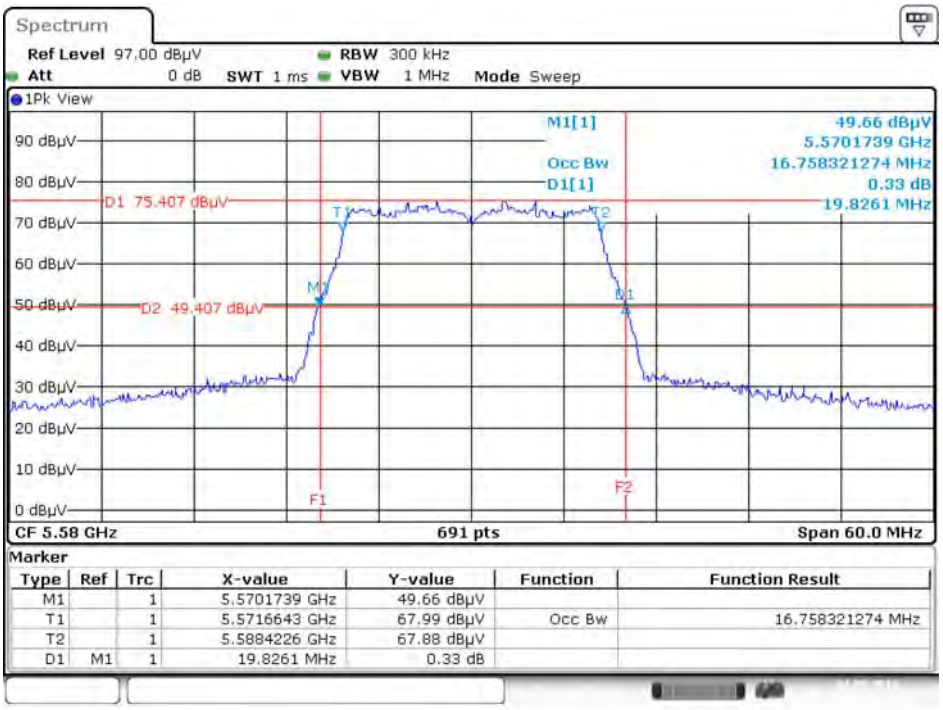
Date: 24.MAY.2016 16:58:16

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



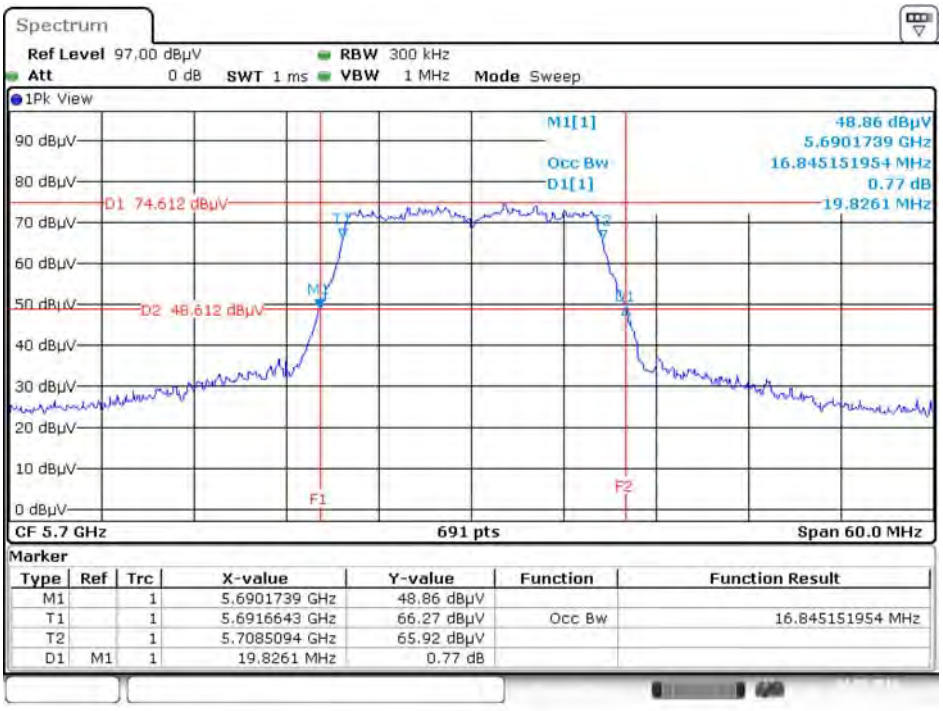
Date: 24.MAY.2016 16:57:38

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



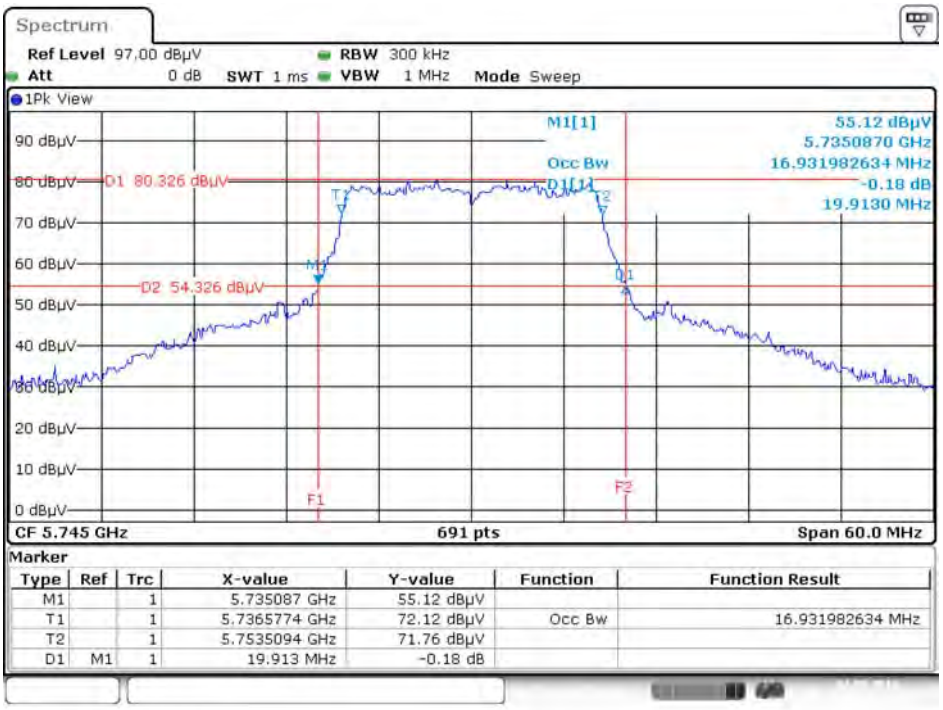
Date: 24.MAY.2016 16:56:44

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



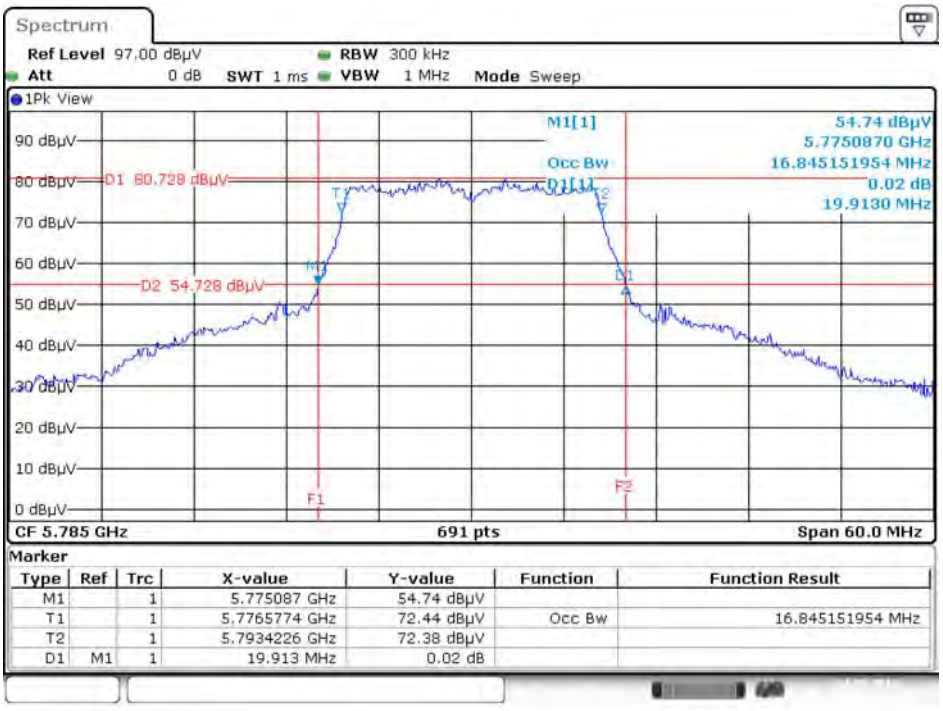
Date: 24.MAY.2016 16:55:56

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5745 MHz



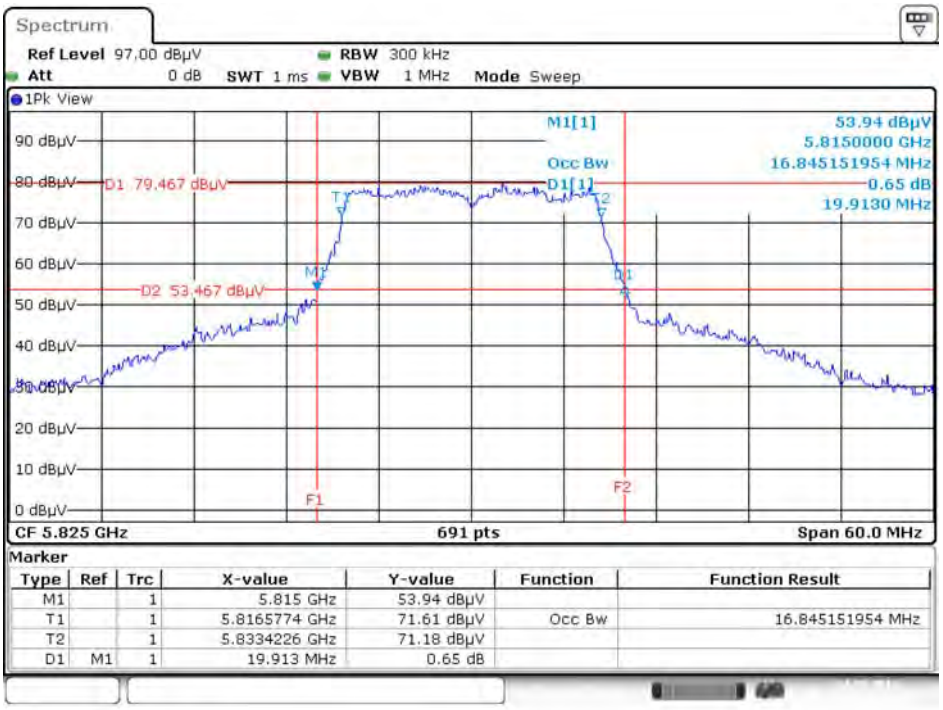
Date: 24.MAY.2016 16:55:10

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5785 MHz



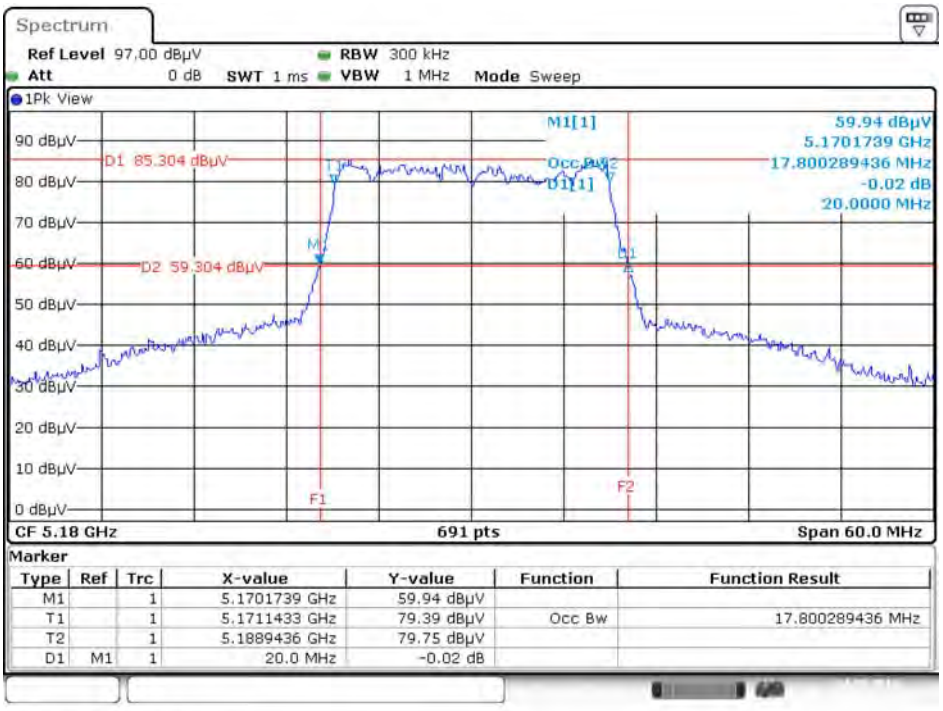
Date: 24.MAY.2016 16:53:39

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5825 MHz



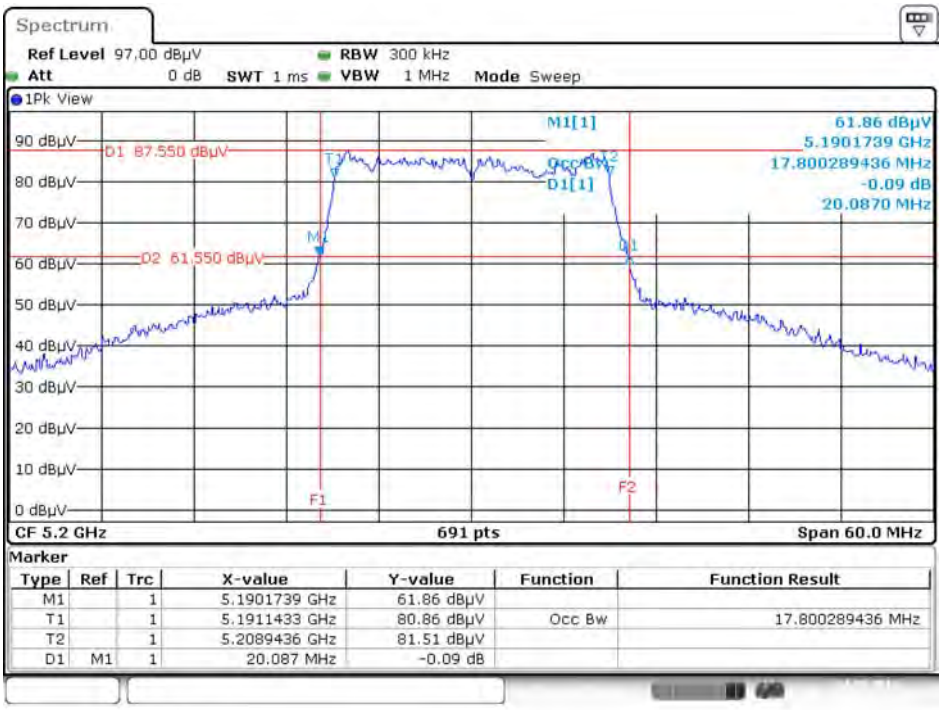
Date: 24.MAY.2016 16:54:18

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5180 MHz



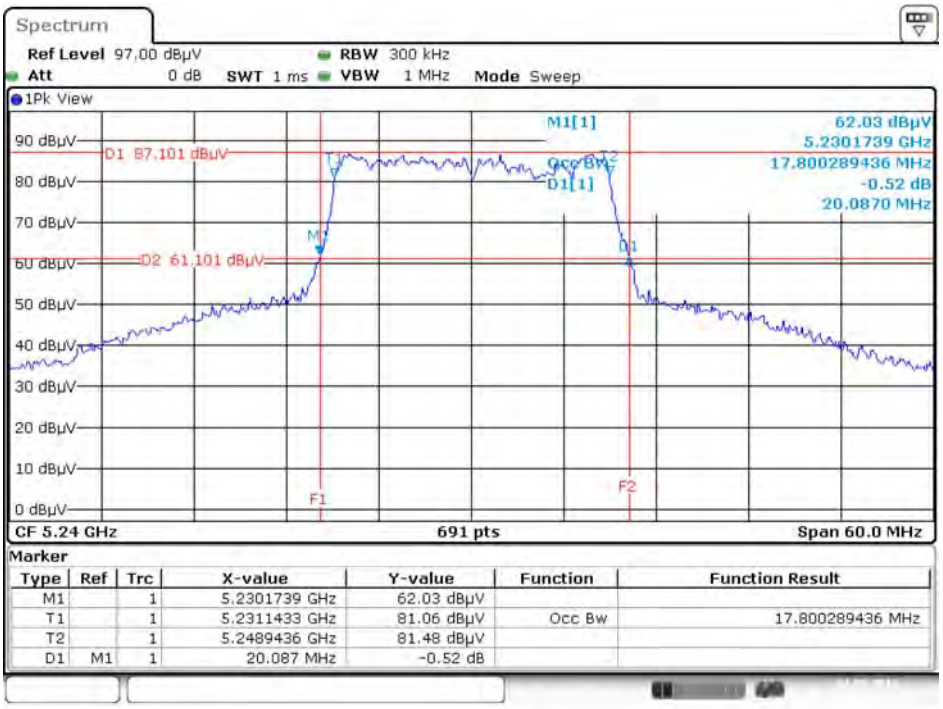
Date: 24.MAY.2016 16:40:49

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5200 MHz



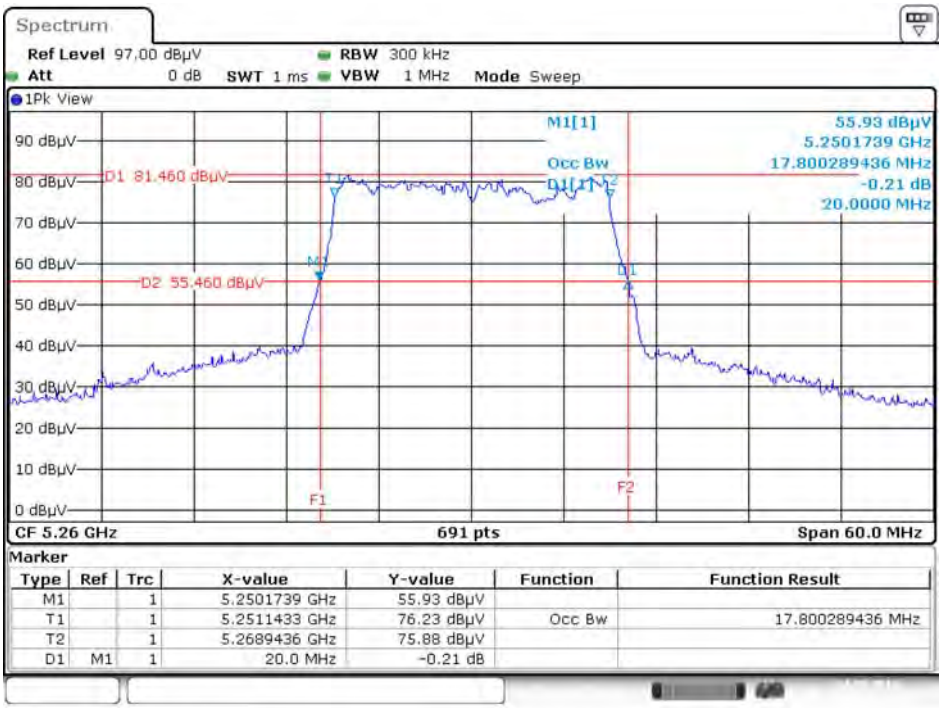
Date: 24.MAY.2016 16:40:07

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5240 MHz



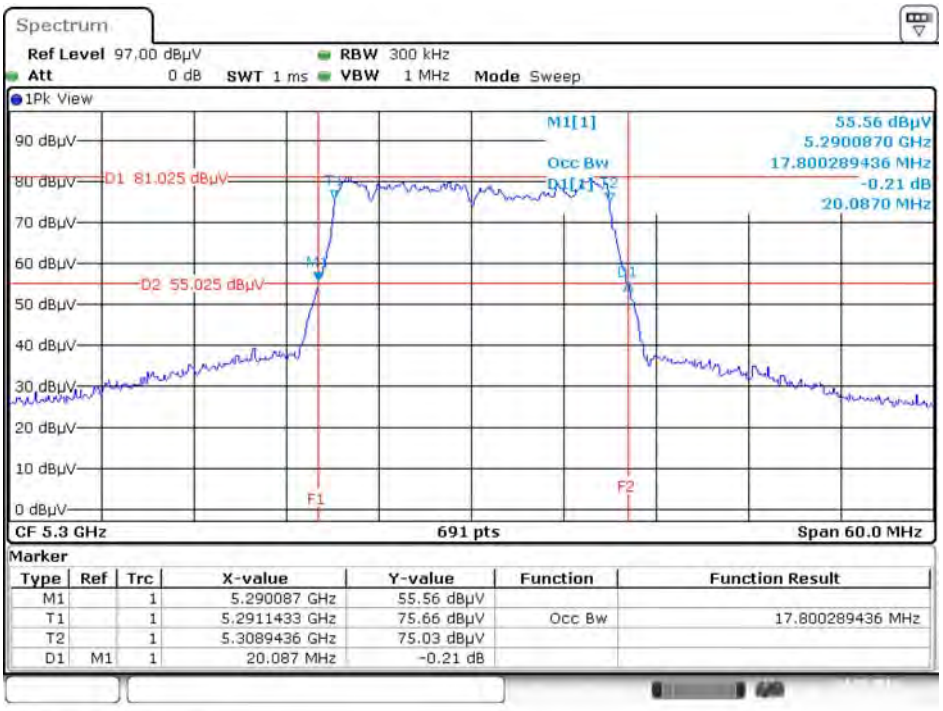
Date: 24.MAY.2016 16:39:32

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



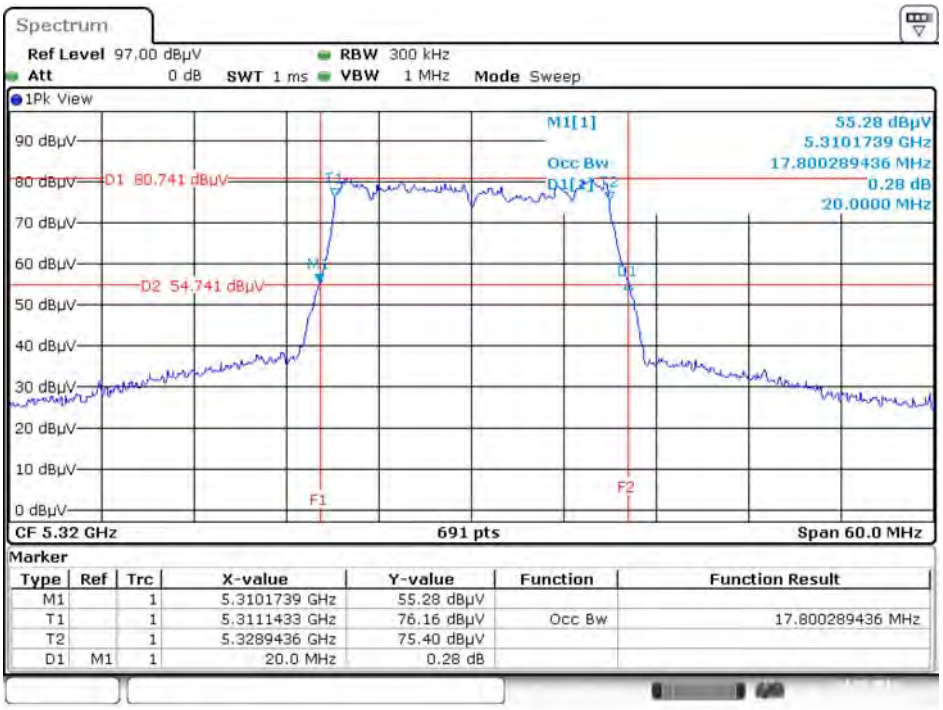
Date: 24.MAY.2016 16:38:50

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



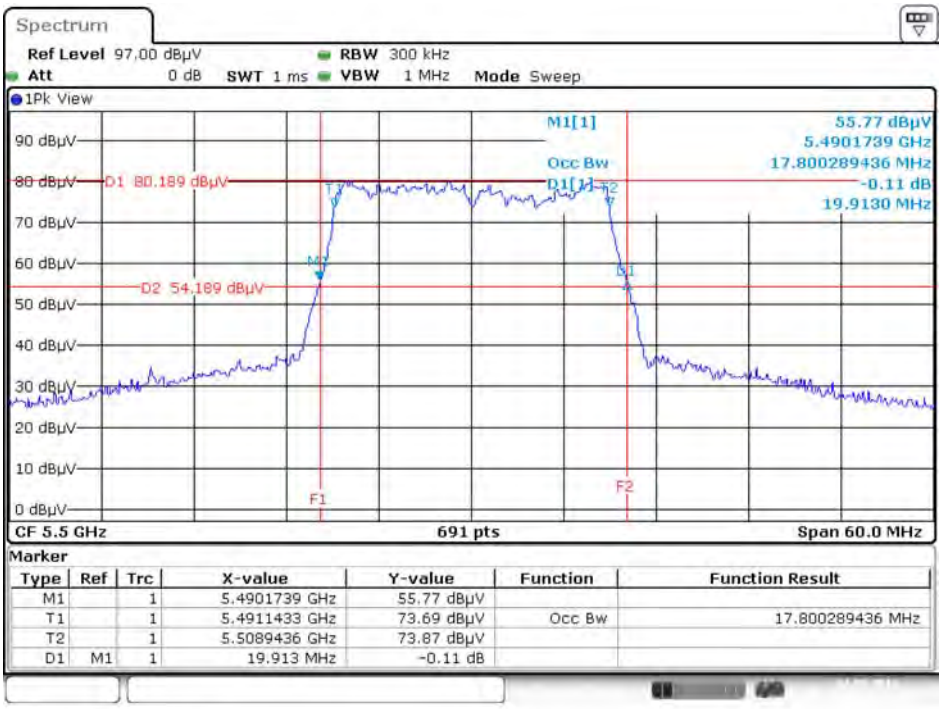
Date: 24.MAY.2016 16:38:11

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



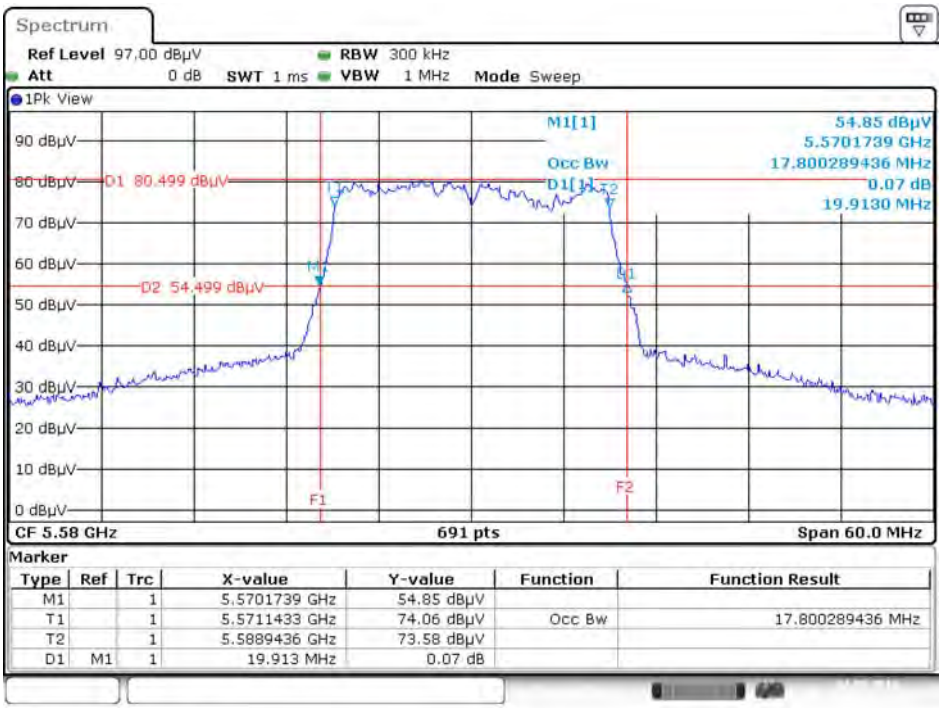
Date: 24.MAY.2016 16:37:32

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



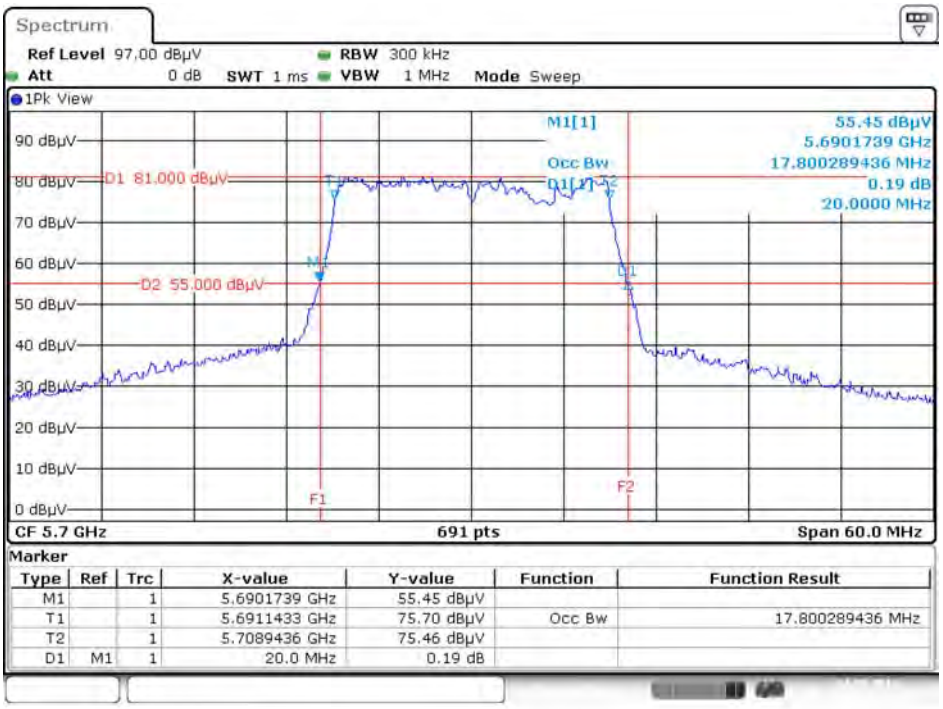
Date: 24.MAY.2016 16:36:51

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



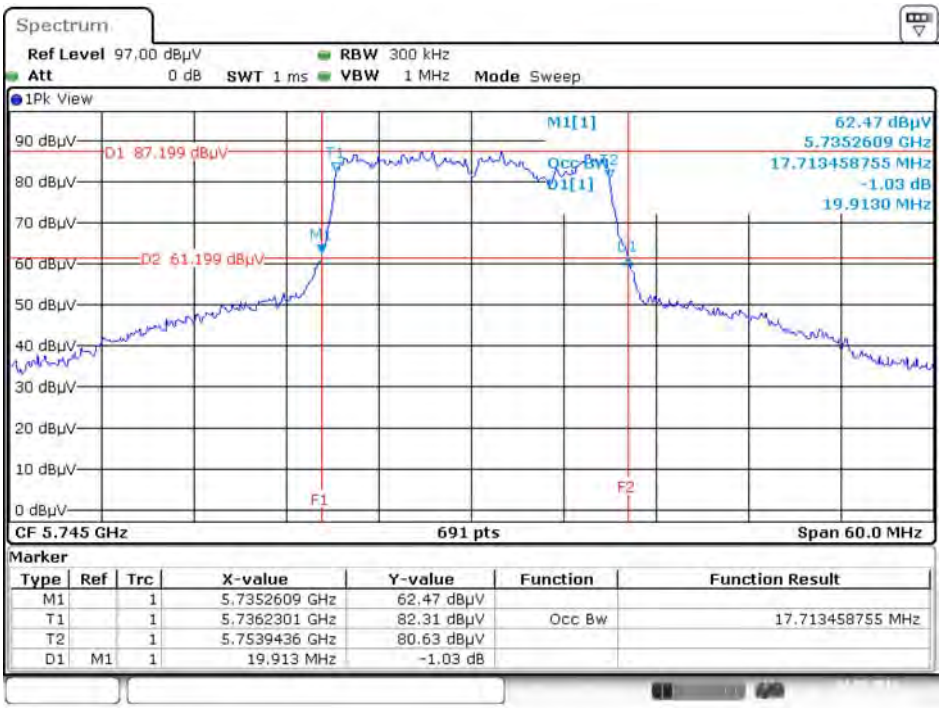
Date: 24.MAY.2016 16:36:10

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



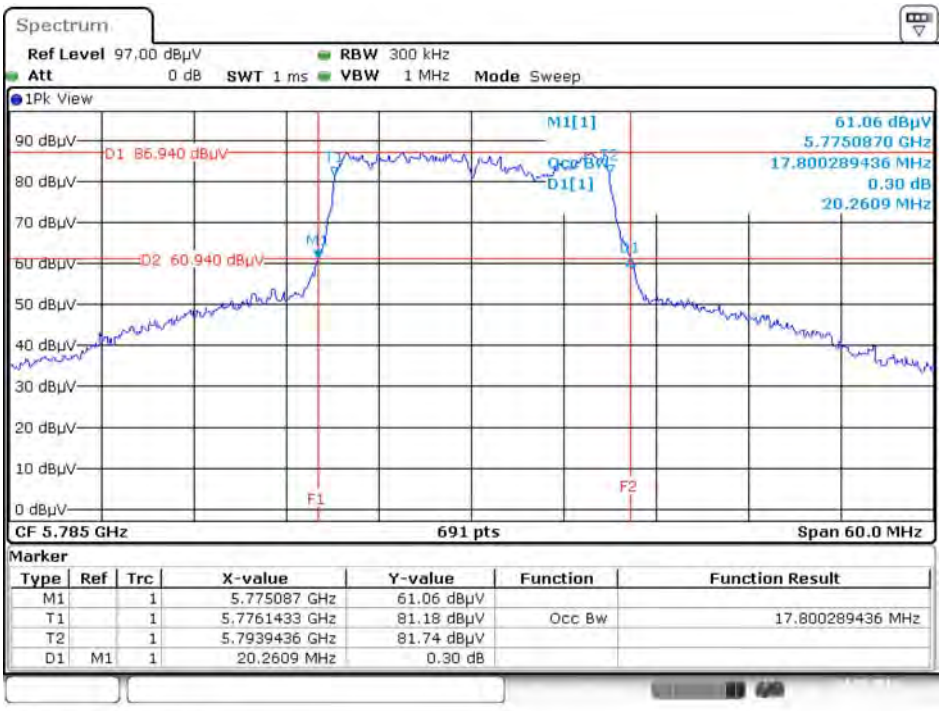
Date: 24.MAY.2016 16:35:30

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5745 MHz



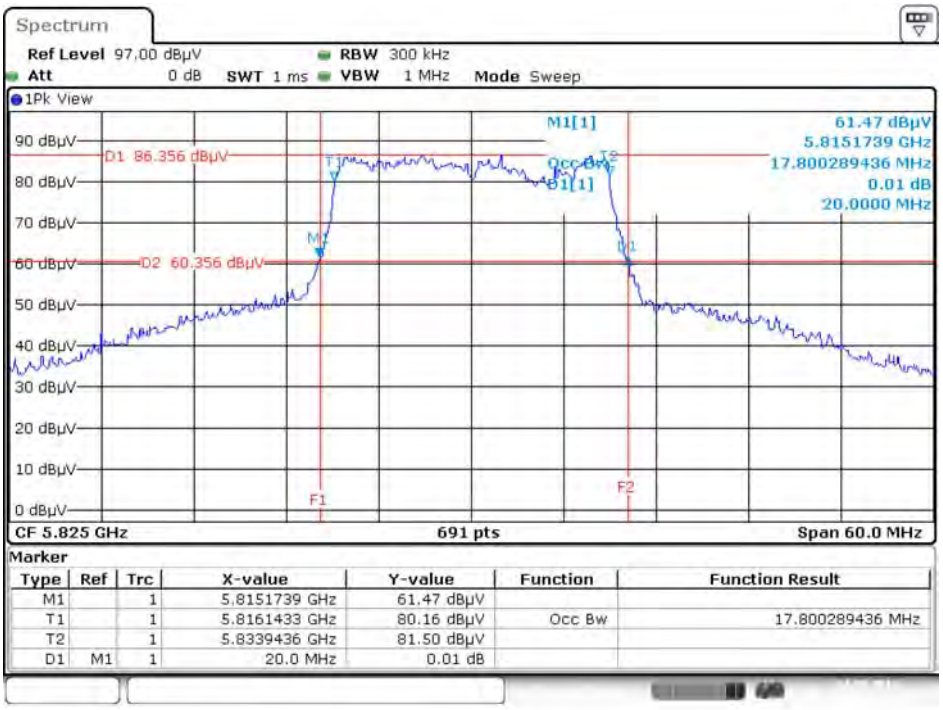
Date: 24.MAY.2016 16:34:48

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5785 MHz



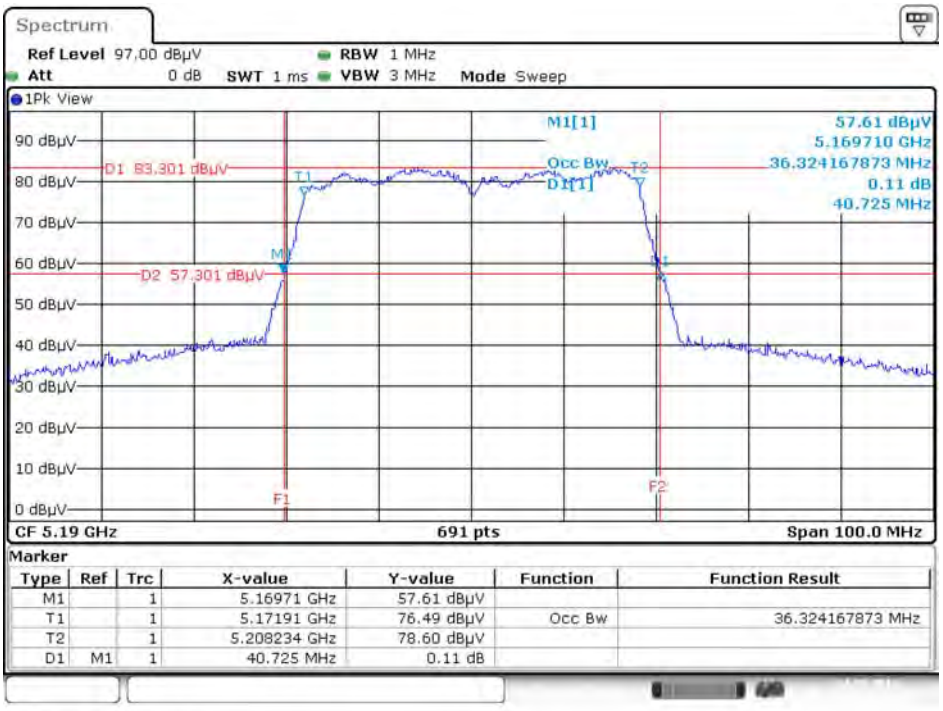
Date: 24.MAY.2016 16:33:17

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5825 MHz



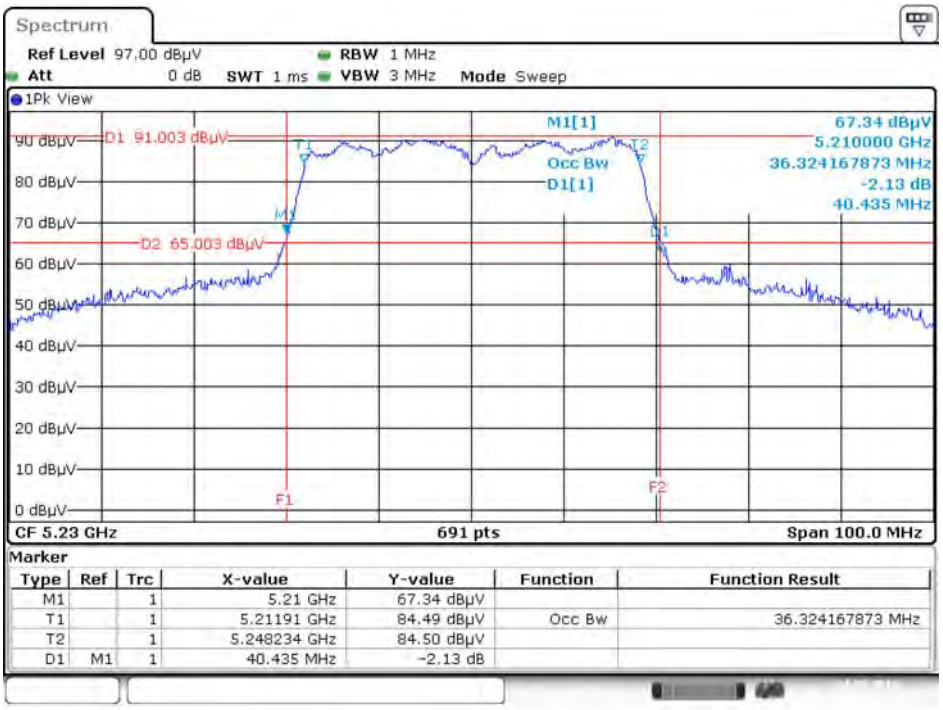
Date: 24.MAY.2016 16:34:03

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5190 MHz



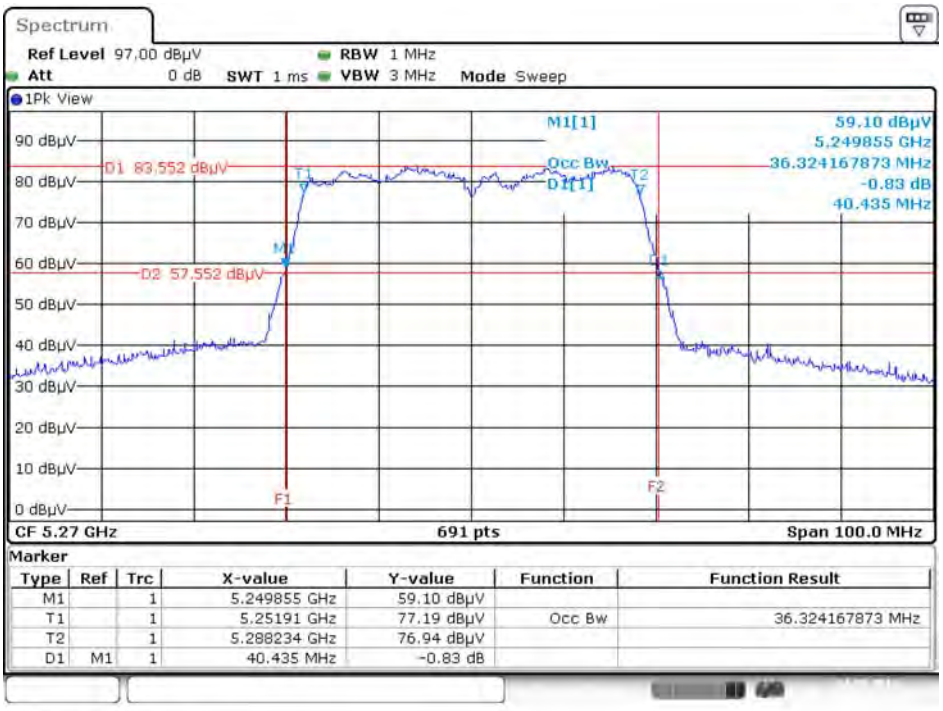
Date: 24.MAY.2016 16:25:42

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5230 MHz



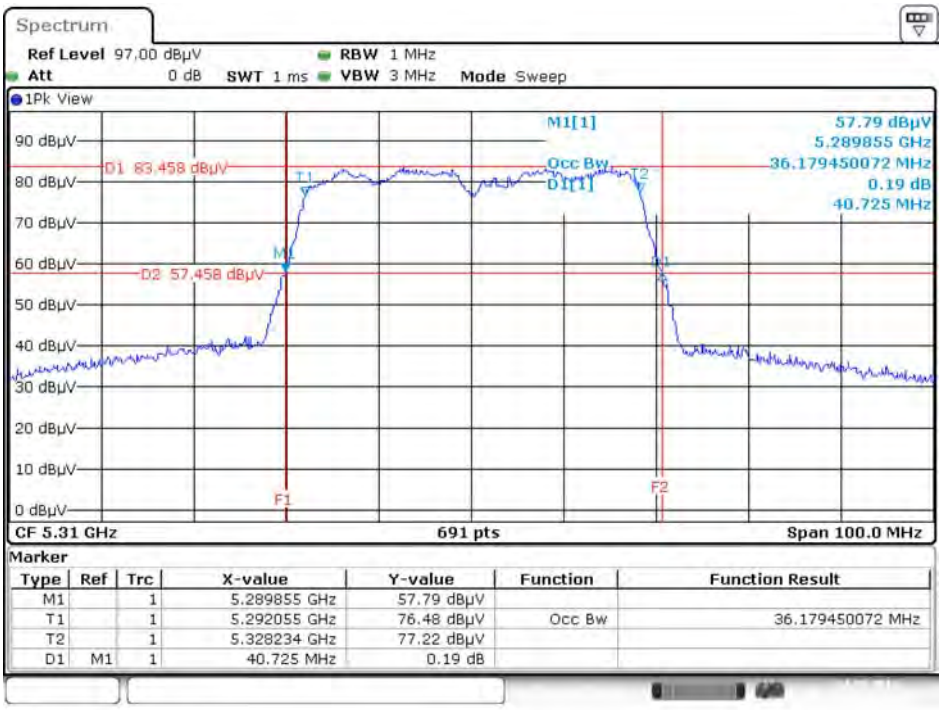
Date: 24.MAY.2016 16:26:43

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



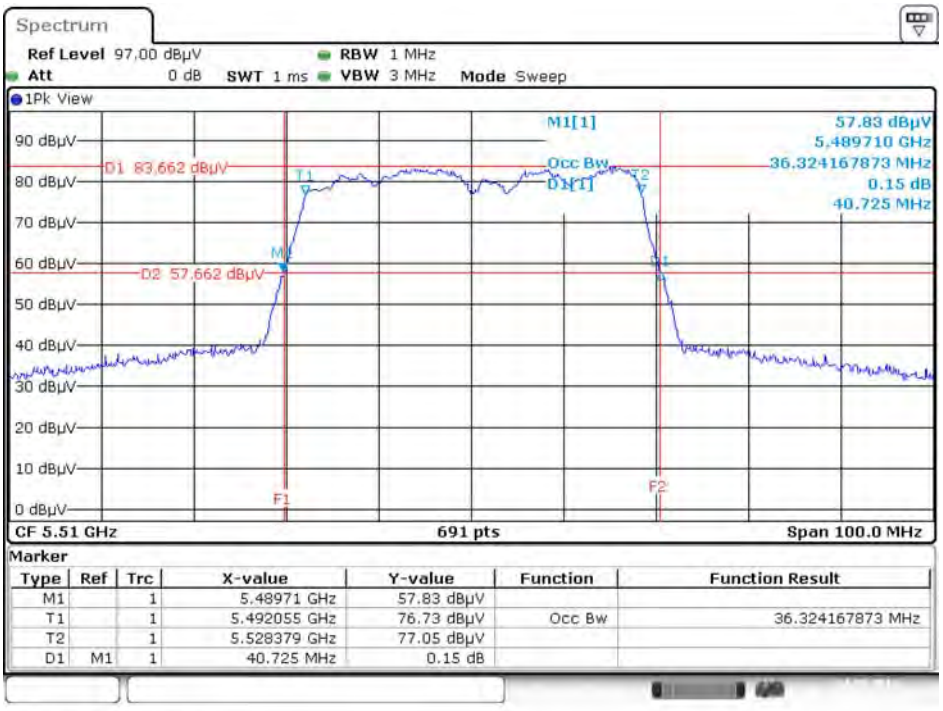
Date: 24.MAY.2016 16:27:44

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



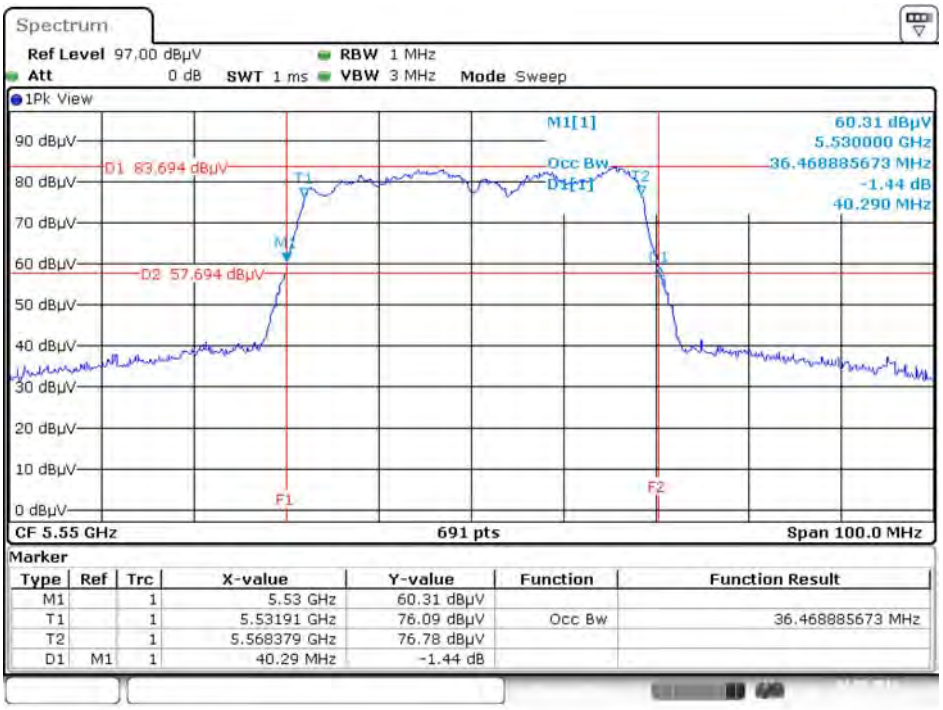
Date: 24.MAY.2016 16:28:20

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



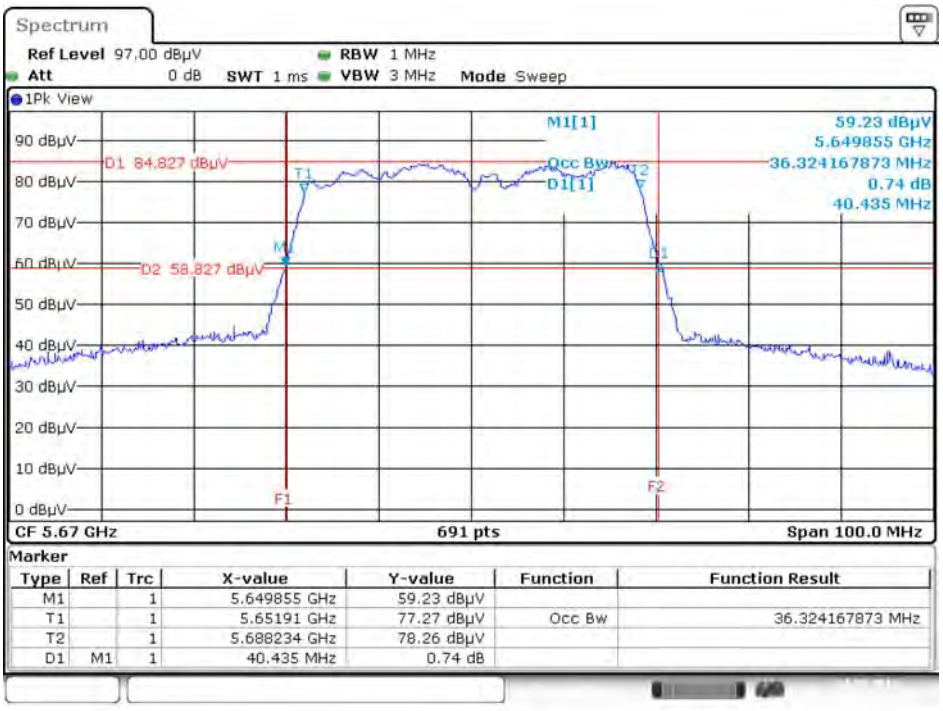
Date: 24.MAY.2016 16:29:17

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



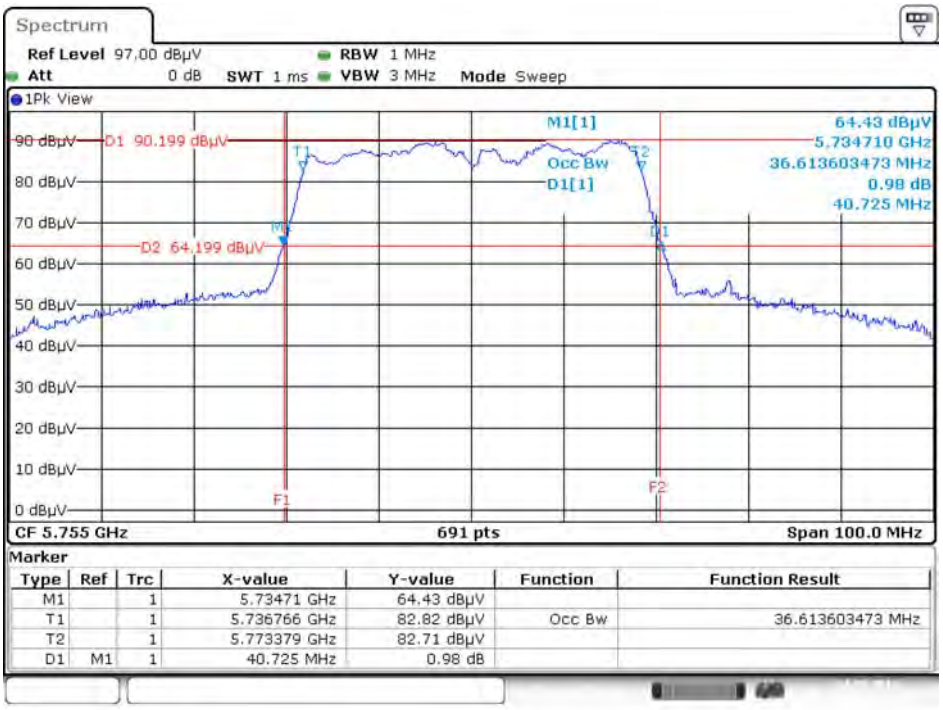
Date: 24.MAY.2016 16:29:54

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



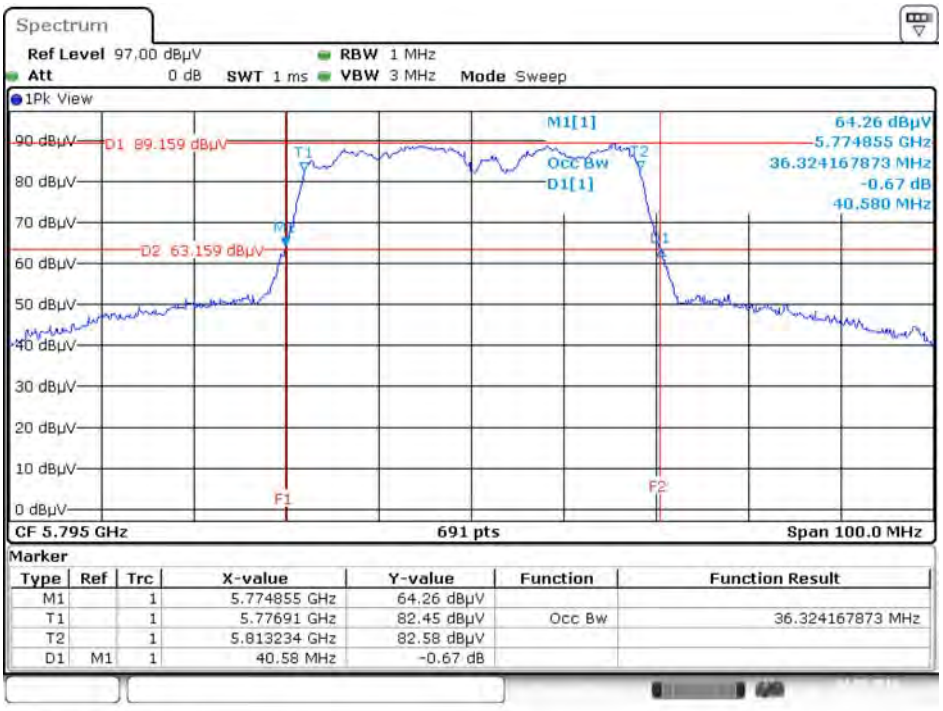
Date: 24.MAY.2016 16:30:35

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5755 MHz



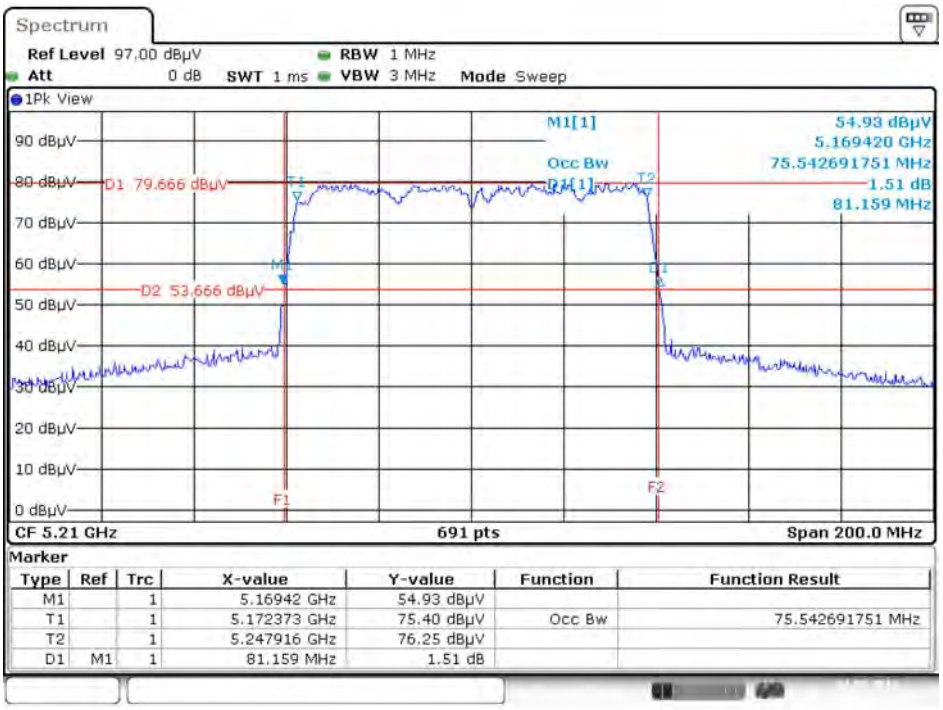
Date: 24.MAY.2016 16:31:25

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5795 MHz



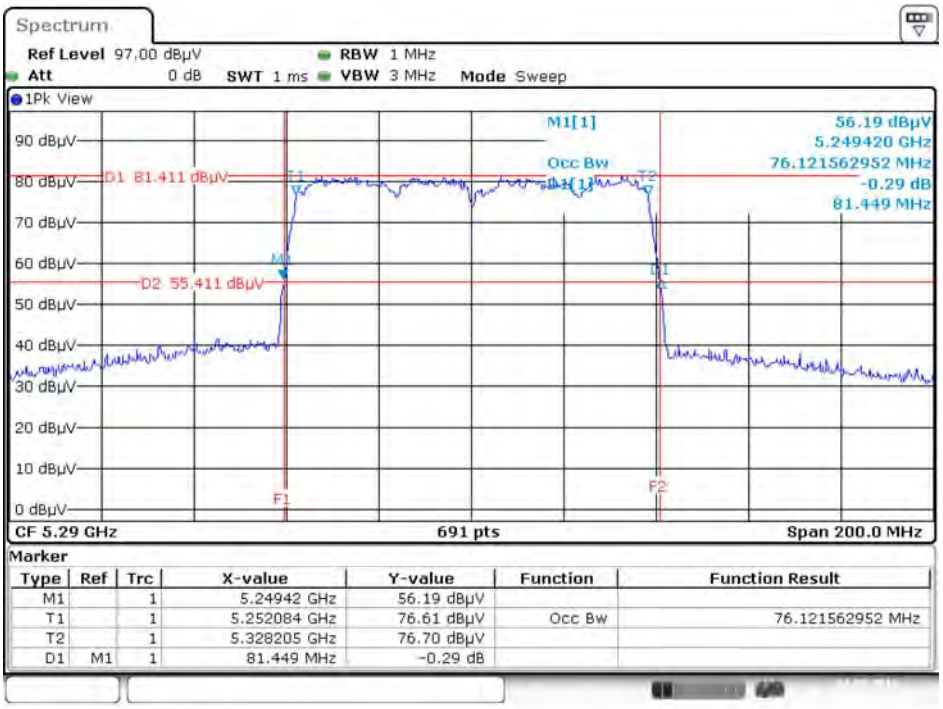
Date: 24.MAY.2016 16:32:13

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5210 MHz



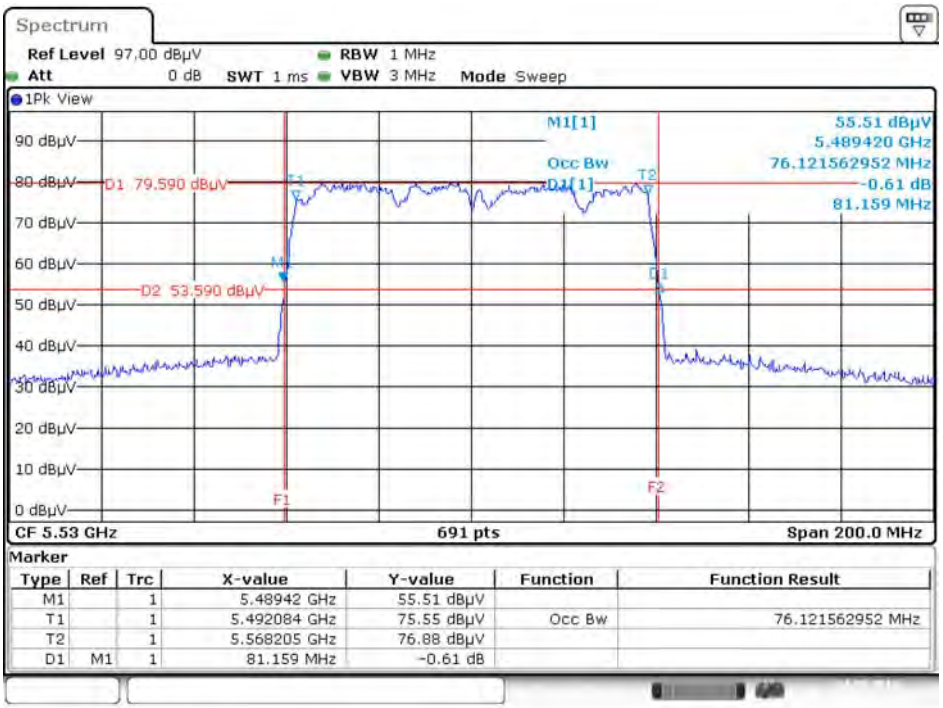
Date: 24.MAY.2016 16:24:37

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



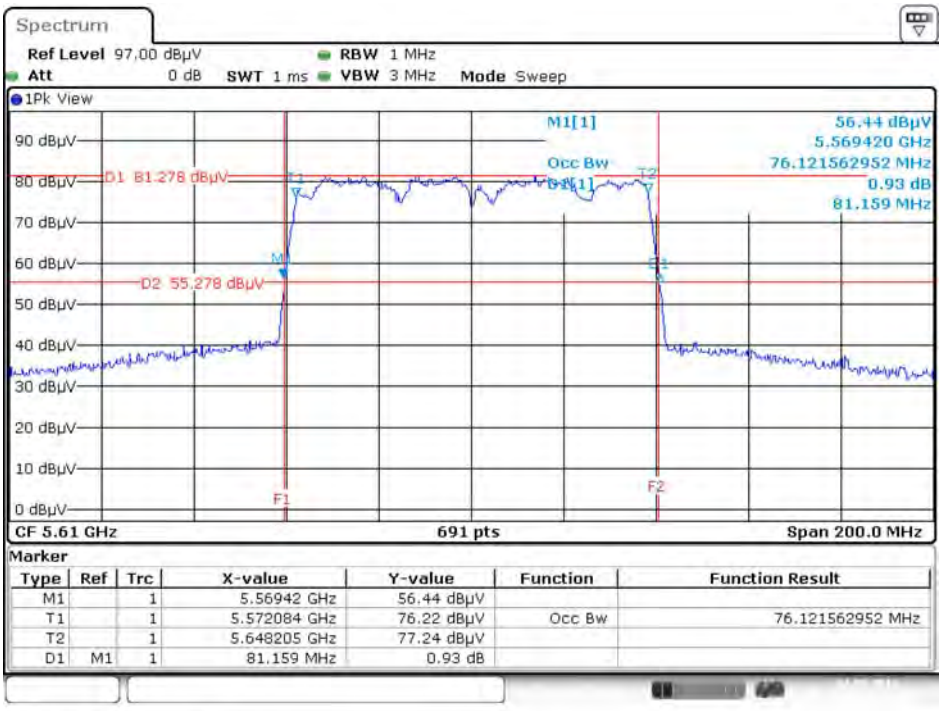
Date: 24.MAY.2016 16:23:41

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



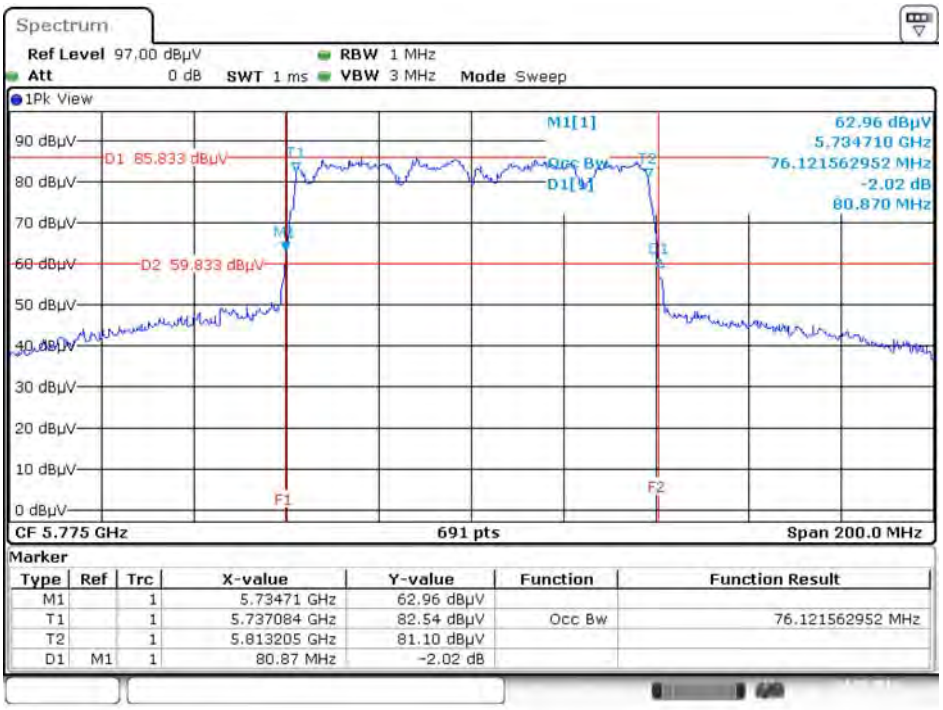
Date: 24.MAY.2016 16:22:50

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



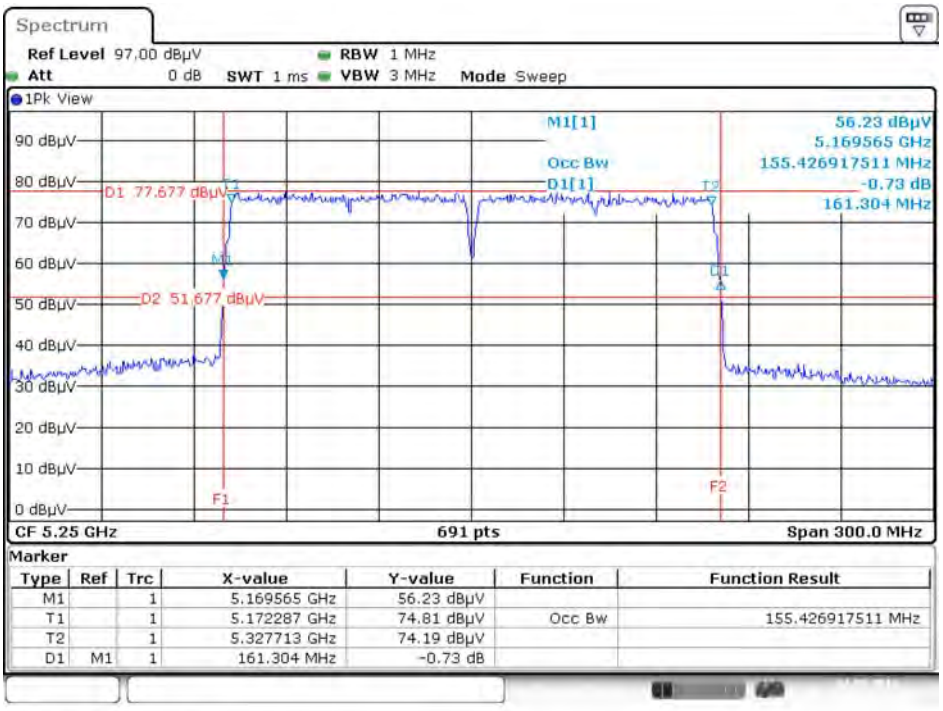
Date: 24.MAY.2016 16:22:01

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5775 MHz



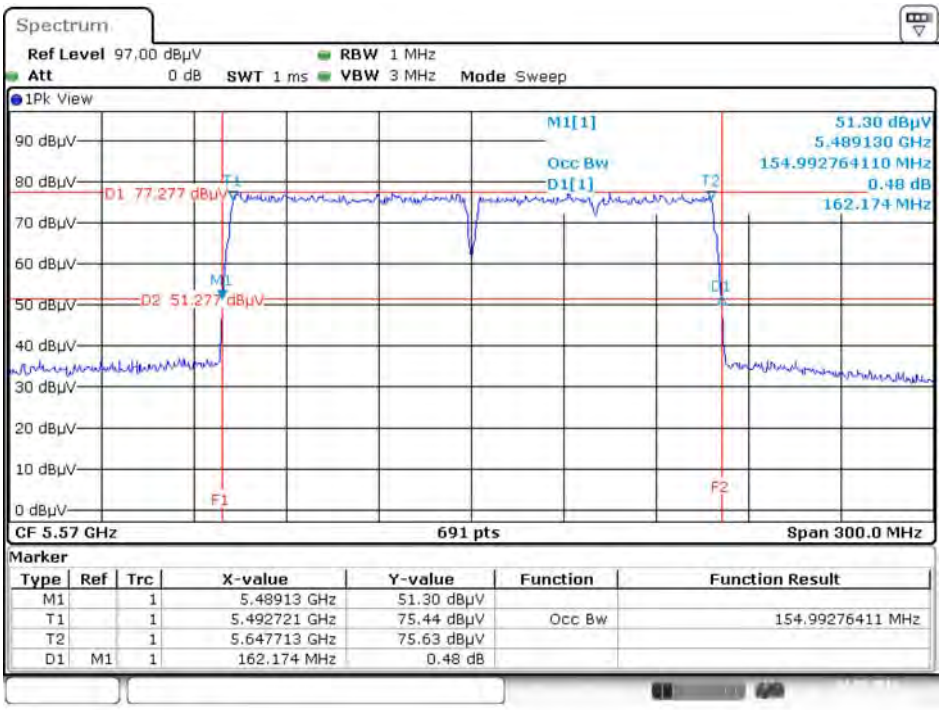
Date: 24.MAY.2016 16:21:07

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT160 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5250 MHz



Date: 24.MAY.2016 18:28:23

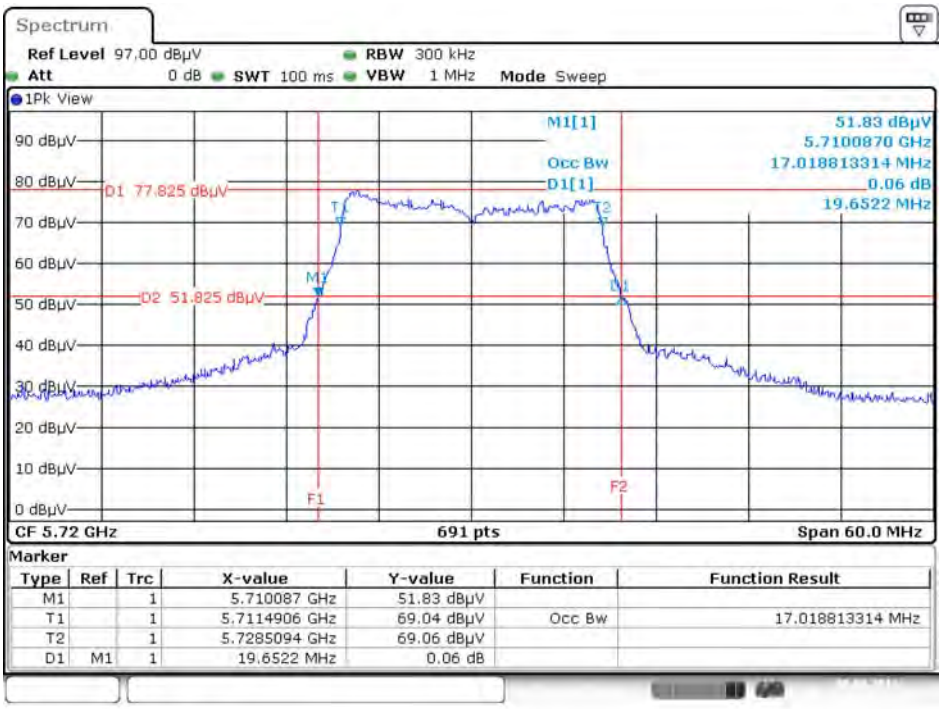
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT160 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5570 MHz



Date: 24.MAY.2016 18:28:54

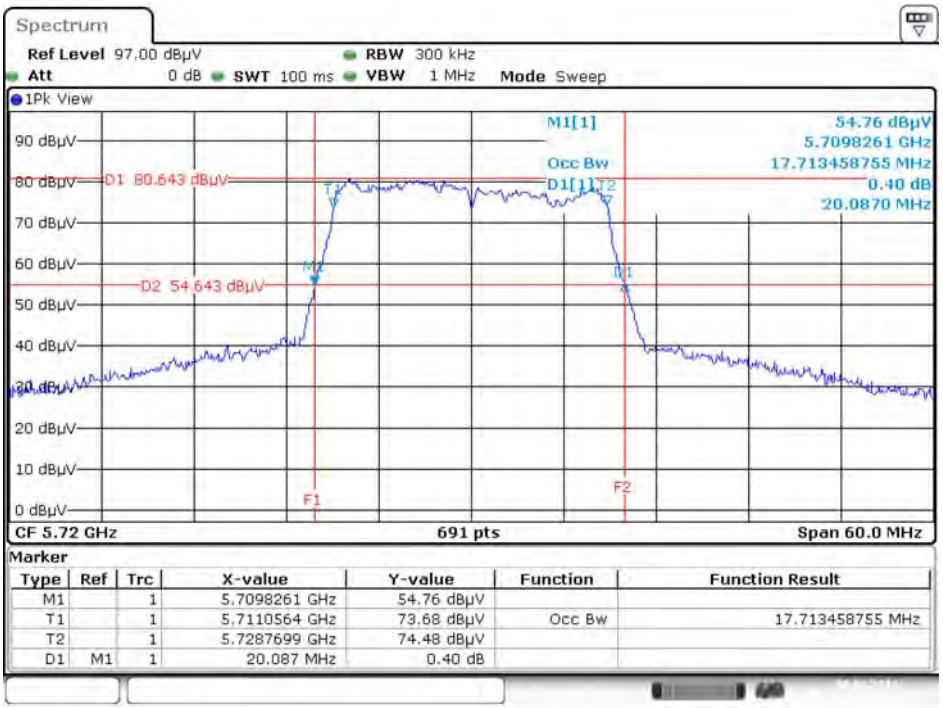
Straddle Channel

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



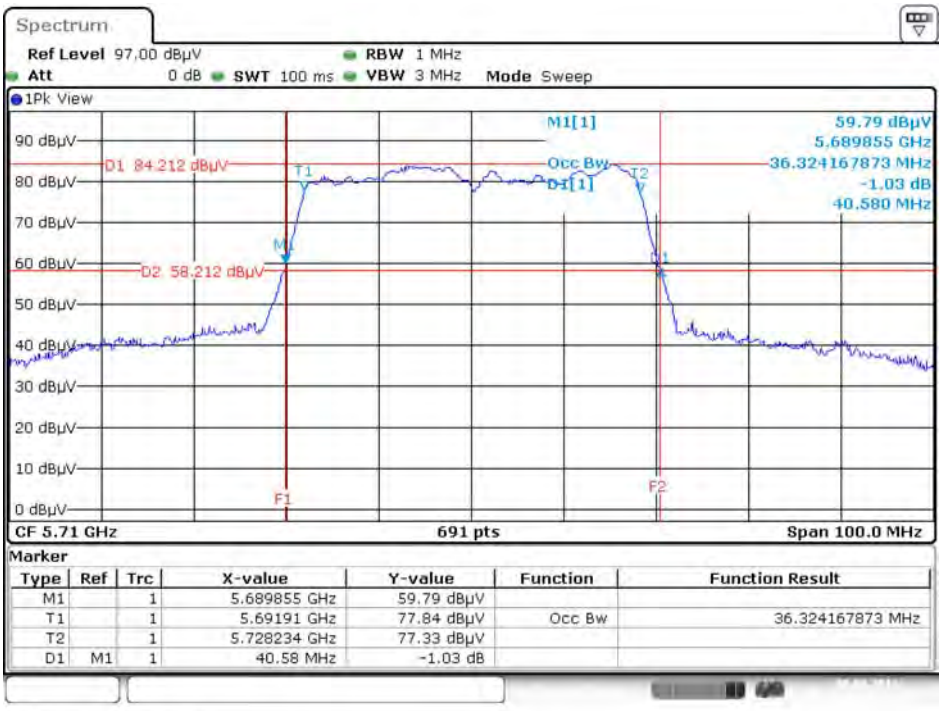
Date: 30.MAR.2016 14:38:00

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



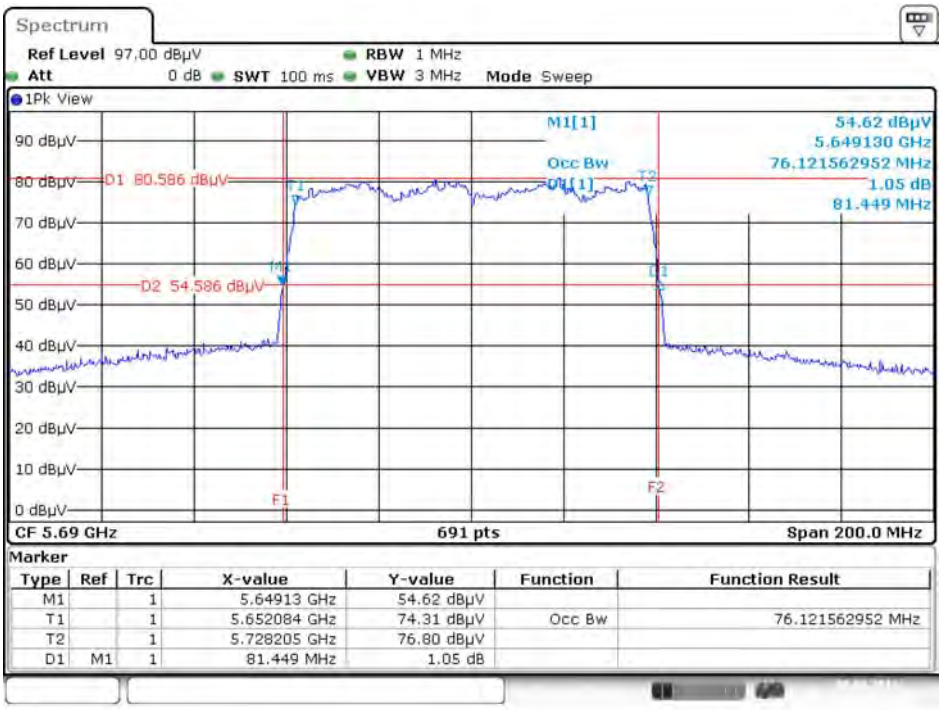
Date: 30.MAR.2016 14:34:32

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: 30.MAR.2016 14:33:12

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: 30.MAR.2016 14:31:28

4.3. 6dB Spectrum Bandwidth Measurement

4.3.1. Limit

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

4.3.2. 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

4.3.3. 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.

4.3.4. Test Setup Layout

For Radiated 6dB Bandwidth Measurement:

This test setup layout is the same as that shown in section 4.6.4.

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 6dB Spectrum Bandwidth

Temperature	22°C	Humidity	64%
Test Engineer	Akina Chiu	Test Function	Non-beamforming function

Mode	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Test Result
802.11a	5745 MHz	16.58	500	Complies
	5785 MHz	16.58	500	Complies
	5825 MHz	16.41	500	Complies
802.11ac MCS0/Nss1 VHT20	5745 MHz	17.51	500	Complies
	5785 MHz	16.69	500	Complies
	5825 MHz	17.45	500	Complies
802.11ac MCS0/Nss1 VHT40	5755 MHz	35.48	500	Complies
	5795 MHz	35.36	500	Complies
802.11ac MCS0/Nss1 VHT80	5775 MHz	76.52	500	Complies

Straddle Channel

Mode	Frequency	6dB BW (MHz)	6dB BW M1 (MHz)	UNII 3 BW (MHz)	Min. Limit (kHz)	Test Result
802.11a	5720 MHz	16.35	5711.83	3.17	500	Complies
802.11ac MCS0/Nss1 VHT20	5720 MHz	17.62	5711.19	3.81	500	Complies
802.11ac MCS0/Nss1 VHT40	5710 MHz	35.71	5692.15	2.86	500	Complies
802.11ac MCS0/Nss1 VHT80	5690 MHz	76.52	5651.74	3.26	500	Complies

Temperature	22°C	Humidity	64%
Test Engineer	Akina Chiu	Test Function	Beamforming function

Mode	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Test Result
802.11a	5745 MHz	16.58	500	Complies
	5785 MHz	16.52	500	Complies
	5825 MHz	16.58	500	Complies
802.11ac MCS0/Nss1 VHT20	5745 MHz	17.74	500	Complies
	5785 MHz	17.68	500	Complies
	5825 MHz	17.62	500	Complies
802.11ac MCS0/Nss1 VHT40	5755 MHz	36.52	500	Complies
	5795 MHz	36.17	500	Complies
802.11ac MCS0/Nss1 VHT80	5775 MHz	76.52	500	Complies

Straddle Channel

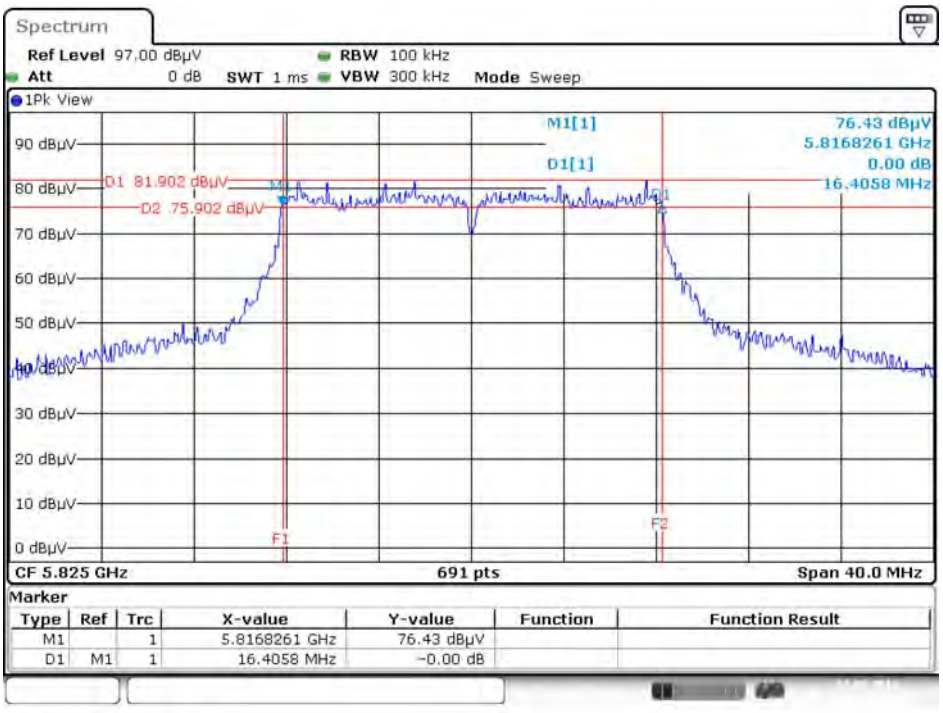
Mode	Frequency	6dB BW (MHz)	6dB BW M1 (MHz)	UNII 3 BW (MHz)	Min. Limit (kHz)	Test Result
802.11a	5720 MHz	16.58	5711.71	3.29	500	Complies
802.11ac MCS0/Nss1 VHT20	5720 MHz	17.68	5711.13	3.81	500	Complies
802.11ac MCS0/Nss1 VHT40	5710 MHz	36.41	5691.80	3.20	500	Complies
802.11ac MCS0/Nss1 VHT80	5690 MHz	76.52	5651.74	3.26	500	Complies

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

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

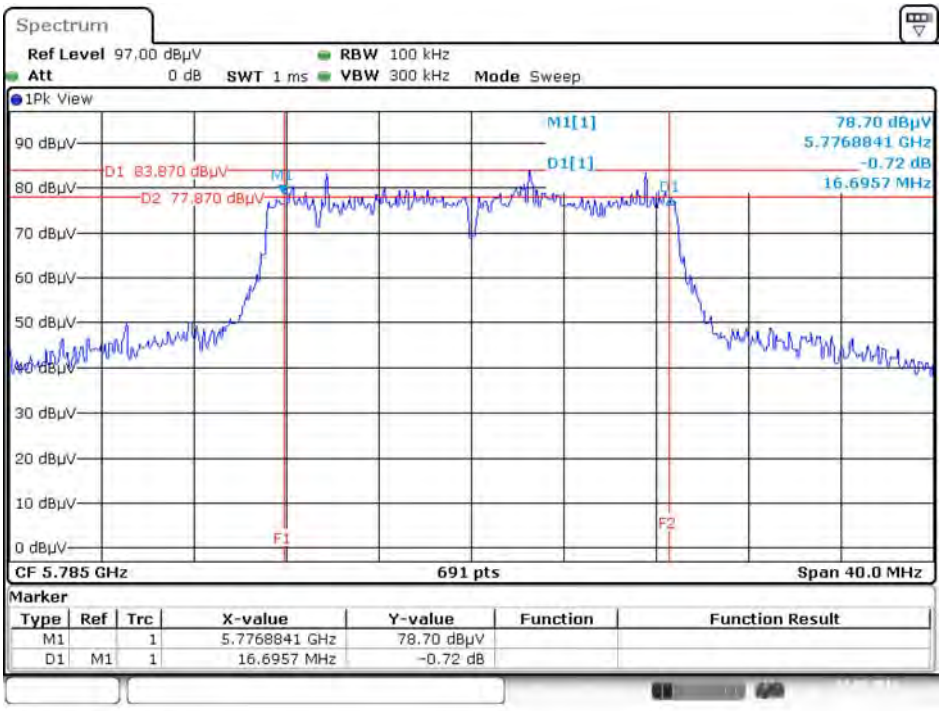
For non-beamforming function:

6 dB Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5825 MHz



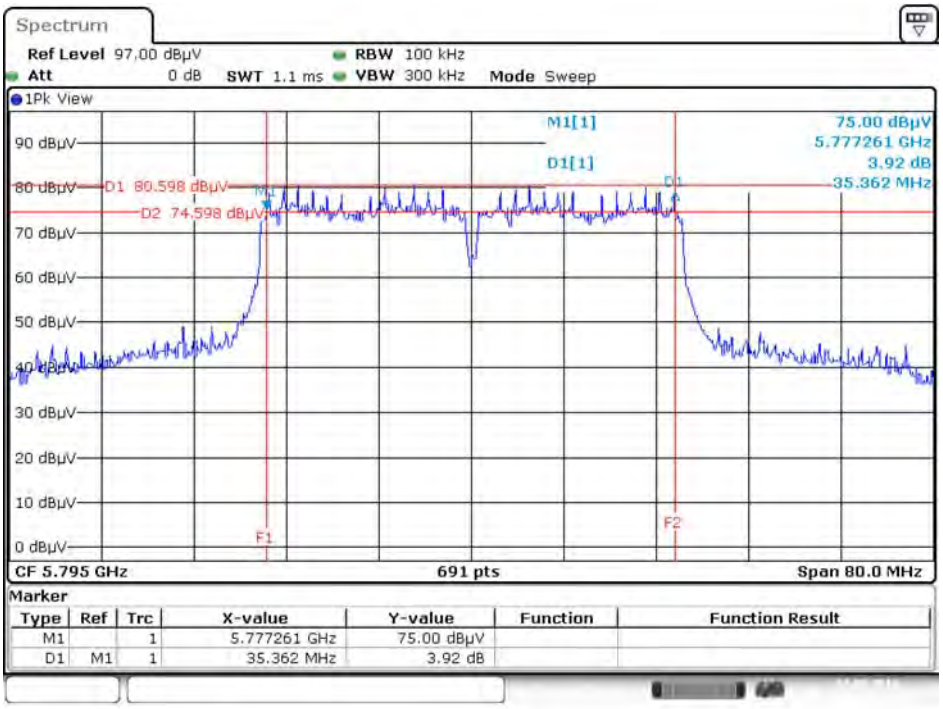
Date: 23.MAY.2016 18:39:59

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5785 MHz



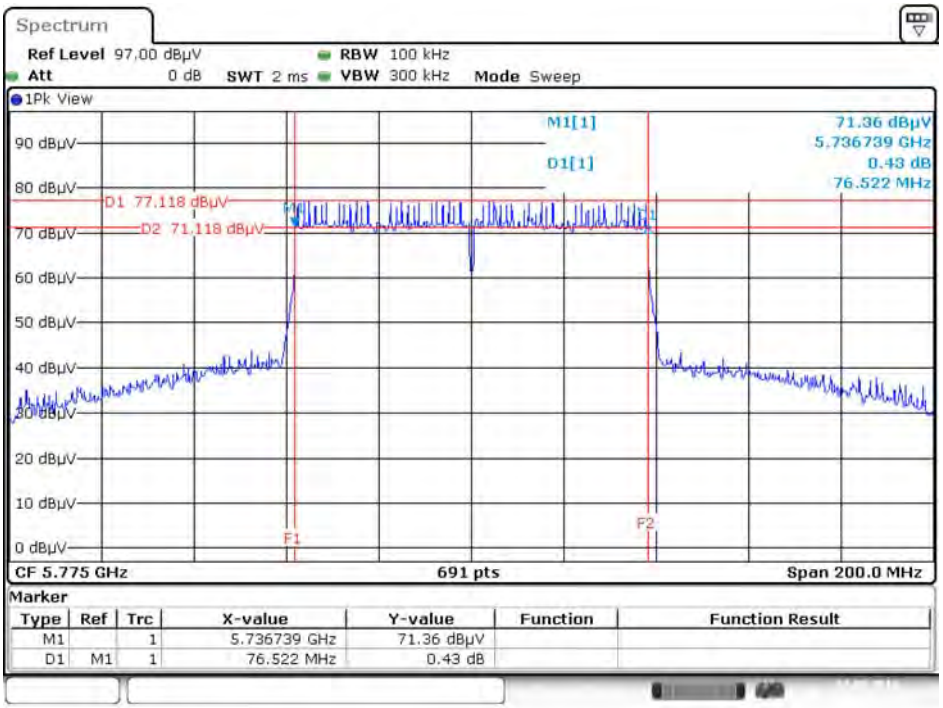
Date: 23.MAY.2016 18:38:32

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5795 MHz



Date: 23.MAY.2016 18:37:08

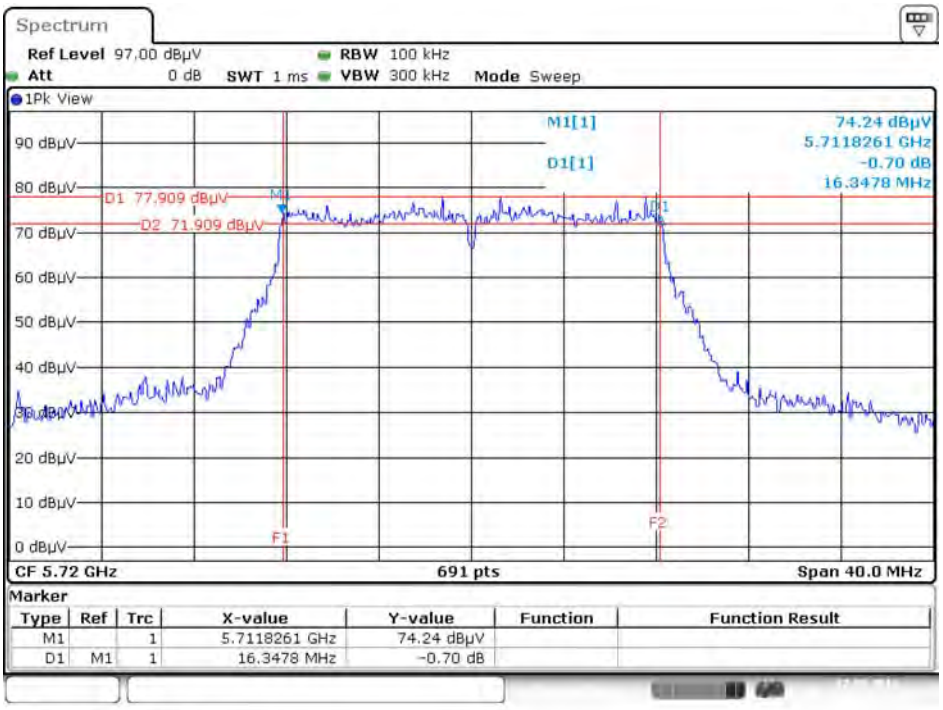
6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5775 MHz



Date: 23.MAY.2016 18:33:33

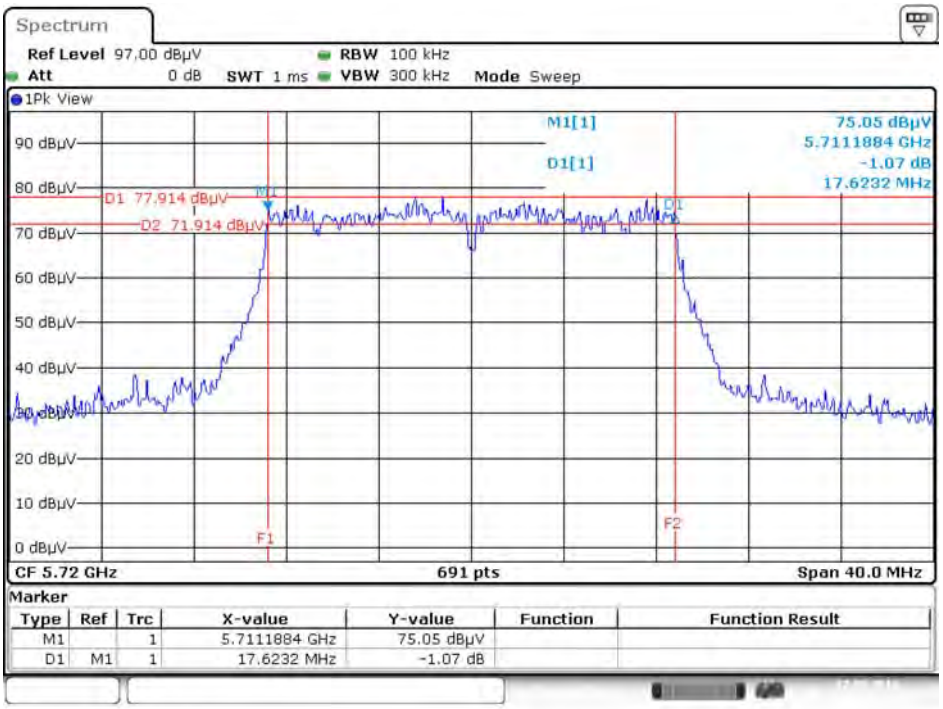
Straddle Channel

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



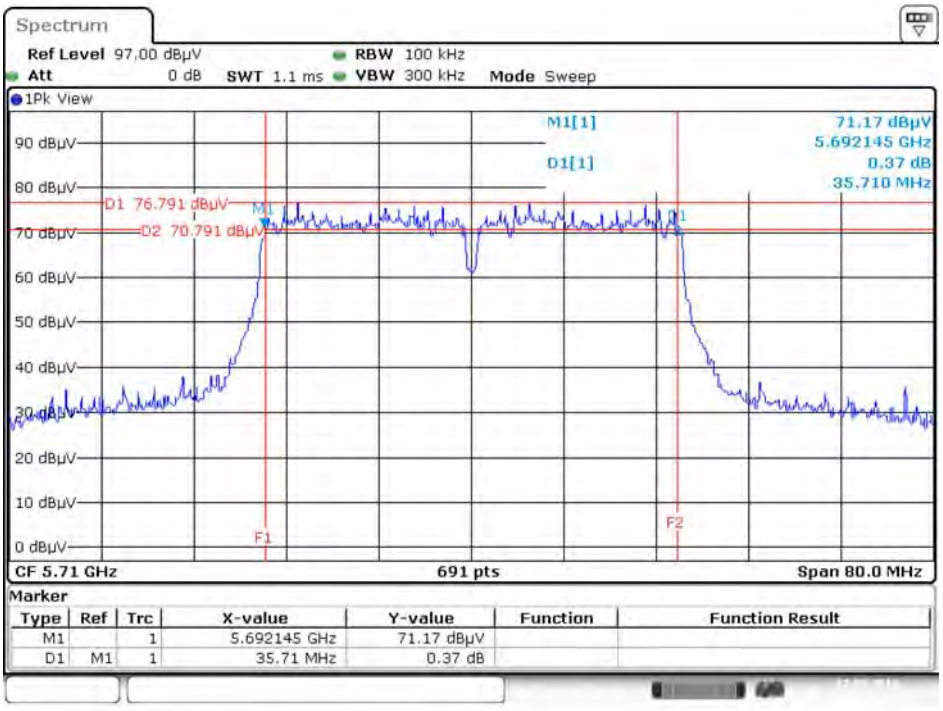
Date: 27.MAY.2016 22:20:47

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



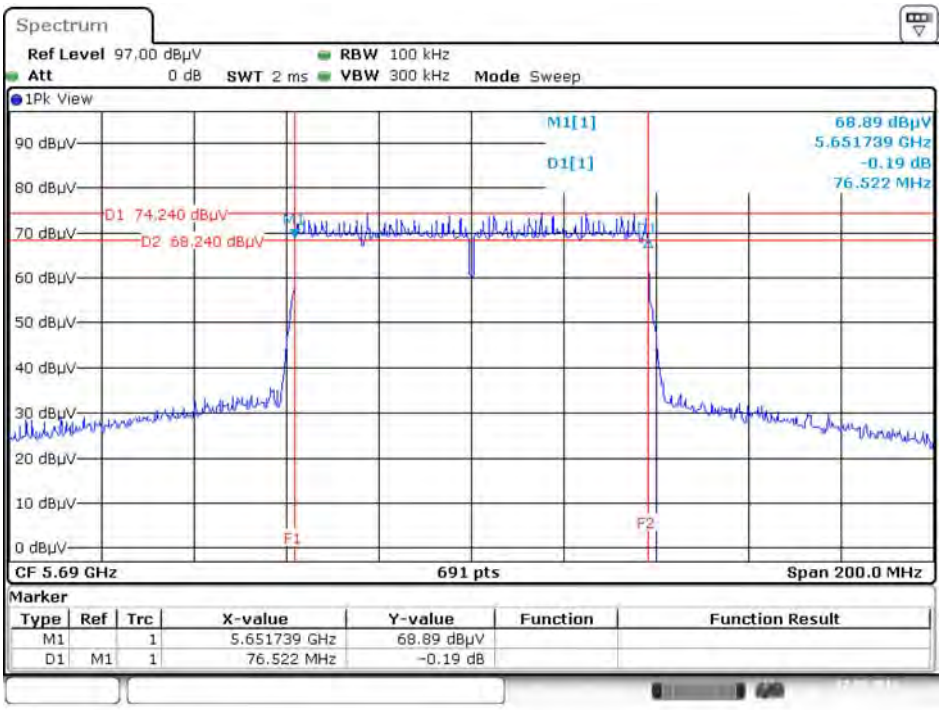
Date: 27.MAY.2016 22:22:05

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



Date: 27.MAY.2016 22:23:24

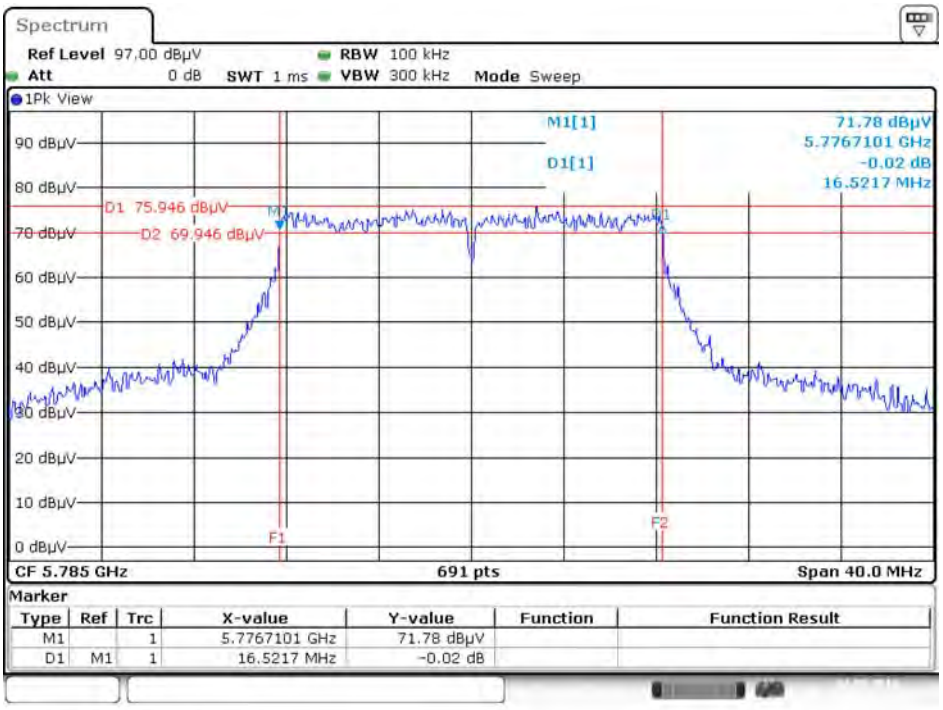
6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5690 MHz



Date: 27.MAY.2016 22:24:19

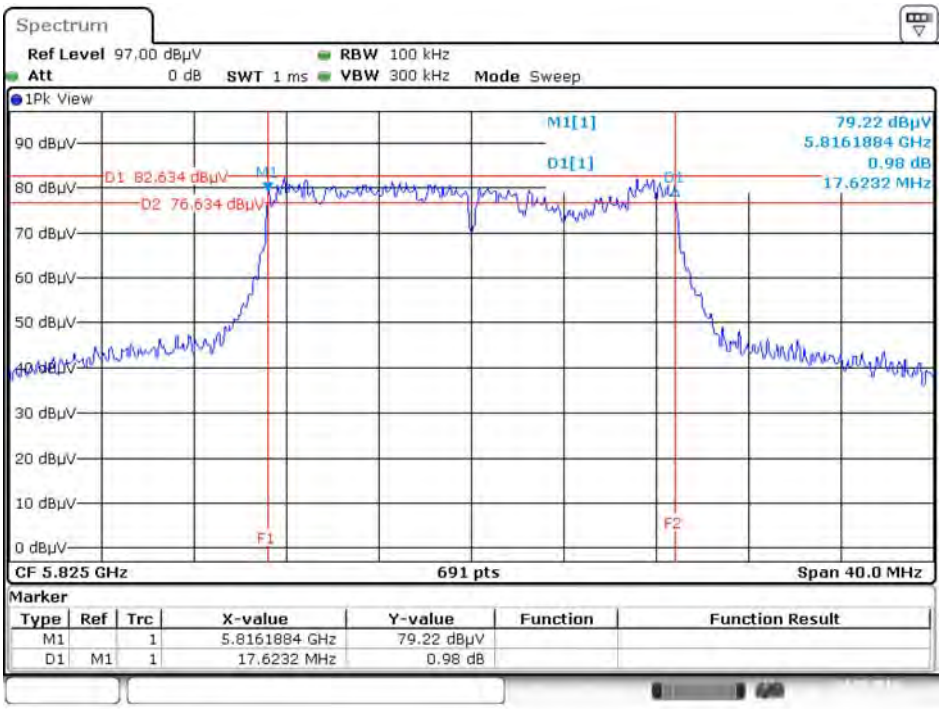
For beamforming function:

6 dB Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5785 MHz



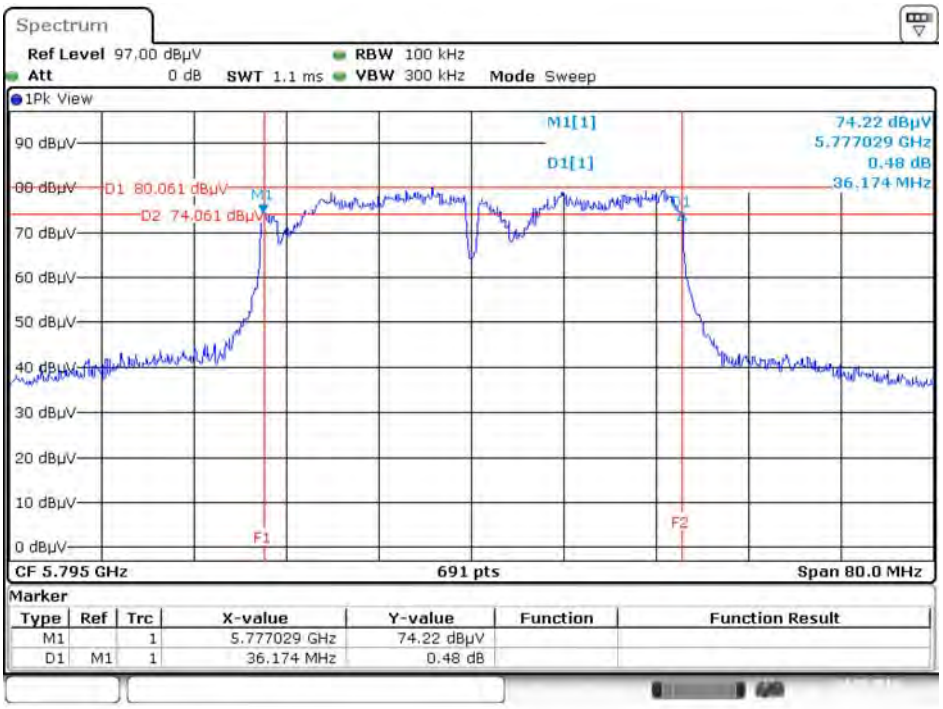
Date: 24.MAY.2016 16:07:09

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5825 MHz



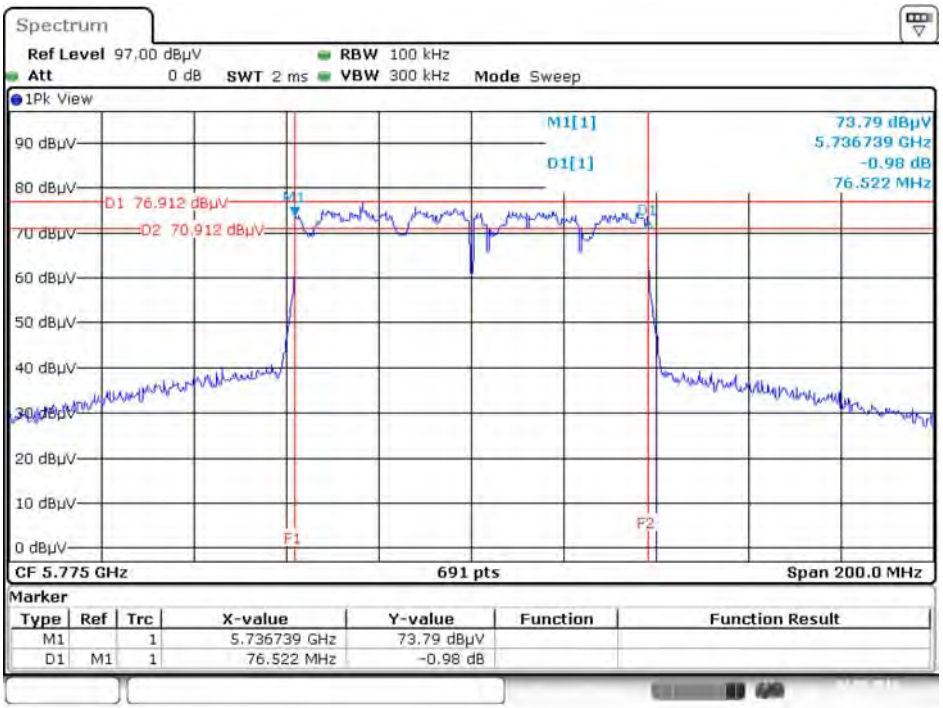
Date: 24.MAY.2016 16:18:05

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5795 MHz



Date: 24.MAY.2016 16:16:13

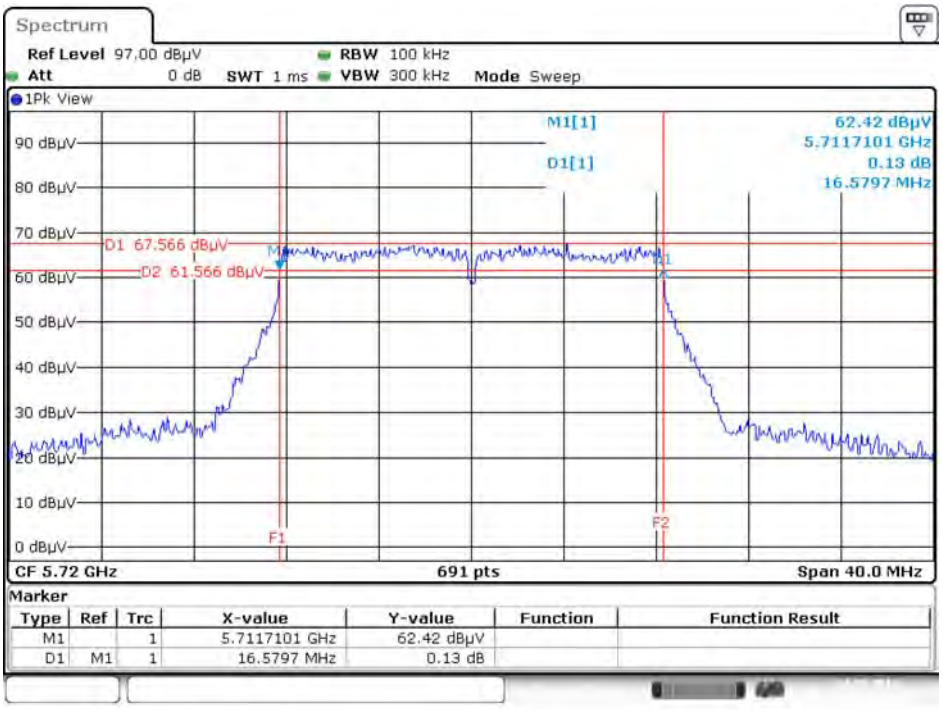
6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5775 MHz



Date: 24.MAY.2016 16:19:42

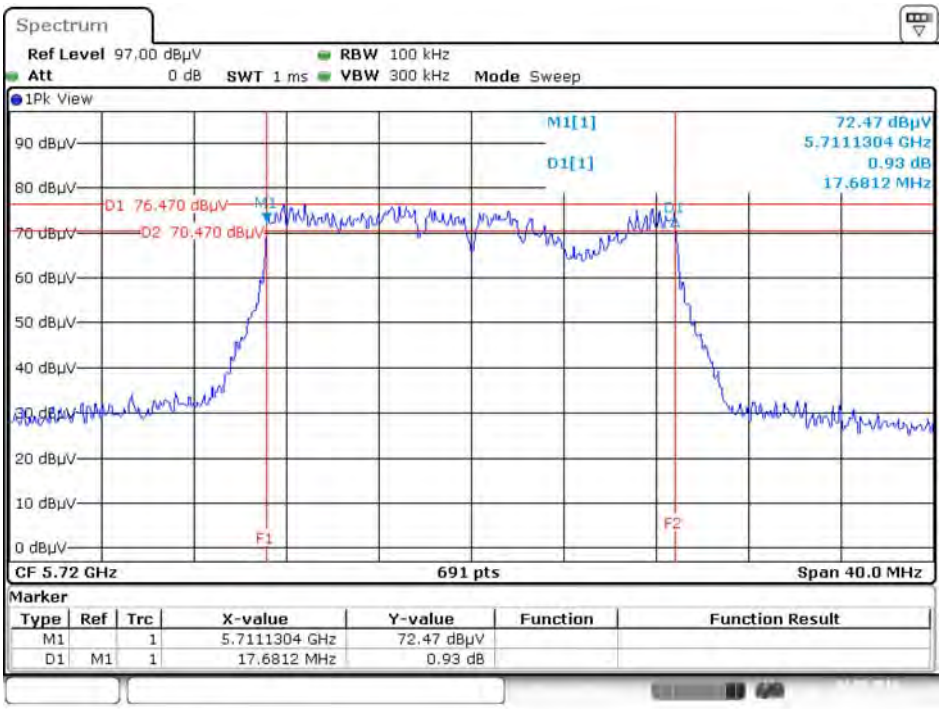
Straddle Channel

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



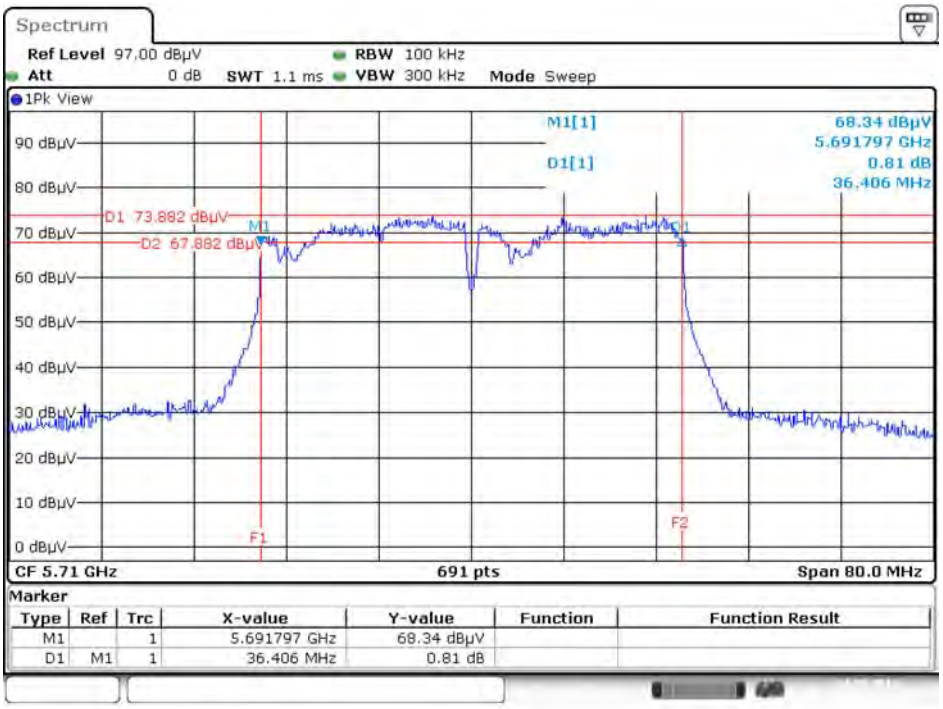
Date: 24.MAY.2016 17:20:38

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



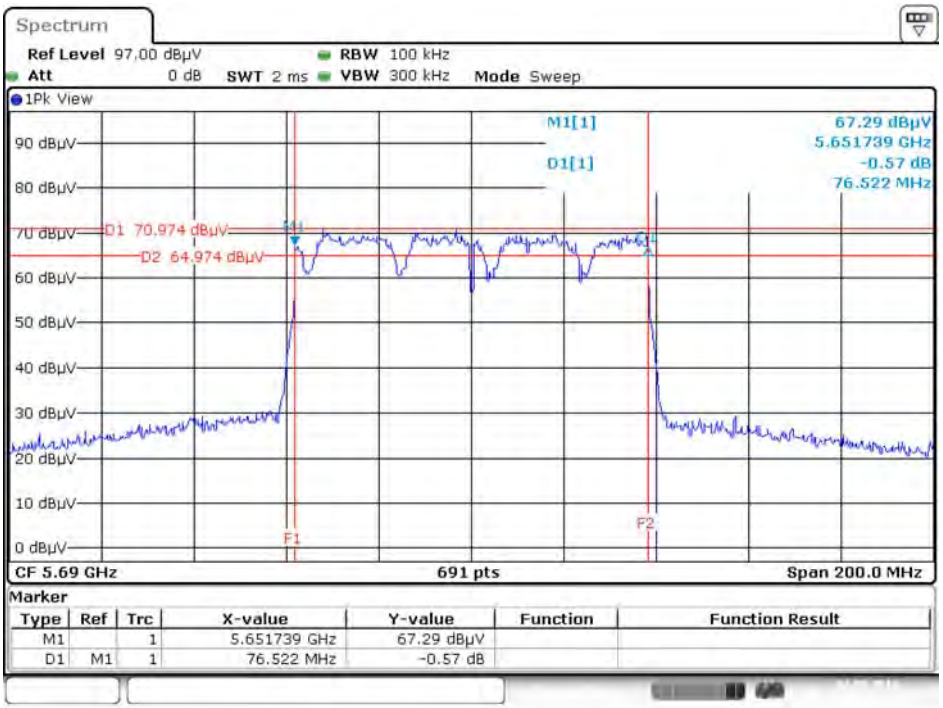
Date: 24.MAY.2016 17:23:25

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



Date: 24.MAY.2016 17:25:02

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



Date: 24.MAY.2016 17:26:14

4.4. Maximum Conducted Output Power Measurement

4.4.1. Limit

Frequency Band			Limit
☒	5.15~5.25 GHz		
	Operating Mode		
	☐	Outdoor access point	The maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm) provided the maximum antenna gain does not exceed 6 dBi. 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. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).
	☒	Indoor access point	The maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm) provided the maximum antenna gain does not exceed 6 dBi. 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.
	☐	Fixed point-to-point access points	The maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm). Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi.
	☐	Client devices	The maximum conducted output power over the frequency band of operation shall not exceed 250 mW (24dBm) provided the maximum antenna gain does not exceed 6 dBi. 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.

☒	5.25-5.35 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	
☒	5.725~5.85 GHz	The maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm). 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. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power.

4.4.2. Measuring Instruments and Setting

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

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

4.4.3. Test Procedures

For straddle channel:

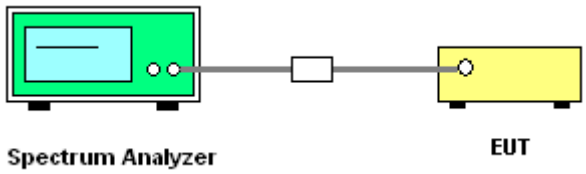
1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. Test was performed in accordance with FCC Public Notice DA 02-2138, August 30, 2002.

For other channel:

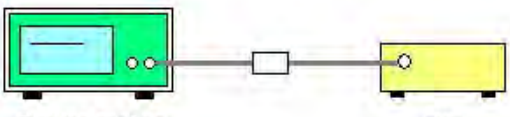
1. The transmitter output (antenna port) was connected to the power meter.
2. Test was performed in accordance with KDB789033 D02 v01r02 for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - section (E) Maximum conducted output power =>3. Measurement using a Power 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.

4.4.4. Test Setup Layout

For straddle channel:



For other channel:



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 Maximum Conducted Output Power

Temperature	22°C	Humidity	64%
Test Engineer	Akina Chiu	Test Function	Non-beamforming function
Test Date	For straddle channel: May 16, 2016~May 17, 2016		
	For other channel: May 23, 2016~May 24, 2016		

Mode	Frequency	Conducted Power (dBm)					Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Chain 4	Total		
802.11a	5180 MHz	20.31	20.84	20.32	20.28	26.46	30.00	Complies
	5200 MHz	23.59	23.87	22.55	22.52	29.20	30.00	Complies
	5240 MHz	23.21	23.35	22.36	22.09	28.81	30.00	Complies
	5260 MHz	17.95	17.42	18.32	17.92	23.93	23.98	Complies
	5300 MHz	17.64	17.77	17.58	18.47	23.90	23.98	Complies
	5320 MHz	17.22	17.42	17.89	18.58	23.83	23.97	Complies
	5500 MHz	17.53	17.23	17.54	17.66	23.51	23.95	Complies
	5580 MHz	17.53	18.61	15.69	15.80	23.10	23.98	Complies
	5700 MHz	15.34	16.20	15.70	16.19	21.89	23.98	Complies
	5745 MHz	22.72	22.31	21.52	23.41	28.56	30.00	Complies
	5785 MHz	23.12	21.85	21.47	23.56	28.61	30.00	Complies
	5825 MHz	22.17	21.06	21.86	23.65	28.31	30.00	Complies
802.11ac MCS0/Nss1 VHT20	5180 MHz	21.81	21.75	21.52	21.33	27.63	30.00	Complies
	5200 MHz	24.05	23.84	22.71	22.69	29.39	30.00	Complies
	5240 MHz	23.32	23.25	22.85	22.71	29.06	30.00	Complies
	5260 MHz	17.99	17.17	18.16	18.39	23.97	23.98	Complies
	5300 MHz	17.70	17.78	17.56	18.50	23.92	23.98	Complies
	5320 MHz	17.20	16.71	17.89	18.60	23.68	23.98	Complies
	5500 MHz	17.95	17.69	18.02	18.04	23.95	23.98	Complies
	5580 MHz	18.18	19.27	16.29	16.45	23.75	23.98	Complies
	5700 MHz	15.02	15.92	15.42	15.91	21.60	23.98	Complies
	5745 MHz	23.12	22.76	21.87	23.29	28.81	30.00	Complies
	5785 MHz	22.97	21.49	21.42	23.51	28.46	30.00	Complies
	5825 MHz	22.13	21.78	21.89	23.94	28.55	30.00	Complies

Note: 1. 802.11a 5320MHz power limit=11+10*log(19.83)=23.97dBm<23.98dBm, so limit=23.97dBm.
2. 802.11a 5500MHz power limit=11+10*log(19.74)=23.95dBm<23.98dBm, so limit=23.95dBm.

Mode	Frequency	Conducted Power (dBm)					Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Chain 4	Total		
802.11ac MCS0/Nss1 VHT40	5190 MHz	18.08	17.45	17.71	17.11	23.62	30.00	Complies
	5230 MHz	22.56	22.87	21.72	22.32	28.41	30.00	Complies
	5270 MHz	17.50	16.59	17.26	17.15	23.16	23.98	Complies
	5310 MHz	14.52	14.11	15.16	15.36	20.84	23.98	Complies
	5510 MHz	15.02	14.81	15.31	14.89	21.03	23.98	Complies
	5550 MHz	18.15	18.62	17.19	17.25	23.87	23.98	Complies
	5670 MHz	16.92	18.04	17.63	18.46	23.82	23.98	Complies
	5755 MHz	22.54	21.07	21.61	23.55	28.32	30.00	Complies
	5795 MHz	22.09	20.36	21.75	23.04	27.93	30.00	Complies
802.11ac MCS0/Nss1 VHT80	5210 MHz	17.05	16.53	16.64	16.18	22.63	30.00	Complies
	5290 MHz	12.01	11.26	12.35	12.57	18.10	23.98	Complies
	5530 MHz	13.35	13.24	13.46	13.28	19.35	23.98	Complies
	5610 MHz	16.66	17.51	18.03	19.18	23.96	23.98	Complies
	5775 MHz	22.54	20.41	21.33	22.25	27.73	30.00	Complies
802.11ac MCS0/Nss1 VHT160	5250 MHz (UNII 1)	18.39	17.67	17.43	17.94	23.89	30.00	Complies
	5250 MHz (UNII 2A)						23.98	Complies
	5570 MHz	17.42	17.62	17.34	17.05	23.38	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)	15.62	15.38	16.16	16.35	21.92	22.74	Complies
	5720 MHz (UNII 3)	9.62	9.11	10.03	10.19	15.78	30.00	Complies
802.11ac MCS0/Nss1 VHT20	5720 MHz (UNII 2C)	15.72	15.56	16.49	16.41	22.08	22.79	Complies
	5720 MHz (UNII 3)	10.12	9.92	11.21	10.47	16.48	30.00	Complies
802.11ac MCS0/Nss1 VHT40	5710 MHz (UNII 2C)	16.91	16.73	18.25	18.08	23.57	23.98	Complies
	5710 MHz (UNII 3)	6.89	6.86	8.57	7.81	13.61	30.00	Complies
802.11ac MCS0/Nss1 VHT80	5690 MHz (UNII 2C)	17.25	16.79	18.41	18.06	23.70	23.98	Complies
	5690 MHz (UNII 3)	4.04	2.93	4.86	4.31	10.11	30.00	Complies

Note: 1. 802.11a 5720MHz (UNII 2C) power limit=11+10*log(14.91)=22.74dBm<23.98dBm, so limit=22.74dBm.

2. 802.11ac MCS0/Nss1 VHT20 5720MHz (UNII 2C) power limit=11+10*log(15.09)=22.79dBm<23.98dBm, so limit=22.79dBm.

Temperature	22℃	Humidity	64%
Test Engineer	Akina Chiu	Test Function	Beamforming function
Test Date	For straddle channel: Mar. 30, 2016		
	For other channel: May 23, 2016~May 24, 2016		

Mode	Frequency	Conducted Power (dBm)					Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Chain 4	Total		
802.11a	5180 MHz	19.16	19.45	19.33	19.35	25.34	28.26	Complies
	5200 MHz	22.47	21.94	21.79	21.62	27.99	28.26	Complies
	5240 MHz	21.19	21.32	21.16	21.48	27.31	28.26	Complies
	5260 MHz	15.46	15.16	15.48	15.59	21.45	22.24	Complies
	5300 MHz	15.23	15.34	15.17	15.41	21.31	22.24	Complies
	5320 MHz	15.02	15.01	15.13	15.25	21.12	22.24	Complies
	5500 MHz	14.87	14.71	15.34	15.08	21.03	22.24	Complies
	5580 MHz	16.36	17.28	14.52	14.76	21.90	22.24	Complies
	5700 MHz	14.91	15.39	15.06	15.32	21.19	22.24	Complies
	5745 MHz	21.35	21.62	21.49	22.44	27.77	28.26	Complies
	5785 MHz	21.45	22.18	21.39	21.88	27.76	28.26	Complies
	5825 MHz	21.14	21.83	21.78	22.21	27.78	28.26	Complies
802.11ac MCS0/Nss1 VHT20	5180 MHz	19.16	19.85	19.37	19.79	25.57	28.26	Complies
	5200 MHz	22.71	22.23	22.18	21.24	28.14	28.26	Complies
	5240 MHz	22.02	21.66	21.73	22.55	28.02	28.26	Complies
	5260 MHz	16.20	15.73	16.14	16.39	22.14	22.24	Complies
	5300 MHz	16.18	16.04	15.77	16.59	22.18	22.24	Complies
	5320 MHz	15.55	15.50	16.23	16.62	22.02	22.24	Complies
	5500 MHz	16.09	15.72	16.28	16.41	22.15	22.24	Complies
	5580 MHz	16.19	17.33	14.53	14.84	21.89	22.24	Complies
	5700 MHz	15.24	16.11	15.77	16.36	21.91	22.24	Complies
	5745 MHz	21.13	21.95	21.47	22.78	27.90	28.26	Complies
	5785 MHz	21.58	22.33	21.24	22.41	27.94	28.26	Complies
	5825 MHz	21.19	21.74	22.28	22.31	27.92	28.26	Complies

Note: $Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =7.74dBi >6dBi.

1. 5150~5250MHz, 5725~5850MHz power limit=30 – (7.74 – 6)=28.26dBm.
2. 5250~5350MHz, 5470~5725MHz power limit=23.98 – (7.74 – 6)=22.24dBm.

Mode	Frequency	Conducted Power (dBm)					Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Chain 4	Total		
802.11ac MCS0/Nss1 VHT40	5190 MHz	15.07	14.68	14.83	14.77	20.86	28.26	Complies
	5230 MHz	21.89	22.72	21.34	22.41	28.14	28.26	Complies
	5270 MHz	15.79	15.06	15.89	15.38	21.56	22.24	Complies
	5310 MHz	15.45	14.92	15.41	15.67	21.39	22.24	Complies
	5510 MHz	16.02	15.69	16.41	15.98	22.05	22.24	Complies
	5550 MHz	15.01	15.55	15.38	15.46	21.38	22.24	Complies
	5670 MHz	15.04	16.19	15.26	15.65	21.58	22.24	Complies
	5755 MHz	21.53	21.91	21.49	21.95	27.75	28.26	Complies
	5795 MHz	21.24	20.86	21.12	22.25	27.42	28.26	Complies
802.11ac MCS0/Nss1 VHT80	5210 MHz	14.89	14.73	14.65	14.84	20.80	28.26	Complies
	5290 MHz	16.41	15.73	16.13	16.32	22.18	22.24	Complies
	5530 MHz	15.04	14.62	15.57	14.88	21.06	22.24	Complies
	5610 MHz	14.81	15.71	16.16	17.29	22.11	22.24	Complies
	5775 MHz	21.33	21.66	21.72	21.36	27.54	28.26	Complies
802.11ac MCS0/Nss1 VHT160	5250 MHz (UNII 1)	16.06	15.76	15.94	16.05	21.97	28.26	Complies
	5250 MHz (UNII 2A)						22.24	Complies
	5570 MHz	16.07	16.25	16.13	16.02	22.14	22.24	Complies

Note: $Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =7.74dBi >6dBi.

1. 5150~5250MHz, 5725~5850MHz power limit=30 – (7.74 – 6)=28.26dBm.
2. 5250~5350MHz, 5470~5725MHz power limit=23.98 – (7.74 – 6)=22.24dBm.

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)	14.02	14.81	14.95	15.31	20.82	21.00	Complies
	5720 MHz (UNII 3)	7.46	8.34	8.76	8.80	14.39	28.26	Complies
802.11ac MCS0/Nss1 VHT20	5720 MHz (UNII 2C)	14.15	14.93	15.08	15.43	20.94	21.07	Complies
	5720 MHz (UNII 3)	8.18	9.00	9.44	9.47	15.07	28.26	Complies
802.11ac MCS0/Nss1 VHT40	5710 MHz (UNII 2C)	14.54	15.52	15.64	16.10	21.51	22.24	Complies
	5710 MHz (UNII 3)	4.77	5.23	5.87	6.21	11.58	28.26	Complies
802.11ac MCS0/Nss1 VHT80	5690 MHz (UNII 2C)	14.98	15.72	16.49	16.47	21.98	22.24	Complies
	5690 MHz (UNII 3)	1.44	1.64	3.00	2.74	8.28	28.26	Complies

Note: $Directional\ Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =7.74dBi >6dBi.

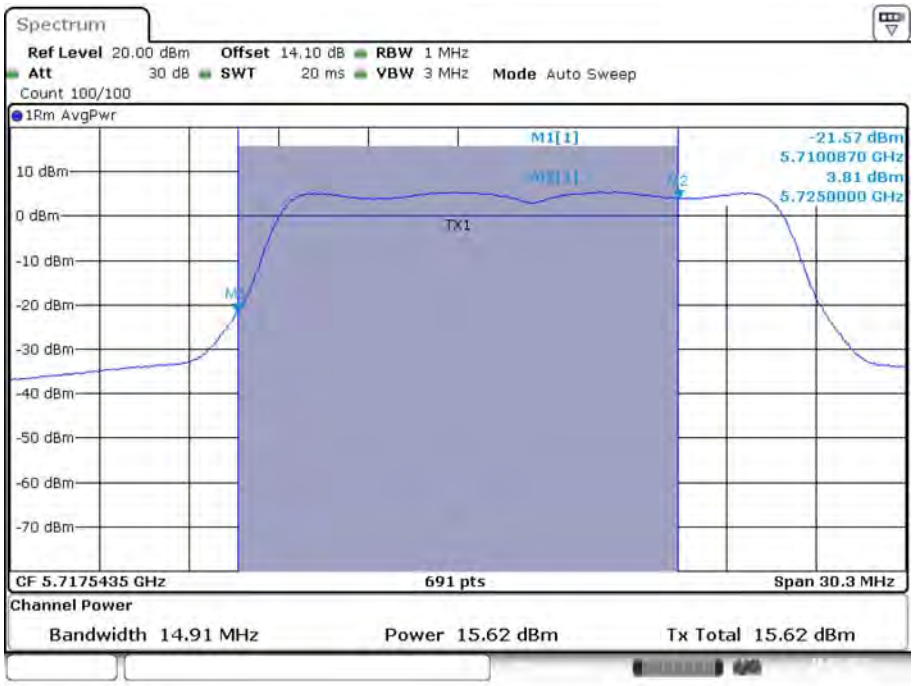
1. 802.11a 5720MHz (UNII 2C) power limit=11+10*log(14.91)-(7.74-6)=21.00dBm<23.98dBm, so limit=21.00dBm.
2. 802.11ac MCS0/Nss1 VHT20 5720MHz (UNII 2C) power limit=11+10*log(15.17)-(7.74-6)=21.07dBm<23.98dBm, so limit=21.07dBm.
3. (UNII 2C) other channel power limit=23.98 – (7.74 – 6)=22.24dBm.
4. (UNII 3) power limit=30 – (7.74 – 6)=28.26dBm.

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

For plots, only the straddle channel result was shown.

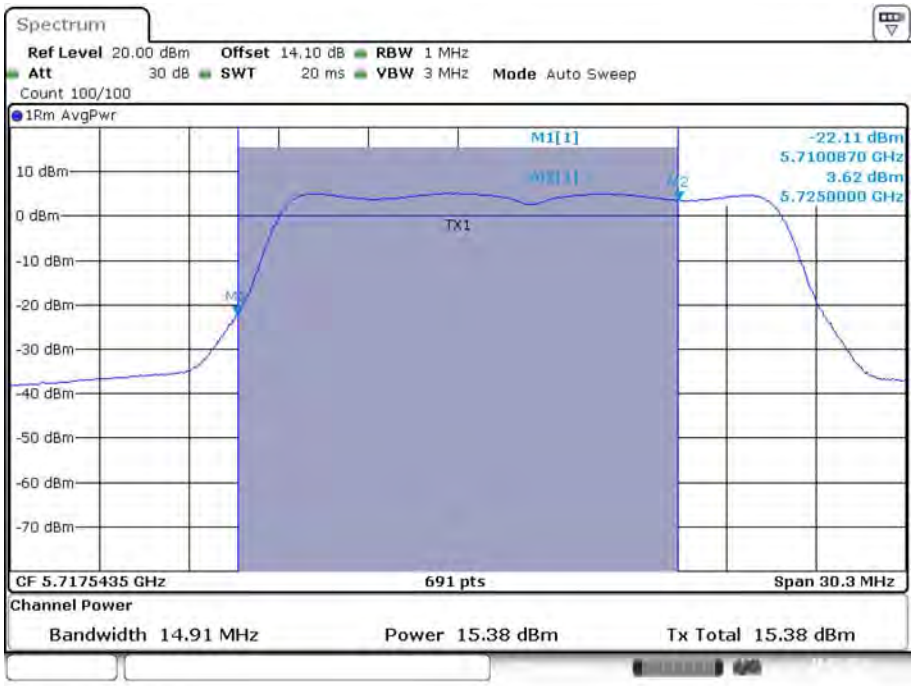
For non-beamforming function:

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



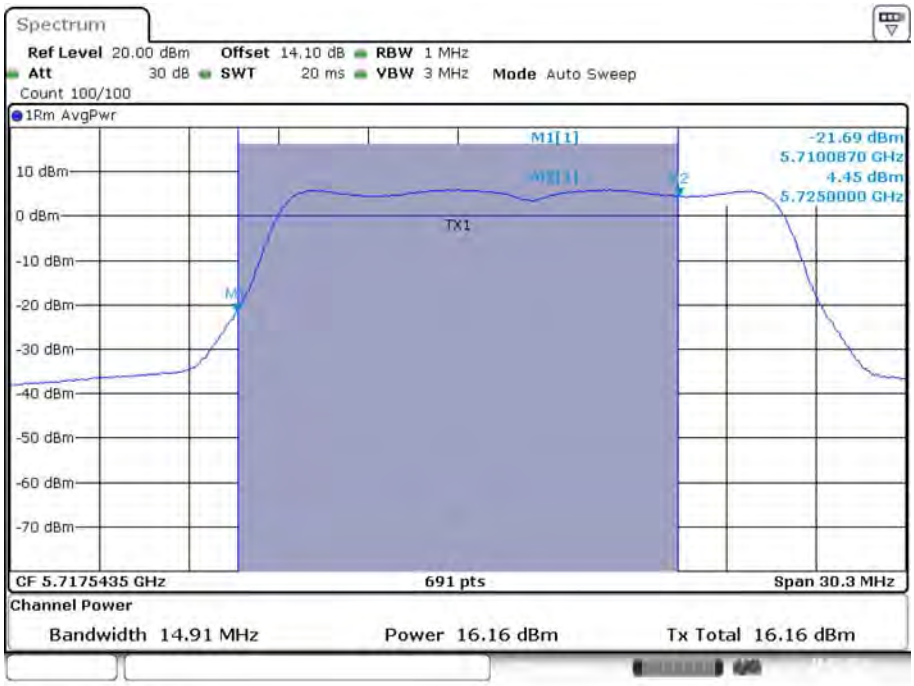
Date: 16.MAY.2016 23:52:19

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



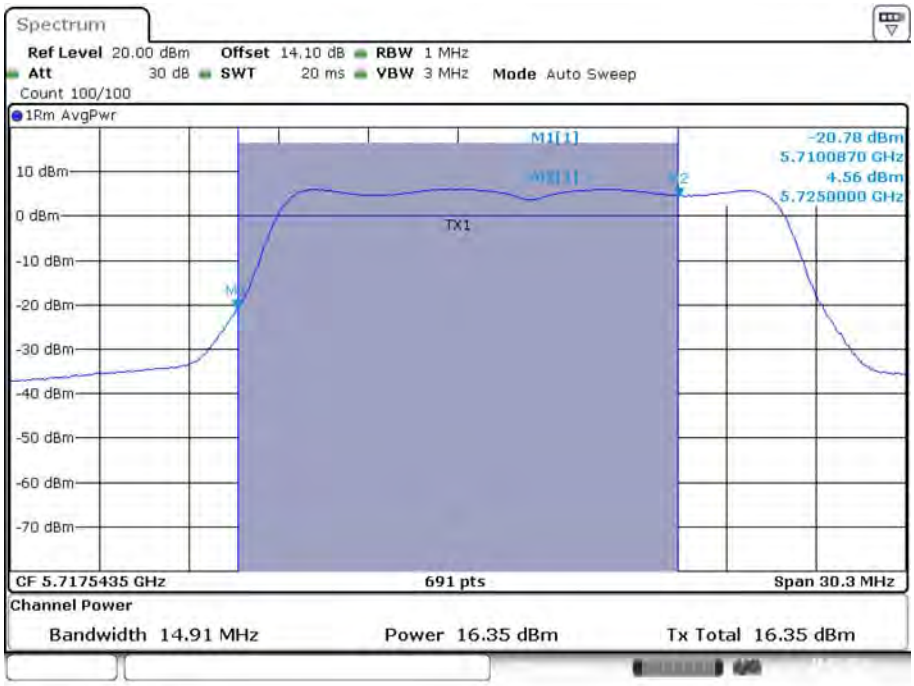
Date: 16.MAY.2016 23:52:26

Conducted Output Power Plot on Configuration IEEE 802.11a / Chain 3 / 5720 MHz (UNII 2C)



Date: 16.MAY.2016 23:52:34

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



Date: 16.MAY.2016 23:52:41

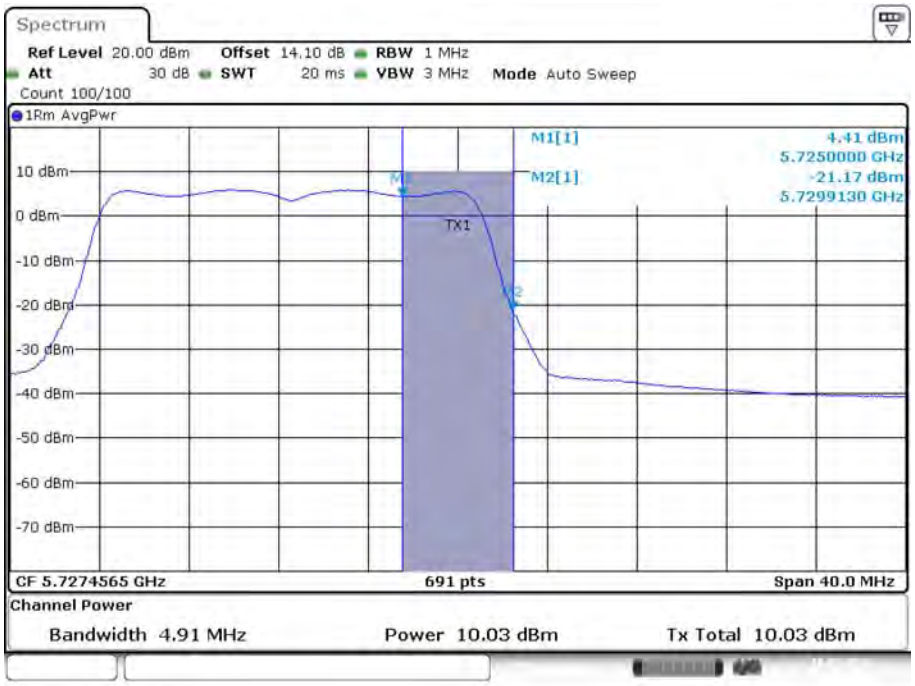
Conducted Output Power Plot on Configuration IEEE 802.11a / Chain 1 / 5720 MHz (UNII 3)

Date: 16.MAY.2016 23:52:23

Conducted Output Power Plot on Configuration IEEE 802.11a / Chain 2 / 5720 MHz (UNII 3)

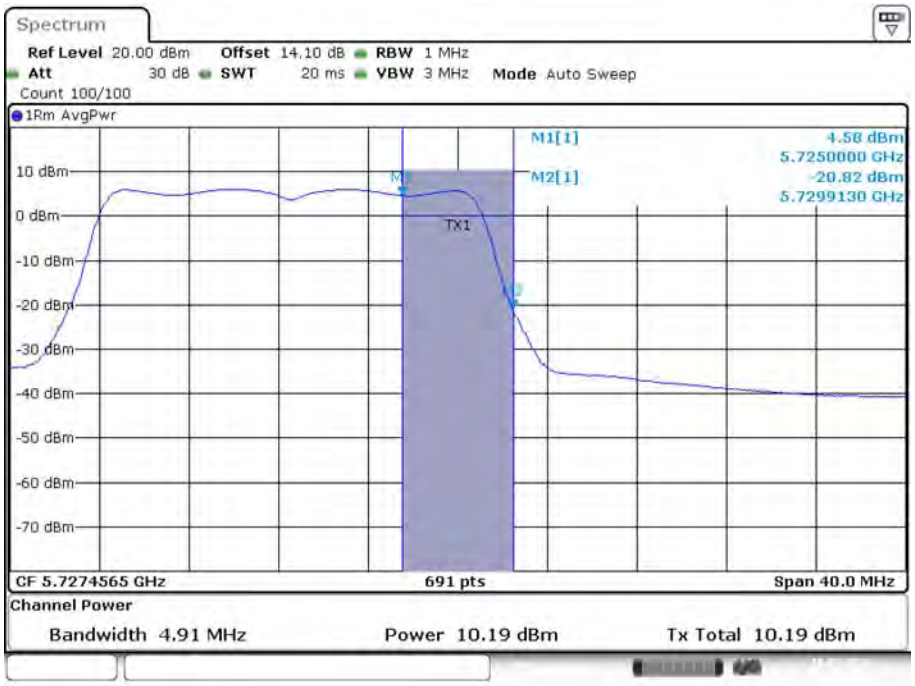
Date: 16.MAY.2016 23:52:30

Conducted Output Power Plot on Configuration IEEE 802.11a / Chain 3 / 5720 MHz (UNII 3)



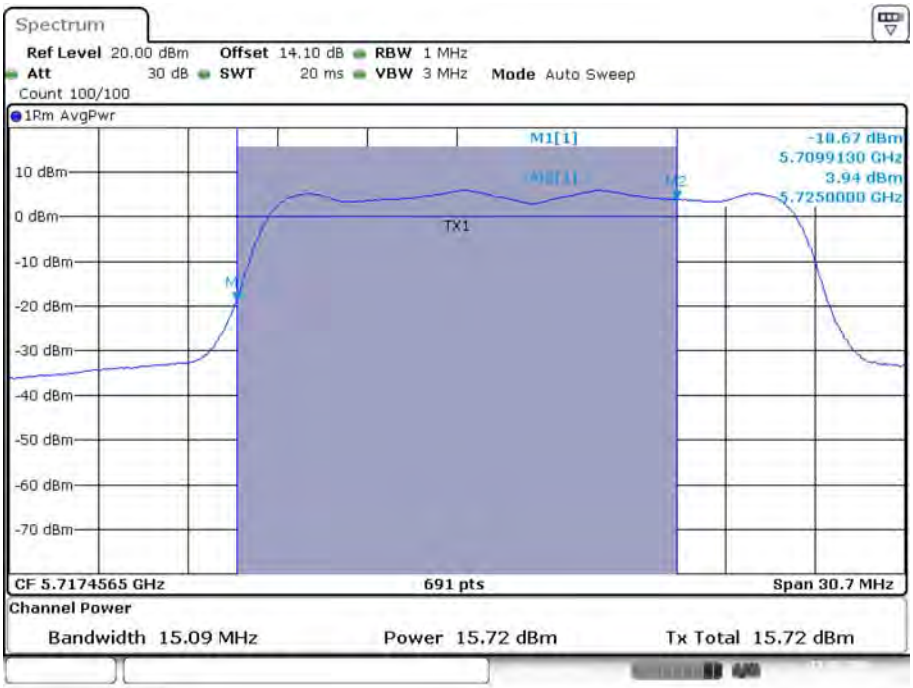
Date: 16.MAY.2016 23:52:37

Conducted Output Power Plot on Configuration IEEE 802.11a / Chain 4 / 5720 MHz (UNII 3)



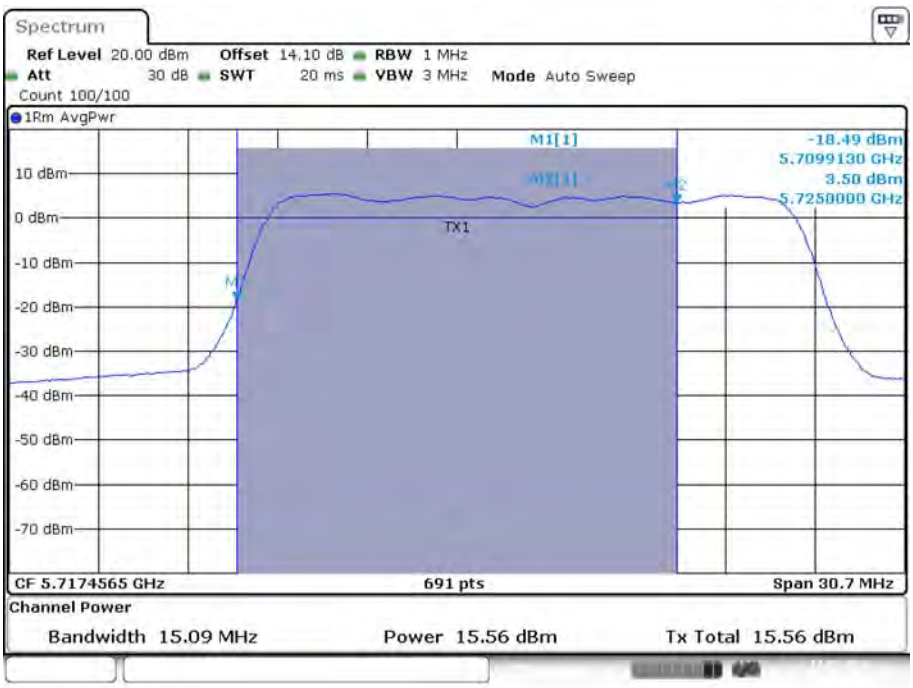
Date: 16.MAY.2016 23:52:44

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



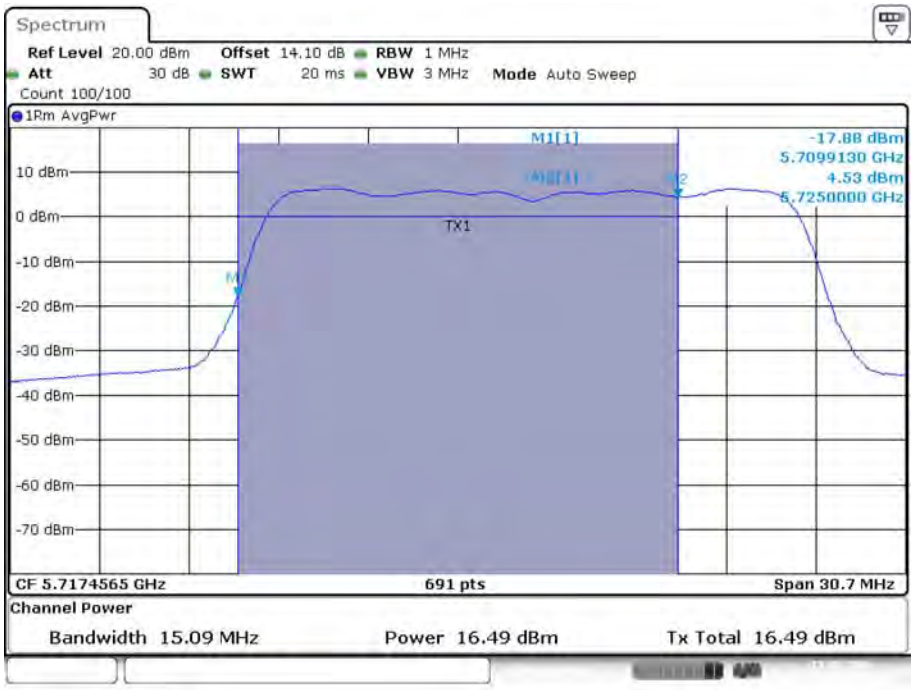
Date: 17.MAY.2016 00:14:15

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



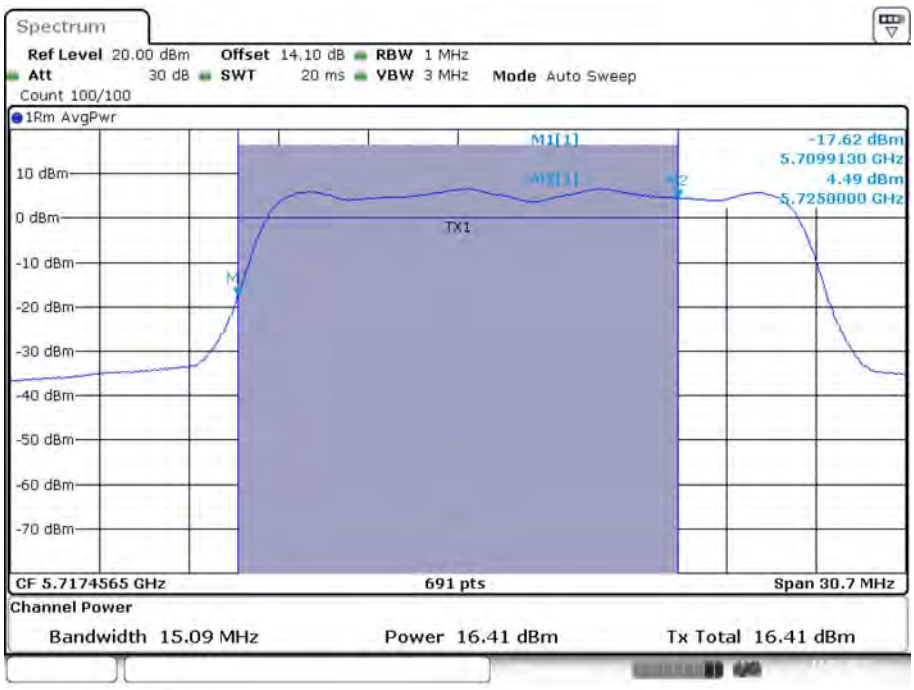
Date: 17.MAY.2016 00:14:22

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



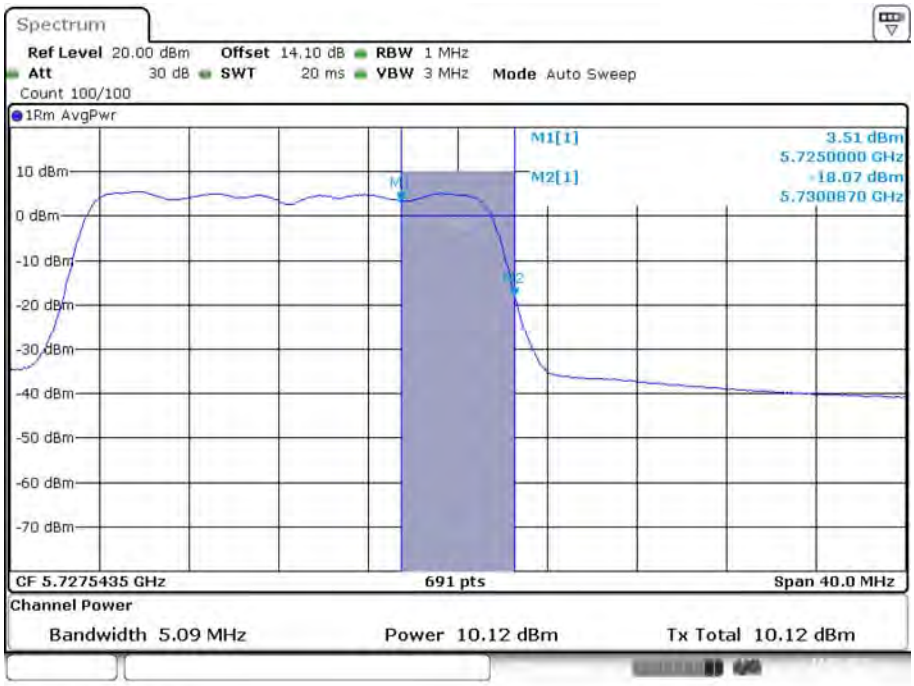
Date: 17.MAY.2016 00:14:29

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



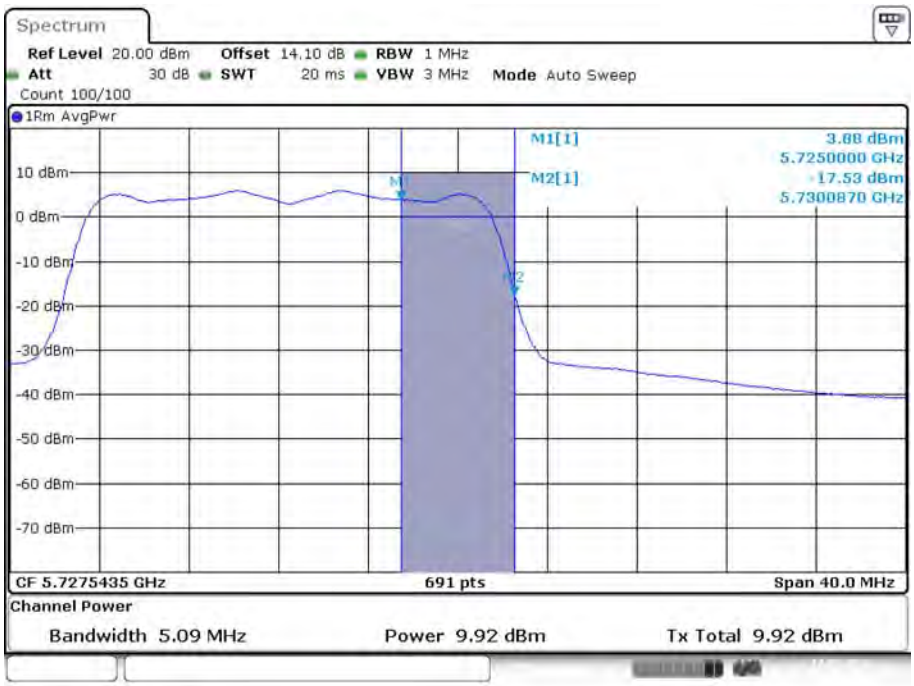
Date: 17.MAY.2016 00:14:37

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



Date: 17.MAY.2016 00:14:26

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

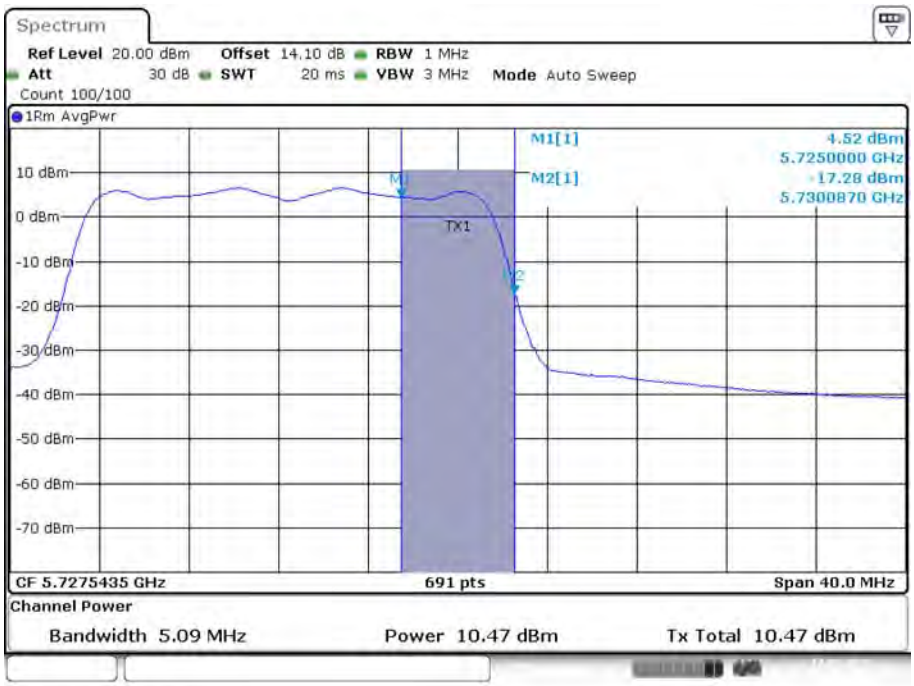


Date: 17.MAY.2016 00:14:19

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

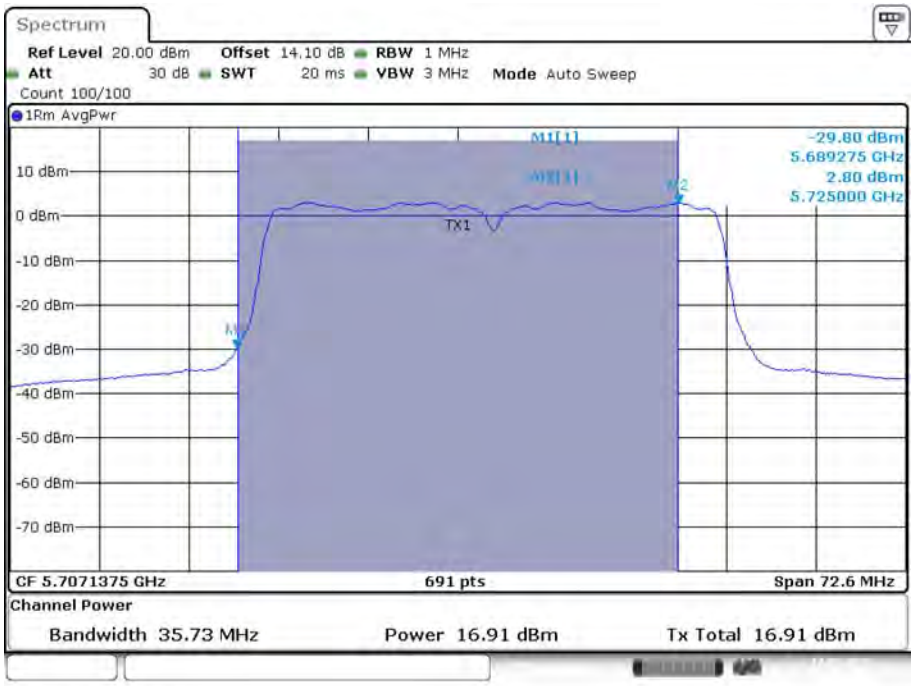
Date: 17.MAY.2016 00:14:33

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



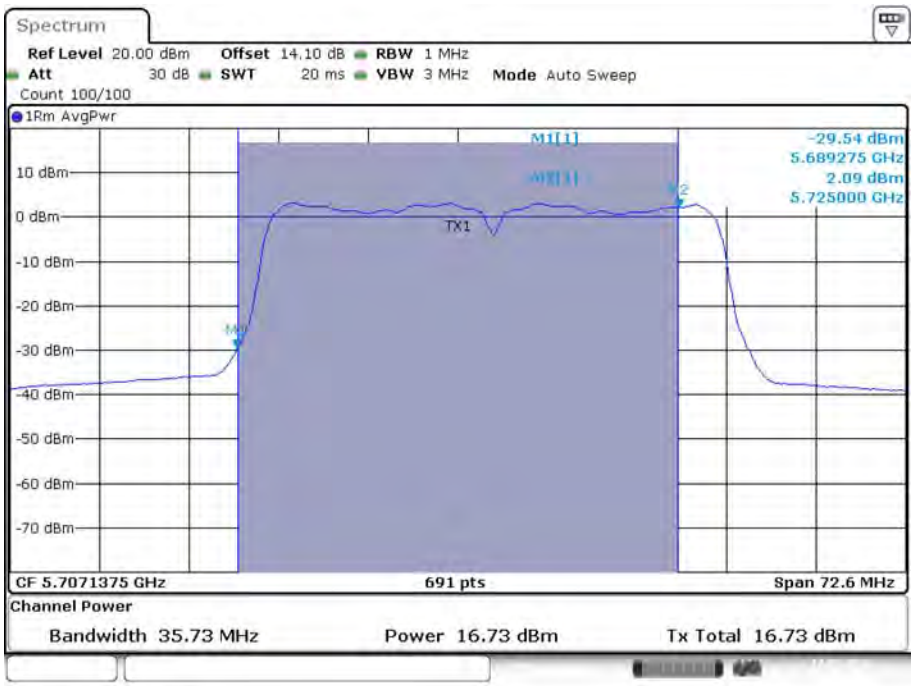
Date: 17.MAY.2016 00:14:40

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



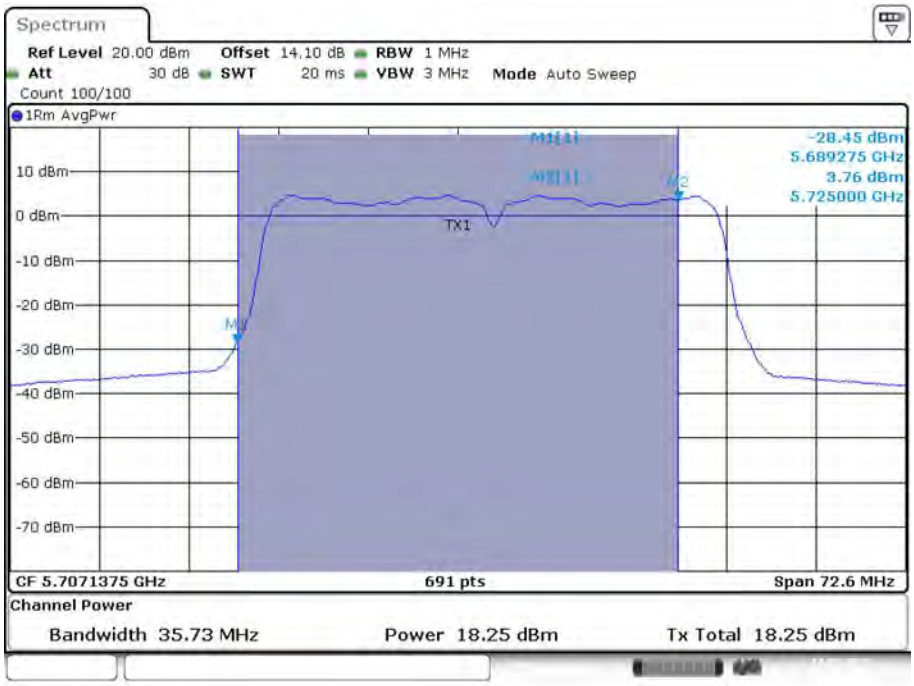
Date: 17.MAY.2016 00:22:16

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



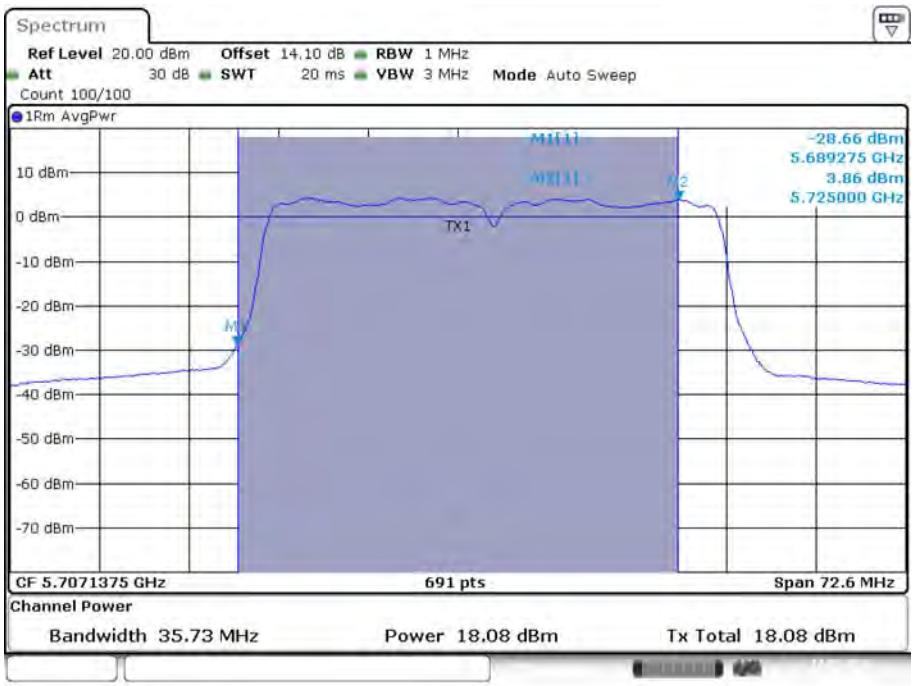
Date: 17.MAY.2016 00:22:23

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



Date: 17.MAY.2016 00:22:30

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

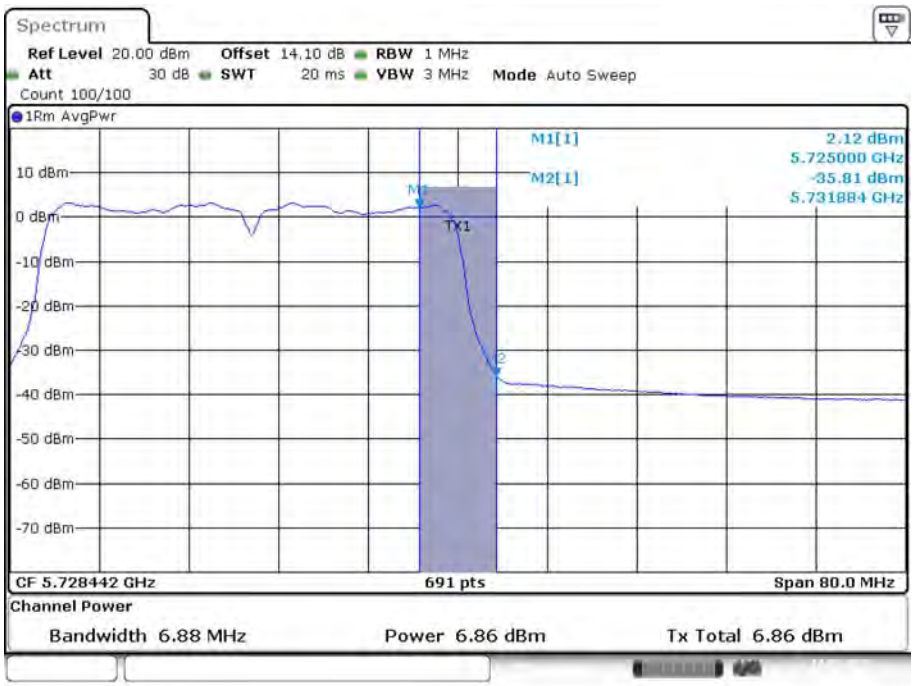


Date: 17.MAY.2016 00:22:37

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

Date: 17.MAY.2016 00:22:19

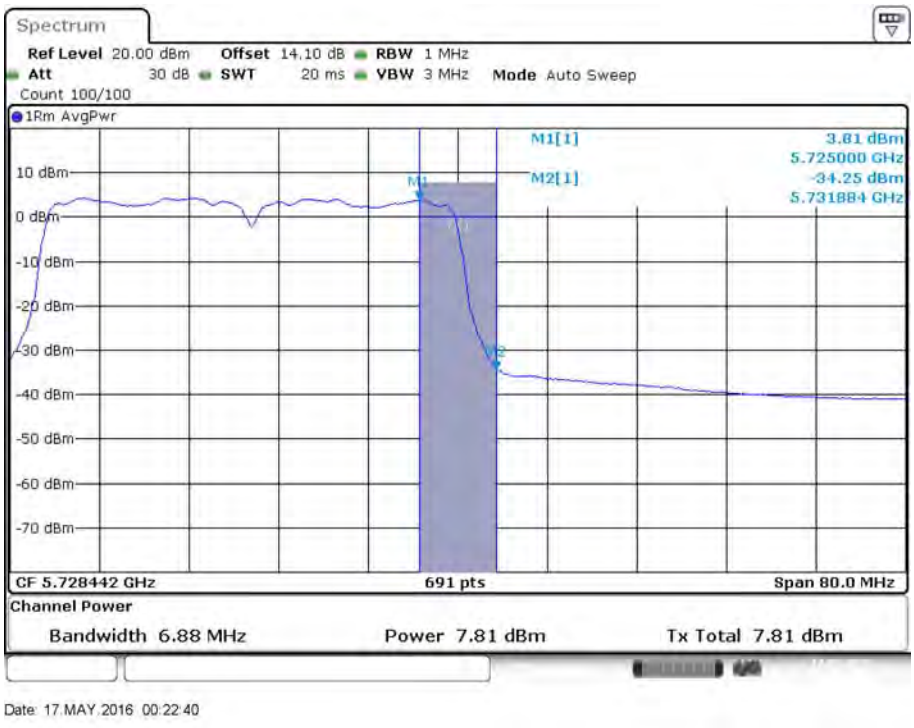
Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 2 / 5710 MHz (UNII 3)



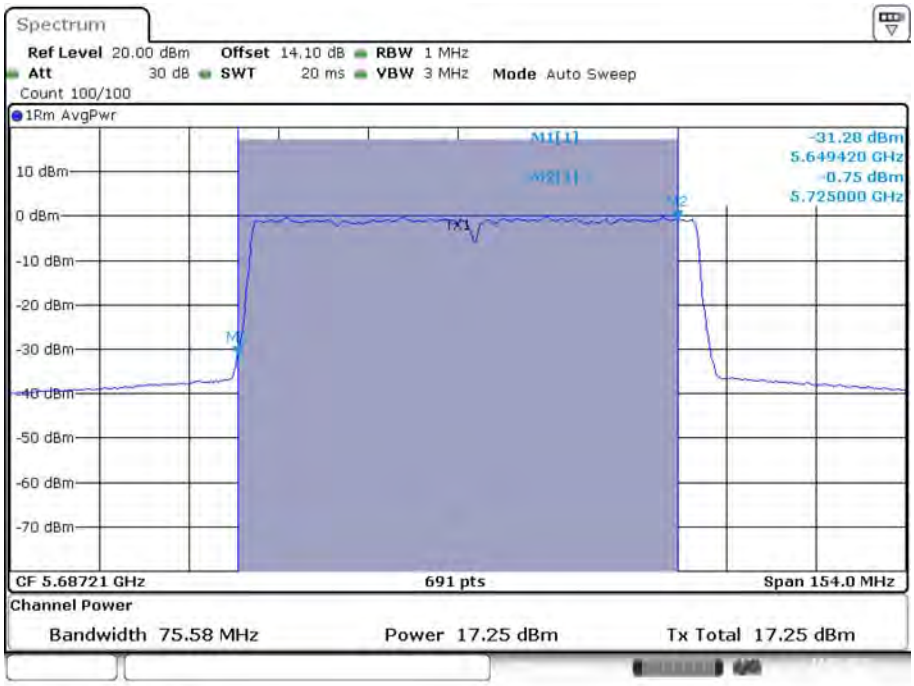
Date: 17.MAY.2016 00:22:26

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

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

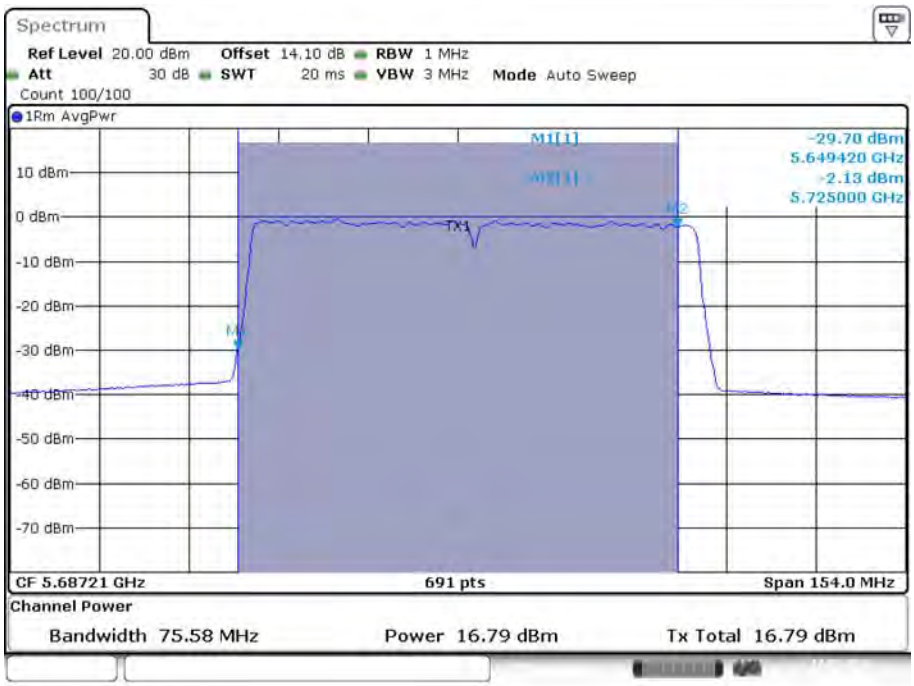


Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 / 5690 MHz (UNII 2C)



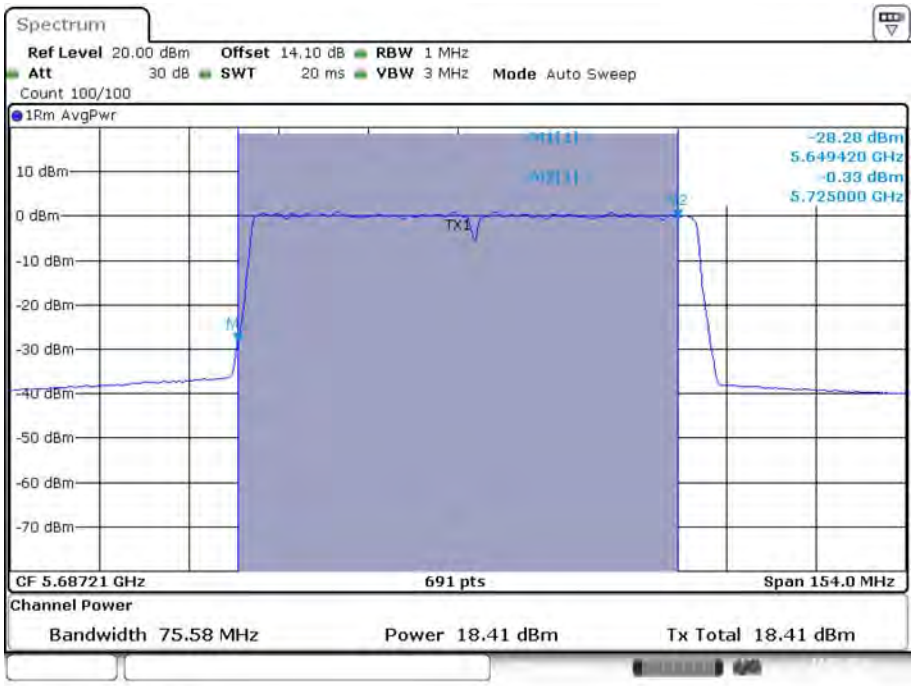
Date: 17.MAY.2016 00:29:30

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



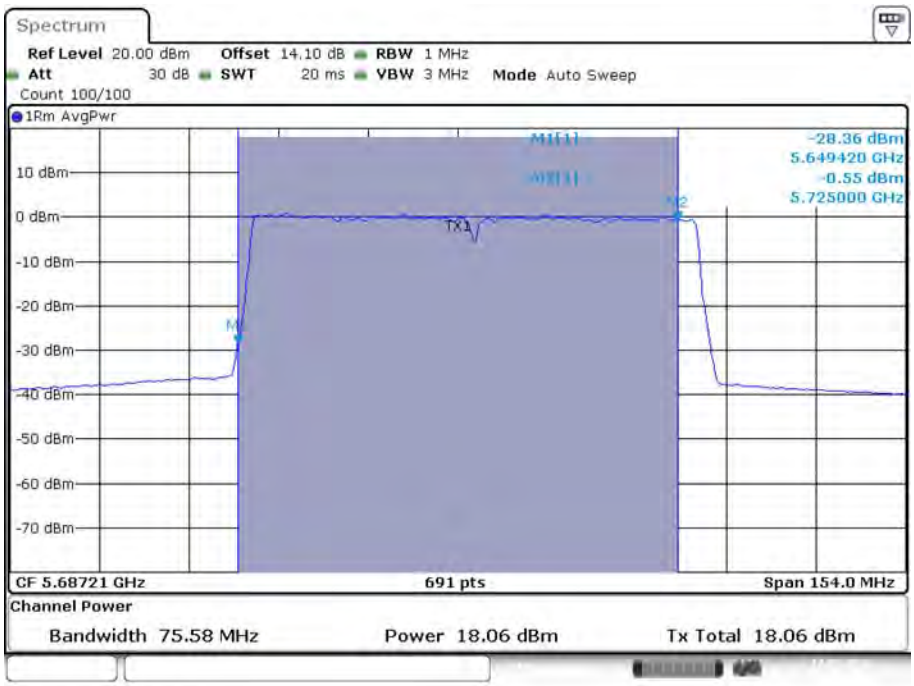
Date: 17.MAY.2016 00:29:37

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



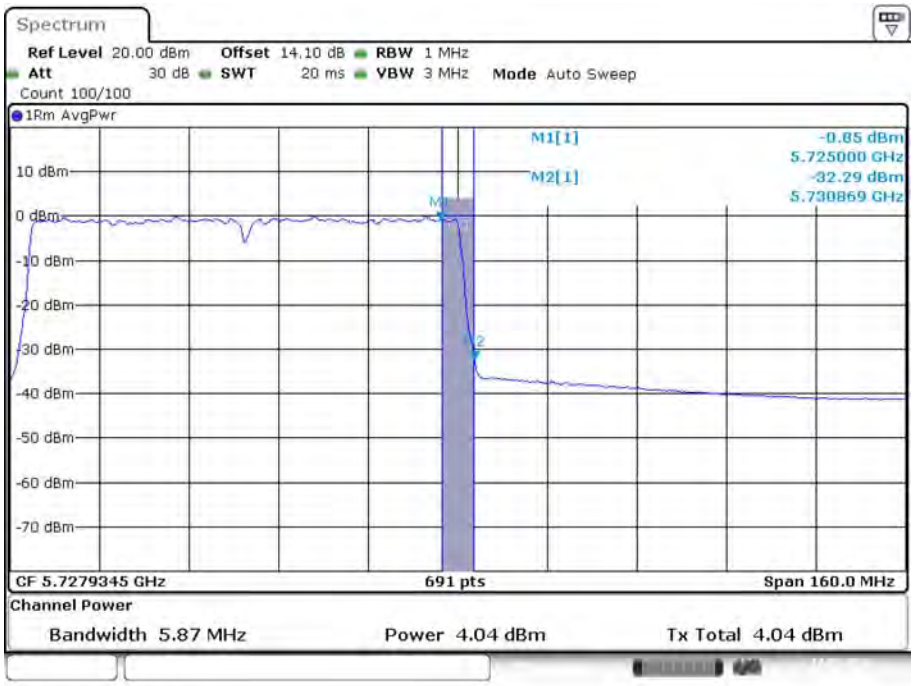
Date: 17.MAY.2016 00:29:44

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



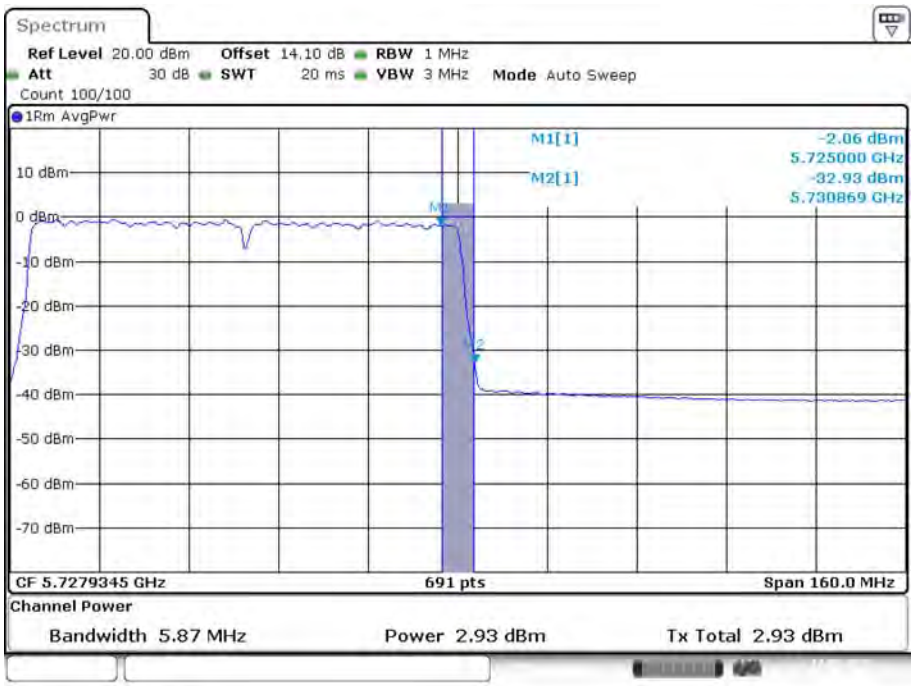
Date: 17.MAY.2016 00:29:51

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



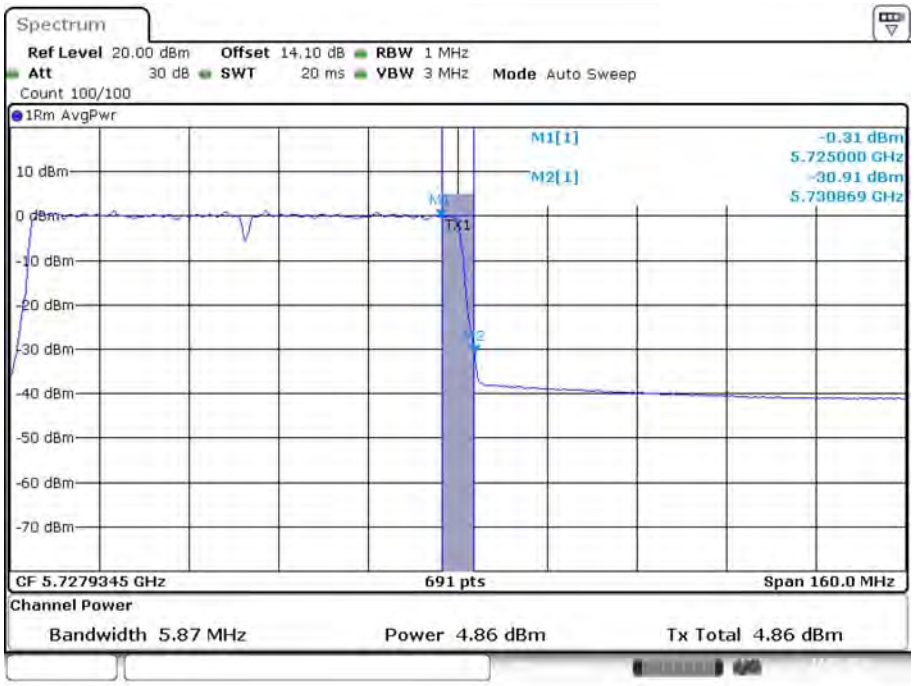
Date: 17.MAY.2016 00:29:33

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



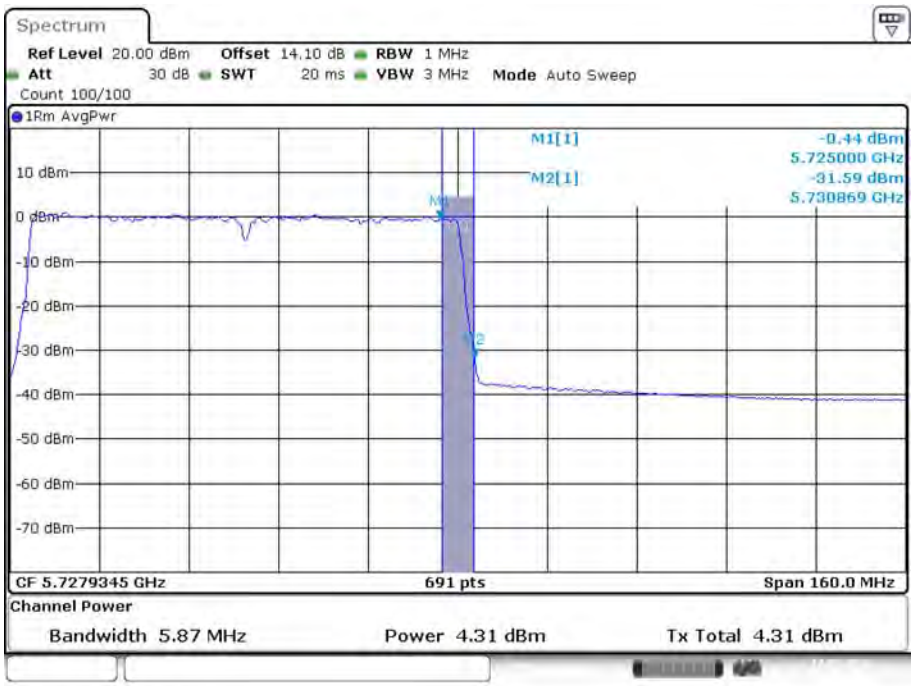
Date: 17.MAY.2016 00:29:40

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



Date: 17.MAY.2016 00:29:47

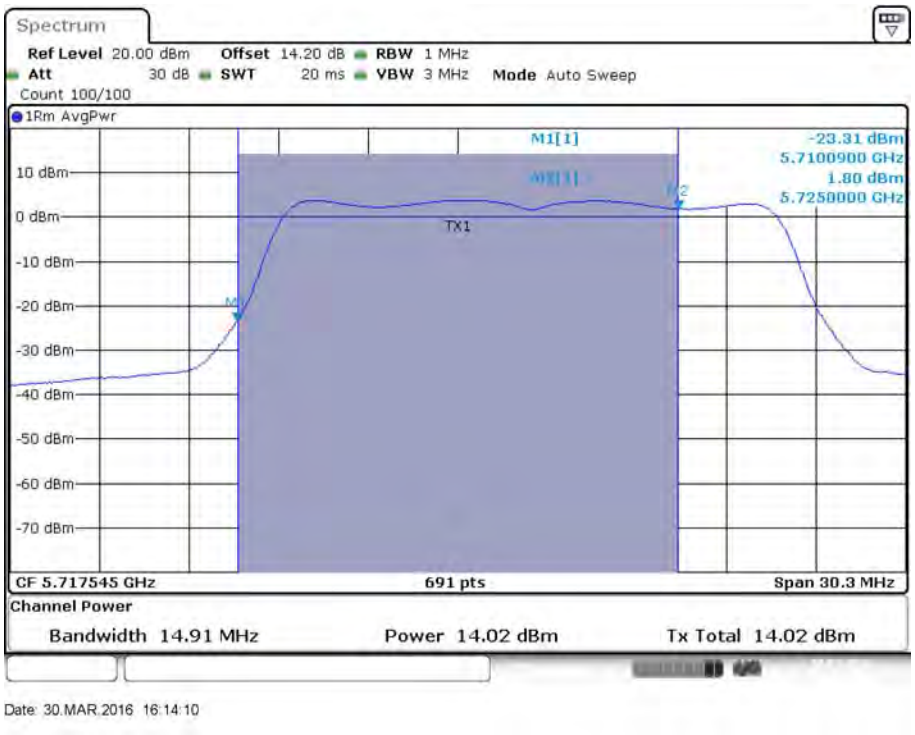
Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 4 / 5690 MHz (UNII 3)



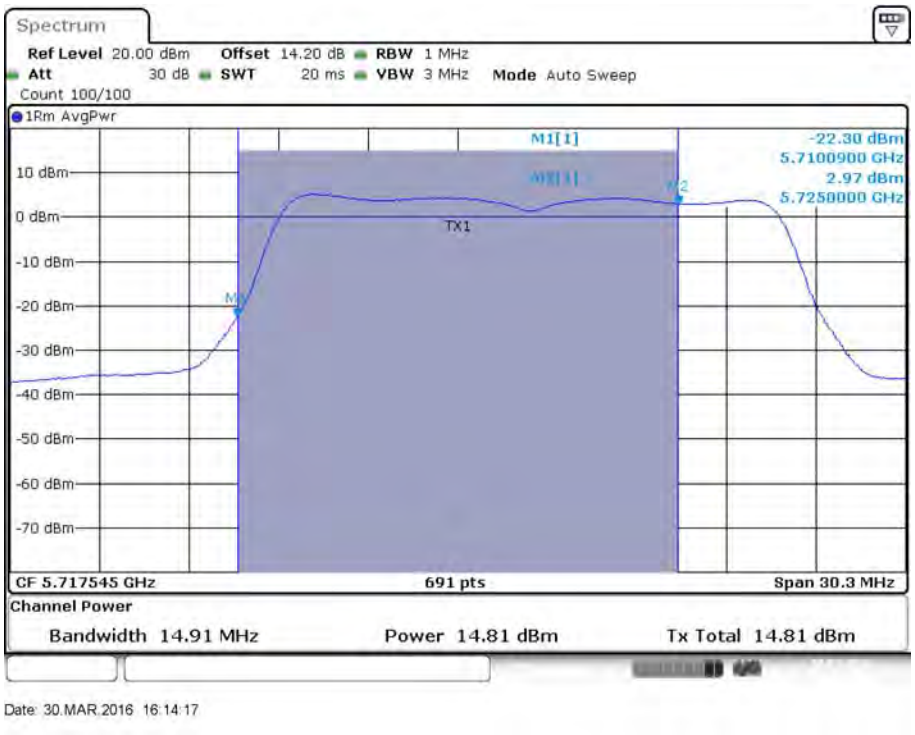
Date: 17.MAY.2016 00:29:54

For beamforming function:

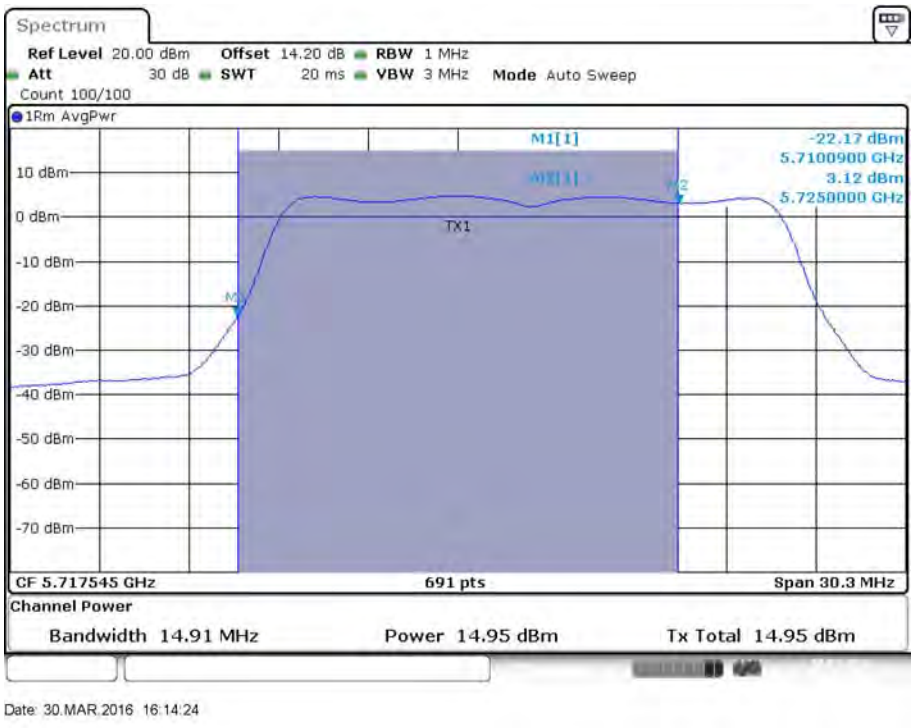
Conducted Output Power Plot on Configuration IEEE 802.11a / Chain 1 / 5720 MHz (UNII 2C)



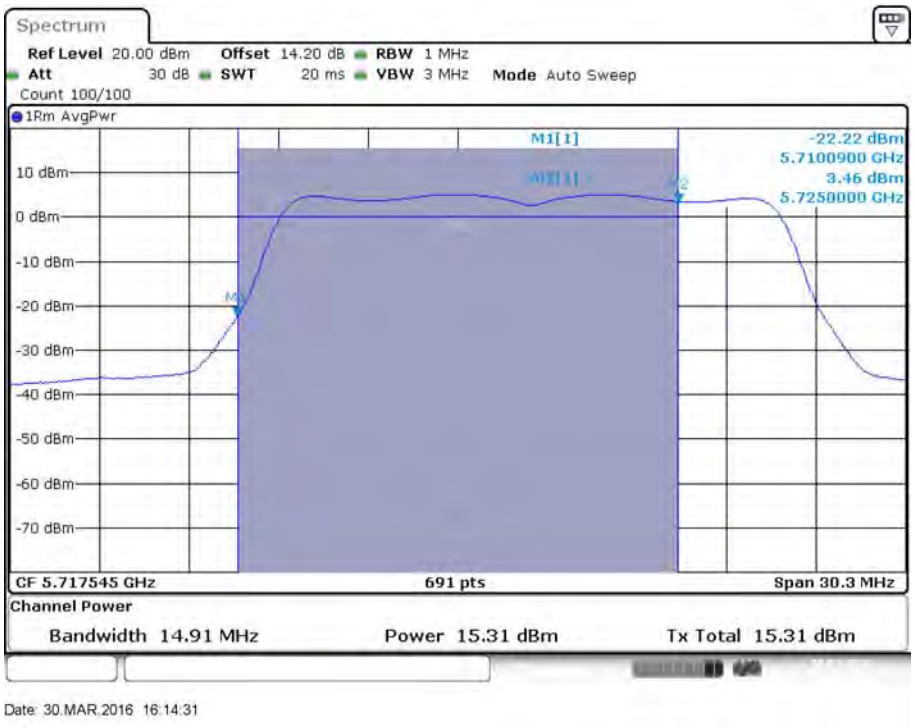
Conducted Output Power Plot on Configuration IEEE 802.11a / Chain 2 / 5720 MHz (UNII 2C)



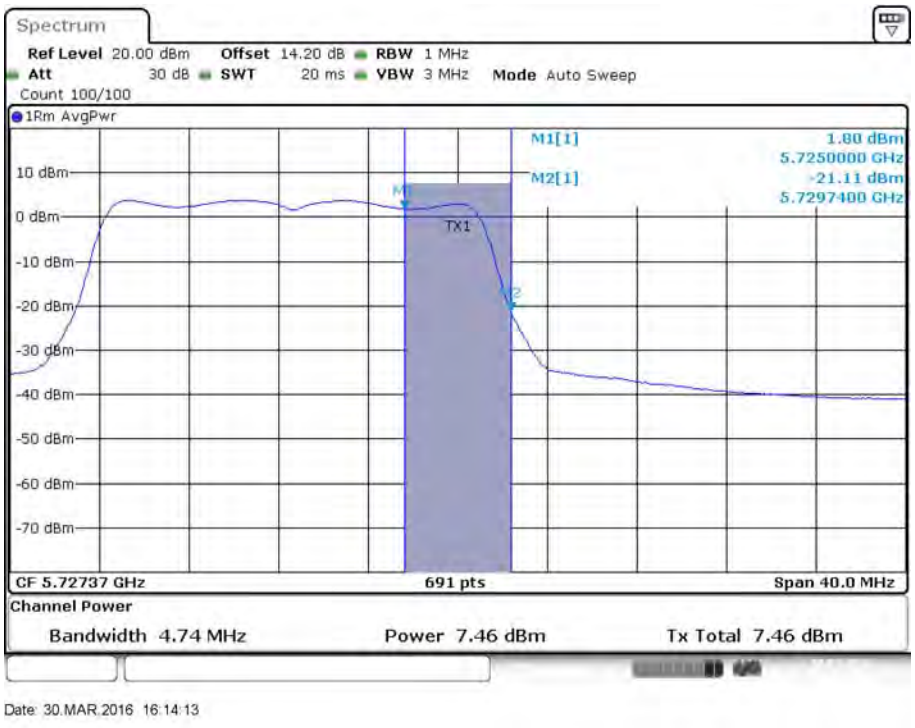
Conducted Output Power Plot on Configuration IEEE 802.11a / Chain 3 / 5720 MHz (UNII 2C)



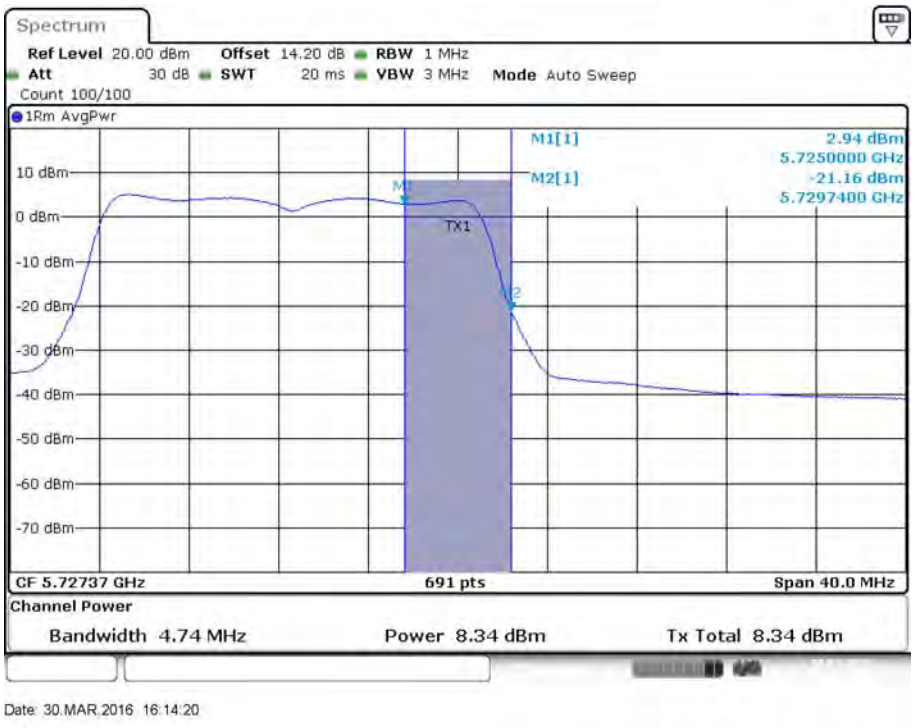
Conducted Output Power Plot on Configuration IEEE 802.11a / Chain 4 / 5720 MHz (UNII 2C)



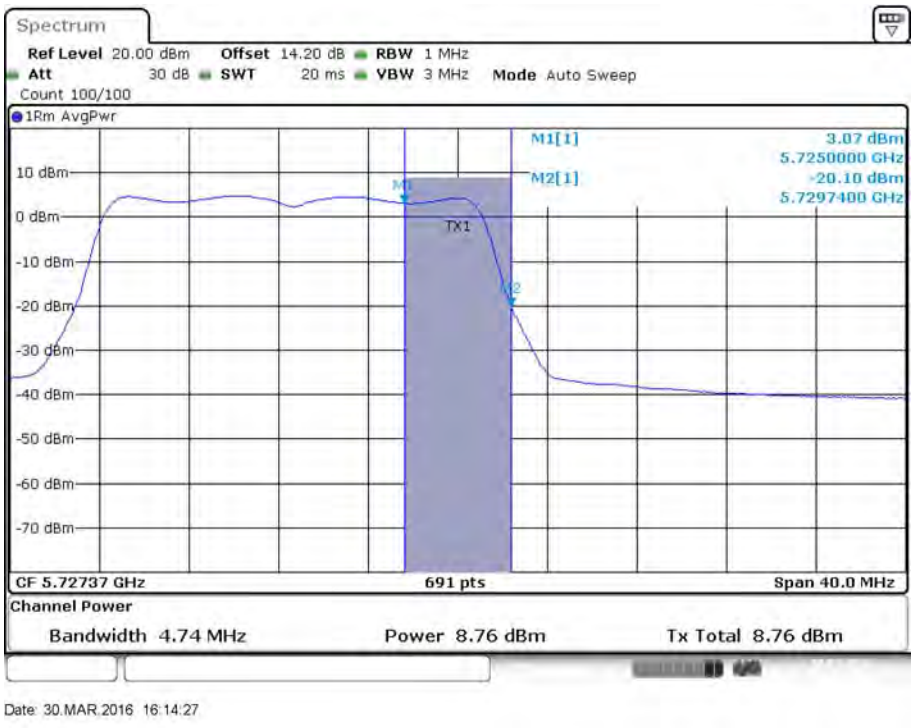
Conducted Output Power Plot on Configuration IEEE 802.11a / Chain 1 / 5720 MHz (UNII 3)



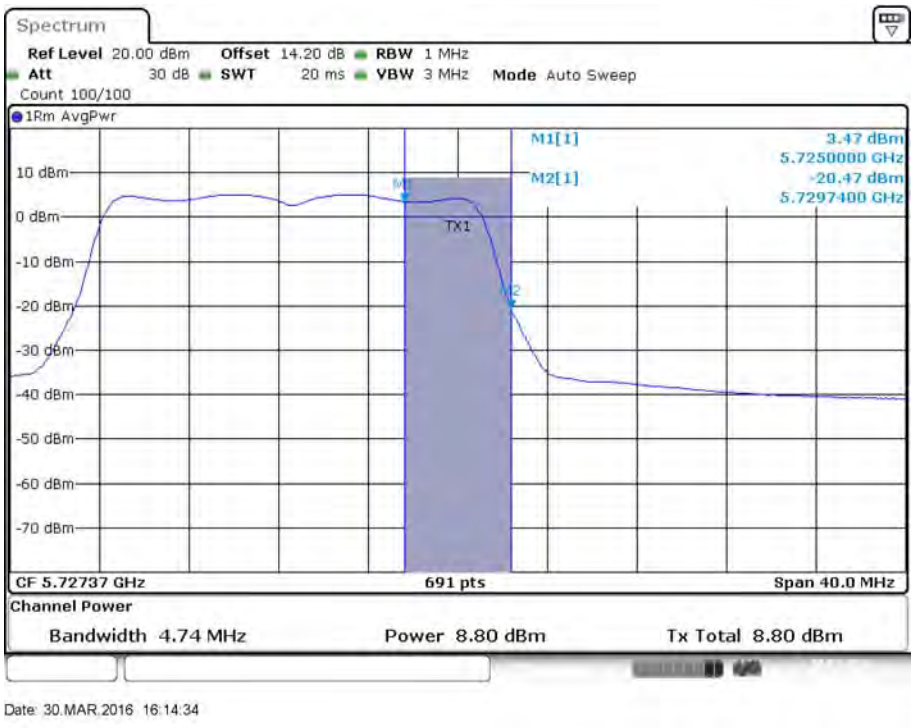
Conducted Output Power Plot on Configuration IEEE 802.11a / Chain 2 / 5720 MHz (UNII 3)



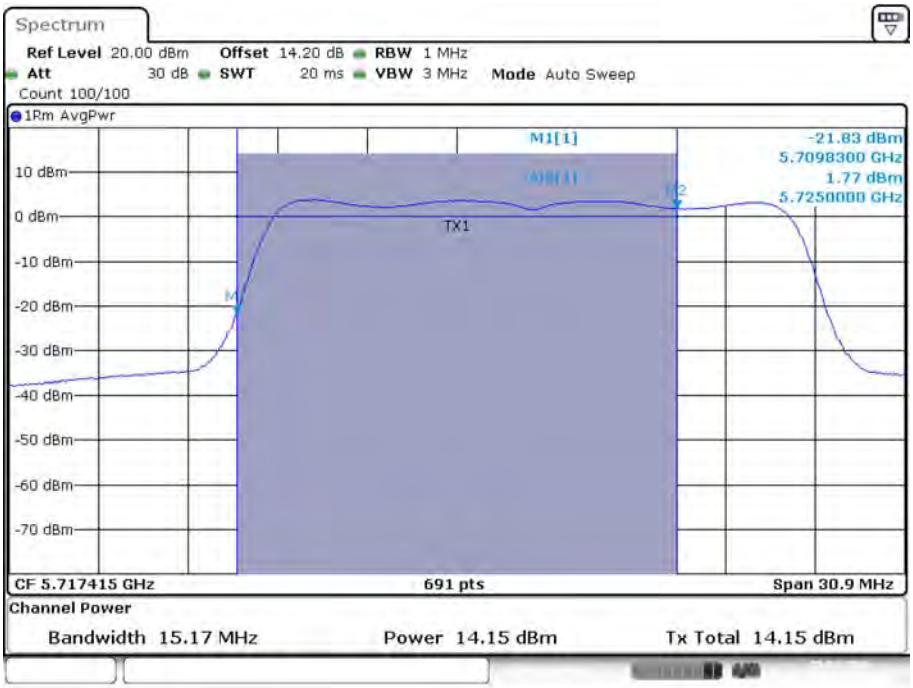
Conducted Output Power Plot on Configuration IEEE 802.11a / Chain 3 / 5720 MHz (UNII 3)



Conducted Output Power Plot on Configuration IEEE 802.11a / Chain 4 / 5720 MHz (UNII 3)

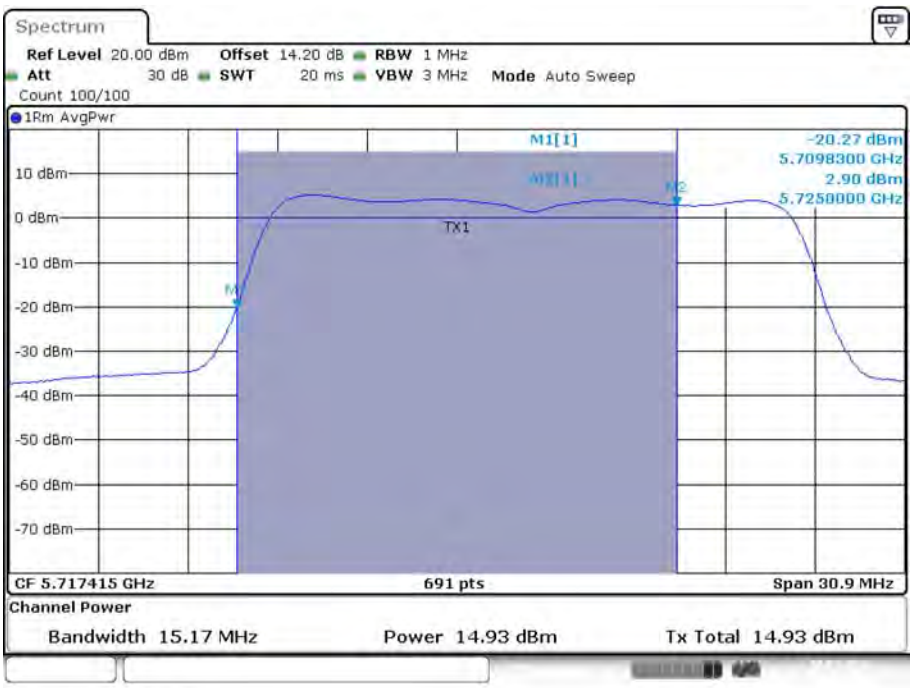


Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 / 5720 MHz (UNII 2C)



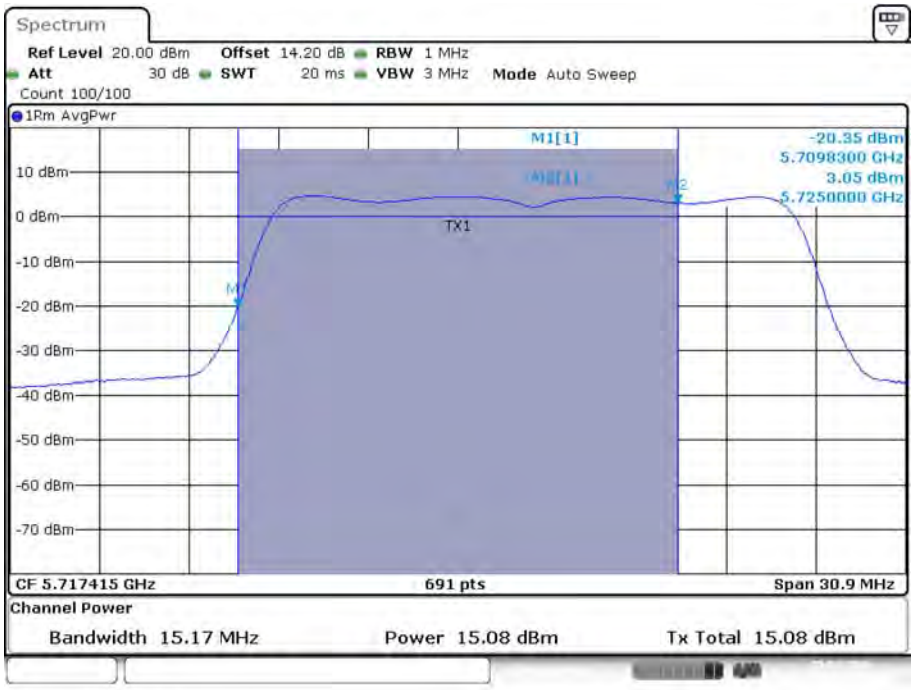
Date: 30.MAR.2016 16:04:16

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



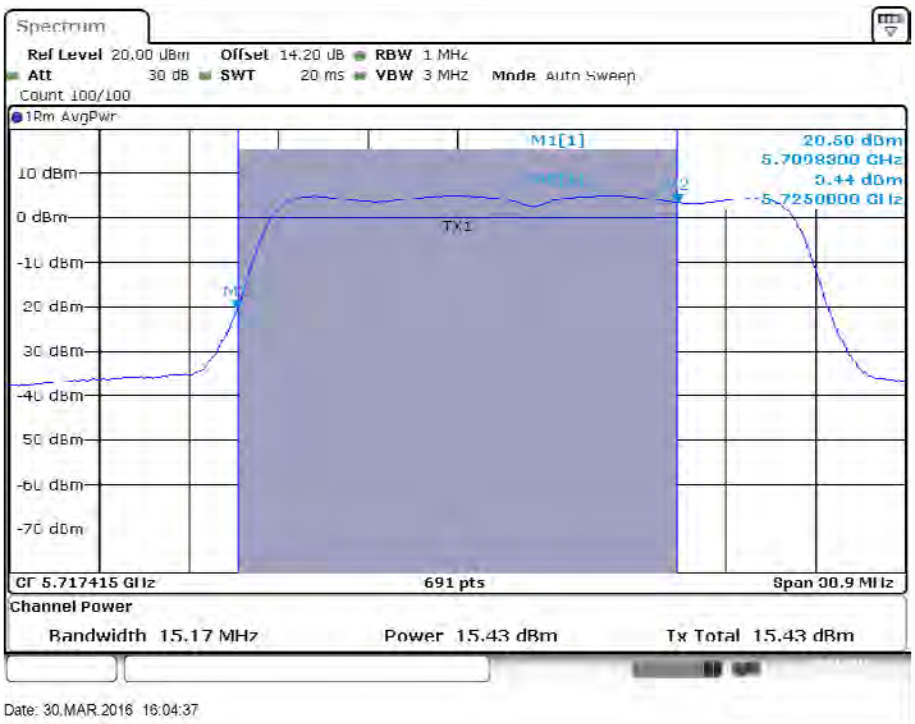
Date: 30.MAR.2016 16:04:23

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



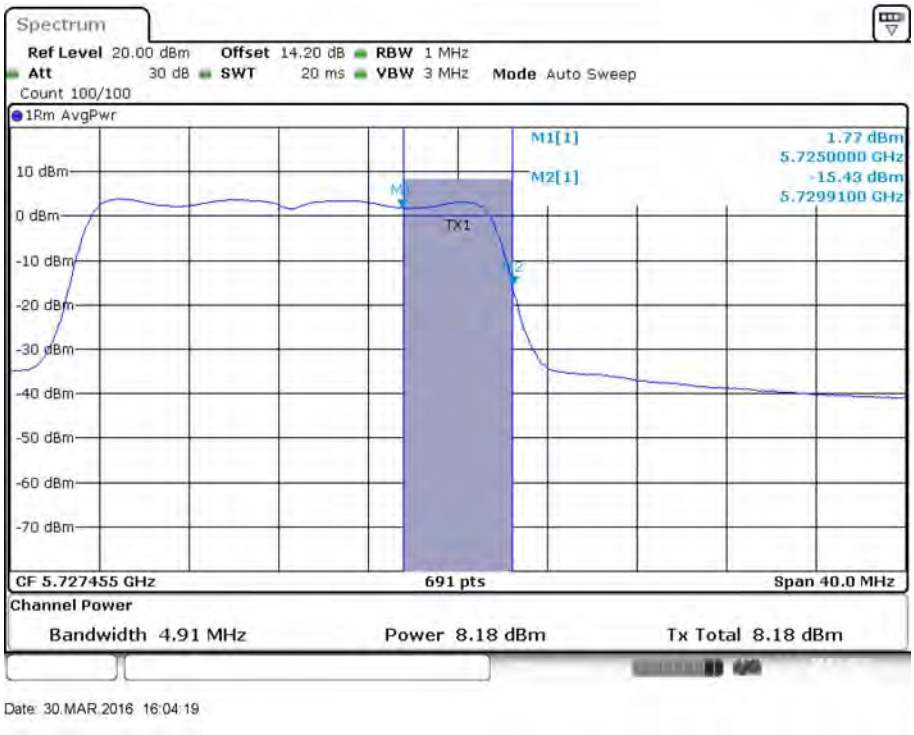
Date: 30.MAR.2016 16:04:30

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

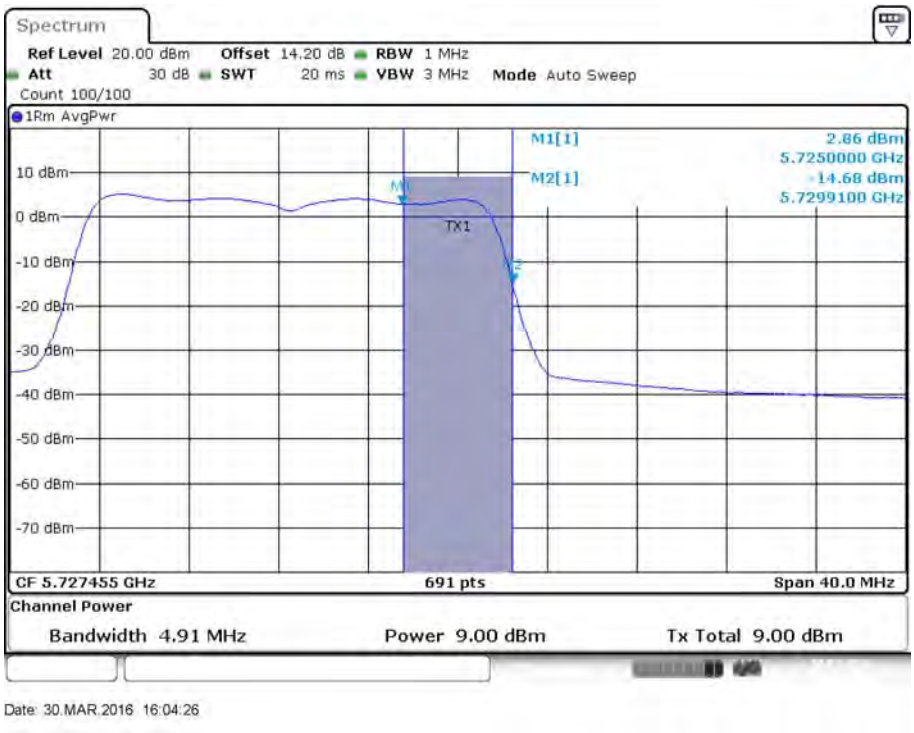


Date: 30.MAR.2016 16:04:37

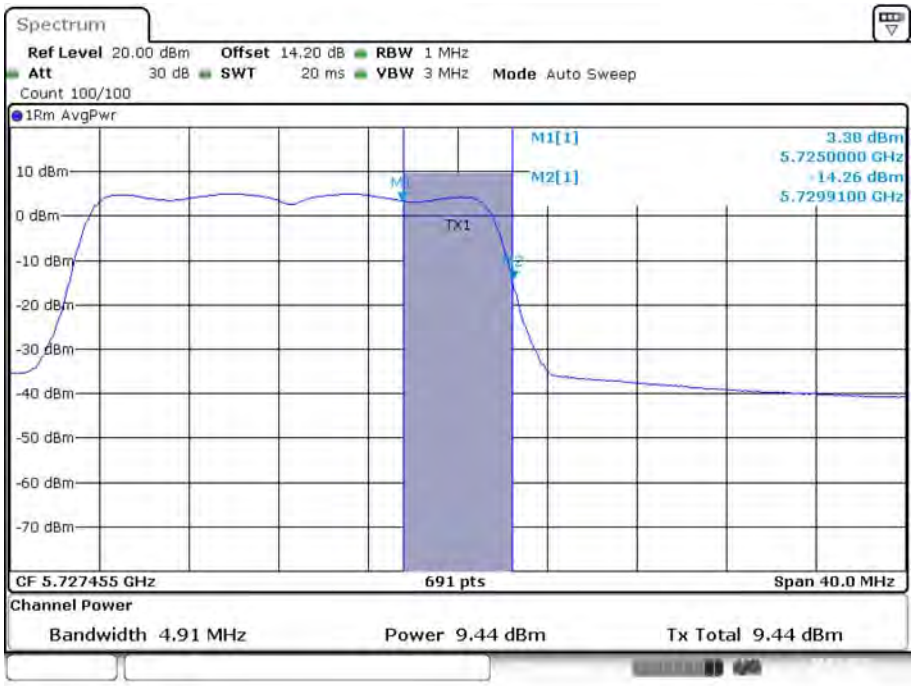
Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 / 5720 MHz (UNII 3)



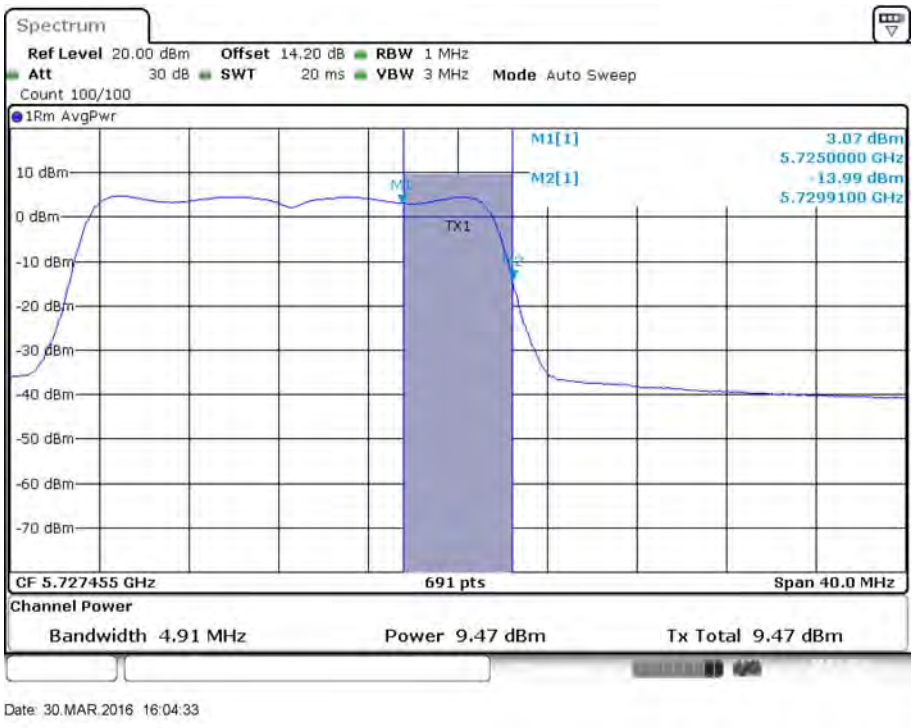
Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 2 / 5720 MHz (UNII 3)



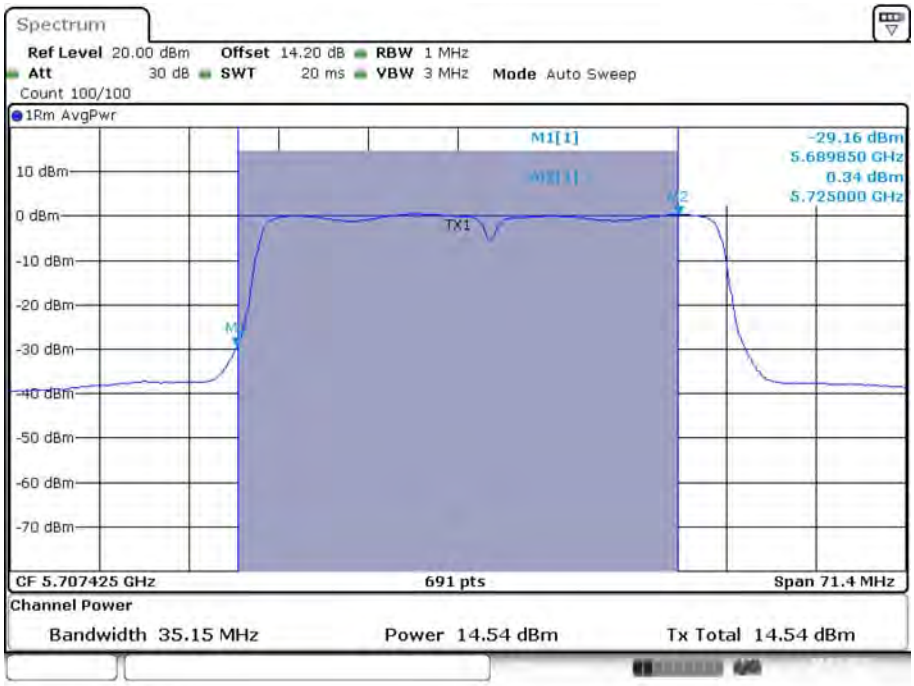
Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 / 5720 MHz (UNII 3)



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

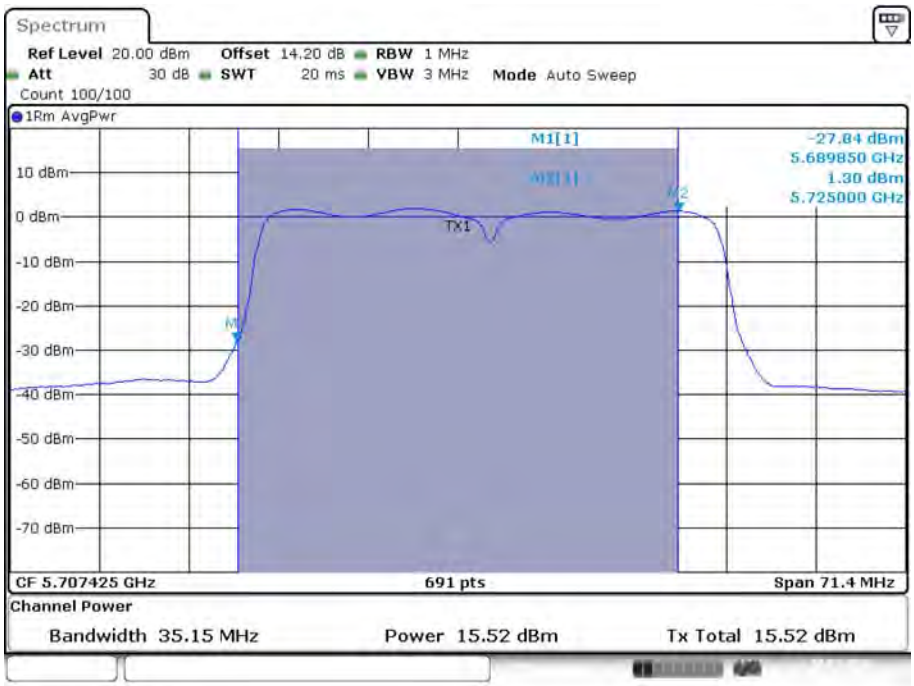


Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 / 5710 MHz (UNII 2C)



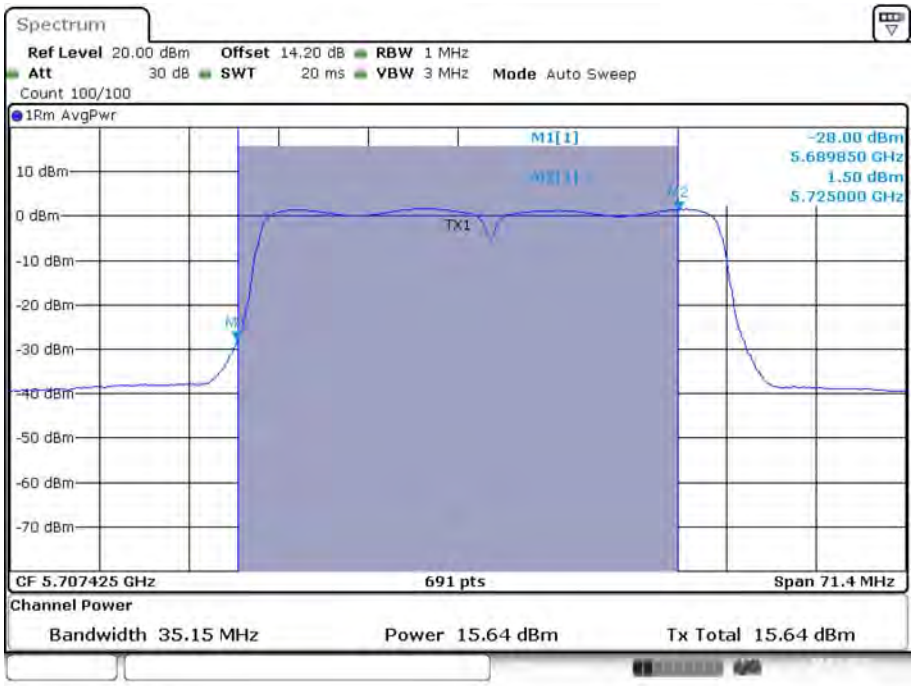
Date: 30.MAR.2016 15:45:56

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



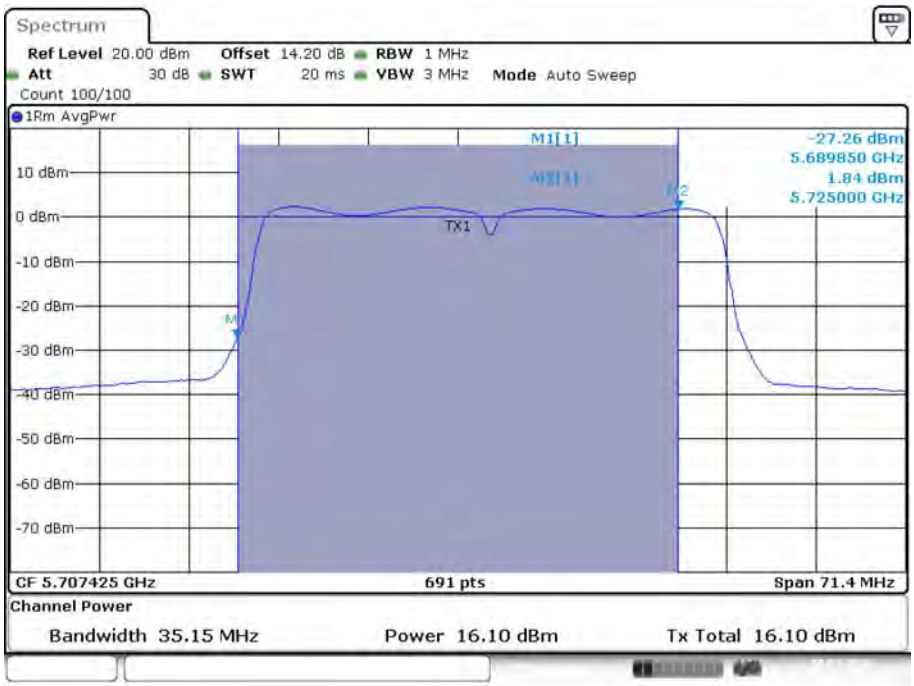
Date: 30.MAR.2016 15:46:03

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



Date: 30.MAR.2016 15:46:10

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



Date: 30.MAR.2016 15:46:17

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

Date: 30.MAR.2016 15:45:59

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

Date: 30.MAR.2016 15:46:06

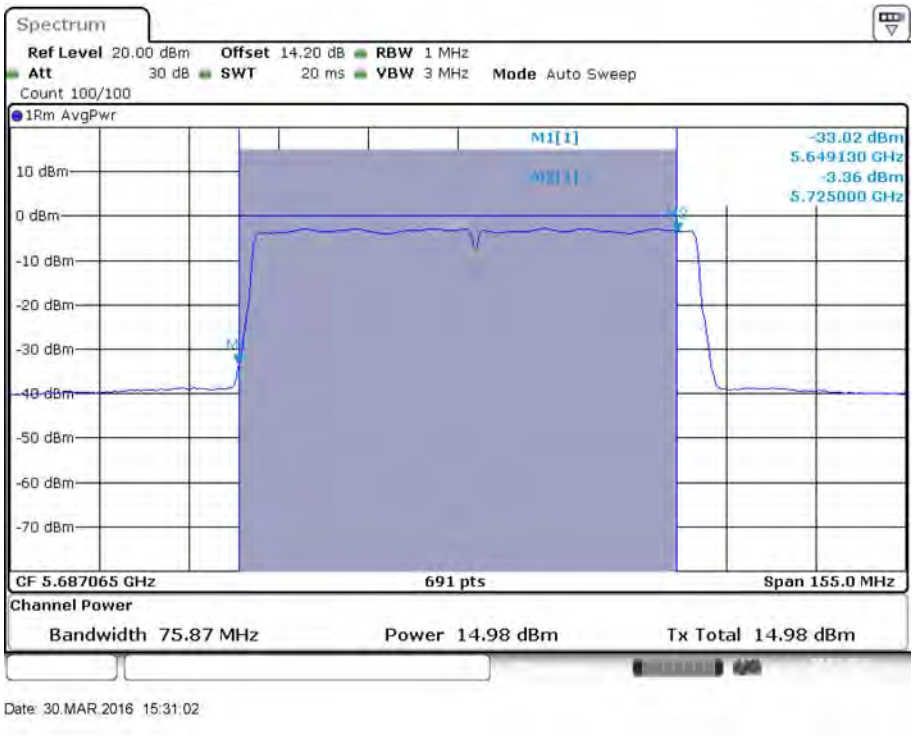
Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 3 / 5710 MHz (UNII 3)

Date: 30.MAR.2016 15:46:13

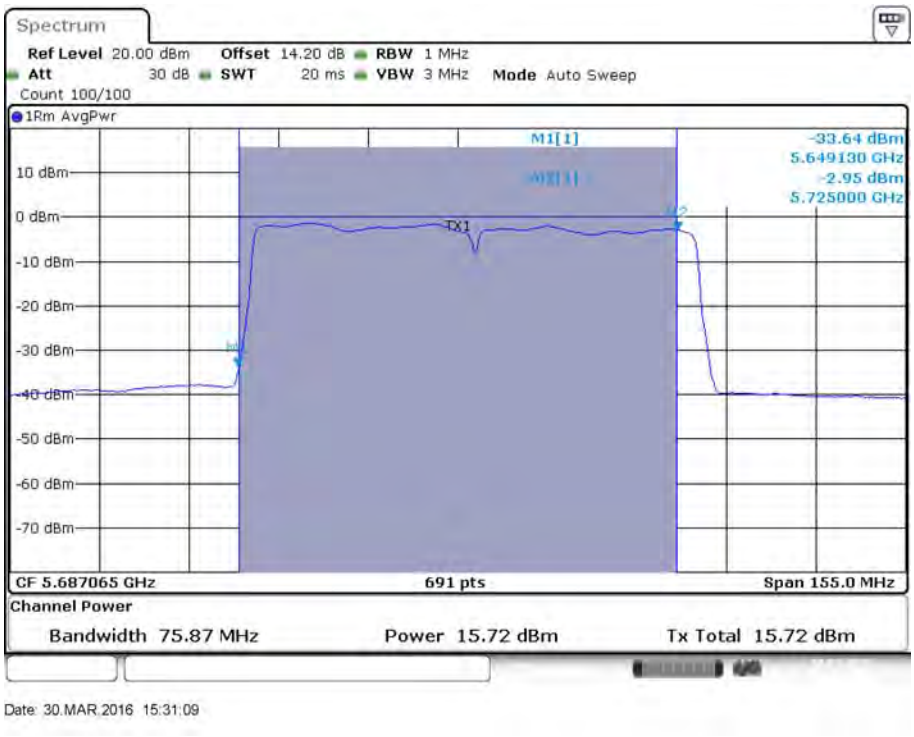
Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 4 / 5710 MHz (UNII 3)

Date: 30.MAR.2016 15:46:20

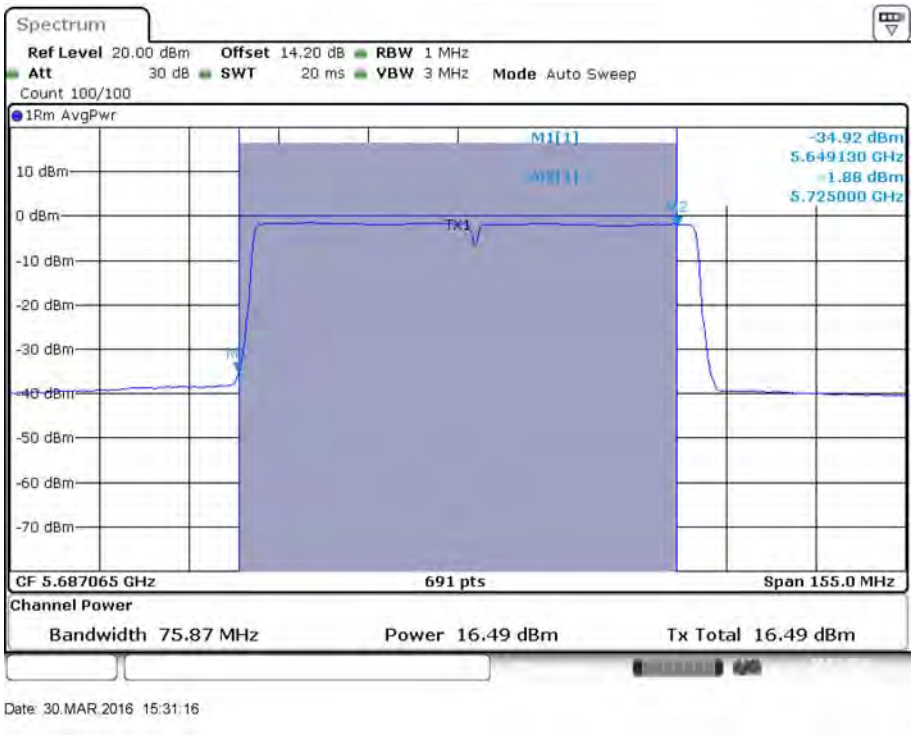
Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 / 5690 MHz (UNII 2C)



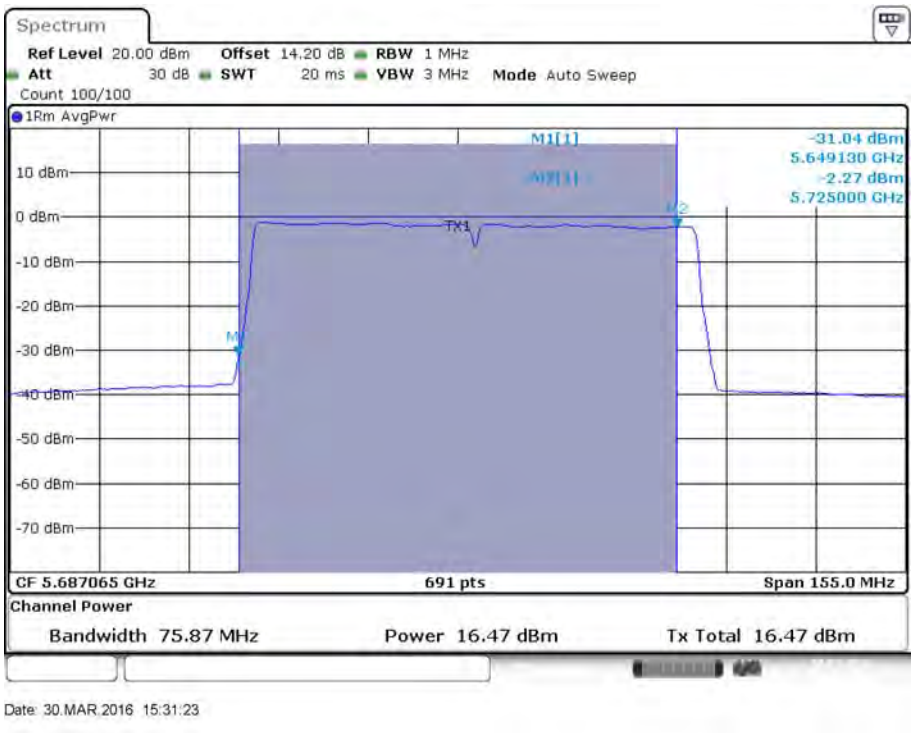
Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 2 / 5690 MHz (UNII 2C)



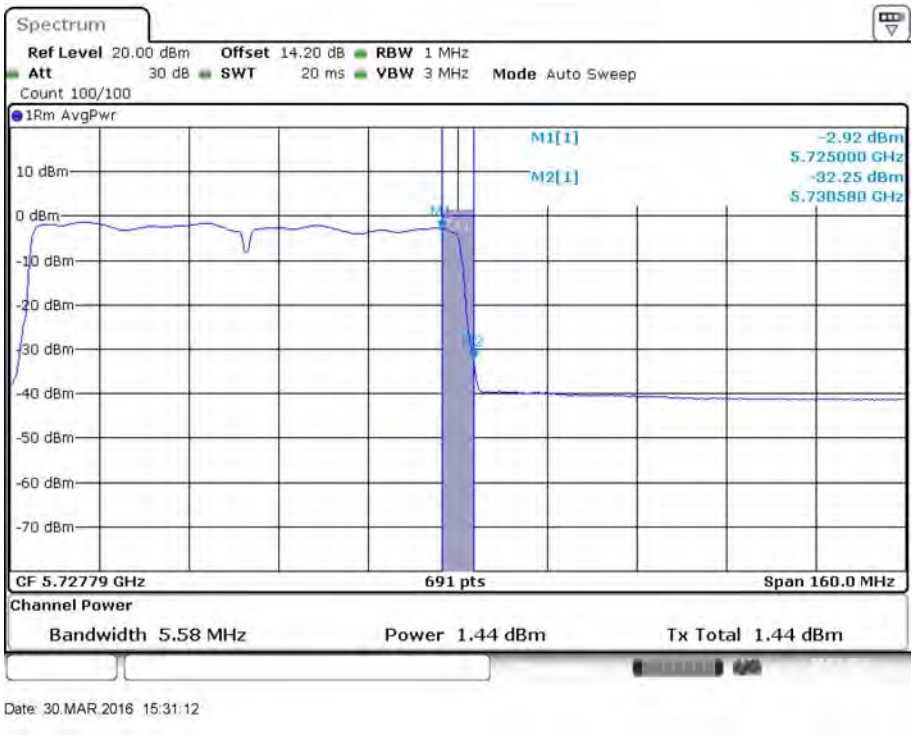
Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 3 / 5690 MHz (UNII 2C)



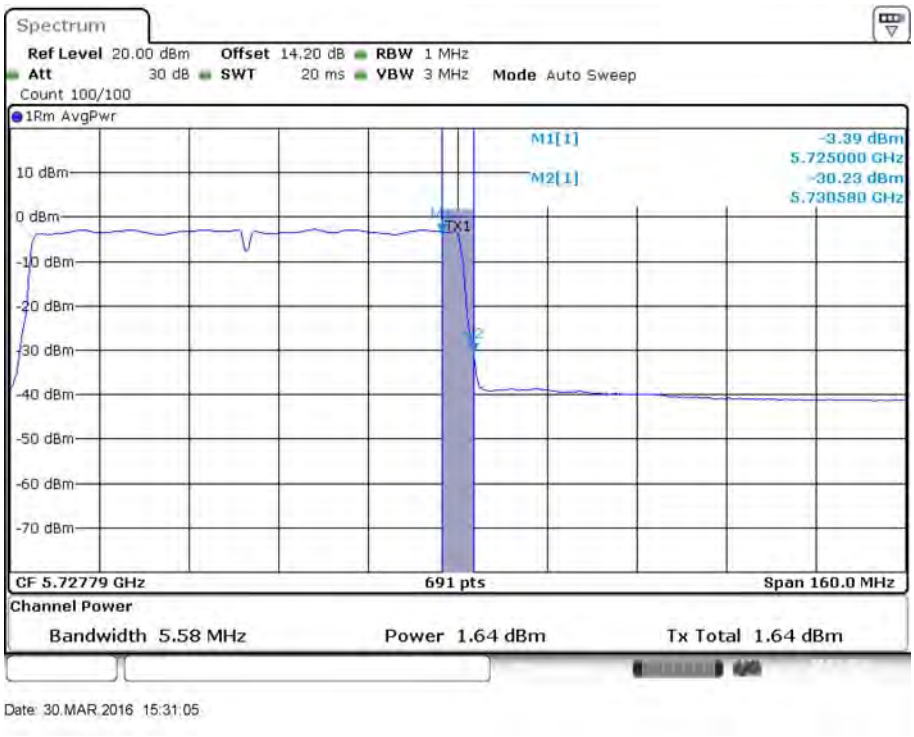
Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 4 / 5690 MHz (UNII 2C)



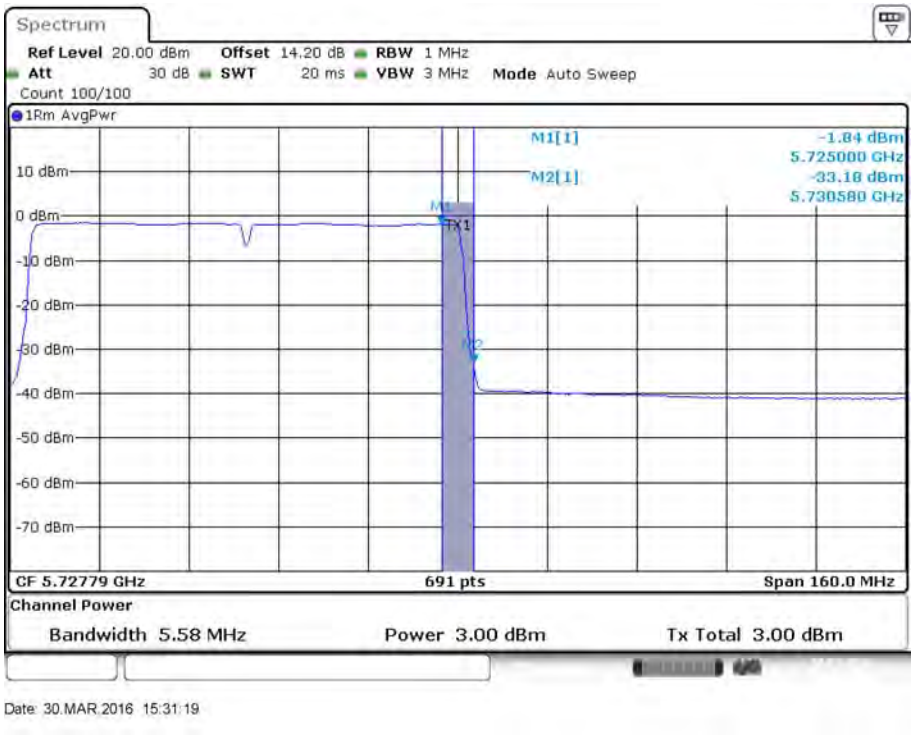
Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 / 5690 MHz (UNII 3)



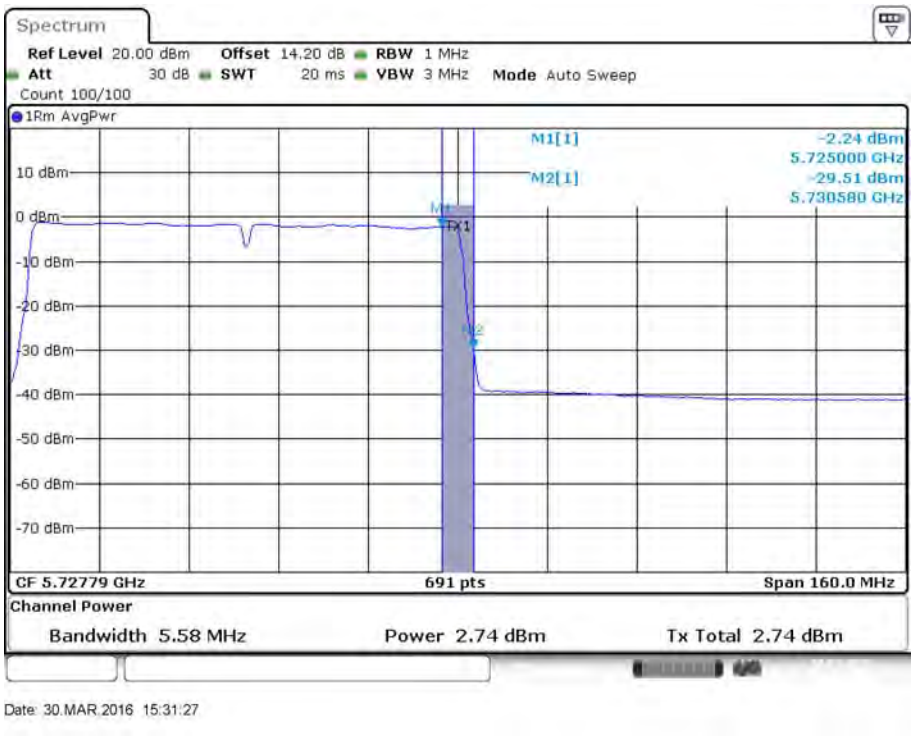
Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 2 / 5690 MHz (UNII 3)



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



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



4.5. Power Spectral Density Measurement

4.5.1. Limit

The following table is power spectral density limits and decrease power density limit rule refer to section 4.4.1.

Frequency Band			Limit
☒	5.15~5.25 GHz		
	Operating Mode		
	☐	Outdoor access point	17 dBm/MHz
	☒	Indoor access point	17 dBm/MHz
	☐	Fixed point-to-point access points	17 dBm/MHz
	☐	Mobile and portable client devices	11 dBm/MHz
☒	5.25-5.35 GHz		11 dBm/MHz
☒	5.470-5.725 GHz		11 dBm/MHz
☒	5.725~5.85 GHz		30 dBm/500kHz

4.5.2. Measuring Instruments and Setting

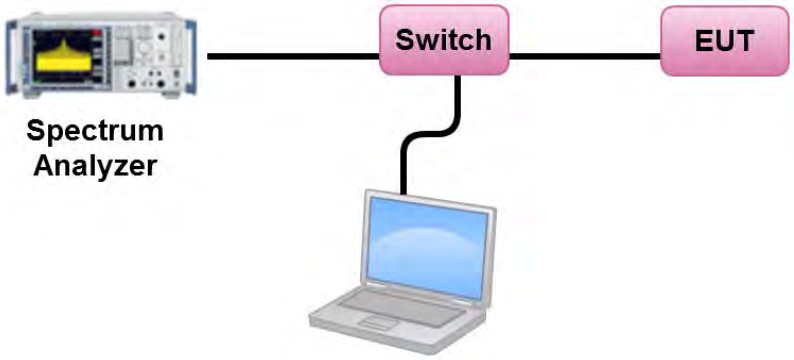
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

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
Note: If measurement bandwidth of Maximum PSD is specified in 500 kHz, add 10log(500kHz/RBW) to the measured result, whereas RBW (< 500 kHz) is the reduced resolution bandwidth of the spectrum analyzer set during measurement.	

4.5.3. 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. For 5.725~5.85 GHz, the measured result of PSD level must add 10log(500kHz/RBW) and the final result should ≤ 30 dBm.

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

The EUT was programmed to be in continuously transmitting mode.

4.5.7. Test Result of Power Spectral Density

Temperature	22°C	Humidity	64%
Test Engineer	Akina Chiu	Test Function	Non-beamforming function
Test Date	For straddle channel: May 16, 2016~May 17, 2016		
	For other channel: May 23, 2016~May 24, 2016		

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

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	13.10	17.00	Complies
40	5200 MHz	15.83	17.00	Complies
48	5240 MHz	15.42	17.00	Complies
52	5260 MHz	10.80	11.00	Complies
60	5300 MHz	10.89	11.00	Complies
64	5320 MHz	10.82	11.00	Complies
100	5500 MHz	10.38	11.00	Complies
116	5580 MHz	10.00	11.00	Complies
140	5700 MHz	8.88	11.00	Complies

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
149	5745 MHz	10.15	-3.01	7.14	30.00	Complies
157	5785 MHz	15.27	-3.01	12.26	30.00	Complies
165	5825 MHz	13.92	-3.01	10.91	30.00	Complies

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
36	5180 MHz	14.34	17.00	Complies
40	5200 MHz	16.31	17.00	Complies
48	5240 MHz	15.77	17.00	Complies
52	5260 MHz	10.89	11.00	Complies
60	5300 MHz	10.89	11.00	Complies
64	5320 MHz	10.58	11.00	Complies
100	5500 MHz	10.91	11.00	Complies
116	5580 MHz	10.74	11.00	Complies
140	5700 MHz	8.49	11.00	Complies

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
149	5745 MHz	13.82	-3.01	10.81	30.00	Complies
157	5785 MHz	15.24	-3.01	12.23	30.00	Complies
165	5825 MHz	14.46	-3.01	11.45	30.00	Complies

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
38	5190 MHz	7.58	17.00	Complies
46	5230 MHz	12.28	17.00	Complies
54	5270 MHz	7.10	11.00	Complies
62	5310 MHz	4.83	11.00	Complies
102	5510 MHz	4.97	11.00	Complies
110	5550 MHz	7.84	11.00	Complies
134	5670 MHz	7.80	11.00	Complies

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
151	5755 MHz	5.36	-3.01	2.35	30.00	Complies
159	5795 MHz	11.12	-3.01	8.11	30.00	Complies

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
42	5210 MHz	3.55		17.00		Complies
58	5290 MHz	-1.01		11.00		Complies
106	5530 MHz	0.33		11.00		Complies
122	5610 MHz	4.84		11.00		Complies
Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
155	5775 MHz	3.42	-3.01	0.41	30.00	Complies

Configuration IEEE 802.11ac MCS0/Nss1 VHT160 / Chain 1 + Chain 2 + Chain 3 + Chain 4

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
50	5250 MHz (UNII 1)	1.78	17.00	Complies
50	5250 MHz (UNII 2A)		11.00	Complies
114	5570 MHz	1.36	11.00	Complies

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)	10.21		11.00		Complies
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)	9.94	-3.01	6.93	30.00	Complies

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)	10.23		11.00		Complies
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)	10.06	-3.01	7.05	30.00	Complies

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)	8.13		11.00		Complies
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)	7.90	-3.01	4.89	30.00	Complies

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)	4.40		11.00		Complies
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)	4.12	-3.01	1.11	30.00	Complies

Temperature	22°C	Humidity	64%
Test Engineer	Akina Chiu	Test Function	Beamforming function
Test Date	For straddle channel: Mar. 30, 2016		
	For other channel: May 23, 2016~May 24, 2016		

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

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	12.06	15.26	Complies
40	5200 MHz	14.65	15.26	Complies
48	5240 MHz	14.04	15.26	Complies
52	5260 MHz	8.19	9.26	Complies
60	5300 MHz	8.03	9.26	Complies
64	5320 MHz	7.86	9.26	Complies
100	5500 MHz	7.74	9.26	Complies
116	5580 MHz	8.76	9.26	Complies
140	5700 MHz	7.97	9.26	Complies

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
149	5745 MHz	10.33	-3.01	7.32	28.26	Complies
157	5785 MHz	14.46	-3.01	11.45	28.26	Complies
165	5825 MHz	10.92	-3.01	7.91	28.26	Complies

Note: $Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =7.74dBi >6dBi.

1. 5150~5250MHz power density limit=17 – (7.74 – 6)=15.26dBm/MHz.
2. 5250~5350MHz, 5470~5725MHz power density limit=11 – (7.74 – 6)=9.26dBm/MHz.
3. 5725~5850MHz power density limit=30 – (7.74 – 6)=28.26dBm/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
36	5180 MHz	12.29	15.26	Complies
40	5200 MHz	14.86	15.26	Complies
48	5240 MHz	14.74	15.26	Complies
52	5260 MHz	8.89	9.26	Complies
60	5300 MHz	8.93	9.26	Complies
64	5320 MHz	8.73	9.26	Complies
100	5500 MHz	8.86	9.26	Complies
116	5580 MHz	8.66	9.26	Complies
140	5700 MHz	8.70	9.26	Complies

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
149	5745 MHz	10.55	-3.01	7.54	28.26	Complies
157	5785 MHz	14.71	-3.01	11.70	28.26	Complies
165	5825 MHz	10.67	-3.01	7.66	28.26	Complies

Note: $Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =7.74dBi >6dBi.

1. 5150~5250MHz power density limit=17 – (7.74 – 6)=15.26dBm/MHz.
2. 5250~5350MHz, 5470~5725MHz power density limit=11 – (7.74 – 6)=9.26dBm/MHz.
3. 5725~5850MHz power density limit=30 – (7.74 – 6)=28.26dBm/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
38	5190 MHz	4.74	15.26	Complies
46	5230 MHz	11.91	15.26	Complies
54	5270 MHz	5.36	9.26	Complies
62	5310 MHz	5.13	9.26	Complies
102	5510 MHz	5.79	9.26	Complies
110	5550 MHz	5.10	9.26	Complies
134	5670 MHz	5.31	9.26	Complies

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
151	5755 MHz	3.99	-3.01	0.98	28.26	Complies
159	5795 MHz	9.95	-3.01	6.94	28.26	Complies

Note: $Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =7.74dBi >6dBi.

1. 5150~5250MHz power density limit=17 – (7.74 – 6)=15.26dBm/MHz.
2. 5250~5350MHz, 5470~5725MHz power density limit=11 – (7.74 – 6)=9.26dBm/MHz.
3. 5725~5850MHz power density limit=30 – (7.74 – 6)=28.26dBm/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
42	5210 MHz	1.67		15.26		Complies
58	5290 MHz	2.12		9.26		Complies
106	5530 MHz	1.99		9.26		Complies
122	5610 MHz	2.95		9.26		Complies
Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
155	5775 MHz	8.41	-3.01	5.40	28.26	Complies

Note: $Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =7.74dBi >6dBi.

1. 5150~5250MHz power density limit=17 – (7.74 – 6)=15.26dBm/MHz.
2. 5250~5350MHz, 5470~5725MHz power density limit=11 – (7.74 – 6)=9.26dBm/MHz.
3. 5725~5850MHz power density limit=30 – (7.74 – 6)=28.26dBm/500kHz.

Configuration IEEE 802.11ac MCS0/Nss1 VHT160 / Chain 1 + Chain 2 + Chain 3 + Chain 4

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
50	5250 MHz (UNII 1)	-0.15	15.26	Complies
50	5250 MHz (UNII 2A)		9.26	Complies
114	5570 MHz	-0.07	9.26	Complies

Note: $Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =7.74dBi >6dBi.

1. 5150~5250MHz power density limit=17 – (7.74 – 6)=15.26dBm/MHz.
2. 5250~5350MHz, 5470~5725MHz power density limit=11 – (7.74 – 6)=9.26dBm/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)	9.15		9.26		Complies
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)	8.38	-3.01	5.37	28.26	Complies

Note: $Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =7.74dBi >6dBi.

1. (UNII 2C) power density limit=11 – (7.74 – 6)=9.26dBm/MHz.
2. (UNII 3) power density limit=30 – (7.74 – 6)=28.26dBm/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)	9.17		9.26		Complies
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)	8.41	-3.01	5.40	28.26	Complies

Note: $Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =7.74dBi >6dBi.

1. (UNII 2C) power density limit=11 – (7.74 – 6)=9.26dBm/MHz.
2. (UNII 3) power density limit=30 – (7.74 – 6)=28.26dBm/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)	6.13		9.26		Complies
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)	5.87	-3.01	2.86	28.26	Complies

Note: $Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =7.74dBi >6dBi.

1. (UNII 2C) power density limit=11 – (7.74 – 6)=9.26dBm/MHz.
2. (UNII 3) power density limit=30 – (7.74 – 6)=28.26dBm/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)	2.73		9.26		Complies
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)	2.05	-3.01	-0.96	28.26	Complies

Note: $Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =7.74dBi >6dBi.

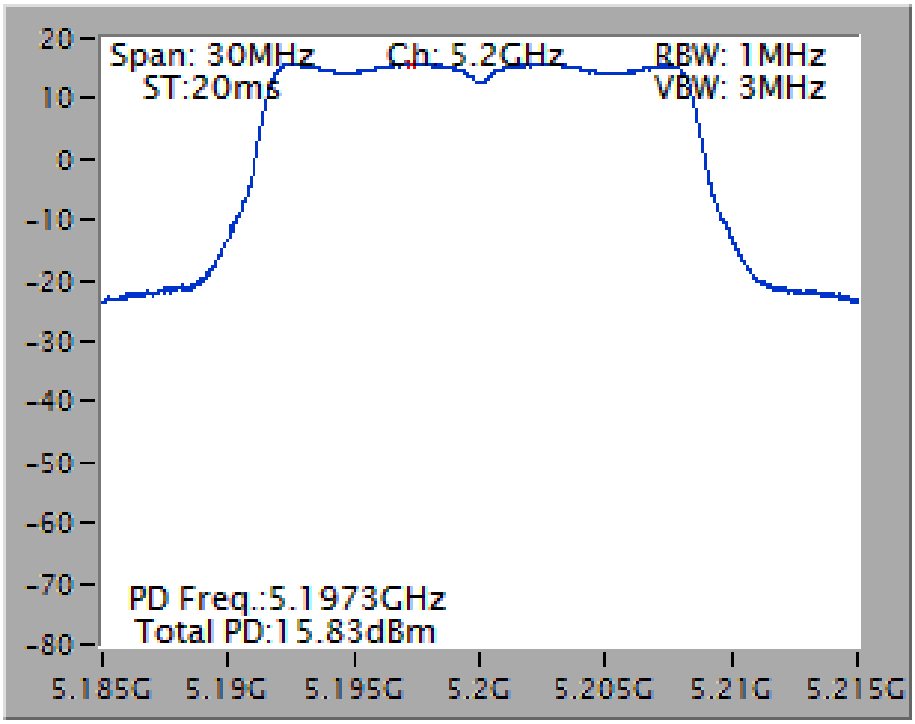
1. (UNII 2C) power density limit=11 – (7.74 – 6)=9.26dBm/MHz.
2. (UNII 3) power density limit=30 – (7.74 – 6)=28.26dBm/500kHz.

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

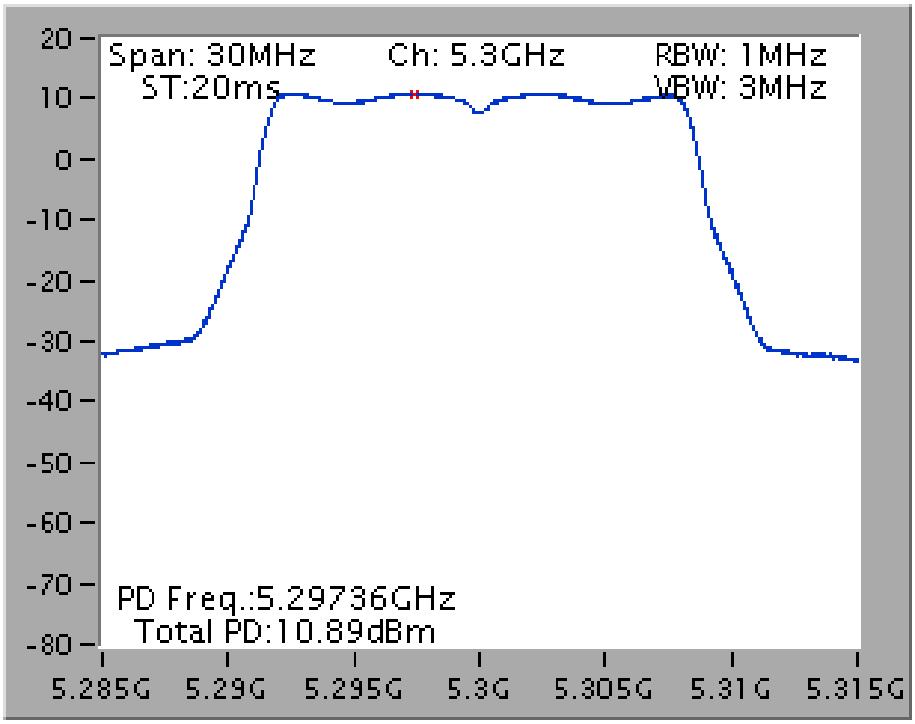
For plots, only the channel with worse result was shown.

For non-beamforming function:

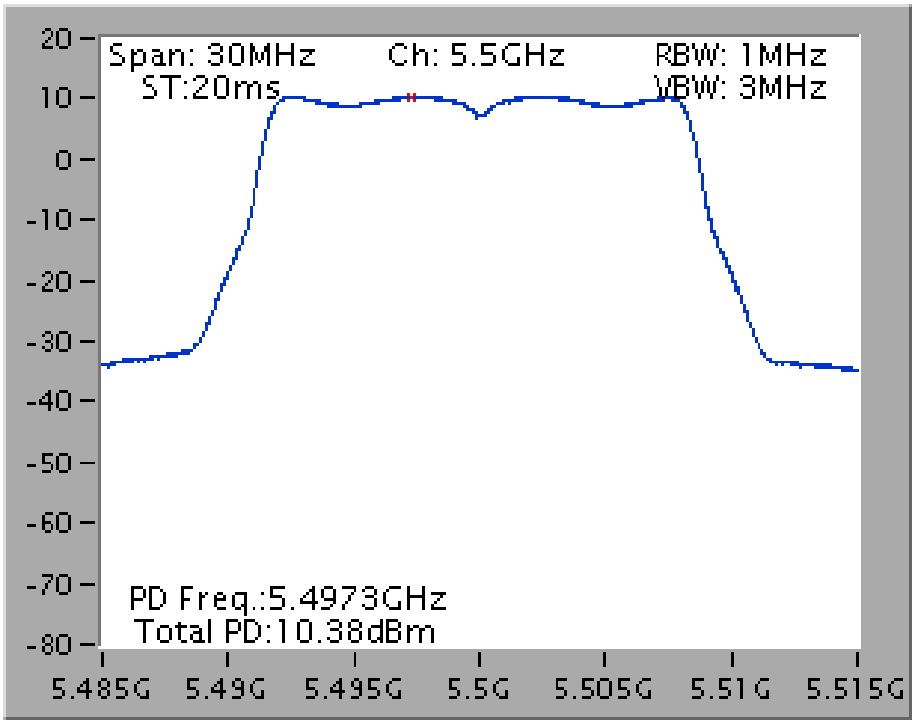
Power Density Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5200 MHz



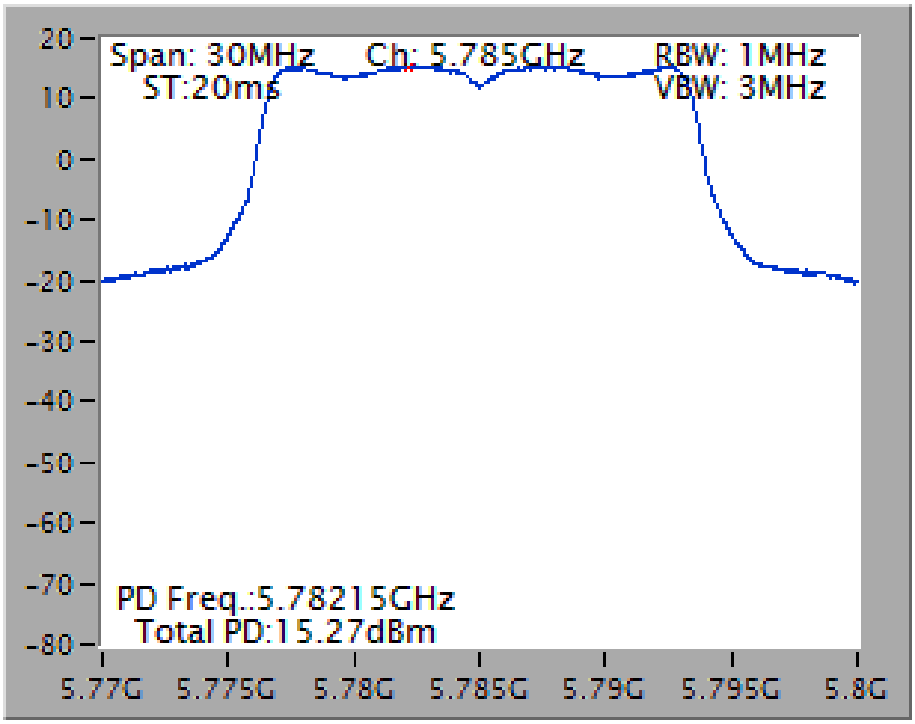
Power Density Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5300 MHz



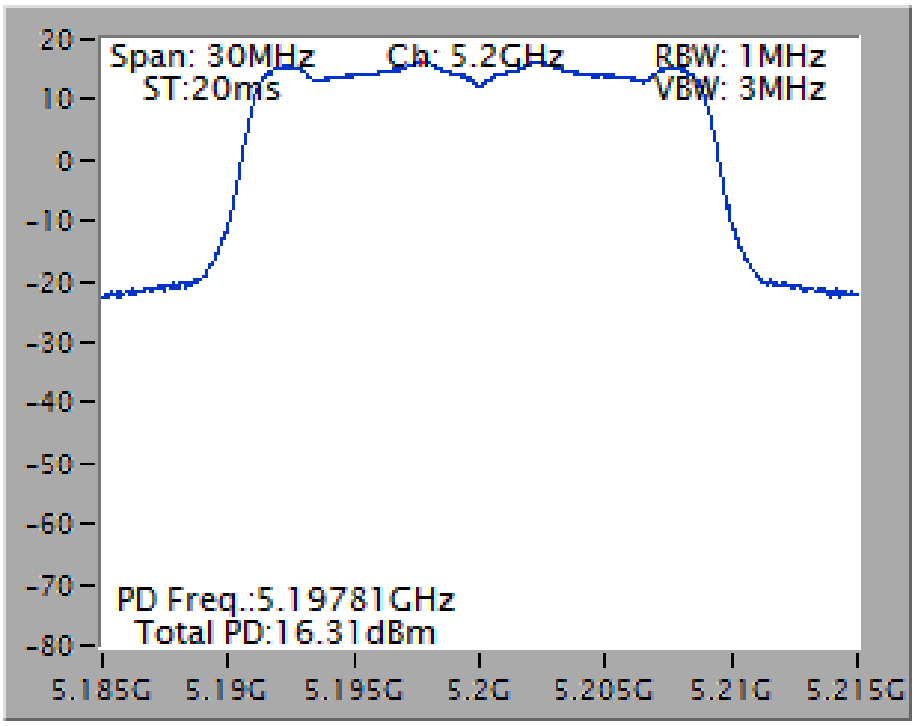
Power Density Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5500 MHz



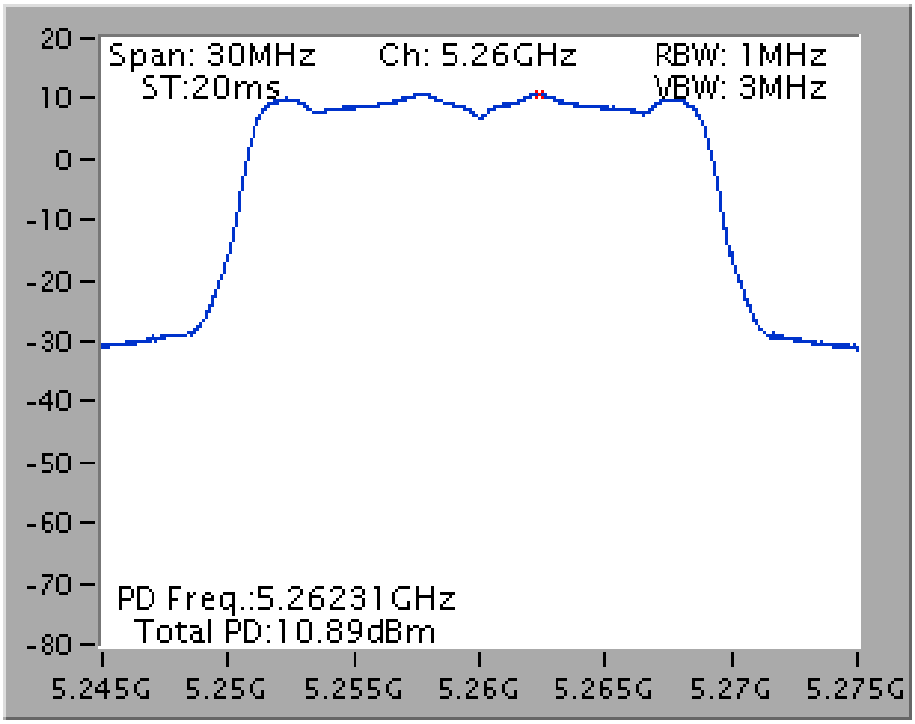
Power Density Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5785 MHz



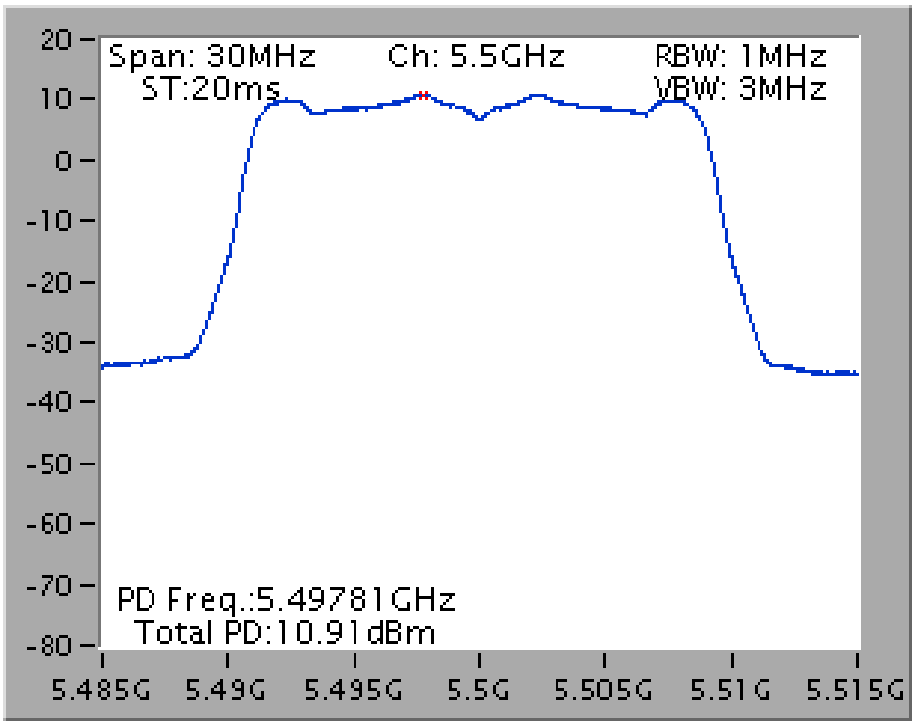
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5200 MHz



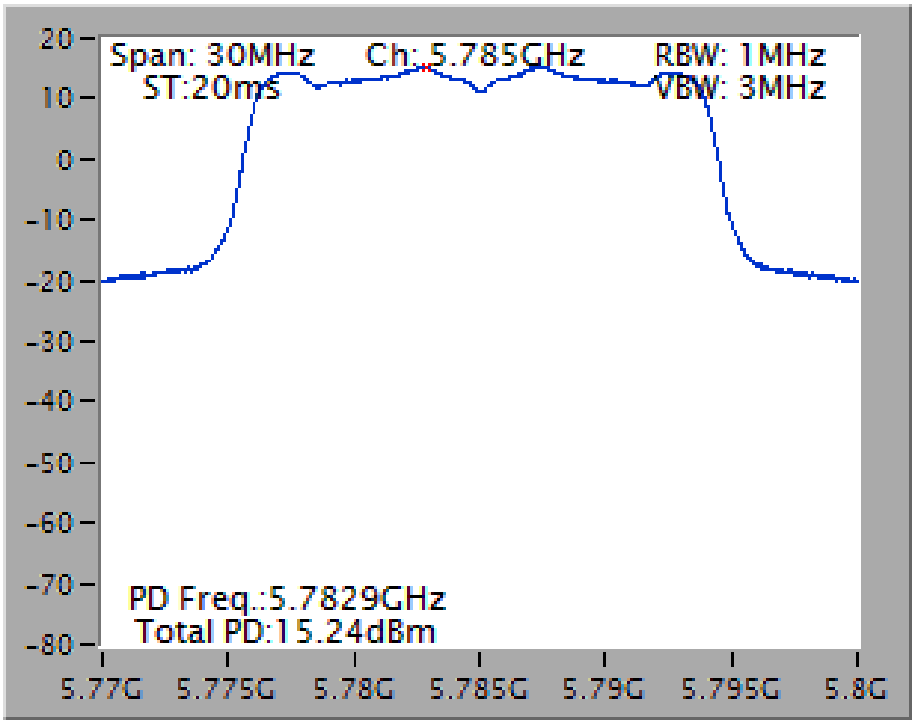
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5260 MHz



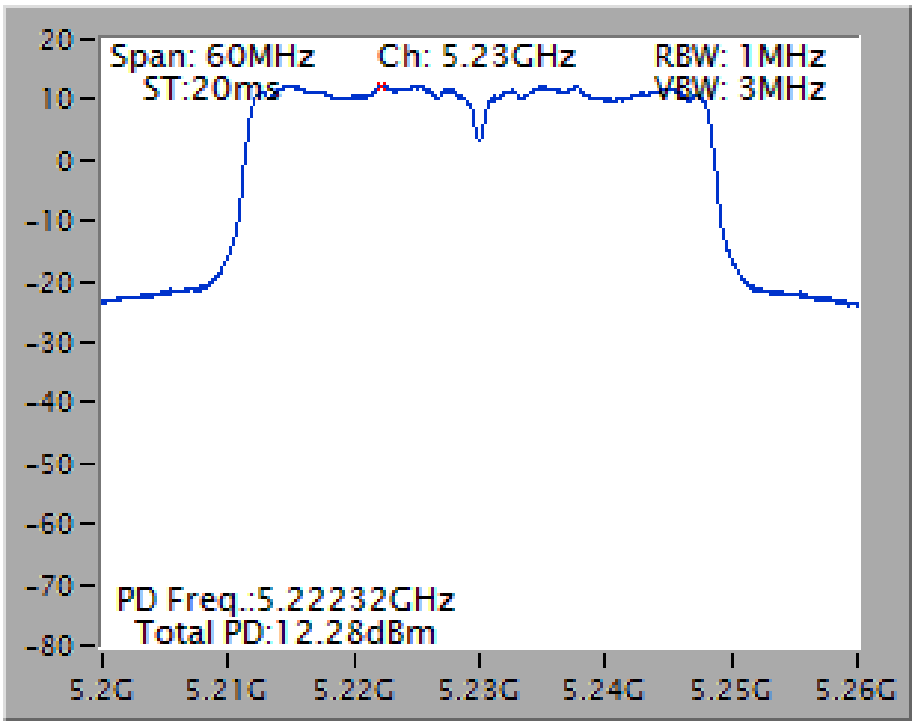
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5500 MHz



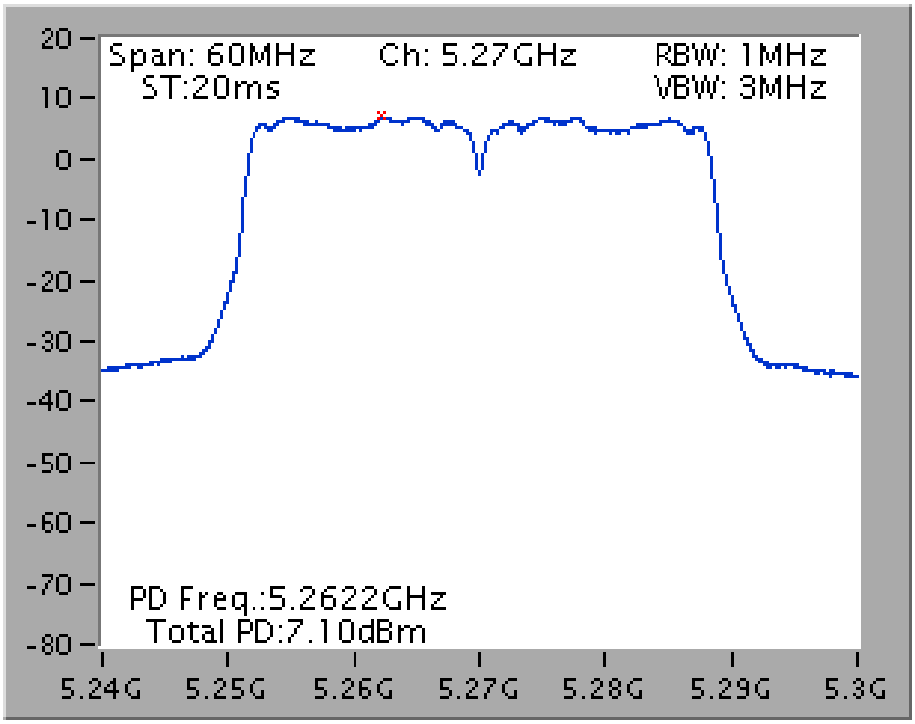
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5785 MHz



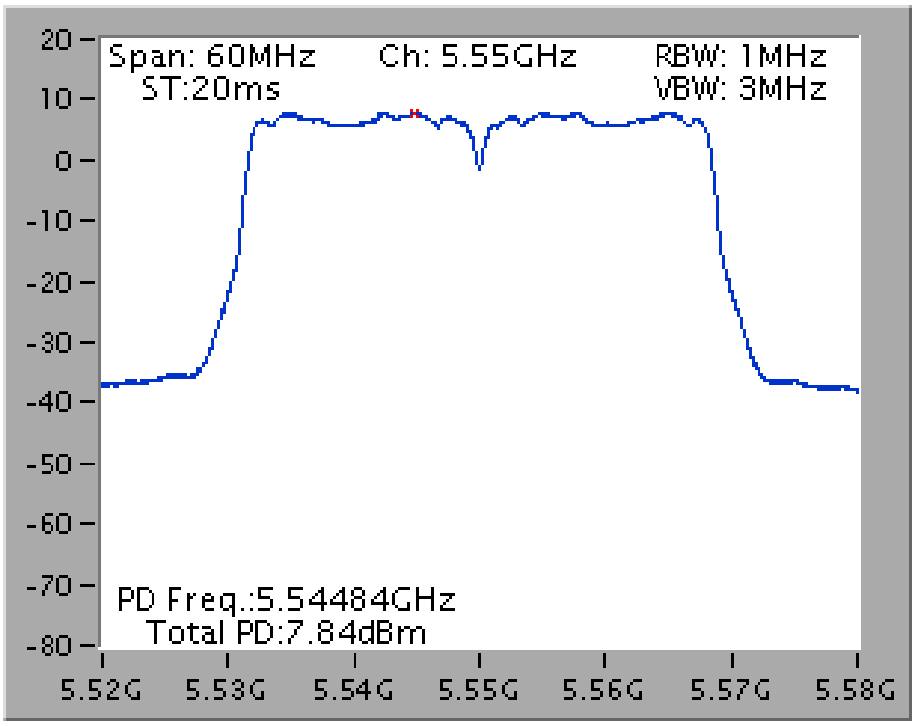
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5230 MHz



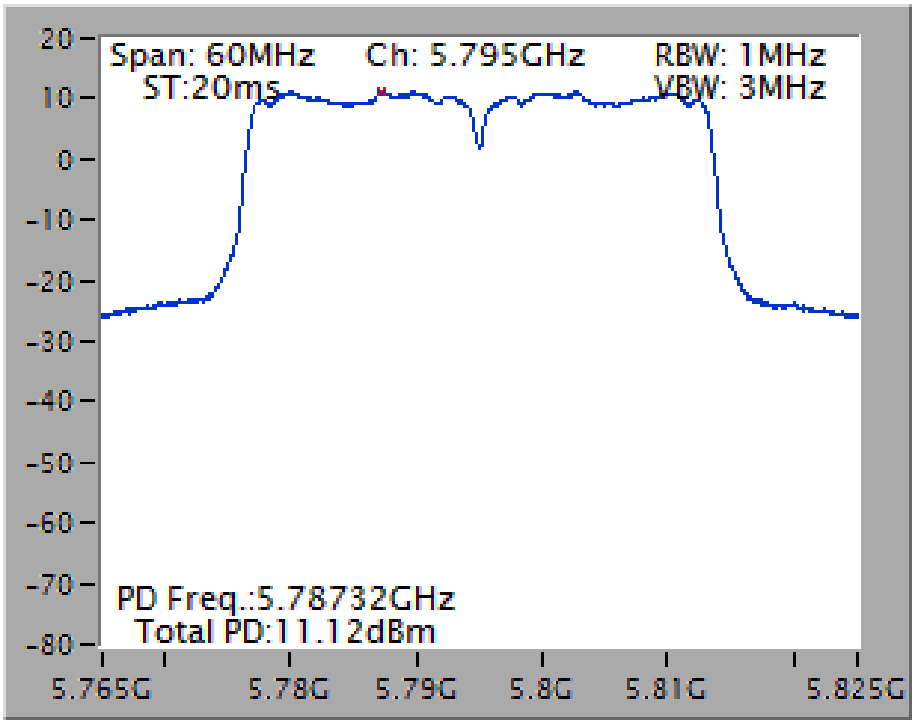
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5270 MHz



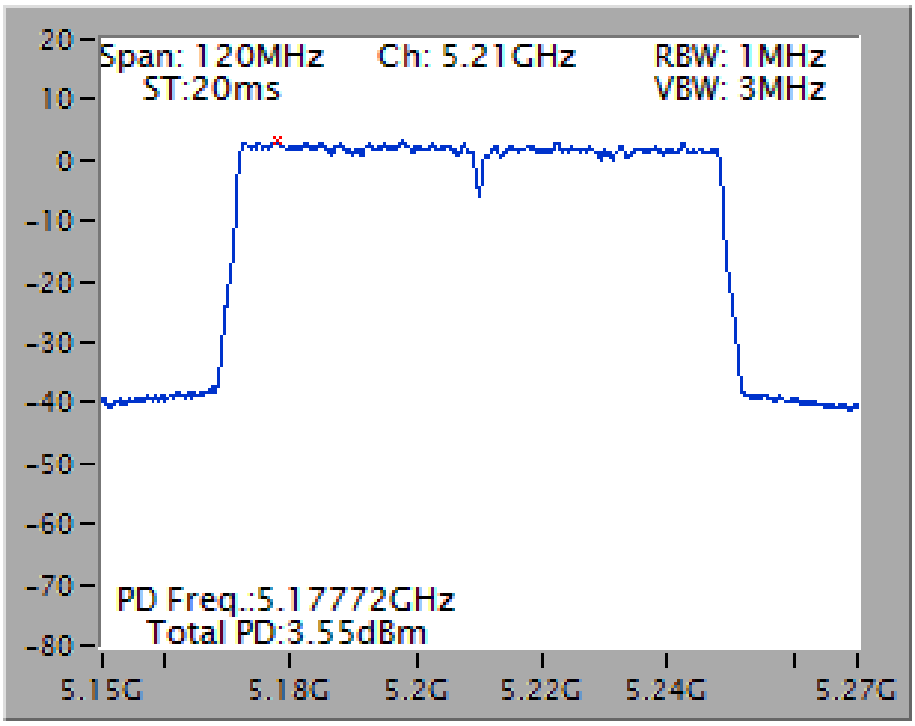
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5550 MHz



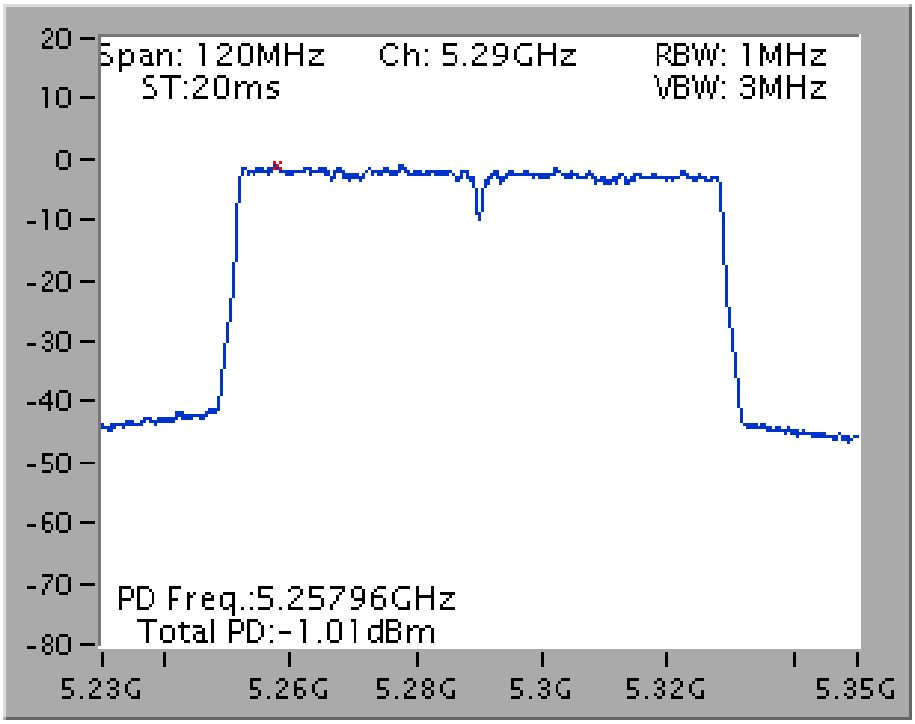
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5795 MHz



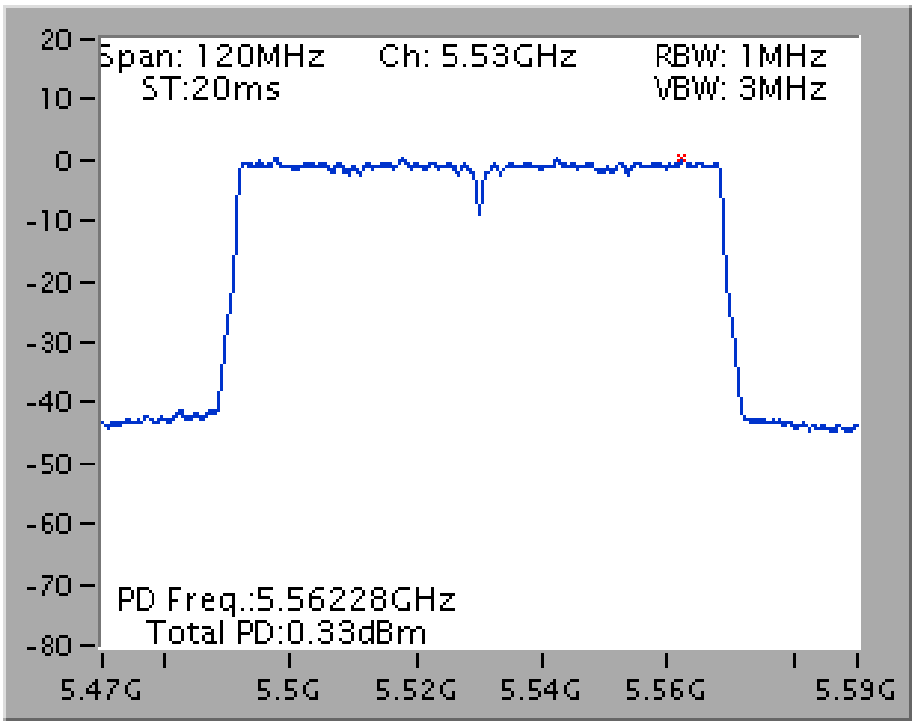
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5210 MHz



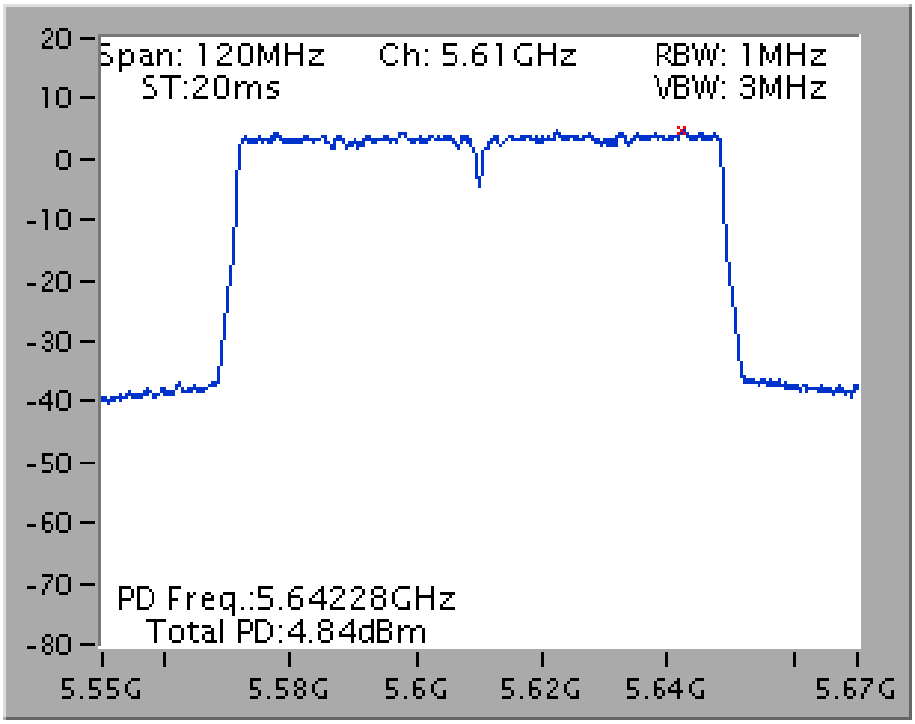
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5290 MHz



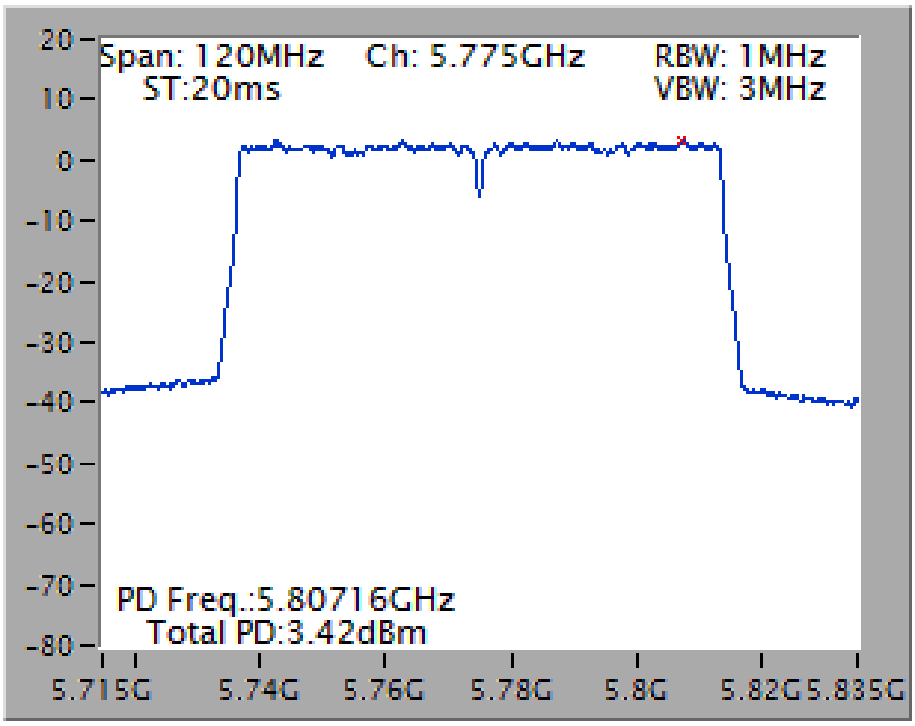
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5530 MHz



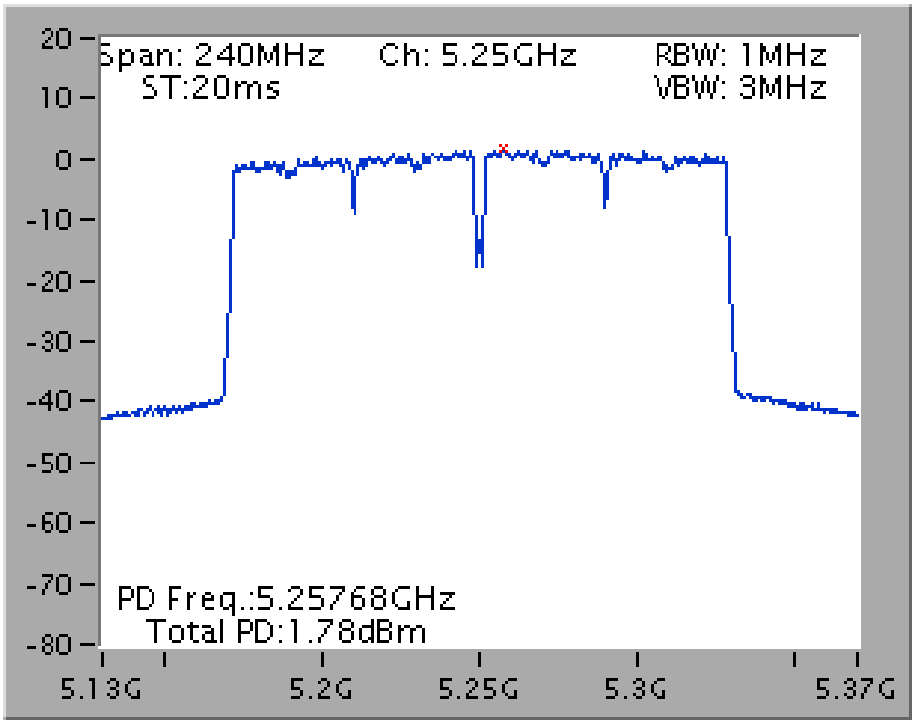
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5610 MHz



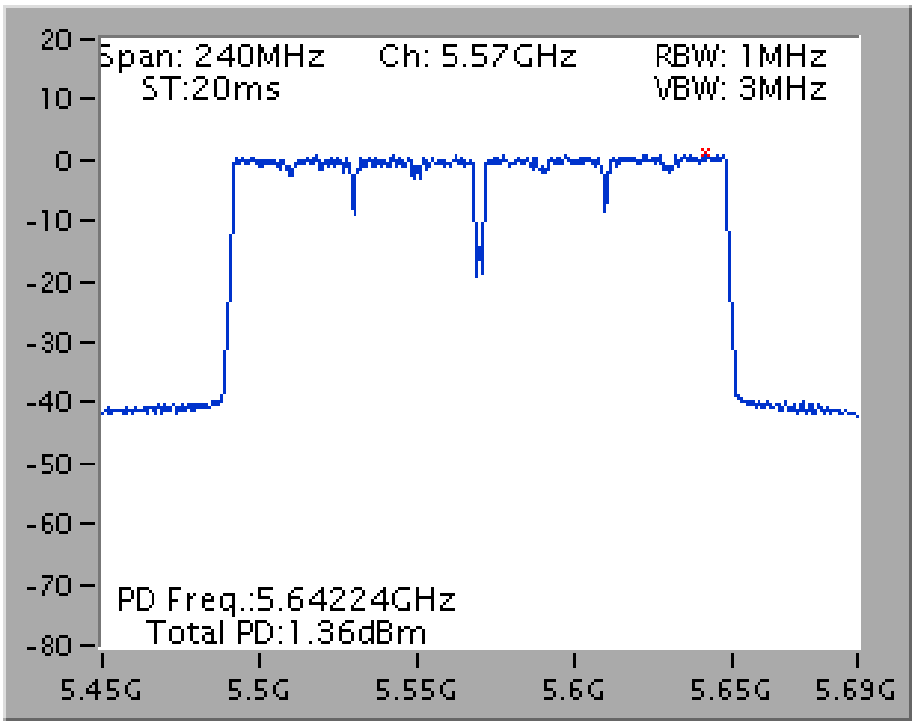
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5775 MHz



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT160 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5250 MHz

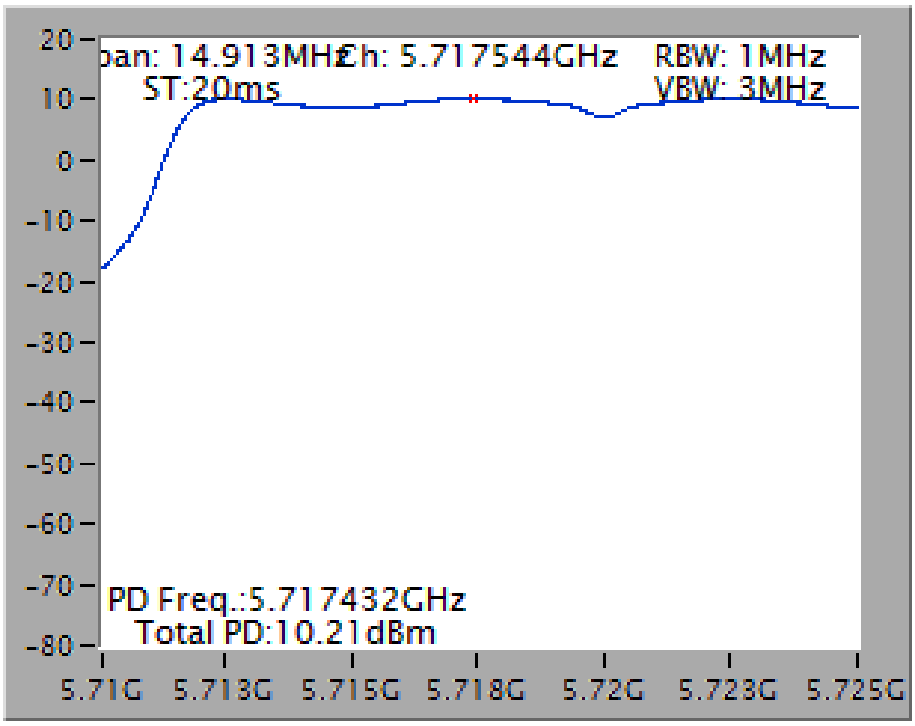


Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT160 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5570 MHz

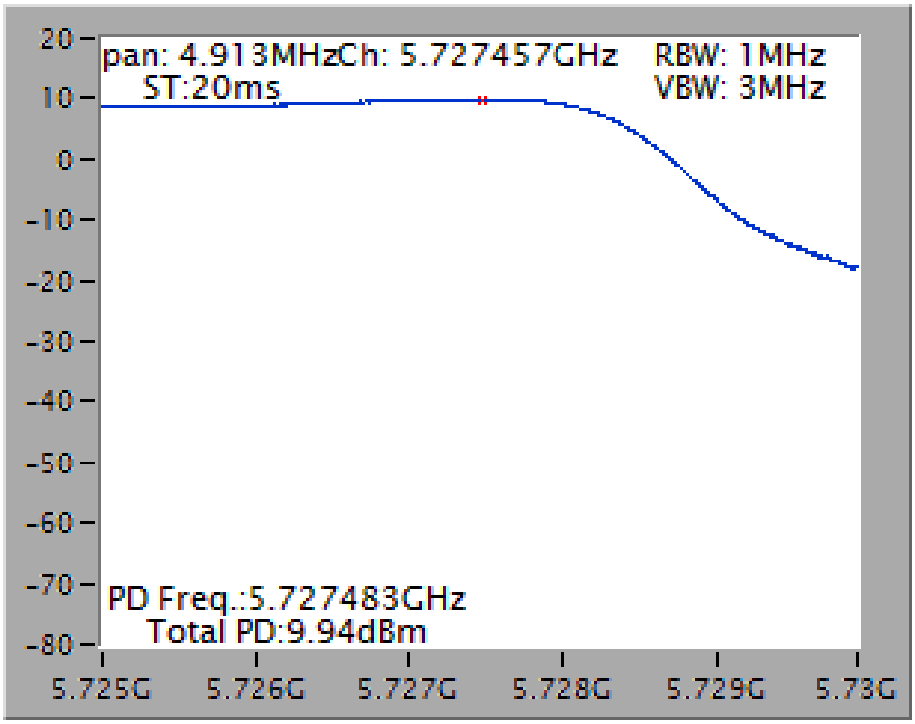


Straddle Channel

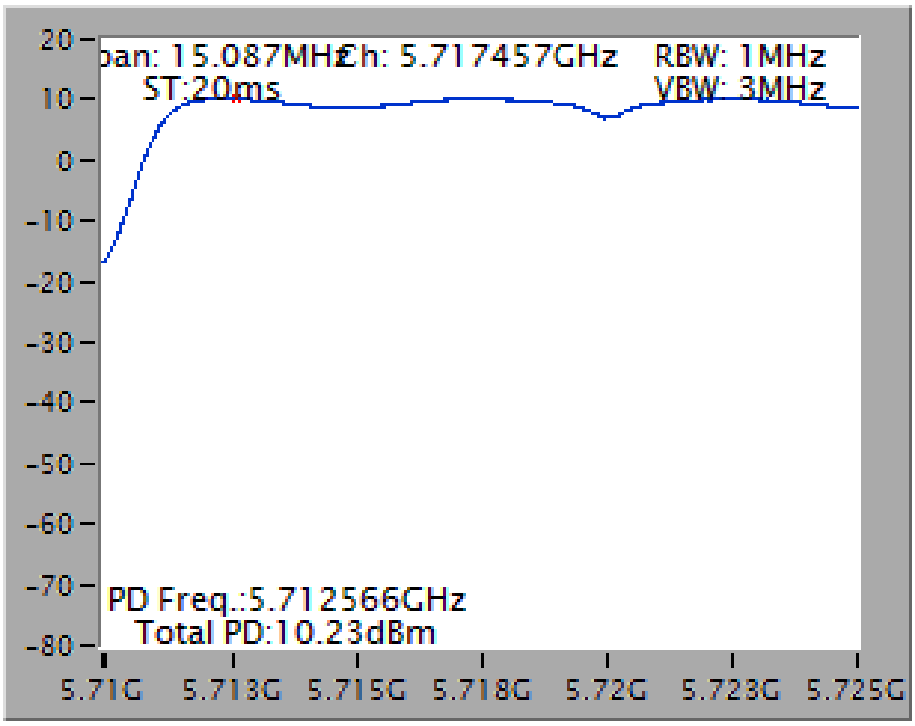
Power Density Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5720 MHz (UNII 2C)



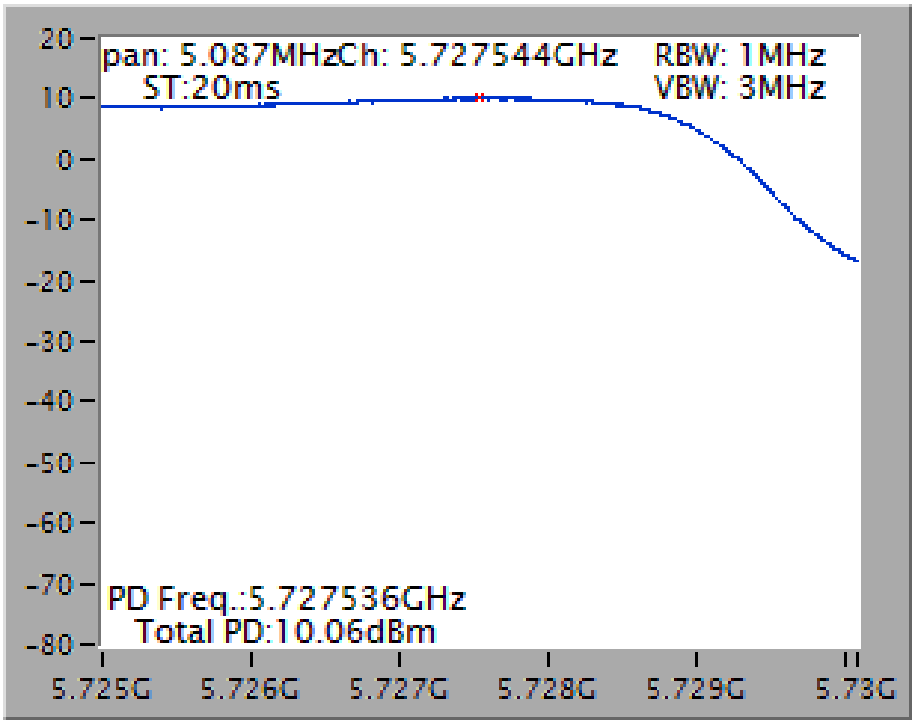
Power Density Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5720 MHz (UNII 3)



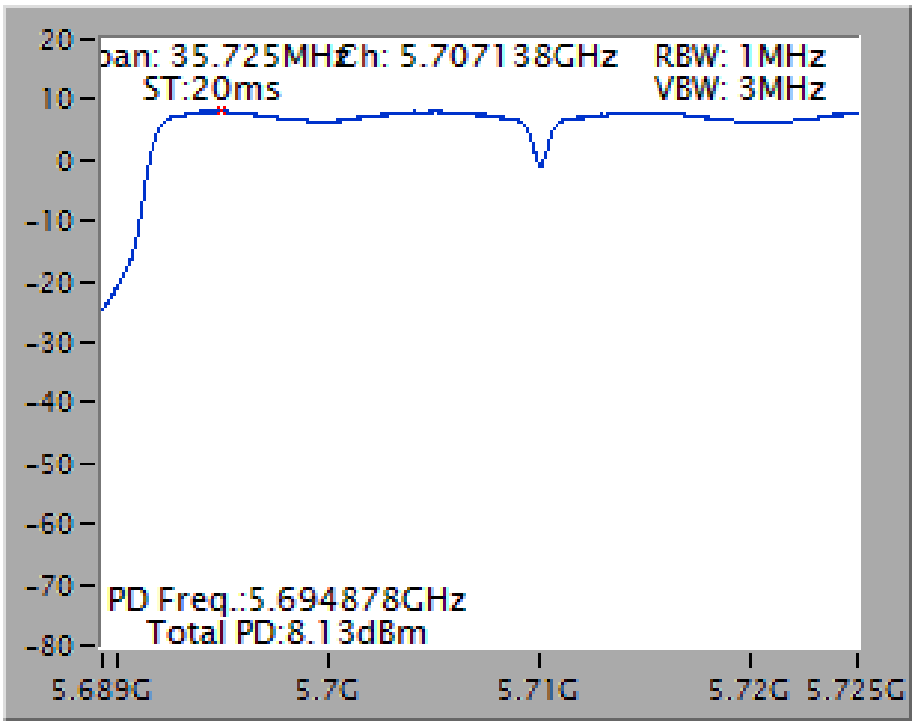
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5720 MHz (UNII 2C)



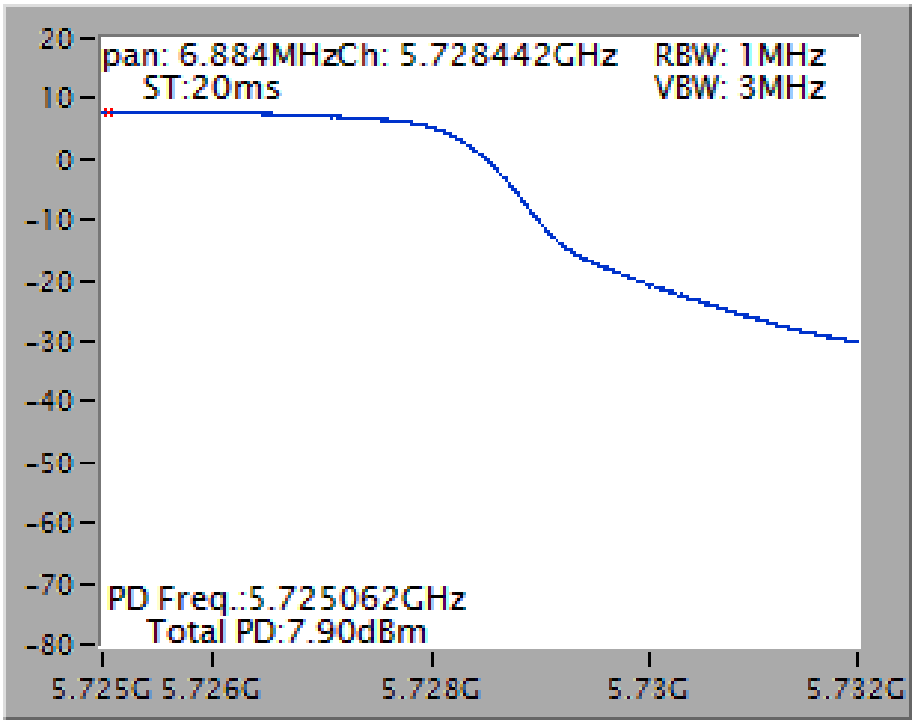
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5720 MHz (UNII 3)



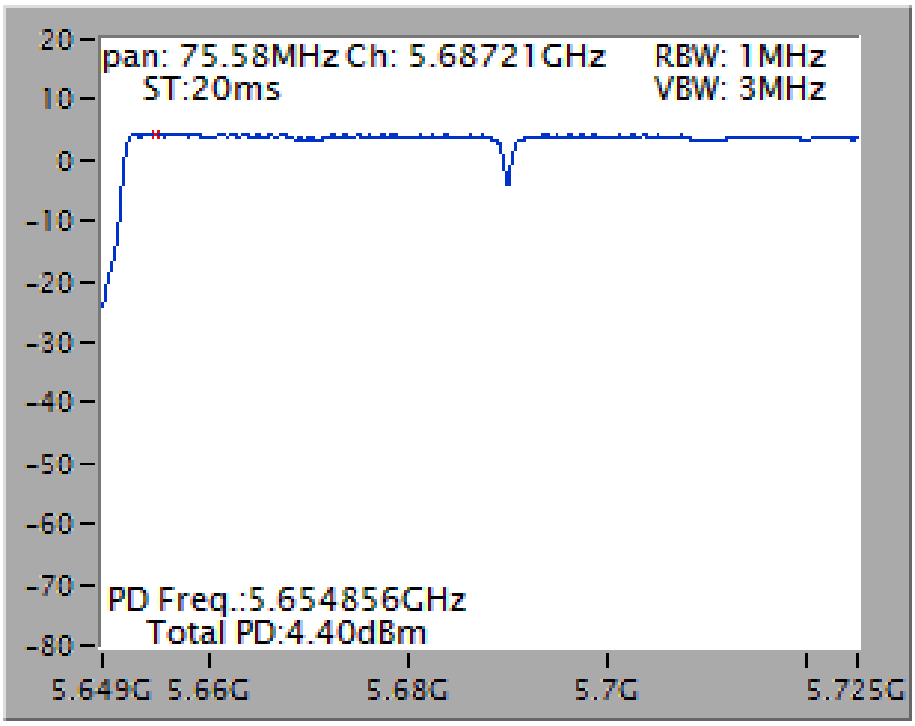
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5710 MHz (UNII 2C)



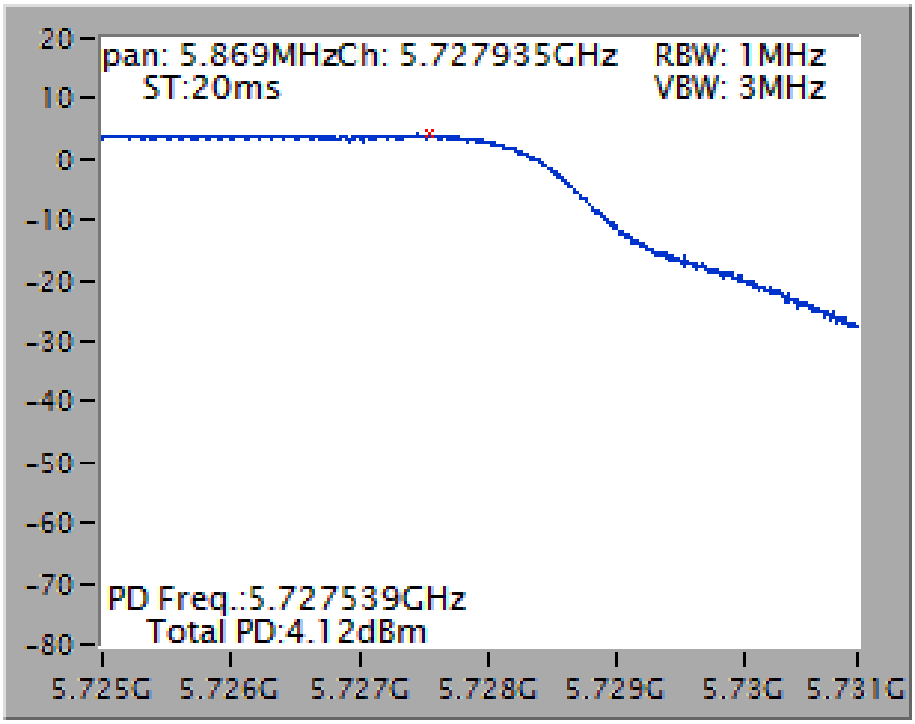
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5710 MHz (UNII 3)



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

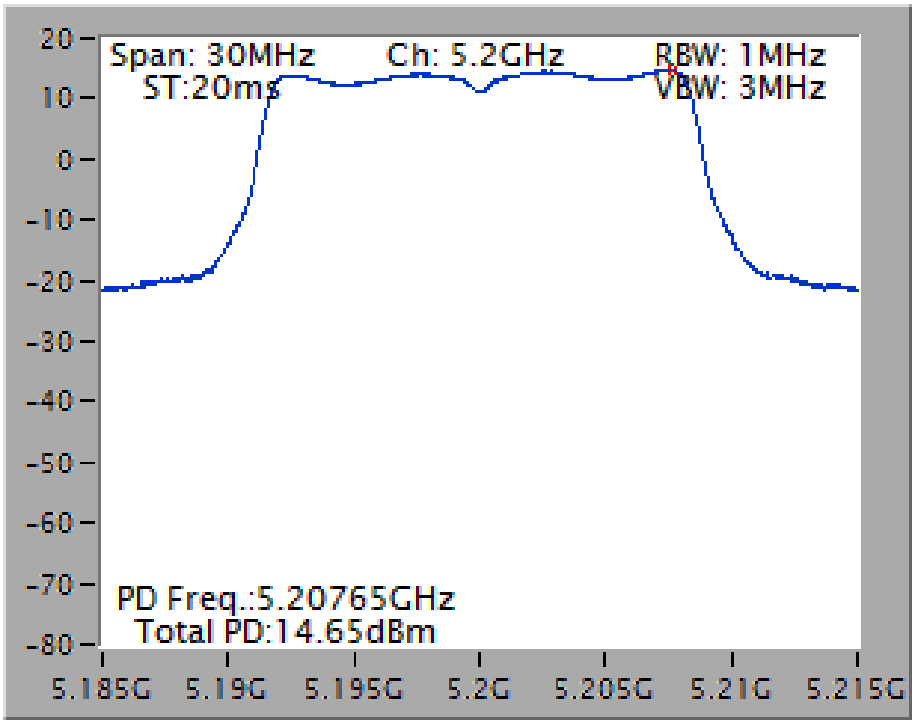


Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5690 MHz (UNII 3)

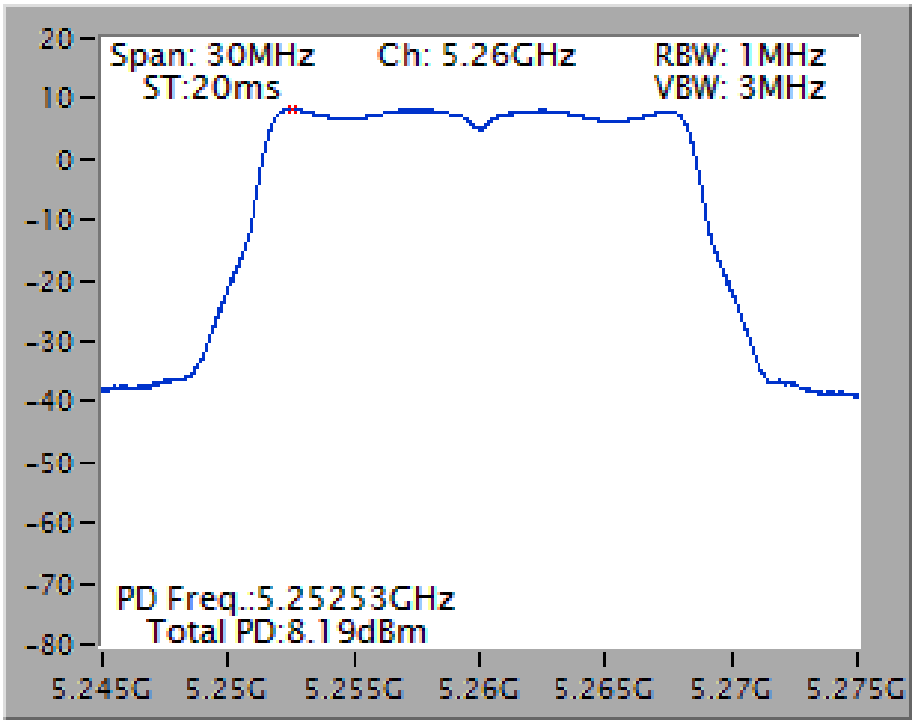


For beamforming function:

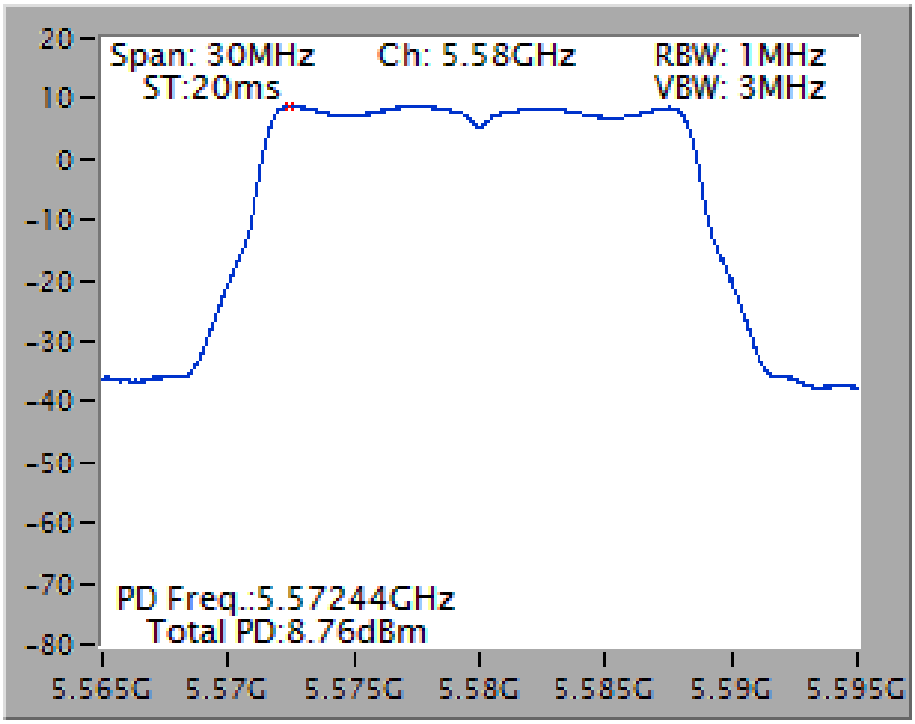
Power Density Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5200 MHz



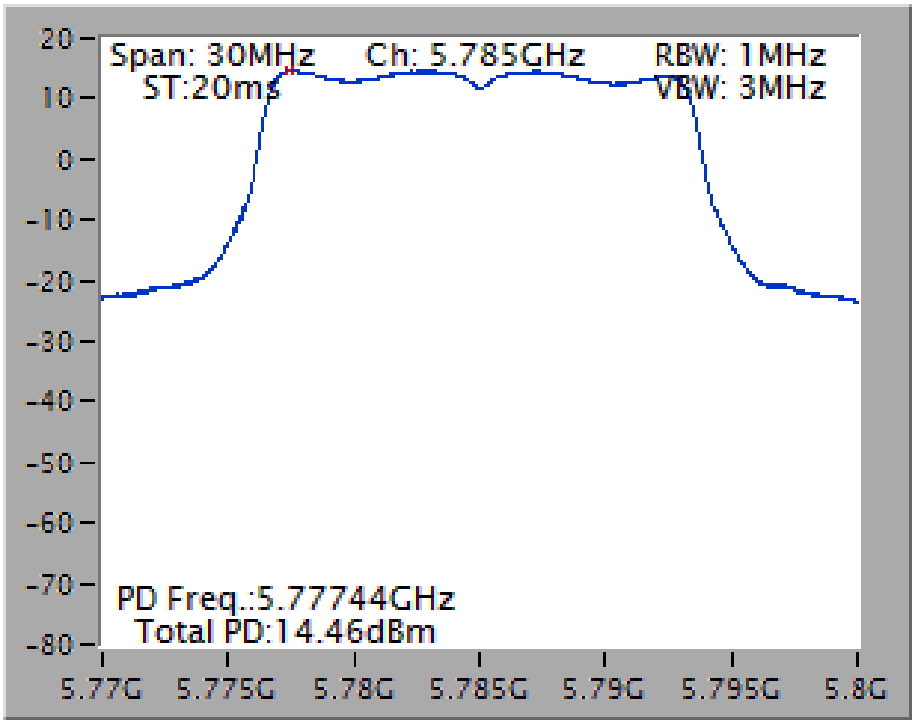
Power Density Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5260 MHz



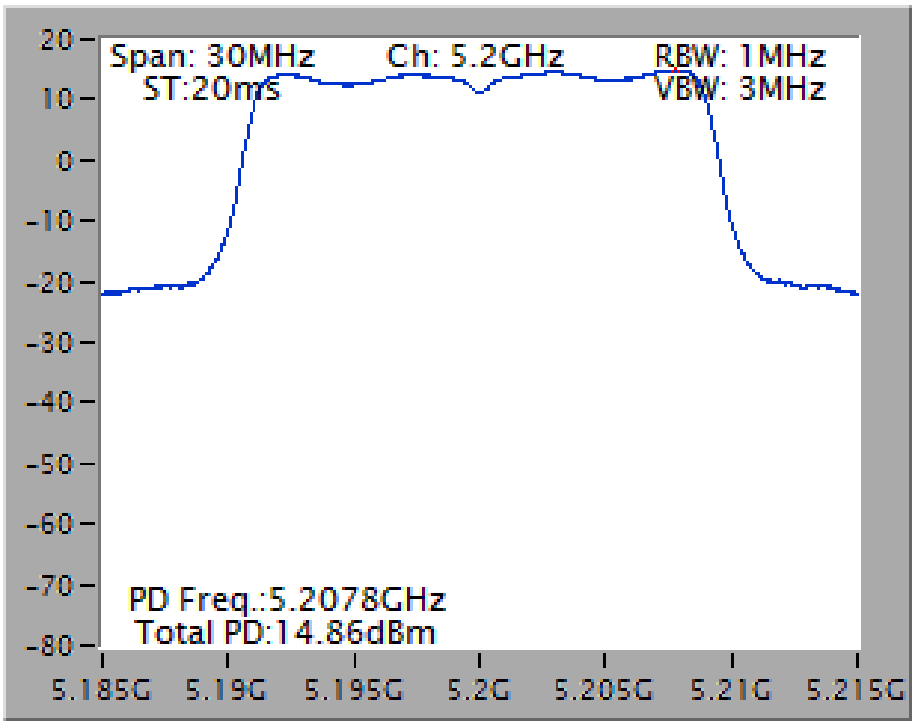
Power Density Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5580 MHz



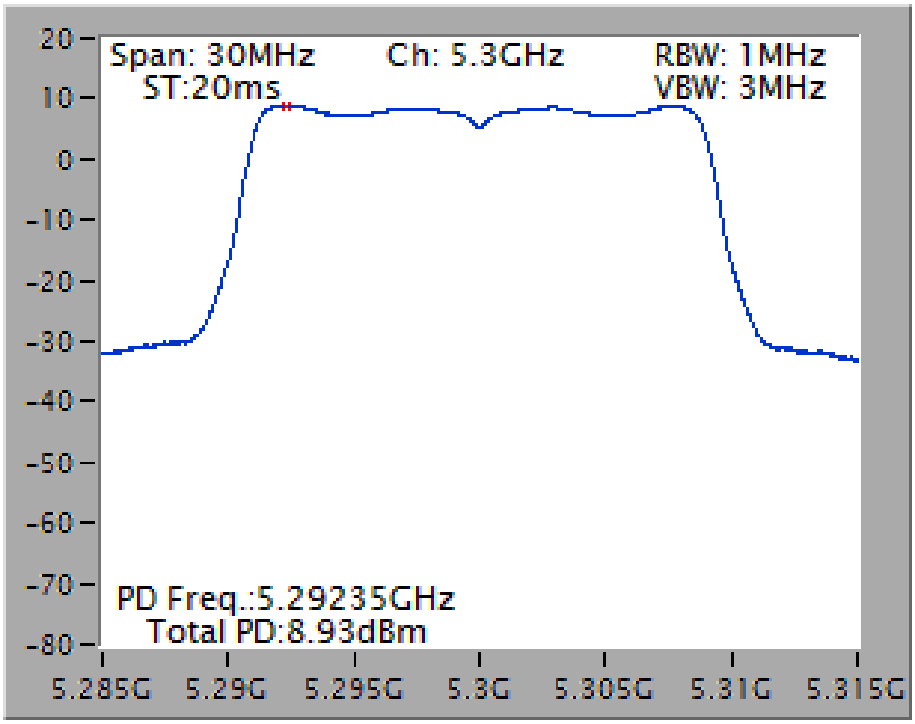
Power Density Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5785 MHz



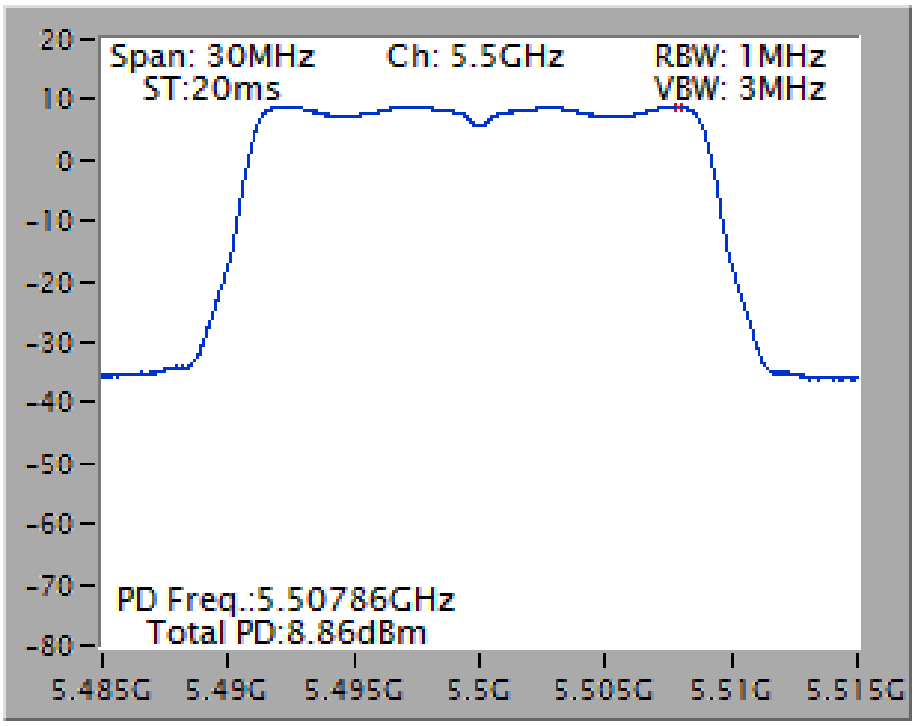
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5200 MHz



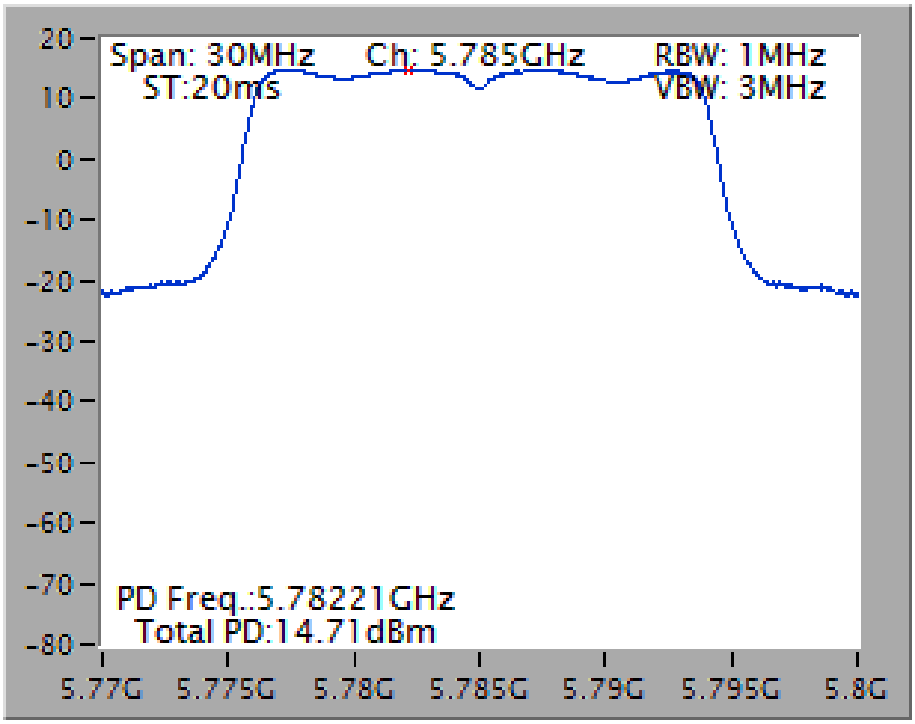
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5300 MHz



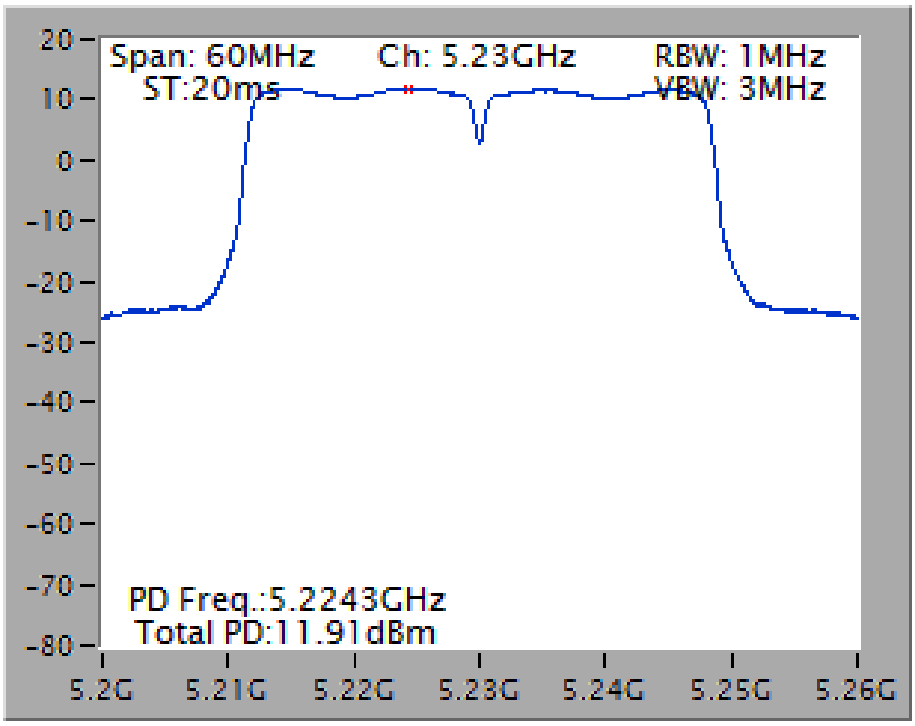
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5500 MHz



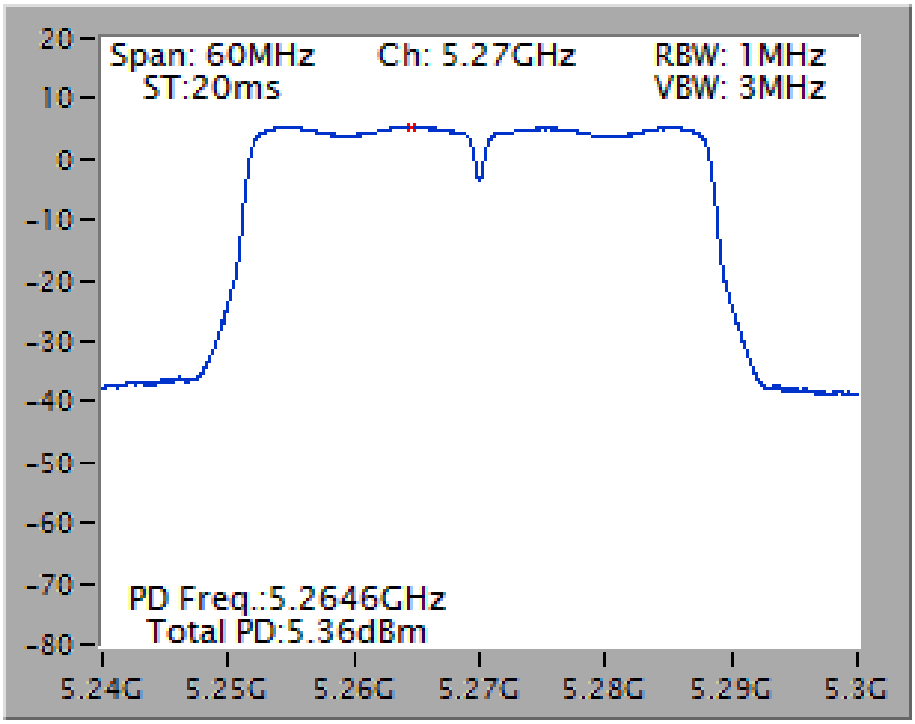
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5785 MHz



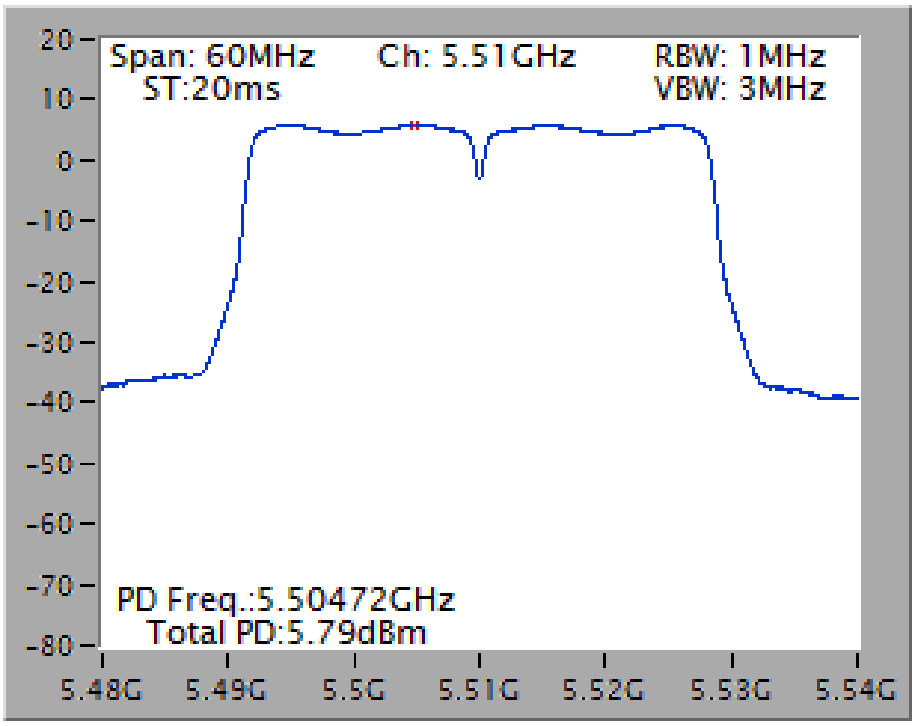
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5230 MHz



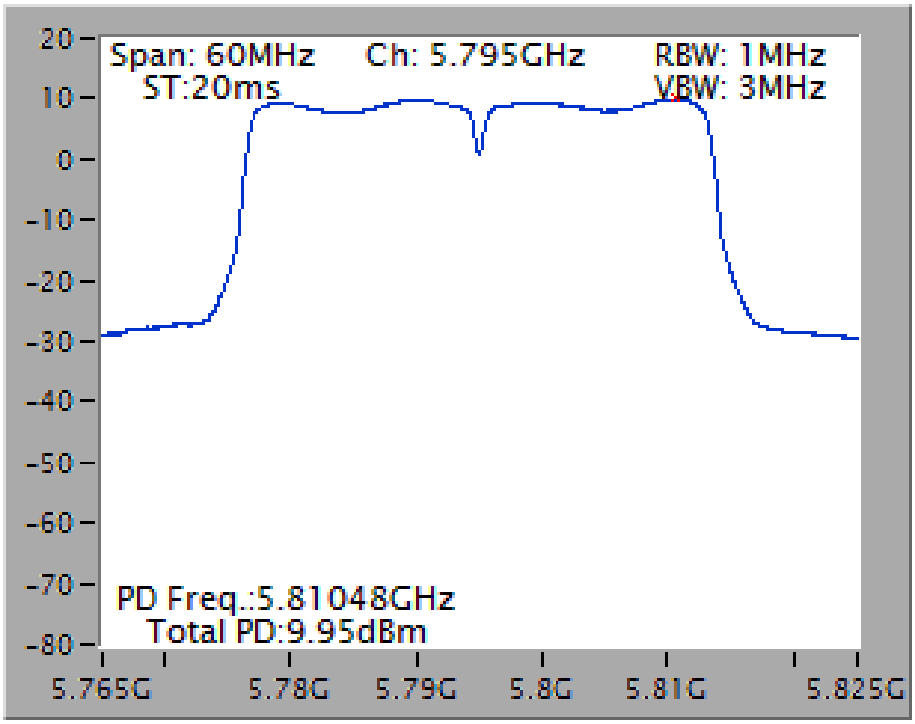
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5270 MHz



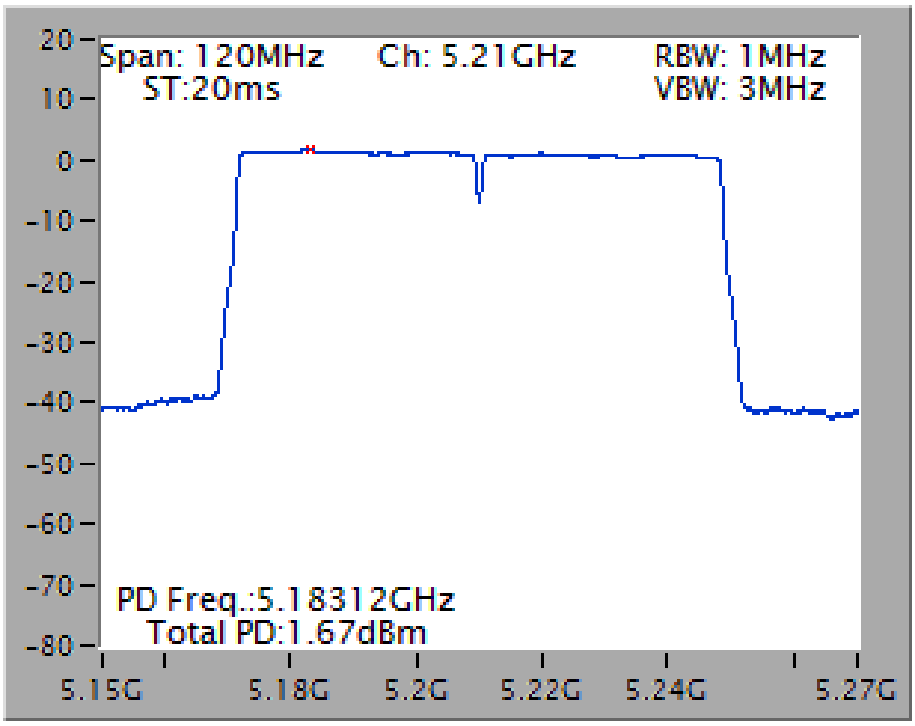
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5510 MHz



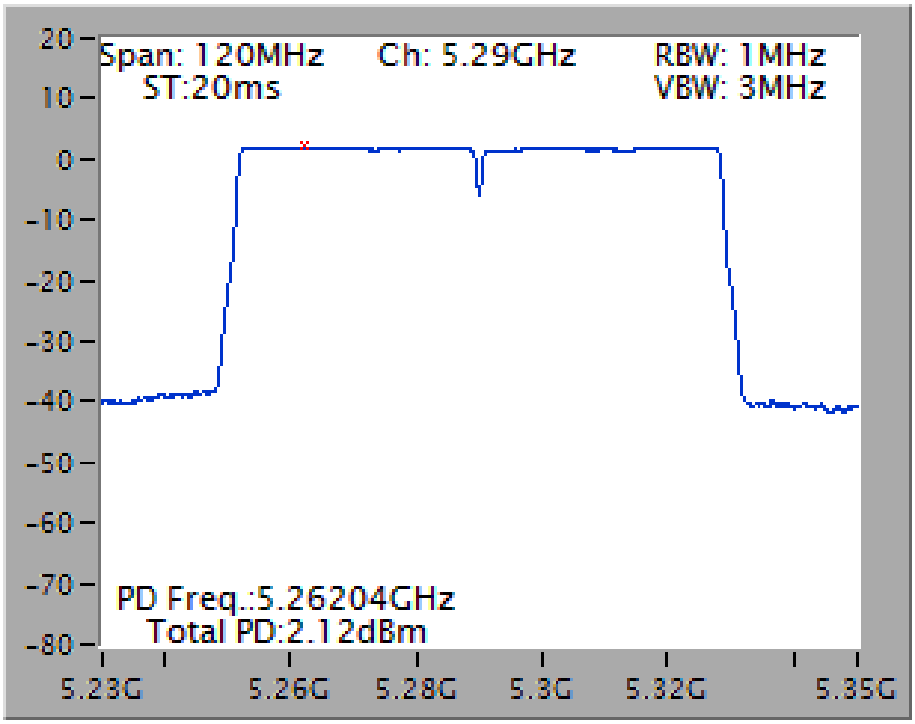
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5795 MHz



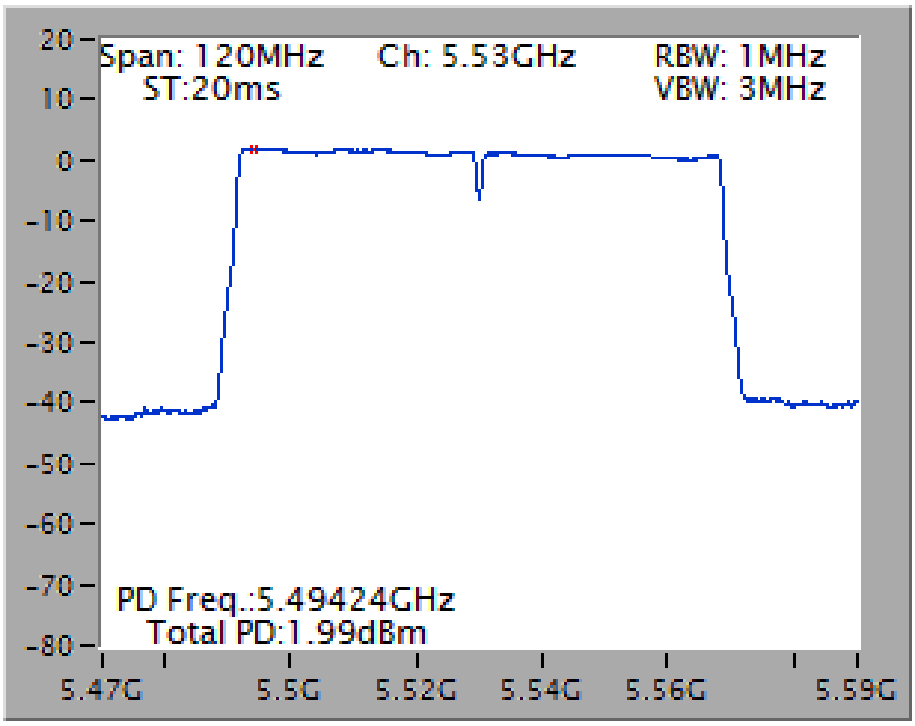
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5210 MHz



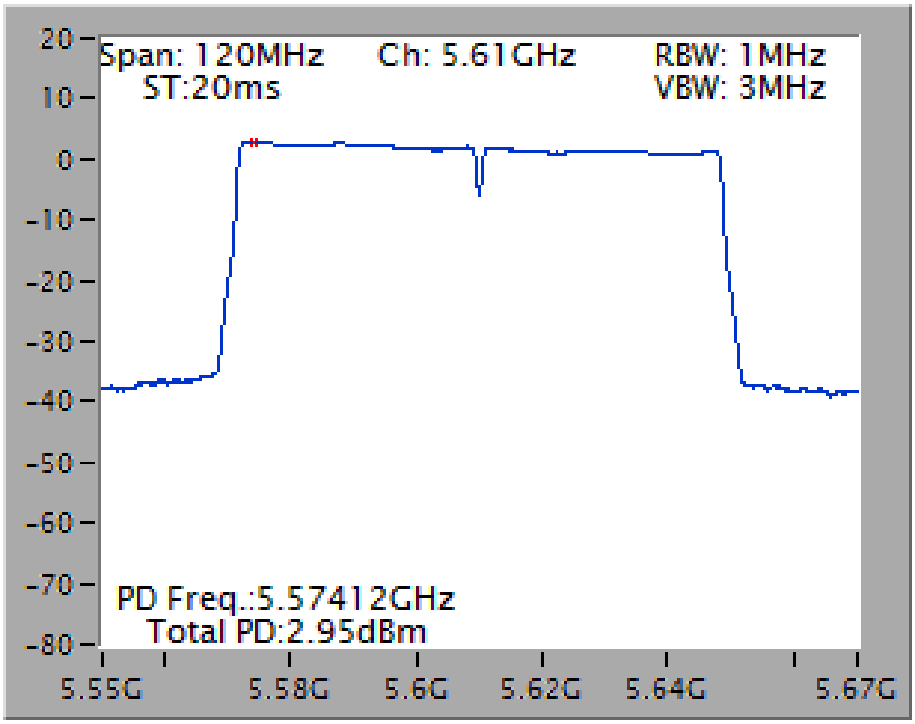
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5290 MHz



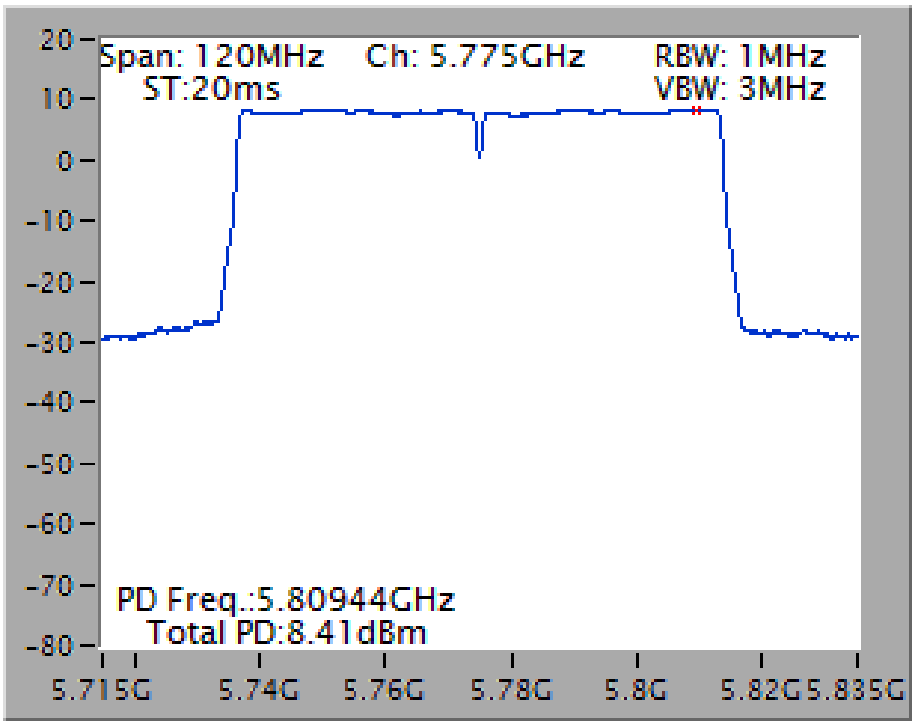
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5530 MHz



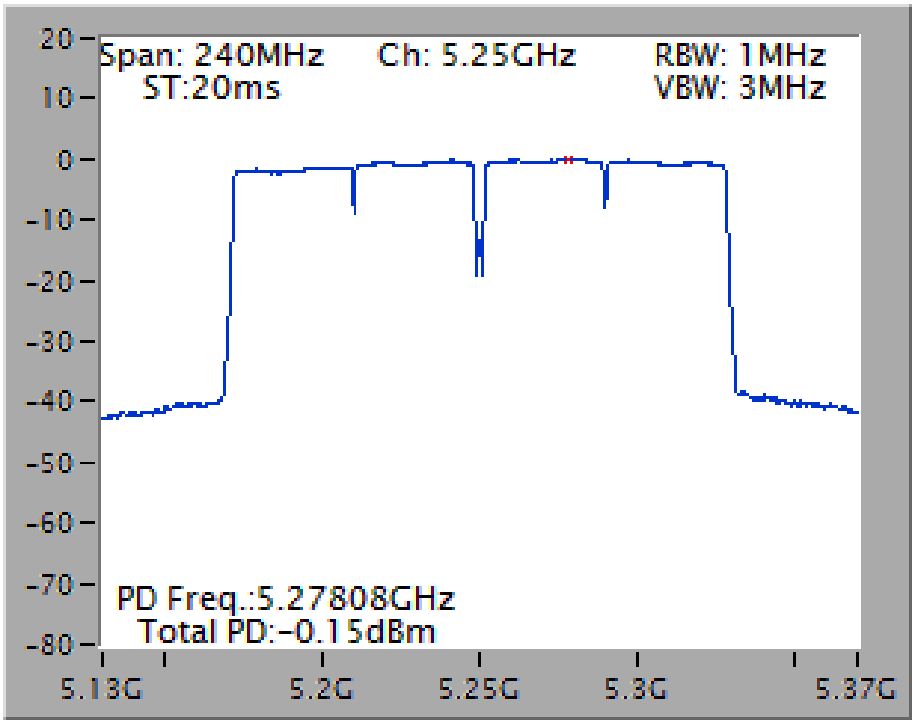
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5610 MHz



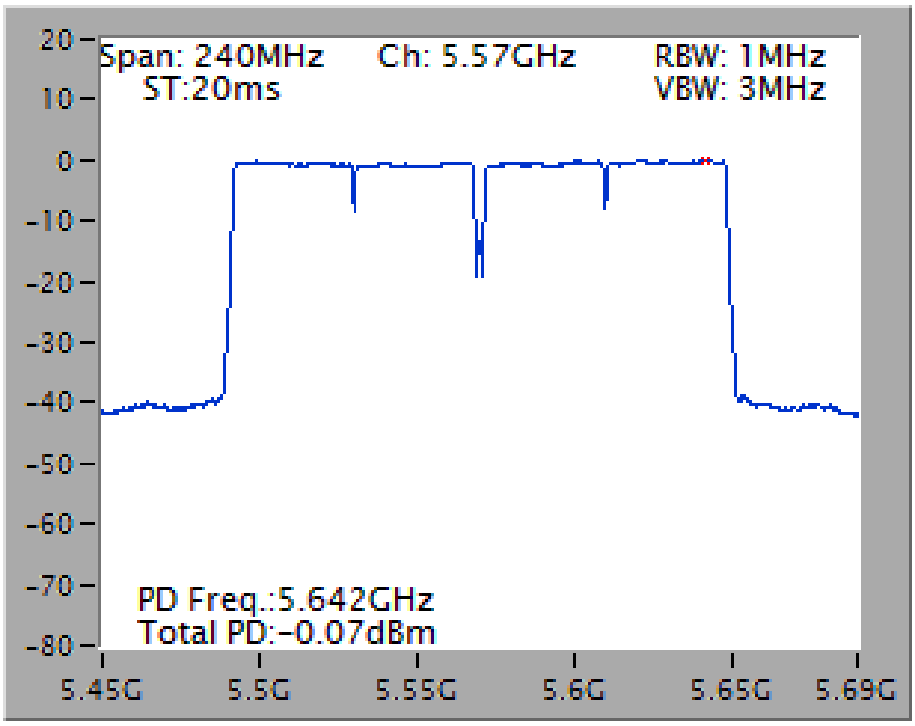
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5775 MHz



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT160 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5250 MHz

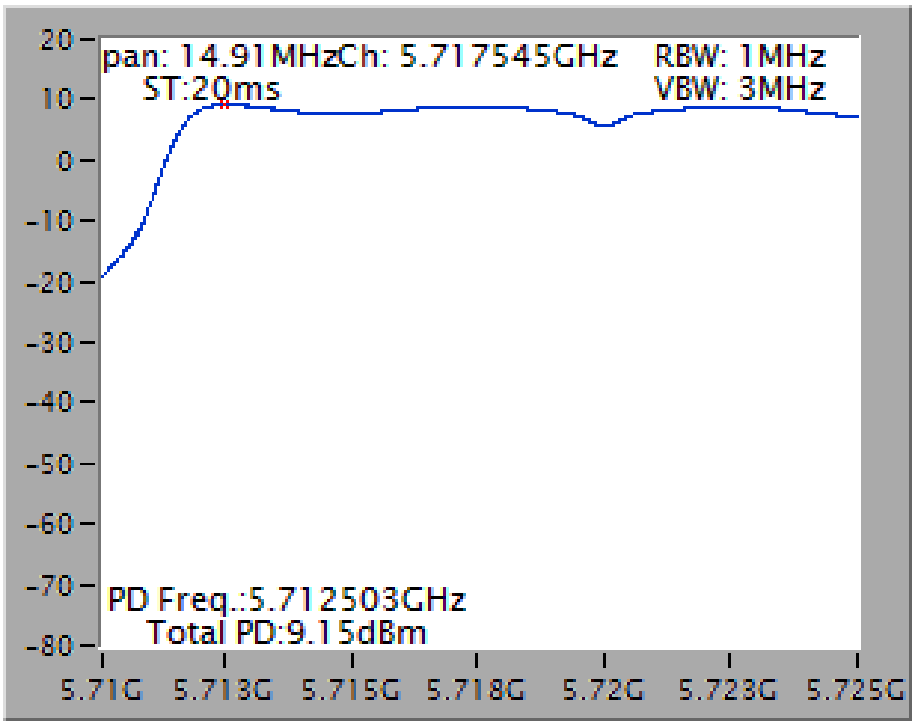


Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT160 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5570 MHz

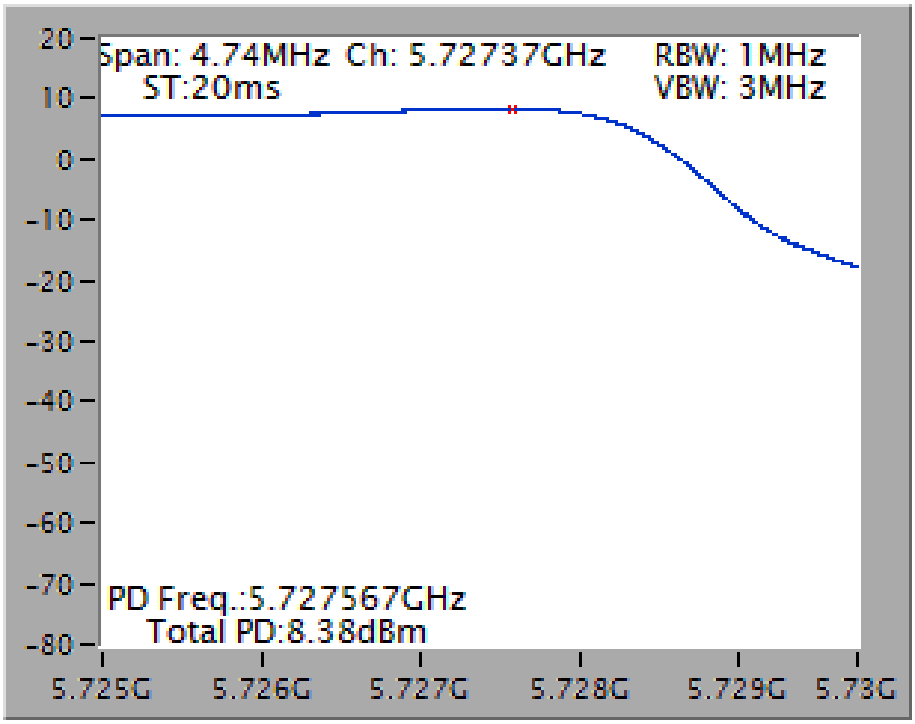


Straddle Channel

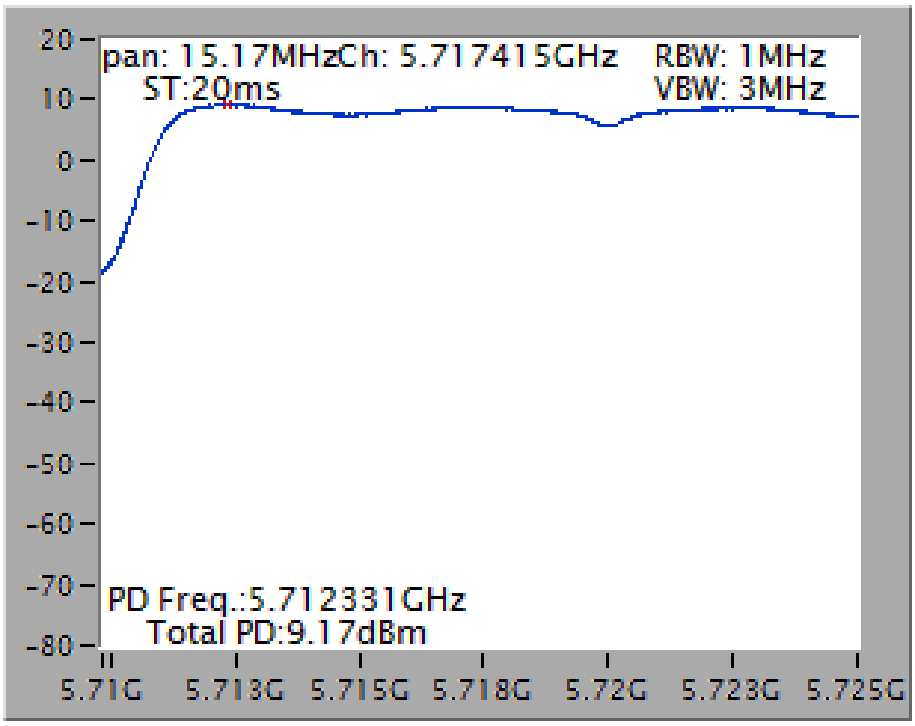
Power Density Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5720 MHz (UNII 2C)



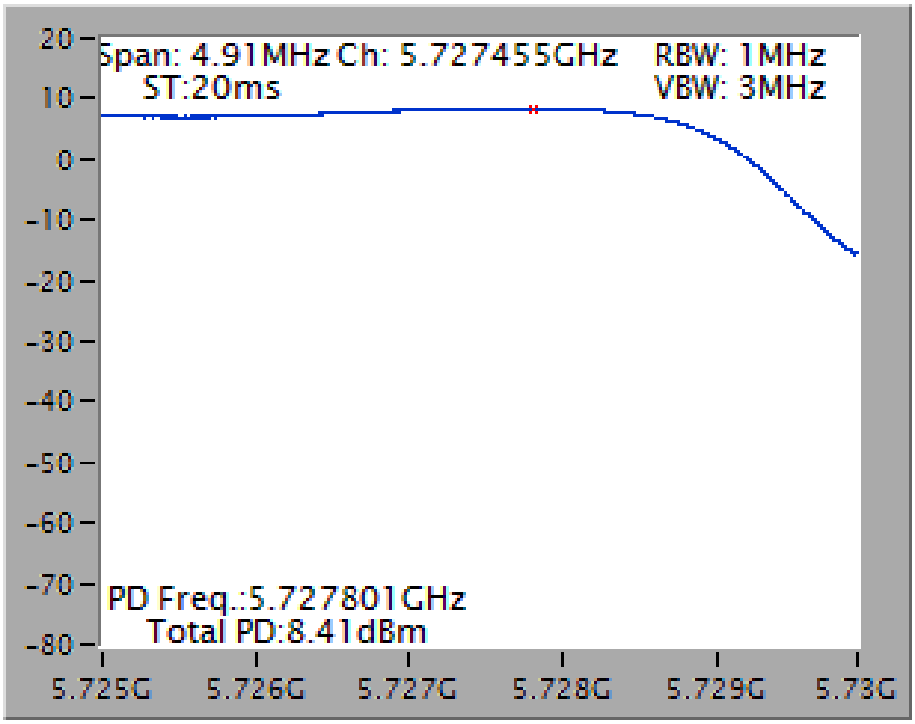
Power Density Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5720 MHz (UNII 3)



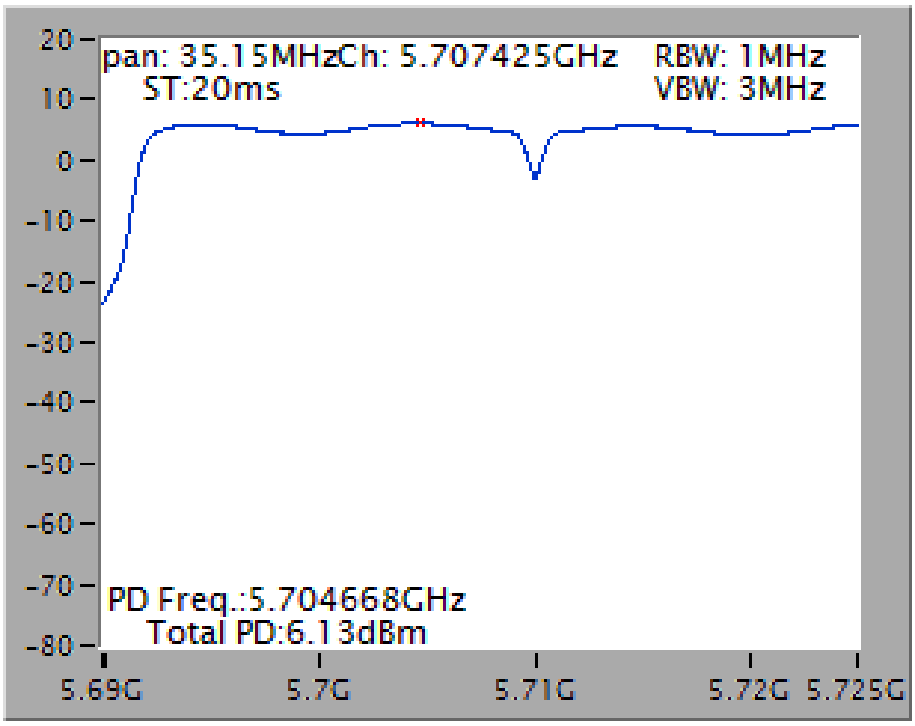
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5720 MHz (UNII 2C)



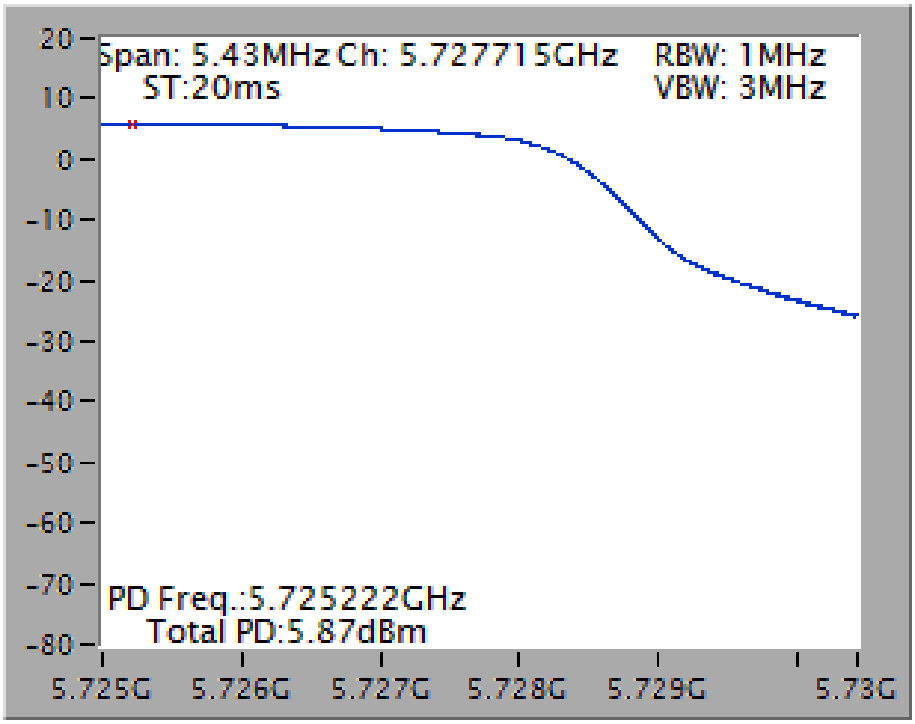
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5720 MHz (UNII 3)



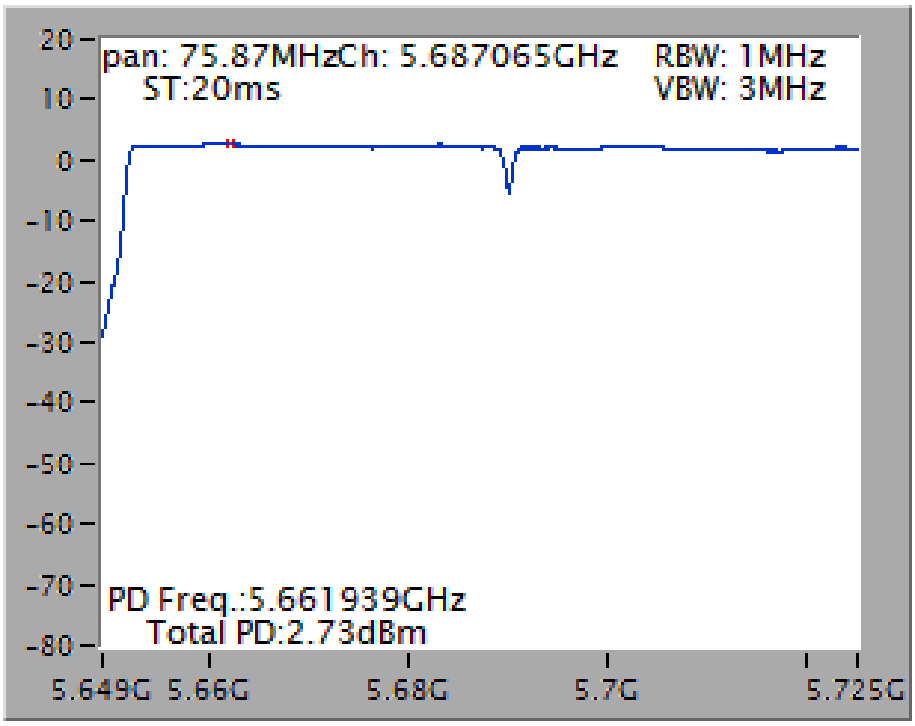
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5710 MHz (UNII 2C)



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)