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FCC RADIO TEST REPORT

Applicant's company	**Arcadyan Technology Corporation**
Applicant Address	No.8, Sec.2, Guangfu Rd.,Hsinchu, 30071 Taiwan
FCC ID	**RAXWA8001BAC2**
Manufacturer's company	**Arcadyan Technology Corporation**
Manufacturer Address	No.8, Sec.2, Guangfu Rd.,Hsinchu, 30071 Taiwan

Product Name	Wireless Joey Access Point 2
Brand Name	ECHOSTAR
Model No.	Wireless Joey Access Point 2
Test Rule Part(s)	47 CFR FCC Part 15 Subpart E § 15.407
Test Freq. Range	5150 ~ 5250 MHz / 5725 ~ 5850 MHz
Received Date	Dec. 18, 2015
Final Test Date	Feb. 05, 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 v01r01, KDB662911 D01 v02r01, KDB644545 D03 v01.**

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

TAF
Testing Laboratory
1190

Table of Contents

History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR5D3029	Rev. 01	Initial issue of report	Feb. 24, 2016

1. VERIFICATION OF COMPLIANCE

Product Name	:	Wireless Joey Access Point 2
Brand Name	:	ECHOSTAR
Model No.	:	Wireless Joey Access Point 2
Applicant	:	Arcadyan Technology Corporation
Test Rule Part(s)	:	47 CFR FCC Part 15 Subpart E § 15.407

Sporton International as requested by the applicant to evaluate the EMC performance of the product sample received on Dec. 18, 2015 would like to declare that the tested sample has been evaluated and found to be in compliance with the tested rule parts. The data recorded as well as the test configuration specified is true and accurate for showing the sample's EMC nature.

Sam Chen

SPORTON INTERNATIONAL INC.

2. SUMMARY OF THE TEST RESULT

Applied Standard: 47 CFR FCC Part 15 Subpart E				
Part	**Rule Section**	**Description of Test**	**Result**	**Under Limit**
4.1	15.207	AC Power Line Conducted Emissions	Complies	12.62 dB
4.2	15.407(a)	26dB Spectrum Bandwidth and 99% Occupied Bandwidth	Complies	-
4.3	15.407(e)	6dB Spectrum Bandwidth	Complies	-
4.4	15.407(a)	Maximum Conducted Output Power	Complies	0.03 dB
4.5	15.407(a)	Power Spectral Density	Complies	0.02 dB
4.6	15.407(b)	Radiated Emissions	Complies	3.06 dB
4.7	15.407(b)	Band Edge Emissions	Complies	0.50 dB
4.8	15.407(g)	Frequency Stability	Complies	-
4.9	15.203	Antenna Requirements	Complies	-

3. GENERAL INFORMATION

3.1. Product Details

Items	Description
Product Type	WLAN (4TX, 4RX)
Radio Type	Intentional Transceiver
Power Type	From power adapter
Modulation	IEEE 802.11a: OFDM IEEE 802.11n/ac: see the below table
Data Modulation	IEEE 802.11a/n: OFDM (BPSK / QPSK / 16QAM / 64QAM) IEEE 802.11ac: OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM)
Data Rate (Mbps)	IEEE 802.11a: OFDM (6/9/12/18/24/36/48/54) IEEE 802.11n/ac: see the below table
Frequency Range	5150 ~ 5250 MHz / 5725 ~ 5850 MHz
Channel Number	9 for 20MHz bandwidth ; 4 for 40MHz bandwidth 2 for 80MHz bandwidth
Channel Band Width (99%)	**For non-beamforming mode** Band 1: IEEE 802.11a: 17.28 MHz IEEE 802.11ac MCS0/Nss1 (VHT20): 18.41 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 37.19 MHz IEEE 802.11ac MCS0/Nss1 (VHT80): 74.96 MHz Band 4: IEEE 802.11a: 17.37 MHz IEEE 802.11ac MCS0/Nss1 (VHT20): 18.67 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 36.61 MHz IEEE 802.11ac MCS0/Nss1 (VHT80): 74.96 MHz **For beamforming mode** Band 1: IEEE 802.11ac MCS0/Nss1 (VHT20): 18.06 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 36.76 MHz IEEE 802.11ac MCS0/Nss1 (VHT80): 75.25 MHz Band 4: IEEE 802.11ac MCS0/Nss1 (VHT20): 18.06 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 36.76 MHz IEEE 802.11ac MCS0/Nss1 (VHT80): 75.25 MHz

Maximum Conducted Output Power	**For non-beamforming mode** Band 1: IEEE 802.11a: 27.41 dBm IEEE 802.11ac MCS0/Nss1 (VHT20): 27.58 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 29.55 dBm IEEE 802.11ac MCS0/Nss1 (VHT80): 23.17 dBm Band 4: IEEE 802.11a: 29.04 dBm IEEE 802.11ac MCS0/Nss1 (VHT20): 29.11 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 28.37 dBm IEEE 802.11ac MCS0/Nss1 (VHT80): 24.21 dBm **For beamforming mode** Band 1: IEEE 802.11ac MCS0/Nss1 (VHT20): 27.06 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 27.19 dBm IEEE 802.11ac MCS0/Nss1 (VHT80): 21.15 dBm Band 4: IEEE 802.11ac MCS0/Nss1 (VHT20): 26.91 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 27.11 dBm IEEE 802.11ac MCS0/Nss1 (VHT80): 23.24 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.

Antenna and Band width

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

IEEE 11n/ac Spec.

Protocol	Number of Transmit Chains (NTX)	Data Rate / MCS
802.11n (HT20)	4	MCS 0-31
802.11n (HT40)	4	MCS 0-31
802.11ac (VHT20)	4	MCS 0-9/Nss1-4
802.11ac (VHT40)	4	MCS 0-9/Nss1-4
802.11ac (VHT80)	4	MCS 0-9/Nss1-4

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

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

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

3.2. Accessories

Power	Brand Holder	Model	Rating
Adapter	DELTA ELECTRONICS, INC.	ADP-18DW BB	Input: 100-120Vac, 0.5A, 60Hz Output: 12Vdc, 1.46A
Other			
Pedestal*1			

3.3. Table for Filed Antenna

Ant.	Brand	P/N	Antenna Type	Connector
1	Airgain	N5X20SD-T-PK1-B75U	PCB Antenna	U.FL
2	Airgain	N5X20SD-PK1-G75U	PCB Antenna	U.FL
3	Airgain	N5X20SD-PK1-A35U	PCB Antenna	U.FL
4	Airgain	N5X20SD-PK1-W50U	PCB Antenna	U.FL

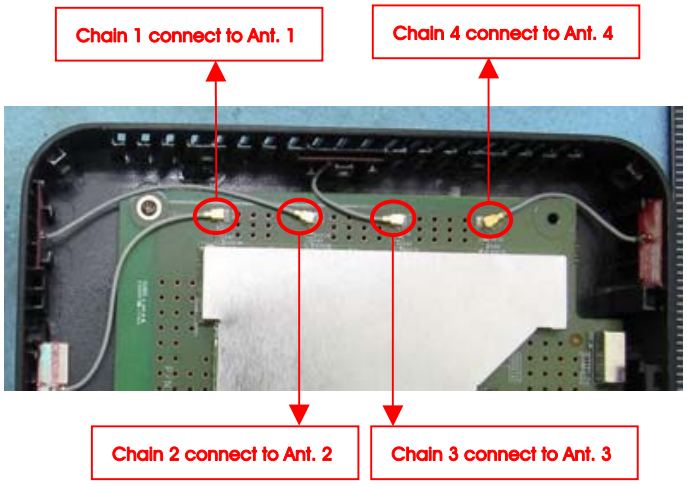
Ant.	Gain (dBi)		Correlated Composite Gain/ Directional Gain (dBi) (4TX,1S)	
	5G B1	5G B4	5G B1	5G B4
1	3.51	4.21	8.78	8.61
2	3.04	2.69		
3	4.89	4.65		
4	3.31	3.87		

Note: The EUT has four Antennas.

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

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

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



3.4. Table for Carrier Frequencies

There are three bandwidth systems.

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

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

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

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

3.5. Table for Test Modes

Preliminary tests were performed in different data rate to find the worst radiated emission. The data rate shown in the table below is the worst-case rate with respect to the specific test item. 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	Chain
AC Power Conducted Emission	Normal Link		-	-	-
Max. Conducted Output Power	For non-beamforming mode				
	11a/BPSK	Band 1&4	6Mbps	36/40/48/149/157/165	1+2+3+4
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	1+2+3+4
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1+2+3+4
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1+2+3+4
	For beamforming mode				
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	1+2+3+4
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1+2+3+4
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1+2+3+4
Power Spectral Density	For non-beamforming mode				
	11a/BPSK	Band 1&4	6Mbps	36/40/48/149/157/165	1+2+3+4
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	1+2+3+4
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1+2+3+4
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1+2+3+4
	For beamforming mode				
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	1+2+3+4
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1+2+3+4
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1+2+3+4

26dB Spectrum Bandwidth & 99% Occupied Bandwidth Measurement	For non-beamforming mode				
	11a/BPSK	Band 1&4	6Mbps	36/40/48/149/157/165	1+2+3+4
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	1+2+3+4
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1+2+3+4
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1+2+3+4
	For beamforming mode				
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	1+2+3+4
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1+2+3+4
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1+2+3+4
6dB Spectrum Bandwidth Measurement	For non-beamforming mode				
	11a/BPSK	Band 4	6Mbps	149/157/165	1+2+3+4
	11ac VHT20	Band 4	MCS0/Nss1	149/157/165	1+2+3+4
	11ac VHT40	Band 4	MCS0/Nss1	151/159	1+2+3+4
	11ac VHT80	Band 4	MCS0/Nss1	155	1+2+3+4
	For beamforming mode				
	11ac VHT20	Band 4	MCS0/Nss1	149/157/165	1+2+3+4
	11ac VHT40	Band 4	MCS0/Nss1	151/159	1+2+3+4
	11ac VHT80	Band 4	MCS0/Nss1	155	1+2+3+4
Radiated Emission Below 1GHz	Normal Link		-	-	-
Radiated Emission Above 1GHz	For non-beamforming mode				
	11a/BPSK	Band 1&4	6Mbps	36/40/48/149/157/165	1+2+3+4
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	1+2+3+4
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1+2+3+4
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1+2+3+4
	For beamforming mode				
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	1+2+3+4
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1+2+3+4
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1+2+3+4

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

Note1: There are two modes of EUT, one is beamforming mode, and the other is non-beamforming mode for 802.11n/ac, Beamforming mode and non-beamforming mode has been test and record in this test report.

Note2: 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.

Note3: The EUT can only be used at Y-axis.

The following test modes were performed for all tests:

For Conducted Emission test:

Mode 1: Normal Link - AP Mode

Mode 2: Normal Link - Client Mode

Mode 1 generated the worst test result, so it was recorded in this report.

For Radiated Emission test below 1GHz:

Mode 1: Normal Link - AP Mode

Mode 2: Normal Link - Client Mode

Mode 1 generated the worst test result, so it was recorded in this report.

For Radiated Emission test above 1GHz:

Mode 1: CTX- Place EUT in Y-axis

3.6. Table for Testing Locations

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

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

3.7. Table for Supporting Units

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

Support Unit	Brand	Model	FCC ID
Notebook*2	DELL	E4300	DoC

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

For non-beamforming mode

Support Unit	Brand	Model	FCC ID
Notebook	DELL	E4300	DoC

For beamforming mode

Support Unit	Brand	Model	FCC ID
Notebook*2	DELL	E4300	DoC
WLAN ac Dongle	Broadcom	Bcm4366	DoC

For Test Site No: CO01-CB

Support Unit	Brand	Model	FCC ID
Notebook*2	DELL	E4300	DoC

For Test Site No: TH01-CB

Support Unit	Brand	Model	FCC ID
Notebook	DELL	E4300	DoC

3.8. Table for Parameters of Test Software Setting

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

For non-beamforming mode

Test Software Version	DoS					
Mode	Test Frequency (MHz)					
	NCB: 20MHz					
	5180 MHz	5200 MHz	5240 MHz	5745 MHz	5785 MHz	5825 MHz
802.11a	20.5	21.5	21.5	21.5	23	21.5
802.11ac MCS0/Nss1 VHT20	20.5	21.5	21.5	21.5	23	21
Mode	NCB: 40MHz					
802.11ac MCS0/Nss1 VHT40	5190 MHz		5230 MHz		5755 MHz	5795 MHz
	18		23		18.5	21.5
Mode	NCB: 80MHz					
802.11ac MCS0/Nss1 VHT80	5210 MHz				5775 MHz	
	17				18	

For beamforming mode

Test Software Version	DoS					
Mode	Test Frequency (MHz)					
	NCB: 20MHz					
	5180 MHz	5200 MHz	5240 MHz	5745 MHz	5785 MHz	5825 MHz
802.11ac MCS0/Nss1 VHT20	20	21	21	20	21	21
Mode	NCB: 40MHz					
802.11ac MCS0/Nss1 VHT40	5190 MHz		5230 MHz		5755 MHz	5795 MHz
	15		20.5		17	20.5
Mode	NCB: 80MHz					
802.11ac MCS0/Nss1 VHT80	5210 MHz				5775 MHz	
	15				17	

3.9. EUT Operation during Test

For non-beamforming mode:

The EUT was programmed to be in continuously transmitting mode.

For beamforming mode:

For Conducted Mode:

The EUT was programmed to be in continuously transmitting mode.

For Radiated Mode:

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

The program was executed as follows:

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

3.10. Duty Cycle

For non-beamforming mode:

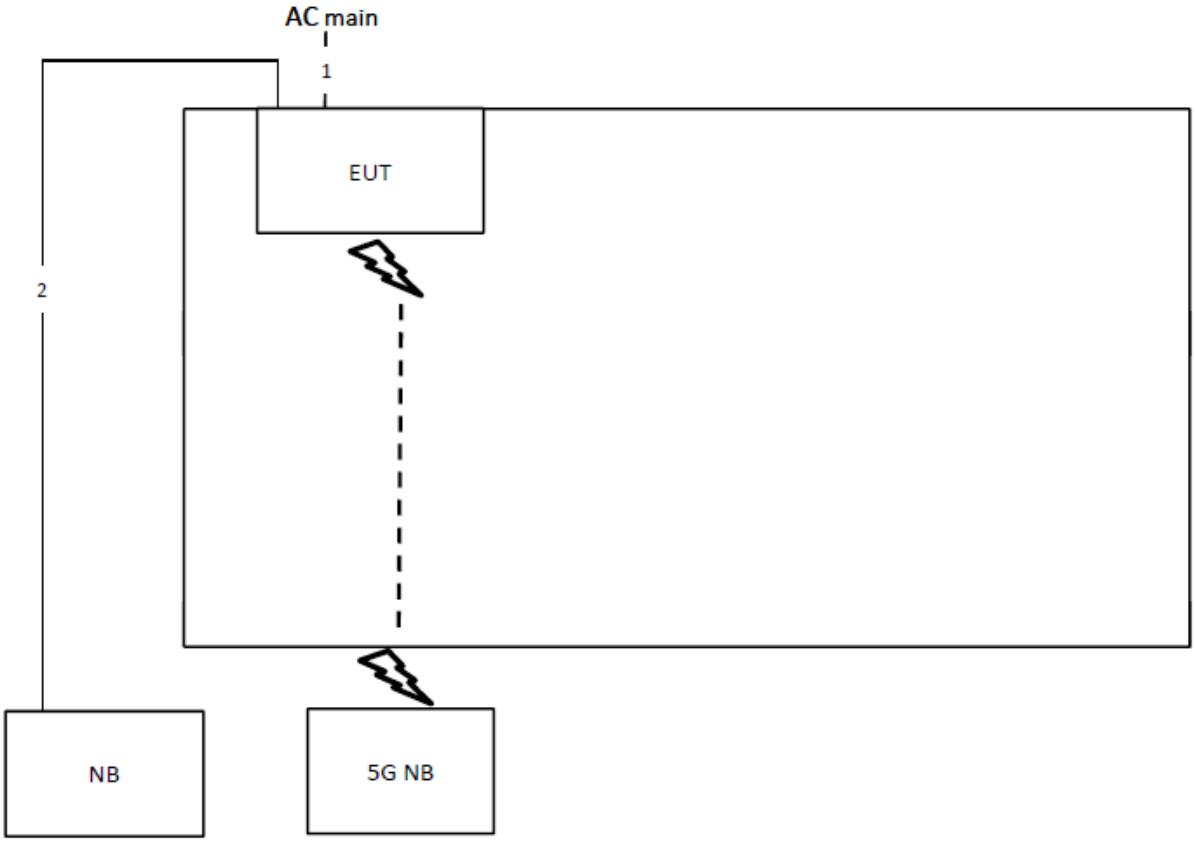
Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11a	5.380	5.420	99.26%	0.03	0.01
802.11ac MCS0/Nss1 VHT20	4.960	5.020	98.80%	0.05	0.01
802.11ac MCS0/Nss1 VHT40	2.400	2.470	97.17%	0.12	0.42
802.11ac MCS0/Nss1 VHT80	1.110	1.180	94.07%	0.27	0.90

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	3.429	3.701	92.65%	0.33	0.29
802.11ac MCS0/Nss1 VHT40	1.656	1.789	92.57%	0.34	0.60
802.11ac MCS0/Nss1 VHT80	4.205	4.417	95.20%	0.21	0.24

3.11. Test Configurations

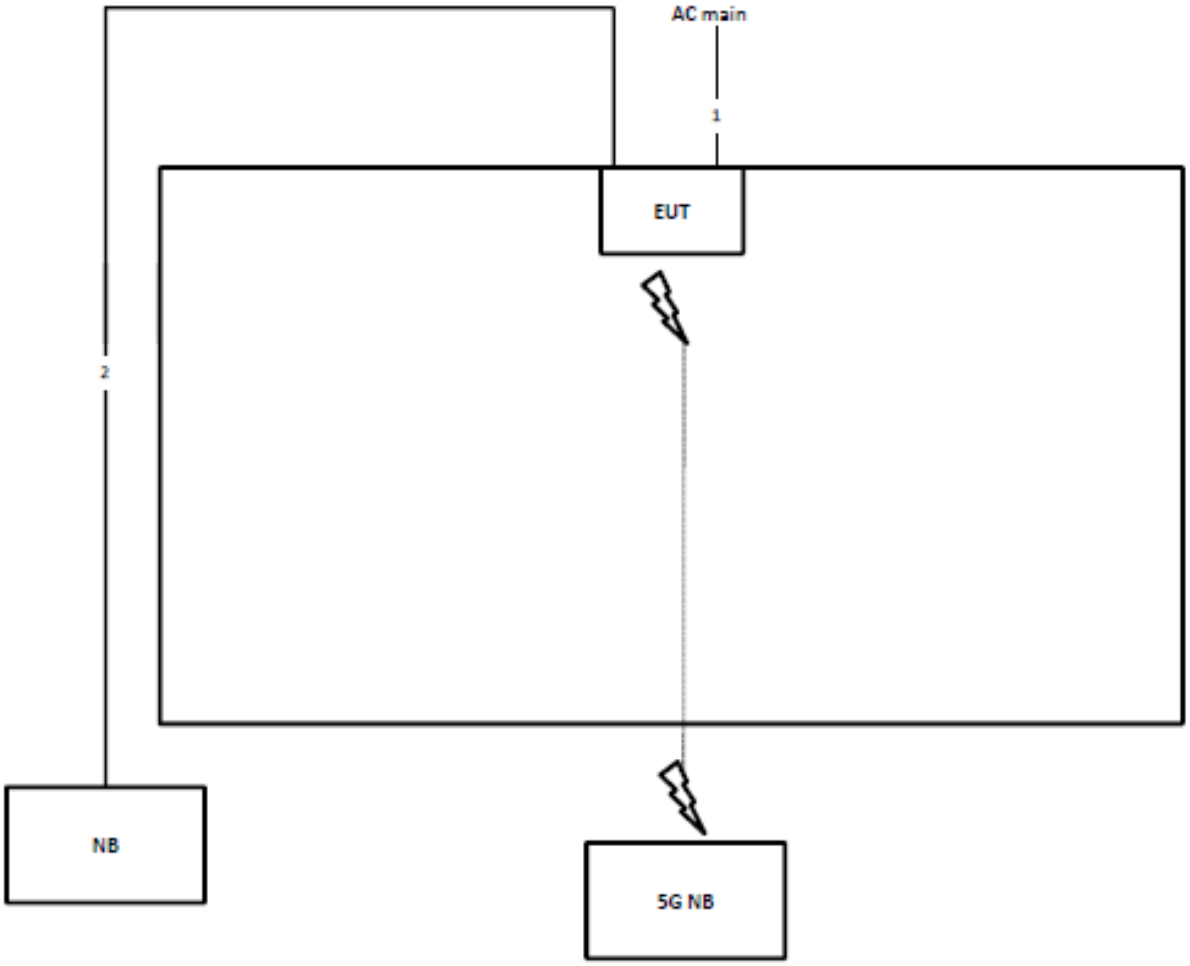
3.11.1. AC Power Line Conduction Emissions Test Configuration



Item	Connection	Shielded	Length
1	Power cable	No	1.8m
2	RJ-45 cable	No	10m

3.11.2. Radiation Emissions Test Configuration

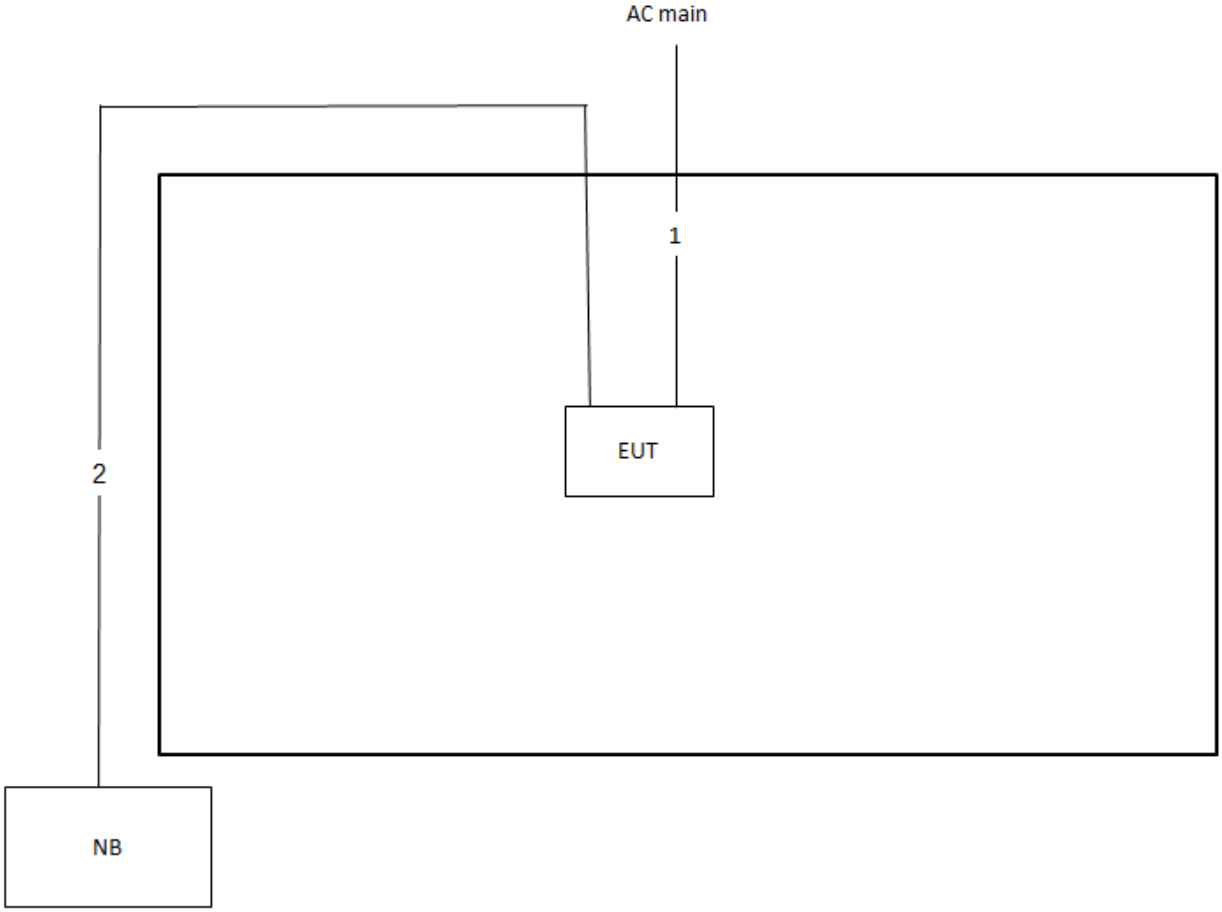
Test Configuration: 30MHz ~1GHz



Item	Connection	Shielded	Length
1	Power cable	No	1.8m
2	RJ-45 cable	No	10m

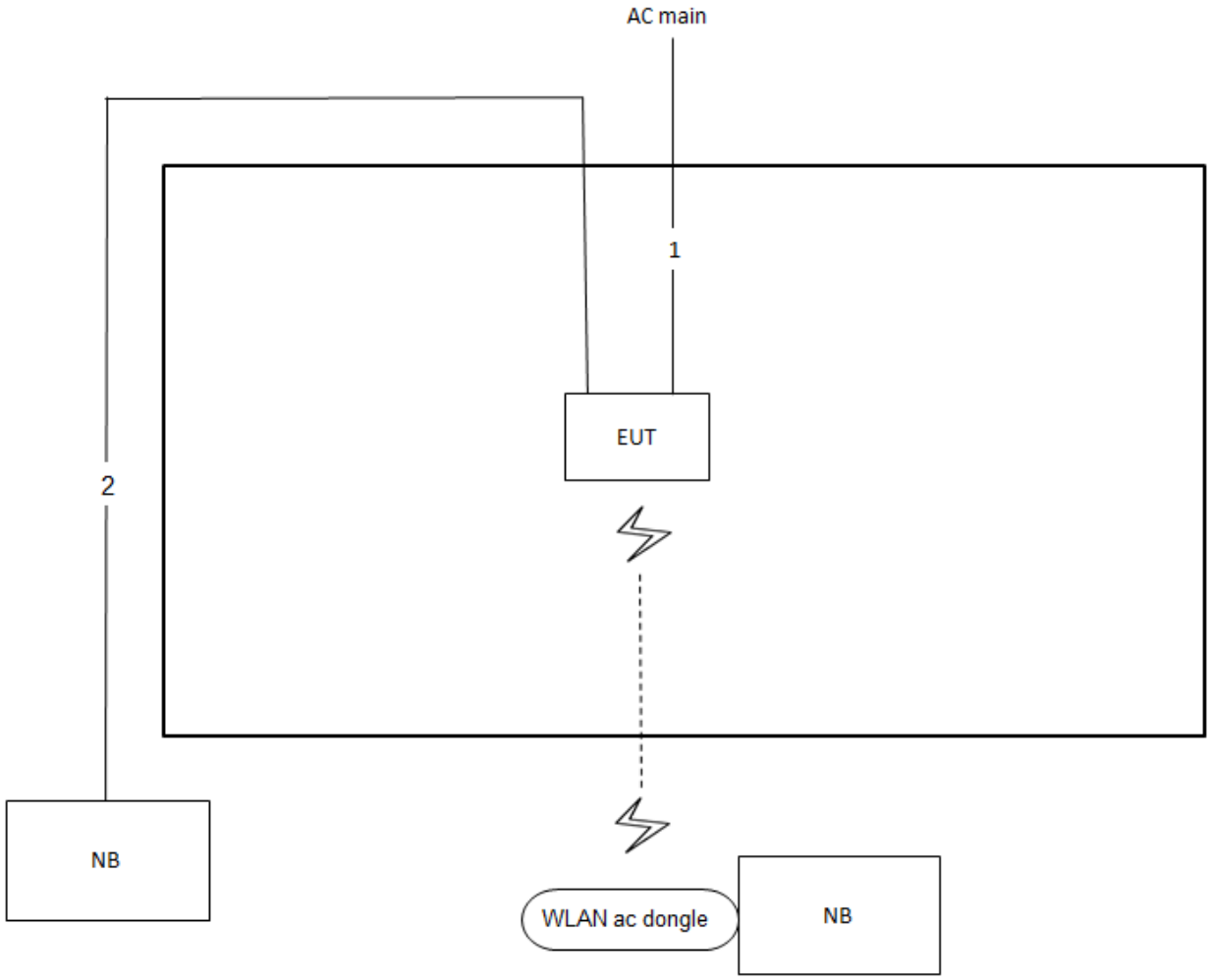
Test Configuration: above 1GHz

For non-beamforming mode



Item	Connection	Shielded	Length
1	Power cable	No	1.8m
2	RJ-45 cable	No	10m

For beamforming mode



Item	Connection	Shielded	Length
1	Power cable	No	1.8m
2	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

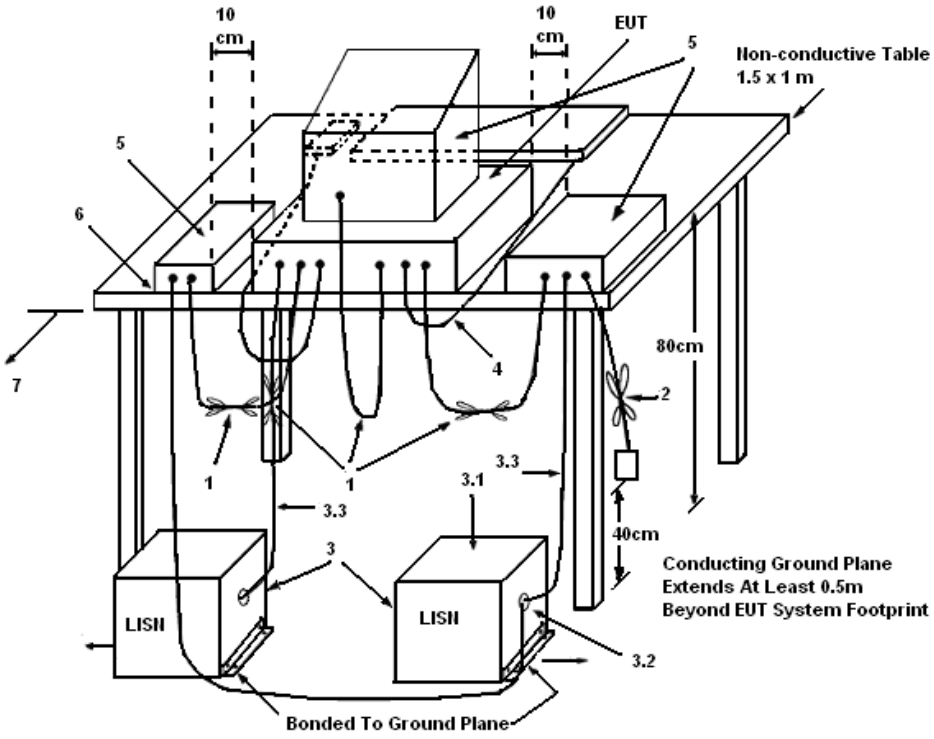
Please refer to section 5 of equipments list in this report. The following table is the setting of the receiver.

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

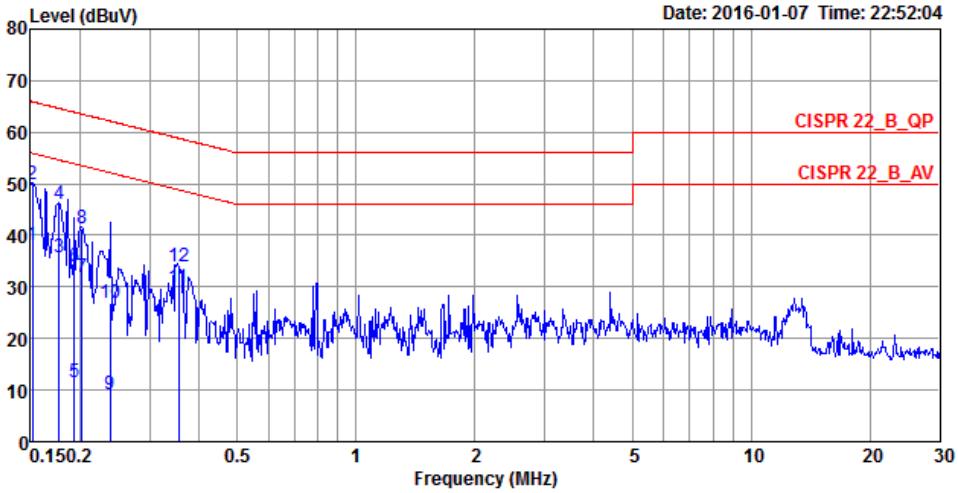
There is no deviation with the original standard.

4.1.6. EUT Operation during Test

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

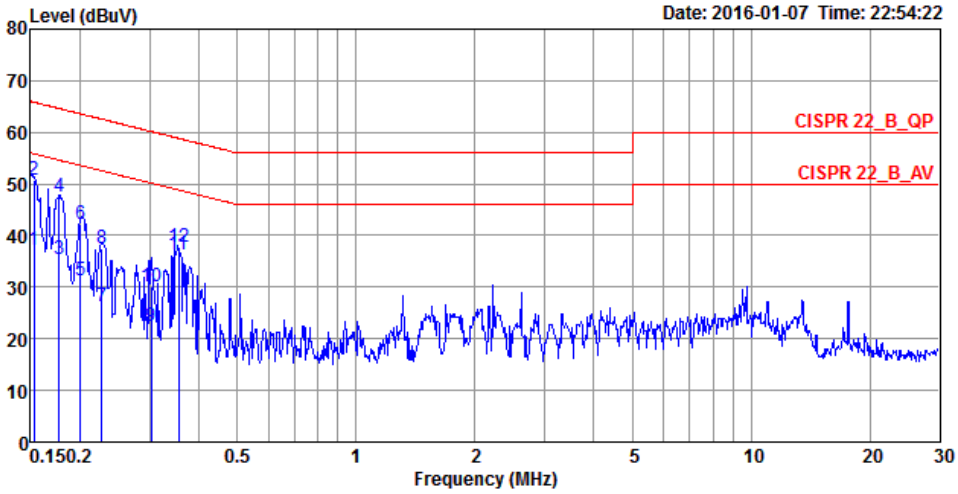
4.1.7. Results of AC Power Line Conducted Emissions Measurement

Temperature	25℃	Humidity	58%
Test Engineer	Kane Liu	Phase	Line
Configuration	Normal Link	Test Mode	Mode 1



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.1516	38.08	-17.83	55.91	28.13	9.93	0.02	LINE	Average
2	0.1516	49.99	-15.92	65.91	40.04	9.93	0.02	LINE	QP
3	0.1768	35.71	-18.93	54.64	25.76	9.93	0.02	LINE	Average
4	0.1768	46.01	-18.63	64.64	36.06	9.93	0.02	LINE	QP
5	0.1934	11.52	-42.37	53.89	1.57	9.93	0.02	LINE	Average
6	0.1934	33.93	-29.96	63.89	23.98	9.93	0.02	LINE	QP
7	0.2018	31.75	-21.79	53.54	21.80	9.93	0.02	LINE	Average
8	0.2018	41.31	-22.23	63.54	31.36	9.93	0.02	LINE	QP
9	0.2378	9.03	-43.14	52.17	-0.93	9.93	0.03	LINE	Average
10	0.2378	26.84	-35.33	62.17	16.88	9.93	0.03	LINE	QP
11	0.3558	29.77	-19.06	48.83	19.80	9.93	0.04	LINE	Average
12	0.3558	34.03	-24.80	58.83	24.06	9.93	0.04	LINE	QP

Temperature	25°C	Humidity	58%
Test Engineer	Kane Liu	Phase	Neutral
Configuration	Normal Link	Test Mode	Mode 1



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.1532	37.34	-18.48	55.82	27.54	9.78	0.02	NEUTRAL	Average
2	0.1532	50.70	-15.12	65.82	40.90	9.78	0.02	NEUTRAL	QP
3	0.1768	35.34	-19.30	54.64	25.53	9.79	0.02	NEUTRAL	Average
4	0.1768	47.47	-17.17	64.64	37.66	9.79	0.02	NEUTRAL	QP
5	0.2007	31.33	-22.25	53.58	21.52	9.79	0.02	NEUTRAL	Average
6	0.2007	42.35	-21.23	63.58	32.54	9.79	0.02	NEUTRAL	QP
7	0.2268	26.13	-26.44	52.57	16.31	9.79	0.03	NEUTRAL	Average
8	0.2268	37.58	-24.99	62.57	27.76	9.79	0.03	NEUTRAL	QP
9	0.3035	22.31	-27.84	50.15	12.48	9.79	0.04	NEUTRAL	Average
10	0.3035	30.01	-30.14	60.15	20.18	9.79	0.04	NEUTRAL	QP
11	0.3558	36.21	-12.62	48.83	26.38	9.79	0.04	NEUTRAL	Average
12	0.3558	37.75	-21.08	58.83	27.92	9.79	0.04	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	23℃	Humidity	64%
Test Engineer	Serway Li		

For non-beamforming mode

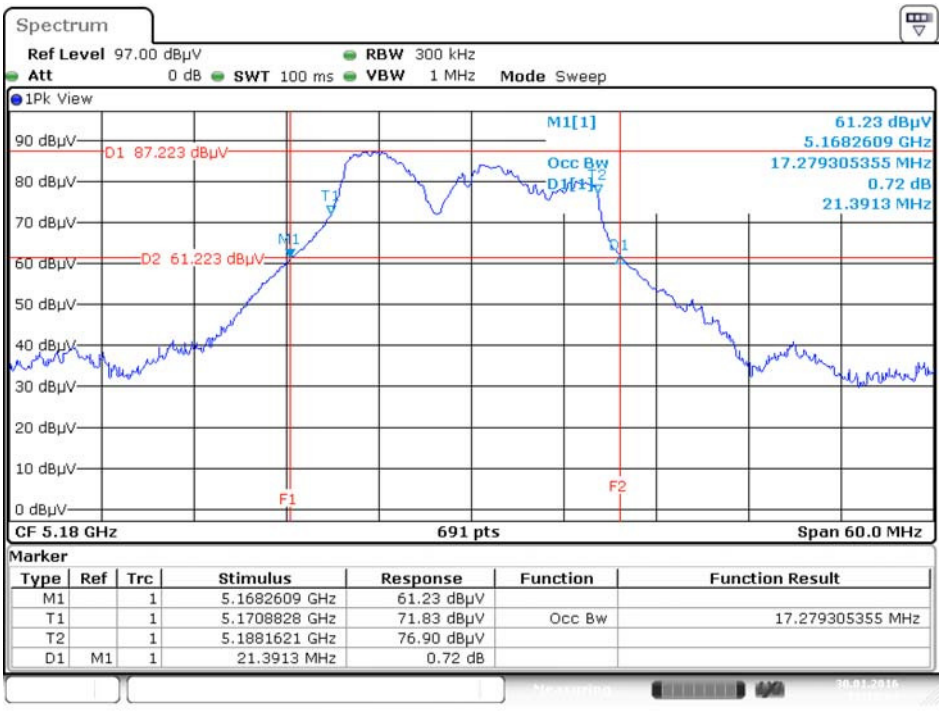
Mode	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11a	5180 MHz	21.39	17.28
	5200 MHz	20.87	17.11
	5240 MHz	21.13	17.11
	5745 MHz	20.35	16.93
	5785 MHz	20.87	17.37
	5825 MHz	20.61	17.11
802.11ac MCS0/Nss1 VHT20	5180 MHz	22.09	18.32
	5200 MHz	22.26	18.41
	5240 MHz	22.17	18.23
	5745 MHz	22.00	18.41
	5785 MHz	22.69	18.67
	5825 MHz	22.00	18.32
802.11ac MCS0/Nss1 VHT40	5190 MHz	41.88	36.03
	5230 MHz	57.83	37.19
	5755 MHz	41.88	36.47
	5795 MHz	41.74	36.61
802.11ac MCS0/Nss1 VHT80	5210 MHz	80.58	74.96
	5775 MHz	80.29	74.96

For beamforming mode

Mode	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11ac MCS0/Nss1 VHT20	5180 MHz	23.65	18.06
	5200 MHz	24.00	18.06
	5240 MHz	23.65	18.06
	5745 MHz	23.57	18.06
	5785 MHz	23.57	18.06
	5825 MHz	23.13	17.97
802.11ac MCS0/Nss1 VHT40	5190 MHz	42.17	36.76
	5230 MHz	42.32	36.76
	5755 MHz	42.75	36.76
	5795 MHz	42.32	36.76
802.11ac MCS0/Nss1 VHT80	5210 MHz	80.29	75.25
	5775 MHz	80.29	75.25

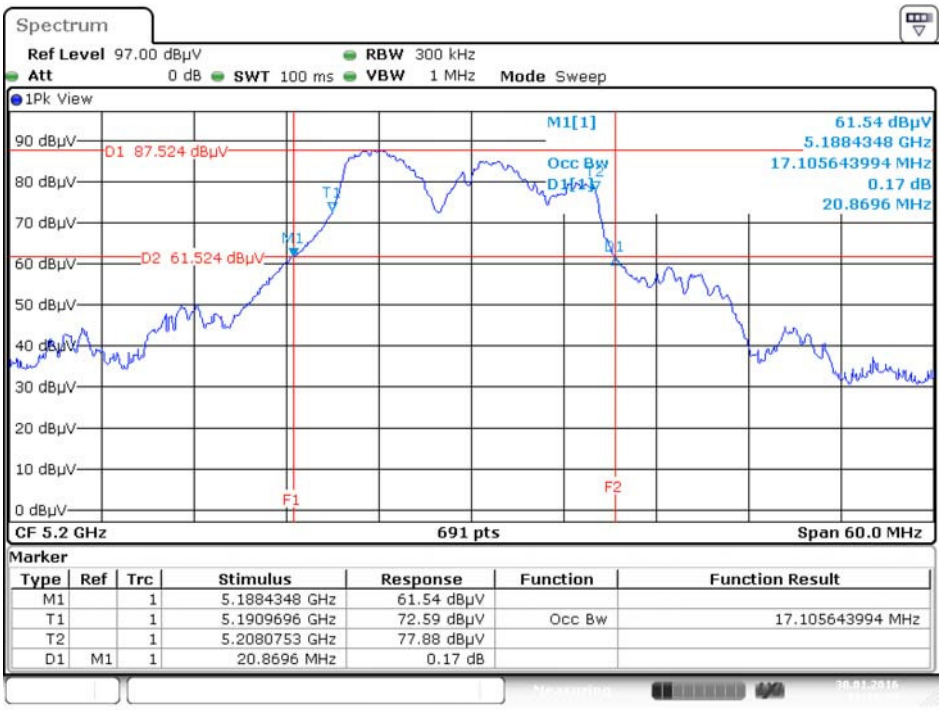
For non-beamforming mode

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



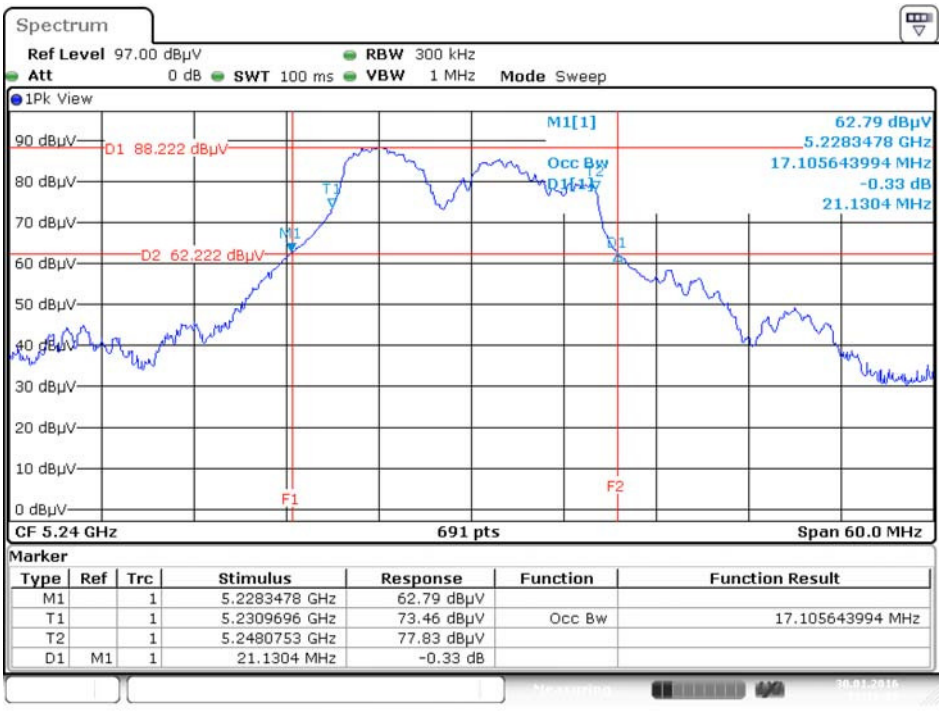
Date: 30.JAN.2016 13:13:04

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



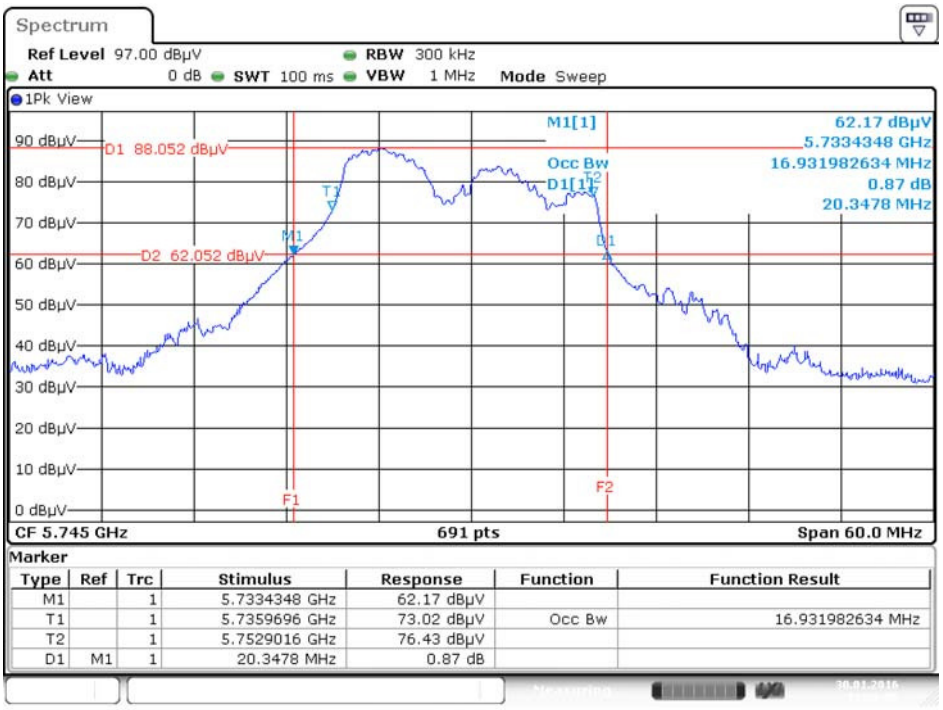
Date: 30.JAN.2016 13:15:29

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



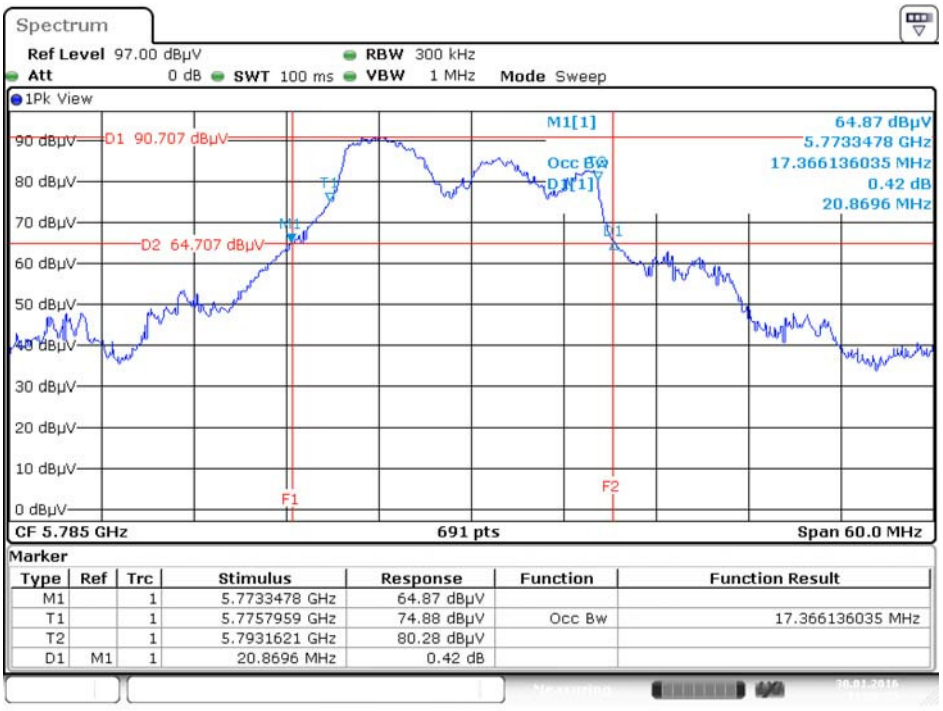
Date: 30.JAN.2016 13:16:37

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



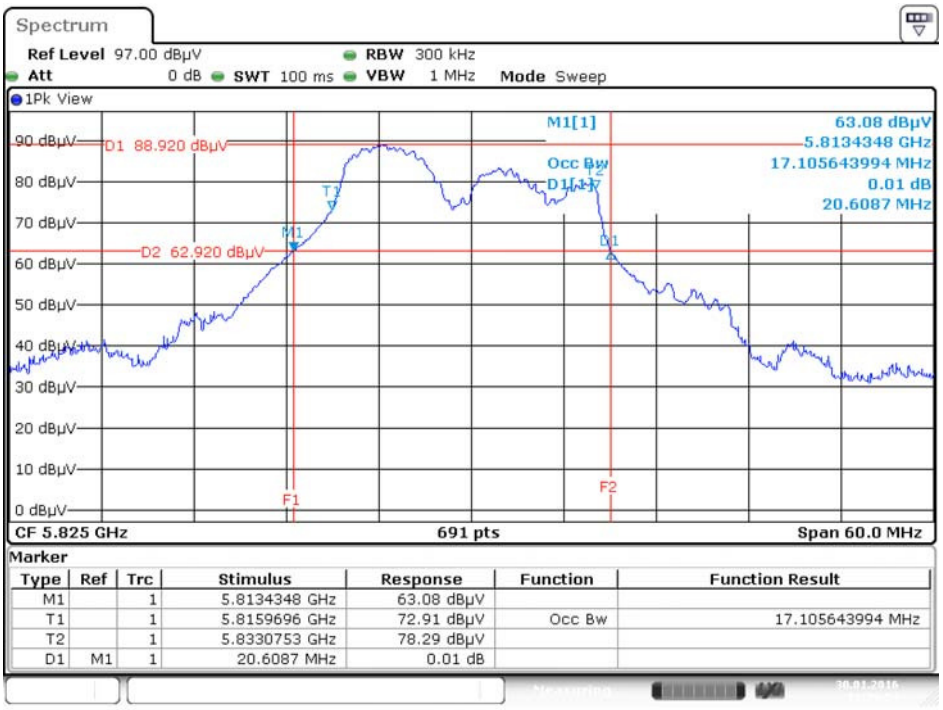
Date: 30.JAN.2016 13:26:56

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



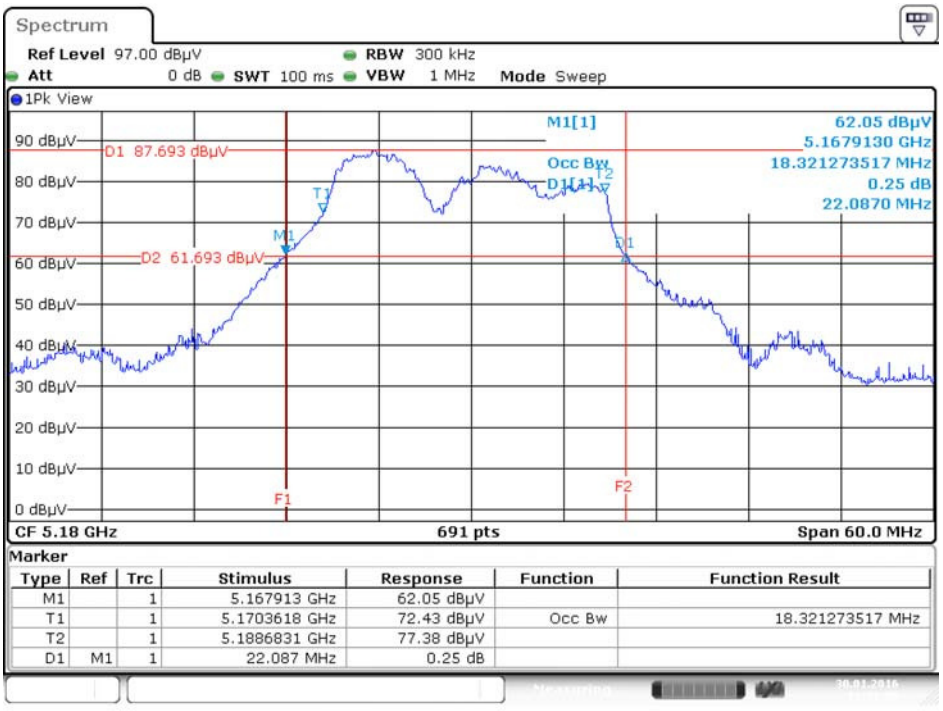
Date: 30.JAN.2016 13:28:22

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



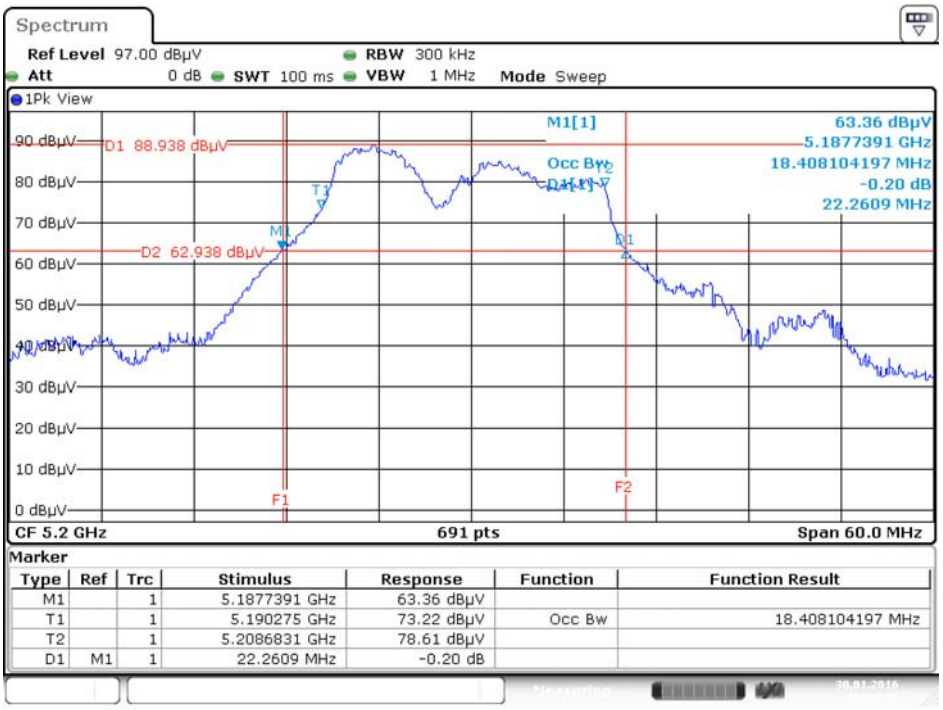
Date: 30.JAN.2016 13:29:54

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



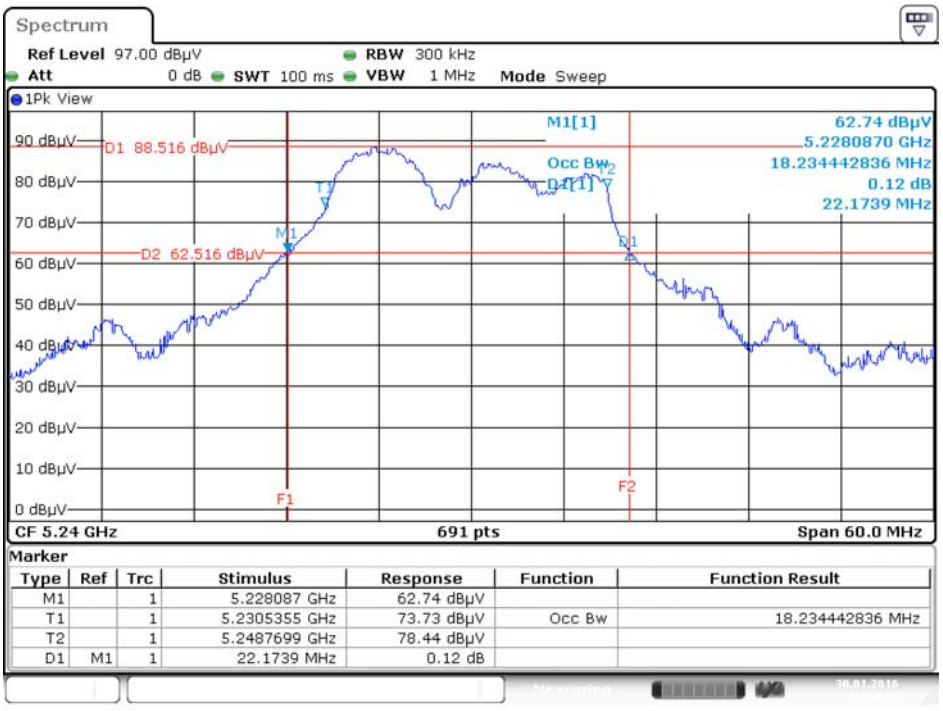
Date: 30.JAN.2016 13:31:57

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



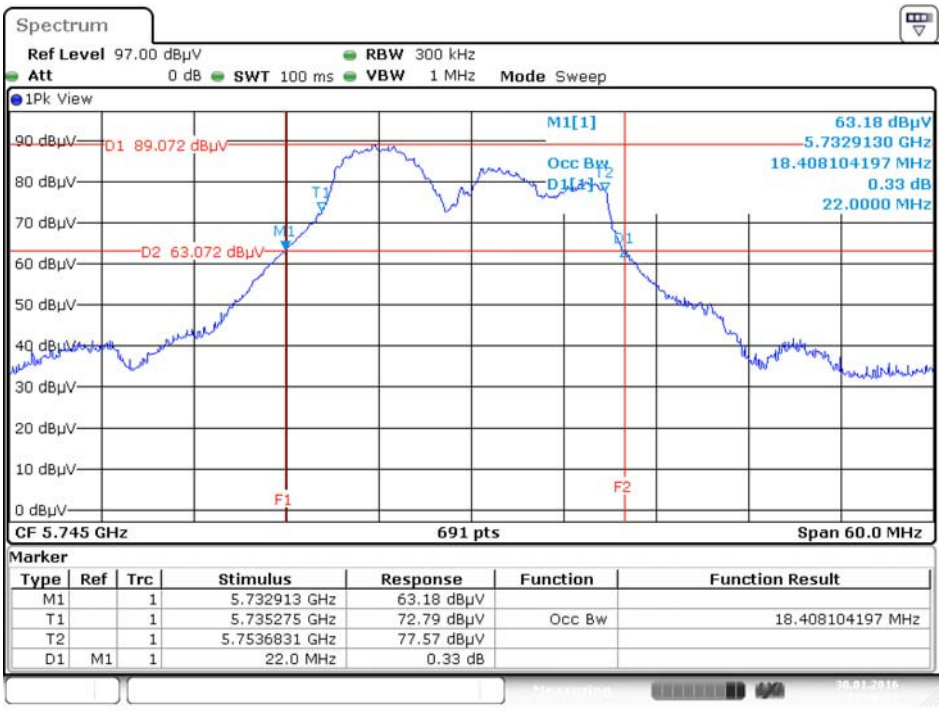
Date: 30.JAN.2016 13:33:25

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



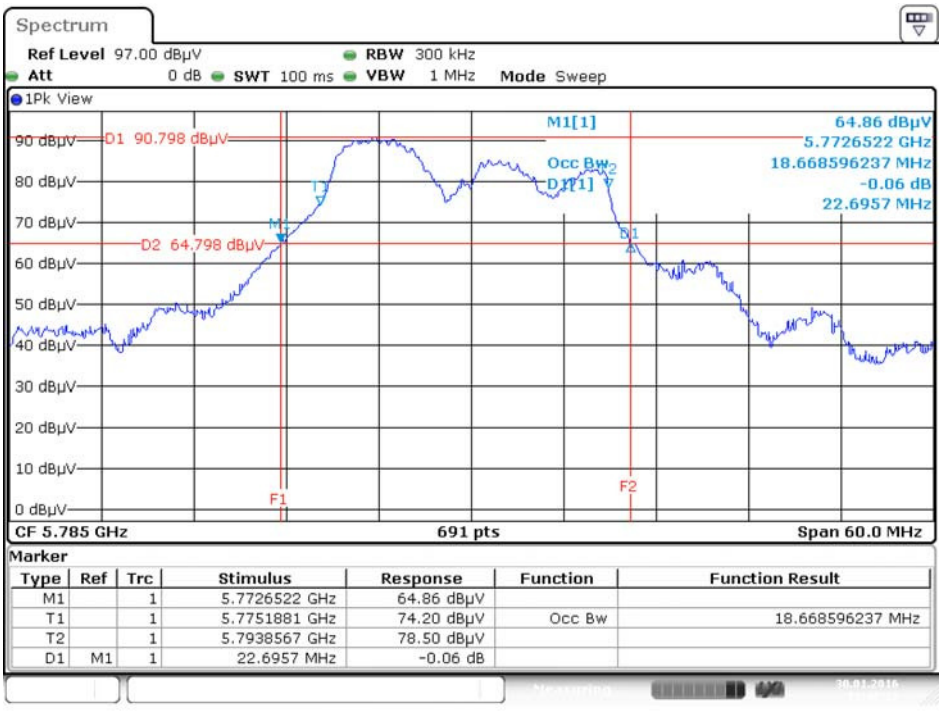
Date: 30.JAN.2016 13:34:35

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



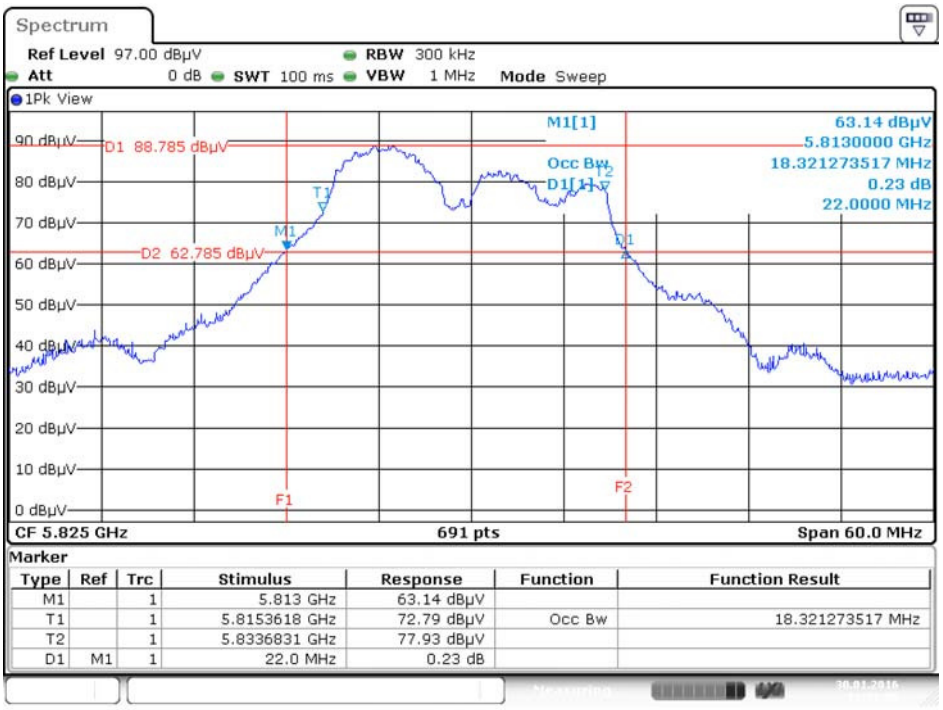
Date: 30.JAN.2016 13:46:17

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



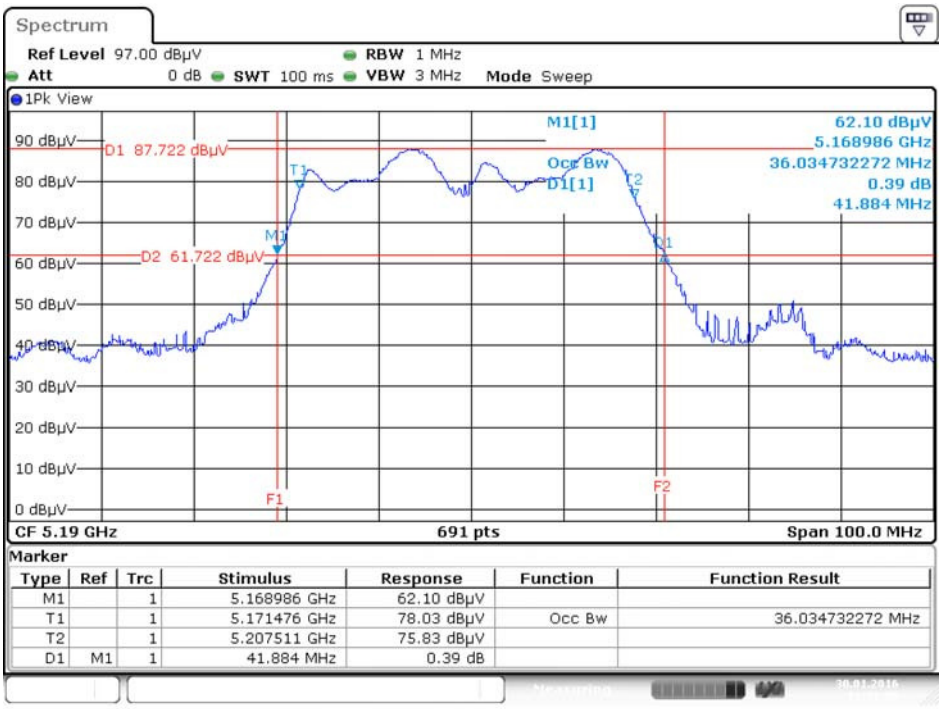
Date: 30.JAN.2016 13:47:36

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



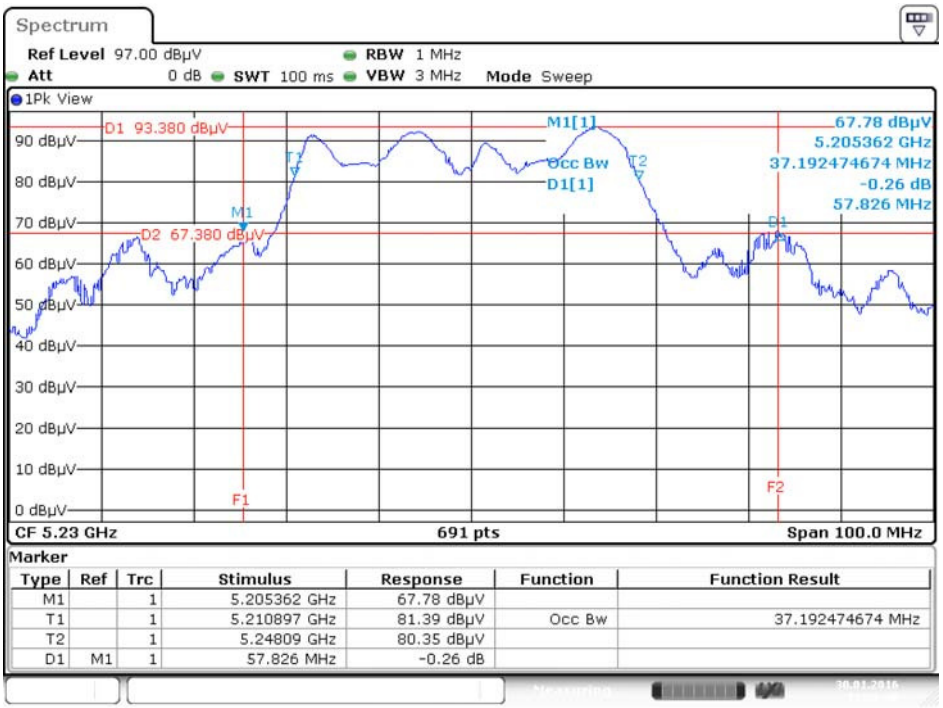
Date: 30.JAN.2016 13:51:05

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



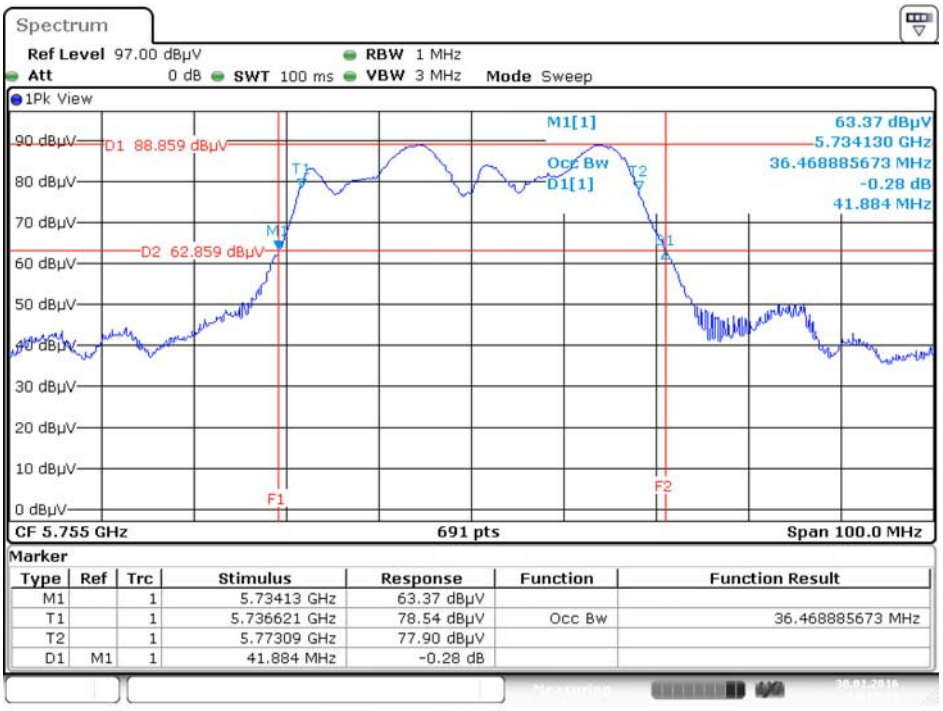
Date: 30.JAN.2016 13:52:49

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



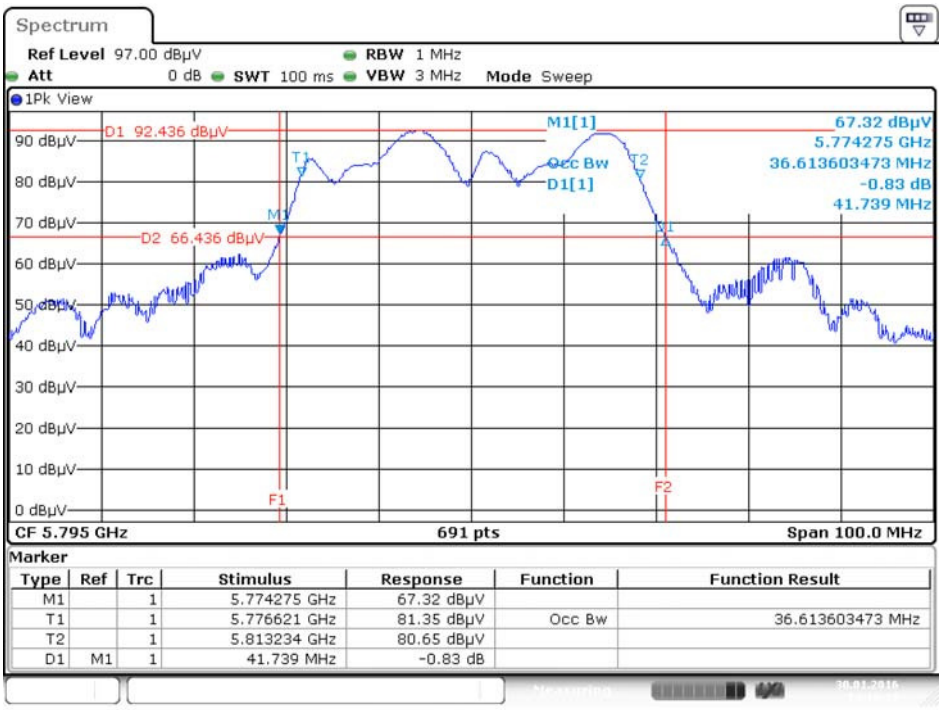
Date: 30.JAN.2016 13:56:40

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



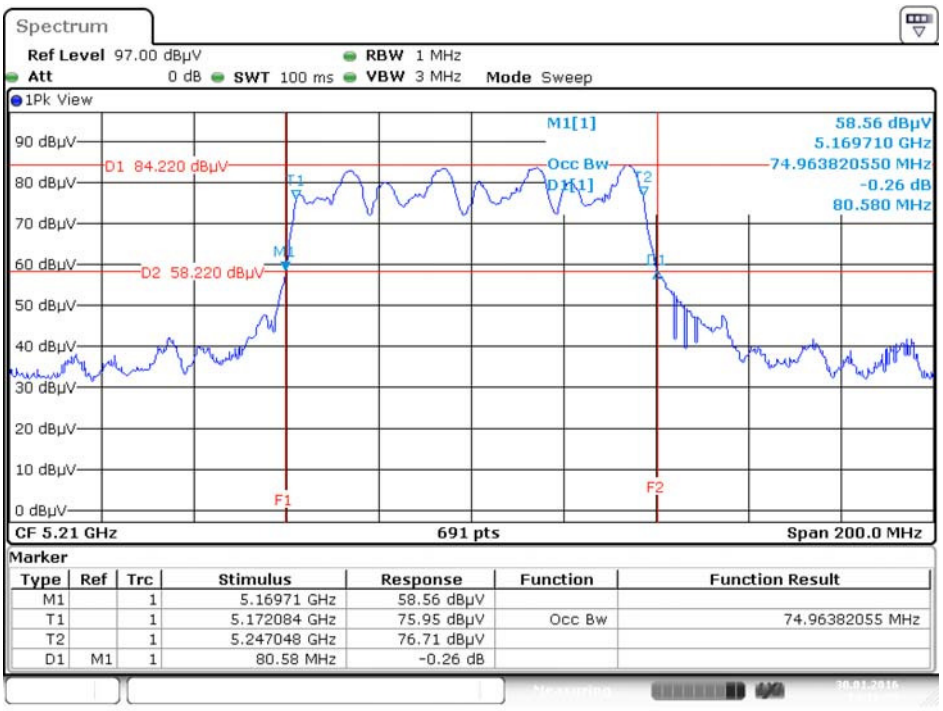
Date: 30.JAN.2016 14:12:17

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



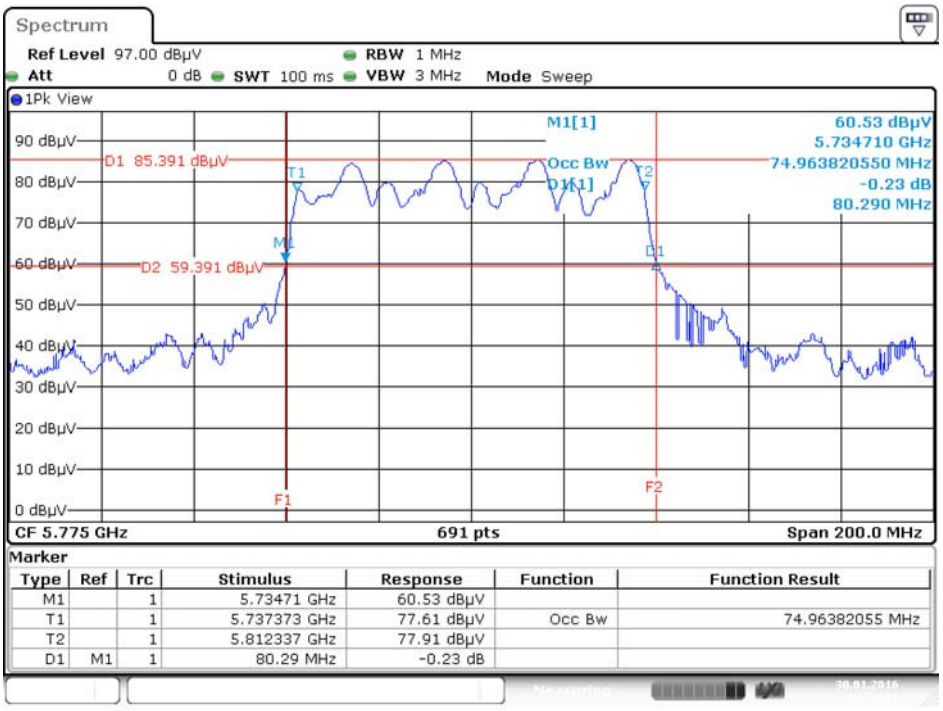
Date: 30.JAN.2016 14:14:19

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



Date: 30.JAN.2016 14:16:29

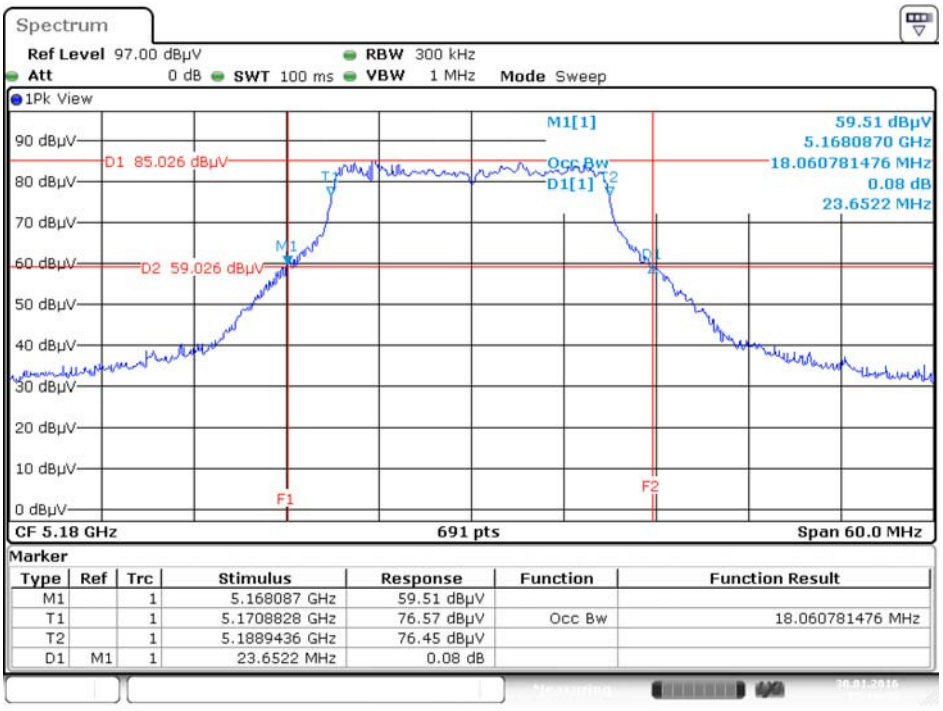
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5775 MHz



Date: 30.JAN.2016 14:23:32

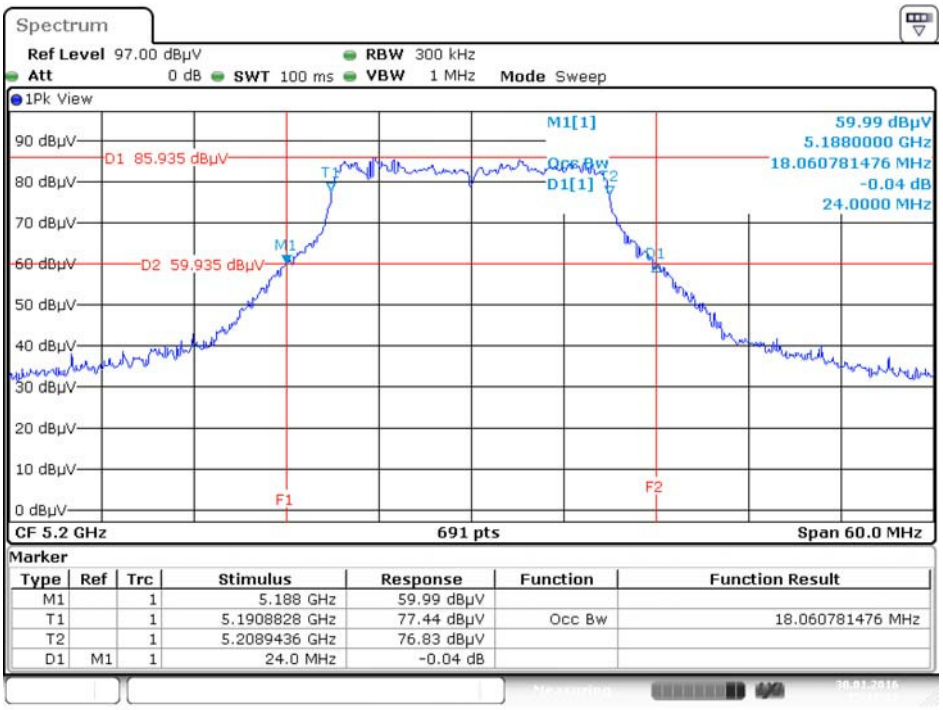
For beamforming mode

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



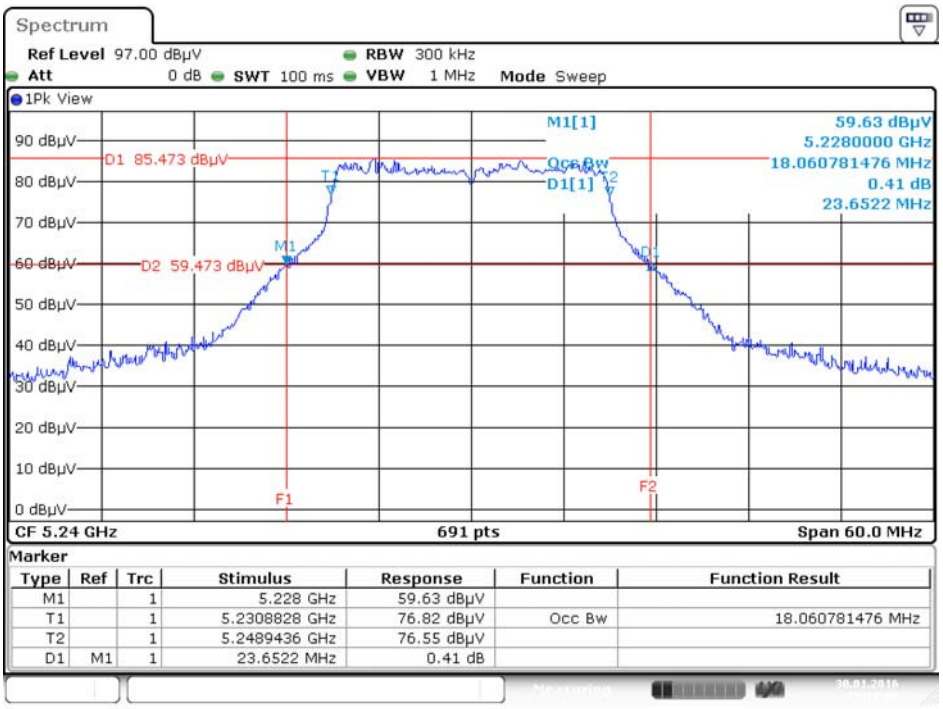
Date: 30.JAN.2016 15:14:35

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



Date: 30.JAN.2016 15:17:12

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



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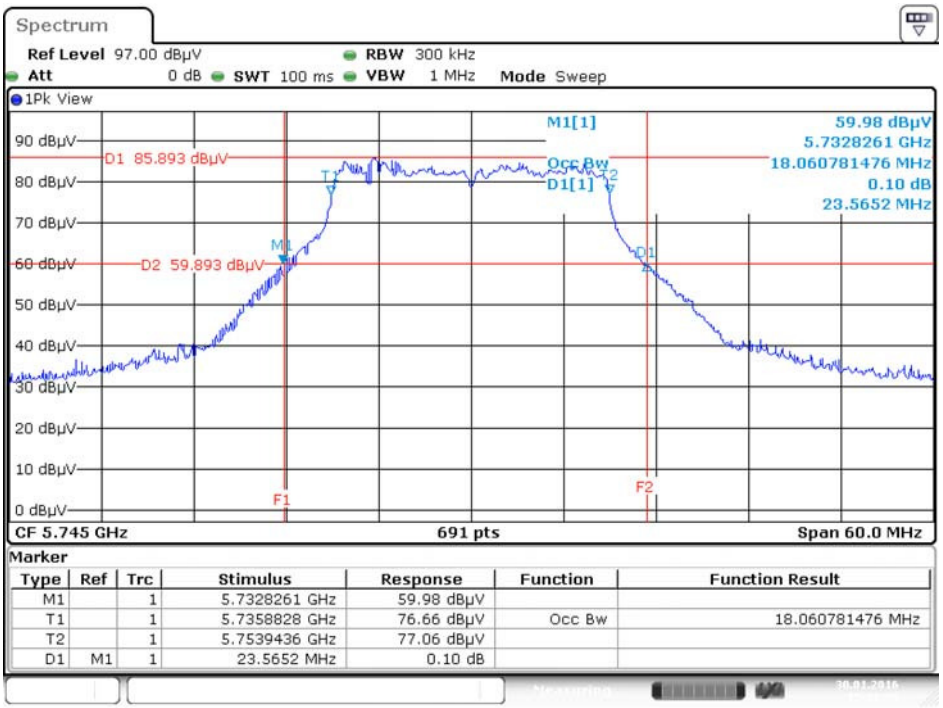
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5745 MHz



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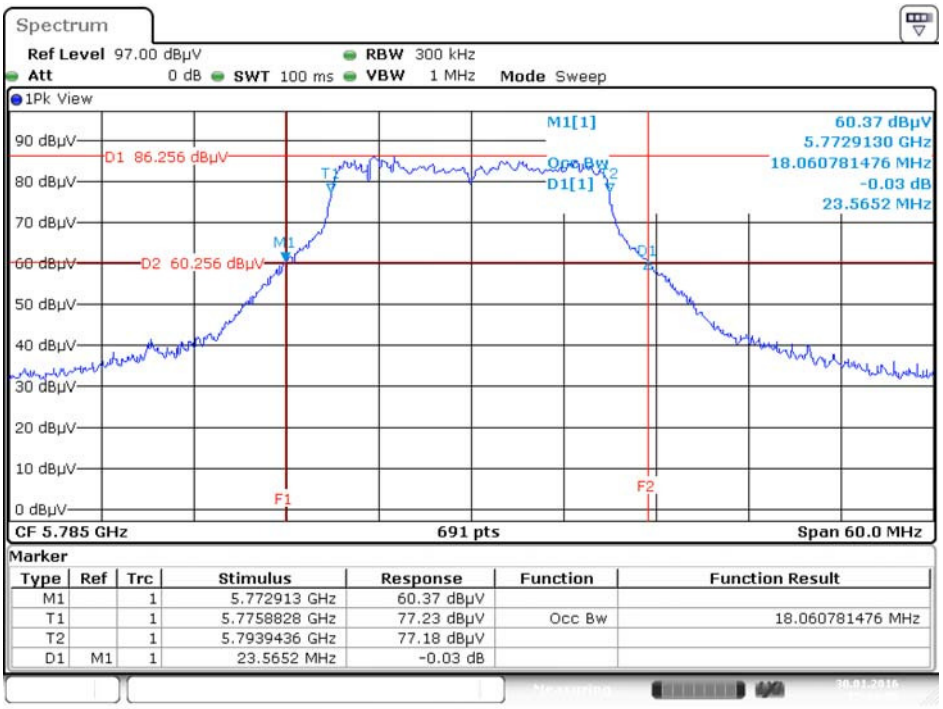
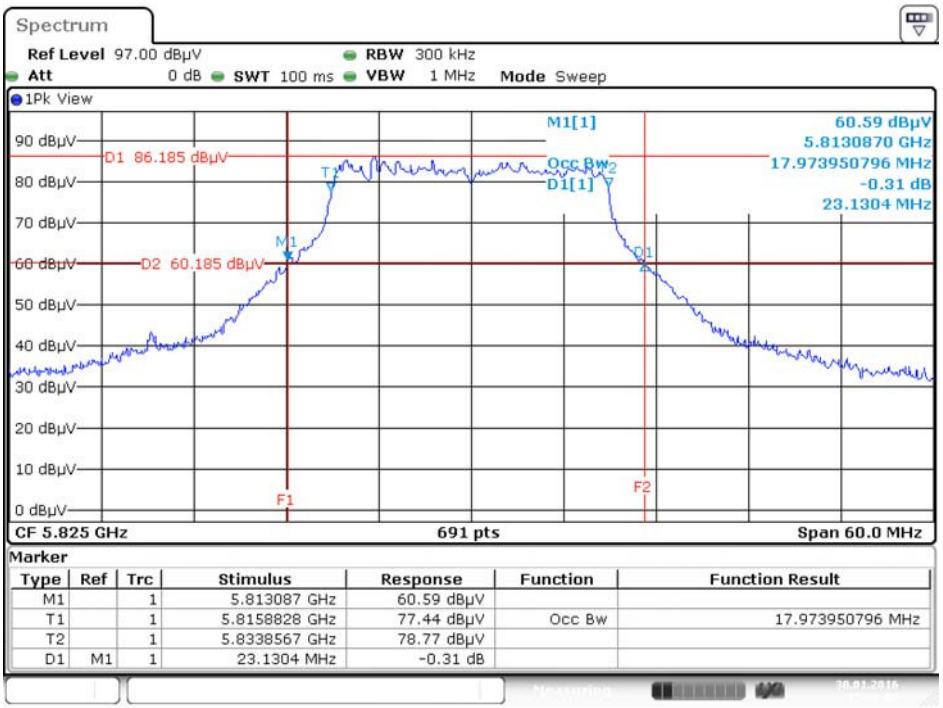
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5785 MHz



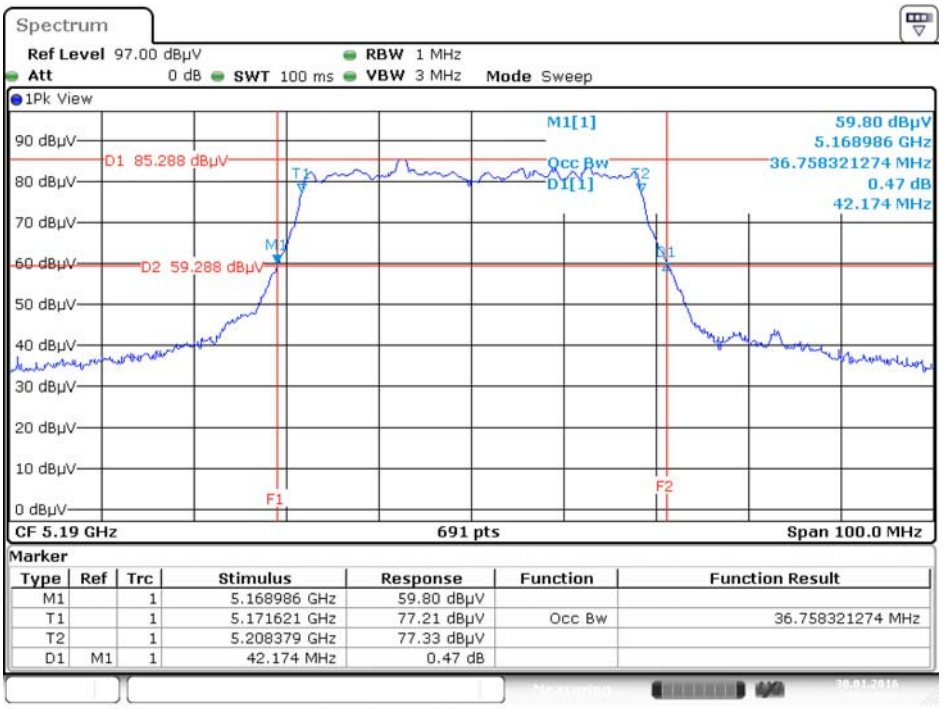
Date: 30.JAN.2016 15:34:55

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



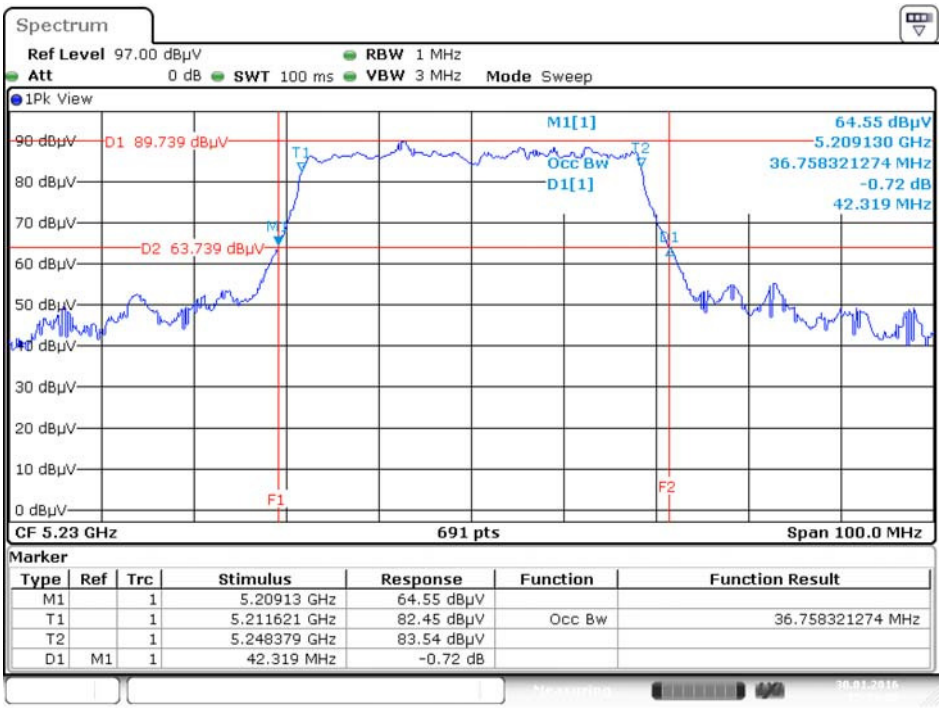
Date: 30.JAN.2016 15:36:03

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



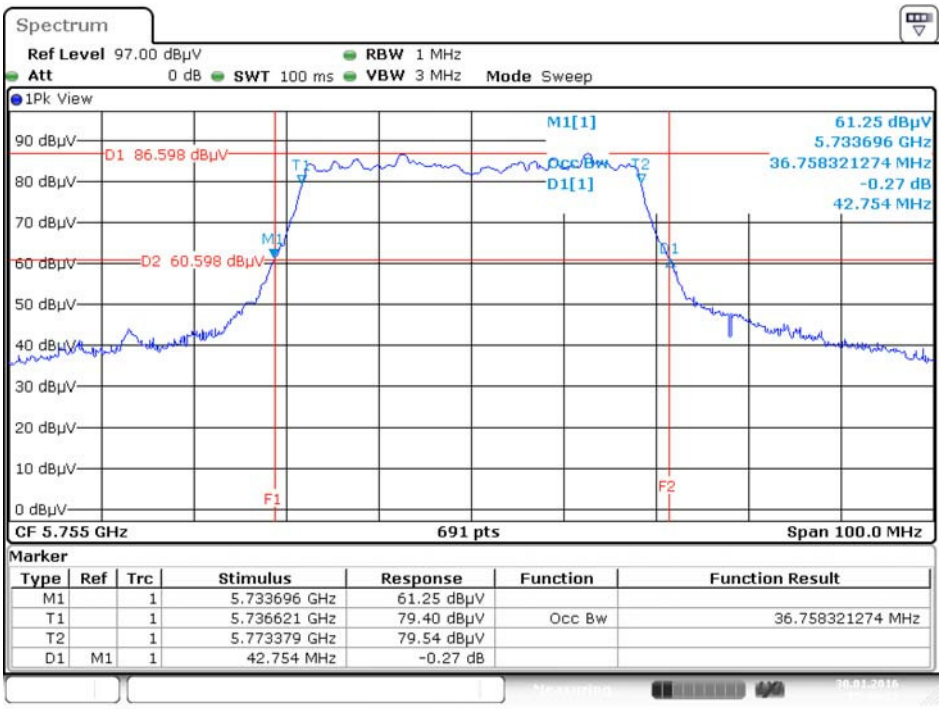
Date: 30.JAN.2016 15:37:46

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

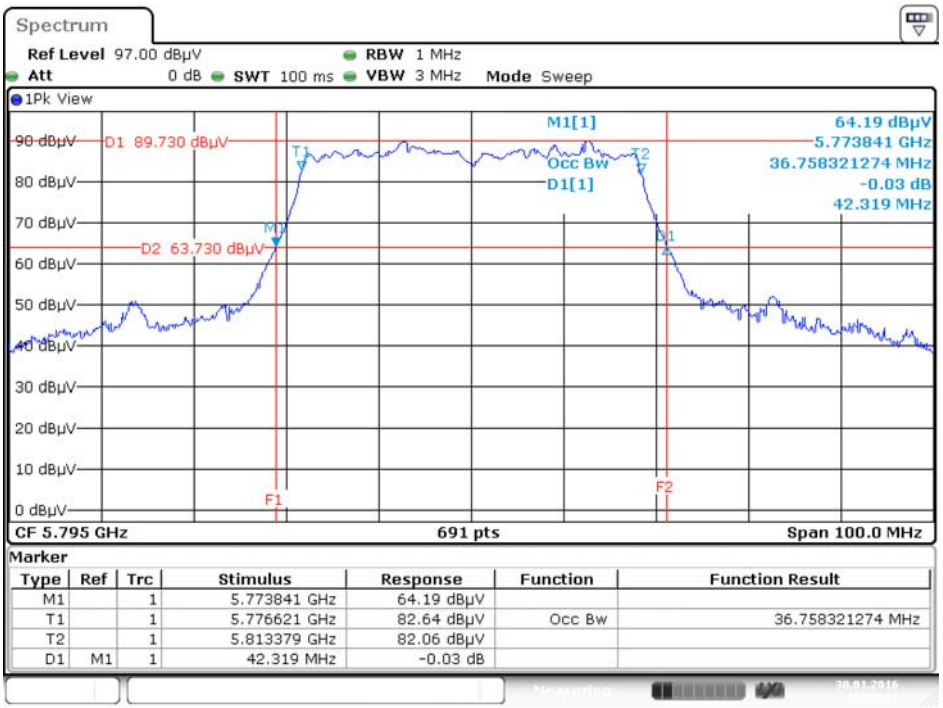


Date: 30.JAN.2016 15:39:20

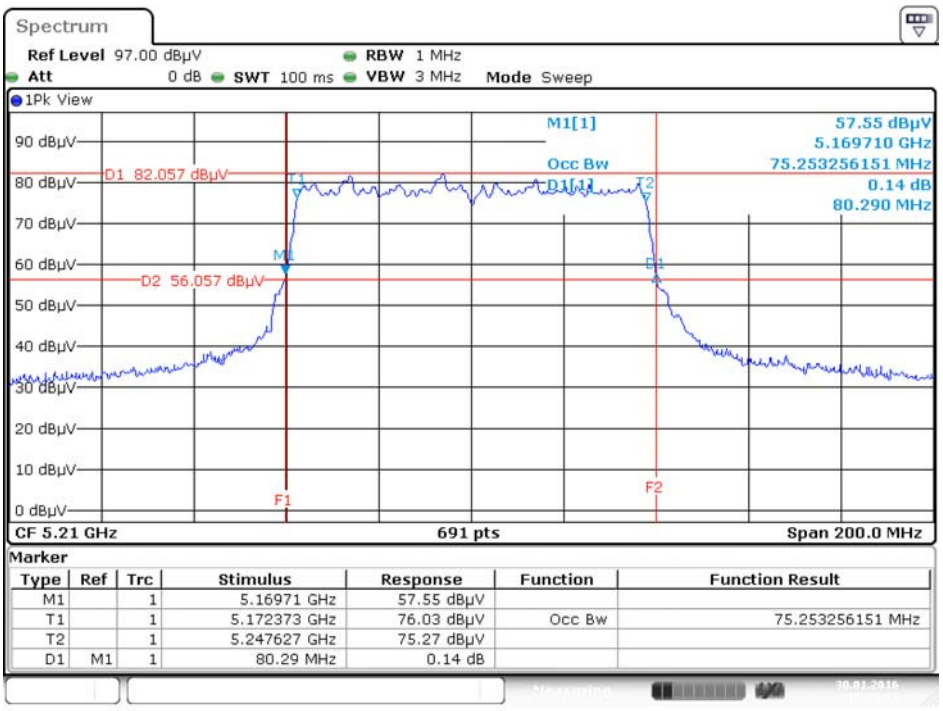
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5755 MHz



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

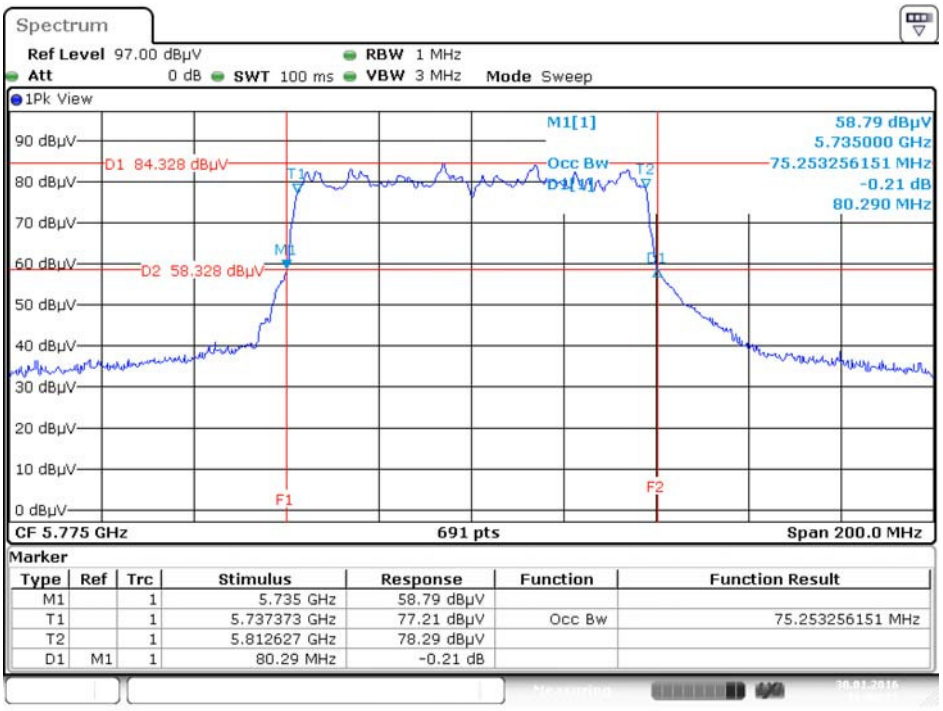


26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5210 MHz



Date: 30.JAN.2016 15:53:26

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



Date: 30.JAN.2016 16:00:31

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 v01r01 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	23°C	Humidity	64%
Test Engineer	Serway Li		

For non-beamforming mode

Mode	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Test Result
802.11a	5745 MHz	12.35	500	Complies
	5785 MHz	12.58	500	Complies
	5825 MHz	11.48	500	Complies
802.11ac MCS0/Nss1 VHT20	5745 MHz	12.17	500	Complies
	5785 MHz	11.07	500	Complies
	5825 MHz	11.30	500	Complies
802.11ac MCS0/Nss1 VHT40	5755 MHz	34.67	500	Complies
	5795 MHz	35.48	500	Complies
802.11ac MCS0/Nss1 VHT80	5775 MHz	64.06	500	Complies

For beamforming mode

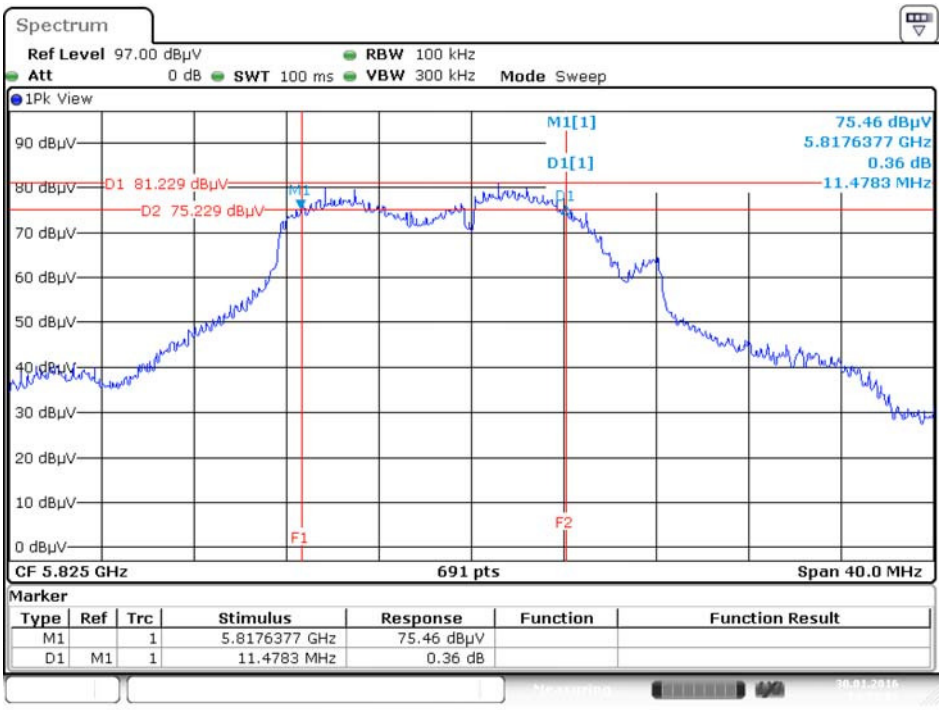
Mode	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Test Result
802.11ac MCS0/Nss1 VHT20	5745 MHz	15.65	500	Complies
	5785 MHz	16.52	500	Complies
	5825 MHz	15.71	500	Complies
802.11ac MCS0/Nss1 VHT40	5755 MHz	35.94	500	Complies
	5795 MHz	35.13	500	Complies
802.11ac MCS0/Nss1 VHT80	5775 MHz	72.75	500	Complies

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

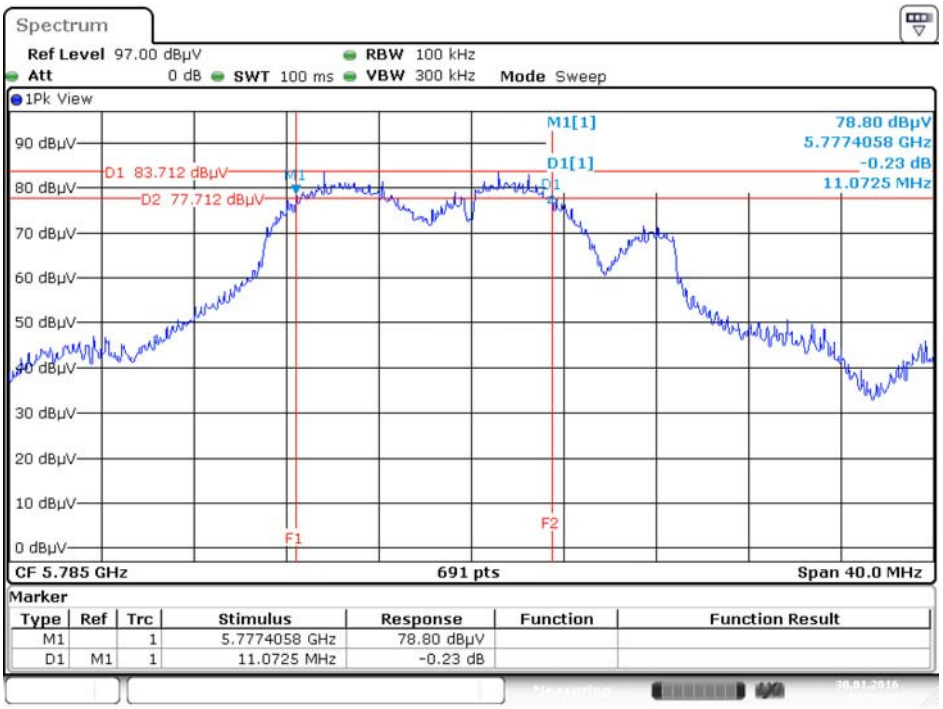
For plots, only the channel with worse result was shown.

For non-beamforming mode

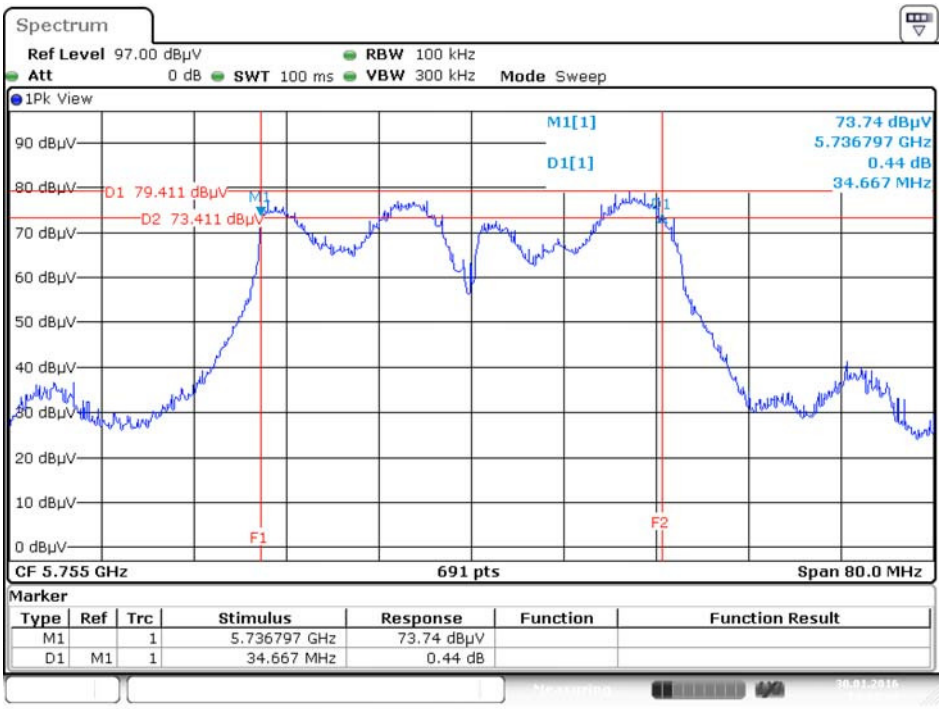
6 dB Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5825 MHz



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

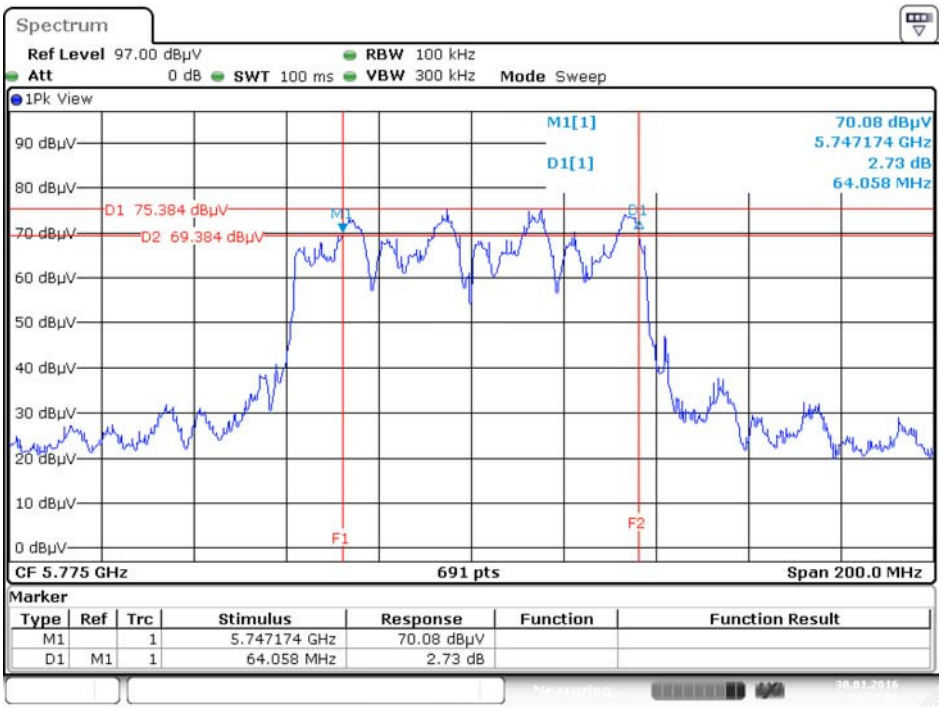


6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5755 MHz



Date: 30.JAN.2016 14:43:34

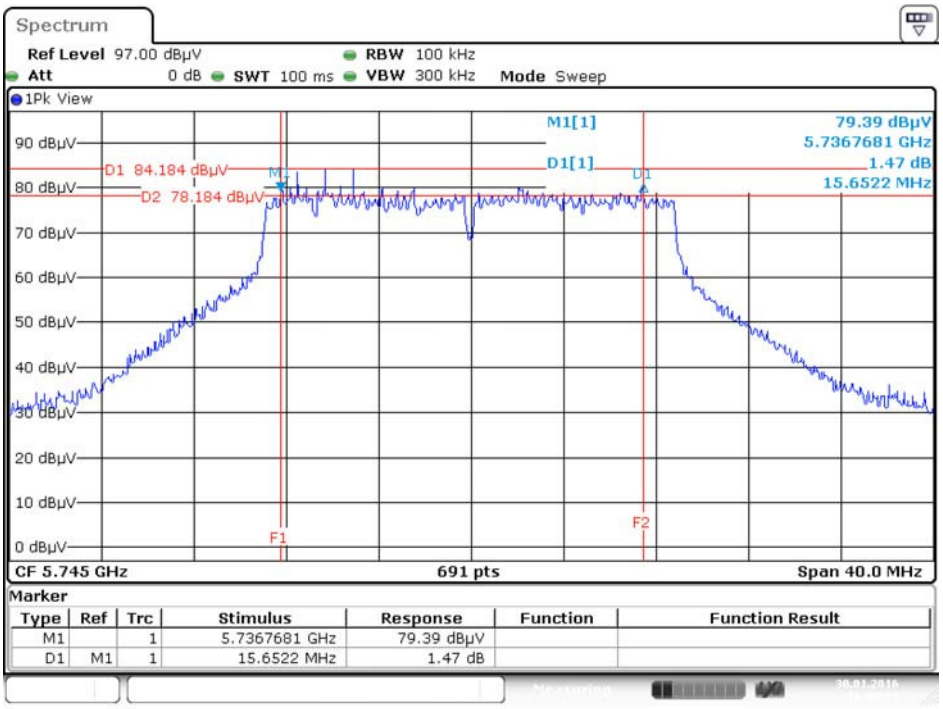
6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5775 MHz



Date: 30.JAN.2016 14:27:01

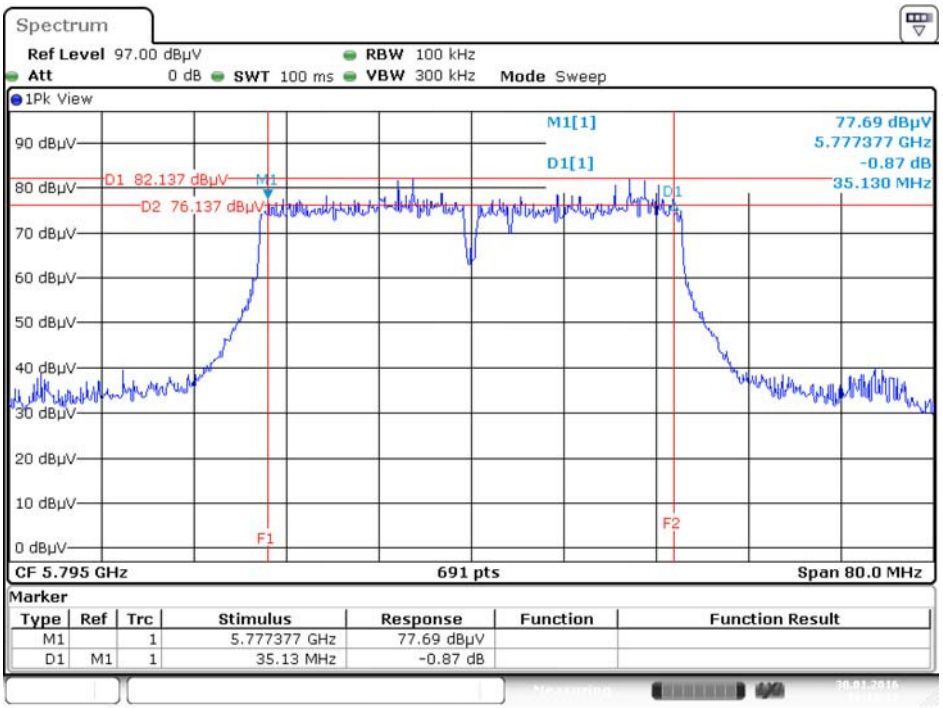
For beamforming mode

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5745 MHz



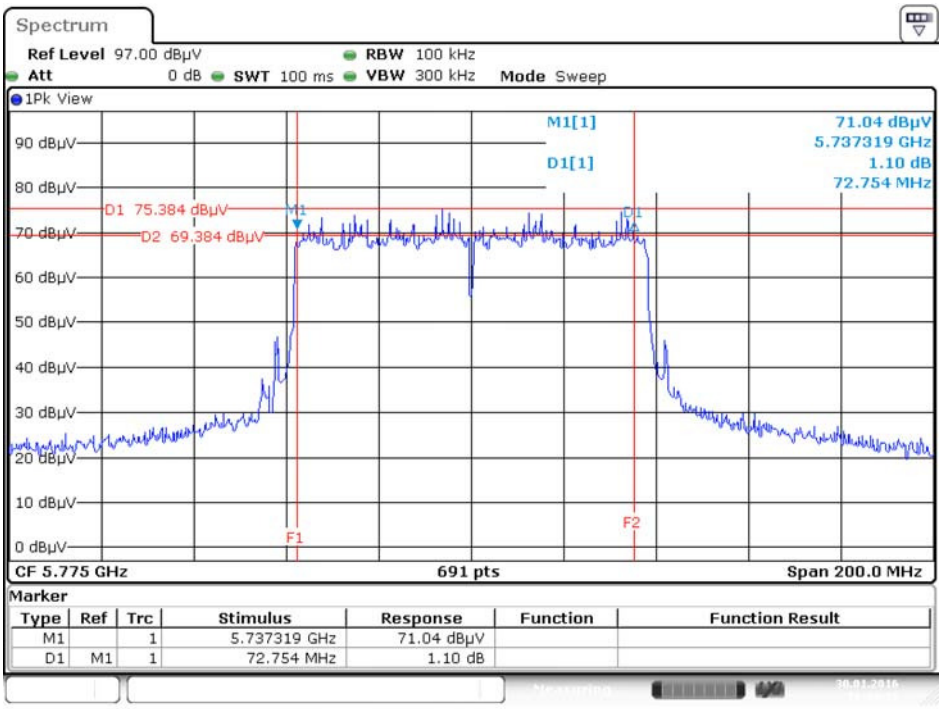
Date: 30.JAN.2016 16:05:33

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



Date: 30.JAN.2016 16:12:12

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



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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.
	☐	Mobile and portable client devices	The maximum conducted output power over the frequency band of operation shall not exceed 250 mW (24dBm) provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

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

4.4.2. Measuring Instruments and Setting

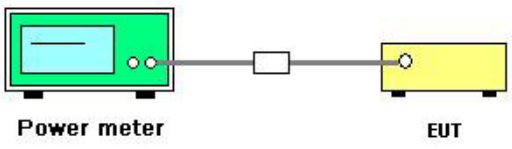
Please refer to section 5 of equipments list in this report. The following table is the setting of the power meter.

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 v01r01 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	23°C	Humidity	64%
Test Engineer	Serway Li	Test Date	Jan. 29, 2016 ~ Feb. 05, 2016

For non-beamforming mode

Mode	Frequency	Conducted Power (dBm)					Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Chain 4	Total		
802.11a	5180 MHz	20.62	20.17	20.67	21.19	26.70	30.00	Complies
	5200 MHz	21.16	20.93	21.22	21.97	27.36	30.00	Complies
	5240 MHz	20.97	21.06	21.50	21.94	27.41	30.00	Complies
	5745 MHz	21.36	21.49	21.55	22.33	27.72	30.00	Complies
	5785 MHz	22.74	23.06	22.82	23.51	29.06	30.00	Complies
	5825 MHz	21.16	21.43	21.31	21.94	27.49	30.00	Complies
802.11ac MCS0/Nss1 VHT20	5180 MHz	20.52	19.92	20.53	21.19	26.58	30.00	Complies
	5200 MHz	21.10	21.06	21.47	22.23	27.51	30.00	Complies
	5240 MHz	21.08	21.28	21.67	22.14	27.58	30.00	Complies
	5745 MHz	21.42	21.68	21.40	22.06	27.67	30.00	Complies
	5785 MHz	22.81	23.15	23.02	23.37	29.11	30.00	Complies
	5825 MHz	20.94	21.14	20.88	21.29	27.09	30.00	Complies
802.11ac MCS0/Nss1 VHT40	5190 MHz	18.64	18.52	18.64	19.54	24.88	30.00	Complies
	5230 MHz	23.39	23.31	23.45	23.95	29.55	30.00	Complies
	5755 MHz	19.14	19.36	19.18	19.64	25.36	30.00	Complies
	5795 MHz	22.23	22.48	22.35	22.32	28.37	30.00	Complies
802.11ac MCS0/Nss1 VHT80	5210 MHz	16.97	16.92	17.05	17.63	23.17	30.00	Complies
	5775 MHz	17.92	18.22	18.14	18.46	24.21	30.00	Complies

For beamforming mode

Mode	Frequency	Conducted Power (dBm)					Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Chain 4	Total		
802.11ac MCS0/Nss1 VHT20	5180 MHz	20.26	19.71	20.19	21.05	26.35	27.22	Complies
	5200 MHz	20.63	20.68	20.91	21.45	26.95	27.22	Complies
	5240 MHz	20.66	20.77	20.98	21.66	27.06	27.22	Complies
	5745 MHz	19.97	20.17	19.91	20.46	26.15	27.39	Complies
	5785 MHz	20.69	20.77	20.72	21.36	26.91	27.39	Complies
	5825 MHz	20.16	20.74	20.56	21.03	26.65	27.39	Complies
802.11ac MCS0/Nss1 VHT40	5190 MHz	15.53	15.43	15.54	16.29	21.73	27.22	Complies
	5230 MHz	21.01	21.08	21.02	21.55	27.19	27.22	Complies
	5755 MHz	17.59	17.78	17.62	18.01	23.77	27.39	Complies
	5795 MHz	20.96	20.98	21.08	21.31	27.11	27.39	Complies
802.11ac MCS0/Nss1 VHT80	5210 MHz	14.98	14.93	15.01	15.55	21.15	27.22	Complies
	5775 MHz	16.92	17.39	17.13	17.43	23.24	27.39	Complies

Note:

Band 1: Directional gain=8.78dBi>6dBi, so limit=30-(8.78-6)=27.22dBm.

Band 4: Directional gain=8.61dBi>6dBi, so limit=30-(8.61-6)=27.39dBm.

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
	☐	Mobile and portable client devices	11 dBm/MHz
☒	5.725~5.85 GHz		30 dBm/500kHz

4.5.2. Measuring Instruments and Setting

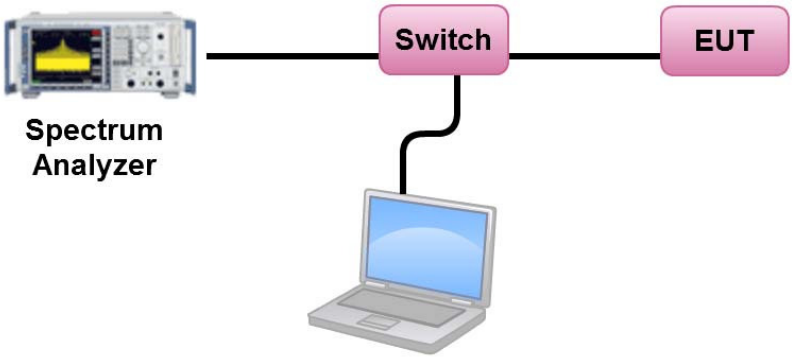
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

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 v01r01 for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - section (F) Maximum Power Spectral Density (PSD).
3. Multiple antenna systems was performed in accordance KDB662911 D01 v02r01 in-Band Power Spectral Density (PSD) Measurements (a) Measure and sum the spectra across the outputs.
4. When measuring first spectral bin of output 1 is summed with that in the first spectral bin of output 2 and that from the first spectral bin of output 3 and so on up to the Nth output to obtain the value for the first frequency bin of the summed spectrum. The summed spectrum value for each of the other frequency bins is computed in the same way.
5. For 5.725~5.85 GHz, the measured result of PSD level must add 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	23°C	Humidity	64%
Test Engineer	Serway Li	Test Date	Jan. 29, 2016 ~ Feb. 05, 2016

For non-beamforming mode

Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3 + Chain 4

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	13.49	14.22	Complies
40	5200 MHz	14.16	14.22	Complies
48	5240 MHz	14.19	14.22	Complies

Note:

Band 1: Directional gain=8.78dBi>6dBi, so limit=17-(8.78-6)=14.22dBm/MHz

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
149	5745 MHz	14.39	-3.01	11.38	27.39	Complies
157	5785 MHz	15.80	-3.01	12.79	27.39	Complies
165	5825 MHz	14.25	-3.01	11.24	27.39	Complies

Note:

Band 4: Directional gain=8.61dBi>6dBi, so limit=30-(8.61-6)=27.39dBm/500kHz.

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

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	13.32	14.22	Complies
40	5200 MHz	14.16	14.22	Complies
48	5240 MHz	14.20	14.22	Complies

Note:

Band 1: Directional gain=8.78dBi>6dBi, so limit=17-(8.78-6)=14.22dBm/MHz

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
149	5745 MHz	14.31	-3.01	11.30	27.39	Complies
157	5785 MHz	15.74	-3.01	12.73	27.39	Complies
165	5825 MHz	13.79	-3.01	10.78	27.39	Complies

Note:

Band 4: Directional gain=8.61dBi>6dBi, so limit=30-(8.61-6)=27.39dBm/500kHz.

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

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	8.76	14.22	Complies
46	5230 MHz	13.39	14.22	Complies

Note:

Band 1: Directional gain=8.78dBi>6dBi, so limit=17-(8.78-6)=14.22dBm/MHz

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
151	5755 MHz	8.86	-3.01	5.85	27.39	Complies
159	5795 MHz	11.93	-3.01	8.92	27.39	Complies

Note:

Band 4: Directional gain=8.61dBi>6dBi, so limit=30-(8.61-6)=27.39dBm/500kHz.

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

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
42	5210 MHz	4.14	14.22	Complies

Note:

Band 1: Directional gain=8.78dBi>6dBi, so limit=17-(8.78-6)=14.22dBm/MHz

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
155	5775 MHz	4.97	-3.01	1.96	27.39	Complies

Note:

Band 4: Directional gain=8.61dBi>6dBi, so limit=30-(8.61-6)=27.39dBm/500kHz.

For beamforming mode

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

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	13.04	14.22	Complies
40	5200 MHz	13.85	14.22	Complies
48	5240 MHz	13.95	14.22	Complies

Note:

Band 1: Directional gain=8.78dBi>6dBi, so limit=17-(8.78-6)=14.22dBm/MHz

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
149	5745 MHz	12.95	-3.01	9.94	27.39	Complies
157	5785 MHz	13.87	-3.01	10.86	27.39	Complies
165	5825 MHz	13.53	-3.01	10.52	27.39	Complies

Note:

Band 4: Directional gain=8.61dBi>6dBi, so limit=30-(8.61-6)=27.39dBm/500kHz.

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

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	5.51	14.22	Complies
46	5230 MHz	11.09	14.22	Complies

Note:

Band 1: Directional gain=8.78dBi>6dBi, so limit=17-(8.78-6)=14.22dBm/MHz

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
151	5755 MHz	7.69	-3.01	4.68	27.39	Complies
159	5795 MHz	11.00	-3.01	7.99	27.39	Complies

Note:

Band 4: Directional gain=8.61dBi>6dBi, so limit=30-(8.61-6)=27.39dBm/500kHz.

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

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
42	5210 MHz	2.08	14.22	Complies

Note:

Band 1: Directional gain=8.78dBi>6dBi, so limit=17-(8.78-6)=14.22dBm/MHz

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
155	5775 MHz	4.14	-3.01	1.13	27.39	Complies

Note:

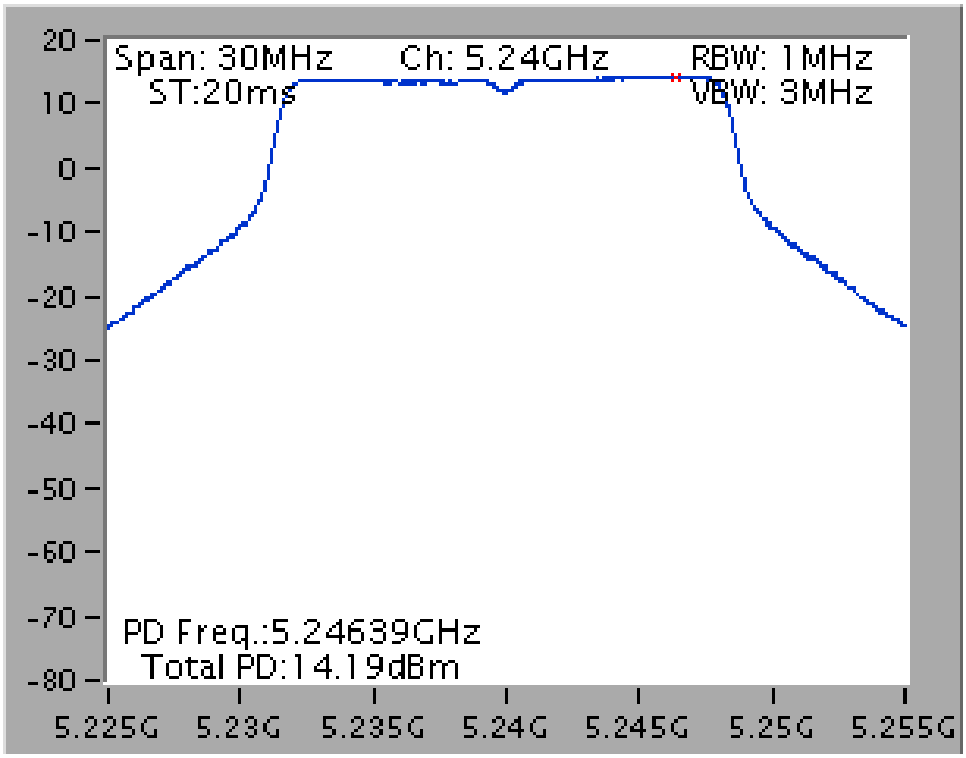
Band 4: Directional gain=8.61dBi>6dBi, so limit=30-(8.61-6)=27.39dBm/500kHz.

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

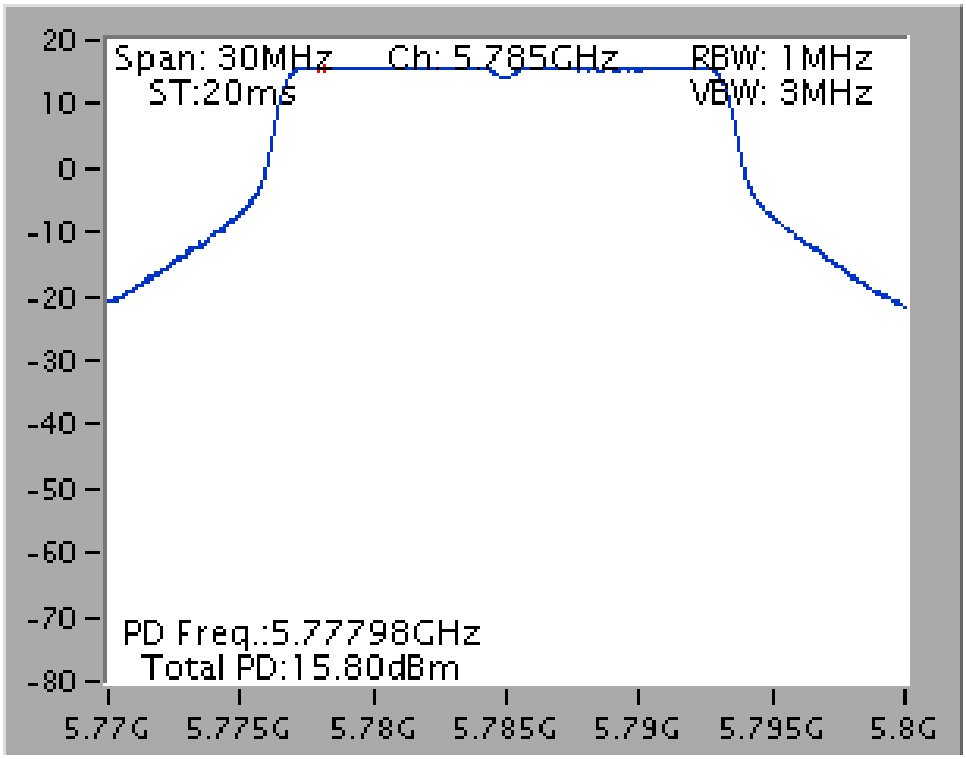
For plots, only the channel with worse result was shown.

For non-beamforming mode

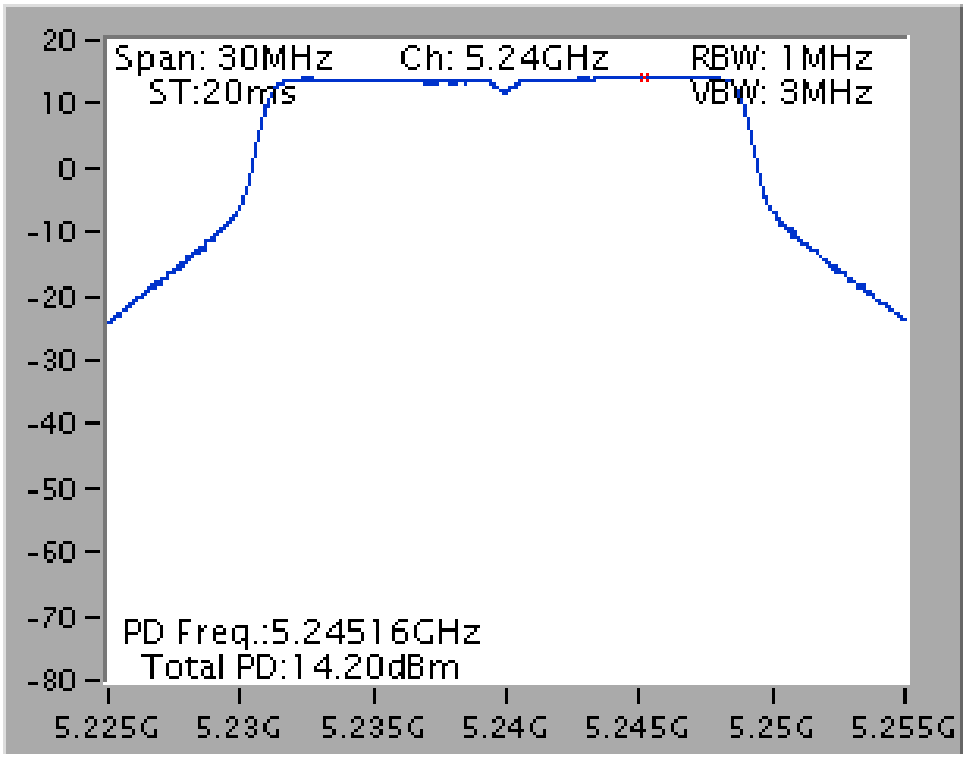
Power Density Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5240 MHz



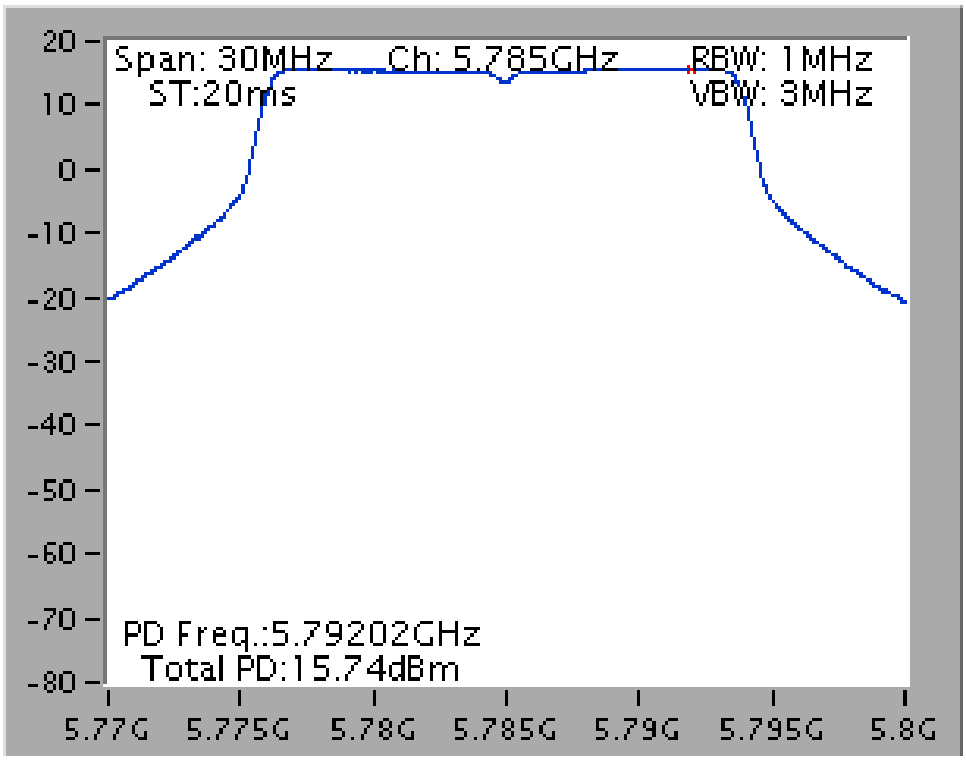
Power Density Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5785 MHz



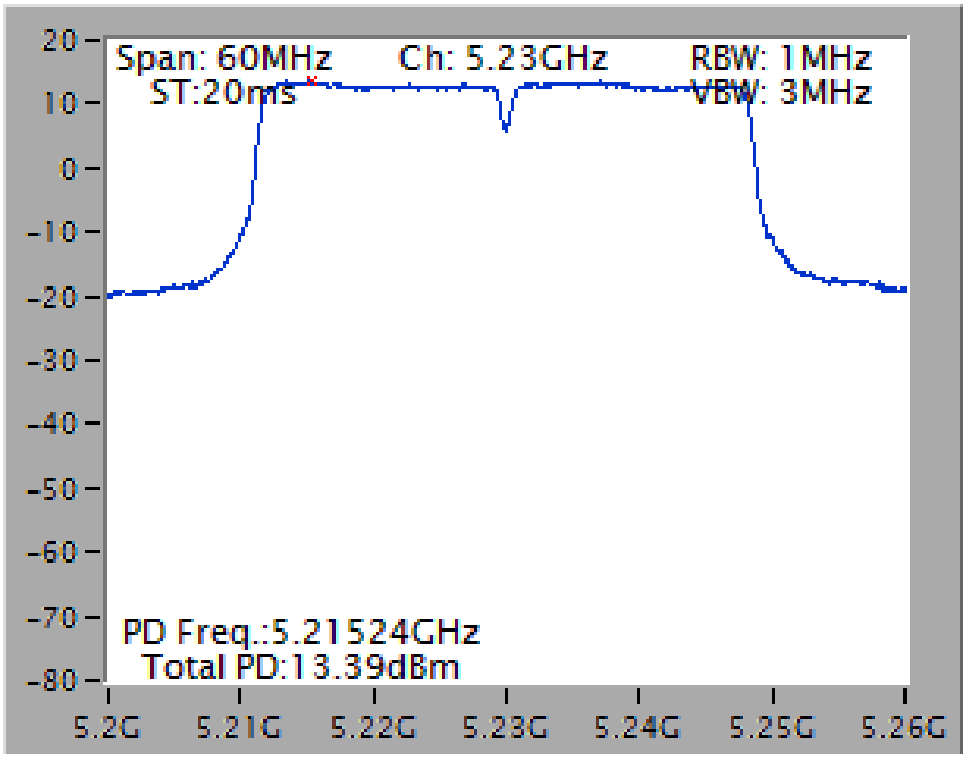
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5240 MHz



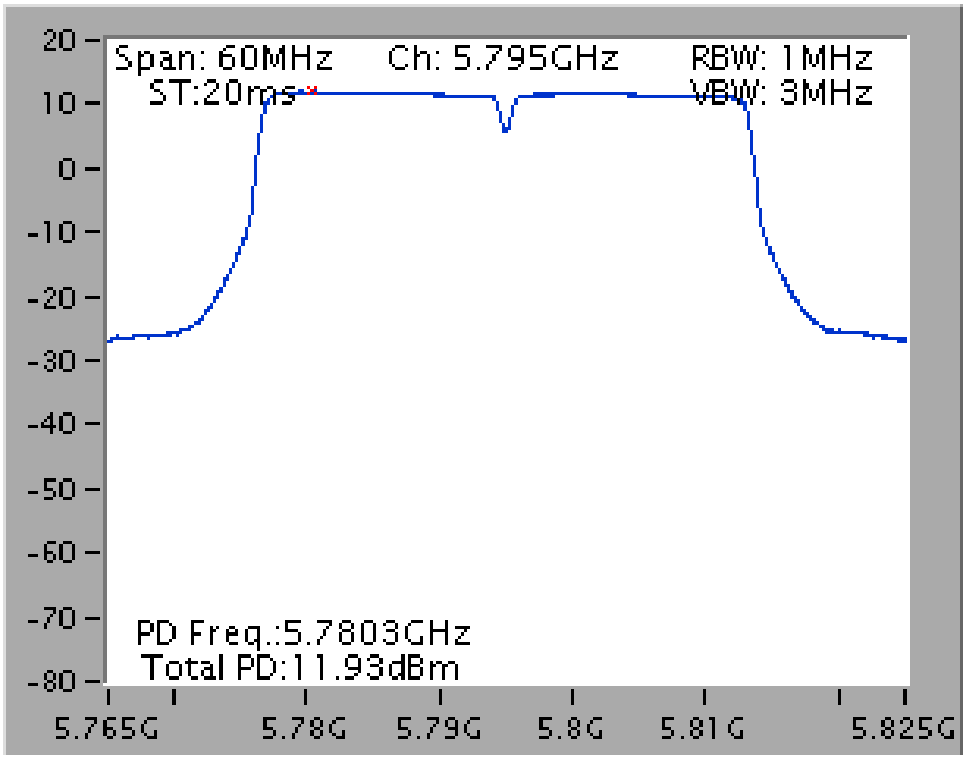
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5785 MHz



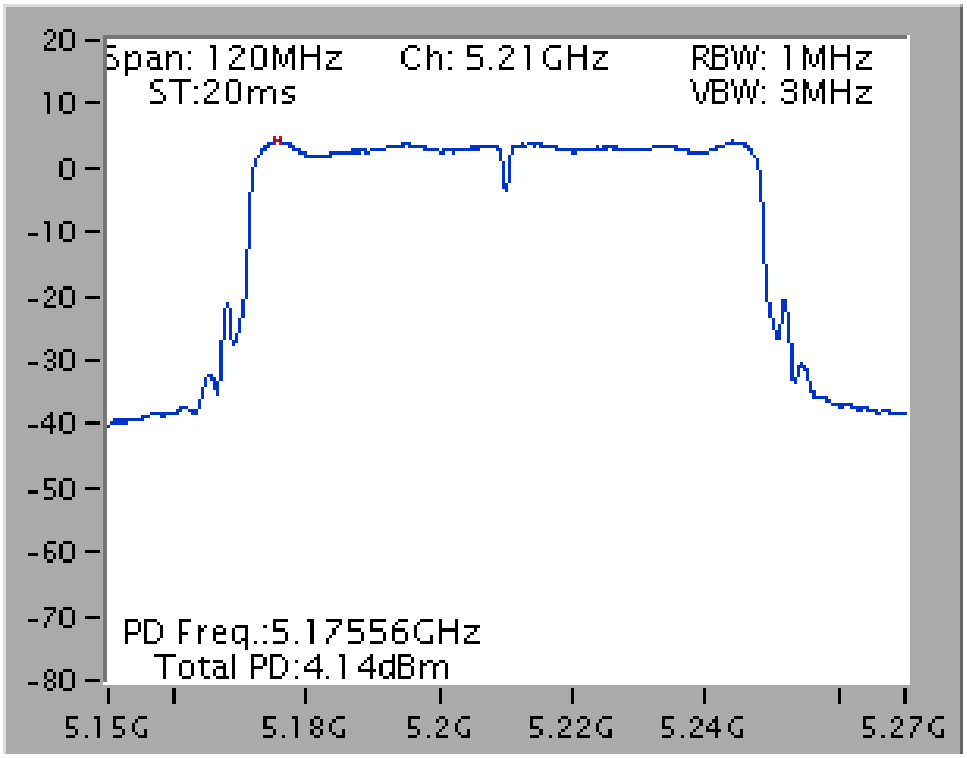
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5230 MHz



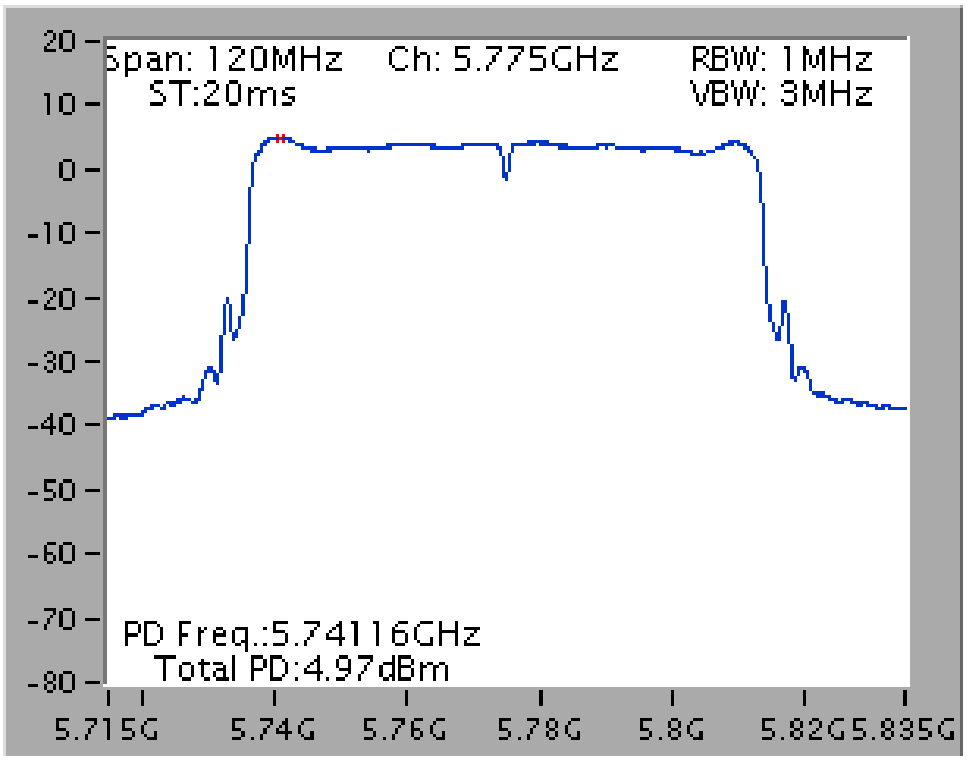
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5795 MHz



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

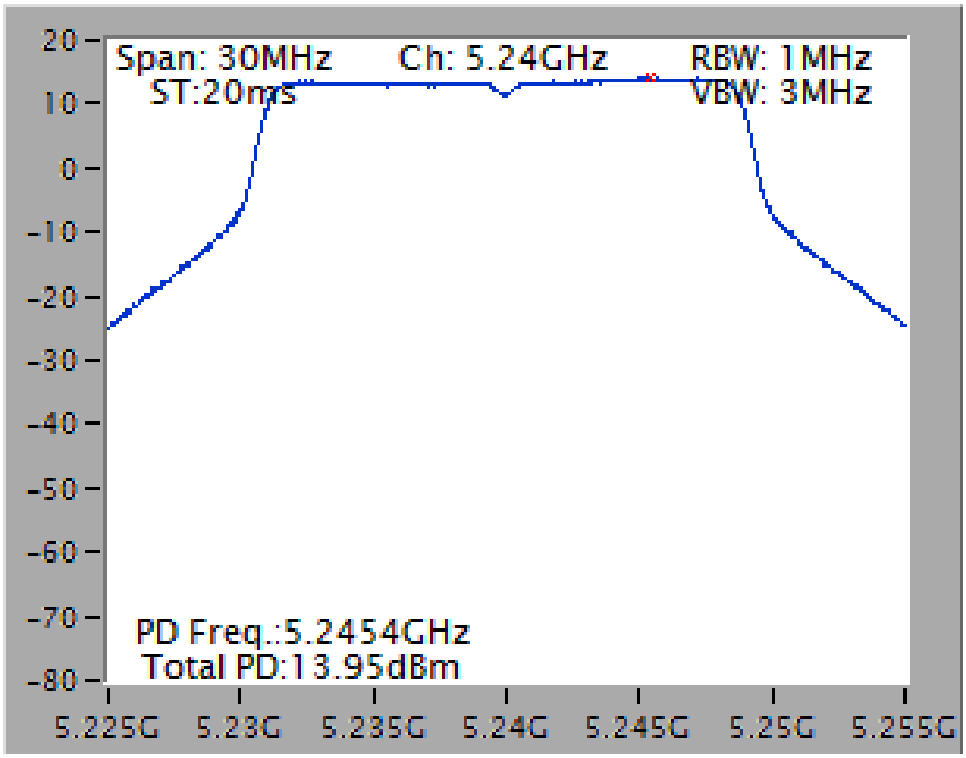


Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5775 MHz

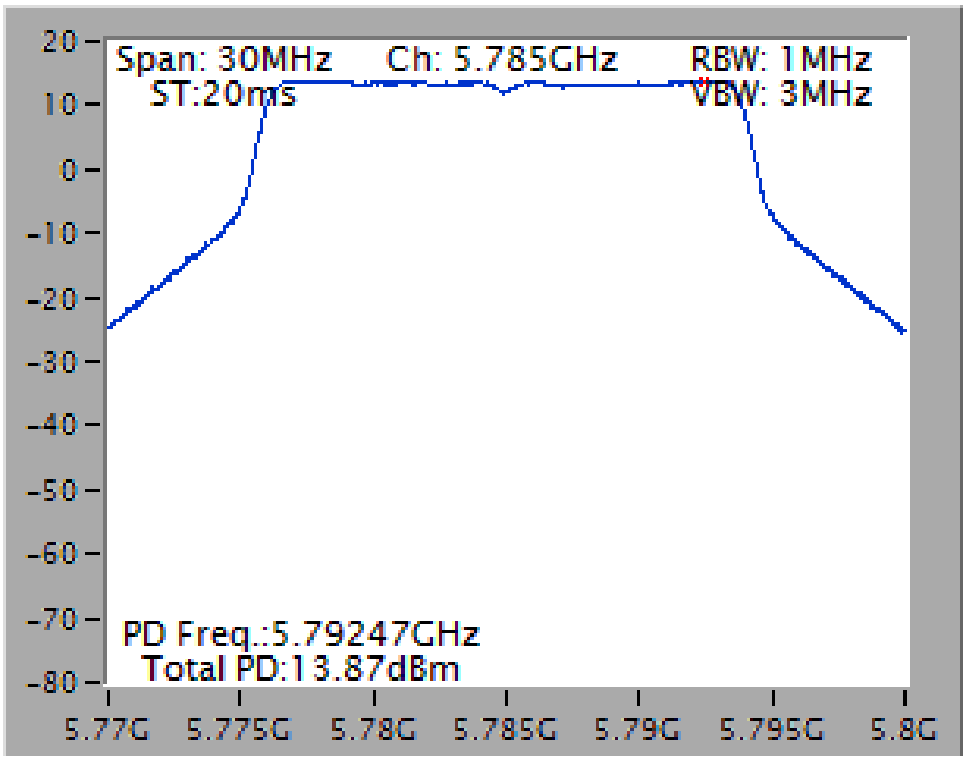


For beamforming mode

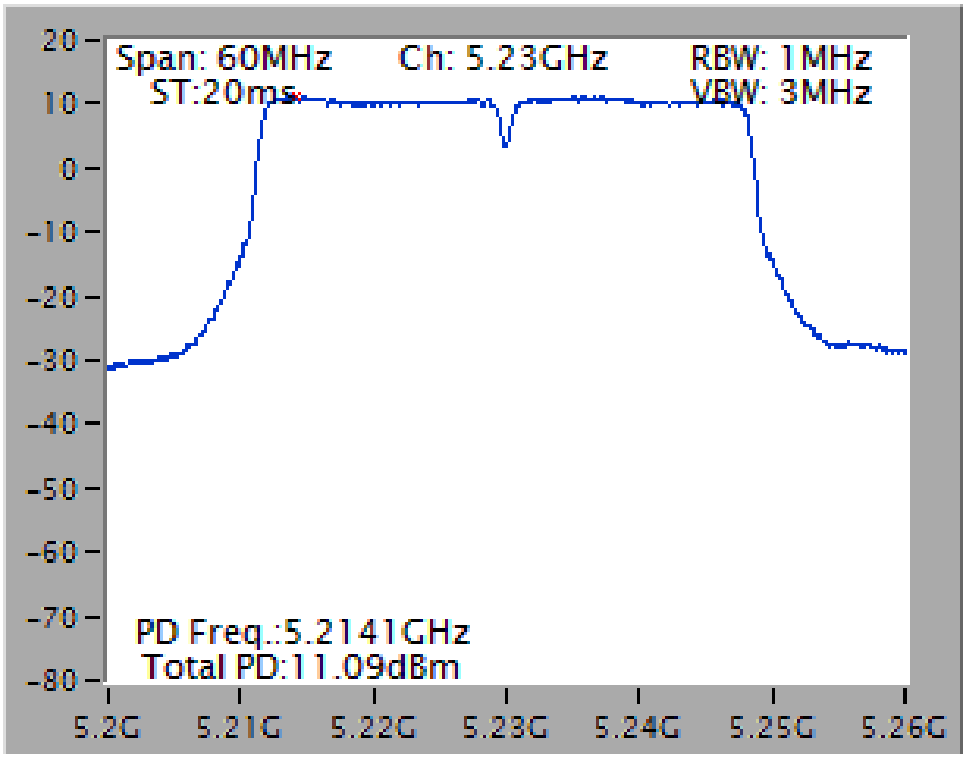
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5240 MHz



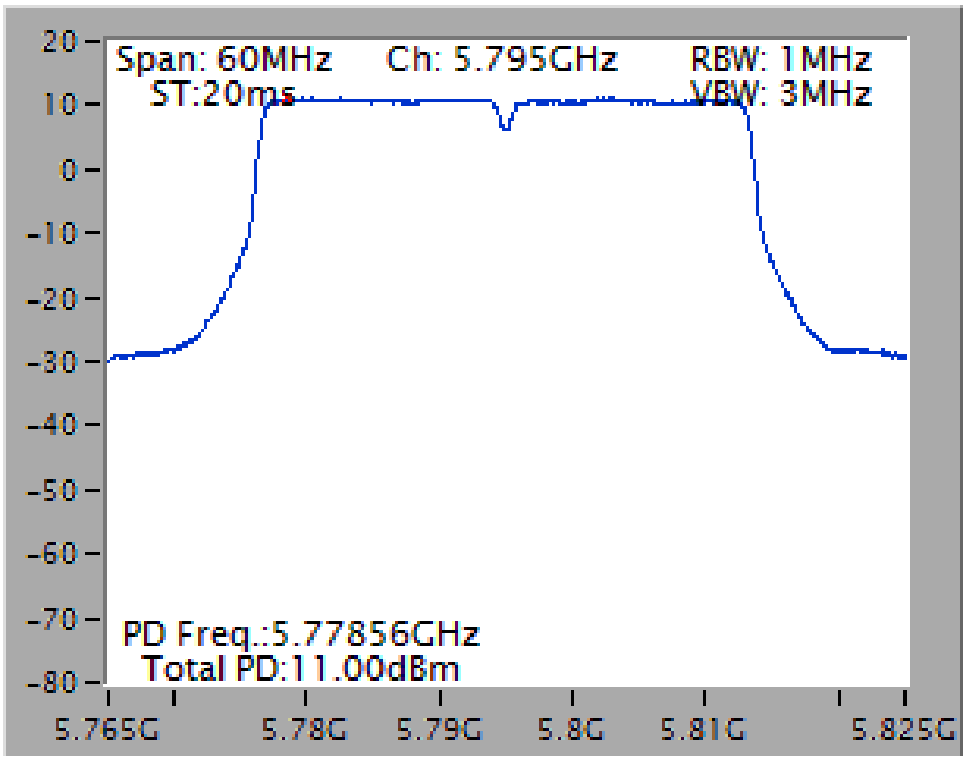
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5785 MHz



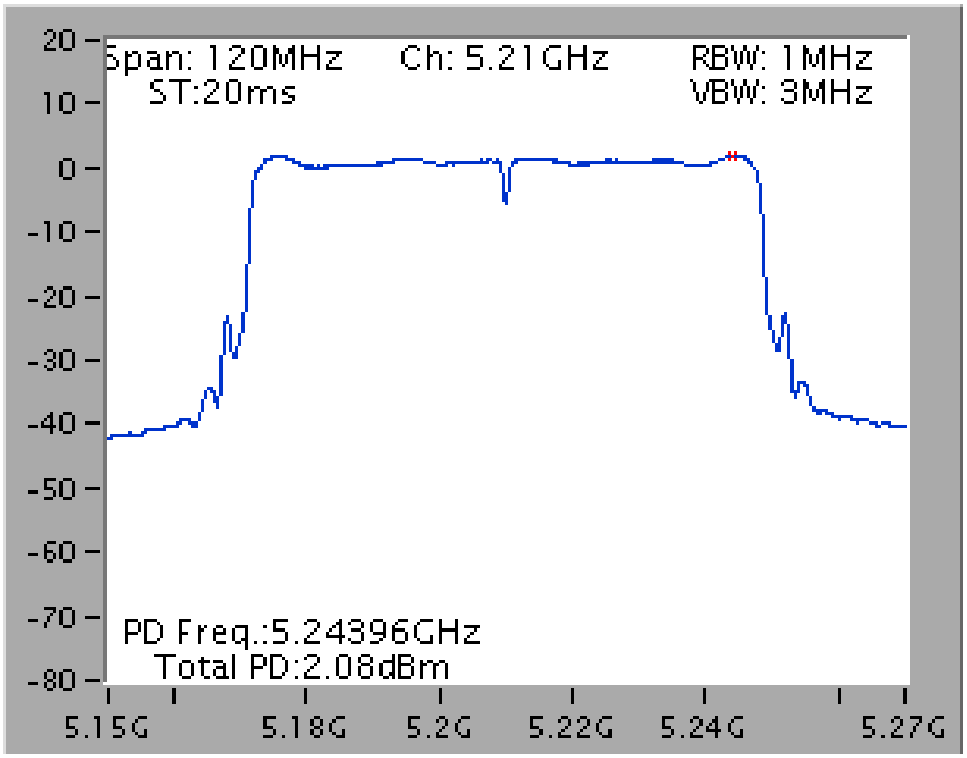
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5230 MHz



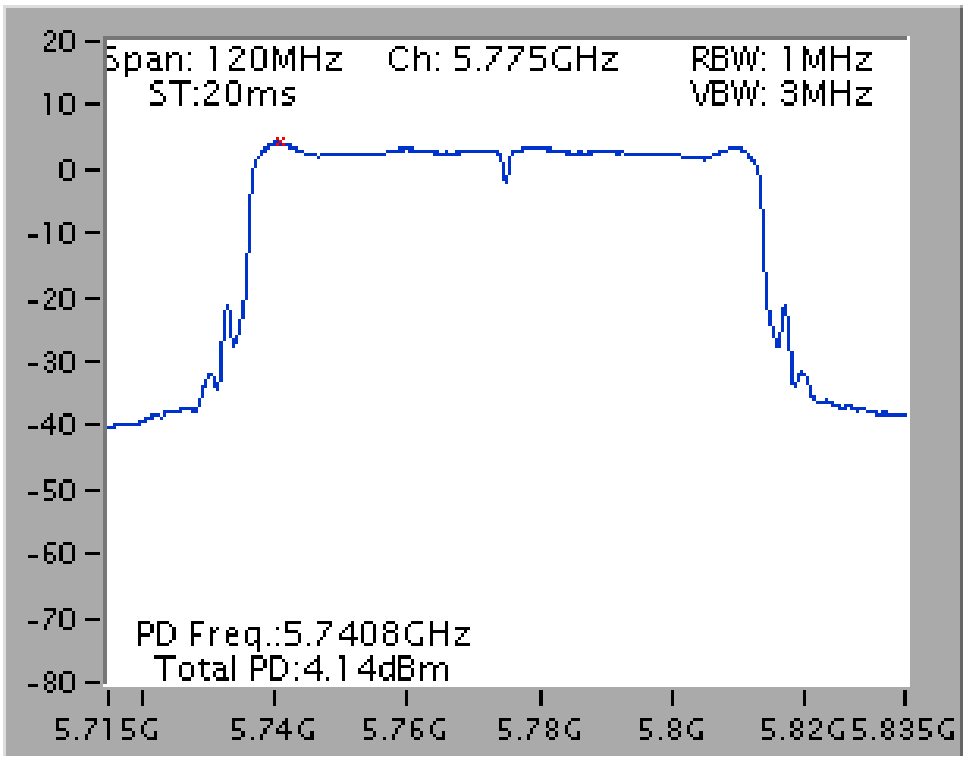
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5795 MHz



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



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 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 within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of −17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of −27 dBm/MHz.

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

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

4.6.2. Measuring Instruments and Setting

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

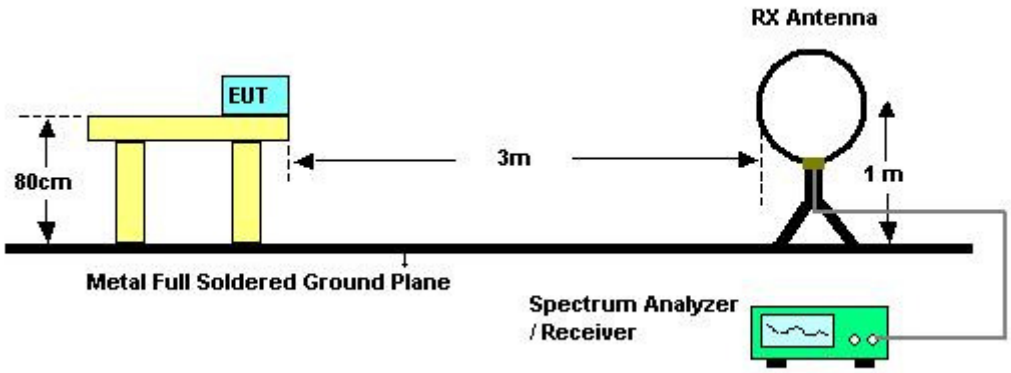
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RBW 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RBW 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RBW 120kHz for QP

4.6.3. Test Procedures

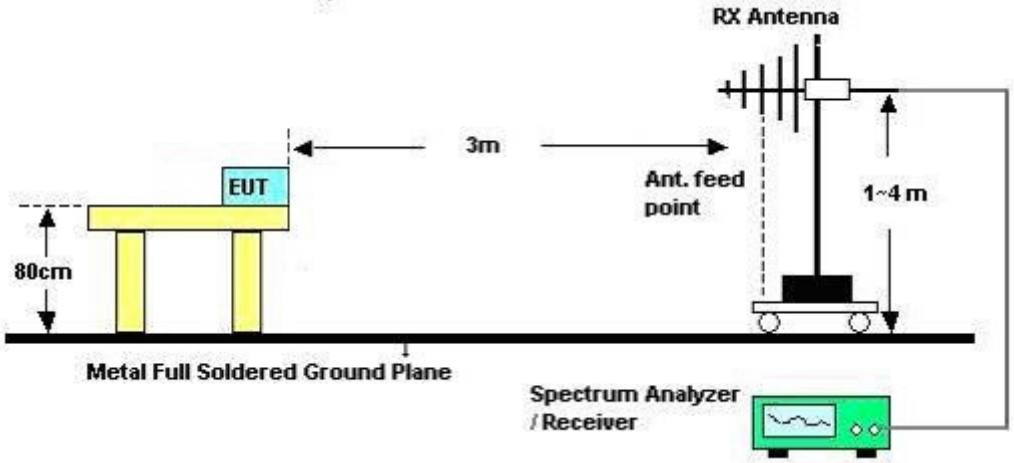
1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 1m & 3m far away from the turntable.
2. Power on the EUT and all the supporting 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

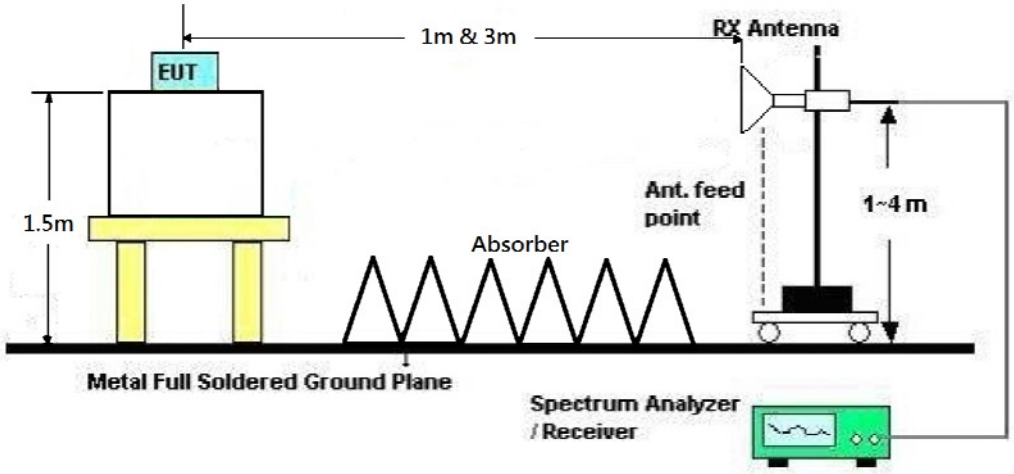
For Radiated Emissions: 9kHz ~30MHz



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	55%
Test Engineer	Stim Sung & Andy Tsai	Configurations	Normal Link
Test Date	Jan. 05, 2016	Test Mode	Mode 1

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.

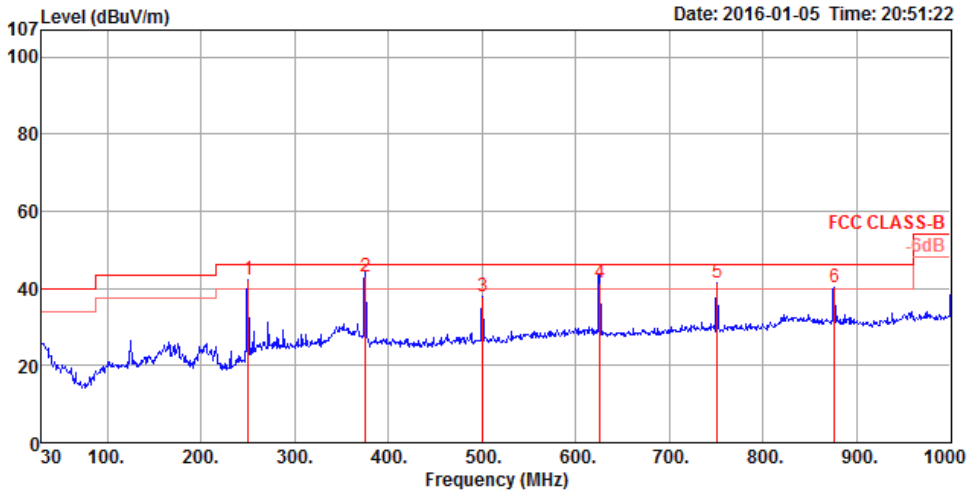
Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

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

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

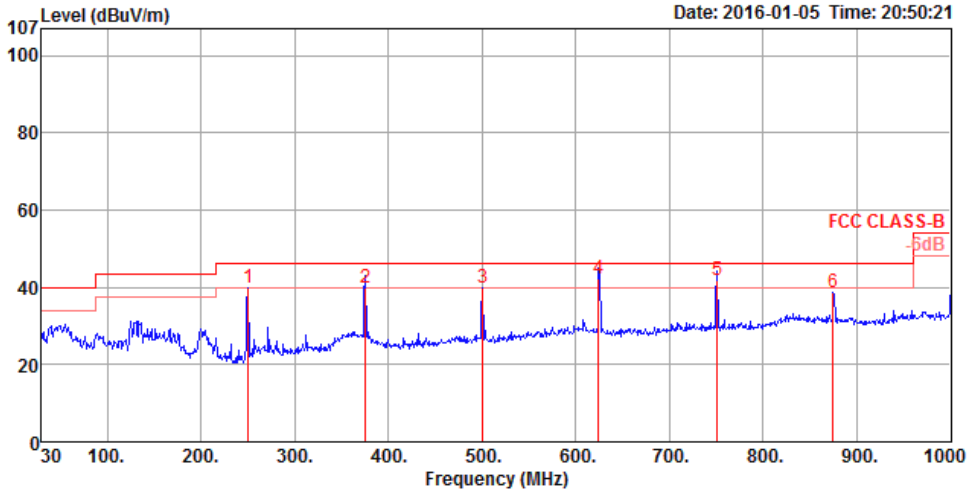
Temperature	22°C	Humidity	55%
Test Engineer	Stim Sung & Andy Tsai	Configurations	Normal Link
Test Mode	Mode 1		

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Pol/Phase	T/Pos	A/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	250.19	42.28	46.00	-3.72	54.31	1.90	32.53	18.60	HORIZONTAL	114	125	Peak
2	375.32	42.94	46.00	-3.06	51.61	2.24	32.54	21.63	HORIZONTAL	215	116	QP
3	500.45	37.85	46.00	-8.15	44.12	2.61	32.61	23.73	HORIZONTAL	150	125	Peak
4	625.58	41.28	46.00	-4.72	46.00	2.89	32.67	25.06	HORIZONTAL	216	119	QP
5	750.71	41.49	46.00	-4.51	44.75	3.13	32.49	26.10	HORIZONTAL	225	100	Peak
6	875.84	40.20	46.00	-5.80	41.55	3.34	31.99	27.30	HORIZONTAL	147	100	Peak

Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Pol/Phase	T/Pos	A/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	250.19	39.90	46.00	-6.10	51.93	1.90	32.53	18.60	VERTICAL	92	125	Peak
2	375.32	40.07	46.00	-5.93	48.74	2.24	32.54	21.63	VERTICAL	247	123	QP
3	500.45	40.06	46.00	-5.94	46.33	2.61	32.61	23.73	VERTICAL	168	125	Peak
4	624.61	42.31	46.00	-3.69	47.03	2.89	32.67	25.06	VERTICAL	124	119	QP
5	750.71	41.83	46.00	-4.17	45.09	3.13	32.49	26.10	VERTICAL	121	131	QP
6	874.87	38.51	46.00	-7.49	39.86	3.34	31.99	27.30	VERTICAL	137	125	Peak

Note:

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

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

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

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

For non-beamforming mode

Temperature	22℃	Humidity	55%
Test Engineer	Stim Sung & Andy Tsai	Configurations	IEEE 802.11a CH 36 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 25, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	15540.88	56.36	74.00	-17.64	40.80	12.53	38.24	35.21	Peak	150	153	HORIZONTAL
2	15545.28	44.22	54.00	-9.78	28.66	12.53	38.24	35.21	Average	150	153	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	15530.16	45.23	54.00	-8.77	29.67	12.53	38.24	35.21	Average	150	59	VERTICAL
2	15532.84	58.12	74.00	-15.88	42.56	12.53	38.24	35.21	Peak	150	59	VERTICAL

Temperature	22°C	Humidity	55%
Test Engineer	Stim Sung & Andy Tsai	Configurations	IEEE 802.11a CH 40 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 25, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	15601.64	44.68	54.00	-9.32	29.27	12.53	38.11	35.23	Average	150	258	HORIZONTAL
2	15606.88	56.98	74.00	-17.02	41.57	12.53	38.11	35.23	Peak	150	258	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	15596.60	57.82	74.00	-16.18	42.35	12.53	38.17	35.23	Peak	150	102	VERTICAL
2	15601.28	47.94	54.00	-6.06	32.53	12.53	38.11	35.23	Average	150	102	VERTICAL

Temperature	22°C	Humidity	55%
Test Engineer	Stim Sung & Andy Tsai	Configurations	IEEE 802.11a CH 48 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 25, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	15715.80	44.95	54.00	-9.05	29.73	12.54	37.98	35.30	Average	150	232	HORIZONTAL
2	15718.92	56.74	74.00	-17.26	41.52	12.54	37.98	35.30	Peak	150	232	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	15725.48	47.58	54.00	-6.42	32.36	12.54	37.98	35.30	Average	150	56	VERTICAL
2	15729.16	56.61	74.00	-17.39	41.39	12.54	37.98	35.30	Peak	150	56	VERTICAL

Temperature	22°C	Humidity	55%
Test Engineer	Stim Sung & Andy Tsai	Configurations	IEEE 802.11a CH 149 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 25, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11480.00	53.03	74.00	-20.97	38.58	10.19	39.06	34.80	Peak	150	158	HORIZONTAL
2	11490.32	41.30	54.00	-12.70	26.82	10.18	39.10	34.80	Average	150	158	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11489.88	42.86	54.00	-11.14	28.38	10.18	39.10	34.80	Average	150	92	VERTICAL
2	11496.64	54.65	74.00	-19.35	40.17	10.18	39.10	34.80	Peak	150	92	VERTICAL

Temperature	22°C	Humidity	55%
Test Engineer	Stim Sung & Andy Tsai	Configurations	IEEE 802.11a CH 157 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 25, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11571.28	41.55	54.00	-12.45	27.08	10.15	39.14	34.82	Average	150	146	HORIZONTAL
2	11575.80	53.99	74.00	-20.01	39.52	10.15	39.14	34.82	Peak	150	146	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11569.92	43.11	54.00	-10.89	28.64	10.15	39.14	34.82	Average	150	62	VERTICAL
2	11574.12	55.62	74.00	-18.38	41.15	10.15	39.14	34.82	Peak	150	62	VERTICAL

Temperature	22°C	Humidity	55%
Test Engineer	Stim Sung & Andy Tsai	Configurations	IEEE 802.11a CH 165 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 25, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11643.88	41.61	54.00	-12.39	27.14	10.13	39.18	34.84	Average	150	197	HORIZONTAL
2	11651.12	53.79	74.00	-20.21	39.31	10.12	39.20	34.84	Peak	150	197	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11643.08	42.67	54.00	-11.33	28.20	10.13	39.18	34.84	Average	150	42	VERTICAL
2	11652.60	55.39	74.00	-18.61	40.91	10.12	39.20	34.84	Peak	150	42	VERTICAL

Temperature	22°C	Humidity	55%
Test Engineer	Stim Sung & Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 36 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 25, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	15531.32	44.13	54.00	-9.87	28.57	12.53	38.24	35.21	Average	150	63	HORIZONTAL
2	15547.60	55.84	74.00	-18.16	40.28	12.53	38.24	35.21	Peak	150	63	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	15534.64	45.26	54.00	-8.74	29.70	12.53	38.24	35.21	Average	150	89	VERTICAL
2	15550.00	57.60	74.00	-16.40	42.04	12.53	38.24	35.21	Peak	150	89	VERTICAL

Temperature	22°C	Humidity	55%
Test Engineer	Stim Sung & Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 40 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 25, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	15594.28	56.75	74.00	-17.25	41.28	12.53	38.17	35.23	Peak	150	163	HORIZONTAL
2	15595.88	44.64	54.00	-9.36	29.17	12.53	38.17	35.23	Average	150	163	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	15607.20	57.42	74.00	-16.58	42.01	12.53	38.11	35.23	Peak	150	52	VERTICAL
2	15608.56	46.58	54.00	-7.42	31.17	12.53	38.11	35.23	Average	150	52	VERTICAL

Temperature	22°C	Humidity	55%
Test Engineer	Stim Sung & Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 48 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 25, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	15721.96	57.50	74.00	-16.50	42.28	12.54	37.98	35.30	Peak	150	133	HORIZONTAL
2	15728.00	45.05	54.00	-8.95	29.83	12.54	37.98	35.30	Average	150	133	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	15727.68	57.19	74.00	-16.81	41.97	12.54	37.98	35.30	Peak	150	98	VERTICAL
2	15728.16	46.02	54.00	-7.98	30.80	12.54	37.98	35.30	Average	150	98	VERTICAL

Temperature	22°C	Humidity	55%
Test Engineer	Stim Sung & Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 149 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 25, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11493.36	54.03	74.00	-19.97	39.55	10.18	39.10	34.80	Peak	150	184	HORIZONTAL
2	11494.04	41.46	54.00	-12.54	26.98	10.18	39.10	34.80	Average	150	184	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11481.80	42.23	54.00	-11.77	27.78	10.19	39.06	34.80	Average	150	48	VERTICAL
2	11489.36	54.90	74.00	-19.10	40.42	10.18	39.10	34.80	Peak	150	48	VERTICAL

Temperature	22°C	Humidity	55%
Test Engineer	Stim Sung & Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 157 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 25, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11560.64	55.03	74.00	-18.97	40.56	10.15	39.14	34.82	Peak	150	198	HORIZONTAL
2	11577.84	41.66	54.00	-12.34	27.19	10.15	39.14	34.82	Average	150	198	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11573.48	55.29	74.00	-18.71	40.82	10.15	39.14	34.82	Peak	150	96	VERTICAL
2	11576.56	42.60	54.00	-11.40	28.13	10.15	39.14	34.82	Average	150	96	VERTICAL

Temperature	22°C	Humidity	55%
Test Engineer	Stim Sung & Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 165 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 25, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11644.40	41.77	54.00	-12.23	27.30	10.13	39.18	34.84	Average	150	201	HORIZONTAL
2	11647.20	53.36	74.00	-20.64	38.89	10.13	39.18	34.84	Peak	150	201	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11650.80	42.66	54.00	-11.34	28.18	10.12	39.20	34.84	Average	150	85	VERTICAL
2	11657.20	54.52	74.00	-19.48	40.04	10.12	39.20	34.84	Peak	150	85	VERTICAL

Temperature	22°C	Humidity	55%
Test Engineer	Stim Sung & Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 38 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 25, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	15565.36	44.68	54.00	-9.32	29.21	12.53	38.17	35.23	Average	150	301	HORIZONTAL
2	15577.28	56.57	74.00	-17.43	41.10	12.53	38.17	35.23	Peak	150	301	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	15564.68	44.84	54.00	-9.16	29.37	12.53	38.17	35.23	Average	150	36	VERTICAL
2	15579.92	56.74	74.00	-17.26	41.27	12.53	38.17	35.23	Peak	150	36	VERTICAL

Temperature	22°C	Humidity	55%
Test Engineer	Stim Sung & Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 46 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 25, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	15694.88	44.83	54.00	-9.17	29.59	12.54	37.98	35.28	Average	150	193	HORIZONTAL
2	15699.40	56.23	74.00	-17.77	40.99	12.54	37.98	35.28	Peak	150	193	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	15681.24	56.83	74.00	-17.17	41.52	12.54	38.05	35.28	Peak	150	94	VERTICAL
2	15696.84	45.34	54.00	-8.66	30.10	12.54	37.98	35.28	Average	150	94	VERTICAL

Temperature	22°C	Humidity	55%
Test Engineer	Stim Sung & Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 151 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 25, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11511.76	53.13	74.00	-20.87	38.66	10.18	39.10	34.81	Peak	150	187	HORIZONTAL
2	11518.84	41.21	54.00	-12.79	26.74	10.16	39.12	34.81	Average	150	187	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11501.44	54.36	74.00	-19.64	39.88	10.18	39.10	34.80	Peak	150	35	VERTICAL
2	11501.52	41.61	54.00	-12.39	27.13	10.18	39.10	34.80	Average	150	35	VERTICAL

Temperature	22°C	Humidity	55%
Test Engineer	Stim Sung & Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 159 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 25, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11598.40	41.98	54.00	-12.02	27.51	10.14	39.16	34.83	Average	150	182	HORIZONTAL
2	11598.80	54.54	74.00	-19.46	40.07	10.14	39.16	34.83	Peak	150	182	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11588.56	42.47	54.00	-11.53	28.00	10.14	39.16	34.83	Average	150	54	VERTICAL
2	11599.88	54.69	74.00	-19.31	40.22	10.14	39.16	34.83	Peak	150	54	VERTICAL

Temperature	22℃	Humidity	55%
Test Engineer	Stim Sung & Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 42 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 25, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	15633.47	59.31	74.00	-14.69	44.25	11.50	38.29	34.73	274	190	Peak	HORIZONTAL
2	15636.28	46.23	54.00	-7.77	31.17	11.50	38.29	34.73	274	190	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	15635.73	60.10	74.00	-13.90	45.04	11.50	38.29	34.73	315	175	Peak	VERTICAL
2	15639.41	46.05	54.00	-7.95	30.99	11.50	38.29	34.73	315	175	Average	VERTICAL

Temperature	22℃	Humidity	55%
Test Engineer	Stim Sung & Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 155 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 25, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11549.71	42.91	54.00	-11.09	29.36	9.69	38.51	34.65	150	174	Average	HORIZONTAL
2	11553.44	55.90	74.00	-18.10	42.31	9.71	38.53	34.65	150	174	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11540.28	56.20	74.00	-17.80	42.63	9.69	38.51	34.63	189	158	Peak	VERTICAL
2	11550.81	42.78	54.00	-11.22	29.19	9.71	38.53	34.65	189	158	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	55%
Test Engineer	Stim Sung & Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 36 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 27, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	15538.38	45.00	54.00	-9.00	30.03	11.45	38.16	34.64	220	166	Average	HORIZONTAL
2	15544.89	58.12	74.00	-15.88	43.15	11.45	38.16	34.64	220	166	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	15539.94	45.07	54.00	-8.93	30.10	11.45	38.16	34.64	202	154	Average	VERTICAL
2	15542.20	57.77	74.00	-16.23	42.80	11.45	38.16	34.64	202	154	Peak	VERTICAL

Temperature	22°C	Humidity	55%
Test Engineer	Stim Sung & Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 40 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 27, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	15601.92	57.91	74.00	-16.09	42.80	11.50	38.29	34.68	192	164	Peak	HORIZONTAL
2	15602.60	45.16	54.00	-8.84	30.05	11.50	38.29	34.68	192	164	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	15595.80	45.07	54.00	-8.93	30.04	11.48	38.23	34.68	171	168	Average	VERTICAL
2	15601.71	58.02	74.00	-15.98	42.91	11.50	38.29	34.68	171	168	Peak	VERTICAL

Temperature	22℃	Humidity	55%
Test Engineer	Stim Sung & Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 48 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 27, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	15715.91	58.47	74.00	-15.53	43.30	11.56	38.42	34.81	185	182	Peak	HORIZONTAL
2	15717.66	45.61	54.00	-8.39	30.44	11.56	38.42	34.81	185	182	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	15719.92	58.37	74.00	-15.63	43.20	11.56	38.42	34.81	168	174	Peak	VERTICAL
2	15723.03	45.67	54.00	-8.33	30.50	11.56	38.42	34.81	168	174	Average	VERTICAL

Temperature	22℃	Humidity	55%
Test Engineer	Stim Sung & Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 149 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 27, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11487.69	56.37	74.00	-17.63	42.82	9.67	38.50	34.62	125	180	Peak	HORIZONTAL
2	11491.70	43.04	54.00	-10.96	29.49	9.67	38.50	34.62	125	180	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11486.92	56.28	74.00	-17.72	42.73	9.67	38.50	34.62	133	186	Peak	VERTICAL
2	11488.32	43.12	54.00	-10.88	29.57	9.67	38.50	34.62	133	186	Average	VERTICAL

Temperature	22℃	Humidity	55%
Test Engineer	Stim Sung & Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 157 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 27, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11570.42	56.23	74.00	-17.77	42.64	9.71	38.53	34.65	151	197	Peak	HORIZONTAL
2	11570.83	42.90	54.00	-11.10	29.31	9.71	38.53	34.65	151	197	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11566.20	42.95	54.00	-11.05	29.36	9.71	38.53	34.65	176	184	Average	VERTICAL
2	11569.34	55.42	74.00	-18.58	41.83	9.71	38.53	34.65	176	184	Peak	VERTICAL

Temperature	22℃	Humidity	55%
Test Engineer	Stim Sung & Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 165 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 27, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11648.35	55.88	74.00	-18.12	42.26	9.75	38.55	34.68	189	174	Peak	HORIZONTAL
2	11652.42	43.01	54.00	-10.99	29.35	9.77	38.57	34.68	189	174	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11647.87	55.76	74.00	-18.24	42.14	9.75	38.55	34.68	167	160	Peak	VERTICAL
2	11653.06	42.90	54.00	-11.10	29.24	9.77	38.57	34.68	167	160	Average	VERTICAL

Temperature	22°C	Humidity	55%
Test Engineer	Stim Sung & Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 38 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 27, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	15565.59	58.29	74.00	-15.71	43.26	11.48	38.23	34.68	194	150	Peak	HORIZONTAL
2	15572.21	45.06	54.00	-8.94	30.03	11.48	38.23	34.68	194	150	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	15568.03	45.18	54.00	-8.82	30.15	11.48	38.23	34.68	194	150	Average	VERTICAL
2	15574.21	58.20	74.00	-15.80	43.17	11.48	38.23	34.68	194	150	Peak	VERTICAL

Temperature	22℃	Humidity	55%
Test Engineer	Stim Sung & Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 46 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 27, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	15692.76	58.16	74.00	-15.84	42.95	11.56	38.42	34.77	219	144	Peak	HORIZONTAL
2	15694.70	45.55	54.00	-8.45	30.34	11.56	38.42	34.77	219	144	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	15690.71	58.62	74.00	-15.38	43.51	11.53	38.35	34.77	219	144	Peak	VERTICAL
2	15691.78	45.85	54.00	-8.15	30.64	11.56	38.42	34.77	219	144	Average	VERTICAL

Temperature	22°C	Humidity	55%
Test Engineer	Stim Sung & Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 151 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 27, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11505.35	42.88	54.00	-11.12	29.33	9.67	38.50	34.62	262	172	Average	HORIZONTAL
2	11509.25	55.21	74.00	-18.79	41.67	9.67	38.50	34.63	262	172	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11508.65	42.86	54.00	-11.14	29.31	9.67	38.50	34.62	231	163	Average	VERTICAL
2	11510.51	55.89	74.00	-18.11	42.35	9.67	38.50	34.63	231	163	Peak	VERTICAL

Temperature	22℃	Humidity	55%
Test Engineer	Stim Sung & Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 159 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 27, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11587.21	42.71	54.00	-11.29	29.10	9.73	38.54	34.66	242	157	Average	HORIZONTAL
2	11593.64	54.98	74.00	-19.02	41.37	9.73	38.54	34.66	242	157	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11592.16	55.55	74.00	-18.45	41.94	9.73	38.54	34.66	252	142	Peak	VERTICAL
2	11594.76	42.84	54.00	-11.16	29.23	9.73	38.54	34.66	252	142	Average	VERTICAL

Temperature	22℃	Humidity	55%
Test Engineer	Stim Sung & Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 42 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 27, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	15631.15	59.59	74.00	-14.41	44.53	11.50	38.29	34.73	257	135	Peak	HORIZONTAL
2	15632.08	45.67	54.00	-8.33	30.61	11.50	38.29	34.73	257	135	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	15631.73	58.37	74.00	-15.63	43.31	11.50	38.29	34.73	281	123	Peak	VERTICAL
2	15633.50	45.65	54.00	-8.35	30.59	11.50	38.29	34.73	281	123	Average	VERTICAL

Temperature	22℃	Humidity	55%
Test Engineer	Stim Sung & Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 155 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 27, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11549.81	43.82	54.00	-10.18	30.27	9.69	38.51	34.65	92	162	Average	HORIZONTAL
2	11554.42	56.23	74.00	-17.77	42.64	9.71	38.53	34.65	92	162	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11547.34	56.05	74.00	-17.95	42.50	9.69	38.51	34.65	81	150	Peak	VERTICAL
2	11549.98	43.17	54.00	-10.83	29.62	9.69	38.51	34.65	81	150	Average	VERTICAL

Note:

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

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

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

4.7. Band Edge Emissions Measurement

4.7.1. Limit

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

For transmitters operating in the 5.725-5.85 GHz band: all emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of −17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of −27 dBm/MHz.

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

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

4.7.2. 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℃	Humidity	55%
Test Engineer	Stim Sung & Andy Tsai	Configurations	IEEE 802.11a CH 36, 40, 48 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 18, 2015		

Channel 36

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5150.00	53.33	54.00	-0.67	47.09	7.20	34.04	35.00	Average	193	105	VERTICAL
2	5150.00	67.14	74.00	-6.86	60.90	7.20	34.04	35.00	Peak	193	105	VERTICAL
3	5182.40	109.76			103.46	7.21	34.09	35.00	Average	193	105	VERTICAL
4	5182.40	120.29			113.99	7.21	34.09	35.00	Peak	193	105	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	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5149.00	65.40	74.00	-8.60	59.16	7.20	34.04	35.00	Peak	194	105	VERTICAL
2	5150.00	52.91	54.00	-1.09	46.67	7.20	34.04	35.00	Average	194	105	VERTICAL
3	5202.40	112.98			106.62	7.22	34.14	35.00	Average	194	105	VERTICAL
4	5203.00	123.36			117.00	7.22	34.14	35.00	Peak	194	105	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	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5119.40	50.18	54.00	-3.82	44.01	7.19	33.99	35.01	Average	190	102	VERTICAL
2	5148.20	62.29	74.00	-11.71	56.05	7.20	34.04	35.00	Peak	190	102	VERTICAL
3	5243.00	122.66			116.25	7.22	34.19	35.00	Peak	190	102	VERTICAL
4	5243.60	112.85			106.44	7.22	34.19	35.00	Average	190	102	VERTICAL
5	5366.60	50.31	54.00	-3.69	43.66	7.26	34.38	34.99	Average	190	102	VERTICAL
6	5388.80	63.00	74.00	-11.00	56.30	7.26	34.43	34.99	Peak	190	102	VERTICAL

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

Temperature	22°C	Humidity	55%
Test Engineer	Stim Sung & Andy Tsai	Configurations	IEEE 802.11a CH 149, 157, 165 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 24, 2015		

Channel 149

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5715.00	67.12	68.20	-1.08	60.24	7.27	34.64	35.03	Peak	194	279	VERTICAL
2	5724.31	77.46	78.20	-0.74	70.57	7.27	34.65	35.03	Peak	194	279	VERTICAL
3	5738.20	110.61			103.73	7.27	34.65	35.04	Average	194	279	VERTICAL
4	5738.63	119.88			113.00	7.27	34.65	35.04	Peak	194	279	VERTICAL

Item 3, 4 are the fundamental frequency at 5745 MHz.

Channel 157

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5712.93	63.91	68.20	-4.29	57.03	7.27	34.64	35.03	Peak	183	279	VERTICAL
2	5723.55	64.68	78.20	-13.52	57.79	7.27	34.65	35.03	Peak	183	279	VERTICAL
3	5778.05	112.56			105.68	7.27	34.66	35.05	Average	183	279	VERTICAL
4	5778.63	121.57			114.69	7.27	34.66	35.05	Peak	183	279	VERTICAL
5	5850.00	63.60	78.20	-14.60	56.73	7.26	34.67	35.06	Peak	183	279	VERTICAL
6	5863.18	63.73	68.20	-4.47	56.86	7.26	34.67	35.06	Peak	183	279	VERTICAL

Item 3, 4 are the fundamental frequency at 5785 MHz.

Channel 165

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5818.20	110.78			103.90	7.27	34.66	35.05	Average	190	278	VERTICAL
2	5818.63	120.06			113.18	7.27	34.66	35.05	Peak	190	278	VERTICAL
3	5857.85	71.13	78.20	-7.07	64.26	7.26	34.67	35.06	Peak	190	278	VERTICAL
4	5860.31	67.39	68.20	-0.81	60.52	7.26	34.67	35.06	Peak	190	278	VERTICAL

Item 1, 2 are the fundamental frequency at 5825 MHz.

Temperature	22℃	Humidity	55%
Test Engineer	Stim Sung & Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 36, 40, 48 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 18, 2015		

Channel 36

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5149.40	53.49	54.00	-0.51	47.25	7.20	34.04	35.00	Average	198	266	VERTICAL
2	5149.40	66.87	74.00	-7.13	60.63	7.20	34.04	35.00	Peak	198	266	VERTICAL
3	5184.80	119.59			113.29	7.21	34.09	35.00	Peak	198	266	VERTICAL
4	5187.80	108.12			101.79	7.21	34.12	35.00	Average	198	266	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	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5150.00	51.79	54.00	-2.21	45.55	7.20	34.04	35.00	Average	195	266	VERTICAL
2	5150.00	63.58	74.00	-10.42	57.34	7.20	34.04	35.00	Peak	195	266	VERTICAL
3	5205.40	121.91			115.55	7.22	34.14	35.00	Peak	195	266	VERTICAL
4	5207.20	111.11			104.75	7.22	34.14	35.00	Average	195	266	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	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5099.00	62.69	74.00	-11.31	56.54	7.19	33.97	35.01	Peak	208	242	VERTICAL
2	5150.00	50.21	54.00	-3.79	43.97	7.20	34.04	35.00	Average	208	242	VERTICAL
3	5244.80	121.23			114.82	7.22	34.19	35.00	Peak	208	242	VERTICAL
4	5247.20	110.57			104.14	7.22	34.21	35.00	Average	208	242	VERTICAL
5	5350.00	51.31	54.00	-2.69	44.70	7.25	34.36	35.00	Average	208	242	VERTICAL
6	5385.80	64.17	74.00	-9.83	57.47	7.26	34.43	34.99	Peak	208	242	VERTICAL

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

Temperature	22℃	Humidity	55%
Test Engineer	Stim Sung & Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 149, 157, 165 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 24, 2015		

Channel 149

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5715.00	66.83	68.20	-1.37	59.95	7.27	34.64	35.03	Peak	189	279	VERTICAL
2	5725.00	77.56	78.20	-0.64	70.67	7.27	34.65	35.03	Peak	189	279	VERTICAL
3	5738.05	110.18			103.30	7.27	34.65	35.04	Average	189	279	VERTICAL
4	5738.63	120.08			113.20	7.27	34.65	35.04	Peak	189	279	VERTICAL

Item 3, 4 are the fundamental frequency at 5745 MHz.

Channel 157

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5712.93	61.14	68.20	-7.06	54.26	7.27	34.64	35.03	Peak	198	120	VERTICAL
2	5724.71	63.83	78.20	-14.37	56.94	7.27	34.65	35.03	Peak	198	120	VERTICAL
3	5790.21	111.96			105.08	7.27	34.66	35.05	Average	198	120	VERTICAL
4	5790.21	121.89			115.01	7.27	34.66	35.05	Peak	198	120	VERTICAL
5	5850.58	63.68	78.20	-14.52	56.81	7.26	34.67	35.06	Peak	198	120	VERTICAL
6	5867.53	64.04	68.20	-4.16	57.17	7.26	34.67	35.06	Peak	198	120	VERTICAL

Item 3, 4 are the fundamental frequency at 5785 MHz.

Channel 165

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5816.61	110.70			103.82	7.27	34.66	35.05	Average	187	271	VERTICAL
2	5816.90	119.46			112.58	7.27	34.66	35.05	Peak	187	271	VERTICAL
3	5855.39	71.98	78.20	-6.22	65.11	7.26	34.67	35.06	Peak	187	271	VERTICAL
4	5861.18	67.68	68.20	-0.52	60.81	7.26	34.67	35.06	Peak	187	271	VERTICAL

Item 1, 2 are the fundamental frequency at 5825 MHz.

Temperature	22℃	Humidity	55%
Test Engineer	Stim Sung & Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 38, 46 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 18, 2015		

Channel 38

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5149.00	53.48	54.00	-0.52	47.24	7.20	34.04	35.00	Average	225	264	VERTICAL
2	5150.00	65.72	74.00	-8.28	59.48	7.20	34.04	35.00	Peak	225	264	VERTICAL
3	5206.00	102.27			95.91	7.22	34.14	35.00	Average	225	264	VERTICAL
4	5206.00	113.07			106.71	7.22	34.14	35.00	Peak	225	264	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	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5138.00	64.46	74.00	-9.54	58.25	7.19	34.02	35.00	Peak	197	262	VERTICAL
2	5149.00	51.83	54.00	-2.17	45.59	7.20	34.04	35.00	Average	197	262	VERTICAL
3	5233.00	107.83			101.42	7.22	34.19	35.00	Average	197	262	VERTICAL
4	5246.00	118.63			112.22	7.22	34.19	35.00	Peak	197	262	VERTICAL

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

Temperature	22℃	Humidity	55%
Test Engineer	Stim Sung & Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 151, 159 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 23, 2015 ~ Dec. 24, 2015		

Channel 151

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5712.00	67.65	68.20	-0.55	60.77	7.27	34.64	35.03	Peak	184	246	VERTICAL
2	5725.00	70.59	78.20	-7.61	63.70	7.27	34.65	35.03	Peak	184	246	VERTICAL
3	5745.00	103.75			96.87	7.27	34.65	35.04	Average	184	246	VERTICAL
4	5745.00	113.41			106.53	7.27	34.65	35.04	Peak	184	246	VERTICAL

Item 3, 4 are the fundamental frequency at 5755 MHz.

Channel 159

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5788.49	107.90			101.02	7.27	34.66	35.05	Average	194	280	VERTICAL
2	5788.49	117.44			110.56	7.27	34.66	35.05	Peak	194	280	VERTICAL
3	5850.00	70.30	78.20	-7.90	63.43	7.26	34.67	35.06	Peak	194	280	VERTICAL
4	5862.17	67.70	68.20	-0.50	60.83	7.26	34.67	35.06	Peak	194	280	VERTICAL

Item 1, 2 are the fundamental frequency at 5795 MHz.

Temperature	22℃	Humidity	55%
Test Engineer	Stim Sung & Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 42, 155 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 18, 2015 ~ Dec. 23, 2015		

Channel 42

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5137.00	64.59	74.00	-9.41	58.38	7.19	34.02	35.00	Peak	189	265	VERTICAL
2	5149.00	53.37	54.00	-0.63	47.13	7.20	34.04	35.00	Average	189	265	VERTICAL
3	5244.00	110.23			103.82	7.22	34.19	35.00	Peak	189	265	VERTICAL
4	5245.00	100.23			93.82	7.22	34.19	35.00	Average	189	265	VERTICAL
5	5350.00	48.41	54.00	-5.59	41.80	7.25	34.36	35.00	Average	189	265	VERTICAL
6	5414.00	60.77	74.00	-13.23	54.05	7.26	34.45	34.99	Peak	189	265	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	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5715.00	66.77	68.20	-1.43	59.89	7.27	34.64	35.03	Peak	196	43	VERTICAL
2	5725.00	71.69	78.20	-6.51	64.80	7.27	34.65	35.03	Peak	196	43	VERTICAL
3	5756.00	100.25			93.37	7.27	34.65	35.04	Average	196	43	VERTICAL
4	5756.00	109.73			102.85	7.27	34.65	35.04	Peak	196	43	VERTICAL
5	5859.00	69.34	78.20	-8.86	62.47	7.26	34.67	35.06	Peak	196	43	VERTICAL
6	5879.00	63.92	68.20	-4.28	57.05	7.26	34.68	35.07	Peak	196	43	VERTICAL

Item 3, 4 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℃	Humidity	55%
Test Engineer	Stim Sung & Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 36, 40, 48 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 27, 2015		

Channel 36

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5149.55	68.95	74.00	-5.05	64.00	6.11	33.31	34.47	139	197	Peak	VERTICAL
2	5150.00	53.34	54.00	-0.66	48.39	6.11	33.31	34.47	139	197	Average	VERTICAL
3	5186.41	121.55			116.50	6.17	33.35	34.47	139	197	Peak	VERTICAL
4	5187.05	109.79			104.68	6.20	33.38	34.47	139	197	Average	VERTICAL

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

Channel 40

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5145.51	62.45	74.00	-11.55	57.50	6.11	33.31	34.47	135	199	Peak	VERTICAL
2	5150.00	49.84	54.00	-4.16	44.89	6.11	33.31	34.47	135	199	Average	VERTICAL
3	5197.76	122.37			117.26	6.20	33.38	34.47	135	199	Peak	VERTICAL
4	5197.76	110.56			105.45	6.20	33.38	34.47	135	199	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	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5144.65	63.36	74.00	-10.64	58.41	6.11	33.31	34.47	110	199	Peak	VERTICAL
2	5150.00	49.85	54.00	-4.15	44.90	6.11	33.31	34.47	110	199	Average	VERTICAL
3	5233.59	124.60			119.31	6.32	33.44	34.47	110	199	Peak	VERTICAL
4	5233.59	113.77			108.48	6.32	33.44	34.47	110	199	Average	VERTICAL
5	5398.65	51.45	54.00	-2.55	45.57	6.70	33.65	34.47	110	199	Average	VERTICAL
6	5400.26	64.98	74.00	-9.02	59.10	6.70	33.65	34.47	110	199	Peak	VERTICAL

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

Temperature	22℃	Humidity	55%
Test Engineer	Stim Sung & Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 149, 157, 165 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 27, 2015		

Channel 149

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5713.59	67.68	68.20	-0.52	61.24	6.50	34.45	34.51	126	199	Peak	VERTICAL
2	5724.17	77.12	78.20	-1.08	70.70	6.43	34.50	34.51	126	199	Peak	VERTICAL
3	5742.76	108.38			101.99	6.36	34.55	34.52	126	199	Average	VERTICAL
4	5748.85	120.42			114.03	6.36	34.55	34.52	126	199	Peak	VERTICAL

Item 3, 4 are the fundamental frequency at 5745 MHz.

Channel 157

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5712.76	62.03	68.20	-6.17	55.59	6.50	34.45	34.51	134	198	Peak	VERTICAL
2	5725.00	62.25	78.20	-15.95	55.83	6.43	34.50	34.51	134	198	Peak	VERTICAL
3	5777.95	110.45			104.11	6.22	34.65	34.53	134	198	Average	VERTICAL
4	5778.59	122.05			115.71	6.22	34.65	34.53	134	198	Peak	VERTICAL
5	5850.00	61.79	78.20	-16.41	55.09	6.39	34.85	34.54	134	198	Peak	VERTICAL
6	5864.49	61.91	68.20	-6.29	55.08	6.47	34.90	34.54	134	198	Peak	VERTICAL

Item 3, 4 are the fundamental frequency at 5785 MHz.

Channel 165

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5820.83	121.86			115.41	6.23	34.75	34.53	144	193	Peak	VERTICAL
2	5823.08	111.74			105.17	6.31	34.80	34.54	144	193	Average	VERTICAL
3	5850.00	77.18	78.20	-1.02	70.48	6.39	34.85	34.54	144	193	Peak	VERTICAL
4	5865.06	67.63	68.20	-0.57	60.80	6.47	34.90	34.54	144	193	Peak	VERTICAL

Item 1, 2 are the fundamental frequency at 5825 MHz.

Temperature	22℃	Humidity	55%
Test Engineer	Stim Sung & Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 38, 46 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 27, 2015		

Channel 38

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5149.30	67.32	74.00	-6.68	62.37	6.11	33.31	34.47	144	198	Peak	VERTICAL
2	5150.00	53.18	54.00	-0.82	48.23	6.11	33.31	34.47	144	198	Average	VERTICAL
3	5187.44	114.15			109.04	6.20	33.38	34.47	144	198	Peak	VERTICAL
4	5196.41	102.59			97.48	6.20	33.38	34.47	144	198	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	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5144.42	64.84	74.00	-9.16	59.89	6.11	33.31	34.47	100	208	Peak	HORIZONTAL
2	5150.00	50.58	54.00	-3.42	45.63	6.11	33.31	34.47	100	208	Average	HORIZONTAL
3	5226.15	117.03			111.80	6.28	33.42	34.47	100	208	Peak	HORIZONTAL
4	5227.76	104.00			98.77	6.28	33.42	34.47	100	208	Average	HORIZONTAL

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

Temperature	22°C	Humidity	55%
Test Engineer	Stim Sung & Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 151, 159 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 27, 2015		

Channel 151

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5714.62	67.61	68.20	-0.59	61.17	6.50	34.45	34.51	124	204	Peak	VERTICAL
2	5722.95	74.18	78.20	-4.02	67.76	6.43	34.50	34.51	124	204	Peak	VERTICAL
3	5764.94	103.49			97.13	6.29	34.60	34.53	124	204	Average	VERTICAL
4	5766.54	115.37			109.01	6.29	34.60	34.53	124	204	Peak	VERTICAL

Item 3, 4 are the fundamental frequency at 5755 MHz.

Channel 159

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5711.67	63.16	68.20	-5.04	56.72	6.50	34.45	34.51	145	198	Peak	VERTICAL
2	5724.49	64.02	78.20	-14.18	57.60	6.43	34.50	34.51	145	198	Peak	VERTICAL
3	5778.17	107.55			101.21	6.22	34.65	34.53	145	198	Average	VERTICAL
4	5790.99	118.94			112.62	6.15	34.70	34.53	145	198	Peak	VERTICAL
5	5852.69	71.74	78.20	-6.46	65.04	6.39	34.85	34.54	145	198	Peak	VERTICAL
6	5860.71	67.65	68.20	-0.55	60.82	6.47	34.90	34.54	145	198	Peak	VERTICAL

Item 3, 4 are the fundamental frequency at 5795 MHz.

Temperature	22℃	Humidity	55%
Test Engineer	Stim Sung & Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 42, 155 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 27, 2015		

Channel 42

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5145.10	65.44	74.00	-8.56	60.49	6.11	33.31	34.47	140	199	Peak	VERTICAL
2	5150.00	53.23	54.00	-0.77	48.28	6.11	33.31	34.47	140	199	Average	VERTICAL
3	5244.46	110.48			105.19	6.32	33.44	34.47	140	199	Peak	VERTICAL
4	5244.46	100.34			95.05	6.32	33.44	34.47	140	199	Average	VERTICAL
5	5350.00	47.18	54.00	-6.82	41.48	6.58	33.59	34.47	140	199	Average	VERTICAL
6	5365.45	60.06	74.00	-13.94	54.30	6.62	33.61	34.47	140	199	Peak	VERTICAL

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

Channel 155

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5706.09	67.45	68.20	-0.75	61.01	6.50	34.45	34.51	132	192	Peak	VERTICAL
2	5723.72	70.56	78.20	-7.64	64.14	6.43	34.50	34.51	132	192	Peak	VERTICAL
3	5740.55	100.79			94.40	6.36	34.55	34.52	132	192	Average	VERTICAL
4	5767.79	114.46			108.10	6.29	34.60	34.53	132	192	Peak	VERTICAL
5	5850.00	66.95	78.20	-11.25	60.25	6.39	34.85	34.54	132	192	Peak	VERTICAL
6	5860.74	64.82	68.20	-3.38	57.99	6.47	34.90	34.54	132	192	Peak	VERTICAL

Item 3, 4 are the fundamental frequency at 5775 MHz.

Note:

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

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

4.8. Frequency Stability Measurement

4.8.1. Limit

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

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

4.8.2. Measuring Instruments and Setting

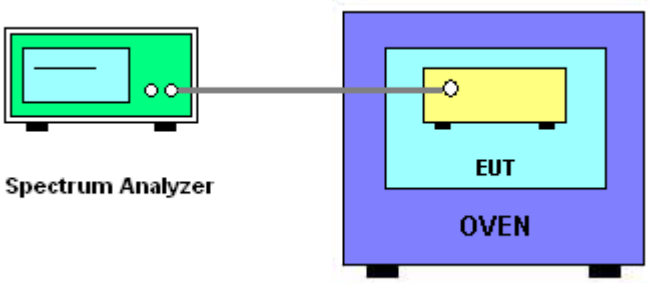
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

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

4.8.3. Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. EUT have transmitted absence of modulation signal and fixed channelize.
3. Set the spectrum analyzer span to view the entire absence of modulation emissions bandwidth.
4. Set RBW = 10 kHz, VBW = 10 kHz with peak detector and maxhold settings.
5. fc is declaring of channel frequency. Then the frequency error formula is (fc-f)/fc × 10^6 ppm and the limit is less than ±20ppm (IEEE 802.11nspecification).
6. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.
7. The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value
8. Extreme temperature is -30°C~50°C.

4.8.4. Test Setup Layout



4.8.5. Test Deviation

There is no deviation with the original standard.

4.8.6. EUT Operation during Test

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

4.8.7. Test Result of Frequency Stability

Temperature	23°C	Humidity	64%
Test Engineer	Serway Li	Test Date	Jan. 29, 2016 ~ Feb. 05, 2016

Mode: 20 MHz / Chain 1

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5200 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5199.9447	5199.9433	5199.9415	5199.9394
110.00	5199.9435	5199.9422	5199.9406	5199.9387
93.50	5199.9421	5199.9410	5199.9398	5199.9376
Max. Deviation (MHz)	0.0579	0.0590	0.0602	0.0624
Max. Deviation (ppm)	11.13	11.35	11.58	12.00
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5200 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
-30	5199.9495	5199.9479	5199.9466	5199.9443
-20	5199.9489	5199.9476	5199.9459	5199.9435
-10	5199.9474	5199.9462	5199.9446	5199.9427
0	5199.9460	5199.9448	5199.9429	5199.9407
10	5199.9447	5199.9434	5199.9419	5199.9401
20	5199.9435	5199.9422	5199.9406	5199.9387
30	5199.9421	5199.9410	5199.9396	5199.9380
40	5199.9405	5199.9390	5199.9374	5199.9354
50	5199.9388	5199.9376	5199.9361	5199.9334
Max. Deviation (MHz)	0.0612	0.0624	0.0639	0.0666
Max. Deviation (ppm)	11.77	12.00	12.29	12.81
Result	Complies			

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5785 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5784.9378	5784.9364	5784.9346	5784.9325
110.00	5784.9366	5784.9353	5784.9337	5784.9318
93.50	5784.9352	5784.9341	5784.9329	5784.9307
Max. Deviation (MHz)	0.0648	0.0659	0.0671	0.0693
Max. Deviation (ppm)	11.20	11.39	11.60	11.98
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5785 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
-30	5784.9422	5784.9409	5784.9398	5784.9373
-20	5784.9420	5784.9407	5784.9390	5784.9366
-10	5784.9405	5784.9393	5784.9377	5784.9358
0	5784.9391	5784.9379	5784.9360	5784.9338
10	5784.9378	5784.9365	5784.9350	5784.9332
20	5784.9366	5784.9353	5784.9337	5784.9318
30	5784.9352	5784.9341	5784.9327	5784.9311
40	5784.9336	5784.9321	5784.9305	5784.9285
50	5784.9319	5784.9307	5784.9292	5784.9265
Max. Deviation (MHz)	0.0681	0.0693	0.0708	0.0735
Max. Deviation (ppm)	11.77	11.98	12.24	12.71
Result	Complies			

Mode: 40 MHz / Chain 1

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5190 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5189.9425	5189.9411	5189.9393	5189.9372
110.00	5189.9413	5189.9400	5189.9384	5189.9365
93.50	5189.9399	5189.9388	5189.9376	5189.9354
Max. Deviation (MHz)	0.0601	0.0612	0.0624	0.0646
Max. Deviation (ppm)	11.58	11.79	12.02	12.45
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5190 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
-30	5189.9468	5189.9454	5189.9444	5189.9415
-20	5189.9467	5189.9454	5189.9437	5189.9413
-10	5189.9452	5189.9440	5189.9424	5189.9405
0	5189.9438	5189.9426	5189.9407	5189.9385
10	5189.9425	5189.9412	5189.9397	5189.9379
20	5189.9413	5189.9400	5189.9384	5189.9365
30	5189.9399	5189.9388	5189.9374	5189.9358
40	5189.9383	5189.9368	5189.9352	5189.9332
50	5189.9366	5189.9354	5189.9339	5189.9312
Max. Deviation (MHz)	0.0634	0.0646	0.0661	0.0688
Max. Deviation (ppm)	12.22	12.45	12.74	13.26
Result	Complies			

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5755 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5754.9391	5754.9377	5754.9359	5754.9338
110.00	5754.9379	5754.9366	5754.9350	5754.9331
93.50	5754.9365	5754.9354	5754.9342	5754.9320
Max. Deviation (MHz)	0.0635	0.0646	0.0658	0.0680
Max. Deviation (ppm)	11.03	11.23	11.43	11.82
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5755 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
-30	5754.9446	5754.9422	5754.9409	5754.9381
-20	5754.9433	5754.9420	5754.9403	5754.9379
-10	5754.9418	5754.9406	5754.9390	5754.9371
0	5754.9404	5754.9392	5754.9373	5754.9351
10	5754.9391	5754.9378	5754.9363	5754.9345
20	5754.9379	5754.9366	5754.9350	5754.9331
30	5754.9365	5754.9354	5754.9340	5754.9324
40	5754.9349	5754.9334	5754.9318	5754.9298
50	5754.9332	5754.9320	5754.9305	5754.9278
Max. Deviation (MHz)	0.0668	0.0680	0.0695	0.0722
Max. Deviation (ppm)	11.61	11.82	12.08	12.55
Result	Complies			

Mode: 80 MHz / Chain 1

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5210 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5209.9451	5209.9437	5209.9419	5209.9398
110.00	5209.9439	5209.9426	5209.9410	5209.9391
93.50	5209.9425	5209.9414	5209.9402	5209.9380
Max. Deviation (MHz)	0.0575	0.0586	0.0598	0.0620
Max. Deviation (ppm)	11.04	11.25	11.48	11.90
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5210 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
-30	5209.9498	5209.9489	5209.9465	5209.9446
-20	5209.9493	5209.9480	5209.9463	5209.9439
-10	5209.9478	5209.9466	5209.9450	5209.9431
0	5209.9464	5209.9452	5209.9433	5209.9411
10	5209.9451	5209.9438	5209.9423	5209.9405
20	5209.9439	5209.9426	5209.9410	5209.9391
30	5209.9425	5209.9414	5209.9400	5209.9384
40	5209.9409	5209.9394	5209.9378	5209.9358
50	5209.9392	5209.9380	5209.9365	5209.9338
Max. Deviation (MHz)	0.0608	0.0620	0.0635	0.0662
Max. Deviation (ppm)	11.67	11.90	12.19	12.71
Result	Complies			

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5775 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5774.9391	5774.9377	5774.9359	5774.9338
110.00	5774.9379	5774.9366	5774.9350	5774.9331
93.50	5774.9365	5774.9354	5774.9342	5774.9320
Max. Deviation (MHz)	0.0635	0.0646	0.0658	0.0680
Max. Deviation (ppm)	11.00	11.19	11.39	11.77
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5775 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
-30	5774.9438	5774.9432	5774.9416	5774.9380
-20	5774.9433	5774.9420	5774.9403	5774.9379
-10	5774.9418	5774.9406	5774.9390	5774.9371
0	5774.9404	5774.9392	5774.9373	5774.9351
10	5774.9391	5774.9378	5774.9363	5774.9345
20	5774.9379	5774.9366	5774.9350	5774.9331
30	5774.9365	5774.9354	5774.9340	5774.9324
40	5774.9349	5774.9334	5774.9318	5774.9298
50	5774.9332	5774.9320	5774.9305	5774.9278
Max. Deviation (MHz)	0.0668	0.0680	0.0695	0.0722
Max. Deviation (ppm)	11.57	11.77	12.03	12.50
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 Test Receiver	R&S	ESCS 30	100355	9kHz ~ 2.75GHz	Apr. 22, 2015	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 25, 2015	Conduction (CO01-CB)
Software	Audix	E3	6.120210n	-	N.C.R.	Conduction (CO01-CB)
BILOG ANTENNA	Schaffner	CBL6112D	37880	20MHz ~ 2GHz	Sep. 03, 2015	Radiation (03CH01-CB)
Loop Antenna	Teseq	HLA 6120	24155	9kHz - 30 MHz	Mar. 12, 2015*	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. 21, 2015	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8447D	2944A10991	0.1MHz ~ 1.3GHz	Feb. 24, 2015	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Jan. 12, 2015	Radiation (03CH01-CB)
Pre-Amplifier	WM	TF-130N-R1	923365	26GHz ~ 40GHz	Feb.10, 2015	Radiation (03CH01-CB)
Spectrum Analyzer	R&S	FSP40	100056	9kHz ~ 40GHz	Oct. 27, 2015	Radiation (03CH01-CB)
EMI Test Receiver	Agilent	N9038A	MY52260123	9kHz ~ 8GHz	Jan. 21, 2015	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. 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)
RF Cable-high	Woken	RG402	High Cable-10	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-6	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.
NCR means Non-Calibration required.

6. MEASUREMENT UNCERTAINTY

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