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## FCC RADIO TEST REPORT

Applicant's company	Cisco Systems, Inc.
Applicant Address	170 West Tasman Drive, San Jose, CA 95134 USA
FCC ID	UDX-60039010
Manufacturer's company	Cisco Systems, Inc.
Manufacturer Address	170 West Tasman Drive, San Jose, CA 95134 USA

Product Name	Wireless 802.11 abgn/ac AP
Brand Name	CISCO
Model No.	MR42-HW
Test Rule Part(s)	47 CFR FCC Part 15 Subpart E § 15.407
Test Freq. Range	5150 ~ 5250 MHz / 5725 ~ 5850 MHz
Received Date	Jun. 24, 2015
Final Test Date	Jul. 30, 2015
Submission Type	Original Equipment

### Statement

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

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

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

The measurements and test results shown in this test report were made in accordance with the procedures and found in compliance with the limit given in **ANSI C63.10-2013, 47 CFR FCC Part 15 Subpart E, KDB789033 D02 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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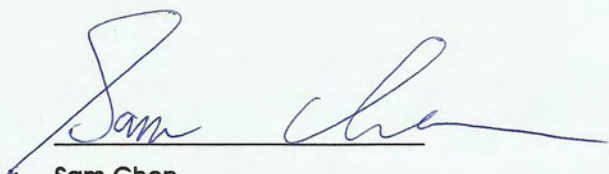
## History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR561822AB	Rev. 01	Initial issue of report	Aug. 17, 2015

## 1. VERIFICATION OF COMPLIANCE

Product Name : Wireless 802.11 abgn/ac AP  
Brand Name : CISCO  
Model No. : MR42-HW  
Applicant : Cisco Systems, Inc.  
Test Rule Part(s) : 47 CFR FCC Part 15 Subpart E § 15.407

Sporton International as requested by the applicant to evaluate the EMC performance of the product sample received on Jun. 24, 2015 would like to declare that the tested sample has been evaluated and found to be in compliance with the tested rule parts. The data recorded as well as the test configuration specified is true and accurate for showing the sample's EMC nature.



Sam Chen

SPORTON INTERNATIONAL INC.

## 2. SUMMARY OF THE TEST RESULT

Applied Standard: 47 CFR FCC Part 15 Subpart E				
Part	Rule Section	Description of Test	Result	Under Limit
4.1	15.207	AC Power Line Conducted Emissions	Complies	7.42 dB
4.2	15.407(a)	26dB Spectrum Bandwidth and 99% Occupied Bandwidth	Complies	-
4.3	15.407(e)	6dB Spectrum Bandwidth	Complies	-
4.4	15.407(a)	Maximum Conducted Output Power	Complies	0.86 dB
4.5	15.407(a)	Power Spectral Density	Complies	1.06 dB
4.6	15.407(b)	Radiated Emissions	Complies	3.25 dB
4.7	15.407(b)	Band Edge Emissions	Complies	0.05 dB
4.8	15.407(g)	Frequency Stability	Complies	-
4.9	15.203	Antenna Requirements	Complies	-

### 3. GENERAL INFORMATION

#### 3.1. Product Details

Items	Description
Product Type	For Radio 2: WLAN (1TX/2TX/3TX, 3RX) For Radio 3: WLAN (1TX, 1RX)
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	5150 ~ 5250 MHz / 5725 ~ 5850 MHz
Channel Number	9 for 20MHz bandwidth ; 4 for 40MHz bandwidth 2 for 80MHz bandwidth

Channel Band Width (99%)	<p><b>For Radio 2</b></p> <p><b>Non-beamforming Mode</b></p> <p><b>1TX</b></p> <p>Band 1:</p> <p>IEEE 802.11a: 16.67 MHz</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT20): 17.71 MHz</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT40): 36.47 MHz</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT80): 75.83 MHz</p> <p>Band 4:</p> <p>IEEE 802.11a: 16.67 MHz</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT20): 17.80 MHz</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT40): 36.61 MHz</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT80): 75.83 MHz</p> <p><b>2TX</b></p> <p>Band 1:</p> <p>IEEE 802.11a: 16.41 MHz</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT20): 16.24 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>IEEE 802.11ac MCS0/Nss2 (VHT20): 17.71 MHz</p> <p>IEEE 802.11ac MCS0/Nss2 (VHT40): 36.61 MHz</p> <p>IEEE 802.11ac MCS0/Nss2 (VHT80): 75.83 MHz</p> <p>Band 4:</p> <p>IEEE 802.11a: 17.37 MHz</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT20): 19.28 MHz</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT40): 36.32 MHz</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT80): 75.54 MHz</p> <p>IEEE 802.11ac MCS0/Nss2 (VHT20): 17.71 MHz</p> <p>IEEE 802.11ac MCS0/Nss2 (VHT40): 36.61 MHz</p> <p>IEEE 802.11ac MCS0/Nss2 (VHT80): 76.12 MHz</p> <p><b>3TX</b></p> <p>Band 1:</p> <p>IEEE 802.11a: 16.67 MHz</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT20): 17.45 MHz</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT40): 36.76 MHz</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT80): 76.12 MHz</p> <p>IEEE 802.11ac MCS0/Nss2 (VHT20): 17.80 MHz</p>
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	<p>IEEE 802.11ac MCS0/Nss2 (VHT40): 36.61 MHz</p> <p>IEEE 802.11ac MCS0/Nss2 (VHT80): 76.12 MHz</p> <p>IEEE 802.11ac MCS0/Nss3 (VHT20): 18.23 MHz</p> <p>IEEE 802.11ac MCS0/Nss3 (VHT40): 38.21 MHz</p> <p>IEEE 802.11ac MCS0/Nss3 (VHT80): 76.41 MHz</p> <p>Band 4:</p> <p>IEEE 802.11a: 16.41 MHz</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT20): 17.89 MHz</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT40): 36.03 MHz</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT80): 75.83 MHz</p> <p>IEEE 802.11ac MCS0/Nss2 (VHT20): 17.71 MHz</p> <p>IEEE 802.11ac MCS0/Nss2 (VHT40): 36.47 MHz</p> <p>IEEE 802.11ac MCS0/Nss2 (VHT80): 75.83 MHz</p> <p>IEEE 802.11ac MCS0/Nss3 (VHT20): 18.23 MHz</p> <p>IEEE 802.11ac MCS0/Nss3 (VHT40): 37.05 MHz</p> <p>IEEE 802.11ac MCS0/Nss3 (VHT80): 76.12 MHz</p> <p><b>Radio 2 Beamforming Mode</b></p> <p><b>2TX</b></p> <p>Band 1:</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT20): 17.71 MHz</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT40): 36.47 MHz</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT80): 75.83 MHz</p> <p>Band 4:</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT20): 17.71 MHz</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT40): 36.61 MHz</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT80): 76.12 MHz</p> <p><b>3TX</b></p> <p>Band 1:</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT20): 18.06 MHz</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT40): 36.90 MHz</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT80): 76.41 MHz</p> <p>IEEE 802.11ac MCS0/Nss2 (VHT20): 18.06 MHz</p> <p>IEEE 802.11ac MCS0/Nss2 (VHT40): 37.05 MHz</p> <p>IEEE 802.11ac MCS0/Nss2 (VHT80): 76.41 MHz</p> <p>Band 4:</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT20): 17.80 MHz</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT40): 36.47 MHz</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT80): 76.12 MHz</p>
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	<p>IEEE 802.11ac MCS0/Nss2 (VHT20): 17.63 MHz</p> <p>IEEE 802.11ac MCS0/Nss2 (VHT40): 36.47 MHz</p> <p>IEEE 802.11ac MCS0/Nss2 (VHT80): 75.83 MHz</p> <p><b>For Radio 3</b></p> <p>Band 1:</p> <p>IEEE 802.11a: 18.32 MHz</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT20): 19.19 MHz</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT40): 38.49 MHz</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT80): 76.99 MHz</p> <p>Band 4:</p> <p>IEEE 802.11a: 18.23 MHz</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT20): 18.93 MHz</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT40): 37.92 MHz</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT80): 77.28 MHz</p>
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<p>Maximum Conducted Output Power</p>	<p><b>For Radio 2</b></p> <p><b>Non-beamforming Mode</b></p> <p><b>1TX</b></p> <p>Band 1:</p> <p>IEEE 802.11a: 21.85 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT20): 21.87 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT40): 21.72 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT80): 19.91 dBm</p> <p>Band 4:</p> <p>IEEE 802.11a: 21.83dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT20): 21.86 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT40): 21.68 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT80): 18.22 dBm</p> <p><b>2TX</b></p> <p>Band 1:</p> <p>IEEE 802.11a: 24.92 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT20): 24.80 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT40): 24.70 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT80): 21.83 dBm</p> <p>IEEE 802.11ac MCS0/Nss2 (VHT20): 24.88 dBm</p> <p>IEEE 802.11ac MCS0/Nss2 (VHT40): 24.73 dBm</p> <p>IEEE 802.11ac MCS0/Nss2 (VHT80): 21.35 dBm</p> <p>Band 4:</p> <p>IEEE 802.11a: 24.68 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT20): 24.27 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT40): 24.11 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT80): 19.29 dBm</p> <p>IEEE 802.11ac MCS0/Nss2 (VHT20): 24.32 dBm</p> <p>IEEE 802.11ac MCS0/Nss2 (VHT40): 24.18 dBm</p> <p>IEEE 802.11ac MCS0/Nss2 (VHT80): 18.88 dBm</p> <p><b>3TX</b></p> <p>Band 1:</p> <p>IEEE 802.11a: 26.52 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT20): 26.52 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT40): 26.77 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT80): 20.37 dBm</p> <p>IEEE 802.11ac MCS0/Nss2 (VHT20): 26.63 dBm</p>
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	<p>IEEE 802.11ac MCS0/Nss2 (VHT40): 26.55 dBm</p> <p>IEEE 802.11ac MCS0/Nss2 (VHT80): 20.32 dBm</p> <p>IEEE 802.11ac MCS0/Nss3 (VHT20): 26.65 dBm</p> <p>IEEE 802.11ac MCS0/Nss3 (VHT40): 26.56 dBm</p> <p>IEEE 802.11ac MCS0/Nss3 (VHT80): 20.40 dBm</p> <p>Band 4:</p> <p>IEEE 802.11a: 26.03 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT20): 26.02 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT40): 25.11 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT80): 19.91 dBm</p> <p>IEEE 802.11ac MCS0/Nss2 (VHT20): 26.03 dBm</p> <p>IEEE 802.11ac MCS0/Nss2 (VHT40): 24.61 dBm</p> <p>IEEE 802.11ac MCS0/Nss2 (VHT80): 16.71 dBm</p> <p>IEEE 802.11ac MCS0/Nss3 (VHT20): 26.04 dBm</p> <p>IEEE 802.11ac MCS0/Nss3 (VHT40): 23.12 dBm</p> <p>IEEE 802.11ac MCS0/Nss3 (VHT80): 19.88 dBm</p> <p><b>For Radio 2 Beamforming Mode</b></p> <p><b>2TX</b></p> <p>Band 1:</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT20): 24.97 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT40): 24.70 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT80): 22.07 dBm</p> <p>Band 4:</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT20): 24.87 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT40): 24.99 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT80): 20.77 dBm</p> <p><b>3TX</b></p> <p>Band 1:</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT20): 26.60 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT40): 26.26 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT80): 21.41 dBm</p> <p>IEEE 802.11ac MCS0/Nss2 (VHT20): 26.55 dBm</p> <p>IEEE 802.11ac MCS0/Nss2 (VHT40): 25.93 dBm</p> <p>IEEE 802.11ac MCS0/Nss2 (VHT80): 22.67 dBm</p> <p>Band 4:</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT20): 26.11 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT40): 25.78 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT80): 21.01 dBm</p>
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	IEEE 802.11ac MCS0/Nss2 (VHT20): 25.26 dBm IEEE 802.11ac MCS0/Nss2 (VHT40): 22.57 dBm IEEE 802.11ac MCS0/Nss2 (VHT80): 16.53 dBm <b>For Radio 3</b> Band 1: IEEE 802.11a: 13.96 dBm IEEE 802.11ac MCS0/Nss1 (VHT20): 13.83 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 13.83 dBm IEEE 802.11ac MCS0/Nss1 (VHT80): 10.98 dBm Band 4: IEEE 802.11a: 13.79 dBm IEEE 802.11ac MCS0/Nss1 (VHT20): 13.71 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 13.72 dBm IEEE 802.11ac MCS0/Nss1 (VHT80): 11.76 dBm
Carrier Frequencies	Please refer to section 3.3
Antenna	Please refer to section 3.2

Items	Description	
Communication Mode	<input checked="" type="checkbox"/> IP Based (Load Based)	<input type="checkbox"/> Frame Based
Beamforming Function	<input checked="" type="checkbox"/> With beamforming For 802.11n/ac in 2.4GHz /5GHz.	<input type="checkbox"/> Without beamforming
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	

#### Antenna and Band width

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

#### IEEE 802.11n/ac Spec.

Protocol		Number of Transmit Chains (NTX)	Data Rate / MCS
Radio 2	802.11n (HT20)	1, 2, 3	MCS0-23
	802.11n (HT40)	1, 2, 3	MCS0-23
	802.11ac (VHT20)	1, 2, 3	MCS 0-9/Nss1-3
	802.11ac (VHT40)	1, 2, 3	MCS 0-9/Nss1-3
	802.11ac (VHT80)	1, 2, 3	MCS 0-9/Nss1-3
Radio 3	802.11n (HT20)	1	MCS0-7
	802.11n (HT40)	1	MCS0-7
	802.11ac (VHT20)	1	MCS 0-9/Nss1
	802.11ac (VHT40)	1	MCS 0-9/Nss1
	802.11ac (VHT80)	1	MCS 0-9/Nss1

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

Then EUT supports HT20 and HT40.

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

Note 3: Modulation modes consist of below configuration:

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

### 3.2. Table for Filed Antenna

Ant.	Brand	Model Name	Antenna Type	Connector
1	Cisco-Meraki	610-3910	PIFA Antenna	I-PEX
2	Cisco-Meraki	610-3910	PIFA Antenna	I-PEX
3	Cisco-Meraki	610-3910	PIFA Antenna	I-PEX
4	Cisco-Meraki	610-3910	PIFA Antenna	I-PEX
5	Cisco-Meraki	610-3910	PIFA Antenna	I-PEX
6	Cisco-Meraki	610-3910	PIFA Antenna	I-PEX
7	Cisco-Meraki	EAAJ-53 (Scanning)	PIFA Antenna	I-PEX
8	Cisco-Meraki	EAAH-53 (BLE)	PIFA Antenna	I-PEX

Radio	TX Function	Antenna	Chain	Antenna Gain (dBi)		
				2.4GHz	5GHz	Bluetooth
1	1	Ant. 6	1	3.73	-	-
	2	Ant. 6 + 5	1 + 2	1.69	-	-
	3	Ant. 6 + 5 + 4	1 + 2 + 3	2.41	-	-
2	1	Ant. 3	4	-	5.52	-
	2	Ant. 3 + 2	4 + 5	-	4.03	-
	3	Ant. 3 + 2 + 1	4 + 5 + 6	-	3.77	-
3	1	Ant. 7	7	3.33	5.59	-
4	1	Ant. 8	8	-	-	3.48

Note: The EUT has eight antennas.

The EUT has four radios, Radio 1 supports WLAN 2.4GHz, Radio 2 supports WLAN 5GHz, Radio 3 supports WLAN 2.4GHz + 5GHz (scanning radio) and Radio 4 supports Bluetooth function.

**<For Radio 1 / 2.4GHz Function>**

**For IEEE 802.11b/g/n/ac mode (1TX/2TX/3TX, 3RX):**

For 1TX (Ant. 6)

Only Chain 1 could transmit/receive.

For 2TX (Ant. 6 + 5)

Only Chain 1 and Chain 2 could transmit/receive simultaneously.

For 3TX (Ant. 6 + 5 + 4)

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

**<For Radio 2 / 5GHz Function>**

**For IEEE 802.11a/n/ac mode (1TX/2TX/3TX, 3RX):**

For 1TX (Ant. 3)

Only Chain 4 could transmit/receive.

For 2TX (Ant. 3 + 2)

Only Chain 4 and Chain 5 could transmit/receive simultaneously.

For 3TX (Ant. 3 + 2 + 1)

Chain 4, Chain 5 and Chain 6 could transmit/receive simultaneously.

**<For Radio 3 / 2.4GHz + 5GHz Functions>**

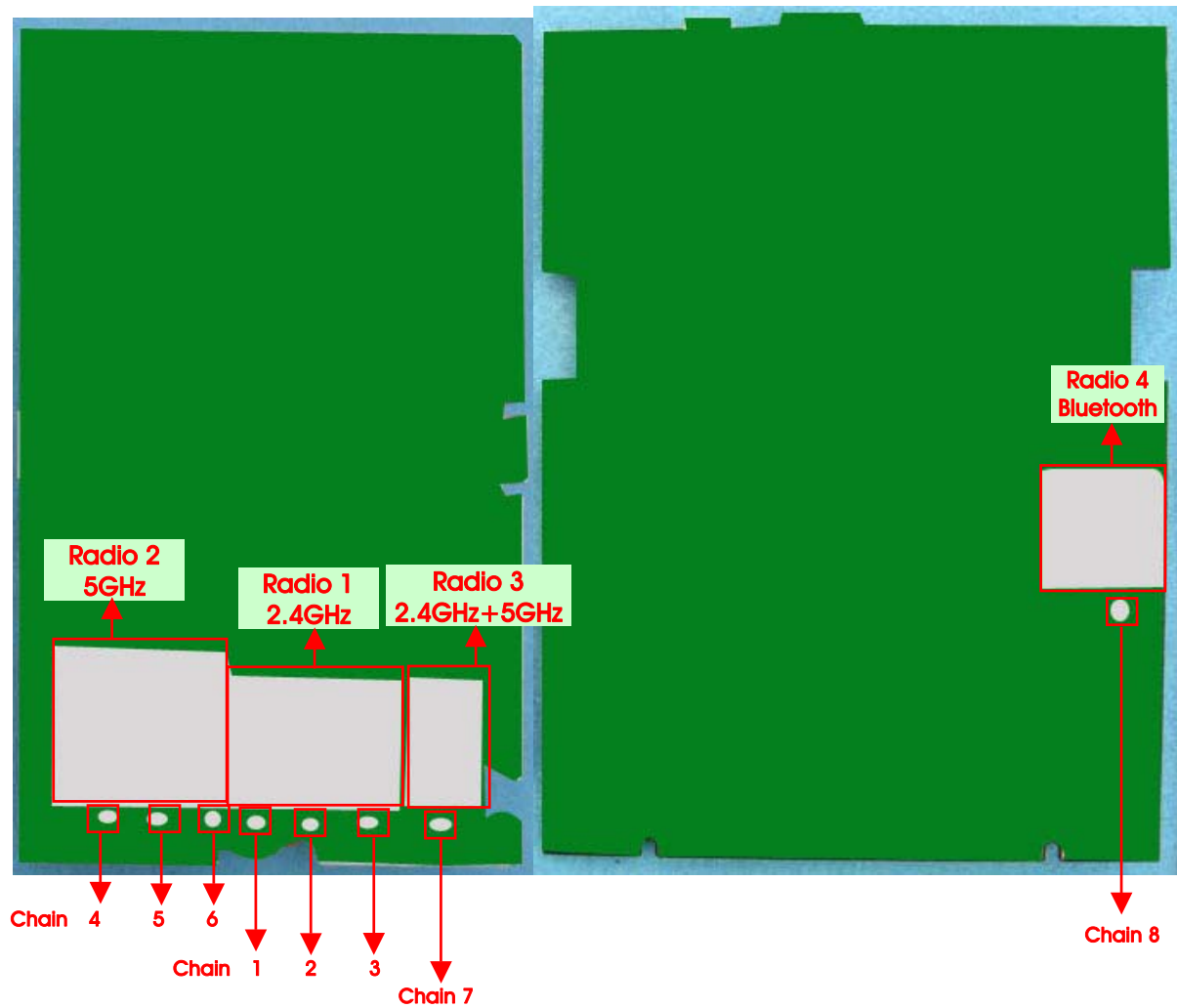
**For IEEE 802.11a/b/g/n/ac mode (1TX/ 1RX):**

Only Chain 7 could transmit/receive.

**<For Radio 4 / Bluetooth Functions>**

**For Bluetooth function (1TX/1RX):**

Only Chain 8 could transmit/receive.





### 3.3. Table for Carrier Frequencies

There are three bandwidth systems.

For 20MHz bandwidth systems, use Channel 36, 40, 44, 48, 149, 153, 157, 161, 165.

For 40MHz bandwidth systems, use Channel 38, 46, 151, 159.

For 80MHz bandwidth systems, use Channel 42, 155.

Frequency Band	Channel No.	Frequency	Channel No.	Frequency
5150~5250 MHz Band 1	36	5180 MHz	44	5220 MHz
	38	5190 MHz	46	5230 MHz
	40	5200 MHz	48	5240 MHz
	42	5210 MHz	-	-
5725~5850 MHz Band 4	149	5745 MHz	157	5785 MHz
	151	5755 MHz	159	5795 MHz
	153	5765 MHz	161	5805 MHz
	155	5775 MHz	165	5825 MHz

### 3.4. Accessories

Power	Brand	Model	Rating
Adapter	CISCO	KSAS03612002500HU	Input:100-240V~50/60Hz 1.0A Output:12V, 2.5A

### 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.

<For Radio 2>

Test Items	Mode		Data Rate	Channel	TX	Chain
AC Power Conducted Emission	Normal Link		-	-	-	-
Max. Conducted Output Power	For Non-Beamforming Mode					
	11a/BPSK	Band 1&4	6Mbps	36/40/48/149/157/165	1	4
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	1	4
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1	4
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1	4
	11a/BPSK	Band 1&4	6Mbps	36/40/48/149/157/165	2	4+5
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	2	4+5
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	2	4+5
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	2	4+5
	11ac VHT20	Band 1&4	MCS0/Nss2	36/40/48/149/157/165	2	4+5
	11ac VHT40	Band 1&4	MCS0/Nss2	38/46/151/159	2	4+5
	11ac VHT80	Band 1&4	MCS0/Nss2	42/155	2	4+5
	11a/BPSK	Band 1&4	6Mbps	36/40/48/149/157/165	3	4+5+6
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	3	4+5+6
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	3	4+5+6
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	3	4+5+6
	11ac VHT20	Band 1&4	MCS0/Nss2	36/40/48/149/157/165	3	4+5+6
	11ac VHT40	Band 1&4	MCS0/Nss2	38/46/151/159	3	4+5+6
	11ac VHT80	Band 1&4	MCS0/Nss2	42/155	3	4+5+6
	11ac VHT20	Band 1&4	MCS0/Nss3	36/40/48/149/157/165	3	4+5+6
	11ac VHT40	Band 1&4	MCS0/Nss3	38/46/151/159	3	4+5+6
	11ac VHT80	Band 1&4	MCS0/Nss3	42/155	3	4+5+6
	For Beamforming Mode					
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	2	4+5
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	2	4+5
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	2	4+5
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	3	4+5+6
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	3	4+5+6

	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	3	4+5+6
	11ac VHT20	Band 1&4	MCS0/Nss2	36/40/48/149/157/165	3	4+5+6
	11ac VHT40	Band 1&4	MCS0/Nss2	38/46/151/159	3	4+5+6
	11ac VHT80	Band 1&4	MCS0/Nss2	42/155	3	4+5+6
Power Spectral Density	For Non-Beamforming Mode					
	11a/BPSK	Band 1&4	6Mbps	36/40/48/149/157/165	1	4
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	1	4
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1	4
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1	4
	11a/BPSK	Band 1&4	6Mbps	36/40/48/149/157/165	2	4+5
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	2	4+5
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	2	4+5
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	2	4+5
	11ac VHT20	Band 1&4	MCS0/Nss2	36/40/48/149/157/165	2	4+5
	11ac VHT40	Band 1&4	MCS0/Nss2	38/46/151/159	2	4+5
	11ac VHT80	Band 1&4	MCS0/Nss2	42/155	2	4+5
	11a/BPSK	Band 1&4	6Mbps	36/40/48/149/157/165	3	4+5+6
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	3	4+5+6
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	3	4+5+6
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	3	4+5+6
	11ac VHT20	Band 1&4	MCS0/Nss2	36/40/48/149/157/165	3	4+5+6
	11ac VHT40	Band 1&4	MCS0/Nss2	38/46/151/159	3	4+5+6
	11ac VHT80	Band 1&4	MCS0/Nss2	42/155	3	4+5+6
	11ac VHT20	Band 1&4	MCS0/Nss3	36/40/48/149/157/165	3	4+5+6
	11ac VHT40	Band 1&4	MCS0/Nss3	38/46/151/159	3	4+5+6
	11ac VHT80	Band 1&4	MCS0/Nss3	42/155	3	4+5+6
	For Beamforming Mode					
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	2	4+5
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	2	4+5
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	2	4+5
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	3	4+5+6
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	3	4+5+6
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	3	4+5+6
	11ac VHT20	Band 1&4	MCS0/Nss2	36/40/48/149/157/165	3	4+5+6
	11ac VHT40	Band 1&4	MCS0/Nss2	38/46/151/159	3	4+5+6
	11ac VHT80	Band 1&4	MCS0/Nss2	42/155	3	4+5+6

26dB Spectrum Bandwidth & 99% Occupied Bandwidth Measurement	For Non-Beamforming Mode					
	11a/BPSK	Band 1&4	6Mbps	36/40/48/149/157/165	1	4
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	1	4
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1	4
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1	4
	11a/BPSK	Band 1&4	6Mbps	36/40/48/149/157/165	2	4+5
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	2	4+5
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	2	4+5
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	2	4+5
	11ac VHT20	Band 1&4	MCS0/Nss2	36/40/48/149/157/165	2	4+5
	11ac VHT40	Band 1&4	MCS0/Nss2	38/46/151/159	2	4+5
	11ac VHT80	Band 1&4	MCS0/Nss2	42/155	2	4+5
	11a/BPSK	Band 1&4	6Mbps	36/40/48/149/157/165	2	4+5
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	3	4+5+6
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	3	4+5+6
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	3	4+5+6
	11ac VHT20	Band 1&4	MCS0/Nss2	36/40/48/149/157/165	3	4+5+6
	11ac VHT40	Band 1&4	MCS0/Nss2	38/46/151/159	3	4+5+6
	11ac VHT80	Band 1&4	MCS0/Nss2	42/155	3	4+5+6
	11ac VHT20	Band 1&4	MCS0/Nss3	36/40/48/149/157/165	3	4+5+6
	11ac VHT40	Band 1&4	MCS0/Nss3	38/46/151/159	3	4+5+6
	11ac VHT80	Band 1&4	MCS0/Nss3	42/155	3	4+5+6
	For Beamforming Mode					
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	2	4+5
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	2	4+5
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	2	4+5
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	3	4+5+6
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	3	4+5+6
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	3	4+5+6
	11ac VHT20	Band 1&4	MCS0/Nss2	36/40/48/149/157/165	3	4+5+6
	11ac VHT40	Band 1&4	MCS0/Nss2	38/46/151/159	3	4+5+6
	11ac VHT80	Band 1&4	MCS0/Nss2	42/155	3	4+5+6

6dB Spectrum Bandwidth Measurement	For Non-Beamforming Mode					
	11a/BPSK	Band 4	6Mbps	149/157/165	1	4
	11ac VHT20	Band 4	MCS0/Nss1	149/157/165	1	4
	11ac VHT40	Band 4	MCS0/Nss1	151/159	1	4
	11ac VHT80	Band 4	MCS0/Nss1	155	1	4
	11a/BPSK	Band 4	6Mbps	149/157/165	2	4+5
	11ac VHT20	Band 4	MCS0/Nss1	149/157/165	2	4+5
	11ac VHT40	Band 4	MCS0/Nss1	151/159	2	4+5
	11ac VHT80	Band 4	MCS0/Nss1	155	2	4+5
	11ac VHT20	Band 4	MCS0/Nss2	149/157/165	2	4+5
	11ac VHT40	Band 4	MCS0/Nss2	151/159	2	4+5
	11ac VHT80	Band 4	MCS0/Nss2	155	2	4+5
	11a/BPSK	Band 4	6Mbps	149/157/165	3	4+5+6
	11ac VHT20	Band 4	MCS0/Nss1	149/157/165	3	4+5+6
	11ac VHT40	Band 4	MCS0/Nss1	151/159	3	4+5+6
	11ac VHT80	Band 4	MCS0/Nss1	155	3	4+5+6
	11ac VHT20	Band 4	MCS0/Nss2	149/157/165	3	4+5+6
	11ac VHT40	Band 4	MCS0/Nss2	151/159	3	4+5+6
	11ac VHT80	Band 4	MCS0/Nss2	155	3	4+5+6
	11ac VHT20	Band 4	MCS0/Nss3	149/157/165	3	4+5+6
	11ac VHT40	Band 4	MCS0/Nss3	151/159	3	4+5+6
	11ac VHT80	Band 4	MCS0/Nss3	155	3	4+5+6
	For Beamforming Mode					
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	2	4+5
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	2	4+5
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	2	4+5
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	3	4+5+6
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	3	4+5+6
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	3	4+5+6
	11ac VHT20	Band 1&4	MCS0/Nss2	36/40/48/149/157/165	3	4+5+6
	11ac VHT40	Band 1&4	MCS0/Nss2	38/46/151/159	3	4+5+6
	11ac VHT80	Band 1&4	MCS0/Nss2	42/155	3	4+5+6

Radiated Emission Below 1GHz	Normal Link	-	-		-
Radiated Emission Above 1GHz	For Non-Beamforming Mode				
	11a/BPSK	Band 1&4	6Mbps	36/40/48/149/157/165	3 4+5+6
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	3 4+5+6
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	3 4+5+6
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	3 4+5+6
	For Beamforming Mode				
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	3 4+5+6
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	3 4+5+6
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	3 4+5+6
Band Edge Emission	For Non-Beamforming Mode				
	11a/BPSK	Band 4	6Mbps	149/157/165	1 4
	11ac VHT20	Band 4	MCS0/Nss1	149/157/165	1 4
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1 4
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1 4
	11a/BPSK	Band 4	6Mbps	149/157/165	2 4+5
	11ac VHT20	Band 4	MCS0/Nss1	149/157/165	2 4+5
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	2 4+5
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	2 4+5
	11ac VHT20	Band 4	MCS0/Nss2	149/157/165	2 4+5
	11ac VHT40	Band 1&4	MCS0/Nss2	38/46/151/159	2 4+5
	11ac VHT80	Band 1&4	MCS0/Nss2	42/155	2 4+5
	11a/BPSK	Band 1&4	6Mbps	36/40/48/149/157/165	3 4+5+6
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	3 4+5+6
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	3 4+5+6
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	3 4+5+6
	11ac VHT20	Band 4	MCS0/Nss2	149/157/165	3 4+5+6
	11ac VHT40	Band 1&4	MCS0/Nss2	38/46/151/159	3 4+5+6
	11ac VHT80	Band 1&4	MCS0/Nss2	42/155	3 4+5+6
	11ac VHT20	Band 4	MCS0/Nss3	36/40/48/149/157/165	3 4+5+6
	11ac VHT40	Band 1&4	MCS0/Nss3	38/46/151/159	3 4+5+6
	11ac VHT80	Band 1&4	MCS0/Nss3	42/155	3 4+5+6
	For Beamforming Mode				
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	2 4+5
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	2 4+5

	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	2	4+5
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	3	4+5+6
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	3	4+5+6
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	3	4+5+6
	11ac VHT20	Band 1&4	MCS0/Nss2	36/40/48/149/157/165	3	4+5+6
	11ac VHT40	Band 1&4	MCS0/Nss2	38/46/151/159	3	4+5+6
	11ac VHT80	Band 1&4	MCS0/Nss2	42/155	3	4+5+6
Frequency Stability	20 MHz	Band 1&4	-	40/157	3	4+5+6
	40 MHz	Band 1&4	-	38/151	3	4+5+6
	80 MHz	Band 1&4	-	42/155	3	4+5+6

## &lt;For Radio 3&gt;

Test Items	Mode		Data Rate	Channel	TX	Chain
AC Power Conducted Emission	Normal Link		-	-	-	-
Max. Conducted Output Power	11a/BPSK	Band 1&4	6Mbps	36/40/48/149/157/165	1	7
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	1	7
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1	7
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1	7
Power Spectral Density	11a/BPSK	Band 1&4	6Mbps	36/40/48/149/157/165	1	7
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	1	7
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1	7
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1	7
26dB Spectrum Bandwidth & 99% Occupied Bandwidth Measurement	11a/BPSK	Band 1&4	6Mbps	36/40/48/149/157/165	1	7
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	1	7
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1	7
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1	7
6dB Spectrum Bandwidth Measurement	11a/BPSK	Band 4	6Mbps	149/157/165	1	7
	11ac VHT20	Band 4	MCS0/Nss1	149/157/165	1	7
	11ac VHT40	Band 4	MCS0/Nss1	151/159	1	7
	11ac VHT80	Band 4	MCS0/Nss1	155	1	7
Radiated Emission Below 1GHz	Normal Link		-	-	-	-
Radiated Emission Above 1GHz	11a/BPSK	Band 1&4	6Mbps	36/40/48/149/157/165	1	7
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	1	7
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1	7
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1	7
Band Edge Emission	11a/BPSK	Band 1&4	6Mbps	36/40/48/149/157/165	1	7
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	1	7
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1	7
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1	7
Frequency Stability	20 MHz	Band 1&4	-	40/157	1	7
	40 MHz	Band 1&4	-	38/151	1	7
	80 MHz	Band 1&4	-	42/155	1	7



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

Note 2: There are two modes of EUT, one is beamforming mode, and the other is non-beamforming mode for 802.11n/ac. All test results were recorded in the report.

Note 3: For radio 2, The directional gain of 2T2S & 3T3S are the same. Thus, Beamforming on and Beamforming off will have same power limit. As a result, Beamforming on is covered by Beamforming off.

Note 4: For Radio 2, Radiated Emission was covered by 3T1S because 3T1S was tested under max. power setting.

Note 5: For Radio 2 band 1, 11a/ac VHT20 Band-edge was covered by 3T1S because 3T1S was tested under max. power setting.

Note 6: The PoE is for measurement only, would not be marketed.

The PoE information as below:

Power	Brand	Model
PoE	Meraki	POE20U-560(G)

The following test modes were performed for all tests:

#### For Conducted Emission test:

Mode 1. Radio 1 (2.4GHz WLAN function) + Radio 2 (5GHz WLAN function) + Radio 3 (2.4GHz WLAN function) + Bluetooth with Adapter

Mode 2. Radio 1 (2.4GHz WLAN function) + Radio 2 (5GHz WLAN function) + Radio 3 (5GHz WLAN function) + Bluetooth with Adapter

Mode 1 is the worst case, so it was selected to record in this test report.

#### For Radiated Emission test (Below 1GHz):

Mode 1. Radio 1 (2.4GHz WLAN function) + Radio 2 (5GHz WLAN function) + Radio 3 (2.4GHz WLAN function) + Bluetooth with Adapter - X axis

Mode 2. Radio 1 (2.4GHz WLAN function) + Radio 2 (5GHz WLAN function) + Radio 3 (2.4GHz WLAN function) + Bluetooth with Adapter - Y axis

Mode 1 has been evaluated to be the worst case between Mode 1~2, thus measurement for Mode 3 will follow this same test mode.

Mode 3. Radio 1 (2.4GHz WLAN function) + Radio 2 (5GHz WLAN function) + Radio 3 (2.4GHz WLAN function) + Bluetooth with PoE - X axis

Mode 3 has been evaluated to be the worst case among Mode 1~3, thus measurement for Mode 4 will follow this same test mode.

Mode 4. Radio 1 (2.4GHz WLAN function) + Radio 2 (5GHz WLAN function) + Radio 3 (5GHz WLAN function) + Bluetooth with PoE - X axis

Mode 3 is the worst case, so it was selected to record in this test report.

### For Radiated Emission test (Above 1GHz):

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

Mode1. CTX - Y axis

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

Mode 1 Radio 1 (2.4GHz WLAN function) + Radio 2 (5GHz WLAN function) + Radio 3 (2.4GHz WLAN function)  
+ Bluetooth

Mode 2. Radio 1 (2.4GHz WLAN function) + Radio 2 (5GHz WLAN function) + Radio 3 (5GHz WLAN function)  
+ Bluetooth

Therefore Co-location Maximum Permissible Exposure (Please refer to Appendix B) and Radiated Emission Co-location (please refer to Appendix C) tests are added for simultaneously transmit.

## 3.6. Table for Testing Locations

Test Site Location					
Address:	No.8, Lane 724, Bo-ai St., Jhubei City, Hsinchu County 302, Taiwan, R.O.C.				
TEL:	886-3-656-9065				
FAX:	886-3-656-9085				
Test Site No.	Site Category	Location	FCC Reg. No.	IC File No.	VCCI Reg. No
03CH01-CB	SAC	Hsin Chu	262045	IC 4086D	-
CO01-CB	Conduction	Hsin Chu	262045	IC 4086D	-
TH01-CB	OVEN Room	Hsin Chu	-	-	-

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

### 3.7. Table for Supporting Units

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

Support Unit	Brand	Model	FCC ID
Notebook*5	DELL	E4300	DoC
Device	CISCO	MR38-HW / RNAQ-MR1	N/A
PoE	Meraki	POE20U-560(G)	N/A

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

<For Non-beamforming Mode>

Support Unit	Brand	Model	FCC ID
Notebook	DELL	E4300	DoC

<For Beamforming Mode>

Support Unit	Brand	Model	FCC ID
Notebook*2	DELL	E4300	DoC
Device	CISCO	MR38-HW / RNAQ-MR1	N/A

For Test Site No: CO01-CB

Support Unit	Brand	Model	FCC ID
Notebook*5	DELL	E6430	DoC
Device	CISCO	MR38-HW / RNAQ-MR1	N/A

For Test Site No: TH01-CB

Support Unit	Brand	Model	FCC ID
Notebook	DELL	E4300	DoC

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

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

#### For Conducted Test:

<For Radio 2 Non-beamforming Mode>: 1TX, 1S

Test Software Version	QCARCT 3.0.93.0					
Mode	Test Frequency (MHz)					
	NCB: 20MHz					
	5180 MHz	5200 MHz	5240 MHz	5745 MHz	5785 MHz	5825 MHz
802.11a	21.5	21.5	21	21	21.5	21.5
802.11ac MCS0/Nss1 VHT20	21.5	21.5	21.5	21	21.5	21
Mode	NCB: 40MHz					
802.11ac MCS0/Nss1 VHT40	5190 MHz		5230 MHz		5755 MHz	
	20		21		19	
21						
Mode	NCB: 80MHz					
802.11ac MCS0/Nss1 VHT80	5210 MHz			5775 MHz		
	19.5			18		

<For Radio 2 Non-beamforming Mode>: 2TX, 1S

Test Software Version	QCARCT 3.0.93.0					
Mode	Test Frequency (MHz)					
	NCB: 20MHz					
	5180 MHz	5200 MHz	5240 MHz	5745 MHz	5785 MHz	5825 MHz
802.11a	21.5	21.5	21.5	20	21	20
802.11ac MCS0/Nss1 VHT20	21.5	21.5	21.5	20	20.5	20.5
Mode	NCB: 40MHz					
802.11ac MCS0/Nss1 VHT40	5190 MHz		5230 MHz		5755 MHz	
	18		21		18.5	
802.11ac MCS0/Nss1 VHT40	18		21		20	
	18		21		20	
Mode	NCB: 80MHz					
802.11ac MCS0/Nss1 VHT80	5210 MHz			5775 MHz		
	18.5			15.5		

<For Radio 2 Non-beamforming Mode>: 2TX, 2S

Test Software Version	QCARCT 3.0.93.0					
Mode	Test Frequency (MHz)					
	NCB: 20MHz					
	5180 MHz	5200 MHz	5240 MHz	5745 MHz	5785 MHz	5825 MHz
802.11ac MCS0/Nss2 VHT20	21.5	21.5	21.5	20	20.5	20.5
Mode	NCB: 40MHz					
802.11ac MCS0/Nss2VHT40	5190 MHz		5230 MHz		5755 MHz	
	19		21		18.5	
Mode	NCB: 80MHz					
802.11ac MCS0/Nss2 VHT80	5210 MHz			5775 MHz		
	18			15		

<For Radio 2 Non-beamforming Mode>: 3TX, 1S

Test Software Version	QCARCT 3.0.93.0					
Mode	Test Frequency (MHz)					
	NCB: 20MHz					
	5180 MHz	5200 MHz	5240 MHz	5745 MHz	5785 MHz	5825 MHz
802.11a	21	21	21	20	20.5	19.5
802.11ac MCS0/Nss1 VHT20	21	21	21	19.5	20.5	19.5
Mode	NCB: 40MHz					
802.11ac MCS0/Nss1 VHT40	5190 MHz		5230 MHz		5755 MHz	
	16.5		21.5		17.5	
Mode	NCB: 80MHz					
802.11ac MCS0/Nss1 VHT80	5210 MHz			5775 MHz		
	15.5			14.5		

## &lt;For Radio 2 Non-beamforming Mode&gt;: 3TX, 2S

Test Software Version	QCARCT 3.0.93.0					
Mode	Test Frequency (MHz)					
	NCB: 20MHz					
	5180 MHz	5200 MHz	5240 MHz	5745 MHz	5785 MHz	5825 MHz
802.11ac MCS0/Nss2 VHT20	21.5	21.5	21.5	19.5	21	19.5
Mode	NCB: 40MHz					
802.11ac MCS0/Nss2 VHT40	5190 MHz		5230 MHz		5755 MHz	
	17		21.5		17.5	
Mode	NCB: 80MHz					
802.11ac MCS0/Nss2 VHT80	5210 MHz			5775 MHz		
	15.5			11.5		

## &lt;For Radio 2 Non-beamforming Mode&gt;: 3TX, 3S

Test Software Version	QCARCT 3.0.93.0					
Mode	Test Frequency (MHz)					
	NCB: 20MHz					
	5180 MHz	5200 MHz	5240 MHz	5745 MHz	5785 MHz	5825 MHz
802.11ac MCS0/Nss3 VHT20	21.5	21.5	21.5	17.5	21	19
Mode	NCB: 40MHz					
802.11ac MCS0/Nss3 VHT40	5190 MHz		5230 MHz		5755 MHz	
	16.5		21.5		17.5	
Mode	NCB: 80MHz					
802.11ac MCS0/Nss3 VHT80	5210 MHz			5775 MHz		
	15.5			14.5		

## &lt;For Radio 2 Beamforming Mode&gt;: 2TX, 1S

Test Software Version	QCARCT 3.0.93.0							
Mode	Test Frequency (MHz)							
	NCB: 20MHz							
	5180 MHz	5200 MHz	5240 MHz	5745 MHz	5785 MHz	5825 MHz		
802.11ac MCS0/Nss1 VHT20	20.5	20.5	20.5	19.5	20	19.5		
Mode	NCB: 40MHz							
802.11ac MCS0/Nss1 VHT40	5190 MHz		5230 MHz		5755 MHz			
	18.5		20		18.5			
18.5	20		18.5		20			
18.5								
Mode			NCB: 80MHz					
802.11ac MCS0/Nss1 VHT80			5210 MHz			5775 MHz		
	17.5			16				

## &lt;For Radio 2 Beamforming Mode&gt;: 3TX, 1S

Test Software Version	QCARCT 3.0.93.0					
Mode	Test Frequency (MHz)					
	NCB: 20MHz					
	5180 MHz	5200 MHz	5240 MHz	5745 MHz	5785 MHz	5825 MHz
802.11ac MCS0/Nss1 VHT20	19.5	20.5	20.5	18.5	20	19.5
Mode	NCB: 40MHz					
802.11ac MCS0/Nss1 VHT40	5190 MHz		5230 MHz		5755 MHz	
	17		20		17	
19	NCB: 80MHz					
Mode						
802.11ac MCS0/Nss1 VHT80	5210 MHz			5775 MHz		
	16			14.5		

<For Radio 2 Beamforming Mode>: 3TX, 2S

Test Software Version	QCARCT 3.0.93.0					
Mode	Test Frequency (MHz)					
	NCB: 20MHz					
	5180 MHz	5200 MHz	5240 MHz	5745 MHz	5785 MHz	5825 MHz
802.11ac MCS0/Nss2 VHT20	18.5	20	20.5	16.5	19	16
Mode	NCB: 40MHz					
802.11ac MCS0/Nss2 VHT40	5190 MHz		5230 MHz		5755 MHz	
	17		19.5		15	
16	NCB: 80MHz					
Mode	NCB: 80MHz					
802.11ac MCS0/Nss2 VHT80	5210 MHz			5775 MHz		
	16.5			10.5		

<For Radio 3>

Test Software Version	QCARCT 3.0.93.0					
Mode	Test Frequency (MHz)					
	NCB: 20MHz					
	5180 MHz	5200 MHz	5240 MHz	5745 MHz	5785 MHz	5825 MHz
802.11a	13.5	13.5	13	12.5	12	12.5
802.11ac MCS0/Nss1 VHT20	13.5	13.5	13	12.5	12	12.5
Mode	NCB: 40MHz					
802.11ac MCS0/Nss1 VHT40	5190 MHz		5230 MHz		5755 MHz	
	12		13.5		12.5	
Mode	NCB: 80MHz					
802.11ac MCS0/Nss1 VHT80	5210 MHz			5775 MHz		
	10.5			10.5		



### For Radiated Emission Test:

<For Radio 2 Non-beamforming Mode>: 3TX, 1S

Test Software Version	QCARCT 3.0.93.0					
Mode	Test Frequency (MHz)					
	NCB: 20MHz					
	5180 MHz	5200 MHz	5240 MHz	5745 MHz	5785 MHz	5825 MHz
802.11a	21	21	21	20.5	20.5	20.5
802.11ac MCS0/Nss1 VHT20	21	21	21	20.5	20.5	20.5
Mode	NCB: 40MHz					
802.11ac MCS0/Nss1 VHT40	5190 MHz		5230 MHz		5755 MHz	
	21.5		21.5		20	
Mode	NCB: 80MHz					
802.11ac MCS0/Nss1 VHT80	5210 MHz			5775 MHz		
	21			20.5		

<For Radio 2 beamforming Mode>: 3TX, 1S

Test Software Version	QCARCT 3.0.93.0					
Mode	Test Frequency (MHz)					
	NCB: 20MHz					
	5180 MHz	5200 MHz	5240 MHz	5745 MHz	5785 MHz	5825 MHz
802.11ac MCS0/Nss1 VHT20	20.5	20.5	20.5	20.5	20	20
Mode	CB: 40MHz					
802.11ac MCS0/Nss1 VHT40	5190 MHz		5230 MHz		5755 MHz	
	20		20		20	
Mode	NCB: 80MHz					
802.11ac MCS0/Nss1 VHT80	5210 MHz			5775 MHz		
	20.5			20.5		

### 3.9. EUT Operation during Test

For Non-beamforming mode:

The EUT was programmed to be in continuously transmitting mode.

For Beamforming mode:

For Conducted Mode:

The EUT was programmed to be in continuously transmitting mode.

For Radiated Mode:

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

The program was executed as follows:

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

### 3.10. Duty Cycle

<For Radio 2 Non-beamforming Mode>: 1TX, 1S

Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11a	2.050	2.120	96.55%	0.15	0.49
802.11ac MCS0/Nss1 VHT20	4.980	5.069	98.24%	0.08	0.01
802.11ac MCS0/Nss1 VHT40	2.359	2.466	95.66%	0.19	0.42
802.11ac MCS0/Nss1 VHT80	1.100	1.205	91.29%	0.40	0.91

<For Radio 2 Non-beamforming Mode>: 2TX, 1S

Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11a	2.060	2.134	96.53%	0.15	0.49
802.11ac MCS0/Nss1 VHT20	4.998	5.053	98.92%	0.05	0.01
802.11ac MCS0/Nss1 VHT40	2.410	2.474	97.41%	0.11	0.41
802.11ac MCS0/Nss1 VHT80	1.106	1.186	93.24%	0.30	0.90

<For Radio 2 Non-beamforming Mode>: 2TX, 2S

Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11ac MCS0/Nss2 VHT20	2.495	2.571	97.04%	0.13	0.40
802.11ac MCS0/Nss2 VHT40	1.201	1.304	92.10%	0.36	0.83
802.11ac MCS0/Nss2 VHT80	0.562	0.659	85.28%	0.69	1.78

<For Radio 2 Non-beamforming Mode>: 3TX, 1S

Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11a	2.028	2.115	95.89%	0.18	0.49
802.11ac MCS0/Nss1 VHT20	2.046	2.135	95.83%	0.18	0.49
802.11ac MCS0/Nss1 VHT40	2.387	2.457	97.17%	0.12	0.42
802.11ac MCS0/Nss1 VHT80	1.118	1.211	92.32%	0.35	0.89

<For Radio 2 Non-beamforming Mode>: 3TX, 2S

Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11ac MCS0/Nss2 VHT20	2.520	2.610	96.55%	0.15	0.40
802.11ac MCS0/Nss2 VHT40	1.180	1.276	92.48%	0.34	0.85
802.11ac MCS0/Nss2 VHT80	0.548	0.644	85.09%	0.70	1.82

<For Radio 2 Non-beamforming Mode>: 3TX, 3S

Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11ac MCS0/Nss3 VHT20	1.710	1.780	96.07%	0.17	0.58
802.11ac MCS0/Nss3 VHT40	0.825	0.925	89.19%	0.50	1.21
802.11ac MCS0/Nss3 VHT80	0.390	0.490	79.59%	0.99	2.56

<For Radio 2 Beamforming Mode>: 2TX, 1S

Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11ac MCS0/Nss1 VHT20	1.746	1.951	89.49%	0.48	0.57
802.11ac MCS0/Nss1 VHT40	1.660	1.846	89.92%	0.46	0.60
802.11ac MCS0/Nss1 VHT80	1.522	1.714	88.80%	0.52	0.66

<For Radio 2 Beamforming Mode>: 3TX, 1S

Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11ac MCS0/Nss1 VHT20	1.740	1.920	90.63%	0.43	0.57
802.11ac MCS0/Nss1 VHT40	1.660	1.830	90.71%	0.42	0.60
802.11ac MCS0/Nss1 VHT80	1.521	1.709	89.00%	0.51	0.66

<For Radio 2 Beamforming Mode>: 3TX, 2S

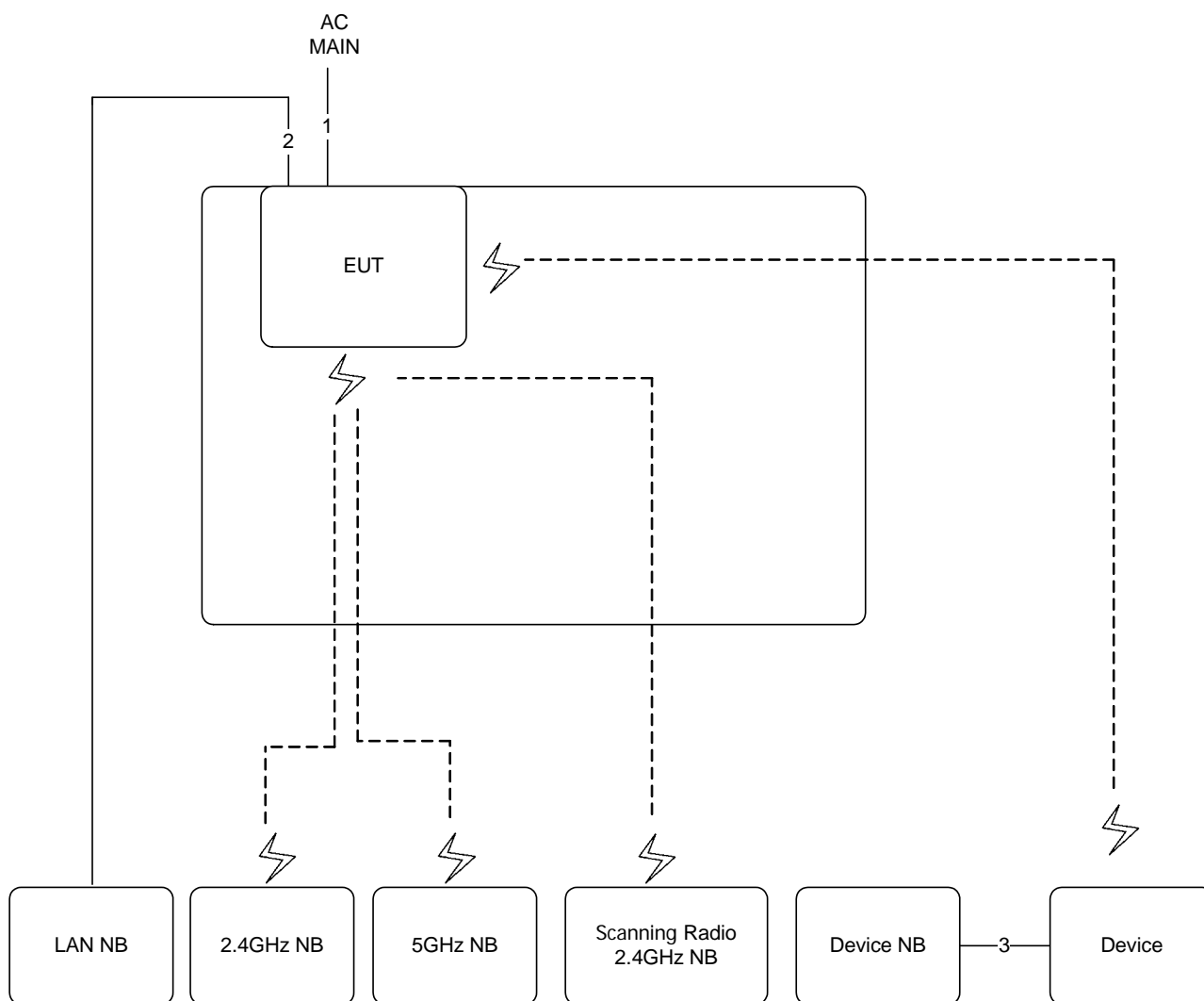
Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11ac MCS0/Nss2 VHT20	1.834	1.973	92.95%	0.32	0.55
802.11ac MCS0/Nss2 VHT40	1.785	1.941	91.99%	0.36	0.56
802.11ac MCS0/Nss2 VHT80	0.597	0.760	78.55%	1.05	1.68

<For Radio 3>

Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11a	2.016	2.071	97.37%	0.12	0.50
802.11ac MCS0/Nss1 VHT20	1.917	1.997	95.99%	0.18	0.52
802.11ac MCS0/Nss1 VHT40	0.903	1.001	90.21%	0.45	1.11
802.11ac MCS0/Nss1 VHT80	0.464	0.534	86.89%	0.61	2.16

### 3.11. Test Configurations

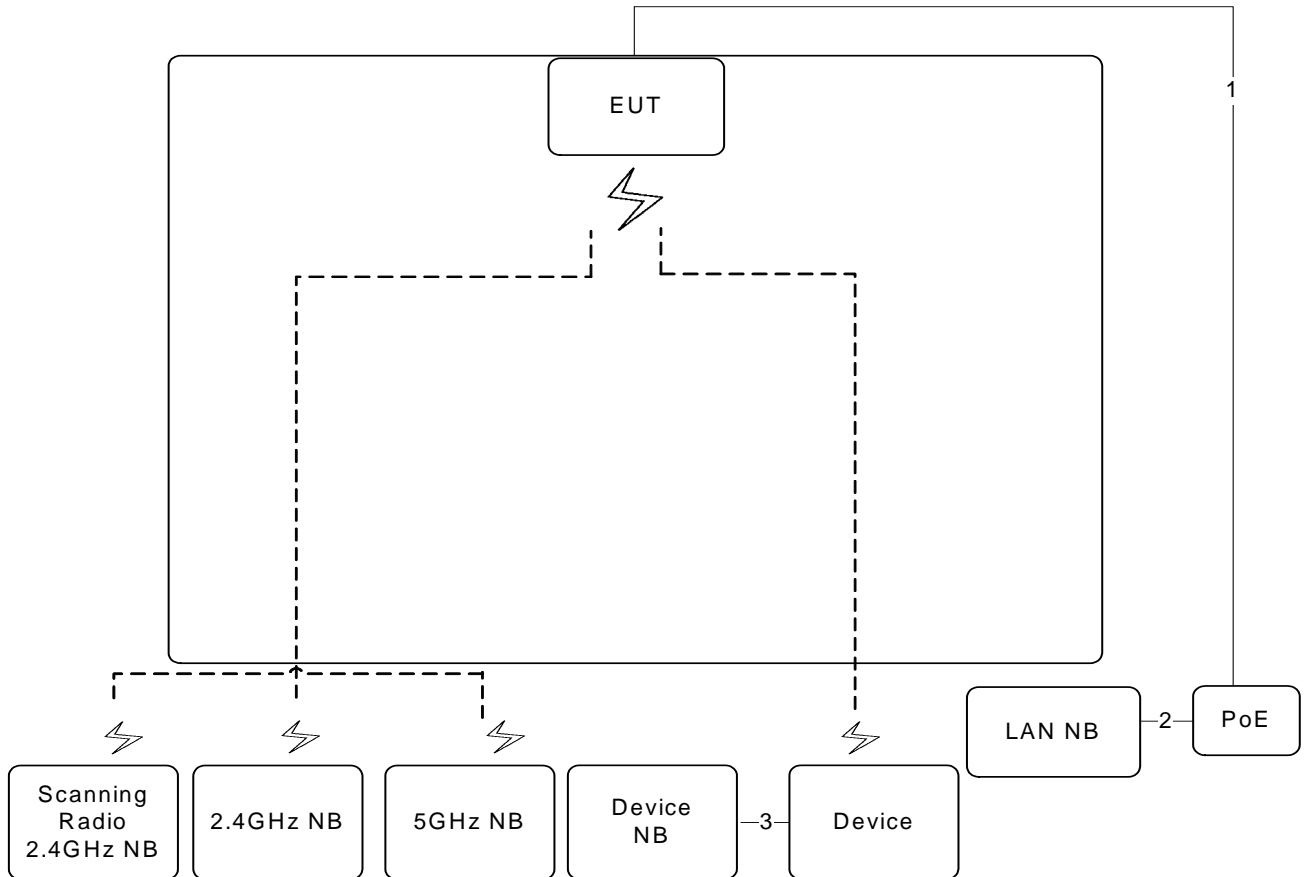
#### 3.11.1. AC Power Line Conduction Emissions Test Configuration



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

### 3.11.2. Radiation Emissions Test Configuration

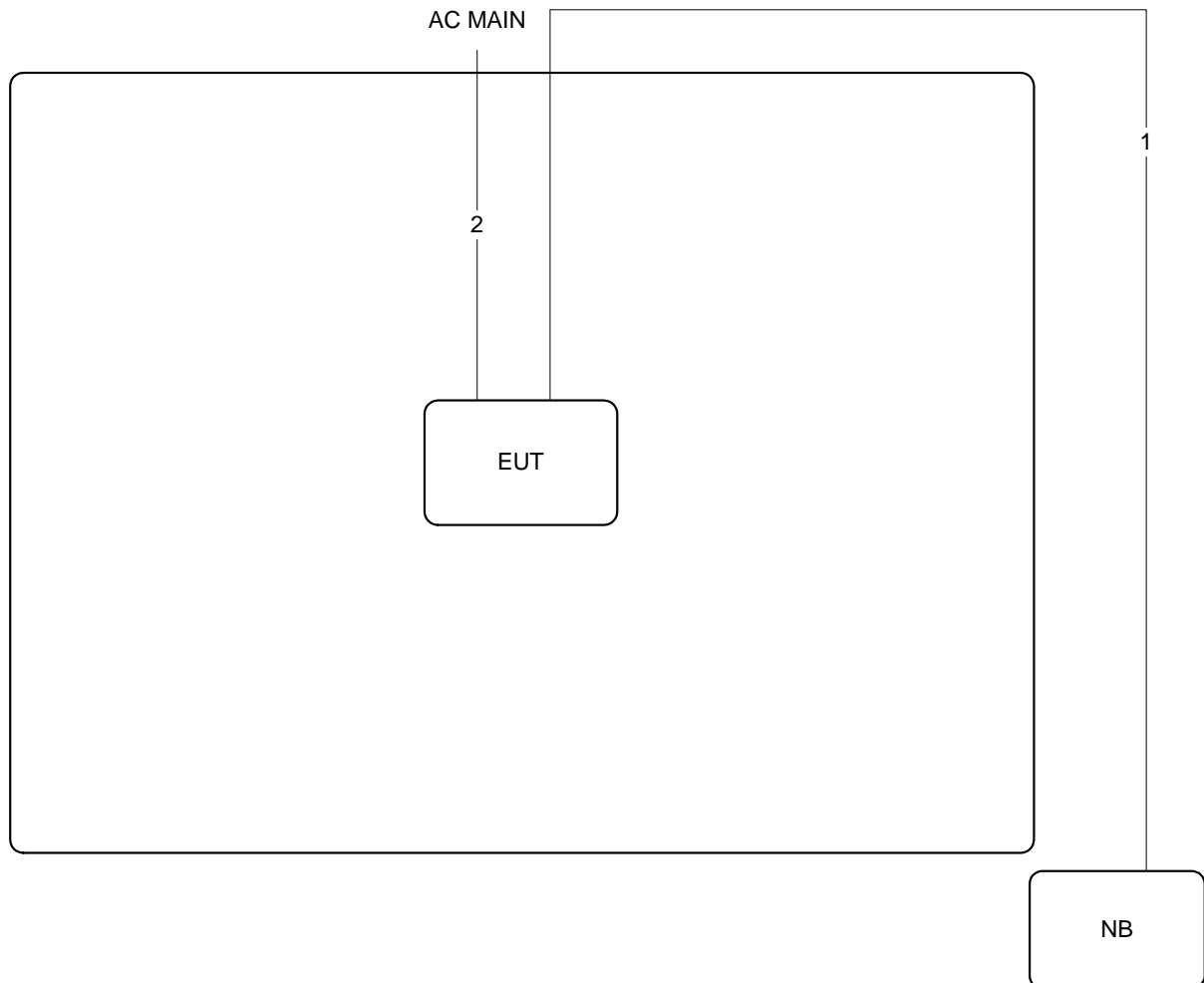
Test Configuration: 30MHz~1GHz



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

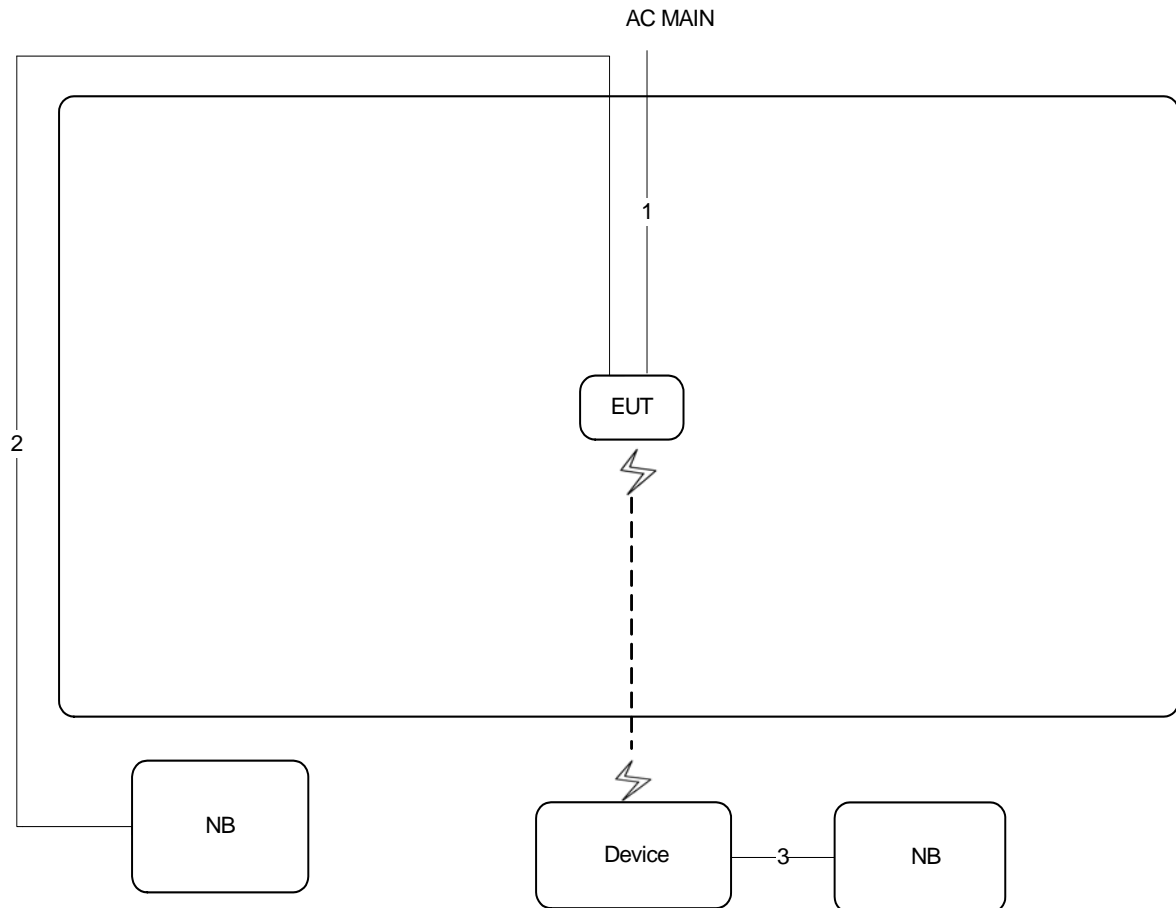
Test Configuration: above 1GHz

<For Non-beamforming Mode>



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

<For Beamforming Mode>



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



## 4. TEST RESULT

### 4.1. AC Power Line Conducted Emissions Measurement

#### 4.1.1. Limit

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

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

#### 4.1.2. Measuring Instruments and Setting

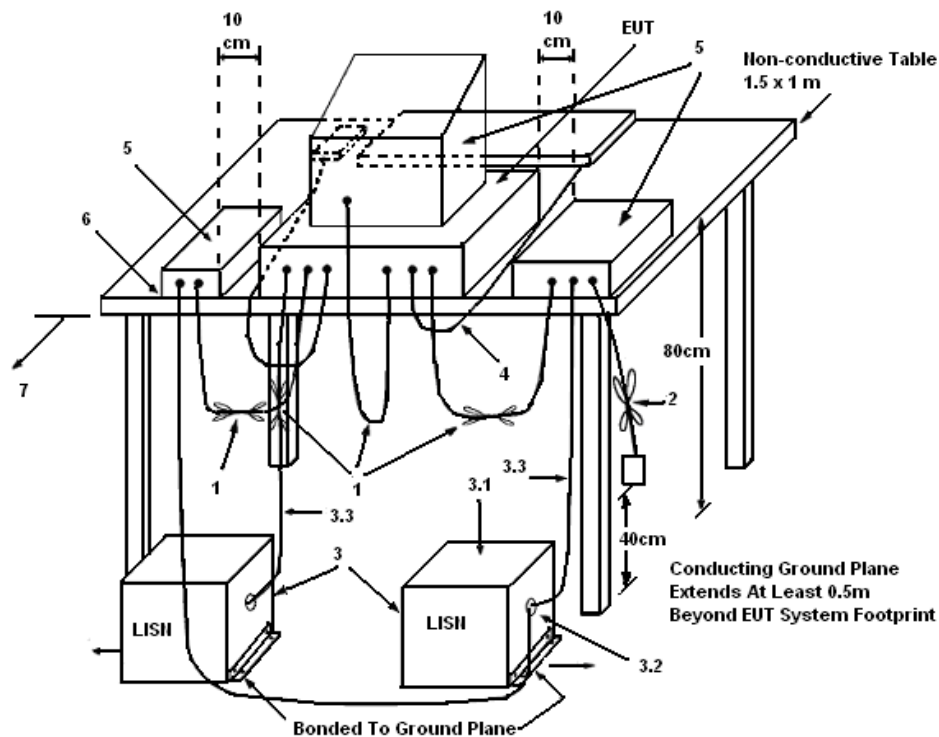
Please refer to section 5 of equipments list in this report. The following table is the setting of the receiver.

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

#### 4.1.3. Test Procedures

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

#### 4.1.4. Test Setup Layout



##### LEGEND:

- (1) Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- (2) I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- (3) EUT connected to one LISN. Unused LISN measuring port connectors shall be terminated in 50  $\Omega$ . LISN can be placed on top of, or immediately beneath, reference ground plane.
- (3.1) All other equipment powered from additional LISN(s).
- (3.2) Multiple outlet strip can be used for multiple power cords of non-EUT equipment.
- (3.3) LISN at least 80 cm from nearest part of EUT chassis.
- (4) Cables of hand-operated devices, such as keyboards, mice, etc., shall be placed as for normal use.
- (5) Non-EUT components of EUT system being tested.
- (6) Rear of EUT, including peripherals, shall all be aligned and flush with rear of tabletop.
- (7) Rear of tabletop shall be 40 cm removed from a vertical conducting plane that is bonded to the ground plane.

#### 4.1.5. Test Deviation

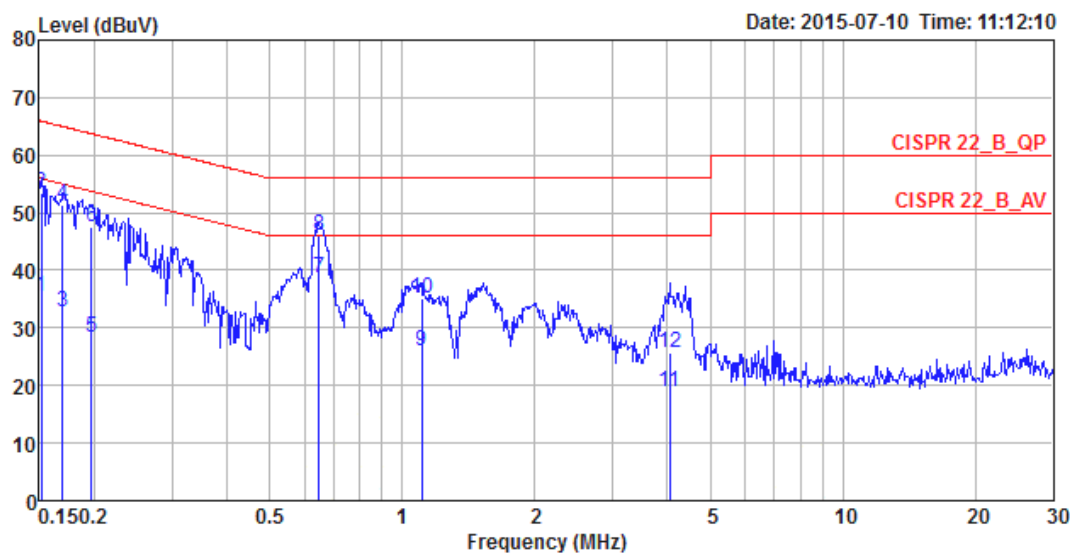
There is no deviation with the original standard.

#### 4.1.6. EUT Operation during Test

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

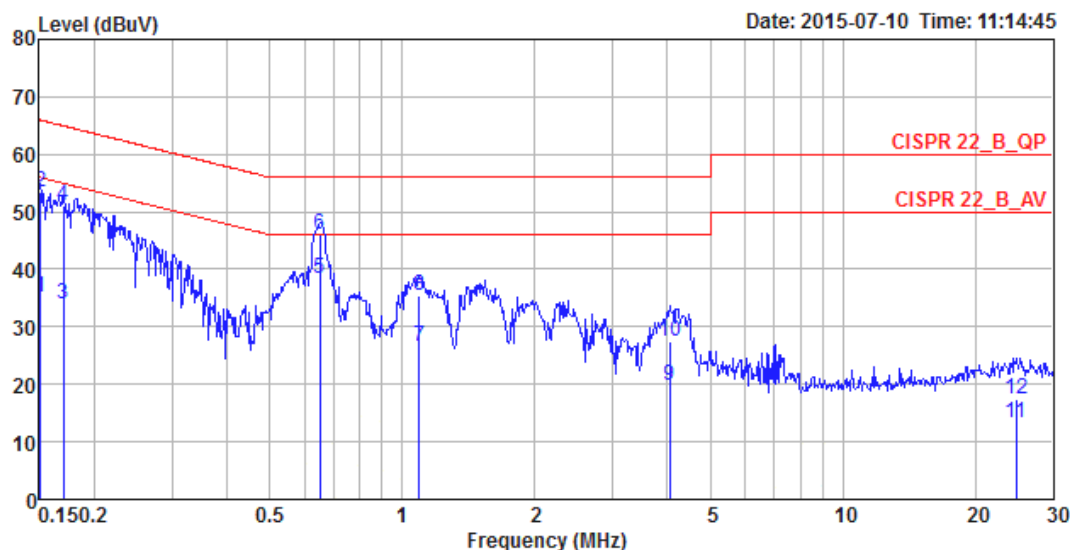
#### 4.1.7. Results of AC Power Line Conducted Emissions Measurement

Temperature	24°C	Humidity	73%
Test Engineer	Deven Huang	Phase	Line
Configuration	Normal Link / Mode 1		



	Freq	Level	Over Limit	Limit Line	Read Level	LISM Factor	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.1516	35.57	-20.34	55.91	25.62	9.93	0.02	LINE	Average
2	0.1516	53.52	-12.39	65.91	43.57	9.93	0.02	LINE	QP
3	0.1694	32.76	-22.23	54.99	22.81	9.93	0.02	LINE	Average
4	0.1694	51.26	-13.73	64.99	41.31	9.93	0.02	LINE	QP
5	0.1965	28.41	-25.35	53.76	18.46	9.93	0.02	LINE	Average
6	0.1965	47.59	-16.17	63.76	37.64	9.93	0.02	LINE	QP
7	0.6474	38.58	-7.42	46.00	28.59	9.95	0.04	LINE	Average
8	0.6474	46.05	-9.95	56.00	36.06	9.95	0.04	LINE	QP
9	1.1056	26.04	-19.96	46.00	16.03	9.96	0.05	LINE	Average
10	1.1056	35.16	-20.84	56.00	25.15	9.96	0.05	LINE	QP
11	4.0489	18.87	-27.13	46.00	8.78	10.02	0.07	LINE	Average
12	4.0489	25.61	-30.39	56.00	15.52	10.02	0.07	LINE	QP

Temperature	24°C	Humidity	73%
Test Engineer	Deven Huang	Phase	Neutral
Configuration	Normal Link / Mode 1		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.1508	35.04	-20.92	55.96	25.24	9.78	0.02	NEUTRAL	Average
2	0.1508	53.55	-12.41	65.96	43.75	9.78	0.02	NEUTRAL	QP
3	0.1703	33.86	-21.08	54.94	24.06	9.78	0.02	NEUTRAL	Average
4	0.1703	50.97	-13.97	64.94	41.17	9.78	0.02	NEUTRAL	QP
5	0.6508	38.43	-7.57	46.00	28.59	9.80	0.04	NEUTRAL	Average
6	0.6508	46.08	-9.92	56.00	36.24	9.80	0.04	NEUTRAL	QP
7	1.0939	26.48	-19.52	46.00	16.62	9.81	0.05	NEUTRAL	Average
8	1.0939	35.41	-20.59	56.00	25.55	9.81	0.05	NEUTRAL	QP
9	4.0489	19.64	-26.36	46.00	9.70	9.87	0.07	NEUTRAL	Average
10	4.0489	27.42	-28.58	56.00	17.48	9.87	0.07	NEUTRAL	QP
11	24.7904	13.20	-36.80	50.00	2.65	10.27	0.28	NEUTRAL	Average
12	24.7904	17.35	-42.65	60.00	6.80	10.27	0.28	NEUTRAL	QP

Note:

Level = Read Level + LISN Factor + Cable Loss

## 4.2. 26dB Bandwidth and 99% Occupied Bandwidth Measurement

### 4.2.1. Limit

No restriction limits.

### 4.2.2. Measuring Instruments and Setting

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

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

### 4.2.3. Test Procedures

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

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

### 4.2.4. Test Setup Layout

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

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

### 4.2.5. Test Deviation

There is no deviation with the original standard.

### 4.2.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

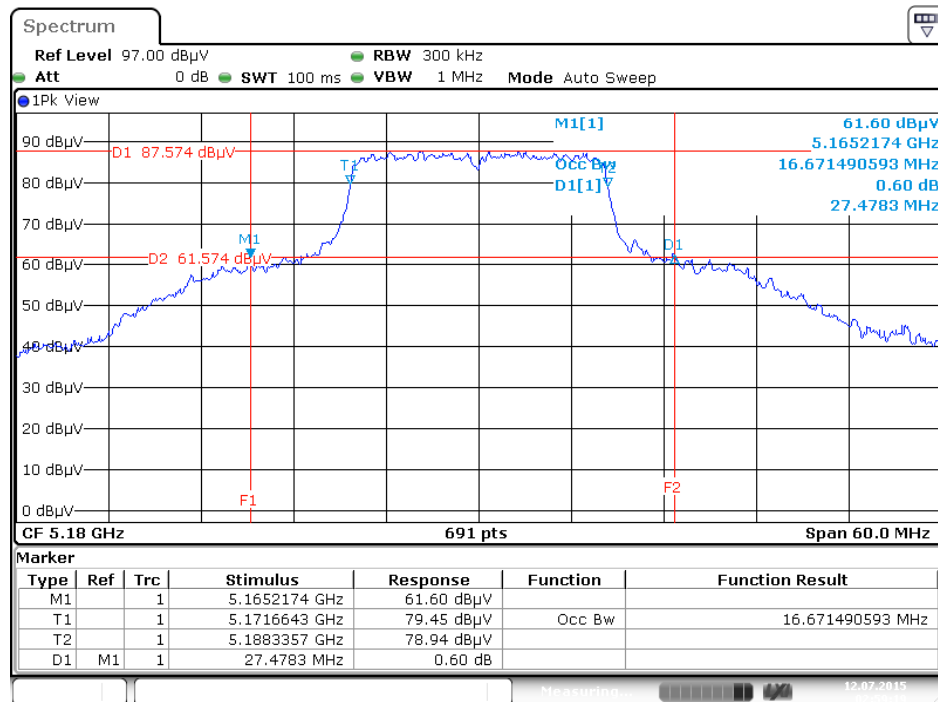
#### 4.2.7. Test Result of 26dB Bandwidth and 99% Occupied Bandwidth

<For Radio 2 Non-beamforming Mode>: 1TX, 1S

Temperature	25°C	Humidity	55%
Test Engineer	Lucas Huang		

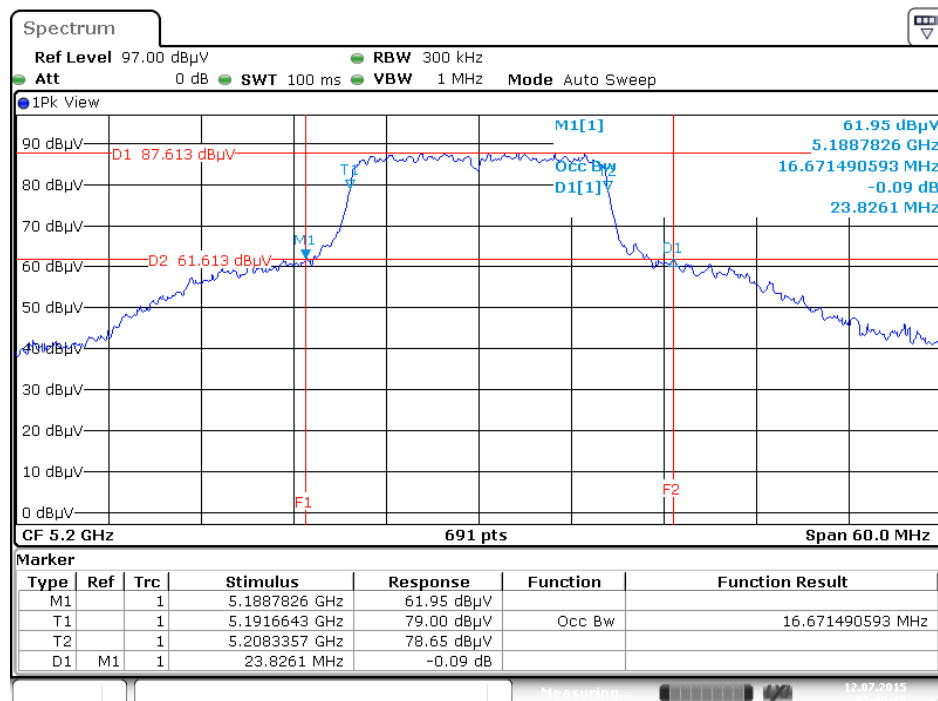
Mode	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11a	5180 MHz	27.48	16.67
	5200 MHz	23.83	16.67
	5240 MHz	21.48	16.67
	5745 MHz	21.83	16.58
	5785 MHz	25.39	16.67
	5825 MHz	23.74	16.67
802.11ac MCS0/Nss1 VHT20	5180 MHz	23.04	17.71
	5200 MHz	24.00	17.71
	5240 MHz	21.65	17.71
	5745 MHz	20.96	17.71
	5785 MHz	26.09	17.80
	5825 MHz	20.78	17.71
802.11ac MCS0/Nss1 VHT40	5190 MHz	41.01	36.47
	5230 MHz	49.71	36.47
	5755 MHz	40.87	36.32
	5795 MHz	56.52	36.61
802.11ac MCS0/Nss1 VHT80	5210 MHz	103.19	75.83
	5775 MHz	91.88	75.83

### 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 4 / 5180 MHz



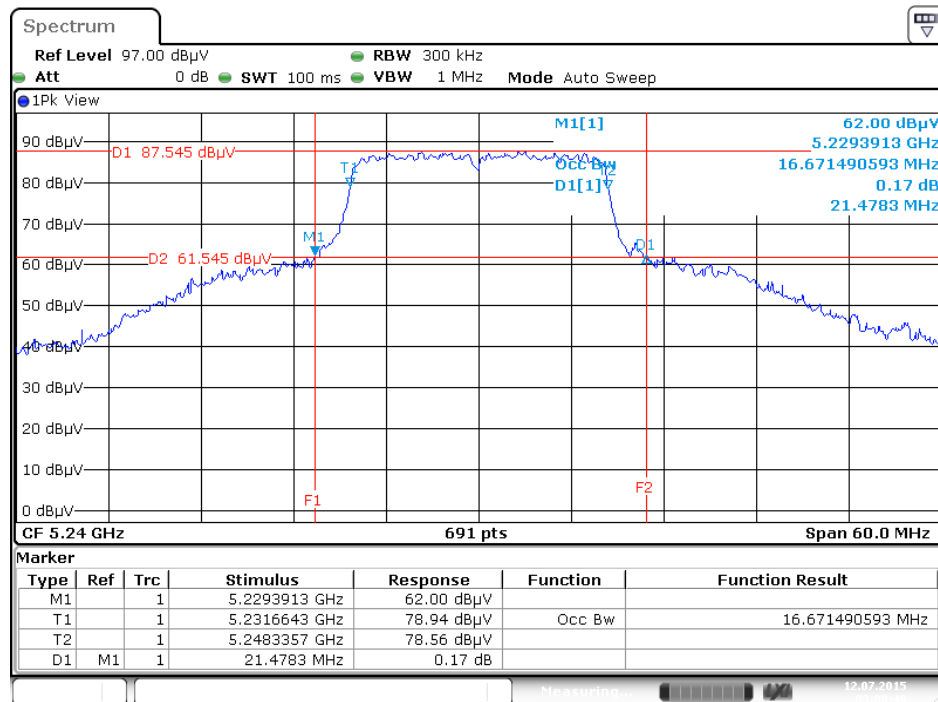
Date: 12.JUL.2015 02:59:19

### 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 4 / 5200 MHz



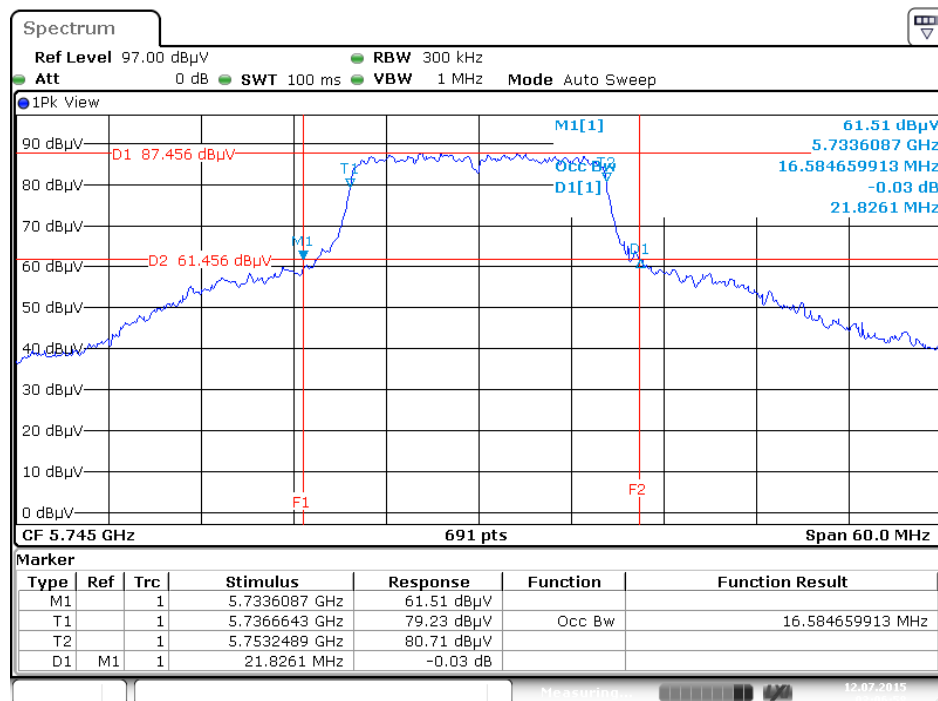
Date: 12.JUL.2015 03:00:15

### 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 4/ 5240 MHz



Date: 12.JUL.2015 03:00:49

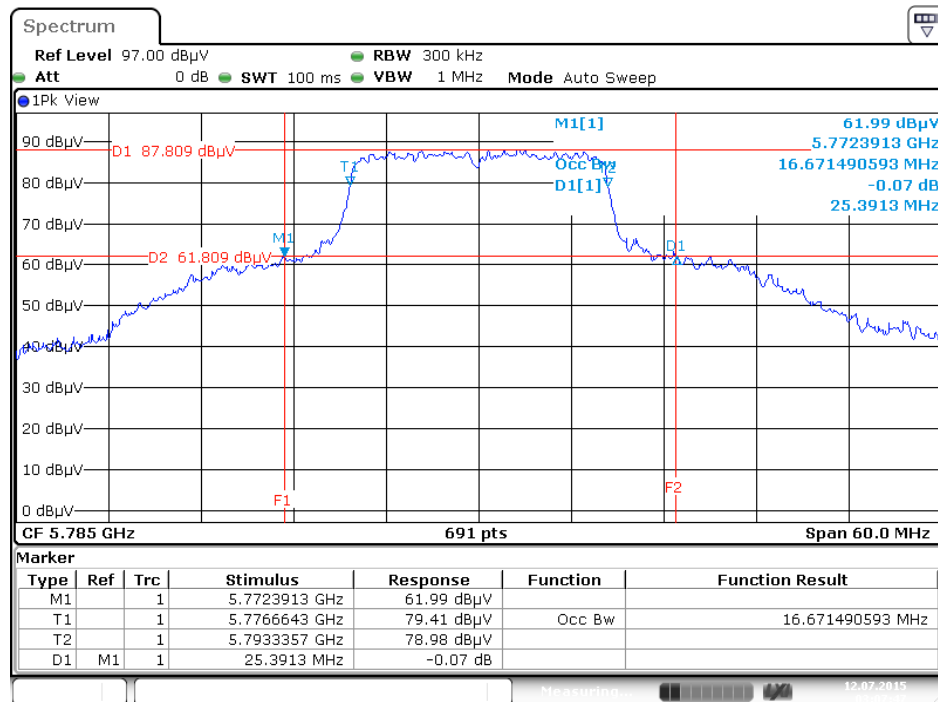
### 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 4/ 5745 MHz



Date: 12.JUL.2015 03:06:58

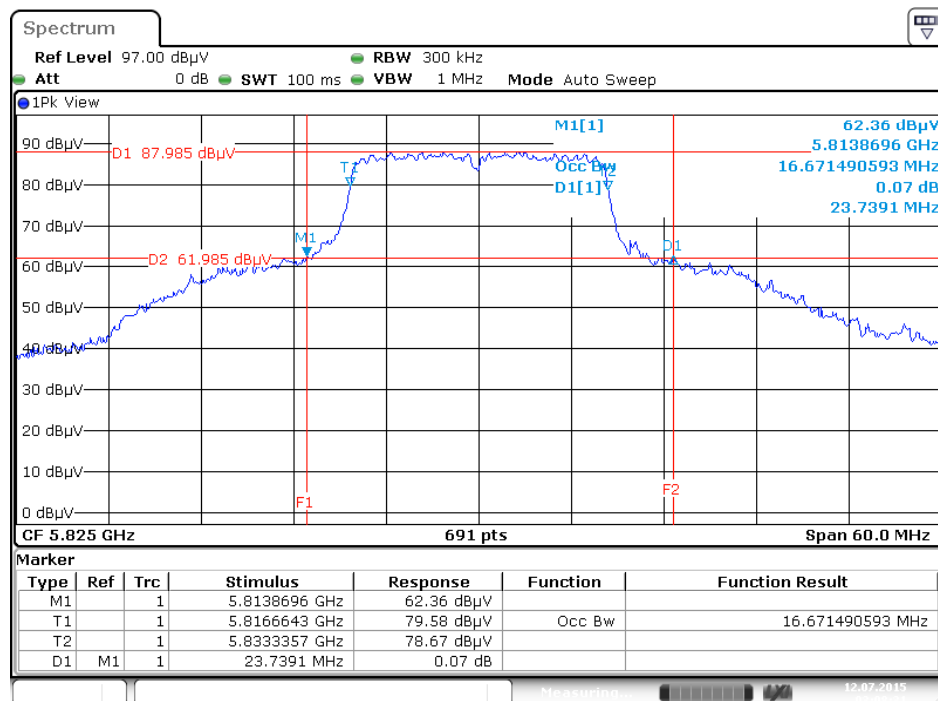


### 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 4 / 5785 MHz



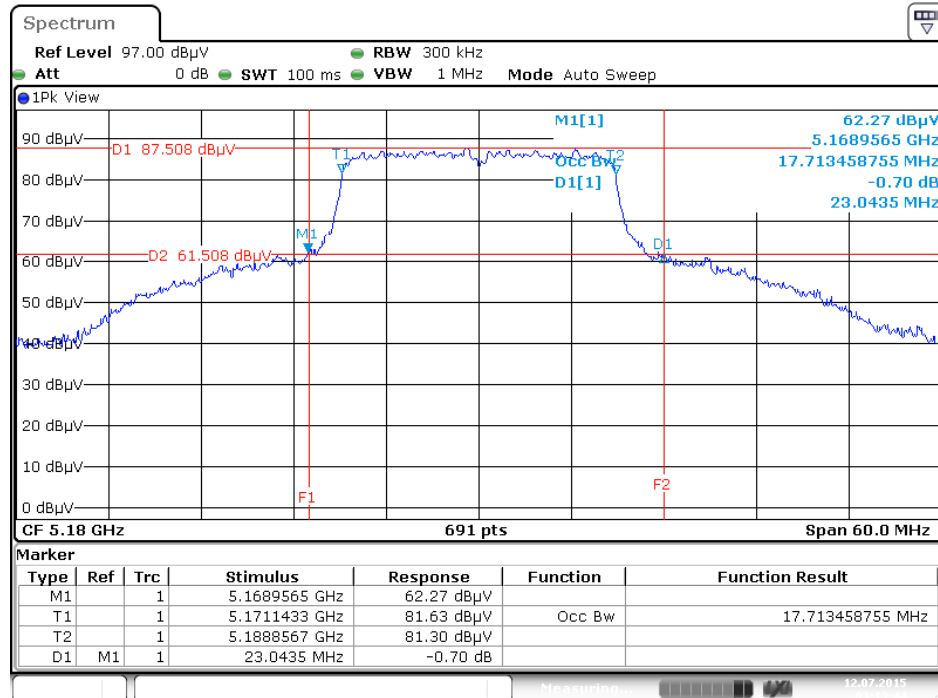
Date: 12.JUL.2015 03:07:47

### 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 4 / 5825 MHz



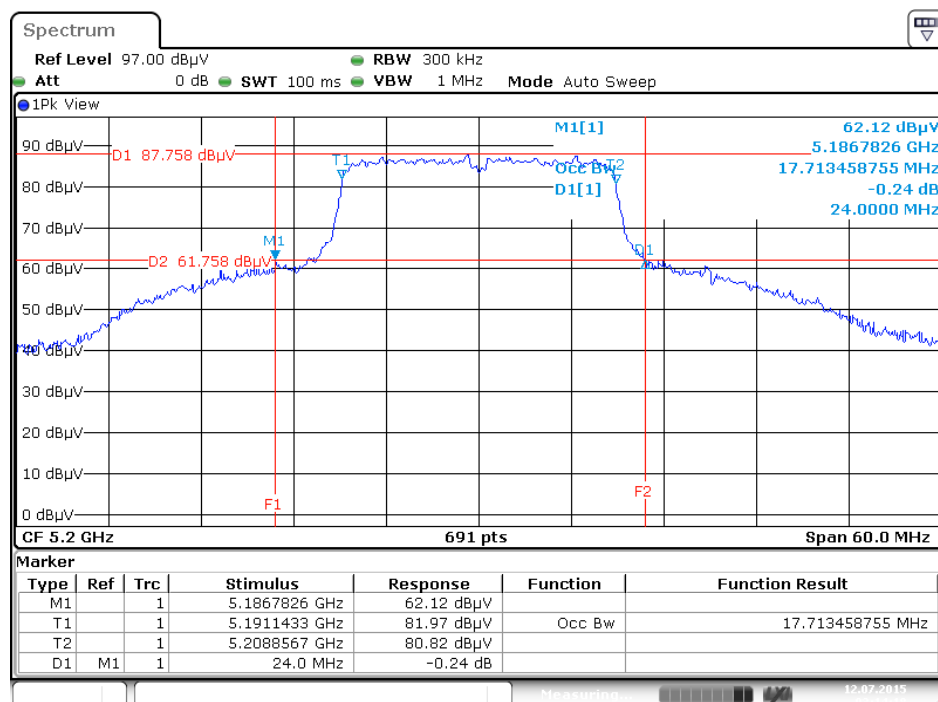
Date: 12.JUL.2015 03:08:31

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



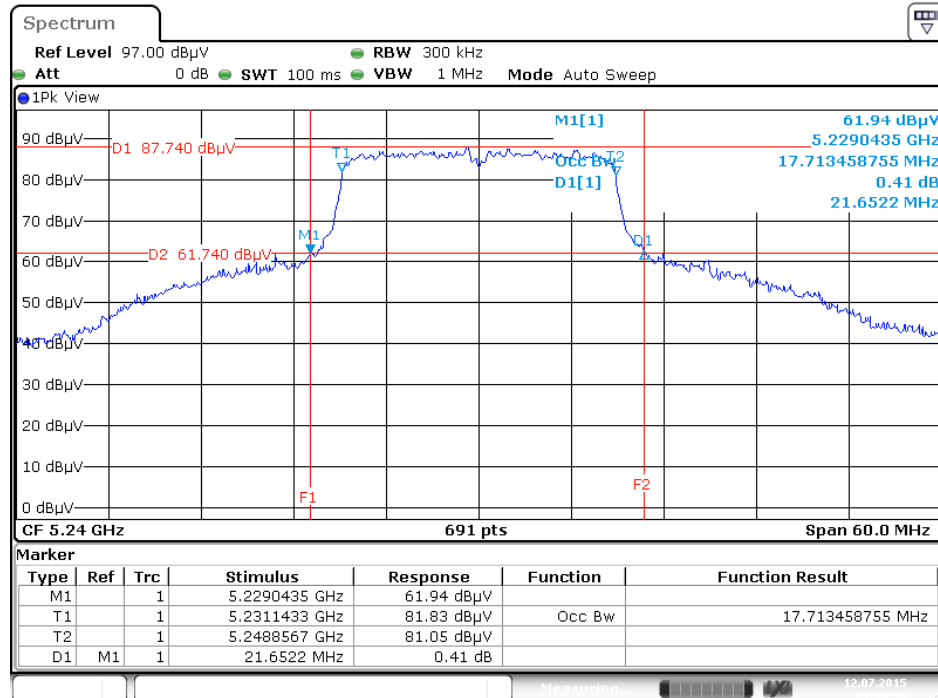
Date: 12.JUL.2015 03:13:44

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



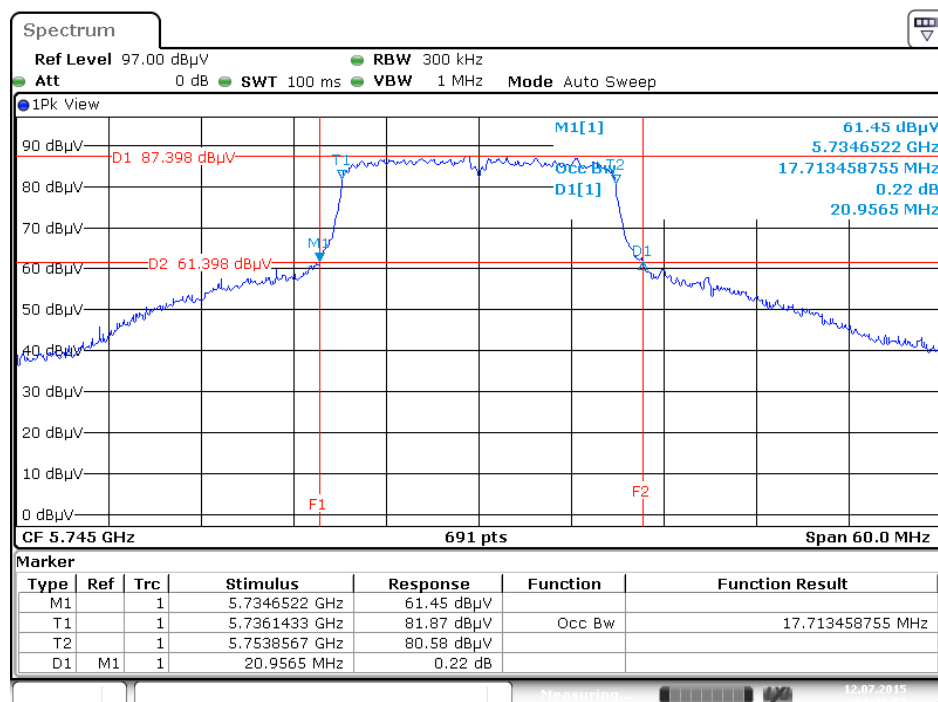
Date: 12.JUL.2015 03:14:18

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



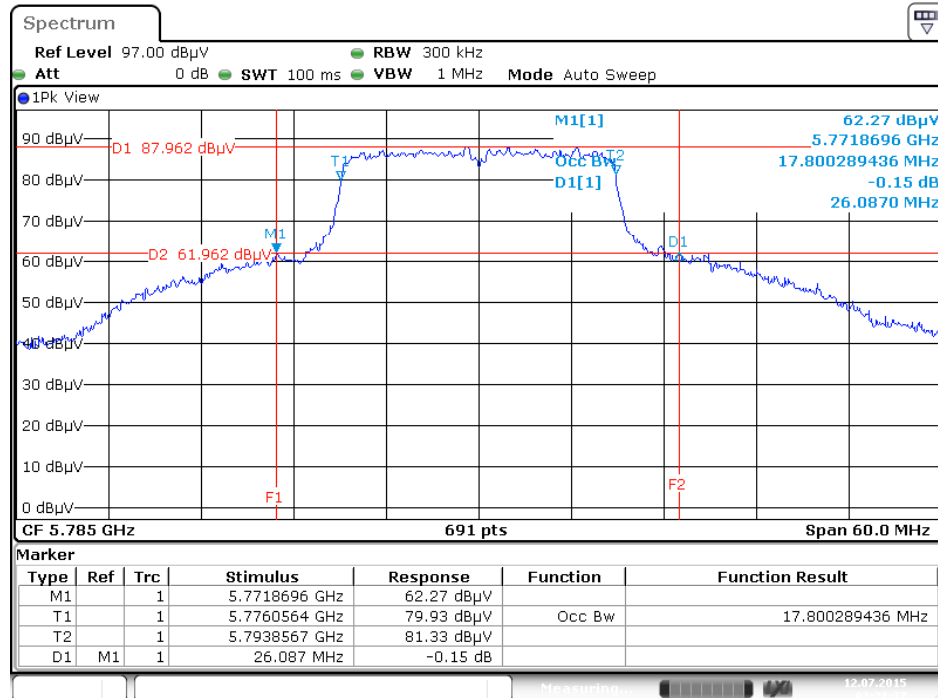
Date: 12.JUL.2015 03:14:50

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



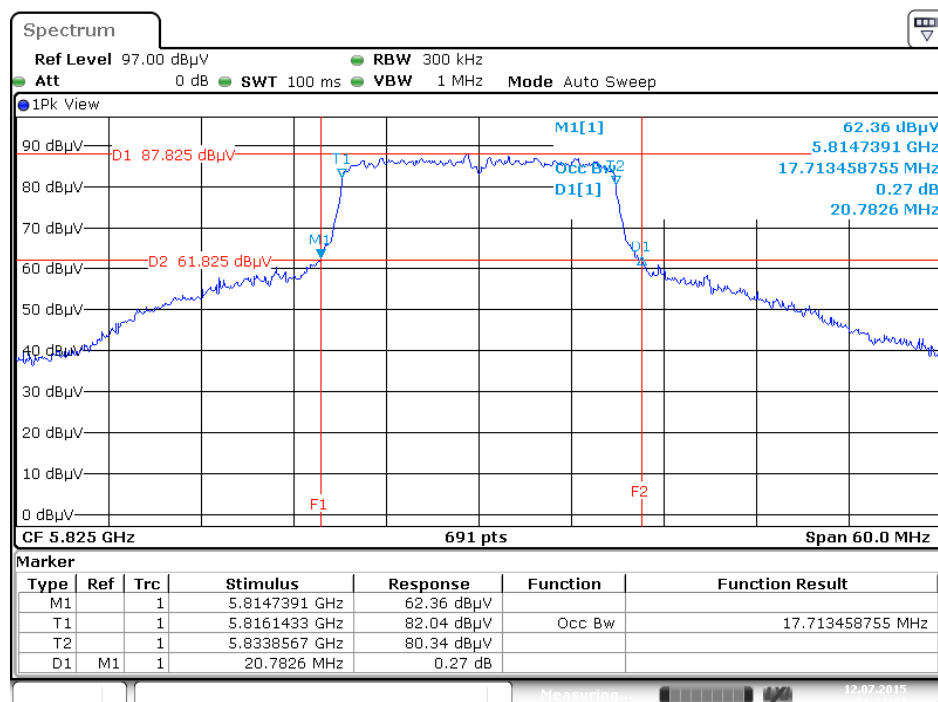
Date: 12.JUL.2015 03:20:58

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



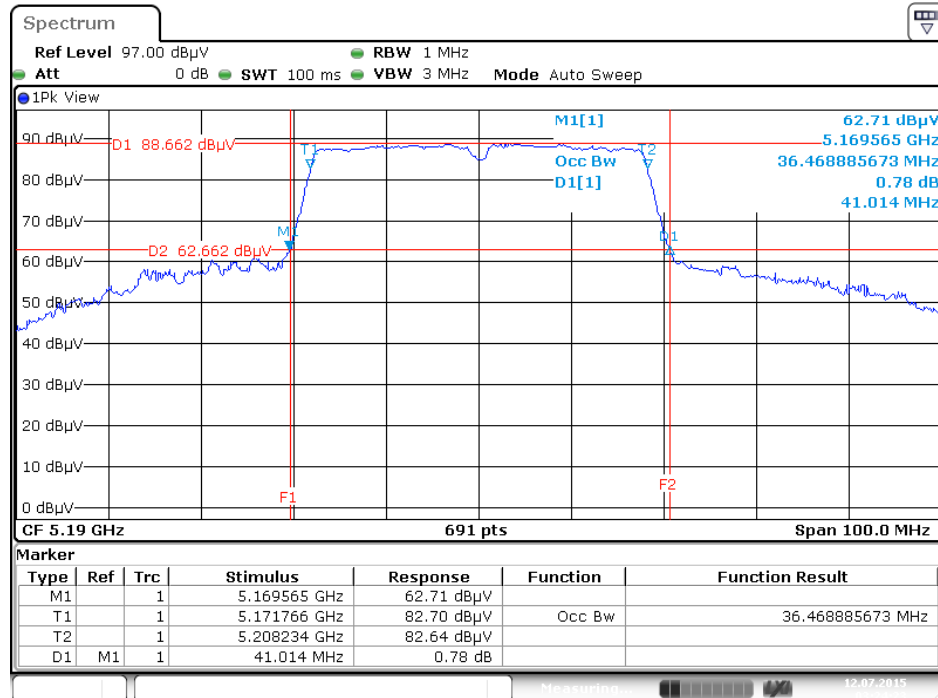
Date: 12.JUL.2015 03:21:37

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

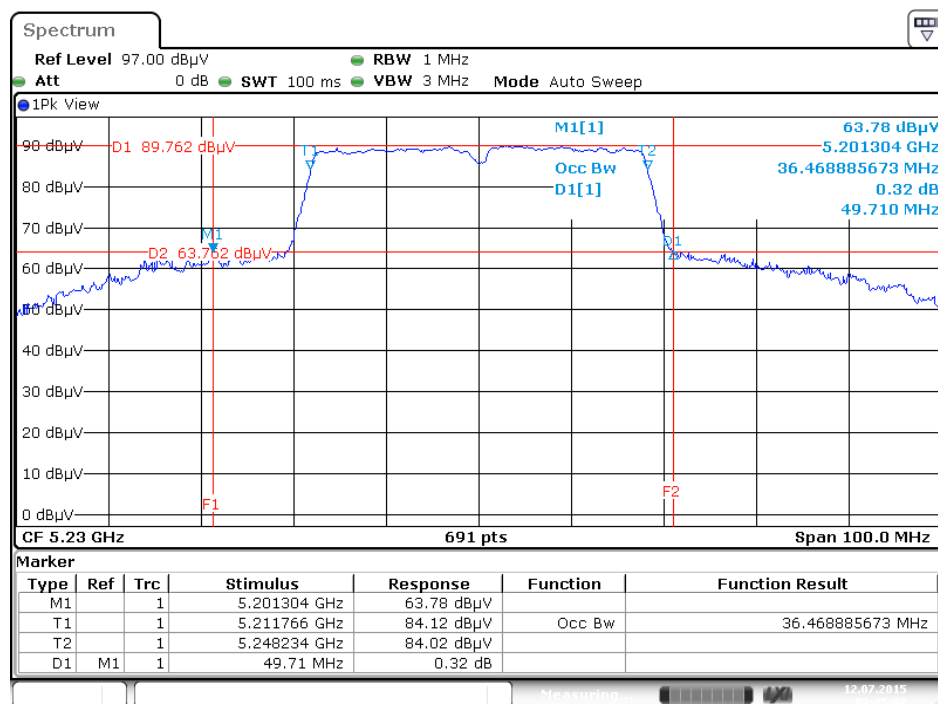


Date: 12.JUL.2015 03:22:41

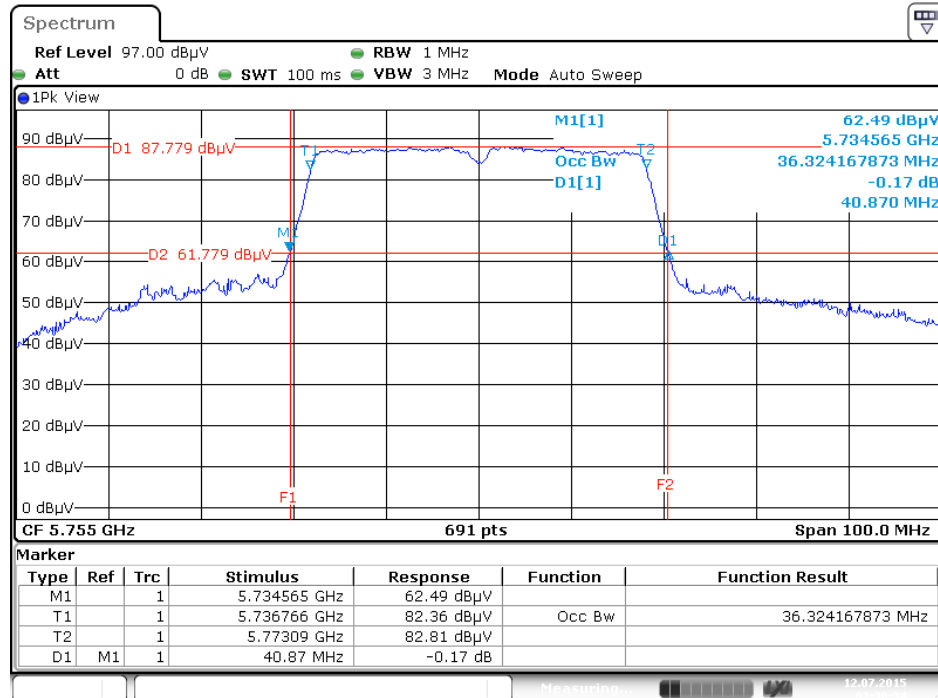
## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 4 / 5190 MHz



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

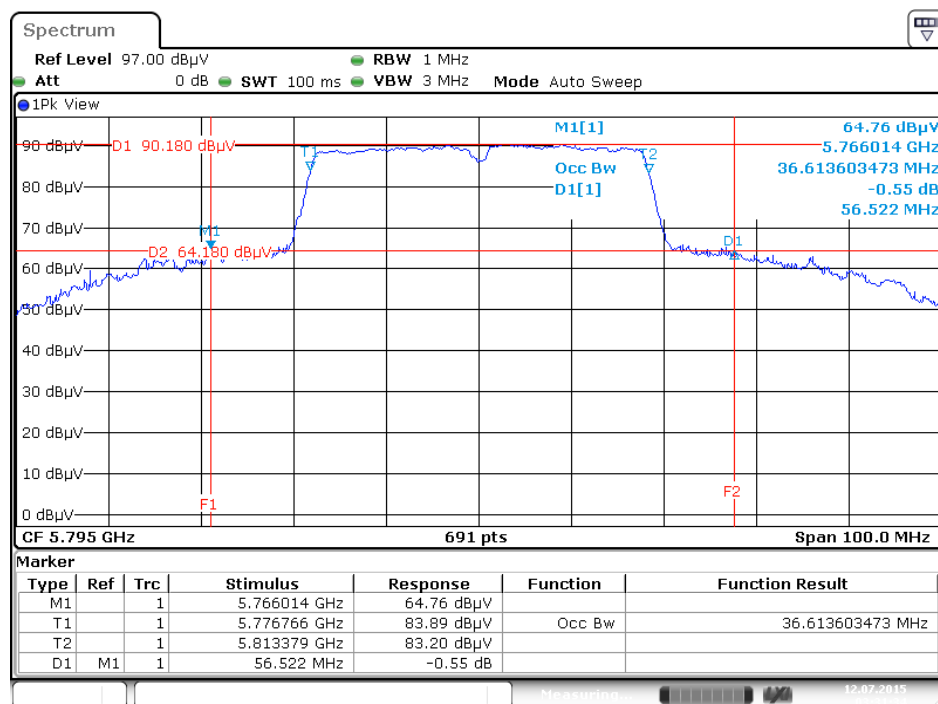


## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 4 / 5755 MHz



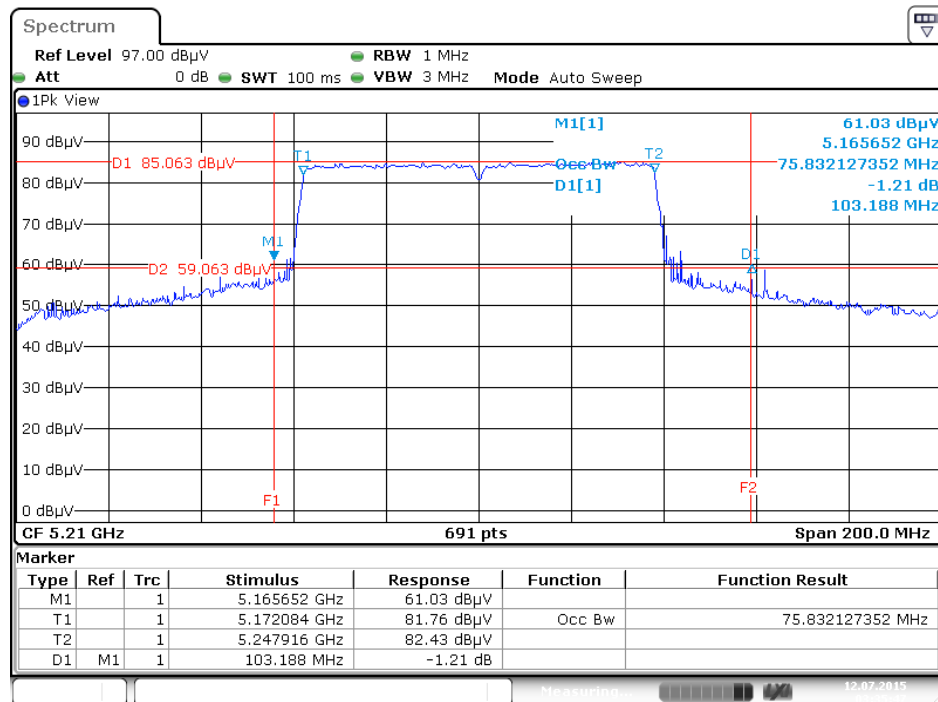
Date: 12.JUL.2015 03:30:34

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



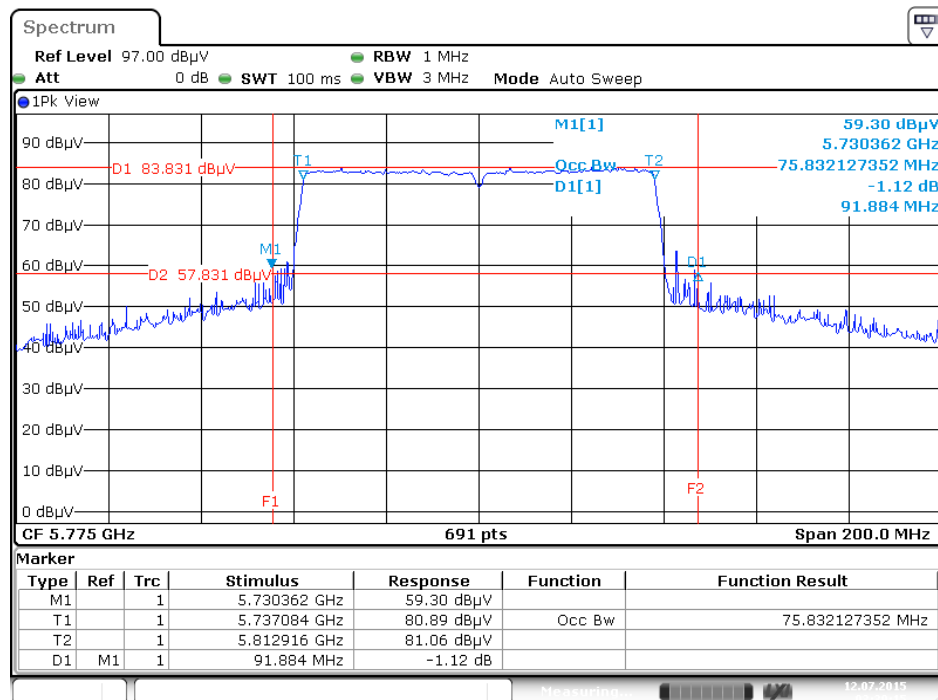
Date: 12.JUL.2015 03:31:34

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



Date: 12.JUL.2015 03:35:47

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



Date: 12.JUL.2015 03:39:15

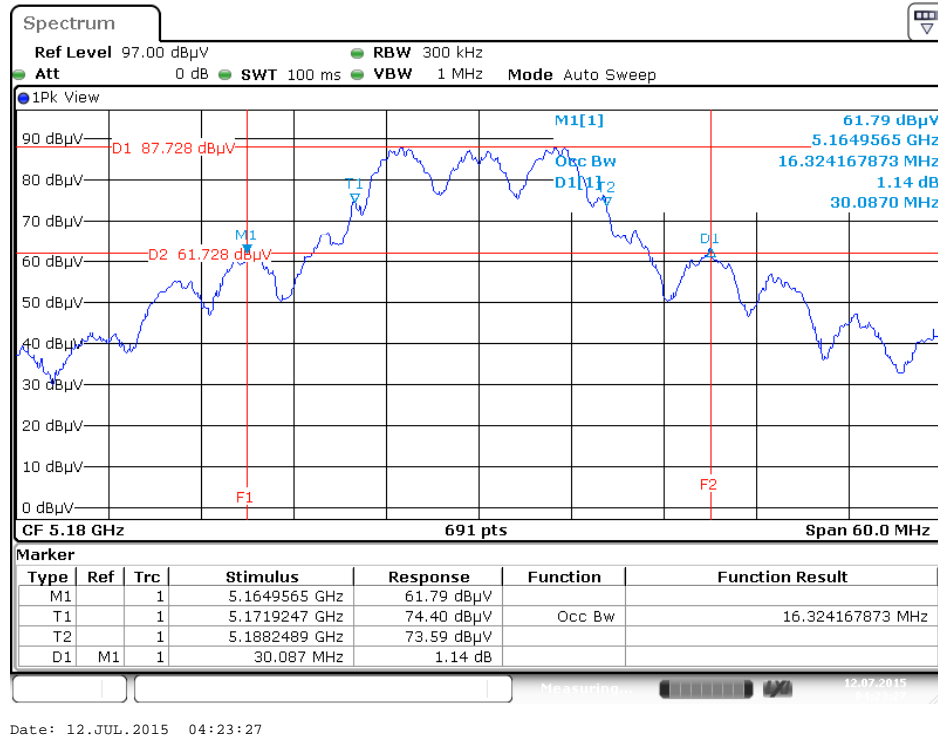
<For Radio 2 Non-beamforming Mode>: 2TX, 1S

Temperature	25°C	Humidity	55%
Test Engineer	Lucas Huang		

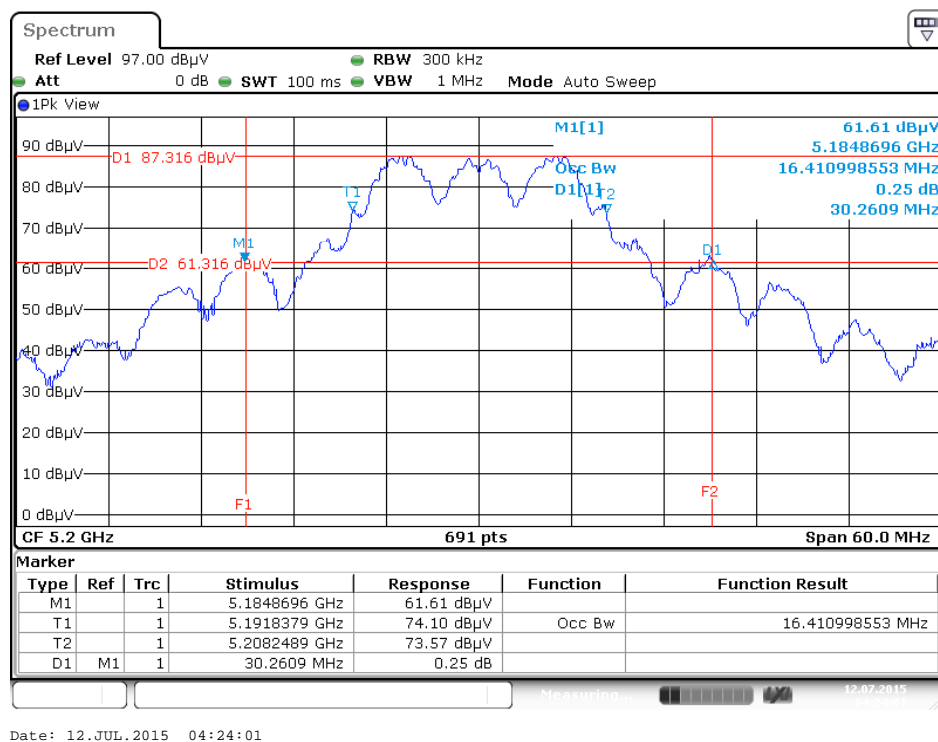
Mode	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11a	5180 MHz	30.09	16.32
	5200 MHz	30.26	16.41
	5240 MHz	30.17	16.32
	5745 MHz	30.78	16.85
	5785 MHz	35.65	17.37
	5825 MHz	32.09	17.37
802.11ac MCS0/Nss1 VHT20	5180 MHz	18.26	16.06
	5200 MHz	18.35	16.15
	5240 MHz	18.35	16.24
	5745 MHz	27.13	17.80
	5785 MHz	29.91	19.28
	5825 MHz	30.78	18.67
802.11ac MCS0/Nss1 VHT40	5190 MHz	40.73	36.76
	5230 MHz	46.81	37.19
	5755 MHz	40.15	36.18
	5795 MHz	44.78	36.32
802.11ac MCS0/Nss1 VHT80	5210 MHz	83.48	76.41
	5775 MHz	84.64	75.54



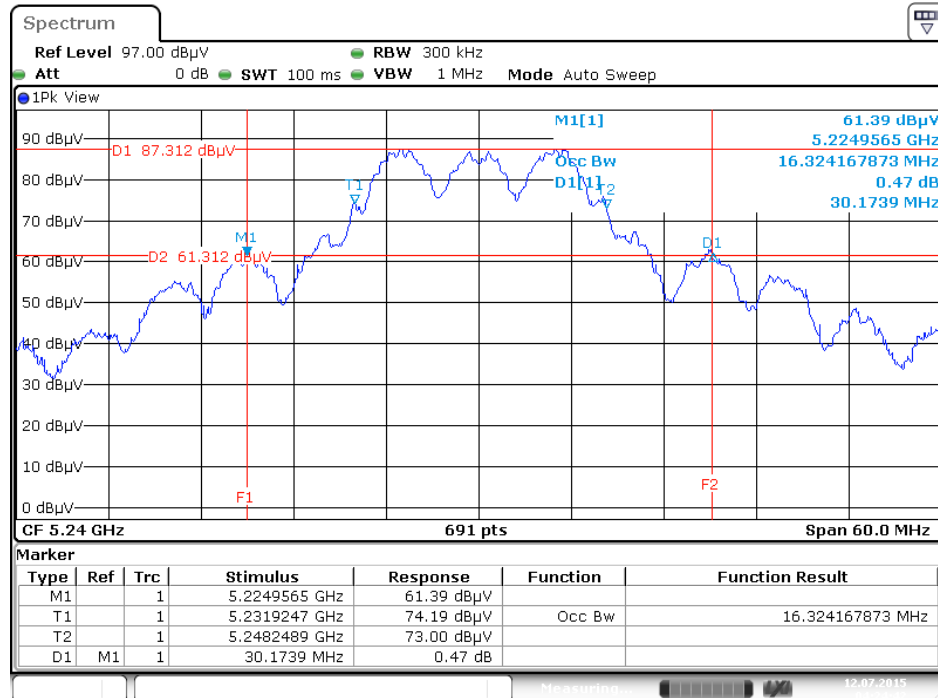
### 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 4 + Chain 5 / 5180 MHz



### 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 4 + Chain 5 / 5200 MHz

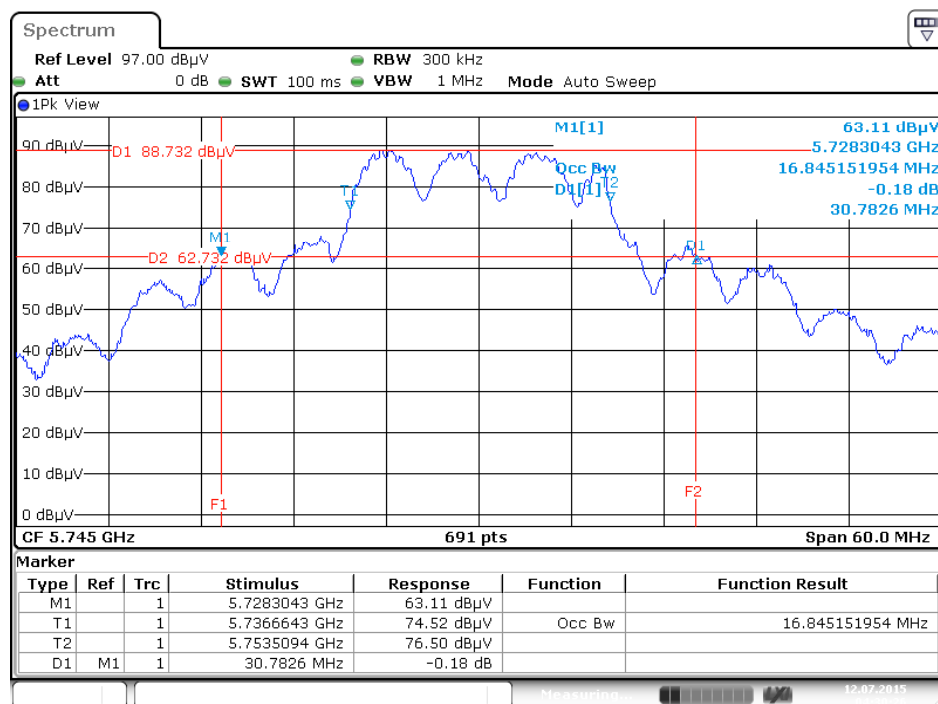


## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 4 + Chain 5 / 5240 MHz



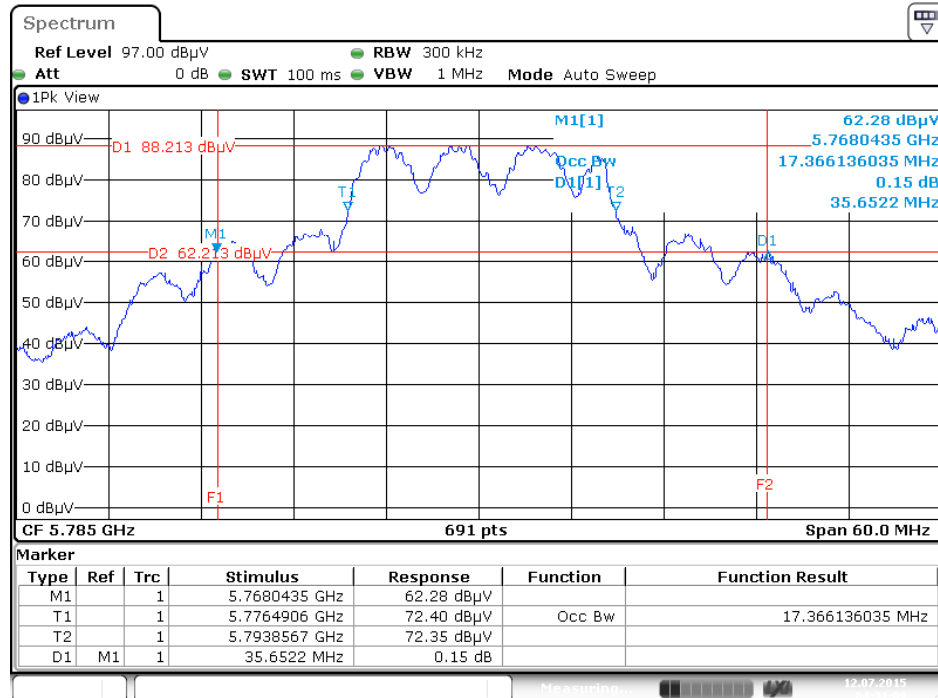
Date: 12.JUL.2015 04:24:43

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 4 + Chain 5 / 5745 MHz



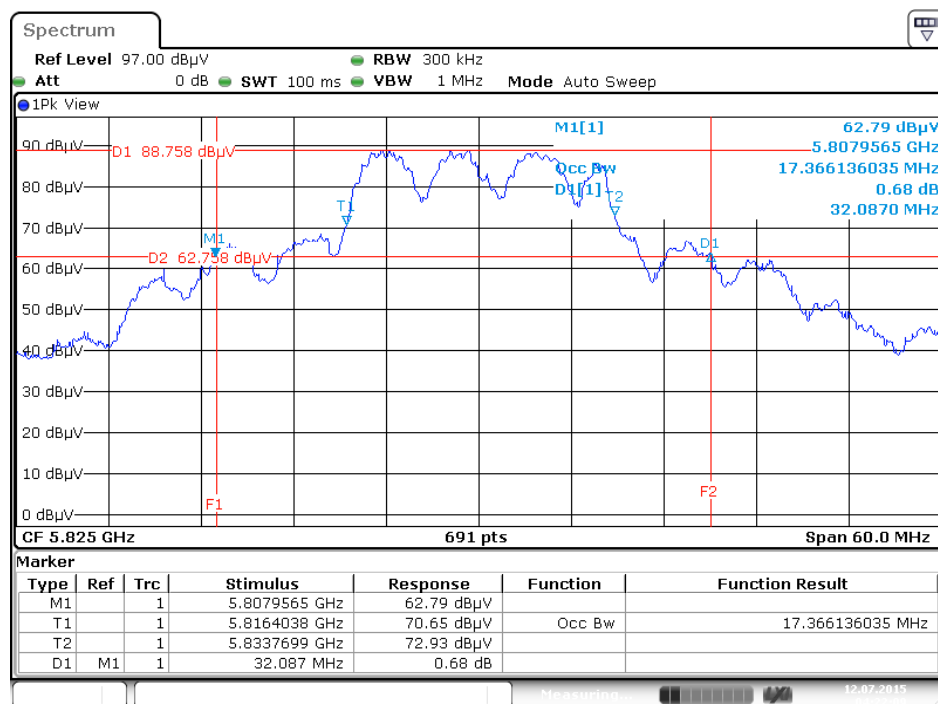
Date: 12.JUL.2015 04:30:26

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 4 + Chain 5 / 5785 MHz



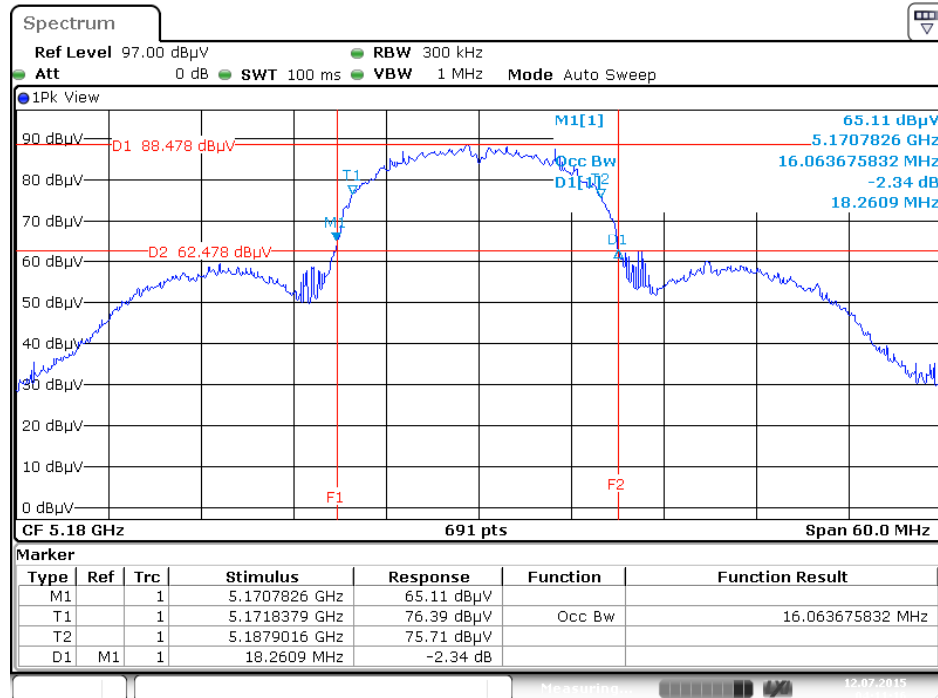
Date: 12.JUL.2015 04:31:09

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 4 + Chain 5 / 5825 MHz



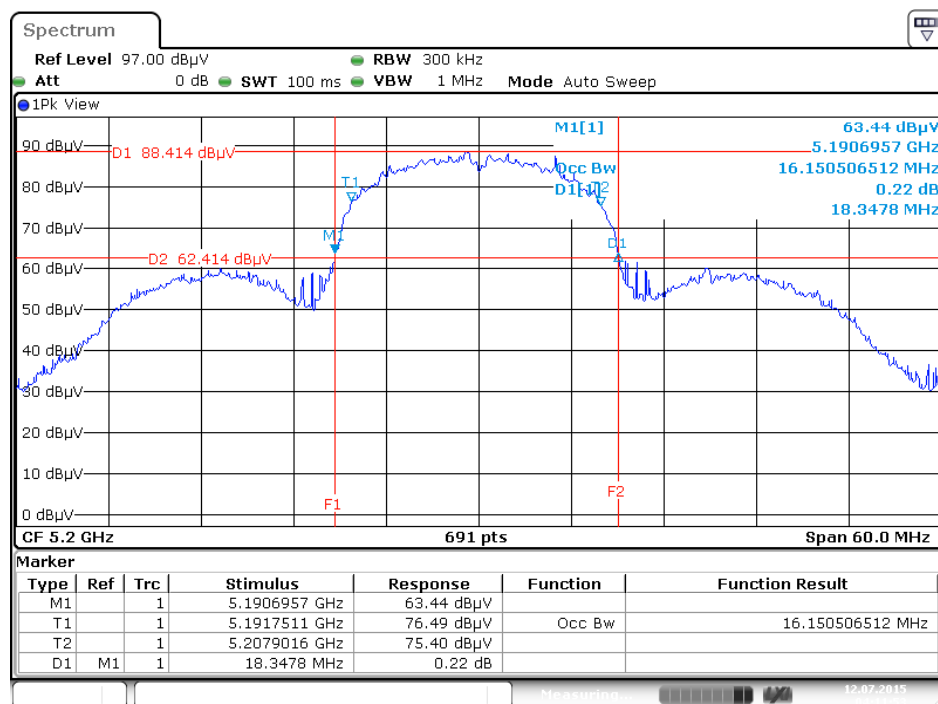
Date: 12.JUL.2015 04:22:09

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4 + Chain 5 / 5180 MHz



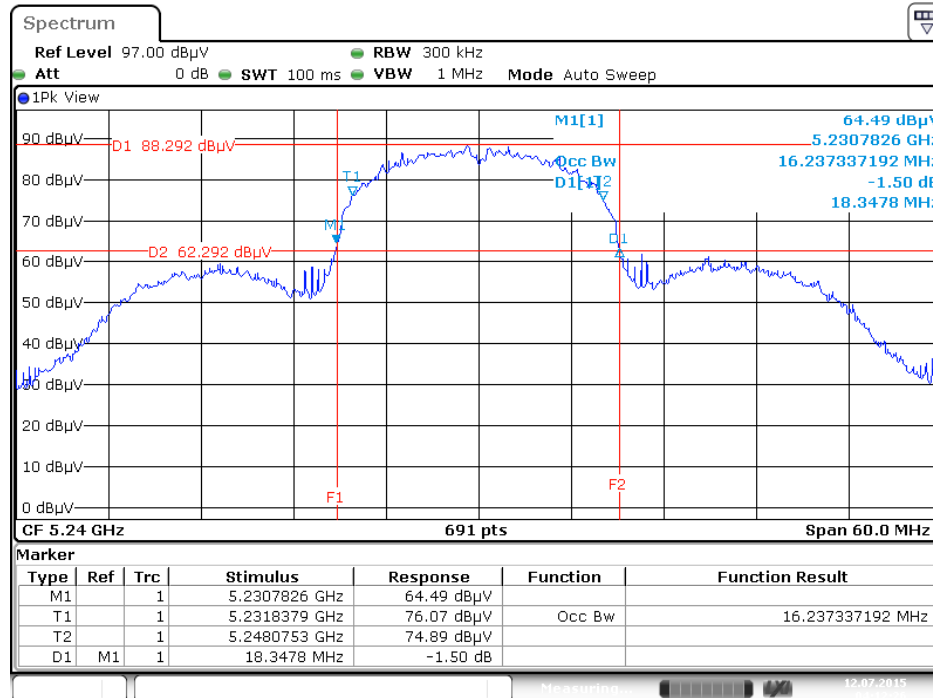
Date: 12.JUL.2015 04:11:16

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4 + Chain 5 / 5200 MHz



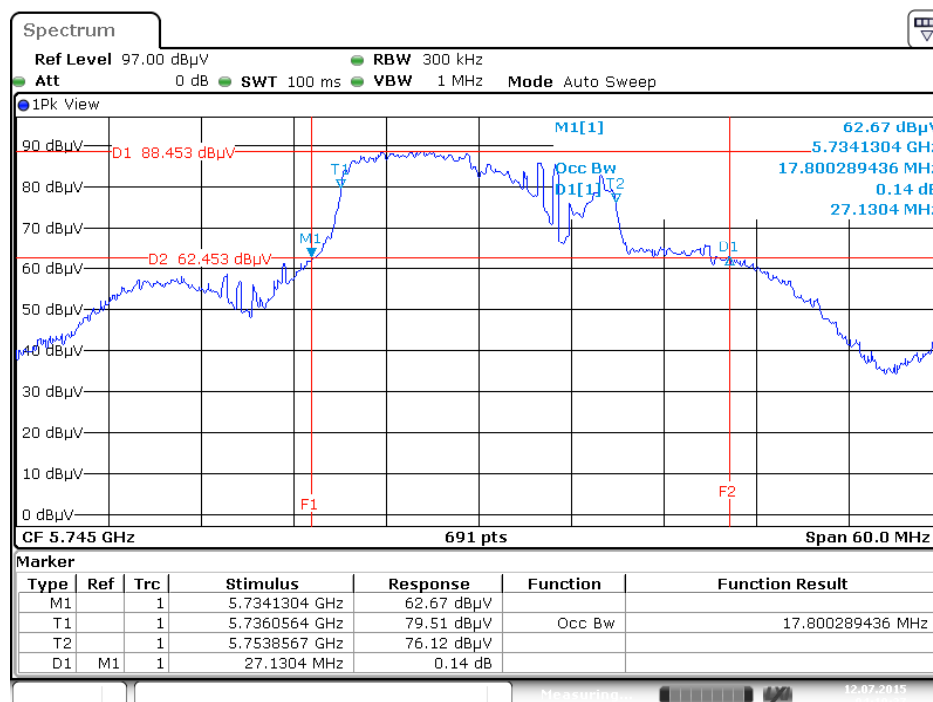
Date: 12.JUL.2015 04:11:53

# 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4 + Chain 5 / 5240 MHz



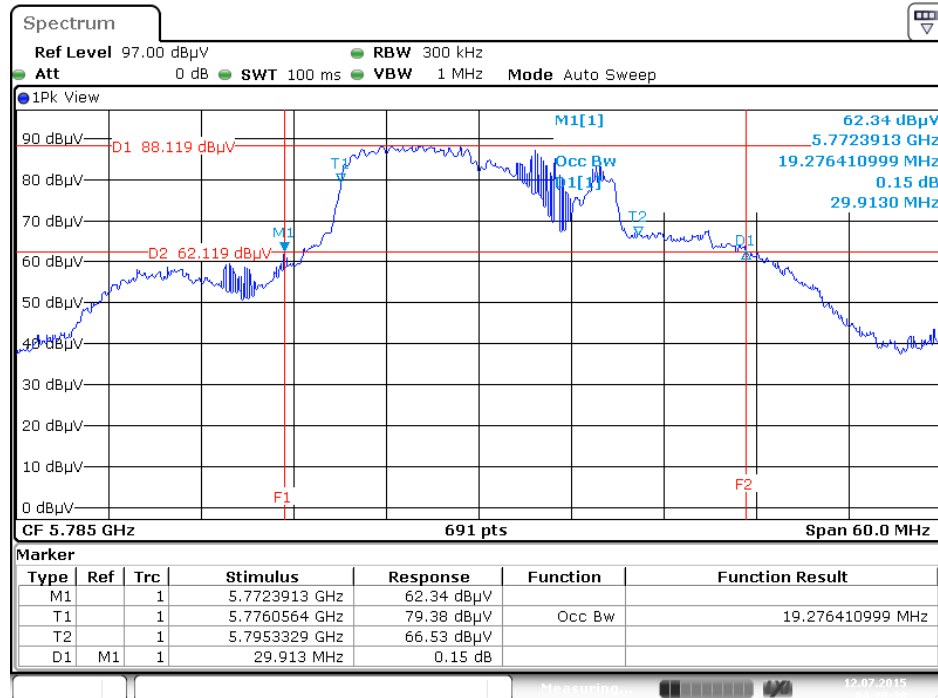
Date: 12.JUL.2015 04:12:27

# 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4 + Chain 5 / 5745 MHz



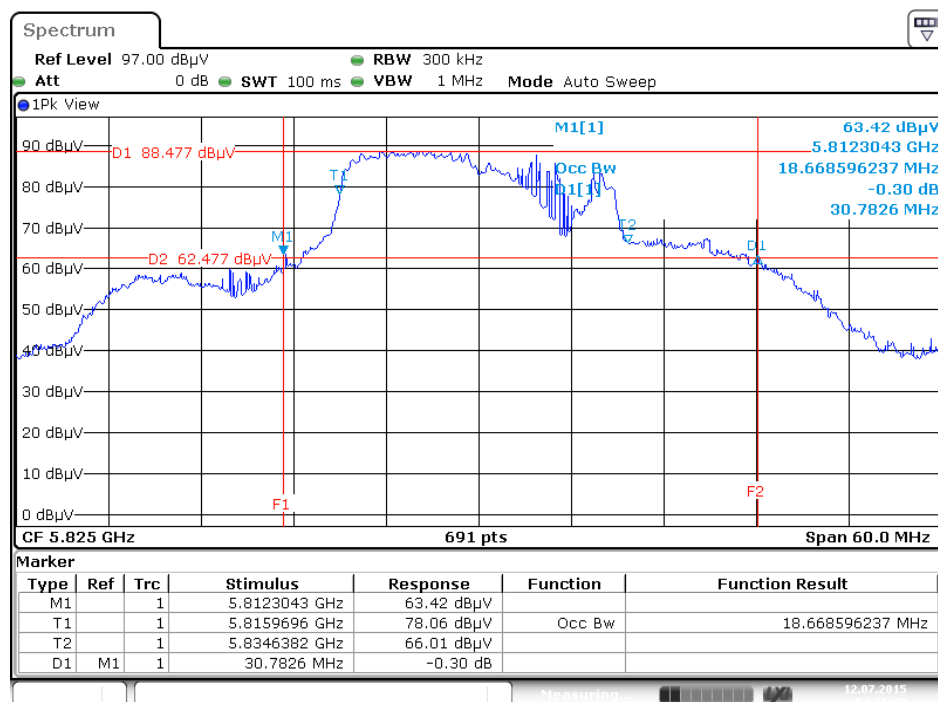
Date: 12.JUL.2015 04:19:37

# 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4 + Chain 5 / 5785 MHz



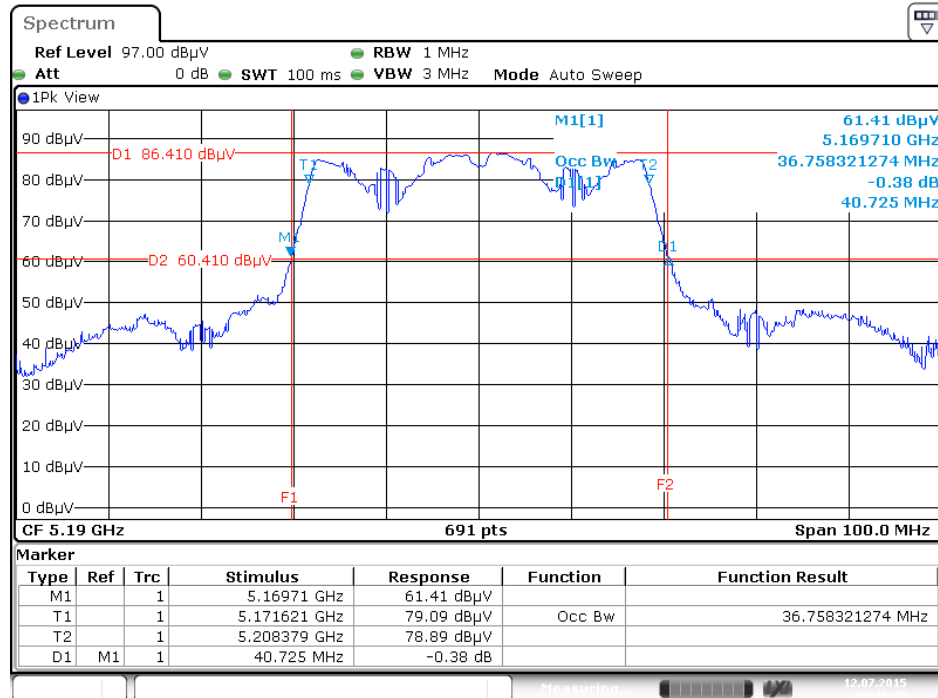
Date: 12.JUL.2015 04:20:38

# 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4 + Chain 5 / 5825 MHz



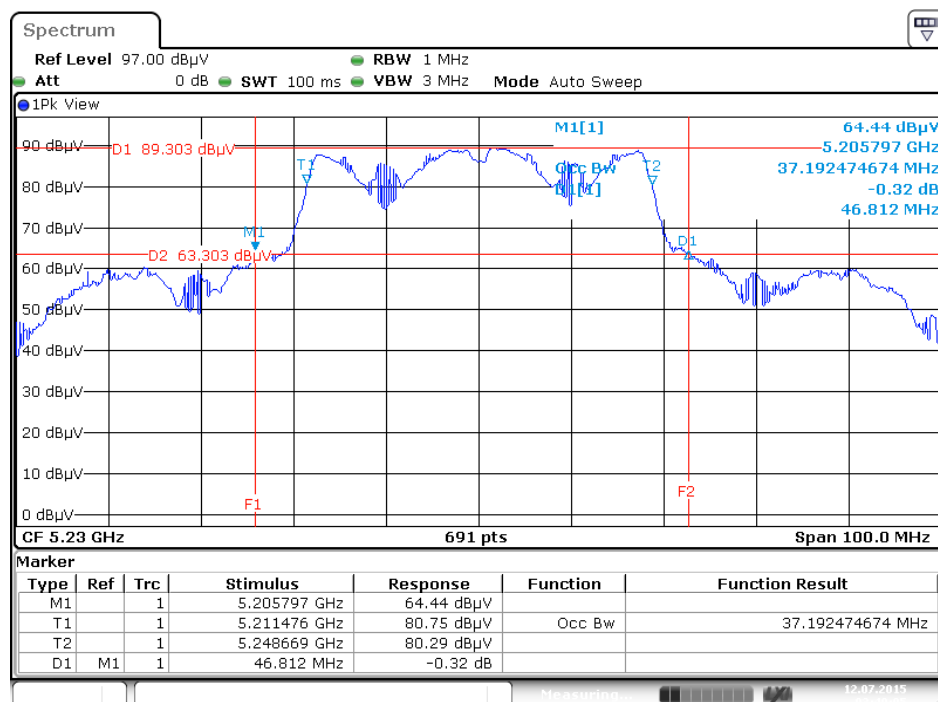
Date: 12.JUL.2015 04:21:28

# 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 4 + Chain 5 / 5190 MHz



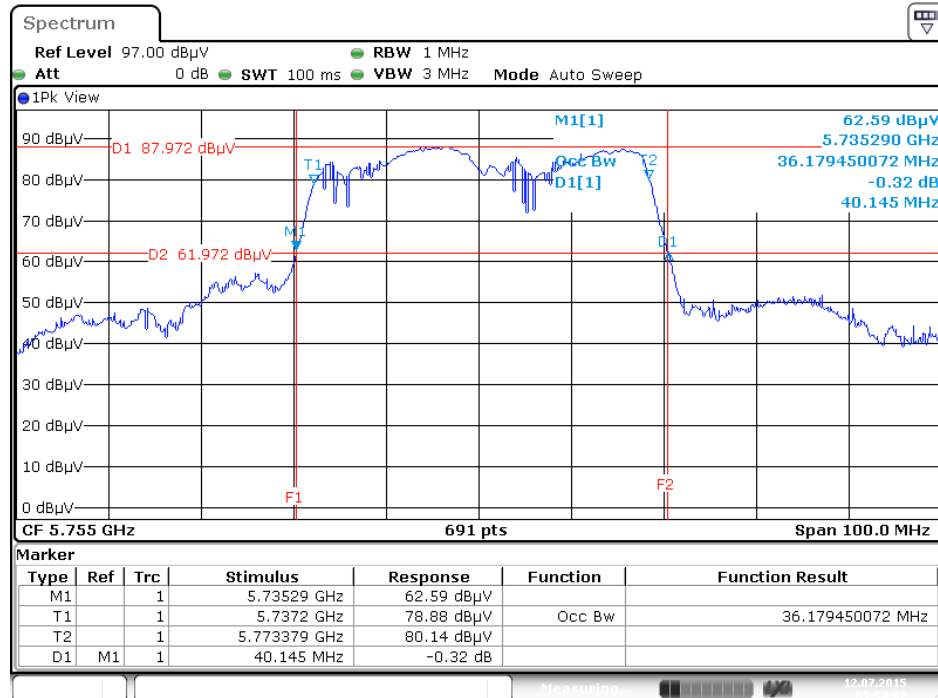
Date: 12.JUL.2015 03:48:20

# 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 4 + Chain 5 / 5230 MHz



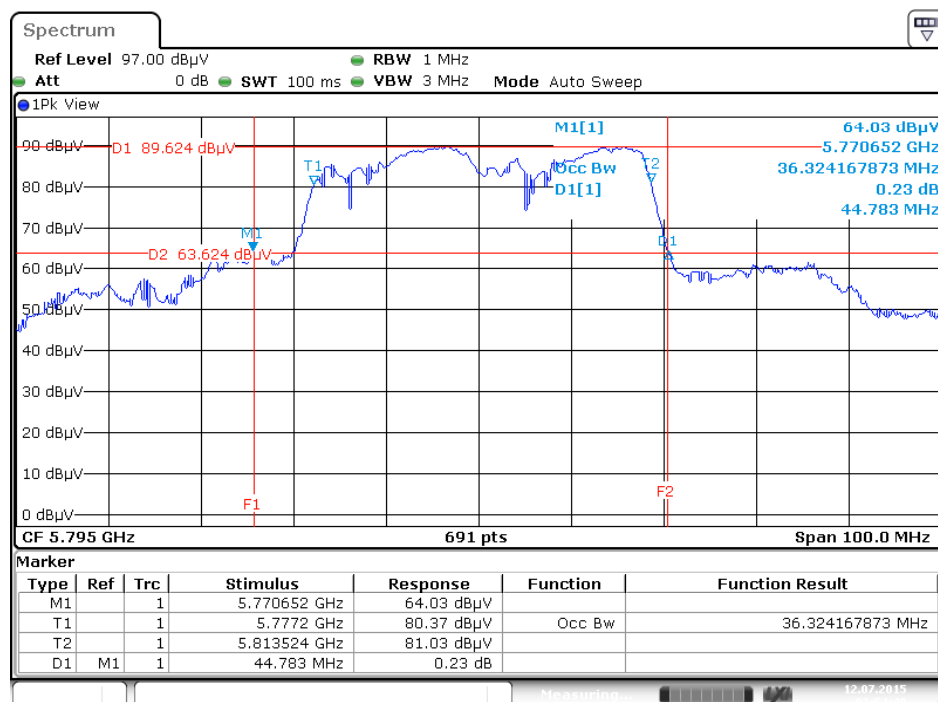
Date: 12.JUL.2015 03:49:05

# 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 4 + Chain 5 / 5755 MHz



Date: 12.JUL.2015 03:54:02

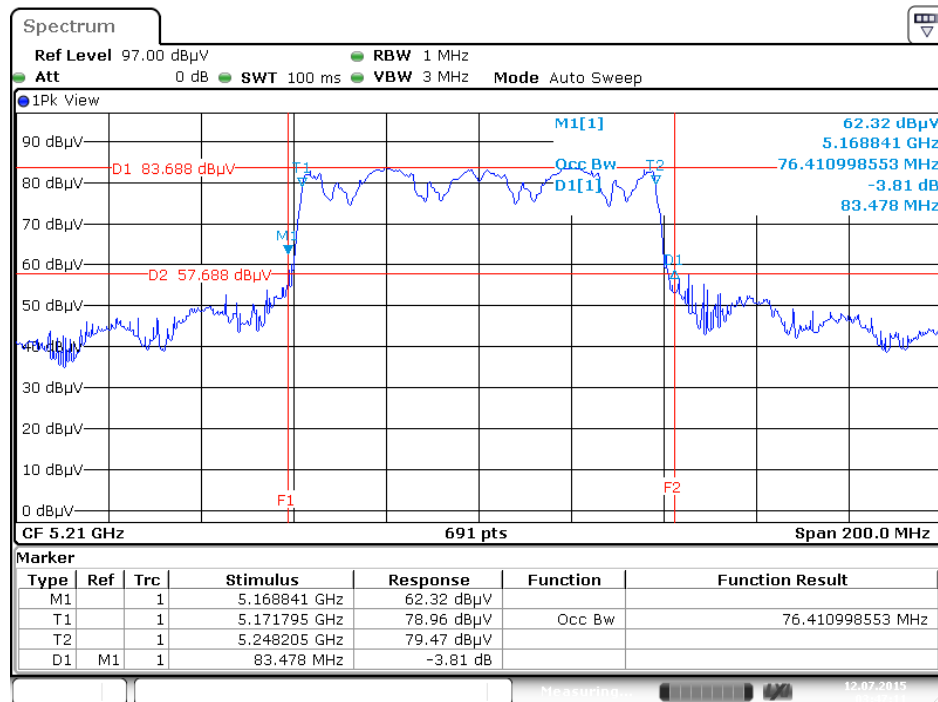
# 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 4 + Chain 5 / 5795 MHz



Date: 12.JUL.2015 03:54:50

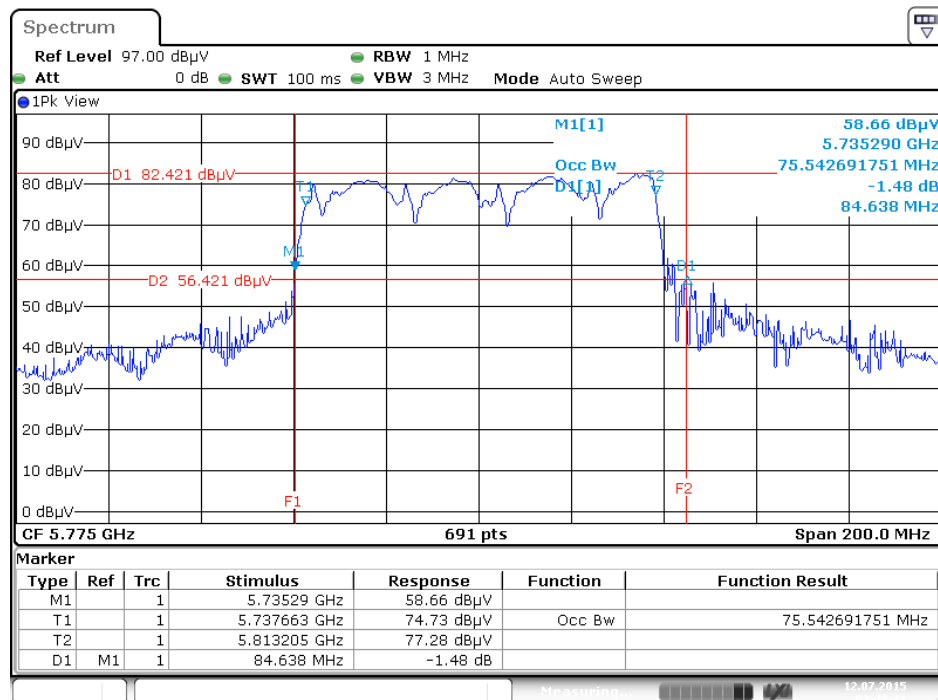


## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 4 + Chain 5 / 5210 MHz



Date: 12.JUL.2015 03:47:11

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 4 + Chain 5 / 5775 MHz



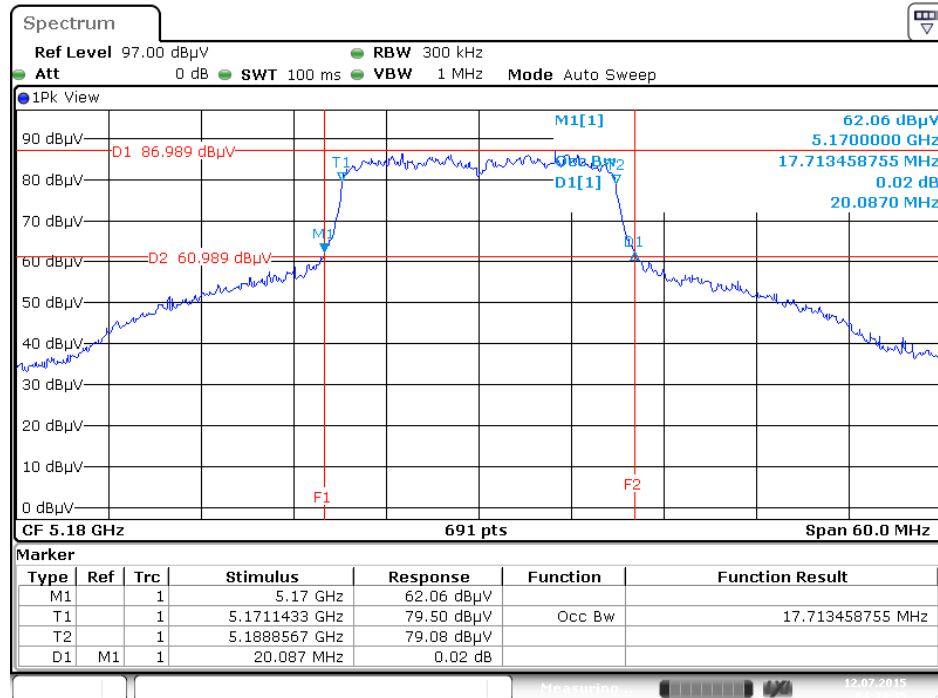
Date: 12.JUL.2015 03:43:31

<For Radio 2 Non-beamforming Mode>: 2TX, 2S

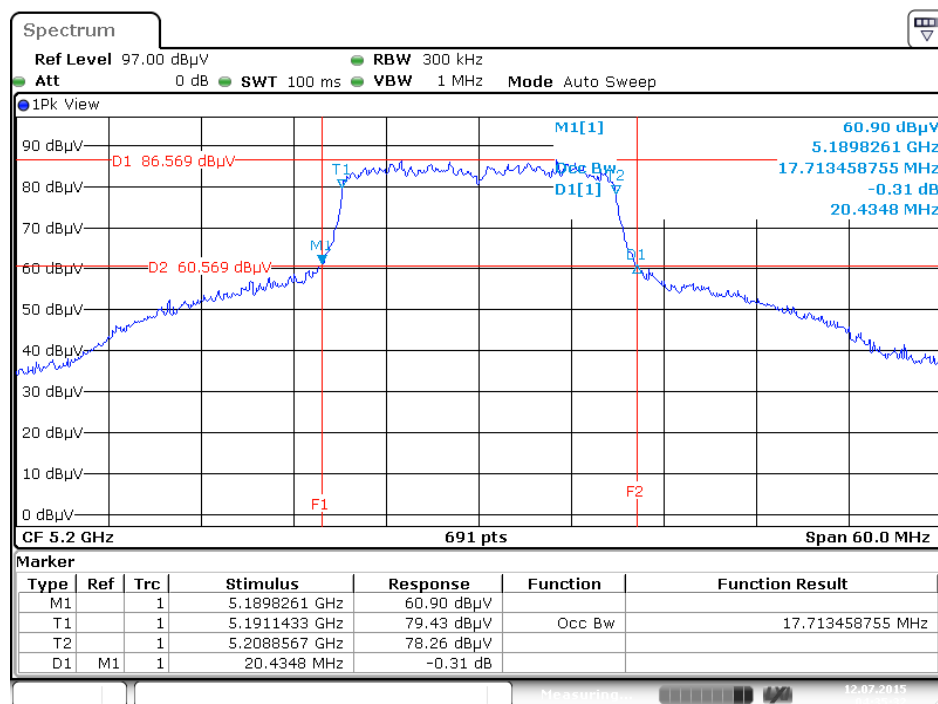
Temperature	25°C	Humidity	55%
Test Engineer	Lucas Huang		

Mode	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11ac MCS0/Nss2 VHT20	5180 MHz	20.09	17.71
	5200 MHz	20.43	17.71
	5240 MHz	20.26	17.71
	5745 MHz	19.91	17.63
	5785 MHz	21.48	17.71
	5825 MHz	22.35	17.63
802.11ac MCS0/Nss2 VHT40	5190 MHz	40.58	36.32
	5230 MHz	50.58	36.61
	5755 MHz	40.58	36.47
	5795 MHz	43.04	36.61
802.11ac MCS0/Nss2 VHT80	5210 MHz	84.35	75.83
	5775 MHz	94.20	76.12

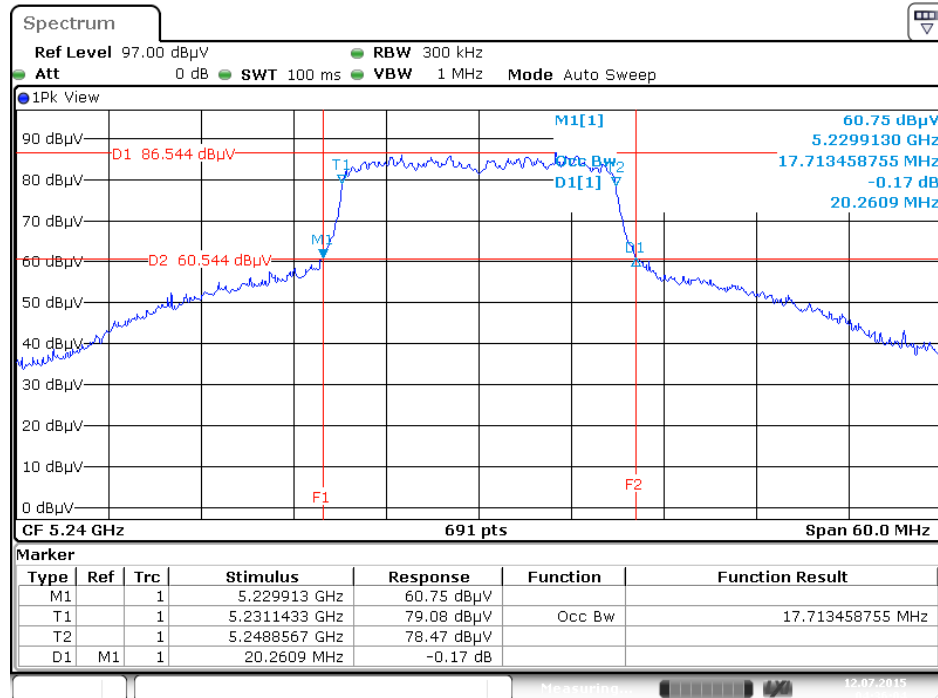
## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT20 / Chain 4 + Chain 5 / 5180 MHz



## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT20 / Chain 4 + Chain 5 / 5200 MHz

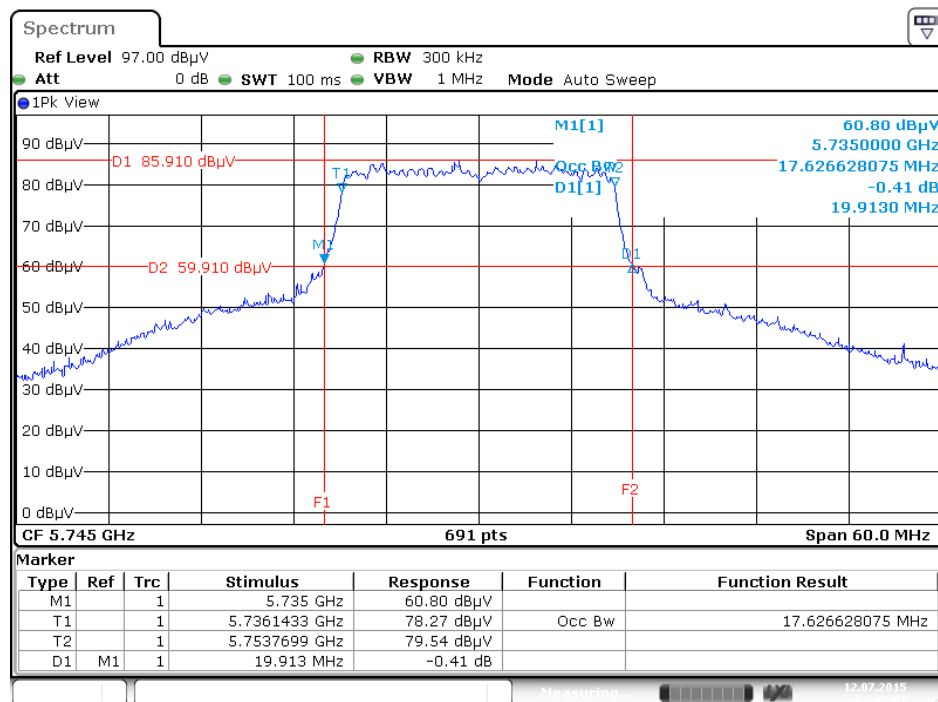


# 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT20 / Chain 4 + Chain 5 / 5240 MHz



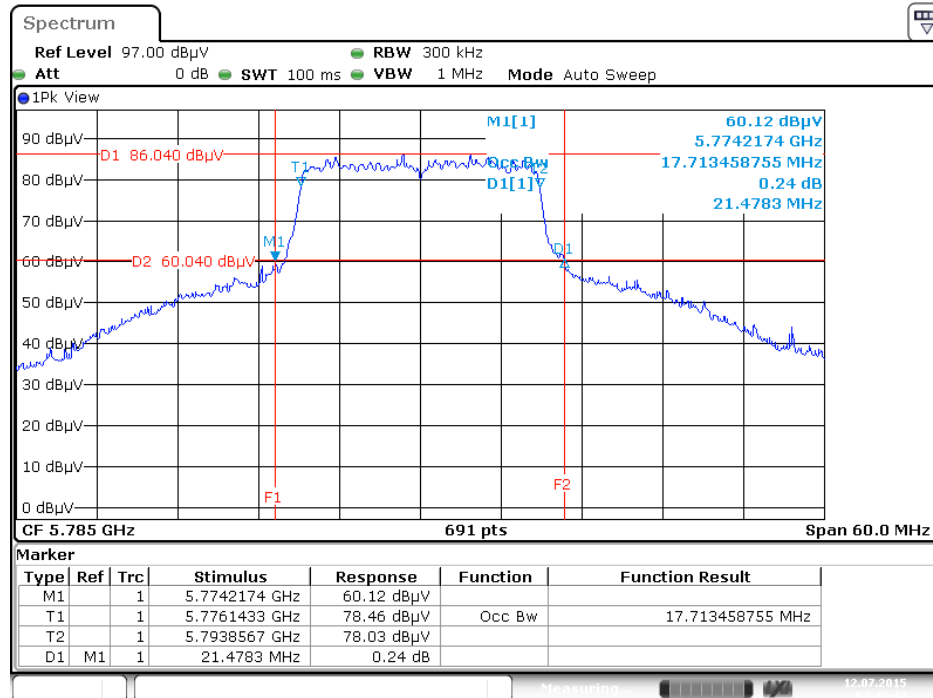
Date: 12.JUL.2015 04:36:04

# 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT20 / Chain 4 + Chain 5 / 5745 MHz



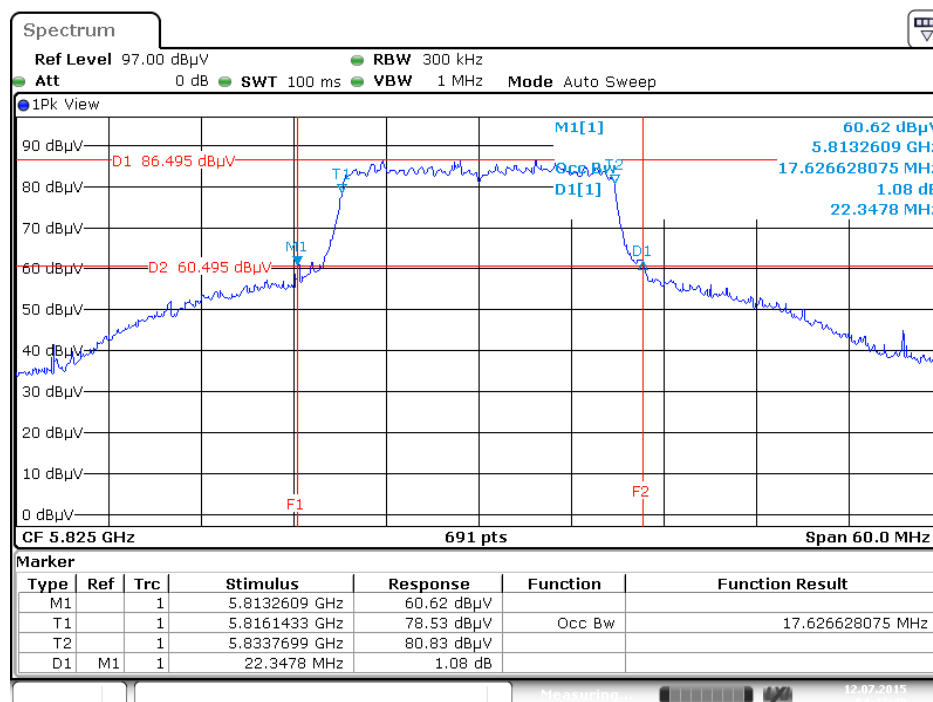
Date: 12.JUL.2015 04:42:07

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT20 / Chain 4 + Chain 5 / 5785 MHz



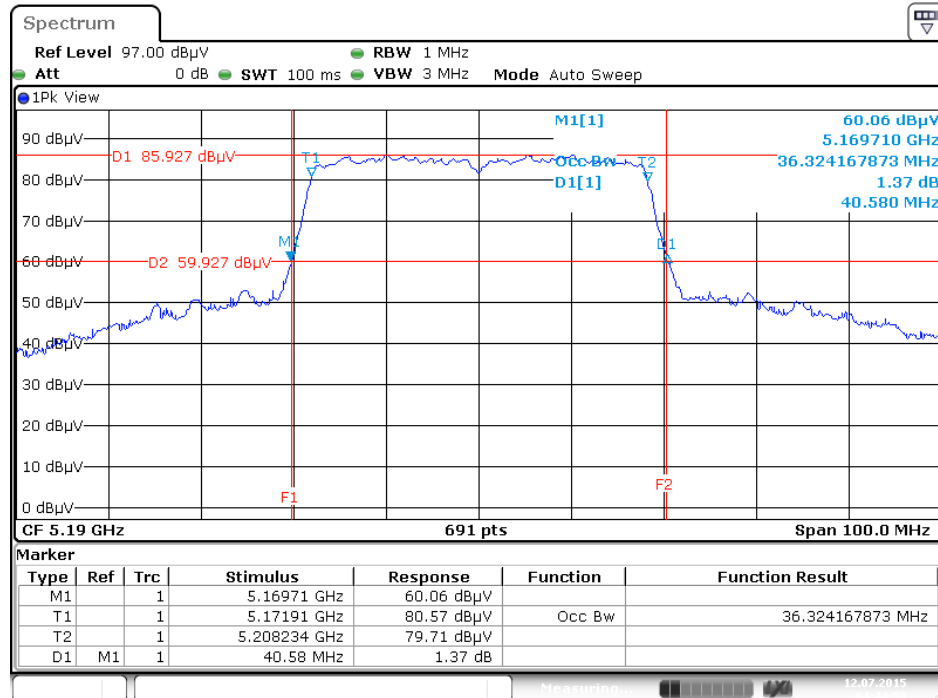
Date: 12.JUL.2015 04:42:44

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT20 / Chain 4 + Chain 5 / 5825 MHz



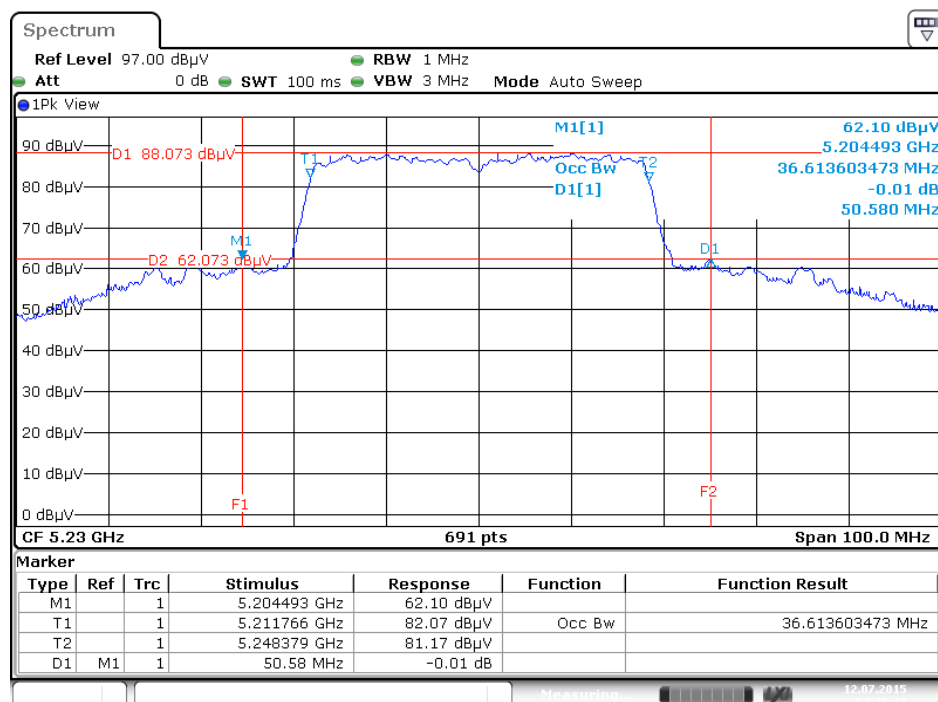
Date: 12.JUL.2015 04:43:40

# 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT40 / Chain 4 + Chain 5 / 5190 MHz



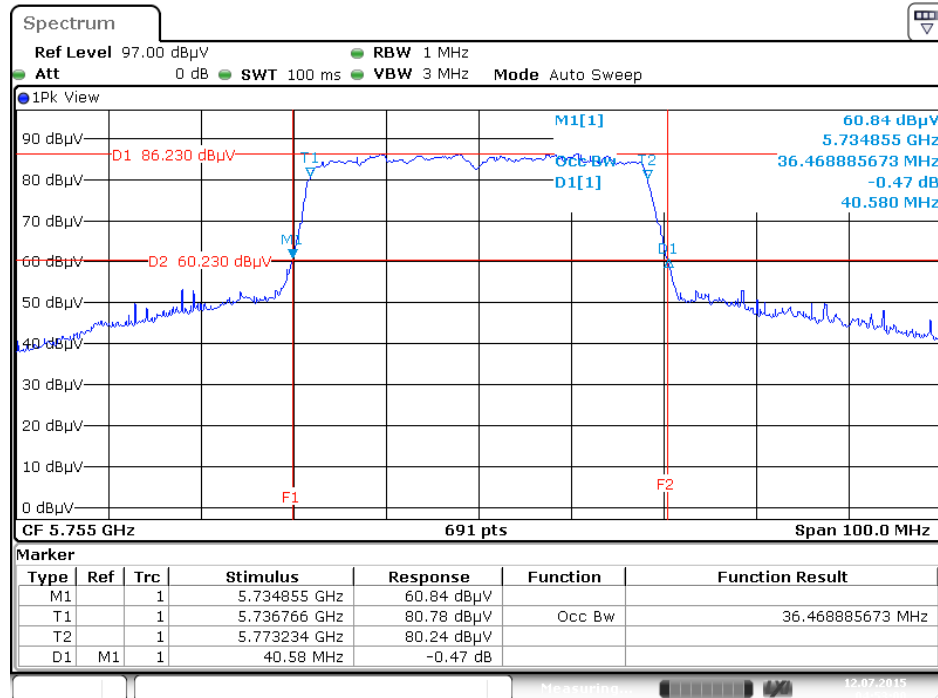
Date: 12.JUL.2015 04:44:59

# 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT40 / Chain 4 + Chain 5 / 5230 MHz



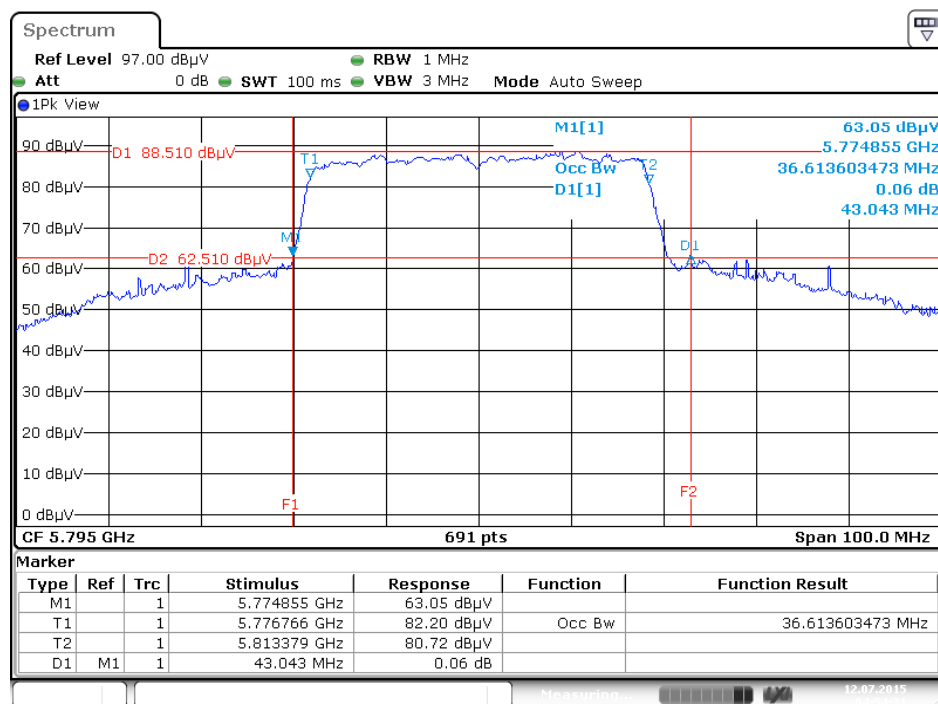
Date: 12.JUL.2015 04:45:43

# 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT40 / Chain 4 + Chain 5 / 5755 MHz



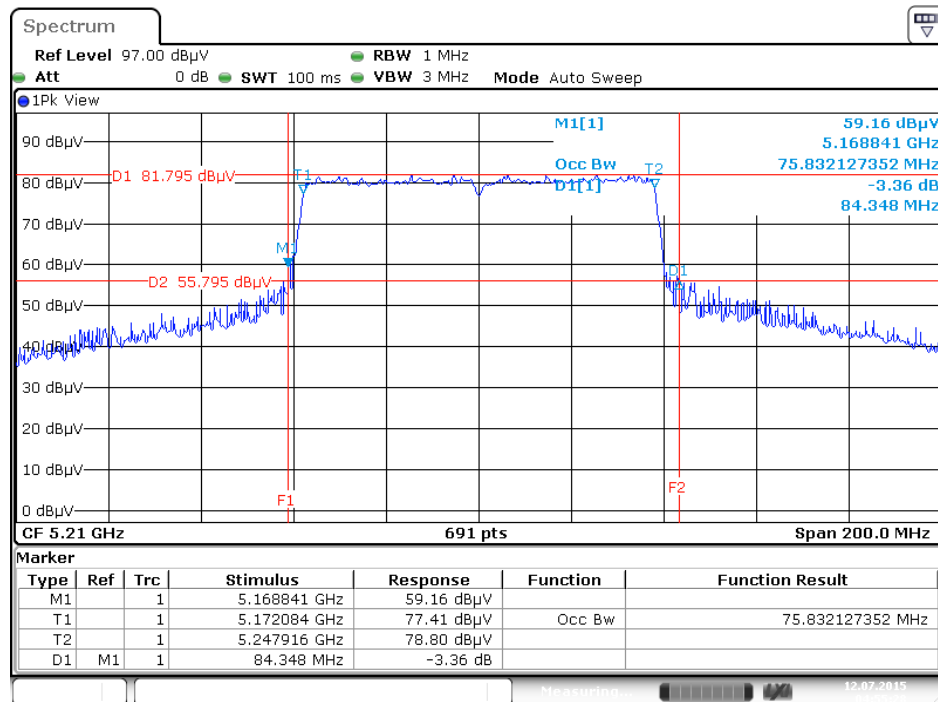
Date: 12.JUL.2015 04:53:01

# 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT40 / Chain 4 + Chain 5 / 5795 MHz



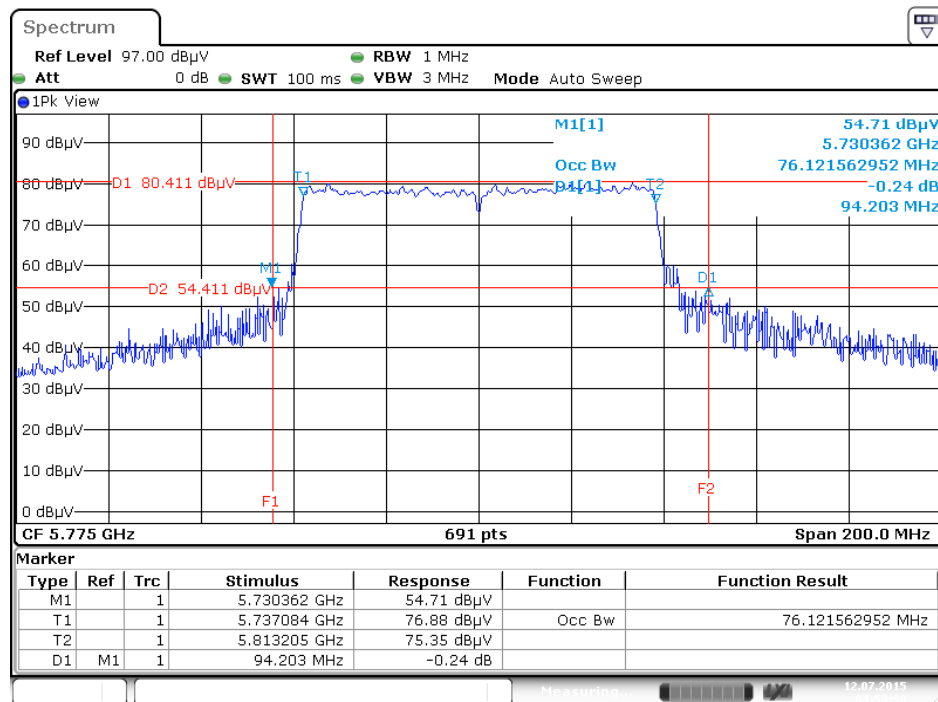
Date: 12.JUL.2015 04:54:31

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT80 / Chain 4 + Chain 5 / 5210 MHz



Date: 12.JUL.2015 04:55:28

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT80 / Chain 4 + Chain 5 / 5775 MHz



Date: 12.JUL.2015 04:58:38

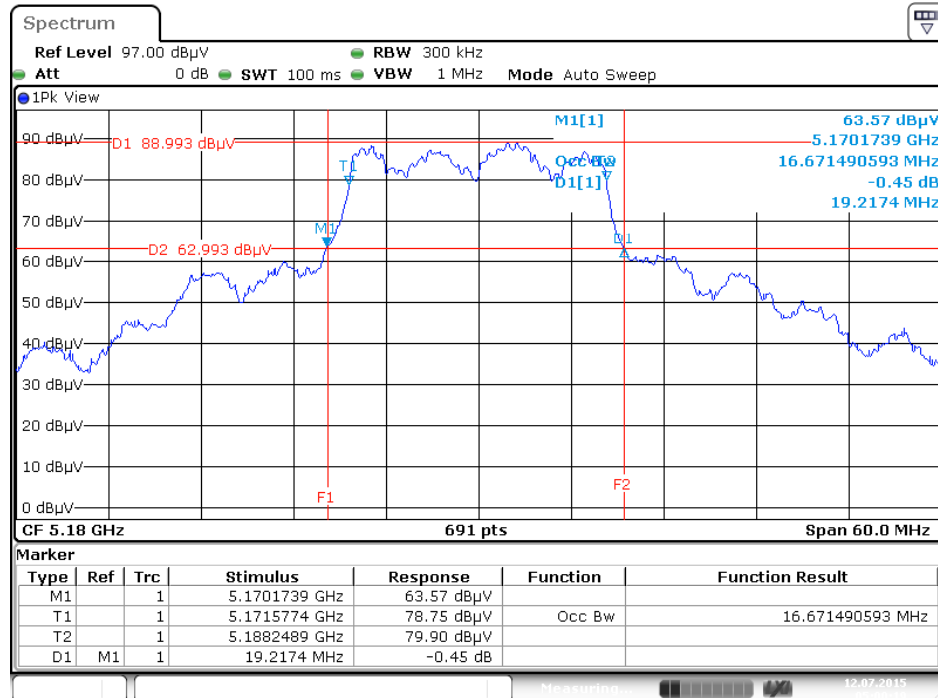


<For Radio 2 Non-beamforming Mode>: 3TX, 1S

Temperature	25°C	Humidity	55%
Test Engineer	Lucas Huang		

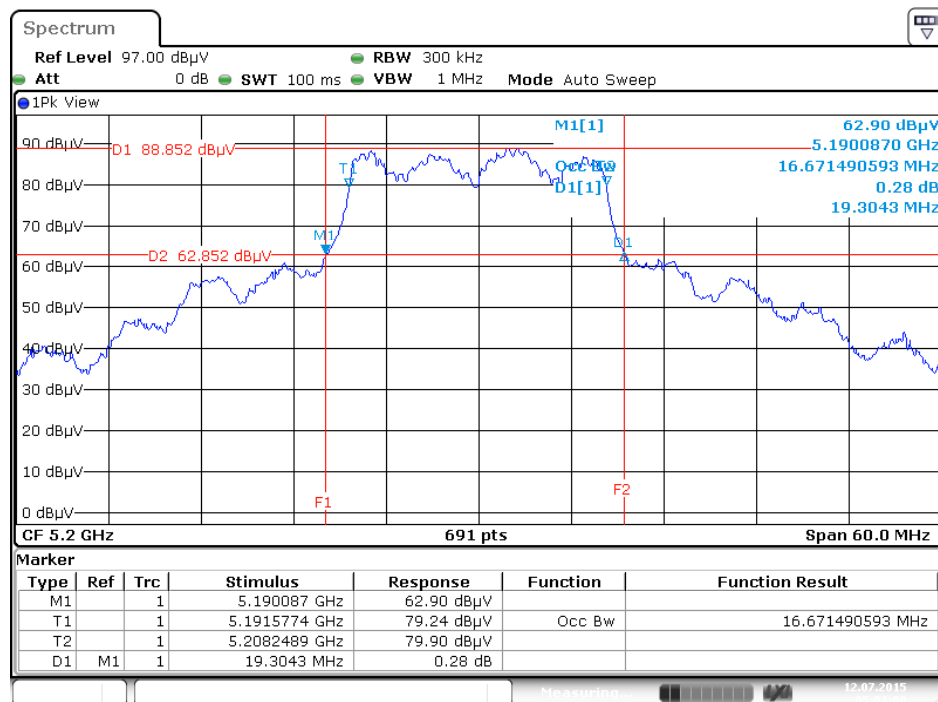
Mode	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11a	5180 MHz	19.22	16.67
	5200 MHz	19.30	16.67
	5240 MHz	19.22	16.67
	5745 MHz	18.70	16.32
	5785 MHz	18.61	16.41
	5825 MHz	18.43	16.41
802.11ac MCS0/Nss1 VHT20	5180 MHz	19.39	17.37
	5200 MHz	19.57	17.37
	5240 MHz	19.83	17.45
	5745 MHz	20.00	17.80
	5785 MHz	22.96	17.89
	5825 MHz	19.83	17.71
802.11ac MCS0/Nss1 VHT40	5190 MHz	40.00	36.32
	5230 MHz	53.04	36.76
	5755 MHz	39.57	36.03
	5795 MHz	39.57	36.03
802.11ac MCS0/Nss1 VHT80	5210 MHz	83.48	76.12
	5775 MHz	82.61	75.83

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 4 + Chain 5 + Chain 6 / 5180 MHz



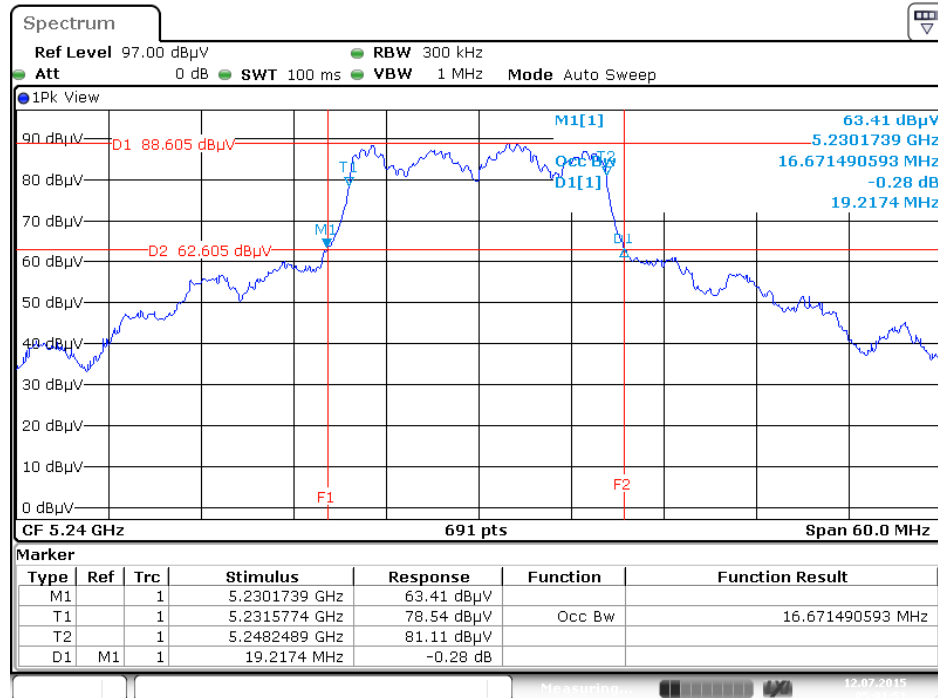
Date: 12.JUL.2015 05:00:20

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 4 + Chain 5 + Chain 6 / 5200 MHz



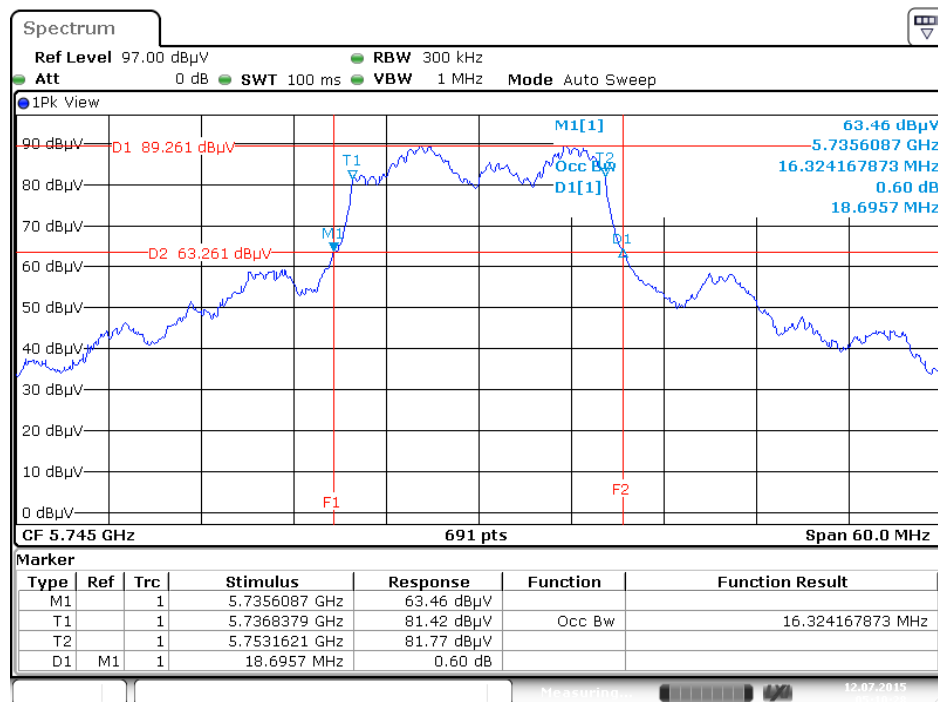
Date: 12.JUL.2015 05:01:00

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 4 + Chain 5 + Chain 6 / 5240 MHz



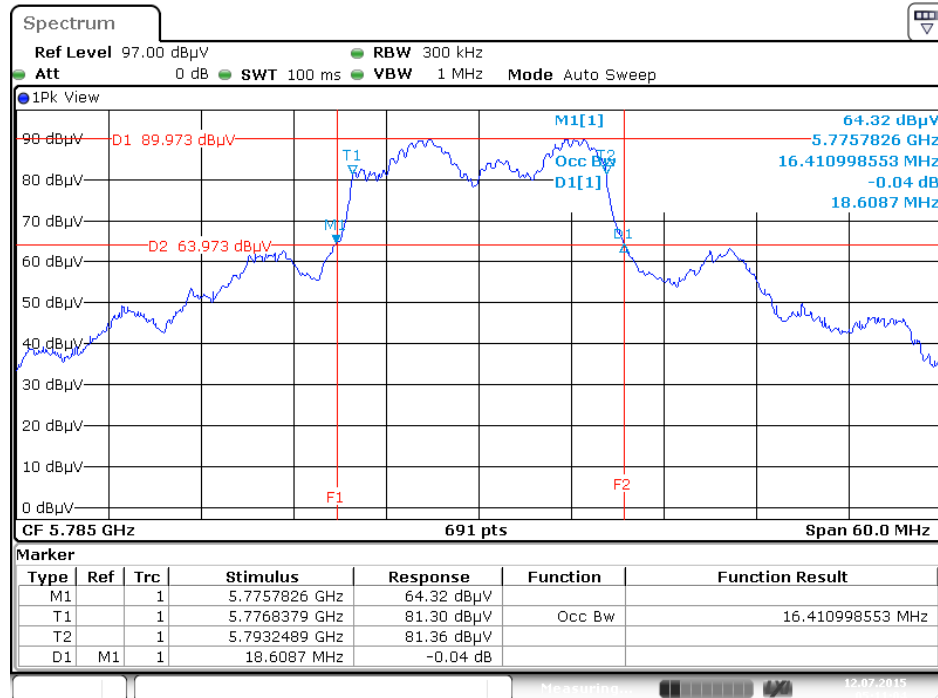
Date: 12.JUL.2015 05:01:51

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 4 + Chain 5 + Chain 6 / 5745 MHz



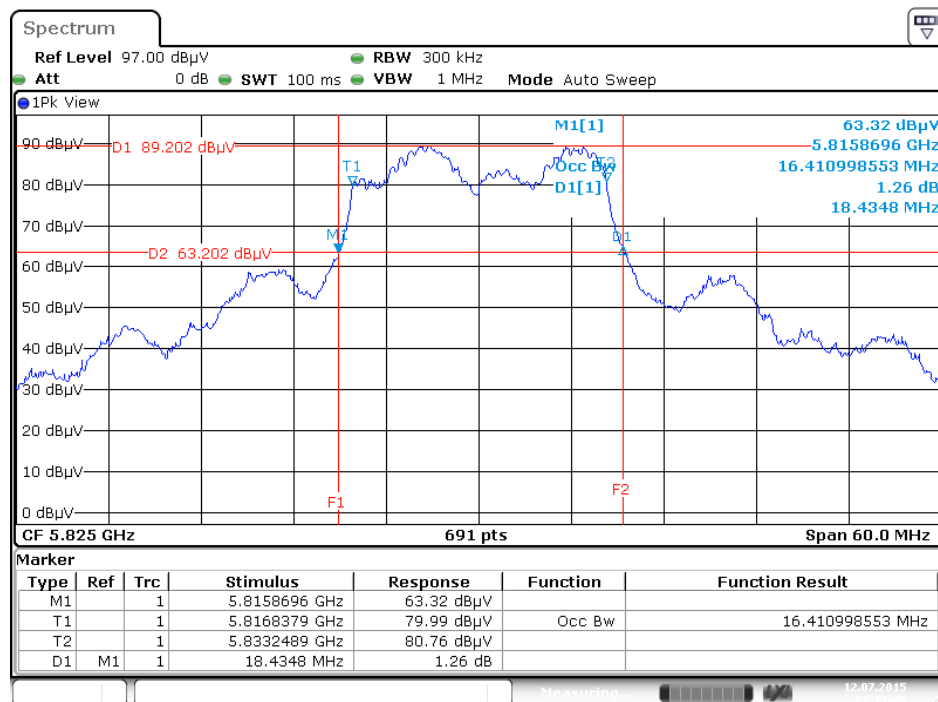
Date: 12.JUL.2015 05:10:28

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 4 + Chain 5 + Chain 6 / 5785 MHz



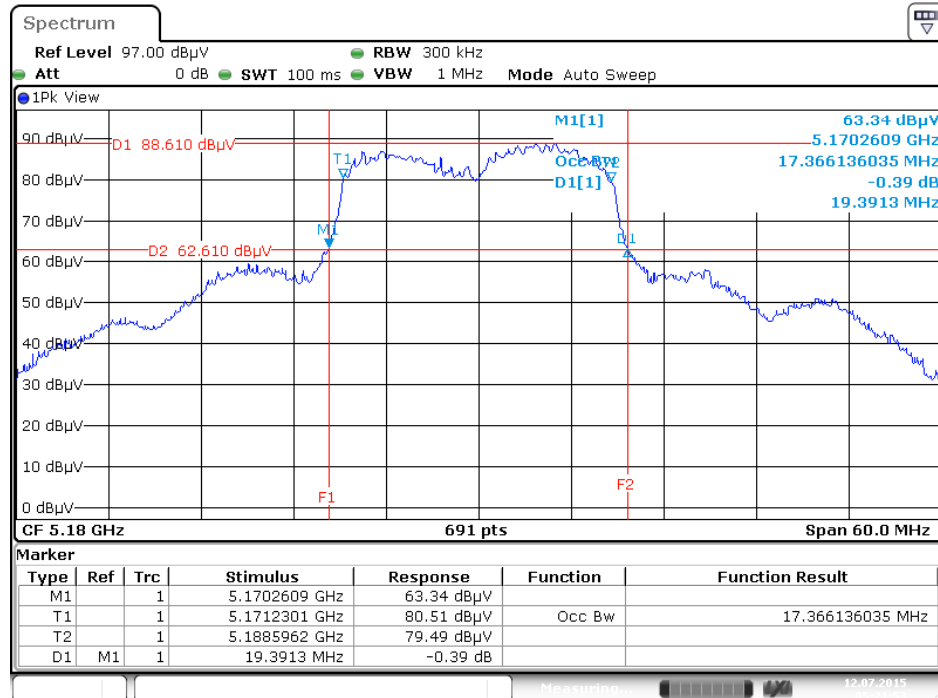
Date: 12.JUL.2015 05:11:04

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 4 + Chain 5 + Chain 6 / 5825 MHz



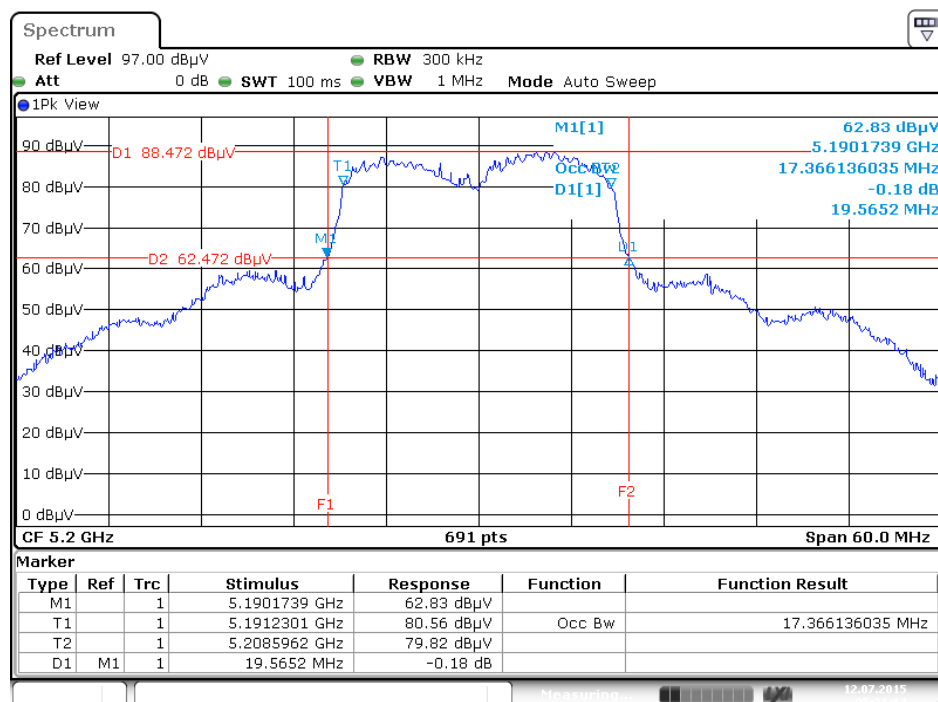
Date: 12.JUL.2015 05:11:46

# 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4 + Chain 5 + Chain 6 / 5180 MHz



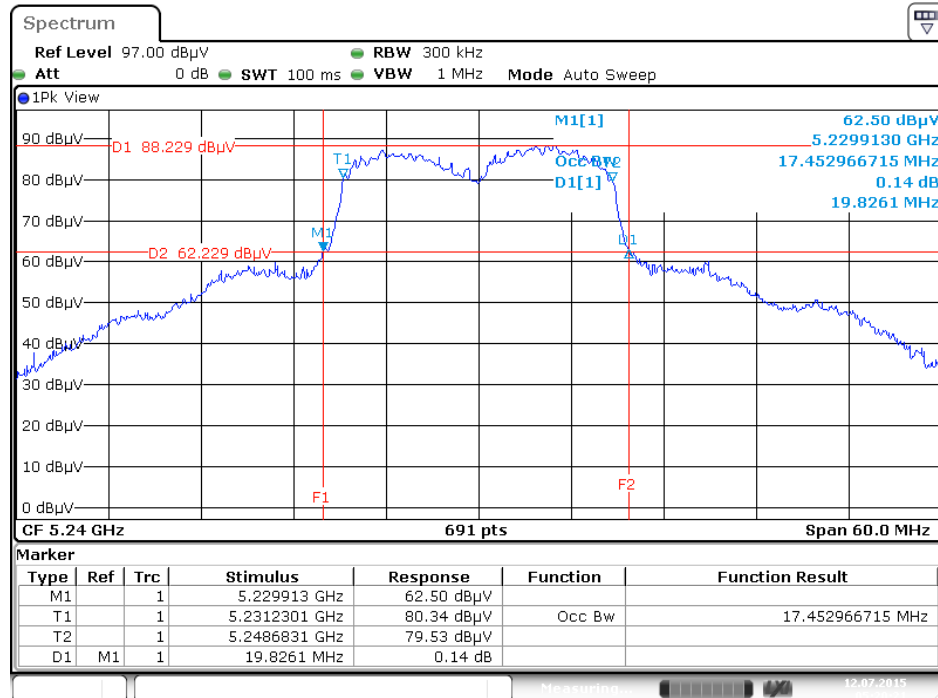
Date: 12.JUL.2015 05:21:53

# 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4 + Chain 5 + Chain 6 / 5200 MHz



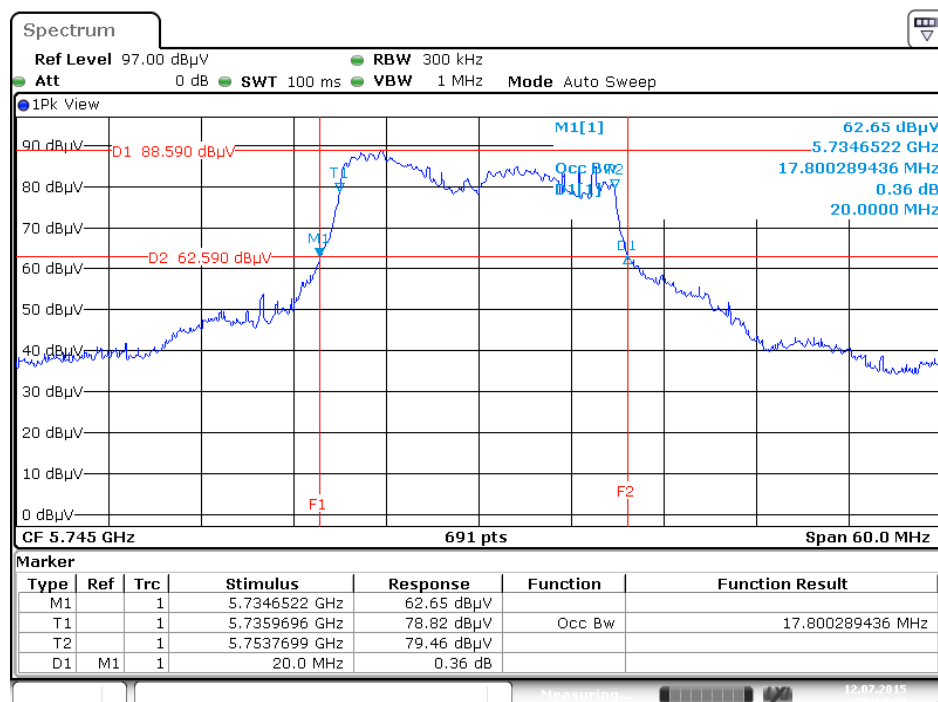
Date: 12.JUL.2015 05:21:15

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4 + Chain 5 + Chain 6 / 5240 MHz



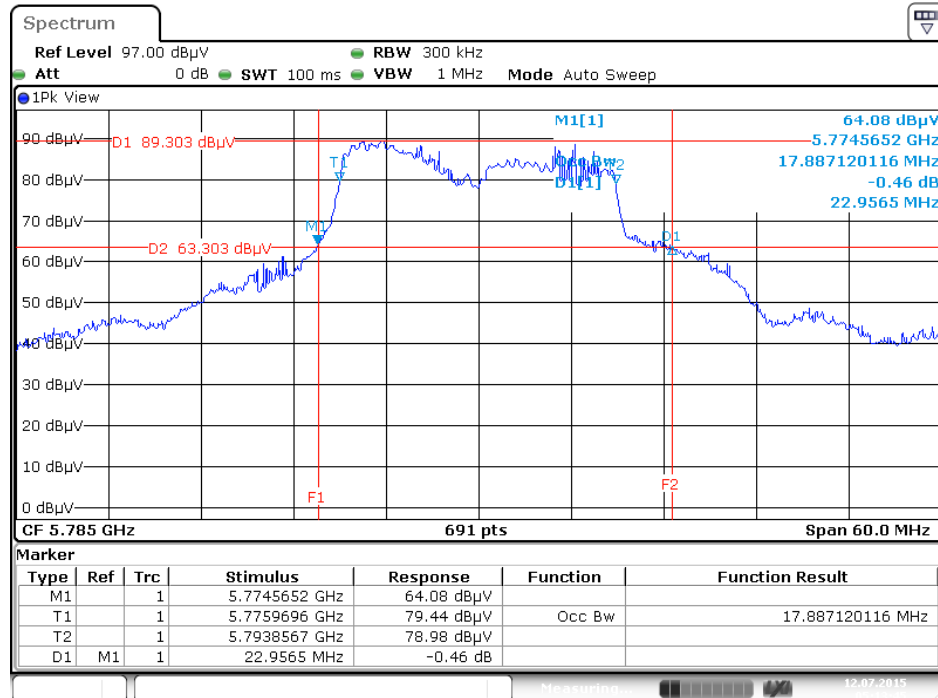
Date: 12.JUL.2015 05:20:22

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4 + Chain 5 + Chain 6 / 5745 MHz

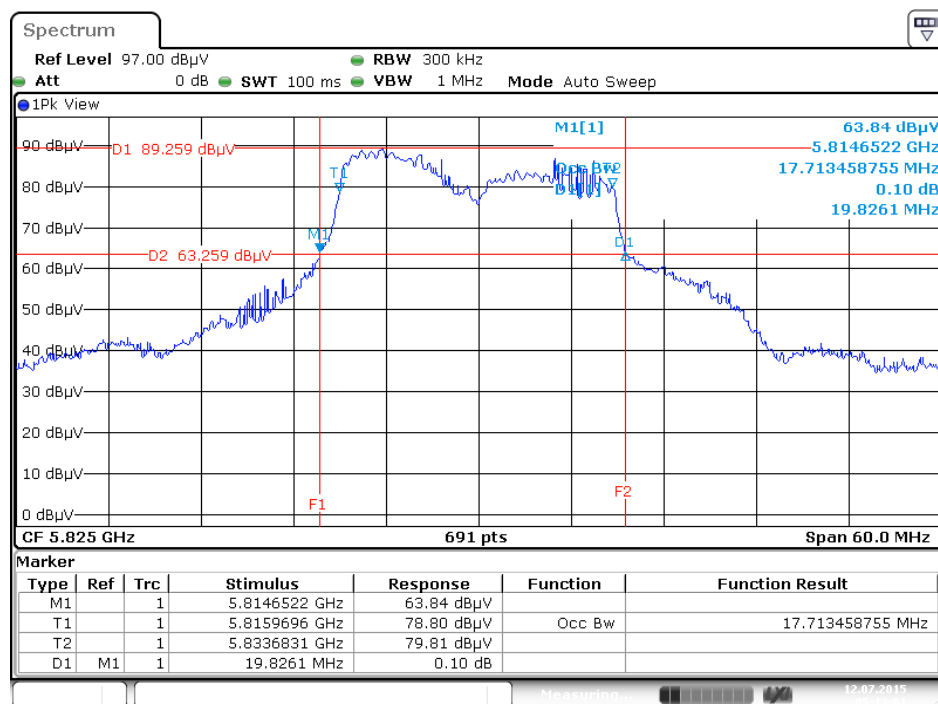


Date: 12.JUL.2015 05:14:28

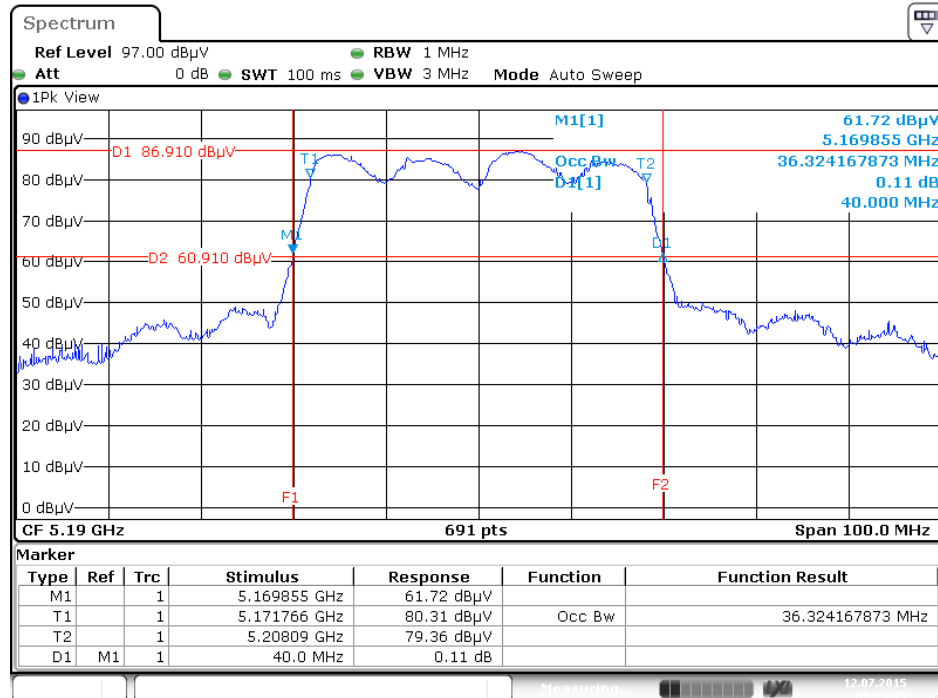
## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4 + Chain 5 + Chain 6 / 5785 MHz



## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4 + Chain 5 + Chain 6 / 5825 MHz

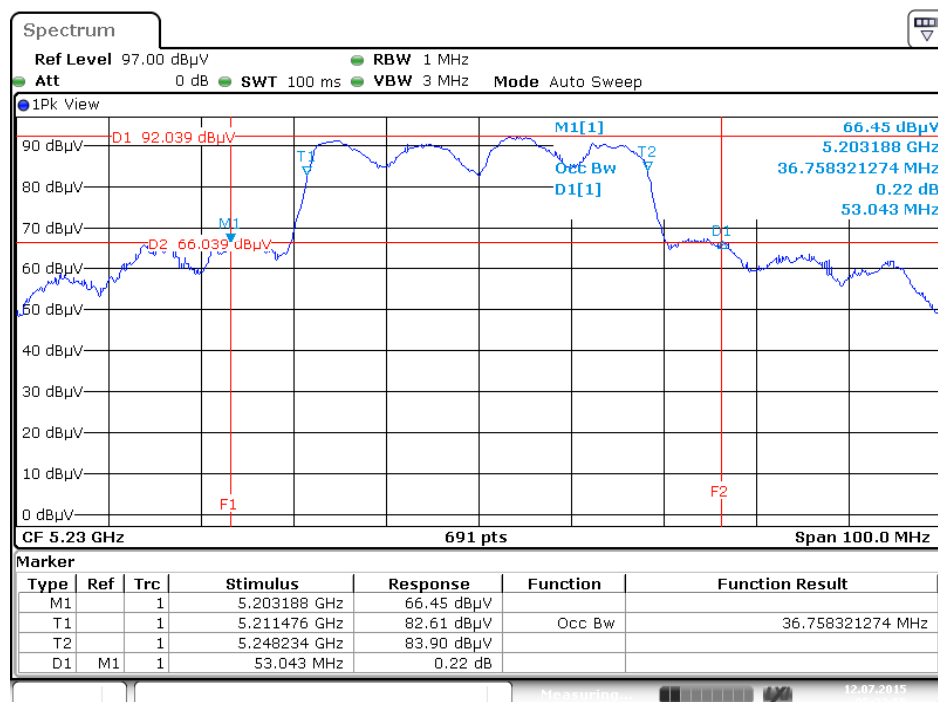


# 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 4 + Chain 5 + Chain 6 / 5190 MHz



Date: 12.JUL.2015 05:23:15

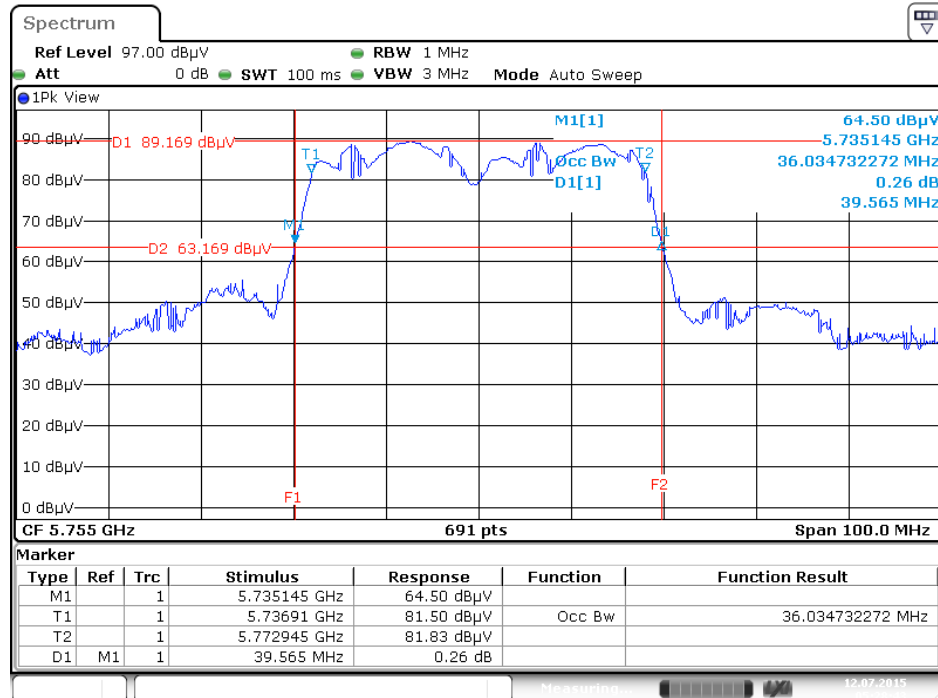
# 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 4 + Chain 5 + Chain 6 / 5230 MHz



Date: 12.JUL.2015 05:23:56

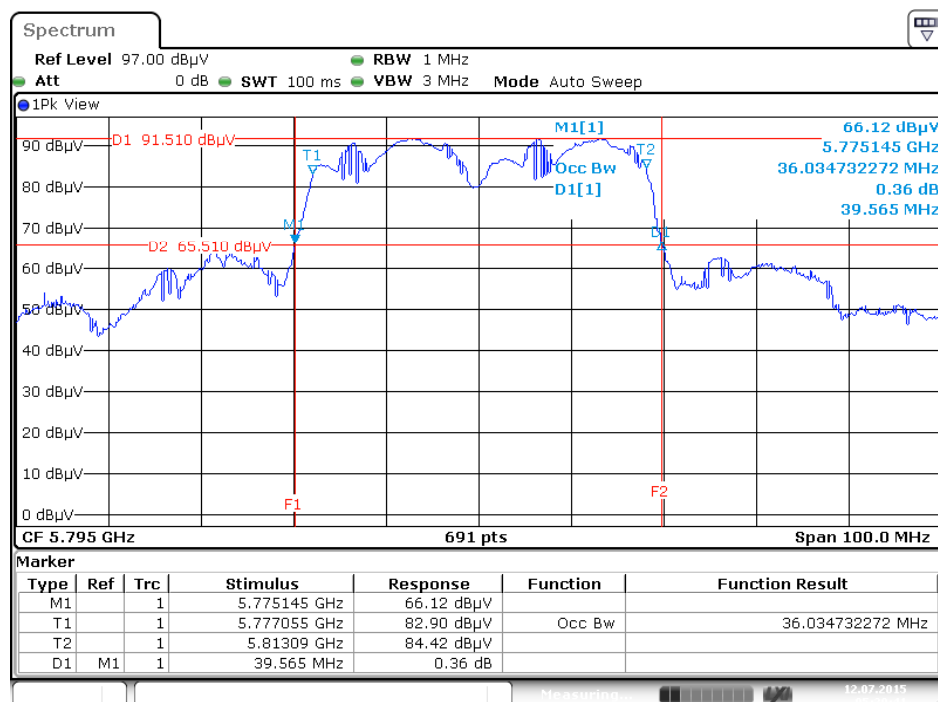


26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 4 + Chain 5 + Chain 6 / 5755 MHz



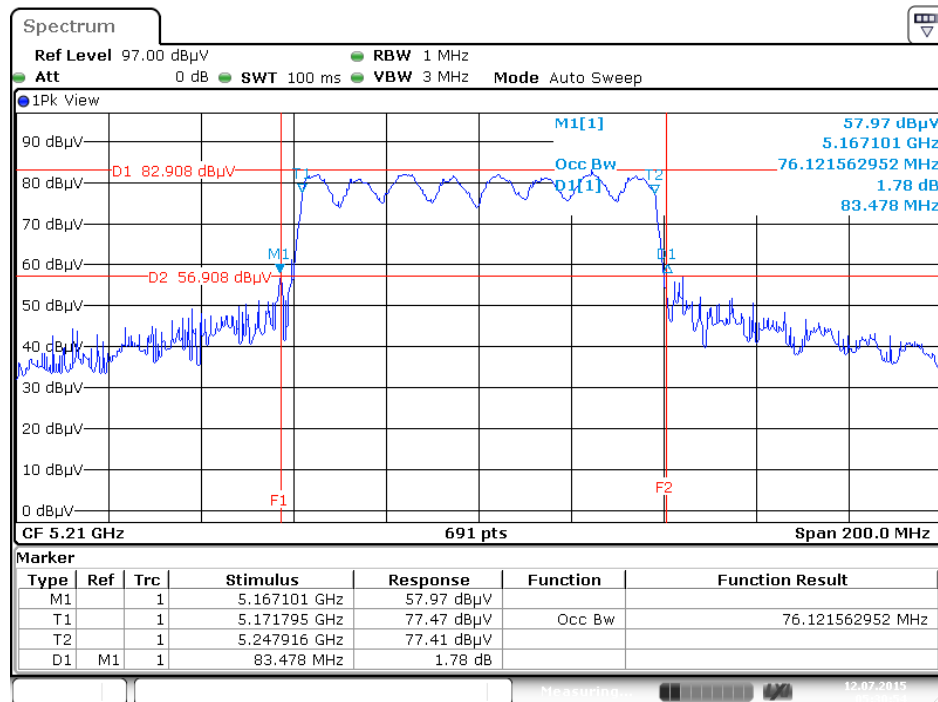
Date: 12.JUL.2015 05:28:43

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 4 + Chain 5 + Chain 6 / 5795 MHz



Date: 12.JUL.2015 05:29:41

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 4 + Chain 5 + Chain 6 / 5210 MHz

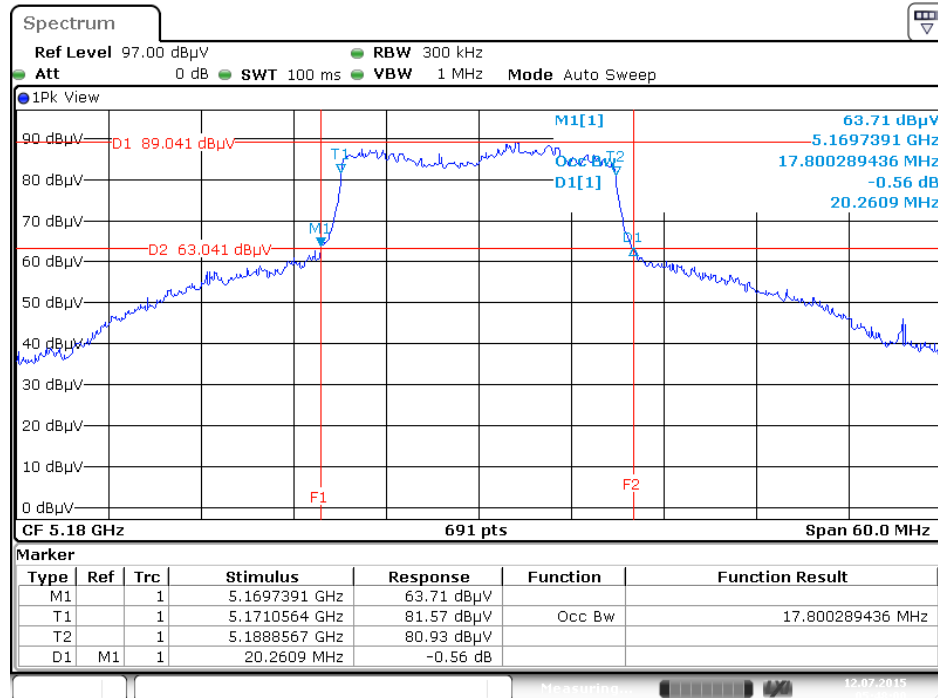


<For Radio 2 Non-beamforming Mode>: 3TX, 2S

Temperature	25°C	Humidity	55%
Test Engineer	Lucas Huang		

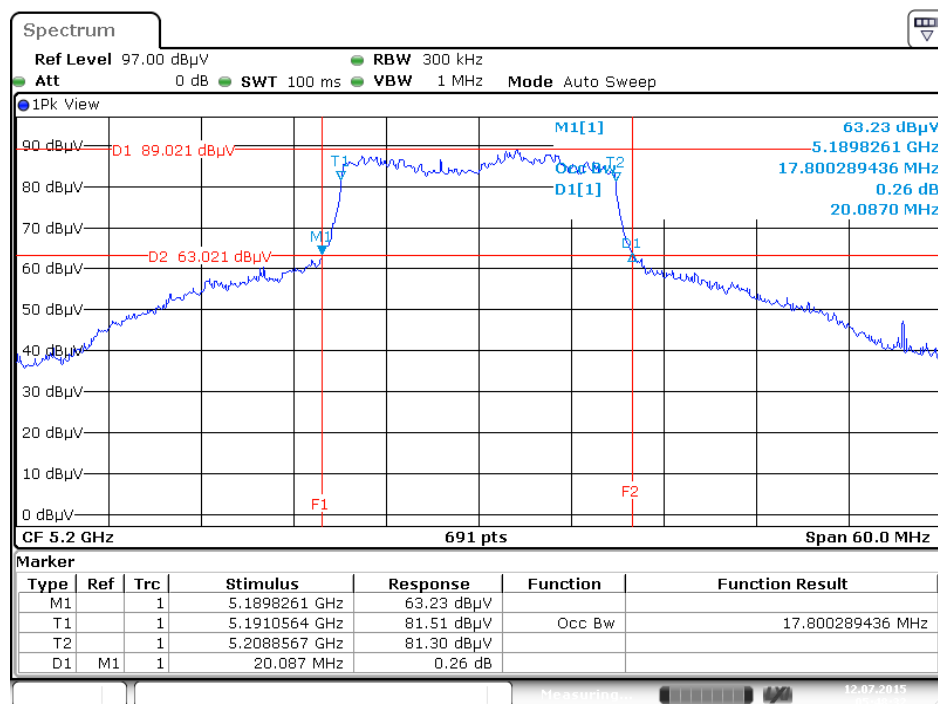
Mode	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11ac MCS0/Nss2 VHT20	5180 MHz	20.26	17.80
	5200 MHz	20.09	17.80
	5240 MHz	19.91	17.71
	5745 MHz	20.00	17.63
	5785 MHz	20.52	17.71
	5825 MHz	19.83	17.63
802.11ac MCS0/Nss2 VHT40	5190 MHz	40.29	36.18
	5230 MHz	56.52	36.61
	5755 MHz	40.15	36.47
	5795 MHz	40.29	36.47
802.11ac MCS0/Nss2 VHT80	5210 MHz	86.67	76.12
	5775 MHz	85.80	75.83

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT20 / Chain 4 + Chain 5 / 5180 MHz



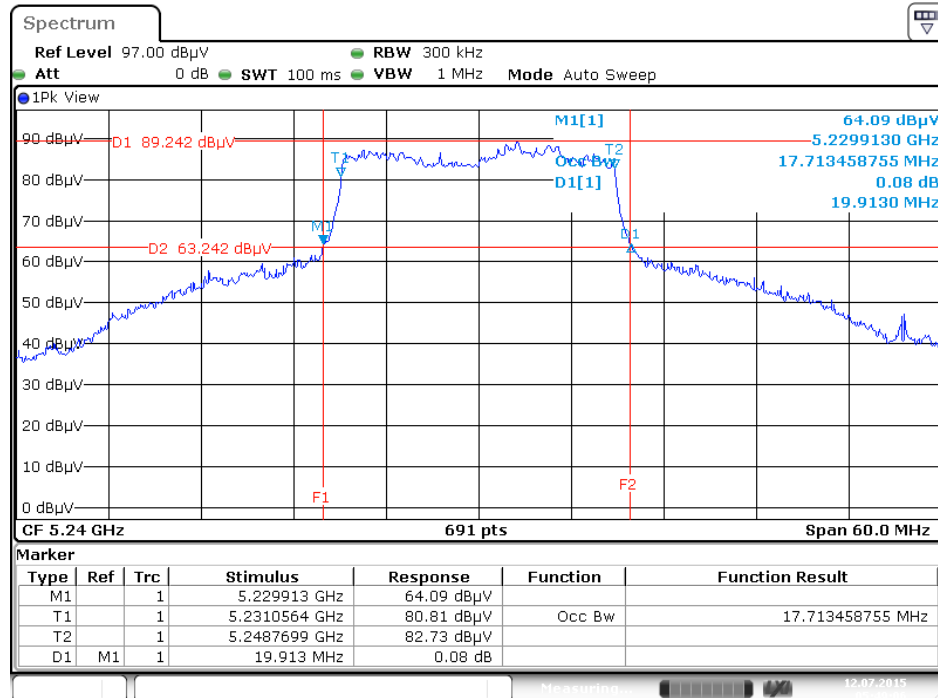
Date: 12.JUL.2015 05:48:00

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT20 / Chain 4 + Chain 5 / 5200 MHz



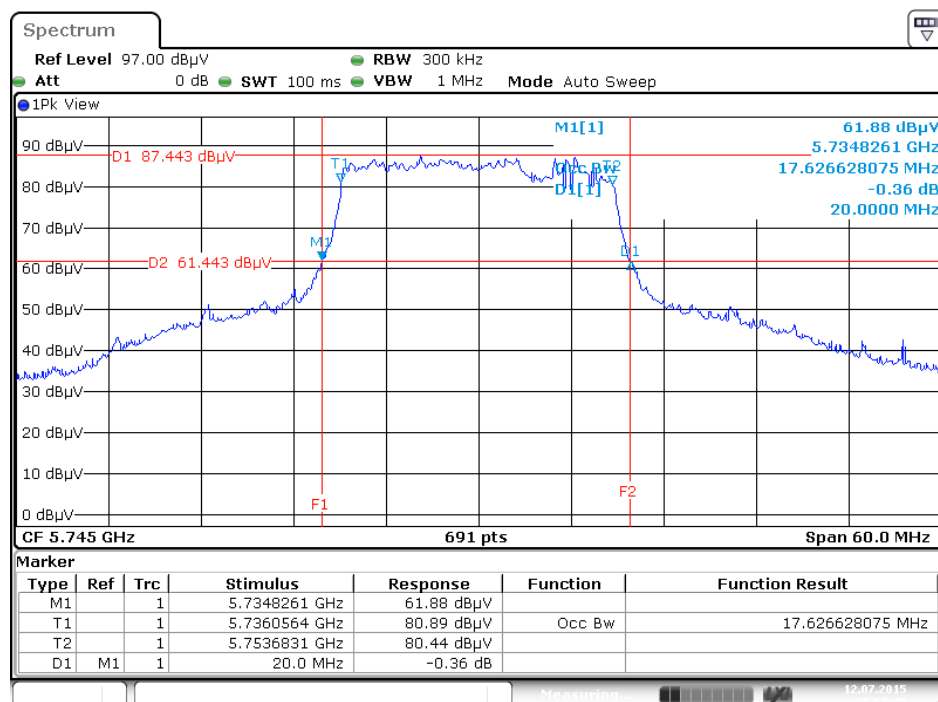
Date: 12.JUL.2015 05:48:32

# 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT20 / Chain 4 + Chain 5 / 5240 MHz



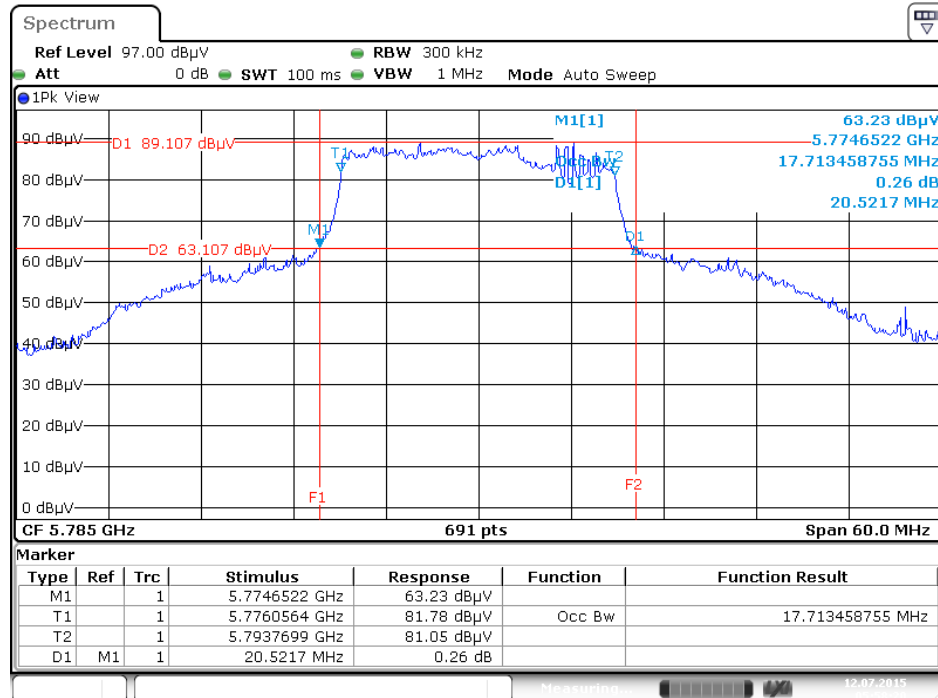
Date: 12.JUL.2015 05:49:06

# 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT20 / Chain 4 + Chain 5 / 5745 MHz

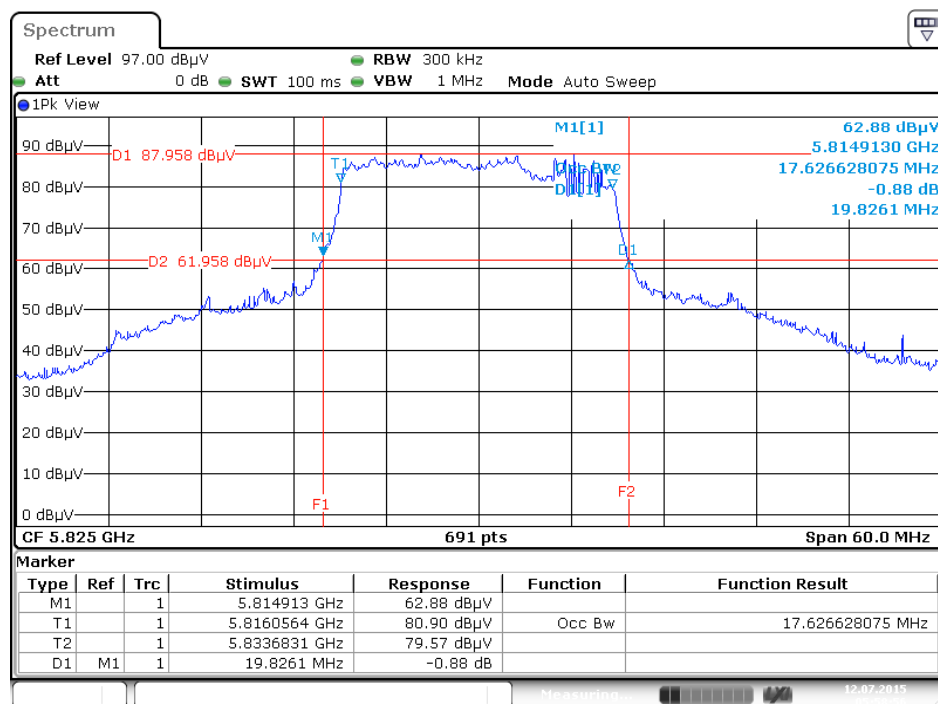


Date: 12.JUL.2015 05:57:45

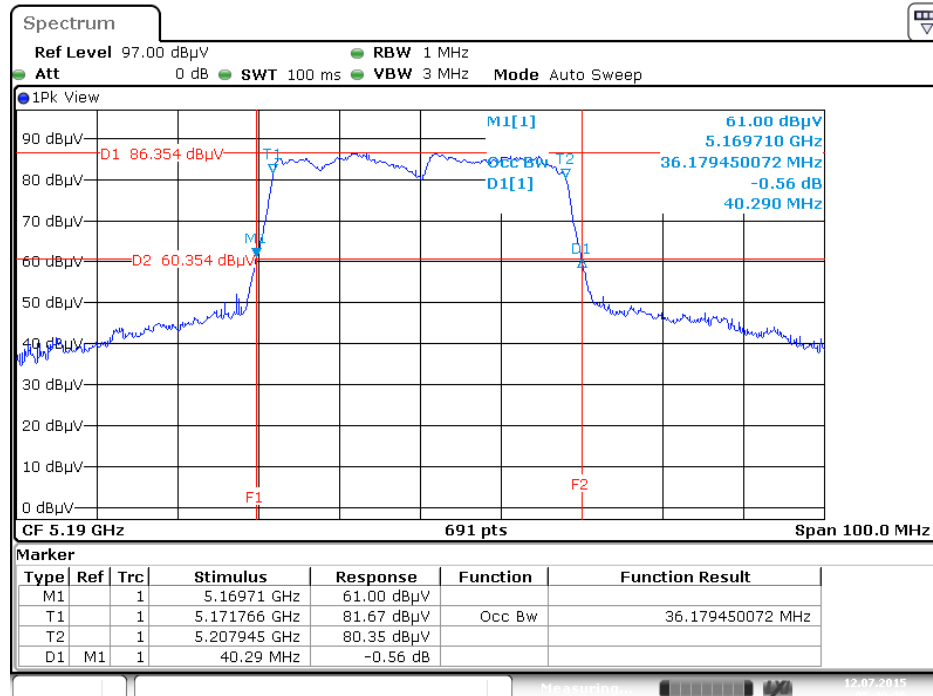
# 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT20 / Chain 4 + Chain 5 / 5785 MHz



# 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT20 / Chain 4 + Chain 5 / 5825 MHz

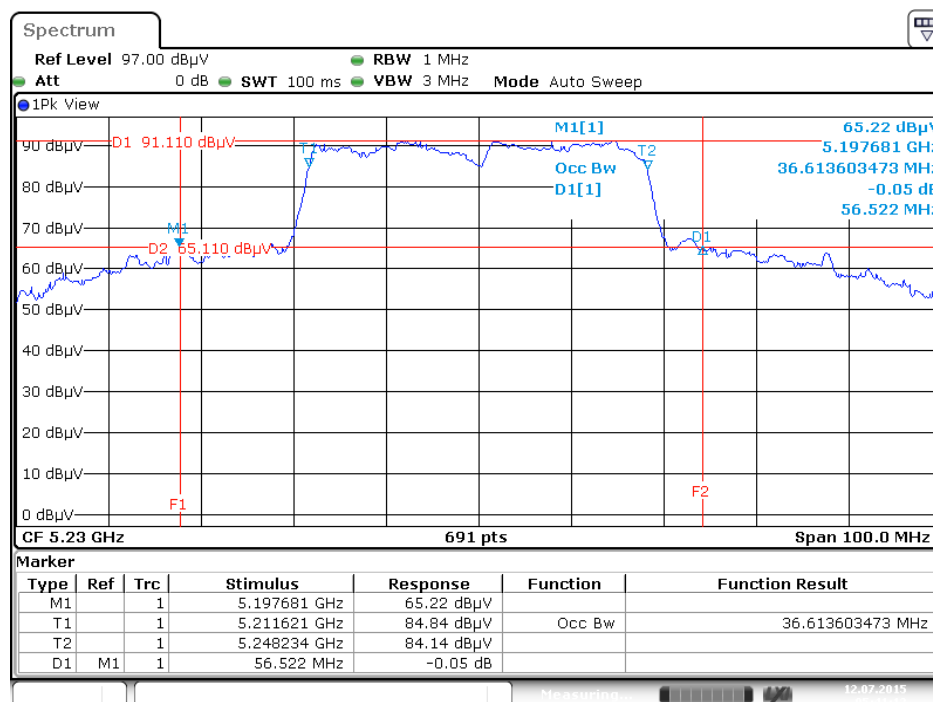


## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT40 / Chain 4 + Chain 5 / 5190 MHz



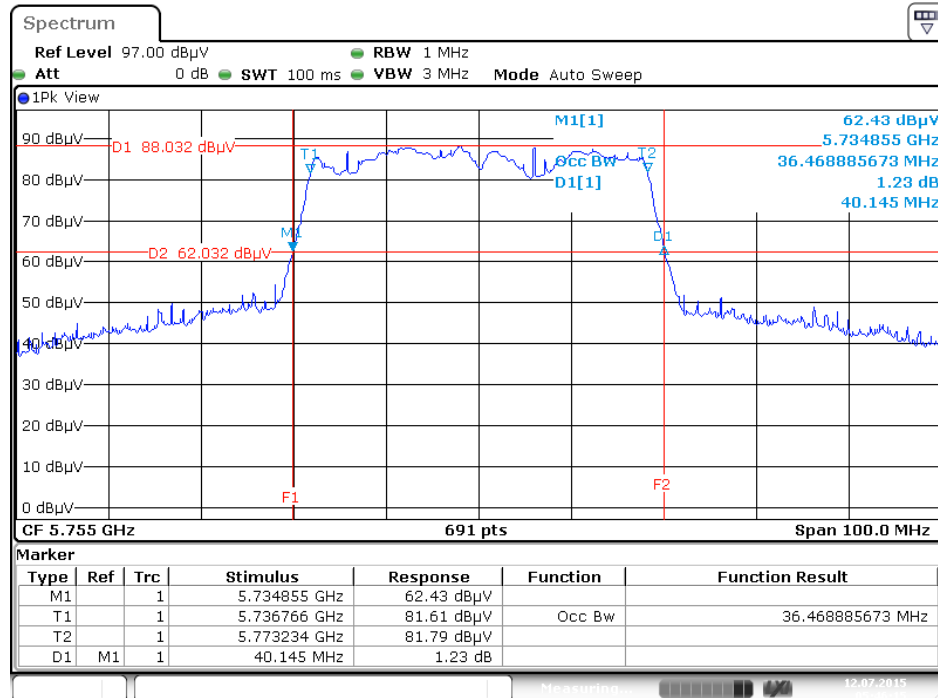
Date: 12.JUL.2015 05:40:27

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT40 / Chain 4 + Chain 5 / 5230 MHz



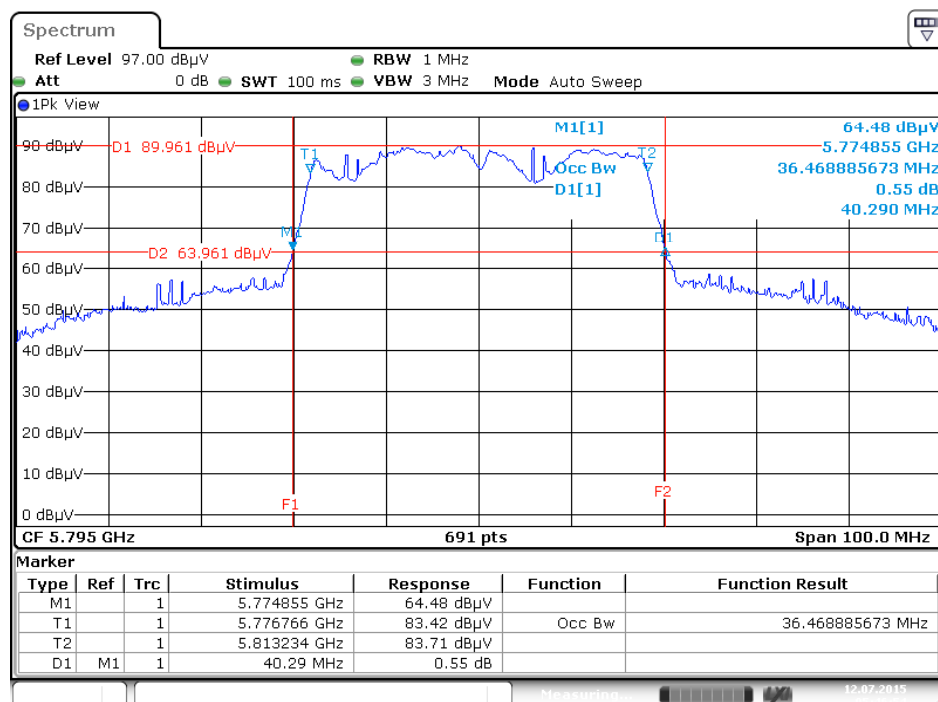
Date: 12.JUL.2015 05:41:12

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT40 / Chain 4 + Chain 5 / 5755 MHz



Date: 12.JUL.2015 05:46:15

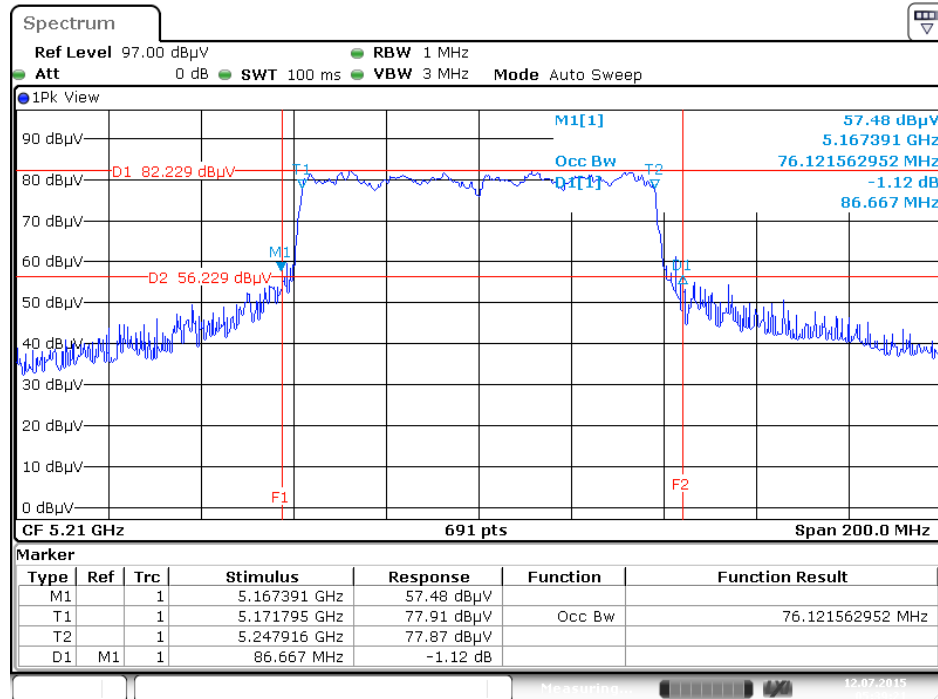
## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT40 / Chain 4 + Chain 5 / 5795 MHz



Date: 12.JUL.2015 05:46:55

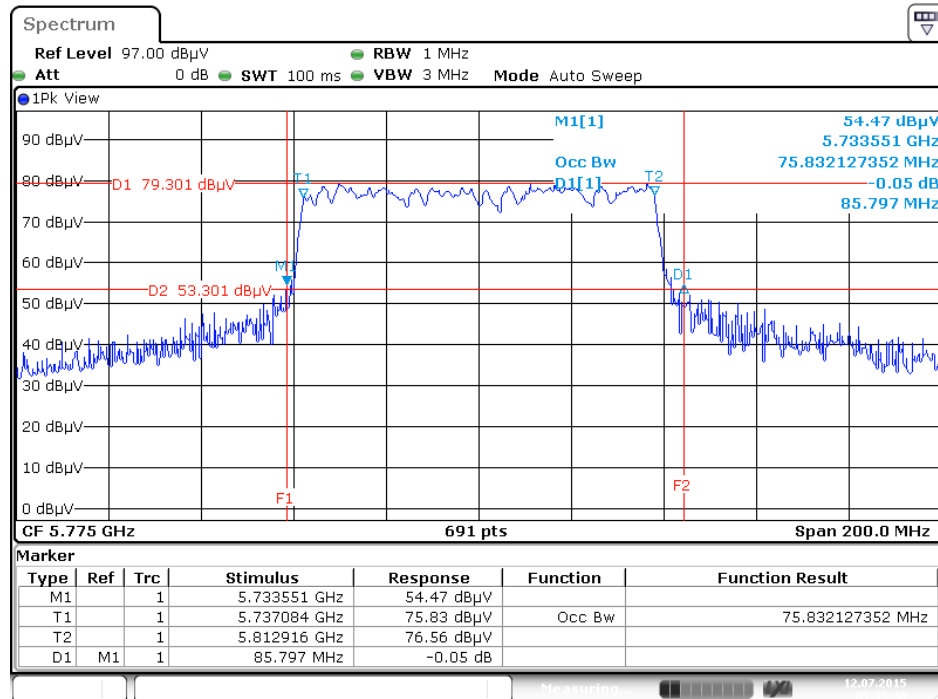


## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT80 / Chain 4 + Chain 5 / 5210 MHz



Date: 12.JUL.2015 05:39:21

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 4 + Chain 5 / 5775 MHz



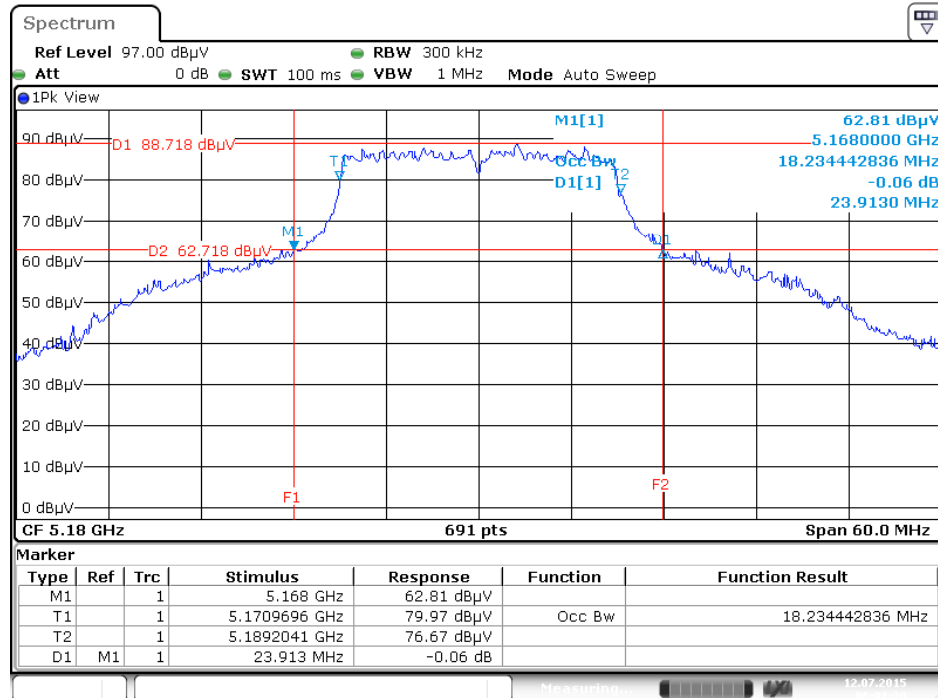
Date: 12.JUL.2015 05:35:48

<For Radio 2 Non-beamforming Mode>: 3TX, 3S

Temperature	25°C	Humidity	55%
Test Engineer	Lucas Huang		

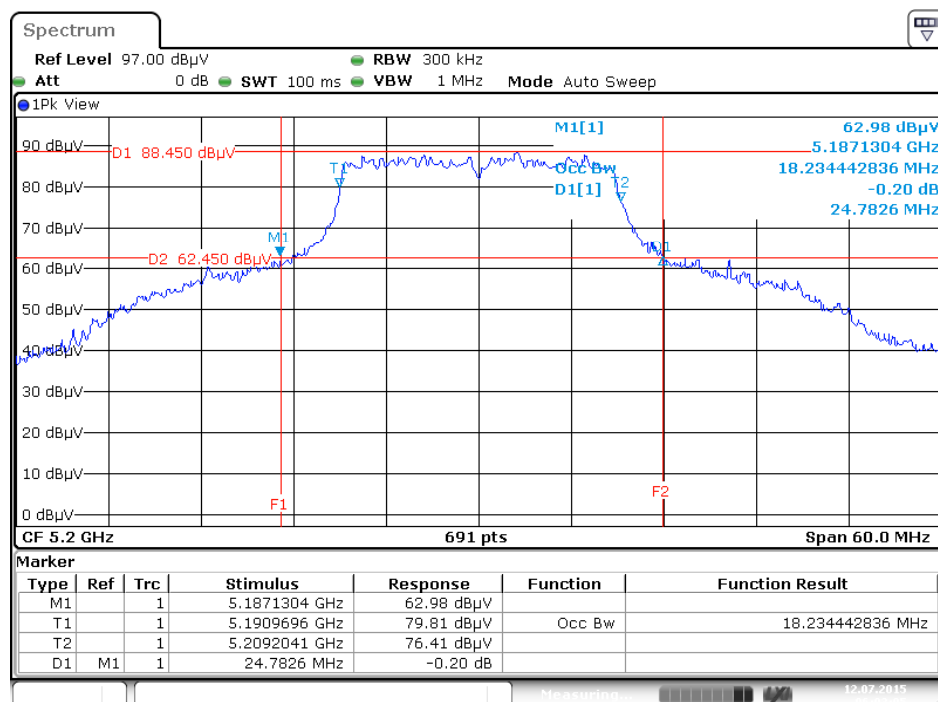
Mode	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11ac MCS0/Nss3 VHT20	5180 MHz	23.91	18.23
	5200 MHz	24.78	18.23
	5240 MHz	23.91	18.15
	5745 MHz	22.26	17.89
	5785 MHz	34.00	18.23
	5825 MHz	22.43	17.97
802.11ac MCS0/Nss3 VHT40	5190 MHz	45.94	37.34
	5230 MHz	75.94	38.21
	5755 MHz	45.22	36.90
	5795 MHz	45.36	37.05
802.11ac MCS0/Nss3 VHT80	5210 MHz	88.12	76.41
	5775 MHz	87.54	76.12

# 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss3 VHT20 / Chain 4 + Chain 5 + Chain 6 / 5180 MHz



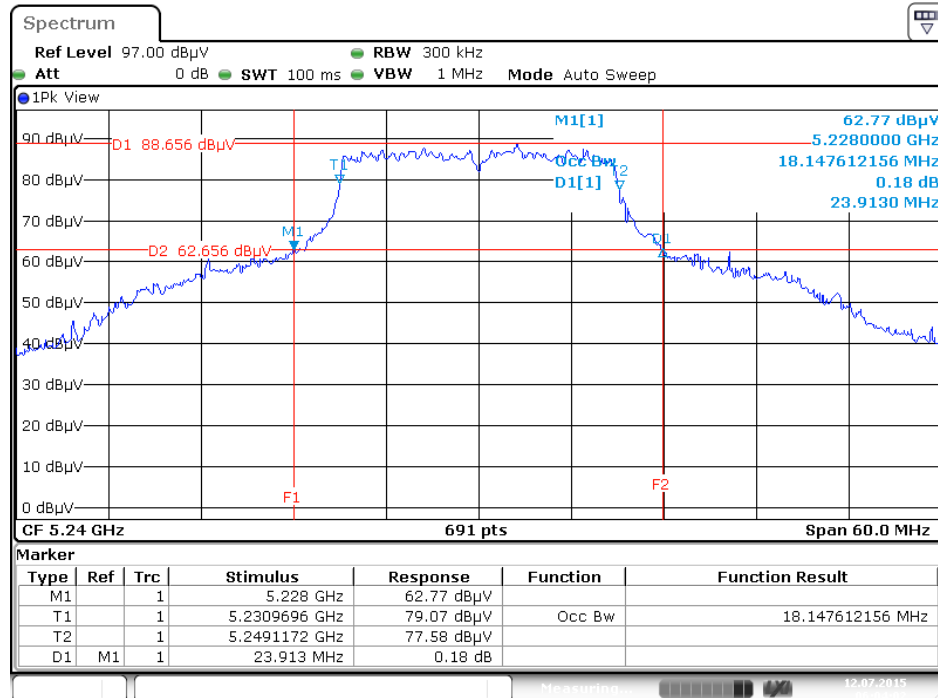
Date: 12.JUL.2015 06:01:20

# 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss3 VHT20 / Chain 4 + Chain 5 + Chain 6 / 5200 MHz



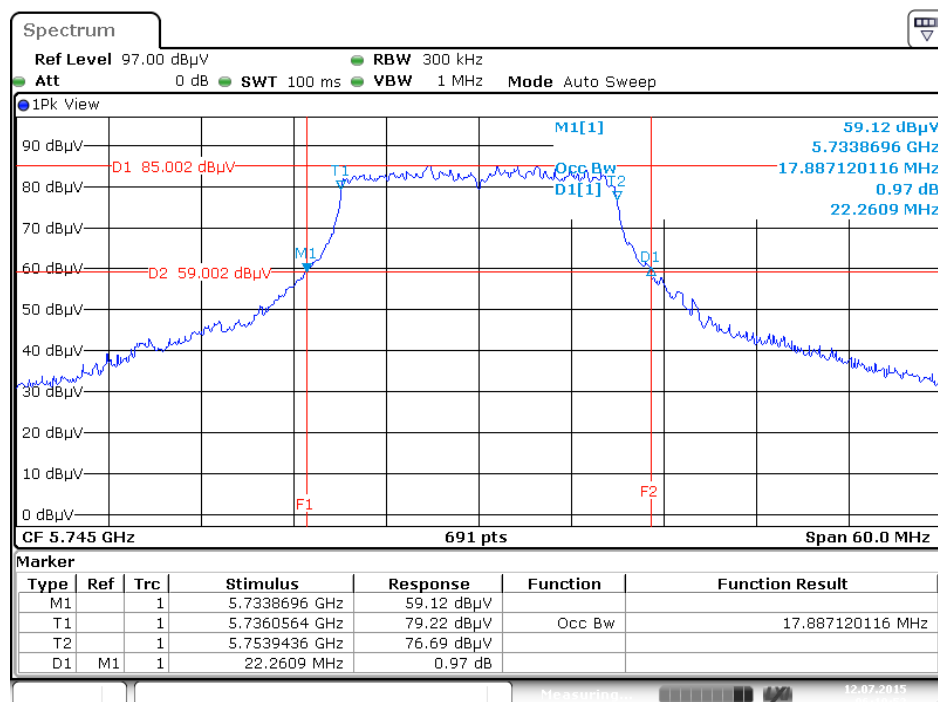
Date: 12.JUL.2015 06:03:05

# 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss3 VHT20 / Chain 4 + Chain 5 + Chain 6 / 5240 MHz



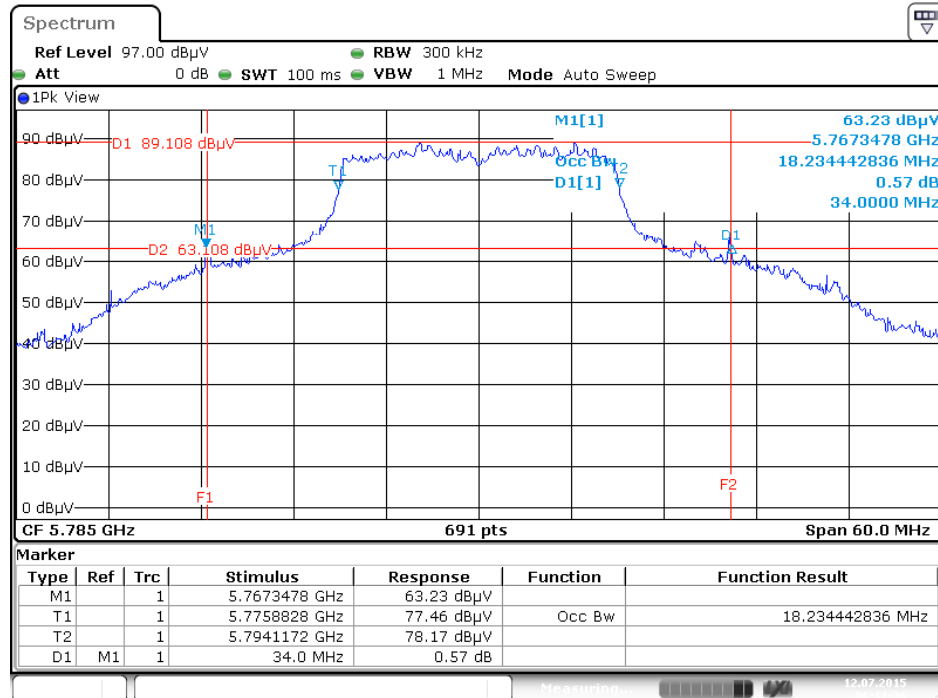
Date: 12.JUL.2015 06:04:02

# 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss3 VHT20 / Chain 4 + Chain 5 + Chain 6 / 5745 MHz



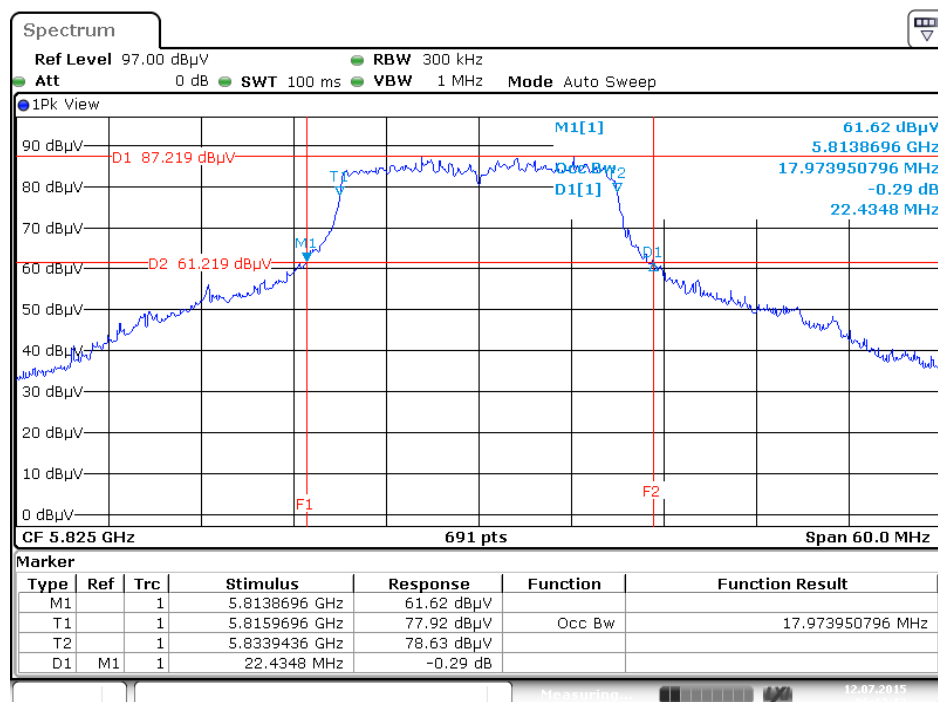
Date: 12.JUL.2015 06:10:52

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss3 VHT20 / Chain 4 + Chain 5 + Chain 6 / 5785 MHz



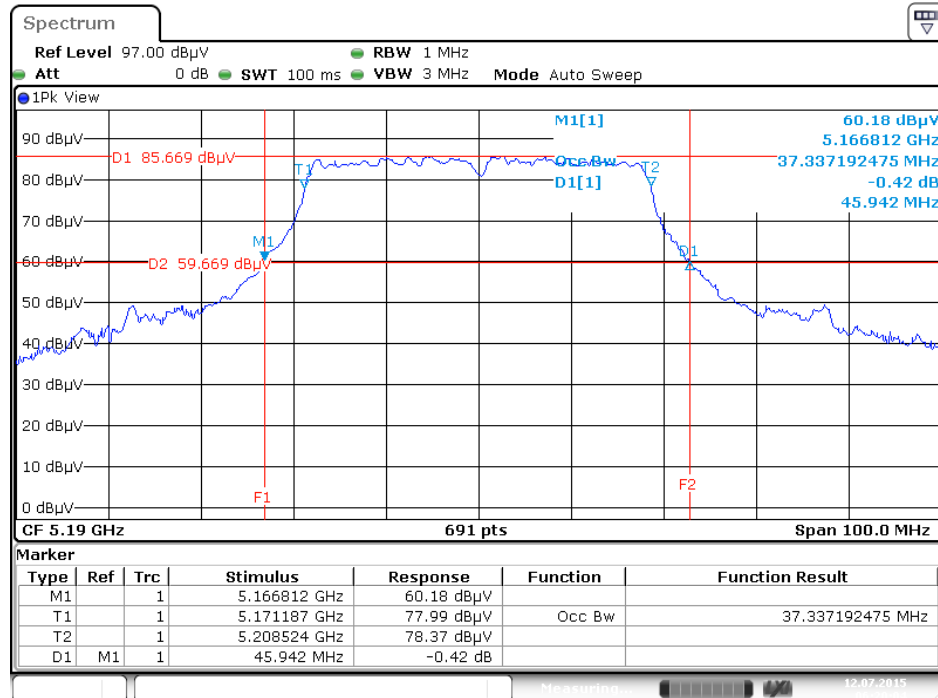
Date: 12.JUL.2015 06:11:36

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss3 VHT20 / Chain 4 + Chain 5 + Chain 6 / 5825 MHz



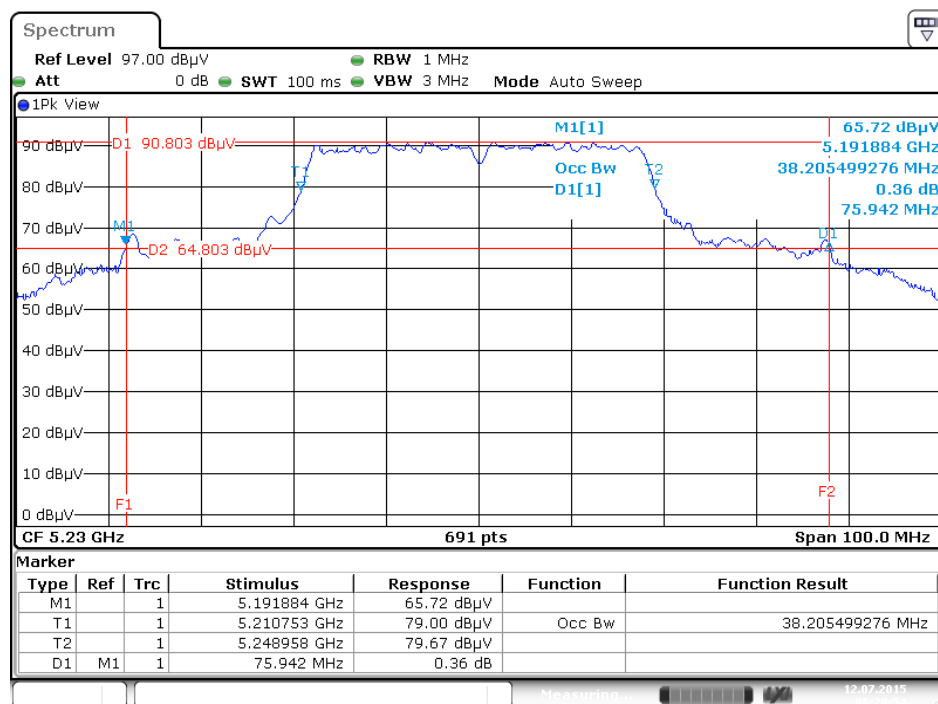
Date: 12.JUL.2015 06:12:12

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss3 VHT40 /  
Chain 4 + Chain 5 + Chain 6 / 5190 MHz



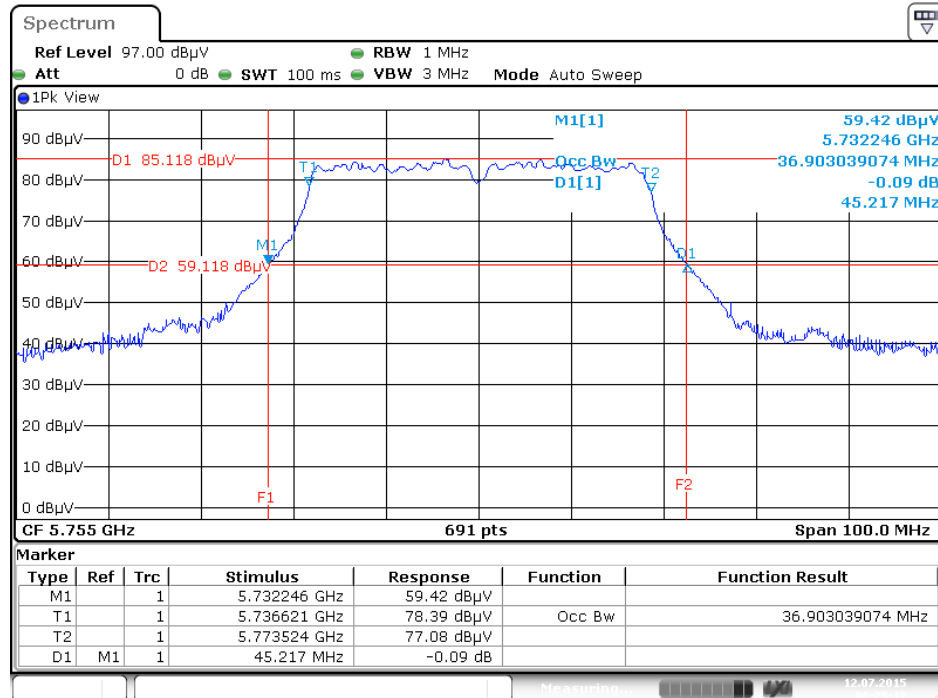
Date: 12.JUL.2015 06:20:04

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss3 VHT40 /  
Chain 4 + Chain 5 + Chain 6 / 5230 MHz



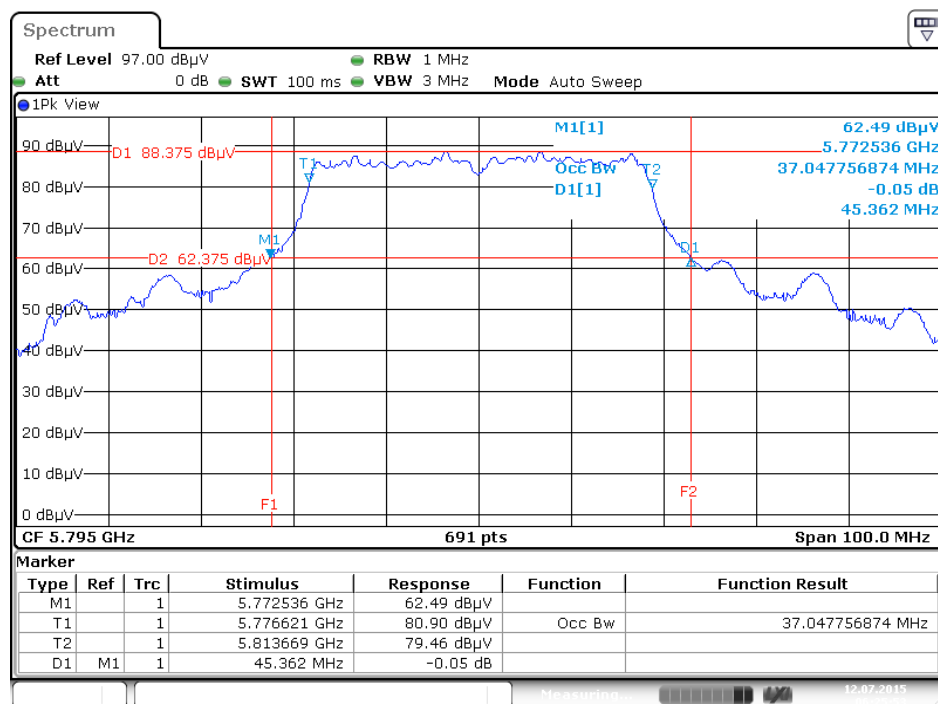
Date: 12.JUL.2015 06:20:54

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss3 VHT40 / Chain 4 + Chain 5 + Chain 6 / 5755 MHz



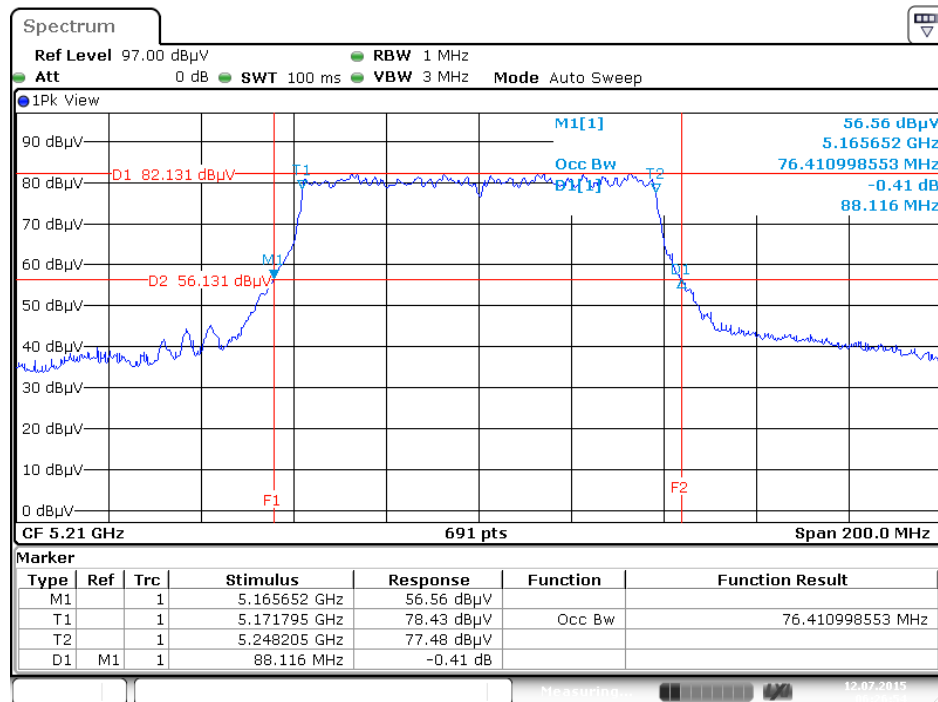
Date: 12.JUL.2015 06:25:12

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss3 VHT40 / Chain 4 + Chain 5 + Chain 6 / 5795 MHz



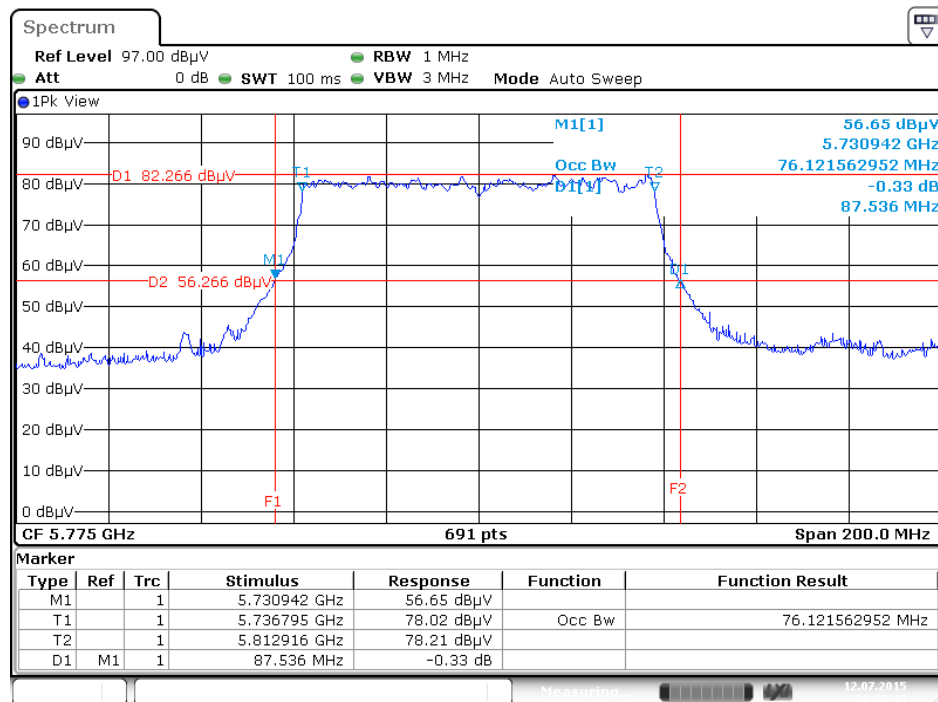
Date: 12.JUL.2015 06:25:53

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss3 VHT80 / Chain 4 + Chain 5 + Chain 6 / 5210 MHz



Date: 12.JUL.2015 06:26:54

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss3 VHT80 / Chain 4 + Chain 5 + Chain 6 / 5775 MHz



Date: 12.JUL.2015 06:29:45

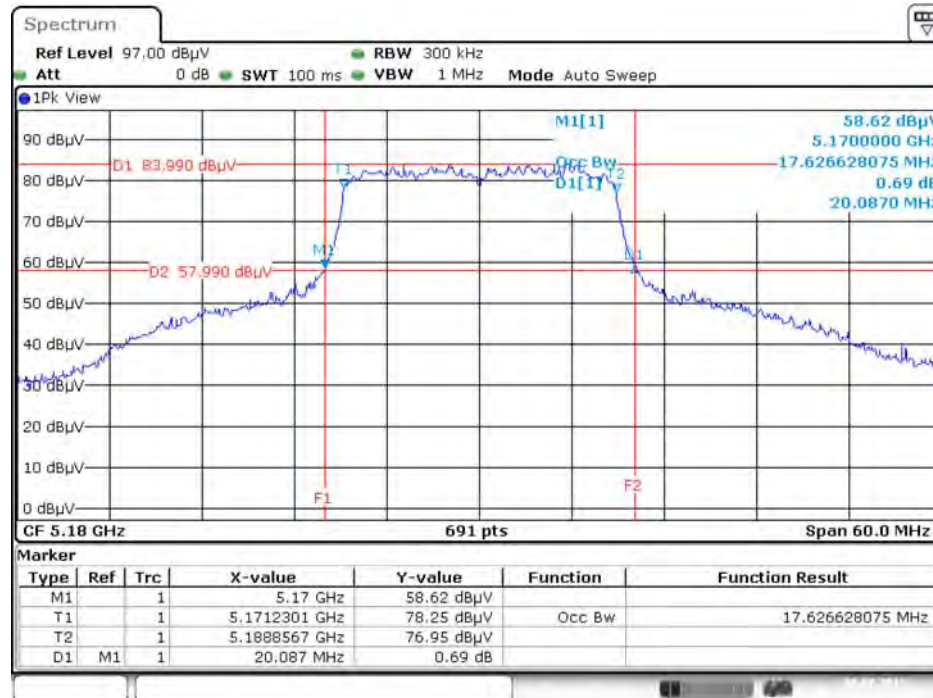


<For Radio 2 Beamforming Mode>: 2TX, 1S

Temperature	25°C	Humidity	55%
Test Engineer	Eddie Weng		

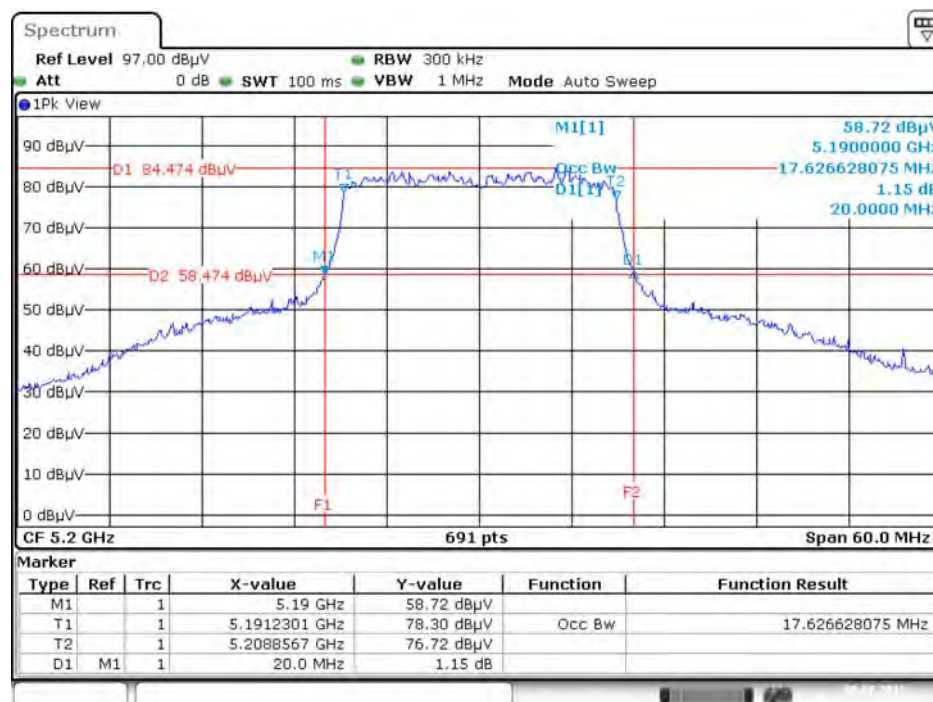
Mode	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11ac MCS0/Nss1 VHT20	5180 MHz	20.09	17.63
	5200 MHz	20.00	17.63
	5240 MHz	20.78	17.71
	5745 MHz	20.09	17.63
	5785 MHz	20.26	17.71
	5825 MHz	20.00	17.54
802.11ac MCS0/Nss1 VHT40	5190 MHz	40.73	36.32
	5230 MHz	40.73	36.47
	5755 MHz	40.58	36.32
	5795 MHz	50.87	36.61
802.11ac MCS0/Nss1 VHT80	5210 MHz	85.80	75.83
	5775 MHz	86.38	76.12

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



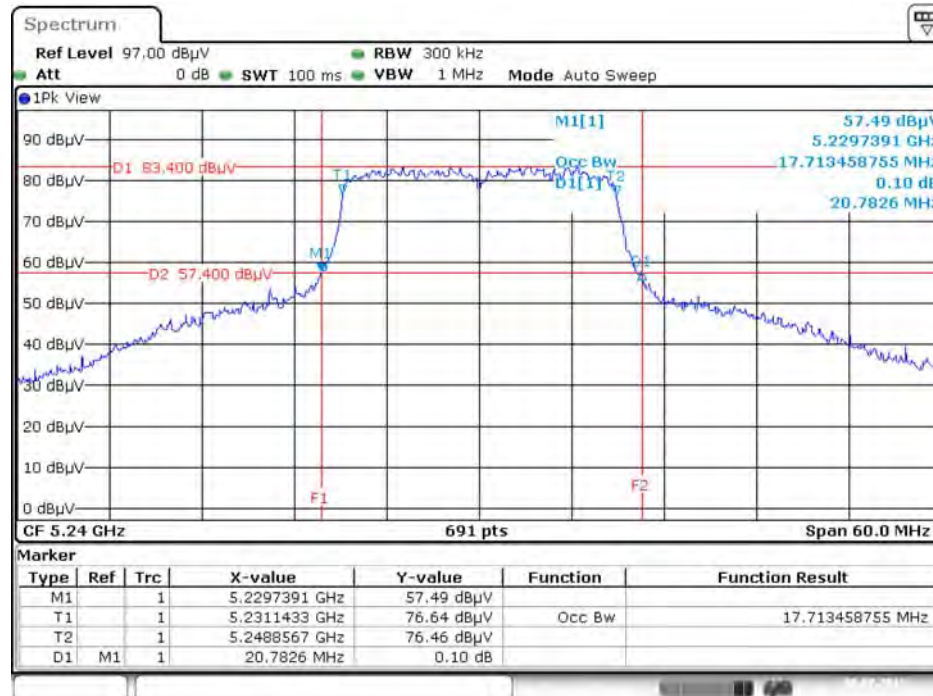
Date: 30.JUL.2015 14:47:33

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



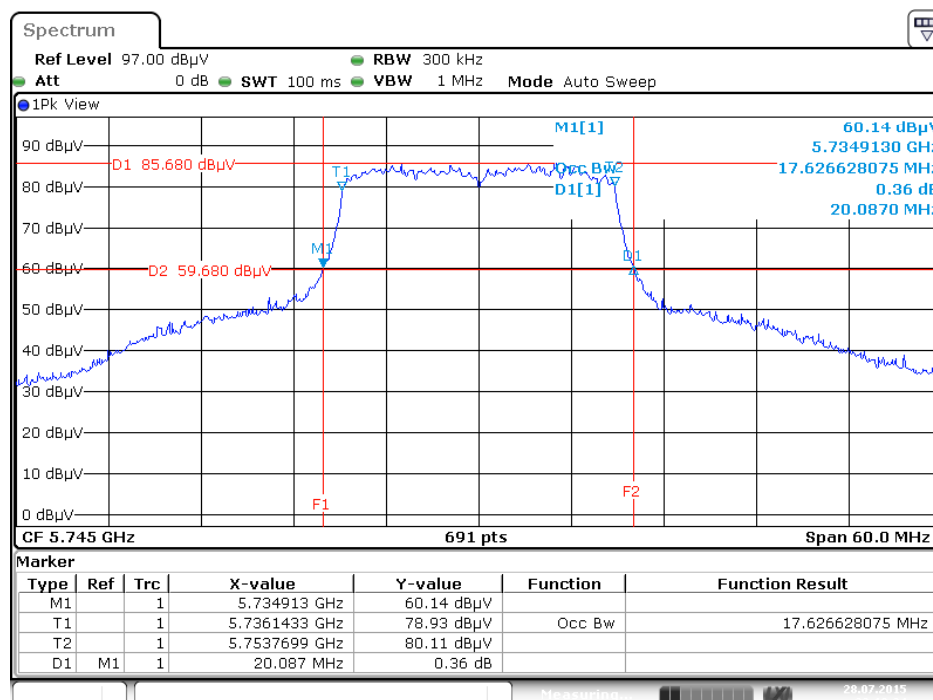
Date: 30.JUL.2015 14:47:56

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



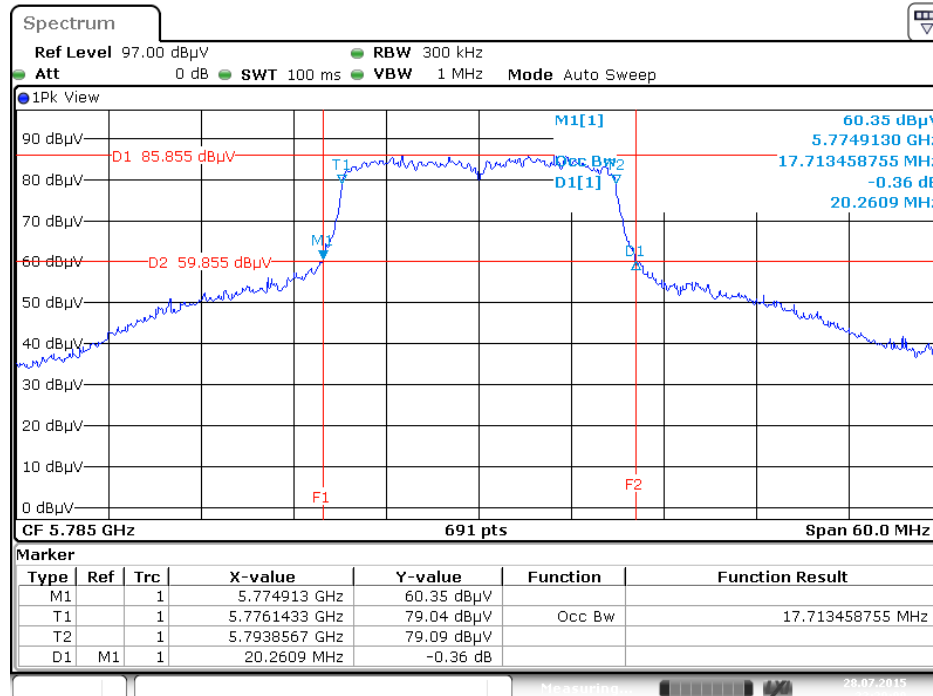
Date: 30 JUL 2015 14:48:15

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

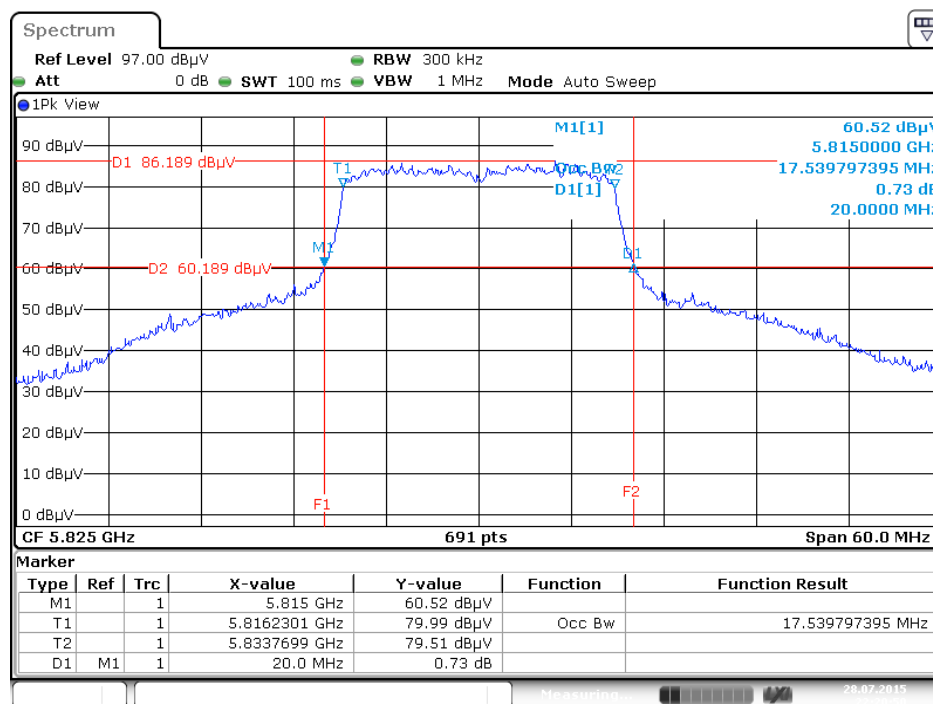


Date: 28 JUL 2015 22:19:25

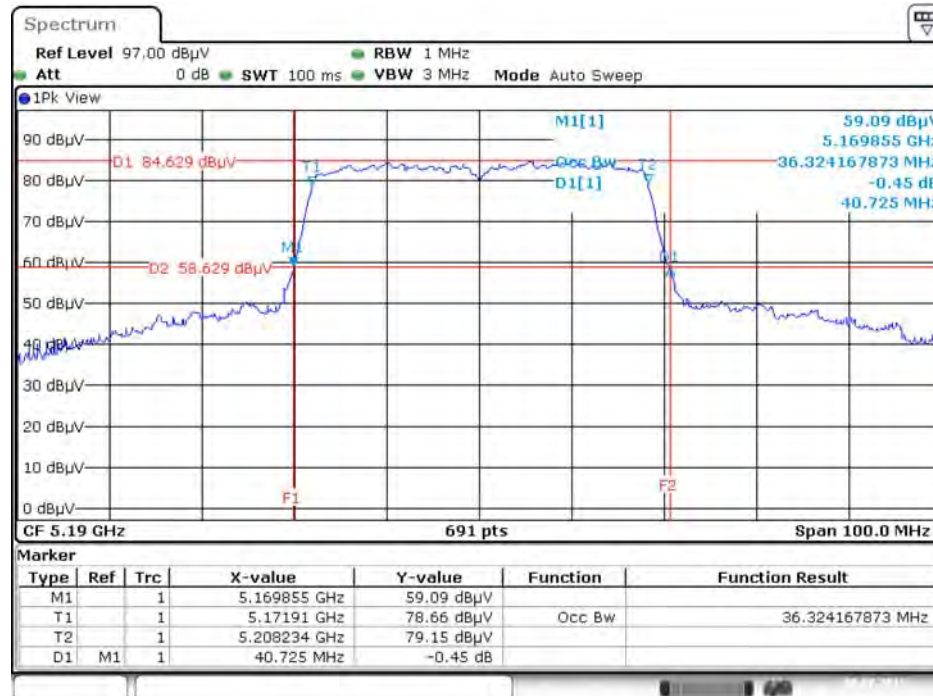
## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4 / 5785 MHz



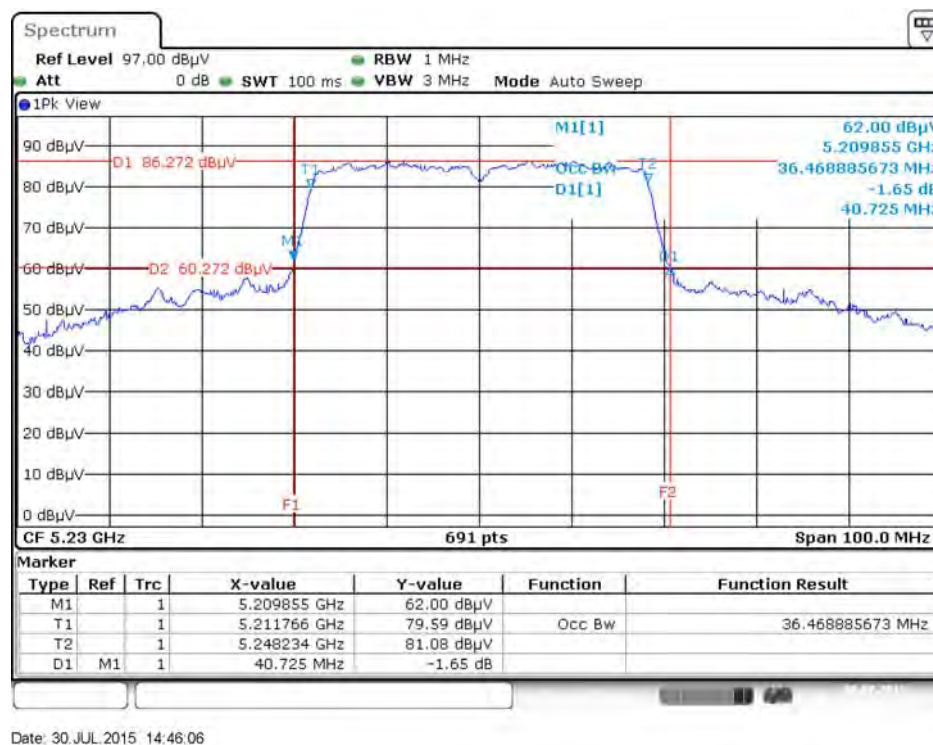
## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4 / 5825 MHz



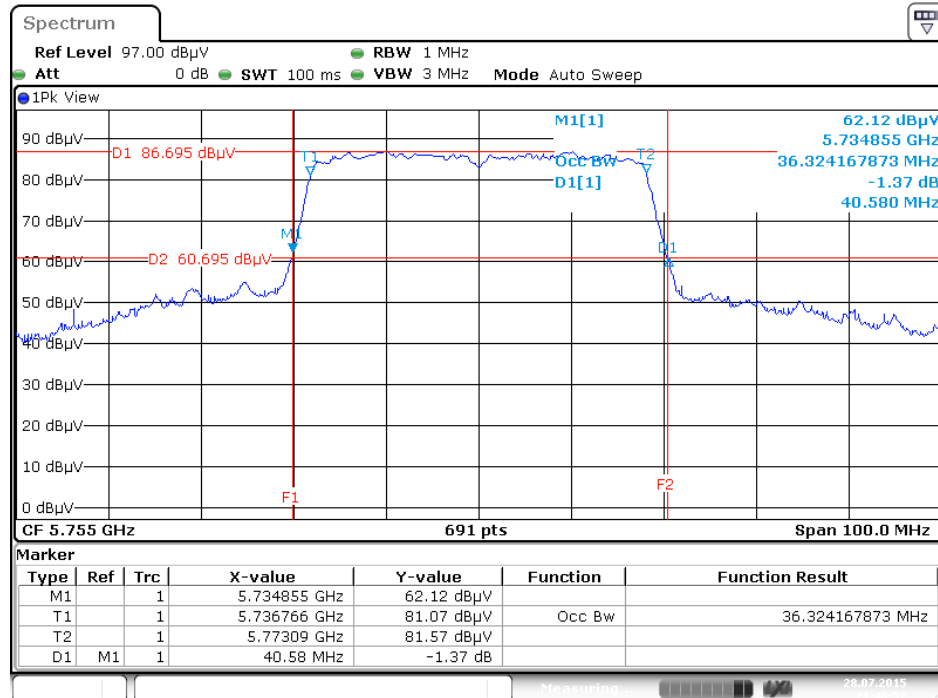
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 4 / 5190 MHz



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

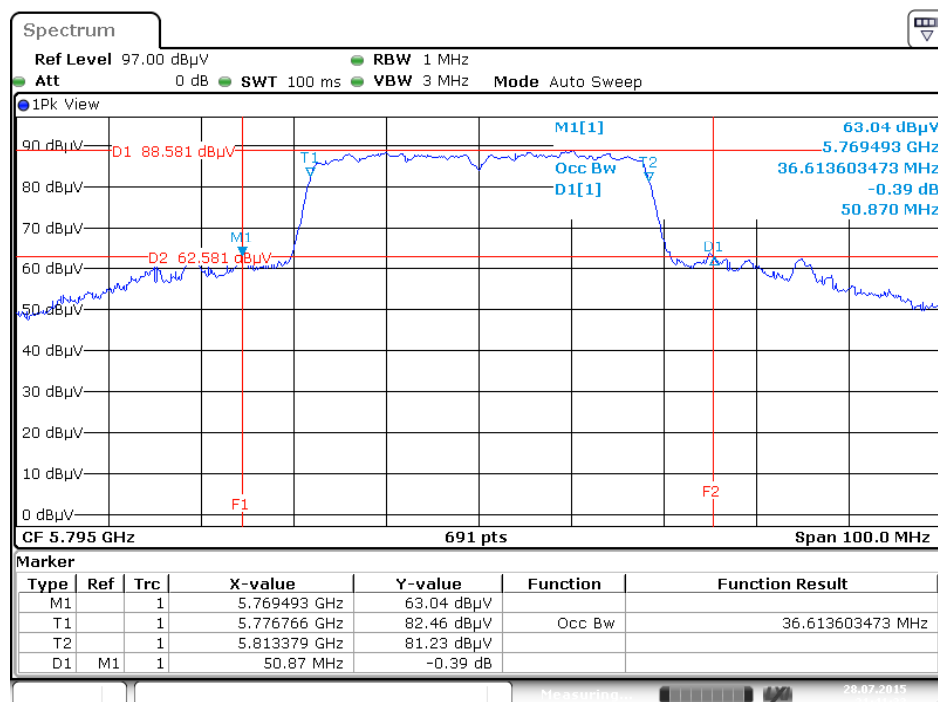


## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 4 / 5755 MHz



Date: 28 JUL 2015 21:40:52

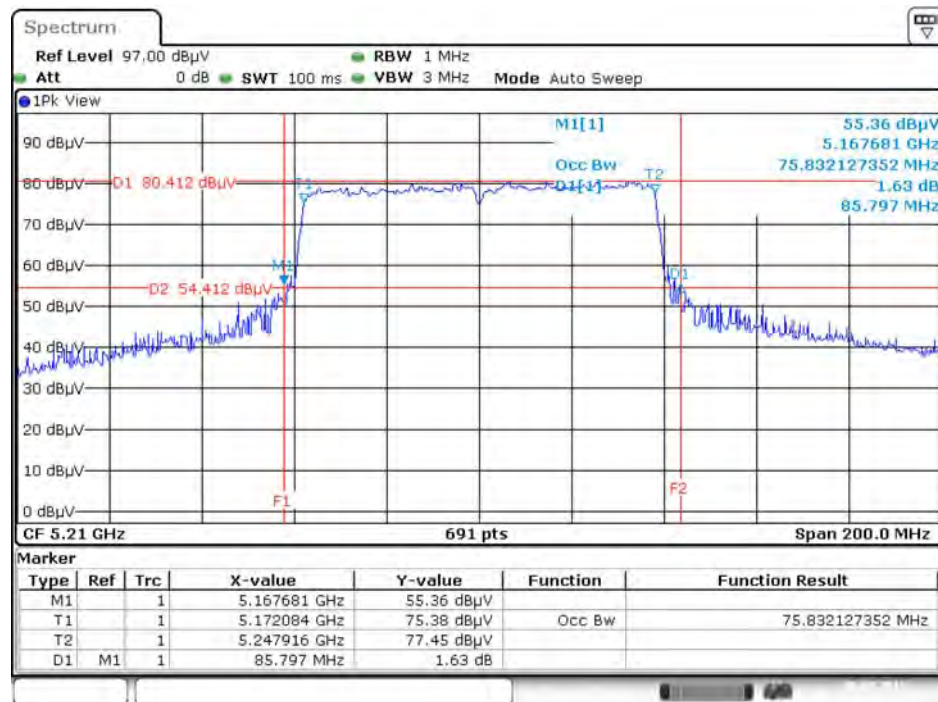
## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 4 / 5795 MHz



Date: 28 JUL 2015 21:41:33

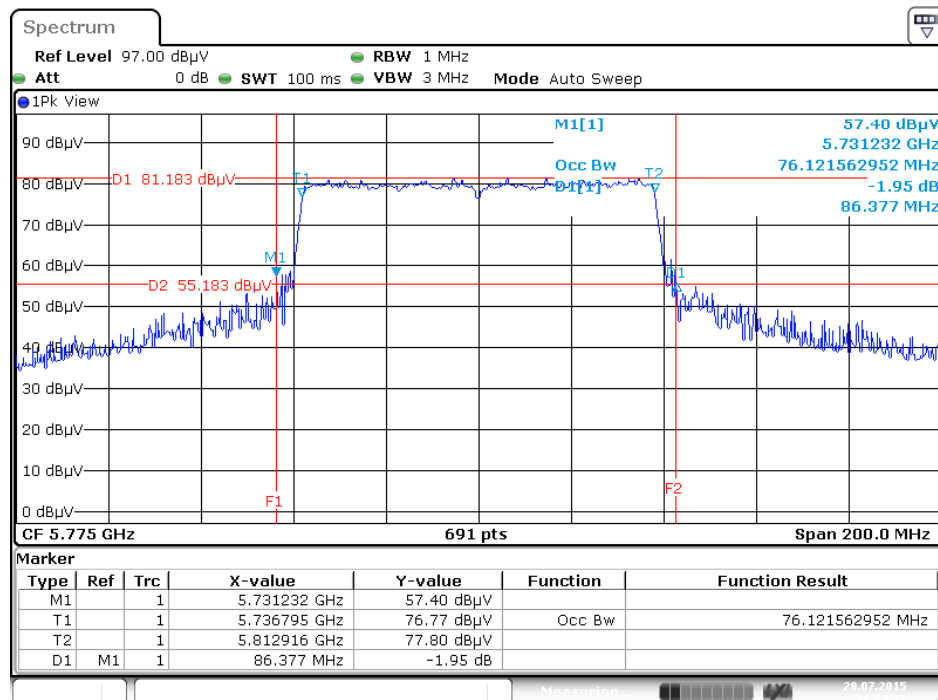


## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 4 / 5210 MHz



Date: 30 JUL 2015 14:49:22

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



Date: 28 JUL 2015 21:54:27

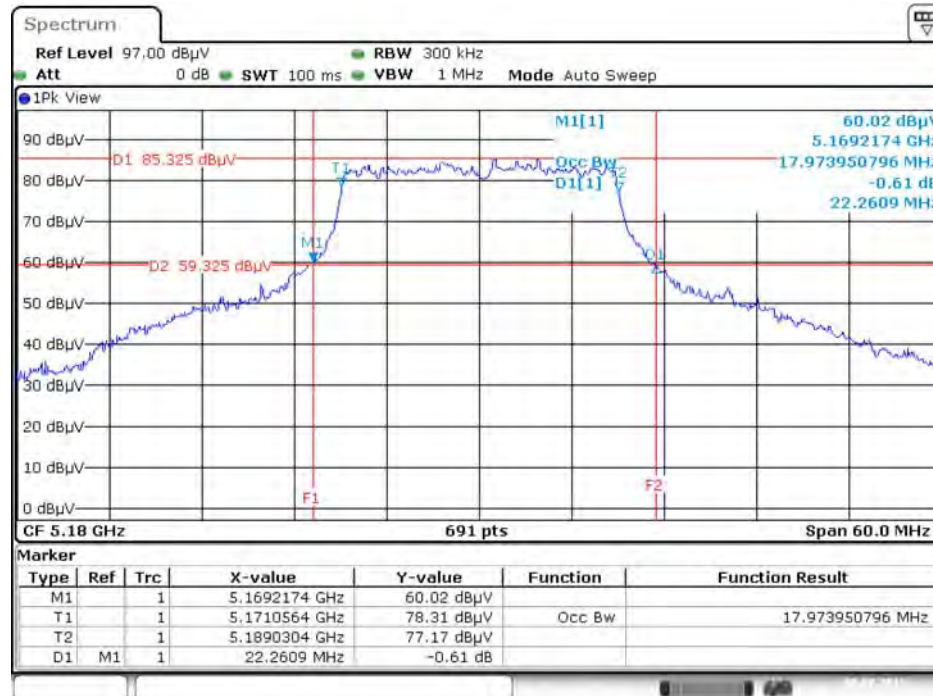
<For Radio 2 Beamforming Mode>: 3TX, 1S

Temperature	25°C	Humidity	55%
Test Engineer	Eddie Weng		

Mode	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11ac MCS0/Nss1 VHT20	5180 MHz	22.26	17.97
	5200 MHz	21.91	18.06
	5240 MHz	22.52	18.06
	5745 MHz	19.83	17.63
	5785 MHz	19.91	17.71
	5825 MHz	20.17	17.80
802.11ac MCS0/Nss1 VHT40	5190 MHz	44.64	36.90
	5230 MHz	45.22	36.90
	5755 MHz	40.15	36.32
	5795 MHz	40.29	36.47
802.11ac MCS0/Nss1 VHT80	5210 MHz	87.25	76.41
	5775 MHz	85.22	76.12

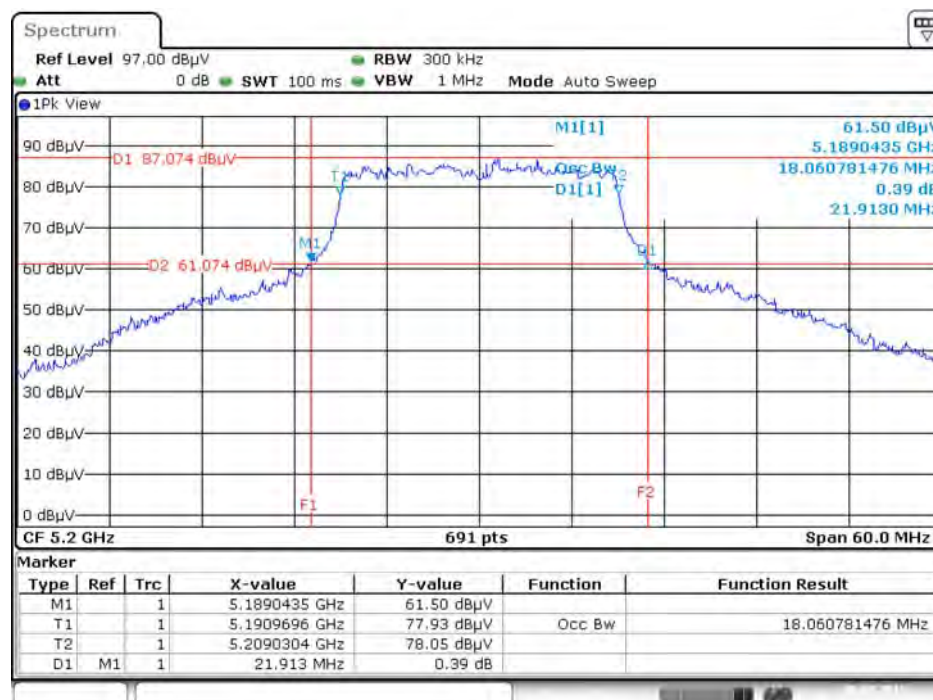


26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4 + Chain 5 + Chain 6 / 5180 MHz



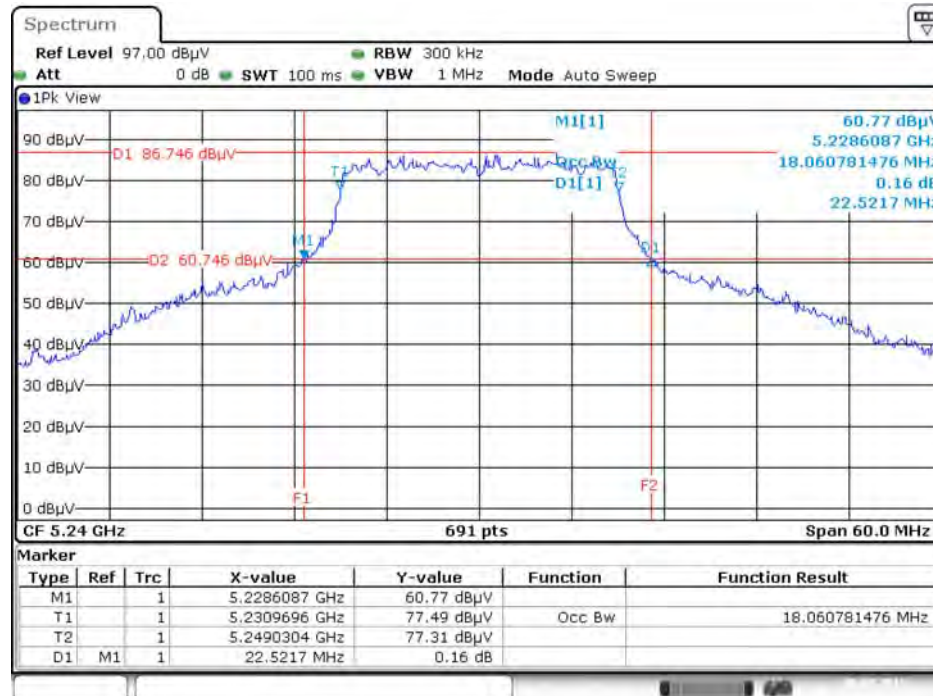
Date: 30.JUL.2015 15:04:20

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4 + Chain 5 + Chain 6 / 5200 MHz



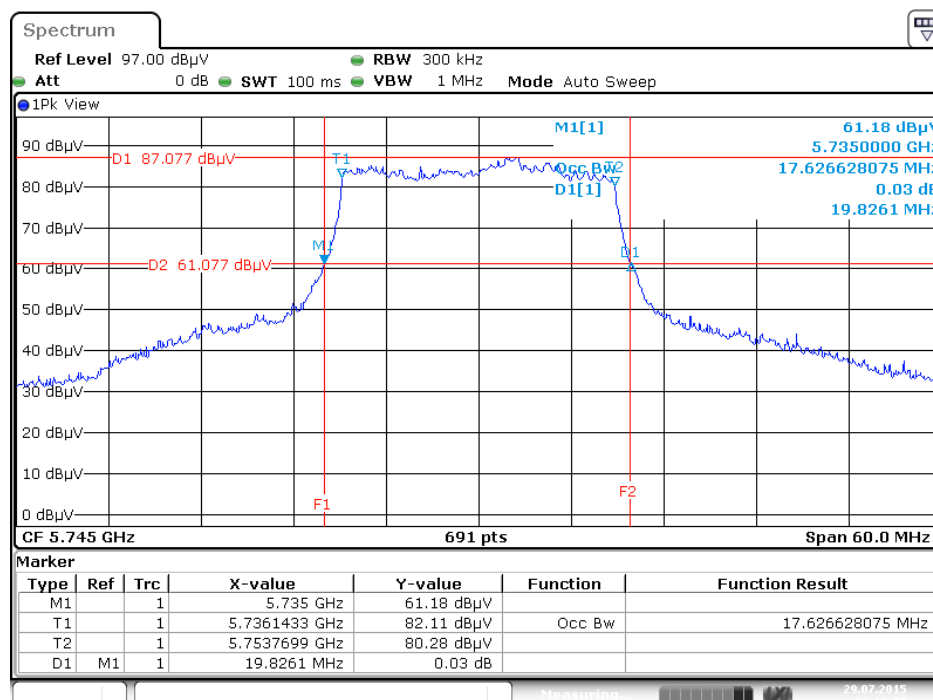
Date: 30.JUL.2015 15:04:56

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4 + Chain 5 + Chain 6 / 5240 MHz



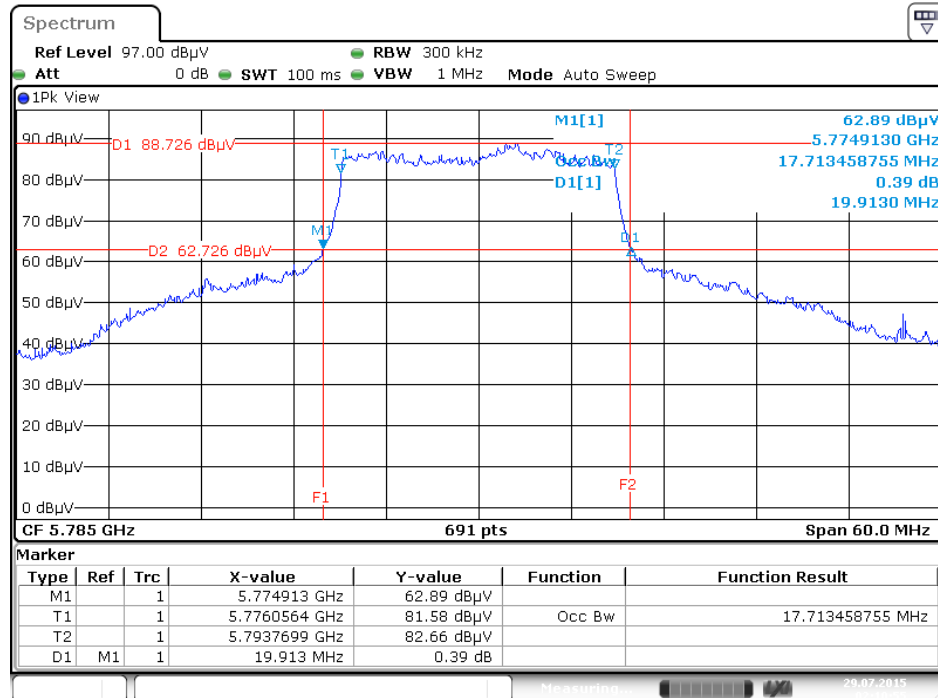
Date: 30 JUL 2015 15:05:39

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4 + Chain 5 + Chain 6 / 5745 MHz



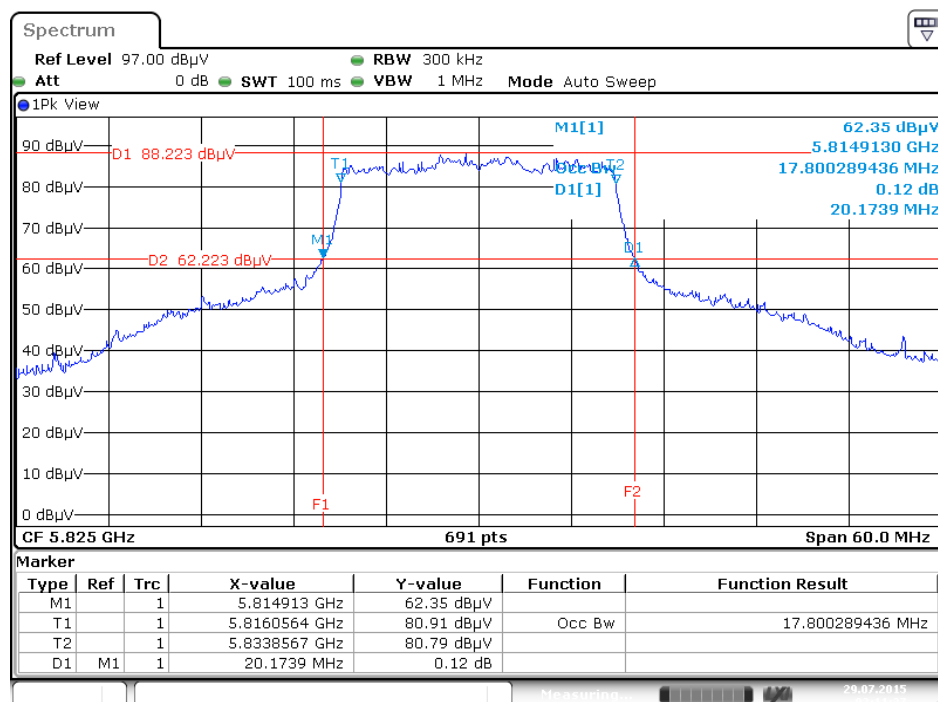
Date: 29 JUL 2015 02:10:17

# 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4 + Chain 5 + Chain 6 / 5785 MHz



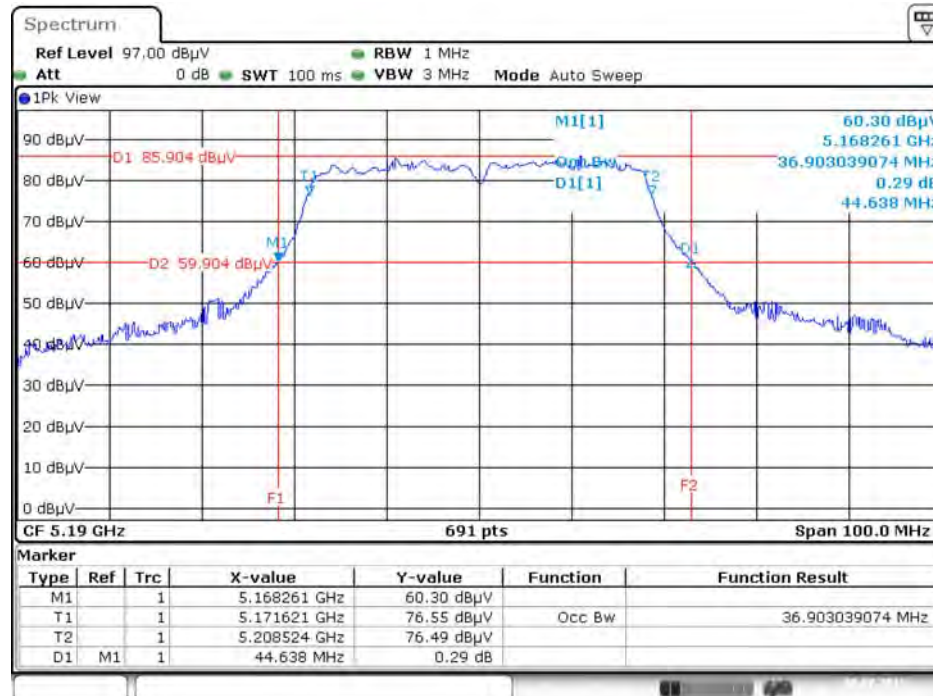
Date: 29 JUL 2015 02:10:55

# 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4 + Chain 5 + Chain 6 / 5825 MHz



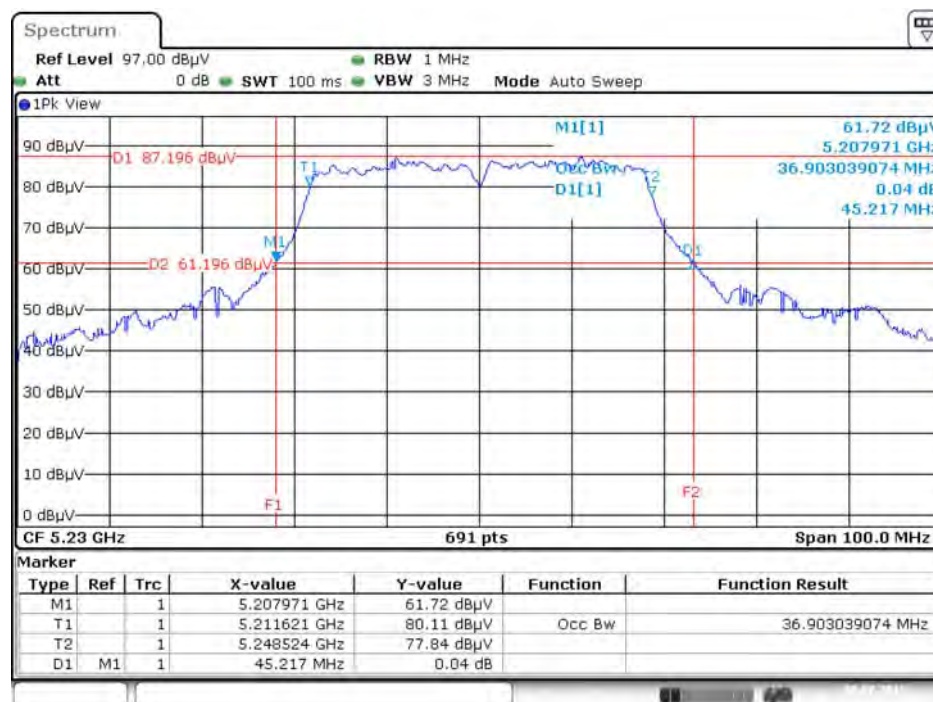
Date: 29 JUL 2015 02:11:38

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 4 + Chain 5 + Chain 6 / 5190 MHz



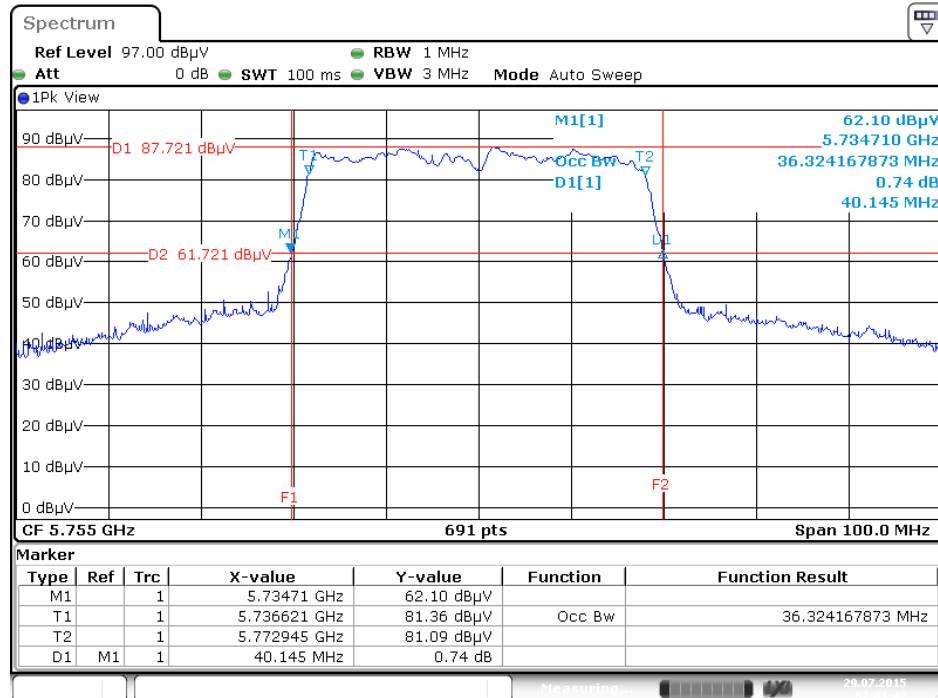
Date: 30.JUL.2015 14:57:33

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 4 + Chain 5 + Chain 6 / 5230 MHz



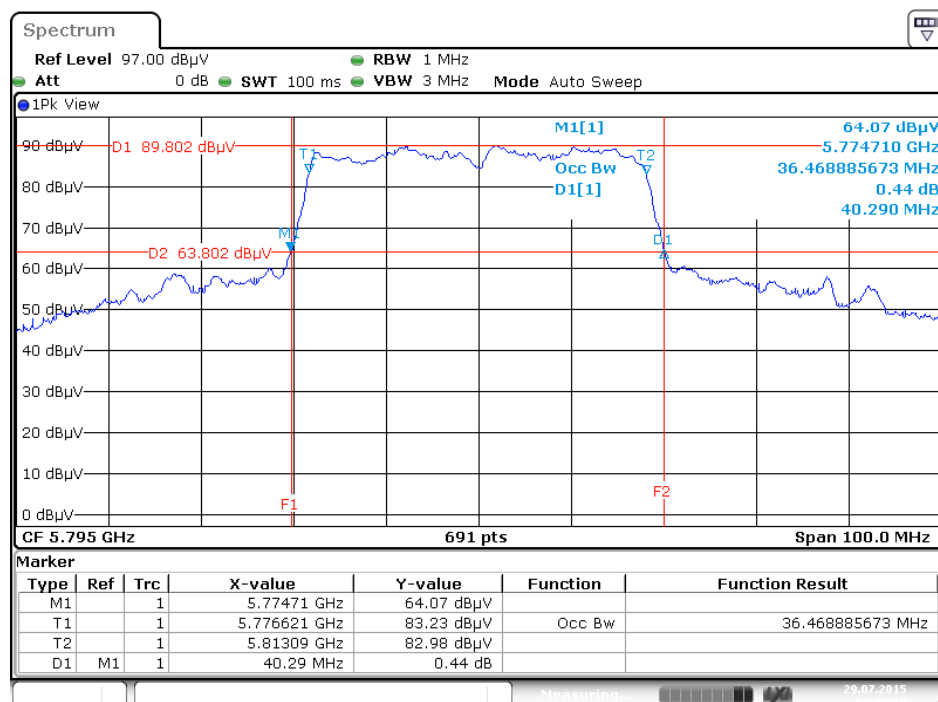
Date: 30.JUL.2015 15:02:19

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 4 + Chain 5 + Chain 6 / 5755 MHz



Date: 29 JUL 2015 02:01:42

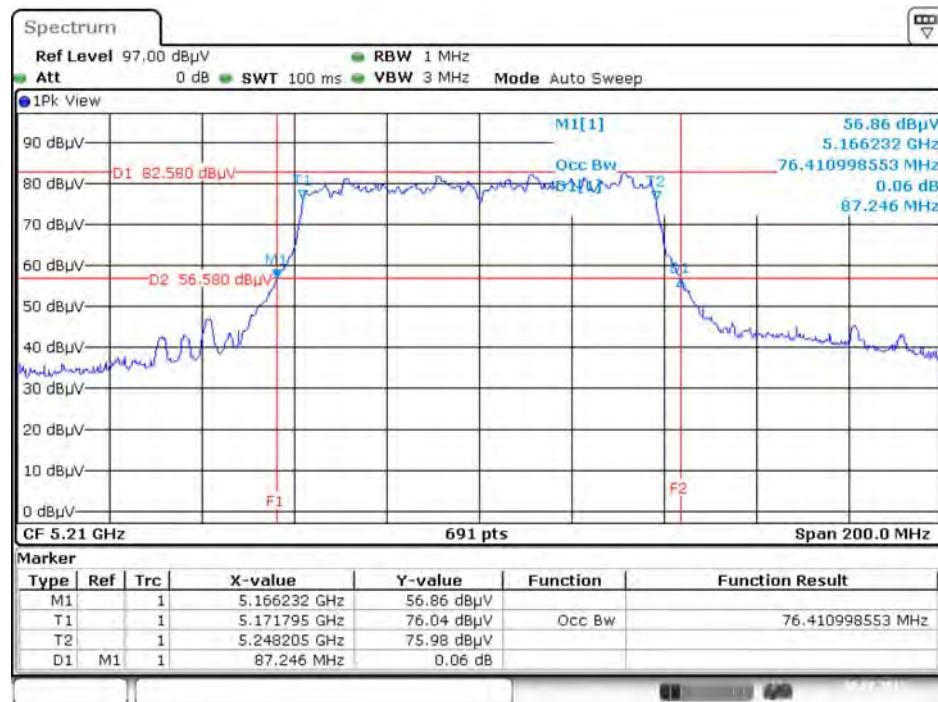
## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 4 + Chain 5 + Chain 6 / 5795 MHz



Date: 29 JUL 2015 02:02:19

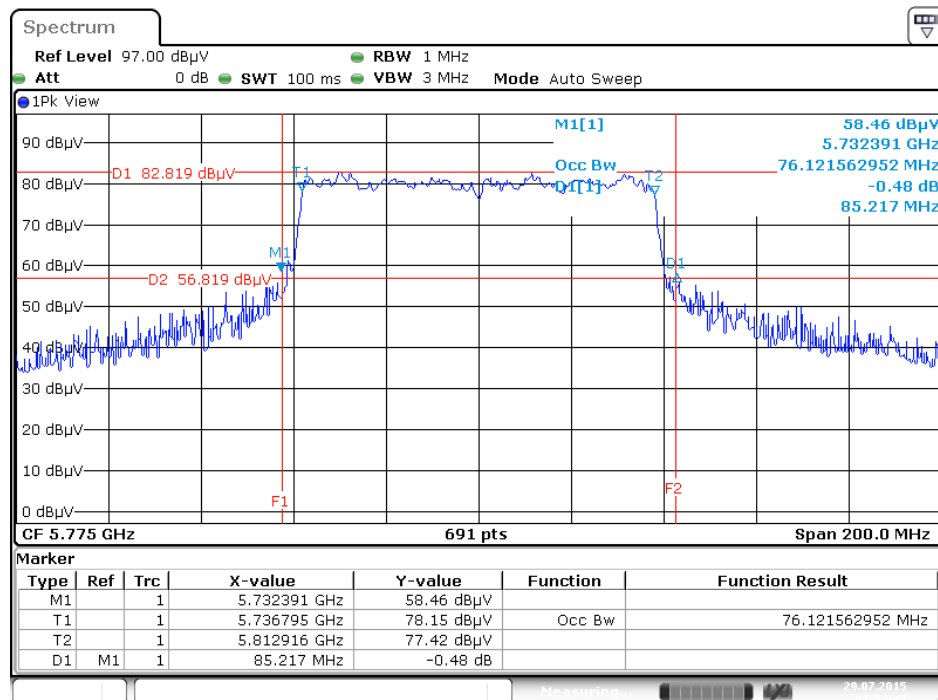


26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 4 + Chain 5 + Chain 6 / 5210 MHz



Date: 30 JUL 2015 14:54:49

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 4 + Chain 5 + Chain 6 / 5775 MHz



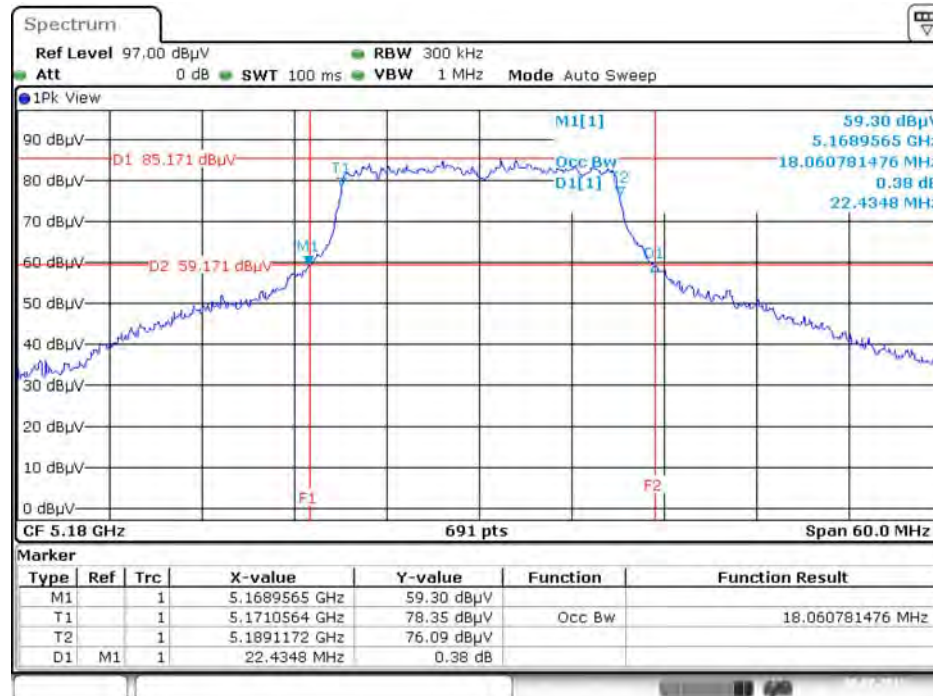
Date: 29 JUL 2015 01:54:47

<For Radio 2 Beamforming Mode>: 3TX, 2S

Temperature	25°C	Humidity	55%
Test Engineer	Eddie Weng		

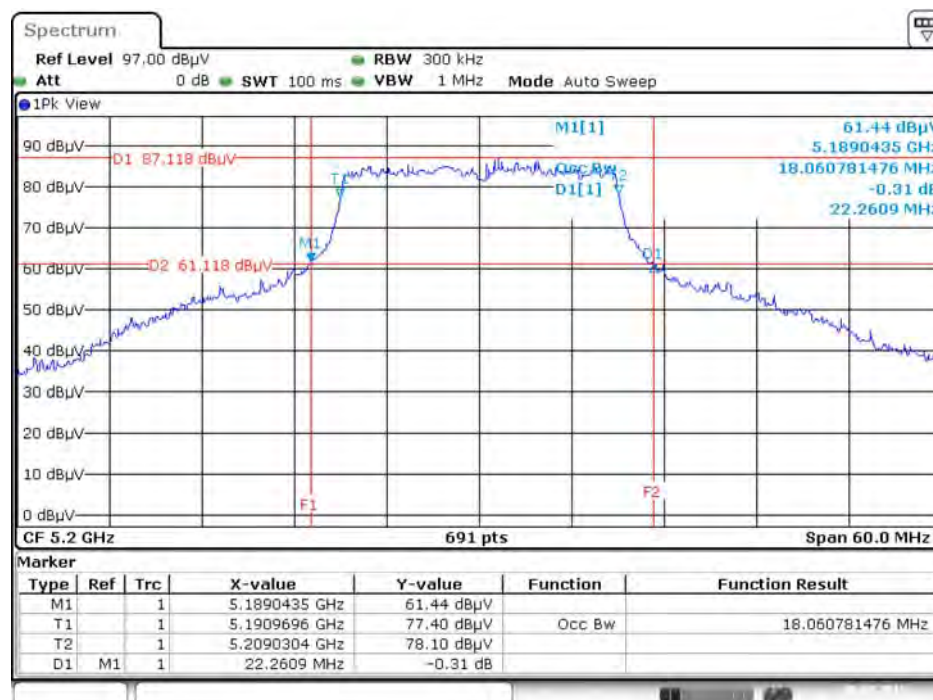
Mode	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11ac MCS0/Nss2 VHT20	5180 MHz	22.43	18.06
	5200 MHz	22.26	18.06
	5240 MHz	22.78	18.06
	5745 MHz	19.65	17.63
	5785 MHz	19.65	17.63
	5825 MHz	19.57	17.63
802.11ac MCS0/Nss2 VHT40	5190 MHz	44.93	36.90
	5230 MHz	45.22	37.05
	5755 MHz	40.44	36.47
	5795 MHz	40.44	36.47
802.11ac MCS0/Nss2 VHT80	5210 MHz	87.25	76.41
	5775 MHz	84.06	75.83

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT20 / Chain 4 + Chain 5 + Chain 6 / 5180 MHz



Date: 30.JUL.2015 15:04:11

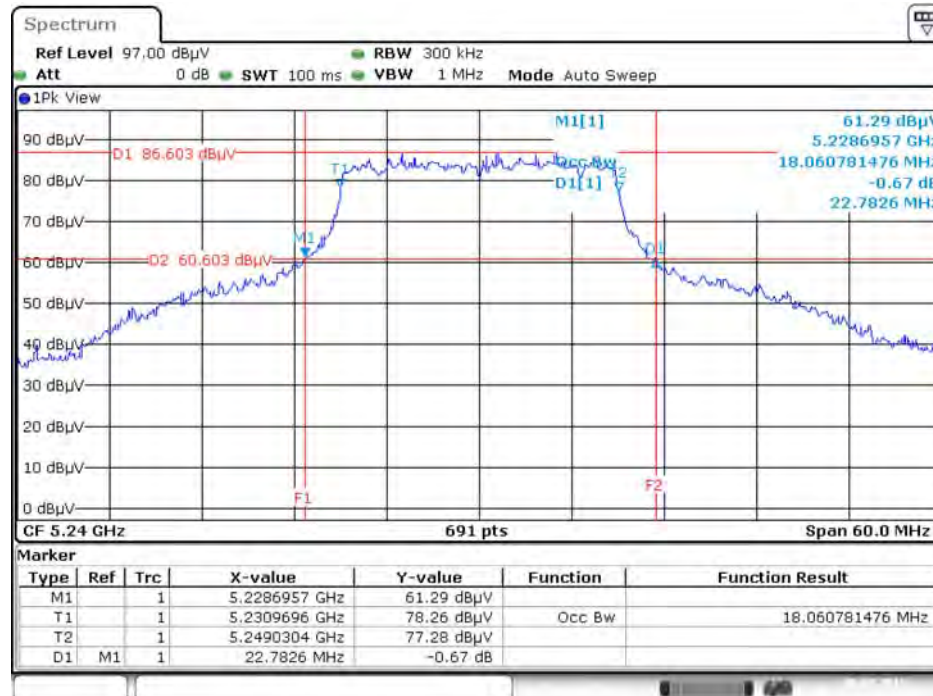
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT20 / Chain 4 + Chain 5 + Chain 6 / 5200 MHz



Date: 30.JUL.2015 15:04:45

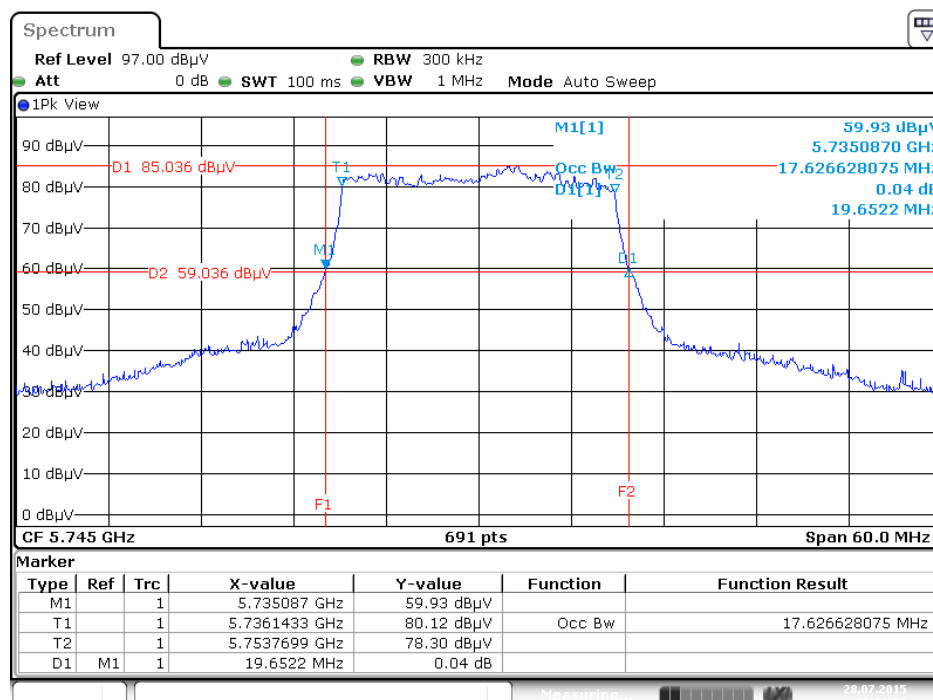


26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT20 / Chain 4 + Chain 5 + Chain 6 / 5240 MHz



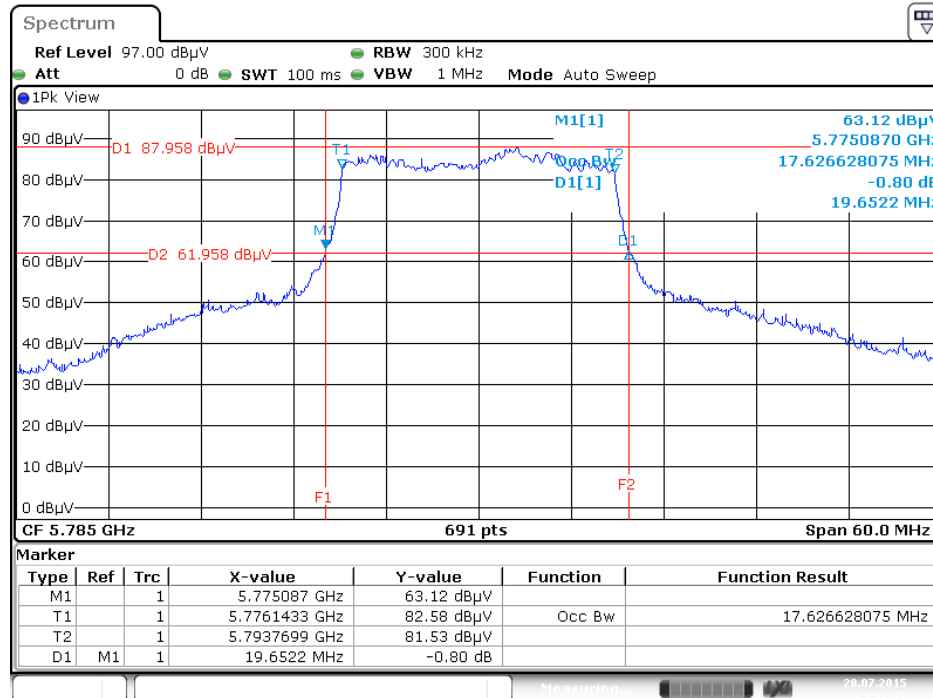
Date: 30 JUL 2015 15:05:21

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT20 / Chain 4 + Chain 5 + Chain 6 / 5745 MHz



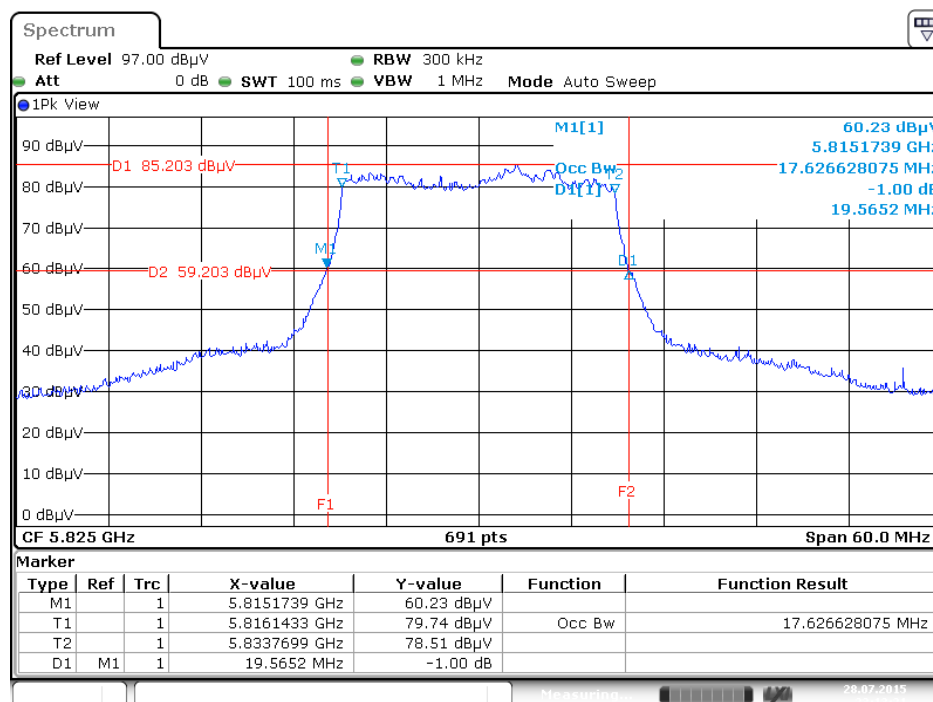
Date: 28 JUL 2015 23:11:52

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT20 / Chain 4 + Chain 5 + Chain 6 / 5785 MHz



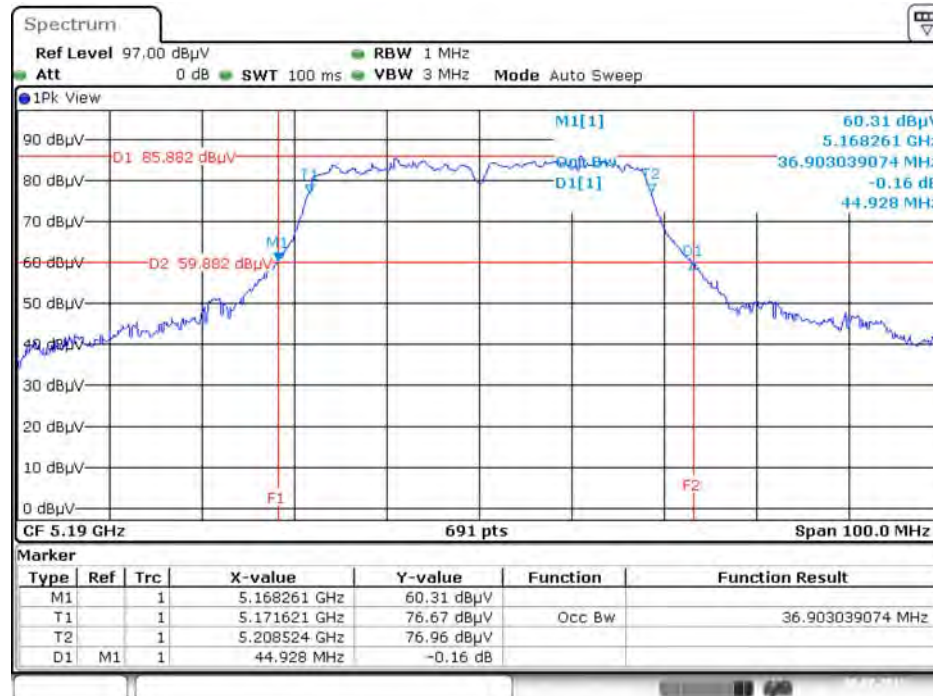
Date: 28 JUL 2015 23:12:37

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT20 / Chain 4 + Chain 5 + Chain 6 / 5825 MHz



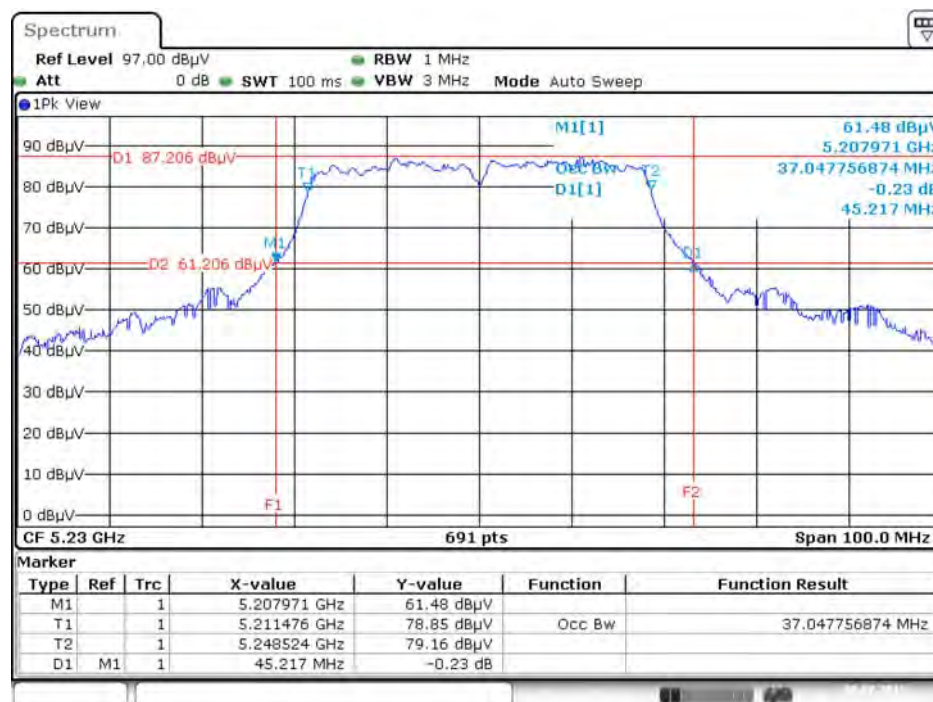
Date: 28 JUL 2015 23:13:21

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT40 / Chain 4 + Chain 5 + Chain 6 / 5190 MHz



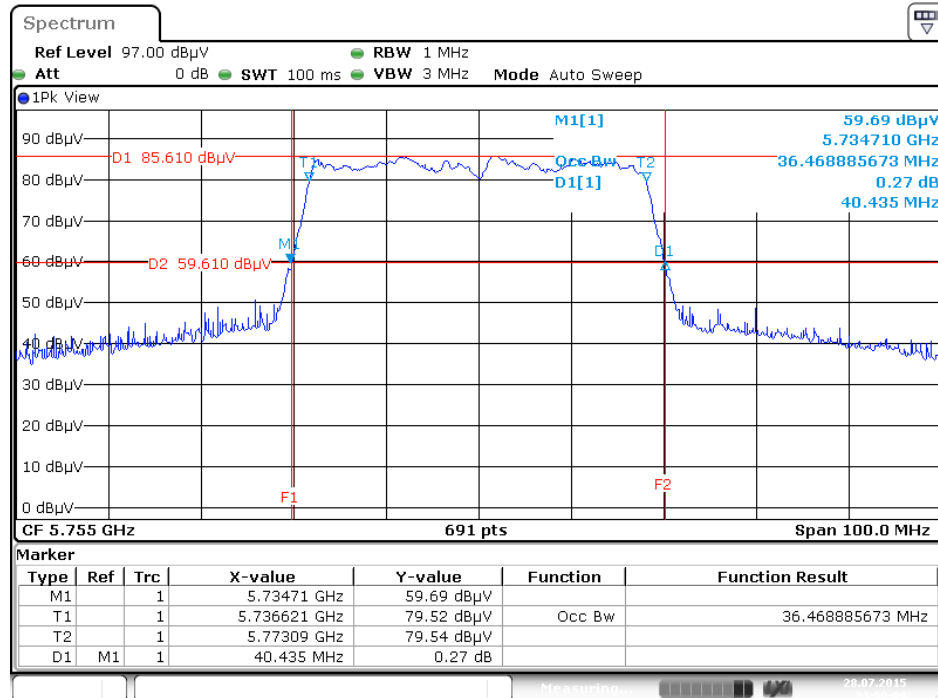
Date: 30.JUL.2015 14:57:17

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT40 / Chain 4 + Chain 5 + Chain 6 / 5230 MHz



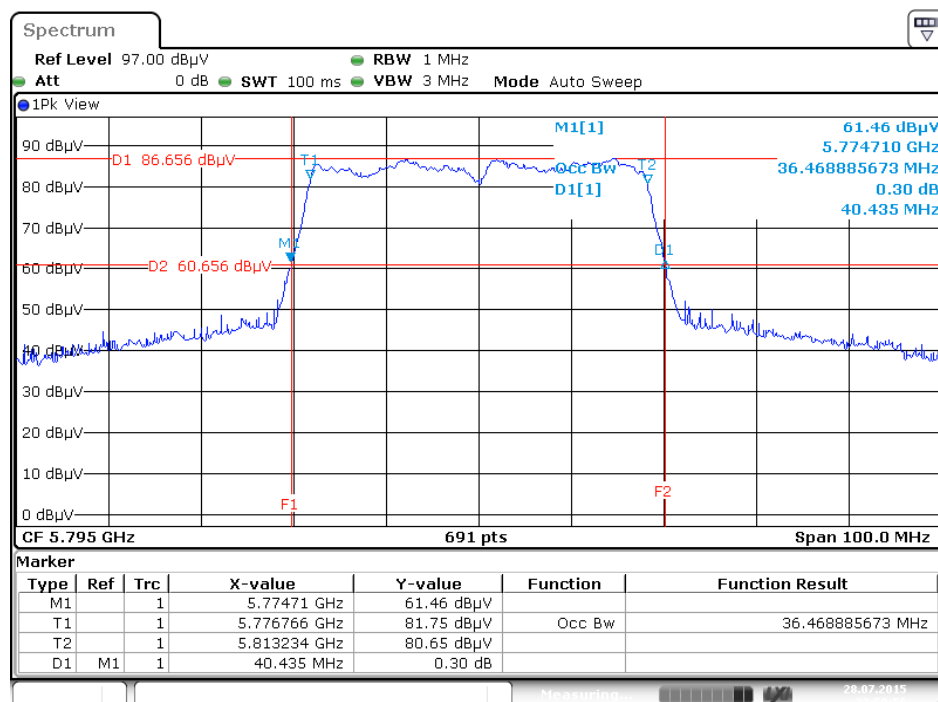
Date: 30.JUL.2015 15:02:01

# 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT40 / Chain 4 + Chain 5 + Chain 6 / 5755 MHz



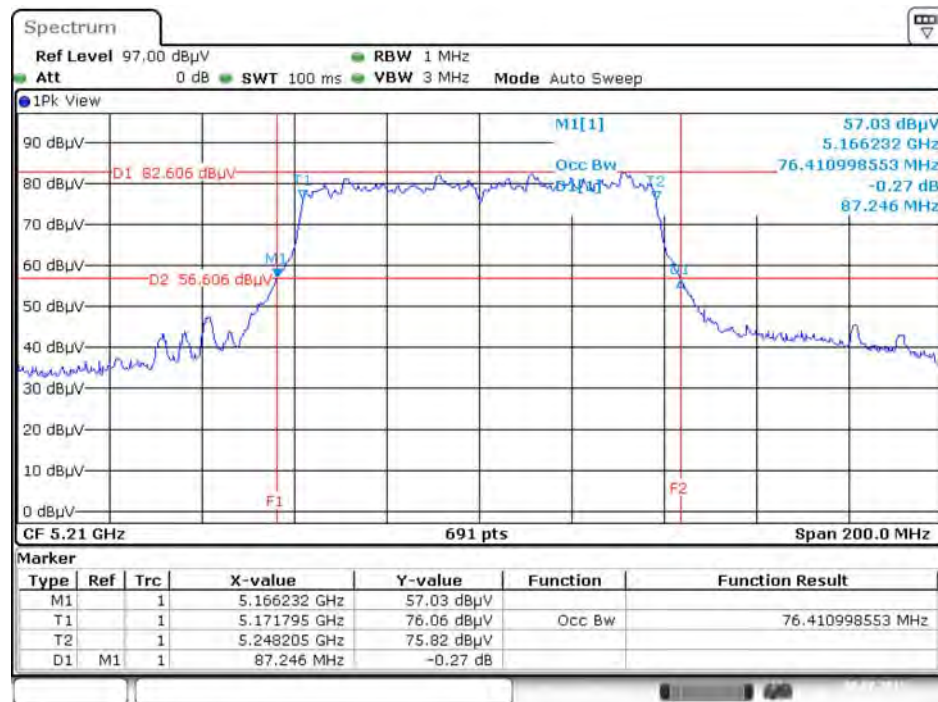
Date: 28 JUL 2015 23:50:09

# 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT40 / Chain 4 + Chain 5 + Chain 6 / 5795 MHz



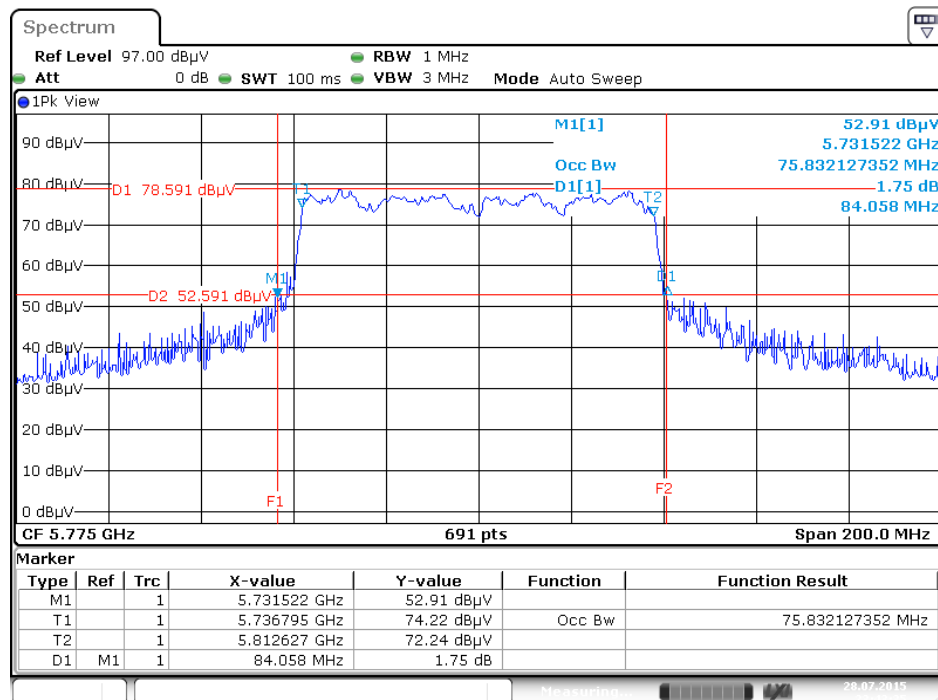
Date: 28 JUL 2015 23:50:56

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT80 / Chain 4 + Chain 5 + Chain 6 / 5210 MHz



Date: 30 JUL 2015 14:55:56

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT80 / Chain 4 + Chain 5 + Chain 6 / 5775 MHz



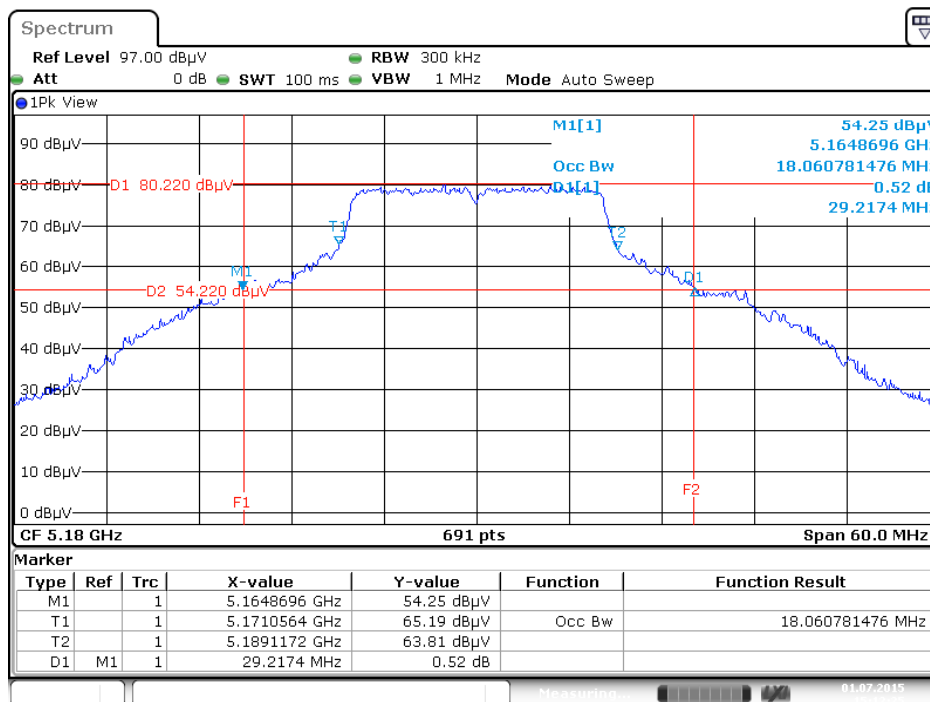
Date: 28 JUL 2015 23:43:35

## &lt;For Radio 3&gt;

Temperature	25°C	Humidity	55%
Test Engineer	Clemens Fang		

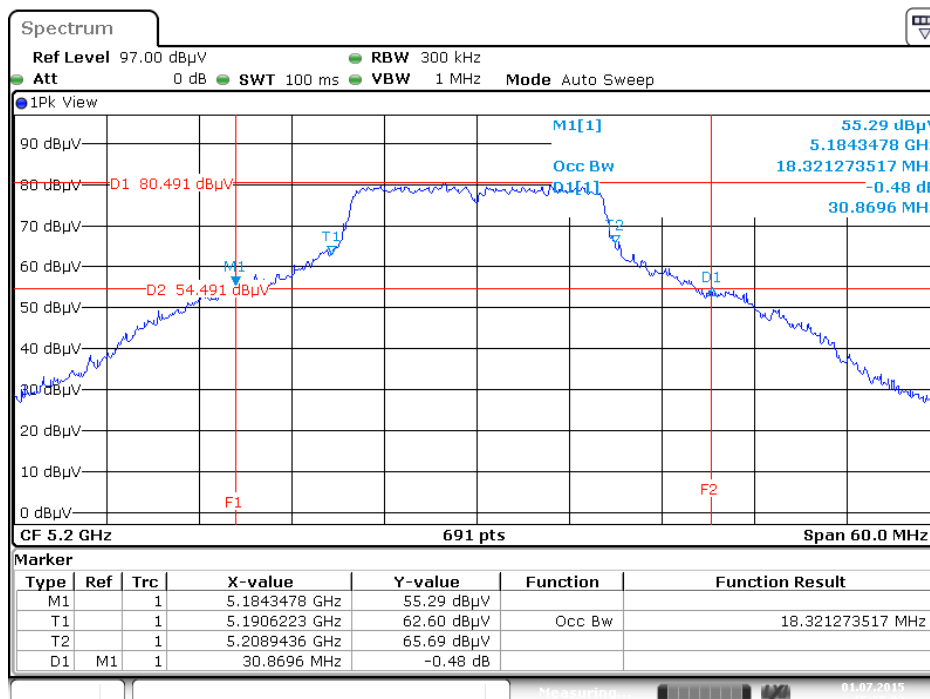
Mode	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11a	5180 MHz	29.22	18.06
	5200 MHz	30.87	18.32
	5240 MHz	29.65	17.97
	5745 MHz	28.61	17.63
	5785 MHz	28.78	17.54
	5825 MHz	30.78	18.23
802.11ac MCS0/Nss1 VHT20	5180 MHz	30.00	18.93
	5200 MHz	31.57	19.19
	5240 MHz	31.48	18.84
	5745 MHz	29.91	18.49
	5785 MHz	29.91	18.58
	5825 MHz	31.57	18.93
802.11ac MCS0/Nss1 VHT40	5190 MHz	54.93	37.63
	5230 MHz	66.67	38.49
	5755 MHz	55.94	37.92
	5795 MHz	60.87	37.92
802.11ac MCS0/Nss1 VHT80	5210 MHz	111.59	76.99
	5775 MHz	116.23	77.28

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 7 / 5180 MHz



Date: 1 JUL 2015 15:12:25

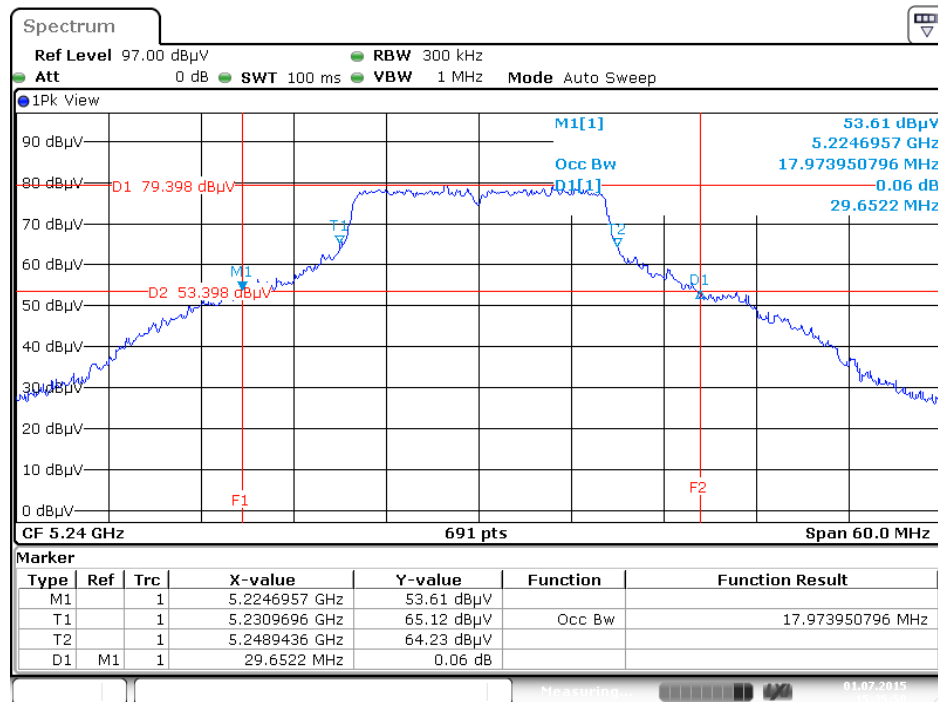
## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 7 / 5200 MHz



Date: 1 JUL 2015 15:35:03

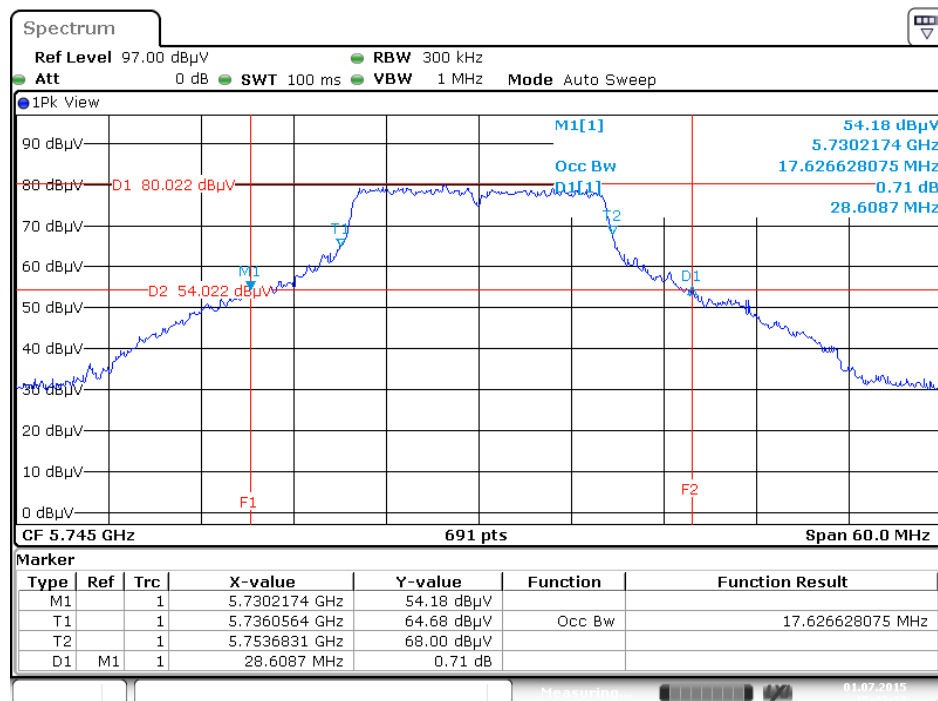


### 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 7 / 5240 MHz



Date: 1 JUL 2015 15:35:50

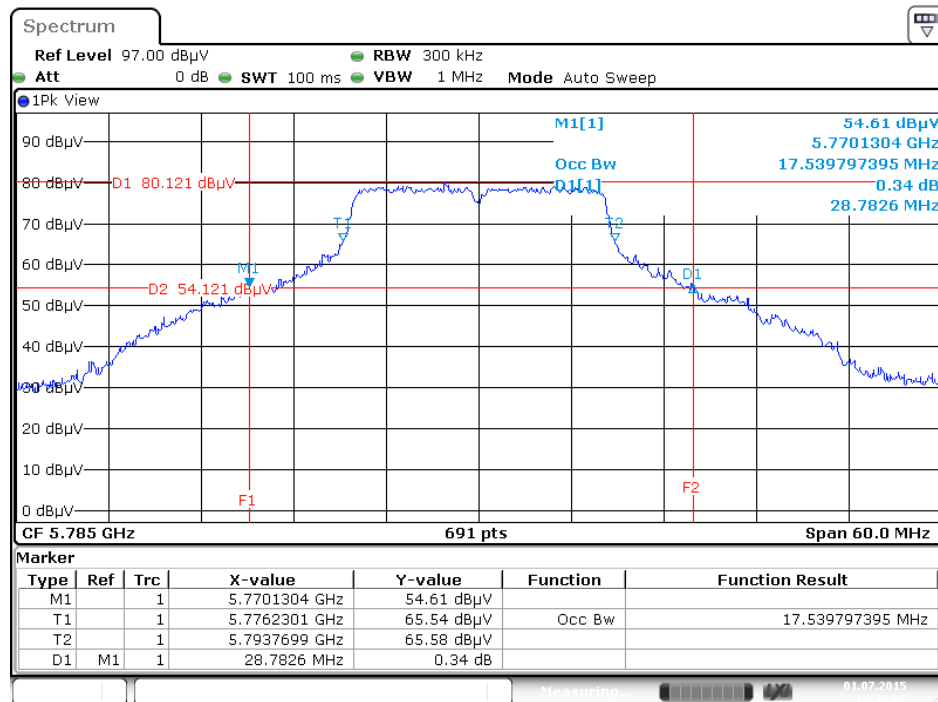
### 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 7 / 5745 MHz



Date: 1 JUL 2015 15:42:23

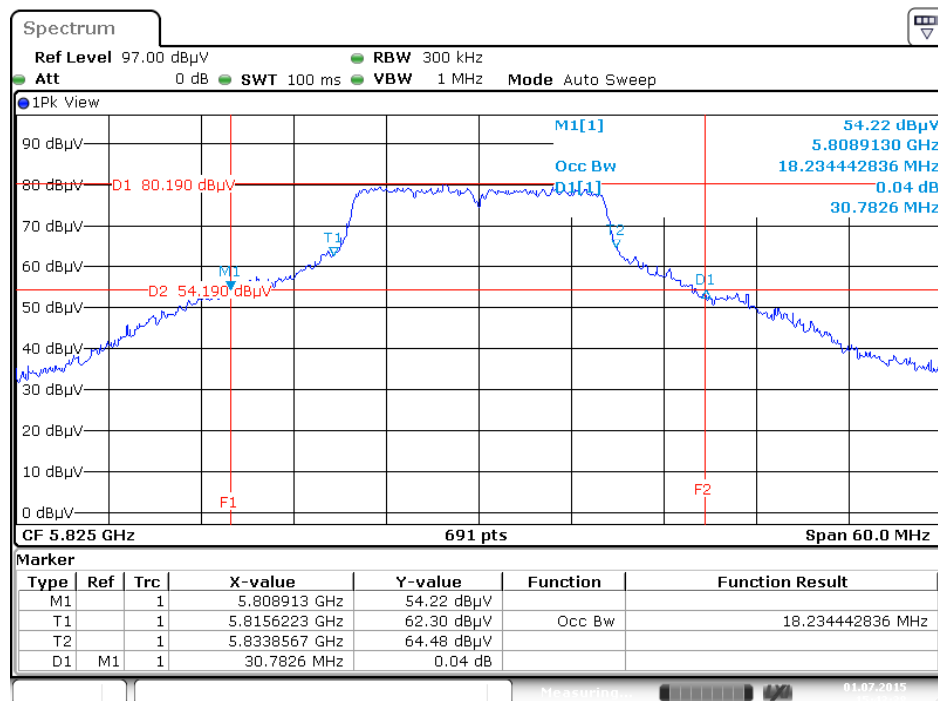


### 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 7 / 5785 MHz



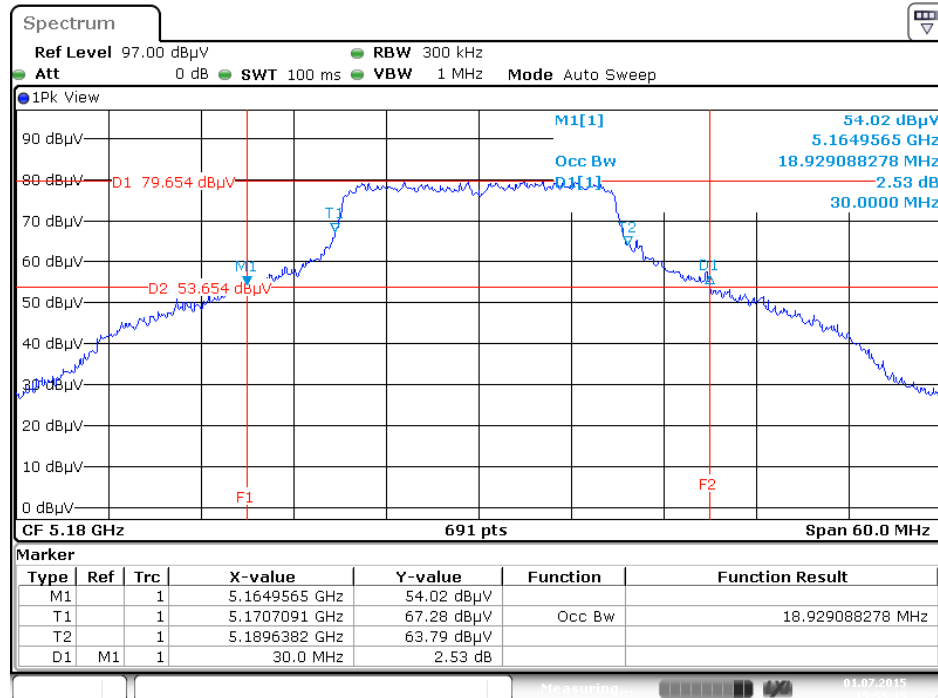
Date: 1 JUL 2015 15:43:02

### 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 7 / 5825 MHz



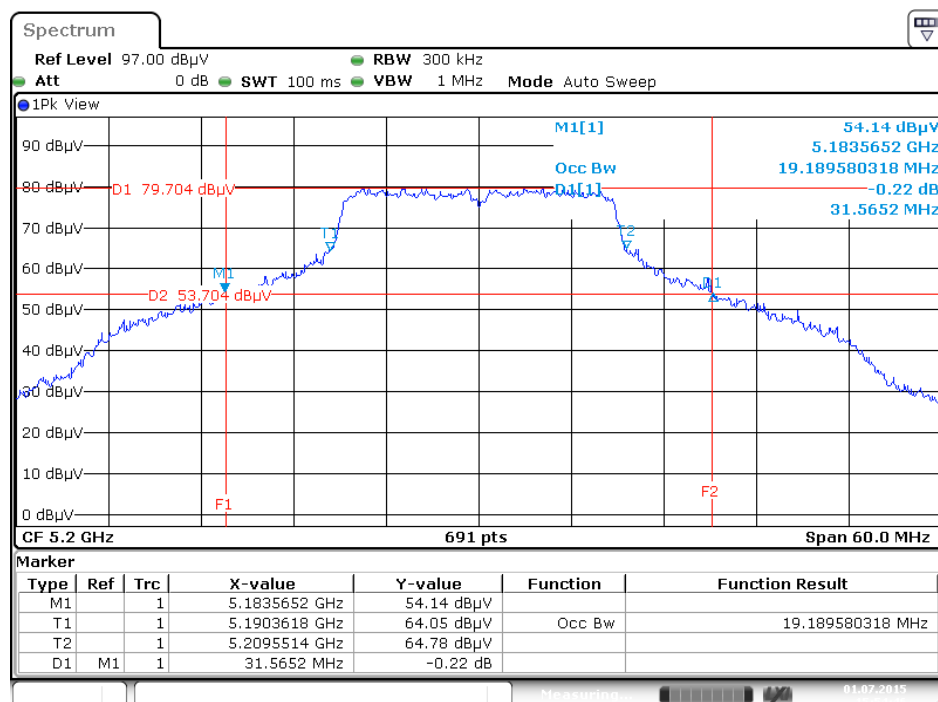
Date: 1 JUL 2015 15:43:38

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 7 / 5180 MHz



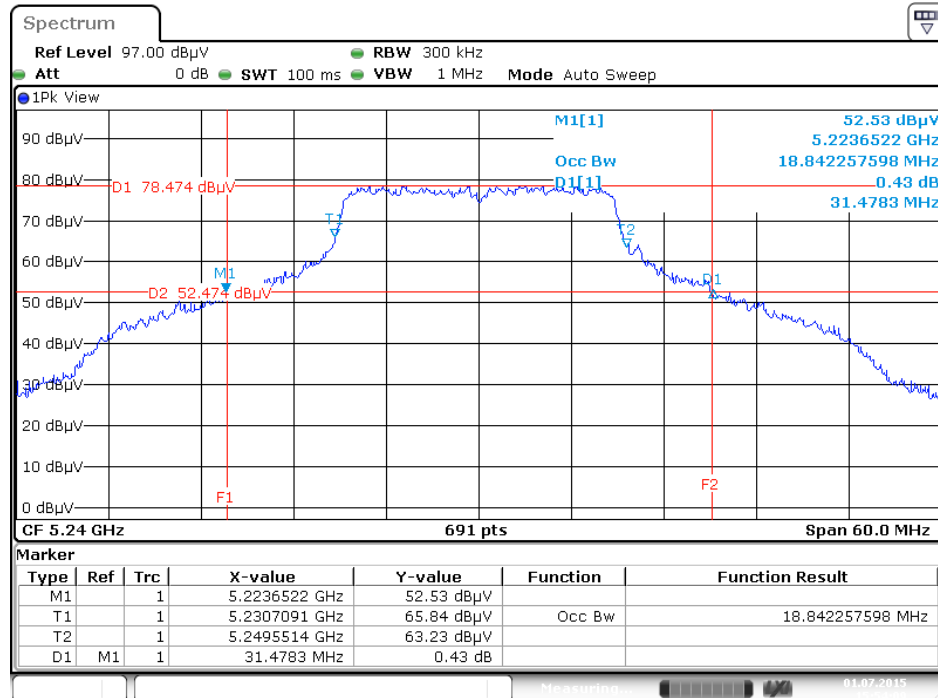
Date: 1 JUL 2015 15:55:15

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 7 / 5200 MHz



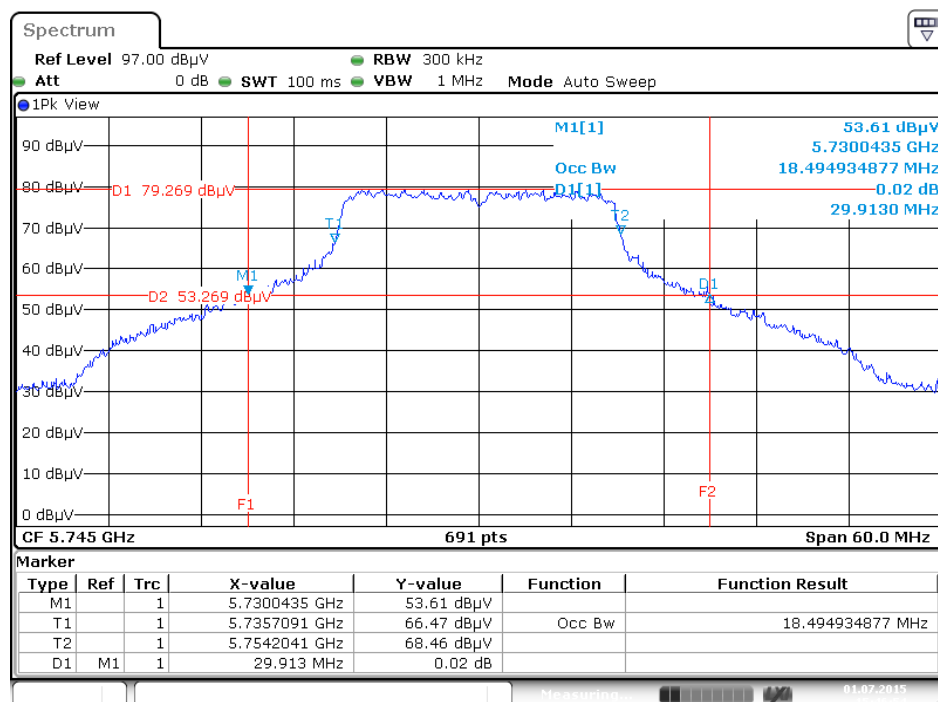
Date: 1 JUL 2015 15:54:46

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 7 / 5240 MHz



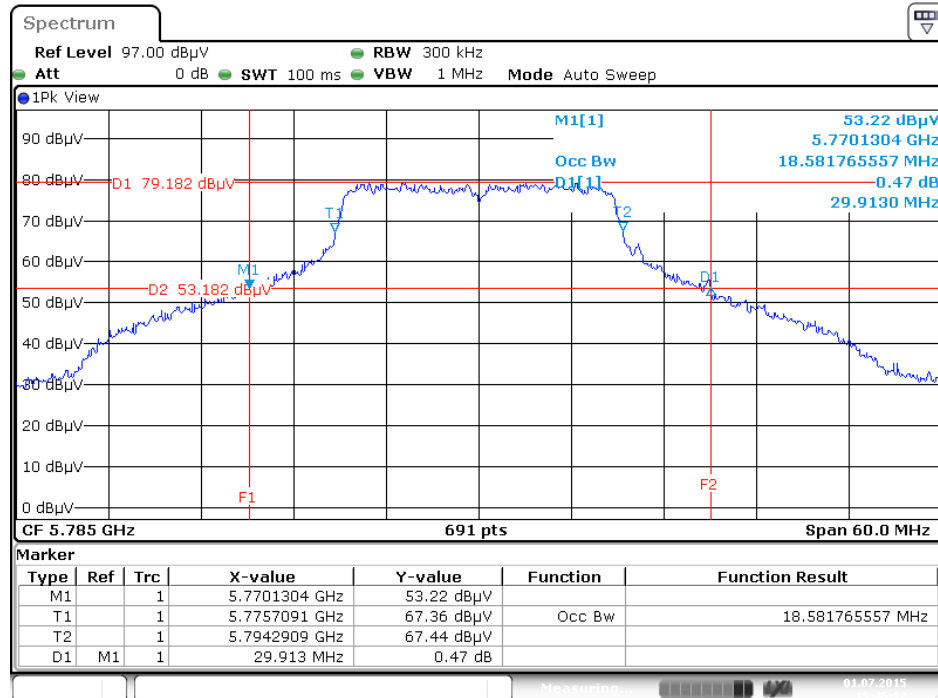
Date: 1 JUL 2015 15:54:09

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 7 / 5745 MHz



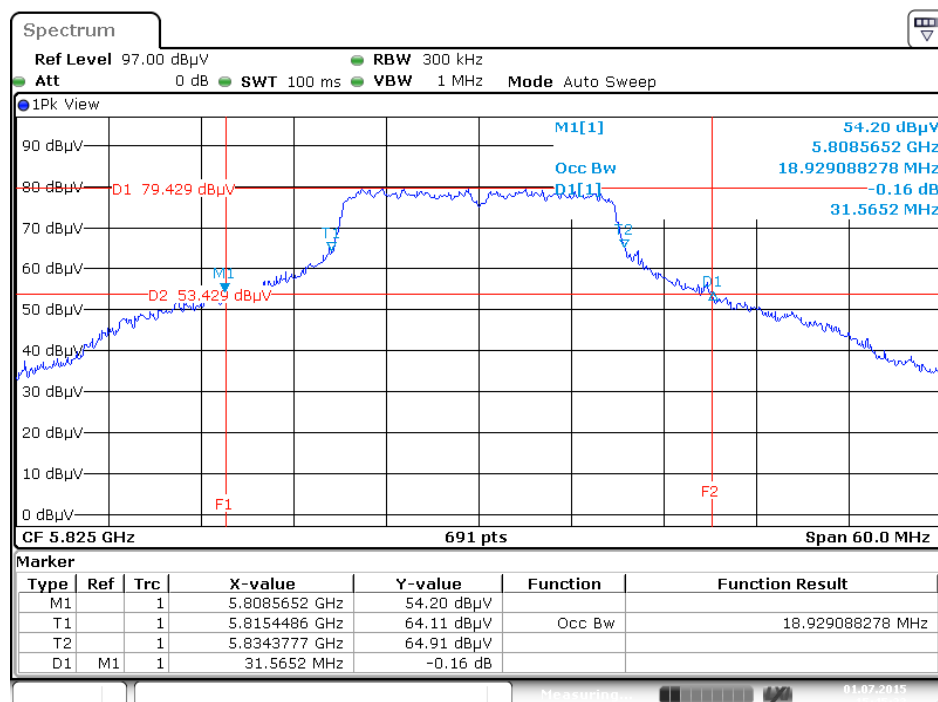
Date: 1 JUL 2015 15:46:54

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 7 / 5785 MHz



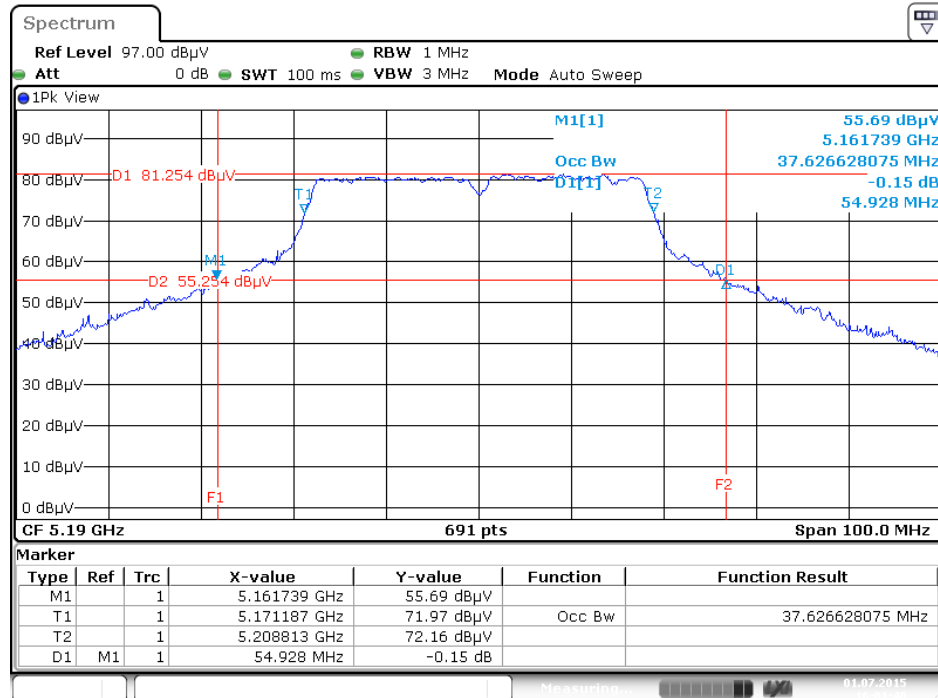
Date: 1 JUL 2015 15:46:12

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 7 / 5825 MHz



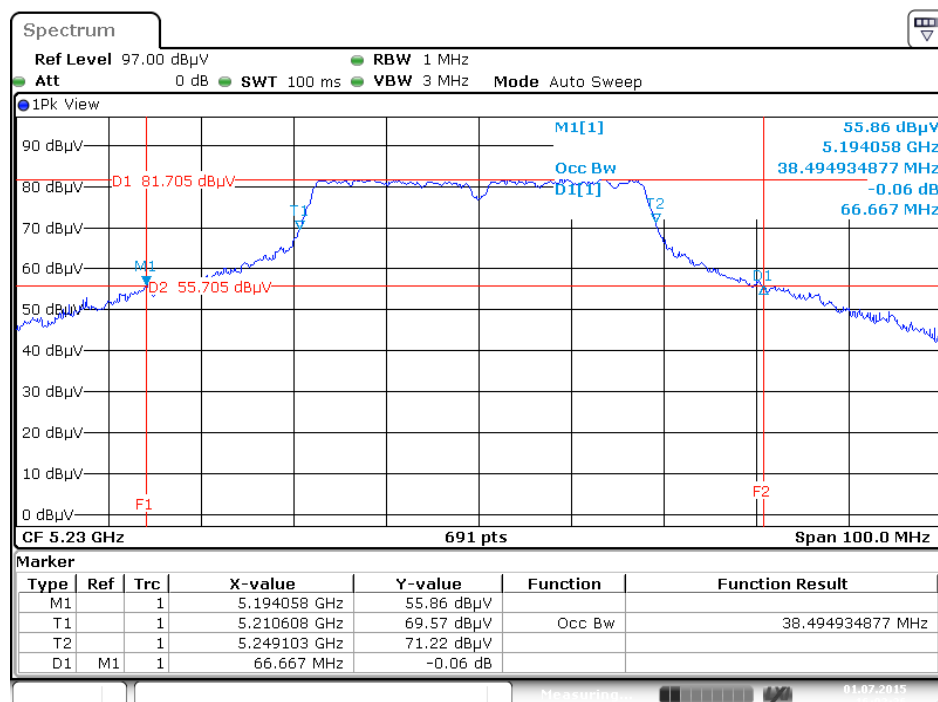
Date: 1 JUL 2015 15:45:33

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 7 / 5190 MHz



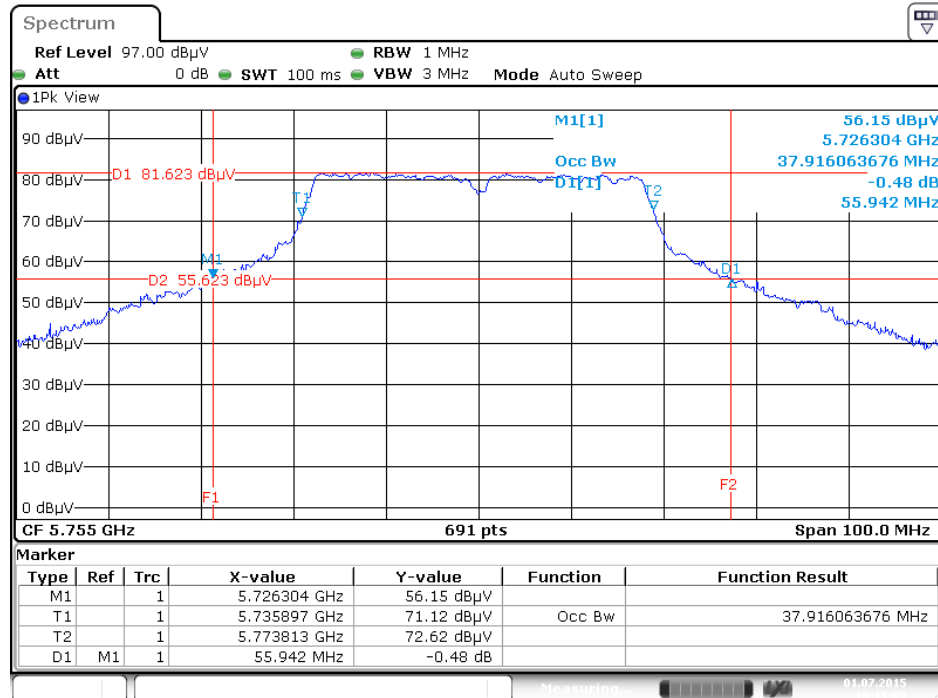
Date: 1 JUL 2015 16:01:40

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 7 / 5230 MHz



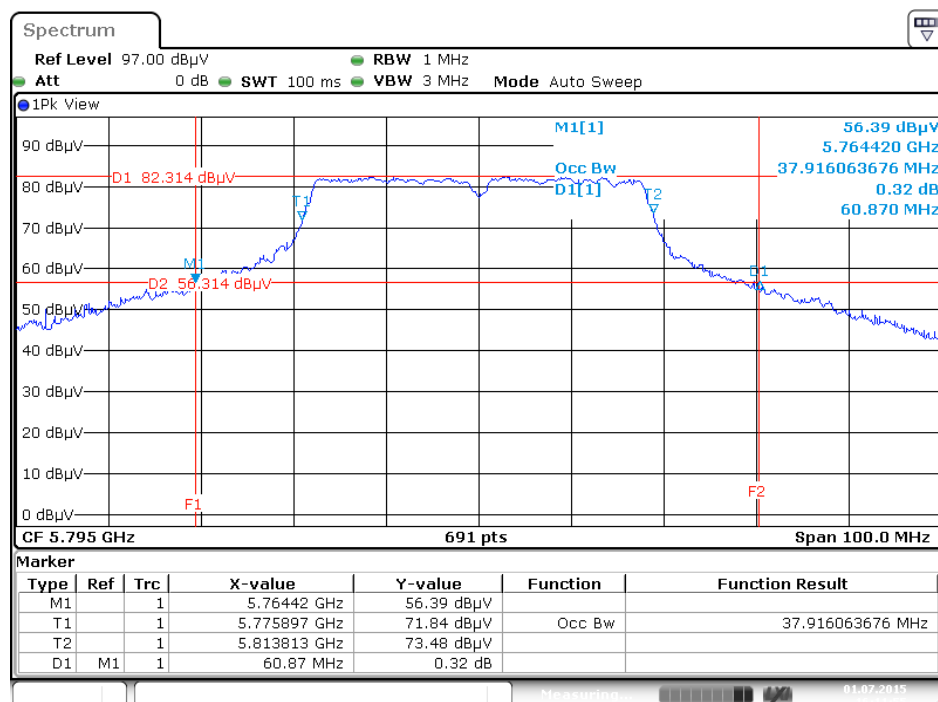
Date: 1 JUL 2015 16:02:35

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 7 / 5755 MHz



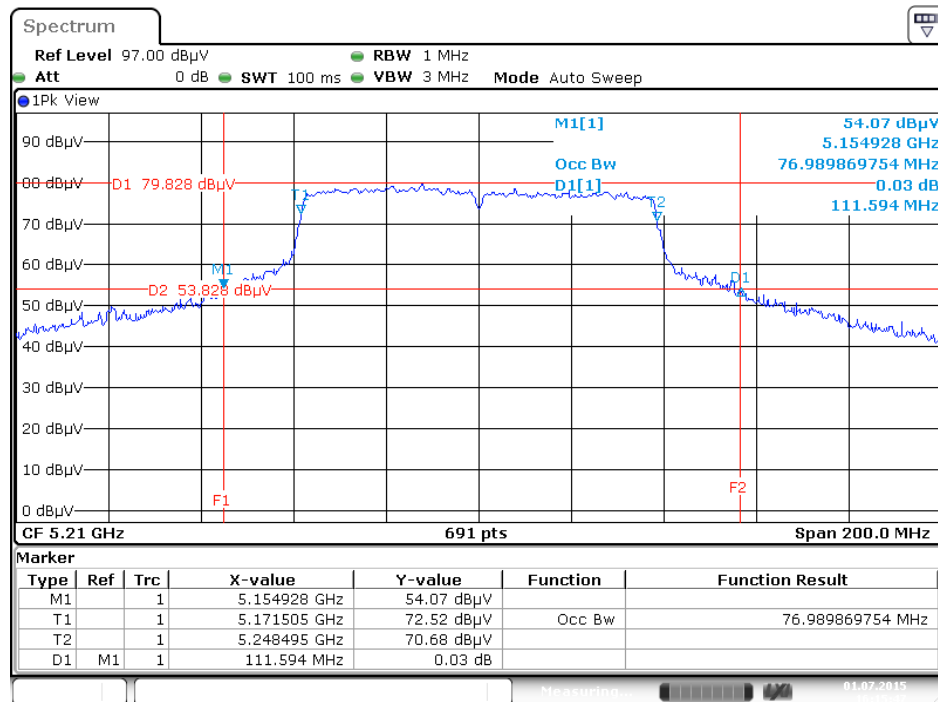
Date: 1 JUL 2015 16:11:09

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 7 / 5795 MHz



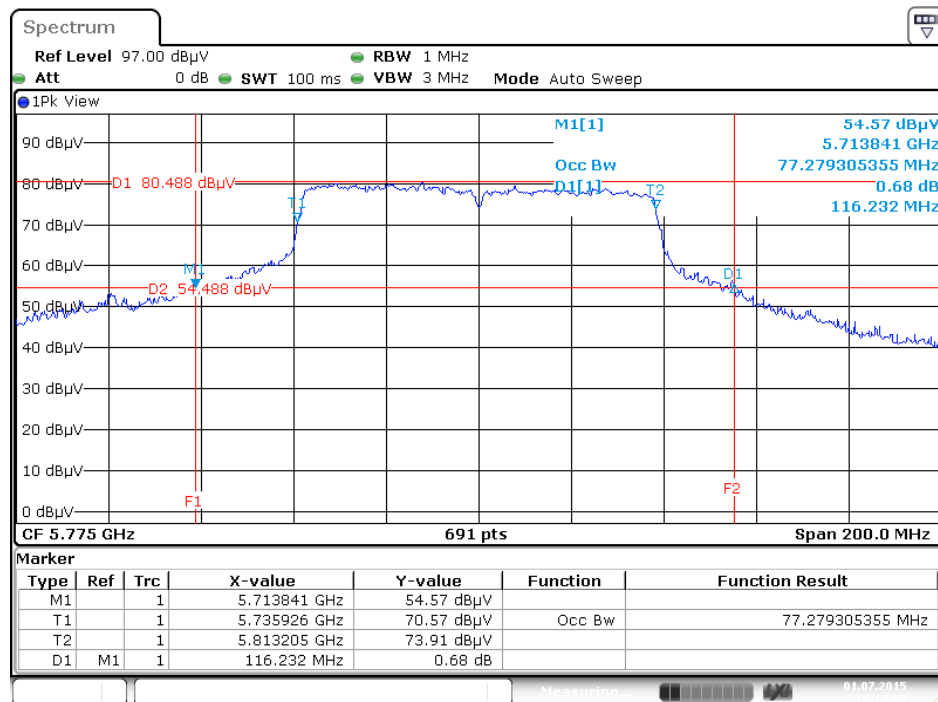
Date: 1 JUL 2015 16:11:56

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 7 / 5210 MHz



Date: 1 JUL 2015 16:15:47

## 26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 7 / 5775 MHz



Date: 1 JUL 2015 16:19:05

### 4.3. 6dB Spectrum Bandwidth Measurement

#### 4.3.1. Limit

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

#### 4.3.2. Measuring Instruments and Setting

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

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

#### 4.3.3. Test Procedures

For Radiated 6dB Bandwidth Measurement:

1. The transmitter was radiated to the spectrum analyzer in peak hold mode.
2. Test was performed in accordance with KDB789033 D02 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.

#### 4.3.4. Test Setup Layout

For Radiated 6dB Bandwidth Measurement:

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



#### **4.3.5. Test Deviation**

There is no deviation with the original standard.

#### **4.3.6. EUT Operation during Test**

The EUT was programmed to be in continuously transmitting mode.

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

<For Radio 2 Non-beamforming Mode>: 1TX, 1S

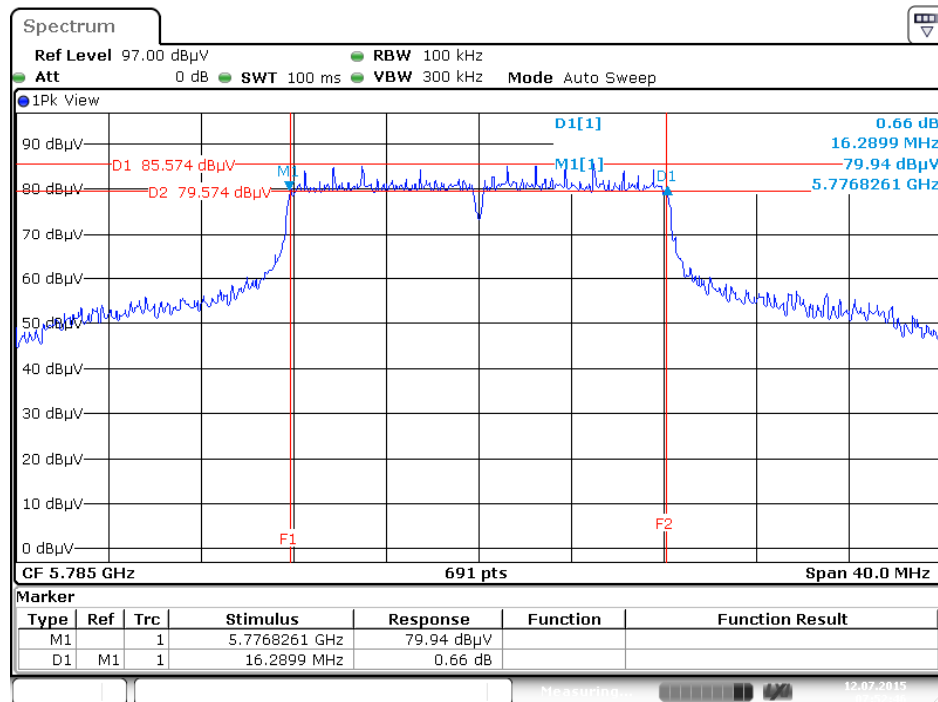
Temperature	25°C	Humidity	55%
Test Engineer	Lucas Huang		

Mode	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Test Result
802.11a	5745 MHz	16.35	500	Complies
	5785 MHz	16.29	500	Complies
	5825 MHz	16.29	500	Complies
802.11ac MCS0/Nss1 VHT20	5745 MHz	17.57	500	Complies
	5785 MHz	17.57	500	Complies
	5825 MHz	17.57	500	Complies
802.11ac MCS0/Nss1 VHT40	5755 MHz	36.29	500	Complies
	5795 MHz	36.06	500	Complies
802.11ac MCS0/Nss1 VHT80	5775 MHz	76.52	500	Complies

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

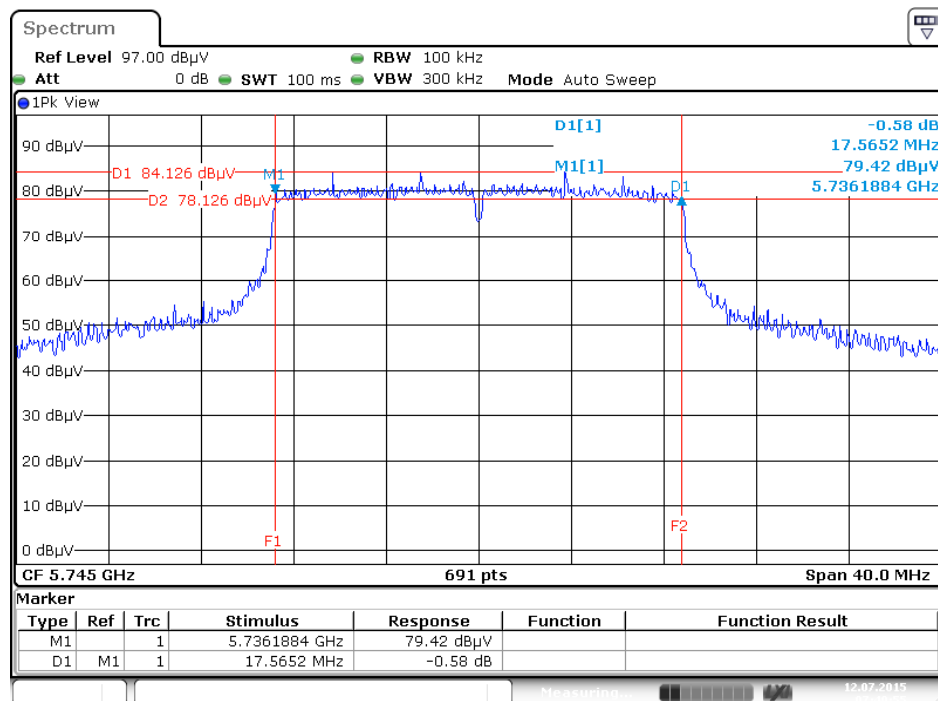
For plots, only the channel with worse result was shown.

### 6 dB Bandwidth Plot on Configuration IEEE 802.11a / Chain 4 / 5785 MHz



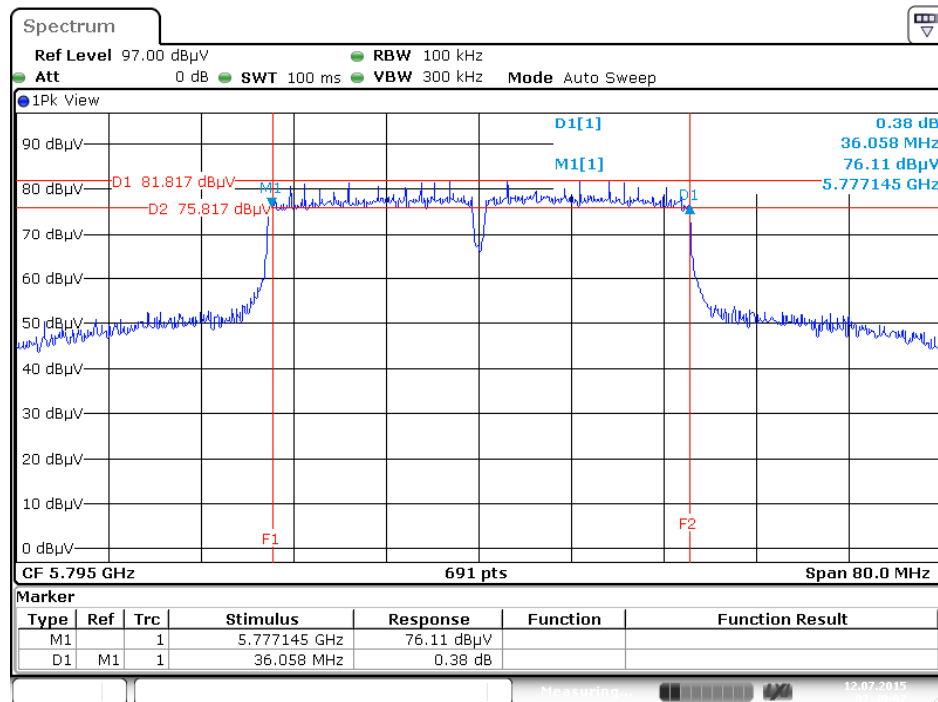
Date: 12.JUL.2015 07:52:46

### 6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4 / 5745 MHz



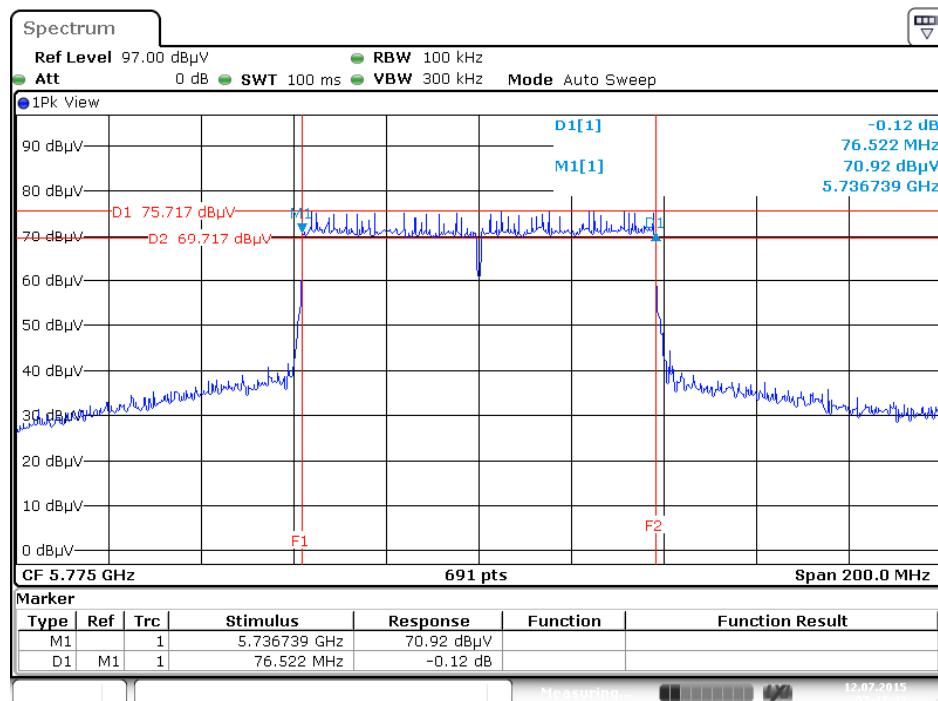
Date: 12.JUL.2015 07:49:55

### 6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 4 / 5795MHz



Date: 12.JUL.2015 07:49:07

### 6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 4 / 5775 MHz



Date: 12.JUL.2015 07:47:43

<For Radio 2 Non-beamforming Mode>: 2TX, 1S

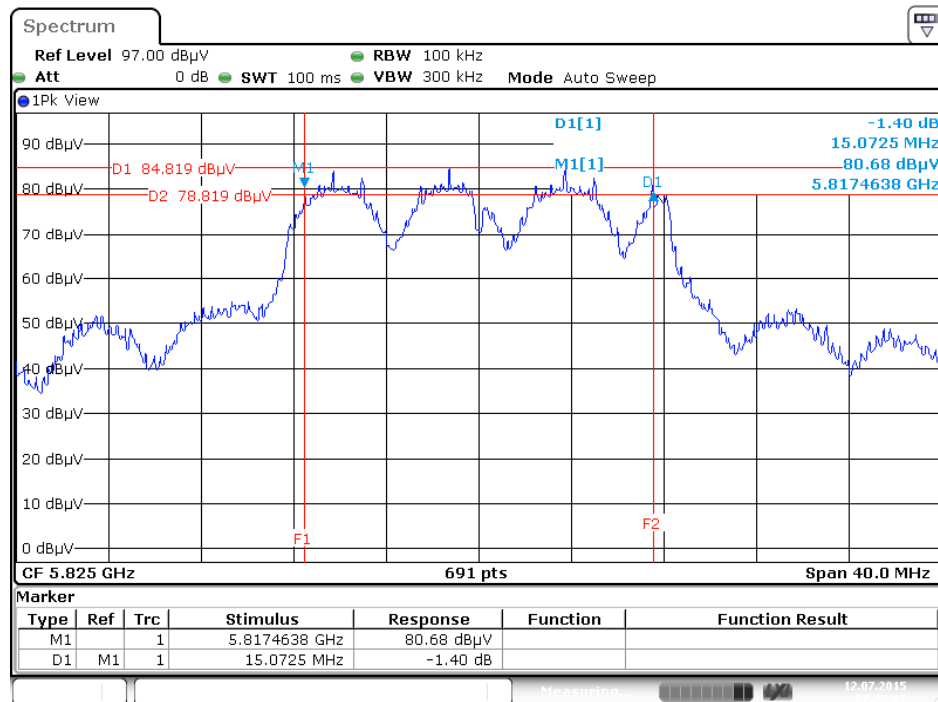
Temperature	25°C	Humidity	55%
Test Engineer	Lucas Huang		

Mode	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Test Result
802.11a	5745 MHz	15.13	500	Complies
	5785 MHz	15.71	500	Complies
	5825 MHz	15.07	500	Complies
802.11ac MCS0/Nss1 VHT20	5745 MHz	15.48	500	Complies
	5785 MHz	15.36	500	Complies
	5825 MHz	15.65	500	Complies
802.11ac MCS0/Nss1 VHT40	5755 MHz	34.32	500	Complies
	5795 MHz	35.71	500	Complies
802.11ac MCS0/Nss1 VHT80	5775 MHz	74.78	500	Complies

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

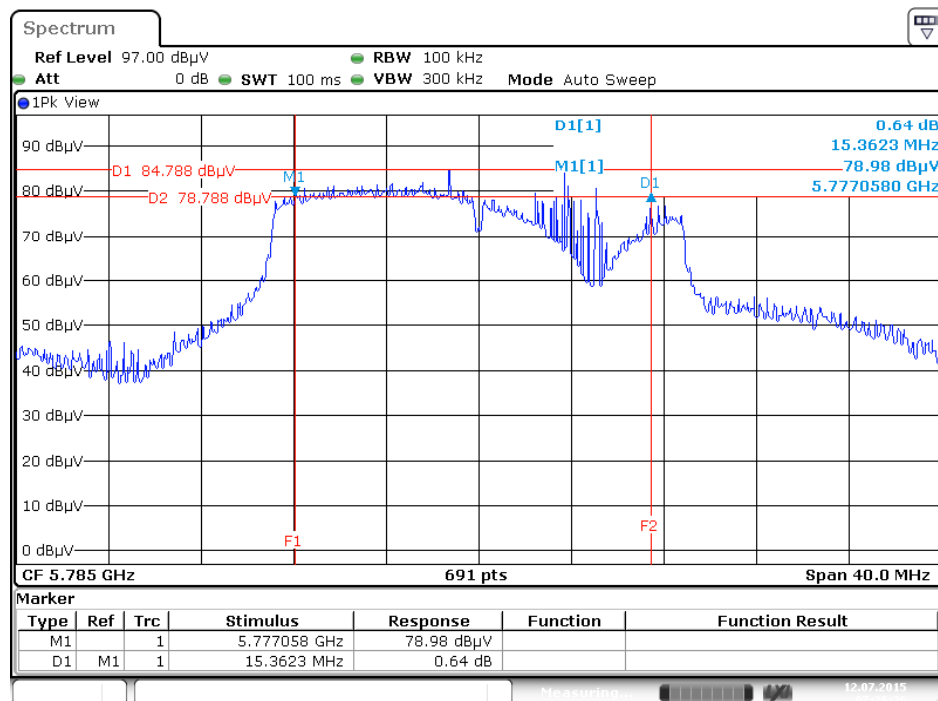
For plots, only the channel with worse result was shown.

### 6 dB Bandwidth Plot on Configuration IEEE 802.11a / Chain 4 + Chain 5 / 5825 MHz



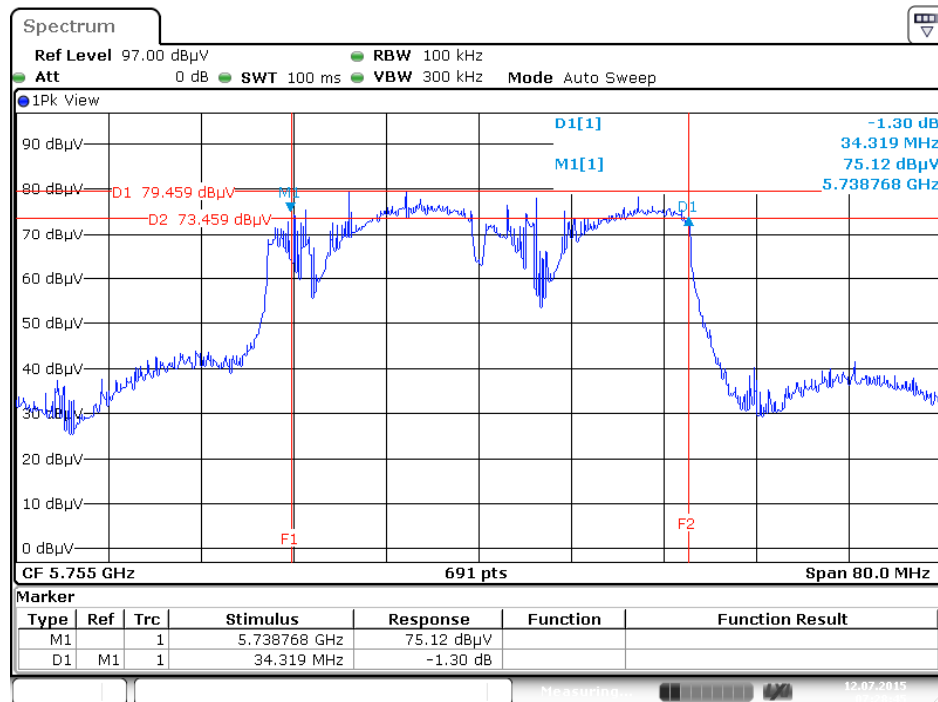
Date: 12.JUL.2015 07:25:07

### 6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4 + Chain 5 / 5785 MHz

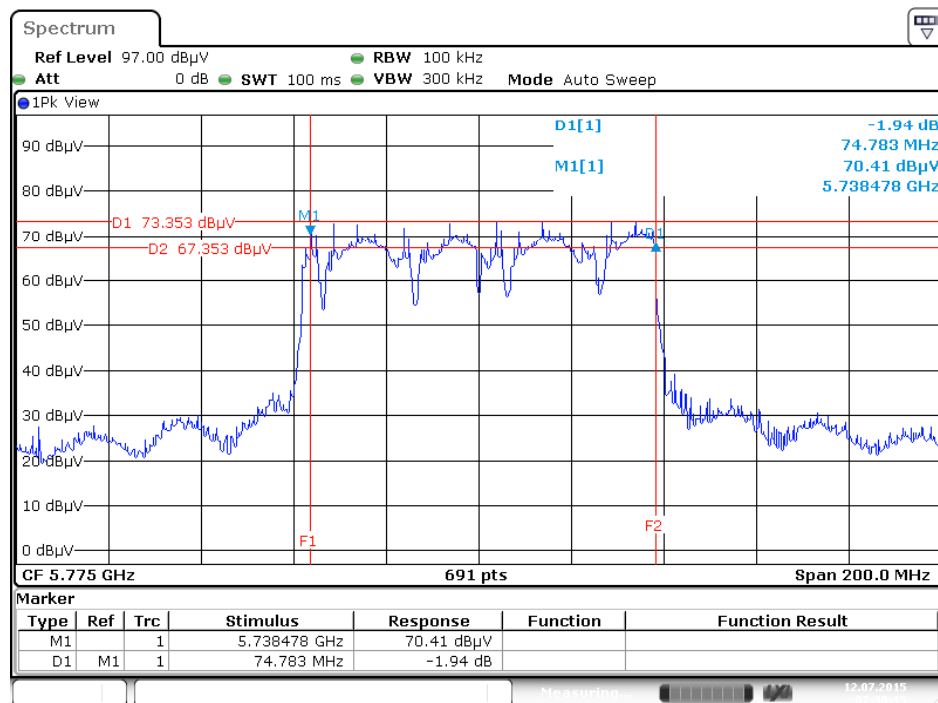


Date: 12.JUL.2015 07:26:27

### 6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 4 + Chain 5 / 5755MHz



### 6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 4 + Chain 5 / 5775 MHz



<For Radio 2 Non-beamforming Mode>: 2TX, 2S

Temperature	25°C	Humidity	55%
Test Engineer	Lucas Huang		

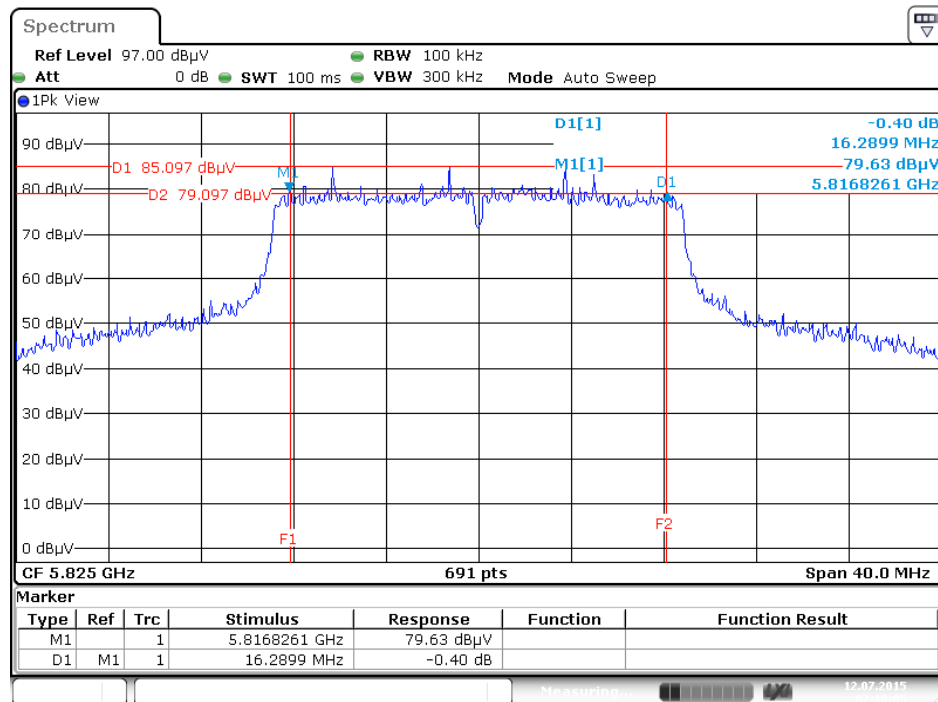
Mode	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Test Result
802.11ac MCS0/Nss2 VHT20	5745 MHz	17.04	500	Complies
	5785 MHz	16.52	500	Complies
	5825 MHz	16.29	500	Complies
802.11ac MCS0/Nss2 VHT40	5755 MHz	35.01	500	Complies
	5795 MHz	35.01	500	Complies
802.11ac MCS0/Nss2 VHT80	5775 MHz	74.78	500	Complies

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

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

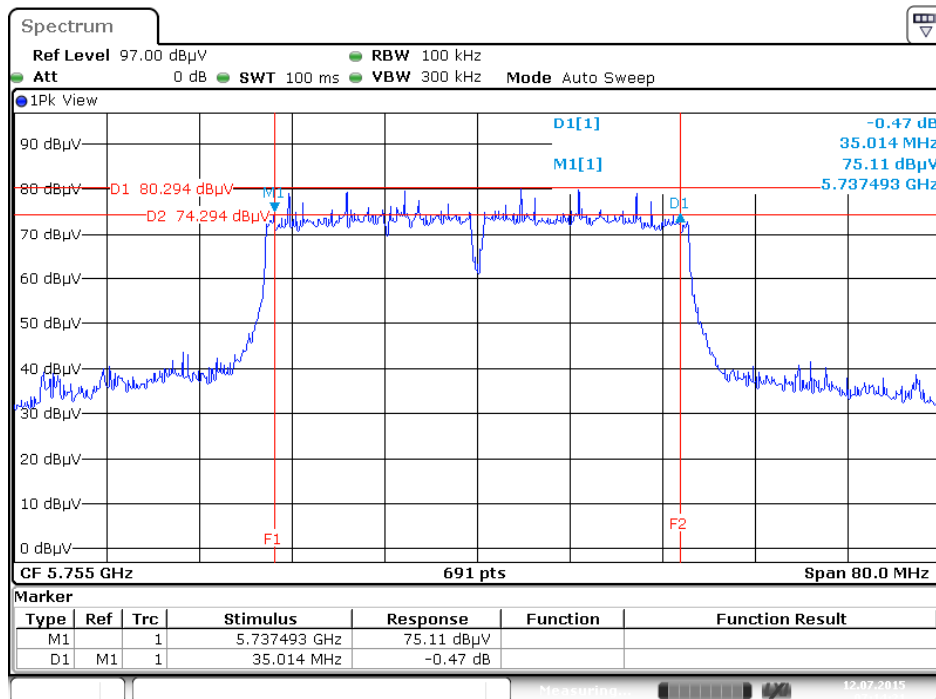


### 6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT20 / Chain 4 + Chain 5 / 5825 MHz



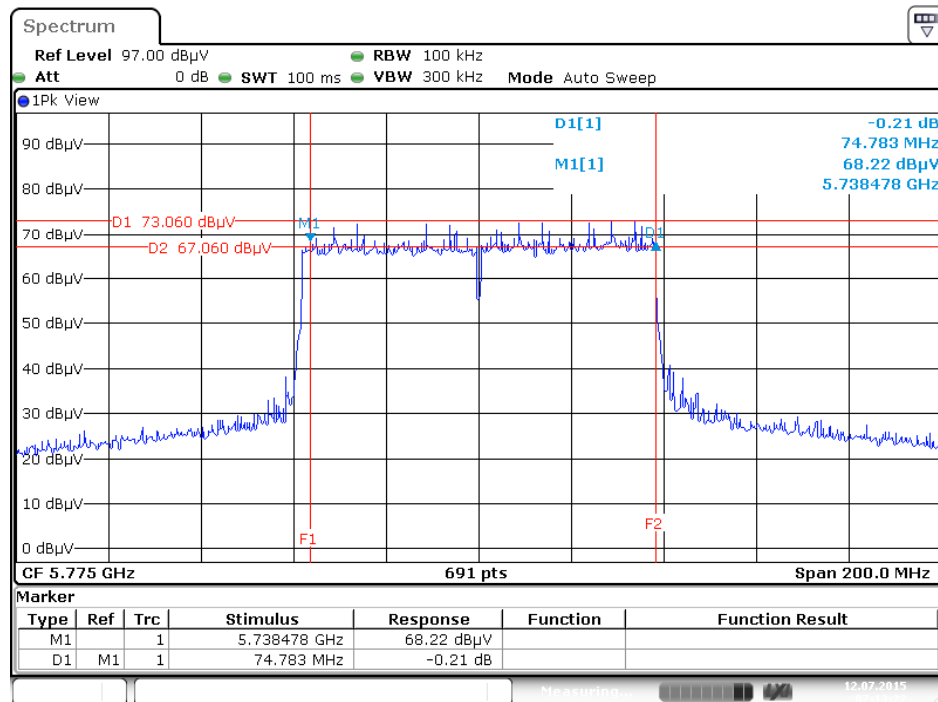
Date: 12.JUL.2015 07:18:05

### 6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT40 / Chain 4 + Chain 5 / 5755MHz



Date: 12.JUL.2015 07:14:21

### 6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT80 / Chain 4 + Chain 5 / 5775 MHz



Date: 12.JUL.2015 07:13:22

<For Radio 2 Non-beamforming Mode>: 3TX, 1S

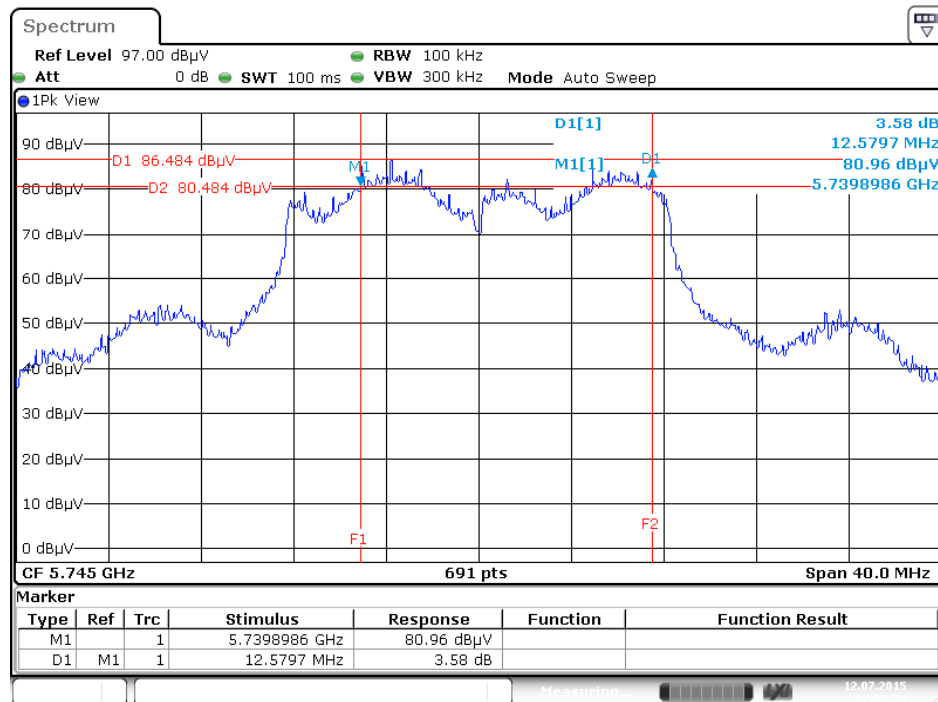
Temperature	25°C	Humidity	55%
Test Engineer	Lcuas Huang		

Mode	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Test Result
802.11a	5745 MHz	12.58	500	Complies
	5785 MHz	12.64	500	Complies
	5825 MHz	12.58	500	Complies
802.11ac MCS0/Nss1 VHT20	5745 MHz	15.25	500	Complies
	5785 MHz	16.29	500	Complies
	5825 MHz	16.35	500	Complies
802.11ac MCS0/Nss1 VHT40	5755 MHz	32.58	500	Complies
	5795 MHz	31.88	500	Complies
802.11ac MCS0/Nss1 VHT80	5775 MHz	72.75	500	Complies

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

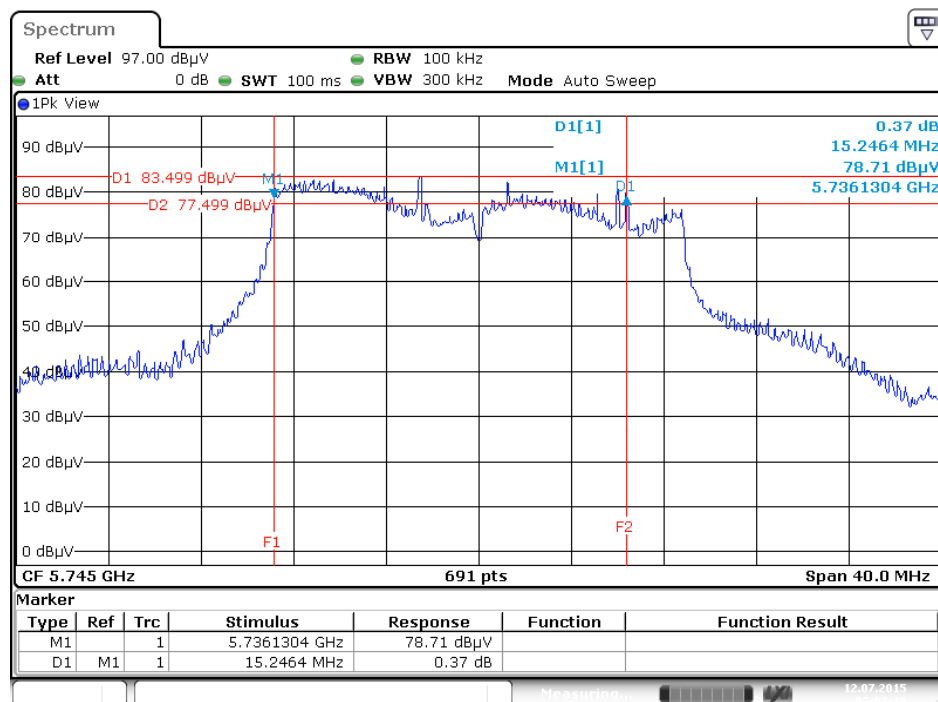
For plots, only the channel with worse result was shown.

### 6 dB Bandwidth Plot on Configuration IEEE 802.11a / Chain 4 + Chain 5 + Chain 6 / 5745 MHz



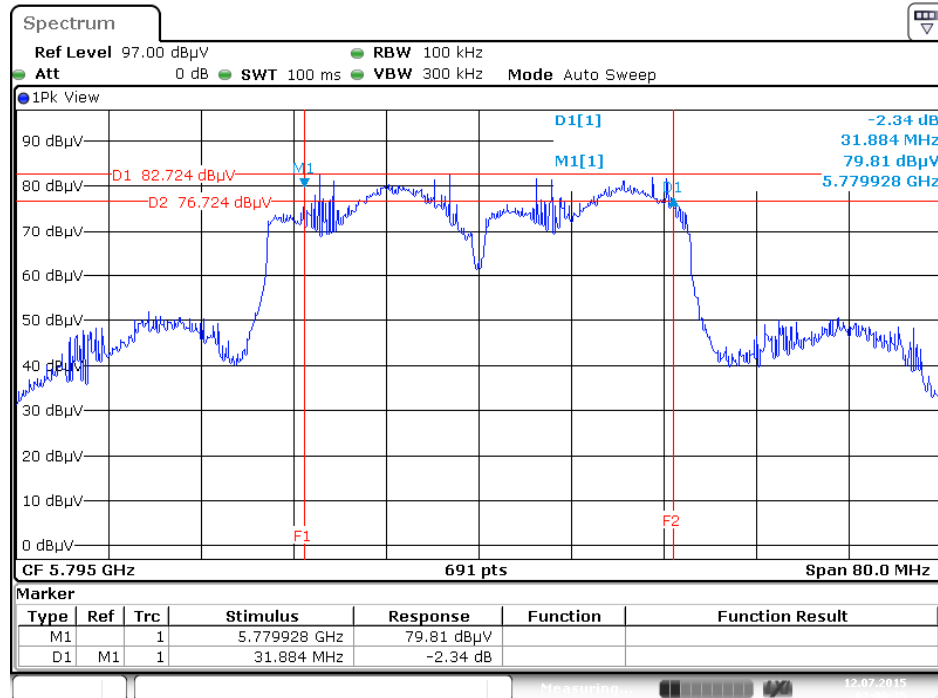
Date: 12.JUL.2015 07:05:24

### 6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4 + Chain 5 + Chain 6 / 5745 MHz



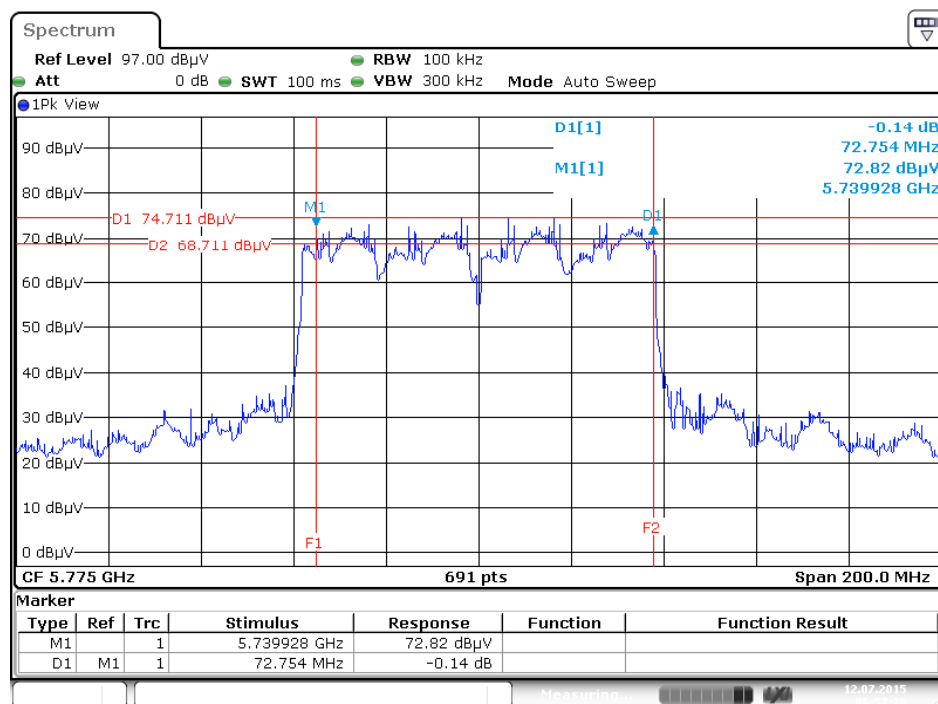
Date: 12.JUL.2015 07:02:19

# 6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 4 + Chain 5 + Chain 6 / 5795MHz



Date: 12.JUL.2015 07:00:35

# 6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 4 + Chain 5 + Chain 6 / 5775 MHz



Date: 12.JUL.2015 06:57:26

<For Radio 2 Non-beamforming Mode>: 3TX, 2S

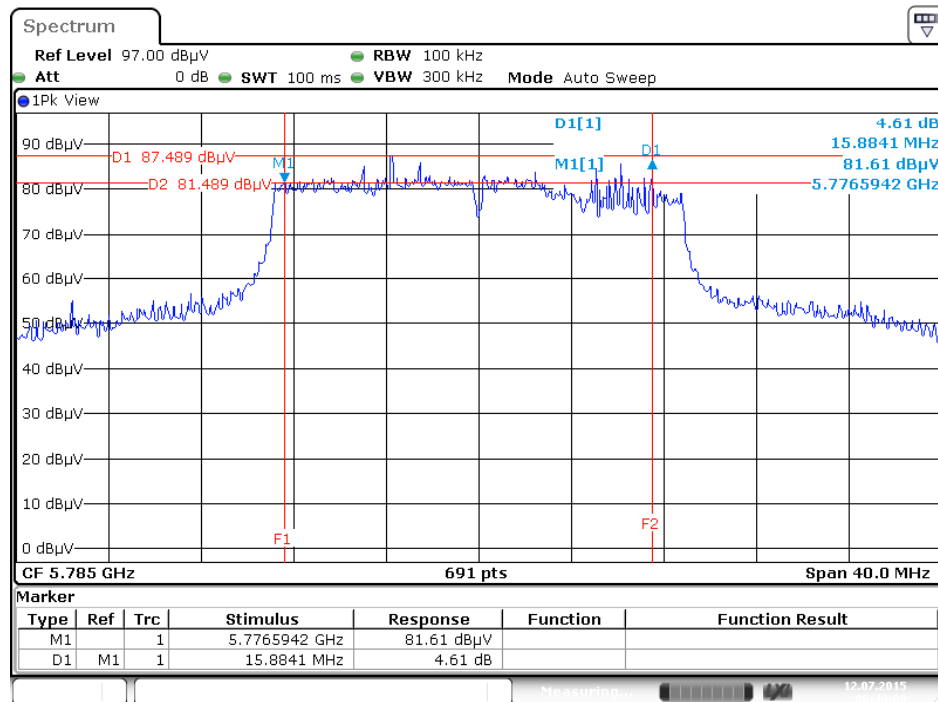
Temperature	25°C	Humidity	55%
Test Engineer	Lucas Huang		

Mode	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Test Result
802.11ac MCS0/Nss2 VHT20	5745 MHz	16.35	500	Complies
	5785 MHz	15.88	500	Complies
	5825 MHz	15.94	500	Complies
802.11ac MCS0/Nss2 VHT40	5755 MHz	36.06	500	Complies
	5795 MHz	32.58	500	Complies
802.11ac MCS0/Nss2 VHT80	5775 MHz	75.94	500	Complies

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

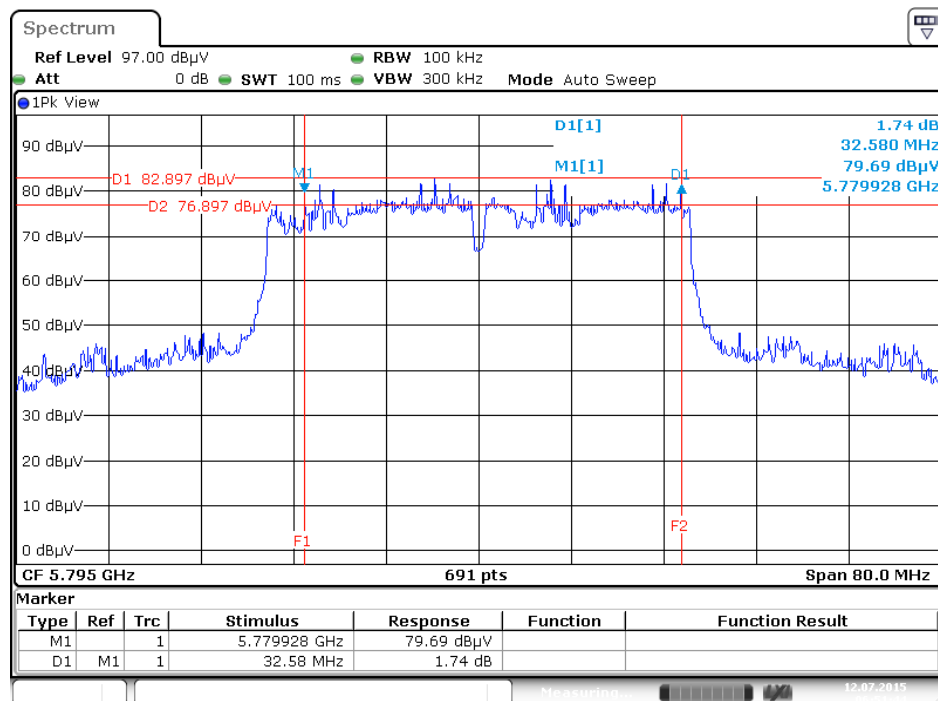
For plots, only the channel with worse result was shown.

### 6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT20 / Chain 4 + Chain 5 / 5785 MHz



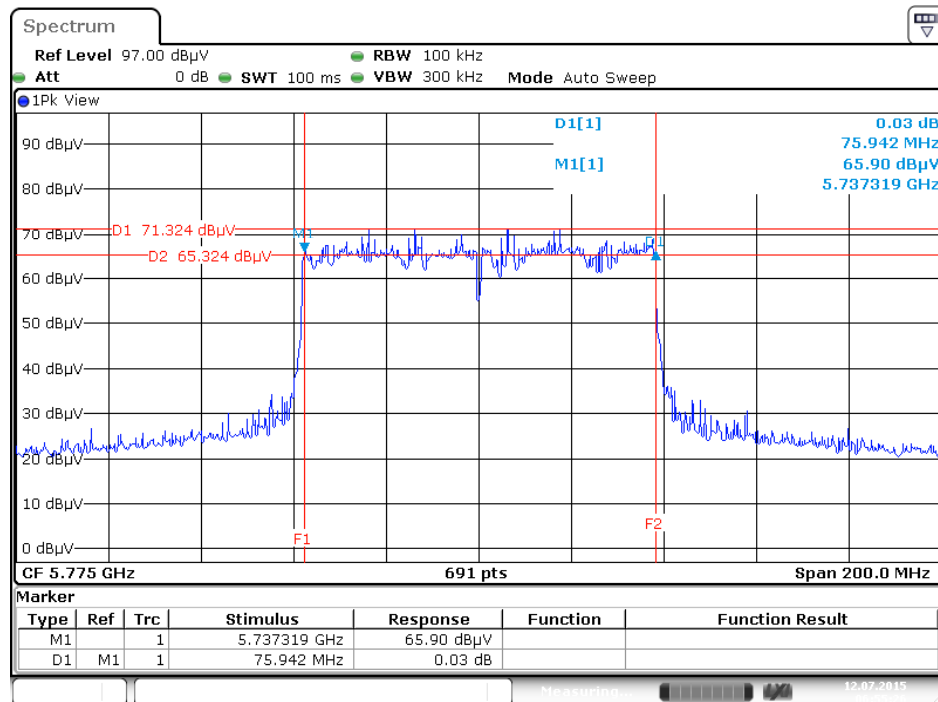
Date: 12.JUL.2015 06:49:00

### 6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT40 / Chain 4 + Chain 5 / 5795MHz



Date: 12.JUL.2015 06:51:44

### 6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT80 / Chain 4 + Chain 5 / 5775 MHz



Date: 12.JUL.2015 06:55:26



<For Radio 2 Non-beamforming Mode>: 3TX, 3S

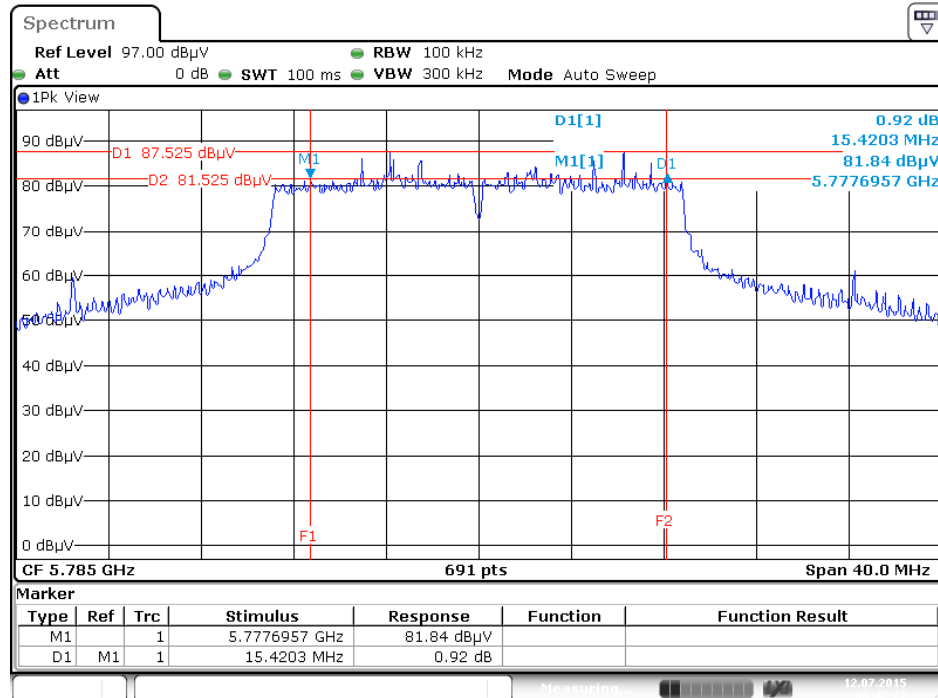
Temperature	25°C	Humidity	55%
Test Engineer	Luacs Huang		

Mode	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Test Result
802.11ac MCS0/Nss3 VHT20	5745 MHz	15.65	500	Complies
	5785 MHz	15.42	500	Complies
	5825 MHz	15.42	500	Complies
802.11ac MCS0/Nss3 VHT40	5755 MHz	35.36	500	Complies
	5795 MHz	34.90	500	Complies
802.11ac MCS0/Nss3 VHT80	5775 MHz	75.36	500	Complies

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

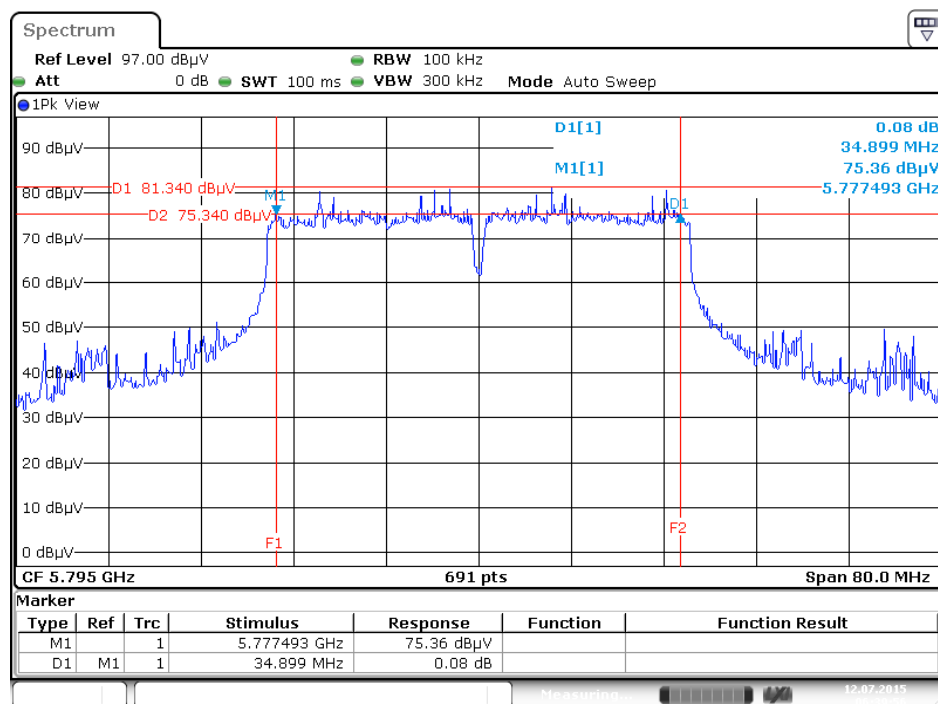
For plots, only the channel with worse result was shown.

## 6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss3 VHT20 / Chain 4 + Chain 5 + Chain 6 / 5785 MHz



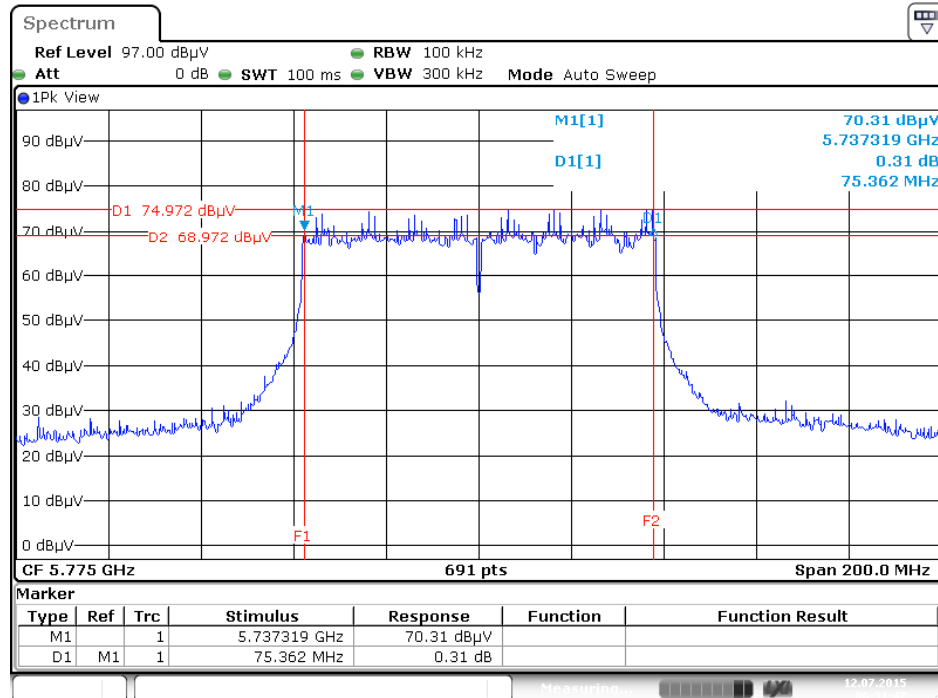
Date: 12.JUL.2015 06:42:22

## 6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss3 VHT40 / Chain 4 + Chain 5 + Chain 6 / 5795MHz



Date: 12.JUL.2015 06:39:56

# 6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss3 VHT80 / Chain 4 + Chain 5 + Chain 6 / 5775 MHz



Date: 12.JUL.2015 06:31:47

<For Radio 2 Beamforming Mode>: 2TX, 1S

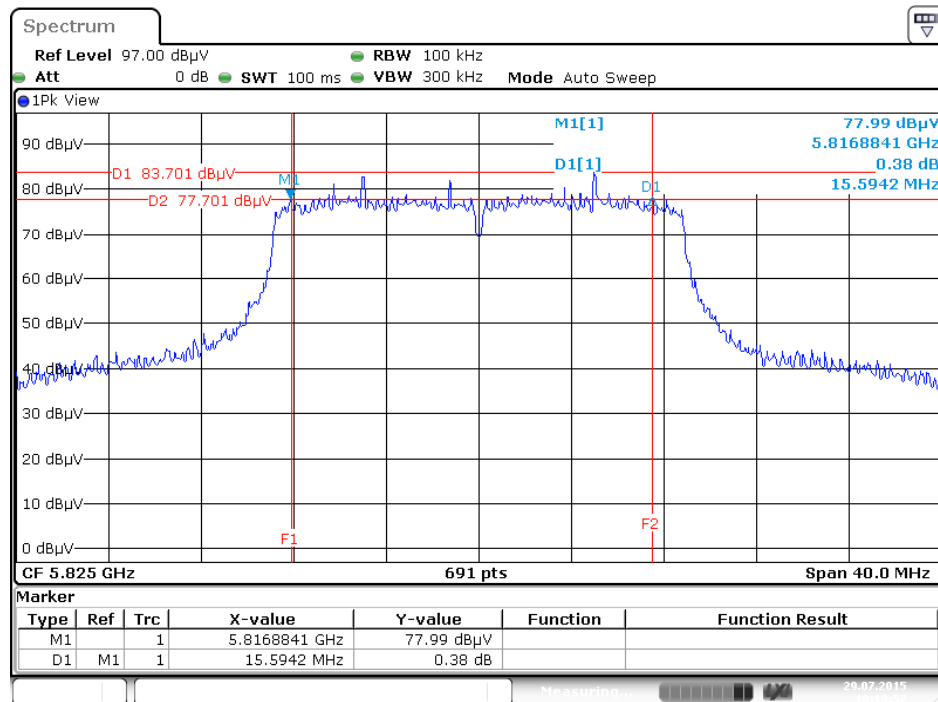
Temperature	25°C	Humidity	55%
Test Engineer	Eddie Weng		

Mode	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Test Result
802.11ac MCS0/Nss1 VHT20	5745 MHz	16.97	500	Complies
	5785 MHz	15.65	500	Complies
	5825 MHz	15.59	500	Complies
802.11ac MCS0/Nss1 VHT40	5755 MHz	31.30	500	Complies
	5795 MHz	31.42	500	Complies
802.11ac MCS0/Nss1 VHT80	5775 MHz	74.49	500	Complies

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

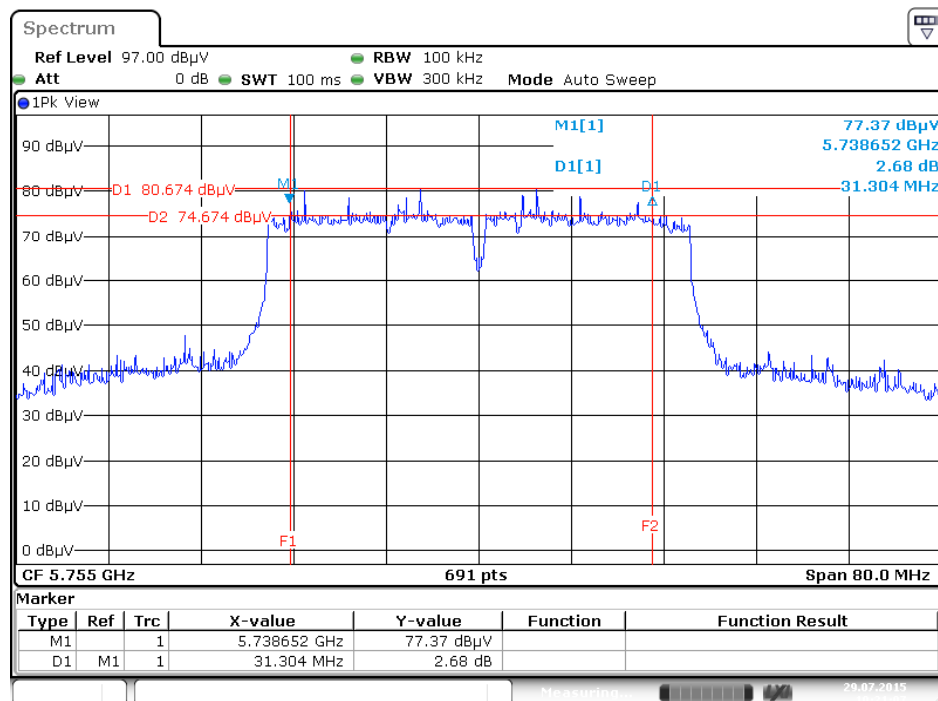
For plots, only the channel with worse result was shown.

### 6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4 + Chain 5 / 5825 MHz



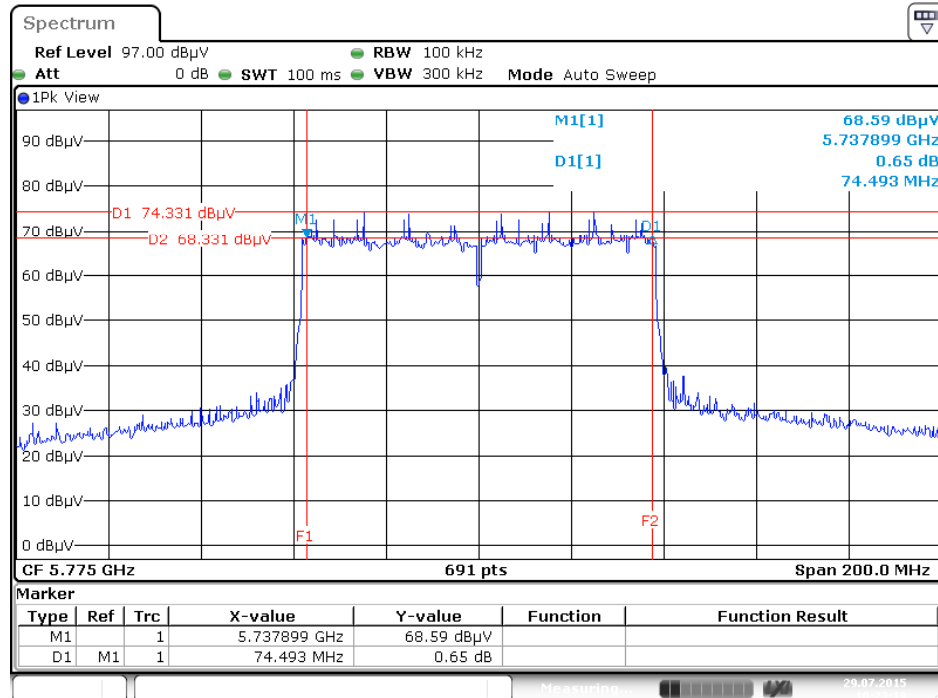
Date: 29 JUL 2015 10:18:57

### 6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 4 + Chain 5 / 5755MHz



Date: 29 JUL 2015 10:21:07

# 6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 4 + Chain 5 / 5775 MHz



Date: 29 JUL 2015 10:23:19

<For Radio 2 Beamforming Mode>: 3TX, 1S

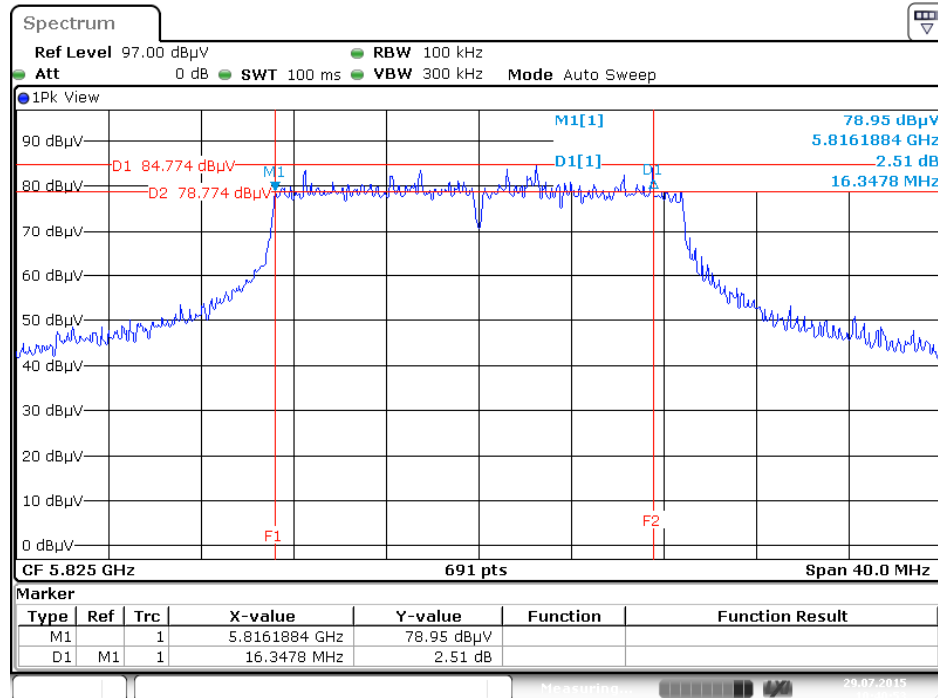
Temperature	25°C	Humidity	55%
Test Engineer	Eddie Weng		

Mode	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Test Result
802.11ac MCS0/Nss1 VHT20	5745 MHz	16.99	500	Complies
	5785 MHz	17.51	500	Complies
	5825 MHz	16.35	500	Complies
802.11ac MCS0/Nss1 VHT40	5755 MHz	35.71	500	Complies
	5795 MHz	36.06	500	Complies
802.11ac MCS0/Nss1 VHT80	5775 MHz	75.65	500	Complies

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

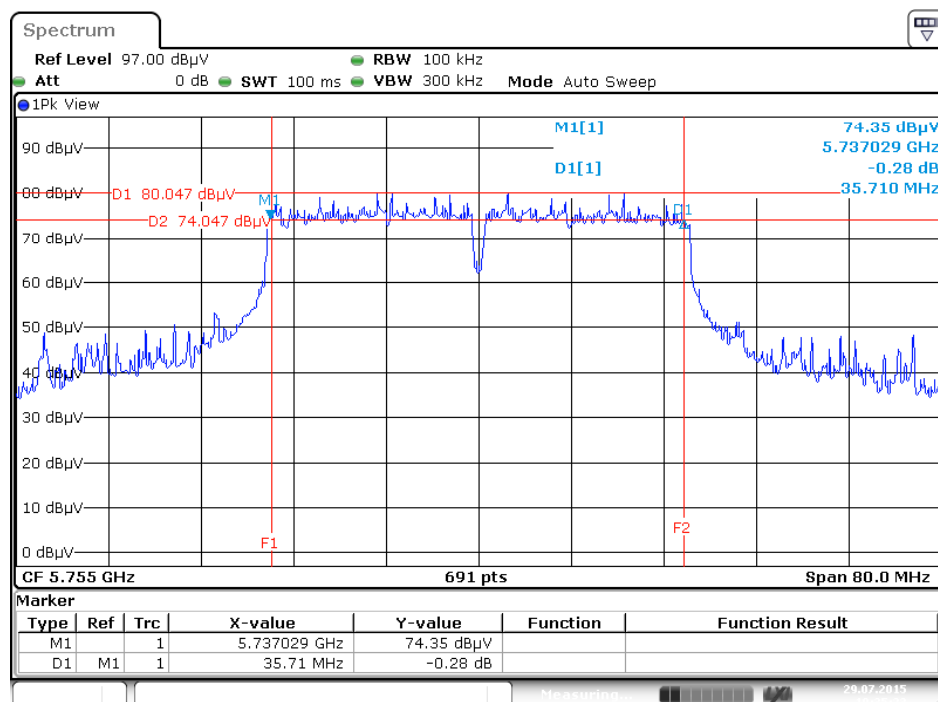
For plots, only the channel with worse result was shown.

# 6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4 + Chain 5 + Chain 6 / 5825 MHz



Date: 29 JUL 2015 10:40:53

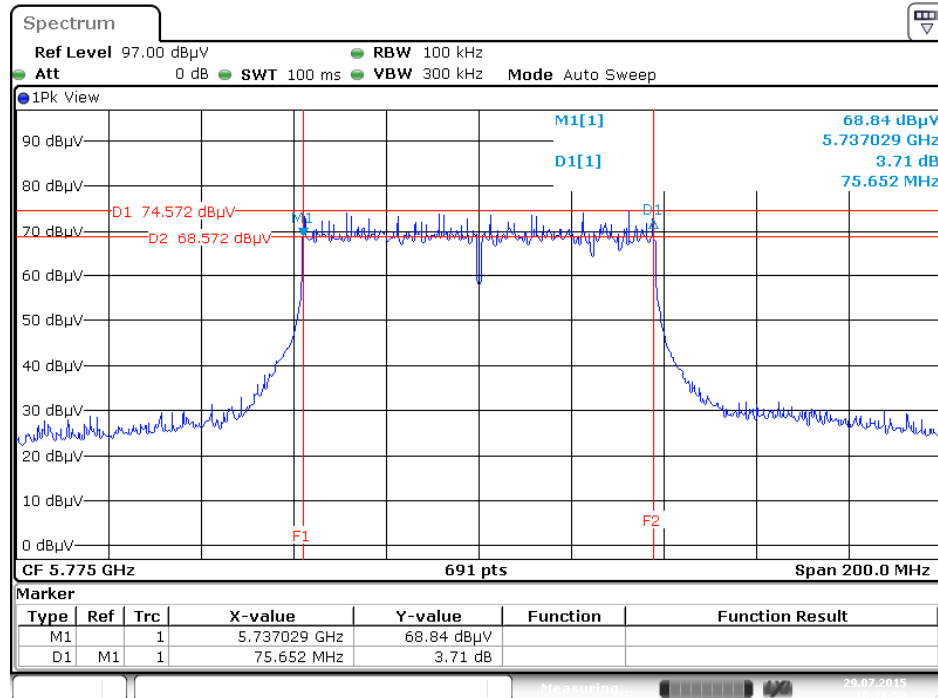
# 6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 4 + Chain 5 + Chain 6 / 5755MHz



Date: 29 JUL 2015 10:35:24



# 6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 4 + Chain 5 + Chain 6 / 5775 MHz



Date: 29 JUL 2015 10:26:51

<For Radio 2 Beamforming Mode>: 3TX, 2S

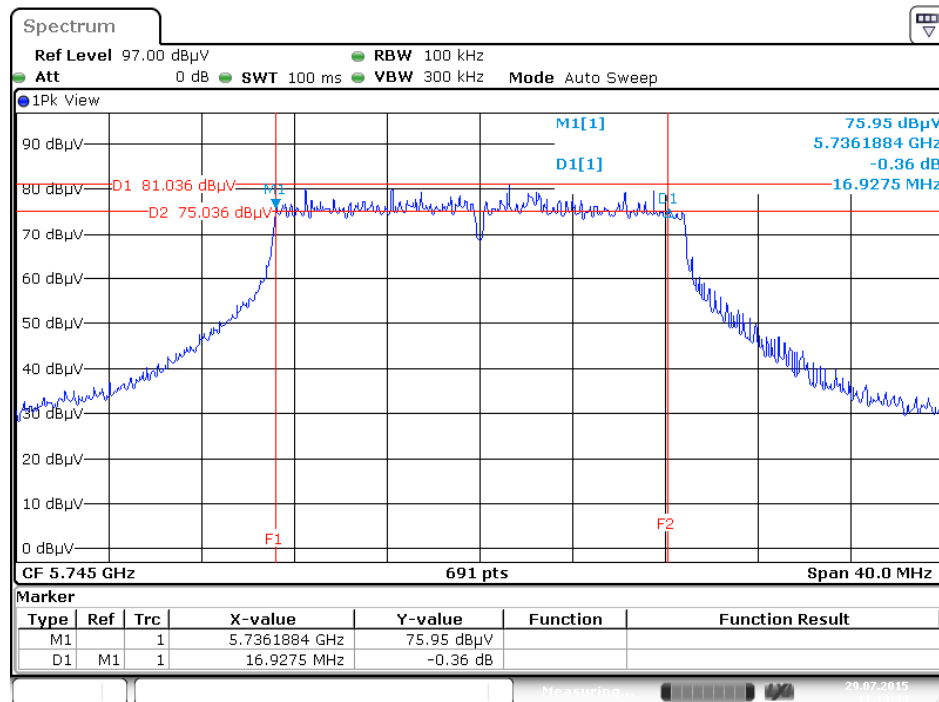
Temperature	25°C	Humidity	55%
Test Engineer	Eddie Weng		

Mode	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Test Result
802.11ac MCS0/Nss2 VHT20	5745 MHz	16.93	500	Complies
	5785 MHz	17.51	500	Complies
	5825 MHz	17.51	500	Complies
802.11ac MCS0/Nss2 VHT40	5755 MHz	36.06	500	Complies
	5795 MHz	35.83	500	Complies
802.11ac MCS0/Nss2 VHT80	5775 MHz	75.94	500	Complies

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

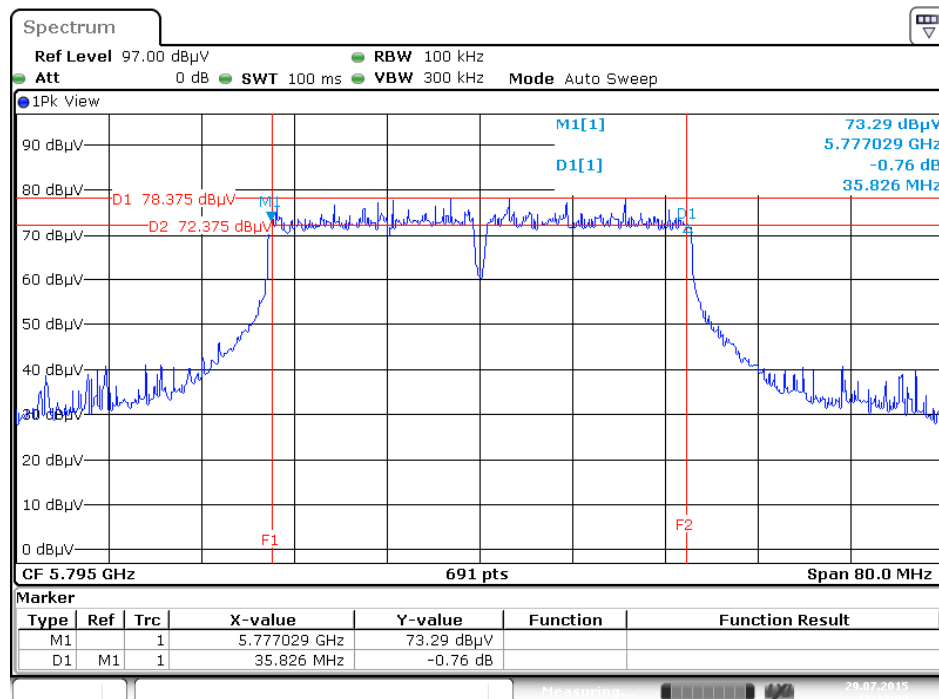
For plots, only the channel with worse result was shown.

# 6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT20 / Chain 4 + Chain 5 + Chain 6 / 5745 MHz



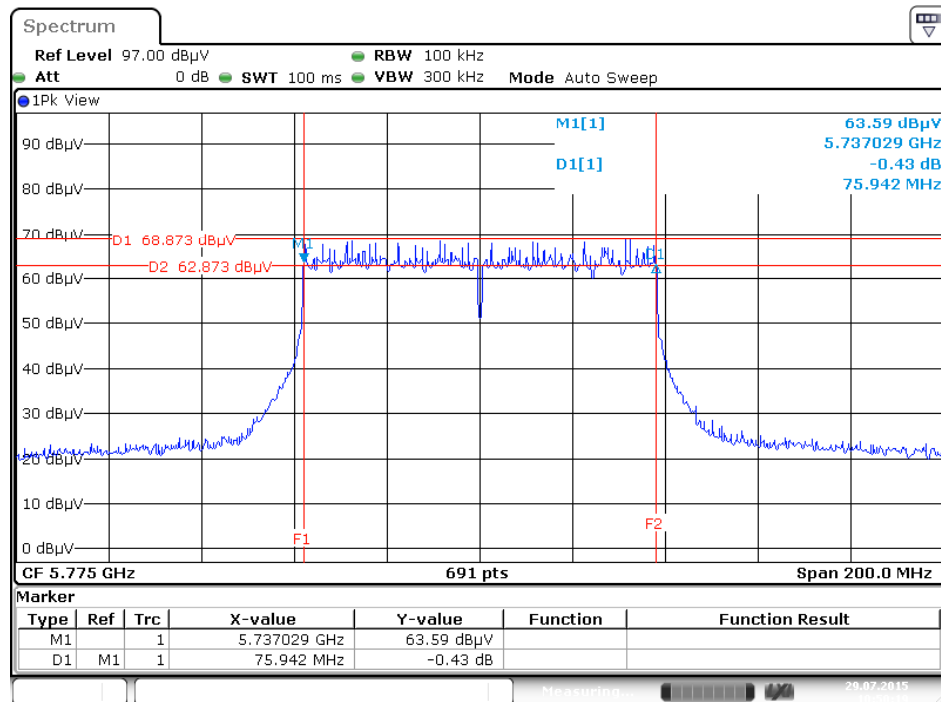
Date: 29 JUL 2015 11:13:44

# 6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT40 / Chain 4 + Chain 5 + Chain 6 / 5795MHz



Date: 29 JUL 2015 11:12:09

# 6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT80 / Chain 4 + Chain 5 + Chain 6 / 5775 MHz



Date: 29 JUL 2015 10:50:19

<For Radio 3>

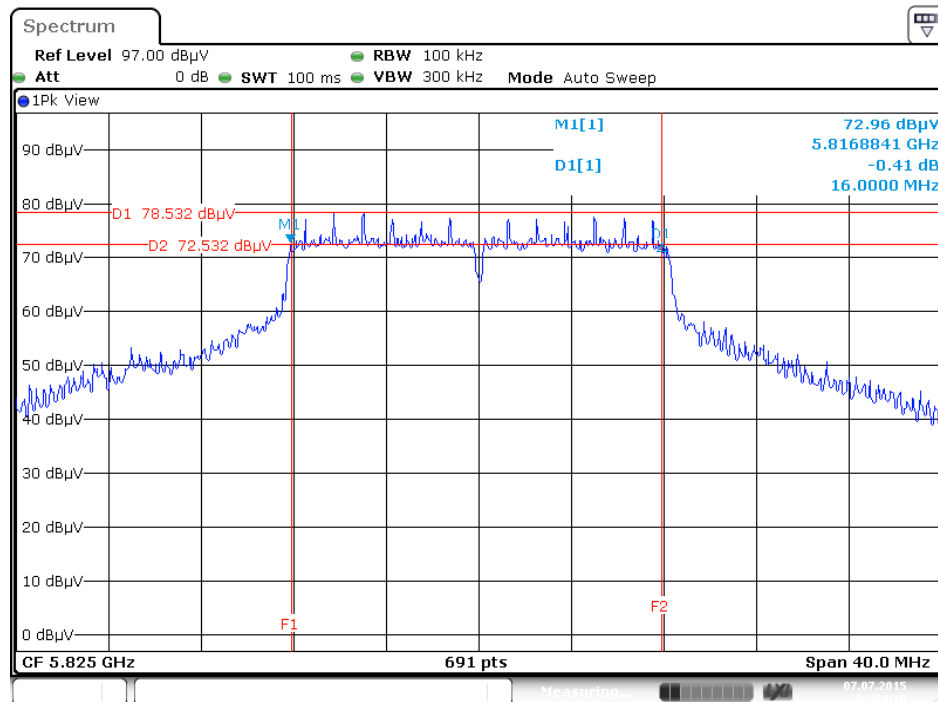
Temperature	25°C	Humidity	55%
Test Engineer	Clemens Fang		

Mode	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Test Result
802.11a	5745 MHz	16.06	500	Complies
	5785 MHz	16.06	500	Complies
	5825 MHz	16.00	500	Complies
802.11ac MCS0/Nss1 VHT20	5745 MHz	17.57	500	Complies
	5785 MHz	16.81	500	Complies
	5825 MHz	17.16	500	Complies
802.11ac MCS0/Nss1 VHT40	5755 MHz	35.83	500	Complies
	5795 MHz	35.71	500	Complies
802.11ac MCS0/Nss1 VHT80	5775 MHz	75.65	500	Complies

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

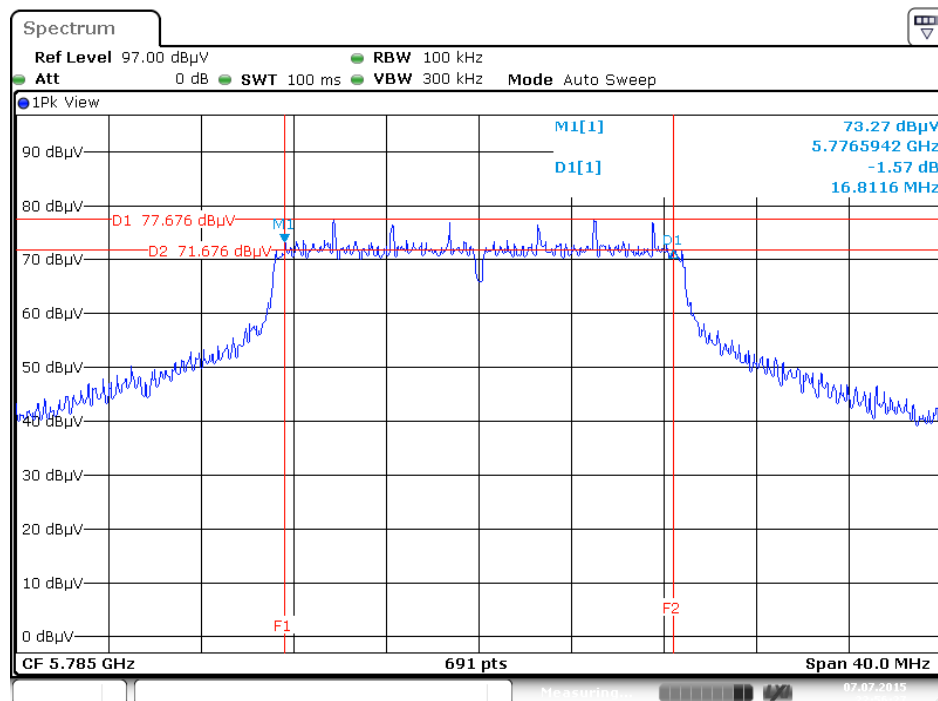
For plots, only the channel with worse result was shown.

### 6 dB Bandwidth Plot on Configuration IEEE 802.11a / Chain 7 / 5825 MHz



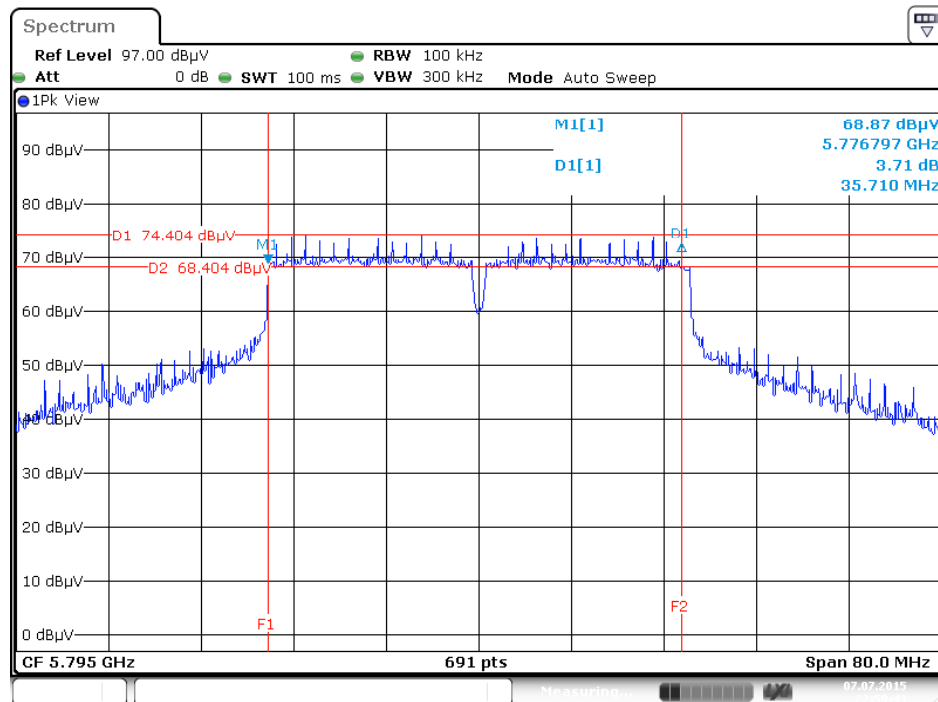
Date: 7.JUL.2015 22:54:18

### 6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 7 / 5785 MHz



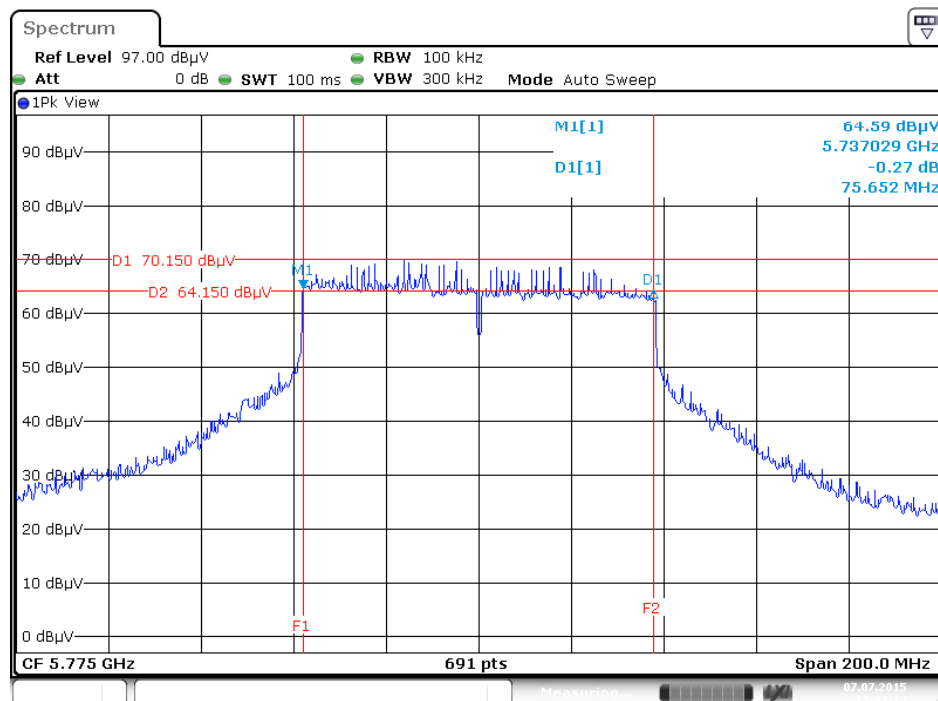
Date: 7.JUL.2015 22:56:27

### 6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 7 / 5795MHz



Date: 7.JUL.2015 22:59:43

### 6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 7 / 5775 MHz



Date: 7.JUL.2015 23:01:14

#### 4.4. Maximum Conducted Output Power Measurement

##### 4.4.1. Limit

Frequency Band		Limit
<input checked="" type="checkbox"/>	5.15~5.25 GHz	
	Operating Mode	
	<input type="checkbox"/> Outdoor access point	The maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm) provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).
	<input checked="" type="checkbox"/> Indoor access point	The maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm) provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
	<input type="checkbox"/> Fixed point-to-point access points	The maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm). Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi.
	<input type="checkbox"/> Mobile and portable client devices	The maximum conducted output power over the frequency band of operation shall not exceed 250 mW (24dBm) provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.



☒	5.725~5.85 GHz	The maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm). If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power.
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#### 4.4.2. Measuring Instruments and Setting

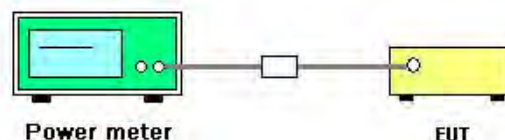
Please refer to section 5 of equipments list in this report. The following table is the setting of the power meter.

Power Meter Parameter	Setting
Detector	AVERAGE

#### 4.4.3. Test Procedures

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.

#### 4.4.4. Test Setup Layout



#### 4.4.5. Test Deviation

There is no deviation with the original standard.

#### 4.4.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

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

<For Radio 2 Non-beamforming Mode>: 1TX, 1S

Temperature	25°C	Humidity	55%
Test Engineer	Lucas Huang	Test Date	Jul. 11, 2015

Mode	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 4		
802.11a	5180 MHz	21.85	30.00	Complies
	5200 MHz	21.78	30.00	Complies
	5240 MHz	21.41	30.00	Complies
	5745 MHz	21.76	30.00	Complies
	5785 MHz	21.59	30.00	Complies
	5825 MHz	21.42	30.00	Complies
802.11ac MCS0/Nss1 VHT20	5180 MHz	21.82	30.00	Complies
	5200 MHz	21.83	30.00	Complies
	5240 MHz	21.87	30.00	Complies
	5745 MHz	21.69	30.00	Complies
	5785 MHz	21.86	30.00	Complies
	5825 MHz	21.55	30.00	Complies
802.11ac MCS0/Nss1 VHT40	5190 MHz	20.74	30.00	Complies
	5230 MHz	21.72	30.00	Complies
	5755 MHz	19.51	30.00	Complies
	5795 MHz	21.68	30.00	Complies
802.11ac MCS0/Nss1 VHT80	5210 MHz	19.91	30.00	Complies
	5775 MHz	18.22	30.00	Complies

<For Radio 2 Non-beamforming Mode>: 2TX, 1S

Temperature	25°C	Humidity	55%
Test Engineer	Lucas Huang	Test Date	Jul. 11, 2015

Mode	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Chain 4	Chain 5	Total		
802.11a	5180 MHz	21.82	21.57	24.71	30.00	Complies
	5200 MHz	21.83	21.63	24.74	30.00	Complies
	5240 MHz	21.92	21.89	24.92	30.00	Complies
	5745 MHz	20.33	21.01	23.69	30.00	Complies
	5785 MHz	21.35	21.96	24.68	30.00	Complies
	5825 MHz	20.32	21.17	23.78	30.00	Complies
802.11ac MCS0/Nss1 VHT20	5180 MHz	21.87	21.48	24.69	30.00	Complies
	5200 MHz	21.77	21.61	24.70	30.00	Complies
	5240 MHz	21.86	21.71	24.80	30.00	Complies
	5745 MHz	20.24	20.95	23.62	30.00	Complies
	5785 MHz	20.75	21.67	24.24	30.00	Complies
	5825 MHz	20.75	21.71	24.27	30.00	Complies
802.11ac MCS0/Nss1 VHT40	5190 MHz	18.62	18.41	21.53	30.00	Complies
	5230 MHz	21.72	21.65	24.70	30.00	Complies
	5755 MHz	19.04	20.03	22.57	30.00	Complies
	5795 MHz	20.48	21.64	24.11	30.00	Complies
802.11ac MCS0/Nss1 VHT80	5210 MHz	18.88	18.76	21.83	30.00	Complies
	5775 MHz	15.76	16.74	19.29	30.00	Complies

<For Radio 2 Non-beamforming Mode>: 2TX, 2S

Temperature	25°C	Humidity	55%
Test Engineer	Lucas Huang	Test Date	Jul. 11, 2015

Mode	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Chain 4	Chain 5	Total		
802.11ac MCS0/Nss2 VHT20	5180 MHz	21.77	21.42	24.61	30.00	Complies
	5200 MHz	21.76	21.63	24.71	30.00	Complies
	5240 MHz	21.89	21.84	24.88	30.00	Complies
	5745 MHz	20.26	21.11	23.72	30.00	Complies
	5785 MHz	20.74	21.81	24.32	30.00	Complies
	5825 MHz	20.73	21.75	24.28	30.00	Complies
802.11ac MCS0/Nss2 VHT40	5190 MHz	19.61	19.45	22.54	30.00	Complies
	5230 MHz	21.87	21.57	24.73	30.00	Complies
	5755 MHz	19.01	20.05	22.57	30.00	Complies
	5795 MHz	20.62	21.65	24.18	30.00	Complies
802.11ac MCS0/Nss2 VHT80	5210 MHz	18.42	18.25	21.35	30.00	Complies
	5775 MHz	15.37	16.31	18.88	30.00	Complies

<For Radio 2 Non-beamforming Mode>: 3TX, 1S

Temperature	25°C	Humidity	55%
Test Engineer	Lucas Huang	Test Date	Jul. 11, 2015

Mode	Frequency	Conducted Power (dBm)				Max. Limit (dBm)	Result
		Chain 4	Chain 5	Chain 6	Total		
802.11a	5180 MHz	21.75	21.67	21.72	26.48	30.00	Complies
	5200 MHz	21.80	21.58	21.69	26.46	30.00	Complies
	5240 MHz	21.61	21.88	21.76	26.52	30.00	Complies
	5745 MHz	20.23	20.85	20.58	25.33	30.00	Complies
	5785 MHz	20.65	21.76	21.29	26.03	30.00	Complies
	5825 MHz	19.74	20.52	20.14	24.92	30.00	Complies
802.11ac MCS0/Nss1 VHT20	5180 MHz	21.68	21.57	21.76	26.44	30.00	Complies
	5200 MHz	21.73	21.61	21.64	26.43	30.00	Complies
	5240 MHz	21.52	21.88	21.84	26.52	30.00	Complies
	5745 MHz	19.66	20.42	20.08	24.84	30.00	Complies
	5785 MHz	20.61	21.81	21.25	26.02	30.00	Complies
	5825 MHz	19.77	20.55	19.94	24.87	30.00	Complies
802.11ac MCS0/Nss1 VHT40	5190 MHz	16.66	16.64	16.84	21.49	30.00	Complies
	5230 MHz	21.91	21.97	22.11	26.77	30.00	Complies
	5755 MHz	17.76	18.63	18.26	23.00	30.00	Complies
	5795 MHz	20.34	20.74	19.88	25.11	30.00	Complies
802.11ac MCS0/Nss1 VHT80	5210 MHz	15.73	15.46	15.59	20.37	30.00	Complies
	5775 MHz	15.28	15.44	14.65	19.91	30.00	Complies

<For Radio 2 Non-beamforming Mode>: 3TX, 2S

Temperature	25°C	Humidity	55%
Test Engineer	Lucas Huang	Test Date	Jul. 11, 2015

Mode	Frequency	Conducted Power (dBm)				Max. Limit (dBm)	Result
		Chain 4	Chain 5	Chain 6	Total		
802.11ac MCS0/Nss2 VHT20	5180 MHz	21.67	21.39	21.57	26.32	30.00	Complies
	5200 MHz	21.72	21.59	21.91	26.51	30.00	Complies
	5240 MHz	21.92	21.77	21.88	26.63	30.00	Complies
	5745 MHz	20.23	20.87	20.68	25.37	30.00	Complies
	5785 MHz	20.86	21.65	21.22	26.03	30.00	Complies
	5825 MHz	20.26	21.07	20.58	25.42	30.00	Complies
802.11ac MCS0/Nss2 VHT40	5190 MHz	16.88	16.73	17.03	21.65	30.00	Complies
	5230 MHz	21.67	21.79	21.87	26.55	30.00	Complies
	5755 MHz	17.73	18.61	18.24	22.98	30.00	Complies
	5795 MHz	19.34	20.29	19.83	24.61	30.00	Complies
802.11ac MCS0/Nss2 VHT80	5210 MHz	15.66	15.47	15.51	20.32	30.00	Complies
	5775 MHz	11.35	12.17	12.23	16.71	30.00	Complies

<For Radio 2 Non-beamforming Mode>: 3TX, 3S

Temperature	25°C	Humidity	55%
Test Engineer	Lucas Huang	Test Date	Jul. 11, 2015

Mode	Frequency	Conducted Power (dBm)				Max. Limit (dBm)	Result
		Chain 4	Chain 5	Chain 6	Total		
802.11ac MCS0/Nss3 VHT20	5180 MHz	21.66	21.74	21.97	26.56	30.00	Complies
	5200 MHz	21.59	21.73	21.92	26.52	30.00	Complies
	5240 MHz	21.67	21.98	21.97	26.65	30.00	Complies
	5745 MHz	18.11	19.12	18.86	23.49	30.00	Complies
	5785 MHz	20.66	21.76	21.32	26.04	30.00	Complies
	5825 MHz	19.57	20.67	20.26	24.96	30.00	Complies
802.11ac MCS0/Nss3 VHT40	5190 MHz	16.23	16.44	16.77	21.26	30.00	Complies
	5230 MHz	21.56	21.87	21.93	26.56	30.00	Complies
	5755 MHz	14.63	15.68	15.52	20.07	30.00	Complies
	5795 MHz	17.75	18.84	18.38	23.12	30.00	Complies
802.11ac MCS0/Nss3 VHT80	5210 MHz	15.54	15.52	15.83	20.40	30.00	Complies
	5775 MHz	14.51	15.44	15.31	19.88	30.00	Complies

<For Radio 2 Beamforming Mode>: 2TX, 1S

Temperature	25°C	Humidity	55%
Test Engineer	Eddie Weng	Test Date	Jul, 30, 2015

Mode	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Chain 4	Chain 5	Total		
802.11ac MCS0/Nss1 VHT20	5180 MHz	21.98	21.93	24.97	28.96	Complies
	5200 MHz	21.97	21.91	24.95	28.96	Complies
	5240 MHz	21.85	21.82	24.85	28.96	Complies
	5745 MHz	21.27	21.23	24.26	28.96	Complies
	5785 MHz	21.89	21.83	24.87	28.96	Complies
	5825 MHz	21.44	21.27	24.37	28.96	Complies
802.11ac MCS0/Nss1 VHT40	5190 MHz	20.42	20.01	23.23	28.96	Complies
	5230 MHz	21.77	21.61	24.70	28.96	Complies
	5755 MHz	20.43	20.32	23.39	28.96	Complies
	5795 MHz	21.98	21.97	24.99	28.96	Complies
802.11ac MCS0/Nss1 VHT80	5210 MHz	19.16	18.96	22.07	28.96	Complies
	5775 MHz	17.79	17.73	20.77	28.96	Complies

Note:  $Directional\ Gain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{AQ}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 7.04\text{dBi}$ , so limit =  $30 - (7.04 - 6) = 28.96\text{dBm}$



<For Radio 2 Beamforming Mode>: 3TX, 1S

Temperature	25°C	Humidity	55%
Test Engineer	Eddie Weng	Test Date	Jul, 30, 2015

Mode	Frequency	Conducted Power (dBm)				Max. Limit (dBm)	Result
		Chain 4	Chain 5	Chain 6	Total		
802.11ac MCS0/Nss1 VHT20	5180 MHz	21.09	20.82	21.14	25.79	27.46	Complies
	5200 MHz	21.65	21.94	21.64	26.52	27.46	Complies
	5240 MHz	21.87	21.84	21.78	26.60	27.46	Complies
	5745 MHz	20.31	19.91	20.03	24.86	27.46	Complies
	5785 MHz	21.55	20.76	21.64	26.11	27.46	Complies
	5825 MHz	21.34	20.66	21.32	25.89	27.46	Complies
802.11ac MCS0/Nss1 VHT40	5190 MHz	18.83	18.52	18.82	23.50	27.46	Complies
	5230 MHz	21.42	21.37	21.68	26.26	27.46	Complies
	5755 MHz	18.92	18.95	18.68	23.62	27.46	Complies
	5795 MHz	21.14	21.02	20.87	25.78	27.46	Complies
802.11ac MCS0/Nss1 VHT80	5210 MHz	17.77	17.51	17.62	22.41	27.46	Complies
	5775 MHz	16.33	16.28	16.09	21.01	27.46	Complies

Note:  $Directional\ Gain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{AQ}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 8.54\text{dBi}$ , so limit = 30-(8.54-6)=27.46dBm

<For Radio 2 Beamforming Mode>: 3TX, 2S

Temperature	25°C	Humidity	55%
Test Engineer	Eddie Weng	Test Date	Jul, 30, 2015

Mode	Frequency	Conducted Power (dBm)				Max. Limit (dBm)	Result
		Chain 4	Chain 5	Chain 6	Total		
802.11ac MCS0/Nss2 VHT20	5180 MHz	20.07	19.72	19.94	24.68	30.00	Complies
	5200 MHz	21.54	21.45	21.64	26.32	30.00	Complies
	5240 MHz	21.67	21.69	21.98	26.55	30.00	Complies
	5745 MHz	18.22	18.19	17.95	22.89	30.00	Complies
	5785 MHz	20.58	20.44	20.45	25.26	30.00	Complies
	5825 MHz	17.62	17.66	17.69	22.43	30.00	Complies
802.11ac MCS0/Nss2 VHT40	5190 MHz	18.61	18.42	18.64	23.33	30.00	Complies
	5230 MHz	21.09	21.11	21.28	25.93	30.00	Complies
	5755 MHz	16.72	16.83	16.46	21.44	30.00	Complies
	5795 MHz	17.77	17.94	17.68	22.57	30.00	Complies
802.11ac MCS0/Nss2 VHT80	5210 MHz	18.01	17.83	17.86	22.67	30.00	Complies
	5775 MHz	11.64	12.16	11.45	16.53	30.00	Complies

Note:  $Directional\ Gain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{AQ}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 5.53\text{dBi} < 6\text{dBi}$ , so Power Limit 30dBm.

## &lt;For Radio 3&gt;

Temperature	25°C	Humidity	55%
Test Engineer	Clemens Fang	Test Date	Jul. 08, 2015

Mode	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 7		
802.11a	5180 MHz	13.81	30.00	Complies
	5200 MHz	13.96	30.00	Complies
	5240 MHz	13.84	30.00	Complies
	5745 MHz	13.79	30.00	Complies
	5785 MHz	13.66	30.00	Complies
	5825 MHz	13.67	30.00	Complies
802.11ac MCS0/Nss1 VHT20	5180 MHz	13.64	30.00	Complies
	5200 MHz	13.83	30.00	Complies
	5240 MHz	13.69	30.00	Complies
	5745 MHz	13.68	30.00	Complies
	5785 MHz	13.71	30.00	Complies
	5825 MHz	13.65	30.00	Complies
802.11ac MCS0/Nss1 VHT40	5190 MHz	12.31	30.00	Complies
	5230 MHz	13.83	30.00	Complies
	5755 MHz	13.69	30.00	Complies
	5795 MHz	13.72	30.00	Complies
802.11ac MCS0/Nss1 VHT80	5210 MHz	10.98	30.00	Complies
	5775 MHz	11.76	30.00	Complies

## 4.5. Power Spectral Density Measurement

### 4.5.1. Limit

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

Frequency Band		Limit
<input checked="" type="checkbox"/>	5.15~5.25 GHz	
	Operating Mode	
<input type="checkbox"/>	Outdoor access point	17 dBm/MHz
<input checked="" type="checkbox"/>	Indoor access point	17 dBm/MHz
<input type="checkbox"/>	Fixed point-to-point access points	17 dBm/MHz
<input type="checkbox"/>	Mobile and portable client devices	11 dBm/MHz
<input checked="" type="checkbox"/>	5.725~5.85 GHz	30 dBm/500kHz

### 4.5.2. Measuring Instruments and Setting

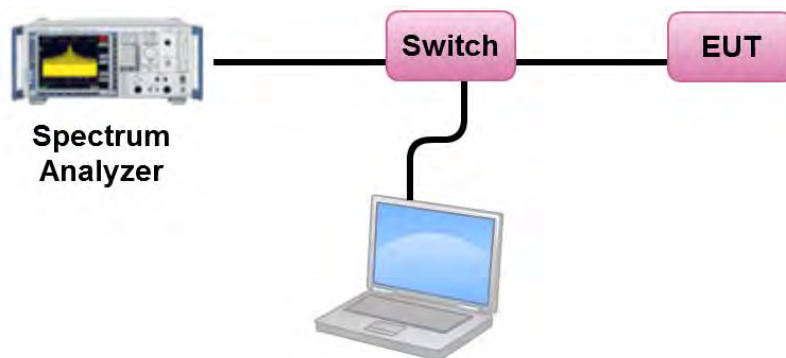
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Encompass the entire emissions bandwidth (EBW) of the signal
RBW	1000 kHz
VBW	3000 kHz
Detector	RMS
Trace	AVERAGE
Sweep Time	Auto
Trace Average	100 times
Note: If measurement bandwidth of Maximum PSD is specified in 500 kHz, add $10\log(500\text{kHz}/\text{RBW})$ to the measured result, whereas RBW (< 500 kHz) is the reduced resolution bandwidth of the spectrum analyzer set during measurement.	

#### 4.5.3. Test Procedures

1. The transmitter output (antenna port) was connected RF switch to the spectrum analyzer.
2. Test was performed in accordance with KDB789033 D02 v01 for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - section (F) Maximum Power Spectral Density (PSD).
3. Multiple antenna systems was performed in accordance KDB662911 D01 v02r01 in-Band Power Spectral Density (PSD) Measurements (a) Measure and sum the spectra across the outputs.
4. When measuring first spectral bin of output 1 is summed with that in the first spectral bin of output 2 and that from the first spectral bin of output 3 and so on up to the Nth output to obtain the value for the first frequency bin of the summed spectrum. The summed spectrum value for each of the other frequency bins is computed in the same way.
5. For 5.725~5.85 GHz, the measured result of PSD level must add  $10\log(500\text{kHz}/\text{RBW})$  and the final result should  $\leq 30 \text{ dBm}$ .

#### 4.5.4. Test Setup Layout



#### 4.5.5. Test Deviation

There is no deviation with the original standard.

#### 4.5.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

#### 4.5.7. Test Result of Power Spectral Density

<For Radio 2 Non-beamforming Mode>: 1TX, 1S

Temperature	25°C	Humidity	55%
Test Engineer	Lucas Huang	Test Date	Jul, 11, 2015

##### Configuration IEEE 802.11a / Chain 4

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	8.80	17.00	Complies
40	5200 MHz	8.68	17.00	Complies
48	5240 MHz	8.24	17.00	Complies

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
149	5745 MHz	8.52	-3.01	5.51	30.00	Complies
157	5785 MHz	8.96	-3.01	5.95	30.00	Complies
165	5825 MHz	8.83	-3.01	5.82	30.00	Complies

##### Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	8.97	17.00	Complies
40	5200 MHz	8.81	17.00	Complies
48	5240 MHz	8.79	17.00	Complies

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
149	5745 MHz	8.64	-3.01	5.63	30.00	Complies
157	5785 MHz	9.08	-3.01	6.07	30.00	Complies
165	5825 MHz	8.32	-3.01	5.31	30.00	Complies

**Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 4**

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	4.55	17.00	Complies
46	5230 MHz	5.64	17.00	Complies

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
151	5755 MHz	3.82	-3.01	0.81	30.00	Complies
159	5795 MHz	5.85	-3.01	2.84	30.00	Complies

**Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 4**

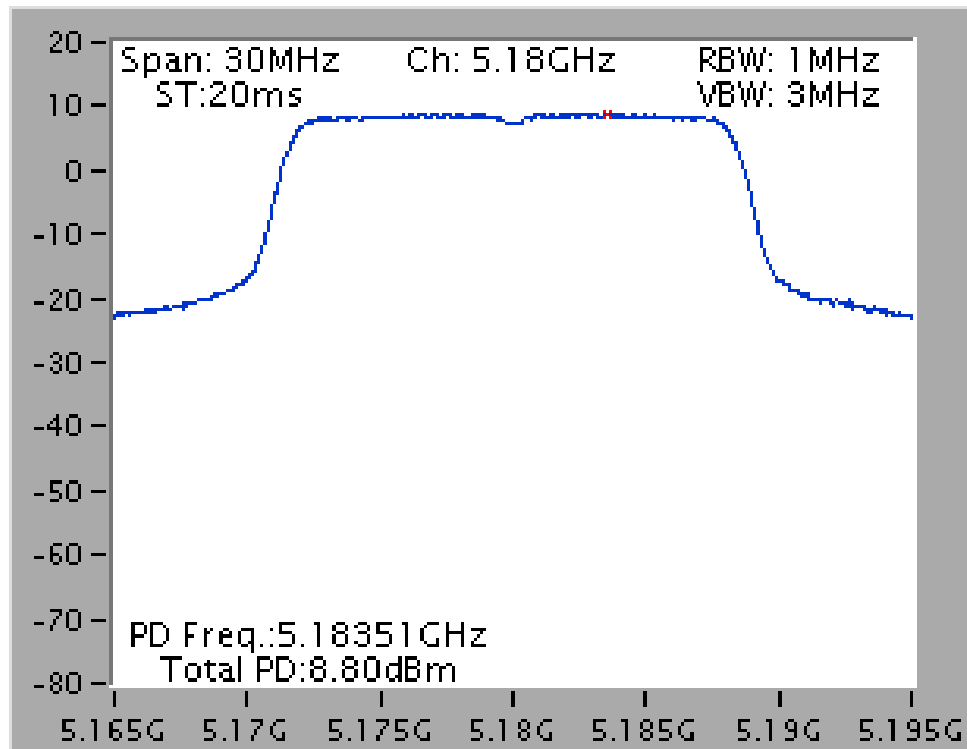
Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
42	5210 MHz	0.81	17.00	Complies

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
155	5775 MHz	-1.12	-3.01	-4.13	30.00	Complies

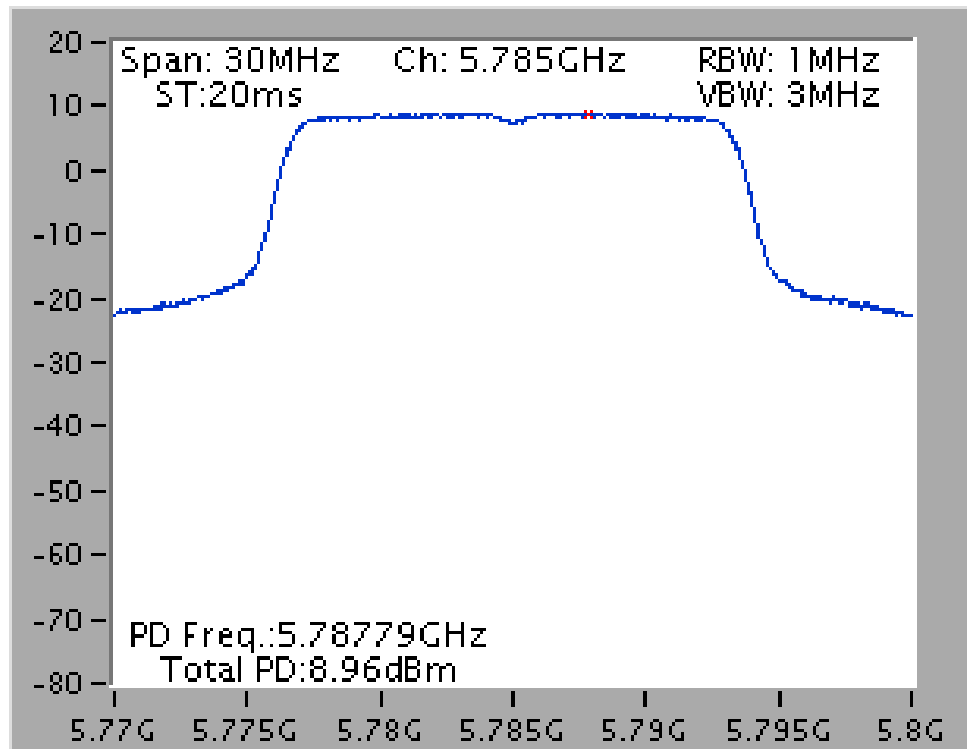
Note: All the test values were listed in the report.

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

Power Density Plot on Configuration IEEE 802.11a / Chain 4 / 5180 MHz

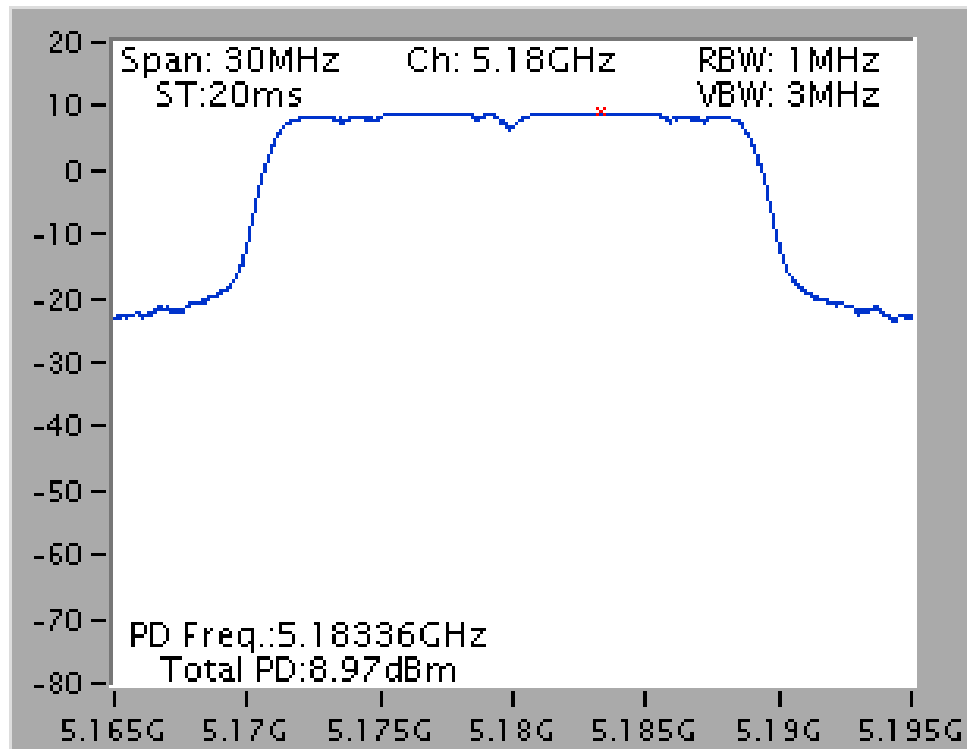


Power Density Plot on Configuration IEEE 802.11a / Chain 4 / 5785 MHz

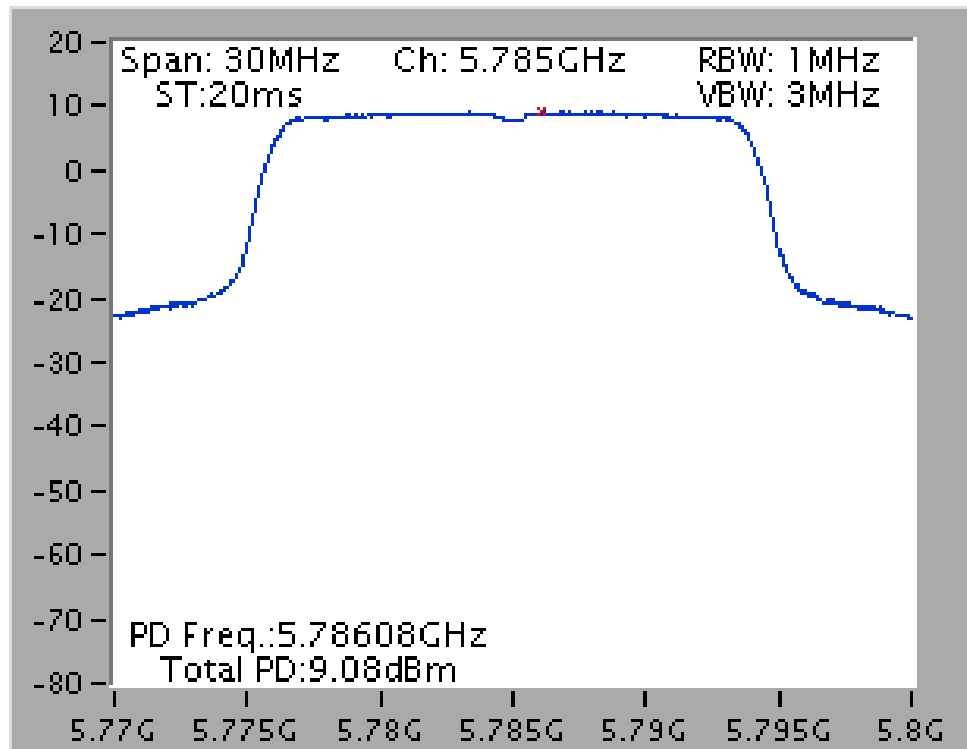




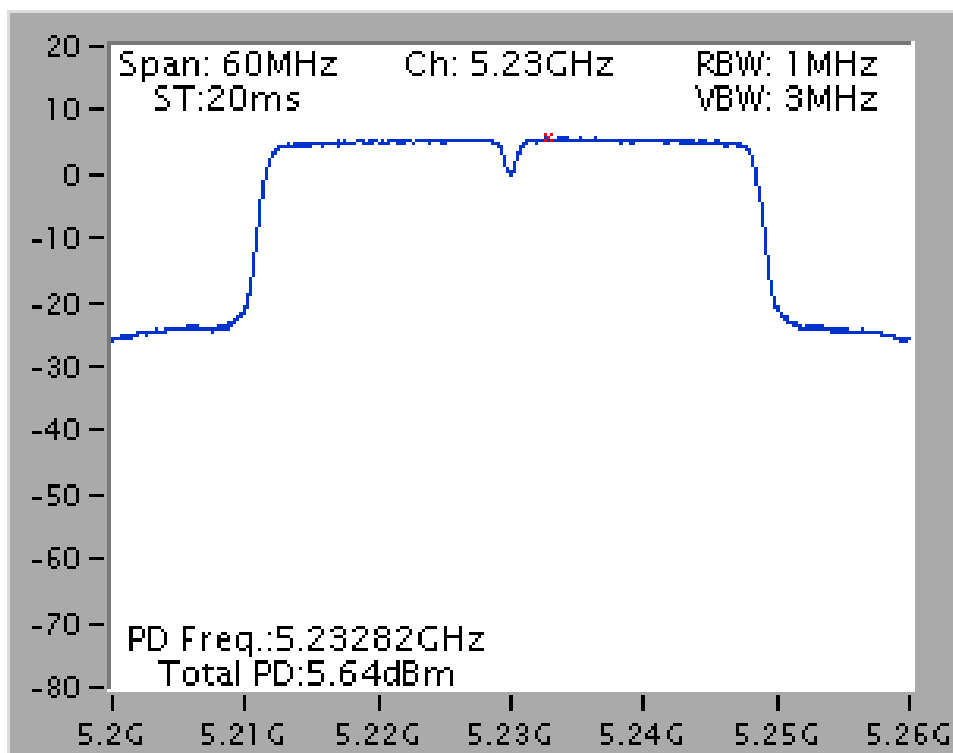
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4 / 5180 MHz



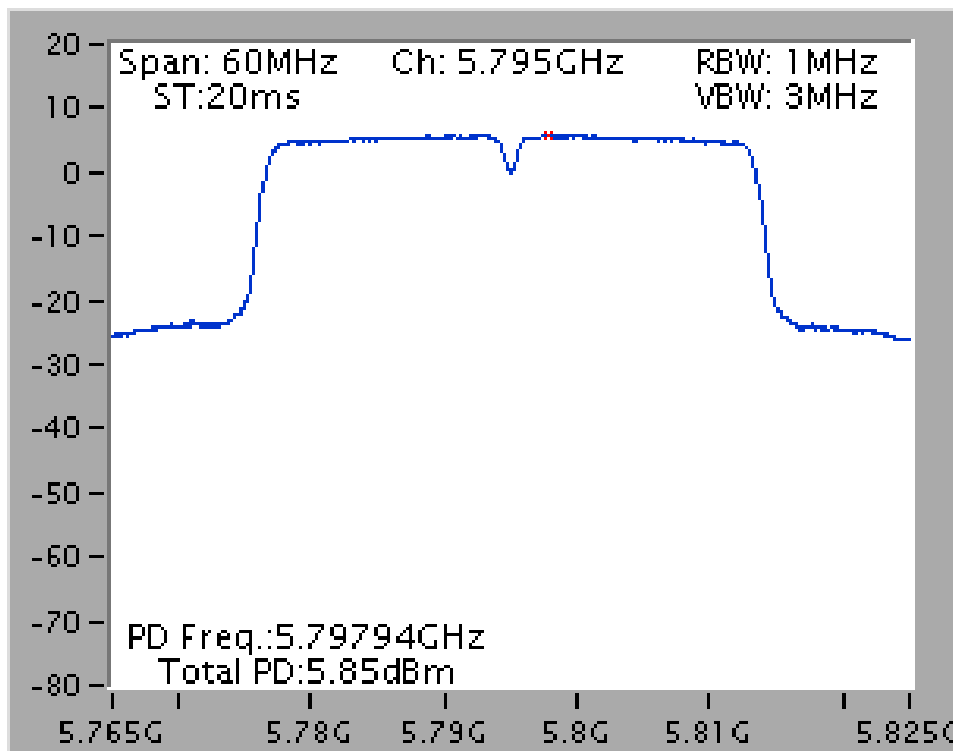
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4 / 5785 MHz



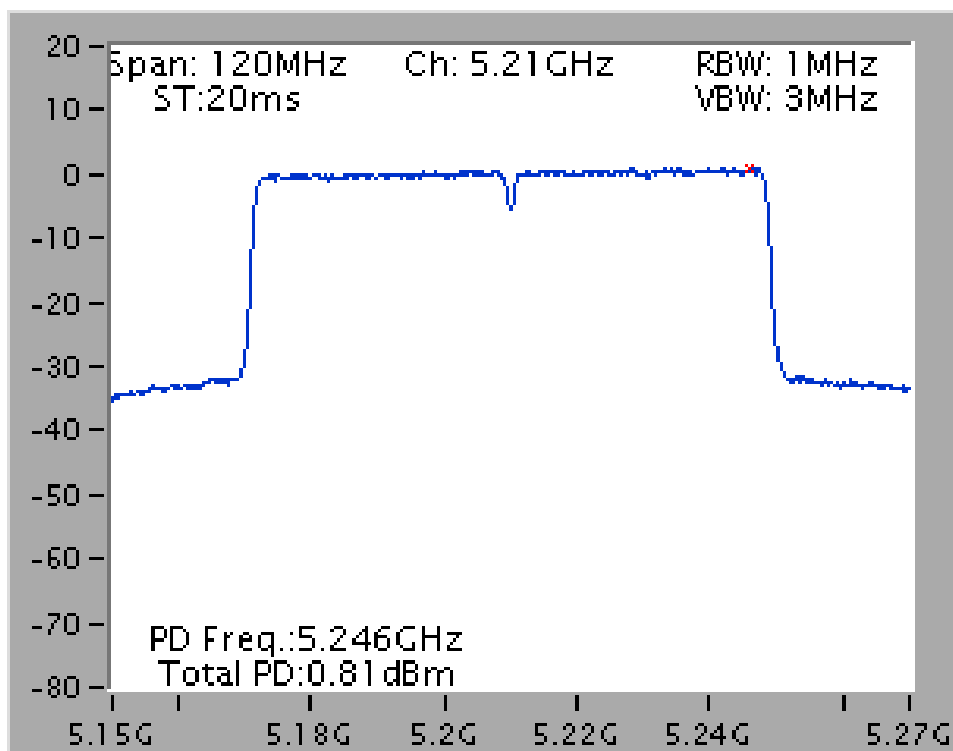
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 4 / 5230 MHz



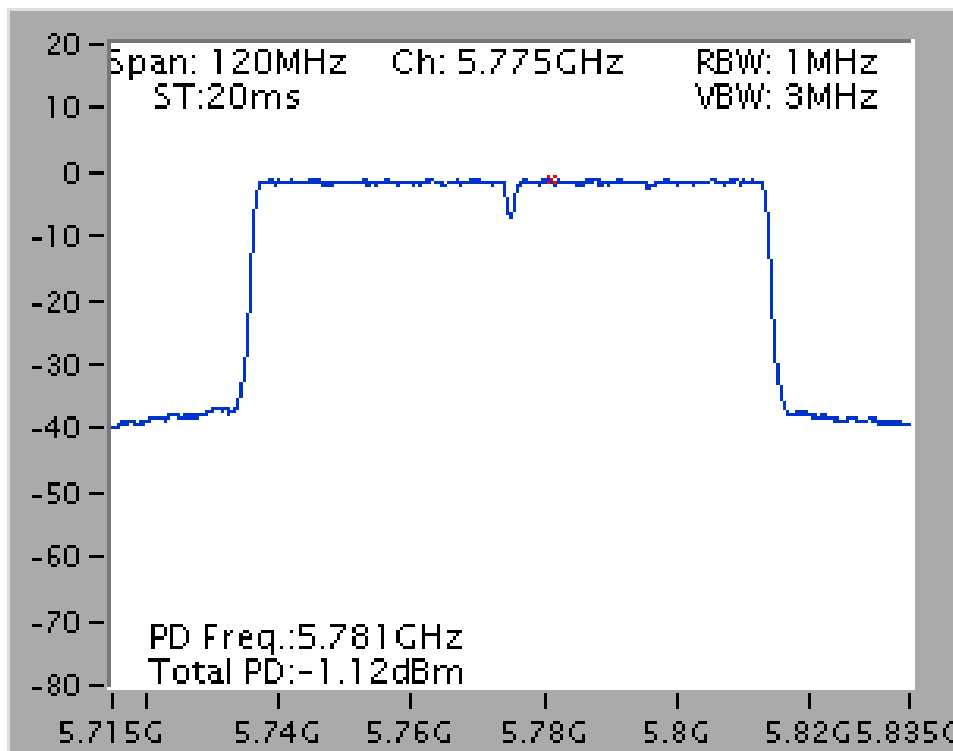
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 4 / 5795 MHz



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



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



## &lt;For Radio 2 Non-beamforming Mode&gt;: 2TX, 1S

Temperature	25°C	Humidity	55%
Test Engineer	Lucas Huang	Test Date	Jul, 11, 2015

## Configuration IEEE 802.11a / Chain 4 + Chain 5

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	11.55	15.96	Complies
40	5200 MHz	11.63	15.96	Complies
48	5240 MHz	11.68	15.96	Complies

Note:  $DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 7.04\text{dBi}$ , so Limit =  $17 - (7.04 - 6) = 15.96$  dBm

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
149	5745 MHz	10.80	-3.01	7.79	28.96	Complies
157	5785 MHz	11.41	-3.01	8.40	28.96	Complies
165	5825 MHz	10.70	-3.01	7.69	28.96	Complies

Note:  $DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 7.04\text{dBi}$ , so Limit =  $30 - (7.04 - 6) = 28.96$  dBm/500kHz

## Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4 + Chain 5

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	11.51	15.96	Complies
40	5200 MHz	11.52	15.96	Complies
48	5240 MHz	11.51	15.96	Complies

Note:  $DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 7.04\text{dBi}$ , so Limit =  $17 - (7.04 - 6) = 15.96$  dBm

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
149	5745 MHz	10.87	-3.01	7.86	28.96	Complies
157	5785 MHz	11.12	-3.01	8.11	28.96	Complies
165	5825 MHz	11.17	-3.01	8.16	28.96	Complies

Note:  $DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 7.04\text{dBi}$ , so Limit =  $30 - (7.04 - 6) = 28.96$  dBm/500kHz

**Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 4 + Chain 5**

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	5.35	15.96	Complies
46	5230 MHz	8.64	15.96	Complies

Note:  $DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{ss}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 7.04\text{dBi}$ , so Limit =  $17 - (7.04 - 6) = 15.96$  dBm

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
151	5755 MHz	6.44	-3.01	3.43	28.96	Complies
159	5795 MHz	7.97	-3.01	4.96	28.96	Complies

Note:  $DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{ss}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 7.04\text{dBi}$ , so Limit =  $30 - (7.04 - 6) = 28.96$  dBm/500kHz

**Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 4 + Chain 5**

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
42	5210 MHz	2.60	15.96	Complies

Note:  $DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{ss}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 7.04\text{dBi}$ , so Limit =  $17 - (7.04 - 6) = 15.96$  dBm

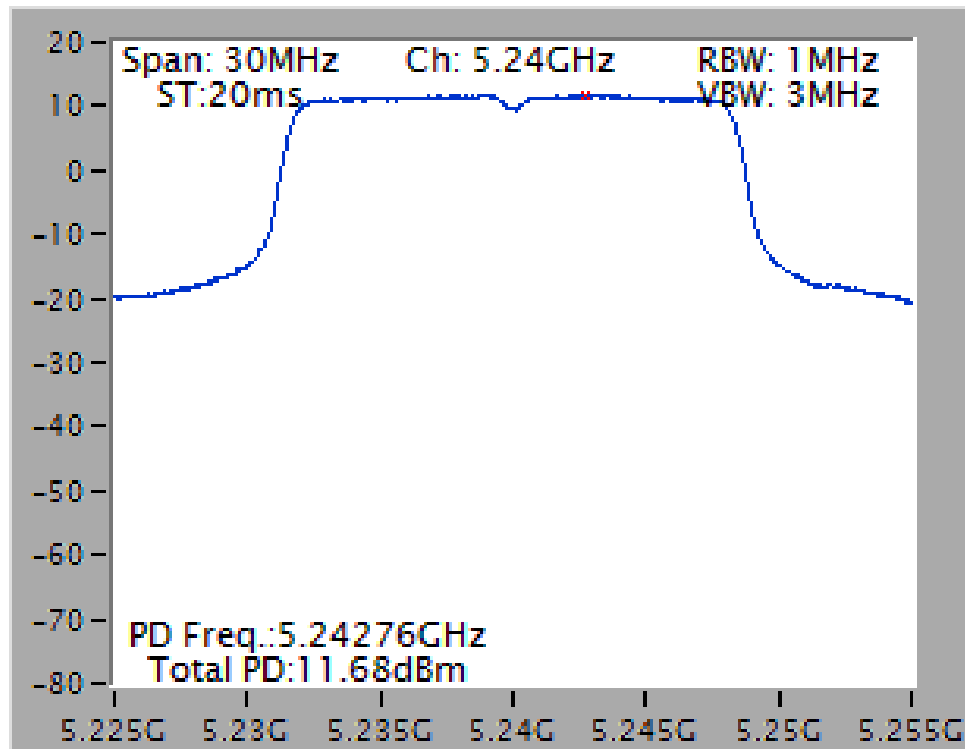
Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
155	5775 MHz	0.65	-3.01	-2.36	28.96	Complies

Note:  $DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{ss}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 7.04\text{dBi}$ , so Limit =  $30 - (7.04 - 6) = 28.96$  dBm/500kHz

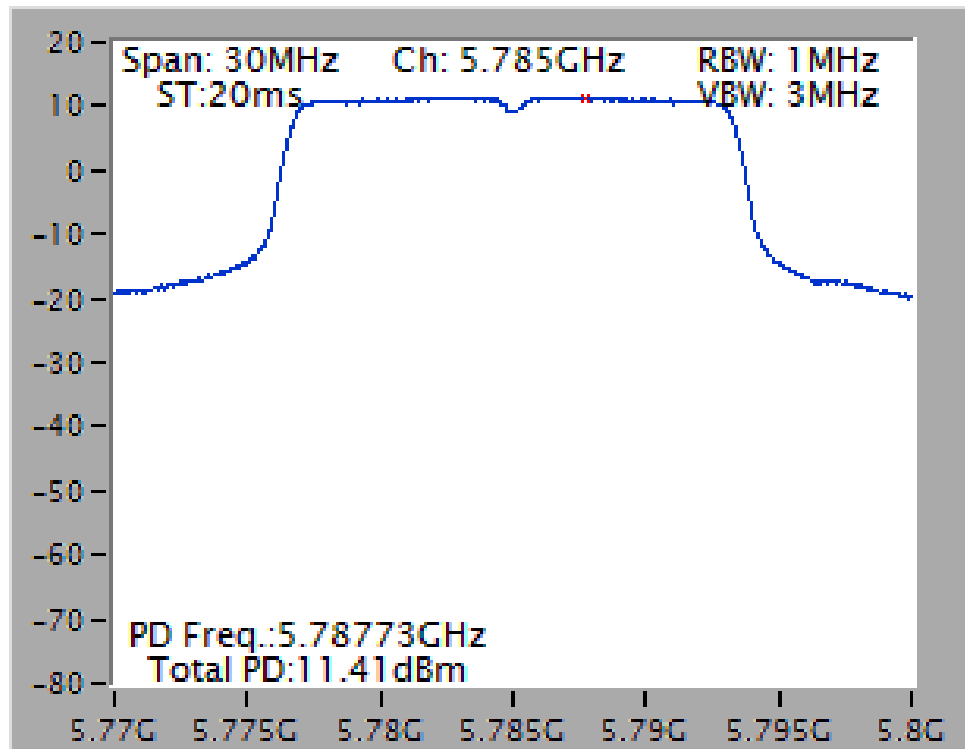
Note: All the test values were listed in the report.

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

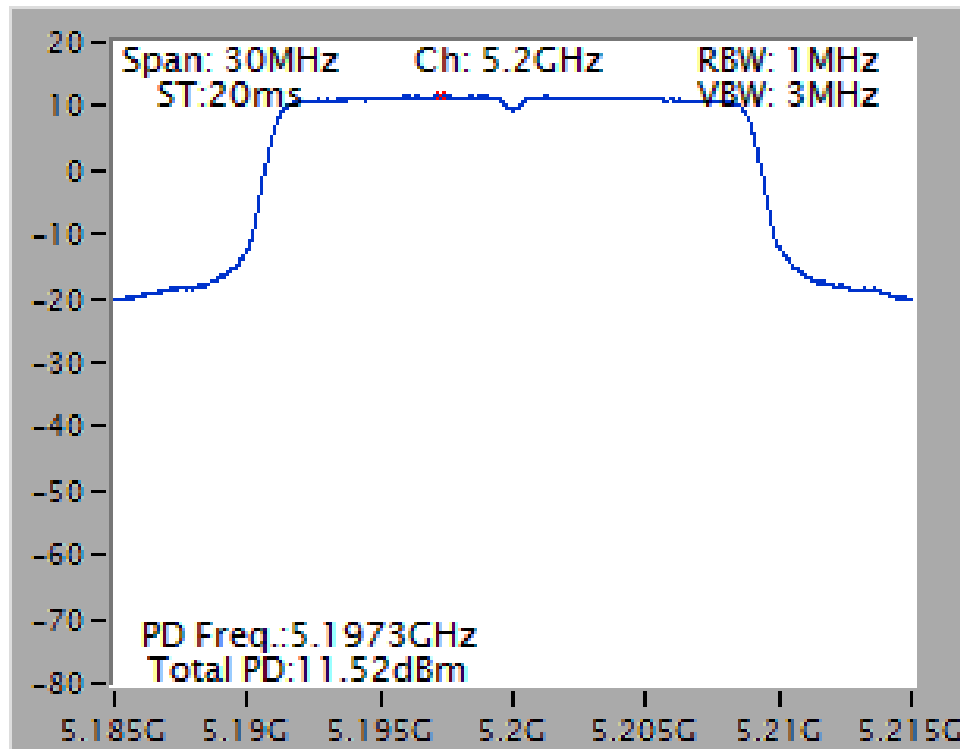
Power Density Plot on Configuration IEEE 802.11a / Chain 4 + Chain 5 / 5240 MHz



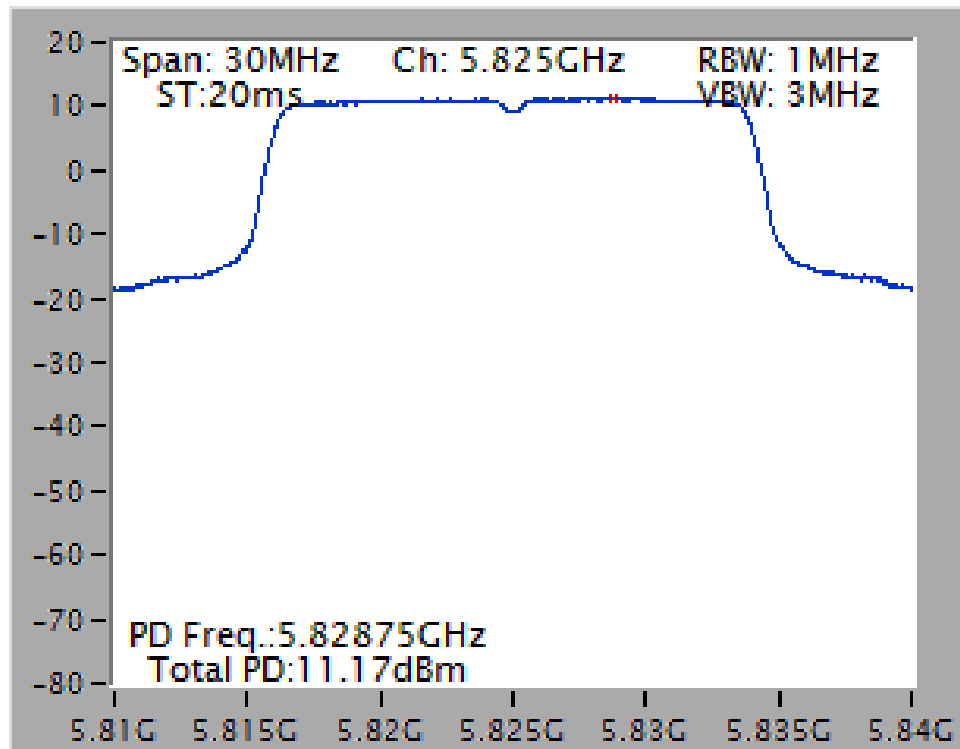
Power Density Plot on Configuration IEEE 802.11a / Chain 4 + Chain 5 / 5785 MHz



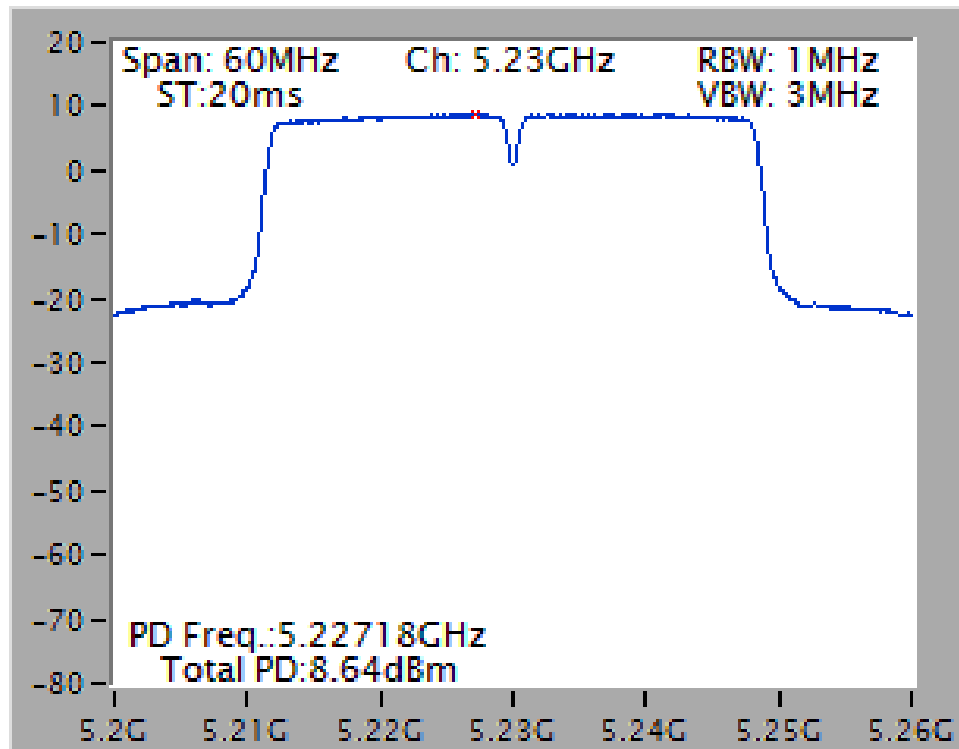
## Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4 + Chain 5 / 5200 MHz



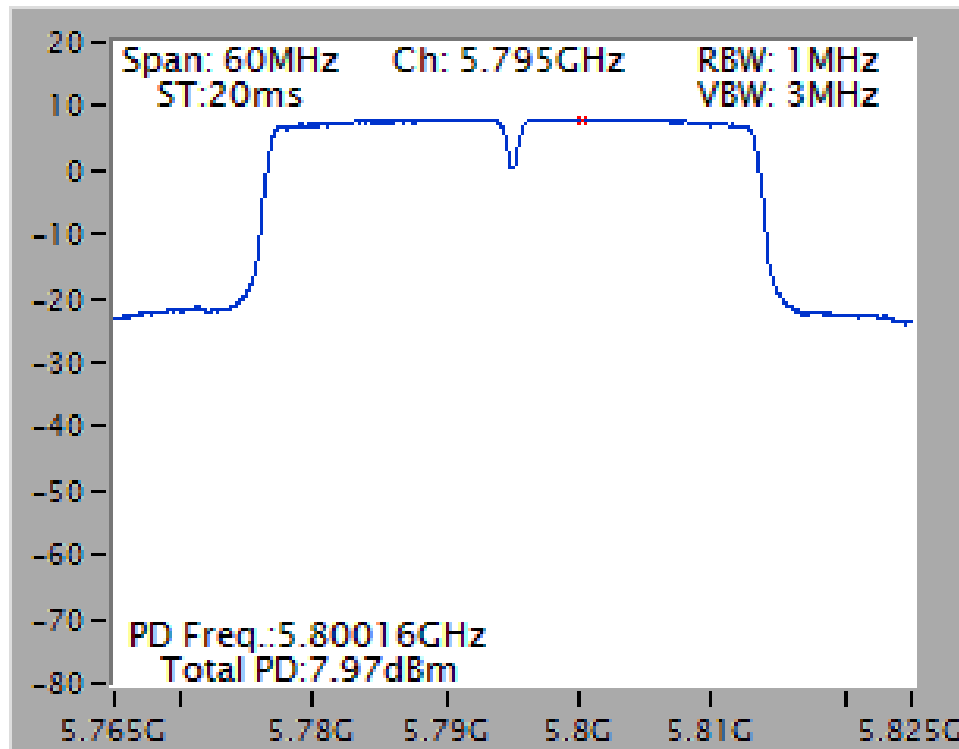
## Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4 + Chain 5 / 5825 MHz



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 4 + Chain 5 / 5230 MHz

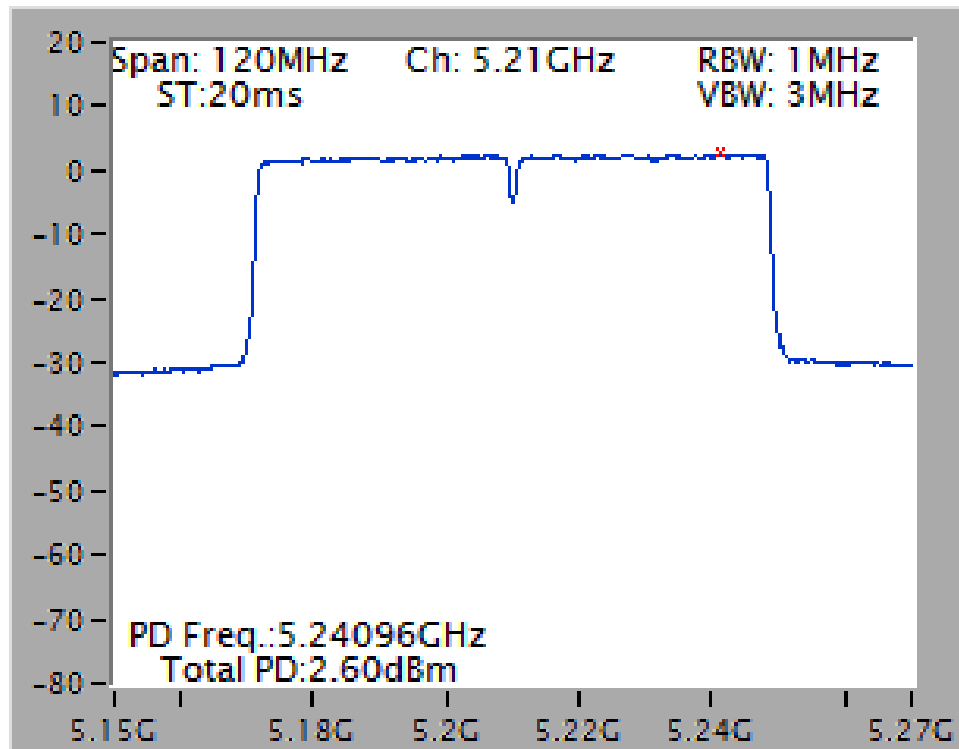


Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 4 + Chain 5 / 5795 MHz

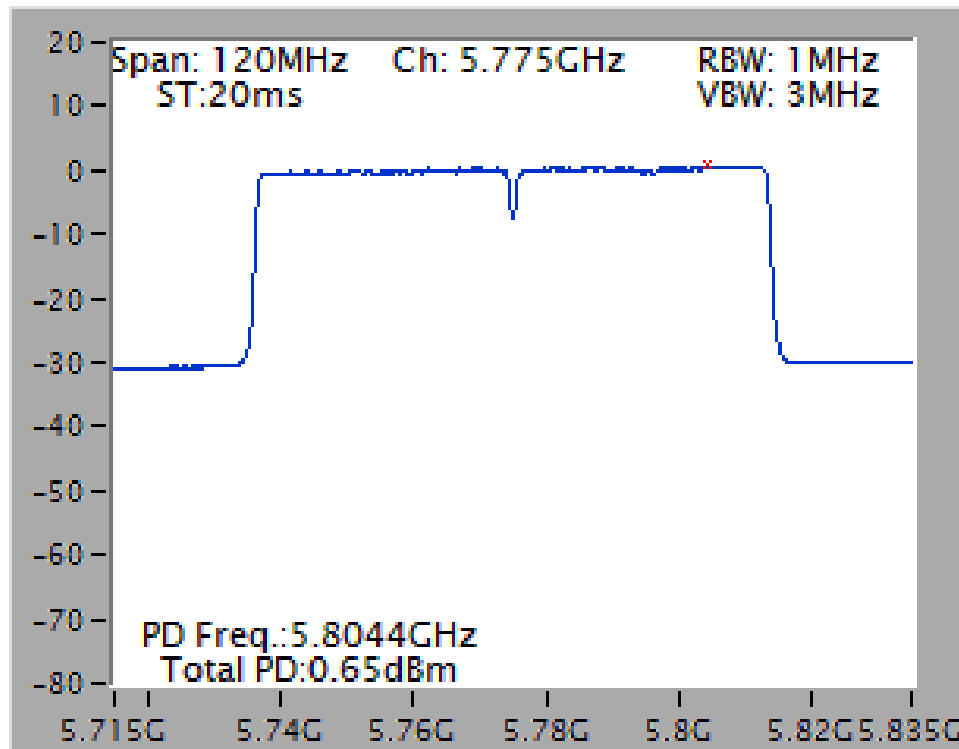




Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 4 + Chain 5 / 5210 MHz



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 4 + Chain 5 / 5775 MHz



<For Radio 2 Non-beamforming Mode>: 2TX, 2S

Temperature	25°C	Humidity	55%
Test Engineer	Lucas Huang	Test Date	Jul, 11, 2015

Configuration IEEE 802.11ac MCS0/Nss2 VHT20 / Chain 4 + Chain 5

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	11.47	17.00	Complies
40	5200 MHz	11.50	17.00	Complies
48	5240 MHz	11.75	17.00	Complies

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
149	5745 MHz	10.69	-3.01	7.68	30.00	Complies
157	5785 MHz	11.02	-3.01	8.01	30.00	Complies
165	5825 MHz	11.13	-3.01	8.12	30.00	Complies

Configuration IEEE 802.11ac MCS0/Nss2 VHT40 / Chain 4 + Chain 5

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	6.25	17.00	Complies
46	5230 MHz	8.47	17.00	Complies

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
151	5755 MHz	6.97	-3.01	3.96	30.00	Complies
159	5795 MHz	7.96	-3.01	4.95	30.00	Complies

## Configuration IEEE 802.11ac MCS0/Nss2 VHT80 / Chain 4 + Chain 5

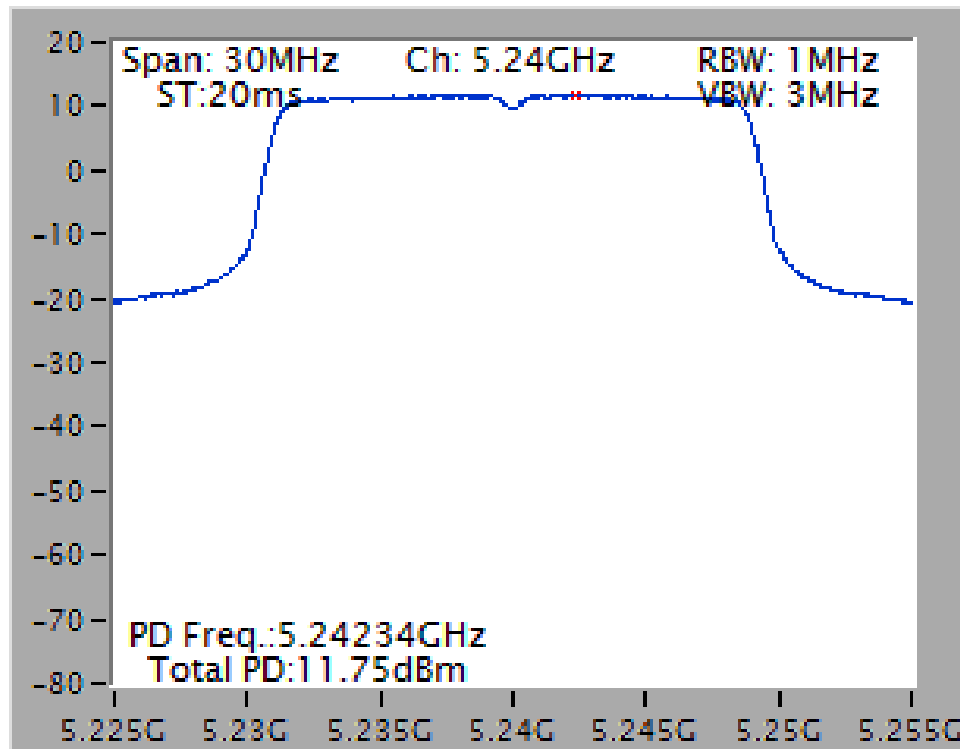
Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
42	5210 MHz	2.13	17.00	Complies

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
155	5775 MHz	0.25	-3.01	-2.76	30.00	Complies

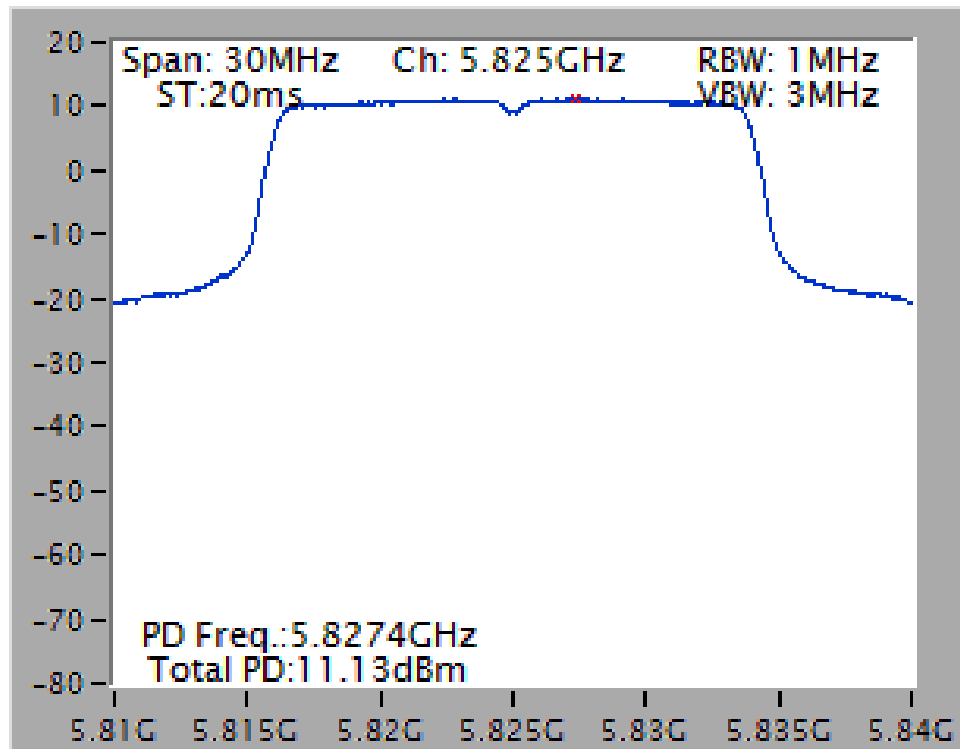
Note: All the test values were listed in the report.

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

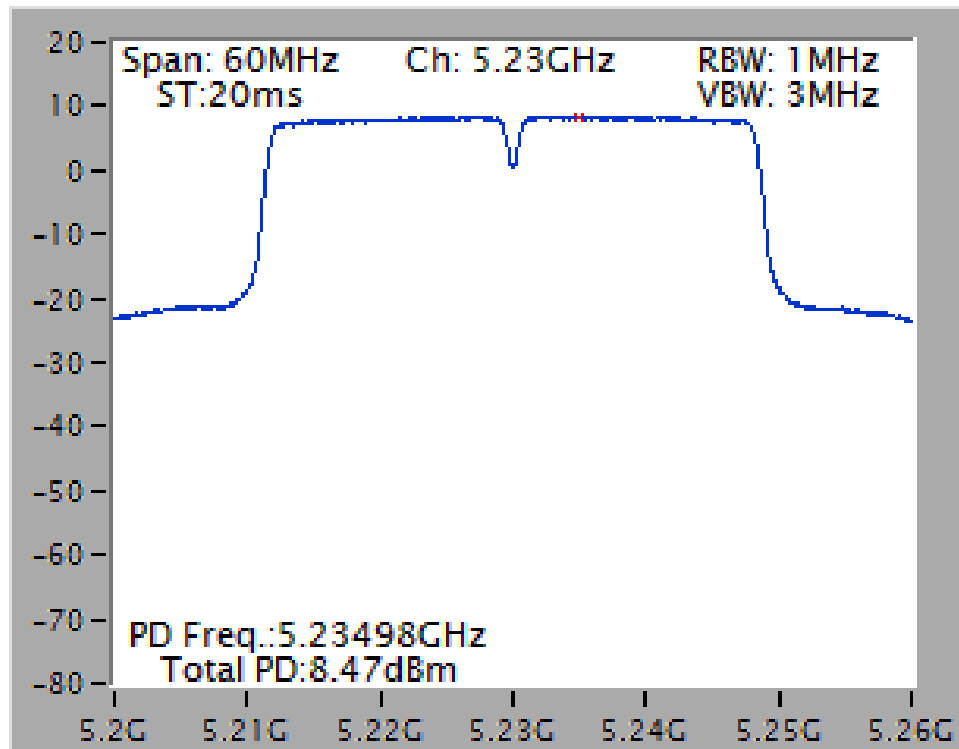
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT20 / Chain 4 + Chain 5 / 5240 MHz



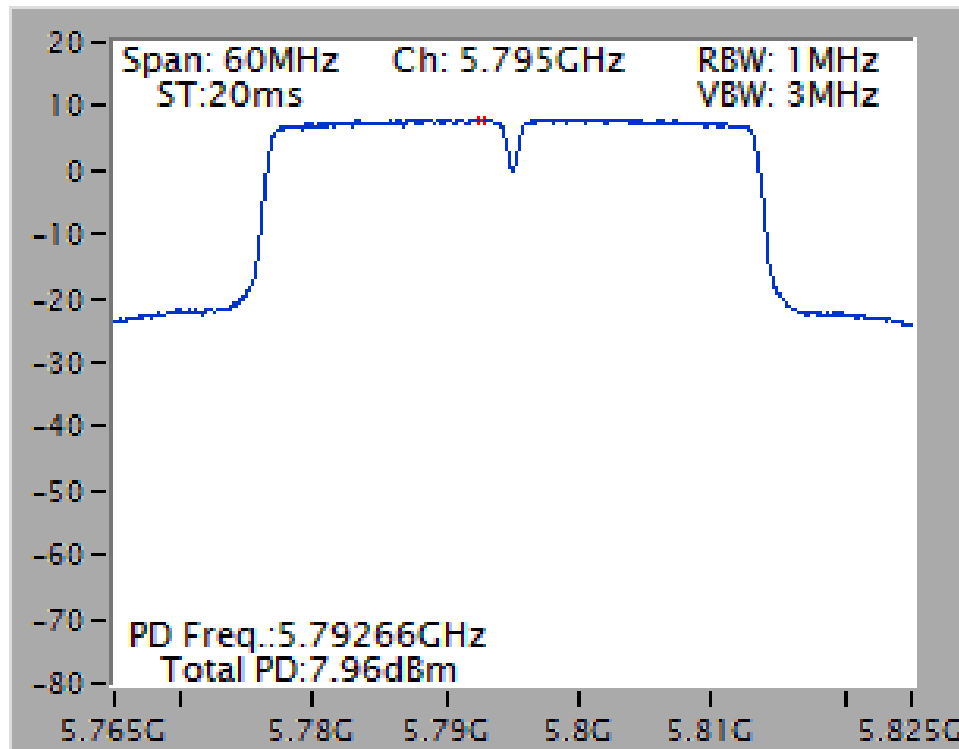
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT20 / Chain 4 + Chain 5 / 5825 MHz



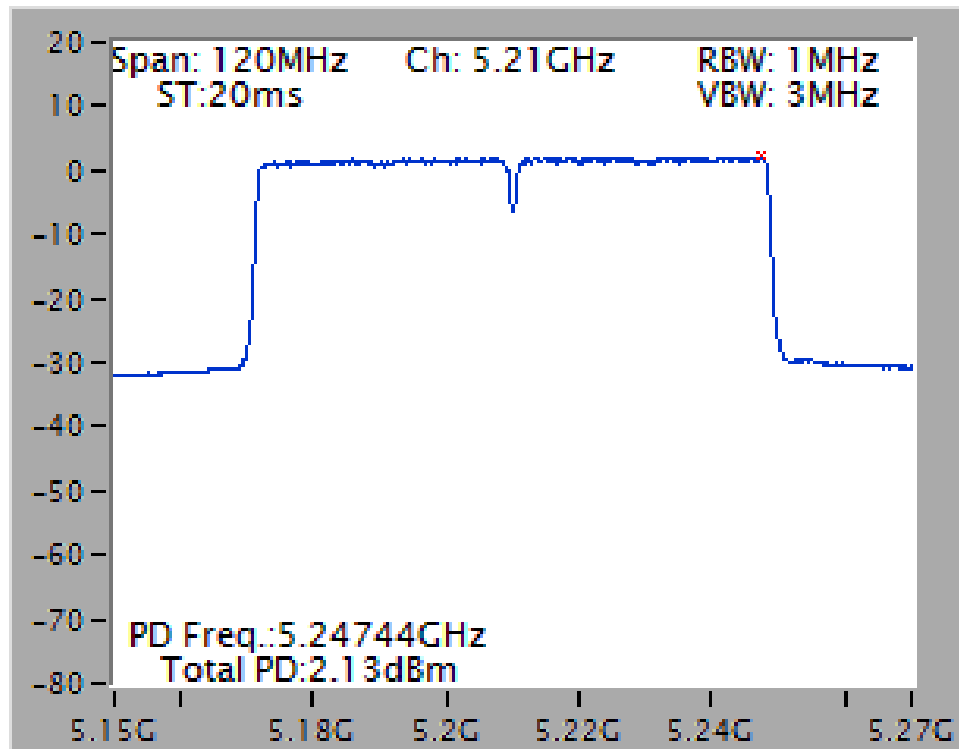
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT40 / Chain 4 + Chain 5 / 5230 MHz



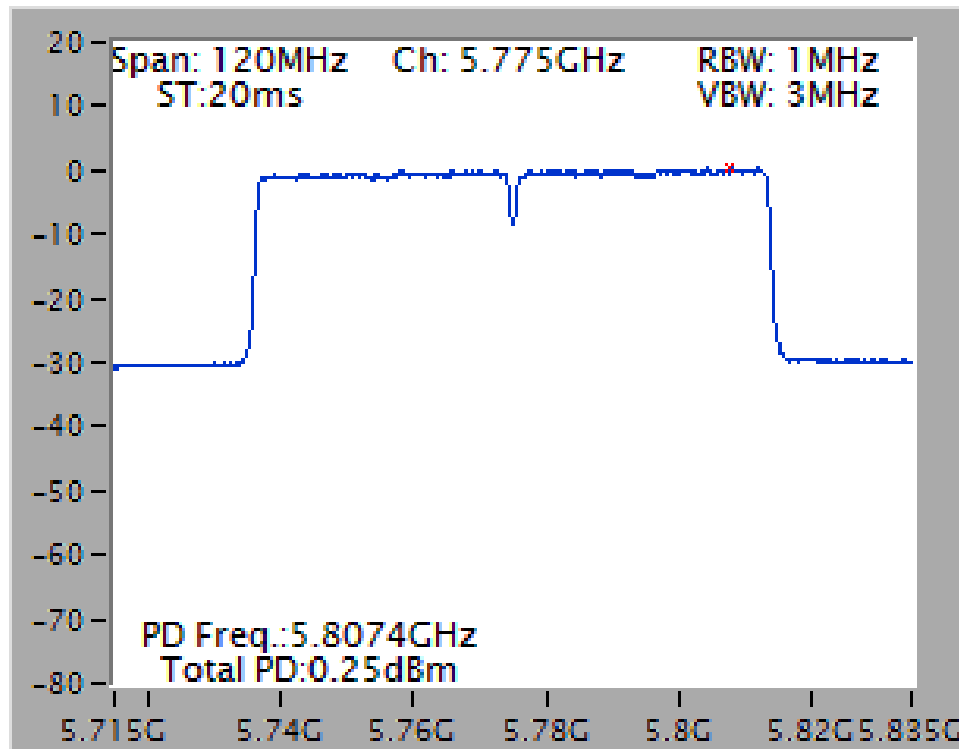
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT40 / Chain 4 + Chain 5 / 5795 MHz



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT80 / Chain 4 + Chain 5 / 5210 MHz



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT80 / Chain 4 + Chain 5 / 5775 MHz



## &lt;For Radio 2 Non-beamforming Mode&gt;: 3TX, 1S

Temperature	25°C	Humidity	55%
Test Engineer	Lucas Huang	Test Date	Jul, 11, 2015

## Configuration IEEE 802.11a / Chain 4 + Chain 5 + Chain 6

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	13.08	14.46	Complies
40	5200 MHz	12.97	14.46	Complies
48	5240 MHz	13.02	14.46	Complies

Note:  $DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 8.54\text{dBi}$ , so Limit =  $17 - (8.54 - 6) = 14.46$  dBm

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
149	5745 MHz	12.47	-3.01	9.46	27.46	Complies
157	5785 MHz	13.10	-3.01	10.09	27.46	Complies
165	5825 MHz	11.89	-3.01	8.88	27.46	Complies

Note:  $DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 8.54\text{dBi}$ , so Limit =  $30 - (8.54 - 6) = 27.46$  dBm/500kHz

## Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4 + Chain 5 + Chain 6

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	12.85	14.46	Complies
40	5200 MHz	13.04	14.46	Complies
48	5240 MHz	13.08	14.46	Complies

Note:  $DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 8.54\text{dBi}$ , so Limit =  $17 - (8.54 - 6) = 14.46$  dBm

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
149	5745 MHz	11.85	-3.01	8.84	27.46	Complies
157	5785 MHz	12.86	-3.01	9.85	27.46	Complies
165	5825 MHz	11.68	-3.01	8.67	27.46	Complies

Note:  $DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 8.54\text{dBi}$ , so Limit =  $30 - (8.54 - 6) = 27.46$  dBm/500kHz

**Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 4 + Chain 5 + Chain 6**

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	4.93	14.46	Complies
46	5230 MHz	10.22	14.46	Complies

Note:  $DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{ss}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 8.54\text{dBi}$ , so Limit =  $17 - (8.54 - 6) = 14.46$  dBm

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
151	5755 MHz	6.99	-3.01	3.98	27.46	Complies
159	5795 MHz	8.95	-3.01	5.94	27.46	Complies

Note:  $DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{ss}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 8.54\text{dBi}$ , so Limit =  $30 - (8.54 - 6) = 27.46$  dBm/500kHz

**Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 4 + Chain 5 + Chain 6**

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
42	5210 MHz	0.47	14.46	Complies

Note:  $DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{ss}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 8.54\text{dBi}$ , so Limit =  $17 - (8.54 - 6) = 14.46$  dBm

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
155	5775 MHz	0.32	-3.01	-2.69	27.46	Complies

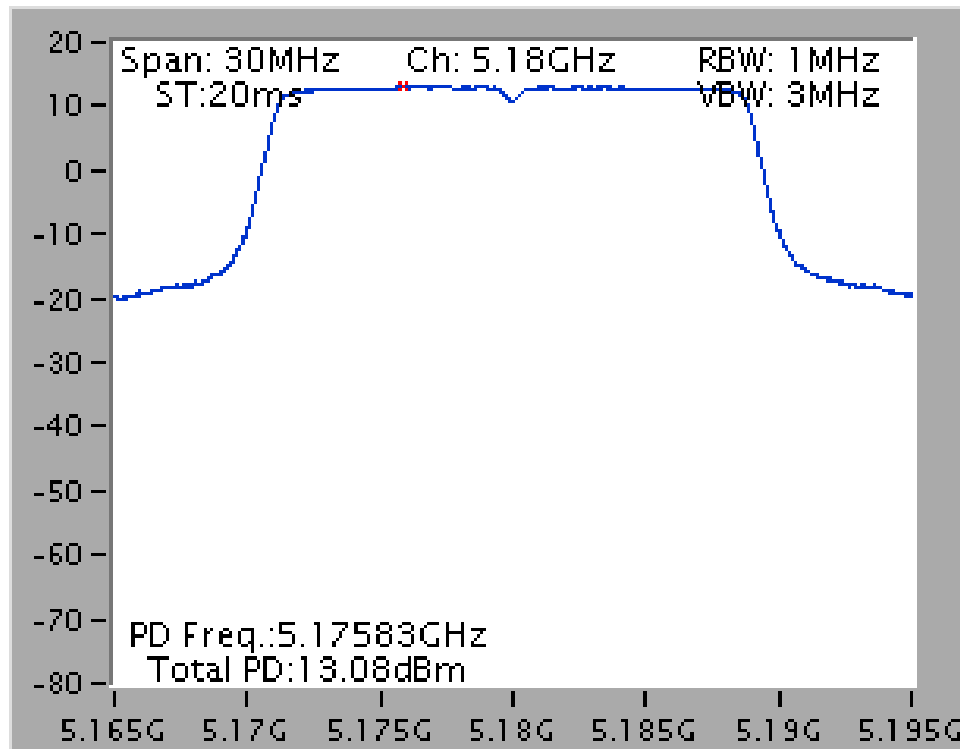
Note:  $DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{ss}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 8.54\text{dBi}$ , so Limit =  $30 - (8.54 - 6) = 27.46$  dBm/500kHz

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

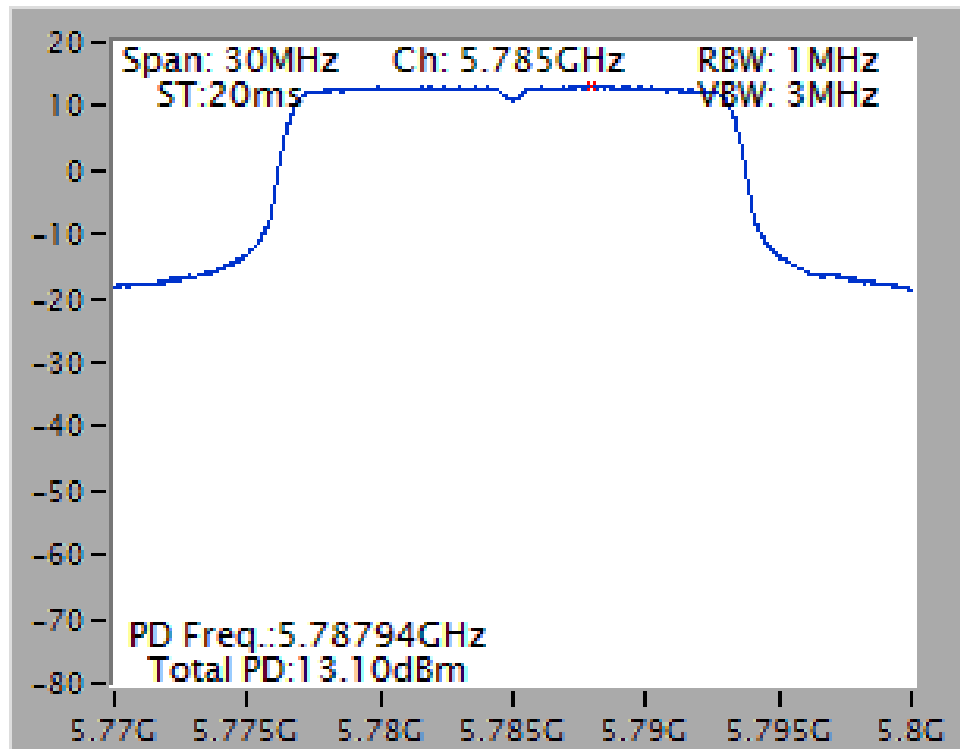
For plots, only the channel with worse result was shown.



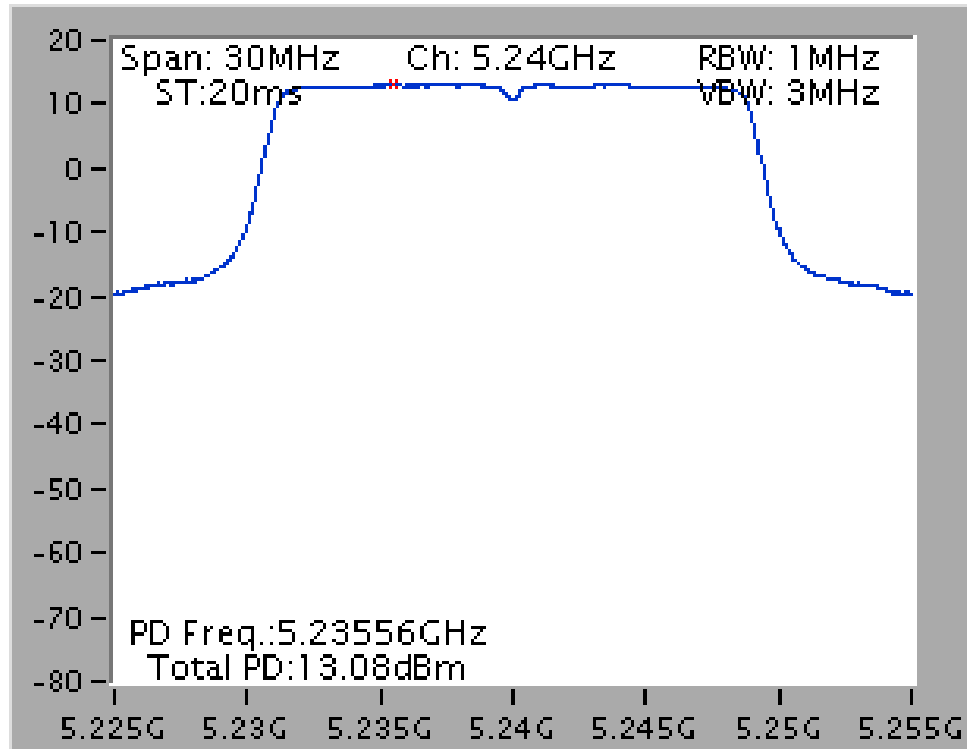
### Power Density Plot on Configuration IEEE 802.11a / Chain 4 + Chain 5 + Chain 6 / 5180 MHz



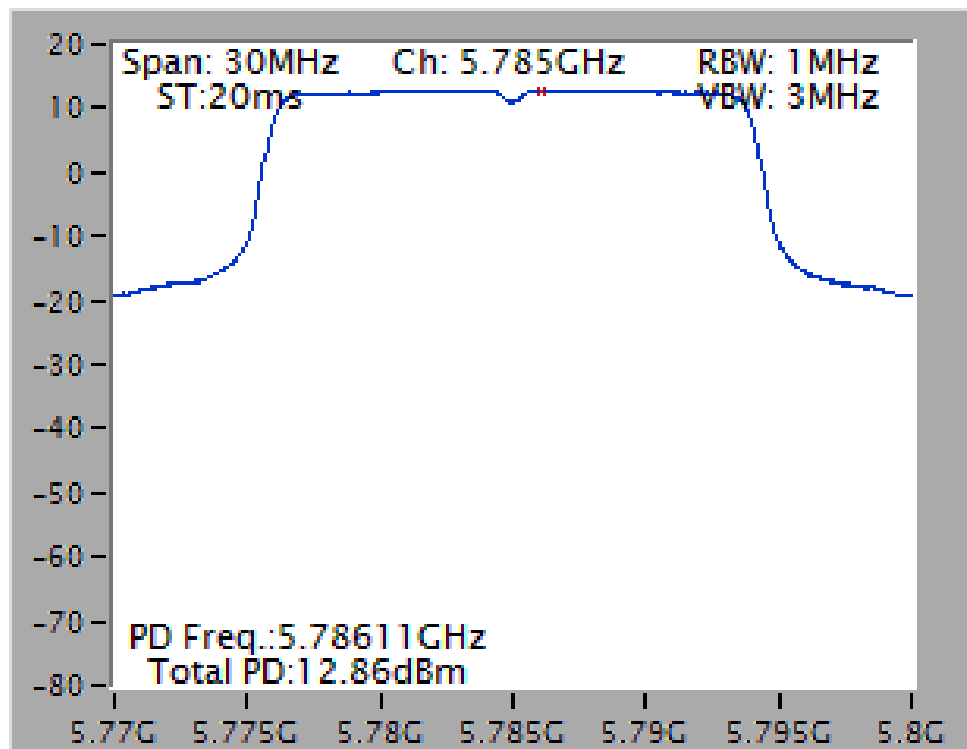
### Power Density Plot on Configuration IEEE 802.11a / Chain 4 + Chain 5 + Chain 6 / 5785 MHz



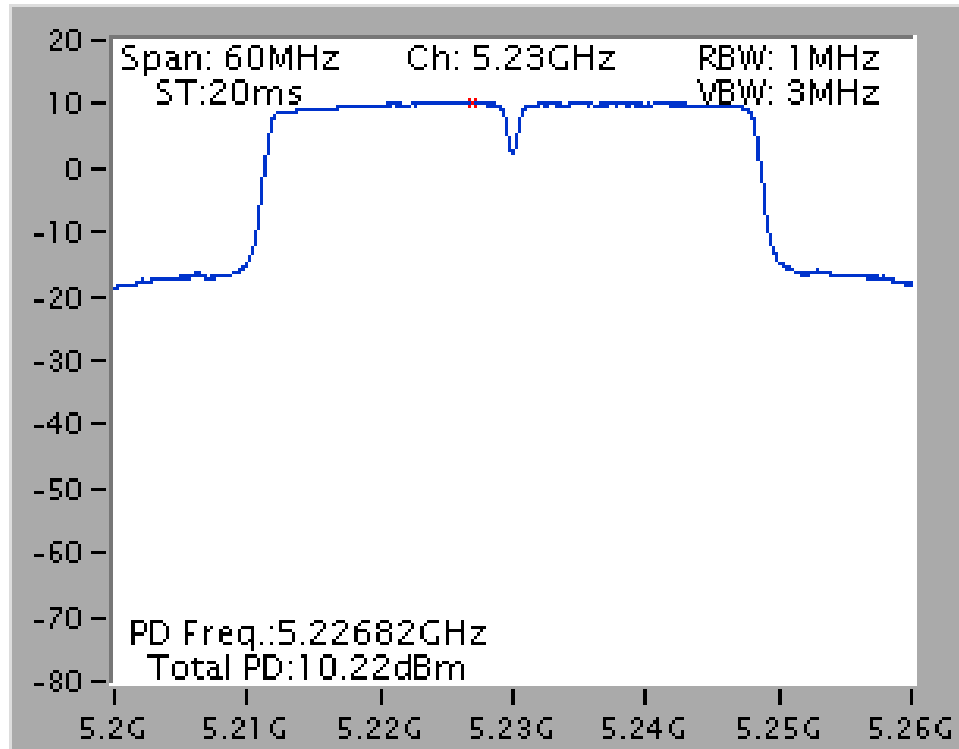
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4 + Chain 5 + Chain 6 /  
5240 MHz



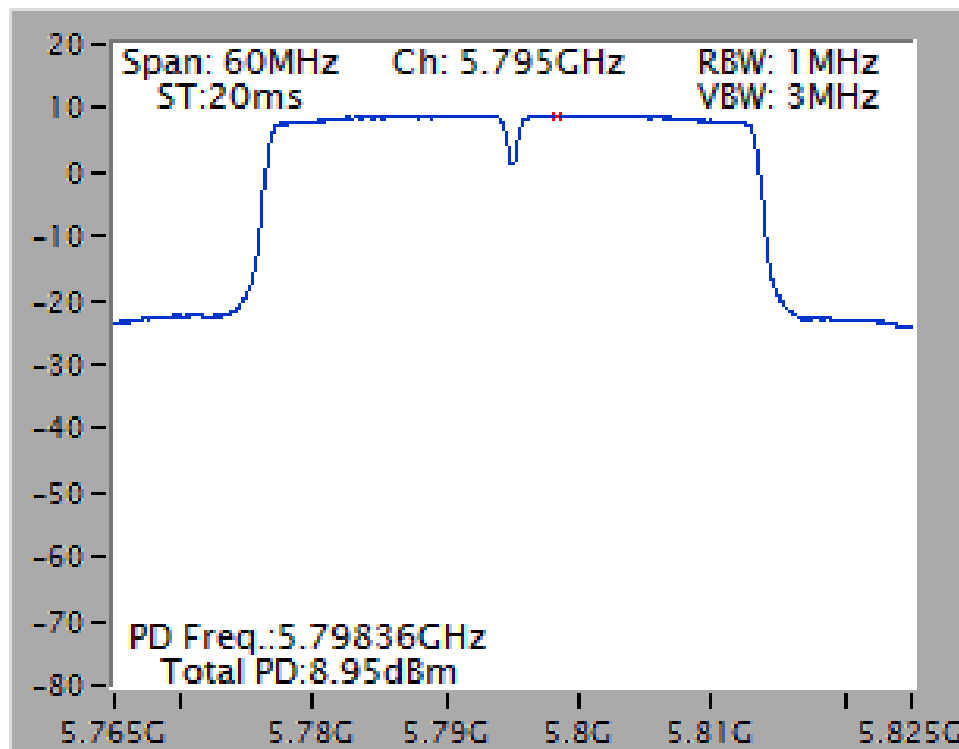
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4 + Chain 5 + Chain 6 /  
5785 MHz



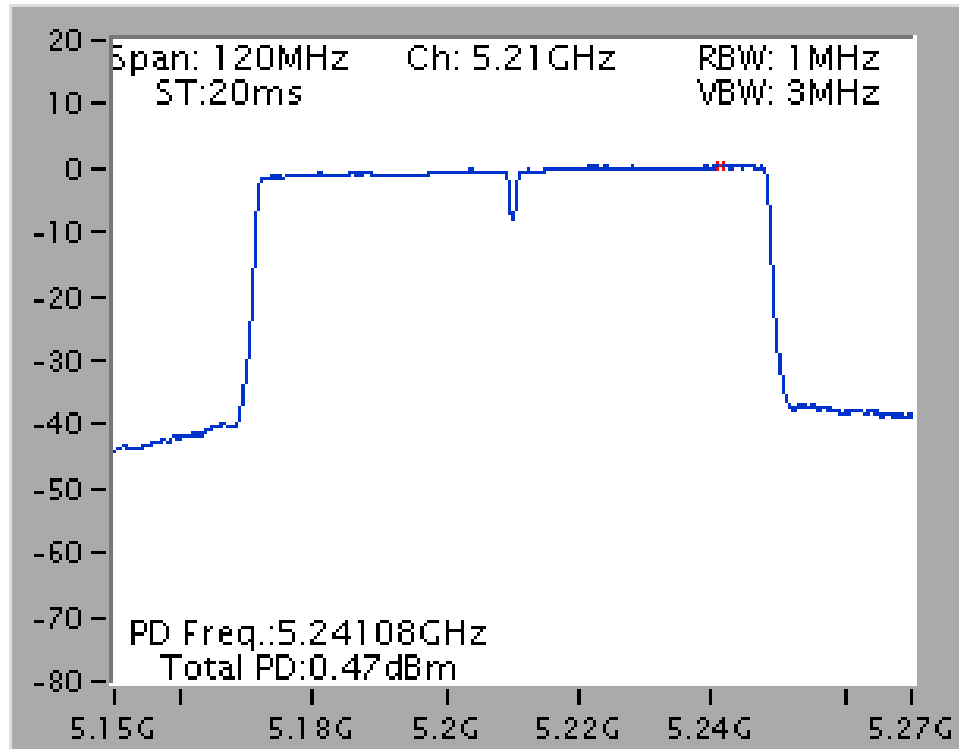
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 4 + Chain 5 + Chain 6 /  
5230 MHz



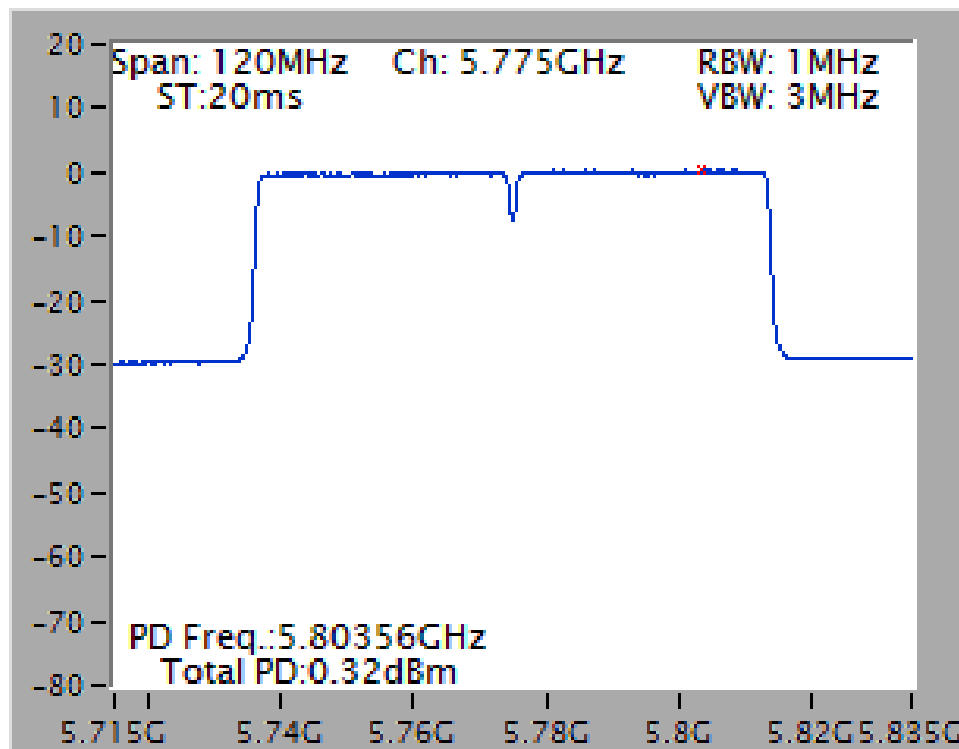
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 4 + Chain 5 + Chain 6 /  
5795 MHz



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 4 + Chain 5 + Chain 6 /  
5210 MHz



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 4 + Chain 5 + Chain 6 /  
5775 MHz



## &lt;For Radio 2 Non-beamforming Mode&gt;: 3TX, 2S

Temperature	25°C	Humidity	55%
Test Engineer	Lucas Huang	Test Date	Jul, 11, 2015

## Configuration IEEE 802.11ac MCS0/Nss2 VHT20 / Chain 4 + Chain 5 + Chain 6

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	12.99	17.00	Complies
40	5200 MHz	13.44	17.00	Complies
48	5240 MHz	13.35	17.00	Complies

Note:  $DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 5.53\text{dBi} < 6\text{dBi}$ , so the limit doesn't reduce.

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
149	5745 MHz	12.51	-3.01	9.50	30.00	Complies
157	5785 MHz	13.02	-3.01	10.01	30.00	Complies
165	5825 MHz	12.40	-3.01	9.39	30.00	Complies

Note:  $DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 5.53\text{dBi} < 6\text{dBi}$ , so the limit doesn't reduce.

## Configuration IEEE 802.11ac MCS0/Nss2 VHT40 / Chain 4 + Chain 5 + Chain 6

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	6.08	17.00	Complies
46	5230 MHz	10.94	17.00	Complies

Note:  $DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 5.53\text{dBi} < 6\text{dBi}$ , so the limit doesn't reduce.

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
151	5755 MHz	7.14	-3.01	4.13	30.00	Complies
159	5795 MHz	8.20	-3.01	5.19	30.00	Complies

Note:  $DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 5.53\text{dBi} < 6\text{dBi}$ , so the limit doesn't reduce.

### Configuration IEEE 802.11ac MCS0/Nss2 VHT80 / Chain 4 + Chain 5 + Chain 6

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
42	5210 MHz	0.91	17.00	Complies

Note:  $DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 5.53\text{dBi} < 6\text{dBi}$ , so the limit doesn't reduce.

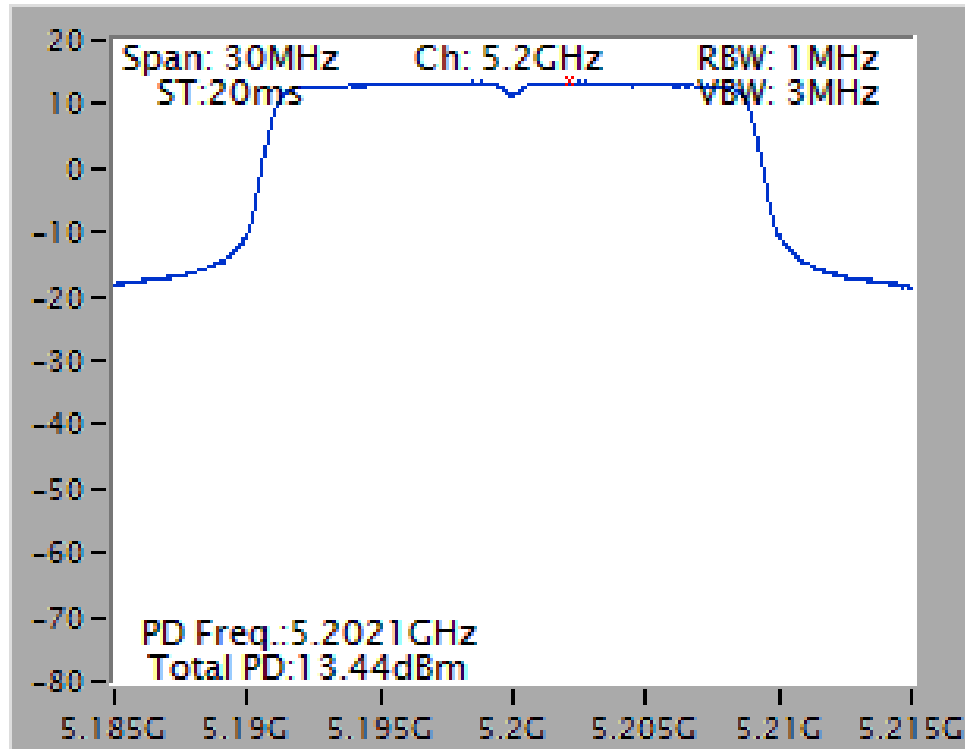
Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
155	5775 MHz	-2.22	-3.01	-5.23	30.00	Complies

Note:  $DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 5.53\text{dBi} < 6\text{dBi}$ , so the limit doesn't reduce.

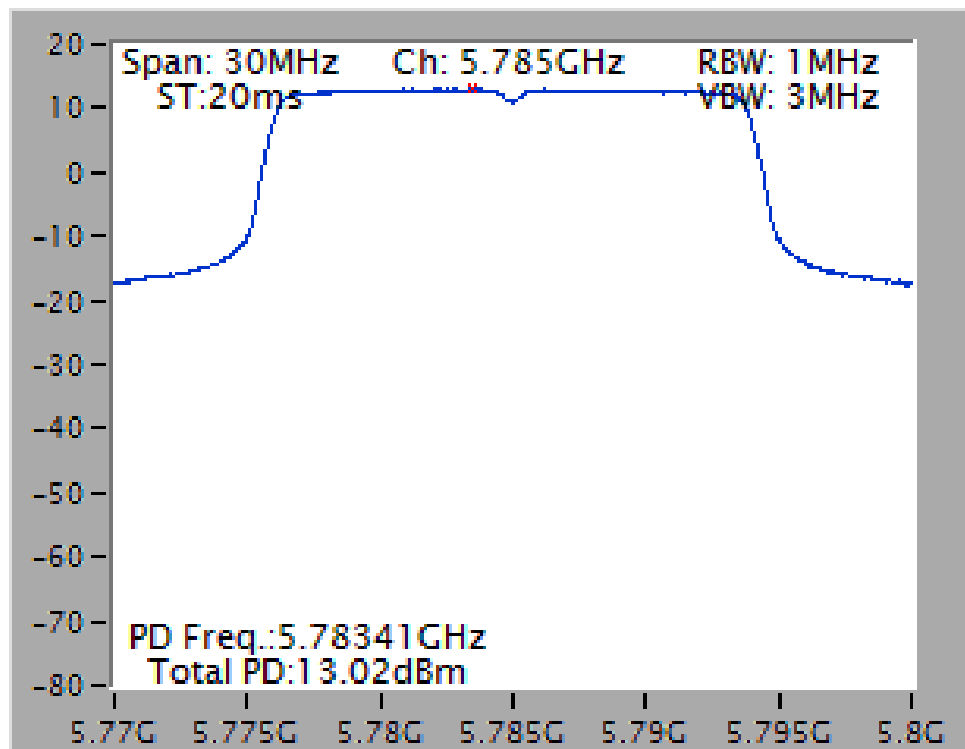
Note: All the test values were listed in the report.

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

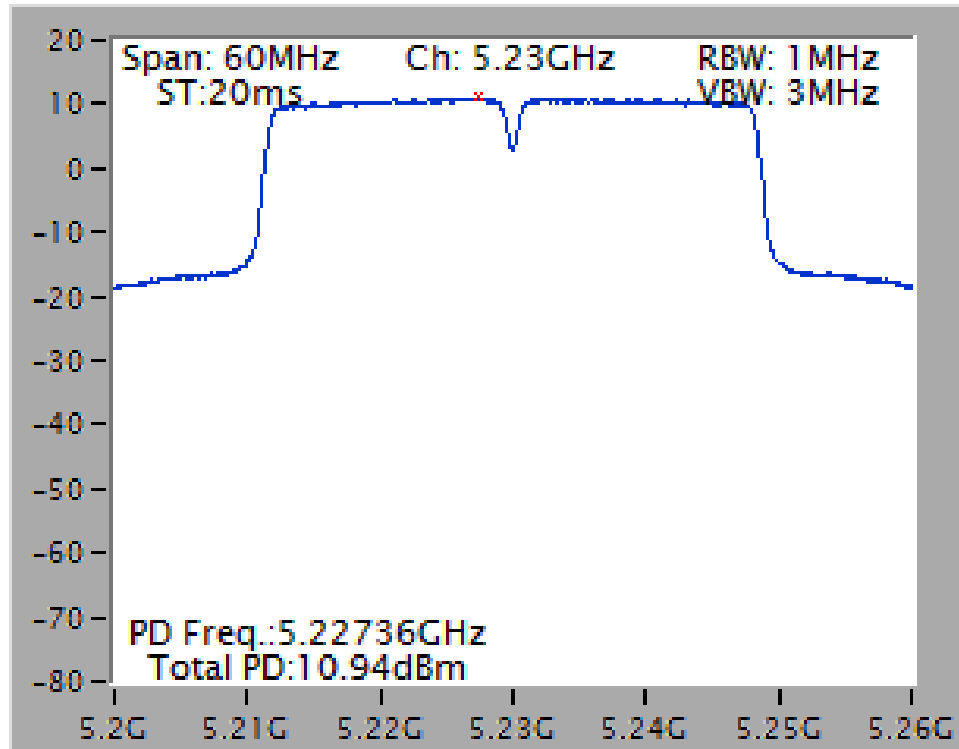
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT20 / Chain 4 + Chain 5 + Chain 6 /  
5200 MHz



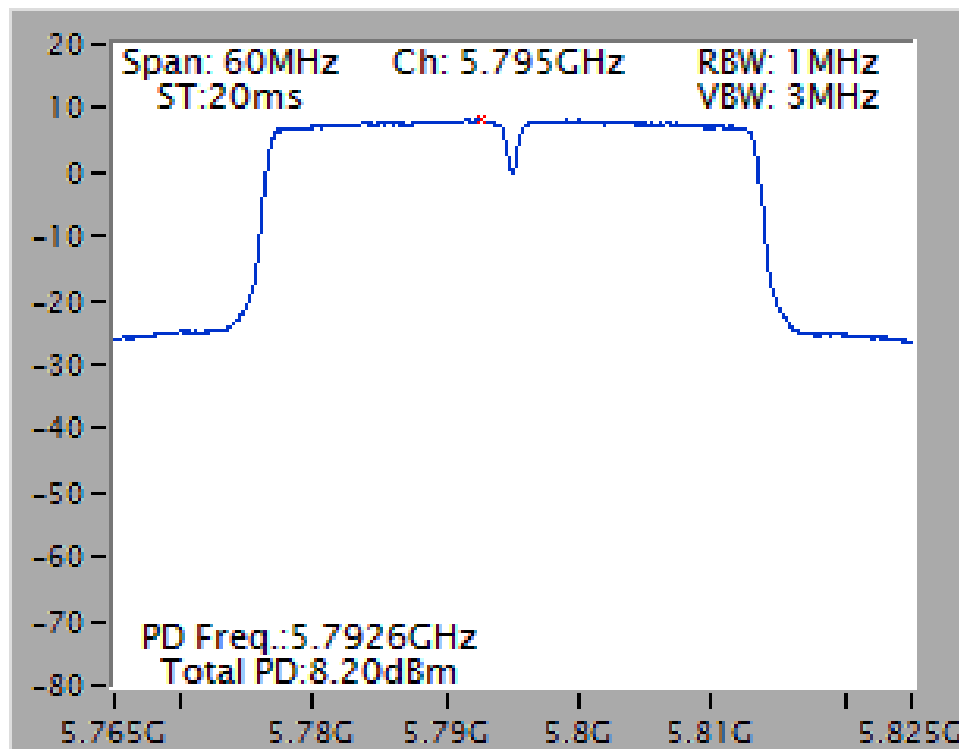
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT20 / Chain 4 + Chain 5 + Chain 6 /  
5785 MHz



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT40 / Chain 4 + Chain 5 + Chain 6 /  
5230 MHz

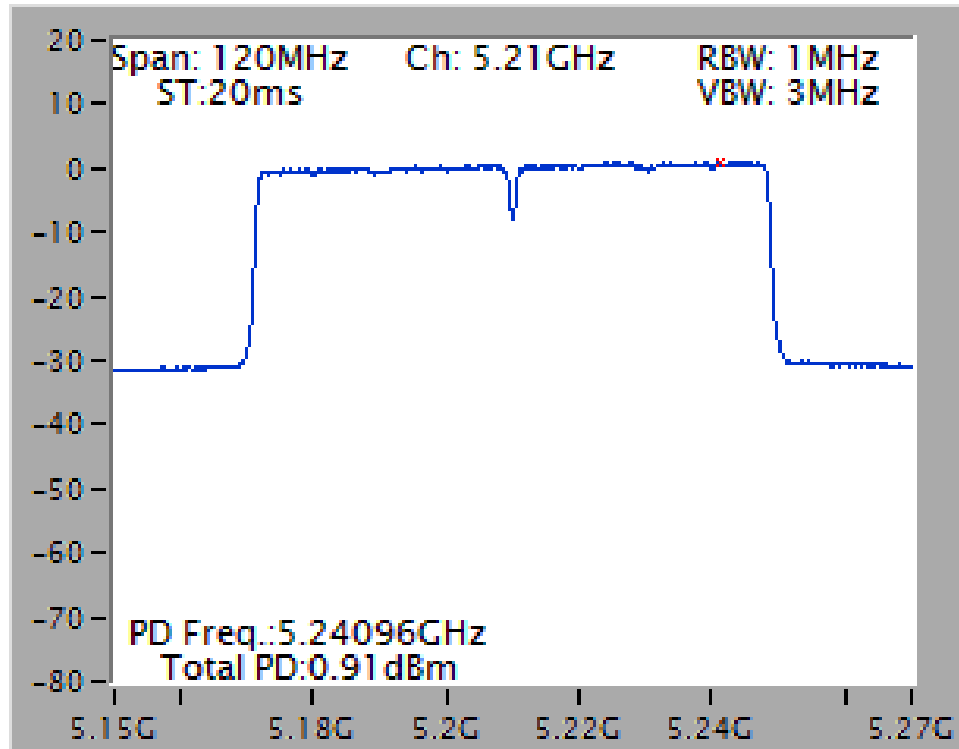


Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT40 / Chain 4 + Chain 5 + Chain 6 /  
5795 MHz

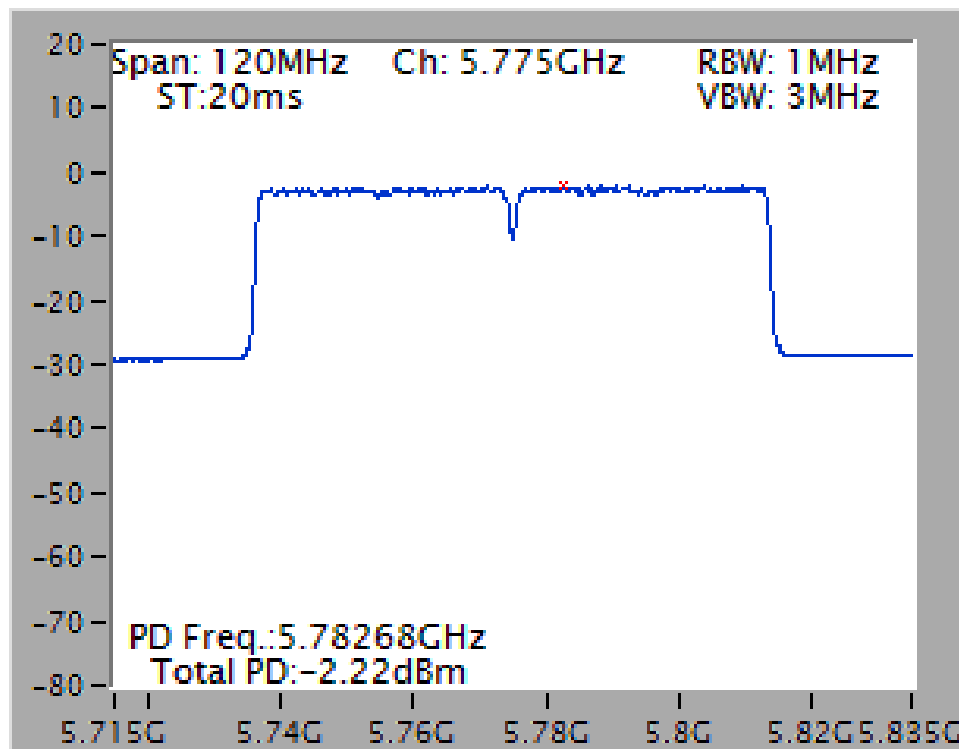




Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT80 / Chain 4 + Chain 5 + Chain 6 /  
5210 MHz



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT80 / Chain 4 + Chain 5 + Chain 6 /  
5775 MHz



<For Radio 2 Non-beamforming Mode>: 3TX, 3S

Temperature	25°C	Humidity	55%
Test Engineer	Lucas Huang	Test Date	Jul, 11, 2015

Configuration IEEE 802.11ac MCS0/Nss3 VHT20 / Chain 4 + Chain 5 + Chain 6

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	13.47	17.00	Complies
40	5200 MHz	13.58	17.00	Complies
48	5240 MHz	13.44	17.00	Complies

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
149	5745 MHz	10.45	-3.01	7.44	30.00	Complies
157	5785 MHz	12.95	-3.01	9.94	30.00	Complies
165	5825 MHz	11.55	-3.01	8.54	30.00	Complies

Configuration IEEE 802.11ac MCS0/Nss3 VHT40 / Chain 4 + Chain 5 + Chain 6

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	5.09	17.00	Complies
46	5230 MHz	10.21	17.00	Complies

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
151	5755 MHz	3.90	-3.01	0.89	30.00	Complies
159	5795 MHz	7.18	-3.01	4.17	30.00	Complies

## Configuration IEEE 802.11ac MCS0/Nss3 VHT80 / Chain 4 + Chain 5 + Chain 6

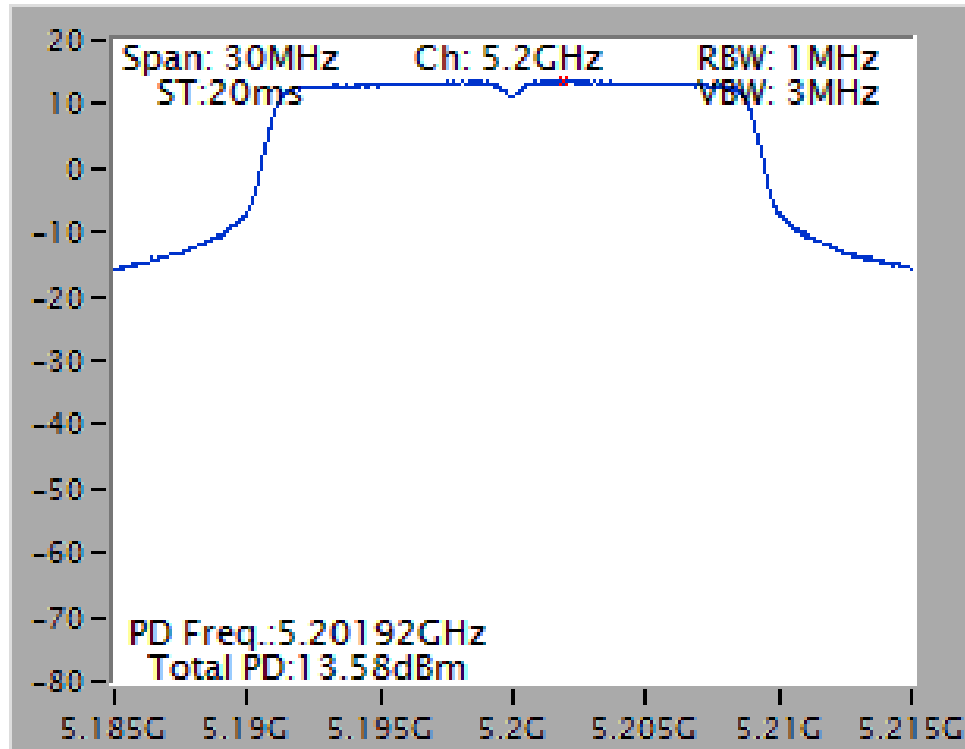
Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
42	5210 MHz	1.43	17.00	Complies

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
155	5775 MHz	0.85	-3.01	-2.16	30.00	Complies

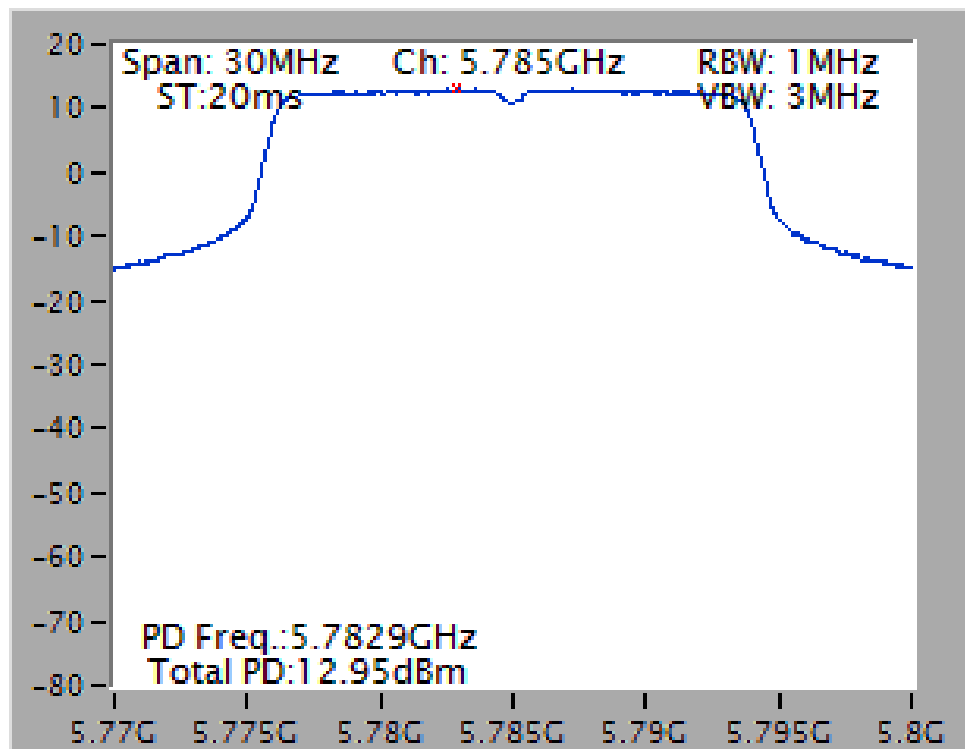
Note: All the test values were listed in the report.

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

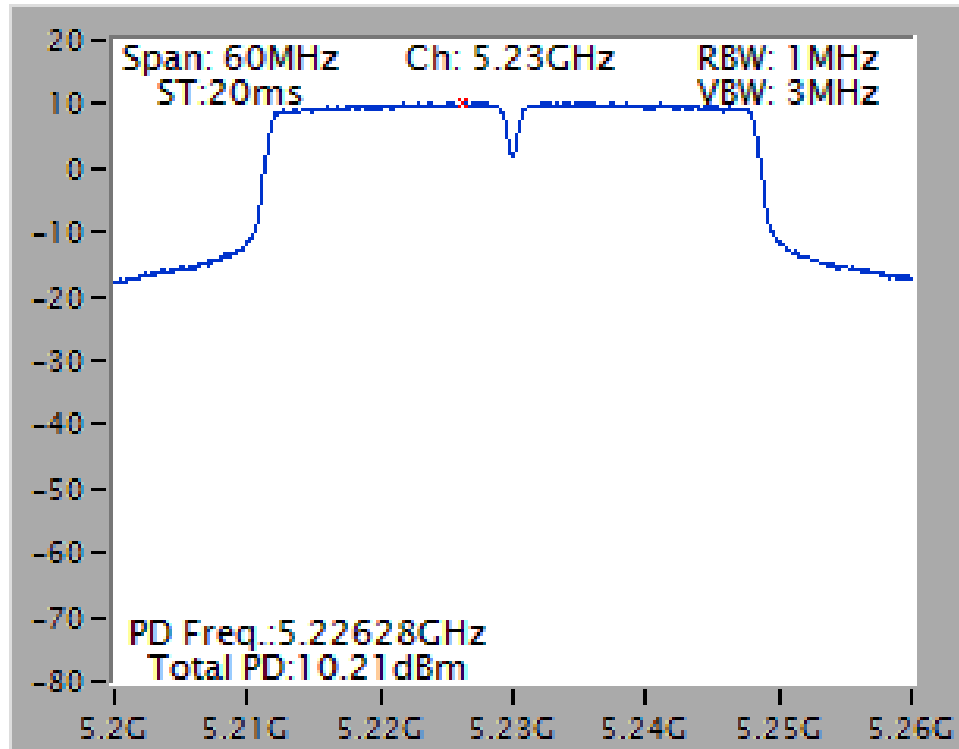
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss3 VHT20 / Chain 4 + Chain 5 + Chain 6 /  
5200 MHz



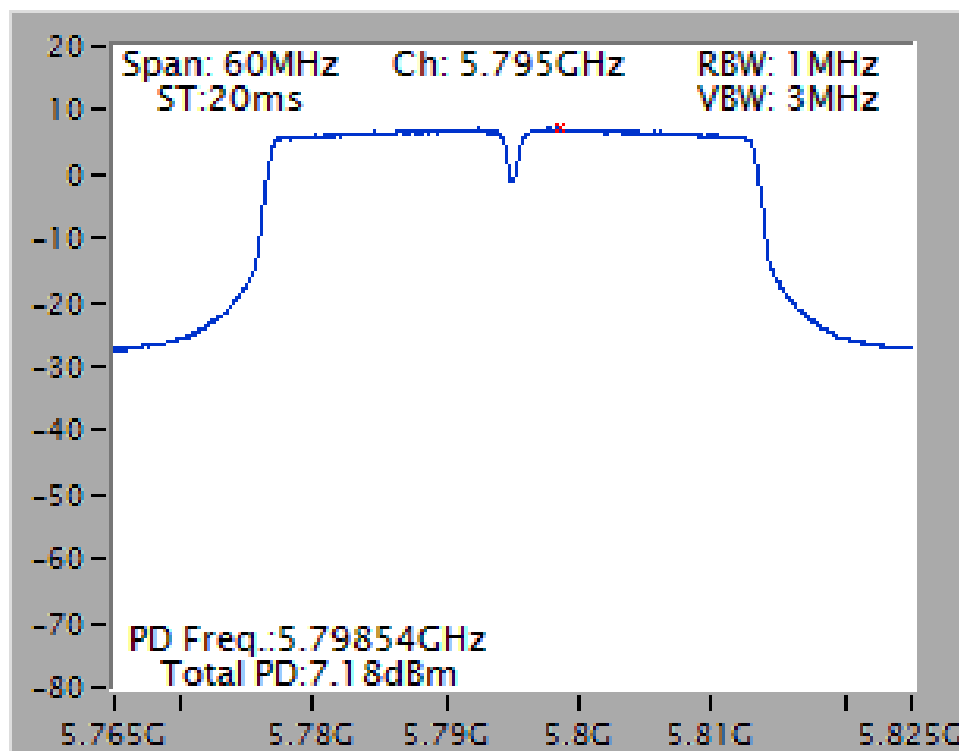
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss3 VHT20 / Chain 4 + Chain 5 + Chain 6 /  
5785 MHz



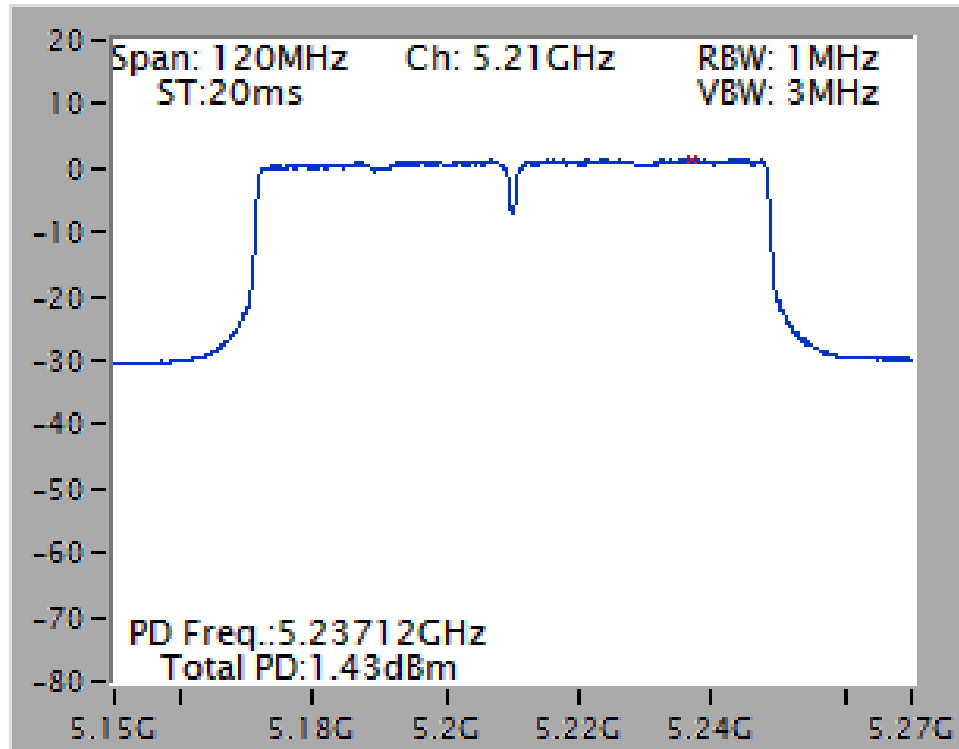
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss3 VHT40 / Chain 4 + Chain 5 + Chain 6 /  
5230 MHz



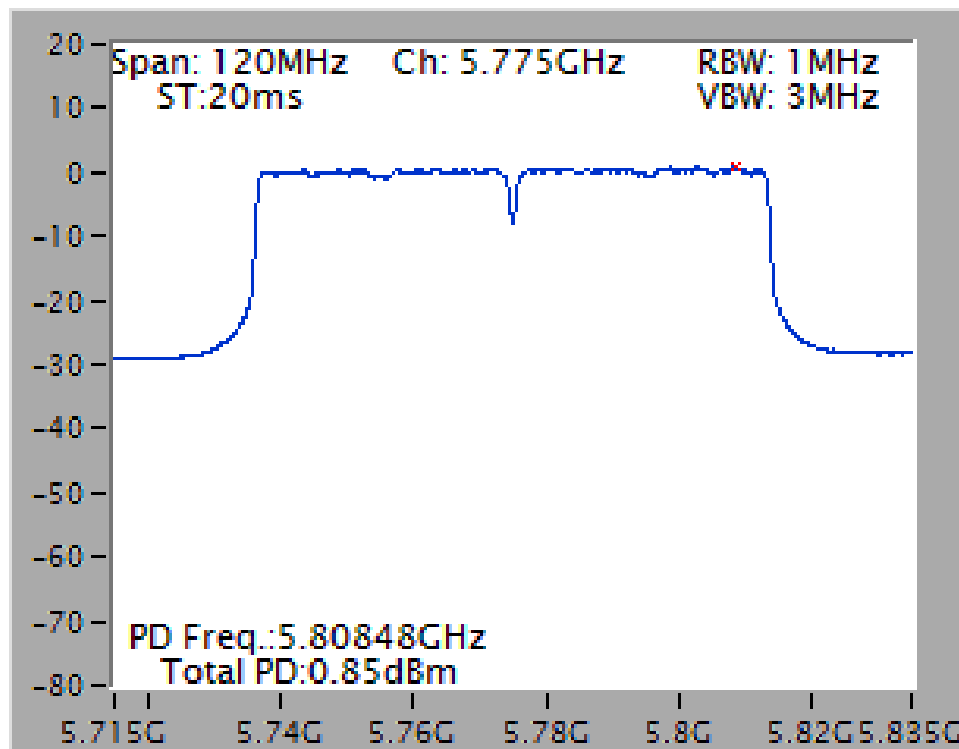
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss3 VHT40 / Chain 4 + Chain 5 + Chain 6 /  
5795 MHz



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss3 VHT80 / Chain 4 + Chain 5 + Chain 6 /  
5210 MHz



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss3 VHT80 / Chain 4 + Chain 5 + Chain 6 /  
5775 MHz



## &lt;For Radio 2 Beamforming Mode&gt;: 2TX, 1S

Temperature	25°C	Humidity	55%
Test Engineer	Eddie Weng	Test Date	Jul, 30, 2015

## Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4 + Chain 5

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	11.70	15.96	Complies
40	5200 MHz	11.87	15.96	Complies
48	5240 MHz	11.67	15.96	Complies

Note:  $DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 7.04\text{dBi}$ , so Limit =  $17 - (7.04 - 6) = 15.96$  dBm

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
149	5745 MHz	11.11	-3.01	8.10	28.96	Complies
157	5785 MHz	11.58	-3.01	8.57	28.96	Complies
165	5825 MHz	11.04	-3.01	8.03	28.96	Complies

Note:  $DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 7.04\text{dBi}$ , so Limit =  $30 - (7.04 - 6) = 28.96$  dBm/500kHz

## Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 4 + Chain 5

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	7.04	15.96	Complies
46	5230 MHz	8.66	15.96	Complies

Note:  $DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 7.04\text{dBi}$ , so Limit =  $17 - (7.04 - 6) = 15.96$  dBm

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
151	5755 MHz	7.12	-3.01	4.11	28.96	Complies
159	5795 MHz	8.50	-3.01	5.49	28.96	Complies

Note:  $DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 7.04\text{dBi}$ , so Limit =  $30 - (7.04 - 6) = 28.96$  dBm/500kHz

### Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 4 + Chain 5

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
42	5210 MHz	2.88	15.96	Complies

Note:  $DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 7.04 \text{ dBi}$ , so Limit =  $17 - (7.04 - 6) = 15.96 \text{ dBm}$

Channel	Frequency	Power Density (dBm/MHz)	$10 \log(500 \text{ kHz/RBW})$ Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
155	5775 MHz	1.49	-3.01	-1.52	28.96	Complies

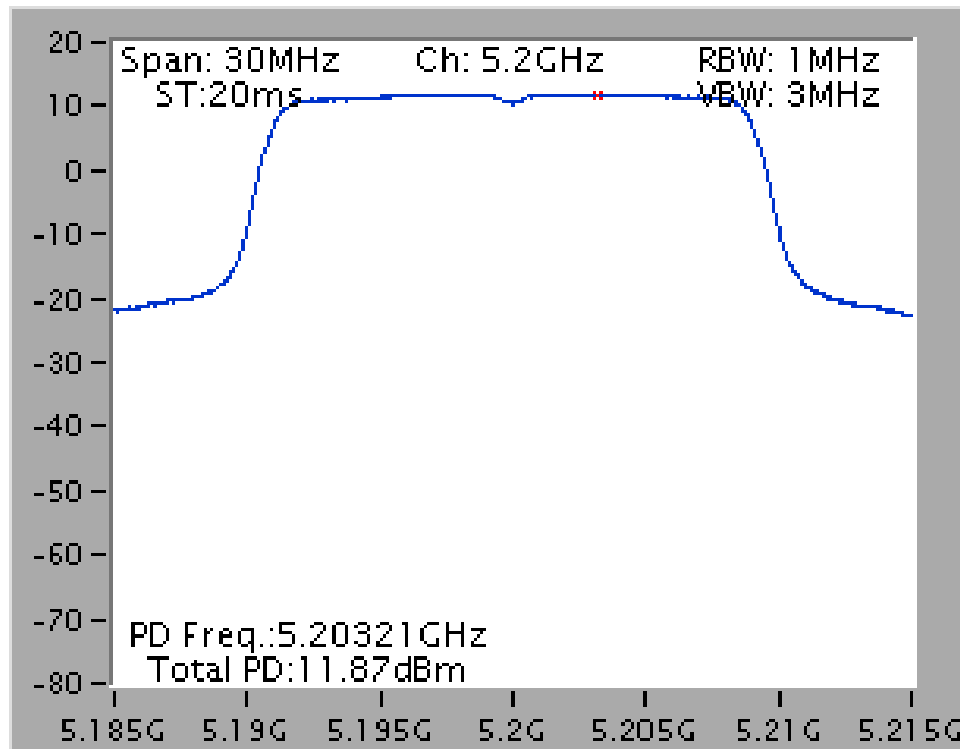
Note:  $DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 7.04 \text{ dBi}$ , so Limit =  $30 - (7.04 - 6) = 28.96 \text{ dBm/500kHz}$

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

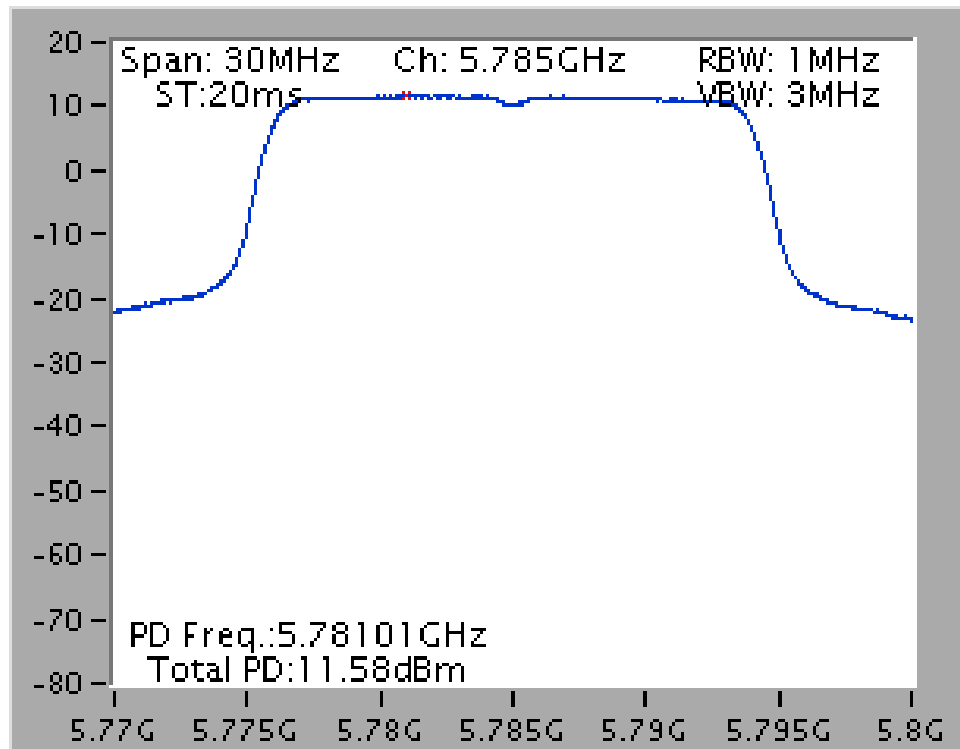
For plots, only the channel with worse result was shown.



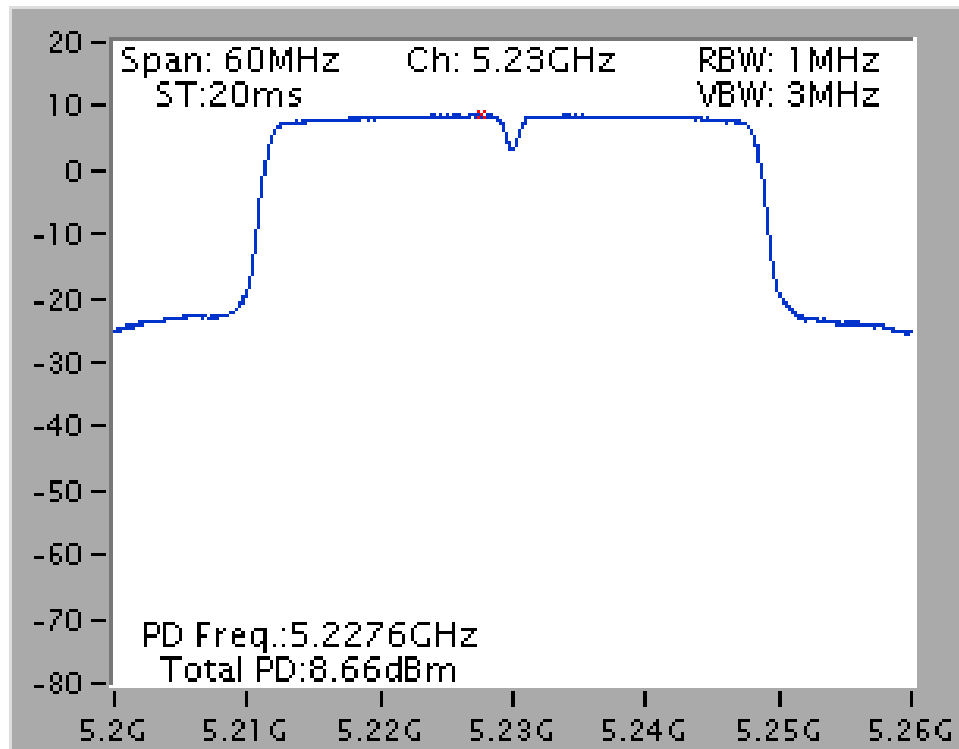
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4 + Chain 5 / 5200 MHz



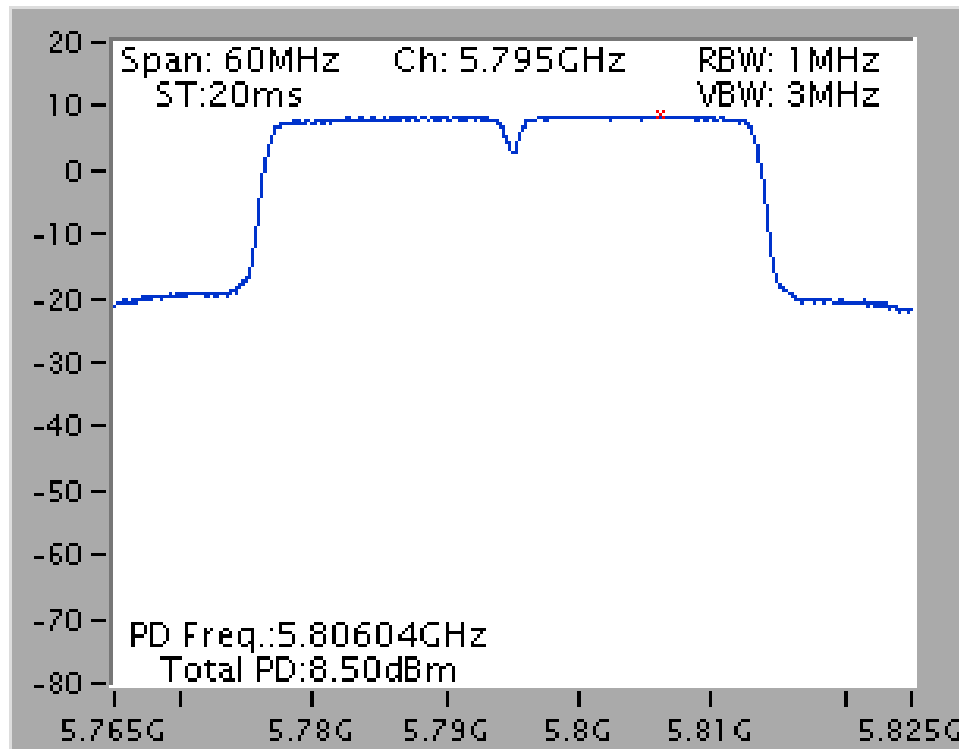
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4 + Chain 5 / 5785 MHz



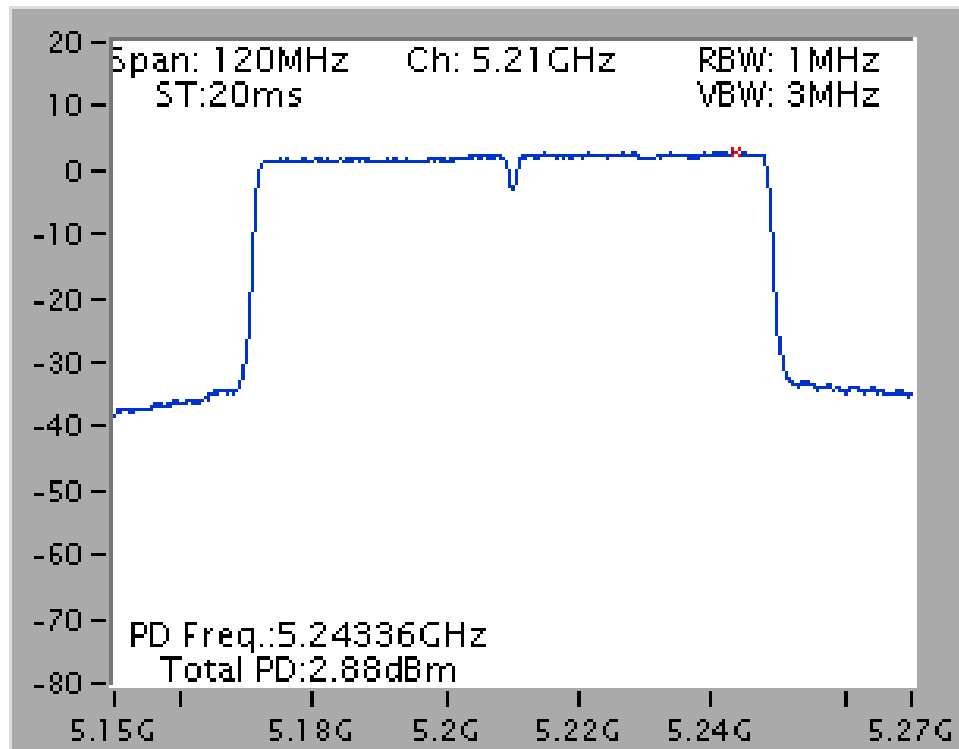
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 4 + Chain 5/ 5230 MHz



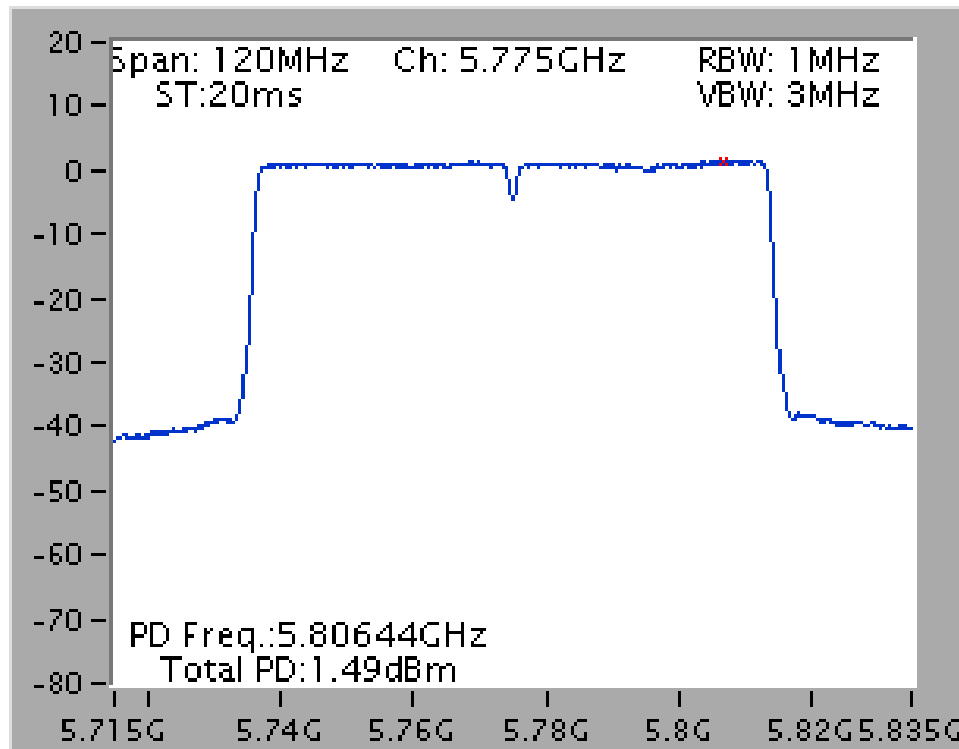
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 4 + Chain 5/ 5795 MHz



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 4 + Chain 5 / 5210 MHz



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 4 + Chain 5 / 5775 MHz



<For Radio 2 Beamforming Mode>: 3TX, 1S

Temperature	25°C	Humidity	55%
Test Engineer	Eddie Weng		

Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4 + Chain 5 + Chain 6

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	12.58	14.46	Complies
40	5200 MHz	13.40	14.46	Complies
48	5240 MHz	13.26	14.46	Complies

Note:  $DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 8.54\text{dBi}$ , so Limit =  $17 - (8.54 - 6) = 14.96$  dBm

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
149	5745 MHz	11.61	-3.01	8.60	27.46	Complies
157	5785 MHz	12.68	-3.01	9.67	27.46	Complies
165	5825 MHz	12.59	-3.01	9.58	27.46	Complies

Note:  $DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 8.54\text{dBi}$ , so Limit =  $30 - (8.54 - 6) = 27.46$  dBm/500kHz

Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 4 + Chain 5 + Chain 6

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	7.18	14.46	Complies
46	5230 MHz	10.18	14.46	Complies

Note:  $DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 8.54\text{dBi}$ , so Limit =  $17 - (8.54 - 6) = 14.96$  dBm

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
151	5755 MHz	7.36	-3.01	4.35	27.46	Complies
159	5795 MHz	9.23	-3.01	6.22	27.46	Complies

Note:  $DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 8.54\text{dBi}$ , so Limit =  $30 - (8.54 - 6) = 27.46$  dBm/500kHz

**Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 4 + Chain 5 + Chain 6**

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
42	5210 MHz	3.11	14.46	Complies

Note:  $DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 8.54\text{dBi}$ , so Limit =  $17 - (8.54 - 6) = 14.96$  dBm

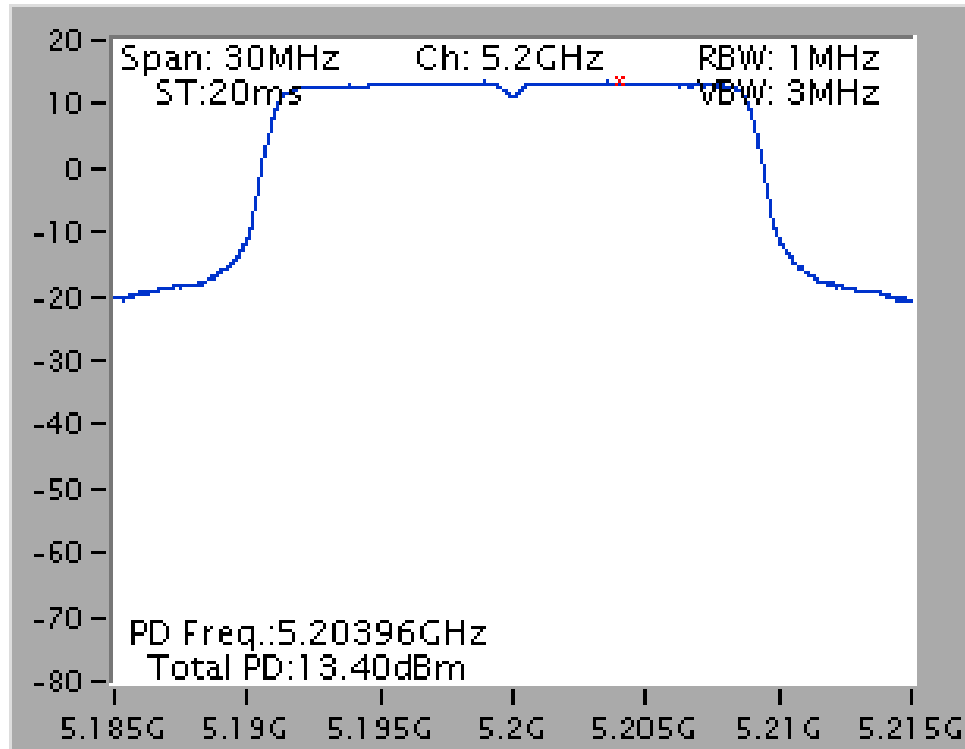
Channel	Frequency	Power Density (dBm/MHz)	$10\log(500\text{kHz}/\text{RBW})$ Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
155	5775 MHz	1.67	-3.01	-1.34	27.46	Complies

Note:  $DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 8.54\text{dBi}$ , so Limit =  $30 - (8.54 - 6) = 27.46$  dBm/500kHz

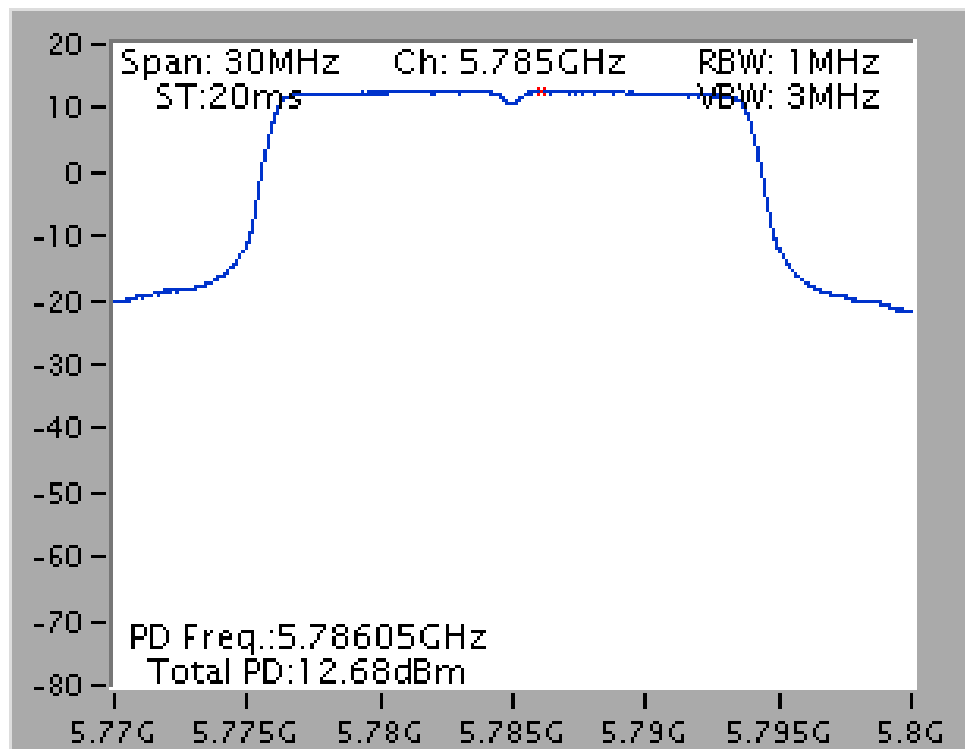
Note: All the test values were listed in the report.

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

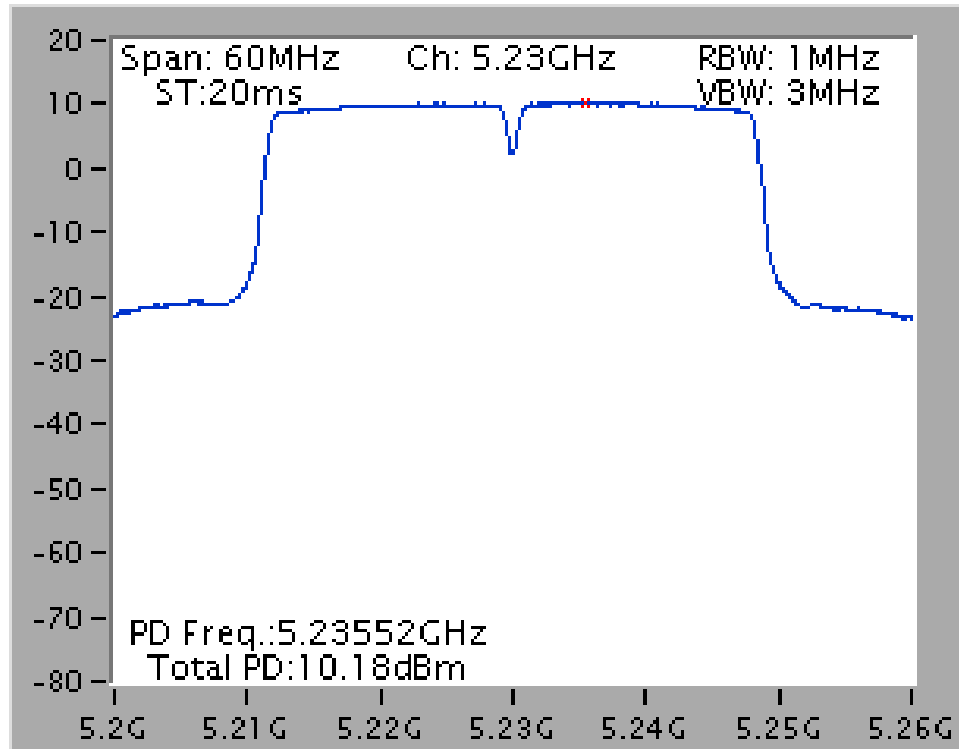
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4 + Chain 5 + Chain 6 /  
5200 MHz



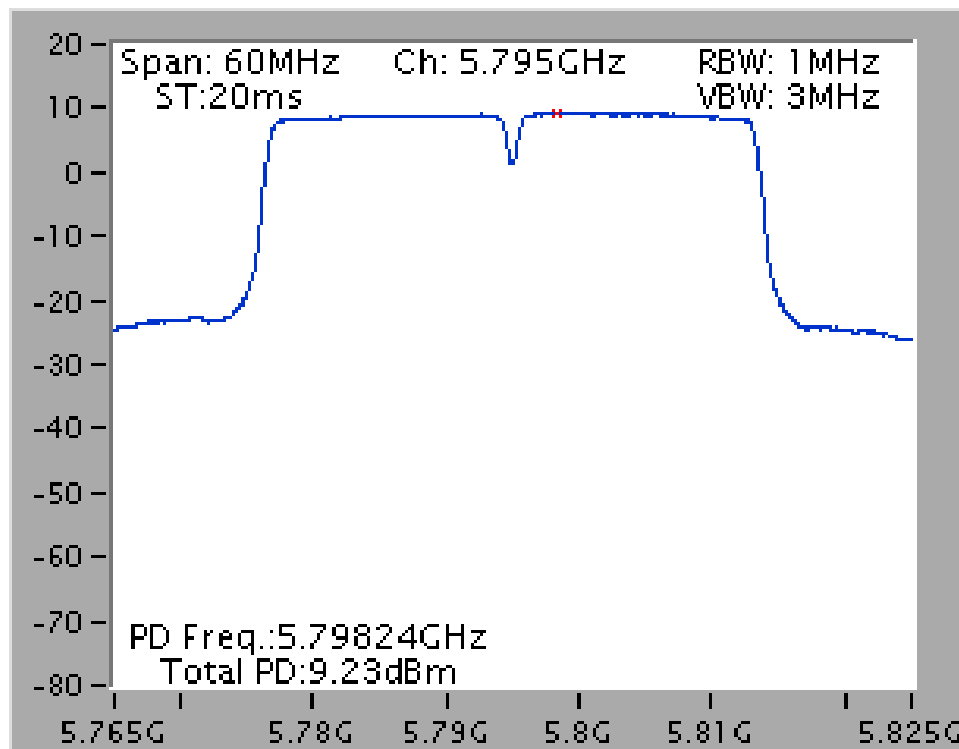
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4 + Chain 5 + Chain 6 /  
5785 MHz



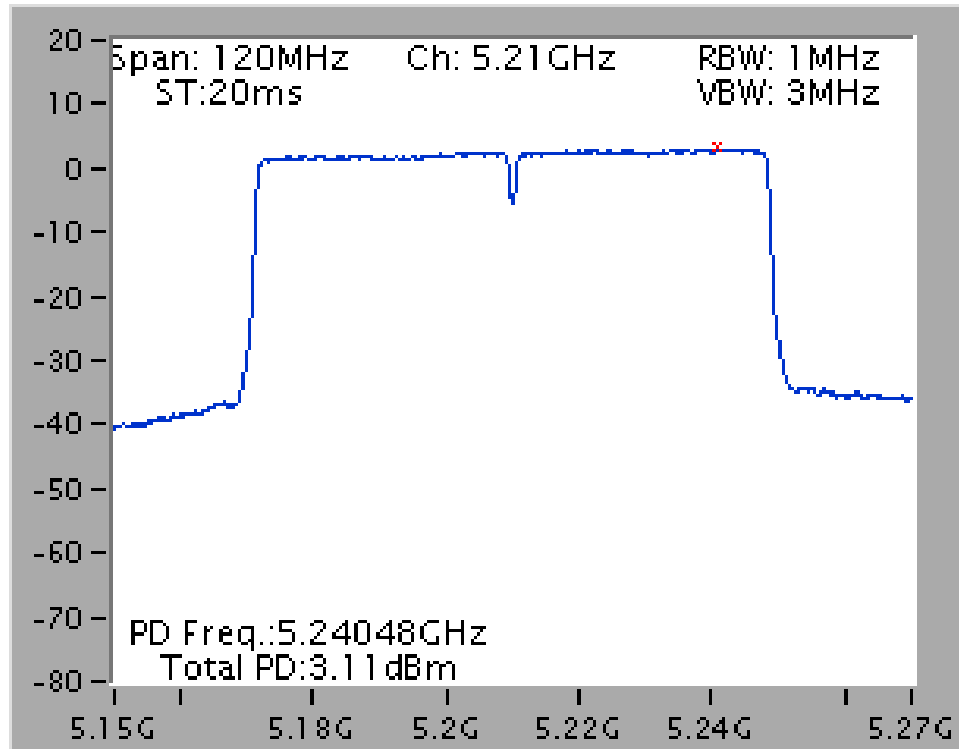
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 4 + Chain 5 + Chain 6 /  
5230 MHz



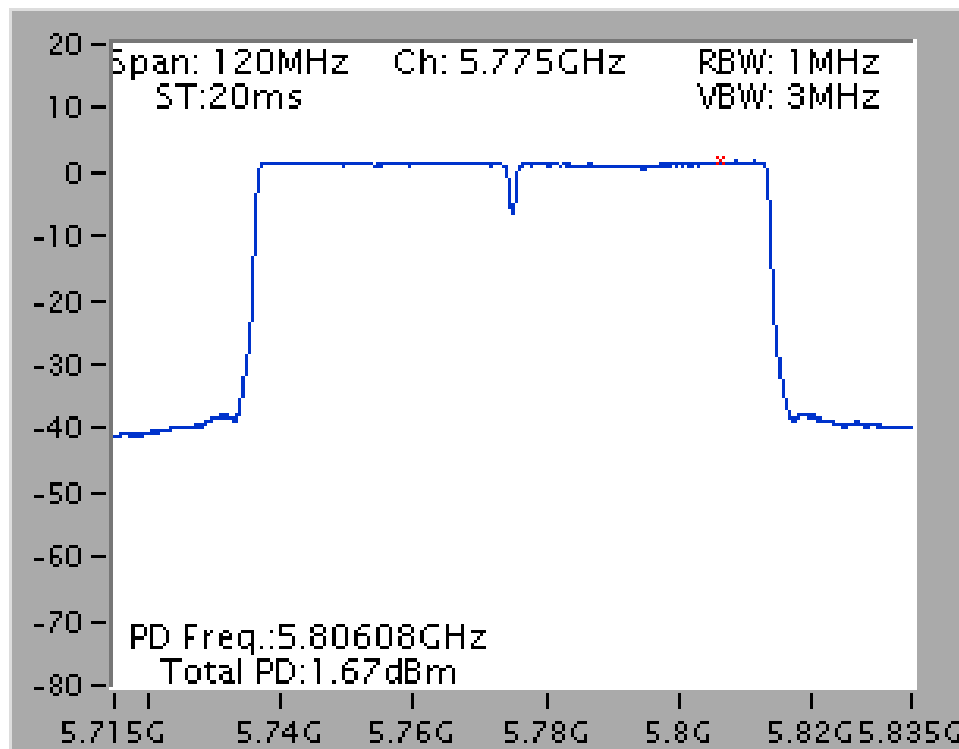
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 4 + Chain 5 + Chain 6 /  
5795 MHz



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 4 + Chain 5 + Chain 6 /  
5210 MHz



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 4 + Chain 5 + Chain 6 /  
5775 MHz





## &lt;For Radio 2 Beamforming Mode&gt;: 3TX, 2S

Temperature	25°C	Humidity	55%
Test Engineer	Eddie Weng	Test Date	Jul, 30, 2015

## Configuration IEEE 802.11ac MCS0/Nss2 VHT20 / Chain 4 + Chain 5 + Chain 6

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	11.22	17.00	Complies
40	5200 MHz	13.22	17.00	Complies
48	5240 MHz	13.41	17.00	Complies

Note:  $DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 5.53\text{dBi} < 6\text{dBi}$ , so the limit doesn't reduce.

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
149	5745 MHz	9.72	-3.01	6.71	30.00	Complies
157	5785 MHz	11.81	-3.01	8.80	30.00	Complies
165	5825 MHz	9.17	-3.01	6.16	30.00	Complies

Note:  $DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 5.53\text{dBi} < 6\text{dBi}$ , so the limit doesn't reduce.

## Configuration IEEE 802.11ac MCS0/Nss2 VHT40 / Chain 4 + Chain 5 + Chain 6

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	6.83	17.00	Complies
46	5230 MHz	9.77	17.00	Complies

Note:  $DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 5.53\text{dBi} < 6\text{dBi}$ , so the limit doesn't reduce.

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
151	5755 MHz	5.12	-3.01	2.11	30.00	Complies
159	5795 MHz	6.07	-3.01	3.06	30.00	Complies

Note:  $DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 5.53\text{dBi} < 6\text{dBi}$ , so the limit doesn't reduce.

**Configuration IEEE 802.11ac MCS0/Nss2 VHT80 / Chain 4 + Chain 5 + Chain 6**

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
42	5210 MHz	3.63	17.00	Complies

Note:  $DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 5.53\text{dBi} < 6\text{dBi}$ , so the limit doesn't reduce.

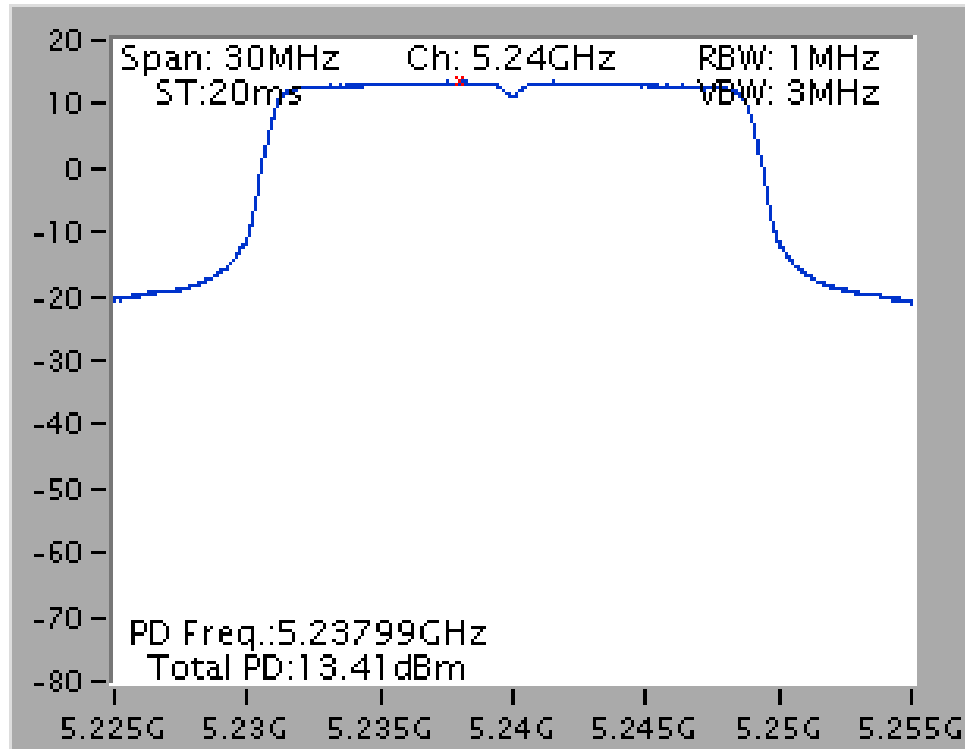
Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
155	5775 MHz	-2.91	-3.01	-5.92	30.00	Complies

Note:  $DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 5.53\text{dBi} < 6\text{dBi}$ , so the limit doesn't reduce.

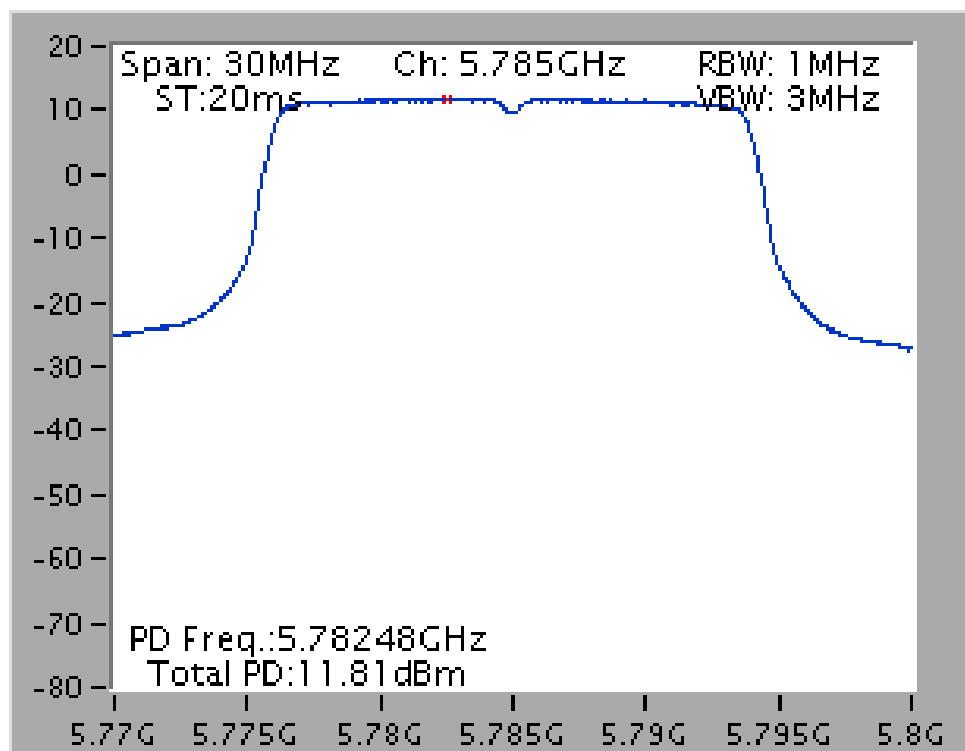
Note: All the test values were listed in the report.

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

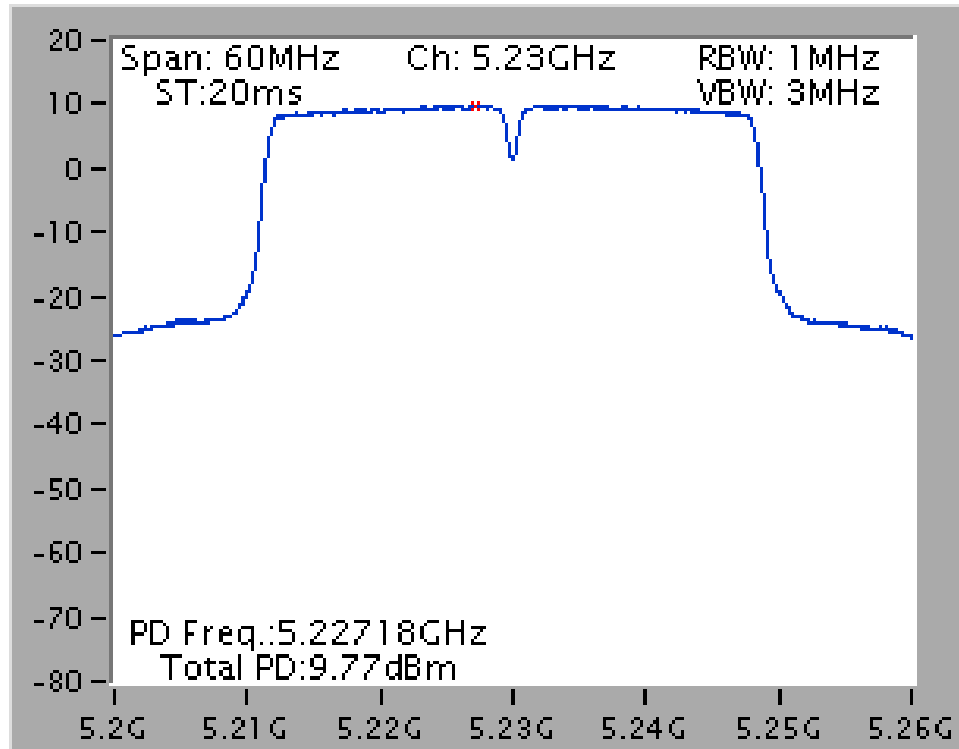
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT20 / Chain 4 + Chain 5 + Chain 6 /  
5240 MHz



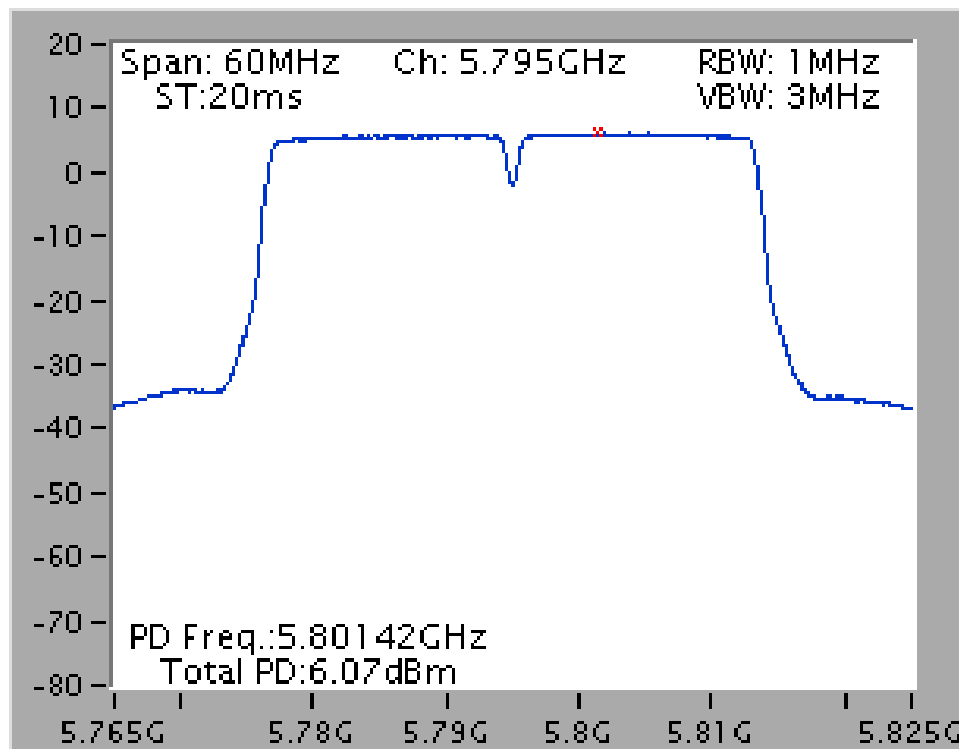
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT20 / Chain 4 + Chain 5 + Chain 6 /  
5785 MHz



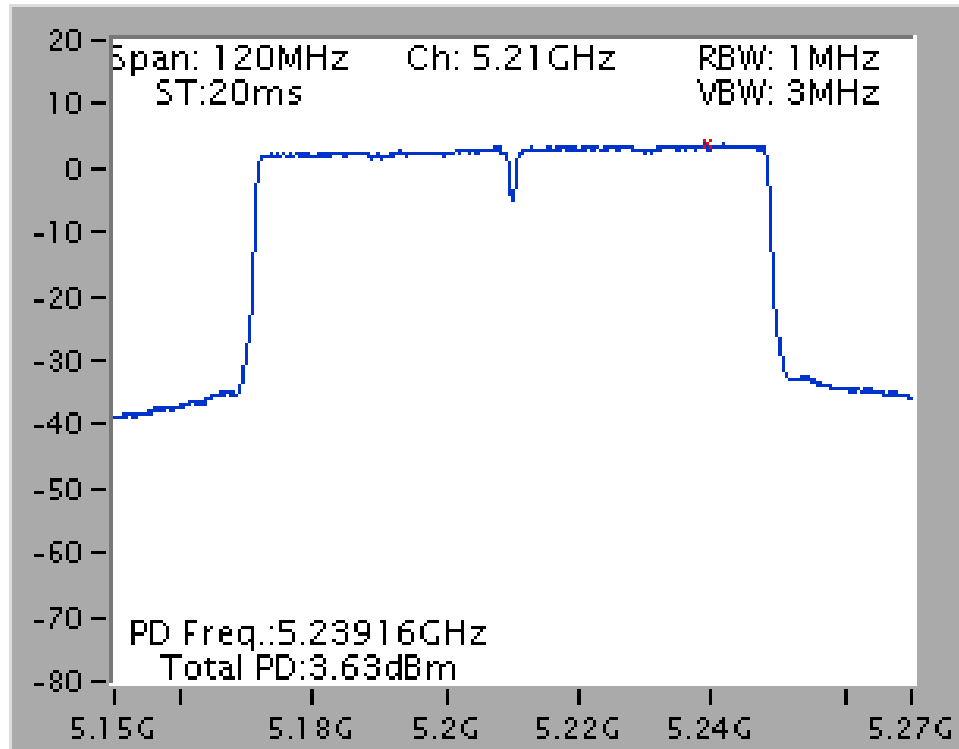
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT40 / Chain 4 + Chain 5 + Chain 6 /  
5230 MHz



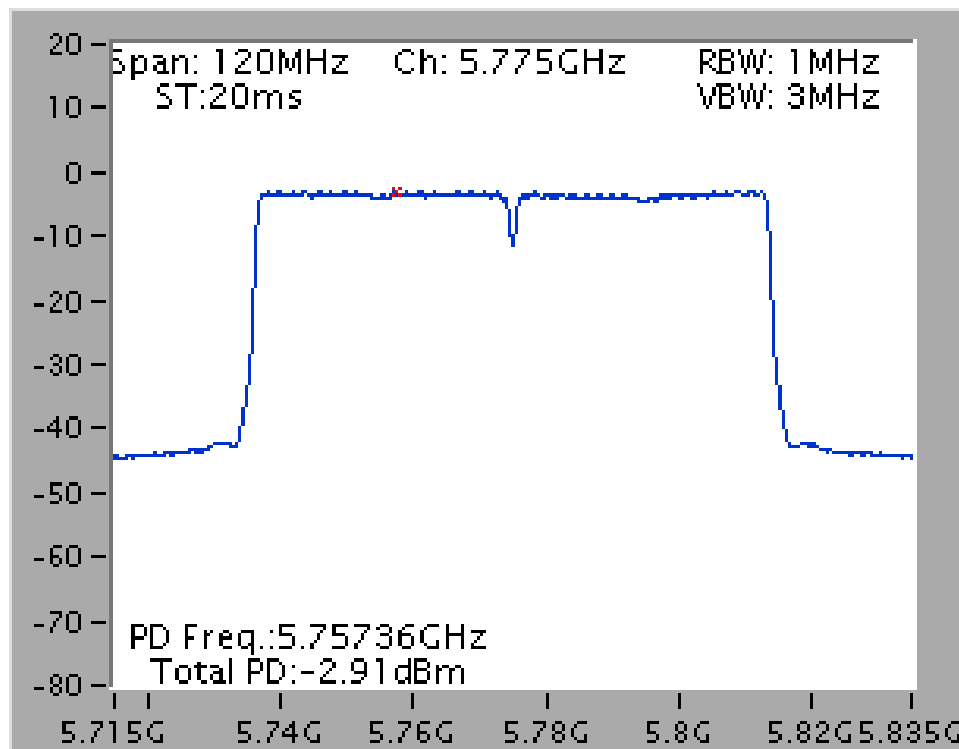
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT40 / Chain 4 + Chain 5 + Chain 6 /  
5795 MHz



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT80 / Chain 4 + Chain 5 + Chain 6 /  
5210 MHz



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss2 VHT80 / Chain 4 + Chain 5 + Chain 6 /  
5775 MHz



## &lt;For Radio 3&gt;

Temperature	25°C	Humidity	55%
Test Engineer	Clemens Fang	Test Date	Jul, 08, 2015

## Configuration IEEE 802.11a / Chain 7

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	0.47	17.00	Complies
40	5200 MHz	0.46	17.00	Complies
48	5240 MHz	0.39	17.00	Complies

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
149	5745 MHz	0.33	-3.01	-2.68	30.00	Complies
157	5785 MHz	0.15	-3.01	-2.86	30.00	Complies
165	5825 MHz	0.24	-3.01	-2.77	30.00	Complies

## Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 7

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	0.24	17.00	Complies
40	5200 MHz	0.27	17.00	Complies
48	5240 MHz	0.18	17.00	Complies

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
149	5745 MHz	0.22	-3.01	-2.79	30.00	Complies
157	5785 MHz	0.12	-3.01	-2.89	30.00	Complies
165	5825 MHz	0.12	-3.01	-2.89	30.00	Complies

**Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 7**

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	-4.06	17.00	Complies
46	5230 MHz	-2.80	17.00	Complies

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
151	5755 MHz	-3.32	-3.01	-6.33	30.00	Complies
159	5795 MHz	-2.85	-3.01	-5.86	30.00	Complies

**Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 7**

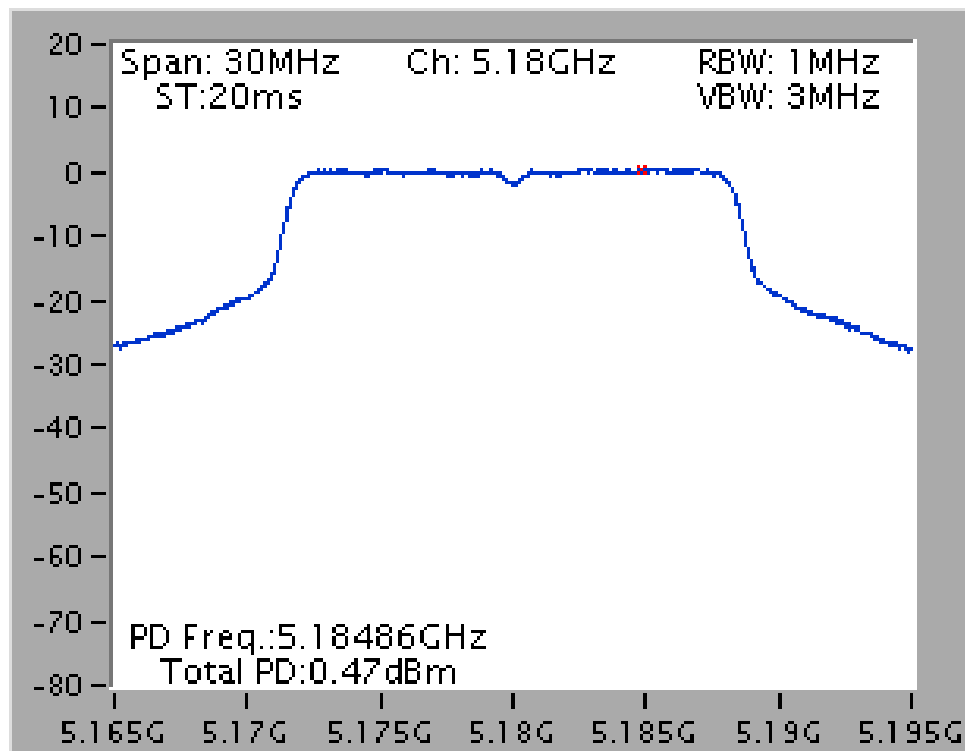
Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
42	5210 MHz	-6.33	30.00	Complies

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
155	5775 MHz	-7.62	-3.01	-10.63	30.00	Complies

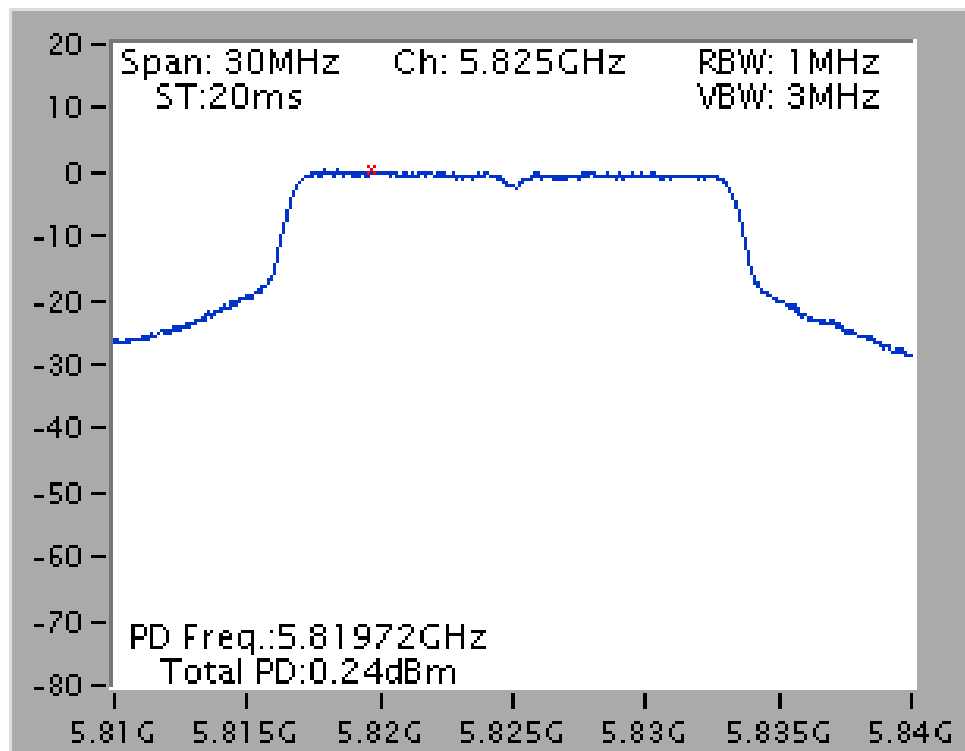
Note: All the test values were listed in the report.

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

Power Density Plot on Configuration IEEE 802.11a / Chain 7 / 5180 MHz

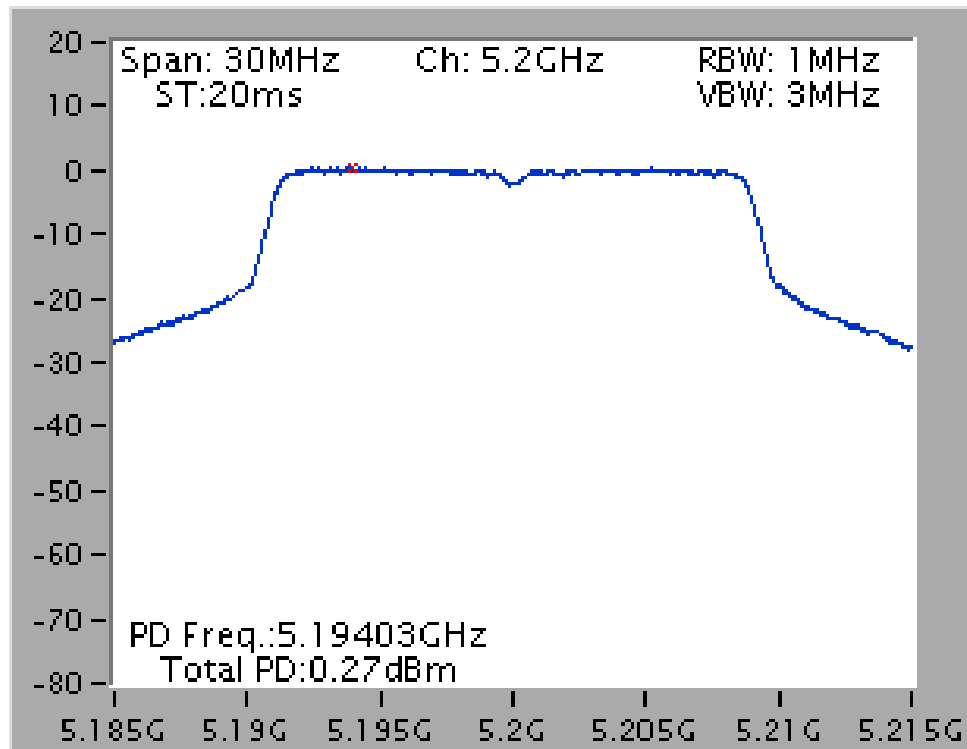


Power Density Plot on Configuration IEEE 802.11a / Chain 7 / 5825 MHz

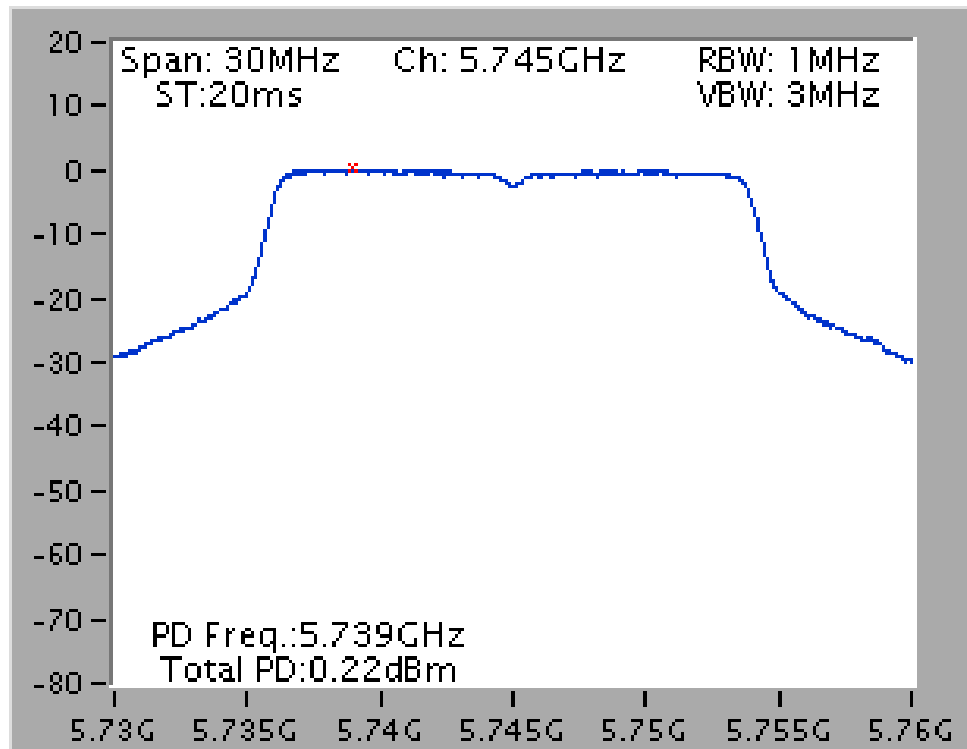




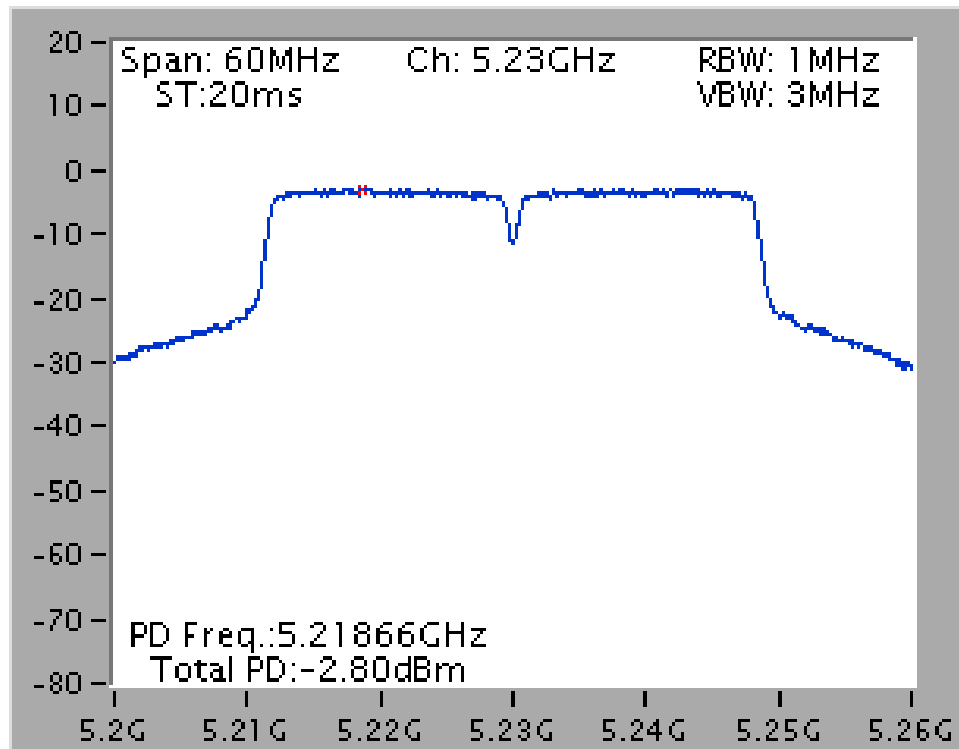
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 7 / 5200 MHz



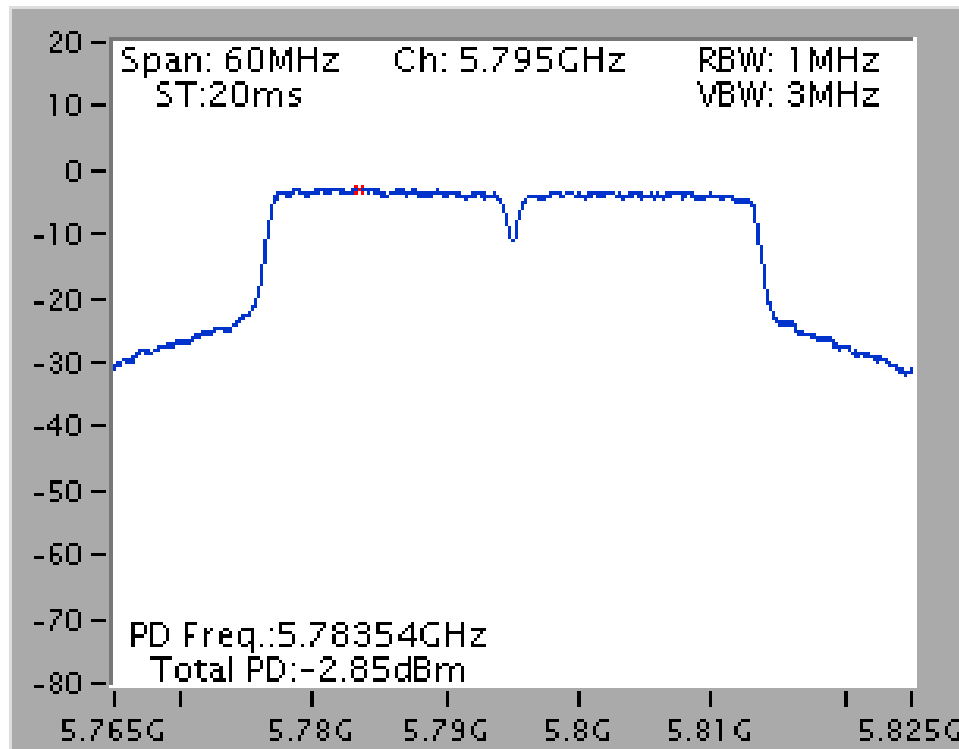
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 7 / 5745 MHz



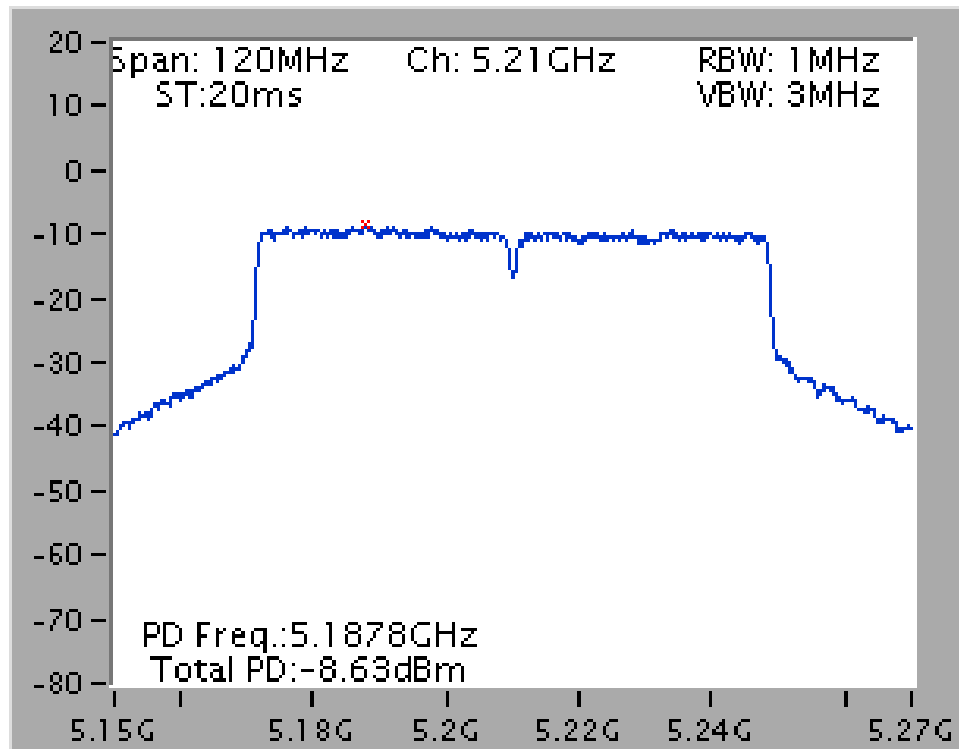
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 7 / 5230 MHz



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 7 / 5795 MHz



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 7 / 5210 MHz



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 7 / 5775 MHz

