SPORTON International Inc.
No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.
Ph: 886-3-327-3456 / FAX: 886-3-327-0973 / www.sporton.com.tw

FCC RADIO TEST REPORT

Applicant's company	**Arcadyan Technology Corporation**
Applicant Address	No.8, Sec.2, Guangfu Rd.,Hsinchu, 30071 Taiwan
FCC ID	**RAXHT2000W**
Manufacturer's company	**Arcadyan Technology Corporation**
Manufacturer Address	No.8, Sec.2, Guangfu Rd.,Hsinchu, 30071 Taiwan

Product Name	HT2000W wifi module
Brand Name	Arcadyan
Model No.	WG9115AAC22-HS
Test Rule Part(s)	47 CFR FCC Part 15 Subpart E § 15.407
Test Freq. Range	5150 ~ 5250 MHz / 5725 ~ 5850 MHz
Received Date	Apr. 08, 2016
Final Test Date	Jun. 16, 2016
Submission Type	Original Equipment

Statement

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

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

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

The measurements and test results shown in this test report were made in accordance with the procedures and found in compliance with the limit given in **ANSI C63.10-2013**, **47 CFR FCC Part 15 Subpart E, KDB789033 D02 v01r03, KDB662911 D01 v02r01, KDB644545 D03 v01, ET Docket No. 13–49; FCC 16–24.**

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

Testing Laboratory
1190

Table of Contents

History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR640825-02AB	Rev. 01	Initial issue of report	Sep. 09, 2016

1. VERIFICATION OF COMPLIANCE

Product Name	:	HT2000W wifi module
Brand Name	:	Arcadyan
Model No.	:	WG9115AAC22-HS
Applicant	:	Arcadyan Technology Corporation
Test Rule Part(s)	:	47 CFR FCC Part 15 Subpart E § 15.407

Sporton International as requested by the applicant to evaluate the EMC performance of the product sample received on Apr. 08, 2016 would like to declare that the tested sample has been evaluated and found to be in compliance with the tested rule parts. The data recorded as well as the test configuration specified is true and accurate for showing the sample's EMC nature.

Sam Chen

SPORTON INTERNATIONAL INC.

2. SUMMARY OF THE TEST RESULT

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

3. GENERAL INFORMATION

3.1. Product Details

Items	Description
Product Type	WLAN (2TX, 2RX)
Radio Type	Intentional Transceiver
Power Type	From host system
Modulation	IEEE 802.11a: OFDM IEEE 802.11n/ac: see the below table
Data Modulation	IEEE 802.11a/n: OFDM (BPSK / QPSK / 16QAM / 64QAM) IEEE 802.11ac: OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM)
Data Rate (Mbps)	IEEE 802.11a: OFDM (6/9/12/18/24/36/48/54) IEEE 802.11n/ac: see the below table
Frequency Range	5150 ~ 5250 MHz / 5725 ~ 5850 MHz
Channel Number	9 for 20MHz bandwidth ; 4 for 40MHz bandwidth 2 for 80MHz bandwidth
Channel Bandwidth (99%)	Band 1: IEEE 802.11a: 24.31 MHz IEEE 802.11ac MCS0/Nss1 (VHT20): 24.05 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 38.49 MHz IEEE 802.11ac MCS0/Nss1 (VHT80): 76.12 MHz Band 4: IEEE 802.11a: 17.80 MHz IEEE 802.11ac MCS0/Nss1 (VHT20): 18.67 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 41.10 MHz IEEE 802.11ac MCS0/Nss1 (VHT80): 76.99 MHz
Maximum Conducted Output Power	Band 1: IEEE 802.11a: 27.20 dBm IEEE 802.11ac MCS0/Nss1 (VHT20): 27.34 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 25.33 dBm IEEE 802.11ac MCS0/Nss1 (VHT80): 18.86 dBm Band 4: IEEE 802.11a: 25.40 dBm IEEE 802.11ac MCS0/Nss1 (VHT20): 24.45 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 25.89 dBm IEEE 802.11ac MCS0/Nss1 (VHT80): 24.22 dBm
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

Note: The EUT is a limited module, which only limited to the host (brand: HUGHES / model: HT2000W).

The EUT was installed to the host (brand: HUGHES / model: HT2000W) to perform all the tests.

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

Antenna and Bandwidth

Antenna	Two (TX)		
Bandwidth Mode	20 MHz	40 MHz	80 MHz
IEEE 802.11a	V	X	X
IEEE 802.11n	V	V	X
IEEE 802.11ac	V	V	V

IEEE 11n/ac Spec.

Protocol	Number of Transmit Chains (NTX)	Data Rate / MCS
802.11n (HT20)	2	MCS 0-15
802.11n (HT40)	2	MCS 0-15
802.11ac (VHT20)	2	MCS 0-9/Nss1-2
802.11ac (VHT40)	2	MCS 0-9/Nss1-2
802.11ac (VHT80)	2	MCS 0-9/Nss1-2

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

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

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

3.2. Accessories

N/A

3.3. Table for Filed Antenna

Set	Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	
						2.4GHz	5GHz
1	1	YAGEO	ANTA0ZZ10511WLAN1	PCB Antenna	I-PEX	3.65	-
	2	YAGEO	ANTA0ZZ10511WLAN2	PCB Antenna	I-PEX	3.69	-
	3	YAGEO	ANTA0ZZ10511WLAN3	PCB Antenna	I-PEX	3.6	-
	4	YAGEO	ANTA0ZZ10511WLAN4	PCB Antenna	I-PEX	-	3.97
	5	YAGEO	ANTA0ZZ10511WLAN5	PCB Antenna	I-PEX	-	3.14
2	6	Airgain	N2420CH-T2M48-G165U	PCB Antenna	I-PEX	3.7	-
	7	Airgain	N2420CH2_A-T2M48-G90U	PCB Antenna	I-PEX	3.7	-
	8	Airgain	N2420CSHN_B-T2M48-G125U	PCB Antenna	I-PEX	3.6	-
	9	Airgain	N5X20B5-T2M48-G45U	PCB Antenna	I-PEX	-	4.4
	10	Airgain	N5X20B3-T2M48-G120U	PCB Antenna	I-PEX	-	4.0

Note: The EUT has two sets of antenna and there are five antennas for each set.

Because Set 1 & Set 2 are the same type antennas, only the higher gain antenna "Set 2" was tested.

For 2.4GHz function:

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

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

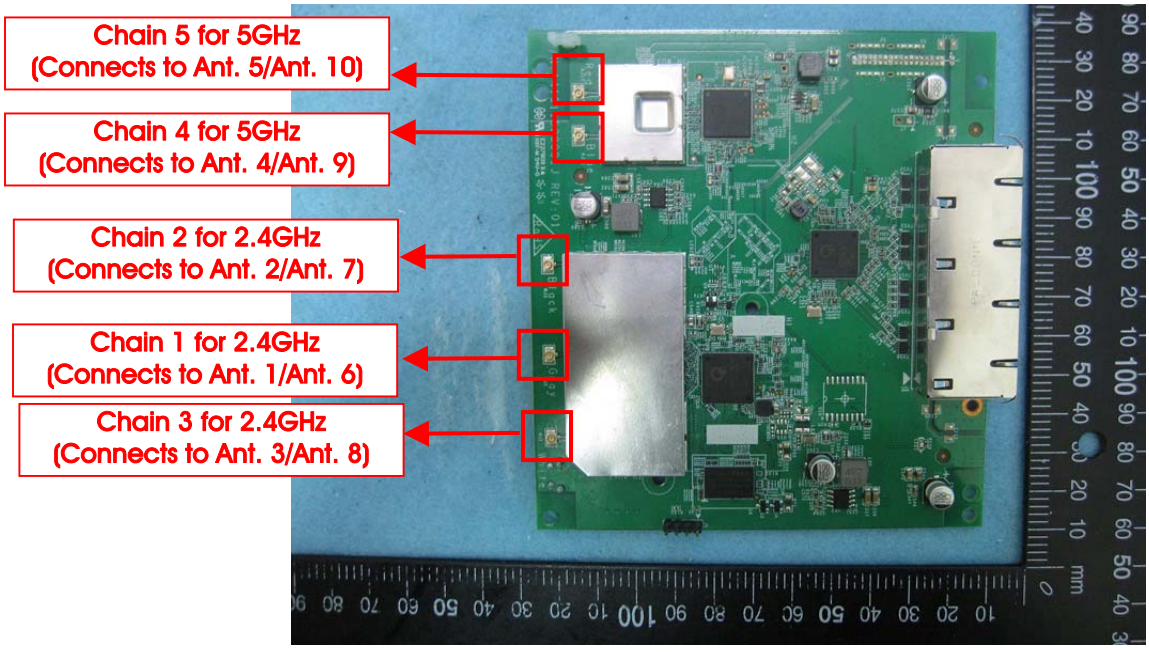
Chain 1, Chain 2 and Chain 3 could transmit/receive simultaneously.

For 5GHz function:

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

Chain 4 and Chain 5 can be used as transmitting/receiving antenna.

Chain 4 and Chain 5 could transmit/receive simultaneously.



3.4. Table for Carrier Frequencies

There are three bandwidth systems.

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

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

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

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

3.5. Table for Test Modes

Preliminary tests were performed in different data rate to find the worst radiated emission. The data rate shown in the table below is the worst-case rate with respect to the specific test item. Investigation has been done on all the possible configurations for searching the worst cases. The following table is a list of the test modes shown in this test report.

Test Items	Mode		Data Rate	Channel	Chain
AC Power Conducted Emission	CTX		-	-	-
Max. Conducted Output Power	11a/BPSK	Band 1, 4	6Mbps	36/40/48/149/157/165	4+5
	11ac VHT20	Band 1, 4	MCS0/Nss1	36/40/48/149/157/165	4+5
	11ac VHT40	Band 1, 4	MCS0/Nss1	38/46/151/159	4+5
	11ac VHT80	Band 1, 4	MCS0/Nss1	42/155	4+5
Power Spectral Density	11a/BPSK	Band 1, 4	6Mbps	36/40/48/149/157/165	4+5
	11ac VHT20	Band 1, 4	MCS0/Nss1	36/40/48/149/157/165	4+5
	11ac VHT40	Band 1, 4	MCS0/Nss1	38/46/151/159	4+5
	11ac VHT80	Band 1, 4	MCS0/Nss1	42/155	4+5
26dB Spectrum Bandwidth & 99% Occupied Bandwidth Measurement	11a/BPSK	Band 1, 4	6Mbps	36/40/48/149/157/165	4+5
	11ac VHT20	Band 1, 4	MCS0/Nss1	36/40/48/149/157/165	4+5
	11ac VHT40	Band 1, 4	MCS0/Nss1	38/46/151/159	4+5
	11ac VHT80	Band 1, 4	MCS0/Nss1	42/155	4+5
6dB Spectrum Bandwidth Measurement	11a/BPSK	Band 4	6Mbps	149/157/165	4+5
	11ac VHT20	Band 4	MCS0/Nss1	149/157/165	4+5
	11ac VHT40	Band 4	MCS0/Nss1	151/159	4+5
	11ac VHT80	Band 4	MCS0/Nss1	155	4+5
Radiated Emission Below 1GHz	CTX		-	-	-
Radiated Emission Above 1GHz	11a/BPSK	Band 1, 4	6Mbps	36/40/48/149/157/165	4+5
	11ac VHT20	Band 1, 4	MCS0/Nss1	36/40/48/149/157/165	4+5
	11ac VHT40	Band 1, 4	MCS0/Nss1	38/46/151/159	4+5
	11ac VHT80	Band 1, 4	MCS0/Nss1	42/155	4+5
Band Edge Emission	11a/BPSK	Band 1, 4	6Mbps	36/40/48/149/157/165	4+5
	11ac VHT20	Band 1, 4	MCS0/Nss1	36/40/48/149/157/165	4+5
	11ac VHT40	Band 1, 4	MCS0/Nss1	38/46/151/159	4+5
	11ac VHT80	Band 1, 4	MCS0/Nss1	42/155	4+5
Frequency Stability	20 MHz	Band 1, 4	-	40/157	4
	40 MHz	Band 1, 4	-	38/151	4
	80 MHz	Band 1, 4	-	42/155	4

Note: The EUT can only use standing position.

The following test modes were performed for all tests:

For Conducted Emission test:

Mode 1. CTX - 2.4GHz

Mode 2. CTX - 5GHz

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

For Radiated Emission test (Below 1GHz):

Mode 1. CTX - 2.4GHz

Mode 2. CTX - 5GHz

Mode 1 is the worst case, so it was selected to record in this test report.

For Co-location MPE Test:

The EUT could be applied with 2.4GHz WLAN function and 5GHz WLAN function; therefore Co-location Maximum Permissible Exposure (Please refer to FA640825-02AA) test is added for simultaneously transmit between 2.4GHz WLAN function and 5GHz WLAN function.

3.6. Table for Testing Locations

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

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

3.7. Table for Supporting Units

For Test Site No: CO01-CB

Support Unit	Brand	Model	FCC ID
Notebook	DELL	E6430	DoC

For Test Site No: 03CH01-CB and TH01-CB

Support Unit	Brand	Model	FCC ID
Notebook	DELL	E4300	DoC

3.8. Table for Parameters of Test Software Setting

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

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	21	26	24.5	23	23	23
802.11ac MCS0/Nss1 VHT20	21	26	24	22	21	21
Mode	NCB: 40MHz					
802.11ac MCS0/Nss1 VHT40	5190 MHz		5230 MHz	5755 MHz		5795 MHz
	17		24	24.5		23
Mode	NCB: 80MHz					
802.11ac MCS0/Nss1 VHT80	5210 MHz			5775 MHz		
	17			22		

3.9. EUT Operation during Test

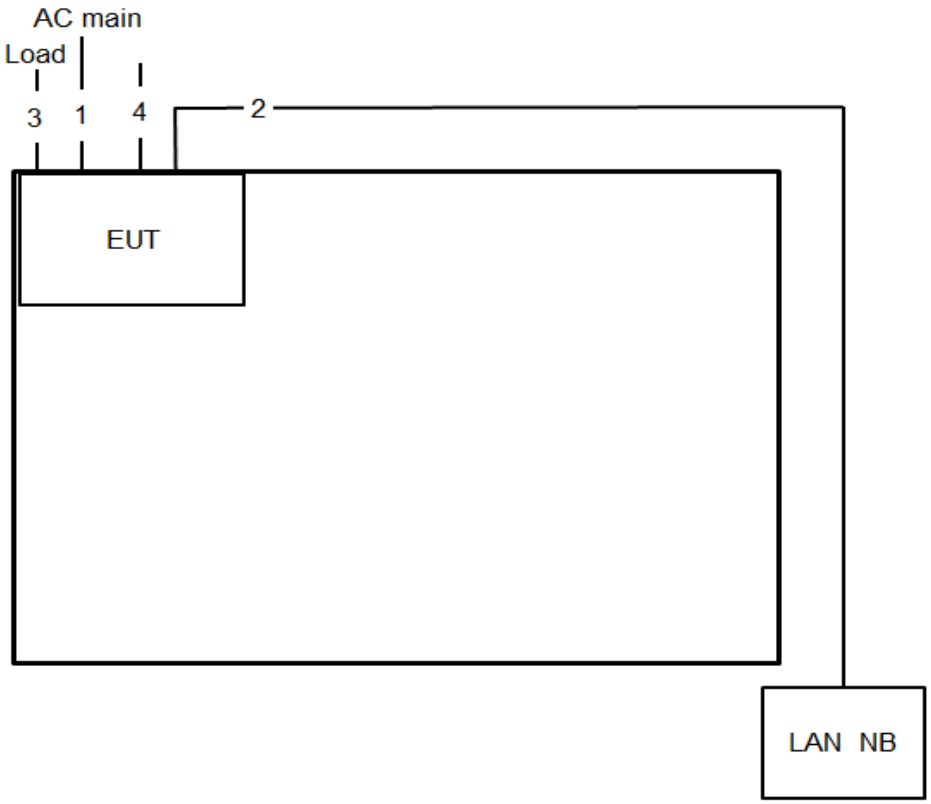
The EUT was programmed to be in continuously transmitting mode.

3.10. Duty Cycle

Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11a	2.019	2.107	95.82	0.19	0.50
802.11ac MCS0/Nss1 VHT20	1.891	1.987	95.16	0.22	0.53
802.11ac MCS0/Nss1 VHT40	0.905	1.017	88.99	0.51	1.10
802.11ac MCS0/Nss1 VHT80	0.424	0.520	81.54	0.89	2.36

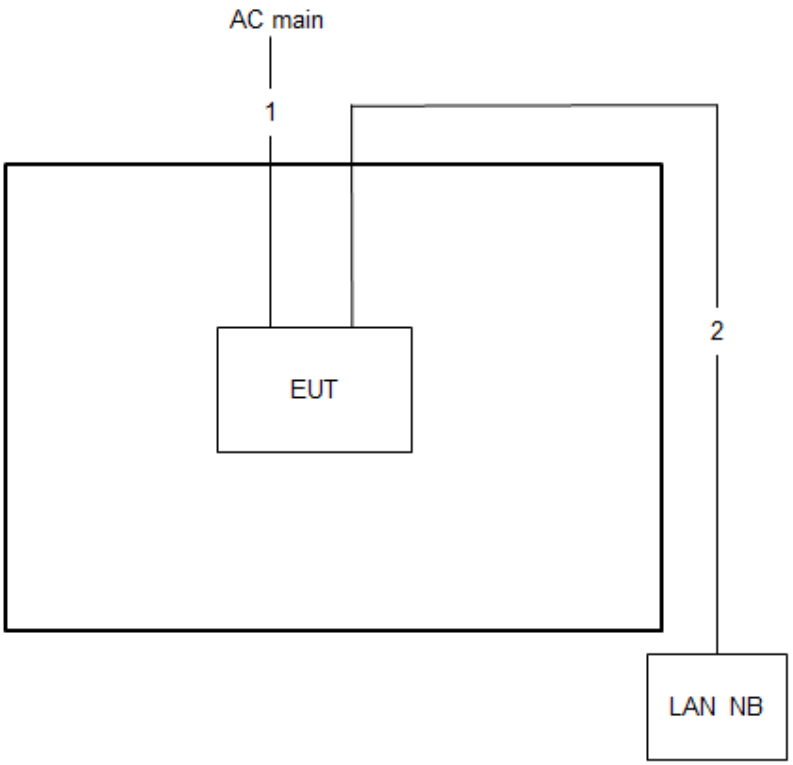
3.11. Test Configurations

3.11.1. AC Power Line Conduction Emissions Test Configuration



Item	Connection	Shielded	Length
1	Power cable	No	3.2m
2	RJ-45 cable	No	10m
3	RJ-45 cable*3	No	1.5m
4	Coaxial cable	Yes	1.5m

3.11.2. Radiation Emissions Test Configuration



Item	Connection	Shielded	Length
1	Power cable	No	3.2m
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

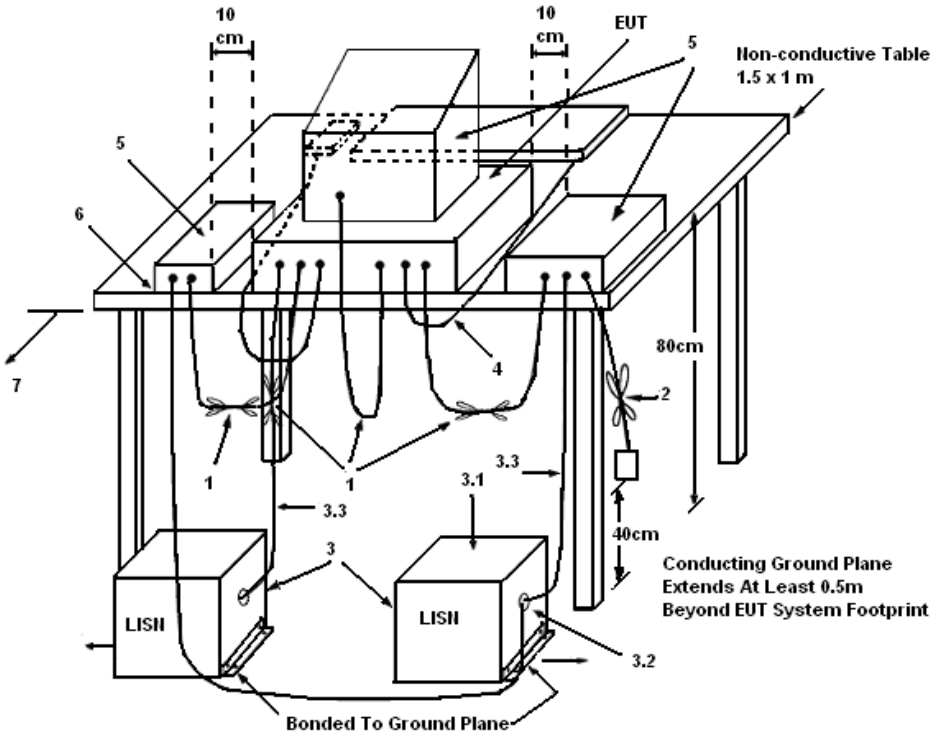
Please refer to section 5 of equipments list in this report. The following table is the setting of the receiver.

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

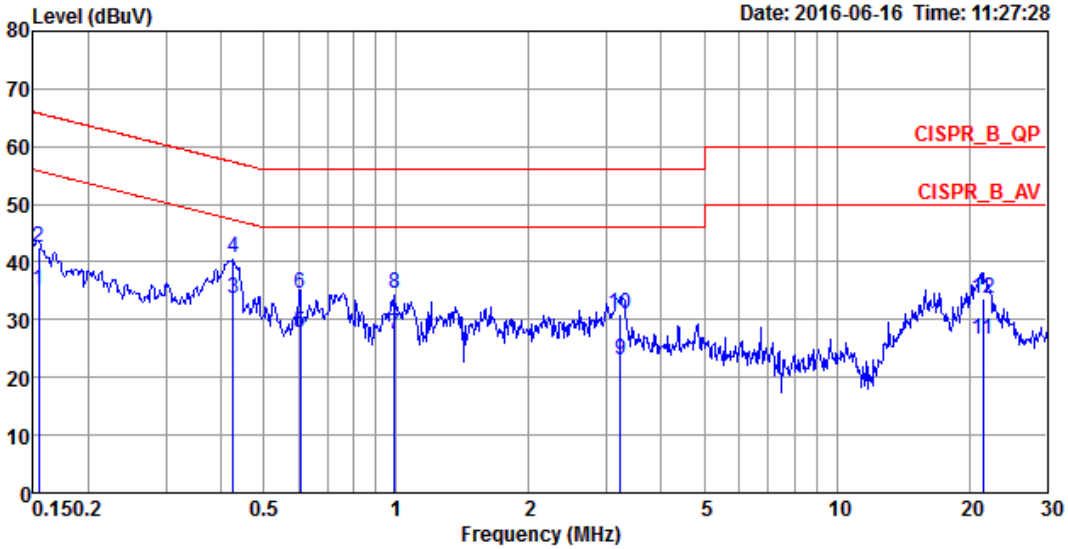
There is no deviation with the original standard.

4.1.6. EUT Operation during Test

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

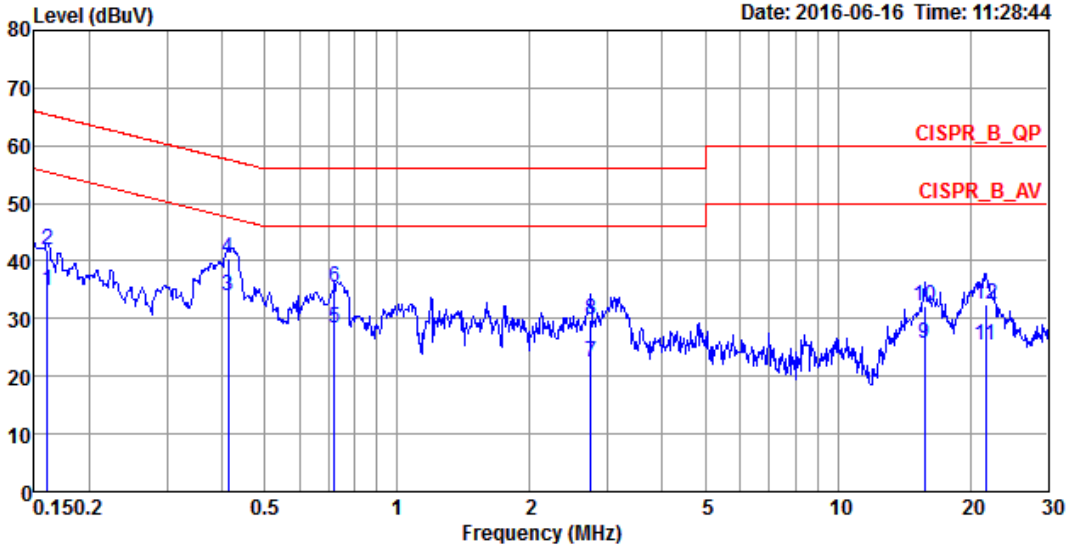
4.1.7. Results of AC Power Line Conducted Emissions Measurement

Temperature	23°C	Humidity	56%
Test Engineer	Deven Huang	Phase	Line
Configuration	CTX		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.1540	35.23	-20.55	55.78	25.05	10.02	0.16	LINE	Average
2	0.1540	42.53	-23.25	65.78	32.35	10.02	0.16	LINE	QP
3	0.4260	33.51	-13.82	47.33	23.53	9.92	0.06	LINE	Average
4	0.4260	40.62	-16.71	57.33	30.64	9.92	0.06	LINE	QP
5	0.6043	27.61	-18.39	46.00	17.34	9.93	0.34	LINE	Average
6	0.6043	34.60	-21.40	56.00	24.33	9.93	0.34	LINE	QP
7	0.9891	27.53	-18.47	46.00	16.86	9.94	0.73	LINE	Average
8	0.9891	34.49	-21.51	56.00	23.82	9.94	0.73	LINE	QP
9	3.2239	23.01	-22.99	46.00	12.95	9.98	0.08	LINE	Average
10	3.2239	30.94	-25.06	56.00	20.88	9.98	0.08	LINE	QP
11	21.4860	26.57	-23.43	50.00	15.97	10.35	0.25	LINE	Average
12	21.4860	33.70	-26.30	60.00	23.10	10.35	0.25	LINE	QP

Temperature	23°C	Humidity	56%
Test Engineer	Deven Huang	Phase	Neutral
Configuration	CTX		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.1607	34.86	-20.57	55.43	24.67	10.02	0.17	NEUTRAL	Average
2	0.1607	41.91	-23.52	65.43	31.72	10.02	0.17	NEUTRAL	QP
3	0.4127	33.84	-13.75	47.59	23.88	9.92	0.04	NEUTRAL	Average
4	0.4127	40.45	-17.14	57.59	30.49	9.92	0.04	NEUTRAL	QP
5	0.7198	28.35	-17.65	46.00	17.94	9.93	0.48	NEUTRAL	Average
6	0.7198	35.52	-20.48	56.00	25.11	9.93	0.48	NEUTRAL	QP
7	2.7502	22.50	-23.50	46.00	12.46	9.97	0.07	NEUTRAL	Average
8	2.7502	29.95	-26.05	56.00	19.91	9.97	0.07	NEUTRAL	QP
9	15.7179	25.78	-24.22	50.00	15.32	10.24	0.22	NEUTRAL	Average
10	15.7179	32.19	-27.81	60.00	21.73	10.24	0.22	NEUTRAL	QP
11	21.7149	25.46	-24.54	50.00	14.86	10.35	0.25	NEUTRAL	Average
12	21.7149	32.42	-27.58	60.00	21.82	10.35	0.25	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

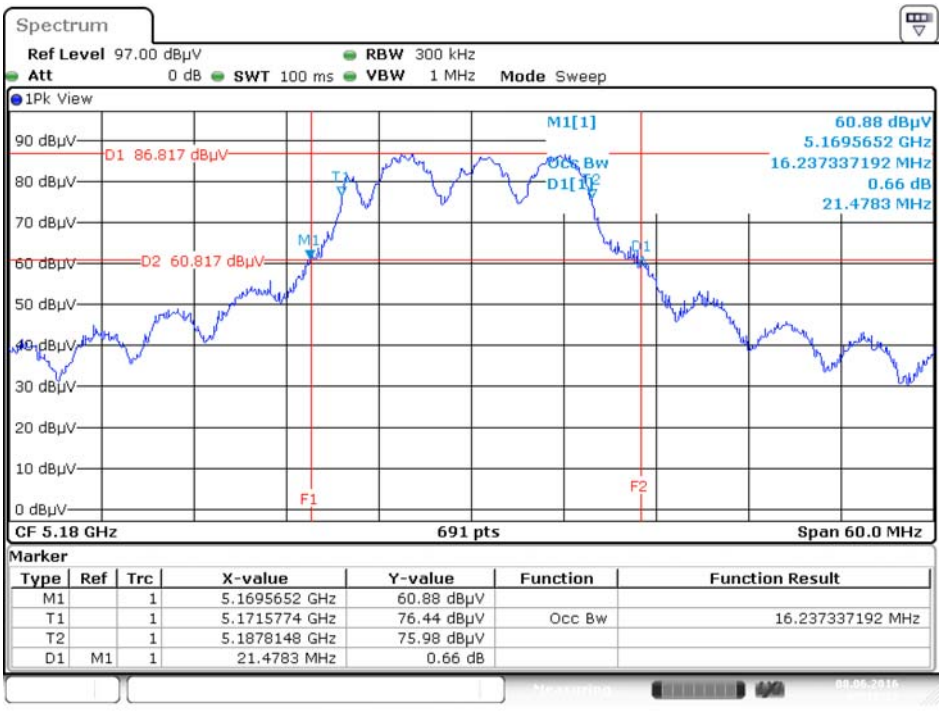
The EUT was programmed to be in continuously transmitting mode.

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

Temperature	24°C	Humidity	60%
Test Engineer	Akina Chiu		

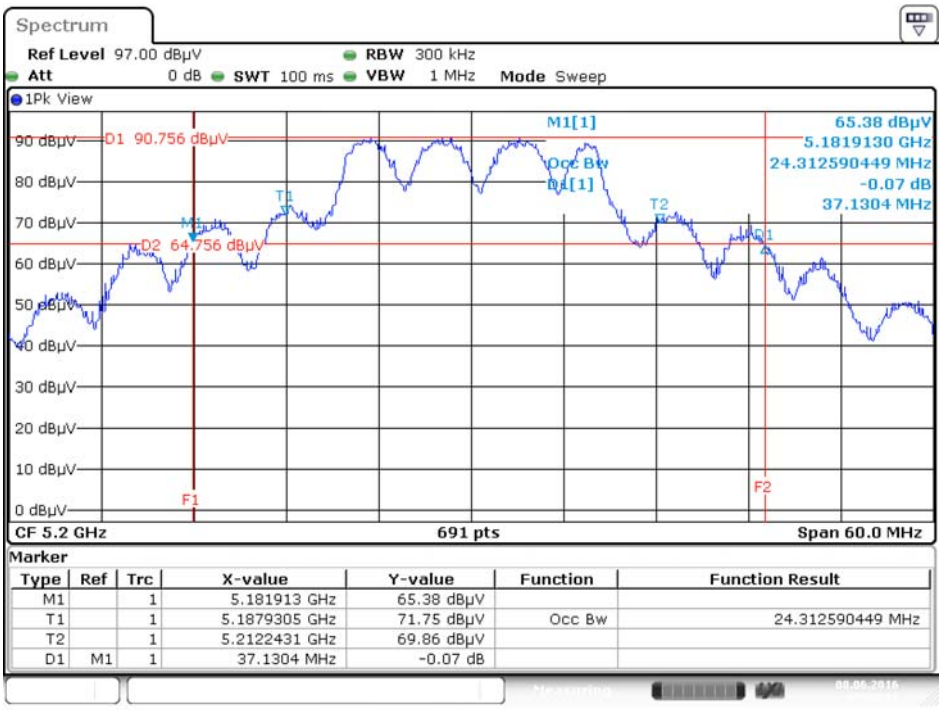
Mode	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11a	5180 MHz	21.48	16.24
	5200 MHz	37.13	24.31
	5240 MHz	32.00	19.28
	5745 MHz	30.52	17.19
	5785 MHz	31.04	17.80
	5825 MHz	34.70	17.80
802.11ac MCS0/Nss1 VHT20	5180 MHz	23.91	18.23
	5200 MHz	32.61	24.05
	5240 MHz	29.39	19.28
	5745 MHz	25.57	18.67
	5785 MHz	24.70	18.49
	5825 MHz	24.96	18.58
802.11ac MCS0/Nss1 VHT40	5190 MHz	45.07	37.34
	5230 MHz	62.03	38.49
	5755 MHz	82.03	41.10
	5795 MHz	55.80	39.22
802.11ac MCS0/Nss1 VHT80	5210 MHz	88.12	76.12
	5775 MHz	102.32	76.99

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 4 + Chain 5 / 5180 MHz



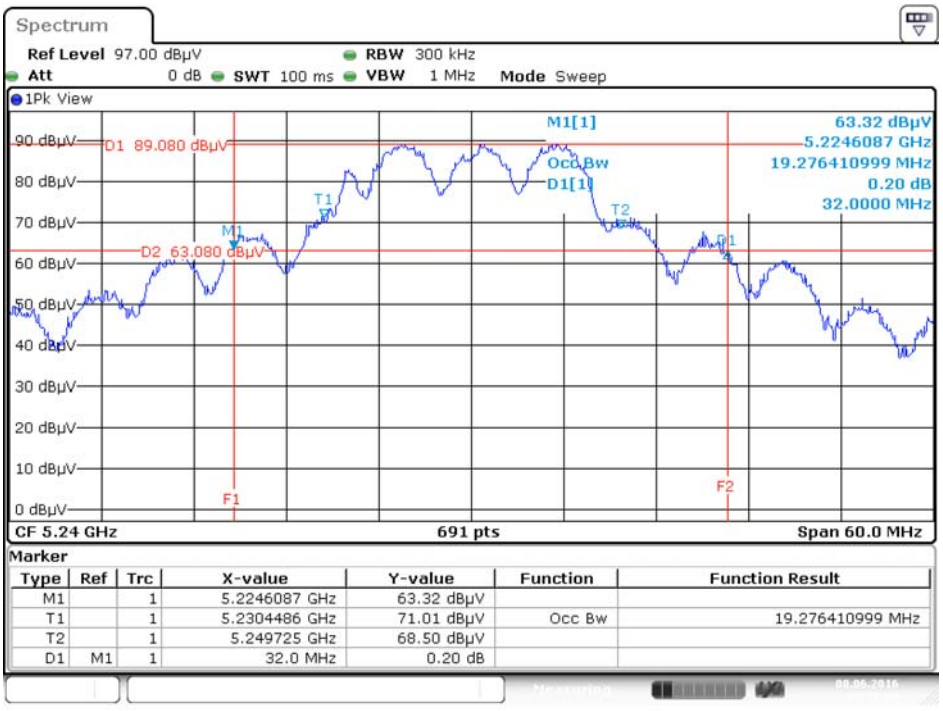
Date: 8.JUN.2016 05:18:36

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 4 + Chain 5 / 5200 MHz



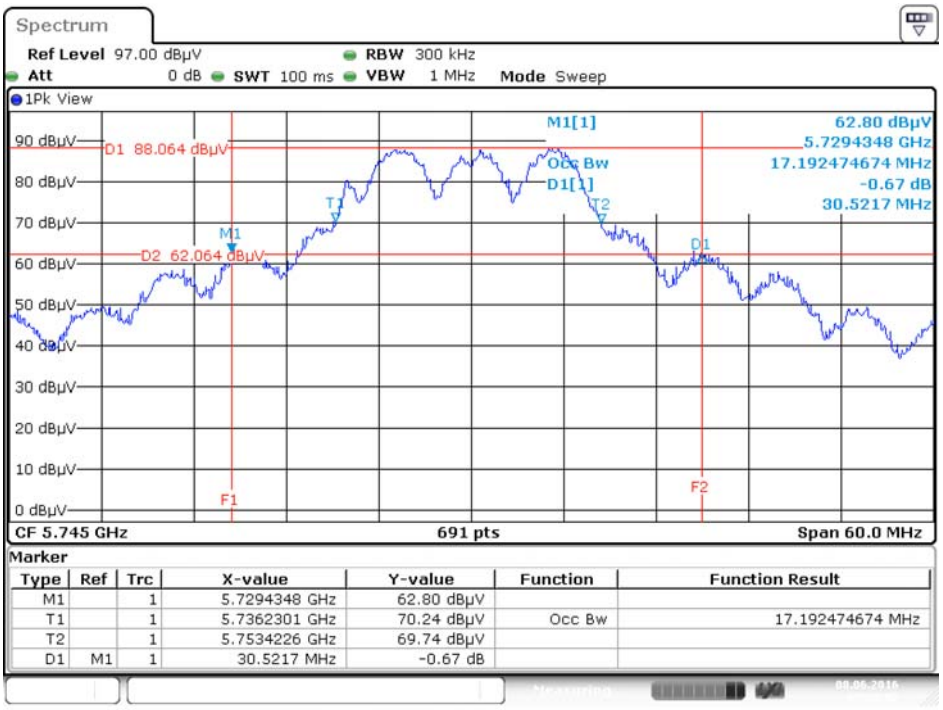
Date: 8.JUN.2016 05:20:11

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 4 + Chain 5 / 5240 MHz



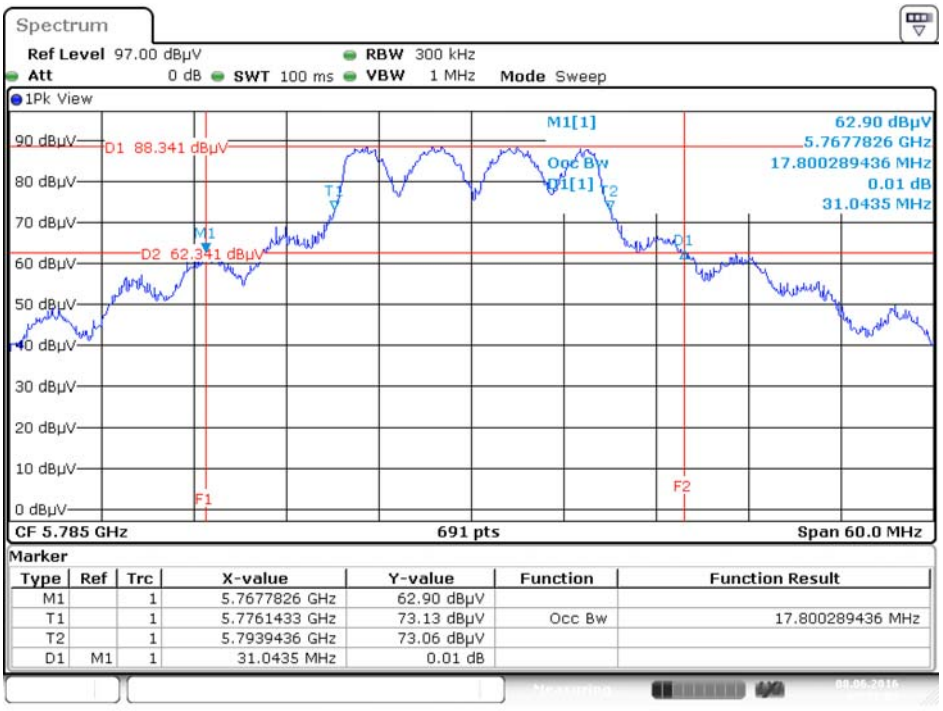
Date: 8.JUN.2016 05:21:24

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 4 + Chain 5 / 5745 MHz



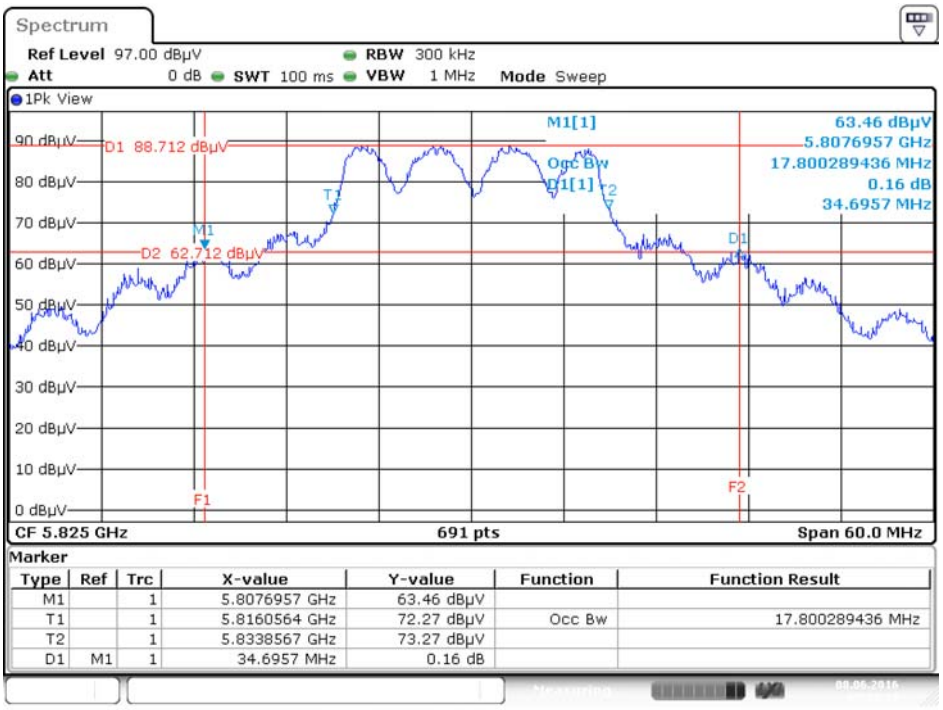
Date: 8.JUN.2016 05:30:02

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 4 + Chain 5 / 5785 MHz



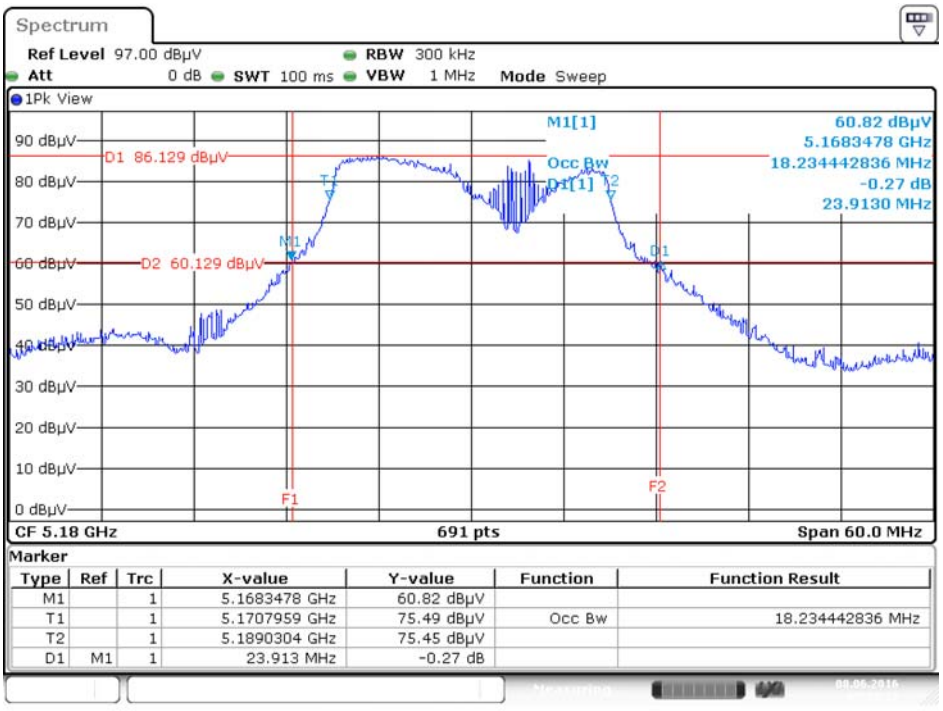
Date: 8.JUN.2016 05:31:03

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 4 + Chain 5 / 5825 MHz



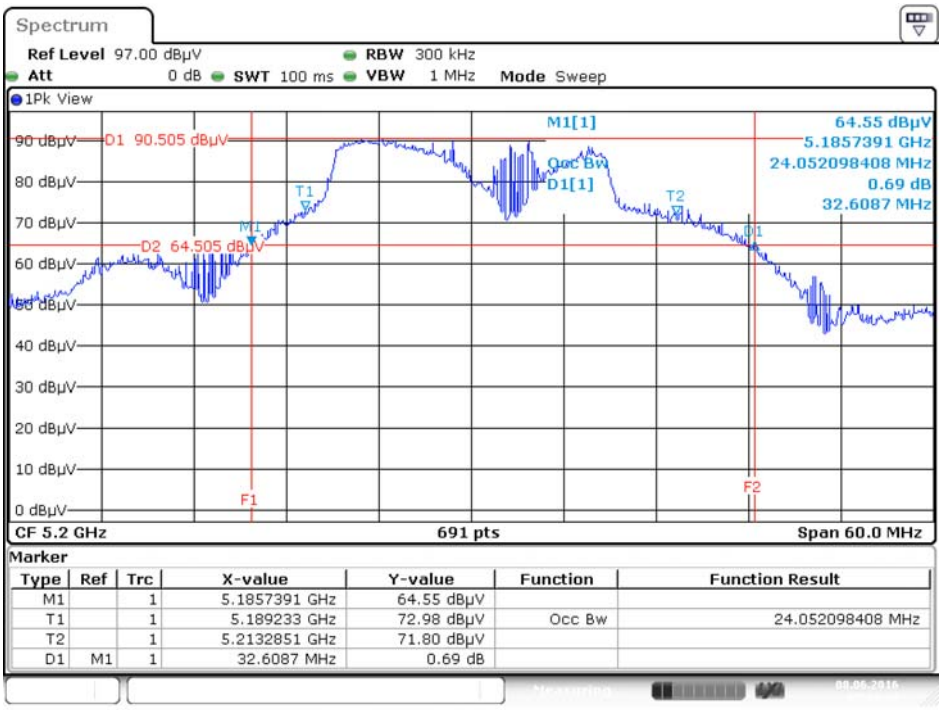
Date: 8.JUN.2016 05:32:10

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4 + Chain 5 / 5180 MHz



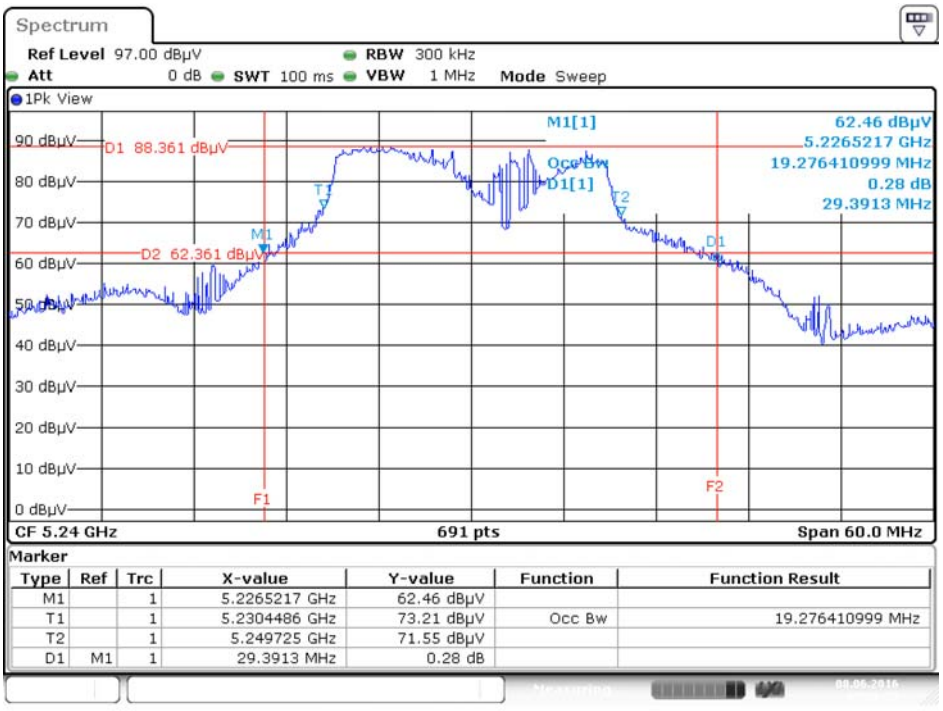
Date: 8.JUN.2016 05:33:32

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4 + Chain 5 / 5200 MHz



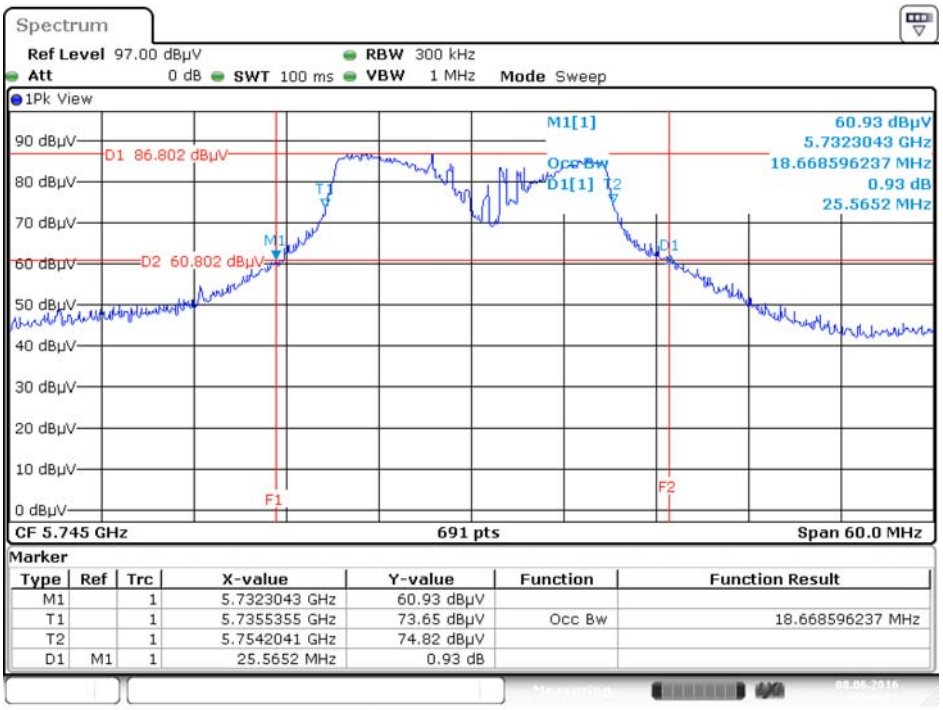
Date: 8.JUN.2016 05:34:34

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4 + Chain 5 / 5240 MHz



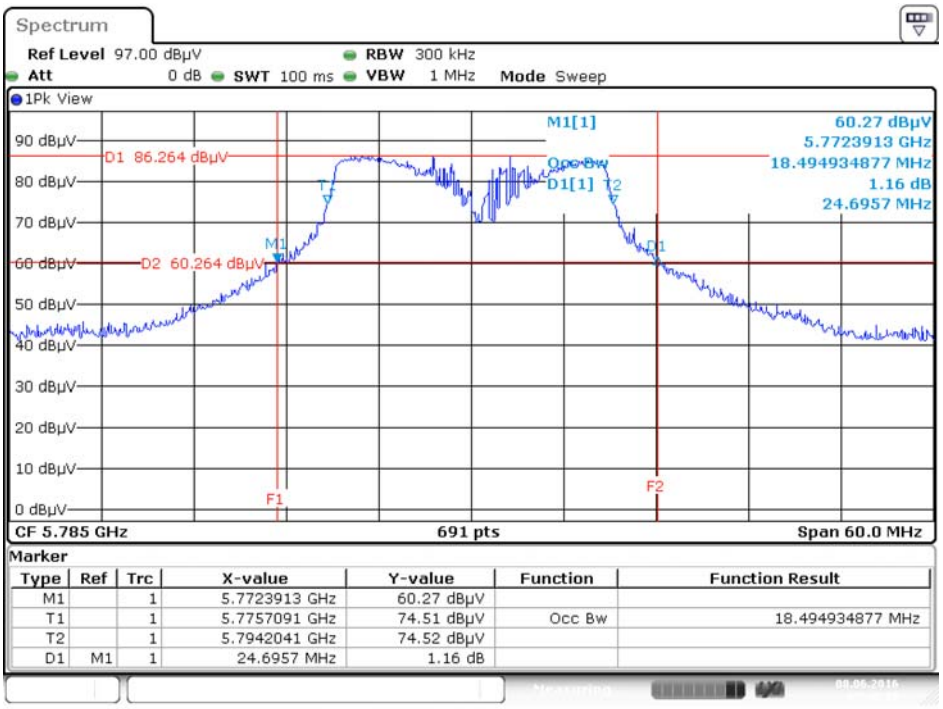
Date: 8.JUN.2016 05:36:23

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4 + Chain 5 / 5745 MHz



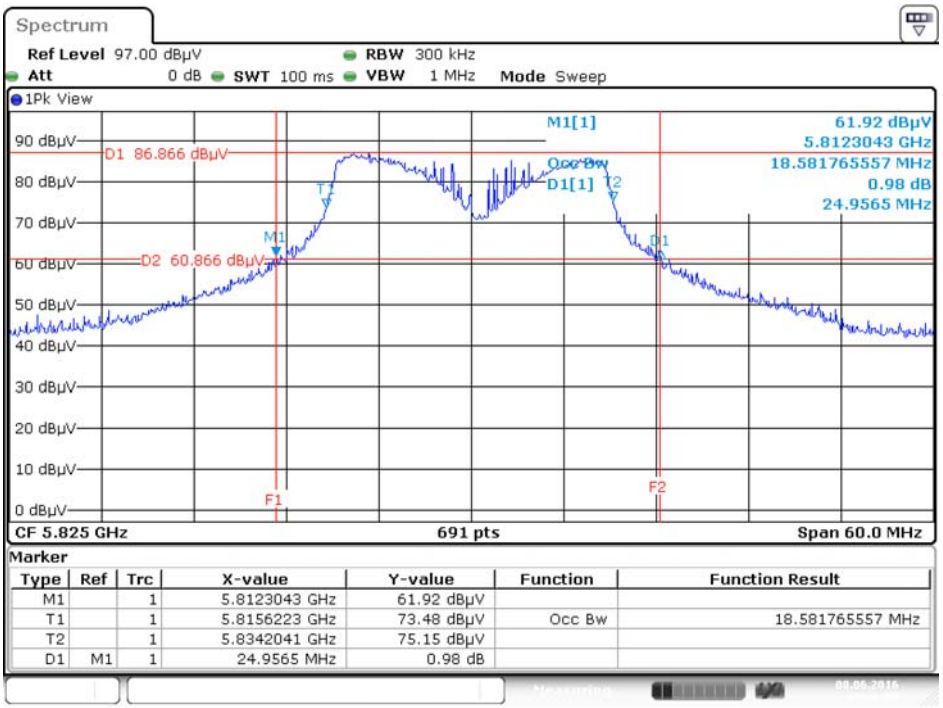
Date: 8.JUN.2016 05:44:27

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4 + Chain 5 / 5785 MHz



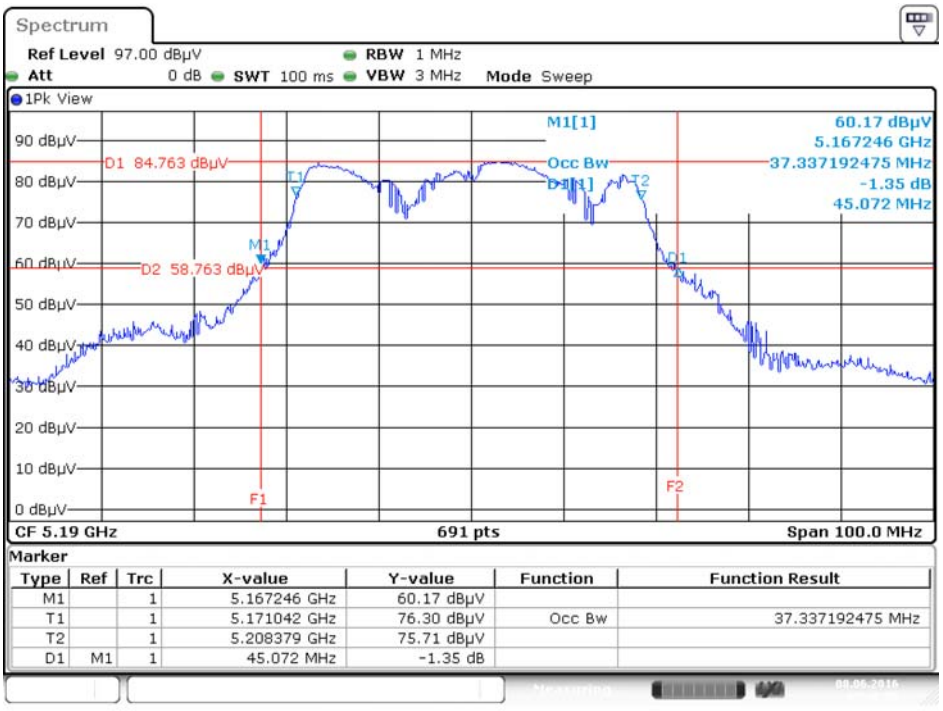
Date: 8.JUN.2016 05:45:38

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4 + Chain 5 / 5825 MHz



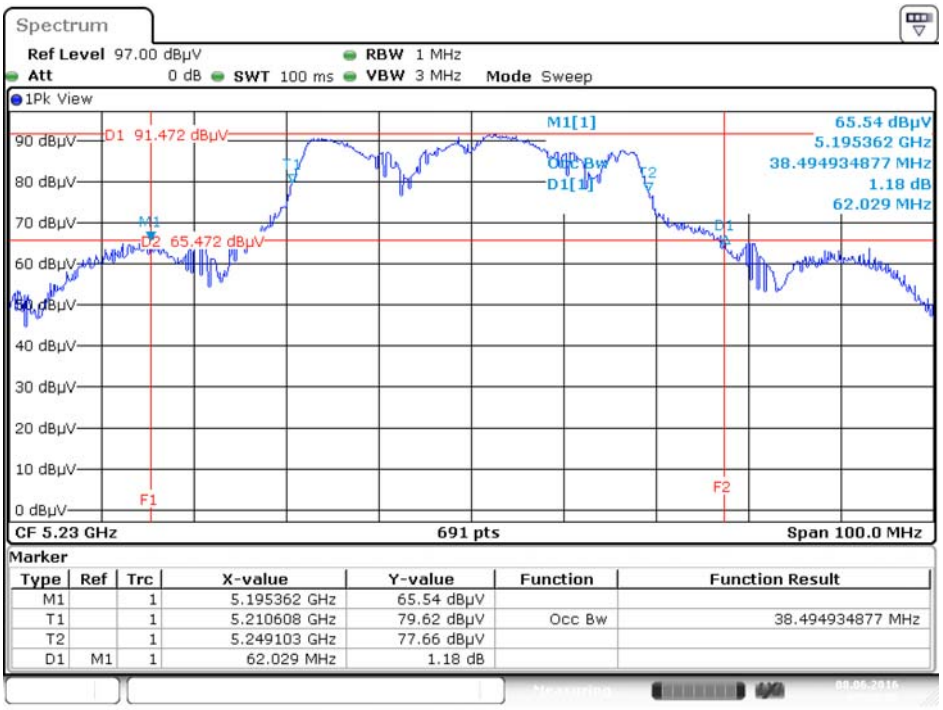
Date: 8.JUN.2016 05:46:59

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 4 + Chain 5 / 5190 MHz



Date: 8.JUN.2016 05:48:54

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 4 + Chain 5 / 5230 MHz

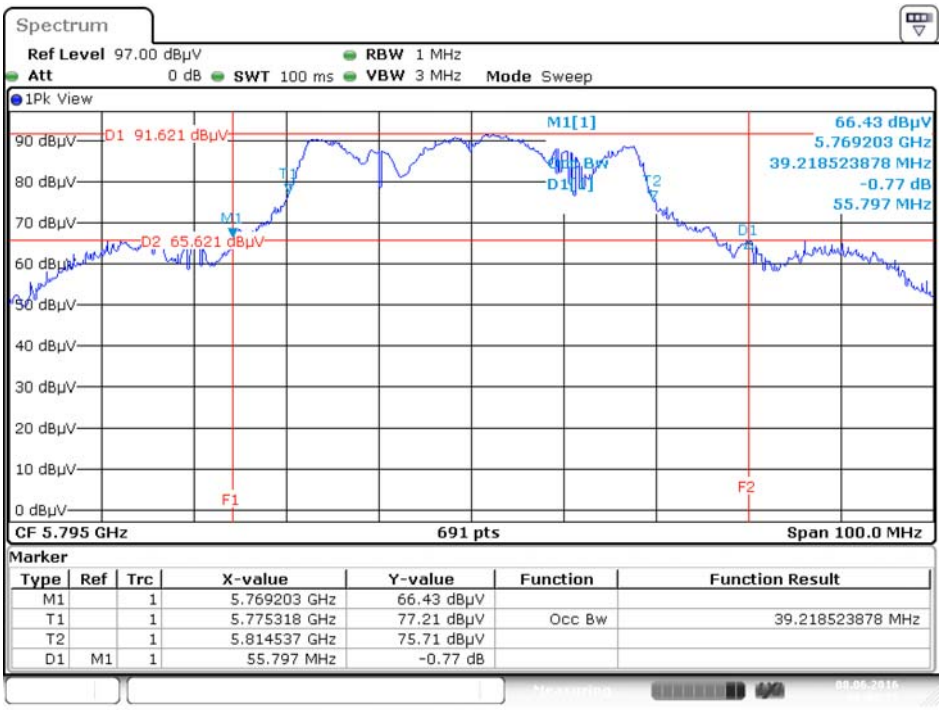


Date: 8.JUN.2016 05:50:26

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 4 + Chain 5 / 5755 MHz

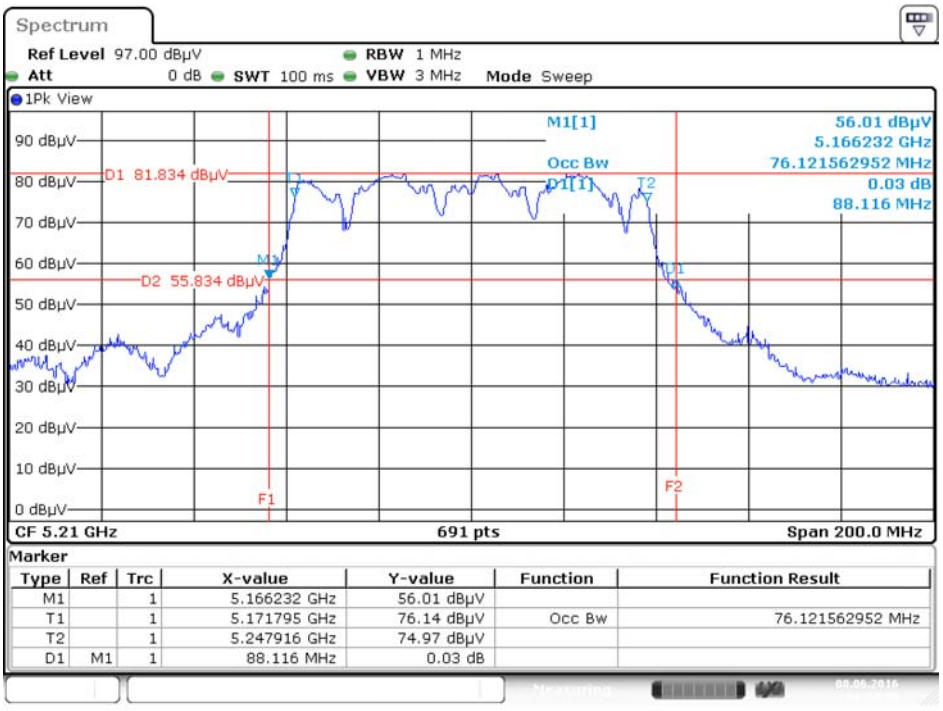
Date: 8.JUN.2016 05:59:04

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 4 + Chain 5 / 5795 MHz



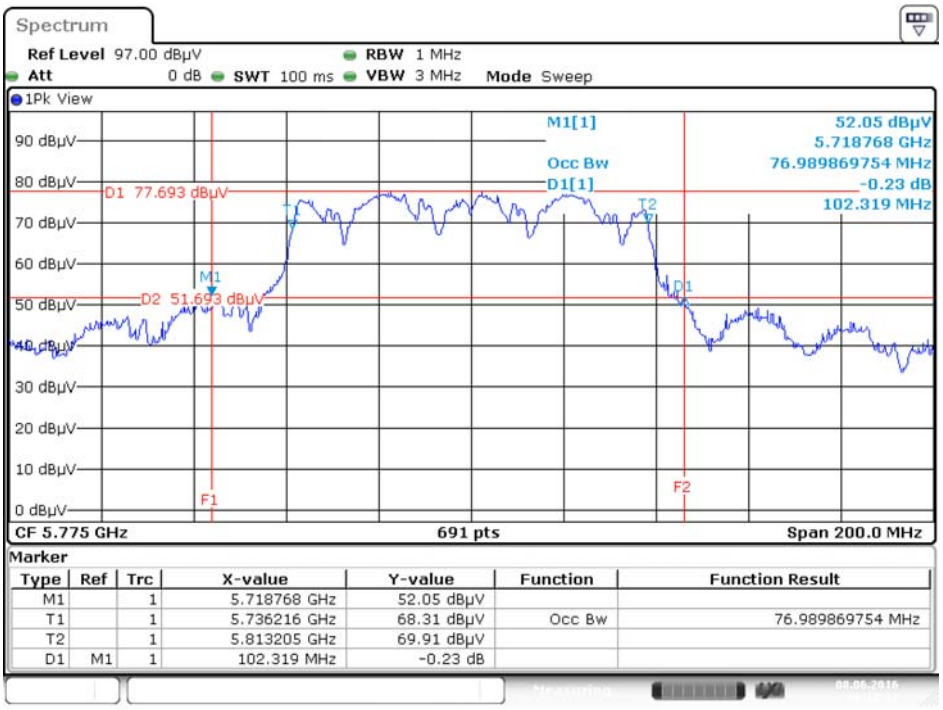
Date: 8.JUN.2016 06:00:32

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 4 + Chain 5 / 5210 MHz



Date: 8.JUN.2016 06:03:06

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 4 + Chain 5 / 5775 MHz



Date: 8.JUN.2016 06:12:22

4.3. 6dB Spectrum Bandwidth Measurement

4.3.1. Limit

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

4.3.2. Measuring Instruments and Setting

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

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

4.3.3. Test Procedures

For Radiated 6dB Bandwidth Measurement:

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

4.3.4. Test Setup Layout

For Radiated 6dB Bandwidth Measurement:

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

4.3.5. Test Deviation

There is no deviation with the original standard.

4.3.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.3.7. Test Result of 6dB Spectrum Bandwidth

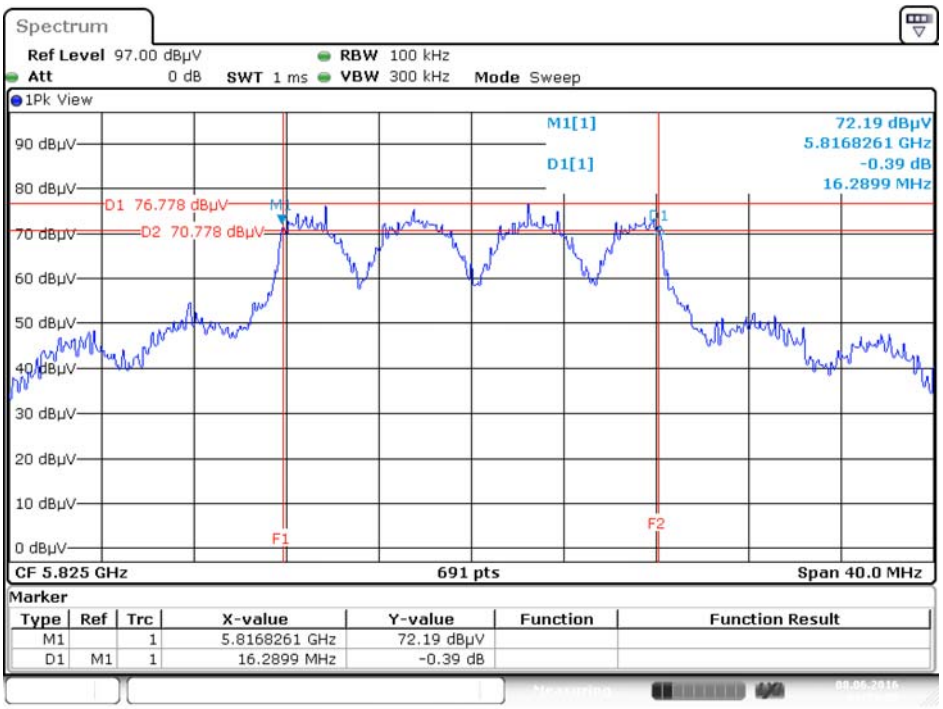
Temperature	24°C	Humidity	60%
Test Engineer	Akina Chiu		

Mode	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Test Result
802.11a	5745 MHz	16.46	500	Complies
	5785 MHz	16.46	500	Complies
	5825 MHz	16.29	500	Complies
802.11ac MCS0/Nss1 VHT20	5745 MHz	17.62	500	Complies
	5785 MHz	17.68	500	Complies
	5825 MHz	17.57	500	Complies
802.11ac MCS0/Nss1 VHT40	5755 MHz	34.55	500	Complies
	5795 MHz	34.78	500	Complies
802.11ac MCS0/Nss1 VHT80	5775 MHz	73.33	500	Complies

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

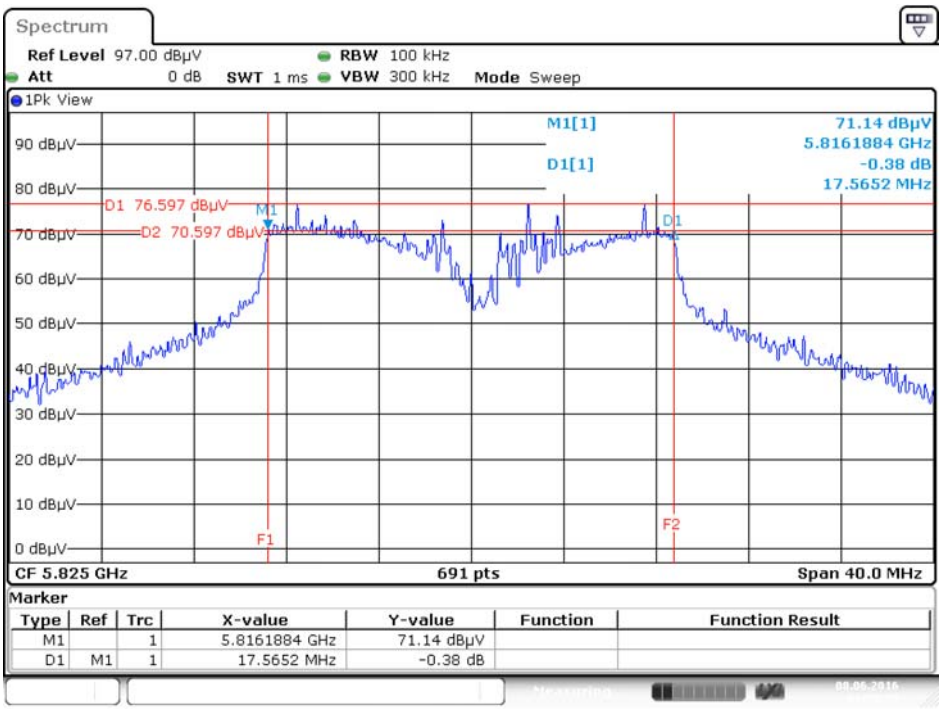
For plots, only the channel with worse result was shown.

6 dB Bandwidth Plot on Configuration IEEE 802.11a / Chain 4 + Chain 5 / 5825 MHz



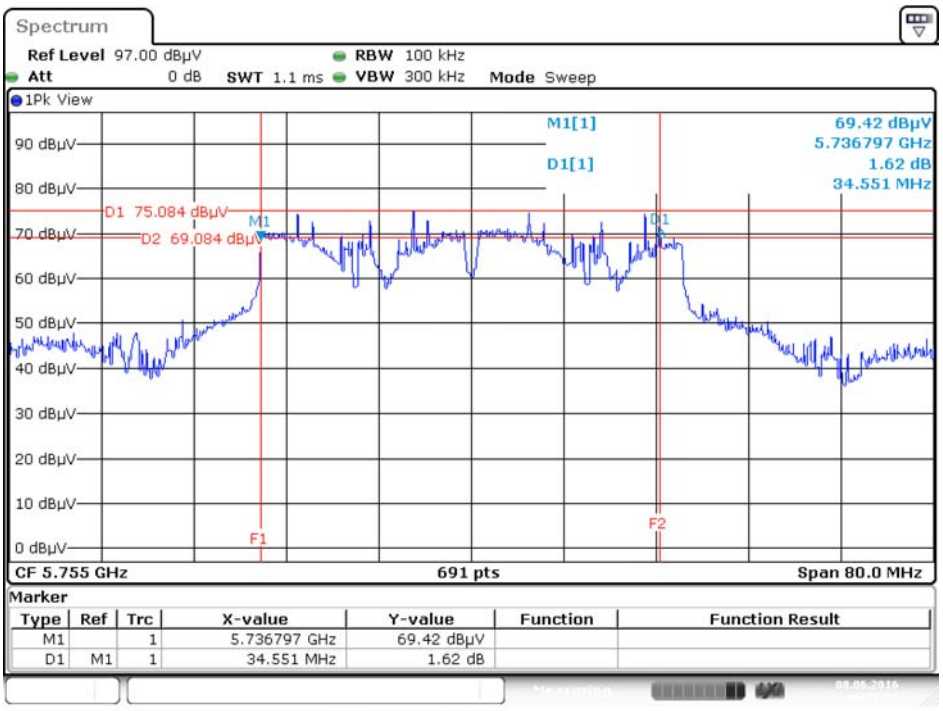
Date: 8.JUN.2016 09:54:20

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4 + Chain 5 / 5825 MHz



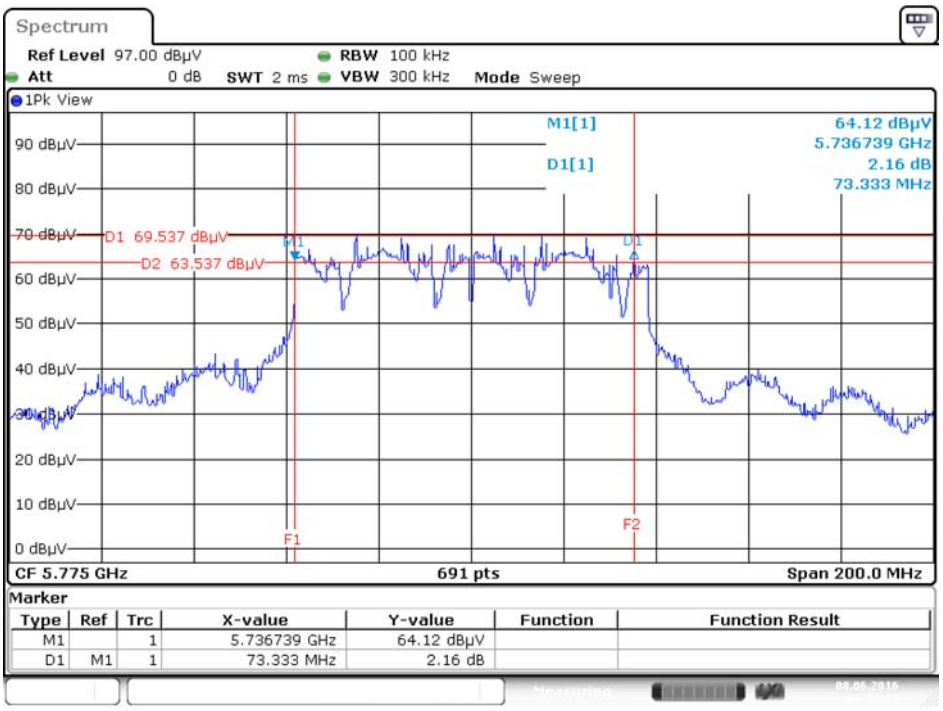
Date: 8.JUN.2016 09:55:53

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 4 + Chain 5 / 5755MHz



Date: 8.JUN.2016 09:57:25

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 4 + Chain 5 / 5775 MHz



Date: 8.JUN.2016 09:59:13

4.4. Maximum Conducted Output Power Measurement

4.4.1. Limit

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

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

4.4.2. Measuring Instruments and Setting

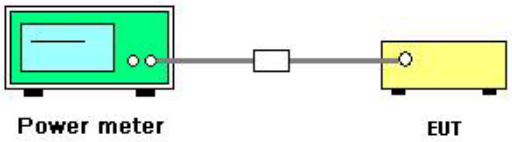
Please refer to section 5 of equipments list in this report. The following table is the setting of the power meter.

Power Meter Parameter	Setting
Detector	AVERAGE

4.4.3. Test Procedures

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

4.4.4. Test Setup Layout



4.4.5. Test Deviation

There is no deviation with the original standard.

4.4.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.4.7. Test Result of Maximum Conducted Output Power

Temperature	23°C	Humidity	56%
Test Engineer	Akina Chiu	Test Date	Jun. 01, 2016~Jun. 08, 2016

Mode	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Chain 4	Chain 5	Total		
802.11a	5180 MHz	20.05	20.94	23.53	30.00	Complies
	5200 MHz	23.91	24.45	27.20	30.00	Complies
	5240 MHz	23.03	23.53	26.30	30.00	Complies
	5745 MHz	21.79	22.03	24.92	30.00	Complies
	5785 MHz	21.85	22.85	25.39	30.00	Complies
	5825 MHz	21.88	22.84	25.40	30.00	Complies
802.11ac MCS0/Nss1 VHT20	5180 MHz	20.03	20.97	23.54	30.00	Complies
	5200 MHz	24.28	24.37	27.34	30.00	Complies
	5240 MHz	22.62	23.14	25.90	30.00	Complies
	5745 MHz	20.71	22.06	24.45	30.00	Complies
	5785 MHz	19.88	21.17	23.58	30.00	Complies
	5825 MHz	19.92	21.43	23.75	30.00	Complies
802.11ac MCS0/Nss1 VHT40	5190 MHz	15.79	16.26	19.04	30.00	Complies
	5230 MHz	21.82	22.77	25.33	30.00	Complies
	5755 MHz	22.47	23.25	25.89	30.00	Complies
	5795 MHz	21.75	22.94	25.40	30.00	Complies
802.11ac MCS0/Nss1 VHT80	5210 MHz	15.68	16.02	18.86	30.00	Complies
	5775 MHz	20.42	21.87	24.22	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

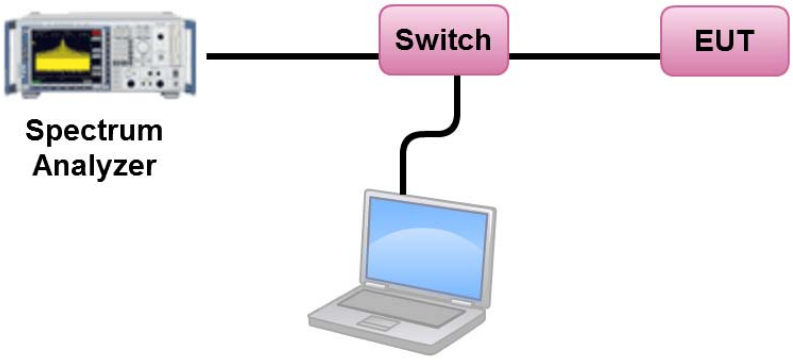
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

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 v01r03 for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - section (F) Maximum Power Spectral Density (PSD).
3. Multiple antenna systems was performed in accordance KDB662911 D01 v02r01 in-Band Power Spectral Density (PSD) Measurements and sum the spectra across the outputs.
4. For 5.725~5.85 GHz, the measured result of PSD level must add 10log(500kHz/RBW) and the final result should ≤ 30 dBm.

4.5.4. Test Setup Layout



4.5.5. Test Deviation

There is no deviation with the original standard.

4.5.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.5.7. Test Result of Power Spectral Density

Temperature	23°C	Humidity	56%
Test Engineer	Akina Chiu		

Configuration IEEE 802.11a / Chain 4 + Chain 5

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	10.21	15.79	Complies
40	5200 MHz	13.90	15.79	Complies
48	5240 MHz	13.01	15.79	Complies

Note: $Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =7.21dBi>6dBi, so Limit=17-(7.21-6)=15.79dBm/MHz.

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
149	5745 MHz	12.06	-3.01	9.05	28.79	Complies
157	5785 MHz	12.12	-3.01	9.11	28.79	Complies
165	5825 MHz	12.23	-3.01	9.22	28.79	Complies

Note: $Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =7.21dBi>6dBi, so Limit=30-(7.21-6)=28.79dBm/500kHz.

Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4 + Chain 5

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	10.32	15.79	Complies
40	5200 MHz	14.01	15.79	Complies
48	5240 MHz	12.65	15.79	Complies

Note: $Directional\ Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =7.21dBi>6dBi, so Limit=17-(7.21-6)=15.79dBm/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	11.18	-3.01	8.17	28.79	Complies
157	5785 MHz	10.38	-3.01	7.37	28.79	Complies
165	5825 MHz	10.55	-3.01	7.54	28.79	Complies

Note: $Directional\ Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =7.21dBi>6dBi, so Limit=30-(7.21-6)=28.79dBm/500kHz.

Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 4 + Chain 5

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	2.82	15.79	Complies
46	5230 MHz	9.07	15.79	Complies

Note: $Directional\ Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =7.21dBi>6dBi, so Limit=17-(7.21-6)=15.79dBm/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	9.61	-3.01	6.60	28.79	Complies
159	5795 MHz	9.18	-3.01	6.17	28.79	Complies

Note: $Directional\ Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =7.21dBi>6dBi, so Limit=30-(7.21-6)=28.79dBm/500kHz.

Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 4 + Chain 5

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
42	5210 MHz	-0.30	15.79	Complies

Note: $Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =7.21dBi>6dBi, so Limit=17-(7.21-6)=15.79dBm/MHz.

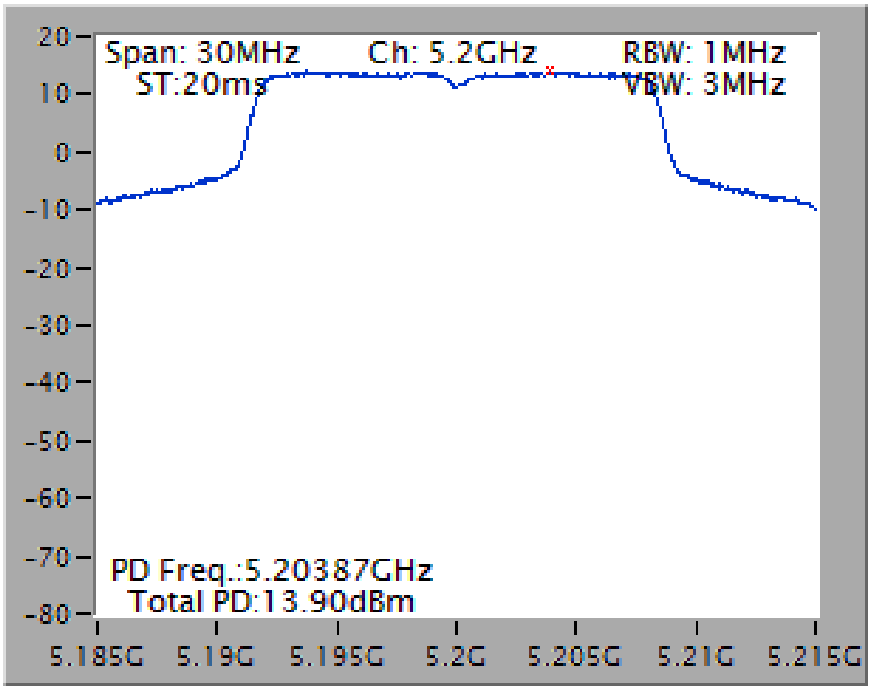
Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
155	5775 MHz	5.08	-3.01	2.07	28.79	Complies

Note: $Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =7.21dBi>6dBi, so Limit=30-(7.21-6)=28.79dBm/500kHz.

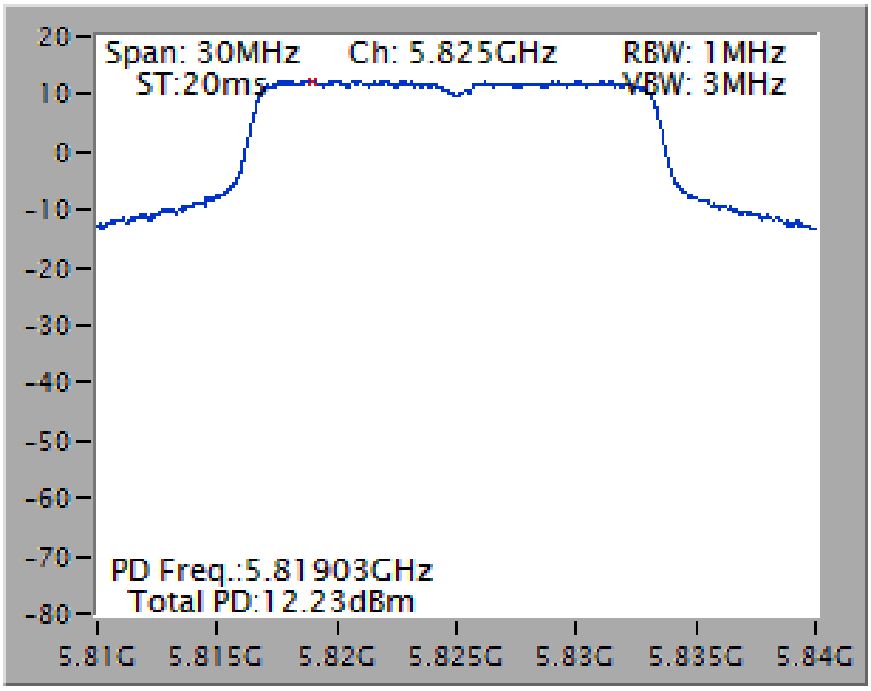
Note: All the test values were listed in the report.

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

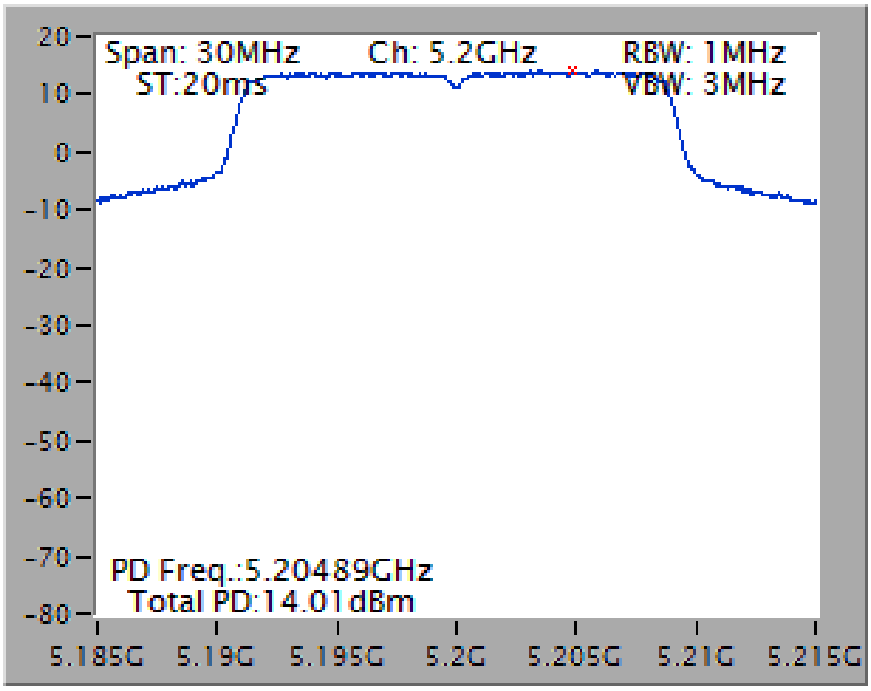
Power Density Plot on Configuration IEEE 802.11a / Chain 4 + Chain 5 / 5200 MHz



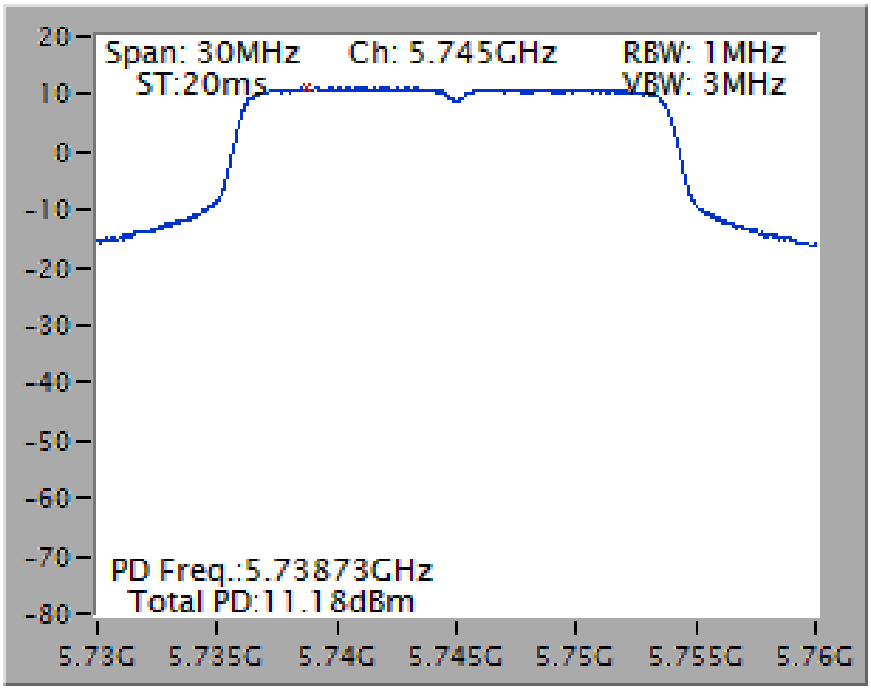
Power Density Plot on Configuration IEEE 802.11a / Chain 4 + Chain 5 / 5825 MHz



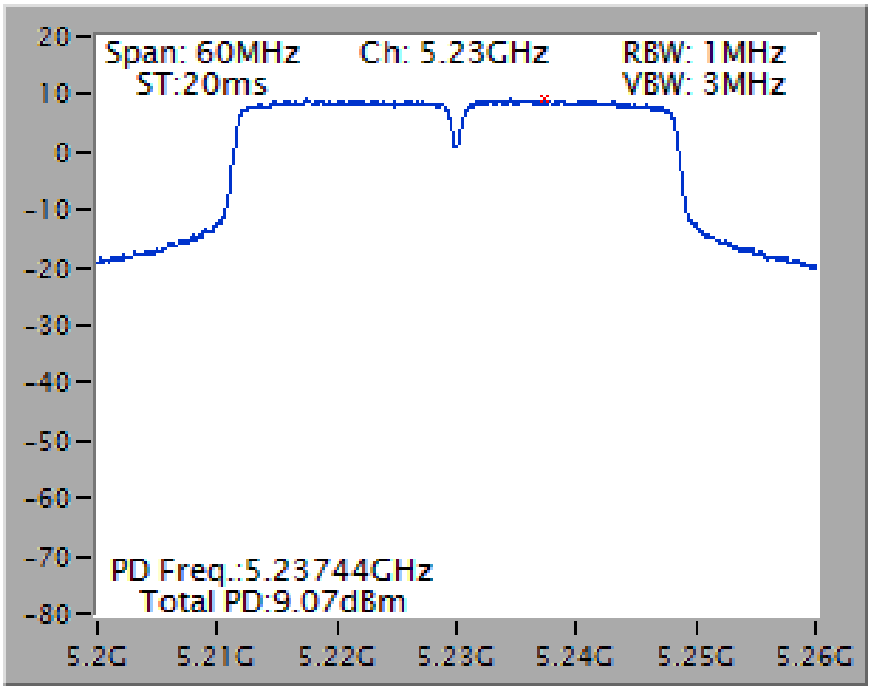
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4 + Chain 5 / 5200 MHz



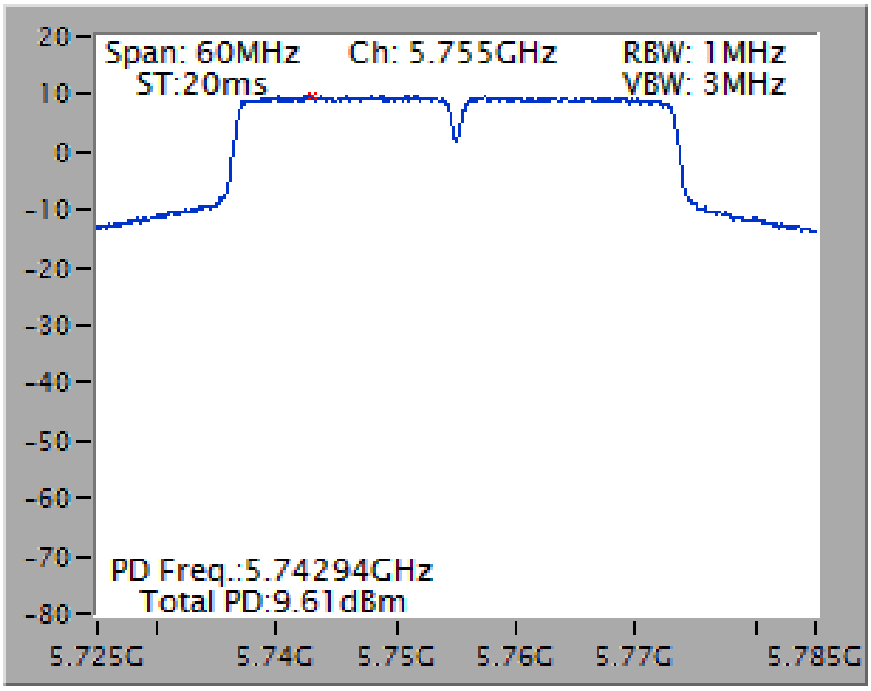
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4 + Chain 5 / 5745 MHz



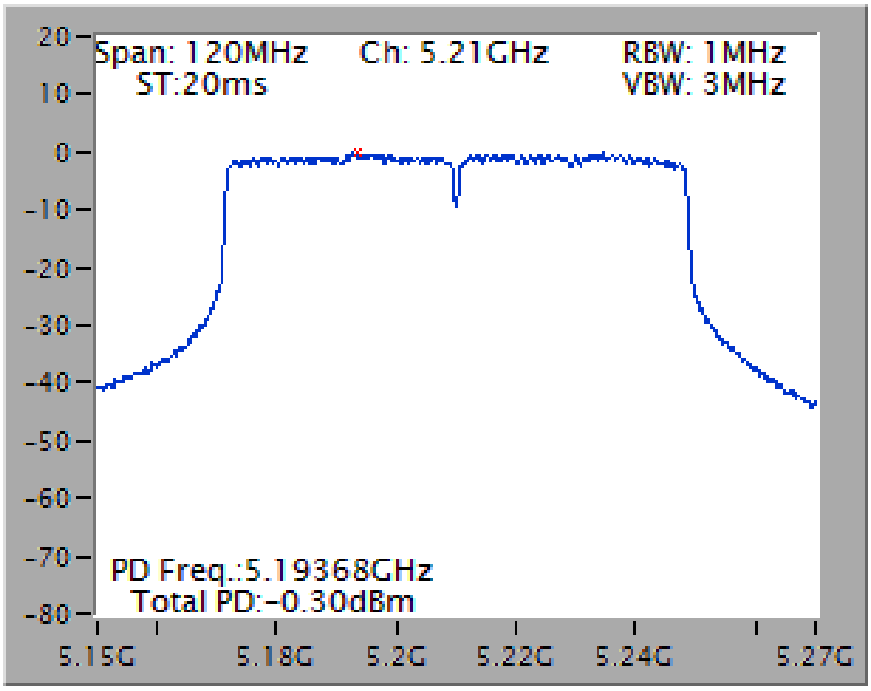
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 4 + Chain 5 / 5230 MHz



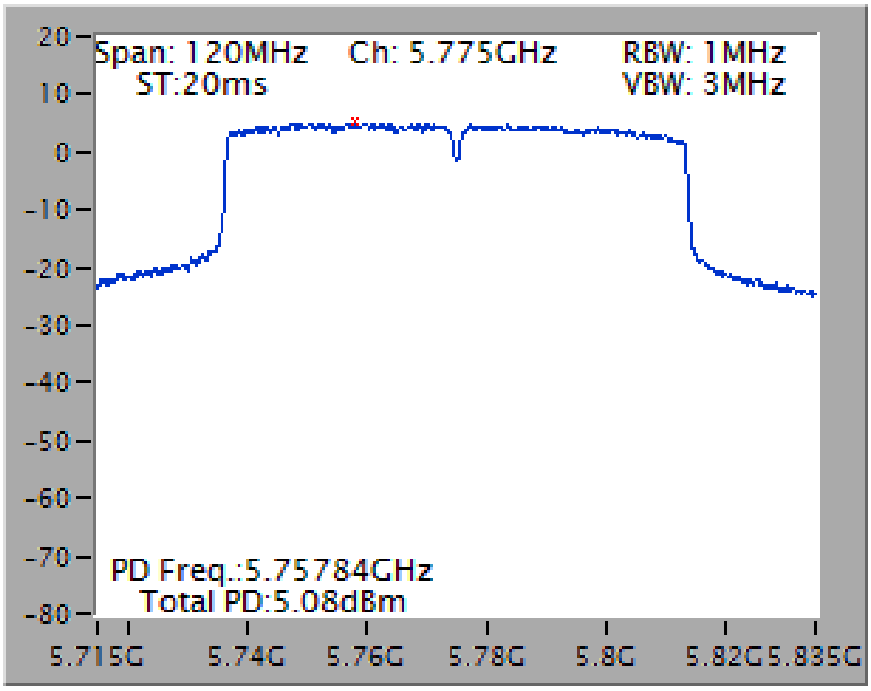
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 4 + Chain 5 / 5755 MHz



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 4 + Chain 5 / 5210 MHz



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 4 + Chain 5 / 5775 MHz



4.6. Radiated Emissions Measurement

4.6.1. Limit

For transmitters operating in the 5.15-5.25 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

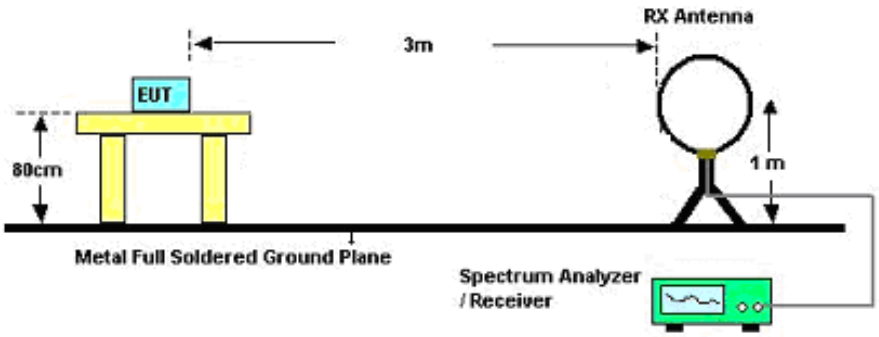
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RBW 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RBW 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RBW 120kHz for QP

4.6.3. Test Procedures

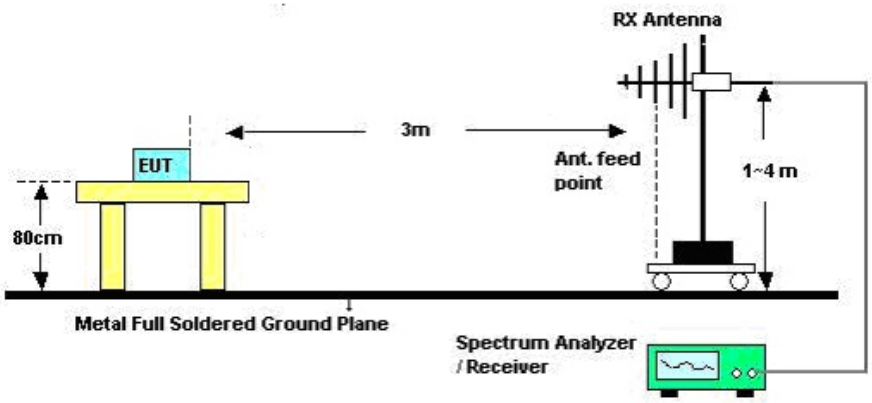
1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 1m & 3m far away from the turntable.
2. Power on the EUT and all the supporting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

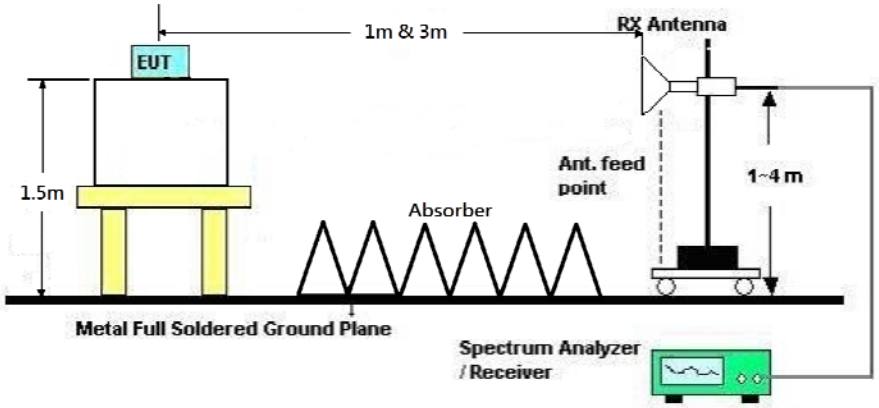
For Radiated Emissions: 9kHz ~30MHz



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	22°C	Humidity	54%
Test Engineer	Steven Liang	Configurations	CTX
Test Date	Jun. 14, 2016		

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

Note:

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

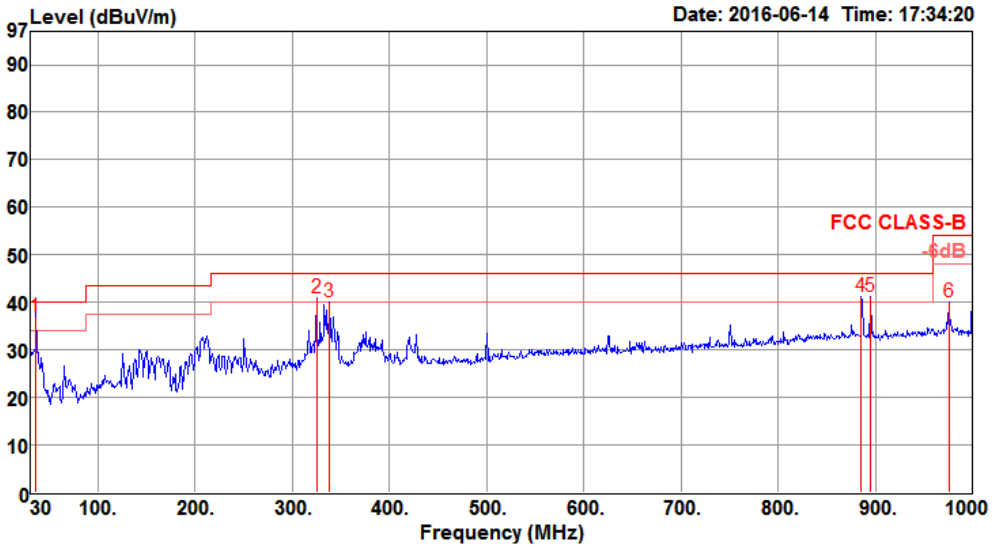
Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

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

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

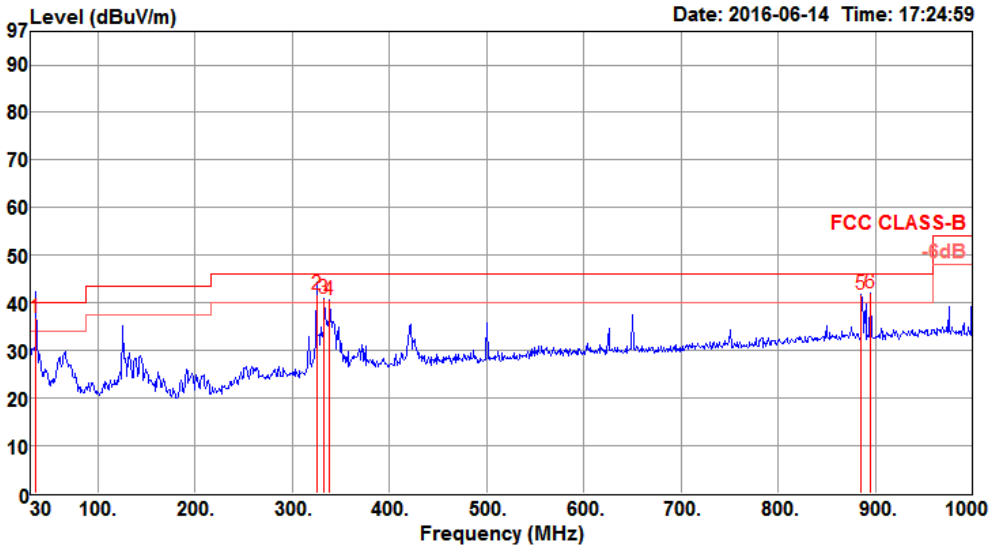
Temperature	22°C	Humidity	54%
Test Engineer	Steven Liang	Configurations	CTX

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	35.82	36.81	40.00	-3.19	41.86	1.25	22.18	28.48	119	248	QP	HORIZONTAL
2	324.88	40.96	46.00	-5.04	46.18	2.19	20.35	27.76	100	0	Peak	HORIZONTAL
3	338.46	39.97	46.00	-6.03	44.91	2.22	20.70	27.86	100	0	Peak	HORIZONTAL
4	885.54	41.27	46.00	-4.73	38.45	3.42	27.48	28.08	100	0	Peak	HORIZONTAL
5	895.24	41.29	46.00	-4.71	38.32	3.44	27.55	28.02	100	0	Peak	HORIZONTAL
6	975.75	40.17	54.00	-13.83	36.04	3.70	28.15	27.72	100	0	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	35.82	36.96	40.00	-3.04	42.01	1.25	22.18	28.48	102	236	QP	VERTICAL
2	324.88	41.68	46.00	-4.32	46.90	2.19	20.35	27.76	171	137	QP	VERTICAL
3	332.64	40.86	46.00	-5.14	45.90	2.21	20.56	27.81	300	0	Peak	VERTICAL
4	338.46	40.70	46.00	-5.30	45.64	2.22	20.70	27.86	300	0	Peak	VERTICAL
5	885.54	41.84	46.00	-4.16	39.02	3.42	27.48	28.08	300	0	Peak	VERTICAL
6	895.24	42.12	46.00	-3.88	39.15	3.44	27.55	28.02	300	0	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	22°C	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11a CH 36 / Chain 4 + Chain 5
Test Date	May 27, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15539.77	57.50	74.00	-16.50	40.82	12.28	38.13	33.73	122	86	Peak	HORIZONTAL
2	15540.49	44.08	54.00	-9.92	27.40	12.28	38.13	33.73	122	86	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	15539.96	57.25	74.00	-16.75	40.57	12.28	38.13	33.73	142	207	Peak	VERTICAL
2	15540.54	44.09	54.00	-9.91	27.41	12.28	38.13	33.73	142	207	Average	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11a CH 40 / Chain 4 + Chain 5
Test Date	May 28, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15601.99	45.19	54.00	-8.81	28.67	12.31	37.98	33.77	161	88	Average	HORIZONTAL
2	15604.87	57.41	74.00	-16.59	40.89	12.31	37.98	33.77	161	88	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	15601.96	44.87	54.00	-9.13	28.35	12.31	37.98	33.77	141	87	Average	VERTICAL
2	15602.63	57.87	74.00	-16.13	41.35	12.31	37.98	33.77	141	87	Peak	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11a CH 48 / Chain 4 + Chain 5
Test Date	May 28, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15720.61	56.34	74.00	-17.66	40.07	12.35	37.84	33.92	166	163	Peak	HORIZONTAL
2	15723.53	45.33	54.00	-8.67	29.06	12.35	37.84	33.92	166	163	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	15716.22	57.03	74.00	-16.97	40.76	12.35	37.84	33.92	177	115	Peak	VERTICAL
2	15718.97	44.28	54.00	-9.72	28.01	12.35	37.84	33.92	177	115	Average	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11a CH 149 / Chain 4 + Chain 5
Test Date	May 29, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11488.97	64.52	74.00	-9.48	50.59	10.66	39.20	35.93	199	131	Peak	HORIZONTAL
2	11489.46	50.60	54.00	-3.40	36.67	10.66	39.20	35.93	199	131	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11489.14	57.95	74.00	-16.05	41.46	10.66	39.20	33.37	142	351	Peak	VERTICAL
2	11490.63	44.24	54.00	-9.76	27.75	10.66	39.20	33.37	142	351	Average	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11a CH 157 / Chain 4 + Chain 5
Test Date	May 29, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11570.10	50.37	54.00	-3.63	36.41	10.68	39.20	35.92	198	133	Average	HORIZONTAL
2	11570.48	64.48	74.00	-9.52	50.52	10.68	39.20	35.92	198	133	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	11569.59	52.24	74.00	-21.76	38.28	10.68	39.20	35.92	179	267	Peak	VERTICAL
2	11570.51	38.84	54.00	-15.16	24.88	10.68	39.20	35.92	179	267	Average	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11a CH 165 / Chain 4 + Chain 5
Test Date	May 29, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11650.19	64.79	74.00	-9.21	50.81	10.69	39.20	35.91	201	137	Peak	HORIZONTAL
2	11650.67	50.67	54.00	-3.33	36.69	10.69	39.20	35.91	201	137	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	11650.26	52.29	74.00	-21.71	38.31	10.69	39.20	35.91	173	75	Peak	VERTICAL
2	11650.96	40.76	54.00	-13.24	26.78	10.69	39.20	35.91	173	75	Average	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 36 / Chain 4 + Chain 5
Test Date	May 29, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15539.03	55.66	74.00	-18.34	41.11	12.28	38.13	35.86	142	207	Peak	HORIZONTAL
2	15539.63	42.13	54.00	-11.87	27.58	12.28	38.13	35.86	142	207	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	15539.78	55.75	74.00	-18.25	41.20	12.28	38.13	35.86	162	275	Peak	VERTICAL
2	15540.15	41.90	54.00	-12.10	27.35	12.28	38.13	35.86	162	275	Average	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 40 / Chain 4 + Chain 5
Test Date	May 29, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15600.17	42.62	54.00	-11.38	28.13	12.30	38.05	35.86	118	97	Average	HORIZONTAL
2	15600.23	55.76	74.00	-18.24	41.27	12.30	38.05	35.86	118	97	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	15600.31	43.26	54.00	-10.74	28.77	12.30	38.05	35.86	140	307	Average	VERTICAL
2	15602.18	55.09	74.00	-18.91	40.66	12.31	37.98	35.86	140	307	Peak	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 48 / Chain 4 + Chain 5
Test Date	May 29, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15718.33	55.34	74.00	-18.66	41.01	12.35	37.84	35.86	131	55	Peak	HORIZONTAL
2	15718.46	42.40	54.00	-11.60	28.07	12.35	37.84	35.86	131	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	15719.76	43.23	54.00	-10.77	28.90	12.35	37.84	35.86	161	173	Average	VERTICAL
2	15720.76	55.29	74.00	-18.71	40.96	12.35	37.84	35.86	161	173	Peak	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 149 / Chain 4 + Chain 5
Test Date	May 29, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11488.46	50.64	54.00	-3.36	36.71	10.66	39.20	35.93	158	136	Average	HORIZONTAL
2	11490.87	63.63	74.00	-10.37	49.70	10.66	39.20	35.93	158	136	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	11489.98	42.52	54.00	-11.48	28.59	10.66	39.20	35.93	127	246	Average	VERTICAL
2	11490.75	55.32	74.00	-18.68	41.39	10.66	39.20	35.93	127	246	Peak	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 157 / Chain 4 + Chain 5
Test Date	May 29, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11569.10	63.26	74.00	-10.74	49.30	10.68	39.20	35.92	152	125	Peak	HORIZONTAL
2	11569.36	50.20	54.00	-3.80	36.24	10.68	39.20	35.92	152	125	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11568.86	54.45	74.00	-19.55	40.49	10.68	39.20	35.92	133	236	Peak	VERTICAL
2	11570.51	42.22	54.00	-11.78	28.26	10.68	39.20	35.92	133	236	Average	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 165 / Chain 4 + Chain 5
Test Date	May 29, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11650.13	50.97	54.00	-3.03	36.99	10.69	39.20	35.91	201	135	Average	HORIZONTAL
2	11650.38	64.43	74.00	-9.57	50.45	10.69	39.20	35.91	201	135	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	11652.69	54.60	74.00	-19.40	40.62	10.69	39.20	35.91	194	321	Peak	VERTICAL
2	11653.08	42.29	54.00	-11.71	28.31	10.69	39.20	35.91	194	321	Average	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 38 / Chain 4 + Chain 5
Test Date	May 29, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15570.12	55.34	74.00	-18.66	40.85	12.30	38.05	35.86	133	138	Peak	HORIZONTAL
2	15570.81	43.16	54.00	-10.84	28.67	12.30	38.05	35.86	133	138	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	15569.24	55.44	74.00	-18.56	40.95	12.30	38.05	35.86	160	317	Peak	VERTICAL
2	15570.07	42.06	54.00	-11.94	27.57	12.30	38.05	35.86	160	317	Average	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 46 / Chain 4 + Chain 5
Test Date	May 29, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15690.09	56.36	74.00	-17.64	41.98	12.33	37.91	35.86	115	40	Peak	HORIZONTAL
2	15690.63	44.33	54.00	-9.67	29.95	12.33	37.91	35.86	115	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	15689.77	56.35	74.00	-17.65	41.97	12.33	37.91	35.86	142	240	Peak	VERTICAL
2	15690.26	42.34	54.00	-11.66	27.96	12.33	37.91	35.86	142	240	Average	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 151 / Chain 4 + Chain 5
Test Date	May 29, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11506.47	63.70	74.00	-10.30	49.77	10.66	39.20	35.93	201	129	Peak	HORIZONTAL
2	11508.49	50.38	54.00	-3.62	36.45	10.66	39.20	35.93	201	129	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	11500.13	42.42	54.00	-11.58	28.49	10.66	39.20	35.93	174	310	Average	VERTICAL
2	11501.83	55.44	74.00	-18.56	41.51	10.66	39.20	35.93	174	310	Peak	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 159 / Chain 4 + Chain 5
Test Date	May 29, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11589.84	50.98	54.00	-3.02	37.01	10.68	39.20	35.91	201	134	Average	HORIZONTAL
2	11590.00	64.42	74.00	-9.58	50.45	10.68	39.20	35.91	201	134	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11589.50	55.35	74.00	-18.65	41.38	10.68	39.20	35.91	185	306	Peak	VERTICAL
2	11589.86	41.76	54.00	-12.24	27.79	10.68	39.20	35.91	185	306	Average	VERTICAL

Temperature	22°C	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 42 / Chain 4 + Chain 5
Test Date	May 28, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15630.77	57.42	74.00	-16.58	40.95	12.31	37.98	33.82	164	318	Peak	HORIZONTAL
2	15632.44	44.32	54.00	-9.68	27.85	12.31	37.98	33.82	164	318	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	15630.19	57.14	74.00	-16.86	40.67	12.31	37.98	33.82	174	244	Peak	VERTICAL
2	15636.28	44.38	54.00	-9.62	27.91	12.31	37.98	33.82	174	244	Average	VERTICAL

Temperature	22℃	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 155 / Chain 4 + Chain 5
Test Date	May 28, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11530.77	59.80	74.00	-14.20	43.31	10.67	39.20	33.38	154	140	Peak	HORIZONTAL
2	11532.05	46.07	54.00	-7.93	29.58	10.67	39.20	33.38	154	140	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11544.52	43.77	54.00	-10.23	27.28	10.67	39.20	33.38	156	73	Average	VERTICAL
2	11551.22	56.92	74.00	-17.08	40.43	10.68	39.20	33.39	156	73	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

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	22°C	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11a CH 36, 40, 48 / Chain 4 + Chain 5
Test Date	May 27, 2016		

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	5150.00	52.99	54.00	-1.01	44.34	7.96	33.74	33.05	252	95	Average	HORIZONTAL
2	5150.00	69.48	74.00	-4.52	60.83	7.96	33.74	33.05	252	95	Peak	HORIZONTAL
3	5174.55	100.73			92.01	7.98	33.79	33.05	252	95	Average	HORIZONTAL
4	5175.19	111.23			102.51	7.98	33.79	33.05	252	95	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	5149.68	69.14	74.00	-4.86	60.49	7.96	33.74	33.05	260	91	Peak	HORIZONTAL
2	5150.00	52.76	54.00	-1.24	44.11	7.96	33.74	33.05	260	91	Average	HORIZONTAL
3	5195.19	115.29			106.53	7.99	33.82	33.05	260	91	Peak	HORIZONTAL
4	5195.83	105.98			97.22	7.99	33.82	33.05	260	91	Average	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	5149.20	57.72	74.00	-16.28	49.07	7.96	33.74	33.05	220	201	Peak	VERTICAL
2	5150.00	46.01	54.00	-7.99	37.36	7.96	33.74	33.05	220	201	Average	VERTICAL
3	5244.01	106.08			97.22	8.03	33.89	33.06	220	201	Average	VERTICAL
4	5244.01	117.19			108.33	8.03	33.89	33.06	220	201	Peak	VERTICAL
5	5350.00	46.07	54.00	-7.93	36.93	8.14	34.06	33.06	220	201	Average	VERTICAL
6	5352.40	59.15	74.00	-14.85	50.01	8.14	34.06	33.06	220	201	Peak	VERTICAL

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

Temperature	22°C	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11a CH 149, 157, 165 / Chain 4 + Chain 5
Test Date	May 27, 2016		

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	5622.50	59.51	68.20	-8.69	53.24	8.30	34.37	36.40	205	193	Peak	VERTICAL
2	5741.80	106.11			99.66	8.37	34.45	36.37	205	193	Average	VERTICAL
3	5742.00	116.15			109.70	8.37	34.45	36.37	205	193	Peak	VERTICAL
4	5932.50	59.62	68.20	-8.58	52.94	8.45	34.56	36.33	205	193	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	5604.50	59.21	68.20	-8.99	52.96	8.29	34.36	36.40	234	222	Peak	HORIZONTAL
2	5779.39	101.55			95.05	8.39	34.47	36.36	234	222	Average	HORIZONTAL
3	5780.00	111.04			104.54	8.39	34.47	36.36	234	222	Peak	HORIZONTAL
4	5958.00	59.74	68.20	-8.46	53.04	8.45	34.57	36.32	234	222	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	5630.50	62.81	68.20	-5.39	56.52	8.31	34.38	36.40	212	221	Peak	VERTICAL
2	5818.50	116.23			109.68	8.41	34.49	36.35	212	221	Peak	VERTICAL
3	5819.39	106.84			100.29	8.41	34.49	36.35	212	221	Average	VERTICAL
4	5963.50	63.12	68.20	-5.08	56.40	8.46	34.58	36.32	212	221	Peak	VERTICAL

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

Temperature	22°C	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 36, 40, 48 / Chain 4 + Chain 5
Test Date	May 27, 2016		

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	5148.27	68.44	74.00	-5.56	59.79	7.96	33.74	33.05	253	99	Peak	HORIZONTAL
2	5150.00	52.95	54.00	-1.05	44.30	7.96	33.74	33.05	253	99	Average	HORIZONTAL
3	5186.41	110.64			101.92	7.98	33.79	33.05	253	99	Peak	HORIZONTAL
4	5187.37	99.15			90.39	7.99	33.82	33.05	253	99	Average	HORIZONTAL

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

Channel 40

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5145.83	69.99	74.00	-4.01	61.34	7.96	33.74	33.05	250	104	Peak	HORIZONTAL
2	5149.68	52.84	54.00	-1.16	44.19	7.96	33.74	33.05	250	104	Average	HORIZONTAL
3	5204.81	115.79			107.00	8.00	33.84	33.05	250	104	Peak	HORIZONTAL
4	5205.45	105.37			96.58	8.00	33.84	33.05	250	104	Average	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	5142.79	57.88	74.00	-16.12	49.23	7.96	33.74	33.05	233	195	Peak	VERTICAL
2	5150.00	46.06	54.00	-7.94	37.41	7.96	33.74	33.05	233	195	Average	VERTICAL
3	5235.19	105.93			97.06	8.03	33.89	33.05	233	195	Average	VERTICAL
4	5235.99	116.37			107.50	8.03	33.89	33.05	233	195	Peak	VERTICAL
5	5350.00	46.47	54.00	-7.53	37.33	8.14	34.06	33.06	233	195	Average	VERTICAL
6	5357.21	59.24	74.00	-14.76	50.07	8.15	34.08	33.06	233	195	Peak	VERTICAL

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

Temperature	22°C	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 149, 157, 165 / Chain 4 + Chain 5
Test Date	May 27, 2016		

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	5582.50	63.69	68.20	-4.51	57.47	8.28	34.35	36.41	222	204	Peak	VERTICAL
2	5750.00	117.25			110.79	8.37	34.45	36.36	222	204	Peak	VERTICAL
3	5750.61	106.97			100.51	8.37	34.45	36.36	222	204	Average	VERTICAL
4	5939.50	62.50	68.20	-5.70	55.81	8.45	34.56	36.32	222	204	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	5633.00	62.43	68.20	-5.77	56.14	8.31	34.38	36.40	218	219	Peak	VERTICAL
2	5791.41	103.64			97.11	8.40	34.48	36.35	218	219	Average	VERTICAL
3	5792.00	112.86			106.33	8.40	34.48	36.35	218	219	Peak	VERTICAL
4	5936.50	62.52	68.20	-5.68	55.84	8.45	34.56	36.33	218	219	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	5627.00	63.26	68.20	-4.94	56.97	8.31	34.38	36.40	242	68	Peak	HORIZONTAL
2	5816.99	105.61			99.06	8.41	34.49	36.35	242	68	Average	HORIZONTAL
3	5832.00	116.18			109.61	8.41	34.50	36.34	242	68	Peak	HORIZONTAL
4	5964.50	62.47	68.20	-5.73	55.75	8.46	34.58	36.32	242	68	Peak	HORIZONTAL

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

Temperature	22°C	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 38, 46 / Chain 4 + Chain 5
Test Date	May 27, 2016		

Channel 38

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5150.00	52.78	54.00	-1.22	44.13	7.96	33.74	33.05	226	85	Average	HORIZONTAL
2	5150.00	63.60	74.00	-10.40	54.95	7.96	33.74	33.05	226	85	Peak	HORIZONTAL
3	5194.81	94.81			86.05	7.99	33.82	33.05	226	85	Average	HORIZONTAL
4	5194.81	104.14			95.38	7.99	33.82	33.05	226	85	Peak	HORIZONTAL

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

Channel 46

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5149.07	65.46	74.00	-8.54	56.81	7.96	33.74	33.05	225	212	Peak	VERTICAL
2	5150.00	52.85	54.00	-1.15	44.20	7.96	33.74	33.05	225	212	Average	VERTICAL
3	5228.40	102.68			93.85	8.02	33.86	33.05	225	212	Average	VERTICAL
4	5229.20	111.88			103.05	8.02	33.86	33.05	225	212	Peak	VERTICAL

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

Temperature	22°C	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 151, 159 / Chain 4 + Chain 5
Test Date	May 27, 2016		

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	5646.00	65.37	68.20	-2.83	59.05	8.32	34.39	36.39	230	220	Peak	VERTICAL
2	5743.78	104.32			97.87	8.37	34.45	36.37	230	220	Average	VERTICAL
3	5744.00	115.75			109.30	8.37	34.45	36.37	230	220	Peak	VERTICAL
4	5974.50	62.94	68.20	-5.26	56.22	8.46	34.58	36.32	230	220	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	5619.50	63.24	68.20	-4.96	56.97	8.30	34.37	36.40	227	255	Peak	VERTICAL
2	5798.00	114.90			108.37	8.40	34.48	36.35	227	255	Peak	VERTICAL
3	5798.21	104.46			97.93	8.40	34.48	36.35	227	255	Average	VERTICAL
4	6005.00	62.35	68.20	-5.85	55.59	8.47	34.60	36.31	227	255	Peak	VERTICAL

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

Temperature	22°C	Humidity	54%
Test Engineer	Steven Liang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 42, 155 / Chain 4 + Chain 5
Test Date	May 27, 2016		

Channel 42

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5141.89	65.87	74.00	-8.13	57.22	7.96	33.74	33.05	240	85	Peak	HORIZONTAL
2	5142.69	52.75	54.00	-1.25	44.10	7.96	33.74	33.05	240	85	Average	HORIZONTAL
3	5218.81	103.19			94.36	8.02	33.86	33.05	240	85	Peak	HORIZONTAL
4	5241.25	90.79			81.92	8.03	33.89	33.05	240	85	Average	HORIZONTAL
5	5350.00	46.18	54.00	-7.82	37.04	8.14	34.06	33.06	240	85	Average	HORIZONTAL
6	5352.40	58.04	74.00	-15.96	48.90	8.14	34.06	33.06	240	85	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	5647.50	66.64	68.20	-1.56	57.04	8.32	34.39	33.11	259	108	Peak	HORIZONTAL
2	5763.78	109.50			99.80	8.38	34.46	33.14	259	108	Peak	HORIZONTAL
3	5807.85	96.89			87.15	8.41	34.49	33.16	259	108	Average	HORIZONTAL
4	5933.00	63.99	68.20	-4.21	54.18	8.45	34.56	33.20	259	108	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

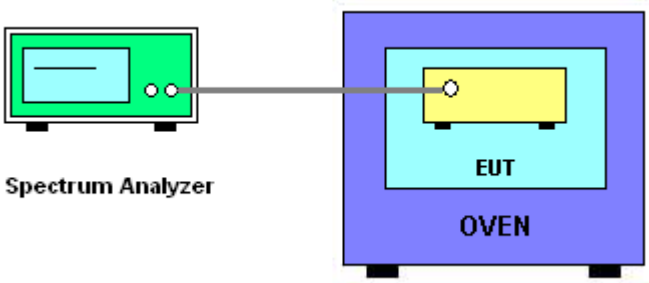
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

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 -30°C~50°C.

4.8.4. Test Setup Layout



4.8.5. Test Deviation

There is no deviation with the original standard.

4.8.6. EUT Operation during Test

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

4.8.7. Test Result of Frequency Stability

Temperature	24°C	Humidity	60%
Test Engineer	Akina Chiu	Test Date	Jun. 01, 2016~Jun. 08, 2016

Mode: 20 MHz / Chain 4

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5200 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5199.9683	5199.9673	5199.9664	5199.9661
110.00	5199.9679	5199.9671	5199.9666	5199.9658
93.50	5199.9671	5199.9662	5199.9659	5199.9655
Max. Deviation (MHz)	0.0329	0.0338	0.0341	0.0345
Max. Deviation (ppm)	6.33	6.51	6.56	6.64
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5200 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
-30	5199.9969	5199.9960	5199.9951	5199.9942
-20	5199.9983	5199.9973	5199.9966	5199.9958
-10	5199.9616	5199.9614	5199.9612	5199.9605
0	5199.9627	5199.9617	5199.9615	5199.9608
10	5199.9645	5199.9642	5199.9640	5199.9631
20	5199.9661	5199.9655	5199.9652	5199.9644
30	5199.9679	5199.9674	5199.9671	5199.9662
40	5199.9683	5199.9682	5199.9678	5199.9669
50	5199.9686	5199.9678	5199.9668	5199.9662
Max. Deviation (MHz)	0.0384	0.0386	0.0388	0.0395
Max. Deviation (ppm)	7.39	7.43	7.47	7.60
Result	Complies			

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5785 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5784.9682	5784.9672	5784.9662	5784.9660
110.00	5784.9679	5784.9671	5784.9661	5784.9660
93.50	5784.9671	5784.9667	5784.9657	5784.9649
Max. Deviation (MHz)	0.0329	0.0333	0.0343	0.0351
Max. Deviation (ppm)	5.69	5.76	5.93	6.07
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5785 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
-30	5784.9963	5784.9959	5784.9958	5784.9948
-20	5784.9975	5784.9974	5784.9967	5784.9957
-10	5784.9620	5784.9619	5784.9615	5784.9612
0	5784.9639	5784.9638	5784.9629	5784.9628
10	5784.9657	5784.9653	5784.9643	5784.9636
20	5784.9671	5784.9666	5784.9664	5784.9654
30	5784.9679	5784.9674	5784.9673	5784.9666
40	5784.9683	5784.9676	5784.9671	5784.9667
50	5784.9699	5784.9695	5784.9685	5784.9683
Max. Deviation (MHz)	0.0380	0.0381	0.0385	0.0388
Max. Deviation (ppm)	6.57	6.59	6.66	6.71
Result	Complies			

Mode: 40 MHz / Chain 4

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5190 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5189.9685	5189.9675	5189.9668	5189.9666
110.00	5189.9679	5189.9672	5189.9669	5189.9659
93.50	5189.9671	5189.9669	5189.9659	5189.9657
Max. Deviation (MHz)	0.0329	0.0331	0.0341	0.0343
Max. Deviation (ppm)	6.34	6.38	6.58	6.61
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5190 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
-30	5189.9944	5189.9939	5189.9934	5189.9925
-20	5189.9958	5189.9950	5189.9947	5189.9942
-10	5189.9635	5189.9628	5189.9624	5189.9622
0	5189.9646	5189.9643	5189.9636	5189.9635
10	5189.9663	5189.9656	5189.9654	5189.9650
20	5189.9677	5189.9676	5189.9668	5189.9663
30	5189.9679	5189.9676	5189.9666	5189.9664
40	5189.9683	5189.9676	5189.9666	5189.9656
50	5189.9696	5189.9689	5189.9680	5189.9678
Max. Deviation (MHz)	0.0365	0.0372	0.0376	0.0378
Max. Deviation (ppm)	7.04	7.17	7.25	7.29
Result	Complies			

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5755 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5754.9682	5754.9678	5754.9676	5754.9667
110.00	5754.9679	5754.9677	5754.9671	5754.9667
93.50	5754.9672	5754.9665	5754.9662	5754.9661
Max. Deviation (MHz)	0.0328	0.0335	0.0338	0.0339
Max. Deviation (ppm)	5.70	5.83	5.88	5.90
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5755 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
-30	5754.9964	5754.9961	5754.9957	5754.9952
-20	5754.9981	5754.9979	5754.9969	5754.9968
-10	5754.9639	5754.9630	5754.9620	5754.9614
0	5754.9642	5754.9638	5754.9630	5754.9627
10	5754.9645	5754.9641	5754.9632	5754.9631
20	5754.9661	5754.9651	5754.9647	5754.9645
30	5754.9679	5754.9673	5754.9664	5754.9658
40	5754.9683	5754.9679	5754.9672	5754.9667
50	5754.9698	5754.9690	5754.9681	5754.9676
Max. Deviation (MHz)	0.0361	0.0370	0.0380	0.0386
Max. Deviation (ppm)	6.28	6.43	6.61	6.71
Result	Complies			

Mode: 80 MHz / Chain 4

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5210 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5209.9684	5209.9678	5209.9672	5209.9670
110.00	5209.9679	5209.9674	5209.9670	5209.9666
93.50	5209.9678	5209.9673	5209.9665	5209.9655
Max. Deviation (MHz)	0.0322	0.0327	0.0335	0.0345
Max. Deviation (ppm)	6.19	6.28	6.44	6.63
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5210 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
-30	5209.9961	5209.9953	5209.9943	5209.9941
-20	5209.9971	5209.9963	5209.9956	5209.9955
-10	5209.9980	5209.9972	5209.9968	5209.9965
0	5209.9644	5209.9634	5209.9633	5209.9626
10	5209.9655	5209.9654	5209.9646	5209.9641
20	5209.9660	5209.9659	5209.9650	5209.9640
30	5209.9679	5209.9670	5209.9660	5209.9659
40	5209.9683	5209.9679	5209.9670	5209.9663
50	5209.9684	5209.9674	5209.9670	5209.9660
Max. Deviation (MHz)	0.0356	0.0366	0.0367	0.0374
Max. Deviation (ppm)	6.84	7.03	7.05	7.18
Result	Complies			

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5775 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5774.9682	5774.9681	5774.9677	5774.9670
110.00	5774.9679	5774.9675	5774.9672	5774.9667
93.50	5774.9676	5774.9666	5774.9656	5774.9650
Max. Deviation (MHz)	0.0324	0.0334	0.0344	0.0350
Max. Deviation (ppm)	5.62	5.79	5.96	6.07
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5775 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
-30	5774.9946	5774.9941	5774.9935	5774.9927
-20	5774.9956	5774.9952	5774.9943	5774.9942
-10	5774.9970	5774.9967	5774.9966	5774.9962
0	5774.9652	5774.9643	5774.9634	5774.9632
10	5774.9657	5774.9652	5774.9642	5774.9636
20	5774.9664	5774.9660	5774.9657	5774.9649
30	5774.9679	5774.9678	5774.9676	5774.9667
40	5774.9683	5774.9676	5774.9675	5774.9671
50	5774.9696	5774.9687	5774.9679	5774.9677
Max. Deviation (MHz)	0.0348	0.0357	0.0366	0.0368
Max. Deviation (ppm)	6.03	6.19	6.34	6.38
Result	Complies			

4.9. Antenna Requirements

4.9.1. Limit

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

4.9.2. Antenna Connector Construction

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

5. LIST OF MEASURING EQUIPMENTS

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMI Receiver	Agilent	N9038A	My52260123	9kHz ~ 8.45GHz	Jan. 27, 2016	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150kHz ~ 100MHz	Dec. 08, 2015	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Dec. 23, 2015	Conduction (CO01-CB)
COND Cable	Woken	Cable	01	150kHz ~ 30MHz	May 24, 2016	Conduction (CO01-CB)
Software	Audix	E3	6.120210n	-	N.C.R.	Conduction (CO01-CB)
Loop Antenna	Teseq	HLA 6120	24155	9kHz - 30 MHz	Mar. 16, 2016*	Radiation (03CH01-CB)
BILOG ANTENNA	TESEQ	CBL6112D	37880	20MHz ~ 2GHz	Sep. 03, 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	Mar. 15, 2016	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Jan. 18, 2016	Radiation (03CH01-CB)
Pre-Amplifier	WM	TF-130N-R1	923365	26GHz ~ 40GHz	Nov. 13, 2015	Radiation (03CH01-CB)
Spectrum Analyzer	R&S	FSP40	100056	9kHz ~ 40GHz	Oct. 27, 2015	Radiation (03CH01-CB)
EMI Test	R&S	ESCS	100355	9kHz ~ 2.75GHz	May 16, 2016	Radiation (03CH01-CB)
RF Cable-low	Woken	Low Cable-1	N/A	30 MHz ~ 1 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-16	N/A	1 GHz ~ 18 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-17	N/A	1 GHz ~ 18 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G-1	N/A	18GHz ~ 40 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G-2	N/A	18GHz ~ 40 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
Test Software	Audix	E3	6.2009-I0-7	N/A	N/A	Radiation (03CH01-CB)
Spectrum analyzer	R&S	FSV40	100979	9kHz~40GHz	Dec. 09, 2015	Conducted (TH01-CB)
Temp. and Humidity Chamber	Ten Billion	TTH-D3SP	TBN-931011	-30~100 degree	Jun. 02, 2015	Conducted (TH01-CB)

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Temp. and Humidity Chamber	Ten Billion	TTH-D3SP	TBN-931011	-30~100 degree	Jun. 03, 2016	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-6	1 GHz – 26.5 GHz	Nov. 02, 2015	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-7	1 GHz – 26.5 GHz	Nov. 02, 2015	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-8	1 GHz – 26.5 GHz	Nov. 02, 2015	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-9	1 GHz – 26.5 GHz	Nov. 02, 2015	Conducted (TH01-CB)
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%