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FCC RADIO TEST REPORT

Applicant's company	**Mojo Networks, Inc.**
Applicant Address	339 N. Bernardo Avenue, Suite #200, Mountain View, CA USA
FCC ID	**TOR-C75**
Manufacturer's company	**Lite-On Network Communication (Dongguan) Limited**
Manufacturer Address	30#Keji Rd., Yin Hu Industrial Area, Qingxi Town, DongGuan City, Guangdong, China

Product Name	AirTight Access Point
Brand Name	MOJO, WatchGuard
Model No.	C-75, C-75-E, AP320
Test Rule Part(s)	47 CFR FCC Part 15 Subpart E § 15.407
Test Freq. Range	5150 ~ 5250 MHz / 5725 ~ 5850 MHz
Received Date	Jan. 10, 2014
Final Test Date	May 17, 2016
Submission Type	Class II Change

Statement

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

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

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

The measurements and test results shown in this test report were made in accordance with the procedures and found in compliance with the limit given in **ANSI C63.10-2013**, **47 CFR FCC Part 15 Subpart E, KDB789033 D02 v01r02, KDB662911 D01 v02r01, KDB644545 D03 v01, ET Docket No. 13–49; FCC 16–24.**

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

Testing Laboratory
1190

Table of Contents

History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR411023-06AB	Rev. 01	Initial issue of report	Jun. 10, 2016

1. VERIFICATION OF COMPLIANCE

Product Name	:	AirTight Access Point
Brand Name	:	MOJO, WatchGuard
Model No.	:	C-75, C-75-E, AP320
Applicant	:	Mojo Networks, Inc.
Test Rule Part(s)	:	47 CFR FCC Part 15 Subpart E § 15.407

Sporton International as requested by the applicant to evaluate the EMC performance of the product sample received on Jan. 10, 2014 would like to declare that the tested sample has been evaluated and found to be in compliance with the tested rule parts. The data recorded as well as the test configuration specified is true and accurate for showing the sample's EMC nature.

Sam Chen
SPORTON INTERNATIONAL INC.

2. SUMMARY OF THE TEST RESULT

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

3. GENERAL INFORMATION

3.1. Product Details

Items	Description
Product Type	IEEE 802.11a: WLAN (1TX, 1RX) IEEE 802.11n/ac: WLAN (3TX, 3RX)
Radio Type	Intentional Transceiver
Power Type	From adapter or PoE
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)
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 Mode 1 (EUT 1): Band 1: IEEE 802.11a: 20.67 MHz IEEE 802.11ac MCS0/Nss1 (VHT20): 18.15 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 36.76 MHz IEEE 802.11ac MCS0/Nss1 (VHT80): 75.25 MHz Band 4: IEEE 802.11a: 24.23 MHz IEEE 802.11ac MCS0/Nss1 (VHT20): 26.83 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 43.56 MHz IEEE 802.11ac MCS0/Nss1 (VHT80): 75.54 MHz For Mode 2 (EUT 2): Band 1: IEEE 802.11a: 19.54 MHz IEEE 802.11ac MCS0/Nss1 (VHT20): 19.54 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 37.19 MHz IEEE 802.11ac MCS0/Nss1 (VHT80): 74.96 MHz Band 4: IEEE 802.11a: 25.18 MHz IEEE 802.11ac MCS0/Nss1 (VHT20): 26.48 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 44.43 MHz IEEE 802.11ac MCS0/Nss1 (VHT80): 75.25 MHz

Maximum Conducted Output Power	For Mode 1 (EUT 1): Band 1: IEEE 802.11a: 23.50 dBm IEEE 802.11ac MCS0/Nss1 (VHT20): 24.76 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 25.05 dBm IEEE 802.11ac MCS0/Nss1 (VHT80): 15.68 dBm Band 4: IEEE 802.11a: 22.12 dBm IEEE 802.11ac MCS0/Nss1 (VHT20): 26.47 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 26.24 dBm IEEE 802.11ac MCS0/Nss1 (VHT80): 24.77 dBm For Mode 2 (EUT 2): Band 1: IEEE 802.11a: 22.26 dBm IEEE 802.11ac MCS0/Nss1 (VHT20): 25.27 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 22.95 dBm IEEE 802.11ac MCS0/Nss1 (VHT80): 18.67 dBm Band 4: IEEE 802.11a: 21.84 dBm IEEE 802.11ac MCS0/Nss1 (VHT20): 24.87 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 24.95 dBm IEEE 802.11ac MCS0/Nss1 (VHT80): 22.26 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

Antenna and Band width

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

IEEE 11n/ac Spec.

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

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

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

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

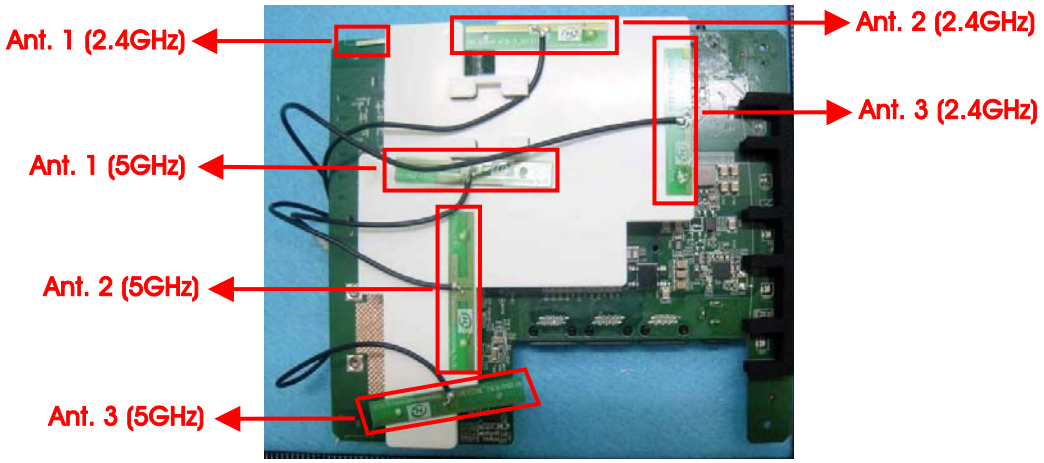
3.2. Accessories

Power	Brand	Model No.	Rating
Adapter	APD	WA-24Q12R	Input: 100-240Vac, 50-60Hz, 0.7A Max. Output: 12Vdc, 2A
Other			
Plug*1			

3.3. Table for Filed Antenna

For EUT 1 (Model No.: C-75) and EUT 3 (Model No.: AP320)

Ant.	Brand	Model No.	Type	Connector	Antenna Gain		Cable loss		True Gain (dBi)	
					2.4GHz	5GHz	2.4GHz	5GHz	2.4GHz	5GHz
1	LITEON	WP838 AP	PCB	I-PEX	3.5	6.5	0.2	-	3.3	6.5
2	LITEON	WP838 AP	PCB	I-PEX	6	5.8	-	-	6	5.8
3	LITEON	WP838 AP	PCB	I-PEX	5.4	6.6	-	-	5.4	6.6



For EUT 2 (Model No.: C-75-E)

Ant.	Brand	Model No.	Type	Connector	Gain (dBi)	
					2.4GHz	5GHz
1	MAG.LAYERS	EDA-1713-25GR2-A7	Dipole	SMA Male RP	5	5
2	MAG.LAYERS	EDA-1713-25GR2-A7	Dipole	SMA Male RP	5	5
3	MAG.LAYERS	EDA-1713-25GR2-A7	Dipole	SMA Male RP	5	5

<For 2.4GHz Band>

For IEEE 802.11b/g mode (1TX/1RX):

Only Ant. 1 could transmit/receive simultaneously.

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

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

<For 5GHz Band>

For IEEE 802.11a mode (1TX/1RX):

Only Ant. 1 could transmit/receive simultaneously.

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

Ant. 1, Ant. 2 and Ant. 3 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	Ant.
AC Power Conducted Emission	Normal Link		-	-	-
Max. Conducted Output Power	11a/BPSK	Band 1&4	6Mbps	36/40/48/149/157/165	1
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	1+2+3
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1+2+3
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1+2+3
Power Spectral Density	11a/BPSK	Band 1&4	6Mbps	36/40/48/149/157/165	1
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	1+2+3
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1+2+3
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1+2+3
26dB Spectrum Bandwidth & 99% Occupied Bandwidth Measurement	11a/BPSK	Band 1&4	6Mbps	36/40/48/149/157/165	1
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	1+2+3
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1+2+3
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1+2+3
6dB Spectrum Bandwidth Measurement	11a/BPSK	Band 4	6Mbps	149/157/165	1
	11ac VHT20	Band 4	MCS0/Nss1	149/157/165	1+2+3
	11ac VHT40	Band 4	MCS0/Nss1	151/159	1+2+3
	11ac VHT80	Band 4	MCS0/Nss1	155	1+2+3
Radiated Emission Below 1GHz	Normal Link		-	-	-
Radiated Emission Above 1GHz	11a/BPSK	Band 1&4	6Mbps	36/40/48/149/157/165	1
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	1+2+3
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1+2+3
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1+2+3
Band Edge Emission	11a/BPSK	Band 1&4	6Mbps	36/40/48/149/157/165	1
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	1+2+3
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1+2+3
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1+2+3
Frequency Stability	20 MHz	Band 1&4	-	40/157	EUT 1: 1 EUT 2: 2
	40 MHz	Band 1&4	-	38/151	EUT 1: 1 EUT 2: 2
	80 MHz	Band 1&4	-	42/155	EUT 1: 1 EUT 2: 2

Note: 1. All the specification of test configurations and test mode was base on customer's request.

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

The following test modes were performed for all tests:

AC Power Line Conducted Emissions test	
There are two EUT, one is EUT 1 and the other is EUT 2. EUT 1 generated the worst test result for original test report, thus measurement will follow this same test configuration.	
Test Mode	Description
1	EUT 1 + Adapter

Radiated Emissions Below 1GHz test	
There are four modes as below: 1. EUT 1 in Z axis + Adapter 2. EUT 1 in Y axis + Adapter 3. EUT 1 in Z axis + PoE 4. EUT 2 in Z axis + PoE EUT 1 in Z axis + Adapter generated the worst test result for original test report, thus measurement will follow this same test configuration.	
Test Mode	Description
1	EUT 1 in Z axis + Adapter

Radiated Emissions Above 1GHz and Band Edge Emissions tests	
Test Mode	Description
1	EUT 1 in Z axis + Adapter
2	EUT 1 in Y axis + Adapter
Mode 2 has been evaluated to be the worst case among Mode 1~2, thus measurement for Mode 3 will follow this same test mode.	
3	EUT 2 in Y axis + Adapter
Mode 2 and Mode 3 generated the worst test result, so it was recorded in this report.	

Other tests	
Test Mode	Description
1	EUT 1
2	EUT 2

3.6. Table for Testing Locations

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

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

3.7. Table for Multiple Listing

The EUT has three model numbers which are identical to each other in all aspects except for the following table:

Brand Name	Model No.	Antenna	Description
MOJO	C-75	Internal antenna	EUT 1
	C-75-E	External antenna	EUT 2
WatchGuard	AP320	Internal antenna	EUT 3

From the above models, EUT 1 and EUT 2 were selected as representative model for the test and their data was recorded in this report.

3.8. Table for Class II Change

This product is an extension of original one reported under Sporton project number: FR411023
Below is the table for the change of the product with respect to the original one.

Modifications	Performance Checking
1. Adding an adapter (Model No.: WA-24Q12R) for marketing.	1. AC Power Line Conducted Emissions. 2. Radiated Emissions Below 1GHz.
2. Updating test rule of 5GHz band 1 to "New Rules" from "Old Rules".	1. 26dB Spectrum Bandwidth and 99% Occupied Bandwidth. 2. Maximum Conducted Output Power. 3. Power Spectral Density. 4. Radiated Emissions Above 1GHz. 5. Band Edge Emissions. 6. Frequency Stability.
3. Updating test rule of 5GHz band 4 to "15.407 (b)(4)(i) of New Rules (ET Docket No. 13–49; FCC 16–24)" from "Old Rules".	1. 26dB Spectrum Bandwidth and 99% Occupied Bandwidth. 2. 6dB Spectrum Bandwidth. 3. Maximum Conducted Output Power. 4. Power Spectral Density. 5. Radiated Emissions Above 1GHz. 6. Band Edge Emissions. 7. Frequency Stability.
4. Changing the applicant information. 5. Changing the manufacturer information. 6. Changing the brand name to "MOJO" from "AirTight". 7. Adding a brand name "WatchGuard". 8. Adding a model number "AP320".	Do not have to retest assessed.

3.9. Table for Supporting Units

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

Support Unit	Brand	Model	FCC ID
Notebook*4	DELL	E4300	DoC
Flash Disk	Silicon Power	I-Series	DoC

For Test Site No: 03CH01-CB (above 1GHz) and TH01-CB

Support Unit	Brand	Model	FCC ID
Notebook	DELL	E4300	DoC

For Test Site No: CO01-CB

Support Unit	Brand	Model	FCC ID
Notebook*4	DELL	E6430	DoC
Flash Disk	ADATA	C103	DoC

3.10. Table for Parameters of Test Software Setting

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

Test Mode	Mode 1 (EUT 1)					
Test Software Version	ART2-GUI Version 2.3					
Mode	Test Frequency (MHz)					
	NCB: 20MHz					
	5180 MHz	5200 MHz	5240 MHz	5745 MHz	5785 MHz	5825 MHz
802.11a	20.5	24.5	25	25	25	25
802.11ac MCS0/Nss1 VHT20	18	20.5	20	25	25	25
Mode	NCB: 40MHz					
802.11ac MCS0/Nss1 VHT40	5190 MHz		5230 MHz		5755 MHz	5795 MHz
	15.5		21.5		25	25
Mode	NCB: 80MHz					
802.11ac MCS0/Nss1 VHT80	5210 MHz				5775 MHz	
	12				23	

Test Mode	Mode 2 (EUT 2)					
Test Software Version	ART2-GUI Version 2.3					
Mode	Test Frequency (MHz)					
	NCB: 20MHz					
	5180 MHz	5200 MHz	5240 MHz	5745 MHz	5785 MHz	5825 MHz
802.11a	19.5	23.5	25	25	25	25
802.11ac MCS0/Nss1 VHT20	19	22	23	25	25	25
Mode	NCB: 40MHz					
802.11ac MCS0/Nss1 VHT40	5190 MHz		5230 MHz		5755 MHz	5795 MHz
	16.5		21		25	25
Mode	NCB: 80MHz					
802.11ac MCS0/Nss1 VHT80	5210 MHz				5775 MHz	
	13				21	

3.11. EUT Operation during Test

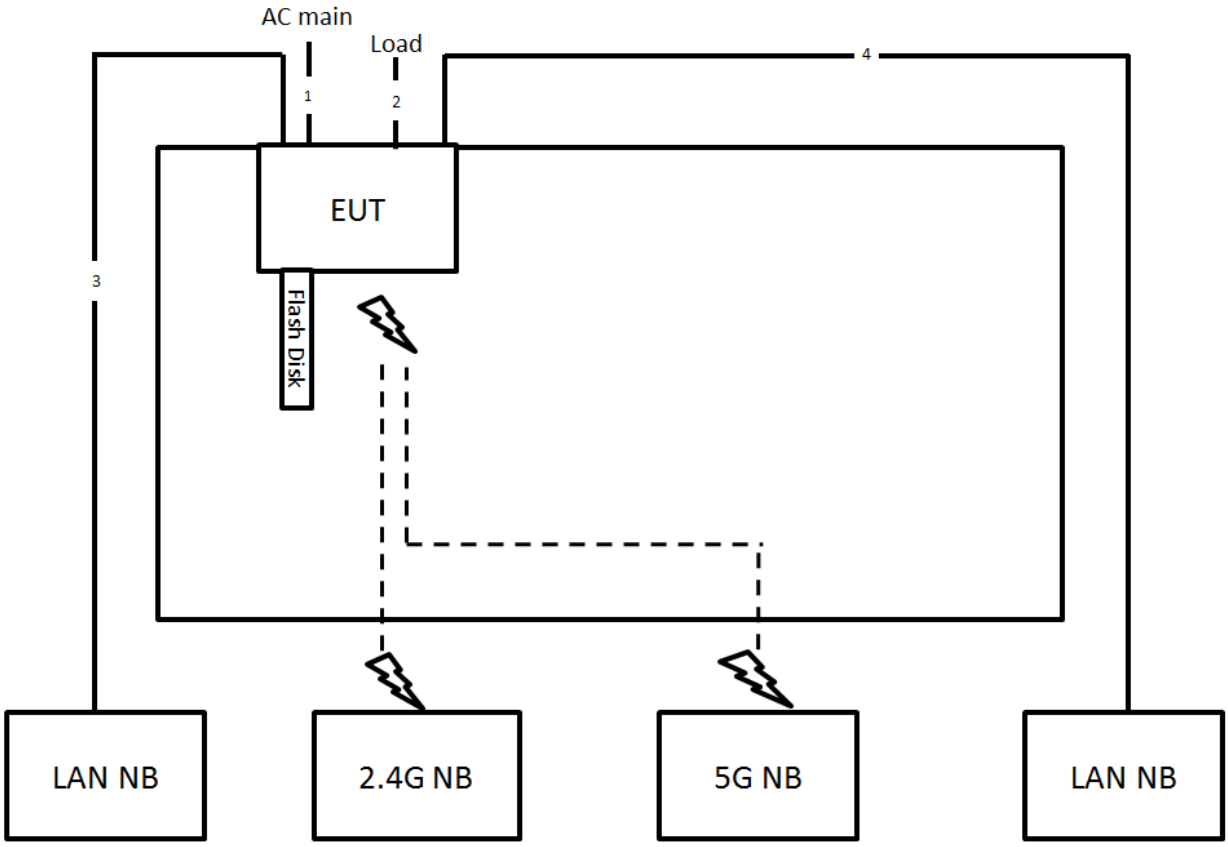
The EUT was programmed to be in continuously transmitting mode.

3.12. Duty Cycle

Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11a	2.015	2.116	95.21	0.21	0.50
802.11ac MCS0/Nss1 VHT20	1.890	2.030	93.10	0.31	0.53
802.11ac MCS0/Nss1 VHT40	0.927	1.000	92.70	0.33	1.08
802.11ac MCS0/Nss1 VHT80	0.449	0.515	87.18	0.60	2.23

3.13. Test Configurations

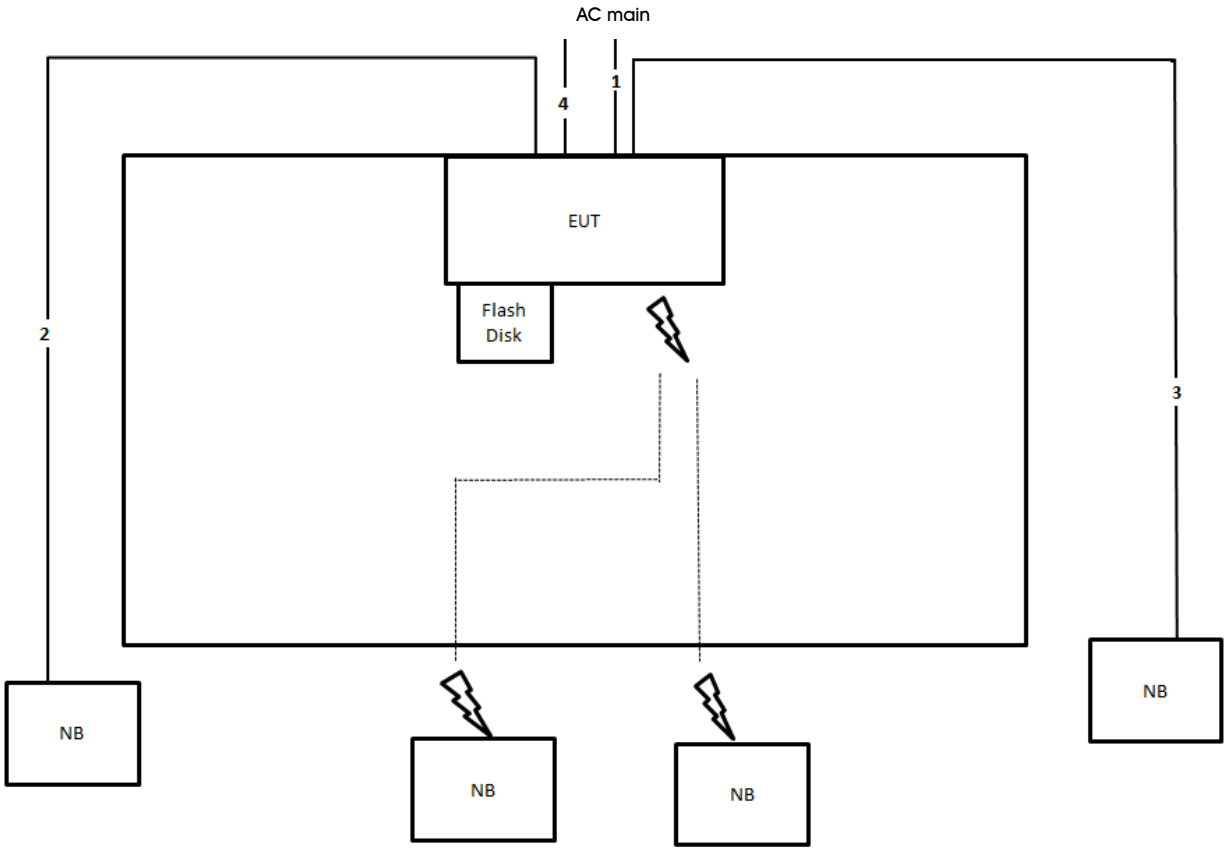
3.13.1. AC Power Line Conduction Emissions Test Configuration



Item	Connection	Shielded	Length
1	Power cable	No	1.2m
2	Console cable	No	1.5m
3	RJ-45 cable	No	10m
4	RJ-45 cable	No	10m

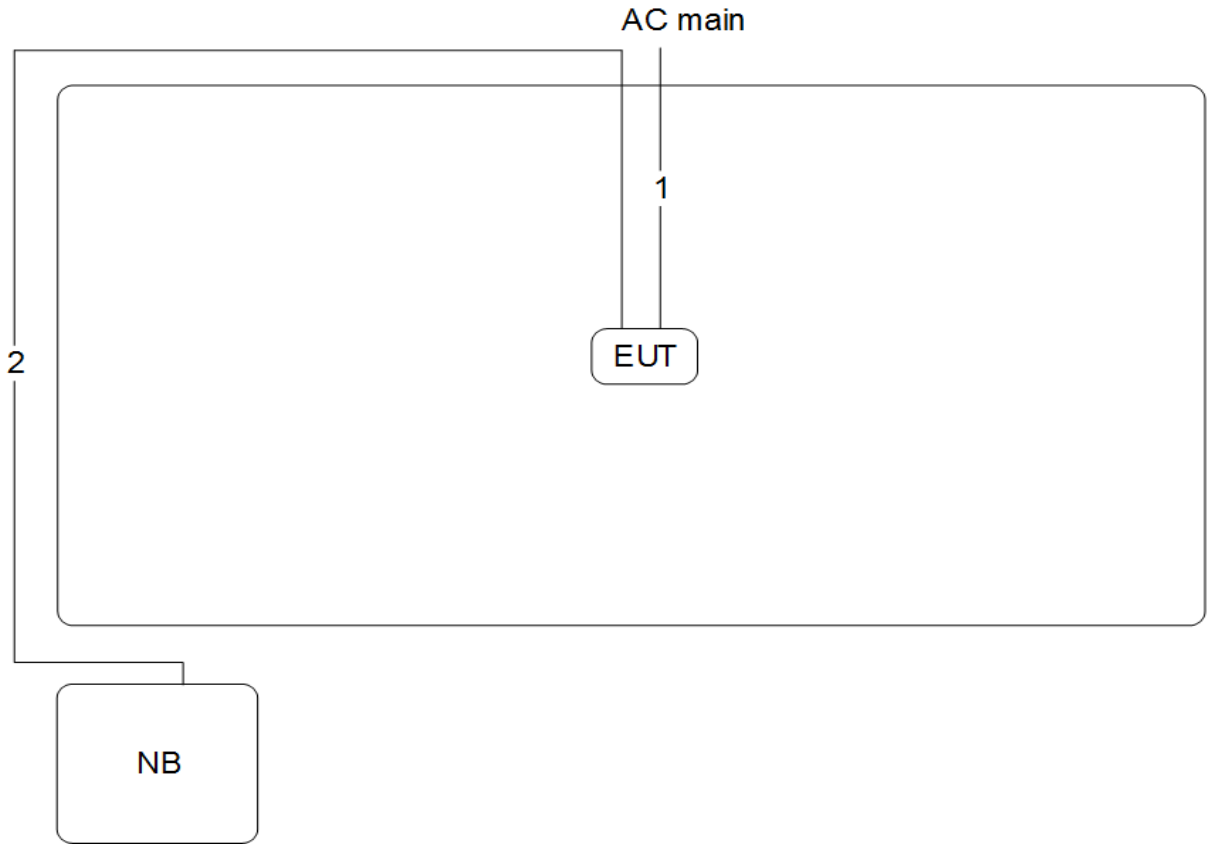
3.13.2. Radiation Emissions Test Configuration

Test Configuration: 30MHz ~1GHz



Item	Connection	Shielded	Length
1	Power cable	No	1.2m
2	RJ-45 cable	No	10m
3	RJ-45 cable	No	10m
4	Console cable	Yes	1.5m

Test Configuration: above 1GHz



Item	Connection	Shielded	Length
1	Power cable	No	1.2m
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

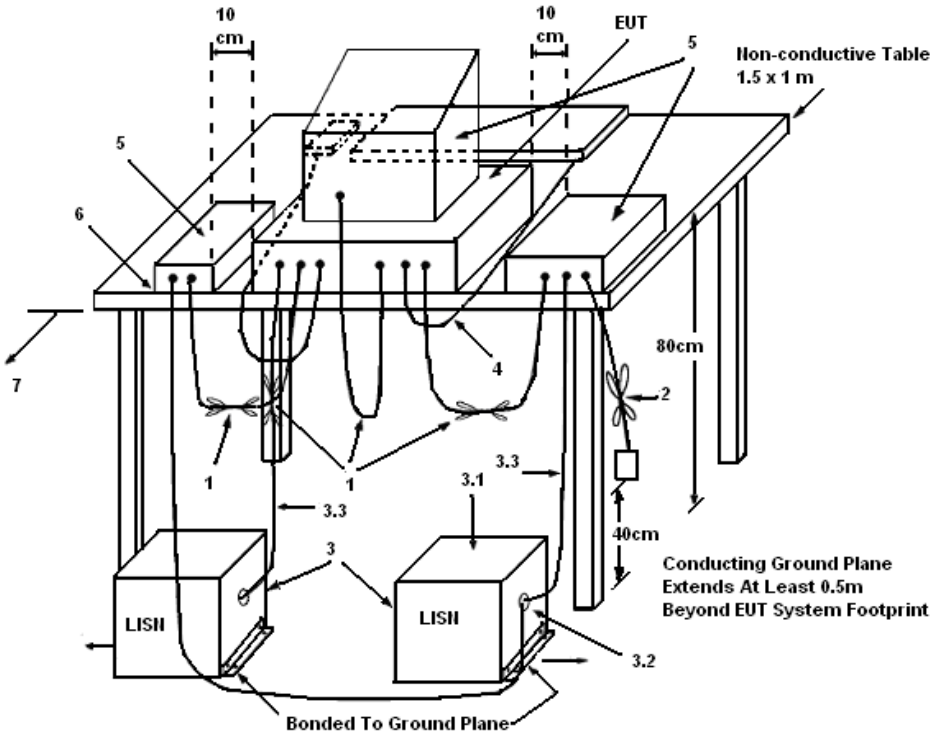
Please refer to section 5 of equipments list in this report. The following table is the setting of the receiver.

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

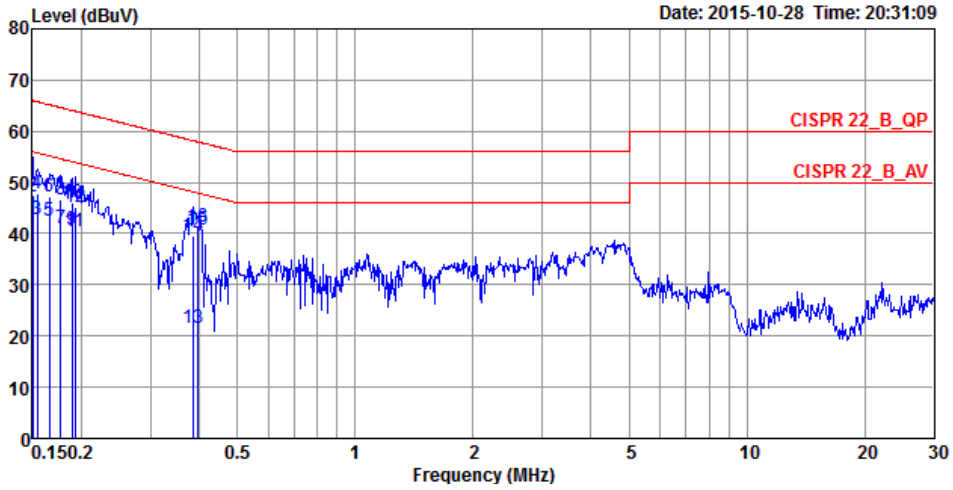
There is no deviation with the original standard.

4.1.6. EUT Operation during Test

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

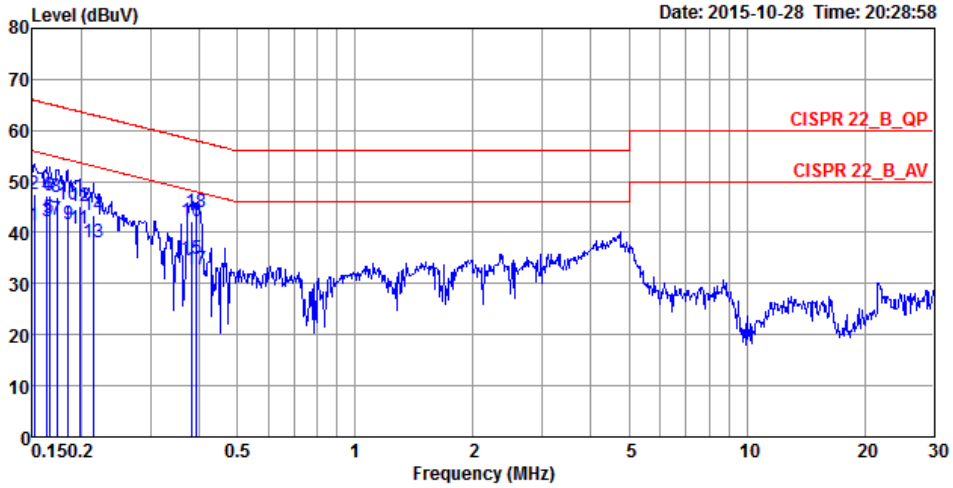
4.1.7. Results of AC Power Line Conducted Emissions Measurement

Temperature	25℃	Humidity	60%
Test Engineer	Deven Huang	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	0.1500	43.57	-12.43	56.00	33.62	9.93	0.02	LINE	Average
2	0.1500	47.22	-18.78	66.00	37.27	9.93	0.02	LINE	QP
3	0.1540	42.94	-12.84	55.78	32.99	9.93	0.02	LINE	Average
4	0.1540	47.72	-18.06	65.78	37.77	9.93	0.02	LINE	QP
5	0.1659	42.43	-12.73	55.16	32.48	9.93	0.02	LINE	Average
6	0.1659	47.12	-18.04	65.16	37.17	9.93	0.02	LINE	QP
7	0.1768	41.10	-13.54	54.64	31.15	9.93	0.02	LINE	Average
8	0.1768	46.73	-17.91	64.64	36.78	9.93	0.02	LINE	QP
9	0.1894	40.86	-13.20	54.06	30.91	9.93	0.02	LINE	Average
10	0.1894	46.00	-18.06	64.06	36.05	9.93	0.02	LINE	QP
11	0.1924	40.59	-13.34	53.93	30.64	9.93	0.02	LINE	Average
12	0.1924	45.16	-18.77	63.93	35.21	9.93	0.02	LINE	QP
13	0.3872	21.69	-26.43	48.12	11.72	9.93	0.04	LINE	Average
14	0.3872	39.45	-18.67	58.12	29.48	9.93	0.04	LINE	QP
15	0.3976	40.77	-7.13	47.90	30.80	9.93	0.04	LINE	Average
16	0.3976	41.29	-16.61	57.90	31.32	9.93	0.04	LINE	QP

Temperature	25°C	Humidity	60%
Test Engineer	Justin Chiu	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	0.1516	41.39	-14.52	55.91	31.59	9.78	0.02	NEUTRAL	Average
2	0.1516	47.45	-18.46	65.91	37.65	9.78	0.02	NEUTRAL	QP
3	0.1633	42.17	-13.13	55.30	32.37	9.78	0.02	NEUTRAL	Average
4	0.1633	47.33	-17.97	65.30	37.53	9.78	0.02	NEUTRAL	QP
5	0.1659	42.78	-12.38	55.16	32.98	9.78	0.02	NEUTRAL	Average
6	0.1659	47.13	-18.03	65.16	37.33	9.78	0.02	NEUTRAL	QP
7	0.1731	42.51	-12.30	54.81	32.71	9.78	0.02	NEUTRAL	Average
8	0.1731	46.82	-17.99	64.81	37.02	9.78	0.02	NEUTRAL	QP
9	0.1854	41.62	-12.62	54.24	31.81	9.79	0.02	NEUTRAL	Average
10	0.1854	45.33	-18.91	64.24	35.52	9.79	0.02	NEUTRAL	QP
11	0.1976	40.82	-12.89	53.71	31.01	9.79	0.02	NEUTRAL	Average
12	0.1976	45.22	-18.49	63.71	35.41	9.79	0.02	NEUTRAL	QP
13	0.2139	38.07	-14.98	53.05	28.26	9.79	0.02	NEUTRAL	Average
14	0.2139	43.52	-19.53	63.05	33.71	9.79	0.02	NEUTRAL	QP
15	0.3832	34.83	-13.38	48.21	25.00	9.79	0.04	NEUTRAL	Average
16	0.3832	42.16	-16.05	58.21	32.33	9.79	0.04	NEUTRAL	QP
17	0.3934	32.85	-15.14	47.99	23.02	9.79	0.04	NEUTRAL	Average
18	0.3934	44.06	-13.93	57.99	34.23	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

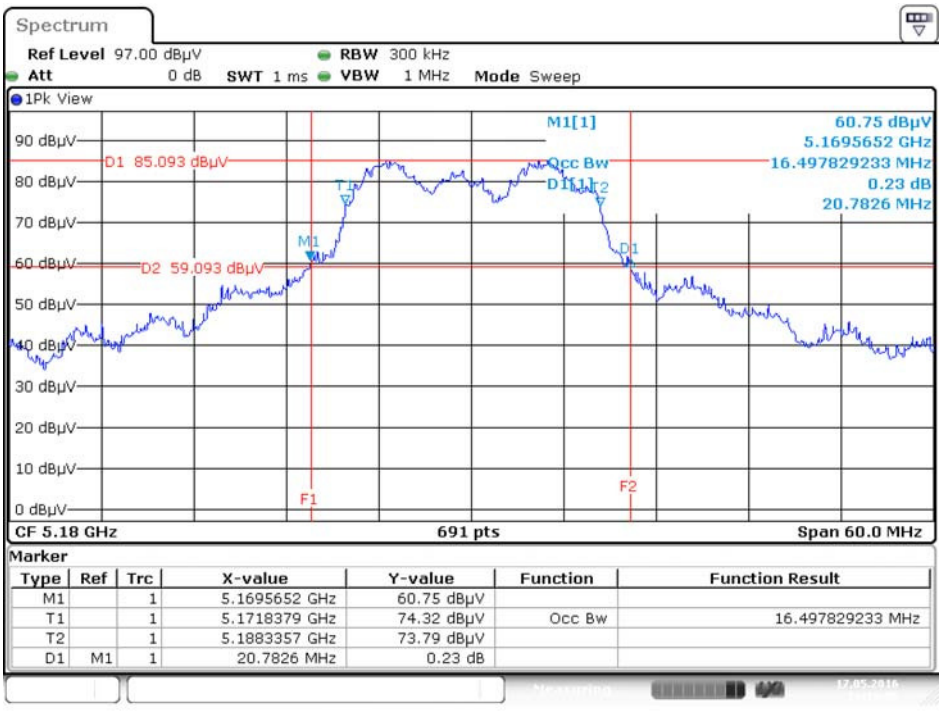
Temperature	24°C	Humidity	60%
Test Engineer	Clemens Fang	Test Mode	Mode 1 (EUT 1)

Mode	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11a	5180 MHz	20.78	16.50
	5200 MHz	35.91	20.67
	5240 MHz	32.26	18.76
	5745 MHz	33.30	24.23
	5785 MHz	33.30	23.01
	5825 MHz	33.13	18.41
802.11ac MCS0/Nss1 VHT20	5180 MHz	22.00	18.15
	5200 MHz	23.30	17.97
	5240 MHz	21.48	17.71
	5745 MHz	42.96	26.83
	5785 MHz	42.78	26.14
	5825 MHz	31.83	18.32
802.11ac MCS0/Nss1 VHT40	5190 MHz	42.46	36.18
	5230 MHz	46.81	36.76
	5755 MHz	75.22	43.56
	5795 MHz	67.25	38.93
802.11ac MCS0/Nss1 VHT80	5210 MHz	84.93	75.25
	5775 MHz	121.16	75.54

Temperature	24℃	Humidity	60%
Test Engineer	Clemens Fang	Test Mode	Mode 2 (EUT 2)

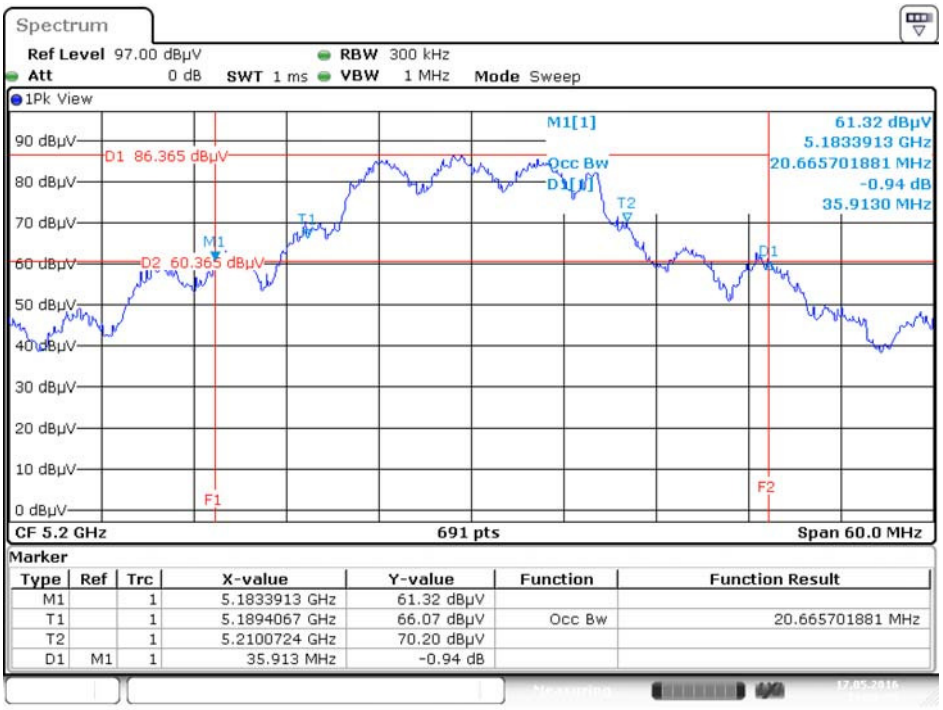
Mode	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11a	5180 MHz	19.57	16.67
	5200 MHz	32.52	17.97
	5240 MHz	32.78	19.54
	5745 MHz	36.61	25.18
	5785 MHz	33.30	23.36
	5825 MHz	32.96	18.32
802.11ac MCS0/Nss1 VHT20	5180 MHz	22.09	18.15
	5200 MHz	30.78	18.32
	5240 MHz	40.44	19.54
	5745 MHz	42.09	26.48
	5785 MHz	41.57	24.40
	5825 MHz	32.35	17.89
802.11ac MCS0/Nss1 VHT40	5190 MHz	41.74	36.32
	5230 MHz	45.51	37.19
	5755 MHz	82.17	44.43
	5795 MHz	81.74	41.97
802.11ac MCS0/Nss1 VHT80	5210 MHz	83.19	74.96
	5775 MHz	87.83	75.25

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 + Ant. 3 / 5180 MHz / Test Mode: Mode 1 (EUT 1)



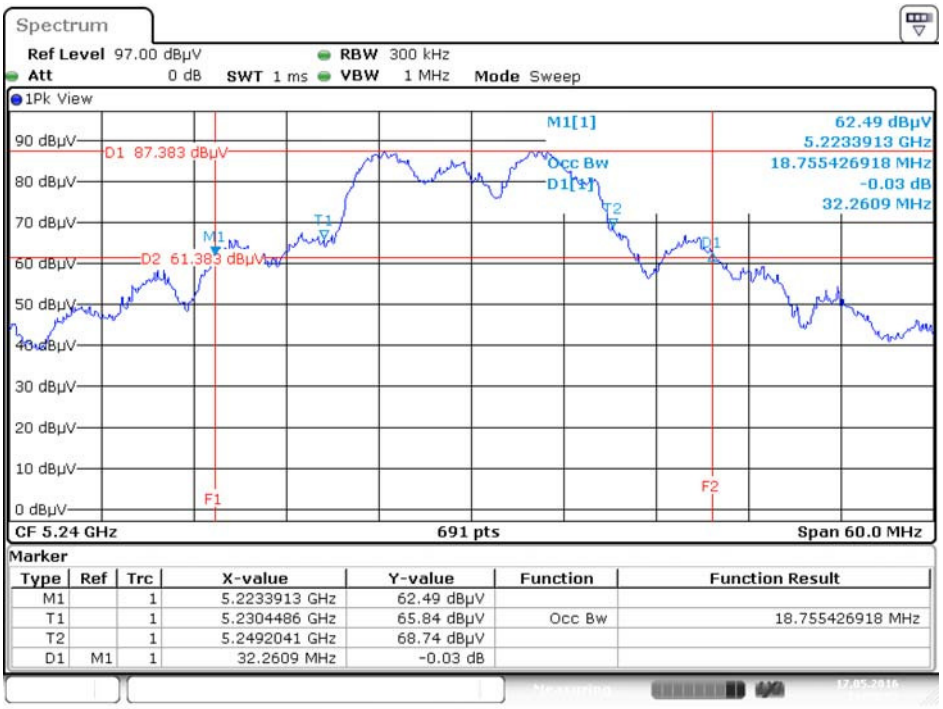
Date: 17.MAY.2016 19:19:56

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 + Ant. 3 / 5200 MHz / Test Mode: Mode 1 (EUT 1)



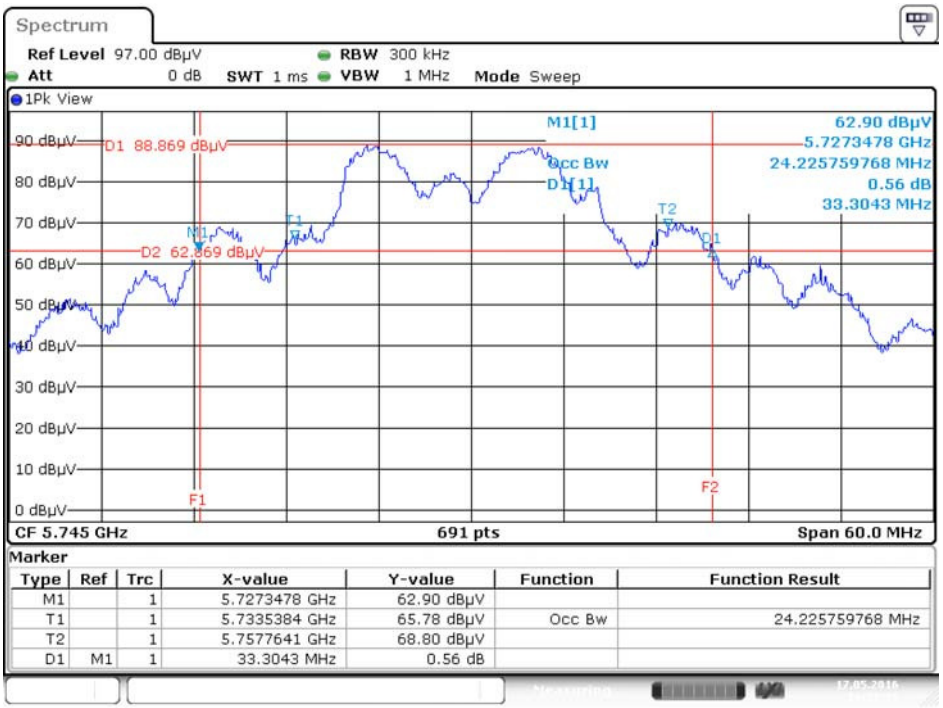
Date: 17.MAY.2016 19:26:35

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 + Ant. 3 / 5240 MHz / Test Mode: Mode 1 (EUT 1)



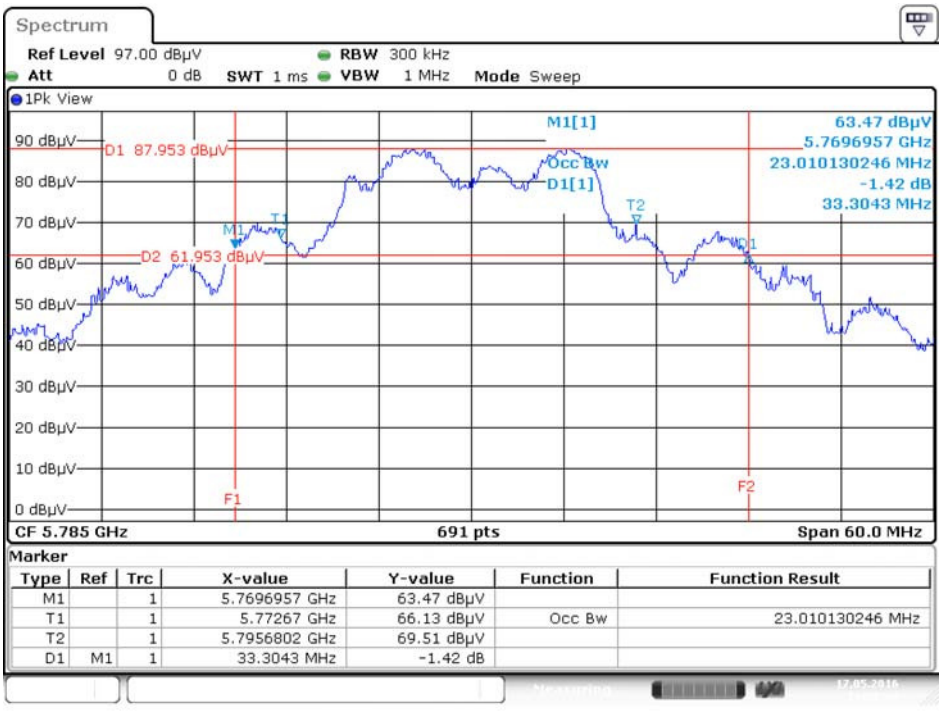
Date: 17.MAY.2016 19:25:51

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 + Ant. 3 / 5745 MHz / Test Mode: Mode 1 (EUT 1)



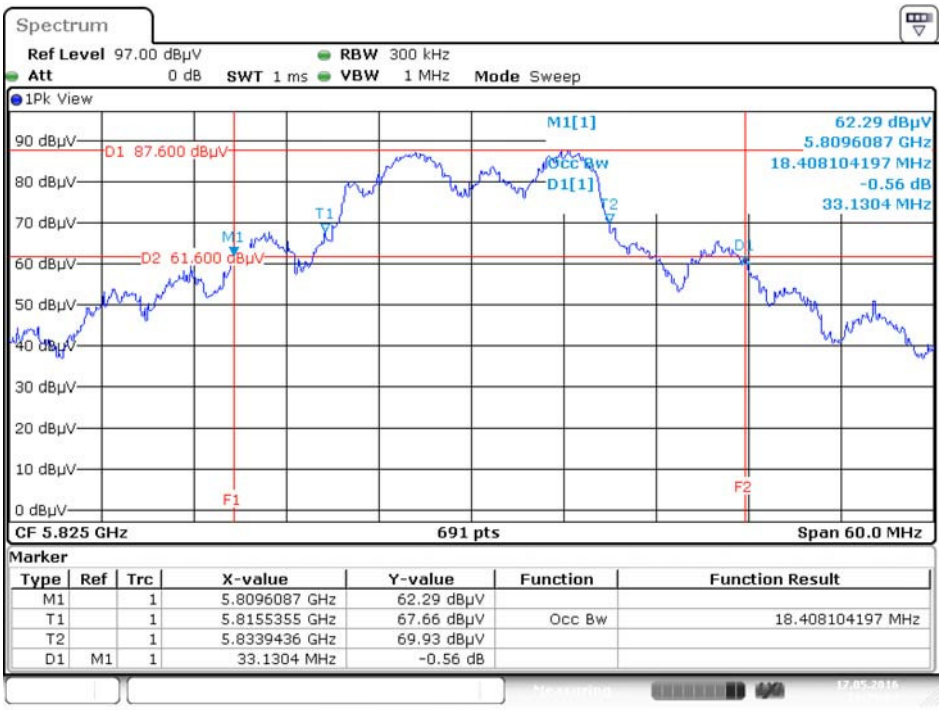
Date: 17.MAY.2016 19:27:51

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 + Ant. 3 / 5785 MHz / Test Mode: Mode 1 (EUT 1)



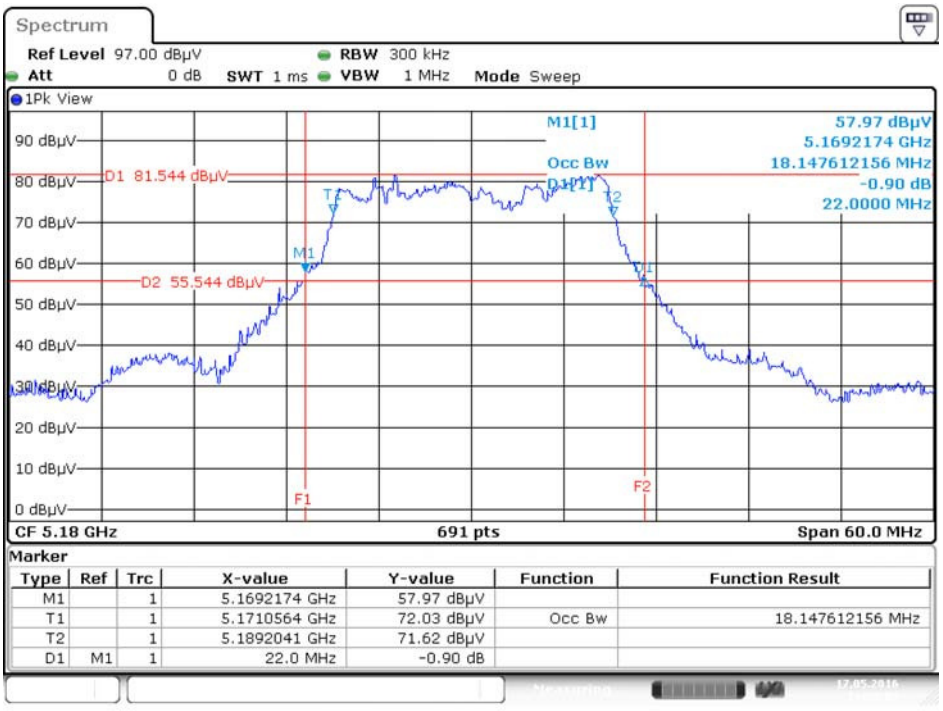
Date: 17.MAY.2016 19:28:34

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 + Ant. 3 / 5825 MHz / Test Mode: Mode 1 (EUT 1)



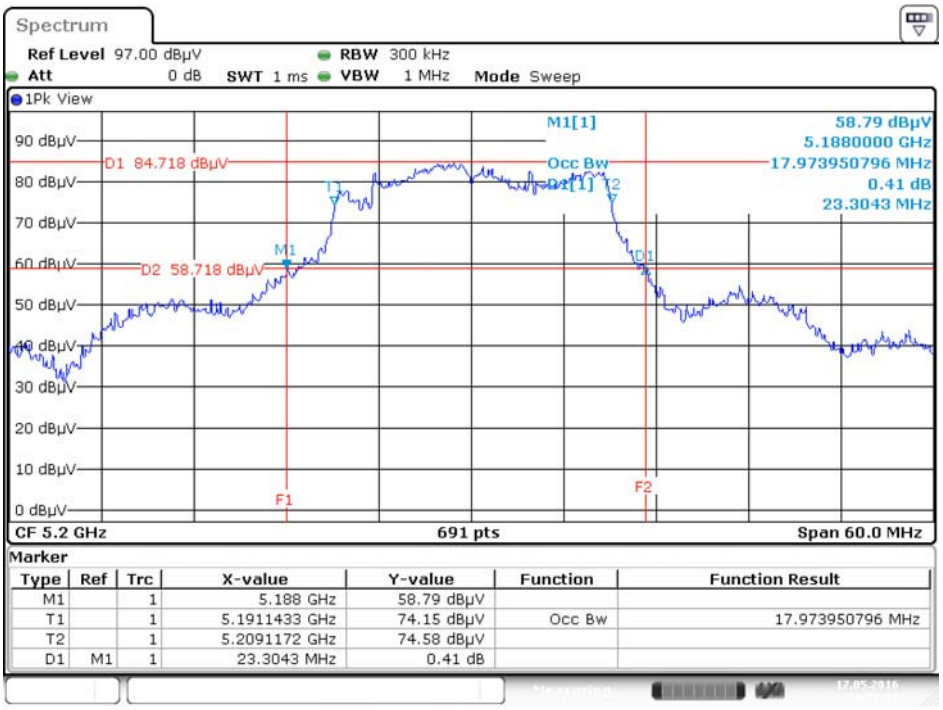
Date: 17.MAY.2016 19:29:04

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 + Ant. 3 / 5180 MHz / Test Mode: Mode 1 (EUT 1)



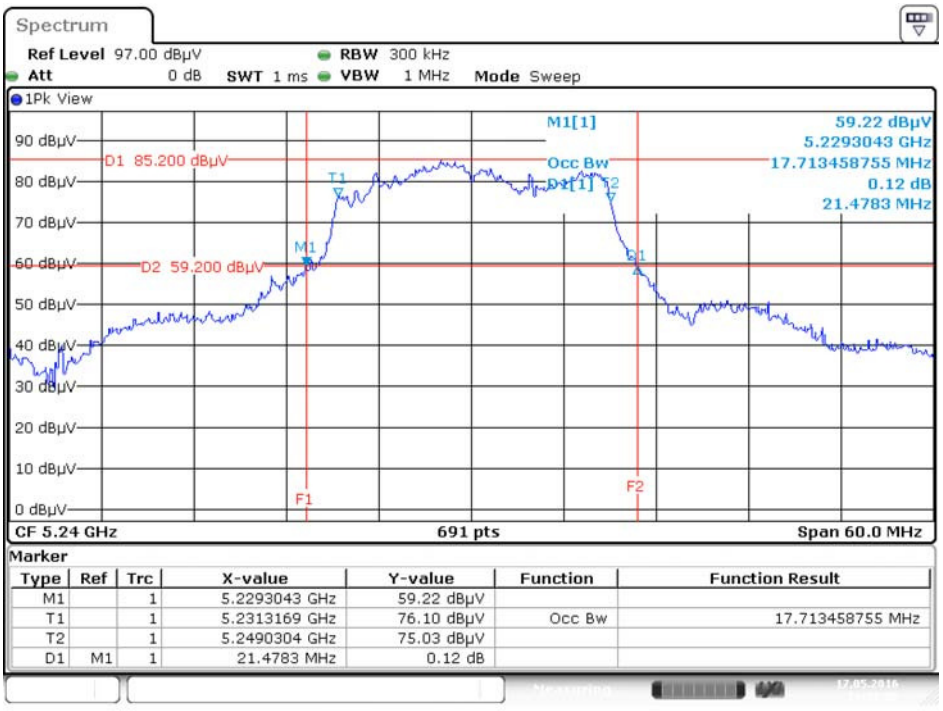
Date: 17.MAY.2016 19:30:03

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 + Ant. 3 / 5200 MHz / Test Mode: Mode 1 (EUT 1)



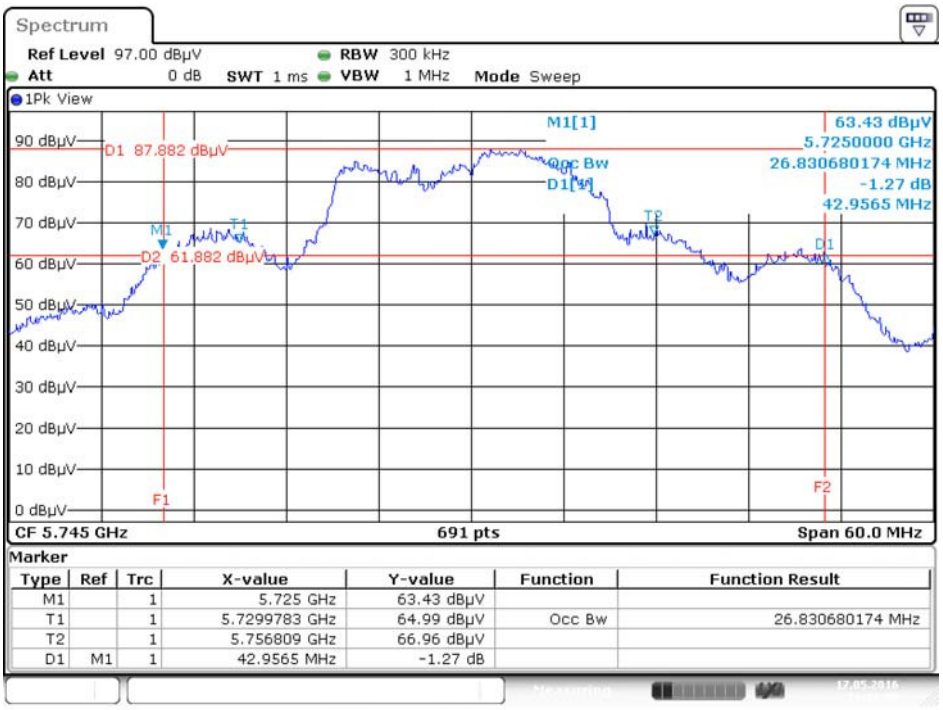
Date: 17.MAY.2016 19:31:10

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 + Ant. 3 / 5240 MHz / Test Mode: Mode 1 (EUT 1)



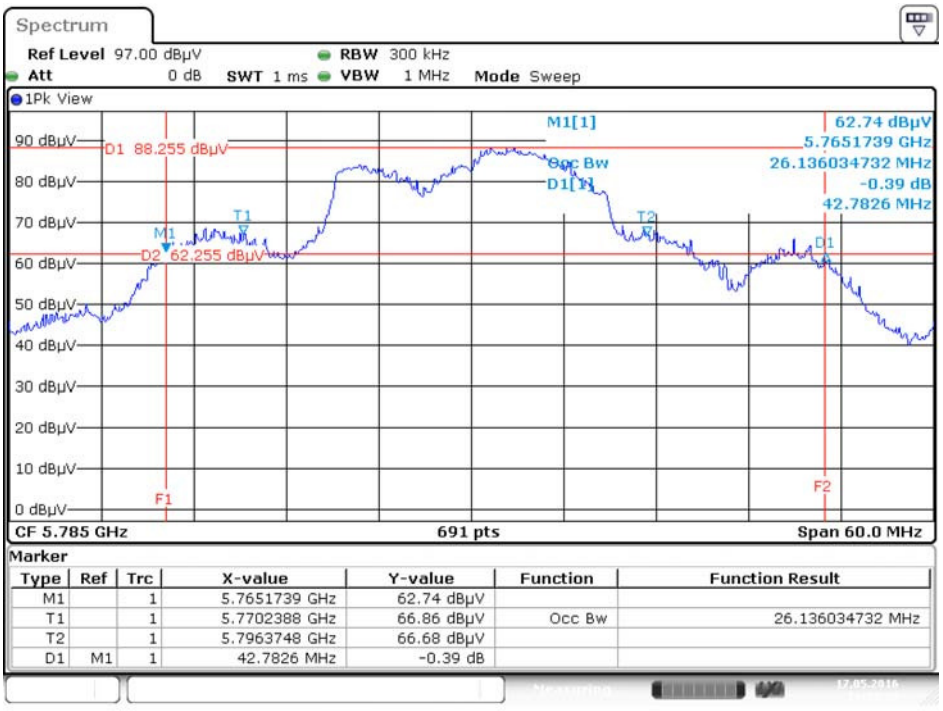
Date: 17.MAY.2016 19:32:07

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 + Ant. 3 / 5745 MHz / Test Mode: Mode 1 (EUT 1)



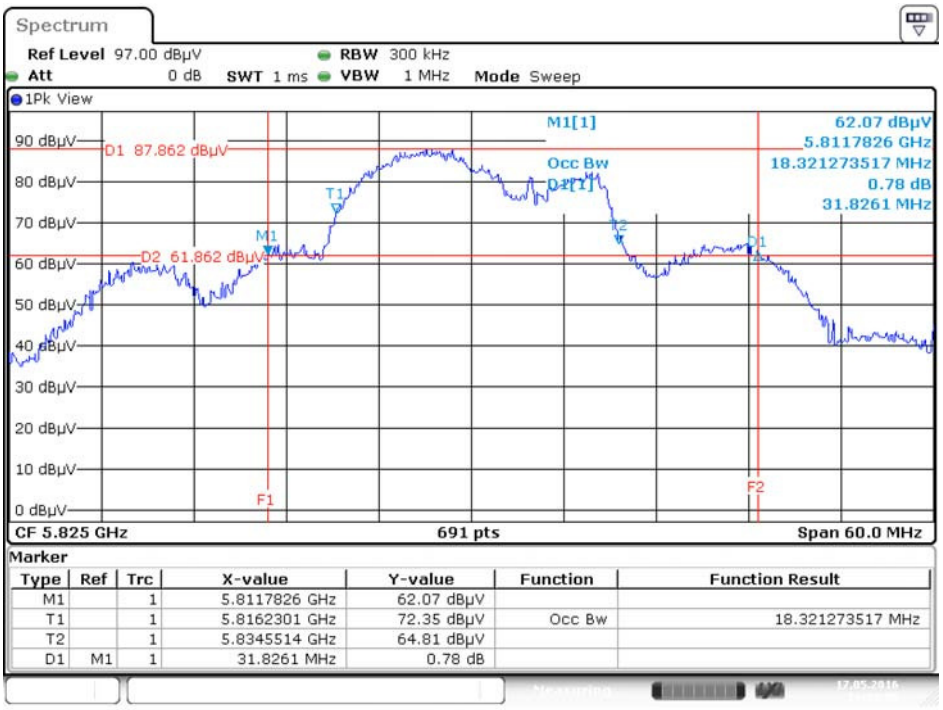
Date: 17.MAY.2016 19:32:49

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 + Ant. 3 / 5785 MHz / Test Mode: Mode 1 (EUT 1)



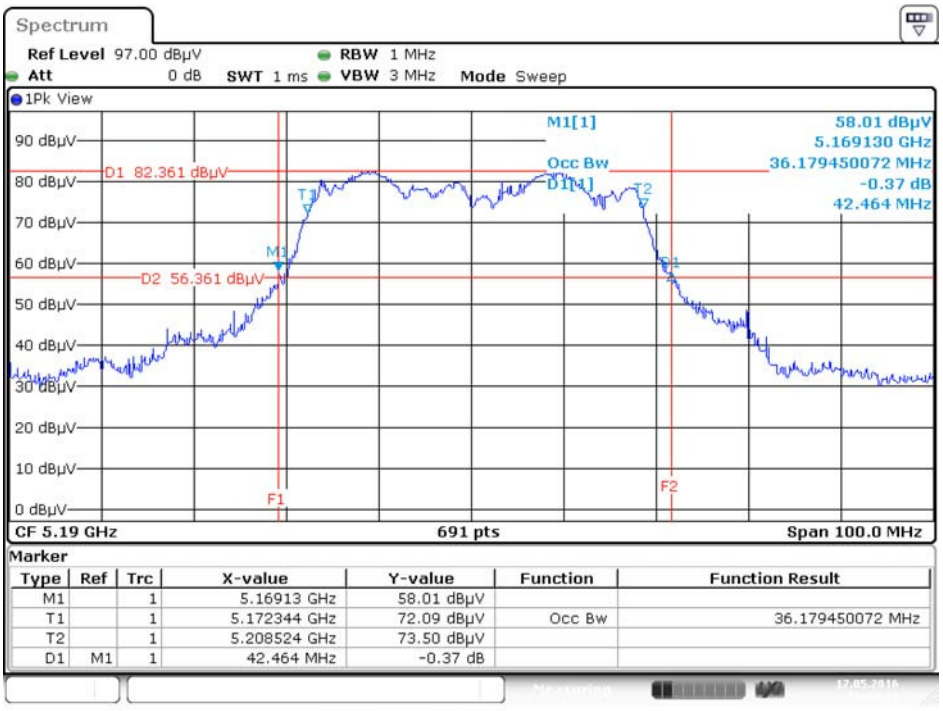
Date: 17.MAY.2016 19:33:24

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 + Ant. 3 / 5825 MHz / Test Mode: Mode 1 (EUT 1)



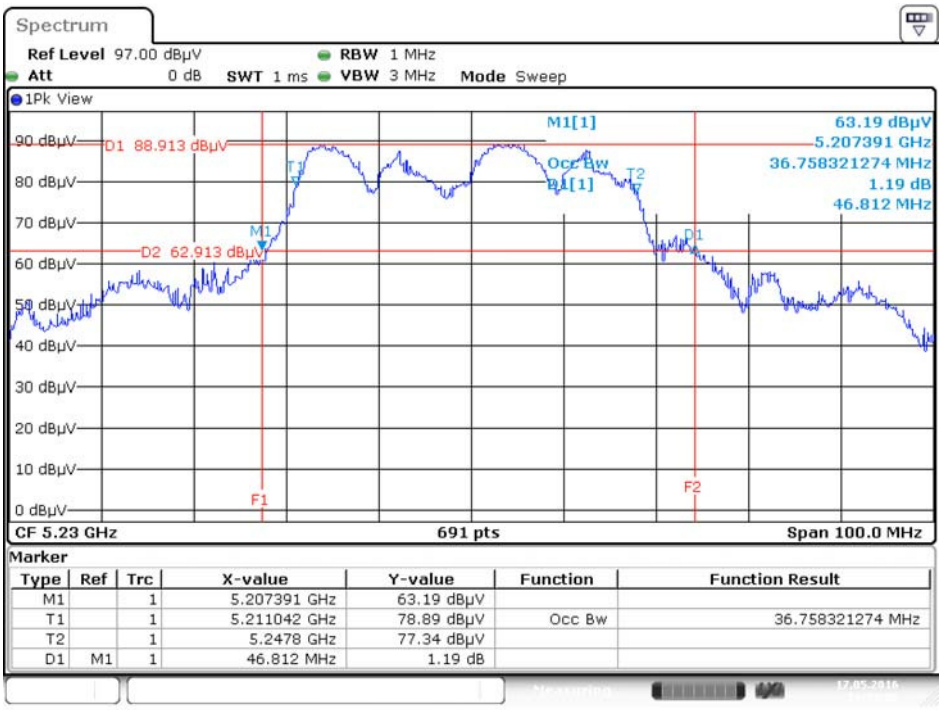
Date: 17.MAY.2016 19:33:56

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 1 + Ant. 2 + Ant. 3 / 5190 MHz / Test Mode: Mode 1 (EUT 1)



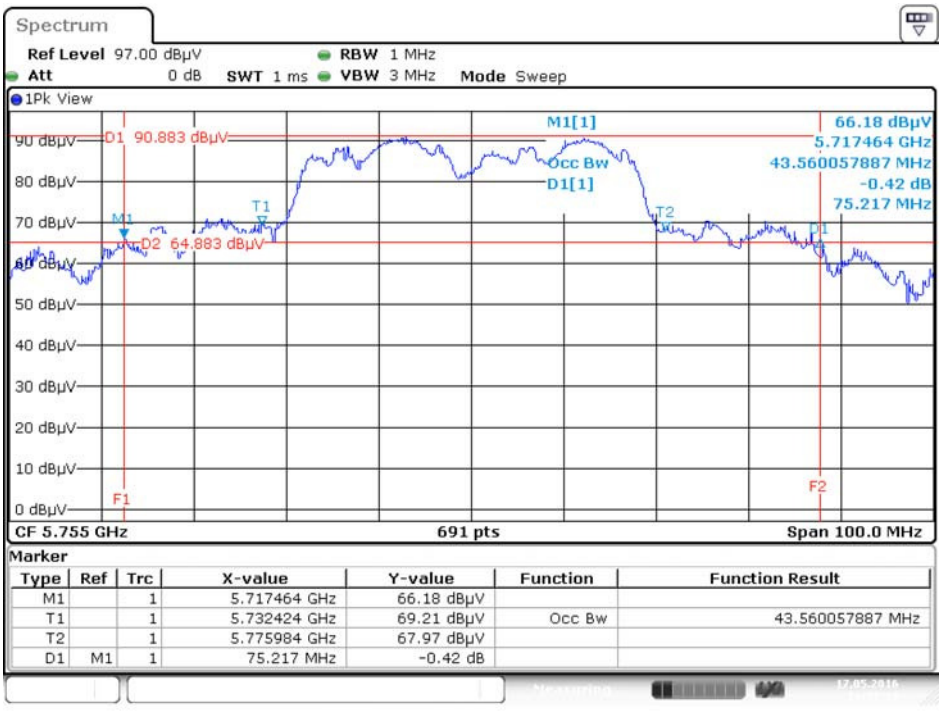
Date: 17.MAY.2016 19:34:37

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 1 + Ant. 2 + Ant. 3 / 5230 MHz / Test Mode: Mode 1 (EUT 1)



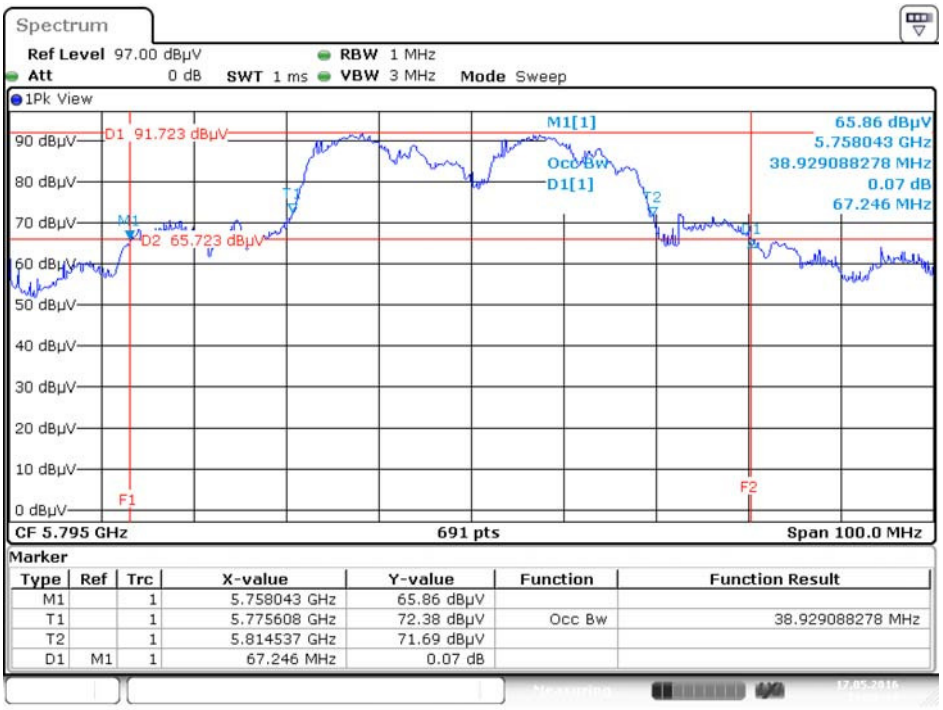
Date: 17.MAY.2016 19:35:07

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 1 + Ant. 2 + Ant. 3 / 5755 MHz / Test Mode: Mode 1 (EUT 1)



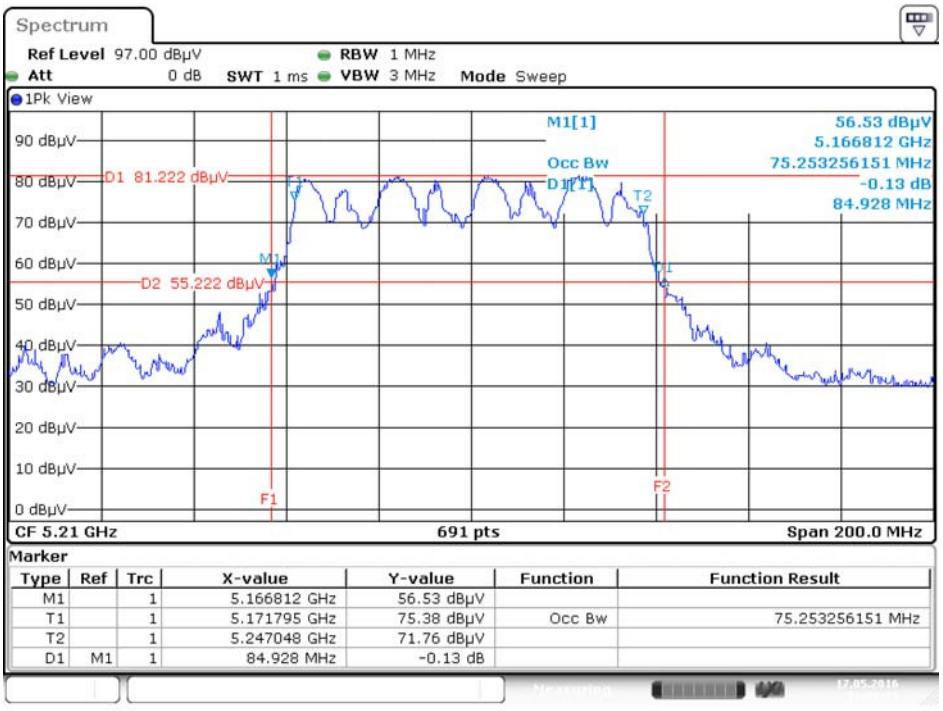
Date: 17.MAY.2016 19:37:10

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 1 + Ant. 2 + Ant. 3 / 5795 MHz / Test Mode: Mode 1 (EUT 1)



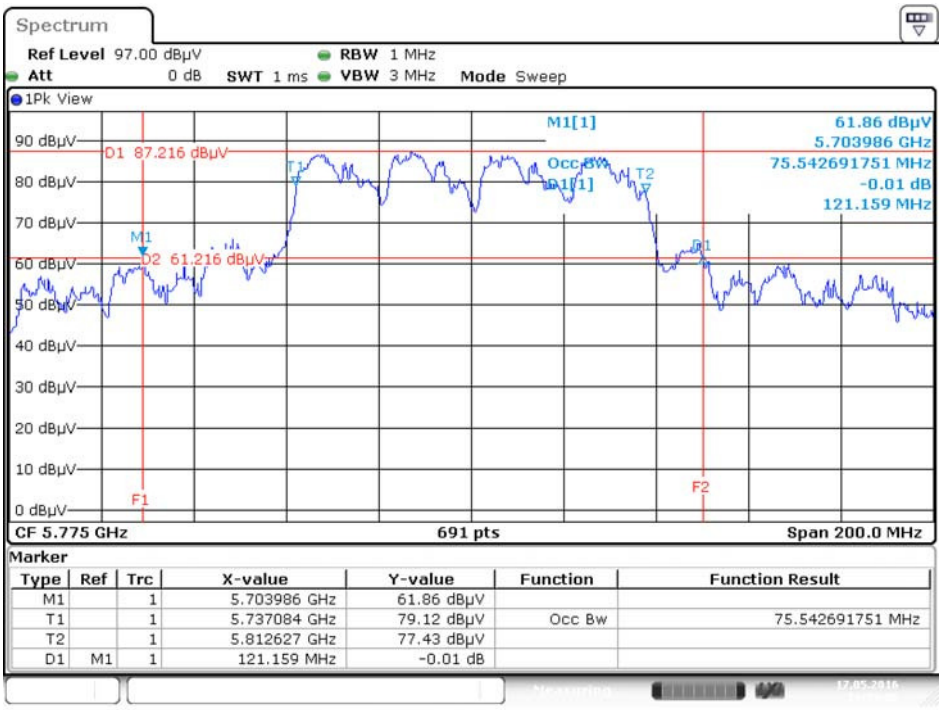
Date: 17.MAY.2016 19:36:15

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Ant. 1 + Ant. 2 + Ant. 3 / 5210 MHz / Test Mode: Mode 1 (EUT 1)



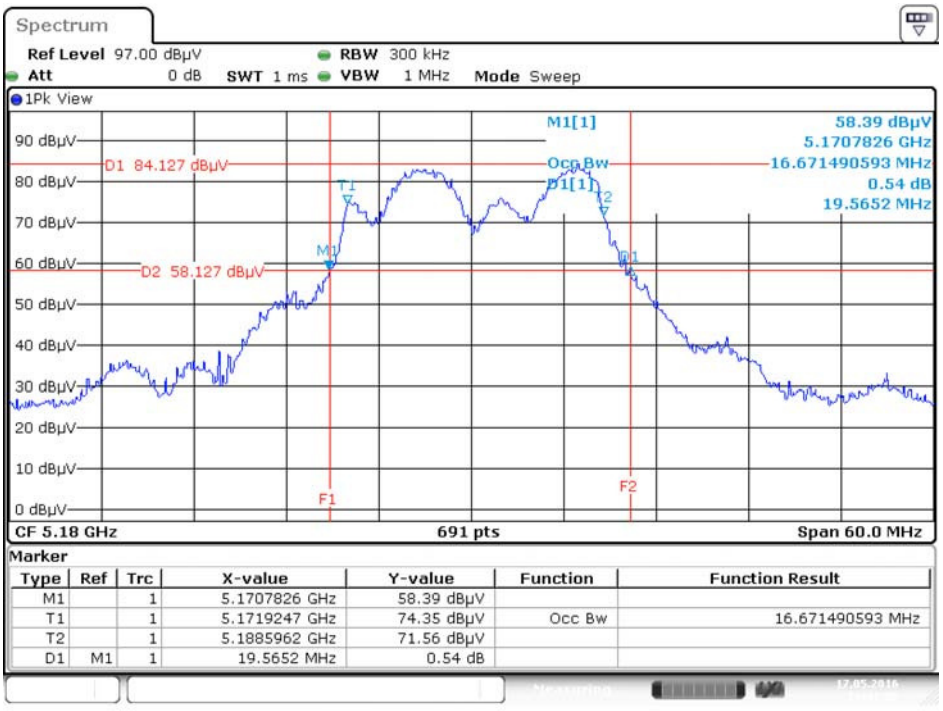
Date: 17.MAY.2016 19:38:31

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Ant. 1 + Ant. 2 + Ant. 3 / 5775 MHz / Test Mode: Mode 1 (EUT 1)



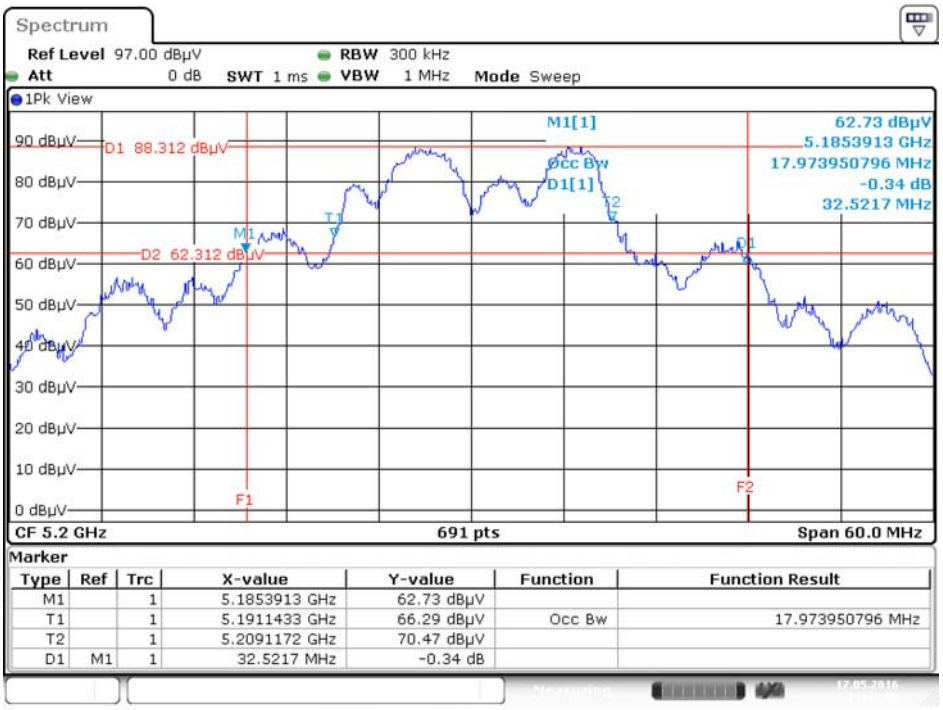
Date: 17.MAY.2016 19:39:36

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 + Ant. 3 / 5180 MHz / Test Mode: Mode 2 (EUT 2)



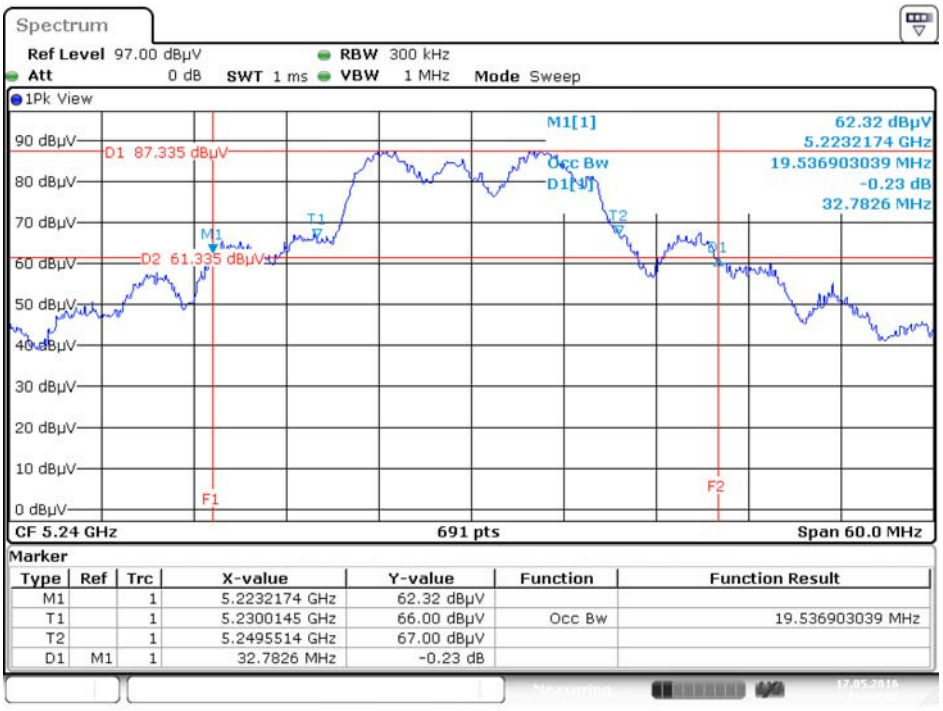
Date: 17.MAY.2016 19:41:08

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 + Ant. 3 / 5200 MHz / Test Mode: Mode 2 (EUT 2)



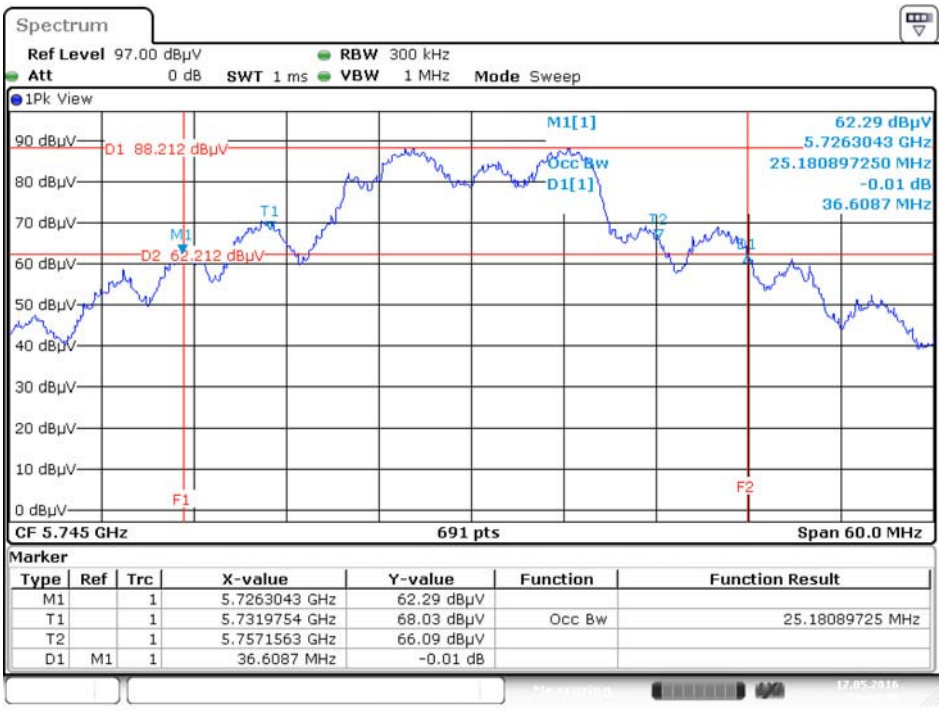
Date: 17.MAY.2016 19:41:56

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 + Ant. 3 / 5240 MHz / Test Mode: Mode 2 (EUT 2)



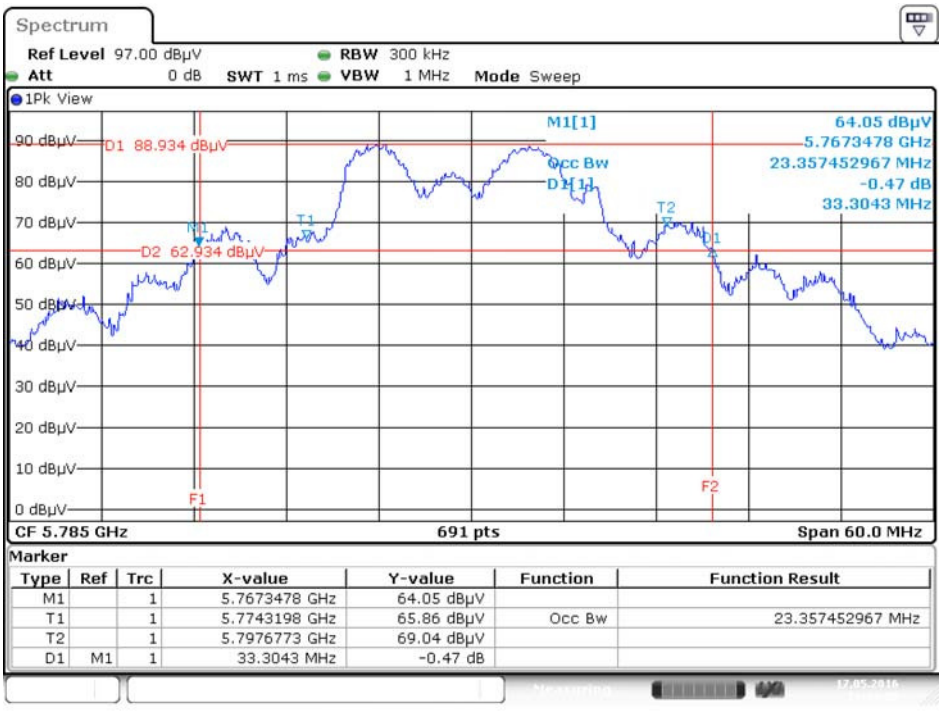
Date: 17.MAY.2016 19:43:06

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 + Ant. 3 / 5745 MHz / Test Mode: Mode 2 (EUT 2)



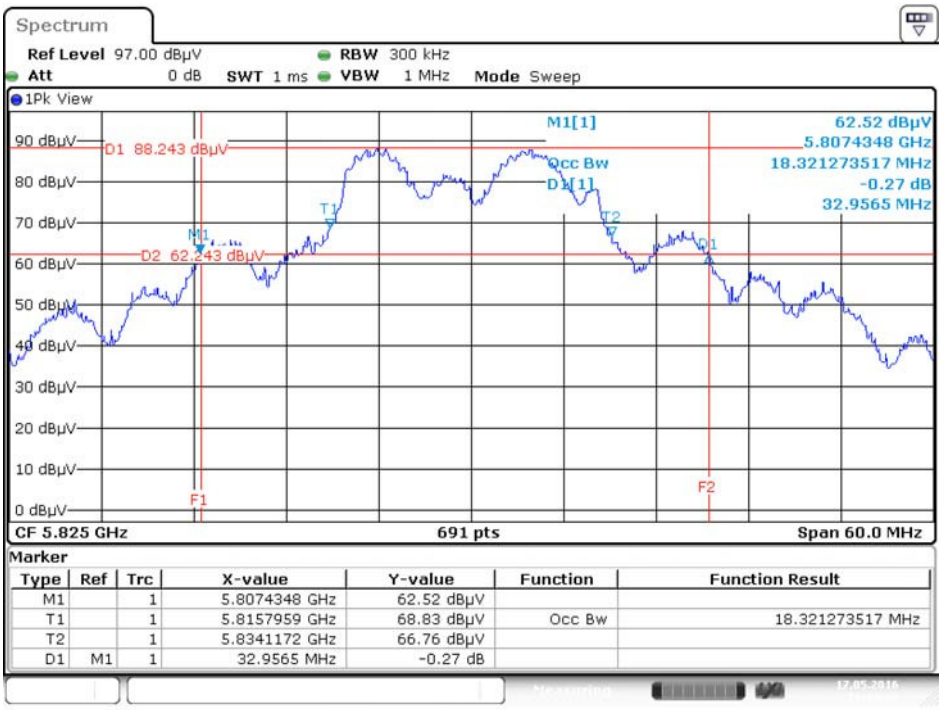
Date: 17.MAY.2016 19:43:41

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 + Ant. 3 / 5785 MHz / Test Mode: Mode 2 (EUT 2)



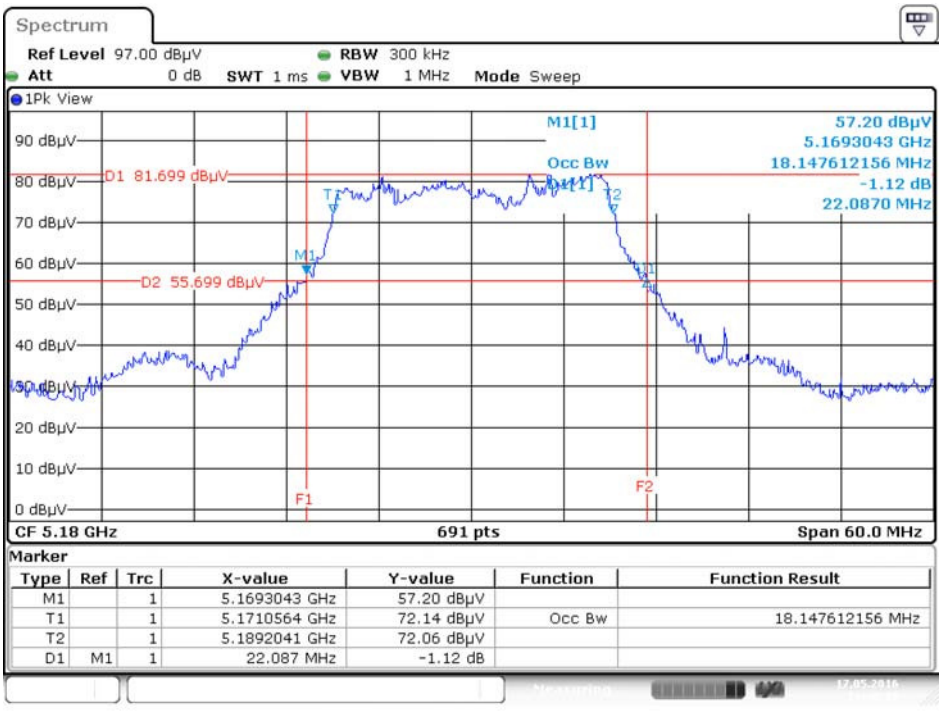
Date: 17.MAY.2016 19:44:08

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 + Ant. 3 / 5825 MHz / Test Mode: Mode 2 (EUT 2)



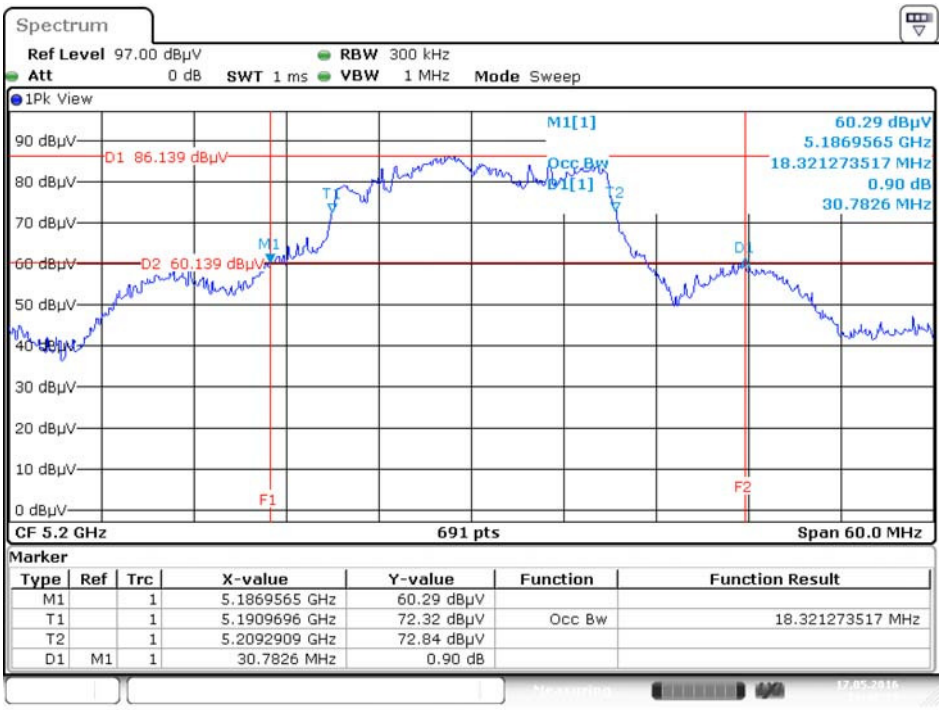
Date: 17.MAY.2016 19:44:48

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 + Ant. 3 / 5180 MHz / Test Mode: Mode 2 (EUT 2)



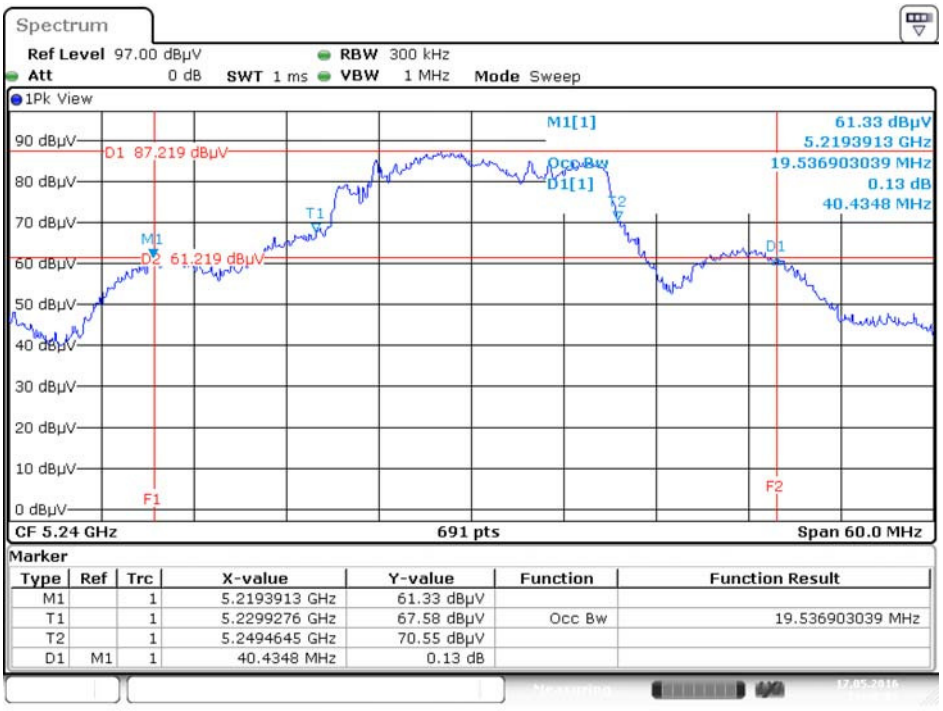
Date: 17.MAY.2016 19:45:38

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 + Ant. 3 / 5200 MHz / Test Mode: Mode 2 (EUT 2)



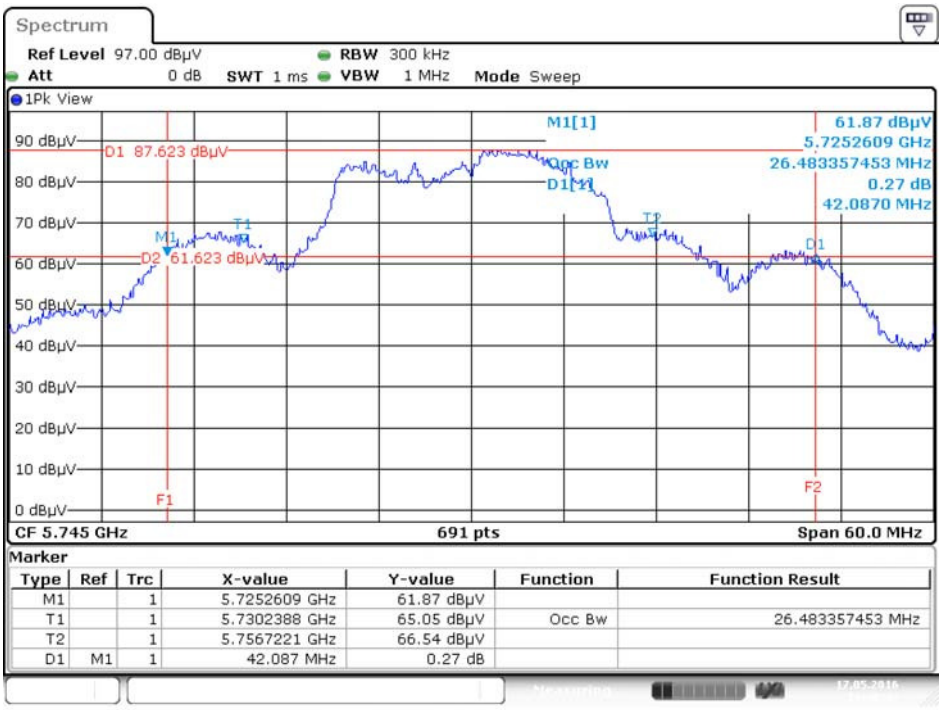
Date: 17.MAY.2016 19:47:33

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 + Ant. 3 / 5240 MHz / Test Mode: Mode 2 (EUT 2)



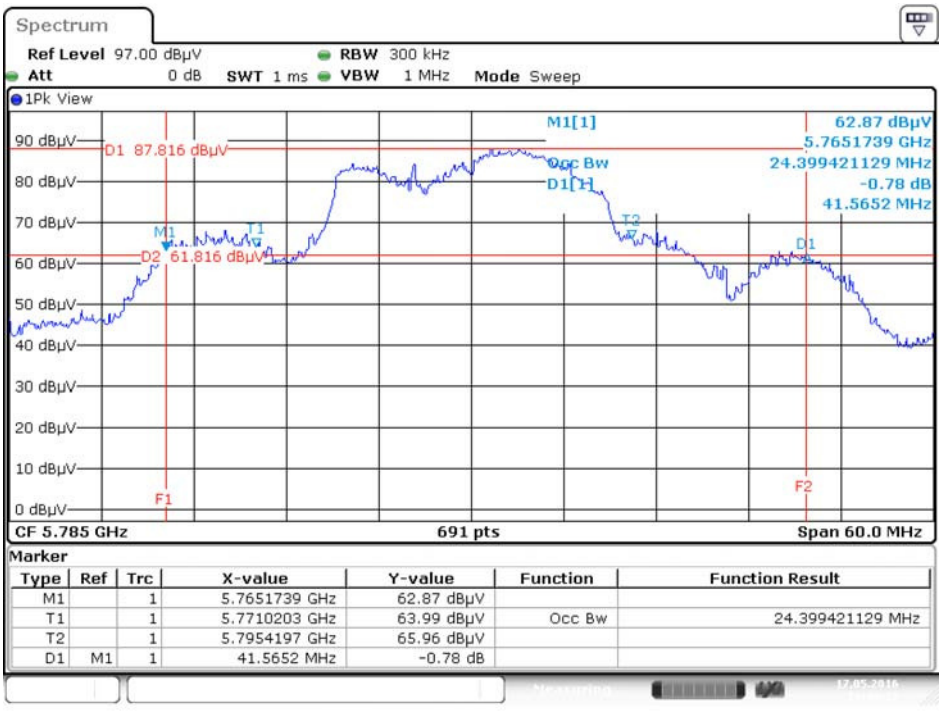
Date: 17.MAY.2016 19:48:02

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 + Ant. 3 / 5745 MHz / Test Mode: Mode 2 (EUT 2)



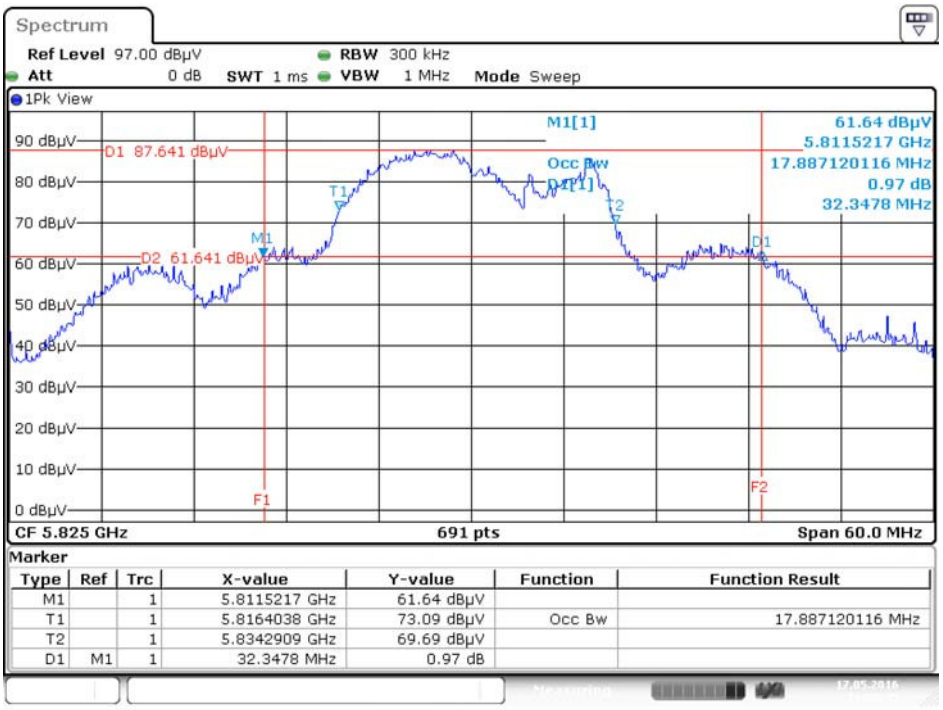
Date: 17.MAY.2016 19:48:42

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 + Ant. 3 / 5785 MHz / Test Mode: Mode 2 (EUT 2)



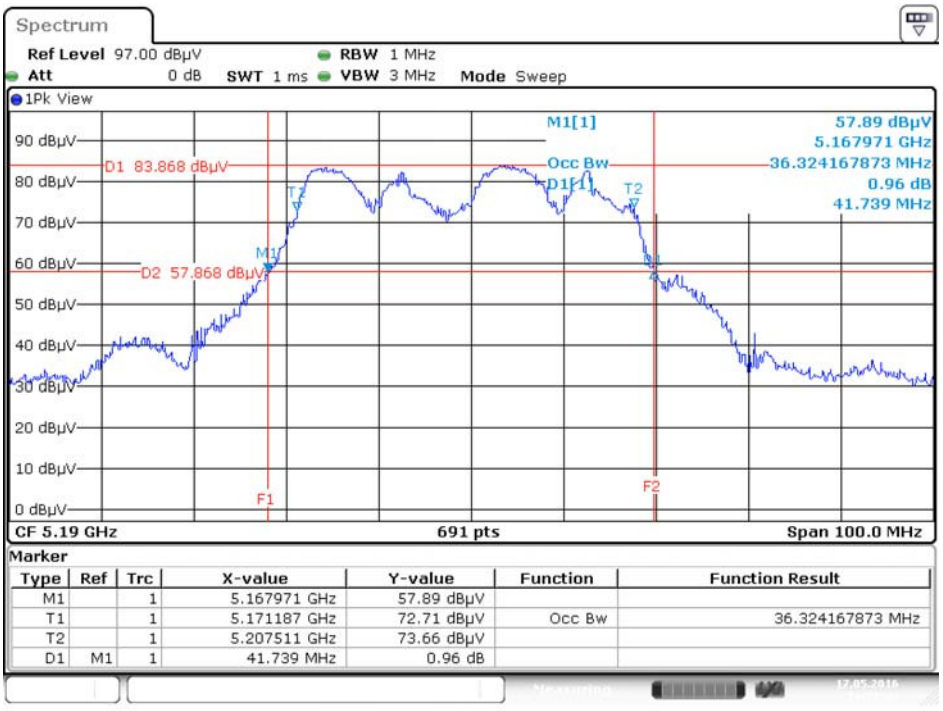
Date: 17.MAY.2016 19:49:12

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 + Ant. 3 / 5825 MHz / Test Mode: Mode 2 (EUT 2)



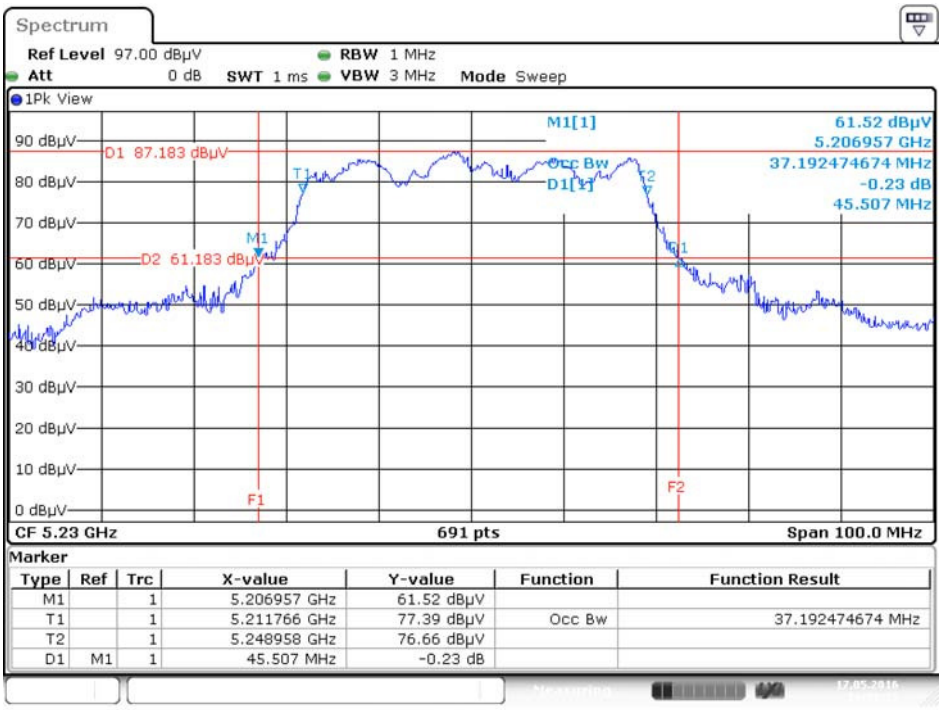
Date: 17.MAY.2016 19:50:45

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 1 + Ant. 2 + Ant. 3 / 5190 MHz / Test Mode: Mode 2 (EUT 2)



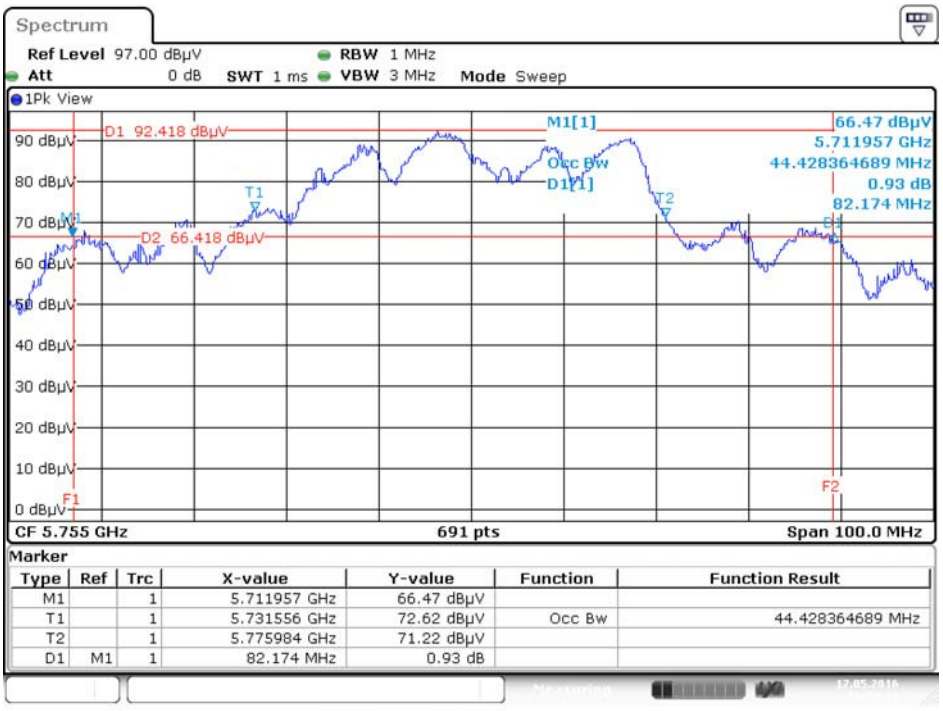
Date: 17.MAY.2016 19:51:43

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 1 + Ant. 2 + Ant. 3 / 5230 MHz / Test Mode: Mode 2 (EUT 2)



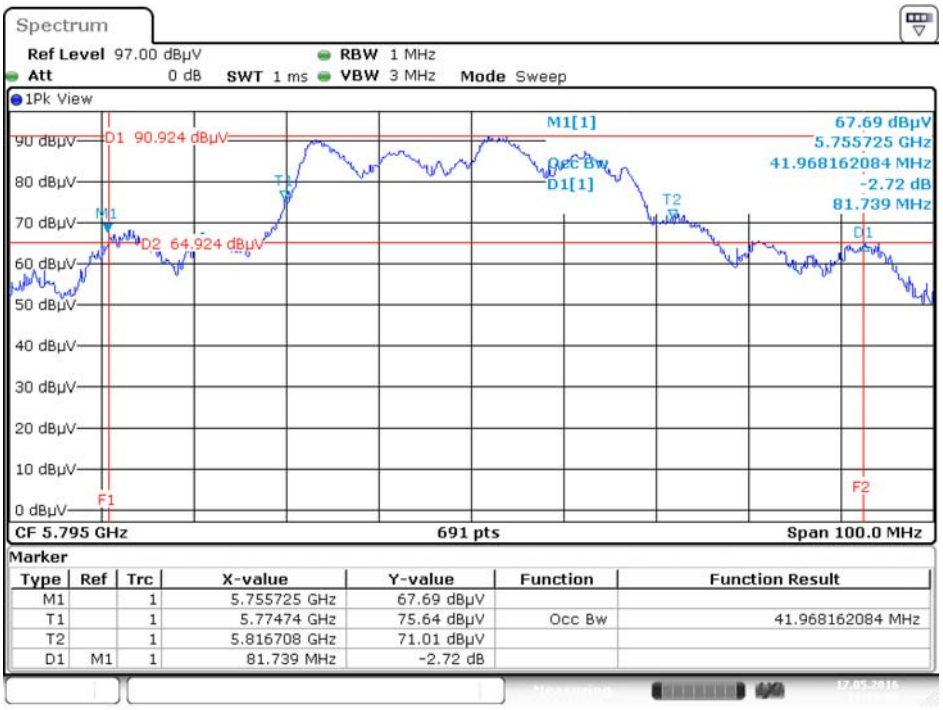
Date: 17.MAY.2016 19:52:21

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 1 + Ant. 2 + Ant. 3 / 5755 MHz / Test Mode: Mode 2 (EUT 2)



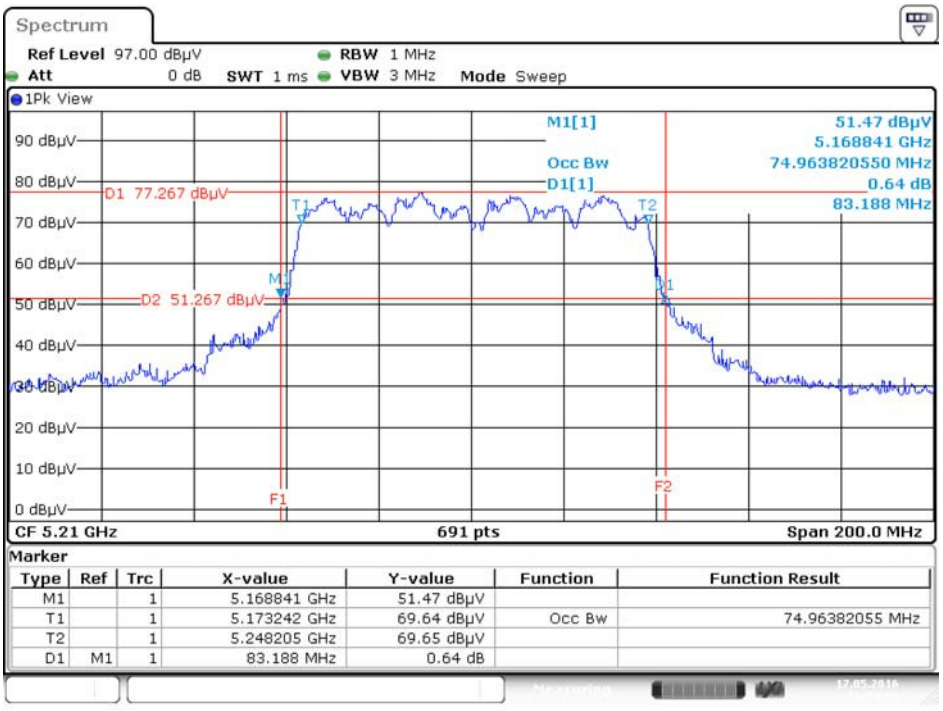
Date: 17.MAY.2016 19:53:37

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 1 + Ant. 2 + Ant. 3 / 5795 MHz / Test Mode: Mode 2 (EUT 2)



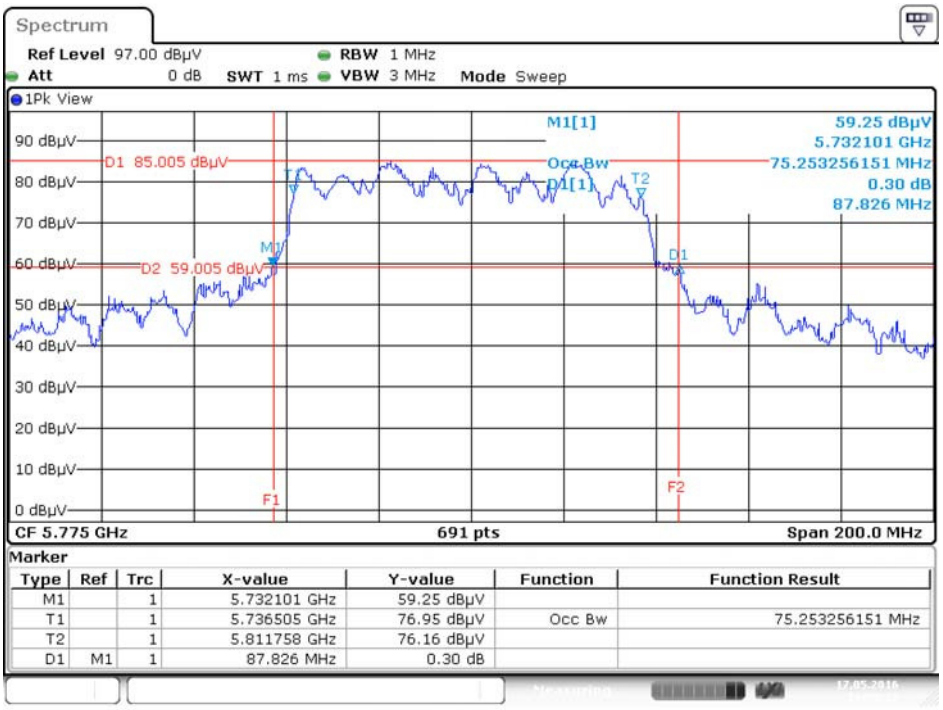
Date: 17.MAY.2016 19:54:05

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Ant. 1 + Ant. 2 + Ant. 3 / 5210 MHz / Test Mode: Mode 2 (EUT 2)



Date: 17.MAY.2016 19:54:52

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Ant. 1 + Ant. 2 + Ant. 3 / 5775 MHz / Test Mode: Mode 2 (EUT 2)



Date: 17.MAY.2016 19:55:32

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 v01r02 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	24°C	Humidity	60%
Test Engineer	Clemens Fang	Test Mode	Mode 1 (EUT 1)

Mode	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Test Result
802.11a	5745 MHz	15.54	500	Complies
	5785 MHz	12.64	500	Complies
	5825 MHz	14.78	500	Complies
802.11ac MCS0/Nss1 VHT20	5745 MHz	14.44	500	Complies
	5785 MHz	16.41	500	Complies
	5825 MHz	15.71	500	Complies
802.11ac MCS0/Nss1 VHT40	5755 MHz	34.44	500	Complies
	5795 MHz	30.49	500	Complies
802.11ac MCS0/Nss1 VHT80	5775 MHz	70.15	500	Complies

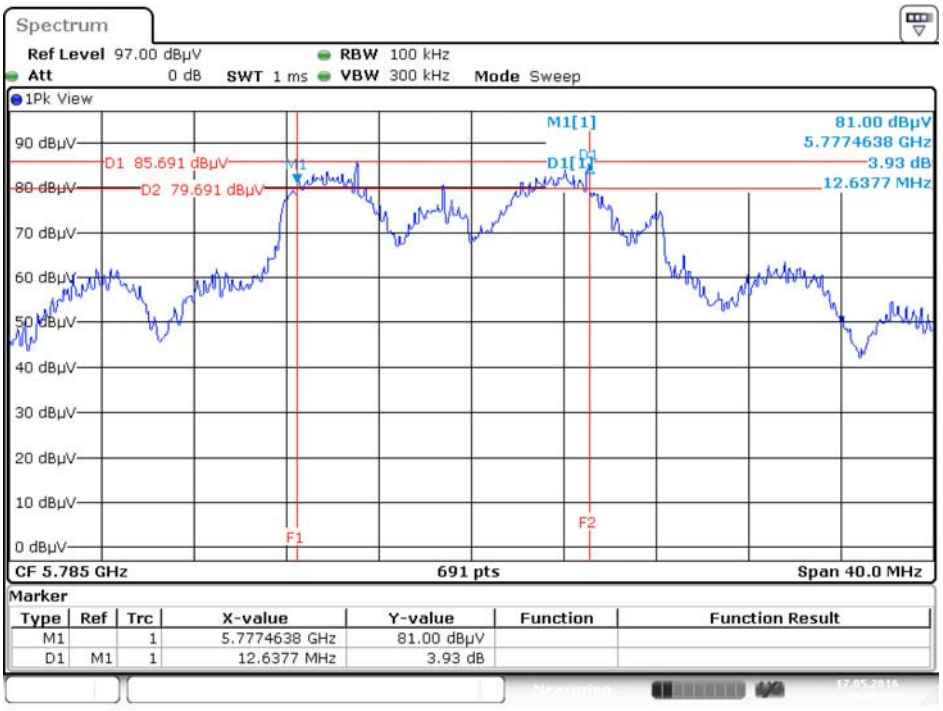
Temperature	24°C	Humidity	60%
Test Engineer	Clemens Fang	Test Mode	Mode 2 (EUT 2)

Mode	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Test Result
802.11a	5745 MHz	11.42	500	Complies
	5785 MHz	14.67	500	Complies
	5825 MHz	14.55	500	Complies
802.11ac MCS0/Nss1 VHT20	5745 MHz	5.10	500	Complies
	5785 MHz	16.41	500	Complies
	5825 MHz	14.90	500	Complies
802.11ac MCS0/Nss1 VHT40	5755 MHz	34.44	500	Complies
	5795 MHz	32.70	500	Complies
802.11ac MCS0/Nss1 VHT80	5775 MHz	70.73	500	Complies

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

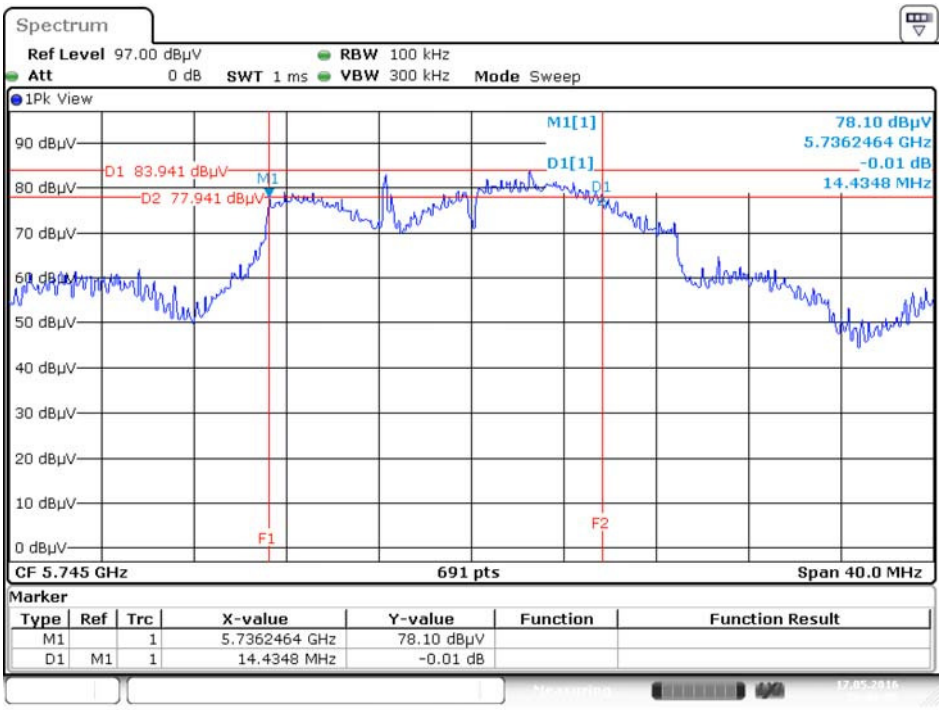
For plots, only the channel with worse result was shown.

6 dB Bandwidth Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 + Ant. 3 / 5785 MHz / Test Mode: Mode 1 (EUT 1)



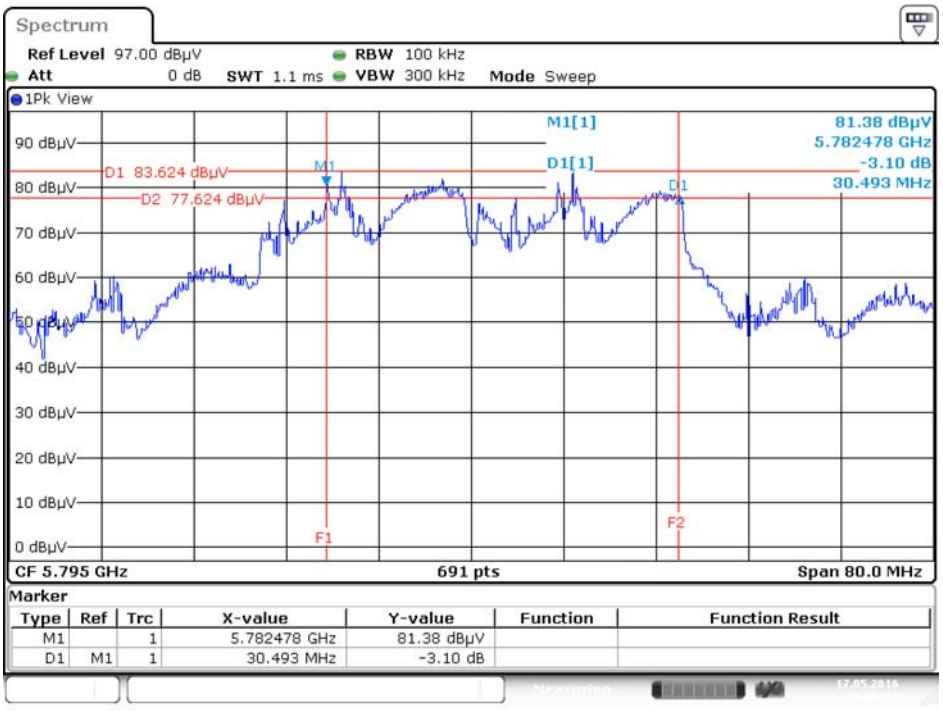
Date: 17.MAY.2016 20:08:50

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 + Ant. 3 / 5745 MHz / Test Mode: Mode 1 (EUT 1)



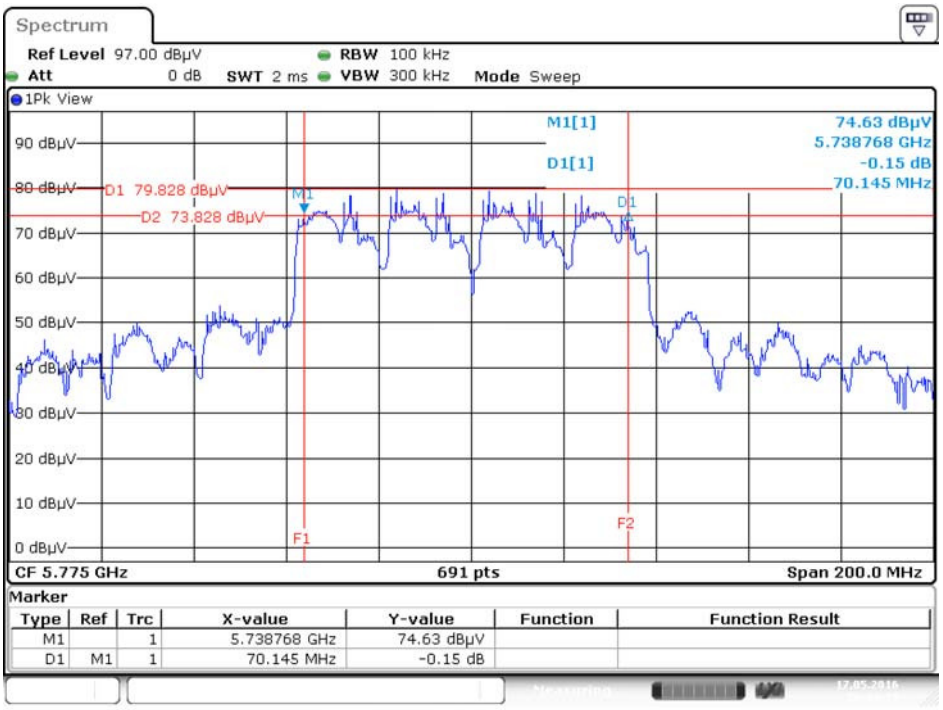
Date: 17.MAY.2016 20:06:56

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 1 + Ant. 2 + Ant. 3 / 5795 MHz / Test Mode: Mode 1 (EUT 1)



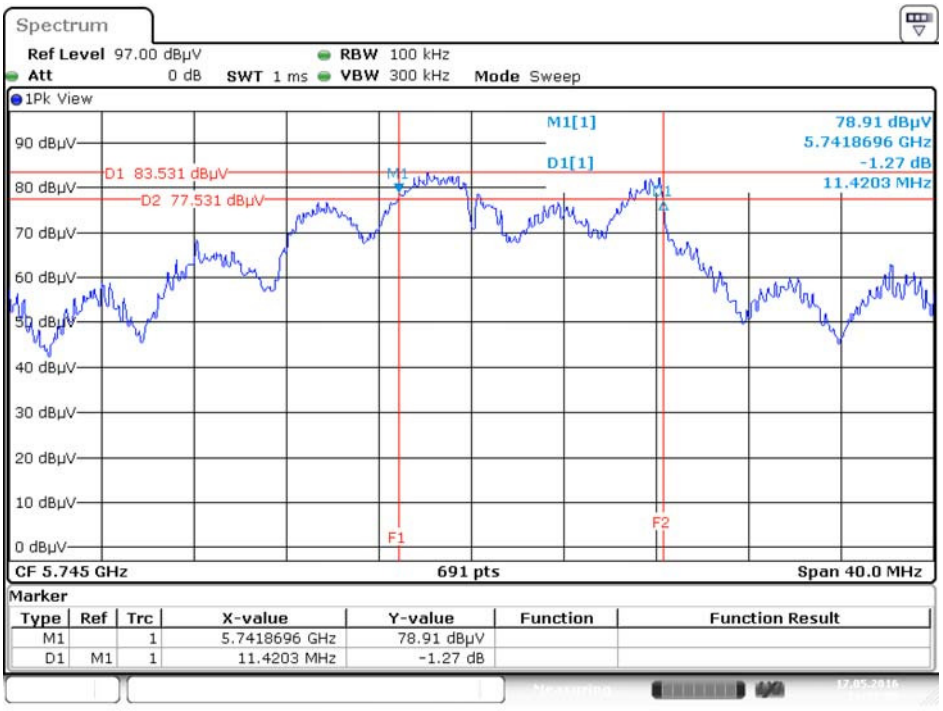
Date: 17.MAY.2016 20:06:27

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Ant. 1 + Ant. 2 + Ant. 3 / 5775 MHz / Test Mode: Mode 1 (EUT 1)



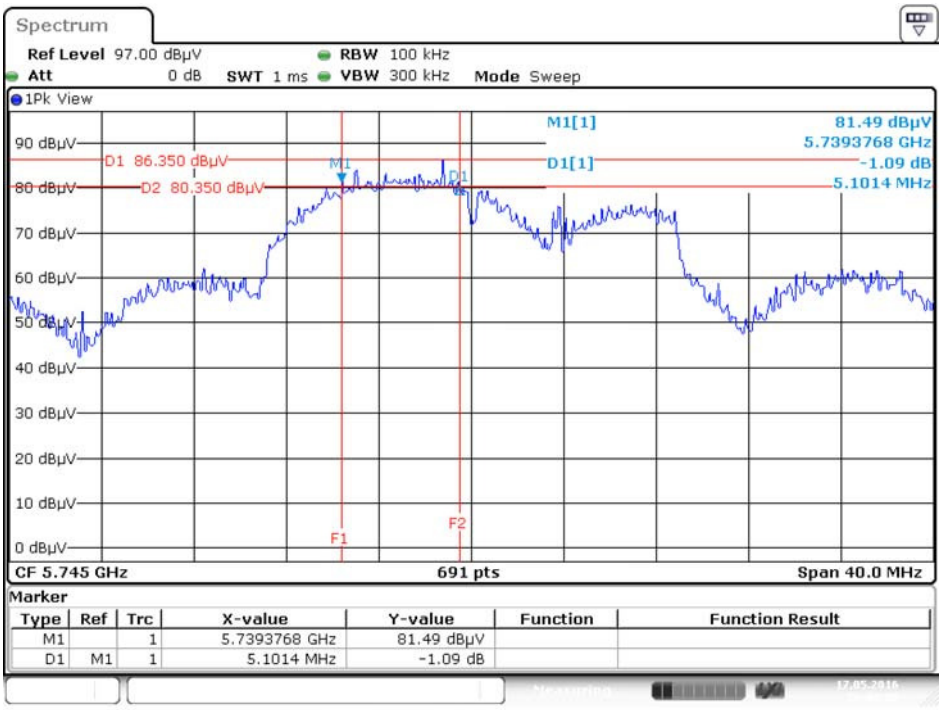
Date: 17.MAY.2016 20:04:39

6 dB Bandwidth Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 + Ant. 3 / 5745 MHz / Test Mode: Mode 2 (EUT 2)



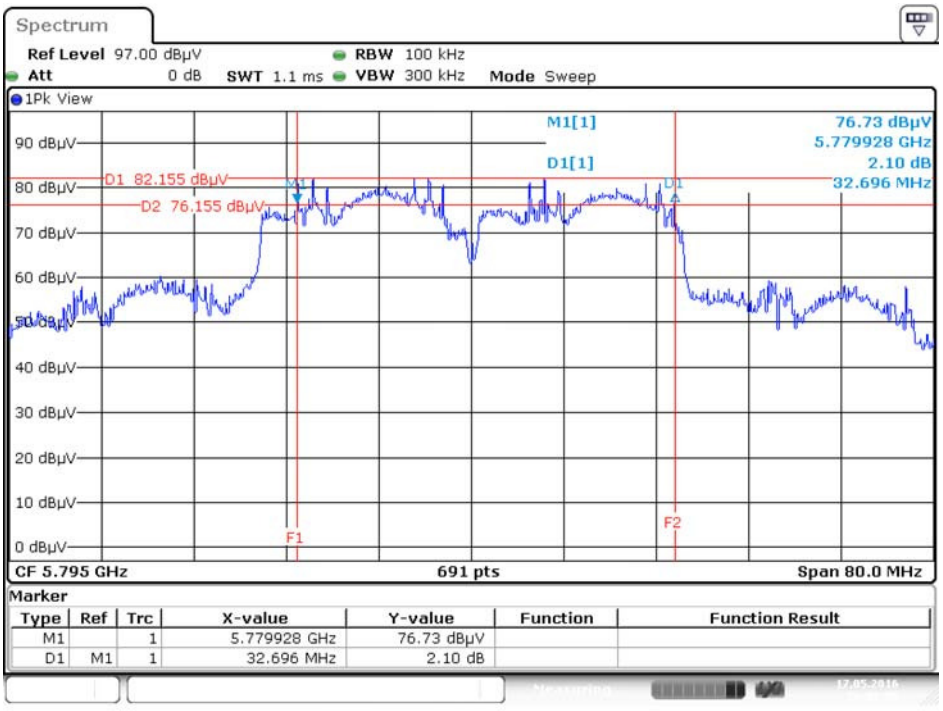
Date: 17.MAY.2016 19:57:59

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 + Ant. 3 / 5745 MHz / Test Mode: Mode 2 (EUT 2)



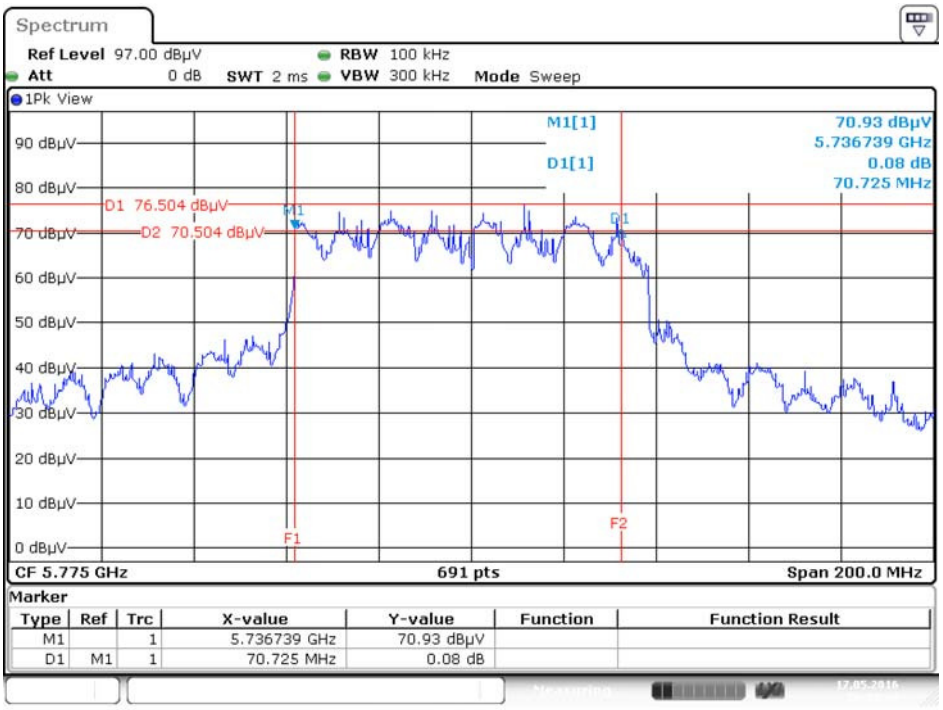
Date: 17.MAY.2016 20:00:31

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 1 + Ant. 2 + Ant. 3 / 5795 MHz / Test Mode: Mode 2 (EUT 2)



Date: 17.MAY.2016 20:02:56

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Ant. 1 + Ant. 2 + Ant. 3 / 5775 MHz / Test Mode: Mode 2 (EUT 2)



Date: 17.MAY.2016 20:03:34

4.4. Maximum Conducted Output Power Measurement

4.4.1. Limit

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

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

4.4.2. Measuring Instruments and Setting

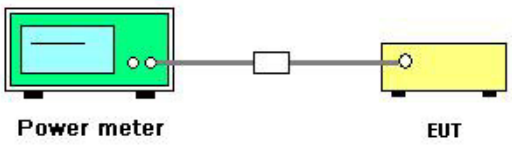
Please refer to section 5 of equipments list in this report. The following table is the setting of the power meter.

Power Meter Parameter	Setting
Detector	AVERAGE

4.4.3. Test Procedures

1. The transmitter output (antenna port) was connected to the power meter.
2. Test was performed in accordance with KDB789033 D02 v01r02 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	24℃	Humidity	60%
Test Engineer	Clemens Fang	Test Mode	Mode 1 (EUT 1)
Test Date	May 15, 2016~May 17, 2016		

Mode	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
		Ant. 1		
802.11a	5180 MHz	17.23	29.50	Complies
	5200 MHz	23.50	29.50	Complies
	5240 MHz	23.42	29.50	Complies
	5745 MHz	22.05	29.50	Complies
	5785 MHz	22.08	29.50	Complies
	5825 MHz	22.12	29.50	Complies

Note: Antenna true gain=6.50dBi>6dBi, so power limit=30-(6.50-6)=29.50dBm.

Mode	Frequency	Conducted Power (dBm)				Max. Limit (dBm)	Result
		Ant. 1	Ant. 2	Ant. 3	Total		
802.11ac MCS0/Nss1 VHT20	5180 MHz	16.38	17.68	18.17	22.24	29.40	Complies
	5200 MHz	19.24	20.06	20.56	24.76	29.40	Complies
	5240 MHz	19.59	19.87	19.91	24.56	29.40	Complies
	5745 MHz	21.35	21.46	22.23	26.47	29.40	Complies
	5785 MHz	21.65	21.35	21.68	26.33	29.40	Complies
	5825 MHz	21.12	21.30	21.25	26.00	29.40	Complies
802.11ac MCS0/Nss1 VHT40	5190 MHz	13.66	14.46	14.61	19.03	29.40	Complies
	5230 MHz	20.18	20.20	20.44	25.05	29.40	Complies
	5755 MHz	21.13	21.32	21.92	26.24	29.40	Complies
	5795 MHz	21.02	21.14	21.88	26.13	29.40	Complies
802.11ac MCS0/Nss1 VHT80	5210 MHz	10.54	10.96	11.20	15.68	29.40	Complies
	5775 MHz	19.85	19.73	20.38	24.77	29.40	Complies

Note: Max. antenna true gain=6.60dBi>6dBi, so power limit=30-(6.60-6)=29.40dBm.

Temperature	24℃	Humidity	60%
Test Engineer	Clemens Fang	Test Mode	Mode 2 (EUT 2)
Test Date	May 15, 2016~May 17, 2016		

Mode	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
		Ant. 1		
802.11a	5180 MHz	18.13	30.00	Complies
	5200 MHz	21.61	30.00	Complies
	5240 MHz	22.26	30.00	Complies
	5745 MHz	21.84	30.00	Complies
	5785 MHz	21.71	30.00	Complies
	5825 MHz	21.27	30.00	Complies

Mode	Frequency	Conducted Power (dBm)				Max. Limit (dBm)	Result
		Ant. 1	Ant. 2	Ant. 3	Total		
802.11ac MCS0/Nss1 VHT20	5180 MHz	15.86	15.91	15.79	20.62	30.00	Complies
	5200 MHz	20.74	19.52	19.70	24.79	30.00	Complies
	5240 MHz	21.24	19.92	20.21	25.27	30.00	Complies
	5745 MHz	20.36	19.21	20.59	24.87	30.00	Complies
	5785 MHz	20.32	19.52	19.73	24.64	30.00	Complies
	5825 MHz	20.23	19.60	19.88	24.68	30.00	Complies
802.11ac MCS0/Nss1 VHT40	5190 MHz	15.33	14.54	14.23	19.50	30.00	Complies
	5230 MHz	19.11	17.78	17.48	22.95	30.00	Complies
	5755 MHz	20.62	19.38	20.43	24.95	30.00	Complies
	5795 MHz	20.25	19.53	20.05	24.73	30.00	Complies
802.11ac MCS0/Nss1 VHT80	5210 MHz	14.66	13.67	13.25	18.67	30.00	Complies
	5775 MHz	18.29	16.58	17.43	22.26	30.00	Complies

4.5. Power Spectral Density Measurement

4.5.1. Limit

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

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

4.5.2. Measuring Instruments and Setting

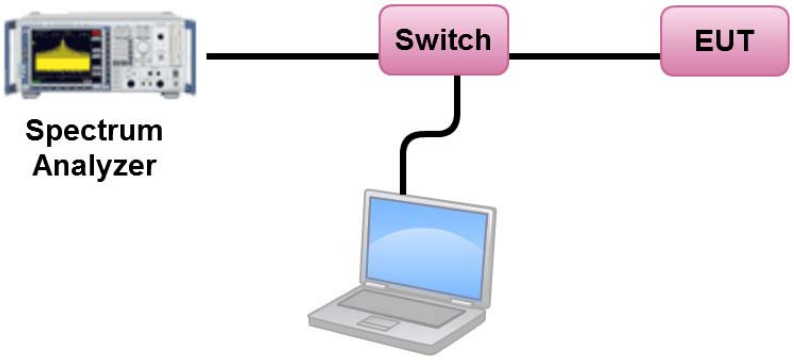
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

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

4.5.3. Test Procedures

1. The transmitter output (antenna port) was connected RF switch to the spectrum analyzer.
2. Test was performed in accordance with KDB789033 D02 v01r02 for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - section (F) Maximum Power Spectral Density (PSD).
3. Multiple antenna systems was performed in accordance KDB662911 D01 v02r01 in-Band Power Spectral Density (PSD) Measurements and sum the spectra across the outputs.
4. For 5.725~5.85 GHz, the measured result of PSD level must add 10log(500kHz/RBW) and the final result should ≤ 30 dBm.

4.5.4. Test Setup Layout



4.5.5. Test Deviation

There is no deviation with the original standard.

4.5.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.5.7. Test Result of Power Spectral Density

Temperature	24℃	Humidity	60%
Test Engineer	Clemens Fang	Test Mode	Mode 1 (EUT 1)
Test Date	May 15, 2016~May 17, 2016		

Configuration IEEE 802.11a / Ant. 1

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	4.08	16.50	Complies
40	5200 MHz	10.37	16.50	Complies
48	5240 MHz	10.30	16.50	Complies

Note: Antenna true gain=6.50dBi>6dBi, so power limit=17-(6.50-6)=16.50dBm.

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
149	5745 MHz	8.89	-3.01	5.88	29.50	Complies
157	5785 MHz	8.93	-3.01	5.92	29.50	Complies
165	5825 MHz	8.95	-3.01	5.94	29.50	Complies

Note: Antenna true gain=6.50dBi>6dBi, so power limit=30-(6.50-6)=29.50dBm.

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

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	8.92	11.92	Complies
40	5200 MHz	11.57	11.92	Complies
48	5240 MHz	11.43	11.92	Complies

Note: $Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =11.08dBi >6dBi, so limit=17 – (11.08 – 6)=11.92dBm/MHz.

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
149	5745 MHz	13.28	-3.01	10.27	24.92	Complies
157	5785 MHz	13.10	-3.01	10.09	24.92	Complies
165	5825 MHz	12.85	-3.01	9.84	24.92	Complies

Note: $Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =11.08dBi >6dBi, so limit=30 – (11.08 – 6)=24.92dBm/500kHz.

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

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	2.89	11.92	Complies
46	5230 MHz	8.89	11.92	Complies

Note: $Directional\ Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =11.08dBi >6dBi, so limit=17 – (11.08 – 6)=11.92dBm/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	10.05	-3.01	7.04	24.92	Complies
159	5795 MHz	9.91	-3.01	6.90	24.92	Complies

Note: $Directional\ Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =11.08dBi >6dBi, so limit=30 – (11.08 – 6)=24.92dBm/500kHz.

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

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
42	5210 MHz	-3.47	11.92	Complies

Note: $Directional\ Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =11.08dBi >6dBi, so limit=17 – (11.08 – 6)=11.92dBm/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	5.64	-3.01	2.63	24.92	Complies

Note: $Directional\ Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =11.08dBi >6dBi, so limit=30 – (11.08 – 6)=24.92dBm/500kHz.

Temperature	24℃	Humidity	60%
Test Engineer	Clemens Fang	Test Mode	Mode 2 (EUT 2)
Test Date	May 15, 2016~May 17, 2016		

Configuration IEEE 802.11a / Ant. 1

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	4.97	17.00	Complies
40	5200 MHz	8.49	17.00	Complies
48	5240 MHz	9.01	17.00	Complies

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
149	5745 MHz	8.57	-3.01	5.56	30.00	Complies
157	5785 MHz	8.43	-3.01	5.42	30.00	Complies
165	5825 MHz	8.07	-3.01	5.06	30.00	Complies

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

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	7.42	13.23	Complies
40	5200 MHz	11.63	13.23	Complies
48	5240 MHz	12.06	13.23	Complies

Note: $Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =9.77dBi >6dBi, so limit=17 – (9.77 – 6)=13.23dBm/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	11.69	-3.01	8.68	26.23	Complies
157	5785 MHz	11.47	-3.01	8.46	26.23	Complies
165	5825 MHz	11.49	-3.01	8.48	26.23	Complies

Note: $Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =9.77dBi >6dBi, so limit=30 – (9.77 – 6)=26.23dBm/500kHz.

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

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	3.33	13.23	Complies
46	5230 MHz	6.70	13.23	Complies

Note: $Directional\ Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =9.77dBi >6dBi, so limit=17 – (9.77 – 6)=13.23dBm/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	8.78	-3.01	5.77	26.23	Complies
159	5795 MHz	8.46	-3.01	5.45	26.23	Complies

Note: $Directional\ Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =9.77dBi >6dBi, so limit=30 – (9.77 – 6)=26.23dBm/500kHz.

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

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
42	5210 MHz	-0.49	13.23	Complies

Note: $Directional\ Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =9.77dBi >6dBi, so limit=17 – (9.77 – 6)=13.23dBm/MHz.

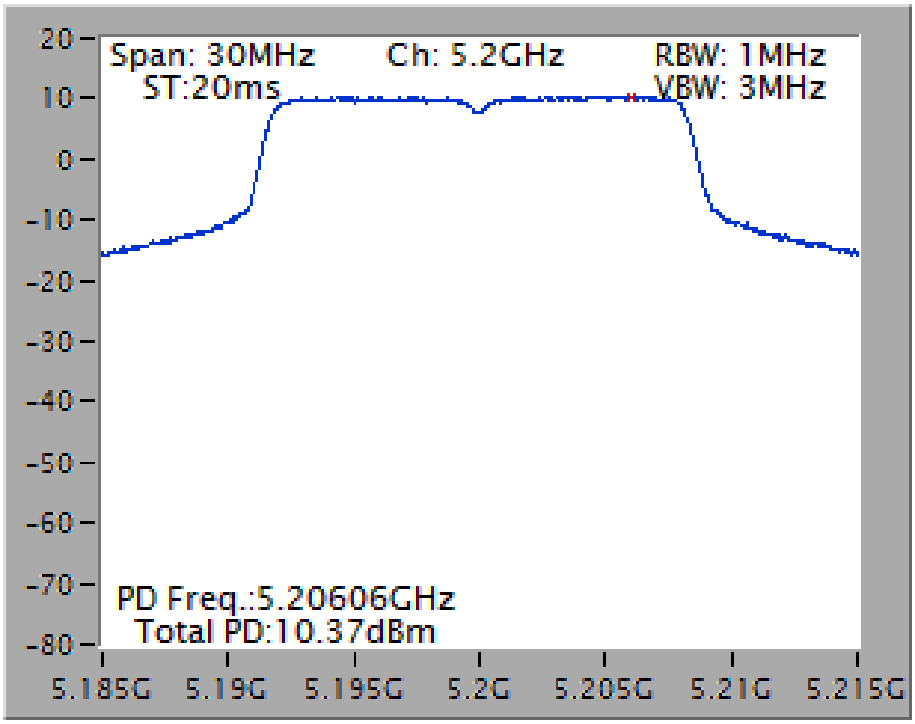
Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
155	5775 MHz	3.08	-3.01	0.07	26.23	Complies

Note: $Directional\ Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =9.77dBi >6dBi, so limit=30 – (9.77 – 6)=26.23dBm/500kHz.

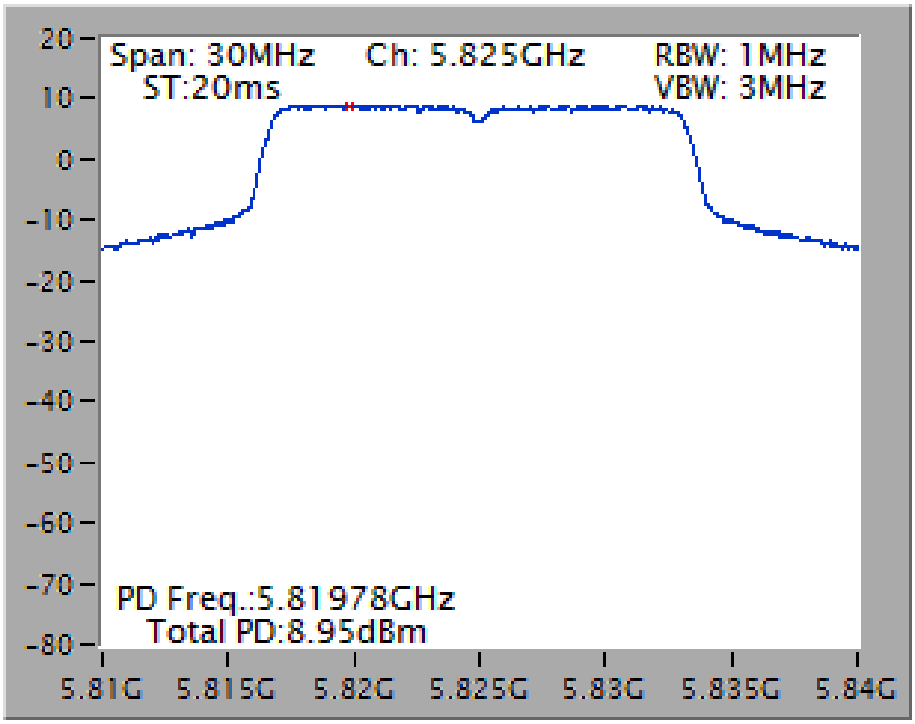
Note: All the test values were listed in the report.

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

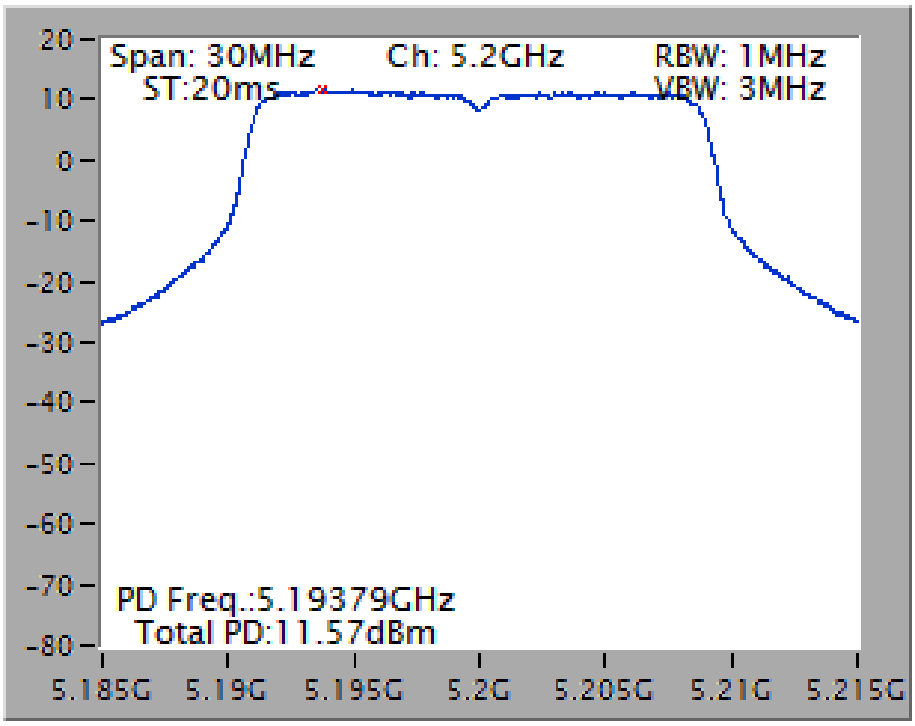
Power Density Plot on Configuration IEEE 802.11a / Ant. 1 / 5200 MHz / Test Mode: Mode 1 (EUT 1)



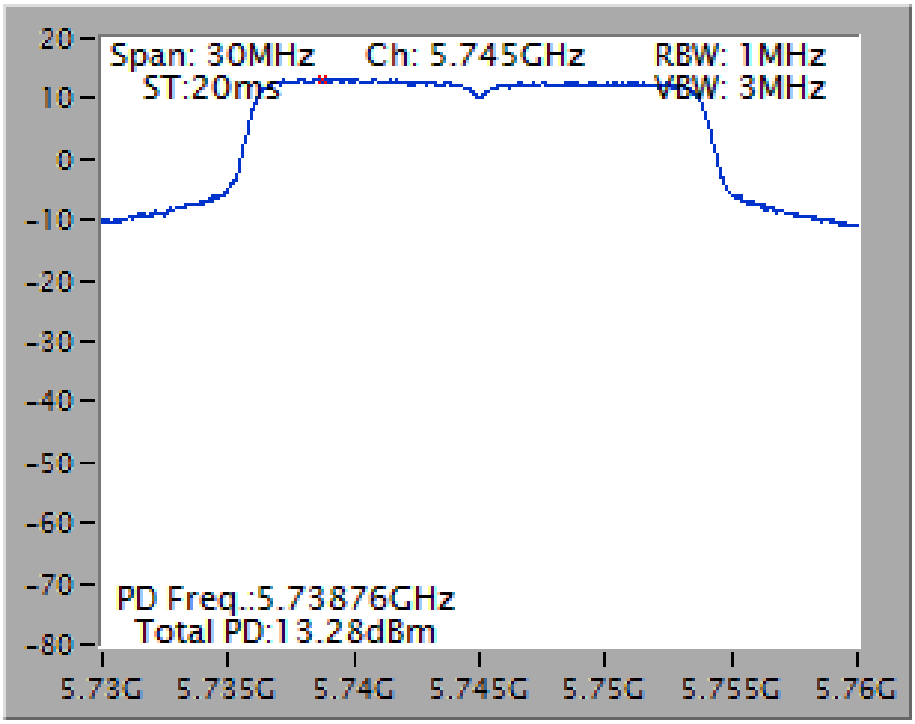
Power Density Plot on Configuration IEEE 802.11a / Ant. 1 / 5825 MHz / Test Mode: Mode 1 (EUT 1)



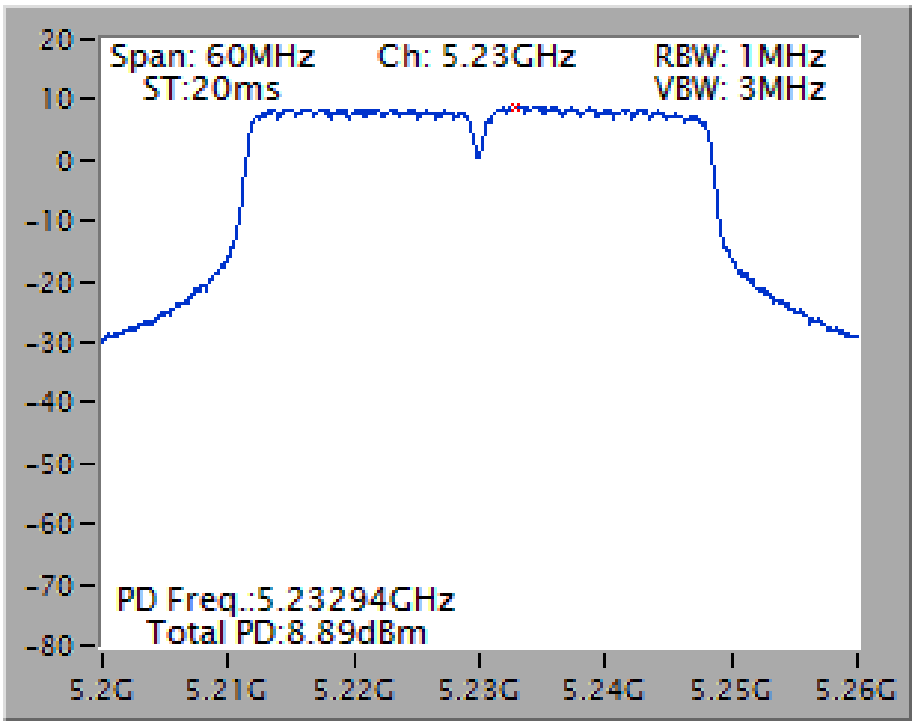
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 + Ant. 3 / 5200 MHz / Test Mode: Mode 1 (EUT 1)



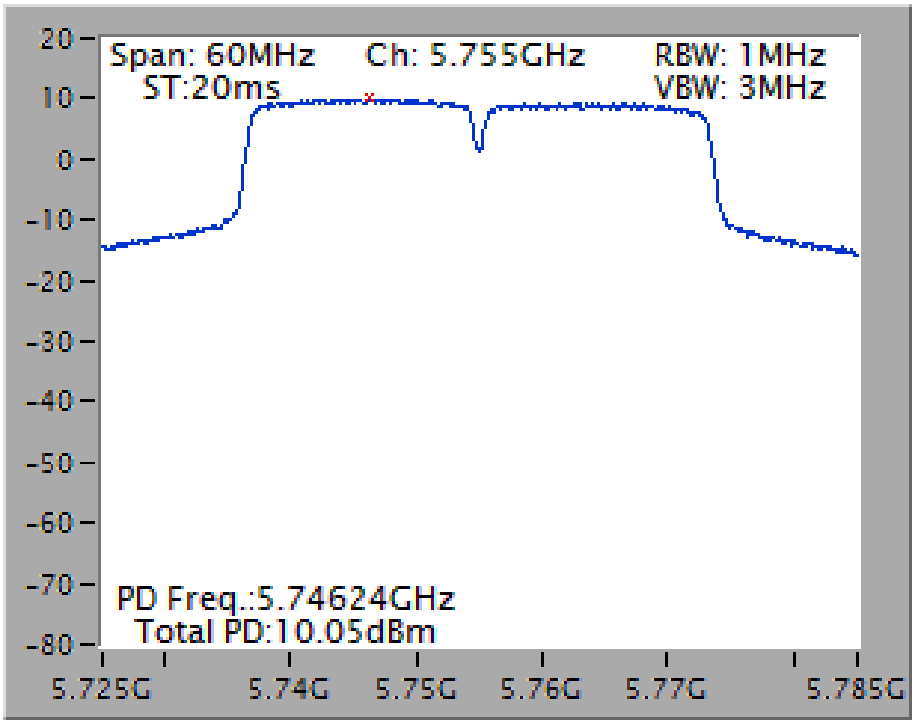
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 + Ant. 3 / 5745 MHz / Test Mode: Mode 1 (EUT 1)



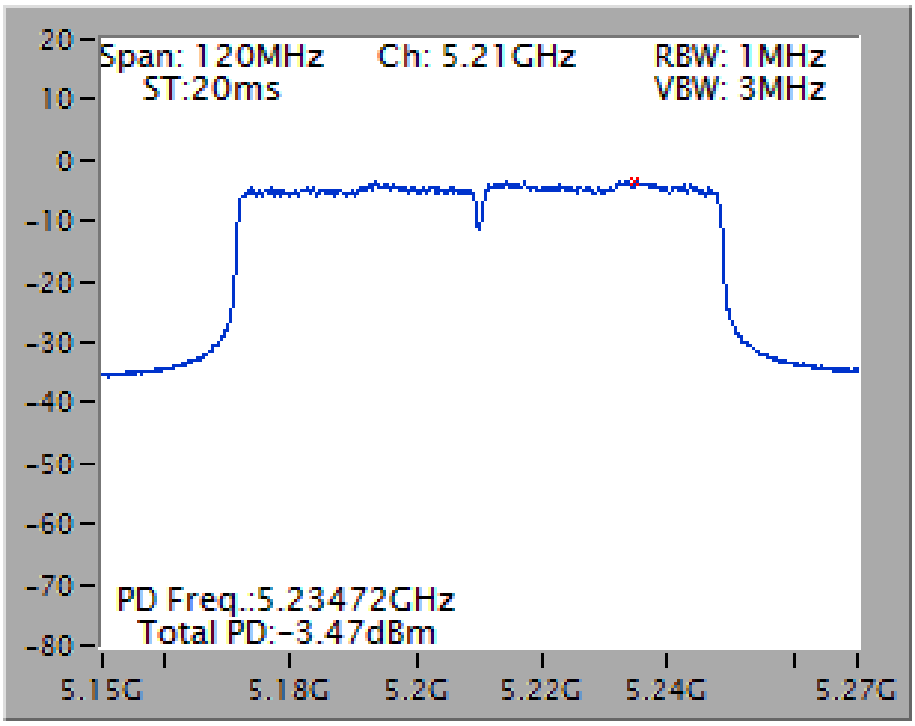
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 1 + Ant. 2 + Ant. 3 / 5230 MHz / Test Mode: Mode 1 (EUT 1)



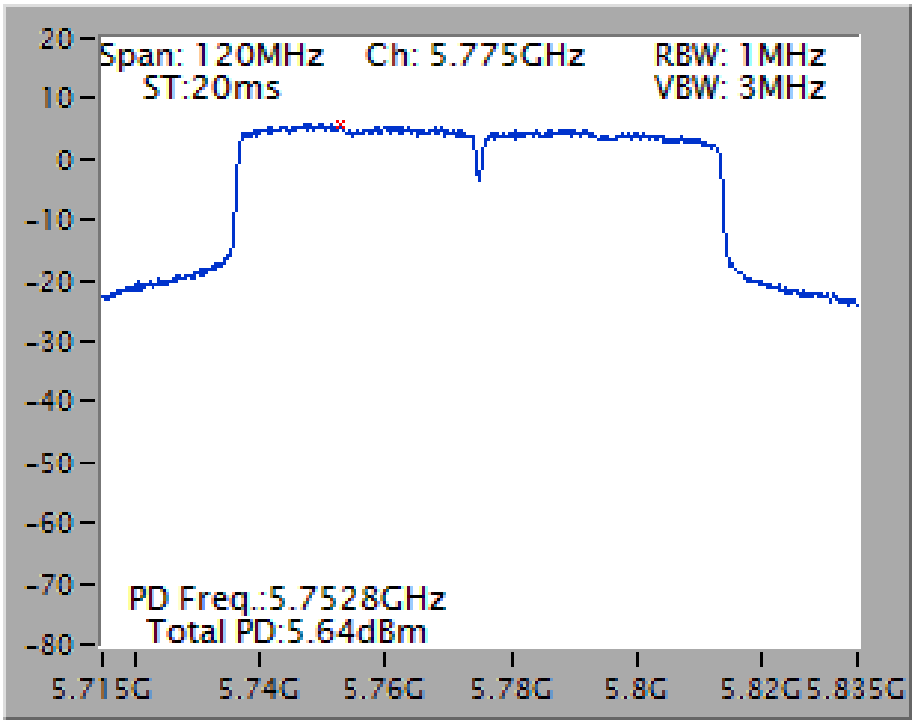
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 1 + Ant. 2 + Ant. 3 / 5755 MHz / Test Mode: Mode 1 (EUT 1)



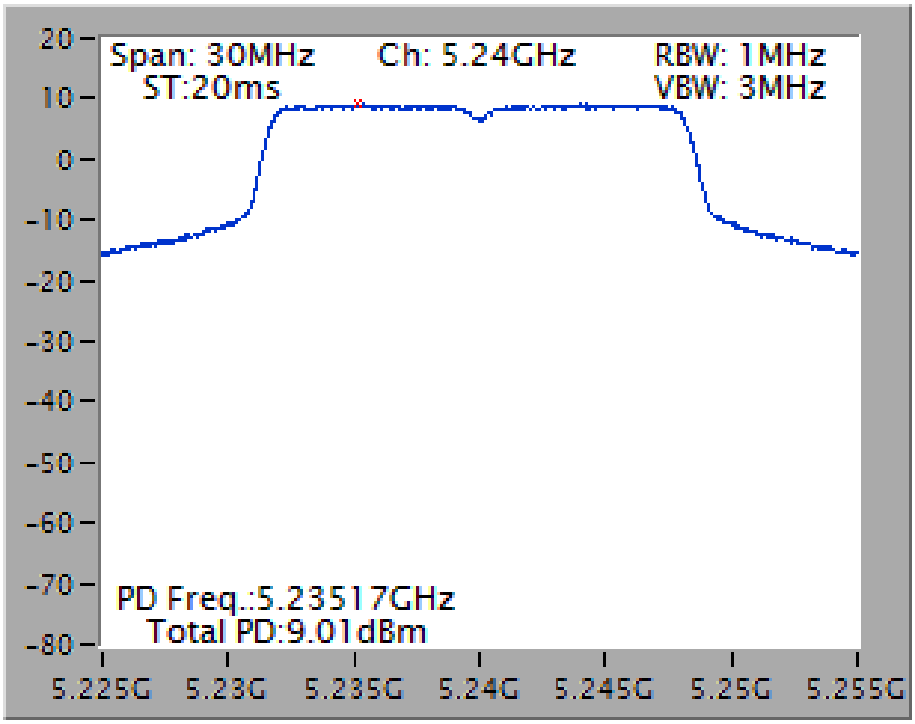
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Ant. 1 + Ant. 2 + Ant. 3 / 5210 MHz / Test Mode: Mode 1 (EUT 1)



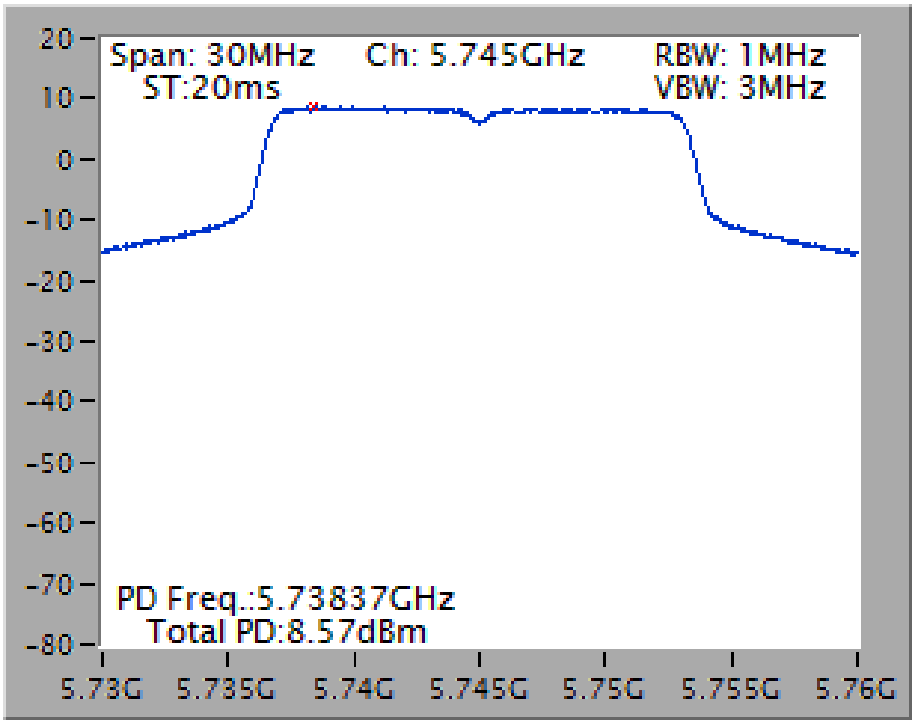
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Ant. 1 + Ant. 2 + Ant. 3 / 5775 MHz / Test Mode: Mode 1 (EUT 1)



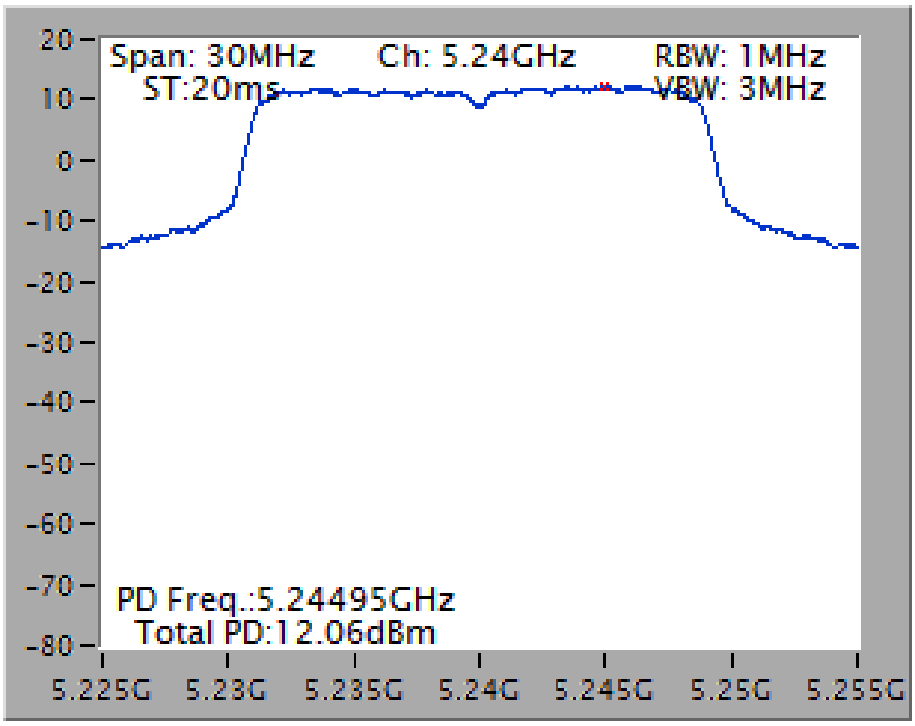
Power Density Plot on Configuration IEEE 802.11a / Ant. 1 / 5240 MHz / Test Mode: Mode 2 (EUT 2)



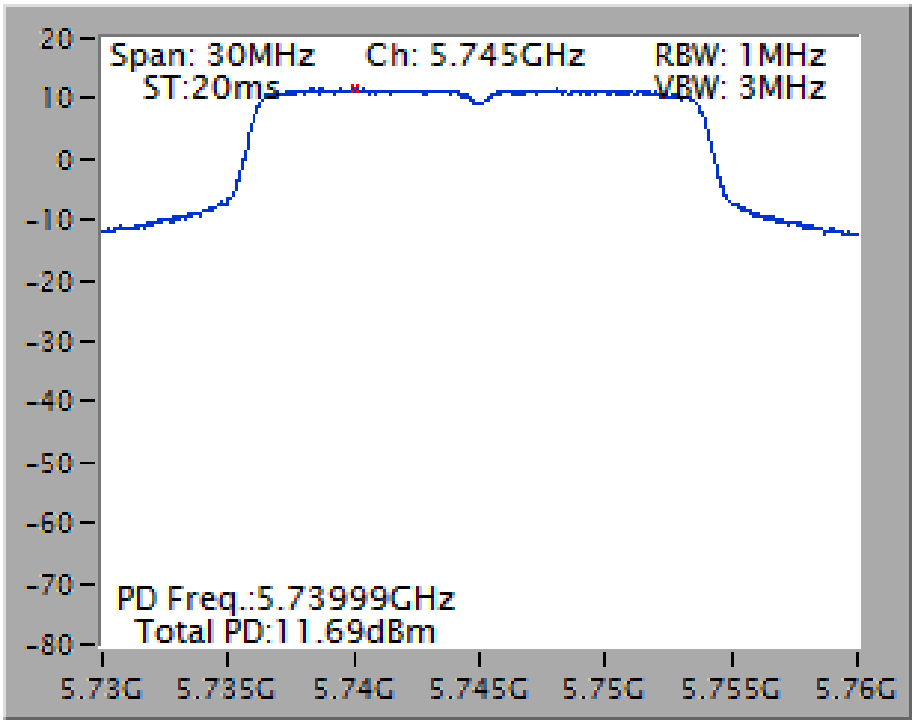
Power Density Plot on Configuration IEEE 802.11a / Ant. 1 / 5745 MHz / Test Mode: Mode 2 (EUT 2)



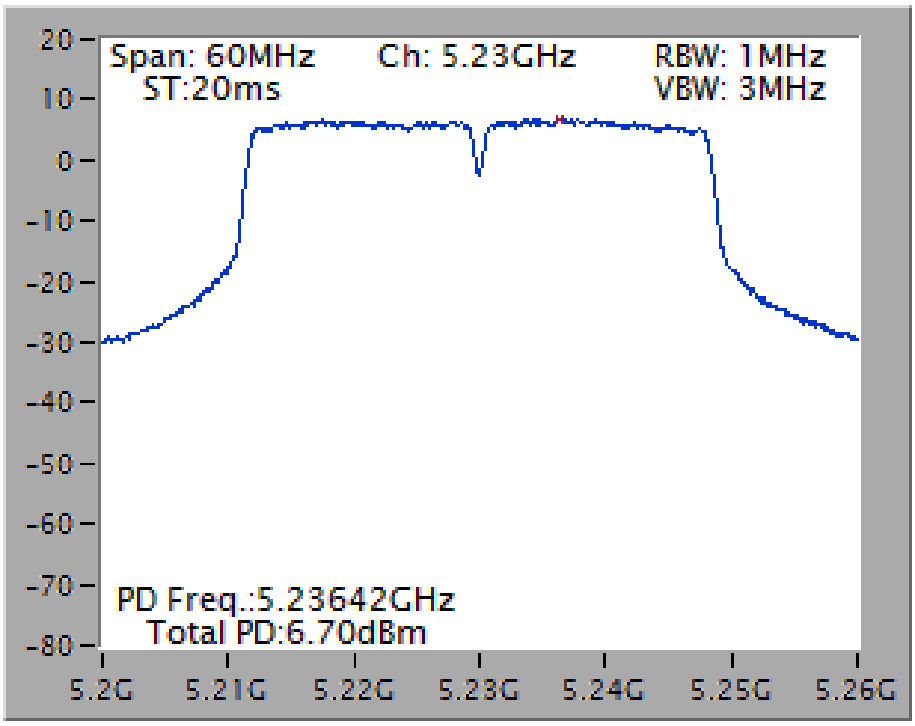
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 + Ant. 3 / 5240 MHz / Test Mode: Mode 2 (EUT 2)



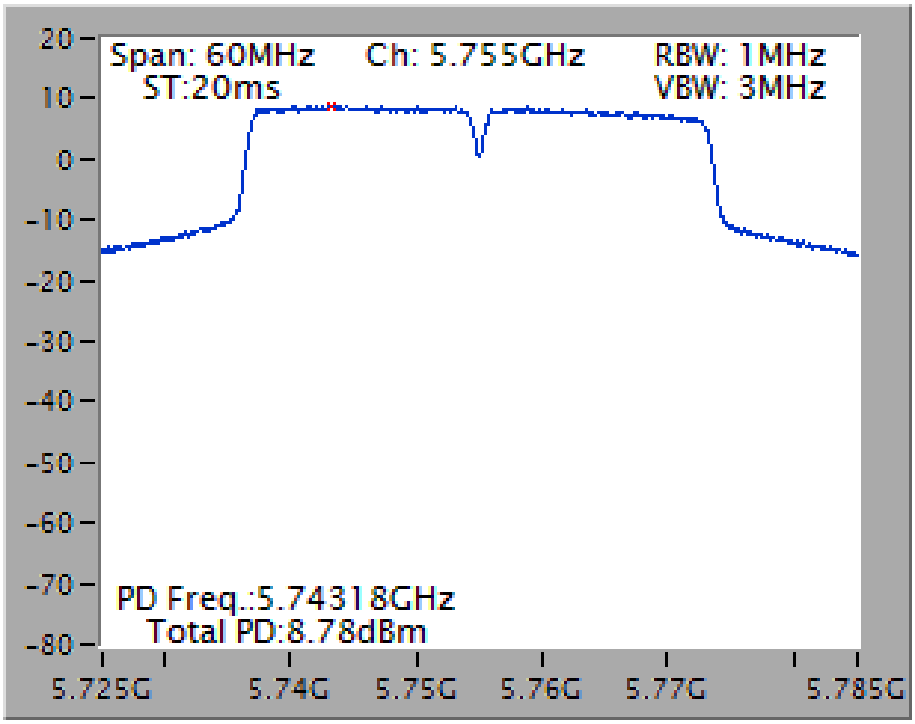
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 + Ant. 3 / 5745 MHz / Test Mode: Mode 2 (EUT 2)



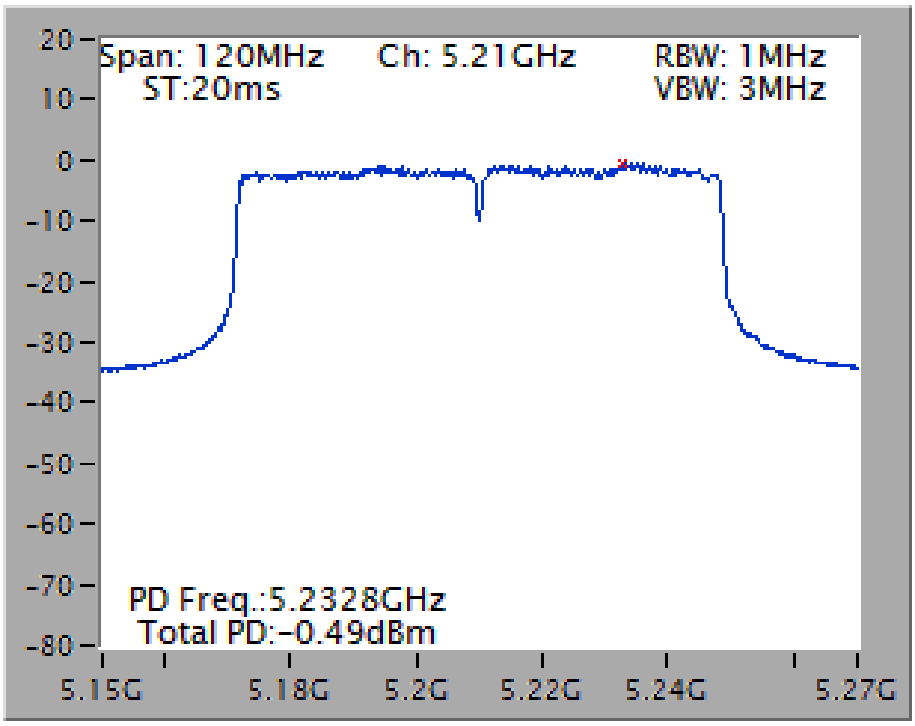
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 1 + Ant. 2 + Ant. 3 / 5230 MHz / Test Mode: Mode 2 (EUT 2)



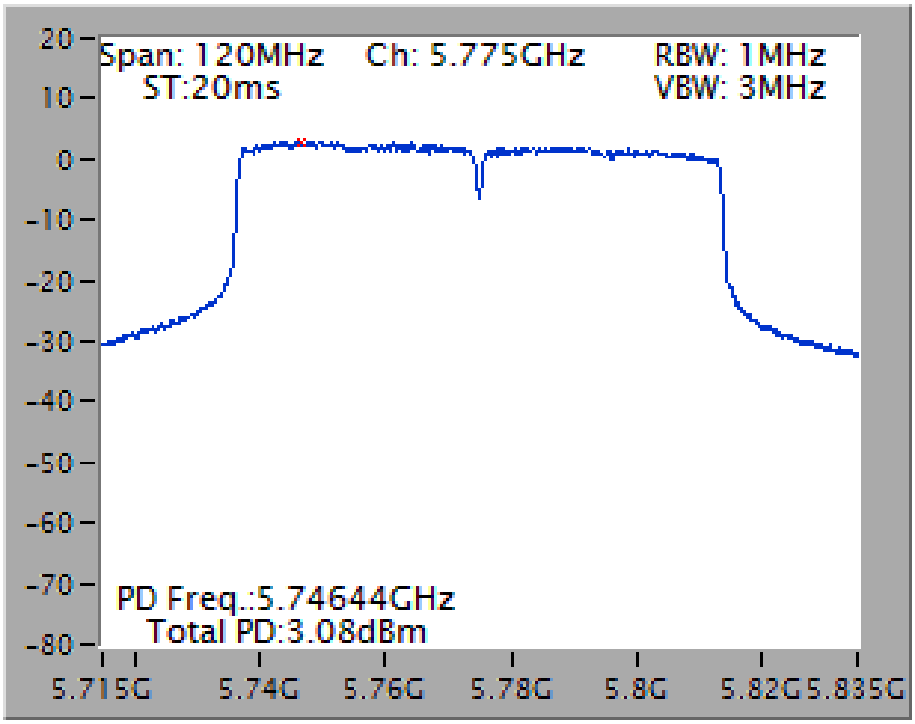
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 1 + Ant. 2 + Ant. 3 / 5755 MHz / Test Mode: Mode 2 (EUT 2)



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Ant. 1 + Ant. 2 + Ant. 3 / 5210 MHz / Test Mode: Mode 2 (EUT 2)



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Ant. 1 + Ant. 2 + Ant. 3 / 5775 MHz / Test Mode: Mode 2 (EUT 2)



4.6. Radiated Emissions Measurement

4.6.1. Limit

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

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

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

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

4.6.2. Measuring Instruments and Setting

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

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

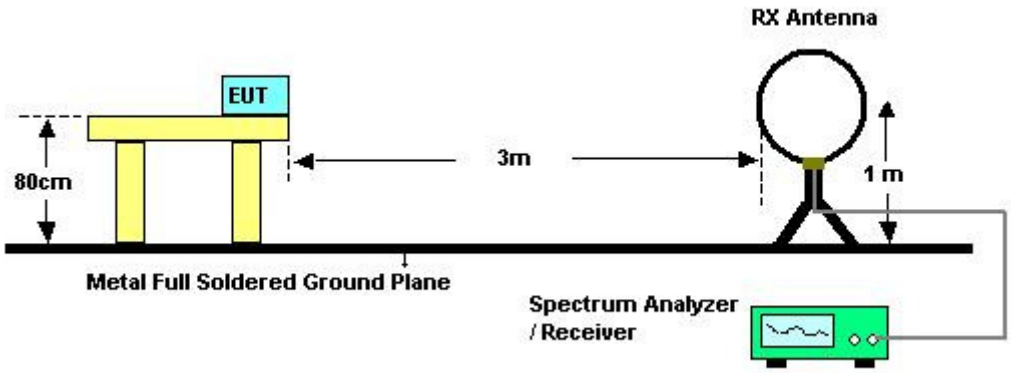
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RBW 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RBW 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RBW 120kHz for QP

4.6.3. Test Procedures

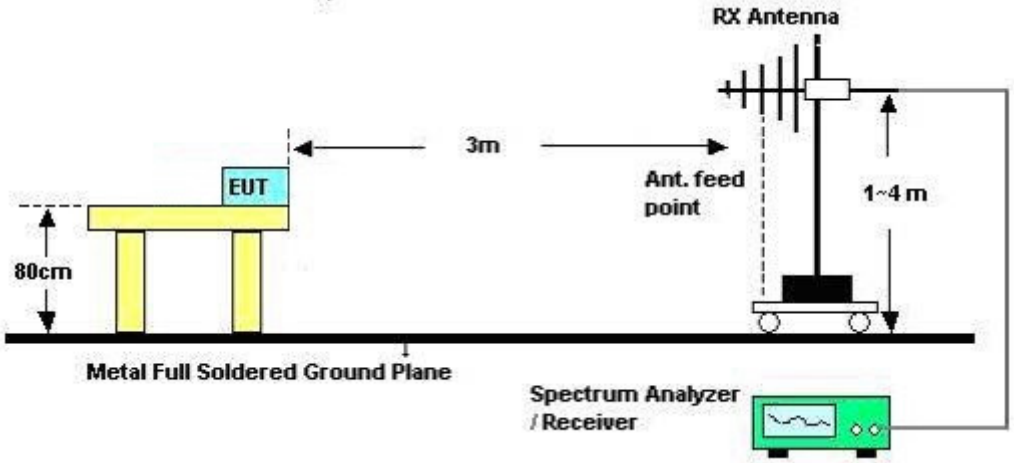
1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 1m & 3m far away from the turntable.
2. Power on the EUT and all the supporting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

4.6.4. Test Setup Layout

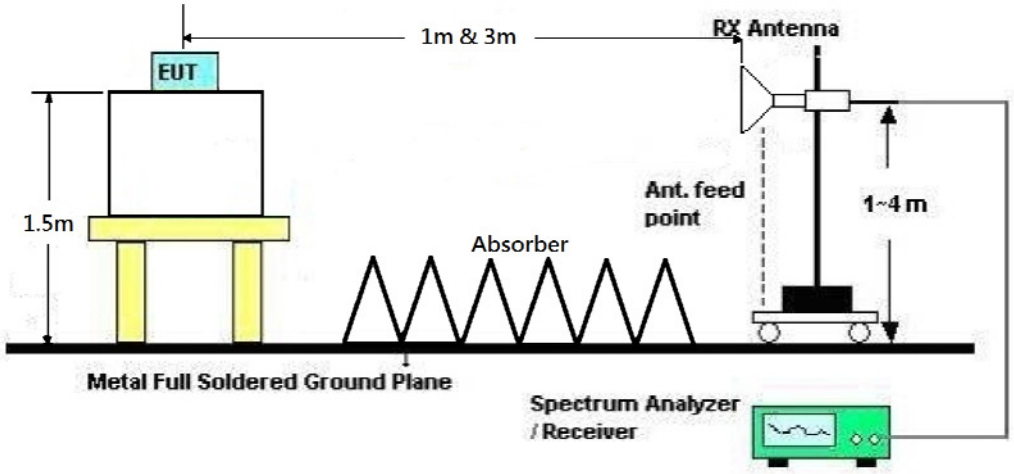
For Radiated Emissions: 9kHz ~30MHz



For Radiated Emissions: 30MHz~1GHz



For Radiated Emissions: Above 1GHz



4.6.5. Test Deviation

There is no deviation with the original standard.

4.6.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

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

Temperature	24°C	Humidity	65%
Test Engineer	Owen Hsu	Configurations	Normal Link
Test Date	Oct. 27, 2015	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.

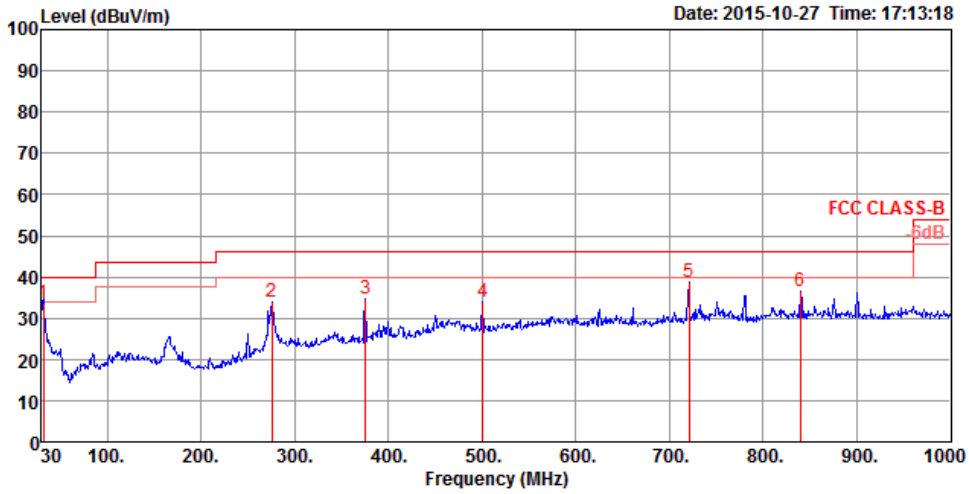
Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

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

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

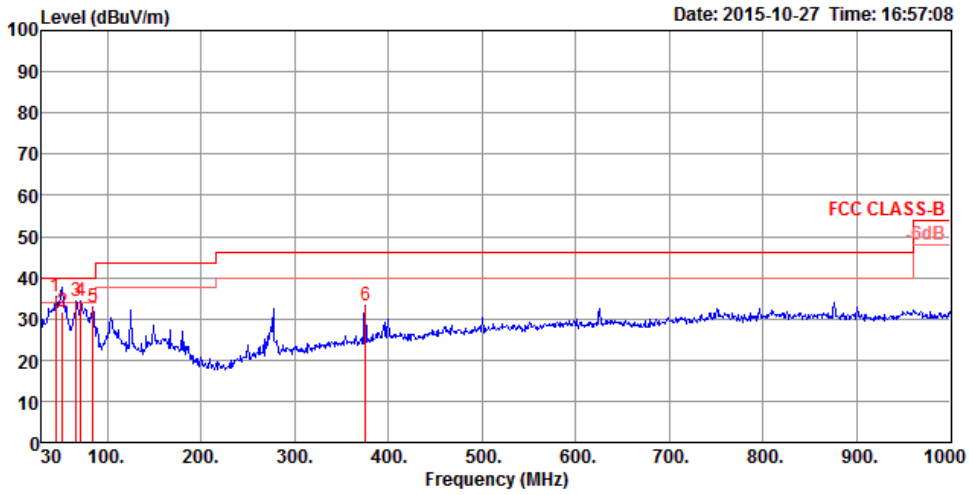
Temperature	24°C	Humidity	65%
Test Engineer	Owen Hsu	Configurations	Normal Link
Test Mode	Mode 1		

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	31.94	33.53	40.00	-6.47	46.56	0.50	18.87	32.40	150	253	QP	HORIZONTAL
2	275.41	33.91	46.00	-12.09	51.24	1.41	13.55	32.29	100	231	Peak	HORIZONTAL
3	375.32	34.57	46.00	-11.43	49.29	1.67	15.93	32.32	150	211	Peak	HORIZONTAL
4	500.45	34.00	46.00	-12.00	46.58	1.94	17.83	32.35	200	224	Peak	HORIZONTAL
5	720.64	38.77	46.00	-7.23	48.79	2.31	20.01	32.34	125	208	Peak	HORIZONTAL
6	839.95	36.51	46.00	-9.49	44.85	2.51	21.19	32.04	100	196	Peak	HORIZONTAL

Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	44.55	35.31	40.00	-4.69	55.57	0.60	11.55	32.41	100	2	Peak	VERTICAL
2	52.31	31.86	40.00	-8.14	55.16	0.63	8.48	32.41	100	1	QP	VERTICAL
3	66.86	34.42	40.00	-5.58	59.28	0.71	6.83	32.40	200	212	Peak	VERTICAL
4	71.71	34.29	40.00	-5.71	59.01	0.73	6.95	32.40	175	1	Peak	VERTICAL
5	84.32	32.95	40.00	-7.05	56.22	0.79	8.33	32.39	150	135	Peak	VERTICAL
6	375.32	33.39	46.00	-12.61	48.11	1.67	15.93	32.32	125	217	Peak	VERTICAL

Note:

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

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

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

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

Temperature	24°C	Humidity	65%
Test Engineer	Andy Tsai	Configurations	IEEE 802.11a CH 36 / Ant. 1
Test Date	May 04, 2016	Test Mode	Mode 2 (EUT 1)

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15531.32	59.48	74.00	-14.52	43.32	13.26	38.25	35.35	138	55	Peak	HORIZONTAL
2	15541.08	48.73	54.00	-5.27	32.57	13.26	38.25	35.35	138	55	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15539.76	59.80	74.00	-14.20	43.64	13.26	38.25	35.35	155	12	Peak	VERTICAL
2	15546.17	48.54	54.00	-5.46	32.38	13.26	38.25	35.35	155	12	Average	VERTICAL

Temperature	24°C	Humidity	65%
Test Engineer	Andy Tsai	Configurations	IEEE 802.11a CH 40 / Ant. 1
Test Date	May 04, 2016	Test Mode	Mode 2 (EUT 1)

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15585.57	60.19	74.00	-13.81	44.08	13.28	38.19	35.36	150	220	Peak	HORIZONTAL
2	15603.89	48.27	54.00	-5.73	32.18	13.31	38.14	35.36	150	220	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15591.68	60.15	74.00	-13.85	44.04	13.28	38.19	35.36	116	177	Peak	VERTICAL
2	15602.63	48.12	54.00	-5.88	32.03	13.31	38.14	35.36	116	177	Average	VERTICAL

Temperature	24°C	Humidity	65%
Test Engineer	Andy Tsai	Configurations	IEEE 802.11a CH 48 / Ant. 1
Test Date	May 04, 2016	Test Mode	Mode 2 (EUT 1)

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15716.05	58.51	74.00	-15.49	42.51	13.35	38.03	35.38	143	40	Peak	HORIZONTAL
2	15719.28	47.99	54.00	-6.01	31.99	13.35	38.03	35.38	143	40	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15711.08	47.30	54.00	-6.70	31.29	13.35	38.03	35.37	125	95	Average	VERTICAL
2	15713.83	58.62	74.00	-15.38	42.62	13.35	38.03	35.38	125	95	Peak	VERTICAL

Temperature	24°C	Humidity	65%
Test Engineer	Andy Tsai	Configurations	IEEE 802.11a CH 149 / Ant. 1
Test Date	May 04, 2016	Test Mode	Mode 2 (EUT 1)

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11487.13	64.14	74.00	-9.86	47.77	11.60	40.00	35.23	144	105	Peak	HORIZONTAL
2	11487.90	48.14	54.00	-5.86	31.77	11.60	40.00	35.23	144	105	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11493.71	47.52	54.00	-6.48	31.15	11.60	40.00	35.23	129	264	Average	VERTICAL
2	11500.84	58.29	74.00	-15.71	41.92	11.60	40.00	35.23	129	264	Peak	VERTICAL

Temperature	24°C	Humidity	65%
Test Engineer	Andy Tsai	Configurations	IEEE 802.11a CH 157 / Ant. 1
Test Date	May 04, 2016	Test Mode	Mode 2 (EUT 1)

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11567.72	47.14	54.00	-6.86	30.86	11.64	39.87	35.23	142	110	Average	HORIZONTAL
2	11571.62	62.41	74.00	-11.59	46.13	11.64	39.87	35.23	142	110	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11561.02	57.55	74.00	-16.45	41.27	11.64	39.87	35.23	131	57	Peak	VERTICAL
2	11573.47	46.94	54.00	-7.06	30.66	11.64	39.87	35.23	131	57	Average	VERTICAL

Temperature	24°C	Humidity	65%
Test Engineer	Andy Tsai	Configurations	IEEE 802.11a CH 165 / Ant. 1
Test Date	May 04, 2016	Test Mode	Mode 2 (EUT 1)

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11639.46	58.58	74.00	-15.42	42.38	11.69	39.73	35.22	153	206	Peak	HORIZONTAL
2	11651.02	47.31	54.00	-6.69	31.15	11.71	39.67	35.22	153	206	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11648.50	47.23	54.00	-6.77	31.03	11.69	39.73	35.22	128	155	Average	VERTICAL
2	11657.61	58.98	74.00	-15.02	42.82	11.71	39.67	35.22	128	155	Peak	VERTICAL

Temperature	24°C	Humidity	65%
Test Engineer	Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 36 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	May 04, 2016	Test Mode	Mode 2 (EUT 1)

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15534.13	48.70	54.00	-5.30	32.54	13.26	38.25	35.35	125	207	Average	HORIZONTAL
2	15543.11	60.60	74.00	-13.40	44.44	13.26	38.25	35.35	125	207	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15537.17	48.49	54.00	-5.51	32.33	13.26	38.25	35.35	109	151	Average	VERTICAL
2	15540.52	60.31	74.00	-13.69	44.15	13.26	38.25	35.35	109	151	Peak	VERTICAL

Temperature	24°C	Humidity	65%
Test Engineer	Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 40 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	May 04, 2016	Test Mode	Mode 2 (EUT 1)

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15591.02	60.30	74.00	-13.70	44.19	13.28	38.19	35.36	142	144	Peak	HORIZONTAL
2	15592.62	48.85	54.00	-5.15	32.74	13.28	38.19	35.36	142	144	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15592.14	48.92	54.00	-5.08	32.81	13.28	38.19	35.36	127	187	Average	VERTICAL
2	15600.64	59.88	74.00	-14.12	43.79	13.31	38.14	35.36	127	187	Peak	VERTICAL

Temperature	24°C	Humidity	65%
Test Engineer	Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 48 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	May 04, 2016	Test Mode	Mode 2 (EUT 1)

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15710.06	58.90	74.00	-15.10	42.89	13.35	38.03	35.37	131	103	Peak	HORIZONTAL
2	15724.87	48.26	54.00	-5.74	32.26	13.35	38.03	35.38	131	103	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15721.72	48.05	54.00	-5.95	32.05	13.35	38.03	35.38	127	149	Average	VERTICAL
2	15722.16	59.52	74.00	-14.48	43.52	13.35	38.03	35.38	127	149	Peak	VERTICAL

Temperature	24°C	Humidity	65%
Test Engineer	Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 149 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	May 04, 2016	Test Mode	Mode 2 (EUT 1)

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11485.57	62.91	74.00	-11.09	46.54	11.60	40.00	35.23	148	106	Peak	HORIZONTAL
2	11486.11	52.35	54.00	-1.65	35.98	11.60	40.00	35.23	148	106	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11480.78	59.54	74.00	-14.46	43.19	11.57	40.01	35.23	176	202	Peak	VERTICAL
2	11493.29	48.66	54.00	-5.34	32.29	11.60	40.00	35.23	176	202	Average	VERTICAL

Temperature	24°C	Humidity	65%
Test Engineer	Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 157 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	May 04, 2016	Test Mode	Mode 2 (EUT 1)

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11565.99	50.69	54.00	-3.31	34.41	11.64	39.87	35.23	149	107	Average	HORIZONTAL
2	11573.47	61.58	74.00	-12.42	45.30	11.64	39.87	35.23	149	107	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11566.59	57.62	74.00	-16.38	41.34	11.64	39.87	35.23	143	29	Peak	VERTICAL
2	11573.47	48.01	54.00	-5.99	31.73	11.64	39.87	35.23	143	29	Average	VERTICAL

Temperature	24°C	Humidity	65%
Test Engineer	Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 165 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	May 04, 2016	Test Mode	Mode 2 (EUT 1)

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11645.09	50.55	54.00	-3.45	34.35	11.69	39.73	35.22	154	110	Average	HORIZONTAL
2	11646.47	61.68	74.00	-12.32	45.48	11.69	39.73	35.22	154	110	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11642.39	58.74	74.00	-15.26	42.54	11.69	39.73	35.22	126	48	Peak	VERTICAL
2	11652.33	48.76	54.00	-5.24	32.60	11.71	39.67	35.22	126	48	Average	VERTICAL

Temperature	24°C	Humidity	65%
Test Engineer	Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 38 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	May 04, 2016	Test Mode	Mode 2 (EUT 1)

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15561.94	59.34	74.00	-14.66	43.23	13.28	38.19	35.36	109	93	Peak	HORIZONTAL
2	15572.00	48.80	54.00	-5.20	32.69	13.28	38.19	35.36	109	93	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15568.88	60.43	74.00	-13.57	44.32	13.28	38.19	35.36	142	159	Peak	VERTICAL
2	15575.07	48.76	54.00	-5.24	32.65	13.28	38.19	35.36	142	159	Average	VERTICAL

Temperature	24°C	Humidity	65%
Test Engineer	Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 46 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	May 04, 2016	Test Mode	Mode 2 (EUT 1)

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15687.17	46.96	54.00	-7.04	30.92	13.33	38.08	35.37	152	81	Average	HORIZONTAL
2	15694.83	60.40	74.00	-13.60	44.39	13.35	38.03	35.37	152	81	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15682.89	47.96	54.00	-6.04	31.92	13.33	38.08	35.37	111	33	Average	VERTICAL
2	15691.84	59.51	74.00	-14.49	43.50	13.35	38.03	35.37	111	33	Peak	VERTICAL

Temperature	24°C	Humidity	65%
Test Engineer	Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 151 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	May 04, 2016	Test Mode	Mode 2 (EUT 1)

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11504.37	47.98	54.00	-6.02	31.61	11.60	40.00	35.23	129	23	Average	HORIZONTAL
2	11504.73	57.99	74.00	-16.01	41.62	11.60	40.00	35.23	129	23	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11501.86	60.09	74.00	-13.91	43.72	11.60	40.00	35.23	153	161	Peak	VERTICAL
2	11505.25	50.00	54.00	-4.00	33.63	11.60	40.00	35.23	153	161	Average	VERTICAL

Temperature	24°C	Humidity	65%
Test Engineer	Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 159 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	May 04, 2016	Test Mode	Mode 2 (EUT 1)

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11584.81	48.64	54.00	-5.36	32.39	11.67	39.80	35.22	129	111	Average	HORIZONTAL
2	11585.01	60.09	74.00	-13.91	43.84	11.67	39.80	35.22	129	111	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11587.13	48.27	54.00	-5.73	32.02	11.67	39.80	35.22	142	146	Average	VERTICAL
2	11588.32	60.41	74.00	-13.59	44.16	11.67	39.80	35.22	142	146	Peak	VERTICAL

Temperature	24°C	Humidity	65%
Test Engineer	Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 42 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	May 04, 2016	Test Mode	Mode 2 (EUT 1)

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15623.85	59.34	74.00	-14.66	43.25	13.31	38.14	35.36	111	294	Peak	HORIZONTAL
2	15634.71	48.87	54.00	-5.13	32.78	13.31	38.14	35.36	111	294	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15620.02	49.18	54.00	-4.82	33.09	13.31	38.14	35.36	124	154	Average	VERTICAL
2	15637.58	59.63	74.00	-14.37	43.54	13.31	38.14	35.36	124	154	Peak	VERTICAL

Temperature	24°C	Humidity	65%
Test Engineer	Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 155 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	May 04, 2016	Test Mode	Mode 2 (EUT 1)

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11546.09	60.67	74.00	-13.33	44.35	11.62	39.93	35.23	133	49	Peak	HORIZONTAL
2	11556.55	49.66	54.00	-4.34	33.38	11.64	39.87	35.23	133	48	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11545.45	49.41	54.00	-4.59	33.09	11.62	39.93	35.23	122	64	Average	VERTICAL
2	11546.65	60.94	74.00	-13.06	44.62	11.62	39.93	35.23	122	64	Peak	VERTICAL

Temperature	24°C	Humidity	65%
Test Engineer	Andy Tsai	Configurations	IEEE 802.11a CH 36 / Ant. 1
Test Date	May 05, 2016	Test Mode	Mode 3 (EUT 2)

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15539.39	61.42	74.00	-12.58	45.26	13.26	38.25	35.35	217	275	Peak	HORIZONTAL
2	15544.51	48.68	54.00	-5.32	32.52	13.26	38.25	35.35	217	275	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15540.35	48.76	54.00	-5.24	32.60	13.26	38.25	35.35	180	202	Average	VERTICAL
2	15543.83	61.13	74.00	-12.87	44.97	13.26	38.25	35.35	180	202	Peak	VERTICAL

Temperature	24°C	Humidity	65%
Test Engineer	Andy Tsai	Configurations	IEEE 802.11a CH 40 / Ant. 1
Test Date	May 05, 2016	Test Mode	Mode 3 (EUT 2)

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15608.34	48.68	54.00	-5.32	32.59	13.31	38.14	35.36	215	293	Average	HORIZONTAL
2	15615.21	61.86	74.00	-12.14	45.77	13.31	38.14	35.36	215	293	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15602.53	61.26	74.00	-12.74	45.17	13.31	38.14	35.36	193	321	Peak	VERTICAL
2	15612.10	48.80	54.00	-5.20	32.71	13.31	38.14	35.36	193	321	Average	VERTICAL

Temperature	24°C	Humidity	65%
Test Engineer	Andy Tsai	Configurations	IEEE 802.11a CH 48 / Ant. 1
Test Date	May 05, 2016	Test Mode	Mode 3 (EUT 2)

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15715.93	60.86	74.00	-13.14	44.86	13.35	38.03	35.38	224	54	Peak	HORIZONTAL
2	15716.09	48.29	54.00	-5.71	32.29	13.35	38.03	35.38	224	54	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15720.10	61.99	74.00	-12.01	45.99	13.35	38.03	35.38	187	172	Peak	VERTICAL
2	15720.61	48.88	54.00	-5.12	32.88	13.35	38.03	35.38	187	172	Average	VERTICAL

Temperature	24°C	Humidity	65%
Test Engineer	Andy Tsai	Configurations	IEEE 802.11a CH 149 / Ant. 1
Test Date	May 06, 2016	Test Mode	Mode 3 (EUT 2)

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11492.40	60.91	74.00	-13.09	44.54	11.60	40.00	35.23	188	346	Peak	HORIZONTAL
2	11499.99	47.32	54.00	-6.68	30.95	11.60	40.00	35.23	188	346	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11490.78	60.71	74.00	-13.29	44.34	11.60	40.00	35.23	195	190	Peak	VERTICAL
2	11497.44	47.44	54.00	-6.56	31.07	11.60	40.00	35.23	195	190	Average	VERTICAL

Temperature	24°C	Humidity	65%
Test Engineer	Andy Tsai	Configurations	IEEE 802.11a CH 157 / Ant. 1
Test Date	May 06, 2016	Test Mode	Mode 3 (EUT 2)

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11567.92	61.32	74.00	-12.68	45.04	11.64	39.87	35.23	200	195	Peak	HORIZONTAL
2	11573.53	48.51	54.00	-5.49	32.23	11.64	39.87	35.23	200	195	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11576.60	48.57	54.00	-5.43	32.29	11.64	39.87	35.23	184	168	Average	VERTICAL
2	11577.35	61.26	74.00	-12.74	44.98	11.64	39.87	35.23	184	168	Peak	VERTICAL

Temperature	24°C	Humidity	65%
Test Engineer	Andy Tsai	Configurations	IEEE 802.11a CH 165 / Ant. 1
Test Date	May 06, 2016	Test Mode	Mode 3 (EUT 2)

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11643.69	61.43	74.00	-12.57	45.23	11.69	39.73	35.22	219	136	Peak	HORIZONTAL
2	11646.35	48.76	54.00	-5.24	32.56	11.69	39.73	35.22	219	136	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11656.45	48.74	54.00	-5.26	32.58	11.71	39.67	35.22	181	172	Average	VERTICAL
2	11659.03	61.69	74.00	-12.31	45.53	11.71	39.67	35.22	181	172	Peak	VERTICAL

Temperature	24°C	Humidity	65%
Test Engineer	Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 36 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	May 06, 2016	Test Mode	Mode 3 (EUT 2)

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15543.91	61.38	74.00	-12.62	45.22	13.26	38.25	35.35	169	255	Peak	HORIZONTAL
2	15548.94	48.74	54.00	-5.26	32.58	13.26	38.25	35.35	169	255	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15538.44	61.57	74.00	-12.43	45.41	13.26	38.25	35.35	178	245	Peak	VERTICAL
2	15542.34	48.53	54.00	-5.47	32.37	13.26	38.25	35.35	178	245	Average	VERTICAL

Temperature	24°C	Humidity	65%
Test Engineer	Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 40 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	May 06, 2016	Test Mode	Mode 3 (EUT 2)

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15596.41	62.88	74.00	-11.12	46.77	13.28	38.19	35.36	155	326	Peak	HORIZONTAL
2	15604.57	48.45	54.00	-5.55	32.36	13.31	38.14	35.36	155	326	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15590.33	48.23	54.00	-5.77	32.12	13.28	38.19	35.36	186	321	Average	VERTICAL
2	15601.42	60.72	74.00	-13.28	44.63	13.31	38.14	35.36	186	321	Peak	VERTICAL

Temperature	24°C	Humidity	65%
Test Engineer	Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 48 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	May 06, 2016	Test Mode	Mode 3 (EUT 2)

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15722.52	61.87	74.00	-12.13	45.87	13.35	38.03	35.38	176	296	Peak	HORIZONTAL
2	15728.22	48.67	54.00	-5.33	32.67	13.35	38.03	35.38	176	296	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15712.71	48.73	54.00	-5.27	32.73	13.35	38.03	35.38	207	262	Average	VERTICAL
2	15716.67	61.97	74.00	-12.03	45.97	13.35	38.03	35.38	207	262	Peak	VERTICAL

Temperature	24°C	Humidity	65%
Test Engineer	Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 149 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	May 06, 2016	Test Mode	Mode 3 (EUT 2)

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11496.05	60.04	74.00	-13.96	43.67	11.60	40.00	35.23	203	183	Peak	HORIZONTAL
2	11496.22	46.86	54.00	-7.14	30.49	11.60	40.00	35.23	203	183	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11486.01	59.41	74.00	-14.59	43.04	11.60	40.00	35.23	227	225	Peak	VERTICAL
2	11499.96	46.98	54.00	-7.02	30.61	11.60	40.00	35.23	227	225	Average	VERTICAL

Temperature	24°C	Humidity	65%
Test Engineer	Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 157 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	May 06, 2016	Test Mode	Mode 3 (EUT 2)

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11640.42	61.36	74.00	-12.64	45.16	11.69	39.73	35.22	192	152	Peak	HORIZONTAL
2	11653.27	48.37	54.00	-5.63	32.21	11.71	39.67	35.22	192	152	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11648.29	61.58	74.00	-12.42	45.38	11.69	39.73	35.22	220	170	Peak	VERTICAL
2	11655.44	48.30	54.00	-5.70	32.14	11.71	39.67	35.22	220	170	Average	VERTICAL

Temperature	24°C	Humidity	65%
Test Engineer	Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 165 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	May 06, 2016	Test Mode	Mode 3 (EUT 2)

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11652.78	61.33	74.00	-12.67	45.17	11.71	39.67	35.22	151	170	Peak	HORIZONTAL
2	11653.33	48.46	54.00	-5.54	32.30	11.71	39.67	35.22	151	170	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11650.72	61.14	74.00	-12.86	44.94	11.69	39.73	35.22	201	118	Peak	VERTICAL
2	11655.15	48.38	54.00	-5.62	32.22	11.71	39.67	35.22	201	118	Average	VERTICAL

Temperature	24°C	Humidity	65%
Test Engineer	Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 38 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	May 06, 2016	Test Mode	Mode 3 (EUT 2)

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15566.38	61.03	74.00	-12.97	44.92	13.28	38.19	35.36	167	187	Peak	HORIZONTAL
2	15566.67	48.32	54.00	-5.68	32.21	13.28	38.19	35.36	167	187	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15561.92	60.91	74.00	-13.09	44.80	13.28	38.19	35.36	184	211	Peak	VERTICAL
2	15566.73	48.22	54.00	-5.78	32.11	13.28	38.19	35.36	184	211	Average	VERTICAL

Temperature	24°C	Humidity	65%
Test Engineer	Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 46 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	May 06, 2016	Test Mode	Mode 3 (EUT 2)

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15681.84	61.30	74.00	-12.70	45.26	13.33	38.08	35.37	216	196	Peak	HORIZONTAL
2	15694.02	48.43	54.00	-5.57	32.42	13.35	38.03	35.37	216	196	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15691.39	48.47	54.00	-5.53	32.46	13.35	38.03	35.37	203	262	Average	VERTICAL
2	15691.65	61.14	74.00	-12.86	45.13	13.35	38.03	35.37	203	262	Peak	VERTICAL

Temperature	24°C	Humidity	65%
Test Engineer	Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 151 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	May 06, 2016	Test Mode	Mode 3 (EUT 2)

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11514.31	60.18	74.00	-13.82	43.81	11.60	40.00	35.23	195	216	Peak	HORIZONTAL
2	11514.72	47.31	54.00	-6.69	30.94	11.60	40.00	35.23	195	216	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11512.98	60.75	74.00	-13.25	44.38	11.60	40.00	35.23	204	245	Peak	VERTICAL
2	11516.25	47.21	54.00	-6.79	30.84	11.60	40.00	35.23	204	245	Average	VERTICAL

Temperature	24°C	Humidity	65%
Test Engineer	Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 159 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	May 06, 2016	Test Mode	Mode 3 (EUT 2)

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11585.34	60.97	74.00	-13.03	44.72	11.67	39.80	35.22	180	254	Peak	HORIZONTAL
2	11589.91	48.11	54.00	-5.89	31.86	11.67	39.80	35.22	180	254	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11591.77	60.83	74.00	-13.17	44.58	11.67	39.80	35.22	150	157	Peak	VERTICAL
2	11593.44	47.99	54.00	-6.01	31.74	11.67	39.80	35.22	150	157	Average	VERTICAL

Temperature	24°C	Humidity	65%
Test Engineer	Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 42 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	May 06, 2016	Test Mode	Mode 3 (EUT 2)

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15621.35	60.66	74.00	-13.34	44.57	13.31	38.14	35.36	204	240	Peak	HORIZONTAL
2	15636.40	48.05	54.00	-5.95	31.96	13.31	38.14	35.36	204	240	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15621.20	47.96	54.00	-6.04	31.87	13.31	38.14	35.36	231	268	Average	VERTICAL
2	15635.24	60.76	74.00	-13.24	44.67	13.31	38.14	35.36	231	268	Peak	VERTICAL

Temperature	24°C	Humidity	65%
Test Engineer	Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 155 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	May 06, 2016	Test Mode	Mode 3 (EUT 2)

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11557.06	60.16	74.00	-13.84	43.88	11.64	39.87	35.23	194	208	Peak	HORIZONTAL
2	11559.26	47.70	54.00	-6.30	31.42	11.64	39.87	35.23	194	208	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11556.08	47.74	54.00	-6.26	31.46	11.64	39.87	35.23	218	231	Average	VERTICAL
2	11559.96	60.99	74.00	-13.01	44.71	11.64	39.87	35.23	218	231	Peak	VERTICAL

Note:

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

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

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

4.7. Band Edge Emissions Measurement

4.7.1. Limit

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

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

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

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

4.7.2. Measuring Instruments and Setting

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

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

4.7.3. Test Procedures

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

4.7.4. Test Setup Layout

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

4.7.5. Test Deviation

There is no deviation with the original standard.

4.7.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.7.7. Test Result of Band Edge and Fundamental Emissions

Temperature	24°C	Humidity	65%
Test Engineer	Andy Tsai	Configurations	IEEE 802.11a CH 36, 40, 48 / Ant. 1
Test Date	May 04, 2016	Test Mode	Mode 2 (EUT 1)

Channel 36

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5149.26	66.20	74.00	-7.80	60.39	7.23	31.52	32.94	189	324	Peak	VERTICAL
2	5149.66	53.42	54.00	-0.58	47.61	7.23	31.52	32.94	189	324	Average	VERTICAL
3 0	5178.00	112.93			107.06	7.26	31.55	32.94	189	324	Peak	VERTICAL
4 0	5185.79	104.74			98.87	7.26	31.55	32.94	189	324	Average	VERTICAL

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

Channel 40

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5149.30	66.84	74.00	-7.16	61.03	7.23	31.52	32.94	179	326	Peak	VERTICAL
2	5150.00	53.74	54.00	-0.26	47.93	7.23	31.52	32.94	179	326	Average	VERTICAL
3 0	5204.39	116.13			110.21	7.29	31.57	32.94	179	326	Peak	VERTICAL
4 0	5205.59	108.32			102.40	7.29	31.57	32.94	179	326	Average	VERTICAL

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

Channel 48

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5150.00	49.67	54.00	-4.33	43.86	7.23	31.52	32.94	185	325	Average	VERTICAL
2	5150.00	59.18	74.00	-14.82	53.37	7.23	31.52	32.94	185	325	Peak	VERTICAL
3 0	5244.79	117.37			111.40	7.31	31.59	32.93	185	325	Peak	VERTICAL
4 0	5245.99	108.96			102.99	7.31	31.59	32.93	185	325	Average	VERTICAL
5	5350.00	50.56	54.00	-3.44	44.44	7.37	31.68	32.93	185	325	Average	VERTICAL
6	5350.00	60.22	74.00	-13.78	54.10	7.37	31.68	32.93	185	325	Peak	VERTICAL

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

Temperature	24°C	Humidity	65%
Test Engineer	Andy Tsai	Configurations	IEEE 802.11a CH 149, 157, 165 / Ant. 1
Test Date	May 04, 2016	Test Mode	Mode 2 (EUT 1)

Channel 149

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5516.00	62.55	68.20	-5.65	56.14	7.52	31.82	32.93	170	326	Peak	VERTICAL
2	5740.00	114.65			107.83	7.73	32.10	33.01	170	326	Peak	VERTICAL
3	5750.80	105.95			99.14	7.73	32.10	33.02	170	326	Average	VERTICAL
4	5981.00	61.45	68.20	-6.75	54.34	7.83	32.38	33.10	170	326	Peak	VERTICAL

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

Channel 157

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5641.00	62.90	68.20	-5.30	56.26	7.64	31.98	32.98	177	333	Peak	VERTICAL
2	5778.30	105.64			98.77	7.76	32.14	33.03	177	333	Average	VERTICAL
3	5781.00	114.09			107.22	7.76	32.14	33.03	177	333	Peak	VERTICAL
4	5971.00	62.11	68.20	-6.09	55.02	7.83	32.36	33.10	177	333	Peak	VERTICAL

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

Channel 165

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5642.00	61.55	68.20	-6.65	54.91	7.64	31.98	32.98	179	358	Peak	VERTICAL
2	5818.70	107.12			100.20	7.78	32.18	33.04	179	358	Average	VERTICAL
3	5822.00	116.03			109.12	7.78	32.18	33.05	179	358	Peak	VERTICAL
4	5998.00	61.82	68.20	-6.38	54.69	7.84	32.40	33.11	179	358	Peak	VERTICAL

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

Temperature	24°C	Humidity	65%
Test Engineer	Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 36, 40, 48 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	May 04, 2016	Test Mode	Mode 2 (EUT 1)

Channel 36

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5149.66	65.30	74.00	-8.70	59.49	7.23	31.52	32.94	188	328	Peak	VERTICAL
2	5150.00	53.63	54.00	-0.37	47.82	7.23	31.52	32.94	188	328	Average	VERTICAL
3 0	5185.99	107.28			101.41	7.26	31.55	32.94	188	328	Average	VERTICAL
4 0	5187.19	115.13			109.23	7.28	31.56	32.94	188	328	Peak	VERTICAL

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

Channel 40

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5148.50	63.76	74.00	-10.24	57.95	7.23	31.52	32.94	184	328	Peak	VERTICAL
2	5150.00	53.74	54.00	-0.26	47.93	7.23	31.52	32.94	184	328	Average	VERTICAL
3 0	5205.99	119.60			113.68	7.29	31.57	32.94	184	328	Peak	VERTICAL
4 0	5206.59	111.28			105.36	7.29	31.57	32.94	184	328	Average	VERTICAL

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

Channel 48

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5128.02	50.46	54.00	-3.54	44.67	7.22	31.51	32.94	185	327	Average	VERTICAL
2	5141.80	60.89	74.00	-13.11	55.08	7.23	31.52	32.94	185	327	Peak	VERTICAL
3 0	5245.39	113.25			107.28	7.31	31.59	32.93	185	327	Average	VERTICAL
4 0	5245.39	121.19			115.22	7.31	31.59	32.93	185	327	Peak	VERTICAL
5	5350.00	50.86	54.00	-3.14	44.74	7.37	31.68	32.93	185	327	Average	VERTICAL
6	5350.00	60.86	74.00	-13.14	54.74	7.37	31.68	32.93	185	327	Peak	VERTICAL

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

Temperature	24°C	Humidity	65%
Test Engineer	Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 149, 157, 165 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	May 04, 2016	Test Mode	Mode 2 (EUT 1)

Channel 149

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5501.00	61.93	68.20	-6.27	55.54	7.51	31.80	32.92	175	313	Peak	VERTICAL
2	5738.00	119.53			112.75	7.71	32.08	33.01	175	313	Peak	VERTICAL
3	5739.50	111.85			105.03	7.73	32.10	33.01	175	313	Average	VERTICAL
4	5990.00	60.17	68.20	-8.03	53.06	7.83	32.38	33.10	175	313	Peak	VERTICAL

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

Channel 157

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5606.00	62.33	68.20	-5.87	55.77	7.60	31.92	32.96	181	314	Peak	VERTICAL
2	5779.00	120.10			113.23	7.76	32.14	33.03	181	314	Peak	VERTICAL
3	5780.00	111.88			105.01	7.76	32.14	33.03	181	314	Average	VERTICAL
4	5983.00	62.38	68.20	-5.82	55.27	7.83	32.38	33.10	181	314	Peak	VERTICAL

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

Channel 165

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5616.00	61.85	68.20	-6.35	55.27	7.61	31.94	32.97	189	350	Peak	VERTICAL
2	5822.80	110.70			103.77	7.78	32.20	33.05	189	350	Average	VERTICAL
3	5823.00	118.13			111.20	7.78	32.20	33.05	189	350	Peak	VERTICAL
4	6015.00	61.11	68.20	-7.09	53.91	7.86	32.46	33.12	189	350	Peak	VERTICAL

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

Temperature	24°C	Humidity	65%
Test Engineer	Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 38, 46 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	May 04, 2016	Test Mode	Mode 2 (EUT 1)

Channel 38

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5145.09	53.61	54.00	-0.39	47.80	7.23	31.52	32.94	193	313	Average	VERTICAL
2	5145.69	64.57	74.00	-9.43	58.76	7.23	31.52	32.94	193	313	Peak	VERTICAL
3 0	5184.01	99.75			93.88	7.26	31.55	32.94	193	313	Average	VERTICAL
4 0	5185.21	107.58			101.71	7.26	31.55	32.94	193	313	Peak	VERTICAL

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

Channel 46

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5149.16	64.36	74.00	-9.64	58.55	7.23	31.52	32.94	189	319	Peak	VERTICAL
2	5150.00	53.20	54.00	-0.80	47.39	7.23	31.52	32.94	189	319	Average	VERTICAL
3 0	5228.80	107.39			101.45	7.30	31.58	32.94	189	319	Average	VERTICAL
4 0	5239.58	115.65			109.69	7.31	31.59	32.94	189	319	Peak	VERTICAL

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

Temperature	24°C	Humidity	65%
Test Engineer	Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 151, 159 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	May 04, 2016	Test Mode	Mode 2 (EUT 1)

Channel 151

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5651.00	65.44	68.94	-3.50	58.80	7.64	31.98	32.98	179	325	Peak	VERTICAL
2	5742.00	108.53			101.71	7.73	32.10	33.01	179	325	Average	VERTICAL
3	5742.00	116.17			109.35	7.73	32.10	33.01	179	325	Peak	VERTICAL
4	5955.00	62.14	68.20	-6.06	55.07	7.82	32.34	33.09	179	325	Peak	VERTICAL

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

Channel 159

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5595.00	61.52	68.20	-6.68	54.96	7.60	31.92	32.96	175	326	Peak	VERTICAL
2	5787.00	107.36			100.49	7.76	32.14	33.03	175	326	Average	VERTICAL
3	5787.00	115.42			108.55	7.76	32.14	33.03	175	326	Peak	VERTICAL
4	5980.00	60.86	68.20	-7.34	53.75	7.83	32.38	33.10	175	326	Peak	VERTICAL

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

Temperature	24°C	Humidity	65%
Test Engineer	Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 42, 155 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	May 04, 2016	Test Mode	Mode 2 (EUT 1)

Channel 42

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5150.00	53.31	54.00	-0.69	47.50	7.23	31.52	32.94	186	320	Average	VERTICAL
2	5150.00	62.44	74.00	-11.56	56.63	7.23	31.52	32.94	186	320	Peak	VERTICAL
3 0	5199.00	103.45			97.55	7.28	31.56	32.94	186	320	Peak	VERTICAL
4 0	5230.00	94.55			88.61	7.30	31.58	32.94	186	320	Average	VERTICAL
5	5350.00	49.06	54.00	-4.94	42.94	7.37	31.68	32.93	186	320	Average	VERTICAL
6	5350.00	58.78	74.00	-15.22	52.66	7.37	31.68	32.93	186	320	Peak	VERTICAL

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

Channel 155

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5652.00	68.00	69.69	-1.69	61.36	7.64	31.98	32.98	177	321	Peak	VERTICAL
2	5761.00	103.76			96.92	7.74	32.12	33.02	177	321	Average	VERTICAL
3	5764.00	112.21			105.37	7.74	32.12	33.02	177	321	Peak	VERTICAL
4	5941.00	62.38	68.20	-5.82	55.33	7.82	32.32	33.09	177	321	Peak	VERTICAL

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

Temperature	24°C	Humidity	65%
Test Engineer	Andy Tsai	Configurations	IEEE 802.11a CH 36, 40, 48 / Ant. 1
Test Date	May 04, 2016	Test Mode	Mode 3 (EUT 2)

Channel 36

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5147.80	68.56	74.00	-5.44	62.75	7.23	31.52	32.94	200	193	Peak	HORIZONTAL
2	5149.80	53.84	54.00	-0.16	48.03	7.23	31.52	32.94	200	193	Average	HORIZONTAL
3 0	5184.59	105.26			99.39	7.26	31.55	32.94	200	193	Average	HORIZONTAL
4 0	5185.19	113.52			107.65	7.26	31.55	32.94	200	193	Peak	HORIZONTAL

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

Channel 40

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5150.00	53.42	54.00	-0.58	47.61	7.23	31.52	32.94	181	354	Average	HORIZONTAL
2	5150.00	67.40	74.00	-6.60	61.59	7.23	31.52	32.94	181	354	Peak	HORIZONTAL
3 0	5203.99	107.59			101.67	7.29	31.57	32.94	181	354	Average	HORIZONTAL
4 0	5204.39	116.09			110.17	7.29	31.57	32.94	181	354	Peak	HORIZONTAL

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

Channel 48

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5141.02	60.60	74.00	-13.40	54.81	7.22	31.51	32.94	195	195	Peak	HORIZONTAL
2	5150.00	49.84	54.00	-4.16	44.03	7.23	31.52	32.94	195	195	Average	HORIZONTAL
3 0	5244.79	117.05			111.08	7.31	31.59	32.93	195	195	Peak	HORIZONTAL
4 0	5245.99	108.88			102.91	7.31	31.59	32.93	195	195	Average	HORIZONTAL
5	5350.00	50.56	54.00	-3.44	44.44	7.37	31.68	32.93	195	195	Average	HORIZONTAL
6	5352.99	60.69	74.00	-13.31	54.57	7.37	31.68	32.93	195	195	Peak	HORIZONTAL

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

Temperature	24°C	Humidity	65%
Test Engineer	Andy Tsai	Configurations	IEEE 802.11a CH 149, 157, 165 / Ant. 1
Test Date	May 04, 2016	Test Mode	Mode 3 (EUT 2)

Channel 149

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5635.20	60.68	68.20	-7.52	54.07	7.63	31.96	32.98	300	180	Peak	HORIZONTAL
2	5653.80	61.20	71.02	-9.82	54.56	7.64	31.98	32.98	300	180	Peak	HORIZONTAL
3	5740.21	105.14			98.32	7.73	32.10	33.01	300	180	Average	HORIZONTAL
4	5741.41	113.70			106.88	7.73	32.10	33.01	300	180	Peak	HORIZONTAL

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	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5623.00	60.75	68.20	-7.45	54.17	7.61	31.94	32.97	187	360	Peak	HORIZONTAL
2	5779.00	104.93			98.06	7.76	32.14	33.03	187	360	Average	HORIZONTAL
3	5779.00	112.67			105.80	7.76	32.14	33.03	187	360	Peak	HORIZONTAL
4	5968.00	61.25	68.20	-6.95	54.16	7.83	32.36	33.10	187	360	Peak	HORIZONTAL

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

Channel 165

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5609.00	62.05	68.20	-6.15	55.46	7.61	31.94	32.96	192	181	Peak	HORIZONTAL
2	5820.00	106.38			99.46	7.78	32.18	33.04	192	181	Average	HORIZONTAL
3	5823.00	114.33			107.40	7.78	32.20	33.05	192	181	Peak	HORIZONTAL
4	5952.00	62.13	68.20	-6.07	55.06	7.82	32.34	33.09	192	181	Peak	HORIZONTAL

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

Temperature	24°C	Humidity	65%
Test Engineer	Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 36, 40, 48 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	May 04, 2016	Test Mode	Mode 3 (EUT 2)

Channel 36

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5149.40	66.53	74.00	-7.47	60.72	7.23	31.52	32.94	169	12	Peak	HORIZONTAL
2	5150.00	53.94	54.00	-0.06	48.13	7.23	31.52	32.94	169	12	Average	HORIZONTAL
3 0	5180.80	106.18			100.31	7.26	31.55	32.94	169	12	Average	HORIZONTAL
4 0	5181.80	115.18			109.31	7.26	31.55	32.94	169	12	Peak	HORIZONTAL

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

Channel 40

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5149.60	53.63	54.00	-0.37	47.82	7.23	31.52	32.94	164	12	Average	HORIZONTAL
2	5149.60	64.50	74.00	-9.50	58.69	7.23	31.52	32.94	164	12	Peak	HORIZONTAL
3 0	5199.20	109.43			103.53	7.28	31.56	32.94	164	12	Average	HORIZONTAL
4 0	5200.80	117.14			111.24	7.28	31.56	32.94	164	12	Peak	HORIZONTAL

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

Channel 48

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5147.60	60.87	74.00	-13.13	55.06	7.23	31.52	32.94	197	193	Peak	HORIZONTAL
2	5150.00	50.47	54.00	-3.53	44.66	7.23	31.52	32.94	197	193	Average	HORIZONTAL
3 0	5237.60	111.14			105.18	7.31	31.59	32.94	197	193	Average	HORIZONTAL
4 0	5237.60	118.41			112.45	7.31	31.59	32.94	197	193	Peak	HORIZONTAL
5	5350.00	50.71	54.00	-3.29	44.59	7.37	31.68	32.93	197	193	Average	HORIZONTAL
6	5351.80	62.18	74.00	-11.82	56.06	7.37	31.68	32.93	197	193	Peak	HORIZONTAL

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

Temperature	24°C	Humidity	65%
Test Engineer	Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 149, 157, 165 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	May 04, 2016	Test Mode	Mode 3 (EUT 2)

Channel 149

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5586.00	61.41	68.20	-6.79	54.89	7.58	31.90	32.96	174	190	Peak	HORIZONTAL
2	5744.00	112.52			105.70	7.73	32.10	33.01	174	190	Average	HORIZONTAL
3	5744.00	120.25			113.43	7.73	32.10	33.01	174	190	Peak	HORIZONTAL
4	5924.00	60.95	68.94	-7.99	53.92	7.81	32.30	33.08	174	190	Peak	HORIZONTAL

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

Channel 157

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5627.00	62.14	68.20	-6.06	55.52	7.63	31.96	32.97	162	187	Peak	HORIZONTAL
2	5792.00	111.57			104.67	7.77	32.16	33.03	162	187	Average	HORIZONTAL
3	5793.00	119.45			112.55	7.77	32.16	33.03	162	187	Peak	HORIZONTAL
4	5996.00	61.14	68.20	-7.06	54.01	7.84	32.40	33.11	162	187	Peak	HORIZONTAL

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

Channel 165

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5628.00	62.64	68.20	-5.56	56.02	7.63	31.96	32.97	158	186	Peak	HORIZONTAL
2	5832.00	110.51			103.58	7.78	32.20	33.05	158	186	Average	HORIZONTAL
3	5832.00	118.38			111.45	7.78	32.20	33.05	158	186	Peak	HORIZONTAL
4	6053.00	61.07	68.20	-7.13	53.73	7.89	32.58	33.13	158	186	Peak	HORIZONTAL

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

Temperature	24°C	Humidity	65%
Test Engineer	Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 38, 46 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	May 05, 2016	Test Mode	Mode 3 (EUT 2)

Channel 38

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5146.01	53.64	54.00	-0.36	47.83	7.23	31.52	32.94	155	6	Average	HORIZONTAL
2	5147.45	66.31	74.00	-7.69	60.50	7.23	31.52	32.94	155	6	Peak	HORIZONTAL
3 0	5184.50	111.12			105.25	7.26	31.55	32.94	155	6	Peak	HORIZONTAL
4 0	5185.37	100.95			95.08	7.26	31.55	32.94	155	6	Average	HORIZONTAL

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

Channel 46

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5143.17	50.60	54.00	-3.40	44.79	7.23	31.52	32.94	166	13	Average	HORIZONTAL
2	5146.35	62.92	74.00	-11.08	57.11	7.23	31.52	32.94	166	13	Peak	HORIZONTAL
3 0	5244.47	113.87			107.90	7.31	31.59	32.93	166	13	Peak	HORIZONTAL
4 0	5245.92	104.13			98.16	7.31	31.59	32.93	166	13	Average	HORIZONTAL

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

Temperature	24°C	Humidity	65%
Test Engineer	Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 151, 159 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	May 05, 2016	Test Mode	Mode 3 (EUT 2)

Channel 151

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5653.50	67.62	70.80	-3.18	60.98	7.64	31.98	32.98	158	358	Peak	HORIZONTAL
2	5743.50	117.83			111.01	7.73	32.10	33.01	158	358	Peak	HORIZONTAL
3	5762.24	107.91			101.07	7.74	32.12	33.02	158	358	Average	HORIZONTAL
4	5953.50	63.83	68.20	-4.37	56.76	7.82	32.34	33.09	158	358	Peak	HORIZONTAL

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

Channel 159

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5618.00	65.75	68.20	-2.45	59.17	7.61	31.94	32.97	143	353	Peak	HORIZONTAL
2	5790.50	117.83			110.93	7.77	32.16	33.03	143	353	Peak	HORIZONTAL
3	5790.66	106.82			99.92	7.77	32.16	33.03	143	353	Average	HORIZONTAL
4	5972.50	65.18	68.20	-3.02	58.09	7.83	32.36	33.10	143	353	Peak	HORIZONTAL

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

Temperature	24°C	Humidity	65%
Test Engineer	Andy Tsai	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 42, 155 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	May 05, 2016	Test Mode	Mode 3 (EUT 2)

Channel 42

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5135.47	51.78	54.00	-2.22	45.99	7.22	31.51	32.94	170	360	Average	HORIZONTAL
2	5136.19	63.35	74.00	-10.65	57.56	7.22	31.51	32.94	170	360	Peak	HORIZONTAL
3 0	5235.33	93.91			87.95	7.31	31.59	32.94	170	360	Average	HORIZONTAL
4 0	5236.05	103.49			97.53	7.31	31.59	32.94	170	360	Peak	HORIZONTAL
5	5350.00	50.68	54.00	-3.32	44.56	7.37	31.68	32.93	170	360	Average	HORIZONTAL
6	5358.68	62.36	74.00	-11.64	56.22	7.38	31.69	32.93	170	360	Peak	HORIZONTAL

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

Channel 155

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5652.00	68.24	69.69	-1.45	61.60	7.64	31.98	32.98	159	358	Peak	HORIZONTAL
2	5752.57	101.64			94.83	7.73	32.10	33.02	159	358	Average	HORIZONTAL
3	5764.00	114.87			108.03	7.74	32.12	33.02	159	358	Peak	HORIZONTAL
4	5957.50	63.55	68.20	-4.65	56.49	7.82	32.34	33.10	159	358	Peak	HORIZONTAL

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

Note:

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

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

4.8. Frequency Stability Measurement

4.8.1. Limit

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

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

4.8.2. Measuring Instruments and Setting

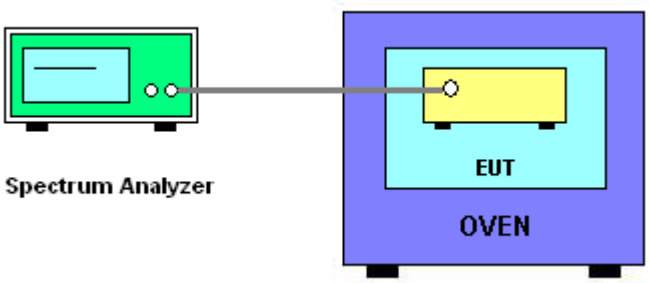
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

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

4.8.3. Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. EUT have transmitted absence of modulation signal and fixed channelize.
3. Set the spectrum analyzer span to view the entire absence of modulation emissions bandwidth.
4. Set RBW = 10 kHz, VBW = 10 kHz with peak detector and maxhold settings.
5. fc is declaring of channel frequency. Then the frequency error formula is (fc-f)/fc × 10^6 ppm and the limit is less than ±20ppm (IEEE 802.11nspecification).
6. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.
7. The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value
8. Extreme temperature is 0°C~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	24℃	Humidity	60%
Test Engineer	Clemens Fang	Test Mode	Mode 1 (EUT 1)
Test Date	May 15, 2016~May 17, 2016		

Mode: 20 MHz / Ant. 1

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5200 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5199.9838	5199.9827	5199.9812	5199.9792
110.00	5199.9826	5199.9813	5199.9797	5199.9778
93.50	5199.9812	5199.9803	5199.9789	5199.9771
Max. Deviation (MHz)	0.0188	0.0197	0.0211	0.0229
Max. Deviation (ppm)	3.61	3.78	4.05	4.40
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(℃)	5200 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
0	5199.9851	5199.9837	5199.9818	5199.9796
10	5199.9838	5199.9825	5199.9810	5199.9792
20	5199.9826	5199.9813	5199.9797	5199.9778
30	5199.9812	5199.9801	5199.9787	5199.9771
40	5199.9797	5199.9784	5199.9768	5199.9749
50	5199.9780	5199.9768	5199.9753	5199.9730
Max. Deviation (MHz)	0.0220	0.0232	0.0247	0.0270
Max. Deviation (ppm)	4.22	4.46	4.74	5.19
Result	Complies			

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5785 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5784.9804	5784.9793	5784.9778	5784.9758
110.00	5784.9792	5784.9779	5784.9763	5784.9744
93.50	5784.9778	5784.9769	5784.9755	5784.9737
Max. Deviation (MHz)	0.0222	0.0231	0.0245	0.0263
Max. Deviation (ppm)	3.84	4.00	4.24	4.55
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5785 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
0	5784.9817	5784.9803	5784.9784	5784.9762
10	5784.9804	5784.9791	5784.9776	5784.9758
20	5784.9792	5784.9779	5784.9763	5784.9744
30	5784.9778	5784.9767	5784.9753	5784.9737
40	5784.9763	5784.9750	5784.9734	5784.9715
50	5784.9746	5784.9734	5784.9719	5784.9696
Max. Deviation (MHz)	0.0254	0.0266	0.0281	0.0304
Max. Deviation (ppm)	4.40	4.61	4.86	5.26
Result	Complies			

Mode: 40 MHz / Ant. 1

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5190 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5189.9817	5189.9806	5189.9791	5189.9771
110.00	5189.9805	5189.9792	5189.9776	5189.9757
93.50	5189.9791	5189.9782	5189.9768	5189.9750
Max. Deviation (MHz)	0.0209	0.0218	0.0232	0.0250
Max. Deviation (ppm)	4.03	4.21	4.48	4.82
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5190 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
0	5189.9830	5189.9816	5189.9797	5189.9775
10	5189.9817	5189.9804	5189.9789	5189.9771
20	5189.9805	5189.9792	5189.9776	5189.9757
30	5189.9791	5189.9780	5189.9766	5189.9750
40	5189.9776	5189.9763	5189.9747	5189.9728
50	5189.9759	5189.9747	5189.9732	5189.9709
Max. Deviation (MHz)	0.0241	0.0253	0.0268	0.0291
Max. Deviation (ppm)	4.65	4.88	5.17	5.61
Result	Complies			

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5755 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5754.9769	5754.9758	5754.9743	5754.9723
110.00	5754.9757	5754.9744	5754.9728	5754.9709
93.50	5754.9743	5754.9734	5754.9720	5754.9702
Max. Deviation (MHz)	0.0257	0.0266	0.0280	0.0298
Max. Deviation (ppm)	4.47	4.62	4.87	5.18
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5755 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
0	5754.9782	5754.9768	5754.9749	5754.9727
10	5754.9769	5754.9756	5754.9741	5754.9723
20	5754.9757	5754.9744	5754.9728	5754.9709
30	5754.9743	5754.9732	5754.9718	5754.9702
40	5754.9728	5754.9715	5754.9699	5754.9680
50	5754.9711	5754.9699	5754.9684	5754.9661
Max. Deviation (MHz)	0.0289	0.0301	0.0316	0.0339
Max. Deviation (ppm)	5.02	5.23	5.49	5.89
Result	Complies			

Mode: 80 MHz / Ant. 1

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5210 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5209.9817	5209.9806	5209.9791	5209.9771
110.00	5209.9805	5209.9792	5209.9776	5209.9757
93.50	5209.9791	5209.9782	5209.9768	5209.9750
Max. Deviation (MHz)	0.0209	0.0218	0.0232	0.0250
Max. Deviation (ppm)	4.02	4.19	4.46	4.81
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5210 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
0	5209.9830	5209.9816	5209.9797	5209.9775
10	5209.9817	5209.9804	5209.9789	5209.9771
20	5209.9805	5209.9792	5209.9776	5209.9757
30	5209.9791	5209.9780	5209.9766	5209.9750
40	5209.9776	5209.9763	5209.9747	5209.9728
50	5209.9759	5209.9747	5209.9732	5209.9709
Max. Deviation (MHz)	0.0241	0.0253	0.0268	0.0291
Max. Deviation (ppm)	4.63	4.86	5.15	5.59
Result	Complies			

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5775 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5774.9756	5774.9745	5774.9730	5774.9710
110.00	5774.9744	5774.9731	5774.9715	5774.9696
93.50	5774.9730	5774.9721	5774.9707	5774.9689
Max. Deviation (MHz)	0.0270	0.0279	0.0293	0.0311
Max. Deviation (ppm)	4.68	4.83	5.08	5.39
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5775 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
0	5774.9769	5774.9755	5774.9736	5774.9714
10	5774.9756	5774.9743	5774.9728	5774.9710
20	5774.9744	5774.9731	5774.9715	5774.9696
30	5774.9730	5774.9719	5774.9705	5774.9689
40	5774.9715	5774.9702	5774.9686	5774.9667
50	5774.9698	5774.9686	5774.9671	5774.9648
Max. Deviation (MHz)	0.0302	0.0314	0.0329	0.0352
Max. Deviation (ppm)	5.23	5.44	5.70	6.10
Result	Complies			

Temperature	24℃	Humidity	60%
Test Engineer	Clemens Fang	Test Mode	Mode 2 (EUT 2)
Test Date	May 15, 2016~May 17, 2016		

Mode: 20 MHz / Ant. 2

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5200 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5199.9708	5199.9697	5199.9682	5199.9662
110.00	5199.9696	5199.9683	5199.9667	5199.9648
93.50	5199.9682	5199.9673	5199.9659	5199.9641
Max. Deviation (MHz)	0.0318	0.0327	0.0341	0.0359
Max. Deviation (ppm)	6.11	6.29	6.56	6.90
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(℃)	5200 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
0	5199.9721	5199.9707	5199.9688	5199.9666
10	5199.9708	5199.9695	5199.9680	5199.9662
20	5199.9696	5199.9683	5199.9667	5199.9648
30	5199.9682	5199.9671	5199.9657	5199.9641
40	5199.9667	5199.9654	5199.9638	5199.9619
50	5199.9650	5199.9638	5199.9623	5199.9600
Max. Deviation (MHz)	0.0350	0.0362	0.0377	0.0400
Max. Deviation (ppm)	6.73	6.96	7.25	7.69
Result	Complies			

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5785 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5784.9791	5784.9780	5784.9765	5784.9745
110.00	5784.9779	5784.9766	5784.9750	5784.9731
93.50	5784.9765	5784.9756	5784.9742	5784.9724
Max. Deviation (MHz)	0.0235	0.0244	0.0258	0.0276
Max. Deviation (ppm)	4.07	4.22	4.47	4.78
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5785 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
0	5784.9804	5784.9790	5784.9771	5784.9749
10	5784.9791	5784.9778	5784.9763	5784.9745
20	5784.9779	5784.9766	5784.9750	5784.9731
30	5784.9765	5784.9754	5784.9740	5784.9724
40	5784.9750	5784.9737	5784.9721	5784.9702
50	5784.9733	5784.9721	5784.9706	5784.9683
Max. Deviation (MHz)	0.0267	0.0279	0.0294	0.0317
Max. Deviation (ppm)	4.62	4.83	5.09	5.49
Result	Complies			

Mode: 40 MHz / Ant. 2

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5190 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5189.9743	5189.9732	5189.9717	5189.9697
110.00	5189.9731	5189.9718	5189.9702	5189.9683
93.50	5189.9717	5189.9708	5189.9694	5189.9676
Max. Deviation (MHz)	0.0283	0.0292	0.0306	0.0324
Max. Deviation (ppm)	5.46	5.63	5.90	6.25
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5190 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
0	5189.9756	5189.9742	5189.9723	5189.9701
10	5189.9743	5189.9730	5189.9715	5189.9697
20	5189.9731	5189.9718	5189.9702	5189.9683
30	5189.9717	5189.9706	5189.9692	5189.9676
40	5189.9702	5189.9689	5189.9673	5189.9654
50	5189.9685	5189.9673	5189.9658	5189.9635
Max. Deviation (MHz)	0.0315	0.0327	0.0342	0.0365
Max. Deviation (ppm)	6.07	6.30	6.59	7.04
Result	Complies			

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5755 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5754.9739	5754.9728	5754.9713	5754.9693
110.00	5754.9727	5754.9714	5754.9698	5754.9679
93.50	5754.9713	5754.9704	5754.9690	5754.9672
Max. Deviation (MHz)	0.0288	0.0297	0.0311	0.0329
Max. Deviation (ppm)	5.00	5.15	5.40	5.71
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5755 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
0	5754.9752	5754.9738	5754.9719	5754.9697
10	5754.9739	5754.9726	5754.9711	5754.9693
20	5754.9727	5754.9714	5754.9698	5754.9679
30	5754.9713	5754.9702	5754.9688	5754.9672
40	5754.9698	5754.9685	5754.9669	5754.9650
50	5754.9681	5754.9669	5754.9654	5754.9631
Max. Deviation (MHz)	0.0320	0.0332	0.0347	0.0370
Max. Deviation (ppm)	5.55	5.76	6.02	6.42
Result	Complies			

Mode: 80 MHz / Ant. 2

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5210 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5209.9830	5209.9819	5209.9804	5209.9784
110.00	5209.9818	5209.9805	5209.9789	5209.9770
93.50	5209.9804	5209.9795	5209.9781	5209.9763
Max. Deviation (MHz)	0.0196	0.0205	0.0219	0.0237
Max. Deviation (ppm)	3.77	3.94	4.21	4.55
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5210 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
0	5209.9843	5209.9829	5209.9810	5209.9788
10	5209.9830	5209.9817	5209.9802	5209.9784
20	5209.9818	5209.9805	5209.9789	5209.9770
30	5209.9804	5209.9793	5209.9779	5209.9763
40	5209.9789	5209.9776	5209.9760	5209.9741
50	5209.9772	5209.9760	5209.9745	5209.9722
Max. Deviation (MHz)	0.0228	0.0240	0.0255	0.0278
Max. Deviation (ppm)	4.38	4.61	4.90	5.34
Result	Complies			

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5775 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5774.9730	5774.9719	5774.9704	5774.9684
110.00	5774.9718	5774.9705	5774.9689	5774.9670
93.50	5774.9704	5774.9695	5774.9681	5774.9663
Max. Deviation (MHz)	0.0296	0.0305	0.0319	0.0337
Max. Deviation (ppm)	5.13	5.28	5.53	5.84
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5775 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
0	5774.9743	5774.9729	5774.9710	5774.9688
10	5774.9730	5774.9717	5774.9702	5774.9684
20	5774.9718	5774.9705	5774.9689	5774.9670
30	5774.9704	5774.9693	5774.9679	5774.9663
40	5774.9689	5774.9676	5774.9660	5774.9641
50	5774.9672	5774.9660	5774.9645	5774.9622
Max. Deviation (MHz)	0.0328	0.0340	0.0355	0.0378
Max. Deviation (ppm)	5.68	5.89	6.15	6.55
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. 02, 2014	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Dec. 02, 2014	Conduction (CO01-CB)
COND Cable	Woken	Cable	01	150kHz ~ 30MHz	Dec. 03, 2014	Conduction (CO01-CB)
Software	Audix	E3	6.120210n	-	N.C.R.	Conduction (CO01-CB)
BILOG ANTENNA	Schaffner	CBL6112D	22021	20MHz ~ 2GHz	May 06, 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. 18, 2016	Radiation (03CH01-CB)
Pre-Amplifier	WM	TF-130N-R1	923365	26GHz ~ 40GHz	Nov. 13, 2015	Radiation (03CH01-CB)
Spectrum Analyzer	R&S	FSP40	100056	9kHz ~ 40GHz	Nov. 06, 2014	Radiation (03CH01-CB)
Spectrum Analyzer	R&S	FSP40	100056	9kHz ~ 40GHz	Oct. 27, 2015	Radiation (03CH01-CB)
EMI Receiver	Agilent	N9038A	MY52260123	9kHz ~ 8.4GHz	Jan. 21, 2015	Radiation (03CH01-CB)
RF Cable-low	Woken	Low Cable-1	N/A	30 MHz ~ 1 GHz	Nov. 15, 2014	Radiation (03CH01-CB)
Loop Antenna	Teseq	HLA 6120	24155	9kHz - 30 MHz	Mar. 12, 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)
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-6	1 GHz – 26.5 GHz	Nov. 02, 2015	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-7	1 GHz – 26.5 GHz	Nov. 02, 2015	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-8	1 GHz – 26.5 GHz	Nov. 02, 2015	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-9	1 GHz – 26.5 GHz	Nov. 02, 2015	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-10	1 GHz – 26.5 GHz	Nov. 02, 2015	Conducted (TH01-CB)
Power Sensor	Agilent	U2021XA	MY53410001	50MHz~18GHz	Nov. 02, 2015	Conducted (TH01-CB)

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

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

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

6. MEASUREMENT UNCERTAINTY

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