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FCC RADIO TEST REPORT

Applicant's company	**Amped Wireless**
Applicant Address	13089 Peyton Dr. #C307 Chino Hills, CA 91709 USA
FCC ID	**ZTT-ALLY00X19**
Manufacturer's company	**Amped Wireless**
Manufacturer Address	13089 Peyton Dr. #C307 Chino Hills, CA 91709 USA

Product Name	Whole Home Smart Wi-Fi Range Extender
Brand Name	amped wireless
Model No.	ALLY-00X19, ALLY-00X19K, ALLY-00X21K
Test Rule Part(s)	47 CFR FCC Part 15 Subpart E § 15.407
Test Freq. Range	5150 ~ 5250 MHz / 5725 ~ 5850 MHz
Received Date	Aug. 17, 2016
Final Test Date	Sep. 30, 2016
Submission Type	Original Equipment

Statement

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

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

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

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

Testing Laboratory
1190

Table of Contents

History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR681934AB	Rev. 01	Initial issue of report	Oct. 19, 2016

1. VERIFICATION OF COMPLIANCE

Product Name	:	Whole Home Smart Wi-Fi Range Extender
Brand Name	:	amped wireless
Model No.	:	ALLY-00X19, ALLY-00X19K, ALLY-00X21K
Applicant	:	Amped Wireless
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 Aug. 17, 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.

Sam Chen

SPORTON INTERNATIONAL INC.

2. SUMMARY OF THE TEST RESULT

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

3. GENERAL INFORMATION

3.1. Product Details

Items	Description
Product Type	WLAN (3TX, 3RX)
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 function: Band 1: IEEE 802.11a: 18.15 MHz IEEE 802.11ac MCS0/Nss1 (VHT20): 17.71 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 36.32 MHz IEEE 802.11ac MCS0/Nss1 (VHT80): 75.54 MHz Band 4: IEEE 802.11a: 17.37 MHz IEEE 802.11ac MCS0/Nss1 (VHT20): 17.80 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 51.66 MHz IEEE 802.11ac MCS0/Nss1 (VHT80): 75.54 MHz For beamforming function: Band 1: IEEE 802.11ac MCS0/Nss1 (VHT20): 17.54 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 36.47 MHz IEEE 802.11ac MCS0/Nss1 (VHT80): 75.54 MHz Band 4: IEEE 802.11ac MCS0/Nss1 (VHT20): 17.54 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 36.47 MHz IEEE 802.11ac MCS0/Nss1 (VHT80): 75.54 MHz

Maximum Conducted Output Power	For non-beamforming function: Band 1: IEEE 802.11a: 25.58 dBm IEEE 802.11ac MCS0/Nss1 (VHT20): 24.54 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 22.90 dBm IEEE 802.11ac MCS0/Nss1 (VHT80): 22.11 dBm Band 4: IEEE 802.11a: 27.46 dBm IEEE 802.11ac MCS0/Nss1 (VHT20): 28.10 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 29.95 dBm IEEE 802.11ac MCS0/Nss1 (VHT80): 22.32 dBm For beamforming function: Band 1: IEEE 802.11ac MCS0/Nss1 (VHT20): 27.72 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 27.30 dBm IEEE 802.11ac MCS0/Nss1 (VHT80): 22.27 dBm Band 4: IEEE 802.11ac MCS0/Nss1 (VHT20): 27.01 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 27.01 dBm IEEE 802.11ac MCS0/Nss1 (VHT80): 26.97 dBm
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

Items	Description	
Communication Mode	☒ IP Based (Load Based)	☐ Frame Based
Beamforming Function	☒ With beamforming	☐ Without beamforming
Operate Condition	☒ Indoor	☐ Outdoor

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

Antenna and Bandwidth

Antenna	Three (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)	3	MCS 0-23
802.11n (HT40)	3	MCS 0-23
802.11ac (VHT20)	3	MCS 0-9/Nss1-3
802.11ac (VHT40)	3	MCS 0-9/Nss1-3
802.11ac (VHT80)	3	MCS 0-9/Nss1-3

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

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

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

3.2. Accessories

Power	Brand	Model	Rating
Adapter	APD	WA-24Q12FU	INPUT: 100-240V, 50-60Hz, 0.7A Max. OUTPUT: 12V, 2A
Others			
RJ-45 cable*1, Non-shielded, 2.1m			

3.3. Table for Filed Antenna

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)		
					2.4G	5G B1	5G B4
1	Airgain	N2420DG	Embedded Antenna	U.FL	2.71	3.05	4.2
2	Airgain	N2425DR	Embedded Antenna	U.FL	2.71	3.05	4.2
3	Airgain	M2445JM	Embedded Antenna	U.FL	2.71	3.05	4.2
4	Airgain	N2420DG	Embedded Antenna	U.FL	2.71	3.05	4.2

Note: The EUT has four antennas.

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

Ant. 1, Ant. 2, Ant. 3 and Ant. 4 will transmit/receive the same signal simultaneously.

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

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

Ant. 1, Ant. 2 and Ant. 4 will transmit/receive the same signal simultaneously.

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

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. Investigation has been done on all the possible configurations for searching the worst cases. The following table is a list of the test modes shown in this test report.

Test Items	Mode		Data Rate	Channel	Ant.
AC Power Conducted Emission	Normal Link		-	-	-
Max. Conducted Output Power	For non-beamforming function				
	11a/BPSK	Band 1&4	6Mbps	36/40/48/149/157/165	1+2+4
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	1+2+4
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1+2+4
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1+2+4
	For beamforming function				
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	1+2+4
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1+2+4
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1+2+4
Power Spectral Density	For non-beamforming function				
	11a/BPSK	Band 1&4	6Mbps	36/40/48/149/157/165	1+2+4
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	1+2+4
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1+2+4
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1+2+4
	For beamforming function				
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	1+2+4
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1+2+4
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1+2+4

26dB Spectrum Bandwidth & 99% Occupied Bandwidth Measurement	For non-beamforming function				
	11a/BPSK	Band 1&4	6Mbps	36/40/48/149/157/165	1+2+4
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	1+2+4
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1+2+4
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1+2+4
	For beamforming function				
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	1+2+4
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1+2+4
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1+2+4
6dB Spectrum Bandwidth Measurement	For non-beamforming function				
	11a/BPSK	Band 4	6Mbps	149/157/165	1+2+4
	11ac VHT20	Band 4	MCS0/Nss1	149/157/165	1+2+4
	11ac VHT40	Band 4	MCS0/Nss1	151/159	1+2+4
	11ac VHT80	Band 4	MCS0/Nss1	155	1+2+4
	For beamforming function				
	11ac VHT20	Band 4	MCS0/Nss1	149/157/165	1+2+4
	11ac VHT40	Band 4	MCS0/Nss1	151/159	1+2+4
	11ac VHT80	Band 4	MCS0/Nss1	155	1+2+4
Radiated Emission Below 1GHz	Normal Link		-	-	-
Radiated Emission Above 1GHz	For non-beamforming function				
	11a/BPSK	Band 1&4	6Mbps	36/40/48/149/157/165	1+2+4
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	1+2+4
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1+2+4
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1+2+4
	For beamforming function				
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	1+2+4
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1+2+4
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1+2+4

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

Note: 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: There are two modes of EUT, one is beamforming mode, and the other is non-beamforming mode, Beamforming mode and non-beamforming mode has been test and record in this test report.

The following test modes were performed for all tests:

For Conducted Emission test:

Mode 1. Normal Link

For Radiated Emission below 1GHz test:

Mode 1. EUT in Z axis

Mode 2. EUT in Y axis

Mode 2 is the worst case, so it was selected to record in this test report.

For Radiated Emission above 1GHz test:

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

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

Mode 1. EUT in Z axis - 2.4G + 5G

Mode 2. EUT in Y axis - 2.4G + 5G

Mode 2 is the worst case, so it was selected to record in this test report.

The EUT could be applied with 2.4GHz WLAN function and 5GHz WLAN function; therefore Co-location Maximum Permissible Exposure (Please refer to FA681934) and Radiated Emission Co-location (please refer to Appendix B) tests are added for simultaneously transmit between 2.4GHz WLAN function and 5GHz WLAN function.

3.6. Table for Testing Locations

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

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

3.7. Table for Multiple Listing

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

Brand Name	Model Name	Description
amped wireless	ALLY-00X19	All the models are identical, the difference model for difference brand served as marketing strategy.
	ALLY-00X19K	
	ALLY-00X21K	

From the above models, model: ALLY-00X19 was selected as representative model for the test and its data was recorded in this report.

3.8. Table for Supporting Units

For Test Site No: CO01-CB

Support Unit	Brand	Model	FCC ID
NB*3	DELL	E6430	DoC

For Test Site No: TH01-CB

Support Unit	Brand	Model	FCC ID
NB	DELL	E4300	DoC

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

Support Unit	Brand	Model	FCC ID
NB	DELL	E4300	DoC
NB*2	Apple	Mac Book	DoC

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

For non-beamforming function

Support Unit	Brand	Model	FCC ID
NB	DELL	E4300	DoC

For beamforming function

Support Unit	Brand	Model	FCC ID
NB*2	DELL	E4300	DoC
RX Device	amped wireless	ALLY- 00X19K	ZTT-ALLY00X19

3.9. Table for Parameters of Test Software Setting

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

For non-beamforming mode

Test Software Version	MT7615 QA 0.0.1.71					
Mode	Test Frequency (MHz)					
	NCB: 20MHz					
	5180 MHz	5200 MHz	5240 MHz	5745 MHz	5785 MHz	5825 MHz
802.11a	13	14	16	12	17	14
802.11ac MCS0/Nss1 VHT20	11	11	12	18	1A	16
Mode	NCB: 40MHz					
802.11ac MCS0/Nss1 VHT40	5190 MHz		5230 MHz		5755 MHz	5795 MHz
	0A		0C		23	23
Mode	NCB: 80MHz					
802.11ac MCS0/Nss1 VHT80	5210 MHz				5775 MHz	
	11				15	

For beamforming mode

Test Software Version	MT7615 QA 0.0.1.71					
Mode	Test Frequency (MHz)					
	NCB: 20MHz					
	5180 MHz	5200 MHz	5240 MHz	5745 MHz	5785 MHz	5825 MHz
802.11ac MCS0/Nss1 VHT20	23	30	28	26	26	26
Mode	NCB: 40MHz					
802.11ac MCS0/Nss1 VHT40	5190 MHz		5230 MHz		5755 MHz	5795 MHz
	18		29		27	27
Mode	NCB: 80MHz					
802.11ac MCS0/Nss1 VHT80	5210 MHz				5775 MHz	
	20				29	

3.10. EUT Operation during Test

For non-beamforming mode:

The EUT was programmed to be in continuously transmitting mode.

For beamforming mode:

For Conducted Mode:

The EUT was programmed to be in continuously transmitting mode.

For Radiated Mode:

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

The program was executed as follows:

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

3.11. Duty Cycle

For non-beamforming mode:

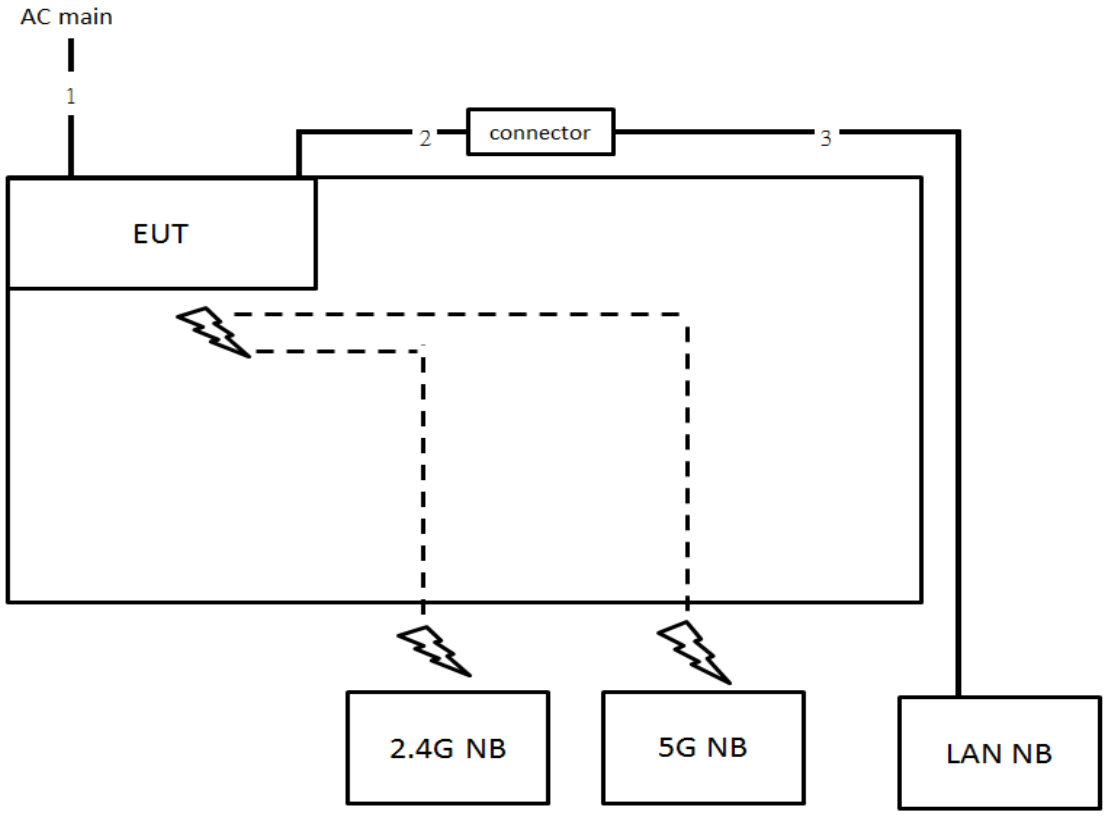
Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11a	1.396	1.734	80.51	0.94	0.72
802.11ac MCS0/Nss1 VHT20	0.475	0.794	59.82	2.23	2.11
802.11ac MCS0/Nss1 VHT40	0.261	0.572	45.63	3.41	3.83
802.11ac MCS0/Nss1 VHT80	0.324	0.638	50.78	2.94	3.09

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	1.000	1.000	100	0.00	0.01
802.11ac MCS0/Nss1 VHT40	1.000	1.000	100	0.00	0.01
802.11ac MCS0/Nss1 VHT80	1.000	1.000	100	0.00	0.01

3.12. Test Configurations

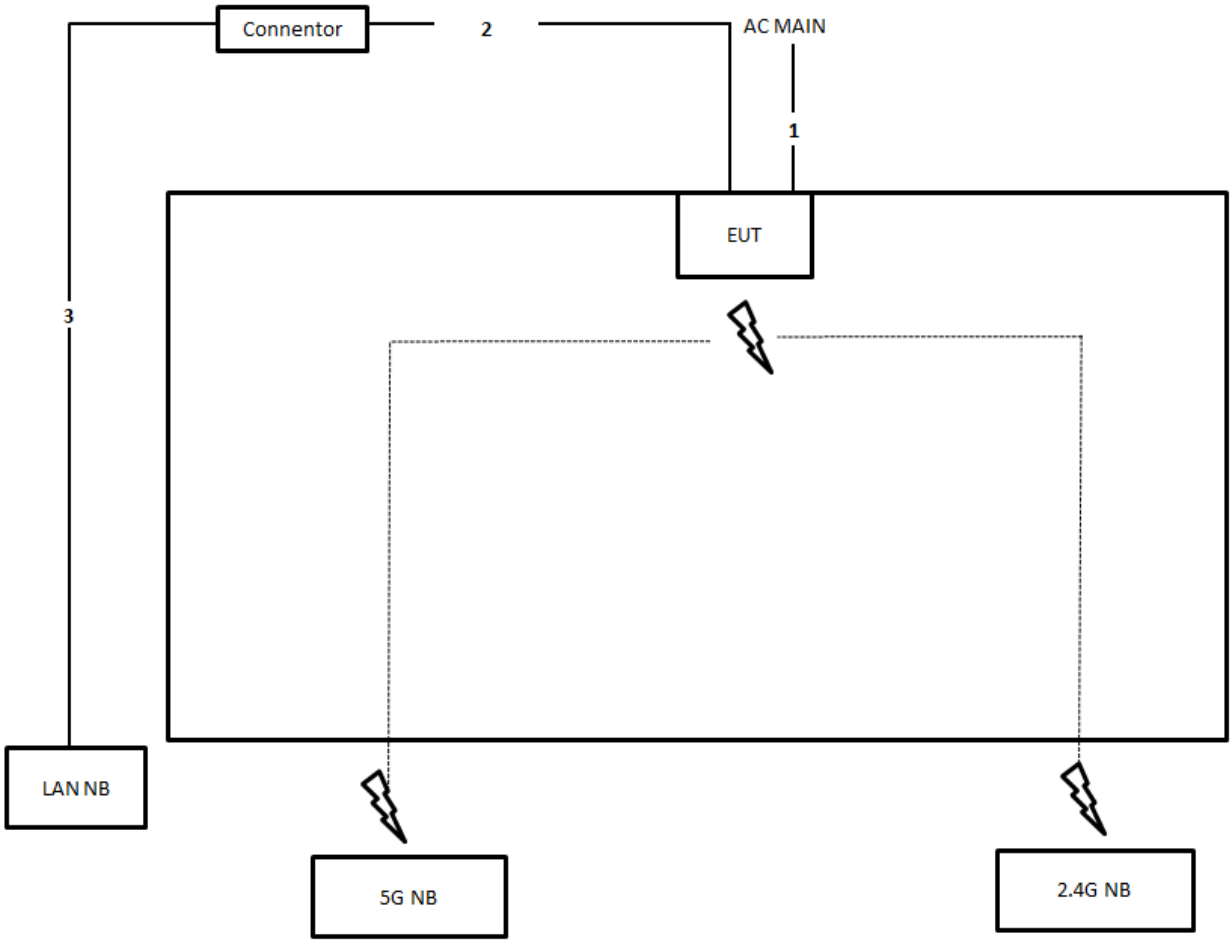
3.12.1. AC Power Line Conduction Emissions Test Configuration



Item	Connection	Shielded	Length
1	Power cable	No	1.5m
2	RJ-45 cable	No	2.1m
3	RJ-45 cable	No	10m

3.12.2. Radiation Emissions Test Configuration

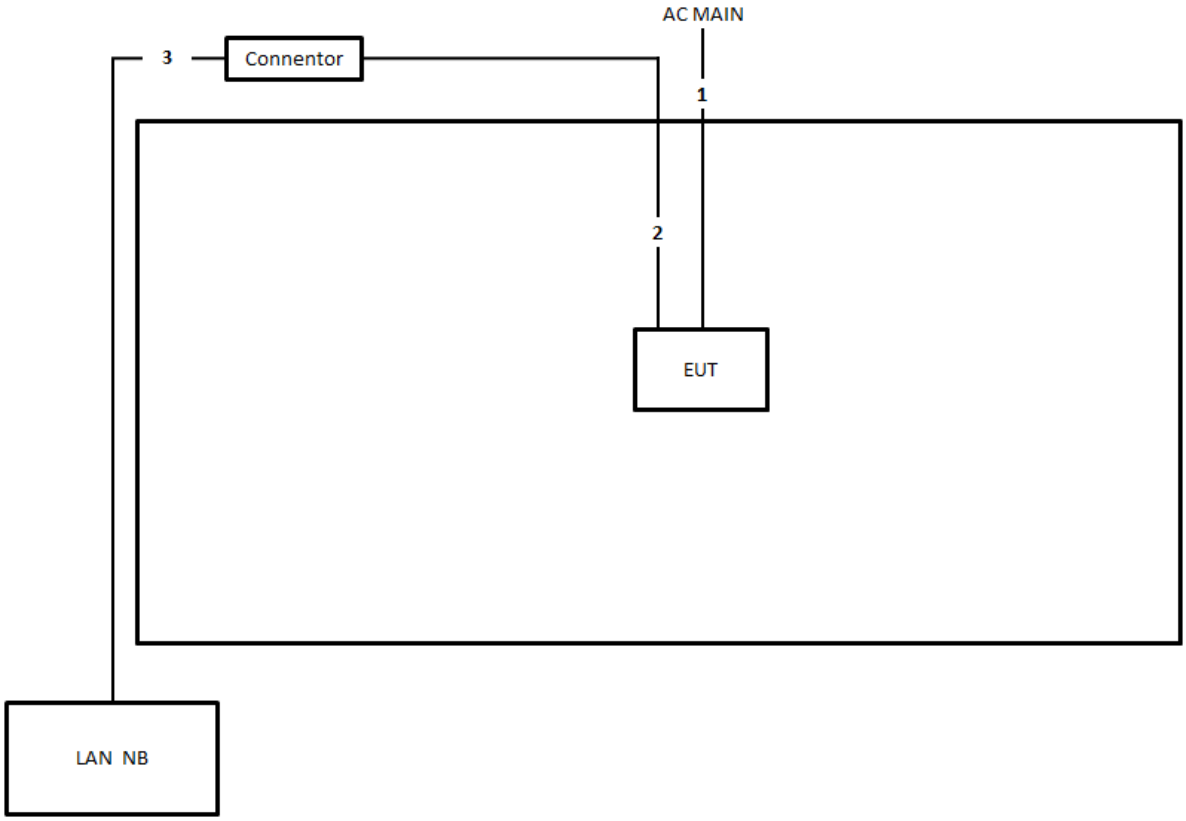
Test Configuration: 30MHz ~1GHz



Item	Connection	Shielded	Length
1	Power cable	No	1.5m
2	RJ-45 cable	No	2.1m
3	RJ-45 cable	No	10m

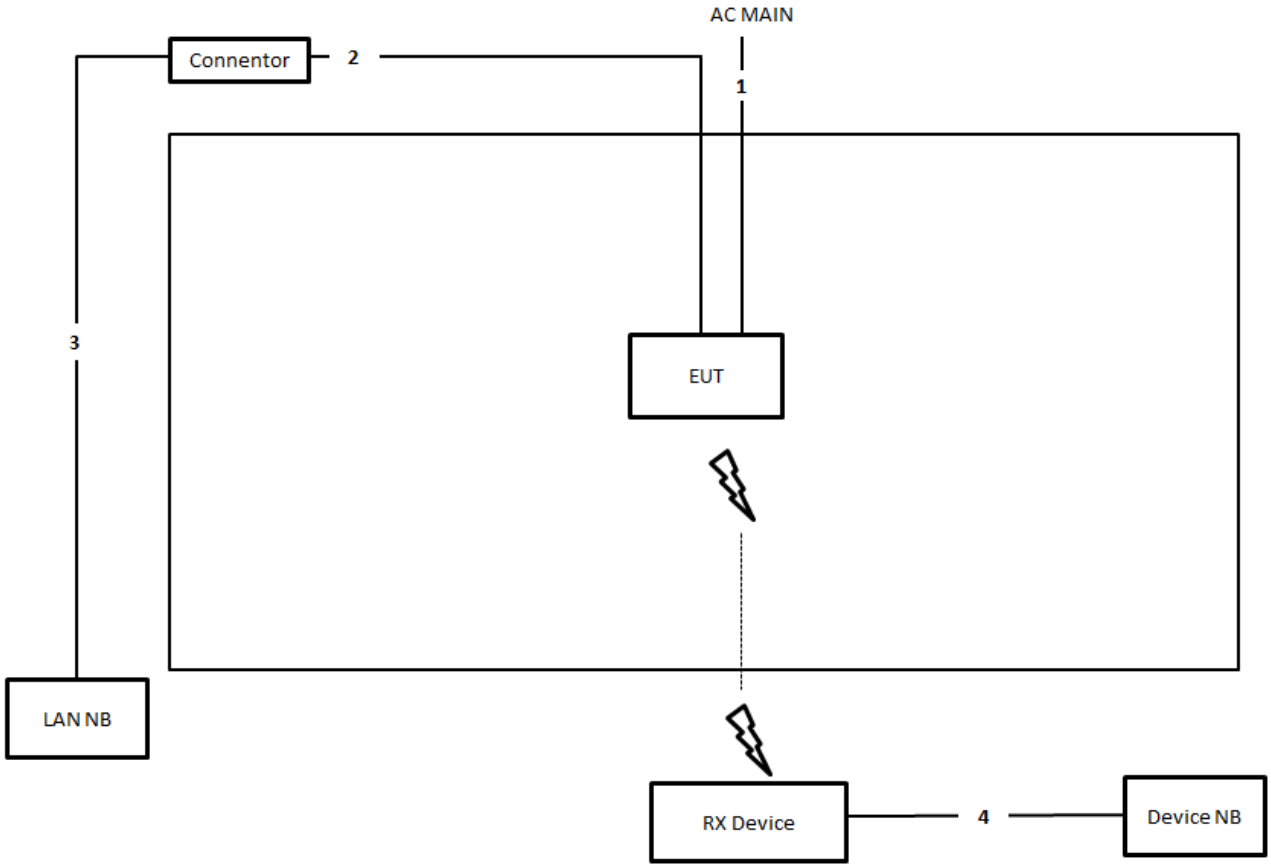
Test Configuration: above 1GHz

For non-beamforming mode



Item	Connection	Shielded	Length
1	Power cable	No	1.5m
2	RJ-45 cable	No	2.1m
3	RJ-45 cable	No	10m

For beamforming mode



Item	Connection	Shielded	Length
1	Power cable	No	1.5m
2	RJ-45 cable	No	2.1m
3	RJ-45 cable	No	10m
4	RJ-45 cable	No	10m

4. TEST RESULT

4.1. AC Power Line Conducted Emissions Measurement

4.1.1. Limit

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

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

4.1.2. Measuring Instruments and Setting

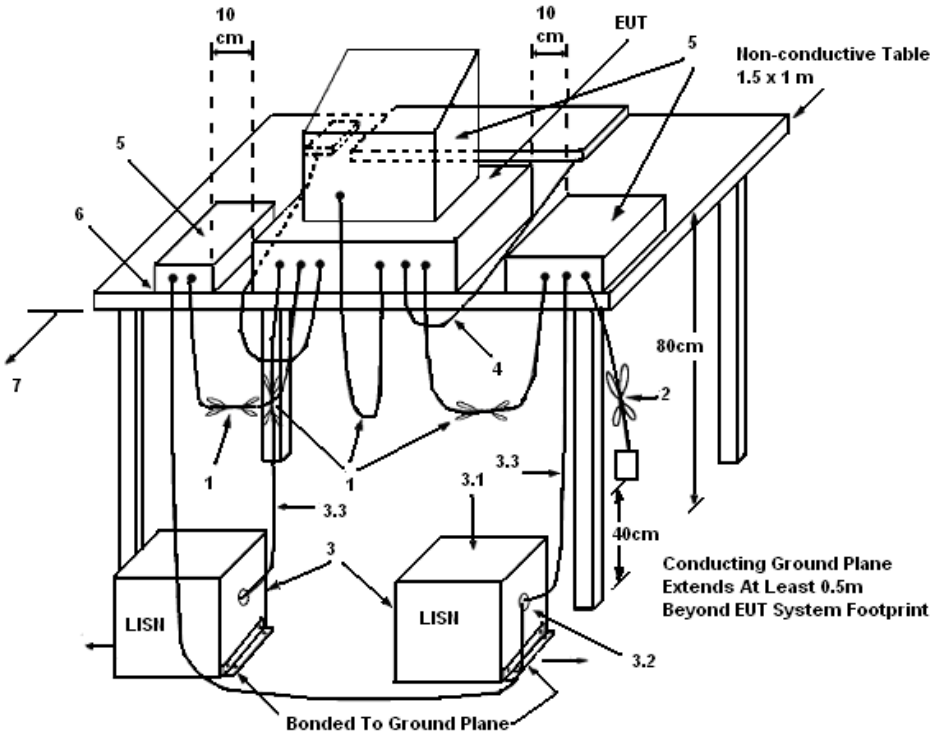
Please refer to section 5 of equipments list in this report. The following table is the setting of the receiver.

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

4.1.3. Test Procedures

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

4.1.4. Test Setup Layout



LEGEND:

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

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

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

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

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

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

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

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

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

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

4.1.5. Test Deviation

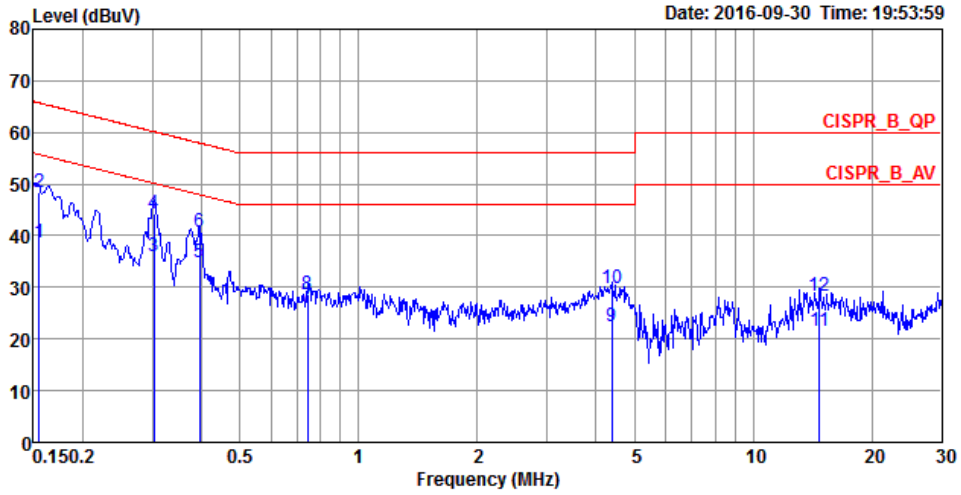
There is no deviation with the original standard.

4.1.6. EUT Operation during Test

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

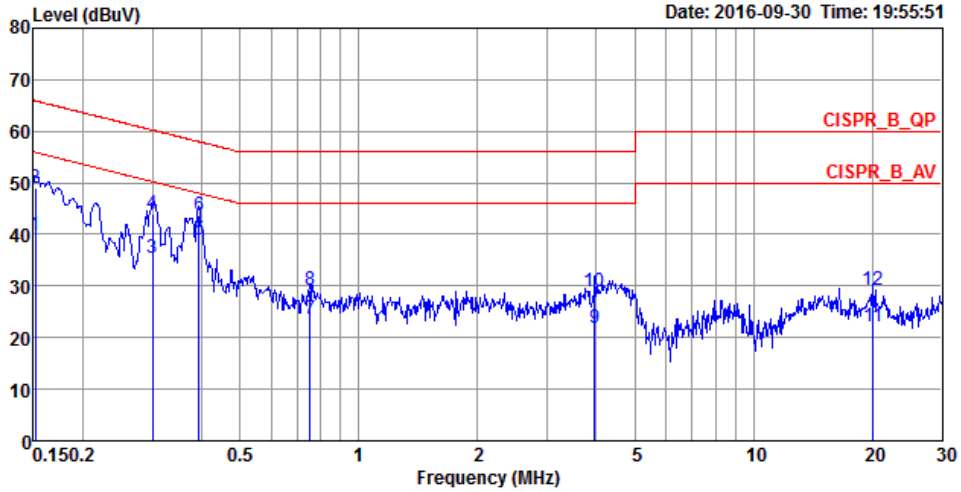
4.1.7. Results of AC Power Line Conducted Emissions Measurement

Temperature	24℃	Humidity	57%
Test Engineer	GN Hou	Phase	Line
Configuration	Normal Link		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.1548	38.77	-16.97	55.74	28.59	10.02	0.16	LINE	Average
2	0.1548	48.29	-17.45	65.74	38.11	10.02	0.16	LINE	QP
3	0.3035	35.89	-14.26	50.15	25.89	9.92	0.08	LINE	Average
4	0.3035	44.37	-15.78	60.15	34.37	9.92	0.08	LINE	QP
5	0.3955	34.95	-13.00	47.95	25.02	9.92	0.01	LINE	Average
6	0.3955	40.67	-17.28	57.95	30.74	9.92	0.01	LINE	QP
7	0.7430	26.26	-19.74	46.00	15.83	9.93	0.50	LINE	Average
8	0.7430	28.75	-27.25	56.00	18.32	9.93	0.50	LINE	QP
9	4.3838	22.35	-23.65	46.00	12.25	10.00	0.10	LINE	Average
10	4.3838	29.68	-26.32	56.00	19.58	10.00	0.10	LINE	QP
11	14.7497	21.61	-28.39	50.00	11.16	10.23	0.22	LINE	Average
12	14.7497	28.36	-31.64	60.00	17.91	10.23	0.22	LINE	QP

Temperature	24℃	Humidity	57%
Test Engineer	GN Hou	Phase	Neutral
Configuration	Normal Link		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.1516	39.76	-16.15	55.91	29.58	10.02	0.16	NEUTRAL	Average
2	0.1516	48.94	-16.97	65.91	38.76	10.02	0.16	NEUTRAL	QP
3	0.3003	35.48	-14.76	50.24	25.47	9.92	0.09	NEUTRAL	Average
4	0.3003	43.87	-16.37	60.24	33.86	9.92	0.09	NEUTRAL	QP
5	0.3934	38.91	-9.08	47.99	28.98	9.92	0.01	NEUTRAL	Average
6	0.3934	43.69	-14.30	57.99	33.76	9.92	0.01	NEUTRAL	QP
7	0.7509	23.59	-22.41	46.00	13.15	9.93	0.51	NEUTRAL	Average
8	0.7509	29.36	-26.64	56.00	18.92	9.93	0.51	NEUTRAL	QP
9	3.9639	21.90	-24.10	46.00	11.82	9.99	0.09	NEUTRAL	Average
10	3.9639	29.00	-27.00	56.00	18.92	9.99	0.09	NEUTRAL	QP
11	20.0559	22.28	-27.72	50.00	11.73	10.31	0.24	NEUTRAL	Average
12	20.0559	29.24	-30.76	60.00	18.69	10.31	0.24	NEUTRAL	QP

Note:

Level = Read Level + LISN Factor + Cable Loss.

4.2. 26dB Bandwidth and 99% Occupied Bandwidth Measurement

4.2.1. Limit

No restriction limits.

4.2.2. Measuring Instruments and Setting

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

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

4.2.3. Test Procedures

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

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

4.2.4. Test Setup Layout

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

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

4.2.5. Test Deviation

There is no deviation with the original standard.

4.2.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

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

Temperature	25°C	Humidity	54%
Test Engineer	Paul Chen		

For non-beamforming mode

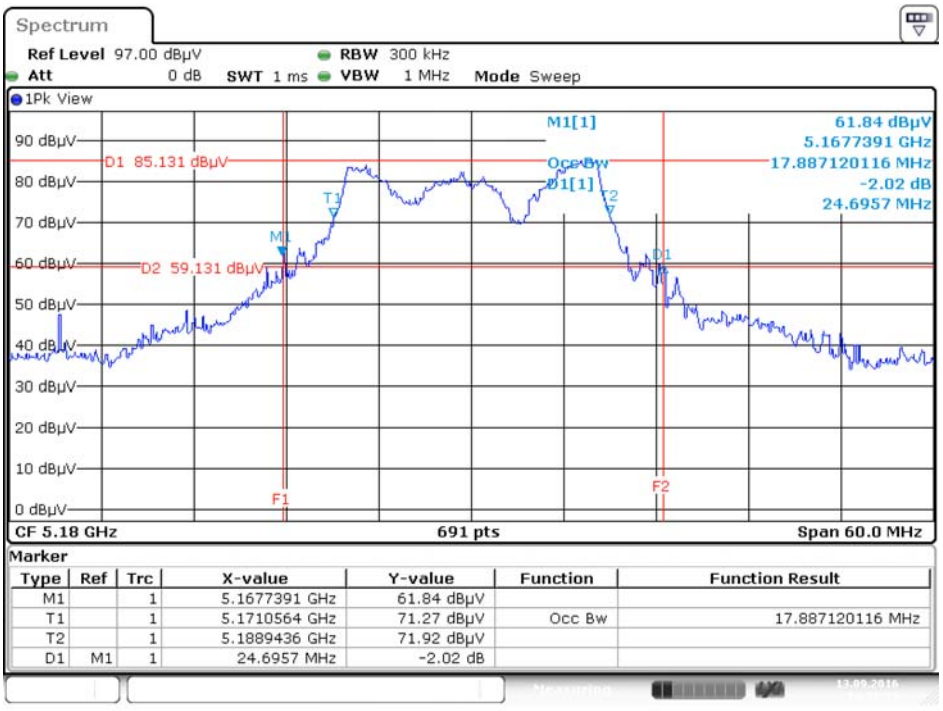
Mode	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11a	5180 MHz	24.70	17.89
	5200 MHz	24.35	17.54
	5240 MHz	25.91	18.15
	5745 MHz	24.26	17.37
	5785 MHz	21.39	17.37
	5825 MHz	21.22	17.37
802.11ac MCS0/Nss1 VHT20	5180 MHz	20.17	17.63
	5200 MHz	20.17	17.71
	5240 MHz	20.26	17.63
	5745 MHz	20.09	17.80
	5785 MHz	20.17	17.80
	5825 MHz	19.91	17.63
802.11ac MCS0/Nss1 VHT40	5190 MHz	41.01	36.32
	5230 MHz	40.87	36.32
	5755 MHz	78.99	50.36
	5795 MHz	80.29	51.66
802.11ac MCS0/Nss1 VHT80	5210 MHz	80.29	75.54
	5775 MHz	80.00	75.54

For beamforming mode

Mode	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11ac MCS0/Nss1 VHT20	5180 MHz	19.91	17.54
	5200 MHz	19.83	17.54
	5240 MHz	20.00	17.54
	5745 MHz	20.09	17.54
	5785 MHz	20.09	17.54
	5825 MHz	20.09	17.54
802.11ac MCS0/Nss1 VHT40	5190 MHz	40.58	36.32
	5230 MHz	41.01	36.47
	5755 MHz	41.45	36.47
	5795 MHz	41.01	36.47
802.11ac MCS0/Nss1 VHT80	5210 MHz	79.42	75.54
	5775 MHz	80.00	75.54

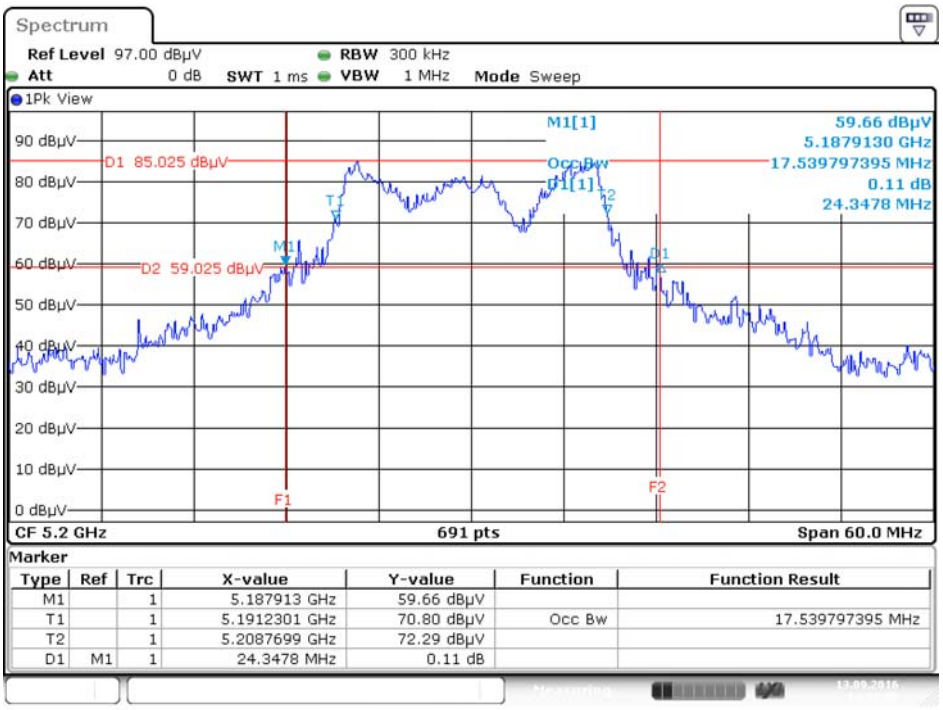
For non-beamforming mode

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



Date: 13.SEP.2016 14:57:14

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



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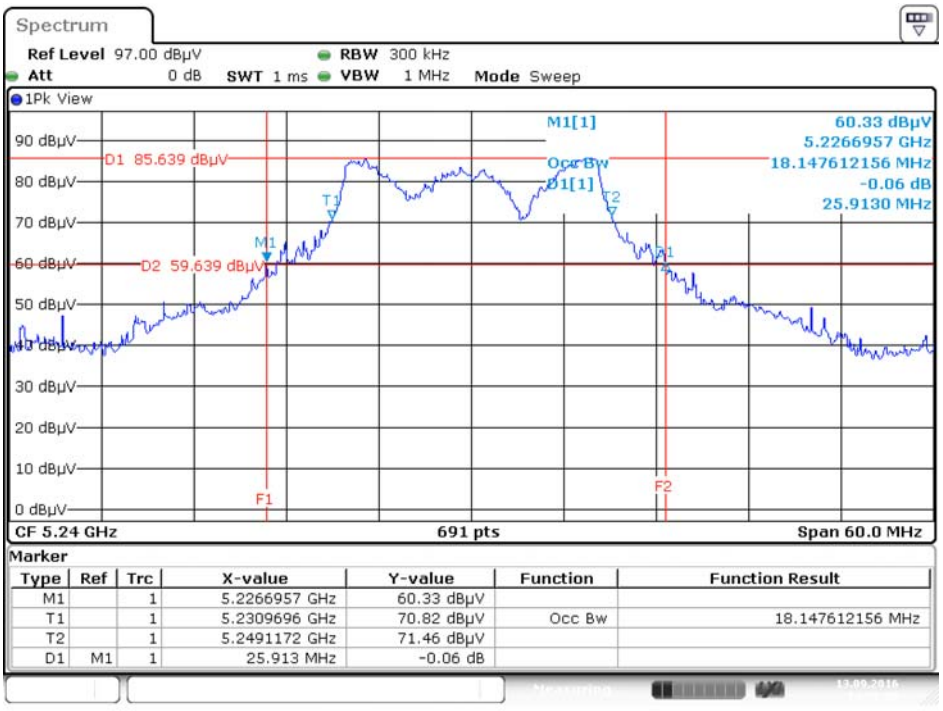
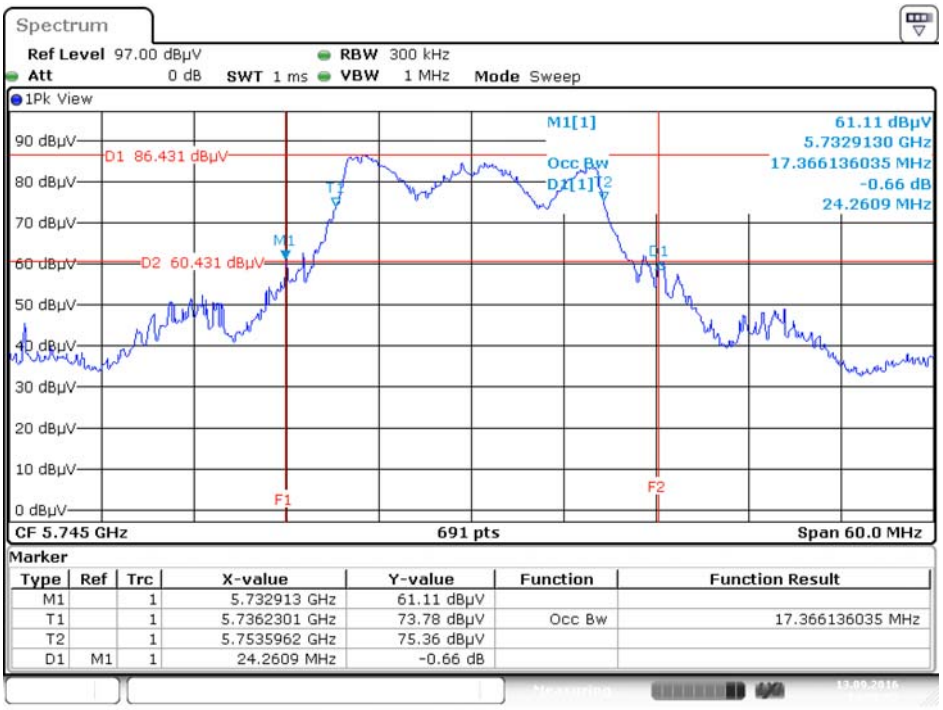
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 + Ant. 4 / 5240 MHz



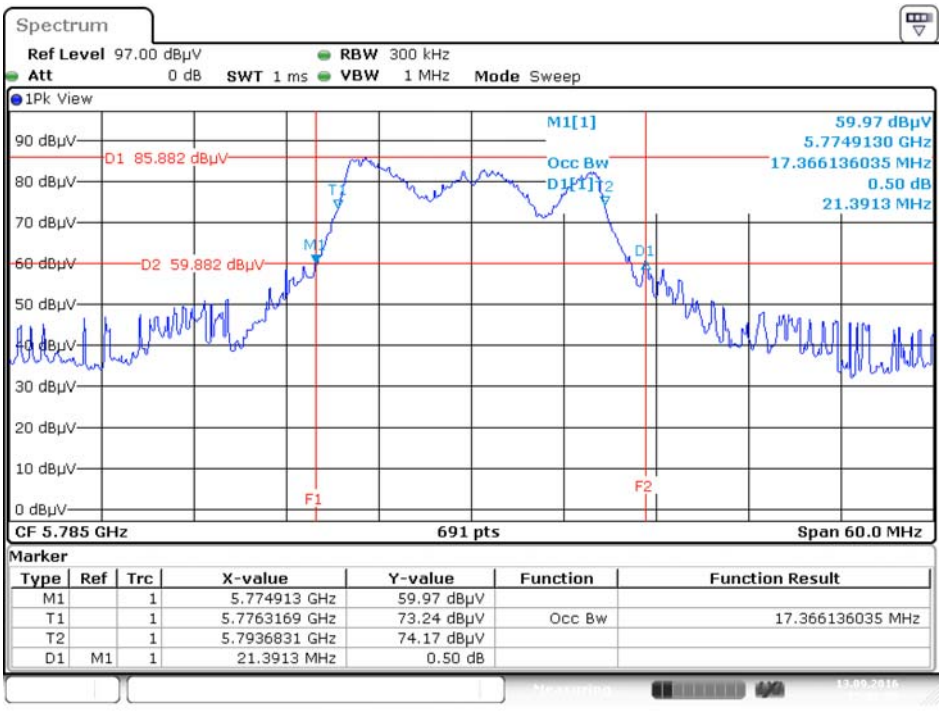
Date: 13.SEP.2016 14:58:21

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



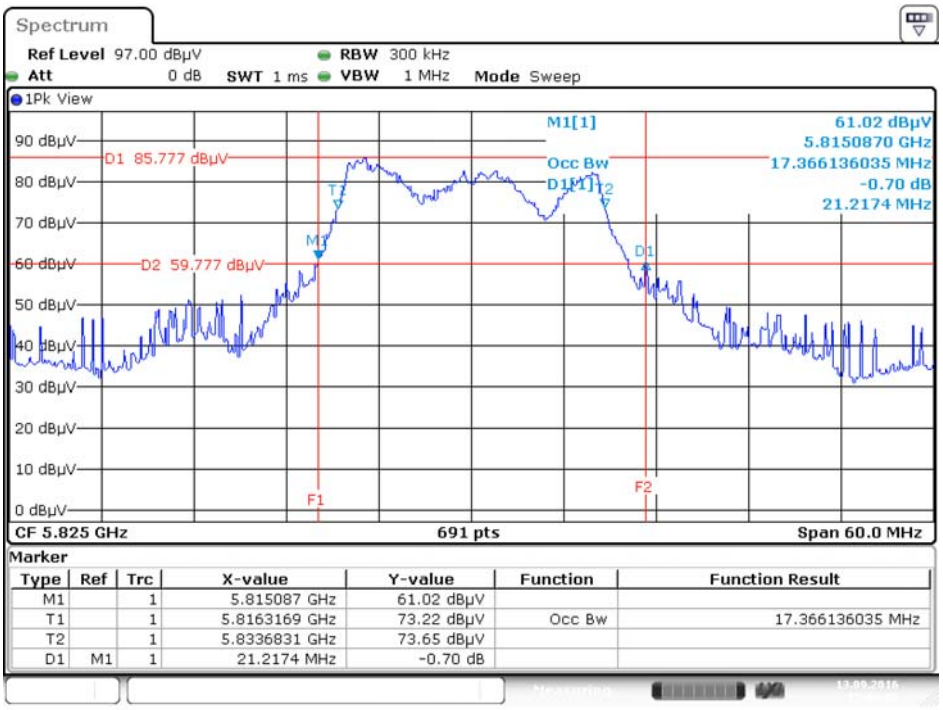
Date: 13.SEP.2016 14:58:52

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



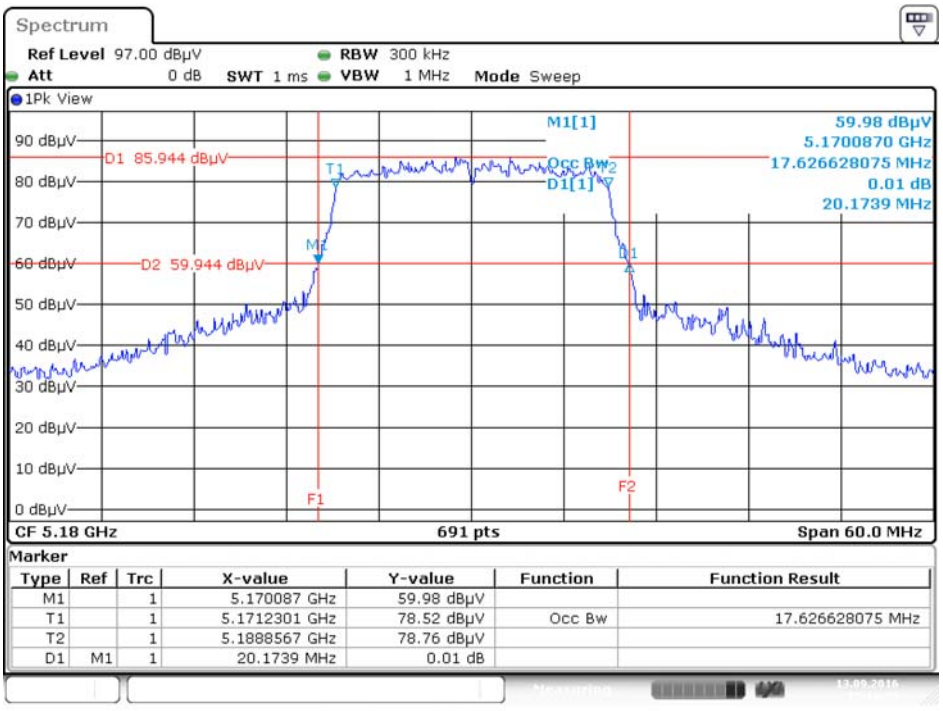
Date: 13.SEP.2016 15:08:59

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



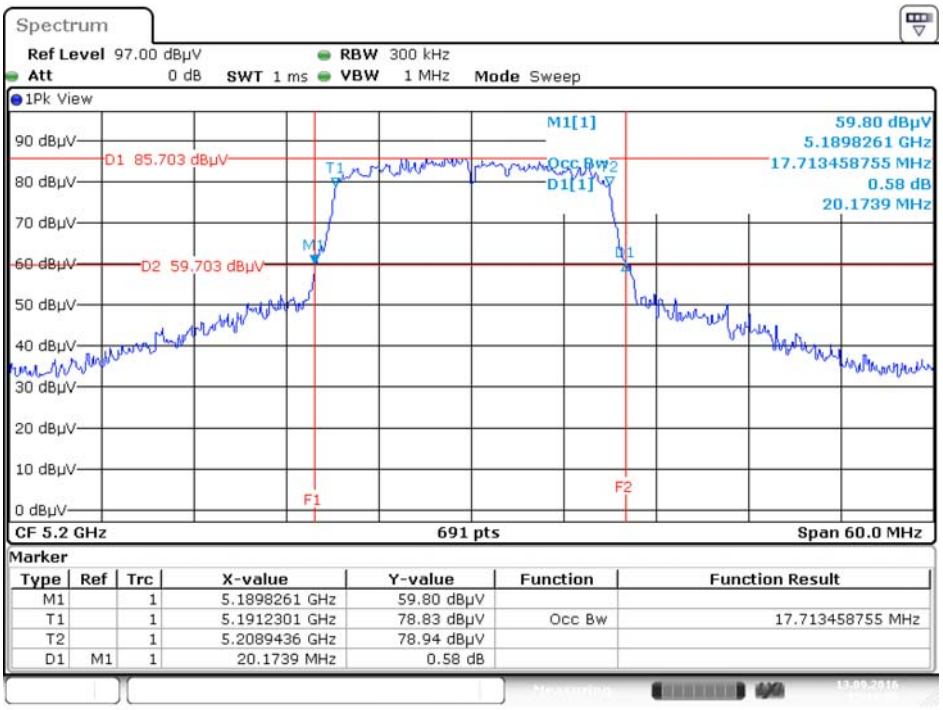
Date: 13.SEP.2016 15:09:36

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



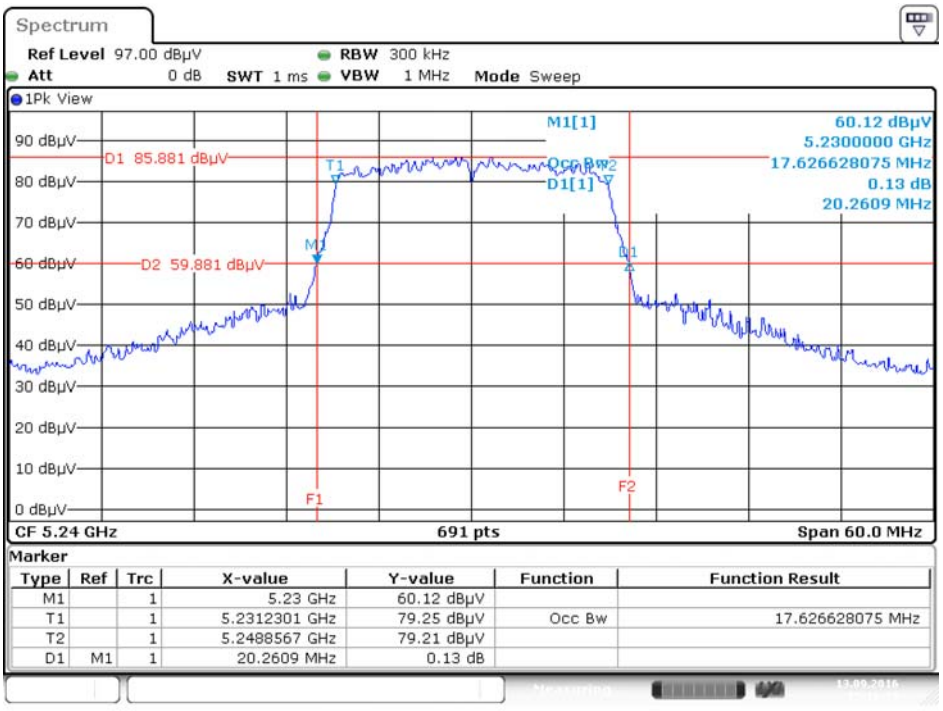
Date: 13.SEP.2016 15:14:53

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



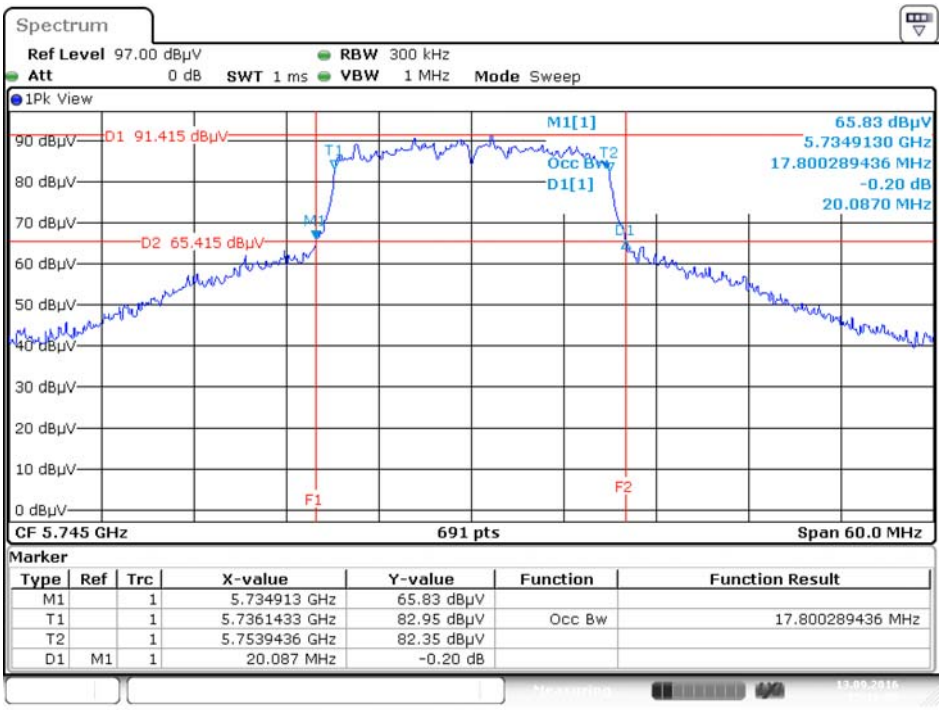
Date: 13.SEP.2016 15:15:56

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



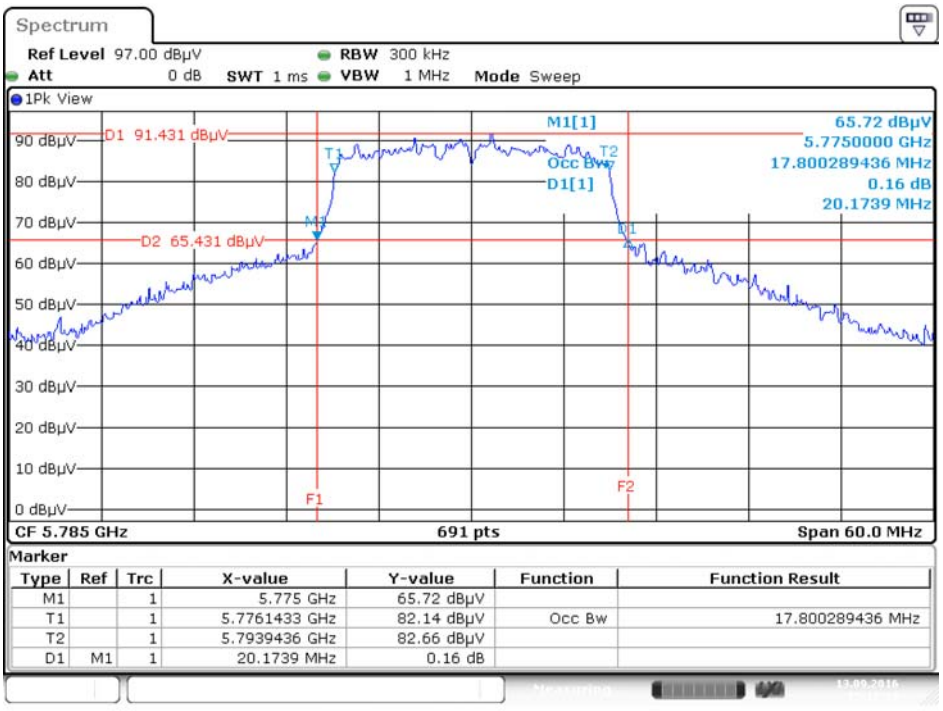
Date: 13.SEP.2016 15:16:34

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



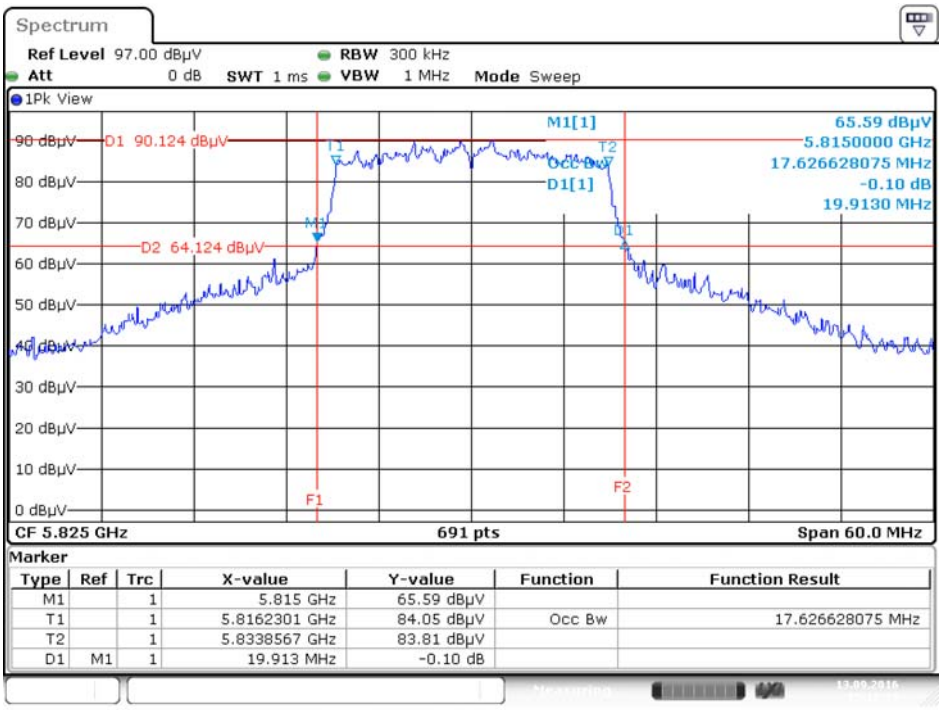
Date: 13.SEP.2016 15:16:59

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



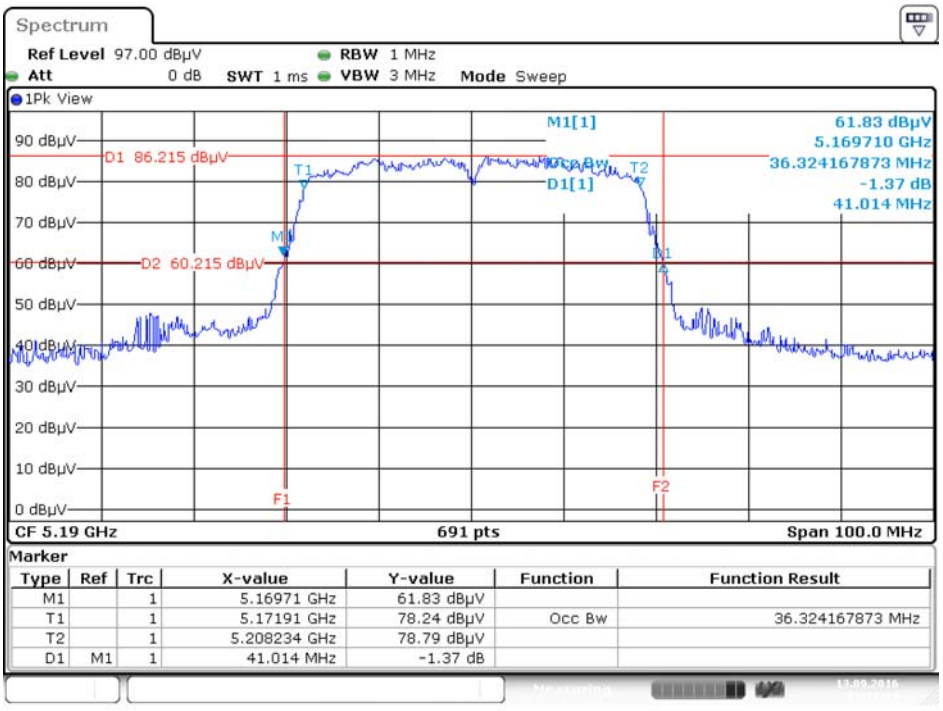
Date: 13.SEP.2016 15:17:19

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



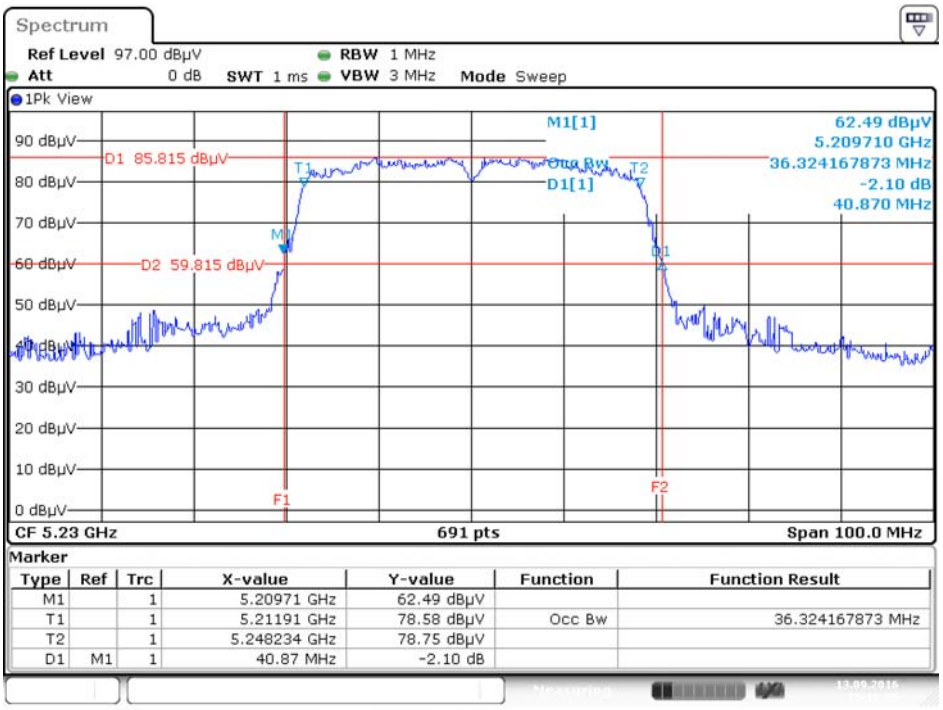
Date: 13.SEP.2016 15:17:39

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



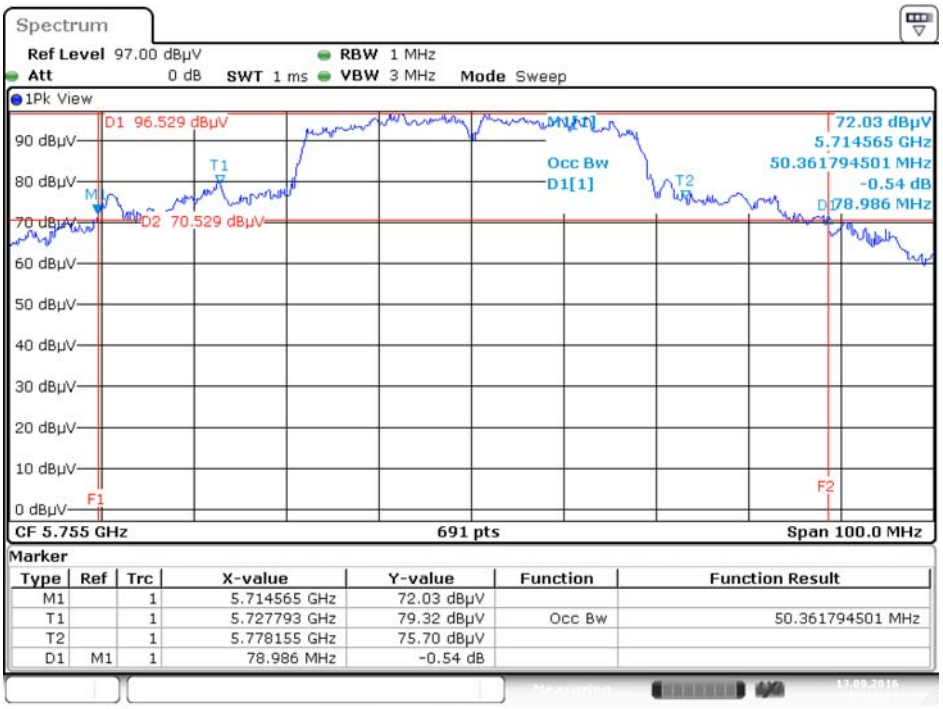
Date: 13.SEP.2016 15:18:19

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



Date: 13.SEP.2016 15:18:54

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



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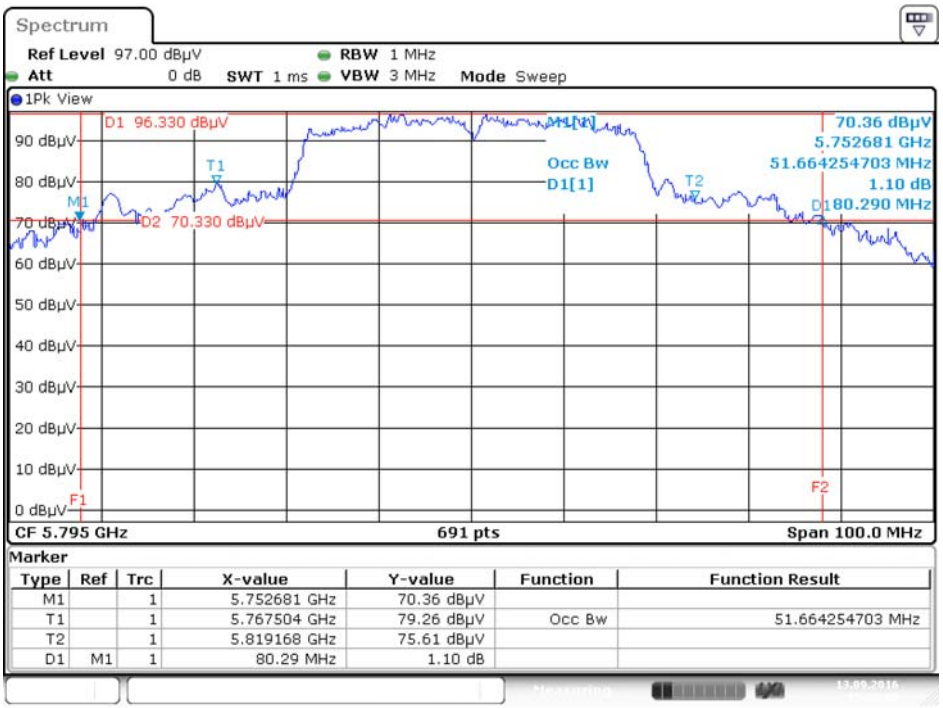
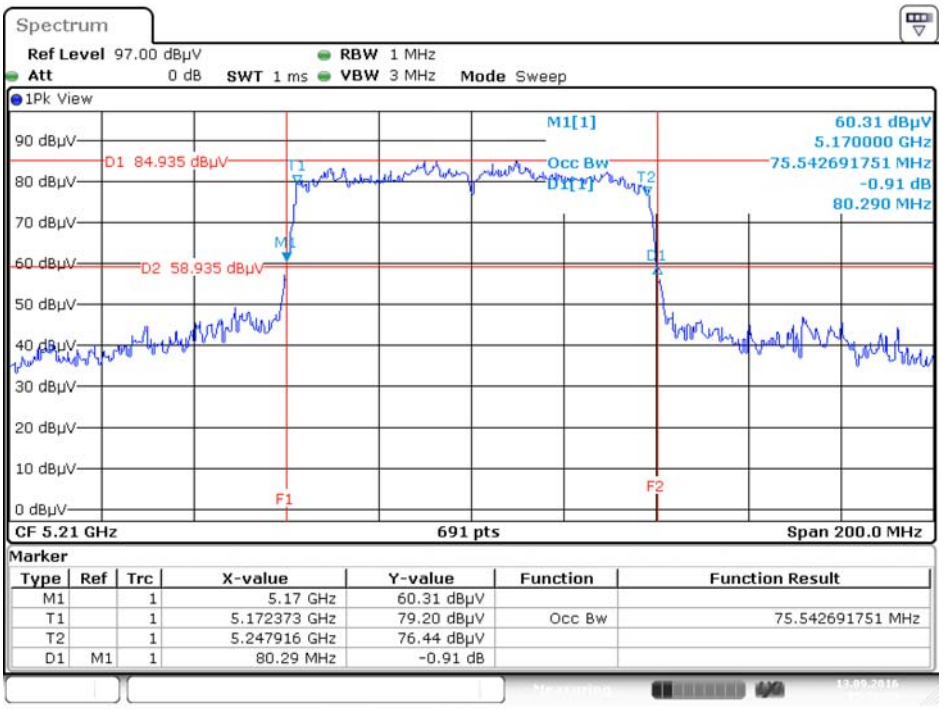
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 1 + Ant. 2 + Ant. 4 / 5795 MHz



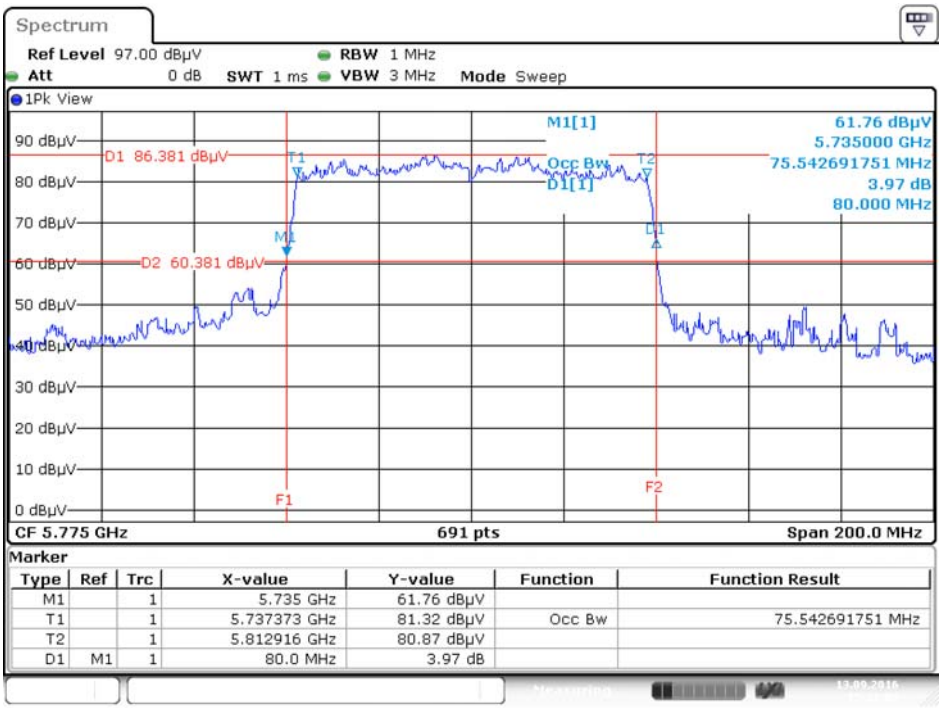
Date: 13.SEP.2016 15:20:01

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



Date: 13.SEP.2016 15:21:23

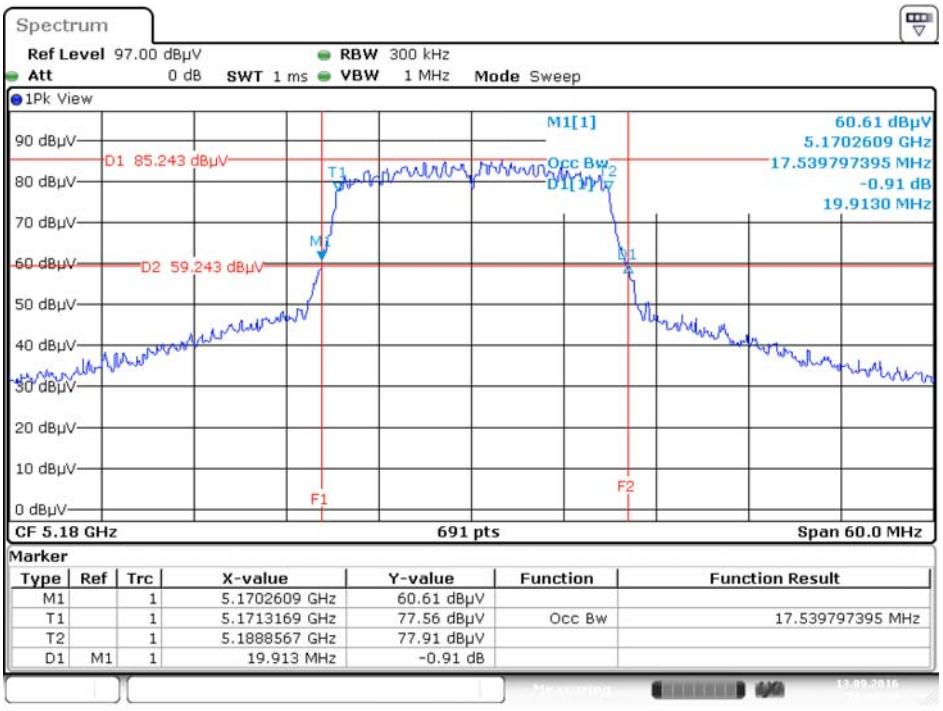
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Ant. 1 + Ant. 2 + Ant. 4 / 5775 MHz



Date: 13.SEP.2016 15:22:03

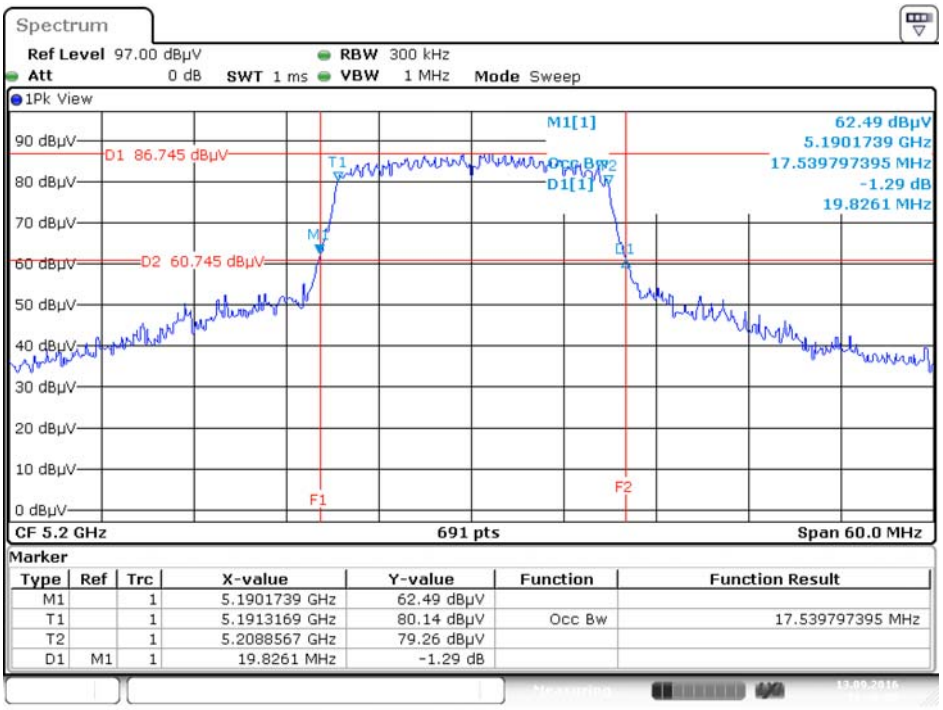
For beamforming mode

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



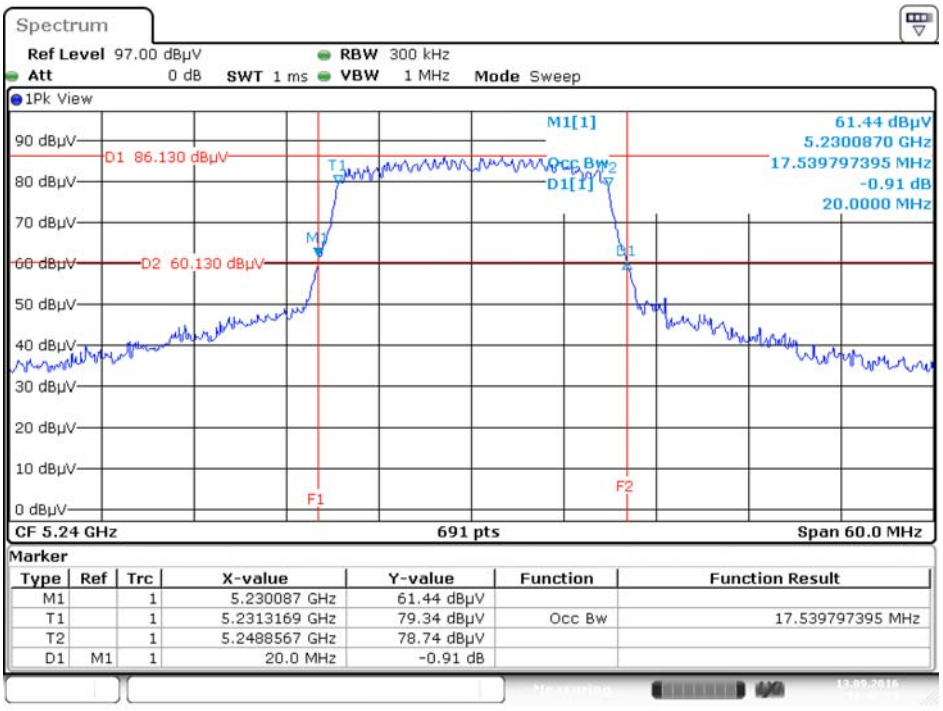
Date: 13.SEP.2016 16:45:34

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



Date: 13.SEP.2016 16:46:28

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



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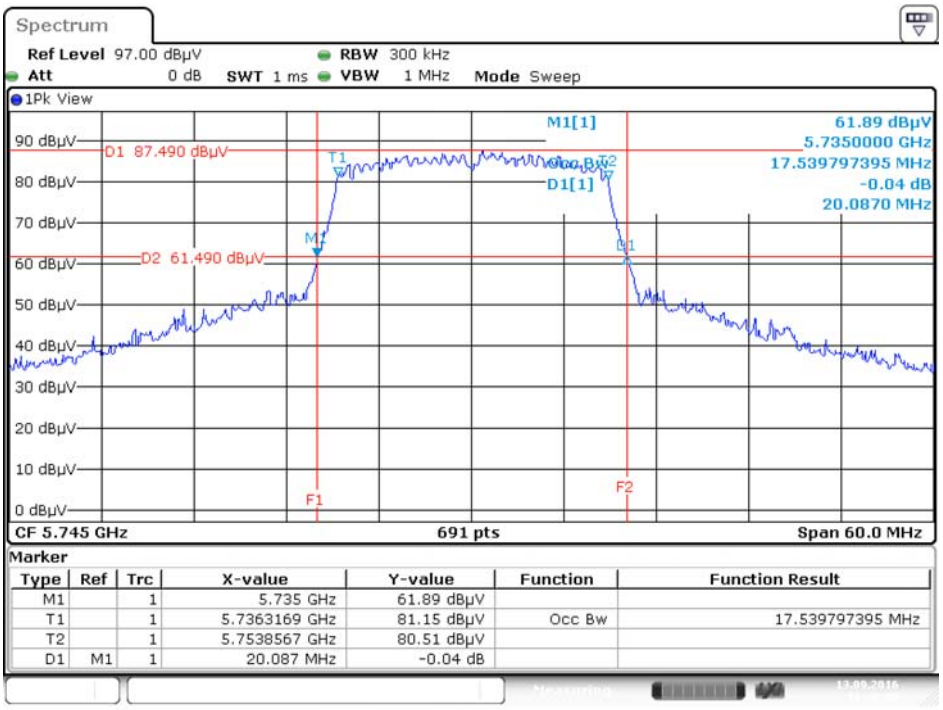
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 + Ant. 4 / 5745 MHz



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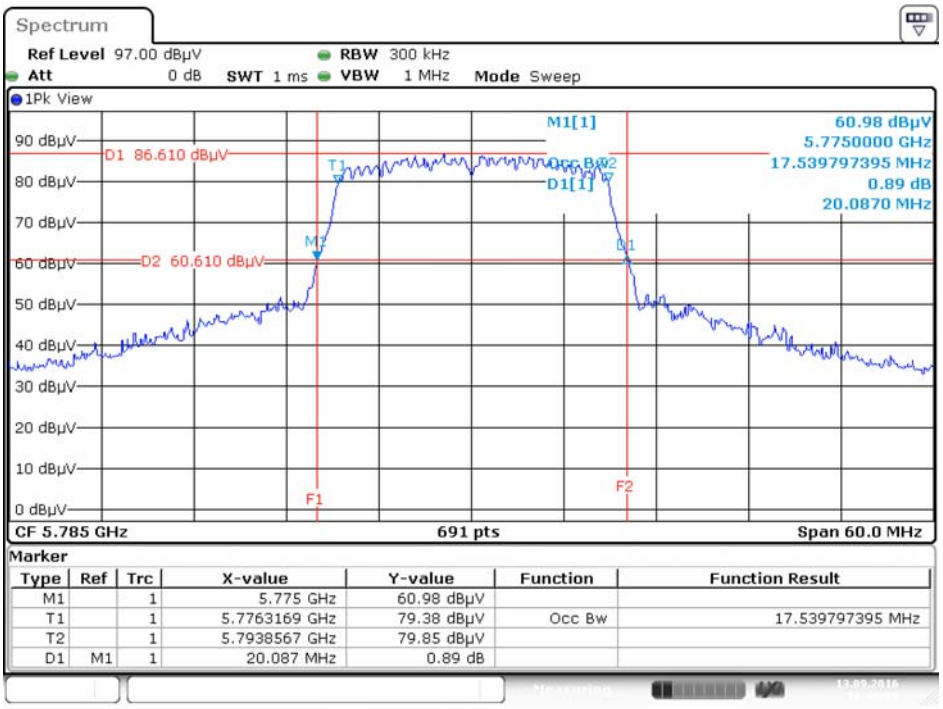
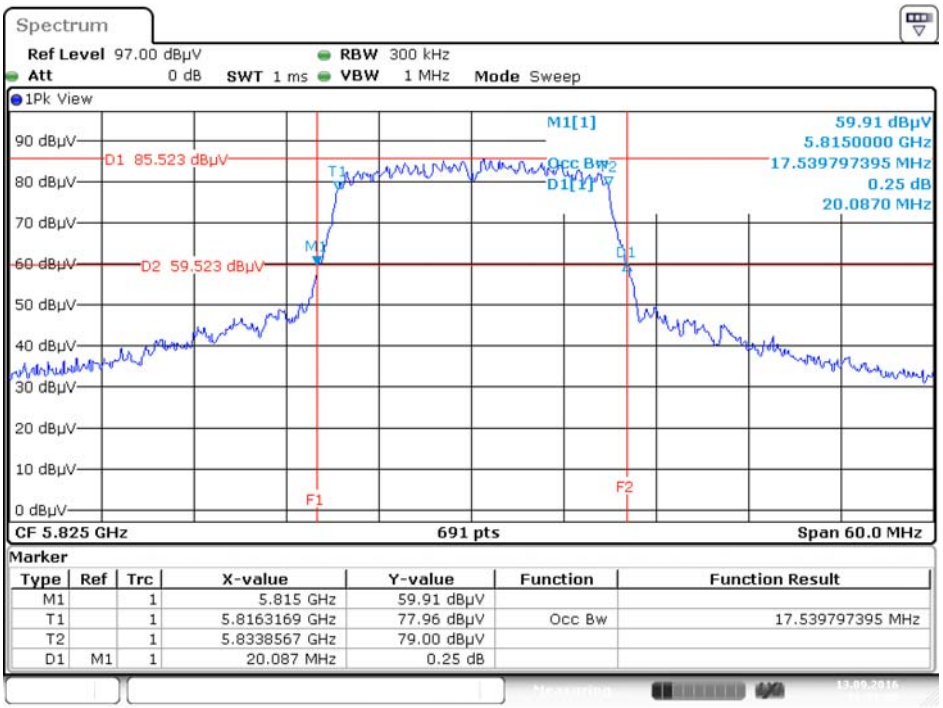
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 + Ant. 4 / 5785 MHz



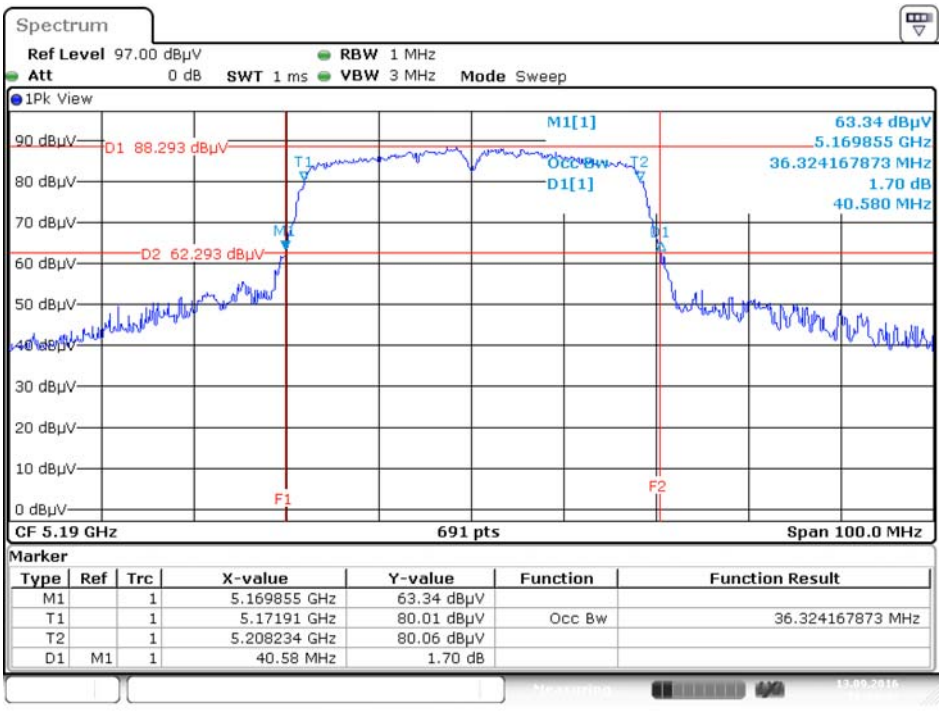
Date: 13.SEP.2016 16:49:17

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



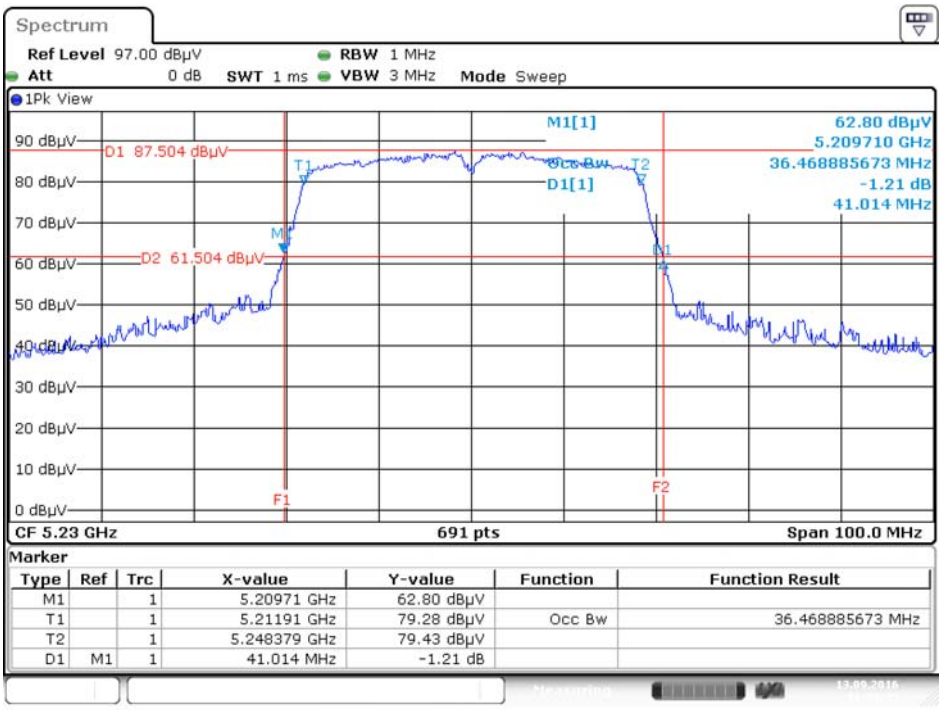
Date: 13.SEP.2016 16:51:09

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



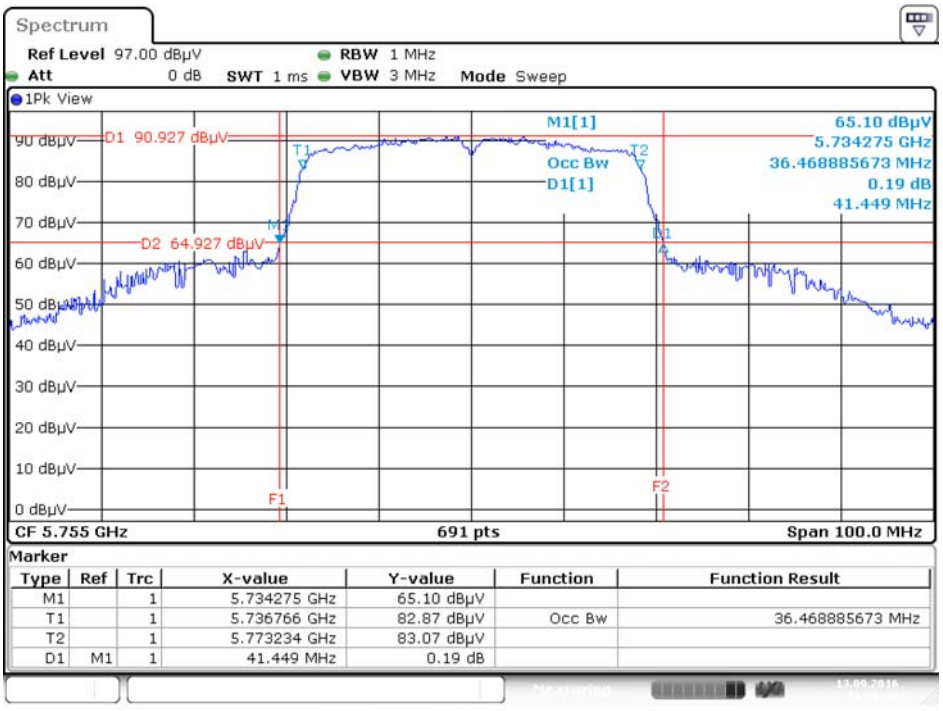
Date: 13.SEP.2016 16:34:43

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



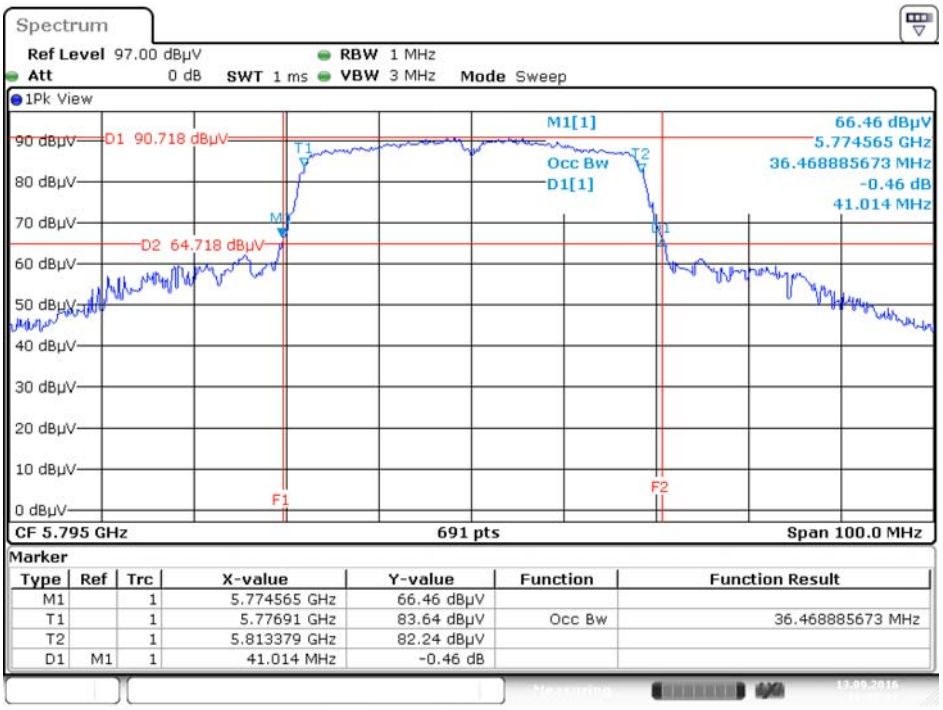
Date: 13.SEP.2016 16:35:45

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



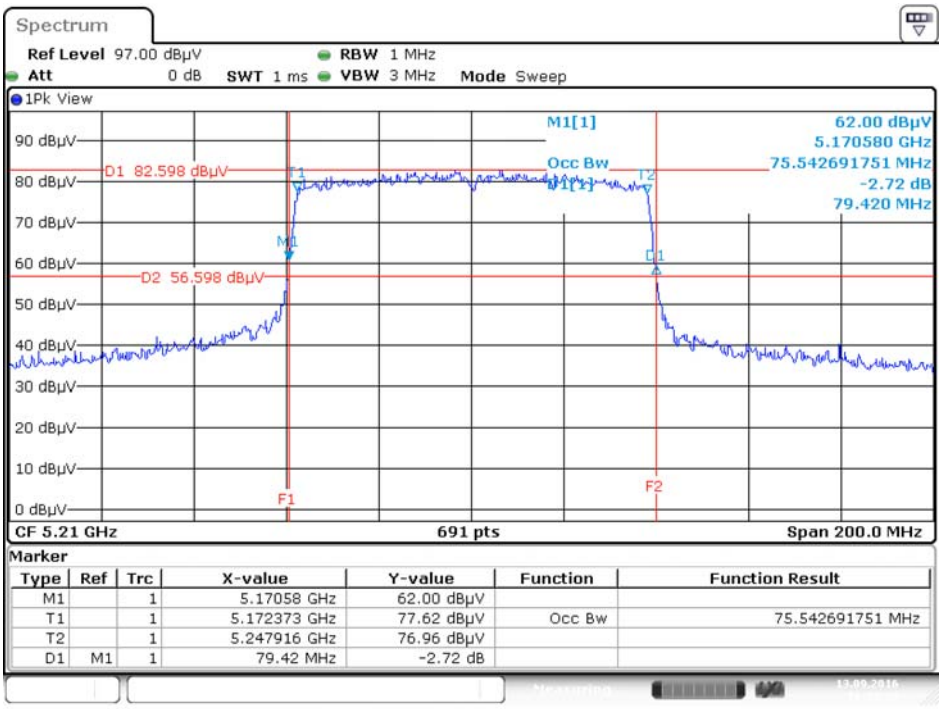
Date: 13.SEP.2016 16:36:34

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



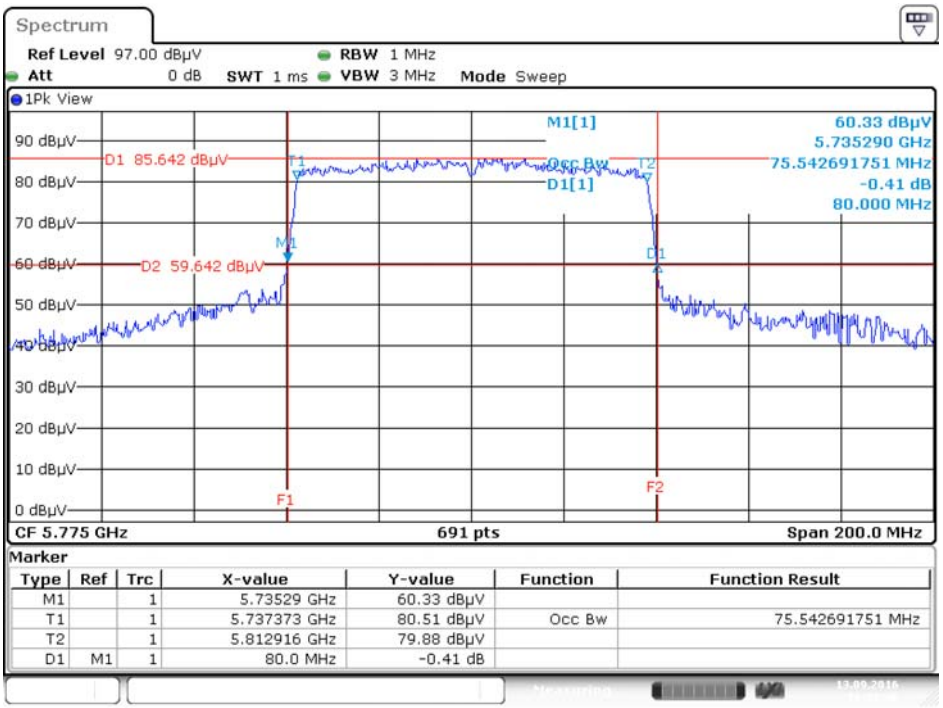
Date: 13.SEP.2016 16:37:12

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



Date: 13.SEP.2016 16:33:24

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



Date: 13.SEP.2016 16:32:46

4.3. 6dB Spectrum Bandwidth Measurement

4.3.1. Limit

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

4.3.2. Measuring Instruments and Setting

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

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

4.3.3. Test Procedures

For Radiated 6dB Bandwidth Measurement:

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

4.3.4. Test Setup Layout

For Radiated 6dB Bandwidth Measurement:

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

4.3.5. Test Deviation

There is no deviation with the original standard.

4.3.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.3.7. Test Result of 6dB Spectrum Bandwidth

Temperature	25°C	Humidity	54%
Test Engineer	Paul Chen		

For non-beamforming mode

Mode	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Test Result
802.11a	5745 MHz	16.58	500	Complies
	5785 MHz	16.29	500	Complies
	5825 MHz	16.46	500	Complies
802.11ac MCS0/Nss1 VHT20	5745 MHz	15.59	500	Complies
	5785 MHz	17.33	500	Complies
	5825 MHz	16.64	500	Complies
802.11ac MCS0/Nss1 VHT40	5755 MHz	28.64	500	Complies
	5795 MHz	28.64	500	Complies
802.11ac MCS0/Nss1 VHT80	5775 MHz	66.38	500	Complies

For beamforming mode

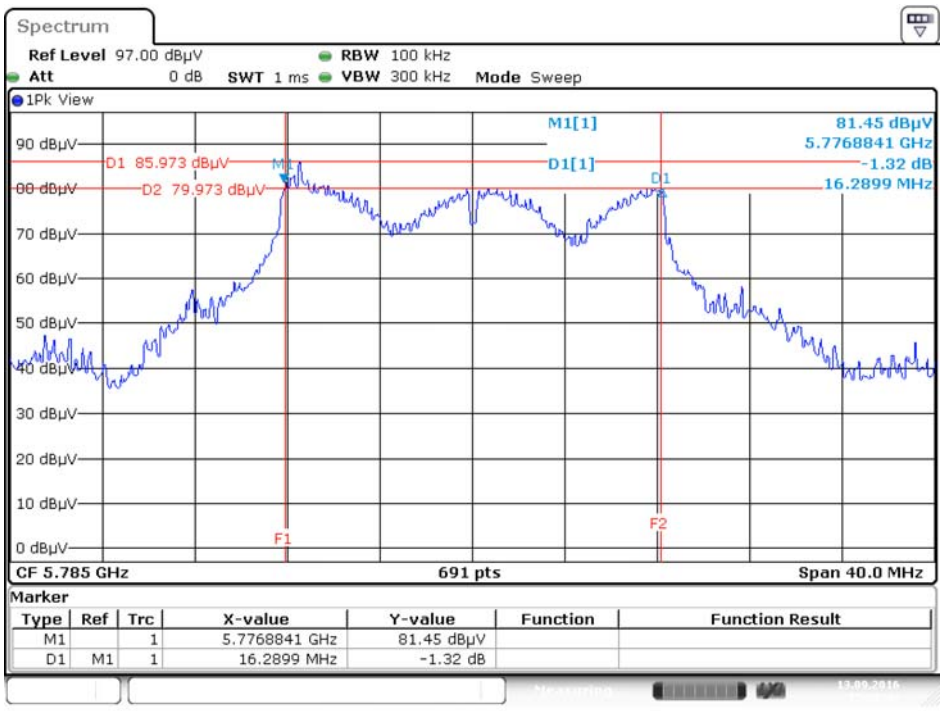
Mode	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Test Result
802.11ac MCS0/Nss1 VHT20	5745 MHz	16.58	500	Complies
	5785 MHz	16.99	500	Complies
	5825 MHz	16.52	500	Complies
802.11ac MCS0/Nss1 VHT40	5755 MHz	35.13	500	Complies
	5795 MHz	35.13	500	Complies
802.11ac MCS0/Nss1 VHT80	5775 MHz	75.36	500	Complies

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

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

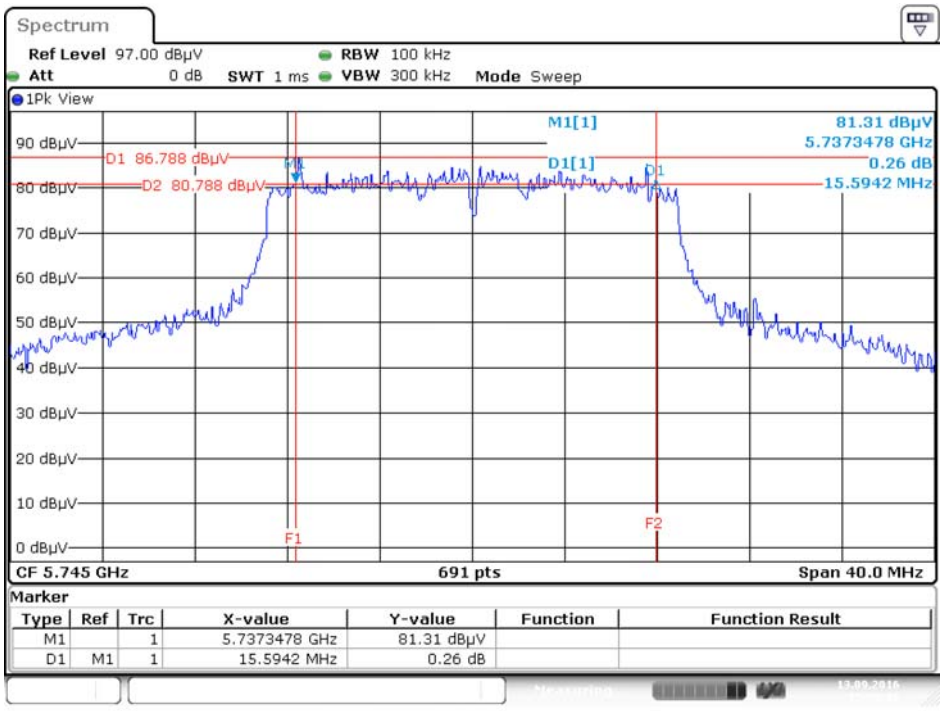
For non-beamforming mode

6 dB Bandwidth Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 + Ant. 4 / 5785 MHz



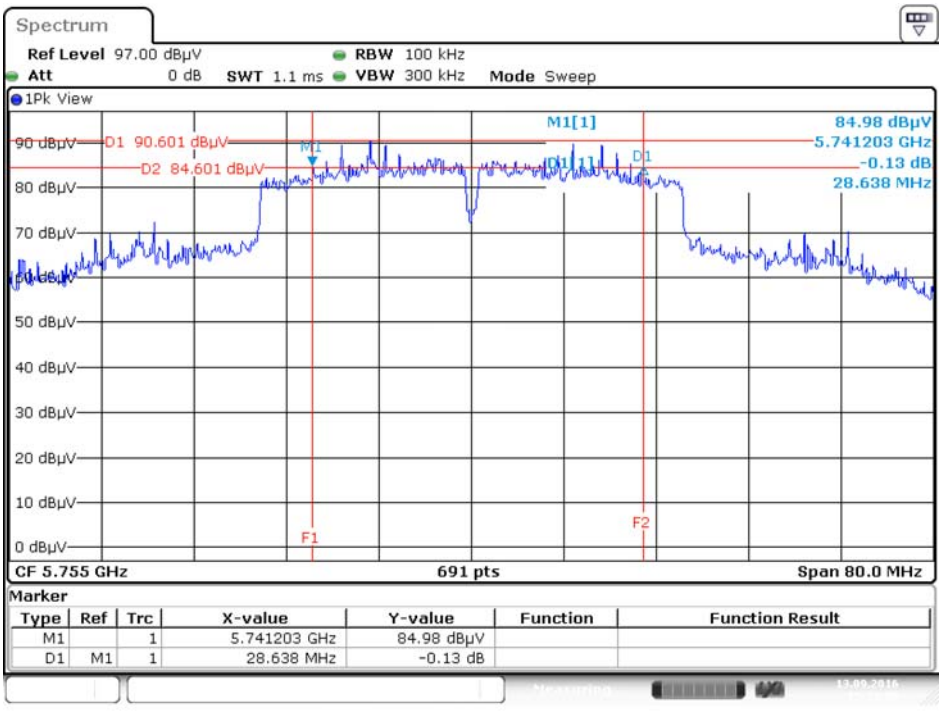
Date: 13.SEP.2016 15:28:42

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 + Ant. 4 / 5745 MHz



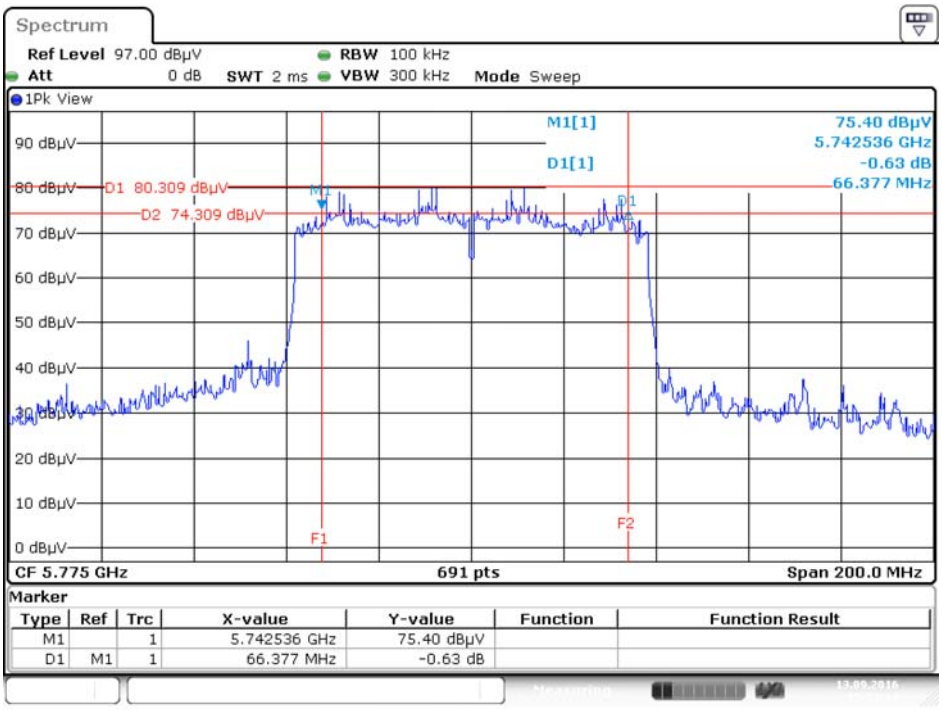
Date: 13.SEP.2016 15:25:16

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



Date: 13.SEP.2016 15:23:58

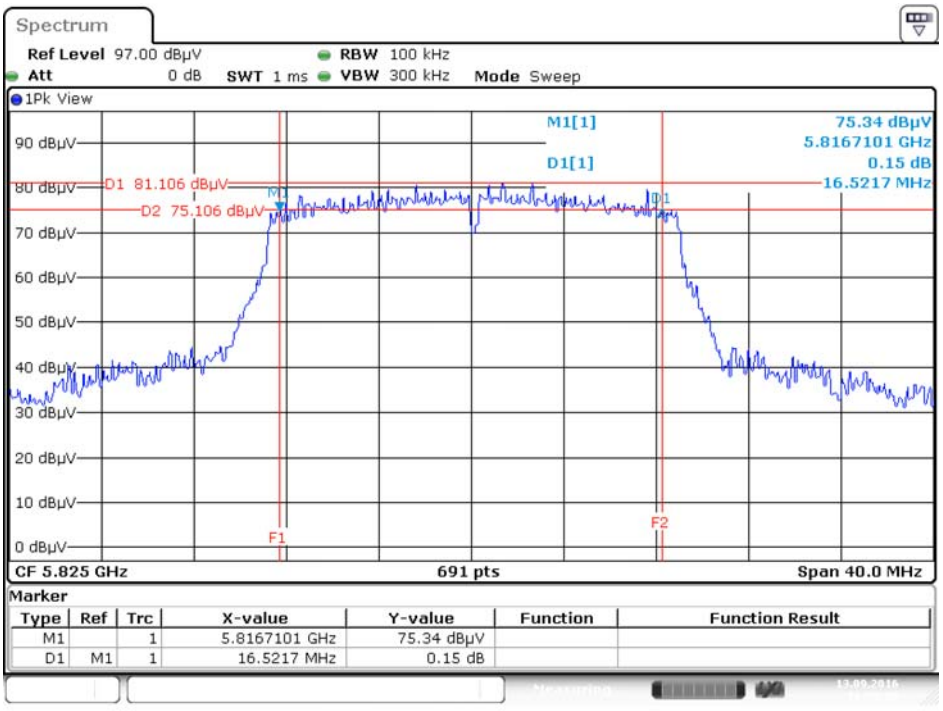
6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Ant. 1 + Ant. 2 + Ant. 4 / 5775 MHz



Date: 13.SEP.2016 15:23:15

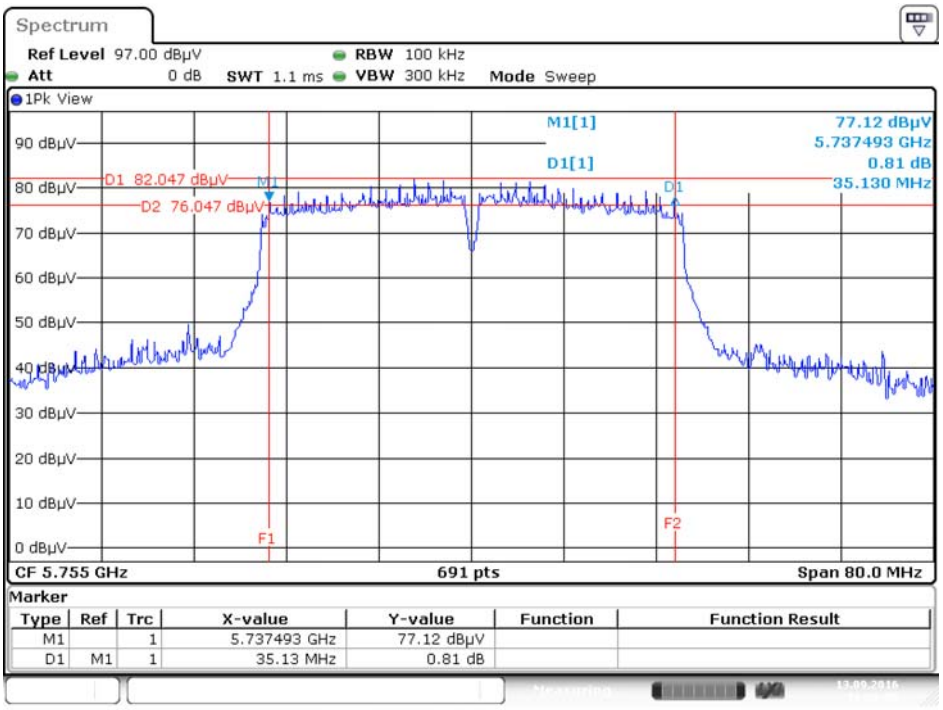
For beamforming mode

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 + Ant. 4 / 5825 MHz



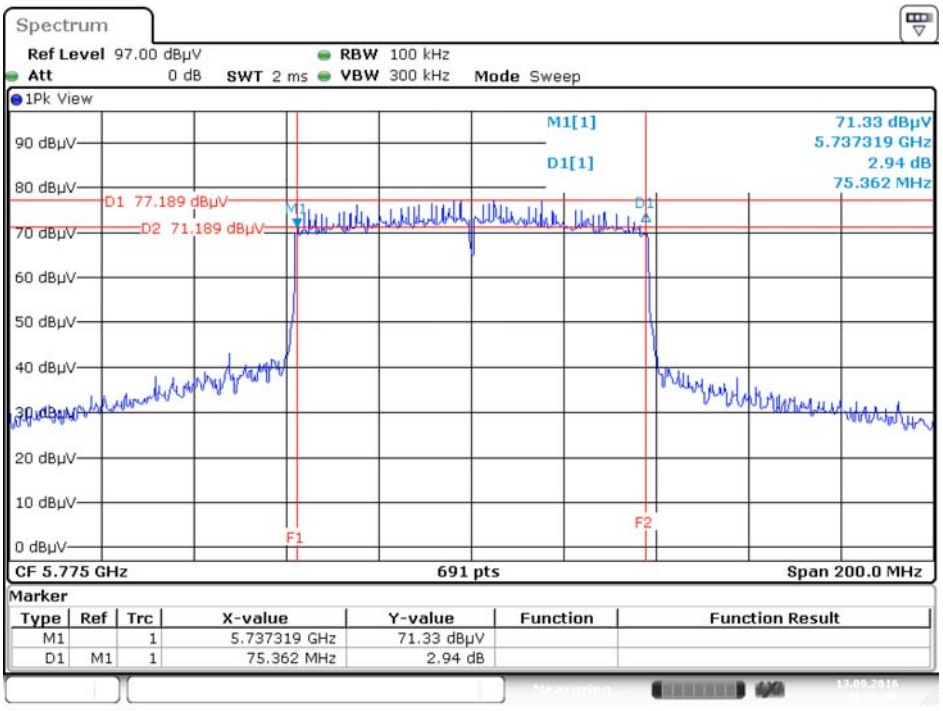
Date: 13.SEP.2016 16:55:09

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



Date: 13.SEP.2016 16:56:55

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



4.4. Maximum Conducted Output Power Measurement

4.4.1. Limit

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

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

4.4.2. Measuring Instruments and Setting

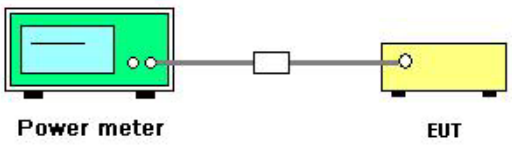
Please refer to section 5 of equipments list in this report. The following table is the setting of the power meter.

Power Meter Parameter	Setting
Detector	AVERAGE

4.4.3. Test Procedures

1. The transmitter output (antenna port) was connected to the power meter.
2. Test was performed in accordance with KDB789033 D02 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.

4.4.4. Test Setup Layout



4.4.5. Test Deviation

There is no deviation with the original standard.

4.4.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.4.7. Test Result of Maximum Conducted Output Power

Temperature	25°C	Humidity	54%
Test Engineer	Paul Chen	Test Date	Aug. 31, 2016 ~ Sep. 13, 2016

For non-beamforming mode

Mode	Frequency	Conducted Power (dBm)				Max. Limit (dBm)	Result
		Ant. 1	Ant. 2	Ant. 4	Total		
802.11a	5180 MHz	18.74	20.07	19.78	24.34	30.00	Complies
	5200 MHz	20.63	21.04	20.07	25.37	30.00	Complies
	5240 MHz	20.83	21.05	20.54	25.58	30.00	Complies
	5745 MHz	20.48	19.78	20.32	24.97	30.00	Complies
	5785 MHz	22.66	22.87	22.53	27.46	30.00	Complies
	5825 MHz	21.73	20.73	21.54	26.13	30.00	Complies
802.11ac MCS0/Nss1 VHT20	5180 MHz	18.83	19.62	18.20	23.69	30.00	Complies
	5200 MHz	19.09	20.83	19.17	24.54	30.00	Complies
	5240 MHz	19.31	19.20	18.97	23.93	30.00	Complies
	5745 MHz	23.41	22.85	22.30	27.65	30.00	Complies
	5785 MHz	23.79	23.36	22.77	28.10	30.00	Complies
	5825 MHz	23.32	22.73	22.68	27.69	30.00	Complies
802.11ac MCS0/Nss1 VHT40	5190 MHz	17.73	17.88	17.69	22.54	30.00	Complies
	5230 MHz	18.21	18.30	17.85	22.90	30.00	Complies
	5755 MHz	23.72	24.46	23.97	28.83	30.00	Complies
	5795 MHz	24.55	25.60	25.33	29.95	30.00	Complies
802.11ac MCS0/Nss1 VHT80	5210 MHz	17.04	18.16	16.69	22.11	30.00	Complies
	5775 MHz	17.73	17.87	17.00	22.32	30.00	Complies

For beamforming mode

Mode	Frequency	Conducted Power (dBm)				Max. Limit (dBm)	Result
		Ant. 1	Ant. 2	Ant. 4	Total		
802.11ac MCS0/Nss1 VHT20	5180 MHz	18.85	18.57	20.48	24.16	28.18	Complies
	5200 MHz	22.67	22.55	23.56	27.72	28.18	Complies
	5240 MHz	21.21	21.35	22.89	26.66	28.18	Complies
	5745 MHz	22.18	21.54	22.88	27.01	27.03	Complies
	5785 MHz	22.69	21.27	22.61	27.01	27.03	Complies
	5825 MHz	22.68	21.03	22.79	27.01	27.03	Complies
802.11ac MCS0/Nss1 VHT40	5190 MHz	18.33	18.28	19.63	23.56	28.18	Complies
	5230 MHz	22.71	22.08	22.77	27.30	28.18	Complies
	5755 MHz	22.17	21.59	22.85	27.01	27.03	Complies
	5795 MHz	22.19	21.43	22.97	27.01	27.03	Complies
802.11ac MCS0/Nss1 VHT80	5210 MHz	17.54	16.56	18.23	22.27	28.18	Complies
	5775 MHz	22.46	21.02	22.89	26.97	27.03	Complies

Note $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =7.82dBi > 6dBi,So B1 Limit =30-(7.82-6)=28.18dBm

Note $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =8.97dBi > 6dBi,So B4 Limit =30-(8.97-6)=27.03dBm

4.5. Power Spectral Density Measurement

4.5.1. Limit

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

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

4.5.2. Measuring Instruments and Setting

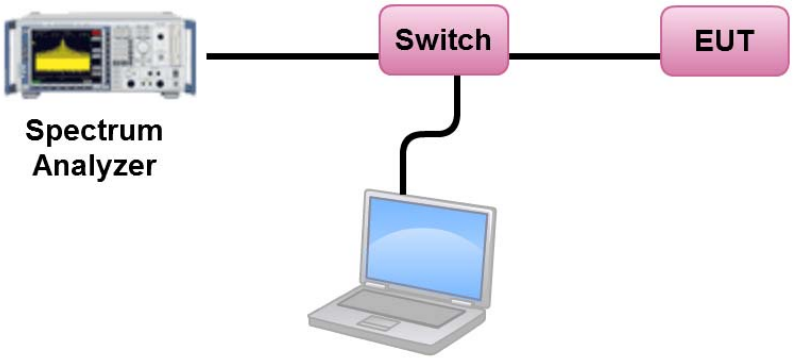
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

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

4.5.3. Test Procedures

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

4.5.4. Test Setup Layout



4.5.5. Test Deviation

There is no deviation with the original standard.

4.5.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.5.7. Test Result of Power Spectral Density

Temperature	25°C	Humidity	54%
Test Engineer	Paul Chen		

For non-beamforming mode

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

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	11.02	15.18	Complies
40	5200 MHz	12.11	15.18	Complies
48	5240 MHz	12.53	15.18	Complies

Note $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =7.82dBi > 6dBi,So Limit =17-(7.82-6)=15.18dBm

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
149	5745 MHz	11.88	-3.01	8.87	27.03	Complies
157	5785 MHz	14.14	-3.01	11.13	27.03	Complies
165	5825 MHz	12.95	-3.01	9.94	27.03	Complies

Note $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =8.97dBi > 6dBi,So Limit =30-(8.97-6)=27.03dBm/500kHz

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

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	10.57	15.18	Complies
40	5200 MHz	11.42	15.18	Complies
48	5240 MHz	10.71	15.18	Complies

Note $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =7.82dBi > 6dBi,So Limit =17-(7.82-6)=15.18dBm

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
149	5745 MHz	14.38	-3.01	11.37	27.03	Complies
157	5785 MHz	14.83	-3.01	11.82	27.03	Complies
165	5825 MHz	14.58	-3.01	11.57	27.03	Complies

Note $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =8.97dBi > 6dBi,So Limit =30-(8.97-6)=27.03dBm/500kHz

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

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	6.33	15.18	Complies
46	5230 MHz	6.56	15.18	Complies

Note $DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ =7.82dBi > 6dBi,So Limit =17-(7.82-6)=15.18dBm

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
151	5755 MHz	12.80	-3.01	9.79	27.03	Complies
159	5795 MHz	13.86	-3.01	10.85	27.03	Complies

Note $DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ =8.97dBi > 6dBi,So Limit =30-(8.97-6)=27.03dBm/500kHz

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

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
42	5210 MHz	3.09	15.18	Complies

Note $DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ =7.82dBi > 6dBi,So Limit =17-(7.82-6)=15.18dBm

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
155	5775 MHz	3.28	-3.01	0.27	27.03	Complies

Note $DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ =8.97dBi > 6dBi,So Limit =30-(8.97-6)=27.03dBm/500kHz

For beamforming mode

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

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	10.81	15.18	Complies
40	5200 MHz	14.45	15.18	Complies
48	5240 MHz	13.65	15.18	Complies

Note $DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ =7.82dBi > 6dBi,So Limit =17-(7.82-6)=15.18dBm

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
149	5745 MHz	13.81	-3.01	10.80	27.03	Complies
157	5785 MHz	13.91	-3.01	10.90	27.03	Complies
165	5825 MHz	13.99	-3.01	10.98	27.03	Complies

Note $DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ =8.97dBi > 6dBi,So Limit =30-(8.97-6)=27.03dBm/500kHz

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

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	7.20	15.18	Complies
46	5230 MHz	11.09	15.18	Complies

Note $DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ =7.82dBi > 6dBi,So Limit =17-(7.82-6)=15.18dBm

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
151	5755 MHz	10.89	-3.01	7.88	27.03	Complies
159	5795 MHz	10.88	-3.01	7.87	27.03	Complies

Note $DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ =8.97dBi > 6dBi,So Limit =30-(8.97-6)=27.03dBm/500kHz

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

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
42	5210 MHz	3.14	15.18	Complies

Note $DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ =7.82dBi > 6dBi,So Limit =17-(7.82-6)=15.18dBm

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
155	5775 MHz	7.57	-3.01	4.56	27.03	Complies

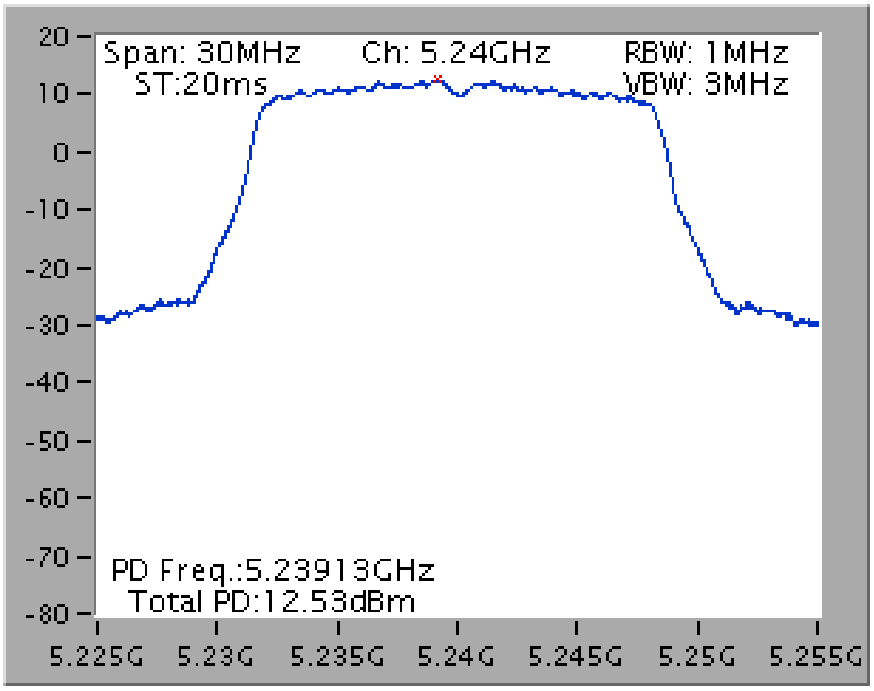
Note $DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ =8.97dBi > 6dBi,So Limit =30-(8.97-6)=27.03dBm/500kHz

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

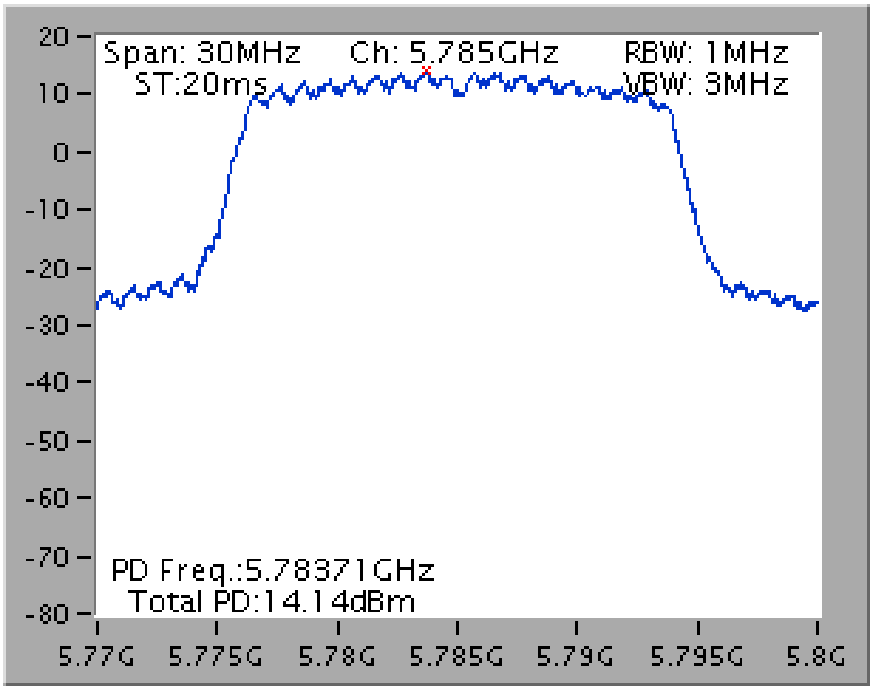
For plots, only the channel with worse result was shown.

For non-beamforming mode

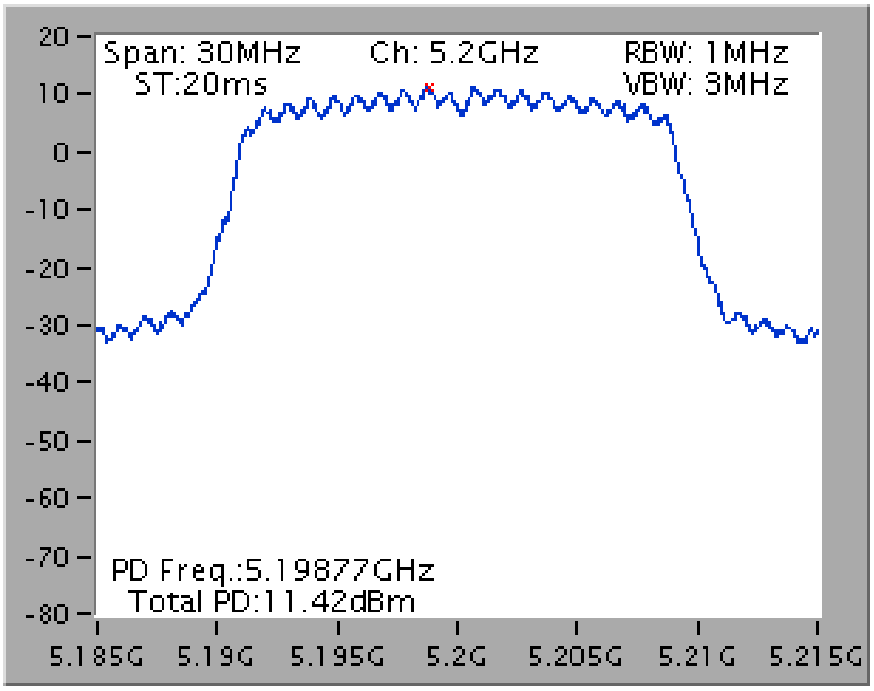
Power Density Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 + Ant. 4 / 5240 MHz



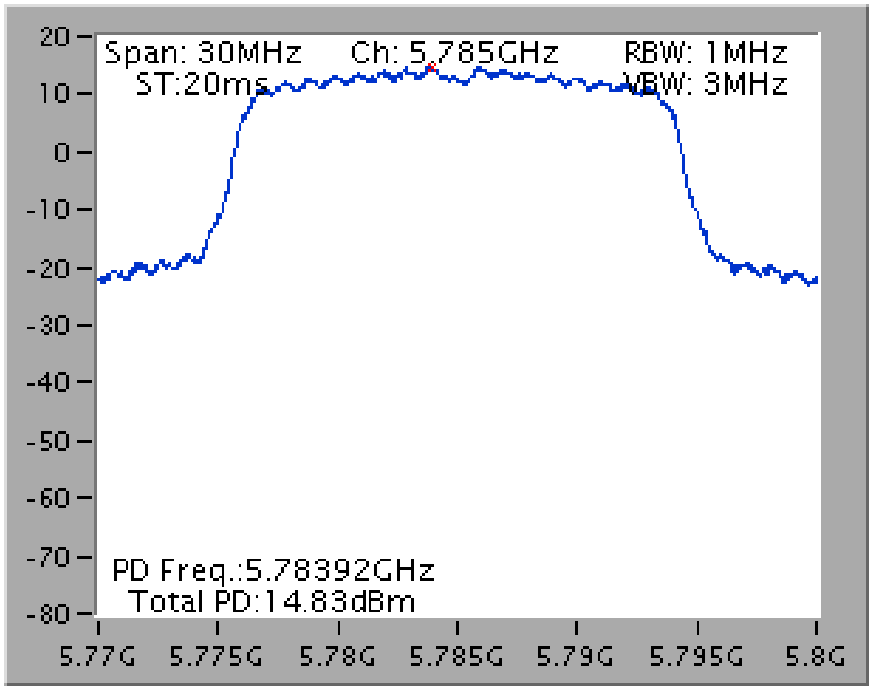
Power Density Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 + Ant. 4 / 5785 MHz



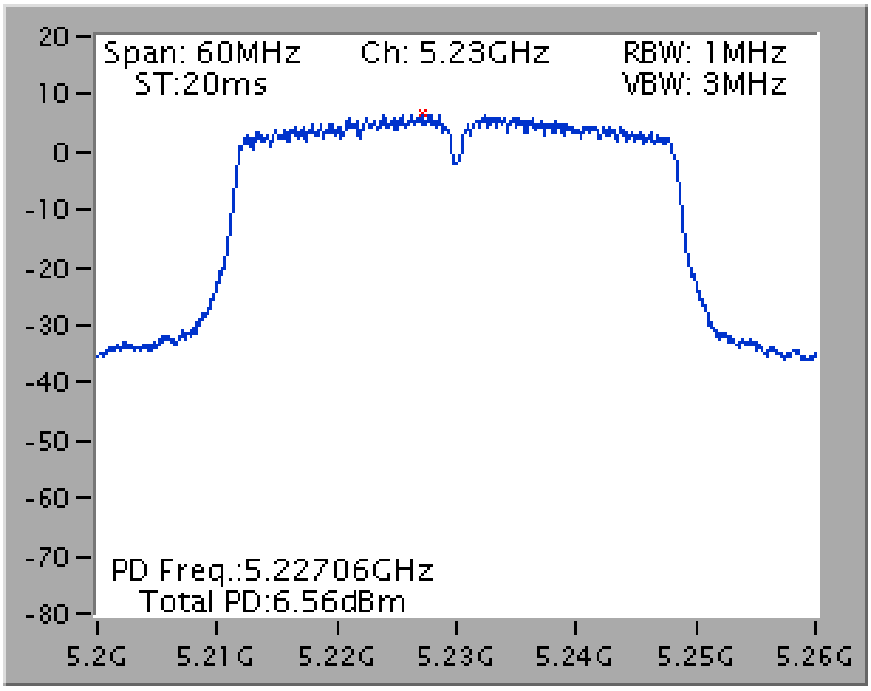
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 + Ant. 4 / 5200 MHz



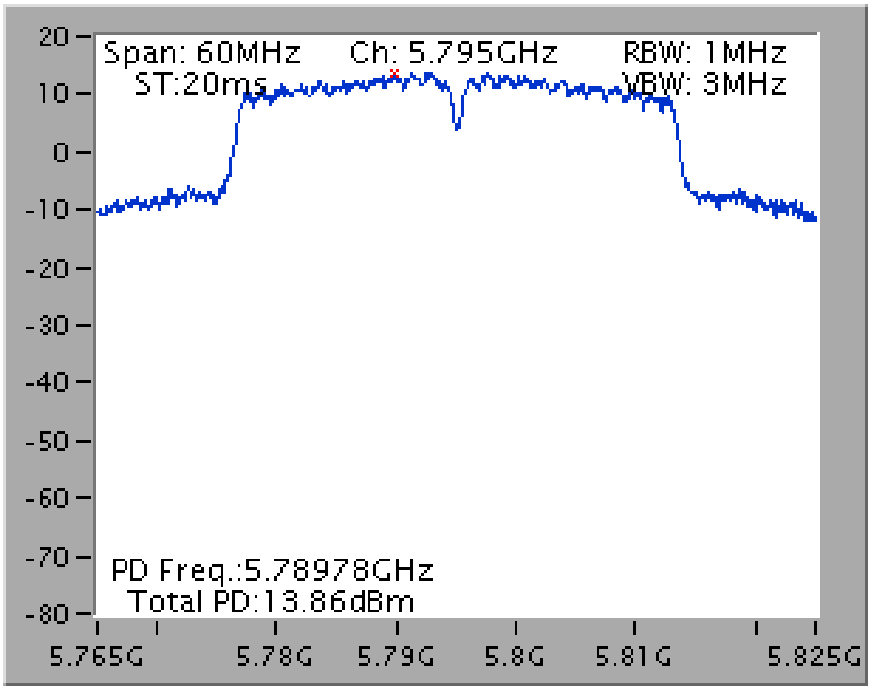
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 + Ant. 4 / 5785 MHz



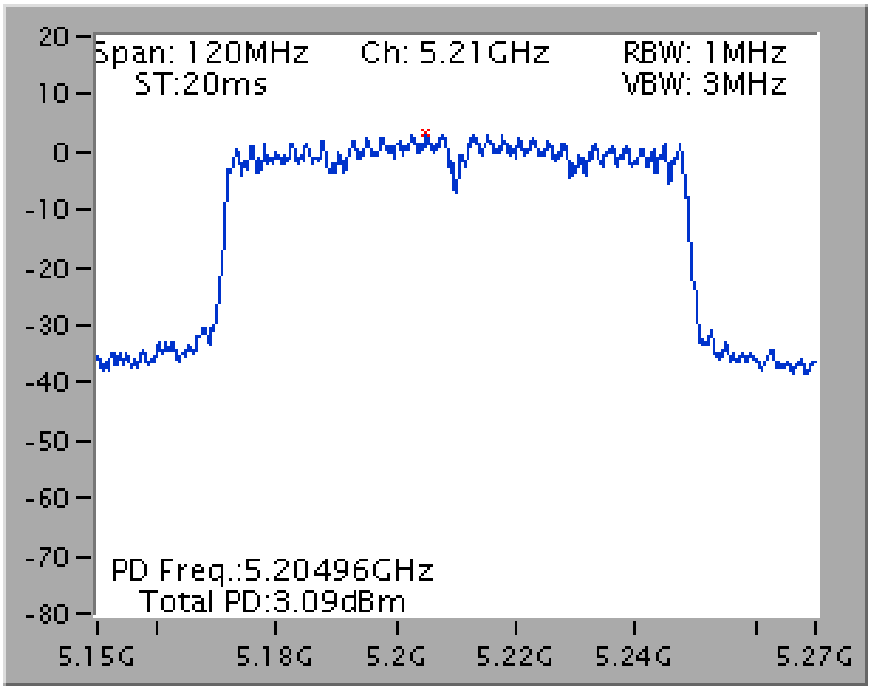
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 1 + Ant. 2 + Ant. 4 / 5230 MHz



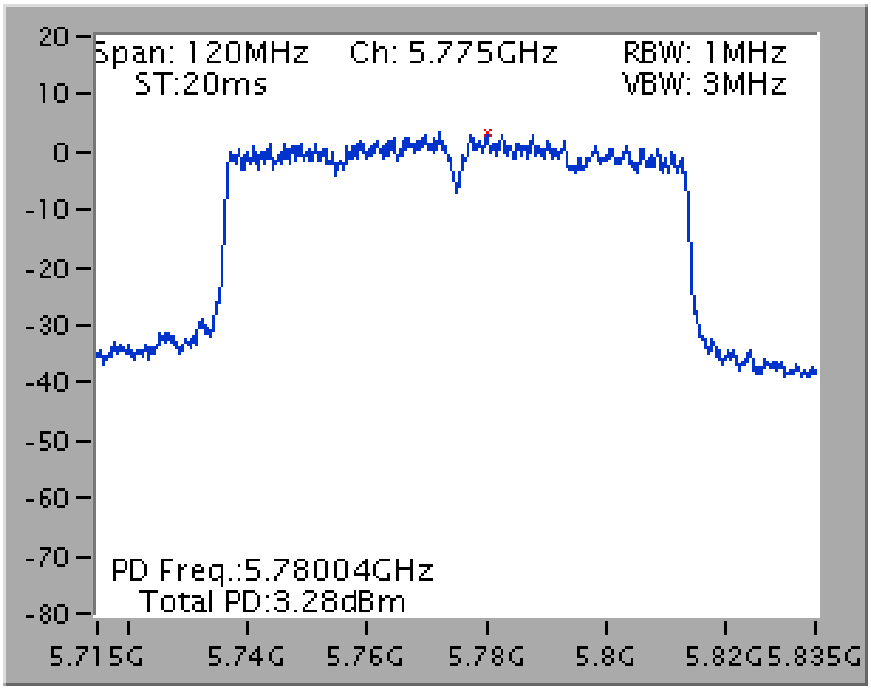
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 1 + Ant. 2 + Ant. 4 / 5795 MHz



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

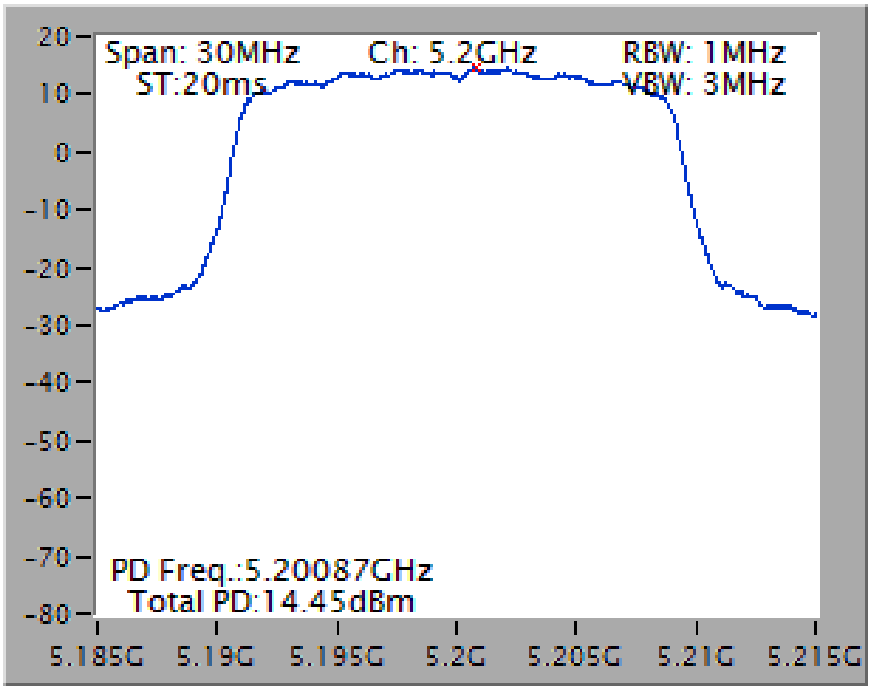


Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Ant. 1 + Ant. 2 + Ant. 4 / 5775 MHz

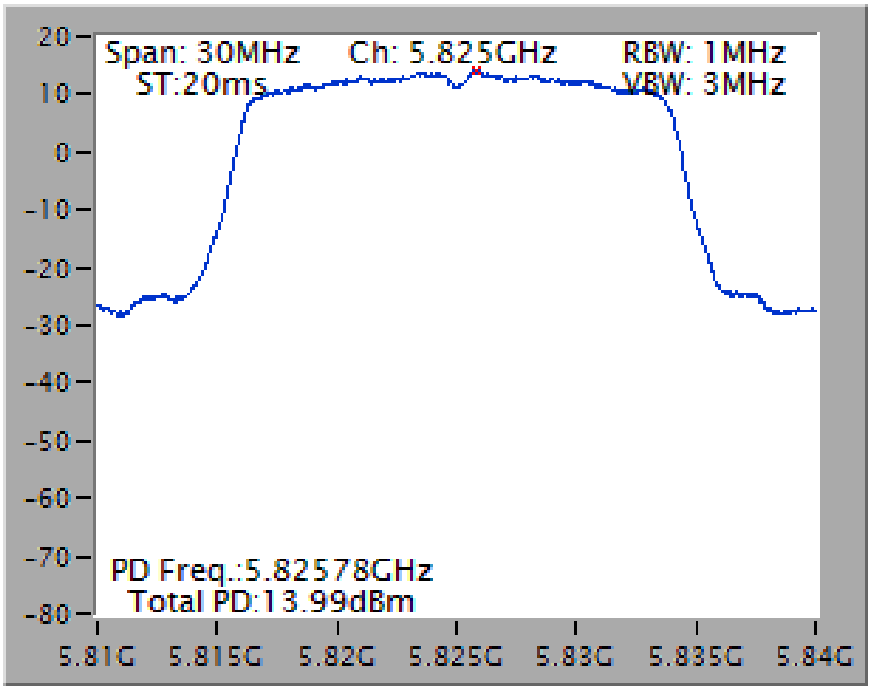


For beamforming mode

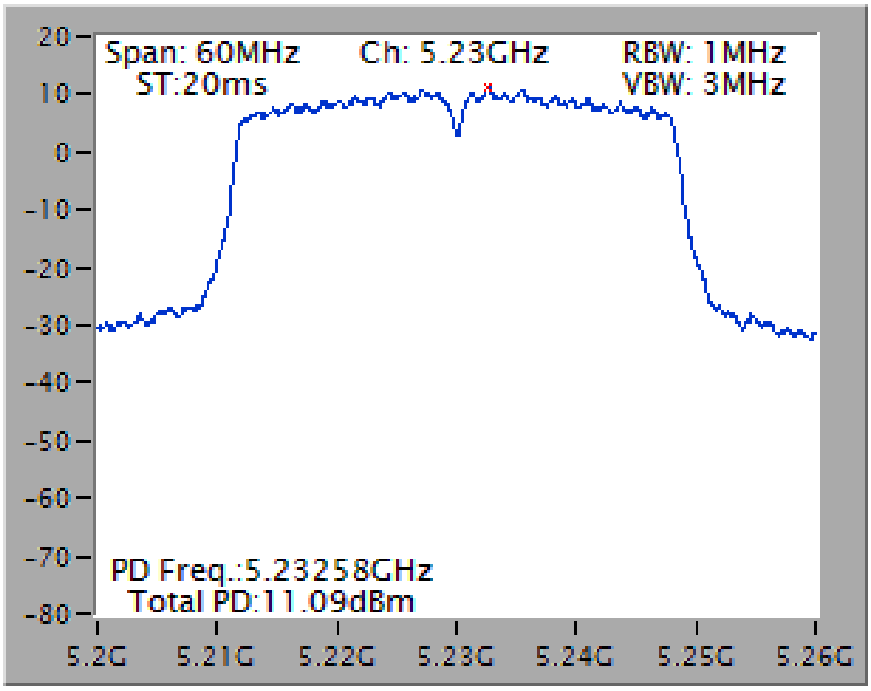
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 + Ant. 4 / 5200 MHz



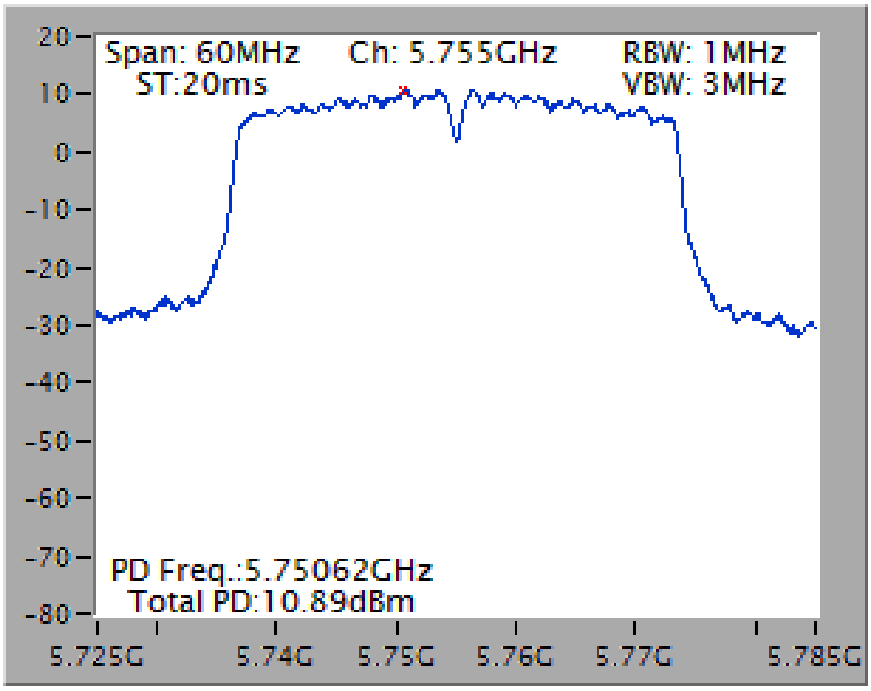
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 + Ant. 4 / 5825 MHz



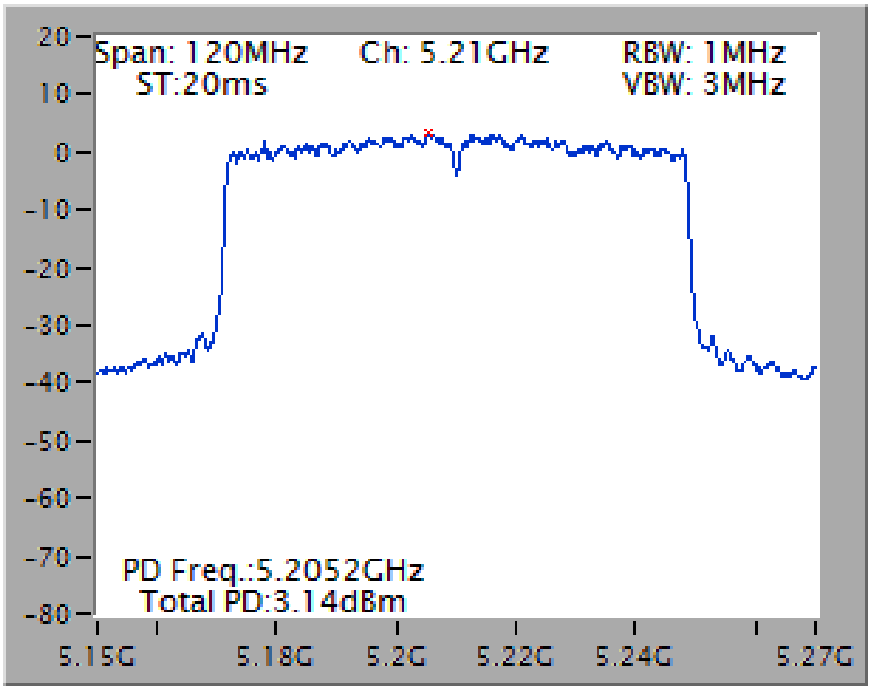
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 1 + Ant. 2 + Ant. 4 / 5230 MHz



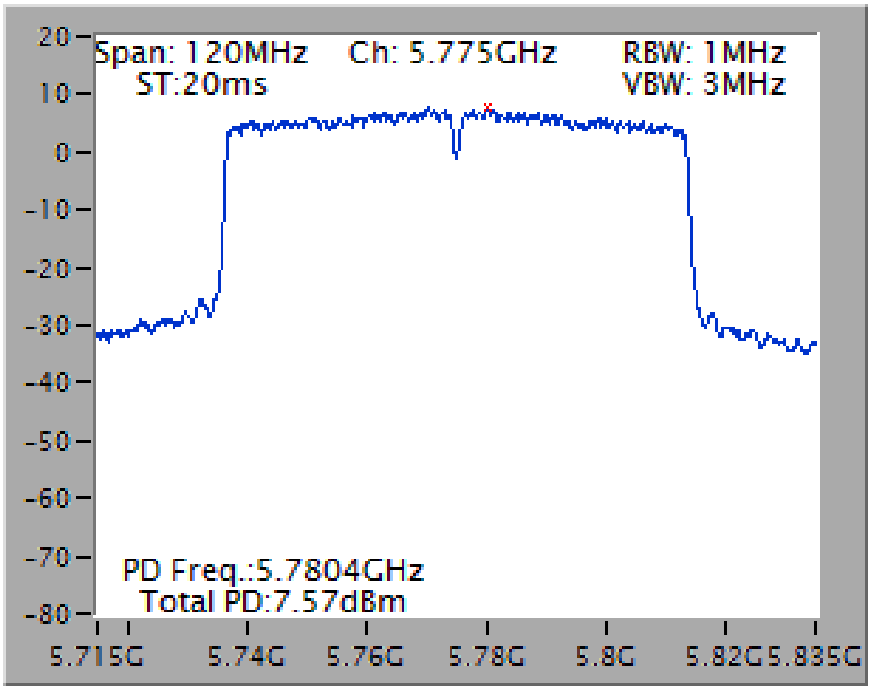
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 1 + Ant. 2 + Ant. 4 / 5755 MHz



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



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



4.6. Radiated Emissions Measurement

4.6.1. Limit

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

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

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

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

4.6.2. Measuring Instruments and Setting

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

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

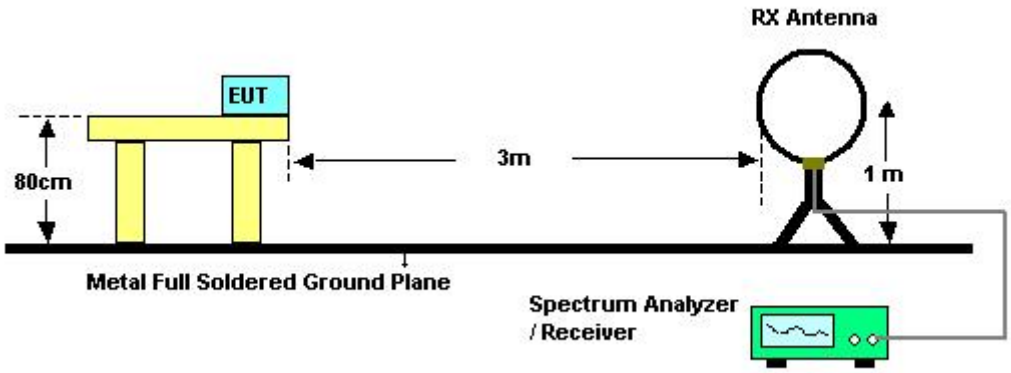
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RBW 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RBW 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RBW 120kHz for QP

4.6.3. Test Procedures

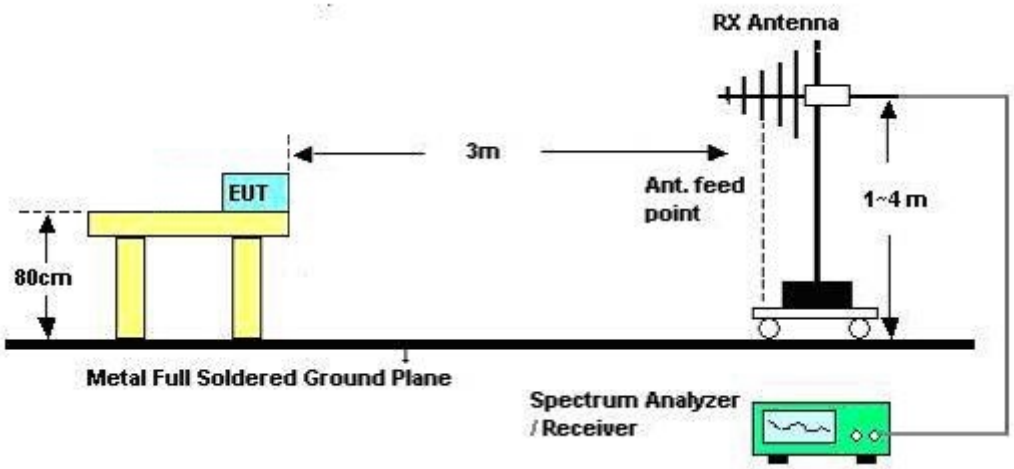
1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 1m & 3m far away from the turntable.
2. Power on the EUT and all the supporting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

4.6.4. Test Setup Layout

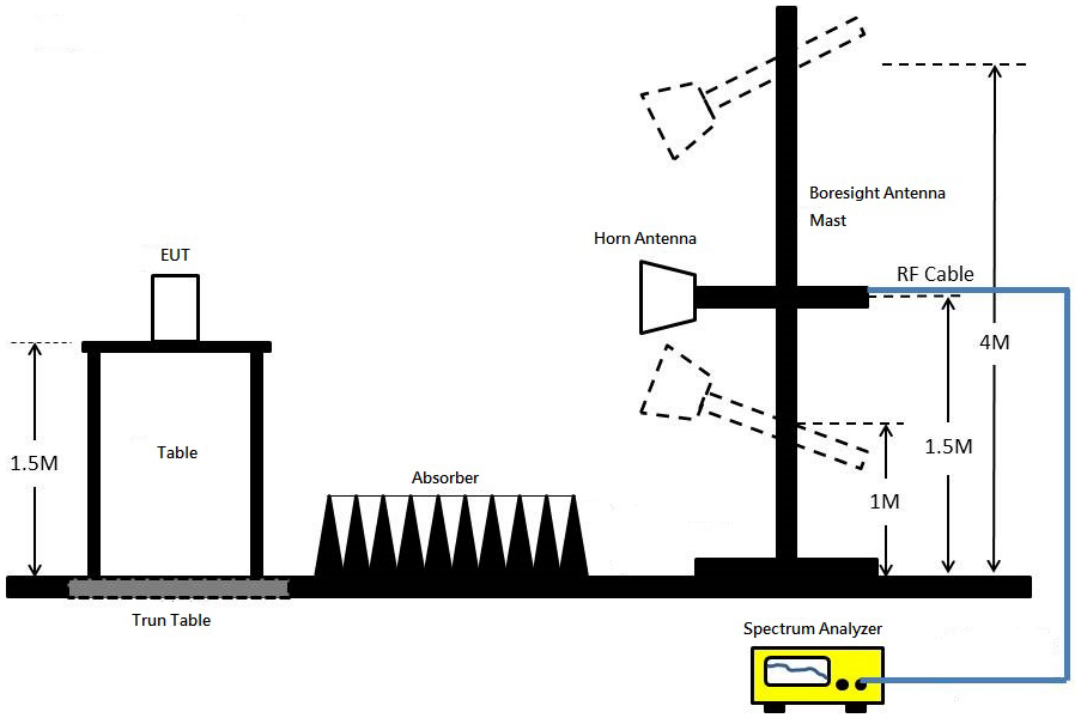
For Radiated Emissions: 9kHz ~30MHz



For Radiated Emissions: 30MHz~1GHz



For Radiated Emissions: Above 1GHz



4.6.5. Test Deviation

There is no deviation with the original standard.

4.6.6. EUT Operation during Test

For Non-beamforming mode:

The EUT was programmed to be in continuously transmitting mode.

For beamforming mode:

The EUT was programmed to be in beamforming transmitting mode.

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

Temperature	22°C	Humidity	54%
Test Engineer	Steven Liang	Configurations	Normal Link
Test Date	Sep. 14, 2016		

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

Note:

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

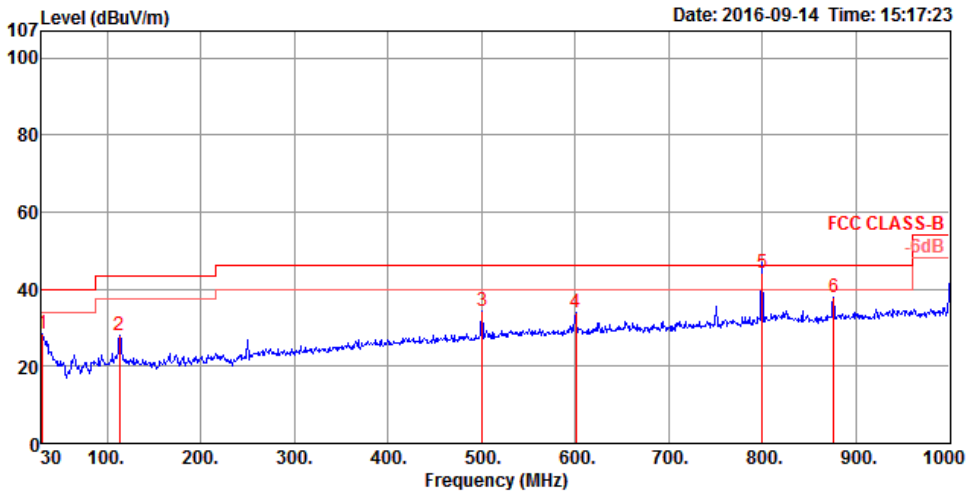
Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

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

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

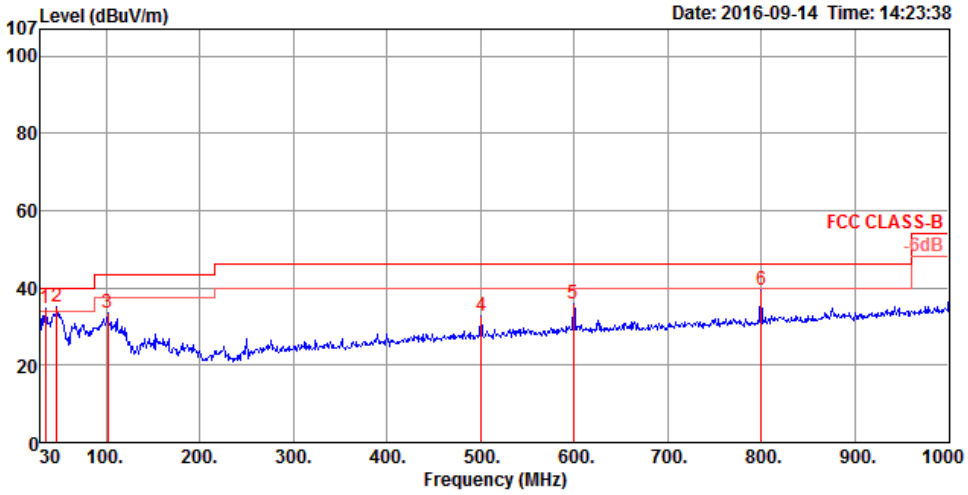
Temperature	22°C	Humidity	54%
Test Engineer	Steven Liang	Configurations	Normal Link

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	28.56	40.00	-11.44	35.61	0.54	24.81	32.40	100	175	Peak	HORIZONTAL
2	113.42	27.87	43.50	-15.63	41.28	1.05	17.93	32.39	175	283	Peak	HORIZONTAL
3	500.45	34.20	46.00	-11.80	40.63	2.18	23.73	32.34	200	185	Peak	HORIZONTAL
4	600.36	34.05	46.00	-11.95	39.27	2.38	24.80	32.40	150	212	Peak	HORIZONTAL
5	800.18	44.36	46.00	-1.64	47.20	2.76	26.60	32.20	125	359	QP	HORIZONTAL
6	875.84	38.09	46.00	-7.91	39.70	2.89	27.30	31.80	125	1	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	34.85	34.88	40.00	-5.12	44.10	0.60	22.57	32.39	100	0	Peak	VERTICAL
2	47.46	35.25	40.00	-4.75	51.42	0.70	15.50	32.37	100	152	Peak	VERTICAL
3	101.78	33.54	43.50	-9.96	48.05	0.99	16.90	32.40	100	71	Peak	VERTICAL
4	500.45	32.93	46.00	-13.07	39.36	2.18	23.73	32.34	125	292	Peak	VERTICAL
5	599.39	35.84	46.00	-10.16	41.06	2.38	24.80	32.40	100	216	Peak	VERTICAL
6	800.18	39.35	46.00	-6.65	42.19	2.76	26.60	32.20	125	31	Peak	VERTICAL

Note:

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

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

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

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

For non-beamforming mode

Temperature	22°C	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11a CH 36 / Ant. 1 + Ant. 2 + Ant. 4
Test Date	Aug. 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	10355.77	63.88	68.20	-4.32	49.39	9.52	38.58	33.61	192	165	Peak	HORIZONTAL
2	15536.67	62.21	74.00	-11.79	45.51	12.06	38.13	33.49	263	225	Peak	HORIZONTAL
3	15540.58	52.82	54.00	-1.18	36.12	12.06	38.13	33.49	263	225	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	10358.81	67.81	68.20	-0.39	53.32	9.52	38.58	33.61	156	149	Average	VERTICAL
2	15539.92	45.67	54.00	-8.33	28.97	12.06	38.13	33.49	186	236	Average	VERTICAL
3	15542.18	57.11	74.00	-16.89	40.41	12.06	38.13	33.49	186	236	Peak	VERTICAL

Temperature	22℃	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11a CH 40 / Ant. 1 + Ant. 2 + Ant. 4
Test Date	Aug. 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	10401.96	64.60	68.20	-3.60	50.09	9.54	38.54	33.57	194	250	Peak	HORIZONTAL
2	15592.12	57.80	74.00	-16.20	41.19	12.09	38.05	33.53	173	148	Peak	HORIZONTAL
3	15598.72	46.01	54.00	-7.99	29.40	12.09	38.05	33.53	173	148	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	10401.92	67.90	68.20	-0.30	53.39	9.54	38.54	33.57	155	148	Peak	VERTICAL
2	15603.24	45.08	54.00	-8.92	28.52	12.11	37.98	33.53	165	263	Average	VERTICAL
3	15606.70	57.71	74.00	-16.29	41.15	12.11	37.98	33.53	165	263	Peak	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11a CH 48 / Ant. 1 + Ant. 2 + Ant. 4
Test Date	Aug. 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	10479.87	65.46	68.20	-2.74	50.97	9.59	38.44	33.54	194	228	Peak	HORIZONTAL
2	15720.22	46.40	54.00	-7.60	30.08	12.15	37.84	33.67	104	222	Average	HORIZONTAL
3	15727.53	58.87	74.00	-15.13	42.55	12.15	37.84	33.67	104	222	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	10486.06	67.80	68.20	-0.40	53.31	9.59	38.44	33.54	239	193	Peak	VERTICAL
2	15710.42	45.24	54.00	-8.76	28.87	12.15	37.84	33.62	123	236	Average	VERTICAL
3	15729.10	58.02	74.00	-15.98	41.70	12.15	37.84	33.67	123	236	Peak	VERTICAL

Temperature	22℃	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11a CH 149 / Ant. 1 + Ant. 2 + Ant. 4
Test Date	Aug. 17, 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	11491.36	53.68	54.00	-0.32	37.56	10.10	39.20	33.18	123	291	Average	HORIZONTAL
2	11491.68	67.06	74.00	-6.94	50.94	10.10	39.20	33.18	123	291	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	11486.23	63.83	74.00	-10.17	47.71	10.10	39.20	33.18	298	205	Peak	VERTICAL
2	11488.40	50.18	54.00	-3.82	34.06	10.10	39.20	33.18	298	205	Average	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11a CH 157 / Ant. 1 + Ant. 2 + Ant. 4
Test Date	Aug. 17, 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	11571.20	53.92	54.00	-0.08	37.79	10.13	39.20	33.20	132	286	Average	HORIZONTAL
2	11572.08	67.46	74.00	-6.54	51.33	10.13	39.20	33.20	132	286	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	11568.40	49.70	54.00	-4.30	33.57	10.13	39.20	33.20	105	197	Average	VERTICAL
2	11568.72	62.65	74.00	-11.35	46.52	10.13	39.20	33.20	105	197	Peak	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11a CH 165 / Ant. 1 + Ant. 2 + Ant. 4
Test Date	Aug. 17, 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	11651.92	53.89	54.00	-0.11	37.73	10.18	39.20	33.22	114	290	Average	HORIZONTAL
2	11652.08	67.17	74.00	-6.83	51.01	10.18	39.20	33.22	114	290	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	11646.07	62.86	74.00	-11.14	46.72	10.16	39.20	33.22	114	198	Peak	VERTICAL
2	11647.84	49.08	54.00	-4.92	32.94	10.16	39.20	33.22	114	198	Average	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 36 / Ant. 1 + Ant. 2 + Ant. 4
Test Date	Aug. 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	10358.88	60.46	68.20	-7.74	45.97	9.52	38.58	33.61	126	234	Peak	HORIZONTAL
2	15541.70	45.08	54.00	-8.92	28.38	12.06	38.13	33.49	161	221	Average	HORIZONTAL
3	15545.13	58.07	74.00	-15.93	41.37	12.06	38.13	33.49	161	221	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	10359.20	67.79	68.20	-0.41	53.30	9.52	38.58	33.61	153	147	Peak	VERTICAL
2	15531.57	57.02	74.00	-16.98	40.32	12.06	38.13	33.49	125	133	Peak	VERTICAL
3	15540.90	44.61	54.00	-9.39	27.91	12.06	38.13	33.49	125	133	Average	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 40 / Ant. 1 + Ant. 2 + Ant. 4
Test Date	Aug. 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	10399.13	61.20	68.20	-7.00	46.69	9.54	38.54	33.57	196	258	Peak	HORIZONTAL
2	15590.83	57.36	74.00	-16.64	40.75	12.09	38.05	33.53	205	307	Peak	HORIZONTAL
3	15594.23	44.53	54.00	-9.47	27.92	12.09	38.05	33.53	205	307	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	10399.20	68.13	68.20	-0.07	53.62	9.54	38.54	33.57	152	153	Peak	VERTICAL
2	15600.74	44.36	54.00	-9.64	27.80	12.11	37.98	33.53	142	278	Average	VERTICAL
3	15602.02	56.78	74.00	-17.22	40.22	12.11	37.98	33.53	142	278	Peak	VERTICAL

Temperature	22℃	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 48 / Ant. 1 + Ant. 2 + Ant. 4
Test Date	Aug. 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	10479.46	60.43	68.20	-7.77	45.94	9.59	38.44	33.54	258	246	Peak	HORIZONTAL
2	15716.92	59.39	74.00	-14.61	43.07	12.15	37.84	33.67	247	88	Peak	HORIZONTAL
3	15717.12	44.96	54.00	-9.04	28.64	12.15	37.84	33.67	247	88	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	10479.23	67.82	68.20	-0.38	53.33	9.59	38.44	33.54	152	150	Peak	VERTICAL
2	15715.16	57.70	74.00	-16.30	41.38	12.15	37.84	33.67	103	91	Peak	VERTICAL
3	15716.92	44.54	54.00	-9.46	28.22	12.15	37.84	33.67	103	91	Average	VERTICAL

Temperature	22℃	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 149 / Ant. 1 + Ant. 2 + Ant. 4
Test Date	Aug. 25, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11488.08	53.87	54.00	-0.13	37.75	10.10	39.20	33.18	151	264	Average	HORIZONTAL
2	11489.17	72.81	74.00	-1.19	56.69	10.10	39.20	33.18	151	264	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	11486.51	64.70	74.00	-9.30	48.58	10.10	39.20	33.18	144	138	Peak	VERTICAL
2	11488.72	49.81	54.00	-4.19	33.69	10.10	39.20	33.18	144	138	Average	VERTICAL

Temperature	22℃	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 157 / Ant. 1 + Ant. 2 + Ant. 4
Test Date	Aug. 25, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11569.87	68.76	74.00	-5.24	52.63	10.13	39.20	33.20	230	144	Peak	HORIZONTAL
2	11571.06	53.66	54.00	-0.34	37.53	10.13	39.20	33.20	230	144	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	11566.60	63.47	74.00	-10.53	47.34	10.13	39.20	33.20	217	360	Peak	VERTICAL
2	11570.45	48.89	54.00	-5.11	32.76	10.13	39.20	33.20	217	360	Average	VERTICAL

Temperature	22℃	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 165 / Ant. 1 + Ant. 2 + Ant. 4
Test Date	Aug. 25, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11649.52	53.86	54.00	-0.14	37.72	10.16	39.20	33.22	154	141	Average	HORIZONTAL
2	11649.81	67.82	74.00	-6.18	51.68	10.16	39.20	33.22	154	141	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	11646.57	62.56	74.00	-11.44	46.42	10.16	39.20	33.22	102	332	Peak	VERTICAL
2	11648.24	47.92	54.00	-6.08	31.78	10.16	39.20	33.22	102	332	Average	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 38 / Ant. 1 + Ant. 2 + Ant. 4
Test Date	Aug. 25, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10373.62	63.73	68.20	-4.47	49.22	9.52	38.58	33.59	133	230	Peak	HORIZONTAL
2	15566.19	60.35	74.00	-13.65	43.74	12.09	38.05	33.53	250	242	Peak	HORIZONTAL
3	15567.60	43.60	54.00	-10.40	26.99	12.09	38.05	33.53	250	242	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	10377.24	67.91	68.20	-0.29	53.40	9.52	38.58	33.59	162	140	Peak	VERTICAL
2	15570.35	59.15	74.00	-14.85	42.54	12.09	38.05	33.53	160	268	Peak	VERTICAL
3	15572.60	44.61	54.00	-9.39	28.00	12.09	38.05	33.53	160	268	Average	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 46 / Ant. 1 + Ant. 2 + Ant. 4
Test Date	Aug. 25, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10469.20	60.21	68.20	-7.99	45.72	9.59	38.44	33.54	254	145	Peak	HORIZONTAL
2	15695.45	58.93	74.00	-15.07	42.56	12.15	37.84	33.62	132	60	Peak	HORIZONTAL
3	15699.90	44.62	54.00	-9.38	28.25	12.15	37.84	33.62	132	60	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	10458.72	67.94	68.20	-0.26	53.46	9.57	38.47	33.56	148	151	Peak	VERTICAL
2	15690.32	44.89	54.00	-9.11	28.47	12.13	37.91	33.62	146	244	Average	VERTICAL
3	15693.88	58.68	74.00	-15.32	42.31	12.15	37.84	33.62	146	244	Peak	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 151 / Ant. 1 + Ant. 2 + Ant. 4
Test Date	Aug. 25, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11508.56	53.96	54.00	-0.04	37.84	10.10	39.20	33.18	199	227	Average	HORIZONTAL
2	11508.91	70.67	74.00	-3.33	54.56	10.10	39.20	33.19	199	227	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	11505.48	50.94	54.00	-3.06	34.82	10.10	39.20	33.18	183	169	Average	VERTICAL
2	11506.76	67.72	74.00	-6.28	51.60	10.10	39.20	33.18	183	169	Peak	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 159 / Ant. 1 + Ant. 2 + Ant. 4
Test Date	Aug. 25, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11589.01	53.78	54.00	-0.22	37.64	10.15	39.20	33.21	153	235	Average	HORIZONTAL
2	11591.38	70.95	74.00	-3.05	54.81	10.15	39.20	33.21	153	235	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	11583.72	49.36	54.00	-4.64	33.21	10.15	39.20	33.20	102	323	Average	VERTICAL
2	11588.78	65.48	74.00	-8.52	49.34	10.15	39.20	33.21	102	323	Peak	VERTICAL

Temperature	22℃	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 42 / Ant. 1 + Ant. 2 + Ant. 4
Test Date	Aug. 25, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10429.10	58.61	68.20	-9.59	44.12	9.55	38.51	33.57	172	251	Peak	HORIZONTAL
2	15629.49	57.32	74.00	-16.68	40.81	12.11	37.98	33.58	232	181	Peak	HORIZONTAL
3	15632.24	45.34	54.00	-8.66	28.83	12.11	37.98	33.58	232	181	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	10411.89	65.36	68.20	-2.84	50.87	9.55	38.51	33.57	156	147	Peak	VERTICAL
2	15622.08	57.92	74.00	-16.08	41.41	12.11	37.98	33.58	156	213	Peak	VERTICAL
3	15632.95	44.29	54.00	-9.71	27.78	12.11	37.98	33.58	156	213	Average	VERTICAL

Temperature	22℃	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 155 / Ant. 1 + Ant. 2 + Ant. 4
Test Date	Aug. 25, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11541.96	62.04	74.00	-11.96	45.91	10.12	39.20	33.19	171	255	Peak	HORIZONTAL
2	11558.56	46.26	54.00	-7.74	30.13	10.13	39.20	33.20	171	255	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	11540.64	58.69	74.00	-15.31	42.56	10.12	39.20	33.19	169	224	Peak	VERTICAL
2	11557.47	44.63	54.00	-9.37	28.50	10.13	39.20	33.20	169	224	Average	VERTICAL

Note:

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

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

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

For beamforming mode

Temperature	22°C	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 36 / Ant. 1 + Ant. 2 + Ant. 4
Test Date	Sep. 01, 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	10360.83	60.15	68.20	-8.05	45.66	9.52	38.58	33.61	144	87	Peak	HORIZONTAL
2	15536.23	57.90	74.00	-16.10	41.20	12.06	38.13	33.49	189	266	Peak	HORIZONTAL
3	15540.10	44.44	54.00	-9.56	27.74	12.06	38.13	33.49	189	266	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	10359.55	68.13	68.20	-0.07	53.64	9.52	38.58	33.61	153	133	Peak	VERTICAL
2	15535.79	58.35	74.00	-15.65	41.65	12.06	38.13	33.49	208	236	Peak	VERTICAL
3	15541.52	44.57	54.00	-9.43	27.87	12.06	38.13	33.49	208	236	Average	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 40 / Ant. 1 + Ant. 2 + Ant. 4
Test Date	Sep. 01, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10399.52	65.58	68.20	-2.62	51.07	9.54	38.54	33.57	100	120	Peak	HORIZONTAL
2	15600.50	50.61	54.00	-3.39	34.05	12.11	37.98	33.53	144	235	Average	HORIZONTAL
3	15602.95	66.39	74.00	-7.61	49.83	12.11	37.98	33.53	144	235	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	10400.71	67.81	68.20	-0.39	53.30	9.54	38.54	33.57	152	32	Peak	VERTICAL
2	15595.51	61.75	74.00	-12.25	45.14	12.09	38.05	33.53	100	317	Peak	VERTICAL
3	15598.17	46.73	54.00	-7.27	30.12	12.09	38.05	33.53	100	317	Average	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 48 / Ant. 1 + Ant. 2 + Ant. 4
Test Date	Sep. 01, 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	10480.08	61.37	68.20	-6.83	46.88	9.59	38.44	33.54	106	220	Peak	HORIZONTAL
2	15717.37	45.07	54.00	-8.93	28.75	12.15	37.84	33.67	200	195	Average	HORIZONTAL
3	15721.35	59.61	74.00	-14.39	43.29	12.15	37.84	33.67	200	195	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	10475.75	67.60	68.20	-0.60	53.11	9.59	38.44	33.54	152	116	Peak	VERTICAL
2	15717.05	44.31	54.00	-9.69	27.99	12.15	37.84	33.67	144	229	Average	VERTICAL
3	15722.15	57.92	74.00	-16.08	41.60	12.15	37.84	33.67	144	229	Peak	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 149 / Ant. 1 + Ant. 2 + Ant. 4
Test Date	Sep. 01, 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	11487.77	67.45	74.00	-6.55	51.33	10.10	39.20	33.18	283	162	Peak	HORIZONTAL
2	11488.70	53.07	54.00	-0.93	36.95	10.10	39.20	33.18	283	162	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11487.60	66.49	74.00	-7.51	50.37	10.10	39.20	33.18	233	15	Peak	VERTICAL
2	11488.86	52.30	54.00	-1.70	36.18	10.10	39.20	33.18	233	15	Average	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 157 / Ant. 1 + Ant. 2 + Ant. 4
Test Date	Sep. 01, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11570.77	53.58	54.00	-0.42	37.45	10.13	39.20	33.20	267	265	Average	HORIZONTAL
2	11572.39	68.32	74.00	-5.68	52.19	10.13	39.20	33.20	267	265	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11570.82	66.35	74.00	-7.65	50.22	10.13	39.20	33.20	190	324	Peak	VERTICAL
2	11573.00	52.96	54.00	-1.04	36.83	10.13	39.20	33.20	190	324	Average	VERTICAL

Temperature	22℃	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 165 / Ant. 1 + Ant. 2 + Ant. 4
Test Date	Sep. 01, 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	11651.12	66.83	74.00	-7.17	50.67	10.18	39.20	33.22	228	136	Peak	HORIZONTAL
2	11653.37	52.75	54.00	-1.25	36.59	10.18	39.20	33.22	228	136	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	11649.90	48.97	54.00	-5.03	32.83	10.16	39.20	33.22	222	349	Average	VERTICAL
2	11652.40	62.64	74.00	-11.36	46.48	10.18	39.20	33.22	222	349	Peak	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 38 / Ant. 1 + Ant. 2 + Ant. 4
Test Date	Sep. 01, 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	15566.17	58.62	74.00	-15.38	42.01	12.09	38.05	33.53	146	225	Peak	HORIZONTAL
2	15567.13	45.57	54.00	-8.43	28.96	12.09	38.05	33.53	146	225	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	15565.16	58.57	74.00	-15.43	41.96	12.09	38.05	33.53	164	287	Peak	VERTICAL
2	15572.52	45.17	54.00	-8.83	28.56	12.09	38.05	33.53	164	287	Average	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 46 / Ant. 1 + Ant. 2 + Ant. 4
Test Date	Sep. 01, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15690.48	63.27	74.00	-10.73	46.85	12.13	37.91	33.62	279	235	Peak	HORIZONTAL
2	15696.73	49.79	54.00	-4.21	33.42	12.15	37.84	33.62	279	235	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	15690.77	59.25	74.00	-14.75	42.83	12.13	37.91	33.62	186	183	Peak	VERTICAL
2	15697.95	47.43	54.00	-6.57	31.06	12.15	37.84	33.62	186	183	Average	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 151 / Ant. 1 + Ant. 2 + Ant. 4
Test Date	Sep. 01, 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	11500.29	52.61	54.00	-1.39	36.49	10.10	39.20	33.18	150	258	Average	HORIZONTAL
2	11511.59	66.11	74.00	-7.89	50.00	10.10	39.20	33.19	150	258	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	11500.93	62.75	74.00	-11.25	46.63	10.10	39.20	33.18	107	314	Peak	VERTICAL
2	11510.54	50.85	54.00	-3.15	34.74	10.10	39.20	33.19	107	314	Average	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 159 / Ant. 1 + Ant. 2 + Ant. 4
Test Date	Sep. 01, 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	11590.43	53.88	54.00	-0.12	37.74	10.15	39.20	33.21	154	257	Average	HORIZONTAL
2	11591.01	66.76	74.00	-7.24	50.62	10.15	39.20	33.21	154	257	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	11581.78	58.60	74.00	-15.40	42.47	10.13	39.20	33.20	198	188	Peak	VERTICAL
2	11590.48	50.02	54.00	-3.98	33.88	10.15	39.20	33.21	198	188	Average	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 42 / Ant. 1 + Ant. 2 + Ant. 4
Test Date	Sep. 01, 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	15621.47	57.96	74.00	-16.04	41.45	12.11	37.98	33.58	237	333	Peak	HORIZONTAL
2	15637.56	45.18	54.00	-8.82	28.67	12.11	37.98	33.58	237	333	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	15626.28	57.95	74.00	-16.05	41.44	12.11	37.98	33.58	190	231	Peak	VERTICAL
2	15639.78	45.35	54.00	-8.65	28.84	12.11	37.98	33.58	190	231	Average	VERTICAL

Temperature	22℃	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 155 / Ant. 1 + Ant. 2 + Ant. 4
Test Date	Sep. 01, 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	11543.97	61.59	74.00	-12.41	45.46	10.12	39.20	33.19	166	122	Peak	HORIZONTAL
2	11550.77	48.54	54.00	-5.46	32.41	10.13	39.20	33.20	166	122	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	11540.00	46.40	54.00	-7.60	30.27	10.12	39.20	33.19	170	187	Average	VERTICAL
2	11557.79	58.24	74.00	-15.76	42.11	10.13	39.20	33.20	170	187	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.

4.7. Band Edge Emissions Measurement

4.7.1. Limit

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

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

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

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

4.7.2. Measuring Instruments and Setting

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

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

4.7.3. Test Procedures

1. The test procedure is the same as section 4.6.3.

4.7.4. Test Setup Layout

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

4.7.5. Test Deviation

There is no deviation with the original standard.

4.7.6. EUT Operation during Test

For Non-beamforming mode:

The EUT was programmed to be in continuously transmitting mode.

For beamforming mode:

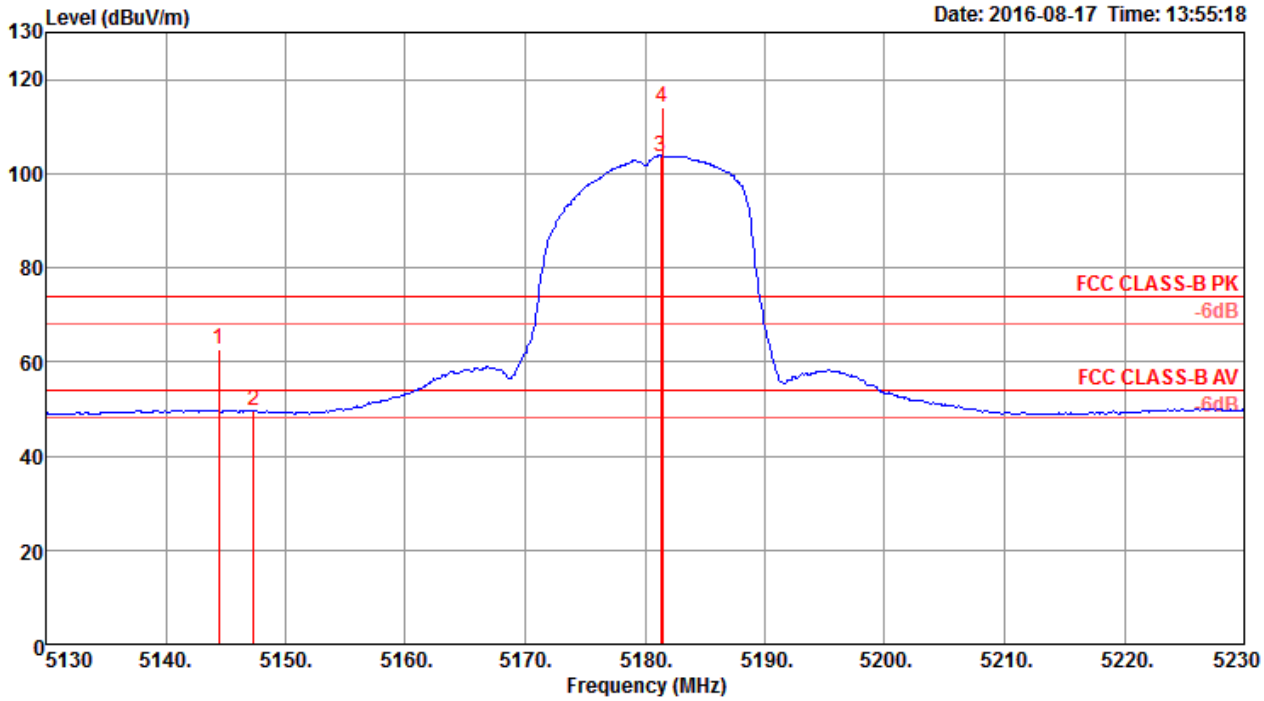
The EUT was programmed to be in beamforming transmitting mode.

4.7.7. Test Result of Band Edge and Fundamental Emissions

For non-beamforming mode

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

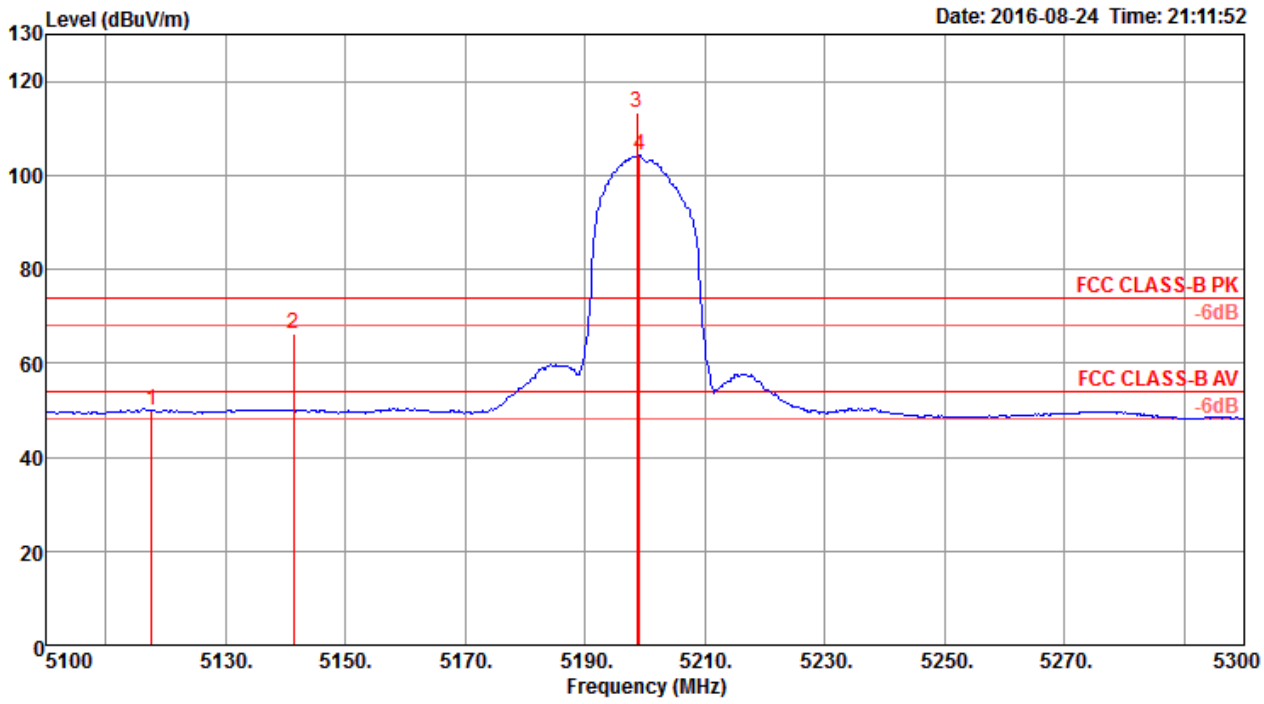
Channel 36



	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	5144.42	62.78	74.00	-11.22	55.52	6.44	33.74	32.92	242	38	Peak	VERTICAL
2	5147.31	49.67	54.00	-4.33	42.41	6.44	33.74	32.92	242	38	Average	VERTICAL
3	5181.28	103.72			96.38	6.47	33.79	32.92	242	38	Average	VERTICAL
4	5181.44	114.03			106.69	6.47	33.79	32.92	242	38	Peak	VERTICAL

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

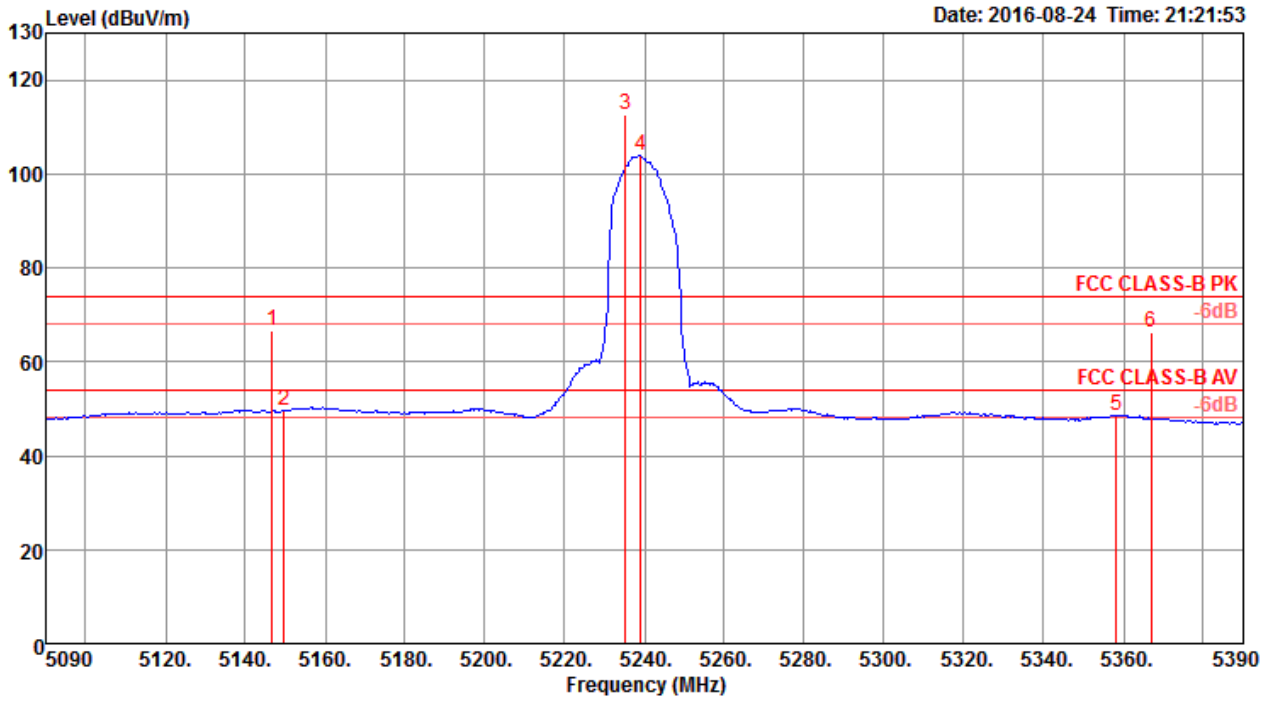
Channel 40



	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	5117.63	50.11	54.00	-3.89	42.92	6.41	33.69	32.91	170	351	Average	VERTICAL
2	5141.35	66.43	74.00	-7.57	59.20	6.43	33.72	32.92	170	351	Peak	VERTICAL
3 @	5198.72	113.29			105.91	6.48	33.82	32.92	170	351	Peak	VERTICAL
4 @	5199.04	104.22			96.84	6.48	33.82	32.92	170	351	Average	VERTICAL

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

Channel 48

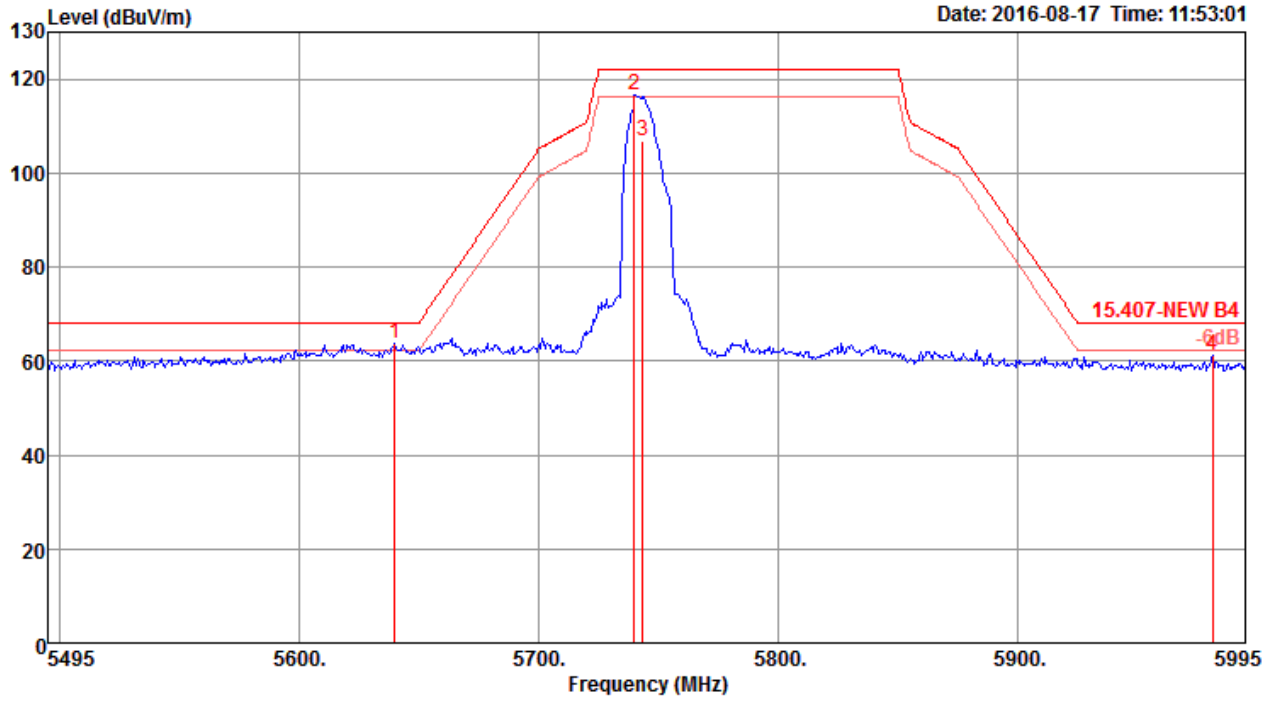


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5146.73	66.79	74.00	-7.21	59.53	6.44	33.74	32.92	151	349	Peak	VERTICAL
2	5149.62	49.66	54.00	-4.34	42.40	6.44	33.74	32.92	151	349	Average	VERTICAL
3 @	5235.19	112.76			105.27	6.52	33.89	32.92	151	349	Peak	VERTICAL
4 @	5239.04	103.86			96.37	6.52	33.89	32.92	151	349	Average	VERTICAL
5	5358.27	48.66	54.00	-5.34	40.88	6.62	34.08	32.92	151	349	Average	VERTICAL
6	5366.92	66.11	74.00	-7.89	58.34	6.62	34.08	32.93	151	349	Peak	VERTICAL

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

Temperature	22℃	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11a CH 149, 157, 165 / Ant. 1 + Ant. 2 + Ant. 4

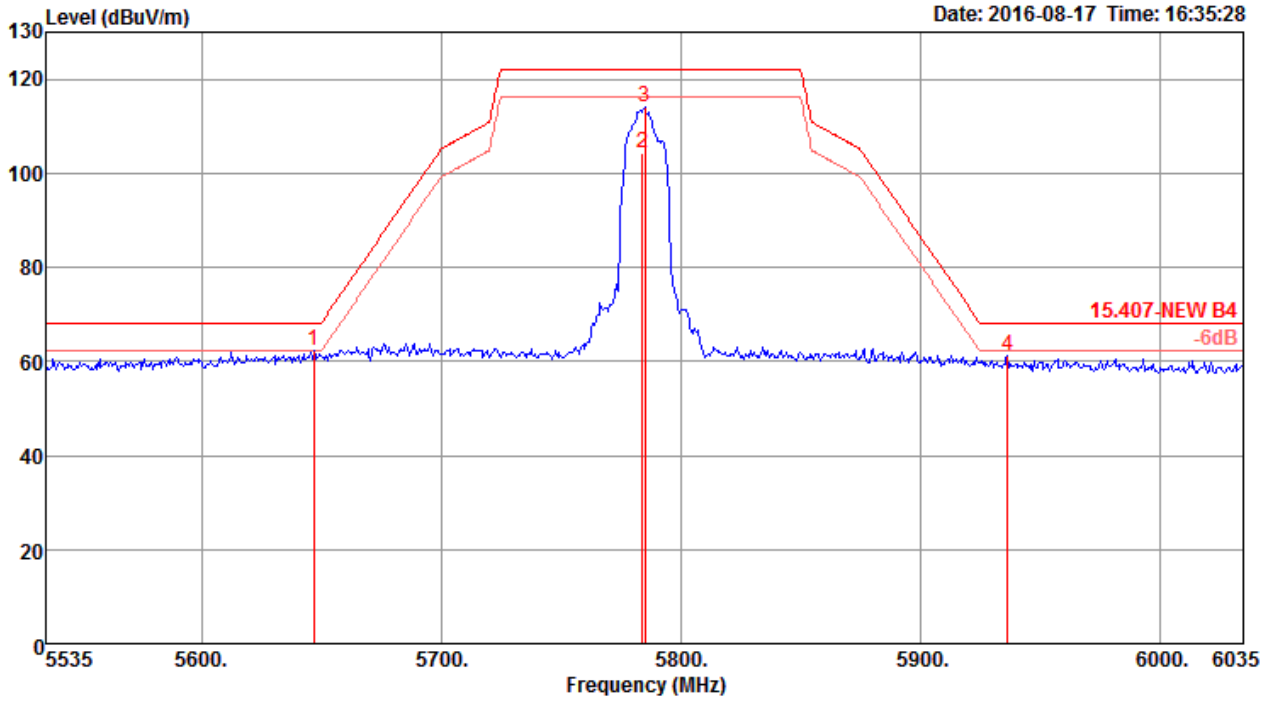
Channel 149



	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	5640.00	63.62	68.20	-4.58	55.43	6.78	34.38	32.97	165	332	Peak	VERTICAL
2	5740.00	116.70			108.34	6.90	34.45	32.99	165	332	Peak	VERTICAL
3	5743.40	106.90			98.54	6.90	34.45	32.99	165	332	Average	VERTICAL
4	5981.50	61.13	68.20	-7.07	52.60	7.00	34.59	33.06	165	332	Peak	VERTICAL

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

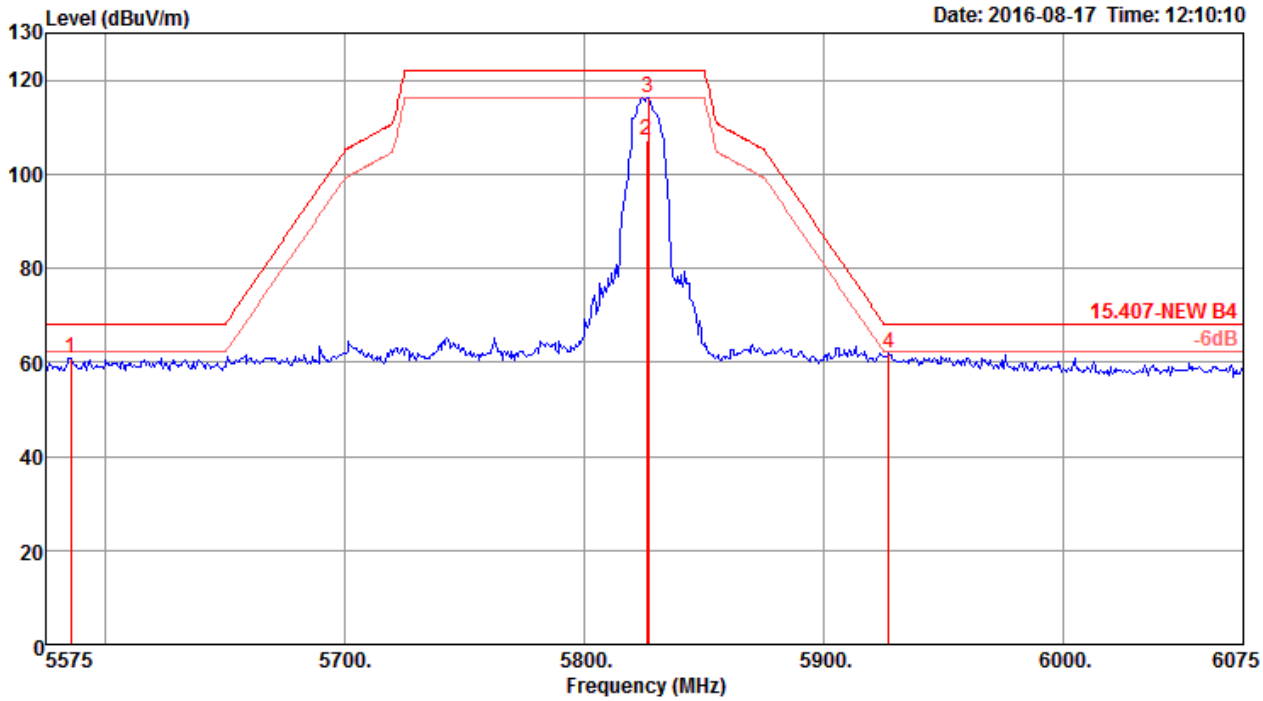
Channel 157



	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	5647.00	62.35	68.20	-5.85	54.13	6.80	34.39	32.97	162	0	Peak	HORIZONTAL
2	5784.20	104.16			95.77	6.93	34.47	33.01	162	0	Average	HORIZONTAL
3	5785.00	114.11			105.72	6.93	34.47	33.01	162	0	Peak	HORIZONTAL
4	5936.50	61.14	68.20	-7.06	52.64	6.98	34.56	33.04	162	0	Peak	HORIZONTAL

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

Channel 165

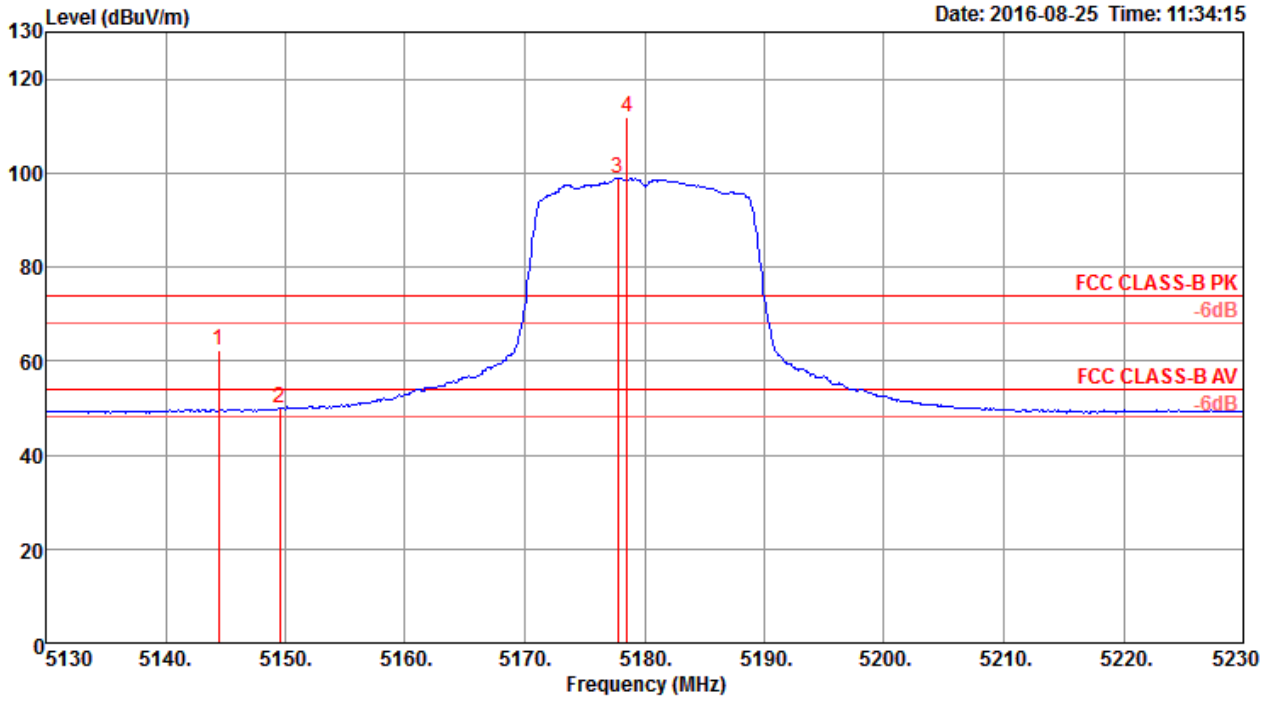


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5585.50	60.94	68.20	-7.26	52.80	6.74	34.35	32.95	167	337	Peak	VERTICAL
2	5825.80	107.22			98.78	6.96	34.50	33.02	167	337	Average	VERTICAL
3	5826.50	116.38			107.94	6.96	34.50	33.02	167	337	Peak	VERTICAL
4	5927.00	61.84	68.20	-6.36	53.34	6.98	34.56	33.04	167	337	Peak	VERTICAL

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

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

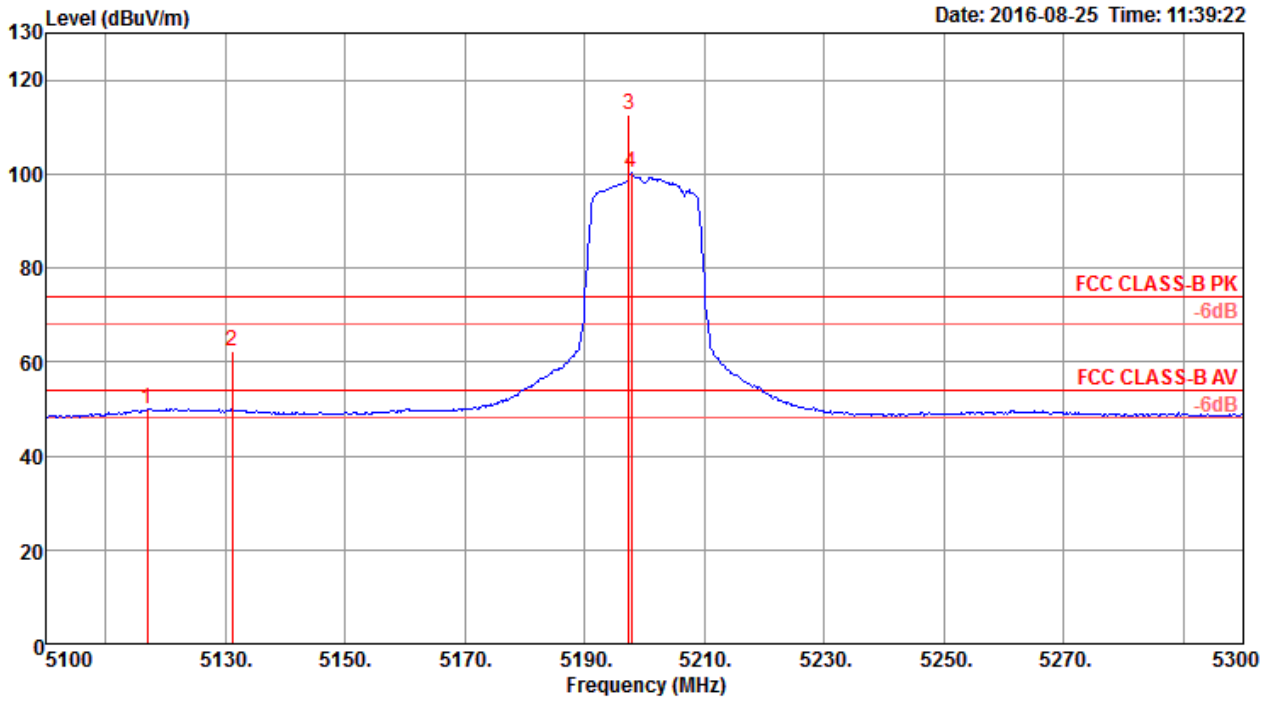
Channel 36



	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	5144.42	62.39	74.00	-11.61	55.13	6.44	33.74	32.92	150	7	Peak	HORIZONTAL
2	5149.55	49.90	54.00	-4.10	42.64	6.44	33.74	32.92	150	7	Average	HORIZONTAL
3 @	5177.76	98.98			91.64	6.47	33.79	32.92	150	7	Average	HORIZONTAL
4 @	5178.56	111.75			104.41	6.47	33.79	32.92	150	7	Peak	HORIZONTAL

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

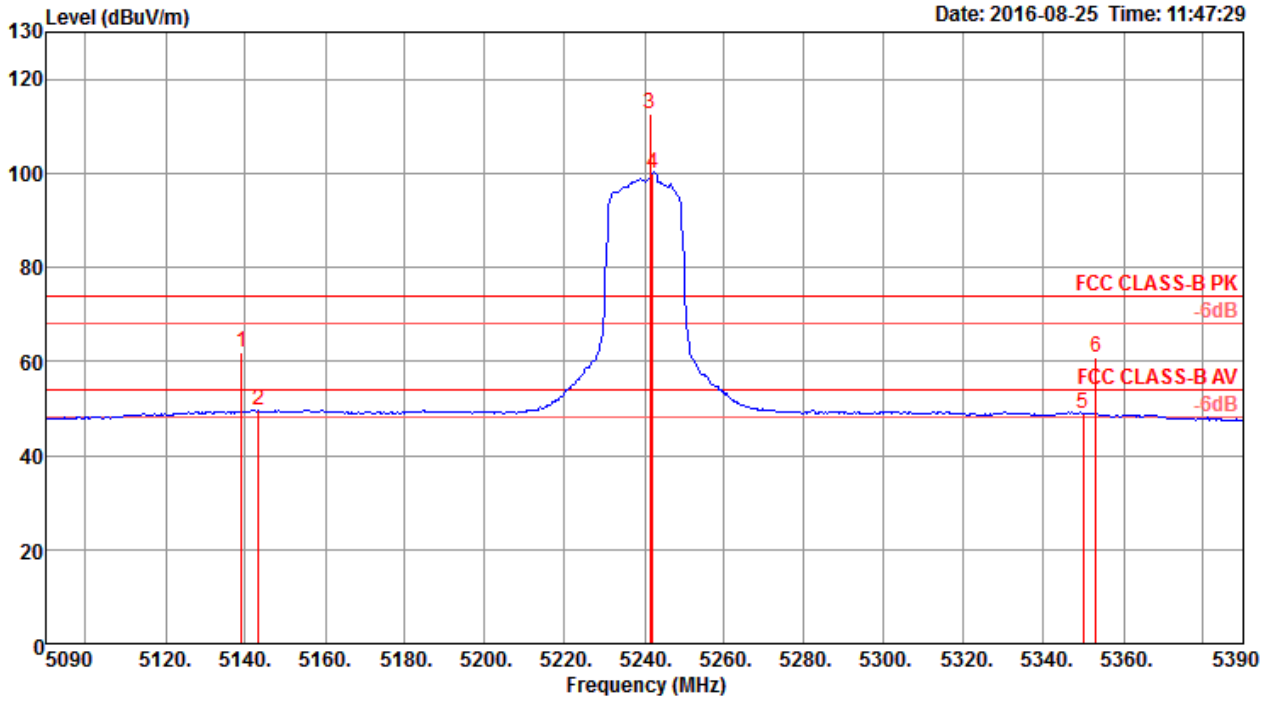
Channel 40



	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	5116.99	49.90	54.00	-4.10	42.71	6.41	33.69	32.91	143	16	Average	VERTICAL
2	5131.09	62.22	74.00	-11.78	54.99	6.43	33.72	32.92	143	16	Peak	VERTICAL
3 @	5197.44	112.54			105.16	6.48	33.82	32.92	143	16	Peak	VERTICAL
4 @	5197.76	100.13			92.75	6.48	33.82	32.92	143	16	Average	VERTICAL

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

Channel 48

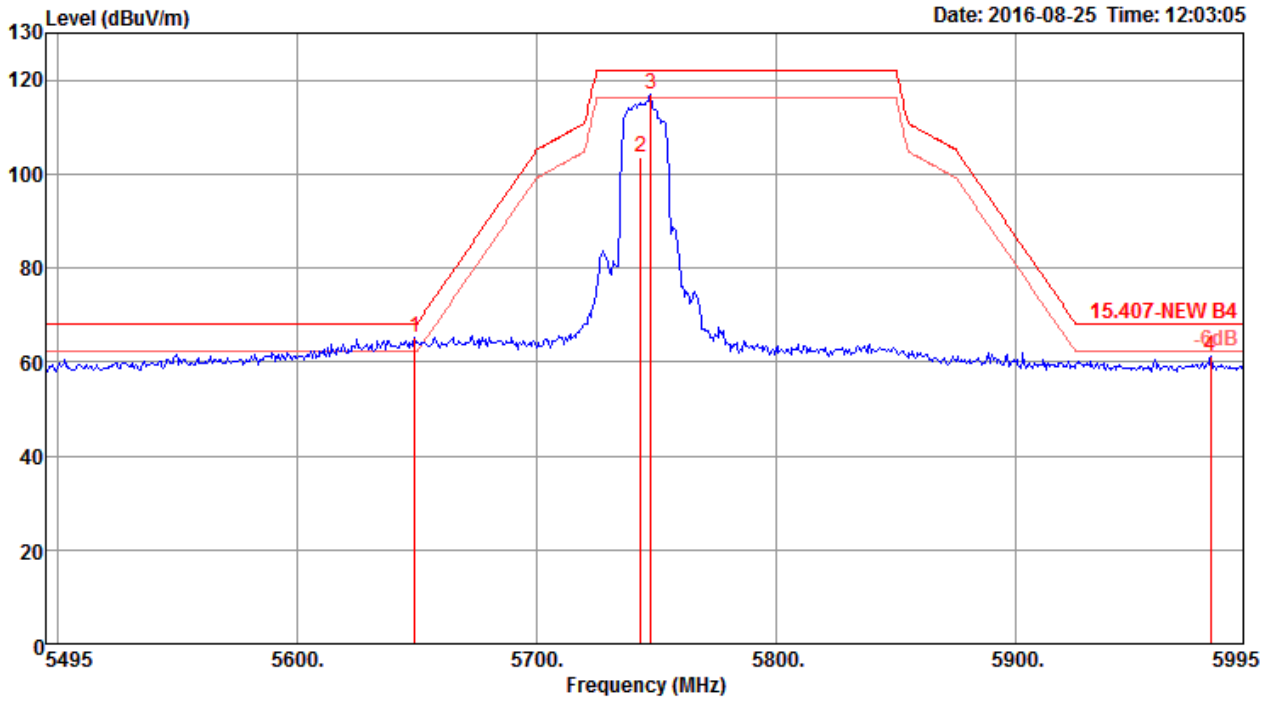


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5139.04	61.92	74.00	-12.08	54.69	6.43	33.72	32.92	185	97	Peak	VERTICAL
2	5143.37	49.58	54.00	-4.42	42.32	6.44	33.74	32.92	185	97	Average	VERTICAL
3 @	5241.44	112.73			105.24	6.52	33.89	32.92	185	97	Peak	VERTICAL
4 @	5241.92	99.96			92.47	6.52	33.89	32.92	185	97	Average	VERTICAL
5	5350.00	48.81	54.00	-5.19	41.06	6.61	34.06	32.92	185	97	Average	VERTICAL
6	5352.98	61.00	74.00	-13.00	53.25	6.61	34.06	32.92	185	97	Peak	VERTICAL

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

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

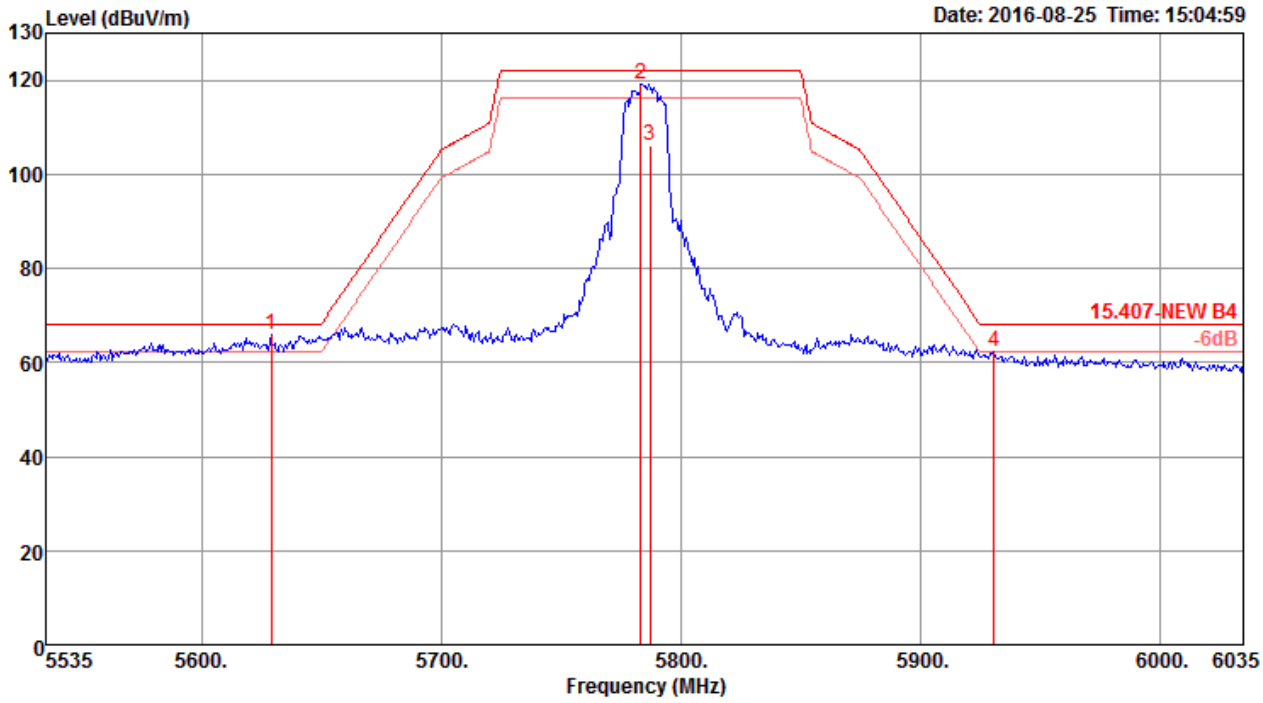
Channel 149



	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	5649.00	65.09	68.20	-3.11	56.87	6.80	34.39	32.97	161	237	Peak	HORIZONTAL
2	5743.40	103.39			95.03	6.90	34.45	32.99	161	237	Average	HORIZONTAL
3	5747.50	116.81			108.46	6.90	34.45	33.00	161	237	Peak	HORIZONTAL
4	5981.50	61.31	68.20	-6.89	52.78	7.00	34.59	33.06	161	237	Peak	HORIZONTAL

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

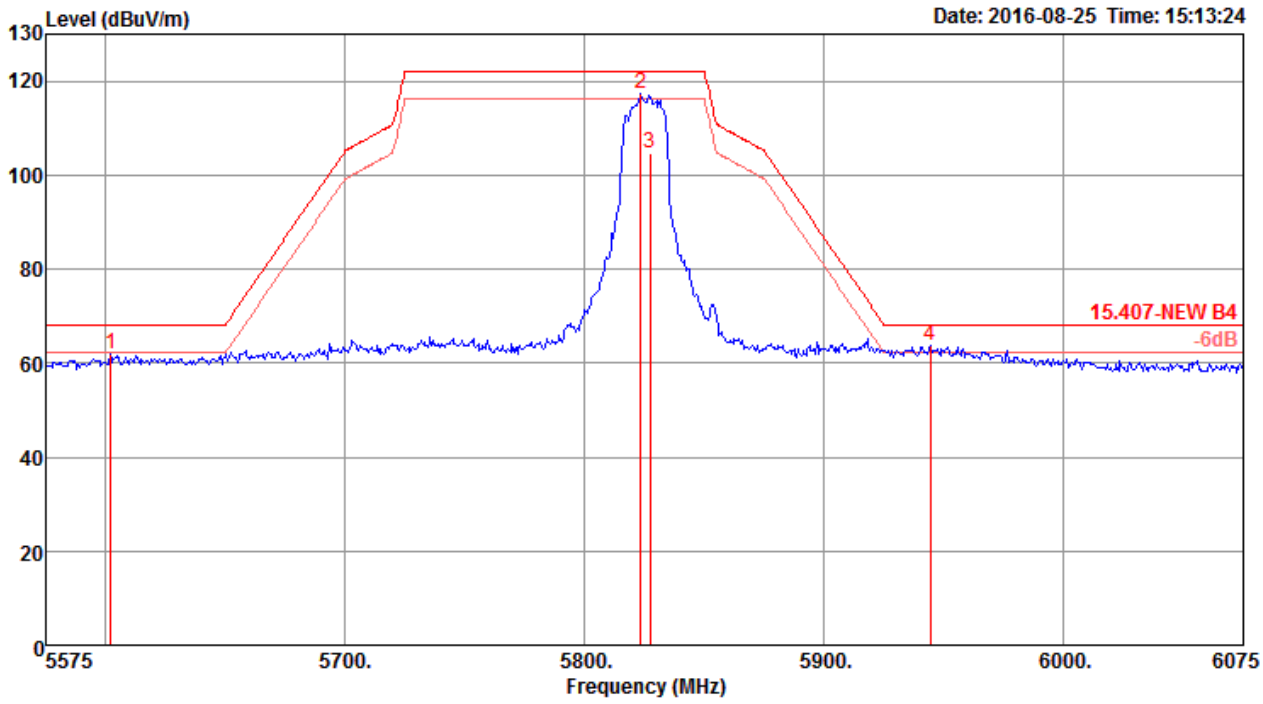
Channel 157



	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	5629.00	66.03	68.20	-2.17	57.83	6.78	34.38	32.96	155	340	Peak	VERTICAL
2	5783.50	119.11			110.72	6.93	34.47	33.01	155	340	Peak	VERTICAL
3	5787.40	106.04			97.65	6.93	34.47	33.01	155	340	Average	VERTICAL
4	5931.00	62.43	68.20	-5.77	53.93	6.98	34.56	33.04	155	340	Peak	VERTICAL

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

Channel 165

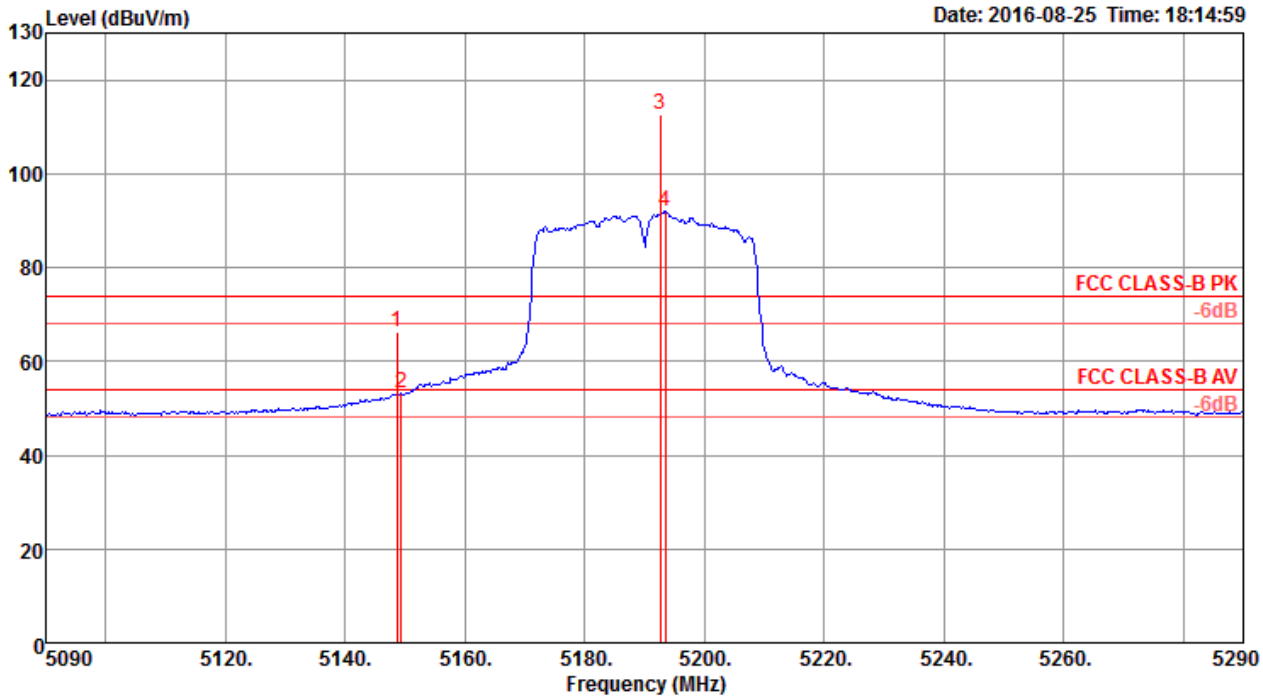


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5602.00	62.02	68.20	-6.18	53.87	6.75	34.36	32.96	166	23	Peak	VERTICAL
2	5823.50	117.30			108.86	6.96	34.50	33.02	166	23	Peak	VERTICAL
3	5827.40	104.53			96.09	6.96	34.50	33.02	166	23	Average	VERTICAL
4	5944.50	63.64	68.20	-4.56	55.13	6.99	34.57	33.05	166	23	Peak	VERTICAL

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

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

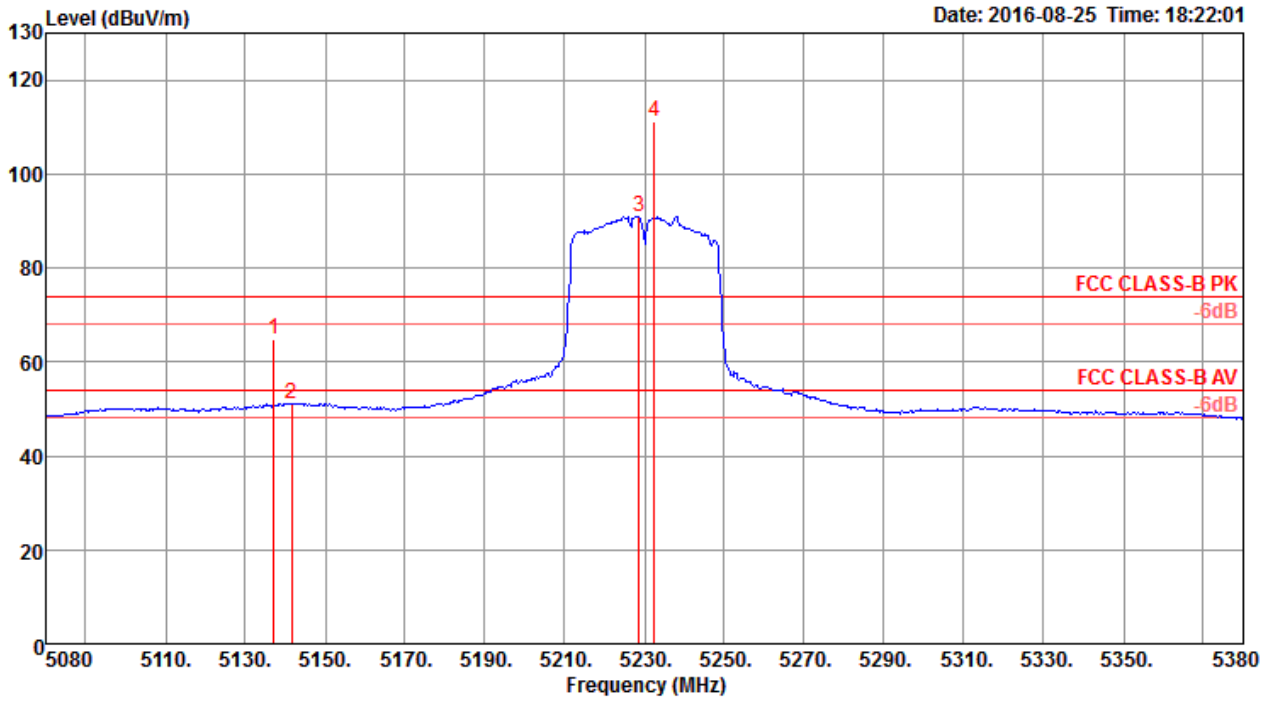
Channel 38



	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	5148.65	66.29	74.00	-7.71	59.03	6.44	33.74	32.92	185	16	Peak	VERTICAL
2	5149.30	53.29	54.00	-0.71	46.03	6.44	33.74	32.92	185	16	Average	VERTICAL
3 @	5192.56	112.60			105.22	6.48	33.82	32.92	185	16	Peak	VERTICAL
4 @	5193.53	91.87			84.49	6.48	33.82	32.92	185	16	Average	VERTICAL

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

Channel 46

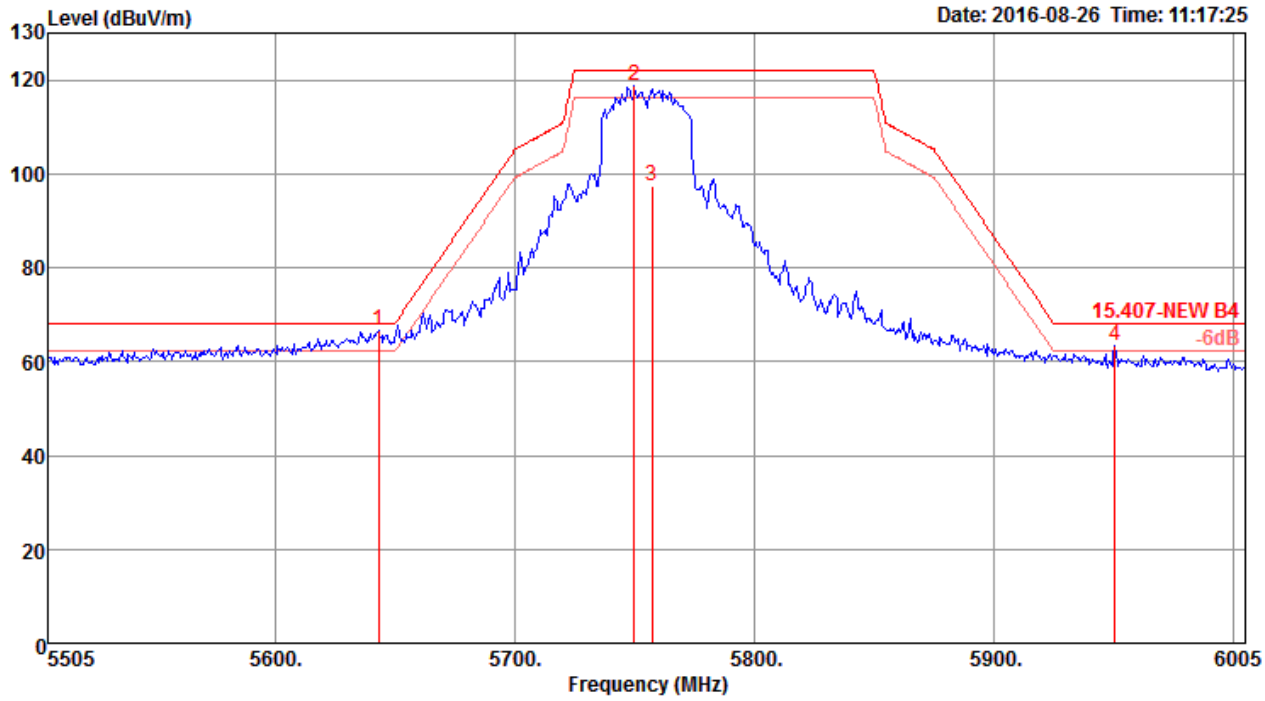


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5137.21	64.77	74.00	-9.23	57.54	6.43	33.72	32.92	172	8	Peak	VERTICAL
2	5141.54	51.13	54.00	-2.87	43.90	6.43	33.72	32.92	172	8	Average	VERTICAL
3 @	5228.56	90.93			83.48	6.51	33.86	32.92	172	8	Average	VERTICAL
4 @	5232.40	111.11			103.62	6.52	33.89	32.92	172	8	Peak	VERTICAL

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

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

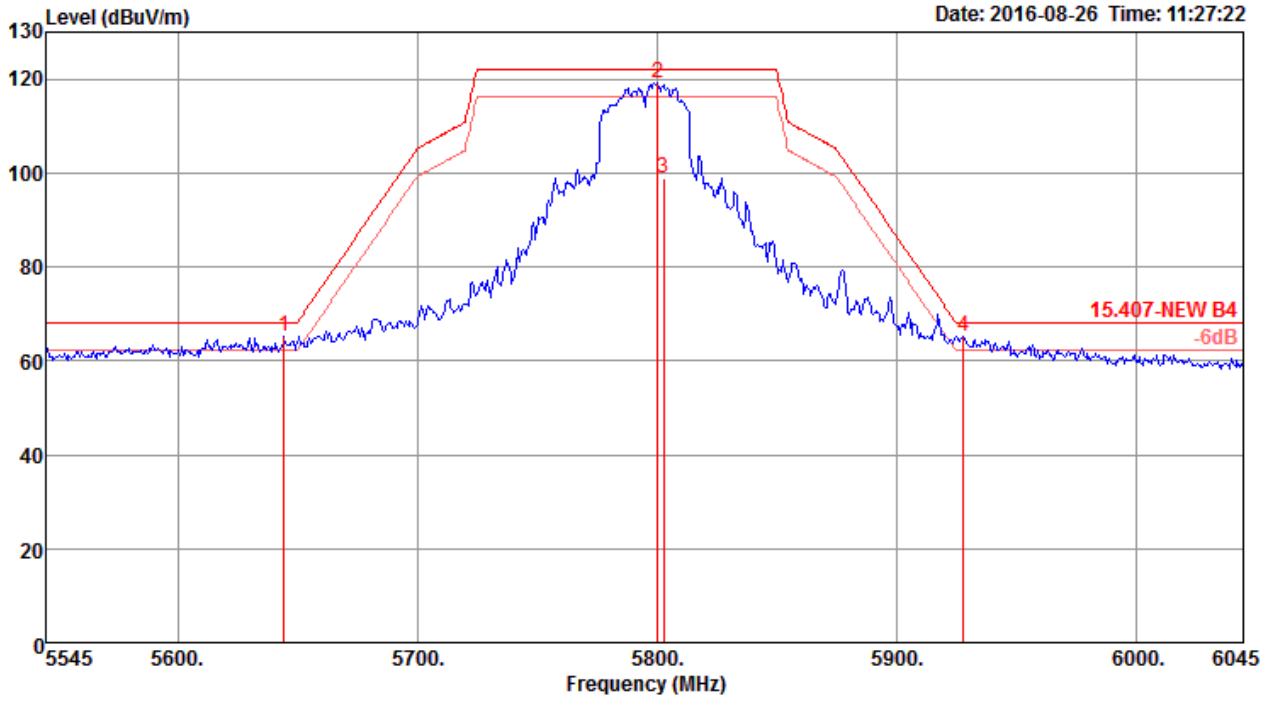
Channel 151



	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	66.62	68.20	-1.58	58.40	6.80	34.39	32.97	166	23	Peak	VERTICAL
2	5750.00	118.69			110.34	6.90	34.45	33.00	166	23	Peak	VERTICAL
3	5757.40	97.27			88.89	6.92	34.46	33.00	166	23	Average	VERTICAL
4	5950.50	63.27	68.20	-4.93	54.76	6.99	34.57	33.05	166	23	Peak	VERTICAL

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

Channel 159

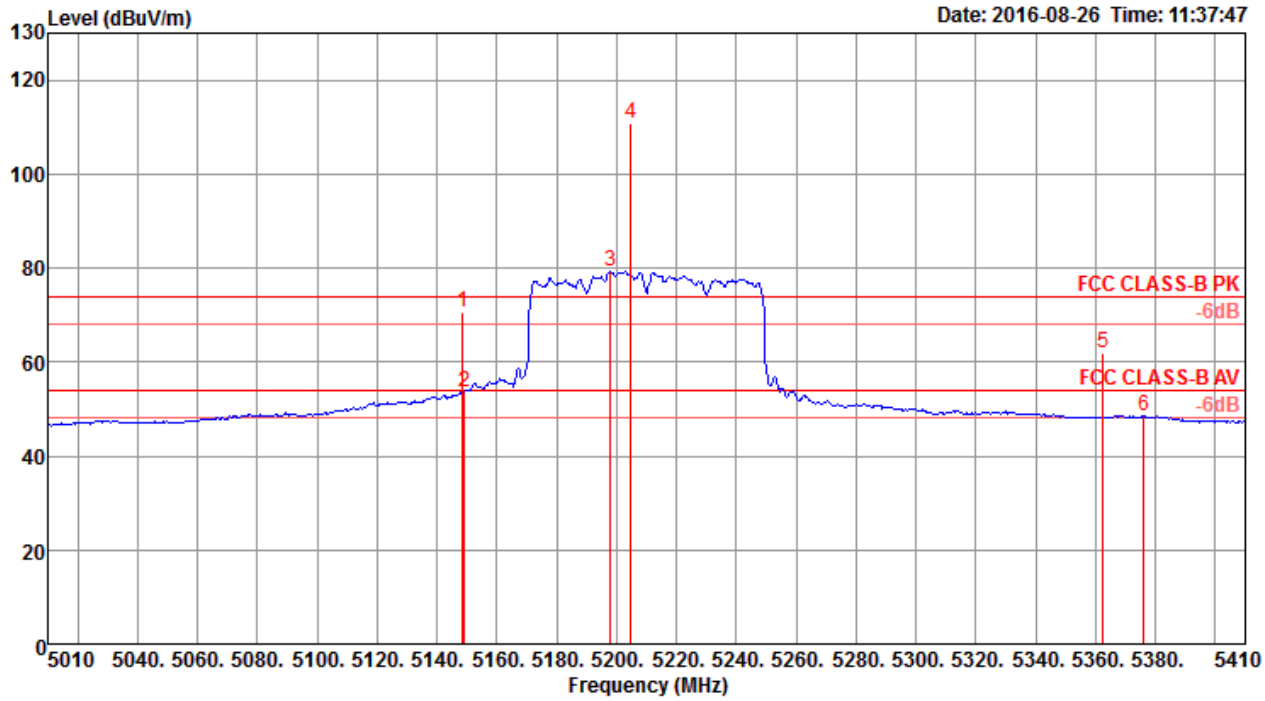


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5644.50	65.04	68.20	-3.16	56.82	6.80	34.39	32.97	164	26	Peak	VERTICAL
2	5800.50	119.26			110.84	6.95	34.48	33.01	164	26	Peak	VERTICAL
3	5803.01	98.68			90.26	6.95	34.48	33.01	164	26	Average	VERTICAL
4	5928.00	65.31	68.20	-2.89	56.81	6.98	34.56	33.04	164	26	Peak	VERTICAL

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

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

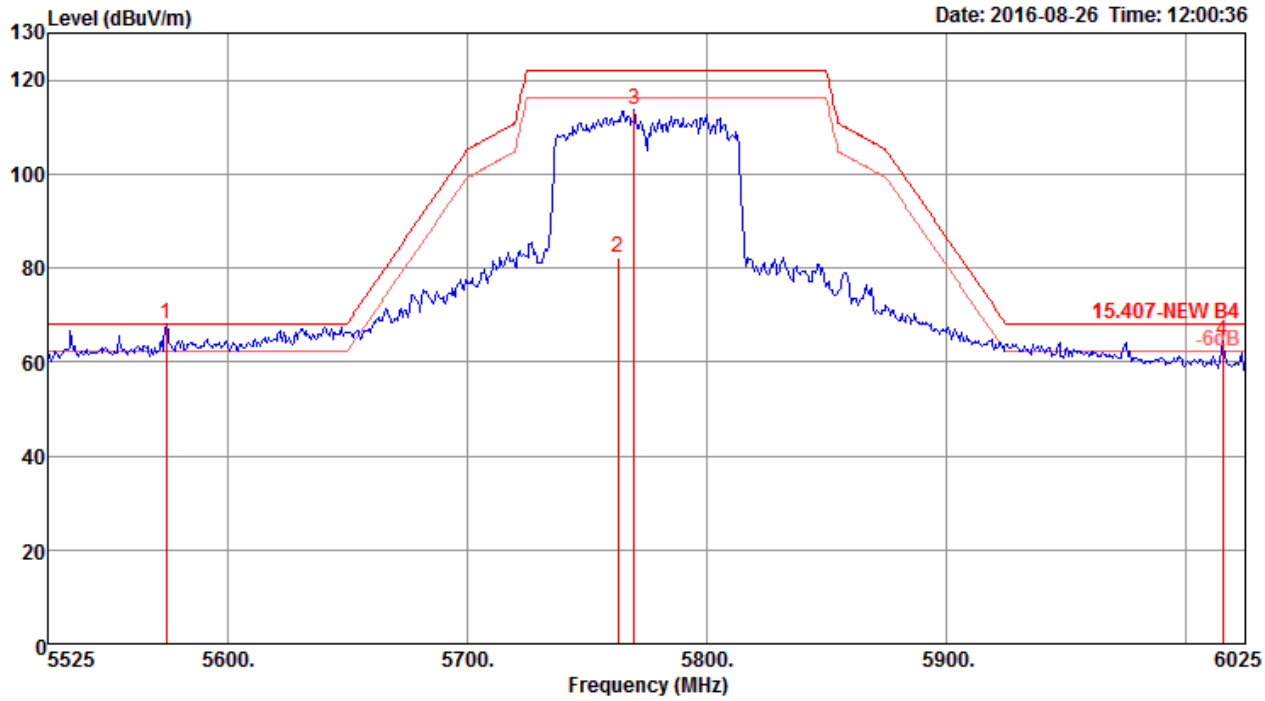
Channel 42



	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	5148.46	70.63	74.00	-3.37	63.37	6.44	33.74	32.92	170	16	Peak	VERTICAL
2	5149.10	53.71	54.00	-0.29	46.45	6.44	33.74	32.92	170	16	Average	VERTICAL
3 @	5197.82	79.42			72.04	6.48	33.82	32.92	170	16	Average	VERTICAL
4 @	5204.87	110.93			103.52	6.49	33.84	32.92	170	16	Peak	VERTICAL
5	5362.56	62.10	74.00	-11.90	54.32	6.62	34.08	32.92	170	16	Peak	VERTICAL
6	5376.03	48.59	54.00	-5.41	40.77	6.64	34.11	32.93	170	16	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	5574.50	68.19	68.20	-0.01	60.07	6.73	34.34	32.95	151	26	Peak	VERTICAL
2	5762.98	82.36			73.98	6.92	34.46	33.00	151	26	Average	VERTICAL
3	5770.00	113.81			105.43	6.92	34.46	33.00	151	26	Peak	VERTICAL
4	6015.50	64.61	68.20	-3.59	56.05	7.02	34.60	33.06	151	26	Peak	VERTICAL

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

Note:

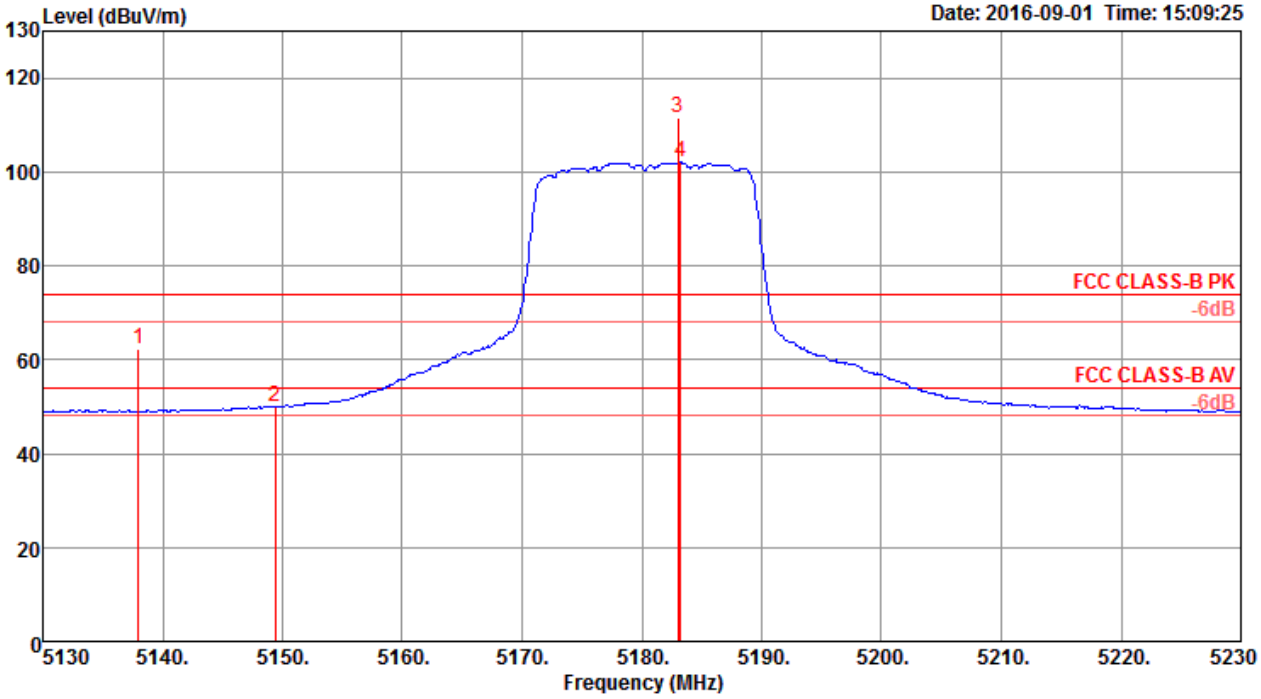
Emission level (dBuV/m) = 20 log Emission level (uV/m)

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

For beamforming mode

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

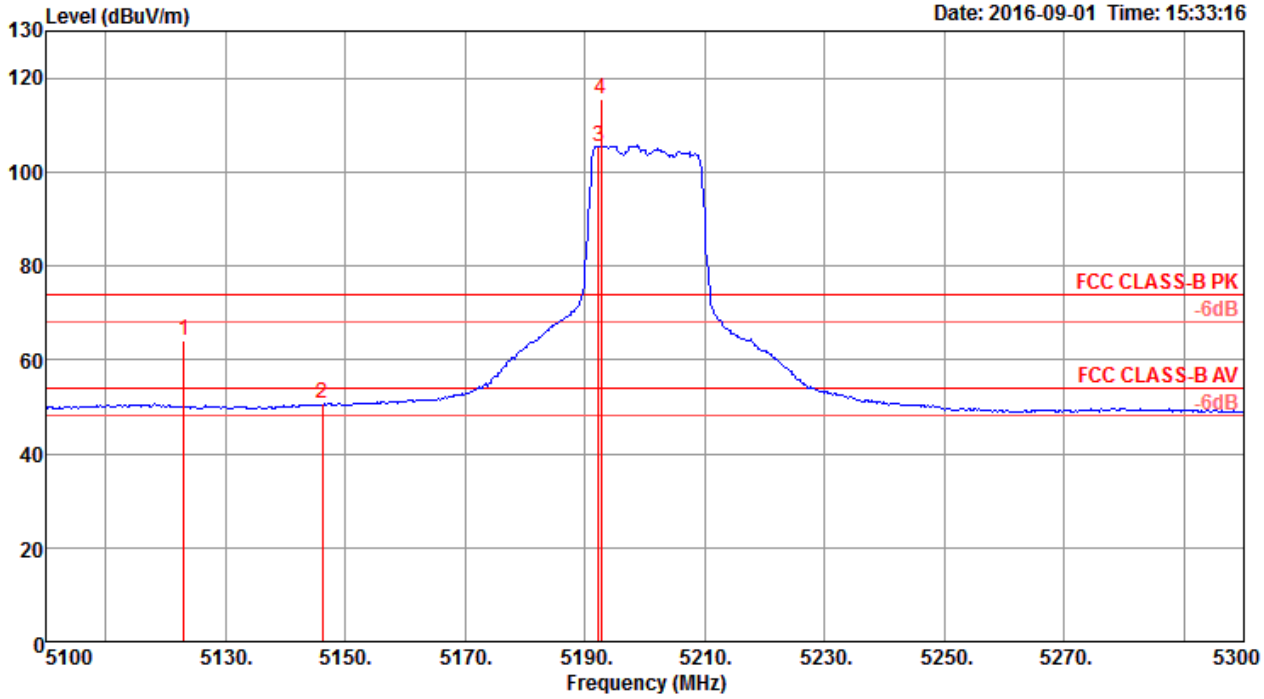
Channel 36



	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	5138.01	62.44	74.00	-11.56	55.21	6.43	33.72	32.92	178	360	Peak	HORIZONTAL
2	5149.39	50.06	54.00	-3.94	42.80	6.44	33.74	32.92	178	360	Average	HORIZONTAL
3 @	5183.05	111.67			104.33	6.47	33.79	32.92	178	360	Peak	HORIZONTAL
4 @	5183.21	102.05			94.71	6.47	33.79	32.92	178	360	Average	HORIZONTAL

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

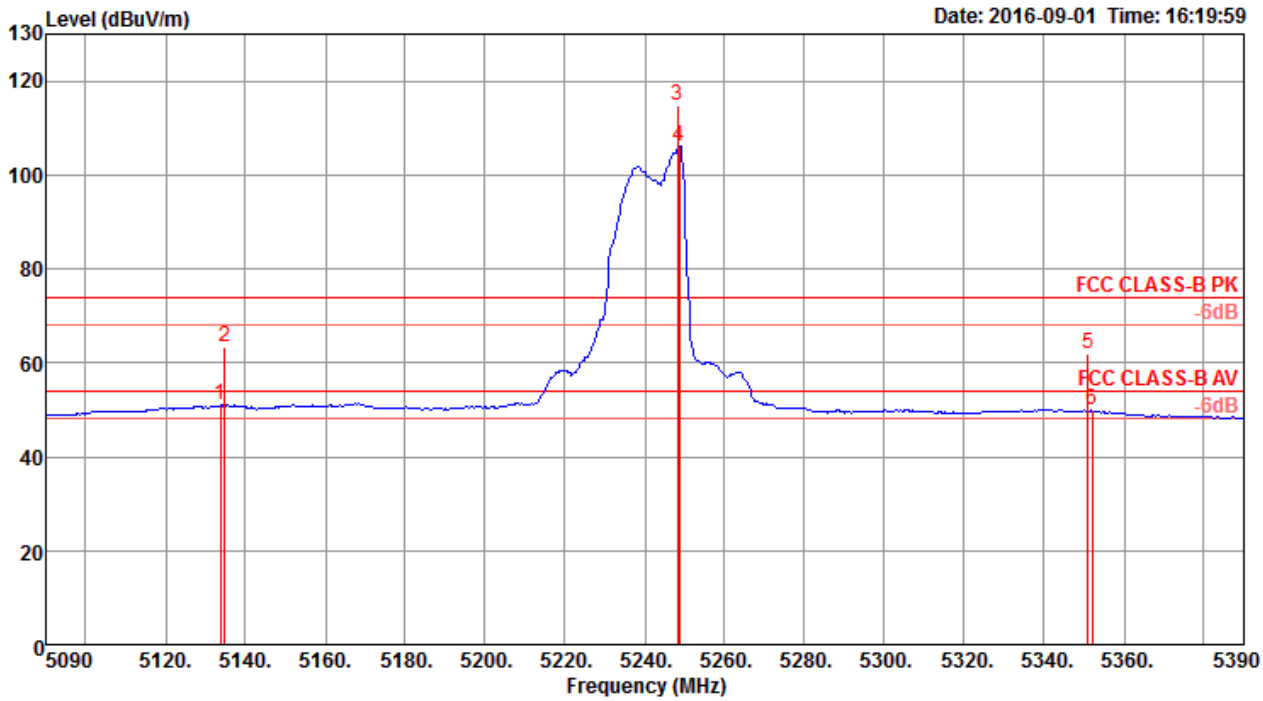
Channel 40



	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	5123.08	64.05	74.00	-9.95	56.87	6.41	33.69	32.92	176	349	Peak	VERTICAL
2	5146.15	50.58	54.00	-3.42	43.32	6.44	33.74	32.92	176	349	Average	VERTICAL
3 @	5192.31	105.54			98.16	6.48	33.82	32.92	176	349	Average	VERTICAL
4 @	5192.63	115.34			107.96	6.48	33.82	32.92	176	349	Peak	VERTICAL

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

Channel 48

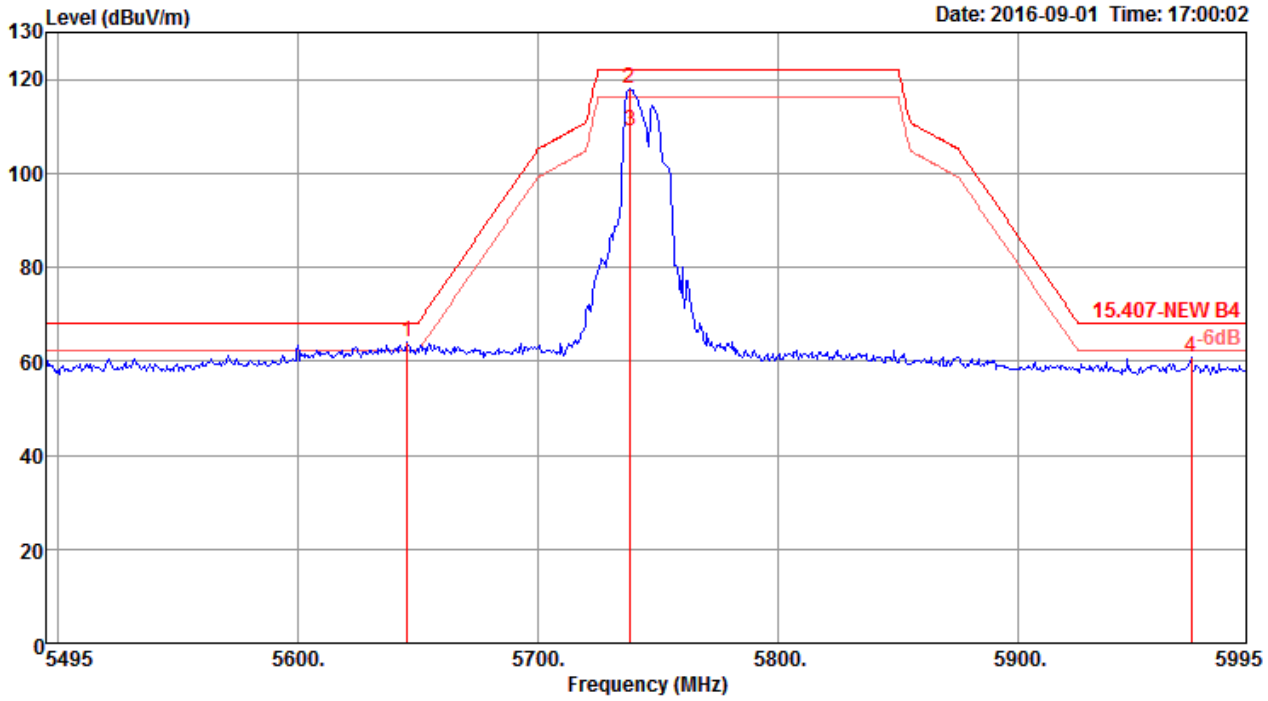


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5133.75	50.93	54.00	-3.07	43.70	6.43	33.72	32.92	115	19	Average	VERTICAL
2	5134.71	63.28	74.00	-10.72	56.05	6.43	33.72	32.92	115	19	Peak	VERTICAL
3 @	5248.17	114.87			107.35	6.53	33.91	32.92	115	19	Peak	VERTICAL
4 @	5248.65	106.09			98.57	6.53	33.91	32.92	115	19	Average	VERTICAL
5	5351.06	61.78	74.00	-12.22	54.03	6.61	34.06	32.92	115	19	Peak	VERTICAL
6	5352.02	49.85	54.00	-4.15	42.10	6.61	34.06	32.92	115	19	Average	VERTICAL

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

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

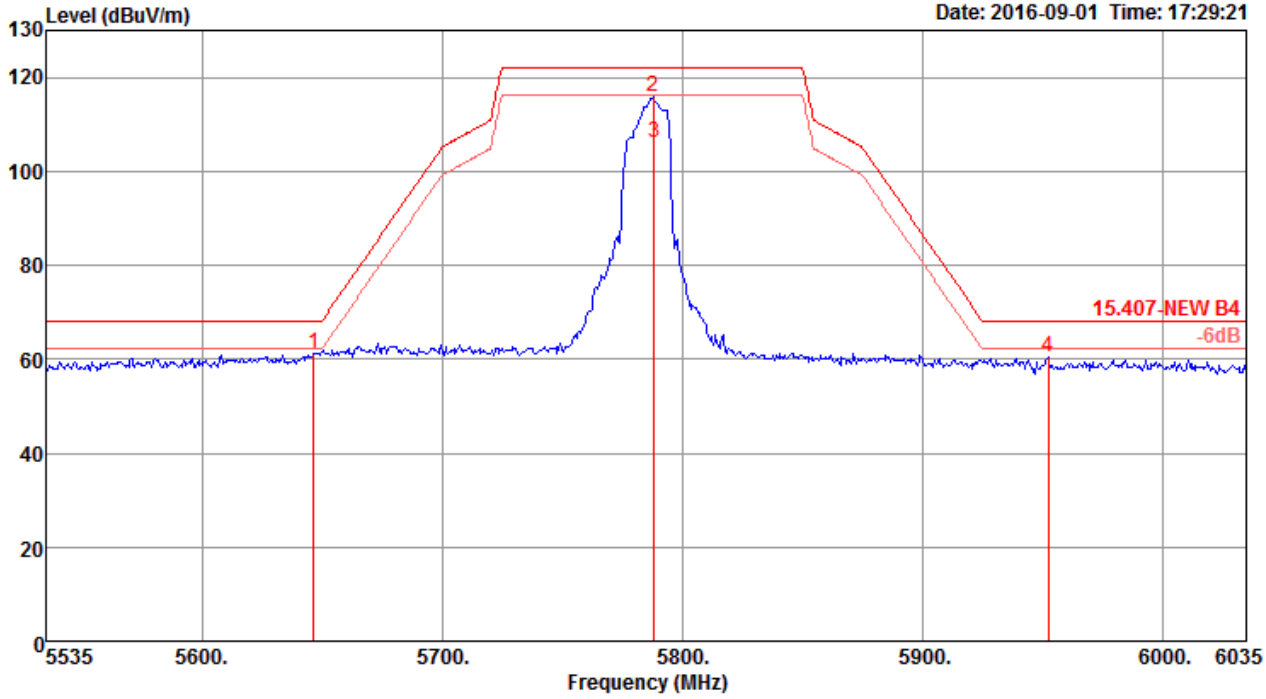
Channel 149



	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	5645.50	64.17	68.20	-4.03	55.95	6.80	34.39	32.97	242	357	Peak	VERTICAL
2	5738.00	118.09			109.76	6.88	34.44	32.99	242	357	Peak	VERTICAL
3	5738.59	108.90			100.57	6.88	34.44	32.99	242	357	Average	VERTICAL
4	5972.00	60.77	68.20	-7.43	52.25	6.99	34.58	33.05	242	357	Peak	VERTICAL

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

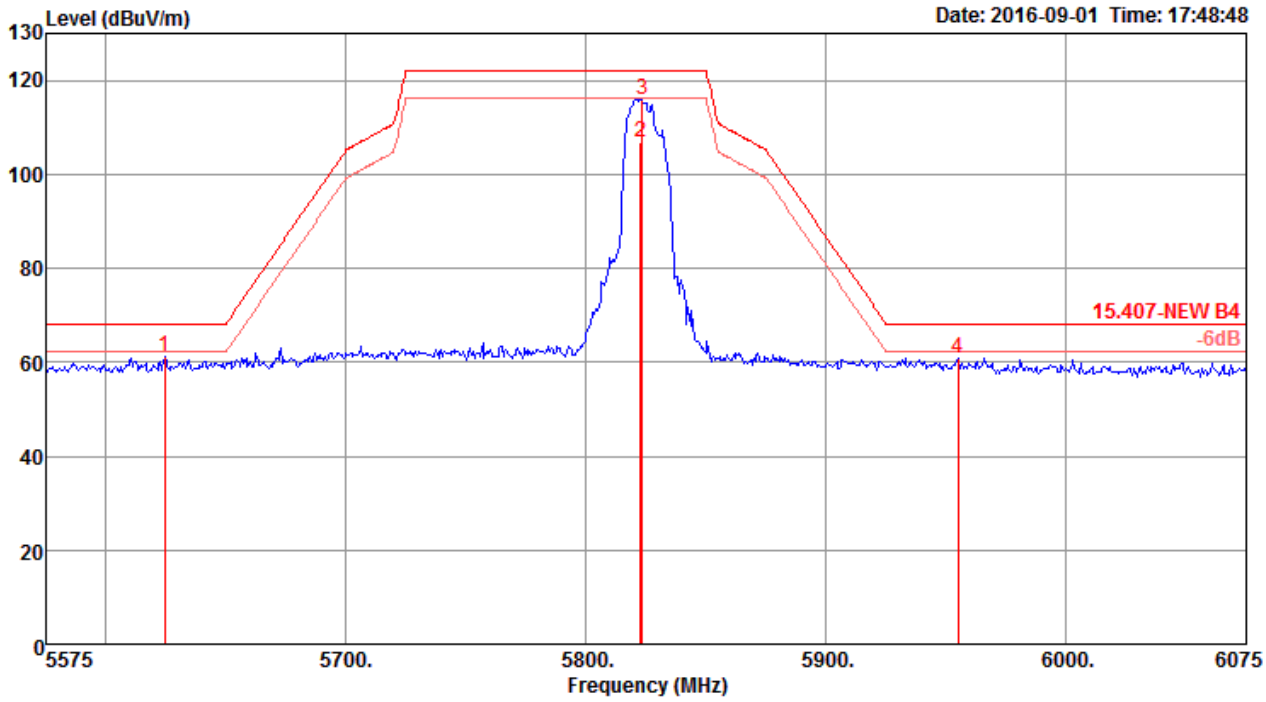
Channel 157



	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	5646.50	61.36	68.20	-6.84	53.14	6.80	34.39	32.97	186	229	Peak	HORIZONTAL
2	5788.00	115.86			107.47	6.93	34.47	33.01	186	229	Peak	HORIZONTAL
3	5788.21	106.13			97.74	6.93	34.47	33.01	186	229	Average	HORIZONTAL
4	5952.50	60.40	68.20	-7.80	51.89	6.99	34.57	33.05	186	229	Peak	HORIZONTAL

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

Channel 165

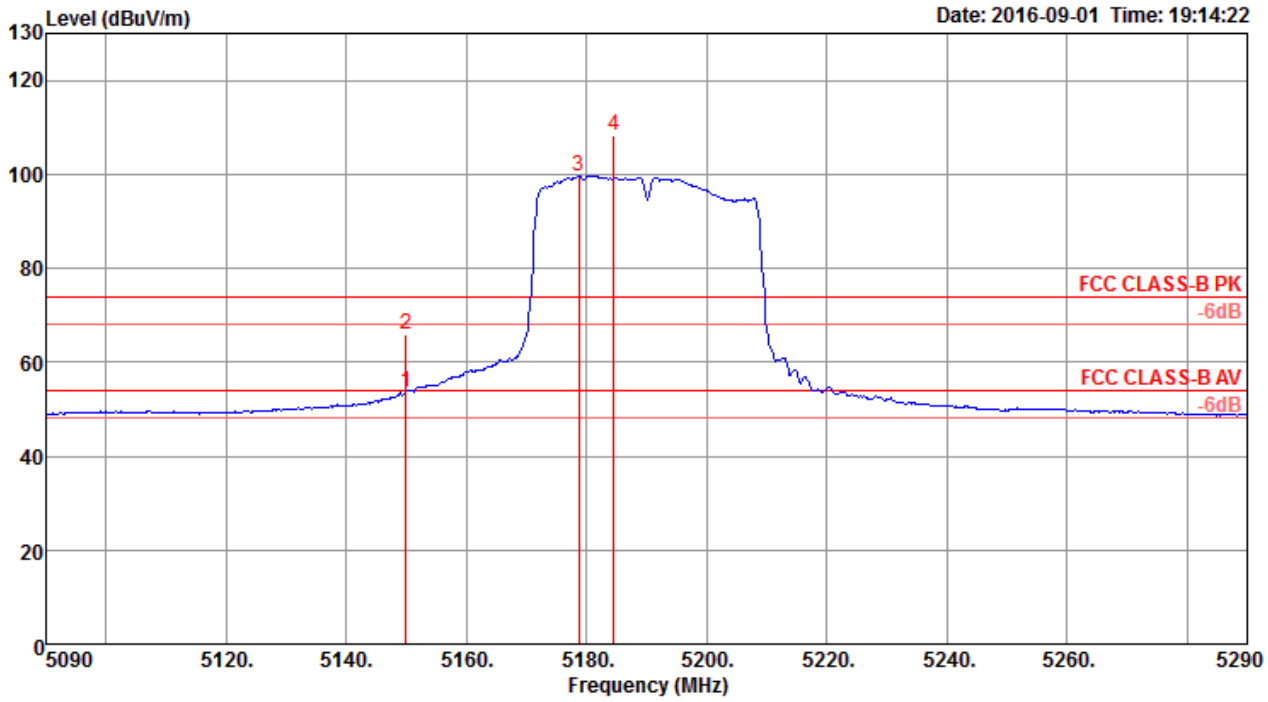


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5624.50	61.18	68.20	-7.02	52.98	6.78	34.38	32.96	175	123	Peak	VERTICAL
2	5822.60	106.90			98.46	6.96	34.50	33.02	175	123	Average	VERTICAL
3	5823.50	116.03			107.59	6.96	34.50	33.02	175	123	Peak	VERTICAL
4	5955.00	60.73	68.20	-7.47	52.22	6.99	34.57	33.05	175	123	Peak	VERTICAL

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

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

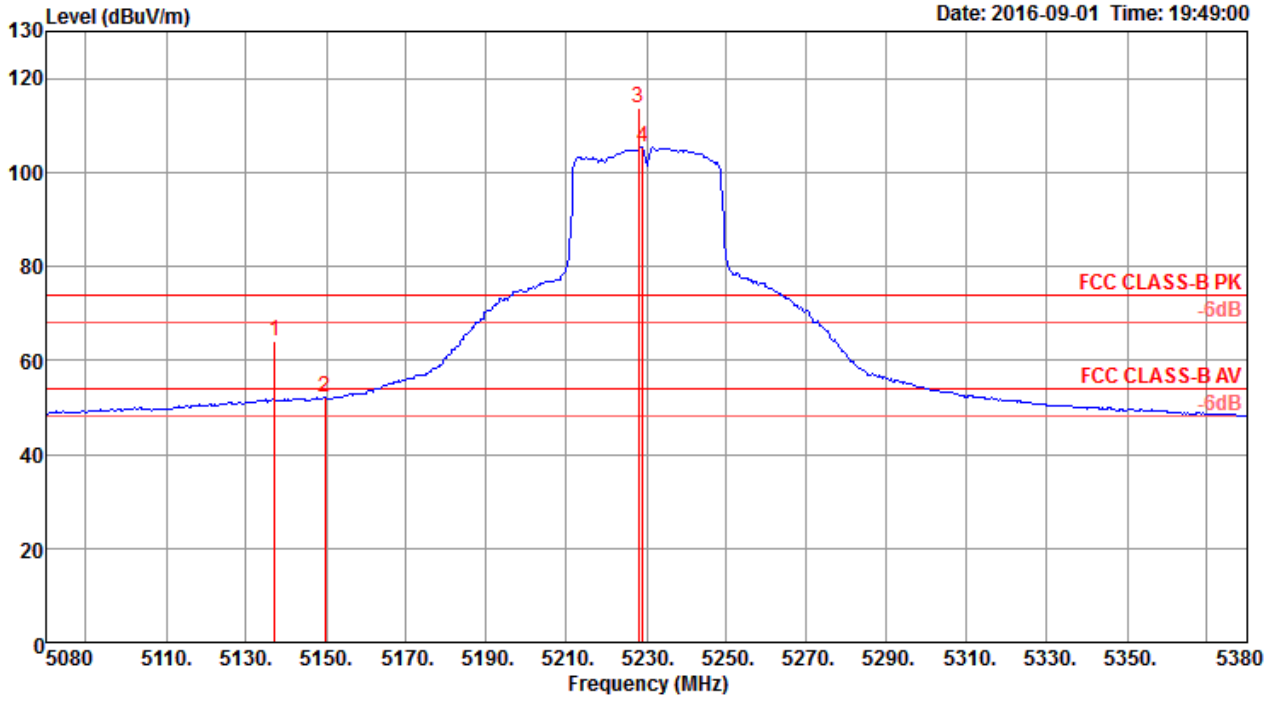
Channel 38



	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	53.52	54.00	-0.48	46.26	6.44	33.74	32.92	147	4	Average	HORIZONTAL
2	5150.00	66.01	74.00	-7.99	58.75	6.44	33.74	32.92	147	4	Peak	HORIZONTAL
3 @	5178.78	99.61			92.27	6.47	33.79	32.92	147	4	Average	HORIZONTAL
4 @	5184.55	108.11			100.77	6.47	33.79	32.92	147	4	Peak	HORIZONTAL

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

Channel 46

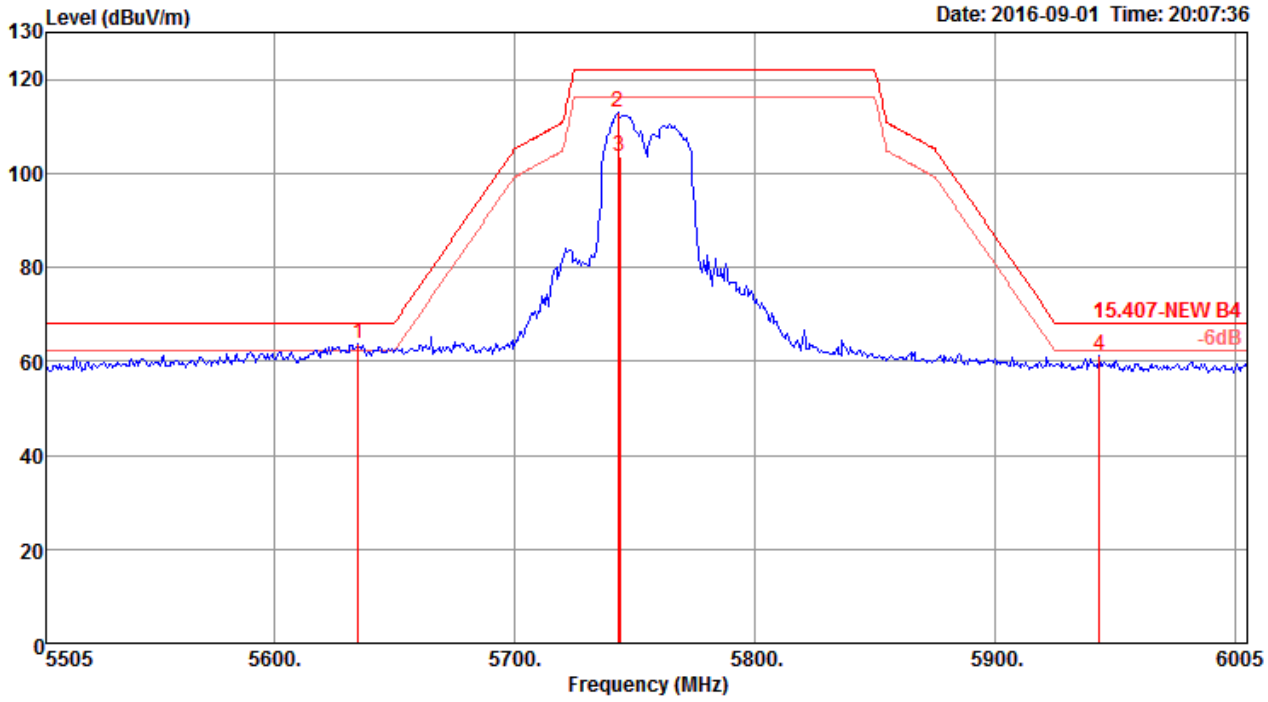


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5137.21	64.21	74.00	-9.79	56.98	6.43	33.72	32.92	229	4	Peak	HORIZONTAL
2	5149.71	52.10	54.00	-1.90	44.84	6.44	33.74	32.92	229	4	Average	HORIZONTAL
3 @	5228.08	113.62			106.17	6.51	33.86	32.92	229	4	Peak	HORIZONTAL
4 @	5229.04	105.27			97.82	6.51	33.86	32.92	229	4	Average	HORIZONTAL

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

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

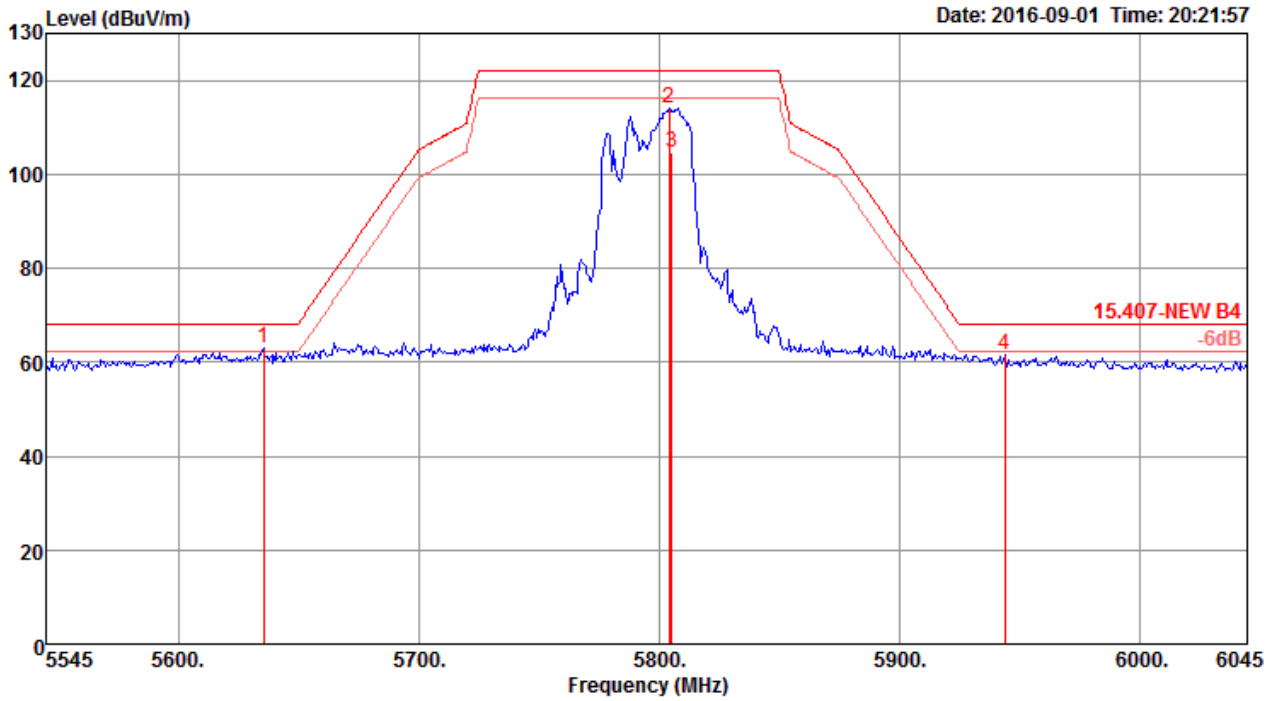
Channel 151



	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	5635.00	63.69	68.20	-4.51	55.50	6.78	34.38	32.97	152	19	Peak	VERTICAL
2	5743.00	112.85			104.49	6.90	34.45	32.99	152	19	Peak	VERTICAL
3	5743.78	103.64			95.28	6.90	34.45	32.99	152	19	Average	VERTICAL
4	5943.50	61.17	68.20	-7.03	52.66	6.99	34.57	33.05	152	19	Peak	VERTICAL

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

Channel 159

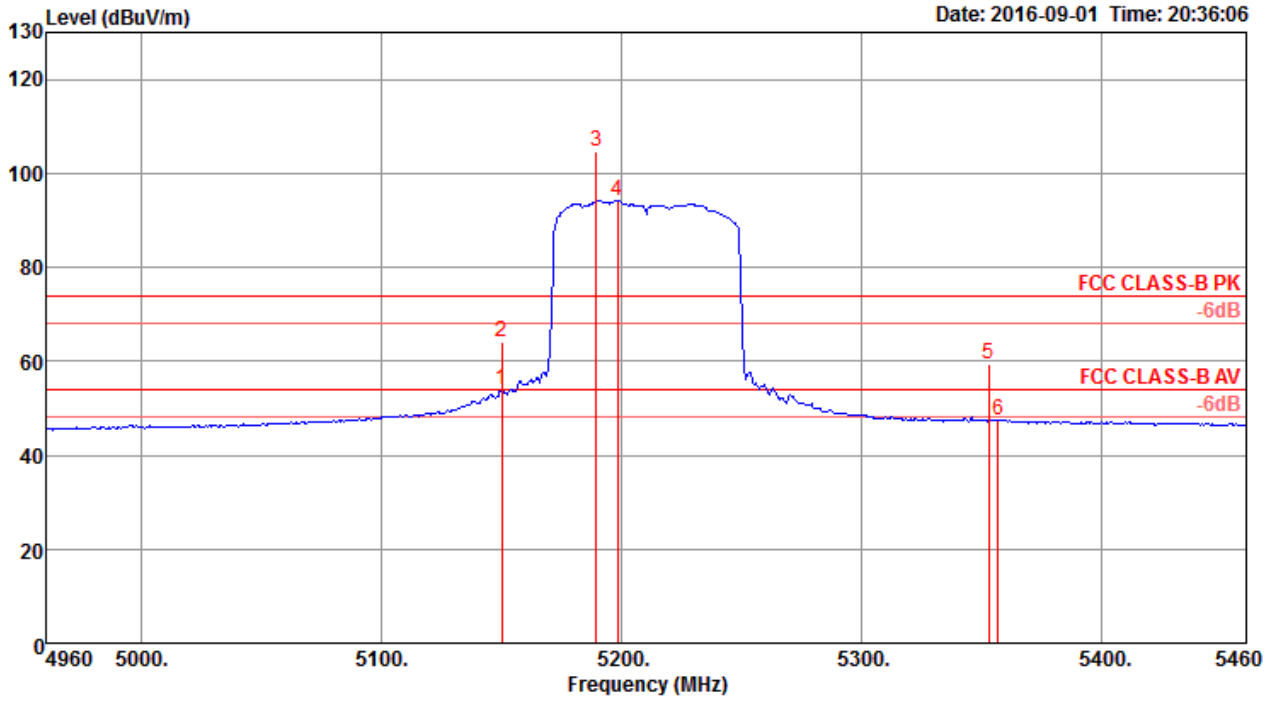


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5635.50	62.87	68.20	-5.33	54.68	6.78	34.38	32.97	179	270	Peak	HORIZONTAL
2	5804.50	114.12			105.70	6.95	34.48	33.01	179	270	Peak	HORIZONTAL
3	5805.42	104.70			96.27	6.95	34.49	33.01	179	270	Average	HORIZONTAL
4	5944.00	61.41	68.20	-6.79	52.90	6.99	34.57	33.05	179	270	Peak	HORIZONTAL

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

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

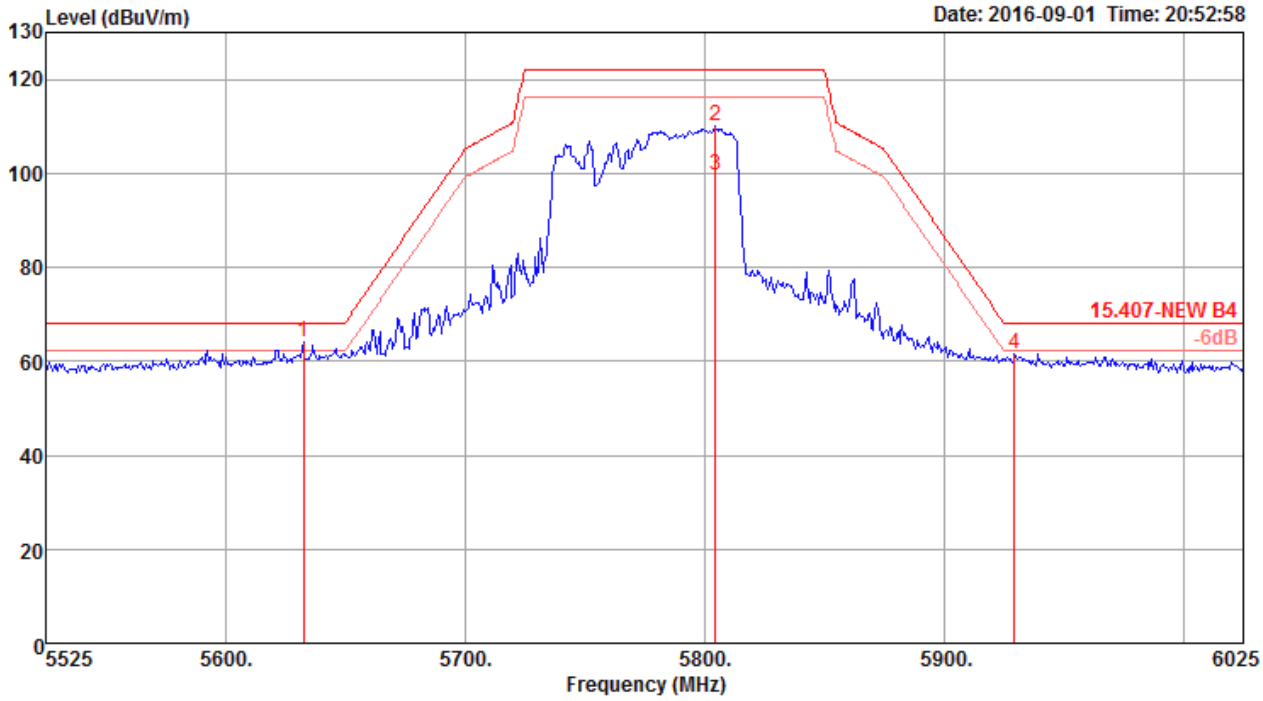
Channel 42



	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	5150.00	53.81	54.00	-0.19	46.55	6.44	33.74	32.92	208	12	Average	HORIZONTAL
2	5150.00	64.17	74.00	-9.83	56.91	6.44	33.74	32.92	208	12	Peak	HORIZONTAL
3 @	5189.17	104.54			97.16	6.48	33.82	32.92	208	12	Peak	HORIZONTAL
4 @	5197.98	94.26			86.88	6.48	33.82	32.92	208	12	Average	HORIZONTAL
5	5352.63	59.55	74.00	-14.45	51.80	6.61	34.06	32.92	208	12	Peak	HORIZONTAL
6	5356.64	47.56	54.00	-6.44	39.78	6.62	34.08	32.92	208	12	Average	HORIZONTAL

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	5632.50	64.26	68.20	-3.94	56.06	6.78	34.38	32.96	131	49	Peak	HORIZONTAL
2	5804.50	109.91			101.49	6.95	34.48	33.01	131	49	Peak	HORIZONTAL
3	5804.65	99.65			91.23	6.95	34.48	33.01	131	49	Average	HORIZONTAL
4	5929.50	61.58	68.20	-6.62	53.08	6.98	34.56	33.04	131	49	Peak	HORIZONTAL

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

Note:

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

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

4.8. Frequency Stability Measurement

4.8.1. Limit

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

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

4.8.2. Measuring Instruments and Setting

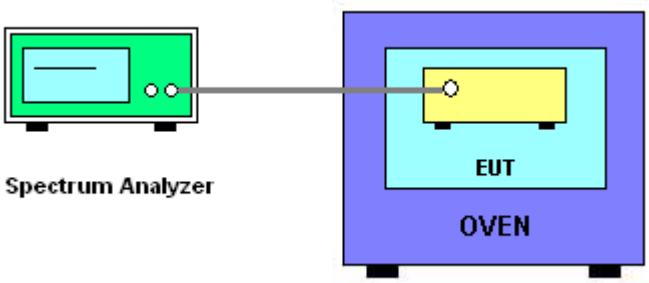
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

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

4.8.3. Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. EUT have transmitted absence of modulation signal and fixed channelize.
3. Set the spectrum analyzer span to view the entire absence of modulation emissions bandwidth.
4. Set RBW = 10 kHz, VBW = 10 kHz with peak detector and maxhold settings.
5. fc is declaring of channel frequency. Then the frequency error formula is (fc-f)/fc × 10^6 ppm and the limit is less than ±20ppm (IEEE 802.11nspecification).
6. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.
7. The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value
8. Extreme temperature is 0°C~40°C.

4.8.4. Test Setup Layout



4.8.5. Test Deviation

There is no deviation with the original standard.

4.8.6. EUT Operation during Test

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

4.8.7. Test Result of Frequency Stability

Temperature	25°C	Humidity	54%
Test Engineer	Paul Chen	Test Date	Aug. 31, 2016 ~ Sep. 13, 2016

Mode: 20 MHz / Ant. 1

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5200 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5199.9943	5199.9935	5199.9932	5199.9931
110.00	5199.9934	5199.9932	5199.9927	5199.9920
93.50	5199.9925	5199.9918	5199.9916	5199.9911
Max. Deviation (MHz)	0.0075	0.0082	0.0084	0.0089
Max. Deviation (ppm)	1.44	1.58	1.62	1.71
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5200 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
0	5200.0065	5200.0053	5200.0086	5200.0078
10	5199.9949	5199.9944	5199.9934	5199.9933
20	5199.9934	5199.9929	5199.9923	5199.9918
30	5199.9916	5199.9910	5199.9902	5199.9900
40	5200.0086	5200.0092	5200.0098	5200.0106
Max. Deviation (MHz)	0.0105	0.0112	0.0114	0.0116
Max. Deviation (ppm)	2.02	2.15	2.19	2.23
Result	Complies			

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5785 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5784.9944	5784.9942	5784.9934	5784.9927
110.00	5784.9934	5784.9931	5784.9922	5784.9918
93.50	5784.9933	5784.9930	5784.9926	5784.9916
Max. Deviation (MHz)	0.0067	0.0070	0.0078	0.0084
Max. Deviation (ppm)	1.16	1.21	1.35	1.45
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5785 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
0	5785.0056	5785.0052	5785.0046	5785.0043
10	5784.9944	5784.9936	5784.9927	5784.9925
20	5784.9934	5784.9931	5784.9922	5784.9917
30	5784.9916	5784.9915	5784.9913	5784.9908
40	5785.0089	5785.0095	5785.0104	5785.0108
Max. Deviation (MHz)	0.0104	0.0112	0.0119	0.0124
Max. Deviation (ppm)	1.80	1.94	2.06	2.14
Result	Complies			

Mode: 40 MHz / Ant. 1

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5190 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5189.9939	5189.9929	5189.9919	5189.9918
110.00	5189.9934	5189.9929	5189.9921	5189.9920
93.50	5189.9930	5189.9921	5189.9914	5189.9912
Max. Deviation (MHz)	0.0070	0.0079	0.0086	0.0088
Max. Deviation (ppm)	1.35	1.52	1.66	1.70
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5190 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
0	5190.0057	5190.0047	5190.0043	5190.0039
10	5189.9949	5189.9940	5189.9939	5189.9935
20	5189.9934	5189.9929	5189.9926	5189.9917
30	5189.9916	5189.9907	5189.9902	5189.9896
40	5190.0083	5190.0088	5190.0094	5190.0102
Max. Deviation (MHz)	0.0094	0.0103	0.0105	0.0109
Max. Deviation (ppm)	1.81	1.98	2.02	2.10
Result	Complies			

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5755 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5754.9935	5754.9925	5754.9921	5754.9914
110.00	5754.9934	5754.9925	5754.9916	5754.9908
93.50	5754.9931	5754.9927	5754.9918	5754.9908
Max. Deviation (MHz)	0.0069	0.0075	0.0084	0.0092
Max. Deviation (ppm)	1.20	1.30	1.46	1.60
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5755 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
0	5755.0076	5755.0064	5755.0056	5755.0049
10	5754.9937	5754.9932	5754.9925	5754.9917
20	5754.9934	5754.9933	5754.9932	5754.9931
30	5754.9916	5754.9910	5754.9907	5754.9897
40	5755.0091	5755.0097	5755.0105	5755.0112
Max. Deviation (MHz)	0.0110	0.0112	0.0118	0.0128
Max. Deviation (ppm)	1.91	1.95	2.05	2.22
Result	Complies			

Mode: 80 MHz / Ant. 1

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5210 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5209.9942	5209.9939	5209.9931	5209.9921
110.00	5209.9934	5209.9931	5209.9930	5209.9924
93.50	5209.9930	5209.9922	5209.9921	5209.9916
Max. Deviation (MHz)	0.0070	0.0078	0.0079	0.0084
Max. Deviation (ppm)	1.34	1.50	1.52	1.61
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5210 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
0	5210.0064	5210.0057	5210.0052	5210.0045
10	5209.9947	5209.9939	5209.9932	5209.9922
20	5209.9934	5209.9930	5209.9922	5209.9912
30	5209.9916	5209.9906	5209.9904	5209.9901
40	5210.0085	5210.0093	5210.0099	5210.0104
Max. Deviation (MHz)	0.0099	0.0107	0.0111	0.0121
Max. Deviation (ppm)	1.90	2.05	2.13	2.32
Result	Complies			

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5775 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5774.9938	5774.9933	5774.9928	5774.9926
110.00	5774.9934	5774.9927	5774.9918	5774.9912
93.50	5774.9930	5774.9921	5774.9919	5774.9918
Max. Deviation (MHz)	0.0070	0.0079	0.0082	0.0088
Max. Deviation (ppm)	1.21	1.37	1.42	1.52
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5775 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
0	5775.0053	5775.0044	5775.0037	5775.0029
10	5774.9947	5774.9944	5774.9937	5774.9928
20	5774.9934	5774.9924	5774.9914	5774.9905
30	5774.9916	5774.9913	5774.9903	5774.9900
40	5775.0093	5775.0097	5775.0101	5775.0112
Max. Deviation (MHz)	0.0112	0.0119	0.0123	0.0126
Max. Deviation (ppm)	1.94	2.06	2.13	2.18
Result	Complies			

4.9. Antenna Requirements

4.9.1. Limit

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

4.9.2. Antenna Connector Construction

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

5. LIST OF MEASURING EQUIPMENTS

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMI Receiver	Agilent	N9038A	My52260123	9kHz ~ 8.45GHz	Jan. 27, 0216	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150kHz ~ 100MHz	Dec. 08, 2015	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Dec. 23, 2015	Conduction (CO01-CB)
COND Cable	Woken	Cable	01	150kHz ~ 30MHz	May 24, 2016	Conduction (CO01-CB)
Software	Audix	E3	6.120210n	-	N.C.R.	Conduction (CO01-CB)
BILOG ANTENNA	TESEQ	CBL6112D	37880	20MHz ~ 2GHz	Aug. 30, 2016	Radiation (03CH01-CB)
Loop Antenna	Teseq	HLA 6120	24155	9kHz - 30 MHz	Mar. 16, 2016*	Radiation (03CH01-CB)
Horn Antenna	EMCO	3115	00075790	750MHz ~ 18GHz	Oct. 22, 2015	Radiation (03CH01-CB)
Horn Antenna	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	3008A02310	1GHz ~ 26.5GHz	Jan. 18, 2016	Radiation (03CH01-CB)
Pre-Amplifier	WM	TF-130N-R1	923365	26GHz ~ 40GHz	Nov. 13, 2015	Radiation (03CH01-CB)
Spectrum Analyzer	R&S	FSP40	100056	9kHz ~ 40GHz	Oct. 27, 2015	Radiation (03CH01-CB)
EMI Test	R&S	ESCS	100355	9kHz ~ 2.75GHz	May 16, 2016	Radiation (03CH01-CB)
RF Cable-low	Woken	Low Cable-1	N/A	30 MHz ~ 1 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-16	N/A	1 GHz ~ 18 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-17	N/A	1 GHz ~ 18 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G-1	N/A	18GHz ~ 40 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G-2	N/A	18GHz ~ 40 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
Test Software	Audix	E3	6.2009-I0-7	N/A	N/A	Radiation (03CH01-CB)
Spectrum analyzer	R&S	FSV40	100979	9kHz~40GHz	Dec. 09, 2015	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	Nov. 02, 2015	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-7	1 GHz – 26.5 GHz	Nov. 02, 2015	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-8	1 GHz – 26.5 GHz	Nov. 02, 2015	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-9	1 GHz – 26.5 GHz	Nov. 02, 2015	Conducted (TH01-CB)

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
RF Cable-high	Woken	RG402	High Cable-10	1 GHz – 26.5 GHz	Nov. 02, 2015	Conducted (TH01-CB)
Power Sensor	Agilent	U2021XA	MY53410001	50MHz~18GHz	Nov. 02, 2015	Conducted (TH01-CB)

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

"*" Calibration Interval of instruments listed above is two years.

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

6. MEASUREMENT UNCERTAINTY

Test Items	Uncertainty	Remark
Conducted Emission (150kHz ~ 30MHz)	3.2 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	3.6 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	3.7 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	3.5 dB	Confidence levels of 95%
Conducted Emission	1.7 dB	Confidence levels of 95%