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FCC RADIO TEST REPORT

Applicant's company	**Xirrus, Inc.**
Applicant Address	2101 Corporate Center Drive, Thousand Oaks, CA 91320 USA
FCC ID	**SK6-XDR130**
Manufacturer's company	**Lite-On Network Communication (Dongguan) Limited**
Manufacturer Address	30#Keji Rd.,Yin Hu Industrial Area,Qingxi Town,DongGuan City,Guangdong,China

Product Name	Wireless Access Point Radio module
Brand Name	XIRRUS
Model No.	XDR130
Test Rule Part(s)	47 CFR FCC Part 15 Subpart E § 15.407
Test Freq. Range	5250 ~ 5350MHz / 5470 ~ 5725MHz
Received Date	Apr. 10, 2015
Final Test Date	May 13, 2015
Submission Type	Class II Change
Operating Mode	Master / Bridge (Client without radar detection)

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 2009, 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.

Note: Using 1.5m table as an alternative was permitted by the FCC per TCBC conference call of Dec. 2, 2014.

Testing Laboratory
1190

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History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR541029-01	Rev. 01	Initial issue of report	Jun. 17, 2015

1. VERIFICATION OF COMPLIANCE

Product Name	:	Wireless Access Point Radio module
Brand Name	:	XIRRUS
Model No.	:	XDR130
Applicant	:	Xirrus, Inc.
Test Rule Part(s)	:	47 CFR FCC Part 15 Subpart E § 15.407

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

Sam Chen
SPORTON INTERNATIONAL INC.

2. SUMMARY OF THE TEST RESULT

Applied Standard: 47 CFR FCC Part 15 Subpart E				
Part	**Rule Section**	**Description of Test**	**Result**	**Under Limit**
4.1	15.407(a)	26dB Spectrum Bandwidth and 99% Occupied Bandwidth	Complies	-
4.2	15.407(e)	6dB Spectrum Bandwidth	Complies	-
4.3	15.407(a)	Maximum Conducted Output Power	Complies	0.09 dB
4.4	15.407(a)	Power Spectral Density	Complies	0.01 dB
4.5	15.407(b)	Radiated Emissions	Complies	0.48 dB
4.6	15.407(b)	Band Edge Emissions	Complies	0.01 dB
4.7	15.407(g)	Frequency Stability	Complies	-
4.8	15.203	Antenna Requirements	Complies	-

Note: 1. The EUT is a limited module which only limited to the Wireless Access Point (brand: XIRRUS / model: XD4130).

2. The EUT was installed to the Wireless Access Point (brand: XIRRUS / model: XD4130) to perform all the tests.

3. GENERAL INFORMATION

3.1. Product Details

Items	Description
Product Type	WLAN (3TX, 3RX)
Radio Type	Intentional Transceiver
Power Type	From host system
Modulation	IEEE 802.11a: OFDM IEEE 802.11n/ac: see the below table
Data Modulation	IEEE 802.11a/n: OFDM (BPSK / QPSK / 16QAM / 64QAM) IEEE 802.11ac: OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM)
Data Rate (Mbps)	IEEE 802.11a: OFDM (6/9/12/18/24/36/48/54) IEEE 802.11n/ac: see the below table
Frequency Range	5250 ~ 5350MHz / 5470 ~ 5725MHz
Channel Number	13 for 20MHz bandwidth ; 6 for 40MHz bandwidth 3 for 80MHz bandwidth
Channel Band Width (99%)	Band 2: IEEE 802.11a: 16.93 MHz IEEE 802.11ac MCS0/Nss1 (VHT20): 18.49 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 37.19 MHz IEEE 802.11ac MCS0/Nss1 (VHT80): 74.38 MHz Band 3: IEEE 802.11a: 16.76 MHz IEEE 802.11ac MCS0/Nss1 (VHT20): 18.41 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 37.62 MHz IEEE 802.11ac MCS0/Nss1 (VHT80): 76.99 MHz
Maximum Conducted Output Power	Band 2: IEEE 802.11a: 14.54 dBm IEEE 802.11ac MCS0/Nss1 (VHT20): 14.45 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 17.77 dBm IEEE 802.11ac MCS0/Nss1 (VHT80): 19.19 dBm Band 3: IEEE 802.11a: 14.79 dBm IEEE 802.11ac MCS0/Nss1 (VHT20): 14.65 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 17.58 dBm IEEE 802.11ac MCS0/Nss1 (VHT80): 19.41 dBm
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

Items	Description	
Communication Mode	☒ IP Based (Load Based)	☐ Frame Based
TPC Function	☒ With TPC	☐ Without TPC
Weather Band (5600~5650MHz)	☐ With 5600~5650MHz	☒ Without 5600~5650MHz
Beamforming Function	☐ With beamforming	☒ Without beamforming
Operating Mode	☐ Outdoor access point	
	☒ Indoor access point	
	☐ Fixed point-to-point access points	
	☐ Mobile and portable client devices	

Antenna and Band width

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

IEEE 11n/ac Spec.

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

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

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

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

3.2. Accessories

N/A

3.3. Table for Filed Antenna

Ant.	Brand	Model No.	Type	Connector	Gain (dBi)	
					2.4GHz	5GHz
1	Walsin	RFMTA241700NNLB004	Directional	I-PEX	2.3	10.5
2	Walsin	RFMTA241700NNLB004	Directional	I-PEX	2.3	10.5
3	Walsin	RFMTA241700NNLB004	Directional	I-PEX	2.3	10.5

Note: 1. The EUT has three antennas.

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

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

3.4. Table for Carrier Frequencies

There are three bandwidth systems.

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

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

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

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

3.5. Table for Test Modes

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

For RF transceiver sources (QCA9890):

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

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

For RF transceiver sources (QCA9880):

Test Items	Mode		Data Rate	Channel	Chain
Radiated Emission Above 1GHz	11ac VHT80	Band 2-3	MCS0/Nss1	138	1+2+3
Band Edge Emission	11ac VHT80	Band 2-3	MCS0/Nss1	138	1+2+3

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

2. The PoE is for measurement only, would not be marketed, its information as below:

Power	Brand	Model No.	FCC ID
PoE	PowerDsine	PwerDsine7001G	DoC

3. The Wireless Access Point (brand: XIRRUS / model: XD4130) will install four radio modules (brand: XIRRUS / model: XDR130 / FCC ID: SK6-XDR130). These four radio modules will be operated in different bands. If they are used in the same band, the output power of each radio module will be reduced to make sure that total power is equal to max output power of single radio module.

The following test modes were performed for all tests:

For Radiated Emissions Above 1GHz test:

Mode 1. Place EUT in X axis (Panel upward)

Mode 2. Place EUT in X axis (Panel down)

Mode 3. Place EUT in Y axis (LAN port down)

Mode 3 has been evaluated to be the worst case after evaluating. Consequently, measurement will follow this same test mode.

For Co-location MPE test:

The EUT could be applied with 2.4GHz WLAN function and 5GHz WLAN function; therefore Co-location Maximum Permissible Exposure (Please refer to Sporton test report: FA541029-01.) test is added for simultaneously transmit between 2.4GHz WLAN function and 5GHz WLAN function.

3.6. Table for Testing Locations

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

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

3.7. Multiple Listing

There are two RF transceiver sources (QCA9890 & QCA 9880). They are pin to pin compatible. These two RF chipset are electrically identical.

The deviation is F/W and communications protocol so just selects QCA9890 as worse case and recorded in the report.

The QCA9880 was verified spurious emission above 1G, band-edge for 802.11ac VHT80 CH138 and recorded in the report.

3.8. Table for Class II Change

This product is an extension of original one reported under Sporton project number: FR541029

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

Modifications	Performance Checking
Adding Band 2 and Band 3 (5250~5350 MHz, 5470~5725 MHz) for this device.	1. Max. Conducted Output Power. 2. Power Spectral Density. 3. 26dB Spectrum Bandwidth. 4. 6dB Spectrum Bandwidth 5. 99% Occupied Bandwidth Measurement. 6. Radiated Emission Above 1GHz. 7. Band Edge Emission. 8. Frequency Stability.

3.9. Table for Supporting Units

Support Unit	Brand	Model	FCC ID
Notebook	DELL	E4300	DoC
Wireless Access Point	XIRRUS	XD4130	SK6-XDR130
PoE	PowerDsine	PwerDsine7001G	N/A

3.10. Table for Parameters of Test Software Setting

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

Test Software Version	ART-xircon V1.0.2.25						
Mode	Test Frequency (MHz)						
	NCB: 20MHz						
	5260 MHz	5300 MHz	5320 MHz	5500 MHz	5580 MHz	5700 MHz	5720 MHz
802.11a	8	8	8	11	11	10	10
802.11ac MCS0/Nss1 VHT20	8	8	8	11	11	10	10
Mode	NCB: 40MHz						
802.11ac MCS0/Nss1 VHT40	5270 MHz	5310 MHz	5510 MHz	5550 MHz	5670 MHz	5710 MHz	
	12	12	14	14	13.5	13	
Mode	NCB: 80MHz						
802.11ac MCS0/Nss1 VHT80	5290 MHz		5530 MHz		5690 MHz		
	13.5		14.5		15		

3.11. EUT Operation during Test

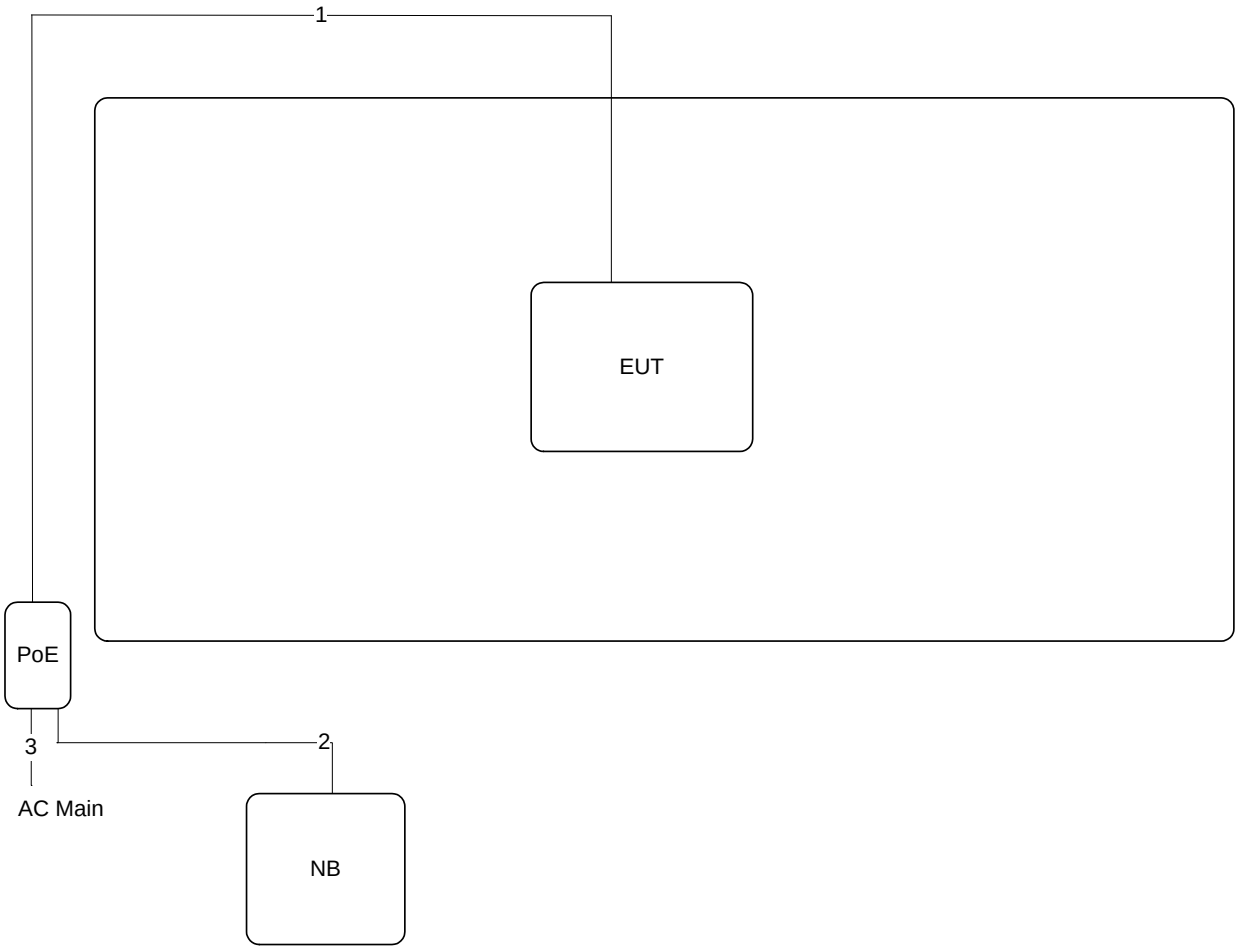
The EUT was programmed to be in continuously transmitting mode.

3.12. Duty Cycle

Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11a	1.000	1.000	100.00	0.00	0.01
802.11ac MCS0/Nss1 VHT20	1.000	1.000	100.00	0.00	0.01
802.11ac MCS0/Nss1 VHT40	1.000	1.000	100.00	0.00	0.01
802.11ac MCS0/Nss1 VHT80	1.000	1.000	100.00	0.00	0.01

3.13. Test Configurations

3.13.1. Radiation Emissions Test Configuration



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

4. TEST RESULT

4.1. 26dB Bandwidth and 99% Occupied Bandwidth Measurement

4.1.1. Limit

No restriction limits.

4.1.2. Measuring Instruments and Setting

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

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

4.1.3. Test Procedures

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

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

4.1.4. Test Setup Layout

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

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

4.1.5. Test Deviation

There is no deviation with the original standard.

4.1.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

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

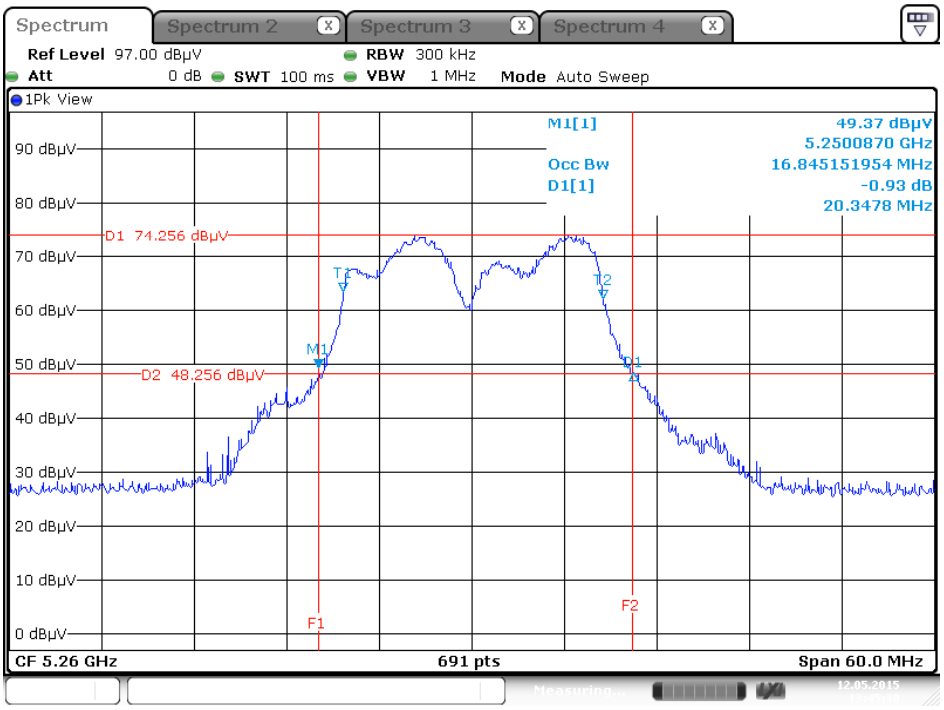
Temperature	24.5℃	Humidity	64%
Test Engineer	Lucas Huang		

Mode	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11a	5260 MHz	20.35	16.84
	5300 MHz	21.83	16.93
	5320 MHz	21.91	16.93
	5500 MHz	22.00	16.76
	5580 MHz	21.91	16.58
	5700 MHz	21.22	16.32
802.11ac MCS0/Nss1 VHT20	5260 MHz	22.61	18.15
	5300 MHz	23.30	18.49
	5320 MHz	22.43	18.23
	5500 MHz	23.30	18.15
	5580 MHz	23.39	18.06
	5700 MHz	23.65	18.41
802.11ac MCS0/Nss1 VHT40	5270 MHz	41.30	35.12
	5310 MHz	45.94	37.19
	5510 MHz	46.09	37.19
	5550 MHz	45.94	37.62
	5670 MHz	42.32	36.03
802.11ac MCS0/Nss1 VHT80	5290 MHz	84.35	74.38
	5530 MHz	88.41	74.96

Straddle Channel

Mode	Frequency	26dB BW (MHz)	99% OBW (MHz)	26dB BW F1 (MHz)	99% OBW T1 (MHz)	UNII 2C 26dB BW (MHz)	UNII 3 26dB BW (MHz)	UNII 2C 99% BW (MHz)	UNII 3 99% BW (MHz)
802.11a	5720 MHz	19.57	16.76	5710.70	5711.84	14.30	5.26	13.16	3.60
802.11ac MCS0/Nss1 VHT20	5720 MHz	23.39	18.06	5707.91	5710.97	17.09	6.30	14.03	4.03
802.11ac MCS0/Nss1 VHT40	5710 MHz	43.91	36.47	5687.83	5692.20	37.17	6.74	32.80	3.67
802.11ac MCS0/Nss1 VHT80	5690 MHz	108.70	76.99	5628.55	5651.22	96.45	12.25	73.78	3.21

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



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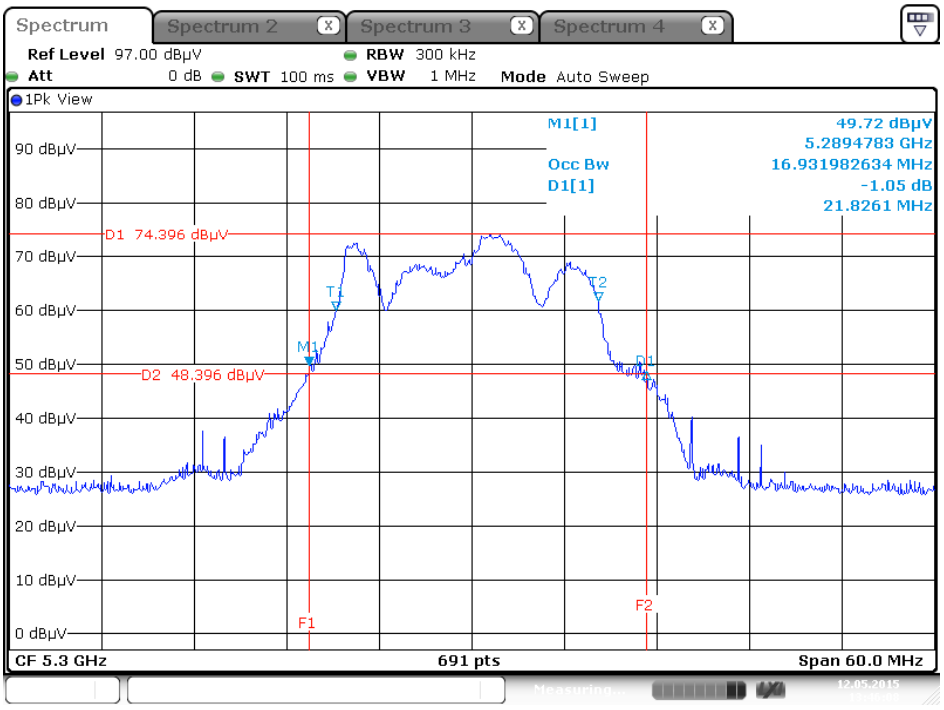
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3 / 5300 MHz



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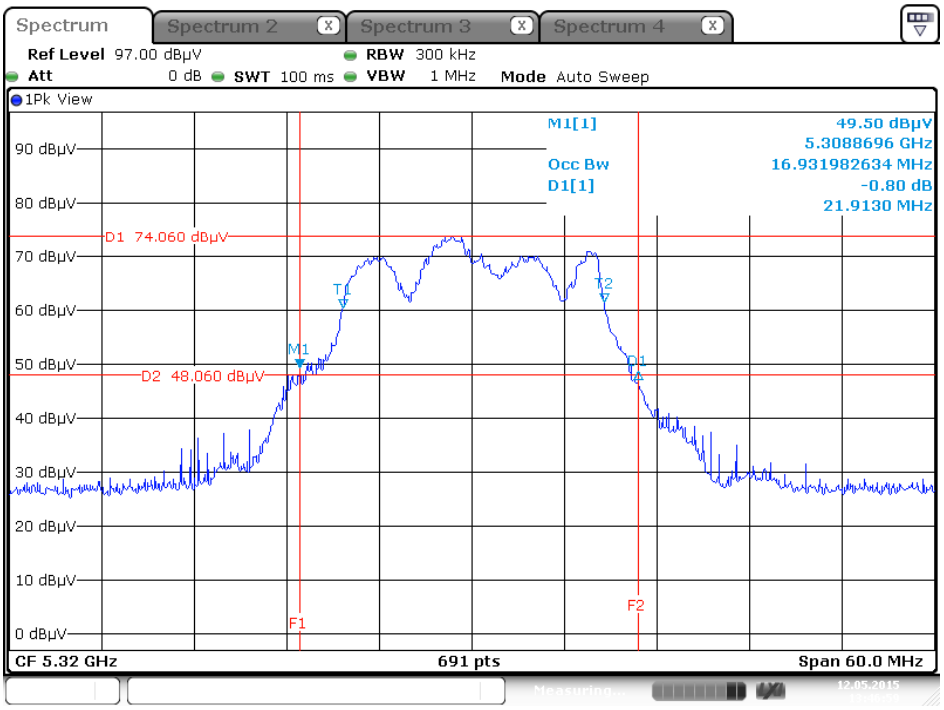

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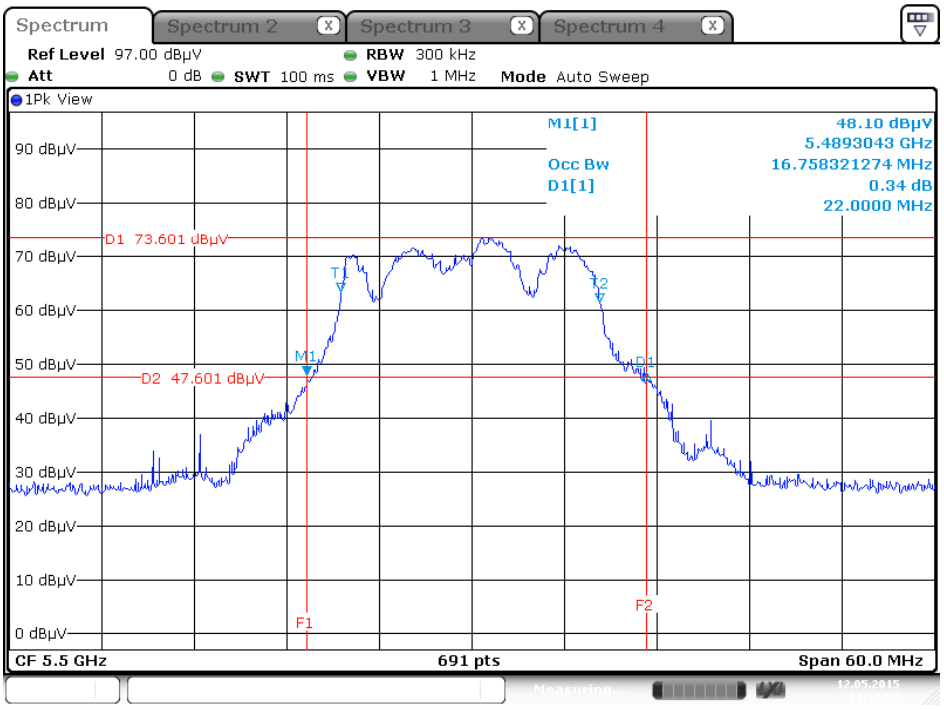

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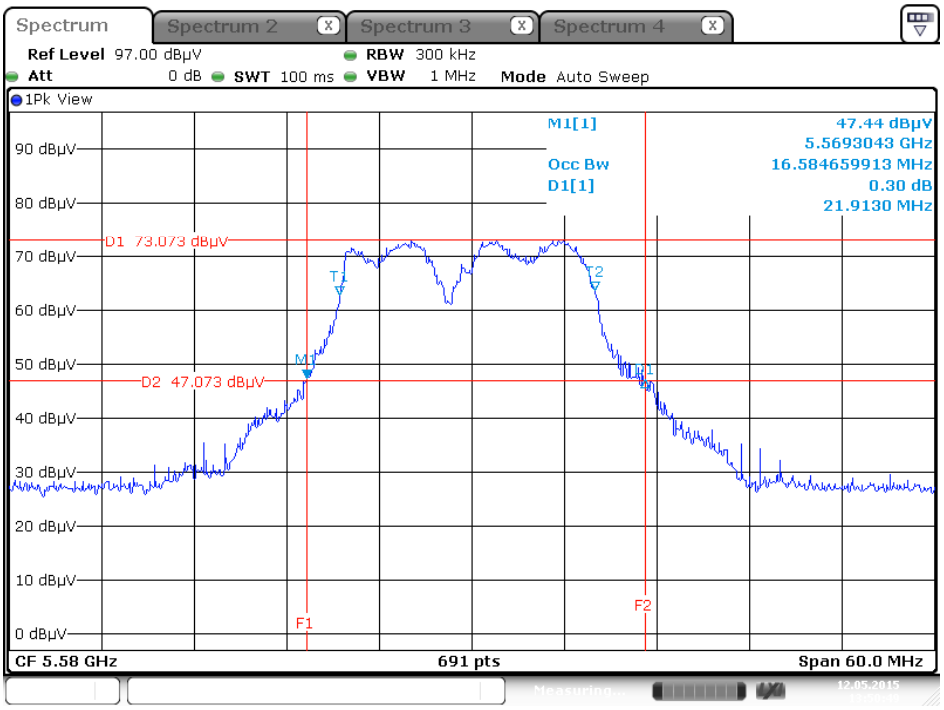
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3 / 5580 MHz



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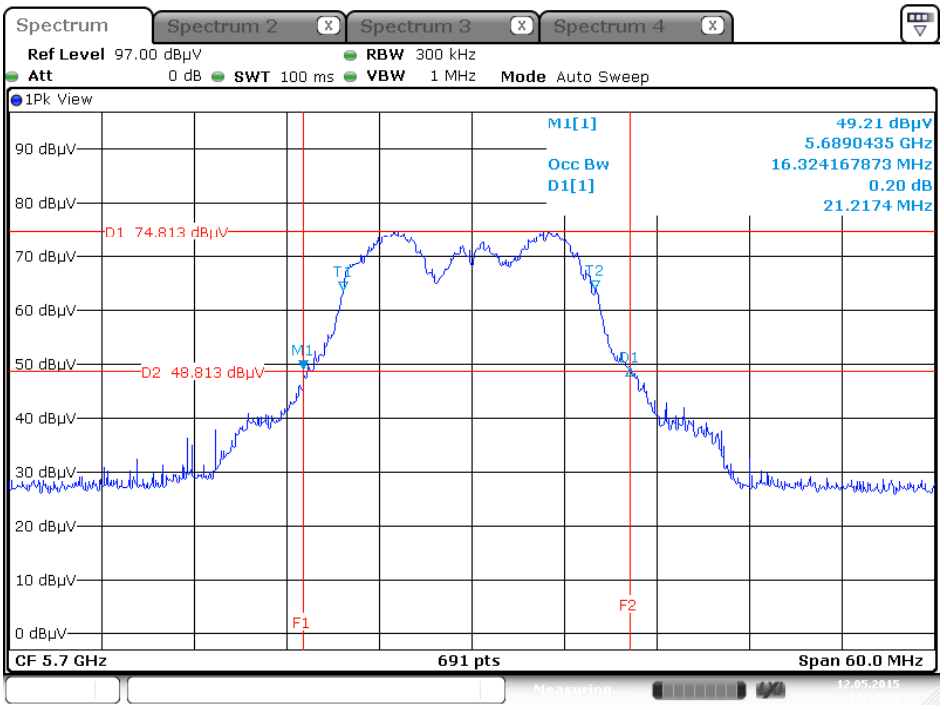
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3 / 5700 MHz



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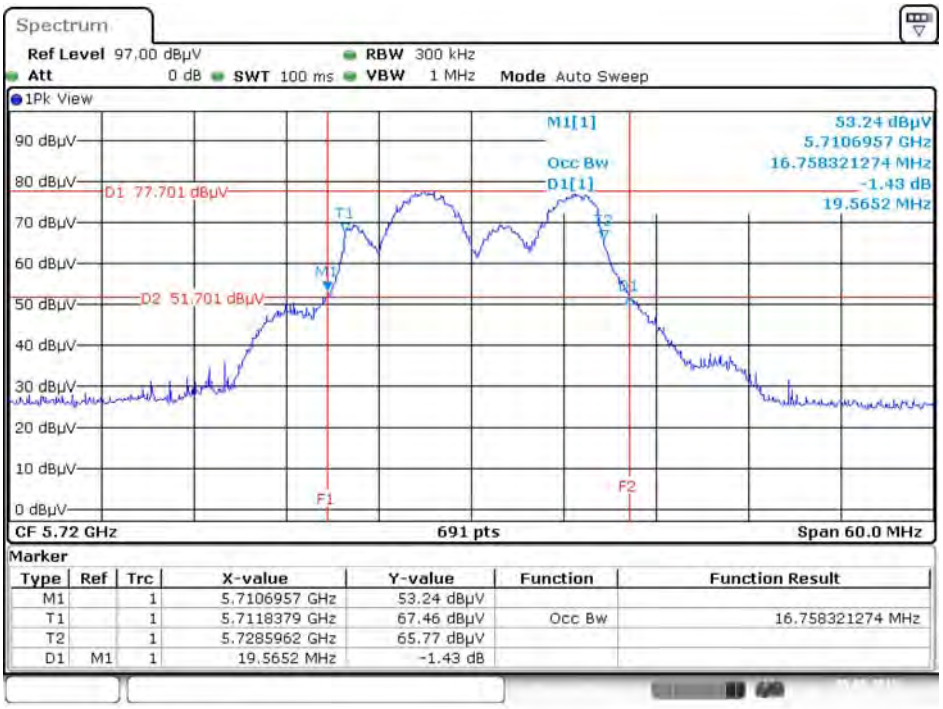
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3 / 5720 MHz



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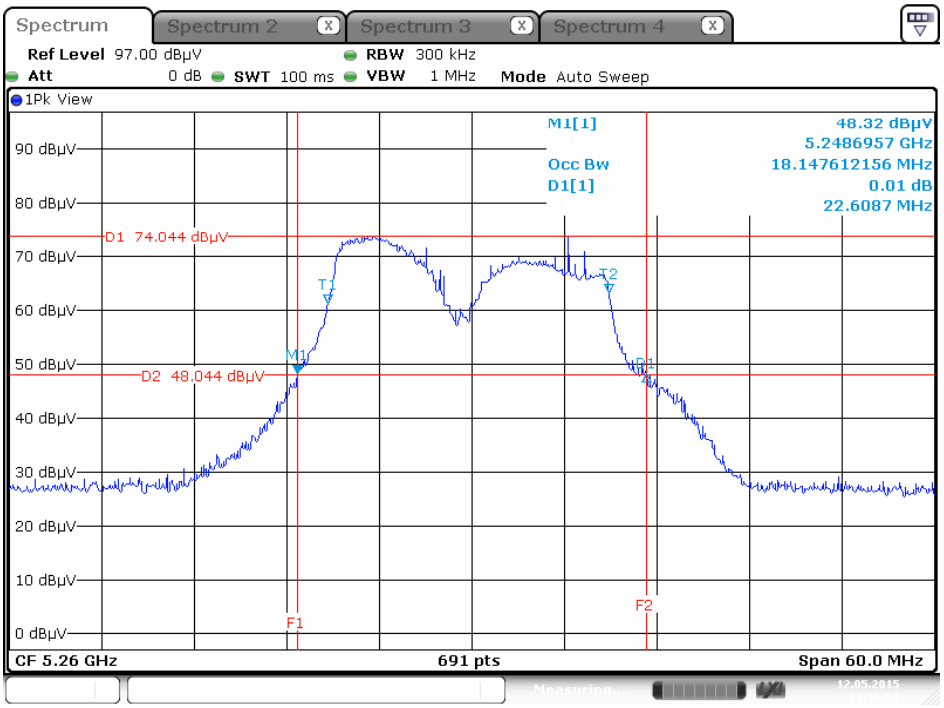
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 / 5260 MHz



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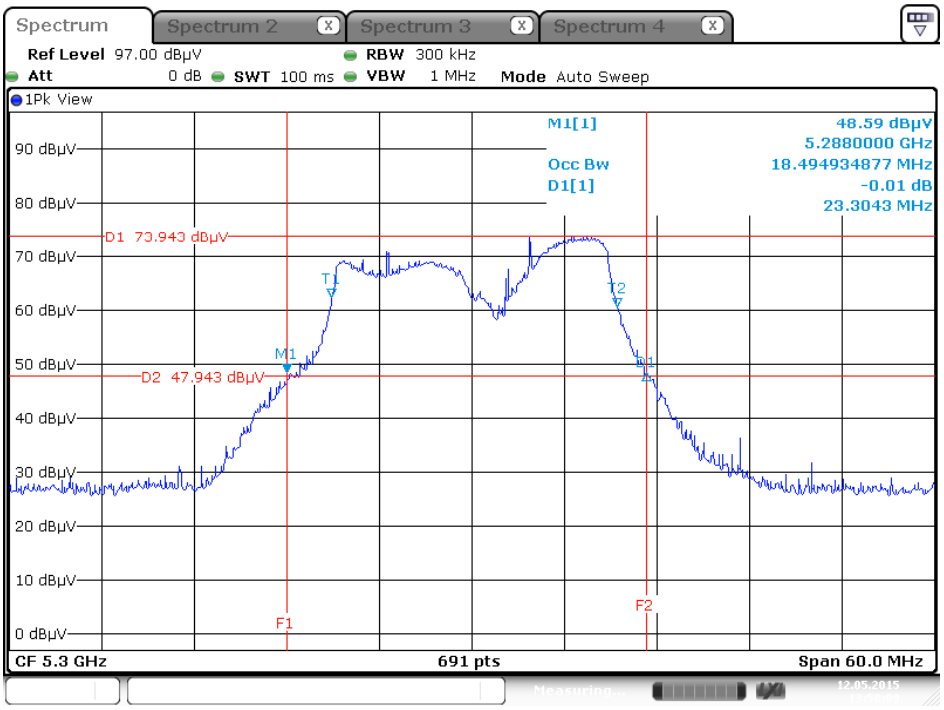
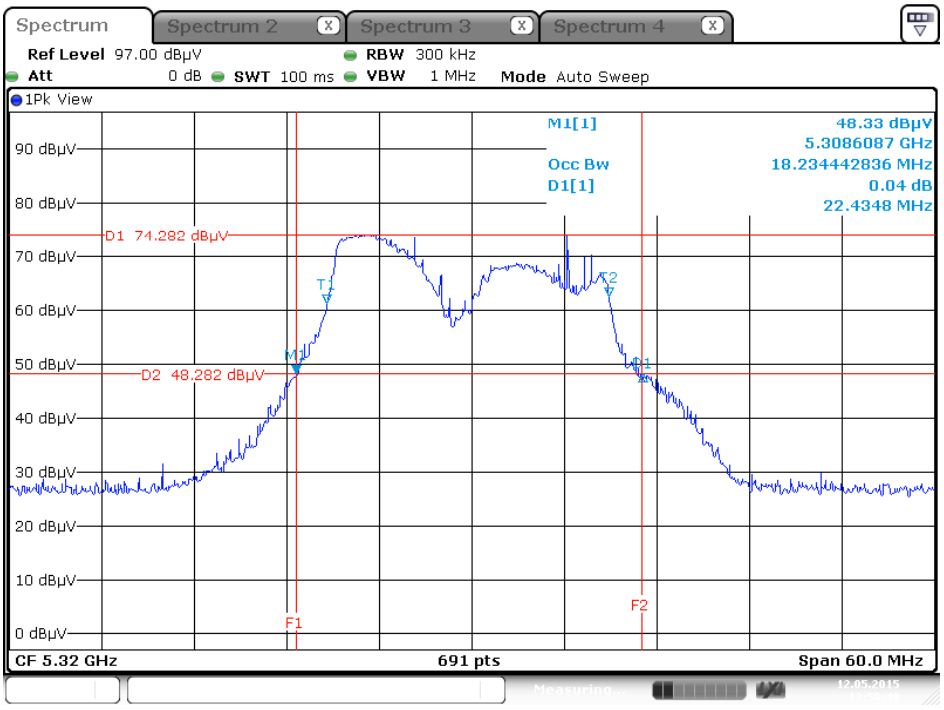
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 / 5300 MHz



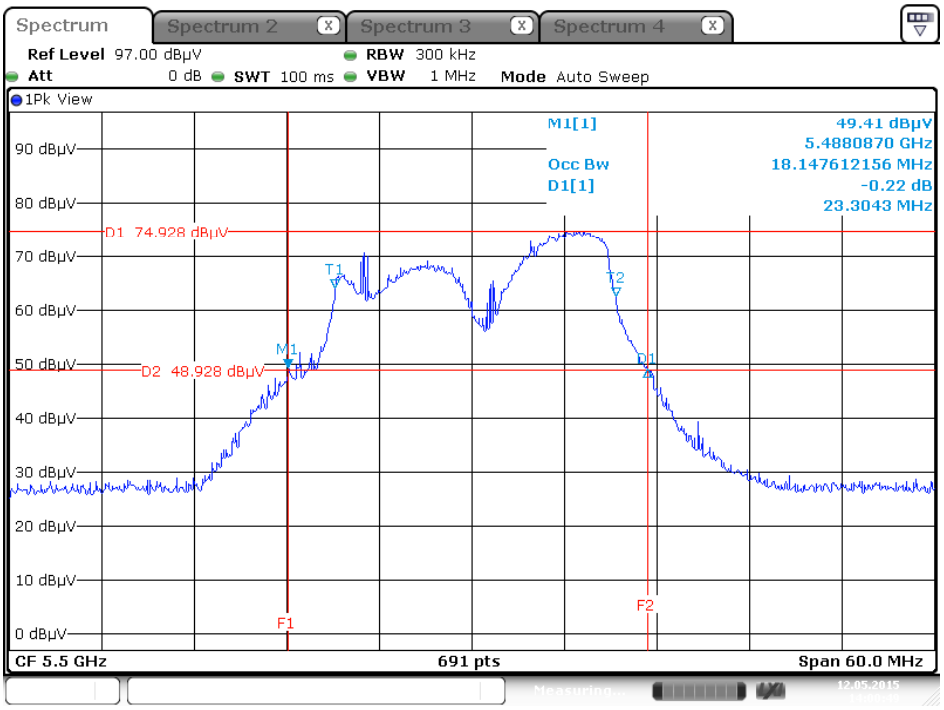
Date: 12.MAY.2015 13:58:09

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



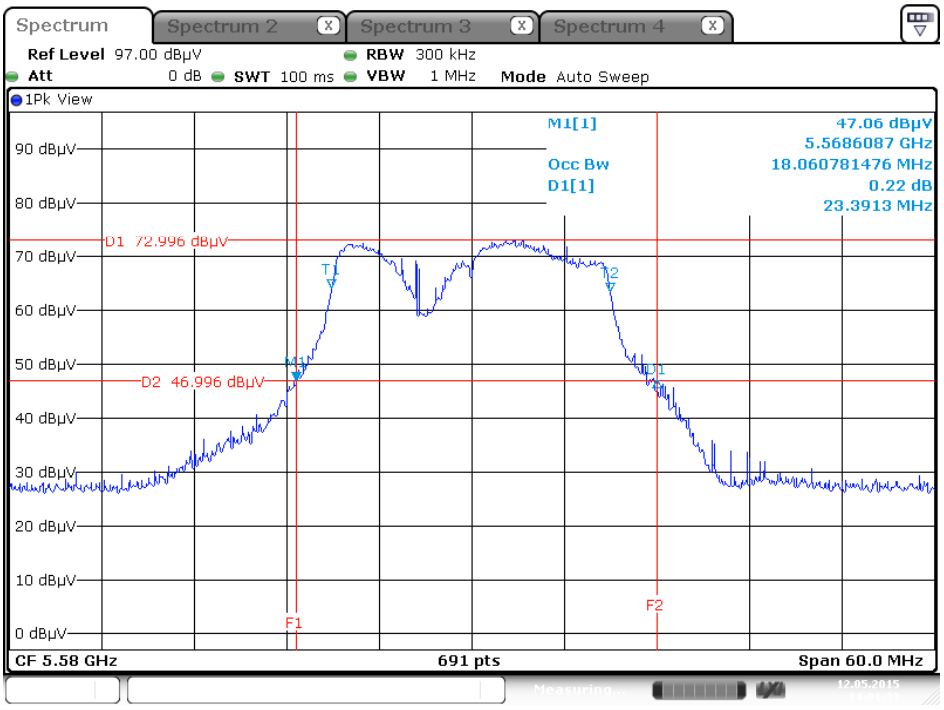
Date: 12.MAY.2015 13:58:50

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



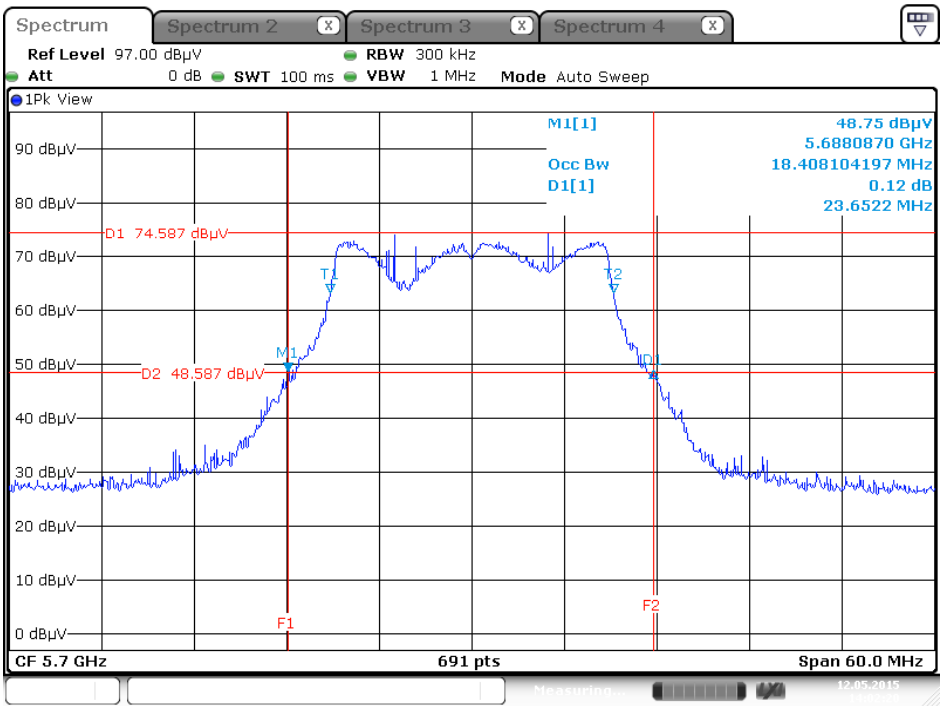
Date: 12.MAY.2015 14:00:49

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



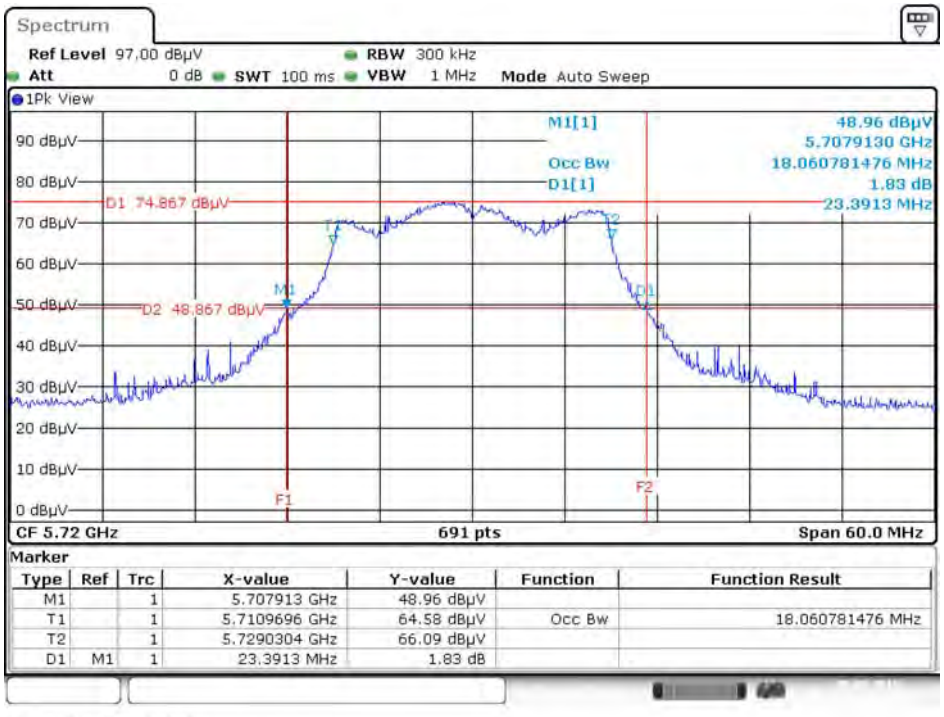
Date: 12.MAY.2015 14:01:32

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



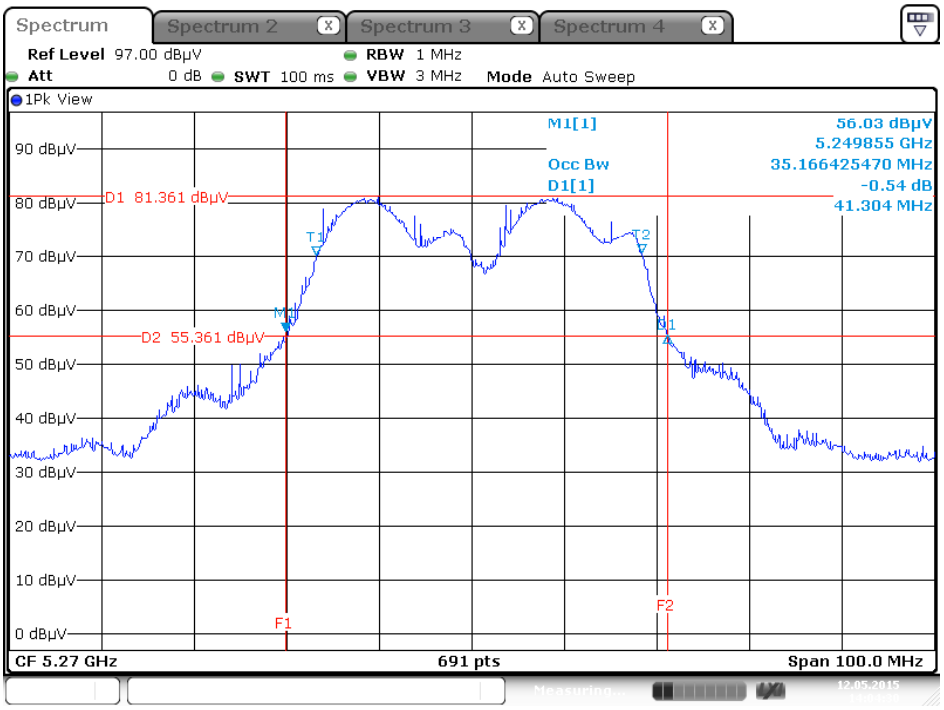
Date: 12.MAY.2015 14:02:21

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



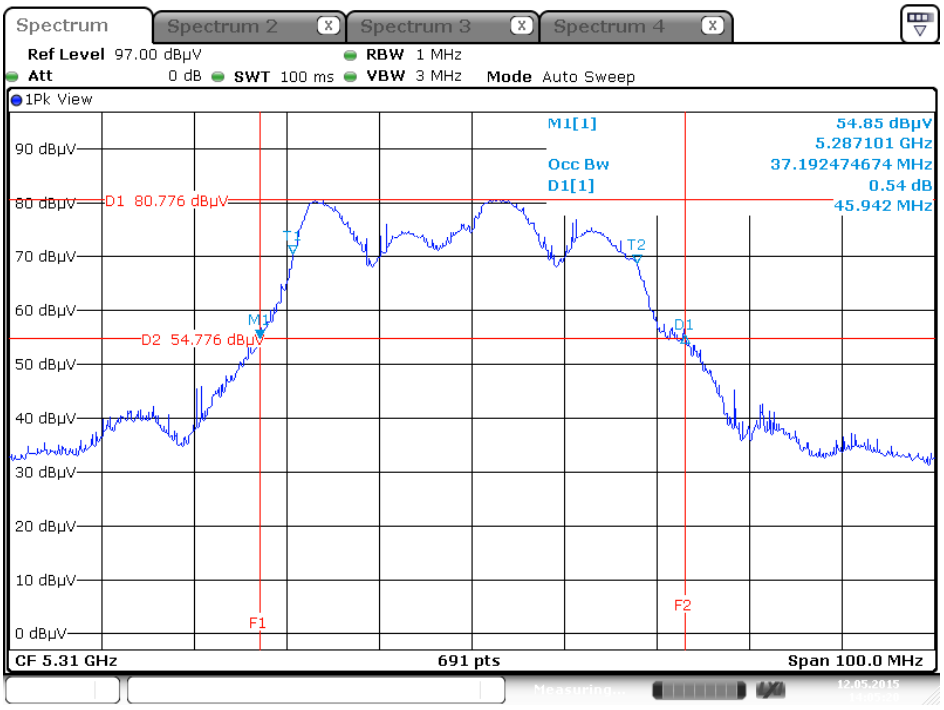
Date: 5.MAY.2015 15:15:27

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



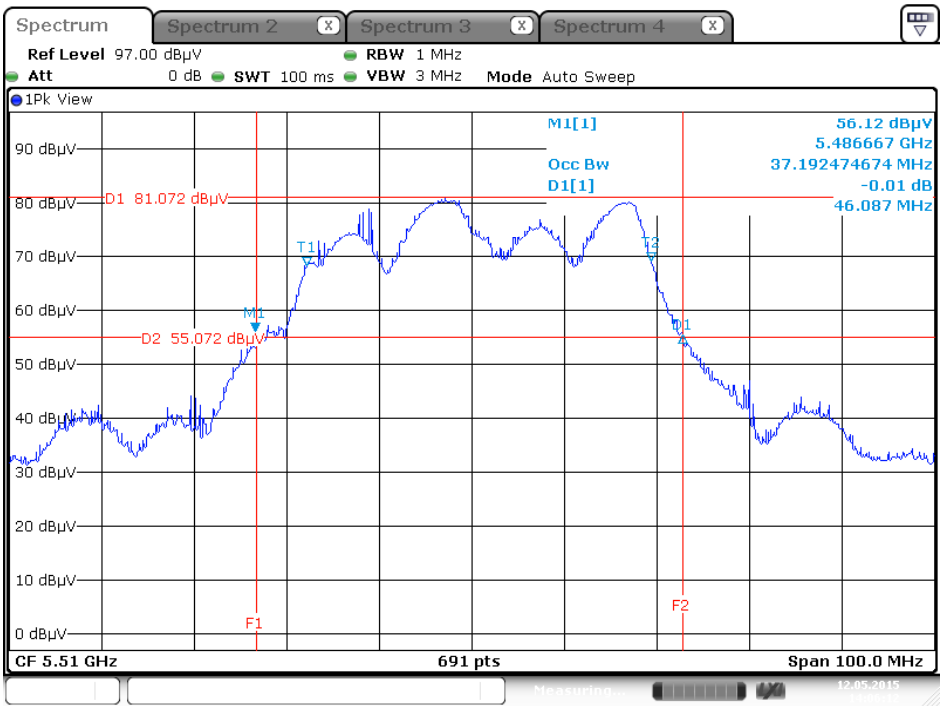
Date: 12.MAY.2015 14:04:30

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



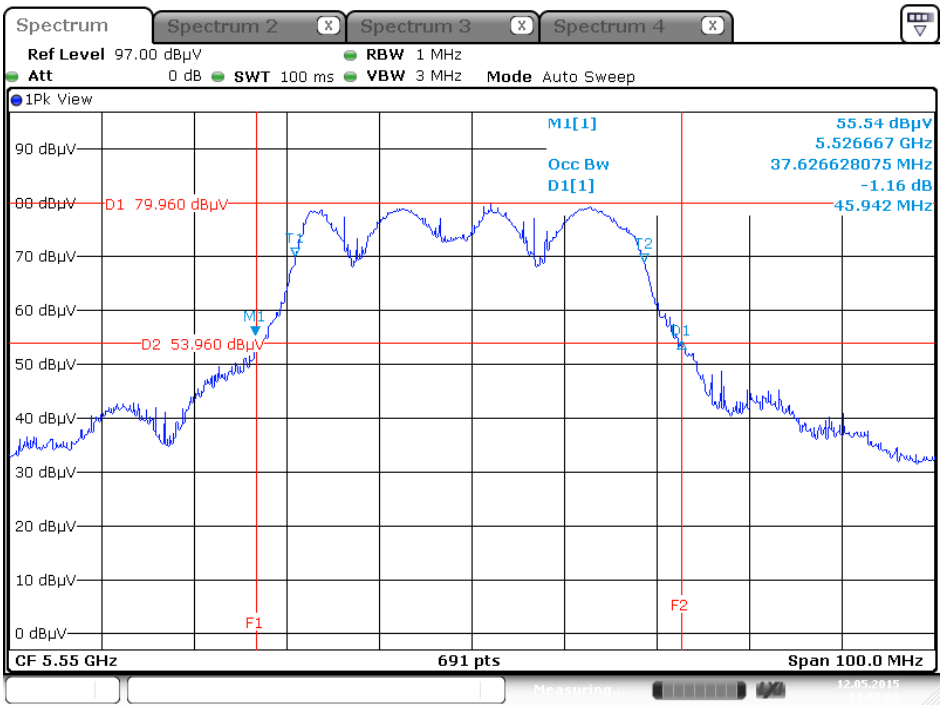
Date: 12.MAY.2015 14:05:20

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



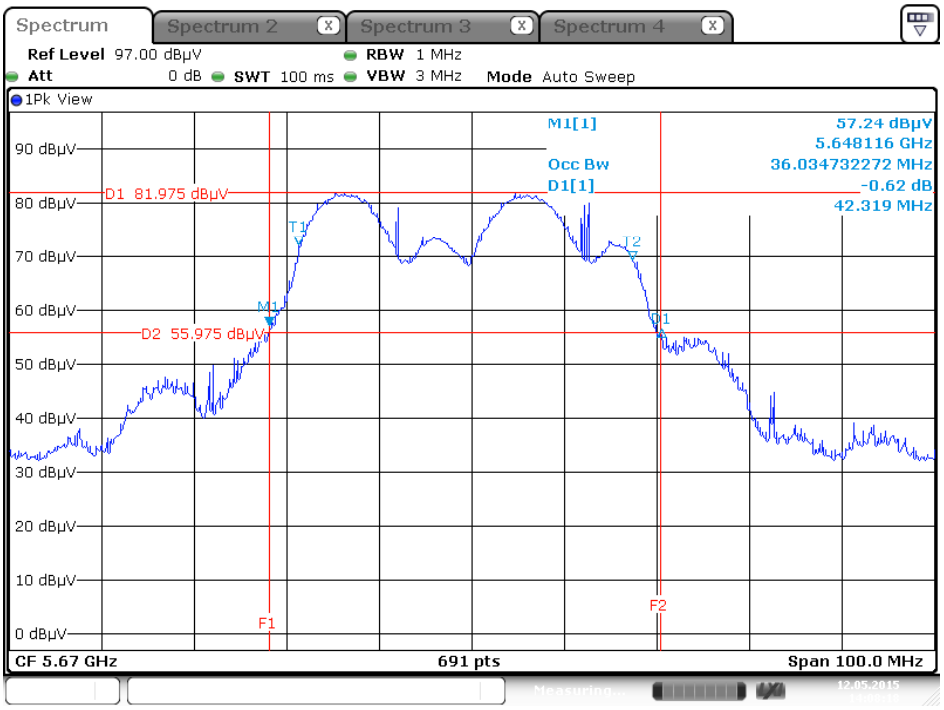
Date: 12.MAY.2015 14:06:12

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



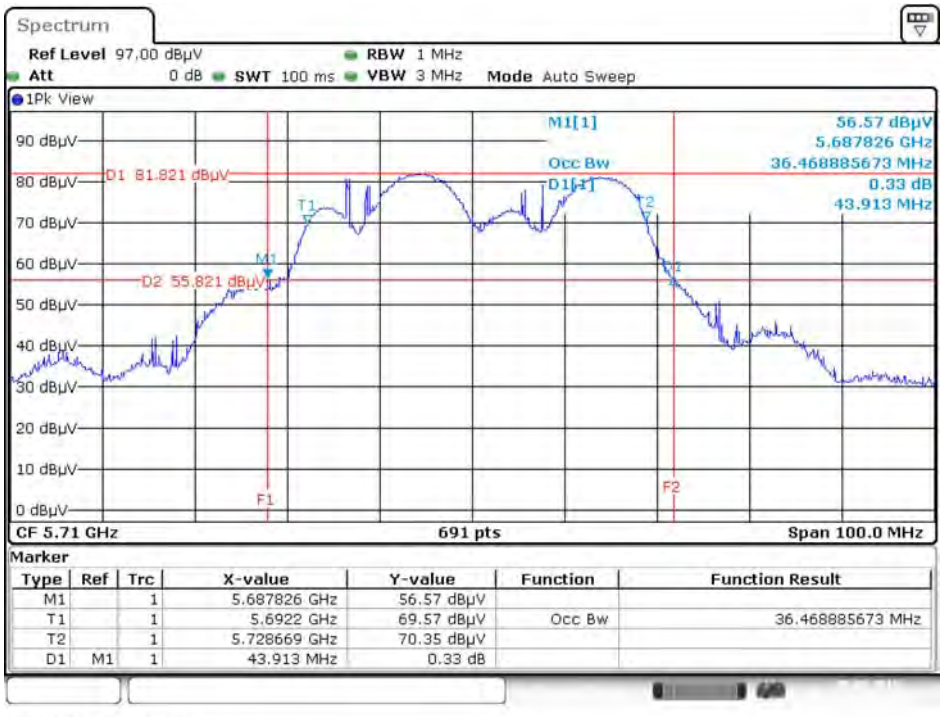
Date: 12.MAY.2015 14:07:06

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



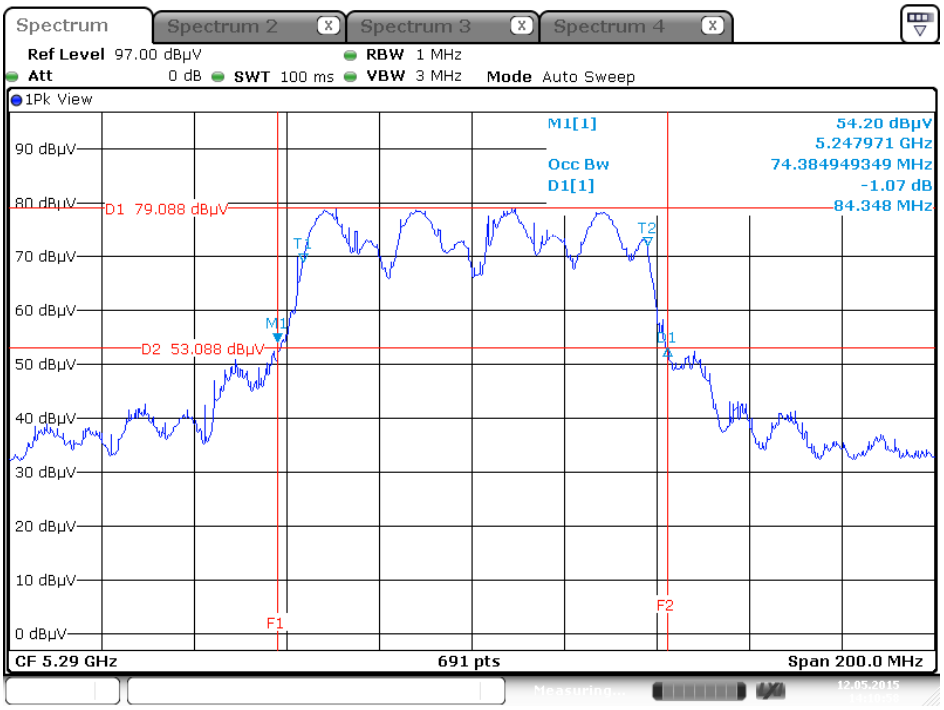
Date: 12.MAY.2015 14:08:19

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



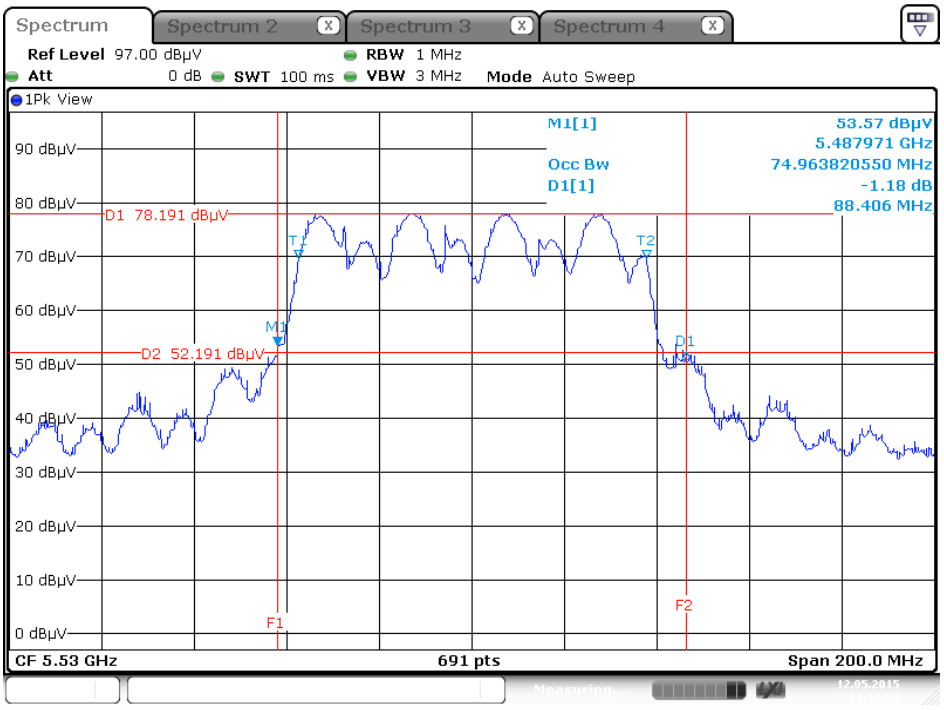
Date: 5.MAY.2015 15:21:31

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



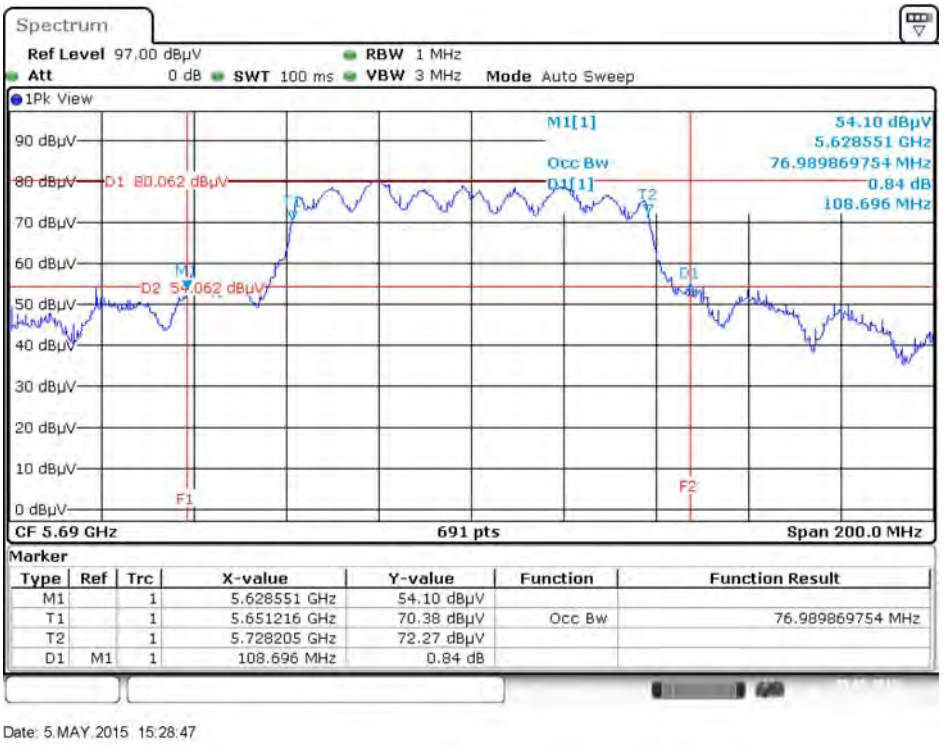
Date: 12.MAY.2015 14:10:58

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



Date: 12.MAY.2015 14:11:54

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



4.2. 6dB Spectrum Bandwidth Measurement

4.2.1. Limit

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

4.2.2. Measuring Instruments and Setting

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

6dB Spectrum Bandwidth	
Spectrum Parameters	**Setting**
Attenuation	Auto
Span Frequency	> 6dB Bandwidth
RBW	approximately 1% of the emission bandwidth
VBW	VBW > RBW
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

4.2.3. Test Procedures

For Radiated 6dB Bandwidth Measurement:

1. The transmitter was radiated to the spectrum analyzer in peak hold mode.
2. Test was performed in accordance with KDB789033 D02 v01 for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - section (C) Emission Bandwidth.
3. Multiple antenna system was performed in accordance with KDB662911 D01 v02r01 Emissions Testing of Transmitters with Multiple Outputs in the Same Band.
4. Measured the spectrum width with power higher than 6dB below carrier.

4.2.4. Test Setup Layout

For Radiated 6dB Bandwidth Measurement:

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

4.2.5. Test Deviation

There is no deviation with the original standard.

4.2.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

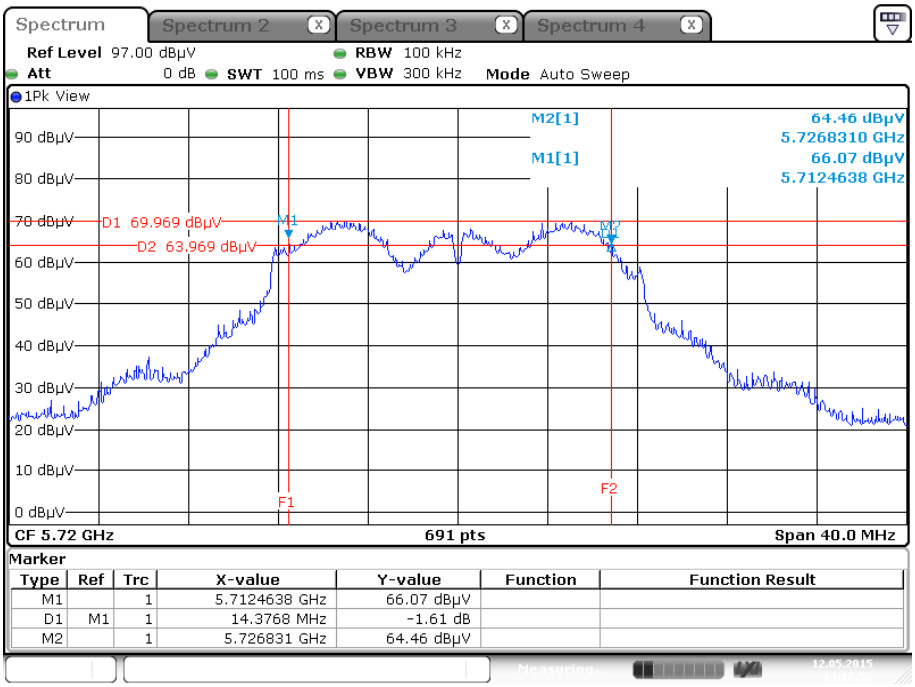
4.2.7. Test Result of 6dB Spectrum Bandwidth

Temperature	24.5°C	Humidity	64%
Test Engineer	Lucas Huang		

Straddle Channel

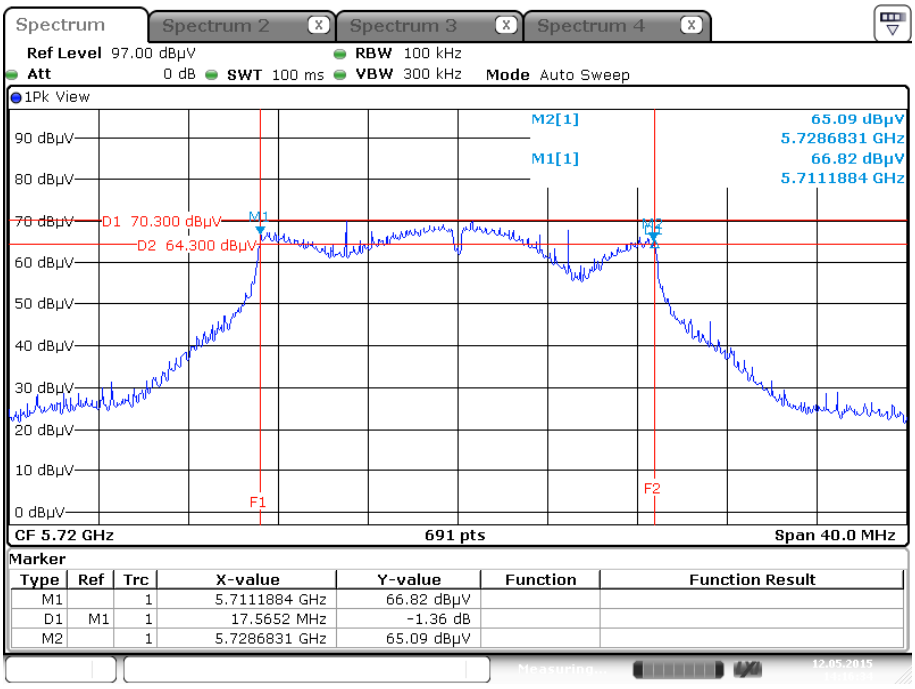
Mode	Frequency	6dB BW (MHz)	6dB BW F2 (MHz)	UNII 3 BW (MHz)	Min. Limit (kHz)	Test Result
802.11a	5720 MHz	14.38	5726.83	1.83	500	Complies
802.11ac MCS0/Nss1 VHT20	5720 MHz	17.57	5728.68	3.68	500	Complies
802.11ac MCS0/Nss1 VHT40	5710 MHz	34.44	5726.25	1.25	500	Complies
802.11ac MCS0/Nss1 VHT80	5690 MHz	69.28	5728.18	3.18	500	Complies

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



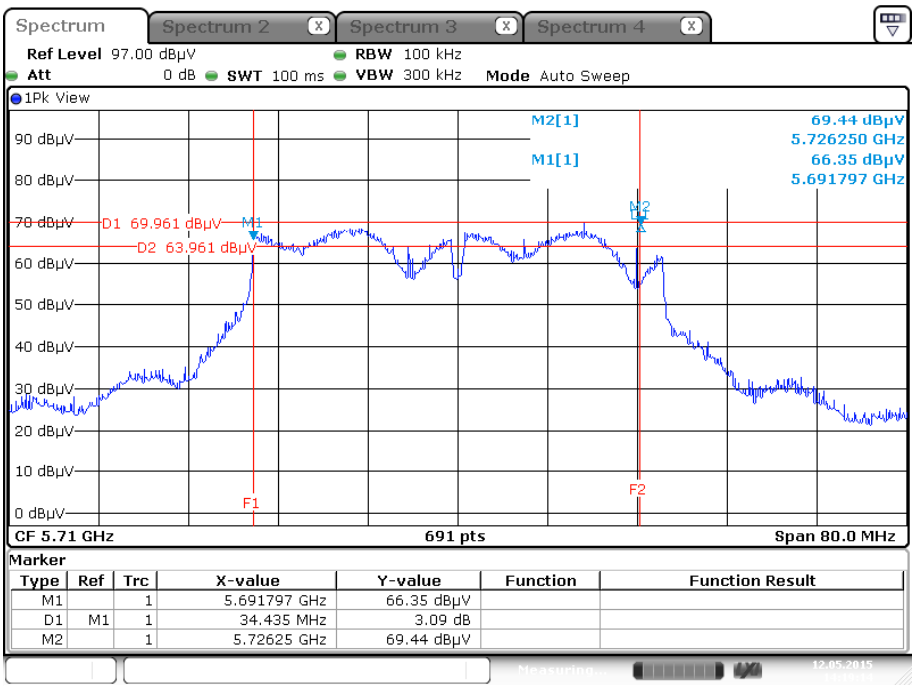
Date: 12.MAY.2015 14:17:52

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



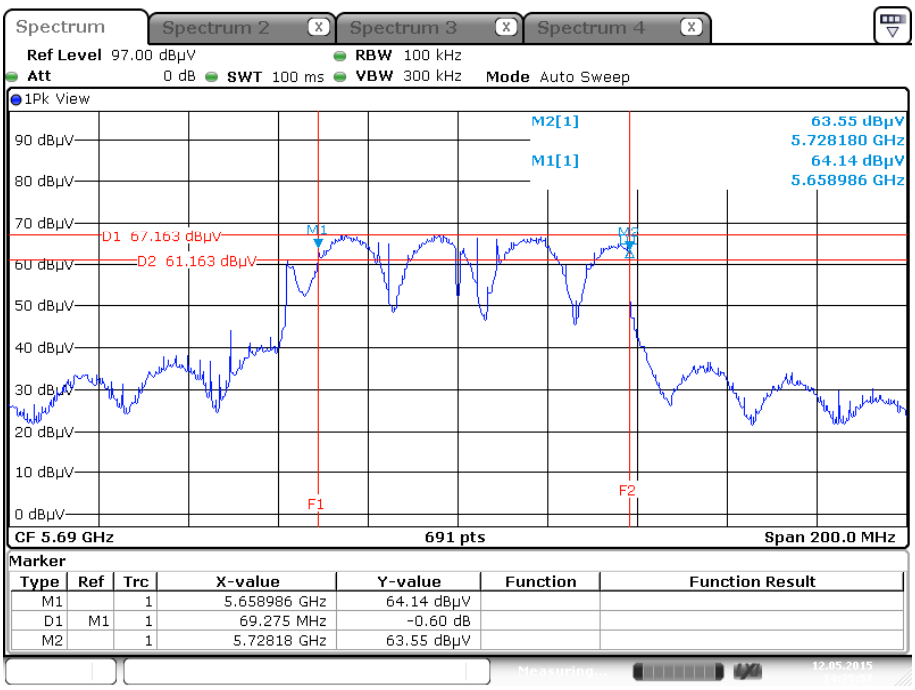
Date: 12.MAY.2015 14:16:34

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



Date: 12.MAY.2015 14:19:14

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



Date: 12.MAY.2015 14:25:56

4.3. Maximum Conducted Output Power Measurement

4.3.1. Limit

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

4.3.2. Measuring Instruments and Setting

For straddle channel:

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

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

For other channel:

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

Power Meter Parameter	Setting
Detector	AVERAGE

4.3.3. Test Procedures

For straddle channel:

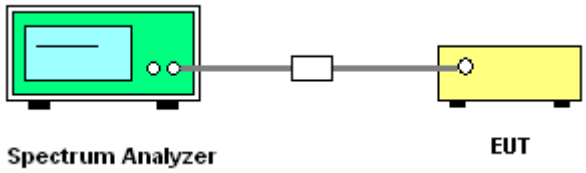
1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. Test was performed in accordance with FCC Public Notice DA 02-2138, August 30, 2002

For other channel:

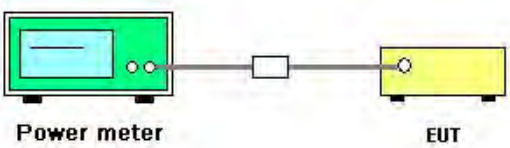
1. The transmitter output (antenna port) was connected to the power meter.
2. Test was performed in accordance with KDB789033 D02 v01 for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - section (E) Maximum conducted output power =>3. Measurement using a Power Meter (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.

4.3.4. Test Setup Layout

For straddle channel:



For other channel:



4.3.5. Test Deviation

There is no deviation with the original standard.

4.3.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.3.7. Test Result of Maximum Conducted Output Power

Temperature	24.5°C	Humidity	64%
Test Engineer	Lucas Huang	Test Date	For straddle channel: May 05, 2015
			For other channel: May 12, 2015

Mode	Frequency	Conducted Power (dBm)				Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Total		
802.11a	5260 MHz	9.16	9.63	9.85	14.33	19.50	Complies
	5300 MHz	9.56	9.72	9.87	14.49	19.50	Complies
	5320 MHz	9.48	9.67	10.12	14.54	19.50	Complies
	5500 MHz	9.06	9.76	11.01	14.79	19.50	Complies
	5580 MHz	9.44	9.78	10.48	14.69	19.50	Complies
	5700 MHz	9.48	9.45	10.77	14.72	19.50	Complies
802.11ac MCS0/Nss1 VHT20	5260 MHz	9.56	9.34	9.88	14.37	19.50	Complies
	5300 MHz	9.56	9.54	9.66	14.36	19.50	Complies
	5320 MHz	9.76	9.66	9.61	14.45	19.50	Complies
	5500 MHz	9.21	9.10	10.86	14.57	19.50	Complies
	5580 MHz	9.44	9.56	10.54	14.65	19.50	Complies
	5700 MHz	8.97	8.86	11.21	14.59	19.50	Complies
802.11ac MCS0/Nss1 VHT40	5270 MHz	12.34	13.24	13.34	17.77	19.50	Complies
	5310 MHz	12.23	13.05	13.28	17.65	19.50	Complies
	5510 MHz	11.73	12.42	13.61	17.43	19.50	Complies
	5550 MHz	12.10	12.45	13.04	17.32	19.50	Complies
	5670 MHz	12.11	13.01	13.24	17.58	19.50	Complies
802.11ac MCS0/Nss1 VHT80	5290 MHz	13.86	14.62	14.72	19.19	19.50	Complies
	5530 MHz	12.88	13.22	14.05	18.18	19.50	Complies

Note: Antenna gain=10.50dBi>6dBi, so limit=24–(10.50–6)=19.50dBm.

Straddle Channel

Mode	Frequency	Conducted Power (dBm)				Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Total		
802.11a	5720 MHz (UNII 2C)	9.10	8.17	11.21	14.46	18.05	Complies
	5720 MHz (UNII 3)	3.57	2.87	5.20	8.76	25.50	Complies
802.11ac MCS0/Nss1 VHT20	5720 MHz (UNII 2C)	8.97	8.40	11.04	14.40	18.83	Complies
	5720 MHz (UNII 3)	3.18	3.16	5.31	8.78	25.50	Complies
802.11ac MCS0/Nss1 VHT40	5710 MHz (UNII 2C)	12.22	11.76	13.95	17.52	19.50	Complies
	5710 MHz (UNII 3)	1.12	0.69	3.02	6.50	25.50	Complies
802.11ac MCS0/Nss1 VHT80	5690 MHz (UNII 2C)	14.70	13.90	15.23	19.41	19.50	Complies
	5690 MHz (UNII 3)	-0.34	-0.08	0.06	4.65	25.50	Complies

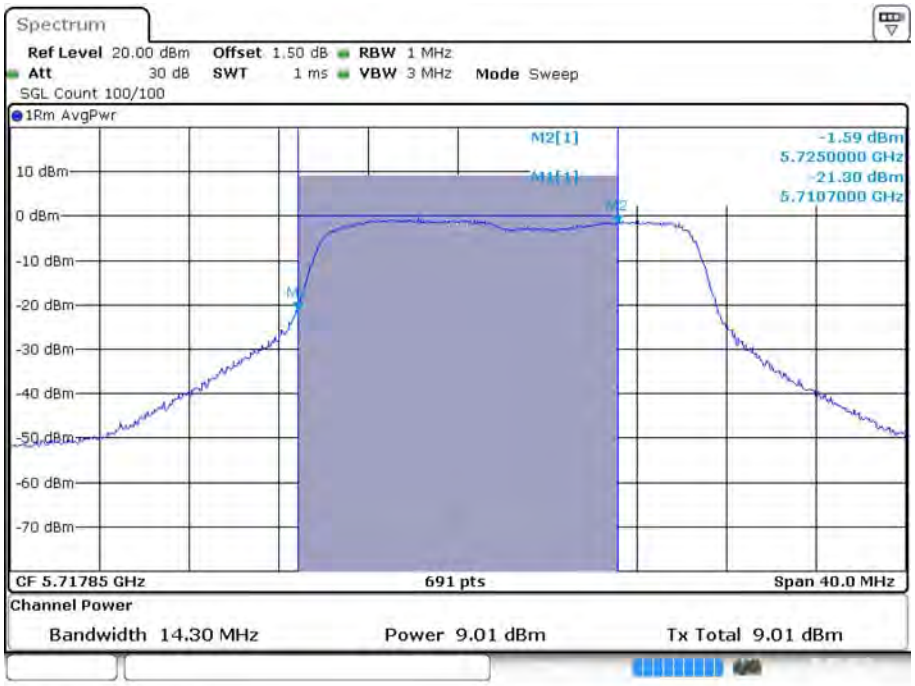
Note: Antenna gain=10.50dBi>6dBi.

1. 802.11a 5720 MHz (UNII 2C) power limit=11+10*log(14.30)–(10.50–6)=18.05dBm.
2. 802.11ac MCS0/Nss1 VHT20 5720 MHz (UNII 2C) power limit=11+10*log(17.09)–(10.50– 6)=18.83dBm.
3. 802.11ac MCS0/Nss1 VHT40 5710 MHz (UNII 2C) power limit=24–(10.50–6)=19.50dBm.
4. 802.11ac MCS0/Nss1 VHT80 5690 MHz (UNII 2C) power limit=24–(10.50–6)=19.50dBm.
5. (UNII 3) power limit=30–(10.50–6)=25.50dBm.

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

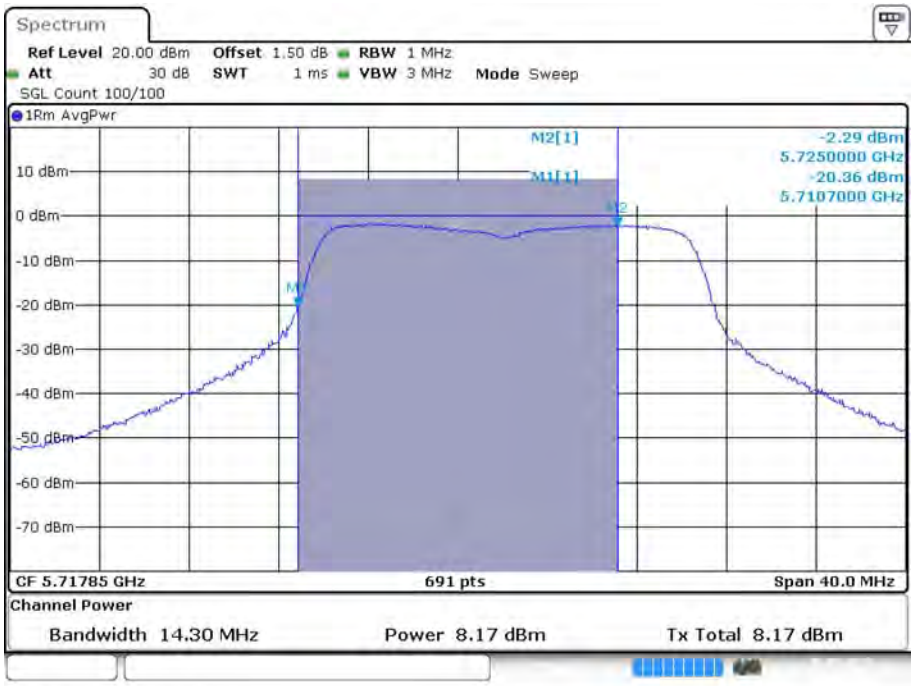
For plots, only the straddle channel result was shown.

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



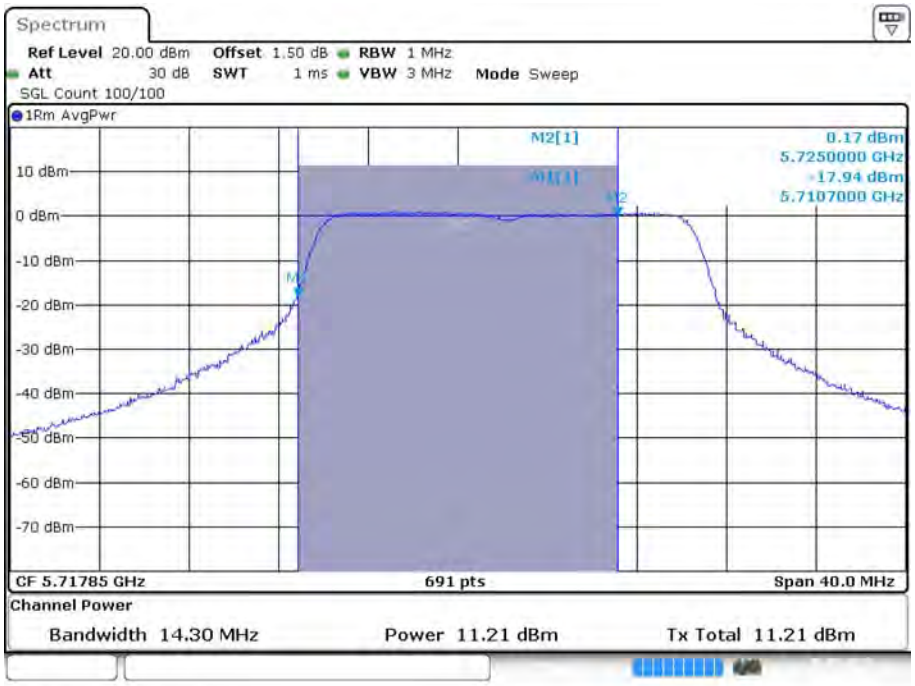
Date: 5.MAY.2015 21:38:00

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



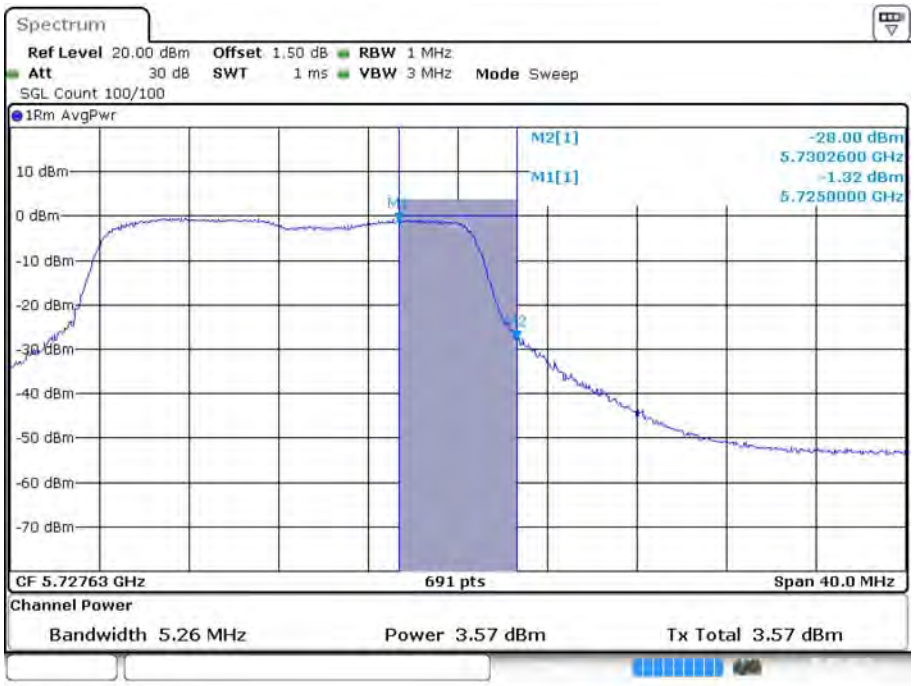
Date: 5.MAY.2015 21:40:40

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



Date: 5.MAY.2015 21:43:02

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

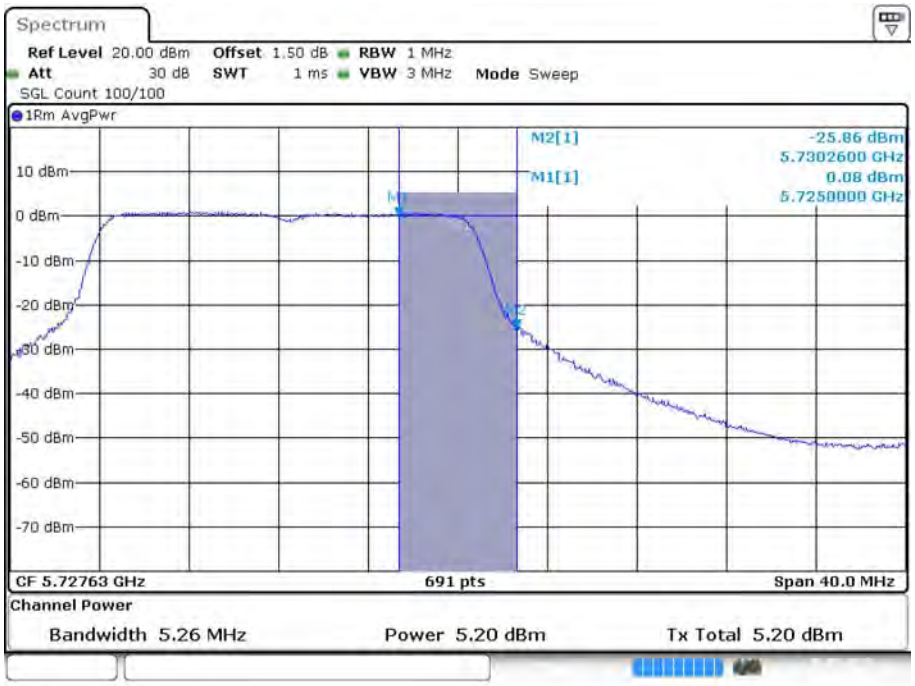


Date: 5.MAY.2015 21:52:34

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

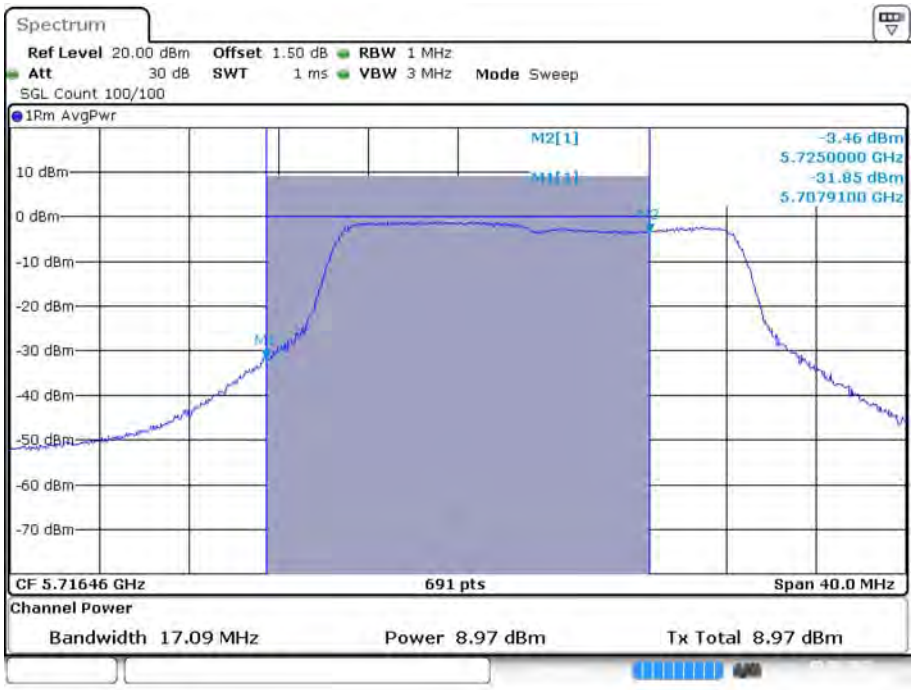
Date: 5.MAY.2015 21:48:30

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



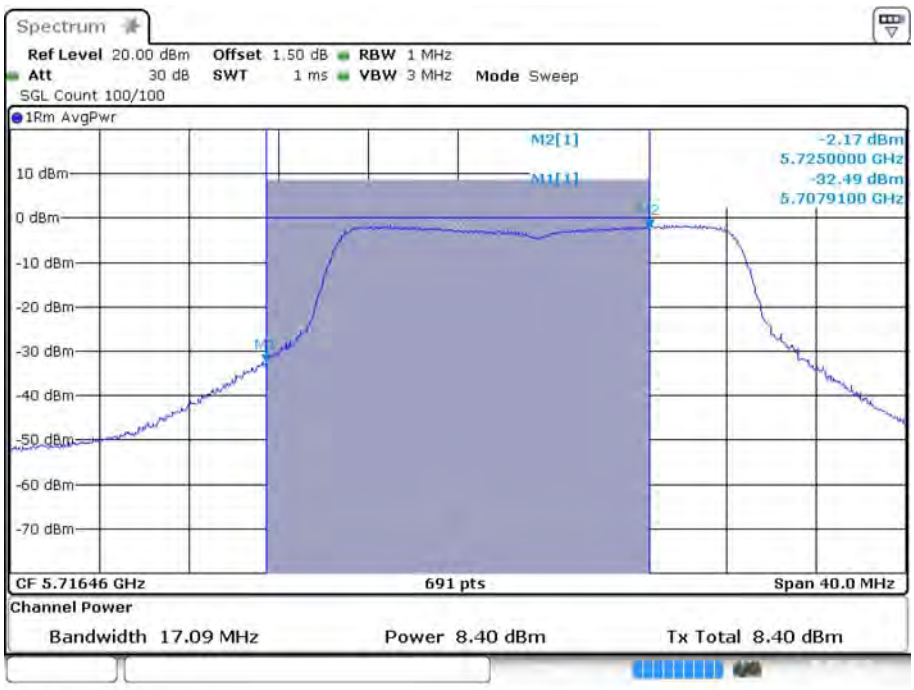
Date: 5.MAY.2015 21:46:13

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



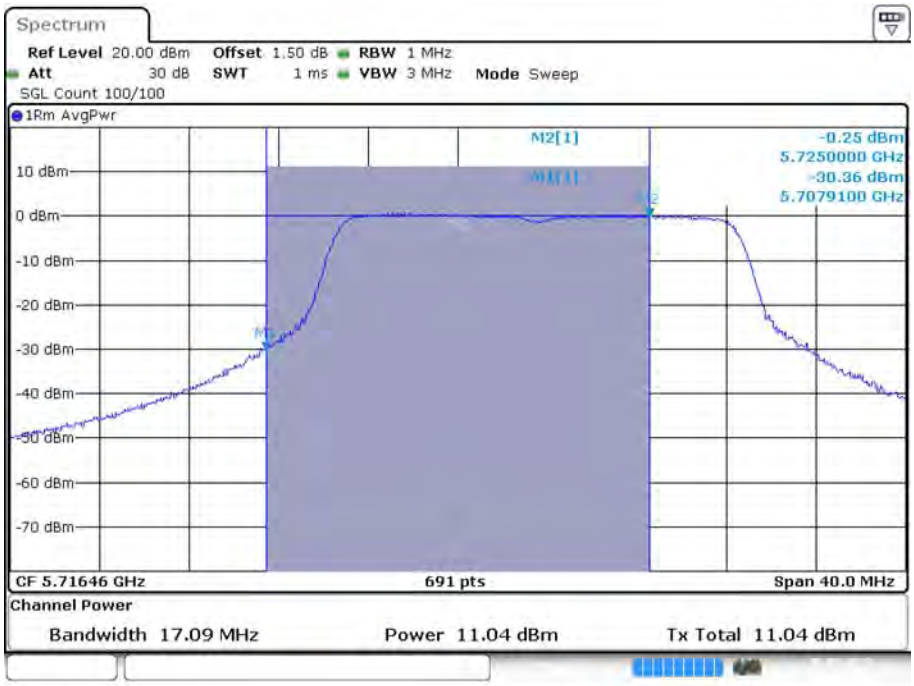
Date: 5.MAY.2015 21:26:45

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



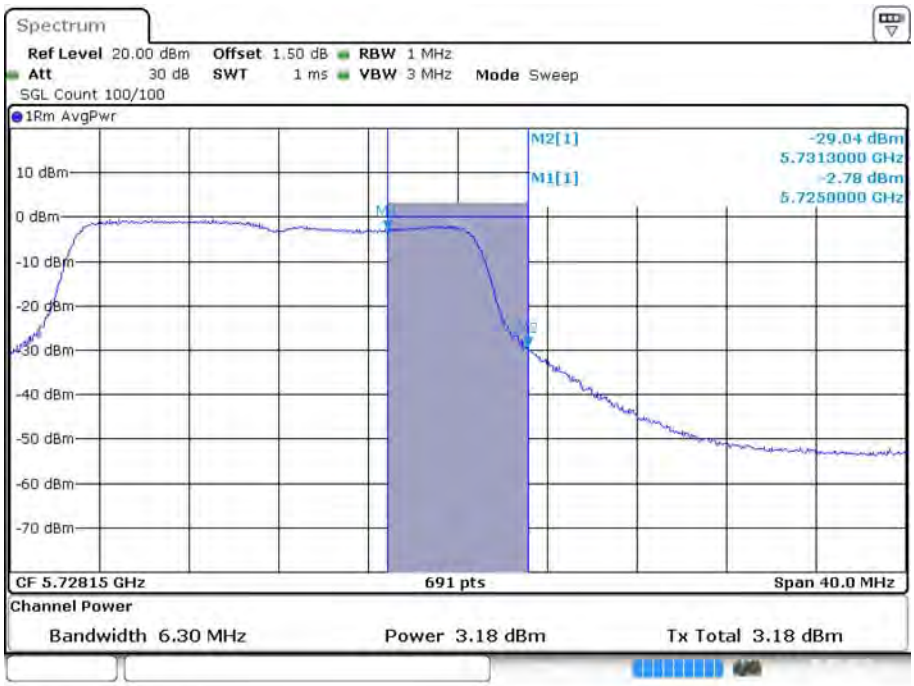
Date: 5.MAY.2015 21:25:43

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



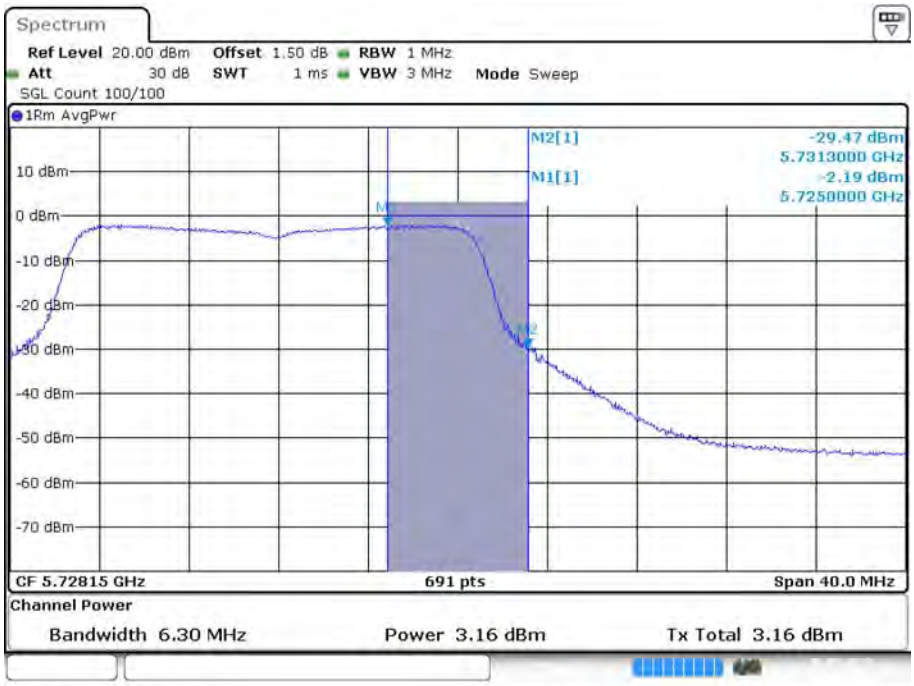
Date: 5.MAY.2015 21:28:13

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



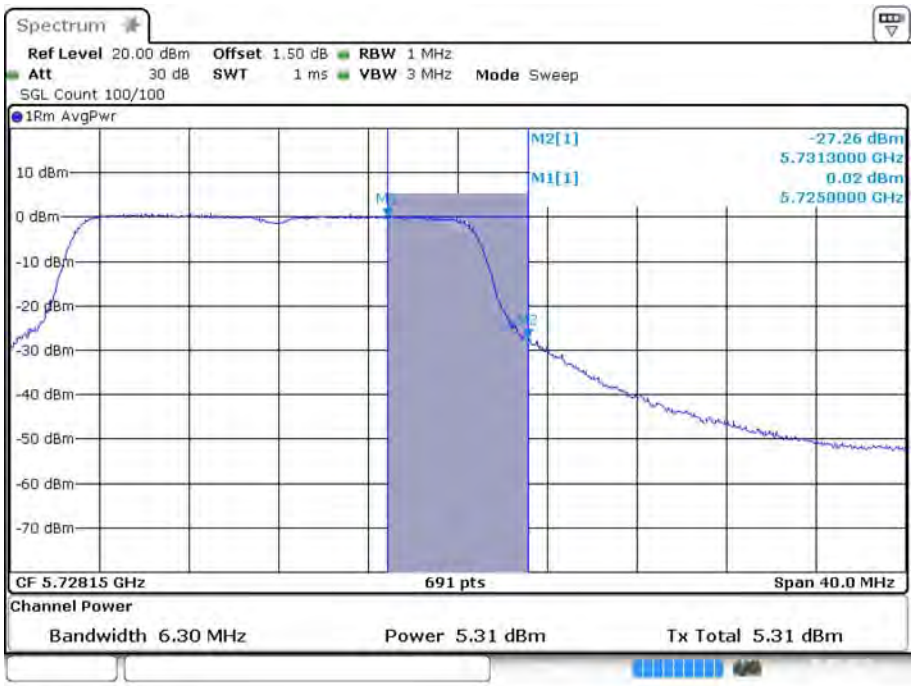
Date: 5.MAY.2015 21:32:45

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



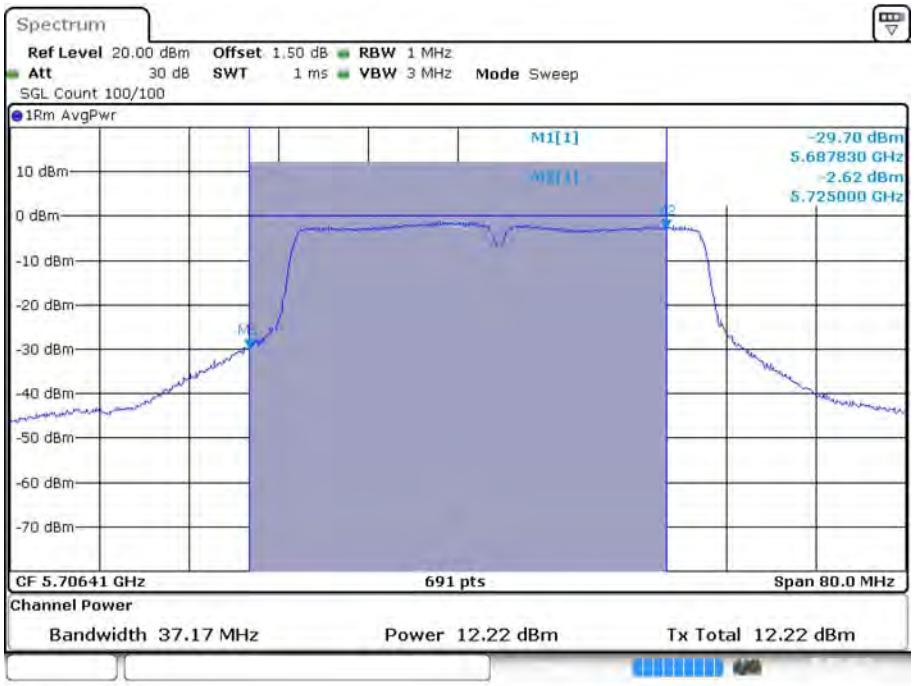
Date: 5.MAY.2015 21:31:54

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



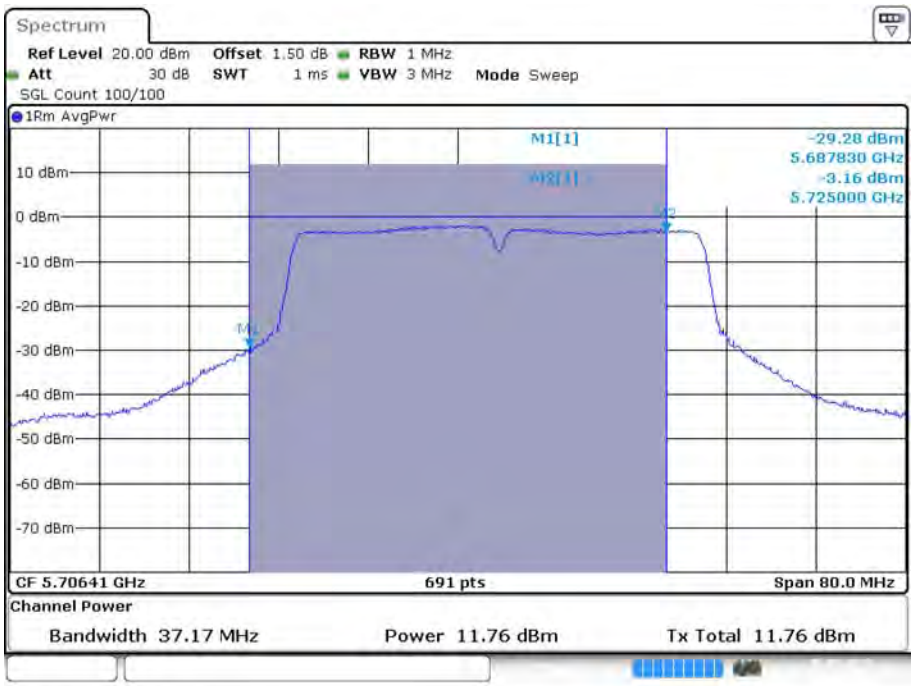
Date: 5.MAY.2015 21:30:54

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



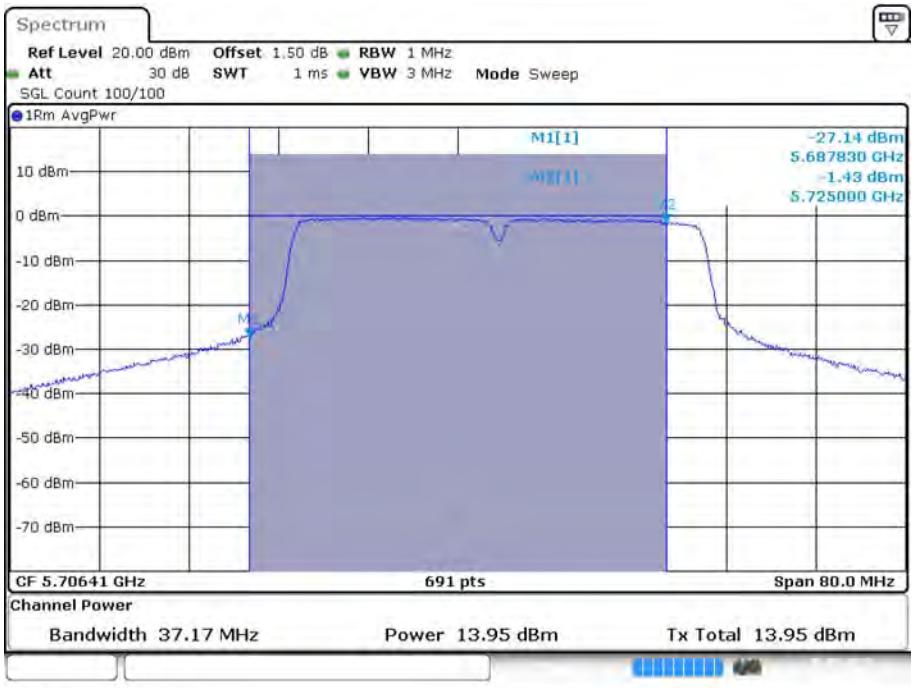
Date: 5.MAY.2015 21:05:57

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



Date: 5.MAY.2015 21:06:56

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



Date: 5.MAY.2015 21:04:05

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

Date: 5.MAY.2015 21:09:34

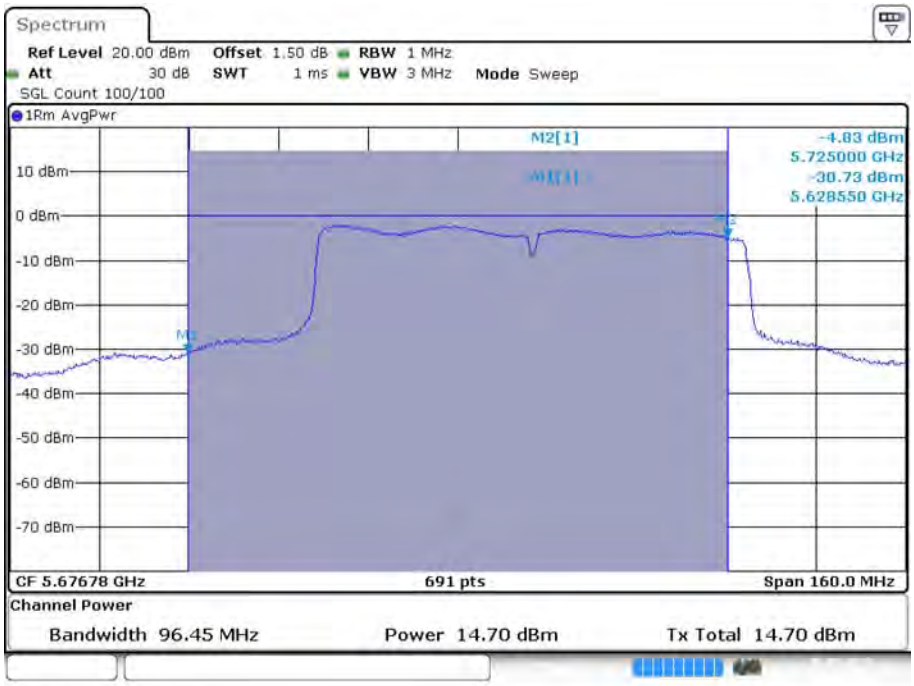
Conducted Output Power Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 2 / 5710 MHz (UNII 3)

Date: 5.MAY.2015 21:11:13

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

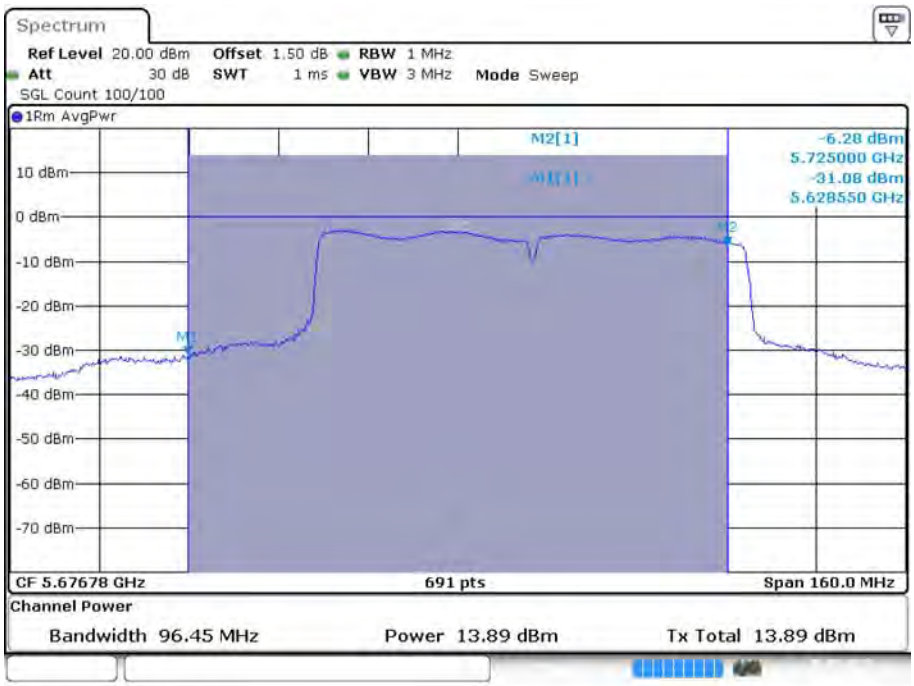
Date: 5.MAY.2015 21:13:16

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



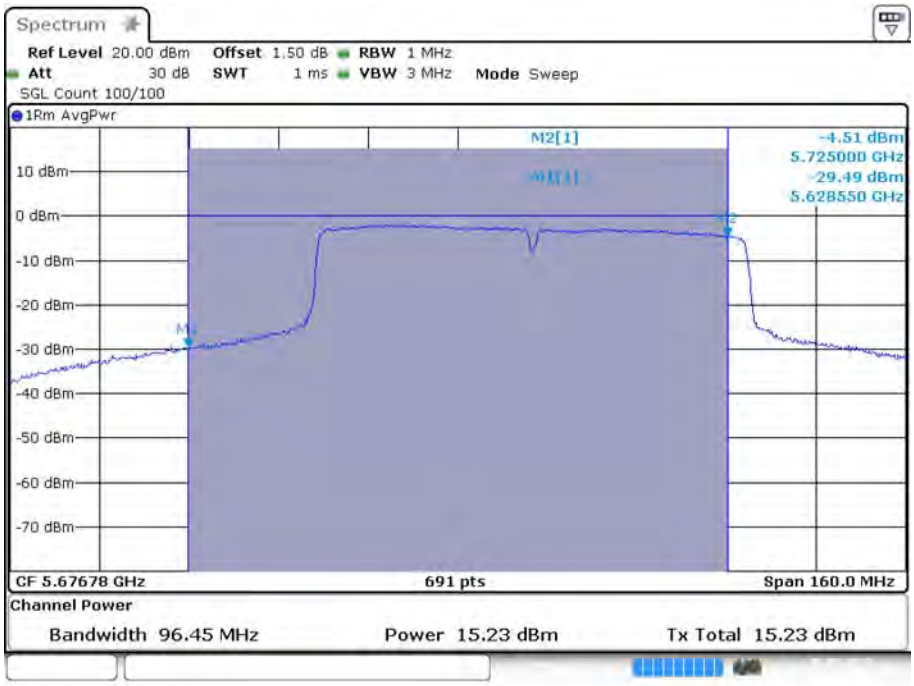
Date: 5.MAY.2015 21:20:59

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



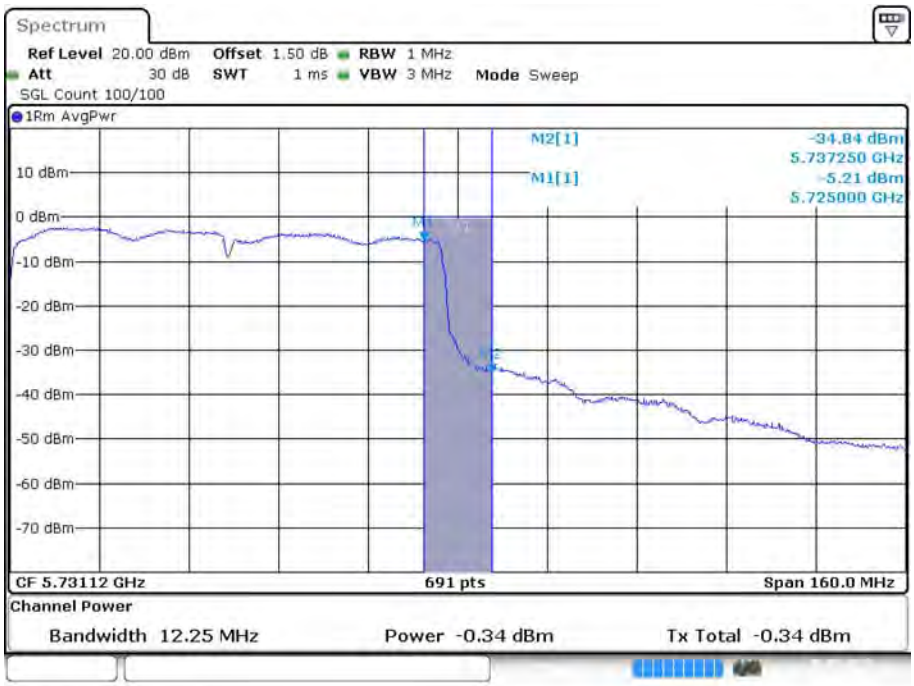
Date: 5.MAY.2015 21:21:32

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



Date: 5.MAY.2015 21:17:34

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



Date: 5.MAY.2015 20:48:59

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

Date: 5.MAY.2015 20:46:36

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

Date: 5.MAY.2015 20:44:47

4.4. Power Spectral Density Measurement

4.4.1. Limit

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

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

4.4.2. Measuring Instruments and Setting

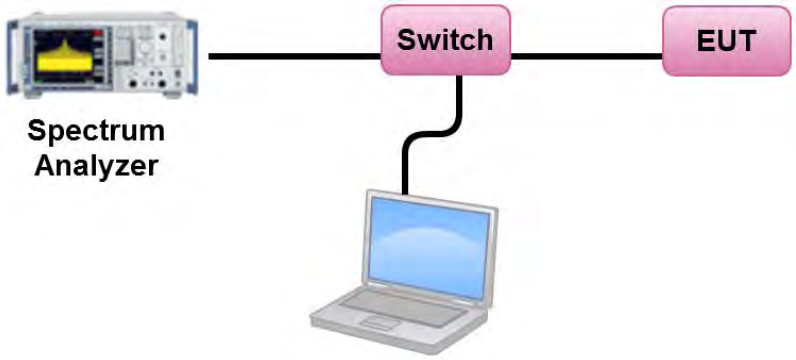
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

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

4.4.3. Test Procedures

1. The transmitter output (antenna port) was connected RF switch to the spectrum analyzer.
2. Test was performed in accordance with KDB789033 D02 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.

4.4.4. Test Setup Layout



4.4.5. Test Deviation

There is no deviation with the original standard.

4.4.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.4.7. Test Result of Power Spectral Density

Temperature	24.5°C	Humidity	64%
Test Engineer	Lucas Huang	Test Date	May 12, 2015

Mode	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
802.11a	5260 MHz	1.39	1.73	Complies
	5300 MHz	1.61	1.73	Complies
	5320 MHz	1.47	1.73	Complies
	5500 MHz	1.46	1.73	Complies
	5580 MHz	1.59	1.73	Complies
	5700 MHz	1.57	1.73	Complies
802.11ac MCS0/Nss1 VHT20	5260 MHz	1.56	1.73	Complies
	5300 MHz	1.47	1.73	Complies
	5320 MHz	1.47	1.73	Complies
	5500 MHz	1.30	1.73	Complies
	5580 MHz	1.38	1.73	Complies
	5700 MHz	1.61	1.73	Complies
802.11ac MCS0/Nss1 VHT40	5270 MHz	1.60	1.73	Complies
	5310 MHz	1.34	1.73	Complies
	5510 MHz	1.72	1.73	Complies
	5550 MHz	1.65	1.73	Complies
	5670 MHz	1.38	1.73	Complies
802.11ac MCS0/Nss1 VHT80	5290 MHz	-0.30	1.73	Complies
	5530 MHz	-1.15	1.73	Complies

Note: $Directional\ Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =15.27dBi >6dBi, so limit=11 – (15.27 – 6)=1.73dBm/MHz.

Straddle Channel

Mode	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
802.11a	5720 MHz (UNII 2C)	1.61	1.73	Complies
802.11ac MCS0/Nss1 VHT20	5720 MHz (UNII 2C)	1.72	1.73	Complies
802.11ac MCS0/Nss1 VHT40	5710 MHz (UNII 2C)	1.53	1.73	Complies
802.11ac MCS0/Nss1 VHT80	5690 MHz (UNII 2C)	0.35	1.73	Complies

Note: $Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =15.27dBi >6dBi, so limit=11 – (15.27 – 6)=1.73dBm/MHz.

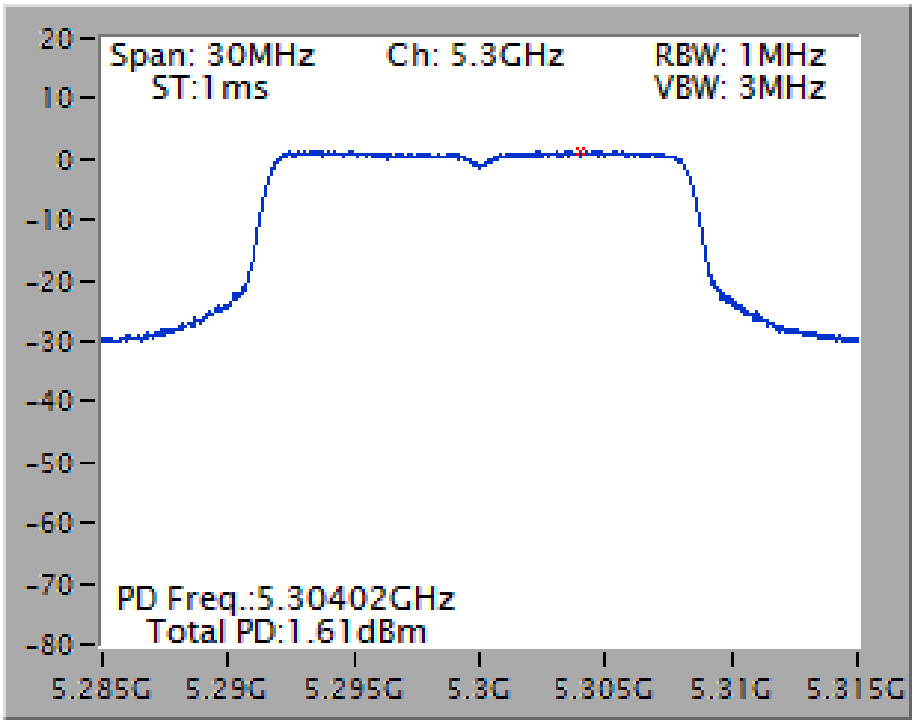
Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
802.11a	5720 MHz (UNII 3)	1.80	-3.01	-1.21	20.73	Complies
802.11ac MCS0/Nss1 VHT20	5720 MHz (UNII 3)	1.32	-3.01	-1.69	20.73	Complies
802.11ac MCS0/Nss1 VHT40	5710 MHz (UNII 3)	0.75	-3.01	-2.26	20.73	Complies
802.11ac MCS0/Nss1 VHT80	5690 MHz (UNII 3)	-2.10	-3.01	-5.11	20.73	Complies

Note: $Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =15.27dBi >6dBi, so limit=30 – (15.27 – 6)=20.73dBm/500kHz.

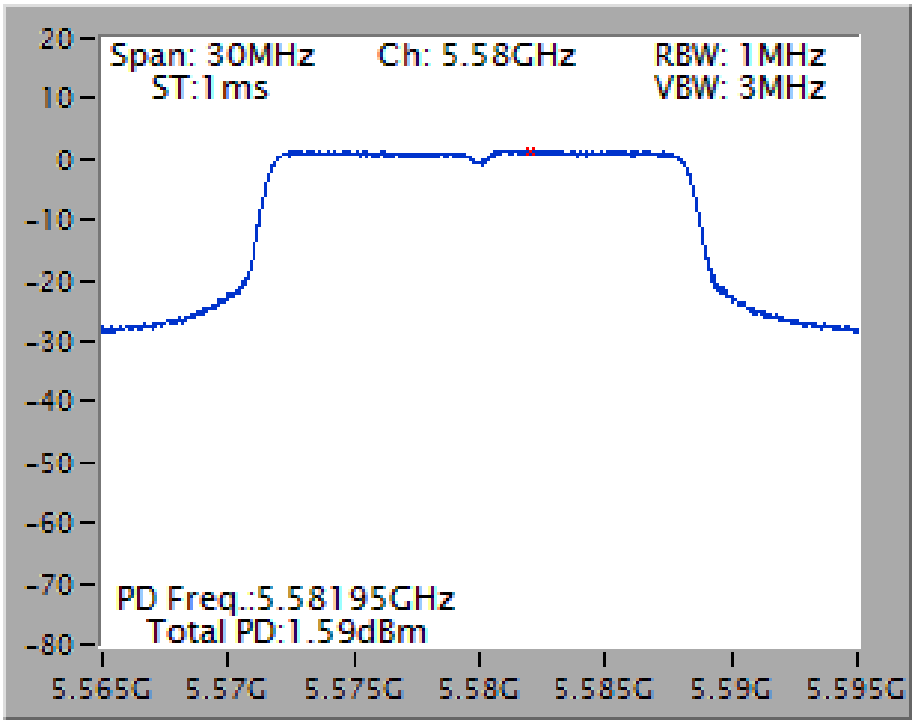
Note: All the test values were listed in the report.

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

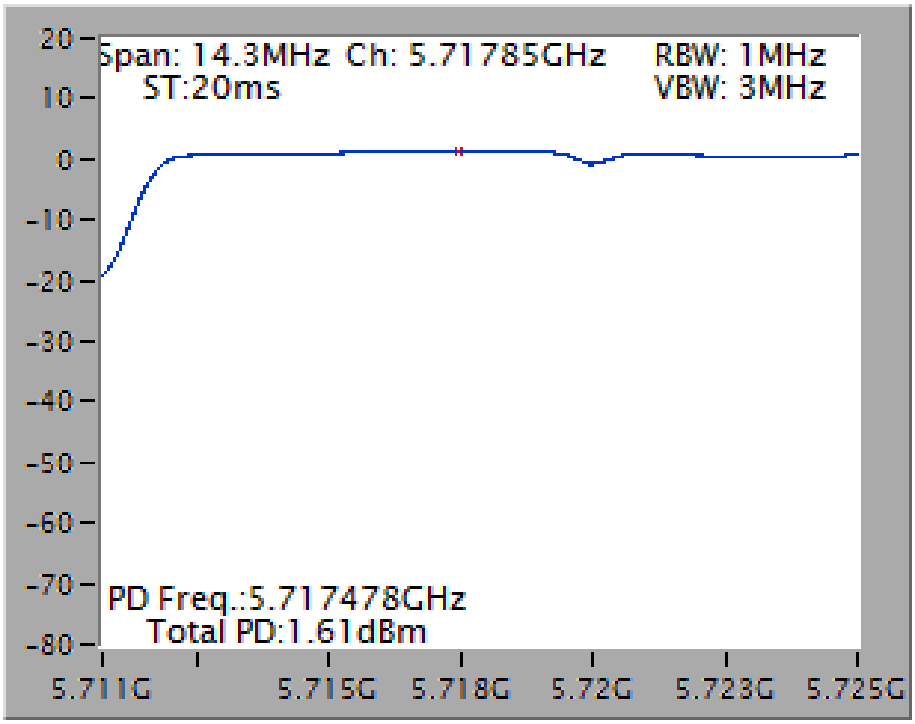
Power Density Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3 / 5300 MHz



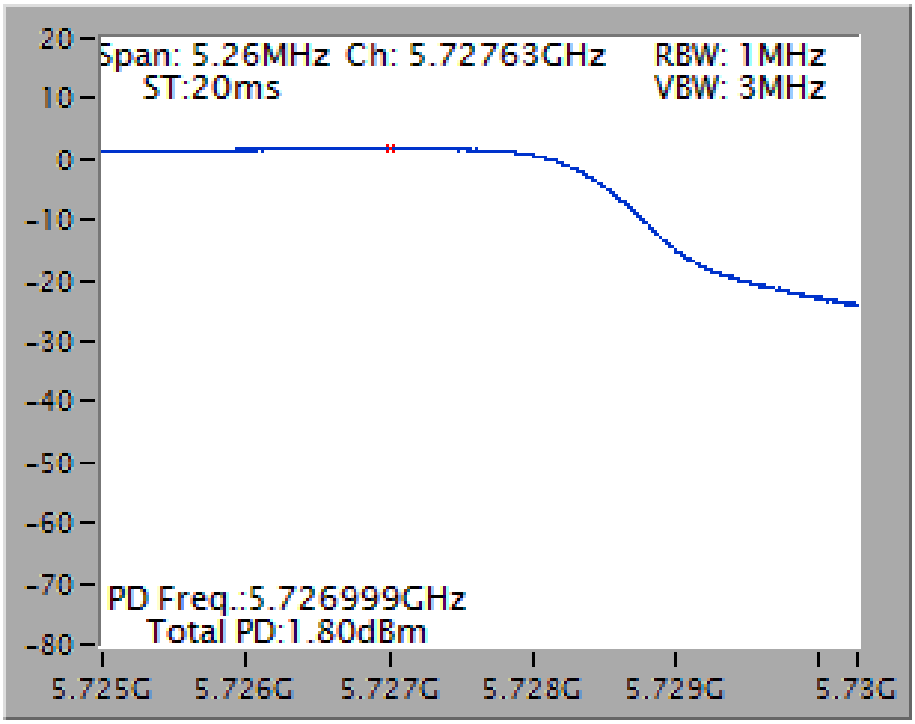
Power Density Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3 / 5580 MHz



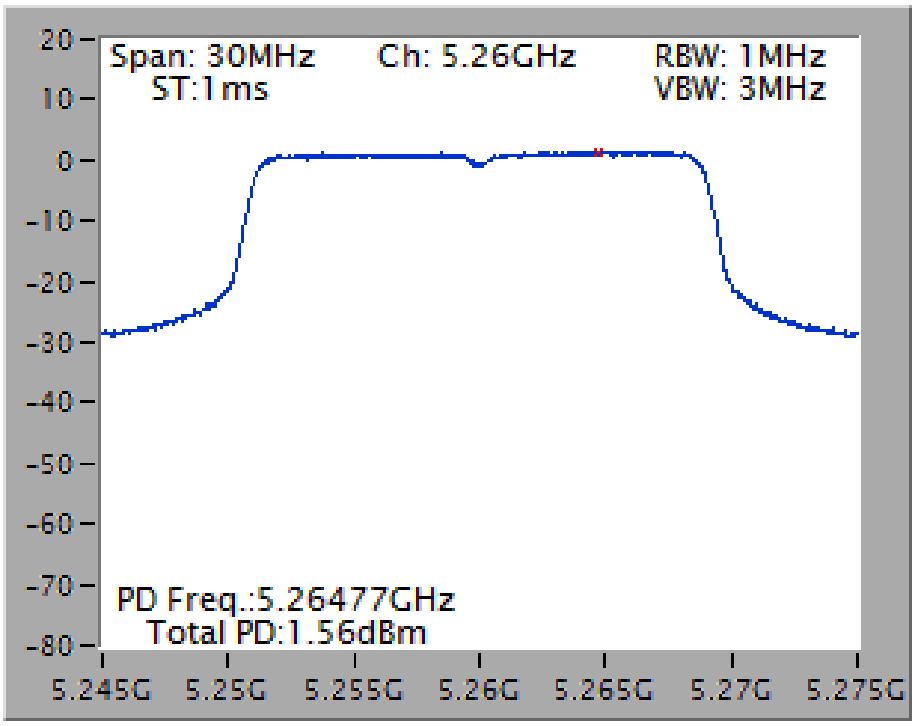
Power Density Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3 / 5720 MHz (UNII 2C)



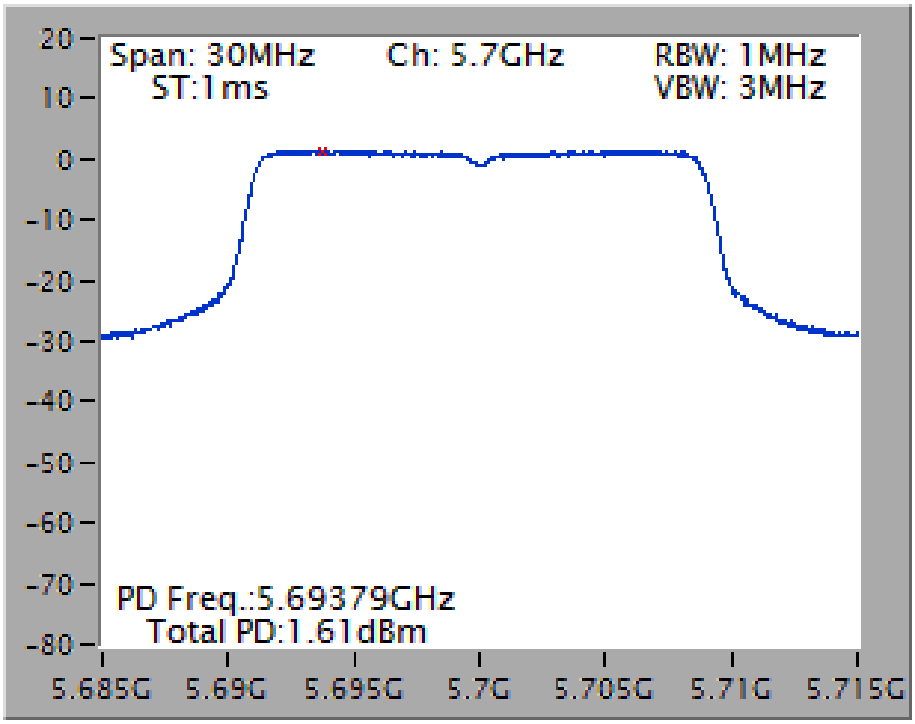
Power Density Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3 / 5720 MHz (UNII 3)



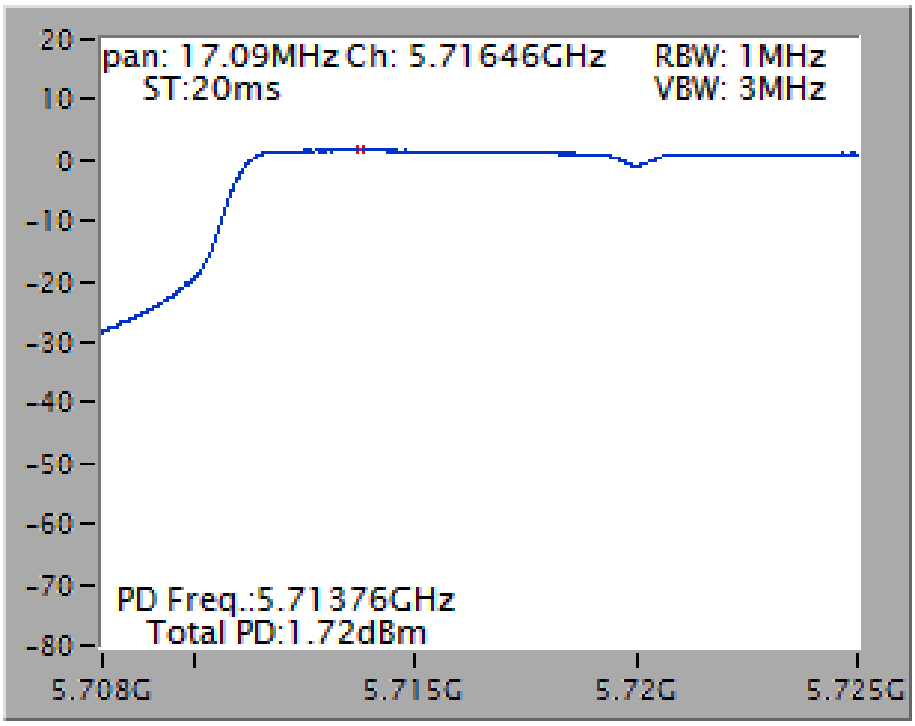
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 / 5260 MHz



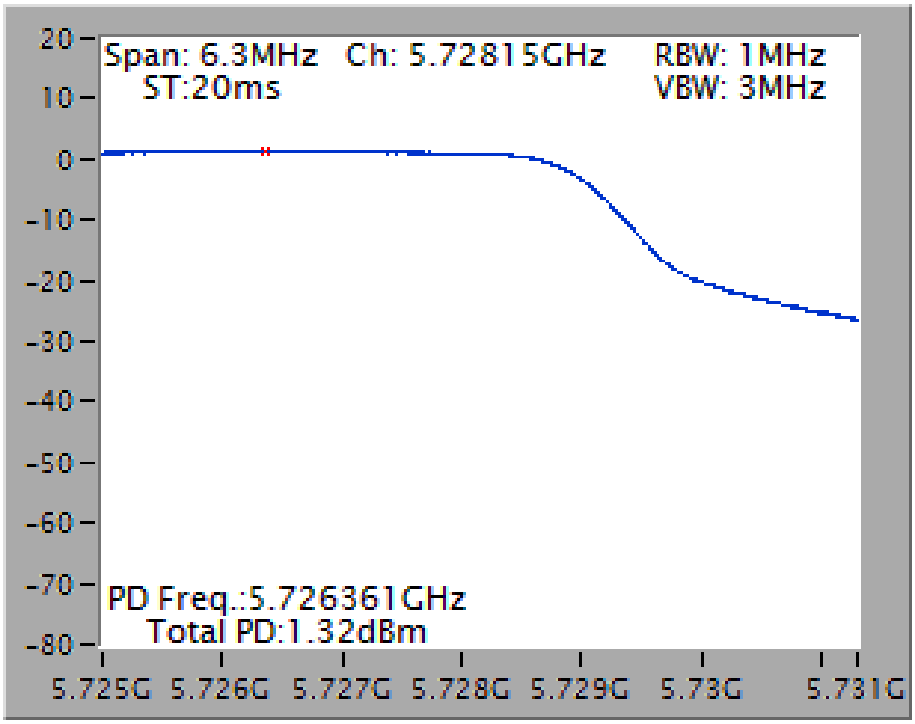
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 / 5700 MHz



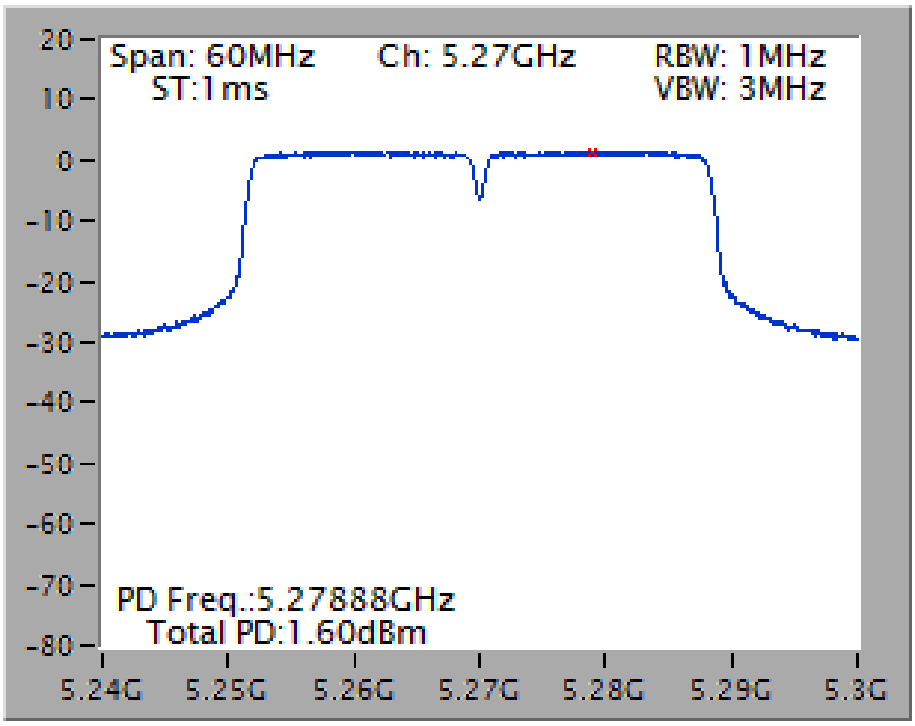
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 / 5720 MHz (UNII 2C)



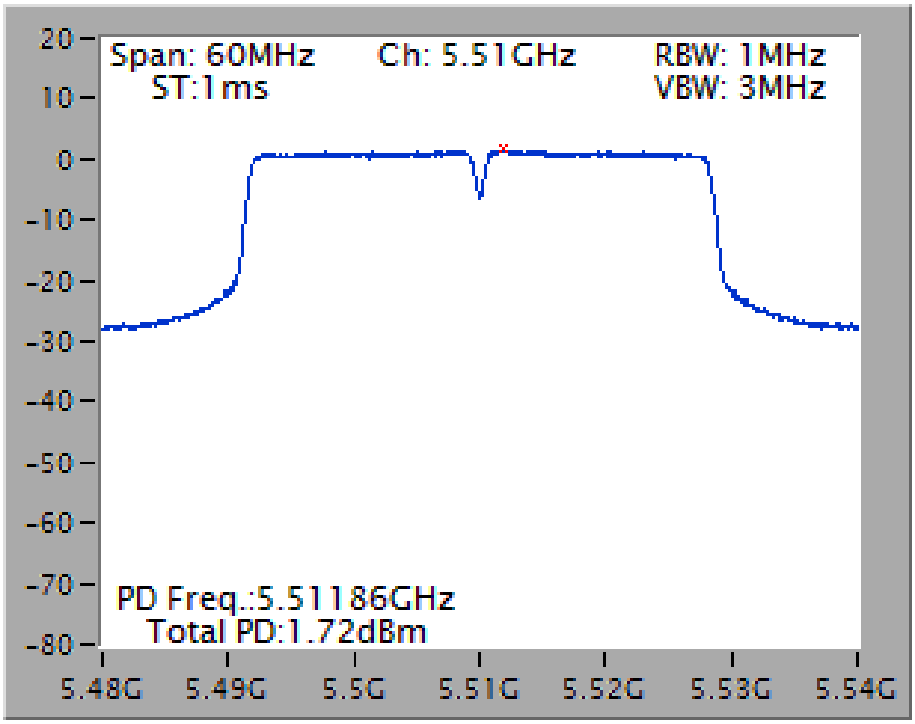
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 / 5720 MHz (UNII 3)



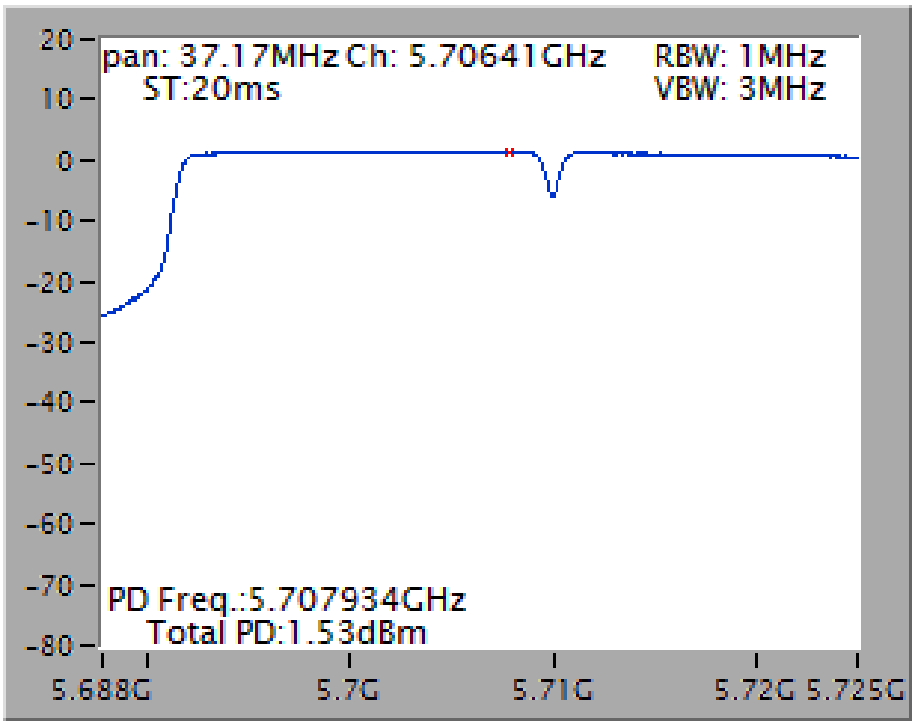
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 / 5270 MHz



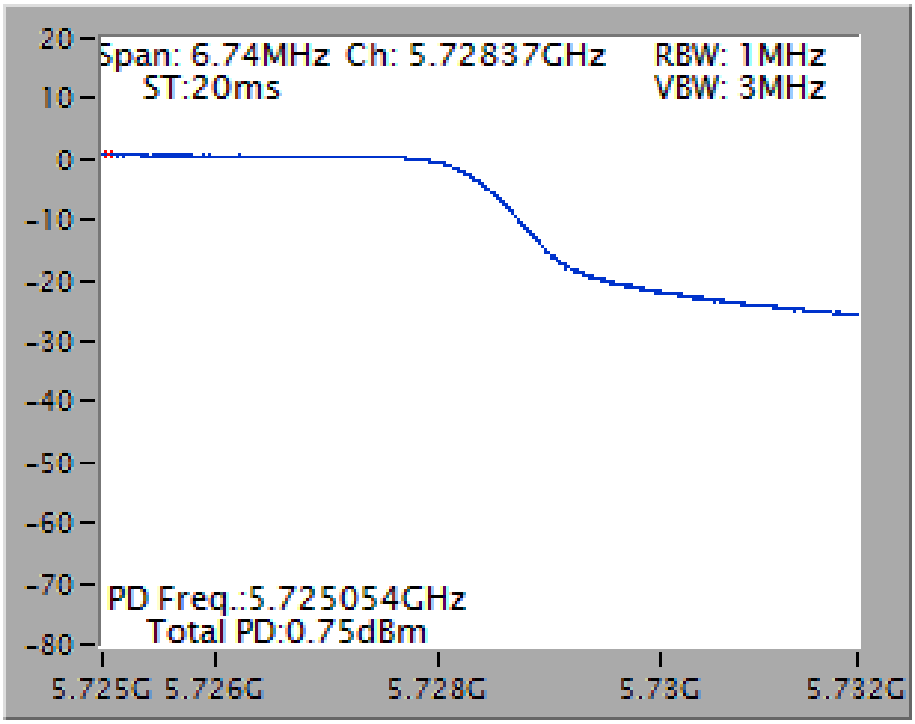
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 / 5510 MHz



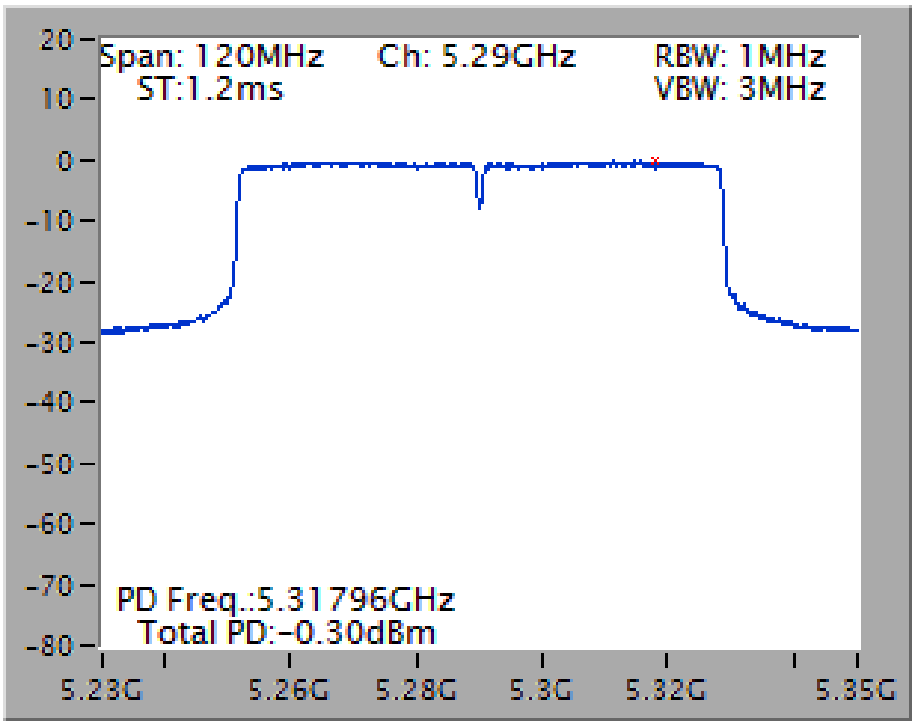
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 / 5710 MHz (UNII 2C)



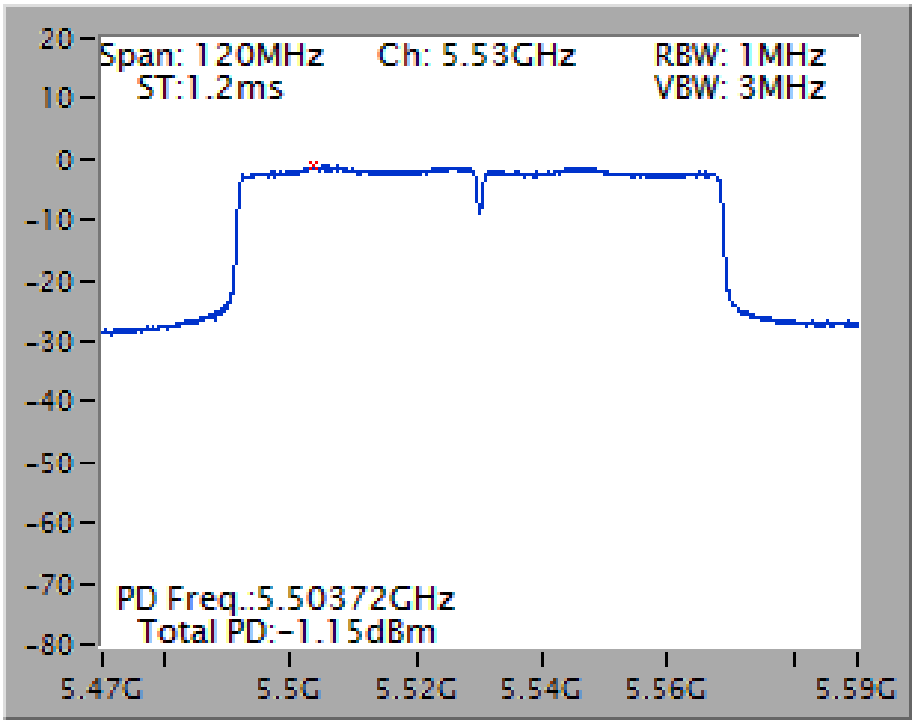
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 / 5710 MHz (UNII 3)



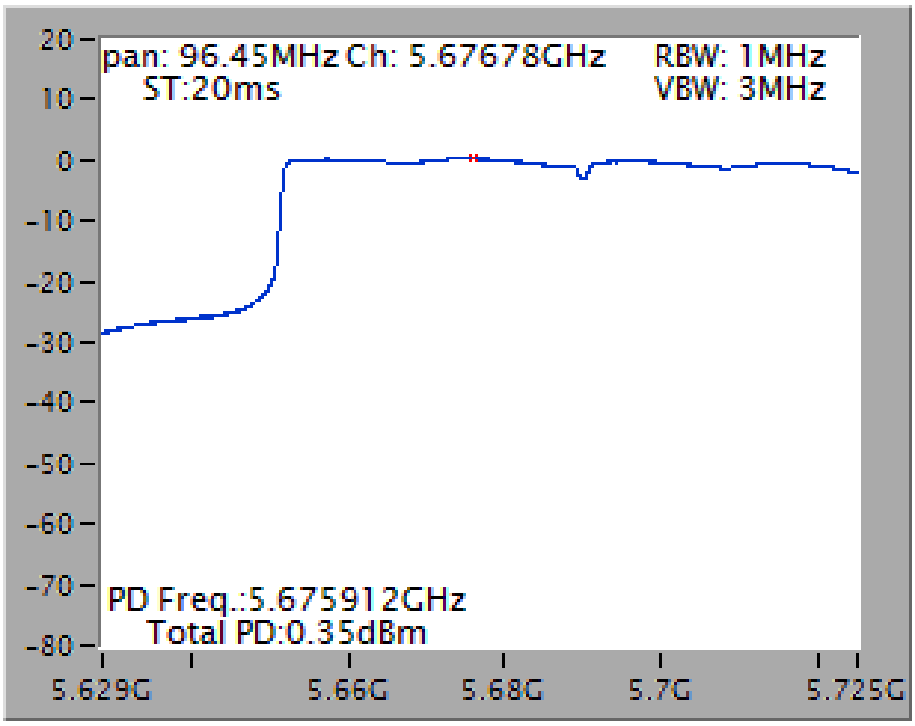
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 / 5290 MHz



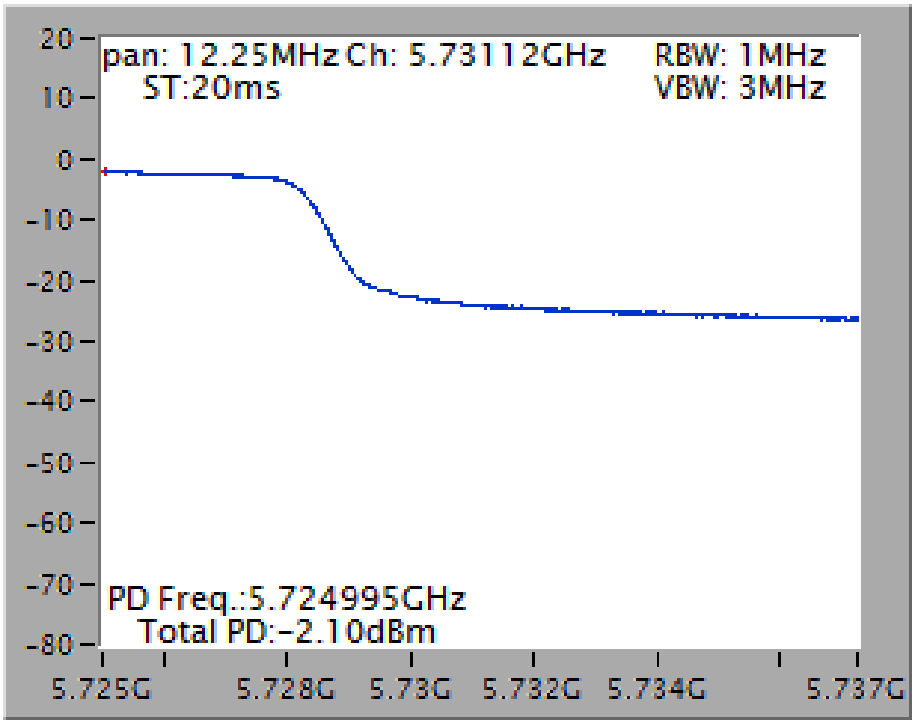
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 / 5530 MHz



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



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



4.5. Radiated Emissions Measurement

4.5.1. Limit

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

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

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

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

4.5.2. Measuring Instruments and Setting

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

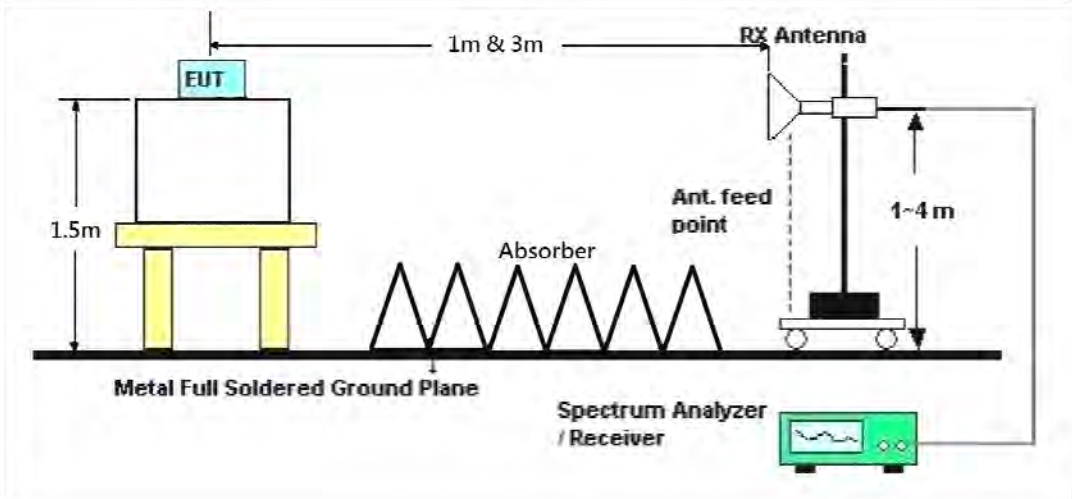
Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	40 GHz
RBW / VBW (Emission in restricted band)	1MHz / 3MHz for Peak, 1MHz / 1/T for Average
RBW / VBW (Emission in non-restricted band)	1MHz / 3MHz for peak

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

4.5.3. Test Procedures

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

4.5.4. Test Setup Layout



4.5.5. Test Deviation

There is no deviation with the original standard.

4.5.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

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

For RF transceiver sources (QCA9890):

Temperature	26°C	Humidity	68%
Test Engineer	Gino Huang	Configurations	IEEE 802.11a CH 52 / Chain 1 + Chain 2 + Chain 3
Test Date	May 01, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	15783.94	62.66	63.54	-0.88	51.49	7.64	38.47	34.94	28	168	Average	HORIZONTAL
2	15784.63	75.77	83.54	-7.77	64.60	7.64	38.47	34.94	28	168	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	15770.74	74.58	83.54	-8.96	63.38	7.64	38.48	34.92	326	170	Peak	VERTICAL
2	15781.27	60.94	63.54	-2.60	49.76	7.64	38.48	34.94	326	170	Average	VERTICAL

Temperature	26℃	Humidity	68%
Test Engineer	Gino Huang	Configurations	IEEE 802.11a CH 60 / Chain 1 + Chain 2 + Chain 3
Test Date	May 01, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10598.75	52.57	63.54	-10.97	42.98	6.21	38.38	35.00	99	170	Average	HORIZONTAL
2	10598.81	63.11	83.54	-20.43	53.52	6.21	38.38	35.00	99	170	Peak	HORIZONTAL
3	15893.49	74.14	83.54	-9.40	63.11	7.68	38.38	35.03	349	165	Peak	HORIZONTAL
4	15904.05	62.79	63.54	-0.75	51.76	7.69	38.37	35.03	349	165	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10603.33	48.40	63.54	-15.14	38.80	6.21	38.38	34.99	4	168	Average	VERTICAL
2	10604.20	59.86	83.54	-23.68	50.26	6.21	38.38	34.99	4	168	Peak	VERTICAL
3	15895.66	59.55	63.54	-3.99	48.52	7.68	38.38	35.03	346	168	Average	VERTICAL
4	15895.80	74.55	83.54	-8.99	63.52	7.68	38.38	35.03	346	168	Peak	VERTICAL

Temperature	26℃	Humidity	68%
Test Engineer	Gino Huang	Configurations	IEEE 802.11a CH 64 / Chain 1 + Chain 2 + Chain 3
Test Date	May 01, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10637.40	50.00	63.54	-13.54	40.37	6.23	38.37	34.97	85	175	Average	HORIZONTAL
2	10639.28	59.10	83.54	-24.44	49.47	6.23	38.37	34.97	85	175	Peak	HORIZONTAL
3	15961.59	57.42	63.54	-6.12	46.49	7.70	38.33	35.10	357	168	Average	HORIZONTAL
4	15963.91	71.01	83.54	-12.53	60.08	7.70	38.33	35.10	357	168	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10642.03	56.51	83.54	-27.03	46.88	6.23	38.37	34.97	2	168	Peak	VERTICAL
2	10642.75	46.00	63.54	-17.54	36.37	6.23	38.37	34.97	2	168	Average	VERTICAL
3	15963.04	58.63	63.54	-4.91	47.70	7.70	38.33	35.10	135	168	Average	VERTICAL
4	15964.78	69.07	83.54	-14.47	58.14	7.70	38.33	35.10	135	168	Peak	VERTICAL

Temperature	26℃	Humidity	68%
Test Engineer	Gino Huang	Configurations	IEEE 802.11a CH 100 / Chain 1 + Chain 2 + Chain 3
Test Date	May 01, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11000.14	47.46	63.54	-16.08	37.47	6.40	38.30	34.71	301	168	Average	HORIZONTAL
2	11000.72	58.76	83.54	-24.78	48.77	6.40	38.30	34.71	301	168	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11002.03	45.91	63.54	-17.63	35.92	6.40	38.30	34.71	21	168	Average	VERTICAL
2	11002.46	57.72	83.54	-25.82	47.73	6.40	38.30	34.71	21	168	Peak	VERTICAL

Temperature	26℃	Humidity	68%
Test Engineer	Gino Huang	Configurations	IEEE 802.11a CH 116 / Chain 1 + Chain 2 + Chain 3
Test Date	May 01, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11155.08	60.75	83.54	-22.79	50.70	6.44	38.30	34.69	80	168	Peak	HORIZONTAL
2	11156.96	49.30	63.54	-14.24	39.25	6.44	38.30	34.69	80	168	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11156.82	51.61	63.54	-11.93	41.56	6.44	38.30	34.69	345	168	Average	VERTICAL
2	11157.11	65.73	83.54	-17.81	55.68	6.44	38.30	34.69	345	168	Peak	VERTICAL

Temperature	26℃	Humidity	68%
Test Engineer	Gino Huang	Configurations	IEEE 802.11a CH 140 / Chain 1 + Chain 2 + Chain 3
Test Date	May 01, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11399.28	46.54	63.54	-17.00	36.40	6.51	38.30	34.67	86	168	Average	HORIZONTAL
2	11408.54	57.24	83.54	-26.30	47.10	6.51	38.30	34.67	86	168	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11396.24	49.51	63.54	-14.03	39.37	6.51	38.30	34.67	355	8995	Average	VERTICAL
2	11396.96	60.92	83.54	-22.62	50.78	6.51	38.30	34.67	355	168	Peak	VERTICAL

Temperature	26℃	Humidity	68%
Test Engineer	Gino Huang	Configurations	IEEE 802.11a CH 144 / Chain 1 + Chain 2 + Chain 3
Test Date	May 01, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11438.12	61.08	83.54	-22.46	50.93	6.52	38.30	34.67	2	168	Peak	HORIZONTAL
2	11440.72	48.67	63.54	-14.87	38.52	6.52	38.30	34.67	2	168	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11440.14	53.10	63.54	-10.44	42.95	6.52	38.30	34.67	8	168	Average	VERTICAL
2	11440.29	66.36	83.54	-17.18	56.21	6.52	38.30	34.67	8	168	Peak	VERTICAL

Temperature	26℃	Humidity	68%
Test Engineer	Gino Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 52 / Chain 1 + Chain 2 + Chain 3
Test Date	May 01, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10513.78	60.14	83.54	-23.40	50.63	6.17	38.40	35.06	321	168	Peak	HORIZONTAL
2	10516.38	48.84	63.54	-14.70	39.33	6.17	38.40	35.06	321	168	Average	HORIZONTAL
3	15784.38	76.84	83.54	-6.70	65.67	7.64	38.47	34.94	321	168	Peak	HORIZONTAL
4	15784.38	61.84	63.54	-1.70	50.67	7.64	38.47	34.94	321	168	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10515.22	48.95	63.54	-14.59	39.44	6.17	38.40	35.06	3	168	Average	VERTICAL
2	10515.66	59.95	83.54	-23.59	50.44	6.17	38.40	35.06	3	168	Peak	VERTICAL
3	15783.20	72.55	83.54	-10.99	61.38	7.64	38.47	34.94	3	168	Peak	VERTICAL
4	15783.20	62.55	63.54	-0.99	51.38	7.64	38.47	34.94	3	168	Average	VERTICAL

Temperature	26℃	Humidity	68%
Test Engineer	Gino Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 60 / Chain 1 + Chain 2 + Chain 3
Test Date	May 01, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10595.95	47.77	63.54	-15.77	38.19	6.20	38.38	35.00	91	168	Average	HORIZONTAL
2	10597.11	59.69	83.54	-23.85	50.10	6.21	38.38	35.00	91	168	Peak	HORIZONTAL
3	15901.74	63.06	63.54	-0.48	52.03	7.69	38.37	35.03	357	168	Average	HORIZONTAL
4	15902.46	74.49	83.54	-9.05	63.46	7.69	38.37	35.03	357	168	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10605.93	47.25	63.54	-16.29	37.65	6.21	38.38	34.99	3	168	Average	VERTICAL
2	10607.67	58.80	83.54	-24.74	49.20	6.21	38.38	34.99	3	168	Peak	VERTICAL
3	15897.40	60.99	63.54	-2.55	49.96	7.68	38.38	35.03	343	168	Average	VERTICAL
4	15898.12	74.38	83.54	-9.16	63.35	7.68	38.38	35.03	343	168	Peak	VERTICAL

Temperature	26℃	Humidity	68%
Test Engineer	Gino Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 64 / Chain 1 + Chain 2 + Chain 3
Test Date	May 01, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10638.99	45.47	63.54	-18.07	35.84	6.23	38.37	34.97	94	168	Average	HORIZONTAL
2	10641.74	58.04	83.54	-25.50	48.41	6.23	38.37	34.97	94	168	Peak	HORIZONTAL
3	15960.58	67.12	83.54	-16.42	56.19	7.70	38.33	35.10	346	168	Peak	HORIZONTAL
4	15961.59	55.21	63.54	-8.33	44.28	7.70	38.33	35.10	346	168	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10635.66	52.31	83.54	-31.23	42.68	6.23	38.37	34.97	56	168	Peak	VERTICAL
2	10637.11	41.02	63.54	-22.52	31.39	6.23	38.37	34.97	56	168	Average	VERTICAL
3	15963.62	66.93	83.54	-16.61	56.00	7.70	38.33	35.10	349	168	Peak	VERTICAL
4	15966.66	53.65	63.54	-9.89	42.72	7.70	38.33	35.10	349	168	Average	VERTICAL

Temperature	26℃	Humidity	68%
Test Engineer	Gino Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 100 / Chain 1 + Chain 2 + Chain 3
Test Date	May 01, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11000.58	44.49	63.54	-19.05	34.50	6.40	38.30	34.71	80	168	Average	HORIZONTAL
2	11009.70	54.58	83.54	-28.96	44.59	6.40	38.30	34.71	80	168	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10994.21	43.17	63.54	-20.37	33.18	6.40	38.30	34.71	336	168	Average	VERTICAL
2	11002.46	53.90	83.54	-29.64	43.91	6.40	38.30	34.71	336	168	Peak	VERTICAL

Temperature	26℃	Humidity	68%
Test Engineer	Gino Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 116 / Chain 1 + Chain 2 + Chain 3
Test Date	May 01, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11151.90	59.71	83.54	-23.83	49.66	6.44	38.30	34.69	18	168	Peak	HORIZONTAL
2	11153.92	47.64	63.54	-15.90	37.59	6.44	38.30	34.69	18	168	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11153.78	62.80	83.54	-20.74	52.75	6.44	38.30	34.69	346	168	Peak	VERTICAL
2	11155.08	50.47	63.54	-13.07	40.42	6.44	38.30	34.69	346	168	Average	VERTICAL

Temperature	26℃	Humidity	68%
Test Engineer	Gino Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 140 / Chain 1 + Chain 2 + Chain 3
Test Date	May 01, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11398.26	45.45	63.54	-18.09	35.31	6.51	38.30	34.67	6	168	Average	HORIZONTAL
2	11400.00	57.35	83.54	-26.19	47.21	6.51	38.30	34.67	6	168	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11393.20	47.51	63.54	-16.03	37.37	6.51	38.30	34.67	350	168	Average	VERTICAL
2	11394.50	57.69	83.54	-25.85	47.55	6.51	38.30	34.67	350	168	Peak	VERTICAL

Temperature	26℃	Humidity	68%
Test Engineer	Gino Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 144 / Chain 1 + Chain 2 + Chain 3
Test Date	May 01, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11441.30	48.26	63.54	-15.28	38.11	6.52	38.30	34.67	8	168	Average	HORIZONTAL
2	11441.88	59.42	83.54	-24.12	49.27	6.52	38.30	34.67	8	168	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11440.43	65.35	83.54	-18.19	55.20	6.52	38.30	34.67	8	168	Peak	VERTICAL
2	11440.72	53.31	63.54	-10.23	43.16	6.52	38.30	34.67	8	168	Average	VERTICAL

Temperature	26℃	Humidity	68%
Test Engineer	Gino Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 54 / Chain 1 + Chain 2 + Chain 3
Test Date	May 01, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	15808.12	61.63	83.54	-21.91	50.50	7.65	38.45	34.97	264	168	Peak	HORIZONTAL
2	15819.41	52.39	63.54	-11.15	41.26	7.66	38.44	34.97	264	168	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	15816.08	54.02	63.54	-9.52	42.89	7.66	38.44	34.97	238	168	Average	VERTICAL
2	15817.09	64.85	83.54	-18.69	53.72	7.66	38.44	34.97	238	168	Peak	VERTICAL

Temperature	26℃	Humidity	68%
Test Engineer	Gino Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 62 / Chain 1 + Chain 2 + Chain 3
Test Date	May 01, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10590.19	51.50	83.54	-32.04	41.92	6.20	38.38	35.00	353	168	Peak	HORIZONTAL
2	10622.75	39.16	63.54	-24.38	29.55	6.22	38.38	34.99	353	168	Average	HORIZONTAL
3	15887.60	54.57	83.54	-28.97	43.54	7.68	38.38	35.03	309	168	Peak	HORIZONTAL
4	15911.33	43.26	63.54	-20.28	32.25	7.69	38.37	35.05	309	168	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10582.52	51.31	83.54	-32.23	41.73	6.20	38.38	35.00	219	168	Peak	VERTICAL
2	10640.84	39.13	63.54	-24.41	29.50	6.23	38.37	34.97	219	168	Average	VERTICAL
3	15911.33	54.11	83.54	-29.43	43.10	7.69	38.37	35.05	238	168	Peak	VERTICAL
4	15930.14	42.20	63.54	-21.34	31.20	7.69	38.36	35.05	238	168	Average	VERTICAL

Temperature	26℃	Humidity	68%
Test Engineer	Gino Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 102 / Chain 1 + Chain 2 + Chain 3
Test Date	May 01, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11019.28	42.98	63.54	-20.56	32.99	6.40	38.30	34.71	351	168	Average	HORIZONTAL
2	11028.10	53.87	83.54	-29.67	43.87	6.41	38.30	34.71	351	168	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11019.28	41.06	63.54	-22.48	31.07	6.40	38.30	34.71	303	168	Average	VERTICAL
2	11020.00	54.24	83.54	-29.30	44.25	6.40	38.30	34.71	303	168	Peak	VERTICAL

Temperature	26℃	Humidity	68%
Test Engineer	Gino Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 110 / Chain 1 + Chain 2 + Chain 3
Test Date	May 01, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11094.36	44.40	63.54	-19.14	34.37	6.43	38.30	34.70	22	168	Average	HORIZONTAL
2	11095.08	56.54	83.54	-27.00	46.51	6.43	38.30	34.70	22	168	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11091.75	52.74	83.54	-30.80	42.71	6.43	38.30	34.70	149	168	Peak	VERTICAL
2	11095.08	40.93	63.54	-22.61	30.90	6.43	38.30	34.70	149	168	Average	VERTICAL

Temperature	26℃	Humidity	68%
Test Engineer	Gino Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 134 / Chain 1 + Chain 2 + Chain 3
Test Date	May 01, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11333.92	46.63	63.54	-16.91	36.52	6.49	38.30	34.68	13	168	Average	HORIZONTAL
2	11334.36	59.03	83.54	-24.51	48.92	6.49	38.30	34.68	13	168	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11337.68	57.04	83.54	-26.50	46.93	6.49	38.30	34.68	178	168	Peak	VERTICAL
2	11338.70	44.93	63.54	-18.61	34.82	6.49	38.30	34.68	178	168	Average	VERTICAL

Temperature	26℃	Humidity	68%
Test Engineer	Gino Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 142 / Chain 1 + Chain 2 + Chain 3
Test Date	May 01, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11411.75	61.60	83.54	-21.94	51.46	6.51	38.30	34.67	48	168	Peak	HORIZONTAL
2	11411.75	51.79	63.54	-11.75	41.65	6.51	38.30	34.67	48	168	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11410.88	45.23	63.54	-18.31	35.09	6.51	38.30	34.67	135	168	Average	VERTICAL
2	11432.45	55.02	83.54	-28.52	44.87	6.52	38.30	34.67	135	168	Peak	VERTICAL

Temperature	26℃	Humidity	68%
Test Engineer	Gino Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 58 / Chain 1 + Chain 2 + Chain 3
Test Date	May 01, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10557.13	38.53	63.54	-25.01	28.97	6.19	38.39	35.02	225	168	Average	HORIZONTAL
2	10564.37	51.40	83.54	-32.14	41.83	6.20	38.39	35.02	225	168	Peak	HORIZONTAL
3	15832.08	42.03	63.54	-21.51	30.92	7.66	38.44	34.99	248	168	Average	HORIZONTAL
4	15892.29	55.25	83.54	-28.29	44.22	7.68	38.38	35.03	248	168	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10618.49	50.79	83.54	-32.75	41.18	6.22	38.38	34.99	256	168	Peak	VERTICAL
2	10630.00	38.39	63.54	-25.15	28.76	6.22	38.38	34.97	256	168	Average	VERTICAL
3	15877.67	41.94	63.54	-21.60	30.88	7.67	38.40	35.01	234	168	Average	VERTICAL
4	15889.54	54.88	83.54	-28.66	43.85	7.68	38.38	35.03	234	168	Peak	VERTICAL

Temperature	26℃	Humidity	68%
Test Engineer	Gino Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 106 / Chain 1 + Chain 2 + Chain 3
Test Date	May 01, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11094.59	52.87	83.54	-30.67	42.84	6.43	38.30	34.70	80	168	Peak	HORIZONTAL
2	11105.01	41.00	63.54	-22.54	30.97	6.43	38.30	34.70	80	168	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11094.59	38.68	63.54	-24.86	28.65	6.43	38.30	34.70	86	168	Average	VERTICAL
2	11106.31	50.95	83.54	-32.59	40.92	6.43	38.30	34.70	86	168	Peak	VERTICAL

Temperature	26℃	Humidity	68%
Test Engineer	Gino Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 138 / Chain 1 + Chain 2 + Chain 3
Test Date	May 01, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11372.62	53.51	83.54	-30.03	43.38	6.50	38.30	34.67	246	168	Peak	HORIZONTAL
2	11374.21	41.85	63.54	-21.69	31.72	6.50	38.30	34.67	246	168	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11343.68	57.80	83.54	-25.74	47.68	6.49	38.30	34.67	229	168	Peak	VERTICAL
2	11373.63	45.28	63.54	-18.26	35.15	6.50	38.30	34.67	229	168	Average	VERTICAL

For RF transceiver sources (QCA9880):

Temperature	26°C	Humidity	68%
Test Engineer	Gino Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 138 / Chain 1 + Chain 2 + Chain 3
Test Date	May 13, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11390.26	63.72	83.54	-19.82	50.68	8.79	39.10	34.85	148	350	HORIZONTAL	Peak
2	11391.86	51.46	63.54	-12.08	38.42	8.79	39.10	34.85	148	350	HORIZONTAL	Average

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11387.05	53.66	63.54	-9.88	40.62	8.79	39.10	34.85	149	344	VERTICAL	Average
2	11387.37	66.14	83.54	-17.40	53.10	8.79	39.10	34.85	149	344	VERTICAL	Peak

Note:

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

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

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

4.6. Band Edge Emissions Measurement

4.6.1. Limit

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

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

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

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

4.6.2. Measuring Instruments and Setting

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

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

4.6.3. Test Procedures

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

4.6.4. Test Setup Layout

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

4.6.5. Test Deviation

There is no deviation with the original standard.

4.6.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.6.7. Test Result of Band Edge and Fundamental Emissions

For RF transceiver sources (QCA9890):

Temperature	26°C	Humidity	68%
Test Engineer	Gino Huang	Configurations	IEEE 802.11a CH 52, 60, 64 / Chain 1 + Chain 2 + Chain 3
Test Date	Apr. 30, 2015		

Channel 52

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5113.37	67.36	83.54	-16.18	30.03	4.24	33.09	0.00	341	168	Peak	HORIZONTAL
2	5149.42	54.54	63.54	-9.00	17.14	4.26	33.14	0.00	341	168	Average	HORIZONTAL
3	5259.04	120.98			83.34	4.31	33.33	0.00	341	168	Peak	HORIZONTAL
4	5259.04	111.02			73.38	4.31	33.33	0.00	341	168	Average	HORIZONTAL
5	5359.62	65.89	83.54	-17.65	28.08	4.35	33.46	0.00	341	168	Peak	HORIZONTAL
6	5360.00	54.55	63.54	-8.99	16.74	4.35	33.46	0.00	341	168	Average	HORIZONTAL

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

Channel 60

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5298.40	120.61			82.90	4.33	33.38	0.00	337	173	Peak	HORIZONTAL
2	5298.40	110.74			73.03	4.33	33.38	0.00	337	173	Average	HORIZONTAL
3	5350.00	58.81	63.54	-4.73	21.00	4.35	33.46	0.00	337	173	Average	HORIZONTAL
4	5358.33	72.68	83.54	-10.86	34.87	4.35	33.46	0.00	337	173	Peak	HORIZONTAL

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

Channel 64

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5320.96	107.91			70.17	4.33	33.41	0.00	338	177	Average	HORIZONTAL
2	5321.44	117.65			79.91	4.33	33.41	0.00	338	177	Peak	HORIZONTAL
3	5350.00	76.25	83.54	-7.29	38.44	4.35	33.46	0.00	338	177	Peak	HORIZONTAL
4	5350.00	63.44	63.54	-0.10	25.63	4.35	33.46	0.00	338	177	Average	HORIZONTAL

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

Temperature	26℃	Humidity	68%
Test Engineer	Gino Huang	Configurations	IEEE 802.11a CH 100, 116, 140 / Chain 1 + Chain 2 + Chain 3
Test Date	Apr. 30, 2015		

Channel 100

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5460.00	72.45	83.54	-11.09	34.43	4.40	33.62	0.00	94	137	Peak	HORIZONTAL
2	5460.00	60.39	63.54	-3.15	22.37	4.40	33.62	0.00	94	137	Average	HORIZONTAL
3	5469.71	77.31	77.74	-0.43	39.25	4.41	33.65	0.00	94	137	Peak	HORIZONTAL
4	5502.89	123.60			85.48	4.42	33.70	0.00	94	137	Peak	HORIZONTAL
5	5503.37	113.29			75.17	4.42	33.70	0.00	94	137	Average	HORIZONTAL

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

Channel 116

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5439.78	69.03	83.54	-14.51	31.05	4.39	33.59	0.00	84	137	Peak	HORIZONTAL
2	5452.00	56.75	63.54	-6.79	18.73	4.40	33.62	0.00	84	137	Average	HORIZONTAL
3	5465.99	69.92	77.74	-7.82	31.86	4.41	33.65	0.00	84	137	Peak	HORIZONTAL
4	5576.80	123.26			84.91	4.44	33.91	0.00	84	137	Peak	HORIZONTAL
5	5585.61	112.82			74.41	4.45	33.96	0.00	84	137	Average	HORIZONTAL
6	5725.83	69.05	77.74	-8.69	30.18	4.50	34.37	0.00	84	137	Peak	HORIZONTAL

Item 4, 5 are the fundamental frequency at 5580 MHz.

Channel 140

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5693.05	109.58			70.82	4.49	34.27	0.00	86	137	Average	HORIZONTAL
2	5703.04	119.68			80.87	4.49	34.32	0.00	86	137	Peak	HORIZONTAL
3	5728.47	62.94	63.54	-0.60	24.07	4.50	34.37	0.00	86	137	Average	HORIZONTAL
4	5728.91	77.76	83.54	-5.78	38.89	4.50	34.37	0.00	86	137	Peak	HORIZONTAL

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

Temperature	26℃	Humidity	68%
Test Engineer	Gino Huang	Configurations	IEEE 802.11a CH 144 / Chain 1 + Chain 2 + Chain 3
Test Date	Apr. 30, 2015		

Channel 144

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5722.17	112.25			73.38	4.50	34.37	0.00	78	139	Average	HORIZONTAL
2	5722.60	122.43			83.56	4.50	34.37	0.00	78	139	Peak	HORIZONTAL
3	5850.00	68.96	83.54	-14.58	29.69	4.54	34.73	0.00	78	139	Peak	HORIZONTAL
4	5850.00	57.26	63.54	-6.28	17.99	4.54	34.73	0.00	78	139	Average	HORIZONTAL

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

Temperature	26℃	Humidity	68%
Test Engineer	Gino Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 52, 60, 64 / Chain 1 + Chain 2 + Chain 3
Test Date	Apr. 30, 2015		

Channel 52

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5150.00	65.42	83.54	-18.12	28.02	4.26	33.14	0.00	74	168	Peak	VERTICAL
2	5150.00	55.12	63.54	-8.42	17.72	4.26	33.14	0.00	74	168	Average	VERTICAL
3	5253.49	120.22			82.62	4.30	33.30	0.00	74	168	Peak	VERTICAL
4	5253.49	110.68			73.08	4.30	33.30	0.00	74	168	Average	VERTICAL
5	5350.00	56.51	63.54	-7.03	18.70	4.35	33.46	0.00	74	168	Average	VERTICAL
6	5356.51	69.40	83.54	-14.14	31.59	4.35	33.46	0.00	74	168	Peak	VERTICAL

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

Channel 60

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5291.75	109.60			71.93	4.32	33.35	0.00	336	172	Average	HORIZONTAL
2	5295.66	120.52			82.81	4.33	33.38	0.00	336	172	Peak	HORIZONTAL
3	5350.00	74.77	83.54	-8.77	36.96	4.35	33.46	0.00	336	172	Peak	HORIZONTAL
4	5350.00	61.06	63.54	-2.48	23.25	4.35	33.46	0.00	336	172	Average	HORIZONTAL

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

Channel 64

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5312.19	117.38			79.64	4.33	33.41	0.00	337	166	Peak	HORIZONTAL
2	5312.19	107.34			69.60	4.33	33.41	0.00	337	166	Average	HORIZONTAL
3	5350.00	63.52	63.54	-0.02	25.71	4.35	33.46	0.00	337	166	Average	HORIZONTAL
4	5350.43	76.52	83.54	-7.02	38.71	4.35	33.46	0.00	337	166	Peak	HORIZONTAL

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

Temperature	26℃	Humidity	68%
Test Engineer	Gino Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 100, 116, 140 / Chain 1 + Chain 2 + Chain 3
Test Date	Apr. 30, 2015 / May 01, 2015		

Channel 100

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5454.70	57.76	63.54	-5.78	19.74	4.40	33.62	0.00	93	139	Average	HORIZONTAL
2	5460.00	70.13	83.54	-13.41	32.11	4.40	33.62	0.00	93	139	Peak	HORIZONTAL
3	5469.13	77.50	77.74	-0.24	39.44	4.41	33.65	0.00	93	139	Peak	HORIZONTAL
4	5494.79	121.23			83.15	4.41	33.67	0.00	93	139	Peak	HORIZONTAL
5	5496.09	112.09			74.01	4.41	33.67	0.00	93	139	Average	HORIZONTAL

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

Channel 116

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5445.00	58.74	63.54	-4.80	20.76	4.39	33.59	0.00	92	137	Average	HORIZONTAL
2	5458.55	71.02	83.54	-12.52	33.00	4.40	33.62	0.00	92	137	Peak	HORIZONTAL
3	5467.11	70.54	77.74	-7.20	32.48	4.41	33.65	0.00	92	137	Peak	HORIZONTAL
4	5584.34	123.01			84.60	4.45	33.96	0.00	92	137	Peak	HORIZONTAL
5	5585.79	113.67			75.26	4.45	33.96	0.00	92	137	Average	HORIZONTAL
6	5727.89	70.69	77.74	-7.05	31.82	4.50	34.37	0.00	92	137	Peak	HORIZONTAL

Item 4, 5 are the fundamental frequency at 5580 MHz.

Channel 140

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5695.08	108.84			70.08	4.49	34.27	0.00	80	140	Average	HORIZONTAL
2	5695.66	119.56			80.80	4.49	34.27	0.00	80	140	Peak	HORIZONTAL
3	5725.29	63.51	63.54	-0.03	24.64	4.50	34.37	0.00	80	140	Average	HORIZONTAL
4	5725.58	79.34	83.54	-4.20	40.47	4.50	34.37	0.00	80	140	Peak	HORIZONTAL

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

Temperature	26℃	Humidity	68%
Test Engineer	Gino Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 144 / Chain 1 + Chain 2 + Chain 3
Test Date	May 01, 2015		

Channel 144

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5711.75	122.83			84.02	4.49	34.32	0.00	80	142	Peak	HORIZONTAL
2	5711.75	112.51			73.70	4.49	34.32	0.00	80	142	Average	HORIZONTAL
3	5850.00	57.22	63.54	-6.32	17.95	4.54	34.73	0.00	80	142	Average	HORIZONTAL
4	5851.30	69.46	83.54	-14.08	30.19	4.54	34.73	0.00	80	142	Peak	HORIZONTAL

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

Temperature	26℃	Humidity	68%
Test Engineer	Gino Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 54, 62 / Chain 1 + Chain 2 + Chain 3
Test Date	May 01, 2015		

Channel 54

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5150.00	70.72	83.54	-12.82	33.32	4.26	33.14	0.00	342	168	Peak	HORIZONTAL
2	5150.00	58.04	63.54	-5.50	20.64	4.26	33.14	0.00	342	168	Average	HORIZONTAL
3	5271.30	108.91			71.27	4.31	33.33	0.00	342	168	Average	HORIZONTAL
4	5272.17	119.18			81.54	4.31	33.33	0.00	342	168	Peak	HORIZONTAL
5	5349.57	63.25	63.54	-0.29	25.44	4.35	33.46	0.00	342	168	Average	HORIZONTAL
6	5350.43	76.47	83.54	-7.07	38.66	4.35	33.46	0.00	342	168	Peak	HORIZONTAL

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

Channel 62

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5307.68	114.18			76.47	4.33	33.38	0.00	338	173	Peak	HORIZONTAL
2	5311.16	103.57			65.83	4.33	33.41	0.00	338	173	Average	HORIZONTAL
3	5350.00	63.06	63.54	-0.48	25.25	4.35	33.46	0.00	338	173	Average	HORIZONTAL
4	5350.87	77.53	83.54	-6.01	39.72	4.35	33.46	0.00	338	173	Peak	HORIZONTAL

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

Temperature	26℃	Humidity	68%
Test Engineer	Gino Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 102, 110, 134 / Chain 1 + Chain 2 + Chain 3
Test Date	May 01, 2015		

Channel 102

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5460.00	69.33	83.54	-14.21	31.31	4.40	33.62	0.00	349	170	Peak	VERTICAL
2	5460.00	57.45	63.54	-6.09	19.43	4.40	33.62	0.00	349	170	Average	VERTICAL
3	5470.00	78.78	83.54	-4.76	40.72	4.41	33.65	0.00	349	170	Peak	VERTICAL
4	5470.00	63.53	63.54	-0.01	25.47	4.41	33.65	0.00	349	170	Average	VERTICAL
5	5506.24	102.37			64.25	4.42	33.70	0.00	349	170	Average	VERTICAL
6	5526.50	113.14			74.96	4.43	33.75	0.00	349	170	Peak	VERTICAL

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

Channel 110

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5458.26	76.01	83.54	-7.53	37.99	4.40	33.62	0.00	89	182	Peak	HORIZONTAL
2	5460.00	59.97	63.54	-3.57	21.95	4.40	33.62	0.00	89	182	Average	HORIZONTAL
3	5467.83	80.68	83.54	-2.86	42.62	4.41	33.65	0.00	89	182	Peak	HORIZONTAL
4	5468.26	63.21	63.54	-0.33	25.15	4.41	33.65	0.00	89	182	Average	HORIZONTAL
5	5545.22	120.50			82.27	4.43	33.80	0.00	89	182	Peak	HORIZONTAL
6	5545.22	109.37			71.14	4.43	33.80	0.00	89	182	Average	HORIZONTAL

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

Channel 134

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5653.07	109.75			71.11	4.47	34.17	0.00	82	137	Average	HORIZONTAL
2	5672.60	120.76			82.06	4.48	34.22	0.00	82	137	Peak	HORIZONTAL
3	5730.64	77.69	77.74	-0.05	38.82	4.50	34.37	0.00	82	137	Peak	HORIZONTAL

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

Temperature	26℃	Humidity	68%
Test Engineer	Gino Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 142 / Chain 1 + Chain 2 + Chain 3
Test Date	May 01, 2015		

Channel 142

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5701.32	112.69			73.88	4.49	34.32	0.00	84	137	Average	HORIZONTAL
2	5702.04	123.81			85.00	4.49	34.32	0.00	84	137	Peak	HORIZONTAL
3	5860.85	75.75	77.74	-1.99	36.41	4.55	34.79	0.00	84	137	Peak	HORIZONTAL

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

Temperature	26℃	Humidity	68%
Test Engineer	Gino Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 58, 106, 138 / Chain 1 + Chain 2 + Chain 3
Test Date	May 01, 2015		

Channel 58

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5276.98	100.97			63.30	4.32	33.35	0.00	339	168	Average	HORIZONTAL
2	5277.70	111.41			73.74	4.32	33.35	0.00	339	168	Peak	HORIZONTAL
3	5355.79	63.25	63.54	-0.29	25.44	4.35	33.46	0.00	339	168	Average	HORIZONTAL
4	5356.51	76.35	83.54	-7.19	38.54	4.35	33.46	0.00	339	168	Peak	HORIZONTAL

Item 1, 2 are the fundamental frequency at 5290 MHz.

Channel 106

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5458.55	76.17	83.54	-7.37	38.15	4.40	33.62	0.00	91	179	Peak	HORIZONTAL
2	5460.00	62.13	63.54	-1.41	24.11	4.40	33.62	0.00	91	179	Average	HORIZONTAL
3	5467.05	63.41	63.54	-0.13	25.35	4.41	33.65	0.00	91	179	Average	HORIZONTAL
4	5467.11	78.69	83.54	-4.85	40.63	4.41	33.65	0.00	91	179	Peak	HORIZONTAL
5	5560.81	111.01			72.71	4.44	33.86	0.00	91	179	Peak	HORIZONTAL
6	5561.84	100.10			61.80	4.44	33.86	0.00	91	179	Average	HORIZONTAL

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

Channel 138

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5664.00	117.84			79.20	4.47	34.17	0.00	76	182	Peak	HORIZONTAL
2	5665.40	107.21			68.57	4.47	34.17	0.00	76	182	Average	HORIZONTAL
3	5855.80	62.88	63.54	-0.66	23.54	4.55	34.79	0.00	78	182	Average	HORIZONTAL
4	5857.20	74.67	83.54	-8.87	35.33	4.55	34.79	0.00	76	182	Peak	HORIZONTAL

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

For RF transceiver sources (QCA9880):

Temperature	26°C	**Humidity**	68%
Test Engineer	Gino Huang	**Configurations**	IEEE 802.11ac MCS0/Nss1 VHT80 CH 58, 106, 138 / Chain 1 + Chain 2 + Chain 3
Test Date	May 13, 2015		

Channel 138

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5667.56	109.19			69.28	5.81	34.10	0.00	139	75	HORIZONTAL	Average
2	5667.56	119.31			79.40	5.81	34.10	0.00	139	75	HORIZONTAL	Peak
3	5866.28	63.21	63.54	-0.33	22.57	5.97	34.67	0.00	139	75	HORIZONTAL	Average
4	5866.28	76.26	83.54	-7.28	35.62	5.97	34.67	0.00	139	75	HORIZONTAL	Peak

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

Note:

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

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

4.7. Frequency Stability Measurement

4.7.1. Limit

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

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

4.7.2. Measuring Instruments and Setting

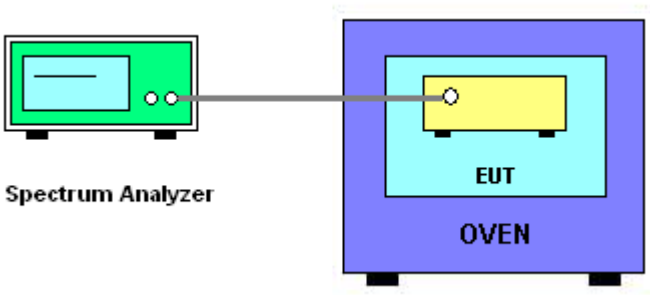
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

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

4.7.3. Test Procedures

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

4.7.4. Test Setup Layout



4.7.5. Test Deviation

There is no deviation with the original standard.

4.7.6. EUT Operation during Test

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

4.7.7. Test Result of Frequency Stability

Temperature	24.5°C	Humidity	64%
Test Engineer	Lucas Huang	Test Date	May 12, 2015

Mode: 20 MHz

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)	
(V)	5300 MHz	5580 MHz
126.50	5299.9925	5579.9965
110.00	5299.9956	5579.9956
93.50	5299.9960	5579.9986
Max. Deviation (MHz)	0.0075	0.0044
Max. Deviation (ppm)	1.42	0.79

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)	
(°C)	5300 MHz	5580 MHz
-20	5299.9965	5579.9965
-10	5299.9965	5579.9946
0	5299.9926	5579.9963
10	5299.9965	5579.9960
20	5299.9966	5579.9965
30	5299.9955	5579.9964
40	5299.9956	5579.9962
50	5299.9966	5579.9945
Max. Deviation (MHz)	0.0074	0.0055
Max. Deviation (ppm)	1.40	0.98

Mode: 40 MHz

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)	
(V)	5310 MHz	5550 MHz
126.50	5309.9965	5549.9996
110.00	5309.9946	5549.9965
93.50	5309.9965	5549.9965
Max. Deviation (MHz)	0.0054	0.0035
Max. Deviation (ppm)	1.02	0.63

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)	
(°C)	5310 MHz	5550 MHz
-20	5309.9956	5549.9986
-10	5309.9950	5549.9963
0	5309.9955	5549.9960
10	5309.9960	5549.9986
20	5309.9956	5549.9960
30	5309.9956	5549.9986
40	5309.9986	5549.9986
50	5309.9965	5549.9960
Max. Deviation (MHz)	0.0050	0.0040
Max. Deviation (ppm)	0.94	0.72

Mode: 80 MHz

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)	
(V)	5290 MHz	5530 MHz
126.50	5289.9965	5529.9963
110.00	5289.9965	5529.9955
93.50	5289.9956	5529.9965
Max. Deviation (MHz)	0.0044	0.0045
Max. Deviation (ppm)	0.83	0.82

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)	
(°C)	5290 MHz	5530 MHz
-20	5289.9946	5529.9966
-10	5289.9966	5529.9956
0	5289.9946	5529.9986
10	5289.9956	5529.9964
20	5289.9966	5529.9960
30	5289.9996	5529.9964
40	5289.9956	5529.9946
50	5289.9960	5529.9660
Max. Deviation (MHz)	0.0054	0.0340
Max. Deviation (ppm)	1.03	6.15

4.8. Antenna Requirements

4.8.1. Limit

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

4.8.2. Antenna Connector Construction

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

5. LIST OF MEASURING EQUIPMENTS

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Horn Antenna	EMCO	3115	00075790	750MHz ~ 18GHz	Oct. 28, 2014	Radiation (03CH01-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Aug. 22, 2014	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Jan. 12, 2015	Radiation (03CH01-CB)
Pre-Amplifier	WM	TF-130N-R1	923365	26GHz ~ 40GHz	Nov. 25, 2014	Radiation (03CH01-CB)
Spectrum Analyzer	R&S	FSP40	100056	9kHz ~ 40GHz	Nov. 06, 2014	Radiation (03CH01-CB)
EMI Test Receiver	Agilent	N9038A	MY52260123	9kHz ~ 8GHz	Jan. 21, 2015	Radiation (03CH01-CB)
Turn Table	INN CO	CO 2000	N/A	0 ~ 360 degree	N.C.R.	Radiation (03CH01-CB)
Antenna Mast	INN CO	CO 2000	N/A	1 m ~ 4 m	N.C.R.	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-16	N/A	1 GHz ~ 18 GHz	Nov. 15, 2014	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-17	N/A	1 GHz ~ 18 GHz	Nov. 15, 2014	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G-1	N/A	1 GHz ~ 40 GHz	Nov. 15, 2014	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G-2	N/A	1 GHz ~ 40 GHz	Nov. 15, 2014	Radiation (03CH01-CB)
Thermometer	HTC-1	HTC-1	TP-1	-50℃~70℃	Mar. 11, 2015	Radiation (03CH01-CB)
Spectrum analyzer	R&S	FSV40	100979	9kHz~40GHz	Dec. 12, 2014	Conducted (TH01-CB)
Temp. and Humidity Chamber	Ten Billion	TTH-D3SP	TBN-931011	-30~100 degree	Jun. 03, 2014	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-7	1 GHz – 26.5 GHz	Nov. 15, 2014	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-8	1 GHz – 26.5 GHz	Nov. 15, 2014	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-9	1 GHz – 26.5 GHz	Nov. 15, 2014	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-10	1 GHz – 26.5 GHz	Nov. 15, 2014	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-6	1 GHz – 26.5 GHz	Nov. 15, 2014	Conducted (TH01-CB)
Power Sensor	Agilent	U2021XA	MY53410001	50MHz~18GHz	Nov. 03, 2014	Conducted (TH01-CB)
Thermometer	HTC-1	HTC-1	TP-8	-50℃~70℃	Mar. 05, 2015	Conducted (TH01-CB)

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

N.C.R. means Non-Calibration required.

6. MEASUREMENT UNCERTAINTY

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