



# SPORTON International Inc.

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## FCC RADIO TEST REPORT

Applicant's company	Extreme Networks, Inc.
Applicant Address	9 Northeastern Blvd. Salem, NH 03079 USA
FCC ID	QXO-4411AC
Manufacturer's company	Senao Networks, Inc.
Manufacturer Address	3F, No. 529, Chung Cheng Rd., Hsintien, Taipei, Taiwan

Product Name	Wireless 802.11a/AC+ b/g/n Access Point
Brand Name	Extreme Networks
Model No.	31012, 31014
Test Rule Part(s)	47 CFR FCC Part 15 Subpart E § 15.407
Test Freq. Range	5250 ~ 5350MHz / 5470 ~ 5725MHz
Received Date	Oct. 15, 2015
Final Test Date	Nov. 29, 2015
Submission Type	Class II Change

### Statement

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

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

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

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

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



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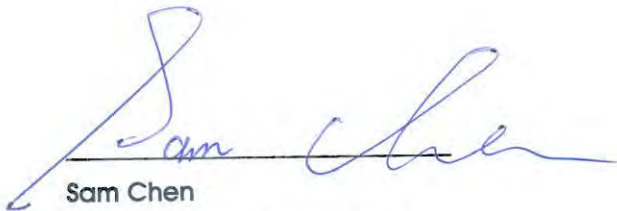
## History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR541527-02AB	Rev. 01	Initial issue of report	Dec. 14, 2015

## 1. VERIFICATION OF COMPLIANCE

Product Name : Wireless 802.11a/AC+ b/g/n Access Point  
Brand Name : Extreme Networks  
Model No. : 31012, 31014  
Applicant : Extreme Networks, 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. 15, 2015 would like to declare that the tested sample has been evaluated and found to be in compliance with the tested rule parts. The data recorded as well as the test configuration specified is true and accurate for showing the sample's EMC nature.



Sam Chen

SPORTON INTERNATIONAL INC.

## 2. SUMMARY OF THE TEST RESULT

Applied Standard: 47 CFR FCC Part 15 Subpart E				
Part	Rule Section	Description of Test	Result	Under Limit
4.1	15.407(a)	26dB Spectrum Bandwidth and 99% Occupied Bandwidth	Complies	-
4.2	15.407(e)	6dB Spectrum Bandwidth	Complies	-
4.3	15.407(a)	Maximum Conducted Output Power	Complies	0.01 dB
4.4	15.407(a)	Power Spectral Density	Complies	0.04 dB
4.5	15.407(b)	Radiated Emissions	Complies	1.65 dB
4.6	15.407(b)	Band Edge Emissions	Complies	1.01 dB
4.7	15.407(g)	Frequency Stability	Complies	-
4.8	15.203	Antenna Requirements	Complies	-

### 3. GENERAL INFORMATION

#### 3.1. Product Details

Items	Description
Product Type	WLAN (4TX, 4RX)
Radio Type	Intentional Transceiver
Power Type	From power adapter or PoE
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	16 for 20MHz bandwidth ; 8 for 40MHz bandwidth 4 for 80MHz bandwidth
Channel Band Width (99%)	<p>Mode 1: EUT 1 + Set 1 Ceiling Mount Omni Antenna / 7 dBi</p> <p>Band 2: IEEE 802.11ac MCS0/Nss1 (VHT20): 18.06 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 37.19 MHz IEEE 802.11ac MCS0/Nss1 (VHT80): 76.41 MHz</p> <p>Band 3: IEEE 802.11ac MCS0/Nss1 (VHT20): 17.97 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 37.34 MHz IEEE 802.11ac MCS0/Nss1 (VHT80): 76.41 MHz</p> <p>Mode 2: EUT 1 + Set 2 Sector Antenna / 6.5 dBi</p> <p>Band 2: IEEE 802.11ac MCS0/Nss1 (VHT20): 18.06 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 37.34 MHz IEEE 802.11ac MCS0/Nss1 (VHT80): 76.41 MHz</p> <p>Band 3: IEEE 802.11ac MCS0/Nss1 (VHT20): 18.06 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 37.19 MHz IEEE 802.11ac MCS0/Nss1 (VHT80): 76.41 MHz</p> <p>Mode 3: EUT 1 + Set 3 Sector Antenna / 5.5 dBi</p> <p>Band 2: IEEE 802.11ac MCS0/Nss1 (VHT20): 17.97 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 37.34 MHz</p>

	<p>IEEE 802.11ac MCS0/Nss1 (VHT80): 76.41 MHz</p> <p>Band 3:</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT20): 18.15 MHz</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT40): 37.48 MHz</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT80): 76.41 MHz</p> <p>Mode 4: EUT 1 + Set 4 Sector Antenna / 7.5 dBi</p> <p>Band 2:</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT20): 18.06 MHz</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT40): 37.48 MHz</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT80): 76.12 MHz</p> <p>Band 3:</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT20): 17.97 MHz</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT40): 37.05 MHz</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT80): 76.41 MHz</p> <p>Mode 5: EUT 1 + Set 5 Sector Antenna / 4.5 dBi</p> <p>Band 2:</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT20): 18.15 MHz</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT40): 37.34 MHz</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT80): 76.41 MHz</p> <p>Band 3:</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT20): 18.15 MHz</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT40): 37.48 MHz</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT80): 76.41 MHz</p> <p>Mode 6: EUT 1 + Set 6 Sector Antenna / 4 dBi</p> <p>Band 2:</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT20): 18.15 MHz</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT40): 37.48 MHz</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT80): 76.41 MHz</p> <p>Band 3:</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT20): 18.06 MHz</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT40): 37.19 MHz</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT80): 76.41 MHz</p> <p>Mode 7: EUT 1 + Set 9 Dipole Antenna / 4.67 dBi</p> <p>Band 2:</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT20): 18.06 MHz</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT40): 37.48 MHz</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT80): 76.41 MHz</p>
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	<p>Band 3:</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT20): 17.97 MHz</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT40): 37.19 MHz</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT80): 76.41 MHz</p> <p>Mode 8: EUT 2 + Set 10 PIFA Antenna / Chain1:5.84 dBi, Chain2:5.50 dBi, Chain3:5.84 dBi, Chain4:5.65 dBi</p> <p>Band 2:</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT20): 18.06 MHz</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT40): 37.34 MHz</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT80): 76.70 MHz</p> <p>Band 3:</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT20): 18.06 MHz</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT40): 37.34 MHz</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT80): 76.41 MHz</p>
<p>Maximum Conducted Output Power</p>	<p>Mode 1: EUT 1 + Set 1 Ceiling Mount Omni Antenna / 7 dBi</p> <p>Band 2:</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT20): 19.79 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT40): 19.95 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT80): 14.10 dBm</p> <p>Band 3:</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT20): 19.84 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT40): 19.81 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT80): 19.91 dBm</p> <p>Mode 2: EUT 1 + Set 2 Sector Antenna / 6.5 dBi</p> <p>Band 2:</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT20): 20.43 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT40): 20.46 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT80): 16.14 dBm</p> <p>Band 3:</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT20): 20.47 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT40): 20.33 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT80): 20.42 dBm</p> <p>Mode 3: EUT 1 + Set 3 Sector Antenna / 5.5 dBi</p> <p>Band 2:</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT20): 21.42 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT40): 21.43 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT80): 16.82 dBm</p>



	<p>Band 3:</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT20): 21.20 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT40): 21.40 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT80): 21.44 dBm</p> <p>Mode 4: EUT 1 + Set 4 Sector Antenna / 7.5 dBi</p> <p>Band 2:</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT20): 19.47 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT40): 19.38 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT80): 14.63 dBm</p> <p>Band 3:</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT20): 19.42 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT40): 19.24 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT80): 19.46 dBm</p> <p>Mode 5: EUT 1 + Set 5 Sector Antenna / 4.5 dBi</p> <p>Band 2:</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT20): 22.38 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT40): 22.24 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT80): 19.93 dBm</p> <p>Band 3:</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT20): 22.32 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT40): 22.20 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT80): 22.45 dBm</p> <p>Mode 6: EUT 1 + Set 6 Sector Antenna / 4 dBi</p> <p>Band 2:</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT20): 22.97 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT40): 22.55 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT80): 14.10 dBm</p> <p>Band 3:</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT20): 22.66 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT40): 22.77 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT80): 22.45 dBm</p> <p>Mode 7: EUT 1 + Set 9 Dipole Antenna / 4.67 dBi</p> <p>Band 2:</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT20): 19.27 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT40): 19.26 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT80): 16.69 dBm</p> <p>Band 3:</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT20): 19.30 dBm</p>
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	IEEE 802.11ac MCS0/Nss1 (VHT40): 19.27 dBm IEEE 802.11ac MCS0/Nss1 (VHT80): 19.28 dBm Mode 8: EUT 2 + Set 10 PIFA Antenna / Chain1:5.84 dBi, Chain2:5.50 dBi, Chain3:5.84 dBi, Chain4:5.65 dBi Band 2: IEEE 802.11ac MCS0/Nss1 (VHT20): 18.09 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 18.25 dBm IEEE 802.11ac MCS0/Nss1 (VHT80): 18.25 dBm Band 3: IEEE 802.11ac MCS0/Nss1 (VHT20): 18.20 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 18.13 dBm IEEE 802.11ac MCS0/Nss1 (VHT80): 18.18 dBm
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

Items	Description	
Communication Mode	<input checked="" type="checkbox"/> IP Based (Load Based)	<input type="checkbox"/> Frame Based
TPC Function	<input checked="" type="checkbox"/> With TPC	<input type="checkbox"/> Without TPC
Weather Band (5600~5650MHz)	<input checked="" type="checkbox"/> With 5600~5650MHz	<input type="checkbox"/> Without 5600~5650MHz
Operating Mode	<input type="checkbox"/> Outdoor access point	
	<input checked="" type="checkbox"/> Indoor access point	
	<input type="checkbox"/> Fixed point-to-point access points	
	<input type="checkbox"/> Mobile and portable client devices	

Note1: The product has beamforming function for 802.11n/ac in 2.4G/5G.

Note2: Test results of non-beamforming are recorded in test report: FR541527-02AA. Test results of beamforming are recorded in this test report.

**Antenna and Band width**

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

**IEEE 11n/ac Spec.**

Protocol	Number of Transmit Chains (NTX)	Data Rate / MCS
802.11n (HT20)	4	MCS 0-31
802.11n (HT40)	4	MCS 0-31
802.11ac (VHT20)	4	MCS 0-9/Nss1-4
802.11ac (VHT40)	4	MCS 0-9/Nss1-4
802.11ac (VHT80)	4	MCS 0-9/Nss1-4

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

Then EUT supports HT20 and HT40.

Note 2: IEEE Std. 802.11ac modulation consists of VHT20, VHT40, VHT80 and VHT160 (VHT: Very High Throughput). Then EUT supports VHT20, VHT40 and VHT80 in 5GHz.

Note 3: Modulation modes consist of below configuration:

HT20/HT40: IEEE 802.11n, VHT20/VHT40/VHT80: IEEE 802.11ac

**3.2. Accessories**

N/A

### 3.3. Table for Filed Antenna

Set.	Brand Holder	Model Number (Part No.)	Extreme Part No. (Short Description)	Antenna Type	Connector	Polarized Antenna	Gain (dBi)	
							2.4GHz	5GHz
1	PCTEL Inc.	WS-AI-DQ04360	WS-AI-DQ04360 (WS-AI-DQ04360)	Ceiling Mount Omni	RP SMA Male	V	4	7
2	PCTEL Inc.	908403-10	30705 (WS-AI-DE07025)	Sector Antenna	RP SMA Male	V	7.5	6.5
3	PCTEL Inc.	908400-10	30702 (WS-AI-DQ05120)	Sector Antenna	RP SMA Male	V	5.5	5.5
4	PCTEL Inc.	908405-10	30707 (WS-AI-DE10055)	Sector Antenna	RP SMA Male	V	10.5	7.5
5	PCTEL Inc.	908404-10	30706 (WS-AI-5Q05025)	Sector Antenna	RP SMA Male	V	-	4.5
6	PCTEL Inc.	908401-10	30703 (WS-AI-5Q04060)	Sector Antenna	RP SMA Male	V	-	4
7	PCTEL Inc.	908402-10	30704 (WS-AI-2Q05060)	Sector Antenna	RP SMA Male	V	5	-
8	Master Wave Technology Co., Ltd.	98152MRSX015	30709 (WS-ANT-2DIP-4)	Dipole Antenna	RP SMA Male	X	4.66	-
9	Master Wave Technology Co., Ltd.	98152URSX009	30710 (WS-ANT-5DIP-4)	Dipole Antenna	RP SMA Male	X	-	4.67
10	Senao Networks, Inc.	AP3935i	-	PIFA Antenna	IPEX	X	Note 1	

Note1:

Set.	Antenna Gain (dBi)							
	2.4GHz				5GHz			
	Chain 1	Chain 2	Chain 3	Chain 4	Chain 1	Chain 2	Chain 3	Chain 4
10	3.81	3.75	3.98	3.47	5.84	5.50	5.84	5.65

Note2:

The EUT has ten sets of antennas.

<For 2.4GHz Function>

**For IEEE 802.11b/g/n/ac mode (4TX, 4RX):**

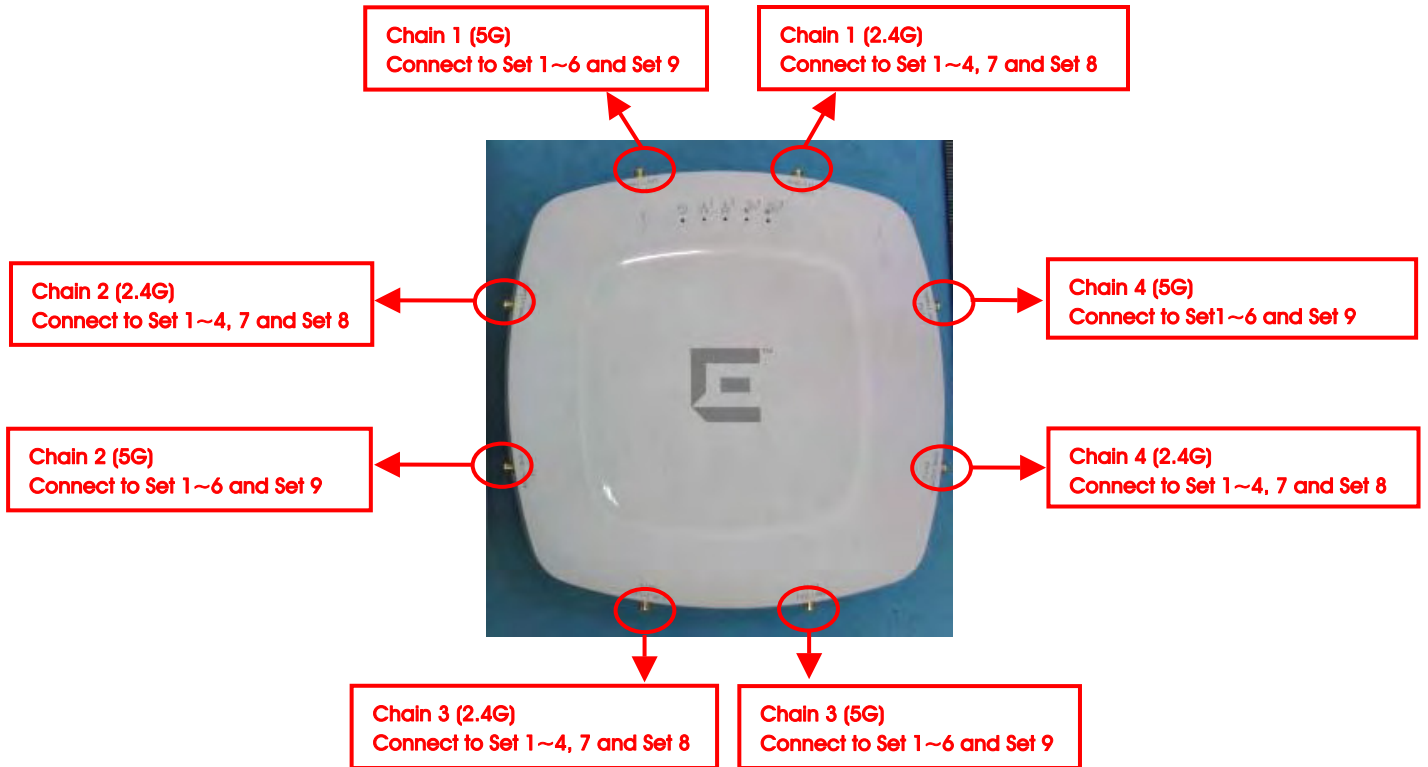
Chain 1, Chain 2, Chain 3 and Chain 4 could transmit/receive simultaneously.

<For 5GHz Function>

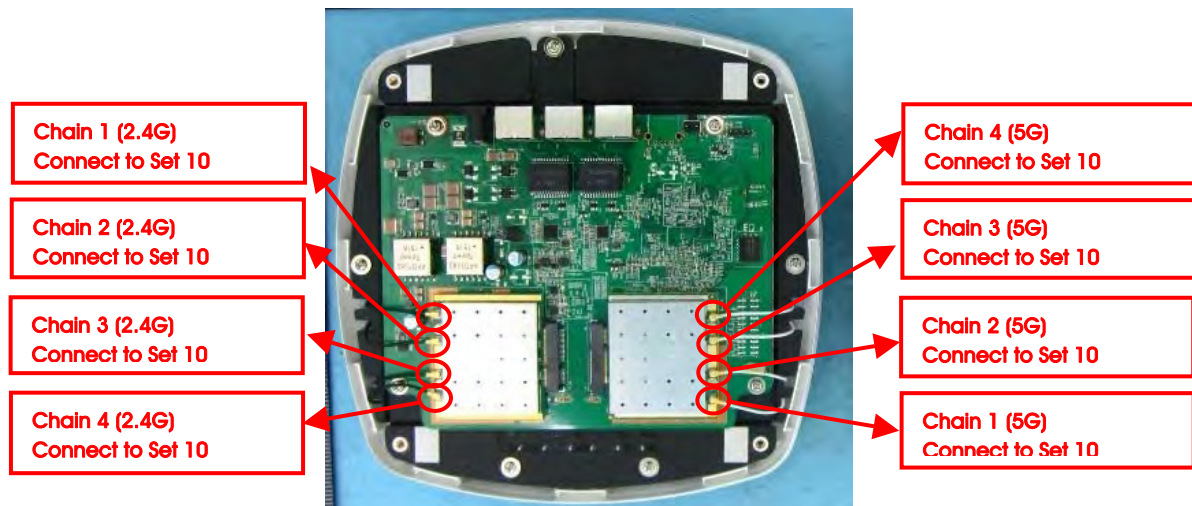
**For IEEE 802.11a/n/ac mode (4TX, 4RX):**

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

**For EUT 1:**



**For EUT 2:**



### 3.4. Table for Carrier Frequencies

There are three bandwidth systems.

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

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

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

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

### 3.5. Table for Test Modes

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

Test Items	Mode		Data Rate	Channel	Chain
Max. Conducted Output Power	11a/BPSK	Band 2-3	6Mbps	52/60/64/100/ 116/140/144	1+2+3+4
	11ac VHT20	Band 2-3	MCS0/Nss1	52/60/64/100/ 116/140/144	1+2+3+4
	11ac VHT40	Band 2-3	MCS0/Nss1	54/62/102/110/ 134/142	1+2+3+4
	11ac VHT80	Band 2-3	MCS0/Nss1	58/106/122/138	1+2+3+4
Power Spectral Density	11a/BPSK	Band 2-3	6Mbps	52/60/64/100/ 116/140/144	1+2+3+4
	11ac VHT20	Band 2-3	MCS0/Nss1	52/60/64/100/ 116/140/144	1+2+3+4
	11ac VHT40	Band 2-3	MCS0/Nss1	54/62/102/110/ 134/142	1+2+3+4
	11ac VHT80	Band 2-3	MCS0/Nss1	58/106/122/138	1+2+3+4
26dB Spectrum Bandwidth 99% Occupied Bandwidth Measurement	11a/BPSK	Band 2-3	6Mbps	52/60/64/100/ 116/140/144	1+2+3+4
	11ac VHT20	Band 2-3	MCS0/Nss1	52/60/64/100/ 116/140/144	1+2+3+4
	11ac VHT40	Band 2-3	MCS0/Nss1	54/62/102/110/ 134/142	1+2+3+4
	11ac VHT80	Band 2-3	MCS0/Nss1	58/106/122/138	1+2+3+4
6dB Spectrum Bandwidth Measurement	11a/BPSK	Band 3	6Mbps	144	1+2+3+4
	11ac VHT20	Band 3	MCS0/Nss1	144	1+2+3+4
	11ac VHT40	Band 3	MCS0/Nss1	142	1+2+3+4
	11ac VHT80	Band 3	MCS0/Nss1	138	1+2+3+4

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

Note1: 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.

Note2:

The adapter are for measurement only, would not be marketed.

The adapter information as below:

Power	Brand	Model
Adapter	Powertron Electronics Corp.	PA1024-120IB200

Note3: All the specification of test configurations and test modes were based on customer's request.

Note4: The console port can not be used by end user. It is generally used for updating FW by professional installer.



The following test modes were performed for all tests:

**For Radiated Emission test:**

The Mode 1~6 and Mode 8 was performed at Y axis and Z axis position. Y axis has been evaluated to be the worst case, thus measurement will follow this same test mode.

The Mode 7 was performed at Y axis and Z axis position. Z axis has been evaluated to be the worst case, thus measurement will follow this same test mode.

Mode 1. Place EUT 1 in Y axis + Set 1

Mode 2. Place EUT 1 in Y axis + Set 2

Mode 3. Place EUT 1 in Y axis + Set 3

Mode 4. Place EUT 1 in Y axis + Set 4

Mode 5. Place EUT 1 in Y axis + Set 5

Mode 6. Place EUT 1 in Y axis + Set 6

Mode 7. Place EUT 1 in Z axis + Set 9

Mode 8. Place EUT 2 in Y axis + Set 10

### 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	-
TH01-CB	OVEN Room	Hsin Chu	-	-	-

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

### 3.7. Table for Multiple Listing and Class II Change

The model names are identical to each other in all aspects except for the following table:

Equipment	EUT	Product Name	Model Name	Internal Antenna	External Antenna	Equipped Antenna
Wireless 802.11a/AC+ b/g/n Access Point	1	WS-AP3935e-FCC	31014	X	V	Set 1~9
	2	WS-AP3935i-FCC	31012	V	X	Set 10

This product is an extension of original one reported under Sporton project number: FR541527-01AD

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

Modifications	Performance Checking
Add Band 2 and Band 3 (5250~5350 MHz, 5470~5725 MHz)	<ol style="list-style-type: none"> <li>1. 26dB Bandwidth and 99% Occupied Bandwidth Measurement</li> <li>2. 6dB Spectrum Bandwidth Measurement</li> <li>3. Maximum Conducted Output Power Measurement</li> <li>4. Power Spectral Density Measurement</li> <li>5. Radiated Emissions Above 1GHz</li> <li>6. Band Edge Emissions Measurement</li> <li>7. Frequency Stability Measurement</li> </ol>

### 3.8. Table for Supporting Units

For Test Site No: 03CH01-CB

Support Unit	Brand	Model	FCC ID
Notebook*2	DELL	E4300	DoC
Device	Extreme Networks	31012	QXO-4411AC
Adapter	Powertron Electronics Corp.	PA1024-120IB200	N/A

For Test Site No: TH01-CB

Support Unit	Brand	Model	FCC ID
Notebook	DELL	E4300	DoC
Adapter	Powertron Electronics Corp.	PA1024-120IB200	N/A

### 3.9. Table for Parameters of Test Software Setting

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

#### Mode 1: EUT 1 + Set 1 Ceiling Mount Omni Antenna / 7 dBi

Test Software Version	QCA VER3.0.144.0						
Mode	Test Frequency (MHz)						
	NCB: 20MHz						
	5260 MHz	5300 MHz	5320 MHz	5500 MHz	5580 MHz	5700 MHz	5720 MHz
802.11ac MCS0/Nss1 VHT20	14.5	14.5	14.5	14	14.5	15	15
Mode	NCB: 40MHz						
802.11ac MCS0/Nss1 VHT40	5270 MHz	5310 MHz	5510 MHz	5550 MHz	5670 MHz	5710 MHz	
	13.5	13	13	13.5	14	14.5	
Mode	NCB: 80MHz						
802.11ac MCS0/Nss1 VHT80	5290 MHz		5530 MHz		5610 MHz		5690 MHz
	8.5		8		14.5		15

#### Mode 2: EUT 1 + Set 2 Sector Antenna / 6.5 dBi

Test Software Version	QCA VER3.0.144.0						
Mode	Test Frequency (MHz)						
	NCB: 20MHz						
	5260 MHz	5300 MHz	5320 MHz	5500 MHz	5580 MHz	5700 MHz	5720 MHz
802.11ac MCS0/Nss1 VHT20	15	15	15.5	15	15	15.5	15.5
Mode	NCB: 40MHz						
802.11ac MCS0/Nss1 VHT40	5270 MHz	5310 MHz	5510 MHz	5550 MHz	5670 MHz	5710 MHz	
	14	12.5	11.5	14	14.5	15	
Mode	NCB: 80MHz						
802.11ac MCS0/Nss1 VHT80	5290 MHz		5530 MHz		5610 MHz		5690 MHz
	10.5		8.5		15		15.5

**Mode 3: EUT 1 + Set 3 Sector Antenna / 5.5 dBi**

Test Software Version	QCA VER3.0.144.0						
Mode	Test Frequency (MHz)						
	NCB: 20MHz						
	5260 MHz	5300 MHz	5320 MHz	5500 MHz	5580 MHz	5700 MHz	5720 MHz
802.11ac MCS0/Nss1 VHT20	16	16	16	15.5	16	16	16.5
Mode	NCB: 40MHz						
802.11ac MCS0/Nss1 VHT40	5270 MHz	5310 MHz	5510 MHz	5550 MHz	5670 MHz	5710 MHz	
	15	12.5	13	15	15.5	16	
Mode	NCB: 80MHz						
802.11ac MCS0/Nss1 VHT80	5290 MHz		5530 MHz		5610 MHz		5690 MHz
	11.5		9.5		16		16.5

**Mode 4: EUT 1 + Set 4 Sector Antenna / 7.5 dBi**

Test Software Version	QCA VER3.0.144.0						
Mode	Test Frequency (MHz)						
	NCB: 20MHz						
	5260 MHz	5300 MHz	5320 MHz	5500 MHz	5580 MHz	5700 MHz	5720 MHz
802.11ac MCS0/Nss1 VHT20	13.5	13.5	13.5	13.5	13.5	13.5	14
Mode	NCB: 40MHz						
802.11ac MCS0/Nss1 VHT40	5270 MHz	5310 MHz	5510 MHz	5550 MHz	5670 MHz	5710 MHz	
	14	10.5	13	13.5	13.5	14	
Mode	NCB: 80MHz						
802.11ac MCS0/Nss1 VHT80	5290 MHz		5530 MHz		5610 MHz		5690 MHz
	9		7.5		14		14.5

**Mode 5: EUT 1 + Set 5 Sector Antenna / 4.5 dBi**

Test Software Version	QCA VER3.0.144.0						
Mode	Test Frequency (MHz)						
	NCB: 20MHz						
	5260 MHz	5300 MHz	5320 MHz	5500 MHz	5580 MHz	5700 MHz	5720 MHz
802.11ac MCS0/Nss1 VHT20	16.5	16.5	16.5	16.5	16.5	17	17.5
Mode	NCB: 40MHz						
802.11ac MCS0/Nss1 VHT40	5270 MHz	5310 MHz	5510 MHz	5550 MHz	5670 MHz	5710 MHz	
	16	15	14	15.5	16	17	
Mode	NCB: 80MHz						
802.11ac MCS0/Nss1 VHT80	5290 MHz		5530 MHz		5610 MHz		5690 MHz
	14		13		17		17.5

**Mode 6: EUT 1 + Set 6 Sector Antenna / 4 dBi**

Test Software Version	QCA VER3.0.144.0						
Mode	Test Frequency (MHz)						
	NCB: 20MHz						
	5260 MHz	5300 MHz	5320 MHz	5500 MHz	5580 MHz	5700 MHz	5720 MHz
802.11ac MCS0/Nss1 VHT20	17	17	17	17	17	15	17.5
Mode	NCB: 40MHz						
802.11ac MCS0/Nss1 VHT40	5270 MHz	5310 MHz	5510 MHz	5550 MHz	5670 MHz	5710 MHz	
	16.5	12.5	11.5	16	16.5	17.5	
Mode	NCB: 80MHz						
802.11ac MCS0/Nss1 VHT80	5290 MHz		5530 MHz		5610 MHz		5690 MHz
	8.5		9.5		16.5		17.5

**Mode 7: EUT 1 + Set 9 Dipole Antenna / 4.67 dBi**

Test Software Version	QCA VER3.0.144.0						
Mode	Test Frequency (MHz)						
	NCB: 20MHz						
	5260 MHz	5300 MHz	5320 MHz	5500 MHz	5580 MHz	5700 MHz	5720 MHz
802.11ac MCS0/Nss1 VHT20	14	14	14	13.5	14	14.5	14.5
Mode	NCB: 40MHz						
802.11ac MCS0/Nss1 VHT40	5270 MHz	5310 MHz	5510 MHz	5550 MHz	5670 MHz	5710 MHz	
	13	13	13	13	13.5	14	
Mode	NCB: 80MHz						
802.11ac MCS0/Nss1 VHT80	5290 MHz	5530 MHz	5610 MHz	5690 MHz			
	11	9.5	14	14.5			

**Mode 8: EUT 2 + Set 10 PIFA Antenna / Chain1:5.84 dBi, Chain2:5.50 dBi, Chain3:5.84 dBi, Chain4:5.65 dBi**

Test Software Version	QCA VER3.0.144.0						
Mode	Test Frequency (MHz)						
	NCB: 20MHz						
	5260 MHz	5300 MHz	5320 MHz	5500 MHz	5580 MHz	5700 MHz	5720 MHz
802.11ac MCS0/Nss1 VHT20	12	12	12	12	12.5	12.5	12
Mode	NCB: 40MHz						
802.11ac MCS0/Nss1 VHT40	5270 MHz	5310 MHz	5510 MHz	5550 MHz	5670 MHz	5710 MHz	
	11	11.5	11.5	11.5	11.5	12	
Mode	NCB: 80MHz						
802.11ac MCS0/Nss1 VHT80	5290 MHz	5530 MHz	5610 MHz	5690 MHz			
	12	10	12	12.5			

### 3.10. EUT Operation during Test

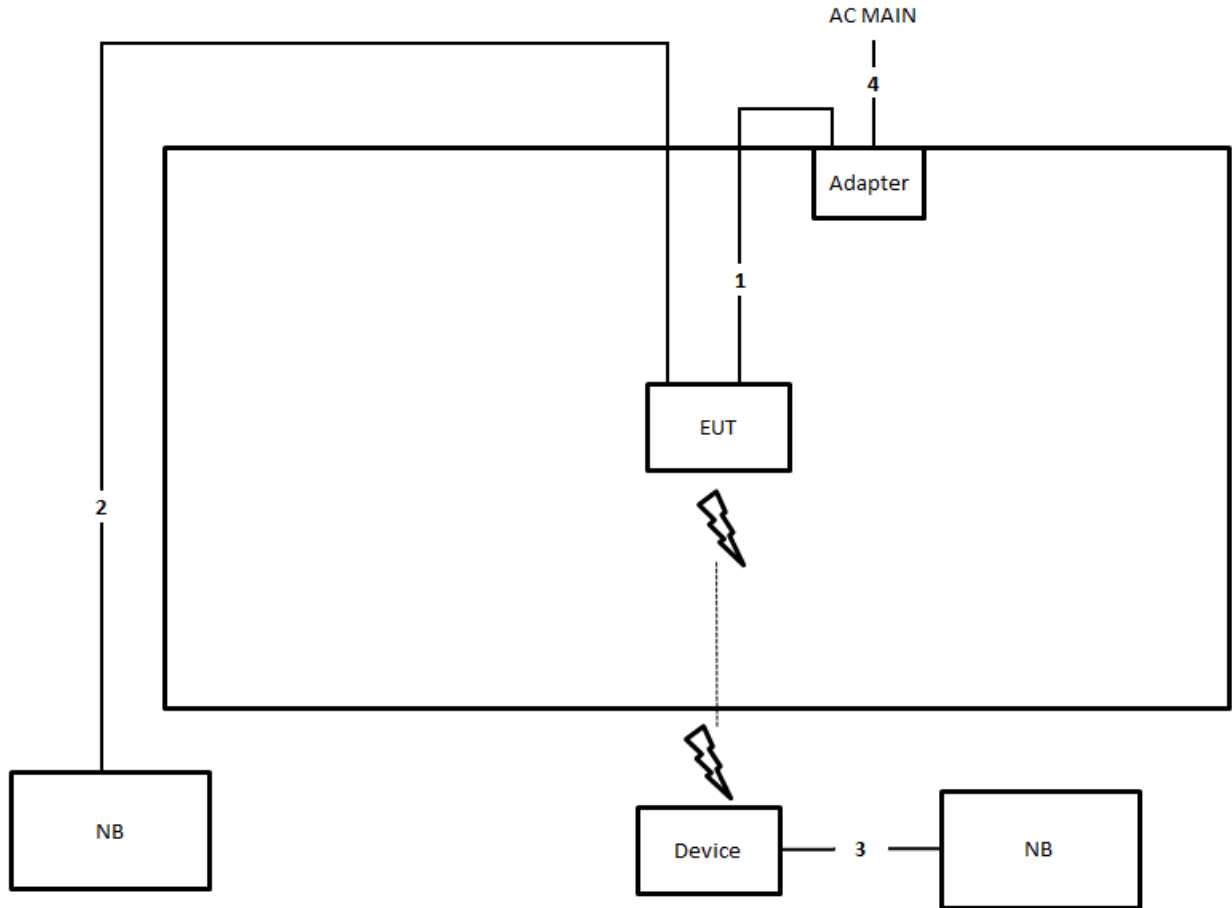
The EUT was programmed to be in continuously transmitting mode.

### 3.11. Duty Cycle

Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11ac MCS0/Nss1 VHT20	1.770	1.940	91.24	0.40	0.56
802.11ac MCS0/Nss1 VHT40	1.664	1.840	90.43	0.44	0.60
802.11ac MCS0/Nss1 VHT80	1.920	2.224	86.33	0.64	0.52

### 3.12. Test Configurations

#### 3.12.1. Radiation Emissions Test Configuration



Item	Connection	Shielded	Length(m)
1	DC Power cable	No	1.2
2	RJ-45 cable	No	10
3	RJ-45 cable	No	1.5
4	AC Power cable	No	1.8

## 4. TEST RESULT

### 4.1. 26dB Bandwidth and 99% Occupied Bandwidth Measurement

#### 4.1.1. Limit

No restriction limits.

#### 4.1.2. Measuring Instruments and Setting

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

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

#### 4.1.3. Test Procedures

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

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

#### 4.1.4. Test Setup Layout

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

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

#### 4.1.5. Test Deviation

There is no deviation with the original standard.

#### 4.1.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.



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

<b>Temperature</b>	25°C	<b>Humidity</b>	50%
<b>Test Engineer</b>	Eddie Weng & Lucas Huang		
<b>Test Mode</b>	Mode 1: EUT 1 + Set 1 Ceiling Mount Omni Antenna / 7 dBi		

Mode	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11ac MCS0/Nss1 VHT20	5260 MHz	23.57	17.97
	5300 MHz	22.96	18.06
	5320 MHz	22.87	18.06
	5500 MHz	22.52	17.97
	5580 MHz	22.61	17.89
	5700 MHz	23.04	17.97
802.11ac MCS0/Nss1 VHT40	5270 MHz	44.78	37.19
	5310 MHz	44.49	37.05
	5510 MHz	45.65	37.34
	5550 MHz	45.65	37.05
	5670 MHz	45.94	37.19
802.11ac MCS0/Nss1 VHT80	5290 MHz	85.22	76.41
	5530 MHz	86.67	76.12
	5610 MHz	87.25	76.41

**Straddle Channel**

Mode	Frequency	26dB BW (MHz)	99% OBW (MHz)	26dB BW F1 (MHz)	99% OBW T1 (MHz)	UNII 2C 26dB BW (MHz)	UNII 3 26dB BW (MHz)	UNII 2C 99% BW (MHz)	UNII 3 99% BW (MHz)
802.11ac MCS0/Nss1 VHT20	5720 MHz	22.78	17.97	5708.70	5711.06	16.30	6.48	13.94	4.03
802.11ac MCS0/Nss1 VHT40	5710 MHz	44.64	36.90	5687.39	5691.48	37.61	7.03	33.52	3.38
802.11ac MCS0/Nss1 VHT80	5690 MHz	86.96	76.41	5646.23	5651.80	78.77	8.19	73.20	3.21

<b>Temperature</b>	25°C	<b>Humidity</b>	50%
<b>Test Engineer</b>	Eddie Weng & Lucas Huang		
<b>Test Mode</b>	Mode 2: EUT 1 + Set 2 Sector Antenna / 6.5 dBi		

Mode	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11ac MCS0/Nss1 VHT20	5260 MHz	22.09	17.97
	5300 MHz	23.22	18.06
	5320 MHz	21.74	17.89
	5500 MHz	21.83	17.97
	5580 MHz	23.04	18.06
	5700 MHz	21.91	17.89
802.11ac MCS0/Nss1 VHT40	5270 MHz	44.35	37.34
	5310 MHz	44.49	36.90
	5510 MHz	44.64	37.19
	5550 MHz	44.64	37.05
	5670 MHz	45.80	37.19
802.11ac MCS0/Nss1 VHT80	5290 MHz	85.51	76.41
	5530 MHz	87.54	76.12
	5610 MHz	86.96	76.41

**Straddle Channel**

Mode	Frequency	26dB BW (MHz)	99% OBW (MHz)	26dB BW F1 (MHz)	99% OBW T1 (MHz)	UNII 2C 26dB BW (MHz)	UNII 3 26dB BW (MHz)	UNII 2C 99% BW (MHz)	UNII 3 99% BW (MHz)
802.11ac MCS0/Nss1 VHT20	5720 MHz	23.22	17.97	5708.43	5711.06	16.57	6.65	13.94	4.03
802.11ac MCS0/Nss1 VHT40	5710 MHz	45.51	37.05	5687.10	5691.48	37.90	7.61	33.52	3.52
802.11ac MCS0/Nss1 VHT80	5690 MHz	88.12	76.41	5645.36	5651.80	79.64	8.48	73.20	3.21

<b>Temperature</b>	25°C	<b>Humidity</b>	50%
<b>Test Engineer</b>	Eddie Weng & Lucas Huang		
<b>Test Mode</b>	Mode 3: EUT 1 + Set 3 Sector Antenna / 5.5 dBi		

Mode	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11ac MCS0/Nss1 VHT20	5260 MHz	20.70	17.80
	5300 MHz	20.96	17.89
	5320 MHz	21.30	17.97
	5500 MHz	22.96	18.15
	5580 MHz	23.04	18.15
	5700 MHz	23.13	18.15
802.11ac MCS0/Nss1 VHT40	5270 MHz	45.80	37.34
	5310 MHz	45.94	37.05
	5510 MHz	45.22	37.05
	5550 MHz	45.94	37.05
	5670 MHz	46.38	37.48
802.11ac MCS0/Nss1 VHT80	5290 MHz	86.67	76.41
	5530 MHz	86.38	76.12
	5610 MHz	86.96	76.41

**Straddle Channel**

Mode	Frequency	26dB BW (MHz)	99% OBW (MHz)	26dB BW F1 (MHz)	99% OBW T1 (MHz)	UNII 2C 26dB BW (MHz)	UNII 3 26dB BW (MHz)	UNII 2C 99% BW (MHz)	UNII 3 99% BW (MHz)
802.11ac MCS0/Nss1 VHT20	5720 MHz	22.61	17.97	5708.52	5711.06	16.48	6.13	13.94	4.03
802.11ac MCS0/Nss1 VHT40	5710 MHz	45.36	37.19	5687.10	5691.33	37.90	7.46	33.67	3.52
802.11ac MCS0/Nss1 VHT80	5690 MHz	88.12	76.41	5645.07	5651.80	79.93	8.19	73.20	3.21

<b>Temperature</b>	25°C	<b>Humidity</b>	50%
<b>Test Engineer</b>	Eddie Weng & Lucas Huang		
<b>Test Mode</b>	Mode 4: EUT 1 + Set 4 Sector Antenna / 7.5 dBi		

Mode	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11ac MCS0/Nss1 VHT20	5260 MHz	21.57	17.89
	5300 MHz	22.35	18.06
	5320 MHz	22.52	17.97
	5500 MHz	22.00	17.89
	5580 MHz	21.83	17.89
	5700 MHz	22.26	17.97
802.11ac MCS0/Nss1 VHT40	5270 MHz	45.80	37.48
	5310 MHz	44.35	36.76
	5510 MHz	45.22	37.19
	5550 MHz	44.49	36.76
	5670 MHz	47.97	37.05
802.11ac MCS0/Nss1 VHT80	5290 MHz	85.51	76.12
	5530 MHz	86.67	76.12
	5610 MHz	87.54	76.41

**Straddle Channel**

Mode	Frequency	26dB BW (MHz)	99% OBW (MHz)	26dB BW F1 (MHz)	99% OBW T1 (MHz)	UNII 2C 26dB BW (MHz)	UNII 3 26dB BW (MHz)	UNII 2C 99% BW (MHz)	UNII 3 99% BW (MHz)
802.11ac MCS0/Nss1 VHT20	5720 MHz	21.91	17.97	5709.39	5711.06	15.61	6.30	13.94	4.03
802.11ac MCS0/Nss1 VHT40	5710 MHz	45.07	37.19	5687.39	5691.48	37.61	7.46	33.52	3.67
802.11ac MCS0/Nss1 VHT80	5690 MHz	86.38	76.41	5646.81	5651.80	78.19	8.19	73.20	3.21



<b>Temperature</b>	25°C	<b>Humidity</b>	50%
<b>Test Engineer</b>	Eddie Weng & Lucas Huang		
<b>Test Mode</b>	Mode 5: EUT 1 + Set 5 Sector Antenna / 4.5 dBi		

Mode	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11ac MCS0/Nss1 VHT20	5260 MHz	22.70	17.97
	5300 MHz	23.22	18.06
	5320 MHz	23.13	18.15
	5500 MHz	22.87	18.06
	5580 MHz	23.30	18.06
	5700 MHz	24.26	18.15
802.11ac MCS0/Nss1 VHT40	5270 MHz	60.58	37.34
	5310 MHz	55.51	37.34
	5510 MHz	48.26	37.34
	5550 MHz	60.29	37.48
	5670 MHz	52.46	37.48
802.11ac MCS0/Nss1 VHT80	5290 MHz	87.54	76.41
	5530 MHz	88.70	76.41
	5610 MHz	87.25	76.41

**Straddle Channel**

Mode	Frequency	26dB BW (MHz)	99% OBW (MHz)	26dB BW F1 (MHz)	99% OBW T1 (MHz)	UNII 2C 26dB BW (MHz)	UNII 3 26dB BW (MHz)	UNII 2C 99% BW (MHz)	UNII 3 99% BW (MHz)
802.11ac MCS0/Nss1 VHT20	5720 MHz	22.70	17.97	5708.52	5711.06	16.48	6.22	13.94	4.03
802.11ac MCS0/Nss1 VHT40	5710 MHz	45.51	37.05	5687.10	5691.48	37.90	7.61	33.52	3.52
802.11ac MCS0/Nss1 VHT80	5690 MHz	88.12	76.41	5645.07	5651.80	79.93	8.19	73.20	3.21

<b>Temperature</b>	25°C	<b>Humidity</b>	50%
<b>Test Engineer</b>	Eddie Weng & Lucas Huang		
<b>Test Mode</b>	Mode 6: EUT 1 + Set 6 Sector Antenna / 4 dBi		

Mode	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11ac MCS0/Nss1 VHT20	5260 MHz	26.26	17.97
	5300 MHz	23.65	18.06
	5320 MHz	23.22	18.15
	5500 MHz	23.57	18.06
	5580 MHz	23.65	18.06
	5700 MHz	26.78	18.06
802.11ac MCS0/Nss1 VHT40	5270 MHz	62.03	37.48
	5310 MHz	45.65	36.90
	5510 MHz	45.51	37.05
	5550 MHz	49.13	37.19
	5670 MHz	51.88	37.19
802.11ac MCS0/Nss1 VHT80	5290 MHz	84.93	76.41
	5530 MHz	86.96	76.12
	5610 MHz	87.54	76.41

**Straddle Channel**

Mode	Frequency	26dB BW (MHz)	99% OBW (MHz)	26dB BW F1 (MHz)	99% OBW T1 (MHz)	UNII 2C 26dB BW (MHz)	UNII 3 26dB BW (MHz)	UNII 2C 99% BW (MHz)	UNII 3 99% BW (MHz)
802.11ac MCS0/Nss1 VHT20	5720 MHz	22.70	17.97	5708.52	5711.06	16.48	6.22	13.94	4.03
802.11ac MCS0/Nss1 VHT40	5710 MHz	45.22	37.05	5687.25	5691.48	37.75	7.46	33.52	3.52
802.11ac MCS0/Nss1 VHT80	5690 MHz	88.12	76.41	5645.07	5651.80	79.93	8.19	73.20	3.21

<b>Temperature</b>	25°C	<b>Humidity</b>	50%
<b>Test Engineer</b>	Eddie Weng & Lucas Huang		
<b>Test Mode</b>	Mode 7: EUT 1 + Set 9 Dipole Antenna / 4.67 dBi		

Mode	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11ac MCS0/Nss1 VHT20	5260 MHz	21.57	17.89
	5300 MHz	22.35	18.06
	5320 MHz	22.52	17.97
	5500 MHz	22.00	17.89
	5580 MHz	21.83	17.89
	5700 MHz	22.26	17.97
802.11ac MCS0/Nss1 VHT40	5270 MHz	45.80	37.48
	5310 MHz	44.35	36.90
	5510 MHz	45.22	37.19
	5550 MHz	44.49	36.76
	5670 MHz	47.97	37.05
802.11ac MCS0/Nss1 VHT80	5290 MHz	85.22	76.41
	5530 MHz	86.67	76.41
	5610 MHz	87.54	76.41

**Straddle Channel**

Mode	Frequency	26dB BW (MHz)	99% OBW (MHz)	26dB BW F1 (MHz)	99% OBW T1 (MHz)	UNII 2C 26dB BW (MHz)	UNII 3 26dB BW (MHz)	UNII 2C 99% BW (MHz)	UNII 3 99% BW (MHz)
802.11ac MCS0/Nss1 VHT20	5720 MHz	21.65	17.97	5709.22	5711.06	15.78	5.87	13.94	4.03
802.11ac MCS0/Nss1 VHT40	5710 MHz	44.64	36.90	5687.39	5691.48	37.61	7.03	33.52	3.38
802.11ac MCS0/Nss1 VHT80	5690 MHz	86.67	76.41	5646.52	5651.80	78.48	8.19	73.20	3.21

<b>Temperature</b>	25°C	<b>Humidity</b>	50%
<b>Test Engineer</b>	Eddie Weng & Lucas Huang		
<b>Test Mode</b>	Mode 8: EUT 2 + Set 10 PIFA Antenna / Chain1:5.84 dBi, Chain2:5.50 dBi, Chain3:5.84 dBi, Chain4:5.65 dBi		

Mode	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11ac MCS0/Nss1 VHT20	5260 MHz	22.26	18.06
	5300 MHz	22.52	17.97
	5320 MHz	23.04	17.97
	5500 MHz	22.61	17.97
	5580 MHz	23.04	18.06
	5700 MHz	21.91	17.89
802.11ac MCS0/Nss1 VHT40	5270 MHz	46.09	37.05
	5310 MHz	45.65	37.34
	5510 MHz	45.36	37.34
	5550 MHz	44.93	37.34
	5670 MHz	45.80	37.34
802.11ac MCS0/Nss1 VHT80	5290 MHz	88.41	76.70
	5530 MHz	87.25	76.12
	5610 MHz	87.25	76.41

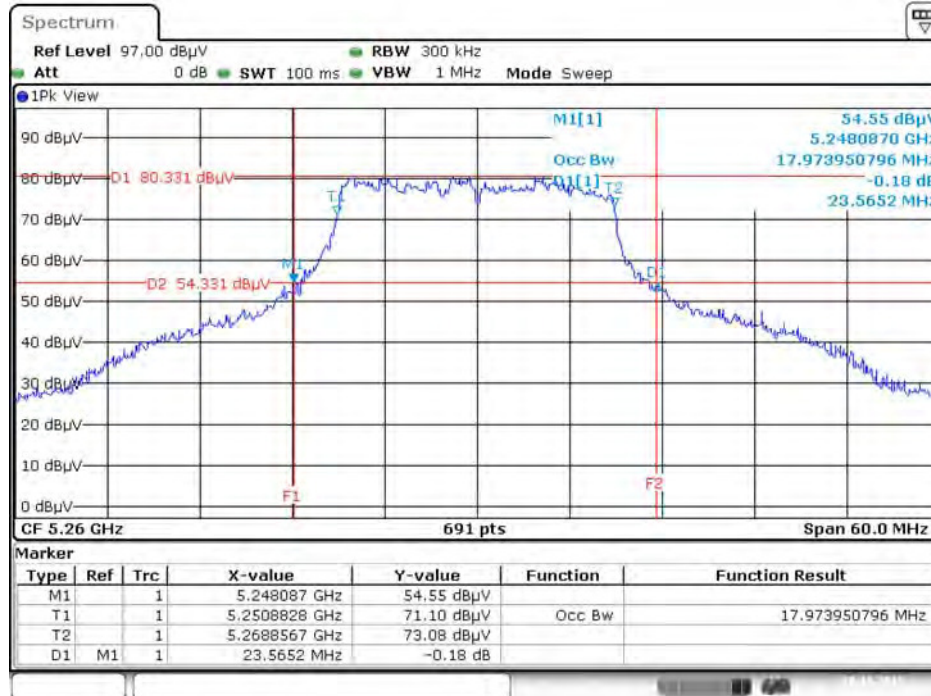
**Straddle Channel**

Mode	Frequency	26dB BW (MHz)	99% OBW (MHz)	26dB BW F1 (MHz)	99% OBW T1 (MHz)	UNII 2C 26dB BW (MHz)	UNII 3 26dB BW (MHz)	UNII 2C 99% BW (MHz)	UNII 3 99% BW (MHz)
802.11ac MCS0/Nss1 VHT20	5720 MHz	22.52	17.89	5708.35	5710.97	16.65	5.87	14.03	3.86
802.11ac MCS0/Nss1 VHT40	5710 MHz	45.36	37.05	5687.54	5691.48	37.46	7.90	33.52	3.52
802.11ac MCS0/Nss1 VHT80	5690 MHz	88.12	76.41	5645.65	5651.80	79.35	8.77	73.20	3.21



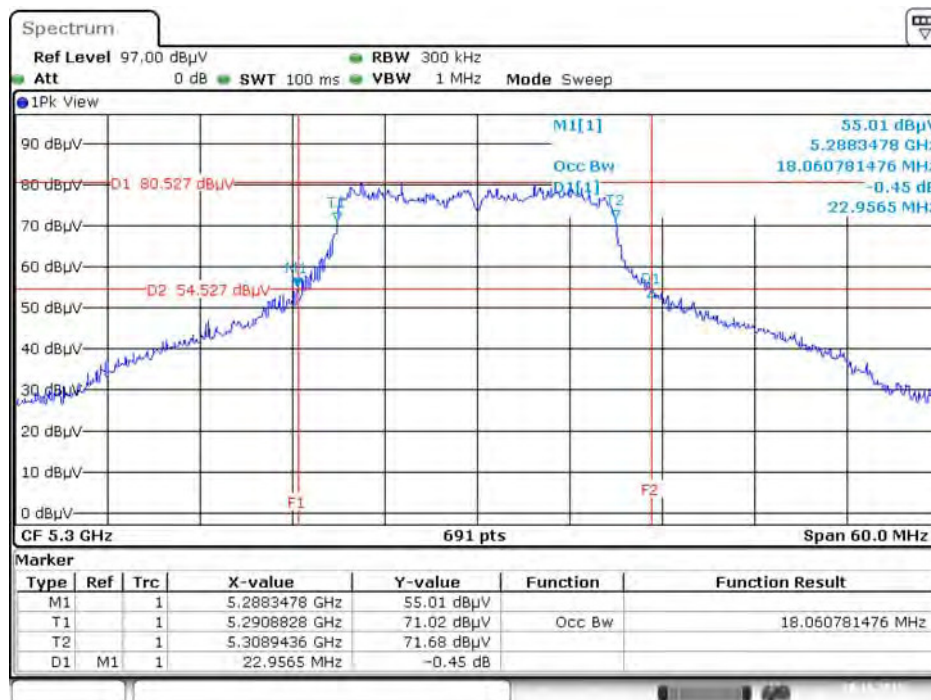
**Mode 1: EUT 1 + Set 1 Ceiling Mount Omni Antenna / 7 dBi**

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



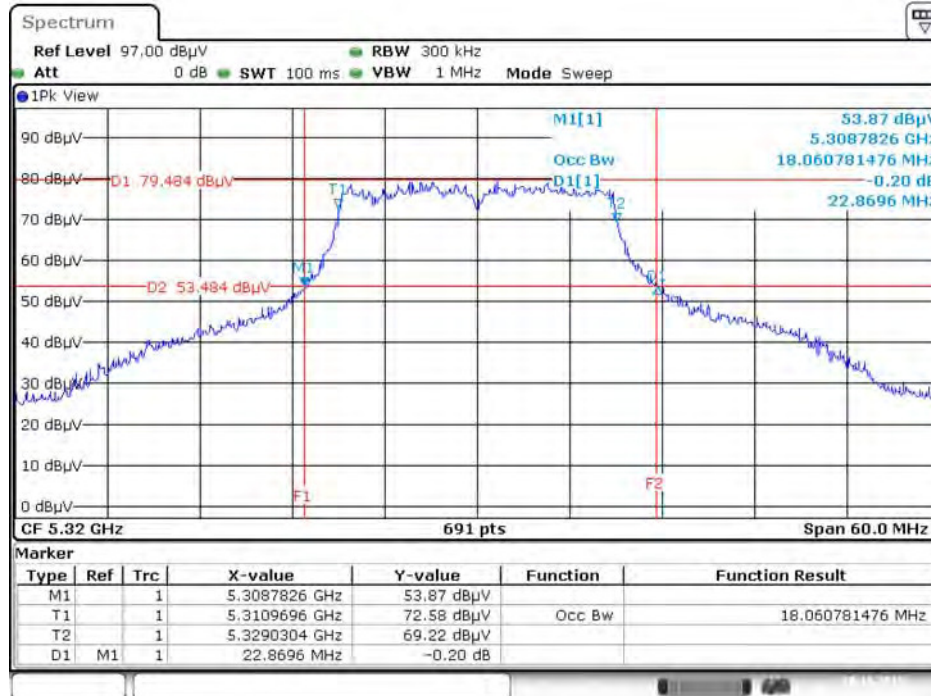
Date: 28.NOV.2015 01:31:34

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



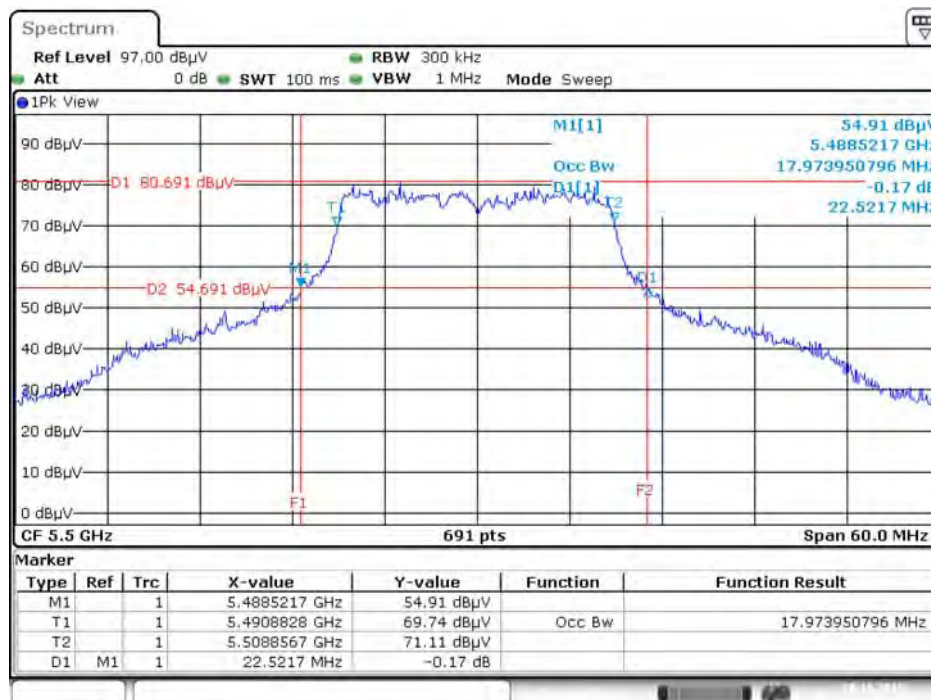
Date: 28.NOV.2015 01:31:08

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



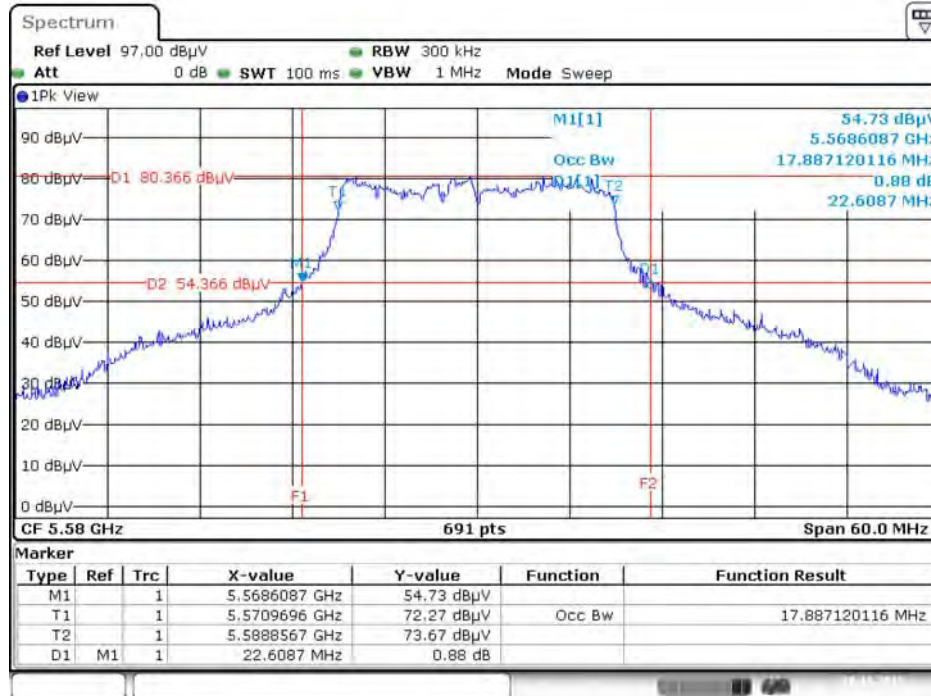
Date: 28.NOV.2015 01:31:59

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



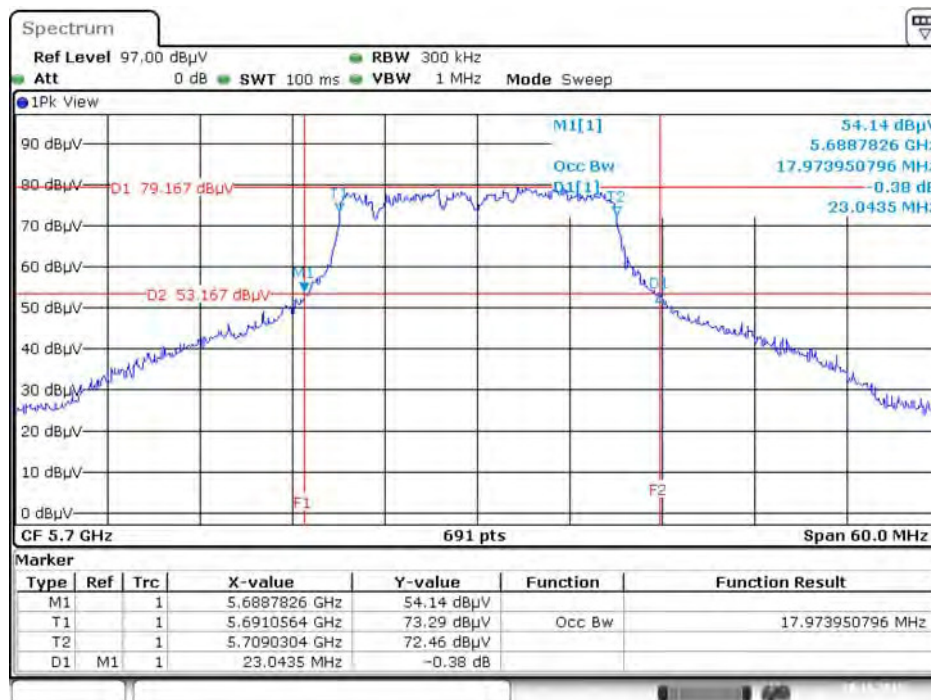
Date: 28.NOV.2015 01:32:24

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



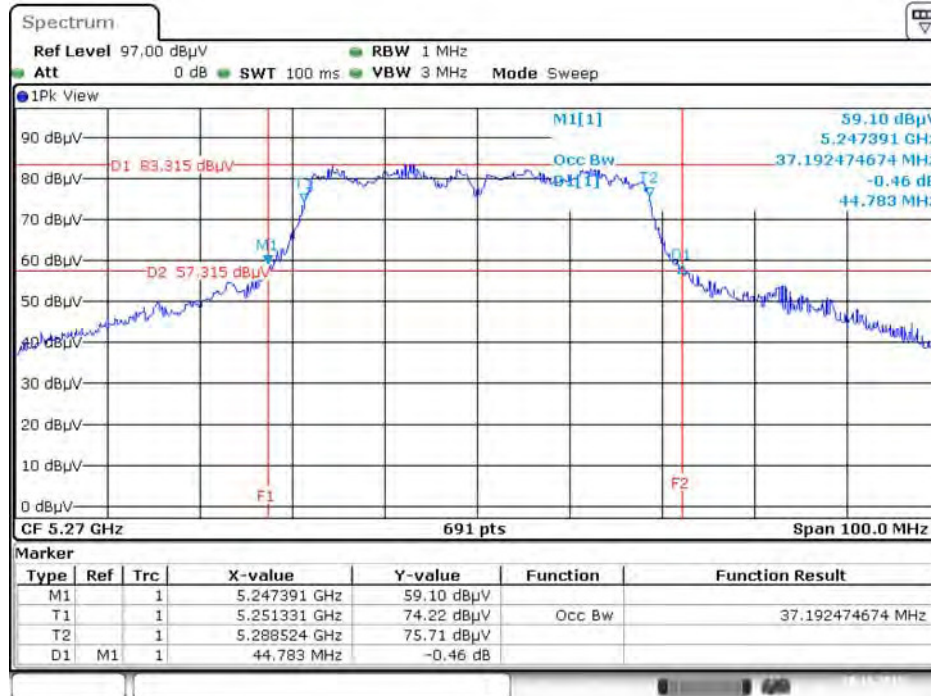
Date: 28.NOV.2015 01:32:52

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



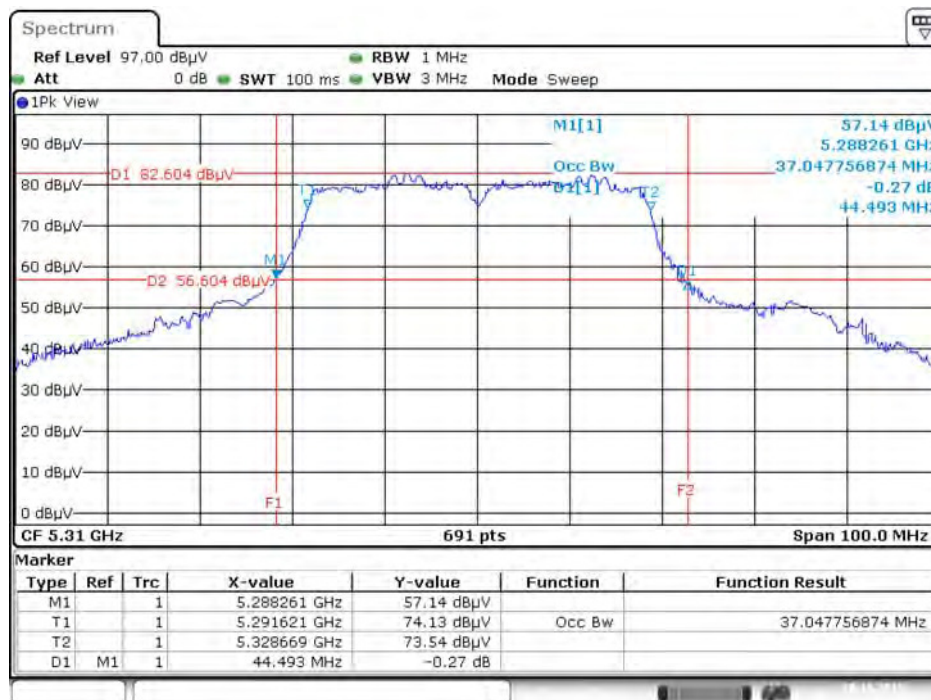
Date: 28.NOV.2015 01:33:19

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



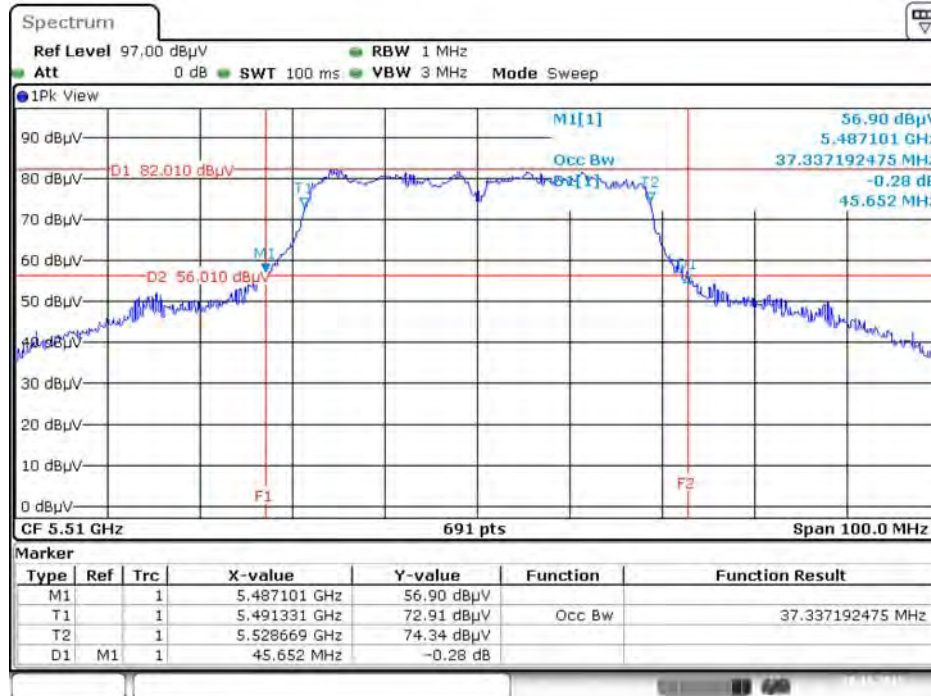
Date: 28.NOV.2015 01:36:58

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



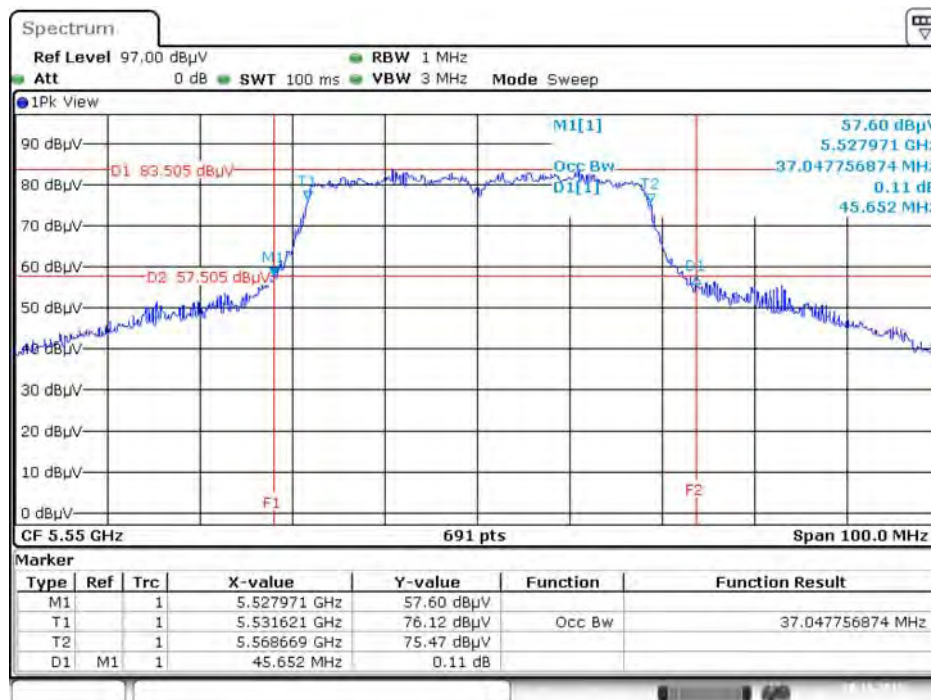
Date: 28.NOV.2015 01:37:27

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



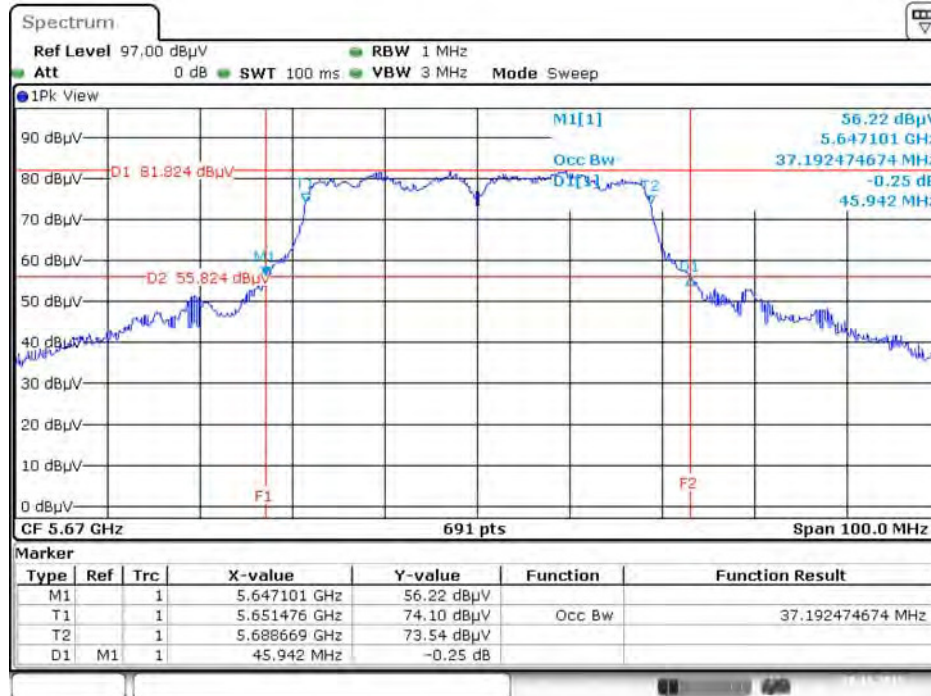
Date: 28.NOV.2015 01:48:11

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



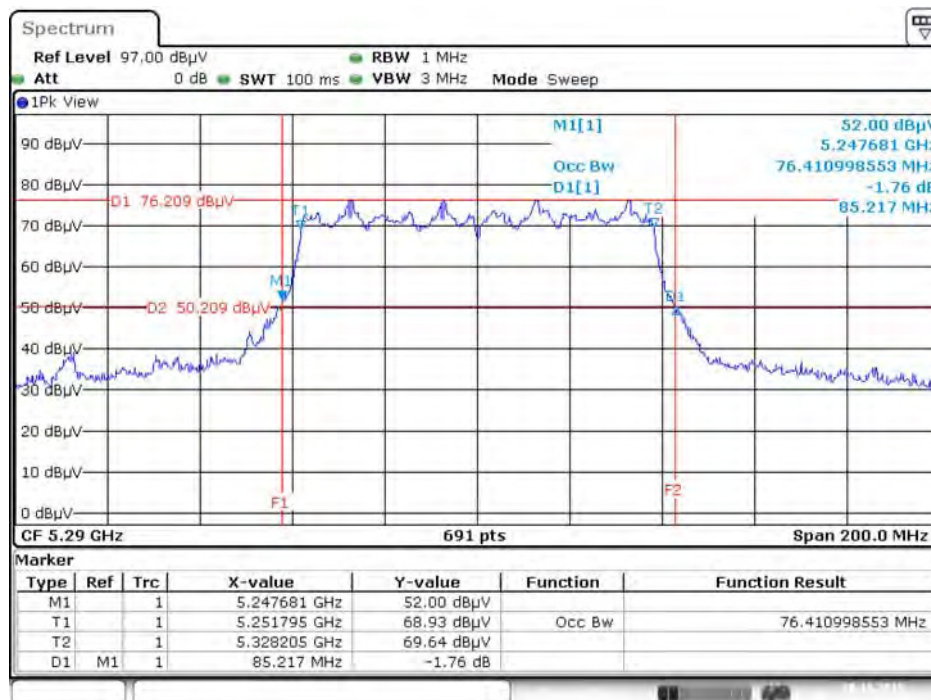
Date: 28.NOV.2015 02:06:17

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



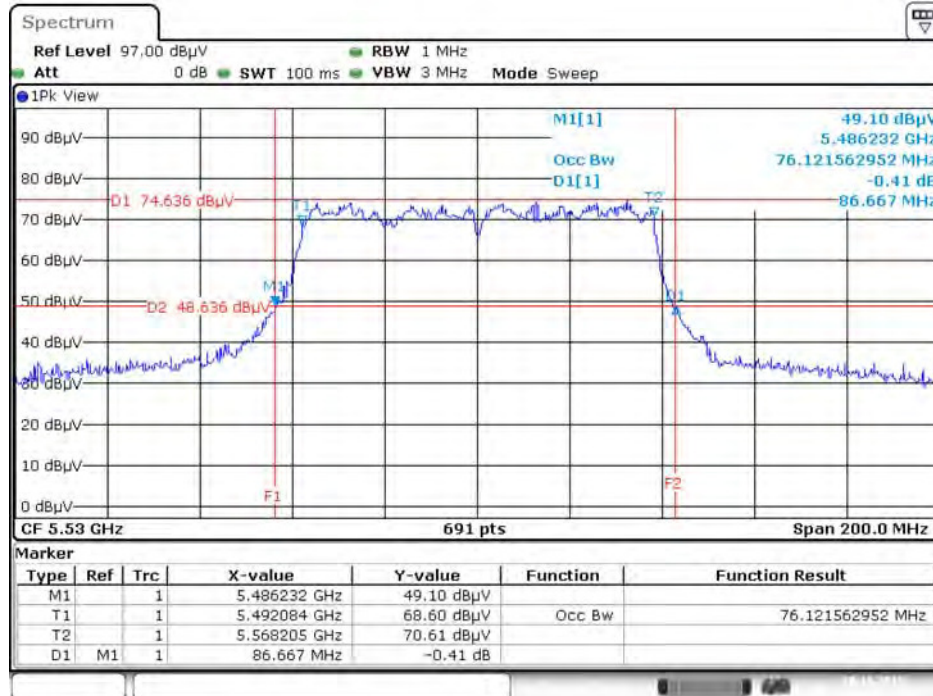
Date: 28.NOV.2015 01:49:28

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



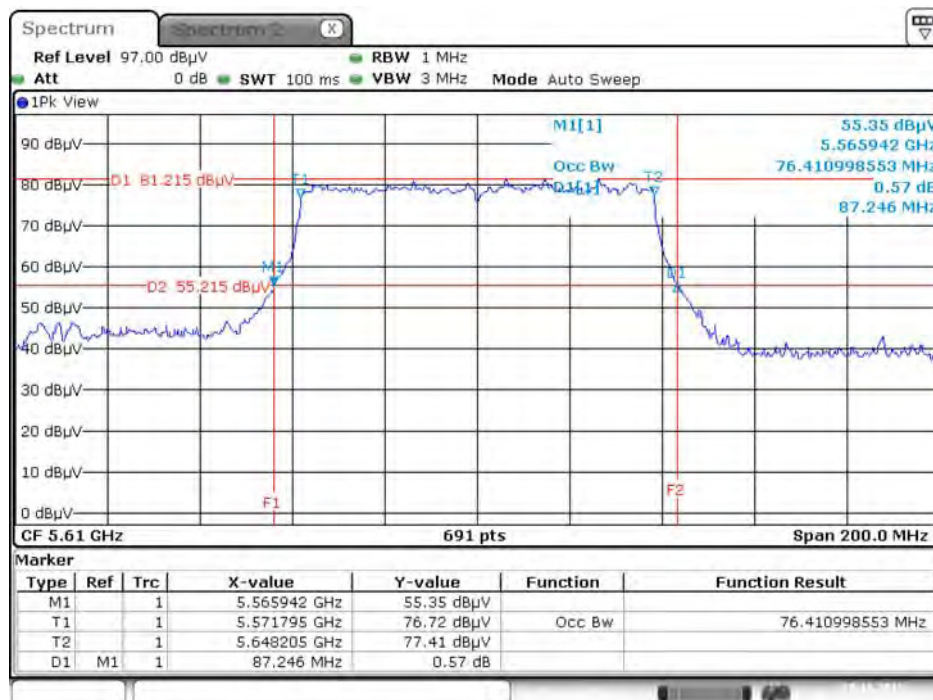
Date: 28.NOV.2015 01:51:46

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



Date: 28.NOV.2015 01:52:21

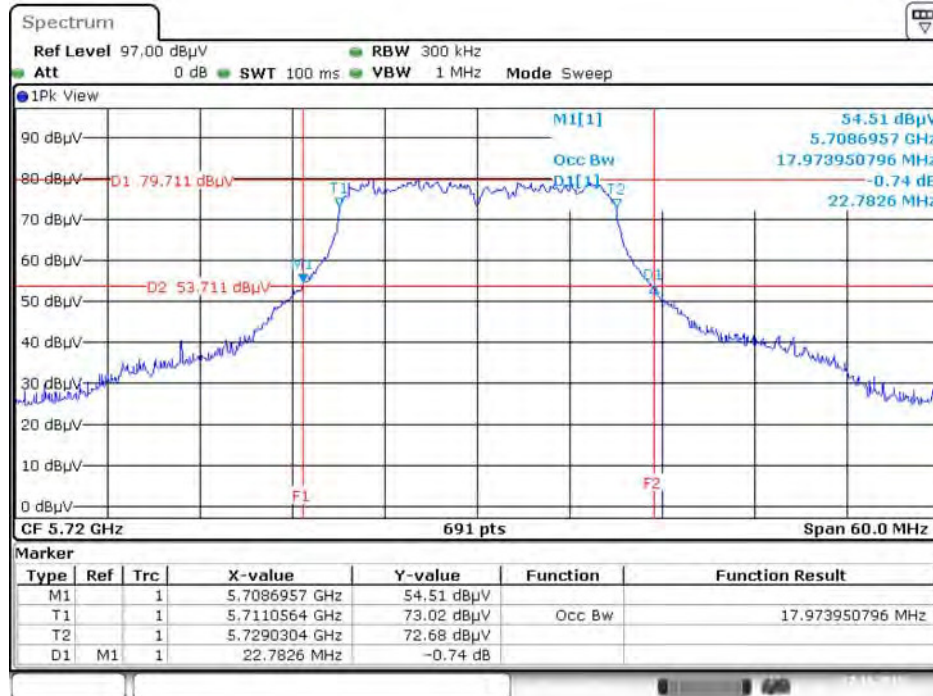
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5610 MHz



Date: 29.NOV.2015 01:42:08

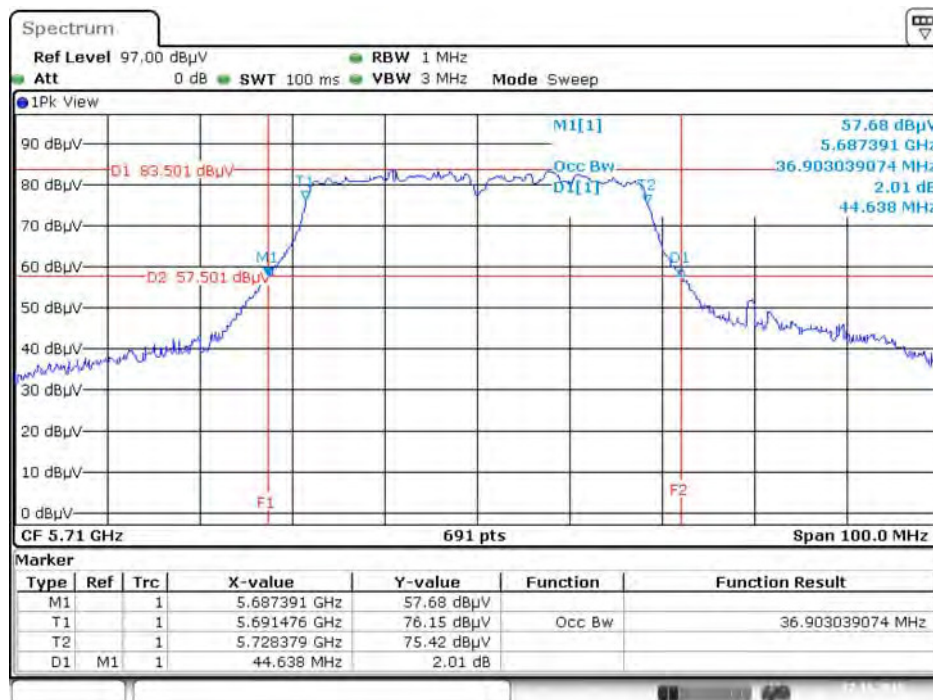
**Straddle Channel**

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



Date: 27.NOV.2015 10:56:40

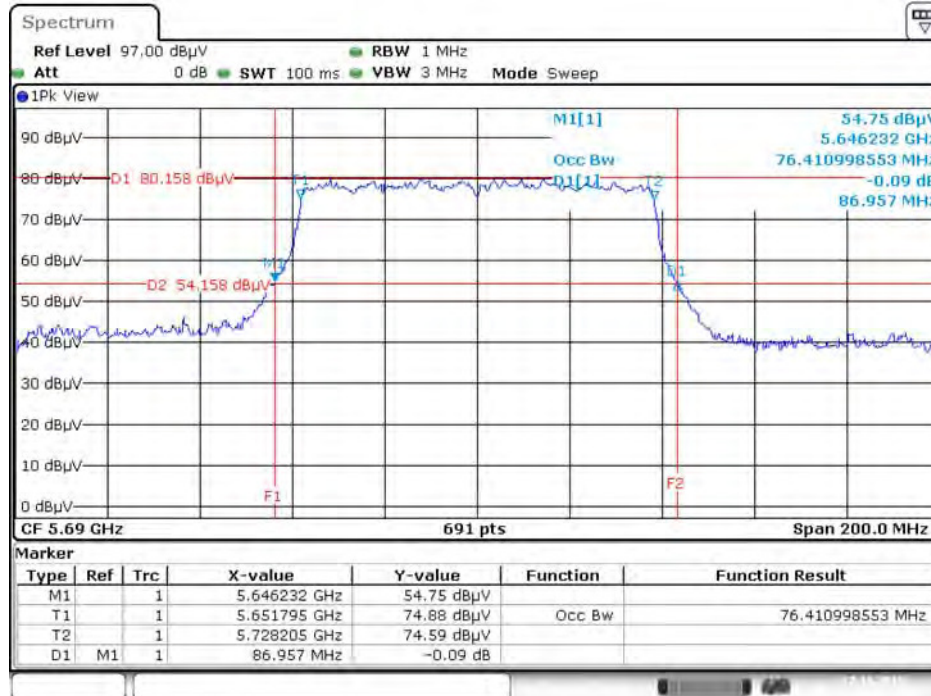
**26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5710 MHz**



Date: 27.NOV.2015 10:59:24



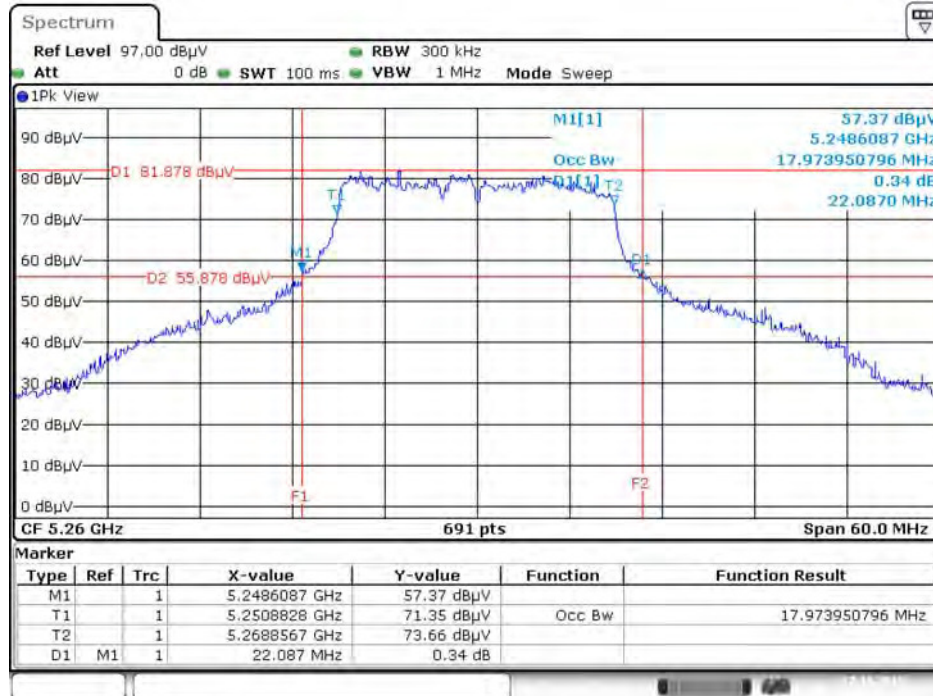
**26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5690 MHz**



Date: 27.NOV.2015 11:02:25

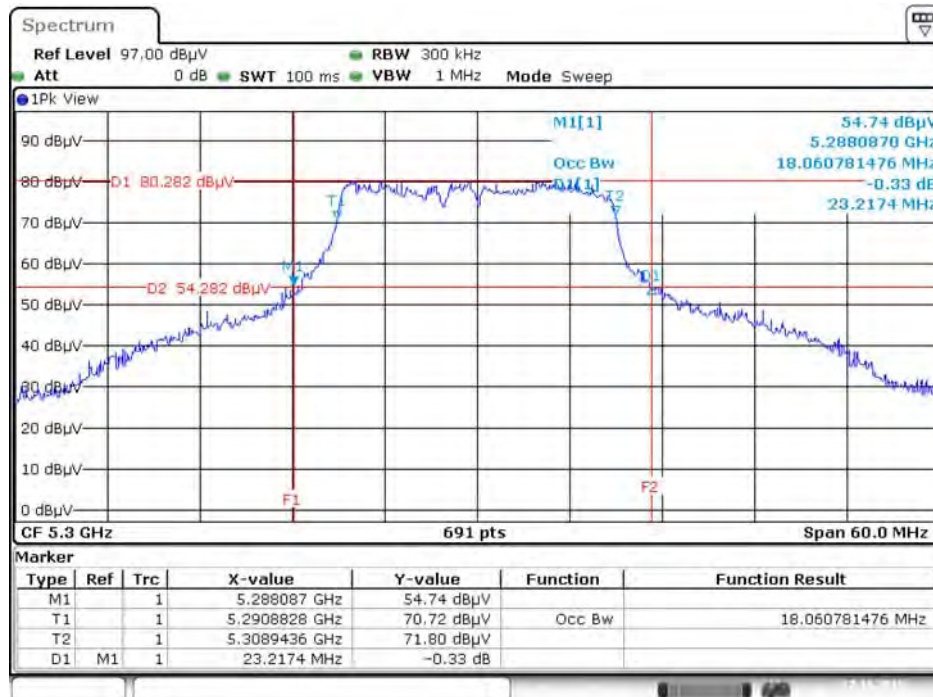
**Mode 2: EUT 1 + Set 2 Sector Antenna / 6.5 dBi**

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



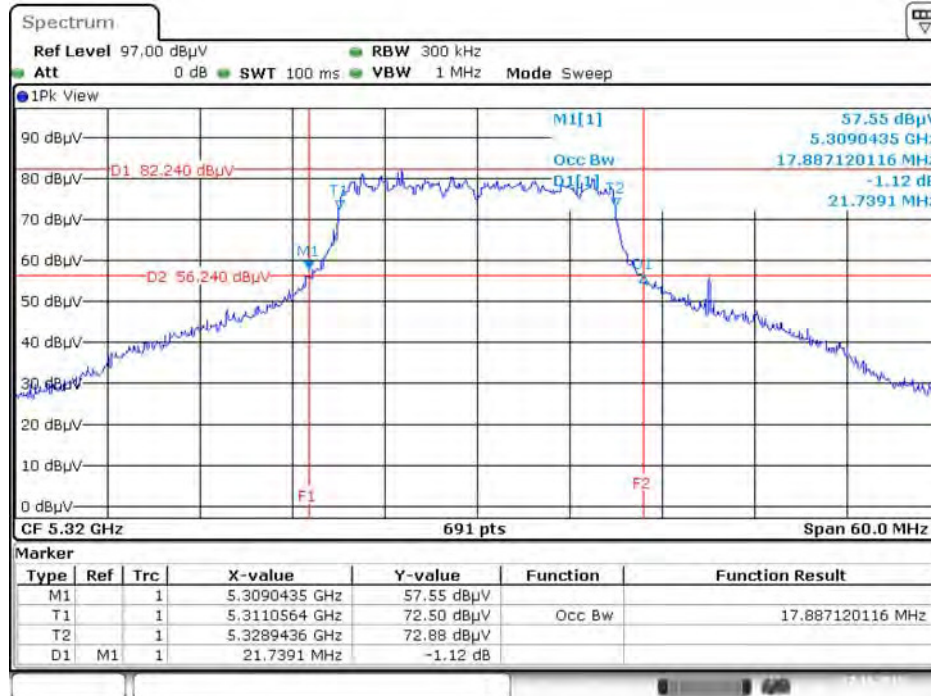
Date: 27.NOV.2015 22:42:33

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



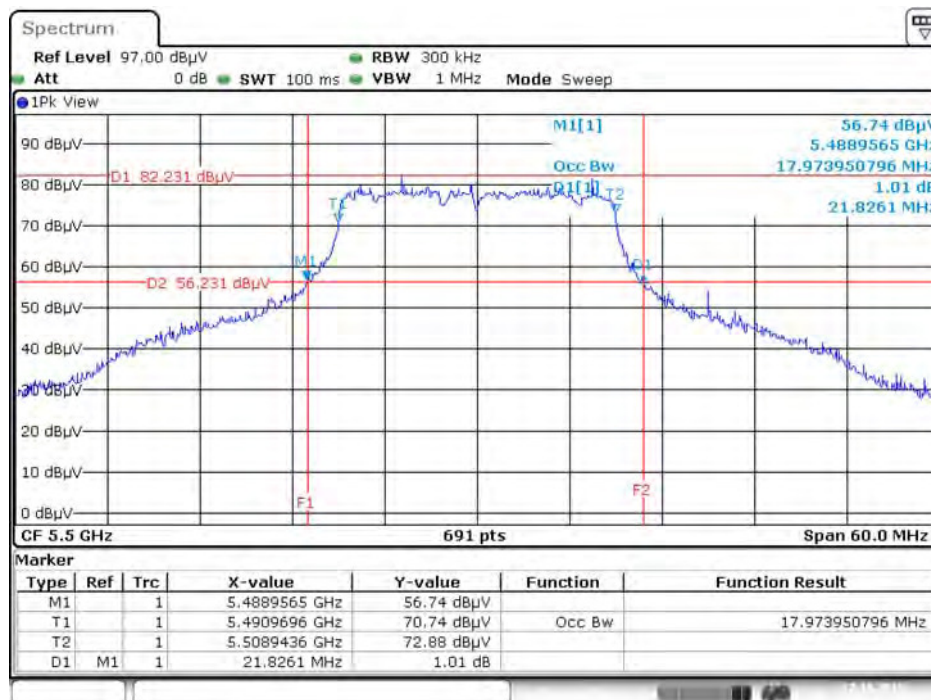
Date: 27.NOV.2015 22:43:01

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



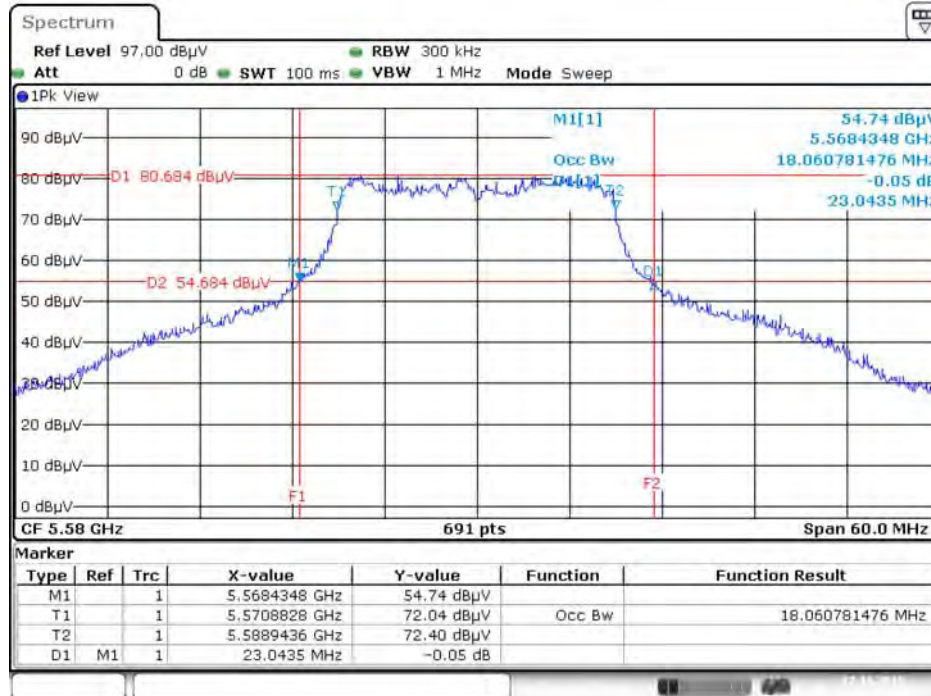
Date: 27.NOV.2015 23:15:13

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



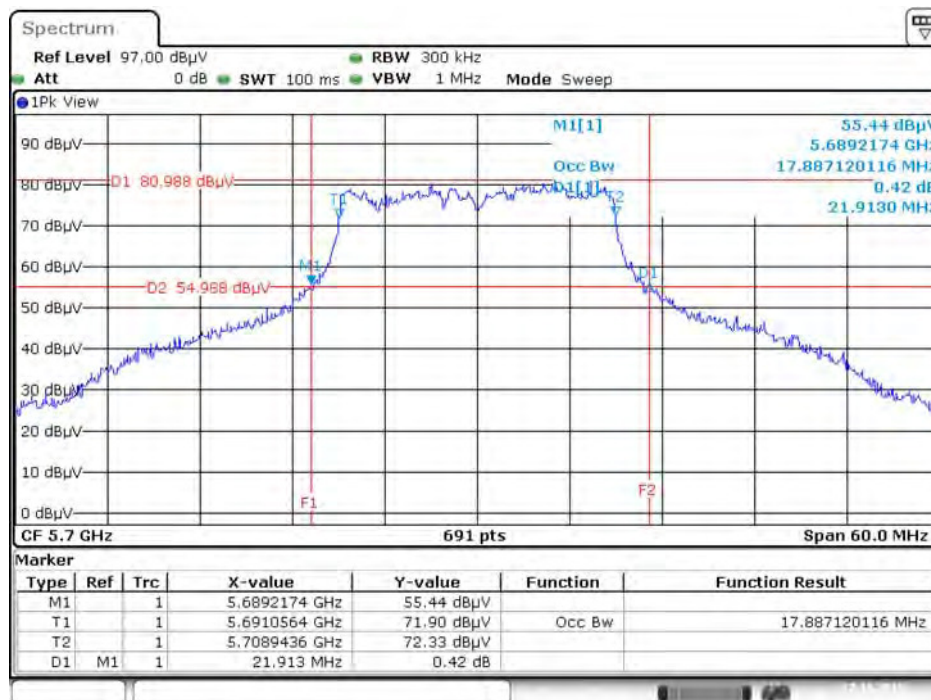
Date: 27.NOV.2015 23:14:53

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



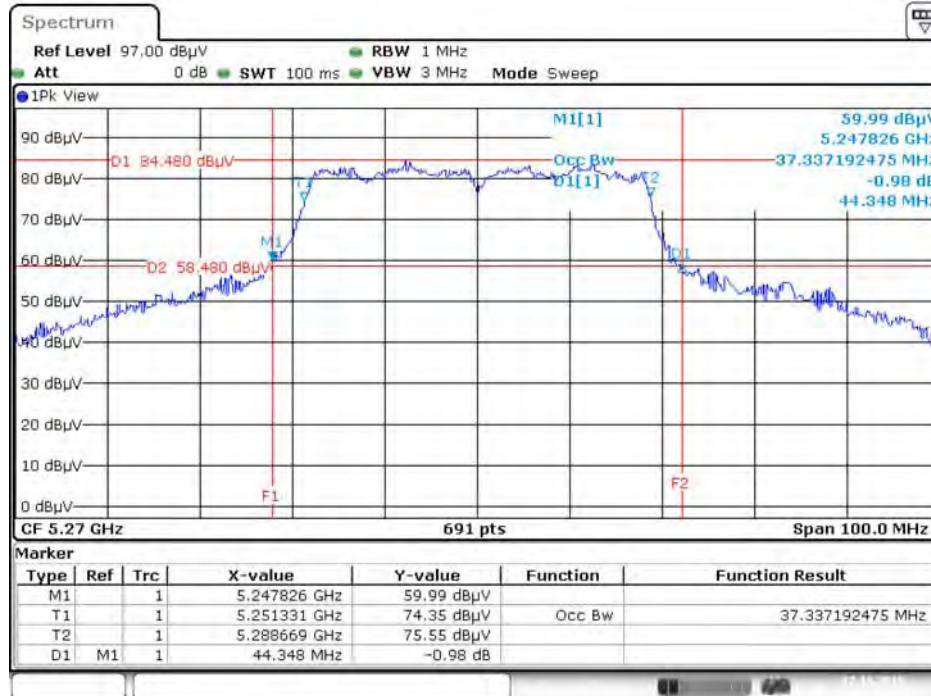
Date: 27.NOV.2015 23:15:56

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



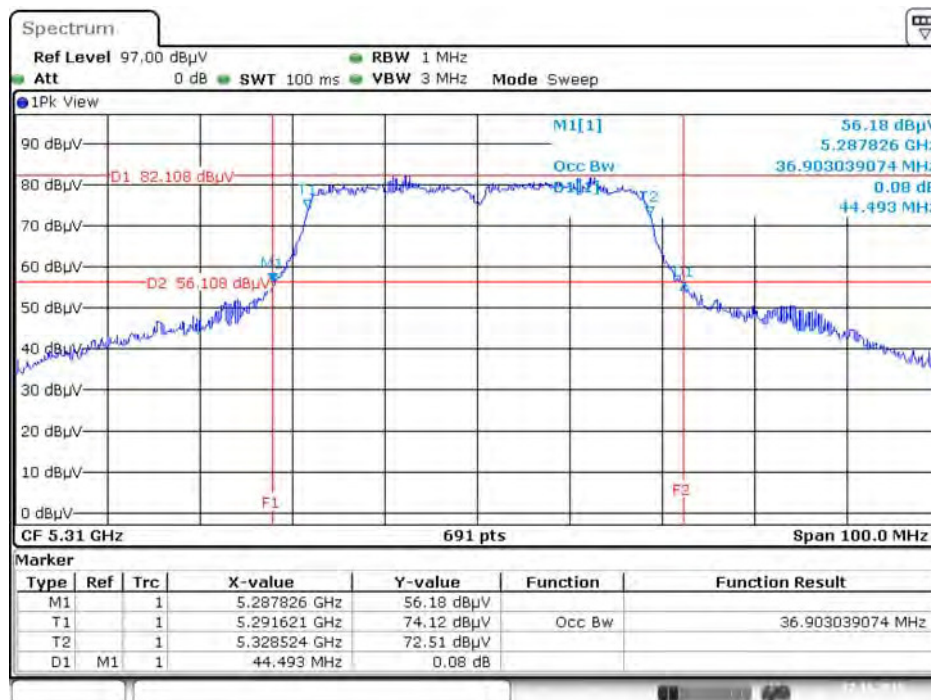
Date: 27.NOV.2015 23:16:21

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



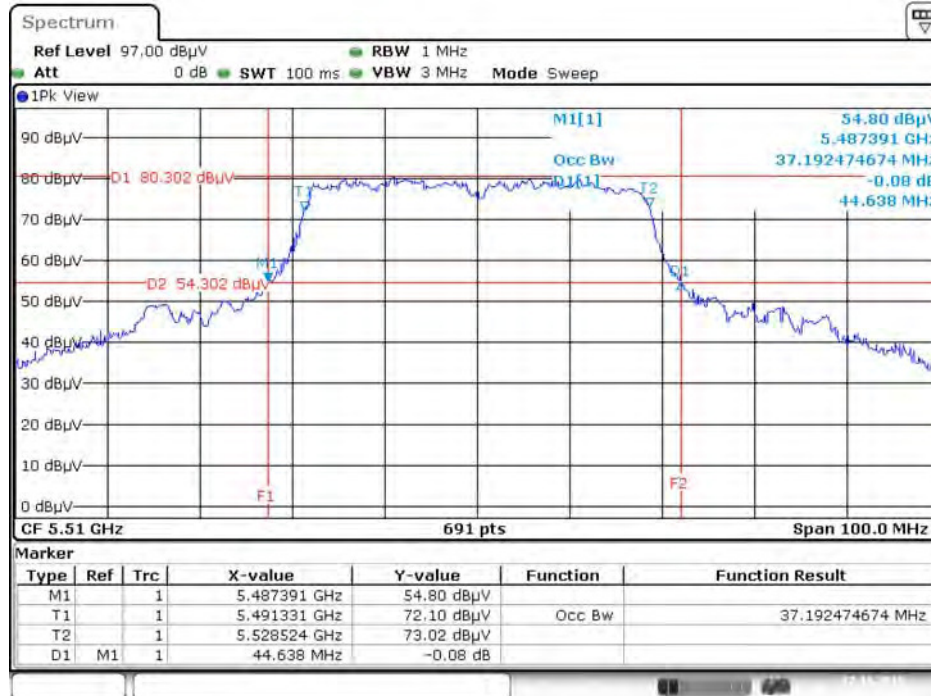
Date: 27.NOV.2015 23:19:59

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



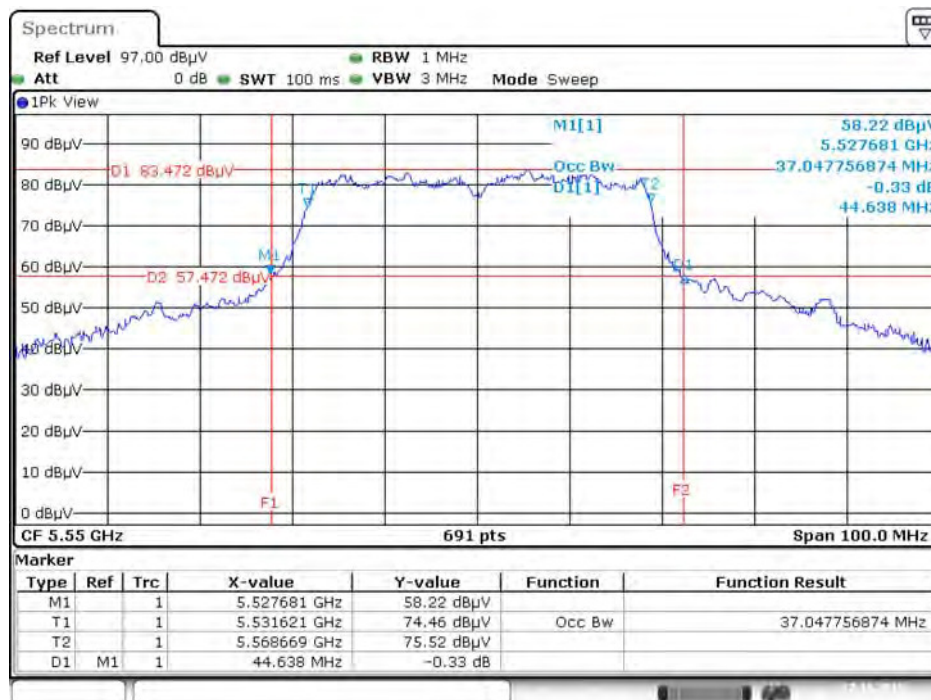
Date: 27.NOV.2015 23:20:39

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



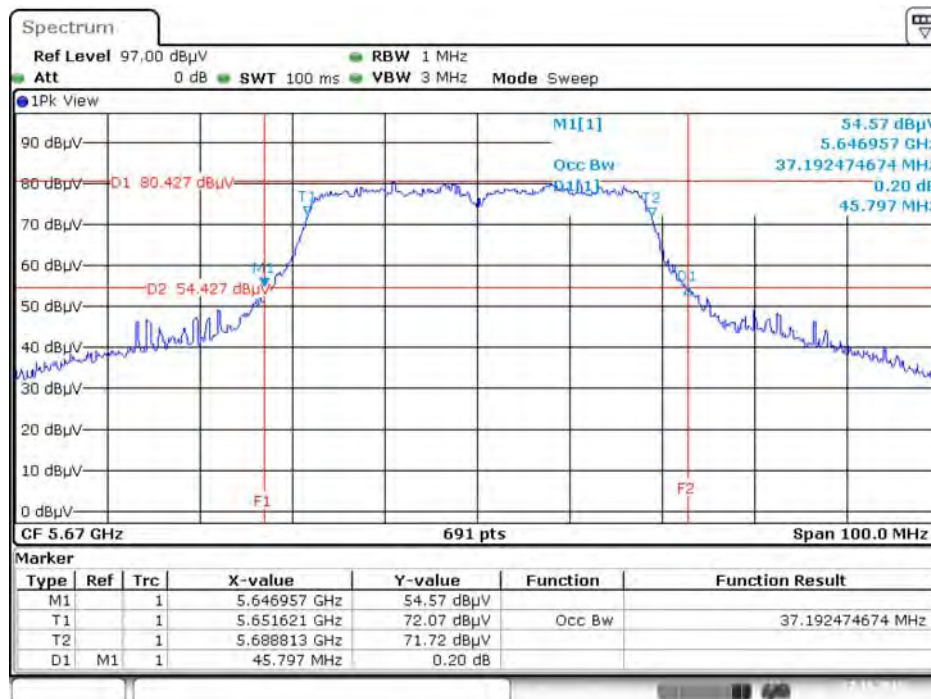
Date: 27.NOV.2015 23:21:06

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



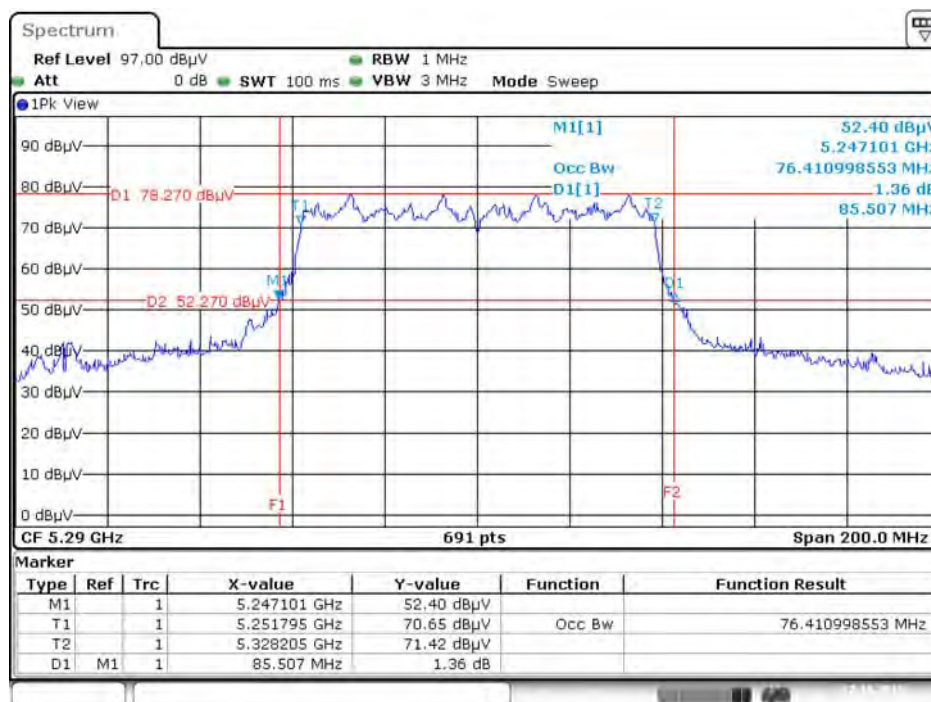
Date: 27.NOV.2015 23:22:21

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



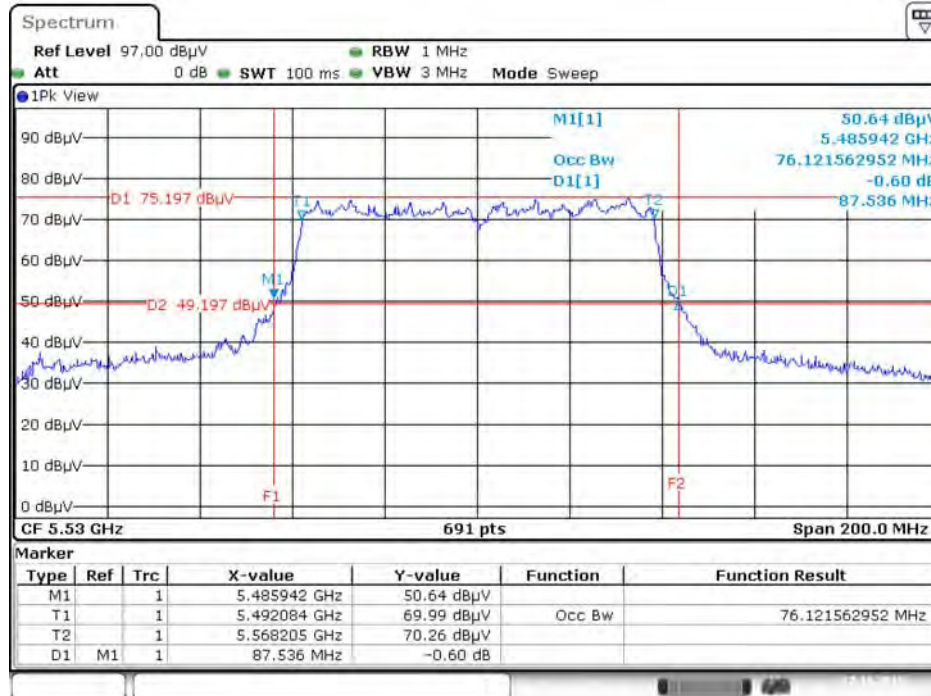
Date: 27.NOV.2015 23:21:41

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



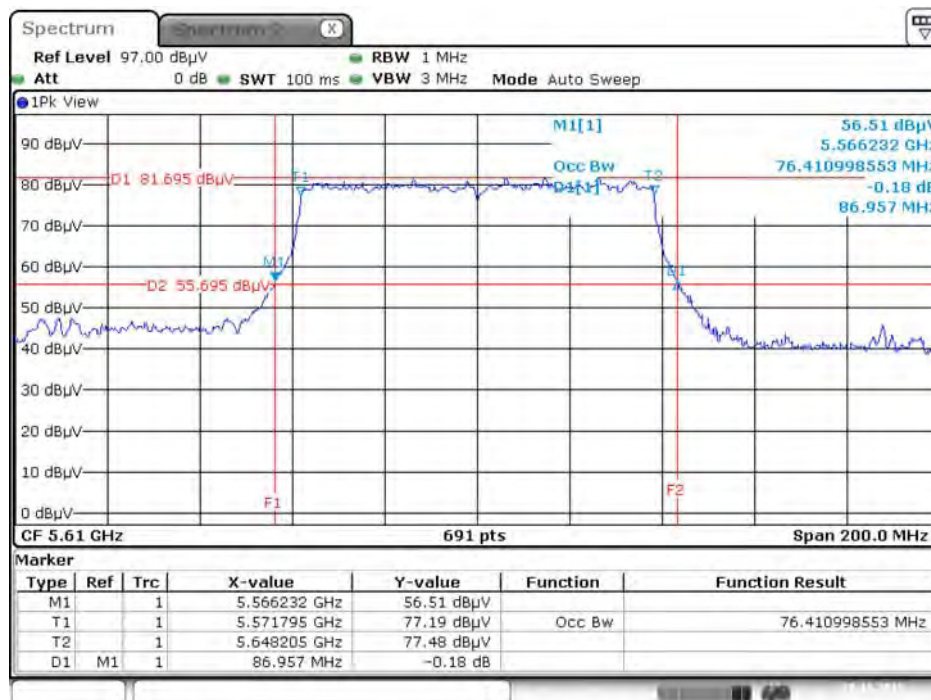
Date: 27.NOV.2015 23:24:46

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



Date: 27.NOV.2015 23:25:22

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

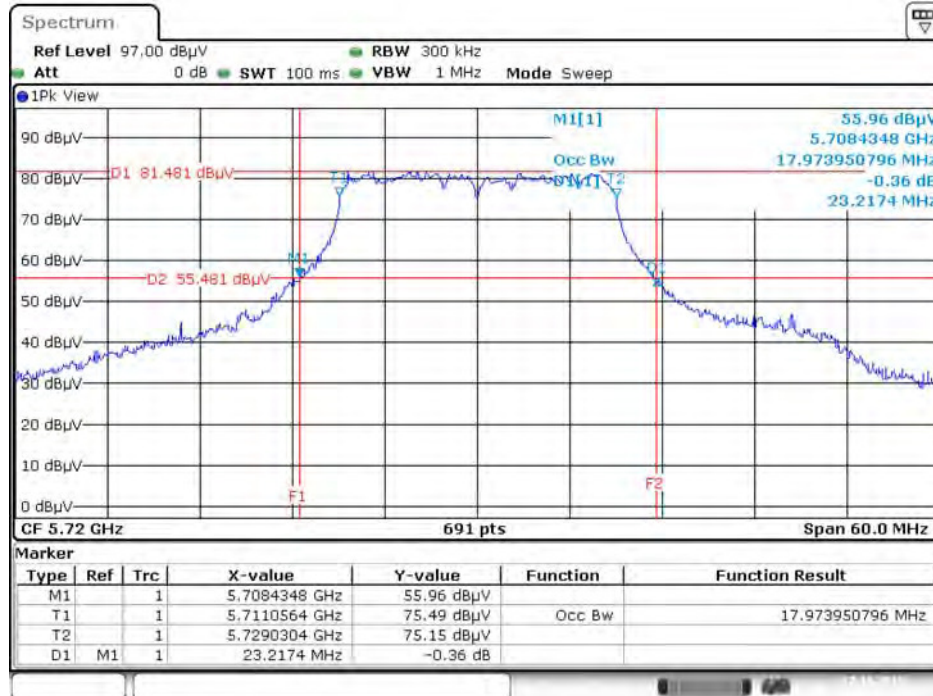


Date: 29.NOV.2015 00:27:24



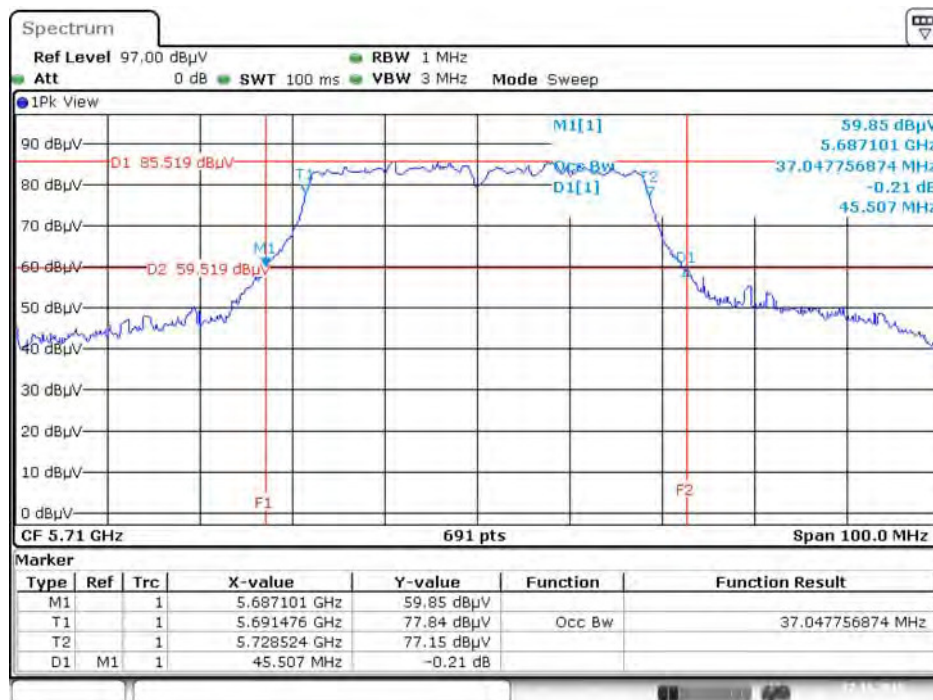
**Straddle Channel**

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



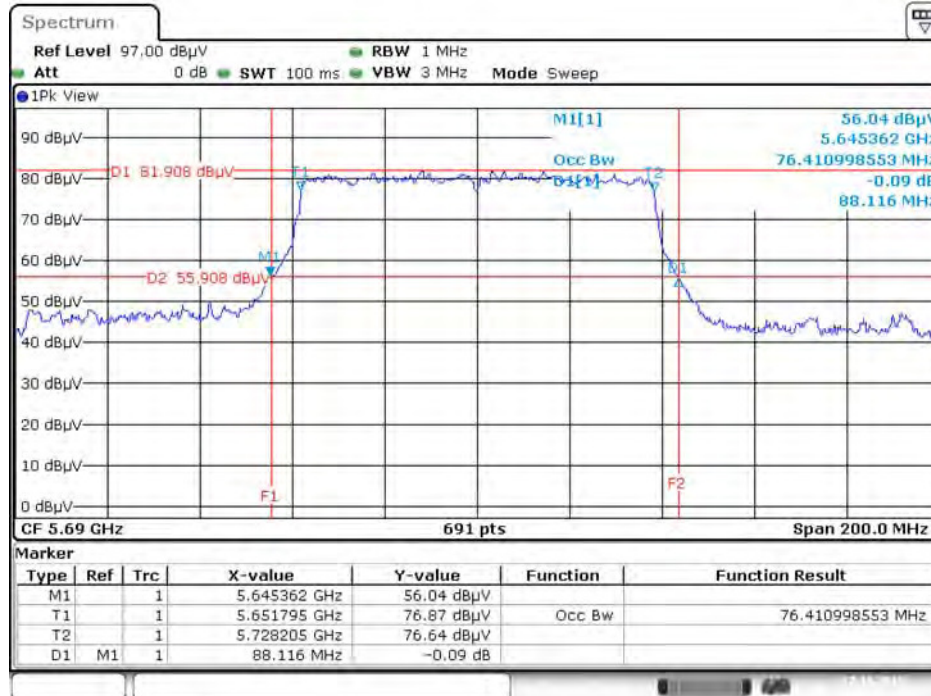
Date: 27.NOV.2015 10:26:32

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



Date: 27.NOV.2015 10:24:10

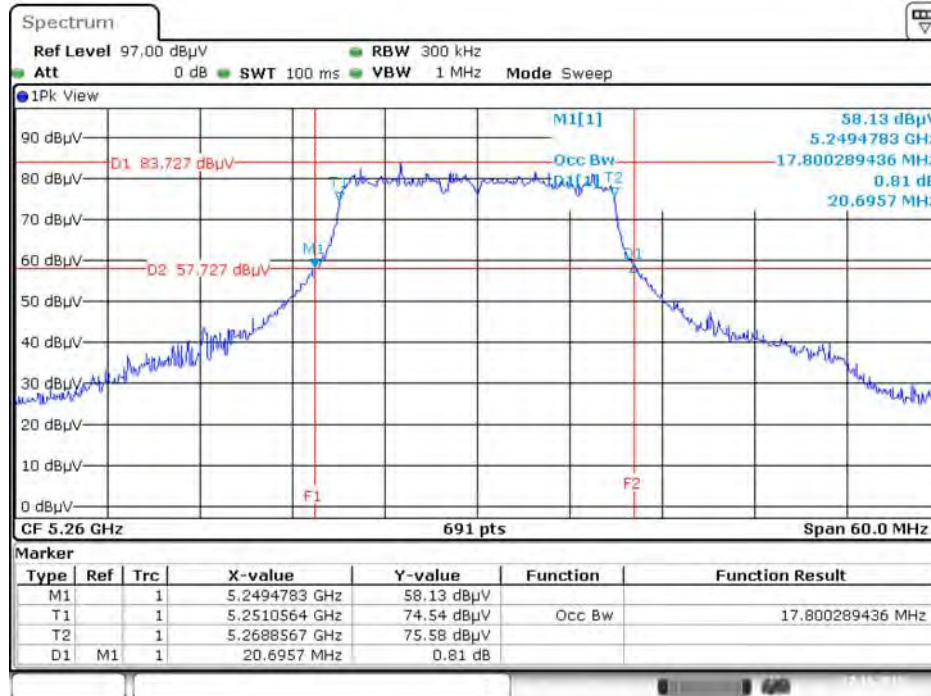
**26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5690 MHz**



Date: 27.NOV.2015 10:20:43

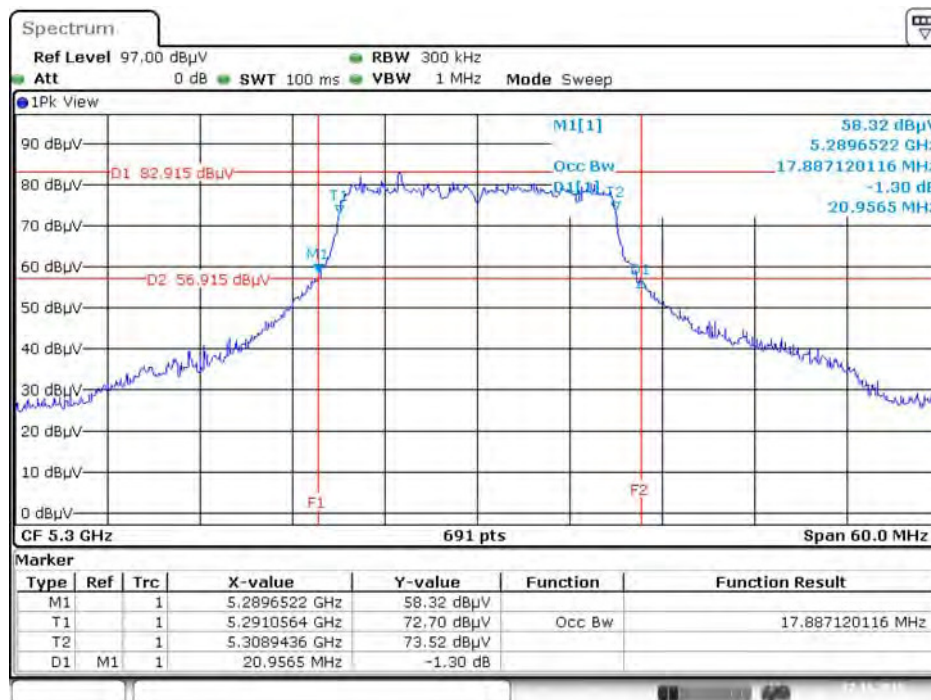
**Mode 3: EUT 1 + Set 3 Sector Antenna / 5.5 dBi**

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



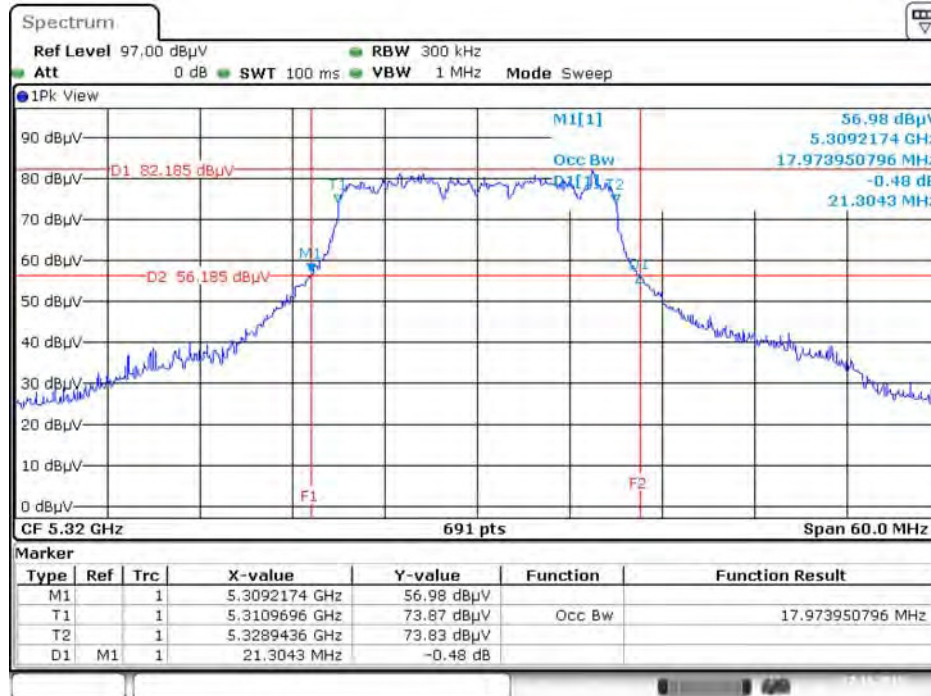
Date: 27.NOV.2015 21:17:43

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



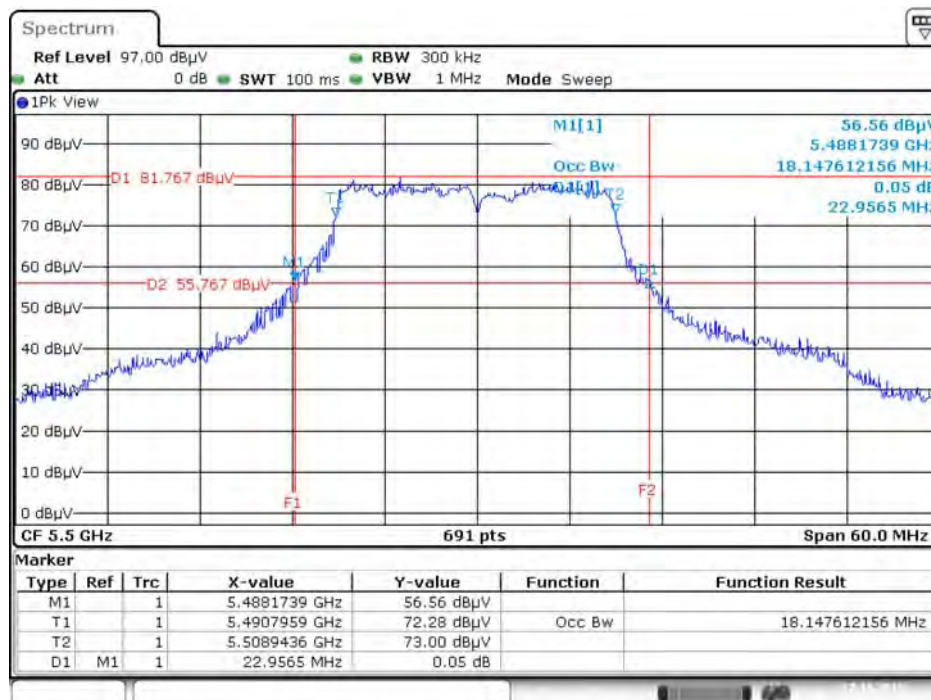
Date: 27.NOV.2015 21:18:16

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



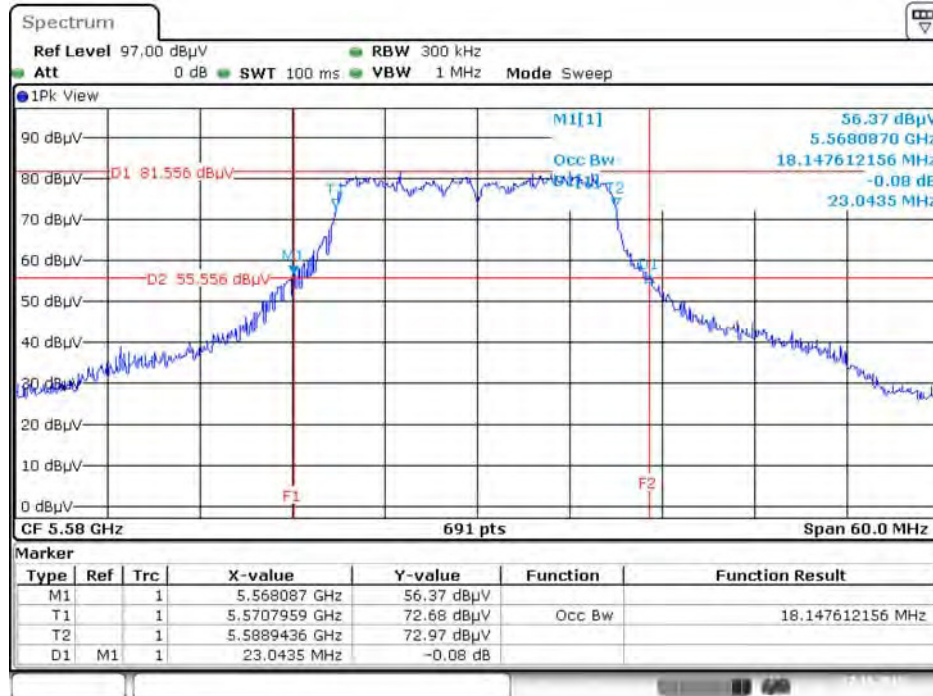
Date: 27.NOV.2015 21:18:38

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



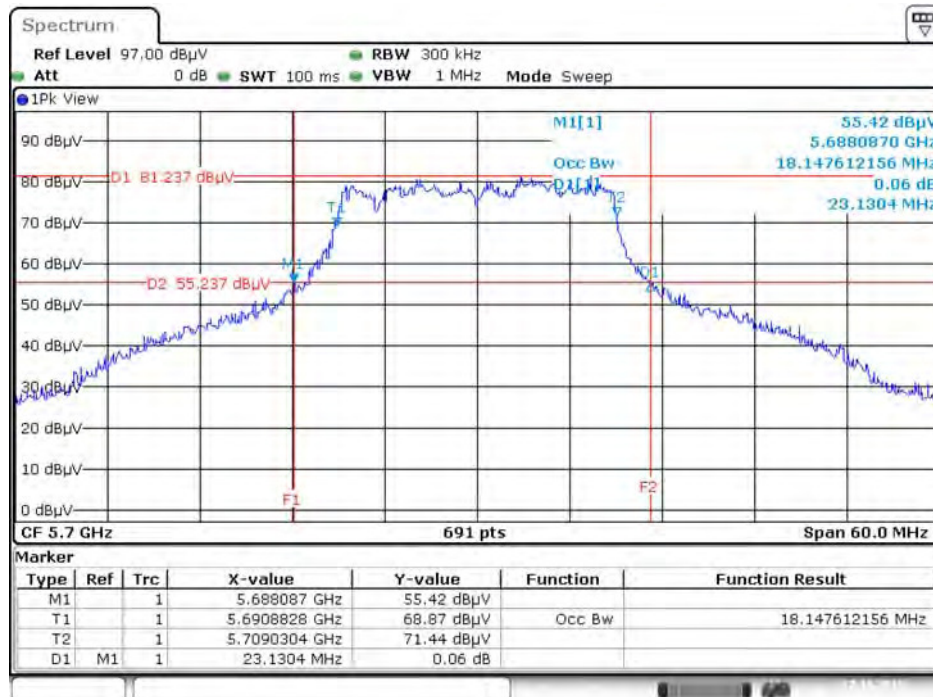
Date: 27.NOV.2015 21:19:46

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



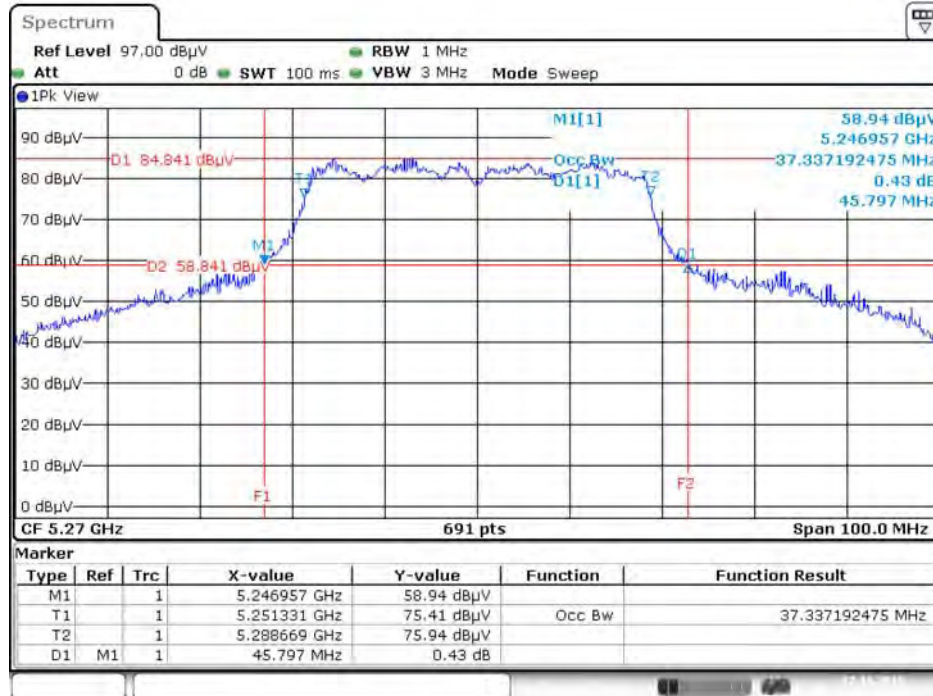
Date: 27.NOV.2015 21:20:40

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



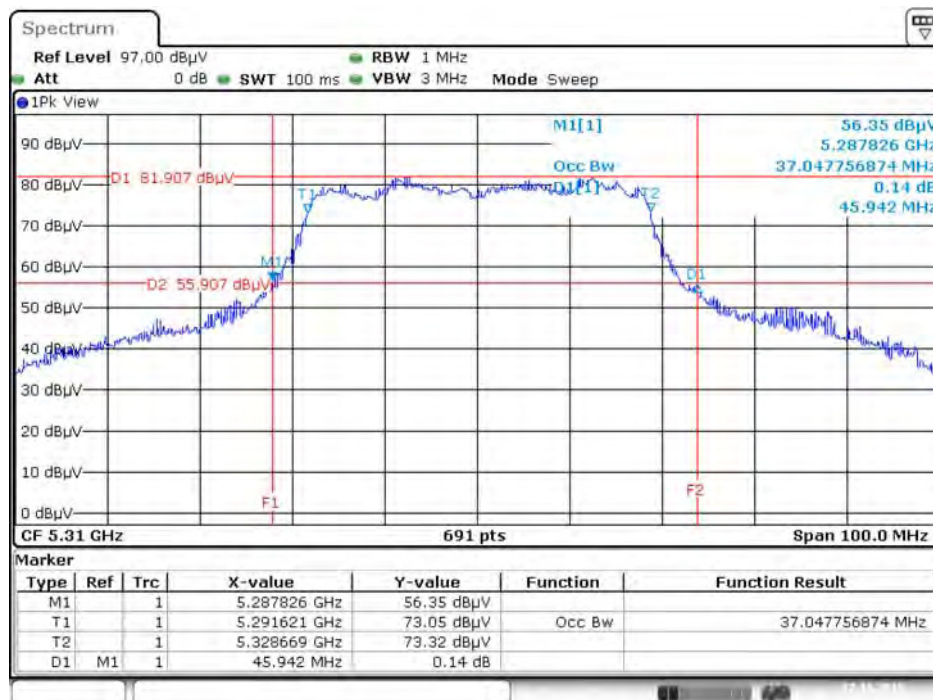
Date: 27.NOV.2015 21:21:23

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



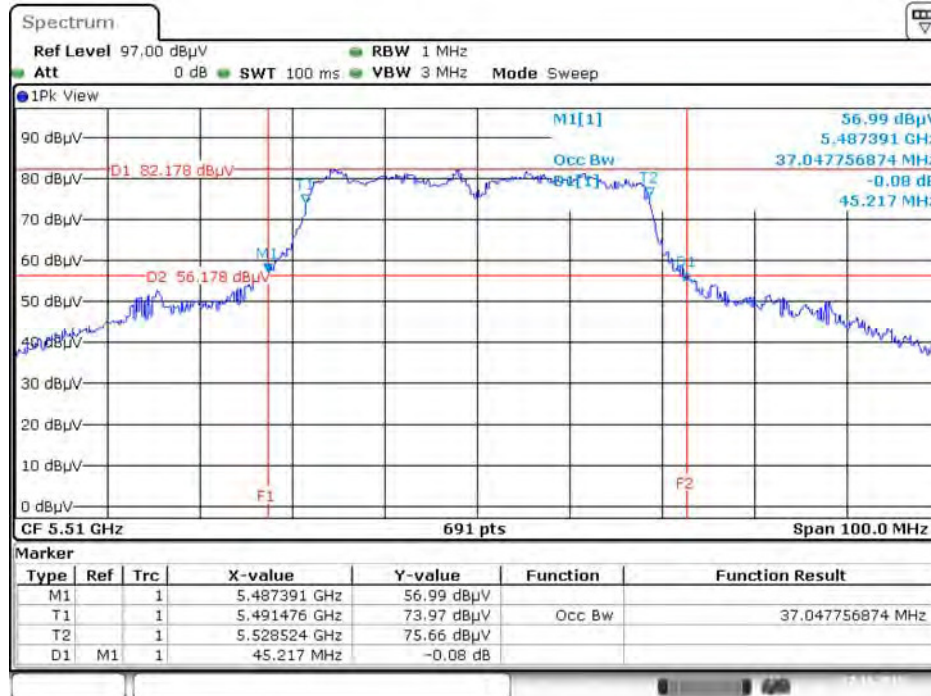
Date: 27.NOV.2015 21:25:51

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



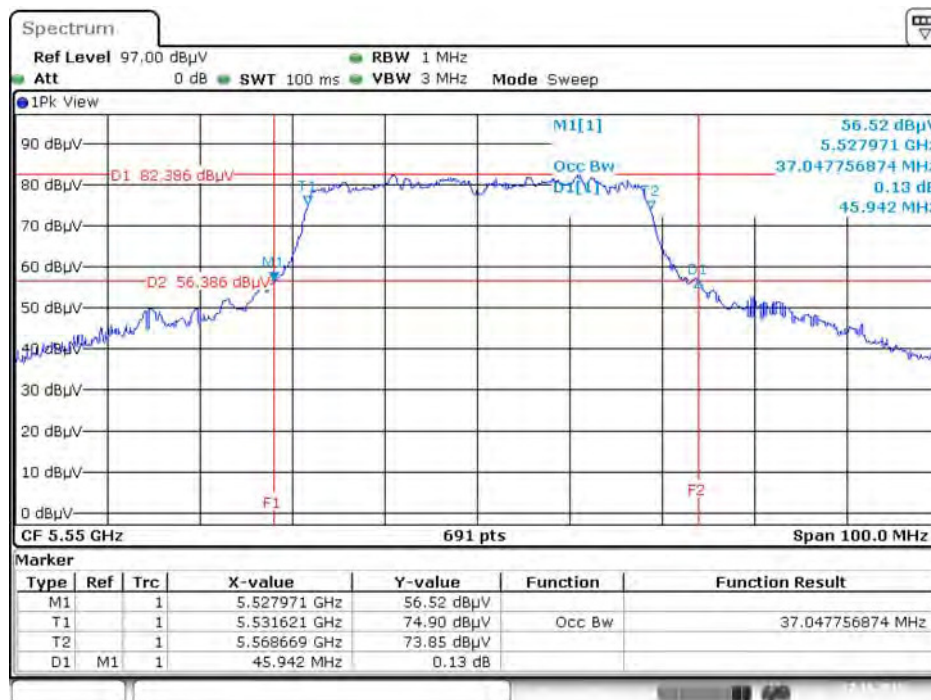
Date: 27.NOV.2015 21:26:38

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



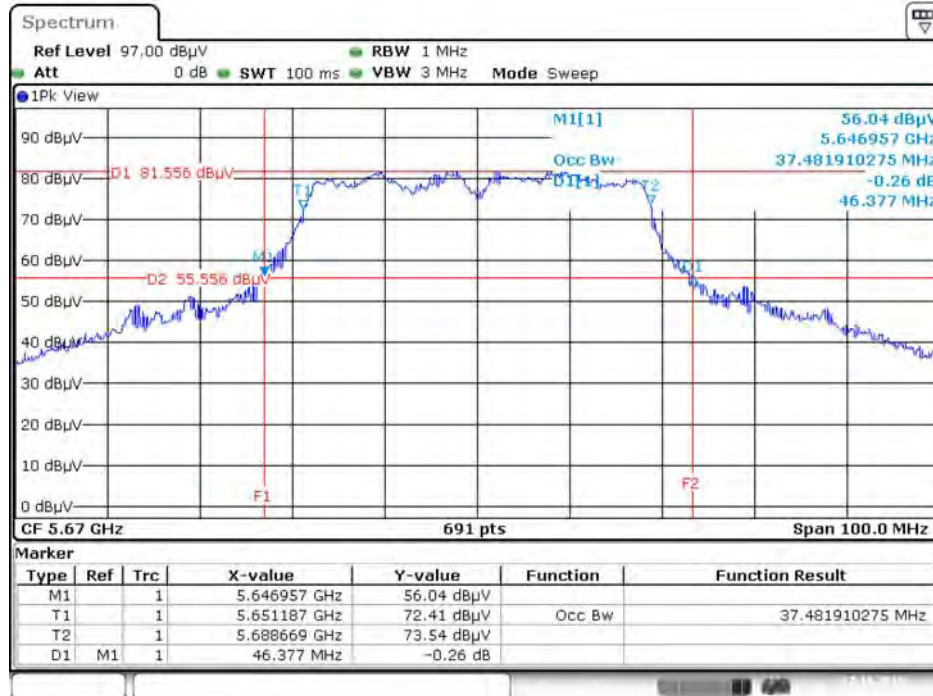
Date: 27.NOV.2015 21:27:46

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



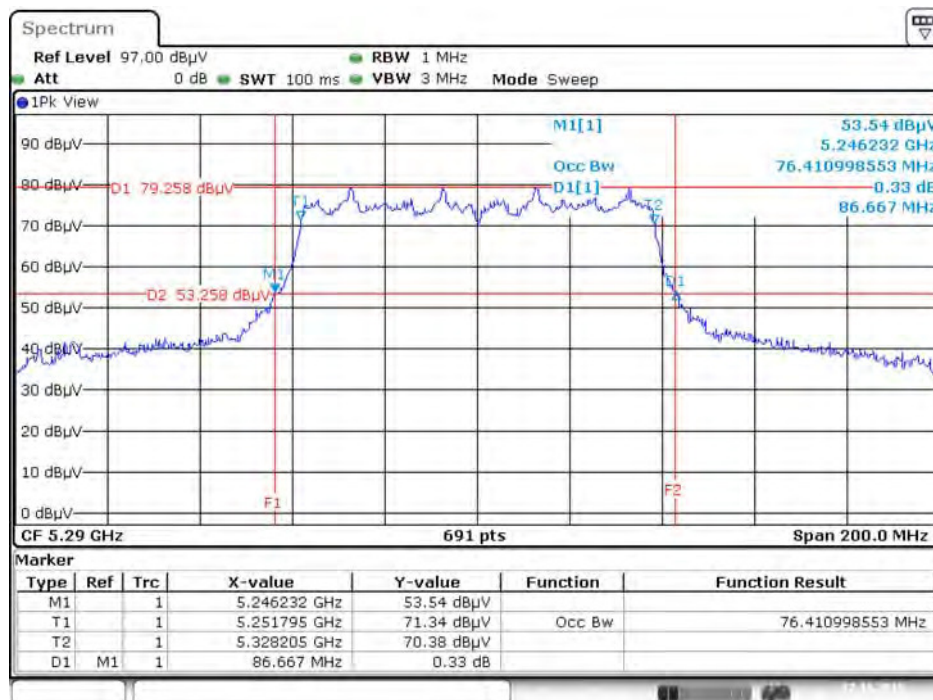
Date: 27.NOV.2015 21:28:28

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



Date: 27.NOV.2015 21:29:02

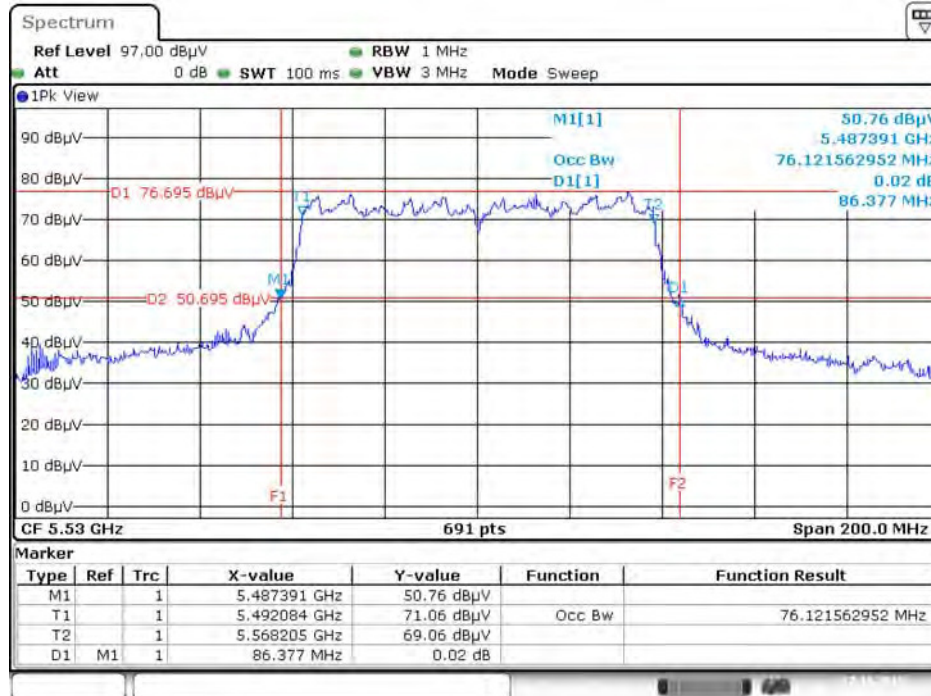
**26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5290 MHz**



Date: 27.NOV.2015 21:34:32

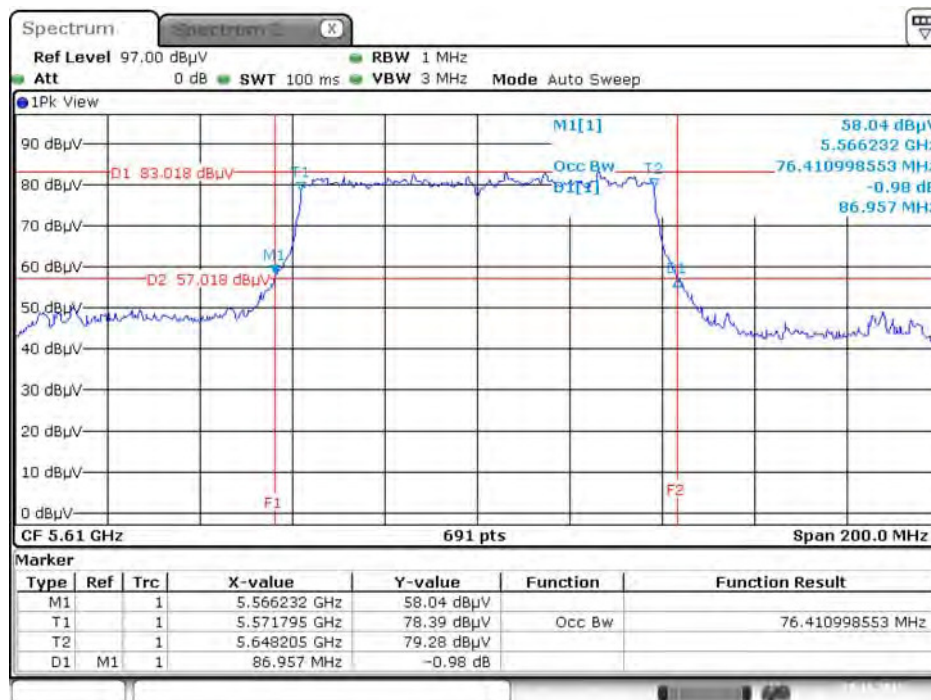


26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5530 MHz



Date: 27.NOV.2015 21:35:11

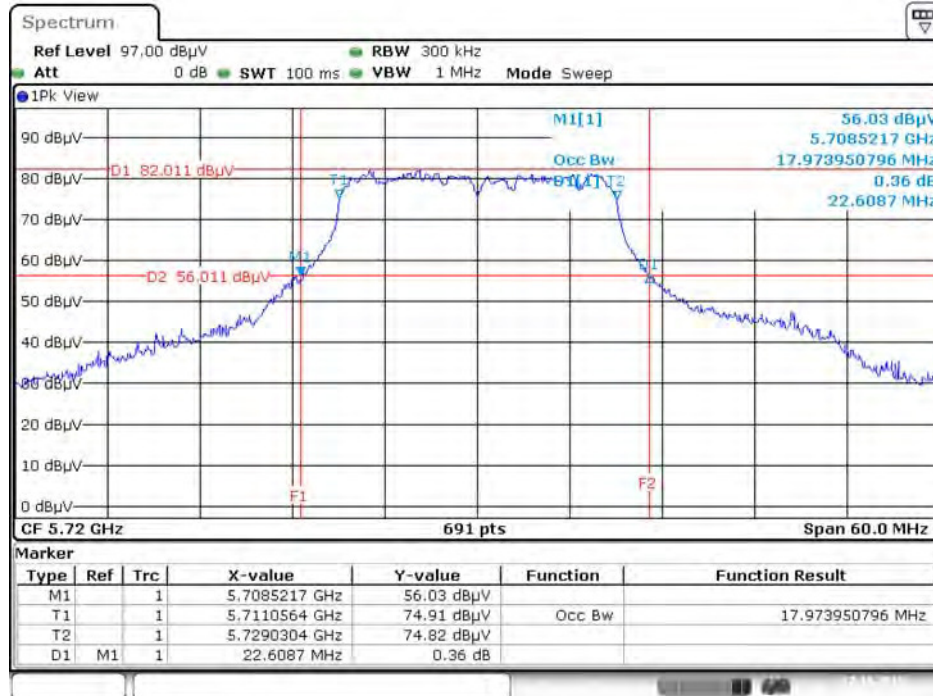
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5610 MHz



Date: 29.NOV.2015 01:44:19

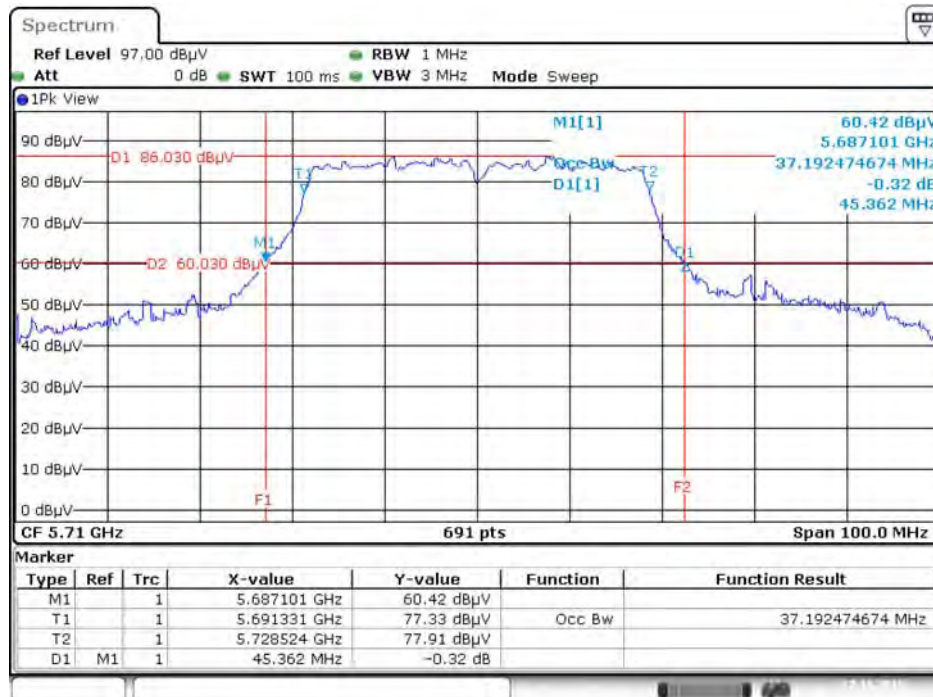
**Straddle Channel**

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



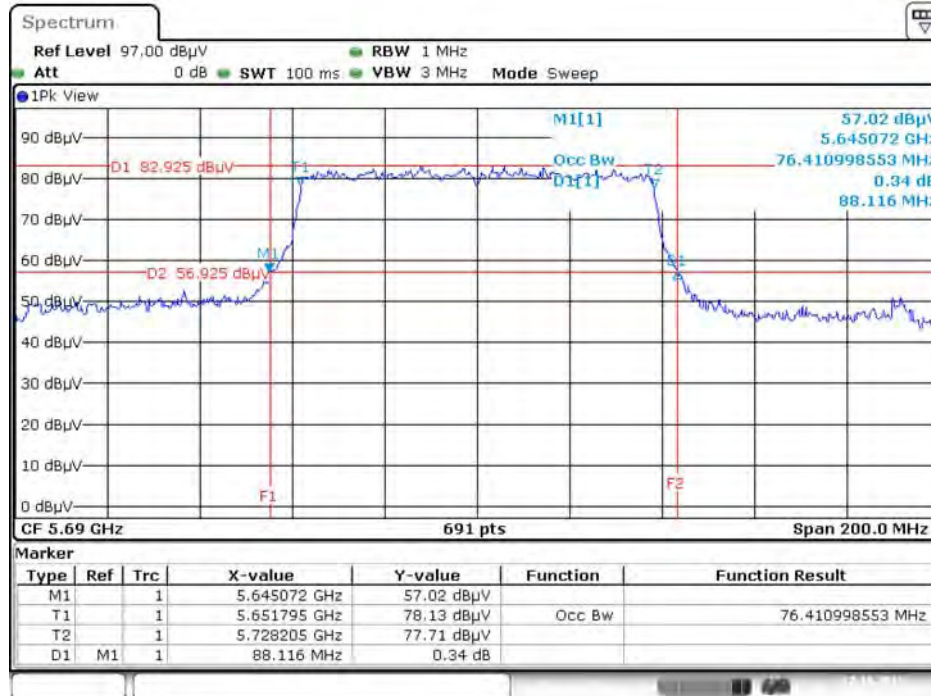
Date: 27.NOV.2015 10:09:57

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



Date: 27.NOV.2015 10:14:03

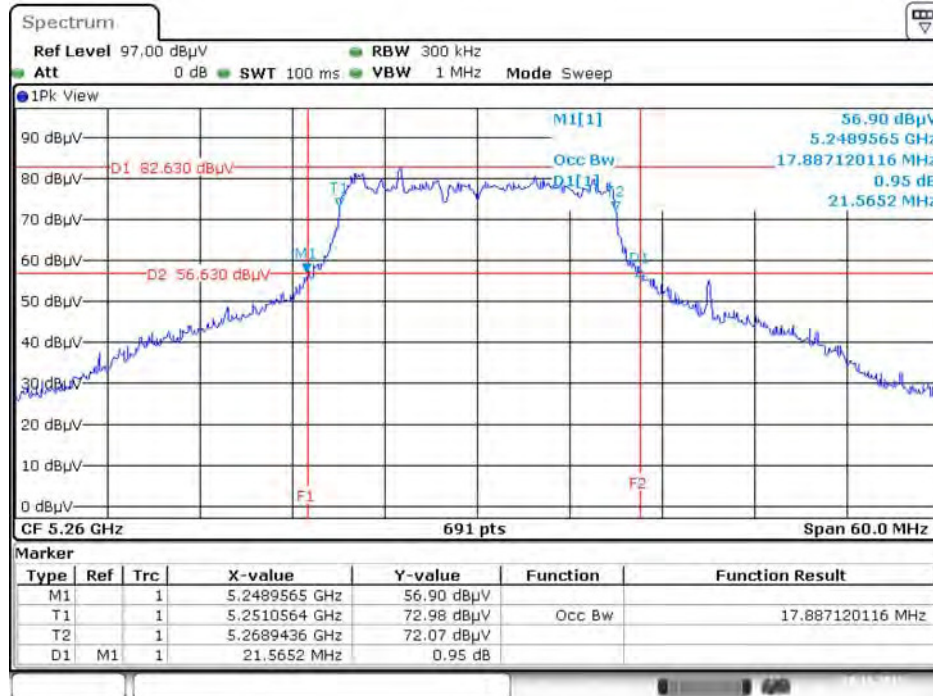
**26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5690 MHz**



Date: 27.NOV.2015 10:16:55

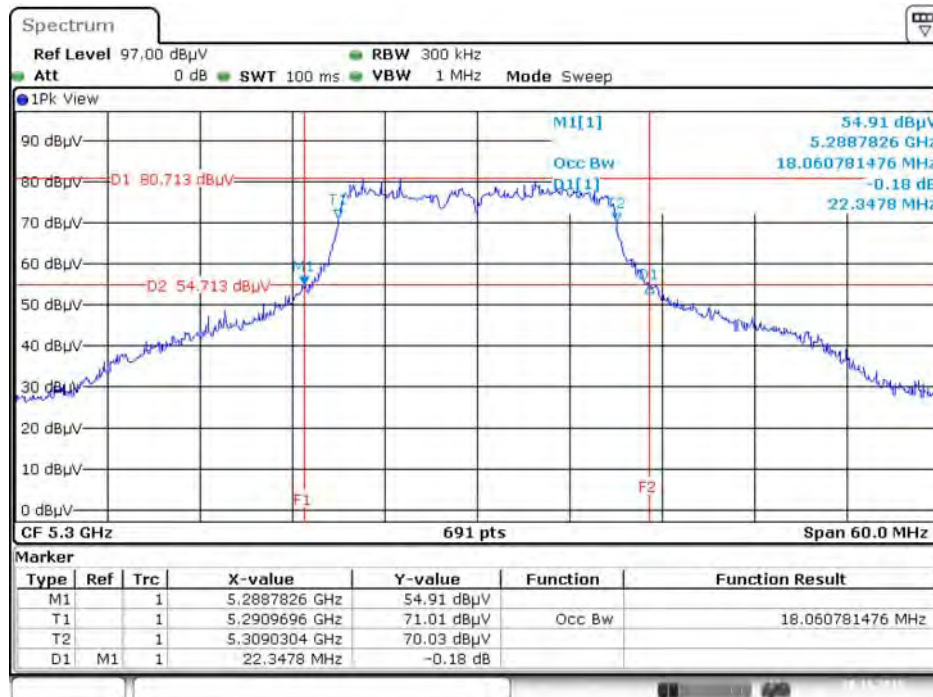
**Mode 4: EUT 1 + Set 4 Sector Antenna / 7.5 dBi**

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



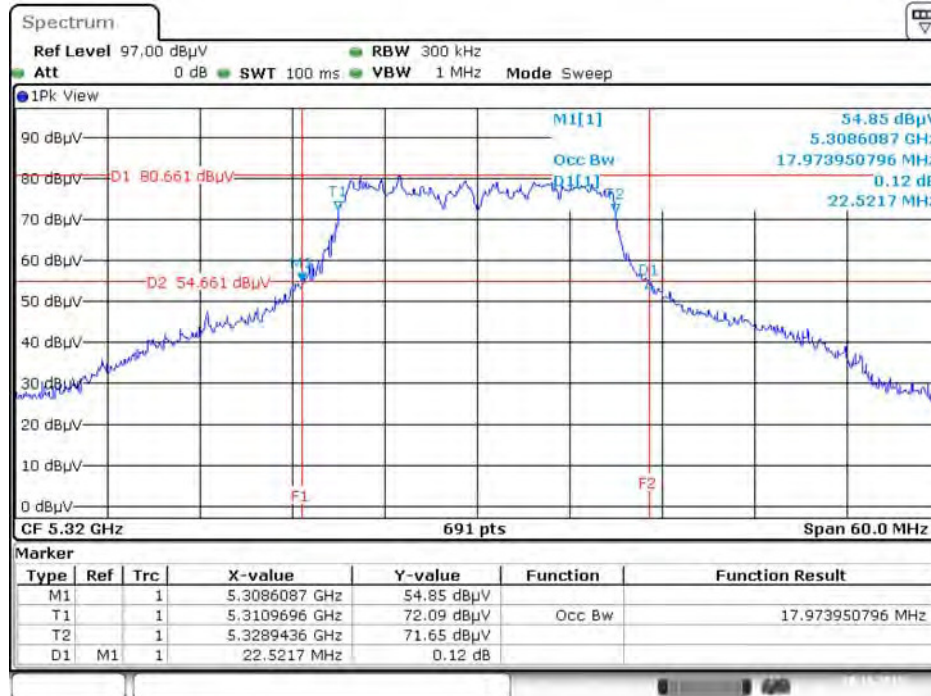
Date: 28.NOV.2015 00:20:01

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



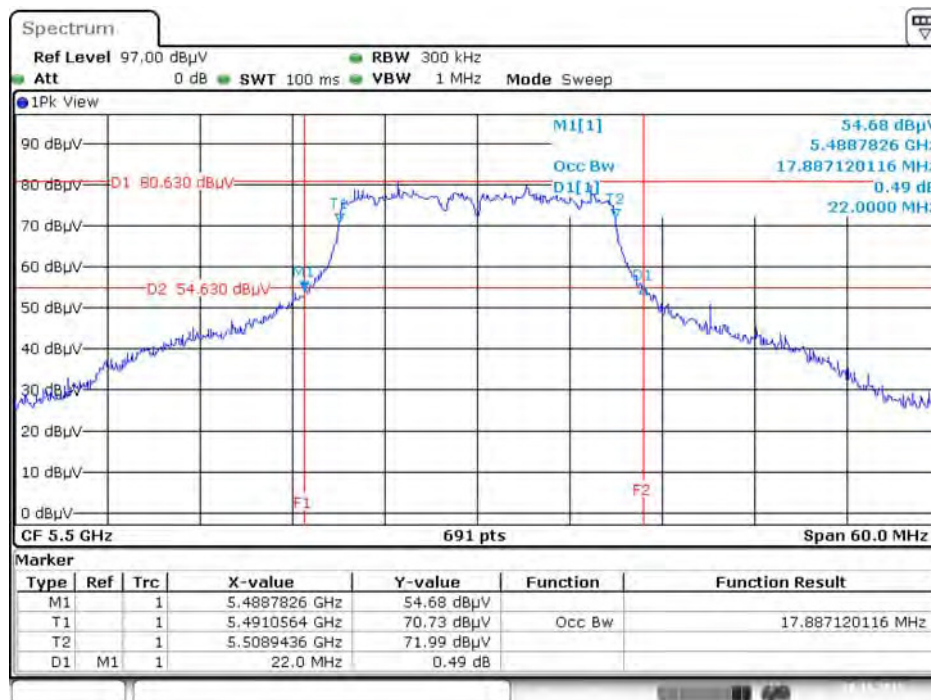
Date: 28.NOV.2015 00:20:26

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



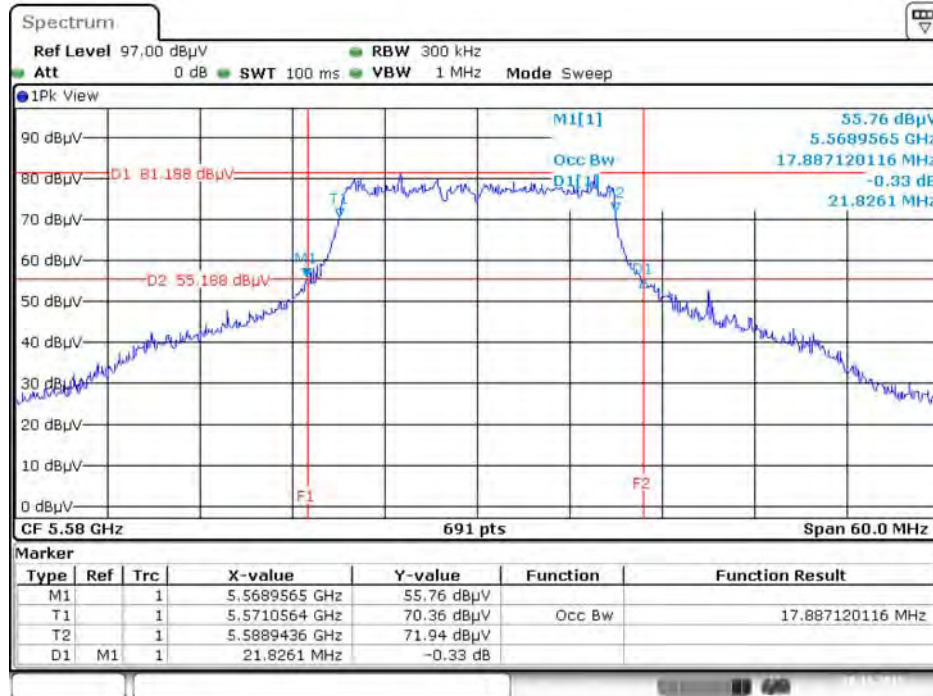
Date: 28.NOV.2015 00:20:49

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



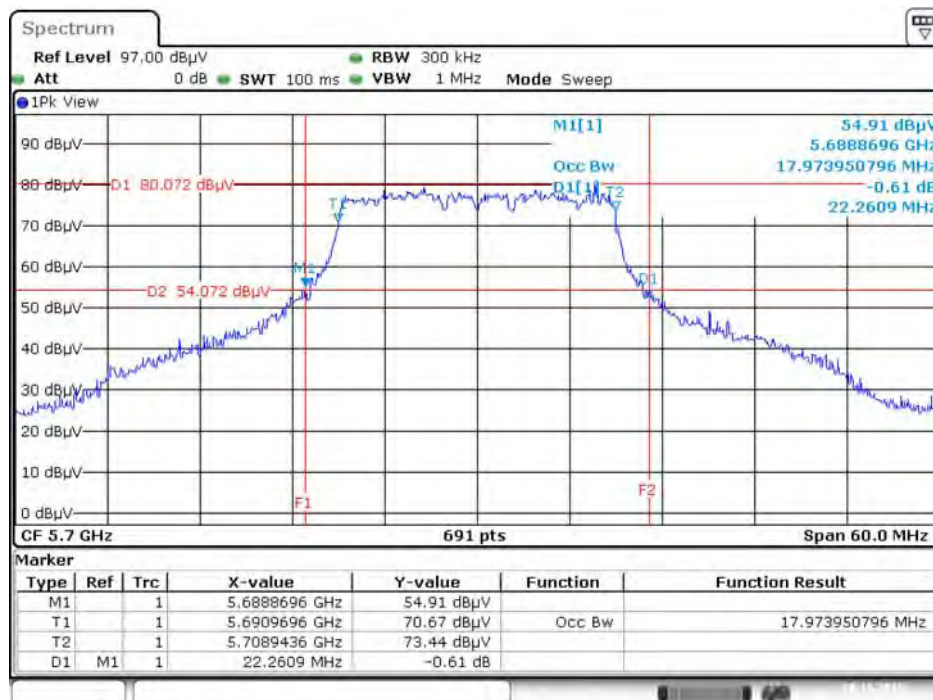
Date: 28.NOV.2015 00:21:21

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



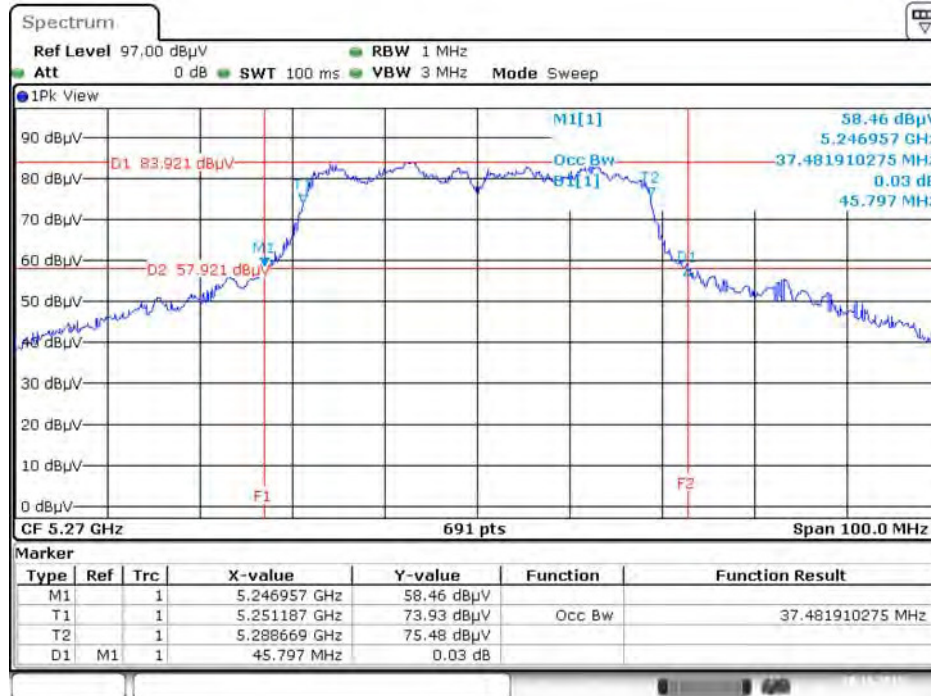
Date: 28.NOV.2015 00:21:45

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



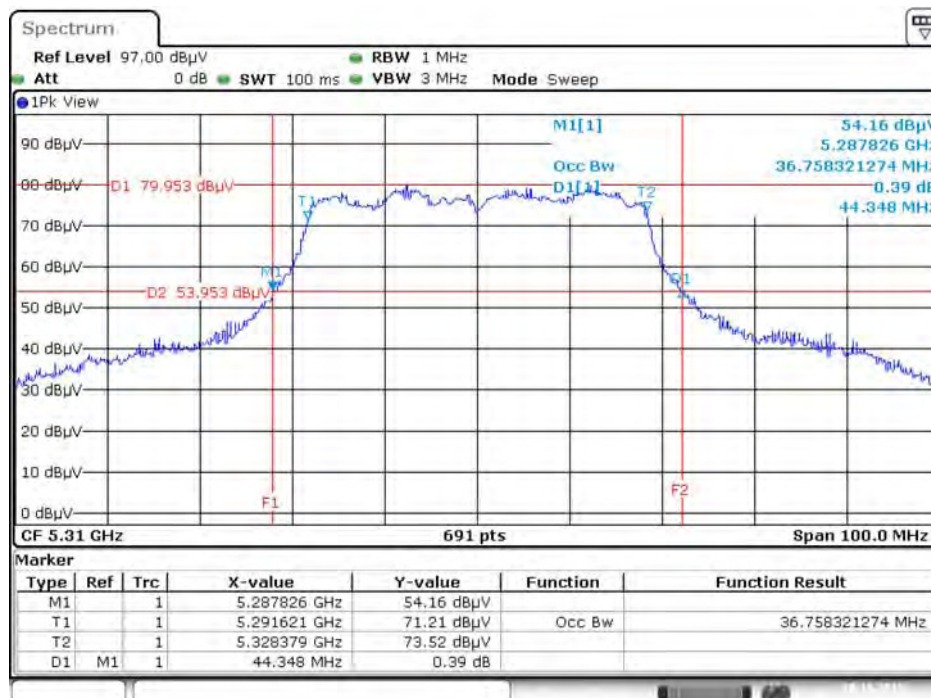
Date: 28.NOV.2015 00:22:34

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



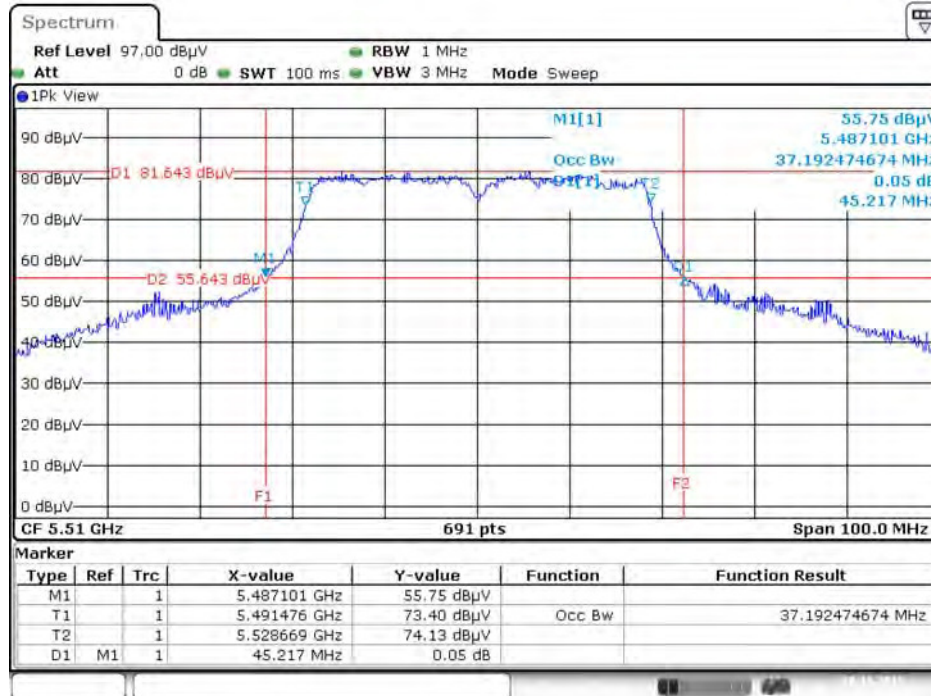
Date: 28.NOV.2015 00:25:37

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



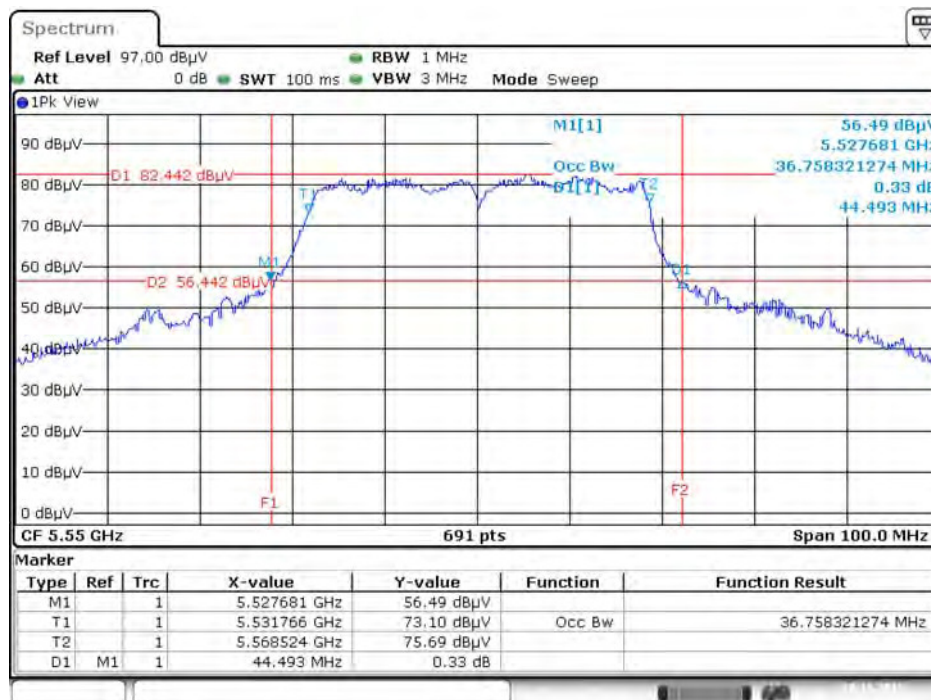
Date: 28.NOV.2015 00:26:05

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



Date: 28.NOV.2015 00:26:59

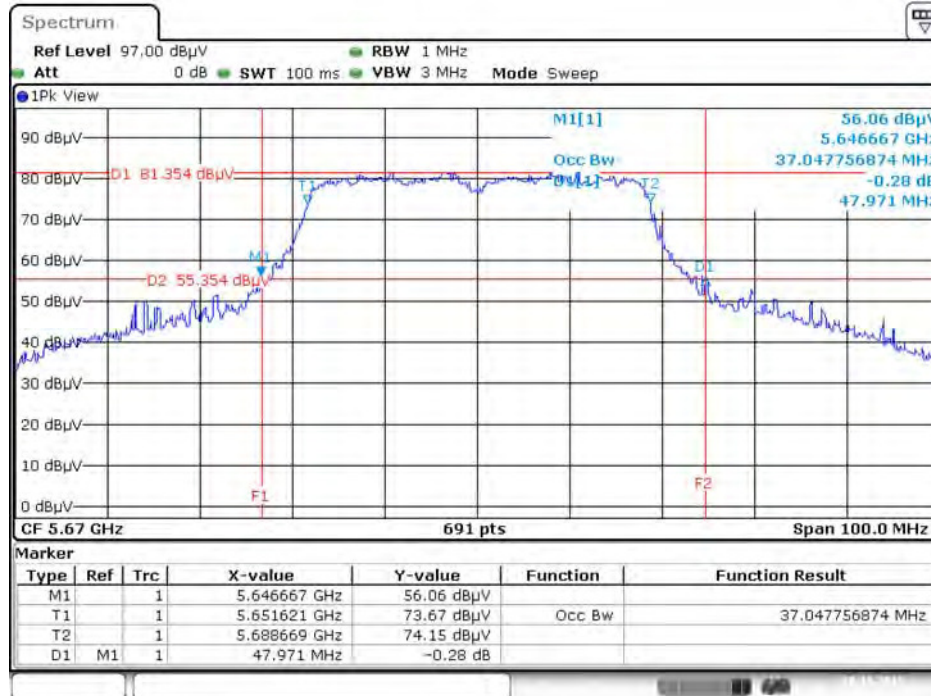
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5550 MHz



Date: 28.NOV.2015 00:27:40

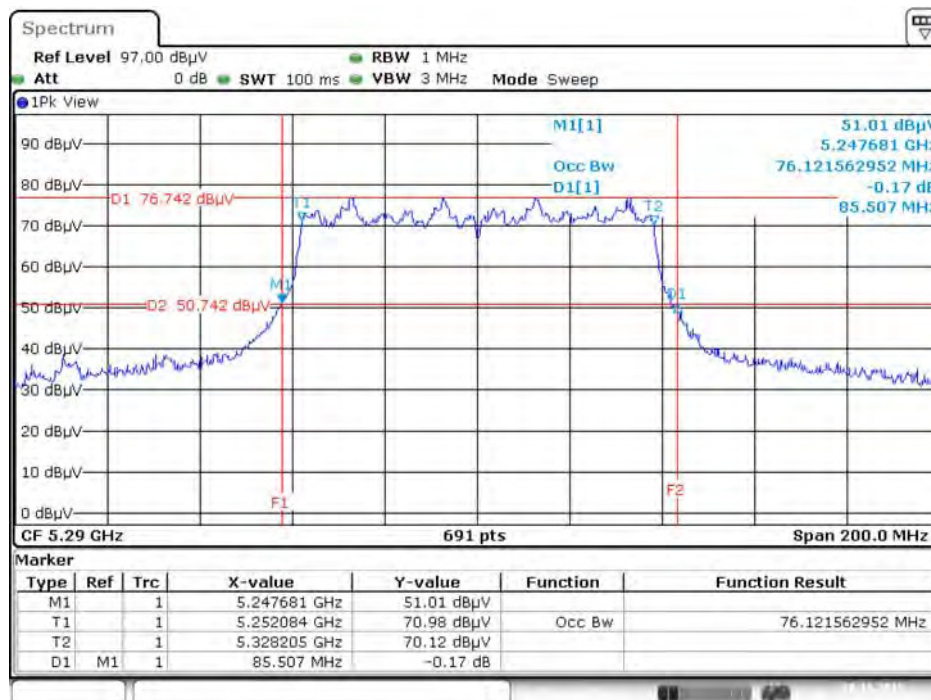


26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5670 MHz



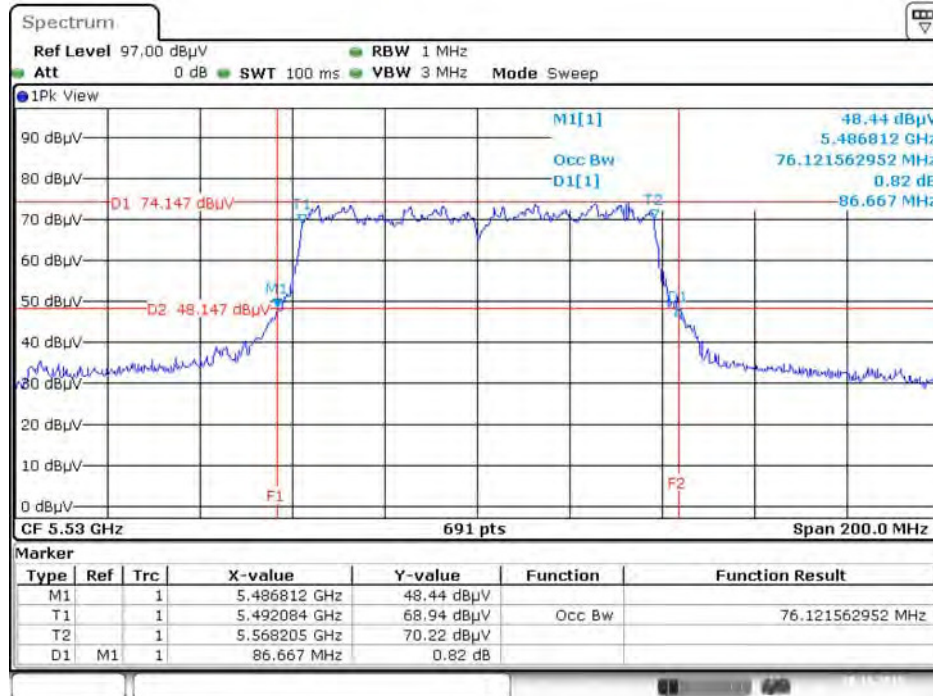
Date: 28.NOV.2015 00:28:11

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



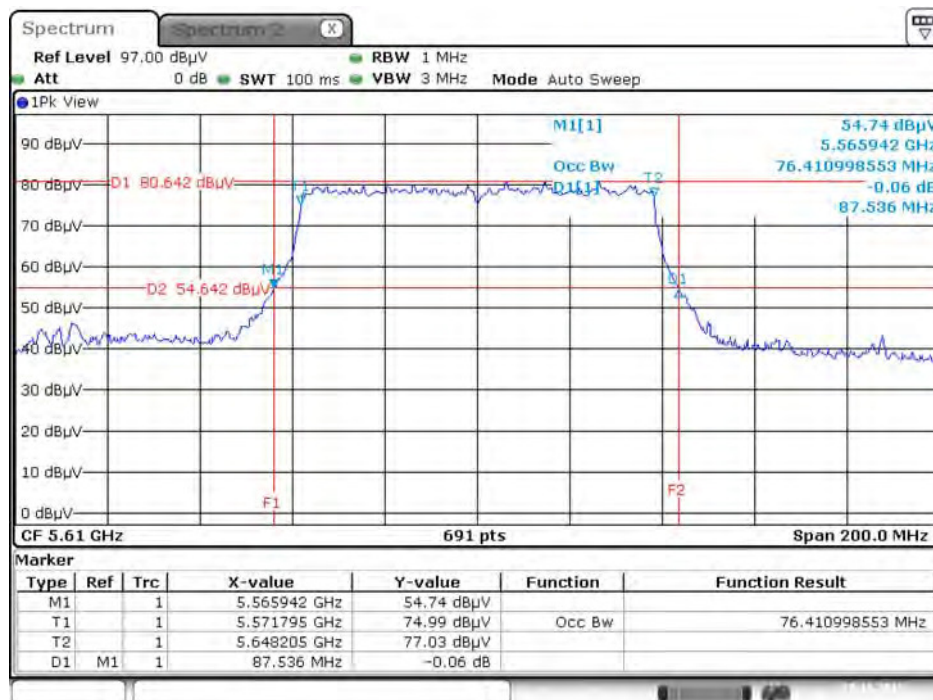
Date: 28.NOV.2015 00:30:36

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



Date: 28.NOV.2015 00:31:03

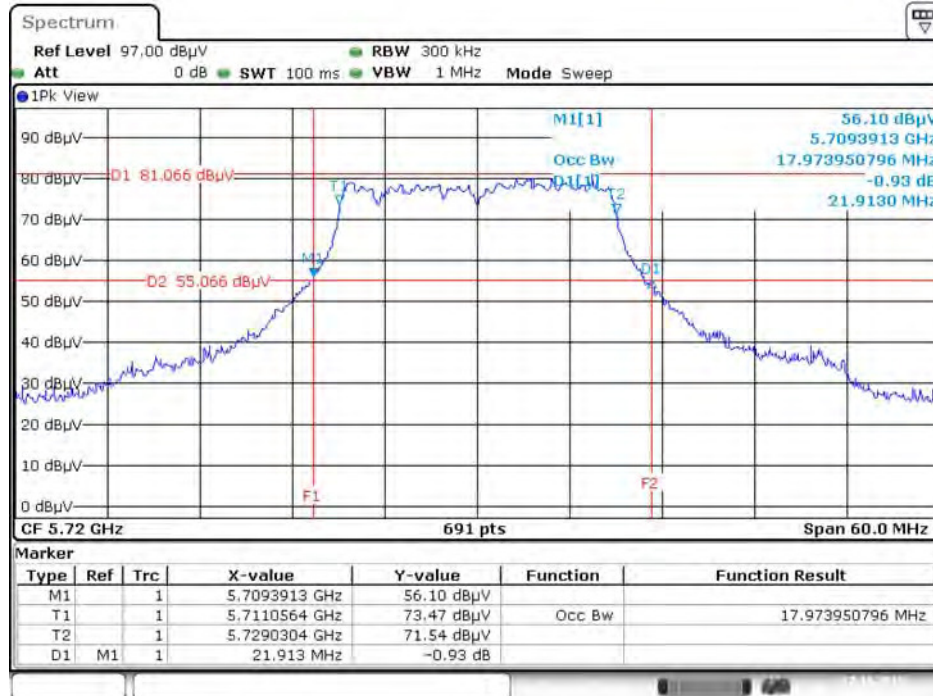
**26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5610 MHz**



Date: 29.NOV.2015 01:40:24

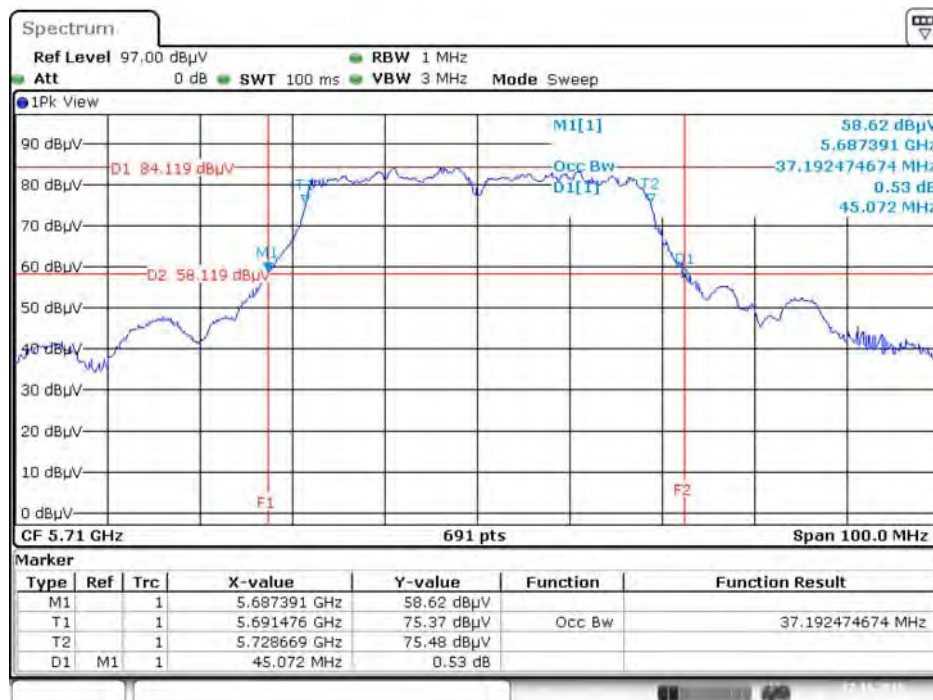
**Straddle Channel**

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



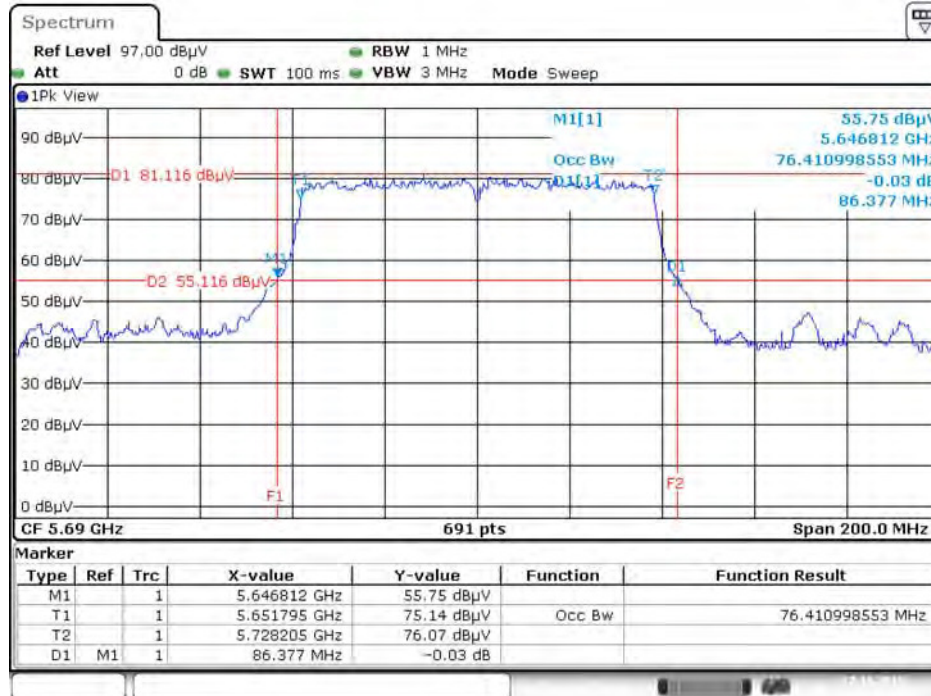
Date: 27.NOV.2015 02:27:52

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



Date: 27.NOV.2015 02:28:50

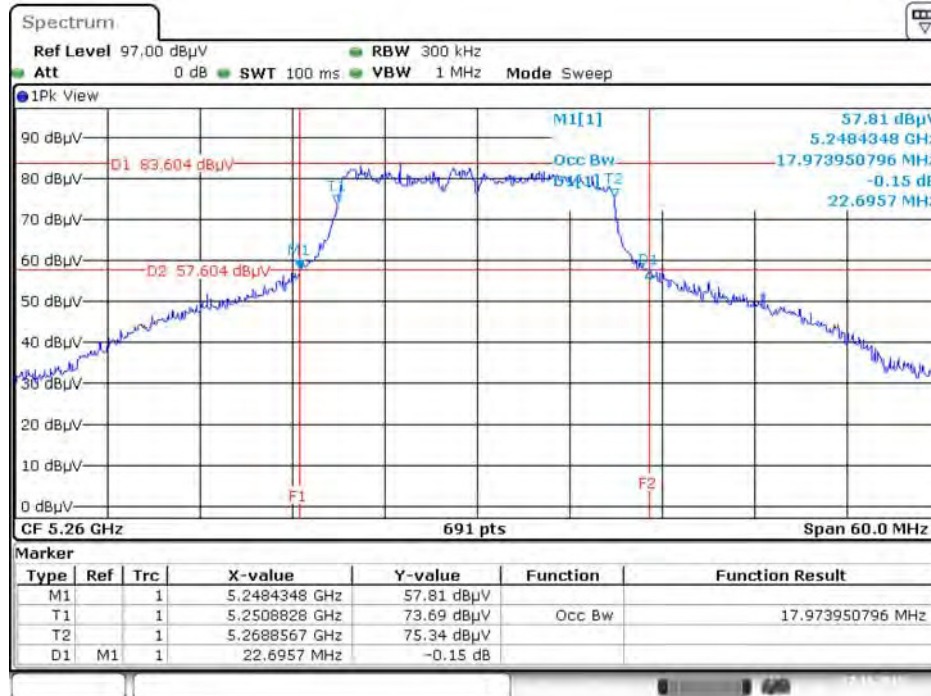
**26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5690 MHz**



Date: 27.NOV.2015 02:29:38

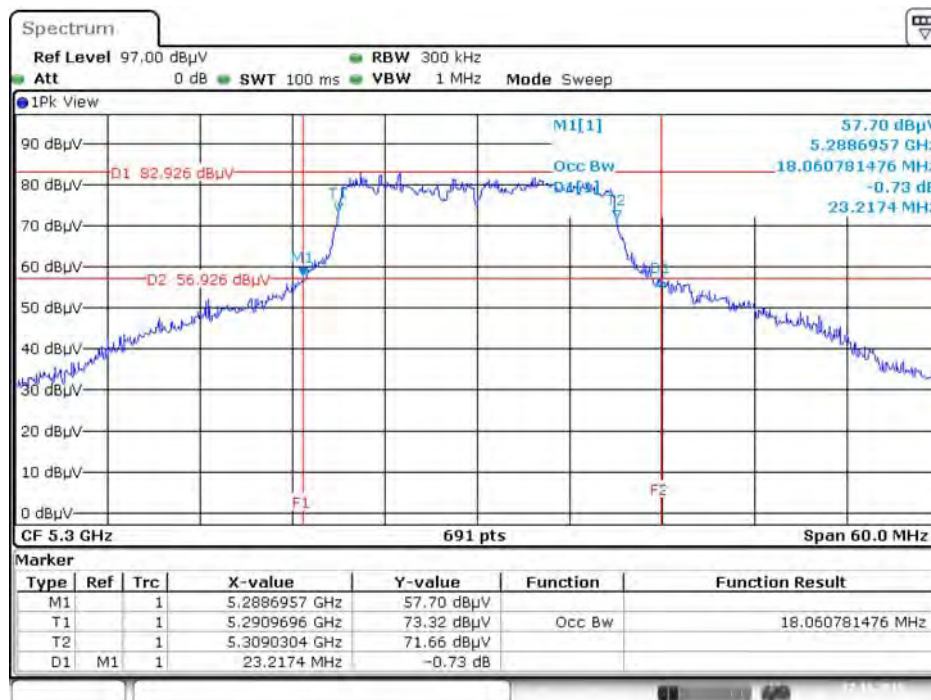
**Mode 5: EUT 1 + Set 5 Sector Antenna / 4.5 dBi**

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



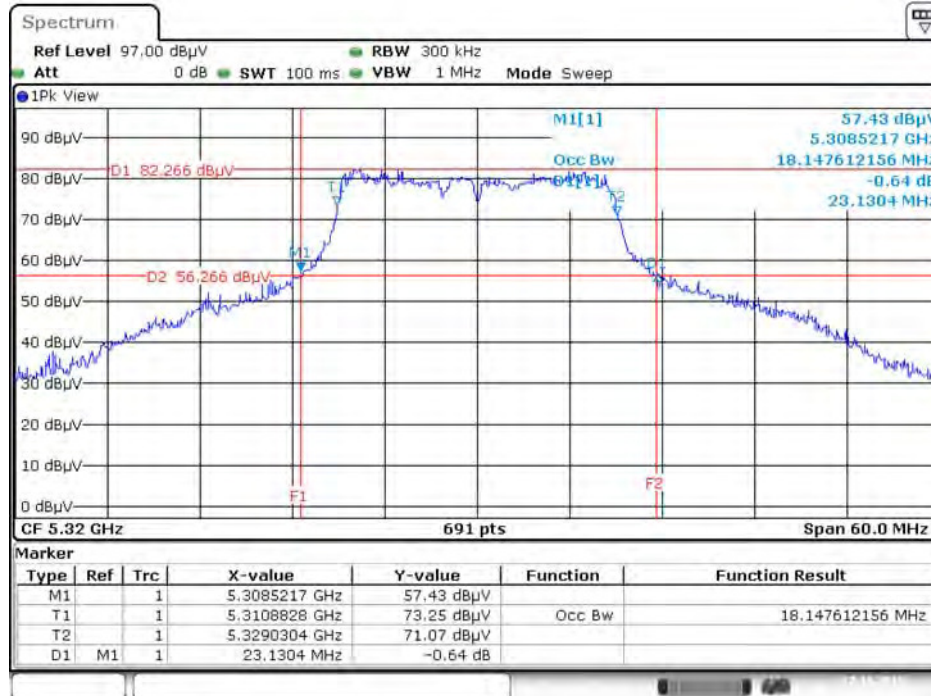
Date: 27.NOV.2015 23:31:41

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



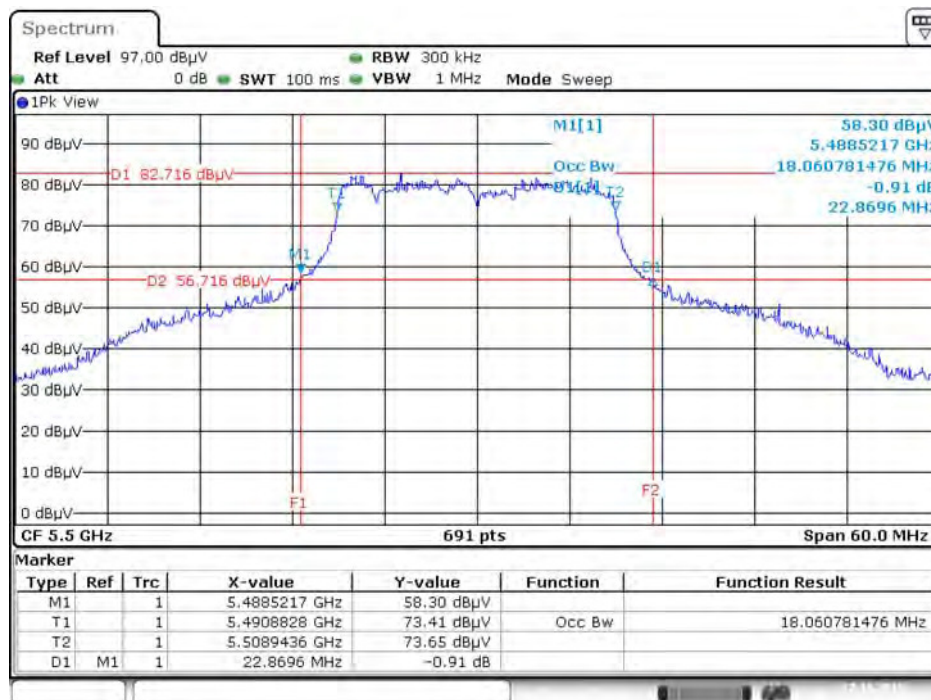
Date: 27.NOV.2015 23:33:16

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



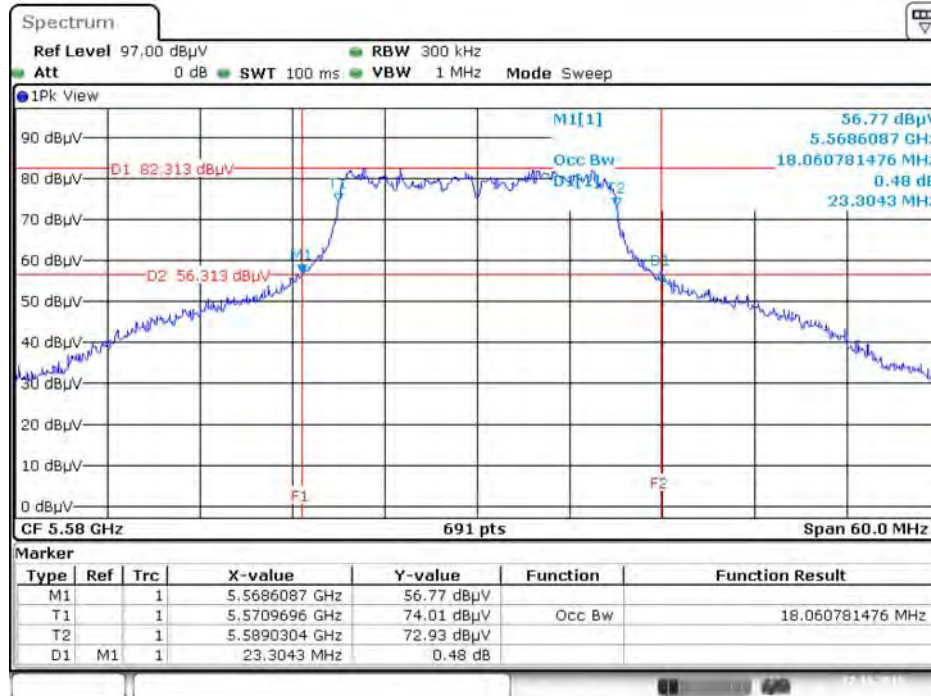
Date: 27.NOV.2015 23:33:40

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



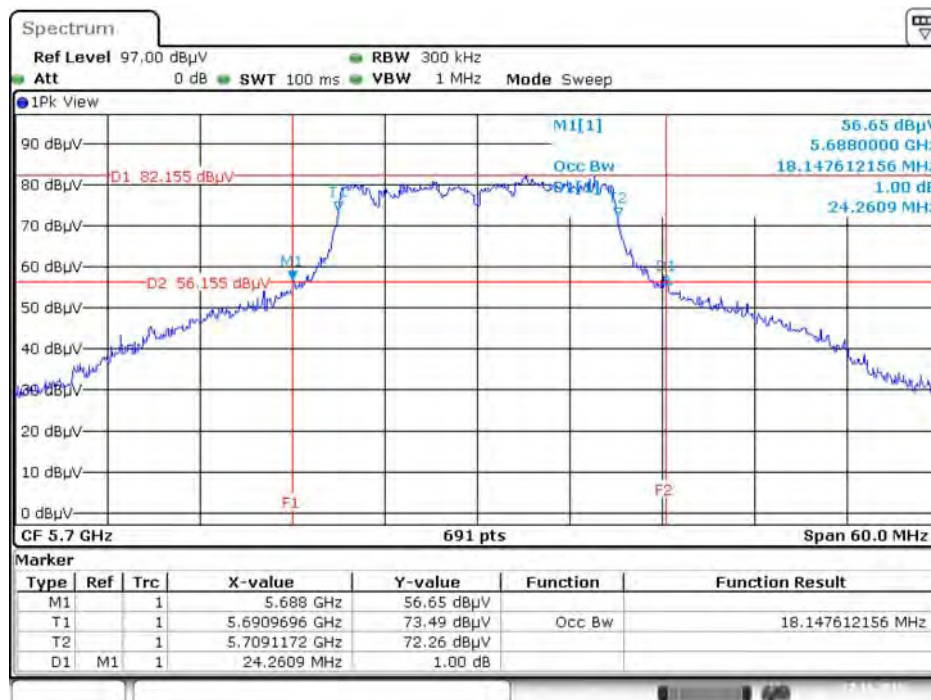
Date: 27.NOV.2015 23:34:09

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



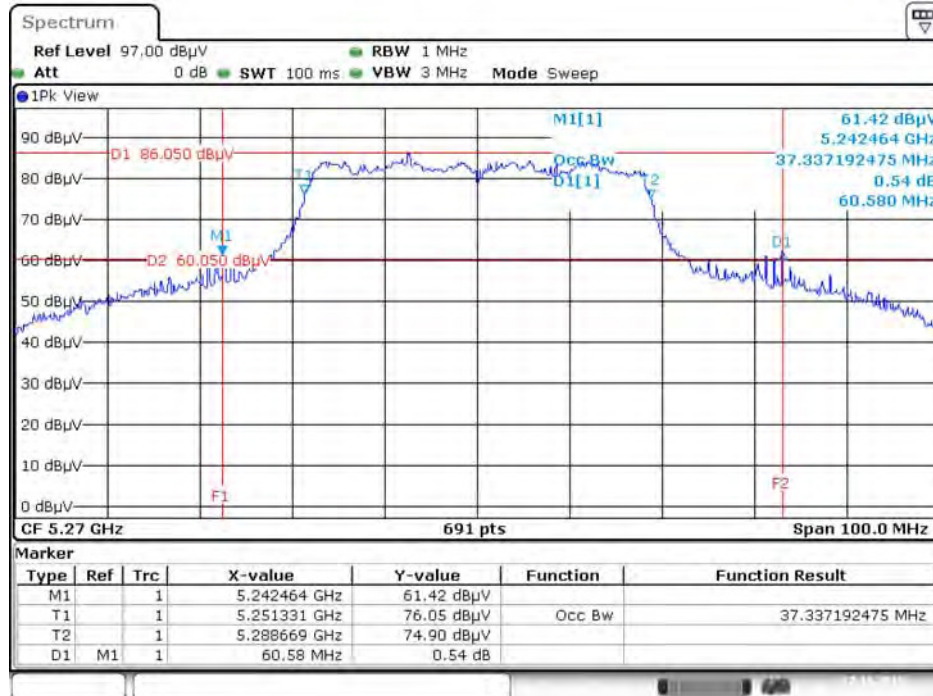
Date: 27.NOV.2015 23:34:36

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



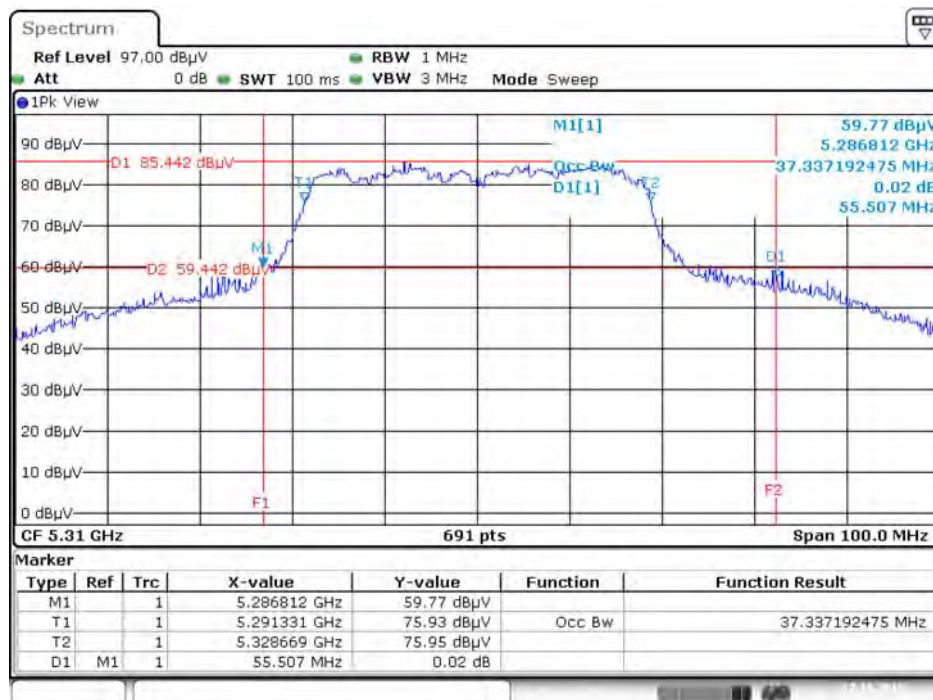
Date: 27.NOV.2015 23:35:06

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



Date: 27.NOV.2015 23:42:01

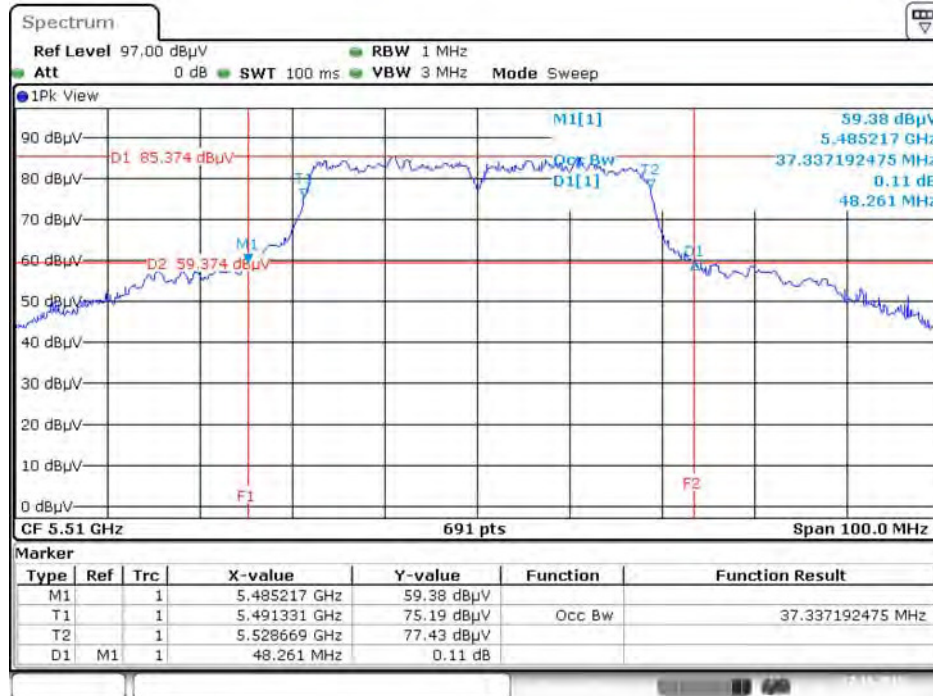
**26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5310 MHz**



Date: 27.NOV.2015 23:42:33

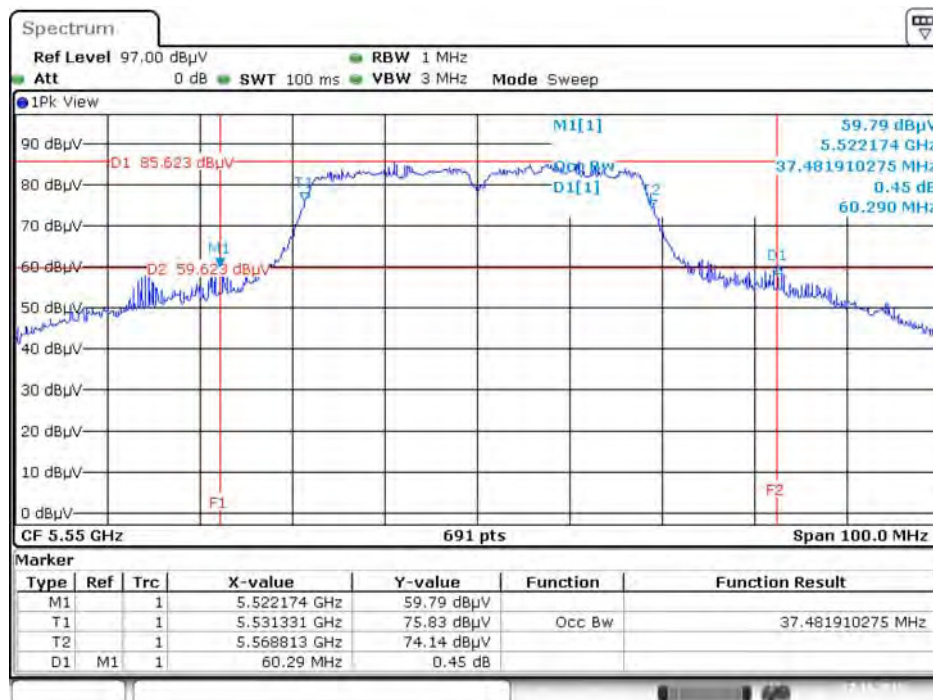


**26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5510 MHz**



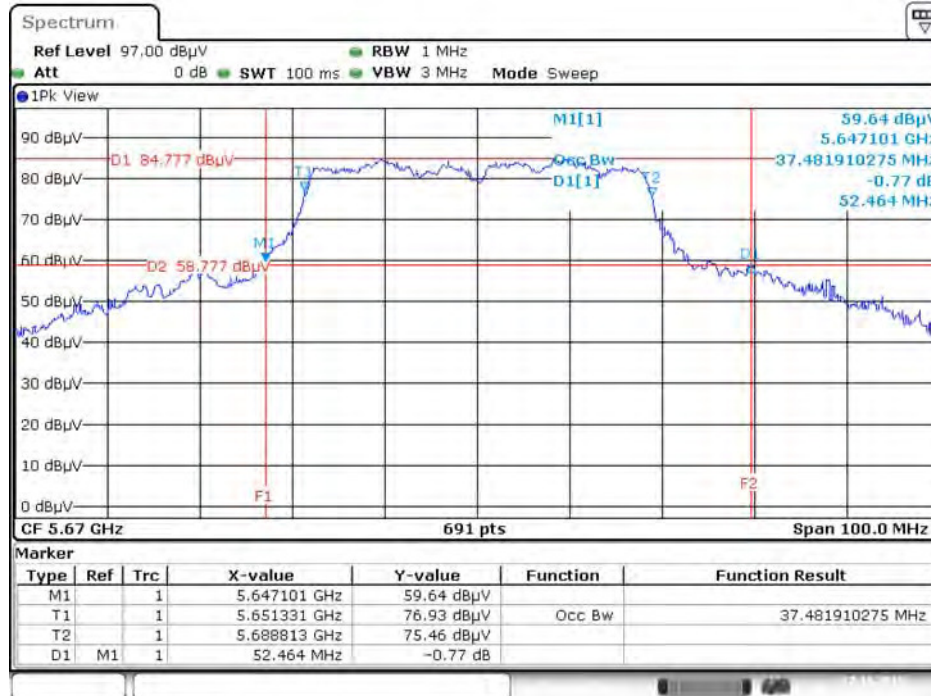
Date: 27.NOV.2015 23:43:03

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



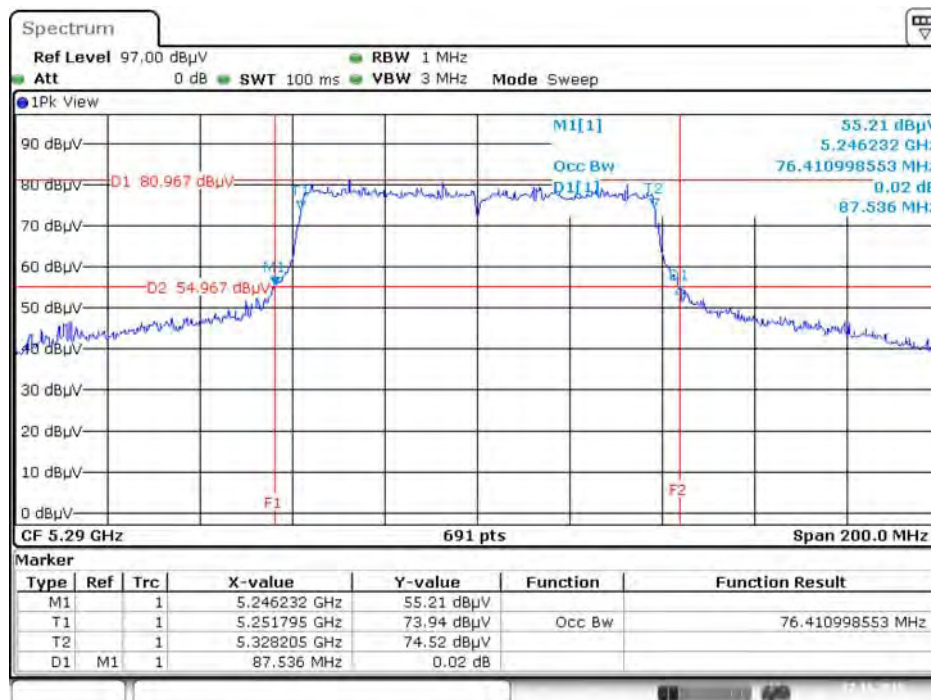
Date: 27.NOV.2015 23:43:37

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



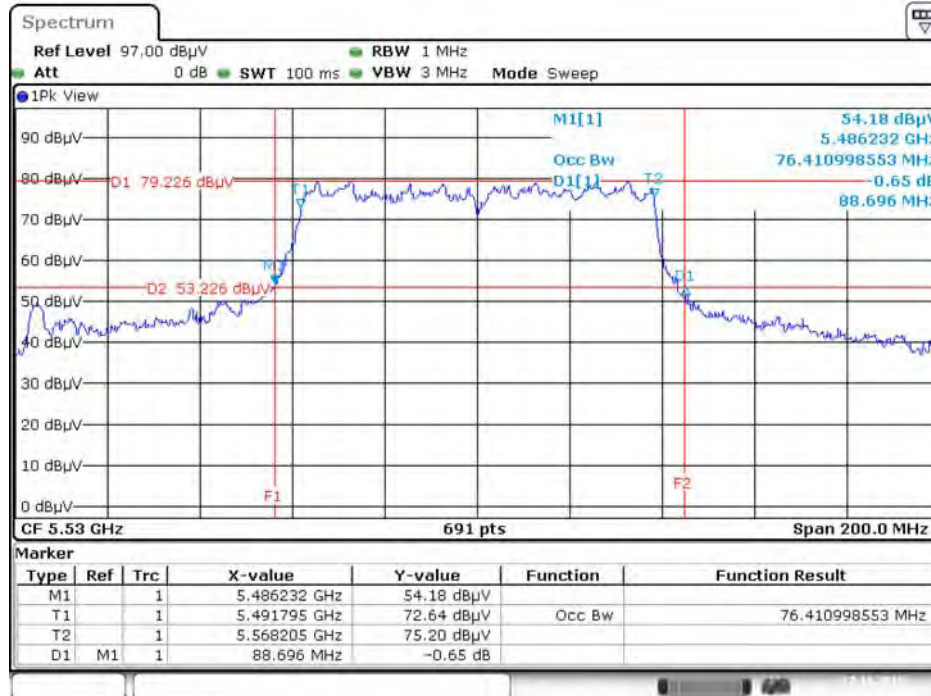
Date: 27.NOV.2015 23:44:07

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



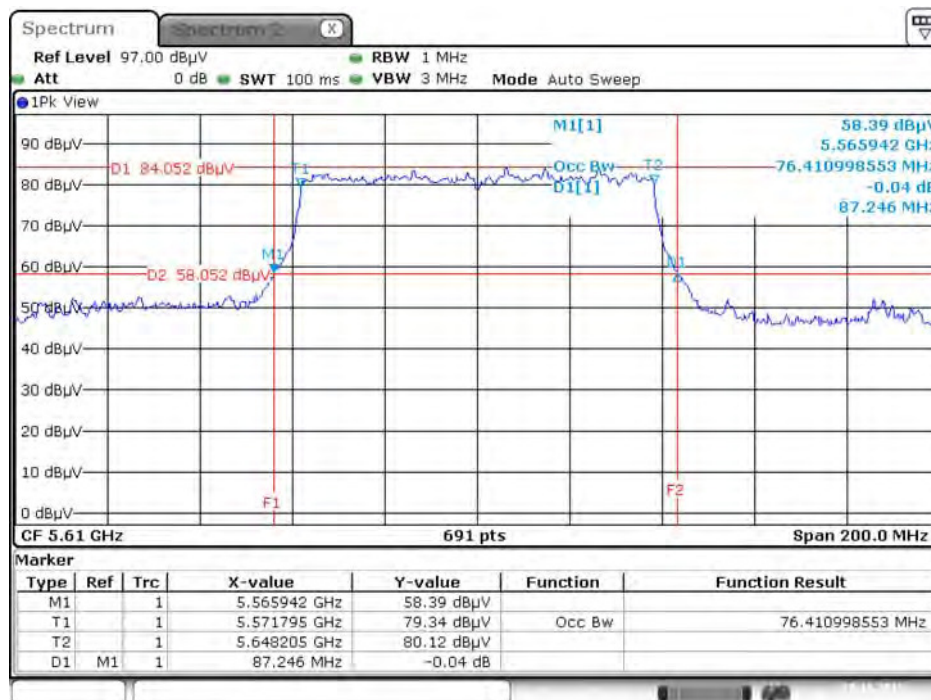
Date: 27.NOV.2015 23:47:09

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



Date: 27.NOV.2015 23:48:13

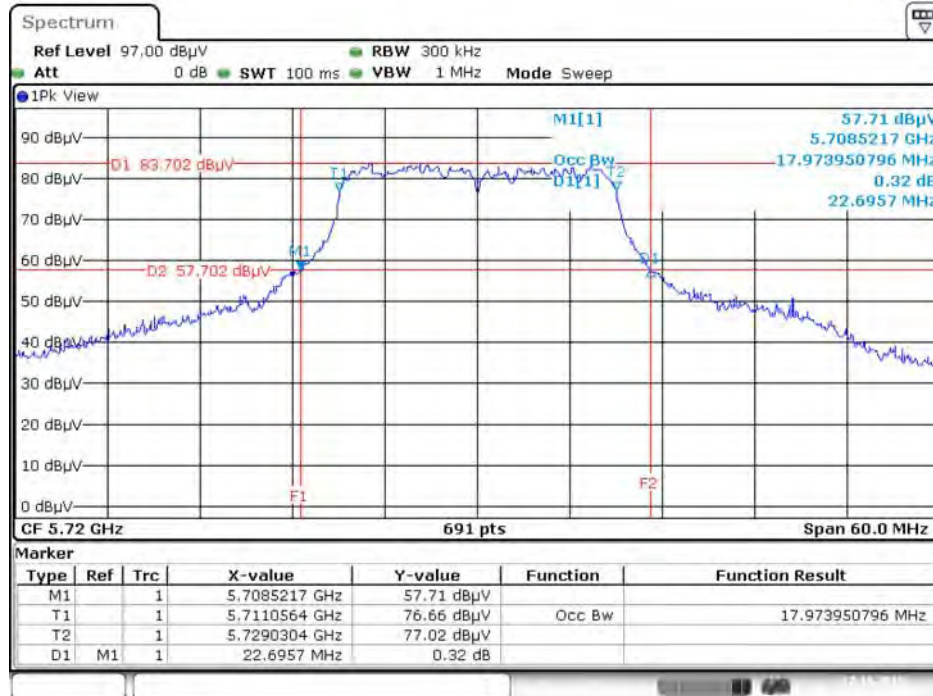
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5610 MHz



Date: 29.NOV.2015 01:39:03

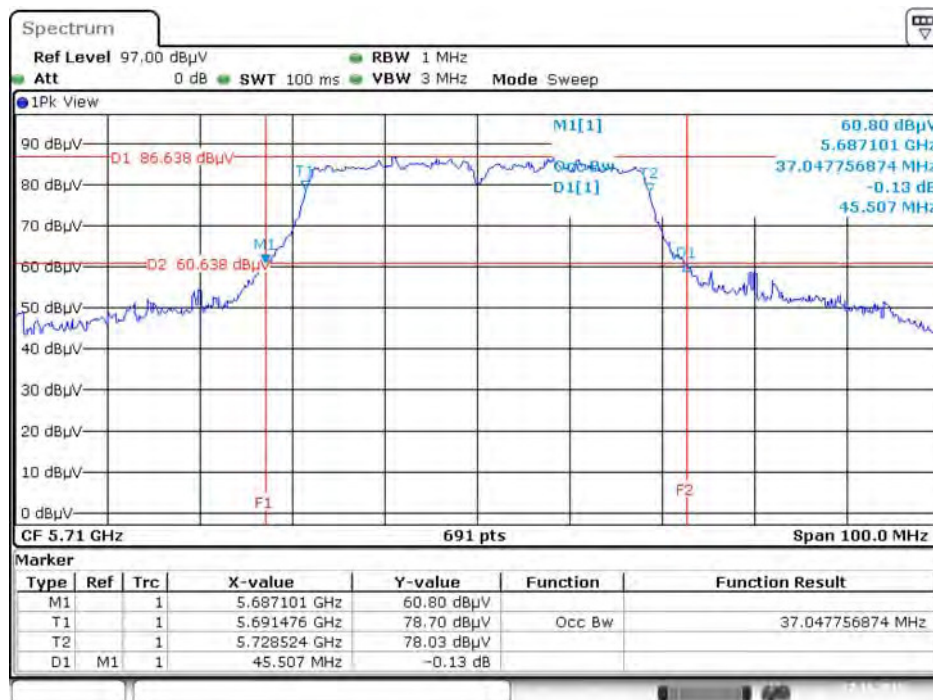
**Straddle Channel**

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



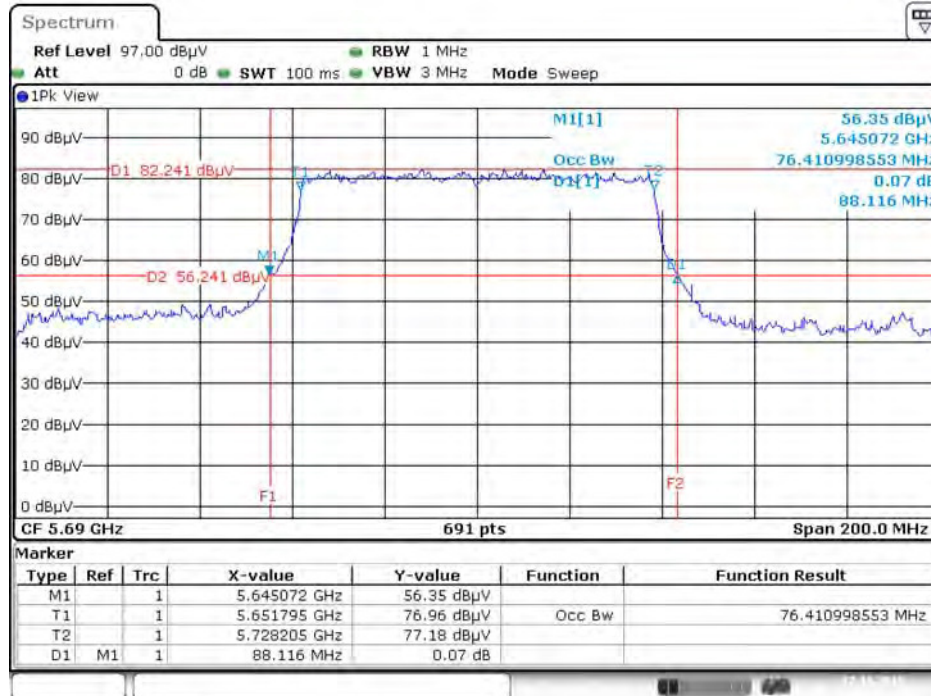
Date: 27.NOV.2015 09:39:47

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



Date: 27.NOV.2015 10:39:58

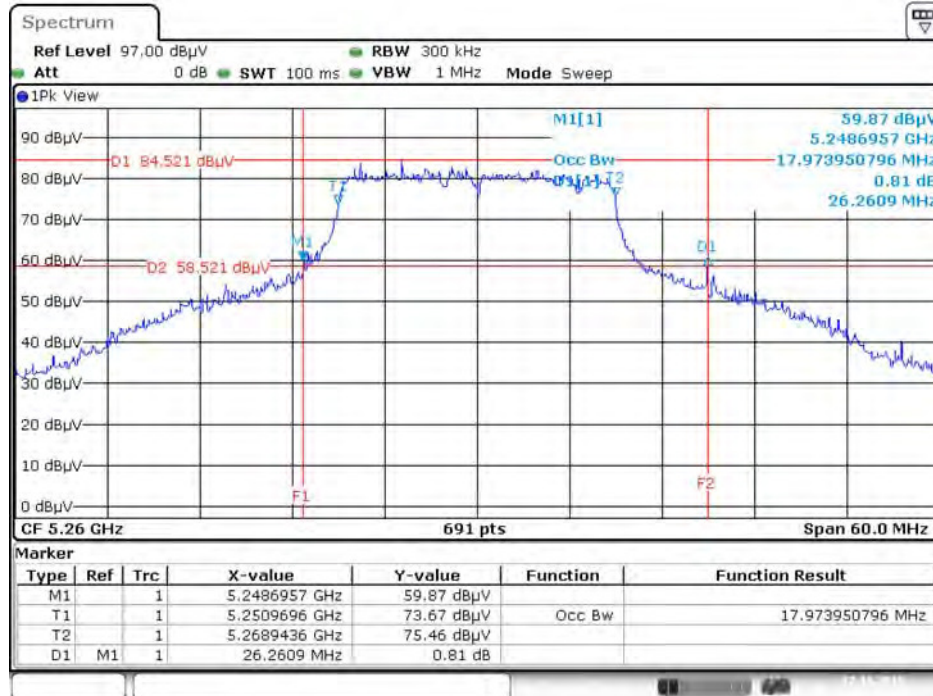
**26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5690 MHz**



Date: 27.NOV.2015 09:51:45

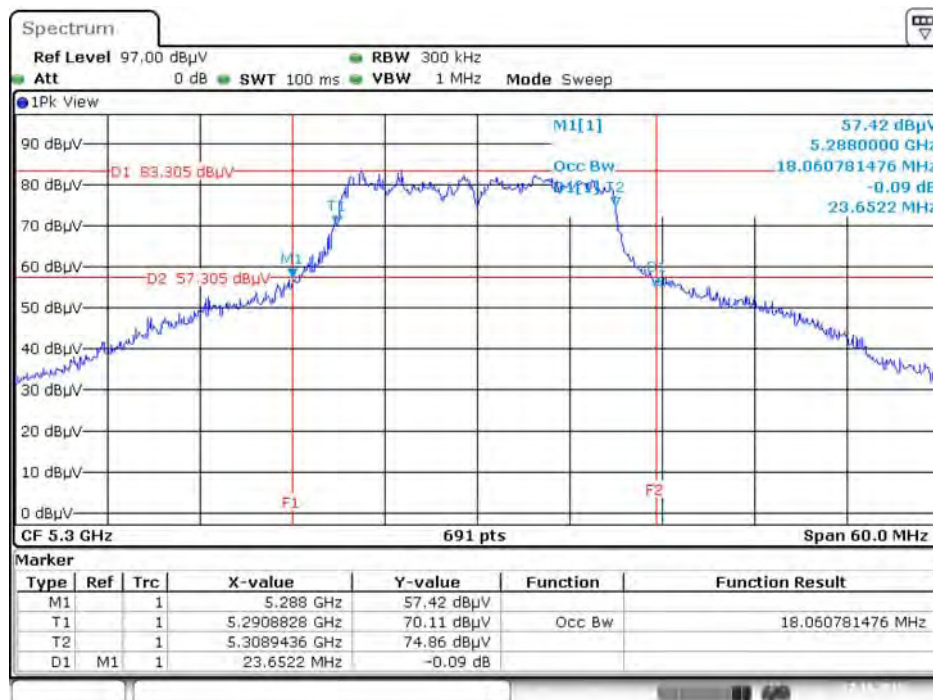
**Mode 6: EUT 1 + Set 6 Sector Antenna / 4 dBi**

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



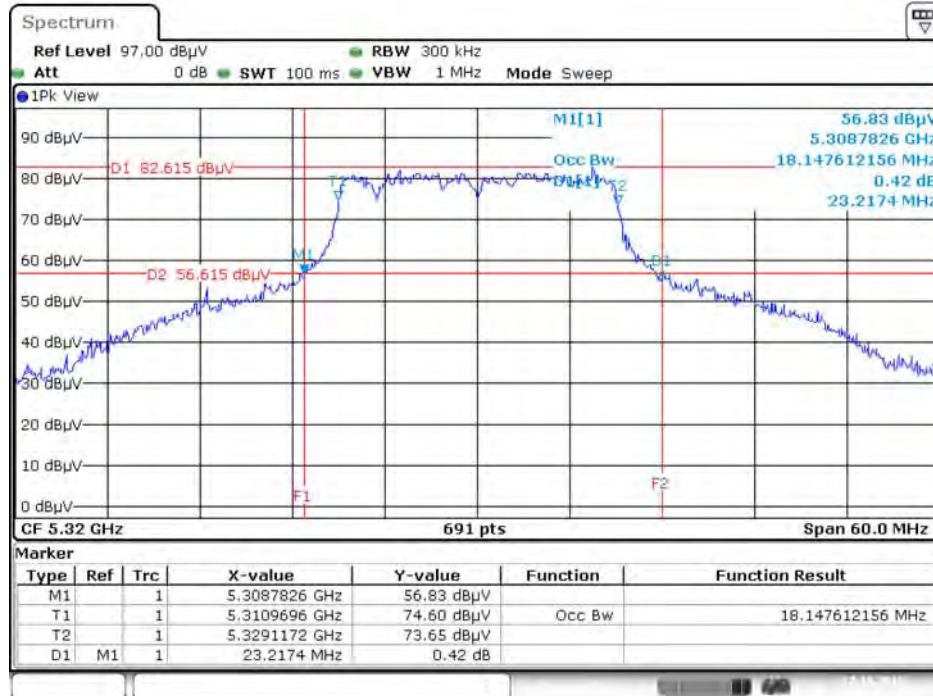
Date: 27.NOV.2015 21:52:52

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



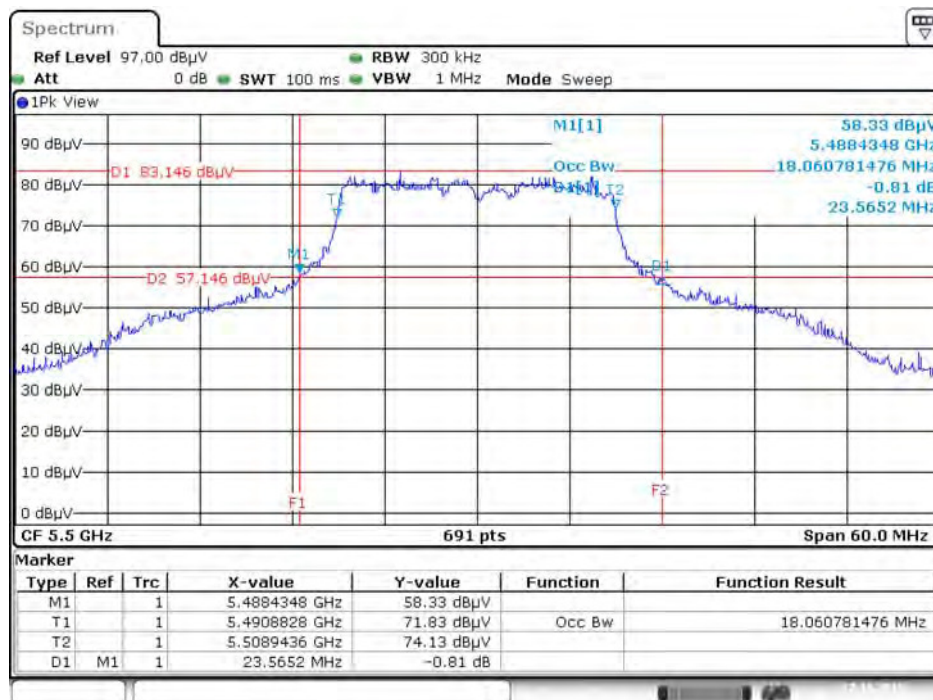
Date: 27.NOV.2015 21:53:21

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



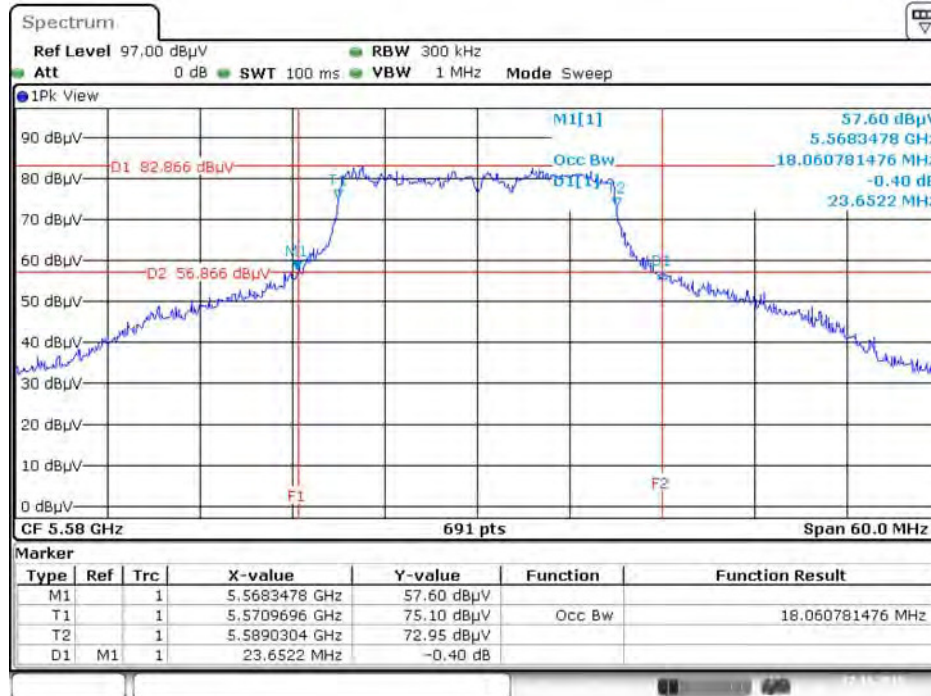
Date: 27.NOV.2015 21:53:42

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



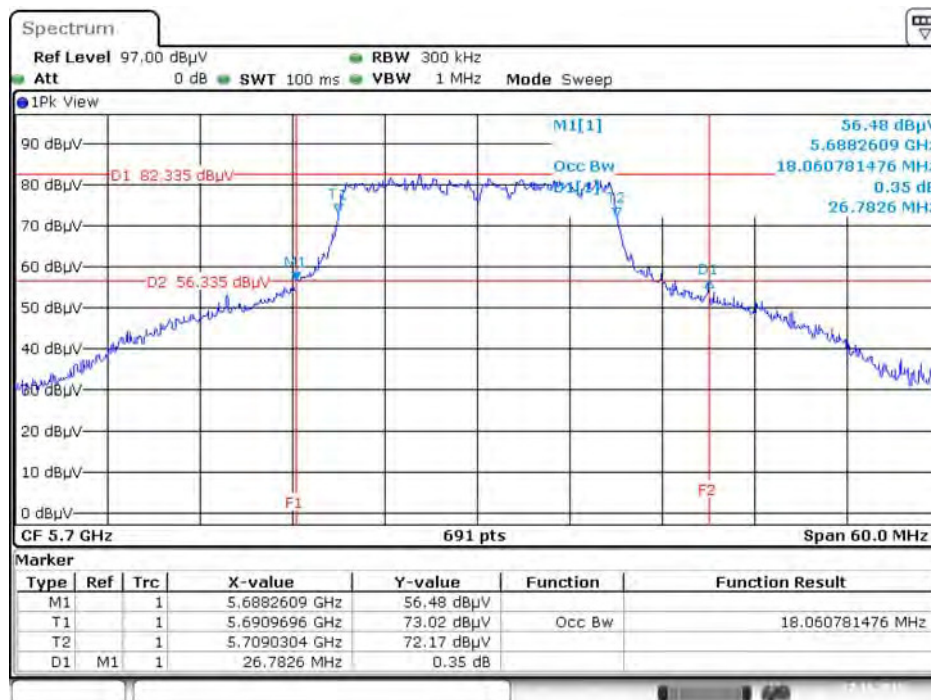
Date: 27.NOV.2015 21:58:08

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



Date: 27.NOV.2015 21:58:50

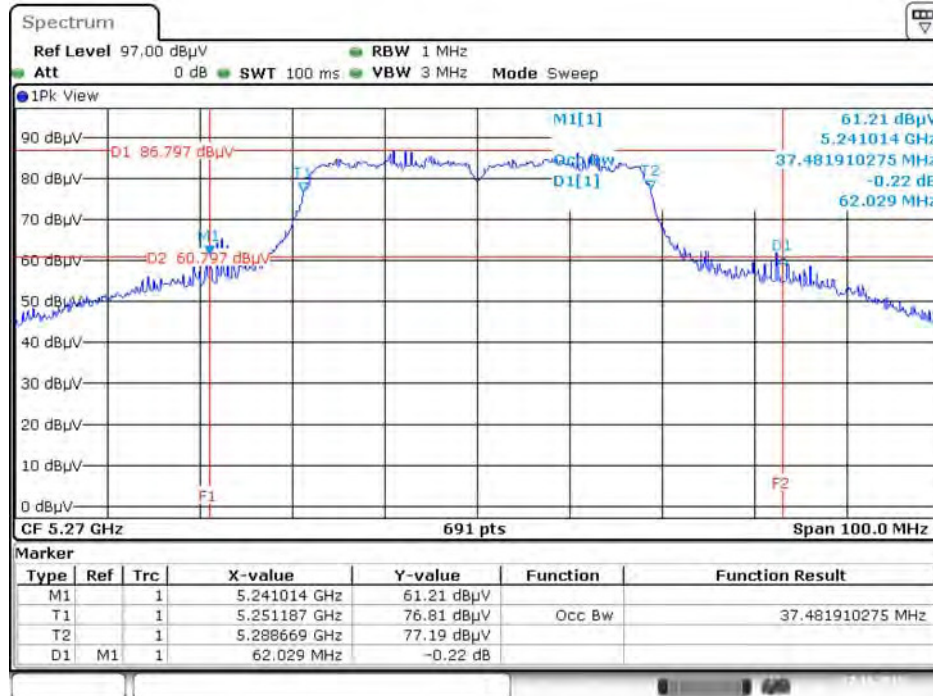
**26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5700 MHz**



Date: 27.NOV.2015 21:59:15

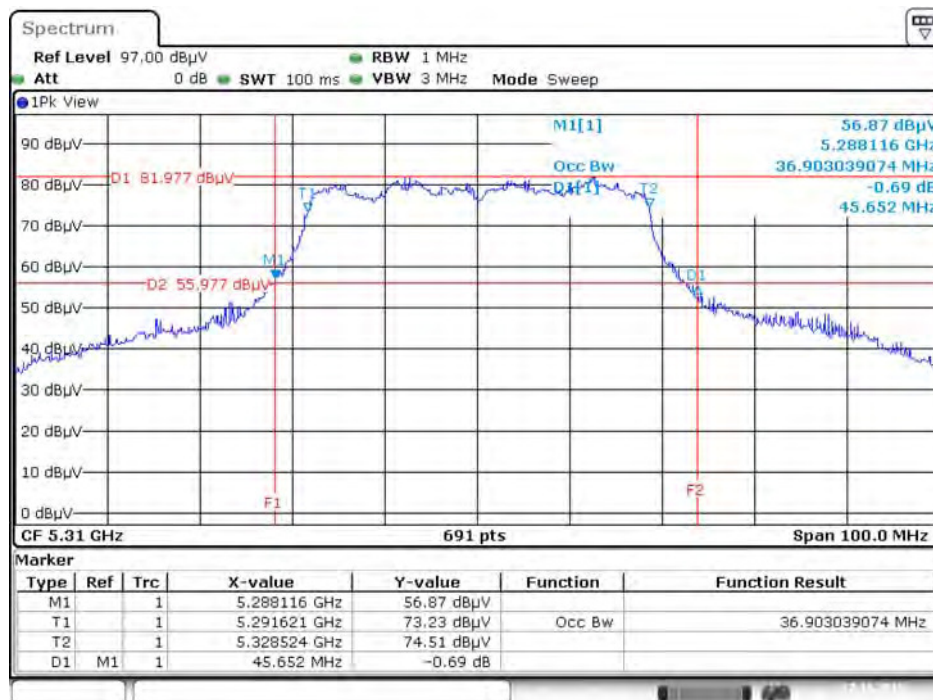


26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5270 MHz



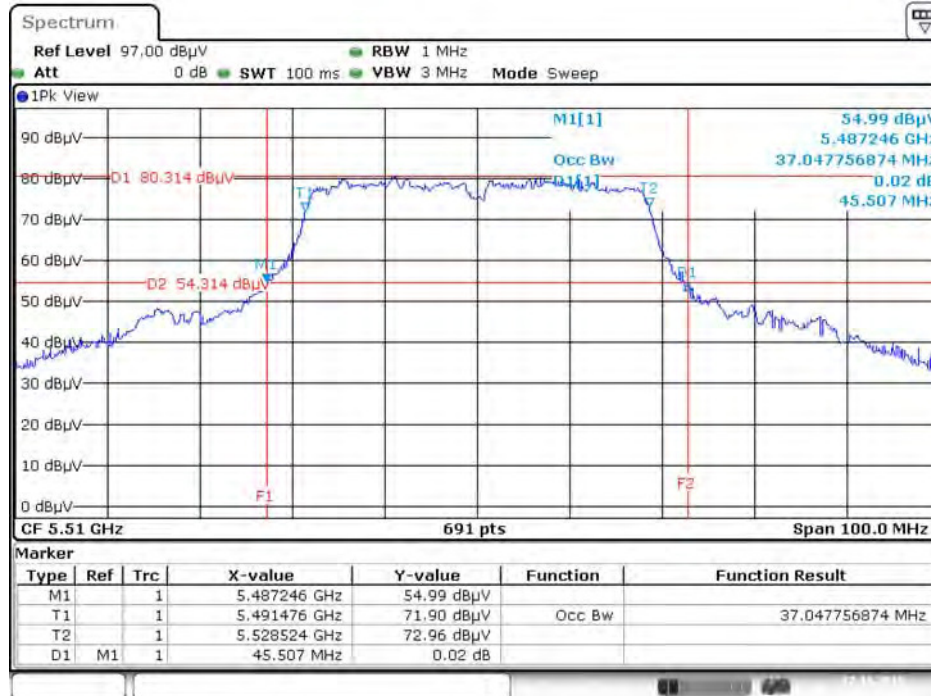
Date: 27.NOV.2015 22:05:32

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



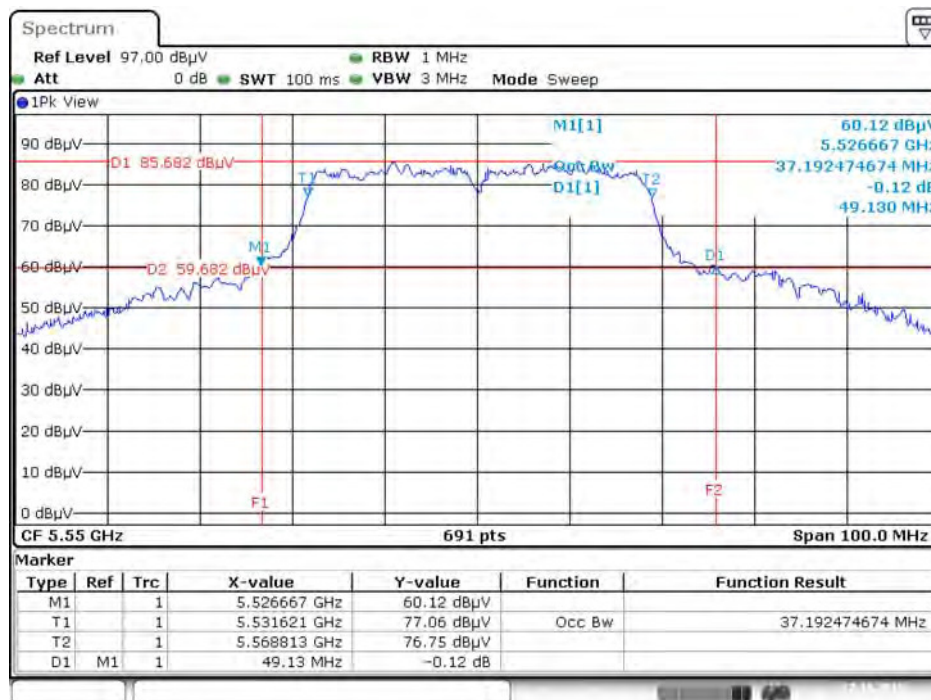
Date: 27.NOV.2015 22:06:30

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



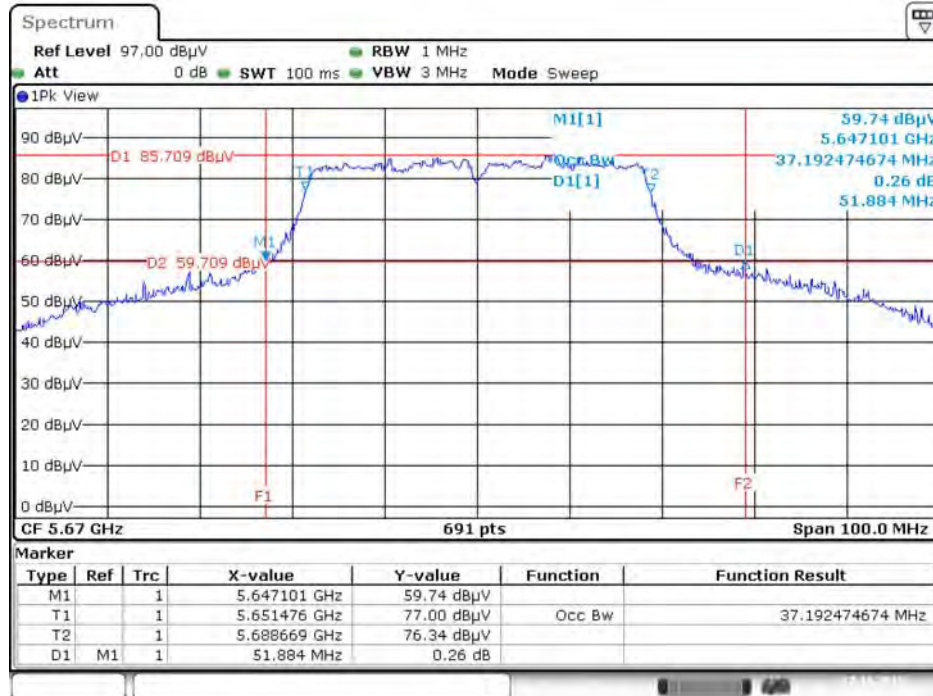
Date: 27.NOV.2015 22:07:03

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



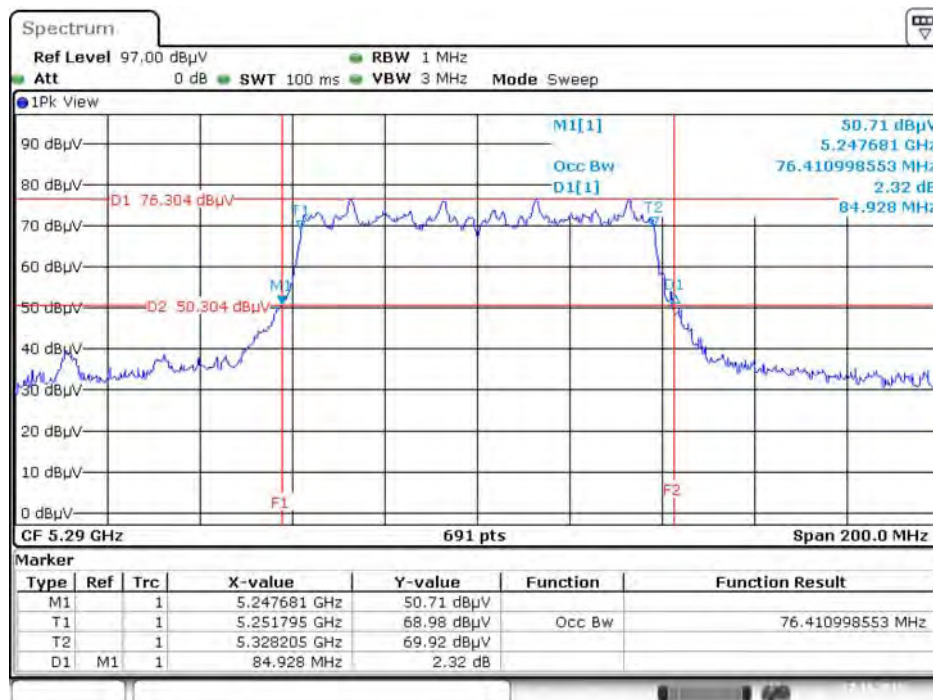
Date: 27.NOV.2015 22:07:38

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



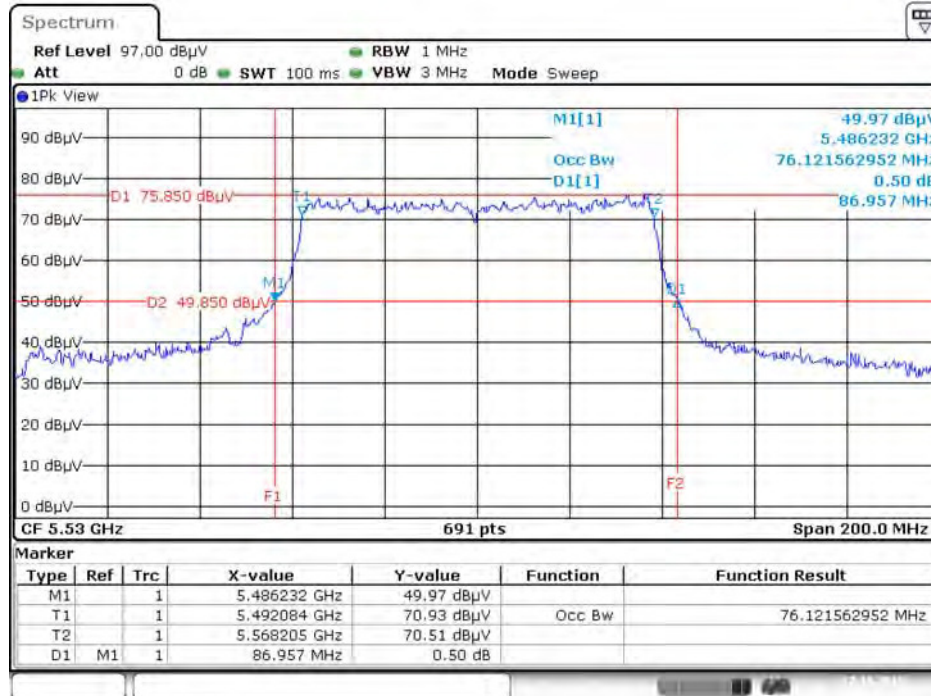
Date: 27.NOV.2015 22:10:39

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



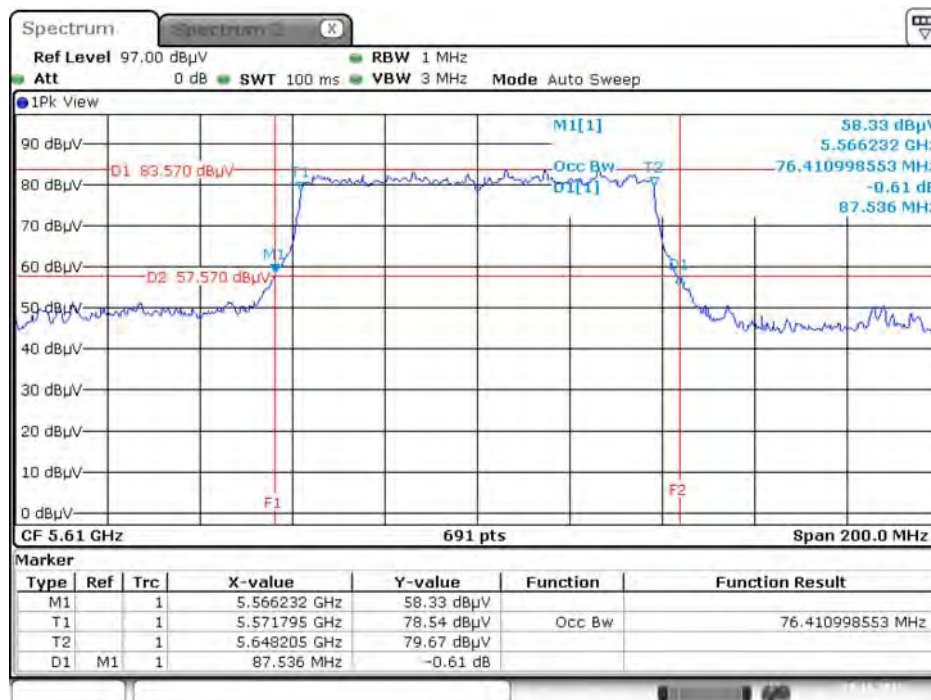
Date: 27.NOV.2015 22:12:32

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



Date: 27.NOV.2015 22:13:44

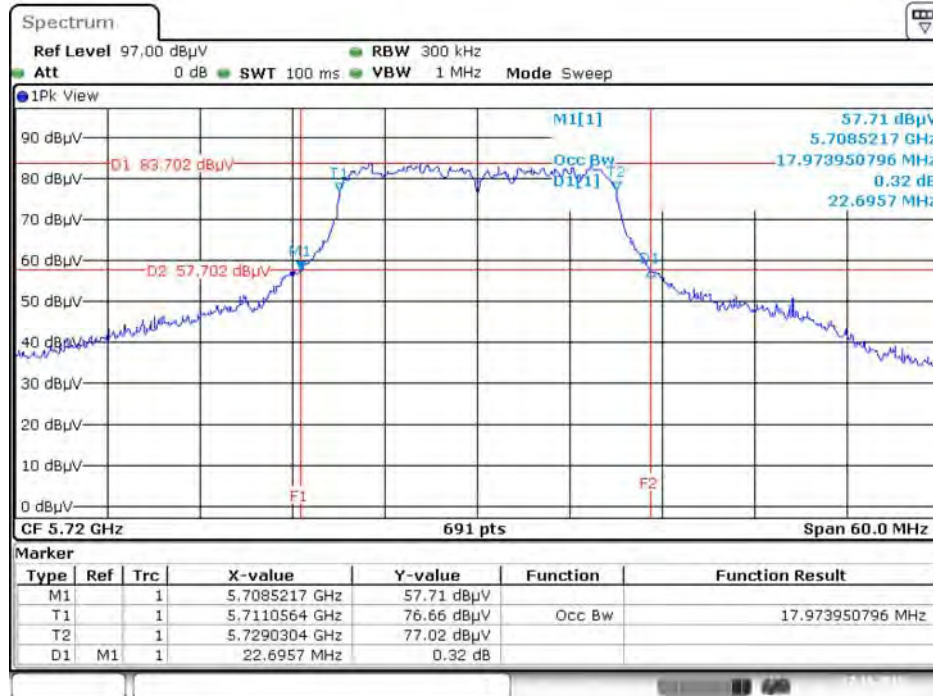
**26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5610 MHz**



Date: 29.NOV.2015 01:43:20

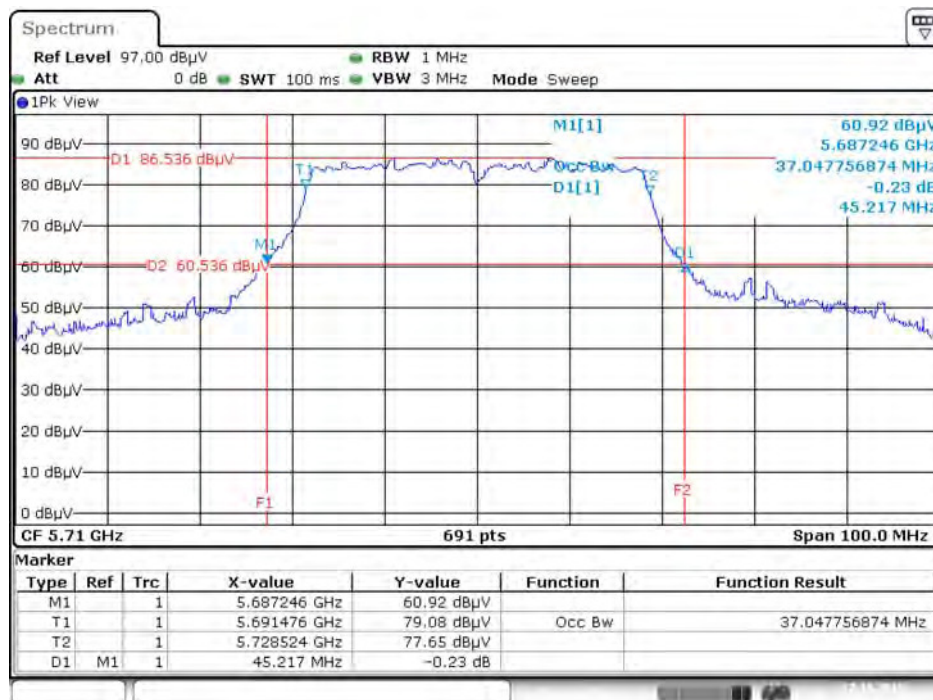
**Straddle Channel**

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



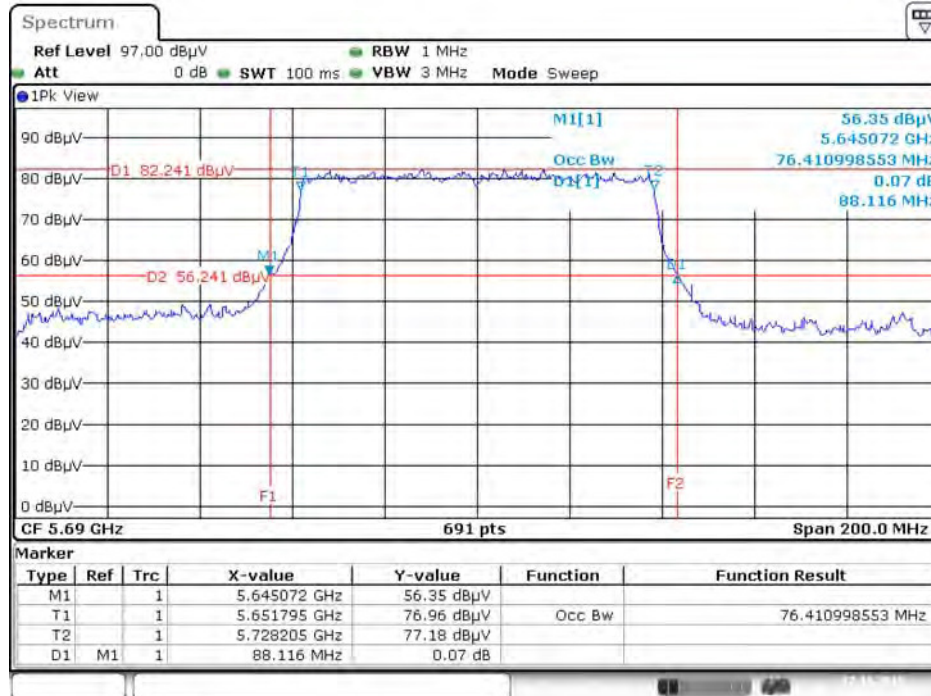
Date: 27.NOV.2015 09:39:47

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



Date: 27.NOV.2015 09:44:14

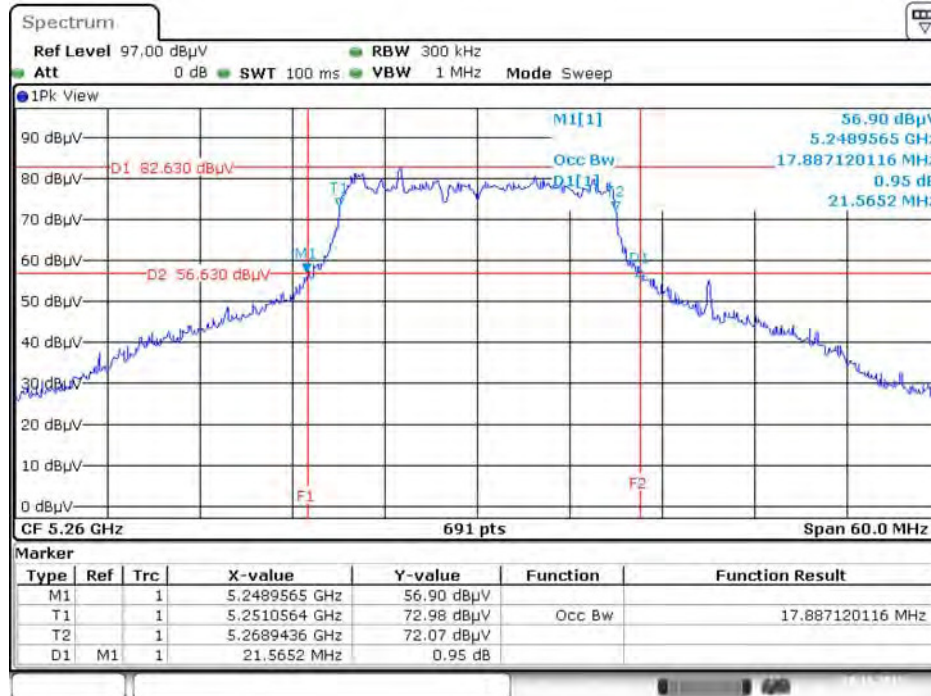
**26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5690 MHz**



Date: 27.NOV.2015 09:51:45

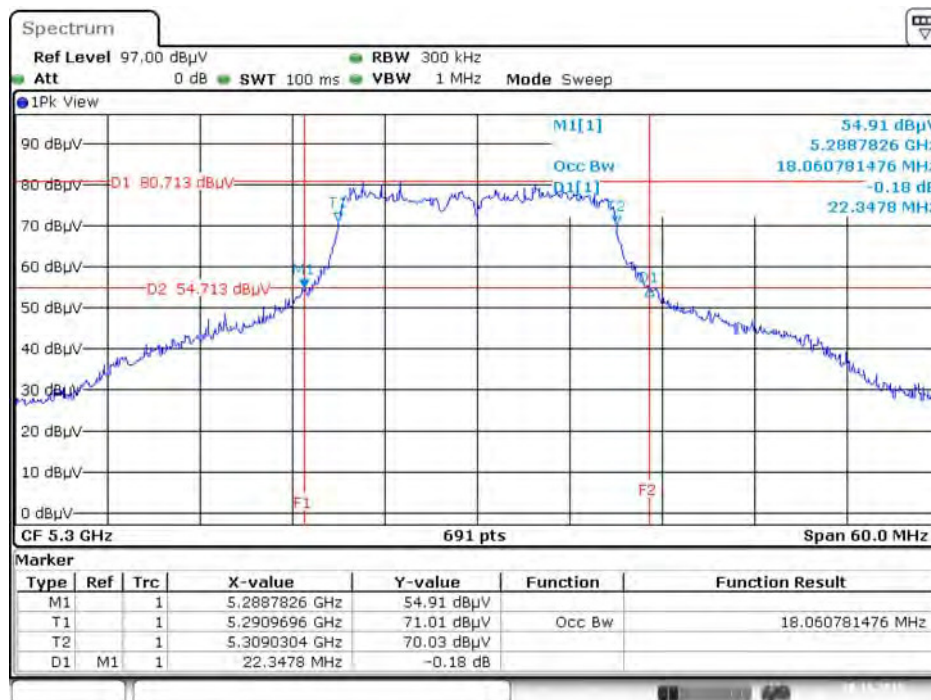
**Mode 7: EUT 1 + Set 9 Dipole Antenna / 4.67 dBi**

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



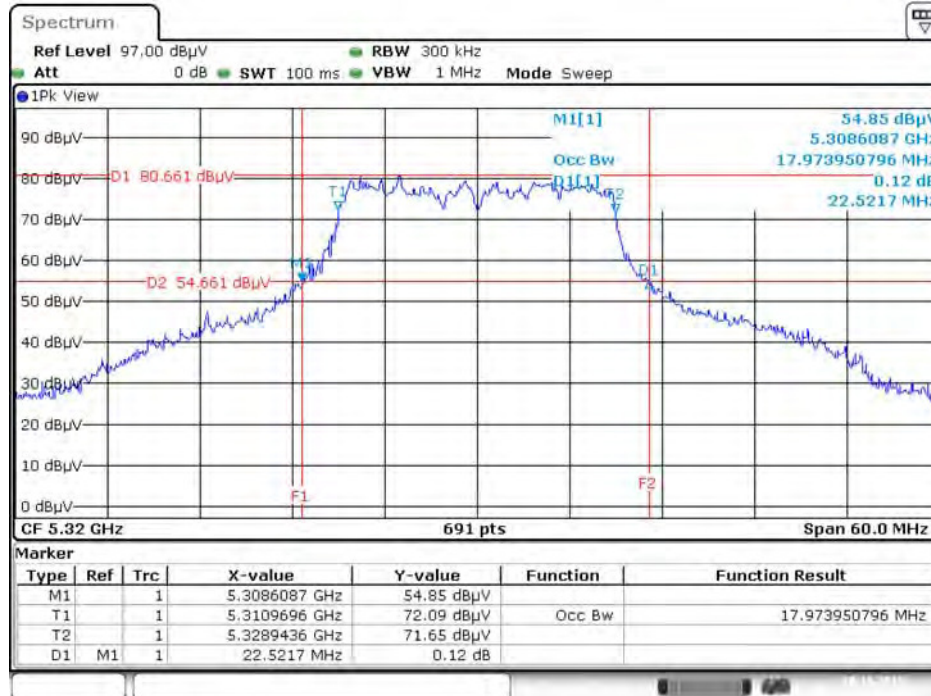
Date: 28.NOV.2015 00:20:01

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



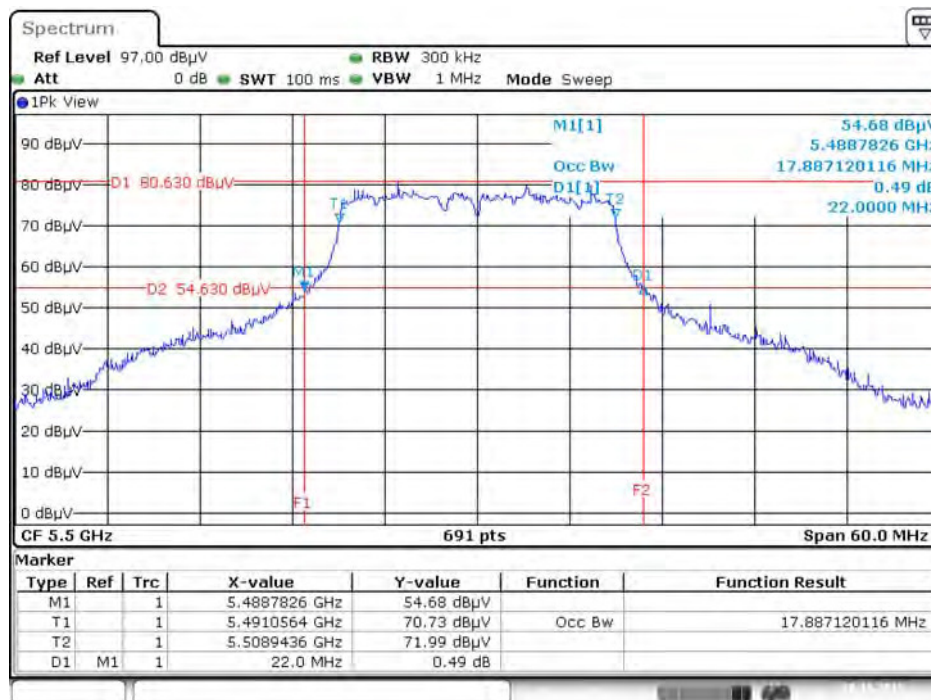
Date: 28.NOV.2015 00:20:26

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



Date: 28.NOV.2015 00:20:49

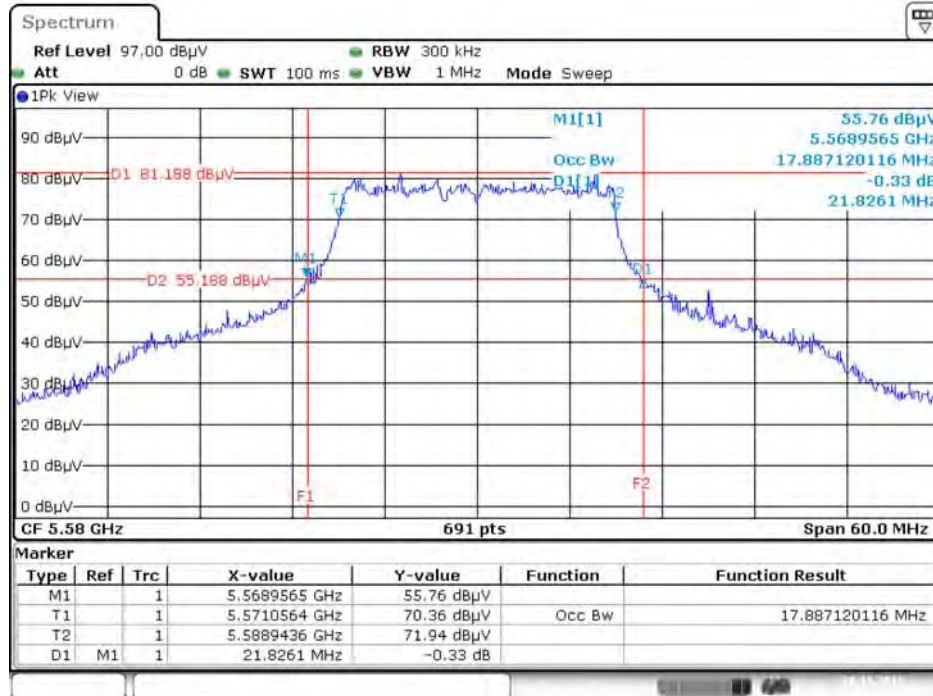
**26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5500 MHz**



Date: 28.NOV.2015 00:21:21

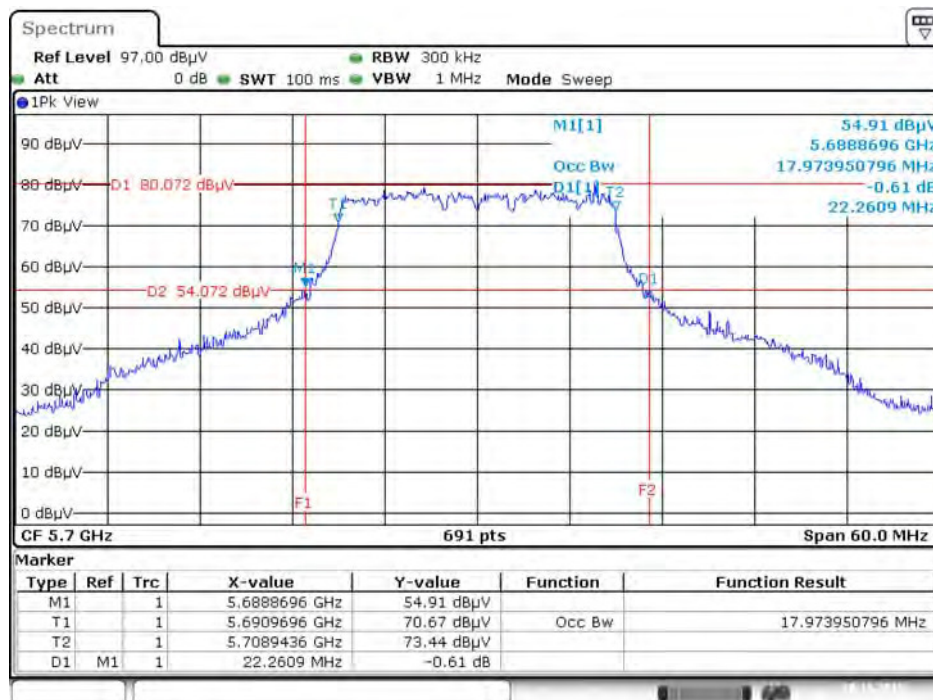


26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5580 MHz



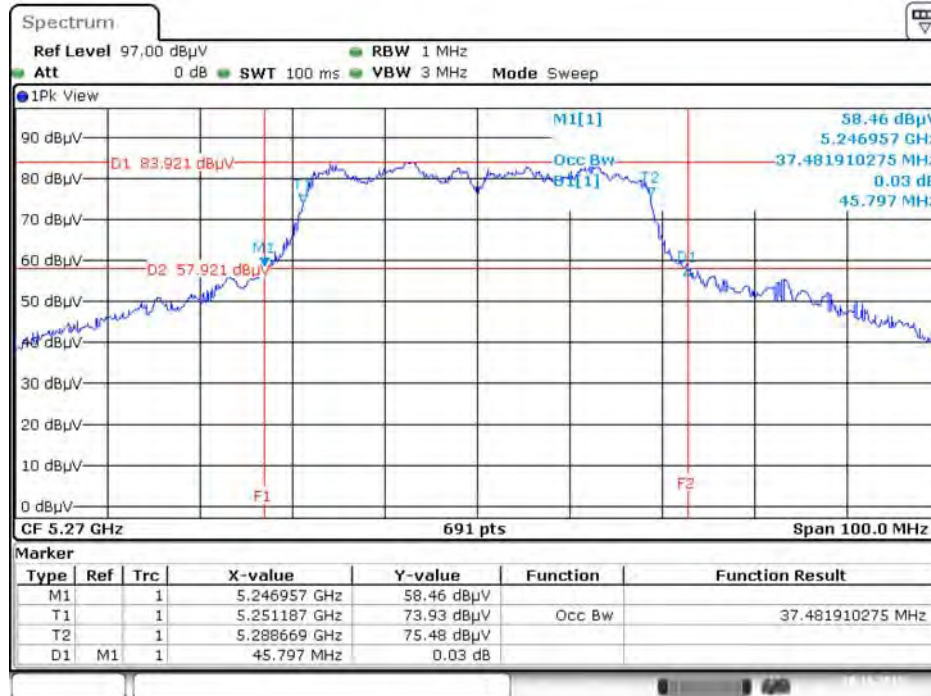
Date: 28.NOV.2015 00:21:45

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



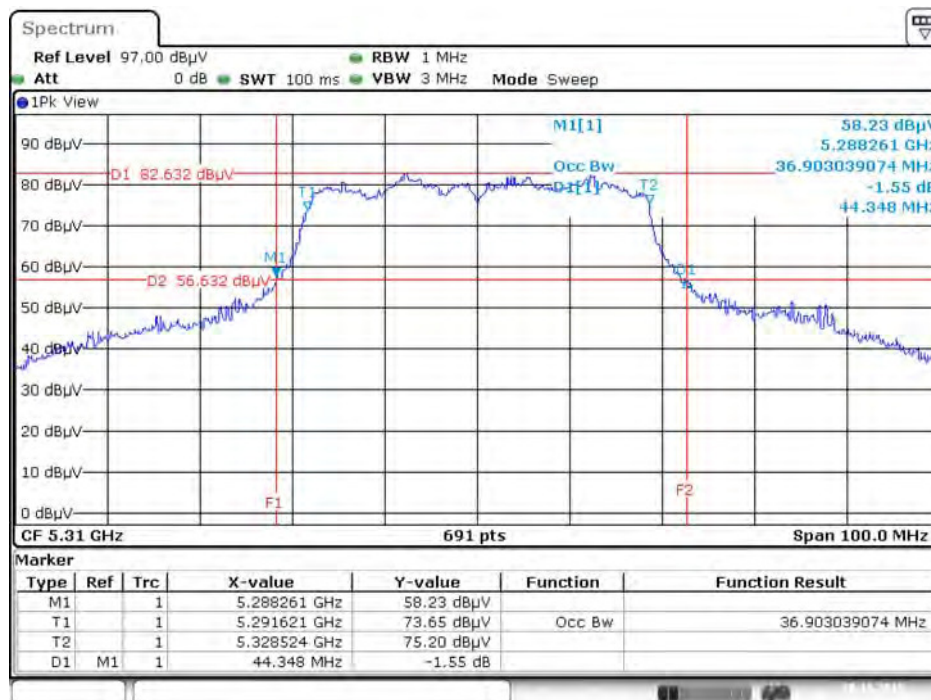
Date: 28.NOV.2015 00:22:34

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



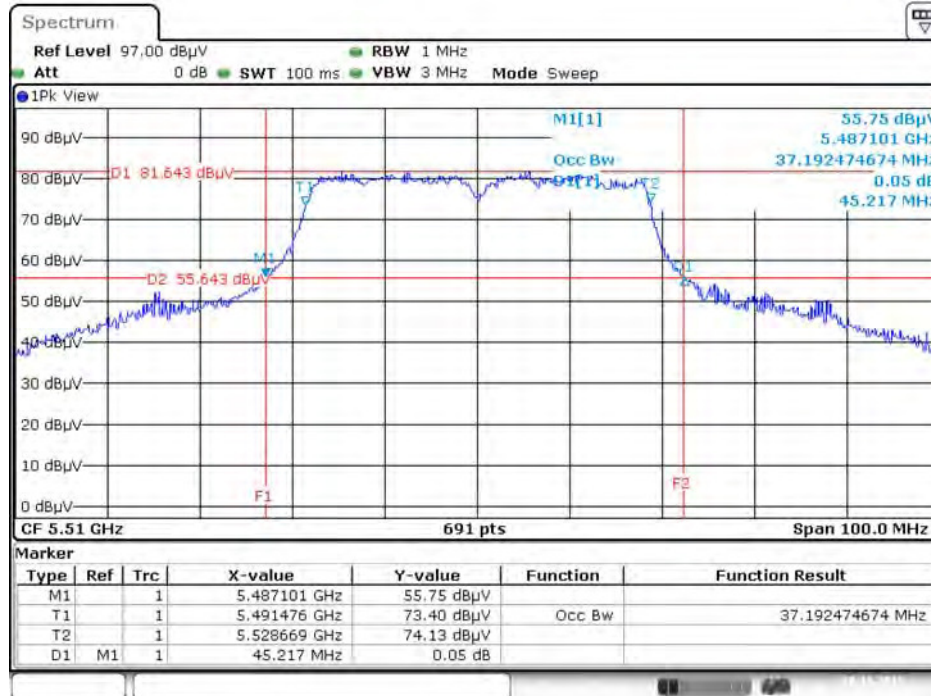
Date: 28.NOV.2015 00:25:37

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



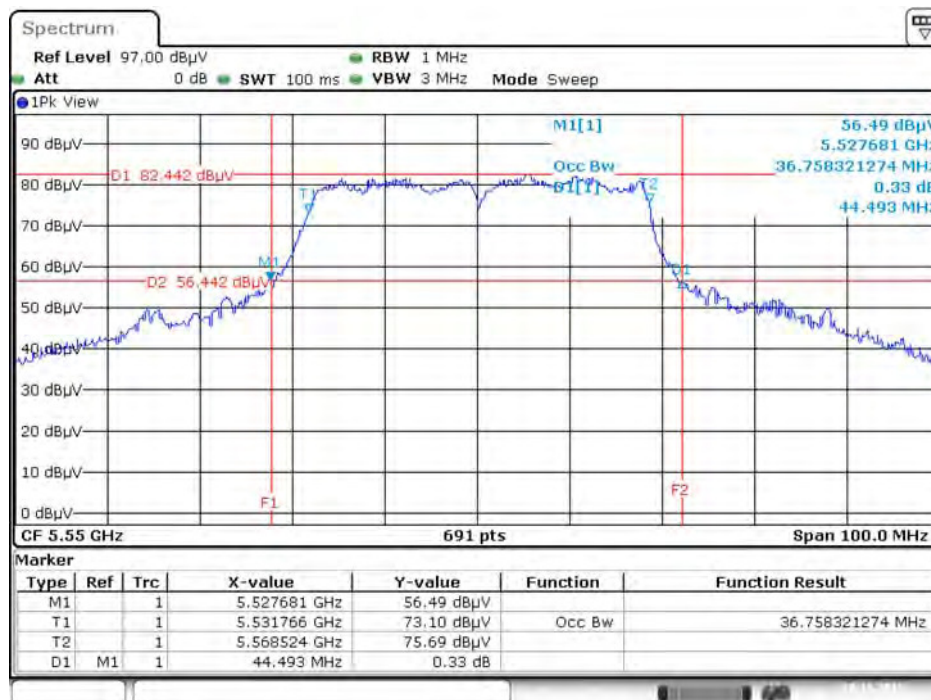
Date: 28.NOV.2015 01:15:19

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



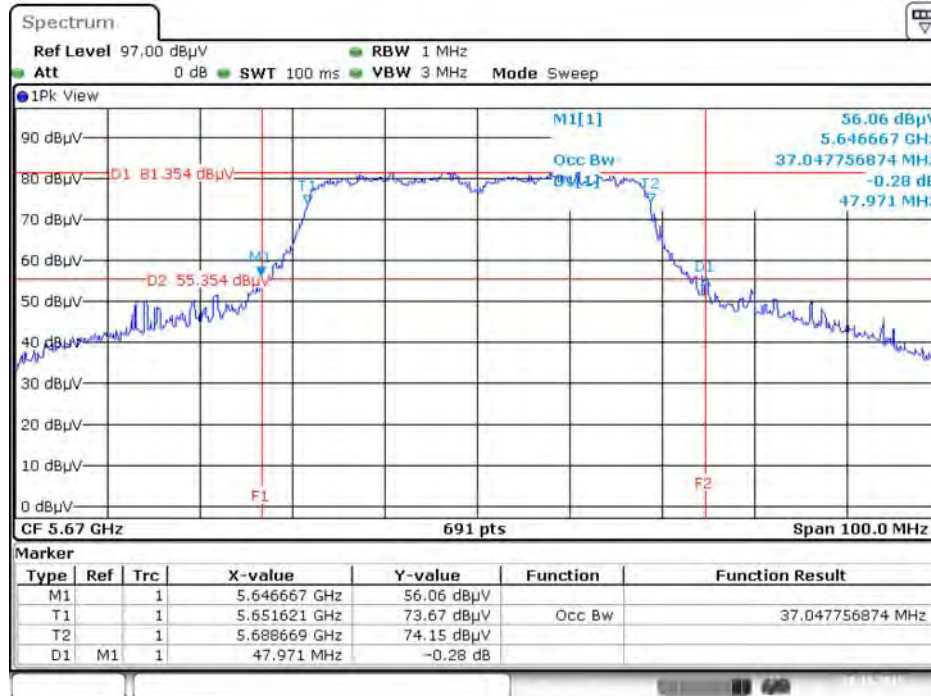
Date: 28.NOV.2015 00:26:59

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



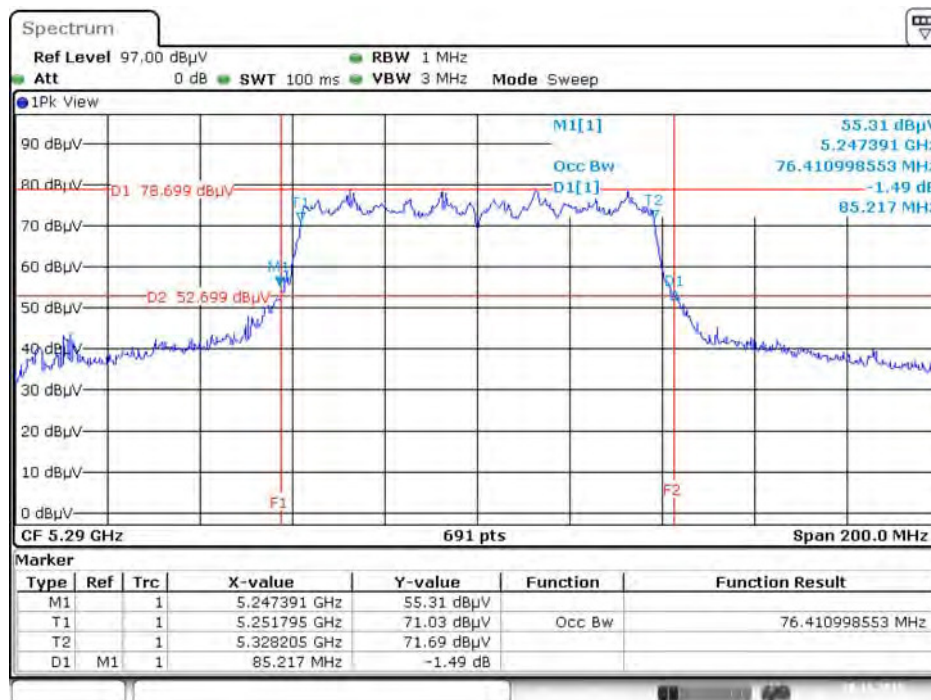
Date: 28.NOV.2015 00:27:40

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



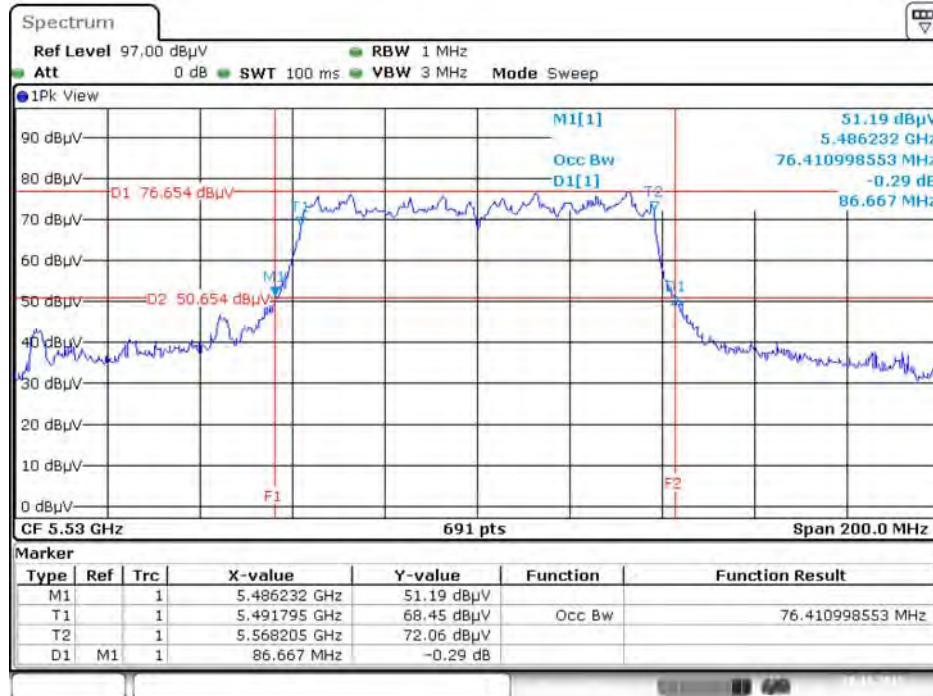
Date: 28.NOV.2015 00:28:11

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



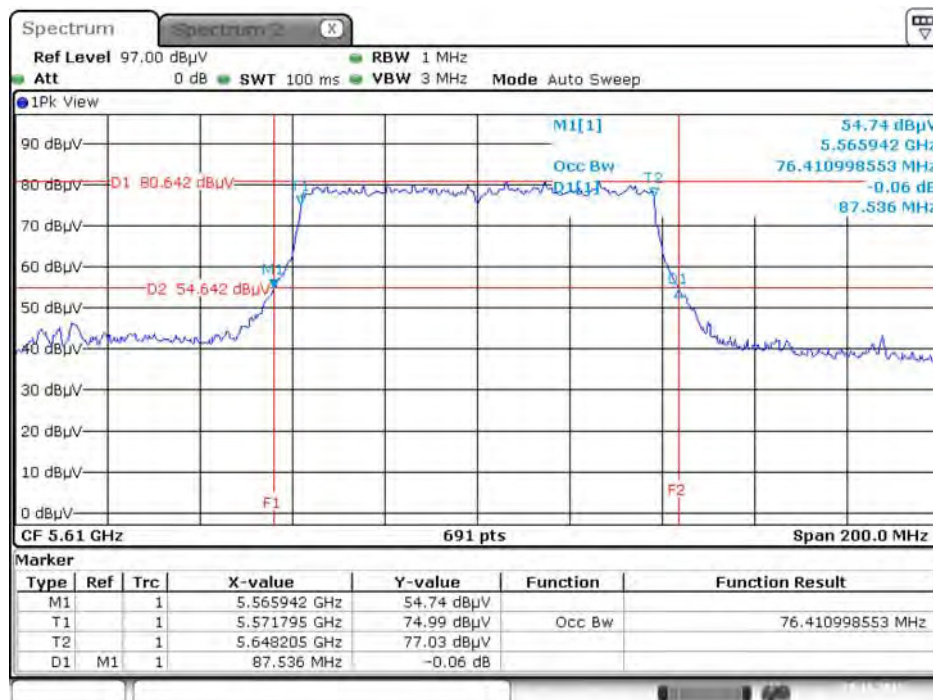
Date: 28.NOV.2015 01:17:51

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



Date: 28.NOV.2015 01:18:20

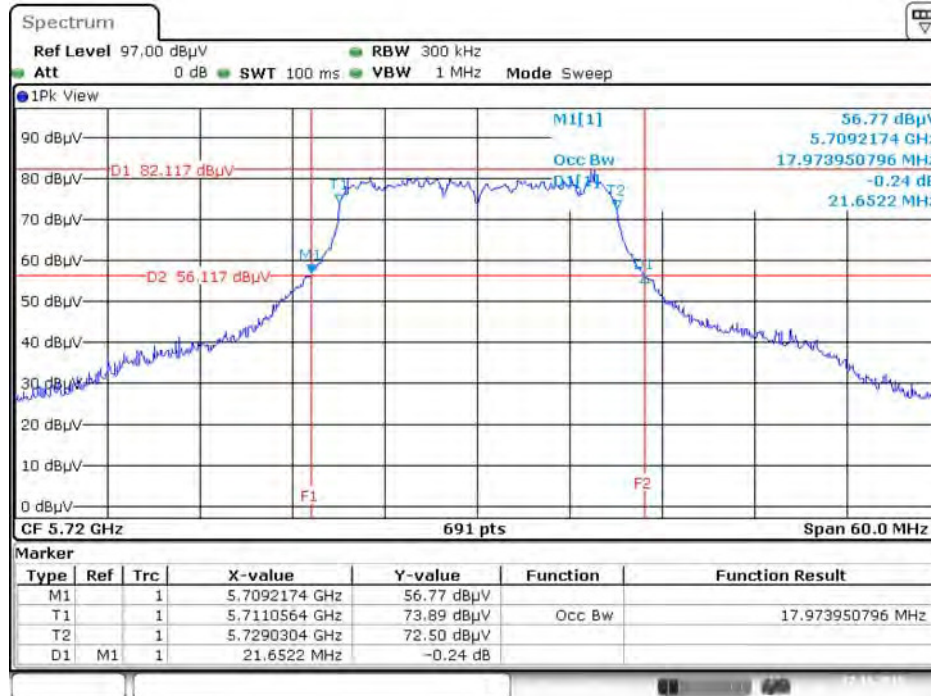
**26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5610 MHz**



Date: 29.NOV.2015 01:40:24

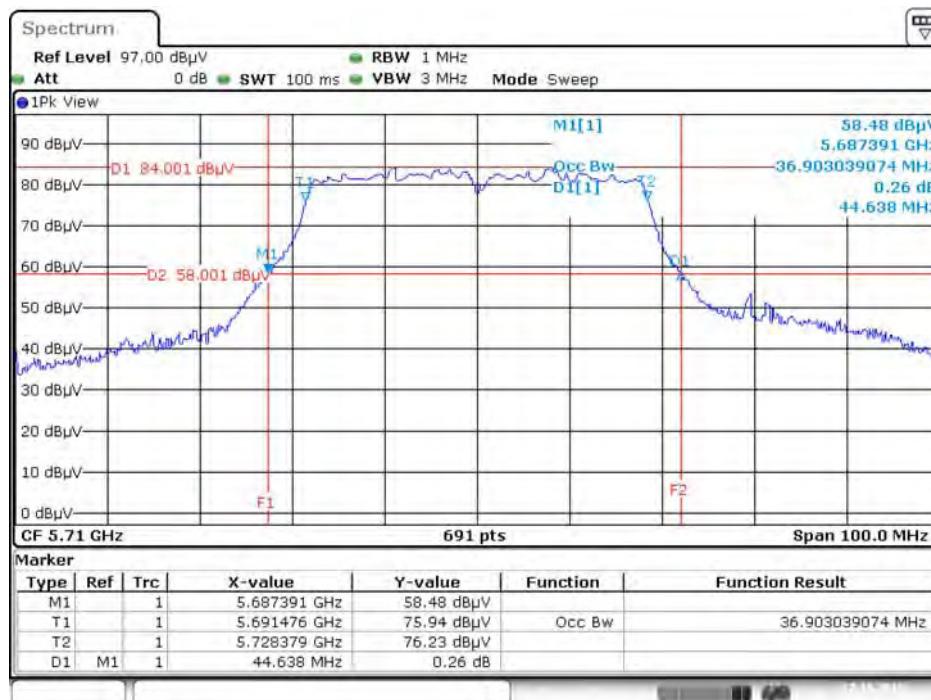
**Straddle Channel**

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



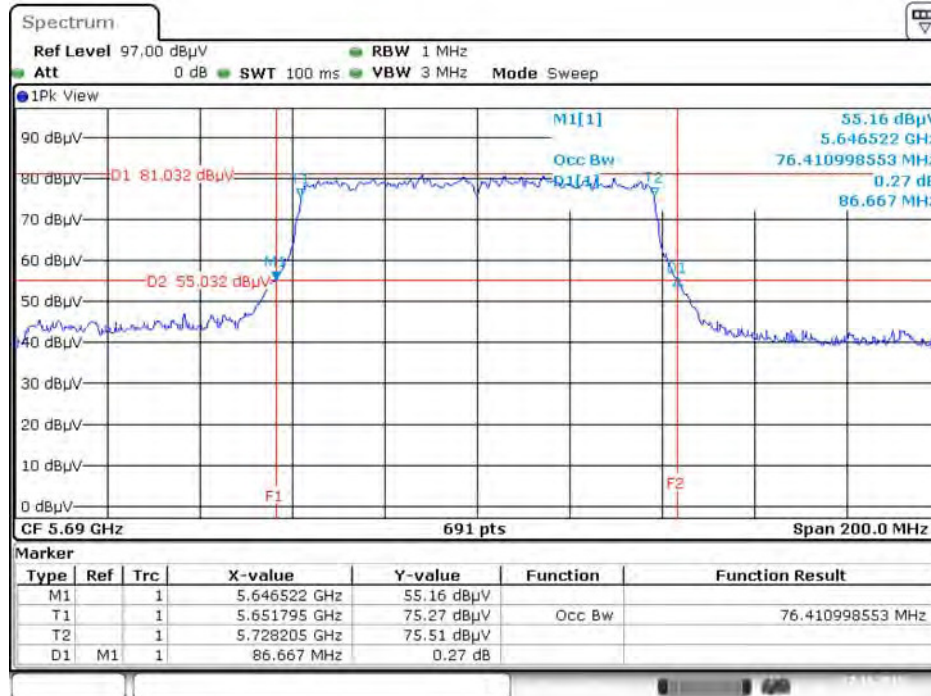
Date: 27.NOV.2015 10:51:26

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



Date: 27.NOV.2015 10:48:47

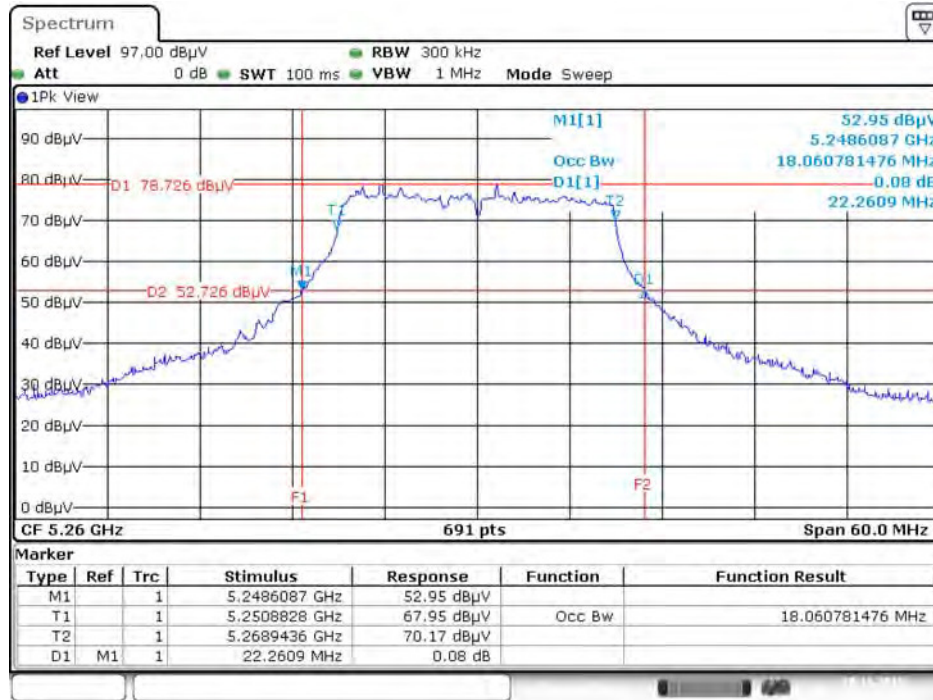
**26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5690 MHz**



Date: 27.NOV.2015 10:46:04

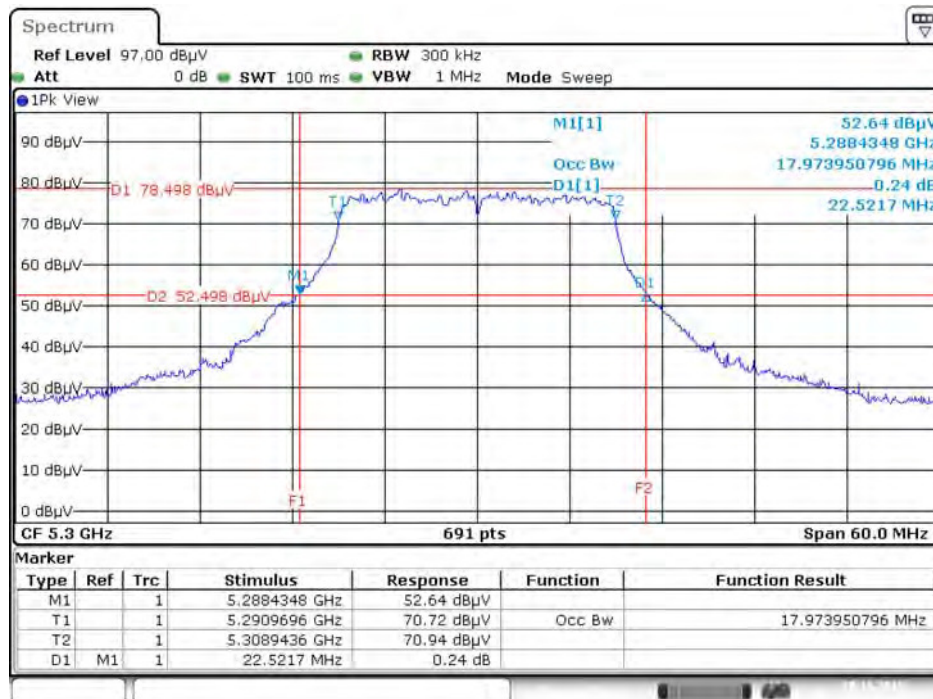
Mode 8: EUT 2 + Set 10 PIFA Antenna / Chain1:5.84 dBi, Chain2:5.50 dBi, Chain3:5.84 dBi, Chain4:5.65 dBi

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



Date: 28.Nov.2015 21:48:15

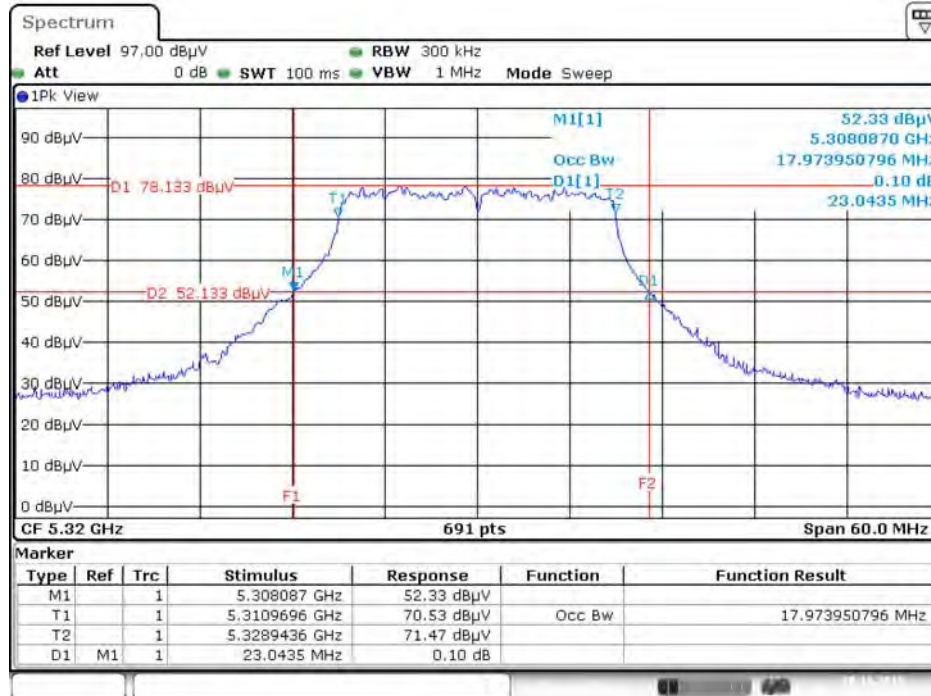
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5300 MHz



Date: 28.Nov.2015 21:49:11

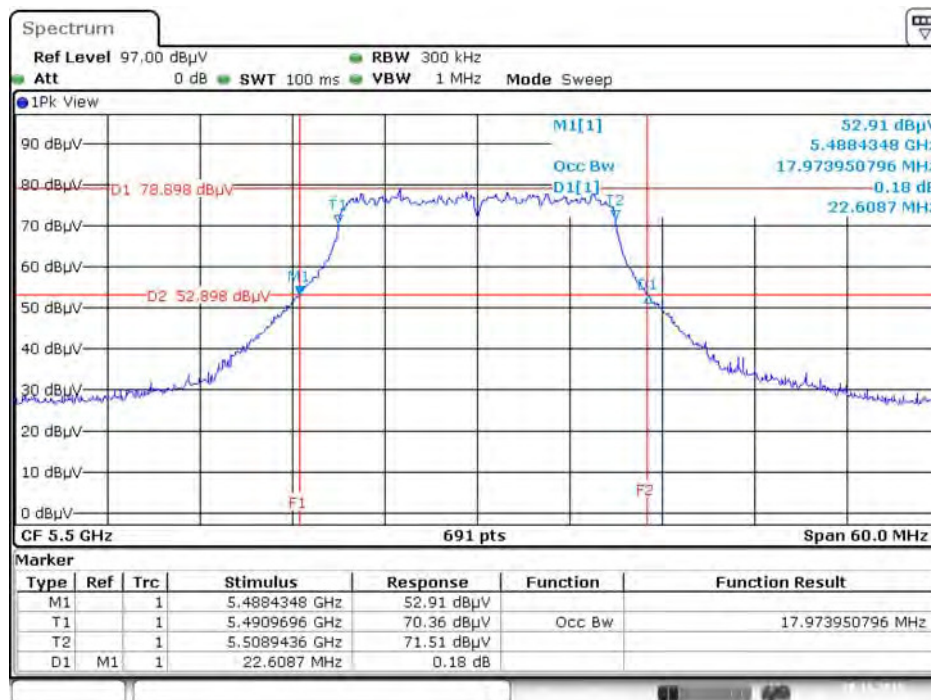


26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5320 MHz



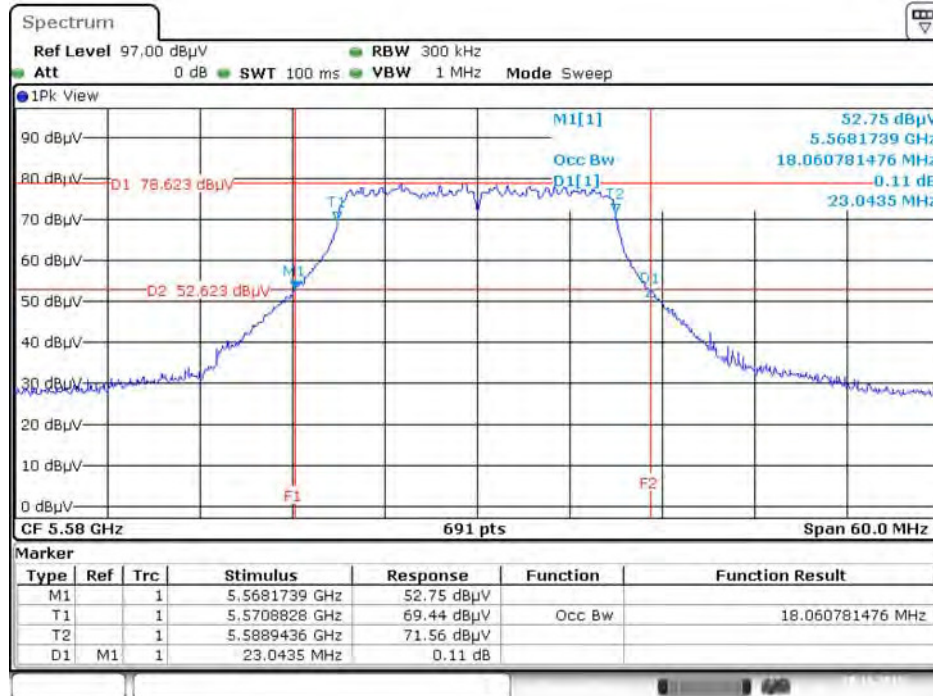
Date: 28.NOV.2015 21:50:07

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



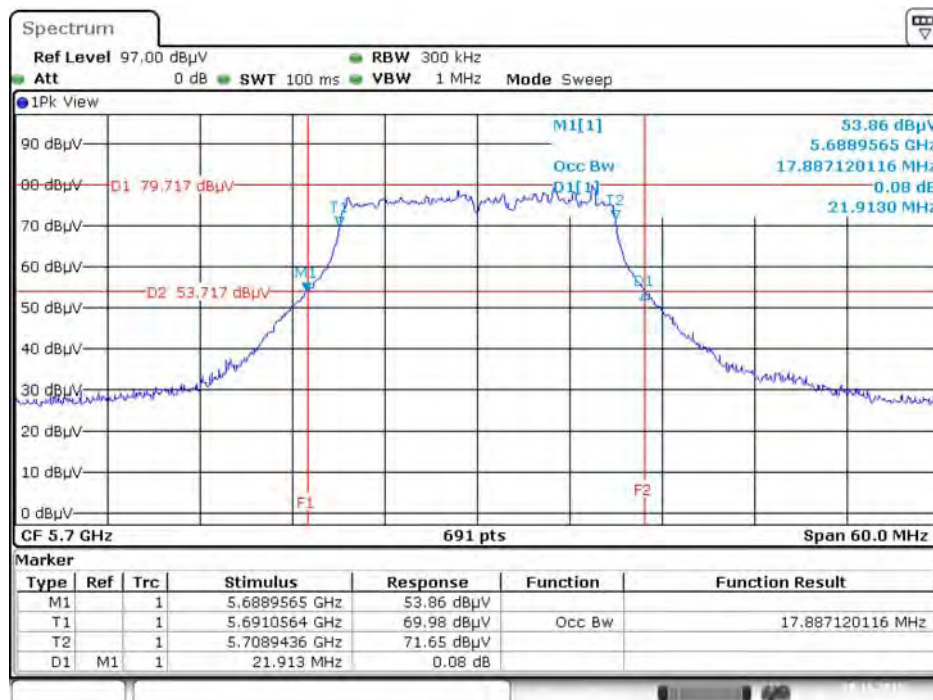
Date: 28.NOV.2015 21:51:00

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



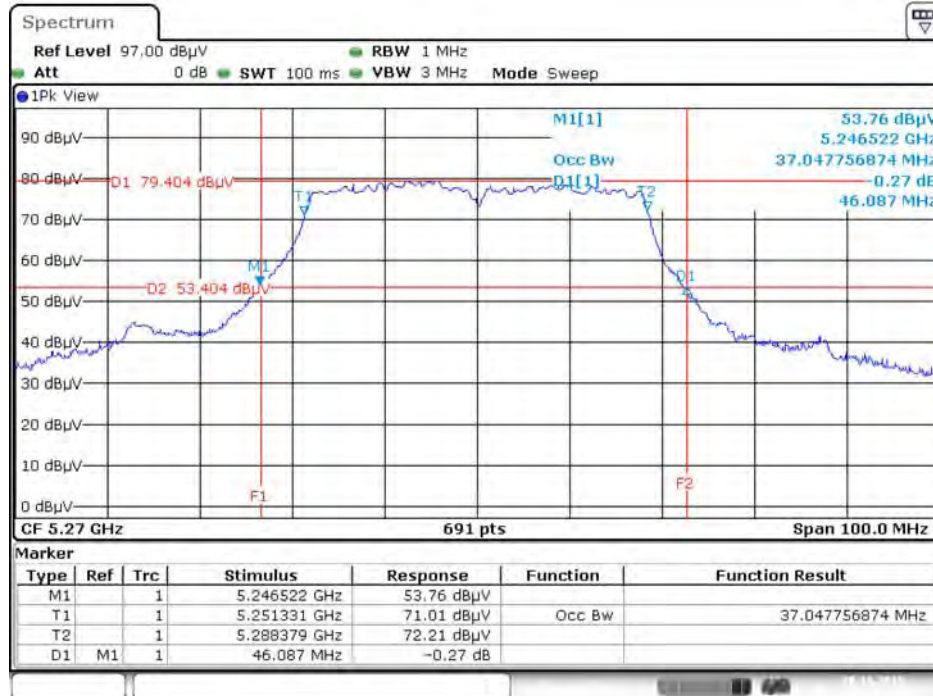
Date: 28.NOV.2015 21:53:36

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



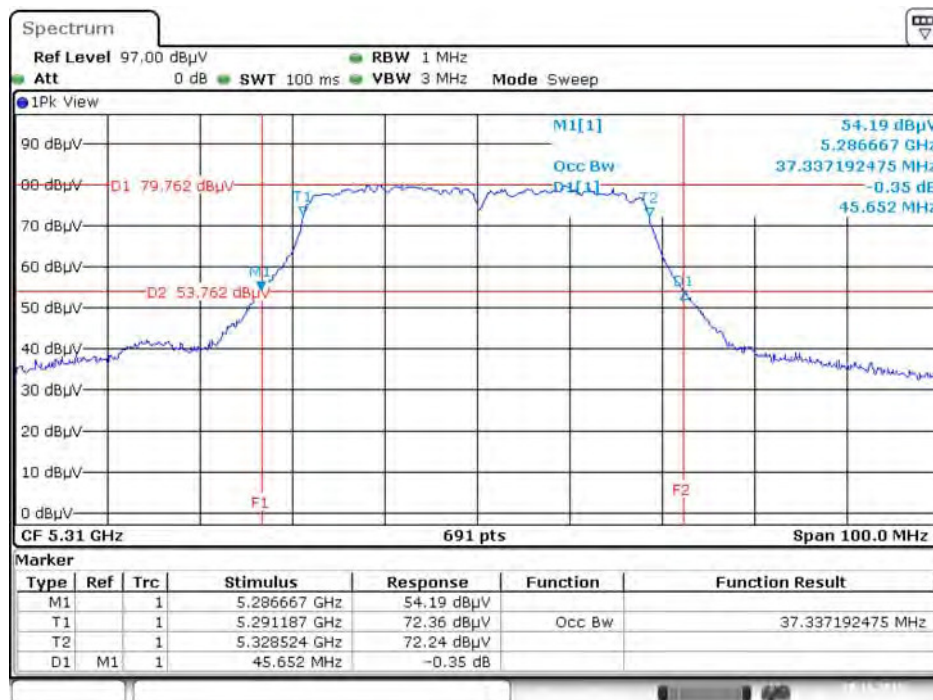
Date: 28.NOV.2015 21:55:50

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



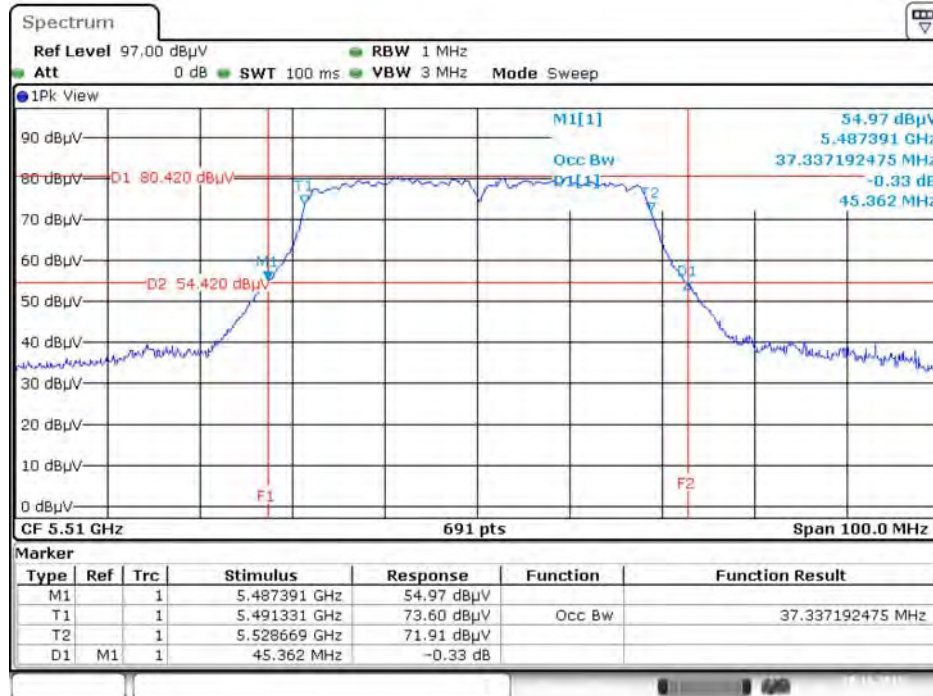
Date: 28.NOV.2015 22:17:31

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



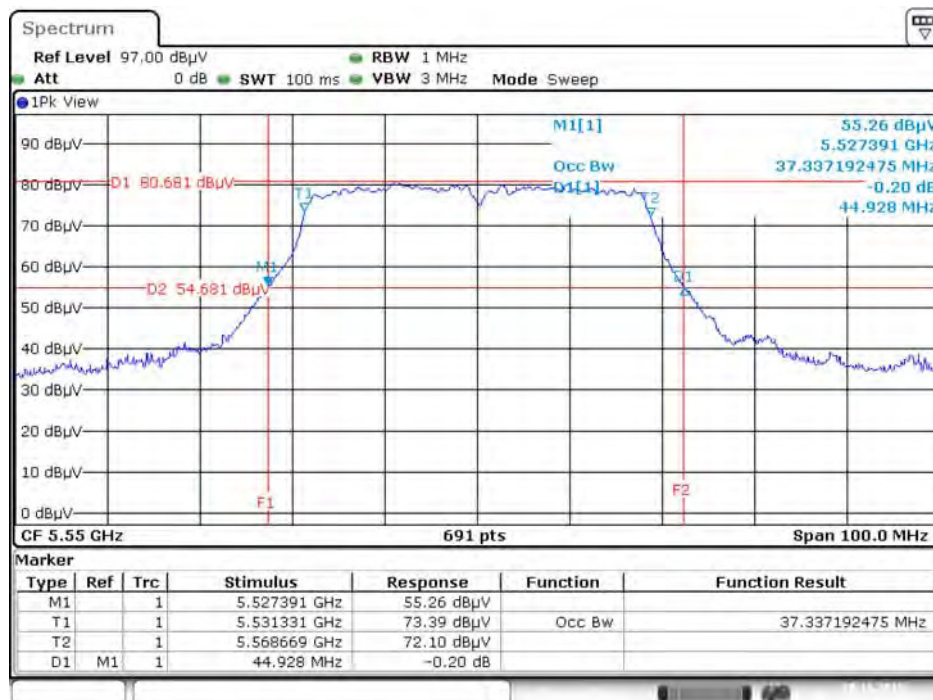
Date: 28.NOV.2015 22:19:00

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



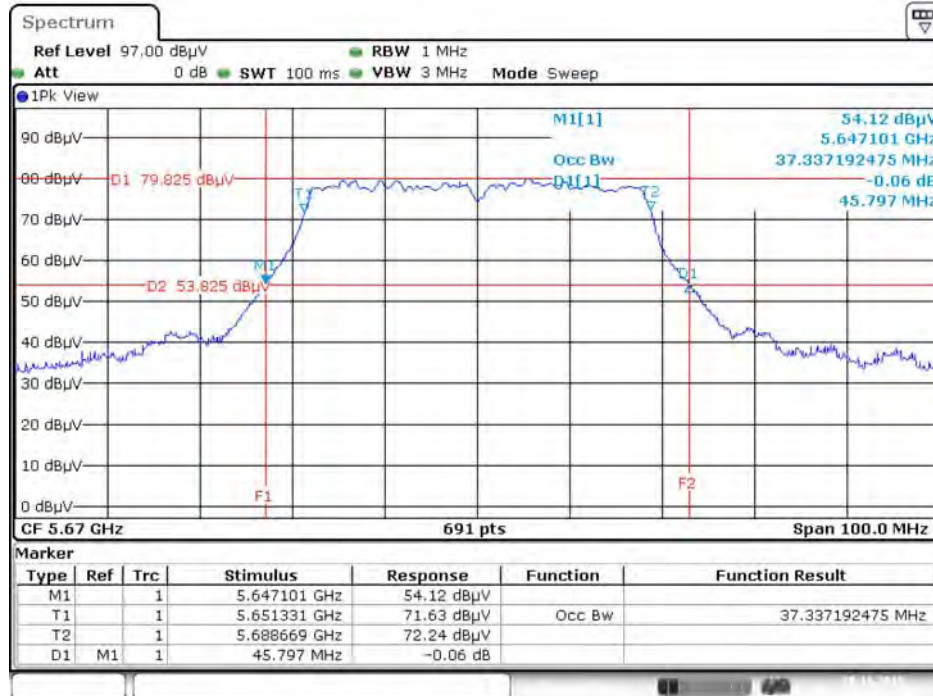
Date: 28.NOV.2015 22:20:01

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



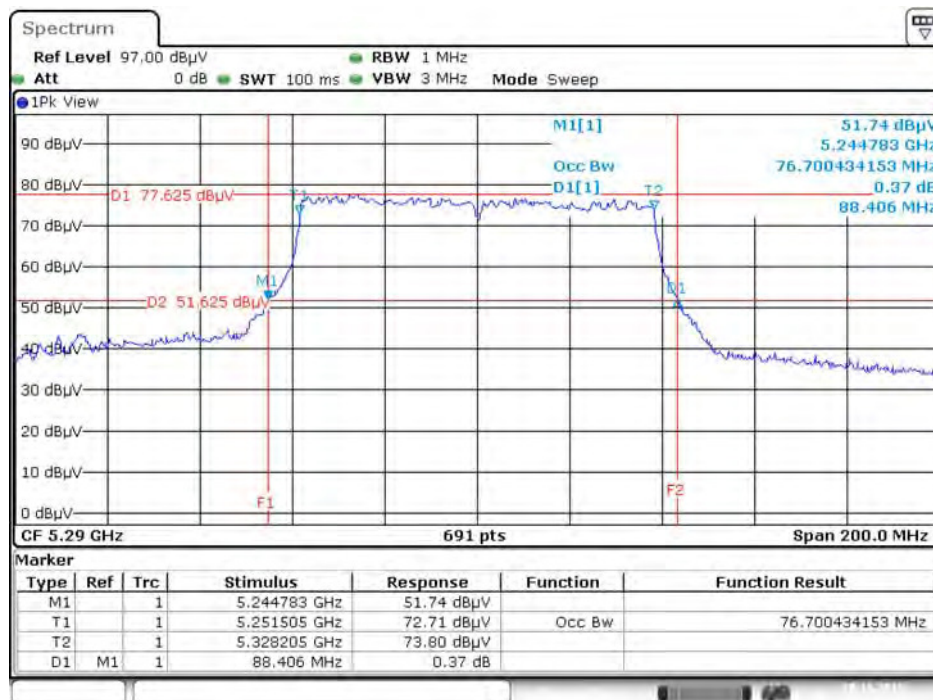
Date: 28.NOV.2015 22:21:03

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



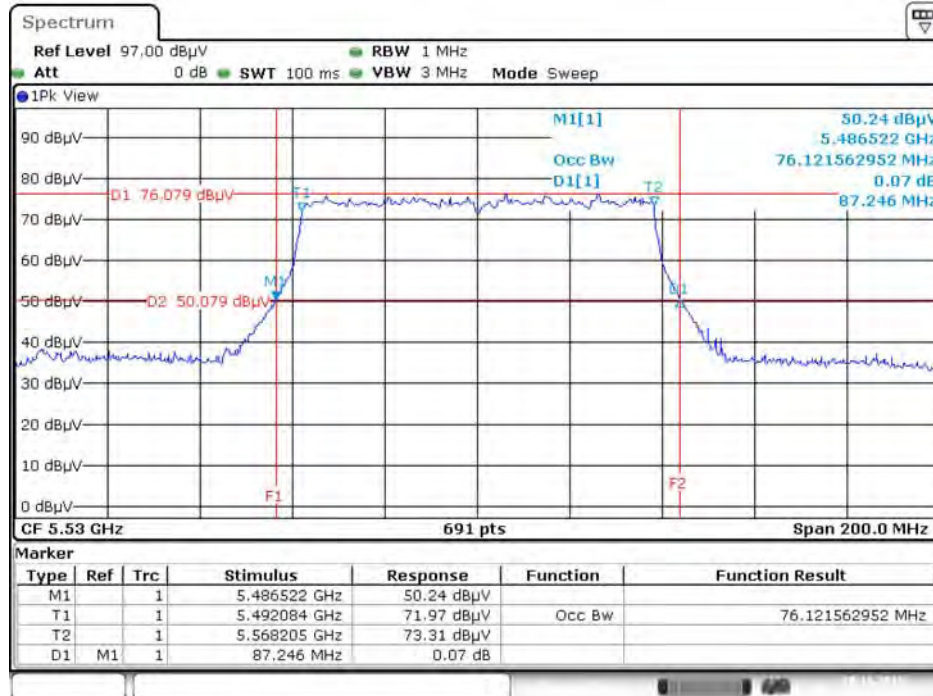
Date: 28.NOV.2015 22:22:15

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



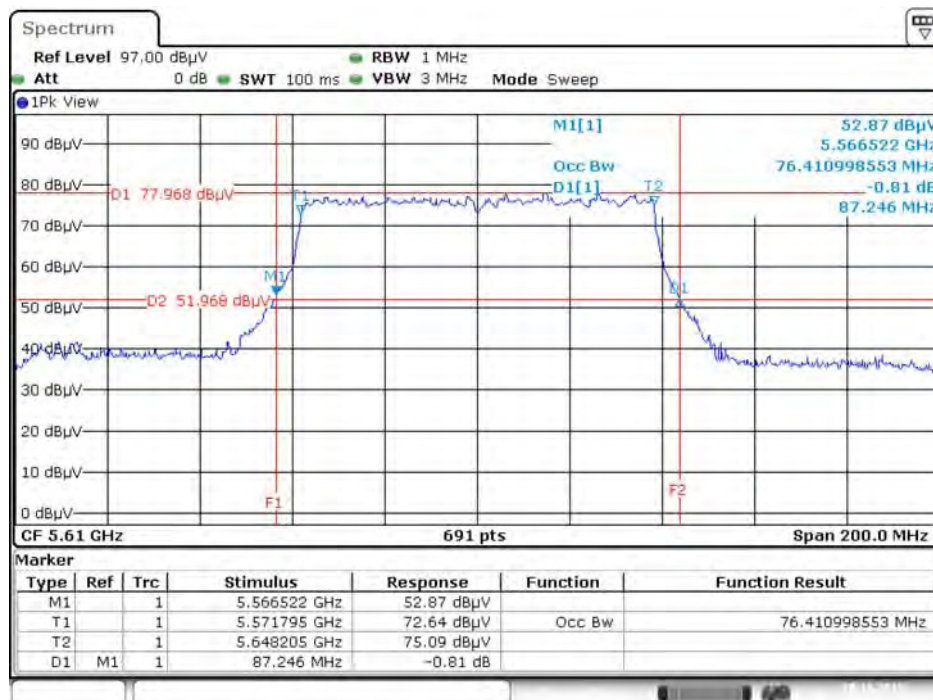
Date: 28.NOV.2015 22:37:26

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



Date: 28.NOV.2015 22:41:07

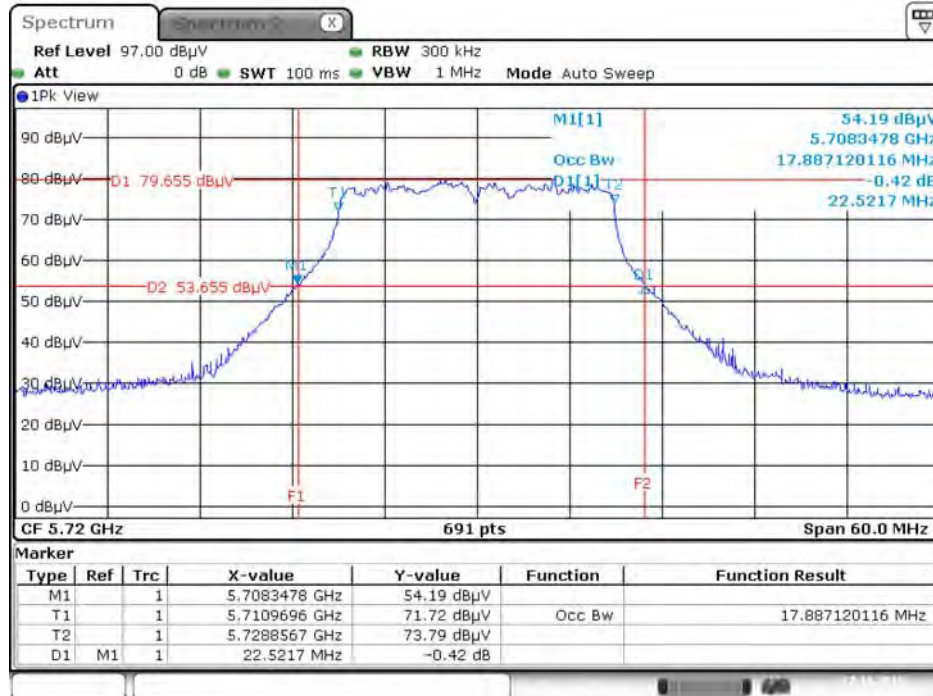
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5610 MHz



Date: 28.NOV.2015 22:44:12

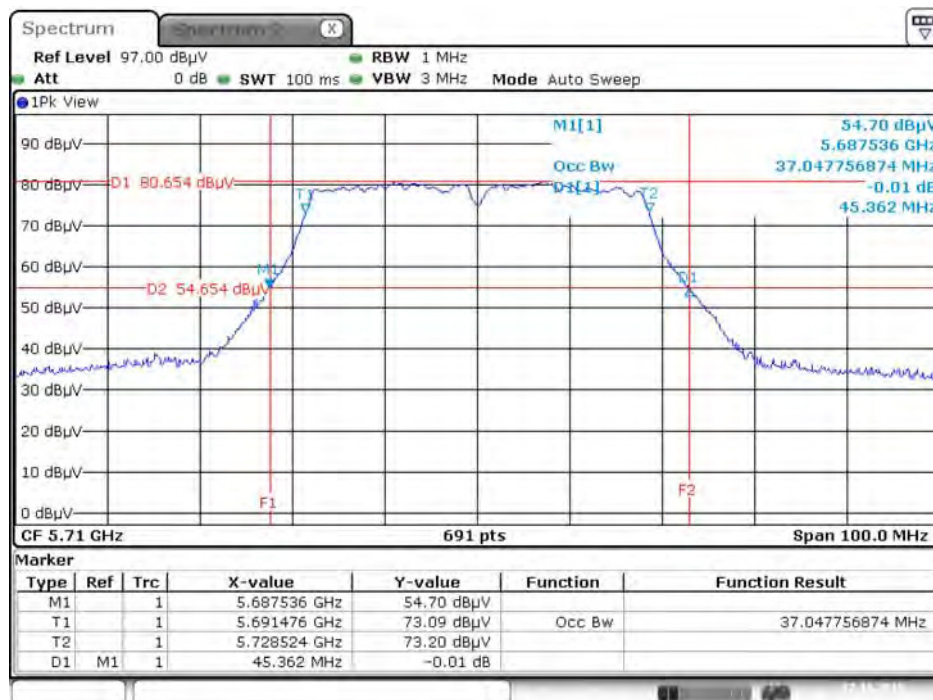
**Straddle Channel**

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



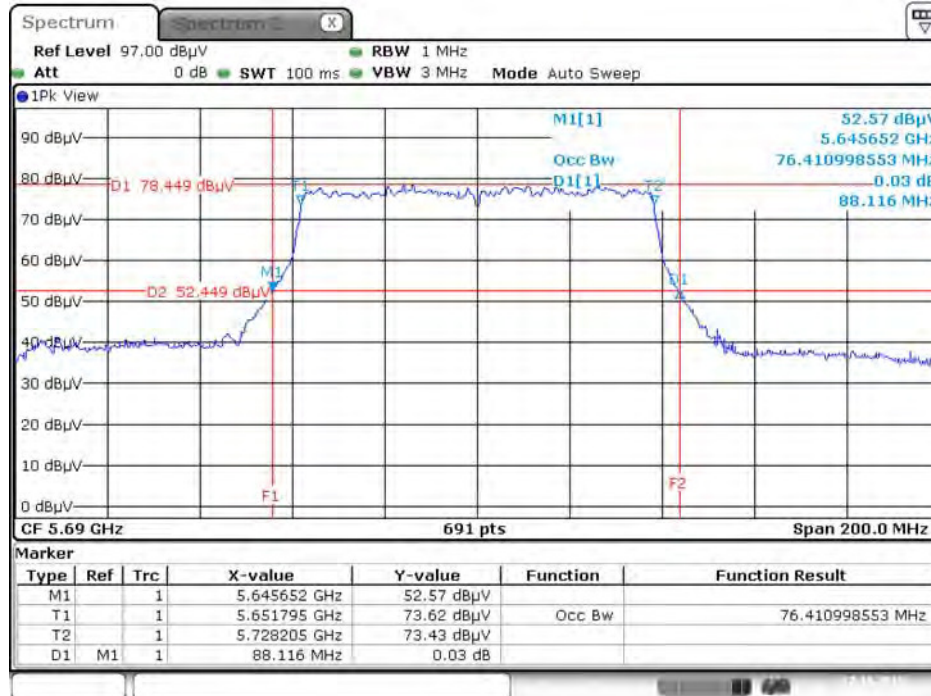
Date: 27.NOV.2015 03:04:09

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



Date: 27.NOV.2015 02:59:33

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



Date: 27.NOV.2015 03:02:36



## 4.2. 6dB Spectrum Bandwidth Measurement

### 4.2.1. Limit

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

### 4.2.2. Measuring Instruments and Setting

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

6dB Spectrum Bandwidth	
Spectrum Parameters	Setting
Attenuation	Auto
Span Frequency	> 6dB Bandwidth
RBW	100kHz
VBW	$\geq 3 \times \text{RBW}$
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

### 4.2.3. Test Procedures

For Radiated 6dB Bandwidth Measurement:

1. The transmitter was radiated to the spectrum analyzer in peak hold mode.
2. Test was performed in accordance with KDB789033 D02 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. Measured the spectrum width with power higher than 6dB below carrier.

### 4.2.4. Test Setup Layout

For Radiated 6dB Bandwidth Measurement:

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

### 4.2.5. Test Deviation

There is no deviation with the original standard.

### 4.2.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

#### 4.2.7. Test Result of 6dB Spectrum Bandwidth

<b>Temperature</b>	25°C	<b>Humidity</b>	50%
<b>Test Engineer</b>	Eddie Weng & Lucas Huang		
<b>Test Mode</b>	Mode 1: EUT 1 + Set 1 Ceiling Mount Omni Antenna / 7 dBi		

#### Straddle Channel

Mode	Frequency	6dB BW (MHz)	6dB BW F2 (MHz)	UNII 3 BW (MHz)	Min. Limit (kHz)	Test Result
802.11ac MCS0/Nss1 VHT20	5720 MHz	17.68	5711.19	3.87	500	Complies
802.11ac MCS0/Nss1 VHT40	5710 MHz	35.01	5692.49	2.51	500	Complies
802.11ac MCS0/Nss1 VHT80	5690 MHz	75.36	5652.03	2.39	500	Complies

<b>Temperature</b>	25°C	<b>Humidity</b>	50%
<b>Test Engineer</b>	Eddie Weng & Lucas Huang		
<b>Test Mode</b>	Mode 2: EUT 1 + Set 2 Sector Antenna / 6.5 dBi		

**Straddle Channel**

Mode	Frequency	6dB BW (MHz)	6dB BW F2 (MHz)	UNII 3 BW (MHz)	Min. Limit (kHz)	Test Result
802.11ac MCS0/Nss1 VHT20	5720 MHz	17.74	5711.13	3.87	500	Complies
802.11ac MCS0/Nss1 VHT40	5710 MHz	36.29	5691.91	3.20	500	Complies
802.11ac MCS0/Nss1 VHT80	5690 MHz	74.78	5652.32	2.10	500	Complies

<b>Temperature</b>	25°C	<b>Humidity</b>	50%
<b>Test Engineer</b>	Eddie Weng & Lucas Huang		
<b>Test Mode</b>	Mode 3: EUT 1 + Set 3 Sector Antenna / 5.5 dBi		

**Straddle Channel**

Mode	Frequency	6dB BW (MHz)	6dB BW F2 (MHz)	UNII 3 BW (MHz)	Min. Limit (kHz)	Test Result
802.11ac MCS0/Nss1 VHT20	5720 MHz	17.80	5711.13	3.93	500	Complies
802.11ac MCS0/Nss1 VHT40	5710 MHz	34.90	5692.73	2.62	500	Complies
802.11ac MCS0/Nss1 VHT80	5690 MHz	75.65	5651.74	2.39	500	Complies

<b>Temperature</b>	25°C	<b>Humidity</b>	50%
<b>Test Engineer</b>	Eddie Weng & Lucas Huang		
<b>Test Mode</b>	Mode 4: EUT 1 + Set 4 Sector Antenna / 7.5 dBi		

**Straddle Channel**

Mode	Frequency	6dB BW (MHz)	6dB BW F2 (MHz)	UNII 3 BW (MHz)	Min. Limit (kHz)	Test Result
802.11ac MCS0/Nss1 VHT20	5720 MHz	17.80	5711.13	3.93	500	Complies
802.11ac MCS0/Nss1 VHT40	5710 MHz	33.62	5693.65	2.27	500	Complies
802.11ac MCS0/Nss1 VHT80	5690 MHz	76.52	5651.74	3.26	500	Complies

<b>Temperature</b>	25°C	<b>Humidity</b>	50%
<b>Test Engineer</b>	Eddie Weng & Lucas Huang		
<b>Test Mode</b>	Mode 5: EUT 1 + Set 5 Sector Antenna / 4.5 dBi		

**Straddle Channel**

Mode	Frequency	6dB BW (MHz)	6dB BW F2 (MHz)	UNII 3 BW (MHz)	Min. Limit (kHz)	Test Result
802.11ac MCS0/Nss1 VHT20	5720 MHz	17.74	5711.13	3.87	500	Complies
802.11ac MCS0/Nss1 VHT40	5710 MHz	36.06	5691.91	2.97	500	Complies
802.11ac MCS0/Nss1 VHT80	5690 MHz	76.52	5651.74	3.26	500	Complies

<b>Temperature</b>	25°C	<b>Humidity</b>	50%
<b>Test Engineer</b>	Eddie Weng & Lucas Huang		
<b>Test Mode</b>	Mode 6: EUT 1 + Set 6 Sector Antenna / 4 dBi		

**Straddle Channel**

Mode	Frequency	6dB BW (MHz)	6dB BW F2 (MHz)	UNII 3 BW (MHz)	Min. Limit (kHz)	Test Result
802.11ac MCS0/Nss1 VHT20	5720 MHz	17.68	5711.19	3.87	500	Complies
802.11ac MCS0/Nss1 VHT40	5710 MHz	36.06	5691.91	2.97	500	Complies
802.11ac MCS0/Nss1 VHT80	5690 MHz	76.52	5651.74	3.26	500	Complies

<b>Temperature</b>	25°C	<b>Humidity</b>	50%
<b>Test Engineer</b>	Eddie Weng & Lucas Huang		
<b>Test Mode</b>	Mode 7: EUT 1 + Set 9 Dipole Antenna / 4.67 dBi		

**Straddle Channel**

Mode	Frequency	6dB BW (MHz)	6dB BW F2 (MHz)	UNII 3 BW (MHz)	Min. Limit (kHz)	Test Result
802.11ac MCS0/Nss1 VHT20	5720 MHz	17.80	5711.13	3.93	500	Complies
802.11ac MCS0/Nss1 VHT40	5710 MHz	33.62	5693.65	2.27	500	Complies
802.11ac MCS0/Nss1 VHT80	5690 MHz	76.52	5651.74	3.26	500	Complies



<b>Temperature</b>	25°C	<b>Humidity</b>	50%
<b>Test Engineer</b>	Eddie Weng & Lucas Huang		
<b>Test Mode</b>	Mode 8: EUT 2 + Set 10 PIFA Antenna / Chain1:5.84 dBi, Chain2:5.50 dBi, Chain3:5.84 dBi, Chain4:5.65 dBi		

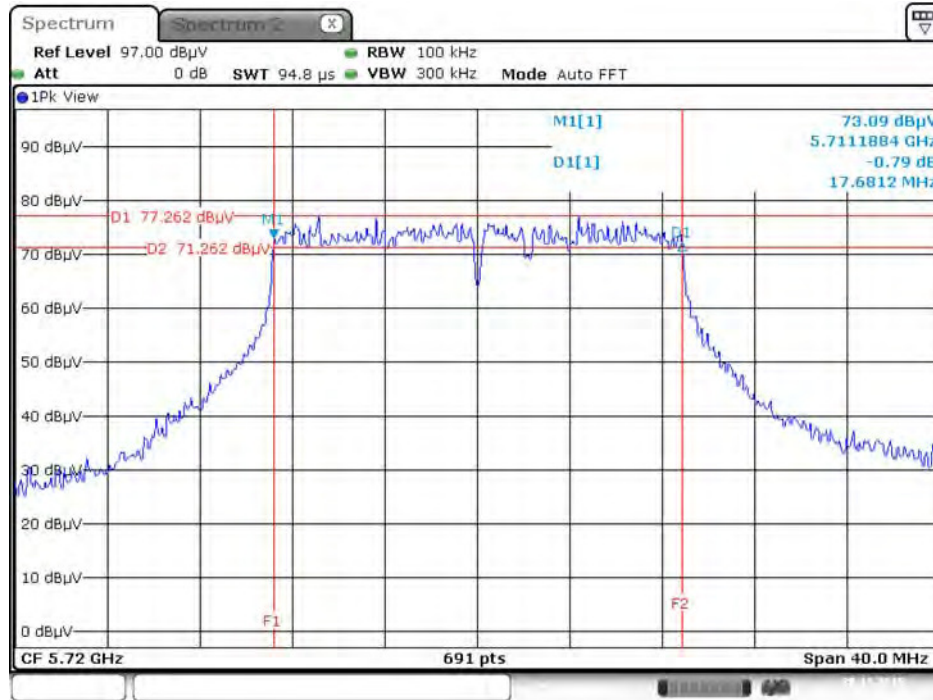
**Straddle Channel**

Mode	Frequency	6dB BW (MHz)	6dB BW F2 (MHz)	UNII 3 BW (MHz)	Min. Limit (kHz)	Test Result
802.11ac MCS0/Nss1 VHT20	5720 MHz	16.12	5711.48	2.59	500	Complies
802.11ac MCS0/Nss1 VHT40	5710 MHz	35.48	5692.03	2.51	500	Complies
802.11ac MCS0/Nss1 VHT80	5690 MHz	75.07	5652.32	2.39	500	Complies

**Straddle Channel**

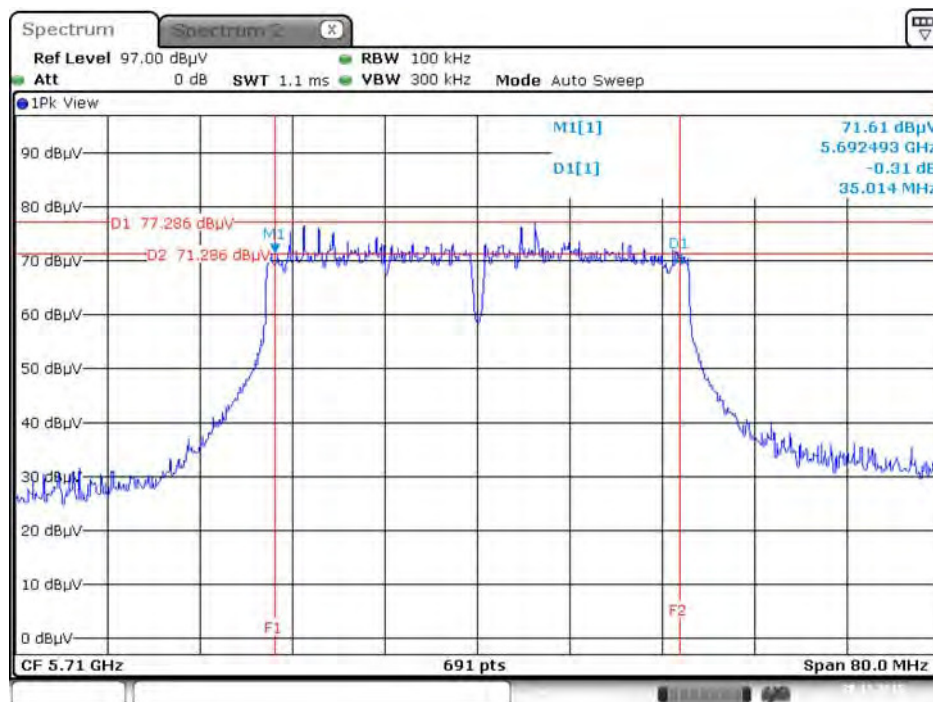
**Mode 1: EUT 1 + Set 1 Ceiling Mount Omni Antenna / 7 dBi**

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



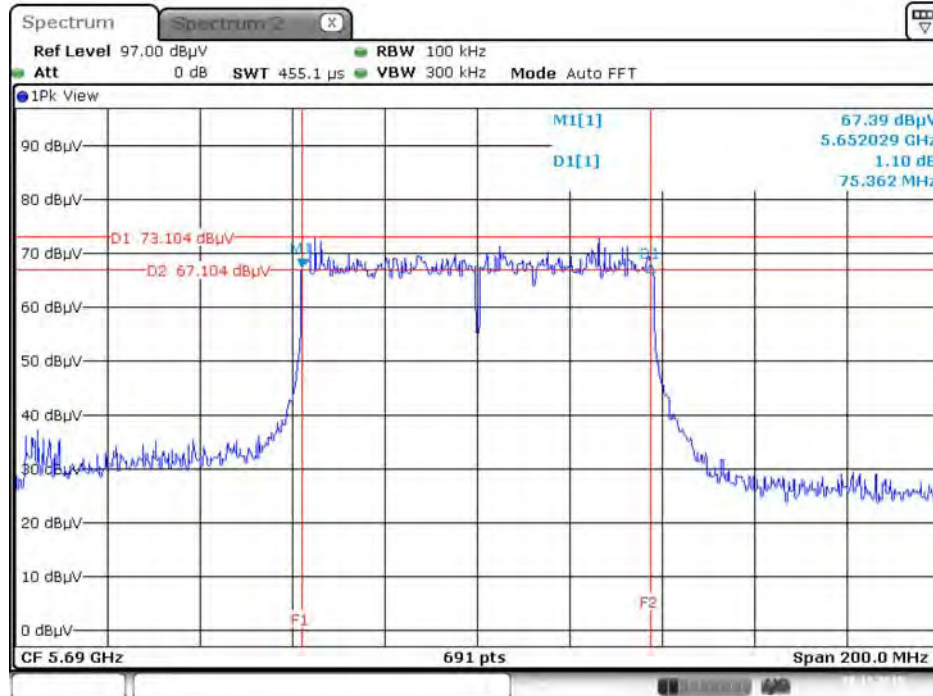
Date: 28.NOV.2015 16:00:57

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



Date: 28.NOV.2015 16:02:00

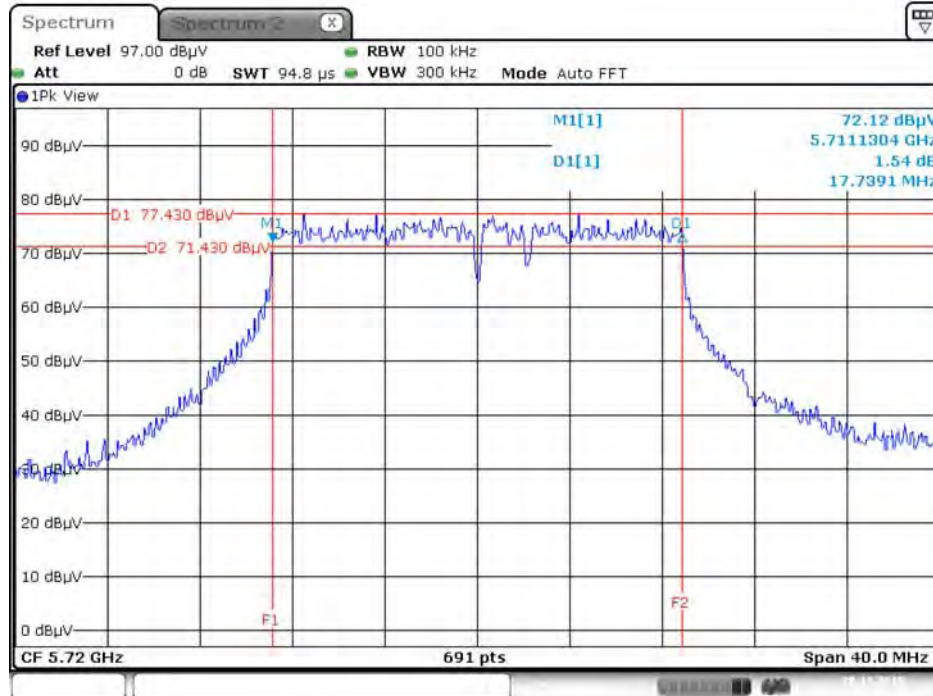
6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5690 MHz



Date: 28.NOV.2015 16:01:28

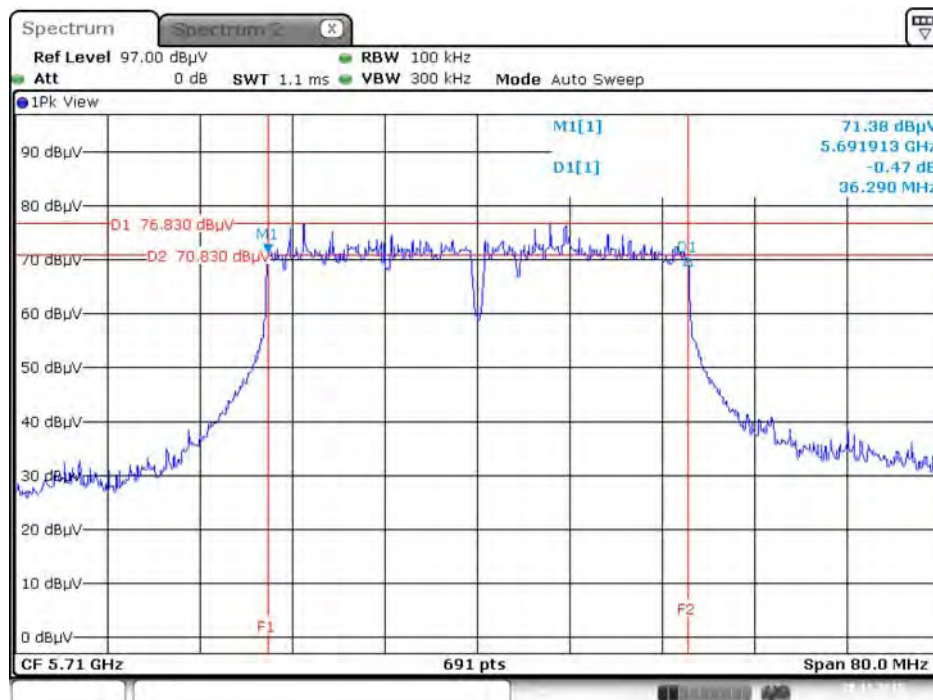
**Mode 2: EUT 1 + Set 2 Sector Antenna / 6.5 dBi**

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



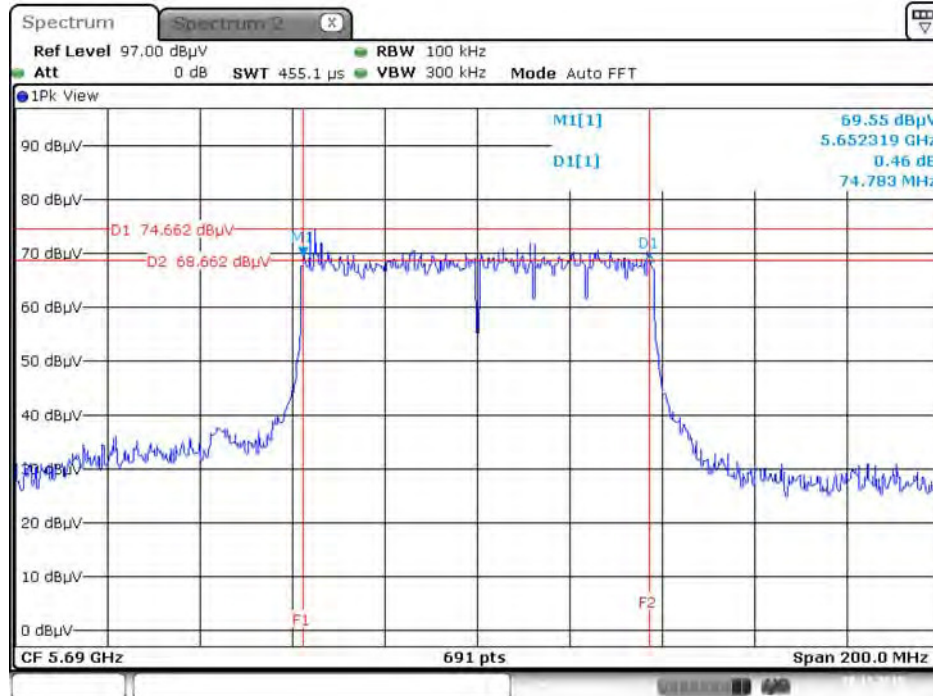
Date: 28.NOV.2015 14:41:02

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



Date: 28.NOV.2015 14:40:17

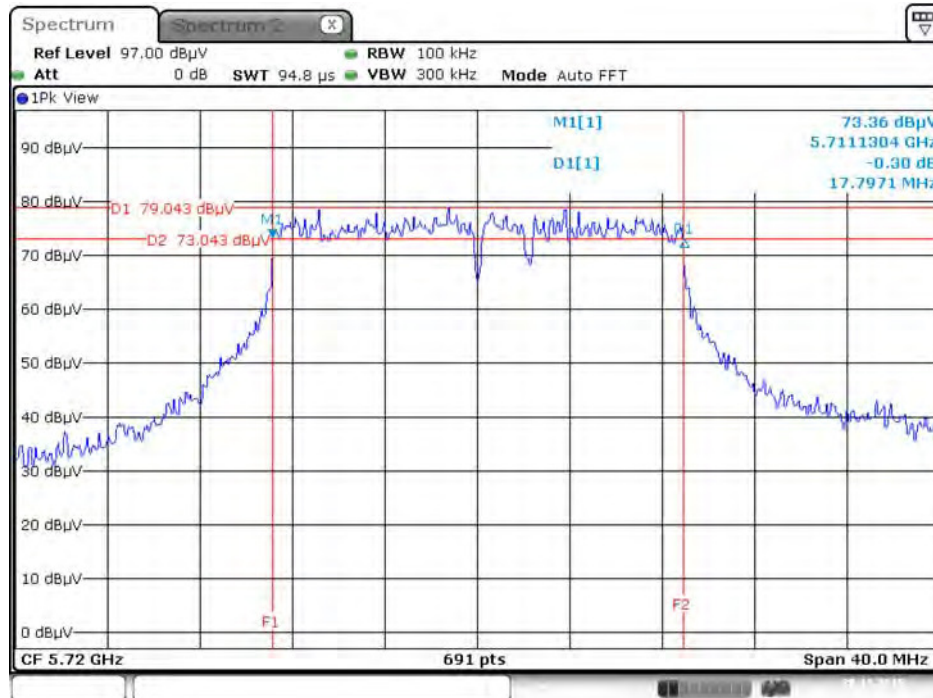
6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5690 MHz



Date: 28.NOV.2015 14:39:25

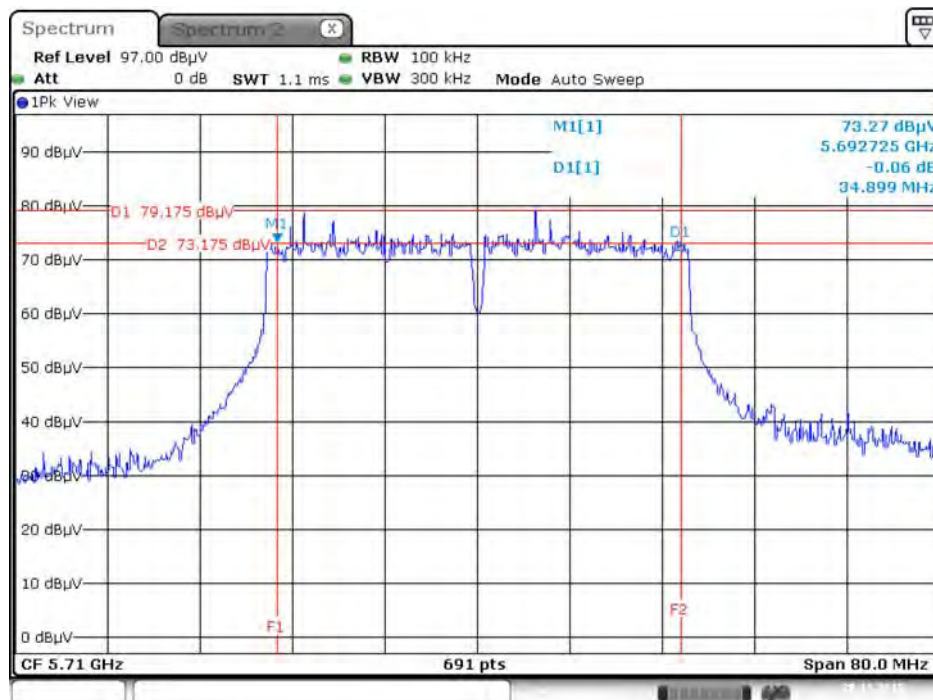
**Mode 3: EUT 1 + Set 3 Sector Antenna / 5.5 dBi**

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



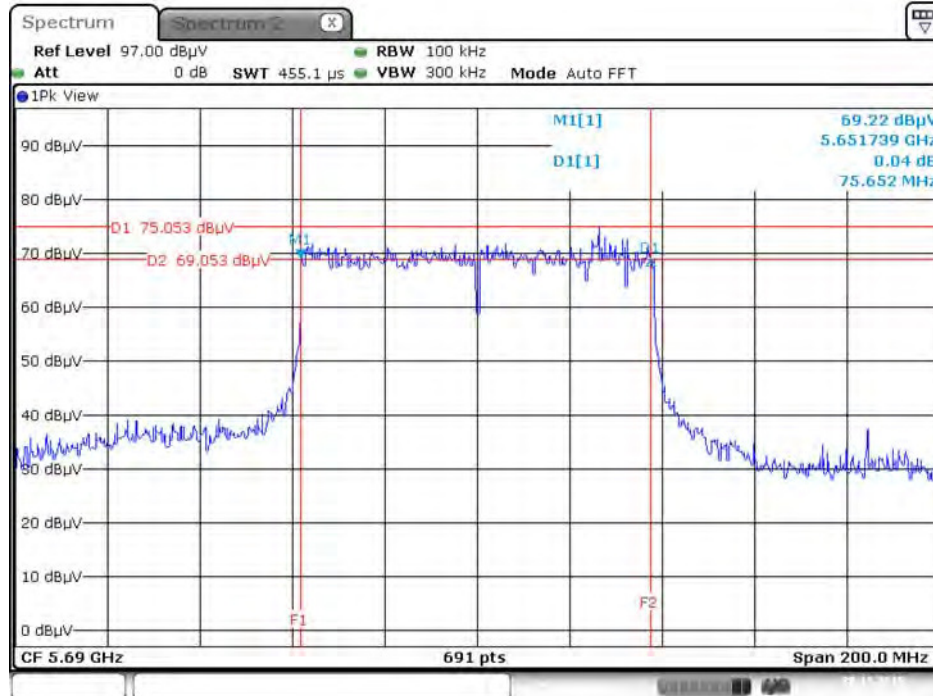
Date: 28.NOV.2015 14:34:10

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



Date: 28.NOV.2015 14:35:00

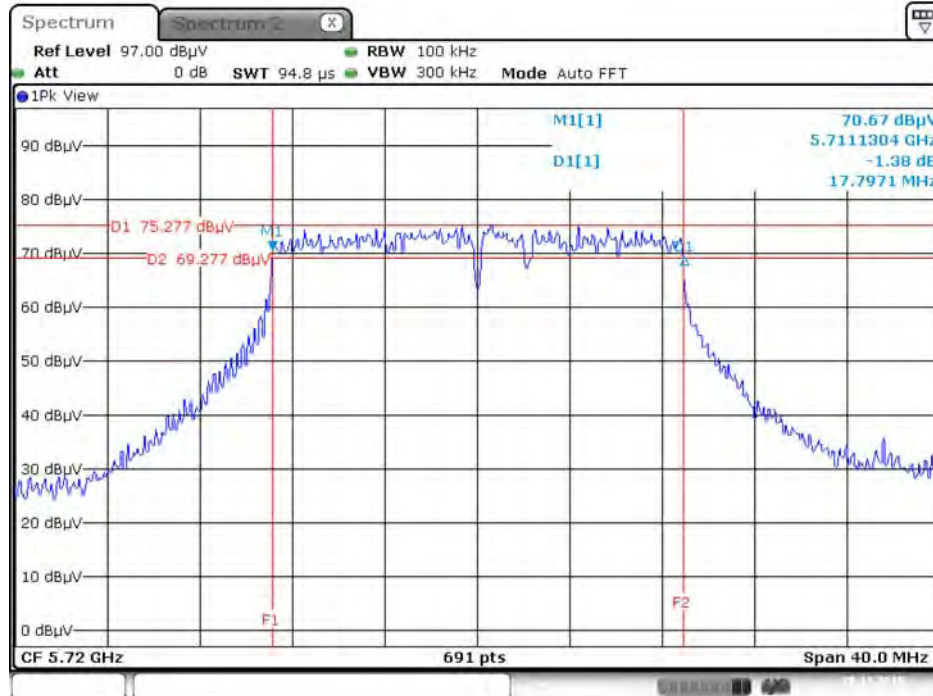
6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5690 MHz



Date: 28.NOV.2015 14:37:04

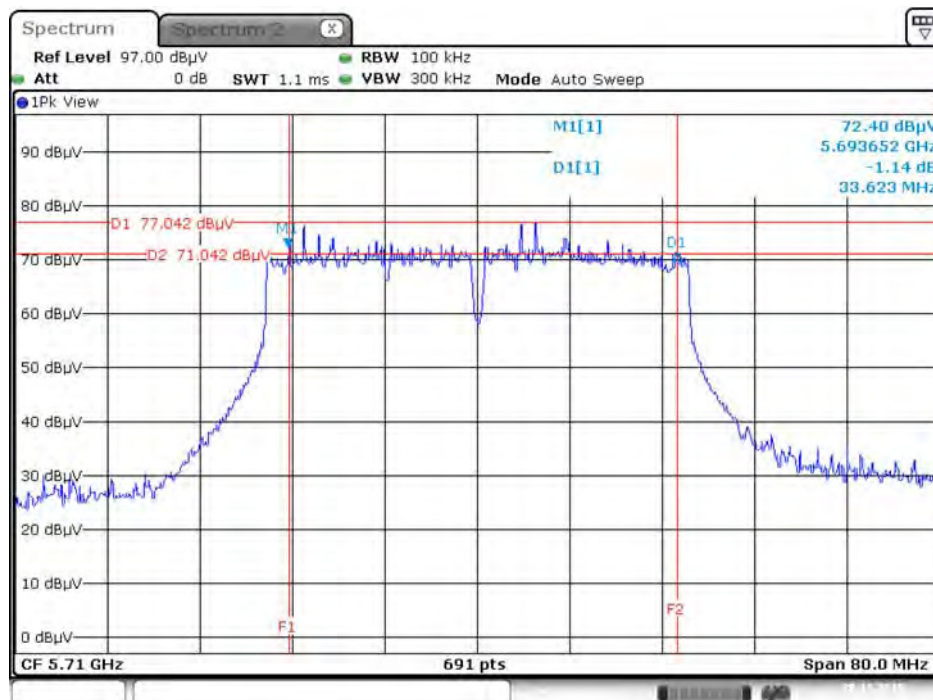
**Mode 4: EUT 1 + Set 4 Sector Antenna / 7.5 dBi**

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



Date: 28.NOV.2015 15:17:26

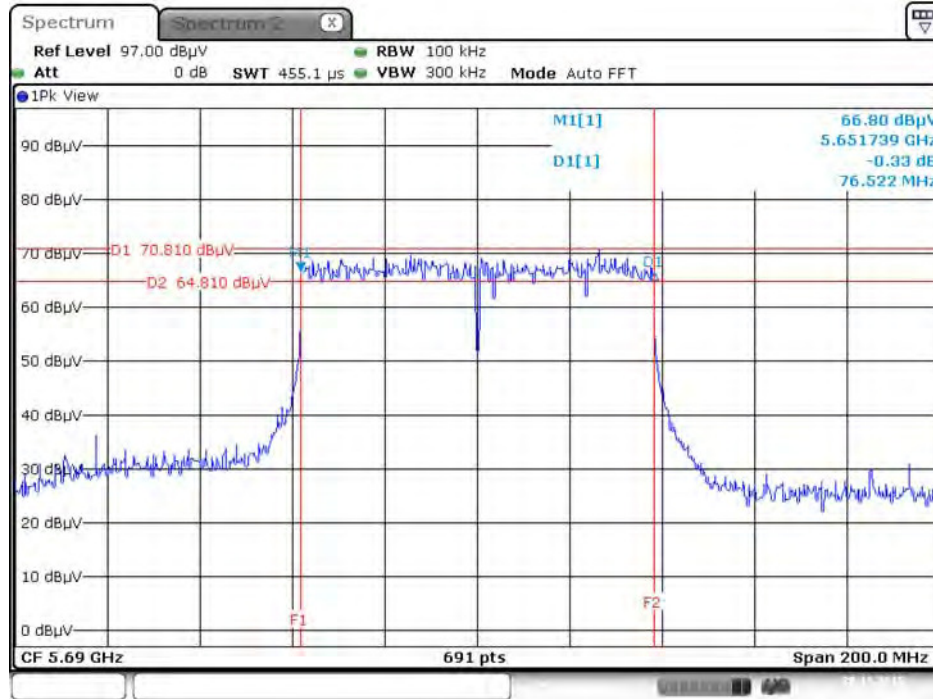
**6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5710 MHz**



Date: 28.NOV.2015 15:18:04



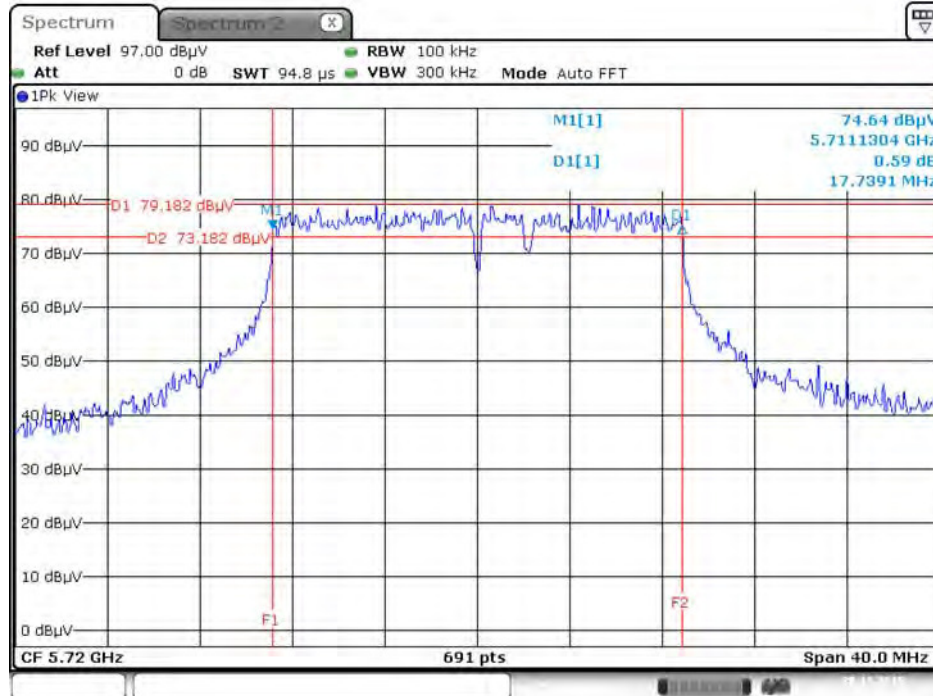
6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5690 MHz



Date: 28.NOV.2015 15:18:31

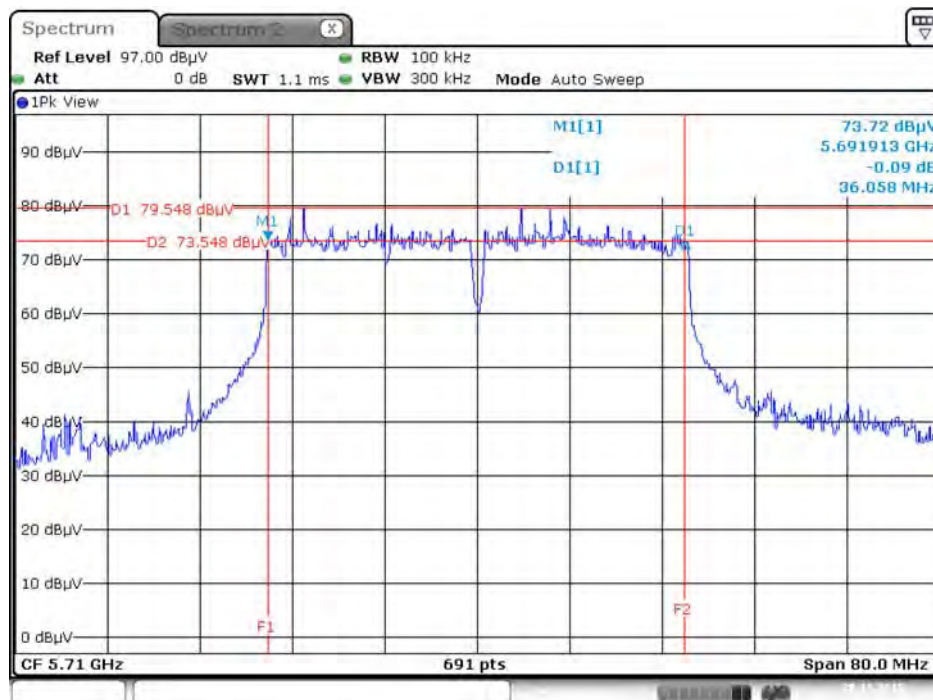
**Mode 5: EUT 1 + Set 5 Sector Antenna / 4.5 dBi**

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



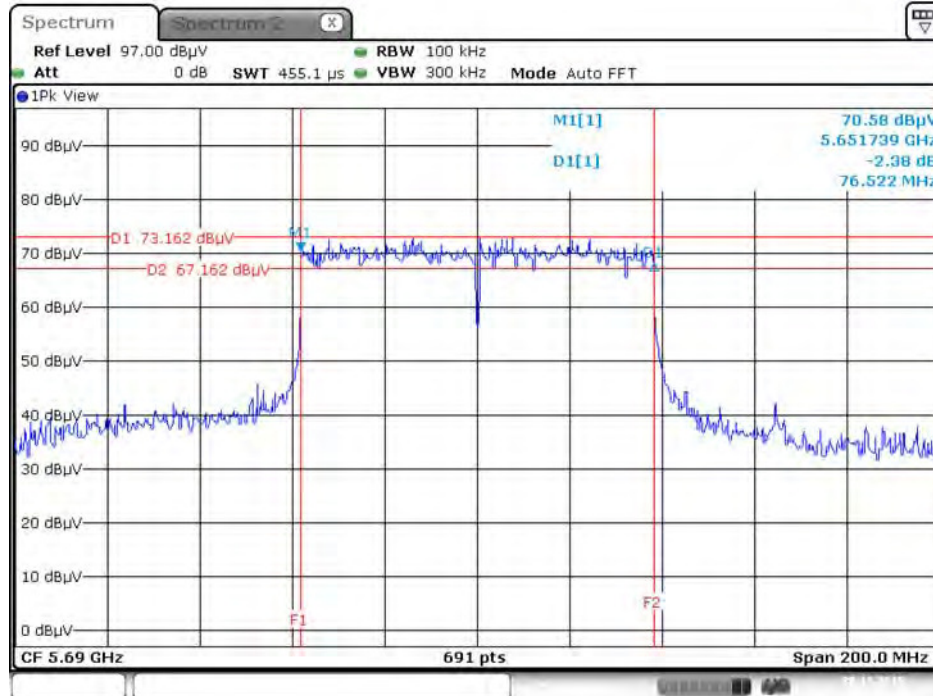
Date: 28.NOV.2015 15:05:51

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



Date: 28.NOV.2015 15:06:23

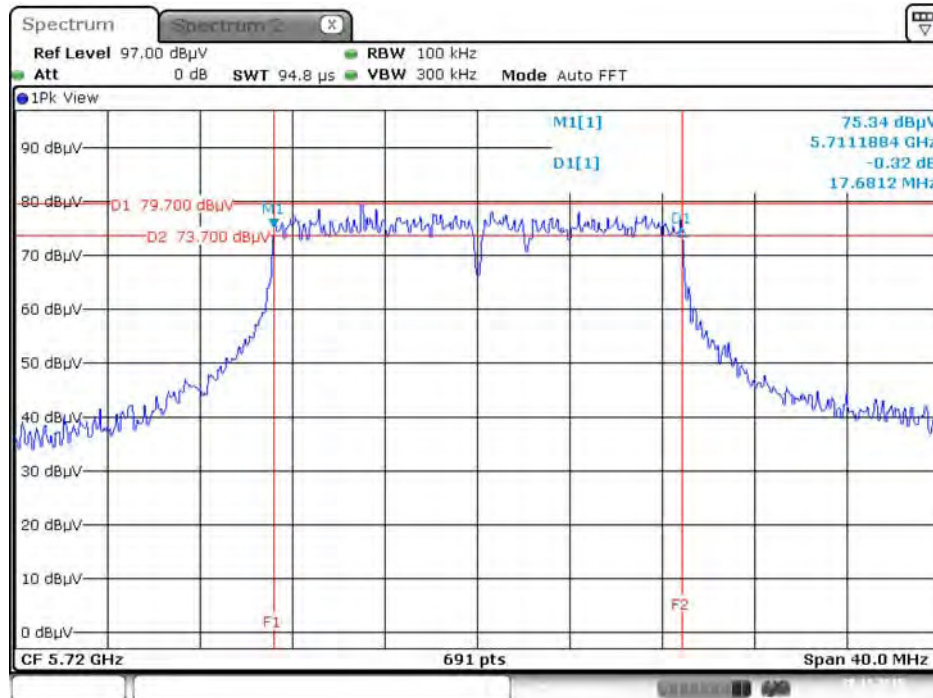
6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5690 MHz



Date: 28.NOV.2015 15:05:18

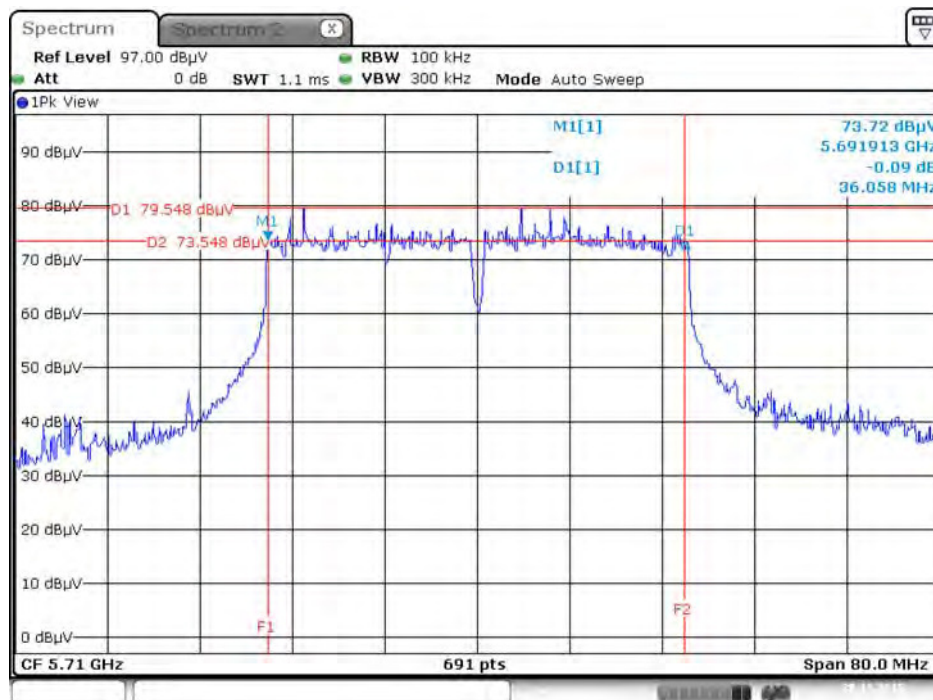
**Mode 6: EUT 1 + Set 6 Sector Antenna / 4 dBi**

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



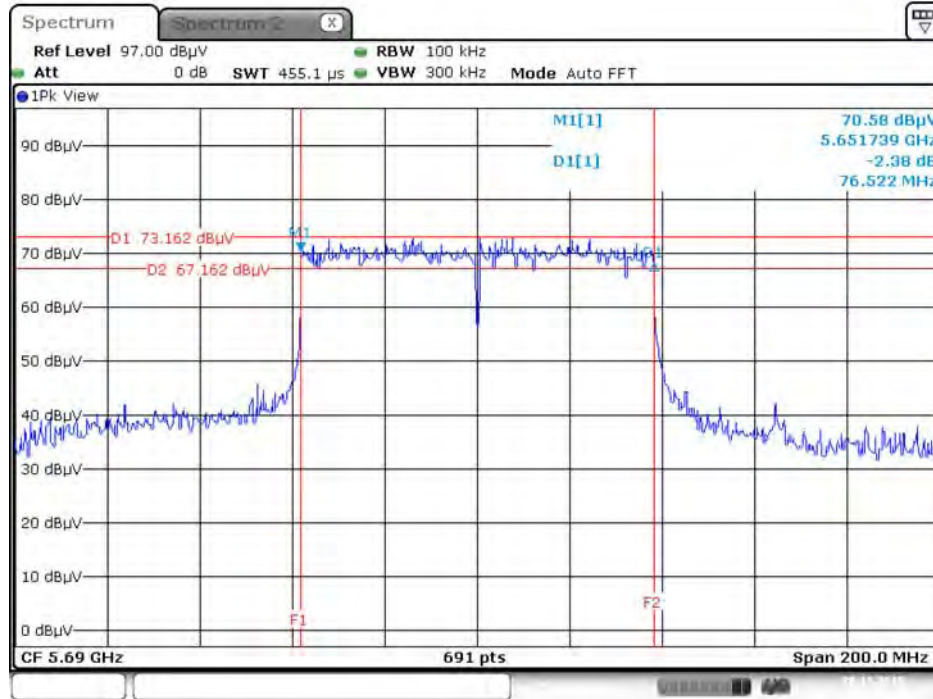
Date: 28.NOV.2015 14:32:36

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



Date: 28.NOV.2015 15:06:23

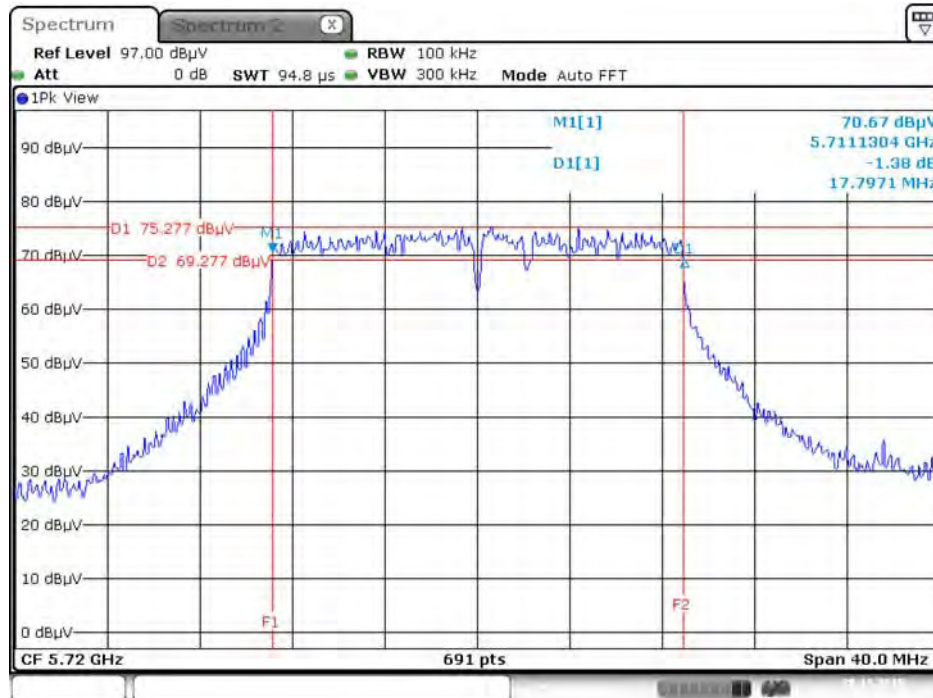
6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5690 MHz



Date: 28.NOV.2015 15:05:18

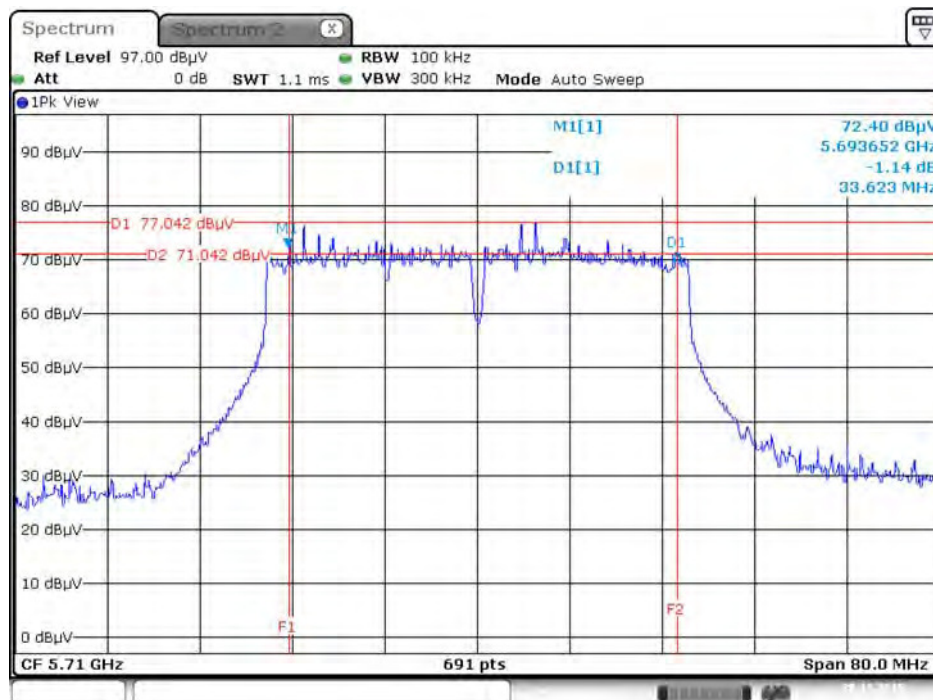
**Mode 7: EUT 1 + Set 9 Dipole Antenna / 4.67 dBi**

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



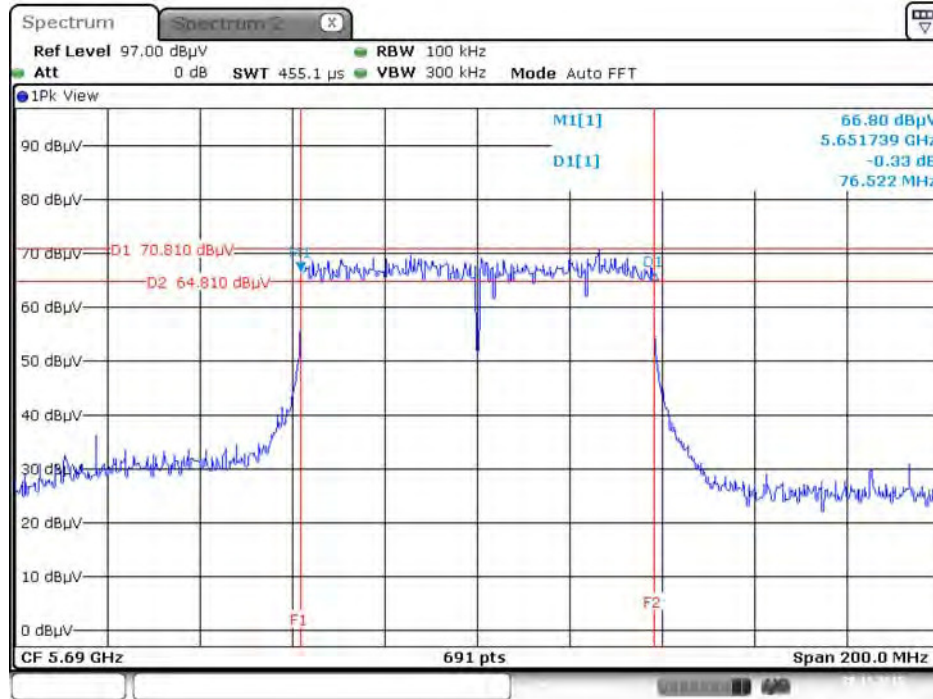
Date: 28.NOV.2015 15:17:26

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



Date: 28.NOV.2015 15:18:04

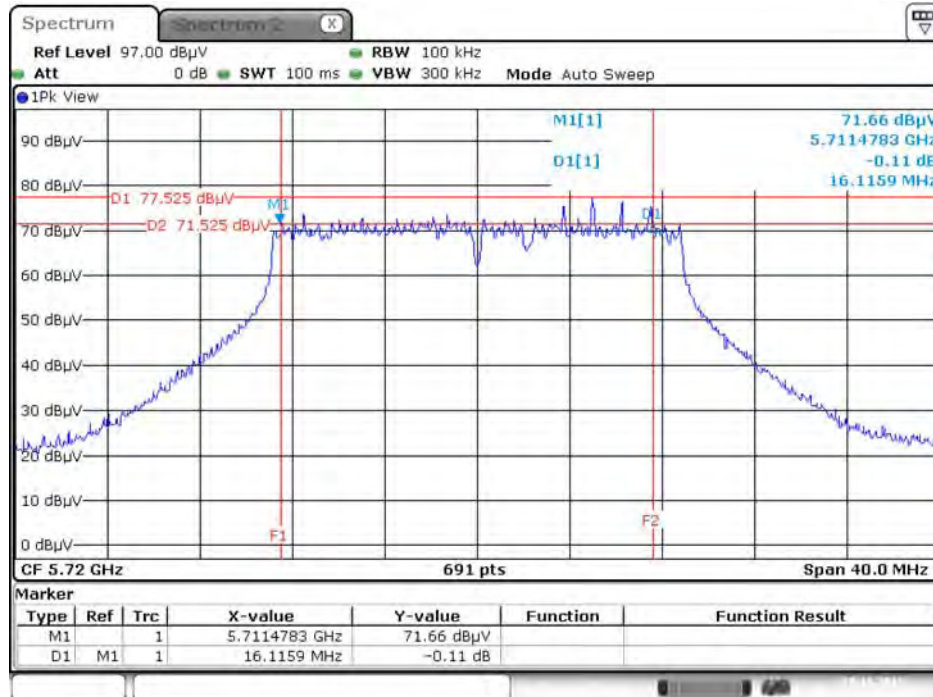
6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5690 MHz



Date: 28.NOV.2015 15:18:31

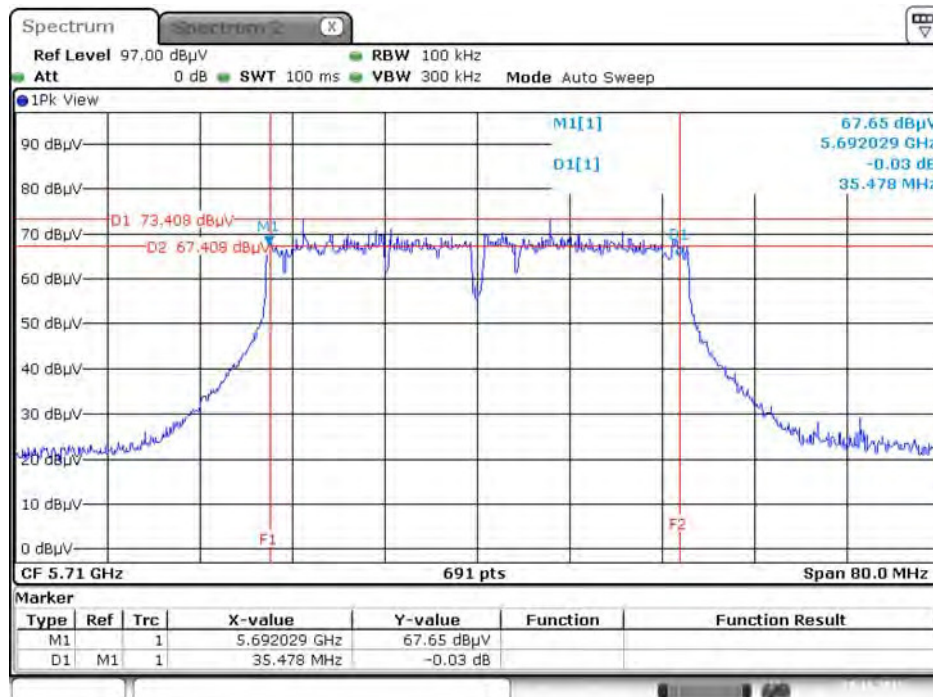
Mode 8: EUT 2 + Set 10 PIFA Antenna / Chain1:5.84 dBi, Chain2:5.50 dBi, Chain3:5.84 dBi, Chain4:5.65 dBi

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



Date: 29.NOV.2015 00:18:18

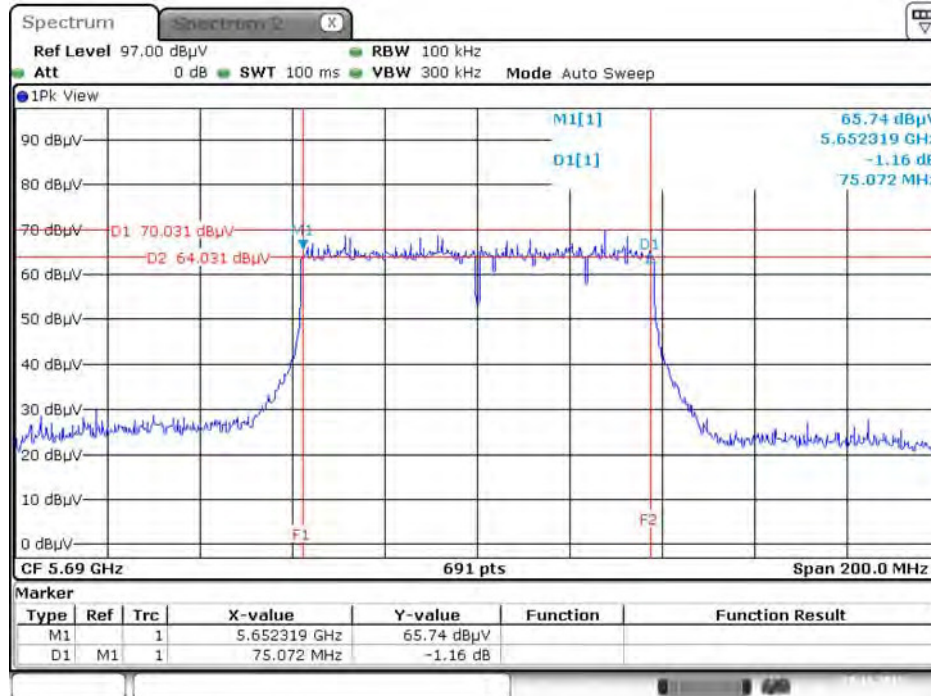
6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5710 MHz



Date: 29.NOV.2015 00:21:51



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



Date: 29.NOV.2015 00:22:39

### 4.3. Maximum Conducted Output Power Measurement

#### 4.3.1. Limit

Frequency Band		Limit
<input checked="" type="checkbox"/>	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.
<input checked="" type="checkbox"/>	5.470-5.725 GHz	

#### 4.3.2. Measuring Instruments and Setting

##### For other channel:

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

Power Meter Parameter	Setting
Detector	AVERAGE

##### For straddle channel:

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

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

### 4.3.3. Test Procedures

#### For other channel:

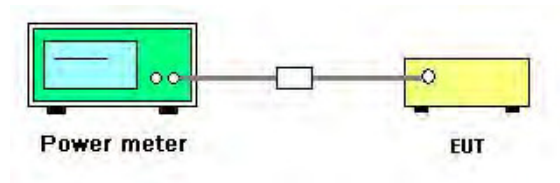
1. The transmitter output (antenna port) was connected to the power meter.
2. Test was performed in accordance with KDB789033 D02 v01 for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - section (E) Maximum conducted output power =>3. Measurement using a Power Meter (PM) =>b) Method PM-G (Measurement using a gated RF average power meter).
3. Multiple antenna systems was performed in accordance with KDB662911 D01 v02r01 Emissions Testing of Transmitters with Multiple Outputs in the Same Band.
4. When measuring maximum conducted output power with multiple antenna systems, add every result of the values by mathematic formula.

#### For straddle channel:

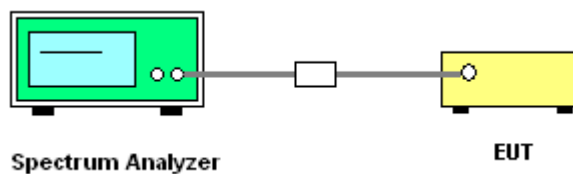
1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. Test was performed in accordance with FCC Public Notice DA 02-2138, August 30, 2002.

### 4.3.4. Test Setup Layout

#### For other channel:



#### For straddle channel:



### 4.3.5. Test Deviation

There is no deviation with the original standard.

### 4.3.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

#### 4.3.7. Test Result of Maximum Conducted Output Power

<b>Temperature</b>	25°C	<b>Humidity</b>	50%
<b>Test Engineer</b>	Eddie Weng & Lucas Huang	<b>Test Date</b>	Nov. 28, 2015
<b>Test Mode</b>	Mode 1: EUT 1 + Set 1 Ceiling Mount Omni Antenna / 7 dBi		

Mode	Frequency	Conducted Power (dBm)					Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Chain 4	Total		
802.11ac MCS0/Nss1 VHT20	5260 MHz	13.12	14.17	13.75	13.51	19.67	19.99	Complies
	5300 MHz	13.09	14.21	13.56	13.73	19.69	19.99	Complies
	5320 MHz	13.17	14.25	13.81	13.78	19.79	19.99	Complies
	5500 MHz	14.31	13.02	13.24	13.75	19.63	19.99	Complies
	5580 MHz	13.25	13.79	14.15	14.02	19.84	19.99	Complies
	5700 MHz	12.96	13.85	14.19	13.93	19.78	19.99	Complies
802.11ac MCS0/Nss1 VHT40	5270 MHz	13.53	13.78	14.13	14.24	19.95	19.99	Complies
	5310 MHz	12.81	13.58	13.06	13.09	19.16	19.99	Complies
	5510 MHz	13.06	12.85	13.17	13.02	19.05	19.99	Complies
	5550 MHz	13.62	13.27	13.82	13.59	19.60	19.99	Complies
	5670 MHz	13.89	13.56	13.73	13.97	19.81	19.99	Complies
802.11ac MCS0/Nss1 VHT80	5290 MHz	7.73	8.06	8.17	8.34	14.10	19.99	Complies
	5530 MHz	7.27	7.09	7.32	7.18	13.24	19.99	Complies
	5610 MHz	13.83	13.59	13.71	13.89	19.78	19.99	Complies

Note:  $DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 10.01 \text{ dBi} > 6 \text{ dBi}$ , So Limit = 24 - (10.01 - 6) = 19.99 dBm.

**Straddle Channel**

Mode	Frequency	Conducted Power (dBm)					Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Chain 4	Total		
802.11ac	5720 MHz (UNII 2C)	12.94	12.73	13.17	12.49	18.86	19.11	Complies
MCS0/Nss1 VHT20	5720 MHz (UNII 3)	6.89	6.88	7.06	6.84	12.94	25.99	Complies
802.11ac	5710 MHz (UNII 2C)	13.74	13.53	13.96	13.45	19.70	19.99	Complies
MCS0/Nss1 VHT40	5710 MHz (UNII 3)	1.62	1.39	1.71	1.18	7.50	25.99	Complies
802.11ac	5690 MHz (UNII 2C)	14.08	13.72	13.97	13.79	19.91	19.99	Complies
MCS0/Nss1 VHT80	5690 MHz (UNII 3)	-0.37	-0.65	-0.56	-0.53	5.49	25.99	Complies

(UNII 2C)

Note1:

For 802.11ac VHT20

5720 MHz power limit =  $11 + 10 \log(B)$ ;  $11 + 10 \log(16.30) - (10.01 - 6) = 19.11 \text{ dBm} < 24 \text{ dBm}$ , so limit = 19.11 dBm.

Note2: 
$$DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 10.01 \text{ dBi} > 6 \text{ dBi}$$
, So Limit =  $24 - (10.01 - 6) = 19.99 \text{ dBm}$ .

(UNII 3)

Note1: 
$$DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 10.01 \text{ dBi} > 6 \text{ dBi}$$
, So Limit =  $30 - (10.01 - 6) = 25.99 \text{ dBm}$ .

<b>Temperature</b>	25°C	<b>Humidity</b>	50%
<b>Test Engineer</b>	Eddie Weng & Lucas Huang	<b>Test Date</b>	Nov. 28, 2015
<b>Test Mode</b>	Mode 2: EUT 1 + Set 2 Sector Antenna / 6.5 dBi		

Mode	Frequency	Conducted Power (dBm)					Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Chain 4	Total		
802.11ac MCS0/Nss1 VHT20	5260 MHz	13.66	15.14	14.56	14.13	20.43	20.49	Complies
	5300 MHz	13.87	14.86	14.62	14.19	20.42	20.49	Complies
	5320 MHz	13.91	14.96	14.82	13.78	20.42	20.49	Complies
	5500 MHz	14.27	14.42	14.75	14.36	20.47	20.49	Complies
	5580 MHz	13.92	14.19	14.74	14.67	20.41	20.49	Complies
	5700 MHz	13.86	14.51	14.68	14.56	20.43	20.49	Complies
802.11ac MCS0/Nss1 VHT40	5270 MHz	14.05	14.32	14.51	14.84	20.46	20.49	Complies
	5310 MHz	12.27	12.88	12.11	12.07	18.37	20.49	Complies
	5510 MHz	11.48	11.01	11.22	11.21	17.25	20.49	Complies
	5550 MHz	14.24	13.83	14.36	13.92	20.11	20.49	Complies
	5670 MHz	14.23	14.09	14.37	14.54	20.33	20.49	Complies
802.11ac MCS0/Nss1 VHT80	5290 MHz	10.01	10.52	9.95	9.98	16.14	20.49	Complies
	5530 MHz	7.85	7.74	7.85	7.77	13.82	20.49	Complies
	5610 MHz	14.38	14.16	14.21	14.35	20.30	20.49	Complies

Note:  $DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 9.51 \text{ dBi} > 6 \text{ dBi}$ , So Limit = 24-(9.51-6)=20.49dBm.

**Straddle Channel**

Mode	Frequency	Conducted Power (dBm)					Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Chain 4	Total		
802.11ac	5720 MHz (UNII 2C)	13.34	13.21	13.74	13.01	19.35	19.68	Complies
MCS0/Nss1 VHT20	5720 MHz (UNII 3)	7.51	7.31	7.64	7.31	13.47	26.49	Complies
802.11ac	5710 MHz (UNII 2C)	14.15	14.06	14.48	13.96	20.19	20.49	Complies
MCS0/Nss1 VHT40	5710 MHz (UNII 3)	2.15	2.08	2.23	1.60	8.04	26.49	Complies
802.11ac	5690 MHz (UNII 2C)	14.56	14.23	14.49	14.31	20.42	20.49	Complies
MCS0/Nss1 VHT80	5690 MHz (UNII 3)	0.17	-0.17	0.02	-0.09	6.00	26.49	Complies

(UNII 2C)

Note1:

For 802.11ac VHT20

5720 MHz power limit =  $11 + 10 \log(B)$ ;  $11 + 10 \log(16.57) - (9.51 - 6) = 19.68 \text{ dBm} < 24 \text{ dBm}$ , so limit = 19.68 dBm.

Note2: 
$$DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 9.51 \text{ dBi} > 6 \text{ dBi}$$
, So Limit =  $24 - (9.51 - 6) = 20.49 \text{ dBm}$ .

(UNII 3)

Note1: 
$$DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 9.51 \text{ dBi} > 6 \text{ dBi}$$
, So Limit =  $30 - (9.51 - 6) = 26.49 \text{ dBm}$ .

<b>Temperature</b>	25°C	<b>Humidity</b>	50%
<b>Test Engineer</b>	Eddie Weng & Lucas Huang	<b>Test Date</b>	Nov. 28, 2015
<b>Test Mode</b>	Mode 3: EUT 1 + Set 3 Sector Antenna / 5.5 dBi		

Mode	Frequency	Conducted Power (dBm)					Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Chain 4	Total		
802.11ac MCS0/Nss1 VHT20	5260 MHz	14.61	15.68	15.75	15.14	21.34	21.49	Complies
	5300 MHz	14.72	15.77	15.71	15.33	21.42	21.49	Complies
	5320 MHz	15.16	15.52	15.61	14.51	21.24	21.49	Complies
	5500 MHz	14.88	15.02	15.15	14.91	21.01	21.49	Complies
	5580 MHz	15.09	14.95	15.37	15.31	21.20	21.49	Complies
	5700 MHz	14.82	14.79	15.26	14.97	20.98	21.49	Complies
802.11ac MCS0/Nss1 VHT40	5270 MHz	15.12	15.07	15.64	15.76	21.43	21.49	Complies
	5310 MHz	12.27	12.88	12.11	12.07	18.37	21.49	Complies
	5510 MHz	13.06	12.85	13.17	13.02	19.05	21.49	Complies
	5550 MHz	15.37	15.04	15.35	14.92	21.19	21.49	Complies
	5670 MHz	15.49	15.14	15.33	15.54	21.40	21.49	Complies
802.11ac MCS0/Nss1 VHT80	5290 MHz	10.74	11.29	10.58	10.56	16.82	21.49	Complies
	5530 MHz	9.07	8.94	9.05	8.78	14.98	21.49	Complies
	5610 MHz	15.59	15.31	15.46	15.18	21.41	21.49	Complies

Note:  $DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 8.51 \text{ dBi} > 6 \text{ dBi}$ , So Limit = 24 - (8.51 - 6) = 21.49 dBm.



**Straddle Channel**

Mode	Frequency	Conducted Power (dBm)					Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Chain 4	Total		
802.11ac	5720 MHz (UNII 2C)	14.27	14.15	14.70	14.06	20.32	20.66	Complies
MCS0/Nss1 VHT20	5720 MHz (UNII 3)	8.56	8.27	8.57	8.22	14.43	27.49	Complies
802.11ac	5710 MHz (UNII 2C)	15.41	15.03	15.51	15.05	21.28	21.49	Complies
MCS0/Nss1 VHT40	5710 MHz (UNII 3)	3.24	2.86	3.28	3.14	9.15	27.49	Complies
802.11ac	5690 MHz (UNII 2C)	15.61	15.18	15.56	15.33	21.44	21.49	Complies
MCS0/Nss1 VHT80	5690 MHz (UNII 3)	1.12	0.94	1.11	0.98	7.06	27.49	Complies

(UNII 2C)

Note1:

For 802.11ac VHT20

 5720 MHz power limit =  $11 + 10 \log(B)$ ;  $11 + 10 \log(16.48) - (8.51 - 6) = 20.66 \text{ dBm} < 24 \text{ dBm}$ , so limit = 20.66 dBm.

Note2: 
$$DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 8.51 \text{ dBi} > 6 \text{ dBi}$$
, So Limit =  $24 - (8.51 - 6) = 21.49 \text{ dBm}$ .

(UNII 3)

Note1: 
$$DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 8.51 \text{ dBi} > 6 \text{ dBi}$$
, So Limit =  $30 - (8.51 - 6) = 27.49 \text{ dBm}$ .

<b>Temperature</b>	25°C	<b>Humidity</b>	50%
<b>Test Engineer</b>	Eddie Weng & Lucas Huang	<b>Test Date</b>	Nov. 28, 2015
<b>Test Mode</b>	Mode 4: EUT 1 + Set 4 Sector Antenna / 7.5 dBi		

Mode	Frequency	Conducted Power (dBm)					Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Chain 4	Total		
802.11ac MCS0/Nss1 VHT20	5260 MHz	13.17	13.28	13.68	13.53	19.44	19.49	Complies
	5300 MHz	12.90	13.56	13.76	12.83	19.30	19.49	Complies
	5320 MHz	13.21	13.79	13.95	12.76	19.47	19.49	Complies
	5500 MHz	13.29	13.33	13.49	13.03	19.31	19.49	Complies
	5580 MHz	13.16	13.32	13.42	13.29	19.32	19.49	Complies
	5700 MHz	13.25	13.45	13.57	13.34	19.42	19.49	Complies
802.11ac MCS0/Nss1 VHT40	5270 MHz	13.02	13.11	13.58	13.69	19.38	19.49	Complies
	5310 MHz	9.66	9.73	10.12	10.22	15.96	19.49	Complies
	5510 MHz	12.94	12.53	12.74	12.68	18.75	19.49	Complies
	5550 MHz	12.98	12.87	13.11	13.22	19.07	19.49	Complies
	5670 MHz	12.89	12.96	13.44	13.39	19.20	19.49	Complies
802.11ac MCS0/Nss1 VHT80	5290 MHz	8.31	8.53	8.69	8.88	14.63	19.49	Complies
	5530 MHz	8.53	8.44	8.52	8.23	14.45	19.49	Complies
	5610 MHz	13.62	13.35	13.58	13.11	19.44	19.49	Complies

Note:  $DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 10.51 \text{ dBi} > 6 \text{ dBi}$ , So Limit =  $24 - (10.51 - 6) = 19.49 \text{ dBm}$ .

**Straddle Channel**

Mode	Frequency	Conducted Power (dBm)					Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Chain 4	Total		
802.11ac	5720 MHz (UNII 2C)	11.66	11.74	12.10	11.73	17.83	18.42	Complies
MCS0/Nss1 VHT20	5720 MHz (UNII 3)	5.67	5.91	6.02	5.61	11.83	25.49	Complies
802.11ac	5710 MHz (UNII 2C)	13.20	13.13	13.48	13.04	19.24	19.49	Complies
MCS0/Nss1 VHT40	5710 MHz (UNII 3)	0.63	0.96	1.33	1.13	7.04	25.49	Complies
802.11ac	5690 MHz (UNII 2C)	13.48	13.49	13.55	13.21	19.46	19.49	Complies
MCS0/Nss1 VHT80	5690 MHz (UNII 3)	-1.17	-1.02	-0.90	-0.95	5.01	25.49	Complies

(UNII 2C)

Note1:

For 802.11ac VHT20

5720 MHz power limit =  $11 + 10 \log(B)$ ;  $11 + 10 \log(15.61) - (10.51 - 6) = 18.42 \text{ dBm} < 24 \text{ dBm}$ , so limit = 18.42 dBm.

Note2: 
$$DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 10.51 \text{ dBi} > 6 \text{ dBi}$$
, So Limit =  $24 - (10.51 - 6) = 19.49 \text{ dBm}$ .

(UNII 3)

Note1: 
$$DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 10.51 \text{ dBi} > 6 \text{ dBi}$$
, So Limit =  $30 - (10.51 - 6) = 25.49 \text{ dBm}$ .

<b>Temperature</b>	25°C	<b>Humidity</b>	50%
<b>Test Engineer</b>	Eddie Weng & Lucas Huang	<b>Test Date</b>	Nov. 28, 2015
<b>Test Mode</b>	Mode 5: EUT 1 + Set 5 Sector Antenna / 4.5 dBi		

Mode	Frequency	Conducted Power (dBm)					Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Chain 4	Total		
802.11ac MCS0/Nss1 VHT20	5260 MHz	16.51	16.73	16.02	16.12	22.38	22.49	Complies
	5300 MHz	16.33	16.25	15.91	16.38	22.24	22.49	Complies
	5320 MHz	16.37	15.85	15.82	16.29	22.11	22.49	Complies
	5500 MHz	16.39	16.57	16.18	16.05	22.32	22.49	Complies
	5580 MHz	16.07	16.05	15.97	16.04	22.05	22.49	Complies
	5700 MHz	15.91	15.83	16.18	16.09	22.03	22.49	Complies
802.11ac MCS0/Nss1 VHT40	5270 MHz	15.94	16.58	16.37	15.96	22.24	22.49	Complies
	5310 MHz	15.21	15.88	15.34	15.44	21.50	22.49	Complies
	5510 MHz	14.63	14.32	15.01	14.69	20.69	22.49	Complies
	5550 MHz	15.72	15.87	16.32	16.26	22.07	22.49	Complies
	5670 MHz	15.34	15.93	16.45	16.21	22.02	22.49	Complies
802.11ac MCS0/Nss1 VHT80	5290 MHz	13.43	14.69	13.39	13.98	19.93	22.49	Complies
	5530 MHz	13.59	12.96	13.52	13.21	19.35	22.49	Complies
	5610 MHz	16.34	16.18	16.39	16.43	22.36	22.49	Complies

Note:  $DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 7.51 \text{ dBi} > 6 \text{ dBi}$ , So Limit = 24 - (7.51 - 6) = 22.49 dBm.

**Straddle Channel**

Mode	Frequency	Conducted Power (dBm)					Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Chain 4	Total		
802.11ac	5720 MHz (UNII 2C)	15.06	15.29	15.11	15.80	21.35	21.66	Complies
MCS0/Nss1 VHT20	5720 MHz (UNII 3)	9.16	9.55	9.14	9.63	15.40	28.49	Complies
802.11ac	5710 MHz (UNII 2C)	16.05	16.28	15.90	16.48	22.20	22.49	Complies
MCS0/Nss1 VHT40	5710 MHz (UNII 3)	4.01	4.18	3.99	4.28	10.14	28.49	Complies
802.11ac	5690 MHz (UNII 2C)	16.62	16.13	16.57	16.37	22.45	22.49	Complies
MCS0/Nss1 VHT80	5690 MHz (UNII 3)	2.16	1.99	2.00	1.91	8.04	28.49	Complies

(UNII 2C)

Note 1:

For 802.11ac VHT20

5720 MHz power limit =  $11 + 10 \log(B)$ ;  $11 + 10 \log(16.48) - (7.51 - 6) = 21.66 \text{ dBm} < 24 \text{ dBm}$ , so limit = 21.66 dBm.

Note2: 
$$DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 7.51 \text{ dBi} > 6 \text{ dBi}$$
, So Limit =  $24 - (7.51 - 6) = 22.49 \text{ dBm}$ .

(UNII 3)

Note1: 
$$DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 7.51 \text{ dBi} > 6 \text{ dBi}$$
, So Limit =  $30 - (7.51 - 6) = 28.49 \text{ dBm}$ .

<b>Temperature</b>	25°C	<b>Humidity</b>	50%
<b>Test Engineer</b>	Eddie Weng & Lucas Huang	<b>Test Date</b>	Nov. 28, 2015
<b>Test Mode</b>	Mode 6: EUT 1 + Set 6 Sector Antenna / 4 dBi		

Mode	Frequency	Conducted Power (dBm)					Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Chain 4	Total		
802.11ac MCS0/Nss1 VHT20	5260 MHz	17.08	17.28	16.53	16.89	22.97	22.99	Complies
	5300 MHz	16.94	16.87	16.49	16.99	22.85	22.99	Complies
	5320 MHz	16.96	16.20	16.49	16.81	22.65	22.99	Complies
	5500 MHz	16.93	16.16	16.75	16.67	22.66	22.99	Complies
	5580 MHz	16.67	16.55	16.35	16.49	22.54	22.99	Complies
	5700 MHz	14.45	13.88	13.89	14.08	20.10	22.99	Complies
802.11ac MCS0/Nss1 VHT40	5270 MHz	16.28	17.02	16.45	16.34	22.55	22.99	Complies
	5310 MHz	12.27	12.88	12.11	12.07	18.37	22.99	Complies
	5510 MHz	11.48	11.01	11.22	11.21	17.25	22.99	Complies
	5550 MHz	16.68	16.62	16.58	16.96	22.73	22.99	Complies
	5670 MHz	15.96	16.55	16.67	16.84	22.54	22.99	Complies
802.11ac MCS0/Nss1 VHT80	5290 MHz	7.73	8.06	8.17	8.34	14.10	22.99	Complies
	5530 MHz	9.07	8.94	9.05	8.78	14.98	22.99	Complies
	5610 MHz	16.10	15.89	16.19	15.68	21.99	22.99	Complies

Note:  $DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 7.01 \text{ dBi} > 6 \text{ dBi}$ , So Limit = 24 - (7.01 - 6) = 22.99 dBm.