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FCC RADIO TEST REPORT

Applicant's company	**COMTREND Corporation**
Applicant Address	3F-1, 10 Lane 609, Chung Hsin Road, Section 5, San Chung Dist, New Taipei City 24159, Taiwan
FCC ID	**L9VPG9172AC**
Manufacturer's company	**Datamax Electronics (Dong Guan) Co., Ltd.**
Manufacturer Address	Niu shan Foreign Economic Industrial park, Dong Cheng District, Dong Guan City, Guang Dong , China.

Product Name	G.hn+11ac WiFi Powerline Adapter
Brand Name	COMTREND
Model No.	PG-9172AC
Test Rule Part(s)	47 CFR FCC Part 15 Subpart E § 15.407
Test Freq. Range	5150 ~ 5250 MHz / 5725 ~ 5850 MHz
Received Date	Jul. 22, 2016
Final Test Date	Aug. 02, 2017
Submission Type	Original Equipment

Statement

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

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

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

The measurements and test results shown in this test report were made in accordance with the procedures and found in compliance with the limit given in **ANSI C63.10-2013**, **47 CFR FCC Part 15 Subpart E, KDB789033 D02 v01r04, KDB662911 D01 v02r01, KDB644545 D03 v01, ET Docket No. 13–49; FCC 16–24.**

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

Testing Laboratory
1190

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History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR710518AB	Rev. 01	Initial issue of report	Aug. 22, 2017

1. VERIFICATION OF COMPLIANCE

Product Name	:	G.hn+11ac WiFi Powerline Adapter
Brand Name	:	COMTREND
Model No.	:	PG-9172AC
Applicant	:	COMTREND Corporation
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 Jul. 22, 2016 would like to declare that the tested sample has been evaluated and found to be in compliance with the tested rule parts. The data recorded as well as the test configuration specified is true and accurate for showing the sample's EMC nature.

Cliff Chang
SPORTON INTERNATIONAL INC.

2. SUMMARY OF THE TEST RESULT

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

3. GENERAL INFORMATION

3.1. Product Details

Items	Description
Product Type	WLAN (2TX, 2RX)
Radio Type	Intentional Transceiver
Power Type	From power adapter
Modulation	IEEE 802.11a: OFDM IEEE 802.11n/ac: see the below table
Data Modulation	IEEE 802.11a/n: OFDM (BPSK / QPSK / 16QAM / 64QAM) IEEE 802.11ac: OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM)
Data Rate (Mbps)	IEEE 802.11a: OFDM (6/9/12/18/24/36/48/54) IEEE 802.11n/ac: see the below table
Frequency Range	5150 ~ 5250 MHz / 5725 ~ 5850 MHz
Channel Number	9 for 20MHz bandwidth ; 4 for 40MHz bandwidth 2 for 80MHz bandwidth
Channel Bandwidth (99%)	For non-beamforming mode: Band 1: IEEE 802.11a: 27.44 MHz IEEE 802.11ac MCS0/Nss1 (VHT20): 36.04 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 40.52 MHz IEEE 802.11ac MCS0/Nss1 (VHT80): 76.70 MHz Band 4: IEEE 802.11a: 32.04 MHz IEEE 802.11ac MCS0/Nss1 (VHT20): 34.47 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 68.89 MHz IEEE 802.11ac MCS0/Nss1 (VHT80): 119.54 MHz For beamforming mode: Band 1: IEEE 802.11a: 17.54 MHz IEEE 802.11ac MCS0/Nss1 (VHT20): 17.54 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 36.47 MHz IEEE 802.11ac MCS0/Nss1 (VHT80): 74.96 MHz Band 4: IEEE 802.11a: 17.80 MHz IEEE 802.11ac MCS0/Nss1 (VHT20): 17.54 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 36.47 MHz IEEE 802.11ac MCS0/Nss1 (VHT80): 75.25 MHz

Maximum Conducted Output Power	For non-beamforming mode: Band 1: IEEE 802.11a: 26.52 dBm IEEE 802.11ac MCS0/Nss1 (VHT20): 26.84 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 26.60 dBm IEEE 802.11ac MCS0/Nss1 (VHT80): 21.11 dBm Band 4: IEEE 802.11a: 26.97 MHz IEEE 802.11ac MCS0/Nss1 (VHT20): 27.00 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 27.20 dBm IEEE 802.11ac MCS0/Nss1 (VHT80): 25.53 dBm For beamforming mode: Band 1: IEEE 802.11a: 16.23 dBm IEEE 802.11ac MCS0/Nss1 (VHT20): 17.18 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 18.34 dBm IEEE 802.11ac MCS0/Nss1 (VHT80): 18.49 dBm Band 4: IEEE 802.11a: 20.85 dBm IEEE 802.11ac MCS0/Nss1 (VHT20): 20.72 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 19.69 dBm IEEE 802.11ac MCS0/Nss1 (VHT80): 18.77 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
Beamforming Function	☒	With beamforming	☐	Without beamforming
Operate Condition	☒	Indoor	☐	Outdoor

Note: The product has beamforming function for 802.11a/n/ac in 5GHz band.

Antenna and Bandwidth

Antenna	Two (TX)		
Bandwidth 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)	2	MCS 0-15
802.11n (HT40)	2	MCS 0-15
802.11ac (VHT20)	2	MCS 0-9/Nss1-2
802.11ac (VHT40)	2	MCS 0-9/Nss1-2
802.11ac (VHT80)	2	MCS 0-9/Nss1-2

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

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

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

3.2. Accessories

Others
Power cable 1, non-shielded 1.5m (Round head)
Power cable 2, non-shielded 1.5m (Flat head)

3.3. Table for Filed Antenna

Ant.	Brand Holder	Model Name	Antenna Type	Connector	Gain (dBi)	
					2.4GHz	5GHz
1	Master Wave Technology Co., Ltd.	502219-293	Dipole Antenna	I-PEX	2.41	3.80
2	Master Wave Technology Co., Ltd.	502219-292	Dipole Antenna	I-PEX	2.31	3.62

Note: The EUT has two antennas.

For 2.4GHz WLAN function

For IEEE 802.11b mode (1TX, 1RX):

The EUT supports the antenna with TX/RX diversity function.

Ant. 1 generated the worst case than Ant. 2, so it is tested and recorded in the report.

For IEEE 802.11g/n mode (2TX, 2RX):

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

Ant. 1 and Ant. 2 could transmit/receive simultaneously.

For 5GHz WLAN function

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

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

Ant. 1 and Ant. 2 could transmit/receive simultaneously.

3.4. Table for Carrier Frequencies

There are three bandwidth systems.

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

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

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

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

3.5. 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. The following table is a list of the test modes shown in this test report.

Test Items	Mode		Data Rate	Channel	Ant.
AC Power Conducted Emission	CTX		-	-	-
Max. Conducted Output Power	11a/BPSK	Band 1&4	6Mbps	36/40/48/149/157/165	1+2
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	1+2
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1+2
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1+2
Power Spectral Density	11a/BPSK	Band 1&4	6Mbps	36/40/48/149/157/165	1+2
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	1+2
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1+2
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1+2
26dB Spectrum Bandwidth & 99% Occupied Bandwidth Measurement	11a/BPSK	Band 1&4	6Mbps	36/40/48/149/157/165	1+2
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	1+2
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1+2
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1+2
6dB Spectrum Bandwidth Measurement	11a/BPSK	Band 4	6Mbps	149/157/165	1+2
	11ac VHT20	Band 4	MCS0/Nss1	149/157/165	1+2
	11ac VHT40	Band 4	MCS0/Nss1	151/159	1+2
	11ac VHT80	Band 4	MCS0/Nss1	155	1+2
Radiated Emission Below 1GHz	CTX		-	-	-
Radiated Emission Above 1GHz	11a/BPSK	Band 1&4	6Mbps	36/40/48/149/157/165	1+2
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	1+2
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1+2
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1+2

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

Note:

1. There are two functions of EUT, one is beamforming function, and the other is non-beamforming function for 802.11a/n/ac in 5GHz band. All test results were recorded in the report.
2. 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.

The following test modes were performed for all tests:

For Conducted Emission test:

Mode 1. CTX-EUT

For Radiated Emission test:

The EUT was performed at Y axis and Z axis position. The worst case was found at Y axis, so it was selected to perform test and its test result was written in the report.

Mode 1. CTX- EUT in Y axis

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

The EUT could be applied with 2.4GHz WLAN function and 5GHz WLAN function; therefore Co-location Maximum Permissible Exposure (Please refer to FA710518) and Radiated Emission Co-location (please refer to Appendix B) tests are added for simultaneously transmit between 2.4GHz WLAN function and 5GHz WLAN function.

3.6. Table for Testing Locations

Test Site Location					
Address:	No.8, Lane 724, Bo-ai St., Jhubei City, Hsinchu County 302, Taiwan, R.O.C.				
TEL:	886-3-656-9065				
FAX:	886-3-656-9085				
Test Site No.	**Site Category**	**Location**	**FCC Designation No.**	**IC File No.**	**VCCI Reg. No**
03CH01-CB	SAC	Hsin Chu	TW0006	IC 4086D	-
CO01-CB	Conduction	Hsin Chu	TW0006	IC 4086D	-
TH01-CB	OVEN Room	Hsin Chu	-	-	-

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

3.7. Table for Supporting Units

For Test Site No: 03CH01-CB

For non-beamforming mode:

Support Unit	Brand	Model	FCC ID
Notebook	DELL	E4300	DoC

For beamforming mode:

Support Unit	Brand	Model	FCC ID
Notebook*2	DELL	E4300	DoC
RX Device	Lemel	10002313	N/A

For Test Site No: TH01-CB

Support Unit	Brand	Model	FCC ID
Notebook	DELL	E4300	DoC

For Test Site No: CO01-CB

Support Unit	Brand	Model	FCC ID
Notebook	DELL	E6430	DoC

3.8. Table for Parameters of Test Software Setting

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

For non-beamforming mode:

Test Software Version	Telnet					
Mode	Test Frequency (MHz)					
	NCB: 20MHz					
	5180 MHz	5200 MHz	5240 MHz	5745 MHz	5785 MHz	5825 MHz
802.11a	27/32	30/35	30/35	34/36	38/39	39/40
802.11ac MCS0/Nss1 VHT20	24/29	32/37	29/35	35/38	38/39	40/41
Mode	NCB: 40MHz					
802.11ac MCS0/Nss1 VHT40	5190 MHz		5230 MHz		5755 MHz	5795 MHz
	19/24		32/37		38/40	39/40
Mode	NCB: 80MHz					
802.11ac MCS0/Nss1 VHT80	5210 MHz				5775 MHz	
	16/21				32/34	

For beamforming mode:

Test Software Version	Telnet					
Mode	Test Frequency (MHz)					
	NCB: 20MHz					
	5180 MHz	5200 MHz	5240 MHz	5745 MHz	5785 MHz	5825 MHz
802.11a	Default	Default	Default	Default	Default	Default
802.11ac MCS0/Nss1 VHT20	Default	Default	Default	Default	Default	Default
Mode	NCB: 40MHz					
802.11ac MCS0/Nss1 VHT40	5190 MHz		5230 MHz		5755 MHz	5795 MHz
	Default		Default		Default	Default
Mode	NCB: 80MHz					
802.11ac MCS0/Nss1 VHT80	5210 MHz				5775 MHz	
	Default				Default	

3.9. EUT Operation during Test

For CTX Mode:

non-beamforming mode:

The EUT was programmed to be in continuously transmitting mode.

beamforming mode:

For Conducted Mode:

The EUT was programmed to be in continuously transmitting mode.

For Radiated Mode:

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

The program was executed as follows:

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

3.10. Duty Cycle

For non-beamforming mode:

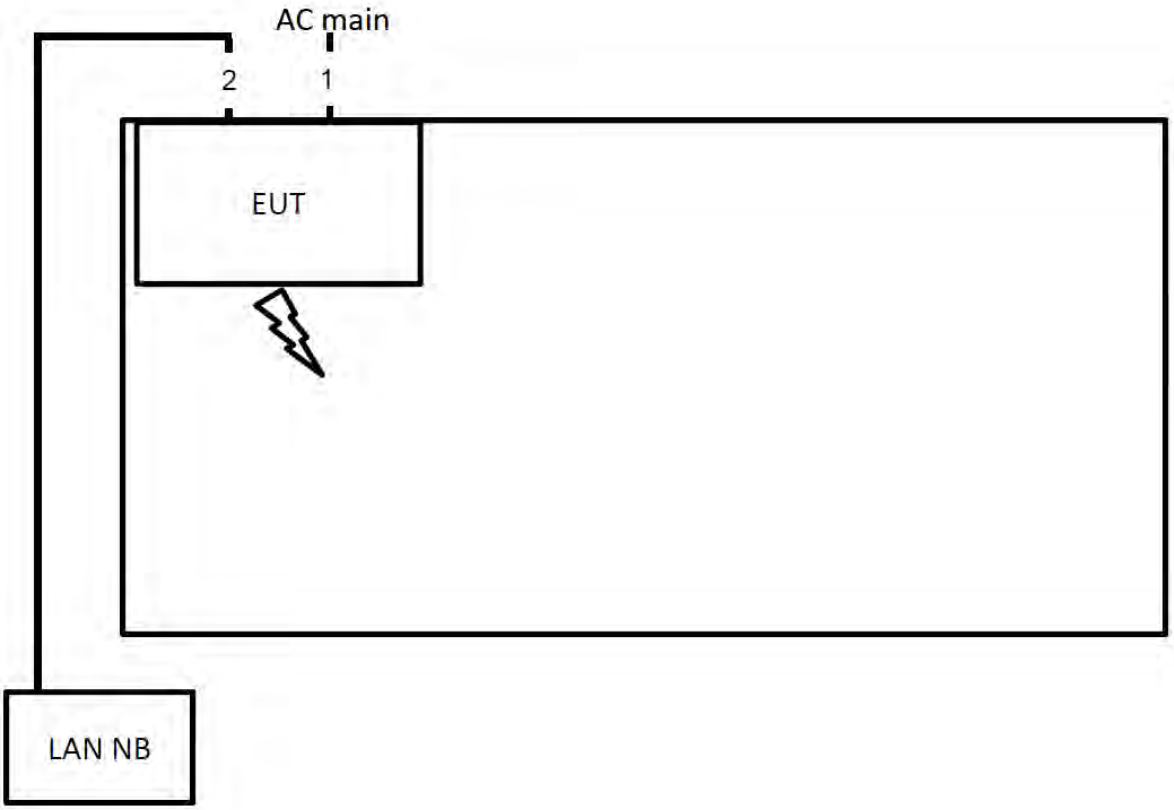
Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11a	1.000	1.000	100.00%	0.00	0.01
802.11ac MCS0/Nss1 VHT20	1.000	1.000	100.00%	0.00	0.01
802.11ac MCS0/Nss1 VHT40	1.000	1.000	100.00%	0.00	0.01
802.11ac MCS0/Nss1 VHT80	1.000	1.000	100.00%	0.00	0.01

For beamforming mode:

Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11a	4.833	5.107	94.65%	0.24	0.21
802.11ac MCS0/Nss1 VHT20	1.040	1.213	85.71%	0.67	0.96
802.11ac MCS0/Nss1 VHT40	4.638	5.203	89.14%	0.50	0.22
802.11ac MCS0/Nss1 VHT80	4.246	4.580	92.72%	0.33	0.24

3.11. Test Configurations

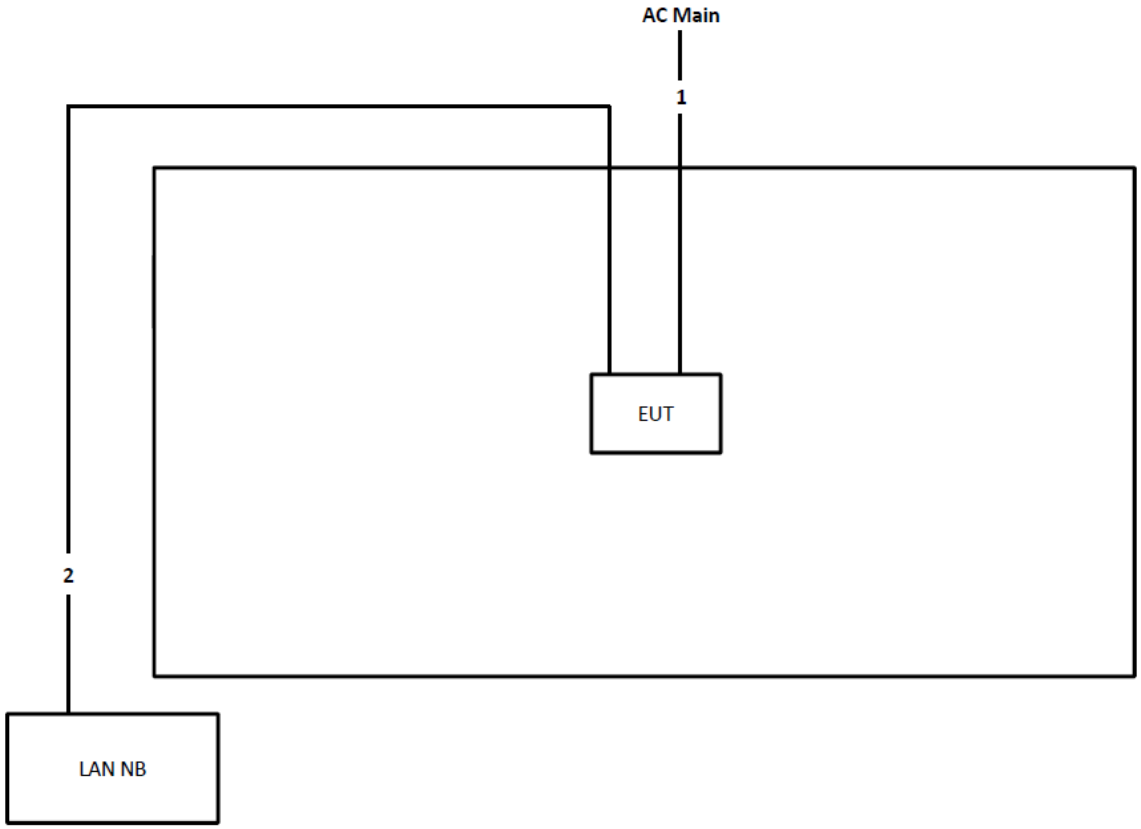
3.11.1. AC Power Line Conduction Emissions Test Configuration



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

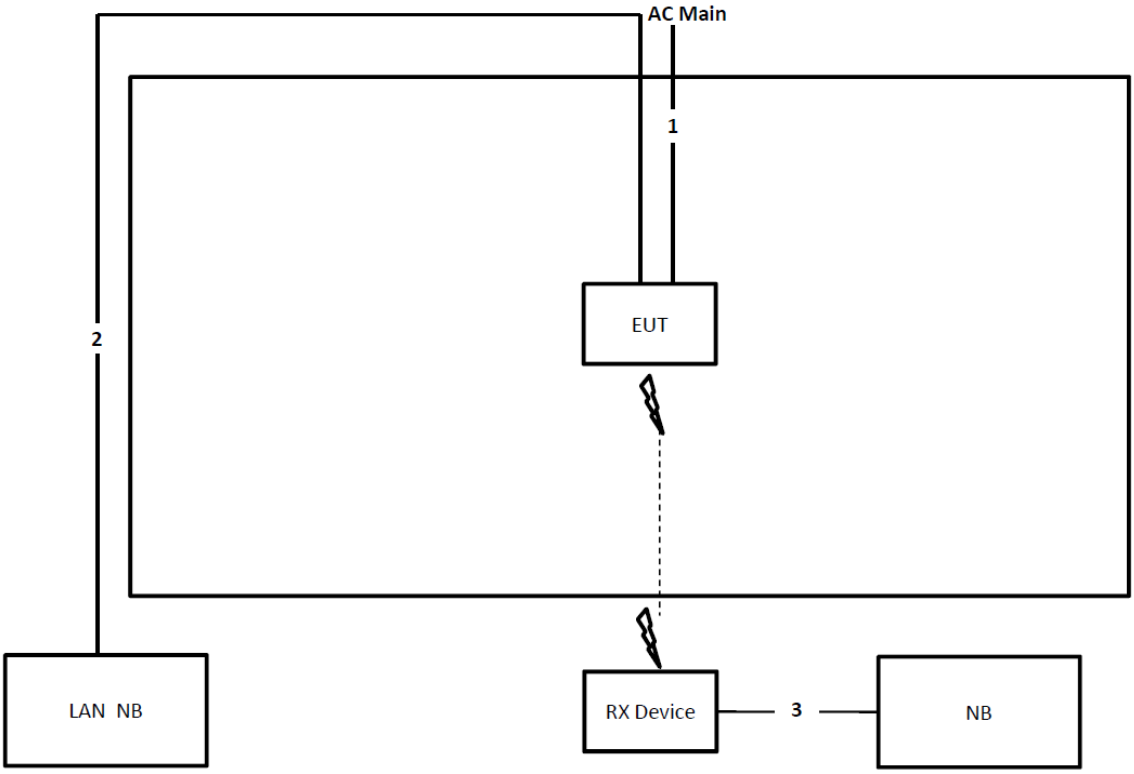
3.11.2. Radiation Emissions Test Configuration

For non-beamforming mode:



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

For beamforming mode:



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

4. TEST RESULT

4.1. AC Power Line Conducted Emissions Measurement

4.1.1. Limit

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

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

4.1.2. Measuring Instruments and Setting

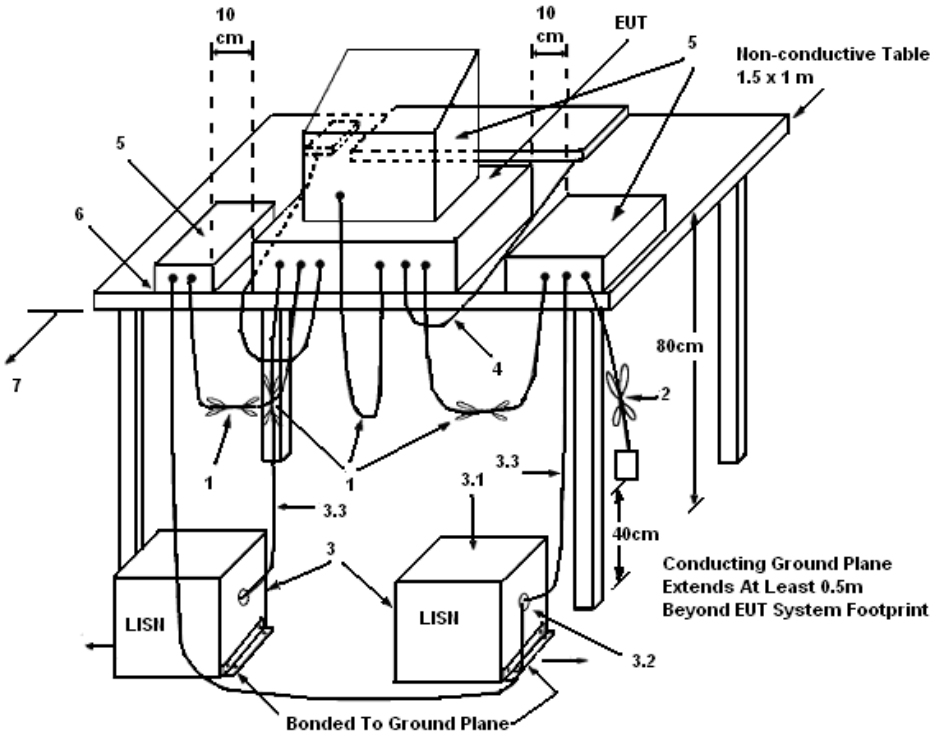
Please refer to section 5 of equipments list in this report. The following table is the setting of the receiver.

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

4.1.3. Test Procedures

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

4.1.4. Test Setup Layout



LEGEND:

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

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

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

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

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

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

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

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

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

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

4.1.5. Test Deviation

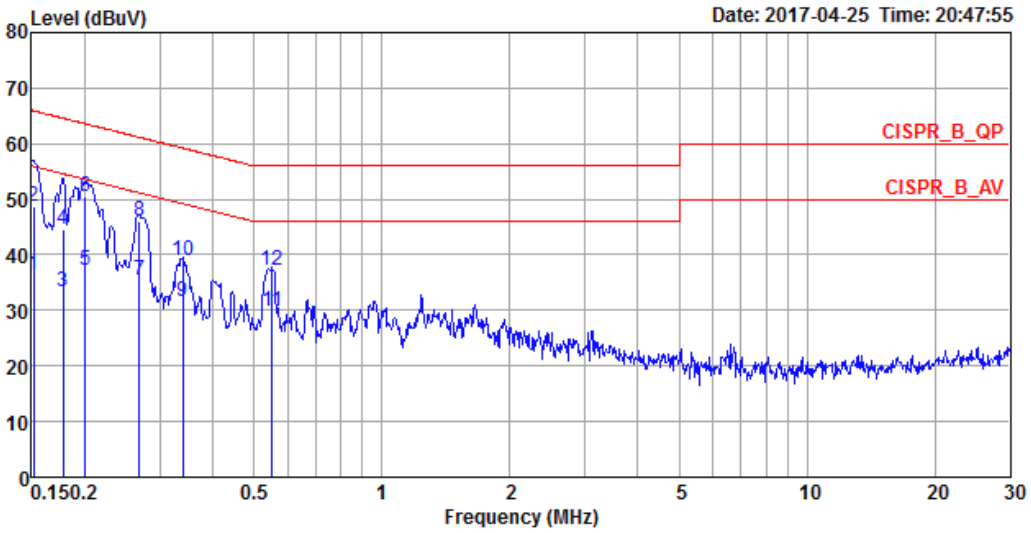
There is no deviation with the original standard.

4.1.6. EUT Operation during Test

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

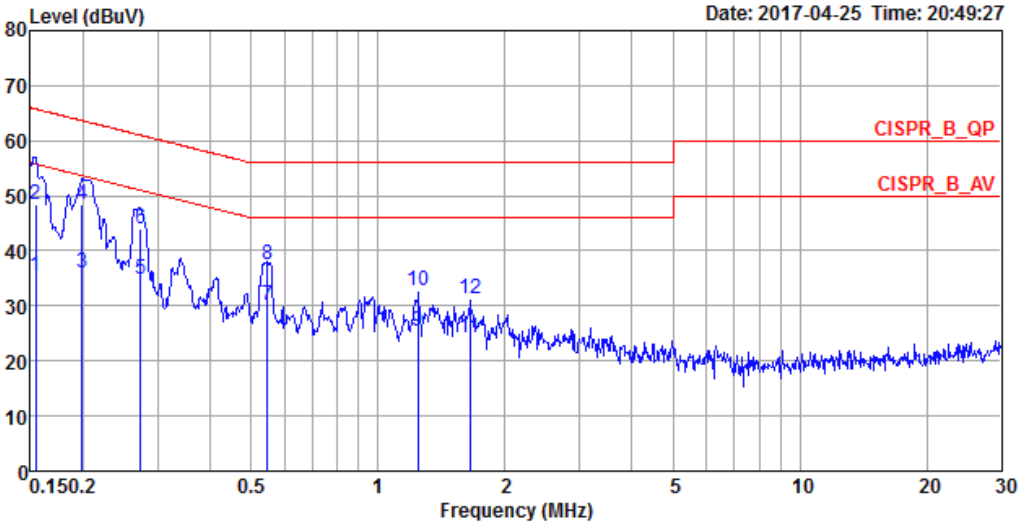
4.1.7. Results of AC Power Line Conducted Emissions Measurement

Temperature	22°C	Humidity	57%
Test Engineer	Kane Liu	Phase	Line
Configuration	CTX		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark	Pol/Phase
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.1516	36.38	-19.53	55.91	26.39	9.95	0.04	Average	LINE
2	0.1516	48.65	-17.26	65.91	38.66	9.95	0.04	QP	LINE
3	0.1777	33.39	-21.20	54.59	23.40	9.94	0.05	Average	LINE
4	0.1777	44.52	-20.07	64.59	34.53	9.94	0.05	QP	LINE
5	0.2007	37.30	-16.28	53.58	27.32	9.93	0.05	Average	LINE
6	0.2007	50.60	-12.98	63.58	40.62	9.93	0.05	QP	LINE
7	0.2687	35.42	-15.74	51.16	25.46	9.91	0.05	Average	LINE
8	0.2687	46.07	-15.09	61.16	36.11	9.91	0.05	QP	LINE
9	0.3392	31.71	-17.51	49.22	21.77	9.90	0.04	Average	LINE
10	0.3392	39.05	-20.17	59.22	29.11	9.90	0.04	QP	LINE
11	0.5523	29.79	-16.21	46.00	19.83	9.92	0.04	Average	LINE
12	0.5523	37.29	-18.71	56.00	27.33	9.92	0.04	QP	LINE

Temperature	22°C	Humidity	57%
Test Engineer	Kane Liu	Phase	Neutral
Configuration	CTX		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark	Pol/Phase
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.1540	35.44	-20.34	55.78	25.46	9.94	0.04	Average	NEUTRAL
2	0.1540	48.48	-17.30	65.78	38.50	9.94	0.04	QP	NEUTRAL
3	0.1986	35.90	-17.77	53.67	25.87	9.98	0.05	Average	NEUTRAL
4	0.1986	48.39	-15.28	63.67	38.36	9.98	0.05	QP	NEUTRAL
5	0.2730	34.79	-16.24	51.03	24.77	9.97	0.05	Average	NEUTRAL
6	0.2730	43.94	-17.09	61.03	33.92	9.97	0.05	QP	NEUTRAL
7	0.5464	30.00	-16.00	46.00	19.99	9.97	0.04	Average	NEUTRAL
8	0.5464	37.37	-18.63	56.00	27.36	9.97	0.04	QP	NEUTRAL
9	1.2422	25.36	-20.64	46.00	15.32	9.98	0.06	Average	NEUTRAL
10	1.2422	32.71	-23.29	56.00	22.67	9.98	0.06	QP	NEUTRAL
11	1.6537	24.35	-21.65	46.00	14.31	9.97	0.07	Average	NEUTRAL
12	1.6537	31.30	-24.70	56.00	21.26	9.97	0.07	QP	NEUTRAL

Note:

Level = Read Level + LISN Factor + Cable Loss.

4.2. 26dB Bandwidth and 99% Occupied Bandwidth Measurement

4.2.1. Limit

No restriction limits.

4.2.2. Measuring Instruments and Setting

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

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

4.2.3. Test Procedures

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

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

4.2.4. Test Setup Layout

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

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

4.2.5. Test Deviation

There is no deviation with the original standard.

4.2.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

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

Temperature	20°C	Humidity	60%
Test Engineer	Ron Huang / Serway Li		

For non-beamforming mode:

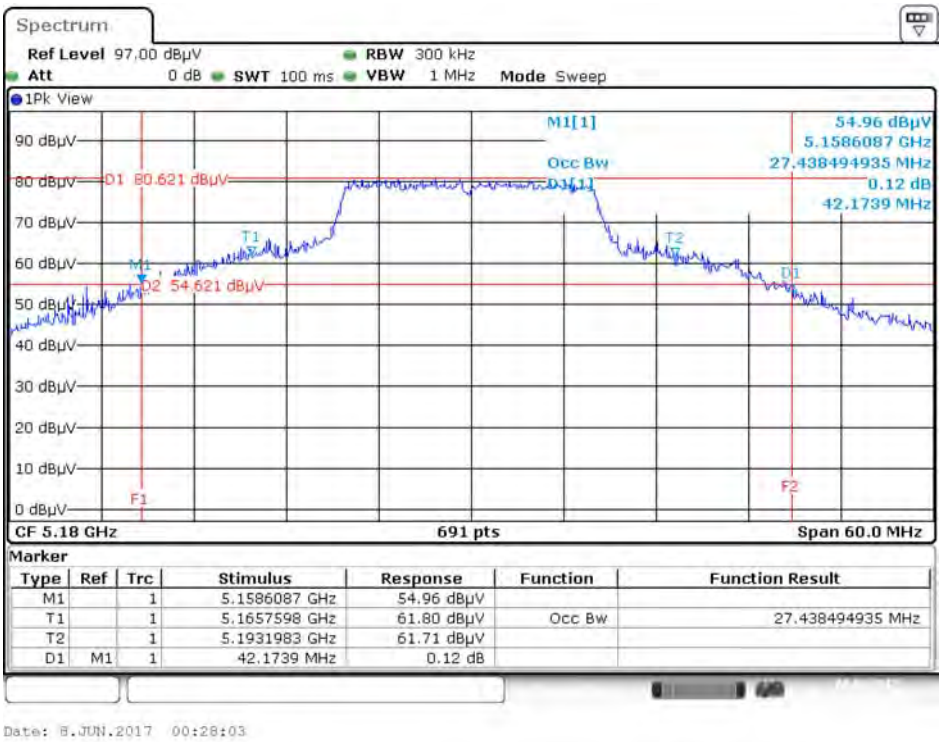
Mode	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11a	5180 MHz	42.17	27.44
	5200 MHz	38.61	25.96
	5240 MHz	36.26	21.19
	5745 MHz	42.00	28.48
	5785 MHz	46.52	32.04
	5825 MHz	46.70	31.26
802.11ac MCS0/Nss1 VHT20	5180 MHz	37.91	21.01
	5200 MHz	51.91	36.04
	5240 MHz	40.87	19.88
	5745 MHz	47.91	32.47
	5785 MHz	50.26	34.47
	5825 MHz	48.78	33.26
802.11ac MCS0/Nss1 VHT40	5190 MHz	67.68	36.61
	5230 MHz	72.46	40.52
	5755 MHz	99.13	68.16
	5795 MHz	99.28	68.89
802.11ac MCS0/Nss1 VHT80	5210 MHz	117.39	76.70
	5775 MHz	187.25	119.54

For beamforming mode:

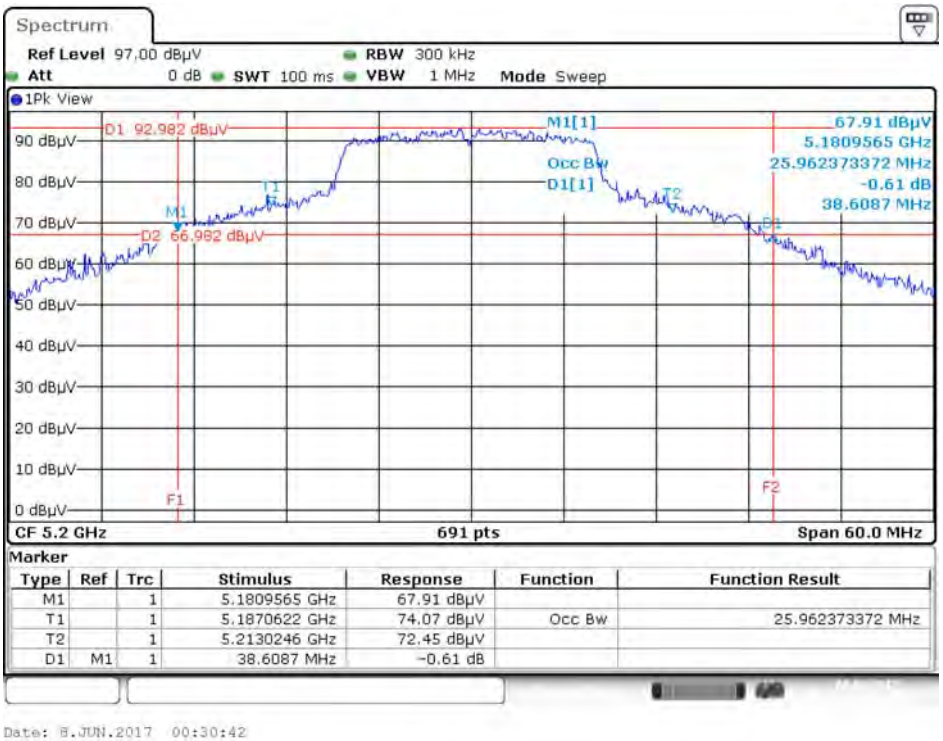
Mode	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11a	5180 MHz	20.00	17.54
	5200 MHz	19.91	17.54
	5240 MHz	19.30	17.54
	5745 MHz	19.65	17.54
	5785 MHz	20.09	17.80
	5825 MHz	20.17	17.54
802.11ac MCS0/Nss1 VHT20	5180 MHz	19.83	17.54
	5200 MHz	19.83	17.45
	5240 MHz	19.74	17.54
	5745 MHz	19.91	17.54
	5785 MHz	19.83	17.54
	5825 MHz	20.00	17.54
802.11ac MCS0/Nss1 VHT40	5190 MHz	40.87	36.47
	5230 MHz	40.87	36.47
	5755 MHz	41.04	36.47
	5795 MHz	41.04	36.47
802.11ac MCS0/Nss1 VHT80	5210 MHz	78.84	74.96
	5775 MHz	79.42	75.25

For non-beamforming mode:

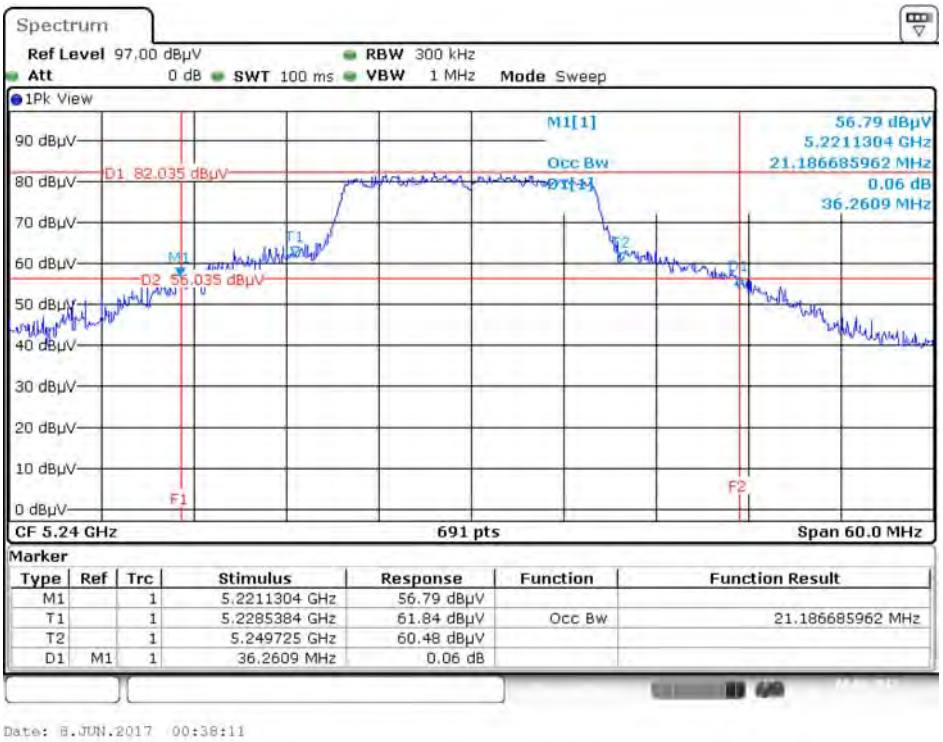
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 / 5180 MHz



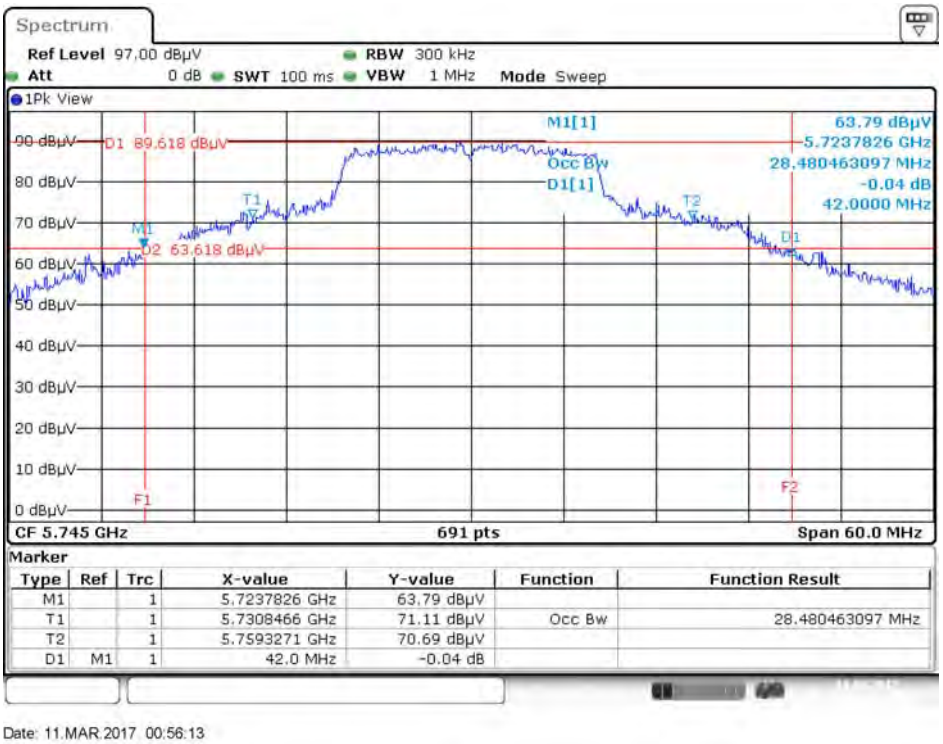
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 / 5200 MHz



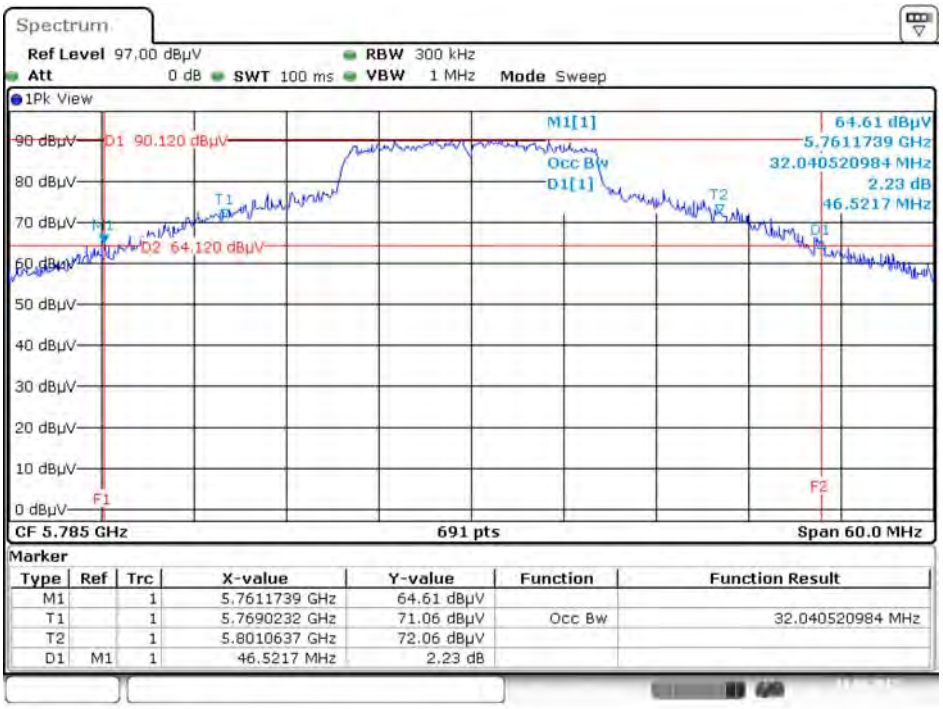
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 / 5240 MHz



26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 / 5745 MHz

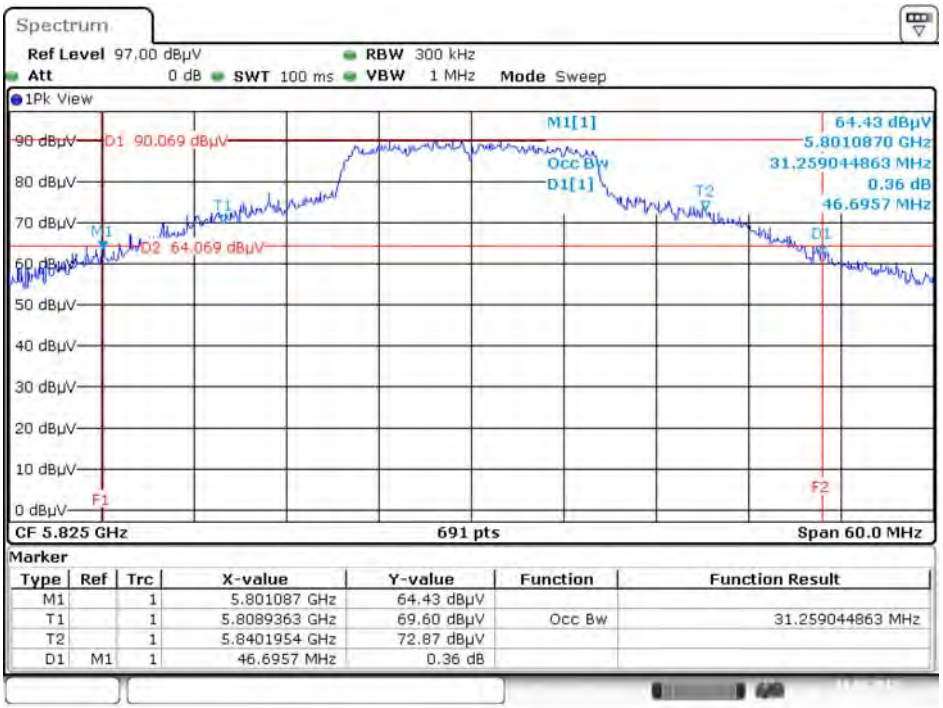


26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 / 5785 MHz



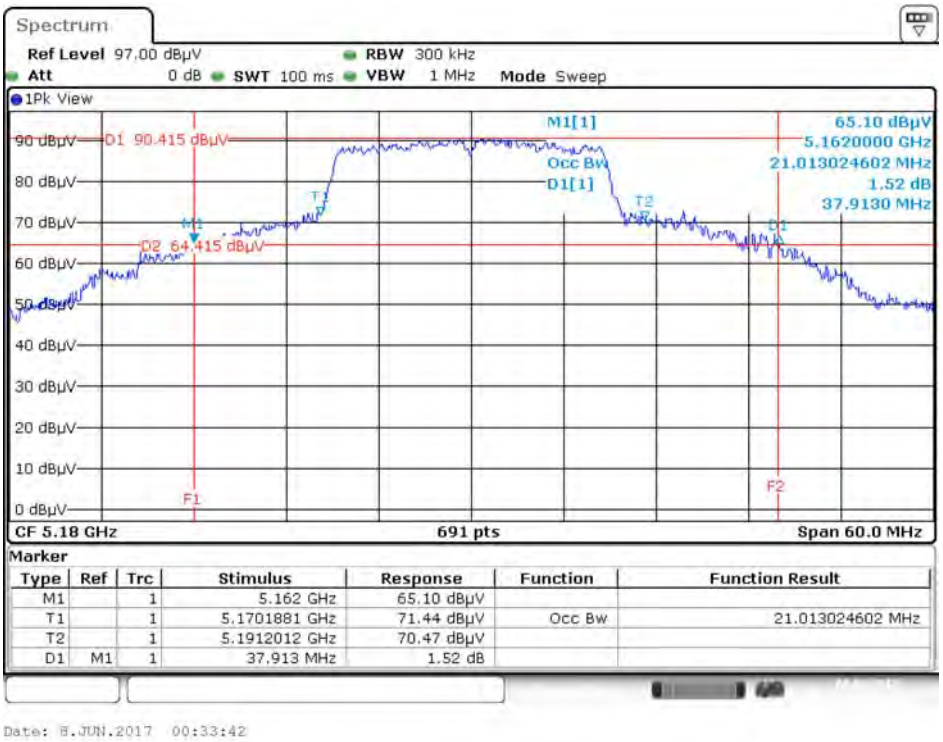
Date: 11.MAR.2017 01:00:25

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 / 5825 MHz

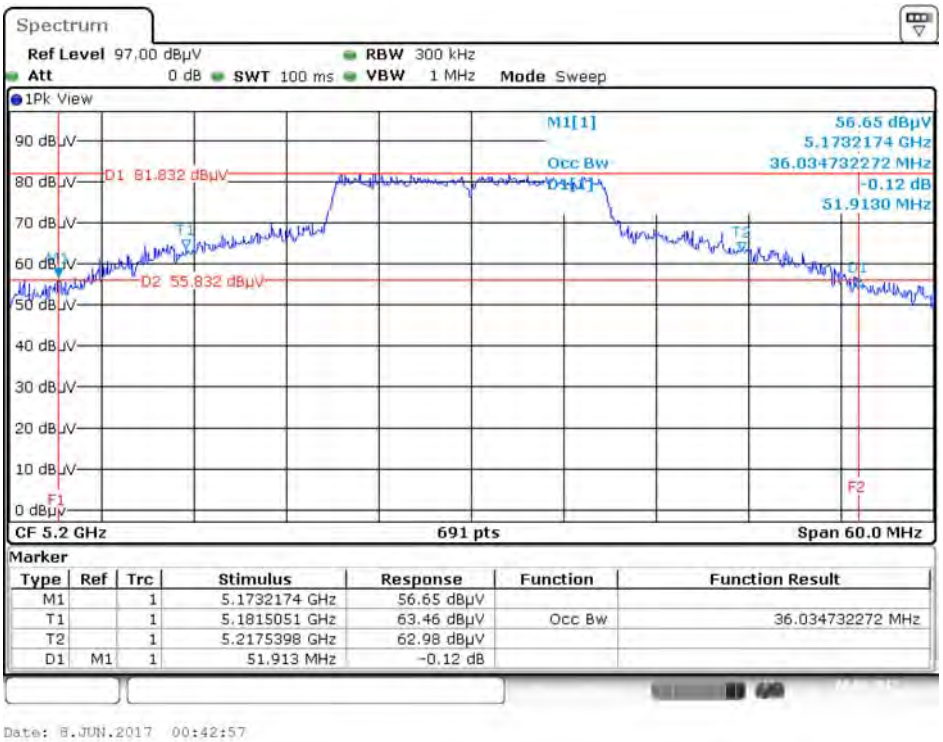


Date: 11.MAR.2017 01:02:32

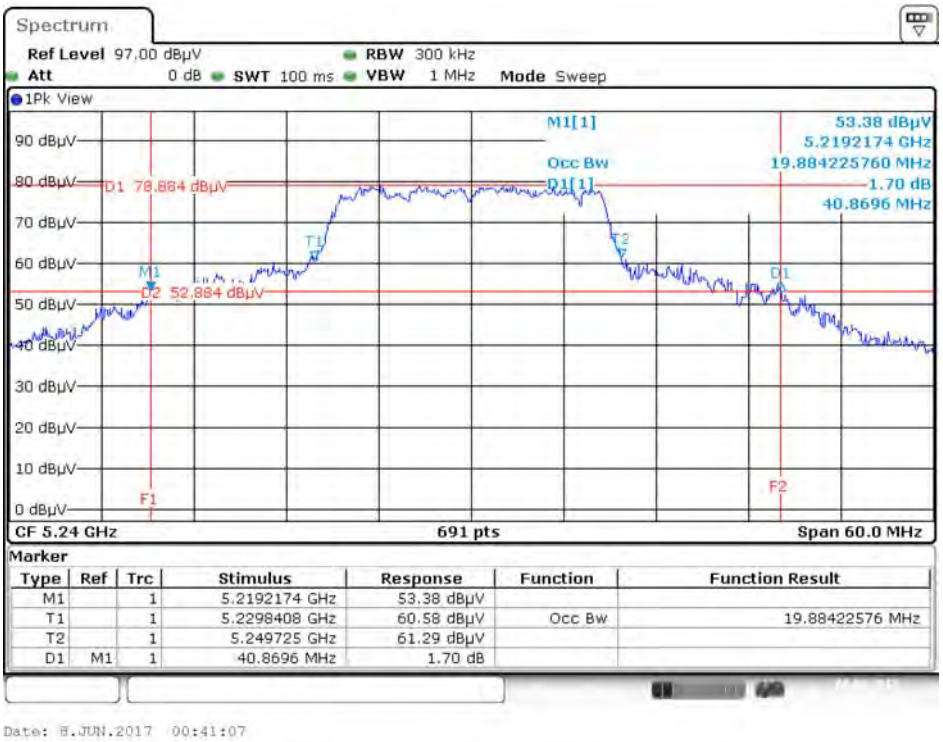
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 / 5180 MHz



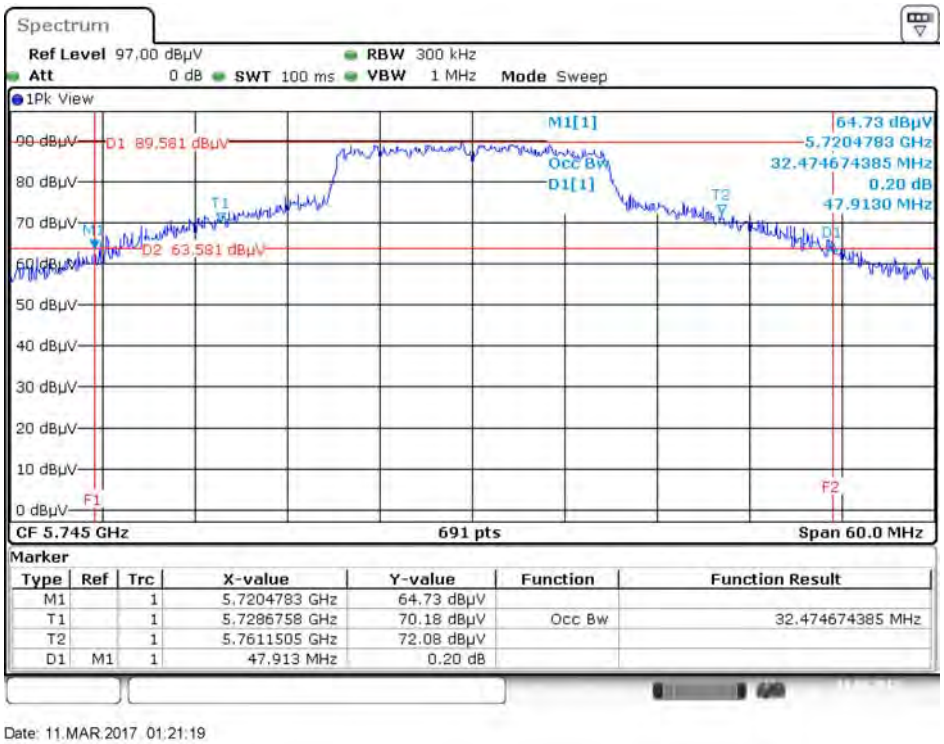
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 / 5200 MHz



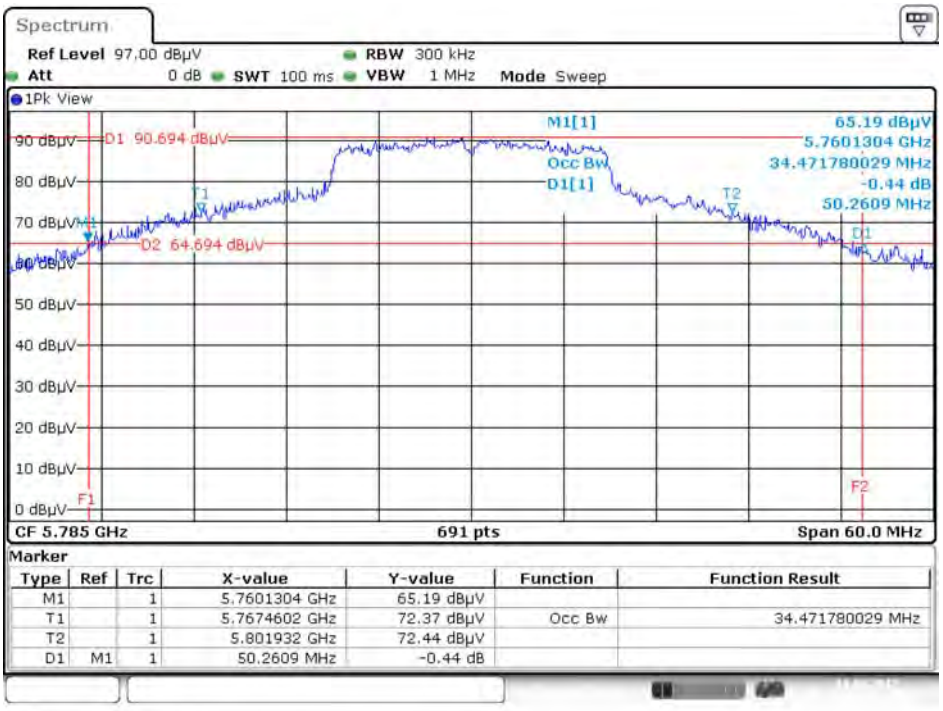
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 / 5240 MHz



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

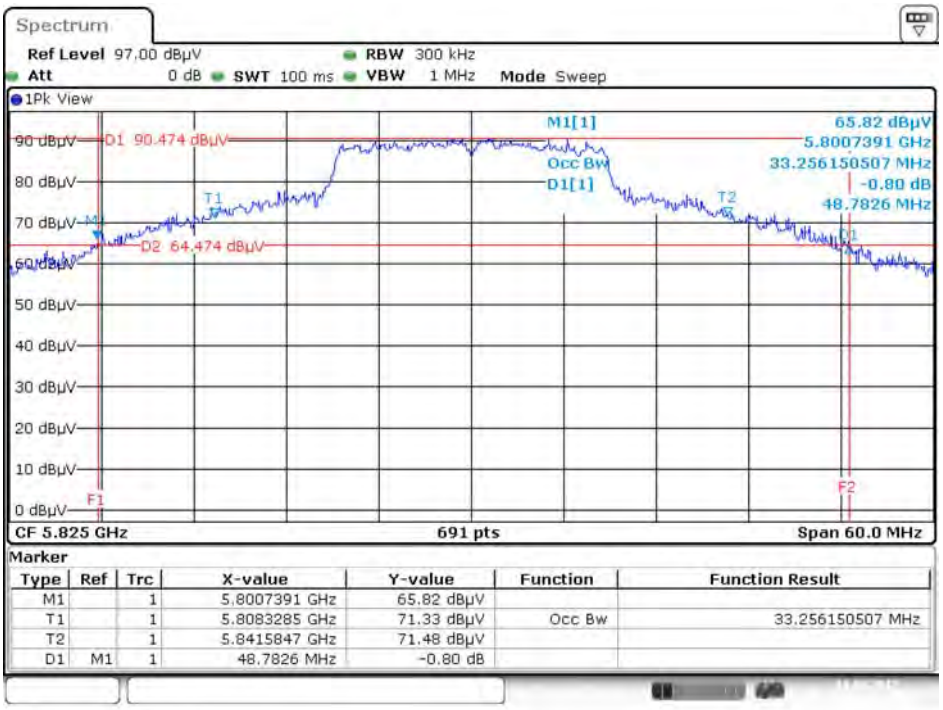


26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 / 5785 MHz



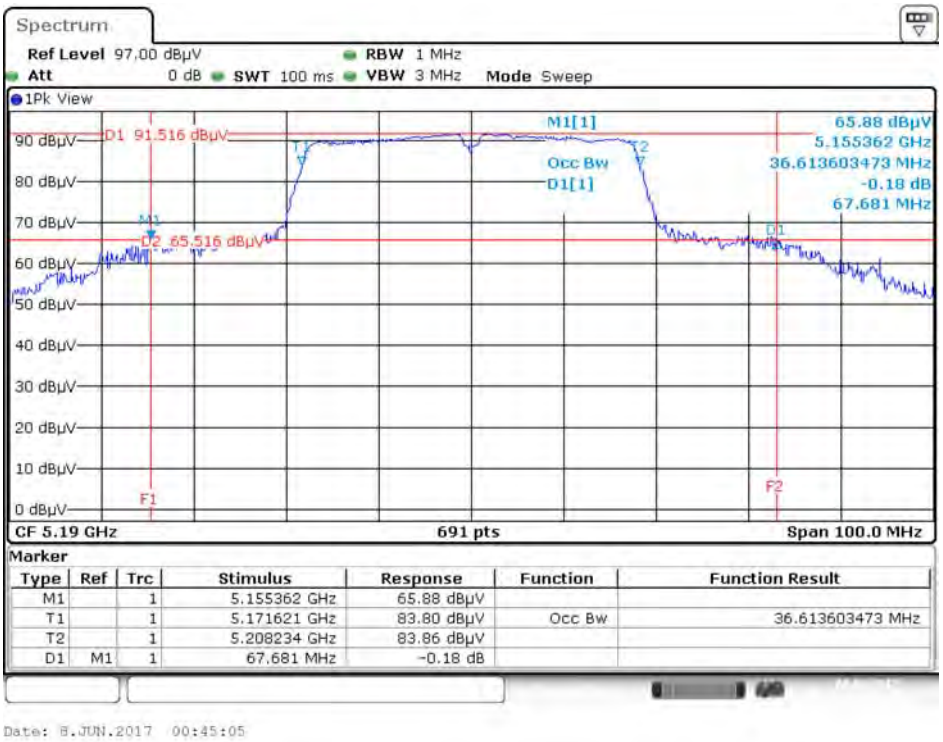
Date: 11.MAR.2017 01:25:13

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

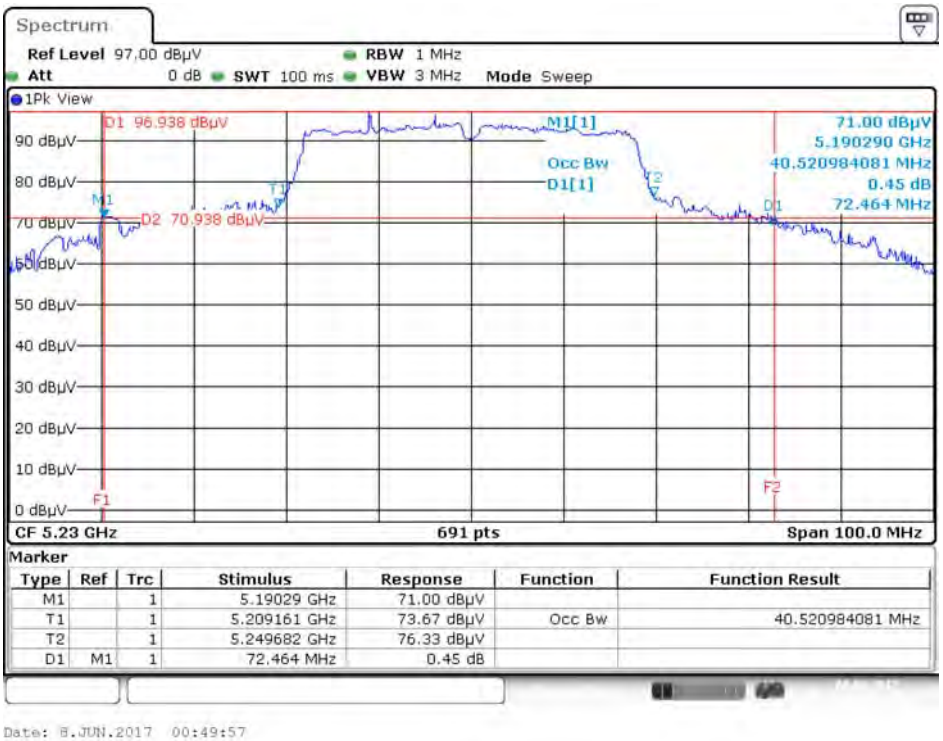


Date: 11.MAR.2017 01:28:49

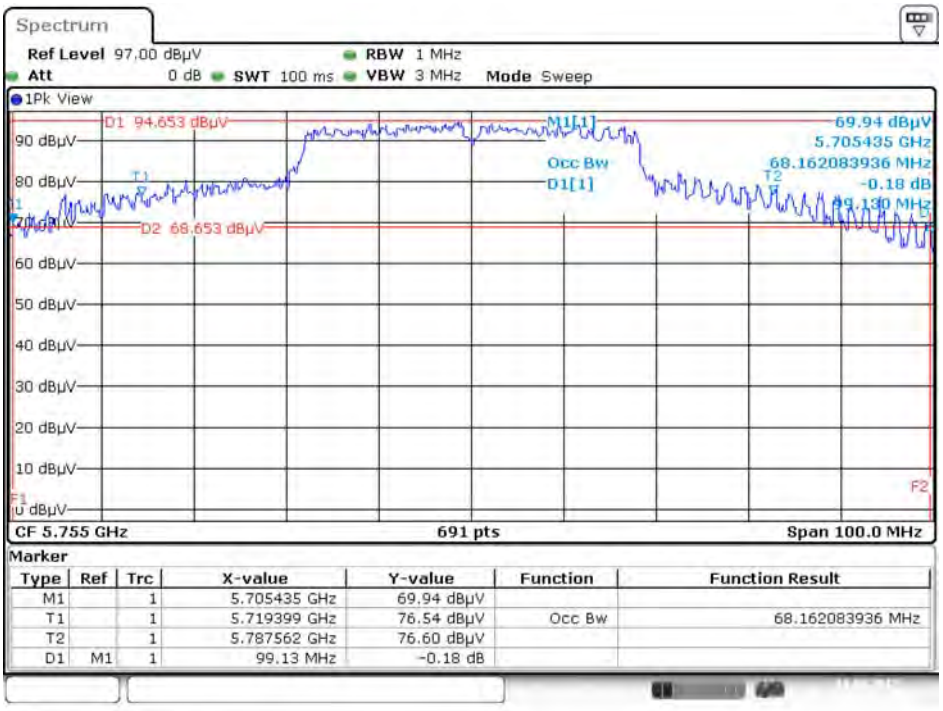
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 1 + Ant. 2 / 5190 MHz



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

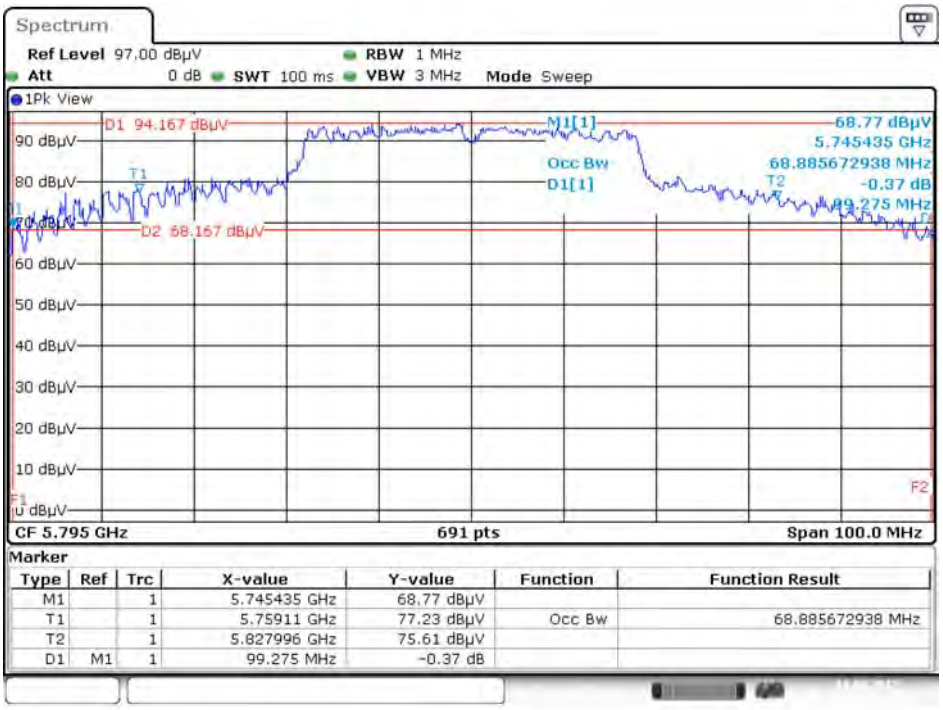


26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 1 + Ant. 2 / 5755 MHz



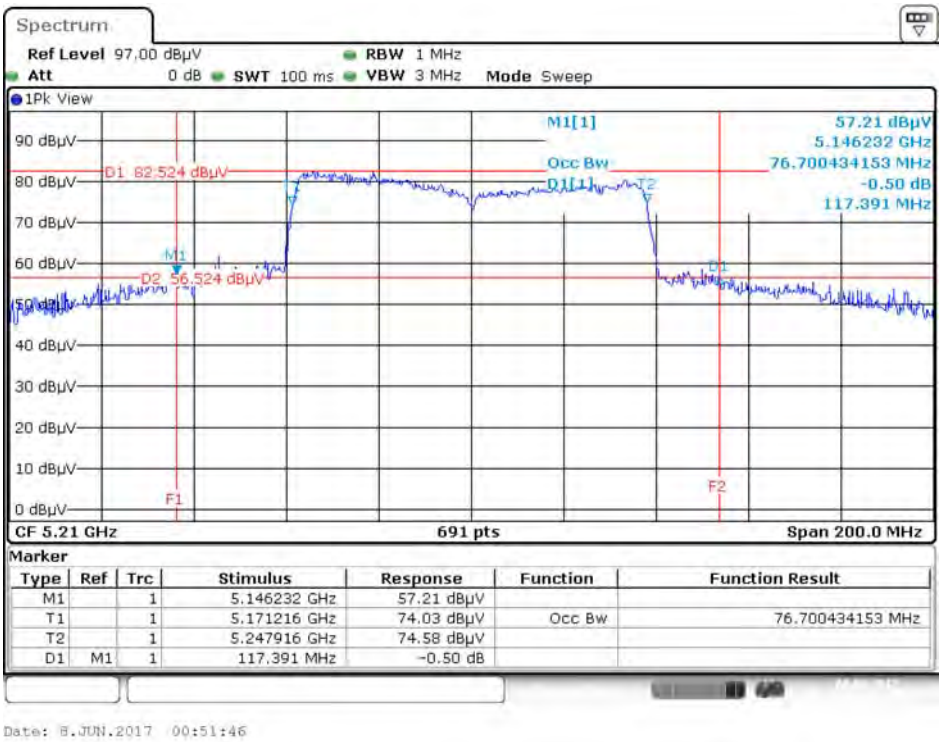
Date: 11.MAR.2017 01:54:00

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

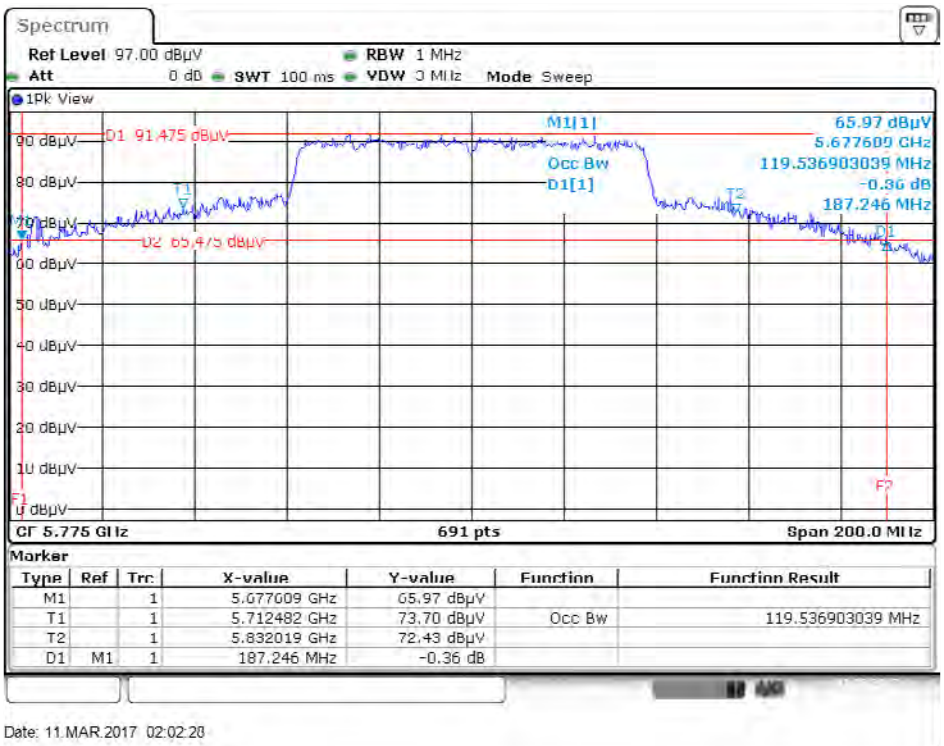


Date: 11.MAR.2017 01:57:28

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

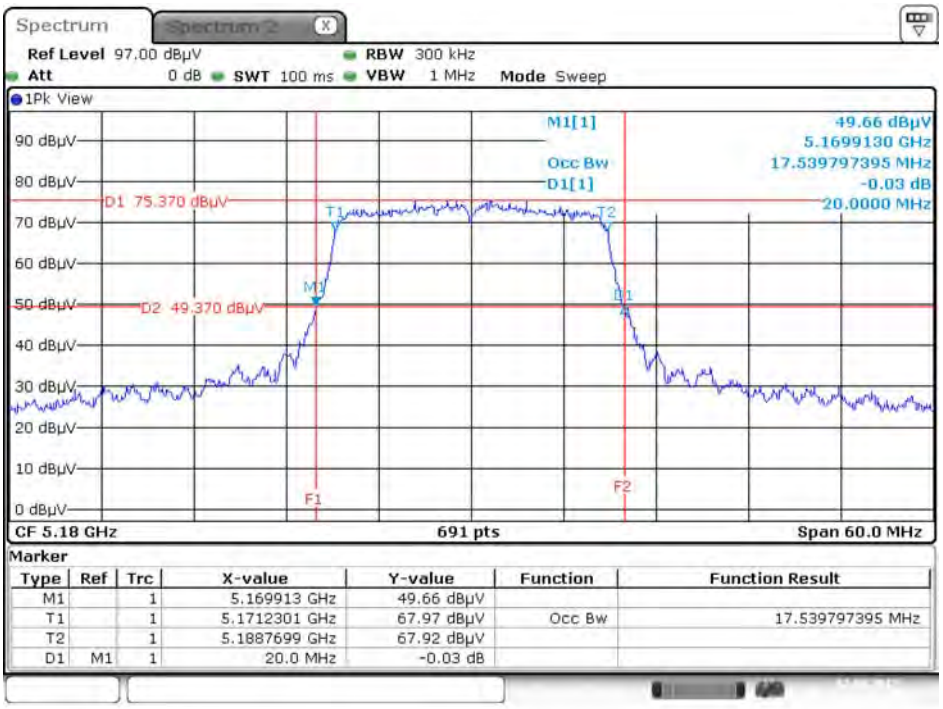


26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Ant. 1 + Ant. 2 / 5775 MHz



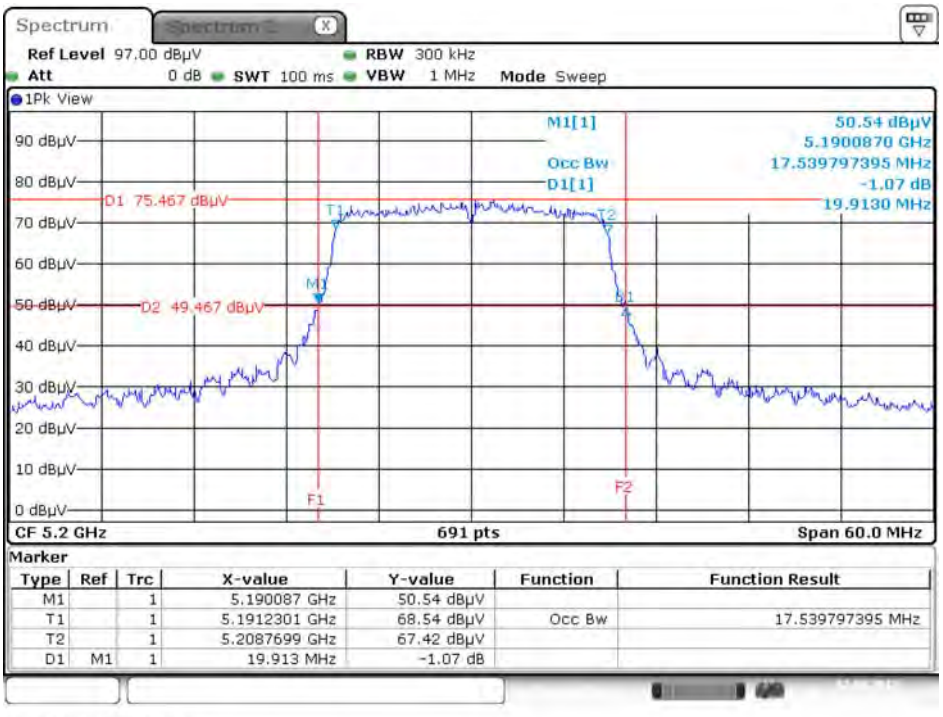
For beamforming mode:

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 / 5180 MHz



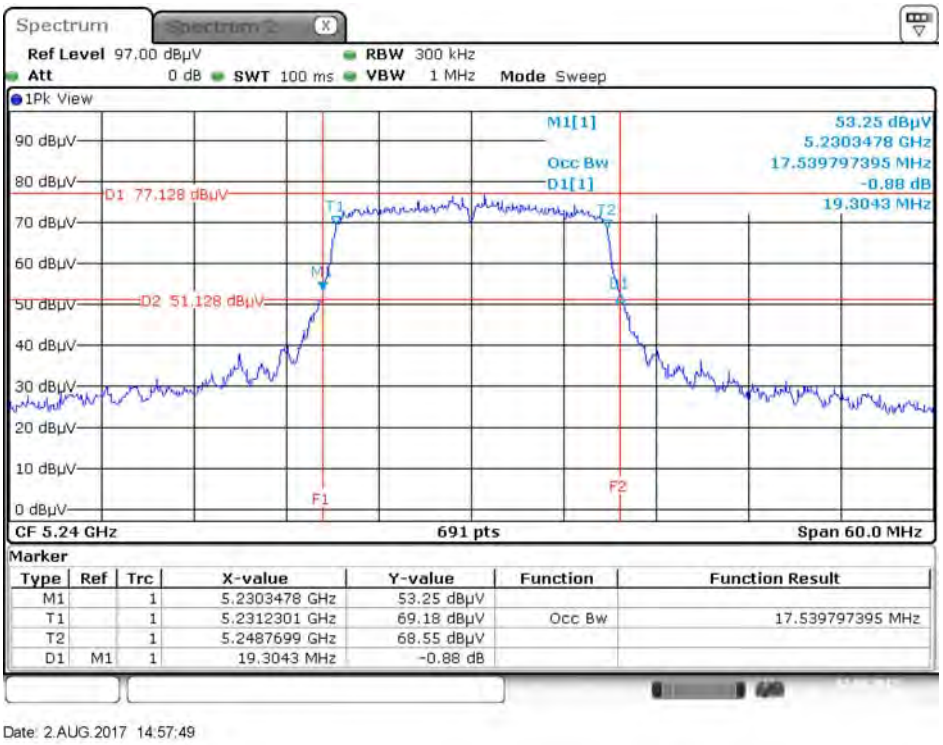
Date: 2.AUG.2017 14:52:37

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 / 5200 MHz



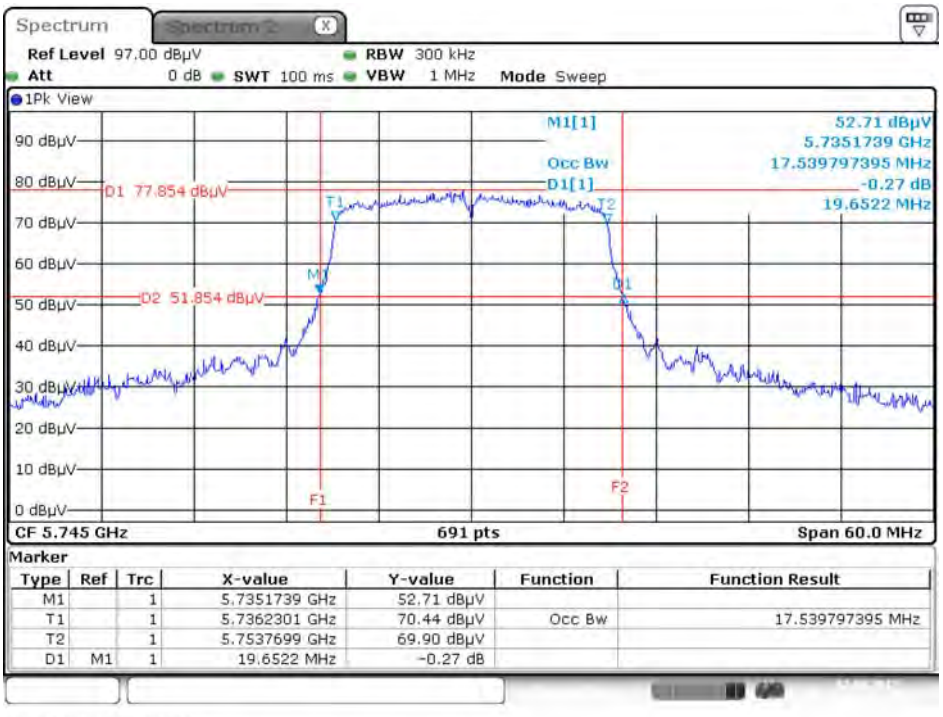
Date: 2.AUG.2017 14:55:07

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 / 5240 MHz



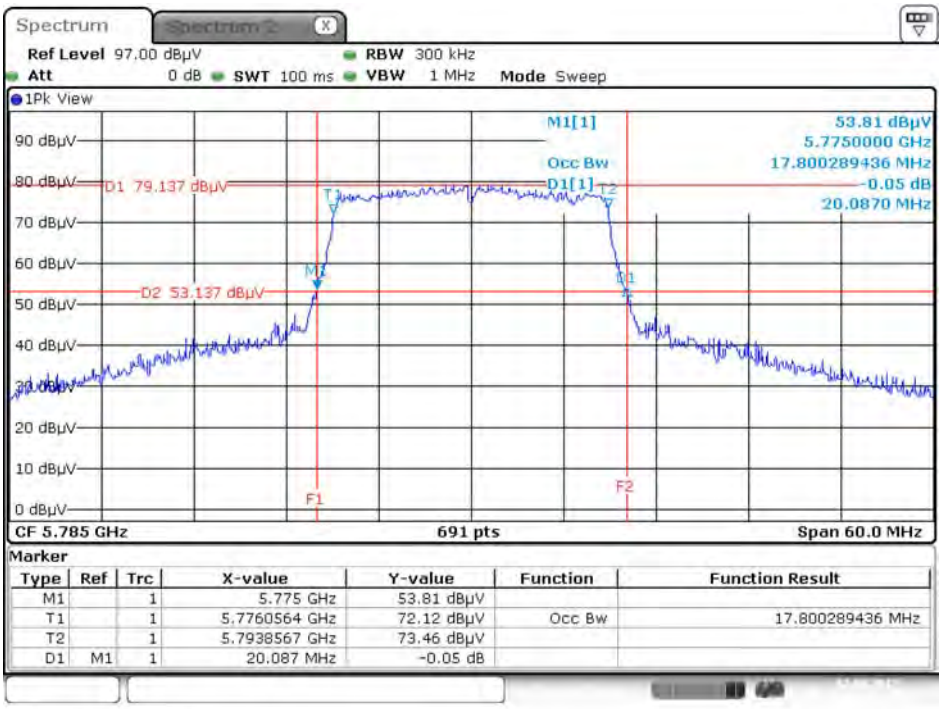
Date: 2.AUG.2017 14:57:49

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 / 5745 MHz



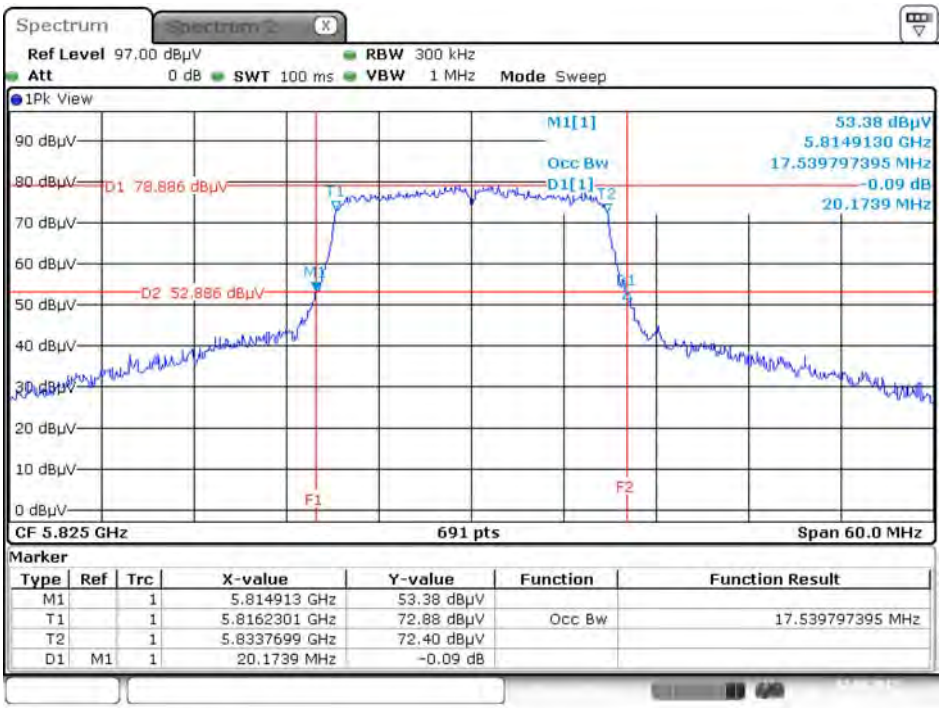
Date: 2.AUG.2017 14:30:36

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 / 5785 MHz



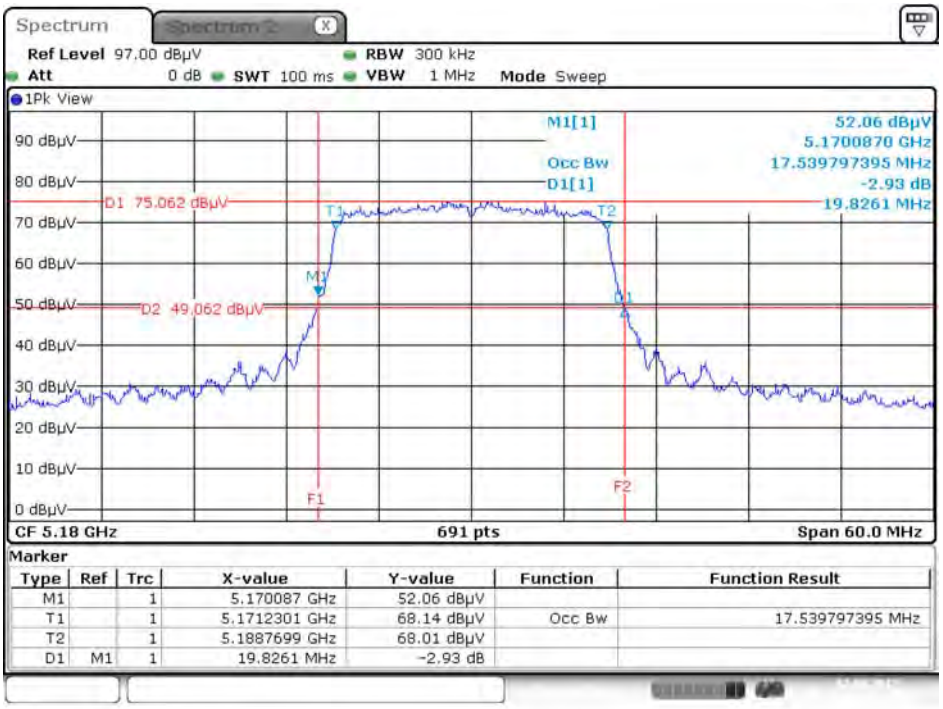
Date: 2.AUG.2017 14:33:17

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 / 5825 MHz



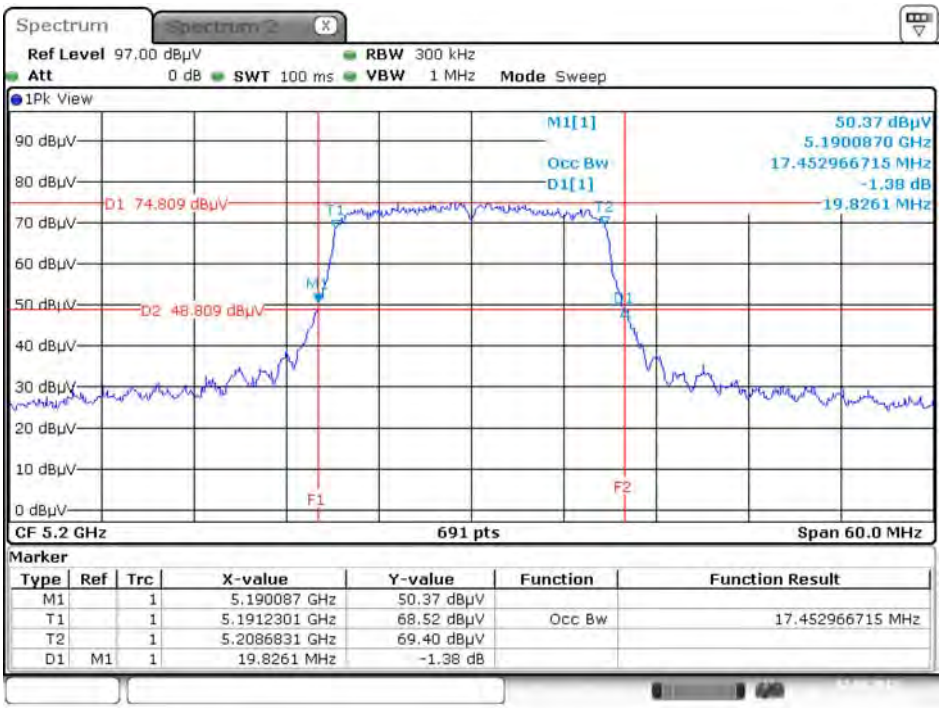
Date: 2.AUG.2017 14:44:39

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



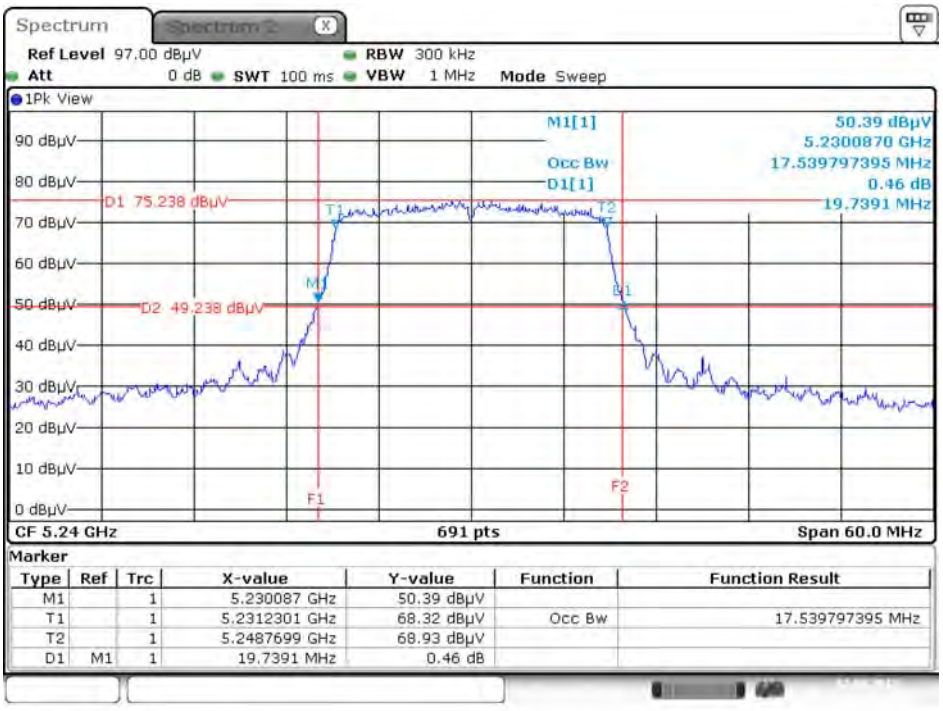
Date: 2.AUG.2017 11:16:37

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



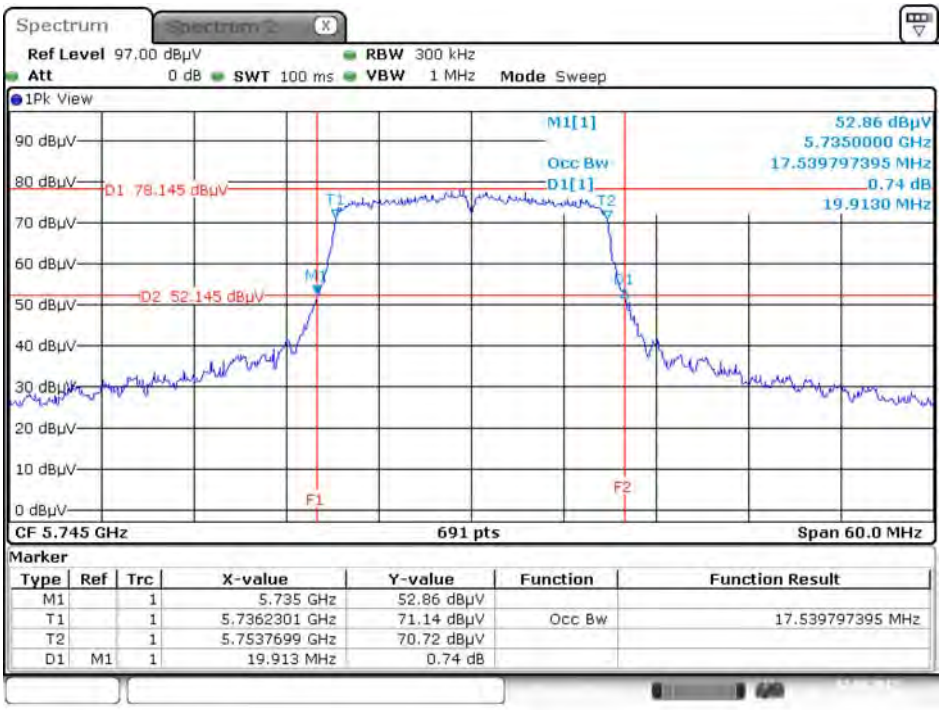
Date: 2.AUG.2017 11:20:18

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



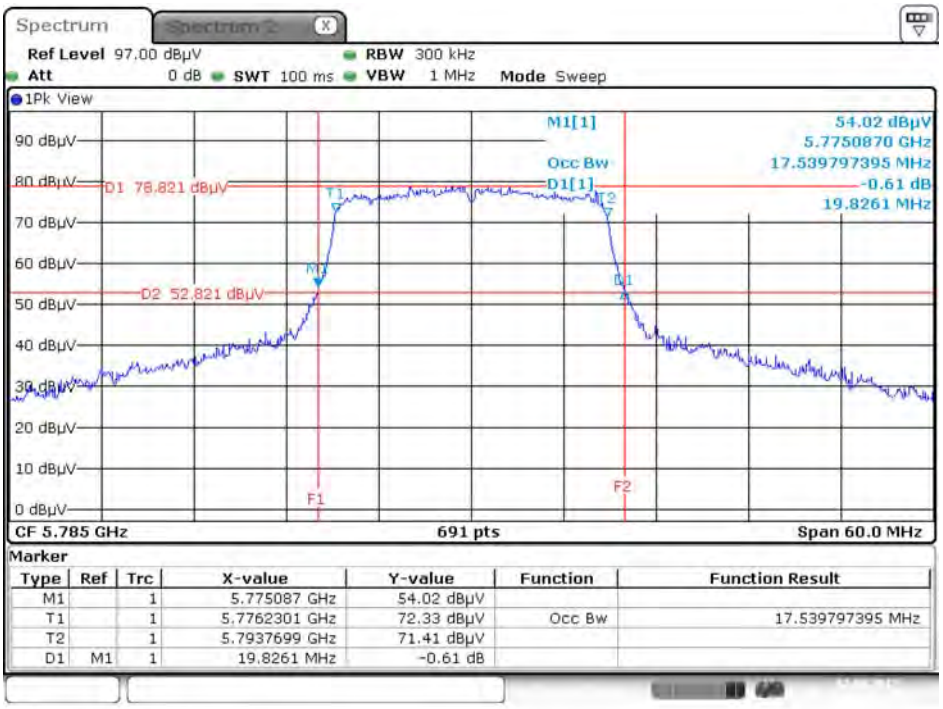
Date: 2.AUG.2017 11:24:44

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



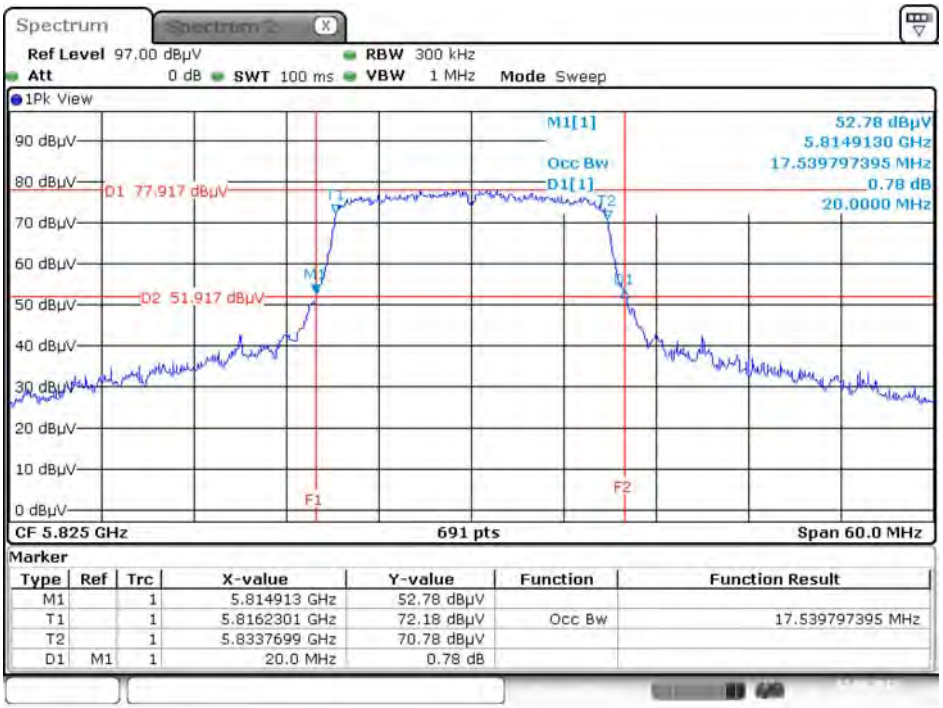
Date: 2.AUG.2017 11:00:56

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



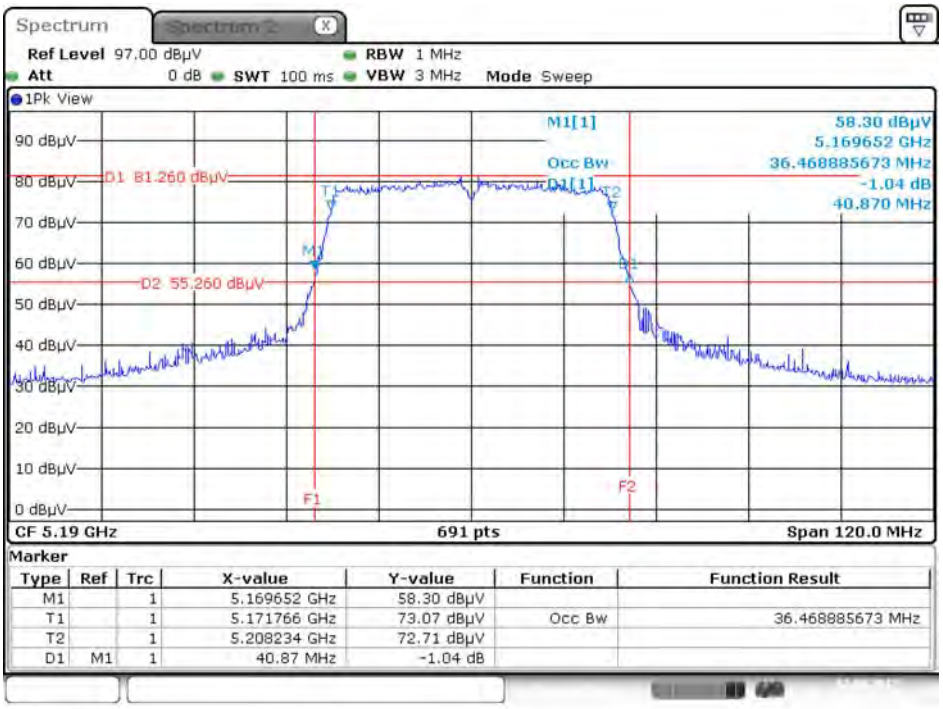
Date: 2.AUG.2017 11:05:54

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



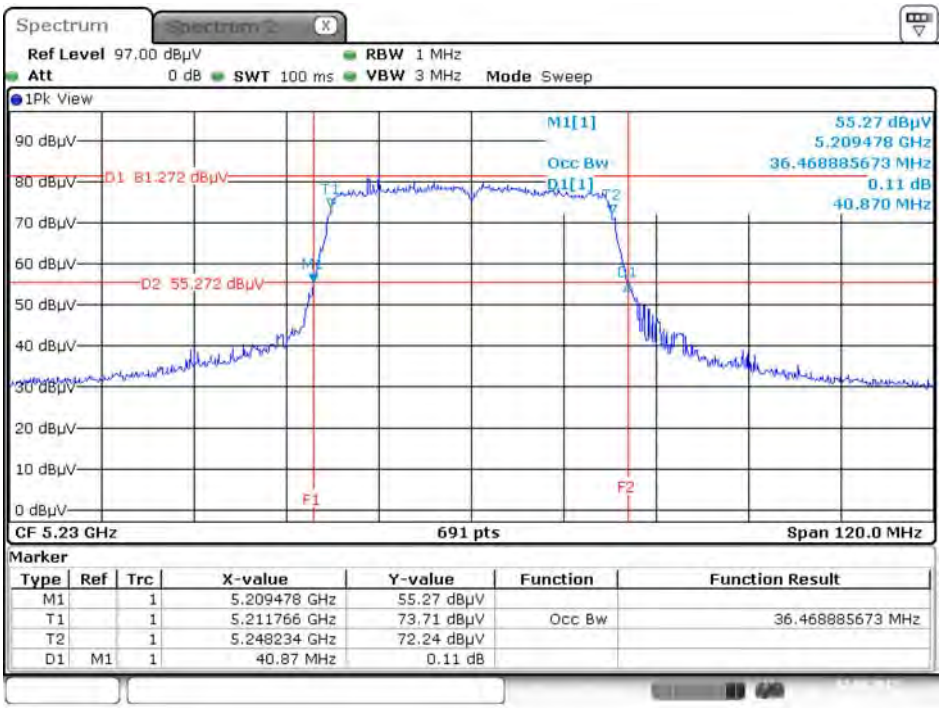
Date: 2.AUG.2017 11:13:06

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



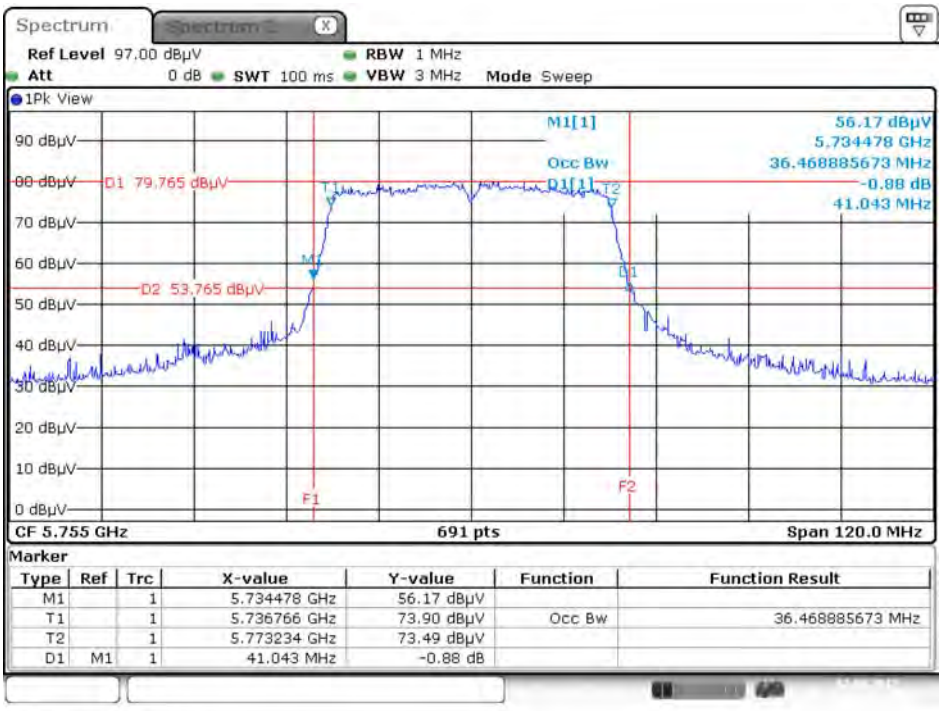
Date: 2.AUG.2017 10:44:36

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



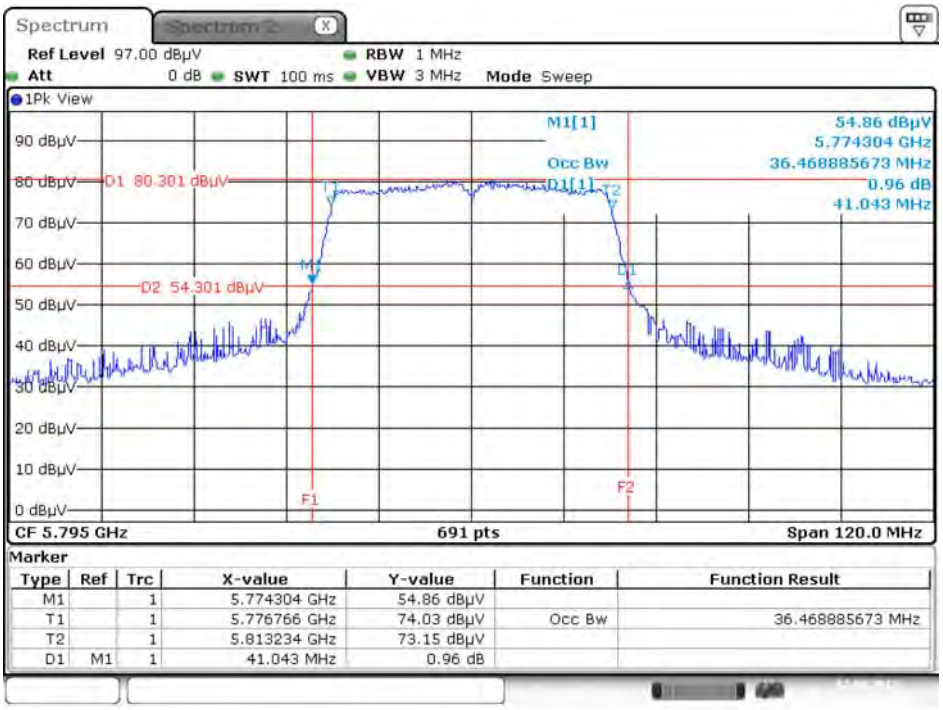
Date: 2.AUG.2017 10:48:21

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



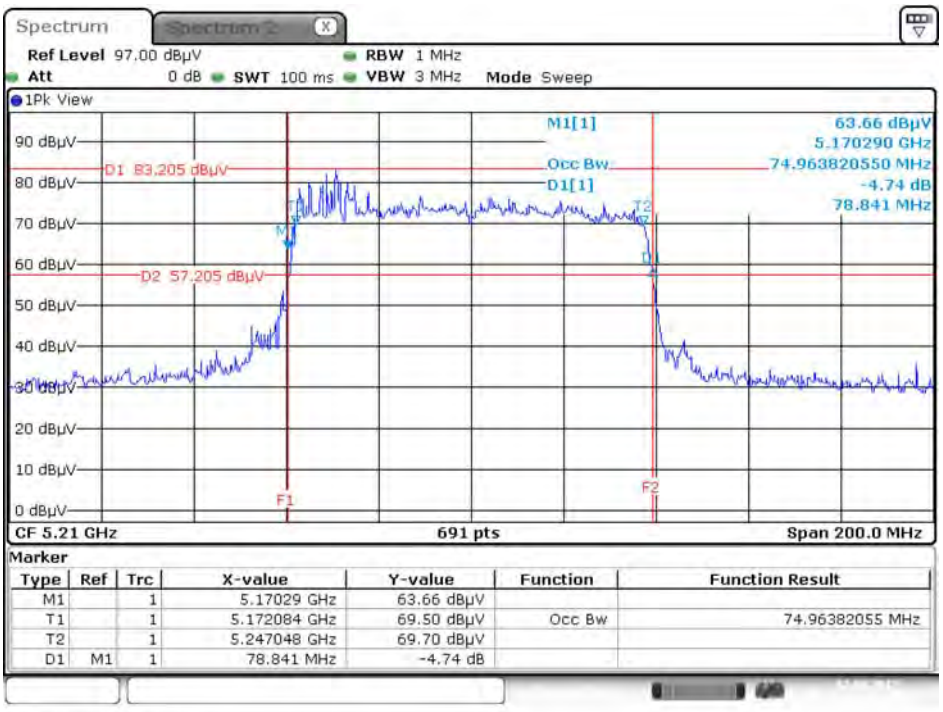
Date: 2.AUG.2017 10:55:59

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



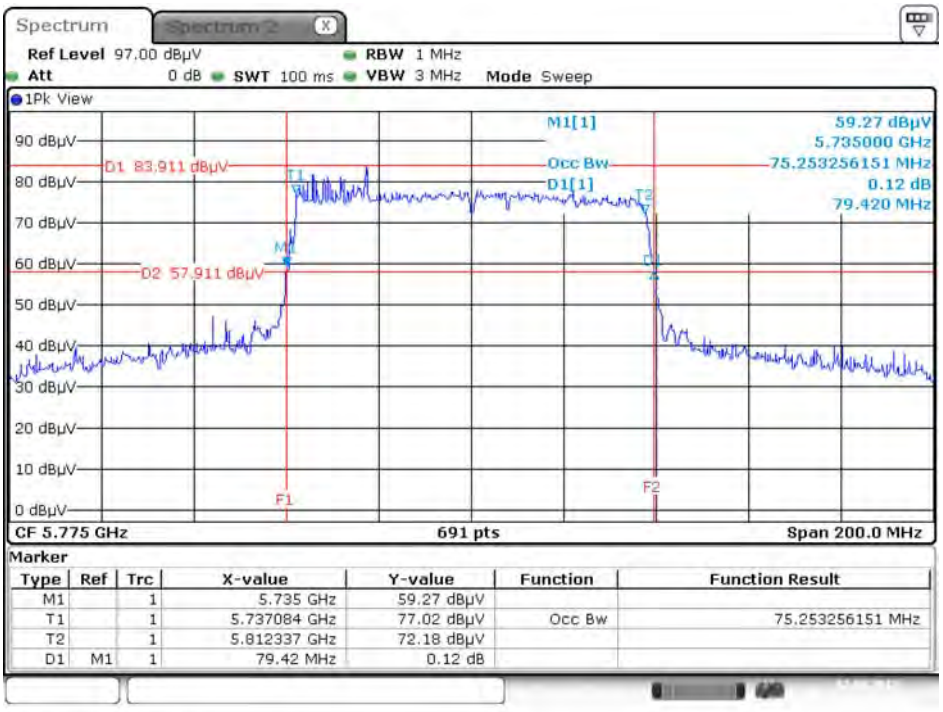
Date: 2.AUG.2017 10:27:19

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



Date: 2.AUG.2017 12:10:57

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



Date: 2.AUG.2017 14:04:41

4.3. 6dB Spectrum Bandwidth Measurement

4.3.1. Limit

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

4.3.2. Measuring Instruments and Setting

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

6dB Spectrum Bandwidth	
Spectrum Parameters	**Setting**
Attenuation	Auto
Span Frequency	> 6dB Bandwidth
RBW	100kHz
VBW	≥ 3 x RBW
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

4.3.3. Test Procedures

For Radiated 6dB Bandwidth Measurement:

1. The transmitter was radiated to the spectrum analyzer in peak hold mode.
2. Test was performed in accordance with KDB789033 D02 v01r04 for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - section (C) Emission Bandwidth.
3. Multiple antenna system was performed in accordance with KDB662911 D01 v02r01 Emissions Testing of Transmitters with Multiple Outputs in the Same Band.
4. Measured the spectrum width with power higher than 6dB below carrier.

4.3.4. Test Setup Layout

For Radiated 6dB Bandwidth Measurement:

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

4.3.5. Test Deviation

There is no deviation with the original standard.

4.3.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.3.7. Test Result of 6dB Spectrum Bandwidth

Temperature	20°C	Humidity	60%
Test Engineer	Ron Huang / Serway Li		

For non-beamforming mode:

Mode	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Test Result
802.11a	5745 MHz	15.65	500	Complies
	5785 MHz	15.71	500	Complies
	5825 MHz	15.71	500	Complies
802.11ac MCS0/Nss1 VHT20	5745 MHz	16.58	500	Complies
	5785 MHz	16.58	500	Complies
	5825 MHz	15.77	500	Complies
802.11ac MCS0/Nss1 VHT40	5755 MHz	35.01	500	Complies
	5795 MHz	35.01	500	Complies
802.11ac MCS0/Nss1 VHT80	5775 MHz	72.75	500	Complies

For beamforming mode:

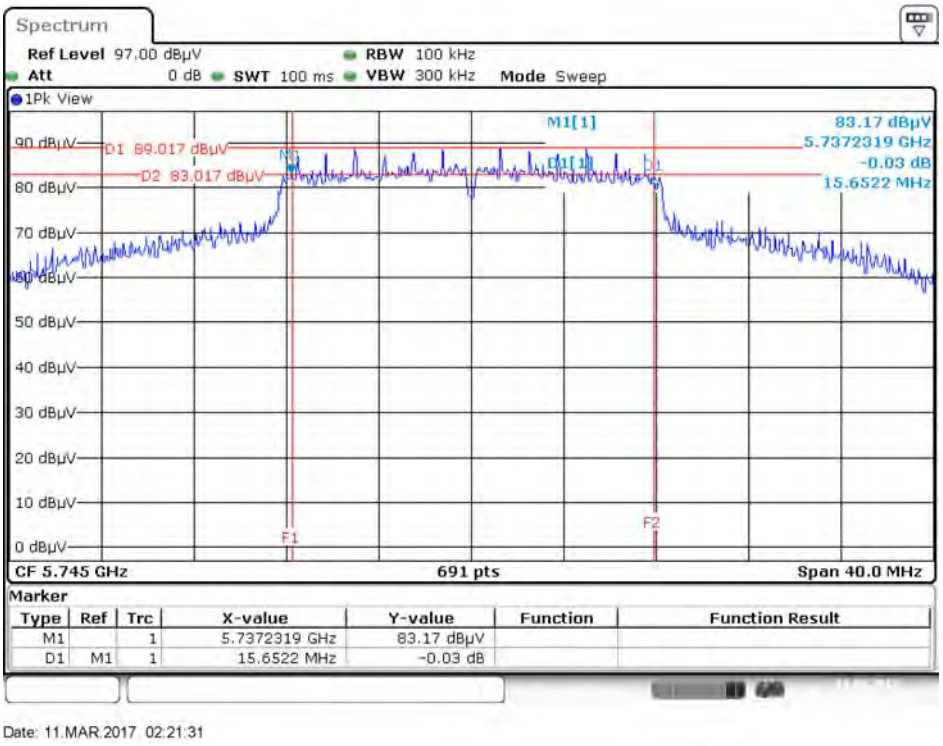
Mode	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Test Result
802.11a	5745 MHz	17.16	500	Complies
	5785 MHz	16.99	500	Complies
	5825 MHz	16.70	500	Complies
802.11ac MCS0/Nss1 VHT20	5745 MHz	17.28	500	Complies
	5785 MHz	17.28	500	Complies
	5825 MHz	17.16	500	Complies
802.11ac MCS0/Nss1 VHT40	5755 MHz	35.59	500	Complies
	5795 MHz	35.01	500	Complies
802.11ac MCS0/Nss1 VHT80	5775 MHz	71.30	500	Complies

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

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

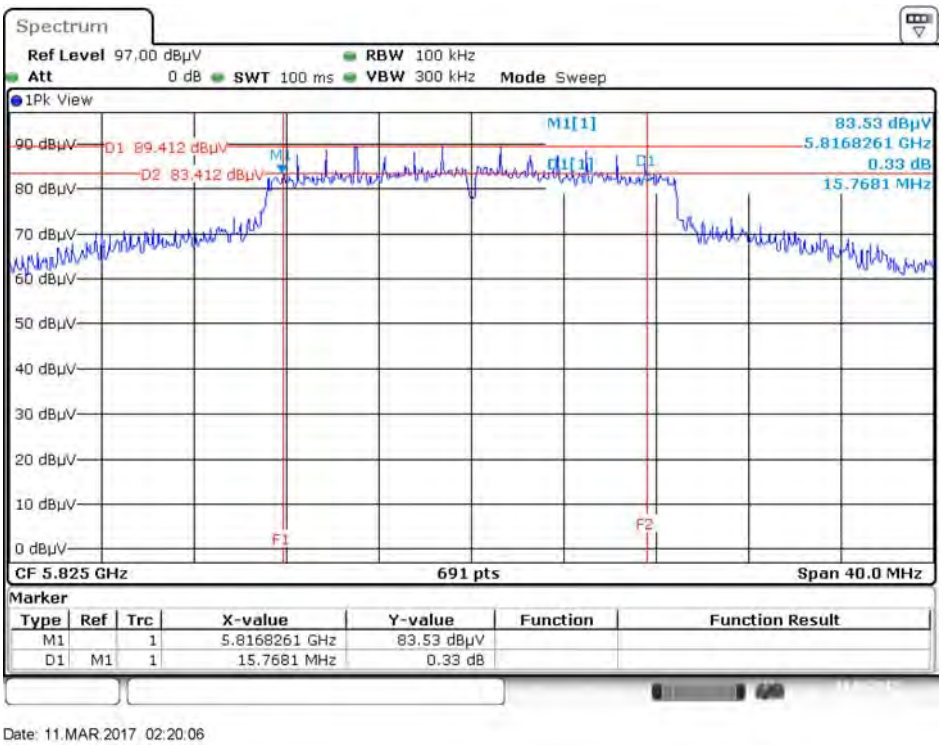
For non-beamforming mode:

6 dB Bandwidth Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 / 5745 MHz



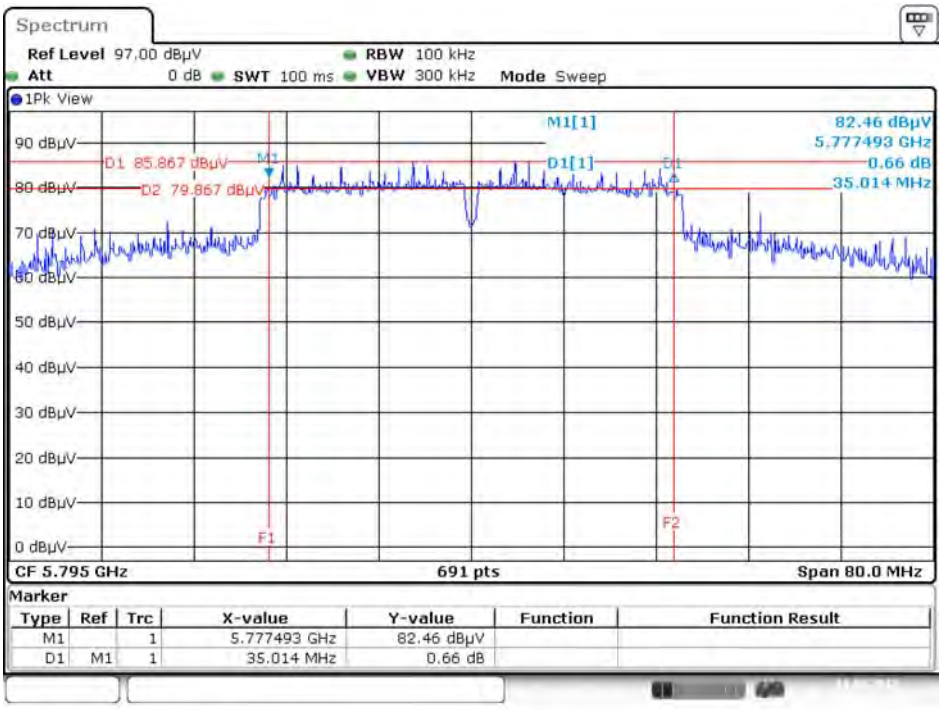
Date: 11.MAR.2017 02:21:31

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 / 5825 MHz



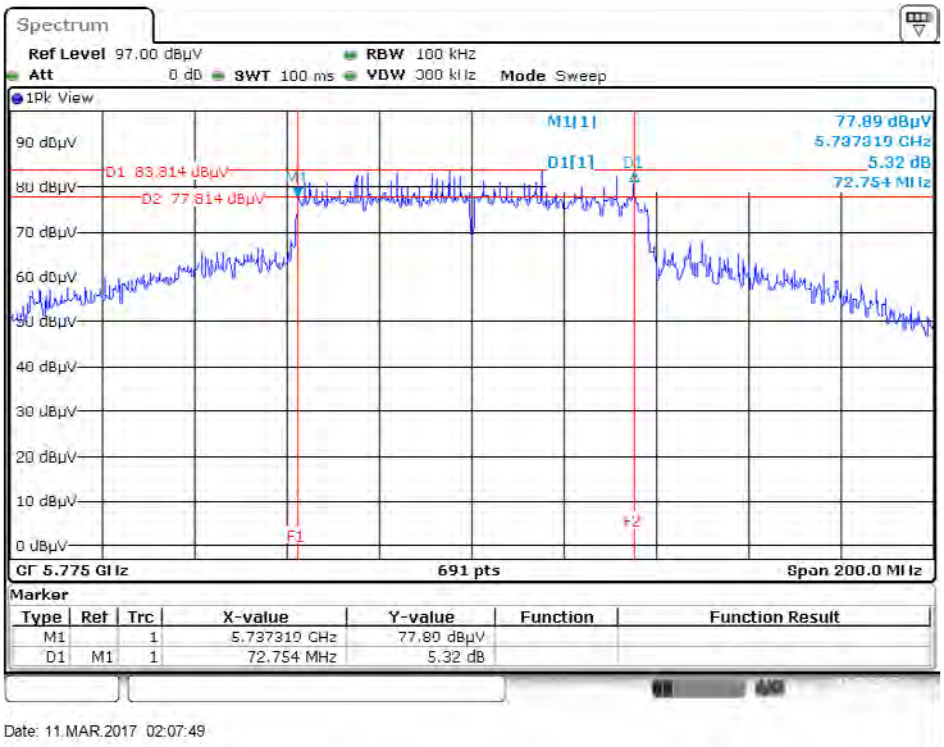
Date: 11.MAR.2017 02:20:06

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 1 + Ant. 2 / 5795 MHz



Date: 11.MAR.2017 02:14:51

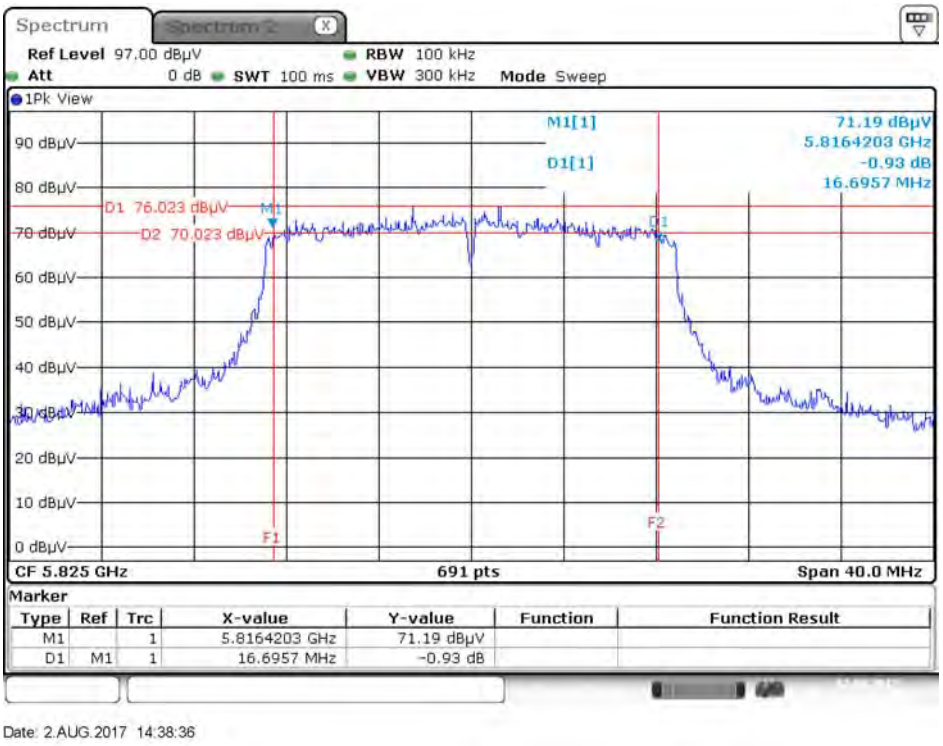
6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Ant. 1 + Ant. 2 / 5775 MHz



Date: 11.MAR.2017 02:07:49

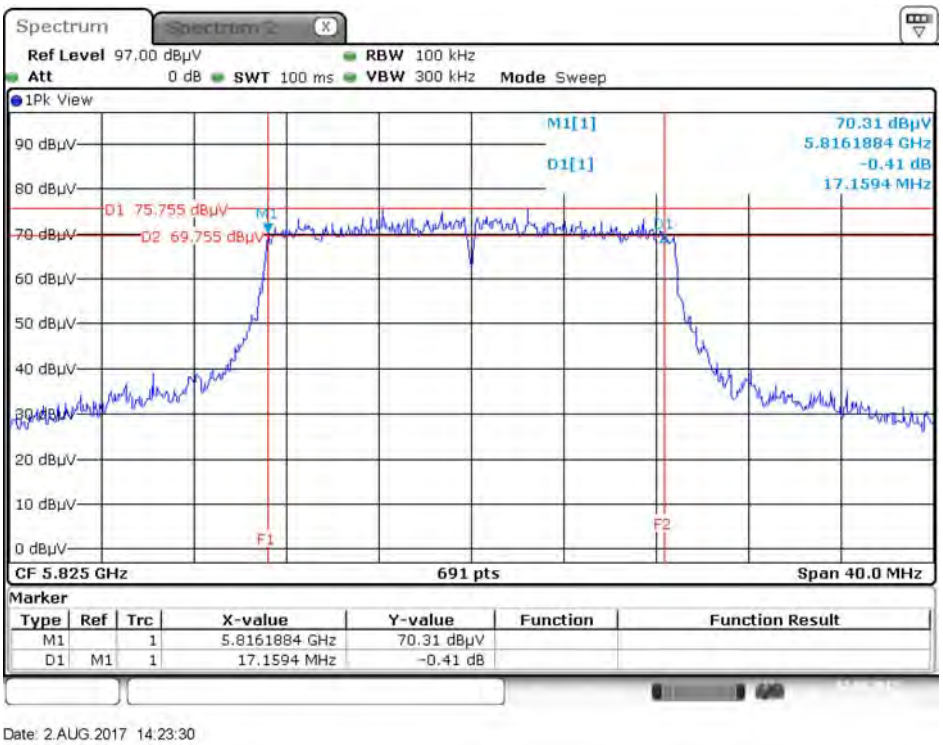
For beamforming mode:

6 dB Bandwidth Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 / 5825 MHz



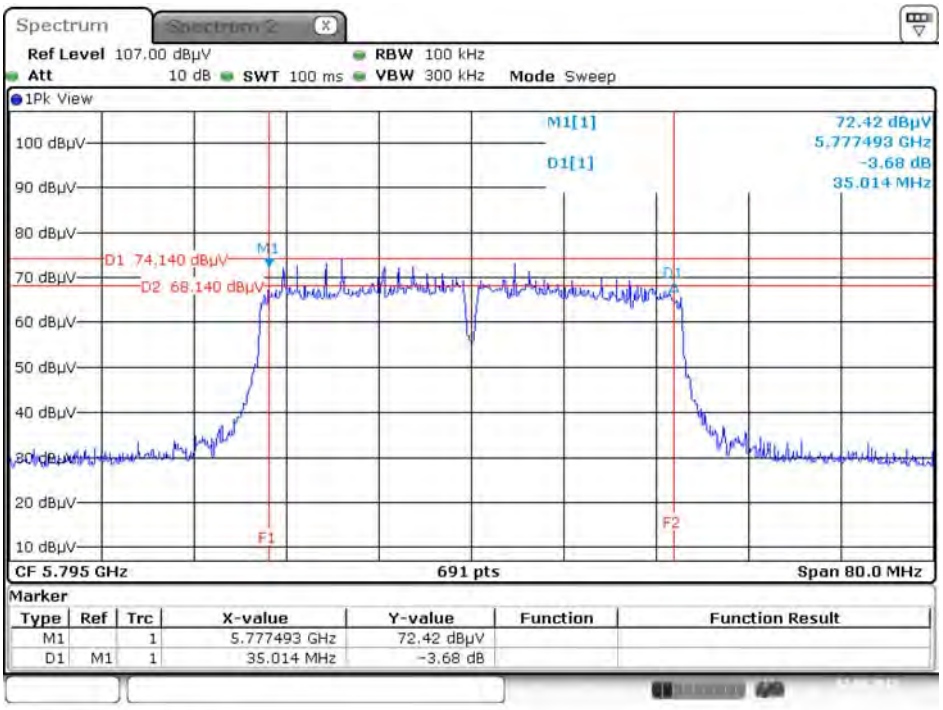
Date: 2.AUG.2017 14:38:36

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 / 5825 MHz



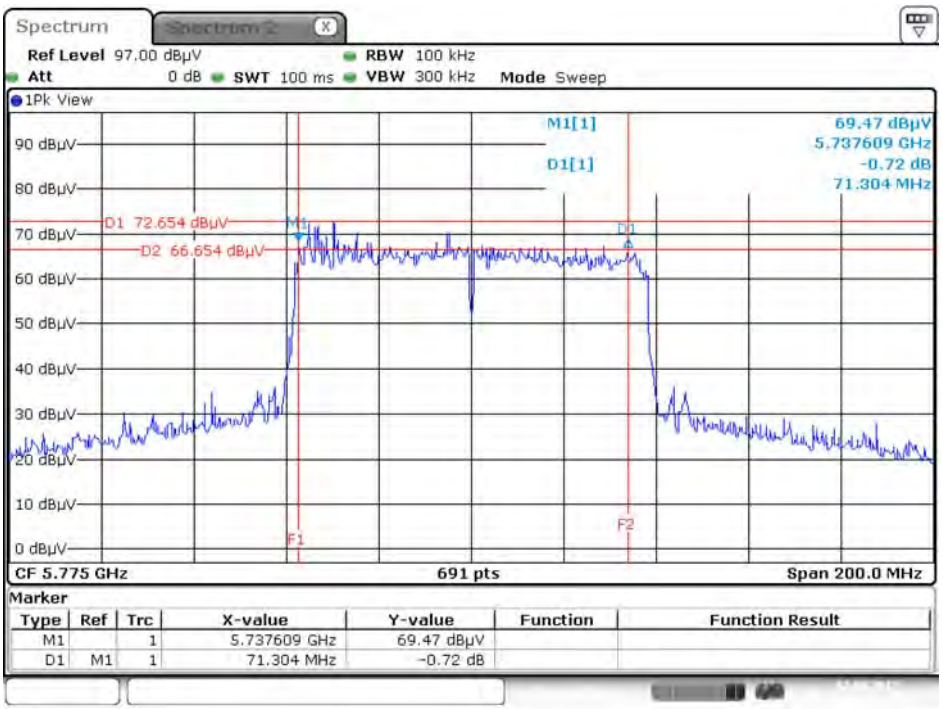
Date: 2.AUG.2017 14:23:30

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 1 + Ant. 2 / 5795 MHz



Date: 2.AUG.2017 14:13:12

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Ant. 1 + Ant. 2 / 5775 MHz



Date: 2.AUG.2017 14:06:14

4.4. Maximum Conducted Output Power Measurement

4.4.1. Limit

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

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

4.4.2. Measuring Instruments and Setting

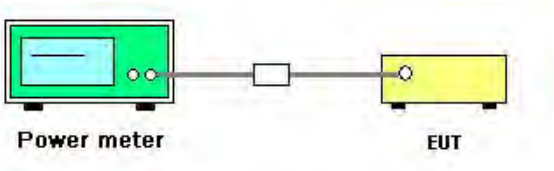
Please refer to section 5 of equipments list in this report. The following table is the setting of the power meter.

Power Meter Parameter	Setting
Detector	AVERAGE

4.4.3. Test Procedures

1. The transmitter output (antenna port) was connected to the power meter.
2. Test was performed in accordance with KDB789033 D02 v01r04 for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - section (E) Maximum conducted output power =>3. Measurement using a Power Meter (PM) =>b) Method PM-G (Measurement using a gated RF average power meter).
3. Multiple antenna systems was performed in accordance with KDB662911 D01 v02r01 Emissions Testing of Transmitters with Multiple Outputs in the Same Band.
4. When measuring maximum conducted output power with multiple antenna systems, add every result of the values by mathematic formula.

4.4.4. Test Setup Layout



4.4.5. Test Deviation

There is no deviation with the original standard.

4.4.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.4.7. Test Result of Maximum Conducted Output Power

Temperature	20°C	Humidity	60%
Test Engineer	Ron Huang / Serway Li	Test Date	Mar. 11, 2017 ~ Aug. 02, 2017

For non-beamforming mode:

Mode	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Ant. 1	Ant. 2	Total		
802.11a	5180 MHz	23.25	23.76	26.52	30.00	Complies
	5200 MHz	23.67	23.21	26.46	30.00	Complies
	5240 MHz	23.32	22.98	26.16	30.00	Complies
	5745 MHz	23.51	23.12	26.33	30.00	Complies
	5785 MHz	24.08	23.84	26.97	30.00	Complies
	5825 MHz	24.09	23.73	26.92	30.00	Complies
802.11ac MCS0/Nss1 VHT20	5180 MHz	20.89	20.86	23.89	30.00	Complies
	5200 MHz	24.15	23.48	26.84	30.00	Complies
	5240 MHz	22.47	22.67	25.58	30.00	Complies
	5745 MHz	23.77	23.47	26.63	30.00	Complies
	5785 MHz	24.01	23.64	26.84	30.00	Complies
	5825 MHz	24.18	23.79	27.00	30.00	Complies
802.11ac MCS0/Nss1 VHT40	5190 MHz	19.21	19.19	22.21	30.00	Complies
	5230 MHz	23.73	23.45	26.60	30.00	Complies
	5755 MHz	24.35	24.03	27.20	30.00	Complies
	5795 MHz	24.11	23.86	27.00	30.00	Complies
802.11ac MCS0/Nss1 VHT80	5210 MHz	18.12	18.07	21.11	30.00	Complies
	5775 MHz	22.49	22.54	25.53	30.00	Complies

For beamforming mode:

Mode	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Ant. 1	Ant. 2	Total		
802.11a	5180 MHz	13.14	12.74	15.95	29.28	Complies
	5200 MHz	13.29	13.02	16.17	29.28	Complies
	5240 MHz	13.23	13.21	16.23	29.28	Complies
	5745 MHz	17.81	17.86	20.85	29.28	Complies
	5785 MHz	17.42	17.37	20.41	29.28	Complies
	5825 MHz	17.61	17.40	20.52	29.28	Complies
802.11ac MCS0/Nss1 VHT20	5180 MHz	14.18	14.03	17.12	29.28	Complies
	5200 MHz	14.25	14.09	17.18	29.28	Complies
	5240 MHz	14.15	14.05	17.11	29.28	Complies
	5745 MHz	17.78	17.63	20.72	29.28	Complies
	5785 MHz	17.49	17.35	20.43	29.28	Complies
	5825 MHz	17.53	17.41	20.48	29.28	Complies
802.11ac MCS0/Nss1 VHT40	5190 MHz	15.27	15.11	18.20	29.28	Complies
	5230 MHz	15.46	15.19	18.34	29.28	Complies
	5755 MHz	16.17	16.11	19.15	29.28	Complies
	5795 MHz	16.72	16.64	19.69	29.28	Complies
802.11ac MCS0/Nss1 VHT80	5210 MHz	15.45	15.51	18.49	29.28	Complies
	5775 MHz	15.58	15.93	18.77	29.28	Complies

Note:

$$DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{jk}\right\}^2}{N_{ANT}}\right]$$ =6.72dBi >6dBi, so Limit=30-(6.72-6)=29.28dBm.

4.5. Power Spectral Density Measurement

4.5.1. Limit

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

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

4.5.2. Measuring Instruments and Setting

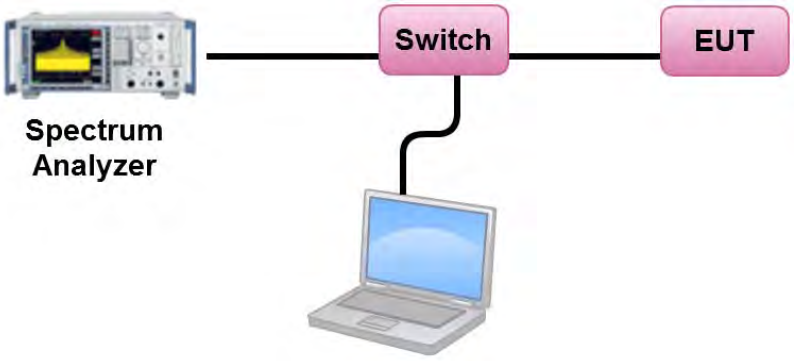
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

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

4.5.3. Test Procedures

1. The transmitter output (antenna port) was connected RF switch to the spectrum analyzer.
2. Test was performed in accordance with KDB789033 D02 v01r04 for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - section (F) Maximum Power Spectral Density (PSD).
3. Multiple antenna systems was performed in accordance KDB662911 D01 v02r01 in-Band Power Spectral Density (PSD) Measurements and sum the spectra across the outputs.
4. For 5.725~5.85 GHz, the measured result of PSD level must add 10log(500kHz/RBW) and the final result should ≤ 30 dBm.

4.5.4. Test Setup Layout



4.5.5. Test Deviation

There is no deviation with the original standard.

4.5.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.5.7. Test Result of Power Spectral Density

Temperature	20°C	Humidity	60%
Test Engineer	Ron Huang / Serway Li	Test Date	Mar. 11, 2017 ~ Aug. 02, 2017

For non-beamforming mode:

Configuration IEEE 802.11a / Ant. 1 + Ant. 2

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	13.33	16.28	Complies
40	5200 MHz	13.42	16.28	Complies
48	5240 MHz	13.12	16.28	Complies

Note:

$$DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{jk}\right\}^2}{N_{ANT}}\right]$$ =6.72dBi>6dBi, so Limit=17-(6.72-6)=16.28dBm/MHz.

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
149	5745 MHz	13.04	-3.01	10.03	29.28	Complies
157	5785 MHz	13.73	-3.01	10.72	29.28	Complies
165	5825 MHz	13.67	-3.01	10.66	29.28	Complies

Note:

$$DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{jk}\right\}^2}{N_{ANT}}\right]$$ =6.72dBi>6dBi, so Limit=30-(6.72-6)=29.28dBm/500kHz.

Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	10.82	16.28	Complies
40	5200 MHz	13.41	16.28	Complies
48	5240 MHz	12.36	16.28	Complies

Note:

$$DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{jk}\right\}^2}{N_{ANT}}\right]$$ =6.72dBi>6dBi, so Limit=17-(6.72-6)=16.28dBm/MHz.

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
149	5745 MHz	13.39	-3.01	10.38	29.28	Complies
157	5785 MHz	13.65	-3.01	10.64	29.28	Complies
165	5825 MHz	13.82	-3.01	10.81	29.28	Complies

Note:

$$DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{jk}\right\}^2}{N_{ANT}}\right]$$ =6.72dBi>6dBi, so Limit=30-(6.72-6)=29.28dBm/500kHz.

Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 1 + Ant. 2

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	5.98	16.28	Complies
46	5230 MHz	10.59	16.28	Complies

Note:

$$DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{SEQ}} g_{j,k}\right\}^2}{N_{ANT}}\right]$$ =6.72dBi>6dBi, so Limit=17-(6.72-6)=16.28dBm/MHz.

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
151	5755 MHz	11.02	-3.01	8.01	29.28	Complies
159	5795 MHz	10.87	-3.01	7.86	29.28	Complies

Note:

$$DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{SEQ}} g_{j,k}\right\}^2}{N_{ANT}}\right]$$ =6.72dBi>6dBi, so Limit=30-(6.72-6)=29.28dBm/500kHz.

Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Ant. 1 + Ant. 2

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
42	5210 MHz	1.88	16.28	Complies

Note:

$DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{jk}\right\}^2}{N_{ANT}}\right]$ =6.72dBi>6dBi, so Limit=17-(6.72-6)=16.28dBm/MHz.

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
155	5775 MHz	6.46	-3.01	3.45	29.28	Complies

Note:

$DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{jk}\right\}^2}{N_{ANT}}\right]$ =6.72dBi>6dBi, so Limit=30-(6.72-6)=29.28dBm/500kHz.

For beamforming mode:

Configuration IEEE 802.11a / Ant. 1 + Ant. 2

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	2.90	16.28	Complies
40	5200 MHz	3.18	16.28	Complies
48	5240 MHz	3.22	16.28	Complies

Note:

$$DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{jk}\right\}^2}{N_{ANT}}\right]$$ =6.72dBi>6dBi, so Limit=17-(6.72-6)=16.28dBm/MHz.

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
149	5745 MHz	7.57	-3.01	4.56	29.28	Complies
157	5785 MHz	7.28	-3.01	4.27	29.28	Complies
165	5825 MHz	7.56	-3.01	4.55	29.28	Complies

Note:

$$DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{jk}\right\}^2}{N_{ANT}}\right]$$ =6.72dBi>6dBi, so Limit=30-(6.72-6)=29.28dBm/500kHz.

Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	4.12	16.28	Complies
40	5200 MHz	4.21	16.28	Complies
48	5240 MHz	4.16	16.28	Complies

Note:

$$DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{jk}\right\}^2}{N_{ANT}}\right]$$ =6.72dBi>6dBi, so Limit=17-(6.72-6)=16.28dBm/MHz.

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
149	5745 MHz	7.73	-3.01	4.72	29.28	Complies
157	5785 MHz	7.48	-3.01	4.47	29.28	Complies
165	5825 MHz	7.44	-3.01	4.43	29.28	Complies

Note:

$$DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{jk}\right\}^2}{N_{ANT}}\right]$$ =6.72dBi>6dBi, so Limit=30-(6.72-6)=29.28dBm/500kHz.

Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 1 + Ant. 2

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	2.25	16.28	Complies
46	5230 MHz	2.45	16.28	Complies

Note:

$DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{SEQ}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =6.72dBi>6dBi, so Limit=17-(6.72-6)=16.28dBm/MHz.

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
151	5755 MHz	3.29	-3.01	0.28	29.28	Complies
159	5795 MHz	3.73	-3.01	0.72	29.28	Complies

Note:

$DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{SEQ}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =6.72dBi>6dBi, so Limit=30-(6.72-6)=29.28dBm/500kHz.

Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Ant. 1 + Ant. 2

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
42	5210 MHz	-0.80	16.28	Complies

Note:

$$DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{jk}\right\}^2}{N_{ANT}}\right]$$ =6.72dBi>6dBi, so Limit=17-(6.72-6)=16.28dBm/MHz.

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
155	5775 MHz	-0.53	-3.01	-3.54	29.28	Complies

Note:

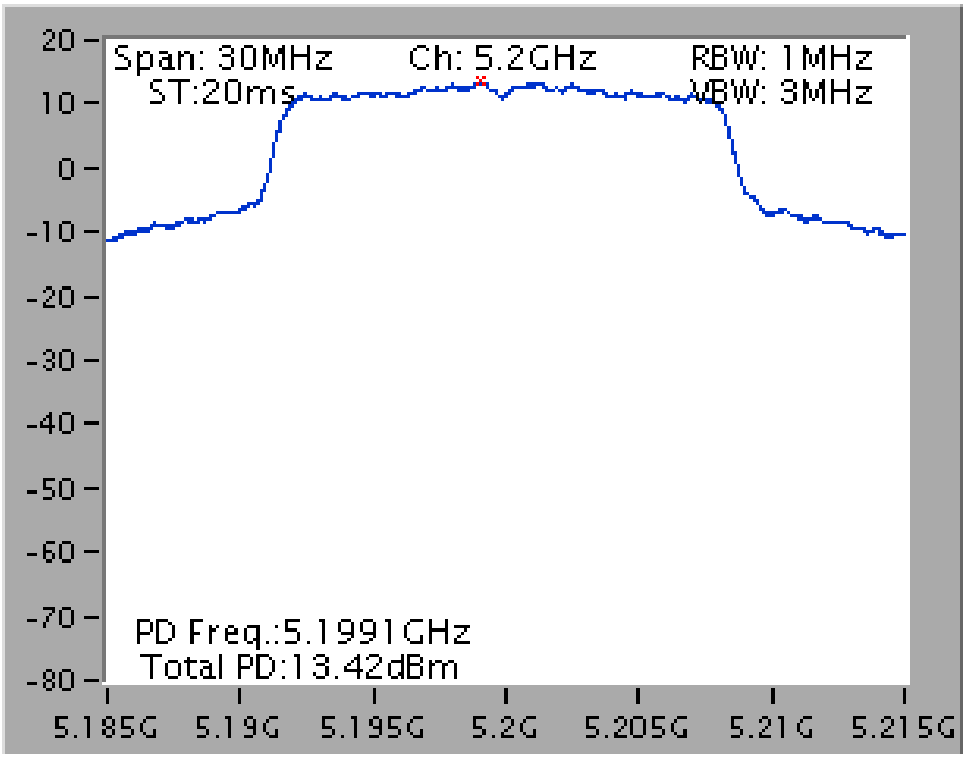
$$DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{jk}\right\}^2}{N_{ANT}}\right]$$ =6.72dBi>6dBi, so Limit=30-(6.72-6)=29.28dBm/500kHz.

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

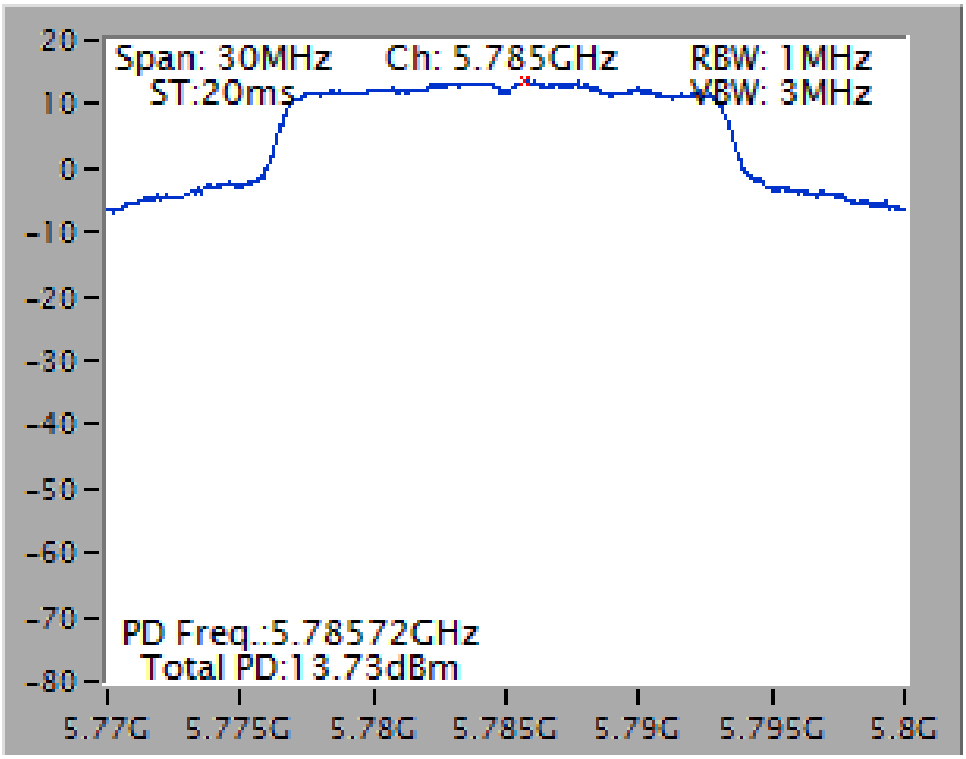
For plots, only the channel with worse result was shown.

For non-beamforming mode:

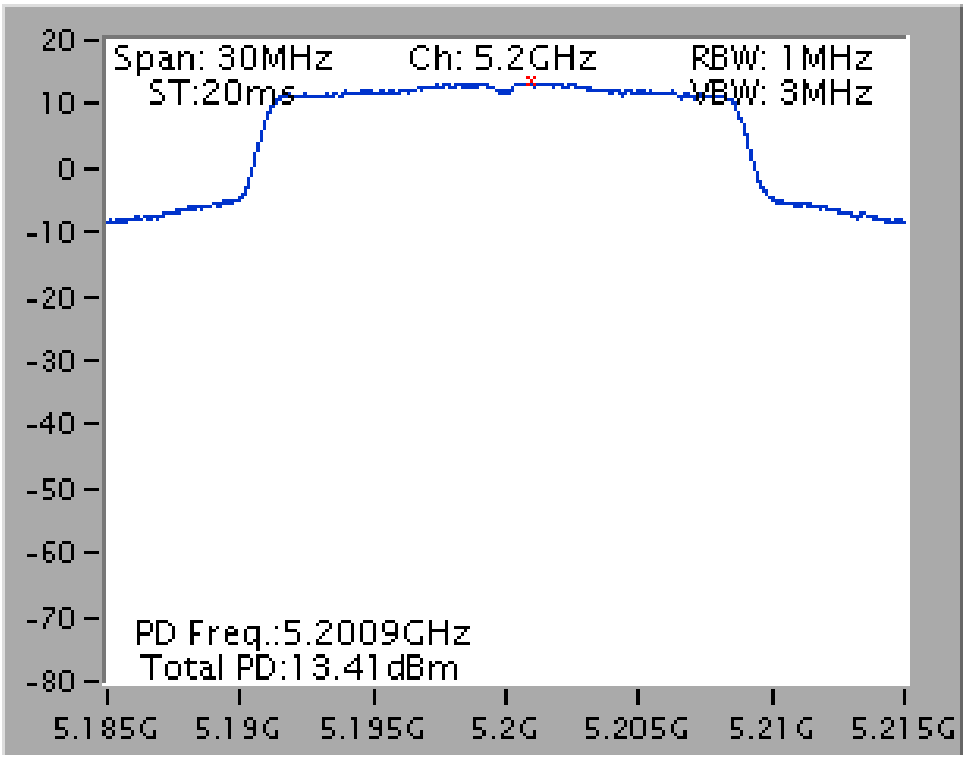
Power Density Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 / 5200 MHz



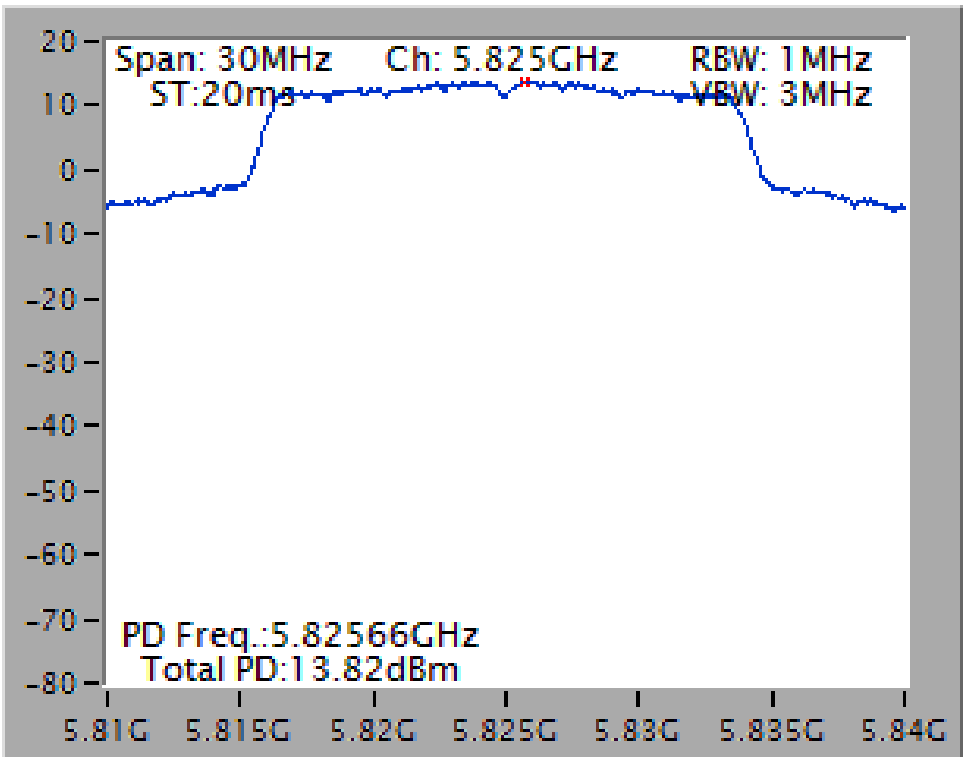
Power Density Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 / 5785 MHz



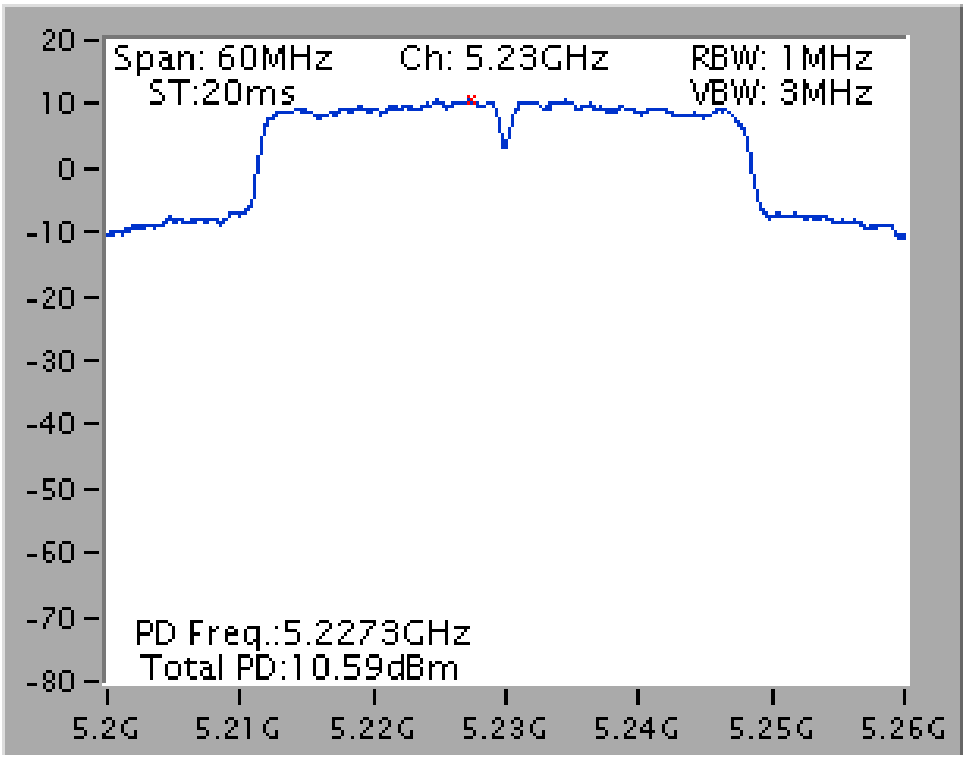
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 / 5200 MHz



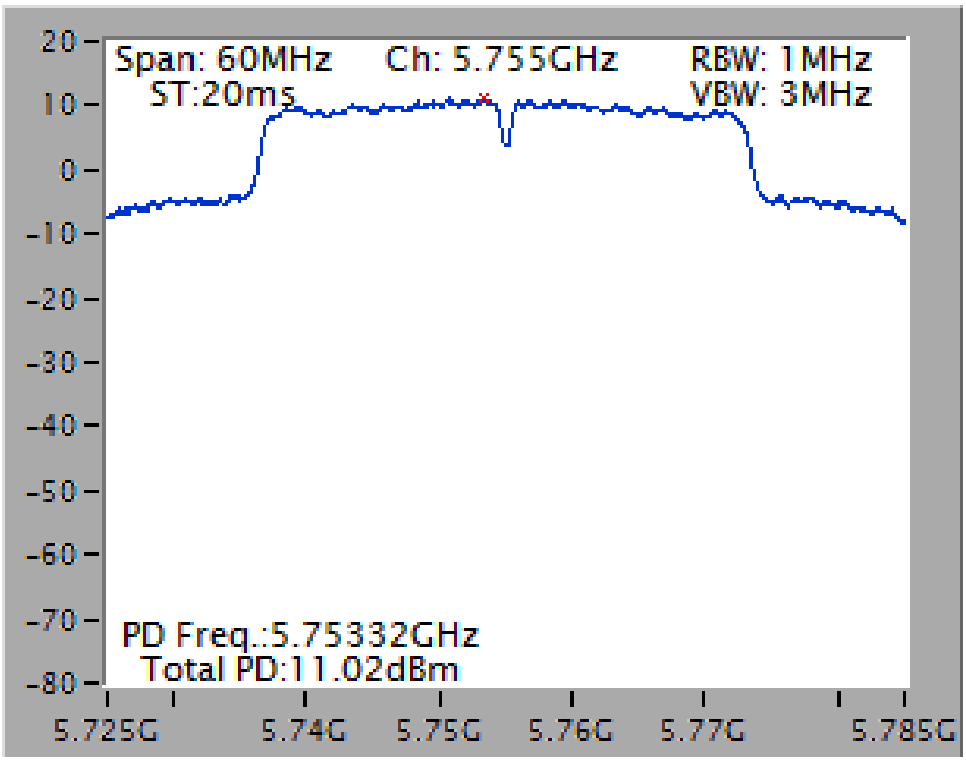
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 / 5825 MHz



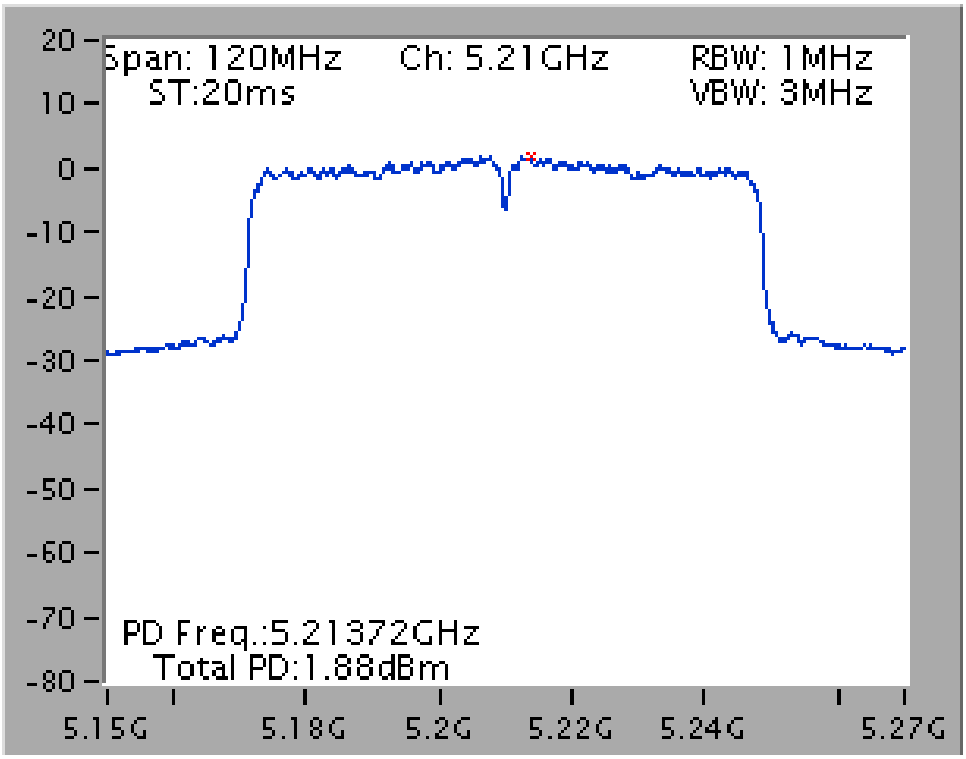
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 1 + Ant. 2 / 5230 MHz



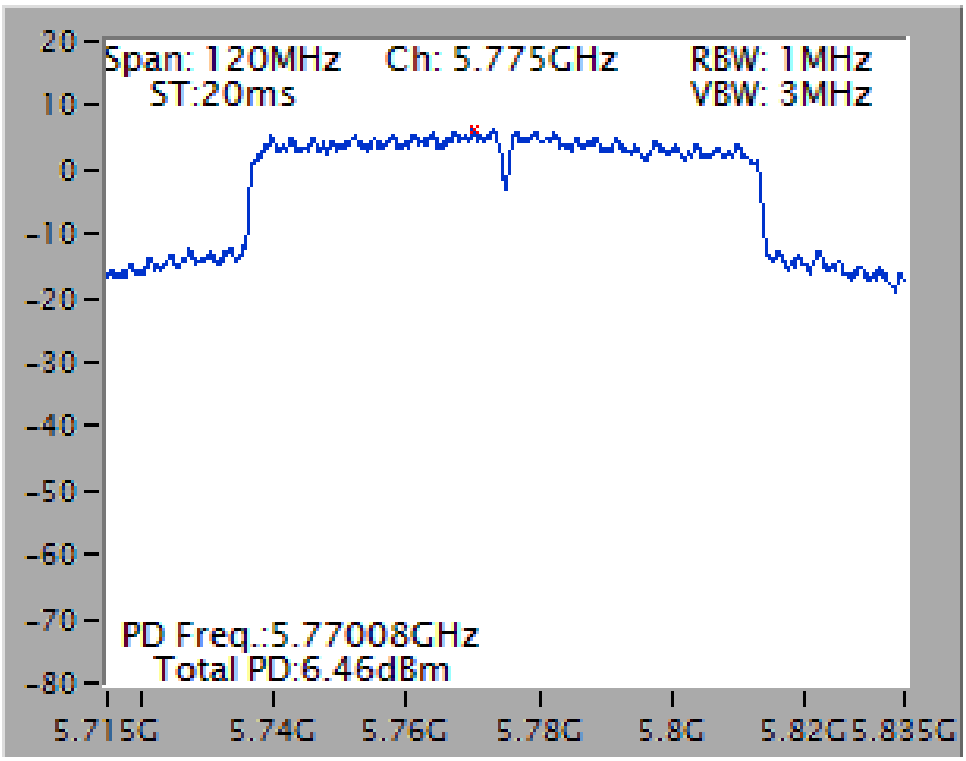
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 1 + Ant. 2 / 5755 MHz



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Ant. 1 + Ant. 2 / 5210 MHz

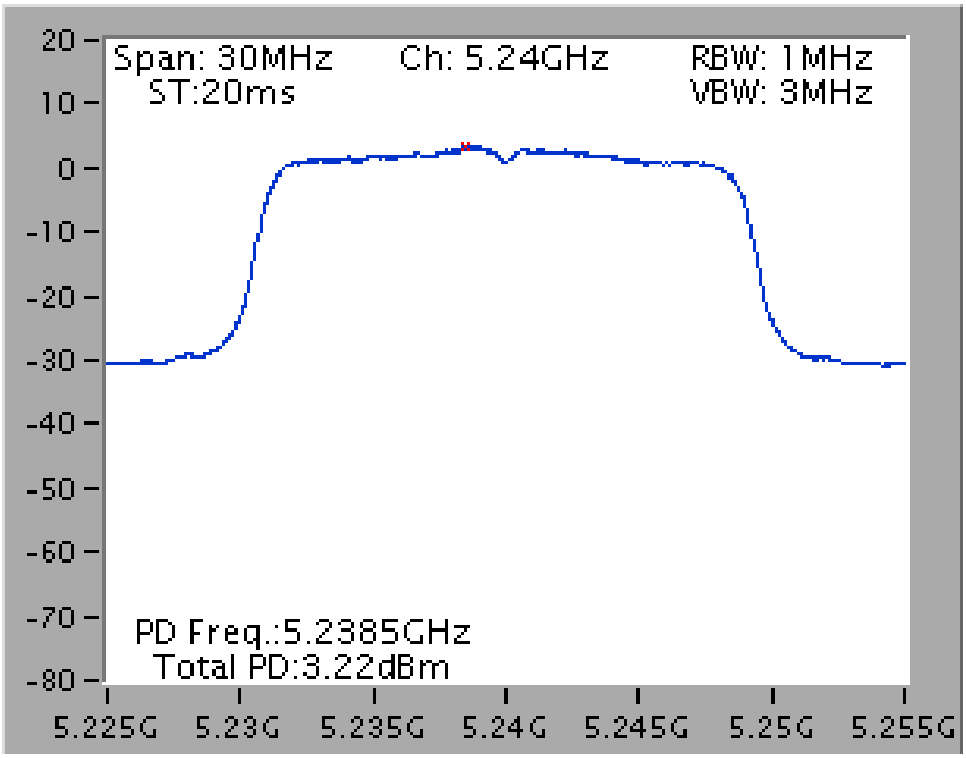


Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Ant. 1 + Ant. 2 / 5775 MHz

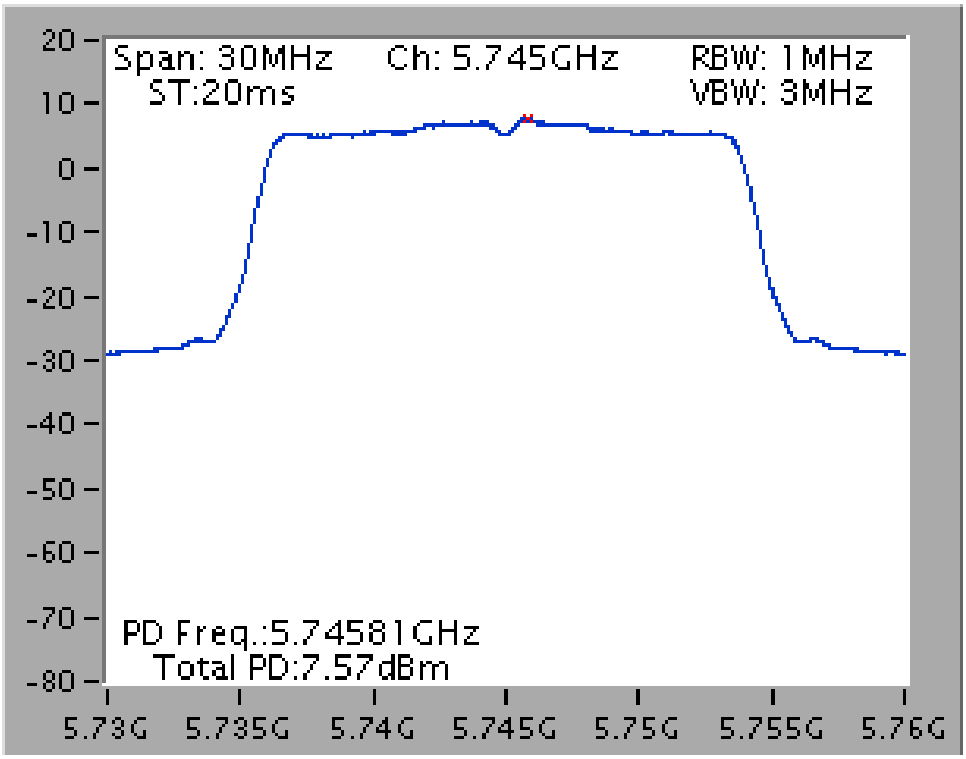


For beamforming mode:

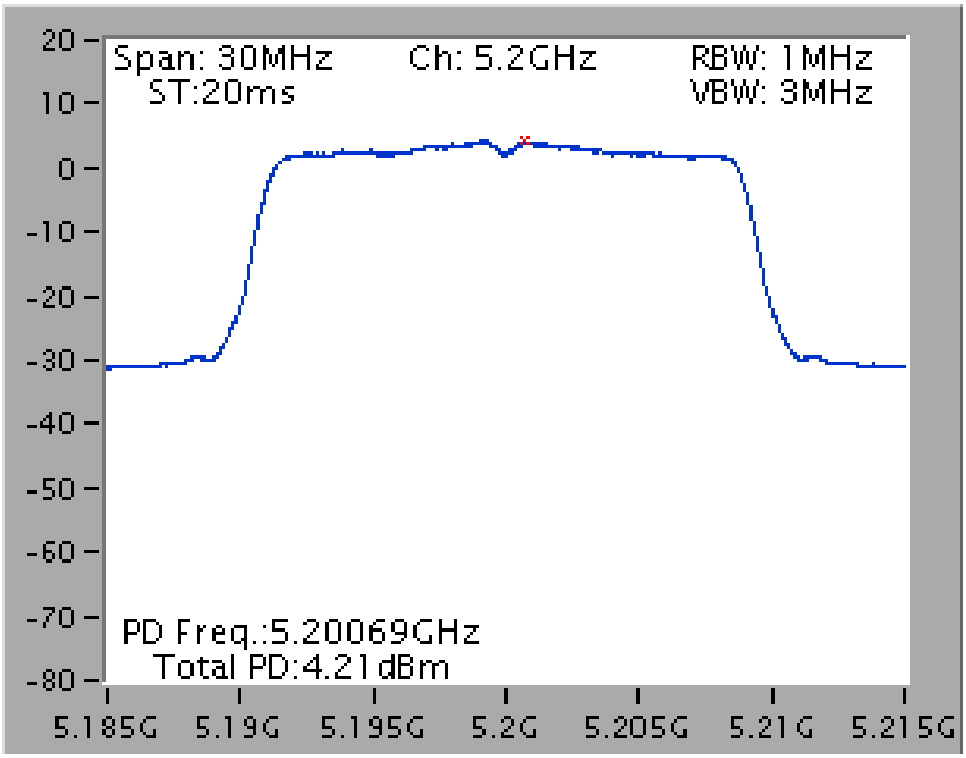
Power Density Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 / 5240 MHz



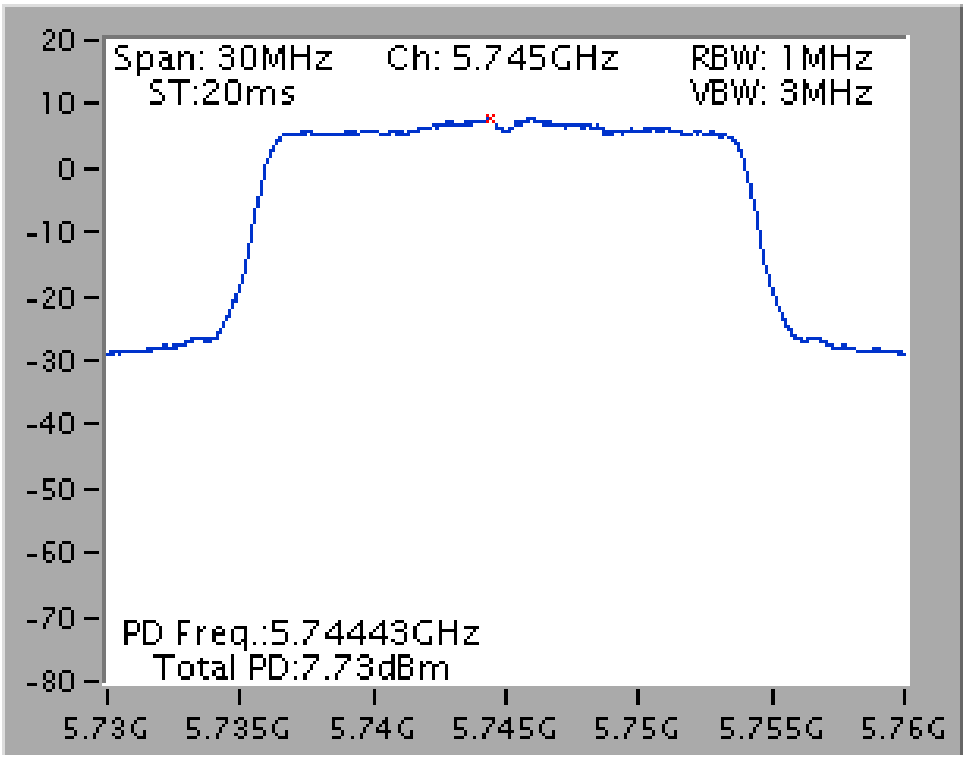
Power Density Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 / 5745 MHz



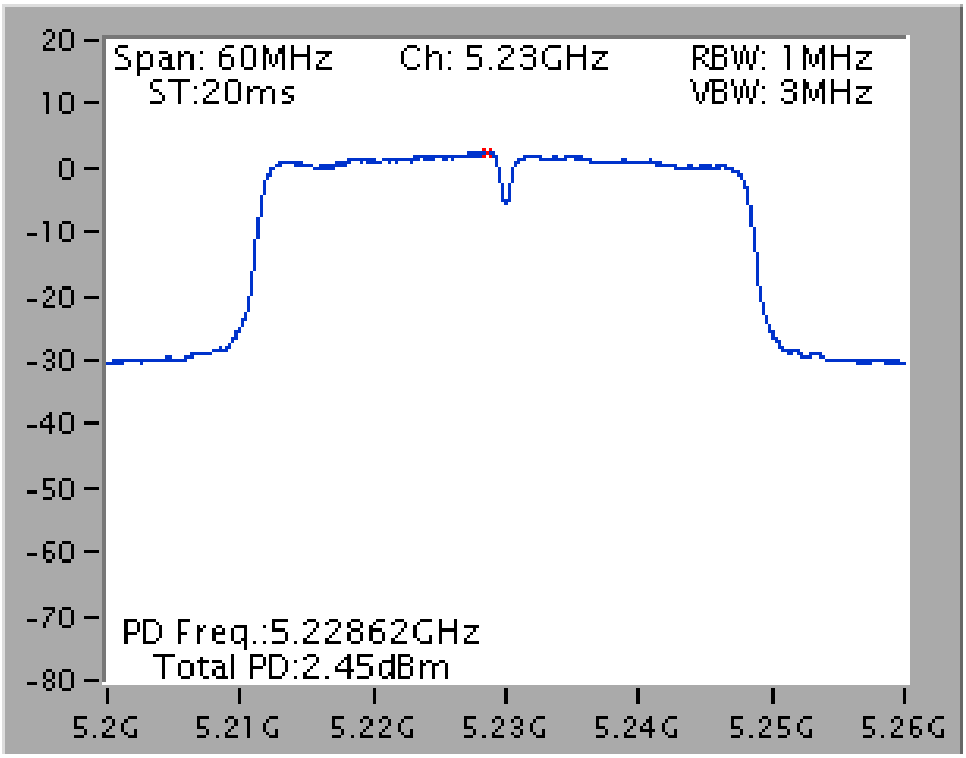
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 / 5200 MHz



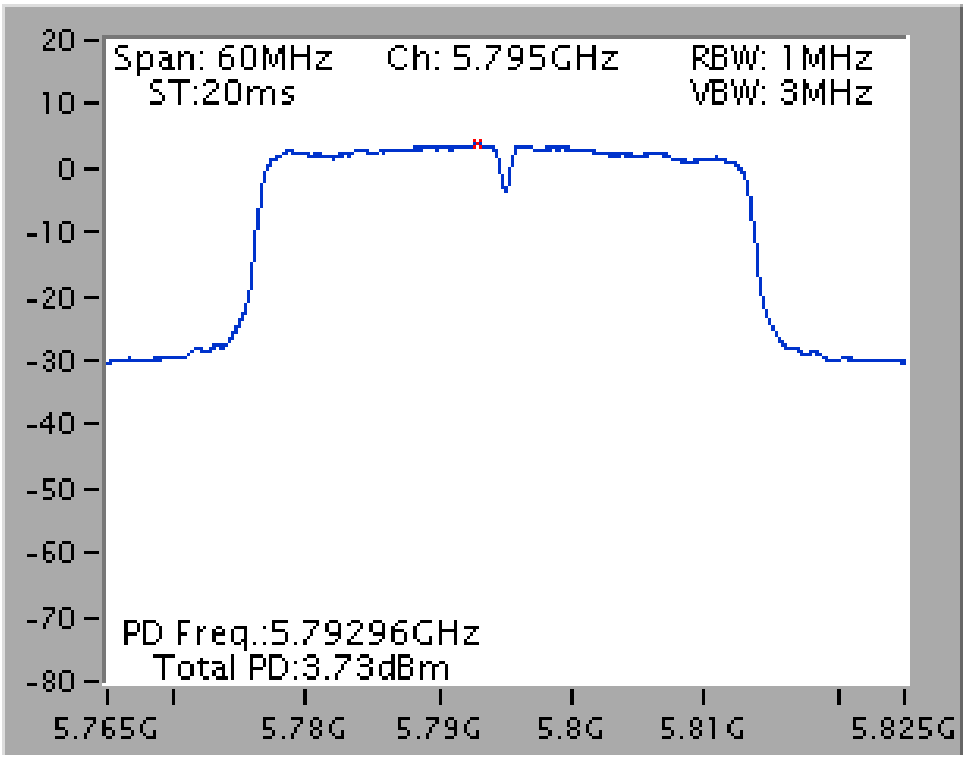
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 / 5745 MHz



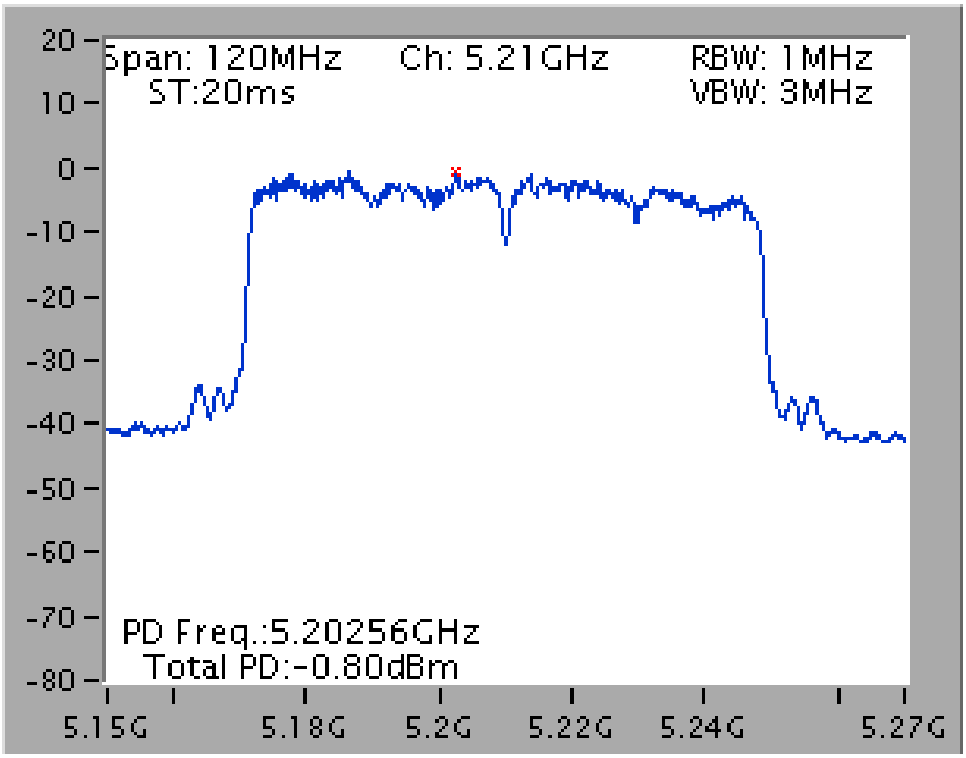
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 1 + Ant. 2 / 5230 MHz



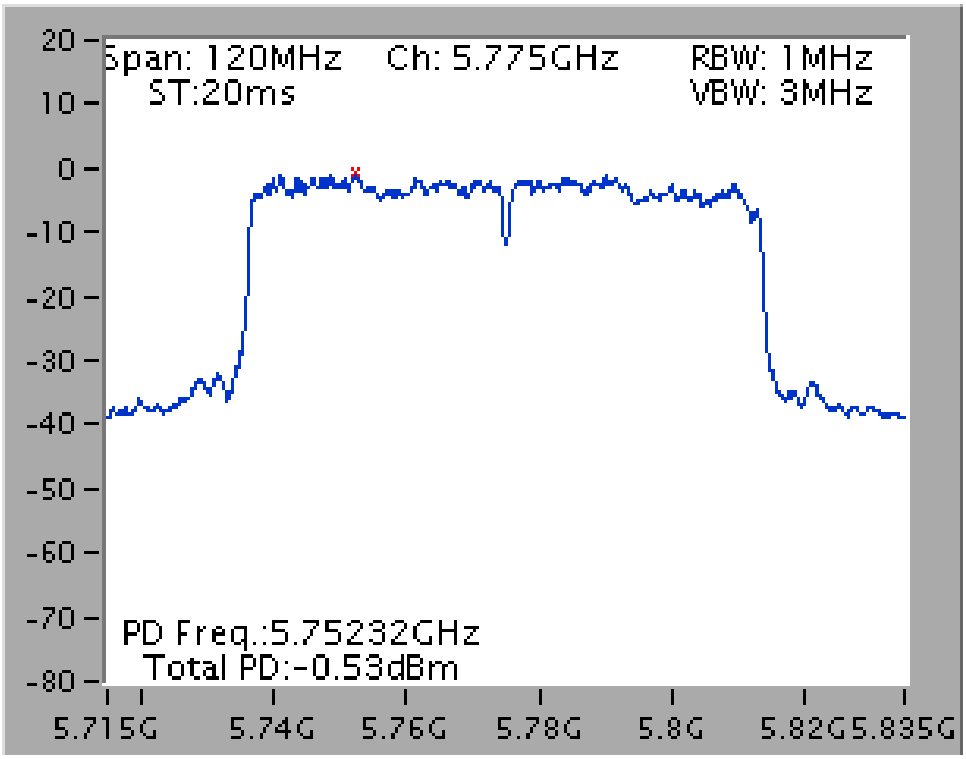
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 1 + Ant. 2 / 5795 MHz



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Ant. 1 + Ant. 2 / 5210 MHz



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Ant. 1 + Ant. 2 / 5775 MHz



4.6. Radiated Emissions Measurement

4.6.1. Limit

For transmitters operating in the 5.15-5.25 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 5.725-5.85 GHz band: all emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

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

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

4.6.2. Measuring Instruments and Setting

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

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

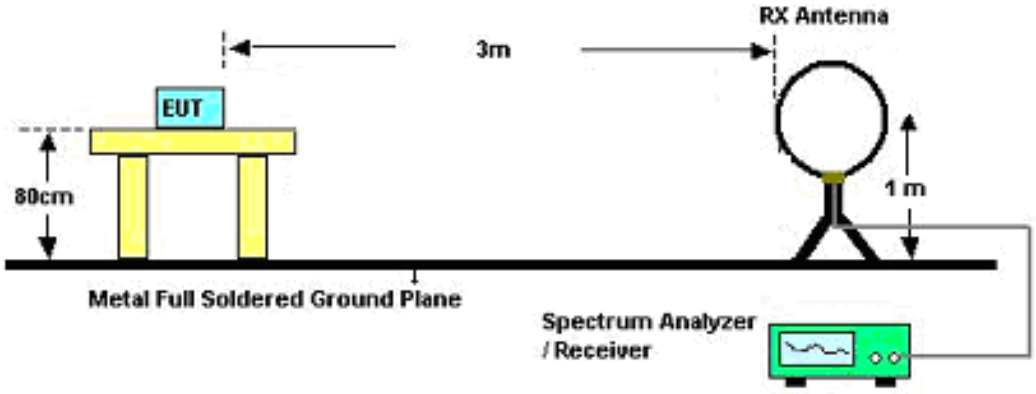
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RBW 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RBW 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RBW 120kHz for QP

4.6.3. Test Procedures

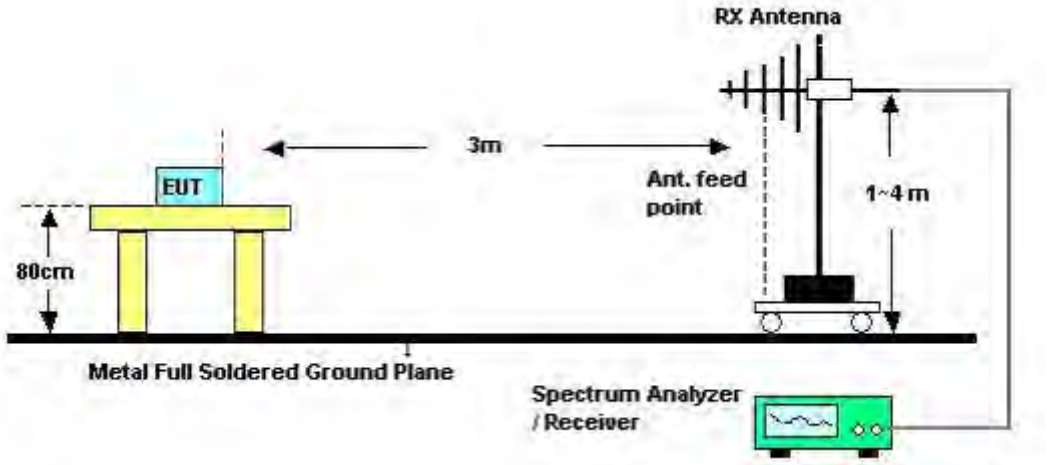
1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 1m & 3m far away from the turntable.
2. Power on the EUT and all the supporting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

4.6.4. Test Setup Layout

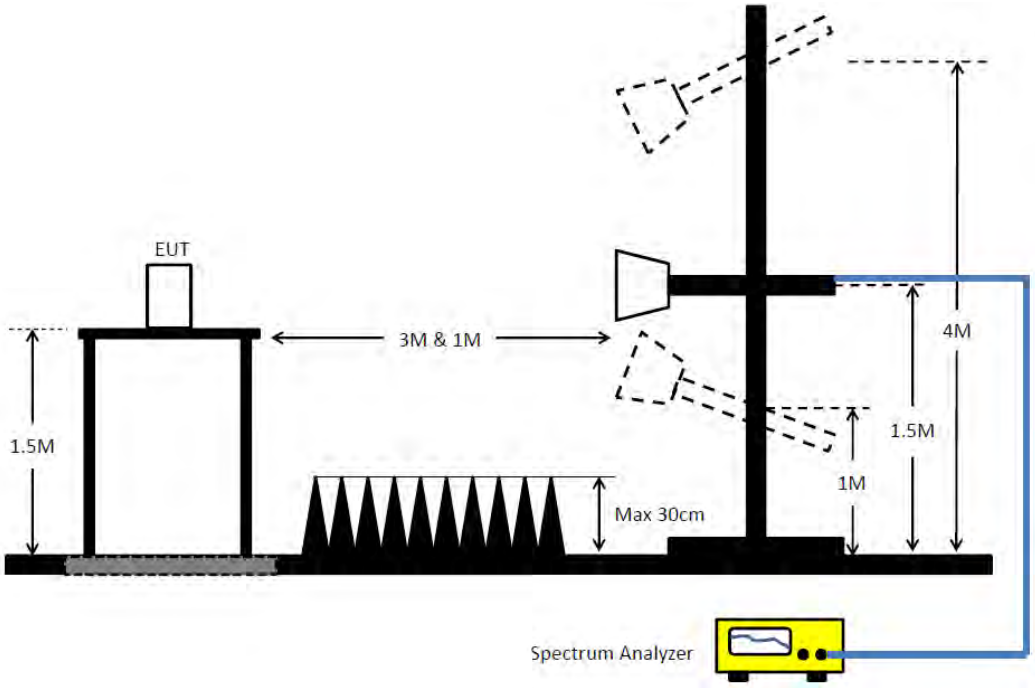
For Radiated Emissions: 9kHz ~30MHz



For Radiated Emissions: 30MHz~1GHz



For Radiated Emissions: Above 1GHz



4.6.5. Test Deviation

There is no deviation with the original standard.

4.6.6. EUT Operation during Test

For Non-beamforming mode:

The EUT was programmed to be in continuously transmitting mode.

For beamforming mode:

The EUT was programmed to be in beamforming transmitting mode.

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

Temperature	21°C	Humidity	50%
Test Engineer	Mason Chen	Configurations	CTX
Test Date	Feb. 08, 2017		

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

Note:

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

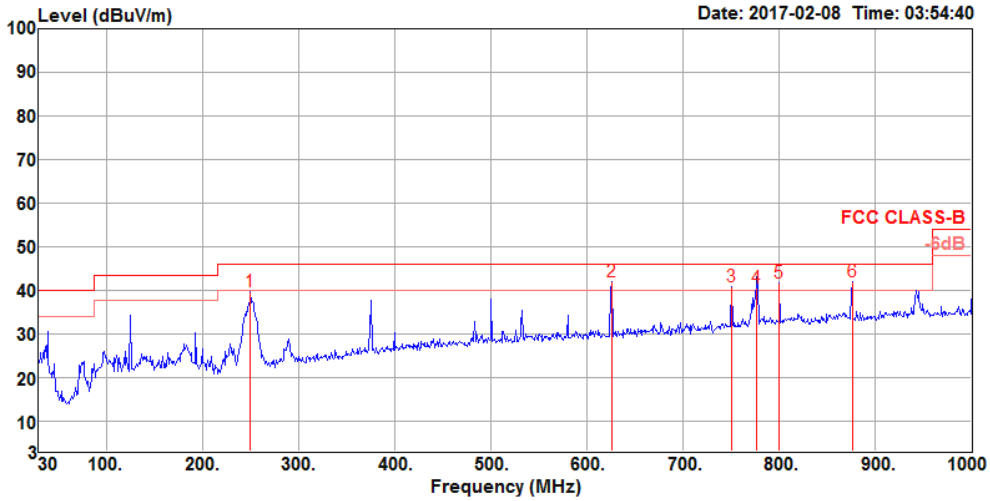
Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

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

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

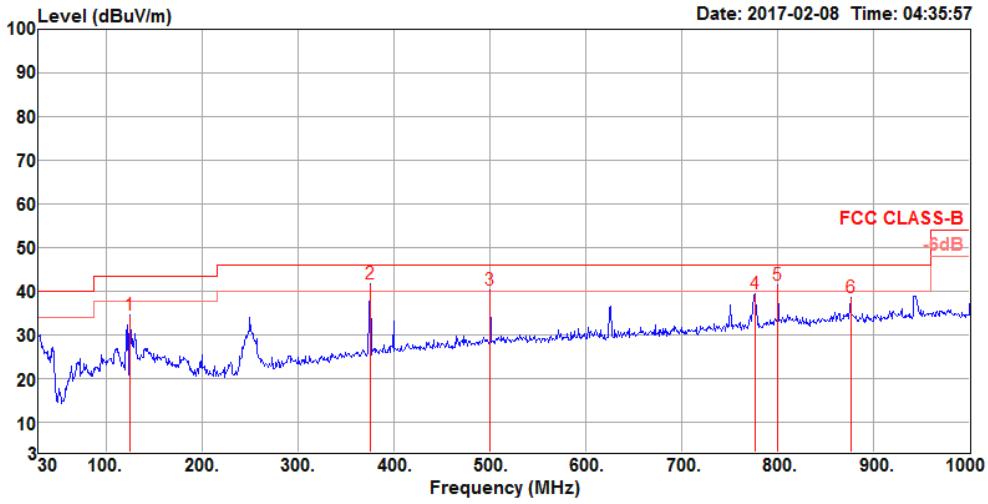
Temperature	21℃	Humidity	50%
Test Engineer	Mason Chen	Configurations	CTX

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	250.19	39.68	46.00	-6.32	50.44	2.74	18.80	32.30	100	130	Peak	HORIZONTAL
2	625.58	41.84	46.00	-4.16	44.62	4.44	25.16	32.38	150	30	Peak	HORIZONTAL
3	750.71	40.69	46.00	-5.31	41.99	4.87	26.10	32.27	200	349	Peak	HORIZONTAL
4	776.90	40.61	46.00	-5.39	41.49	4.97	26.38	32.23	200	281	QP	HORIZONTAL
5	800.18	41.72	46.00	-4.28	42.27	5.05	26.60	32.20	200	214	Peak	HORIZONTAL
6	875.84	41.92	46.00	-4.08	41.22	5.30	27.20	31.80	100	7	Peak	HORIZONTAL

Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	125.06	34.36	43.50	-9.14	46.39	1.90	18.45	32.38	100	183	Peak	VERTICAL
2	375.32	41.72	46.00	-4.28	48.82	3.40	21.78	32.28	150	308	Peak	VERTICAL
3	500.45	40.11	46.00	-5.89	44.67	3.96	23.82	32.34	100	271	Peak	VERTICAL
4	775.93	39.48	46.00	-6.52	40.36	4.97	26.38	32.23	200	53	Peak	VERTICAL
5	800.18	41.46	46.00	-4.54	42.01	5.05	26.60	32.20	150	112	Peak	VERTICAL
6	875.84	38.61	46.00	-7.39	37.91	5.30	27.20	31.80	200	356	Peak	VERTICAL

Note:

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

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

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

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

For non-beamforming mode:

Temperature	21°C	Humidity	50%
Test Engineer	Mason Chen	Configurations	IEEE 802.11a CH 36 / Ant. 1 + Ant. 2
Test Date	Jul. 23, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15540.64	65.02	74.00	-8.98	48.32	12.06	38.13	33.49	203	288	Peak	HORIZONTAL
2	15542.08	51.49	54.00	-2.51	34.79	12.06	38.13	33.49	203	288	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15539.52	50.75	54.00	-3.25	34.05	12.06	38.13	33.49	198	45	Average	VERTICAL
2	15541.60	64.31	74.00	-9.69	47.61	12.06	38.13	33.49	198	45	Peak	VERTICAL

Temperature	21°C	Humidity	50%
Test Engineer	Mason Chen	Configurations	IEEE 802.11a CH 40 / Ant. 1 + Ant. 2
Test Date	Jul. 23, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15599.28	53.60	54.00	-0.40	36.99	12.09	38.05	33.53	250	38	Average	HORIZONTAL
2	15600.48	66.79	74.00	-7.21	50.23	12.11	37.98	33.53	250	38	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15599.44	53.81	54.00	-0.19	37.20	12.09	38.05	33.53	241	353	Average	VERTICAL
2	15600.40	67.21	74.00	-6.79	50.60	12.09	38.05	33.53	241	353	Peak	VERTICAL

Temperature	21°C	Humidity	50%
Test Engineer	Mason Chen	Configurations	IEEE 802.11a CH 48 / Ant. 1 + Ant. 2
Test Date	Jul. 23, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15719.52	53.82	54.00	-0.18	37.50	12.15	37.84	33.67	195	324	Average	HORIZONTAL
2	15719.92	66.99	74.00	-7.01	50.67	12.15	37.84	33.67	195	324	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15719.44	53.77	54.00	-0.23	37.45	12.15	37.84	33.67	231	20	Average	VERTICAL
2	15719.52	66.03	74.00	-7.97	49.71	12.15	37.84	33.67	231	20	Peak	VERTICAL

Temperature	21°C	Humidity	50%
Test Engineer	Mason Chen	Configurations	IEEE 802.11a CH 149 / Ant. 1 + Ant. 2
Test Date	Jul. 25, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11488.41	68.83	74.00	-5.17	52.71	10.10	39.20	33.18	214	12	Peak	HORIZONTAL
2	11490.32	53.62	54.00	-0.38	37.50	10.10	39.20	33.18	214	12	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11488.28	63.08	74.00	-10.92	46.96	10.10	39.20	33.18	203	356	Peak	VERTICAL
2	11490.19	49.62	54.00	-4.38	33.50	10.10	39.20	33.18	203	356	Average	VERTICAL

Temperature	21°C	Humidity	50%
Test Engineer	Mason Chen	Configurations	IEEE 802.11a CH 157 / Ant. 1 + Ant. 2
Test Date	Jul. 25, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11570.35	53.86	54.00	-0.14	37.73	10.13	39.20	33.20	221	15	Average	HORIZONTAL
2	11571.89	68.33	74.00	-5.67	52.20	10.13	39.20	33.20	221	15	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11570.35	51.15	54.00	-2.85	35.02	10.13	39.20	33.20	199	135	Average	VERTICAL
2	11572.21	64.69	74.00	-9.31	48.56	10.13	39.20	33.20	199	135	Peak	VERTICAL

Temperature	21°C	Humidity	50%
Test Engineer	Mason Chen	Configurations	IEEE 802.11a CH 165 / Ant. 1 + Ant. 2
Test Date	Jul. 25, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11648.41	68.61	74.00	-5.39	52.47	10.16	39.20	33.22	214	14	Peak	HORIZONTAL
2	11650.32	53.84	54.00	-0.16	37.70	10.16	39.20	33.22	214	14	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11648.25	62.64	74.00	-11.36	46.50	10.16	39.20	33.22	205	347	Peak	VERTICAL
2	11650.32	49.51	54.00	-4.49	33.37	10.16	39.20	33.22	205	347	Average	VERTICAL

Temperature	21°C	Humidity	50%
Test Engineer	Mason Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 36 / Ant. 1 + Ant. 2
Test Date	Jul. 25, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15538.30	49.79	54.00	-4.21	33.09	12.06	38.13	33.49	193	317	Average	HORIZONTAL
2	15547.37	65.97	74.00	-8.03	49.27	12.06	38.13	33.49	193	317	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15540.83	48.59	54.00	-5.41	31.89	12.06	38.13	33.49	204	330	Average	VERTICAL
2	15541.47	63.85	74.00	-10.15	47.15	12.06	38.13	33.49	204	330	Peak	VERTICAL

Temperature	21°C	Humidity	50%
Test Engineer	Mason Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 40 / Ant. 1 + Ant. 2
Test Date	Jul. 25, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10399.23	67.65	74.00	-6.35	53.14	9.54	38.54	33.57	218	306	Peak	HORIZONTAL
2	10399.87	52.81	54.00	-1.19	38.30	9.54	38.54	33.57	218	306	Average	HORIZONTAL
3	15598.40	53.79	54.00	-0.21	37.18	12.09	38.05	33.53	195	334	Average	HORIZONTAL
4	15606.92	70.00	74.00	-4.00	53.44	12.11	37.98	33.53	195	334	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10399.29	68.30	74.00	-5.70	53.79	9.54	38.54	33.57	208	148	Peak	VERTICAL
2	10399.68	53.59	54.00	-0.41	39.08	9.54	38.54	33.57	208	148	Average	VERTICAL
3	15598.14	52.09	54.00	-1.91	35.48	12.09	38.05	33.53	239	29	Average	VERTICAL
4	15606.79	67.13	74.00	-6.87	50.57	12.11	37.98	33.53	239	29	Peak	VERTICAL

Temperature	21°C	Humidity	50%
Test Engineer	Mason Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 48 / Ant. 1 + Ant. 2
Test Date	Jul. 25, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15720.79	67.69	74.00	-6.31	51.37	12.15	37.84	33.67	203	23	Peak	HORIZONTAL
2	15720.90	52.07	54.00	-1.93	35.75	12.15	37.84	33.67	203	23	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15718.11	49.01	54.00	-4.99	32.69	12.15	37.84	33.67	199	37	Average	VERTICAL
2	15720.92	64.05	74.00	-9.95	47.73	12.15	37.84	33.67	199	37	Peak	VERTICAL

Temperature	21°C	Humidity	50%
Test Engineer	Mason Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 149 / Ant. 1 + Ant. 2
Test Date	Jul. 25, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11489.23	69.82	74.00	-4.18	53.70	10.10	39.20	33.18	214	11	Peak	HORIZONTAL
2	11490.16	53.69	54.00	-0.31	37.57	10.10	39.20	33.18	214	11	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11489.54	65.44	74.00	-8.56	49.32	10.10	39.20	33.18	245	256	Peak	VERTICAL
2	11490.07	49.61	54.00	-4.39	33.49	10.10	39.20	33.18	245	256	Average	VERTICAL

Temperature	21°C	Humidity	50%
Test Engineer	Mason Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 157 / Ant. 1 + Ant. 2
Test Date	Jul. 25, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11568.27	68.81	74.00	-5.19	52.68	10.13	39.20	33.20	216	11	Peak	HORIZONTAL
2	11569.78	53.71	54.00	-0.29	37.58	10.13	39.20	33.20	216	11	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11568.14	64.38	74.00	-9.62	48.25	10.13	39.20	33.20	241	134	Peak	VERTICAL
2	11569.97	49.62	54.00	-4.38	33.49	10.13	39.20	33.20	241	134	Average	VERTICAL

Temperature	21°C	Humidity	50%
Test Engineer	Mason Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 165 / Ant. 1 + Ant. 2
Test Date	Jul. 25, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11649.26	69.66	74.00	-4.34	53.52	10.16	39.20	33.22	219	15	Peak	HORIZONTAL
2	11650.26	53.70	54.00	-0.30	37.56	10.16	39.20	33.22	219	15	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11648.18	64.71	74.00	-9.29	48.57	10.16	39.20	33.22	203	349	Peak	VERTICAL
2	11650.06	49.85	54.00	-4.15	33.71	10.16	39.20	33.22	203	349	Average	VERTICAL

Temperature	21°C	Humidity	50%
Test Engineer	Mason Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 38 / Ant. 1 + Ant. 2
Test Date	Jul. 26, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15569.55	58.74	74.00	-15.26	42.13	12.09	38.05	33.53	279	305	Peak	HORIZONTAL
2	15570.21	45.89	54.00	-8.11	29.28	12.09	38.05	33.53	279	305	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15570.46	45.39	54.00	-8.61	28.78	12.09	38.05	33.53	177	239	Average	VERTICAL
2	15570.78	58.18	74.00	-15.82	41.57	12.09	38.05	33.53	177	239	Peak	VERTICAL

Temperature	21°C	Humidity	50%
Test Engineer	Mason Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 46 / Ant. 1 + Ant. 2
Test Date	Jul. 26, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15690.46	66.29	74.00	-7.71	49.87	12.13	37.91	33.62	196	314	Peak	HORIZONTAL
2	15692.34	53.56	54.00	-0.44	37.19	12.15	37.84	33.62	196	314	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15688.08	62.78	74.00	-11.22	46.36	12.13	37.91	33.62	202	39	Peak	VERTICAL
2	15690.06	50.02	54.00	-3.98	33.60	12.13	37.91	33.62	202	39	Average	VERTICAL

Temperature	21°C	Humidity	50%
Test Engineer	Mason Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 151 / Ant. 1 + Ant. 2
Test Date	Jul. 26, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11509.92	64.18	74.00	-9.82	48.07	10.10	39.20	33.19	214	305	Peak	HORIZONTAL
2	11510.24	53.47	54.00	-0.53	37.36	10.10	39.20	33.19	214	305	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11510.08	52.72	54.00	-1.28	36.61	10.10	39.20	33.19	203	6	Average	VERTICAL
2	11510.16	62.45	74.00	-11.55	46.34	10.10	39.20	33.19	203	6	Peak	VERTICAL

Temperature	21°C	Humidity	50%
Test Engineer	Mason Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 159 / Ant. 1 + Ant. 2
Test Date	Jul. 26, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11590.32	53.59	54.00	-0.41	37.45	10.15	39.20	33.21	219	15	Average	HORIZONTAL
2	11590.32	66.41	74.00	-7.59	50.27	10.15	39.20	33.21	219	15	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11590.16	48.31	54.00	-5.69	32.17	10.15	39.20	33.21	204	266	Average	VERTICAL
2	11590.24	59.61	74.00	-14.39	43.47	10.15	39.20	33.21	204	266	Peak	VERTICAL

Temperature	21°C	Humidity	50%
Test Engineer	Mason Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 42 / Ant. 1 + Ant. 2
Test Date	Jul. 26, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15633.65	58.58	74.00	-15.42	42.07	12.11	37.98	33.58	254	238	Peak	HORIZONTAL
2	15637.47	45.63	54.00	-8.37	29.12	12.11	37.98	33.58	254	238	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15636.54	45.69	54.00	-8.31	29.18	12.11	37.98	33.58	252	263	Average	VERTICAL
2	15637.40	58.40	74.00	-15.60	41.89	12.11	37.98	33.58	252	263	Peak	VERTICAL

Temperature	21°C	Humidity	50%
Test Engineer	Mason Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 155 / Ant. 1 + Ant. 2
Test Date	Jul. 26, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11541.22	58.69	74.00	-15.31	42.56	10.12	39.20	33.19	253	306	Peak	HORIZONTAL
2	11549.49	45.83	54.00	-8.17	29.71	10.12	39.20	33.20	253	306	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11544.07	57.92	74.00	-16.08	41.79	10.12	39.20	33.19	249	202	Peak	VERTICAL
2	11550.16	46.00	54.00	-8.00	29.88	10.12	39.20	33.20	249	202	Average	VERTICAL

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.

For beamforming mode:

Temperature	21°C	Humidity	50%
Test Engineer	Mason Chen	Configurations	IEEE 802.11a CH 36 / Ant. 1 + Ant. 2
Test Date	Jul. 23, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15717.60	60.87	74.00	-13.13	43.84	12.64	38.29	33.90	142	279	Peak	HORIZONTAL
2	15734.94	48.45	54.00	-5.55	31.42	12.64	38.29	33.90	142	279	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15708.84	48.67	54.00	-5.33	31.63	12.64	38.29	33.89	150	308	Average	VERTICAL
2	15729.24	61.26	74.00	-12.74	44.23	12.64	38.29	33.90	150	308	Peak	VERTICAL

Temperature	21°C	Humidity	50%
Test Engineer	Mason Chen	Configurations	IEEE 802.11a CH 40 / Ant. 1 + Ant. 2
Test Date	Jul. 23, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15588.54	61.95	74.00	-12.05	44.70	12.58	38.54	33.87	100	170	Peak	HORIZONTAL
2	15592.56	48.83	54.00	-5.17	31.58	12.58	38.54	33.87	108	170	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15592.14	48.64	54.00	-5.36	31.39	12.58	38.54	33.87	212	243	Average	VERTICAL
2	15599.94	61.69	74.00	-12.31	44.44	12.58	38.54	33.87	212	243	Peak	VERTICAL

Temperature	21°C	Humidity	50%
Test Engineer	Mason Chen	Configurations	IEEE 802.11a CH 48 / Ant. 1 + Ant. 2
Test Date	Jul. 23, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15722.94	61.07	74.00	-12.93	44.04	12.64	38.29	33.90	228	162	Peak	HORIZONTAL
2	15723.06	48.56	54.00	-5.44	31.53	12.64	38.29	33.90	228	162	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15717.36	61.30	74.00	-12.70	44.27	12.64	38.29	33.90	254	119	Peak	VERTICAL
2	15734.46	48.61	54.00	-5.39	31.58	12.64	38.29	33.90	254	119	Average	VERTICAL

Temperature	21°C	Humidity	50%
Test Engineer	Mason Chen	Configurations	IEEE 802.11a CH 149 / Ant. 1 + Ant. 2
Test Date	Jul. 25, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11478.72	58.30	74.00	-15.70	41.09	10.99	40.02	33.80	160	185	Peak	HORIZONTAL
2	11486.76	45.77	54.00	-8.23	28.56	11.01	40.00	33.80	160	185	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11476.56	59.25	74.00	-14.75	42.04	10.99	40.02	33.80	184	241	Peak	VERTICAL
2	11493.36	46.05	54.00	-7.95	28.84	11.01	40.00	33.80	184	241	Average	VERTICAL

Temperature	21°C	Humidity	50%
Test Engineer	Mason Chen	Configurations	IEEE 802.11a CH 157 / Ant. 1 + Ant. 2
Test Date	Jul. 25, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11567.84	46.00	54.00	-8.00	28.87	11.04	39.87	33.78	162	282	Average	HORIZONTAL
2	11568.20	58.66	74.00	-15.34	41.53	11.04	39.87	33.78	162	282	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11582.36	59.48	74.00	-14.52	42.35	11.04	39.87	33.78	130	327	Peak	VERTICAL
2	11584.10	45.62	54.00	-8.38	28.54	11.06	39.80	33.78	130	327	Average	VERTICAL

Temperature	21°C	Humidity	50%
Test Engineer	Mason Chen	Configurations	IEEE 802.11a CH 165 / Ant. 1 + Ant. 2
Test Date	Jul. 25, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11648.86	59.45	74.00	-14.55	42.42	11.07	39.73	33.77	212	169	Peak	HORIZONTAL
2	11649.76	46.56	54.00	-7.44	29.53	11.07	39.73	33.77	212	169	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11645.92	58.86	74.00	-15.14	41.83	11.07	39.73	33.77	245	218	Peak	VERTICAL
2	11657.20	46.09	54.00	-7.91	29.10	11.09	39.67	33.77	245	218	Average	VERTICAL

Temperature	21°C	Humidity	50%
Test Engineer	Mason Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 36 / Ant. 1 + Ant. 2
Test Date	Jul. 25, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15535.78	49.80	54.00	-4.20	32.48	12.56	38.62	33.86	127	247	Average	HORIZONTAL
2	15544.04	63.04	74.00	-10.96	45.72	12.56	38.62	33.86	127	247	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15541.82	63.17	74.00	-10.83	45.85	12.56	38.62	33.86	164	37	Peak	VERTICAL
2	15543.82	50.01	54.00	-3.99	32.69	12.56	38.62	33.86	164	37	Average	VERTICAL

Temperature	21°C	Humidity	50%
Test Engineer	Mason Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 40 / Ant. 1 + Ant. 2
Test Date	Jul. 25, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15597.30	63.13	74.00	-10.87	45.88	12.58	38.54	33.87	160	117	Peak	HORIZONTAL
2	15600.58	48.92	54.00	-5.08	31.74	12.60	38.45	33.87	160	117	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15596.12	48.88	54.00	-5.12	31.63	12.58	38.54	33.87	128	225	Average	VERTICAL
2	15602.56	62.03	74.00	-11.97	44.85	12.60	38.45	33.87	128	225	Peak	VERTICAL

Temperature	21°C	Humidity	50%
Test Engineer	Mason Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 48 / Ant. 1 + Ant. 2
Test Date	Jul. 25, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15726.18	49.40	54.00	-4.60	32.37	12.64	38.29	33.90	151	360	Average	HORIZONTAL
2	15727.98	61.70	74.00	-12.30	44.67	12.64	38.29	33.90	151	360	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15734.28	59.50	74.00	-14.50	42.47	12.64	38.29	33.90	137	271	Peak	VERTICAL
2	15734.88	48.75	54.00	-5.25	31.72	12.64	38.29	33.90	137	271	Average	VERTICAL

Temperature	21°C	Humidity	50%
Test Engineer	Mason Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 149 / Ant. 1 + Ant. 2
Test Date	Jul. 25, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11475.72	46.02	54.00	-7.98	28.81	10.99	40.02	33.80	112	159	Average	HORIZONTAL
2	11482.92	58.91	74.00	-15.09	41.70	10.99	40.02	33.80	112	159	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11488.20	46.33	54.00	-7.67	29.12	11.01	40.00	33.80	156	96	Average	VERTICAL
2	11490.24	59.35	74.00	-14.65	42.14	11.01	40.00	33.80	156	96	Peak	VERTICAL

Temperature	21°C	Humidity	50%
Test Engineer	Mason Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 157 / Ant. 1 + Ant. 2
Test Date	Jul. 25, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11577.38	59.46	74.00	-14.54	42.33	11.04	39.87	33.78	166	359	Peak	HORIZONTAL
2	11584.10	45.86	54.00	-8.14	28.78	11.06	39.80	33.78	166	359	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11558.90	46.00	54.00	-8.00	28.87	11.04	39.87	33.78	184	220	Average	VERTICAL
2	11573.36	58.90	74.00	-15.10	41.77	11.04	39.87	33.78	184	220	Peak	VERTICAL

Temperature	21°C	Humidity	50%
Test Engineer	Mason Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 165 / Ant. 1 + Ant. 2
Test Date	Jul. 25, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11648.74	59.69	74.00	-14.31	42.66	11.07	39.73	33.77	135	146	Peak	HORIZONTAL
2	11660.44	46.13	54.00	-7.87	29.14	11.09	39.67	33.77	135	146	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11648.92	59.37	74.00	-14.63	42.34	11.07	39.73	33.77	163	167	Peak	VERTICAL
2	11651.44	46.67	54.00	-7.33	29.68	11.09	39.67	33.77	163	167	Average	VERTICAL

Temperature	21°C	Humidity	50%
Test Engineer	Mason Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 38 / Ant. 1 + Ant. 2
Test Date	Jul. 26, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15560.04	49.36	54.00	-4.64	32.11	12.58	38.54	33.87	147	305	Average	HORIZONTAL
2	15564.54	61.73	74.00	-12.27	44.48	12.58	38.54	33.87	147	305	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15559.92	49.02	54.00	-4.98	31.77	12.58	38.54	33.87	162	332	Average	VERTICAL
2	15578.28	61.38	74.00	-12.62	44.13	12.58	38.54	33.87	162	332	Peak	VERTICAL

Temperature	21°C	Humidity	50%
Test Engineer	Mason Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 46 / Ant. 1 + Ant. 2
Test Date	Jul. 26, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15681.12	61.77	74.00	-12.23	44.67	12.62	38.37	33.89	130	193	Peak	HORIZONTAL
2	15690.54	48.69	54.00	-5.31	31.59	12.62	38.37	33.89	130	193	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15698.94	61.29	74.00	-12.71	44.25	12.64	38.29	33.89	155	353	Peak	VERTICAL
2	15703.74	48.44	54.00	-5.56	31.40	12.64	38.29	33.89	155	353	Average	VERTICAL

Temperature	21°C	Humidity	50%
Test Engineer	Mason Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 151 / Ant. 1 + Ant. 2
Test Date	Jul. 26, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11509.70	58.65	74.00	-15.35	41.43	11.01	40.00	33.79	147	210	Peak	HORIZONTAL
2	11511.56	45.59	54.00	-8.41	28.37	11.01	40.00	33.79	147	210	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11501.36	58.99	74.00	-15.01	41.78	11.01	40.00	33.80	144	187	Peak	VERTICAL
2	11517.50	45.79	54.00	-8.21	28.63	11.02	39.93	33.79	144	187	Average	VERTICAL

Temperature	21°C	Humidity	50%
Test Engineer	Mason Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 159 / Ant. 1 + Ant. 2
Test Date	Jul. 26, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11579.08	45.99	54.00	-8.01	28.86	11.04	39.87	33.78	206	174	Average	HORIZONTAL
2	11586.88	58.97	74.00	-15.03	41.89	11.06	39.80	33.78	206	174	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11596.96	58.49	74.00	-15.51	41.41	11.06	39.80	33.78	167	208	Peak	VERTICAL
2	11601.04	45.81	54.00	-8.19	28.73	11.06	39.80	33.78	167	208	Average	VERTICAL

Temperature	21°C	Humidity	50%
Test Engineer	Mason Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 42 / Ant. 1 + Ant. 2
Test Date	Jul. 26, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15630.90	48.50	54.00	-5.50	31.33	12.60	38.45	33.88	215	226	Average	HORIZONTAL
2	15643.74	61.00	74.00	-13.00	43.83	12.60	38.45	33.88	215	226	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15635.52	61.19	74.00	-12.81	44.02	12.60	38.45	33.88	241	182	Peak	VERTICAL
2	15642.54	48.51	54.00	-5.49	31.34	12.60	38.45	33.88	241	182	Average	VERTICAL

Temperature	21°C	Humidity	50%
Test Engineer	Mason Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 155 / Ant. 1 + Ant. 2
Test Date	Jul. 26, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11539.92	58.92	74.00	-15.08	41.76	11.02	39.93	33.79	136	226	Peak	HORIZONTAL
2	11561.22	45.84	54.00	-8.16	28.71	11.04	39.87	33.78	136	226	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11539.20	58.66	74.00	-15.34	41.50	11.02	39.93	33.79	166	191	Peak	VERTICAL
2	11550.18	45.62	54.00	-8.38	28.49	11.04	39.87	33.78	166	191	Average	VERTICAL

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.

4.7. Band Edge Emissions Measurement

4.7.1. Limit

For transmitters operating in the 5.15-5.25 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 5.725-5.85 GHz band: all emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

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

4.7.2. 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	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

4.7.3. Test Procedures

The test procedure is the same as section 4.6.3.

4.7.4. Test Setup Layout

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

4.7.5. Test Deviation

There is no deviation with the original standard.

4.7.6. EUT Operation during Test

For Non-beamforming mode:

The EUT was programmed to be in continuously transmitting mode.

For beamforming mode:

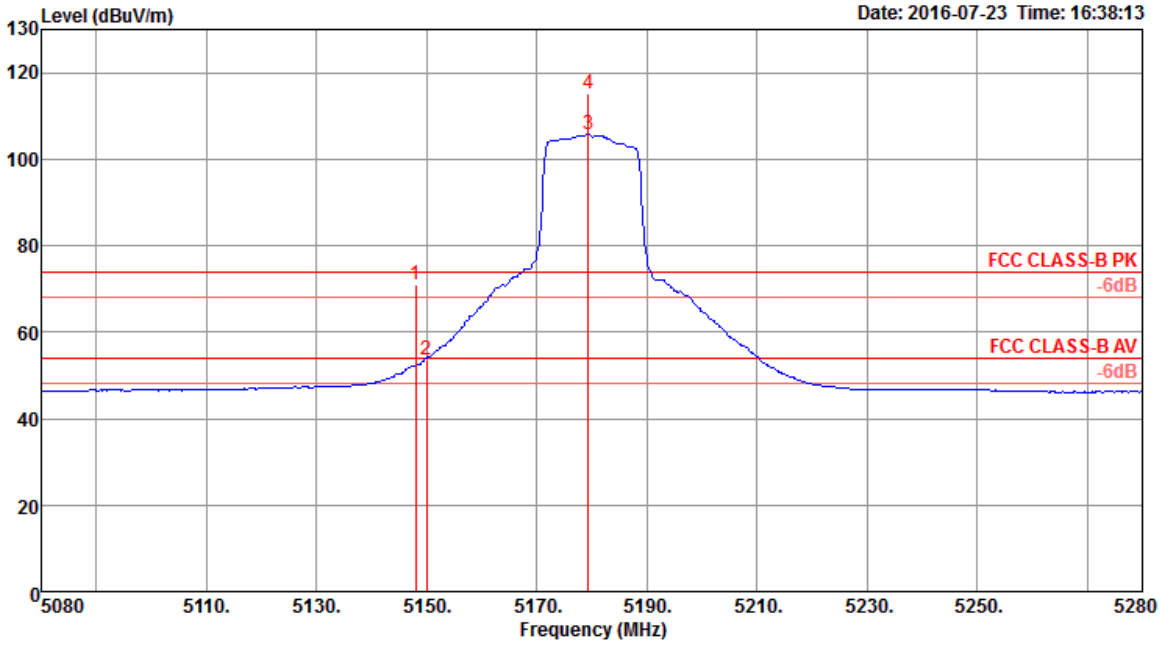
The EUT was programmed to be in beamforming transmitting mode.

4.7.7. Test Result of Band Edge and Fundamental Emissions

For non-beamforming mode:

Temperature	21°C	Humidity	50%
Test Engineer	Mason Chen	Configurations	IEEE 802.11a CH 36, 40, 48 / Ant. 1 + Ant. 2

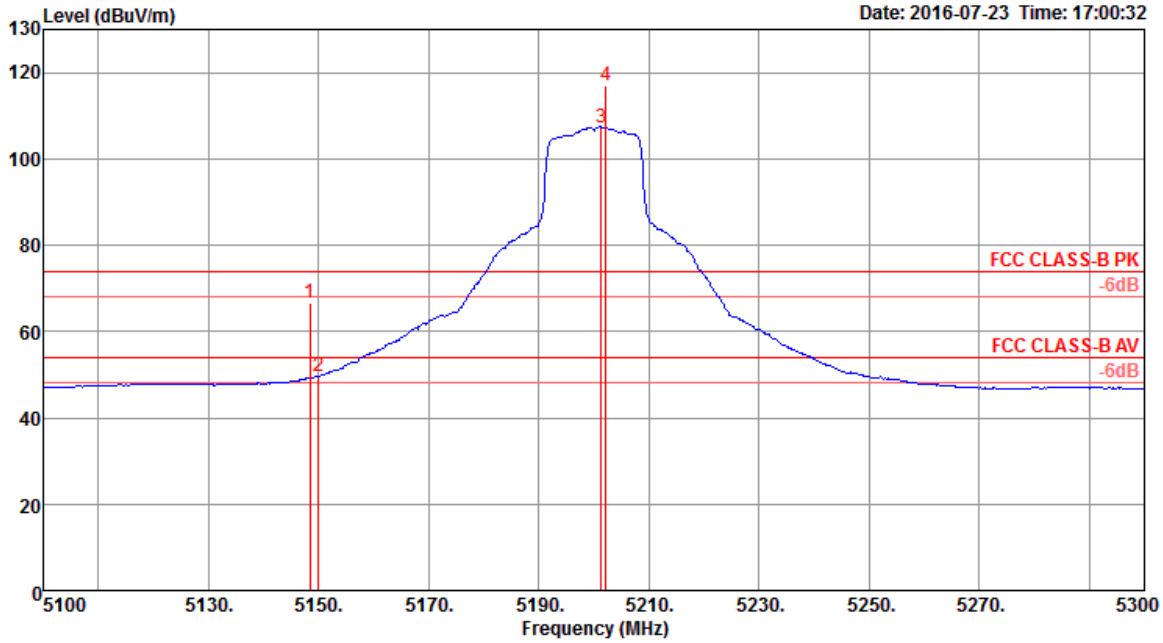
Channel 36



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5147.95	70.81	74.00	-3.19	63.55	6.44	33.74	32.92	239	37	Peak	VERTICAL
2	5150.00	53.70	54.00	-0.30	46.44	6.44	33.74	32.92	239	37	Average	VERTICAL
3	5179.36	105.74			98.40	6.47	33.79	32.92	239	37	Average	VERTICAL
4	5179.36	115.29			107.95	6.47	33.79	32.92	239	37	Peak	VERTICAL

Item 3, 4 are the fundamental frequency at 5180 MHz.

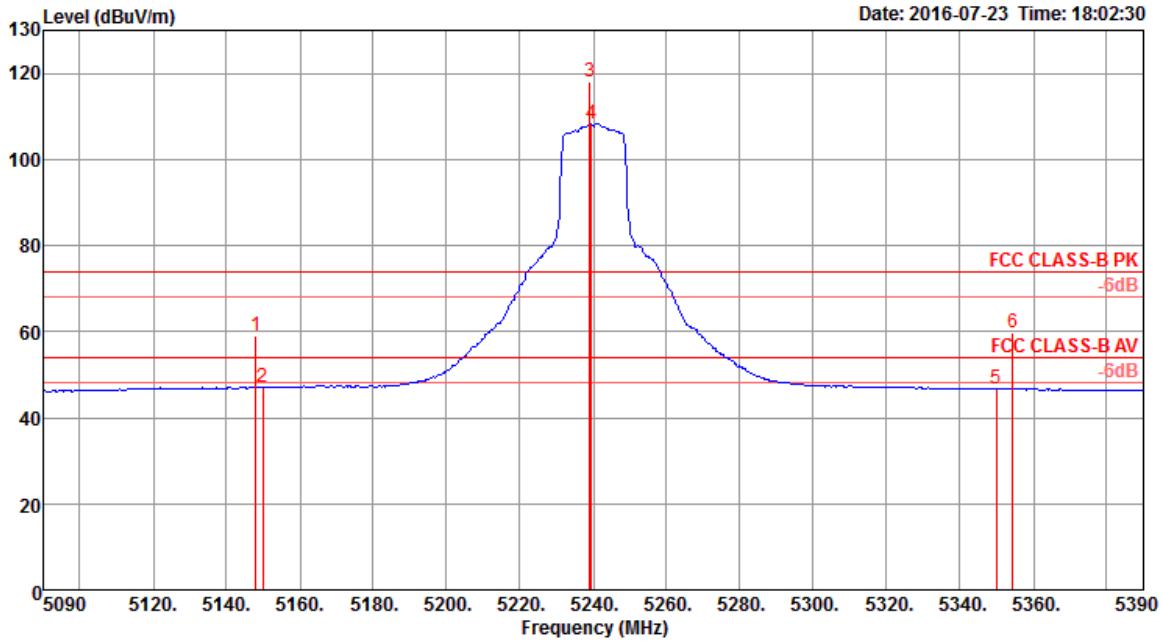
Channel 40



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5148.40	66.53	74.00	-7.47	59.27	6.44	33.74	32.92	235	39	Peak	VERTICAL
2	5150.00	49.66	54.00	-4.34	42.40	6.44	33.74	32.92	235	39	Average	VERTICAL
3	5201.28	107.34			99.96	6.48	33.82	32.92	235	39	Average	VERTICAL
4	5202.24	117.08			109.67	6.49	33.84	32.92	235	39	Peak	VERTICAL

Item 3, 4 are the fundamental frequency at 5200 MHz.

Channel 48

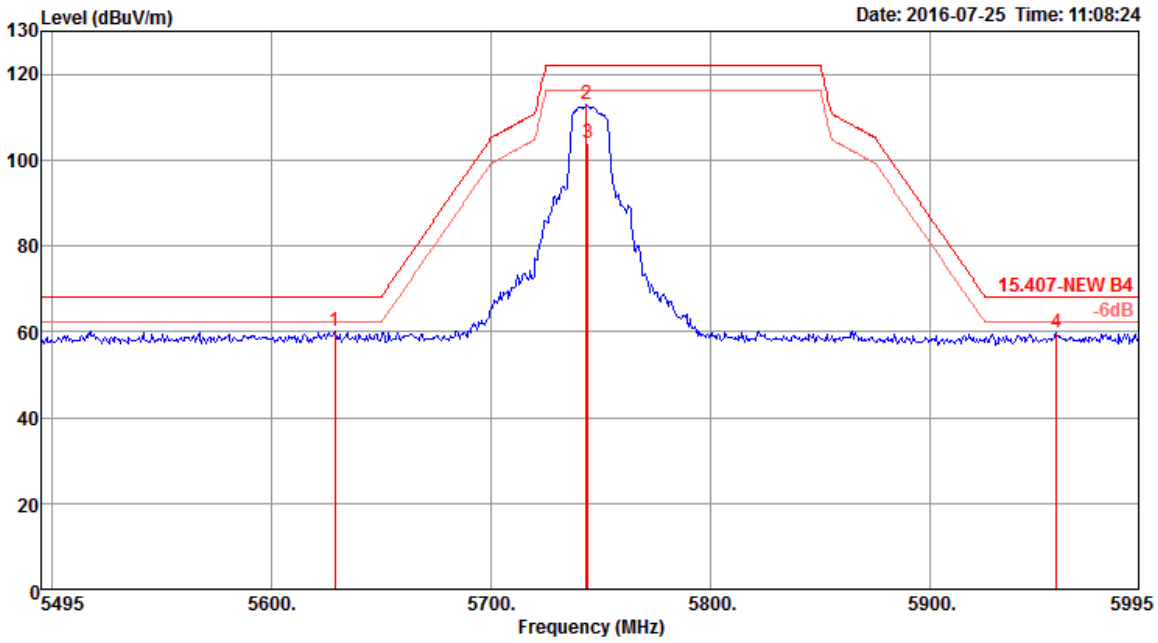


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5148.08	59.18	74.00	-14.82	51.92	6.44	33.74	32.92	258	347	Peak	VERTICAL
2	5150.00	47.04	54.00	-6.96	39.78	6.44	33.74	32.92	258	347	Average	VERTICAL
3	5239.04	117.89			110.40	6.52	33.89	32.92	258	347	Peak	VERTICAL
4	5239.52	108.35			100.86	6.52	33.89	32.92	258	347	Average	VERTICAL
5	5350.00	46.57	54.00	-7.43	38.82	6.61	34.06	32.92	258	347	Average	VERTICAL
6	5354.33	59.79	74.00	-14.21	52.01	6.62	34.08	32.92	258	347	Peak	VERTICAL

Item 3, 4 are the fundamental frequency at 5240 MHz.

Temperature	21°C	Humidity	50%
Test Engineer	Mason Chen	Configurations	IEEE 802.11a CH 149, 157, 165 / Ant. 1 + Ant. 2

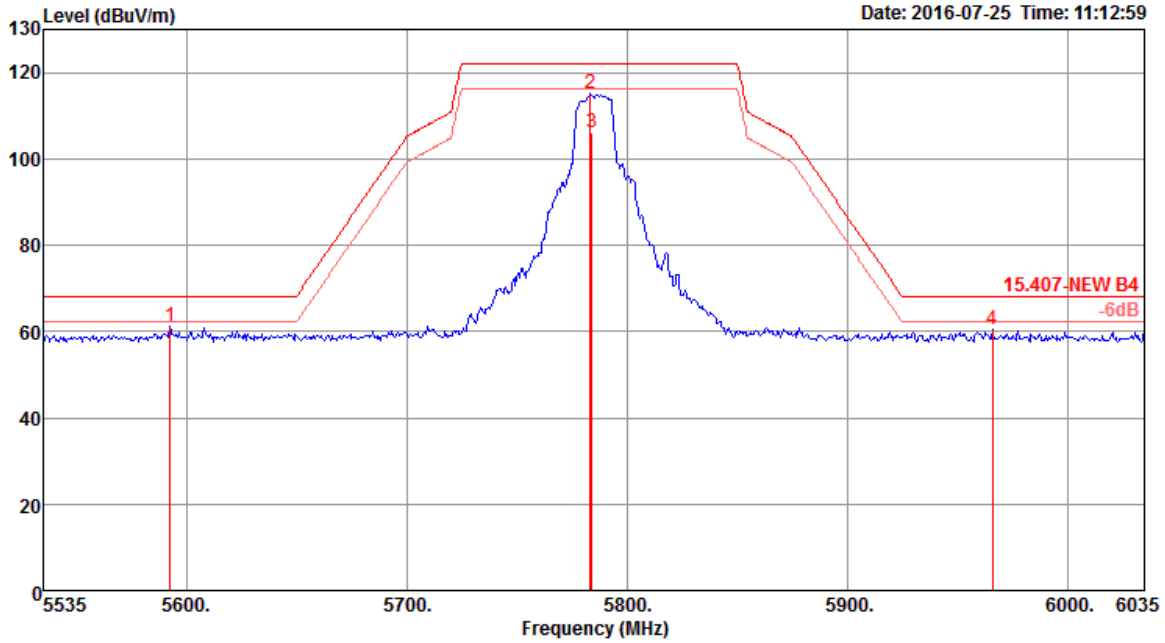
Channel 149



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5629.00	60.02	68.20	-8.18	51.82	6.78	34.38	32.96	250	356	Peak	VERTICAL
2	5743.50	112.90			104.54	6.90	34.45	32.99	250	356	Peak	VERTICAL
3	5744.20	103.75			95.39	6.90	34.45	32.99	250	356	Average	VERTICAL
4	5957.50	59.83	68.20	-8.37	51.32	6.99	34.57	33.05	250	356	Peak	VERTICAL

Item 2, 3 are the fundamental frequency at 5745 MHz.

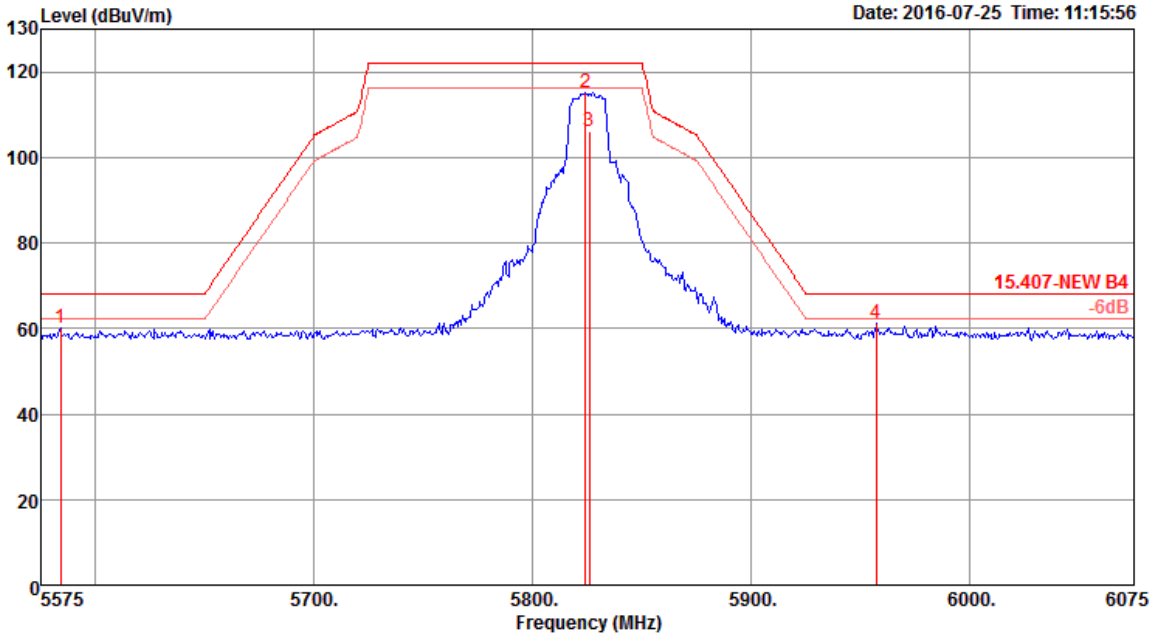
Channel 157



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5592.50	61.30	68.20	-6.90	53.14	6.75	34.36	32.95	250	360	Peak	VERTICAL
2	5783.40	115.24			106.85	6.93	34.47	33.01	250	360	Average	VERTICAL
3	5784.20	106.02			97.63	6.93	34.47	33.01	250	360	Average	VERTICAL
4	5966.00	60.55	68.20	-7.65	52.03	6.99	34.58	33.05	250	360	Peak	VERTICAL

Item 2, 3 are the fundamental frequency at 5785 MHz.

Channel 165

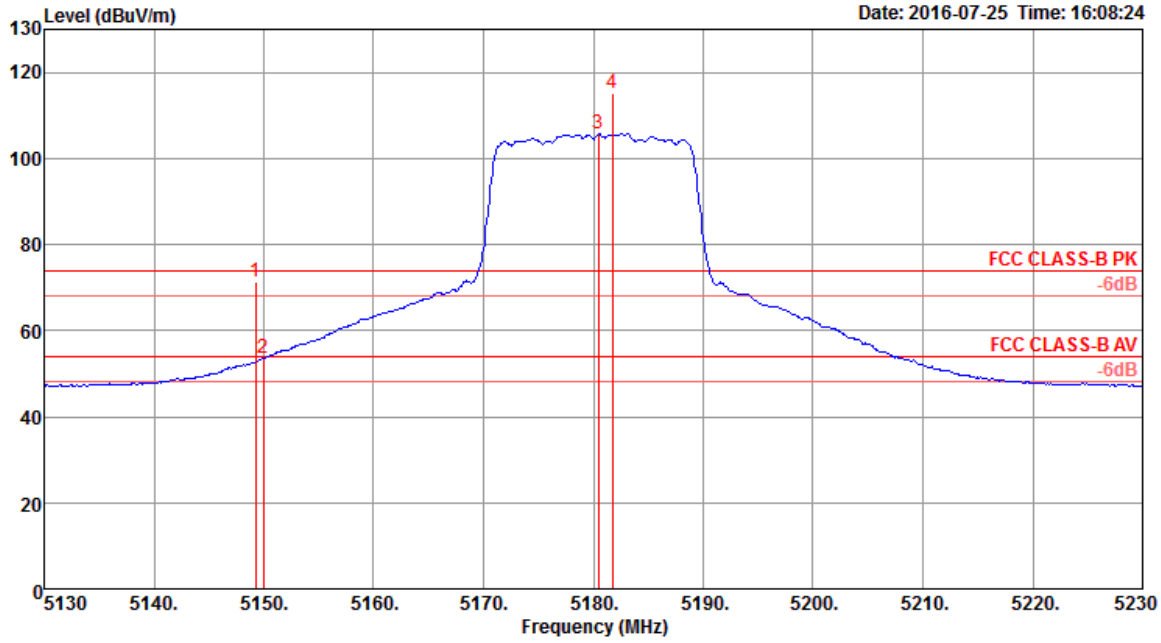


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5584.00	60.15	68.20	-8.05	52.01	6.74	34.35	32.95	250	360	Peak	VERTICAL
2	5824.00	115.09			106.65	6.96	34.50	33.02	250	360	Peak	VERTICAL
3	5825.80	105.93			97.49	6.96	34.50	33.02	250	360	Average	VERTICAL
4	5957.00	61.21	68.20	-6.99	52.70	6.99	34.57	33.05	250	360	Peak	VERTICAL

Item 2, 3 are the fundamental frequency at 5825 MHz.

Temperature	21°C	Humidity	50%
Test Engineer	Mason Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 36, 40, 48 / Ant. 1 + Ant. 2

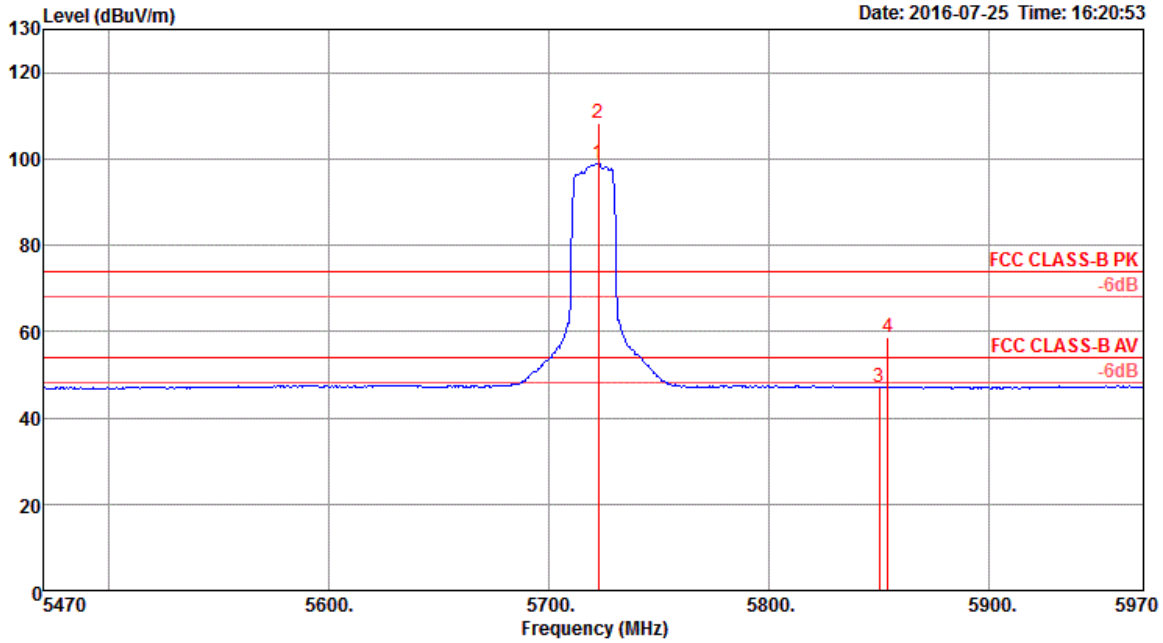
Channel 36



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5149.23	71.28	74.00	-2.72	64.02	6.44	33.74	32.92	250	4	Peak	VERTICAL
2	5150.00	53.55	54.00	-0.45	46.29	6.44	33.74	32.92	250	4	Average	VERTICAL
3	5180.48	105.65			98.31	6.47	33.79	32.92	250	4	Average	VERTICAL
4	5181.76	114.99			107.65	6.47	33.79	32.92	250	4	Peak	VERTICAL

Item 3, 4 are the fundamental frequency at 5180 MHz.

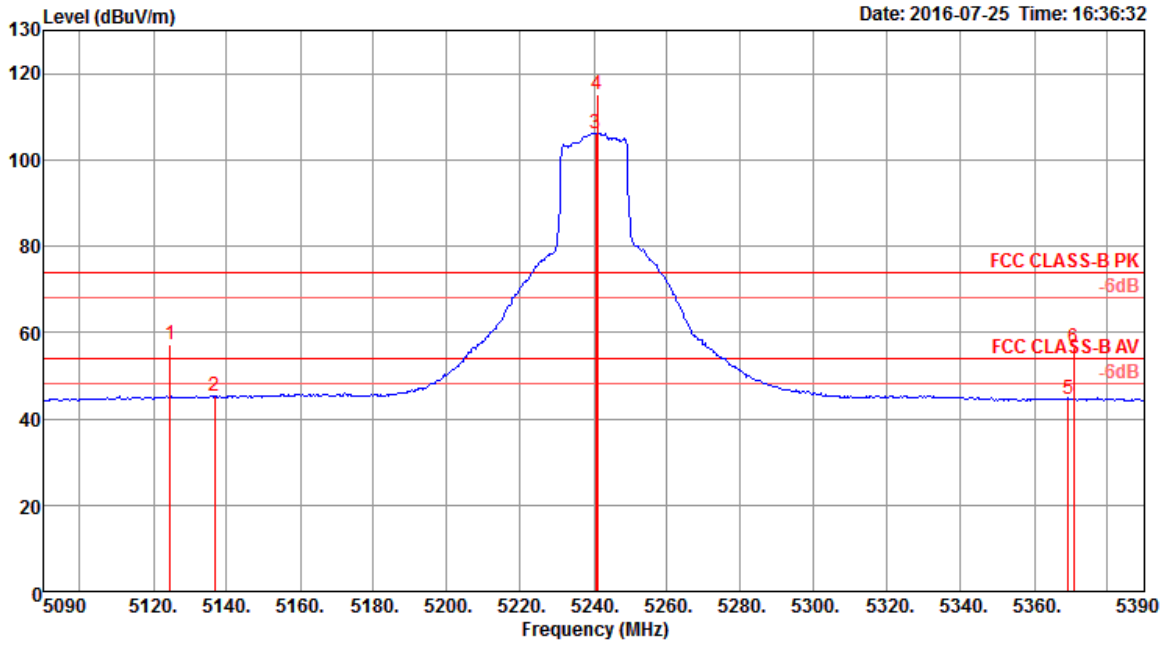
Channel 40



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5722.40	98.80			90.47	6.88	34.44	32.99	250	356	Average	VERTICAL
2	5722.40	108.14			99.81	6.88	34.44	32.99	250	356	Peak	VERTICAL
3	5850.00	46.98	54.00	-7.02	38.53	6.96	34.51	33.02	250	356	Average	VERTICAL
4	5854.01	58.53	74.00	-15.47	50.08	6.96	34.51	33.02	250	356	Peak	VERTICAL

Item 1, 2 are the fundamental frequency at 5200 MHz.

Channel 48

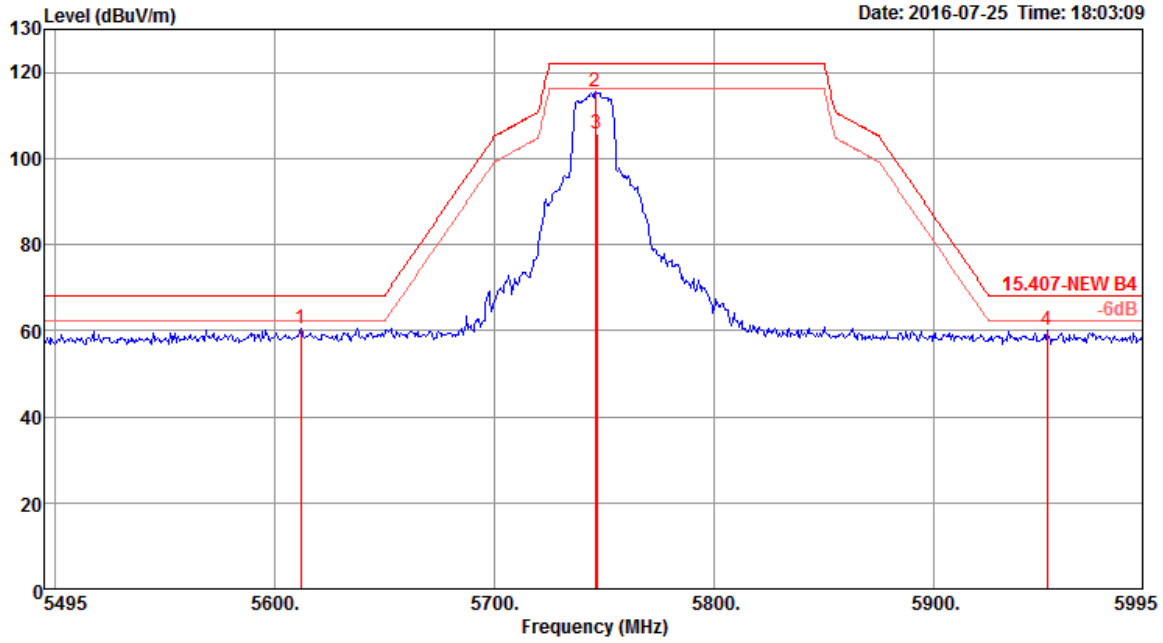


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5124.62	57.32	74.00	-16.68	50.14	6.41	33.69	32.92	254	343	Peak	VERTICAL
2	5136.64	45.26	54.00	-8.74	38.03	6.43	33.72	32.92	254	343	Average	VERTICAL
3	5240.48	106.09			98.60	6.52	33.89	32.92	254	343	Average	VERTICAL
4	5240.96	115.02			107.53	6.52	33.89	32.92	254	343	Peak	VERTICAL
5	5369.33	44.69	54.00	-9.31	36.92	6.62	34.08	32.93	254	343	Average	VERTICAL
6	5370.77	56.65	74.00	-17.35	48.83	6.64	34.11	32.93	254	343	Peak	VERTICAL

Item 3, 4 are the fundamental frequency at 5240 MHz.

Temperature	21°C	Humidity	50%
Test Engineer	Mason Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 149, 157, 165 / Ant. 1 + Ant. 2

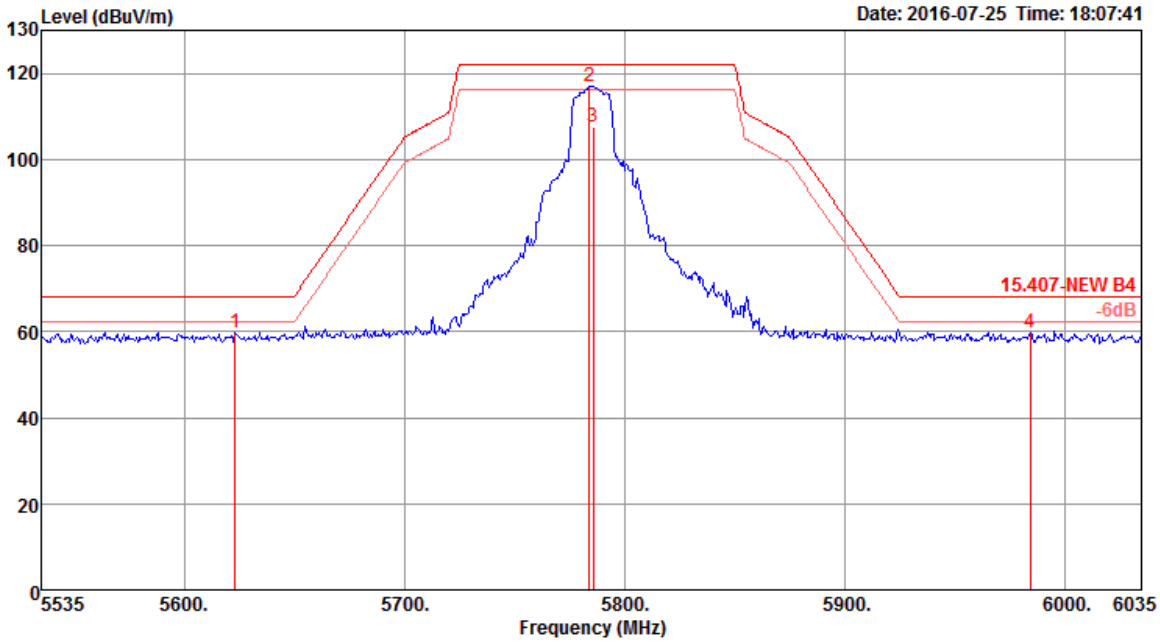
Channel 149



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5612.00	60.44	68.20	-7.76	52.26	6.77	34.37	32.96	251	24	Peak	VERTICAL
2	5746.00	115.34			106.99	6.90	34.45	33.00	251	24	Peak	VERTICAL
3	5746.60	105.92			97.57	6.90	34.45	33.00	251	24	Average	VERTICAL
4	5951.50	60.17	68.20	-8.03	51.66	6.99	34.57	33.05	251	24	Peak	VERTICAL

Item 2, 3 are the fundamental frequency at 5745 MHz.

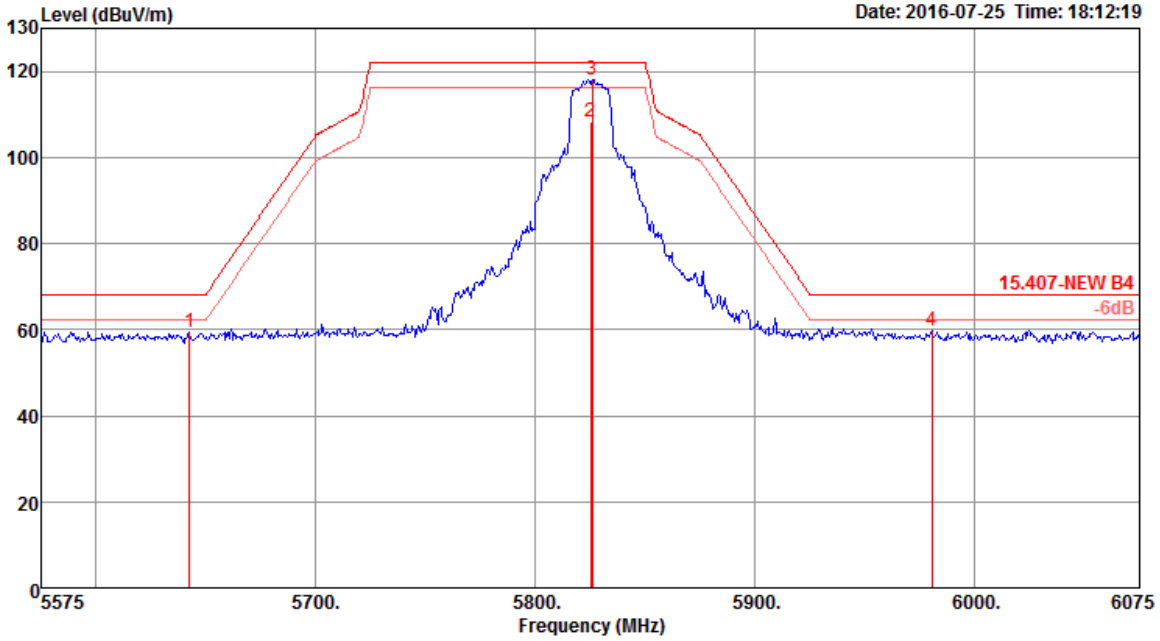
Channel 157



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5623.00	59.62	68.20	-8.58	51.44	6.77	34.37	32.96	255	25	Peak	VERTICAL
2	5784.00	116.99			108.60	6.93	34.47	33.01	255	25	Peak	VERTICAL
3	5785.80	107.43			99.04	6.93	34.47	33.01	255	25	Average	VERTICAL
4	5984.50	59.79	68.20	-8.41	51.26	7.00	34.59	33.06	255	25	Peak	VERTICAL

Item 2, 3 are the fundamental frequency at 5785 MHz.

Channel 165

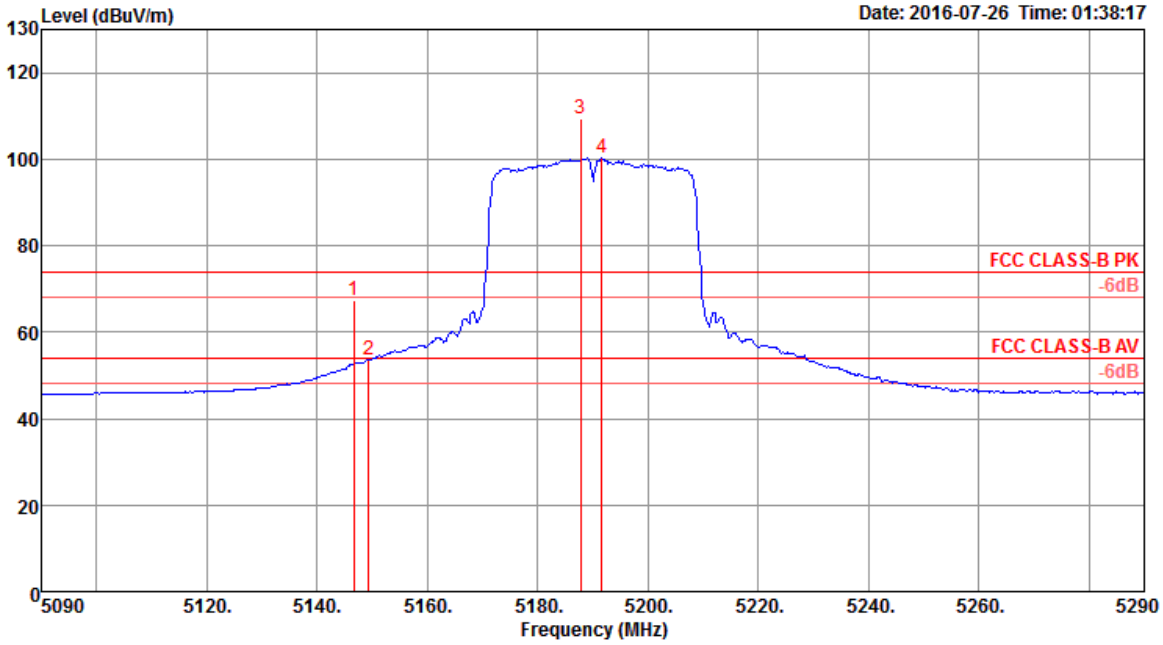


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5642.50	59.40	68.20	-8.80	51.18	6.80	34.39	32.97	248	26	Peak	VERTICAL
2	5825.00	108.45			100.01	6.96	34.50	33.02	248	26	Average	VERTICAL
3	5826.00	118.09			109.65	6.96	34.50	33.02	248	26	Peak	VERTICAL
4	5980.50	59.79	68.20	-8.41	51.26	7.00	34.59	33.06	248	26	Peak	VERTICAL

Item 2, 3 are the fundamental frequency at 5825 MHz.

Temperature	21°C	Humidity	50%
Test Engineer	Mason Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 38, 46 / Ant. 1 + Ant. 2

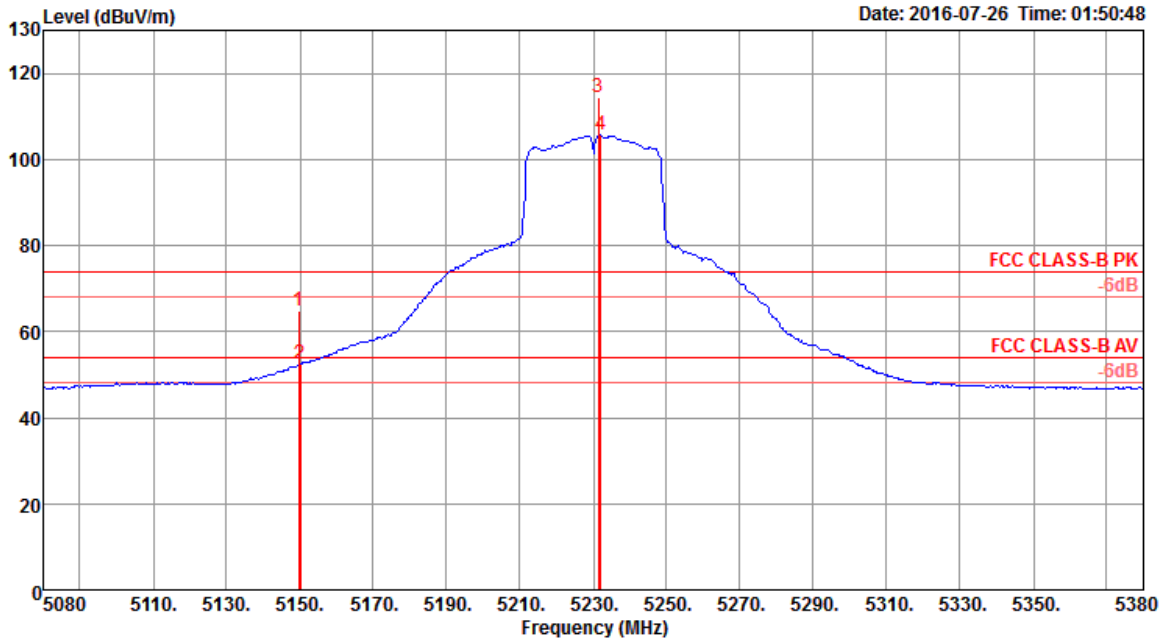
Channel 38



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5146.73	67.46	74.00	-6.54	60.20	6.44	33.74	32.92	272	355	Peak	VERTICAL
2	5149.30	53.64	54.00	-0.36	46.38	6.44	33.74	32.92	272	355	Average	VERTICAL
3	5187.76	109.32			101.94	6.48	33.82	32.92	272	355	Peak	VERTICAL
4	5191.60	100.24			92.86	6.48	33.82	32.92	272	355	Average	VERTICAL

Item 3, 4 are the fundamental frequency at 5190 MHz.

Channel 46

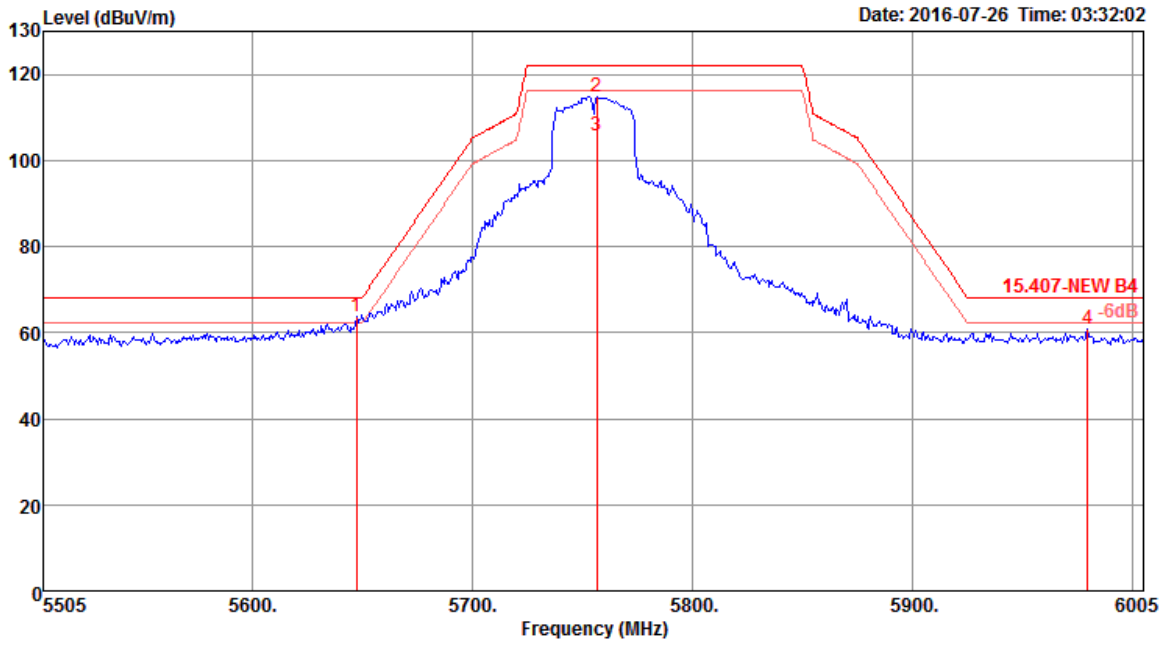


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5149.71	64.91	74.00	-9.09	57.65	6.44	33.74	32.92	275	128	Peak	VERTICAL
2	5150.00	52.47	54.00	-1.53	45.21	6.44	33.74	32.92	275	128	Average	VERTICAL
3	5231.44	114.60			107.15	6.51	33.86	32.92	275	128	Peak	VERTICAL
4	5231.92	105.79			98.30	6.52	33.89	32.92	275	128	Average	VERTICAL

Item 3, 4 are the fundamental frequency at 5230 MHz.

Temperature	21°C	Humidity	50%
Test Engineer	Mason Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 151, 159 / Ant. 1 + Ant. 2

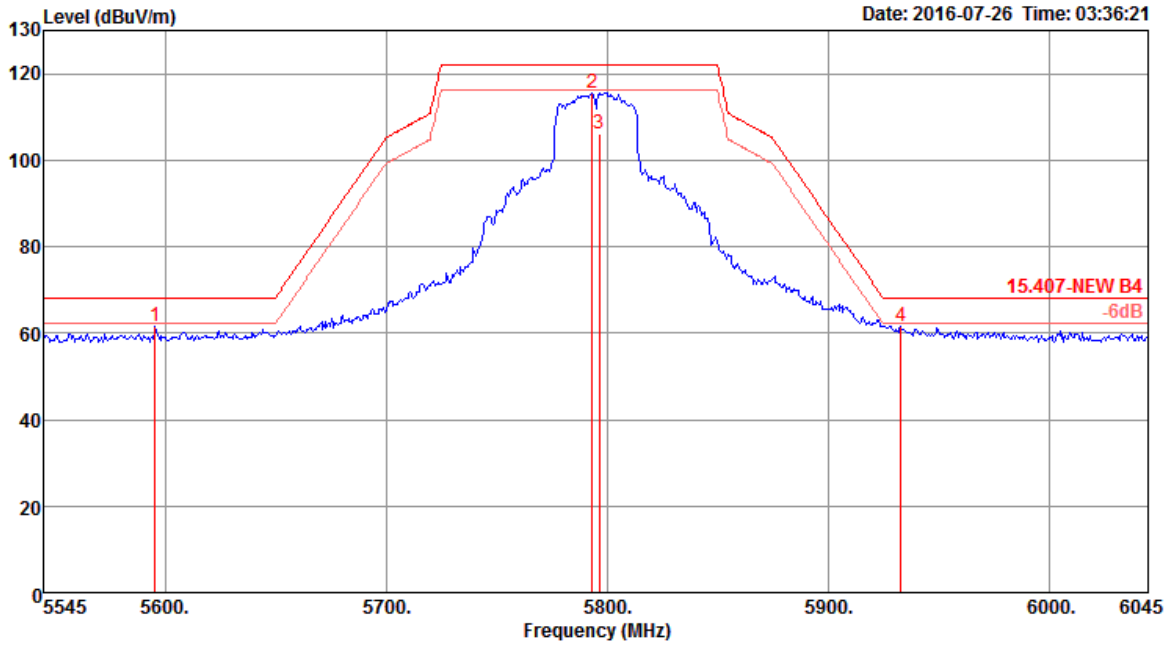
Channel 151



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5647.50	63.91	68.20	-4.29	55.69	6.80	34.39	32.97	246	278	Peak	VERTICAL
2	5756.50	114.96			106.58	6.92	34.46	33.00	246	278	Peak	VERTICAL
3	5756.60	105.75			97.37	6.92	34.46	33.00	246	278	Average	VERTICAL
4	5979.50	60.73	68.20	-7.47	52.20	7.00	34.59	33.06	246	278	Peak	VERTICAL

Item 2, 3 are the fundamental frequency at 5755 MHz.

Channel 159

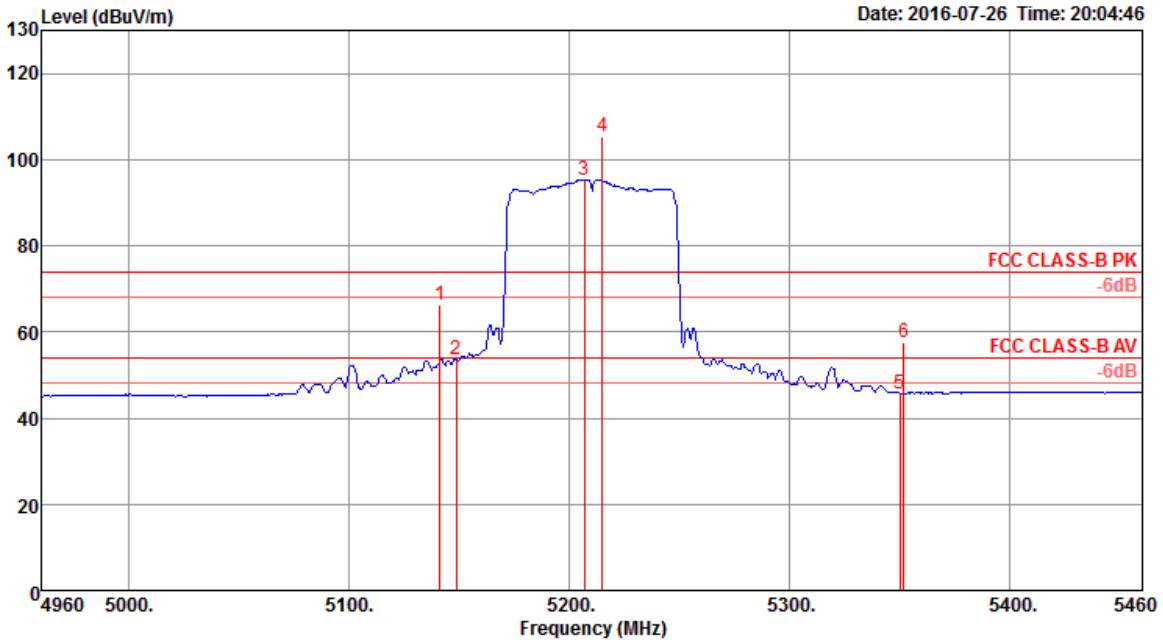


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5595.50	61.58	68.20	-6.62	53.42	6.75	34.36	32.95	248	272	Peak	VERTICAL
2	5793.50	115.68			107.26	6.95	34.48	33.01	248	272	Peak	VERTICAL
3	5796.60	106.23			97.81	6.95	34.48	33.01	248	272	Average	VERTICAL
4	5933.00	61.67	68.20	-6.53	53.17	6.98	34.56	33.04	248	272	Peak	VERTICAL

Item 2, 3 are the fundamental frequency at 5795 MHz.

Temperature	21°C	Humidity	50%
Test Engineer	Mason Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 42, 155 / Ant. 1 + Ant. 2

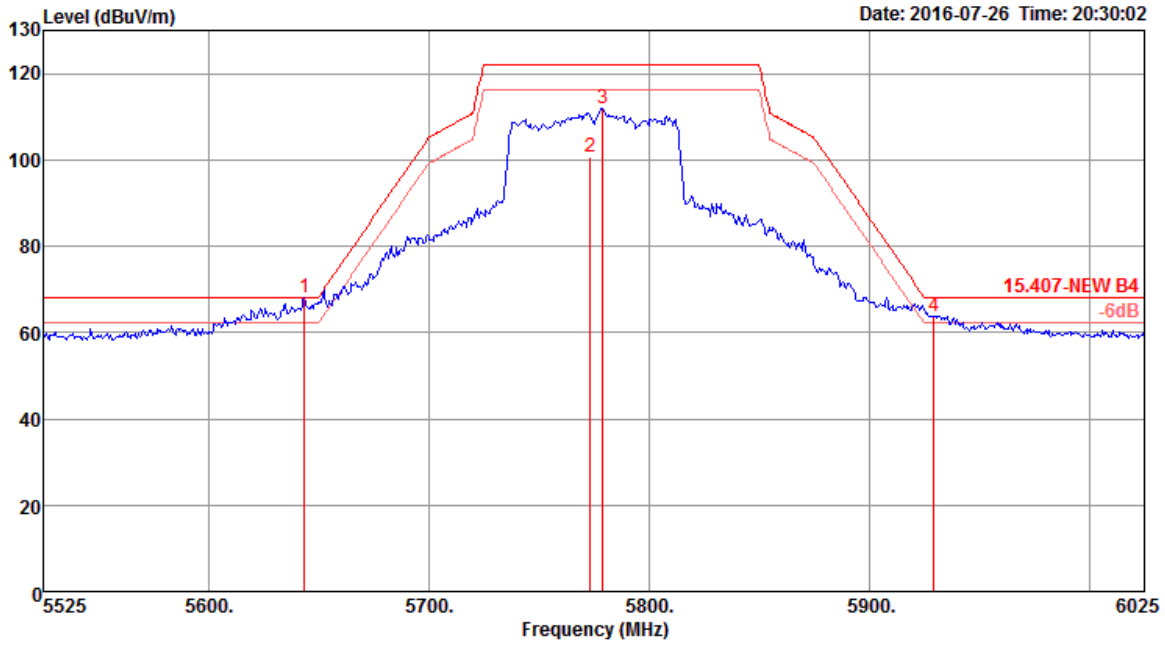
Channel 42



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5141.09	66.15	74.00	-7.85	58.92	6.43	33.72	32.92	252	6	Peak	VERTICAL
2	5148.30	53.61	54.00	-0.39	46.35	6.44	33.74	32.92	252	6	Average	VERTICAL
3	5206.80	95.25			87.84	6.49	33.84	32.92	252	6	Average	VERTICAL
4	5214.81	105.55			98.14	6.49	33.84	32.92	252	6	Peak	VERTICAL
5	5350.00	45.72	54.00	-8.28	37.97	6.61	34.06	32.92	252	6	Average	VERTICAL
6	5351.60	57.58	74.00	-16.42	49.83	6.61	34.06	32.92	252	6	Peak	VERTICAL

Item 3, 4 are the fundamental frequency at 5210 MHz.

Channel 155



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5643.50	68.11	68.20	-0.09	59.89	6.80	34.39	32.97	255	16	Peak	VERTICAL
2	5773.40	100.79			92.39	6.93	34.47	33.00	255	16	Average	VERTICAL
3	5779.00	111.85			103.45	6.93	34.47	33.00	255	16	Peak	VERTICAL
4	5929.50	63.90	68.20	-4.30	55.40	6.98	34.56	33.04	255	16	Peak	VERTICAL

Item 2, 3 are the fundamental frequency at 5775 MHz.

Note:

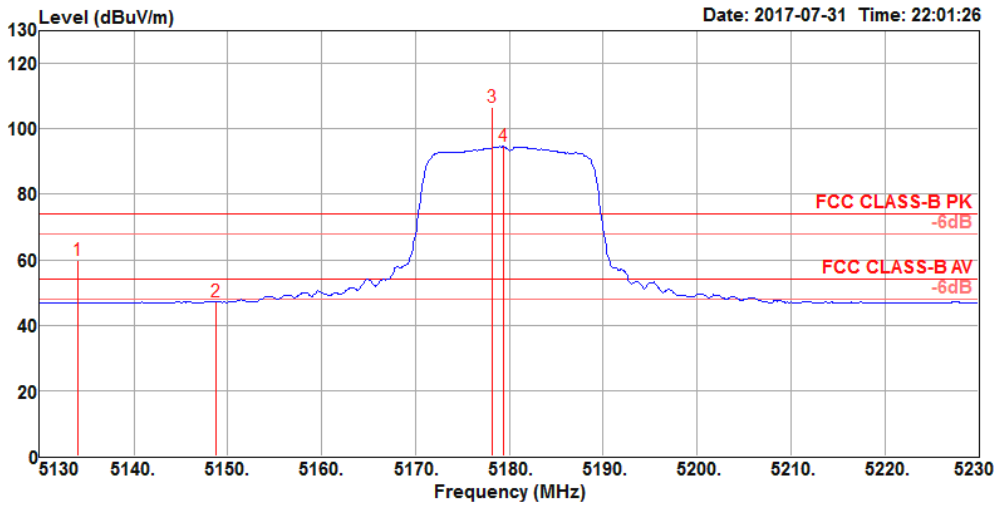
Emission level (dBuV/m) = 20 log Emission level (uV/m)

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

For beamforming mode:

Temperature	21°C	Humidity	50%
Test Engineer	Mason Chen	Configurations	IEEE 802.11a CH 36, 40, 48 / Ant. 1 + Ant. 2

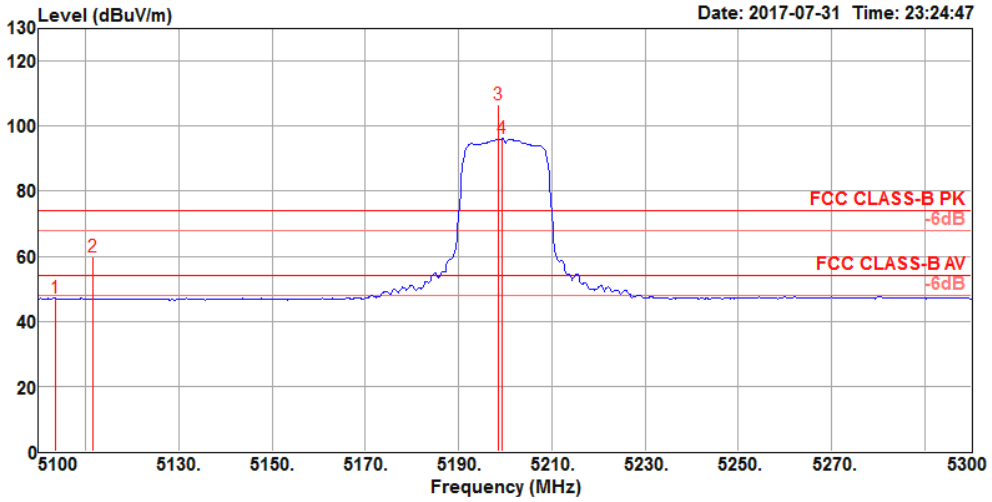
Channel 36



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5134.00	59.79	74.00	-14.21	52.57	7.38	31.48	31.64	166	334	Peak	VERTICAL
2	5148.80	47.29	54.00	-6.71	40.04	7.39	31.49	31.63	166	334	Average	VERTICAL
3 @	5178.20	106.44			99.16	7.40	31.51	31.63	166	334	Peak	VERTICAL
4 @	5179.40	94.57			87.29	7.40	31.51	31.63	166	334	Average	VERTICAL

Item 3, 4 are the fundamental frequency at 5180 MHz.

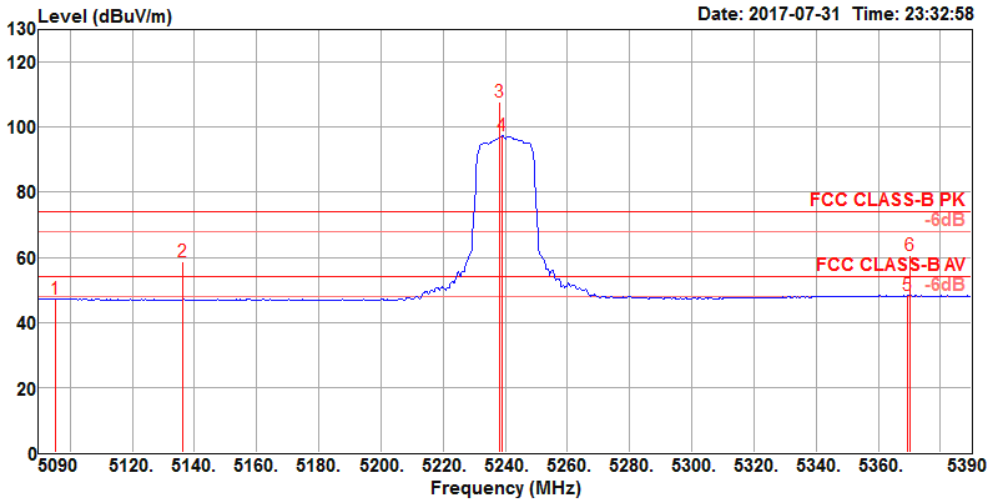
Channel 40



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5103.60	47.06	54.00	-6.94	39.86	7.38	31.46	31.64	234	215	Average	VERTICAL
2	5111.60	59.73	74.00	-14.27	52.53	7.38	31.46	31.64	234	215	Peak	VERTICAL
3 @	5198.40	106.73			99.44	7.40	31.52	31.63	234	215	Peak	VERTICAL
4 @	5199.20	96.11			88.82	7.40	31.52	31.63	234	215	Average	VERTICAL

Item 3, 4 are the fundamental frequency at 5200 MHz.

Channel 48

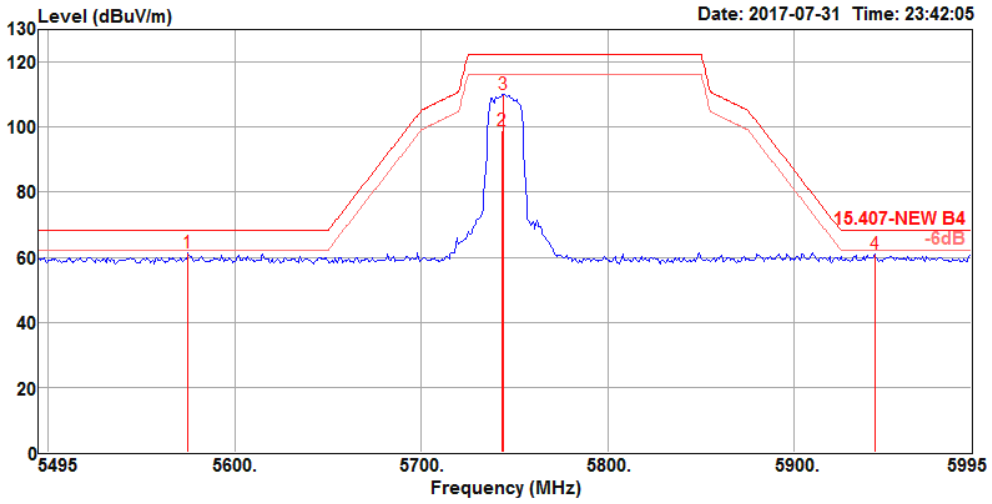


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5095.40	47.25	54.00	-6.75	40.07	7.37	31.45	31.64	236	144	Average	VERTICAL
2	5136.20	58.82	74.00	-15.18	51.60	7.38	31.48	31.64	236	144	Peak	VERTICAL
3 @	5238.20	107.88			100.52	7.44	31.55	31.63	236	144	Peak	VERTICAL
4 @	5238.80	97.28			89.92	7.44	31.55	31.63	236	144	Average	VERTICAL
5	5369.60	48.28	54.00	-5.72	40.70	7.56	31.63	31.61	236	144	Average	VERTICAL
6	5370.20	60.65	74.00	-13.35	53.07	7.56	31.63	31.61	236	144	Peak	VERTICAL

Item 3, 4 are the fundamental frequency at 5240 MHz.

Temperature	21°C	Humidity	50%
Test Engineer	Mason Chen	Configurations	IEEE 802.11a CH 149, 157, 165 / Ant. 1 + Ant. 2

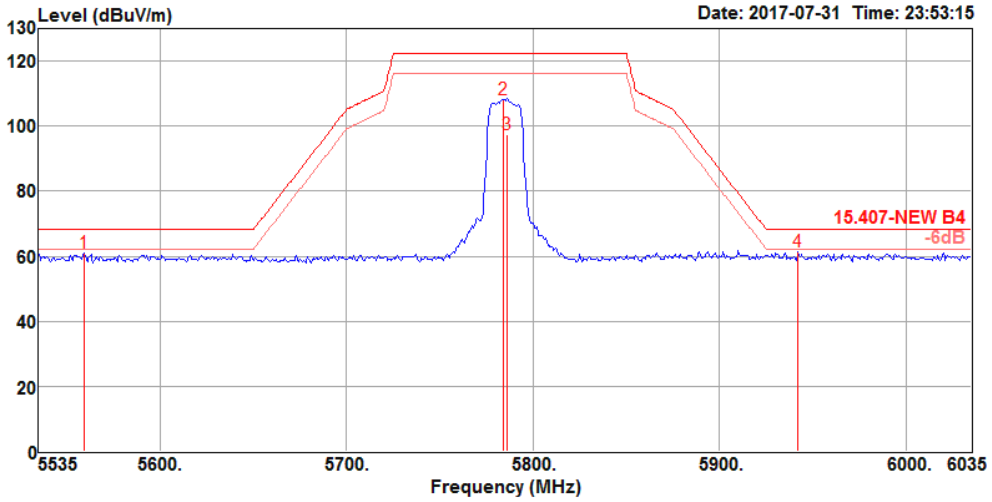
Channel 149



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5575.00	61.36	68.20	-6.84	53.36	7.82	31.81	31.63	196	188	Peak	VERTICAL
2	5743.00	98.90			90.68	7.83	32.10	31.71	196	188	Average	VERTICAL
3	5744.00	110.04			101.82	7.83	32.10	31.71	196	188	Peak	VERTICAL
4	5943.00	60.90	68.20	-7.30	52.30	7.98	32.42	31.80	196	188	Peak	VERTICAL

Item 2, 3 are the fundamental frequency at 5745 MHz.

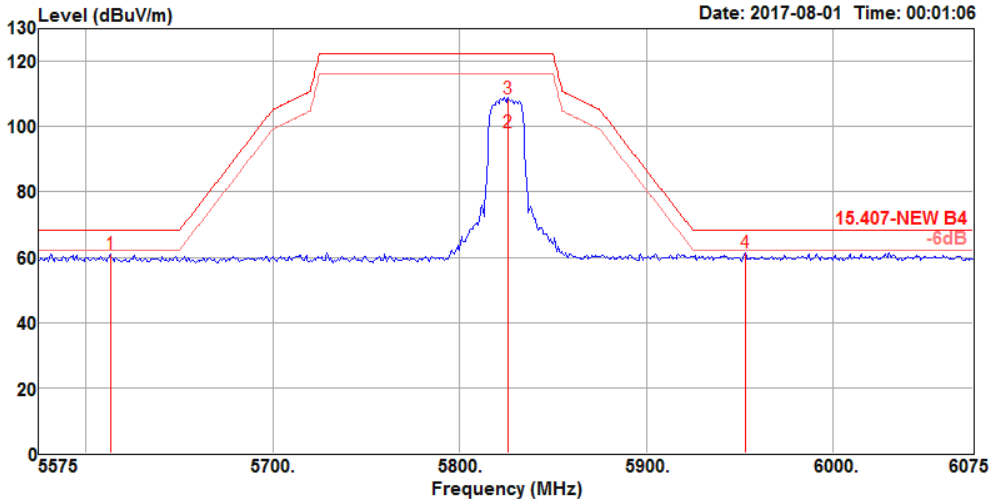
Channel 157



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5559.00	61.15	68.20	-7.05	53.19	7.80	31.78	31.62	159	320	Peak	VERTICAL
2	5784.00	108.30			100.06	7.82	32.15	31.73	159	320	Peak	VERTICAL
3	5786.00	97.29			89.05	7.82	32.15	31.73	159	320	Average	VERTICAL
4	5942.00	61.41	68.20	-6.79	52.81	7.98	32.42	31.80	159	320	Peak	VERTICAL

Item 2, 3 are the fundamental frequency at 5785 MHz.

Channel 165

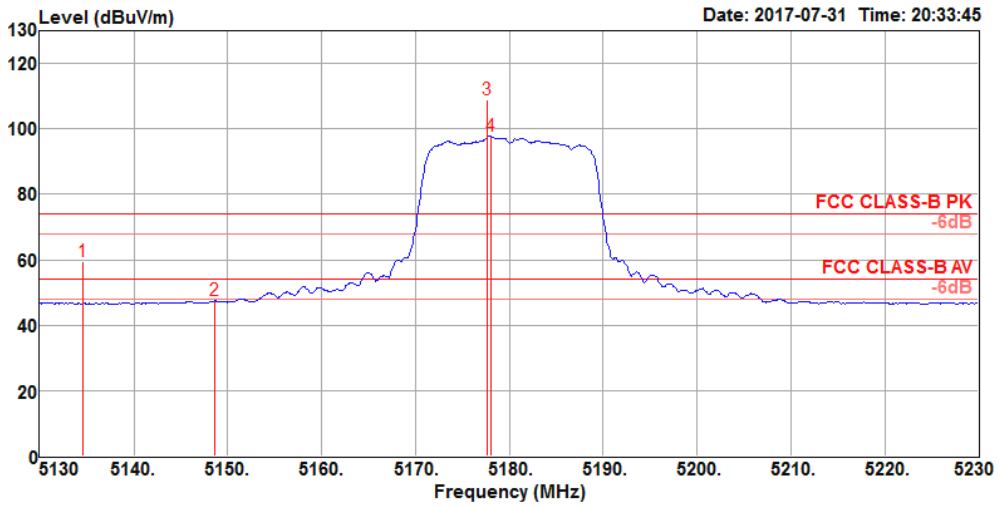


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5613.00	60.93	68.20	-7.27	52.82	7.87	31.89	31.65	268	195	Peak	VERTICAL
2	5826.00	98.09			89.75	7.86	32.23	31.75	268	195	Average	VERTICAL
3	5826.00	108.65			100.31	7.86	32.23	31.75	268	195	Peak	VERTICAL
4	5953.00	61.19	68.20	-7.01	52.59	7.98	32.42	31.80	268	195	Peak	VERTICAL

Item 2, 3 are the fundamental frequency at 5825 MHz.

Temperature	21°C	Humidity	50%
Test Engineer	Mason Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 36, 40, 48 / Ant. 1 + Ant. 2

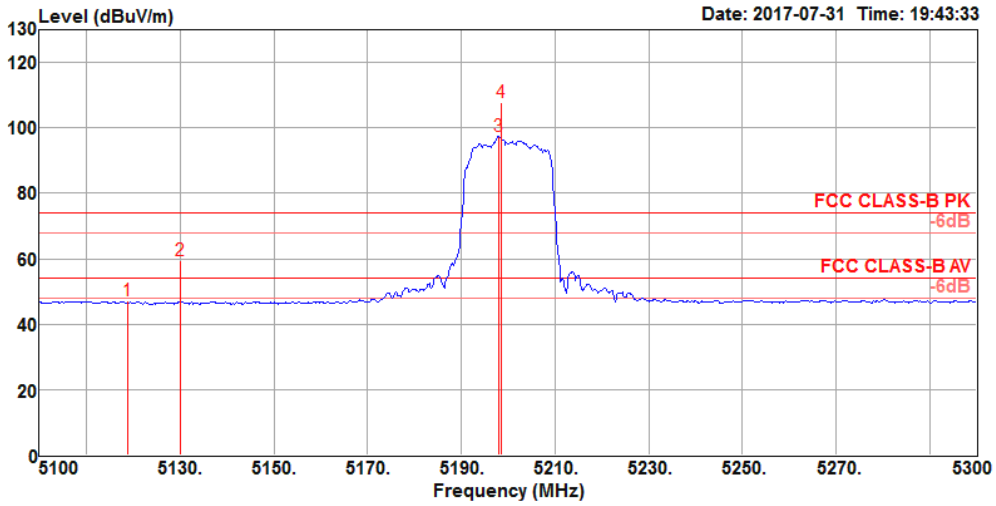
Channel 36



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5134.60	59.49	74.00	-14.51	52.27	7.38	31.48	31.64	184	342	Peak	VERTICAL
2	5148.60	47.45	54.00	-6.55	40.20	7.39	31.49	31.63	184	342	Average	VERTICAL
3 @	5177.60	109.08			101.80	7.40	31.51	31.63	184	342	Peak	VERTICAL
4 @	5178.00	97.70			90.42	7.40	31.51	31.63	184	342	Average	VERTICAL

Item 3, 4 are the fundamental frequency at 5180 MHz.

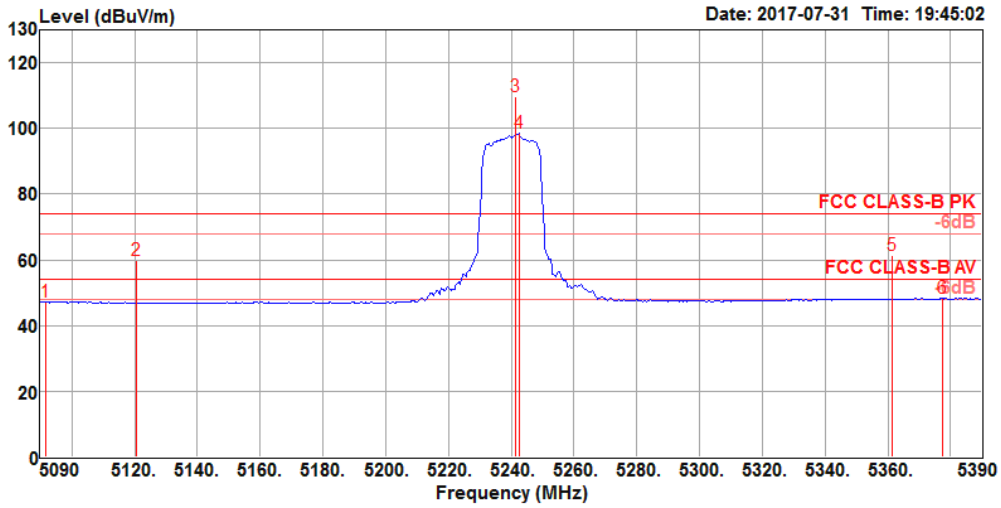
Channel 40



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5118.80	47.19	54.00	-6.81	39.98	7.38	31.47	31.64	172	344	Average	VERTICAL
2	5130.00	59.28	74.00	-14.72	52.06	7.38	31.48	31.64	172	344	Peak	VERTICAL
3 @	5198.00	97.27			89.98	7.40	31.52	31.63	172	344	Average	VERTICAL
4 @	5198.40	107.84			100.55	7.40	31.52	31.63	172	344	Peak	VERTICAL

Item 3, 4 are the fundamental frequency at 5200 MHz.

Channel 48

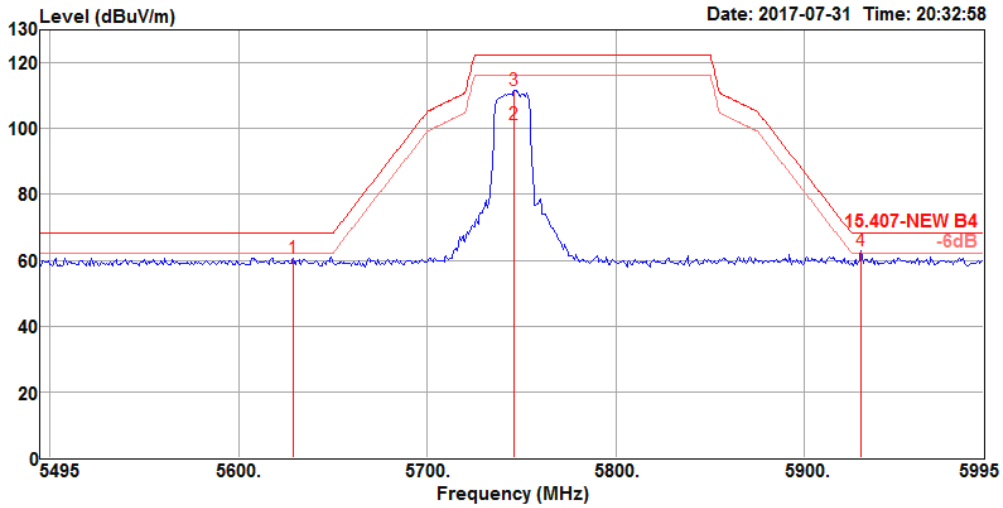


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5091.80	47.13	54.00	-6.87	39.95	7.37	31.45	31.64	170	340	Average	VERTICAL
2	5120.60	59.75	74.00	-14.25	52.54	7.38	31.47	31.64	170	340	Peak	VERTICAL
3 @	5241.20	109.62			102.26	7.44	31.55	31.63	170	340	Peak	VERTICAL
4 @	5242.40	98.46			91.09	7.44	31.55	31.62	170	340	Average	VERTICAL
5	5361.20	61.53	74.00	-12.47	53.98	7.54	31.62	31.61	170	340	Peak	VERTICAL
6	5377.40	48.40	54.00	-5.60	40.82	7.56	31.63	31.61	170	340	Average	VERTICAL

Item 3, 4 are the fundamental frequency at 5240 MHz.

Temperature	21°C	Humidity	50%
Test Engineer	Mason Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 149, 157, 165 / Ant. 1 + Ant. 2

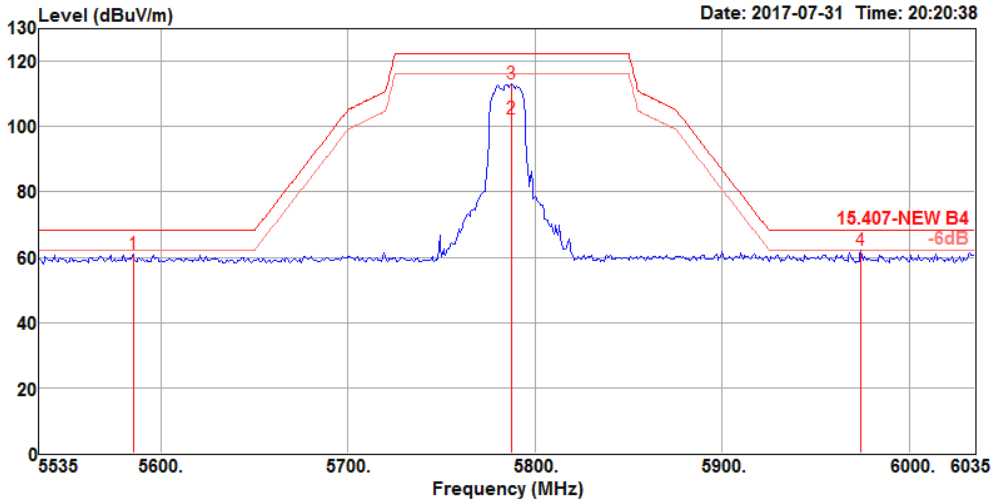
Channel 149



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5629.00	60.48	68.20	-7.72	52.37	7.86	31.91	31.66	166	202	Peak	VERTICAL
2	5746.00	101.23			93.01	7.83	32.10	31.71	166	202	Average	VERTICAL
3	5746.00	111.73			103.51	7.83	32.10	31.71	166	202	Peak	VERTICAL
4	5930.00	62.73	68.20	-5.47	54.17	7.96	32.39	31.79	166	202	Peak	VERTICAL

Item 2, 3 are the fundamental frequency at 5745 MHz.

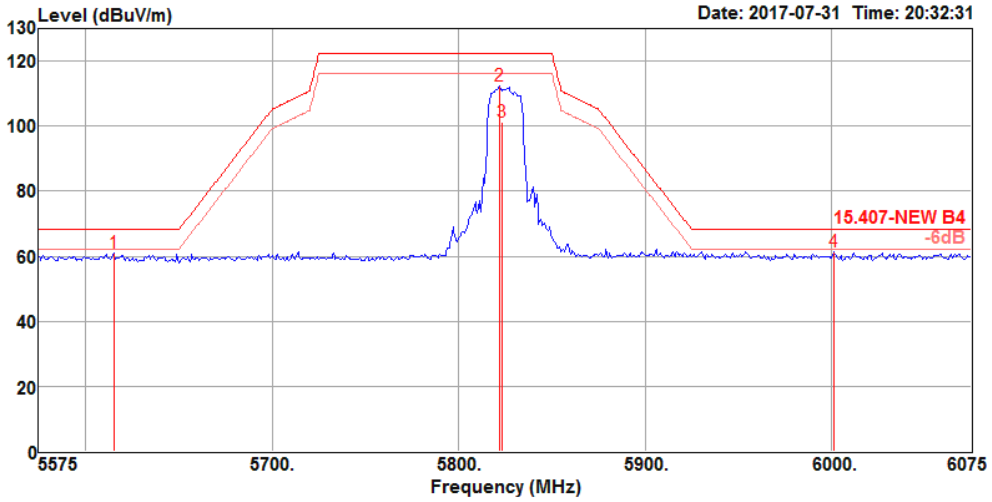
Channel 157



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5585.00	60.93	68.20	-7.27	52.89	7.85	31.83	31.64	174	204	Peak	VERTICAL
2	5787.00	102.41			94.17	7.82	32.15	31.73	174	204	Average	VERTICAL
3	5787.00	113.22			104.98	7.82	32.15	31.73	174	204	Peak	VERTICAL
4	5974.00	62.28	68.20	-5.92	53.64	7.99	32.45	31.80	174	204	Peak	VERTICAL

Item 2, 3 are the fundamental frequency at 5785 MHz.

Channel 165

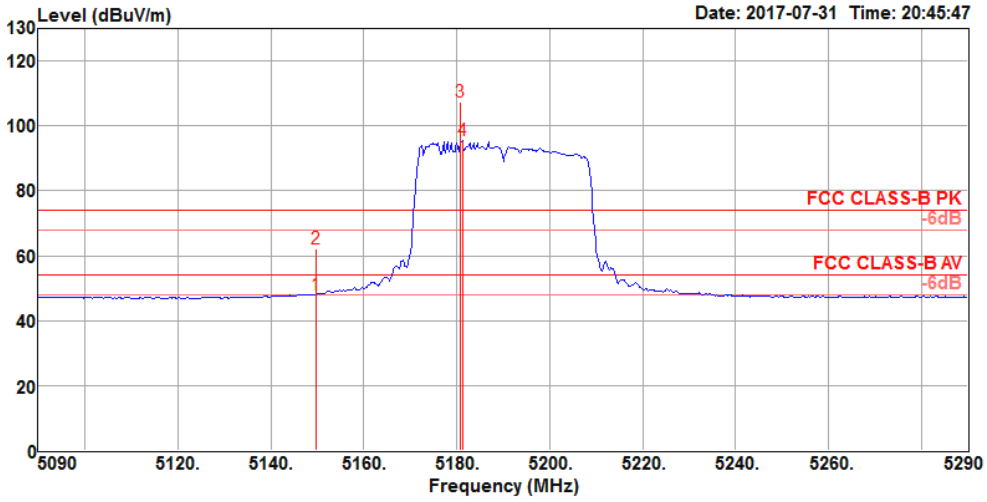


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5615.00	61.16	68.20	-7.04	53.06	7.87	31.89	31.66	166	204	Peak	VERTICAL
2	5822.00	112.27			103.97	7.84	32.21	31.75	166	204	Peak	VERTICAL
3	5823.00	101.27			92.93	7.86	32.23	31.75	166	204	Average	VERTICAL
4	6001.00	61.47	68.20	-6.73	52.76	8.03	32.50	31.82	166	204	Peak	VERTICAL

Item 2, 3 are the fundamental frequency at 5825 MHz.

Temperature	21°C	Humidity	50%
Test Engineer	Mason Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 38, 46 / Ant. 1 + Ant. 2

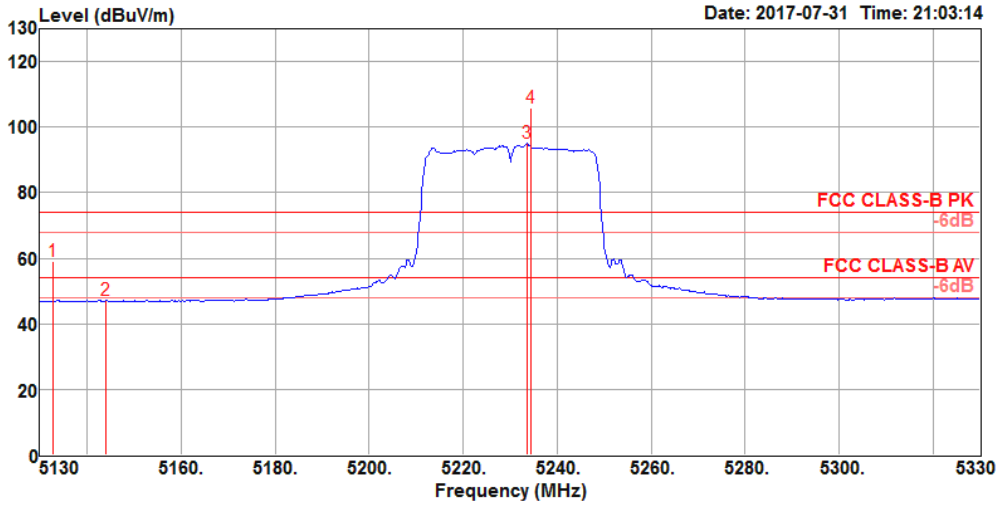
Channel 38



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5149.60	48.13	54.00	-5.87	40.88	7.39	31.49	31.63	174	334	Average	VERTICAL
2	5149.60	62.16	74.00	-11.84	54.91	7.39	31.49	31.63	174	334	Peak	VERTICAL
3 @	5180.80	107.57			100.29	7.40	31.51	31.63	174	334	Peak	VERTICAL
4 @	5181.20	95.63			88.35	7.40	31.51	31.63	174	334	Average	VERTICAL

Item 3, 4 are the fundamental frequency at 5190 MHz.

Channel 46

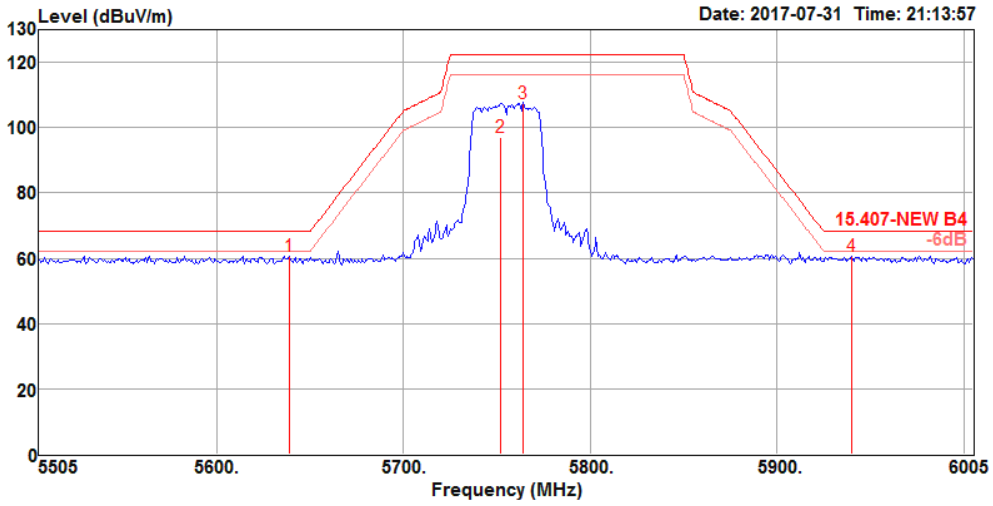


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5132.80	58.95	74.00	-15.05	51.73	7.38	31.48	31.64	173	352	Peak	VERTICAL
2	5144.00	47.04	54.00	-6.96	39.79	7.39	31.49	31.63	173	352	Average	VERTICAL
3 @	5233.60	95.02			87.66	7.44	31.55	31.63	173	352	Average	VERTICAL
4 @	5234.40	105.94			98.58	7.44	31.55	31.63	173	352	Peak	VERTICAL

Item 3, 4 are the fundamental frequency at 5230 MHz.

Temperature	21°C	Humidity	50%
Test Engineer	Mason Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 151, 159 / Ant. 1 + Ant. 2

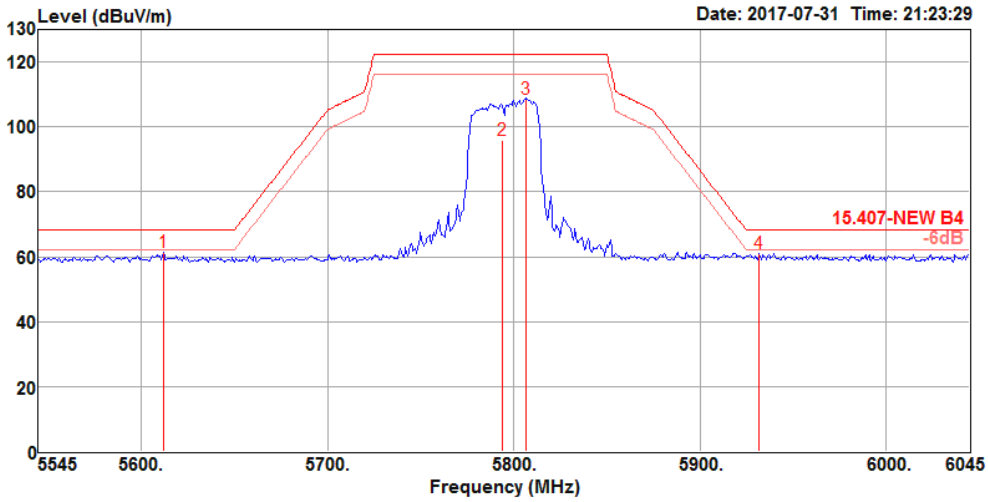
Channel 151



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5639.00	60.71	68.20	-7.49	52.61	7.86	31.91	31.67	176	200	Peak	VERTICAL
2	5752.00	97.21			88.99	7.83	32.10	31.71	176	200	Average	VERTICAL
3	5764.00	107.58			99.33	7.83	32.13	31.71	176	200	Peak	VERTICAL
4	5940.00	60.61	68.20	-7.59	52.06	7.96	32.39	31.80	176	200	Peak	VERTICAL

Item 2, 3 are the fundamental frequency at 5755 MHz.

Channel 159

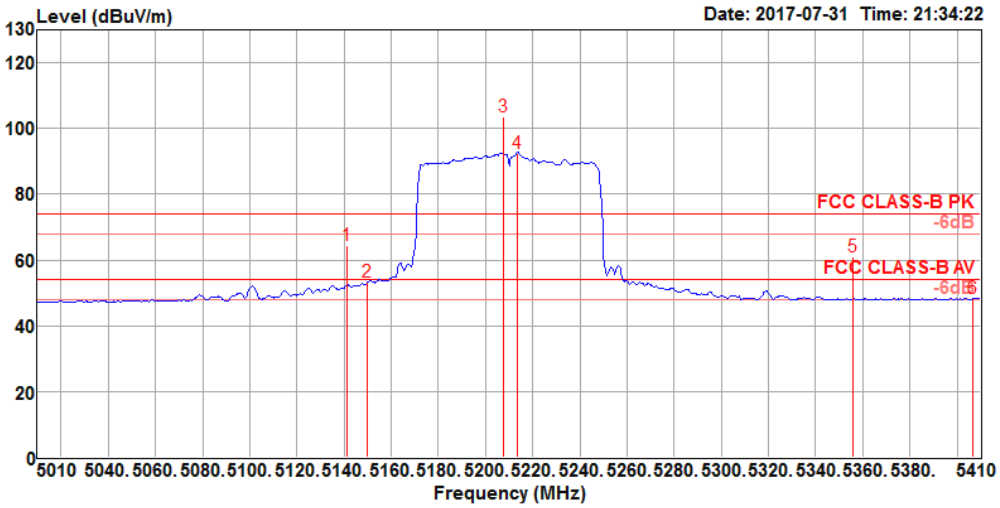


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5612.00	61.34	68.20	-6.86	53.23	7.87	31.89	31.65	173	222	Peak	VERTICAL
2	5794.00	95.98			87.71	7.82	32.18	31.73	173	222	Average	VERTICAL
3	5807.00	108.53			100.22	7.84	32.21	31.74	173	222	Peak	VERTICAL
4	5932.00	61.11	68.20	-7.09	52.55	7.96	32.39	31.79	173	222	Peak	VERTICAL

Item 2, 3 are the fundamental frequency at 5795 MHz.

Temperature	21°C	Humidity	50%
Test Engineer	Mason Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 42, 155 / Ant. 1 + Ant. 2

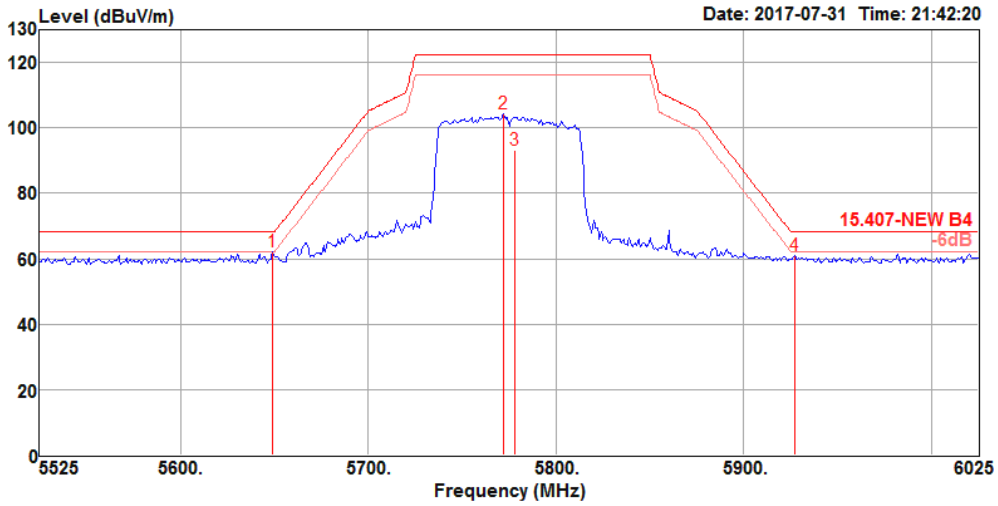
Channel 42



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5141.20	64.41	74.00	-9.59	57.18	7.38	31.48	31.63	229	180	Peak	VERTICAL
2	5150.00	53.16	54.00	-0.84	45.91	7.39	31.49	31.63	229	180	Average	VERTICAL
3 @	5207.60	103.72			96.41	7.41	31.53	31.63	229	180	Peak	VERTICAL
4 @	5213.20	92.56			85.25	7.41	31.53	31.63	229	180	Average	VERTICAL
5	5355.60	60.80	74.00	-13.20	53.25	7.54	31.62	31.61	229	180	Peak	VERTICAL
6	5406.80	48.43	54.00	-5.57	40.80	7.59	31.65	31.61	229	180	Average	VERTICAL

Item 3, 4 are the fundamental frequency at 5210 MHz.

Channel 155



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5649.00	61.96	68.20	-6.24	53.83	7.86	31.94	31.67	183	186	Peak	VERTICAL
2	5772.00	104.47			96.22	7.82	32.15	31.72	183	186	Peak	VERTICAL
3	5778.00	93.37			85.12	7.82	32.15	31.72	183	186	Average	VERTICAL
4	5927.00	61.17	68.20	-7.03	52.61	7.96	32.39	31.79	183	186	Peak	VERTICAL

Item 2, 3 are the fundamental frequency at 5775 MHz.

Note:

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

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

4.8. Frequency Stability Measurement

4.8.1. 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).

4.8.2. Measuring Instruments and Setting

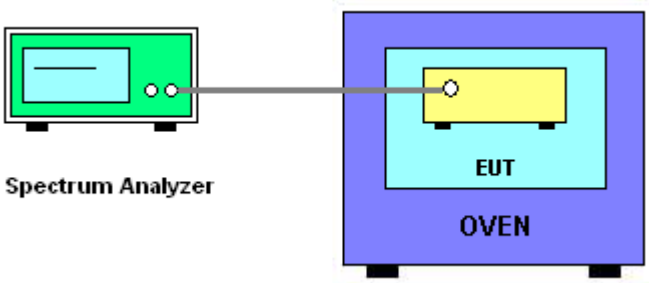
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

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

4.8.3. 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. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.
7. The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value
8. Extreme temperature is -30°C~50°C.

4.8.4. Test Setup Layout



4.8.5. Test Deviation

There is no deviation with the original standard.

4.8.6. EUT Operation during Test

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

4.8.7. Test Result of Frequency Stability

Temperature	20°C	Humidity	60%
Test Engineer	Ron Huang / Serway Li	Test Date	Mar. 11, 2017 ~ Aug. 02, 2017

Mode: 20 MHz / Ant. 1

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5200 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5199.9849	5199.9865	5199.9845	5199.9846
110.00	5199.9860	5199.9814	5199.9855	5199.9870
93.50	5199.9829	5199.9851	5199.9820	5199.9867
Max. Deviation (MHz)	0.0171	0.0186	0.0180	0.0154
Max. Deviation (ppm)	3.29	3.58	3.46	2.96
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5200 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
-30	5199.9846	5199.9855	5199.9816	5199.9810
-20	5199.9859	5199.9834	5199.9840	5199.9852
-10	5199.9825	5199.9813	5199.9819	5199.9811
0	5199.9836	5199.9811	5199.9848	5199.9835
10	5199.9812	5199.9837	5199.9860	5199.9822
20	5199.9853	5199.9818	5199.9831	5199.9814
30	5199.9846	5199.9811	5199.9859	5199.9813
40	5199.9839	5199.9860	5199.9836	5199.9860
50	5199.9822	5199.9830	5199.9810	5199.9823
Max. Deviation (MHz)	0.0188	0.0189	0.0190	0.0190
Max. Deviation (ppm)	3.62	3.63	3.65	3.65
Result	Complies			

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5785 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5784.9710	5784.9749	5784.9742	5784.9761
110.00	5784.9727	5784.9762	5784.9761	5784.9770
93.50	5784.9723	5784.9750	5784.9762	5784.9759
Max. Deviation (MHz)	0.0290	0.0251	0.0258	0.0241
Max. Deviation (ppm)	5.01	4.34	4.46	4.17
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5785 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
-30	5784.9746	5784.9763	5784.9769	5784.9770
-20	5784.9753	5784.9718	5784.9750	5784.9710
-10	5784.9746	5784.9719	5784.9747	5784.9741
0	5784.9747	5784.9760	5784.9730	5784.9711
10	5784.9720	5784.9737	5784.9736	5784.9719
20	5784.9759	5784.9717	5784.9723	5784.9769
30	5784.9740	5784.9766	5784.9739	5784.9749
40	5784.9755	5784.9737	5784.9743	5784.9767
50	5784.9765	5784.9725	5784.9718	5784.9734
Max. Deviation (MHz)	0.0280	0.0283	0.0282	0.0290
Max. Deviation (ppm)	4.84	4.89	4.87	5.01
Result	Complies			

Mode: 40 MHz / Ant. 1

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5190 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5189.9918	5189.9917	5189.9914	5189.9910
110.00	5189.9919	5189.9914	5189.9910	5189.9917
93.50	5189.9912	5189.9912	5189.9919	5189.9910
Max. Deviation (MHz)	0.0088	0.0088	0.0090	0.0090
Max. Deviation (ppm)	1.70	1.70	1.73	1.73
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5190 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
-30	5189.9914	5189.9912	5189.9918	5189.9915
-20	5189.9920	5189.9915	5189.9920	5189.9912
-10	5189.9916	5189.9912	5189.9920	5189.9912
0	5189.9910	5189.9916	5189.9918	5189.9917
10	5189.9913	5189.9919	5189.9912	5189.9920
20	5189.9915	5189.9912	5189.9916	5189.9916
30	5189.9918	5189.9912	5189.9920	5189.9916
40	5189.9913	5189.9911	5189.9916	5189.9912
50	5189.9918	5189.9916	5189.9916	5189.9916
Max. Deviation (MHz)	0.0090	0.0089	0.0088	0.0088
Max. Deviation (ppm)	1.73	1.71	1.70	1.70
Result	Complies			

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5755 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5754.9919	5754.9917	5754.9914	5754.9915
110.00	5754.9912	5754.9914	5754.9915	5754.9910
93.50	5754.9918	5754.9912	5754.9913	5754.9912
Max. Deviation (MHz)	0.0088	0.0088	0.0087	0.0090
Max. Deviation (ppm)	1.53	1.53	1.51	1.56
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5755 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
-30	5754.9589	5754.9581	5754.9572	5754.9570
-20	5754.9601	5754.9591	5754.9586	5754.9583
-10	5754.9607	5754.9600	5754.9599	5754.9591
0	5754.9625	5754.9615	5754.9611	5754.9602
10	5754.9627	5754.9619	5754.9616	5754.9613
20	5754.9635	5754.9626	5754.9624	5754.9616
30	5754.9958	5754.9948	5754.9945	5754.9943
40	5754.9964	5754.9958	5754.9956	5754.9948
50	5754.9644	5754.9640	5754.9631	5754.9624
Max. Deviation (MHz)	0.0411	0.0419	0.0428	0.0430
Max. Deviation (ppm)	7.14	7.28	7.44	7.47
Result	Complies			

Mode: 80 MHz / Ant. 1

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5210 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5209.9011	5209.9020	5209.9017	5209.9017
110.00	5209.9018	5209.9014	5209.9014	5209.9016
93.50	5209.9018	5209.9012	5209.9020	5209.9020
Max. Deviation (MHz)	0.0989	0.0988	0.0986	0.0984
Max. Deviation (ppm)	18.98	18.96	18.93	18.89
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5210 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
-30	5209.9579	5209.9578	5209.9576	5209.9571
-20	5209.9585	5209.9584	5209.9581	5209.9577
-10	5209.9590	5209.9585	5209.9575	5209.9572
0	5209.9602	5209.9598	5209.9597	5209.9589
10	5209.9616	5209.9615	5209.9612	5209.9602
20	5209.9635	5209.9627	5209.9626	5209.9616
30	5209.9958	5209.9954	5209.9951	5209.9945
40	5209.9964	5209.9962	5209.9956	5209.9948
50	5209.9646	5209.9643	5209.9639	5209.9638
Max. Deviation (MHz)	0.0421	0.0422	0.0425	0.0429
Max. Deviation (ppm)	8.08	8.10	8.16	8.23
Result	Complies			

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5775 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5774.8920	5774.8919	5774.8916	5774.8920
110.00	5774.8917	5774.8918	5774.8912	5774.8919
93.50	5774.8917	5774.8911	5774.8918	5774.8912
Max. Deviation (MHz)	0.1083	0.1089	0.1088	0.1088
Max. Deviation (ppm)	18.75	18.86	18.84	18.84
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5775 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
-30	5774.9585	5774.9584	5774.9576	5774.9575
-20	5774.9594	5774.9591	5774.9584	5774.9580
-10	5774.9603	5774.9595	5774.9585	5774.9575
0	5774.9623	5774.9619	5774.9612	5774.9609
10	5774.9626	5774.9617	5774.9614	5774.9606
20	5774.9635	5774.9629	5774.9623	5774.9617
30	5774.9958	5774.9949	5774.9939	5774.9931
40	5774.9976	5774.9973	5774.9965	5774.9958
50	5774.9646	5774.9639	5774.9636	5774.9627
Max. Deviation (MHz)	0.0415	0.0416	0.0424	0.0425
Max. Deviation (ppm)	7.19	7.20	7.34	7.36
Result	Complies			

4.9. Antenna Requirements

4.9.1. 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.

4.9.2. 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
EMI Receiver	Agilent	N9038A	My52260123	9kHz ~ 8.45GHz	Jan. 23, 2017	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150kHz ~ 100MHz	Dec. 14, 2016	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Dec. 21, 2016	Conduction (CO01-CB)
COND Cable	Woken	Cable	01	150kHz ~ 30MHz	May 24, 2016	Conduction (CO01-CB)
Software	Audix	E3	6.120210n	-	N.C.R.	Conduction (CO01-CB)
BILOG ANTENNA with 6dB Attenuator	TESEQ & EMCI	CBL6112D & N-6-06	37880 & AT-N0609	20MHz ~ 2GHz	Aug. 30, 2016	Radiation (03CH01-CB)
Loop Antenna	Teseq	HLA 6120	24155	9kHz - 30 MHz	Mar. 16, 2016*	Radiation (03CH01-CB)
Horn Antenna	EMCO	3115	00075790	750MHz ~ 18GHz	Oct. 22, 2015	Radiation (03CH01-CB)
Horn Antenna	EMCO	3115	00075790	750MHz ~ 18GHz	Nov. 10, 2016	Radiation (03CH01-CB)
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170507	15GHz ~ 40GHz	Mar. 01, 2016	Radiation (03CH01-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Jul. 05, 2017	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8447D	2944A10991	0.1MHz ~ 1.3GHz	Mar. 15, 2016	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Jan. 18, 2016	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Jan. 16, 2017	Radiation (03CH01-CB)
Pre-Amplifier	WM	TF-130N-R1	923365	26GHz ~ 40GHz	Nov. 13, 2015	Radiation (03CH01-CB)
Pre-Amplifier	MITEQ	TTA1840-35-HG	1864479	18GHz ~ 40GHz	Jul. 10, 2017	Radiation (03CH01-CB)
Spectrum Analyzer	R&S	FSP40	100056	9kHz ~ 40GHz	Oct. 27, 2015	Radiation (03CH01-CB)
Spectrum Analyzer	R&S	FSP40	100056	9kHz ~ 40GHz	Nov. 22, 2016	Radiation (03CH01-CB)
EMI Test	R&S	ESCS	100355	9kHz ~ 2.75GHz	May 16, 2016	Radiation (03CH01-CB)
RF Cable-low	Woken	Low Cable-16+17	N/A	30 MHz ~ 1 GHz	Oct. 24, 2016	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-16	N/A	1 GHz ~ 18 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-16	N/A	1 GHz ~ 18 GHz	Oct. 24, 2016	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-17	N/A	1 GHz ~ 18 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-16+17	N/A	1 GHz ~ 18 GHz	Oct. 24, 2016	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G-1	N/A	18GHz ~ 40 GHz	Nov. 02, 2015	Radiation (03CH01-CB)

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
RF Cable-high	Woken	High Cable-40G#1	N/A	18GHz ~ 40 GHz	Oct. 24, 2016	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G-2	N/A	18GHz ~ 40 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G#2	N/A	18GHz ~ 40 GHz	Oct. 24, 2016	Radiation (03CH01-CB)
Test Software	Audix	E3	6.2009-I0-7	N/A	N/A	Radiation (03CH01-CB)
Spectrum analyzer	R&S	FSV40	100979	9kHz~40GHz	Dec. 26, 2016	Conducted (TH01-CB)
Temp. and Humidity Chamber	Ten Billion	TTH-D3SP	TBN-931011	-30~100 degree	Jun. 03, 2016	Conducted (TH01-CB)
Temp. and Humidity Chamber	Ten Billion	TTH-D3SP	TBN-931011	-30~100 degree	Jun. 02, 2017	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-6	1 GHz – 26.5 GHz	Oct. 24, 2016	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-7	1 GHz –26.5 GHz	Oct. 24, 2016	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-8	1 GHz –26.5 GHz	Oct. 24, 2016	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-9	1 GHz –26.5 GHz	Oct. 24, 2016	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-10	1 GHz –26.5 GHz	Oct. 24, 2016	Conducted (TH01-CB)
Power Sensor	Agilent	U2021XA	MY53410001	50MHz~18GHz	Nov. 22, 2016	Conducted (TH01-CB)

Note: Calibration Interval of instruments listed above is one year.
"*" Calibration Interval of instruments listed above is two years.
NCR means Non-Calibration required.

6. MEASUREMENT UNCERTAINTY

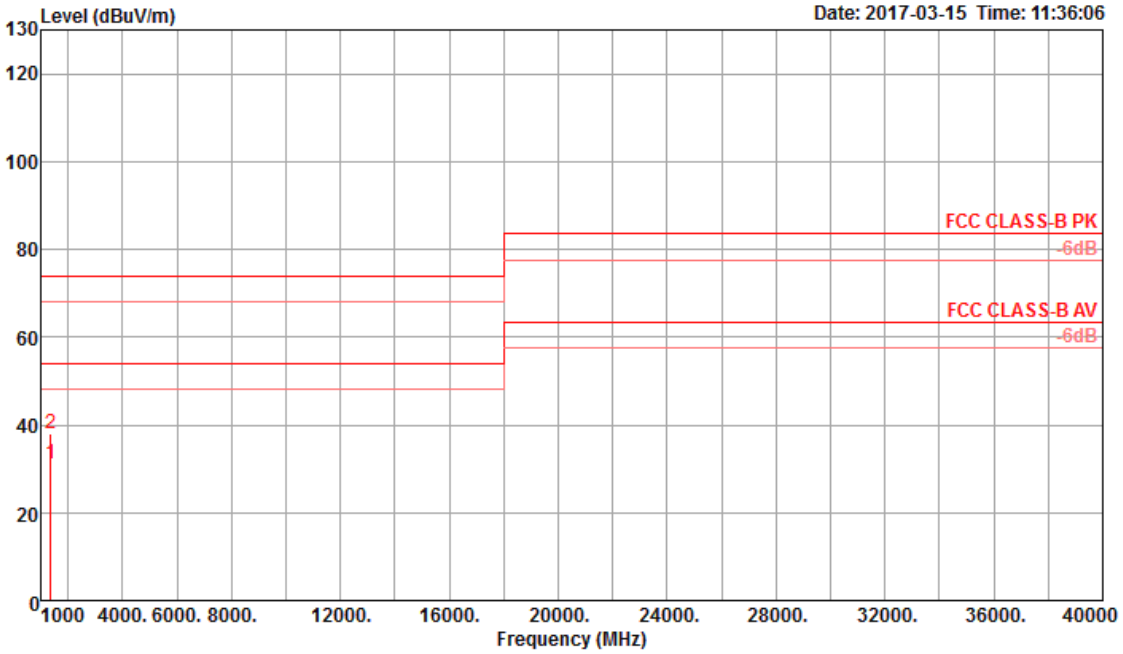
Test Items	Uncertainty	Remark
Conducted Emission (150kHz ~ 30MHz)	3.2 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	3.6 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	3.7 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	3.5 dB	Confidence levels of 95%
Conducted Emission	1.7 dB	Confidence levels of 95%
Output Power Measurement	1.33 dB	Confidence levels of 95%
Power Density Measurement	1.27 dB	Confidence levels of 95%
Bandwidth Measurement	9.74×10^{-8}	Confidence levels of 95%
Frequency Stability	6.06×10^{-8}	Confidence levels of 95%

Appendix B. Radiated Emission Co-location Report

1. Results of Radiated Emissions for Co-located

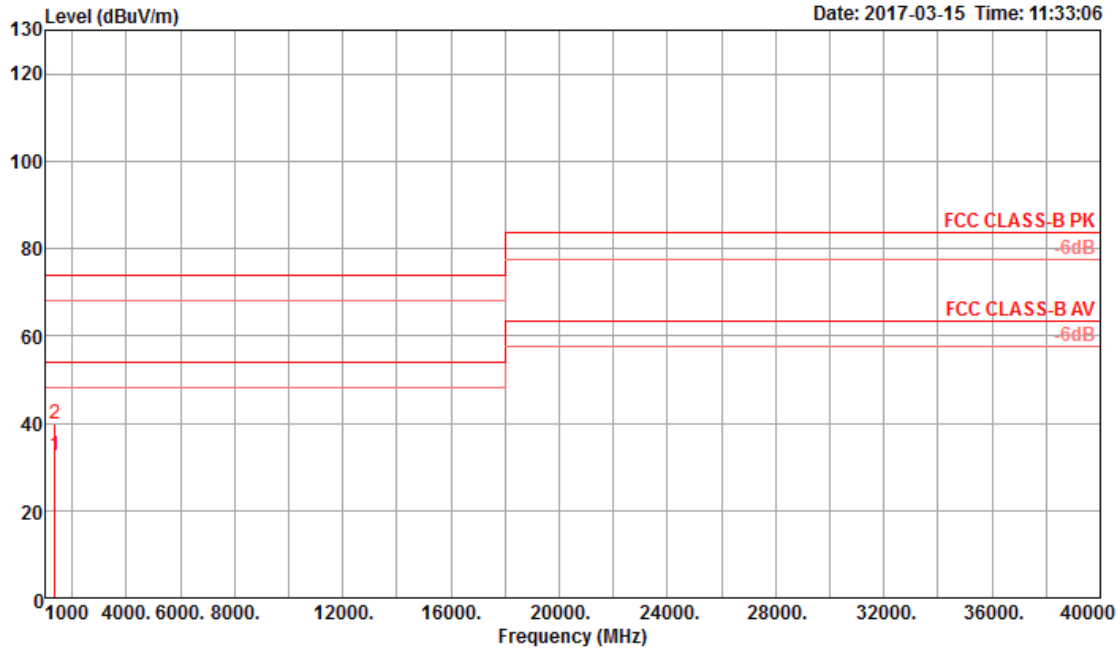
Temperature	21°C	Humidity	50%
Test Engineer	Mason Chen	Configurations	2.4GHz + 5GHz

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	1375.00	31.22	54.00	-22.78	37.65	3.13	24.90	34.46	223	166	Average	HORIZONTAL
2	1375.00	38.02	74.00	-35.98	44.45	3.13	24.90	34.46	223	166	Peak	HORIZONTAL

Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	1375.00	32.56	54.00	-21.44	38.99	3.13	24.90	34.46	213	50	Average	VERTICAL
2	1375.00	39.75	74.00	-34.25	46.18	3.13	24.90	34.46	213	50	Peak	VERTICAL