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FCC RADIO TEST REPORT

Applicant's company	**Cisco Systems, Inc.**
Applicant Address	170 West Tasman Drive, San Jose, CA 95134 USA
FCC ID	**UDX-60047015**
Manufacturer's company	**Cisco Systems, Inc.**
Manufacturer Address	170 West Tasman Drive, San Jose, CA 95134 USA

Product Name	802.11a/b/g/n/ac Wireless Router
Brand Name	CISCO
Model No.	MX65W-HW
Test Rule Part(s)	47 CFR FCC Part 15 Subpart E § 15.407
Test Freq. Range	5250 ~ 5350MHz / 5470 ~ 5725MHz
Test Freq. Range	Oct. 21, 2015
Final Test Date	Dec. 23, 2015
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 v01r01, KDB662911 D01 v02r01,**

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

Testing Laboratory
1190

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History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR5O1504AC	Rev. 01	Initial issue of report	Jan. 08, 2016
FR5O1504AC	Rev. 02	Removing 5600~5650MHz	Mar. 18, 2016

Project No: CB10412322

1. VERIFICATION OF COMPLIANCE

Product Name	:	802.11a/b/g/n/ac Wireless Router
Brand Name	:	CISCO
Model No.	:	MX65W-HW
Applicant	:	Cisco Systems, Inc.
Test Rule Part(s)	:	47 CFR FCC Part 15 Subpart E § 15.407

Sporton International as requested by the applicant to evaluate the EMC performance of the product sample received on Oct. 21, 2015 would like to declare that the tested sample has been evaluated and found to be in compliance with the tested rule parts. The data recorded as well as the test configuration specified is true and accurate for showing the sample's EMC nature.

Sam Chen
SPORTON INTERNATIONAL INC.

2. SUMMARY OF THE TEST RESULT

Applied Standard: 47 CFR FCC Part 15 Subpart E				
Part	**Rule Section**	**Description of Test**	**Result**	**Under Limit**
4.1	15.207	AC Power Line Conducted Emissions	Complies	10.84 dB
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	2.10 dB
4.5	15.407(a)	Power Spectral Density	Complies	1.87 dB
4.6	15.407(b)	Radiated Emissions	Complies	3.29 dB
4.7	15.407(b)	Band Edge Emissions	Complies	0.08 dB
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 (1TX/2TX, 1RX/2RX)
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	5250 ~ 5350MHz / 5470 ~ 5725MHz
Channel Number	13 for 20MHz bandwidth; 6 for 40MHz bandwidth 3 for 80MHz bandwidth
Channel Band Width (99%)	**<For 1TX>** Band 2: IEEE 802.11a: 17.02 MHz IEEE 802.11ac MCS0/Nss1 (VHT20): 17.97 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 37.05 MHz IEEE 802.11ac MCS0/Nss1 (VHT80): 75.83 MHz Band 3: IEEE 802.11a: 17.11 MHz IEEE 802.11ac MCS0/Nss1 (VHT20): 18.06 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 37.05 MHz IEEE 802.11ac MCS0/Nss1 (VHT80): 76.12 MHz **<For 2TX>** Band 2: IEEE 802.11a: 17.02 MHz IEEE 802.11ac MCS0/Nss1 (VHT20): 18.06 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 37.04 MHz IEEE 802.11ac MCS0/Nss1 (VHT80): 75.83 MHz Band 3: IEEE 802.11a: 17.10 MHz IEEE 802.11ac MCS0/Nss1 (VHT20): 17.97 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 37.04 MHz IEEE 802.11ac MCS0/Nss1 (VHT80): 75.83 MHz

Maximum Conducted Output Power	**<For 1TX>** Band 2: IEEE 802.11a: 18.91 dBm IEEE 802.11ac MCS0/Nss1 (VHT20): 18.86 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 18.86 dBm IEEE 802.11ac MCS0/Nss1 (VHT80): 17.12 dBm Band 3: IEEE 802.11a: 18.73 dBm IEEE 802.11ac MCS0/Nss1 (VHT20): 18.86 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 18.91 dBm IEEE 802.11ac MCS0/Nss1 (VHT80): 18.21 dBm **<For 2TX>** Band 2: IEEE 802.11a: 21.88 dBm IEEE 802.11ac MCS0/Nss1 (VHT20): 21.88 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 21.53 dBm IEEE 802.11ac MCS0/Nss1 (VHT80): 20.31 dBm Band 3: IEEE 802.11a: 21.75 dBm IEEE 802.11ac MCS0/Nss1 (VHT20): 21.63 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 21.66 dBm IEEE 802.11ac MCS0/Nss1 (VHT80): 19.46 dBm
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

Note: The MIMO transmission mode is correlated.

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

Antenna and Band width

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

IEEE 11n/ac Spec.

Protocol	Number of Transmit Chains (NTX)	Data Rate / MCS
802.11n (HT20)	1, 2	MCS0-7, MCS0-15
802.11n (HT40)	1, 2	MCS0-7, MCS0-15
802.11ac (VHT20)	1, 2	MCS 0-9/Nss1, MCS 0-9/Nss1-2
802.11ac (VHT40)	1, 2	MCS 0-9/Nss1, MCS 0-9/Nss1-2
802.11ac (VHT80)	1, 2	MCS 0-9/Nss1, MCS 0-9/Nss1-2

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 in 5GHz.

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

3.2. Accessories

Power	Brand	Model	Rating
Adapter	CISCO	MA-PWR-90WAC	INPUT: 100-240V~2A 50-60Hz OUTPUT: 54V, 1.67A

3.3. Table for Filed Antenna

Ant.	Brand	P/N	Antenna Type	Connector
1	Grand-Tek	1034G00000050	Dipole Ant.	Reversed-SMA
2	Grand-Tek	1034G00000050	Dipole Ant.	Reversed-SMA

TX Function	Antenna Gain (dBi)		Composite Gain (dBi)	
	2.4GHz	5GHz	2.4GHz	5GHz
1	2.6	3.3	-	-
2	-	-	2.0	3.3

Note: The EUT has two antennas.

<For 2.4GHz Band>

For IEEE 802.11b/g/n/ac mode<1TX/1RX>:

Only Chain 1 can be used as transmitting antenna and receiving antenna.

For IEEE 802.11b/g/n/ac mode<2TX/2RX>:

Chain 1 and Chain 2 will transmit/receive the same signal simultaneously.

Chain 1 and Chain 2 can be used as transmitting/receiving antennas.

<For 5GHz Band>

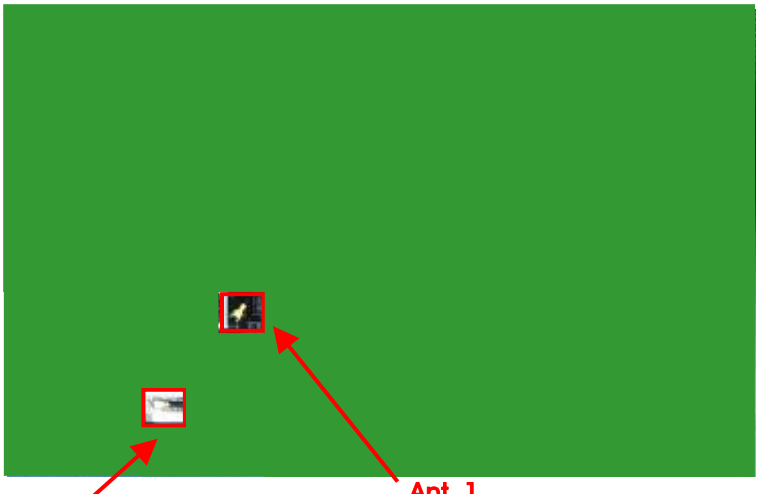
For IEEE 802.11a/n/ac mode <1TX/1RX>:

Only Chain 1 can be used as transmitting antenna and receiving antenna.

For IEEE 802.11a/n/ac mode <2TX/2RX>:

Chain 1 and Chain 2 will transmit/receive the same signal simultaneously.

Chain 1 and Chain 2 can be used as transmitting/receiving antennas.



3.4. Table for Carrier Frequencies

There are three bandwidth systems.

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

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

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

Frequency Band	Channel No.	Frequency	Channel No.	Frequency
5250~5350 MHz Band 2	52	5260 MHz	60	5300 MHz
	54	5270 MHz	62	5310 MHz
	56	5280 MHz	64	5320 MHz
	58	5290 MHz	-	-
5470~5725 MHz Band 3	100	5500 MHz	132	5660 MHz
	102	5510 MHz	134	5670 MHz
	104	5520 MHz	136	5680 MHz
	106	5530 MHz	138	5690 MHz
	108	5540 MHz	140	5700 MHz
	110	5550 MHz	142	5710 MHz
	112	5560 MHz	144	5720 MHz
	116	5580 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	TX	Chain
AC Power Conducted Emission	Normal Link		-	-	-	-
Max. Conducted Output Power	11a/BPSK	Band 2-3	6Mbps	52/60/64/100/ 116/140/144	1	1
	11ac VHT20	Band 2-3	MCS0/Nss1	52/60/64/100/ 116/140/144	1	1
	11ac VHT40	Band 2-3	MCS0/Nss1	54/62/102/110 /134/142	1	1
	11ac VHT80	Band 2-3	MCS0/Nss1	58/106/138	1	1
	11a/BPSK	Band 2-3	6Mbps	52/60/64/100/ 116/140/144	2	1+2
	11ac VHT20	Band 2-3	MCS0/Nss1	52/60/64/100/ 116/140/144	2	1+2
	11ac VHT40	Band 2-3	MCS0/Nss1	54/62/102/110/ 134/142	2	1+2
	11ac VHT80	Band 2-3	MCS0/Nss1	58/106/138	2	1+2
Power Spectral Density	11a/BPSK	Band 2-3	6Mbps	52/60/64/100/ 116/140/144	1	1
	11ac VHT20	Band 2-3	MCS0/Nss1	52/60/64/100/ 116/140/144	1	1
	11ac VHT40	Band 2-3	MCS0/Nss1	54/62/102/110/ 134/142	1	1
	11ac VHT80	Band 2-3	MCS0/Nss1	58/106/138	1	1
	11a/BPSK	Band 2-3	6Mbps	52/60/64/100/ 116/140/144	2	1+2
	11ac VHT20	Band 2-3	MCS0/Nss1	52/60/64/100/ 116/140/144	2	1+2
	11ac VHT40	Band 2-3	MCS0/Nss1	54/62/102/110/ 134/142	2	1+2

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

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

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.

Note 2: The test configuration and test modes written in this test report are designated by the applicant.

The following test modes were performed for all tests:

For Conducted Emission test:

Mode 1. Norman Link

For Radiated Emission test <Below 1GHz>:

Mode 1. Norman Link - Place EUT in Y axis

Mode 2. Norman Link - Place EUT in Z axis

Mode 2 is the worst case, so it was selected to record in this test report.

For Radiated Emission test <Above 1GHz>:

The EUT can be placed in Y-axis and Z-axis. After evaluating, Z-axis were the worst cases, so they're recorded in this report

For Co-location MPE and Radiated Emission Co-location Test:

The EUT could be applied with 2.4GHz WLAN function and 5GHz WLAN function; therefore Co-location Maximum Permissible Exposure (Please refer to FA5O1504AB) and Radiated Emission Co-location (please refer to Appendix B) tests are added for simultaneously transmit between 2.4GHz WLAN function and 5GHz WLAN 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 Reg. No.**	**IC File No.**	**VCCI Reg. No**
03CH01-CB	SAC	Hsin Chu	262045	IC 4086D	-
CO01-CB	Conduction	Hsin Chu	262045	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: CO01-CB

Support Unit	Brand	Model	FCC ID
NB*6	DELL	E6430	DoC
PoE PD Simulator (Terminal System)	N/A	PDS-16	N/A
Flash disk	Silicon	I-Series	DoC

For Test Site No: 03CH01-CB

Support Unit	Brand	Model	FCC ID
NB*5	DELL	E4300	DoC
NB	Apple	Mac Book	DoC
PoE PD Simulator (Terminal System)	N/A	PDS-16	N/A
Flash disk	Silicon	Touch 835	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.

<For 1TX>

Test Software Version	Mtool 2.0.1.0						
Mode	Test Frequency (MHz)						
	NCB: 20MHz						
	5260 MHz	5300 MHz	5320 MHz	5500 MHz	5580 MHz	5700 MHz	5720MHz
802.11a	74	74	74	74	74	74	73
802.11ac MCS0/Nss1 VHT20	74	73	73	74	74	74	73
Mode	NCB: 40MHz						
802.11ac MCS0/Nss1 VHT40	5270 MHz	5310 MHz	5510 MHz	5550 MHz	5670 MHz	5710MHz	
	76	76	76	76	76	75	
Mode	NCB: 80MHz						
802.11ac MCS0/Nss1 VHT80	5290 MHz		5530 MHz		5690 MHz		
	69		73		74		

<For 2TX>

Test Software Version	Mtool 2.0.1.0						
Mode	Test Frequency (MHz)						
	NCB: 20MHz						
	5260 MHz	5300 MHz	5320 MHz	5500 MHz	5580 MHz	5700 MHz	5720MHz
802.11a	73	73	73	73	73	72	73
802.11ac MCS0/Nss1 VHT20	73	73	73	73	73	73	73
Mode	NCB: 40MHz						
802.11ac MCS0/Nss1 VHT40	5270 MHz	5310 MHz	5510 MHz	5550 MHz	5670 MHz	5710MHz	
	75	72	70	76	76	76	
Mode	NCB: 80MHz						
802.11ac MCS0/Nss1 VHT80	5290 MHz		5530 MHz		5690 MHz		
	69		66		75		

3.9. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

3.10. Duty Cycle

<For 1TX>

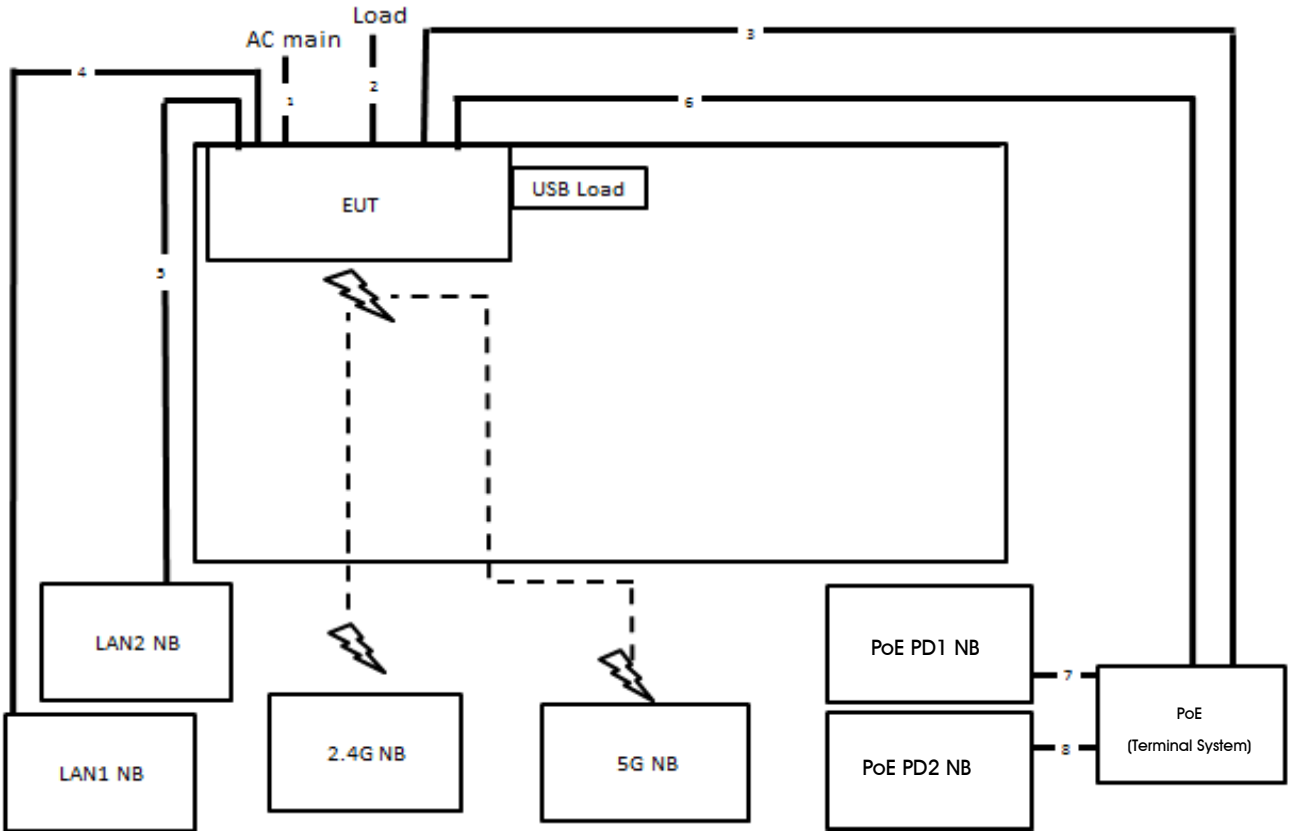
Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11a	2.040	2.090	97.61%	0.11	0.49
802.11ac MCS0/Nss1 VHT20	1.910	1.950	97.95%	0.09	0.52
802.11ac MCS0/Nss1 VHT40	0.906	0.966	93.79%	0.28	1.10
802.11ac MCS0/Nss1 VHT80	0.420	0.486	86.42%	0.63	2.38

<For 2TX>

Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11a	2.100	2.140	98.13%	0.08	0.01
802.11ac MCS0/Nss1 VHT20	1.900	1.910	99.48%	0.02	0.01
802.11ac MCS0/Nss1 VHT40	0.912	0.972	93.83%	0.28	1.10
802.11ac MCS0/Nss1 VHT80	0.464	0.488	95.08%	0.22	2.16

3.11.Test Configurations

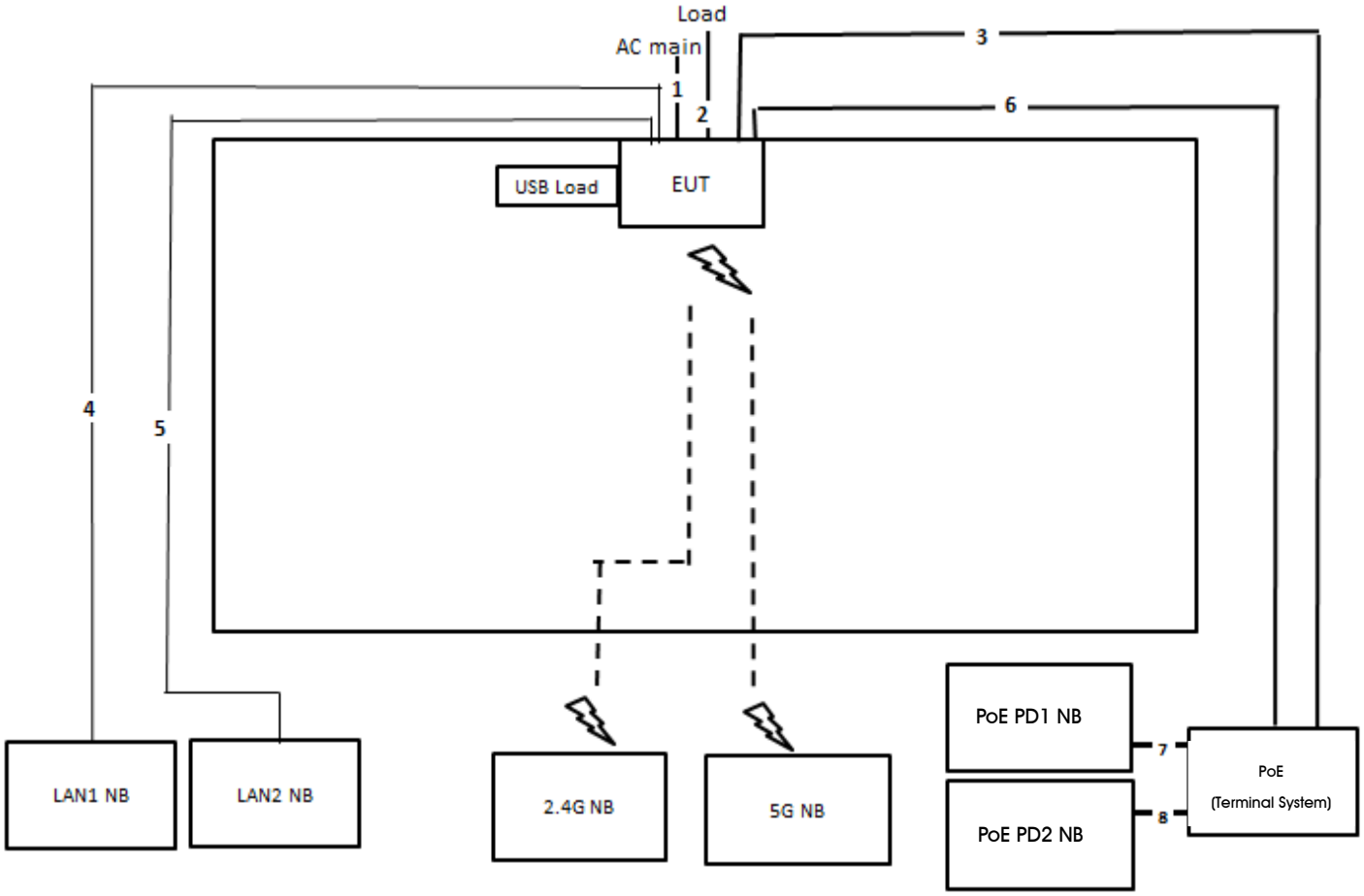
3.11.1. AC Power Line Conduction Emissions Test Configuration



Item	Connection	Shielded	Length
1	Power cable	No	3.8m
2	RJ-45 cable*8	No	1.5m
3	RJ-45 cable	No	10m
4	RJ-45 cable	No	10m
5	RJ-45 cable	No	10m
6	RJ-45 cable	No	10m
7	RJ-45 cable	No	1.5m
8	RJ-45 cable	No	1.5m

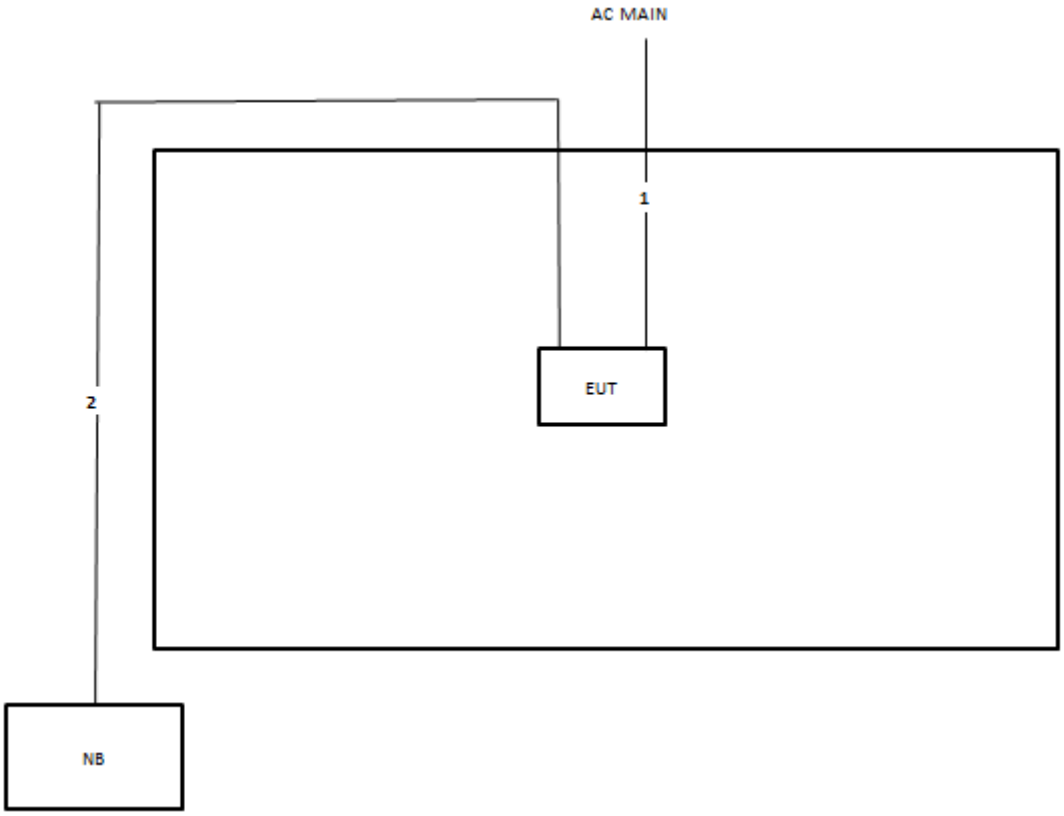
3.11.2. Radiation Emissions Test Configuration

Test Configuration: 30MHz~1GHz



Item	Connection	Shielded	Length
1	Power cable	No	3.8m
2	RJ-45 cable*8	No	1.5m
3	RJ-45 cable	No	10m
4	RJ-45 cable	No	10m
5	RJ-45 cable	No	1.5m
6	RJ-45 cable	No	1.5m
7	RJ-45 cable	No	1m
8	RJ-45 cable	No	1m

Test Configuration: above 1GHz



Item	Connection	Shielded	Length(m)
1	Power cable	No	3.8m
2	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

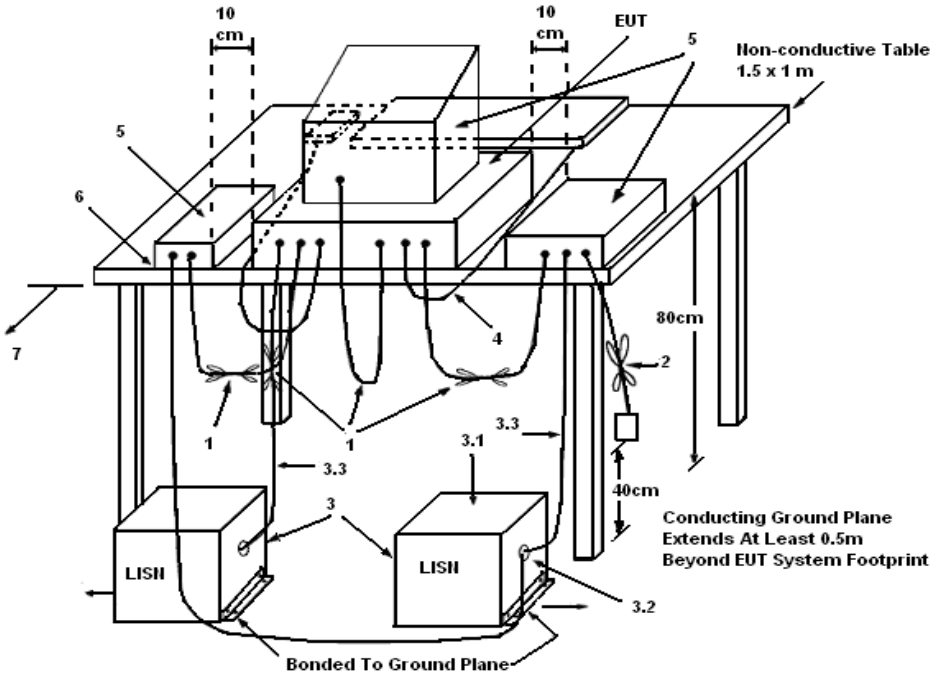
Please refer to section 5 of equipments list in this report. The following table is the setting of the receiver.

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

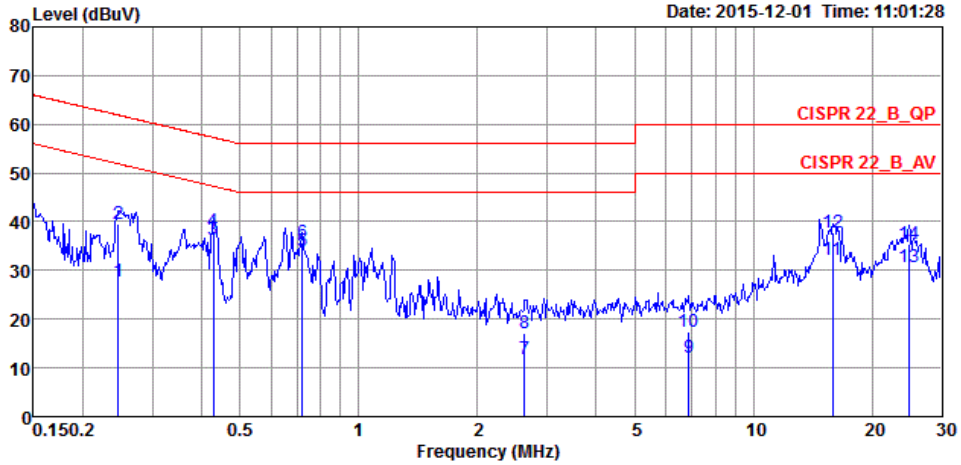
There is no deviation with the original standard.

4.1.6. EUT Operation during Test

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

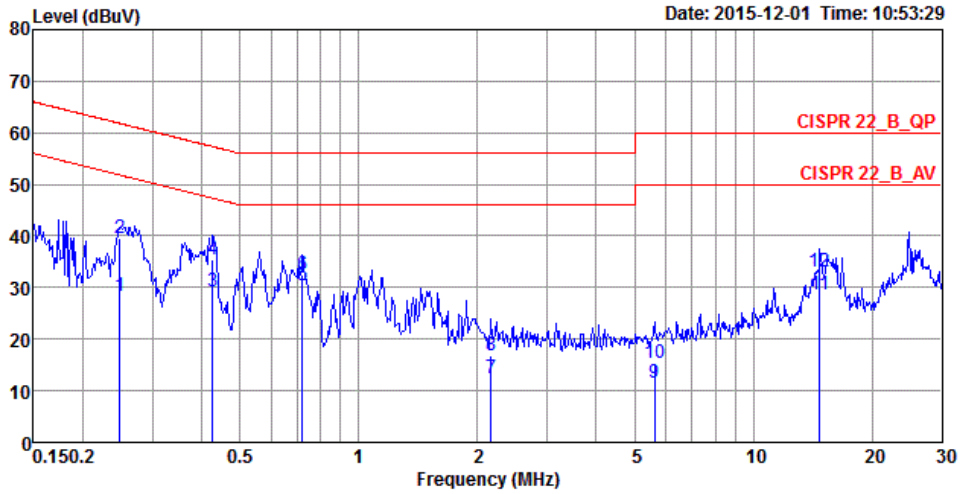
4.1.7. Results of AC Power Line Conducted Emissions Measurement

Temperature	25°C	Humidity	58%
Test Engineer	Parody Lin	Phase	Line
Configuration	Normal Link		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.2455	27.73	-24.18	51.91	17.77	9.93	0.03	LINE	Average
2	0.2455	39.54	-22.37	61.91	29.58	9.93	0.03	LINE	QP
3	0.4282	36.45	-10.84	47.29	26.48	9.93	0.04	LINE	Average
4	0.4282	38.07	-19.22	57.29	28.10	9.93	0.04	LINE	QP
5	0.7198	33.97	-12.03	46.00	23.98	9.95	0.04	LINE	Average
6	0.7198	35.63	-20.37	56.00	25.64	9.95	0.04	LINE	QP
7	2.6360	11.71	-34.29	46.00	1.66	10.00	0.05	LINE	Average
8	2.6360	17.01	-38.99	56.00	6.96	10.00	0.05	LINE	QP
9	6.8776	12.22	-37.78	50.00	1.99	10.11	0.12	LINE	Average
10	6.8776	17.43	-42.57	60.00	7.20	10.11	0.12	LINE	QP
11	15.8854	32.28	-17.72	50.00	21.67	10.35	0.26	LINE	Average
12	15.8854	37.64	-22.36	60.00	27.03	10.35	0.26	LINE	QP
13	24.7904	30.80	-19.20	50.00	19.97	10.56	0.27	LINE	Average
14	24.7904	35.42	-24.58	60.00	24.59	10.56	0.27	LINE	QP

Temperature	25℃	Humidity	58%
Test Engineer	Parody Lin	Phase	Neutral
Configuration	Normal Link		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.2481	28.20	-23.62	51.82	18.38	9.79	0.03	NEUTRAL	Average
2	0.2481	39.44	-22.38	61.82	29.62	9.79	0.03	NEUTRAL	QP
3	0.4260	29.10	-18.23	47.33	19.27	9.79	0.04	NEUTRAL	Average
4	0.4260	35.50	-21.83	57.33	25.67	9.79	0.04	NEUTRAL	QP
5	0.7198	30.42	-15.58	46.00	20.58	9.80	0.04	NEUTRAL	Average
6	0.7198	32.54	-23.46	56.00	22.70	9.80	0.04	NEUTRAL	QP
7	2.1668	12.27	-33.73	46.00	2.37	9.84	0.06	NEUTRAL	Average
8	2.1668	16.87	-39.13	56.00	6.97	9.84	0.06	NEUTRAL	QP
9	5.6234	11.47	-38.53	50.00	1.43	9.92	0.12	NEUTRAL	Average
10	5.6234	15.24	-44.76	60.00	5.20	9.92	0.12	NEUTRAL	QP
11	14.7497	28.52	-21.48	50.00	18.16	10.10	0.26	NEUTRAL	Average
12	14.7497	33.00	-27.00	60.00	22.64	10.10	0.26	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

1. The transmitter was conducted 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.
3. 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. Measurement perform conducted of each port.

4.2.4. Test Setup Layout

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

4.2.5. Test Deviation

There is no deviation with the original standard.

4.2.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

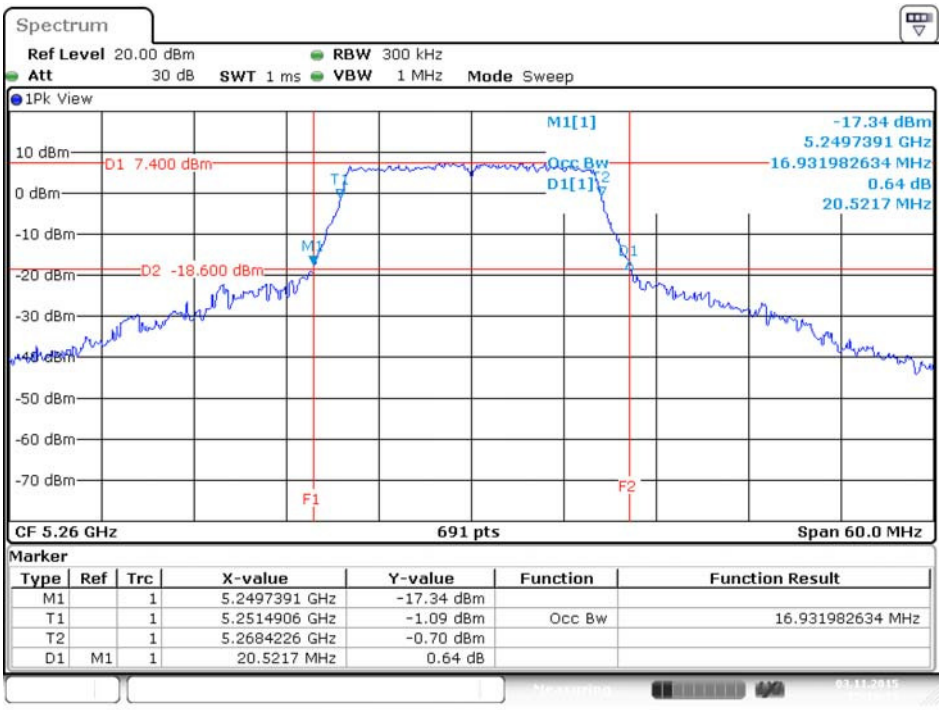
4.2.7. Test Result of 26dB Bandwidth and 99% Occupied Bandwidth

<For 1TX>

Temperature	25℃	Humidity	58%
Test Engineer	Mars Lin		

Mode	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11a	5260 MHz	20.52	16.93
	5300 MHz	20.70	17.02
	5320 MHz	20.52	17.02
	5500 MHz	20.43	16.93
	5580 MHz	20.78	16.93
	5700 MHz	20.78	17.11
802.11ac MCS0/Nss1 VHT20	5260 MHz	20.87	17.97
	5300 MHz	21.91	17.97
	5320 MHz	20.61	17.97
	5500 MHz	21.39	18.06
	5580 MHz	21.22	17.97
	5700 MHz	23.30	18.06
802.11ac MCS0/Nss1 VHT40	5270 MHz	46.81	36.90
	5310 MHz	45.22	37.05
	5510 MHz	51.30	36.90
	5550 MHz	49.86	36.90
	5670 MHz	61.01	37.05
802.11ac MCS0/Nss1 VHT80	5290 MHz	90.14	75.83
	5530 MHz	88.12	76.12

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

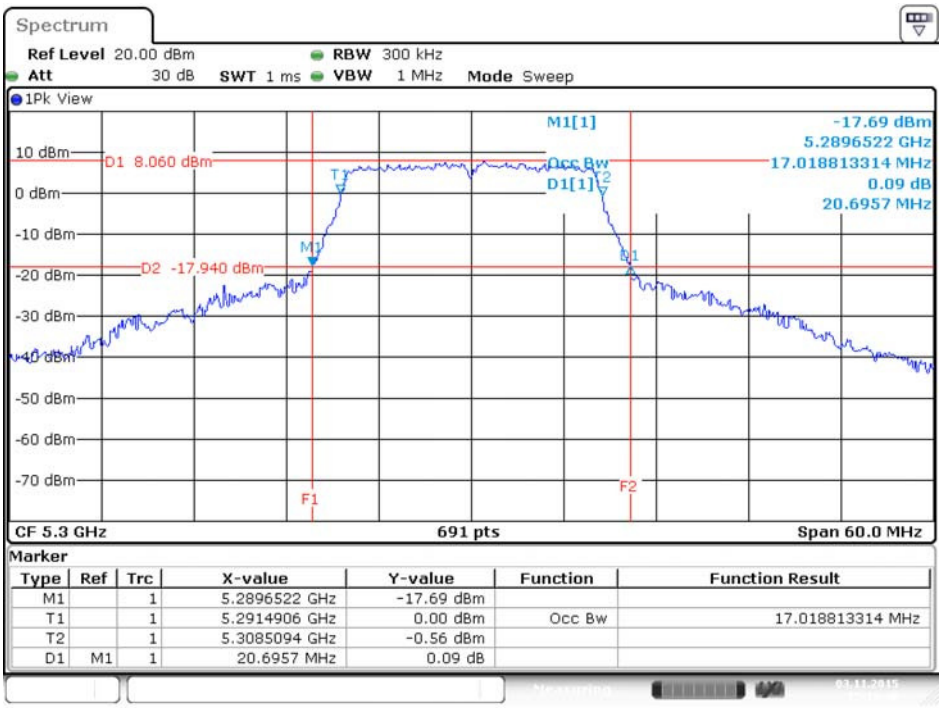


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	5.2497391 GHz	-17.34 dBm		
T1		1	5.2514906 GHz	-1.09 dBm	Occ Bw	16.931982634 MHz
T2		1	5.2684226 GHz	-0.70 dBm		
D1	M1	1	20.5217 MHz	0.64 dB		

Date: 3.NOV.2015 15:19:15

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



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	5.2896522 GHz	-17.69 dBm		
T1		1	5.2914906 GHz	0.00 dBm	Occ Bw	17.018813314 MHz
T2		1	5.3085094 GHz	-0.56 dBm		
D1	M1	1	20.6957 MHz	0.09 dB		

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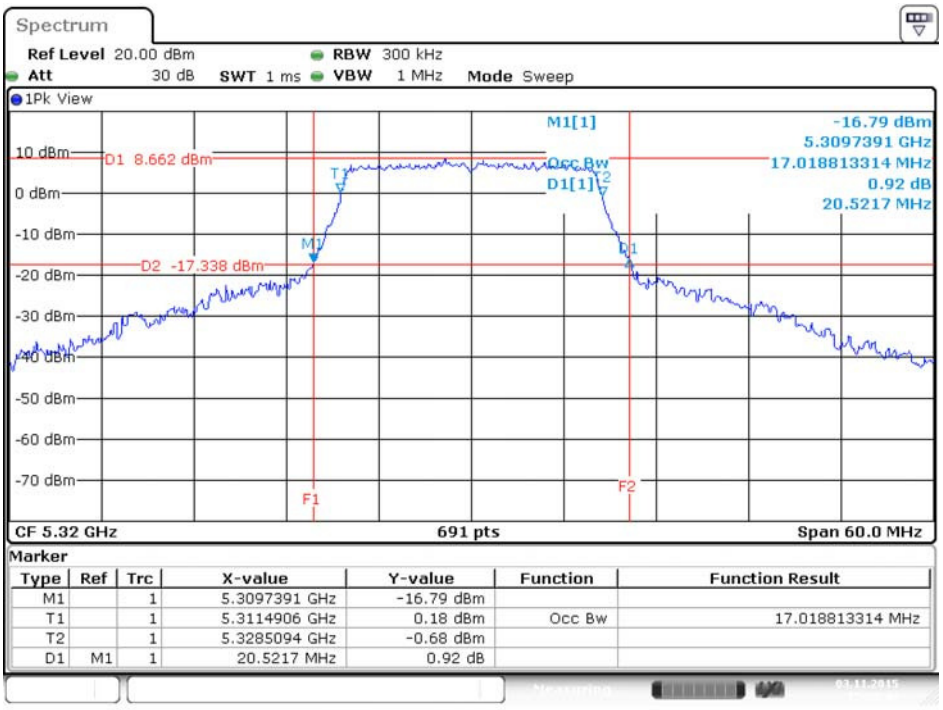
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 / 5320 MHz



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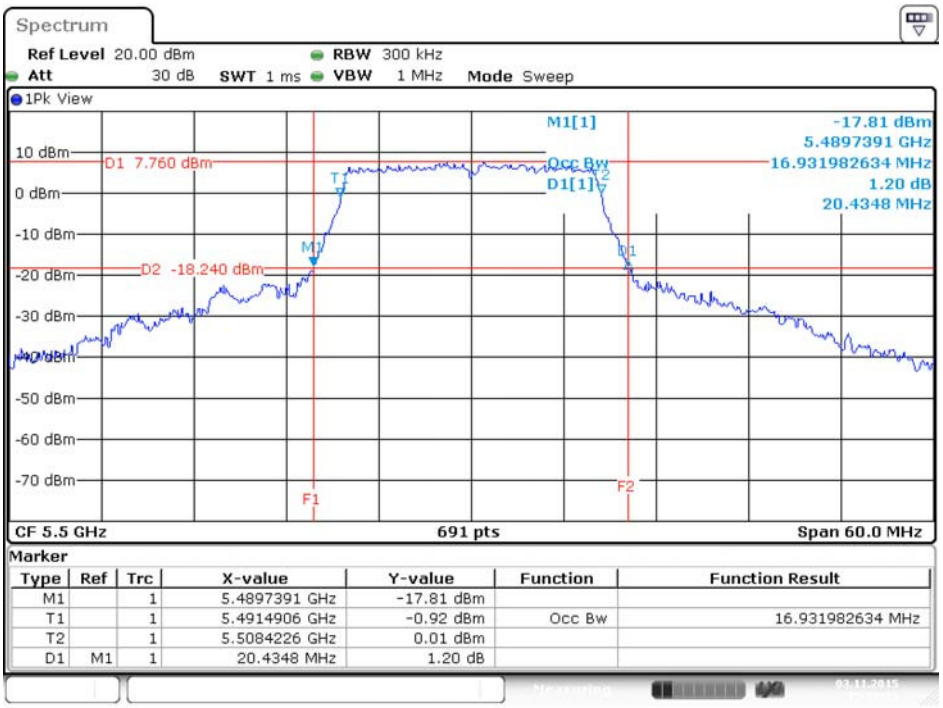
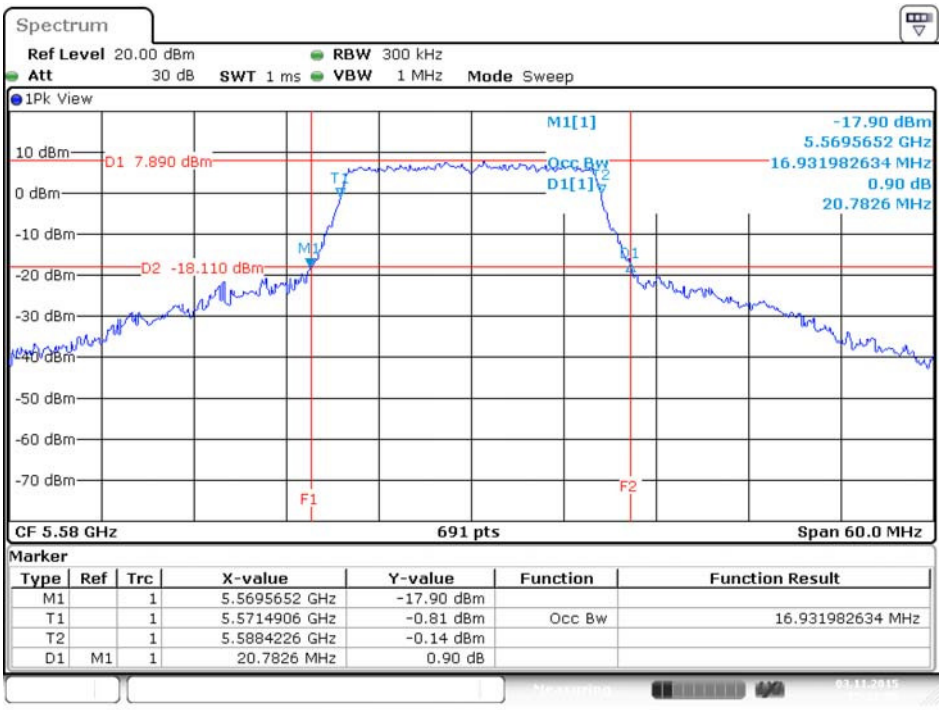
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 / 5500 MHz



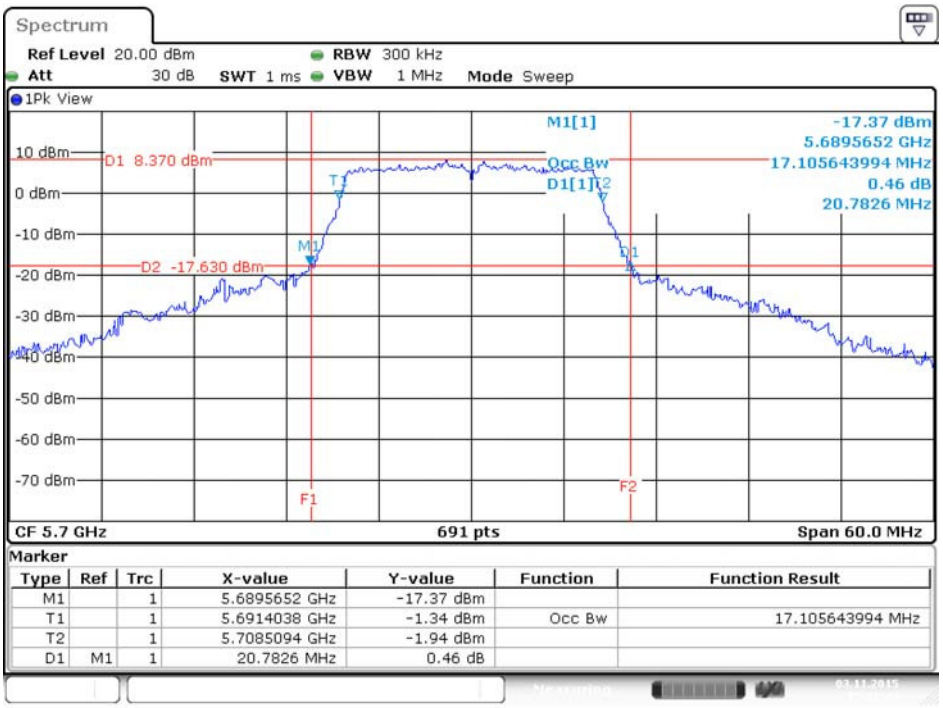
Date: 3.NOV.2015 15:21:22

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



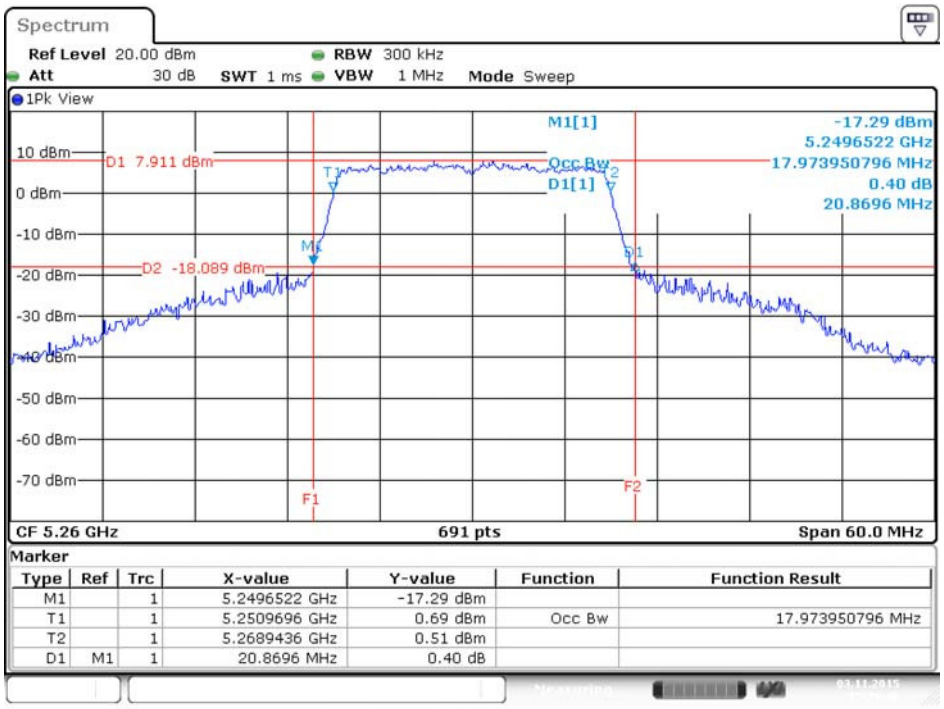
Date: 3.NOV.2015 15:22:05

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



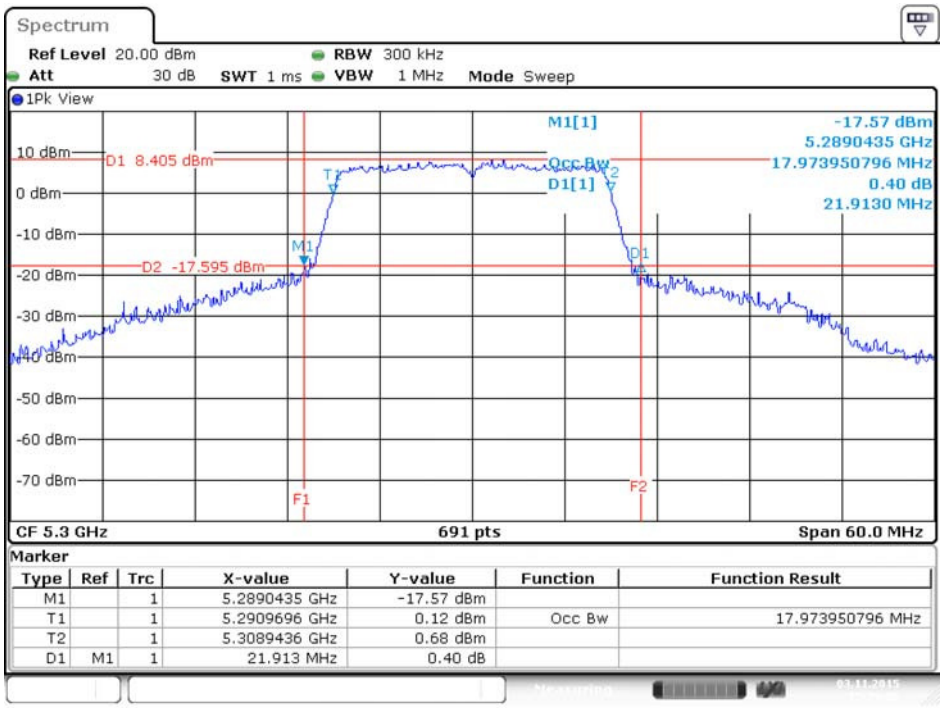
Date: 3.NOV.2015 15:22:44

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



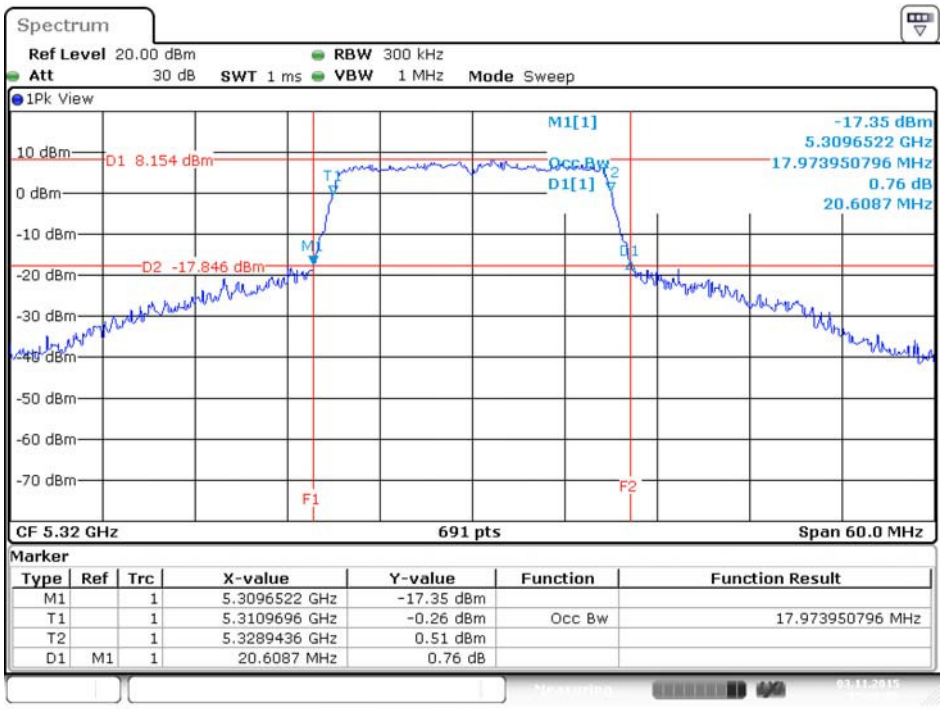
Date: 3.NOV.2015 15:29:46

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



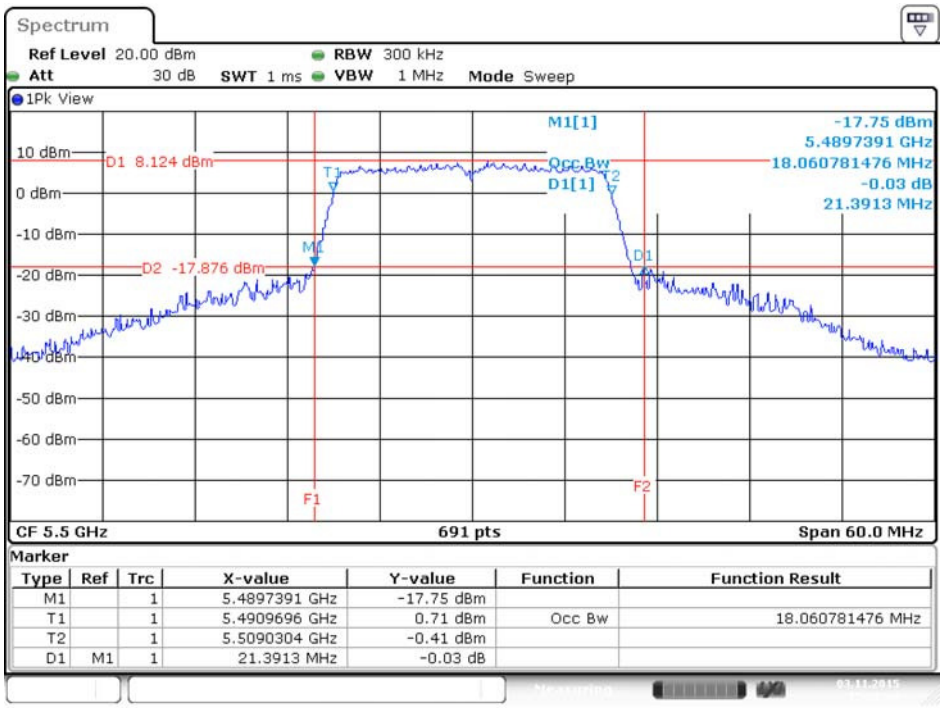
Date: 3.NOV.2015 15:29:26

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



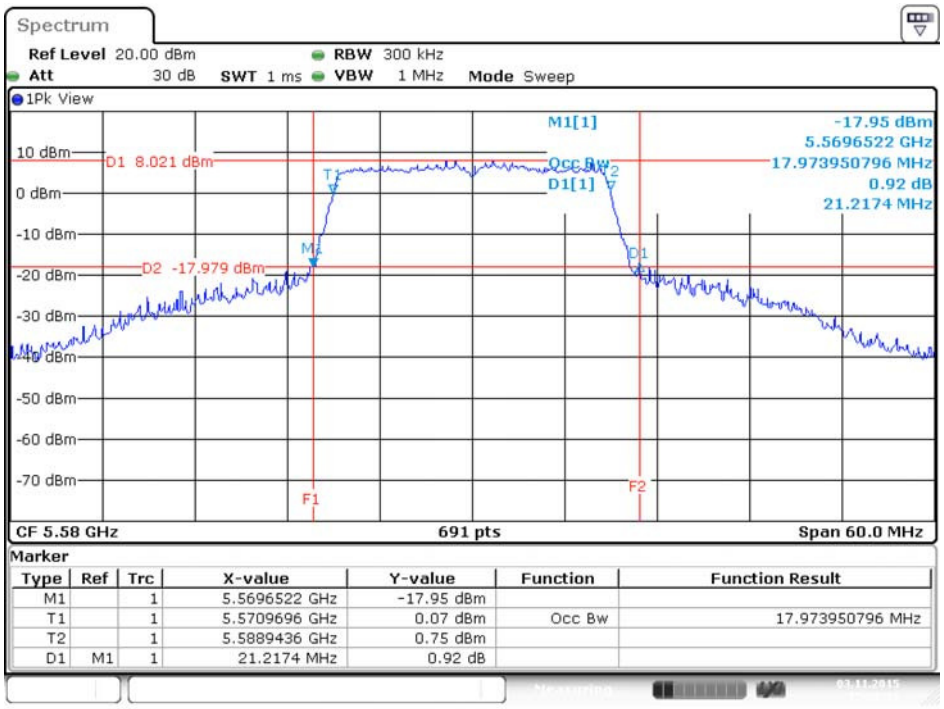
Date: 3.NOV.2015 15:28:58

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



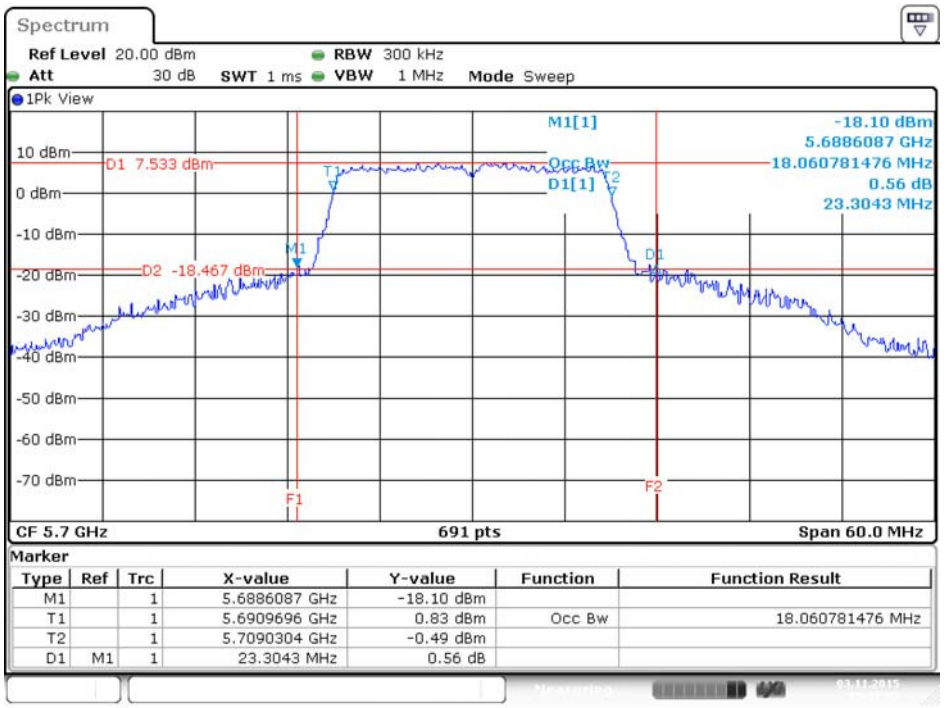
Date: 3.NOV.2015 15:28:35

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



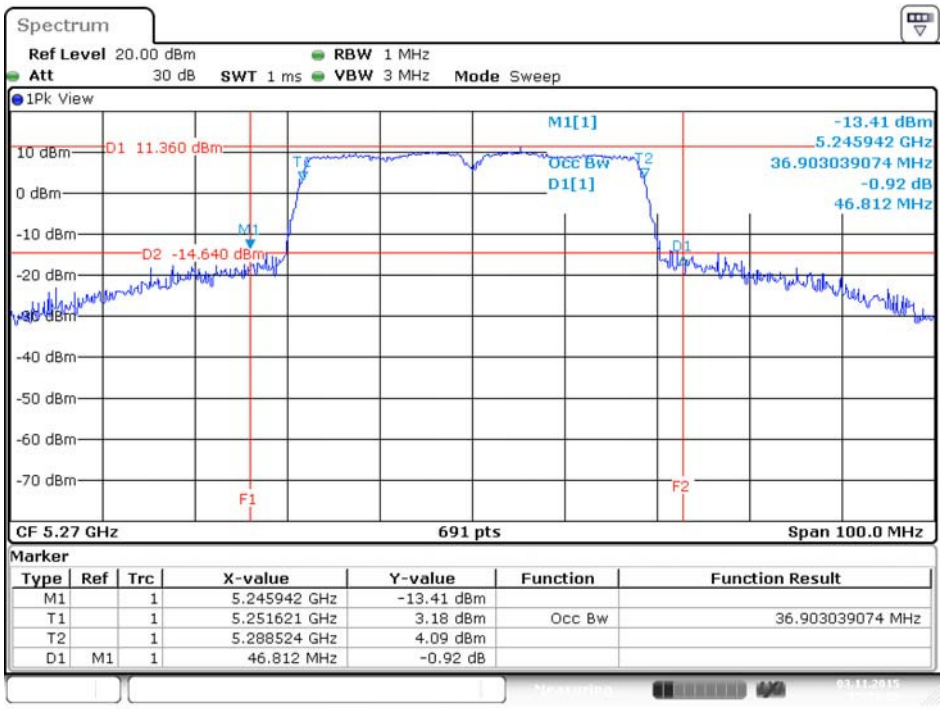
Date: 3.NOV.2015 15:28:11

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



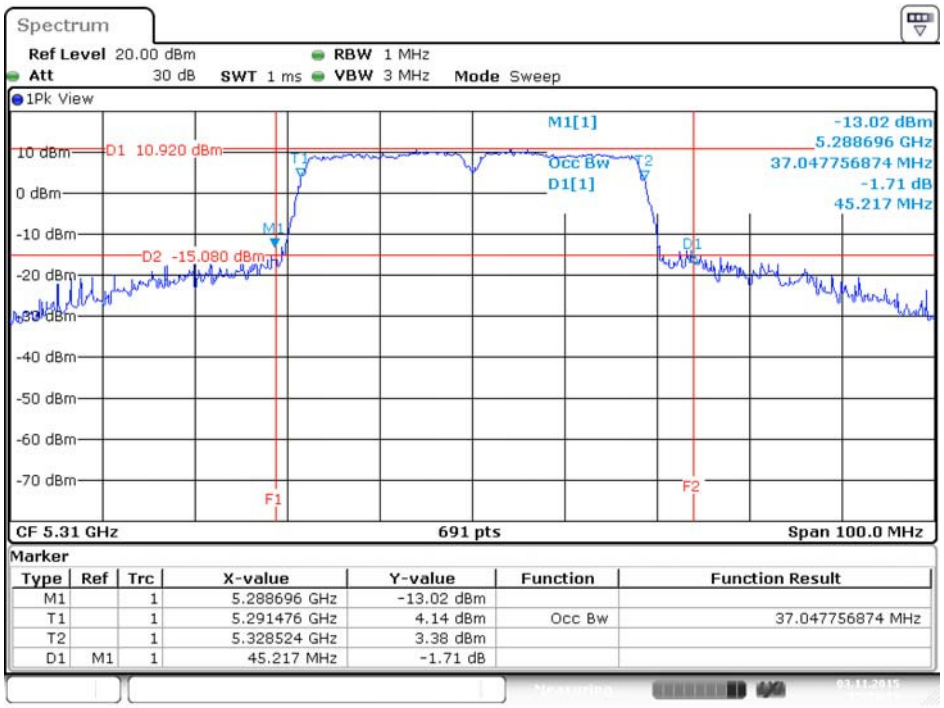
Date: 3.NOV.2015 15:27:53

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



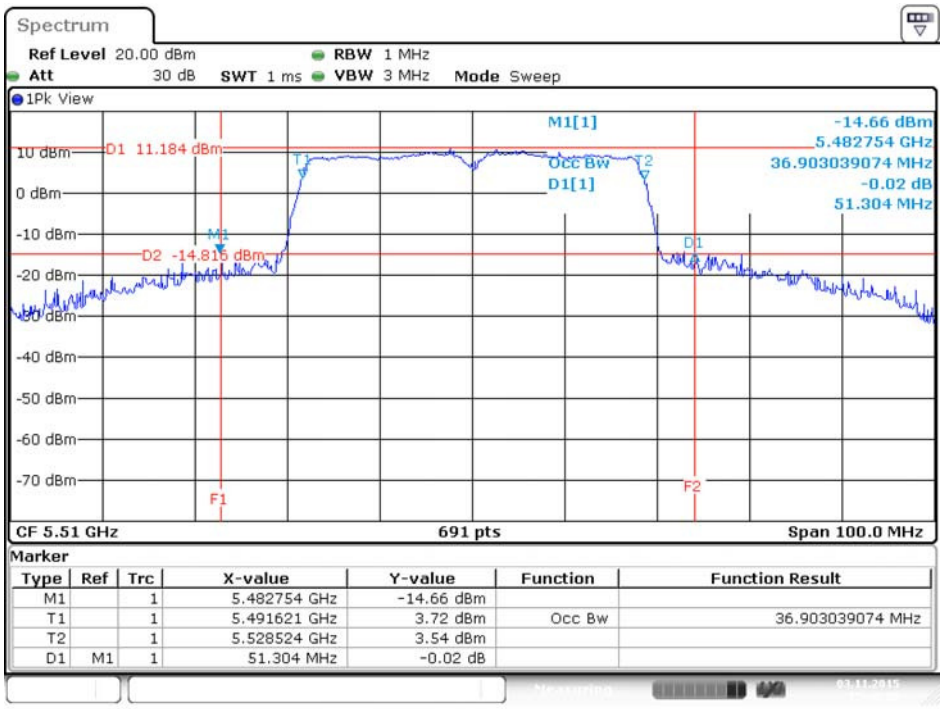
Date: 3.NOV.2015 15:39:08

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



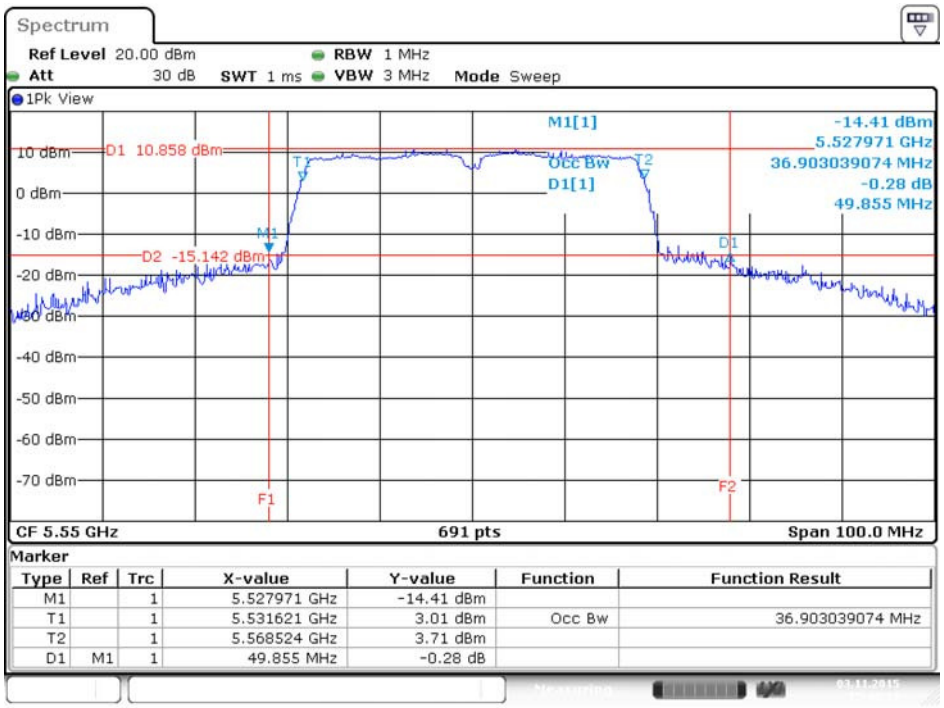
Date: 3.NOV.2015 15:39:40

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



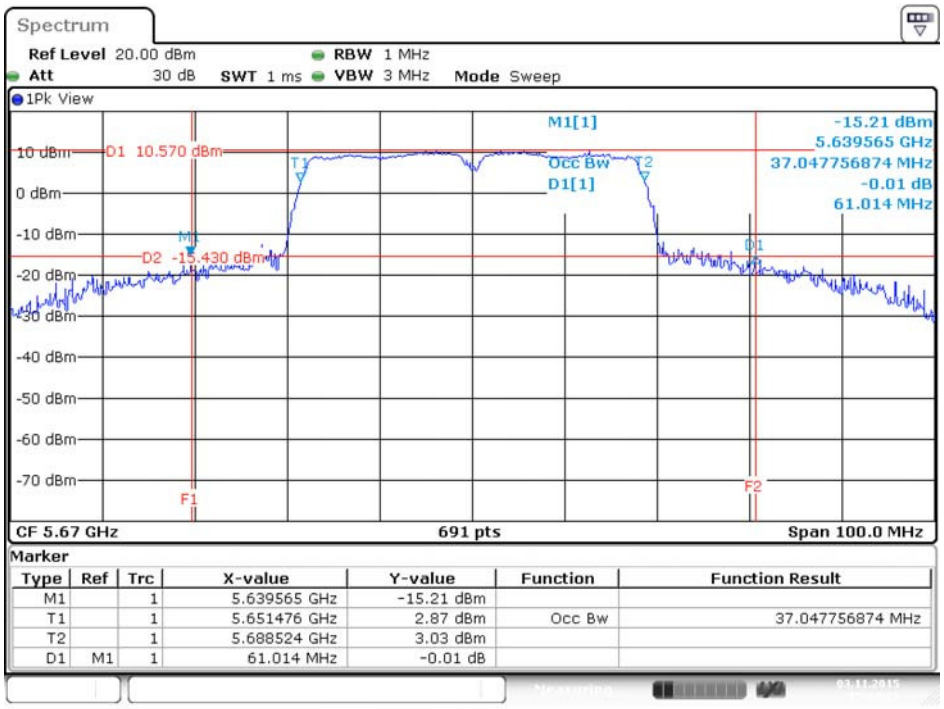
Date: 3.NOV.2015 15:40:20

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



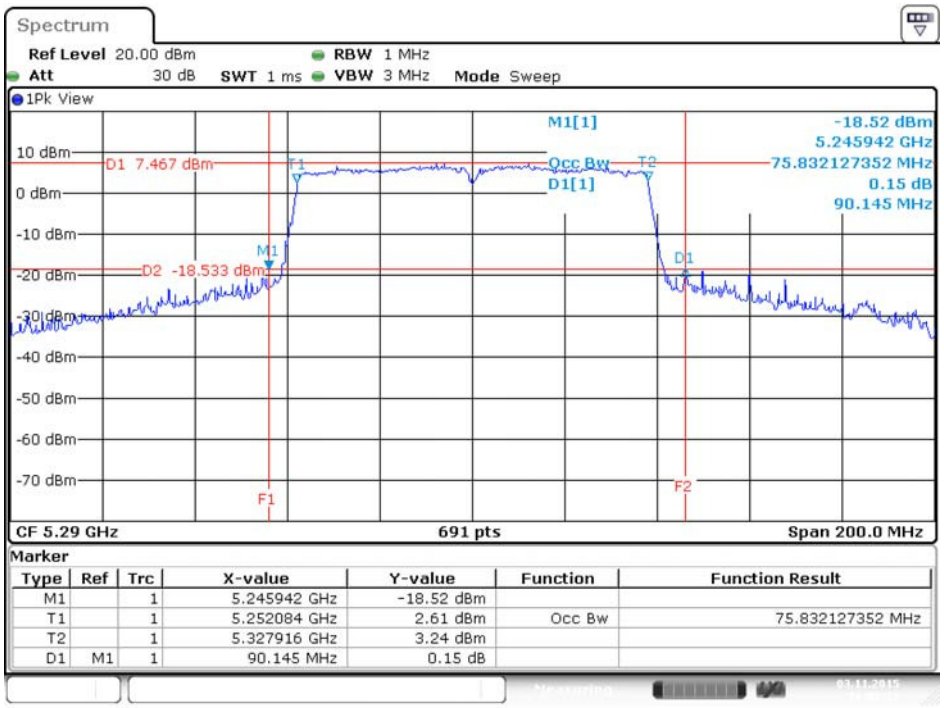
Date: 3.NOV.2015 15:42:11

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



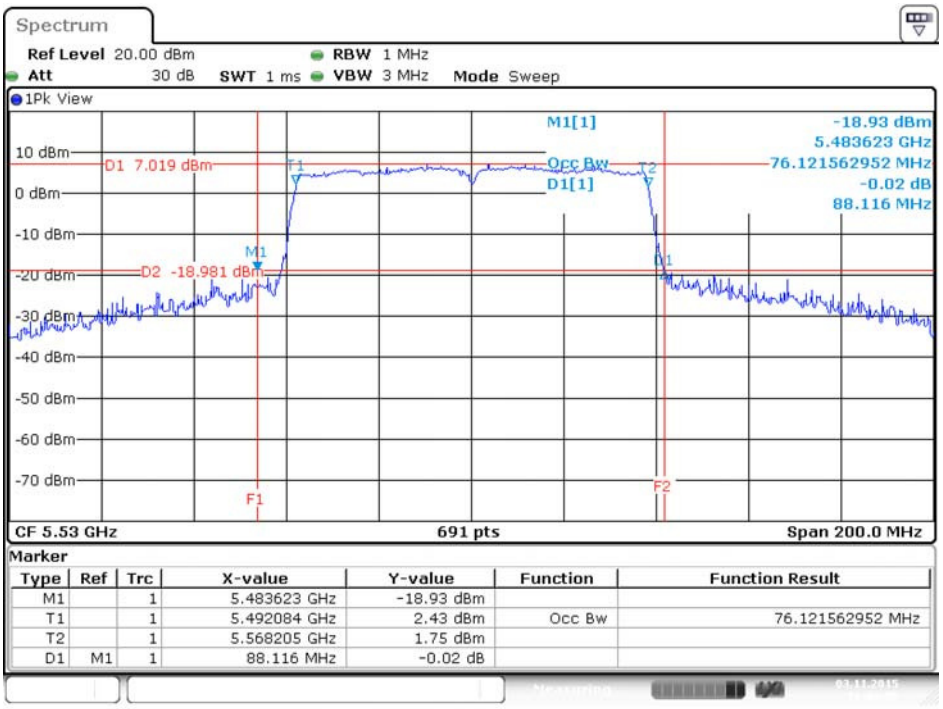
Date: 3.NOV.2015 15:43:37

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



Date: 3.NOV.2015 16:02:22

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



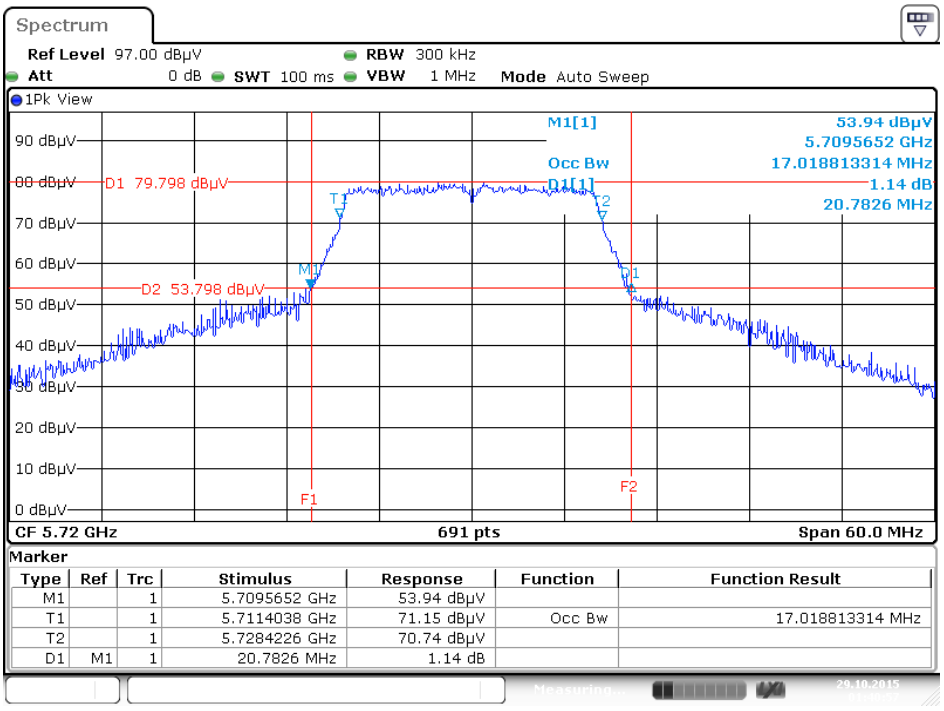
Date: 3.NOV.2015 16:09:57

Straddle Channel

Mode	Frequency	26dB BW (MHz)	99% OBW (MHz)	26dB BW F1 (MHz)	99% OBW T1 (MHz)	UNII 2C 26dB BW (MHz)	UNII 3 26dB BW (MHz)	UNII 2C 99% BW (MHz)	UNII 3 99% BW (MHz)
802.11a	5720 MHz	20.78	17.02	5709.57	5711.40	15.43	5.35	13.60	3.42
802.11ac MCS0/Nss1 VHT20	5720 MHz	20.35	18.06	5709.74	5710.88	15.26	5.09	14.12	3.94
802.11ac MCS0/Nss1 VHT40	5710 MHz	51.16	36.90	5683.62	5691.48	41.38	9.78	33.52	3.38
802.11ac MCS0/Nss1 VHT80	5690 MHz	88.70	75.83	5648.26	5652.08	76.74	11.96	72.92	2.92

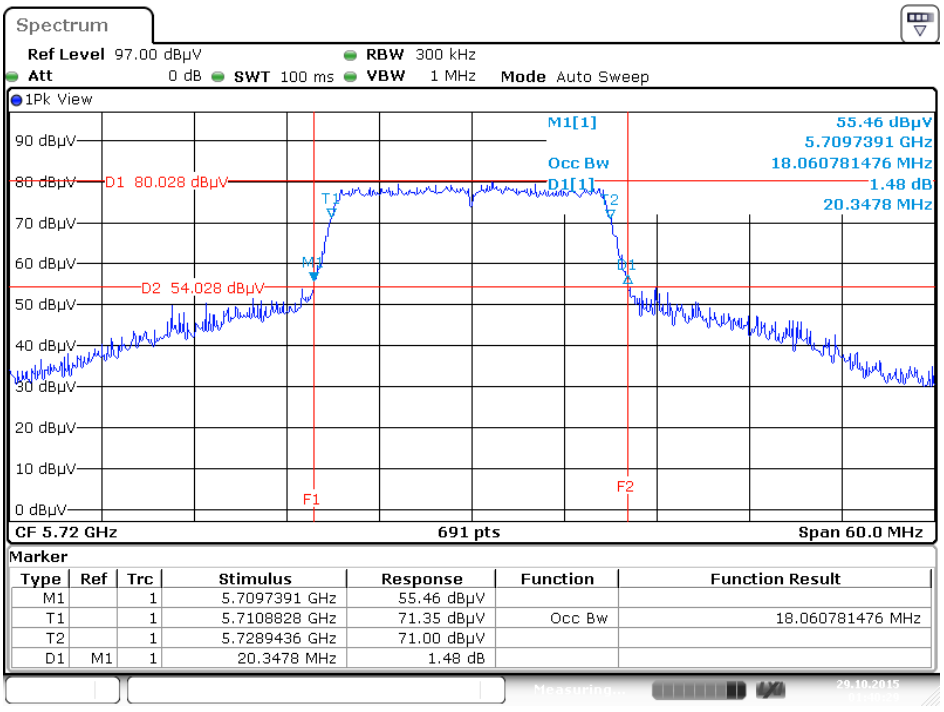
Straddle Channel

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



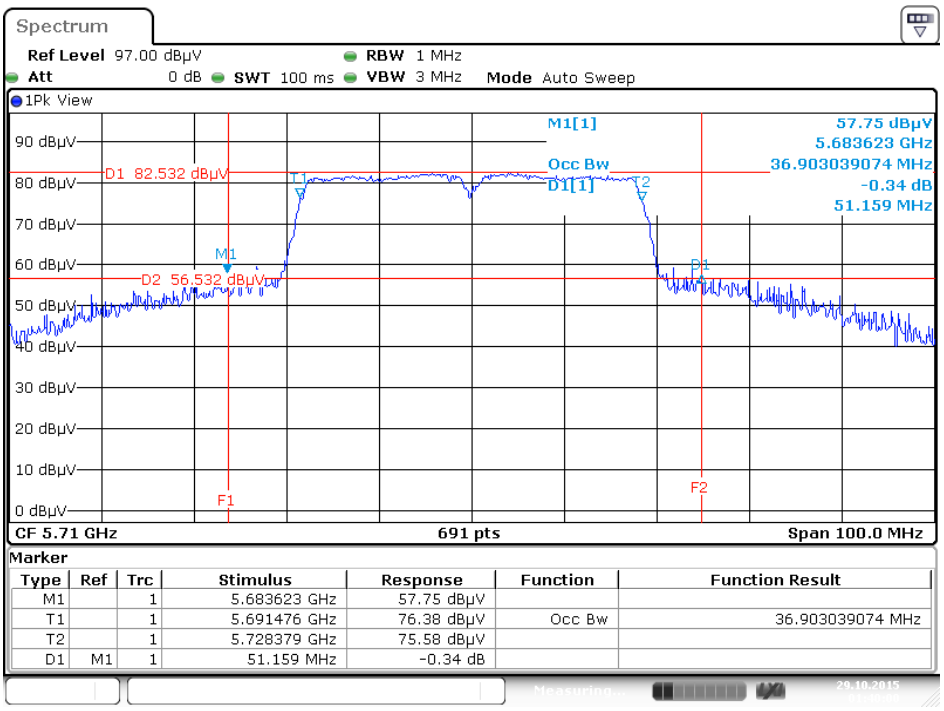
Date: 29.OCT.2015 01:40:57

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



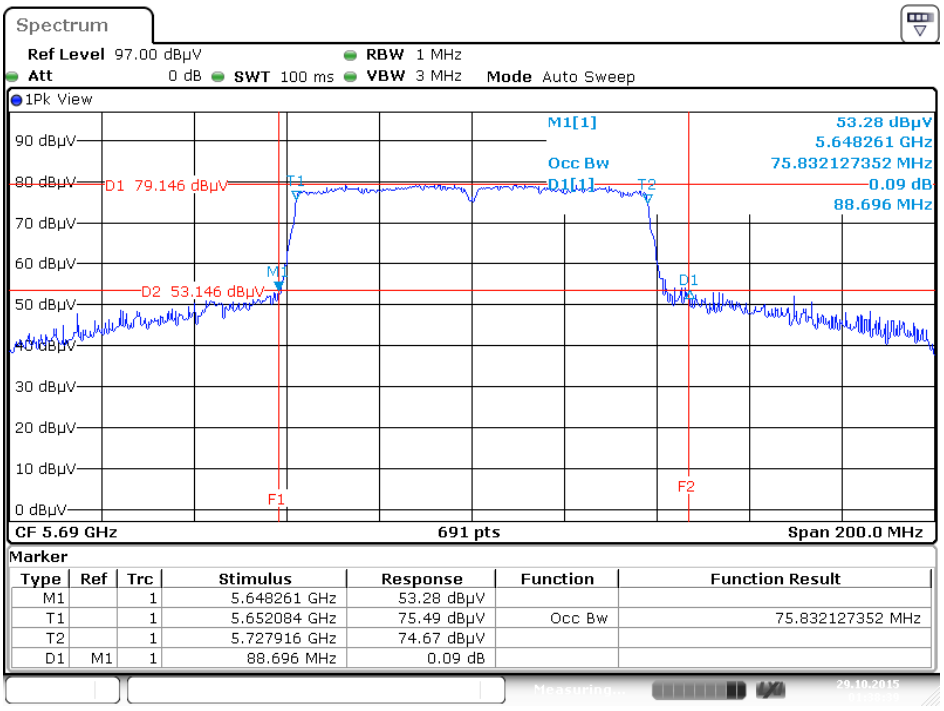
Date: 29.OCT.2015 01:40:29

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



Date: 29.OCT.2015 01:40:00

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



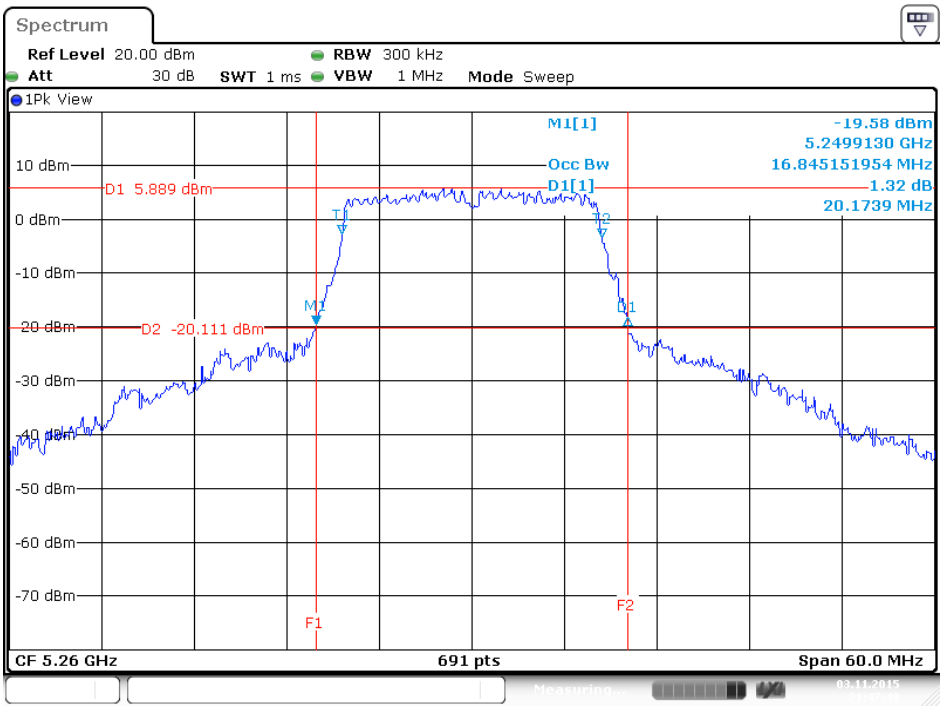
Date: 29.OCT.2015 01:38:39

<For 2TX>

Temperature	25°C	Humidity	58%
Test Engineer	Mars Lin		

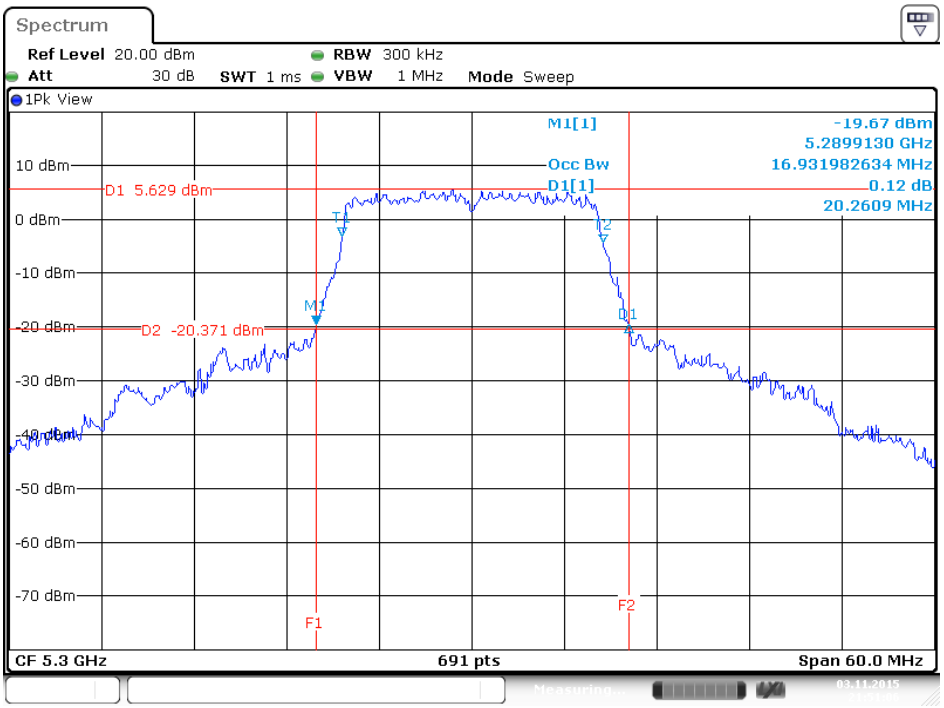
Mode	Frequency	26dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 1	Chain 2	Chain 1	Chain 2
802.11a	5260 MHz	20.17	20.78	16.84	17.02
	5300 MHz	20.26	21.13	16.93	16.93
	5320 MHz	20.17	21.04	16.93	17.01
	5500 MHz	20.60	20.43	16.84	17.01
	5580 MHz	21.82	20.86	16.93	17.01
	5700 MHz	22.86	22.34	17.01	17.10
802.11ac MCS0/Nss1 VHT20	5260 MHz	20.60	20.60	17.80	18.06
	5300 MHz	21.21	23.91	17.80	17.97
	5320 MHz	20.43	22.86	17.80	17.97
	5500 MHz	22.52	23.30	17.80	17.97
	5580 MHz	25.30	20.87	17.88	17.97
	5700 MHz	23.47	26.26	17.97	17.80
802.11ac MCS0/Nss1 VHT40	5270 MHz	45.07	51.45	36.75	37.04
	5310 MHz	41.30	41.44	36.75	36.75
	5510 MHz	40.43	41.01	36.75	36.90
	5550 MHz	56.37	59.85	37.04	36.75
	5670 MHz	56.81	59.42	37.04	37.04
802.11ac MCS0/Nss1 VHT80	5290 MHz	82.02	82.60	75.83	75.83
	5530 MHz	82.31	83.76	75.83	75.83

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



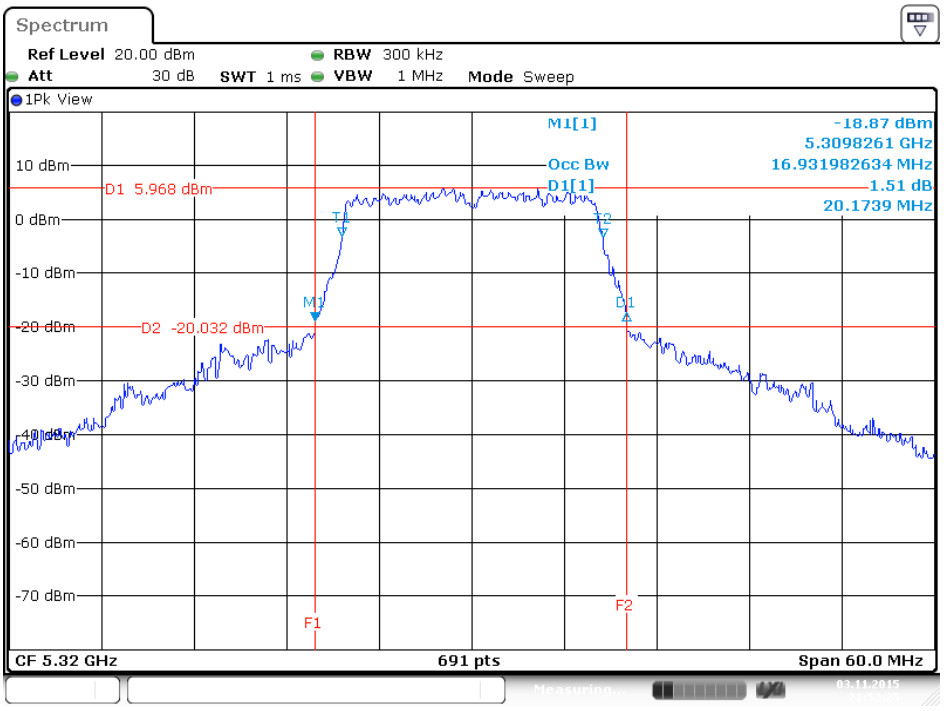
Date: 3.NOV.2015 21:47:49

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



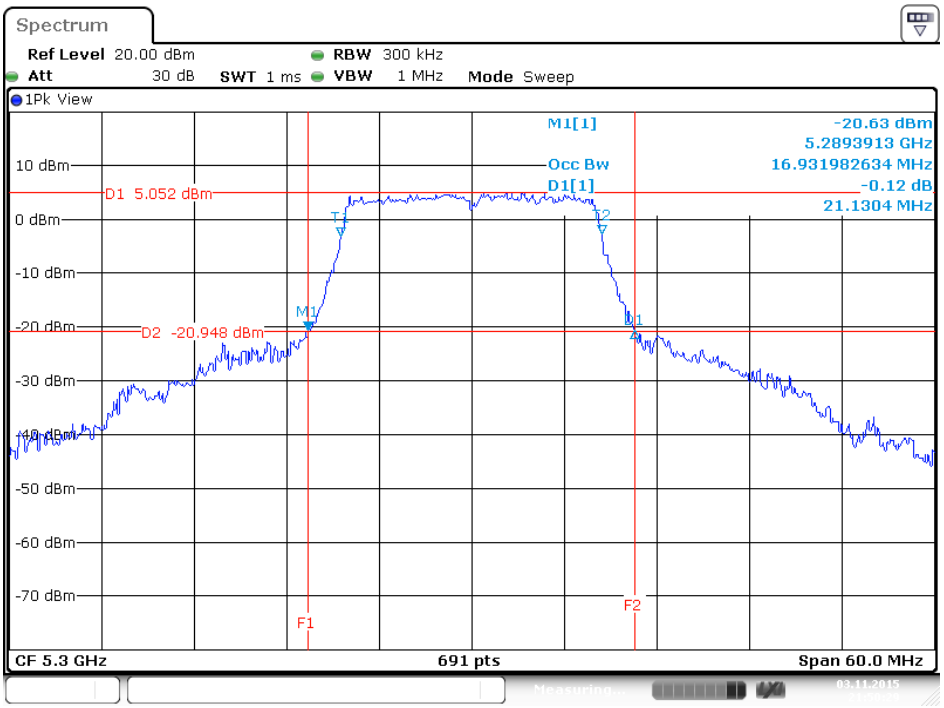
Date: 3.NOV.2015 21:51:06

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



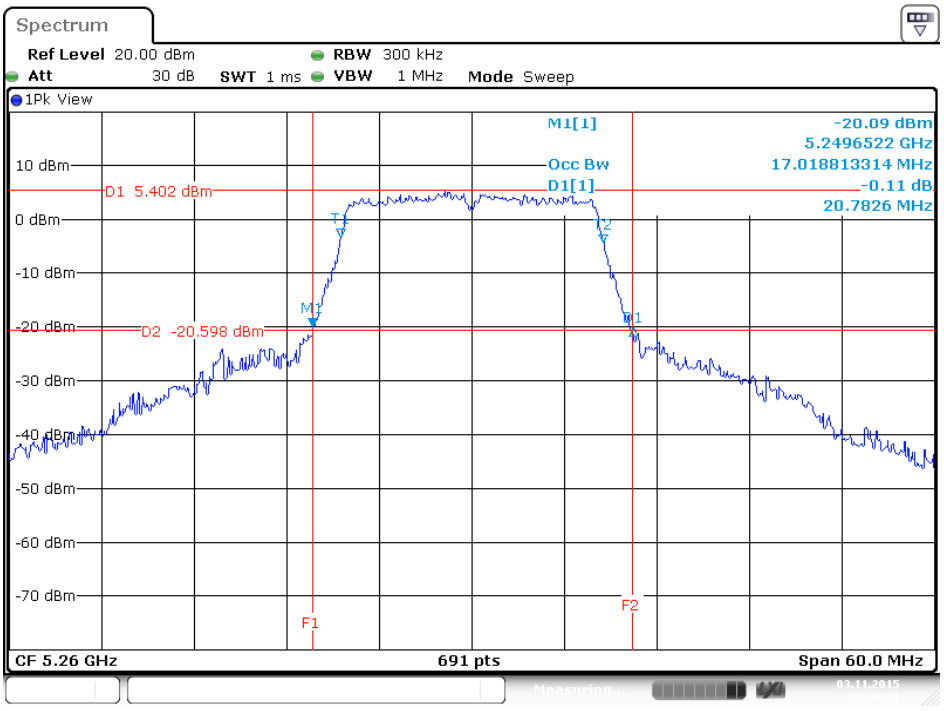
Date: 3.NOV.2015 21:52:25

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



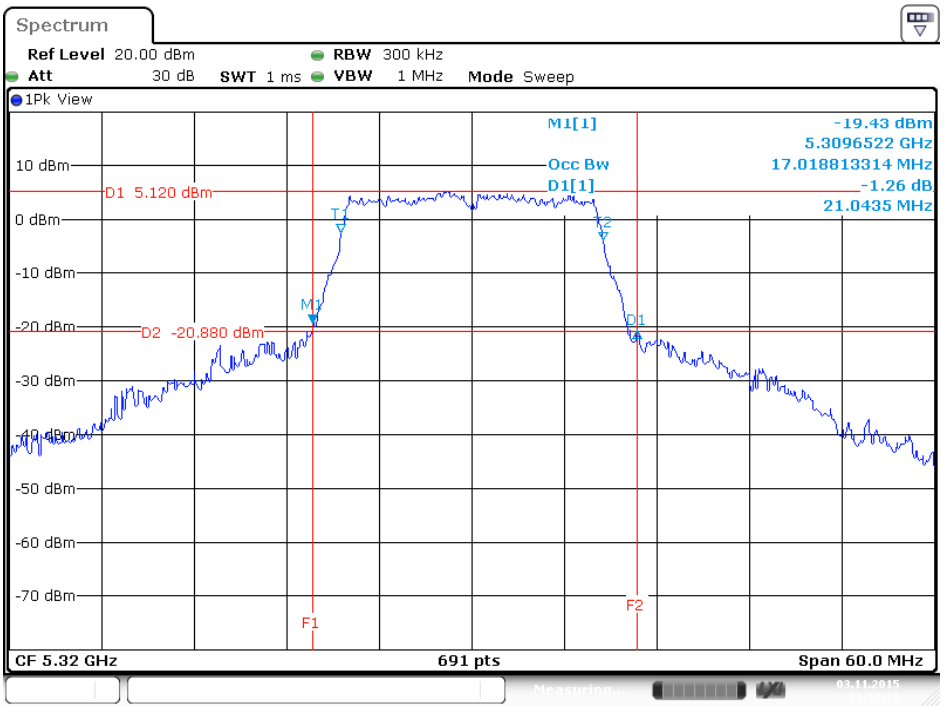
Date: 3.NOV.2015 21:50:29

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



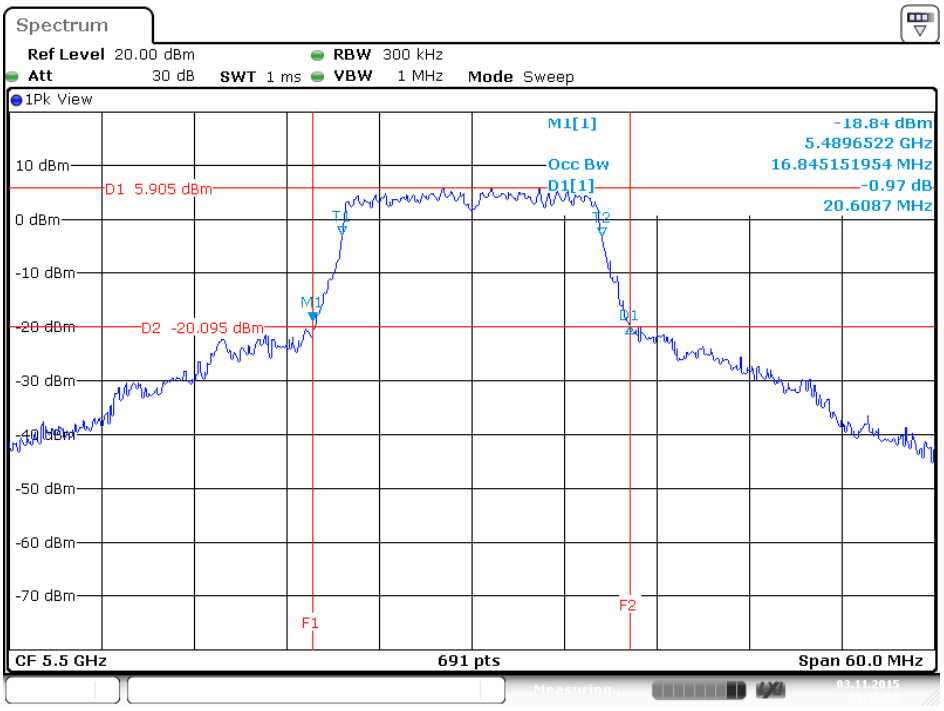
Date: 3.NOV.2015 21:48:21

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



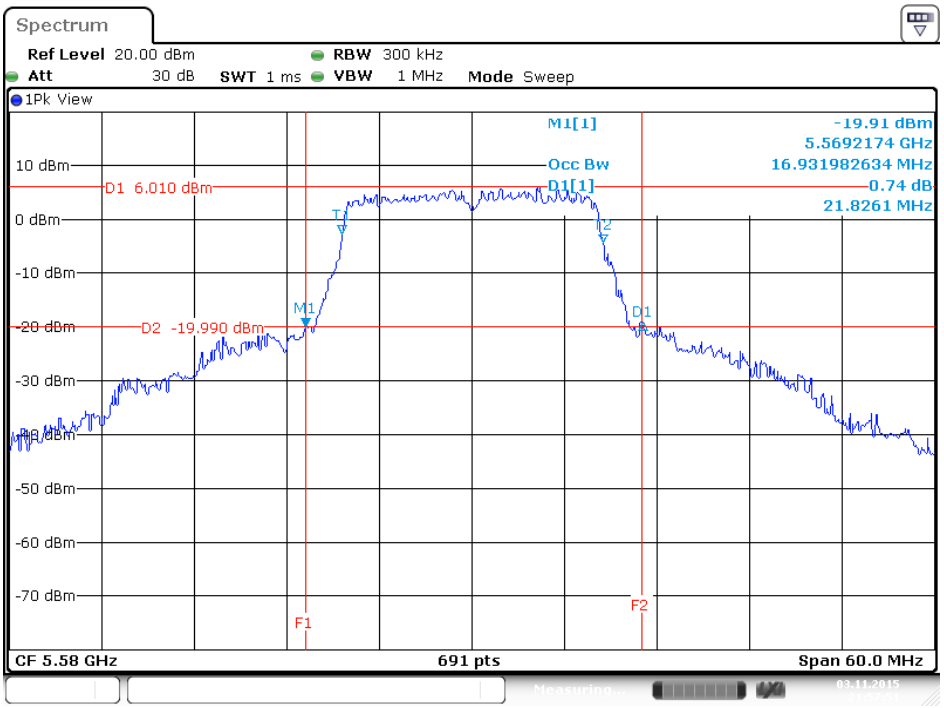
Date: 3.NOV.2015 21:53:18

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



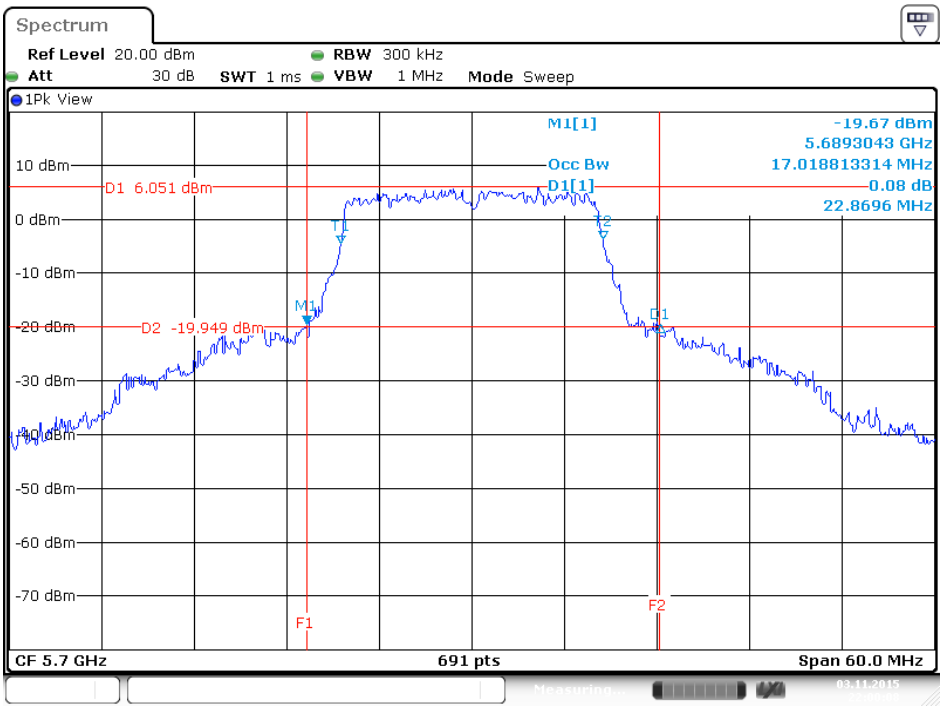
Date: 3.NOV.2015 21:55:58

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



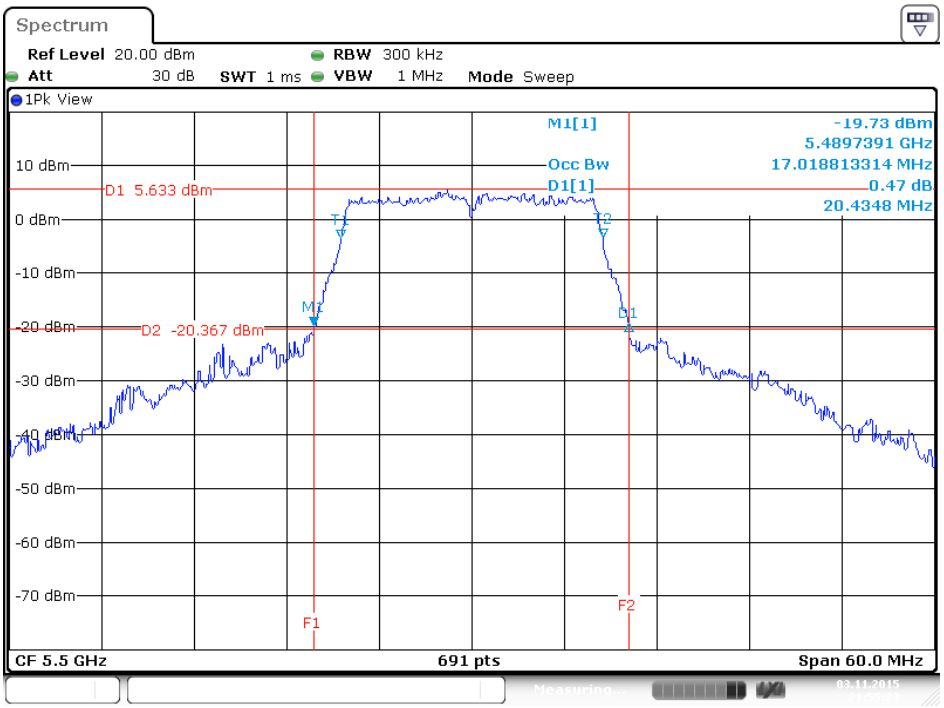
Date: 3.NOV.2015 21:57:51

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



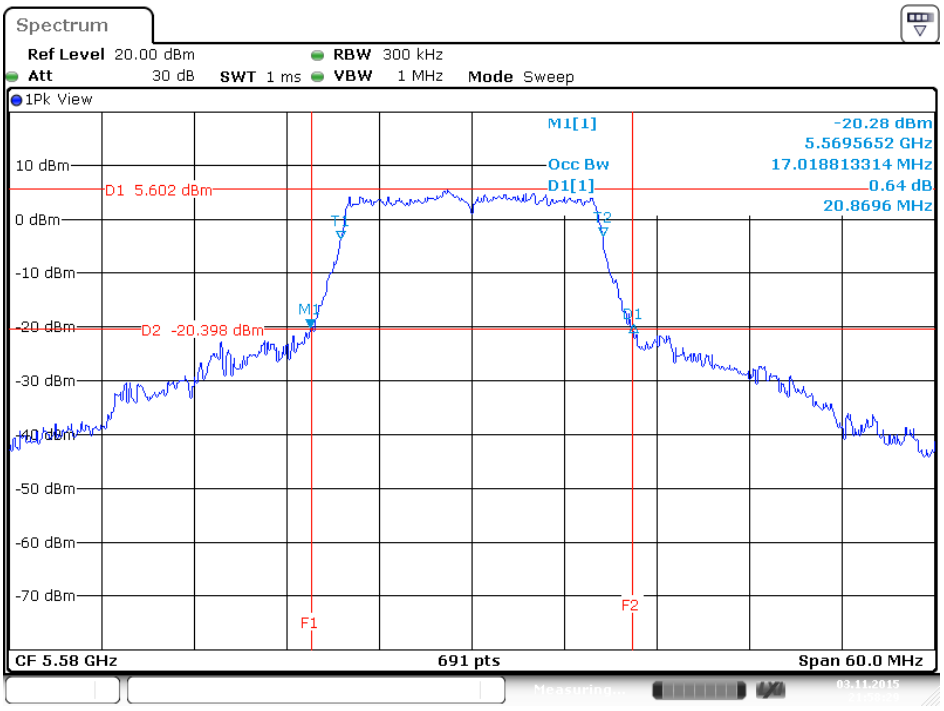
Date: 3.NOV.2015 22:00:08

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



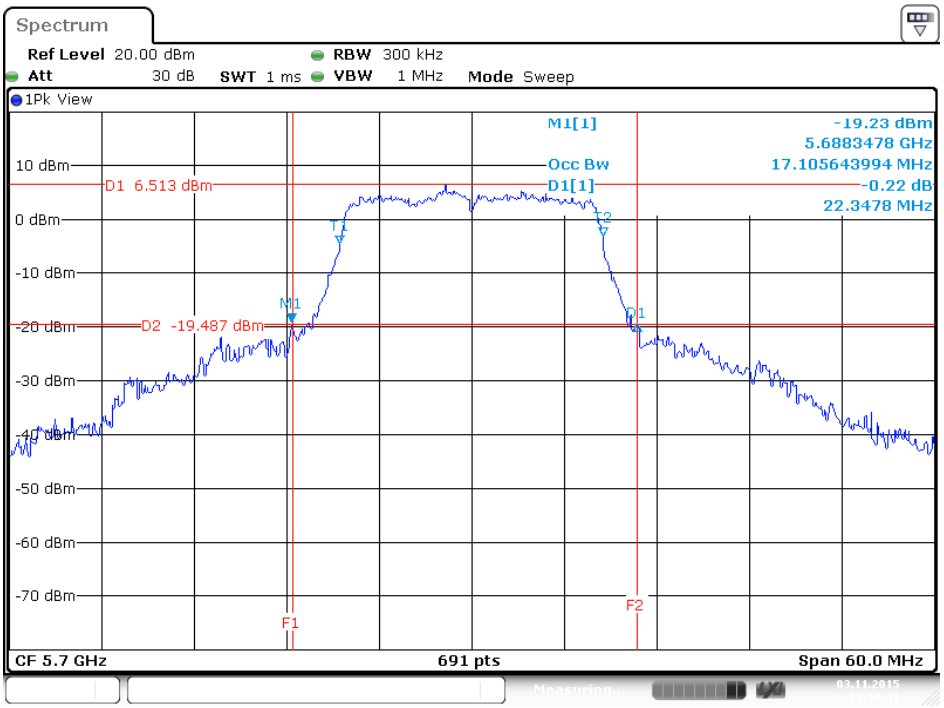
Date: 3.NOV.2015 21:55:23

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



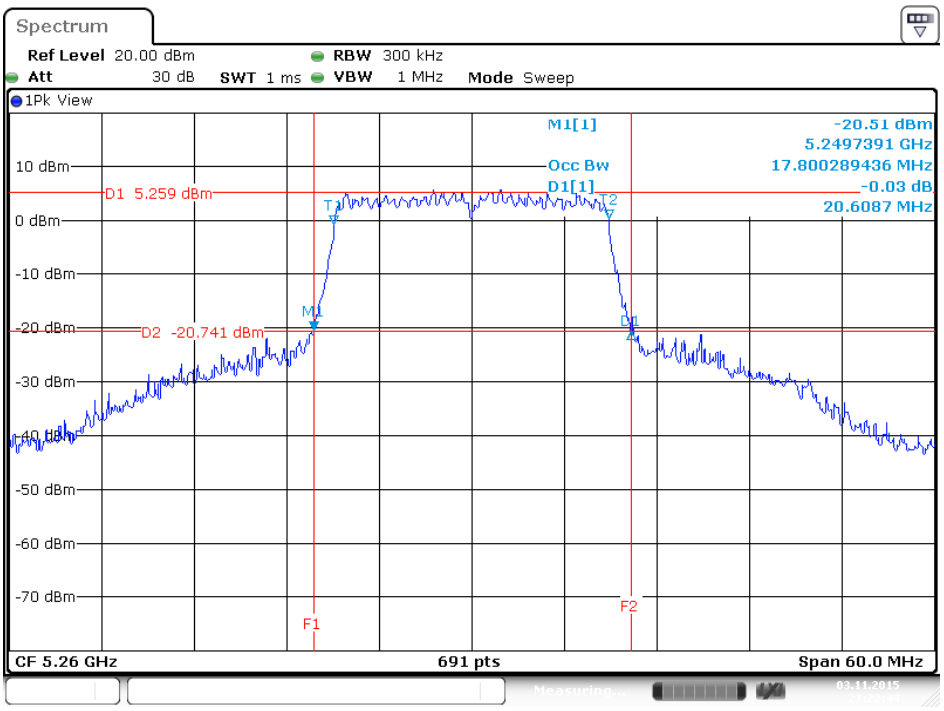
Date: 3.NOV.2015 21:58:29

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



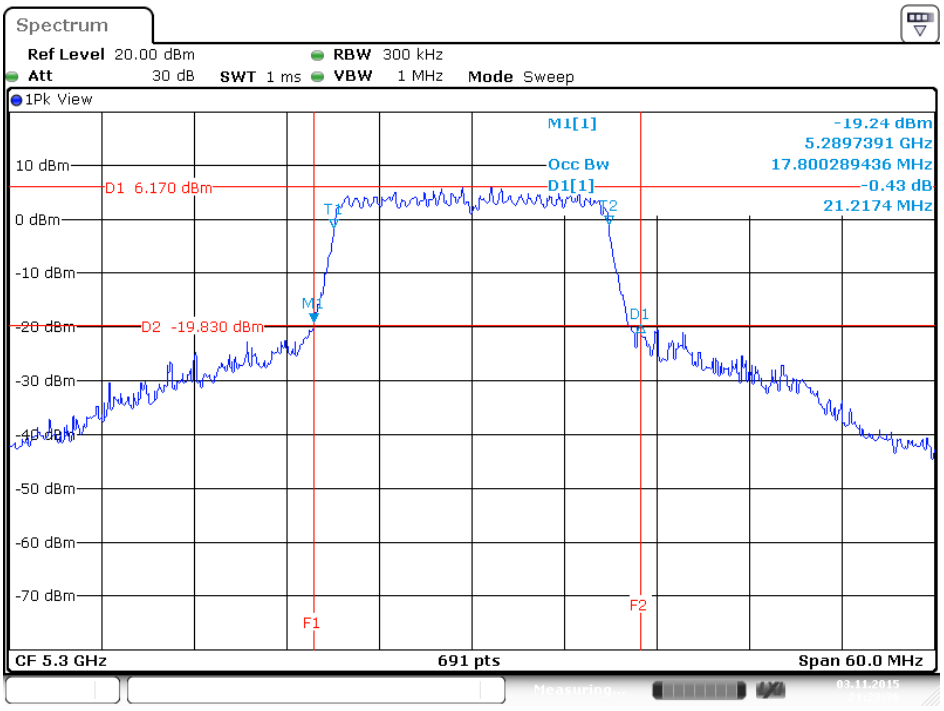
Date: 3.NOV.2015 21:59:41

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



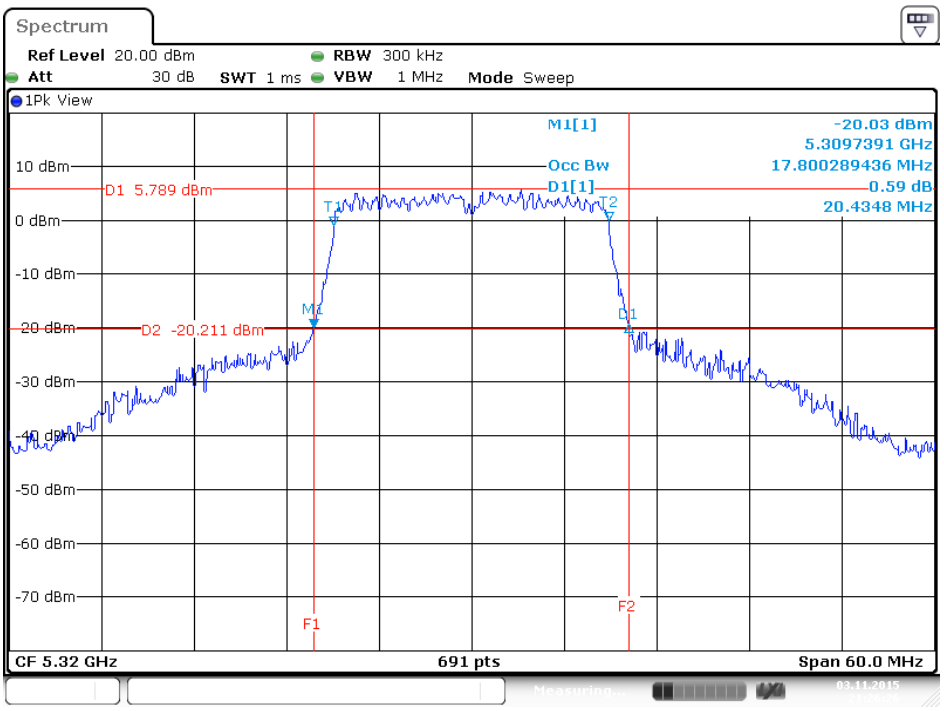
Date: 3.NOV.2015 21:22:44

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



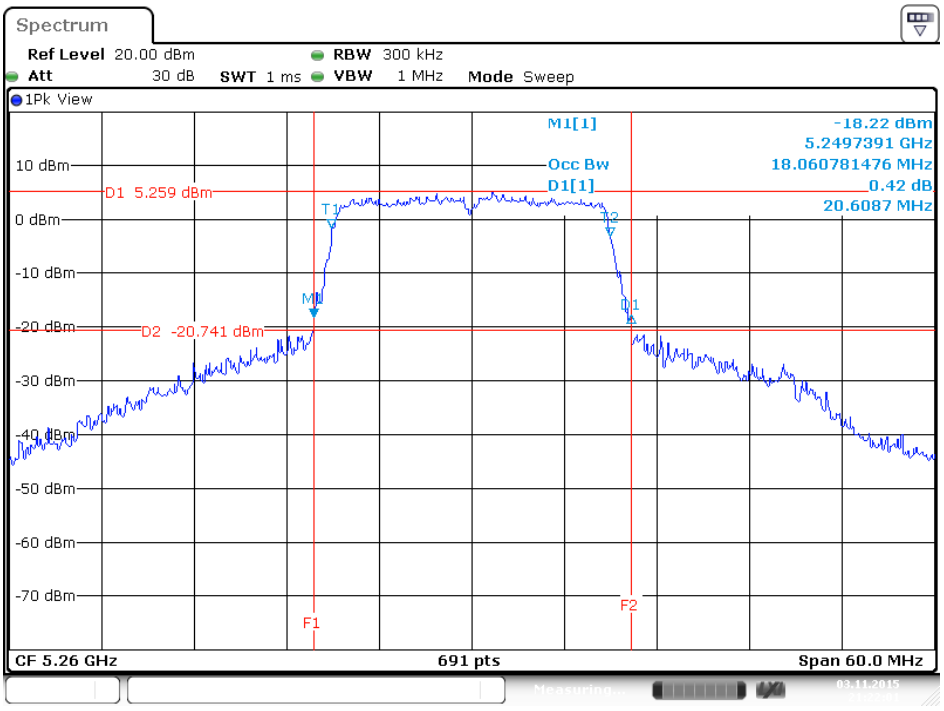
Date: 3.NOV.2015 21:23:36

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



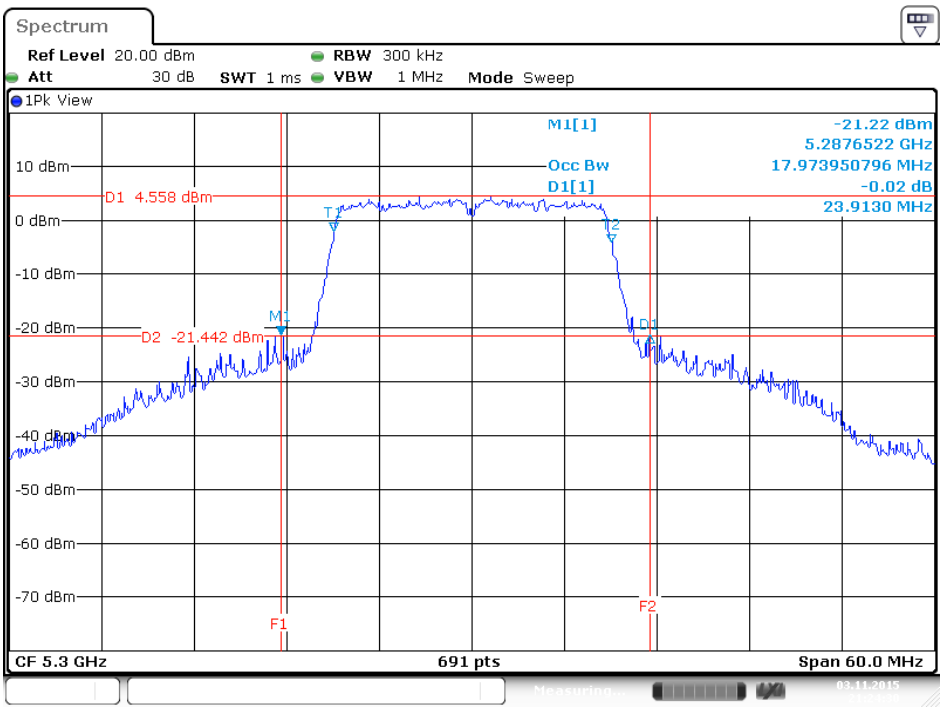
Date: 3.NOV.2015 21:26:26

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



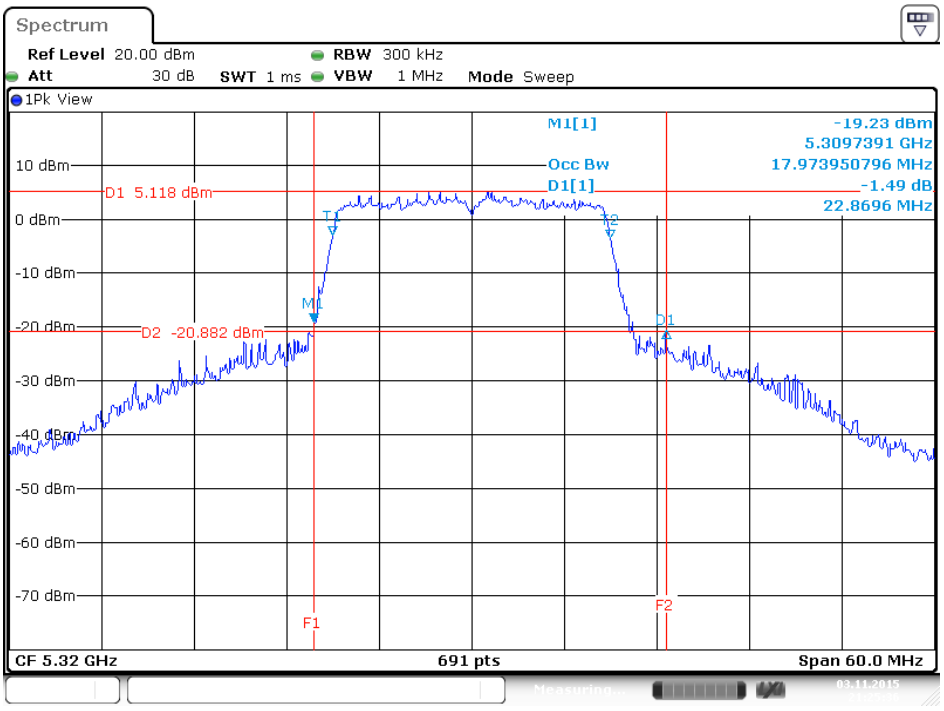
Date: 3.NOV.2015 21:22:01

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



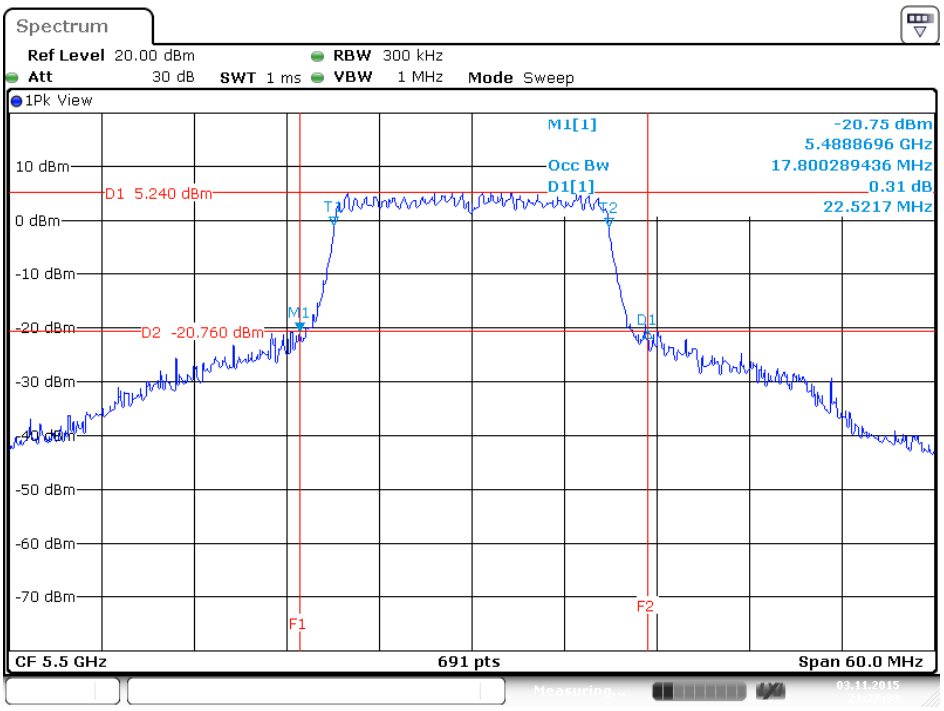
Date: 3.NOV.2015 21:24:30

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



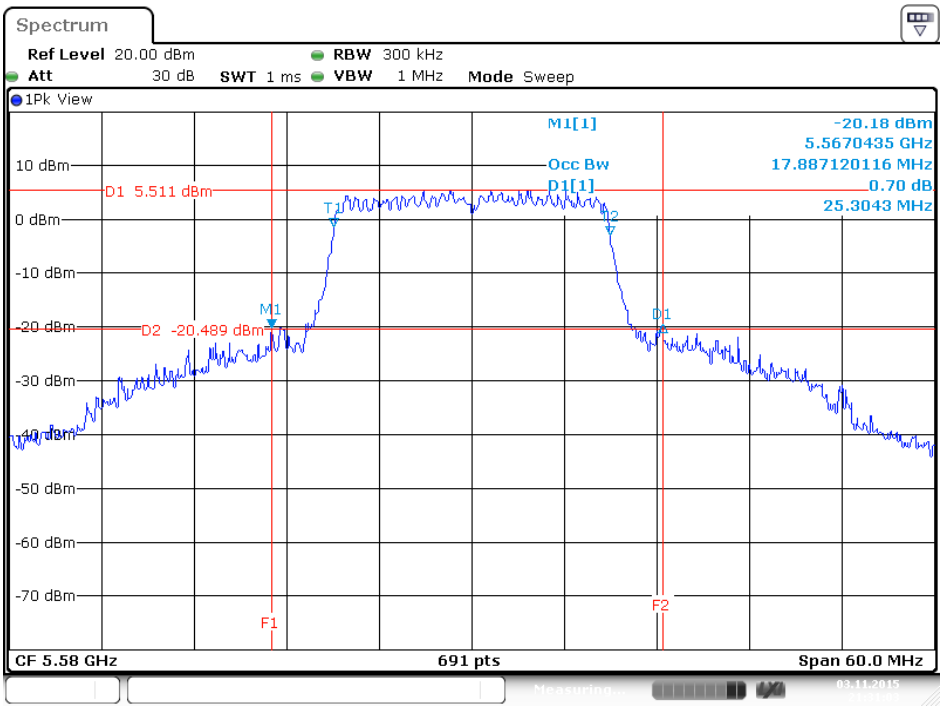
Date: 3.NOV.2015 21:25:36

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



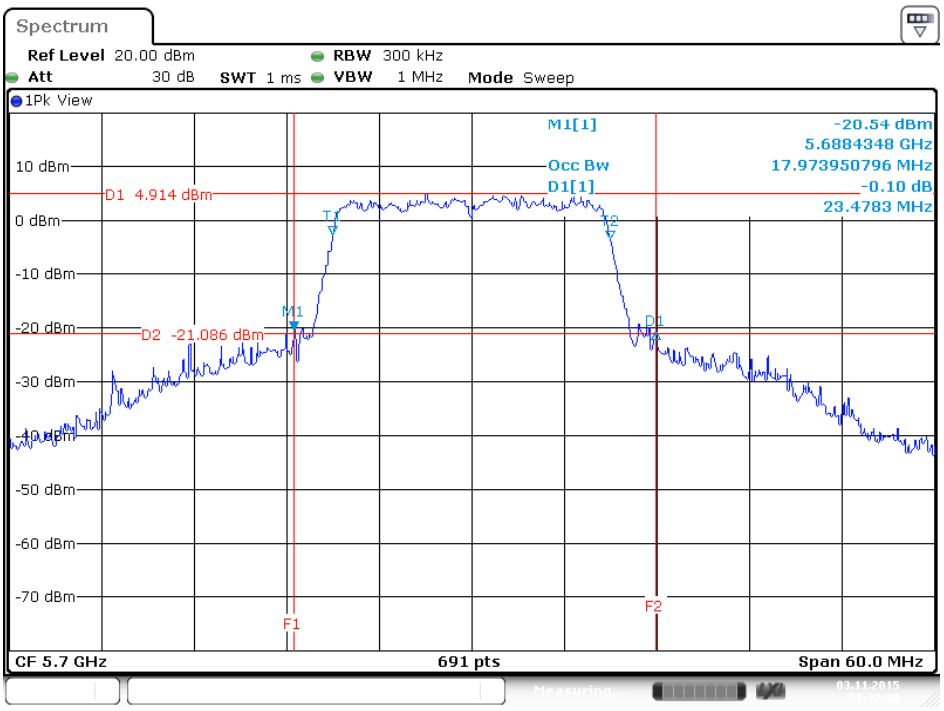
Date: 3.NOV.2015 21:27:33

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



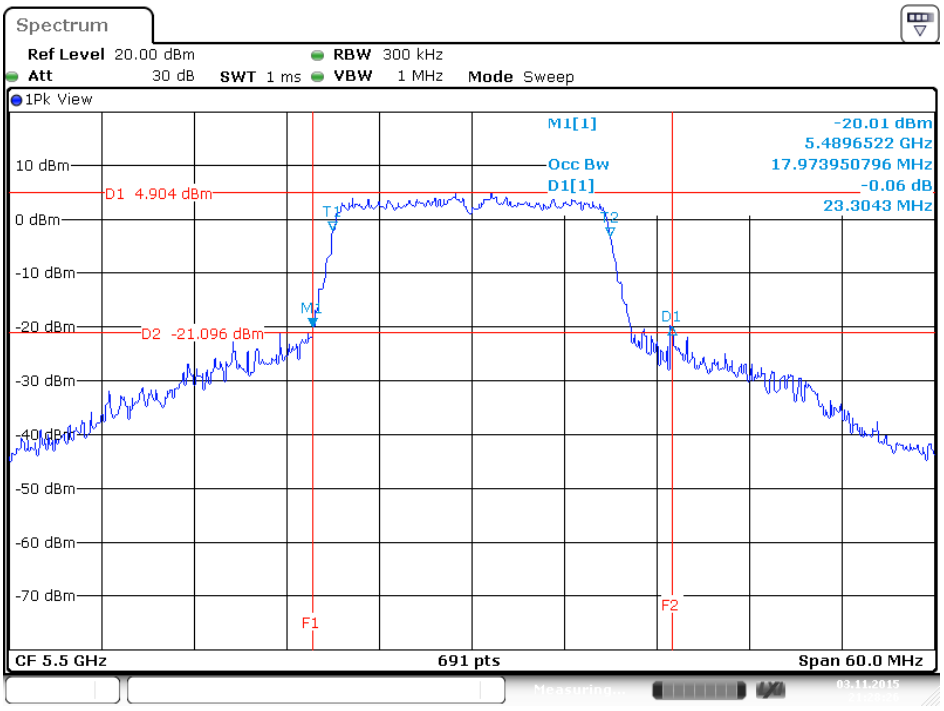
Date: 3.NOV.2015 21:31:03

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



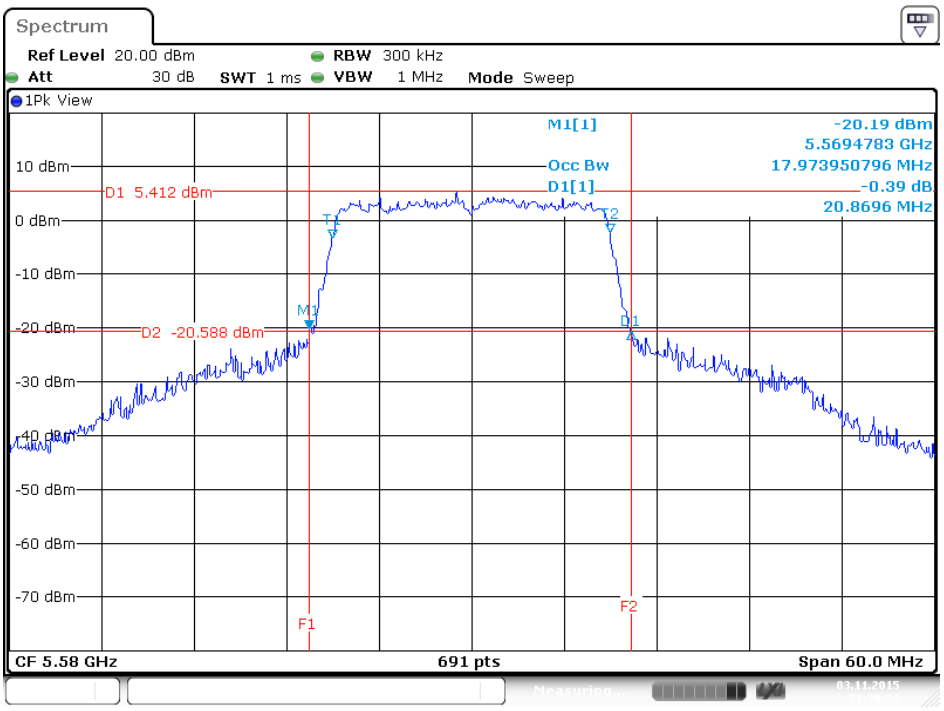
Date: 3.NOV.2015 21:32:38

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



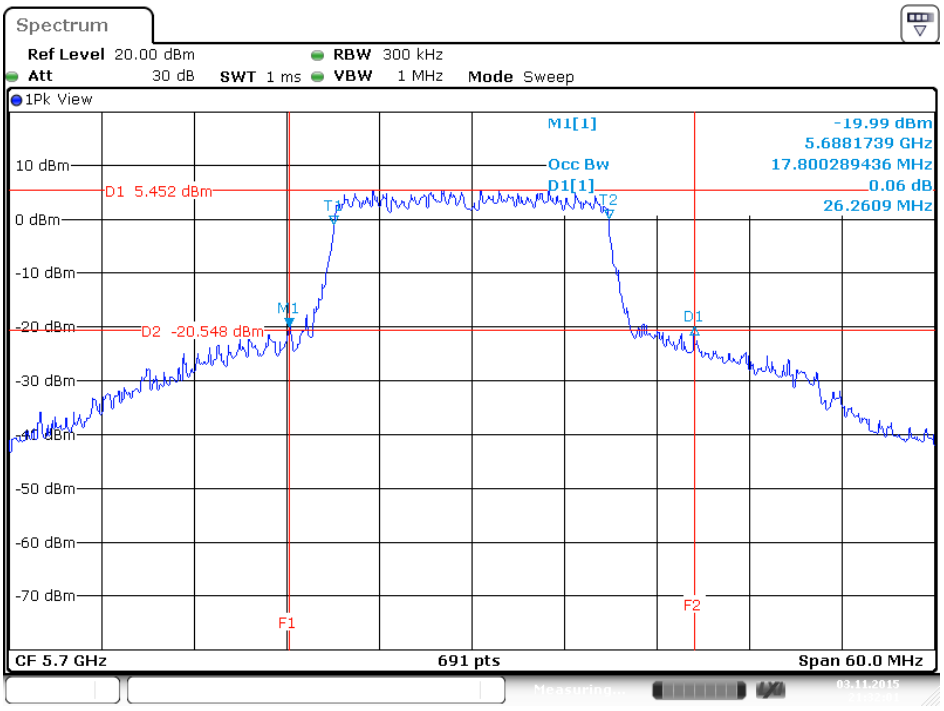
Date: 3.NOV.2015 21:28:26

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



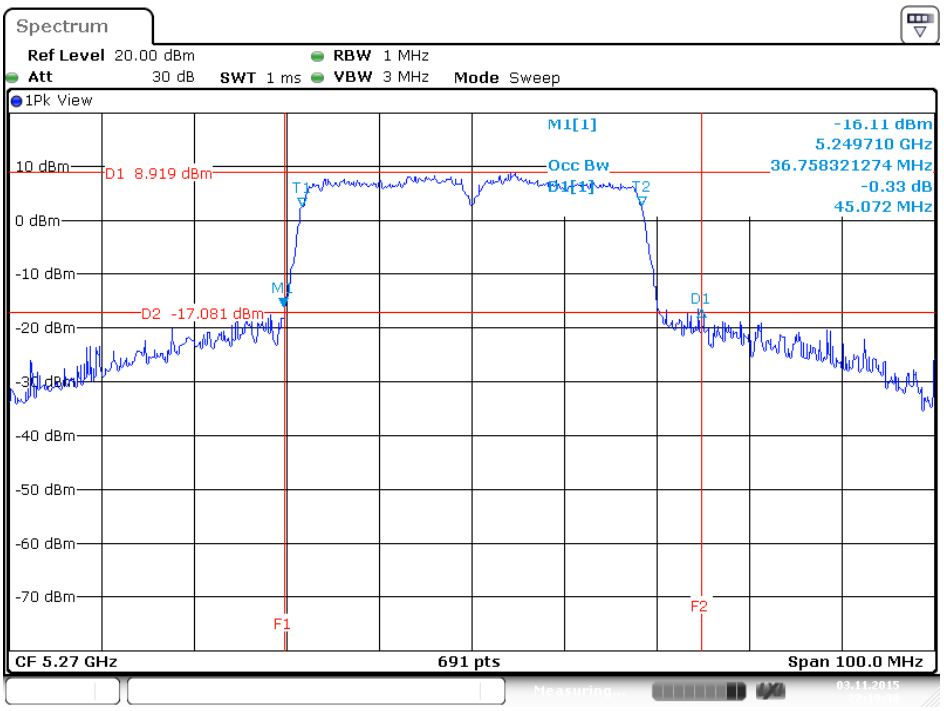
Date: 3.NOV.2015 21:30:23

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



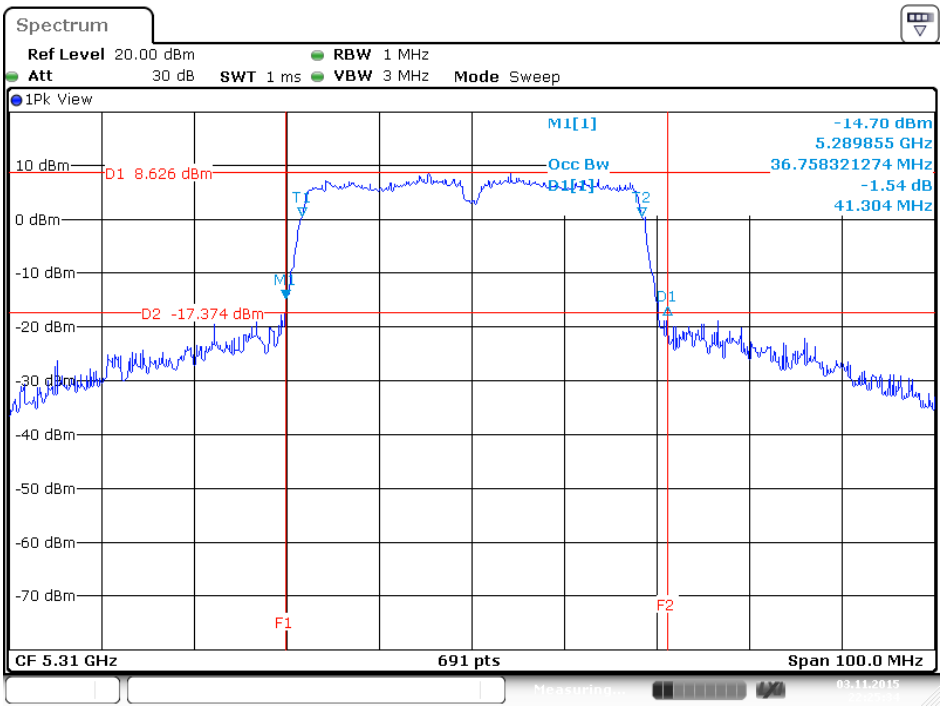
Date: 3.NOV.2015 21:32:02

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



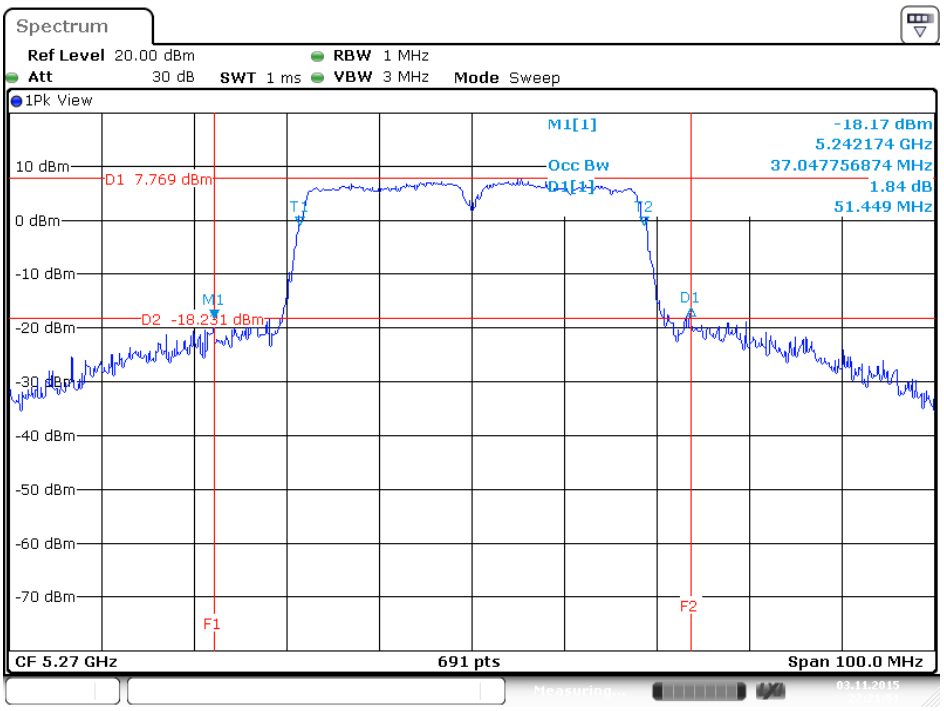
Date: 3.NOV.2015 22:19:30

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



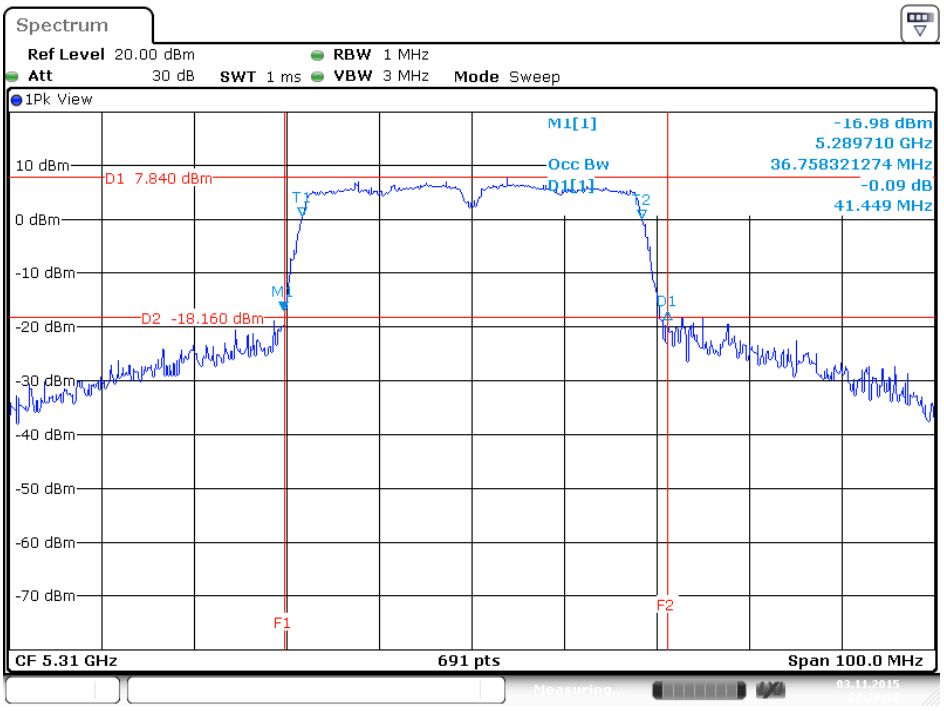
Date: 3.NOV.2015 22:25:34

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



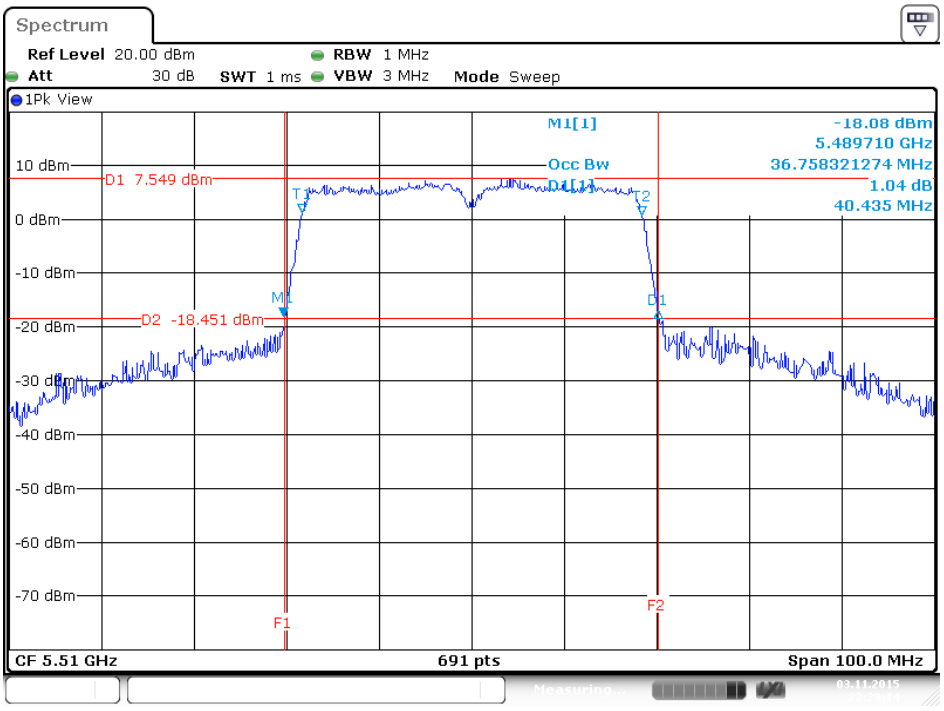
Date: 3.NOV.2015 22:21:51

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



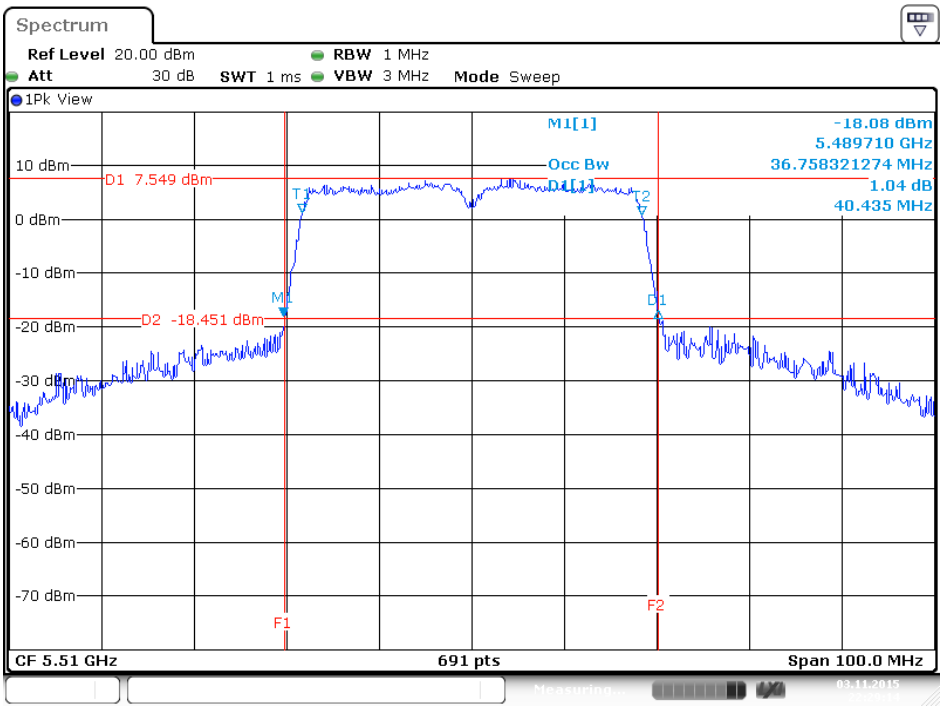
Date: 3.NOV.2015 22:26:18

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



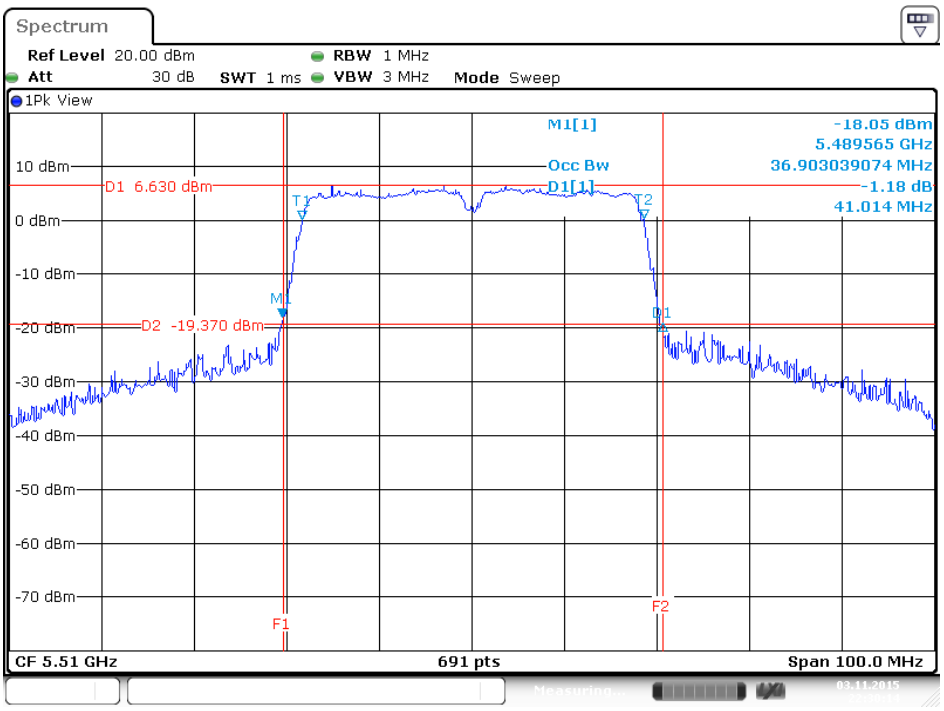
Date: 3.NOV.2015 22:29:14

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



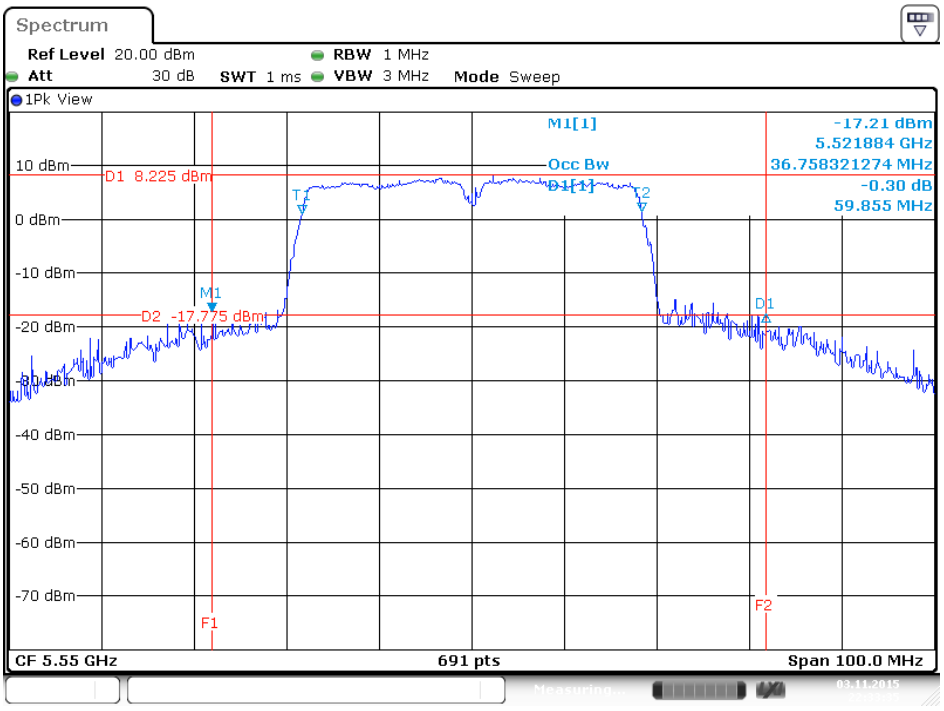
Date: 3.NOV.2015 22:29:14

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



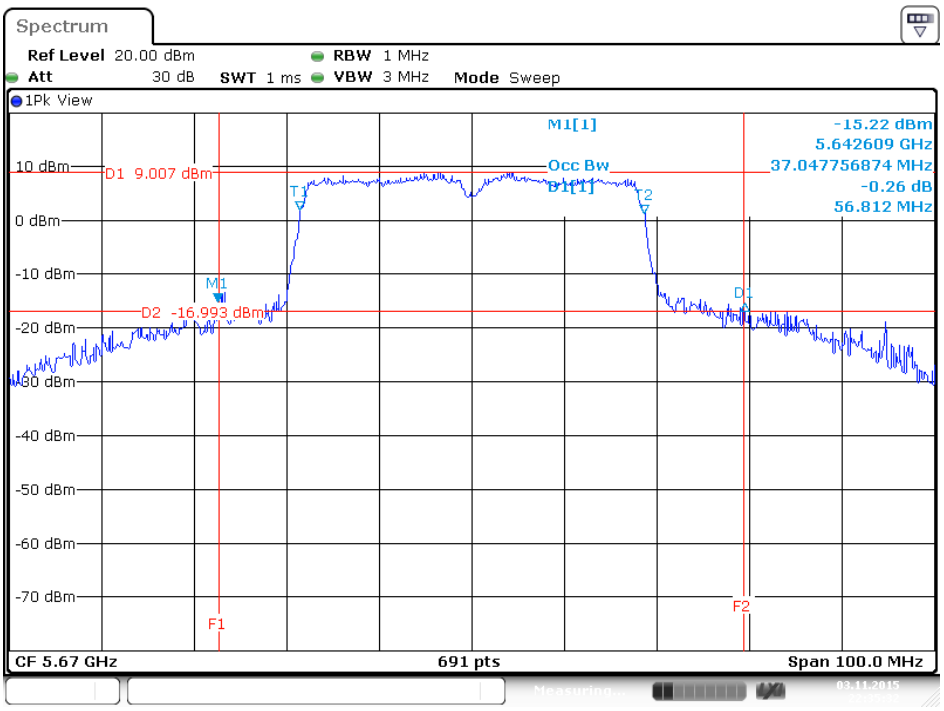
Date: 3.NOV.2015 22:30:14

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



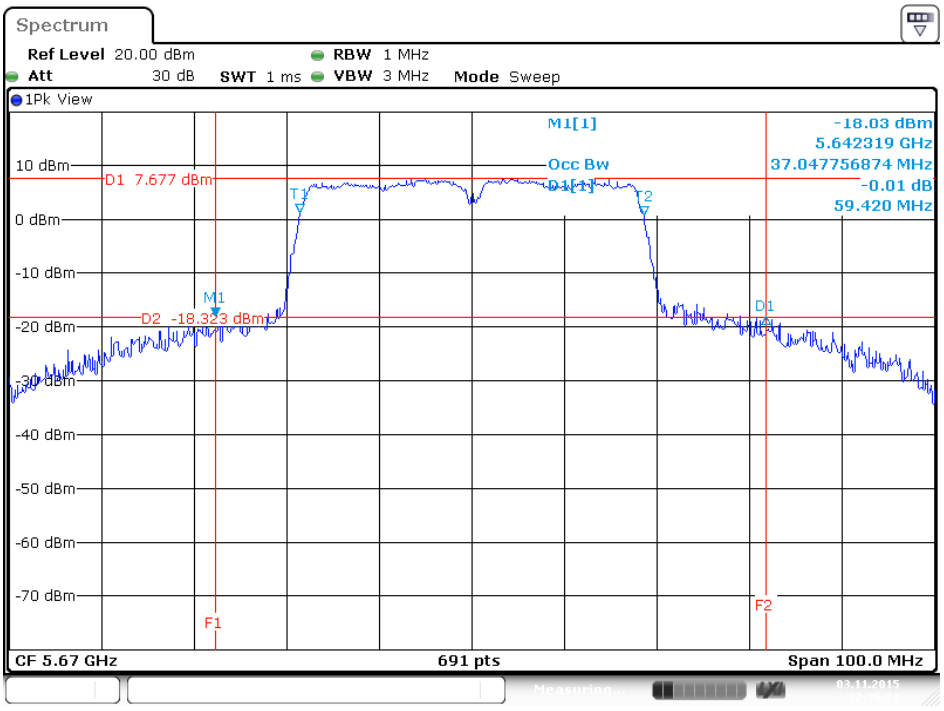
Date: 3.NOV.2015 22:33:35

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



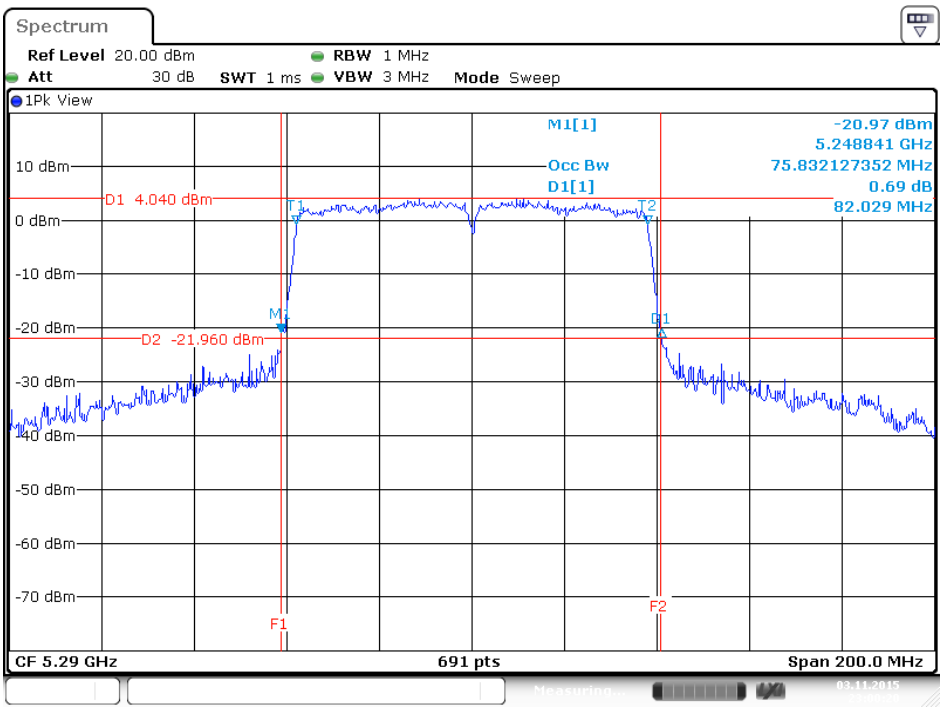
Date: 3.NOV.2015 22:35:32

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



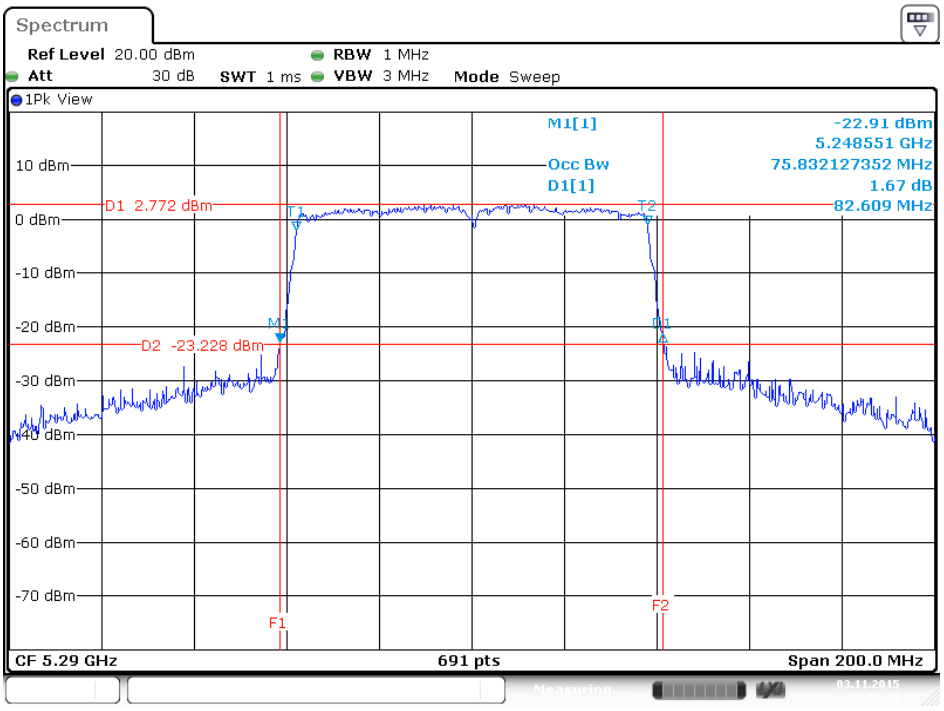
Date: 3.NOV.2015 22:36:21

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



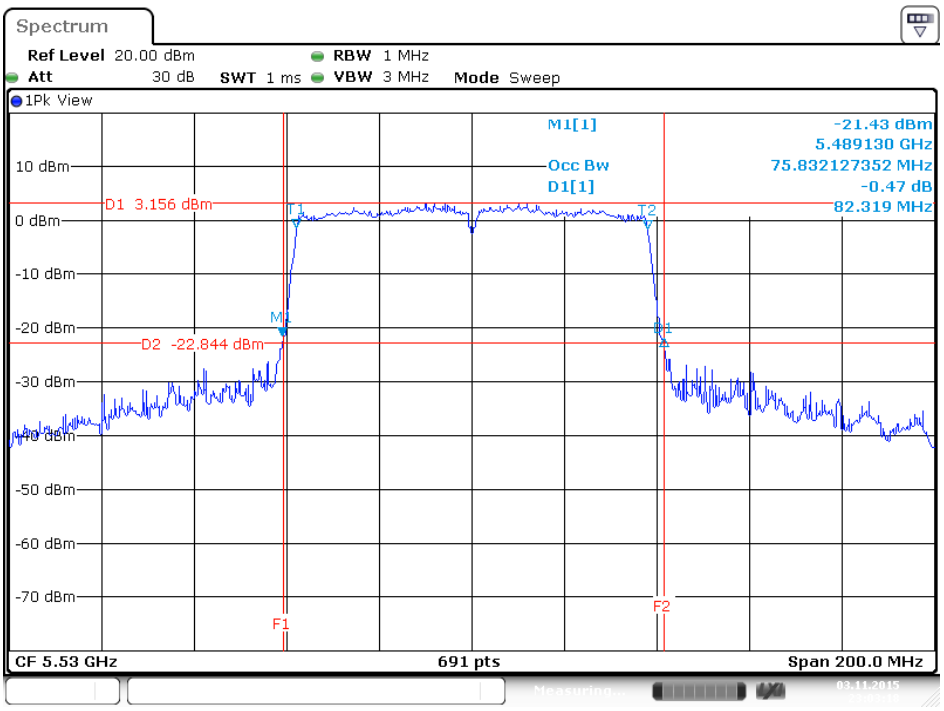
Date: 3.NOV.2015 23:00:20

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



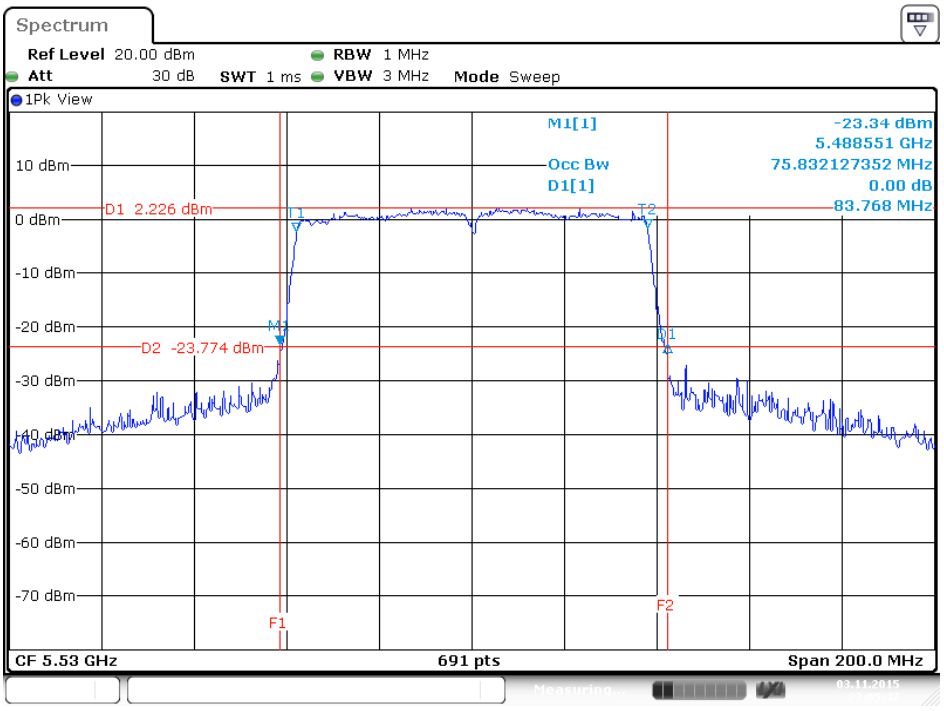
Date: 3.NOV.2015 23:01:33

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



Date: 3.NOV.2015 23:03:18

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



Date: 3.NOV.2015 23:05:47

Straddle Channel

Chain 1

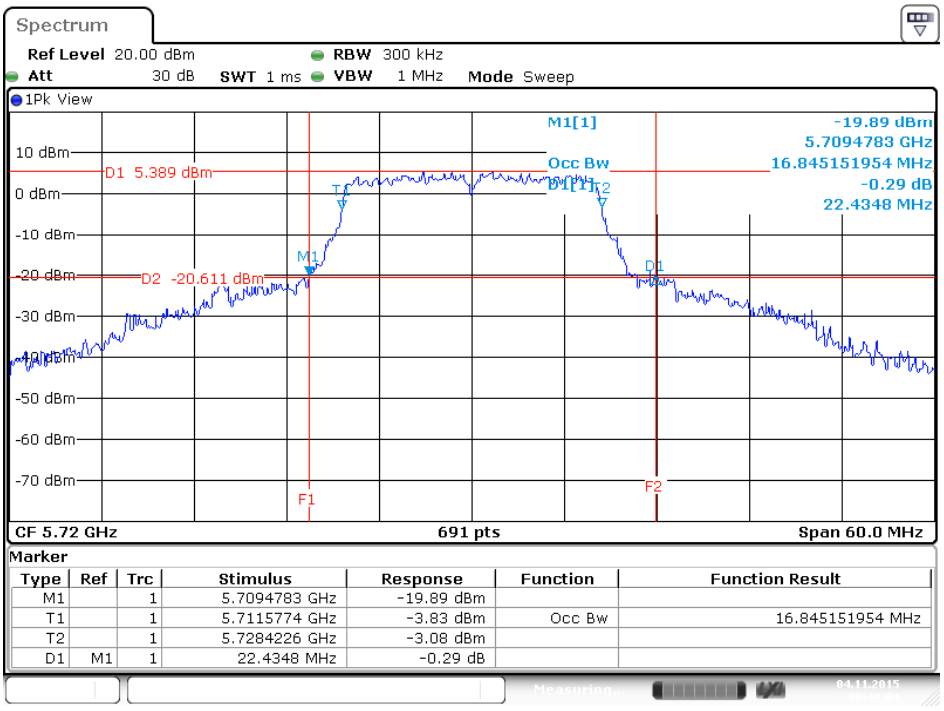
Mode	Frequency	26dB BW (MHz)	99% OBW (MHz)	26dB BW F1 (MHz)	99% OBW T1 (MHz)	UNII 2C 26dB BW (MHz)	UNII 3 26dB BW (MHz)	UNII 2C 99% BW (MHz)	UNII 3 99% BW (MHz)
802.11a	5720 MHz	22.43	16.84	5709.48	5711.58	15.52	6.91	13.42	3.42
802.11ac MCS0/Nss1 VHT20	5720 MHz	25.21	17.97	5708.61	5710.97	16.39	8.82	14.03	3.94
802.11ac MCS0/Nss1 VHT40	5710 MHz	51.88	36.90	5685.94	5691.62	39.06	12.83	33.38	3.52
802.11ac MCS0/Nss1 VHT80	5690 MHz	100.29	76.12	5647.68	5652.08	77.32	22.97	72.92	3.20

Chain 2

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	21.82	16.93	5709.04	5711.49	15.96	5.86	13.51	3.42
802.11ac MCS0/Nss1 VHT20	5720 MHz	23.30	18.06	5708.00	5710.88	17.00	6.30	14.12	3.94
802.11ac MCS0/Nss1 VHT40	5710 MHz	47.68	36.75	5688.55	5691.62	36.45	11.23	33.38	3.37
802.11ac MCS0/Nss1 VHT80	5690 MHz	100.29	75.83	5642.75	5652.08	82.25	18.04	72.92	2.91

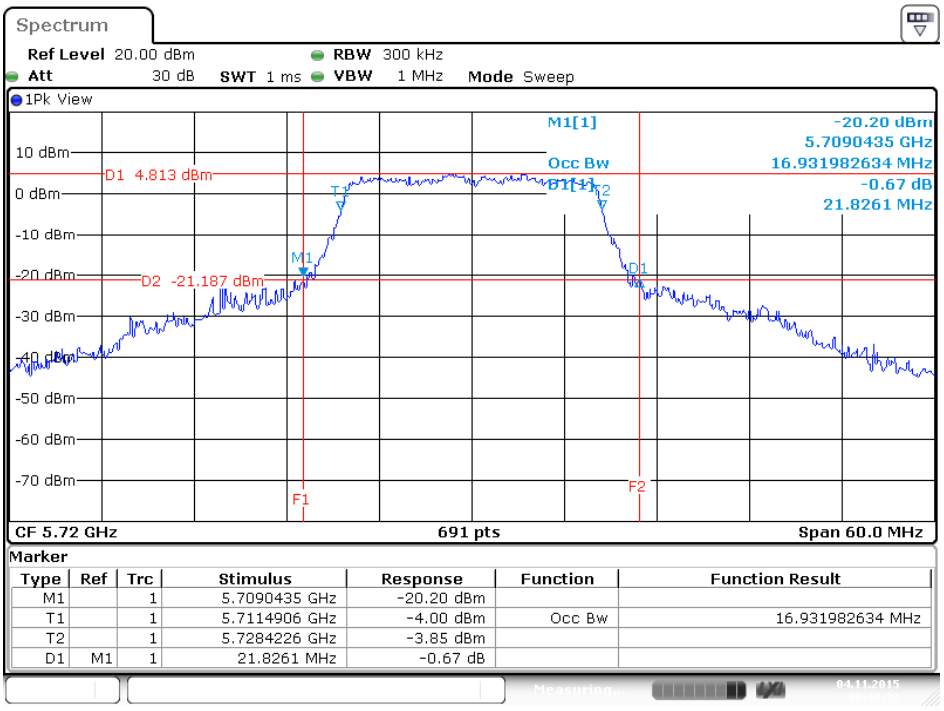
Straddle Channel

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



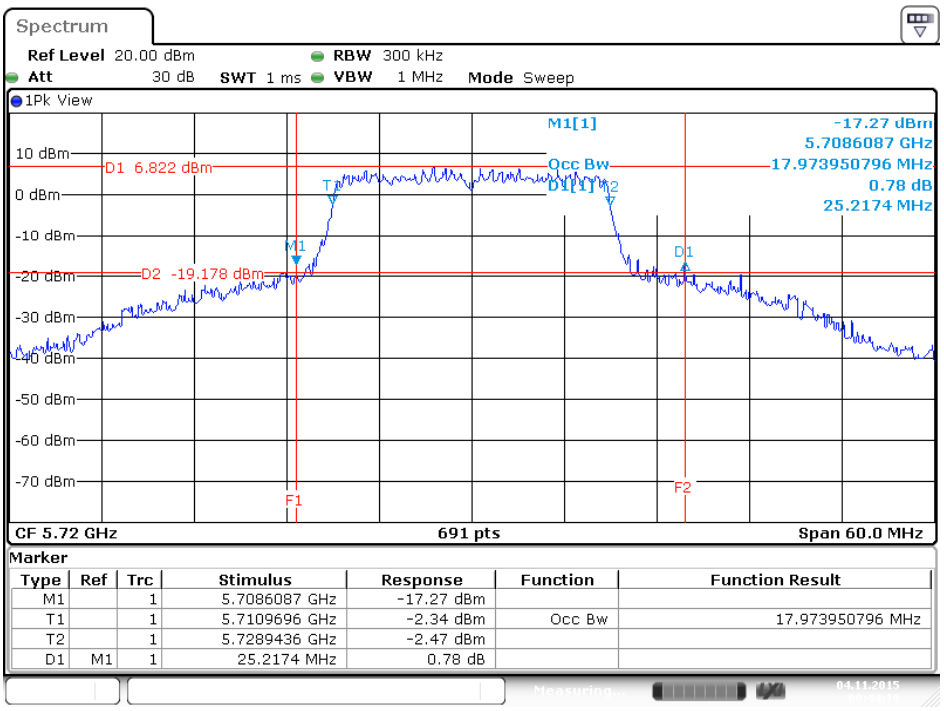
Date: 4.NOV.2015 00:48:04

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



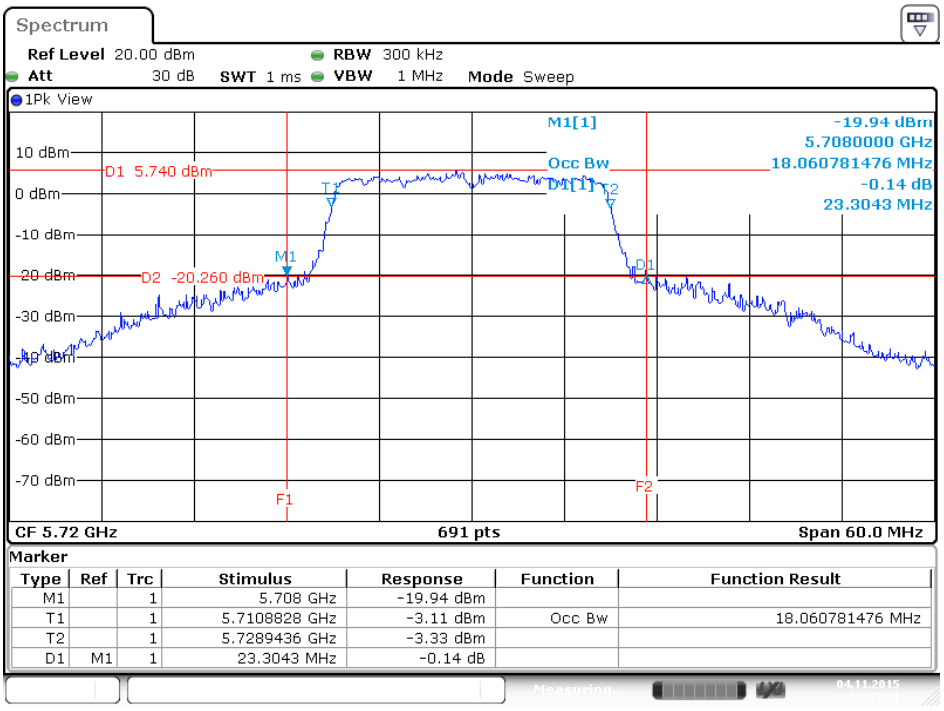
Date: 4.NOV.2015 00:48:33

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



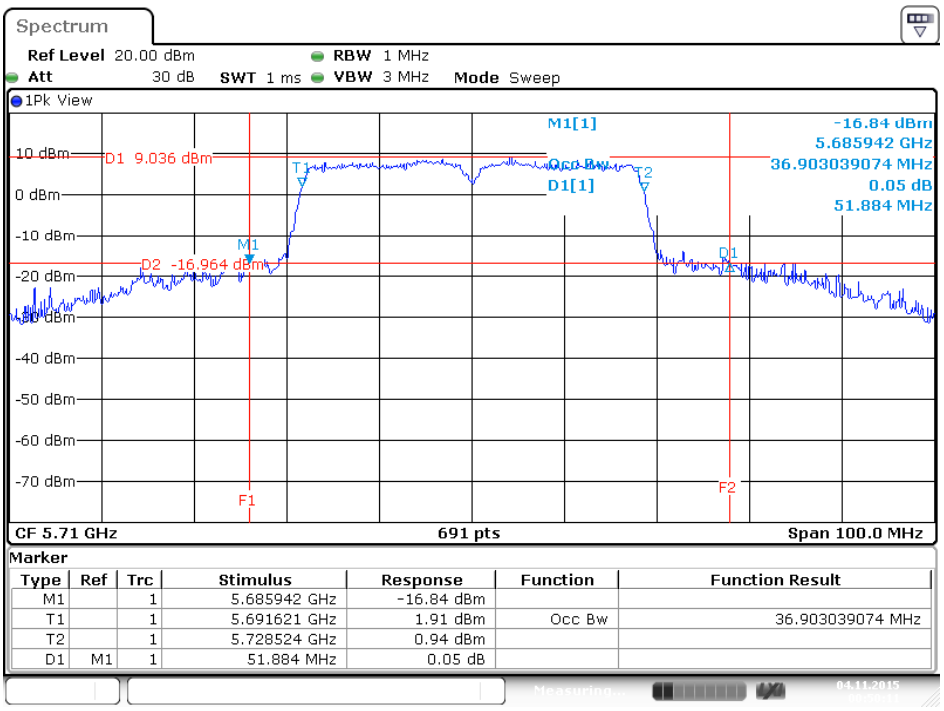
Date: 4.NOV.2015 00:44:19

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



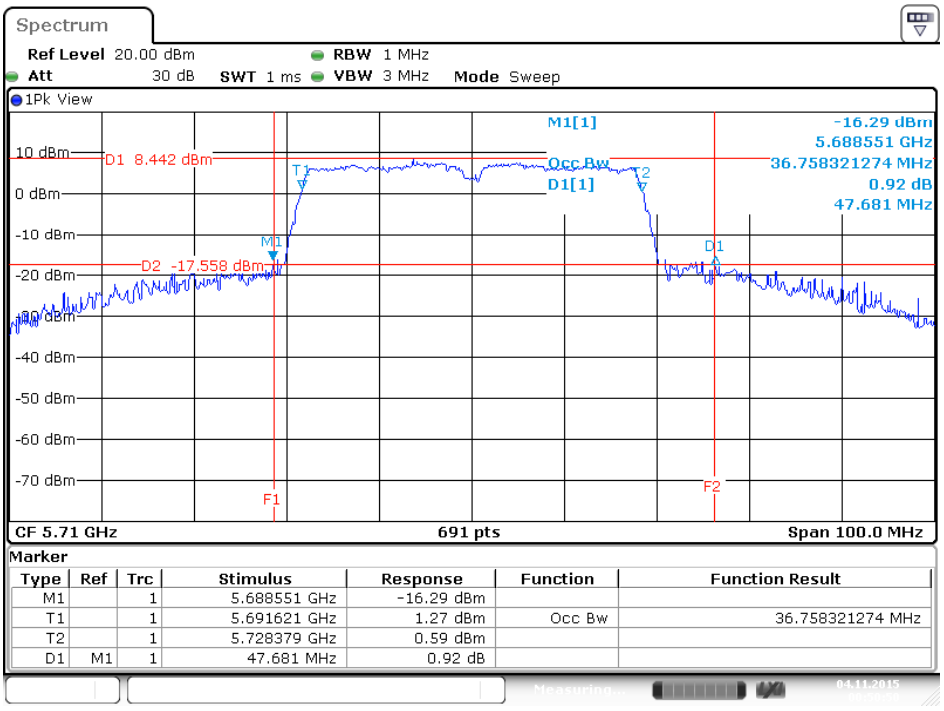
Date: 4.NOV.2015 00:45:21

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



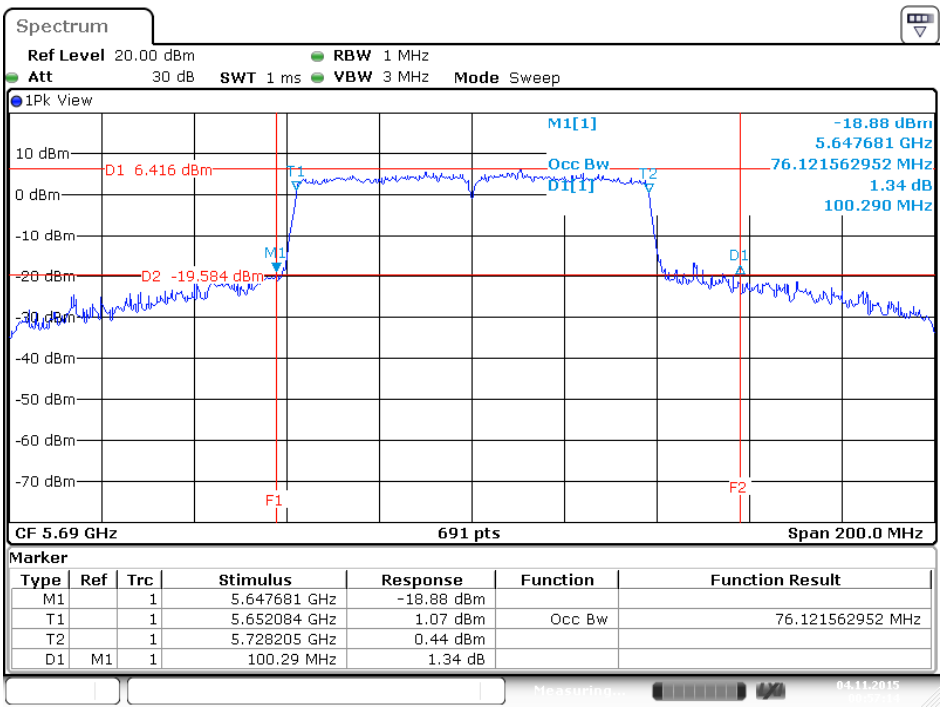
Date: 4.NOV.2015 00:50:11

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



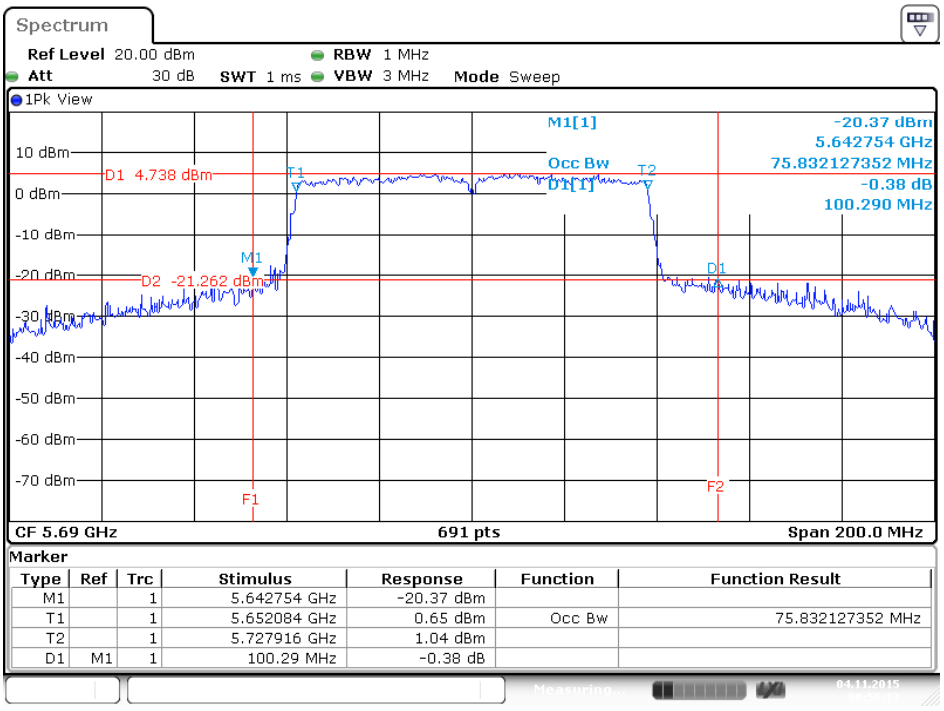
Date: 4.NOV.2015 00:50:50

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



Date: 4.NOV.2015 00:57:14

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



Date: 4.NOV.2015 00:56:12

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

1. The transmitter was conducted to the spectrum analyzer in peak hold mode.
2. Test was performed in accordance with KDB789033 D02 v01 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. Measurement perform conducted of each port.
5. Measured the spectrum width with power higher than 6dB below carrier.

4.3.4. Test Setup Layout

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

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

<For 1TX>

Temperature	25℃	Humidity	59%
Test Engineer	Mars Lin		

Straddle Channel

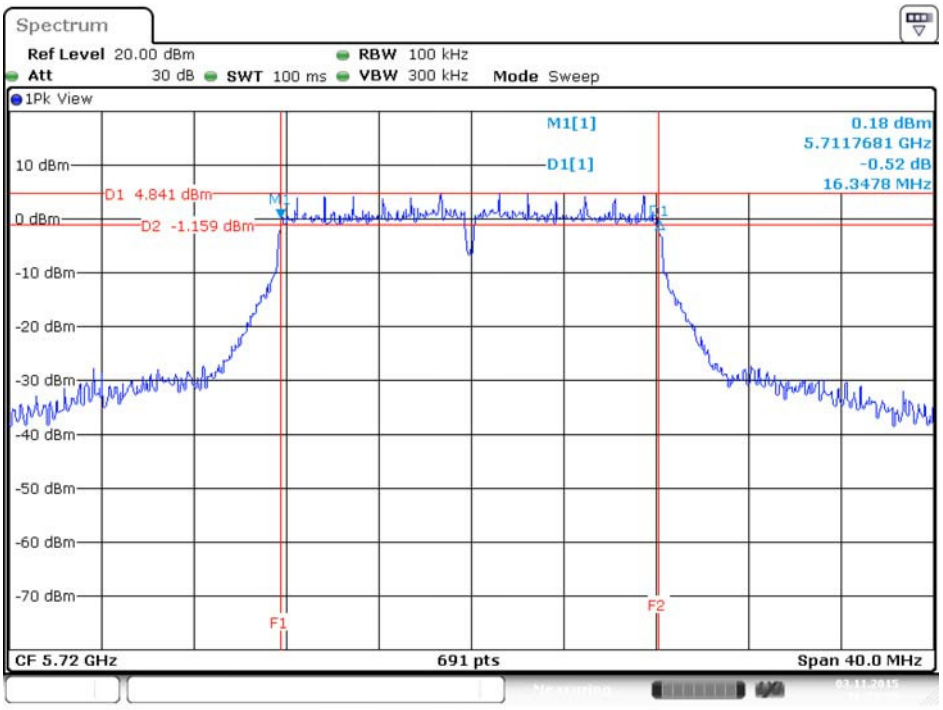
Mode	Frequency	6dB BW (MHz)	6dB BW F2 (MHz)	UNII 3 BW (MHz)	Min. Limit (kHz)	Test Result
802.11a	5720 MHz	16.35	5711.76	3.11	500.00	Complies
802.11ac MCS0/Nss1 VHT20	5720 MHz	17.57	5711.13	3.70	500.00	Complies
802.11ac MCS0/Nss1 VHT40	5710 MHz	36.29	5691.80	3.09	500.00	Complies
802.11ac MCS0/Nss1 VHT80	5690 MHz	75.36	5652.32	2.68	500.00	Complies

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

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

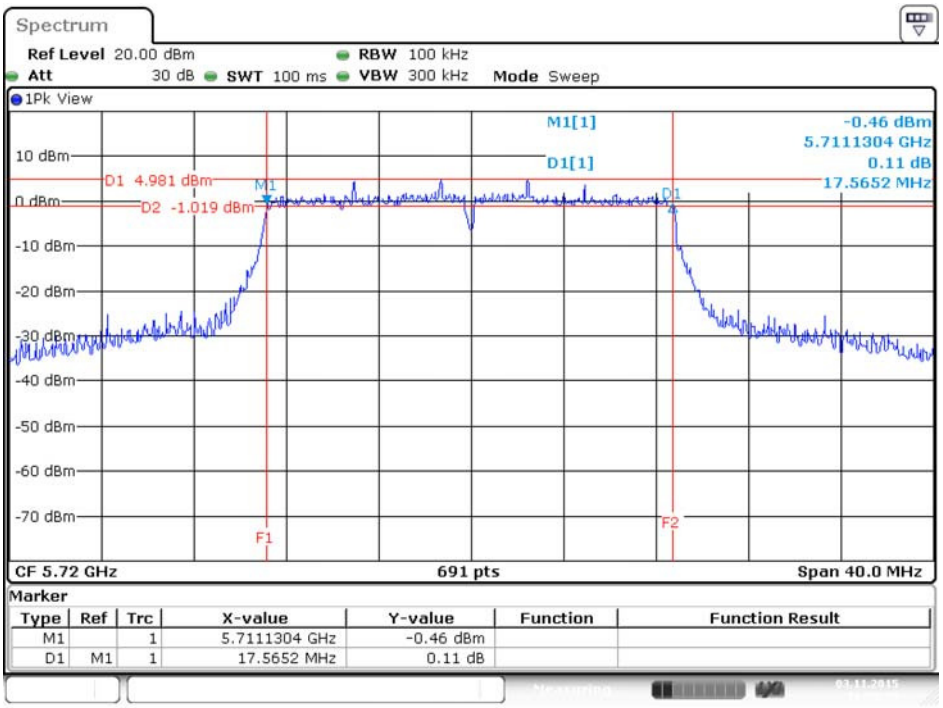
Straddle Channel

6 dB Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 / 5720 MHz



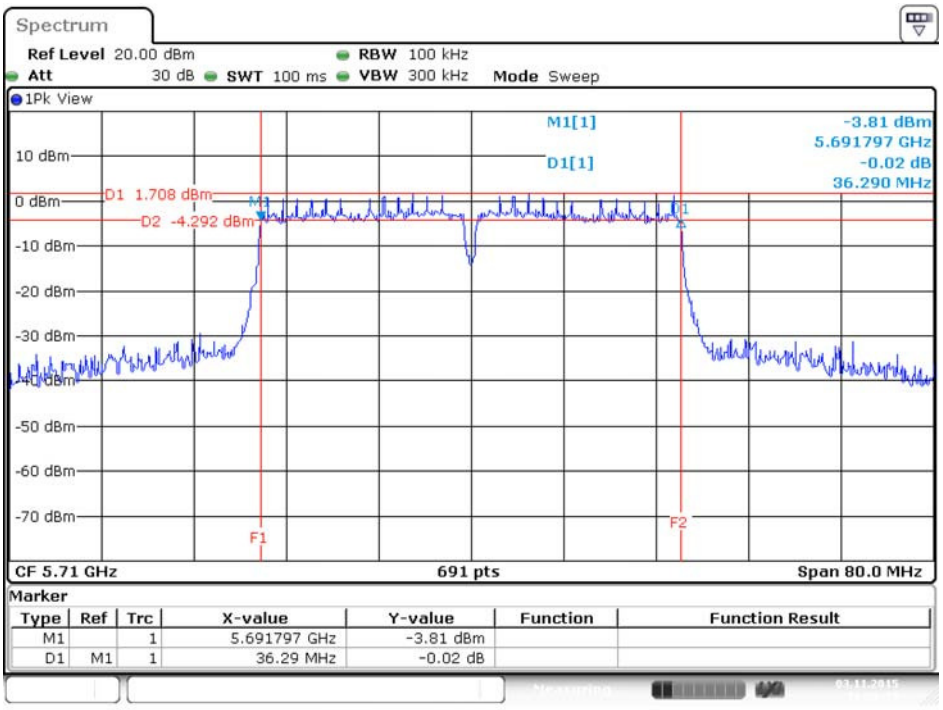
Date: 3.NOV.2015 16:23:29

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



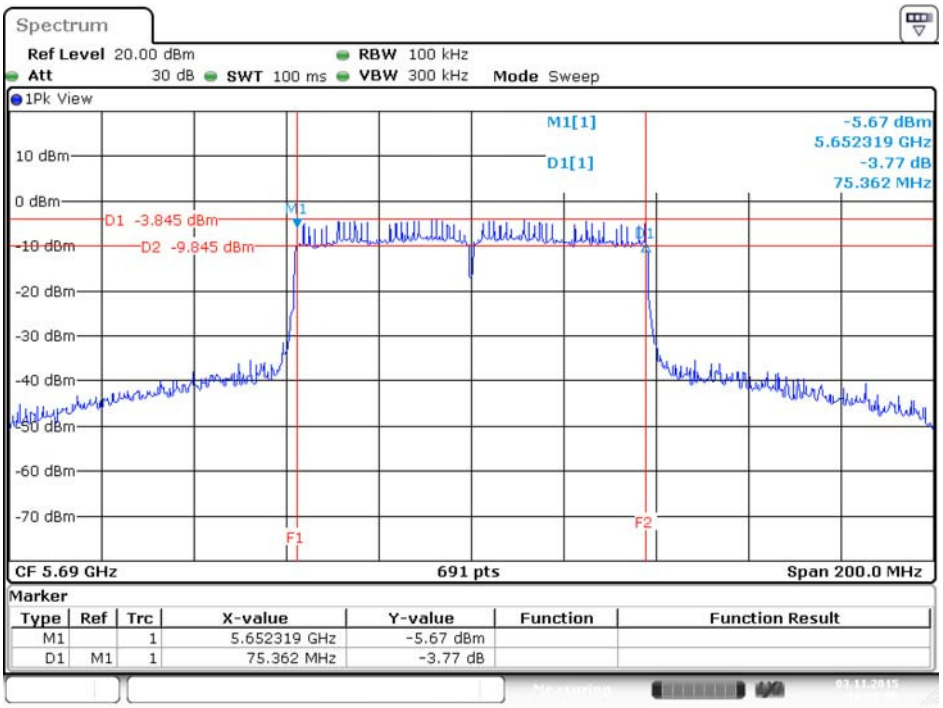
Date: 3.NOV.2015 16:25:53

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



Date: 3.NOV.2015 16:26:39

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



Date: 3.NOV.2015 16:28:57

<For 2TX>

Temperature	25℃	Humidity	59%
Test Engineer	Mars Lin		

Straddle Channel

Chain 1

Mode	Frequency	6dB BW (MHz)	6dB BW M1 (MHz)	UNII 3 BW (MHz)	Min. Limit (kHz)	Test Result
802.11a	5720 MHz	16.34	5711.77	3.11	500.00	Complies
802.11ac MCS0/Nss1 VHT20	5720 MHz	17.62	5711.13	3.75	500.00	Complies
802.11ac MCS0/Nss1 VHT40	5710 MHz	36.29	5691.80	3.09	500.00	Complies
802.11ac MCS0/Nss1 VHT80	5690 MHz	75.94	5653.19	4.13	500.00	Complies

Chain 2

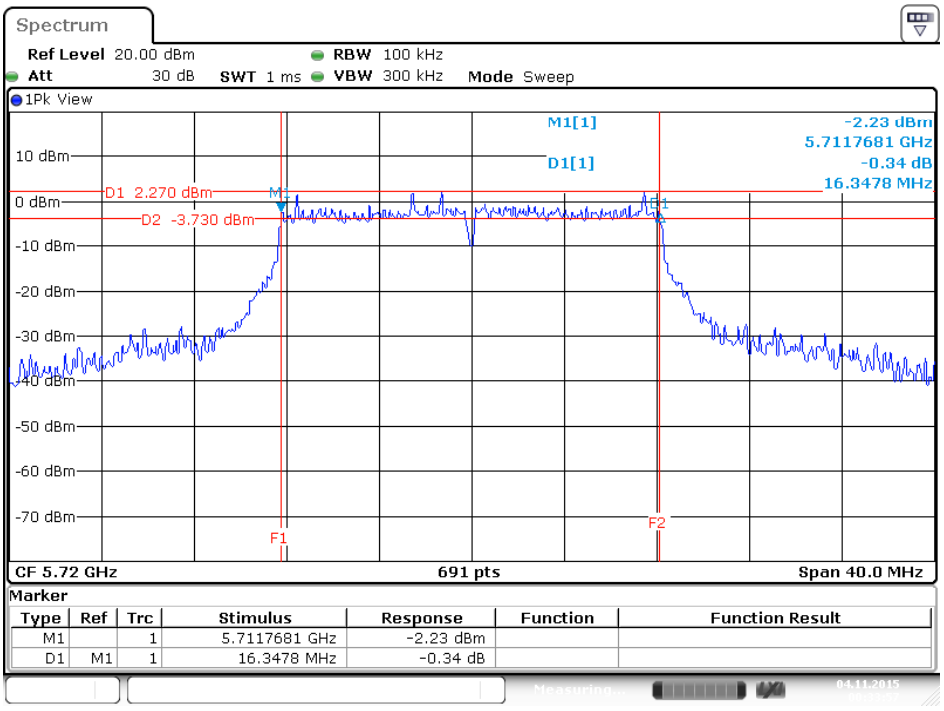
Mode	Frequency	6dB BW (MHz)	6dB BW M1 (MHz)	UNII 3 BW (MHz)	Min. Limit (kHz)	Test Result
802.11a	5720 MHz	16.34	5711.77	3.11	500.00	Complies
802.11ac MCS0/Nss1 VHT20	5720 MHz	17.62	5711.13	3.75	500.00	Complies
802.11ac MCS0/Nss1 VHT40	5710 MHz	36.29	5691.80	3.09	500.00	Complies
802.11ac MCS0/Nss1 VHT80	5690 MHz	75.65	5652.03	2.68	500.00	Complies

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

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

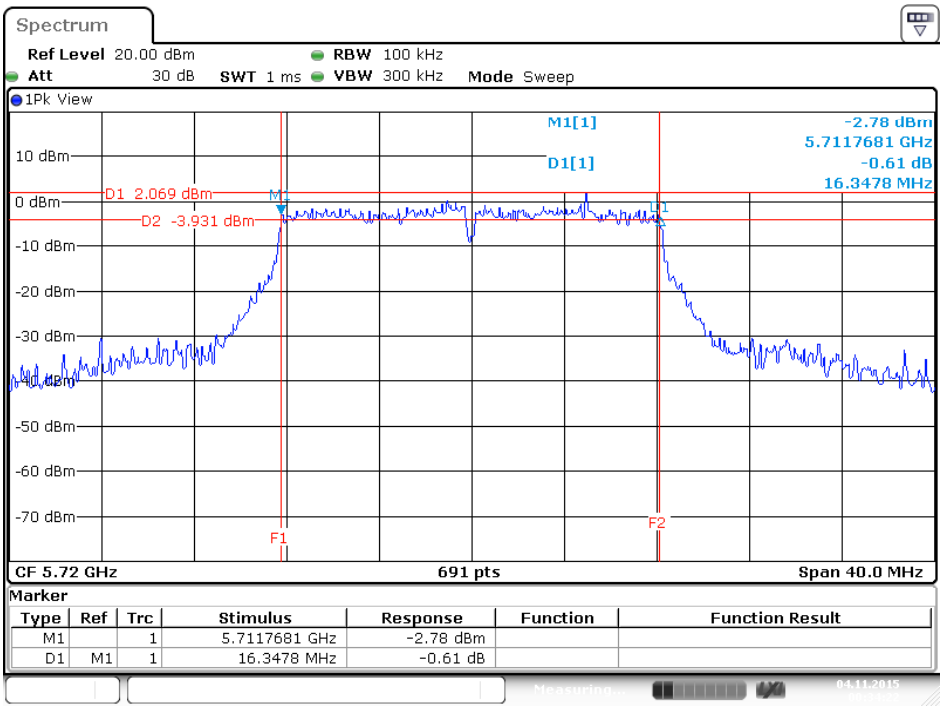
Straddle Channel

6 dB Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 / 5720 MHz



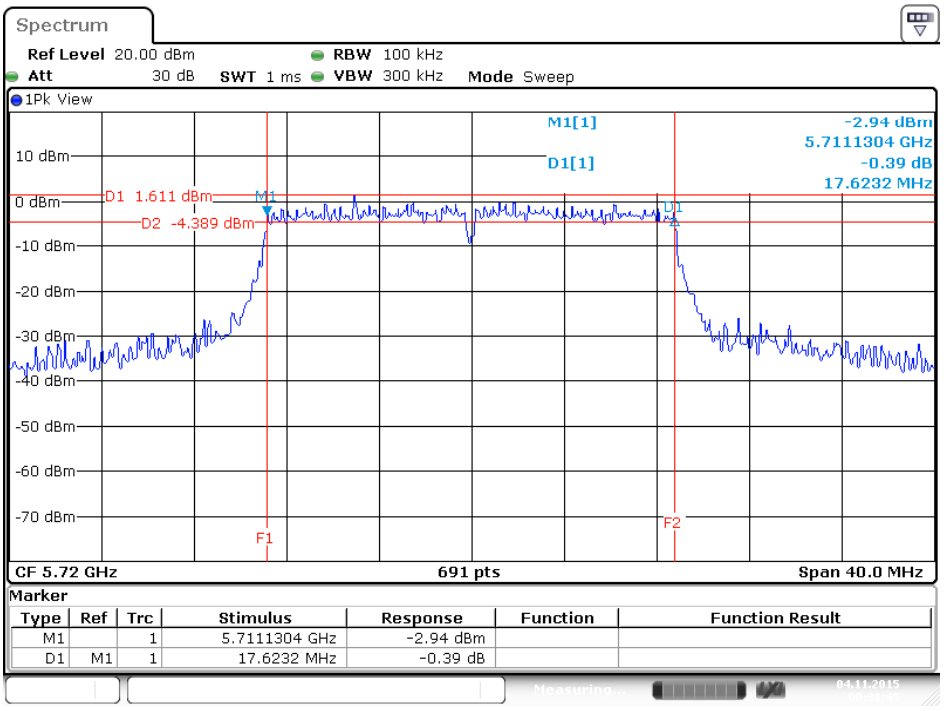
Date: 4.NOV.2015 00:33:57

6 dB Bandwidth Plot on Configuration IEEE 802.11a / Chain 2 / 5720 MHz



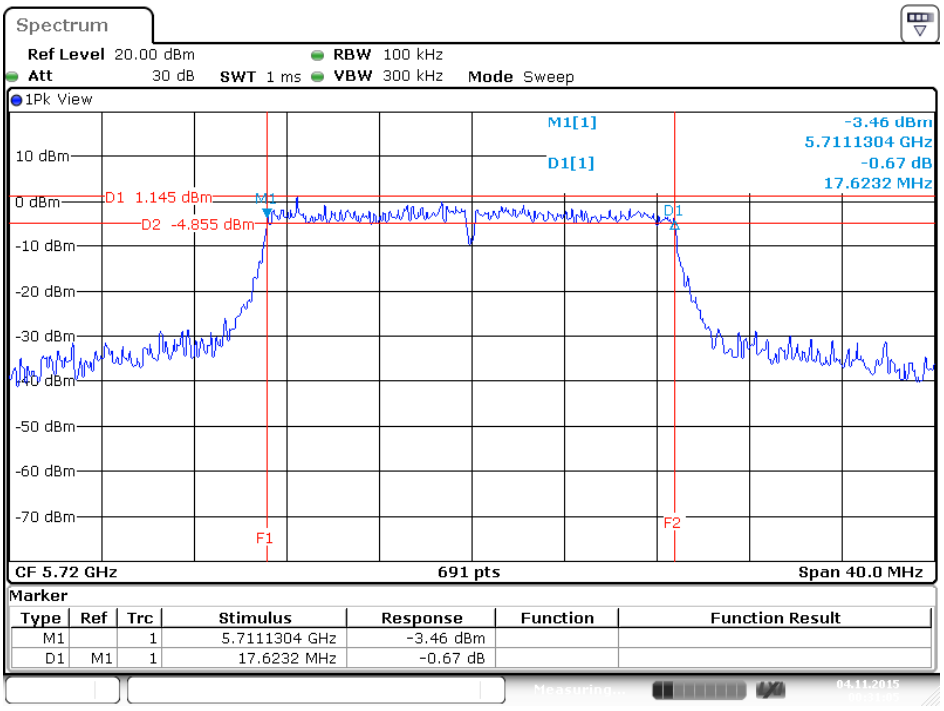
Date: 4.NOV.2015 00:34:22

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



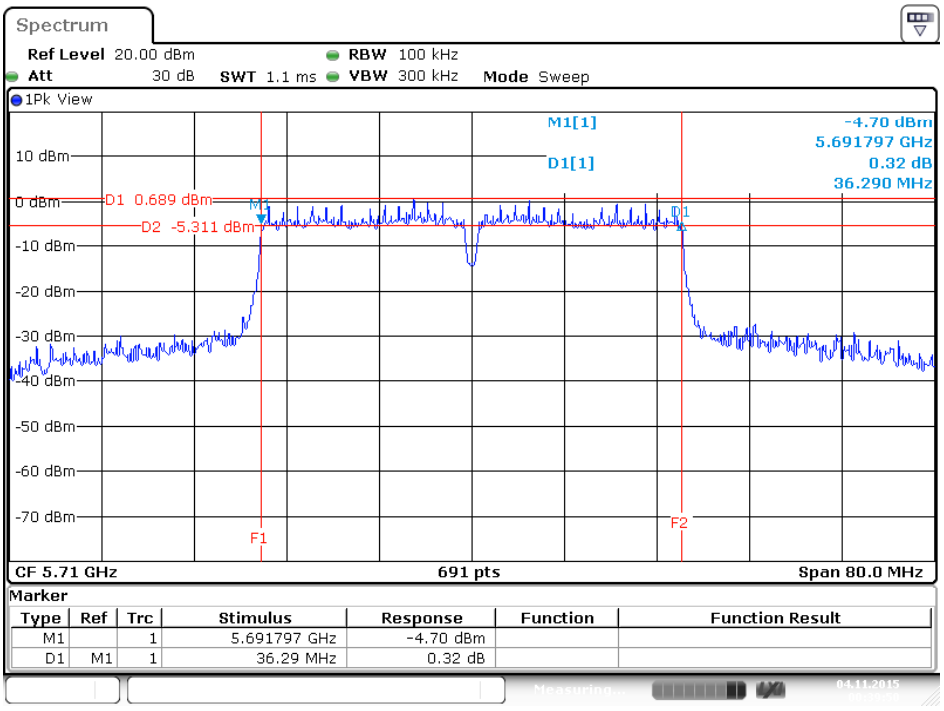
Date: 4.NOV.2015 00:31:45

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



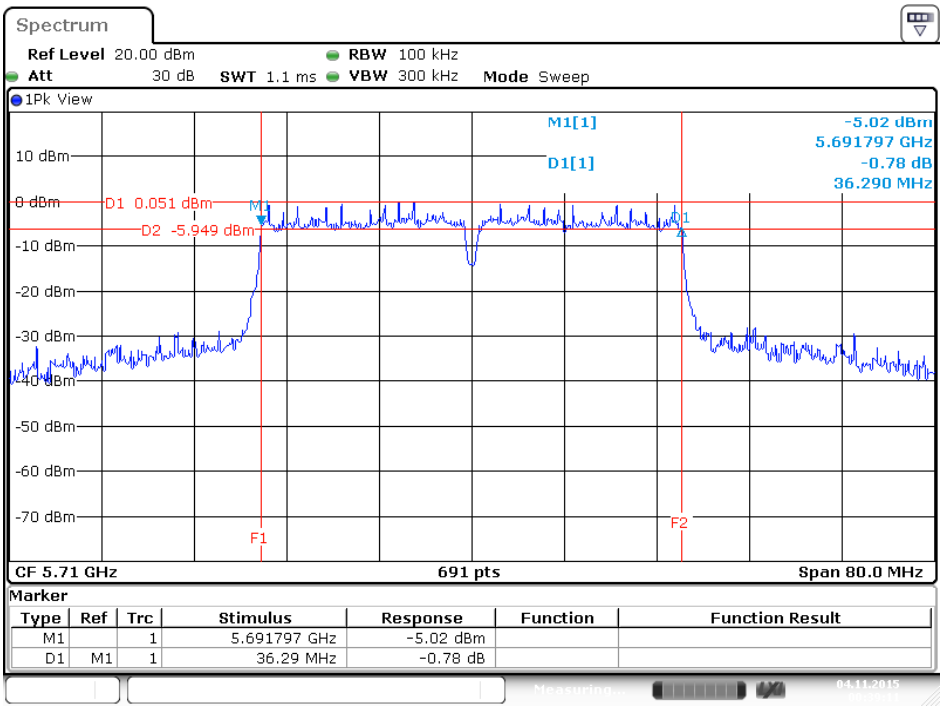
Date: 4.NOV.2015 00:31:05

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



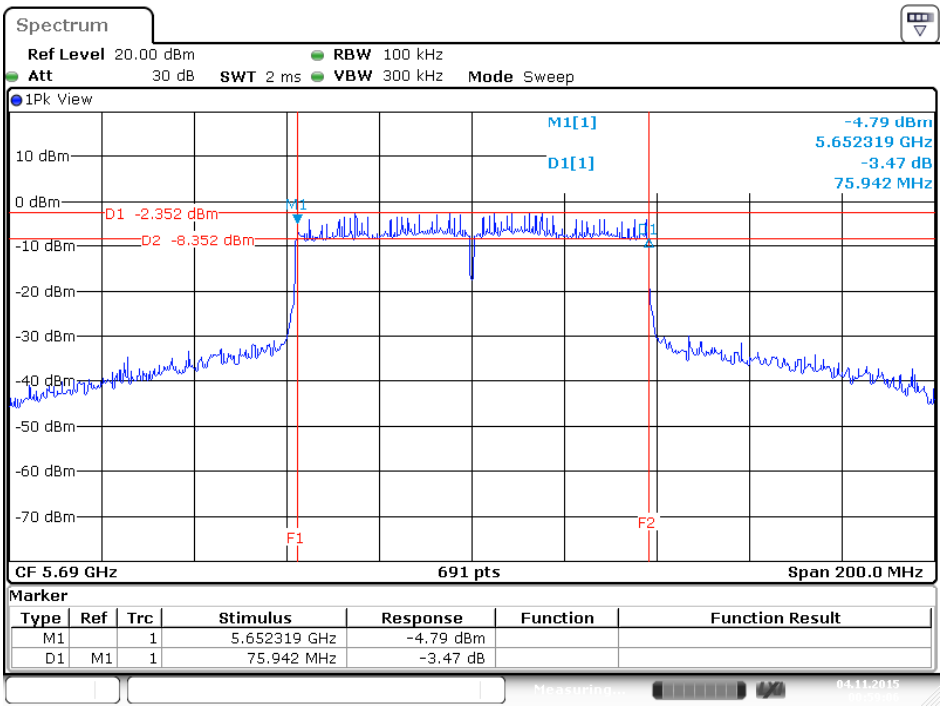
Date: 4.NOV.2015 00:39:50

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



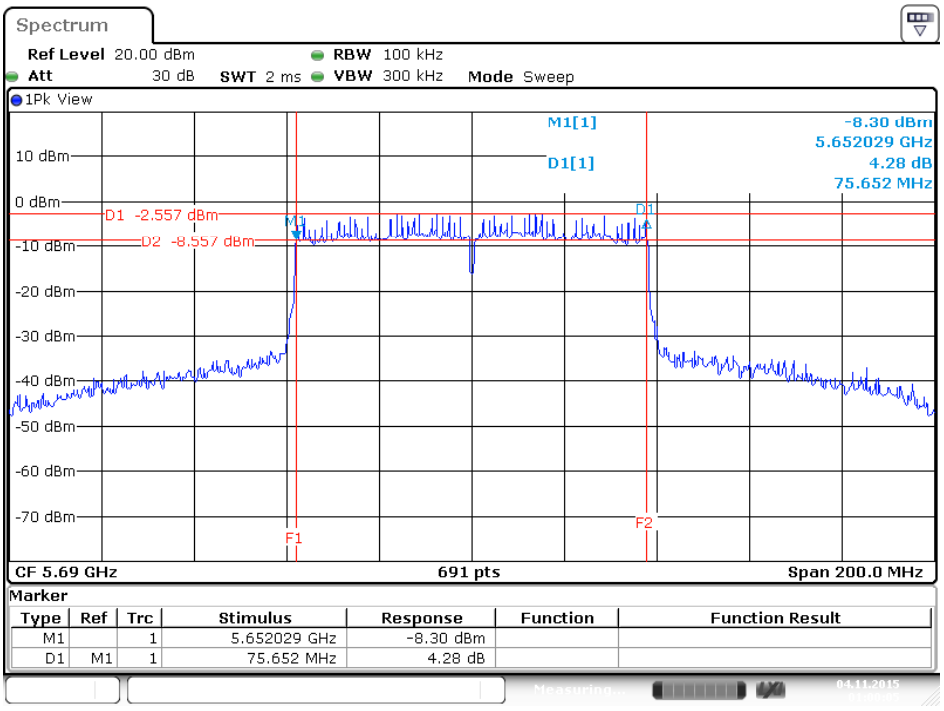
Date: 4.NOV.2015 00:39:11

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



Date: 4.NOV.2015 00:59:06

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



Date: 4.NOV.2015 01:00:05

4.4. Maximum Conducted Output Power Measurement

4.4.1. Limit

Frequency Band		Limit
☒	5.25-5.35 GHz	The maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW (24dBm) or 11 dBm 10 log B, where B is the 26 dB emission bandwidth in megahertz. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
☒	5.470-5.725 GHz	

4.4.2. Measuring Instruments and Setting

For other channel:

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

Power Meter Parameter	Setting
Detector	AVERAGE

For straddle channel:

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

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

4.4.3. Test Procedures

For other channel:

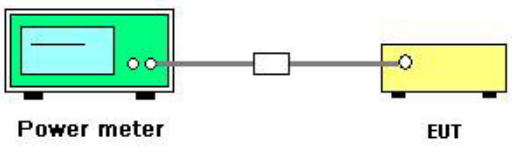
1. The transmitter output (antenna port) was connected to the power meter.
2. Test was performed in accordance with KDB789033 D02 v01r01 for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - section (E) Maximum conducted output power =>3. Measurement using a Power Meter (PM) =>b) Method PM-G (Measurement using a gated RF average power meter).
3. Multiple antenna systems was performed in accordance with KDB662911 D01 v02r01 Emissions Testing of Transmitters with Multiple Outputs in the Same Band.
4. When measuring maximum conducted output power with multiple antenna systems,add every result of the values by mathematic formula.

For straddle channel:

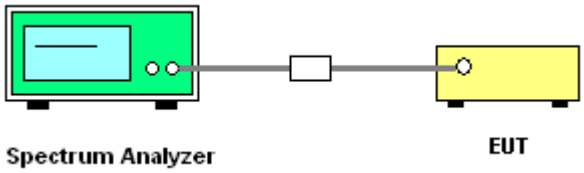
1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. Test was performed in accordance with FCC Public Notice DA 02-2138, August 30, 2002.

4.4.4. Test Setup Layout

For other channel:



For straddle 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

<For 1TX>

Temperature	25°C	Humidity	58%
Test Engineer	Mars Lin	Test Date	Oct. 29, 2015~Dec. 23, 2015

Mode	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
802.11a	5260 MHz	18.82	23.98	Complies
	5300 MHz	18.91	23.98	Complies
	5320 MHz	18.91	23.98	Complies
	5500 MHz	18.72	23.98	Complies
	5580 MHz	18.73	23.98	Complies
	5700 MHz	18.71	23.98	Complies
802.11ac MCS0/Nss1 VHT20	5260 MHz	18.86	23.98	Complies
	5300 MHz	18.72	23.98	Complies
	5320 MHz	18.77	23.98	Complies
	5500 MHz	18.86	23.98	Complies
	5580 MHz	18.83	23.98	Complies
	5700 MHz	18.83	23.98	Complies
802.11ac MCS0/Nss1 VHT40	5270 MHz	18.86	23.98	Complies
	5310 MHz	18.73	23.98	Complies
	5510 MHz	18.91	23.98	Complies
	5550 MHz	18.77	23.98	Complies
	5670 MHz	18.82	23.98	Complies
802.11ac MCS0/Nss1 VHT80	5290 MHz	17.12	23.98	Complies
	5530 MHz	18.21	23.98	Complies

Straddle Channel

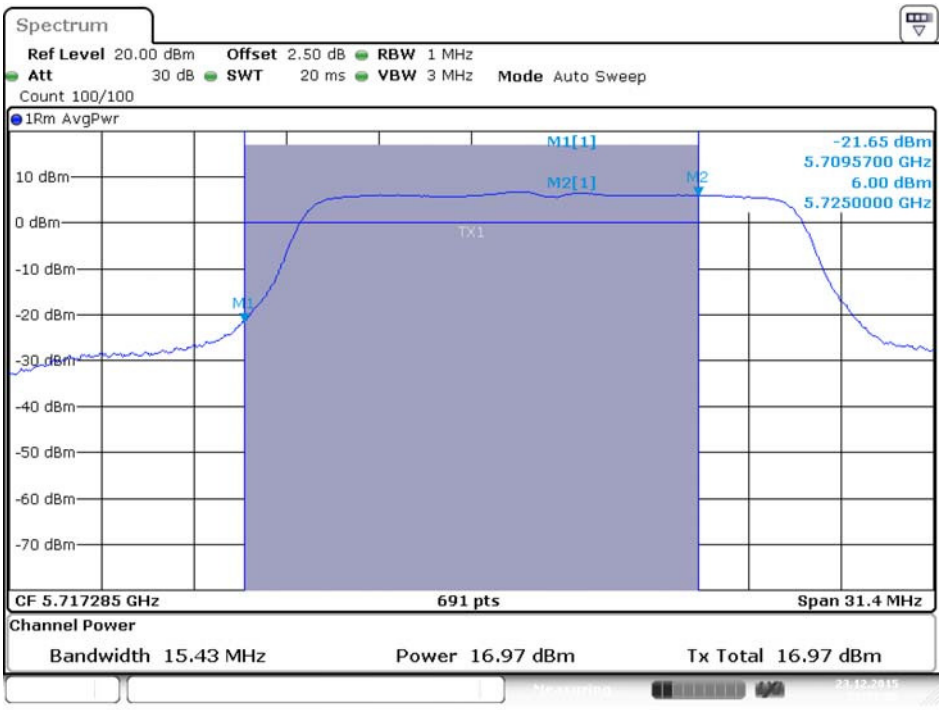
Mode	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
802.11a	5720 MHz (UNII 2C)	16.97	22.89	Complies
	5720 MHz (UNII 3)	10.38	30.00	Complies
802.11ac MCS0/Nss1 VHT20	5720 MHz (UNII 2C)	16.68	22.84	Complies
	5720 MHz (UNII 3)	10.86	30.00	Complies
802.11ac MCS0/Nss1 VHT40	5710 MHz (UNII 2C)	17.05	23.98	Complies
	5710 MHz (UNII 3)	6.68	30.00	Complies
802.11ac MCS0/Nss1 VHT80	5690 MHz (UNII 2C)	17.74	23.98	Complies
	5690 MHz (UNII 3)	3.59	30.00	Complies

Note: 5720MHz power limit=23.98dBm or 11+10log(B);11+10log(15.43)=22.89dBm<23.98dBm, so power limit=22.89dBm

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

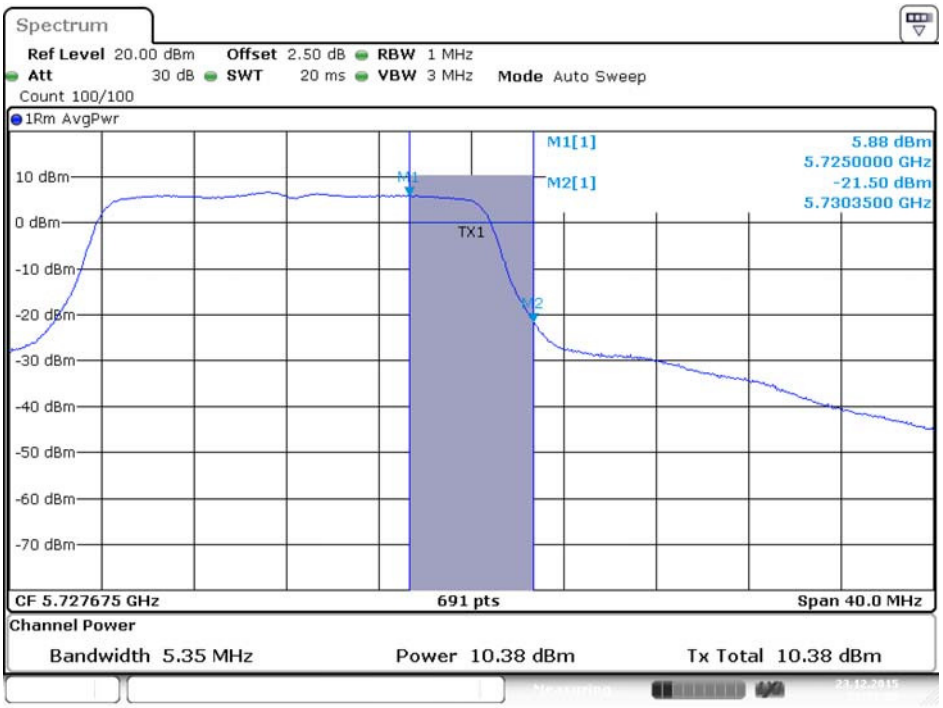
Straddle Channel

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



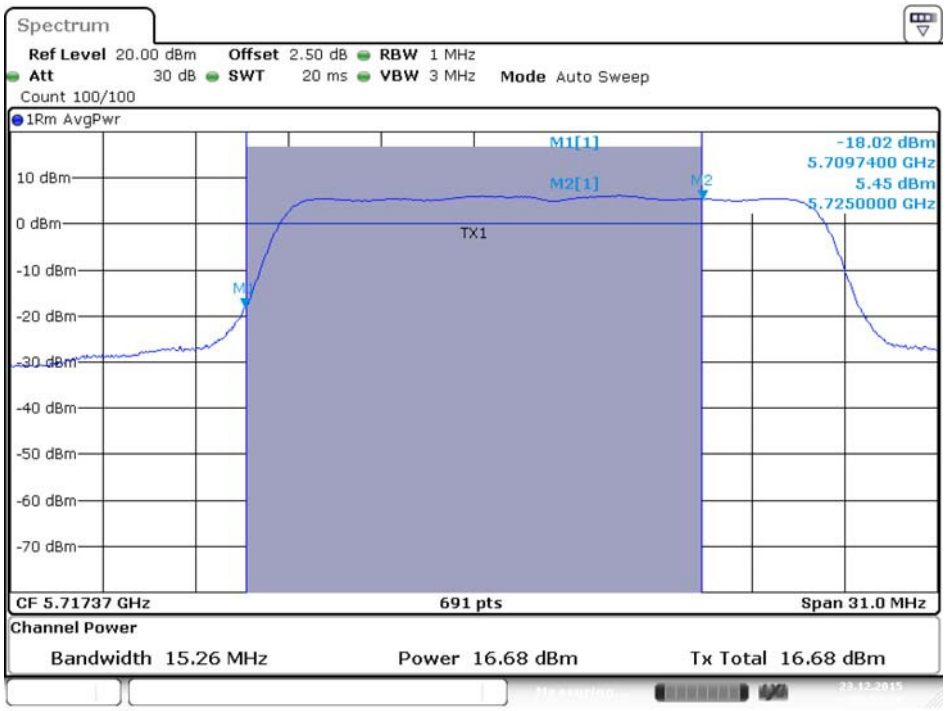
Date: 23.DEC.2015 23:51:06

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



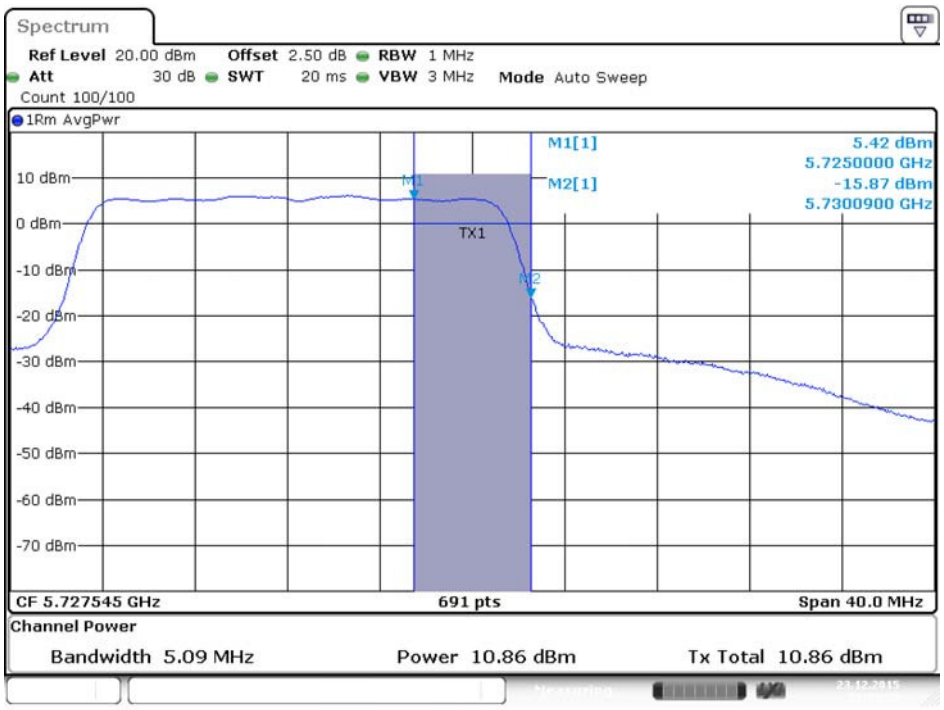
Date: 23.DEC.2015 23:51:09

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



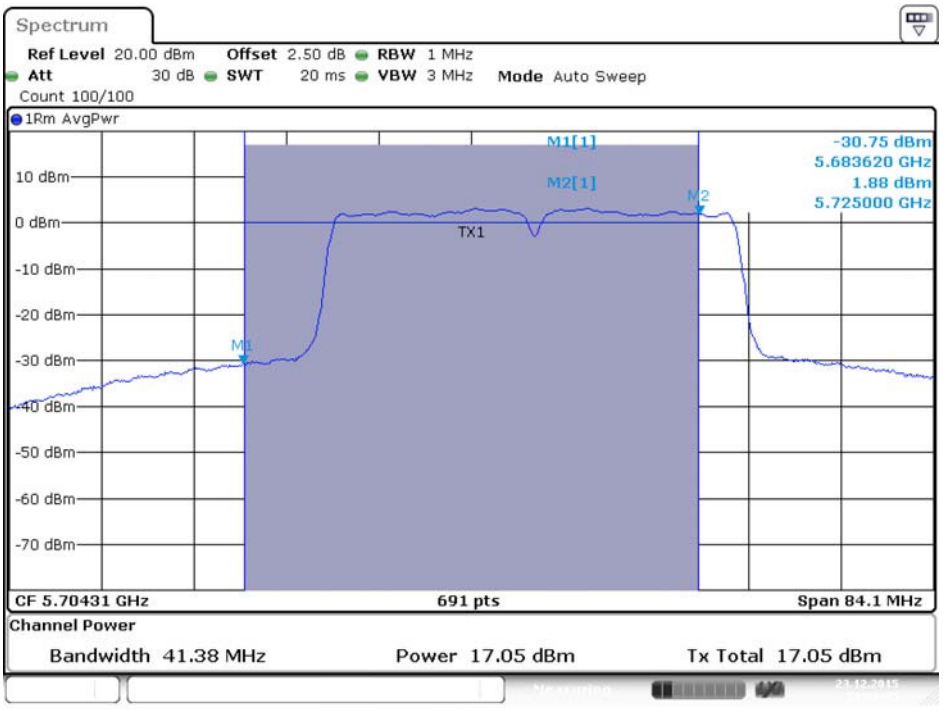
Date: 23.DEC.2015 23:53:20

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



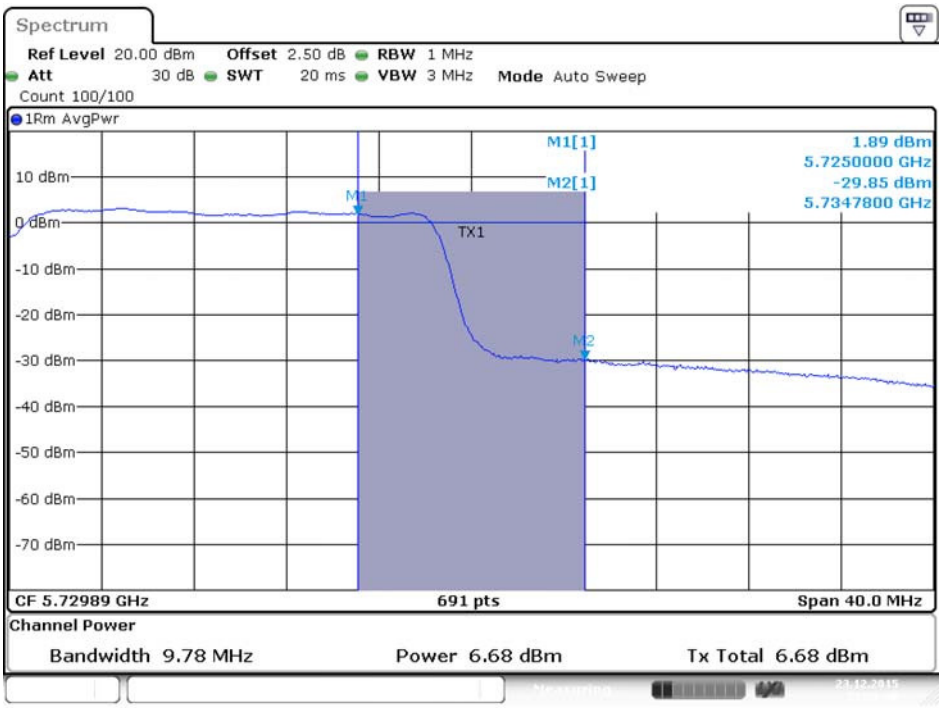
Date: 23.DEC.2015 23:53:23

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



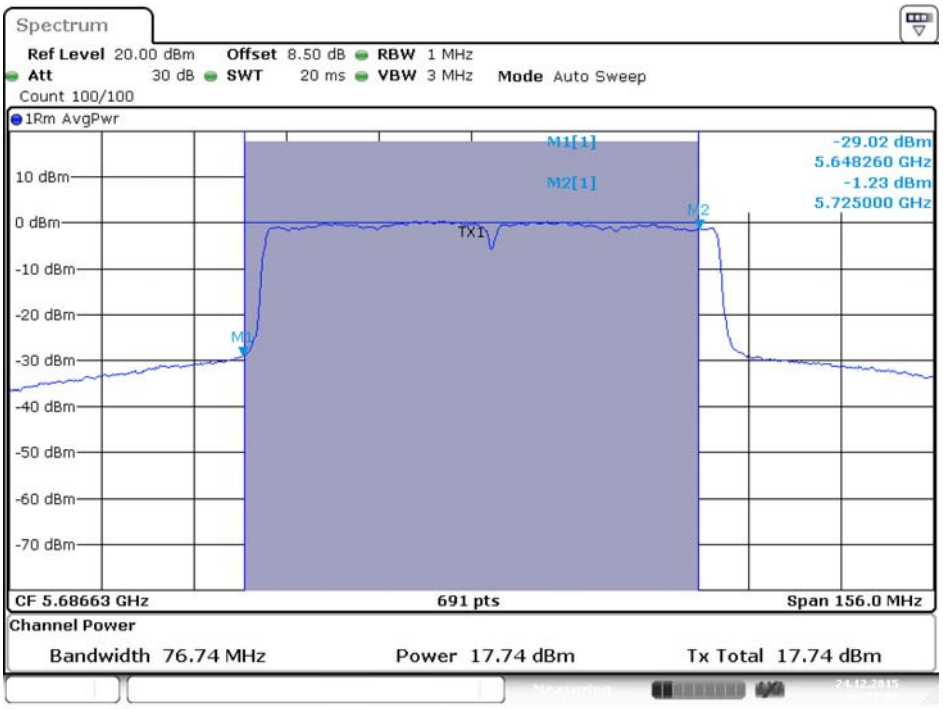
Date: 23.DEC.2015 23:56:45

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



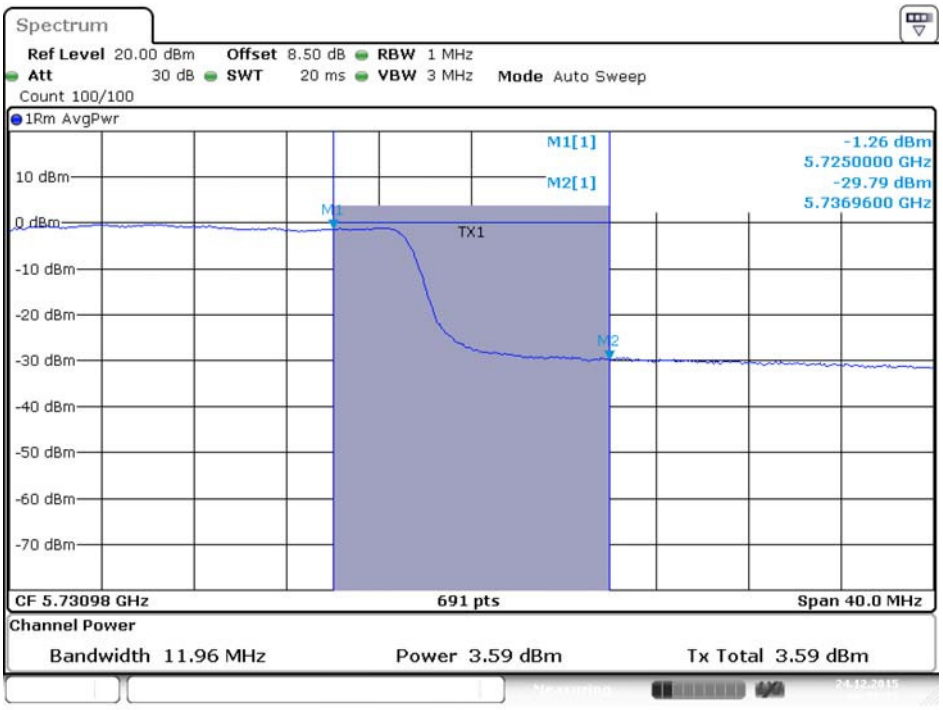
Date: 23.DEC.2015 23:56:48

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



Date: 24.DEC.2015 00:52:28

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



Date: 24.DEC.2015 00:52:32

<For 2TX>

Temperature	25°C	Humidity	58%
Test Engineer	Mars Lin	Test Date	Oct. 29, 2015~Dec. 23, 2015

Mode	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Chain 1	Chain 2	Total		
802.11a	5260 MHz	18.64	18.83	21.75	23.98	Complies
	5300 MHz	18.72	18.94	21.84	23.98	Complies
	5320 MHz	18.78	18.96	21.88	23.98	Complies
	5500 MHz	18.59	18.88	21.75	23.98	Complies
	5580 MHz	18.56	18.73	21.66	23.98	Complies
	5700 MHz	18.25	18.38	21.33	23.98	Complies
802.11ac MCS0/Nss1 VHT20	5260 MHz	18.61	18.77	21.70	23.98	Complies
	5300 MHz	18.73	18.84	21.80	23.98	Complies
	5320 MHz	18.82	18.91	21.88	23.98	Complies
	5500 MHz	18.41	18.76	21.60	23.98	Complies
	5580 MHz	18.39	18.83	21.63	23.98	Complies
	5700 MHz	18.43	18.69	21.57	23.98	Complies
802.11ac MCS0/Nss1 VHT40	5270 MHz	18.38	18.66	21.53	23.98	Complies
	5310 MHz	17.56	17.93	20.76	23.98	Complies
	5510 MHz	16.94	17.33	20.15	23.98	Complies
	5550 MHz	18.42	18.87	21.66	23.98	Complies
	5670 MHz	18.44	18.71	21.59	23.98	Complies
802.11ac MCS0/Nss1 VHT80	5290 MHz	17.23	17.37	20.31	23.98	Complies
	5530 MHz	16.27	16.62	19.46	23.98	Complies

Straddle Channel

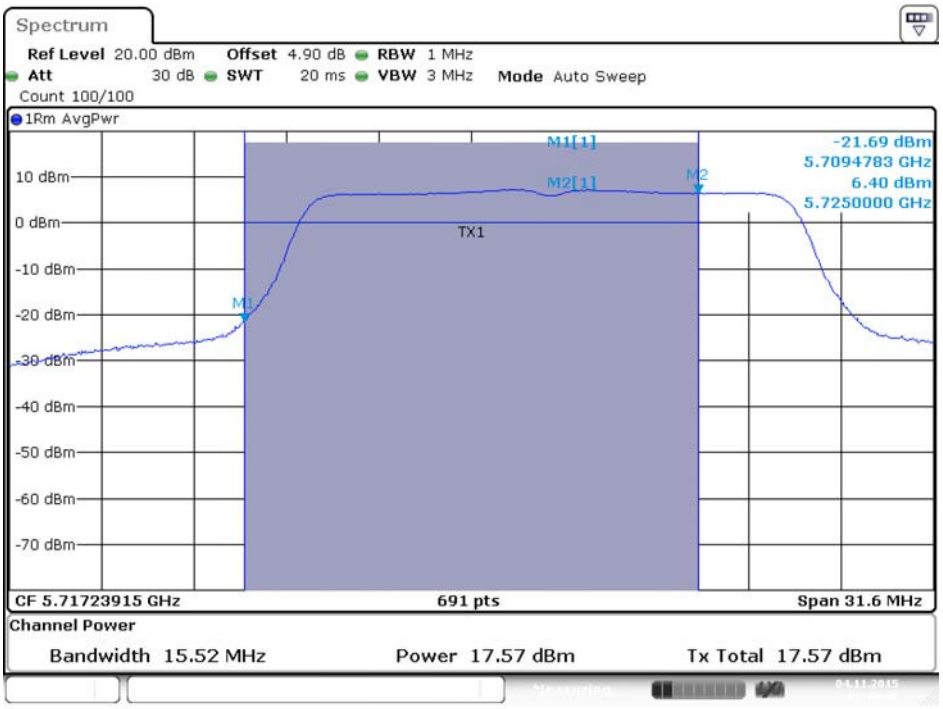
Mode	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Chain1	Chain 2	Total		
802.11a	5720 MHz (UNII 2C)	17.57	17.81	20.70	22.91	Complies
	5720 MHz (UNII 3)	11.26	11.18	14.23	30.00	Complies
802.11ac MCS0/Nss1 VHT20	5720 MHz (UNII 2C)	17.40	17.55	20.49	23.15	Complies
	5720 MHz (UNII 3)	11.66	11.61	14.65	30.00	Complies
802.11ac MCS0/Nss1 VHT40	5710 MHz (UNII 2C)	18.38	18.33	21.37	23.98	Complies
	5710 MHz (UNII 3)	8.04	7.80	10.93	30.00	Complies
802.11ac MCS0/Nss1 VHT80	5690 MHz (UNII 2C)	18.52	18.49	21.52	23.98	Complies
	5690 MHz (UNII 3)	4.56	4.27	7.43	30.00	Complies

Note: 5720MHz power limit=23.98dBm or 11+10log(B);11+10log(15.52)=22.91dBm<23.98dBm, so power limit=22.91dBm

Note: 5720MHz power limit=23.98dBm or 11+10log(B);11+10log(16.39)=23.15dBm<23.98dBm, so power limit=23.15dBm

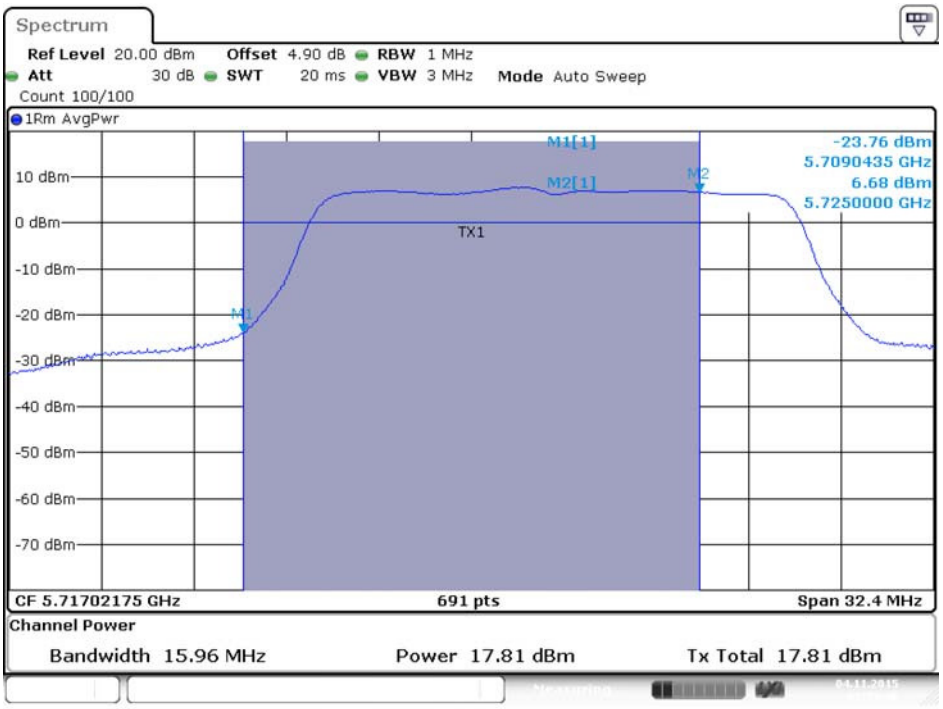
Straddle Channel

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



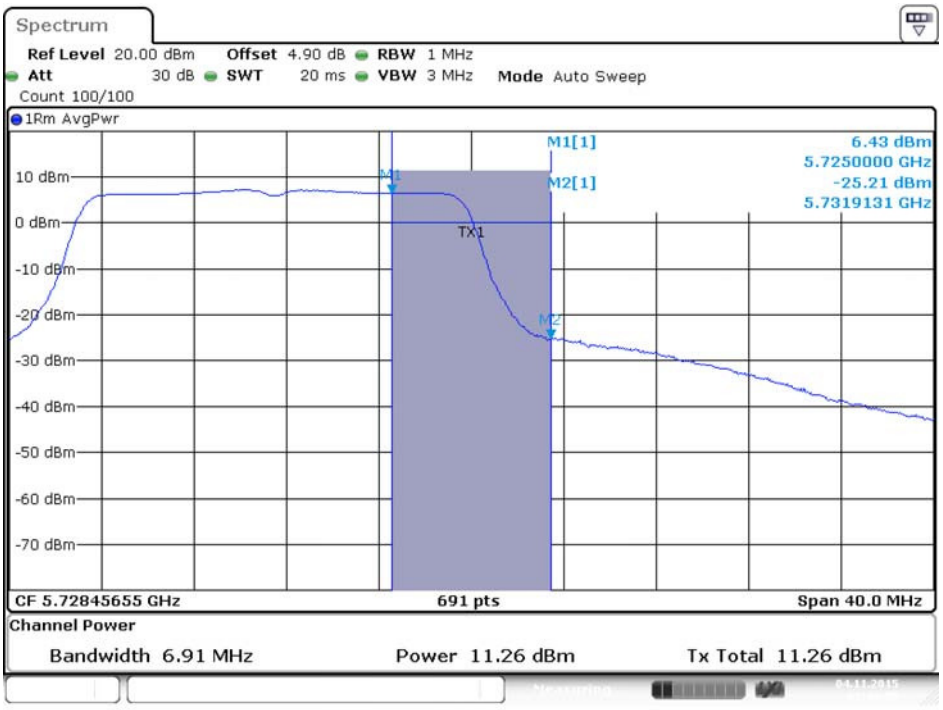
Date: 4.NOV.2015 01:49:46

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



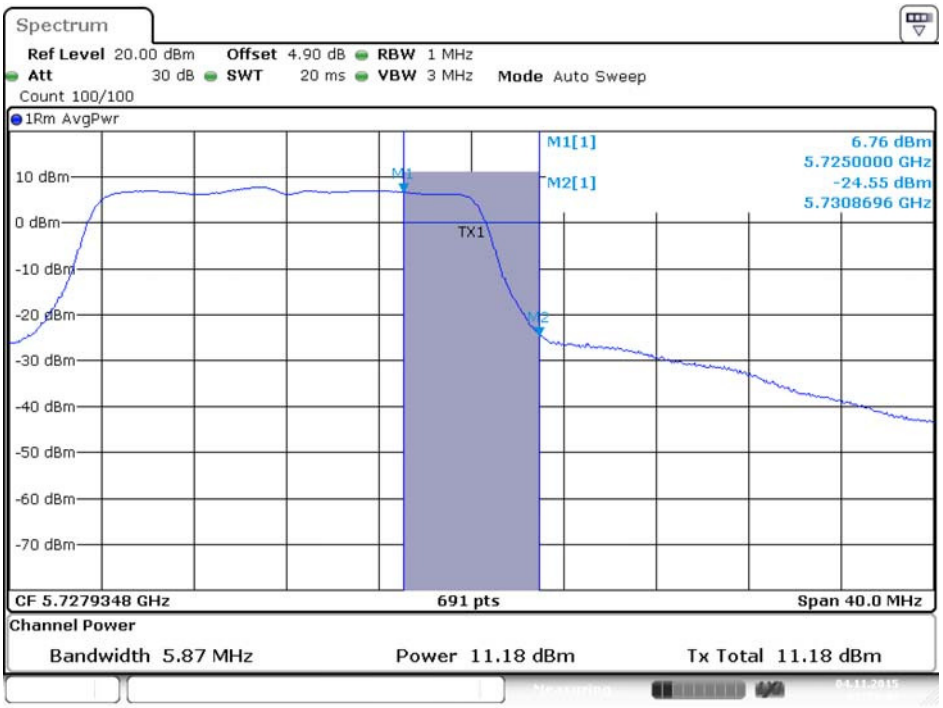
Date: 4.NOV.2015 01:54:46

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



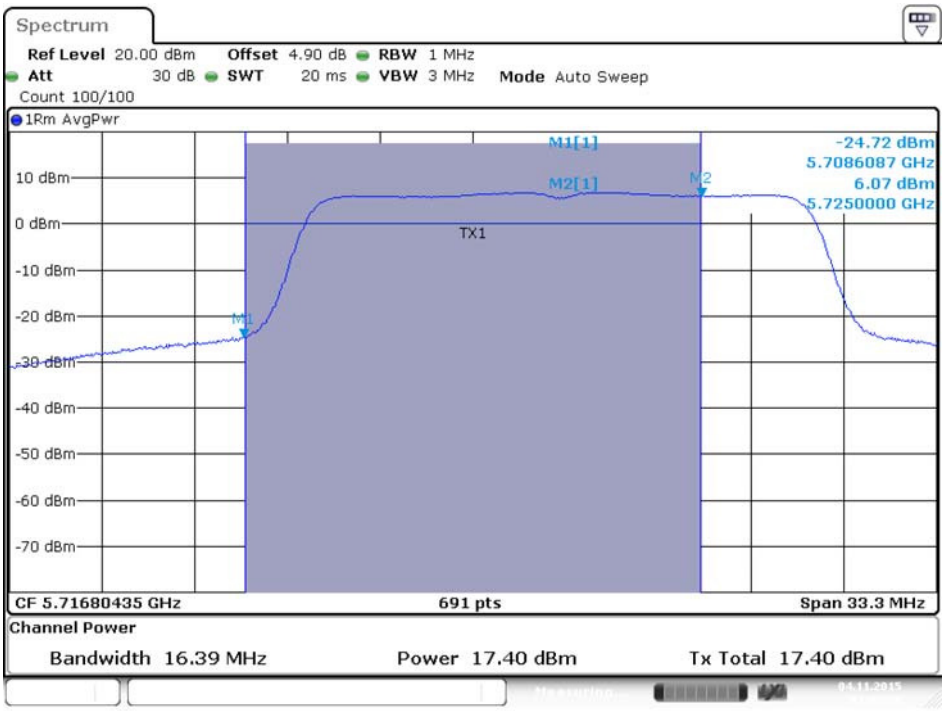
Date: 4.NOV.2015 01:49:50

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



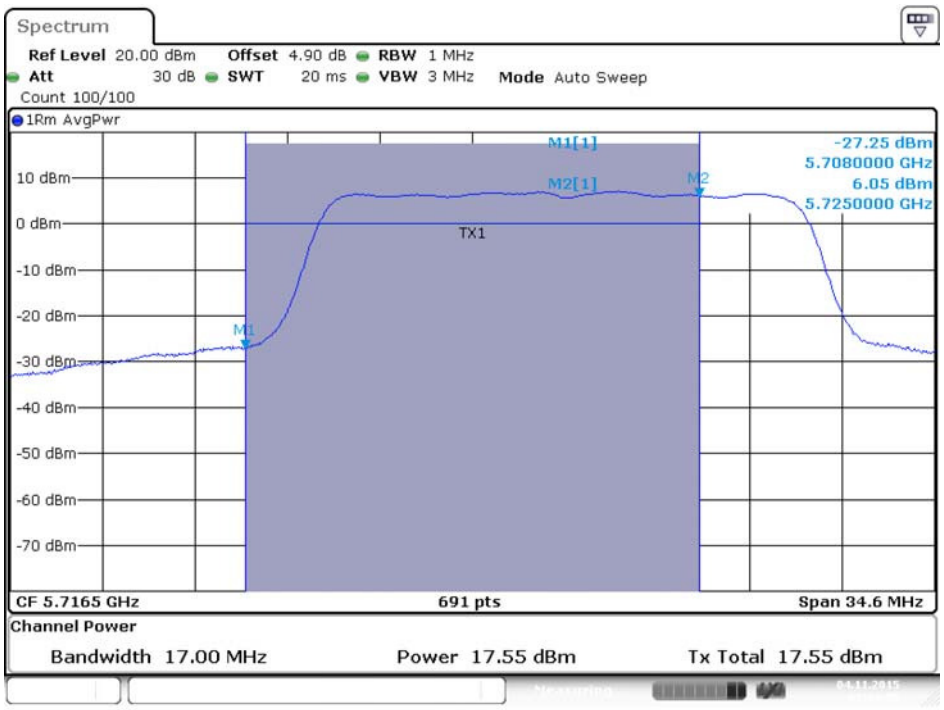
Date: 4.NOV.2015 01:54:49

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



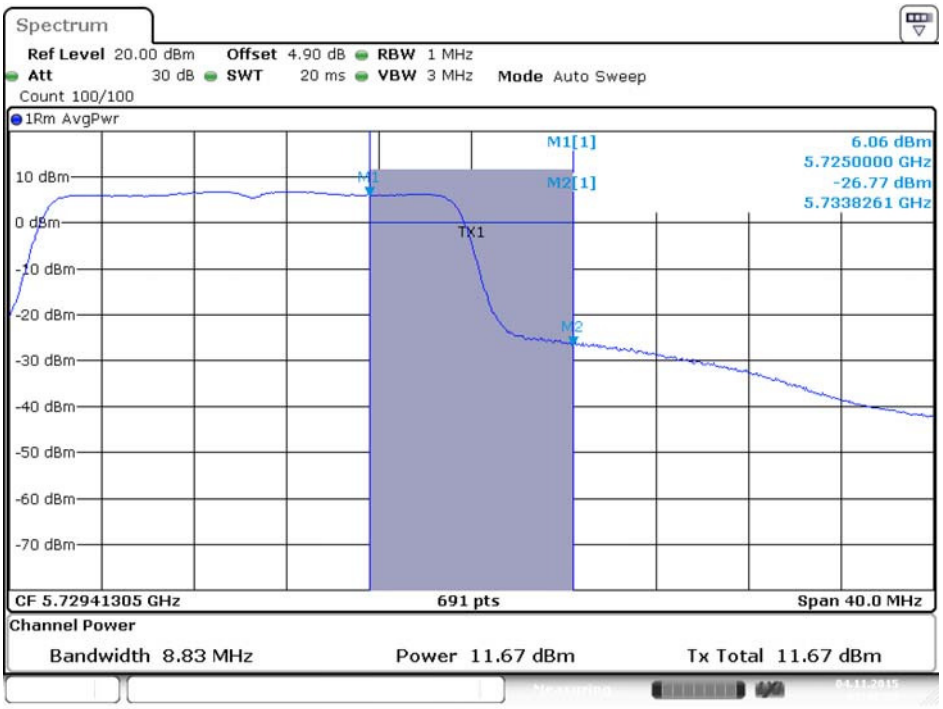
Date: 4.NOV.2015 01:42:20

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



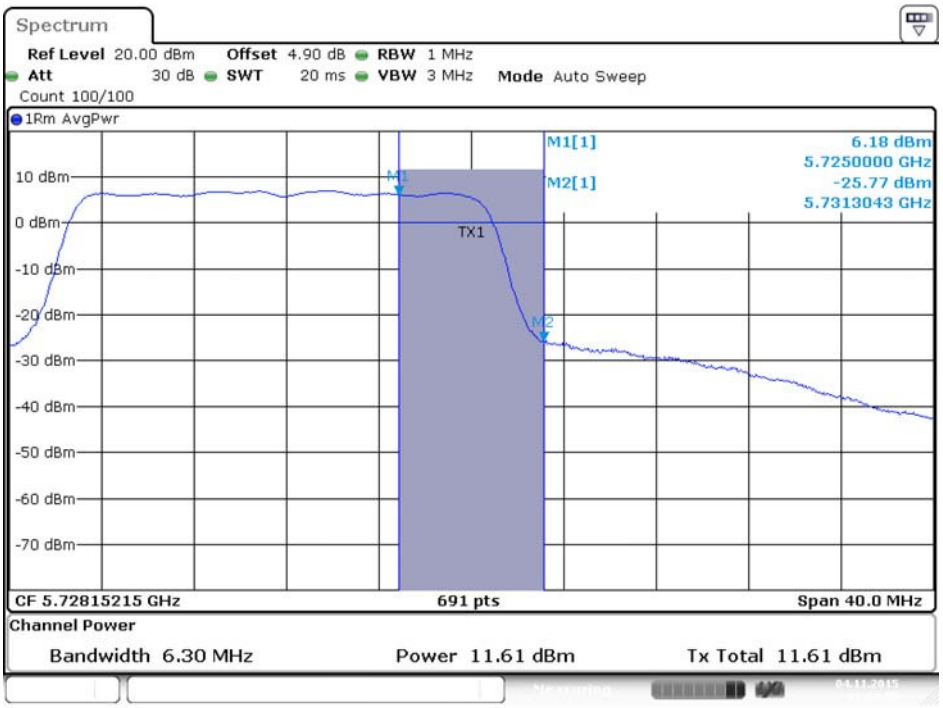
Date: 4.NOV.2015 01:44:55

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



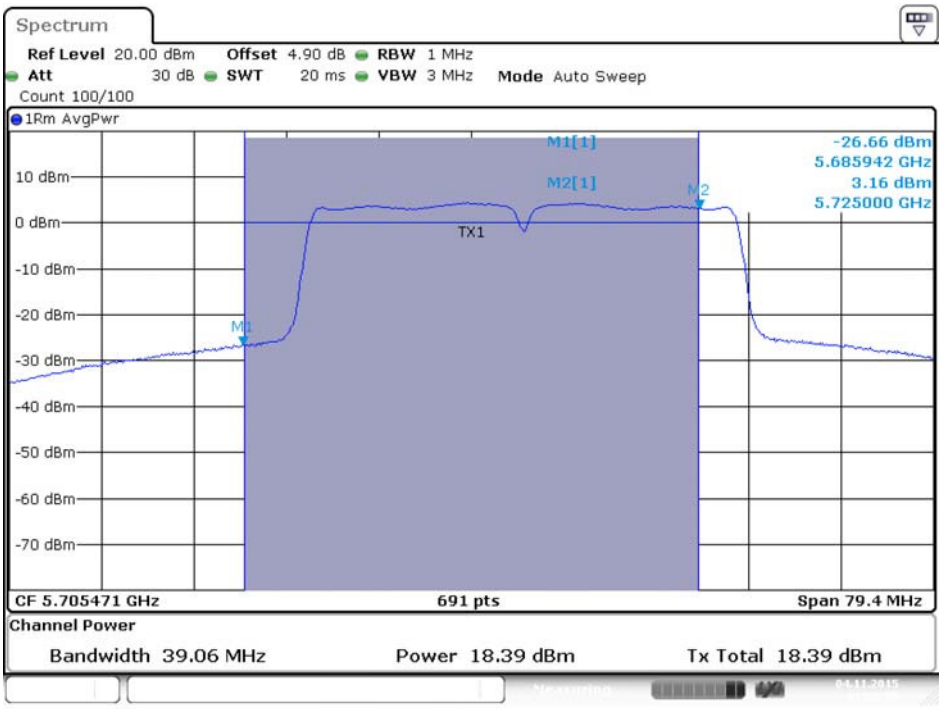
Date: 4.NOV.2015 01:42:24

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



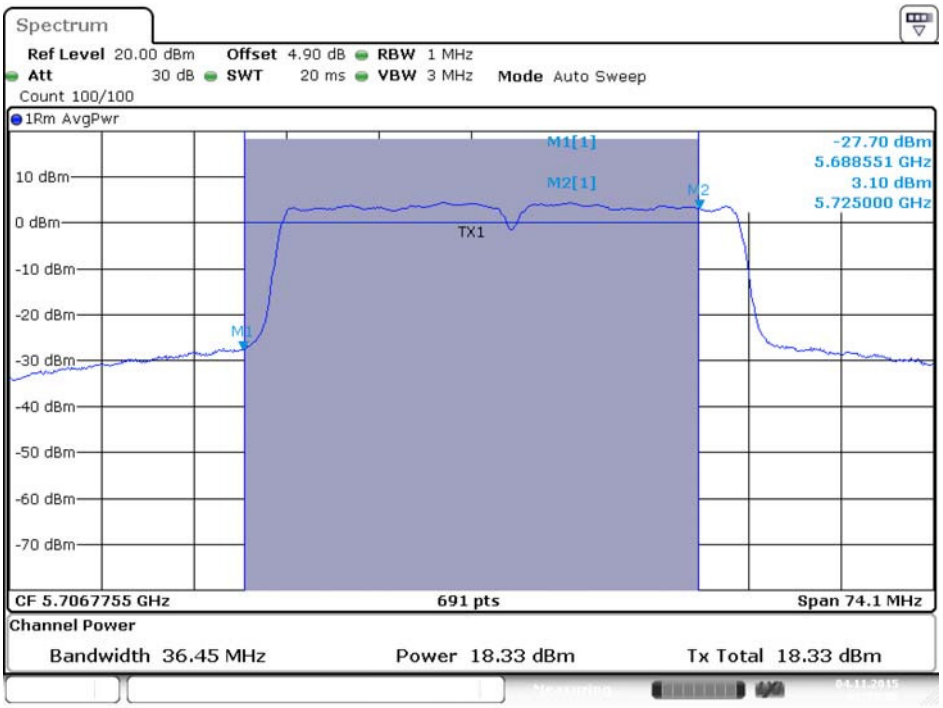
Date: 4.NOV.2015 01:44:58

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



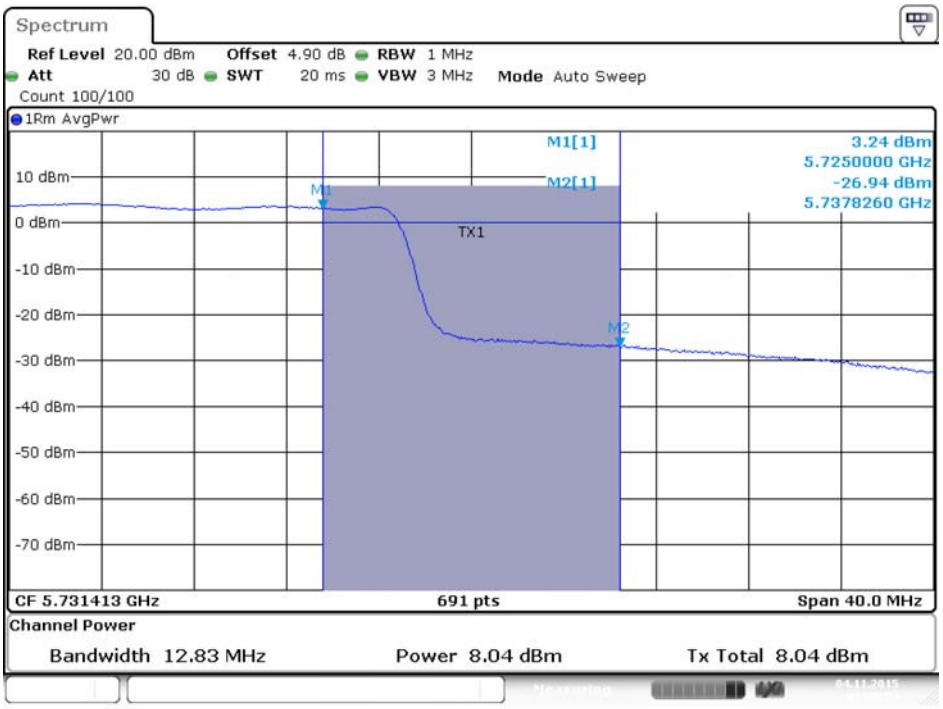
Date: 4.NOV.2015 01:30:50

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



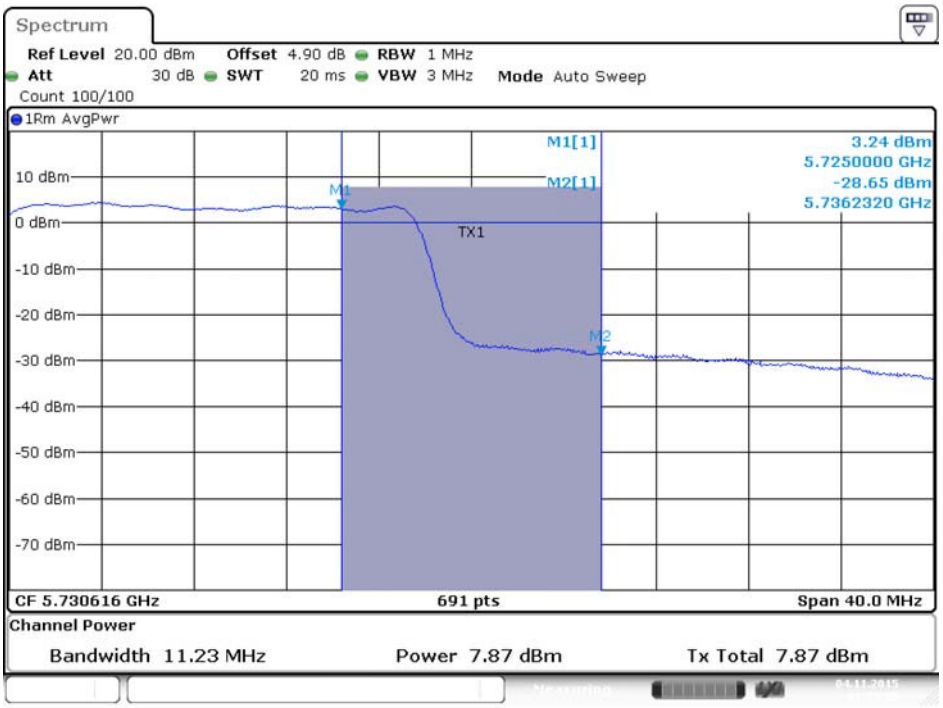
Date: 4.NOV.2015 01:35:26

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



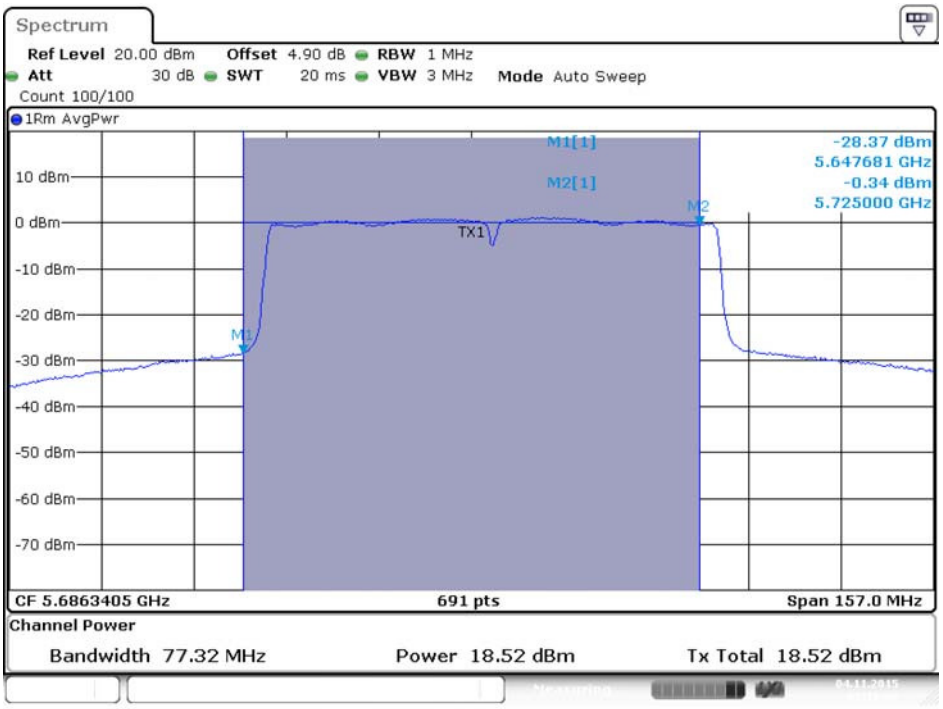
Date: 4.NOV.2015 01:30:54

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



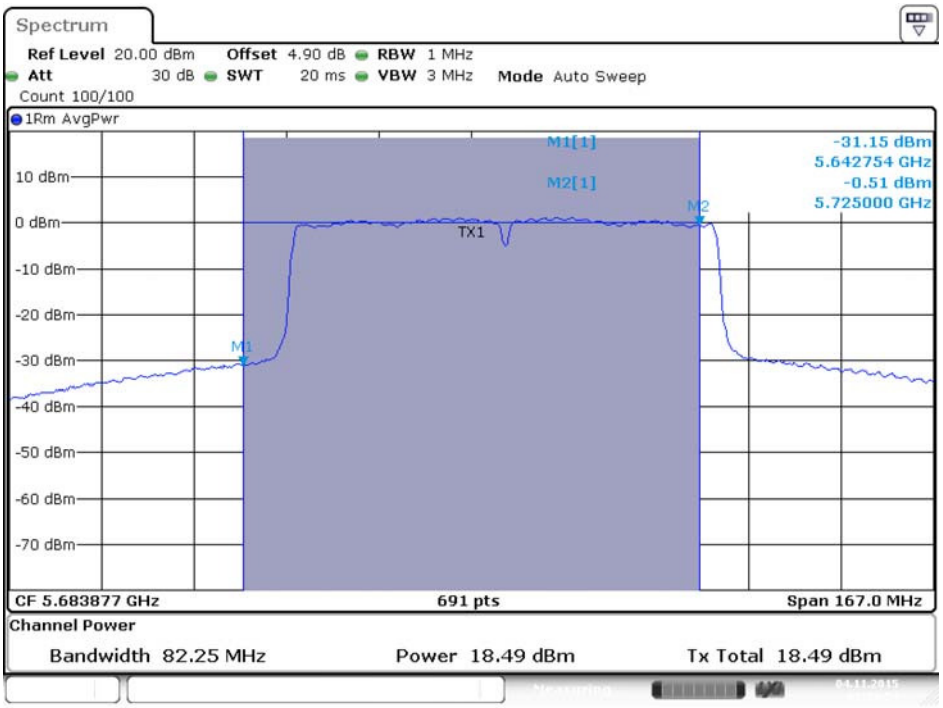
Date: 4.NOV.2015 01:35:30

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



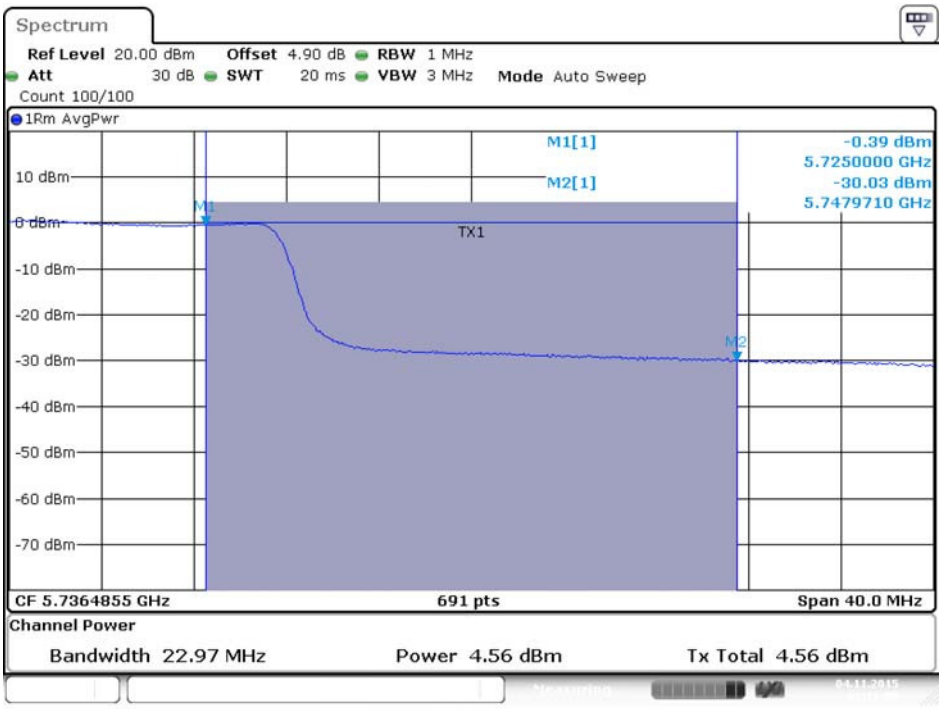
Date: 4.NOV.2015 01:16:47

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



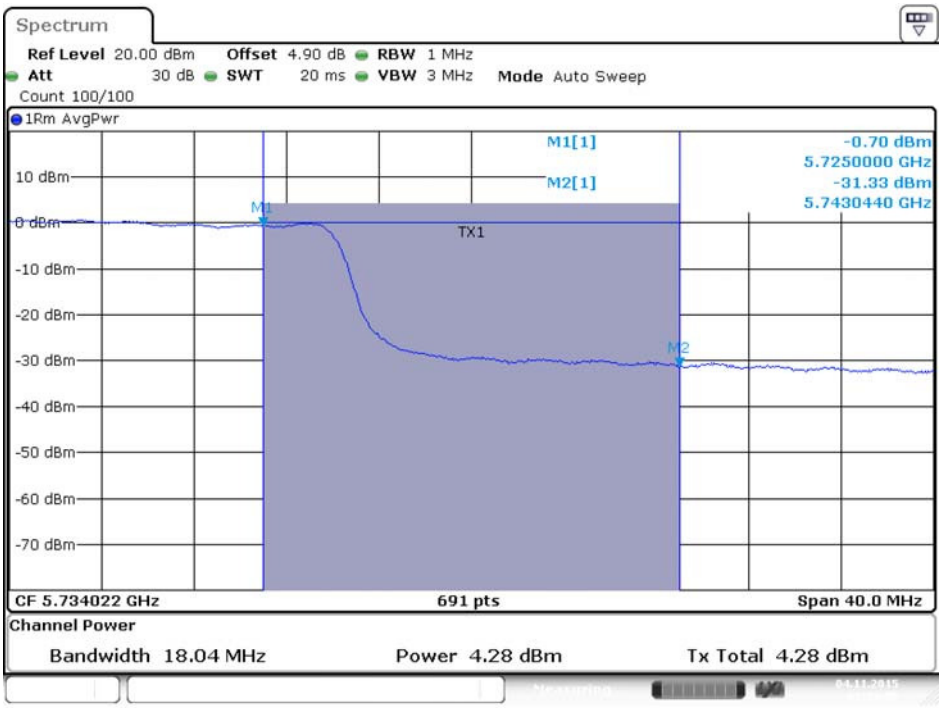
Date: 4.NOV.2015 01:24:54

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



Date: 4.NOV.2015 01:16:50

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



Date: 4.NOV.2015 01:24:57

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
☒	5.25-5.35 GHz	11 dBm/MHz
☒	5.470-5.725 GHz	11 dBm/MHz

4.5.2. Measuring Instruments and Setting

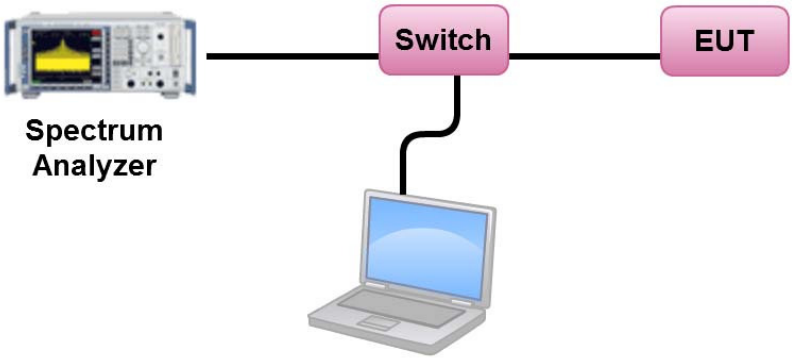
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

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

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 v01r01 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 (a) Measure and sum the spectra across the outputs.
4. When measuring first spectral bin of output 1 is summed with that in the first spectral bin of output 2 and that from the first spectral bin of output 3 and so on up to the Nth output to obtain the value for the first frequency bin of the summed spectrum. The summed spectrum value for each of the other frequency bins is computed in the same way.

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

<For 1TX>

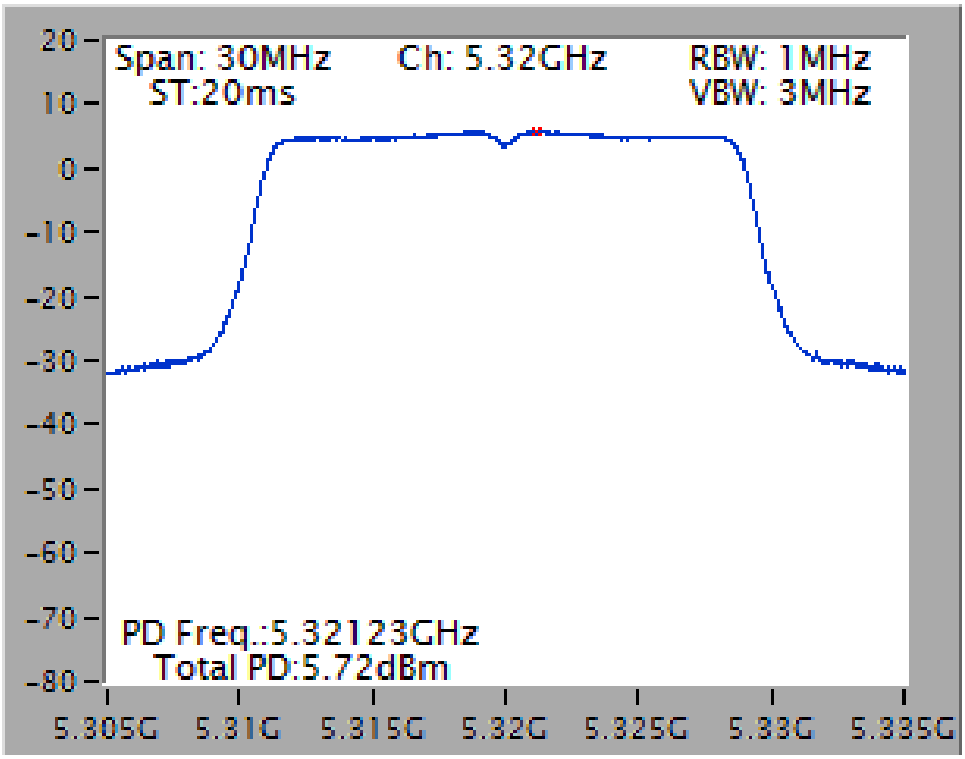
Temperature	25°C	Humidity	58%
Test Engineer	Mars Lin		

Mode	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
802.11a	5260 MHz	5.68	11.00	Complies
	5300 MHz	5.60	11.00	Complies
	5320 MHz	5.72	11.00	Complies
	5500 MHz	5.38	11.00	Complies
	5580 MHz	5.50	11.00	Complies
	5700 MHz	5.27	11.00	Complies
802.11ac MCS0/Nss1 VHT20	5260 MHz	5.64	11.00	Complies
	5300 MHz	5.62	11.00	Complies
	5320 MHz	5.60	11.00	Complies
	5500 MHz	5.33	11.00	Complies
	5580 MHz	5.39	11.00	Complies
	5700 MHz	5.63	11.00	Complies
802.11ac MCS0/Nss1 VHT40	5270 MHz	2.79	11.00	Complies
	5310 MHz	2.69	11.00	Complies
	5510 MHz	2.71	11.00	Complies
	5550 MHz	2.81	11.00	Complies
	5670 MHz	2.74	11.00	Complies
802.11ac MCS0/Nss1 VHT80	5290 MHz	-2.28	11.00	Complies
	5530 MHz	-1.44	11.00	Complies

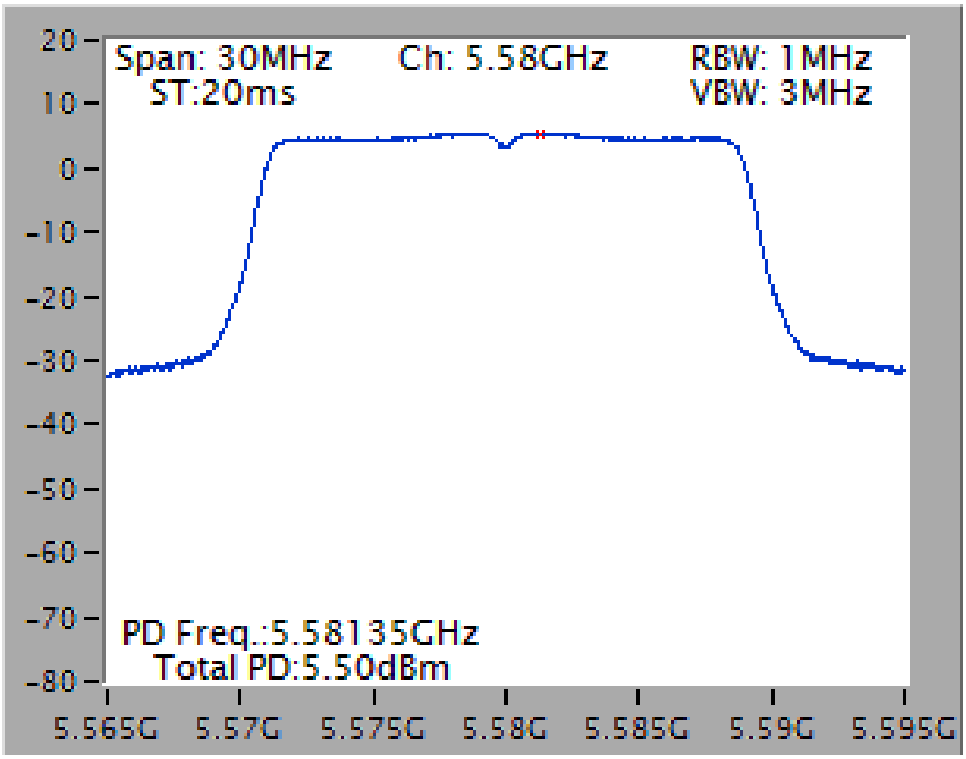
Note: All the test values were listed in the report.

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

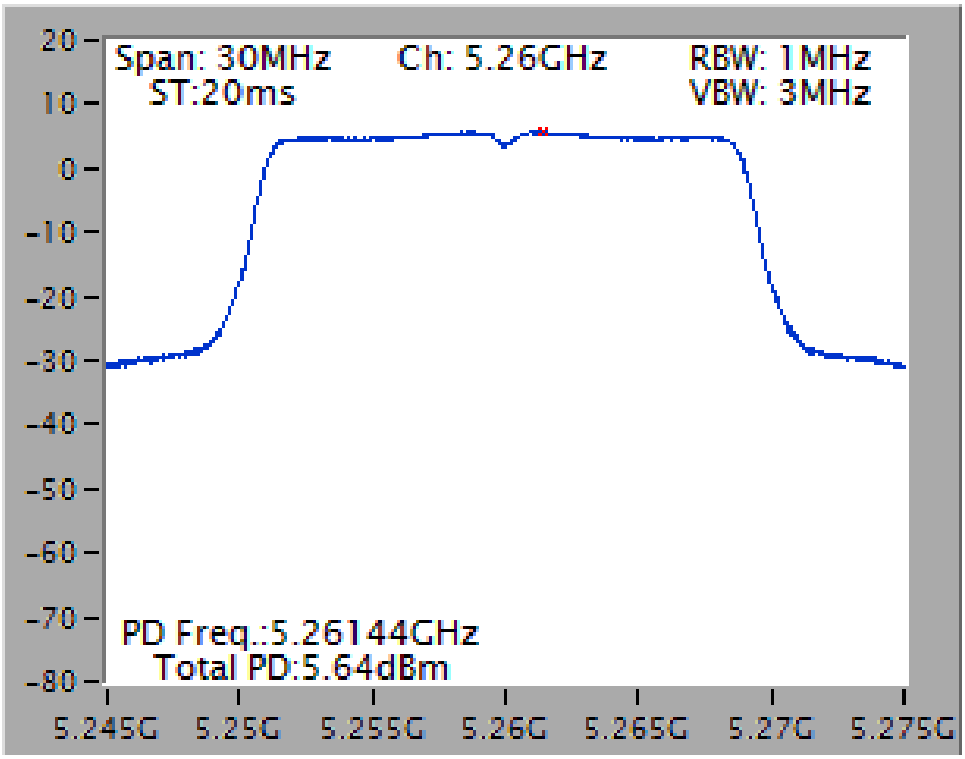
Power Density Plot on Configuration IEEE 802.11a / Chain 1 / 5320 MHz



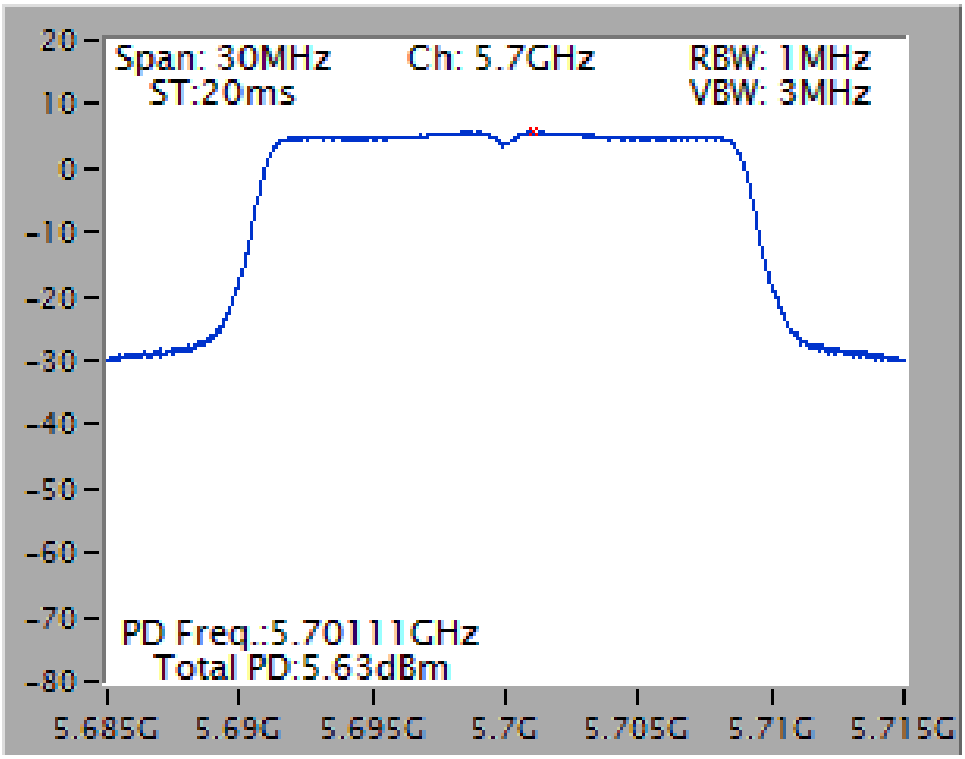
Power Density Plot on Configuration IEEE 802.11a / Chain 1 / 5580 MHz



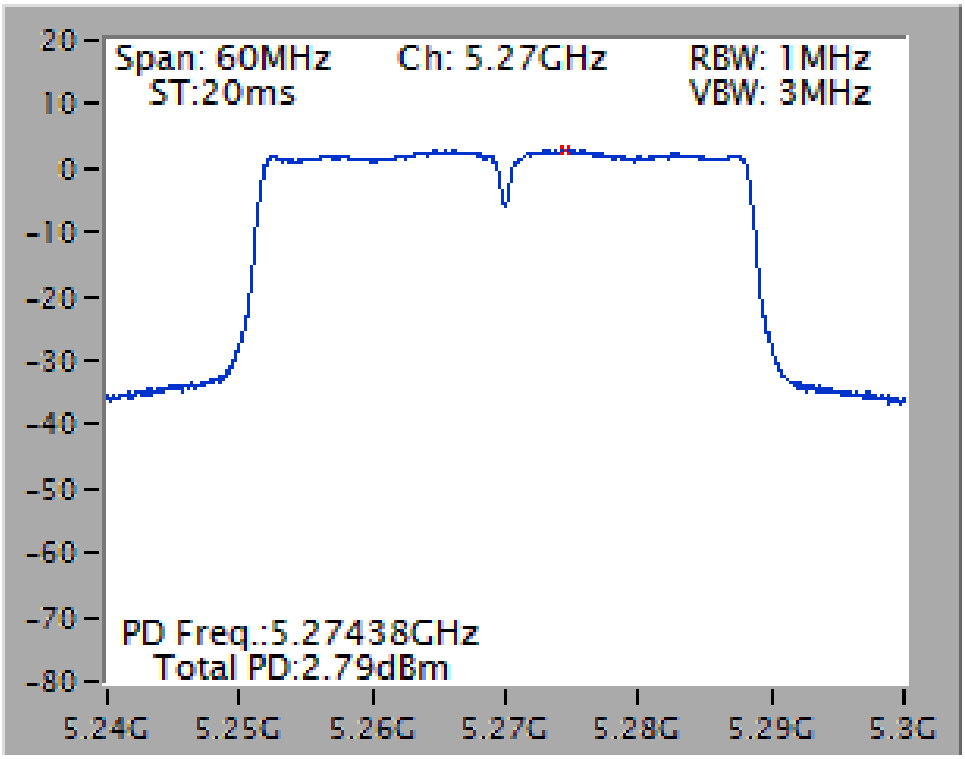
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 / 5260 MHz



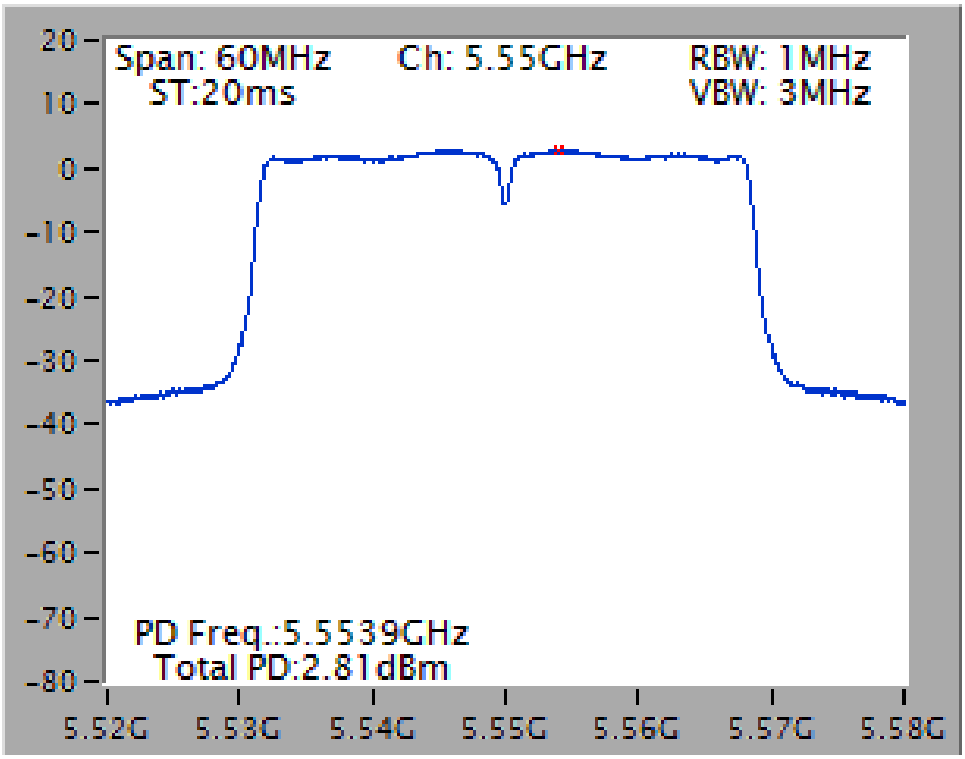
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 / 5700 MHz



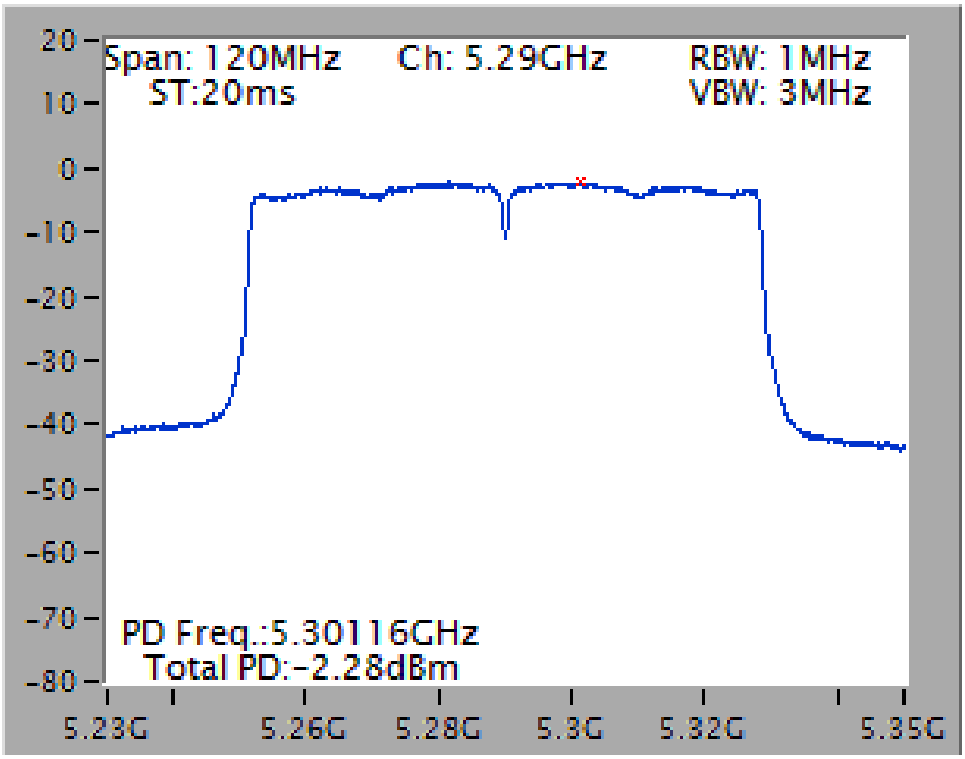
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 / 5270 MHz



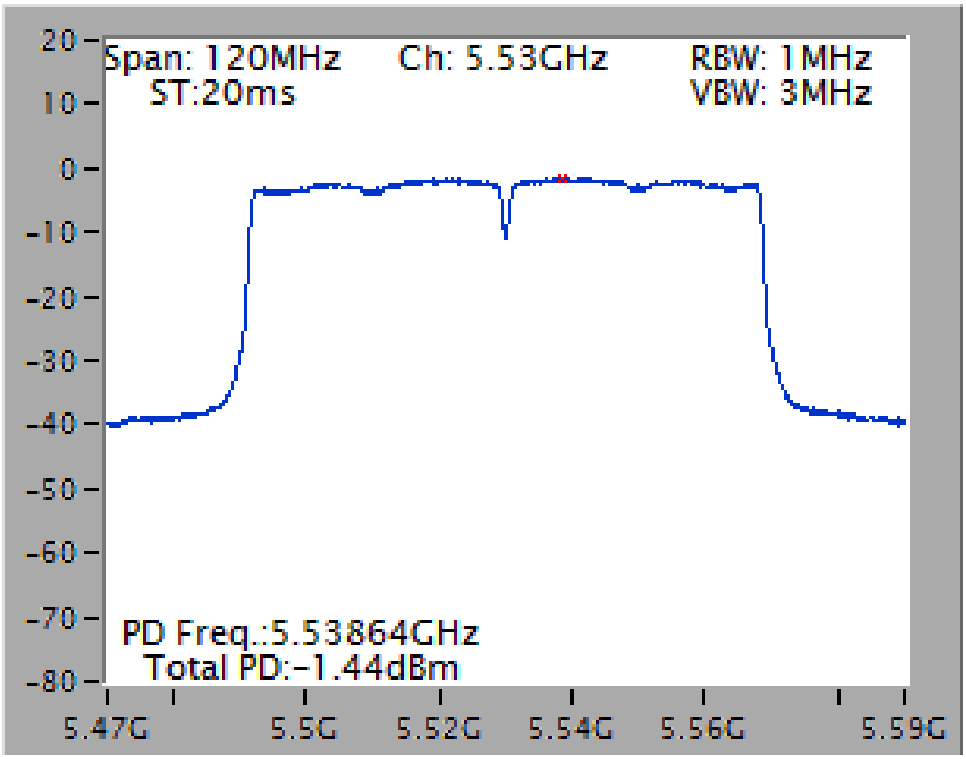
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 / 5550 MHz



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



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



Straddle Channel

Configuration IEEE 802.11a / Chain 1

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
144	5720 MHz (UNII 2C)	5.33	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)	4.51	-3.01	1.50	30.00	Complies

Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
144	5720 MHz (UNII 2C)	5.76	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)	5.20	-3.01	2.19	30.00	Complies

Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
142	5710 MHz (UNII 2C)	2.86	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)	1.97	-3.01	-1.04	30.00	Complies

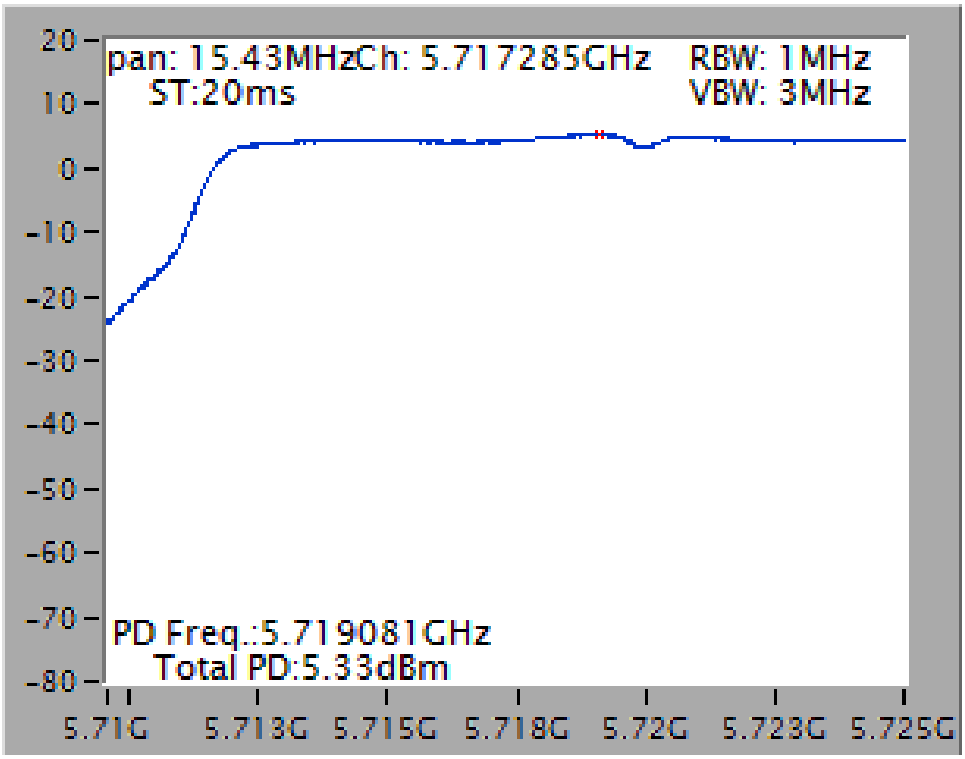
Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
138	5690 MHz (UNII 2C)	-0.98	11.00	Complies

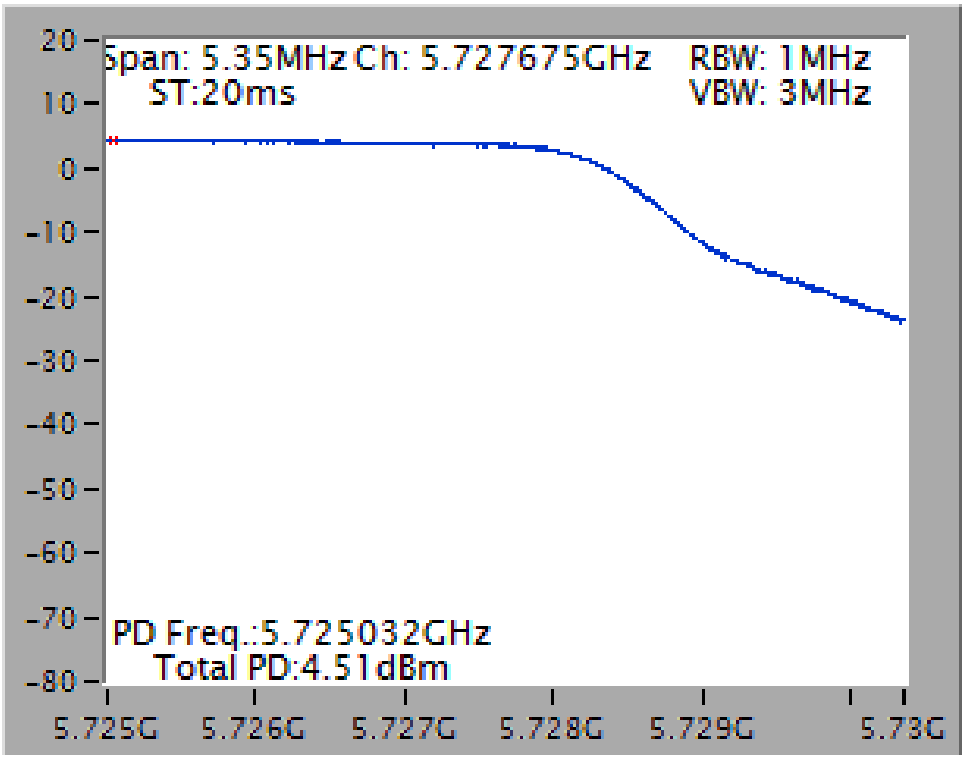
Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
138	5690 MHz (UNII 3)	-2.42	-3.01	-5.43	30.00	Complies

Straddle Channel

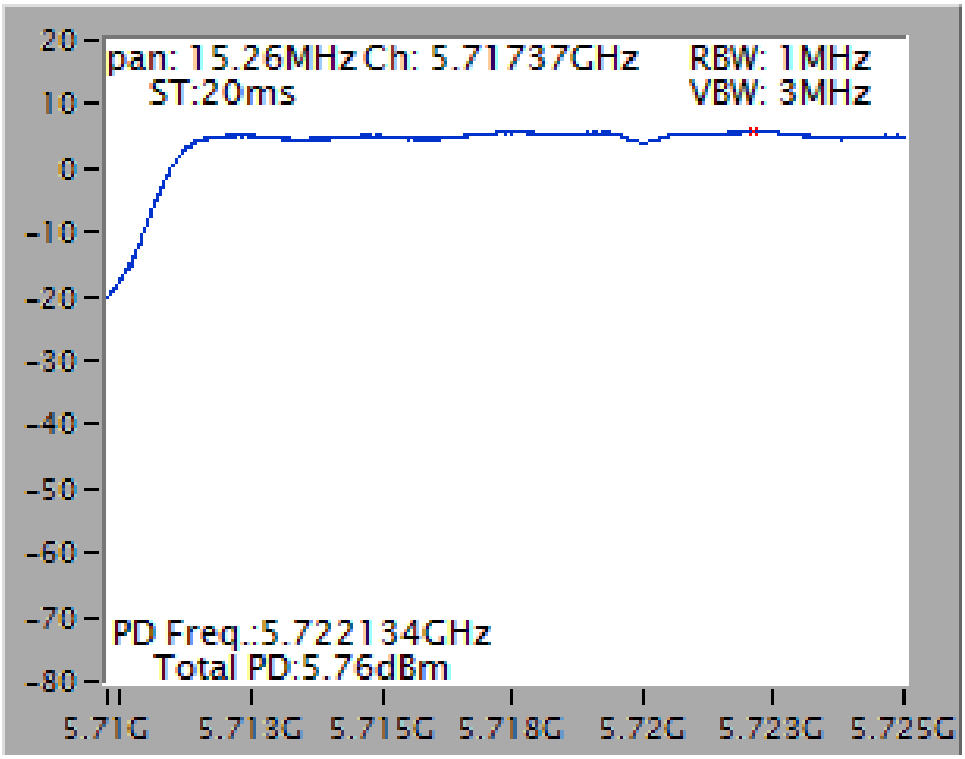
Power Density Plot on Configuration IEEE 802.11a / Chain 1 / 5720 MHz (UNII 2C)



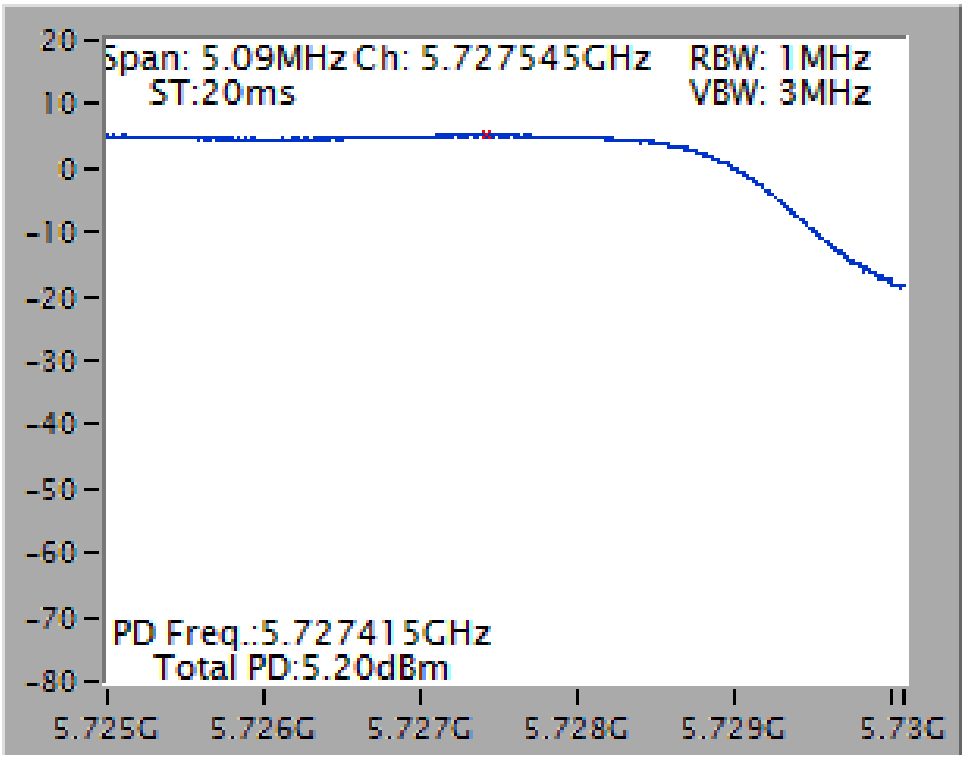
Power Density Plot on Configuration IEEE 802.11a / Chain 1 / 5720 MHz (UNII 3)



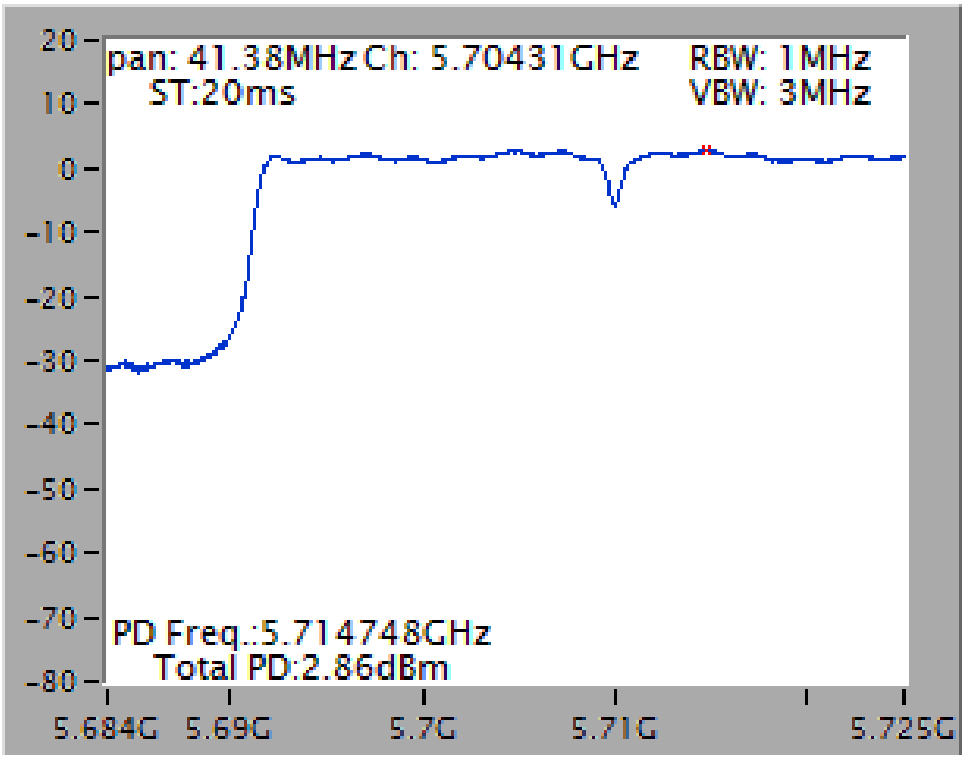
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1/ 5720 MHz (UNII 2C)



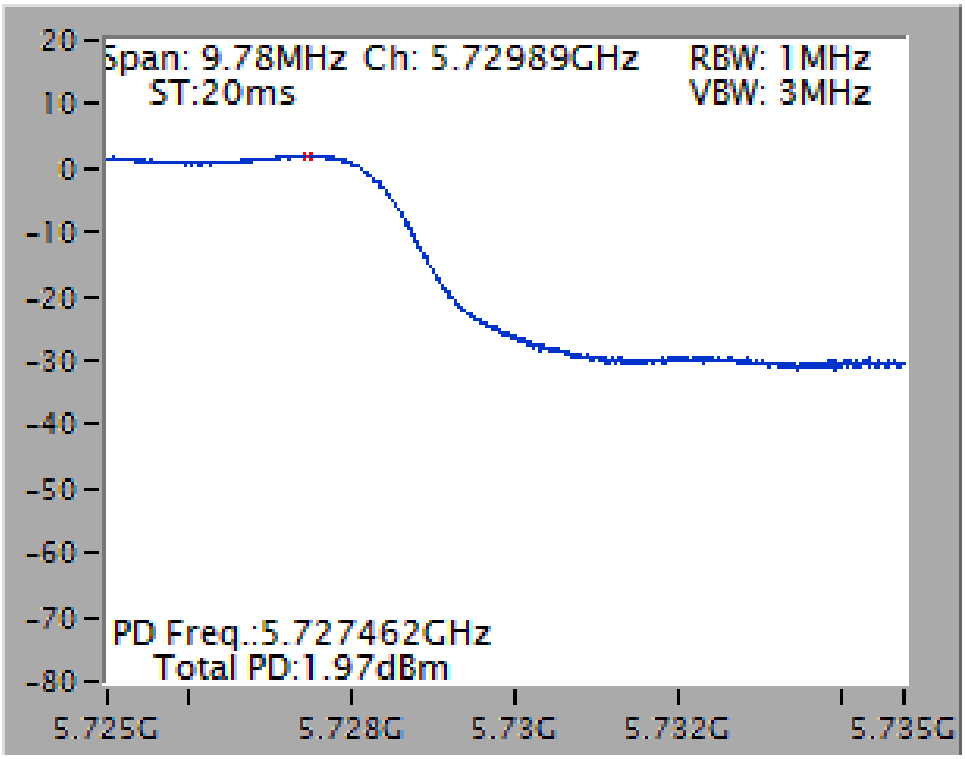
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1/ 5720 MHz (UNII 3)



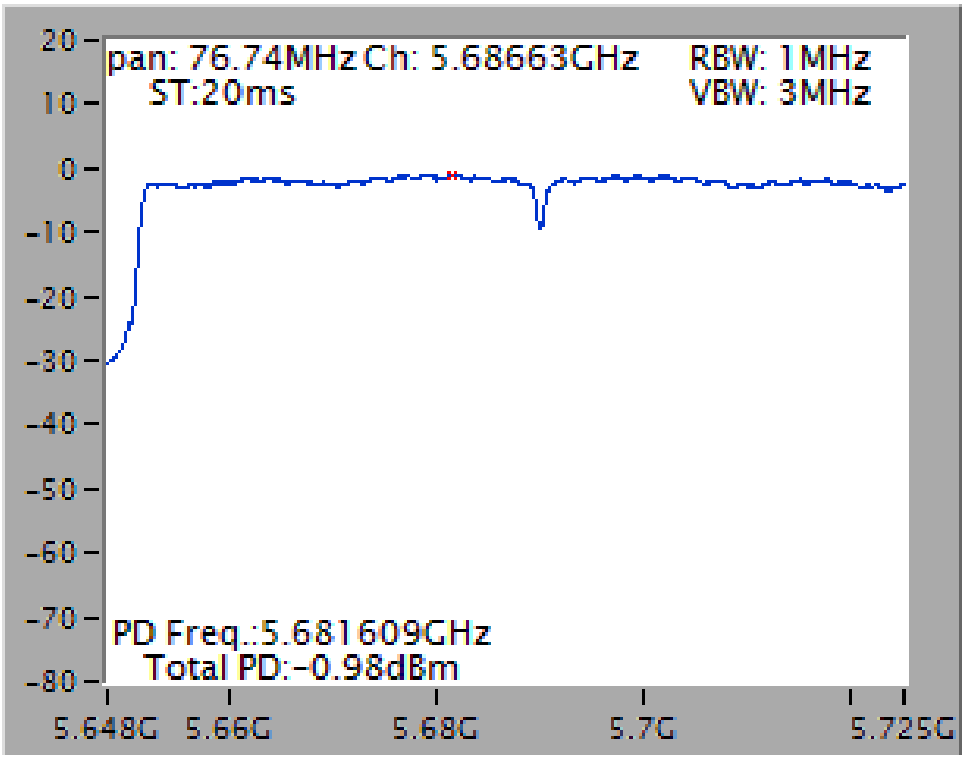
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 / 5710 MHz (UNII 2C)



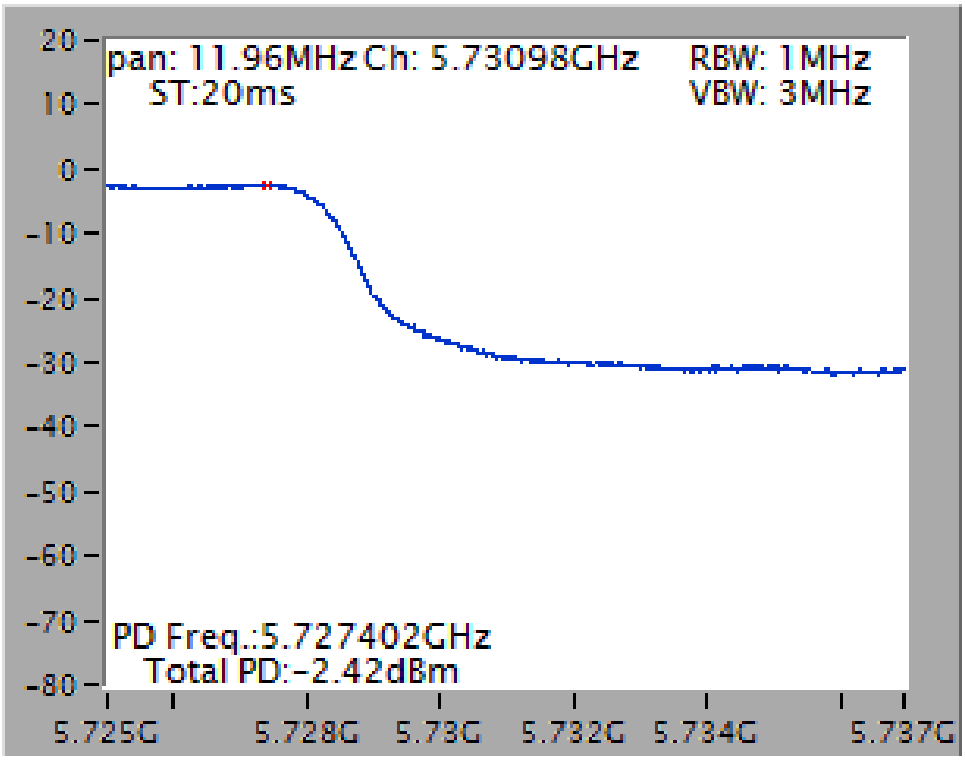
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 / 5710 MHz (UNII 3)



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



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



<For 2TX>

Temperature	25℃	Humidity	58%
Test Engineer	Mars Lin		

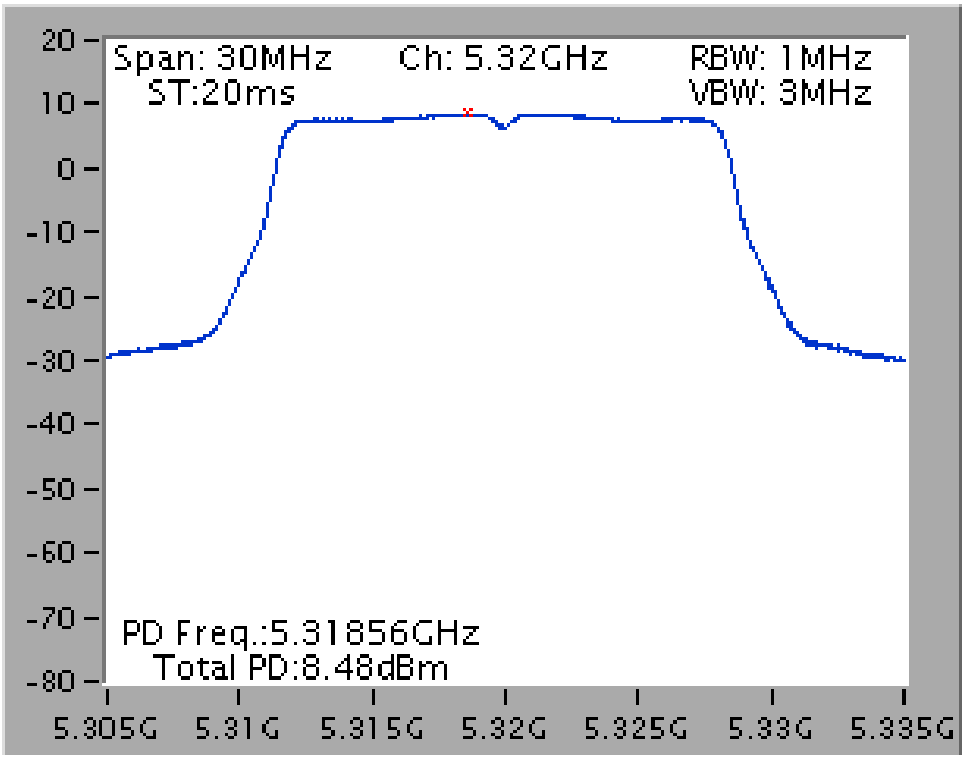
Mode	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
802.11a	5260 MHz	8.36	10.69	Complies
	5300 MHz	8.40	10.69	Complies
	5320 MHz	8.48	10.69	Complies
	5500 MHz	8.32	10.69	Complies
	5580 MHz	8.48	10.69	Complies
	5700 MHz	8.74	10.69	Complies
802.11ac MCS0/Nss1 VHT20	5260 MHz	8.60	10.69	Complies
	5300 MHz	8.66	10.69	Complies
	5320 MHz	8.71	10.69	Complies
	5500 MHz	8.59	10.69	Complies
	5580 MHz	8.74	10.69	Complies
	5700 MHz	8.82	10.69	Complies
802.11ac MCS0/Nss1 VHT40	5270 MHz	5.87	10.69	Complies
	5310 MHz	5.03	10.69	Complies
	5510 MHz	4.56	10.69	Complies
	5550 MHz	5.91	10.69	Complies
	5670 MHz	5.83	10.69	Complies
802.11ac MCS0/Nss1 VHT80	5290 MHz	1.06	10.69	Complies
	5530 MHz	1.01	10.69	Complies

Note: $Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =6.31dBi <6dBi, so limit =11-(6.31-6)=10.69 dBm/MHz

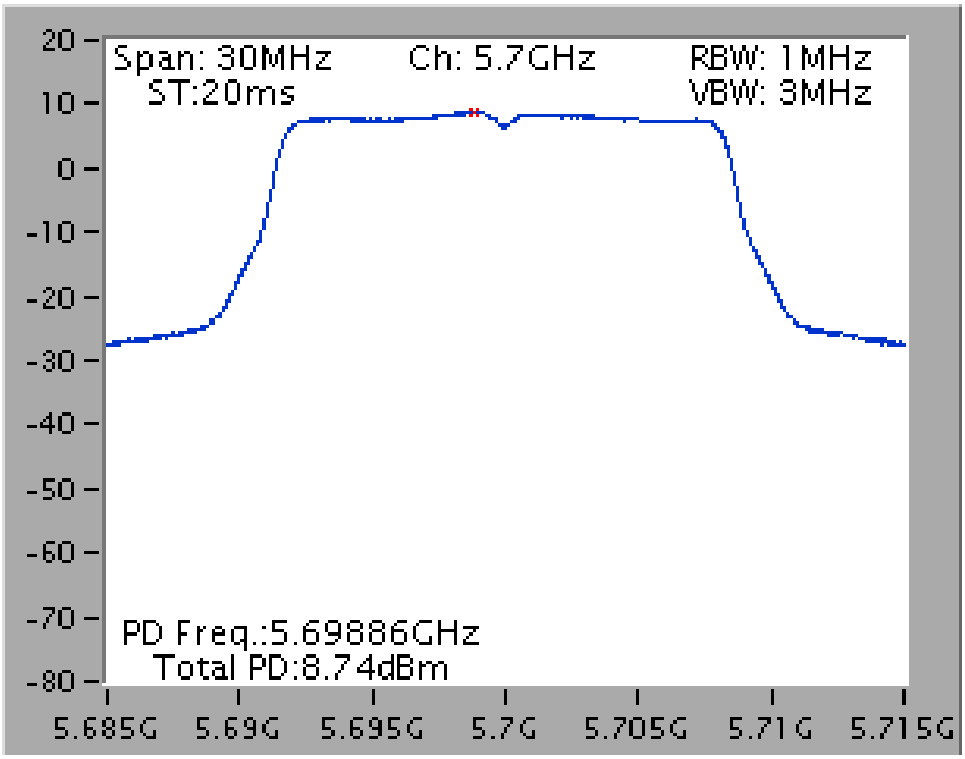
Note: All the test values were listed in the report.

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

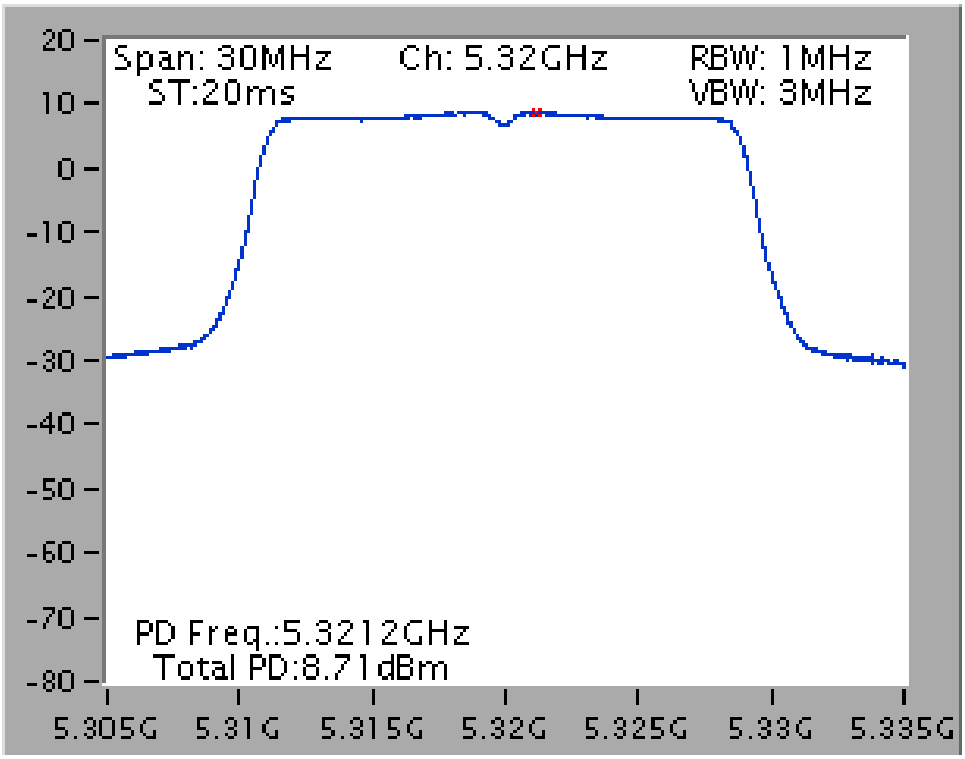
Power Density Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 / 5320 MHz



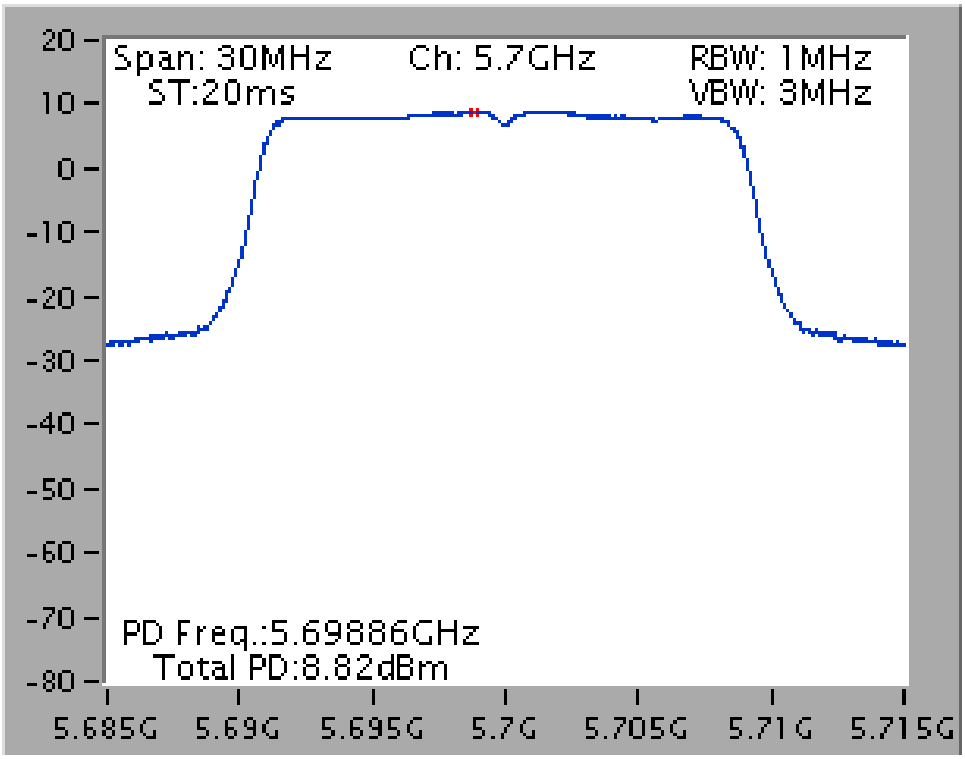
Power Density Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 / 5700 MHz



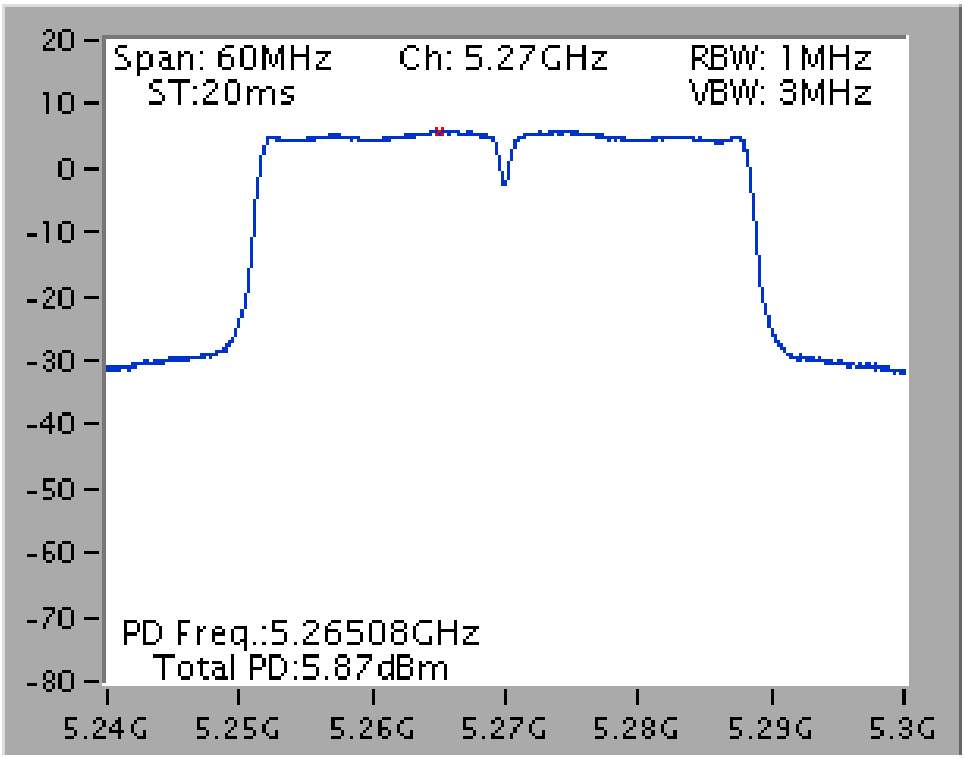
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 / 5320 MHz



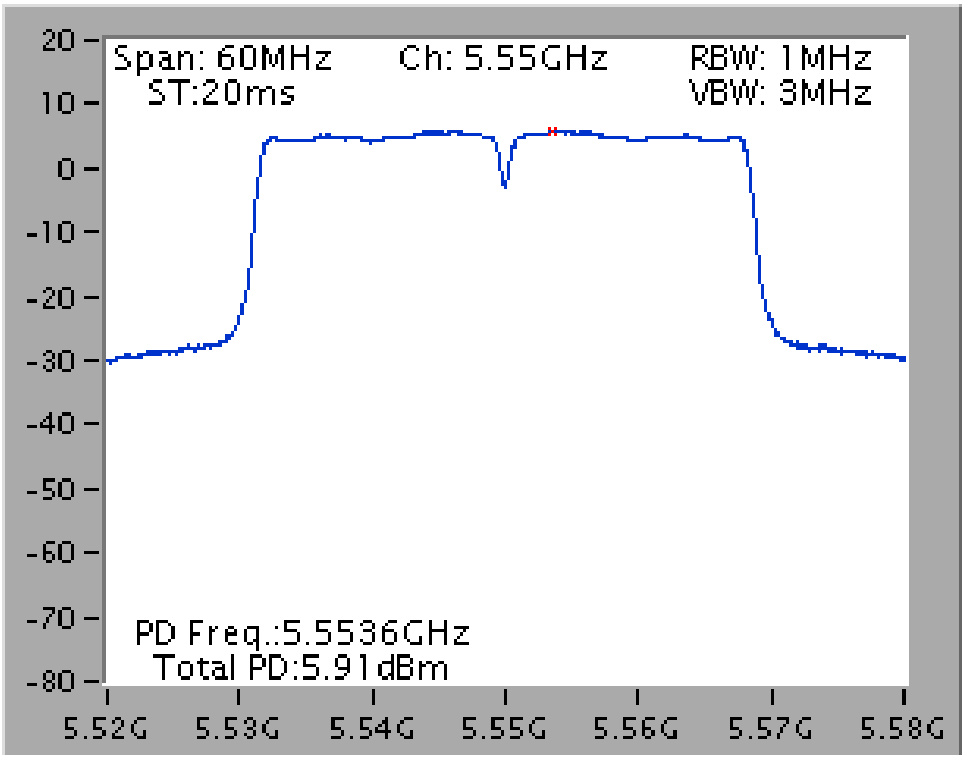
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 / 5700 MHz



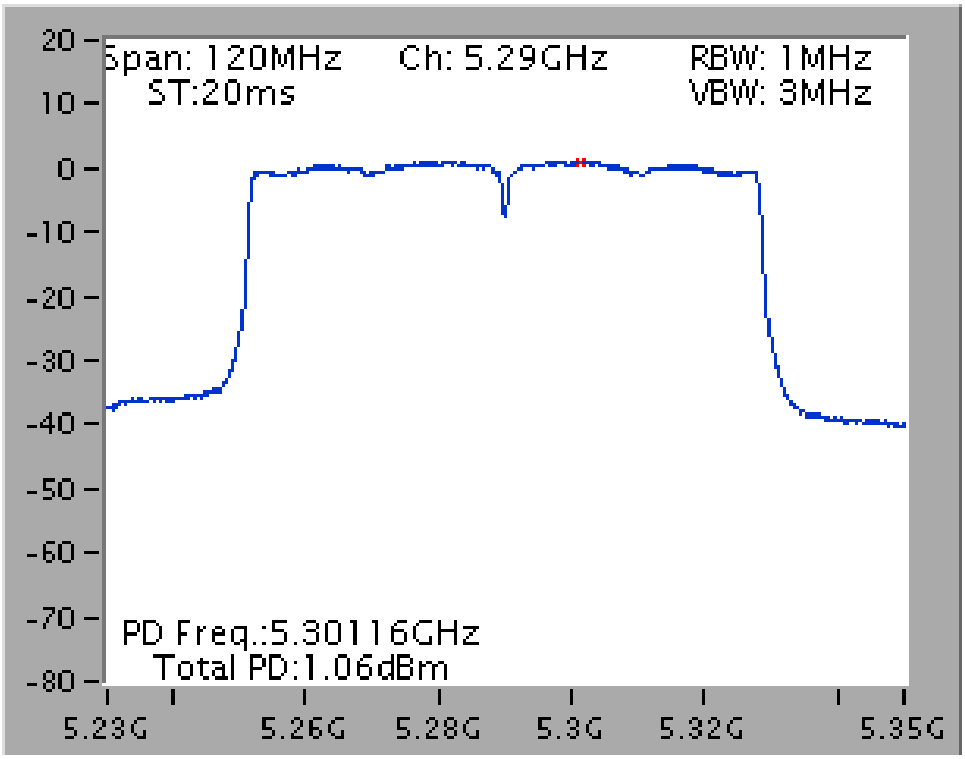
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 / 5270 MHz



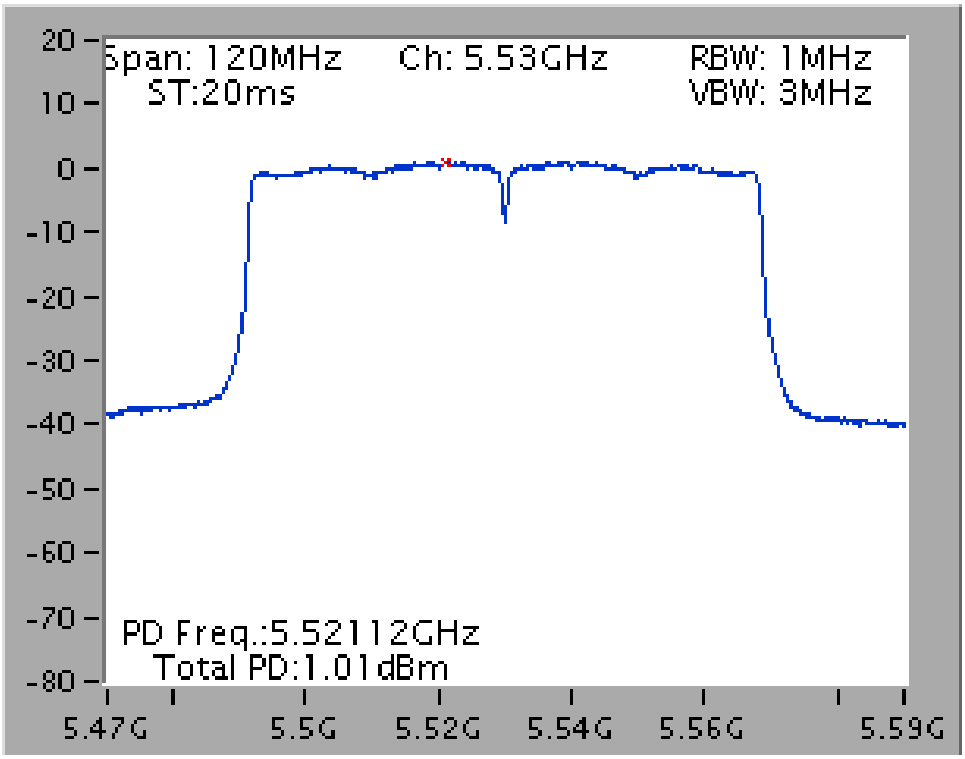
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 / 5550 MHz



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



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



Straddle Channel

Configuration IEEE 802.11a / Chain 1 + Chain 2

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
144	5720 MHz (UNII 2C)	8.29	10.69	Complies

Note: $Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =6.31dBi <6dBi, so limit =11-(6.31-6)=10.69 dBm/MHz

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
144	5720 MHz (UNII 3)	7.19	-3.01	4.18	29.69	Complies

Note: $Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =6.31dBi <6dBi, so limit =30-(6.31-6)=29.69 dBm/500kHz

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

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
144	5720 MHz (UNII 2C)	8.09	10.69	Complies

Note: $Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =6.31dBi <6dBi, so limit =11-(6.31-6)=10.69 dBm/MHz

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
144	5720 MHz (UNII 3)	7.25	-3.01	4.24	29.69	Complies

Note: $Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =6.31dBi <6dBi, so limit =30-(6.31-6)=29.69 dBm/500kHz

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

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
142	5710 MHz (UNII 2C)	5.52	10.69	Complies

Note: $Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =6.31dBi <6dBi, so limit =11-(6.31-6)=10.69 dBm/MHz

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
142	5710 MHz (UNII 3)	4.20	-3.01	1.19	29.69	Complies

Note: $Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =6.31dBi <6dBi, so limit =30-(6.31-6)=29.69 dBm/500kHz

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

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
138	5690 MHz (UNII 2C)	2.00	10.69	Complies

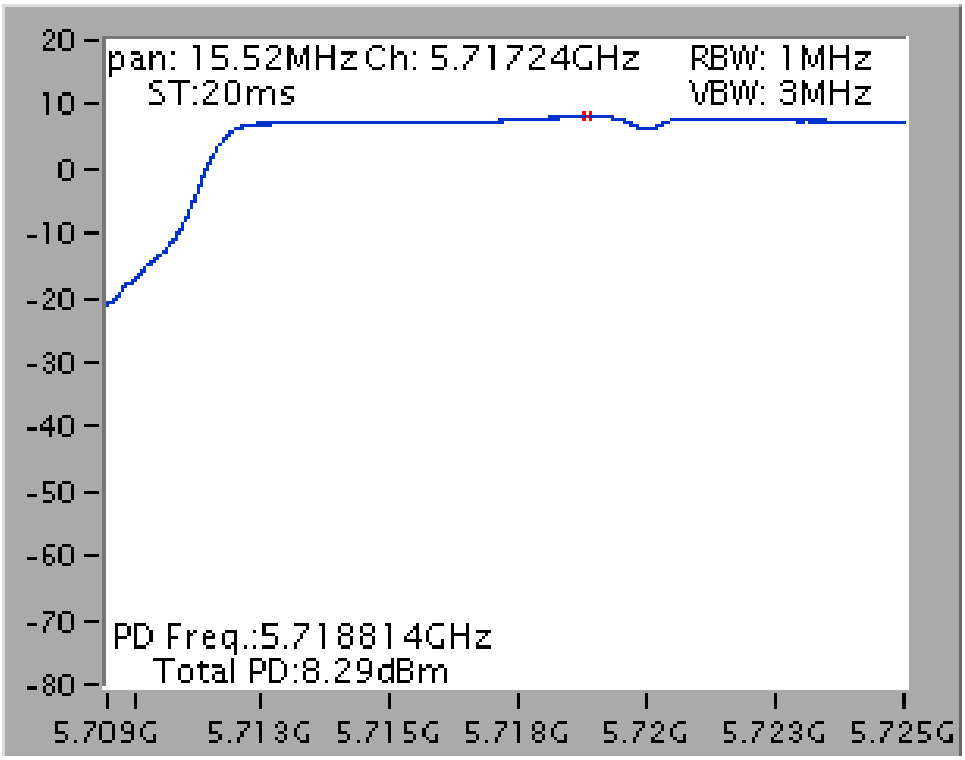
Note: $Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =6.31dBi <6dBi, so limit =11-(6.31-6)=10.69 dBm/MHz

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
138	5690 MHz (UNII 3)	0.66	-3.01	-2.35	29.69	Complies

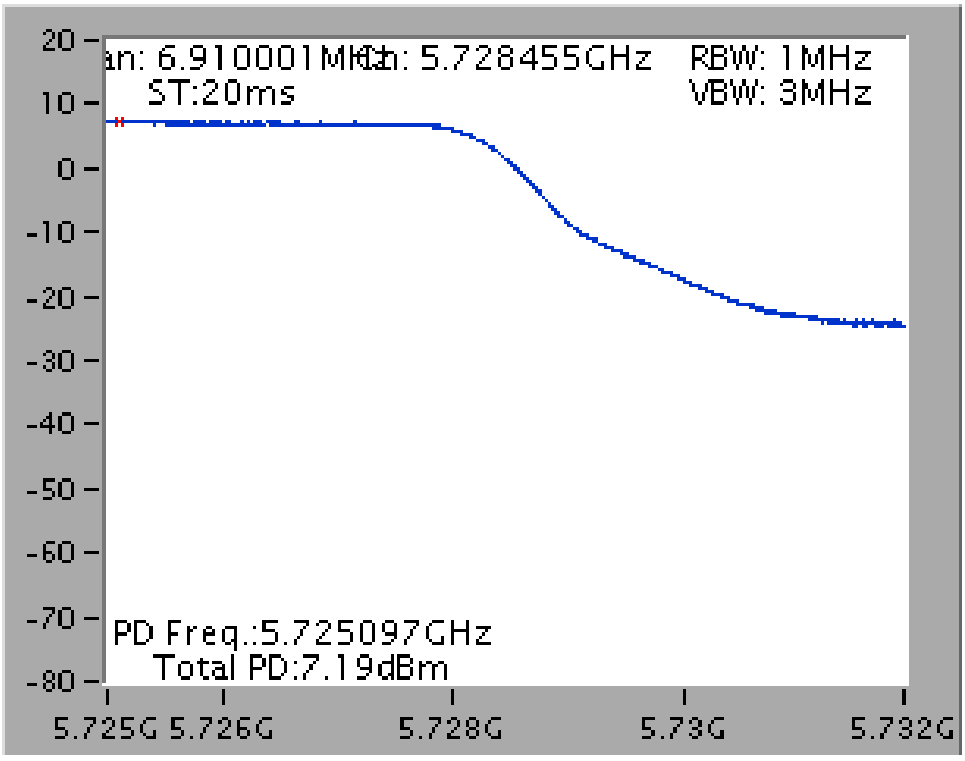
Note: $Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =6.31dBi <6dBi, so limit =30-(6.31-6)=29.69 dBm/500kHz

Straddle Channel

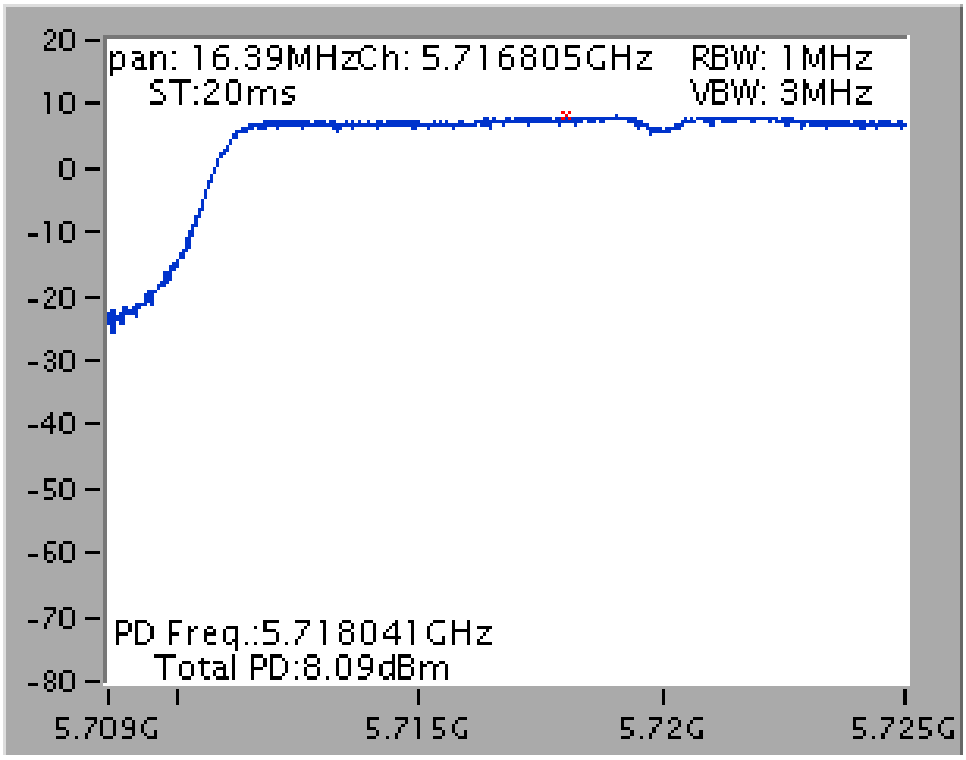
Power Density Plot on Configuration IEEE 802.11a / Chain 1+Chain 2 / 5720 MHz (UNII 2C)



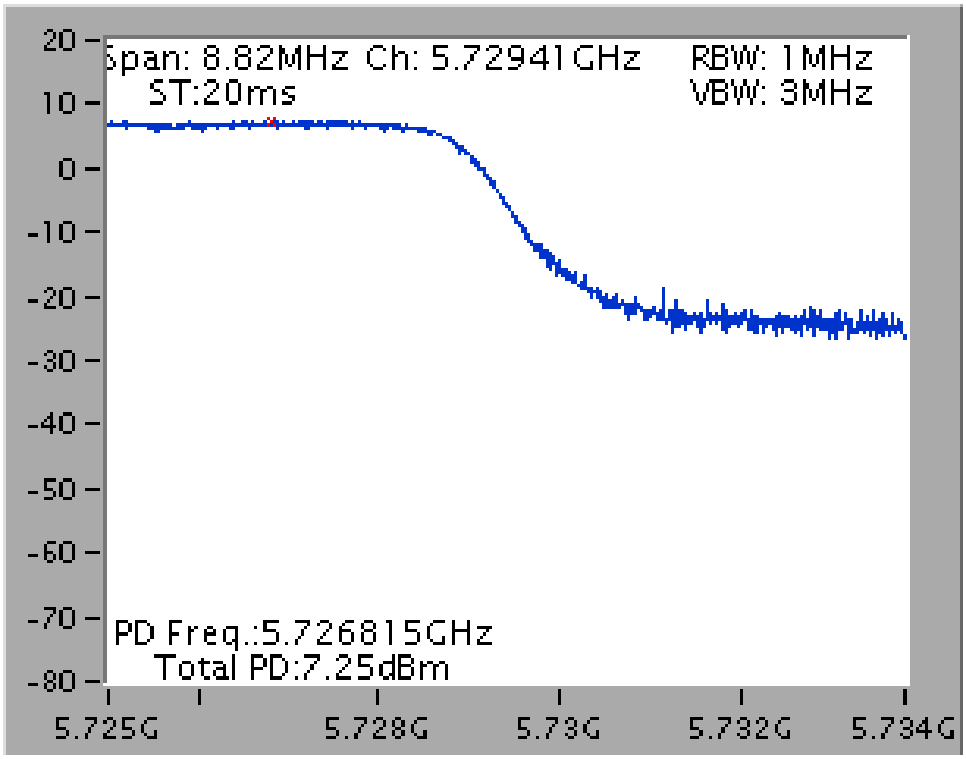
Power Density Plot on Configuration IEEE 802.11a / Chain 1+Chain 2 / 5720 MHz (UNII 3)



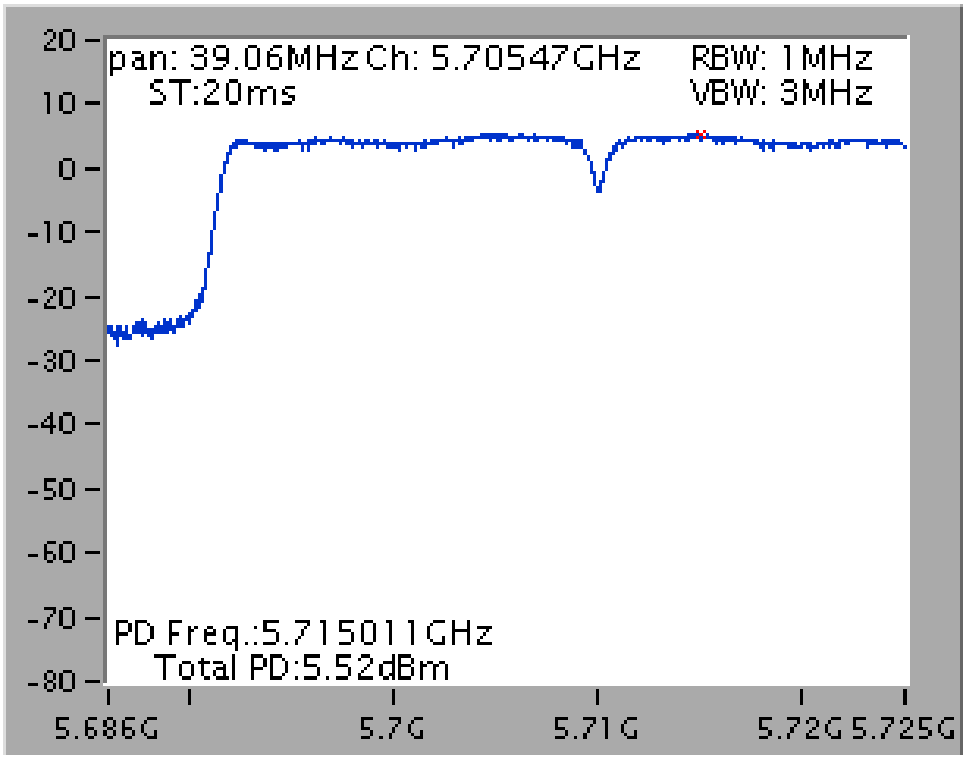
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 / 5720 MHz (UNII 2C)



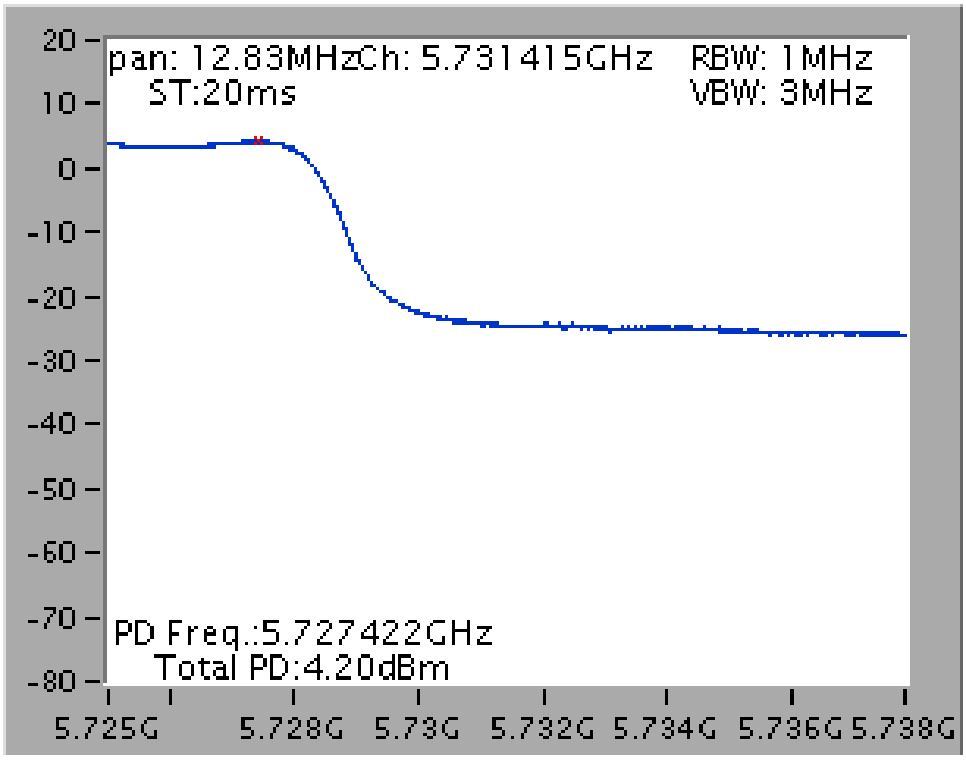
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 / 5720 MHz (UNII 3)



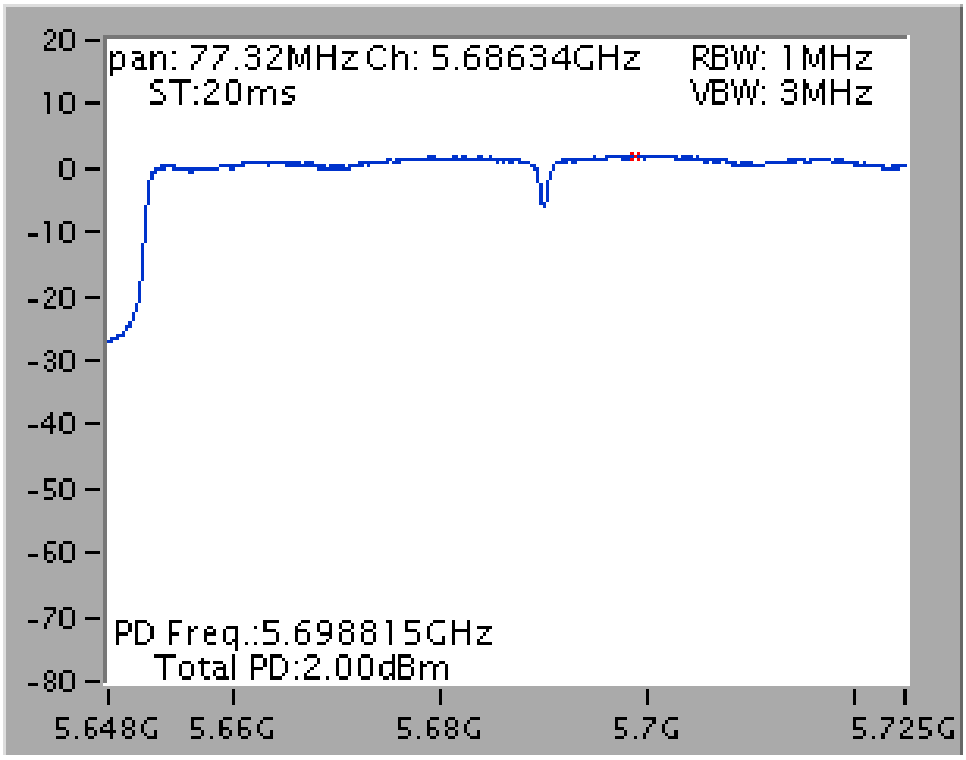
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 / 5710 MHz (UNII 2C)



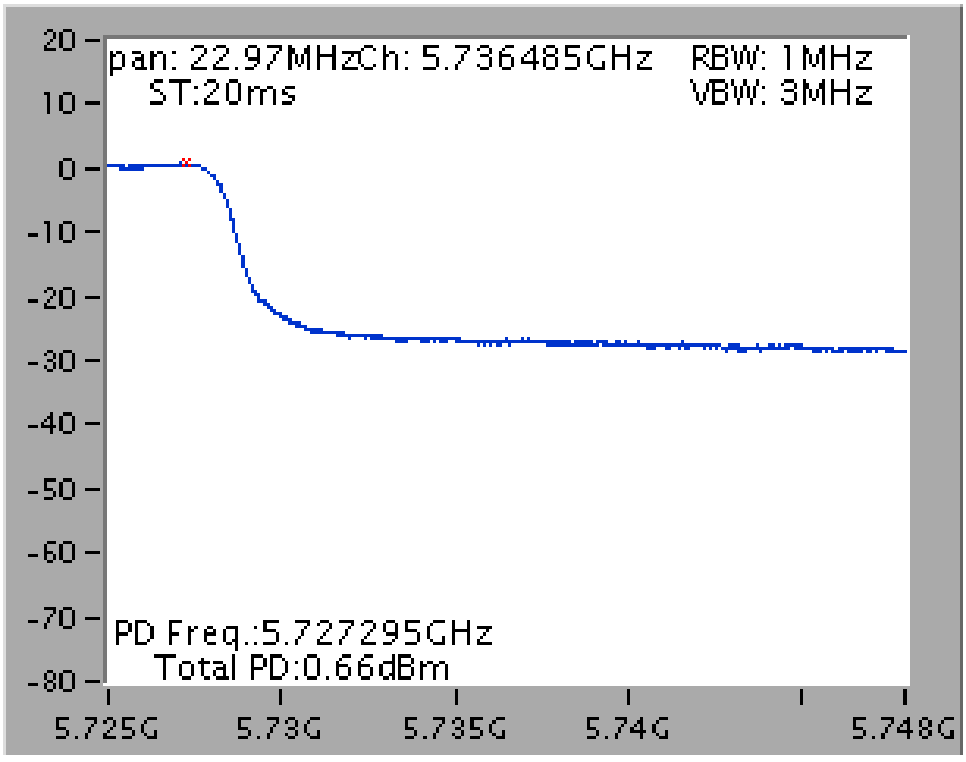
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2/ 5710 MHz (UNII 3)



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



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



4.6. Radiated Emissions Measurement

4.6.1. Limit

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

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

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

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

4.6.2. Measuring Instruments and Setting

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

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

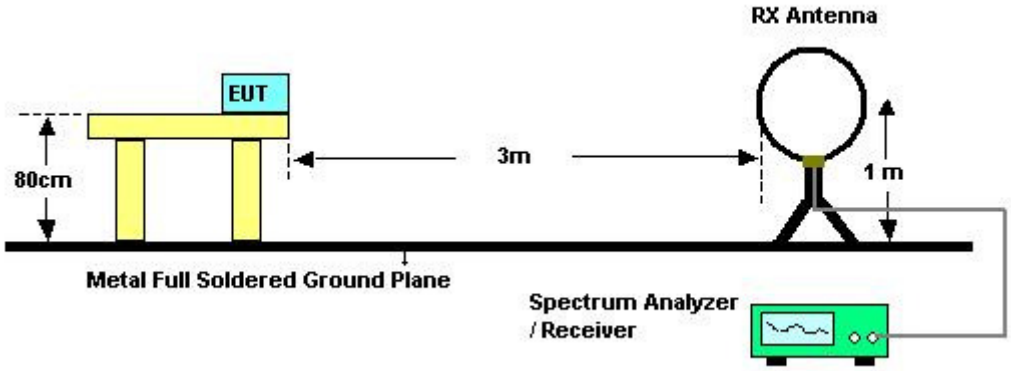
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RBW 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RBW 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RBW 120kHz for QP

4.6.3. Test Procedures

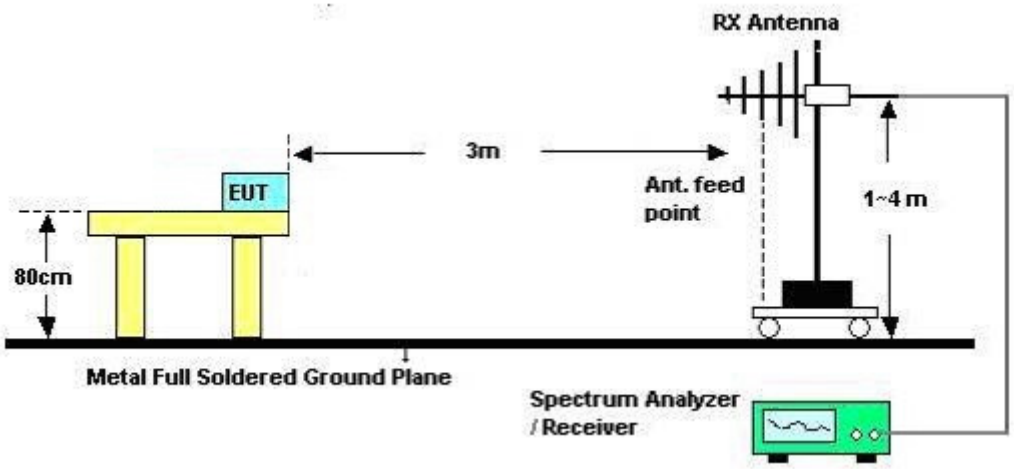
1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 1m & 3m far away from the turntable.
2. Power on the EUT and all the supporting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

4.6.4. Test Setup Layout

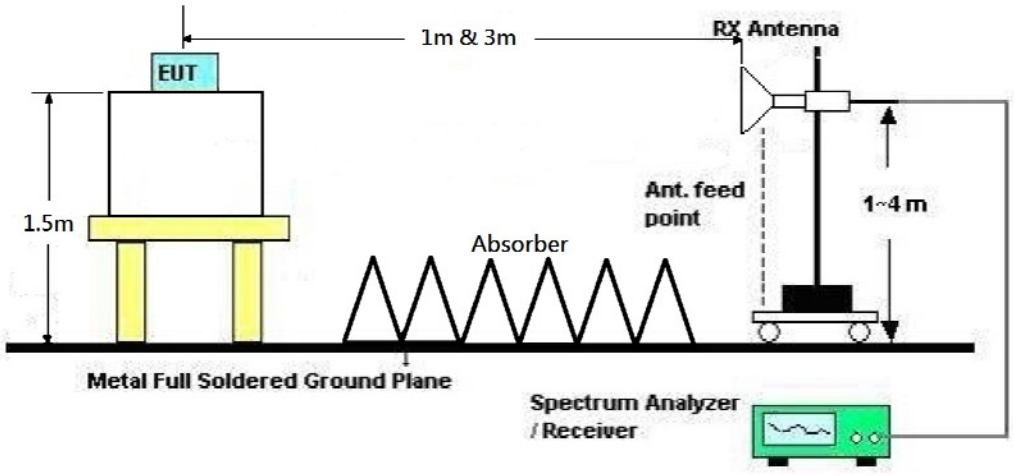
For Radiated Emissions: 9kHz ~30MHz



For Radiated Emissions: 30MHz~1GHz



For Radiated Emissions: Above 1GHz



4.6.5. Test Deviation

There is no deviation with the original standard.

4.6.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.6.7. Results of Radiated Emissions (9kHz~30MHz)

Temperature	25℃	Humidity	59%
Test Engineer	Peter Wu	Configurations	Normal Link
Test Date	Dec. 07, 2015	Test Mode	Mode 2

Freq. (MHz)	Level (dBuV)	Over Limit (dB)	Limit Line (dBuV)	Remark
-	-	-	-	See Note

Note:

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

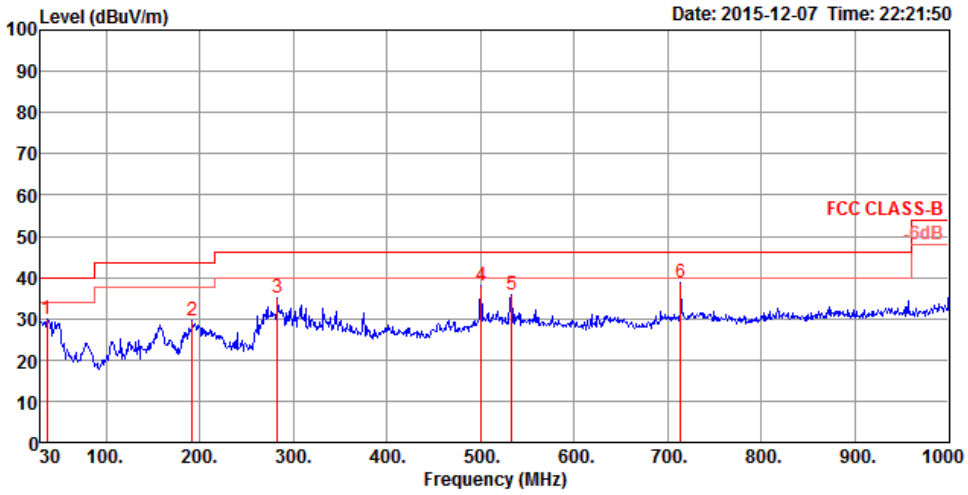
Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor.

4.6.8. Results of Radiated Emissions (30MHz~1GHz)

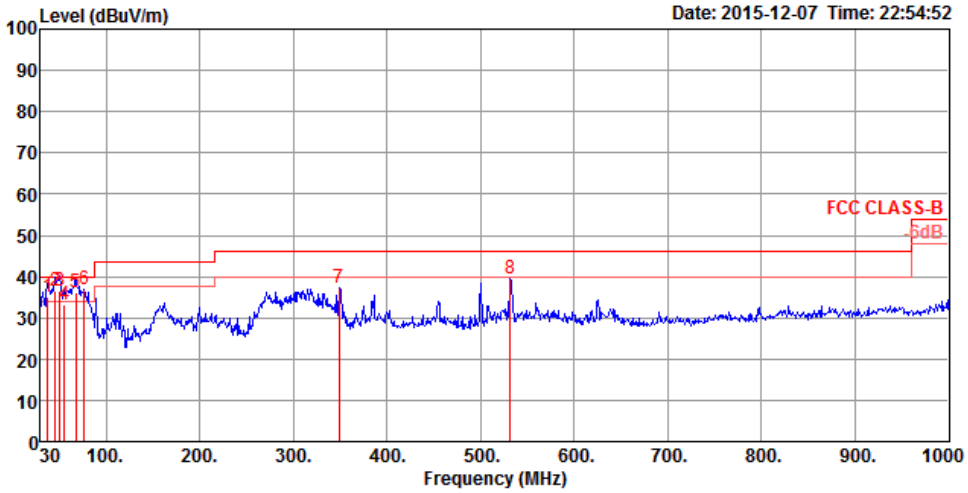
Temperature	25℃	Humidity	59%
Test Engineer	Peter Wu	Configurations	Normal Link
Test Mode	Mode 2		

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	36.79	29.81	40.00	-10.19	45.69	0.53	15.99	32.40	200	360	Peak	HORIZONTAL
2	191.99	29.49	43.50	-14.01	50.66	1.20	9.96	32.33	200	360	Peak	HORIZONTAL
3	283.17	35.03	46.00	-10.97	52.26	1.43	13.63	32.29	200	360	Peak	HORIZONTAL
4	500.45	38.01	46.00	-7.99	50.30	1.94	18.12	32.35	200	360	Peak	HORIZONTAL
5	533.43	35.87	46.00	-10.13	47.67	2.00	18.57	32.37	200	360	Peak	HORIZONTAL
6	713.85	38.84	46.00	-7.16	48.90	2.30	19.98	32.34	200	360	Peak	HORIZONTAL

Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	37.76	34.99	40.00	-5.01	51.50	0.53	15.36	32.40	200	0	QP	VERTICAL
2	45.52	36.37	40.00	-3.63	57.10	0.60	11.08	32.41	200	0	QP	VERTICAL
3	50.37	36.71	40.00	-3.29	59.50	0.61	9.01	32.41	200	0	QP	VERTICAL
4	55.22	33.21	40.00	-6.79	57.11	0.65	7.86	32.41	200	0	QP	VERTICAL
5	67.83	36.13	40.00	-3.87	61.10	0.71	6.72	32.40	200	0	QP	VERTICAL
6	76.56	36.77	40.00	-3.23	61.12	0.76	7.29	32.40	200	0	Peak	VERTICAL
7	349.13	37.34	46.00	-8.66	52.77	1.61	15.27	32.31	200	0	Peak	VERTICAL
8	531.49	39.42	46.00	-6.58	51.24	2.00	18.55	32.37	200	0	Peak	VERTICAL

Note:

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

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

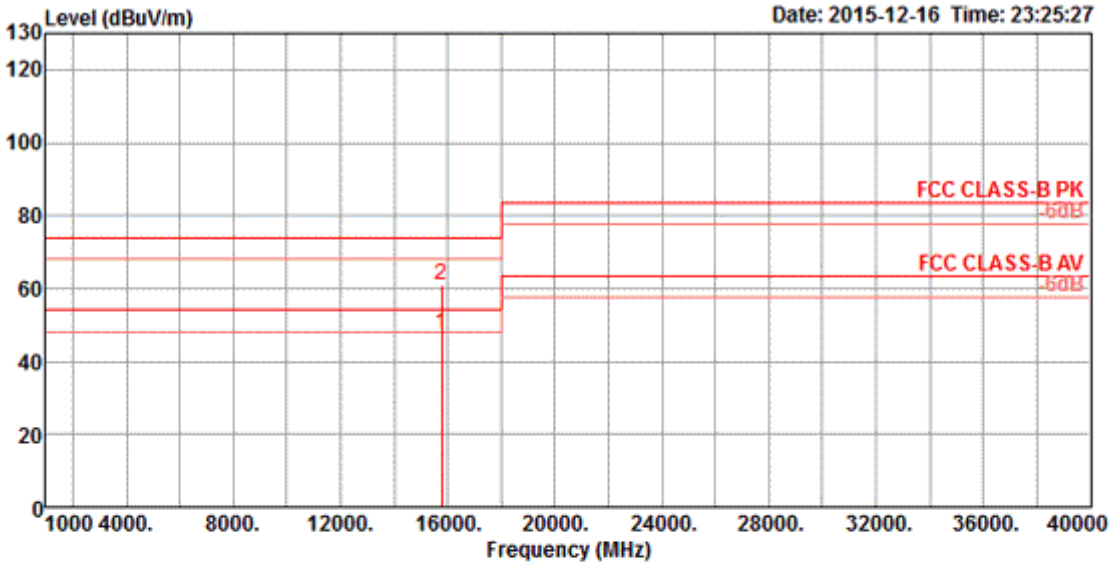
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

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

<For 1TX>

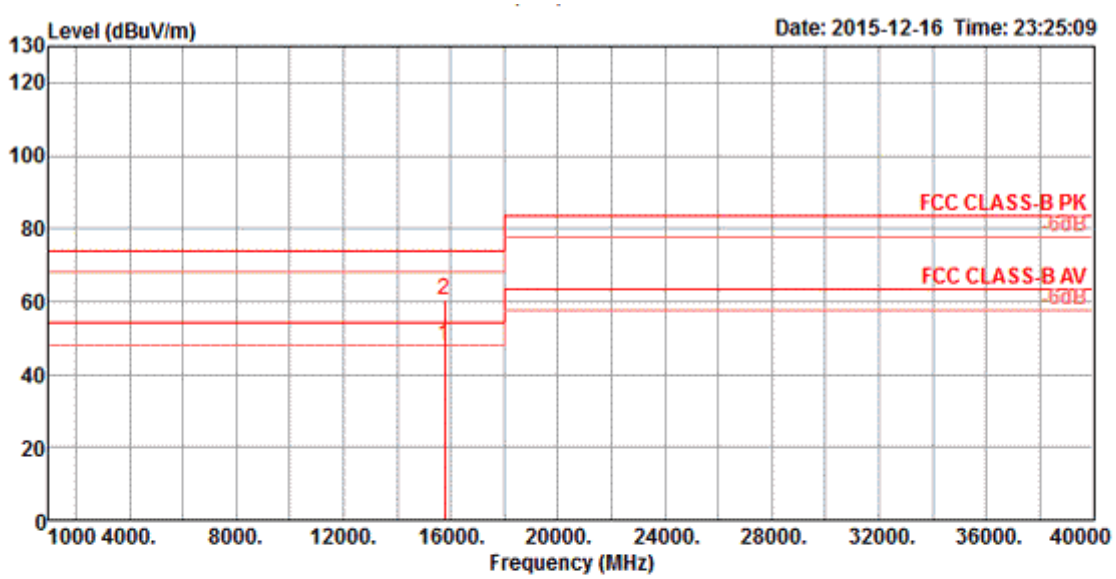
Temperature	25°C	Humidity	59%
Test Engineer	Peter Wu	Configurations	IEEE 802.11a CH 52 / Chain 1

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Pol/Phase	T/Pos	A/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	15780.03	47.62	54.00	-6.38	31.76	13.28	35.39	37.97	HORIZONTAL	336	104	Average
2	15780.54	60.69	74.00	-13.31	44.83	13.28	35.39	37.97	HORIZONTAL	336	104	Peak

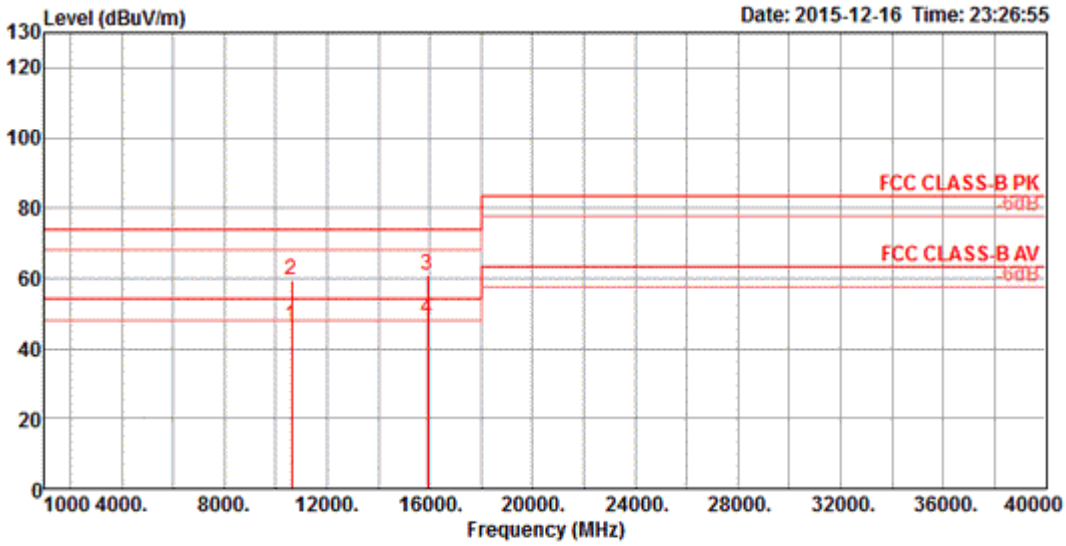
Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Pol/Phase	T/Pos	A/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	15779.77	47.83	54.00	-6.17	31.97	13.28	35.39	37.97	VERTICAL	342	106	Average
2	15780.38	60.39	74.00	-13.61	44.53	13.28	35.39	37.97	VERTICAL	342	106	Peak

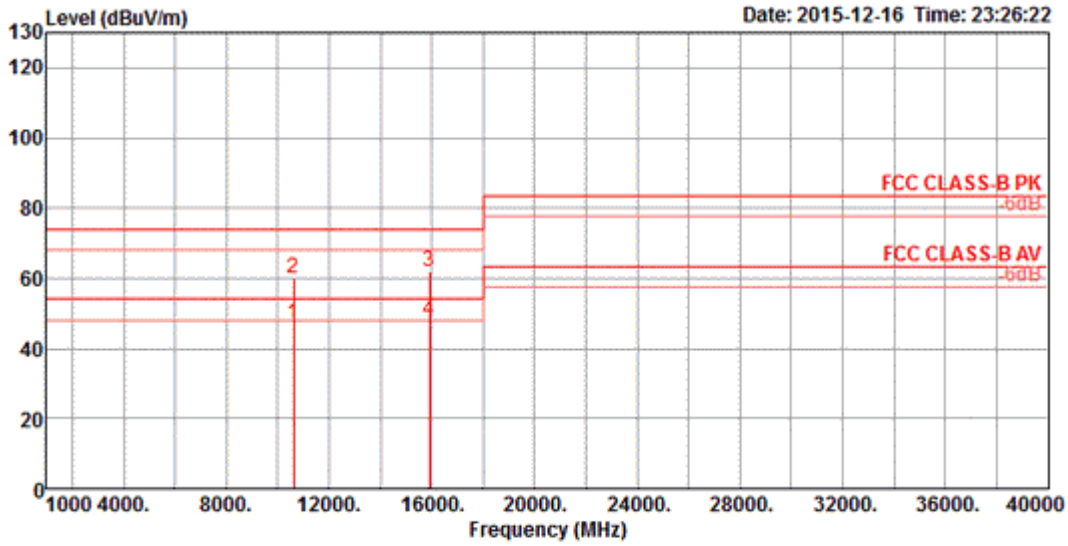
Temperature	25°C	Humidity	58%
Test Engineer	Peter Wu	Configurations	IEEE 802.11a CH 60 / Chain 1

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Pol/Phase	T/Pos	A/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	10600.70	46.65	54.00	-7.35	30.43	11.30	34.96	39.88	HORIZONTAL	316	102	Average
2	10600.76	59.60	74.00	-14.40	43.38	11.30	34.96	39.88	HORIZONTAL	316	102	Peak
3	15899.73	60.76	74.00	-13.24	45.02	13.33	35.40	37.81	HORIZONTAL	326	104	Peak
4	15899.91	48.22	54.00	-5.78	32.48	13.33	35.40	37.81	HORIZONTAL	326	104	Average

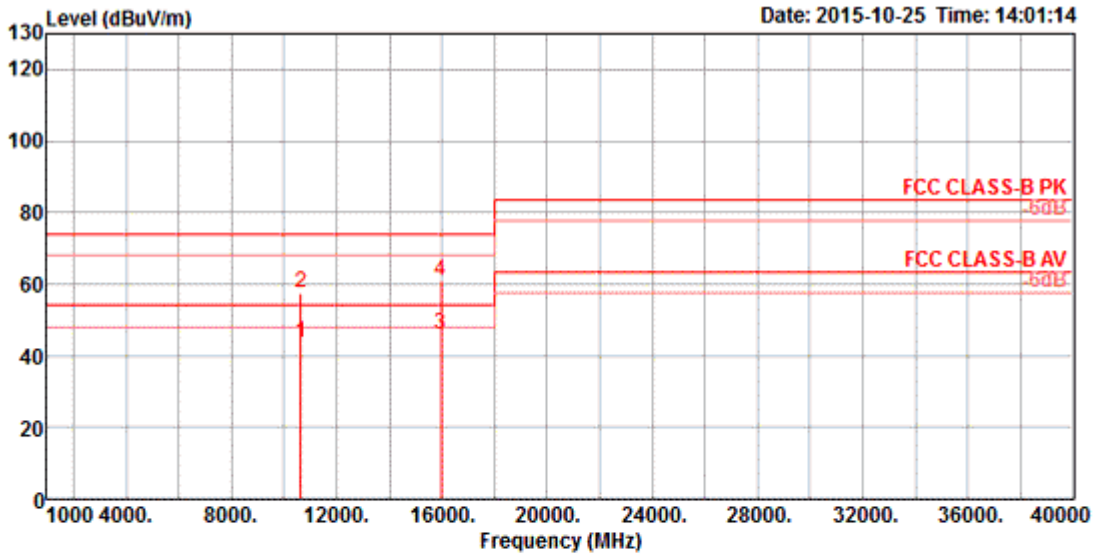
Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Pol/Phase	T/Pos	A/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	10599.92	47.00	54.00	-7.00	30.78	11.30	34.96	39.88	VERTICAL	331	103	Average
2	10600.55	60.14	74.00	-13.86	43.92	11.30	34.96	39.88	VERTICAL	331	103	Peak
3	15899.14	61.92	74.00	-12.08	46.18	13.33	35.40	37.81	VERTICAL	329	101	Peak
4	15900.72	47.86	54.00	-6.14	32.12	13.33	35.40	37.81	VERTICAL	329	101	Average

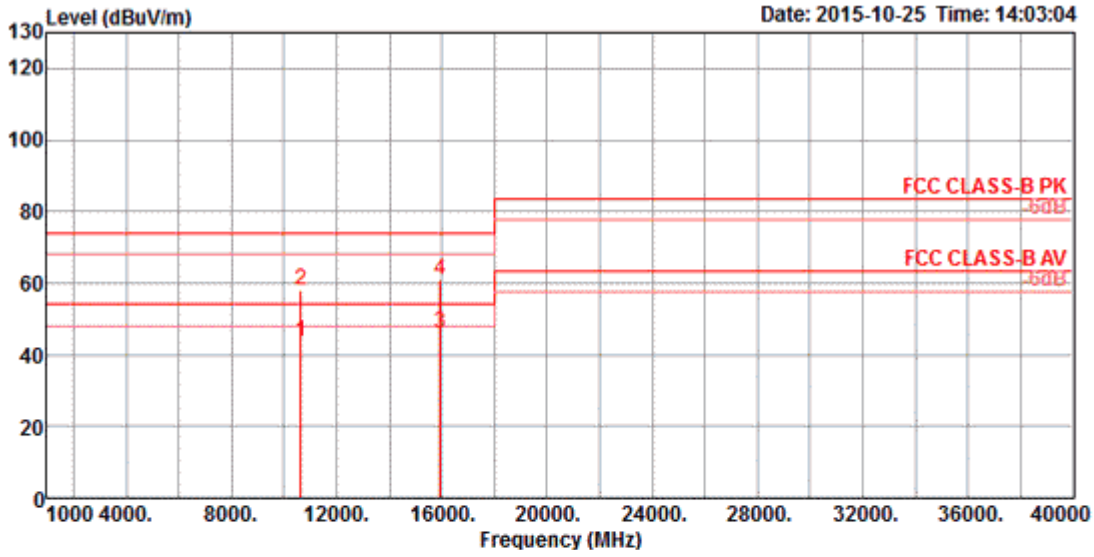
Temperature	25°C	Humidity	59%
Test Engineer	Peter Wu	Configurations	IEEE 802.11a CH 64 / Chain 1

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		cm	deg	
1	10639.88	43.48	54.00	-10.52	27.18	11.31	34.99	39.98	VERTICAL	171	158	Average
2	10643.94	57.66	74.00	-16.34	41.36	11.31	34.99	39.98	VERTICAL	171	158	Peak
3	15958.38	46.26	54.00	-7.74	30.56	13.35	35.41	37.76	VERTICAL	153	141	Average
4	15959.06	60.68	74.00	-13.32	44.98	13.35	35.41	37.76	VERTICAL	153	141	Peak

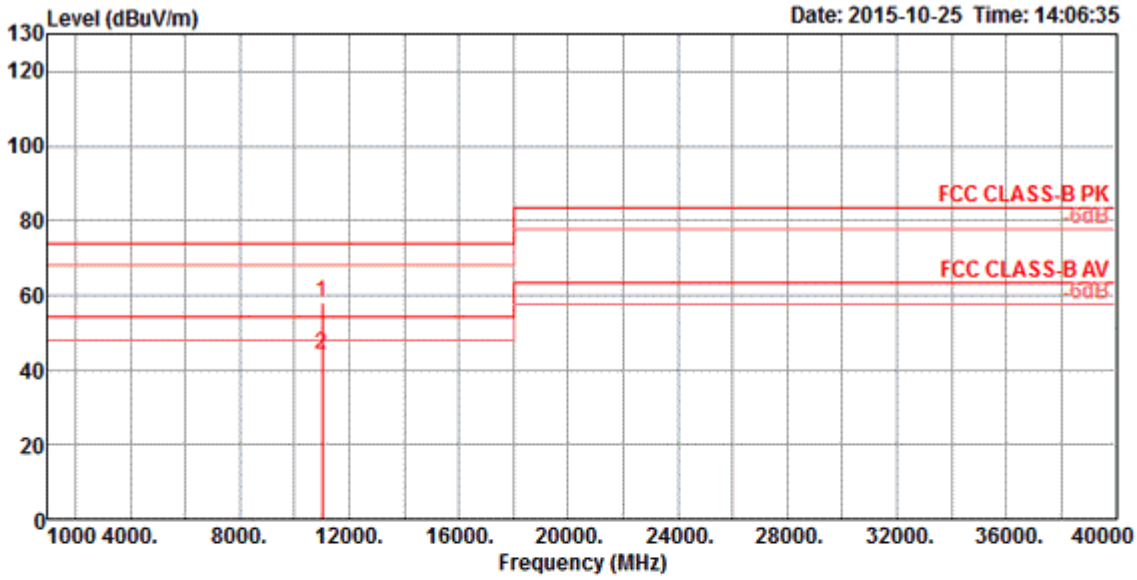
Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		cm	deg	
1	10639.72	43.51	54.00	-10.49	27.21	11.31	34.99	39.98	HORIZONTAL	135	97	Average
2	10643.68	58.12	74.00	-15.88	41.82	11.31	34.99	39.98	HORIZONTAL	135	97	Peak
3	15955.28	46.23	54.00	-7.77	30.53	13.35	35.41	37.76	HORIZONTAL	145	117	Average
4	15955.30	60.85	74.00	-13.15	45.15	13.35	35.41	37.76	HORIZONTAL	145	117	Peak

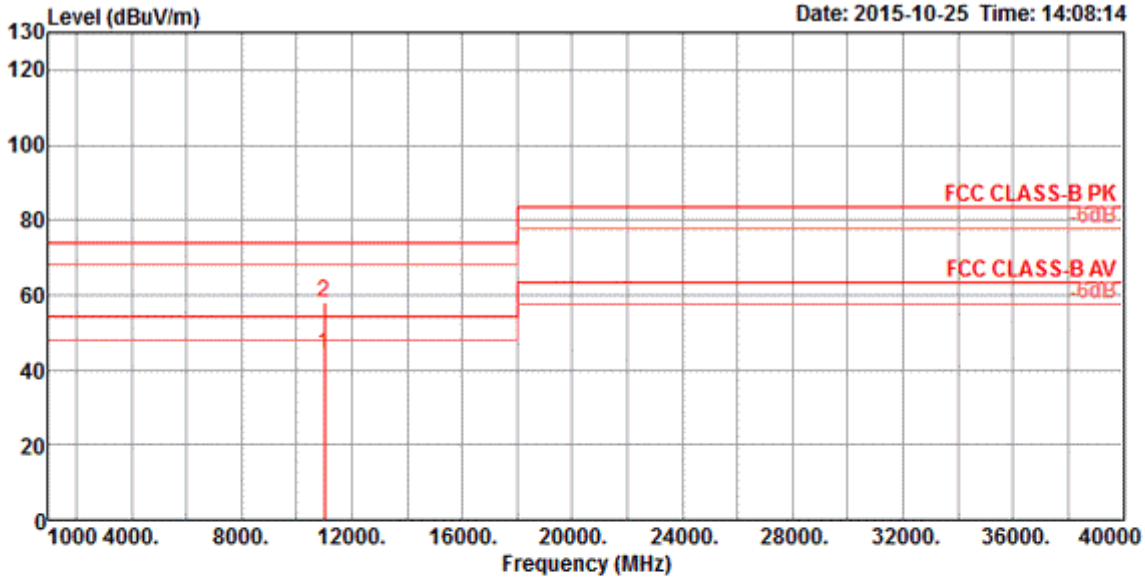
Temperature	25°C	Humidity	59%
Test Engineer	Peter Wu	Configurations	IEEE 802.11a CH 100 / Chain 1

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		cm	deg	
1	11000.12	57.87	74.00	-16.13	41.60	11.24	35.17	40.20	HORIZONTAL	152	33	Peak
2	11000.44	44.32	54.00	-9.68	28.05	11.24	35.17	40.20	HORIZONTAL	152	33	Average

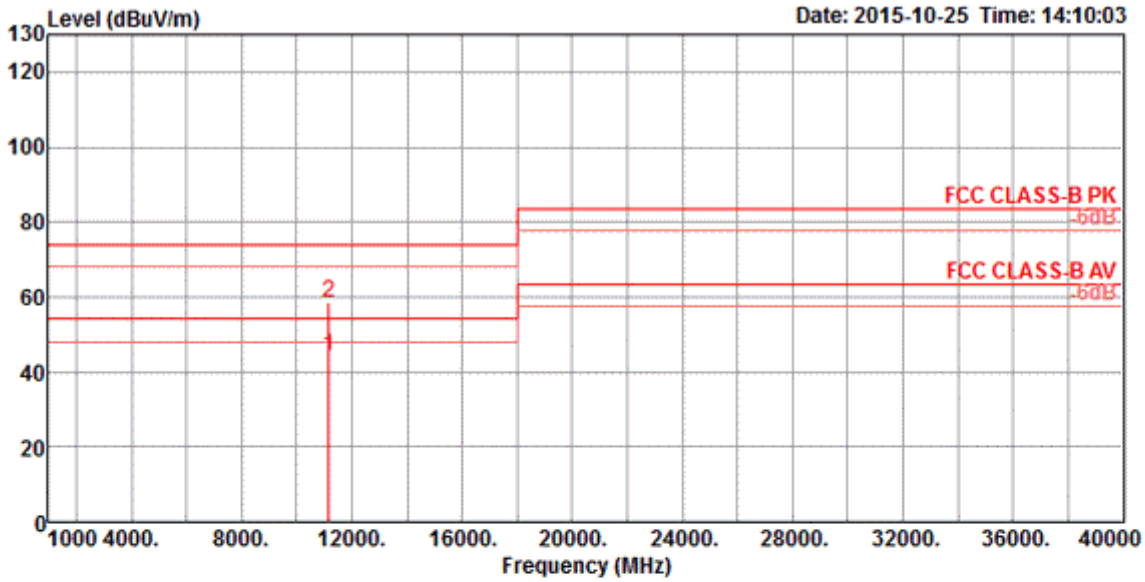
Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		cm	deg	
1	11003.38	44.35	54.00	-9.65	28.07	11.25	35.17	40.20	VERTICAL	165	126	Average
2	11003.74	58.05	74.00	-15.95	41.77	11.25	35.17	40.20	VERTICAL	165	126	Peak

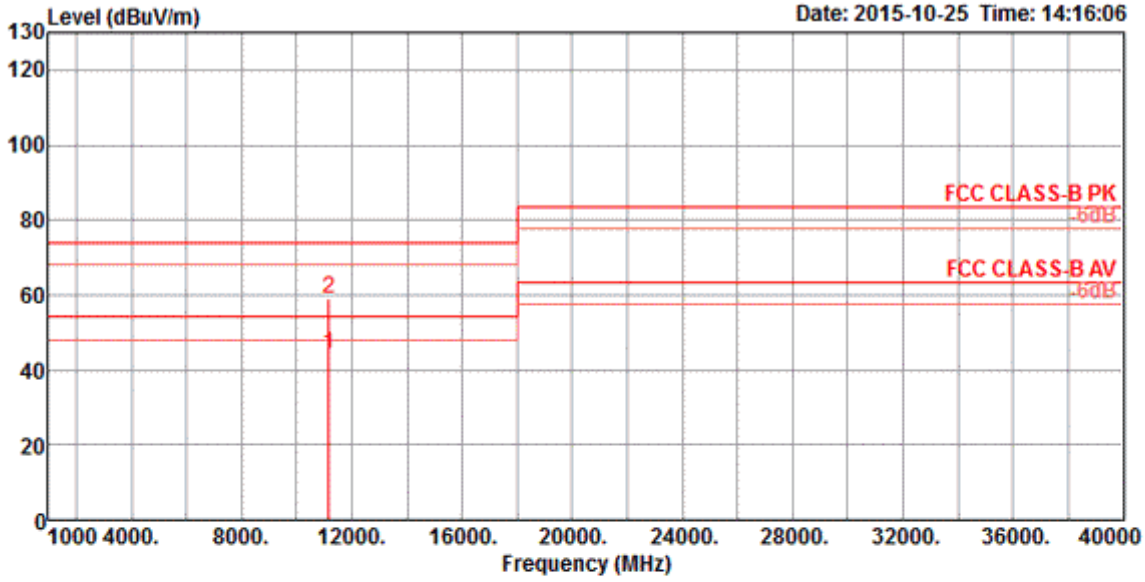
Temperature	25°C	Humidity	59%
Test Engineer	Peter Wu	Configurations	IEEE 802.11a CH 116 / Chain 1

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		cm	deg	
1	11155.96	44.27	54.00	-9.73	28.03	11.31	35.19	40.12	VERTICAL	174	153	Average
2	11162.48	58.29	74.00	-15.71	42.06	11.32	35.19	40.10	VERTICAL	174	153	Peak

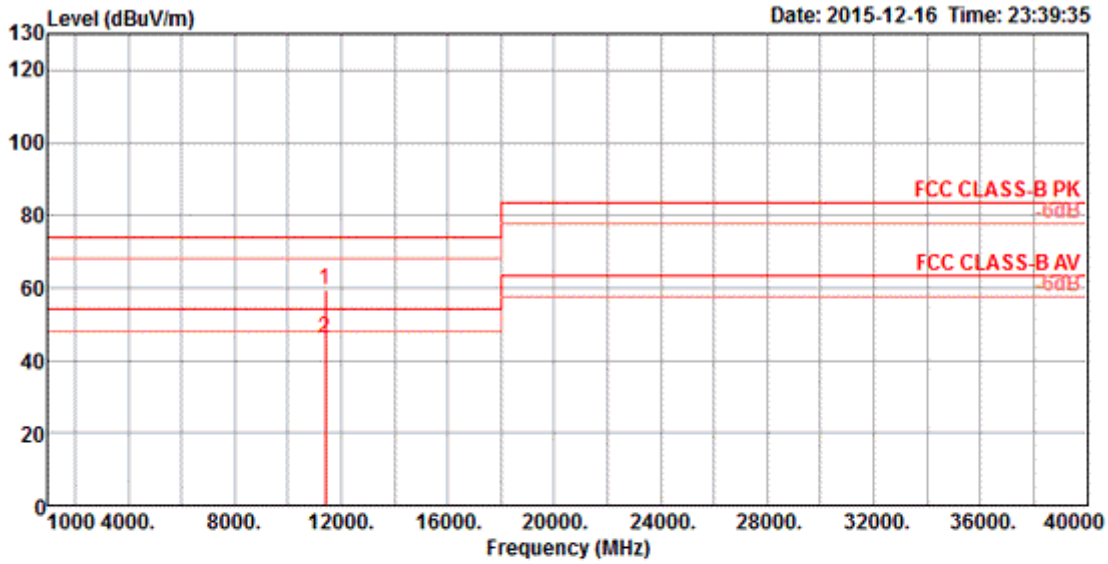
Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		cm	deg	
1	11156.38	44.26	54.00	-9.74	28.02	11.31	35.19	40.12	HORIZONTAL	188	187	Average
2	11163.34	59.13	74.00	-14.87	42.90	11.32	35.19	40.10	HORIZONTAL	188	187	Peak

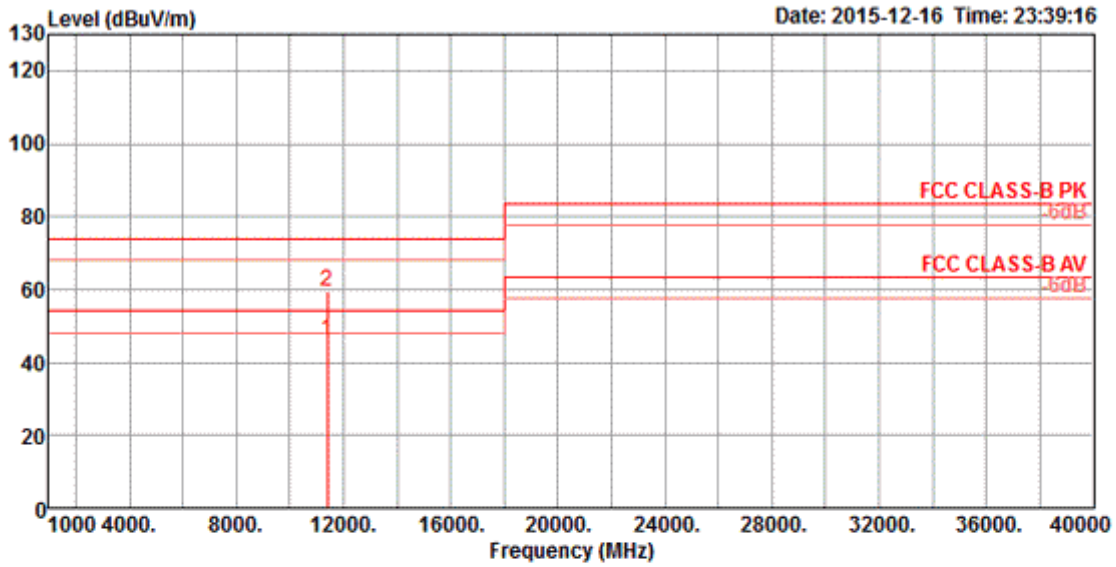
Temperature	25°C	Humidity	59%
Test Engineer	Peter Wu	Configurations	IEEE 802.11a CH 140 / Chain 1

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Pol/Phase	T/Pos	A/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	11399.92	59.55	74.00	-14.45	43.05	11.68	35.22	40.04	HORIZONTAL	292	104	Peak
2	11400.46	46.17	54.00	-7.83	29.67	11.68	35.22	40.04	HORIZONTAL	292	104	Average

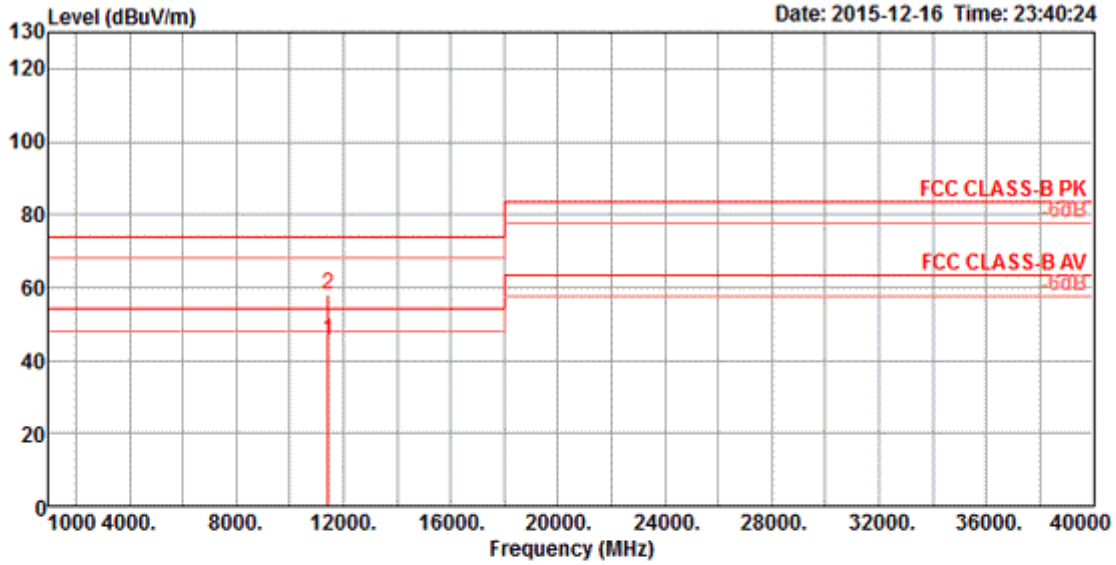
Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Pol/Phase	T/Pos	A/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	11400.55	46.27	54.00	-7.73	29.77	11.68	35.22	40.04	VERTICAL	294	100	Average
2	11400.88	59.50	74.00	-14.50	43.00	11.68	35.22	40.04	VERTICAL	294	100	Peak

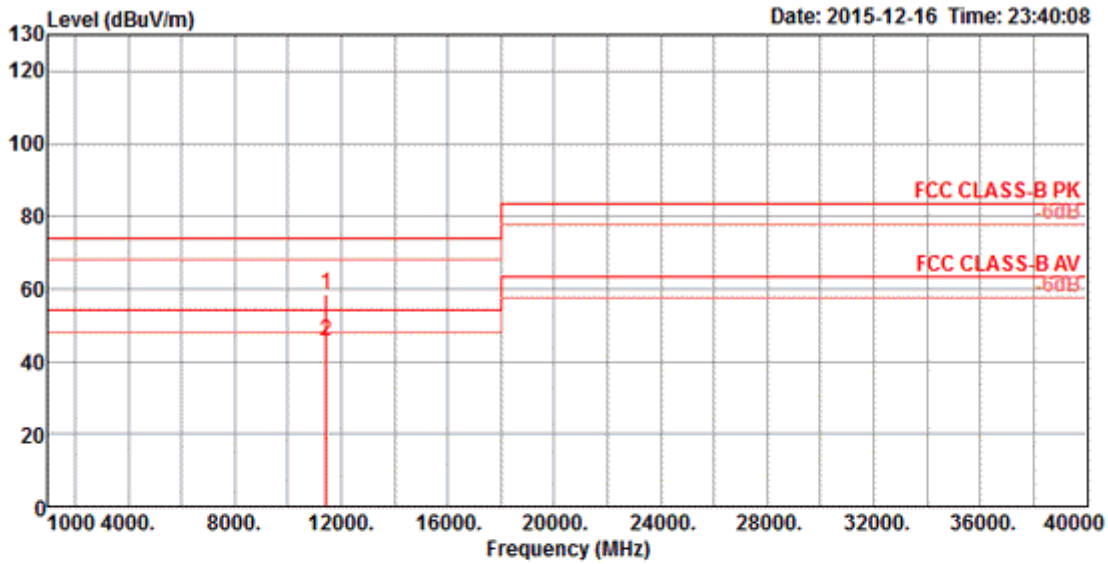
Temperature	25°C	Humidity	59%
Test Engineer	Peter Wu	Configurations	IEEE 802.11a CH 144 / Chain 1

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Pol/Phase	T/Pos	A/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	11440.09	45.42	54.00	-8.58	28.93	11.69	35.23	40.03	HORIZONTAL	298	102	Average
2	11440.60	58.26	74.00	-15.74	41.77	11.69	35.23	40.03	HORIZONTAL	298	102	Peak

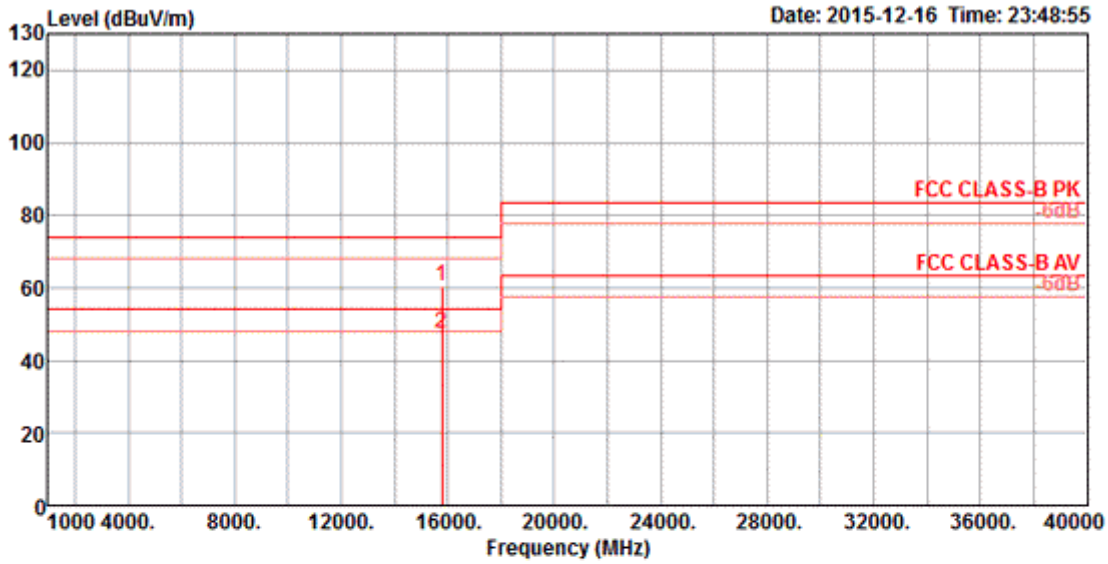
Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Pol/Phase	T/Pos	A/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	11440.10	58.31	74.00	-15.69	41.82	11.69	35.23	40.03	VERTICAL	294	102	Peak
2	11440.54	45.73	54.00	-8.27	29.24	11.69	35.23	40.03	VERTICAL	294	102	Average

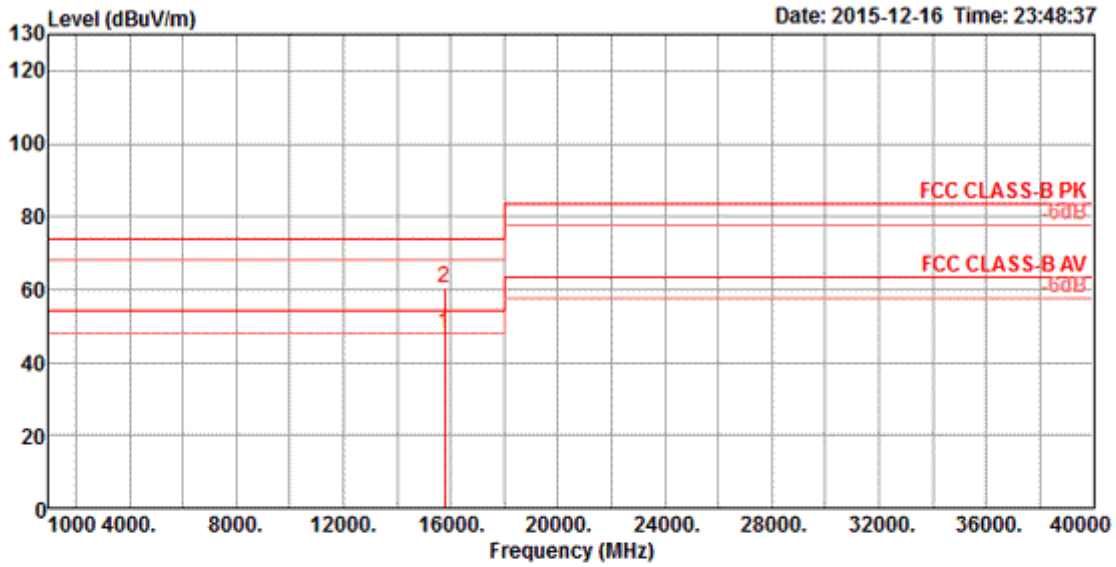
Temperature	25°C	Humidity	59%
Test Engineer	Peter Wu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 52 / Chain 1

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Pol/Phase	T/Pos	A/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	15779.70	60.46	74.00	-13.54	44.60	13.28	35.39	37.97	HORIZONTAL	282	107	Peak
2	15780.21	47.58	54.00	-6.42	31.72	13.28	35.39	37.97	HORIZONTAL	282	107	Average

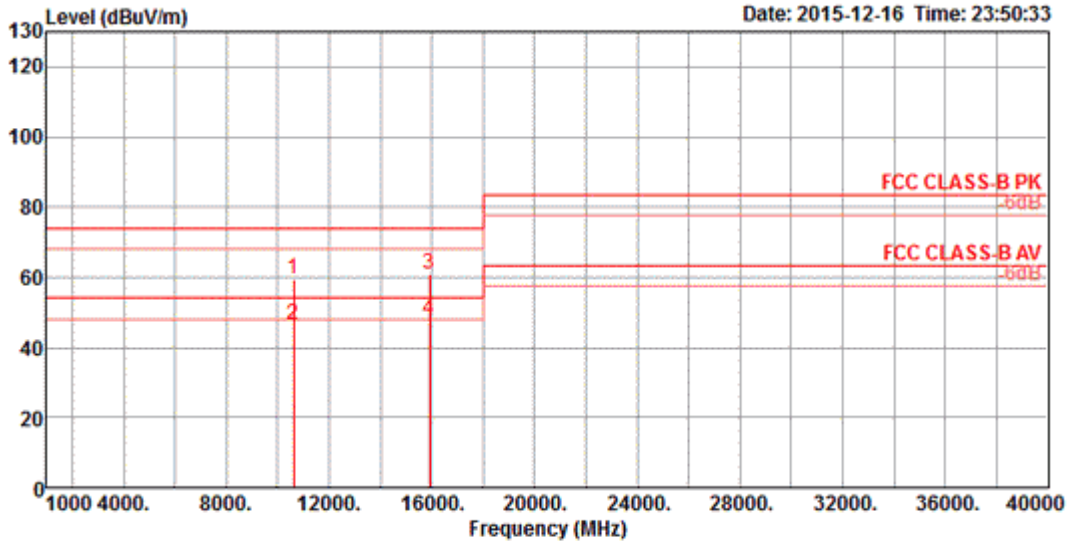
Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Pol/Phase	T/Pos	A/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	15780.56	47.74	54.00	-6.26	31.88	13.28	35.39	37.97	VERTICAL	284	109	Average
2	15780.60	60.67	74.00	-13.33	44.81	13.28	35.39	37.97	VERTICAL	284	109	Peak

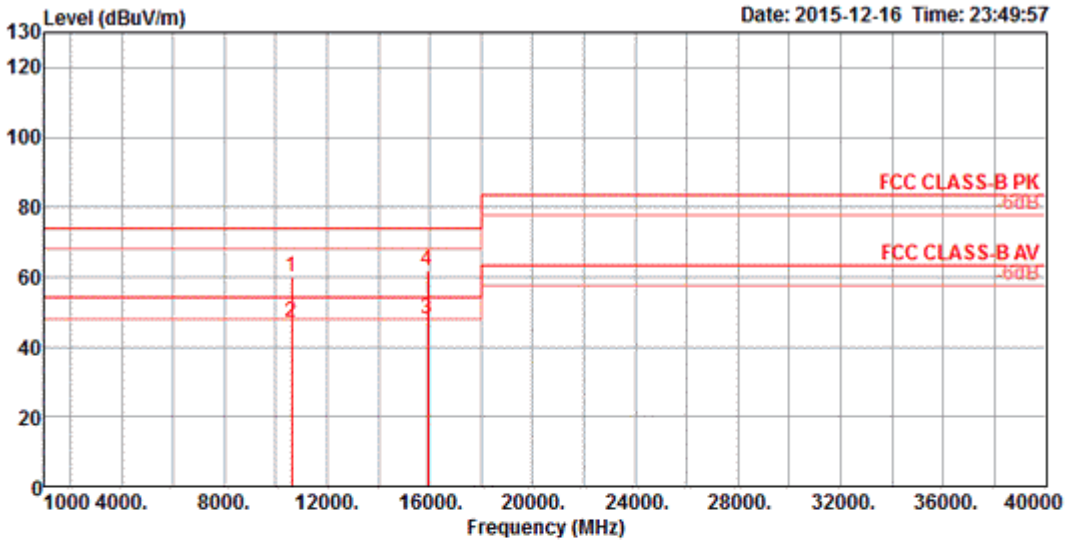
Temperature	25°C	Humidity	59%
Test Engineer	Peter Wu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 60 / Chain 1

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Pol/Phase	T/Pos	A/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	10600.47	59.68	74.00	-14.32	43.46	11.30	34.96	39.88	HORIZONTAL	281	105	Peak
2	10600.66	46.66	54.00	-7.34	30.44	11.30	34.96	39.88	HORIZONTAL	281	105	Average
3	15899.03	61.08	74.00	-12.92	45.34	13.33	35.40	37.81	HORIZONTAL	278	106	Peak
4	15899.77	48.03	54.00	-5.97	32.29	13.33	35.40	37.81	HORIZONTAL	278	106	Average

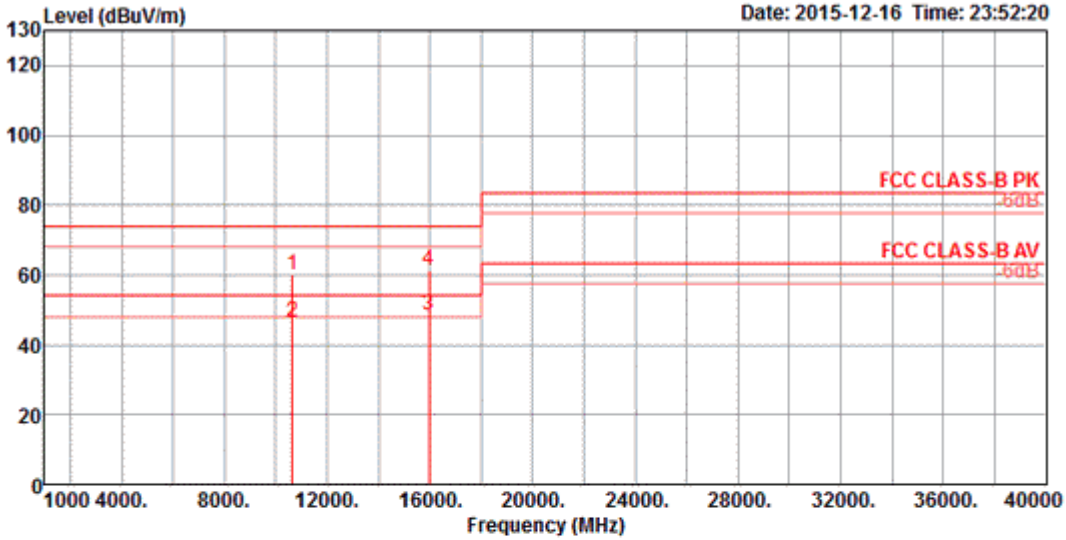
Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Pol/Phase	T/Pos	A/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	10600.26	59.90	74.00	-14.10	43.68	11.30	34.96	39.88	VERTICAL	278	106	Peak
2	10600.52	47.03	54.00	-6.97	30.81	11.30	34.96	39.88	VERTICAL	278	106	Average
3	15899.37	47.95	54.00	-6.05	32.21	13.33	35.40	37.81	VERTICAL	276	108	Average
4	15900.58	61.67	74.00	-12.33	45.93	13.33	35.40	37.81	VERTICAL	276	108	Peak

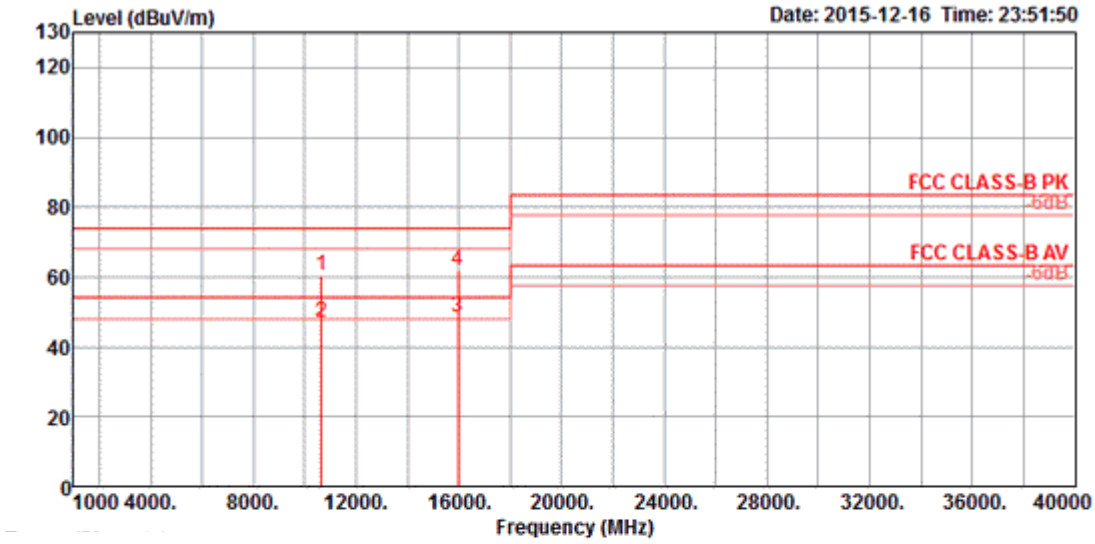
Temperature	25°C	Humidity	59%
Test Engineer	Peter Wu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 64 / Chain 1

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Pol/Phase	T/Pos	A/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	10640.26	59.79	74.00	-14.21	43.56	11.32	34.99	39.90	HORIZONTAL	268	104	Peak
2	10640.88	46.38	54.00	-7.62	30.15	11.32	34.99	39.90	HORIZONTAL	268	104	Average
3	15959.14	48.29	54.00	-5.71	32.60	13.35	35.41	37.75	HORIZONTAL	272	100	Average
4	15959.87	61.19	74.00	-12.81	45.50	13.35	35.41	37.75	HORIZONTAL	272	100	Peak

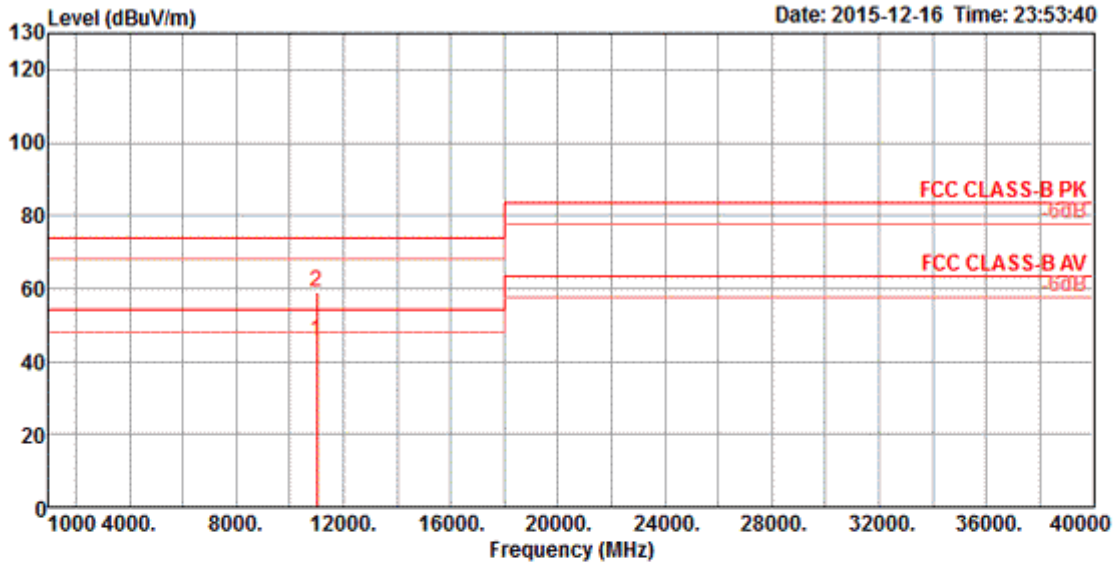
Vertical



	Freq	Level	Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Pol/Phase	T/Pos	A/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	10640.12	60.27	74.00	-13.73	44.04	11.32	34.99	39.90	VERTICAL	279	104	Peak
2	10640.37	46.85	54.00	-7.15	30.62	11.32	34.99	39.90	VERTICAL	279	104	Average
3	15959.16	48.38	54.00	-5.62	32.69	13.35	35.41	37.75	VERTICAL	275	102	Average
4	15961.00	61.91	74.00	-12.09	46.22	13.35	35.41	37.75	VERTICAL	275	102	Peak

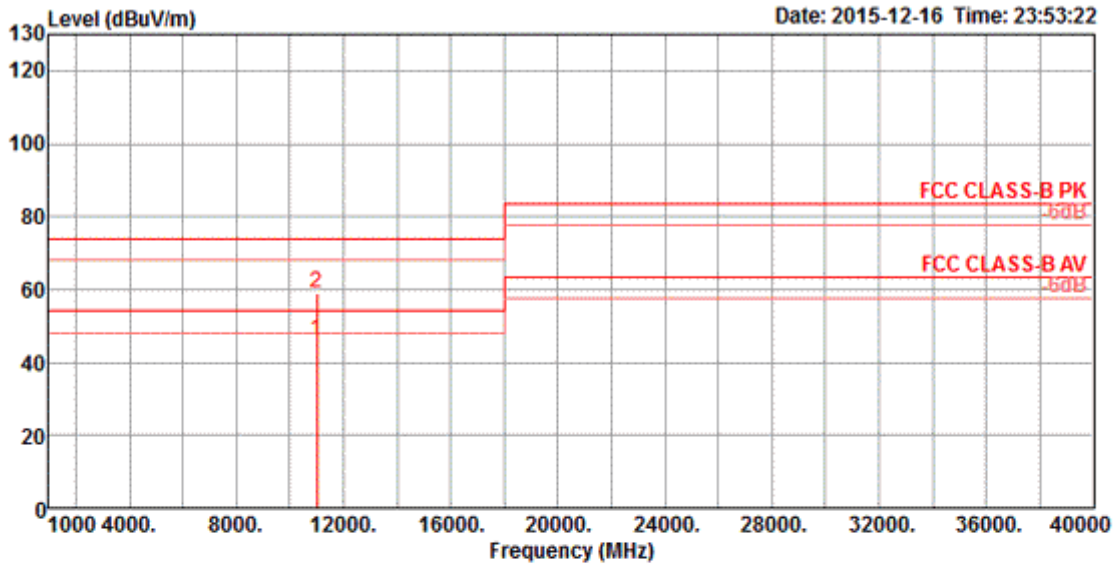
Temperature	25°C	Humidity	59%
Test Engineer	Peter Wu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 100 / Chain 1

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Pol/Phase	T/Pos	A/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	10999.02	45.57	54.00	-8.43	29.04	11.50	35.17	40.20	HORIZONTAL	260	104	Average
2	11001.00	59.04	74.00	-14.96	42.51	11.50	35.17	40.20	HORIZONTAL	260	104	Peak

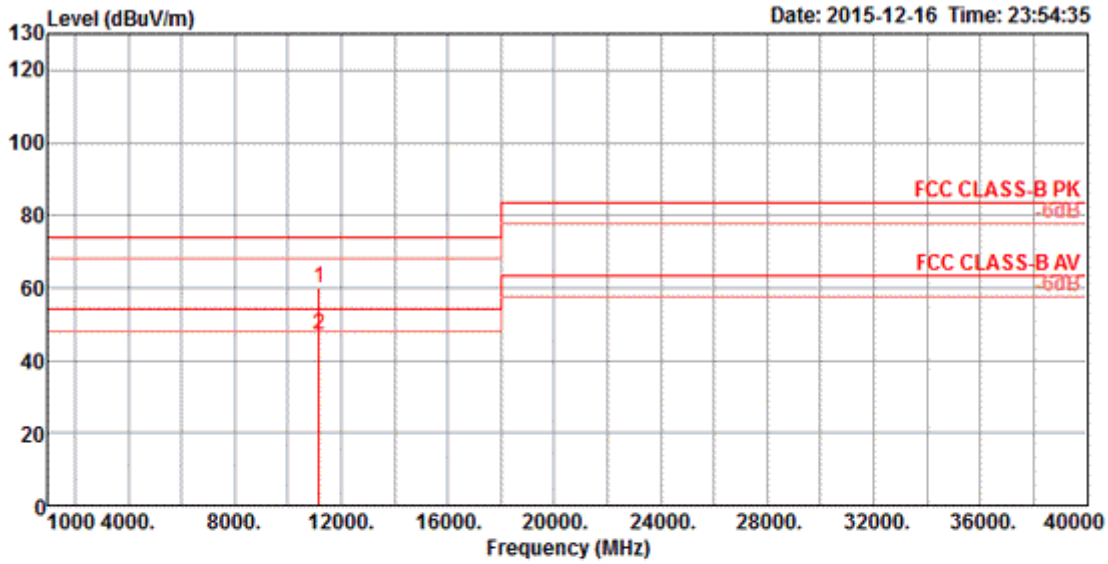
Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Pol/Phase	T/Pos	A/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	10999.46	45.89	54.00	-8.11	29.36	11.50	35.17	40.20	VERTICAL	263	102	Average
2	11000.98	58.78	74.00	-15.22	42.25	11.50	35.17	40.20	VERTICAL	263	102	Peak

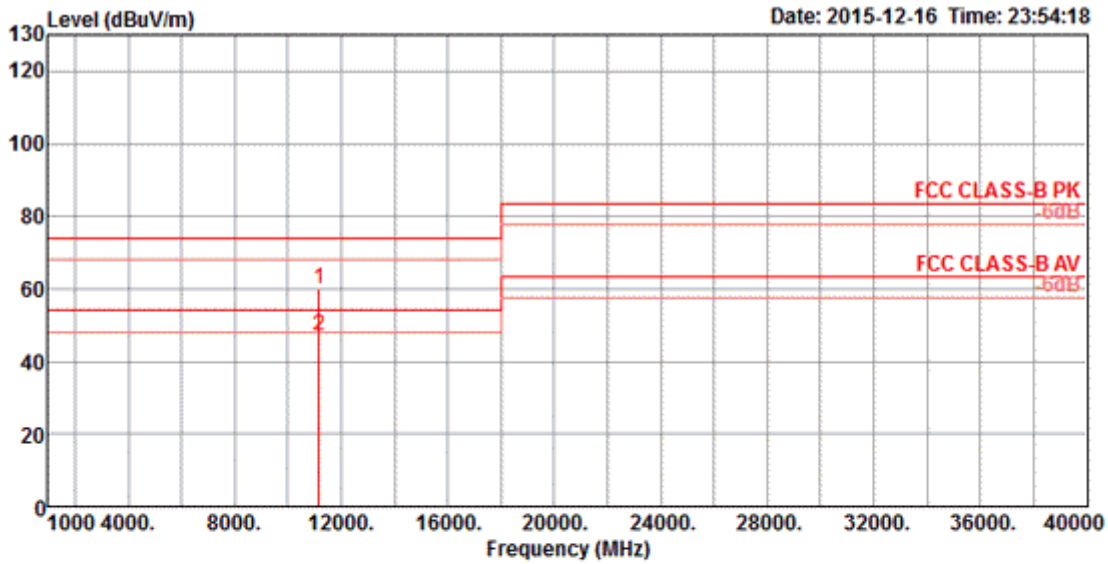
Temperature	25°C	Humidity	59%
Test Engineer	Peter Wu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 116 / Chain 1

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Pol/Phase	T/Pos	A/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	11160.00	60.09	74.00	-13.91	43.58	11.57	35.19	40.13	HORIZONTAL	249	110	Peak
2	11160.89	46.88	54.00	-7.12	30.37	11.57	35.19	40.13	HORIZONTAL	249	110	Average

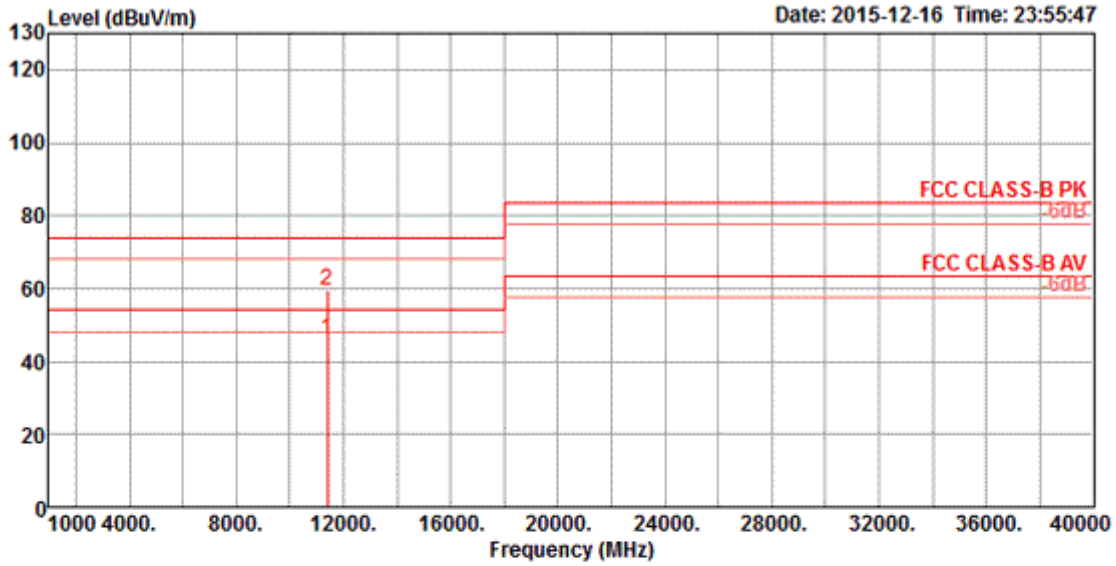
Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Pol/Phase	T/Pos	A/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	11159.08	59.83	74.00	-14.17	43.32	11.57	35.19	40.13	VERTICAL	251	107	Peak
2	11160.85	46.99	54.00	-7.01	30.48	11.57	35.19	40.13	VERTICAL	251	107	Average

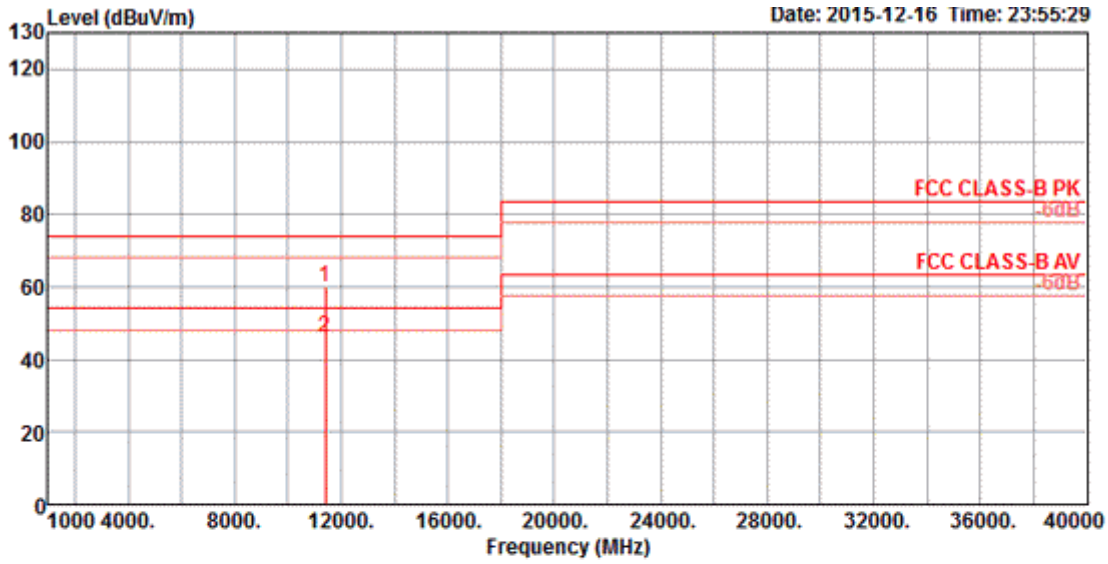
Temperature	25°C	Humidity	59%
Test Engineer	Peter Wu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 140 / Chain 1

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Pol/Phase	T/Pos	A/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	11399.64	46.03	54.00	-7.97	29.53	11.68	35.22	40.04	HORIZONTAL	224	104	Average
2	11400.38	59.28	74.00	-14.72	42.78	11.68	35.22	40.04	HORIZONTAL	224	104	Peak

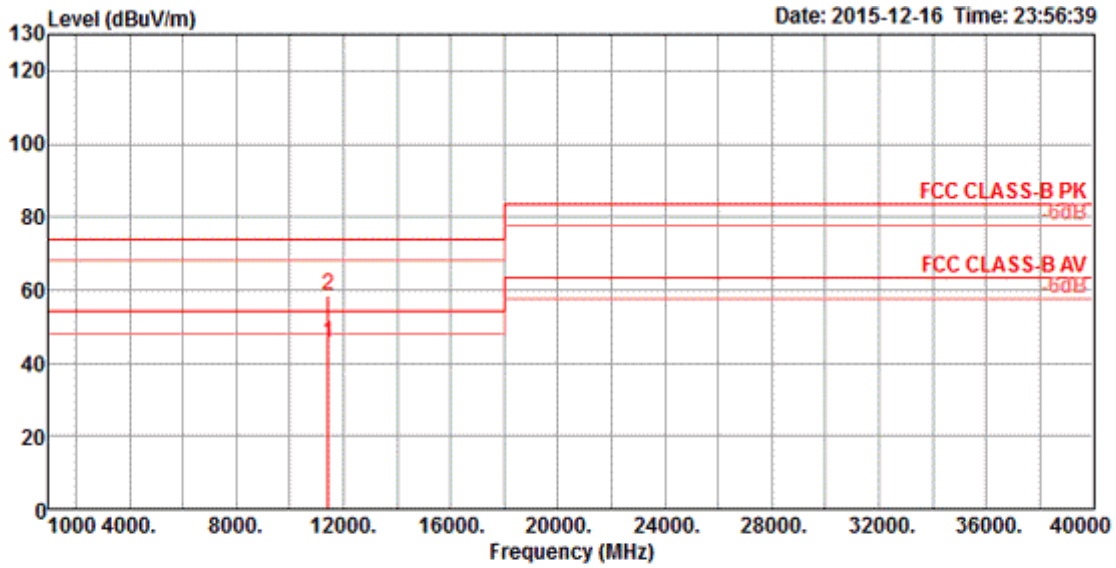
Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Pol/Phase	T/Pos	A/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	11399.77	59.90	74.00	-14.10	43.40	11.68	35.22	40.04	VERTICAL	234	108	Peak
2	11400.72	46.26	54.00	-7.74	29.76	11.68	35.22	40.04	VERTICAL	234	108	Average

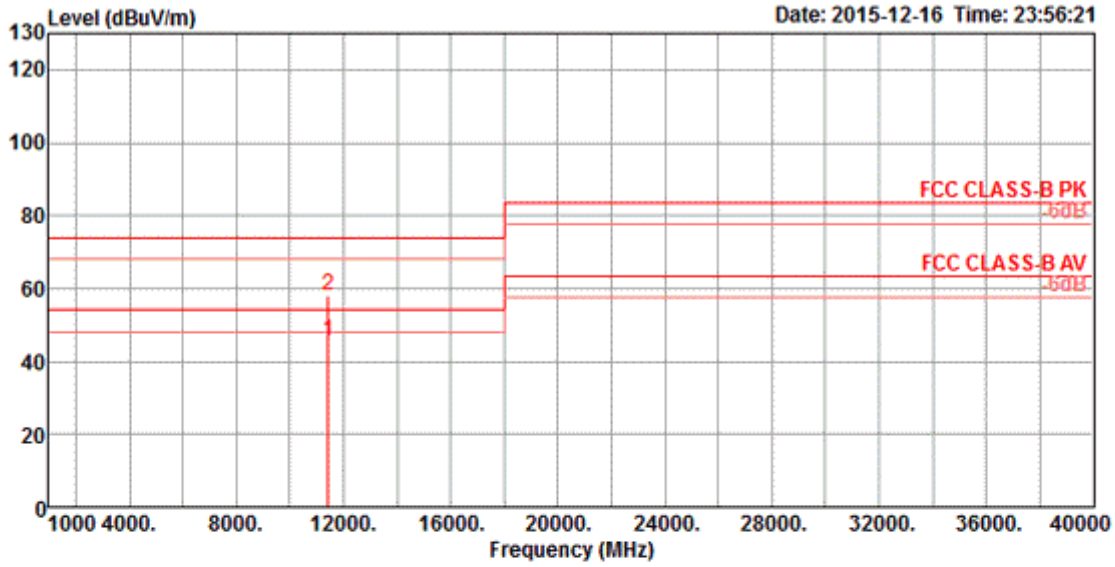
Temperature	25°C	Humidity	59%
Test Engineer	Peter Wu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 144 / Chain 1

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Pol/Phase	T/Pos	A/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	11439.63	45.46	54.00	-8.54	28.97	11.69	35.23	40.03	HORIZONTAL	231	101	Average
2	11439.76	58.48	74.00	-15.52	41.99	11.69	35.23	40.03	HORIZONTAL	231	101	Peak

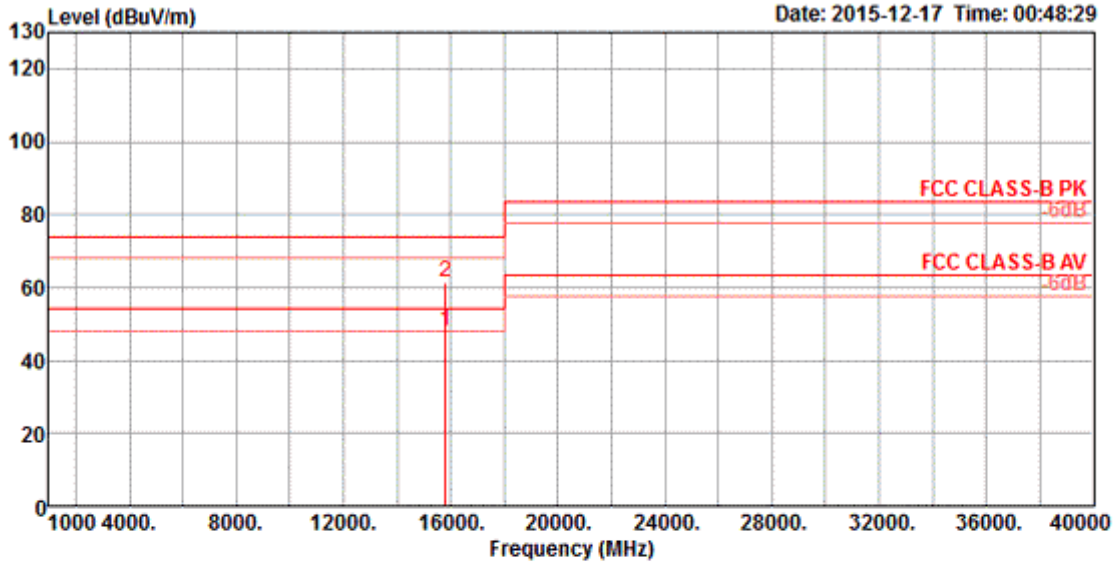
Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Pol/Phase	T/Pos	A/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	11440.03	45.52	54.00	-8.48	29.03	11.69	35.23	40.03	VERTICAL	225	103	Average
2	11440.97	58.13	74.00	-15.87	41.64	11.69	35.23	40.03	VERTICAL	225	103	Peak

Temperature	25°C	Humidity	59%
Test Engineer	Peter Wu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 54 / Chain 1

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Pol/Phase	T/Pos	A/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	15809.49	47.98	54.00	-6.02	32.15	13.30	35.39	37.92	HORIZONTAL	214	108	Average
2	15809.90	61.50	74.00	-12.50	45.67	13.30	35.39	37.92	HORIZONTAL	214	108	Peak