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FCC RADIO TEST REPORT

Applicant's company	**LINKSYS LLC**
Applicant Address	121 Theory Drive, Irvine ,California,United States, 92617
FCC ID	**Q87-EA7500V2**

Product Name	Max-Stream AC1750 MU-MIMO GIGABIT ROUTER Max-Stream AC1900 MU-MIMO GIGABIT ROUTER
Brand Name	LINKSYS
Model No.	EA7400V2;EA7500V2
Test Rule Part(s)	47 CFR FCC Part 15 Subpart E § 15.407
Test Freq. Range	5150 ~ 5250 MHz / 5725 ~ 5850 MHz
Received Date	Jun. 29, 2016
Final Test Date	Feb. 20, 2017
Submission Type	Class II Change

Statement

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

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

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

The measurements and test results shown in this test report were made in accordance with the procedures and found in compliance with the limit given in **ANSI C63.10-2013**, **47 CFR FCC Part 15 Subpart E, KDB789033 D02 v01r03, 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.

Table of Contents

History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR662319-03	Rev. 01	Initial issue of report	Mar. 10, 2017

1. VERIFICATION OF COMPLIANCE

Product Name	:	Max-Stream AC1750 MU-MIMO GIGABIT ROUTER Max-Stream AC1900 MU-MIMO GIGABIT ROUTER
Brand Name	:	LINKSYS
Model No.	:	EA7400V2;EA7500V2
Applicant	:	LINKSYS LLC
Test Rule Part(s)	:	47 CFR FCC Part 15 Subpart E § 15.407

Sporton International as requested by the applicant to evaluate the EMC performance of the product sample received on Jun. 29, 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	15.407(a)	26dB Spectrum Bandwidth and 99% Occupied Bandwidth	Complies
4.2	15.407(e)	6dB Spectrum Bandwidth	Complies
4.3	15.407(a)	Maximum Conducted Output Power	Complies
4.4	15.407(a)	Power Spectral Density	Complies
4.5	15.407(b)	Radiated Emissions	Complies
4.6	15.407(b)	Band Edge Emissions	Complies
4.7	15.407(g)	Frequency Stability	Complies
4.8	15.203	Antenna Requirements	Complies

3. GENERAL INFORMATION

3.1. Product Details

Items	Description
Product Type	WLAN (4TX, 4RX)
Radio Type	Intentional Transceiver
Power Type	From power adapter
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: 16.50 MHz IEEE 802.11ac MCS0/Nss1 (VHT20): 20.67 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 30.97 MHz IEEE 802.11ac MCS0/Nss1 (VHT80): 76.12 MHz Band 4: IEEE 802.11a: 16.59 MHz IEEE 802.11ac MCS0/Nss1 (VHT20): 23.44 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 37.92 MHz IEEE 802.11ac MCS0/Nss1 (VHT80): 72.94 MHz **For Beamforming Mode** Band 1: IEEE 802.11ac MCS0/Nss1 (VHT20): 17.80 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 36.47 MHz IEEE 802.11ac MCS0/Nss1 (VHT80): 75.54 MHz Band 4: IEEE 802.11ac MCS0/Nss1 (VHT20): 17.80 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 36.61 MHz IEEE 802.11ac MCS0/Nss1 (VHT80): 75.54 MHz

Maximum Conducted Output Power	**For Non-Beamforming Mode** Band 1: IEEE 802.11a: 27.62 dBm IEEE 802.11ac MCS0/Nss1 (VHT20): 27.84 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 26.75 dBm IEEE 802.11ac MCS0/Nss1 (VHT80): 23.27 dBm Band 4: IEEE 802.11a: 29.20 dBm IEEE 802.11ac MCS0/Nss1 (VHT20): 29.27 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 29.27 dBm IEEE 802.11ac MCS0/Nss1 (VHT80): 29.23 dBm **For Beamforming Mode** Band 1: IEEE 802.11ac MCS0/Nss1 (VHT20): 27.64 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 27.64 dBm IEEE 802.11ac MCS0/Nss1 (VHT80): 20.46 dBm Band 4: IEEE 802.11ac MCS0/Nss1 (VHT20): 27.59 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 27.60 dBm IEEE 802.11ac MCS0/Nss1 (VHT80): 27.59 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 for 802.11ac in 5GHz	☐	Without beamforming
Operate Condition	☒	Indoor	☐	Outdoor

Antenna and Bandwidth

Antenna	Four (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)	4	MCS 0-31
802.11n (HT40)	4	MCS 0-31
802.11ac (VHT20)	4	MCS 0-9/Nss1-4
802.11ac (VHT40)	4	MCS 0-9/Nss1-4
802.11ac (VHT80)	4	MCS 0-9/Nss1-4

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

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

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

3.2. Accessories

Power	Brand	Model	Rating
Adapter 1 (Fixed plug)	LEI	MU30-P120250-A1	Input: 100-240V~50/60Hz 0.8A Output: 12V, 2.5A
Adapter 2 (Fixed plug)	APD	WA-30J12FU	Input: 100-240V~50-60Hz, 0.9A Max. Output: 12V, 2.5A
Adapter 3 (Interchangeable plug)	APD	WA-30J12R	Input: 100-240V~50-60Hz, 0.9A Max. Output: 12V, 2.5A
Adapter 4 (Interchangeable plug)	Ktec	KSAS0361200250D5	Input: 100-240V~50/60Hz, 1.0A Output: 12V, 2.5A
Others			
RJ-45 cable (Black and Bule): Non-Shielded, 1.0m Plug*2 only for Adapter 3 and Adapter 4 use.			

3.3. Table for Filed Antenna

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)		Remark
					2.4GHz	5GHz	
1	Airgain	ET2420DLSRPSMA	Dipole Ant.	R-SMA	1.3	2.3	External
2	Airgain	ET2420DLSRPSMA	Dipole Ant.	R-SMA	1.3	2.3	
3	Airgain	ET2420DLSRPSMA	Dipole Ant.	R-SMA	1.3	2.3	
4	Airgain	N2420DGCSBK	PCB Ant.	I-PEX	2.1	2.4	Internal

Note: The EUT has four antennas.

<For 2.4GHz>

For IEEE 802.11b/g/n mode (4TX4RX)

Ant. 1, Ant. 2, Ant. 3 and Ant. 4 can be used as transmitting/receiving antenna.

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

<For 5GHz>

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

Ant. 1, Ant. 2, Ant. 3 and Ant. 4 can be used as transmitting/receiving antenna.

Ant. 1, Ant. 2, Ant. 3 and Ant. 4 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.
Max. Conducted Output Power	**For Non-Beamforming Mode**				
	11a/BPSK	Band 1&4	6Mbps	36/40/48/149/157/165	1+2+3+4
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	1+2+3+4
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1+2+3+4
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1+2+3+4
	For Beamforming Mode				
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	1+2+3+4
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1+2+3+4
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1+2+3+4
Power Spectral Density	**For Non-Beamforming Mode**				
	11a/BPSK	Band 1&4	6Mbps	36/40/48/149/157/165	1+2+3+4
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	1+2+3+4
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1+2+3+4
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1+2+3+4
	For Beamforming Mode				
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	1+2+3+4
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1+2+3+4
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1+2+3+4

26dB Spectrum Bandwidth & 99% Occupied Bandwidth Measurement	**For Non-Beamforming Mode**				
	11a/BPSK	Band 1&4	6Mbps	36/40/48/149/157/165	1+2+3+4
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	1+2+3+4
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1+2+3+4
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1+2+3+4
	For Beamforming Mode				
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	1+2+3+4
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1+2+3+4
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1+2+3+4
6dB Spectrum Bandwidth Measurement	**For Non-Beamforming Mode**				
	11a/BPSK	Band 4	6Mbps	149/157/165	1+2+3+4
	11ac VHT20	Band 4	MCS0/Nss1	149/157/165	1+2+3+4
	11ac VHT40	Band 4	MCS0/Nss1	151/159	1+2+3+4
	11ac VHT80	Band 4	MCS0/Nss1	155	1+2+3+4
	For Beamforming Mode				
	11ac VHT20	Band 4	MCS0/Nss1	149/157/165	1+2+3+4
	11ac VHT40	Band 4	MCS0/Nss1	151/159	1+2+3+4
	11ac VHT80	Band 4	MCS0/Nss1	155	1+2+3+4
Radiated Emissions 9kHz~1GHz	CTX	-	-	-	
Radiated Emission Above 1GHz	**For Non-Beamforming Mode**				
	11a/BPSK	Band 1&4	6Mbps	36/40/48/149/157/165	1+2+3+4
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	1+2+3+4
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1+2+3+4
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1+2+3+4
	For Beamforming Mode				
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	1+2+3+4
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1+2+3+4
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1+2+3+4

Band Edge Emission	**For Non-Beamforming Mode**				
	11a/BPSK	Band 1&4	6Mbps	36/40/48/149/157/165	1+2+3+4
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	1+2+3+4
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1+2+3+4
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1+2+3+4
	For Beamforming Mode				
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	1+2+3+4
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1+2+3+4
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1+2+3+4
Frequency Stability	20 MHz	Band 1&4	-	40/157	2
	40 MHz	Band 1&4	-	38/151	2
	80 MHz	Band 1&4	-	42/155	2

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

Note 2: There are two modes of EUT for 802.11ac in 5GHz. One is beamforming mode, and the other is non-beamforming mode. Both modes have been tested and recorded in this test report.

For Radiated Emission test (Below 1GHz):

Mode 1. CTX - 2.4GHz + EUT in Z axis with Adapter 1

Mode 2. CTX - 2.4GHz + EUT in Y axis with Adapter 1

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

Mode 3. CTX - 5GHz + EUT in Z axis with Adapter 1

Mode 1 has been evaluated to be the worst case among Mode 1~3, thus measurement for Mode 4~6 will follow this same test mode.

Mode 4. CTX - 2.4GHz + EUT in Z axis with Adapter 2

Mode 5. CTX - 2.4GHz + EUT in Z axis with Adapter 3

Mode 6. CTX - 2.4GHz + EUT in Z axis with Adapter 4

Mode 1 and Mode 4~6 are worst test result among Mode 1~6, and the test result of those four modes are selected to record in the test report.

For Radiated Emission test (Above 1GHz):

The EUT can be placed in Y-axis and Z-axis. After evaluating, The worst case was found at Z-axis, so it's recorded in this report.

Test Mode : Place EUT in Z axis

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	-
TH01-CB	OVEN Room	Hsin Chu	-	-	-

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

3.7. Table for Multiple Listing

The model names in the following table are all refer to the identical product.

Model Name	Equipment Name	Modulation	Description
EA7400V2	Max-Stream AC1750 MU-MIMO GIGABIT ROUTER	Without 256QAM in 802.11ac.	All the models are identical, the difference model served as marketing strategy.
EA7500V2	Max-Stream AC1900 MU-MIMO GIGABIT ROUTER	With 256QAM in 802.11ac.	

From the above models, model: EA7500V2 was selected as representative model for the test and its data was recorded in this report.

3.8. Table for Class II Change

This product is an extension of original one reported under Sporton project number: FR662319-01.

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

Modifications	Performance Checking
Changing 5GHz matching for impedance matching of RF circuit to improve output power efficiency.	1. Max. Conducted Output Power 2. Power Spectral Density 3. 26dB Spectrum Bandwidth & 99% Occupied Bandwidth Measurement 4. 6dB Spectrum Bandwidth Measurement 5. Radiated Emission 6. Band Edge Emission 7. Frequency Stability

3.9. Table for Supporting Units

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

Support Unit	Brand	Model	FCC ID
Notebook	DELL	E4300	DoC

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

For Non-Beamforming Mode

Support Unit	Brand	Model	FCC ID
Notebook	DELL	E4300	DoC

For Beamforming Mode

Support Unit	Brand	Model	FCC ID
Notebook*2	DELL	E4300	DoC
RX Device	LINKSYS	N7300	N/A

For Test Site No: TH01-CB

Support Unit	Brand	Model	FCC ID
Notebook	DELL	E4300	DoC

3.10. Table for Parameters of Test Software Setting

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

For Non-Beamforming Mode

Test Software Version	MT7615 QA.0.0.1.73					
Mode	Test Frequency (MHz)					
	NCB: 20MHz					
	5180 MHz	5200 MHz	5240 MHz	5745 MHz	5785 MHz	5825 MHz
802.11a	1E	1F	20	22	22	23
802.11ac MCS0/Nss1 VHT20	1F	21	1F	22	23	24
Mode	NCB: 40MHz					
802.11ac MCS0/Nss1 VHT40	5190 MHz		5230 MHz		5755 MHz	5795 MHz
	1B		20		22	22
Mode	NCB: 80MHz					
802.11ac MCS0/Nss1 VHT80	5210 MHz				5775 MHz	
	19				23	

For Beamforming Mode

Test Software Version	MT7615 QA.0.0.1.73					
Mode	Test Frequency (MHz)					
	NCB: 20MHz					
	5180 MHz	5200 MHz	5240 MHz	5745 MHz	5785 MHz	5825 MHz
802.11ac MCS0/Nss1 VHT20	30	29	30	29	29	29
Mode	NCB: 40MHz					
802.11ac MCS0/Nss1 VHT40	5190 MHz		5230 MHz		5755 MHz	5795 MHz
	27		29		28	28
Mode	NCB: 80MHz					
802.11ac MCS0/Nss1 VHT80	5210 MHz				5775 MHz	
	15				28	

3.11. 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 98%.

3.12. 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

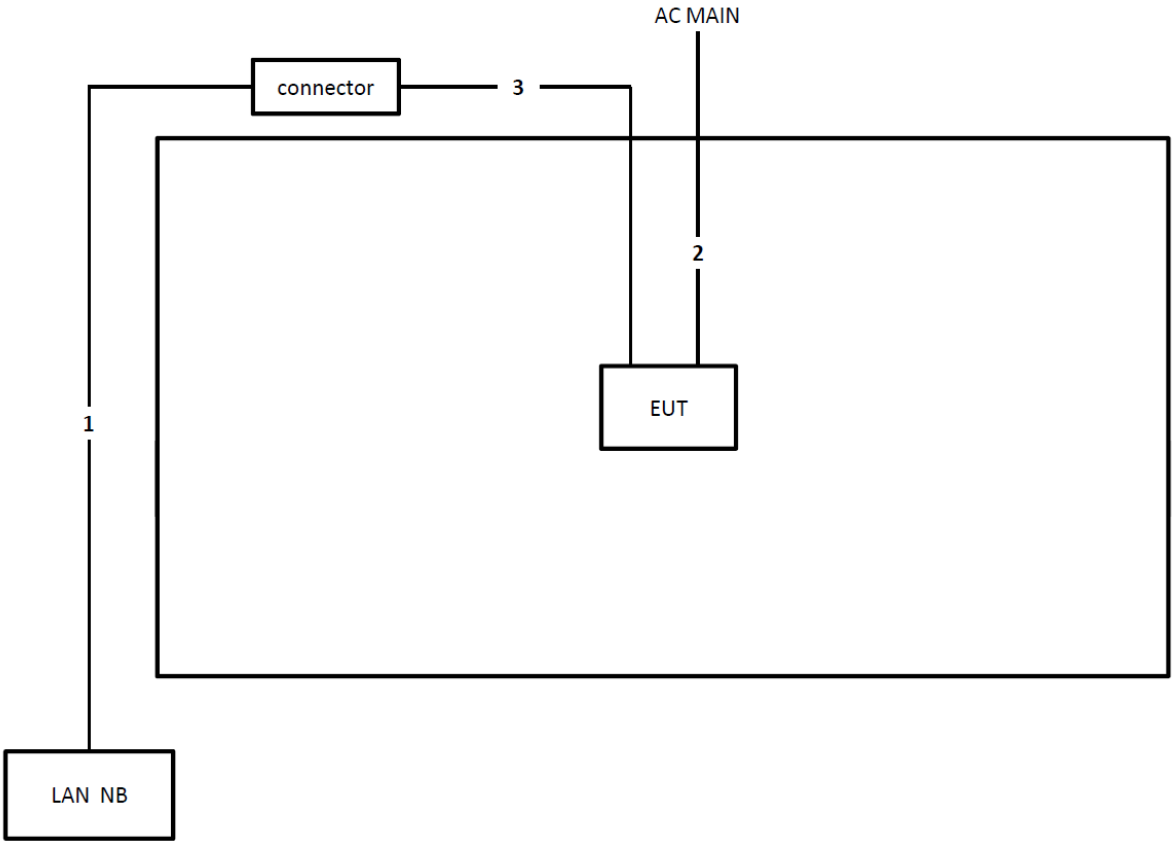
For Beamforming Mode:

Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11ac MCS0/Nss1 VHT20	2.508	2.524	99.37%	0.03	0.01
802.11ac MCS0/Nss1 VHT40	1.205	1.250	96.40%	0.16	0.83
802.11ac MCS0/Nss1 VHT80	0.562	0.607	92.59%	0.33	1.78

3.13. Test Configurations

3.13.1. Radiation Emissions Test Configuration

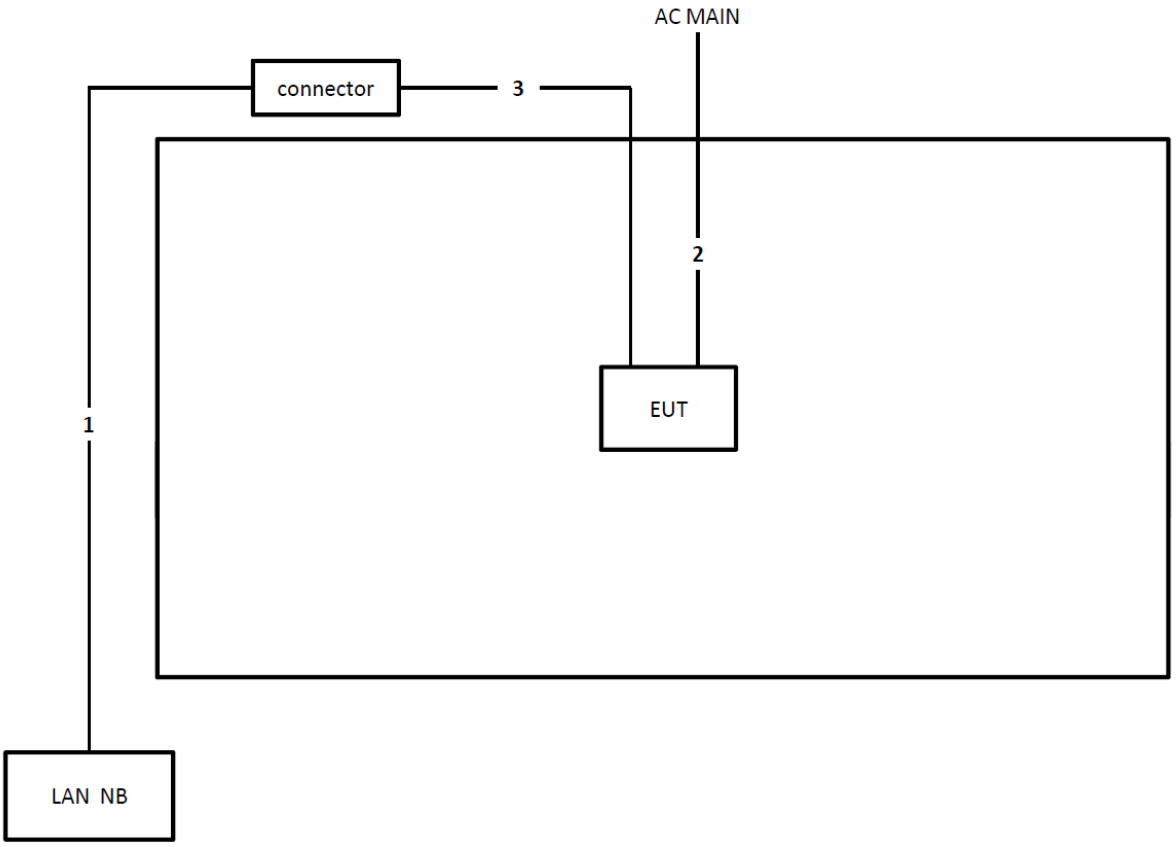
Test Configuration: 30MHz~1GHz



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

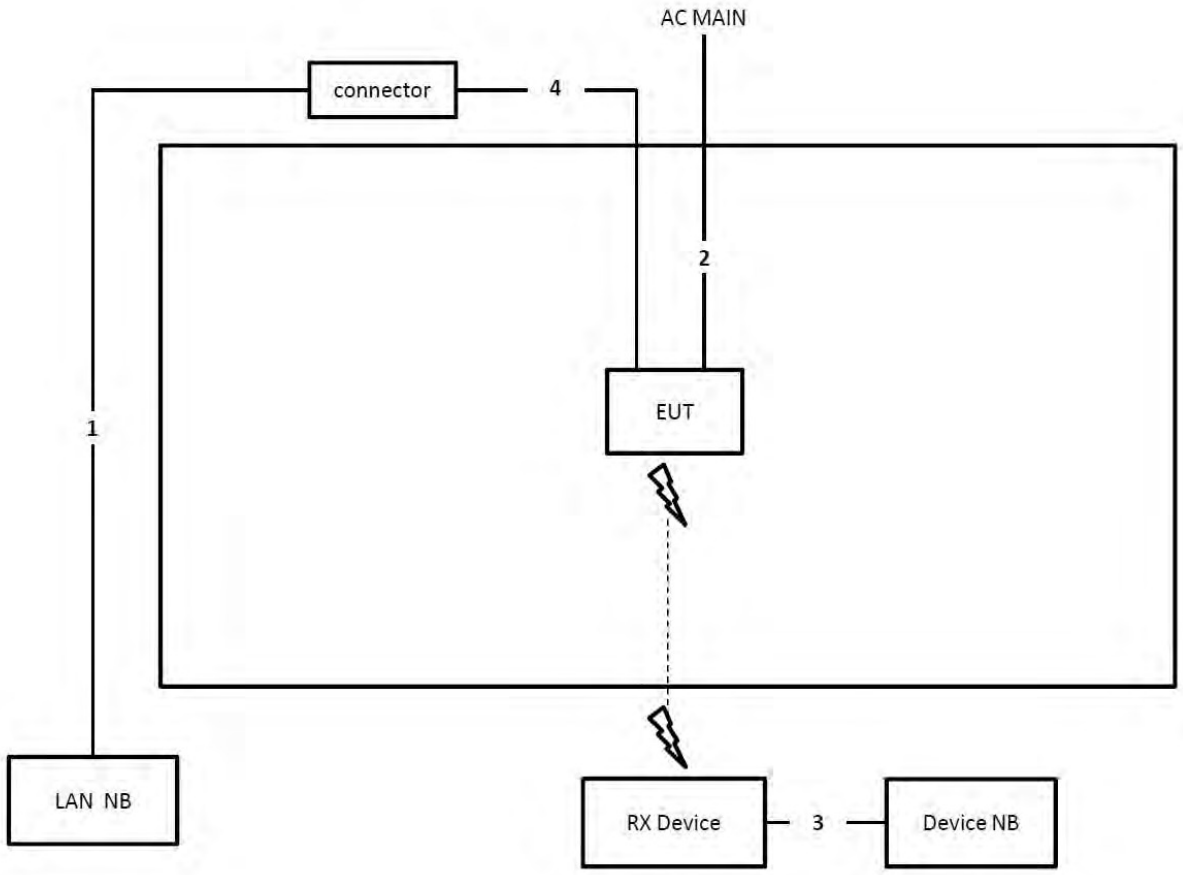
Test Configuration: above 1GHz

For Non-Beamforming Mode:



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

For Beamforming Mode:



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

4. TEST RESULT

4.1. 26dB Bandwidth and 99% Occupied Bandwidth Measurement

4.1.1. Limit

No restriction limits.

4.1.2. Measuring Instruments and Setting

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

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

4.1.3. Test Procedures

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

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

4.1.4. Test Setup Layout

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

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

4.1.5. Test Deviation

There is no deviation with the original standard.

4.1.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

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

Temperature	22°C	Humidity	54%
Test Engineer	Eddie Weng		

For Non-Beamforming Mode

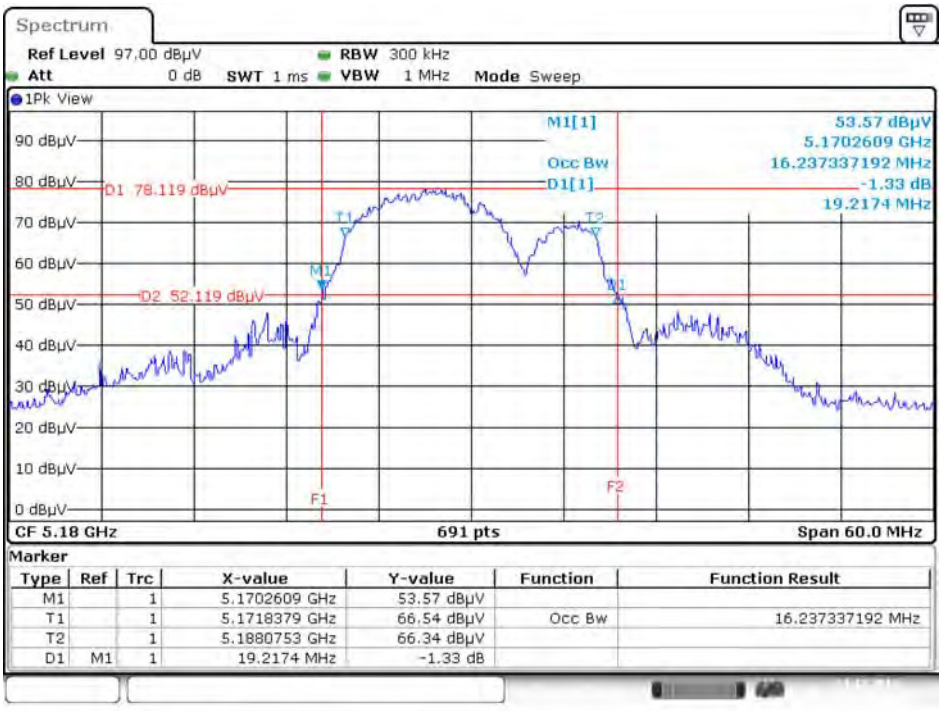
Mode	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11a	5180 MHz	19.22	16.24
	5200 MHz	19.39	16.15
	5240 MHz	30.52	16.50
	5745 MHz	23.04	16.06
	5785 MHz	22.52	16.59
	5825 MHz	22.96	16.15
802.11ac MCS0/Nss1 VHT20	5180 MHz	23.13	17.54
	5200 MHz	23.22	17.71
	5240 MHz	37.57	20.67
	5745 MHz	35.83	21.19
	5785 MHz	39.65	23.44
	5825 MHz	31.65	21.36
802.11ac MCS0/Nss1 VHT40	5190 MHz	38.84	30.68
	5230 MHz	36.38	30.97
	5755 MHz	73.77	37.92
	5795 MHz	61.01	37.63
802.11ac MCS0/Nss1 VHT80	5210 MHz	81.16	76.12
	5775 MHz	102.03	72.94

For Beamforming Mode

Mode	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11ac MCS0/Nss1 VHT20	5180 MHz	20.52	17.71
	5200 MHz	20.52	17.80
	5240 MHz	20.52	17.80
	5745 MHz	20.61	17.80
	5785 MHz	20.52	17.71
	5825 MHz	20.26	17.71
802.11ac MCS0/Nss1 VHT40	5190 MHz	41.59	36.47
	5230 MHz	41.59	36.47
	5755 MHz	41.59	36.61
	5795 MHz	41.16	36.47
802.11ac MCS0/Nss1 VHT80	5210 MHz	80.87	75.54
	5775 MHz	80.87	75.54

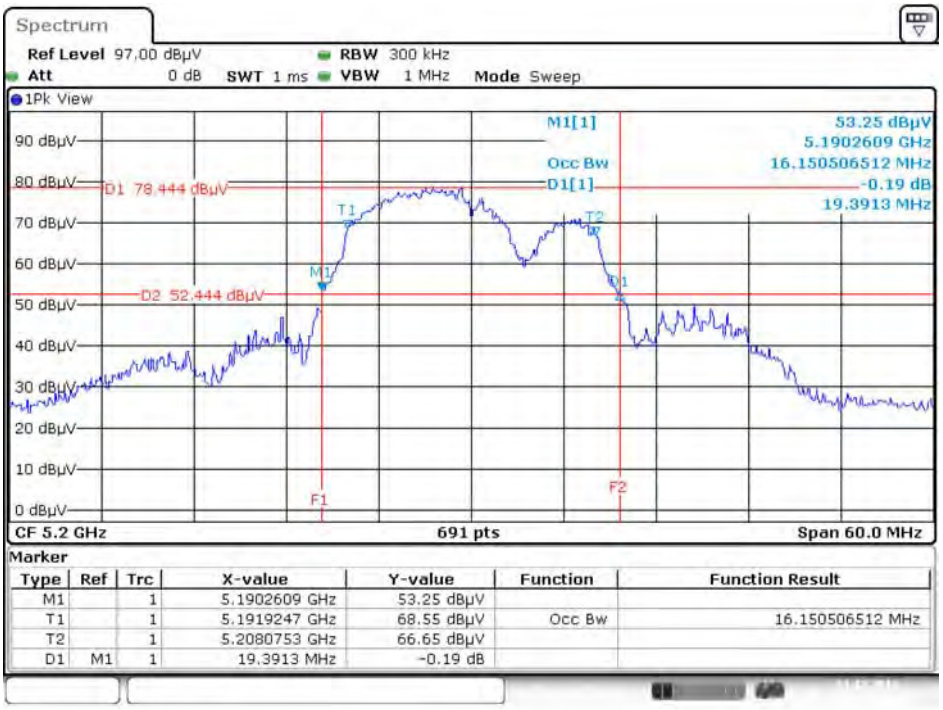
For Non-Beamforming Mode

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4 / 5180 MHz



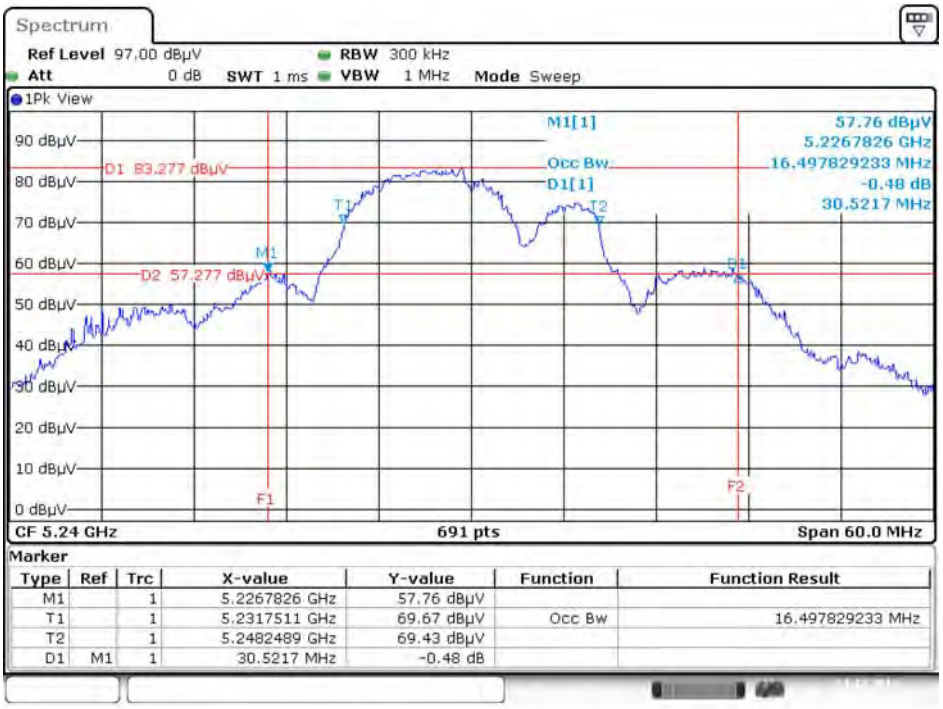
Date: 23.DEC.2016 03:01:06

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4 / 5200 MHz



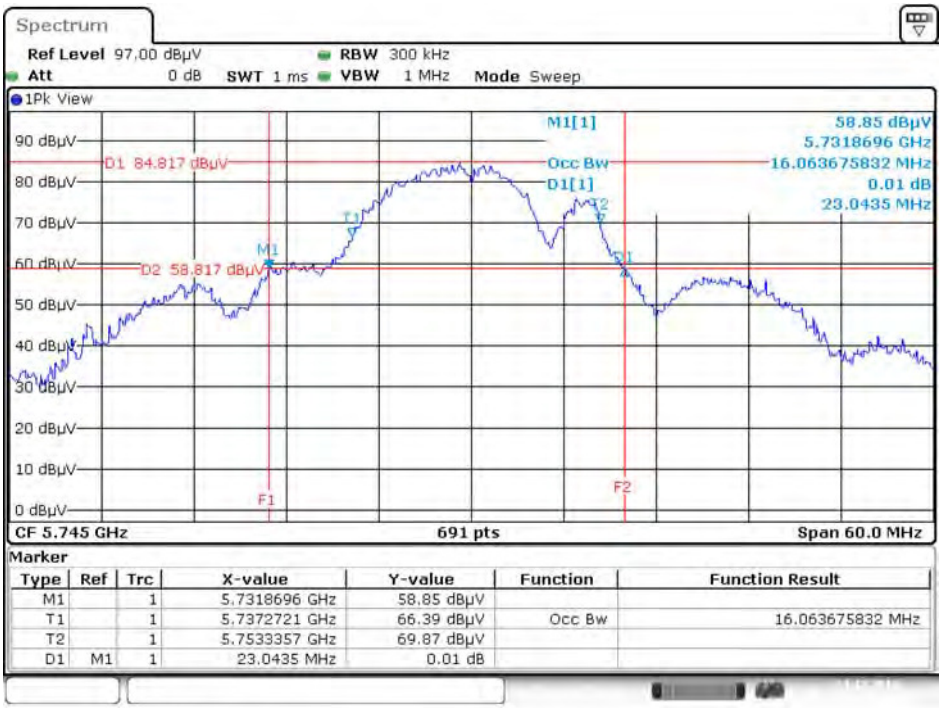
Date: 23.DEC.2016 03:01:26

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4 / 5240 MHz



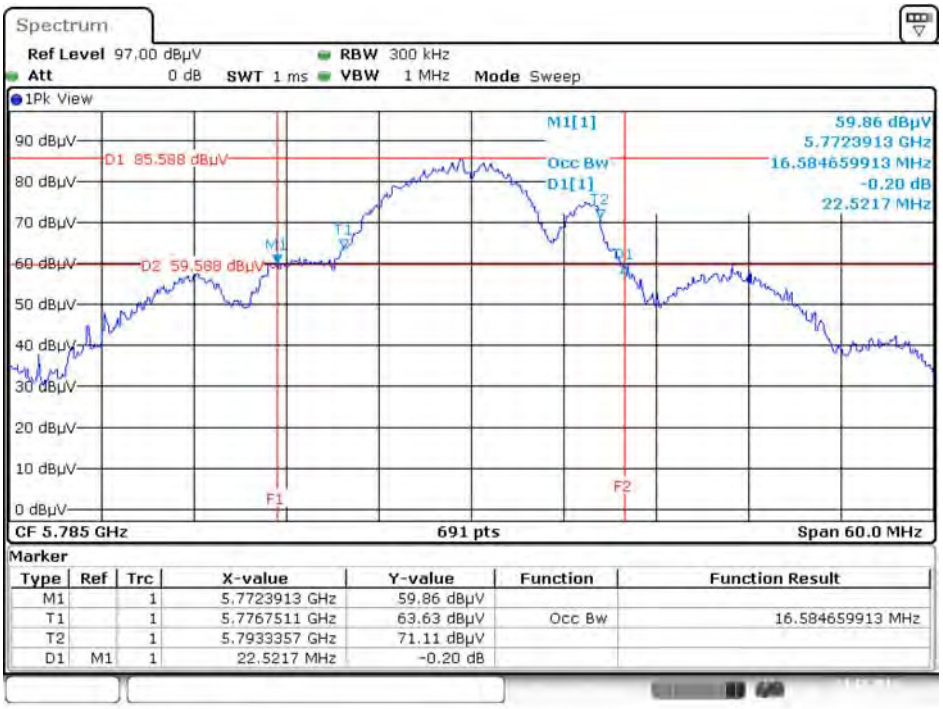
Date: 23.DEC.2016 03:01:52

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4 / 5745 MHz



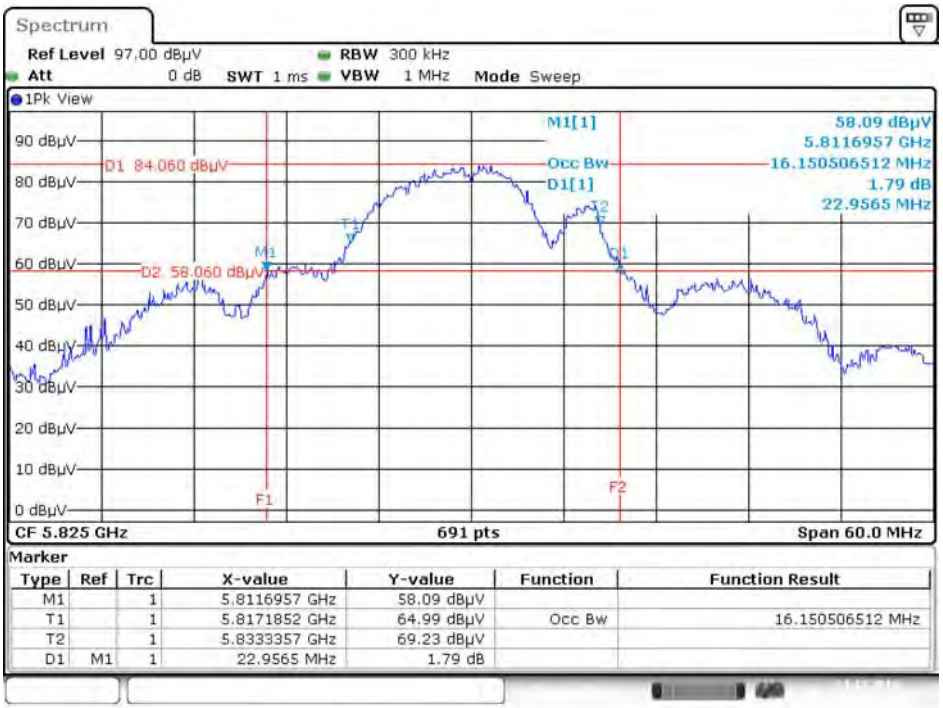
Date: 23.DEC.2016 03:00:37

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4 / 5785 MHz



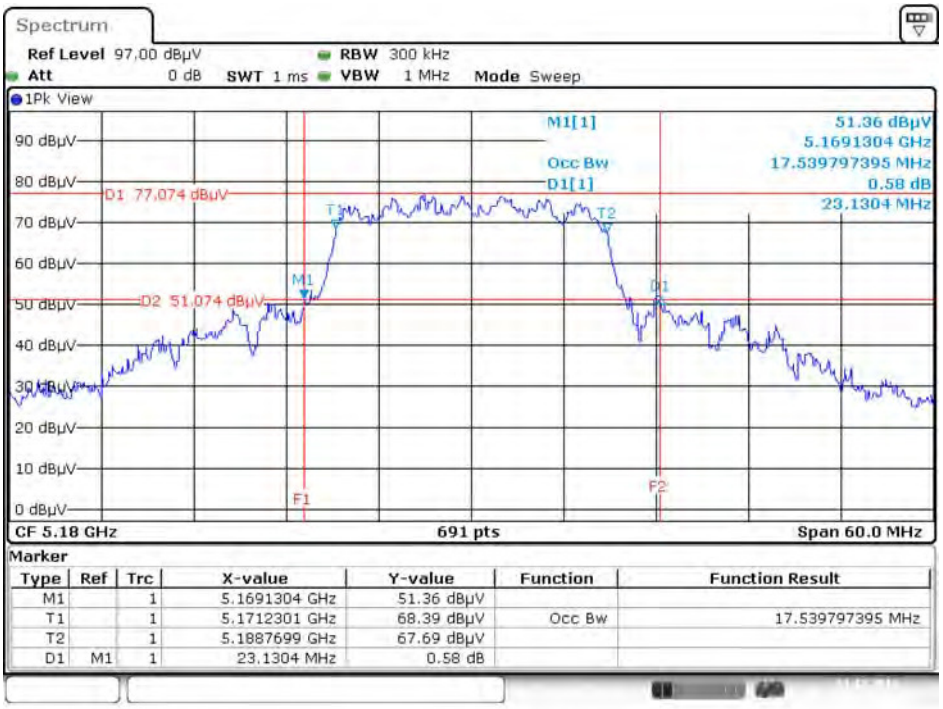
Date: 23.DEC.2016 03:00:16

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4 / 5825 MHz



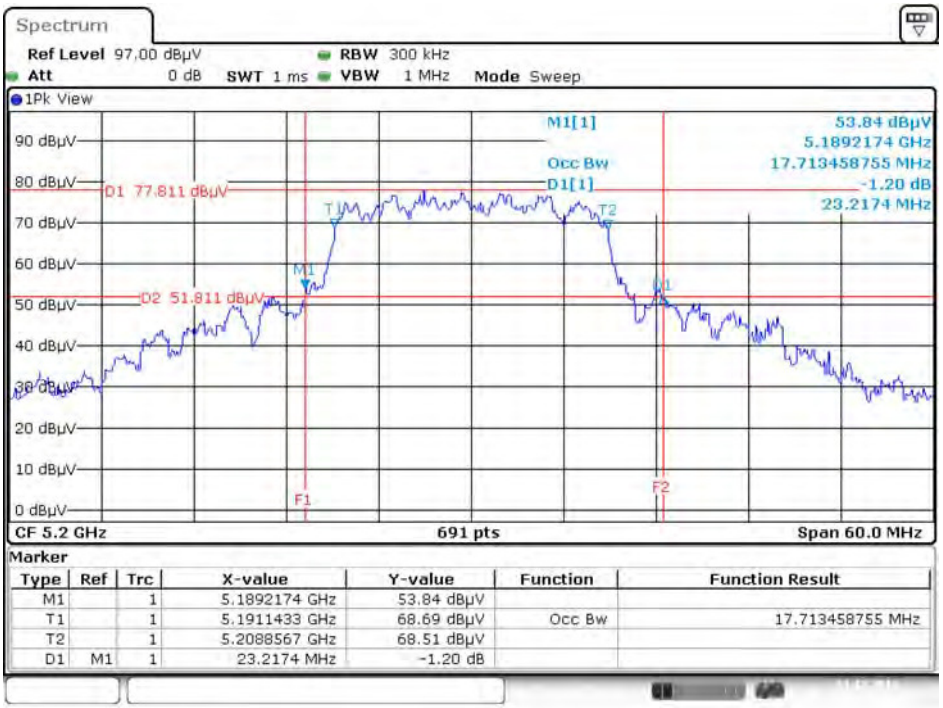
Date: 23.DEC.2016 02:59:53

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4 / 5180 MHz



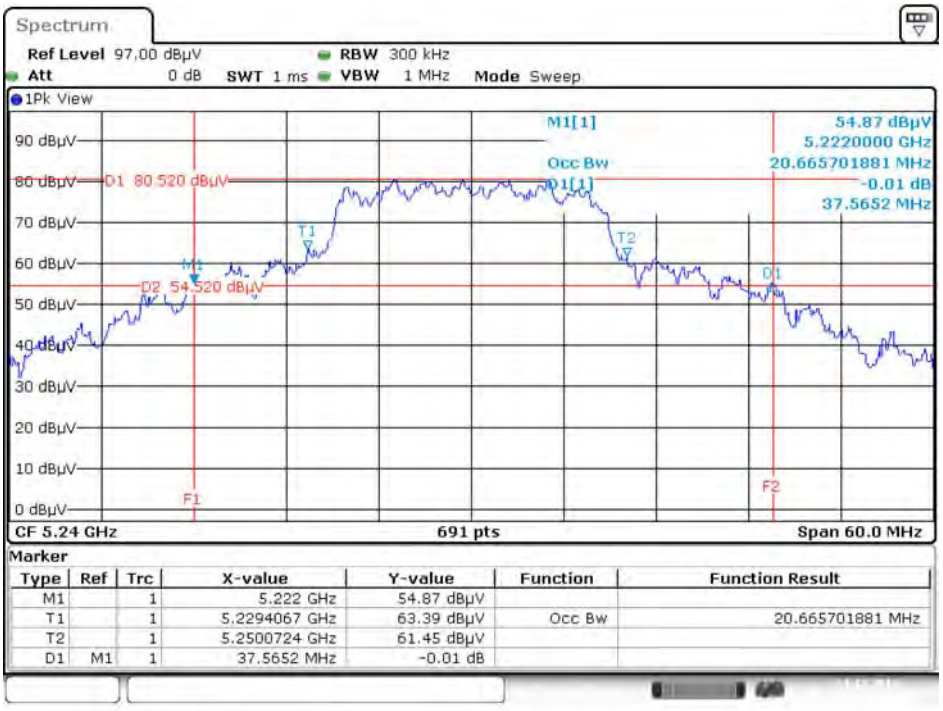
Date: 23.DEC.2016 02:56:28

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4 / 5200 MHz



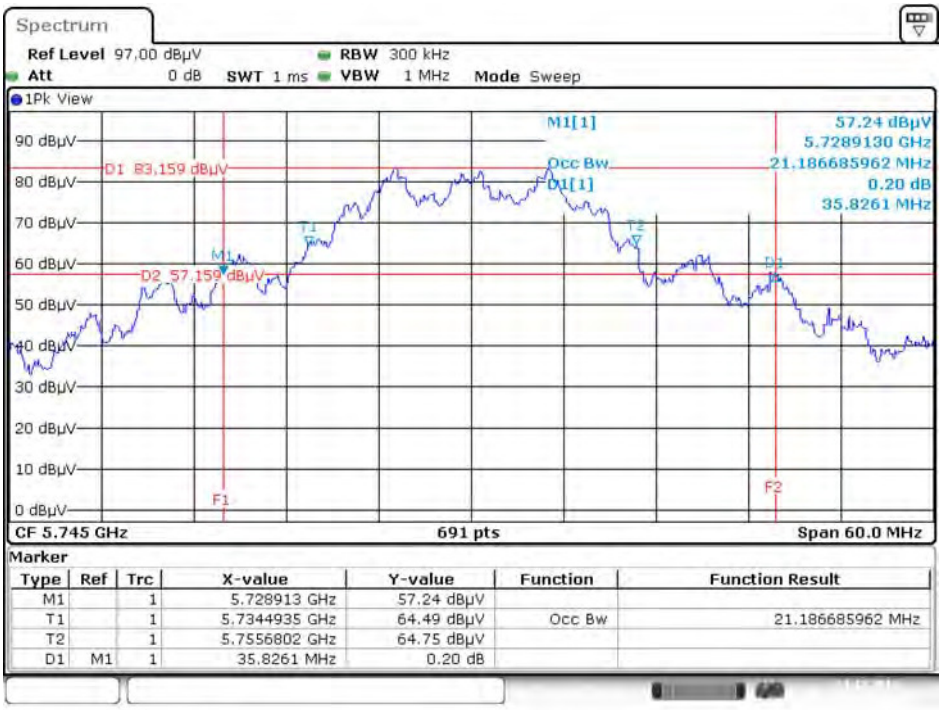
Date: 23.DEC.2016 02:57:02

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4 / 5240 MHz



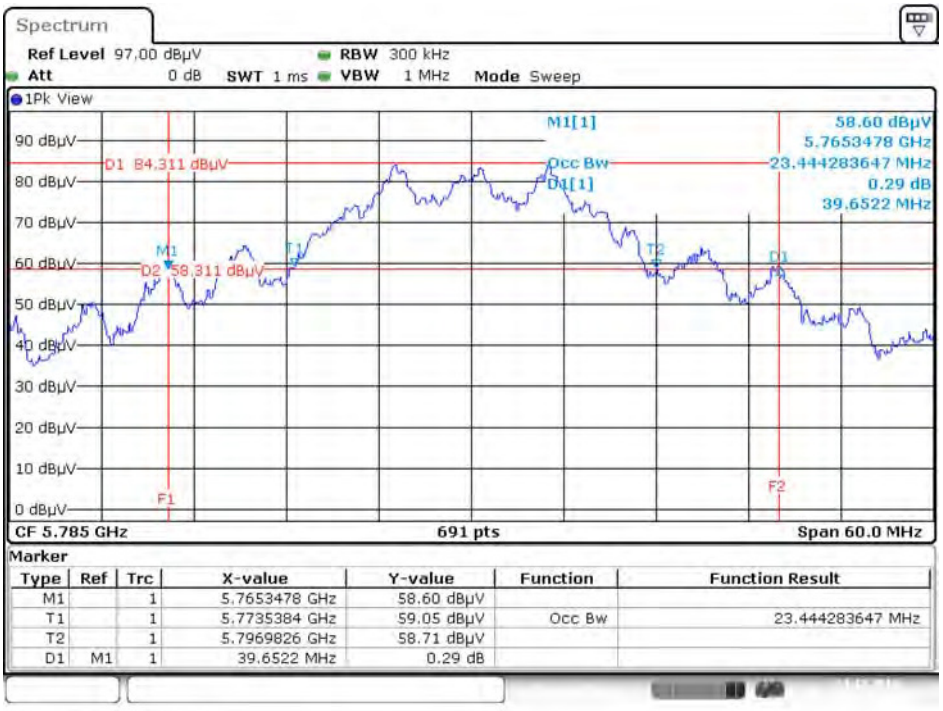
Date: 23.DEC.2016 02:57:40

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4 / 5745 MHz



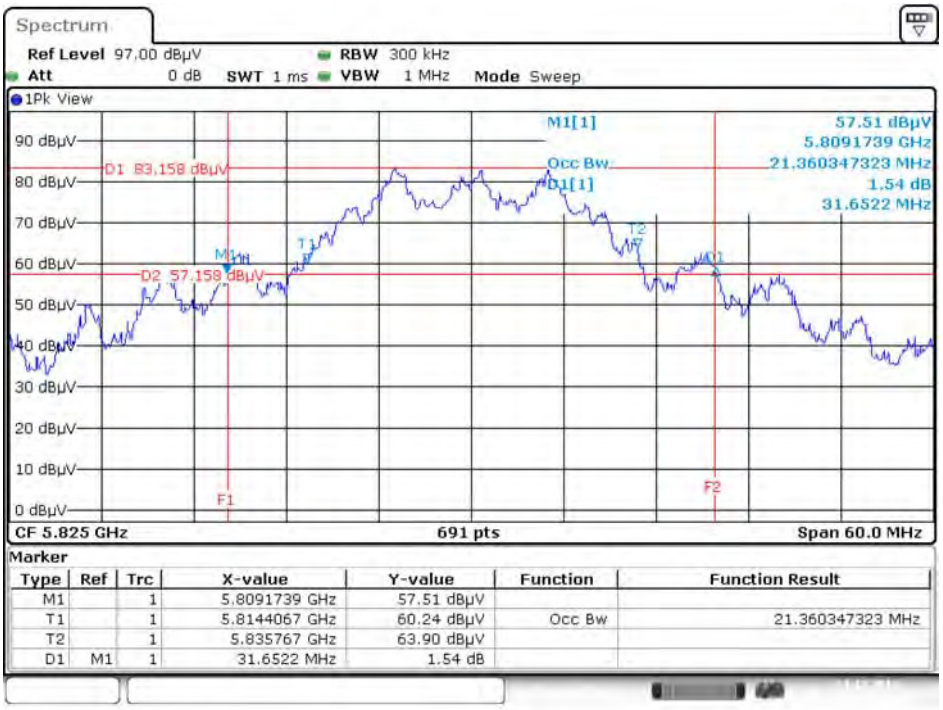
Date: 23.DEC.2016 02:58:07

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4 / 5785 MHz



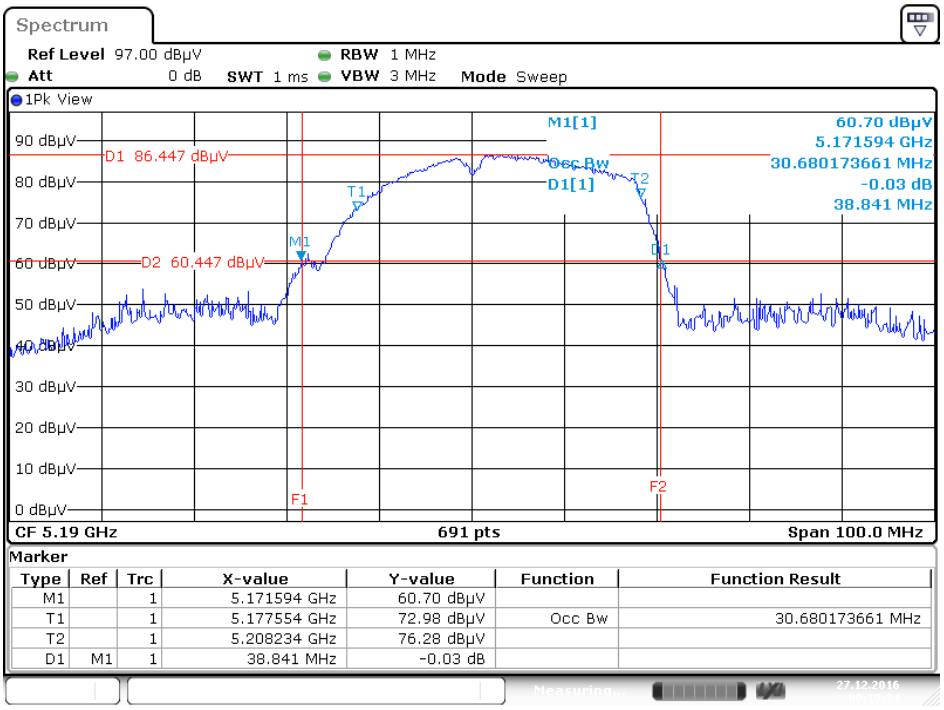
Date: 23.DEC.2016 02:58:38

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4 / 5825 MHz



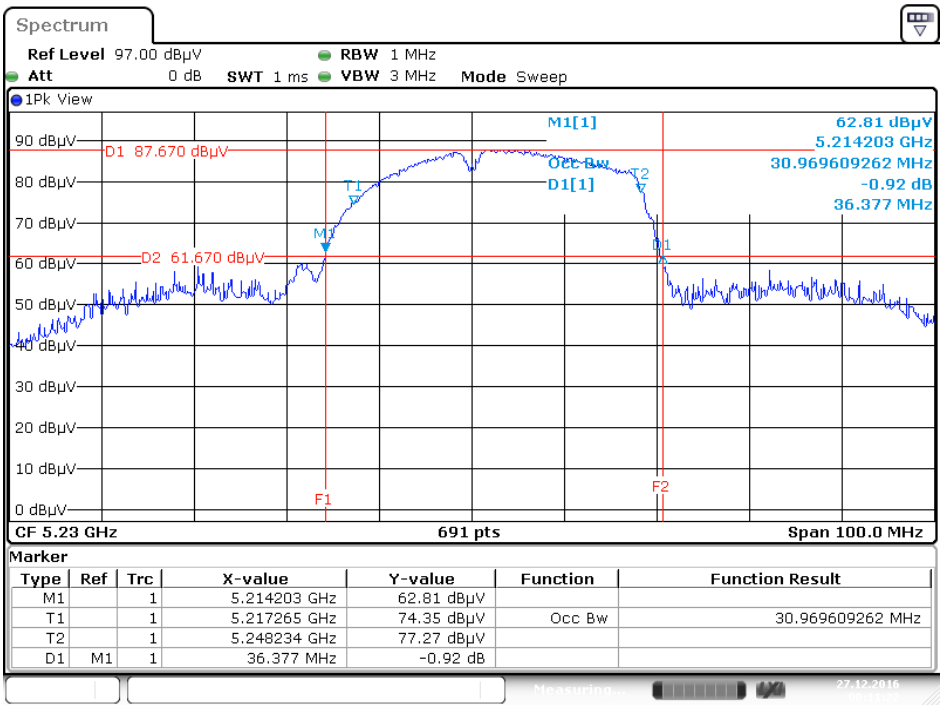
Date: 23.DEC.2016 02:58:58

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4 / 5190 MHz



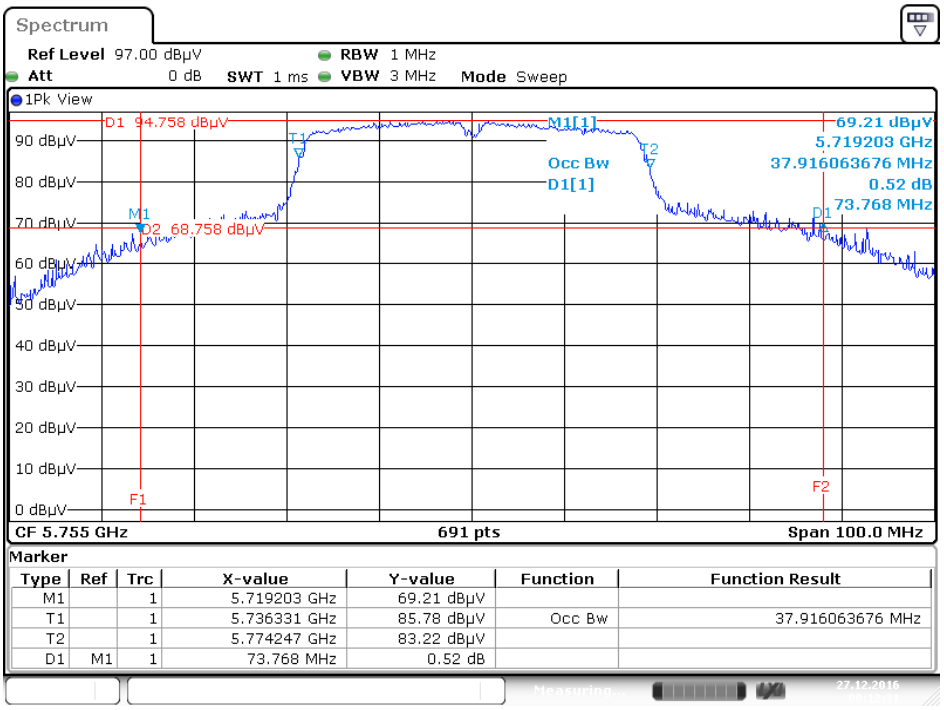
Date: 27.DEC.2016 00:10:25

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4 / 5230 MHz



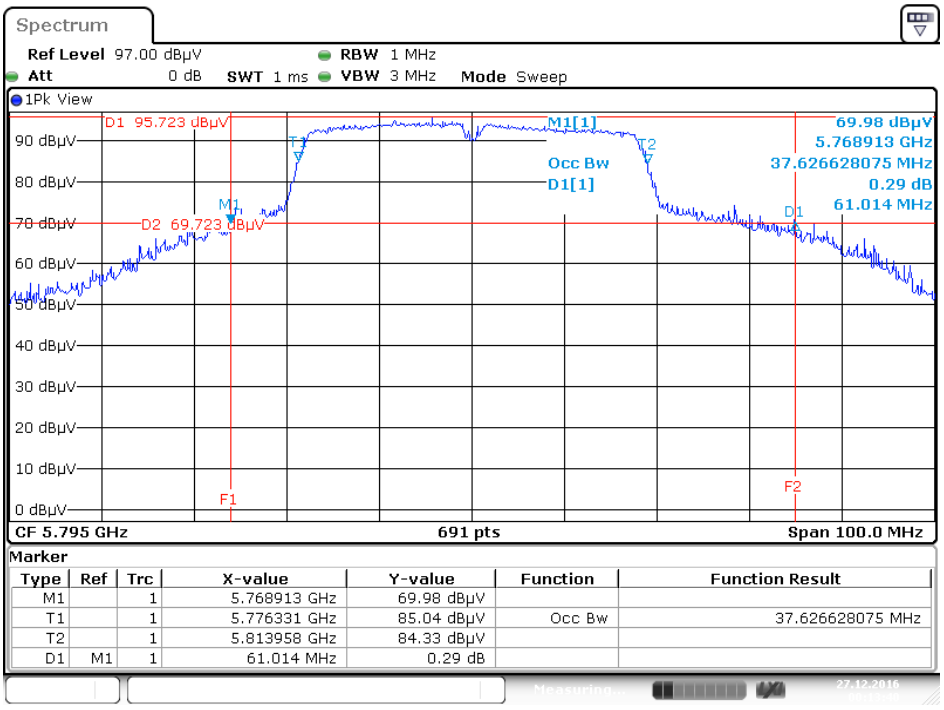
Date: 27.DEC.2016 00:11:22

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4 / 5755 MHz



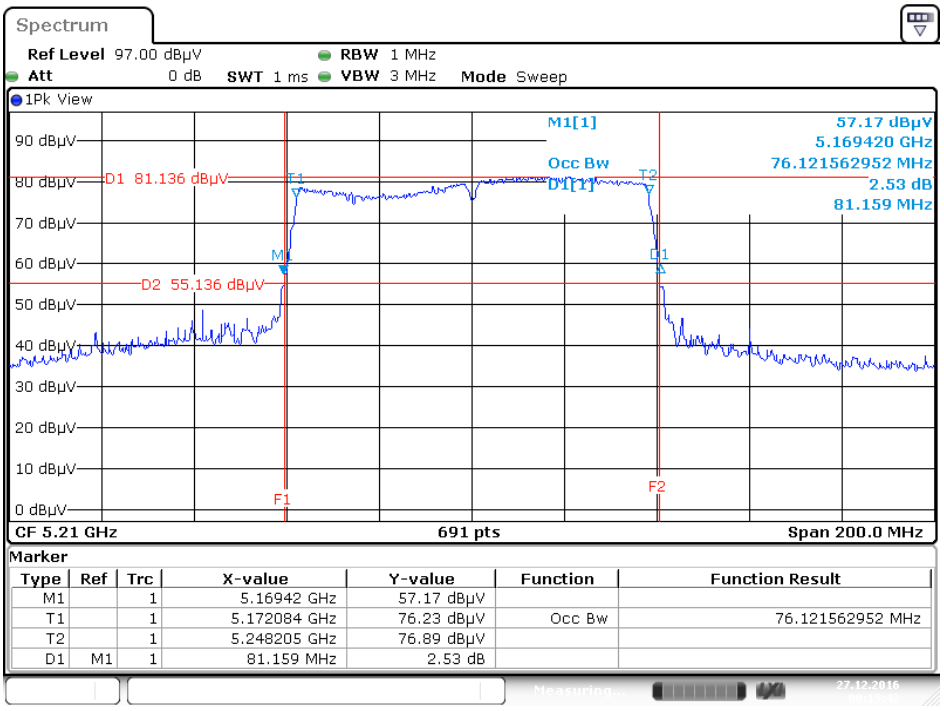
Date: 27.DEC.2016 00:12:32

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4 / 5795 MHz



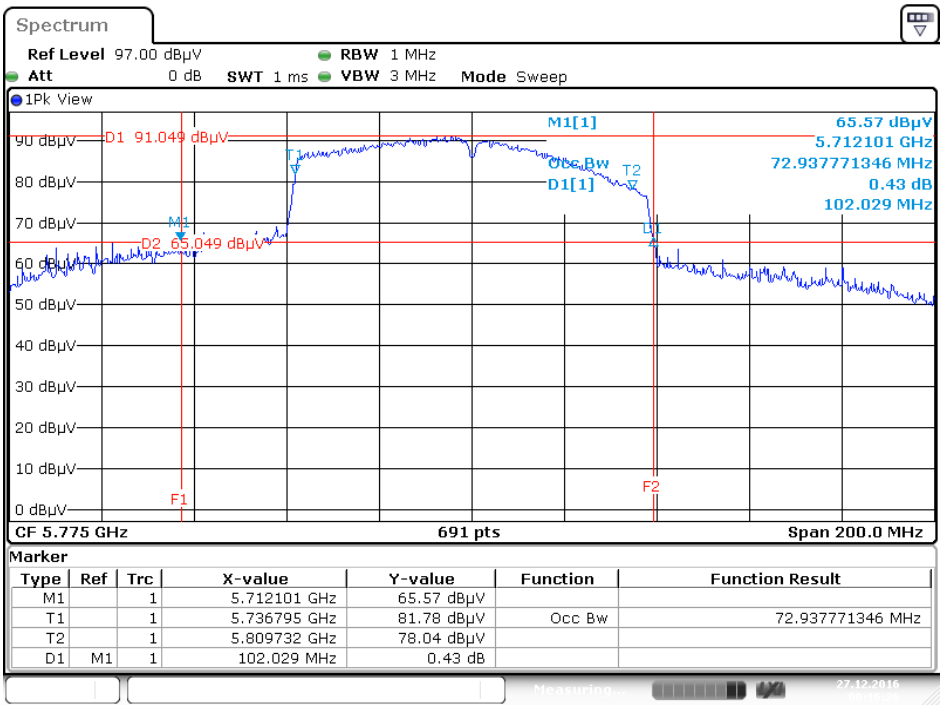
Date: 27.DEC.2016 00:13:40

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4 / 5210 MHz



Date: 27.DEC.2016 00:15:42

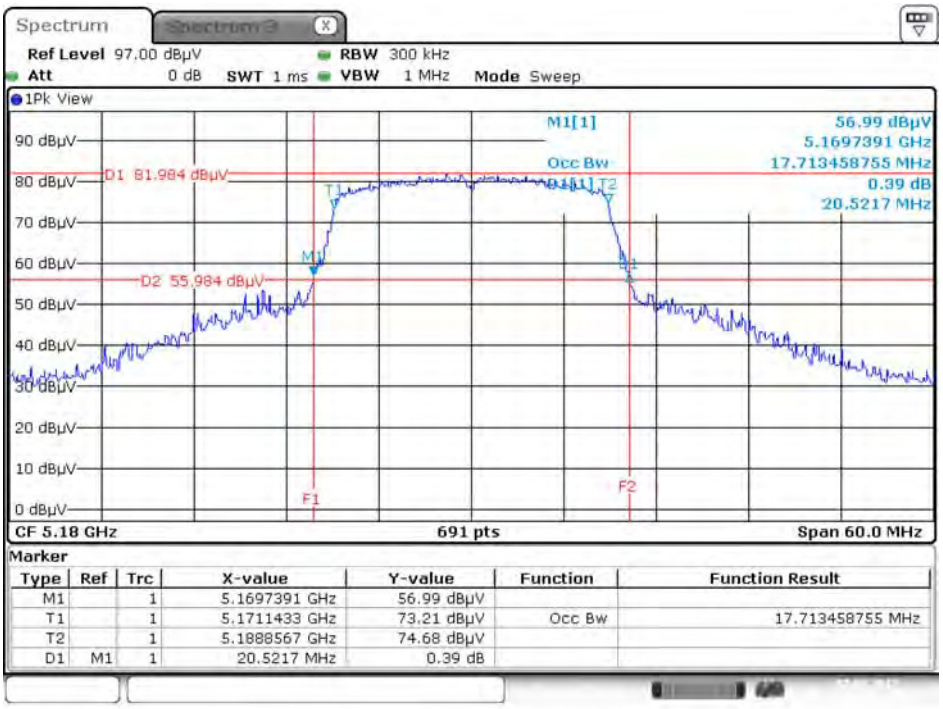
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4 / 5775 MHz



Date: 27.DEC.2016 00:16:26

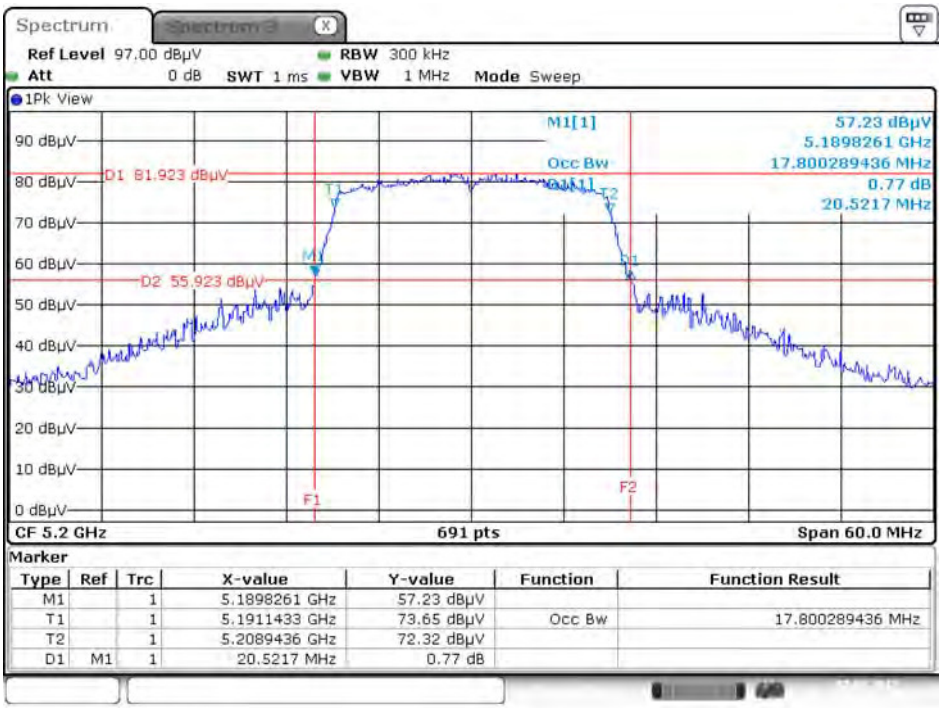
For Beamforming Mode

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4 / 5180 MHz



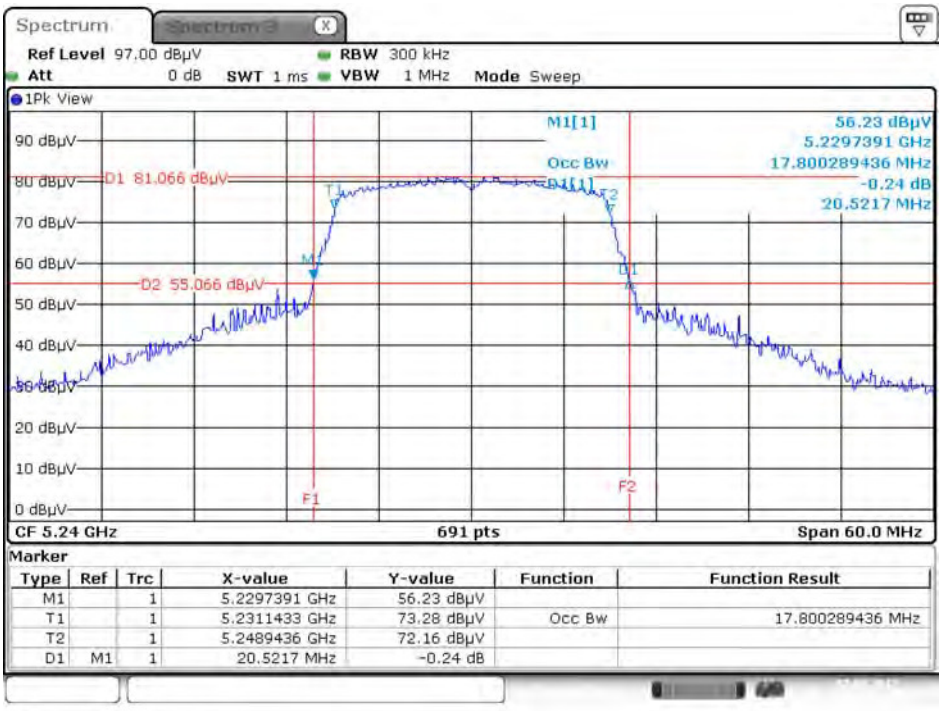
Date: 7.FEB.2017 14:49:26

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4 / 5200 MHz



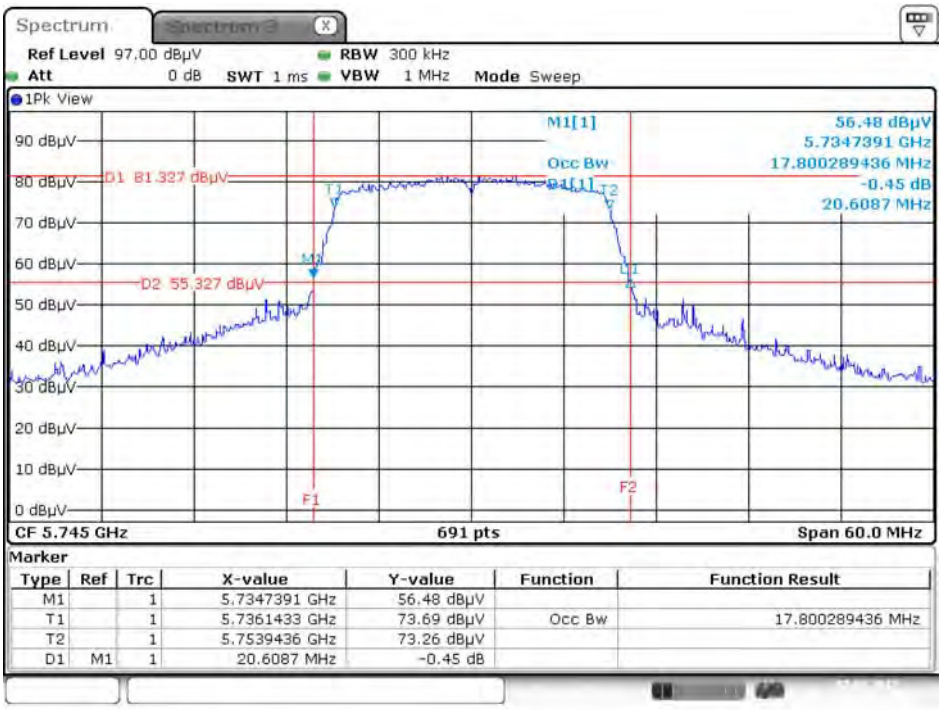
Date: 7.FEB.2017 14:50:16

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4 / 5240 MHz



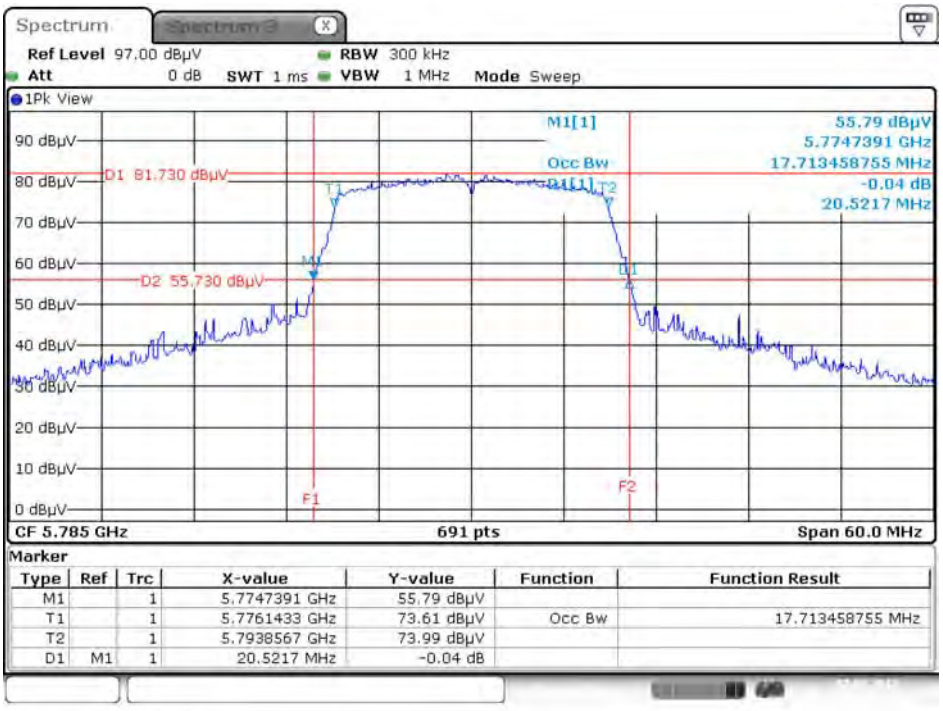
Date: 7.FEB.2017 14:51:27

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4 / 5745 MHz



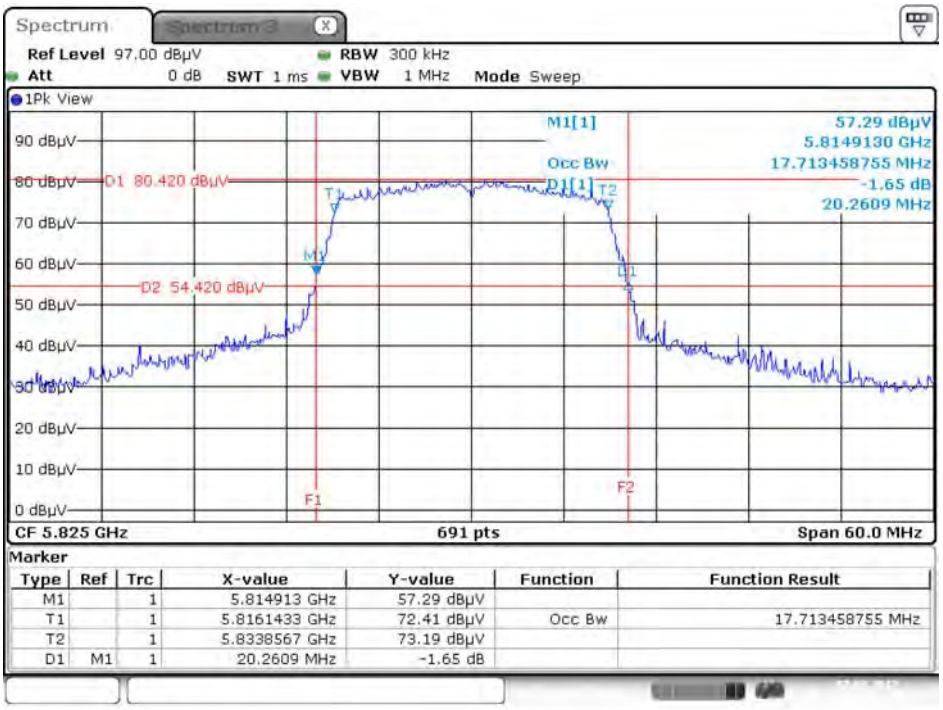
Date: 7.FEB.2017 14:52:49

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4 / 5785 MHz



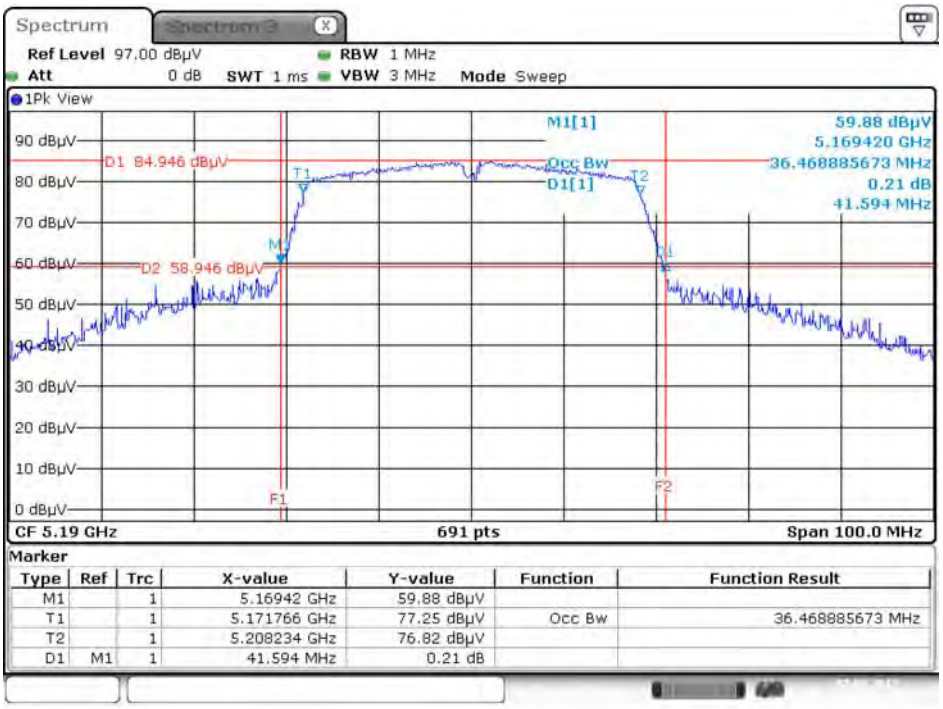
Date: 7.FEB.2017 14:53:22

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4 / 5825 MHz



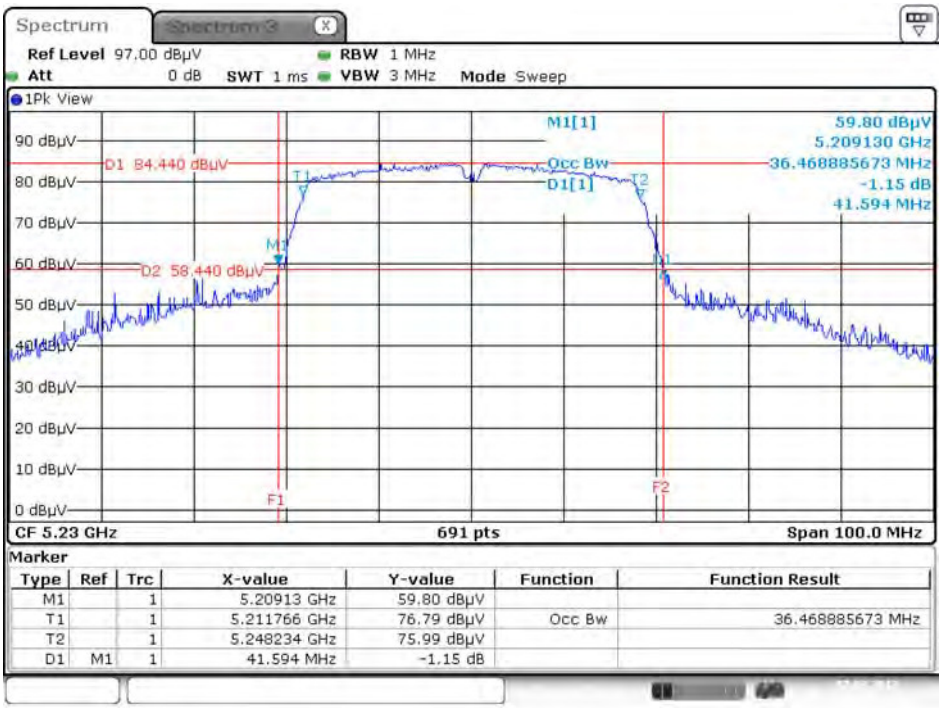
Date: 7.FEB.2017 14:53:59

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4 / 5190 MHz



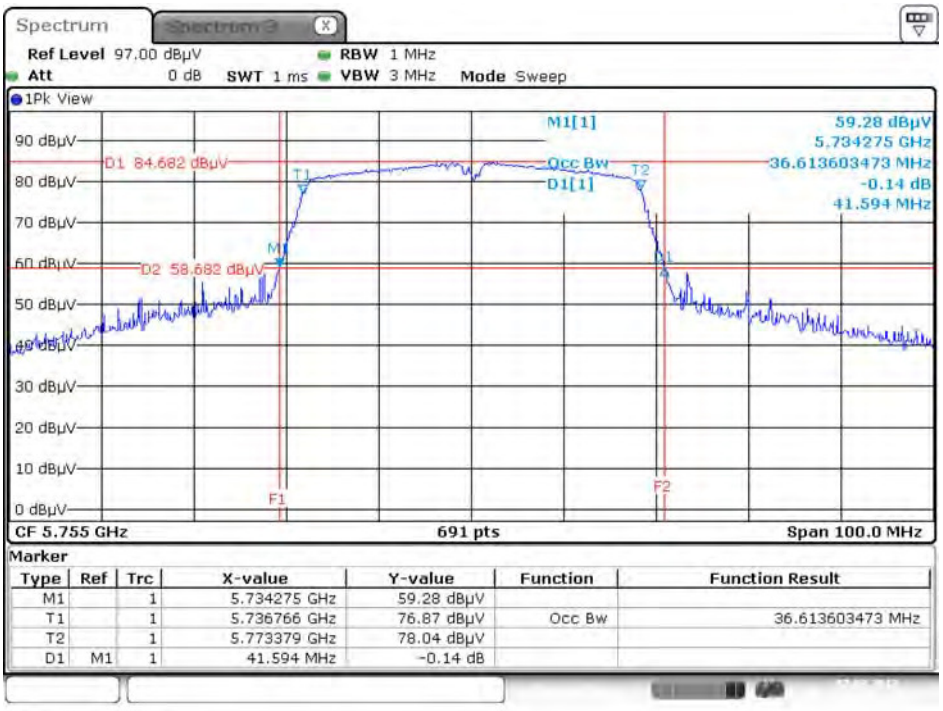
Date: 7.FEB.2017 14:45:09

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4 / 5230 MHz



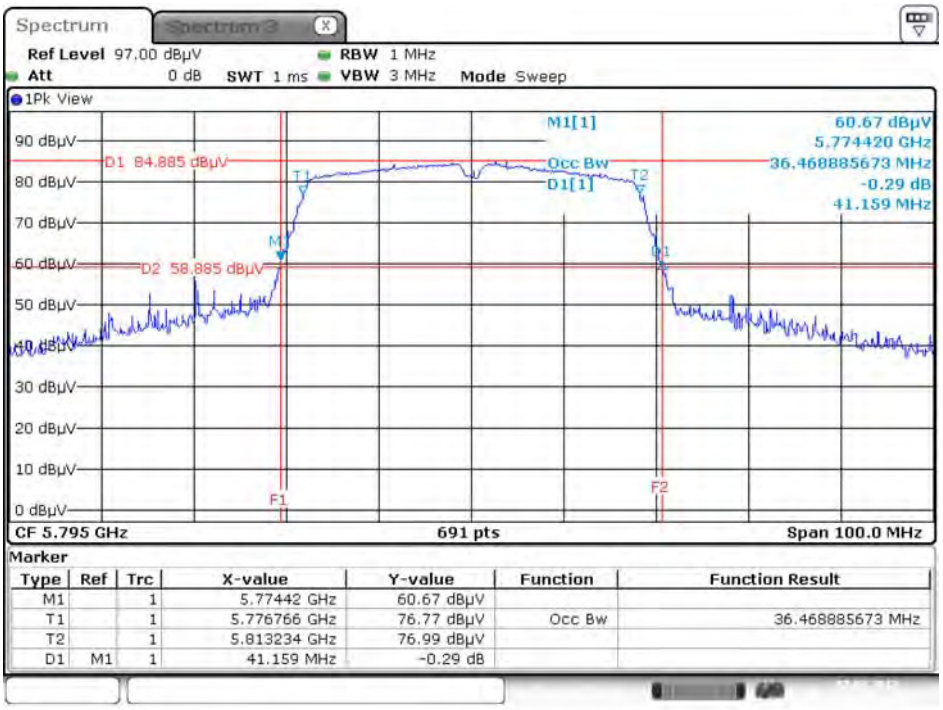
Date: 7.FEB.2017 14:46:22

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4 / 5755 MHz



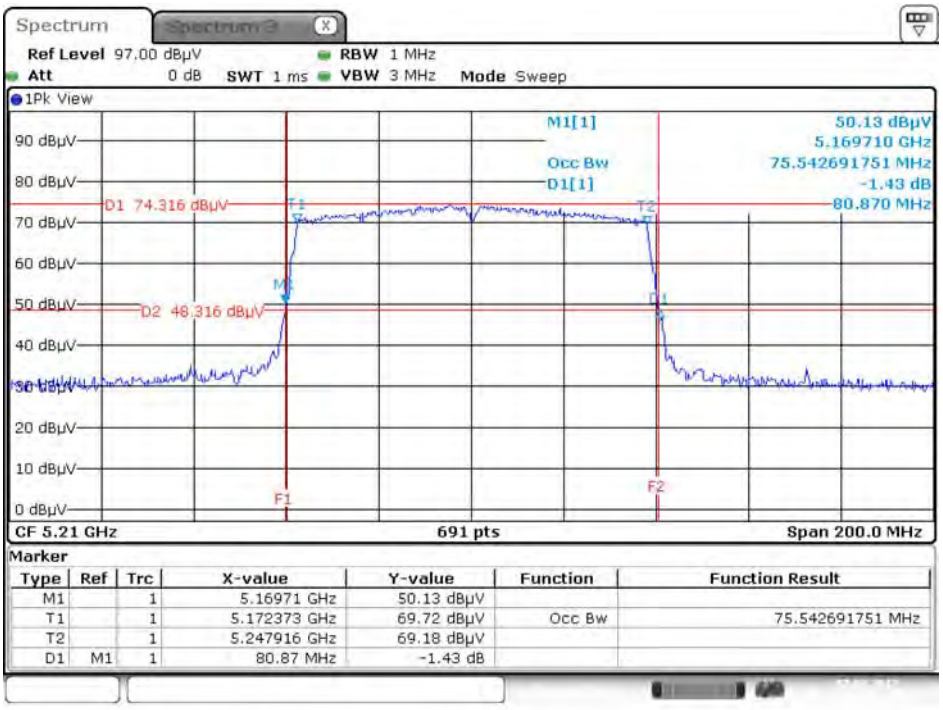
Date: 7.FEB.2017 14:47:24

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4 / 5795 MHz



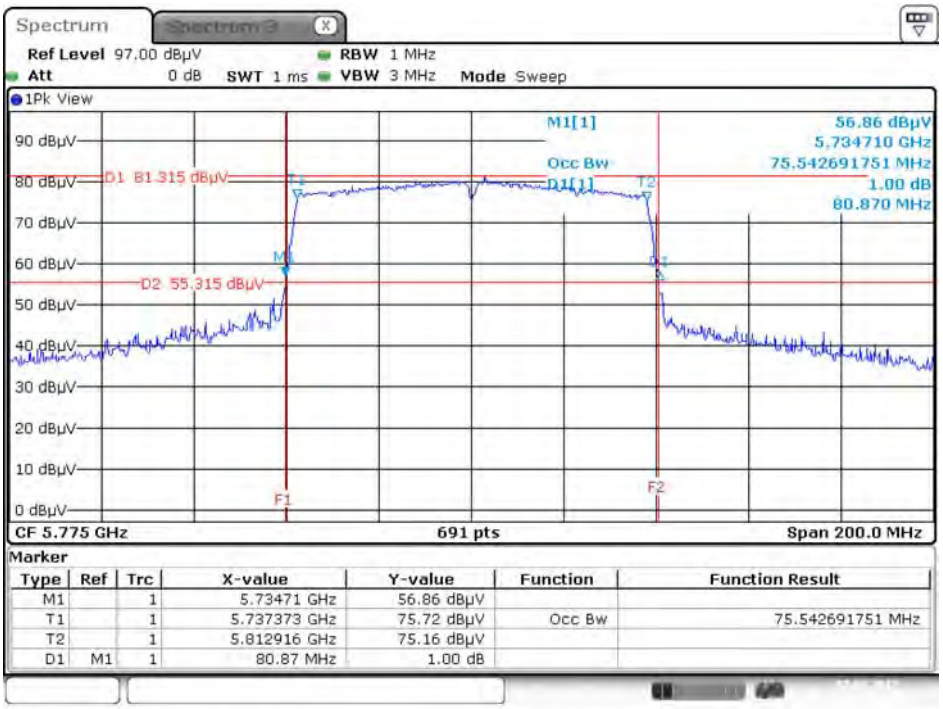
Date: 7.FEB.2017 14:48:03

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4 / 5210 MHz



Date: 7.FEB.2017 14:43:03

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4 / 5775 MHz



Date: 7.FEB.2017 14:41:27

4.2. 6dB Spectrum Bandwidth Measurement

4.2.1. Limit

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

4.2.2. Measuring Instruments and Setting

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

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

4.2.3. Test Procedures

For Radiated 6dB Bandwidth Measurement:

1. The transmitter was radiated to the spectrum analyzer in peak hold mode.
2. Test was performed in accordance with KDB789033 D02 v01r03 for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - section (C) Emission Bandwidth.
3. Multiple antenna system was performed in accordance with KDB662911 D01 v02r01 Emissions Testing of Transmitters with Multiple Outputs in the Same Band.
4. Measured the spectrum width with power higher than 6dB below carrier.

4.2.4. Test Setup Layout

For Radiated 6dB Bandwidth Measurement:

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

4.2.5. Test Deviation

There is no deviation with the original standard.

4.2.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.2.7. Test Result of 6dB Spectrum Bandwidth

Temperature	22°C	Humidity	54%
Test Engineer	Eddie Weng		

For Non-Beamforming Mode

Mode	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Test Result
802.11a	5745 MHz	7.88	500	Complies
	5785 MHz	7.01	500	Complies
	5825 MHz	6.32	500	Complies
802.11ac MCS0/Nss1 VHT20	5745 MHz	13.16	500	Complies
	5785 MHz	10.26	500	Complies
	5825 MHz	10.67	500	Complies
802.11ac MCS0/Nss1 VHT40	5755 MHz	36.29	500	Complies
	5795 MHz	36.41	500	Complies
802.11ac MCS0/Nss1 VHT80	5775 MHz	60.00	500	Complies

For Beamforming Mode

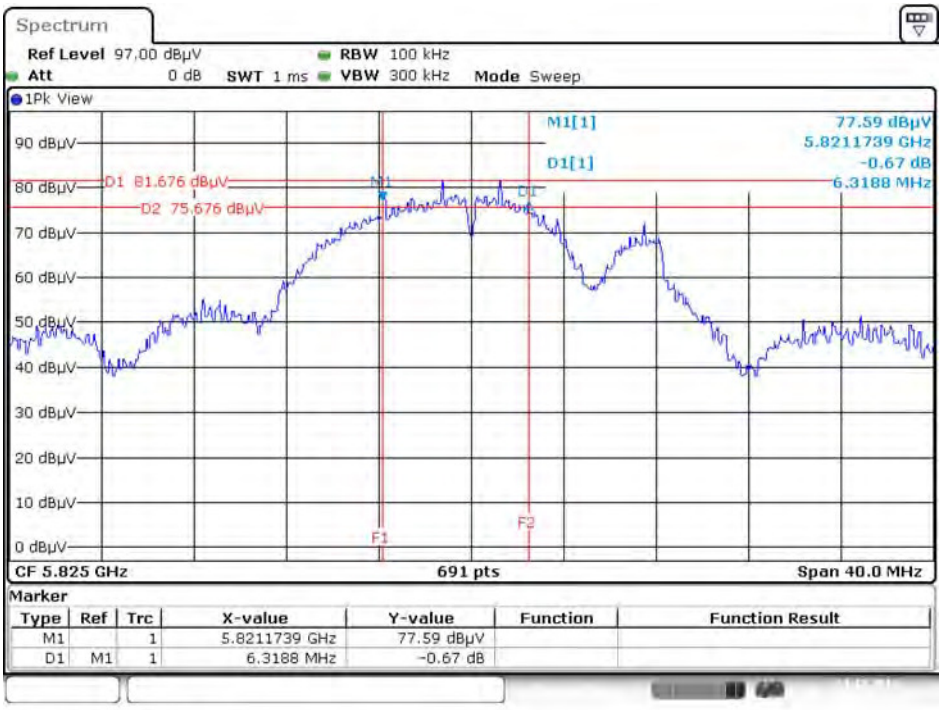
Mode	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Test Result
802.11ac MCS0/Nss1 VHT20	5745 MHz	17.62	500	Complies
	5785 MHz	17.62	500	Complies
	5825 MHz	17.62	500	Complies
802.11ac MCS0/Nss1 VHT40	5755 MHz	36.41	500	Complies
	5795 MHz	36.06	500	Complies
802.11ac MCS0/Nss1 VHT80	5775 MHz	76.52	500	Complies

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

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

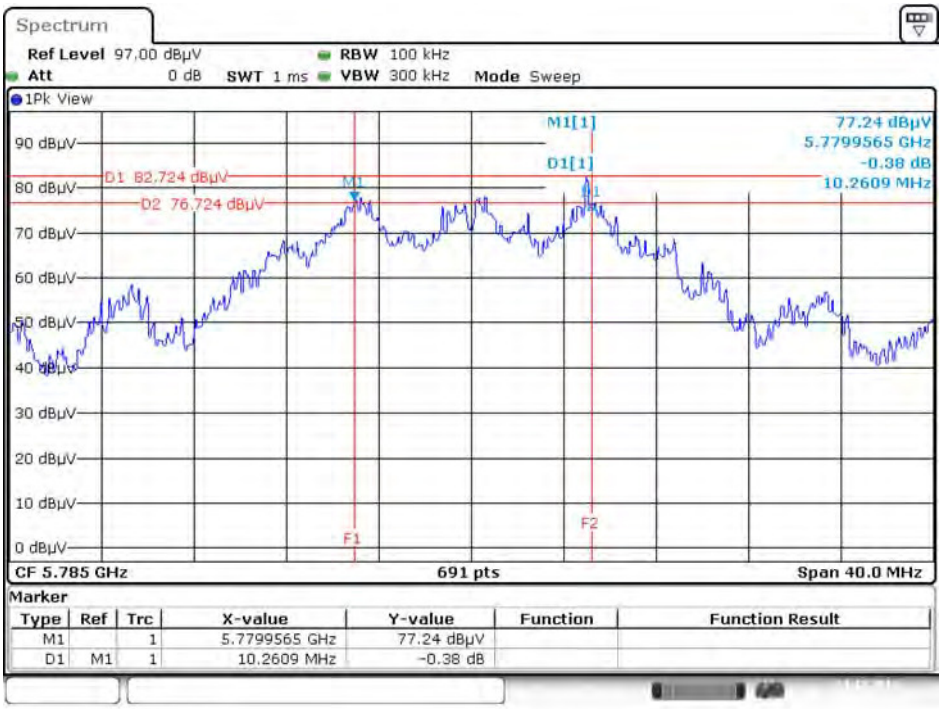
For Non-Beamforming Mode

6 dB Bandwidth Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4 / 5825 MHz



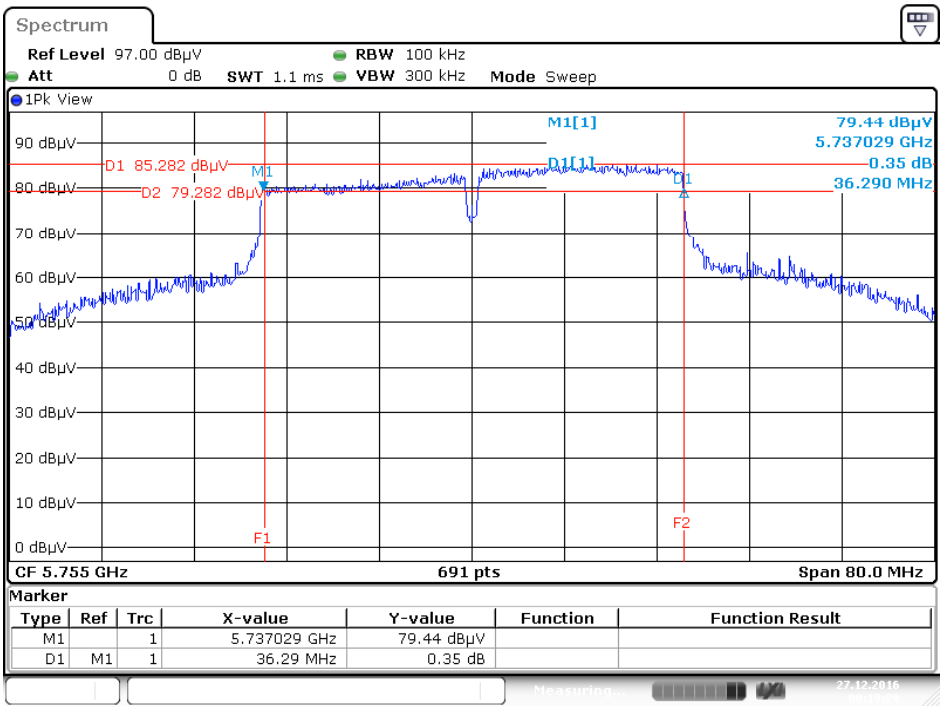
Date: 23.DEC.2016 03:03:47

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4 / 5785 MHz



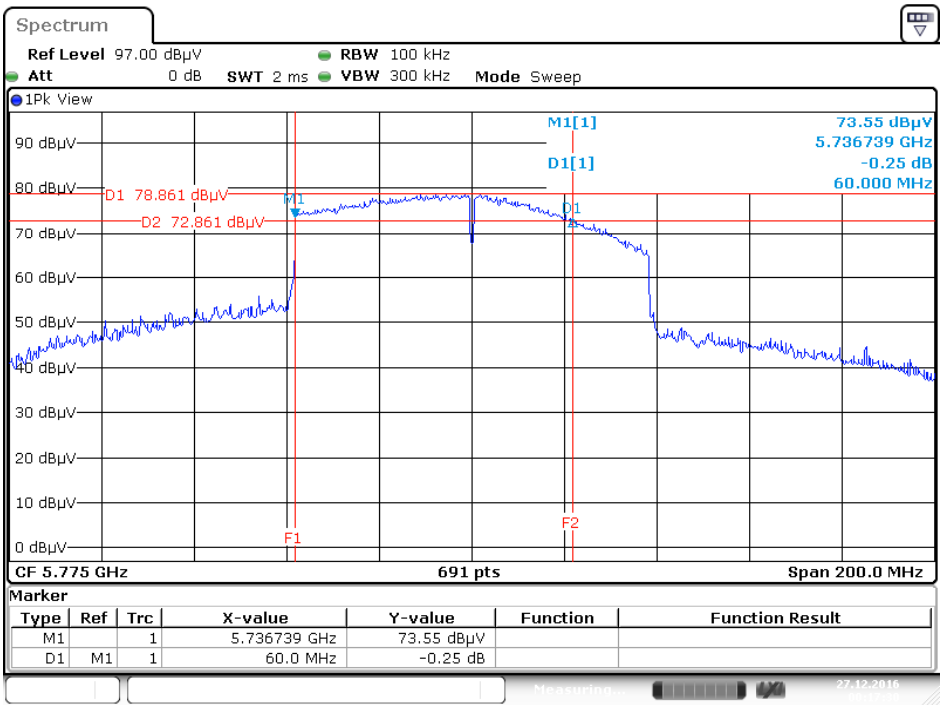
Date: 23.DEC.2016 03:04:48

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4 / 5755MHz



Date: 27.DEC.2016 00:19:29

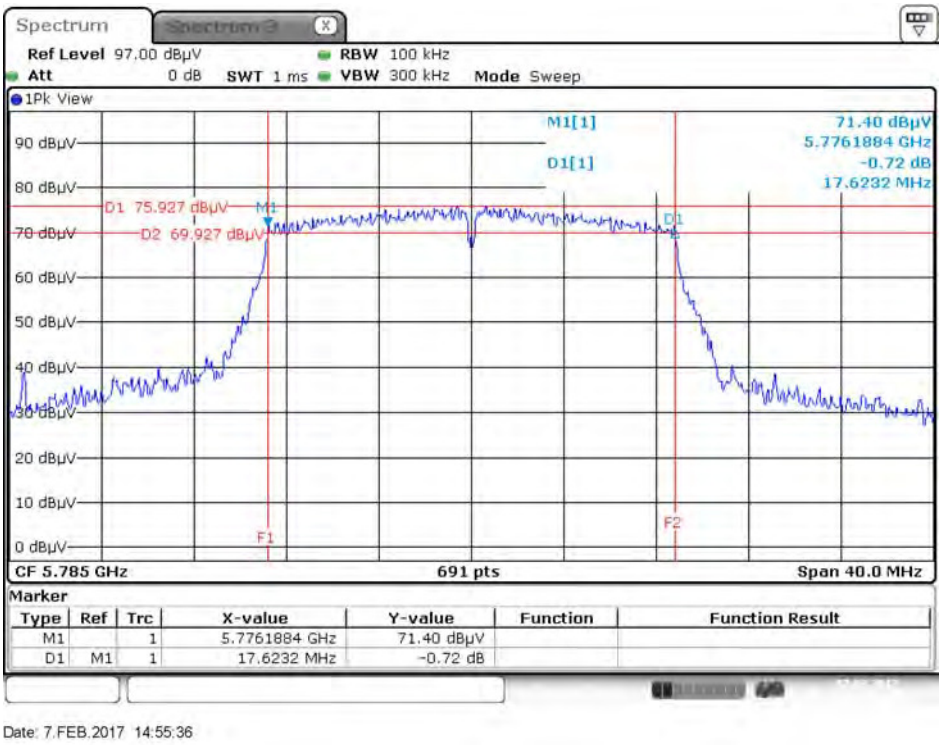
6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4 / 5775 MHz



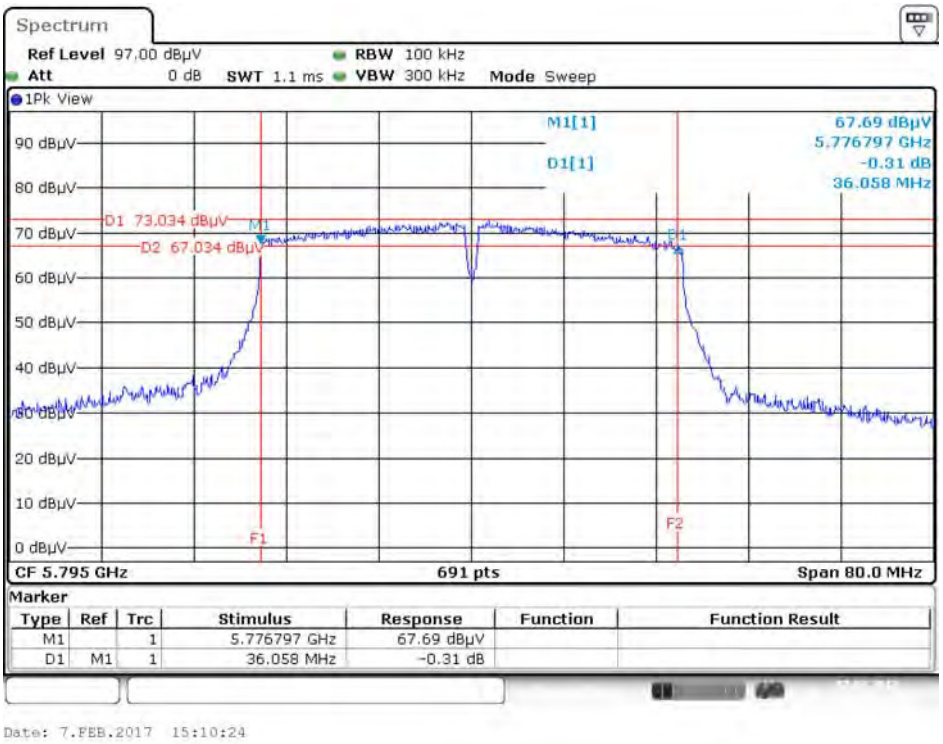
Date: 27.DEC.2016 00:17:30

For Beamforming Mode

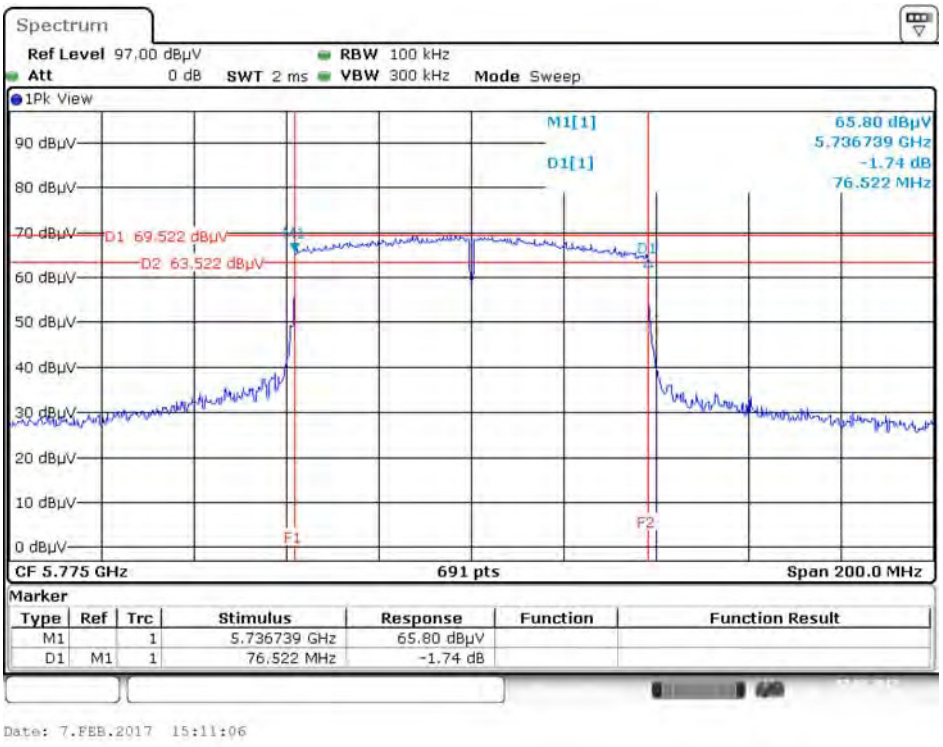
6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4 / 5785 MHz



6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4 / 5795MHz



6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4 / 5775 MHz



4.3. Maximum Conducted Output Power Measurement

4.3.1. 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.

4.3.2. Measuring Instruments and Setting

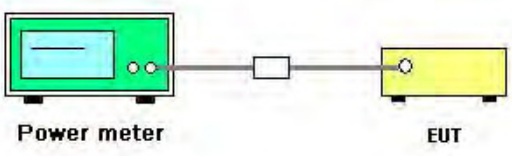
Please refer to section 5 of equipments list in this report. The following table is the setting of the power meter.

Power Meter Parameter	Setting
Detector	AVERAGE

4.3.3. Test Procedures

1. The transmitter output (antenna port) was connected to the power meter.
2. Test was performed in accordance with KDB789033 D02 v01r03 for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - section (E) Maximum conducted output power =>3. Measurement using a Power Meter (PM) =>b) Method PM-G (Measurement using a gated RF average power meter).
3. Multiple antenna systems was performed in accordance with KDB662911 D01 v02r01 Emissions Testing of Transmitters with Multiple Outputs in the Same Band.
4. When measuring maximum conducted output power with multiple antenna systems, add every result of the values by mathematic formula.

4.3.4. Test Setup Layout



4.3.5. Test Deviation

There is no deviation with the original standard.

4.3.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.3.7. Test Result of Maximum Conducted Output Power

Temperature	22°C	Humidity	54%
Test Engineer	Eddie Weng	Test Date	Dec. 23, 2016~Feb. 07, 2017

For Non-Beamforming Mode

Mode	Frequency	Conducted Power (dBm)					Max. Limit (dBm)	Result
		Ant. 1	Ant. 2	Ant. 3	Ant. 4	Total		
802.11a	5180 MHz	21.62	20.21	21.76	20.15	27.02	30.00	Complies
	5200 MHz	22.26	20.68	22.21	20.41	27.49	30.00	Complies
	5240 MHz	22.29	20.81	22.32	20.72	27.62	30.00	Complies
	5745 MHz	23.86	23.03	22.39	23.32	29.20	30.00	Complies
	5785 MHz	23.75	23.05	22.36	23.30	29.16	30.00	Complies
	5825 MHz	23.62	23.15	22.81	22.87	29.15	30.00	Complies
802.11ac MCS0/Nss1 VHT20	5180 MHz	21.82	20.45	21.79	20.36	27.18	30.00	Complies
	5200 MHz	22.50	21.10	22.52	20.91	27.84	30.00	Complies
	5240 MHz	22.42	20.99	21.93	20.89	27.63	30.00	Complies
	5745 MHz	23.93	23.14	22.33	23.28	29.23	30.00	Complies
	5785 MHz	23.82	23.20	22.55	23.30	29.26	30.00	Complies
	5825 MHz	23.84	23.07	23.12	22.90	29.27	30.00	Complies
802.11ac MCS0/Nss1 VHT40	5190 MHz	19.45	18.04	19.53	17.90	24.82	30.00	Complies
	5230 MHz	21.45	19.77	21.41	20.03	26.75	30.00	Complies
	5755 MHz	23.79	23.12	22.57	23.41	29.27	30.00	Complies
	5795 MHz	23.70	23.15	22.21	23.08	29.09	30.00	Complies
802.11ac MCS0/Nss1 VHT80	5210 MHz	17.86	16.37	17.84	16.72	23.27	30.00	Complies
	5775 MHz	23.21	23.70	22.69	23.19	29.23	30.00	Complies

For Beamforming Mode

Mode	Frequency	Conducted Power (dBm)					Max. Limit (dBm)	Result
		Ant. 1	Ant. 2	Ant. 3	Ant. 4	Total		
802.11ac MCS0/Nss1 VHT20	5180 MHz	20.96	21.44	21.52	22.42	27.64	27.65	Complies
	5200 MHz	20.66	21.08	21.42	22.06	27.36	27.65	Complies
	5240 MHz	21.00	20.63	21.48	22.37	27.44	27.65	Complies
	5745 MHz	21.32	21.02	21.63	22.12	27.56	27.65	Complies
	5785 MHz	21.65	21.32	21.66	21.64	27.59	27.65	Complies
	5825 MHz	21.34	21.28	21.49	22.01	27.56	27.65	Complies
802.11ac MCS0/Nss1 VHT40	5190 MHz	20.32	20.92	21.11	19.91	26.61	27.65	Complies
	5230 MHz	21.82	22.11	20.95	21.52	27.64	27.65	Complies
	5755 MHz	21.71	21.81	21.25	21.51	27.60	27.65	Complies
	5795 MHz	21.81	21.92	21.11	21.31	27.57	27.65	Complies
802.11ac MCS0/Nss1 VHT80	5210 MHz	13.82	13.91	14.48	15.38	20.46	27.65	Complies
	5775 MHz	21.74	21.95	21.12	21.42	27.59	27.65	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 8.35dBi, so limit=30-(8.35-6)=27.65dBm

4.4. Power Spectral Density Measurement

4.4.1. Limit

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

Frequency Band			Limit
☒	5.15~5.25 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

4.4.2. Measuring Instruments and Setting

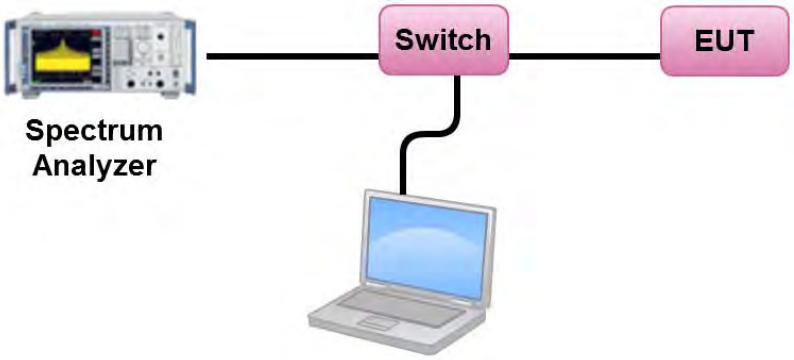
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

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

4.4.3. Test Procedures

1. The transmitter output (antenna port) was connected RF switch to the spectrum analyzer.
2. Test was performed in accordance with KDB789033 D02 v01r03 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.

4.4.4. Test Setup Layout



4.4.5. Test Deviation

There is no deviation with the original standard.

4.4.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.4.7. Test Result of Power Spectral Density

Temperature	22°C	Humidity	54%
Test Engineer	Eddie Weng	Test Date	Dec. 23, 2016~Feb. 07, 2017

For Non-Beamforming Mode

Configuration IEEE 802.11a / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	13.74	14.65	Complies
40	5200 MHz	14.27	14.65	Complies
48	5240 MHz	14.53	14.65	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 8.35dBi, so limit=17-(8.35-6)=14.65dBm/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	16.75	-3.01	13.74	27.65	Complies
157	5785 MHz	16.61	-3.01	13.60	27.65	Complies
165	5825 MHz	16.81	-3.01	13.80	27.65	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 8.35dBi, so limit=30-(8.35-6)=27.65dBm/500kHz

Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	13.96	14.65	Complies
40	5200 MHz	14.59	14.65	Complies
48	5240 MHz	14.53	14.65	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 8.35dBi, so limit=17-(8.35-6)=14.65dBm/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	16.67	-3.01	13.66	27.65	Complies
157	5785 MHz	16.82	-3.01	13.81	27.65	Complies
165	5825 MHz	16.75	-3.01	13.74	27.65	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 8.35dBi, so limit=30-(8.35-6)=27.65dBm/500kHz

Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	8.57	14.65	Complies
46	5230 MHz	10.71	14.65	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 8.35dBi, so limit=17-(8.35-6)=14.65dBm/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	13.73	-3.01	10.72	27.65	Complies
159	5795 MHz	13.48	-3.01	10.47	27.65	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 8.35dBi, so limit=30-(8.35-6)=27.65dBm/500kHz

Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
42	5210 MHz	4.09	14.65	Complies

Note: $DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ = 8.35dBi, so limit=17-(8.35-6)=14.65dBm/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	10.81	-3.01	7.80	27.65	Complies

Note: $DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ = 8.35dBi, so limit=30-(8.35-6)=27.65dBm/500kHz

For Beamforming Mode

Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	14.48	14.65	Complies
40	5200 MHz	14.33	14.65	Complies
48	5240 MHz	14.32	14.65	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 8.35dBi, so limit=17-(8.35-6)=14.65dBm/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	14.17	-3.01	11.16	27.65	Complies
157	5785 MHz	14.45	-3.01	11.44	27.65	Complies
165	5825 MHz	14.13	-3.01	11.12	27.65	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 8.35dBi, so limit=30-(8.35-6)=27.65dBm/500kHz

Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	10.36	14.65	Complies
46	5230 MHz	11.44	14.65	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 8.35dBi, so limit=17-(8.35-6)=14.65dBm/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	11.34	-3.01	8.33	27.65	Complies
159	5795 MHz	11.39	-3.01	8.38	27.65	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 8.35dBi, so limit=30-(8.35-6)=27.65dBm/500kHz

Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
42	5210 MHz	1.13	14.65	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 8.35dBi, so limit=17-(8.35-6)=14.65dBm/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	8.37	-3.01	5.36	27.65	Complies

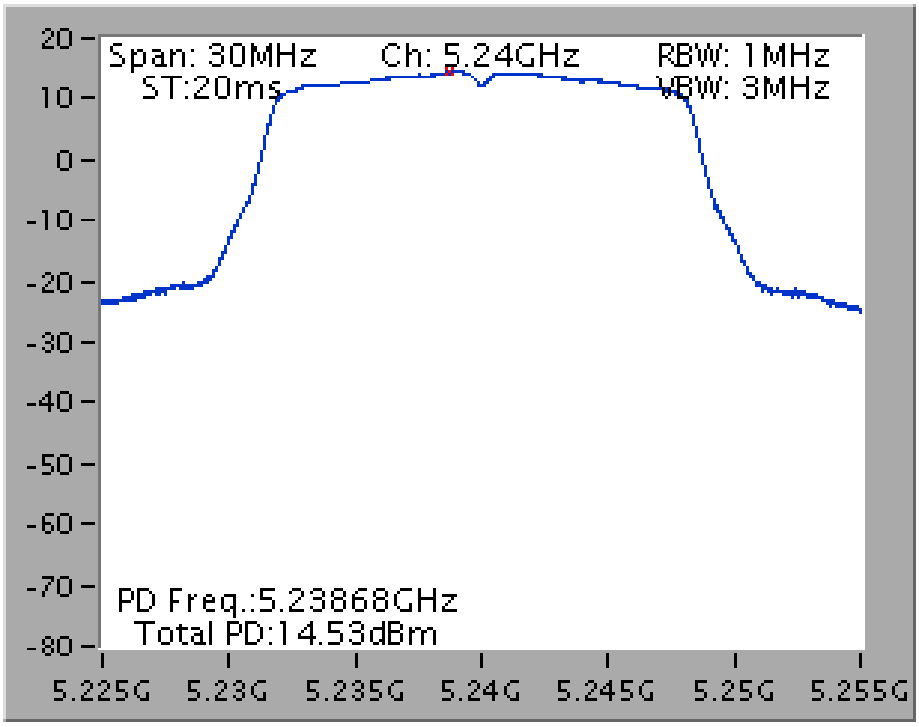
Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 8.35dBi, so limit=30-(8.35-6)=27.65dBm/500kHz

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

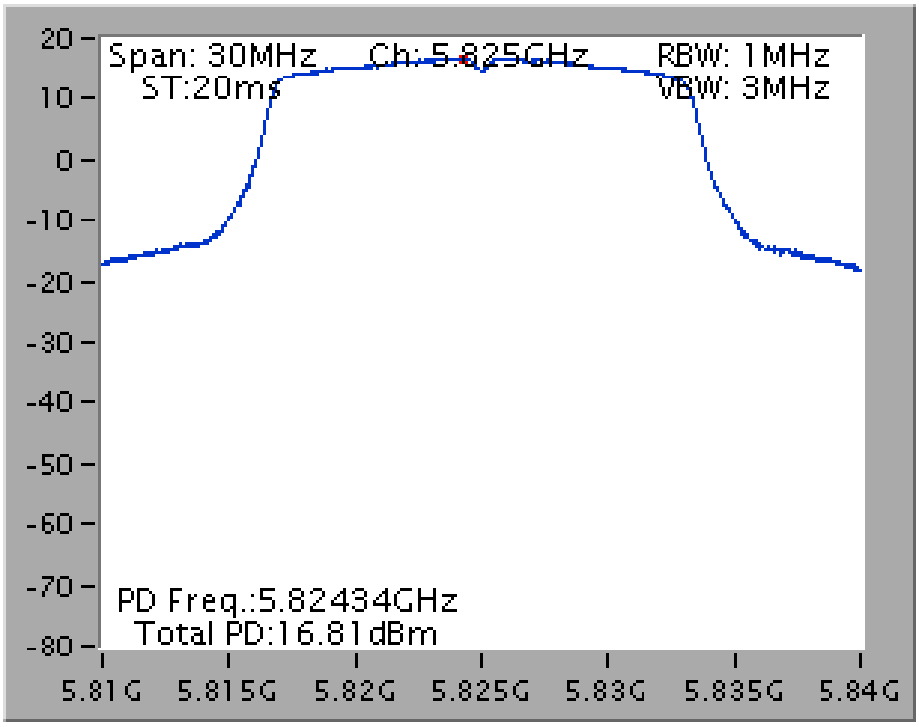
For plots, only the channel with worse result was shown.

For Non-Beamforming Mode

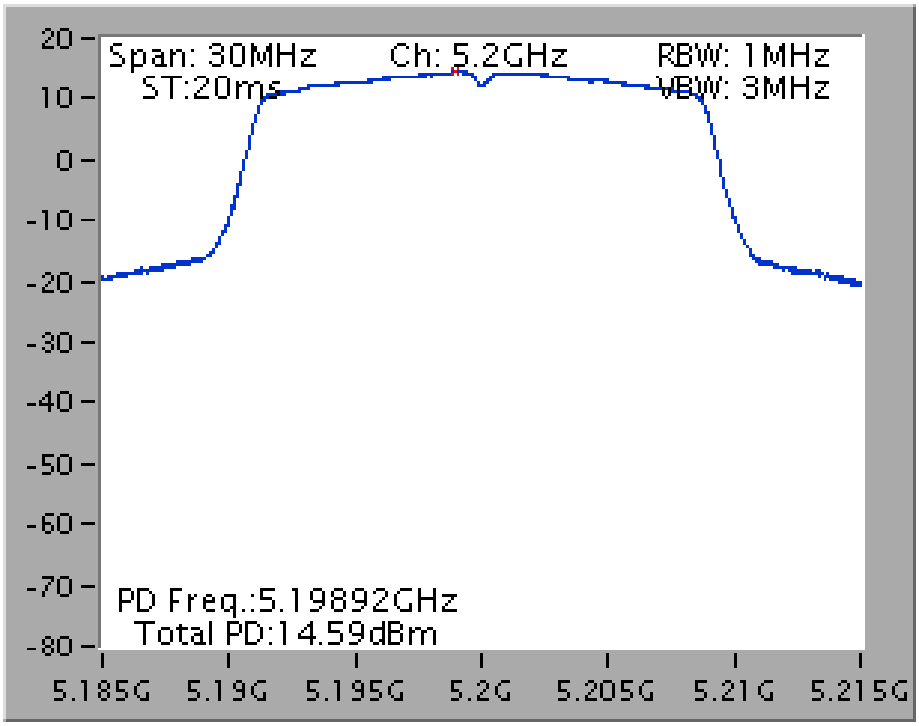
Power Density Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4 / 5240 MHz



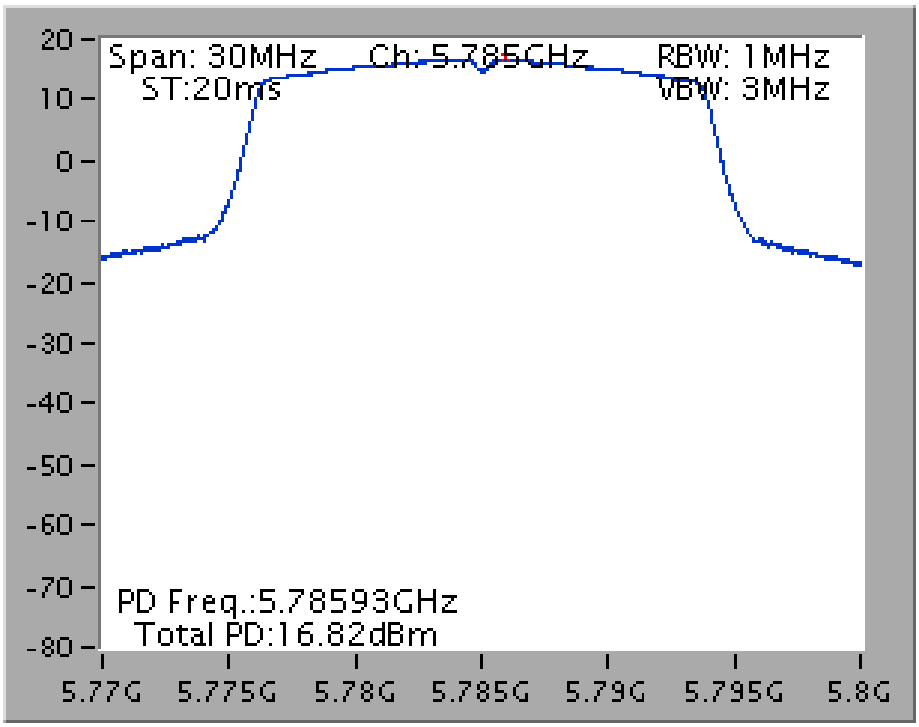
Power Density Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4 / 5825 MHz



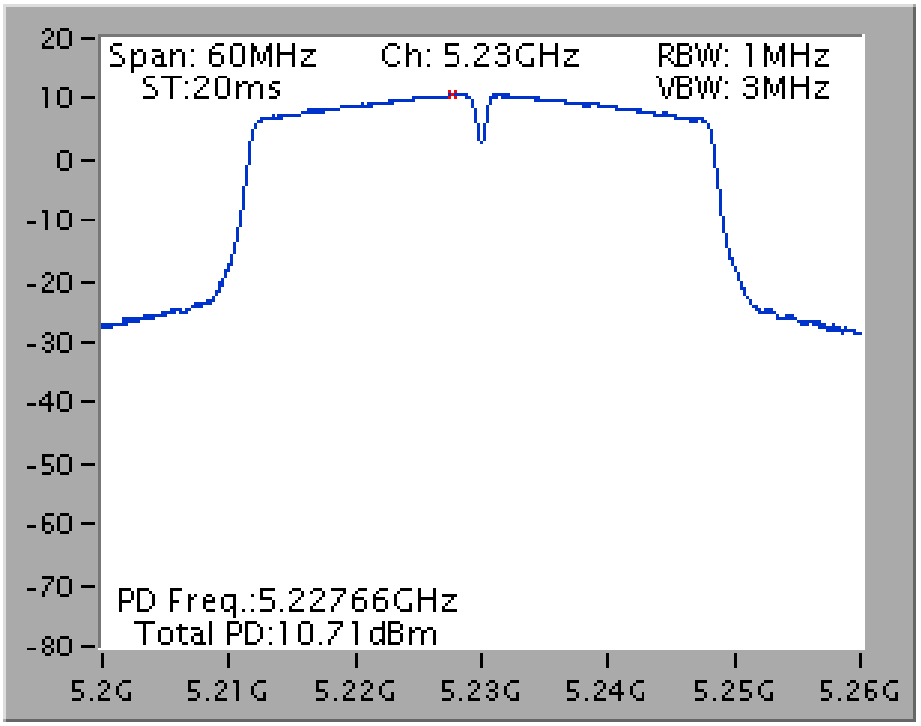
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4 / 5200 MHz



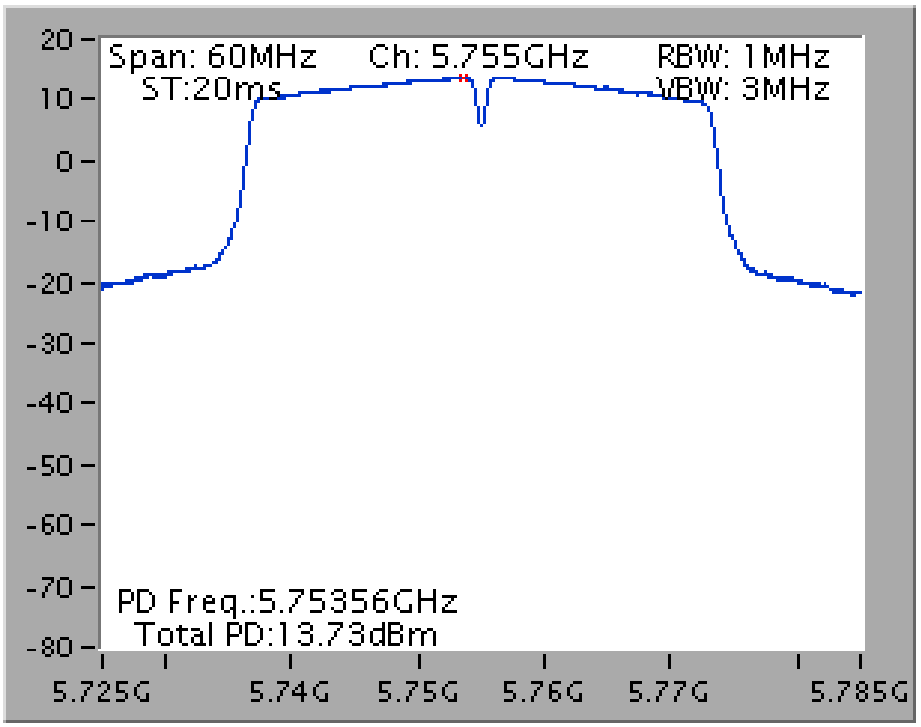
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4 / 5785 MHz



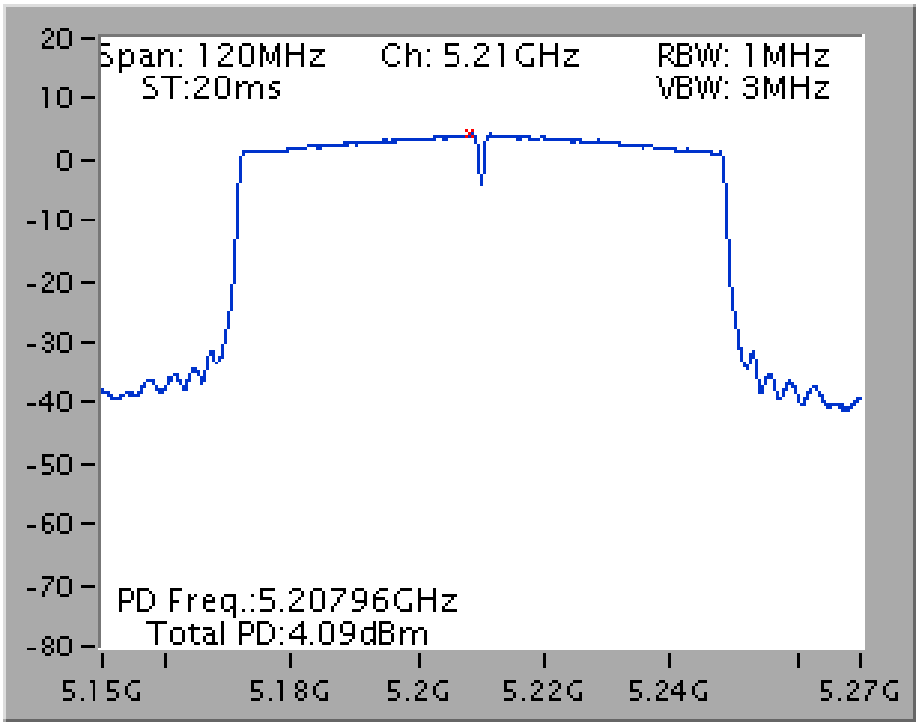
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4 / 5230 MHz



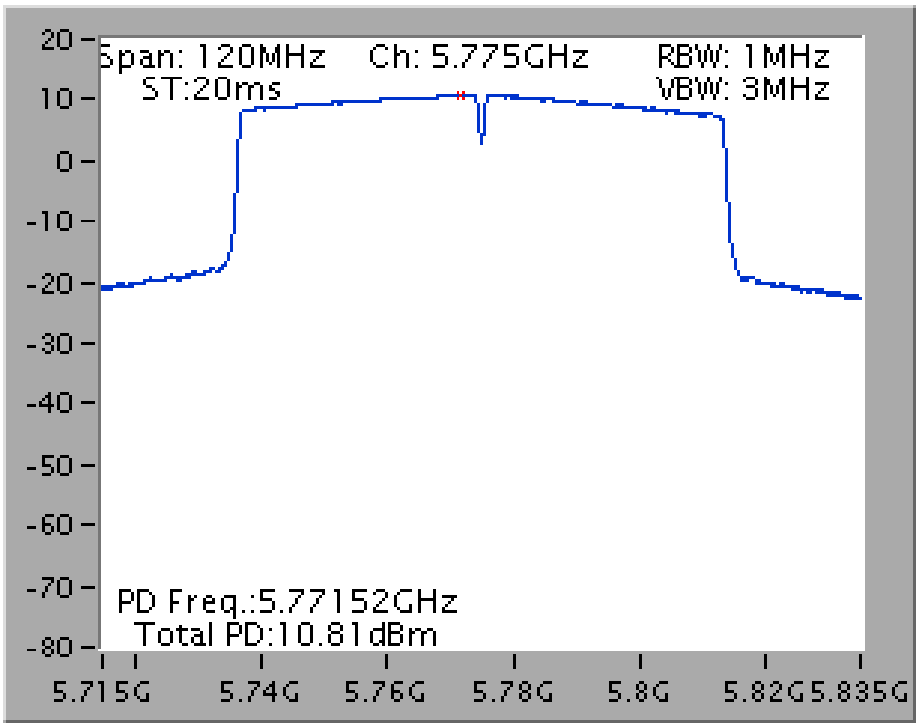
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4 / 5755 MHz



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4 / 5210 MHz

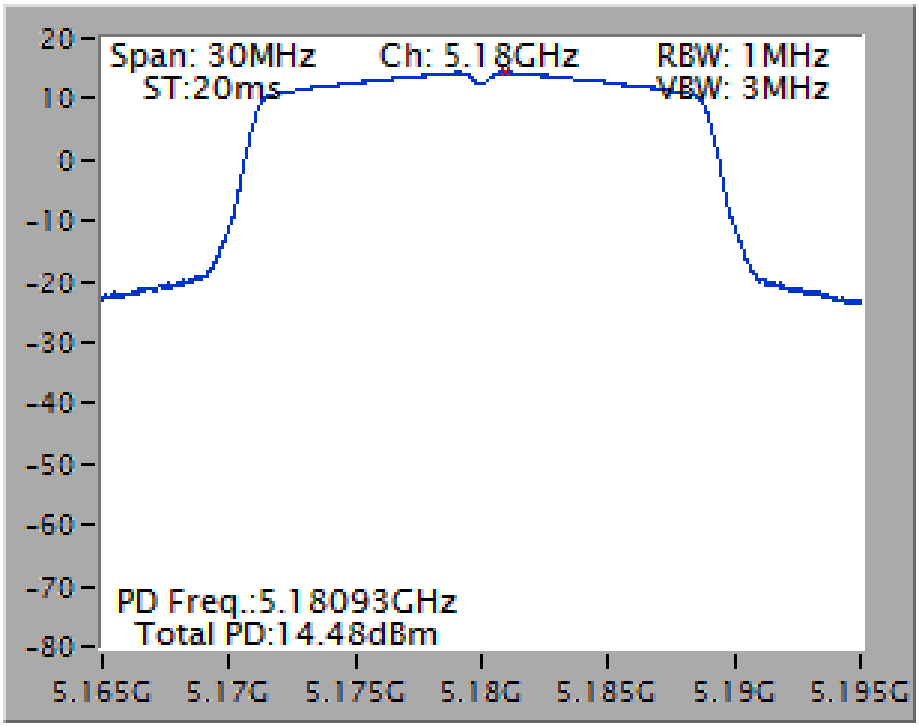


Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4 / 5775 MHz

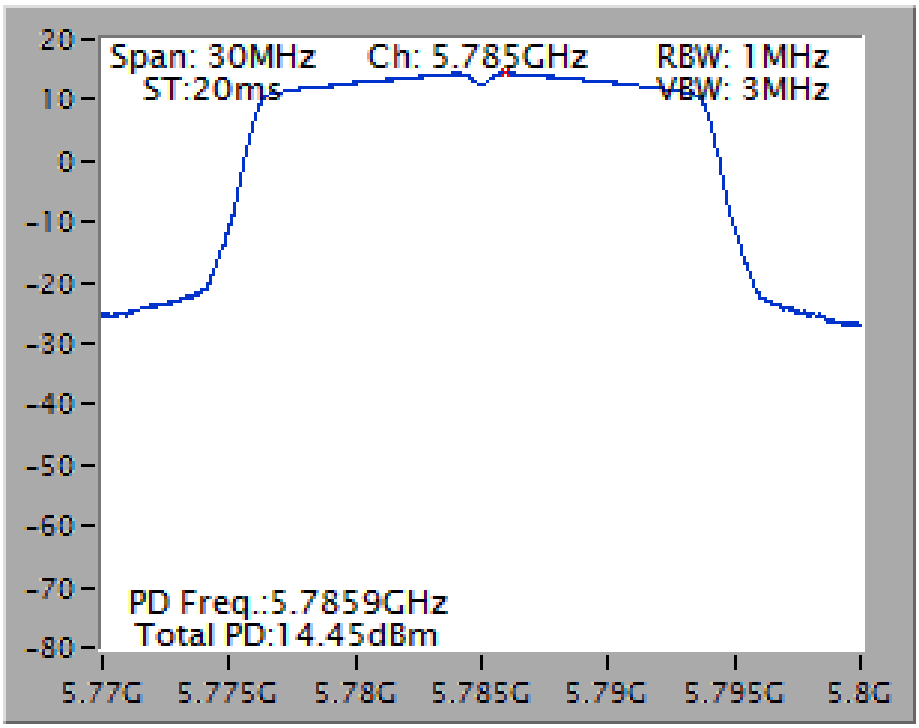


For Beamforming Mode

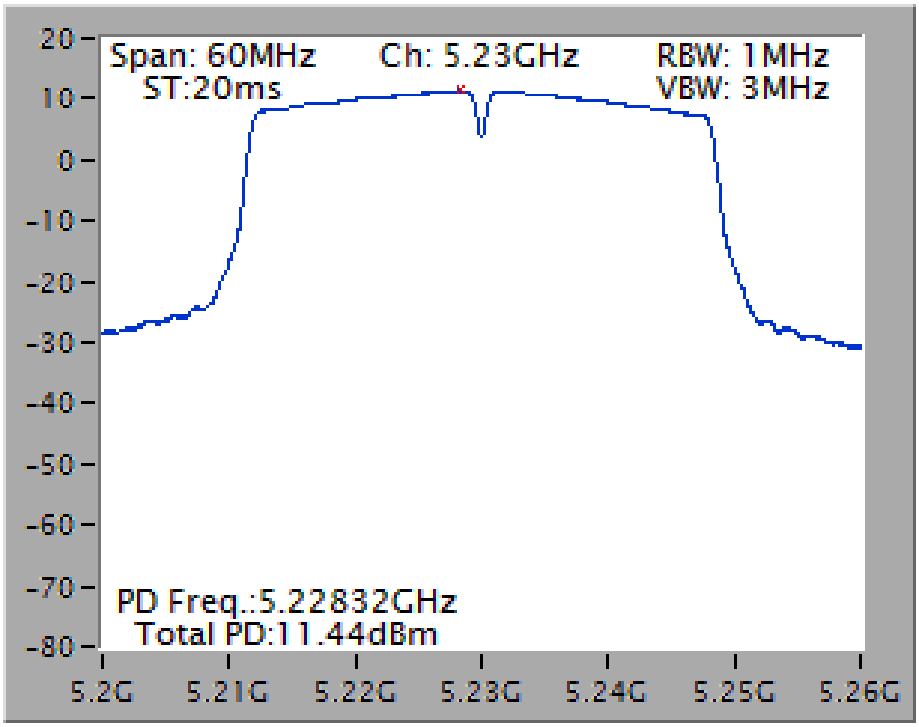
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4 / 5180 MHz



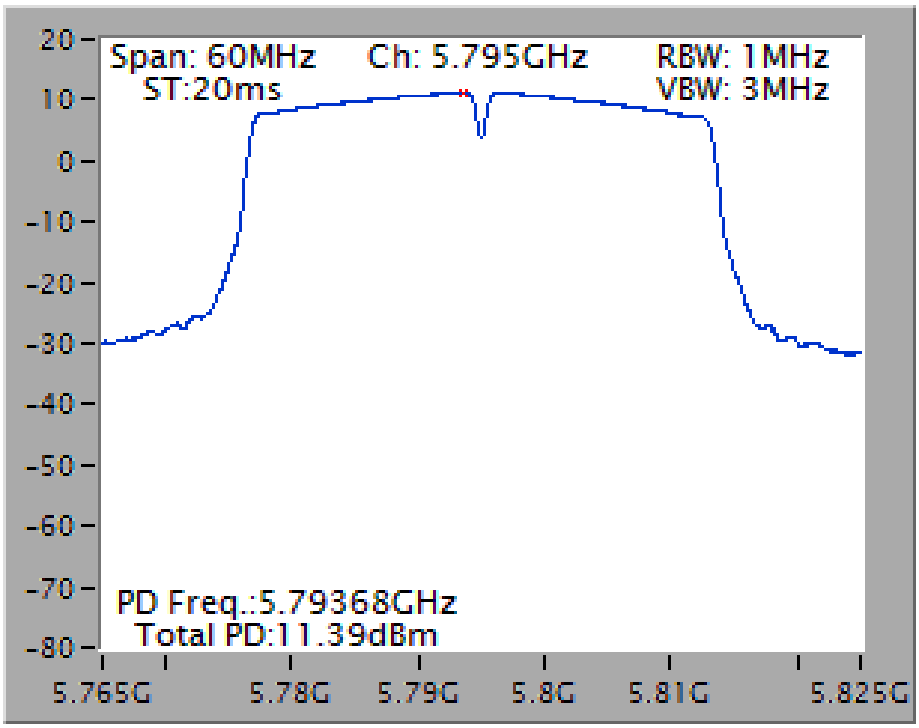
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4 / 5785 MHz



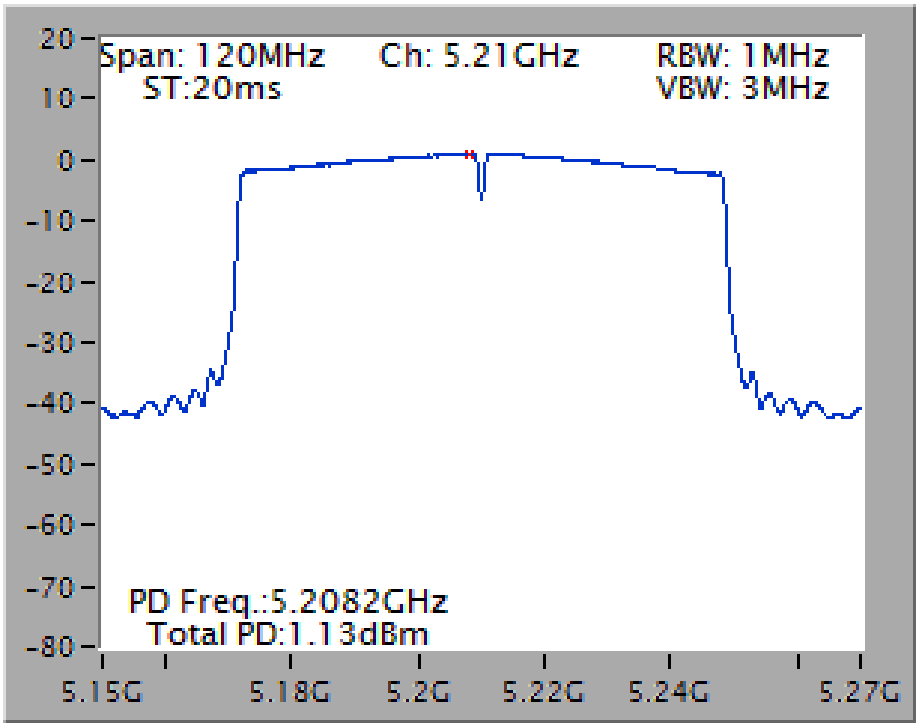
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4 / 5230 MHz



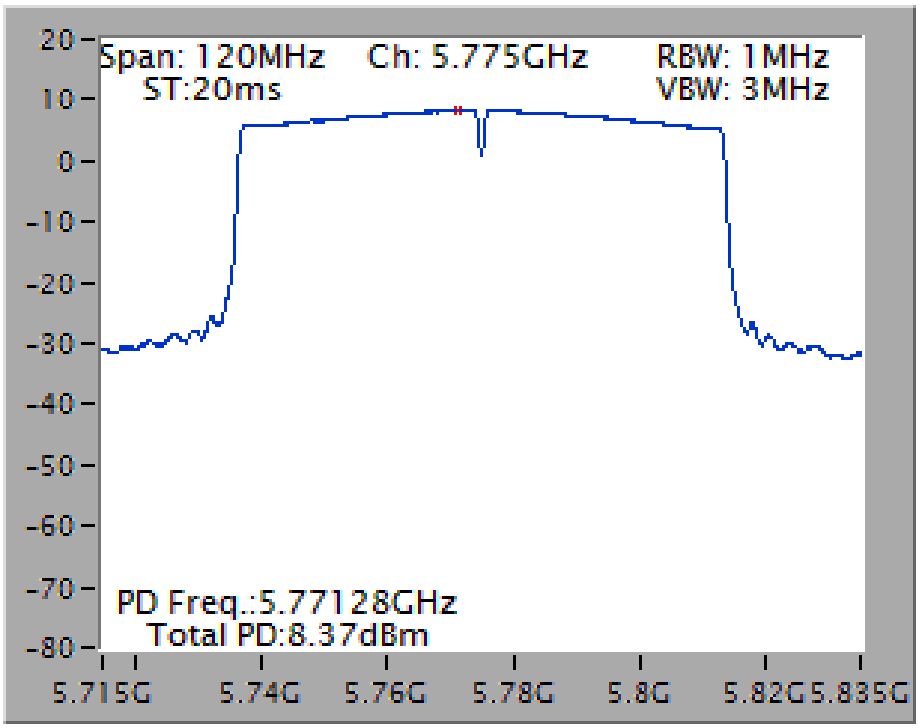
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4 / 5795 MHz



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4 / 5210 MHz



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4 / 5775 MHz



4.5. Radiated Emissions Measurement

4.5.1. 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

4.5.2. Measuring Instruments and Setting

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

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

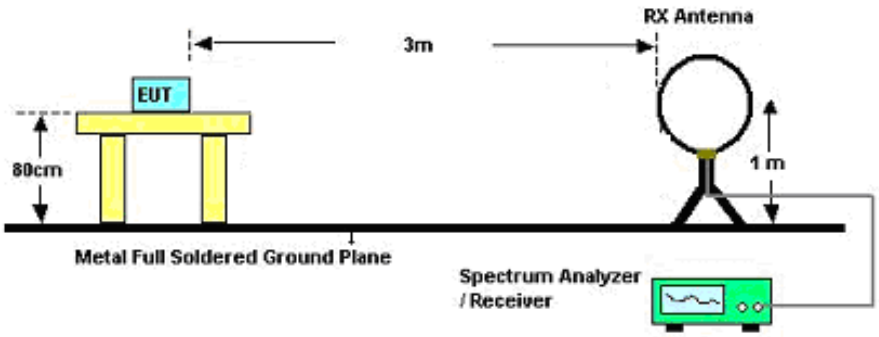
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RBW 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RBW 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RBW 120kHz for QP

4.5.3. Test Procedures

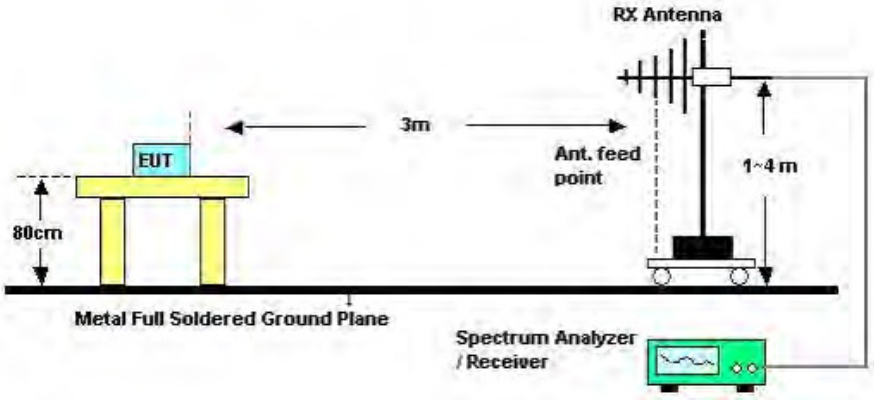
1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 1m & 3m far away from the turntable.
2. Power on the EUT and all the supporting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

4.5.4. Test Setup Layout

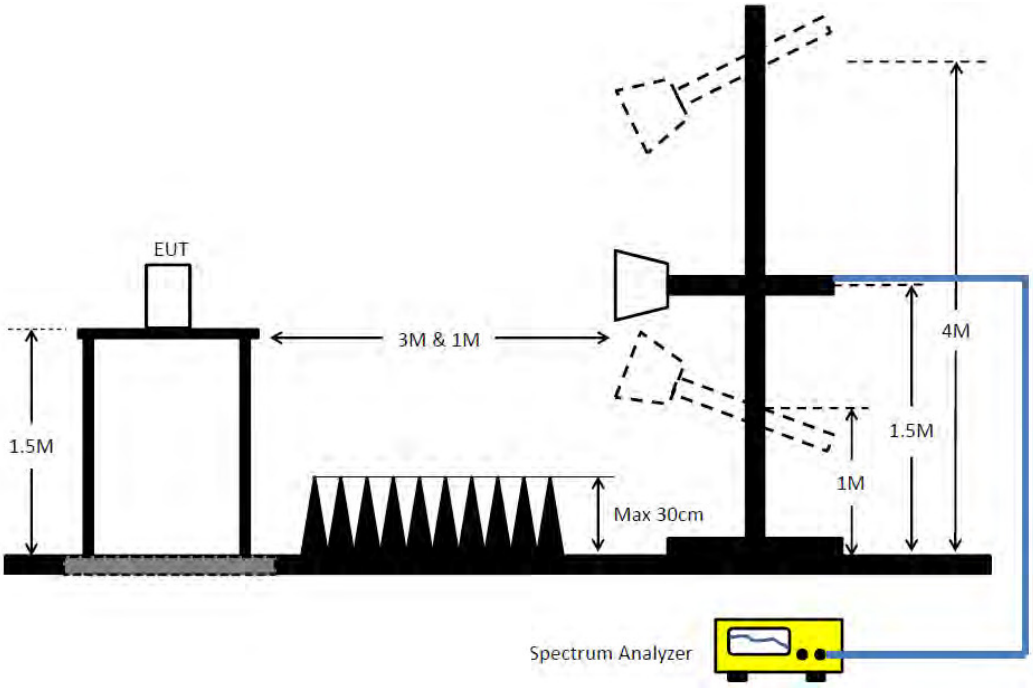
For Radiated Emissions: 9kHz ~30MHz



For Radiated Emissions: 30MHz~1GHz



For Radiated Emissions: Above 1GHz



4.5.5. Test Deviation

There is no deviation with the original standard.

4.5.6. 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.

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

Temperature	22°C	Humidity	54%
Test Engineer	Welson Chen	Configurations	CTX
Test Date	Jan. 19, 2017~Feb. 20, 2017	Test Mode	Mode 1 and Mode 4~6

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

Note:

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

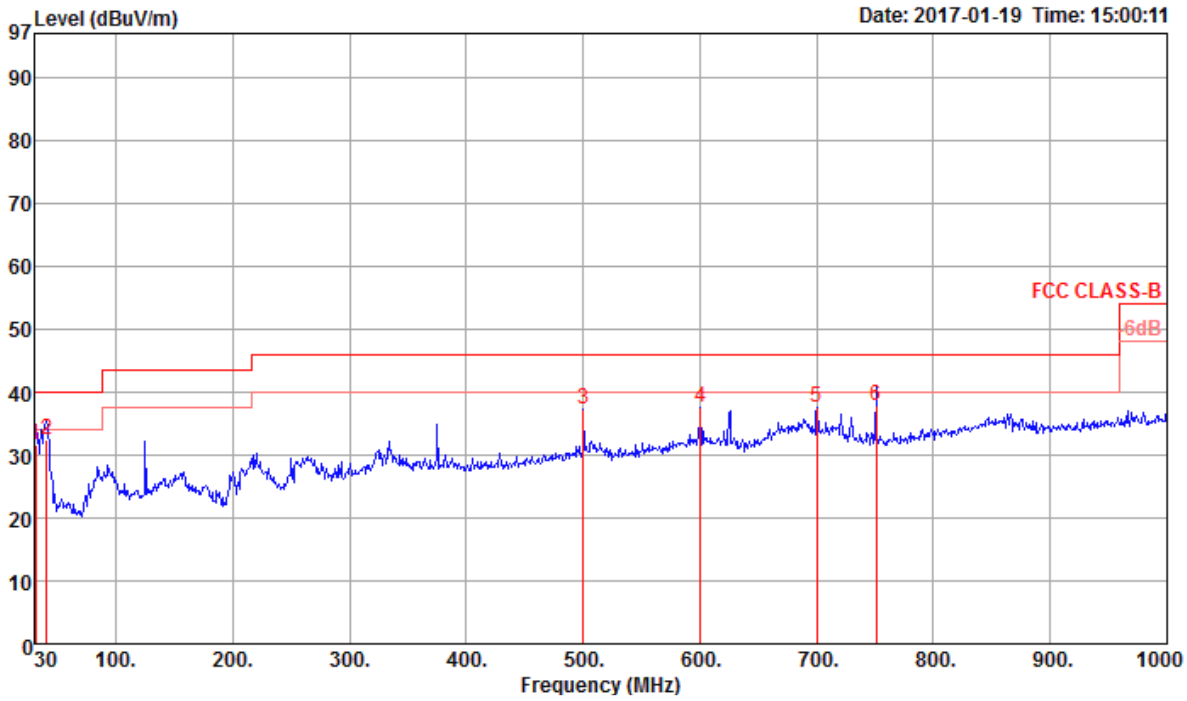
Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

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

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

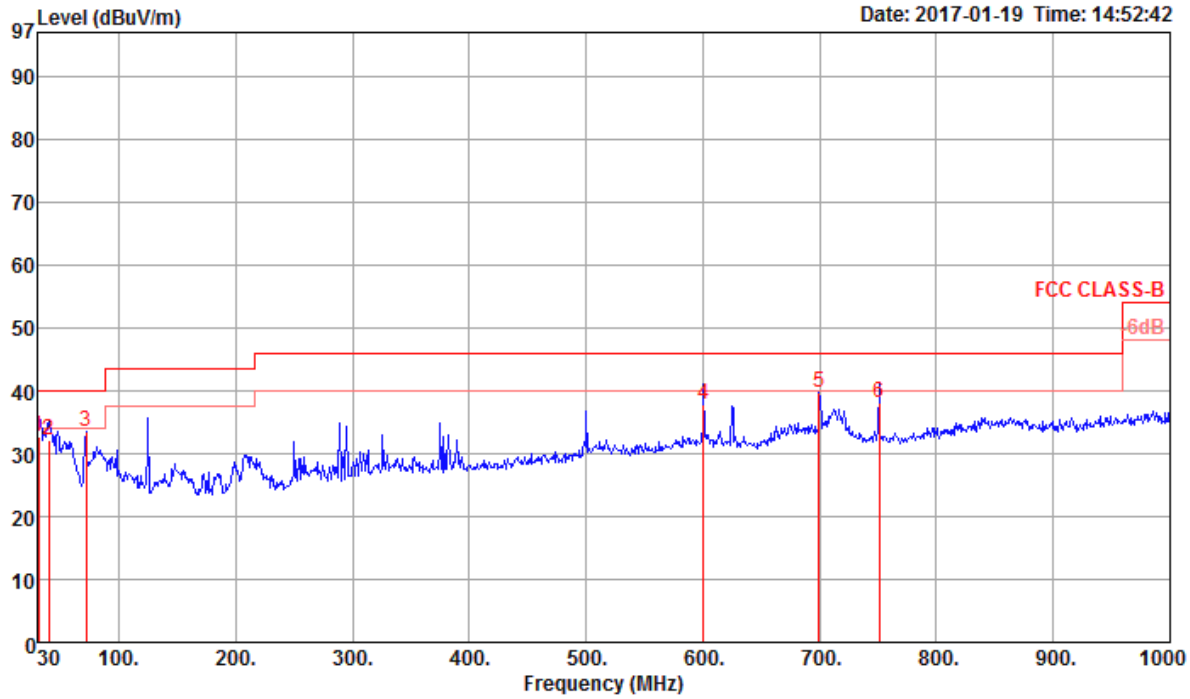
Temperature	22°C	Humidity	54%
Test Engineer	Welson Chen	Configurations	CTX
Test Mode	Mode 1		

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	30.97	31.75	40.00	-8.25	34.30	2.11	24.93	29.59	146	252	QP	HORIZONTAL
2	40.67	32.45	40.00	-7.55	40.39	2.12	19.50	29.56	124	292	QP	HORIZONTAL
3	500.45	37.29	46.00	-8.71	39.66	3.45	23.64	29.46	100	78	Peak	HORIZONTAL
4	600.36	37.58	46.00	-8.42	38.06	3.73	25.00	29.21	100	141	Peak	HORIZONTAL
5	700.27	37.49	46.00	-8.51	36.82	4.01	25.60	28.94	125	148	Peak	HORIZONTAL
6	750.71	37.94	46.00	-8.06	36.60	4.15	26.00	28.81	122	345	QP	HORIZONTAL

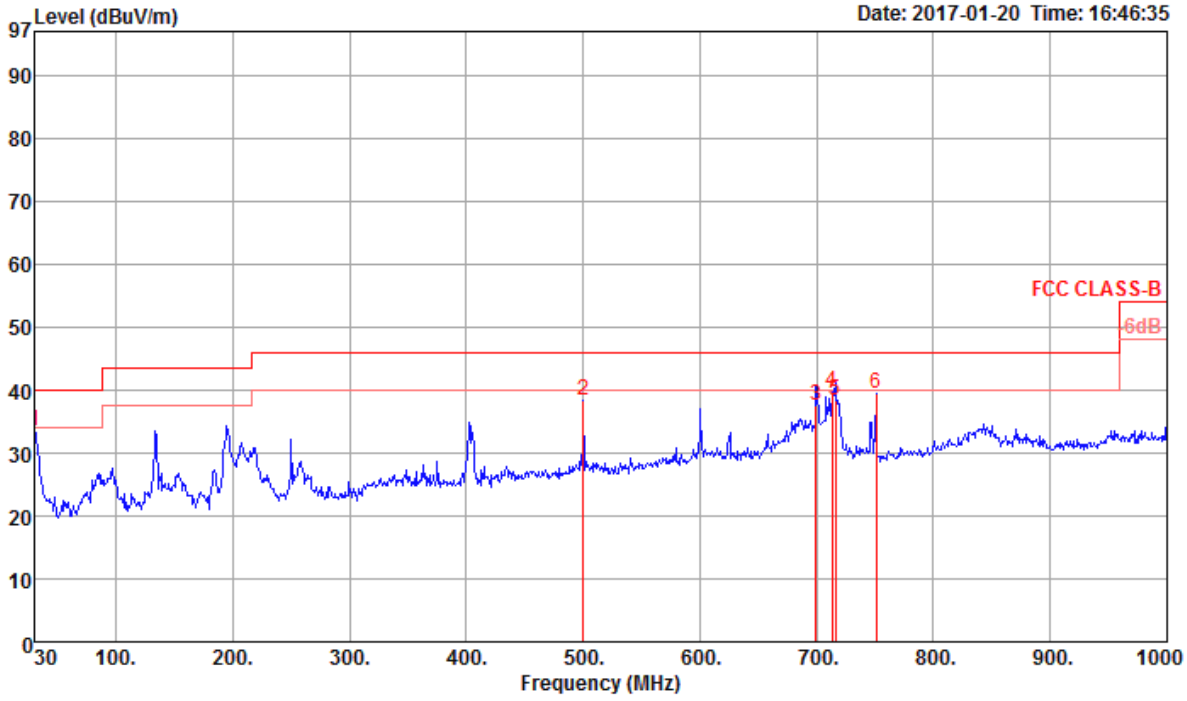
Vertical



	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	30.97	32.65	40.00	-7.35	35.20	2.11	24.93	29.59	138	256	QP	VERTICAL
2	39.70	32.09	40.00	-7.91	39.50	2.11	20.05	29.57	122	4	QP	VERTICAL
3	71.71	33.45	40.00	-6.55	48.13	2.20	12.58	29.46	100	205	Peak	VERTICAL
4	600.36	37.92	46.00	-8.08	38.40	3.73	25.00	29.21	115	332	QP	VERTICAL
5	699.30	39.69	46.00	-6.31	39.03	4.00	25.60	28.94	100	321	Peak	VERTICAL
6	750.71	38.04	46.00	-7.96	36.70	4.15	26.00	28.81	105	137	QP	VERTICAL

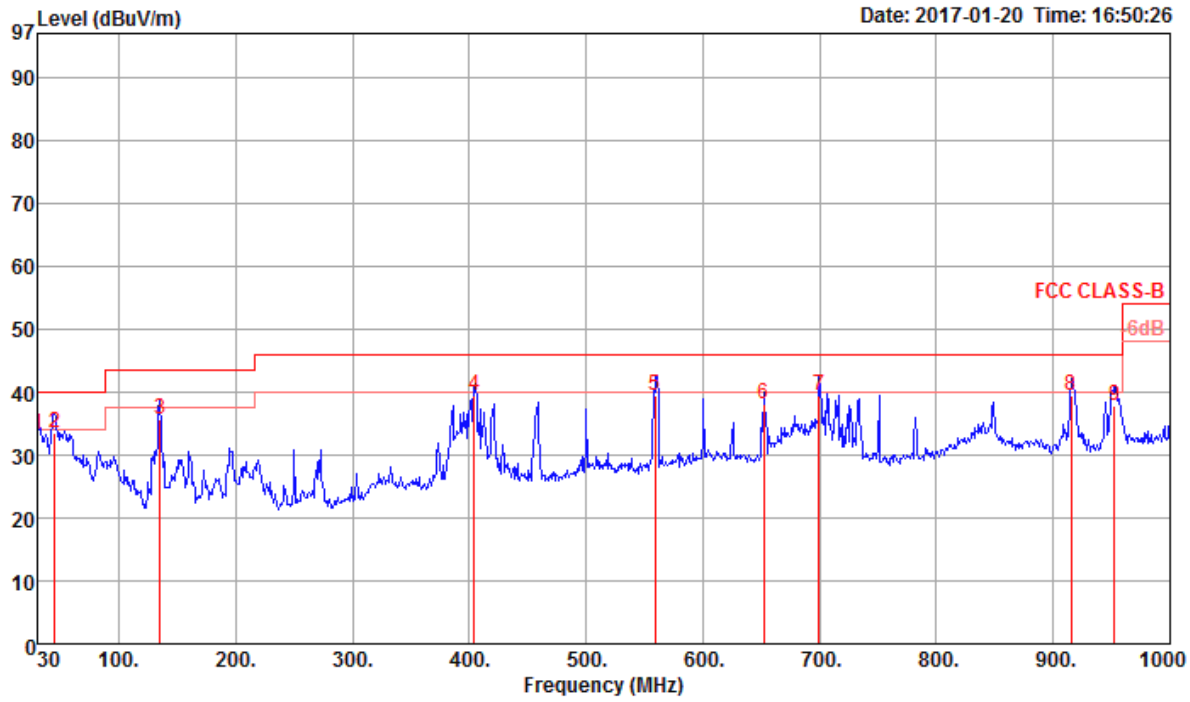
Temperature	22°C	Humidity	54%
Test Engineer	Welson Chen	Configurations	CTX
Test Mode	Mode 4		

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	30.00	33.62	40.00	-6.38	37.49	2.10	25.50	31.47	100	107	Peak	HORIZONTAL
2	500.45	38.35	46.00	-7.65	43.58	3.45	23.64	32.32	100	88	Peak	HORIZONTAL
3	699.30	37.50	46.00	-8.50	40.40	4.00	25.60	32.50	131	285	QP	HORIZONTAL
4	712.88	39.59	46.00	-6.41	42.37	4.04	25.70	32.52	100	345	Peak	HORIZONTAL
5	715.79	38.47	46.00	-7.53	41.21	4.05	25.74	32.53	105	251	QP	HORIZONTAL
6	750.71	39.32	46.00	-6.68	41.75	4.15	26.00	32.58	125	269	Peak	HORIZONTAL

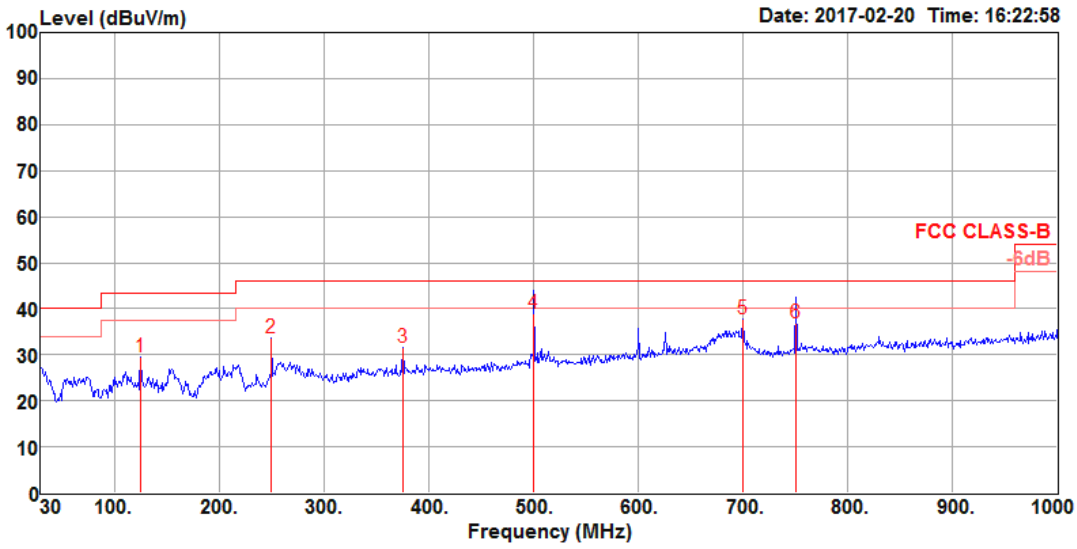
Vertical



	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	30.00	33.13	40.00	-6.87	37.00	2.10	25.50	31.47	104	5	QP	VERTICAL
2	44.55	33.61	40.00	-6.39	45.73	2.14	17.44	31.70	115	142	QP	VERTICAL
3	134.76	35.53	43.50	-7.97	47.20	2.30	17.91	31.88	138	225	QP	VERTICAL
4	404.42	39.52	46.00	-6.48	46.22	3.12	22.35	32.17	123	255	QP	VERTICAL
5	558.65	39.55	46.00	-6.45	43.62	3.57	24.75	32.39	102	89	QP	VERTICAL
6	651.77	38.09	46.00	-7.91	41.20	3.87	25.50	32.48	145	158	QP	VERTICAL
7	699.30	39.50	46.00	-6.50	42.40	4.00	25.60	32.50	128	185	QP	VERTICAL
8	915.61	39.58	46.00	-6.42	39.69	4.58	27.77	32.46	121	324	QP	VERTICAL

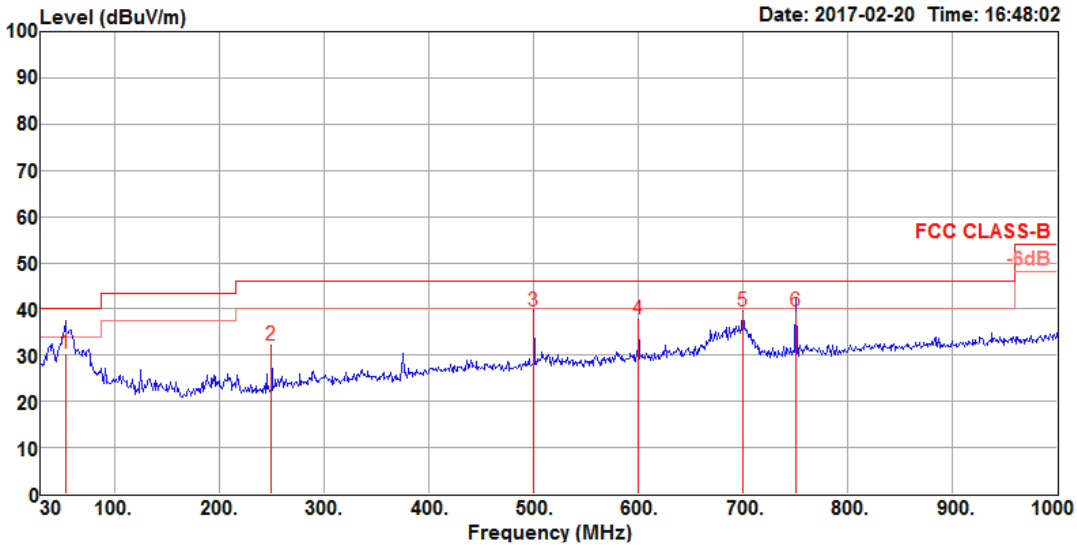
Temperature	22°C	Humidity	54%
Test Engineer	Welson Chen	Configurations	CTX
Test Mode	Mode 5		

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	125.06	29.65	43.50	-13.85	42.05	1.07	18.94	32.41	300	120	Peak	HORIZONTAL
2	250.19	33.68	46.00	-12.32	45.41	1.50	19.10	32.33	100	249	Peak	HORIZONTAL
3	375.32	31.63	46.00	-14.37	39.97	1.89	22.08	32.31	100	249	Peak	HORIZONTAL
4	500.45	38.91	46.00	-7.09	45.00	2.18	24.03	32.30	190	140	QP	HORIZONTAL
5	699.30	37.91	46.00	-8.09	41.84	2.55	25.90	32.38	125	1	Peak	HORIZONTAL
6	750.71	36.85	46.00	-9.15	40.00	2.73	26.40	32.28	100	157	QP	HORIZONTAL

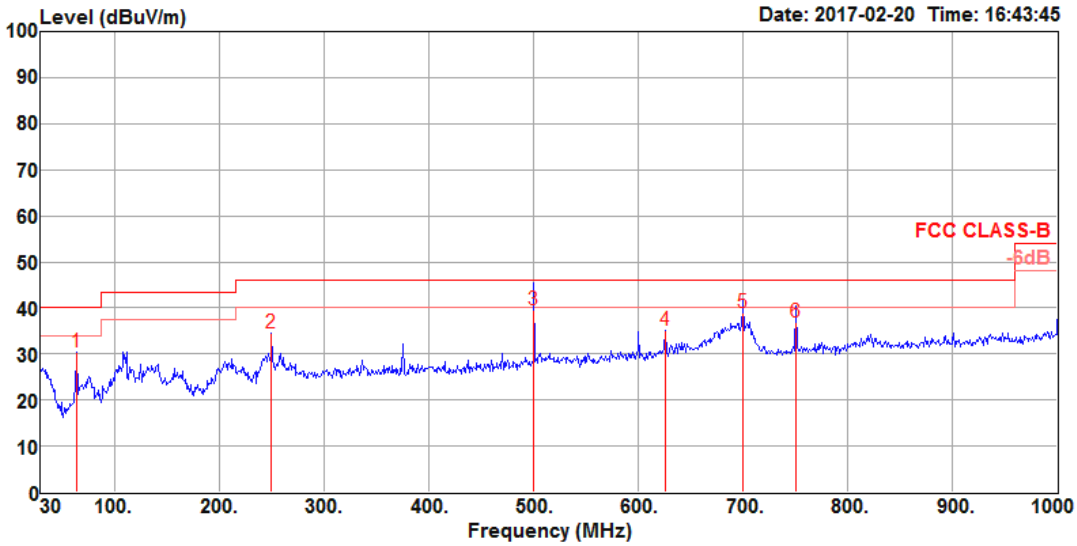
Vertical



	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	53.28	30.31	40.00	-9.69	47.51	0.71	14.48	32.39	100	0	QP	VERTICAL
2	250.19	32.07	46.00	-13.93	43.80	1.50	19.10	32.33	100	7	Peak	VERTICAL
3	500.45	39.66	46.00	-6.34	45.75	2.18	24.03	32.30	100	120	Peak	VERTICAL
4	600.36	37.83	46.00	-8.17	42.40	2.44	25.40	32.41	100	222	Peak	VERTICAL
5	699.30	39.60	46.00	-6.40	43.53	2.55	25.90	32.38	100	102	Peak	VERTICAL
6	750.71	39.56	46.00	-6.44	42.71	2.73	26.40	32.28	150	190	QP	VERTICAL

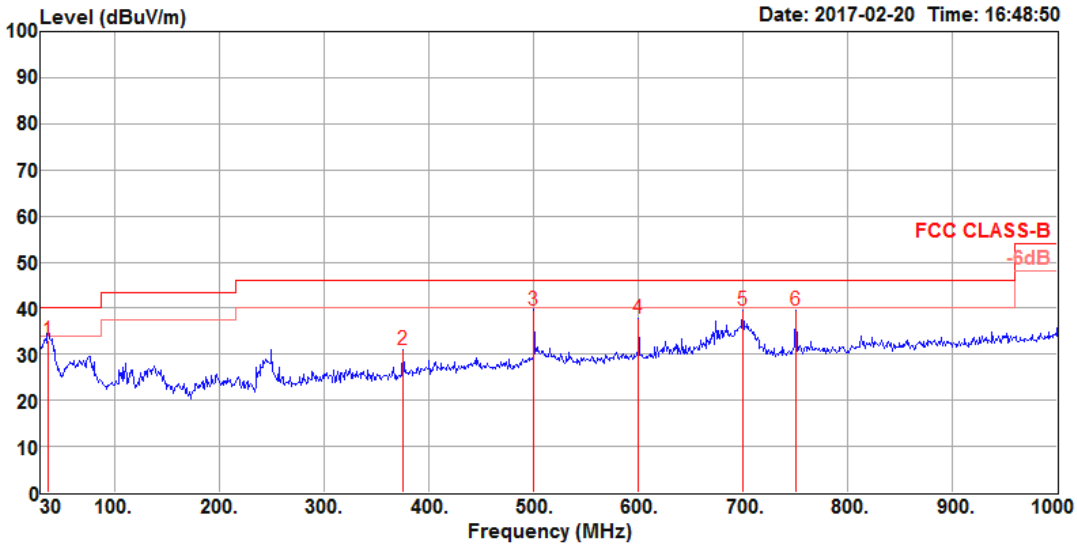
Temperature	22°C	Humidity	54%
Test Engineer	Welson Chen	Configurations	CTX
Test Mode	Mode 6		

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	63.95	30.54	40.00	-9.46	48.82	0.76	13.37	32.41	125	337	Peak	HORIZONTAL
2	250.19	34.56	46.00	-11.44	46.29	1.50	19.10	32.33	125	240	Peak	HORIZONTAL
3	500.45	39.41	46.00	-6.59	45.50	2.18	24.03	32.30	205	146	QP	HORIZONTAL
4	625.58	35.02	46.00	-10.98	39.21	2.44	25.77	32.40	150	0	Peak	HORIZONTAL
5	700.27	39.07	46.00	-6.93	43.00	2.55	25.90	32.38	125	357	QP	HORIZONTAL
6	750.71	36.85	46.00	-9.15	40.00	2.73	26.40	32.28	100	151	QP	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	36.79	32.97	40.00	-7.03	43.00	0.58	22.16	32.77	100	134	QP	VERTICAL
2	375.32	30.84	46.00	-15.16	39.18	1.89	22.08	32.31	125	246	Peak	VERTICAL
3	500.45	39.68	46.00	-6.32	45.77	2.18	24.03	32.30	100	114	Peak	VERTICAL
4	600.36	37.67	46.00	-8.33	42.24	2.44	25.40	32.41	100	208	Peak	VERTICAL
5	700.27	39.58	46.00	-6.42	43.51	2.55	25.90	32.38	100	189	Peak	VERTICAL
6	750.71	39.40	46.00	-6.60	42.55	2.73	26.40	32.28	150	194	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.

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

For Non-Beamforming Mode

Temperature	22°C	Humidity	54%
Test Engineer	Welson Chen	Configurations	IEEE 802.11a CH 36 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4
Test Date	Dec. 20, 2016~Dec. 24, 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	15537.16	45.90	54.00	-8.10	29.29	11.97	38.13	33.49	121	150	Average	HORIZONTAL
2	15541.67	59.08	74.00	-14.92	42.47	11.97	38.13	33.49	121	150	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	15541.43	45.97	54.00	-8.03	29.36	11.97	38.13	33.49	112	82	Average	VERTICAL
2	15544.23	58.70	74.00	-15.30	42.09	11.97	38.13	33.49	112	82	Peak	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Welson Chen	Configurations	IEEE 802.11a CH 40 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4
Test Date	Dec. 20, 2016~Dec. 24, 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	15599.07	45.67	54.00	-8.33	29.16	11.99	38.05	33.53	123	108	Average	HORIZONTAL
2	15601.25	58.63	74.00	-15.37	42.17	12.01	37.98	33.53	123	108	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	15598.65	45.69	54.00	-8.31	29.18	11.99	38.05	33.53	126	211	Average	VERTICAL
2	15600.51	58.84	74.00	-15.16	42.38	12.01	37.98	33.53	126	211	Peak	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Welson Chen	Configurations	IEEE 802.11a CH 48 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4
Test Date	Dec. 20, 2016~Dec. 24, 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	15721.84	45.96	54.00	-8.04	29.74	12.05	37.84	33.67	130	313	Average	HORIZONTAL
2	15724.31	58.54	74.00	-15.46	42.32	12.05	37.84	33.67	130	313	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	15717.64	45.97	54.00	-8.03	29.75	12.05	37.84	33.67	128	239	Average	VERTICAL
2	15721.19	59.60	74.00	-14.40	43.38	12.05	37.84	33.67	128	239	Peak	VERTICAL

Temperature	22℃	Humidity	54%
Test Engineer	Welson Chen	Configurations	IEEE 802.11a CH 149 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4
Test Date	Dec. 20, 2016~Dec. 24, 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	11492.12	57.84	74.00	-16.16	41.49	10.33	39.20	33.18	123	134	Peak	HORIZONTAL
2	11492.24	45.60	54.00	-8.40	29.25	10.33	39.20	33.18	123	134	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	11488.78	53.93	54.00	-0.07	37.58	10.33	39.20	33.18	259	318	Average	VERTICAL
2	11493.04	68.10	74.00	-5.90	51.75	10.33	39.20	33.18	259	318	Peak	VERTICAL

Temperature	22℃	Humidity	54%
Test Engineer	Welson Chen	Configurations	IEEE 802.11a CH 157 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4
Test Date	Dec. 20, 2016~Dec. 24, 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	11571.63	59.09	74.00	-14.91	42.73	10.36	39.20	33.20	125	188	Peak	HORIZONTAL
2	11573.62	46.78	54.00	-7.22	30.42	10.36	39.20	33.20	125	188	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	11569.55	67.78	74.00	-6.22	51.42	10.36	39.20	33.20	246	316	Peak	VERTICAL
2	11570.13	53.98	54.00	-0.02	37.62	10.36	39.20	33.20	246	316	Average	VERTICAL

Temperature	22℃	Humidity	54%
Test Engineer	Welson Chen	Configurations	IEEE 802.11a CH 165 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4
Test Date	Dec. 20, 2016~Dec. 24, 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	11654.55	48.17	54.00	-5.83	31.79	10.40	39.20	33.22	128	185	Average	HORIZONTAL
2	11655.99	61.21	74.00	-12.79	44.83	10.40	39.20	33.22	125	185	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	11649.87	53.96	54.00	-0.04	37.59	10.39	39.20	33.22	265	316	Average	VERTICAL
2	11649.94	68.28	74.00	-5.72	51.91	10.39	39.20	33.22	265	316	Peak	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Welson Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 36 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4
Test Date	Dec. 20, 2016~Dec. 24, 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	15532.66	58.39	74.00	-15.61	41.78	11.97	38.13	33.49	178	132	Peak	HORIZONTAL
2	15532.79	45.78	54.00	-8.22	29.17	11.97	38.13	33.49	178	132	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	15534.17	58.83	74.00	-15.17	42.22	11.97	38.13	33.49	181	106	Peak	VERTICAL
2	15537.98	46.33	54.00	-7.67	29.72	11.97	38.13	33.49	181	106	Average	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Welson Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 40 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4
Test Date	Dec. 20, 2016~Dec. 24, 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	15594.39	45.70	54.00	-8.30	29.19	11.99	38.05	33.53	176	101	Average	HORIZONTAL
2	15595.90	57.94	74.00	-16.06	41.43	11.99	38.05	33.53	176	101	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	15596.22	58.45	74.00	-15.55	41.94	11.99	38.05	33.53	175	113	Peak	VERTICAL
2	15608.14	45.46	54.00	-8.54	29.00	12.01	37.98	33.53	175	113	Average	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Welson Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 48 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4
Test Date	Dec. 20, 2016~Dec. 24, 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	15720.16	50.54	54.00	-3.46	34.32	12.05	37.84	33.67	206	249	Average	HORIZONTAL
2	15725.48	63.58	74.00	-10.42	47.36	12.05	37.84	33.67	206	249	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	15723.04	51.86	54.00	-2.14	35.64	12.05	37.84	33.67	198	33	Average	VERTICAL
2	15728.97	66.94	74.00	-7.06	50.72	12.05	37.84	33.67	198	33	Peak	VERTICAL

Temperature	22℃	Humidity	54%
Test Engineer	Welson Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 149 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4
Test Date	Dec. 20, 2016~Dec. 24, 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	11496.89	48.81	54.00	-5.19	32.46	10.33	39.20	33.18	124	126	Average	HORIZONTAL
2	11498.40	61.66	74.00	-12.34	45.31	10.33	39.20	33.18	124	126	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	11491.25	53.93	54.00	-0.07	37.58	10.33	39.20	33.18	254	317	Average	VERTICAL
2	11491.63	69.08	74.00	-4.92	52.73	10.33	39.20	33.18	254	317	Peak	VERTICAL

Temperature	22℃	Humidity	54%
Test Engineer	Welson Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 157 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4
Test Date	Dec. 20, 2016~Dec. 24, 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	11565.93	48.91	54.00	-5.09	32.55	10.36	39.20	33.20	122	129	Average	HORIZONTAL
2	11568.46	61.48	74.00	-12.52	45.12	10.36	39.20	33.20	122	129	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	11567.95	67.88	74.00	-6.12	51.52	10.36	39.20	33.20	262	315	Peak	VERTICAL
2	11570.54	53.92	54.00	-0.08	37.56	10.36	39.20	33.20	262	315	Average	VERTICAL

Temperature	22℃	Humidity	54%
Test Engineer	Welson Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 165 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4
Test Date	Dec. 20, 2016~Dec. 24, 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	11646.22	49.50	54.00	-4.50	33.13	10.39	39.20	33.22	126	123	Average	HORIZONTAL
2	11648.04	62.63	74.00	-11.37	46.26	10.39	39.20	33.22	126	123	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	11649.07	53.82	54.00	-0.18	37.45	10.39	39.20	33.22	265	314	Average	VERTICAL
2	11650.93	68.51	74.00	-5.49	52.13	10.40	39.20	33.22	265	314	Peak	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Welson Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 38 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4
Test Date	Dec. 20, 2016~Dec. 24, 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	15560.58	59.04	74.00	-14.96	42.53	11.99	38.05	33.53	252	275	Peak	HORIZONTAL
2	15562.21	45.58	54.00	-8.42	29.07	11.99	38.05	33.53	252	275	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	15562.40	45.65	54.00	-8.35	29.14	11.99	38.05	33.53	250	227	Average	VERTICAL
2	15566.60	58.71	74.00	-15.29	42.20	11.99	38.05	33.53	250	227	Peak	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Welson Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 46 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4
Test Date	Dec. 20, 2016~Dec. 24, 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	15697.31	46.57	54.00	-7.43	30.30	12.05	37.84	33.62	237	134	Average	HORIZONTAL
2	15698.85	59.60	74.00	-14.40	43.33	12.05	37.84	33.62	237	134	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	15691.25	60.64	74.00	-13.36	44.37	12.05	37.84	33.62	242	189	Peak	VERTICAL
2	15698.37	47.43	54.00	-6.57	31.16	12.05	37.84	33.62	242	189	Average	VERTICAL

Temperature	22℃	Humidity	54%
Test Engineer	Welson Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 151 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4
Test Date	Dec. 20, 2016~Dec. 24, 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	11503.56	50.65	54.00	-3.35	34.30	10.33	39.20	33.18	244	284	Average	HORIZONTAL
2	11510.00	63.80	74.00	-10.20	47.46	10.33	39.20	33.19	244	284	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	11505.74	52.69	54.00	-1.31	36.34	10.33	39.20	33.18	244	315	Average	VERTICAL
2	11510.00	66.47	74.00	-7.53	50.13	10.33	39.20	33.19	244	315	Peak	VERTICAL

Temperature	22℃	Humidity	54%
Test Engineer	Welson Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 159 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4
Test Date	Dec. 20, 2016~Dec. 24, 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	11590.90	50.05	54.00	-3.95	33.69	10.37	39.20	33.21	241	295	Average	HORIZONTAL
2	11597.72	62.70	74.00	-11.30	46.34	10.37	39.20	33.21	241	295	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	11593.43	65.69	74.00	-8.31	49.33	10.37	39.20	33.21	242	318	Peak	VERTICAL
2	11598.75	52.88	54.00	-1.12	36.52	10.37	39.20	33.21	242	318	Average	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Welson Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 42 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4
Test Date	Dec. 20, 2016~Dec. 24, 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	15623.21	45.49	54.00	-8.51	29.08	12.01	37.98	33.58	232	298	Average	HORIZONTAL
2	15631.31	58.78	74.00	-15.22	42.37	12.01	37.98	33.58	232	298	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	15628.78	58.22	74.00	-15.78	41.81	12.01	37.98	33.58	216	248	Peak	VERTICAL
2	15635.16	45.43	54.00	-8.57	29.02	12.01	37.98	33.58	216	248	Average	VERTICAL

Temperature	22℃	Humidity	54%
Test Engineer	Welson Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 155 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4
Test Date	Dec. 20, 2016~Dec. 24, 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	11542.88	45.42	54.00	-8.58	29.07	10.34	39.20	33.19	244	255	Average	HORIZONTAL
2	11555.87	58.36	74.00	-15.64	42.00	10.36	39.20	33.20	244	255	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	11544.36	60.41	74.00	-13.59	44.06	10.34	39.20	33.19	252	308	Peak	VERTICAL
2	11547.63	48.26	54.00	-5.74	31.92	10.34	39.20	33.20	252	308	Average	VERTICAL

For Beamforming Mode

Temperature	22°C	Humidity	54%
Test Engineer	Welson Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 36 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4
Test Date	Feb. 02, 2017~Feb. 07, 2017		

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	15539.54	56.81	74.00	-17.19	41.56	11.97	38.15	34.87	193	199	Peak	HORIZONTAL
2	15539.70	44.10	54.00	-9.90	28.85	11.97	38.15	34.87	193	199	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	15539.15	56.99	74.00	-17.01	41.74	11.97	38.15	34.87	173	111	Peak	VERTICAL
2	15539.97	44.13	54.00	-9.87	28.88	11.97	38.15	34.87	173	111	Average	VERTICAL

Temperature	22℃	Humidity	54%
Test Engineer	Welson Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 40 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4
Test Date	Feb. 02, 2017~Feb. 07, 2017		

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	15599.03	56.97	74.00	-17.03	41.79	11.99	38.06	34.87	229	141	Peak	HORIZONTAL
2	15599.43	43.86	54.00	-10.14	28.68	11.99	38.06	34.87	229	141	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	15600.42	43.92	54.00	-10.08	28.74	11.99	38.06	34.87	184	209	Average	VERTICAL
2	15600.94	56.62	74.00	-17.38	41.42	12.01	38.06	34.87	184	209	Peak	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Welson Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 48 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4
Test Date	Feb. 02, 2017~Feb. 07, 2017		

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	15719.17	56.58	74.00	-17.42	41.53	12.05	37.89	34.89	137	246	Peak	HORIZONTAL
2	15719.46	43.92	54.00	-10.08	28.87	12.05	37.89	34.89	137	246	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	15719.04	56.82	74.00	-17.18	41.77	12.05	37.89	34.89	141	29	Peak	VERTICAL
2	15719.10	43.72	54.00	-10.28	28.67	12.05	37.89	34.89	141	29	Average	VERTICAL

Temperature	22℃	Humidity	54%
Test Engineer	Welson Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 149 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4
Test Date	Feb. 02, 2017~Feb. 07, 2017		

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	11481.12	55.30	74.00	-18.70	38.93	10.32	38.79	32.74	175	46	Peak	HORIZONTAL
2	11484.24	42.24	54.00	-11.76	25.86	10.33	38.79	32.74	175	46	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	11489.72	55.18	74.00	-18.82	38.80	10.33	38.79	32.74	155	189	Peak	VERTICAL
2	11494.16	42.47	54.00	-11.53	26.09	10.33	38.79	32.74	155	189	Average	VERTICAL

Temperature	22℃	Humidity	54%
Test Engineer	Welson Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 157 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4
Test Date	Feb. 02, 2017~Feb. 07, 2017		

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	11566.40	42.68	54.00	-11.32	26.23	10.36	38.83	32.74	190	209	Average	HORIZONTAL
2	11570.48	55.55	74.00	-18.45	39.10	10.36	38.83	32.74	190	209	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	11562.32	56.42	74.00	-17.58	39.98	10.36	38.82	32.74	164	279	Peak	VERTICAL
2	11576.36	42.44	54.00	-11.56	25.99	10.36	38.83	32.74	164	279	Average	VERTICAL

Temperature	22℃	Humidity	54%
Test Engineer	Welson Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 165 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4
Test Date	Feb. 02, 2017~Feb. 07, 2017		

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	11648.92	55.17	74.00	-18.83	38.65	10.39	38.86	32.73	186	306	Peak	HORIZONTAL
2	11653.96	42.51	54.00	-11.49	25.98	10.40	38.86	32.73	186	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	11650.32	56.59	74.00	-17.41	40.07	10.39	38.86	32.73	165	270	Peak	VERTICAL
2	11659.48	42.61	54.00	-11.39	26.08	10.40	38.86	32.73	165	270	Average	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Welson Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 38 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4
Test Date	Feb. 02, 2017~Feb. 07, 2017		

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	15570.42	44.13	54.00	-9.87	28.91	11.99	38.10	34.87	209	91	Average	HORIZONTAL
2	15571.67	57.66	74.00	-16.34	42.44	11.99	38.10	34.87	209	91	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	15570.45	57.60	74.00	-16.40	42.38	11.99	38.10	34.87	207	256	Peak	VERTICAL
2	15571.27	44.04	54.00	-9.96	28.82	11.99	38.10	34.87	207	256	Average	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Welson Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 46 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4
Test Date	Feb. 02, 2017~Feb. 07, 2017		

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	15680.48	43.44	54.00	-10.56	26.20	12.03	37.93	32.72	174	198	Average	HORIZONTAL
2	15683.79	55.43	74.00	-18.57	38.19	12.03	37.93	32.72	174	198	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	15695.64	43.41	54.00	-10.59	26.15	12.05	37.93	32.72	157	323	Average	VERTICAL
2	15698.76	57.56	74.00	-16.44	40.32	12.05	37.91	32.72	157	323	Peak	VERTICAL

Temperature	22℃	Humidity	54%
Test Engineer	Welson Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 151 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4
Test Date	Feb. 02, 2017~Feb. 07, 2017		

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	11501.64	42.09	54.00	-11.91	25.70	10.33	38.80	32.74	161	176	Average	HORIZONTAL
2	11506.36	55.03	74.00	-18.97	38.64	10.33	38.80	32.74	161	176	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	11509.48	42.28	54.00	-11.72	25.89	10.33	38.80	32.74	134	97	Average	VERTICAL
2	11513.60	55.65	74.00	-18.35	39.26	10.33	38.80	32.74	134	97	Peak	VERTICAL

Temperature	22℃	Humidity	54%
Test Engineer	Welson Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 159 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4
Test Date	Feb. 02, 2017~Feb. 07, 2017		

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	11582.68	42.44	54.00	-11.56	25.99	10.36	38.83	32.74	128	184	Average	HORIZONTAL
2	11585.84	55.96	74.00	-18.04	39.50	10.37	38.83	32.74	128	184	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	11584.20	55.21	74.00	-18.79	38.75	10.37	38.83	32.74	155	243	Peak	VERTICAL
2	11590.40	42.66	54.00	-11.34	26.20	10.37	38.83	32.74	155	243	Average	VERTICAL

Temperature	22℃	Humidity	54%
Test Engineer	Welson Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 42 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4
Test Date	Feb. 02, 2017~Feb. 07, 2017		

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	15628.28	43.82	54.00	-10.18	28.66	12.01	38.03	34.88	105	308	Average	HORIZONTAL
2	15631.87	56.93	74.00	-17.07	41.79	12.01	38.01	34.88	105	308	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	15630.90	56.76	74.00	-17.24	41.62	12.01	38.01	34.88	218	20	Peak	VERTICAL
2	15631.39	43.76	54.00	-10.24	28.62	12.01	38.01	34.88	218	20	Average	VERTICAL

Temperature	22℃	Humidity	54%
Test Engineer	Welson Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 155 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4
Test Date	Feb. 02, 2017~Feb. 07, 2017		

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	11546.94	55.38	74.00	-18.62	38.97	10.34	38.81	32.74	173	184	Peak	HORIZONTAL
2	11550.70	42.82	54.00	-11.18	26.38	10.36	38.82	32.74	173	184	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	11548.18	42.53	54.00	-11.47	26.12	10.34	38.81	32.74	140	246	Average	VERTICAL
2	11549.94	55.64	74.00	-18.36	39.22	10.34	38.82	32.74	140	246	Peak	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.

4.6. Band Edge 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 the spectrum analyzer.

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

4.6.3. Test Procedures

The test procedure is the same as section 4.5.3.

4.6.4. Test Setup Layout

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

4.6.5. Test Deviation

There is no deviation with the original standard.

4.6.6. EUT Operation during Test

For Non-beamforming mode:

The EUT was programmed to be in continuously transmitting mode.

For beamforming mode:

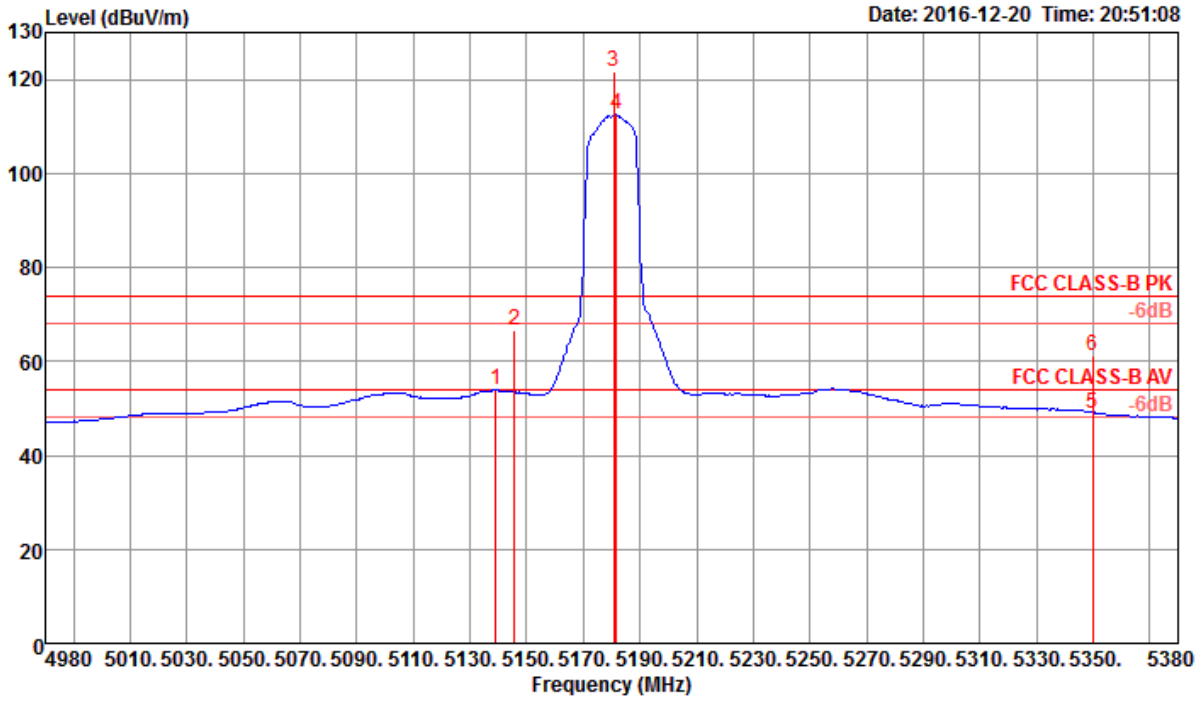
The EUT was programmed to be in beamforming transmitting mode.

4.6.7. Test Result of Band Edge and Fundamental Emissions

For Non-Beamforming Mode

Temperature	22°C	Humidity	54%
Test Engineer	Welson Chen	Configurations	IEEE 802.11a CH 36, 40, 48 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4

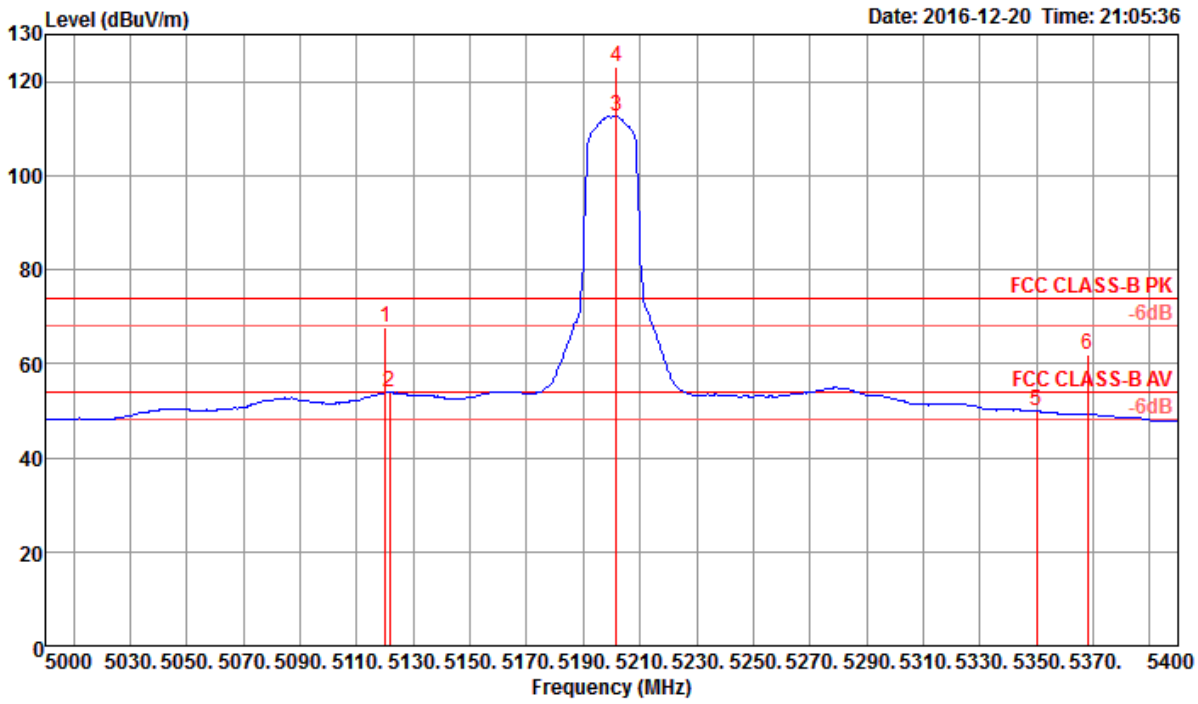
Channel 36



	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	5139.20	53.90	54.00	-0.10	46.64	6.46	33.72	32.92	176	327	Average	VERTICAL
2	5145.60	66.69	74.00	-7.31	59.39	6.48	33.74	32.92	176	327	Peak	VERTICAL
3 @	5180.80	121.74			114.36	6.51	33.79	32.92	176	327	Peak	VERTICAL
4 @	5181.60	112.44			105.06	6.51	33.79	32.92	176	327	Average	VERTICAL
5	5350.00	49.06	54.00	-4.94	41.34	6.58	34.06	32.92	176	327	Average	VERTICAL
6	5350.00	61.20	74.00	-12.80	53.48	6.58	34.06	32.92	176	327	Peak	VERTICAL

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

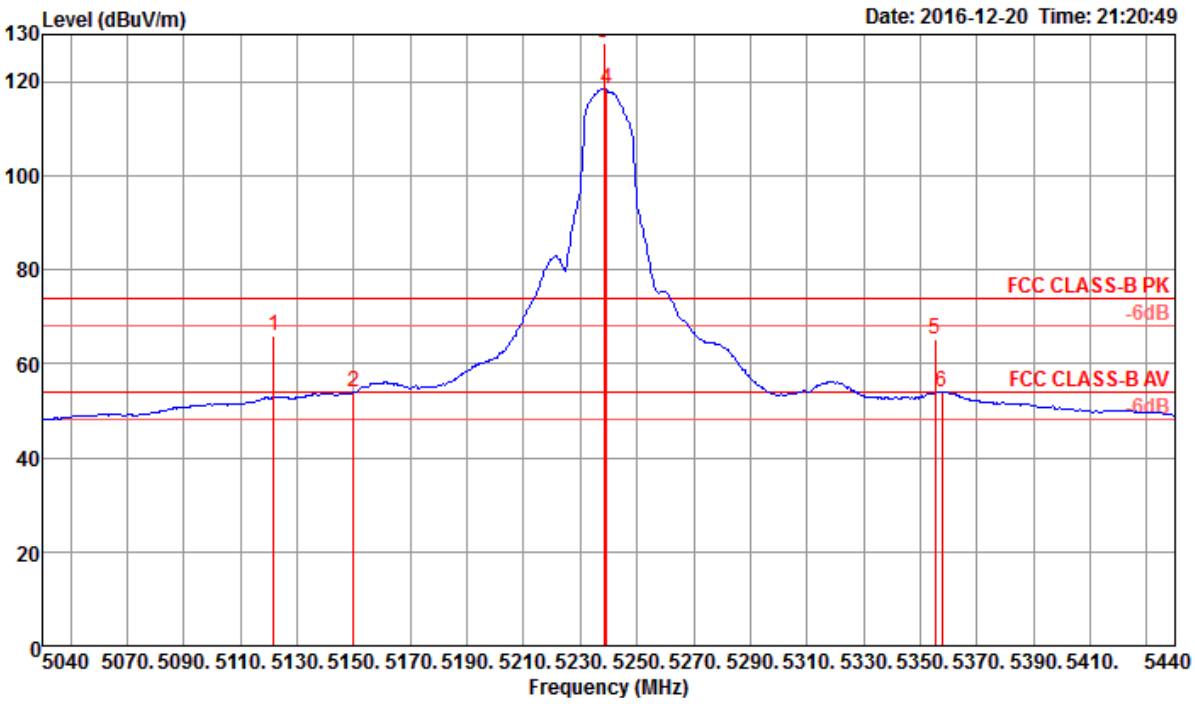
Channel 40



	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	5120.00	67.75	74.00	-6.25	60.53	6.44	33.69	32.91	185	326	Peak	VERTICAL
2	5121.60	53.81	54.00	-0.19	46.59	6.44	33.69	32.91	185	326	Average	VERTICAL
3 @	5201.60	112.76			105.30	6.54	33.84	32.92	185	326	Average	VERTICAL
4 @	5201.60	122.98			115.52	6.54	33.84	32.92	185	326	Peak	VERTICAL
5	5350.00	49.88	54.00	-4.12	42.16	6.58	34.06	32.92	185	326	Average	VERTICAL
6	5368.00	61.94	74.00	-12.06	54.20	6.59	34.08	32.93	185	326	Peak	VERTICAL

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

Channel 48

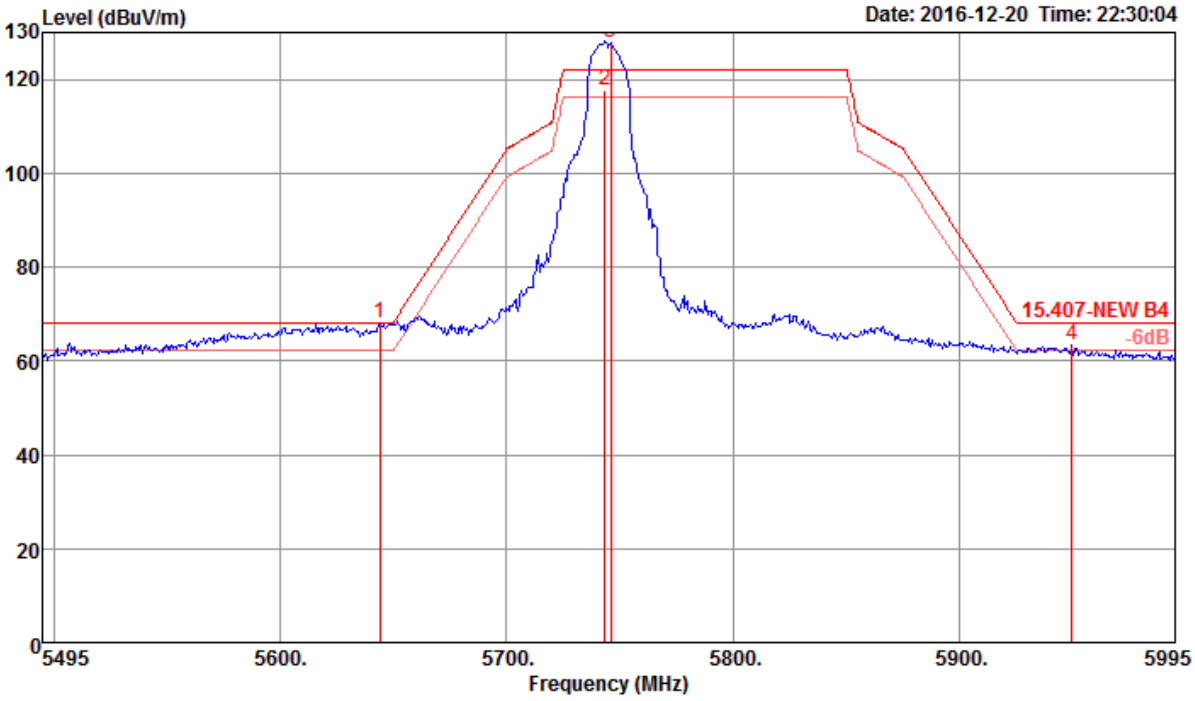


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5121.60	65.99	74.00	-8.01	58.77	6.44	33.69	32.91	174	76	Peak	VERTICAL
2	5150.00	53.83	54.00	-0.17	46.53	6.48	33.74	32.92	174	76	Average	VERTICAL
3 @	5238.40	128.10			120.58	6.55	33.89	32.92	174	76	Peak	VERTICAL
4 @	5239.20	118.45			110.93	6.55	33.89	32.92	174	76	Average	VERTICAL
5	5355.20	65.16	74.00	-8.84	57.41	6.59	34.08	32.92	174	76	Peak	VERTICAL
6	5357.60	53.93	54.00	-0.07	46.18	6.59	34.08	32.92	174	76	Average	VERTICAL

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

Temperature	22°C	Humidity	54%
Test Engineer	Welson Chen	Configurations	IEEE 802.11a CH 149, 157, 165 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4

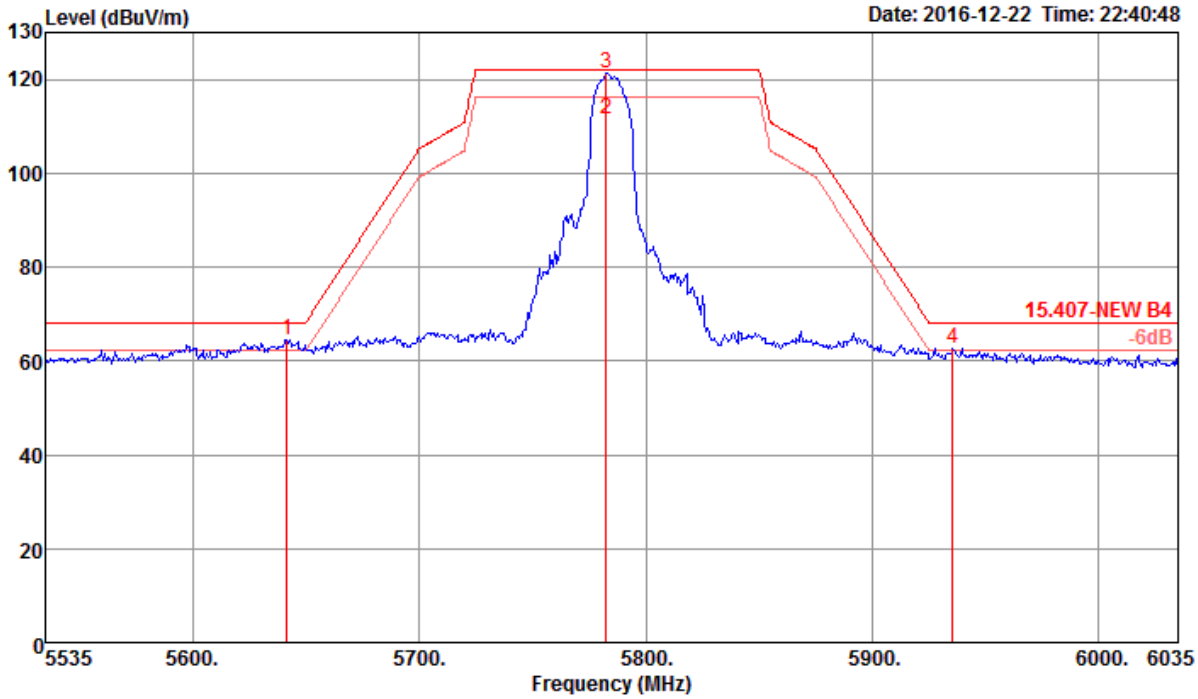
Channel 149



	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	5644.00	68.11	68.20	-0.09	59.88	6.81	34.39	32.97	220	222	Peak	VERTICAL
2	5743.40	117.86			109.57	6.83	34.45	32.99	220	222	Average	VERTICAL
3 @	5745.80	127.99			119.71	6.83	34.45	33.00	220	222	Peak	VERTICAL
4	5949.50	63.38	68.20	-4.82	54.81	7.05	34.57	33.05	220	222	Peak	VERTICAL

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

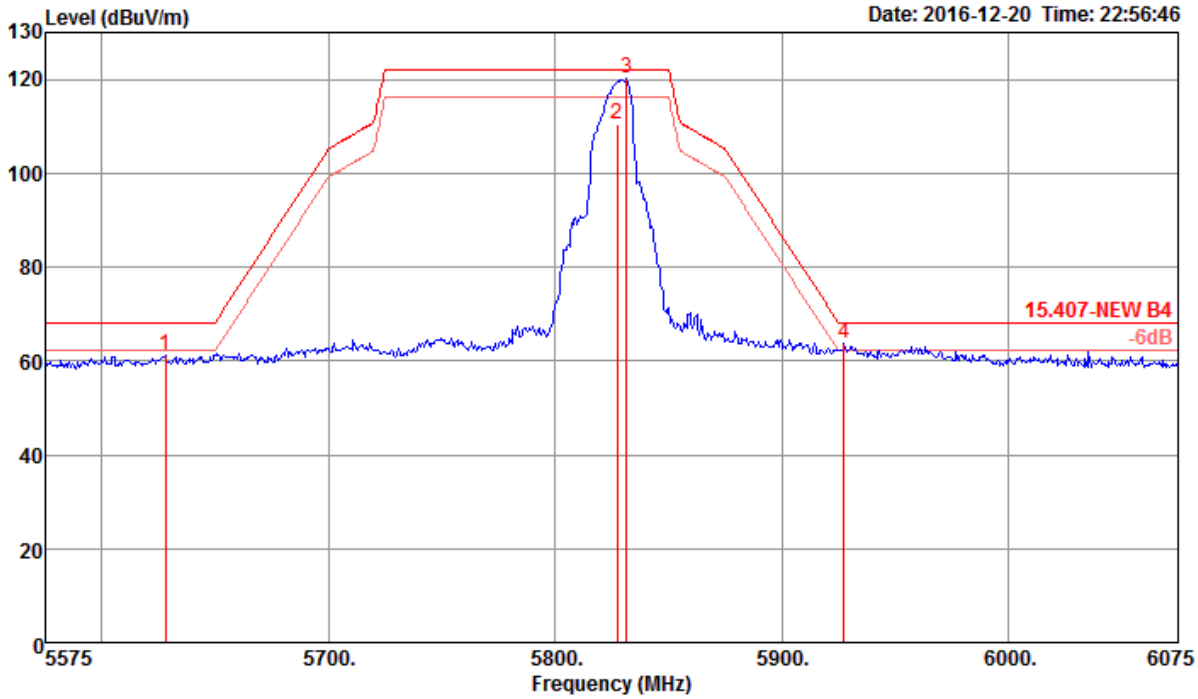
Channel 157



	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	5641.50	64.47	68.20	-3.73	56.24	6.81	34.39	32.97	195	201	Peak	VERTICAL
2	5782.60	111.71			103.40	6.84	34.47	33.00	195	201	Average	VERTICAL
3	5782.60	121.28			112.97	6.84	34.47	33.00	195	201	Peak	VERTICAL
4	5935.50	62.75	68.20	-5.45	54.20	7.03	34.56	33.04	195	201	Peak	VERTICAL

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

Channel 165

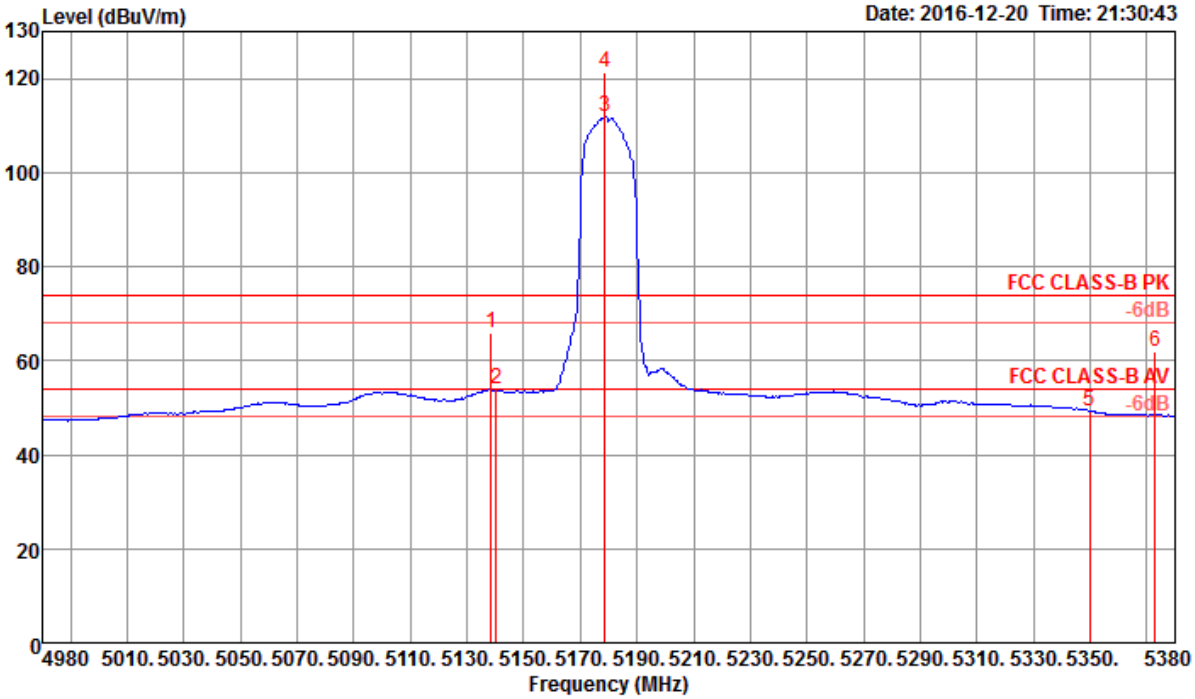


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5628.00	61.02	68.20	-7.18	52.79	6.81	34.38	32.96	156	202	Peak	HORIZONTAL
2	5827.40	110.62			102.25	6.89	34.50	33.02	156	202	Average	HORIZONTAL
3	5831.41	120.10			111.73	6.89	34.50	33.02	156	202	Peak	HORIZONTAL
4	5927.50	63.84	68.20	-4.36	55.29	7.03	34.56	33.04	156	202	Peak	HORIZONTAL

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

Temperature	22°C	Humidity	54%
Test Engineer	Welson Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 36, 40, 48 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4

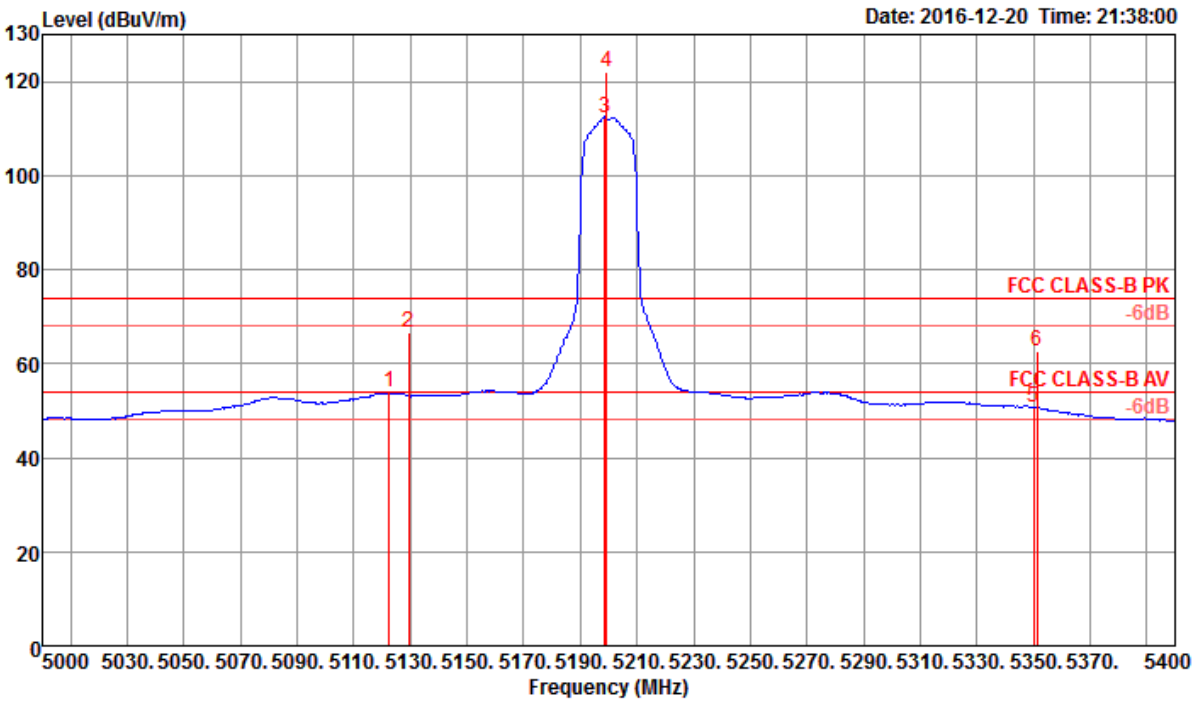
Channel 36



	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	5138.33	65.98	74.00	-8.02	58.72	6.46	33.72	32.92	177	327	Peak	VERTICAL
2	5140.26	53.84	54.00	-0.16	46.58	6.46	33.72	32.92	177	327	Average	VERTICAL
3 @	5178.72	111.86			104.48	6.51	33.79	32.92	177	327	Average	VERTICAL
4 @	5178.72	121.29			113.91	6.51	33.79	32.92	177	327	Peak	VERTICAL
5	5350.00	49.36	54.00	-4.64	41.64	6.58	34.06	32.92	177	327	Average	VERTICAL
6	5372.95	61.86	74.00	-12.14	54.09	6.59	34.11	32.93	177	327	Peak	VERTICAL

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

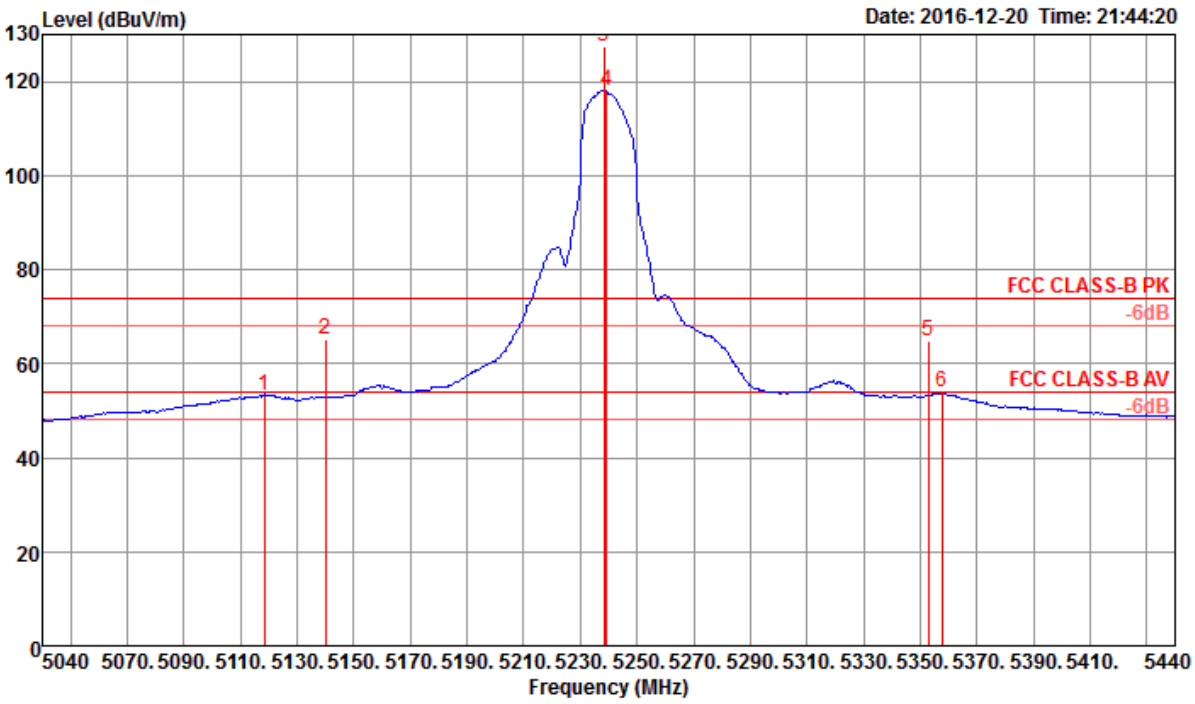
Channel 40



	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	5122.44	53.82	54.00	-0.18	46.60	6.44	33.69	32.91	188	325	Average	VERTICAL
2	5129.49	66.53	74.00	-7.47	59.27	6.46	33.72	32.92	188	325	Peak	VERTICAL
3 @	5198.72	112.43			105.00	6.53	33.82	32.92	188	325	Average	VERTICAL
4 @	5199.36	122.11			114.68	6.53	33.82	32.92	188	325	Peak	VERTICAL
5	5350.00	50.67	54.00	-3.33	42.95	6.58	34.06	32.92	188	325	Average	VERTICAL
6	5351.28	62.69	74.00	-11.31	54.97	6.58	34.06	32.92	188	325	Peak	VERTICAL

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

Channel 48

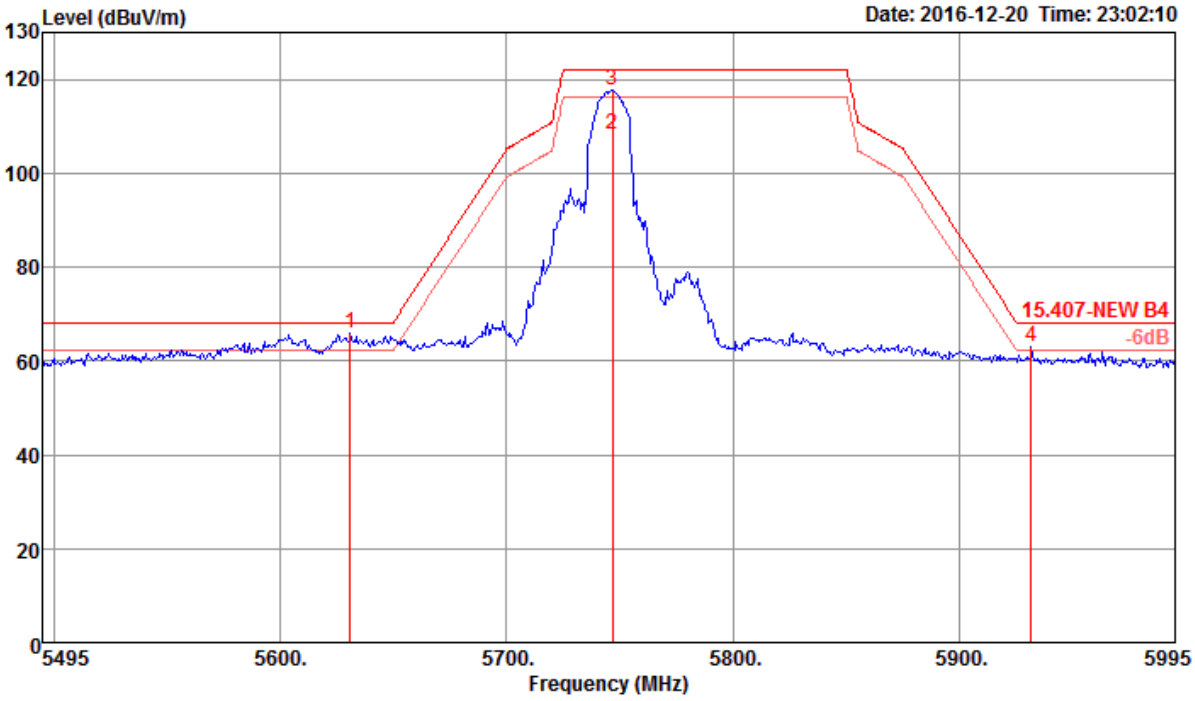


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5118.40	53.33	54.00	-0.67	46.11	6.44	33.69	32.91	172	76	Average	VERTICAL
2	5140.00	65.19	74.00	-8.81	57.93	6.46	33.72	32.92	172	76	Peak	VERTICAL
3 @	5238.40	127.31			119.79	6.55	33.89	32.92	172	76	Peak	VERTICAL
4 @	5239.20	118.14			110.62	6.55	33.89	32.92	172	76	Average	VERTICAL
5	5352.80	64.93	74.00	-9.07	57.21	6.58	34.06	32.92	172	76	Peak	VERTICAL
6	5357.60	53.85	54.00	-0.15	46.10	6.59	34.08	32.92	172	76	Average	VERTICAL

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

Temperature	22°C	Humidity	54%
Test Engineer	Welson Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 149, 157, 165 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4

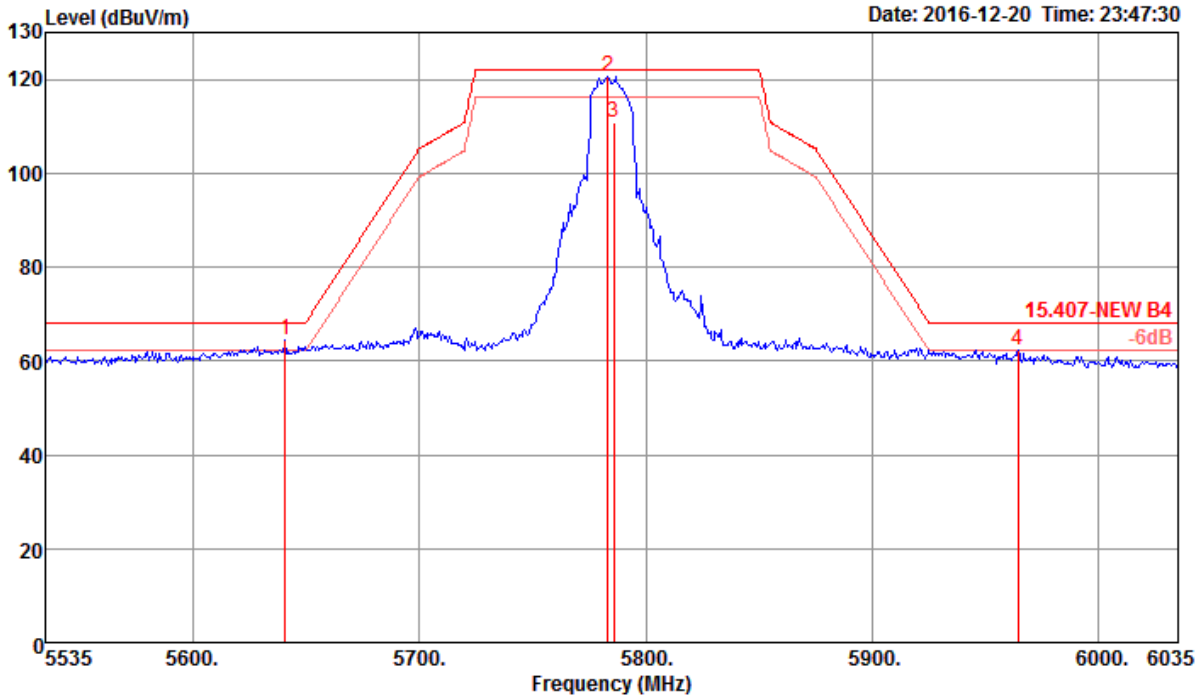
Channel 149



	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	5631.00	65.79	68.20	-2.41	57.56	6.81	34.38	32.96	219	205	Peak	VERTICAL
2	5746.60	108.27			99.99	6.83	34.45	33.00	219	205	Average	VERTICAL
3	5746.60	117.79			109.51	6.83	34.45	33.00	219	205	Peak	VERTICAL
4	5931.50	62.93	68.20	-5.27	54.38	7.03	34.56	33.04	219	205	Peak	VERTICAL

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

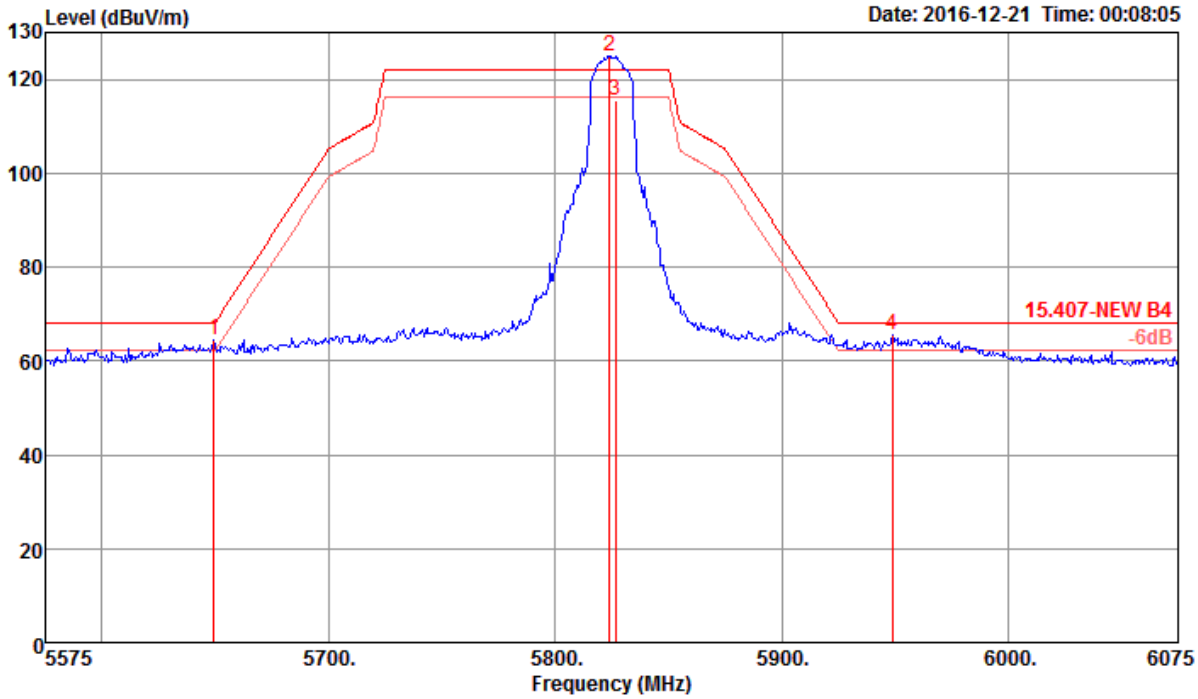
Channel 157



	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	5641.00	64.47	68.20	-3.73	56.24	6.81	34.39	32.97	175	203	Peak	VERTICAL
2	5783.40	120.69			112.39	6.84	34.47	33.01	175	203	Peak	VERTICAL
3	5785.80	110.89			102.59	6.84	34.47	33.01	175	203	Average	VERTICAL
4	5964.50	62.32	68.20	-5.88	53.72	7.07	34.58	33.05	175	203	Peak	VERTICAL

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

Channel 165

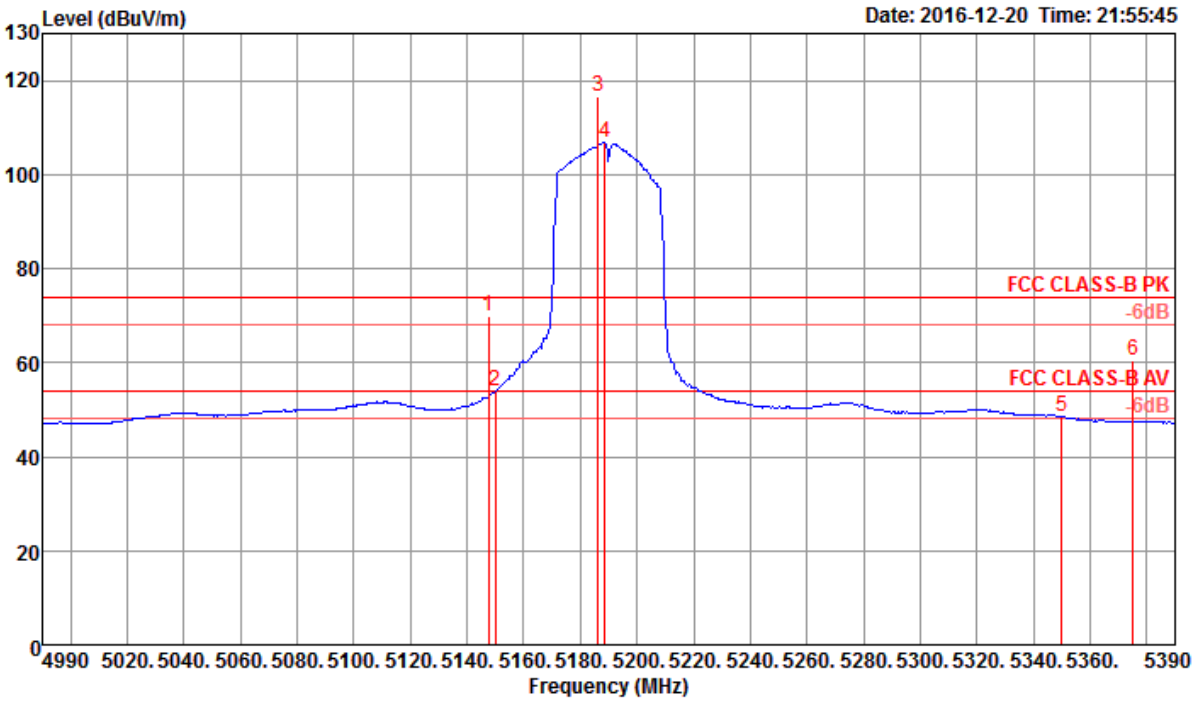


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5649.50	64.57	68.20	-3.63	56.34	6.81	34.39	32.97	194	214	Peak	VERTICAL
2 @	5824.20	125.06			116.69	6.89	34.50	33.02	194	214	Peak	VERTICAL
3	5826.60	115.47			107.10	6.89	34.50	33.02	194	214	Average	VERTICAL
4	5949.00	65.43	68.20	-2.77	56.86	7.05	34.57	33.05	194	214	Peak	VERTICAL

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

Temperature	22°C	Humidity	54%
Test Engineer	Welson Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 38, 46 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4

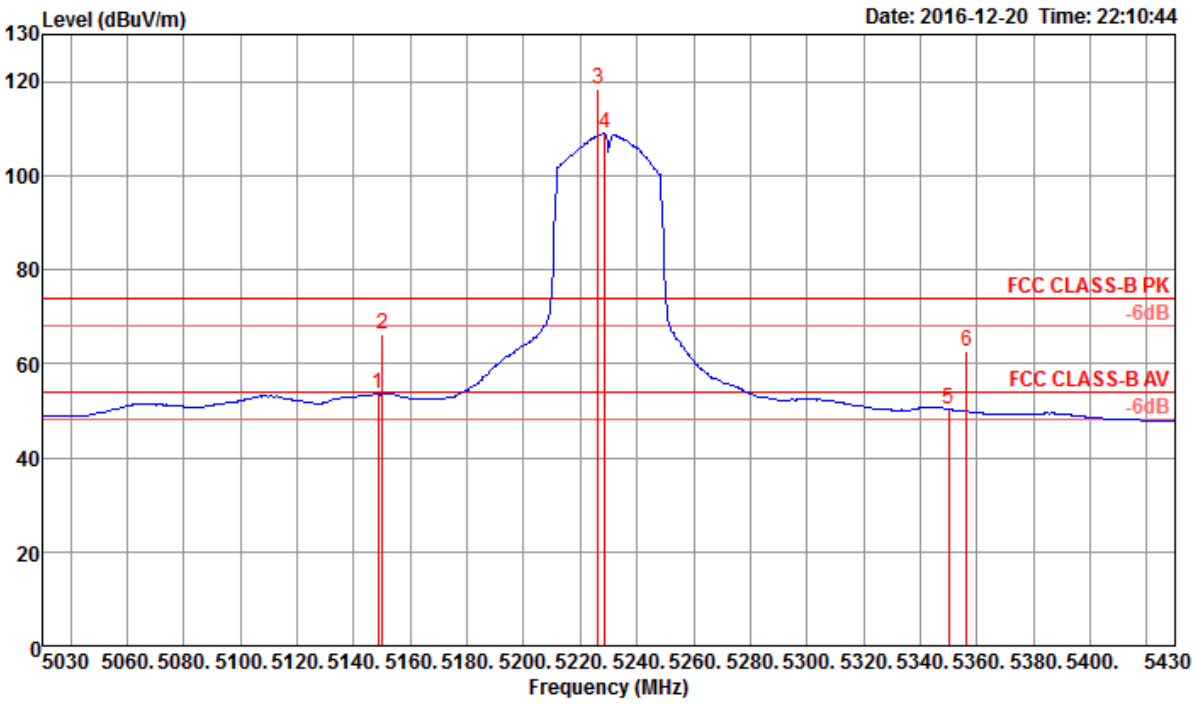
Channel 38



	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	5147.69	69.75	74.00	-4.25	62.45	6.48	33.74	32.92	192	327	Peak	VERTICAL
2	5150.00	53.78	54.00	-0.22	46.48	6.48	33.74	32.92	192	327	Average	VERTICAL
3 @	5186.15	116.55			109.17	6.51	33.79	32.92	192	327	Peak	VERTICAL
4 @	5188.72	106.78			99.35	6.53	33.82	32.92	192	327	Average	VERTICAL
5	5350.00	48.54	54.00	-5.46	40.82	6.58	34.06	32.92	192	327	Average	VERTICAL
6	5375.26	60.59	74.00	-13.41	52.82	6.59	34.11	32.93	192	327	Peak	VERTICAL

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

Channel 46

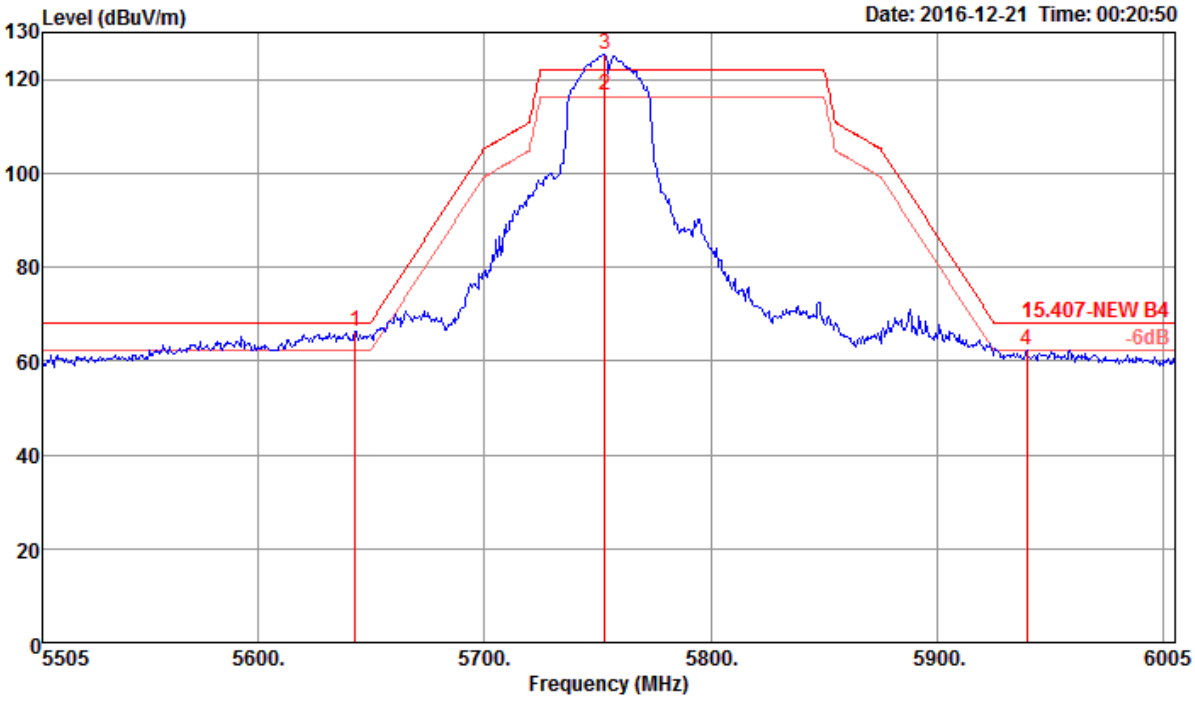


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5148.59	53.77	54.00	-0.23	46.47	6.48	33.74	32.92	195	327	Average	VERTICAL
2	5150.00	66.25	74.00	-7.75	58.95	6.48	33.74	32.92	195	327	Peak	VERTICAL
3 @	5226.15	118.33			110.85	6.54	33.86	32.92	195	327	Peak	VERTICAL
4 @	5228.72	108.94			101.46	6.54	33.86	32.92	195	327	Average	VERTICAL
5	5350.00	50.34	54.00	-3.66	42.62	6.58	34.06	32.92	195	327	Average	VERTICAL
6	5356.28	62.71	74.00	-11.29	54.96	6.59	34.08	32.92	195	327	Peak	VERTICAL

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

Temperature	22°C	Humidity	54%
Test Engineer	Welson Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 151, 159 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4

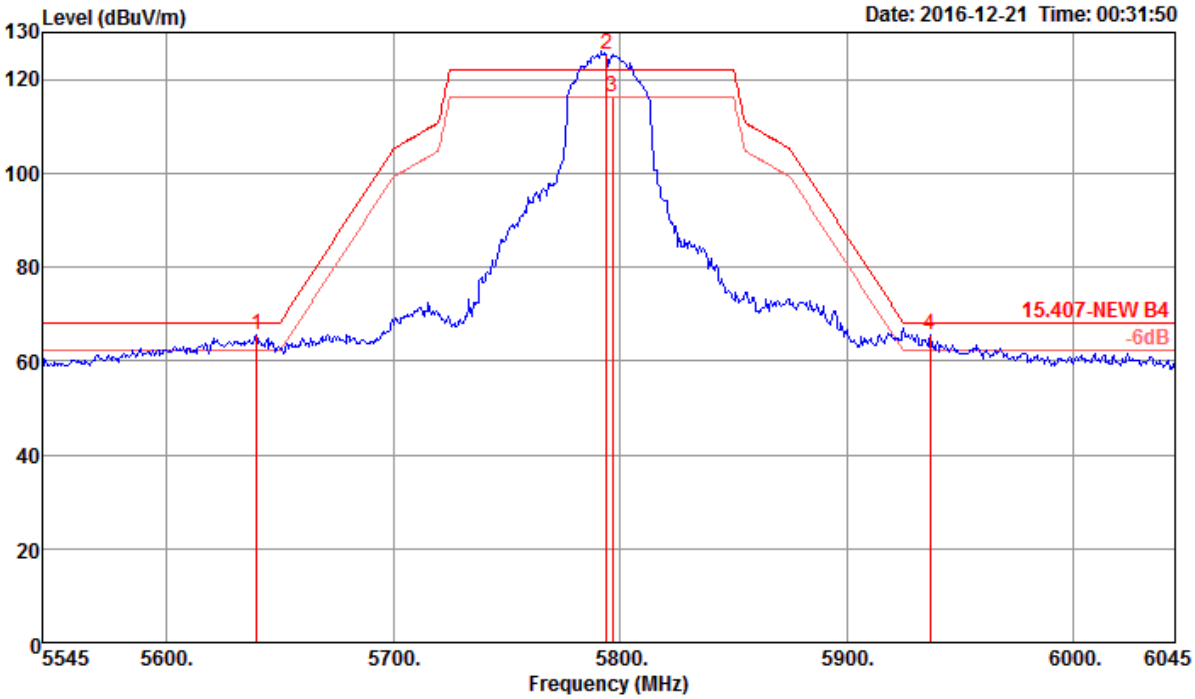
Channel 151



	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	5643.00	66.23	68.20	-1.97	58.00	6.81	34.39	32.97	188	213	Peak	VERTICAL
2	5753.40	116.75			108.47	6.83	34.45	33.00	188	213	Average	VERTICAL
3 @	5753.40	125.24			116.96	6.83	34.45	33.00	188	213	Peak	VERTICAL
4	5939.50	62.31	68.20	-5.89	53.77	7.03	34.56	33.05	188	213	Peak	VERTICAL

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

Channel 159

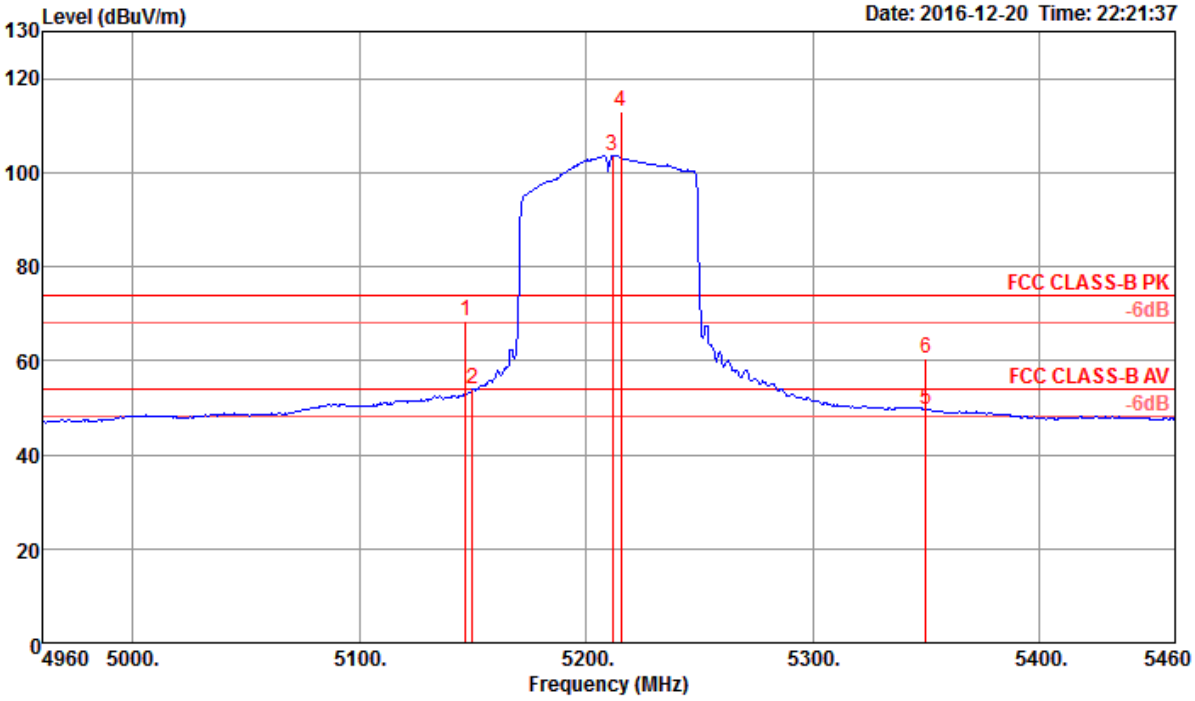


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5639.50	65.56	68.20	-2.64	57.34	6.81	34.38	32.97	188	213	Peak	VERTICAL
2 @	5794.20	125.12			116.81	6.84	34.48	33.01	188	213	Peak	VERTICAL
3	5796.60	116.07			107.76	6.84	34.48	33.01	188	213	Average	VERTICAL
4	5937.00	65.67	68.20	-2.53	57.13	7.03	34.56	33.05	188	213	Peak	VERTICAL

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

Temperature	22°C	Humidity	54%
Test Engineer	Welson Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 42, 155 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4

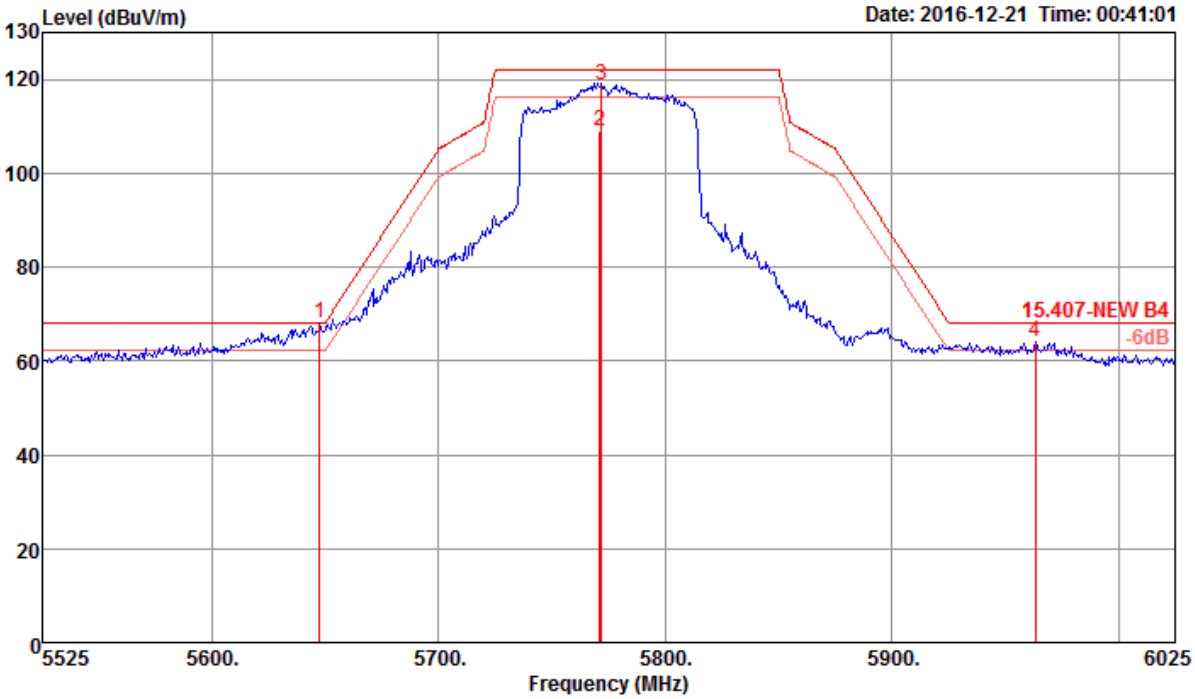
Channel 42



	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	5146.70	68.33	74.00	-5.67	61.03	6.48	33.74	32.92	185	325	Peak	VERTICAL
2	5150.00	53.81	54.00	-0.19	46.51	6.48	33.74	32.92	185	325	Average	VERTICAL
3 @	5211.60	103.64			96.18	6.54	33.84	32.92	185	325	Average	VERTICAL
4 @	5215.61	112.98			105.52	6.54	33.84	32.92	185	325	Peak	VERTICAL
5	5350.00	49.59	54.00	-4.41	41.87	6.58	34.06	32.92	185	325	Average	VERTICAL
6	5350.00	60.57	74.00	-13.43	52.85	6.58	34.06	32.92	185	325	Peak	VERTICAL

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

Channel 155



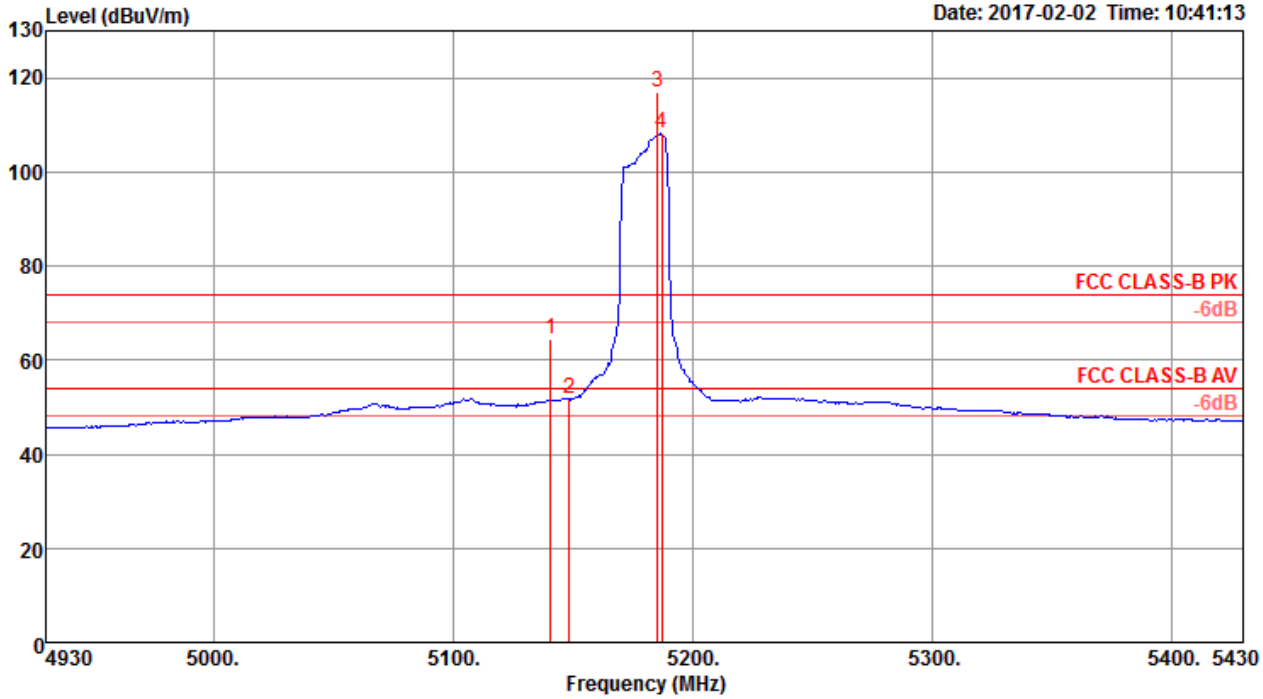
	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5647.50	68.04	68.20	-0.16	59.81	6.81	34.39	32.97	180	219	Peak	VERTICAL
2	5770.99	108.96			100.67	6.83	34.46	33.00	180	219	Average	VERTICAL
3	5771.80	118.86			110.57	6.83	34.46	33.00	180	219	Peak	VERTICAL
4	5963.50	64.11	68.20	-4.09	55.51	7.07	34.58	33.05	180	219	Peak	VERTICAL

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

For Beamforming Mode

Temperature	22°C	Humidity	54%
Test Engineer	Welson Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 36, 40, 48 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4

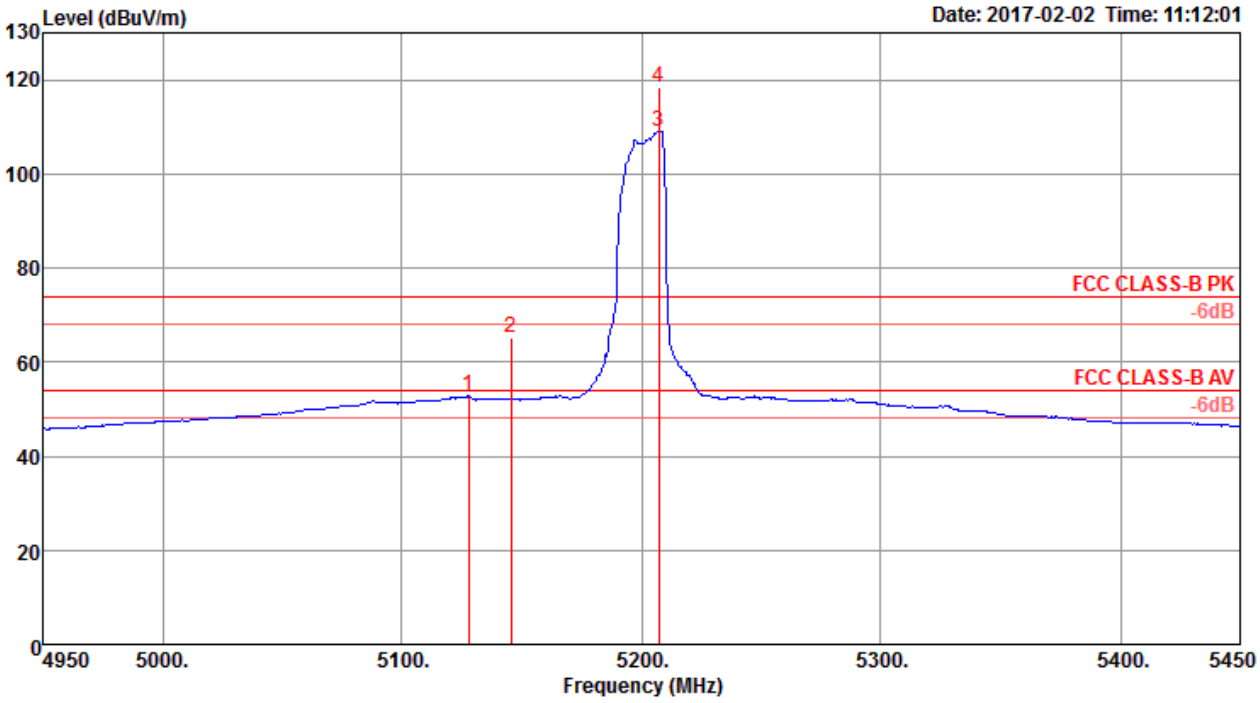
Channel 36



	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	5140.74	64.33	74.00	-9.67	57.30	6.46	33.51	32.94	158	98	Peak	VERTICAL
2	5148.75	51.78	54.00	-2.22	44.73	6.48	33.51	32.94	158	98	Average	VERTICAL
3 @	5185.61	116.93			109.79	6.51	33.56	32.93	158	98	Peak	VERTICAL
4 @	5187.21	108.10			100.94	6.53	33.56	32.93	158	98	Average	VERTICAL

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

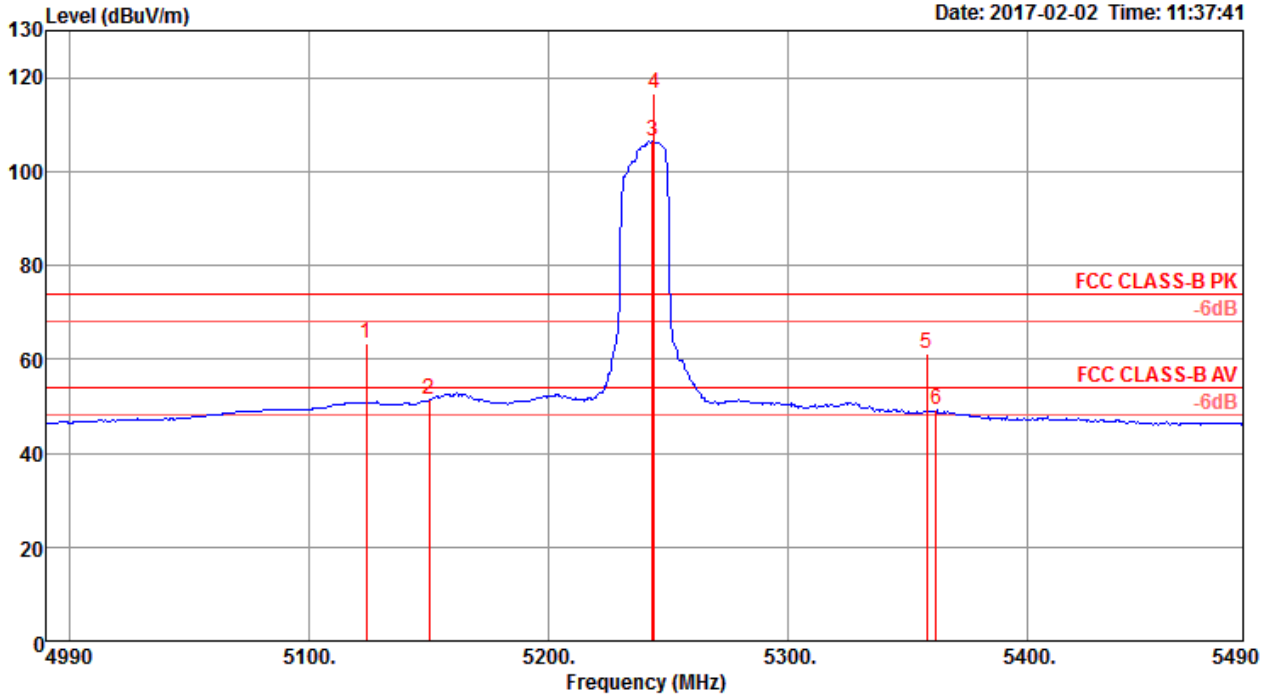
Channel 40



	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	5127.89	52.72	54.00	-1.28	45.71	6.46	33.49	32.94	182	14	Average	VERTICAL
2	5145.51	65.19	74.00	-8.81	58.14	6.48	33.51	32.94	182	14	Peak	VERTICAL
3 @	5207.21	109.00			101.81	6.54	33.58	32.93	182	14	Average	VERTICAL
4 @	5207.21	118.41			111.22	6.54	33.58	32.93	182	14	Peak	VERTICAL

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

Channel 48

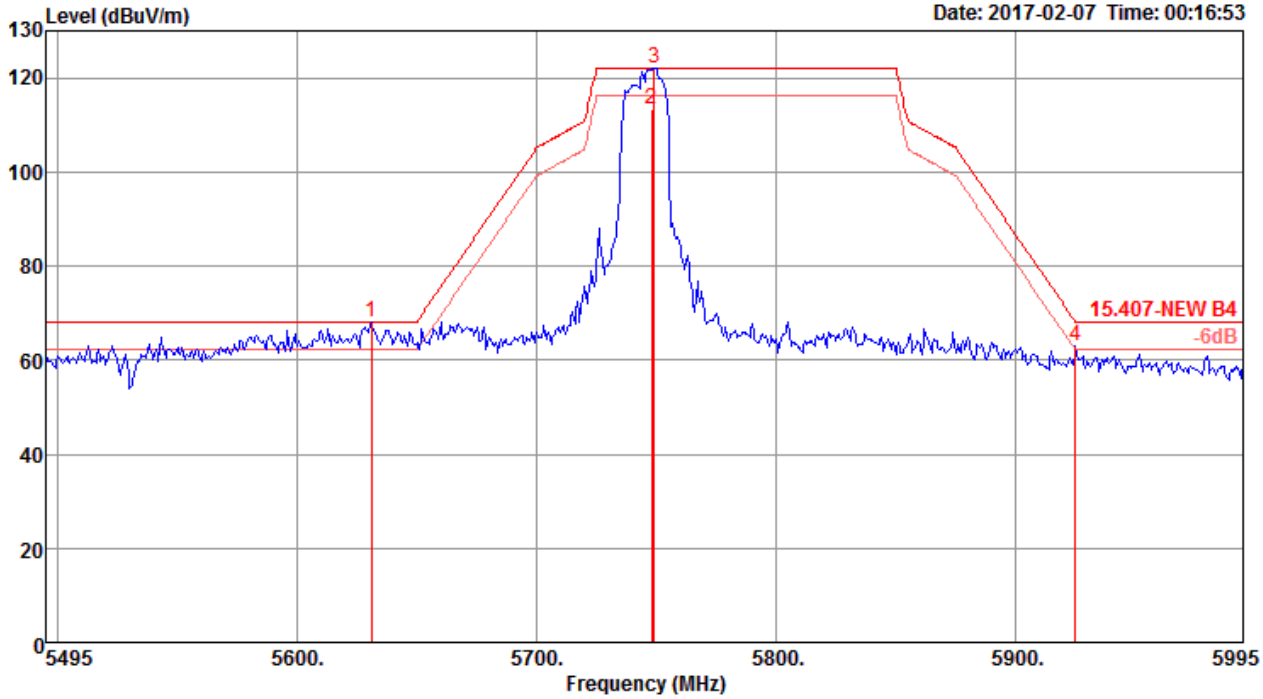


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5123.81	63.33	74.00	-10.67	56.34	6.44	33.49	32.94	192	20	Peak	VERTICAL
2	5150.00	51.33	54.00	-2.67	44.28	6.48	33.51	32.94	192	20	Average	VERTICAL
3 @	5243.21	106.62			99.34	6.55	33.65	32.92	192	20	Average	VERTICAL
4 @	5244.01	116.54			109.26	6.55	33.65	32.92	192	20	Peak	VERTICAL
5	5357.79	61.38	74.00	-12.62	53.90	6.59	33.79	32.90	192	20	Peak	VERTICAL
6	5361.80	49.16	54.00	-4.84	41.66	6.59	33.81	32.90	192	20	Average	VERTICAL

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

Temperature	22°C	Humidity	54%
Test Engineer	Welson Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 149, 157, 165 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4

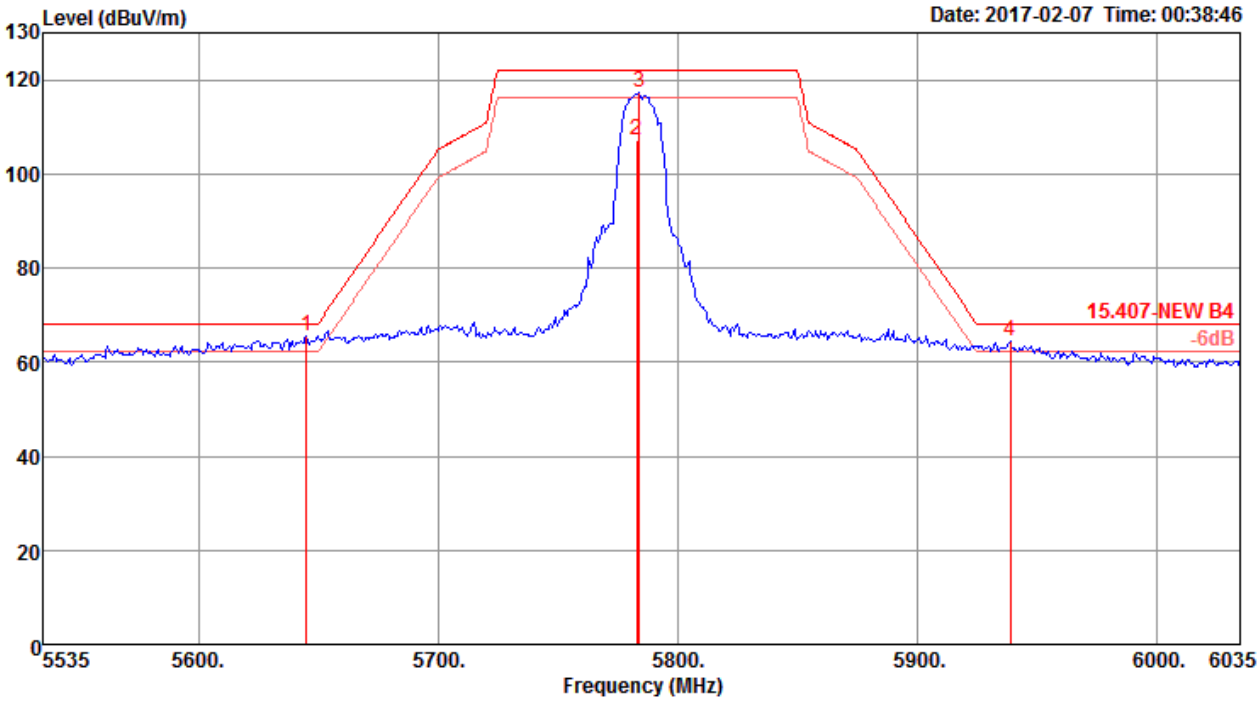
Channel 149



	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	5631.00	68.06	68.20	-0.14	58.27	6.81	34.05	31.07	179	152	Peak	VERTICAL
2	5748.00	113.37			103.56	6.83	34.10	31.12	179	152	Average	VERTICAL
3	5749.00	122.08			112.27	6.83	34.10	31.12	179	152	Peak	VERTICAL
4	5925.00	62.97	68.20	-5.23	52.96	7.03	34.17	31.19	179	152	Peak	VERTICAL

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

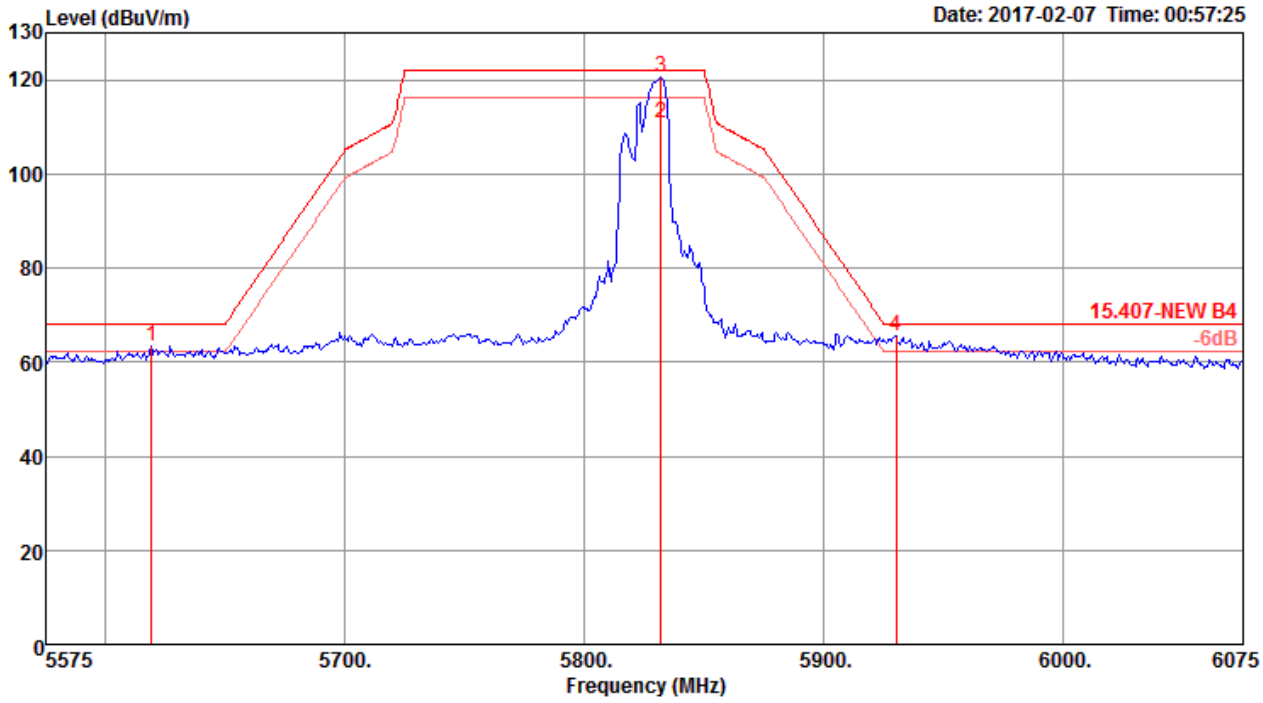
Channel 157



	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	5645.00	65.43	68.20	-2.77	55.64	6.81	34.06	31.08	260	101	Peak	VERTICAL
2	5783.00	107.21			97.39	6.84	34.11	31.13	260	101	Average	VERTICAL
3	5784.00	117.26			107.44	6.84	34.11	31.13	260	101	Peak	VERTICAL
4	5939.00	64.52	68.20	-3.68	54.50	7.03	34.18	31.19	260	101	Peak	VERTICAL

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

Channel 165

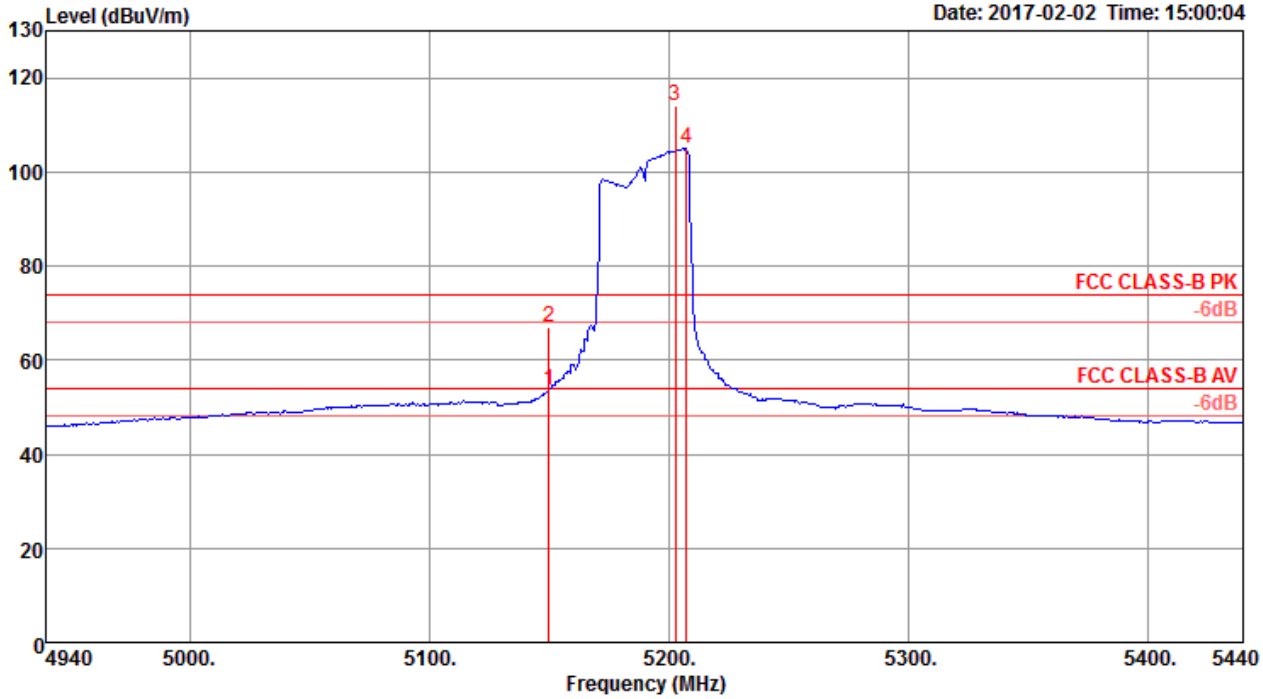


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5619.00	63.34	68.20	-4.86	53.56	6.80	34.05	31.07	156	116	Peak	VERTICAL
2	5832.00	110.64			100.77	6.89	34.13	31.15	156	116	Average	VERTICAL
3	5832.00	120.49			110.62	6.89	34.13	31.15	156	116	Peak	VERTICAL
4	5930.00	65.47	68.20	-2.73	55.46	7.03	34.17	31.19	156	116	Peak	VERTICAL

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

Temperature	22°C	Humidity	54%
Test Engineer	Welson Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 38, 46 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4

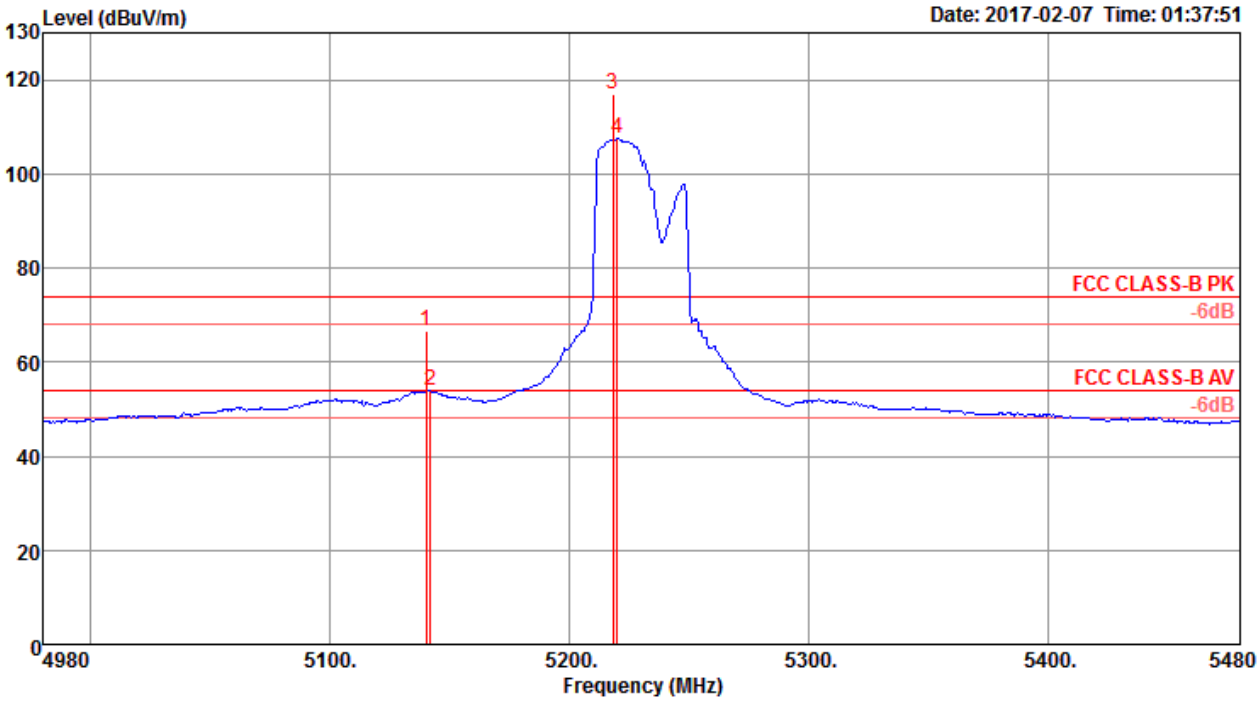
Channel 38



	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	5150.00	53.66	54.00	-0.34	46.61	6.48	33.51	32.94	190	19	Average	VERTICAL
2	5150.00	66.92	74.00	-7.08	59.87	6.48	33.51	32.94	190	19	Peak	VERTICAL
3 @	5202.82	114.12			106.93	6.54	33.58	32.93	190	19	Peak	VERTICAL
4 @	5207.63	104.90			97.69	6.54	33.60	32.93	190	19	Average	VERTICAL

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

Channel 46

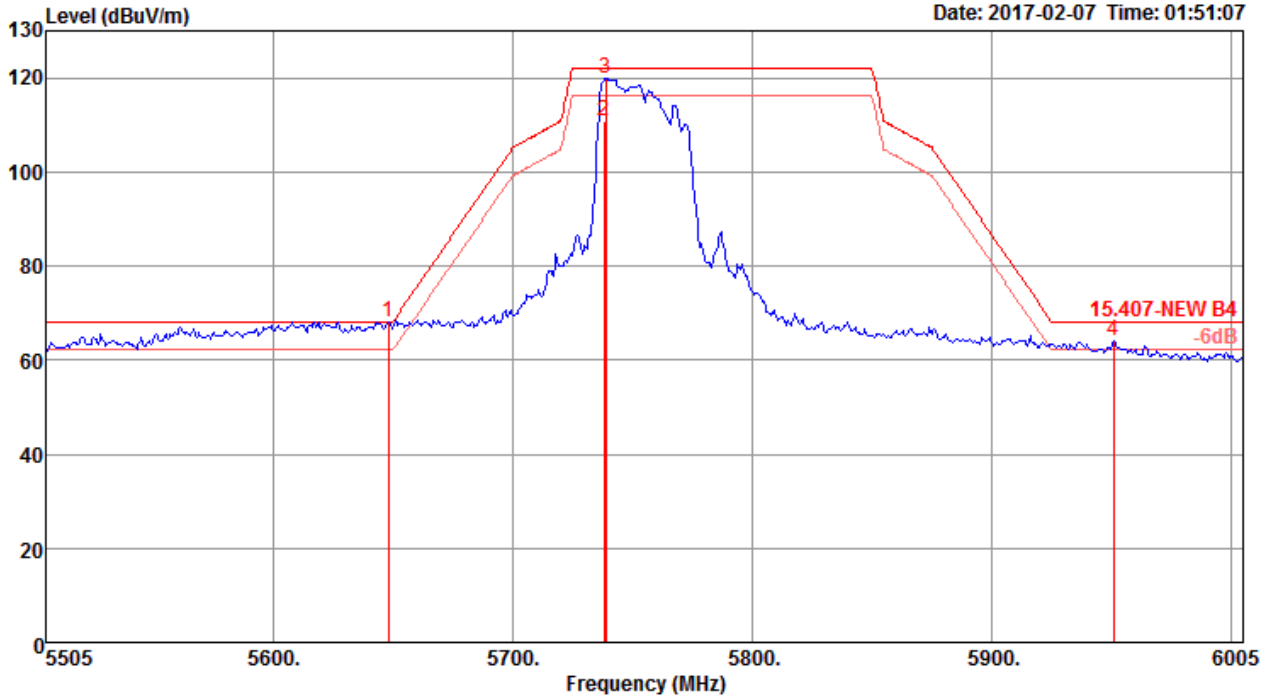


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5140.00	66.53	74.00	-7.47	57.62	6.46	33.51	31.06	106	141	Peak	VERTICAL
2	5142.00	53.79	54.00	-0.21	44.85	6.48	33.51	31.05	106	141	Average	VERTICAL
3 @	5218.00	116.94			107.85	6.54	33.60	31.05	106	141	Peak	VERTICAL
4 @	5220.00	107.50			98.41	6.54	33.60	31.05	106	141	Average	VERTICAL

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

Temperature	22°C	Humidity	54%
Test Engineer	Welson Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 151, 159 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4

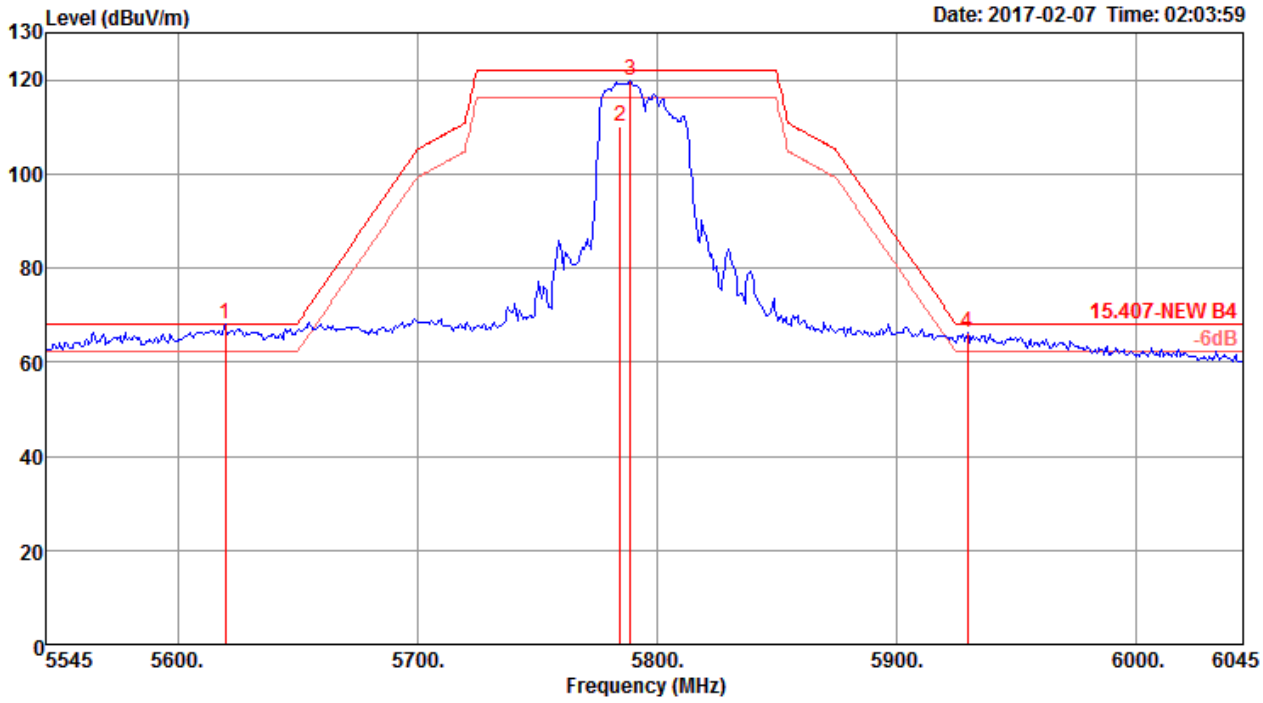
Channel 151



	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	5648.00	68.17	68.20	-0.03	58.38	6.81	34.06	31.08	150	157	Peak	VERTICAL
2	5738.00	110.87			101.05	6.83	34.10	31.11	150	157	Average	VERTICAL
3	5739.00	119.95			110.14	6.83	34.10	31.12	150	157	Peak	VERTICAL
4	5951.00	64.28	68.20	-3.92	54.25	7.05	34.18	31.20	150	157	Peak	VERTICAL

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

Channel 159

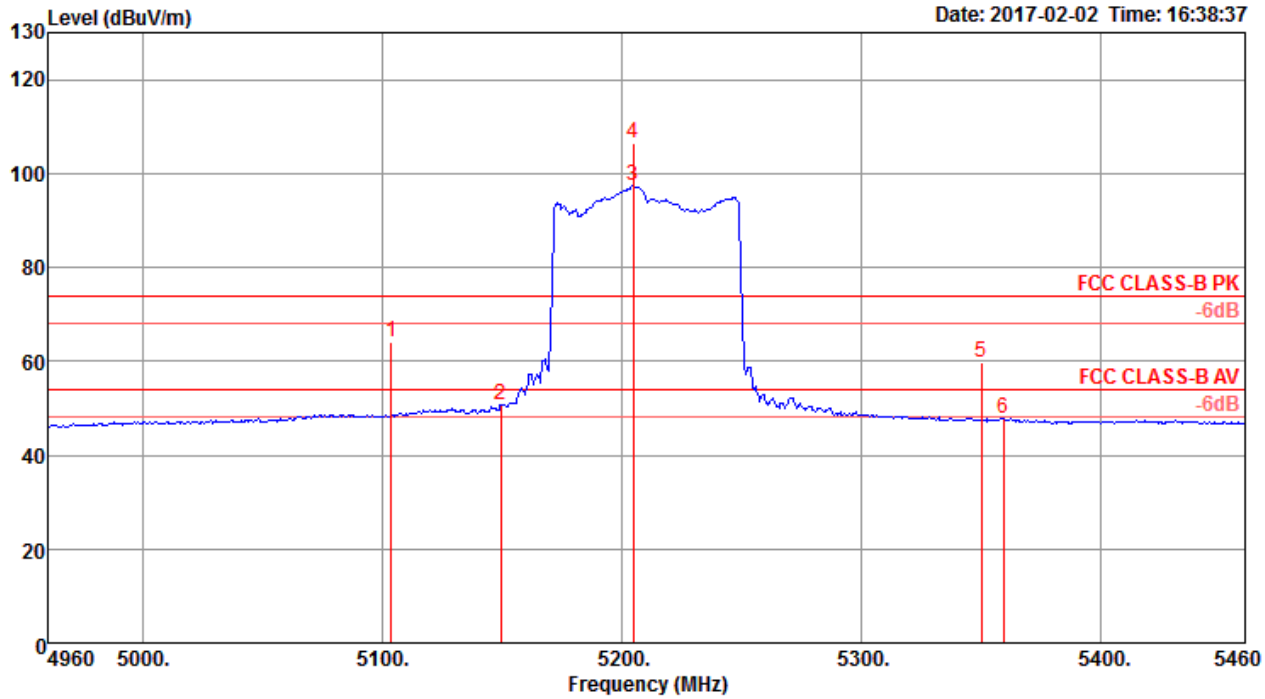


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5620.00	68.07	68.20	-0.13	58.29	6.80	34.05	31.07	191	149	Peak	VERTICAL
2	5785.00	110.24			100.42	6.84	34.11	31.13	191	149	Average	VERTICAL
3	5789.00	119.84			110.02	6.84	34.12	31.14	191	149	Peak	VERTICAL
4	5930.00	66.13	68.20	-2.07	56.12	7.03	34.17	31.19	191	149	Peak	VERTICAL

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

Temperature	22°C	Humidity	54%
Test Engineer	Welson Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 42, 155 / Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4

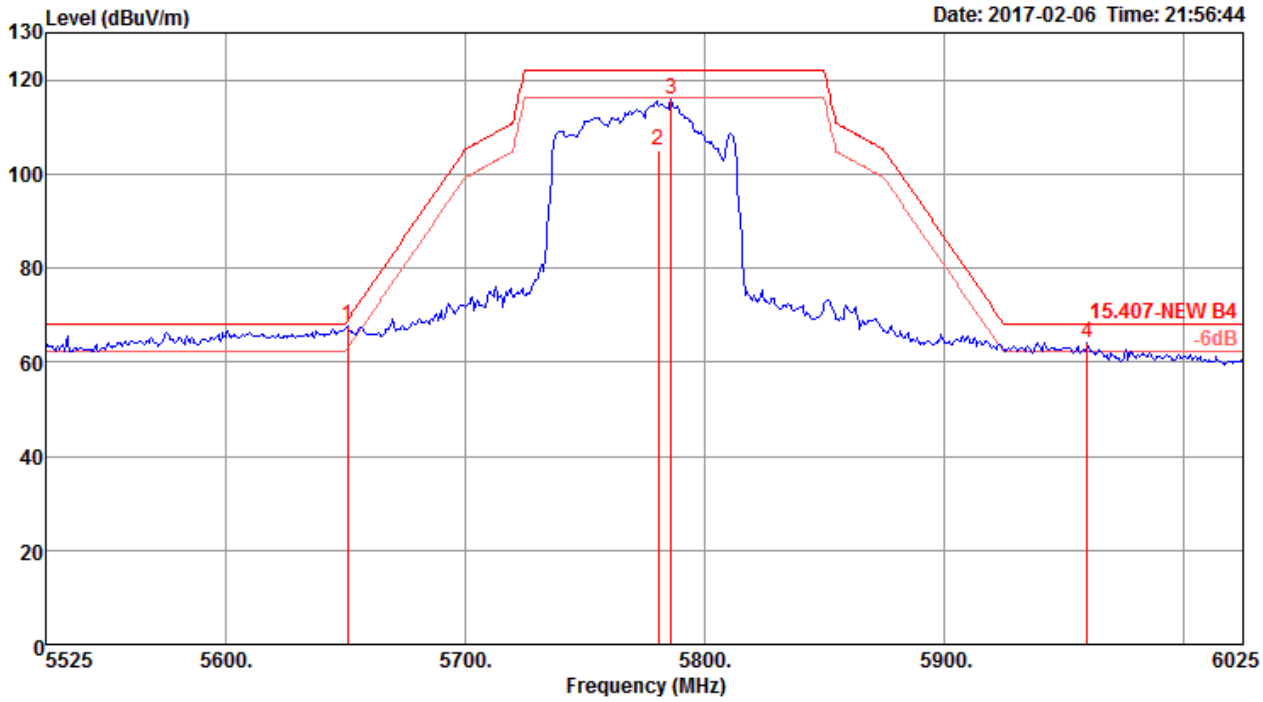
Channel 42



	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	5103.43	64.08	74.00	-9.92	57.17	6.42	33.44	32.95	195	21	Peak	VERTICAL
2	5149.10	50.70	54.00	-3.30	43.65	6.48	33.51	32.94	195	21	Average	VERTICAL
3 @	5204.39	97.29			90.10	6.54	33.58	32.93	195	21	Average	VERTICAL
4 @	5204.39	106.33			99.14	6.54	33.58	32.93	195	21	Peak	VERTICAL
5	5350.00	59.92	74.00	-14.08	52.45	6.58	33.79	32.90	195	21	Peak	VERTICAL
6	5359.04	47.85	54.00	-6.15	40.37	6.59	33.79	32.90	195	21	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	5651.00	67.55	68.94	-1.39	57.76	6.81	34.06	31.08	150	147	Peak	VERTICAL
2	5781.00	104.92			95.10	6.84	34.11	31.13	150	147	Average	VERTICAL
3	5786.00	115.70			105.87	6.84	34.12	31.13	150	147	Peak	VERTICAL
4	5960.00	64.00	68.20	-4.20	53.95	7.07	34.19	31.21	150	147	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

4.7. Frequency Stability Measurement

4.7.1. Limit

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

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

4.7.2. Measuring Instruments and Setting

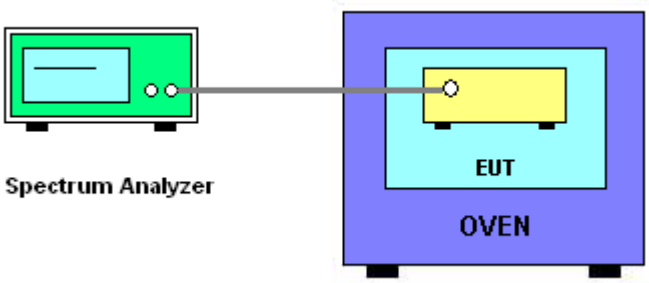
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

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

4.7.3. Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. EUT have transmitted absence of modulation signal and fixed channelize.
3. Set the spectrum analyzer span to view the entire absence of modulation emissions bandwidth.
4. Set RBW = 10 kHz, VBW = 10 kHz with peak detector and maxhold settings.
5. fc is declaring of channel frequency. Then the frequency error formula is (fc-f)/fc × 10^6 ppm and the limit is less than ±20ppm (IEEE 802.11nspecification).
6. 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 0°C~40°C.

4.7.4. Test Setup Layout



4.7.5. Test Deviation

There is no deviation with the original standard.

4.7.6. EUT Operation during Test

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

4.7.7. Test Result of Frequency Stability

Temperature	22℃	Humidity	54%
Test Engineer	Eddie Weng	Test Date	Dec. 23, 2016~Dec. 29, 2016

Mode: 20 MHz / Ant. 2

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5200 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5199.9746	5199.9736	5199.9731	5199.9723
110.00	5199.9739	5199.9734	5199.9732	5199.9726
93.50	5199.9729	5199.9725	5199.9720	5199.9716
Max. Deviation (MHz)	0.0271	0.0275	0.0280	0.0284
Max. Deviation (ppm)	5.21	5.29	5.38	5.46
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5200 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
0	5199.9718	5199.9710	5199.9702	5199.9700
10	5199.9724	5199.9721	5199.9715	5199.9710
20	5199.9739	5199.9738	5199.9729	5199.9728
30	5199.9891	5199.9881	5199.9872	5199.9865
40	5199.9909	5199.9900	5199.9897	5199.9892
Max. Deviation (MHz)	0.0320	0.0324	0.0332	0.0333
Max. Deviation (ppm)	6.15	6.23	6.38	6.40
Result	Complies			

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5785 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5784.9749	5784.9740	5784.9737	5784.9734
110.00	5784.9739	5784.9732	5784.9731	5784.9722
93.50	5784.9735	5784.9725	5784.9718	5784.9716
Max. Deviation (MHz)	0.0265	0.0275	0.0282	0.0284
Max. Deviation (ppm)	4.58	4.75	4.87	4.91
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5785 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
0	5784.9701	5784.9697	5784.9696	5784.9686
10	5784.9719	5784.9709	5784.9704	5784.9697
20	5784.9739	5784.9732	5784.9728	5784.9719
30	5784.9891	5784.9886	5784.9880	5784.9874
40	5784.9897	5784.9891	5784.9885	5784.9881
Max. Deviation (MHz)	0.0324	0.0329	0.0332	0.0341
Max. Deviation (ppm)	5.60	5.69	5.74	5.89
Result	Complies			

Mode: 40 MHz / Ant. 2

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5190 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5189.9747	5189.9741	5189.9737	5189.9732
110.00	5189.9739	5189.9731	5189.9728	5189.9726
93.50	5189.9734	5189.9729	5189.9722	5189.9718
Max. Deviation (MHz)	0.0266	0.0271	0.0278	0.0282
Max. Deviation (ppm)	5.13	5.22	5.36	5.43
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5190 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
0	5189.9715	5189.9711	5189.9709	5189.9704
10	5189.9728	5189.9719	5189.9712	5189.9702
20	5189.9739	5189.9729	5189.9720	5189.9713
30	5189.9891	5189.9890	5189.9885	5189.9876
40	5189.9893	5189.9887	5189.9884	5189.9878
Max. Deviation (MHz)	0.0318	0.0319	0.0321	0.0328
Max. Deviation (ppm)	6.13	6.15	6.18	6.32
Result	Complies			

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5755 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5754.9744	5754.9739	5754.9732	5754.9723
110.00	5754.9739	5754.9730	5754.9722	5754.9714
93.50	5754.9731	5754.9723	5754.9716	5754.9712
Max. Deviation (MHz)	0.0269	0.0277	0.0284	0.0288
Max. Deviation (ppm)	4.67	4.81	4.93	5.00
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5755 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
0	5754.9706	5754.9705	5754.9696	5754.9692
10	5754.9722	5754.9712	5754.9711	5754.9702
20	5754.9739	5754.9733	5754.9730	5754.9720
30	5754.9891	5754.9888	5754.9882	5754.9876
40	5754.9897	5754.9894	5754.9889	5754.9888
Max. Deviation (MHz)	0.0323	0.0331	0.0339	0.0342
Max. Deviation (ppm)	5.61	5.75	5.89	5.94
Result	Complies			

Mode: 80 MHz / Ant. 2

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5210 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5209.9744	5209.9740	5209.9731	5209.9730
110.00	5209.9739	5209.9733	5209.9727	5209.9722
93.50	5209.9737	5209.9735	5209.9733	5209.9728
Max. Deviation (MHz)	0.0263	0.0267	0.0273	0.0278
Max. Deviation (ppm)	5.05	5.12	5.24	5.34
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5210 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
0	5209.9703	5209.9697	5209.9694	5209.9685
10	5209.9719	5209.9712	5209.9706	5209.9699
20	5209.9739	5209.9737	5209.9734	5209.9729
30	5209.9891	5209.9886	5209.9879	5209.9870
40	5209.9901	5209.9892	5209.9888	5209.9881
Max. Deviation (MHz)	0.0328	0.0337	0.0347	0.0357
Max. Deviation (ppm)	6.30	6.47	6.66	6.85
Result	Complies			

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5775 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5774.9742	5774.9735	5774.9729	5774.9720
110.00	5774.9739	5774.9738	5774.9731	5774.9722
93.50	5774.9729	5774.9720	5774.9719	5774.9715
Max. Deviation (MHz)	0.0271	0.0280	0.0281	0.0285
Max. Deviation (ppm)	4.69	4.85	4.87	4.94
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5775 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
0	5774.9709	5774.9703	5774.9702	5774.9692
10	5774.9725	5774.9716	5774.9707	5774.9706
20	5774.9739	5774.9734	5774.9728	5774.9723
30	5774.9891	5774.9888	5774.9883	5774.9881
40	5774.9905	5774.9901	5774.9897	5774.9891
Max. Deviation (MHz)	0.0317	0.0320	0.0327	0.0334
Max. Deviation (ppm)	5.49	5.54	5.66	5.78
Result	Complies			

4.8. Antenna Requirements

4.8.1. Limit

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

4.8.2. Antenna Connector Construction

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

5. LIST OF MEASURING EQUIPMENTS

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
BILOG ANTENNA with 6dB Attenator	TESEQ & EMCI	CBL6112D & N-6-06	37880 & AT-N0609	20MHz ~ 2GHz	Aug. 30, 2016	Radiation (03CH01-CB)
Horn Antenna	EMCO	3115	00075790	750MHz ~ 18GHz	Nov. 10, 2016	Radiation (03CH01-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Jul. 25, 2016	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8447D	2944A10991	0.1MHz ~ 1.3GHz	Mar. 15, 2016	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02097	1GHz ~ 26.5GHz	Feb. 24, 2016	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Jan. 16, 2017	Radiation (03CH01-CB)
Pre-Amplifier	MITEQ	TTA1840-35-HG	1864479	18GHz ~ 40GHz	Jun. 28, 2016	Radiation (03CH01-CB)
Spectrum Analyzer	R&S	FSP40	100056	9kHz ~ 40GHz	Nov. 21, 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	Oct. 24, 2016	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	Oct. 24, 2016	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	101027	9kHz~40GHz	Jul. 26, 2016	Conducted (TH01-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)
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.

6. MEASUREMENT UNCERTAINTY

Test Items	Uncertainty	Remark
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%