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FCC RADIO TEST REPORT

Applicant's company	**Accton Technology Corporation**
Applicant Address	No. 1, Creation Rd. III, Science-based Industrial Park Hsin Chu 30077, Taiwan R.O.C
FCC ID	**HED-ML6035**
Manufacturer's company	**Joy Technology (ShenZhen) Corporation**
Manufacturer Address	HengKeng Ind., Shangpai, Shangwu,Aiqun Rd., Shiyan Town,Shenzhen 518108 China

Product Name	Metrolinq Outdoor 60GHz PTP + 5 GHz
Brand Name	IgniteNet
Model No.	ML-60-35, ML-60-35-1
Test Rule Part(s)	47 CFR FCC Part 15 Subpart E § 15.407
Test Freq. Range	5150 ~ 5250 MHz / 5725 ~ 5850 MHz
Received Date	Nov. 30, 2015
Final Test Date	Dec. 25, 2015
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 v01, KDB662911 D01 v02r01, KDB644545 D03 v01.**

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

TAF
Testing Laboratory
1190

Table of Contents

History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR5N2614AB	Rev. 01	Initial issue of report	Dec. 29, 2015

1. VERIFICATION OF COMPLIANCE

Product Name	:	MetroLinq Outdoor 60GHz PTP + 5 GHz
Brand Name	:	IgniteNet
Model No.	:	ML-60-35, ML-60-35-1
Applicant	:	Accton 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 Nov. 30, 2015 would like to declare that the tested sample has been evaluated and found to be in compliance with the tested rule parts. The data recorded as well as the test configuration specified is true and accurate for showing the sample's EMC nature.

Sam Chen
SPORTON INTERNATIONAL INC.

2. SUMMARY OF THE TEST RESULT

Applied Standard: 47 CFR FCC Part 15 Subpart E				
Part	**Rule Section**	**Description of Test**	**Result**	**Under Limit**
4.1	15.207	AC Power Line Conducted Emissions	Complies	17.80 dB
4.2	15.407(a)	26dB Spectrum Bandwidth and 99% Occupied Bandwidth	Complies	-
4.3	15.407(e)	6dB Spectrum Bandwidth	Complies	-
4.4	15.407(a)	Maximum Conducted Output Power	Complies	12.84 dB
4.5	15.407(a)	Power Spectral Density	Complies	17.92 dB
4.6	15.407(b)	Radiated Emissions	Complies	0.02 dB
4.7	15.407(b)	Band Edge Emissions	Complies	0.02 dB
4.8	15.407(g)	Frequency Stability	Complies	-
4.9	15.203	Antenna Requirements	Complies	-

3. GENERAL INFORMATION

3.1. Product Details

Items	Description
Product Type	WLAN (2TX, 2RX)
Radio Type	Intentional Transceiver
Power Type	From 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 / 256QAM)
Data Rate (Mbps)	IEEE 802.11a: OFDM (6/9/12/18/24/36/48/54) IEEE 802.11n/ac: see the below table
Frequency Range	5150 ~ 5250 MHz / 5725 ~ 5850 MHz
Channel Number	9 for 20MHz bandwidth ; 4 for 40MHz bandwidth 2 for 80MHz bandwidth
Channel Band Width (99%)	**<Mode 1: External / Sector Ant.>** Band 1: IEEE 802.11a: 18.06 MHz IEEE 802.11ac MCS0/Nss1 (VHT20): 18.06 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 37.34 MHz IEEE 802.11ac MCS0/Nss1 (VHT80): 75.25 MHz Band 4: IEEE 802.11a: 16.85MHz IEEE 802.11ac MCS0/Nss1 (VHT20): 17.89 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 37.34 MHz IEEE 802.11ac MCS0/Nss1 (VHT80): 75.25 MHz **<Mode 2: Internal / Dish Ant.>** Band 1: IEEE 802.11a: 17.63 MHz IEEE 802.11ac MCS0/Nss1 (VHT20): 18.06 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 37.34 MHz IEEE 802.11ac MCS0/Nss1 (VHT80): 75.25 MHz Band 4: IEEE 802.11a: 17.19 MHz IEEE 802.11ac MCS0/Nss1 (VHT20): 17.89 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 37.19 MHz IEEE 802.11ac MCS0/Nss1 (VHT80): 75.25 MHz

Maximum Conducted Output Power	**<Mode 1: External / Sector Ant.>** Band 1: IEEE 802.11a: 12.38 dBm IEEE 802.11ac MCS0/Nss1 (VHT20): 12.28 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 11.20 dBm IEEE 802.11ac MCS0/Nss1 (VHT80): 6.97 dBm Band 4: IEEE 802.11a: 16.15 dBm IEEE 802.11ac MCS0/Nss1 (VHT20): 16.28 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 17.16 dBm IEEE 802.11ac MCS0/Nss1 (VHT80): 16.45 dBm **<Mode 2: Internal / Dish Ant.>** Band 1: IEEE 802.11a: 9.19 dBm IEEE 802.11ac MCS0/Nss1 (VHT20): 8.74 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 6.82 dBm IEEE 802.11ac MCS0/Nss1 (VHT80): 4.63 dBm Band 4: IEEE 802.11a: 16.53dBm IEEE 802.11ac MCS0/Nss1 (VHT20): 16.92 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 17.16 dBm IEEE 802.11ac MCS0/Nss1 (VHT80): 16.45 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

Antenna and Band width

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

IEEE 11n/ac Spec.

Protocol	Number of Transmit Chains (NTX)	Data Rate / MCS
802.11n (HT20)	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

Ant.	Brand	P/N	Antenna Type	Connector	Antenna Gain (dBi)	Cable Loss (dB)	True Gain (dBi)	Remark
1	IgniteNet	FS5-19N-120	Sector Ant. (PATCH ARRAY)	Type-N	19	1	18	External

Ant.	Brand	P/N	Antenna Type	Connector	Gain (dBi)		Remark
					Band 1	Band 4	
2	Accton	123400001084A	Dish Ant.	N/A	12.33	15.35	Internal

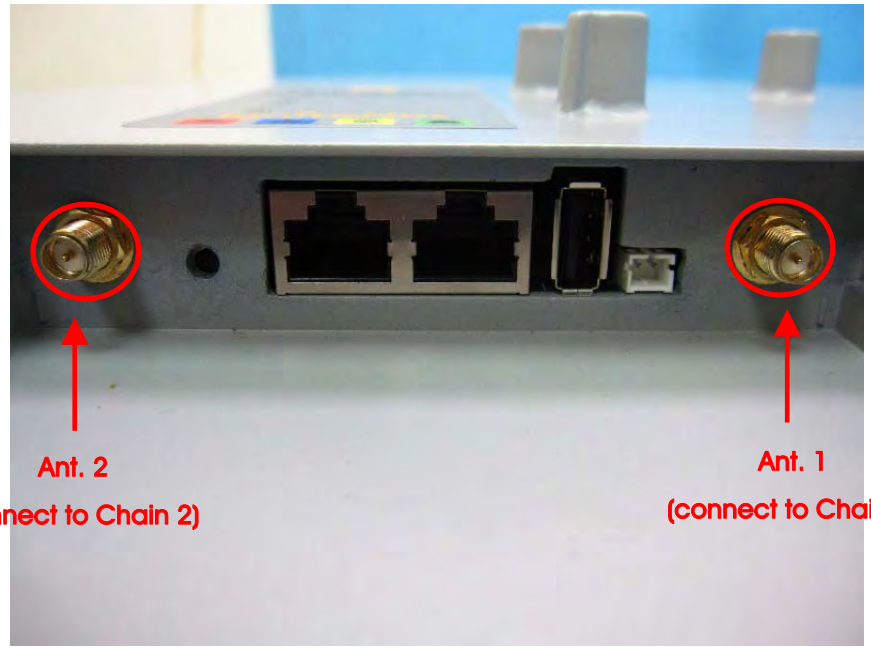
Note:

For IEEE 802.11a/n/ac Mode (2X/2RX)

Chain 1 and Chain 2 can be use as transmitting antenna

Chain 1 and Chain 2 can be used as receiving antennas.

<Mode 1: External / Sector Ant.>



<Mode 2: Internal / Dish Ant.>

Ant. 1
(Connect to Chain 1)

Ant. 2
(Connect to Chain 2)

3.4. Table for Carrier Frequencies

There are three bandwidth systems.

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

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

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

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

3.5. Table for Test Modes

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

Test Items	Mode		Data Rate	Channel	Chain
AC Power Conducted Emission	Normal Link		-	-	-
Max. Conducted Output Power	11a/BPSK	Band 1&4	6Mbps	36/40/48/149/157/165	1+2
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	1+2
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1+2
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1+2
Power Spectral Density	11a/BPSK	Band 1&4	6Mbps	36/40/48/149/157/165	1+2
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	1+2
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1+2
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1+2
26dB Spectrum Bandwidth & 99% Occupied Bandwidth Measurement	11a/BPSK	Band 1&4	6Mbps	36/40/48/149/157/165	1+2
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	1+2
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1+2
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1+2
6dB Spectrum Bandwidth Measurement	11a/BPSK	Band 4	6Mbps	149/157/165	1+2
	11ac VHT20	Band 4	MCS0/Nss1	149/157/165	1+2
	11ac VHT40	Band 4	MCS0/Nss1	151/159	1+2
	11ac VHT80	Band 4	MCS0/Nss1	155	1+2
Radiated Emission Below 1GHz	Normal Link		-	-	-
Radiated Emission Above 1GHz	11a/BPSK	Band 1&4	6Mbps	36/40/48/149/157/165	1+2
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	1+2
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1+2
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1+2

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

Note 1: The EUT can only be used in Y-axis position.

Note 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:

For Conducted Emission test:

Mode 1: Place EUT in Y axis (External / Sector Ant.)

Mode 2: Place EUT in Y axis (Internal / Dish Ant.)

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

For Radiated Emission test<Below 1GHz>:

Mode 1: Place EUT in Y axis (External / Sector Ant.)

Mode 2: Place EUT in Y axis (Internal / Dish Ant.)

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

For Radiated Emission test<Above 1GHz>:

Mode 1: Place EUT in Y axis (External / Sector Ant.)

Mode 2: Place EUT in Y axis (Internal / Dish Ant.)

All test results were recorded in the report.

3.6. Table for Testing Locations

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

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

3.7. Table for Multiple Listing

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

The difference is the type of the antenna equipped.

Model Name	5GHz	60GHz	Remark
ML-60-35	Internal / Dish Ant.	Internal / Dish Ant.	Outdoor use
ML-60-35-1	External / Sector Ant.	Internal / Dish Ant.	

Note: Both models were tested and recorded in the report for 5GHz. But for 60GHz, only the model: ML-60-35 was tested and recorded in the report.

3.8. Table for Supporting Units

For Test Site No: CO01-CB

Support Unit	Brand	Model	FCC ID
NB*3	DELL	E6430	DoC
PoE	ITE	NU24-F240100-I2	N/A
Flash disk3.0	Transcend	639205 7755	DoC
Voltage and current device	HUA	85C1-50V	N/A

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

Support Unit	Brand	Model	FCC ID
NB*3	DELL	E6430	DoC
PoE	ITE	NU24-F240100-I2	N/A
Flash disk3.0	Transcend	639205 7755	DoC
Voltage and current device	HUA	85C1-50V	N/A

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

Support Unit	Brand	Model	FCC ID
NB	DELL	E4300	DoC
PoE	ITE	NU24-F240100-I2	N/A

3.9. Table for Parameters of Test Software Setting

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

<Mode 1: External / Sector Ant.>

Test Software Version	MP_TEST 1.3.8.0					
Mode	Test Frequency (MHz)					
	NCB: 20MHz					
	5180 MHz	5200 MHz	5240 MHz	5745 MHz	5785 MHz	5825 MHz
802.11a	18/21	25/27	17/19	15/15	15/15	15/16
802.11ac MCS0/Nss1 VHT20	17/20	25/28	20/22	15/15	15/16	15/16
Mode	NCB: 40MHz					
802.11ac MCS0/Nss1 VHT40	5190 MHz		5230 MHz		5755 MHz	5795 MHz
	15/18		23/26		15/15	16/16
Mode	NCB: 80MHz					
802.11ac MCS0/Nss1 VHT80	5210 MHz				5775 MHz	
	15/17				16/16	

<Mode 2: Internal / Dish Ant.>

Test Software Version	MP_TEST 1.3.8.0					
Mode	Test Frequency (MHz)					
	NCB: 20MHz					
	5180 MHz	5200 MHz	5240 MHz	5745 MHz	5785 MHz	5825 MHz
802.11a	10/13	18/20	9/11	16/16	15/15	16/17
802.11ac MCS0/Nss1 VHT20	7/10	17/20	9/11	15/15	15/16	16/17
Mode	NCB: 40MHz					
802.11ac MCS0/Nss1 VHT40	5190 MHz		5230 MHz		5755 MHz	5795 MHz
	7/10		14/17		16/16	16/16
Mode	NCB: 80MHz					
802.11ac MCS0/Nss1 VHT80	5210 MHz				5775 MHz	
	11/13				16/16	

3.10. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

3.11. Duty Cycle

<Mode 1: External / Sector Ant.>

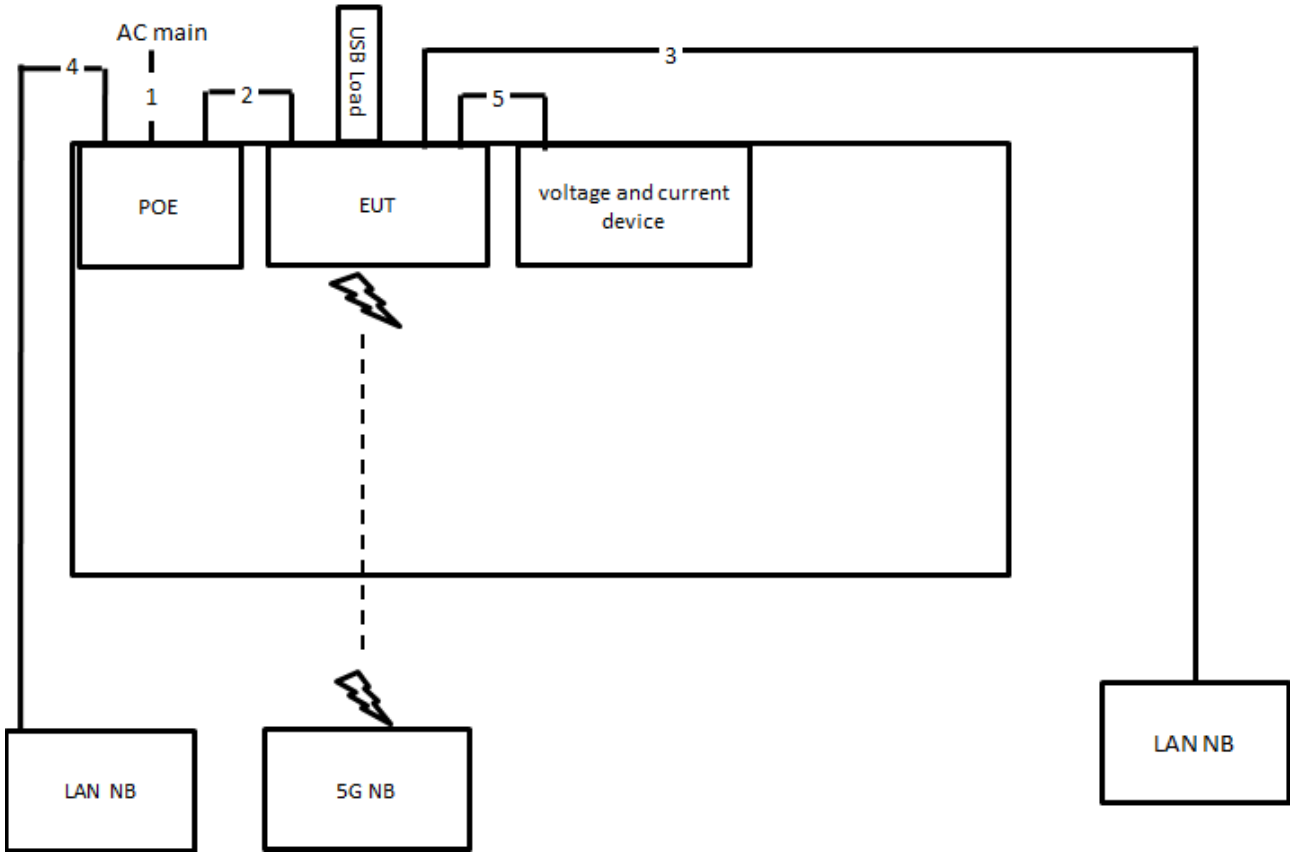
Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11a	1.000	1.000	100.00%	0.00	0.01
802.11ac MCS0/Nss1 VHT20	1.000	1.000	100.00%	0.00	0.01
802.11ac MCS0/Nss1 VHT40	1.000	1.000	100.00%	0.00	0.01
802.11ac MCS0/Nss1 VHT80	1.000	1.000	100.00%	0.00	0.01

<Mode 2: Internal / Dish Ant.>

Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11a	1.000	1.000	100.00%	0.00	0.01
802.11ac MCS0/Nss1 VHT20	1.000	1.000	100.00%	0.00	0.01
802.11ac MCS0/Nss1 VHT40	1.000	1.000	100.00%	0.00	0.01
802.11ac MCS0/Nss1 VHT80	1.000	1.000	100.00%	0.00	0.01

3.12. Test Configurations

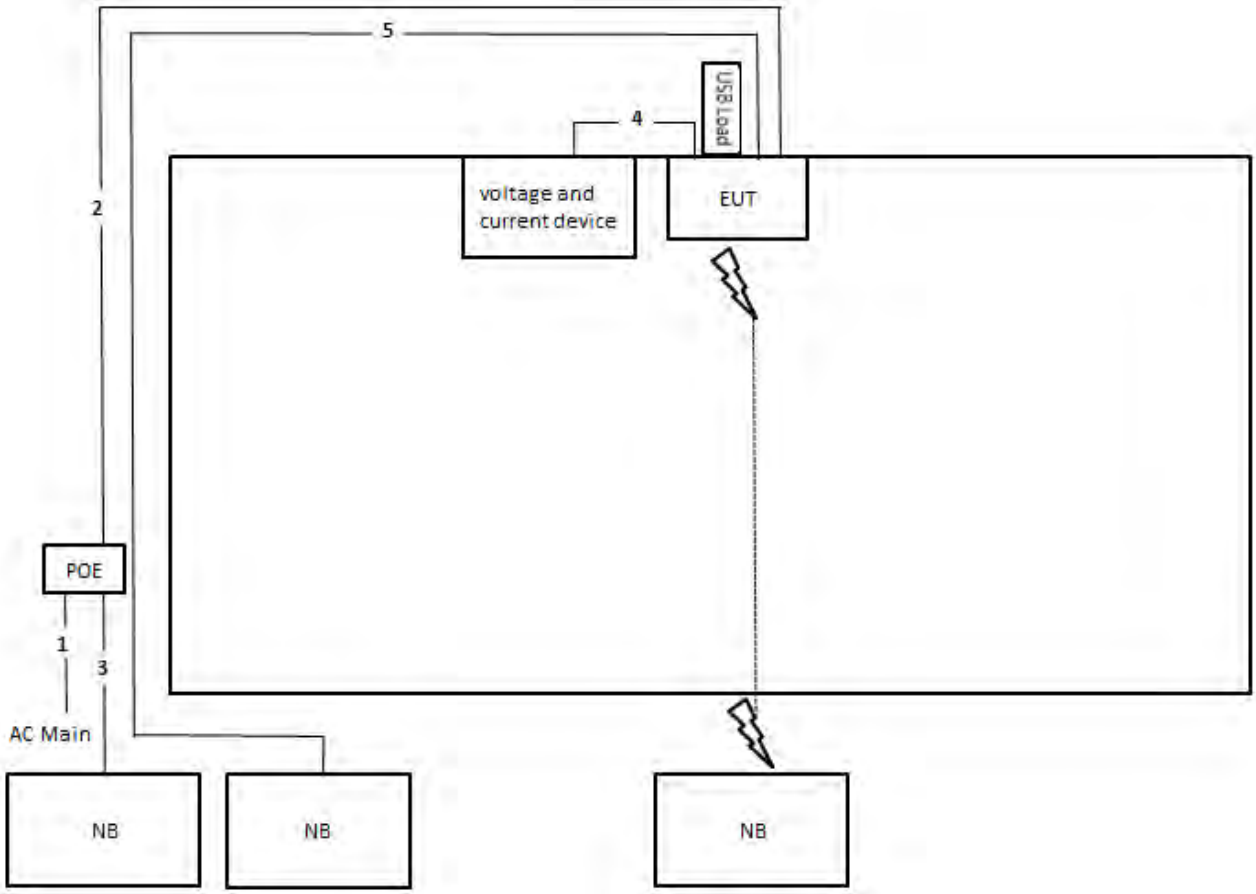
3.12.1. AC Power Line Conduction Emissions Test Configuration



Item	Connection	Shield	Length(m)
1	Power cable	No	1m
2	RJ-45 cable	No	1.5m
3	RJ-45 cable	No	10m
4	RJ-45 cable	No	10m
5	Console cable	No	0.4m

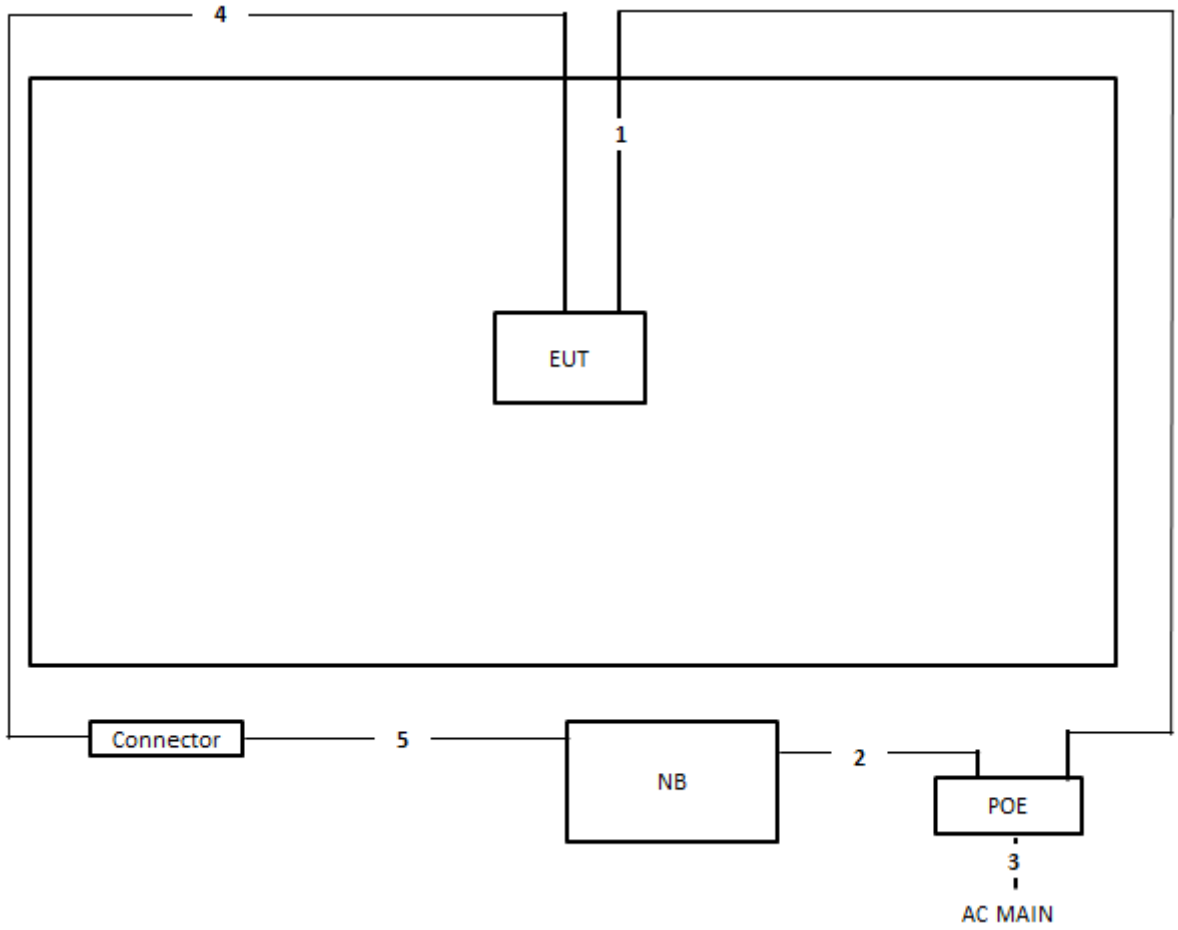
3.12.2. Radiation Emissions Test Configuration

Test Configuration: 30MHz ~1GHz



Item	Connection	Shielded	Length(m)
1	Power cable	No	1m
2	RJ-45 cable	No	10m
3	RJ-45 cable	No	1.5m
4	Console cable	No	0.4m
5	RJ-45 cable	No	10m

Test Configuration: above 1GHz



Item	Connection	Shielded	Length(m)
1	RJ-45 cable	No	10m
2	RJ-45 cable	No	0.5m
3	Power cable	No	0.3m
4	RJ-45 cable	No	10m
5	Console cable	No	0.5m

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

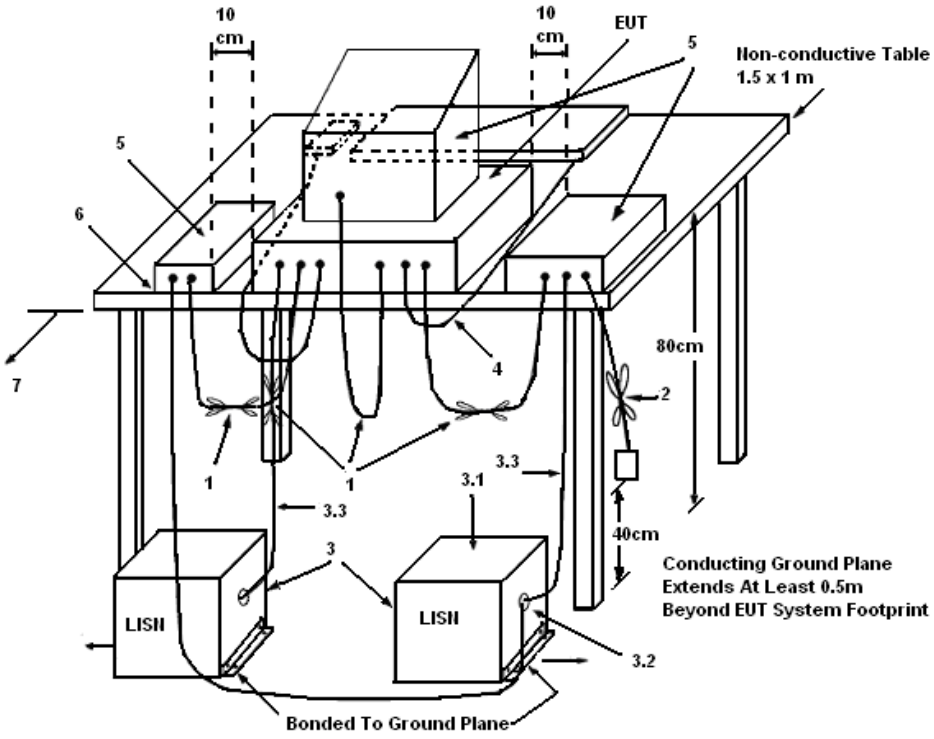
Please refer to section 5 of equipments list in this report. The following table is the setting of the receiver.

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

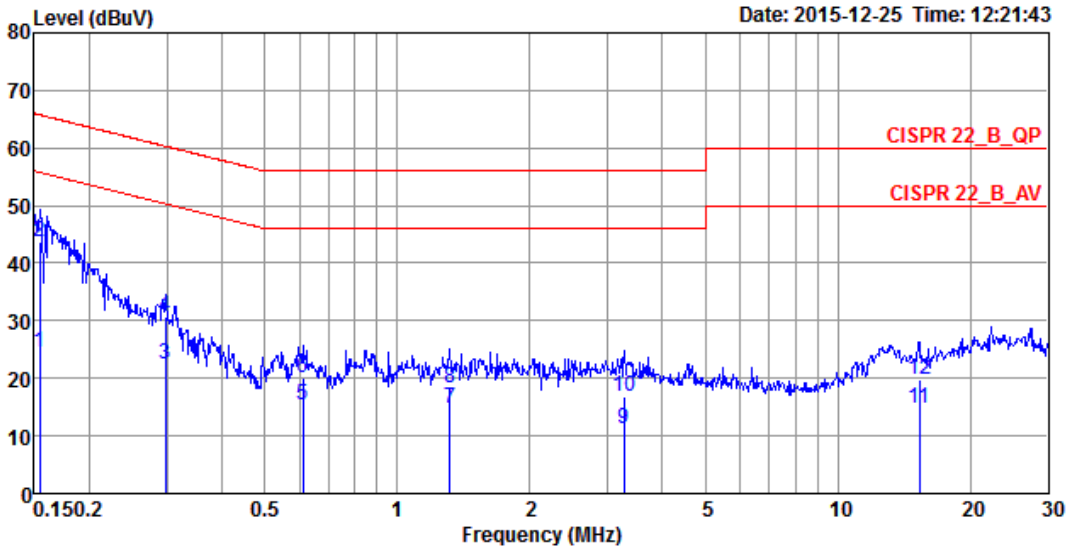
There is no deviation with the original standard.

4.1.6. EUT Operation during Test

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

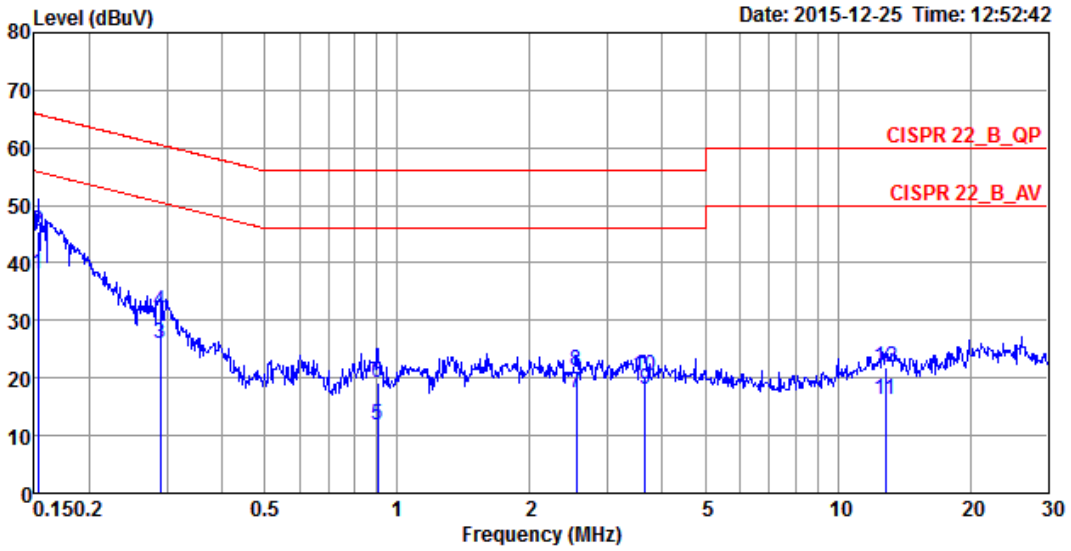
4.1.7. Results of AC Power Line Conducted Emissions Measurement

Temperature	25°C	Humidity	58%
Test Engineer	Parody Lin	Phase	Line
Configuration	Normal Link	Test Mode	Mode 2



	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	24.39	-31.39	55.78	14.44	9.93	0.02	LINE	Average
2	0.1540	43.63	-22.15	65.78	33.68	9.93	0.02	LINE	QP
3	0.2971	22.38	-27.94	50.32	12.41	9.93	0.04	LINE	Average
4	0.2971	30.59	-29.73	60.32	20.62	9.93	0.04	LINE	QP
5	0.6108	15.37	-30.63	46.00	5.39	9.94	0.04	LINE	Average
6	0.6108	20.04	-35.96	56.00	10.06	9.94	0.04	LINE	QP
7	1.3168	14.80	-31.20	46.00	4.78	9.97	0.05	LINE	Average
8	1.3168	18.45	-37.55	56.00	8.43	9.97	0.05	LINE	QP
9	3.2756	11.28	-34.72	46.00	1.21	10.01	0.06	LINE	Average
10	3.2756	16.69	-39.31	56.00	6.62	10.01	0.06	LINE	QP
11	15.3070	14.87	-35.13	50.00	4.27	10.34	0.26	LINE	Average
12	15.3070	19.70	-40.30	60.00	9.10	10.34	0.26	LINE	QP

Temperature	25°C	Humidity	58%
Test Engineer	Parody Lin	Phase	Neutral
Configuration	Normal Link	Test Mode	Mode 2



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.1532	38.02	-17.80	55.82	28.22	9.78	0.02	NEUTRAL	Average
2	0.1532	45.51	-20.31	65.82	35.71	9.78	0.02	NEUTRAL	QP
3	0.2893	26.09	-24.45	50.54	16.26	9.79	0.04	NEUTRAL	Average
4	0.2893	31.56	-28.98	60.54	21.73	9.79	0.04	NEUTRAL	QP
5	0.9039	11.93	-34.07	46.00	2.07	9.81	0.05	NEUTRAL	Average
6	0.9039	19.25	-36.75	56.00	9.39	9.81	0.05	NEUTRAL	QP
7	2.5535	17.41	-28.59	46.00	7.51	9.85	0.05	NEUTRAL	Average
8	2.5535	21.21	-34.79	56.00	11.31	9.85	0.05	NEUTRAL	QP
9	3.6611	17.95	-28.05	46.00	8.02	9.87	0.06	NEUTRAL	Average
10	3.6611	20.26	-35.74	56.00	10.33	9.87	0.06	NEUTRAL	QP
11	12.8516	16.18	-33.82	50.00	5.86	10.07	0.25	NEUTRAL	Average
12	12.8516	21.75	-38.25	60.00	11.43	10.07	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.

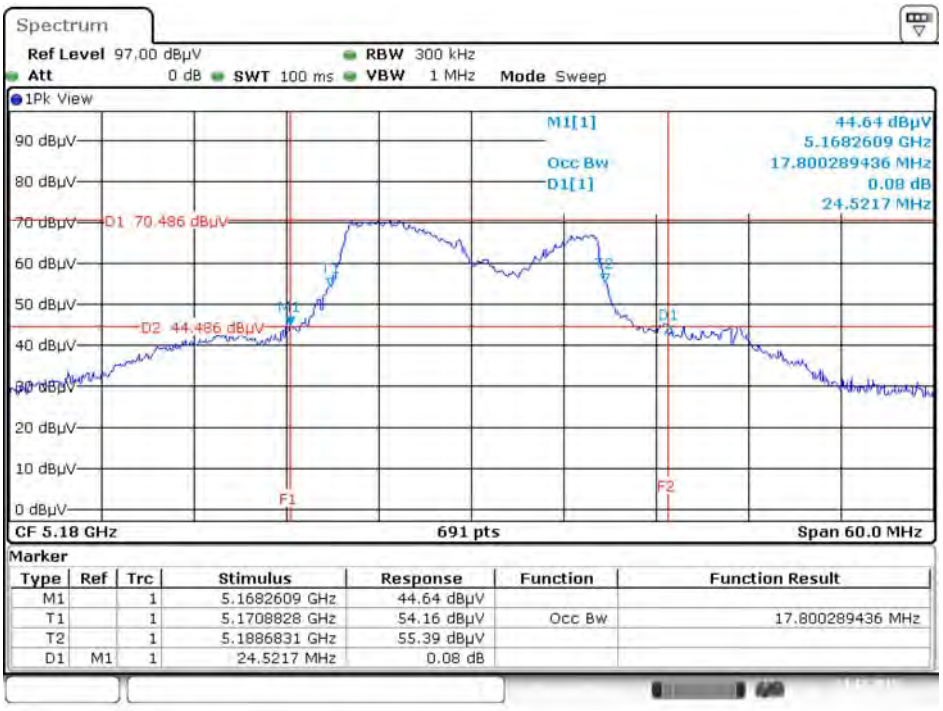
4.2.7. Test Result of 26dB Bandwidth and 99% Occupied Bandwidth

<Mode 1: External / Sector Ant.>

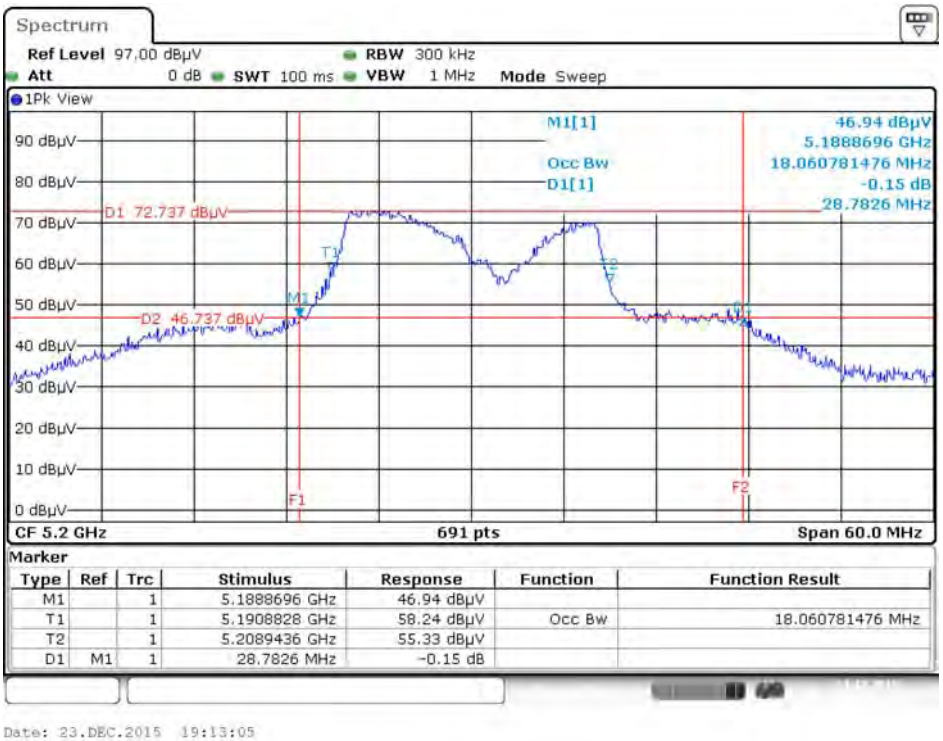
Temperature	25℃	Humidity	45%
Test Engineer	Serway Li		

Mode	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11a	5180 MHz	24.52	17.80
	5200 MHz	28.78	18.06
	5240 MHz	21.30	17.37
	5745 MHz	19.83	16.85
	5785 MHz	19.91	16.85
	5825 MHz	19.91	16.85
802.11ac MCS0/Nss1 VHT20	5180 MHz	22.35	18.06
	5200 MHz	22.70	17.97
	5240 MHz	22.09	17.89
	5745 MHz	21.65	17.89
	5785 MHz	21.74	17.89
	5825 MHz	21.74	17.89
802.11ac MCS0/Nss1 VHT40	5190 MHz	45.65	37.34
	5230 MHz	44.93	37.34
	5755 MHz	45.07	37.19
	5795 MHz	45.22	37.34
802.11ac MCS0/Nss1 VHT80	5210 MHz	83.19	75.25
	5775 MHz	82.61	75.25

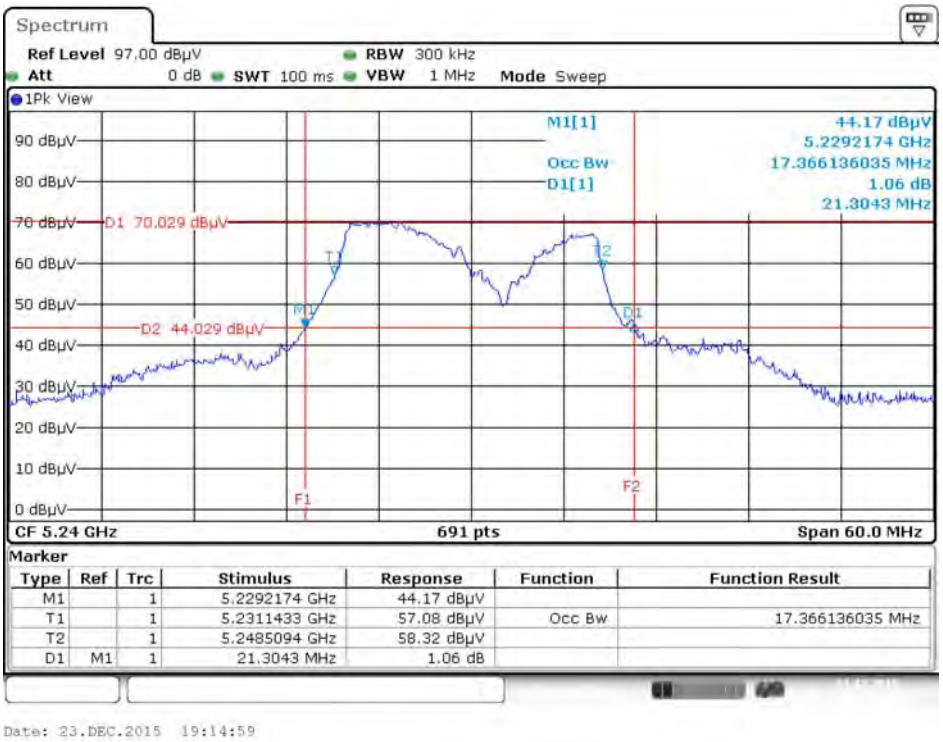
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 / 5180 MHz



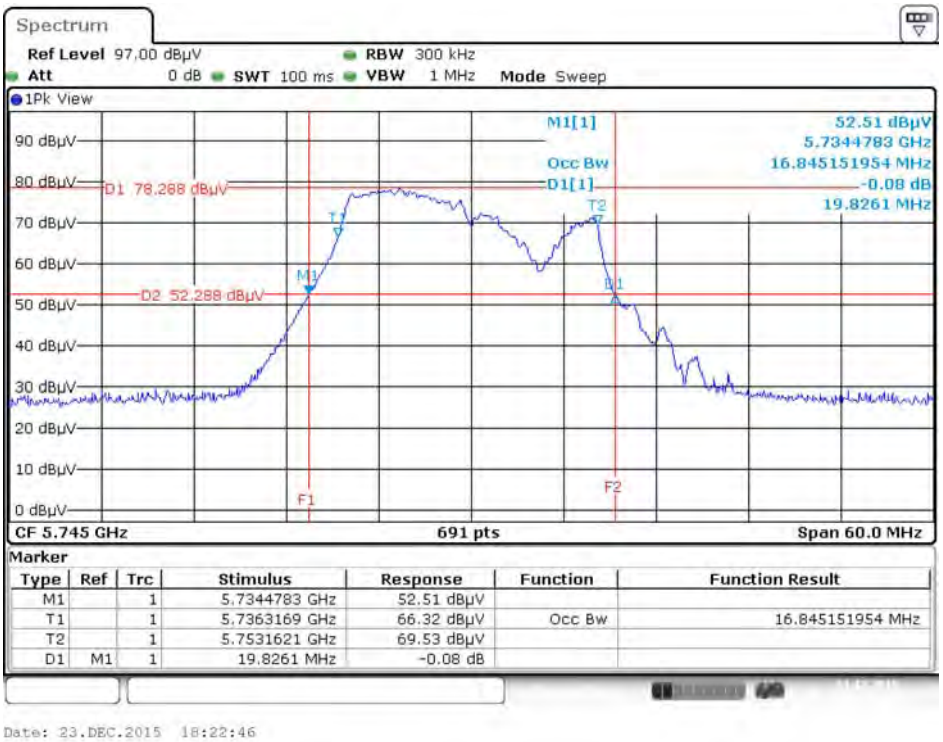
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 / 5200 MHz



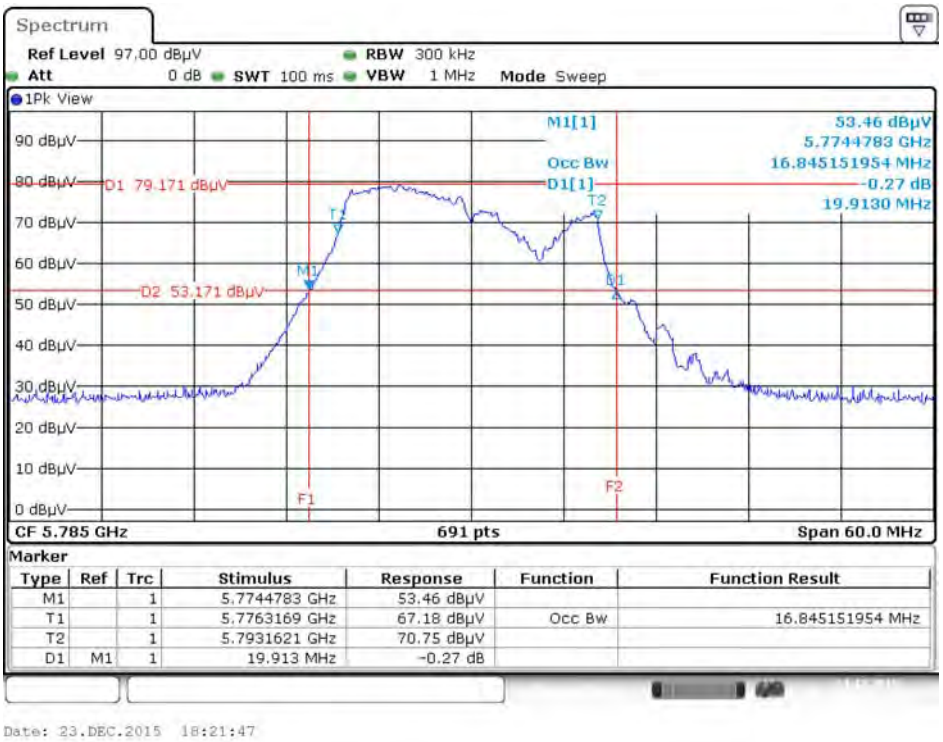
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 / 5240 MHz



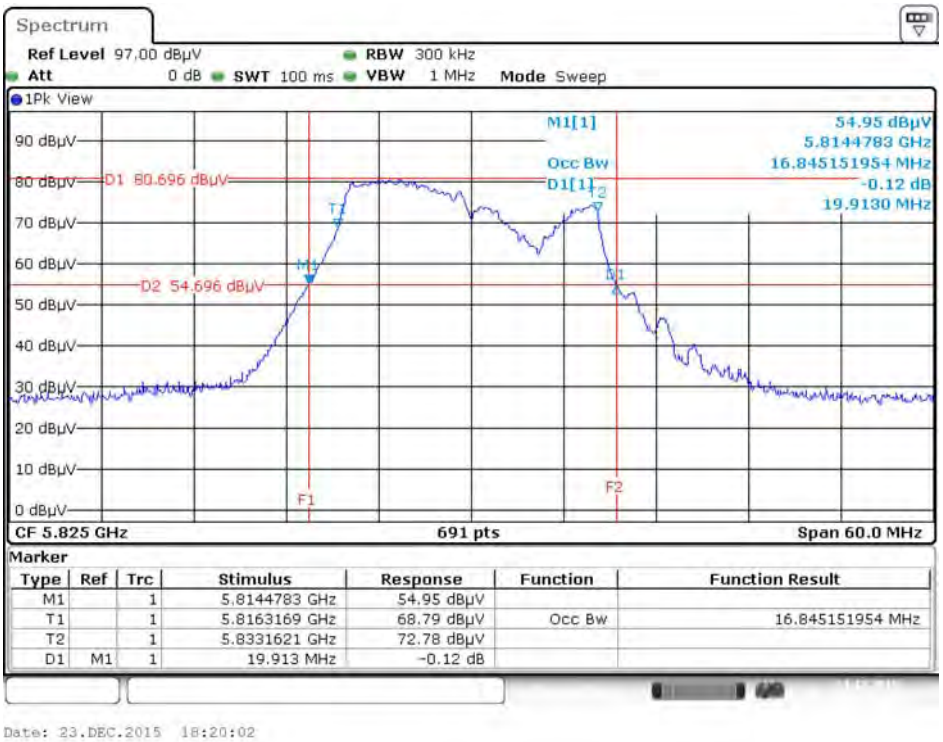
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 / 5745 MHz



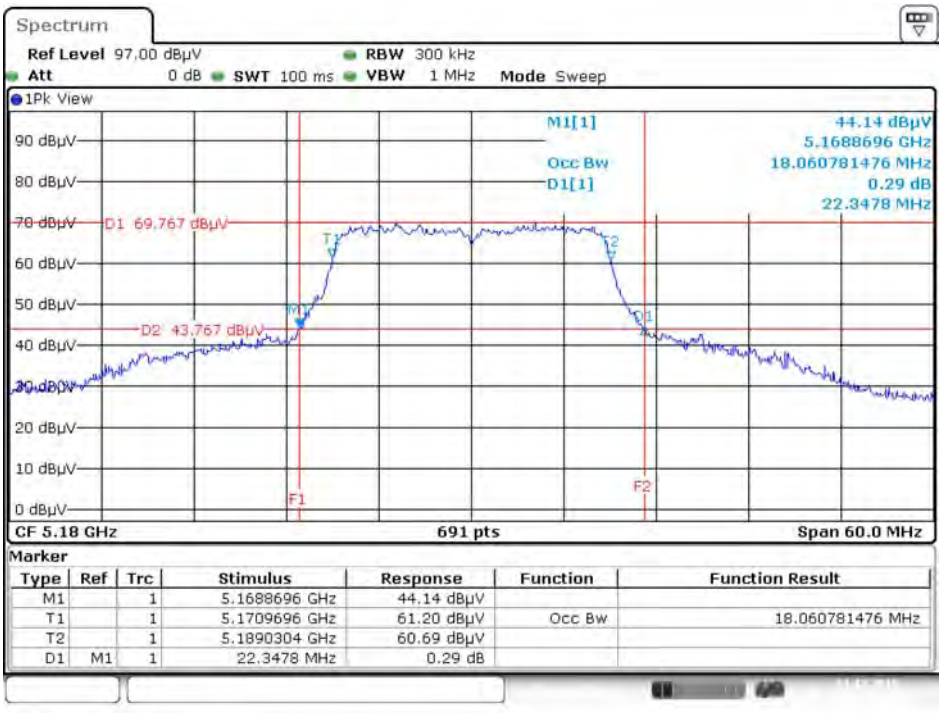
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 / 5785 MHz



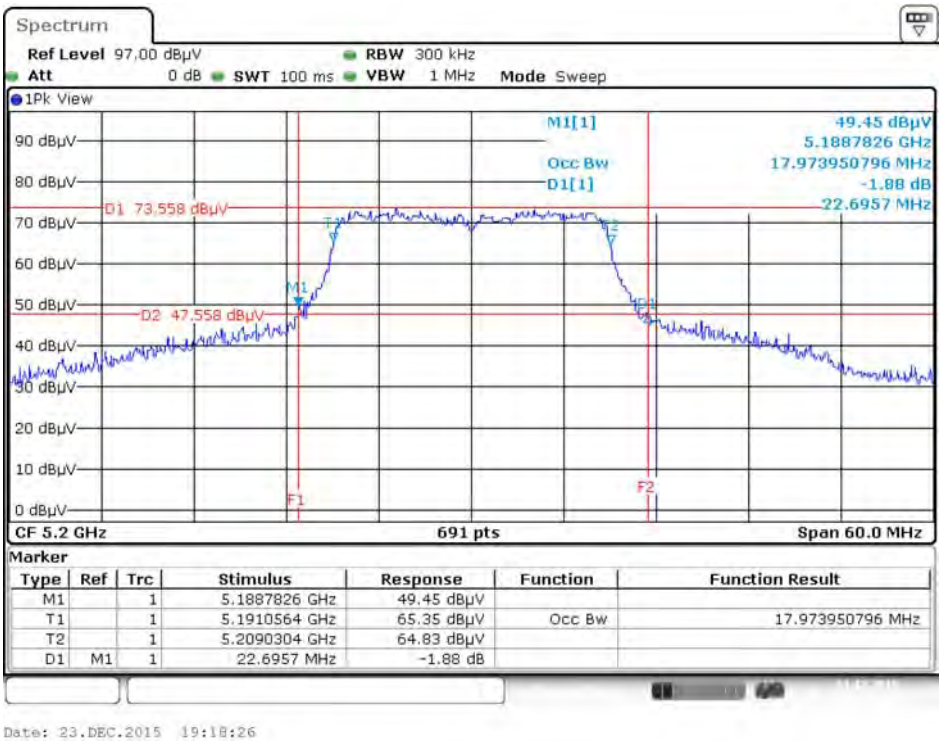
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 / 5825 MHz



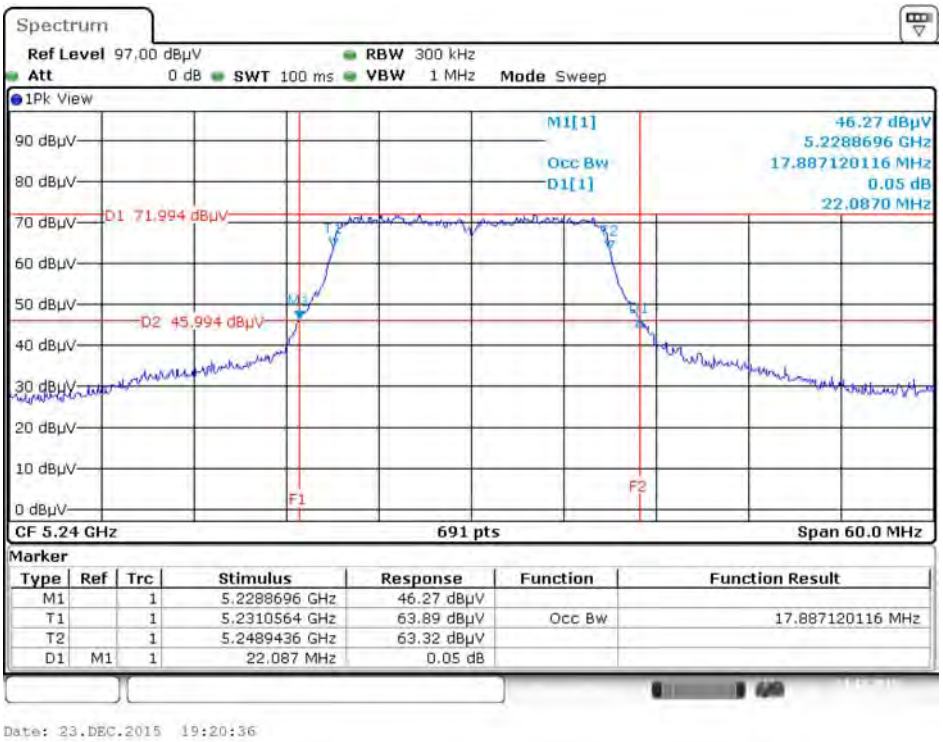
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 / 5180 MHz



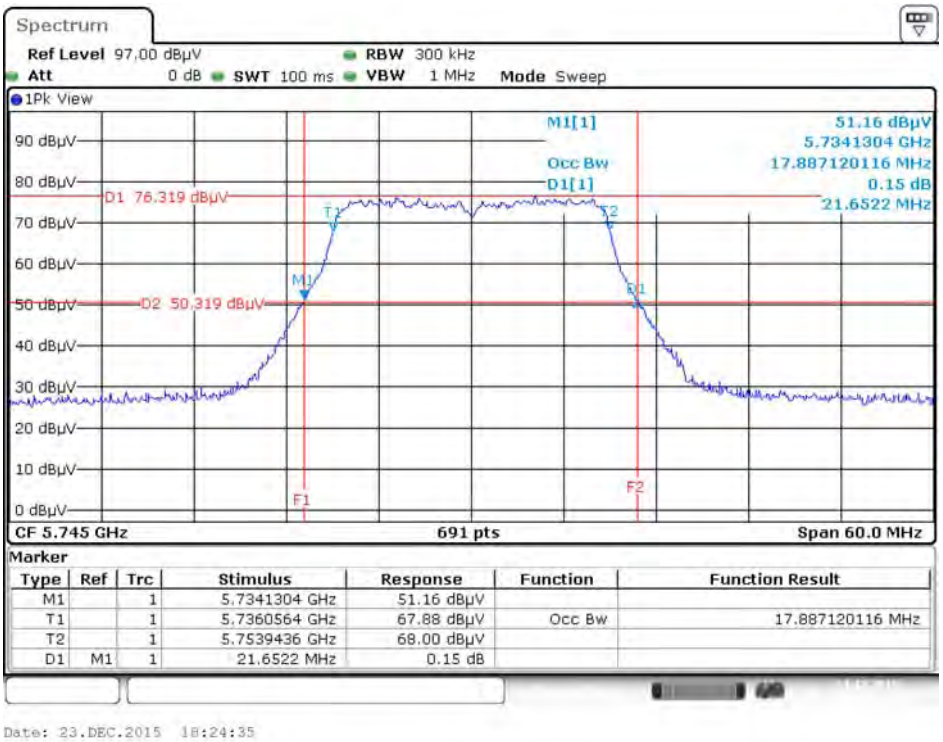
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 / 5200 MHz



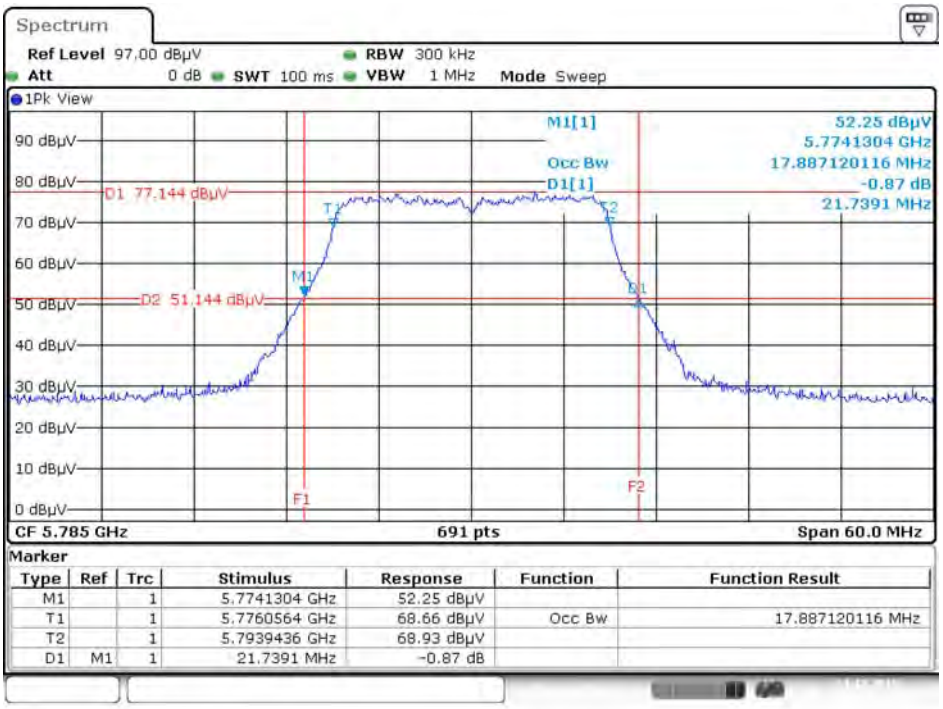
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 / 5240 MHz



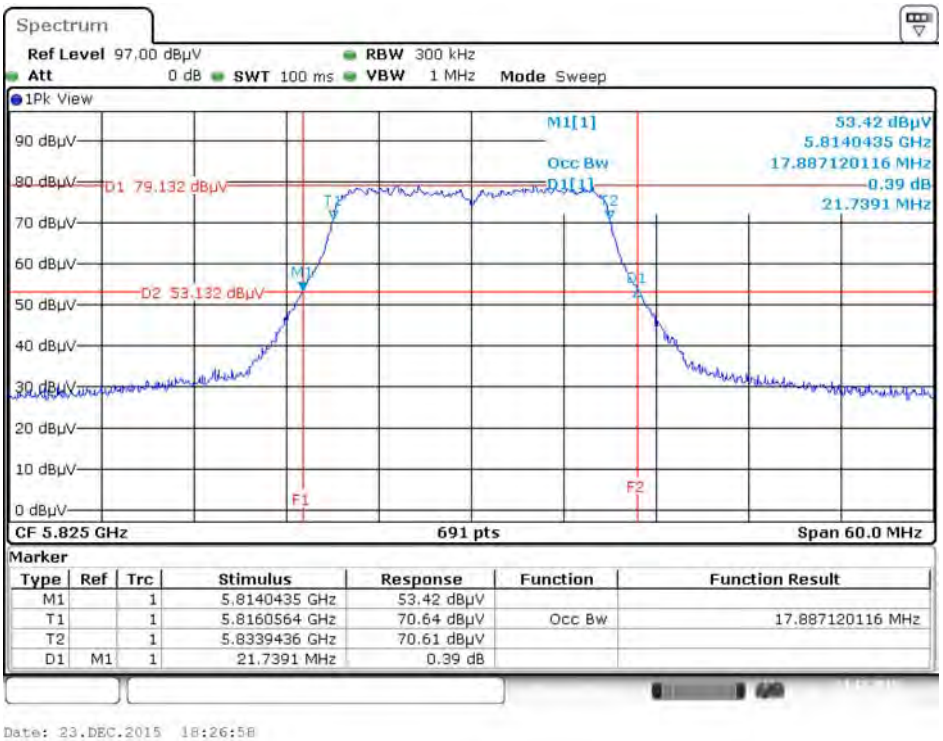
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 / 5745 MHz



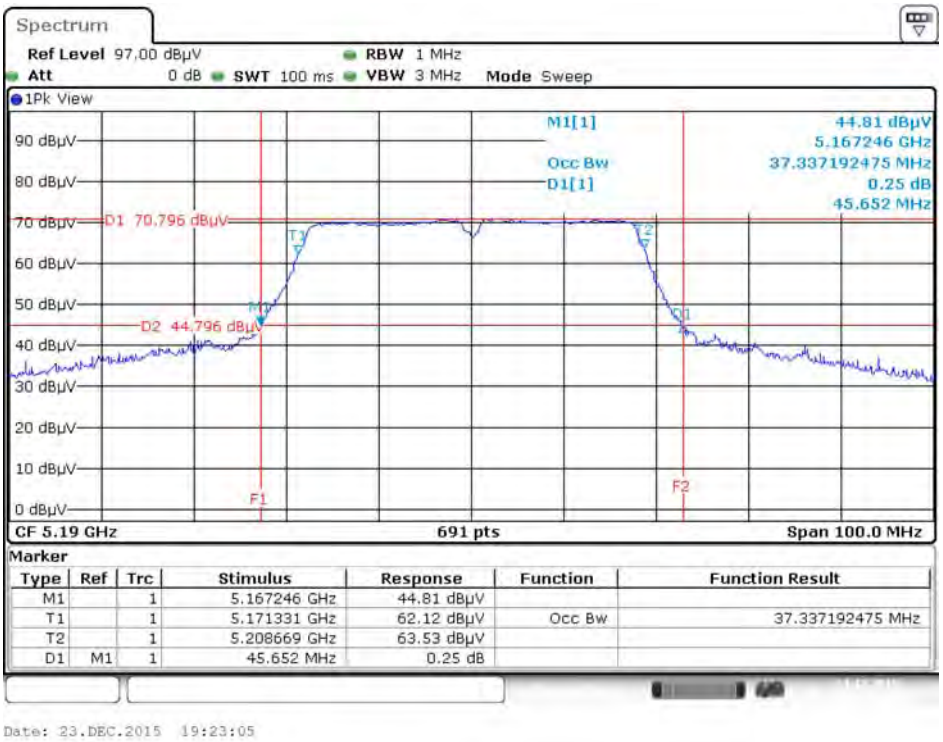
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 / 5785 MHz



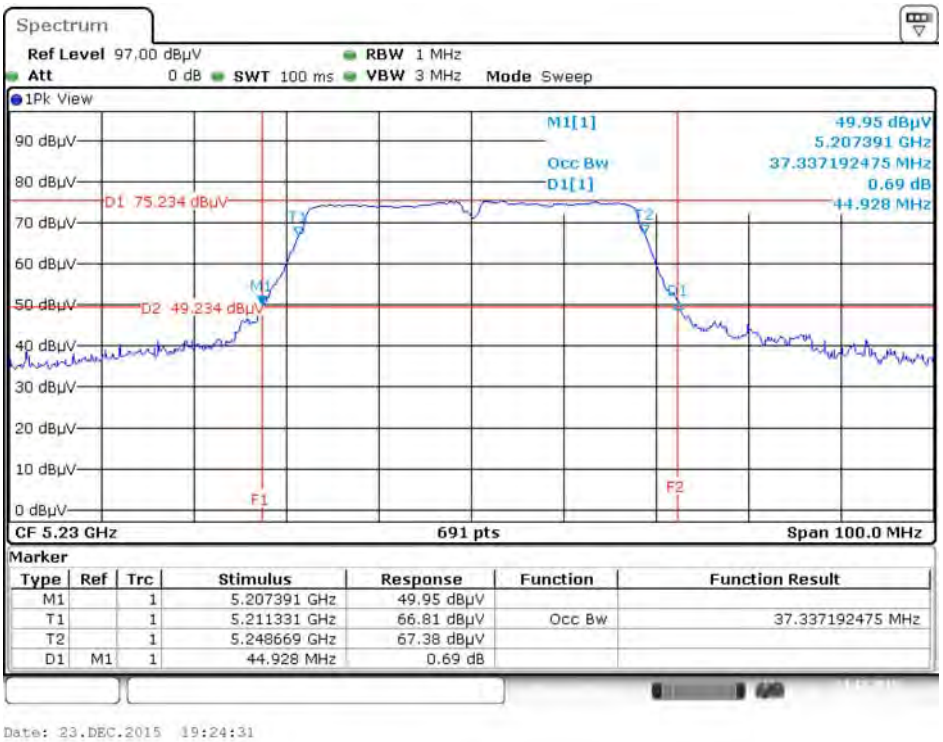
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 / 5825 MHz



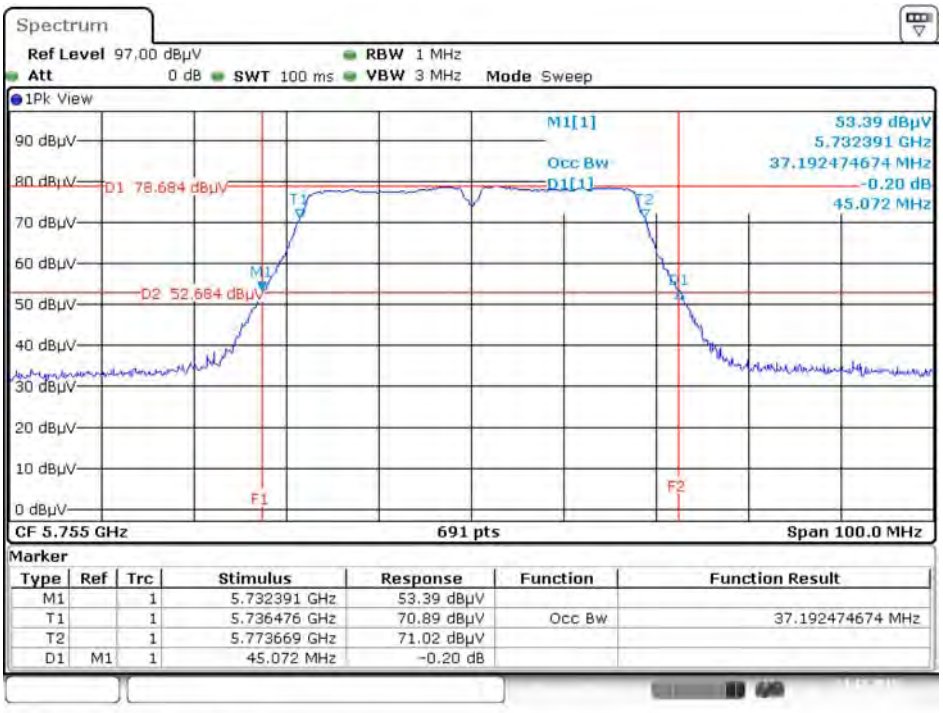
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 / 5190 MHz



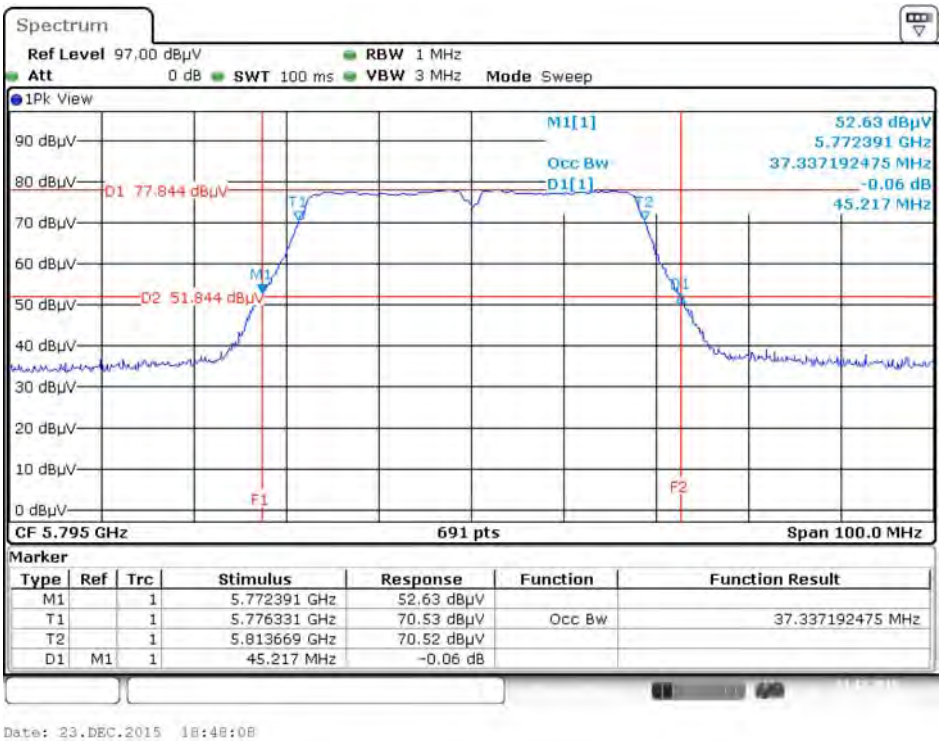
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 / 5230 MHz



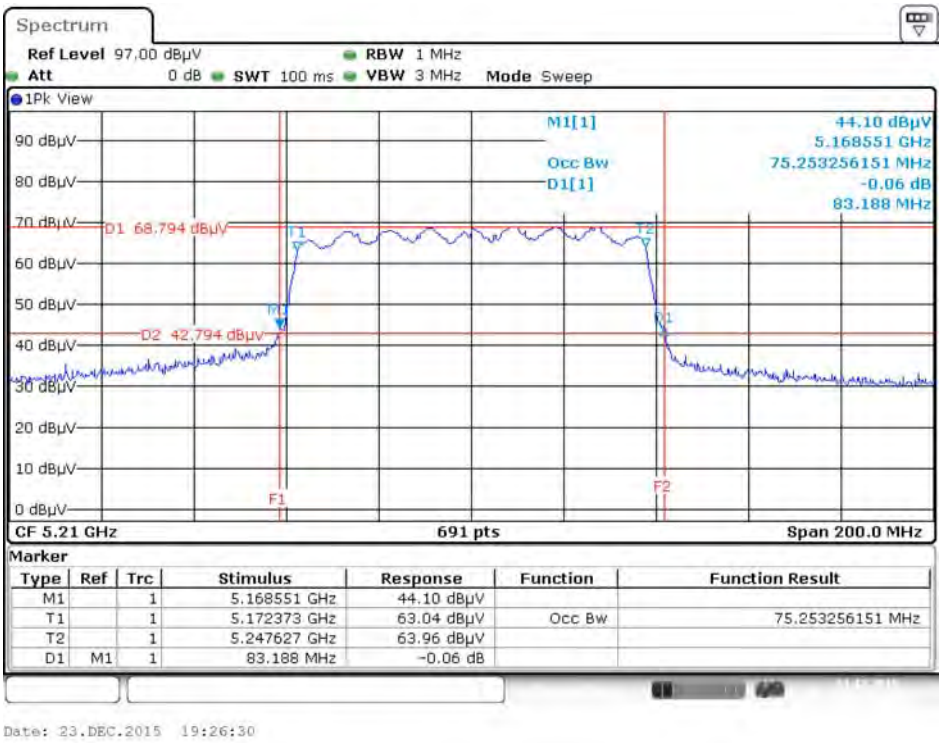
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 / 5755 MHz



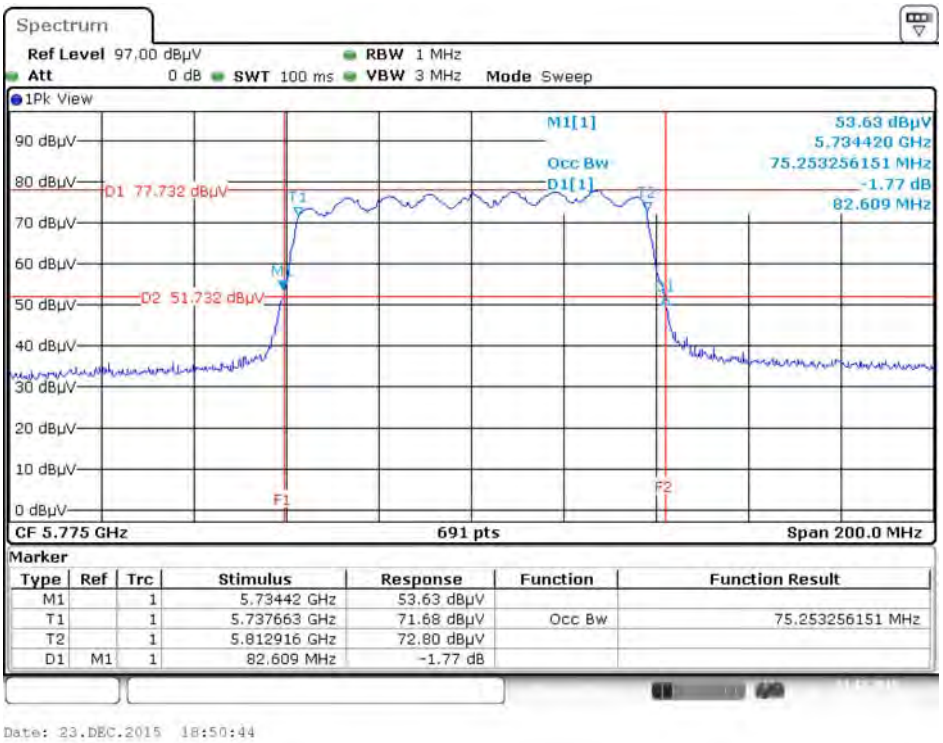
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 / 5795 MHz



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



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

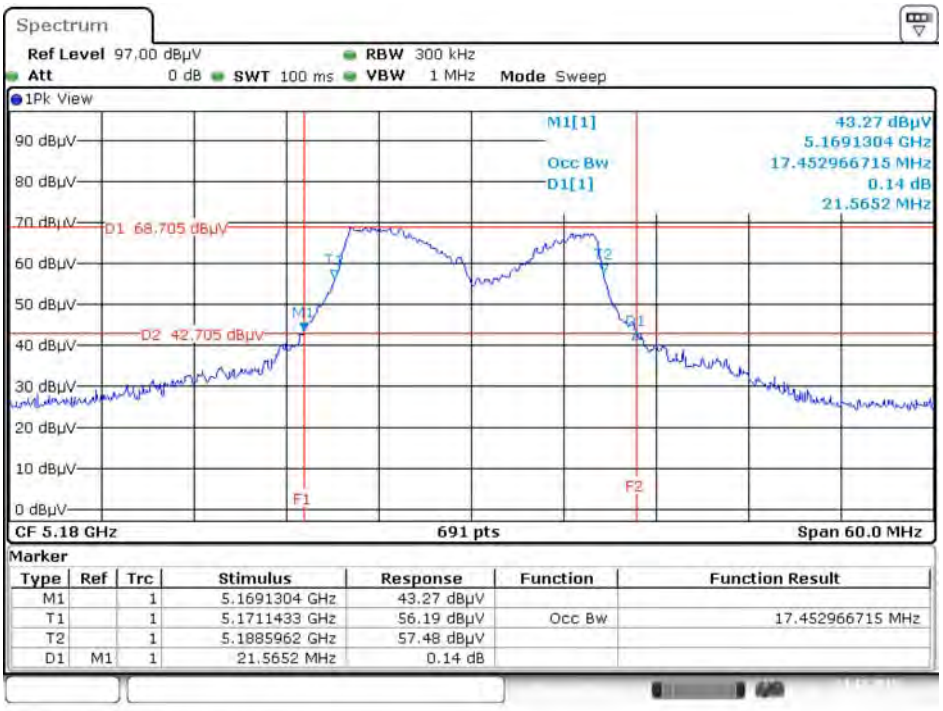


<Mode 2: Internal / Dish Ant.>

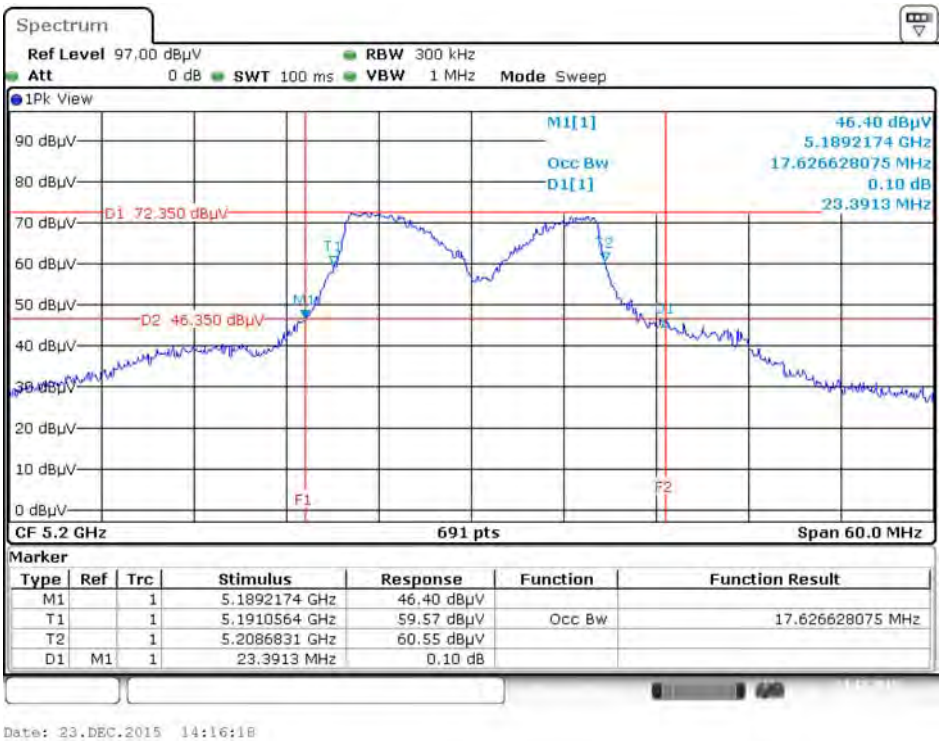
Temperature	25°C	Humidity	45%
Test Engineer	Serway Li		

Mode	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11a	5180 MHz	21.57	17.45
	5200 MHz	23.39	17.63
	5240 MHz	21.48	17.45
	5745 MHz	21.22	17.19
	5785 MHz	21.22	17.11
	5825 MHz	21.22	17.19
802.11ac MCS0/Nss1 VHT20	5180 MHz	22.26	18.06
	5200 MHz	22.17	17.97
	5240 MHz	22.78	18.06
	5745 MHz	22.00	17.89
	5785 MHz	22.17	17.89
	5825 MHz	21.74	17.89
802.11ac MCS0/Nss1 VHT40	5190 MHz	45.80	37.34
	5230 MHz	50.73	37.34
	5755 MHz	44.93	37.19
	5795 MHz	45.22	37.19
802.11ac MCS0/Nss1 VHT80	5210 MHz	83.77	75.25
	5775 MHz	82.32	75.25

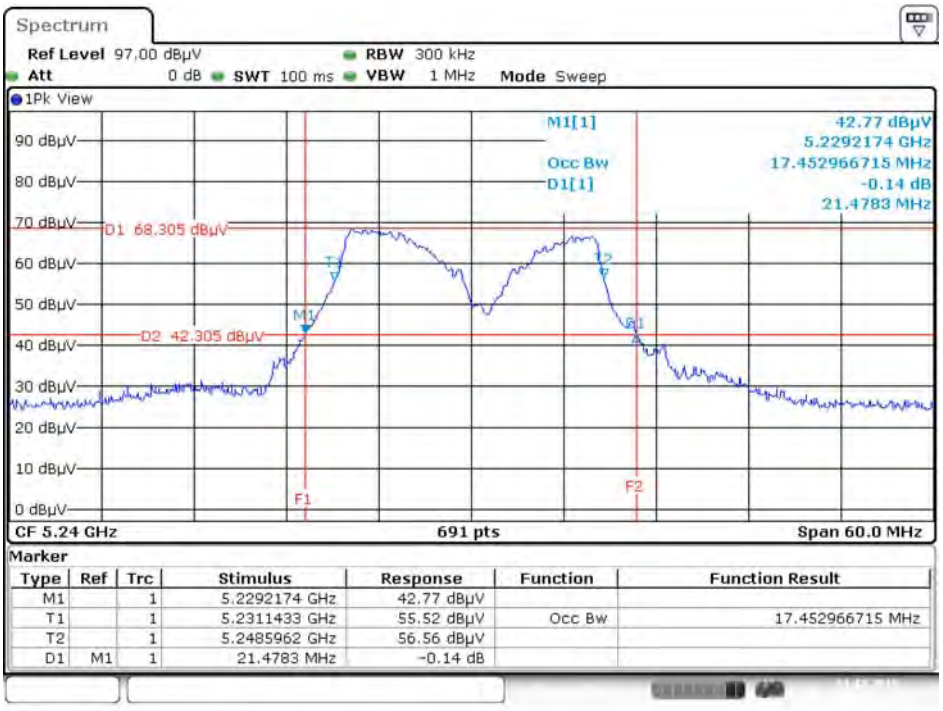
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 / 5180 MHz



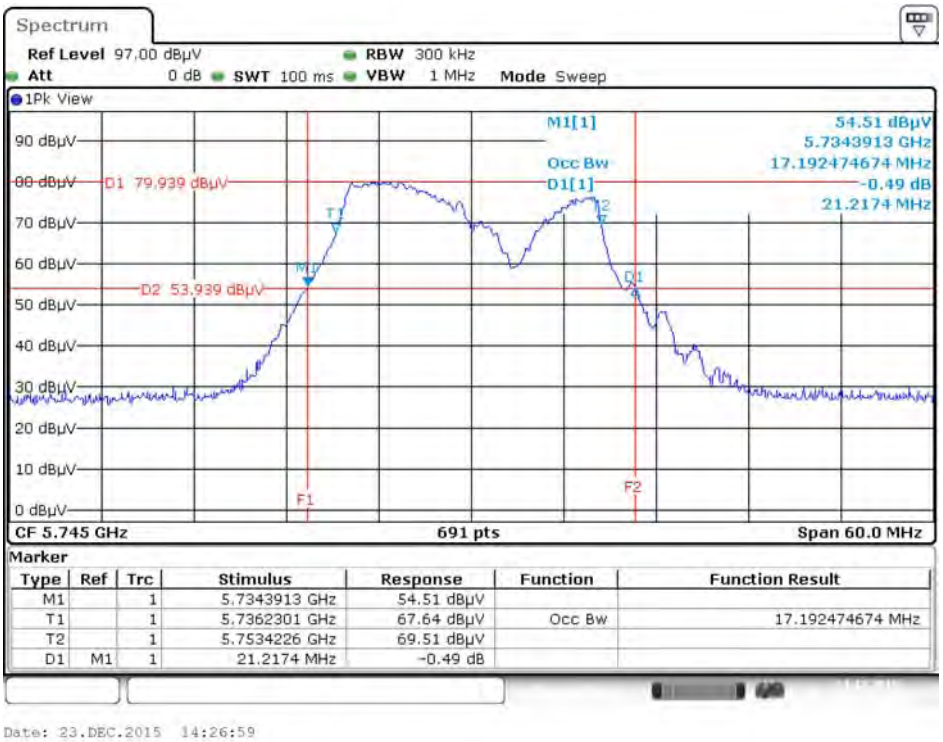
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 / 5200 MHz



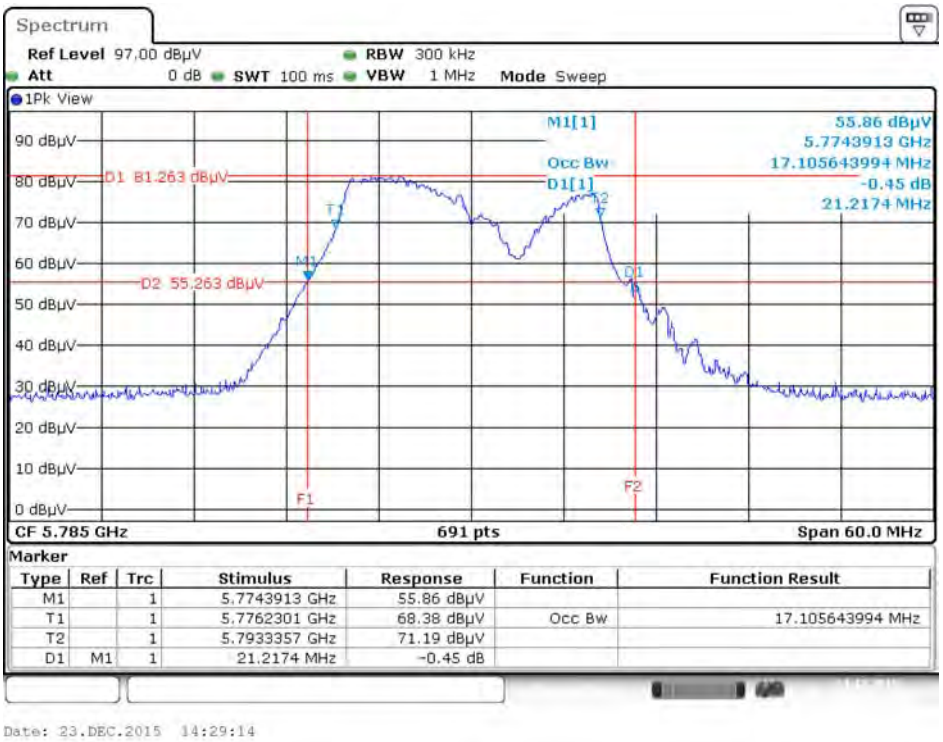
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 / 5240 MHz



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

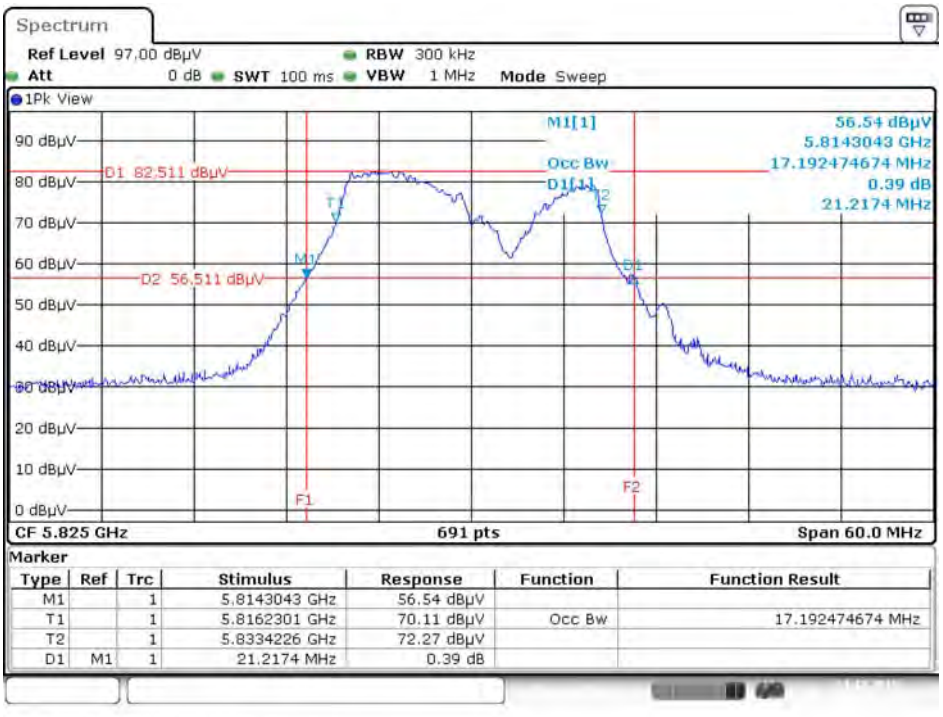


26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 / 5785 MHz



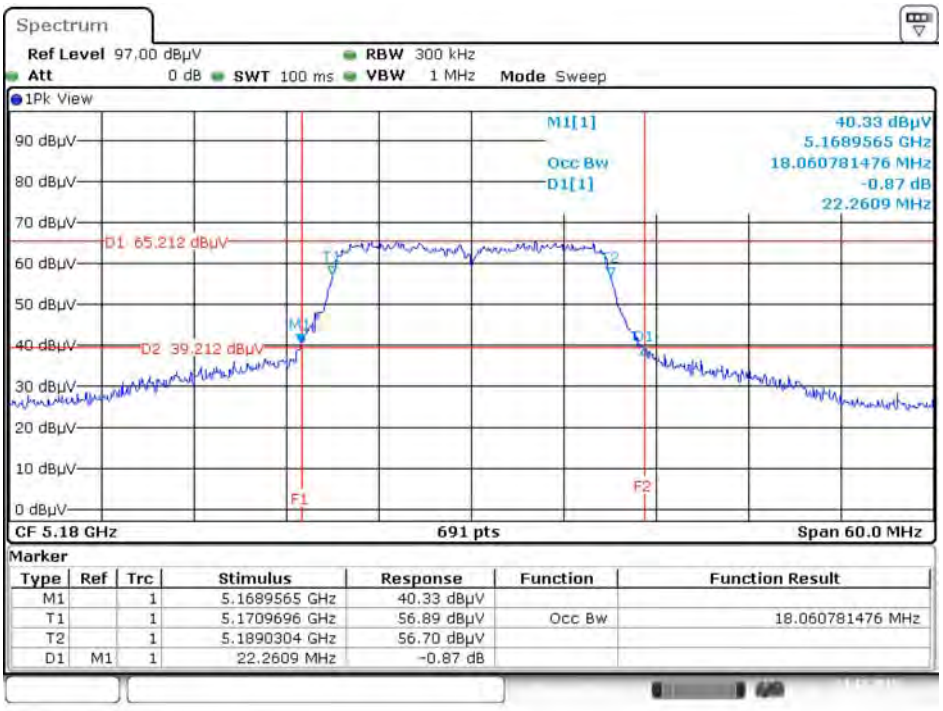
Date: 23.DEC.2015 14:29:14

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

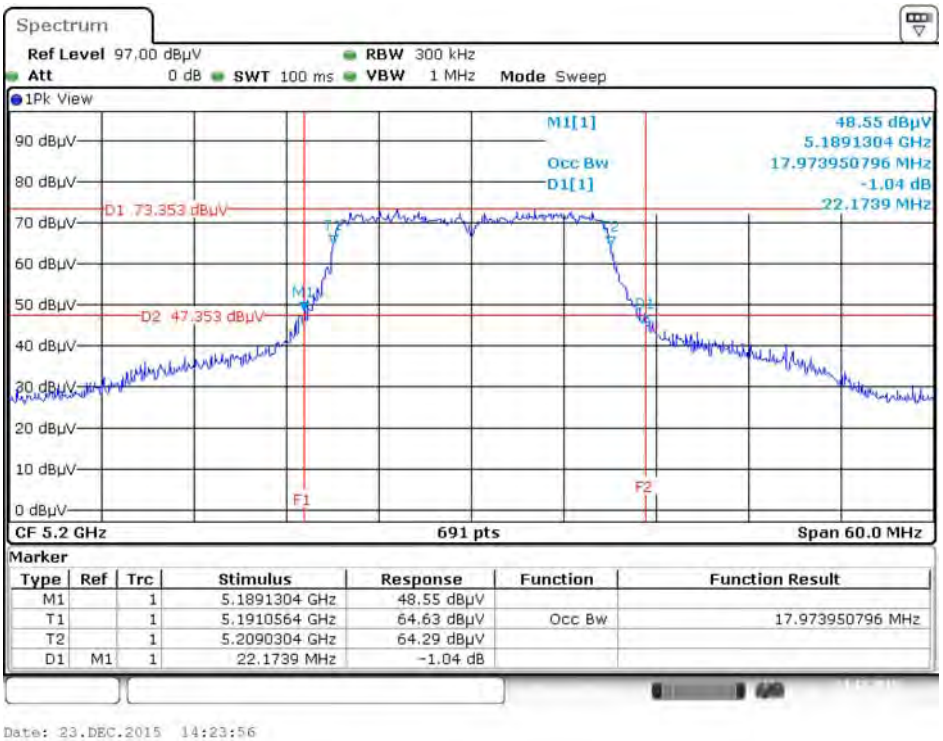


Date: 23.DEC.2015 14:30:57

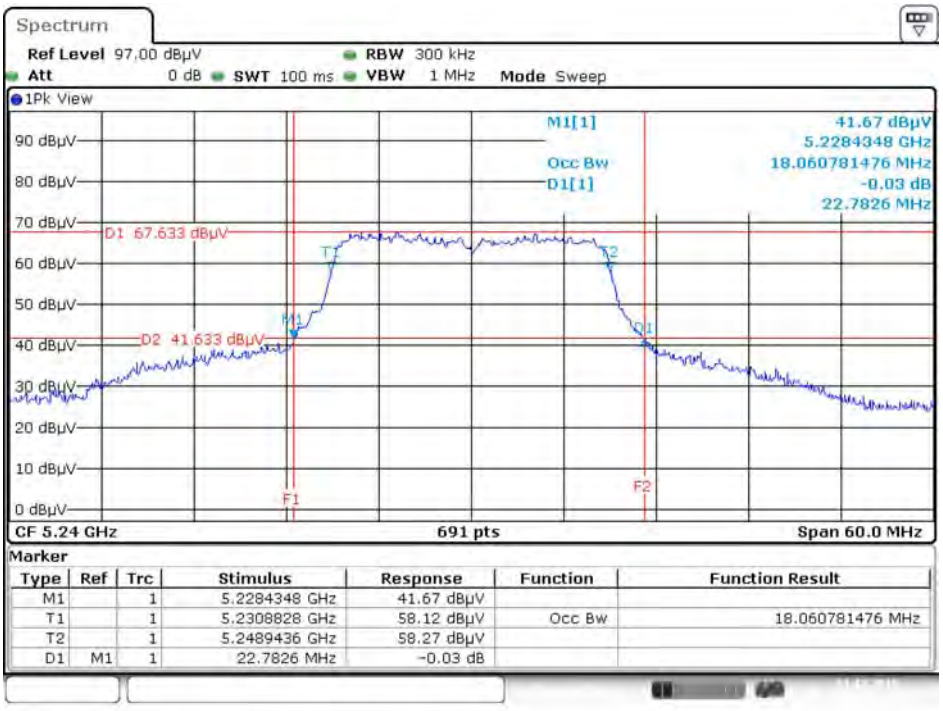
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 / 5180 MHz



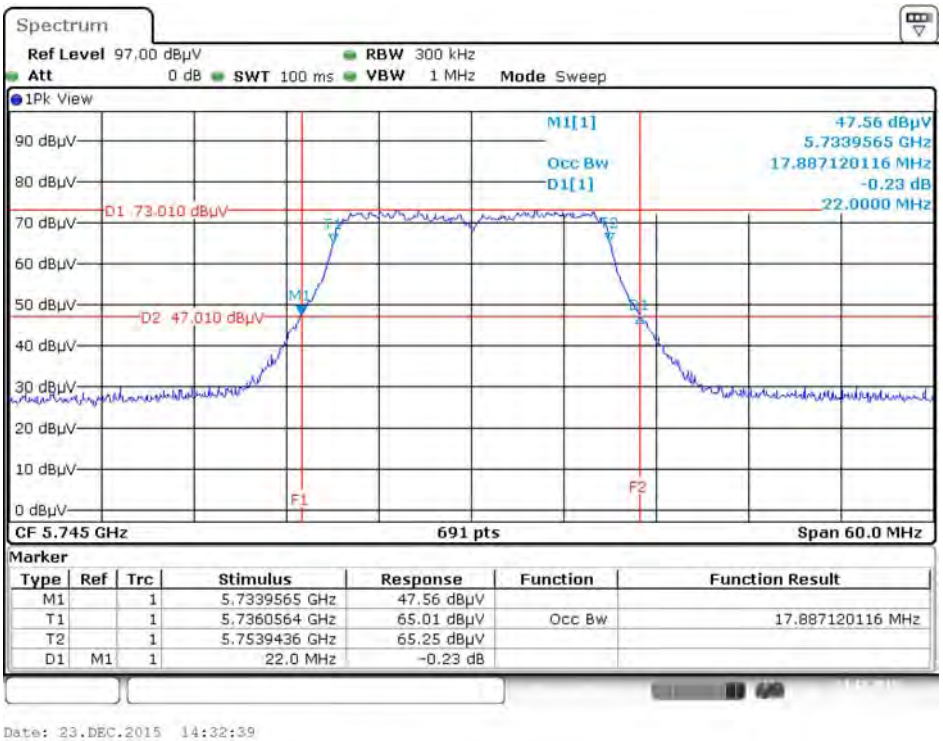
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 / 5200 MHz



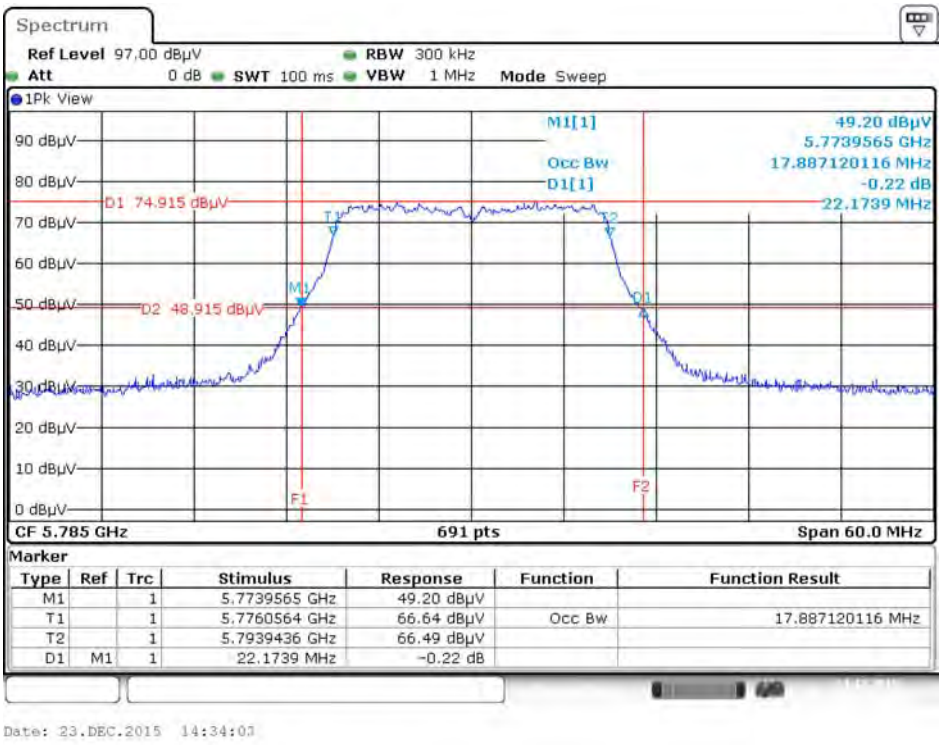
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 / 5240 MHz



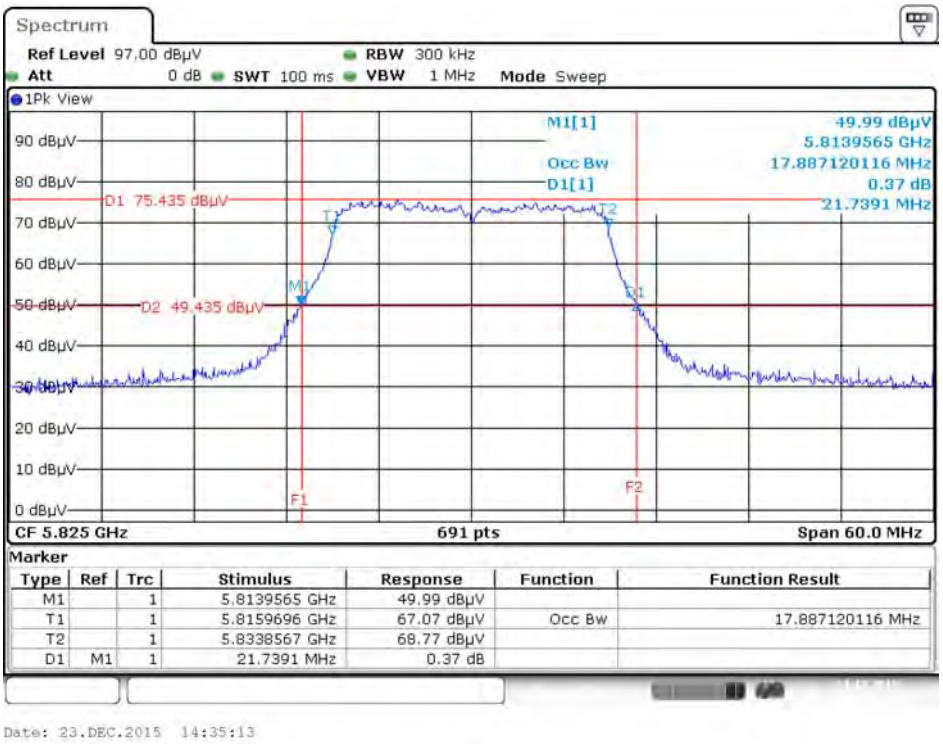
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 / 5745 MHz



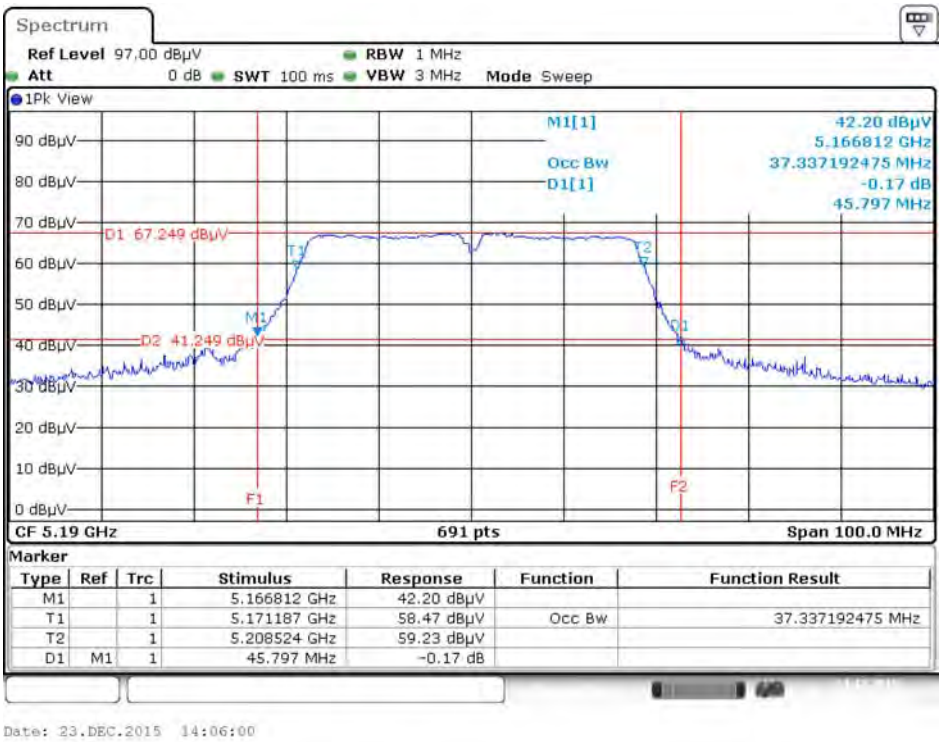
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 / 5785 MHz



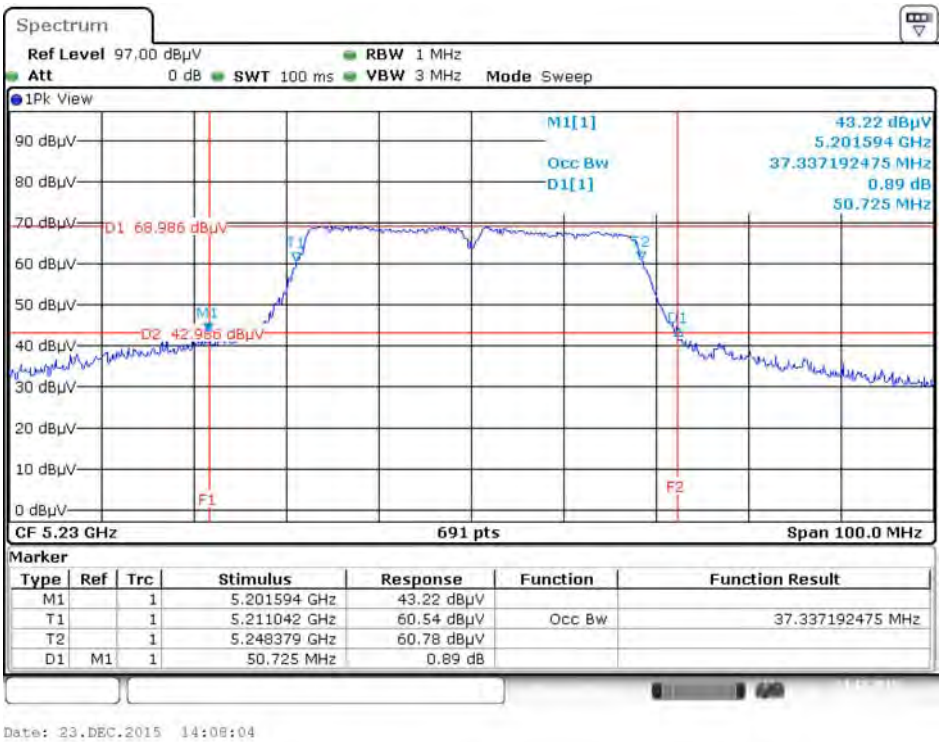
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 / 5825 MHz



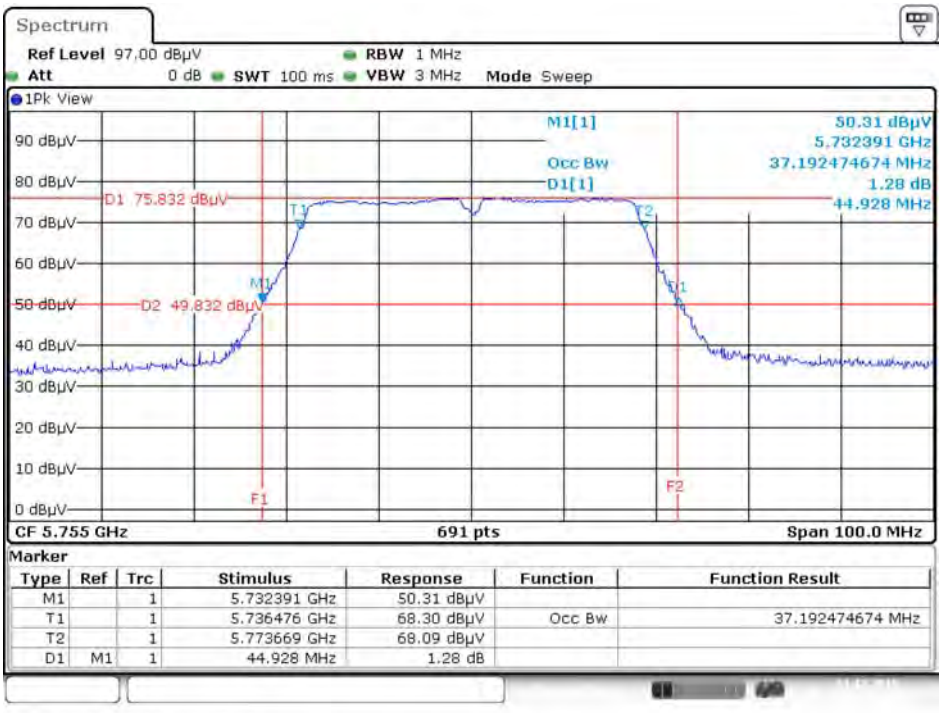
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 / 5190 MHz



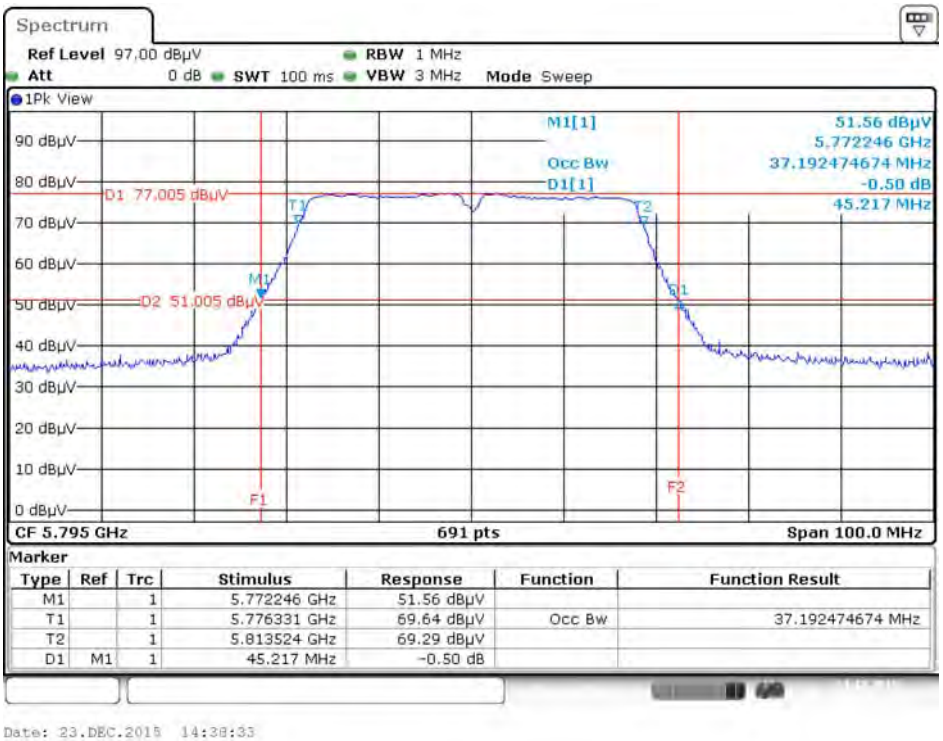
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 / 5230 MHz



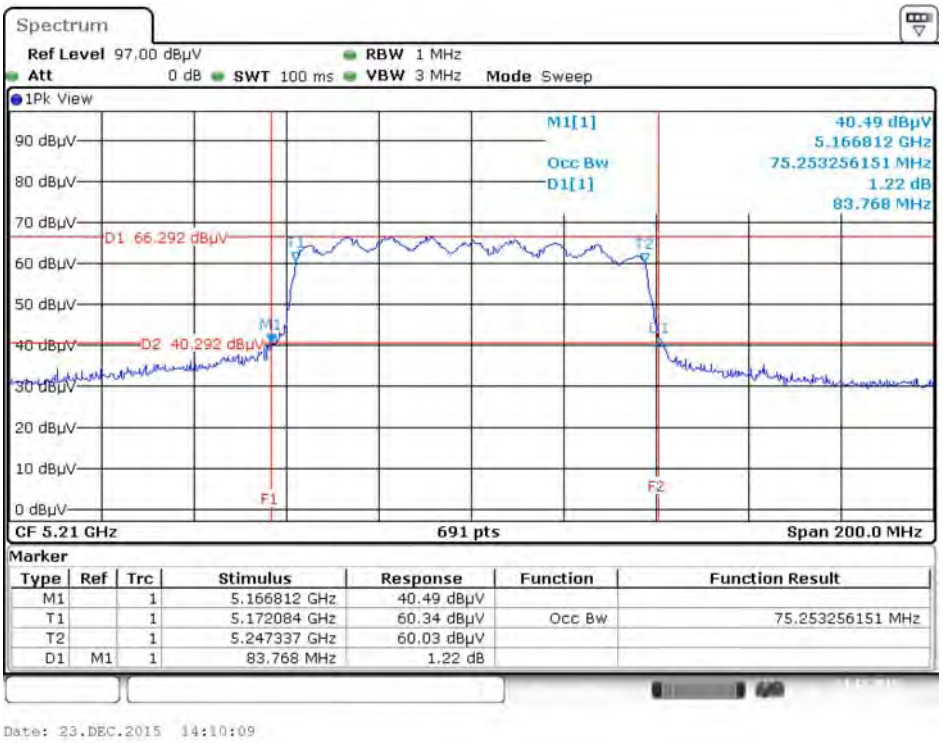
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 / 5755 MHz



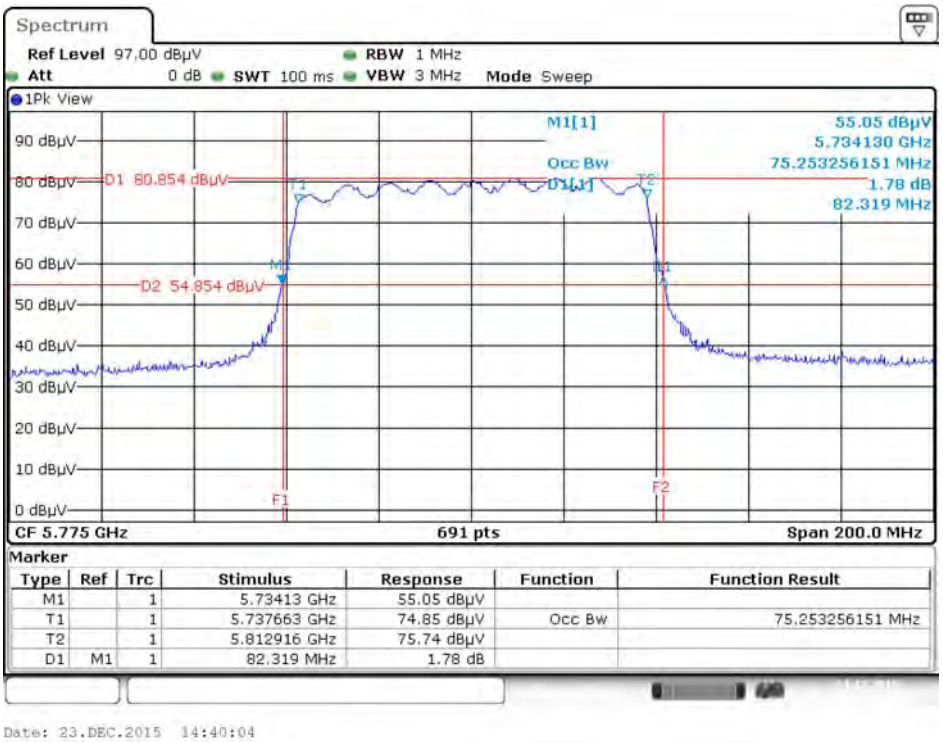
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 / 5795 MHz



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



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



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 v01 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

<Mode 1: External / Sector Ant.>

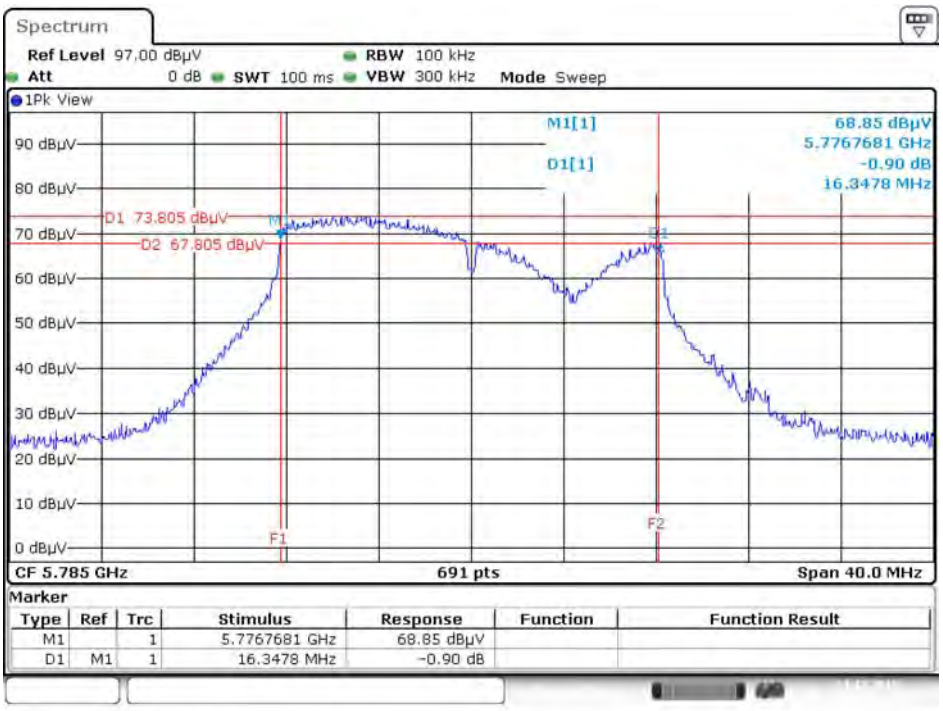
Temperature	25℃	Humidity	45%
Test Engineer	Serway Li		

Mode	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Test Result
802.11a	5745 MHz	16.46	500	Complies
	5785 MHz	16.35	500	Complies
	5825 MHz	16.46	500	Complies
802.11ac MCS0/Nss1 VHT20	5745 MHz	17.68	500	Complies
	5785 MHz	17.68	500	Complies
	5825 MHz	17.68	500	Complies
802.11ac MCS0/Nss1 VHT40	5755 MHz	36.41	500	Complies
	5795 MHz	36.41	500	Complies
802.11ac MCS0/Nss1 VHT80	5775 MHz	75.07	500	Complies

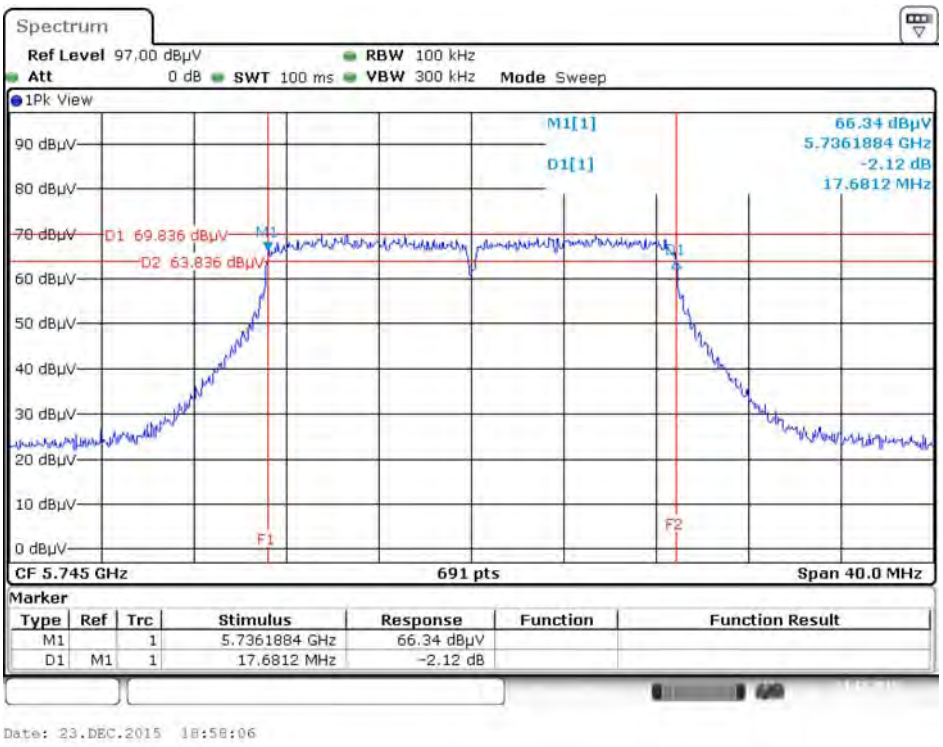
Note: All the test values were listed in the report.

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

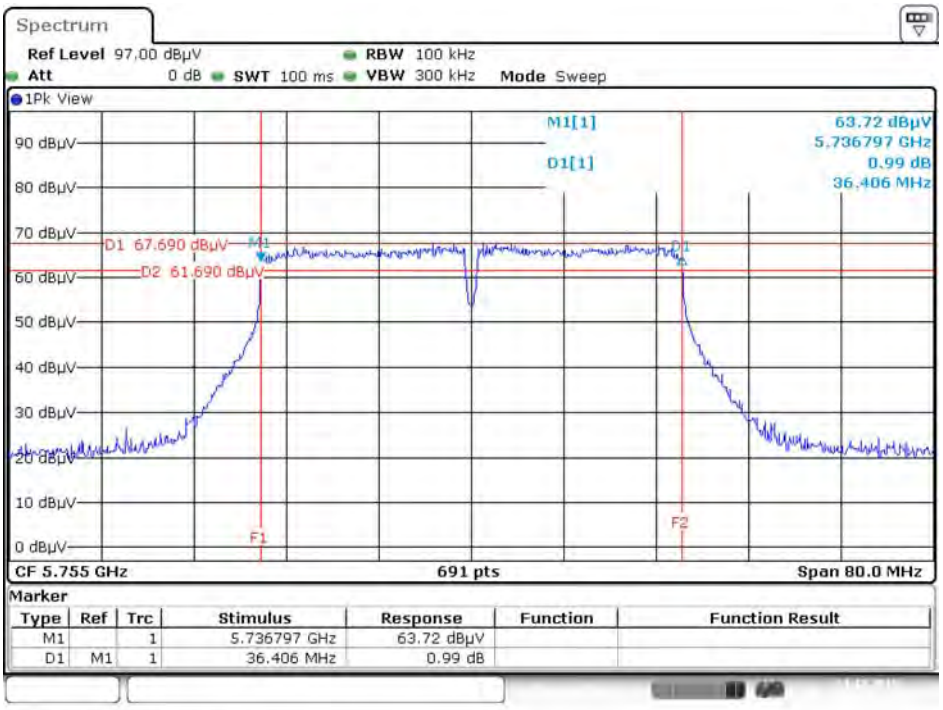
6 dB Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 / 5785 MHz



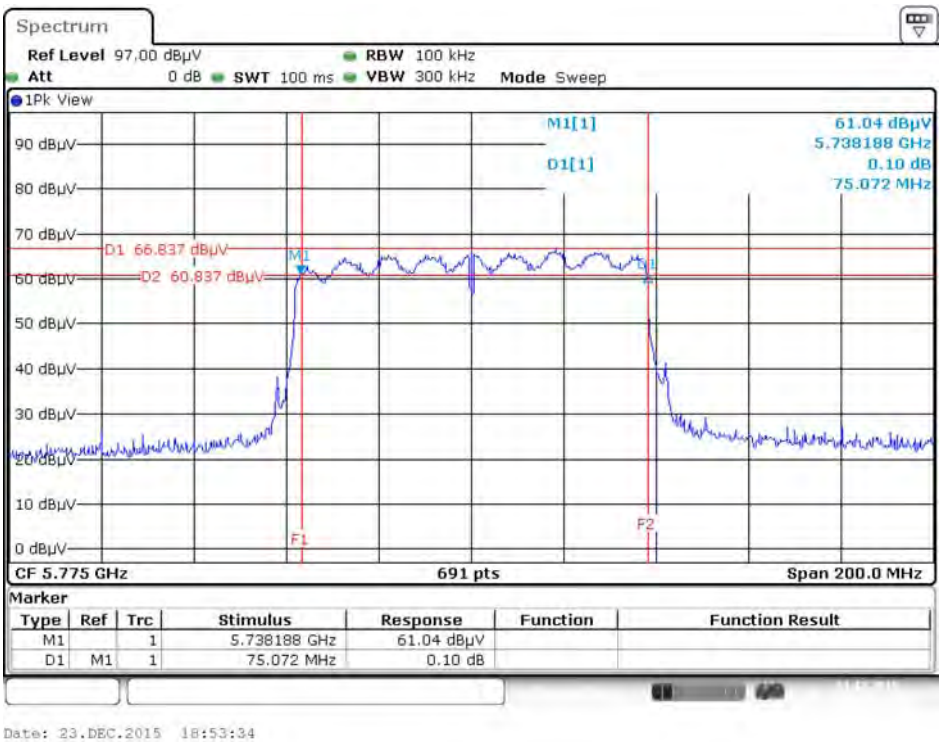
6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 / 5745 MHz



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



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



<Mode 2: Internal / Dish Ant.>

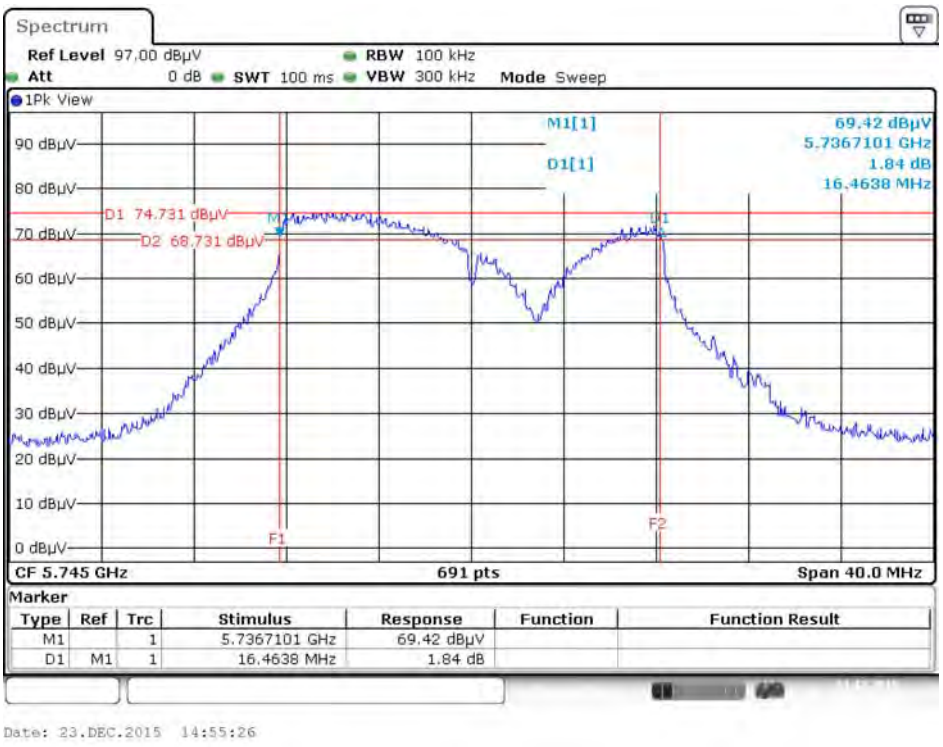
Temperature	25°C	Humidity	45%
Test Engineer	Serway Li		

Mode	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Test Result
802.11a	5745 MHz	16.46	500	Complies
	5785 MHz	16.52	500	Complies
	5825 MHz	16.46	500	Complies
802.11ac MCS0/Nss1 VHT20	5745 MHz	17.80	500	Complies
	5785 MHz	17.74	500	Complies
	5825 MHz	17.68	500	Complies
802.11ac MCS0/Nss1 VHT40	5755 MHz	36.52	500	Complies
	5795 MHz	36.52	500	Complies
802.11ac MCS0/Nss1 VHT80	5775 MHz	75.65	500	Complies

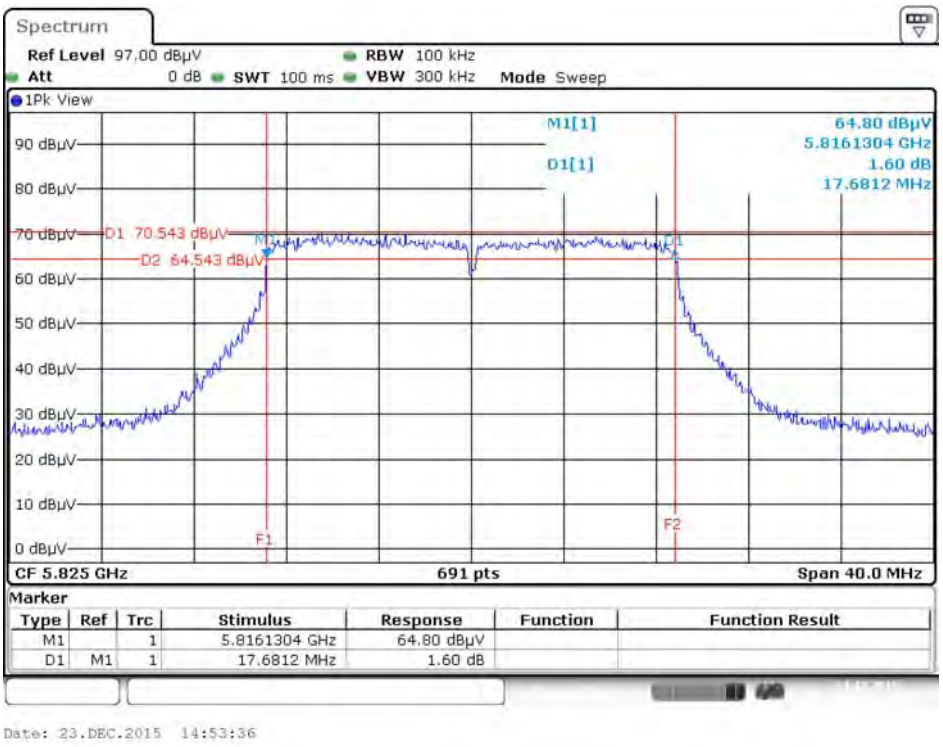
Note: All the test values were listed in the report.

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

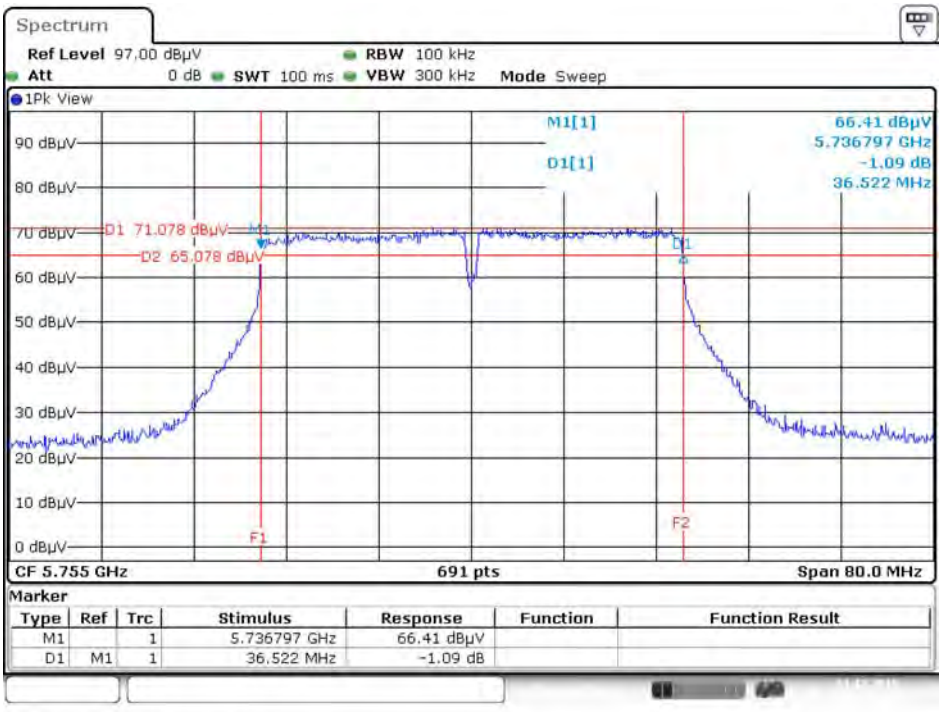
6 dB Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 / 5745 MHz



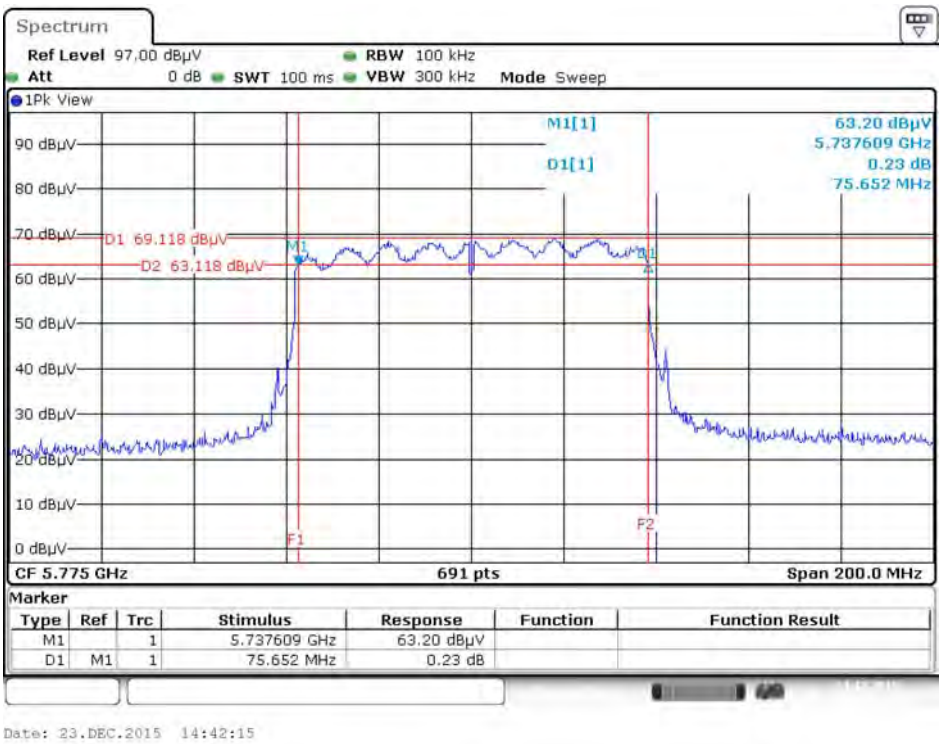
6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 / 5825 MHz



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



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



4.4. Maximum Conducted Output Power Measurement

4.4.1. Limit

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

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

4.4.2. Measuring Instruments and Setting

Please refer to section 5 of equipments list in this report. The following table is the setting of the 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 count 100
Sweep Time	Auto

4.4.3. Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. Test was performed in accordance with FCC Public Notice DA 02-2138, August 30, 2002.

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

<Mode 1: External / Sector Ant.>

Temperature	25°C	Humidity	45%
Test Engineer	Serway Li	Test Date	Dec. 23. 2015

Mode	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Chain 1	Chain 2	Total		
802.11a	5180 MHz	7.73	4.43	9.40	30.00	Complies
	5200 MHz	10.11	8.47	12.38	30.00	Complies
	5240 MHz	5.18	6.13	8.69	30.00	Complies
	5745 MHz	10.53	10.33	13.44	30.00	Complies
	5785 MHz	11.52	11.37	14.46	30.00	Complies
	5825 MHz	13.20	13.08	16.15	30.00	Complies
802.11ac MCS0/Nss1 VHT20	5180 MHz	7.07	3.79	8.74	30.00	Complies
	5200 MHz	9.82	8.63	12.28	30.00	Complies
	5240 MHz	6.83	7.75	10.32	30.00	Complies
	5745 MHz	10.87	10.61	13.75	30.00	Complies
	5785 MHz	11.93	11.85	14.90	30.00	Complies
	5825 MHz	13.29	13.24	16.28	30.00	Complies
802.11ac MCS0/Nss1 VHT40	5190 MHz	5.69	2.54	7.40	30.00	Complies
	5230 MHz	7.55	8.74	11.20	30.00	Complies
	5755 MHz	13.03	12.61	15.84	30.00	Complies
	5795 MHz	14.31	13.98	17.16	30.00	Complies
802.11ac MCS0/Nss1 VHT80	5210 MHz	4.89	2.78	6.97	30.00	Complies
	5775 MHz	13.66	13.21	16.45	30.00	Complies

<Mode 2: Internal / Dish Ant.>

Temperature	25°C	Humidity	45%
Test Engineer	Serway Li	Test Date	Dec. 23. 2015

Mode	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Chain 1	Chain 2	Total		
802.11a	5180 MHz	4.14	0.02	5.56	30.00	Complies
	5200 MHz	7.28	4.71	9.19	30.00	Complies
	5240 MHz	1.65	1.94	4.81	30.00	Complies
	5745 MHz	10.82	10.63	13.74	30.00	Complies
	5785 MHz	11.52	11.37	14.46	30.00	Complies
	5825 MHz	13.58	13.46	16.53	30.00	Complies
802.11ac MCS0/Nss1 VHT20	5180 MHz	2.76	-1.63	4.11	30.00	Complies
	5200 MHz	6.49	4.81	8.74	30.00	Complies
	5240 MHz	1.57	1.89	4.74	30.00	Complies
	5745 MHz	10.87	10.61	13.75	30.00	Complies
	5785 MHz	11.93	11.85	14.90	30.00	Complies
	5825 MHz	13.95	13.86	16.92	30.00	Complies
802.11ac MCS0/Nss1 VHT40	5190 MHz	1.93	-2.23	3.34	30.00	Complies
	5230 MHz	3.73	3.89	6.82	30.00	Complies
	5755 MHz	13.28	12.93	16.12	30.00	Complies
	5795 MHz	14.31	13.98	17.16	30.00	Complies
802.11ac MCS0/Nss1 VHT80	5210 MHz	2.53	0.46	4.63	30.00	Complies
	5775 MHz	13.66	13.21	16.45	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
	☐	Mobile and portable client devices	11 dBm/MHz
☒	5.725~5.85 GHz		30 dBm/500kHz

4.5.2. Measuring Instruments and Setting

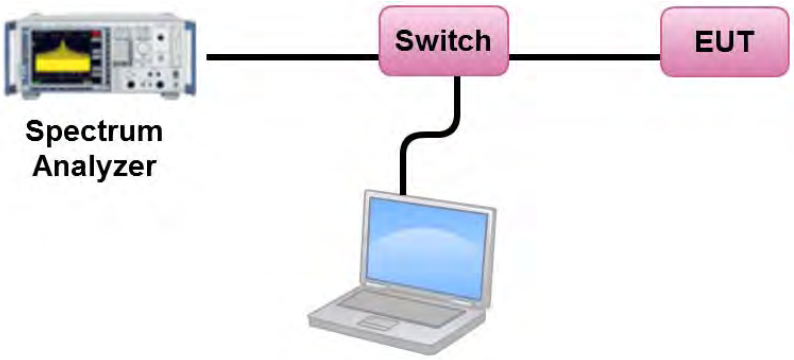
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

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

4.5.3. Test Procedures

1. The transmitter output (antenna port) was connected RF switch to the spectrum analyzer.
2. Test was performed in accordance with KDB789033 D02 v01 for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - section (F) Maximum Power Spectral Density (PSD).
3. Multiple antenna systems was performed in accordance KDB662911 D01 v02r01 in-Band Power Spectral Density (PSD) Measurements (a) Measure and sum the spectra across the outputs.
4. When measuring first spectral bin of output 1 is summed with that in the first spectral bin of output 2 and that from the first spectral bin of output 3 and so on up to the Nth output to obtain the value for the first frequency bin of the summed spectrum. The summed spectrum value for each of the other frequency bins is computed in the same way.
5. For 5.725~5.85 GHz, the measured result of PSD level must add 10log(500kHz/RBW) and the final result should ≤ 30 dBm.

4.5.4. Test Setup Layout



4.5.5. Test Deviation

There is no deviation with the original standard.

4.5.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.5.7. Test Result of Power Spectral Density

<Mode 1: External / Sector Ant.>

Temperature	25°C	Humidity	45%
Test Engineer	Serway Li		

Configuration IEEE 802.11a / Chain 1 + Chain 2

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	-3.84	17.00	Complies
40	5200 MHz	-0.92	17.00	Complies
48	5240 MHz	-4.54	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	0.22	-3.01	-2.79	30.00	Complies
157	5785 MHz	1.17	-3.01	-1.84	30.00	Complies
165	5825 MHz	2.86	-3.01	-0.15	30.00	Complies

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

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	-4.41	17.00	Complies
40	5200 MHz	-0.98	17.00	Complies
48	5240 MHz	-2.80	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	0.45	-3.01	-2.56	30.00	Complies
157	5785 MHz	1.69	-3.01	-1.32	30.00	Complies
165	5825 MHz	0.04	-3.01	-2.97	30.00	Complies

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

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	-8.88	17.00	Complies
46	5230 MHz	-5.07	17.00	Complies

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
151	5755 MHz	-0.30	-3.01	-3.31	30.00	Complies
159	5795 MHz	0.89	-3.01	-2.12	30.00	Complies

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

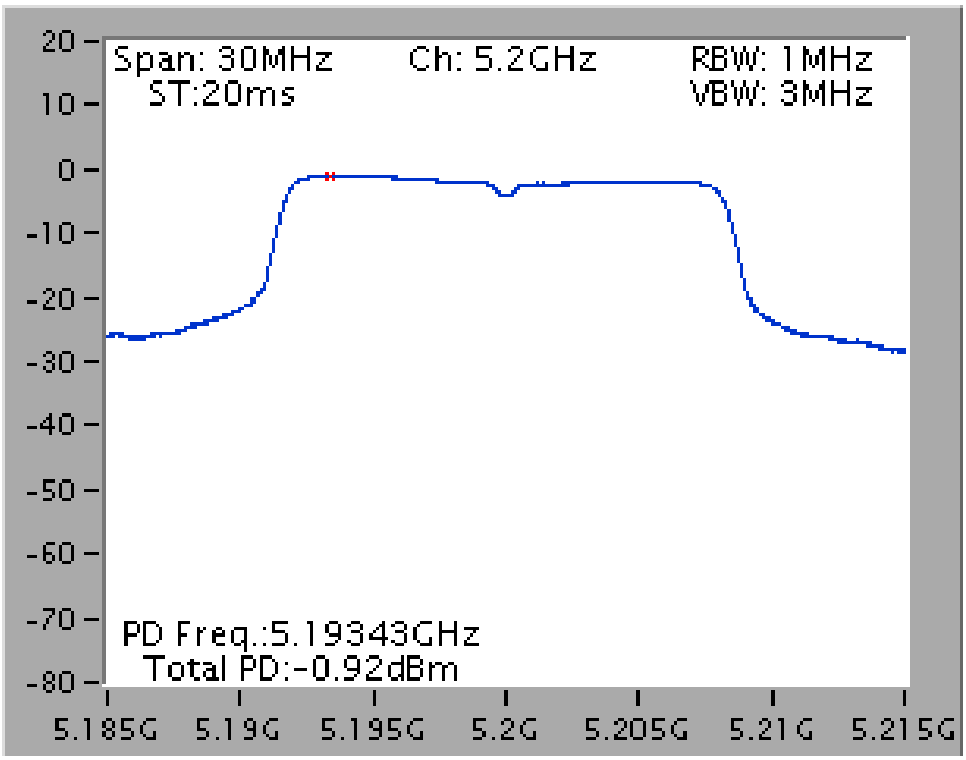
Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
42	5210 MHz	-12.22	17.00	Complies

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
155	5775 MHz	-2.64	-3.01	-5.65	30.00	Complies

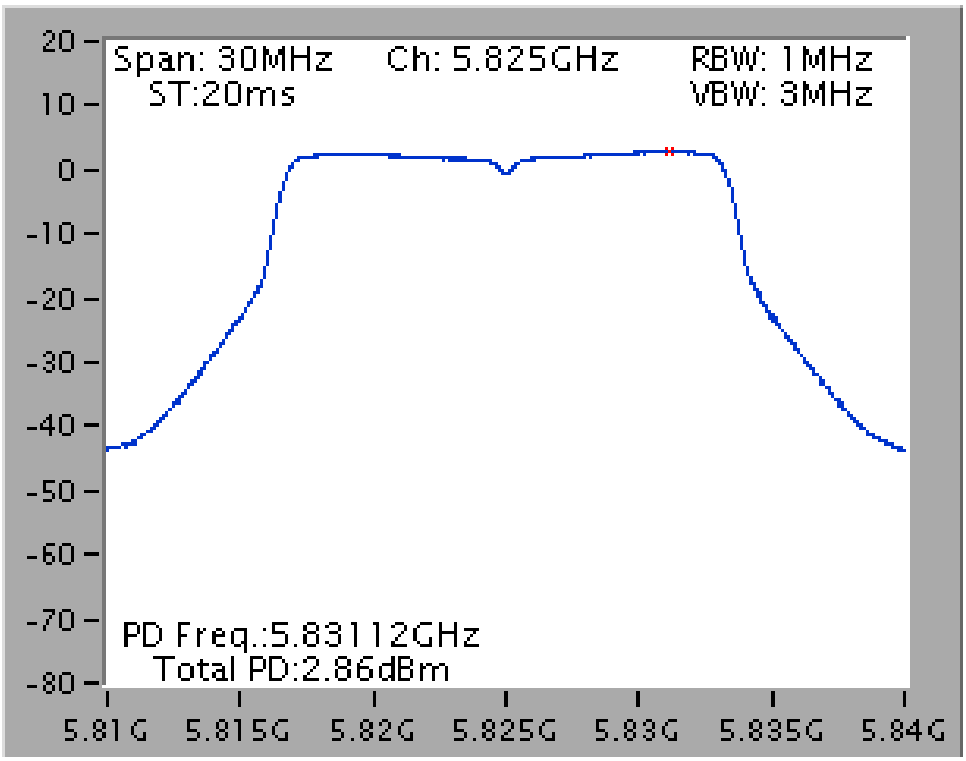
Note: All the test values were listed in the report.

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

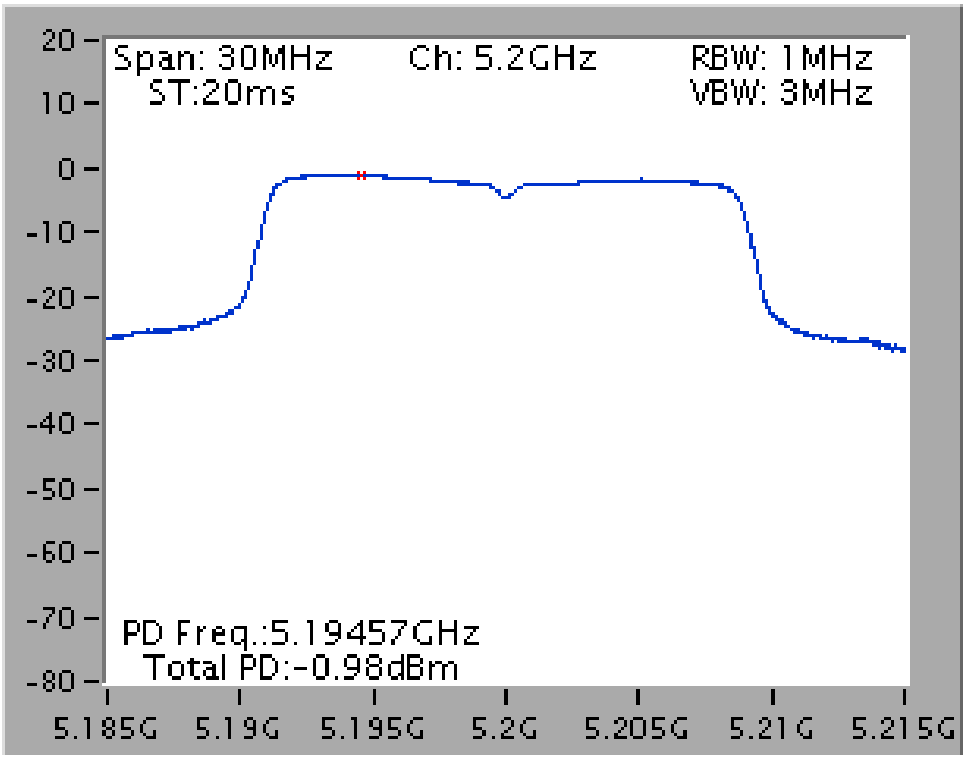
Power Density Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 / 5200 MHz



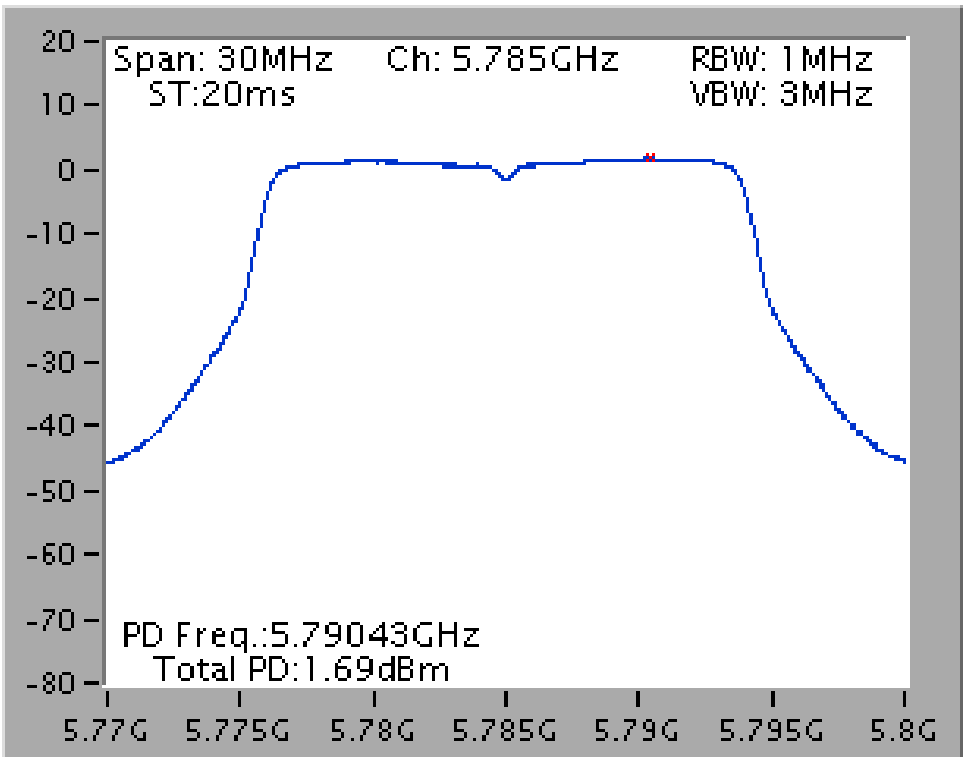
Power Density Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 / 5825 MHz



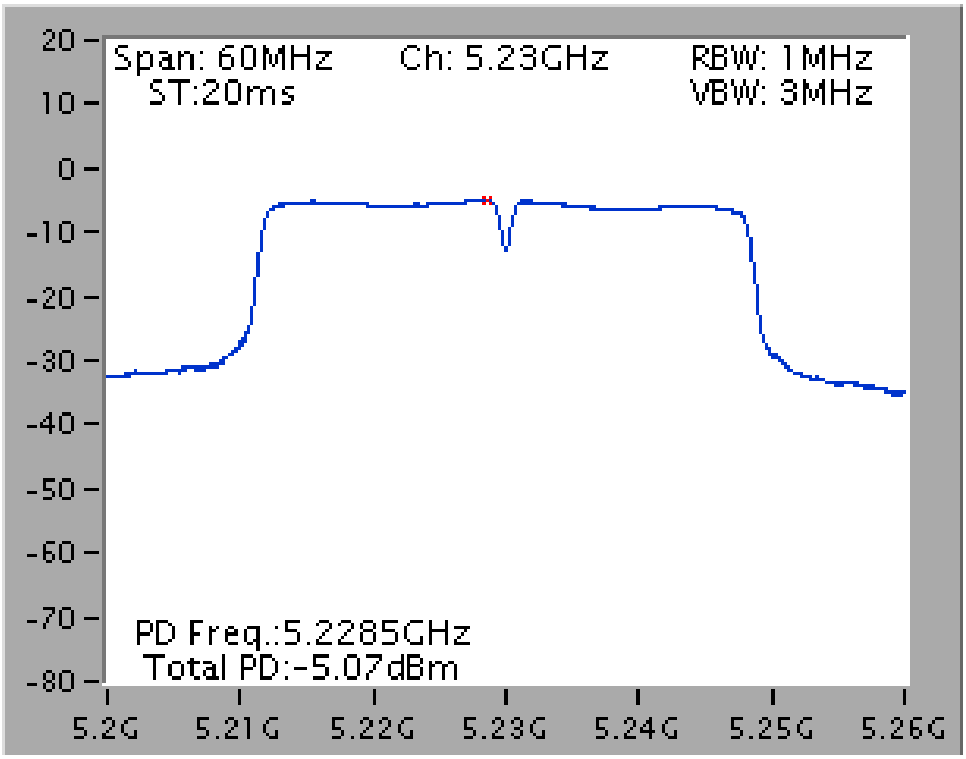
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 / 5200 MHz



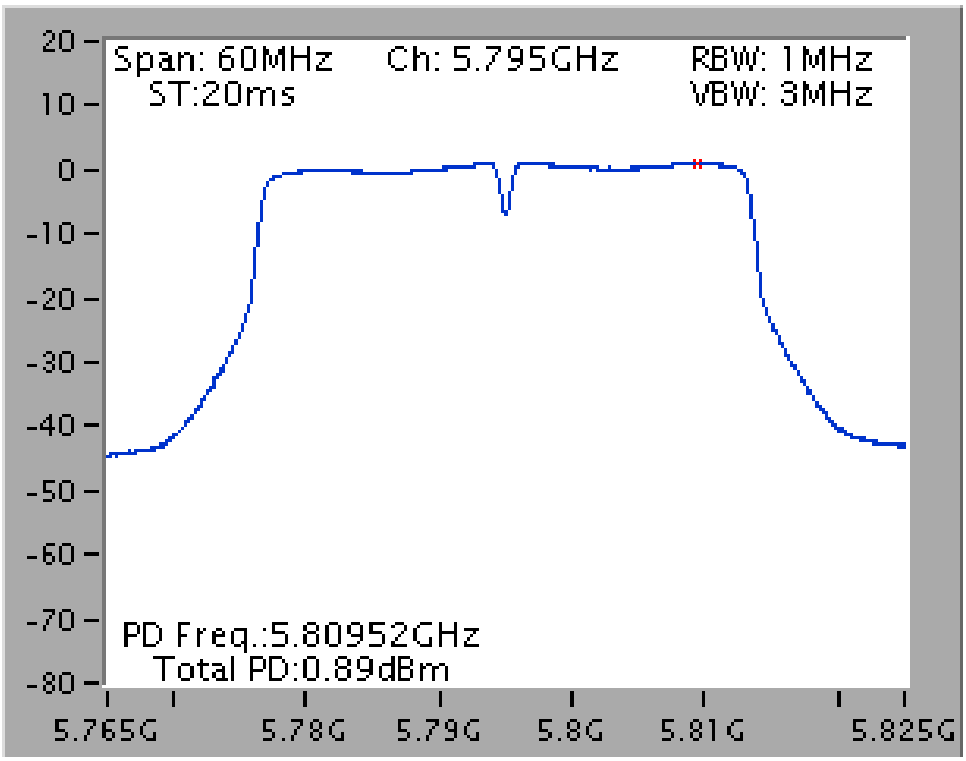
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 / 5785 MHz



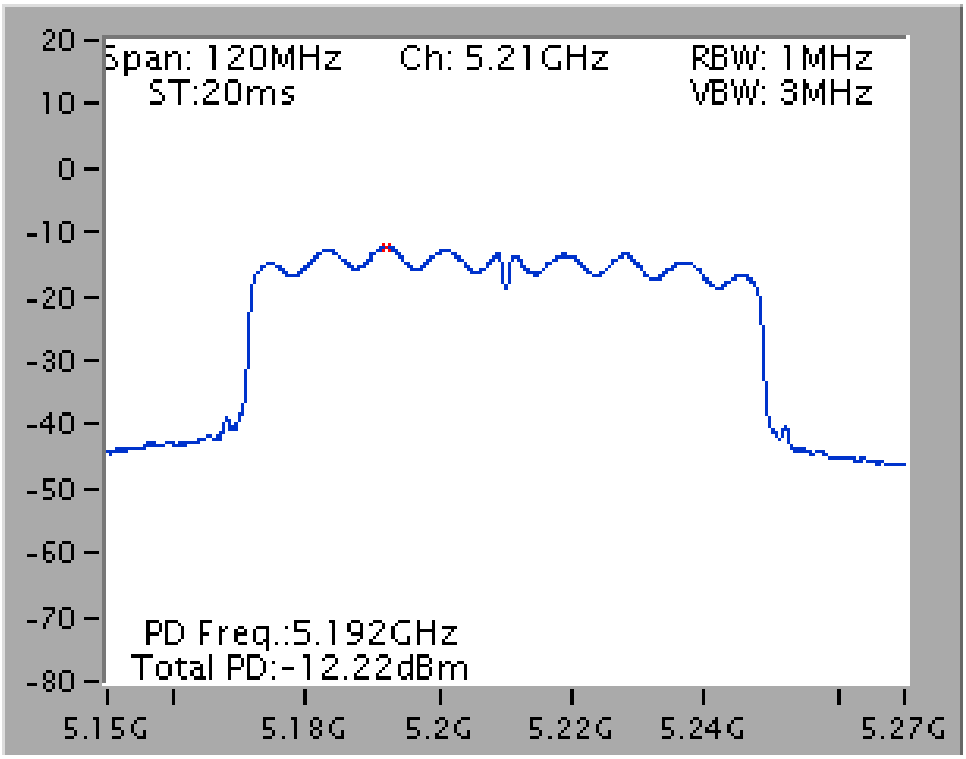
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 / 5230 MHz



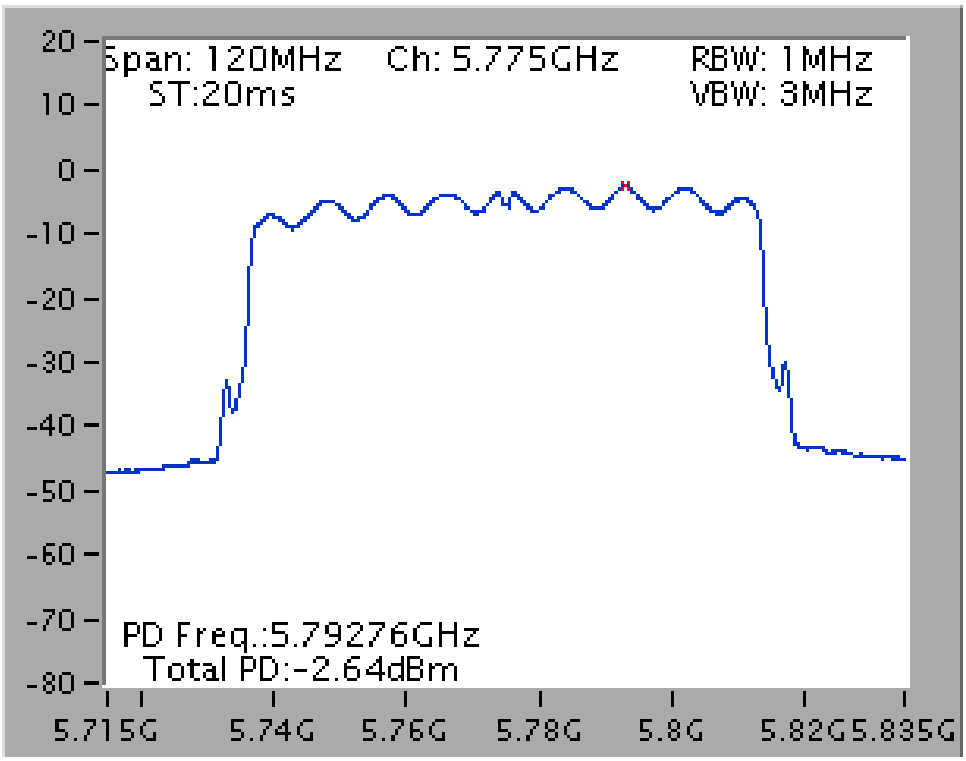
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 / 5795 MHz



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



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



<Mode 2: Internal / Dish Ant.>

Temperature	25°C	Humidity	45%
Test Engineer	Serway Li		

Configuration IEEE 802.11a / Chain 1 + Chain 2

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	-7.67	17.00	Complies
40	5200 MHz	-4.09	17.00	Complies
48	5240 MHz	-8.44	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	0.58	-3.01	-2.43	30.00	Complies
157	5785 MHz	1.17	-3.01	-1.84	30.00	Complies
165	5825 MHz	3.25	-3.01	0.24	30.00	Complies

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

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	-9.16	17.00	Complies
40	5200 MHz	-4.53	17.00	Complies
48	5240 MHz	-8.53	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	0.51	-3.01	-2.50	30.00	Complies
157	5785 MHz	1.68	-3.01	-1.33	30.00	Complies
165	5825 MHz	3.64	-3.01	0.63	30.00	Complies

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

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	-12.94	17.00	Complies
46	5230 MHz	-9.32	17.00	Complies

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
151	5755 MHz	-0.12	-3.01	-3.13	30.00	Complies
159	5795 MHz	1.08	-3.01	-1.93	30.00	Complies

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

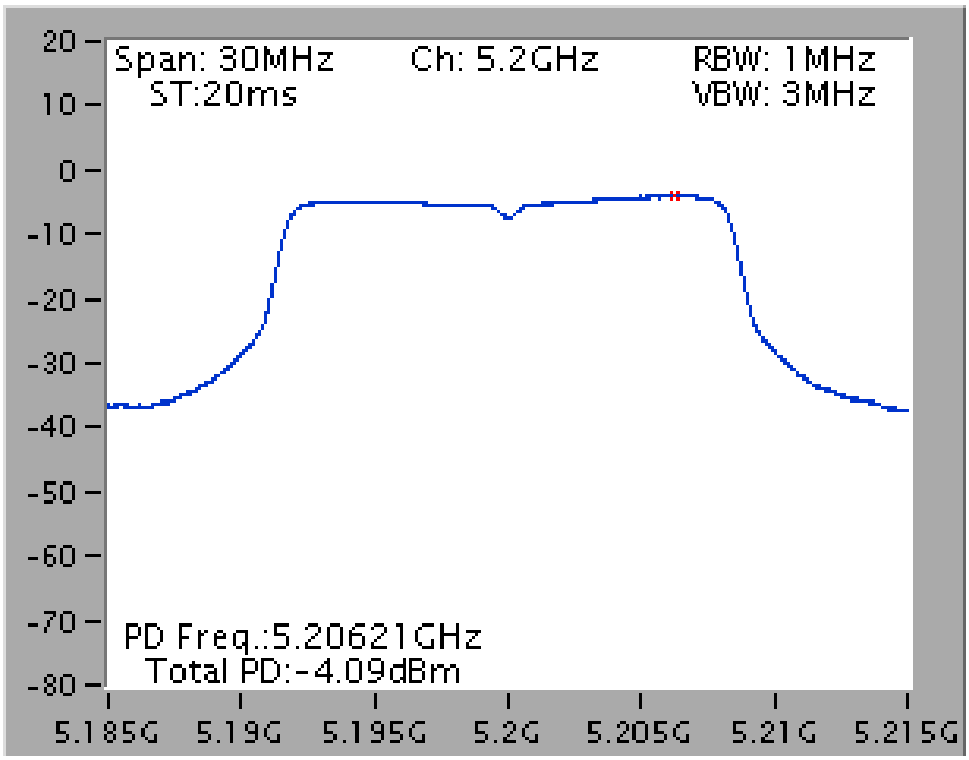
Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
42	5210 MHz	-14.52	17.00	Complies

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
155	5775 MHz	-2.70	-3.01	-5.71	30.00	Complies

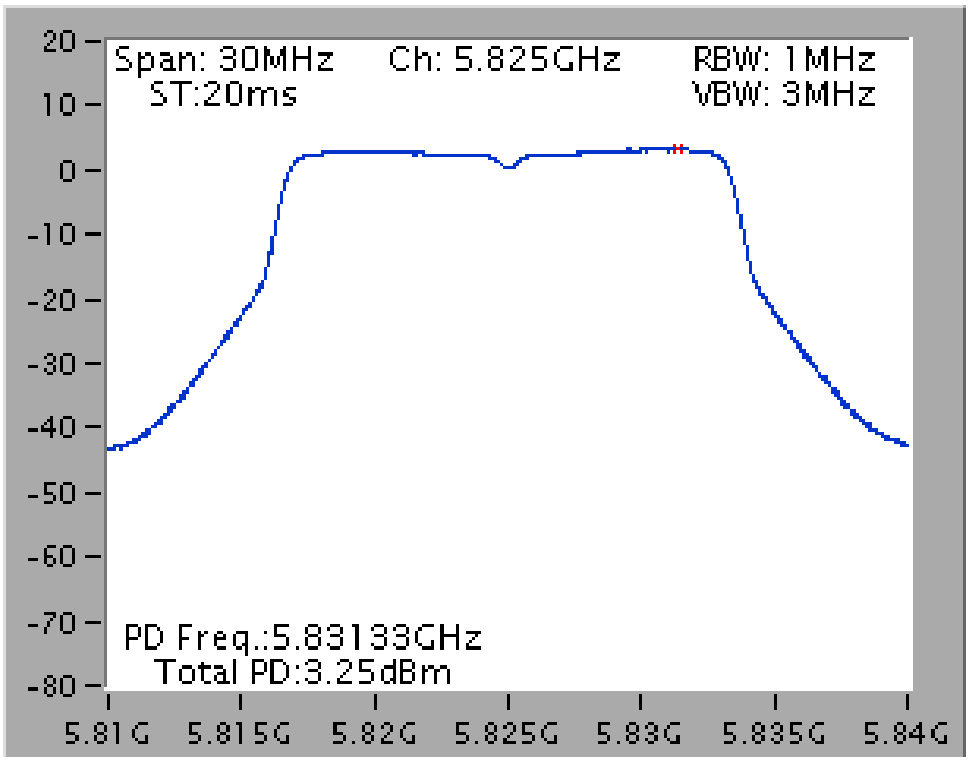
Note: All the test values were listed in the report.

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

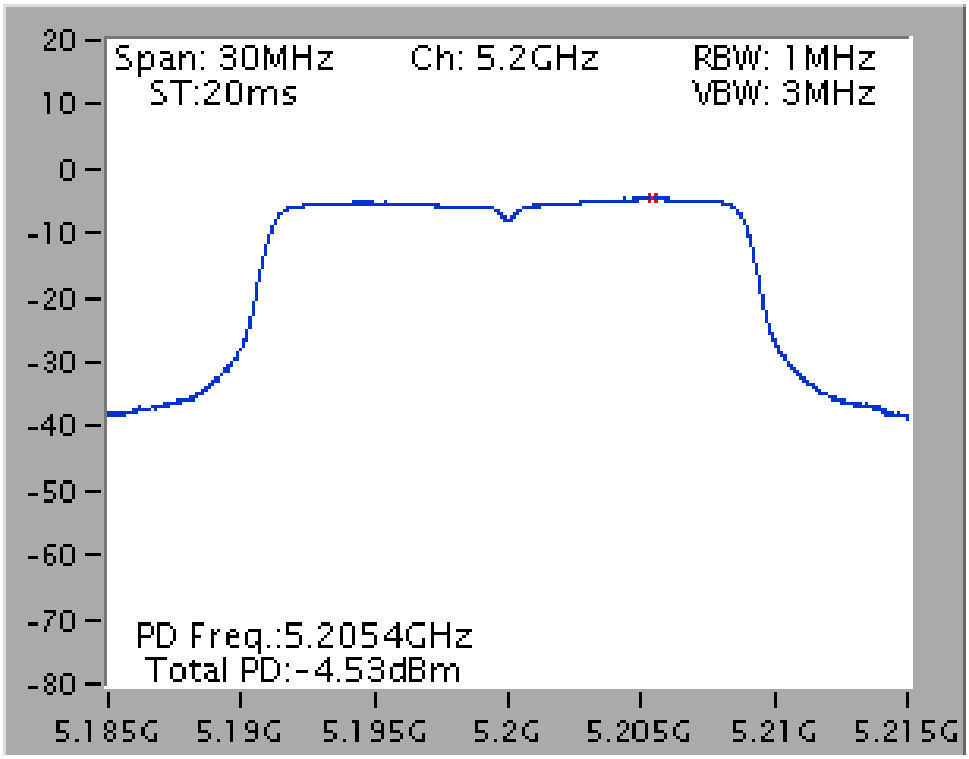
Power Density Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 / 5200 MHz



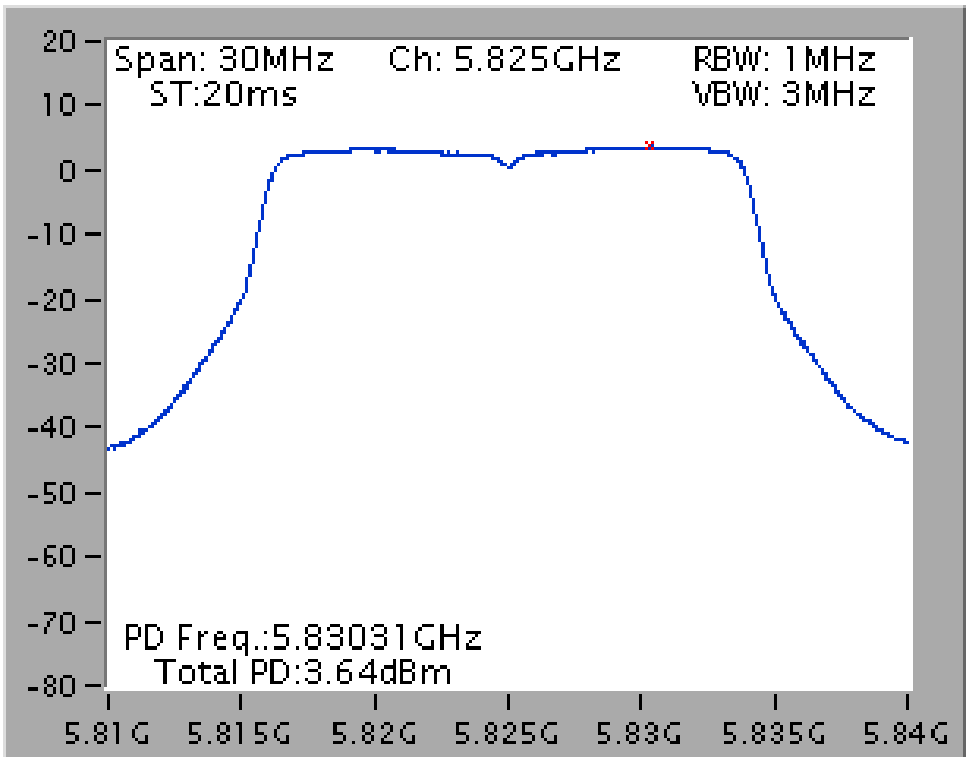
Power Density Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 / 5825 MHz



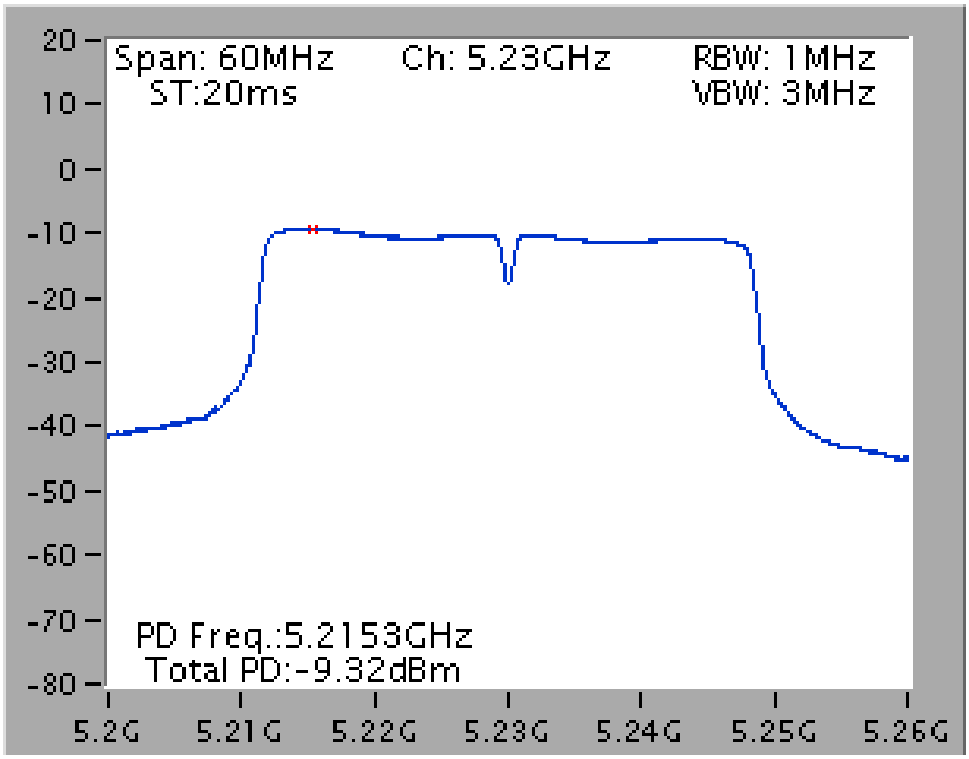
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 / 5200 MHz



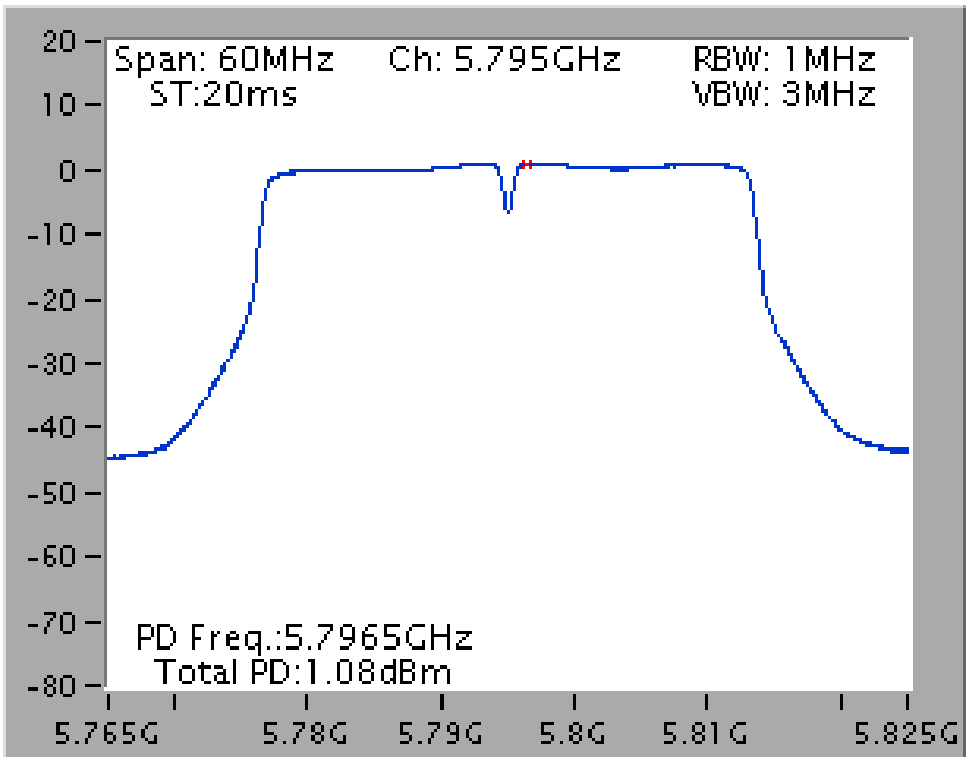
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 / 5825 MHz



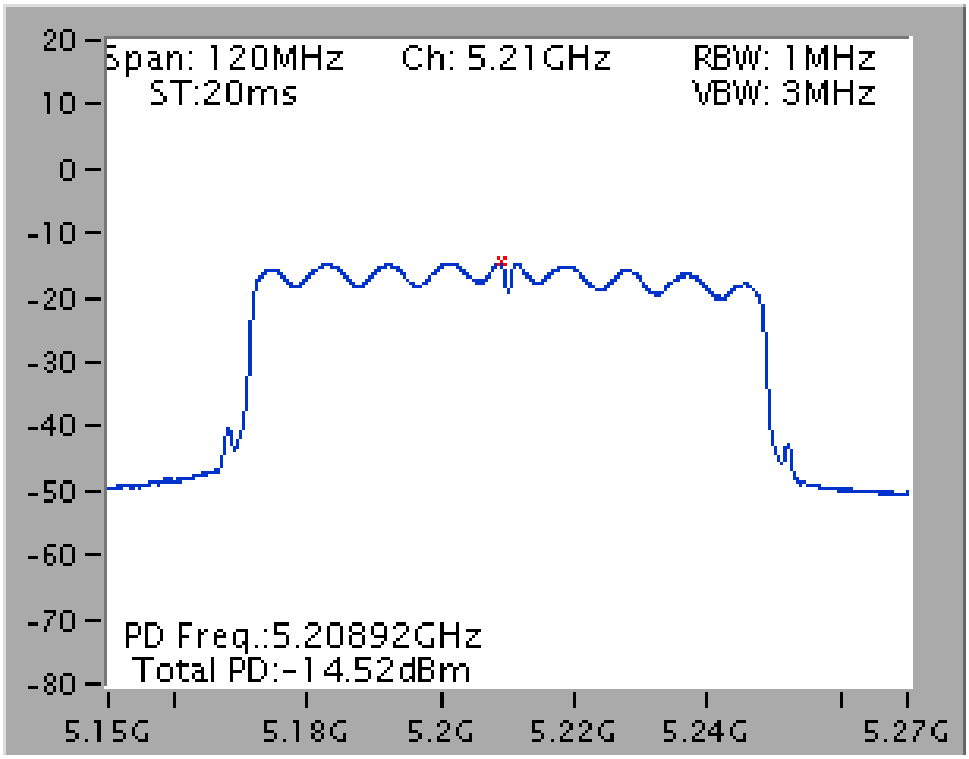
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 / 5230 MHz



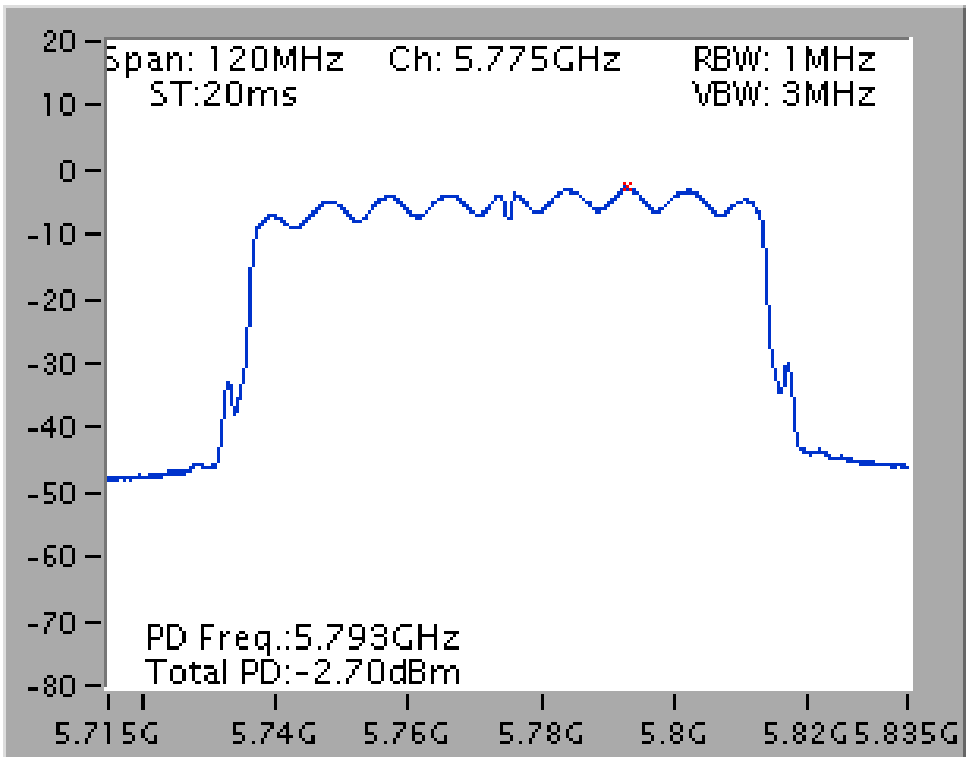
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 / 5795 MHz



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



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



4.6. Radiated Emissions Measurement

4.6.1. Limit

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

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

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

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

4.6.2. Measuring Instruments and Setting

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

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

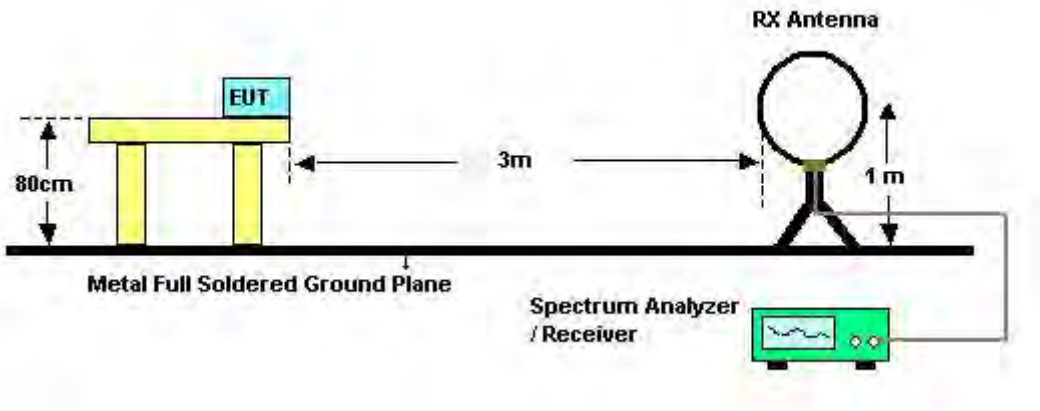
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RBW 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RBW 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RBW 120kHz for QP

4.6.3. Test Procedures

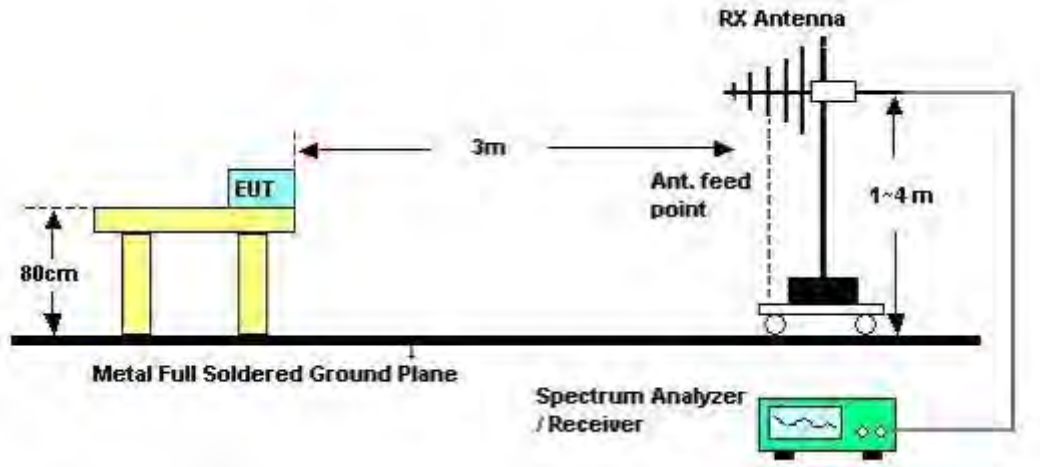
1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 1m & 3m far away from the turntable.
2. Power on the EUT and all the supporting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

4.6.4. Test Setup Layout

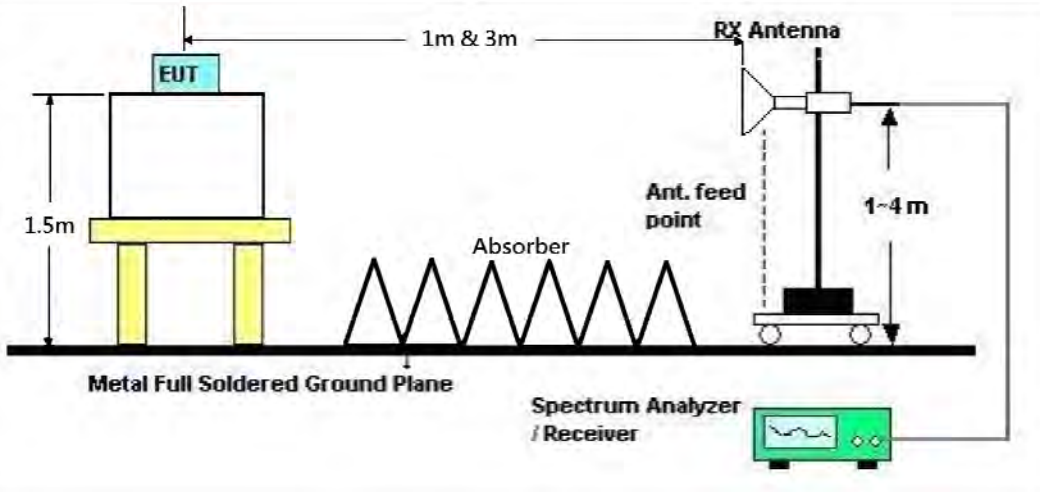
For Radiated Emissions: 9kHz ~30MHz



For Radiated Emissions: 30MHz~1GHz



For Radiated Emissions: Above 1GHz



4.6.5. Test Deviation

There is no deviation with the original standard.

4.6.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

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

Temperature	25℃	Humidity	61%
Test Engineer	Paul Chen / Peter Wu	Configurations	Normal Link
Test Date	Dec. 24, 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.

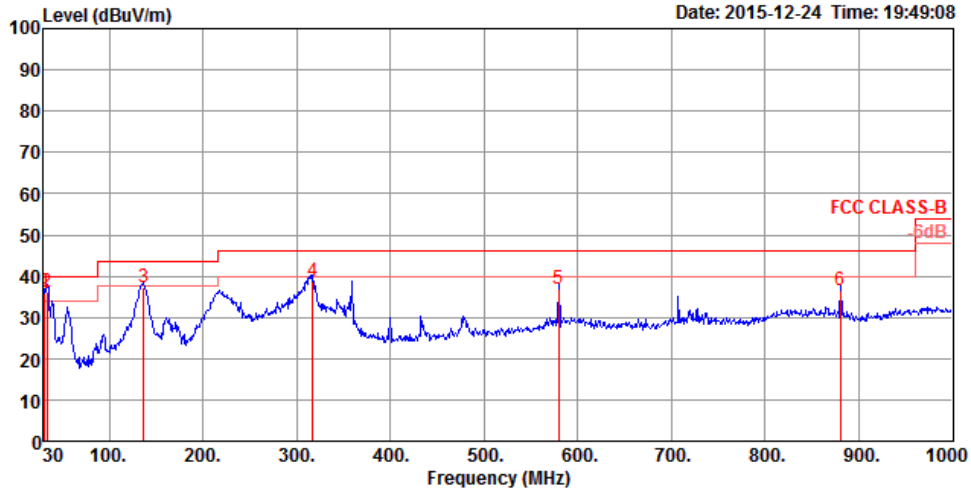
Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

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

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

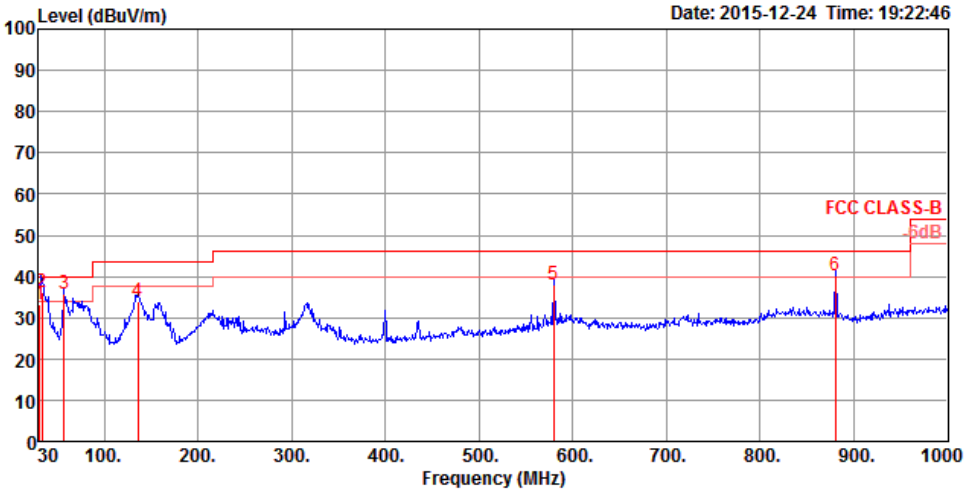
Temperature	25℃	Humidity	61%
Test Engineer	Paul Chen / Peter Wu	Configurations	Normal Link
Test Mode	Mode 1		

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	30.97	35.78	40.00	-4.22	48.19	0.50	19.49	32.40	100	134	QP	HORIZONTAL
2	33.88	36.02	40.00	-3.98	50.20	0.51	17.71	32.40	150	162	QP	HORIZONTAL
3	136.70	37.41	43.50	-6.09	56.50	1.00	12.27	32.36	200	159	QP	HORIZONTAL
4	317.12	38.91	46.00	-7.09	55.30	1.52	14.38	32.29	100	234	QP	HORIZONTAL
5	579.99	36.94	46.00	-9.06	48.20	2.09	19.05	32.40	300	360	QP	HORIZONTAL
6	880.69	36.40	46.00	-9.60	44.20	2.55	21.49	31.84	150	313	QP	HORIZONTAL

Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	30.97	33.29	40.00	-6.71	45.70	0.50	19.49	32.40	300	278	QP	VERTICAL
2	33.88	36.28	40.00	-3.72	50.46	0.51	17.71	32.40	150	116	QP	VERTICAL
3	57.16	35.88	40.00	-4.12	60.20	0.67	7.42	32.41	150	360	QP	VERTICAL
4	135.73	34.09	43.50	-9.41	53.09	1.00	12.36	32.36	100	280	QP	VERTICAL
5	579.99	37.94	46.00	-8.06	49.20	2.09	19.05	32.40	100	61	QP	VERTICAL
6	880.69	40.30	46.00	-5.70	48.10	2.55	21.49	31.84	150	77	QP	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)

<Mode 1: External / Sector Ant.>

Temperature	24°C	Humidity	60%
Test Engineer	Gary Chu	Configurations	IEEE 802.11a CH 36 / Chain 1 + Chain 2
Test Date	Dec. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10362.20	62.51	68.20	-5.69	50.25	9.01	38.38	35.13	54	181	Average	HORIZONTAL
2	15520.70	60.41	74.00	-13.59	45.44	11.45	38.16	34.64	9	165	Peak	HORIZONTAL
3	15555.90	47.56	54.00	-6.44	32.49	11.48	38.23	34.64	9	165	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10369.10	55.38	68.20	-12.82	43.09	9.01	38.38	35.10	281	136	Peak	VERTICAL
2	15522.80	47.34	54.00	-6.66	32.37	11.45	38.16	34.64	24	146	Average	VERTICAL
3	15537.50	60.56	74.00	-13.44	45.59	11.45	38.16	34.64	24	146	Peak	VERTICAL

Temperature	24°C	Humidity	60%
Test Engineer	Gary Chu	Configurations	IEEE 802.11a CH 40 / Chain 1 + Chain 2
Test Date	Dec. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10395.70	67.89	68.20	-0.31	55.55	9.03	38.41	35.10	59	101	Peak	HORIZONTAL
2	15594.30	60.54	74.00	-13.46	45.51	11.48	38.23	34.68	14	106	Peak	HORIZONTAL
3	15611.40	47.53	54.00	-6.47	32.47	11.50	38.29	34.73	14	106	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10401.00	62.10	68.20	-6.10	49.74	9.03	38.41	35.08	56	181	Peak	VERTICAL
2	15576.00	60.01	74.00	-13.99	44.98	11.48	38.23	34.68	6	137	Peak	VERTICAL
3	15595.90	47.42	54.00	-6.58	32.39	11.48	38.23	34.68	6	137	Average	VERTICAL

Temperature	24°C	Humidity	60%
Test Engineer	Gary Chu	Configurations	IEEE 802.11a CH 48 / Chain 1 + Chain 2
Test Date	Dec. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10475.50	67.83	68.20	-0.37	55.30	9.08	38.48	35.03	51	200	Peak	HORIZONTAL
2	15697.70	47.40	54.00	-6.60	32.19	11.56	38.42	34.77	304	146	Average	HORIZONTAL
3	15719.40	60.31	74.00	-13.69	45.14	11.56	38.42	34.81	304	146	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10475.80	63.55	68.20	-4.65	51.02	9.08	38.48	35.03	30	108	Peak	VERTICAL
2	15697.20	59.95	74.00	-14.05	44.74	11.56	38.42	34.77	296	140	Peak	VERTICAL
3	15699.10	47.21	54.00	-6.79	32.00	11.56	38.42	34.77	296	140	Average	VERTICAL

Temperature	24°C	Humidity	60%
Test Engineer	Gary Chu	Configurations	IEEE 802.11a CH 149 / Chain 1 + Chain 2
Test Date	Dec. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11482.84	54.88	74.00	-19.12	41.34	9.66	38.50	34.62	15	177	Peak	HORIZONTAL
2	11490.08	43.23	54.00	-10.77	29.68	9.67	38.50	34.62	15	177	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11480.52	55.29	74.00	-18.71	41.75	9.66	38.50	34.62	44	182	Peak	VERTICAL
2	11490.08	42.26	54.00	-11.74	28.71	9.67	38.50	34.62	44	182	Average	VERTICAL

Temperature	24℃	Humidity	60%
Test Engineer	Gary Chu	Configurations	IEEE 802.11a CH 157 / Chain 1 + Chain 2
Test Date	Dec. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11561.48	43.34	54.00	-10.66	29.75	9.71	38.53	34.65	78	178	Average	HORIZONTAL
2	11576.88	56.32	74.00	-17.68	42.73	9.71	38.53	34.65	78	178	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11561.40	43.31	54.00	-10.69	29.72	9.71	38.53	34.65	64	134	Average	VERTICAL
2	11565.56	56.13	74.00	-17.87	42.54	9.71	38.53	34.65	64	134	Peak	VERTICAL

Temperature	24℃	Humidity	60%
Test Engineer	Gary Chu	Configurations	IEEE 802.11a CH 165 / Chain 1 + Chain 2
Test Date	Dec. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11646.68	57.18	74.00	-16.82	43.56	9.75	38.55	34.68	87	213	Peak	HORIZONTAL
2	11647.48	43.49	54.00	-10.51	29.87	9.75	38.55	34.68	87	213	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11648.12	56.74	74.00	-17.26	43.12	9.75	38.55	34.68	136	193	Peak	VERTICAL
2	11650.72	43.24	54.00	-10.76	29.62	9.75	38.55	34.68	136	193	Average	VERTICAL

Temperature	24°C	Humidity	60%
Test Engineer	Gary Chu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 36 / Chain 1 + Chain 2
Test Date	Dec. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10356.70	61.28	68.20	-6.92	49.02	9.01	38.38	35.13	51	181	Peak	HORIZONTAL
2	15520.80	59.69	74.00	-14.31	44.72	11.45	38.16	34.64	21	184	Peak	HORIZONTAL
3	15558.20	47.49	54.00	-6.51	32.42	11.48	38.23	34.64	21	184	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10341.70	54.53	68.20	-13.67	42.31	8.99	38.36	35.13	165	196	Peak	VERTICAL
2	15523.00	60.14	74.00	-13.86	45.17	11.45	38.16	34.64	11	172	Peak	VERTICAL
3	15547.10	47.27	54.00	-6.73	32.30	11.45	38.16	34.64	11	172	Average	VERTICAL

Temperature	24°C	Humidity	60%
Test Engineer	Gary Chu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 40 / Chain 1 + Chain 2
Test Date	Dec. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10400.20	67.87	68.20	-0.33	55.51	9.03	38.41	35.08	267	197	Peak	HORIZONTAL
2	15581.50	47.44	54.00	-6.56	32.41	11.48	38.23	34.68	242	186	Average	HORIZONTAL
3	15600.70	60.34	74.00	-13.66	45.23	11.50	38.29	34.68	242	186	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10400.10	56.02	68.20	-12.18	43.66	9.03	38.41	35.08	86	173	Peak	VERTICAL
2	15602.60	47.45	54.00	-6.55	32.34	11.50	38.29	34.68	266	174	Average	VERTICAL
3	15614.10	60.09	74.00	-13.91	45.03	11.50	38.29	34.73	266	174	Peak	VERTICAL

Temperature	24°C	Humidity	60%
Test Engineer	Gary Chu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 48 / Chain 1 + Chain 2
Test Date	Dec. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10476.80	67.84	68.20	-0.36	55.31	9.08	38.48	35.03	310	178	Peak	HORIZONTAL
2	15699.30	47.29	54.00	-6.71	32.08	11.56	38.42	34.77	358	189	Average	HORIZONTAL
3	15724.70	60.00	74.00	-14.00	44.83	11.56	38.42	34.81	358	189	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10500.50	55.34	68.20	-12.86	42.74	9.10	38.50	35.00	268	176	Peak	VERTICAL
2	15706.10	59.73	74.00	-14.27	44.52	11.56	38.42	34.77	334	175	Peak	VERTICAL
3	15709.10	47.00	54.00	-7.00	31.79	11.56	38.42	34.77	334	175	Average	VERTICAL

Temperature	24℃	Humidity	60%
Test Engineer	Gary Chu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 149 / Chain 1 + Chain 2
Test Date	Dec. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11483.20	56.36	74.00	-17.64	42.82	9.66	38.50	34.62	86	180	Peak	HORIZONTAL
2	11490.32	42.96	54.00	-11.04	29.41	9.67	38.50	34.62	86	180	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11494.44	55.80	74.00	-18.20	42.25	9.67	38.50	34.62	65	167	Peak	VERTICAL
2	11499.04	42.90	54.00	-11.10	29.35	9.67	38.50	34.62	65	167	Average	VERTICAL

Temperature	24℃	Humidity	60%
Test Engineer	Gary Chu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 157 / Chain 1 + Chain 2
Test Date	Dec. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11564.64	43.32	54.00	-10.68	29.73	9.71	38.53	34.65	24	172	Average	HORIZONTAL
2	11569.60	56.28	74.00	-17.72	42.69	9.71	38.53	34.65	24	172	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11562.04	43.46	54.00	-10.54	29.87	9.71	38.53	34.65	61	164	Average	VERTICAL
2	11574.92	56.03	74.00	-17.97	42.44	9.71	38.53	34.65	61	164	Peak	VERTICAL

Temperature	24℃	Humidity	60%
Test Engineer	Gary Chu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 165 / Chain 1 + Chain 2
Test Date	Dec. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11640.16	43.53	54.00	-10.47	29.91	9.75	38.55	34.68	106	170	Average	HORIZONTAL
2	11653.08	55.97	74.00	-18.03	42.31	9.77	38.57	34.68	106	170	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11647.00	43.34	54.00	-10.66	29.72	9.75	38.55	34.68	80	154	Average	VERTICAL
2	11652.04	56.54	74.00	-17.46	42.88	9.77	38.57	34.68	80	154	Peak	VERTICAL

Temperature	24°C	Humidity	60%
Test Engineer	Gary Chu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 38 / Chain 1 + Chain 2
Test Date	Dec. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10439.60	55.66	68.20	-12.54	43.19	9.07	38.45	35.05	2	162	Peak	HORIZONTAL
2	15653.80	60.23	74.00	-13.77	45.08	11.53	38.35	34.73	10	160	Peak	HORIZONTAL
3	15667.10	47.32	54.00	-6.68	32.21	11.53	38.35	34.77	10	160	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10405.10	54.69	68.20	-13.51	42.33	9.03	38.41	35.08	1	184	Peak	VERTICAL
2	15650.90	47.39	54.00	-6.61	32.24	11.53	38.35	34.73	8	158	Average	VERTICAL
3	15685.50	60.28	74.00	-13.72	45.17	11.53	38.35	34.77	8	158	Peak	VERTICAL

Temperature	24°C	Humidity	60%
Test Engineer	Gary Chu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 46 / Chain 1 + Chain 2
Test Date	Dec. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10453.60	67.96	68.20	-0.24	55.49	9.07	38.45	35.05	82	173	Peak	HORIZONTAL
2	15682.92	59.82	74.00	-14.18	44.71	11.53	38.35	34.77	65	175	Peak	HORIZONTAL
3	15691.48	47.06	54.00	-6.94	31.85	11.56	38.42	34.77	65	175	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10469.80	63.04	68.20	-5.16	50.51	9.08	38.48	35.03	30	165	Peak	VERTICAL
2	15684.24	47.09	54.00	-6.91	31.98	11.53	38.35	34.77	52	173	Average	VERTICAL
3	15693.60	59.82	74.00	-14.18	44.61	11.56	38.42	34.77	52	173	Peak	VERTICAL

Temperature	24℃	Humidity	60%
Test Engineer	Gary Chu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 151 / Chain 1 + Chain 2
Test Date	Dec. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11510.96	56.21	74.00	-17.79	42.67	9.67	38.50	34.63	126	165	Peak	HORIZONTAL
2	11514.36	43.24	54.00	-10.76	29.70	9.67	38.50	34.63	126	165	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11512.20	56.28	74.00	-17.72	42.74	9.67	38.50	34.63	68	186	Peak	VERTICAL
2	11518.80	43.33	54.00	-10.67	29.76	9.69	38.51	34.63	68	186	Average	VERTICAL

Temperature	24°C	Humidity	60%
Test Engineer	Gary Chu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 159 / Chain 1 + Chain 2
Test Date	Dec. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11599.28	43.36	54.00	-10.64	29.75	9.73	38.54	34.66	27	173	Average	HORIZONTAL
2	11599.36	56.68	74.00	-17.32	43.07	9.73	38.54	34.66	27	173	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11589.48	56.36	74.00	-17.64	42.75	9.73	38.54	34.66	53	168	Peak	VERTICAL
2	11595.64	43.46	54.00	-10.54	29.85	9.73	38.54	34.66	53	168	Average	VERTICAL

Temperature	24°C	Humidity	60%
Test Engineer	Gary Chu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 42 / Chain 1 + Chain 2
Test Date	Dec. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10454.70	55.30	68.20	-12.90	42.83	9.07	38.45	35.05	360	180	Peak	HORIZONTAL
2	15650.30	47.29	54.00	-6.71	32.14	11.53	38.35	34.73	334	174	Average	HORIZONTAL
3	15664.40	59.87	74.00	-14.13	44.76	11.53	38.35	34.77	334	174	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10461.50	55.76	68.20	-12.44	43.29	9.07	38.45	35.05	359	167	Peak	VERTICAL
2	15649.70	47.14	54.00	-6.86	31.99	11.53	38.35	34.73	353	186	Average	VERTICAL
3	15665.60	60.09	74.00	-13.91	44.98	11.53	38.35	34.77	353	186	Peak	VERTICAL

Temperature	24°C	Humidity	60%
Test Engineer	Gary Chu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 155 / Chain 1 + Chain 2
Test Date	Dec. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11556.64	55.91	74.00	-18.09	42.32	9.71	38.53	34.65	92	164	Peak	HORIZONTAL
2	11559.84	43.41	54.00	-10.59	29.82	9.71	38.53	34.65	92	164	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11558.04	56.02	74.00	-17.98	42.43	9.71	38.53	34.65	6	162	Peak	VERTICAL
2	11558.88	43.59	54.00	-10.41	30.00	9.71	38.53	34.65	6	162	Average	VERTICAL

Note:

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

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

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

<Mode 2: Internal / Dish Ant.>

Temperature	24°C	Humidity	60%
Test Engineer	Gary Chu	Configurations	IEEE 802.11a CH 36 / Chain 1 + Chain 2
Test Date	Dec. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10356.28	67.88	68.20	-0.32	55.62	9.01	38.38	35.13	5	208	Peak	HORIZONTAL
2	15538.92	44.32	54.00	-9.68	29.35	11.45	38.16	34.64	356	180	Average	HORIZONTAL
3	15540.08	56.87	74.00	-17.13	41.90	11.45	38.16	34.64	356	180	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10356.20	60.88	68.20	-7.32	48.62	9.01	38.38	35.13	6	133	Peak	VERTICAL
2	15532.68	56.93	74.00	-17.07	41.96	11.45	38.16	34.64	359	146	Peak	VERTICAL
3	15542.52	44.16	54.00	-9.84	29.19	11.45	38.16	34.64	359	146	Average	VERTICAL

Temperature	24°C	Humidity	60%
Test Engineer	Gary Chu	Configurations	IEEE 802.11a CH 40 / Chain 1 + Chain 2
Test Date	Dec. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10402.40	67.90	68.20	-0.30	55.54	9.03	38.41	35.08	2	127	Peak	HORIZONTAL
2	15610.30	45.56	54.00	-8.44	30.50	11.50	38.29	34.73	6	120	Average	HORIZONTAL
3	15612.30	57.77	74.00	-16.23	42.71	11.50	38.29	34.73	6	120	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10401.70	60.39	68.20	-7.81	48.03	9.03	38.41	35.08	9	176	Peak	VERTICAL
2	15618.50	58.27	74.00	-15.73	43.21	11.50	38.29	34.73	1	135	Peak	VERTICAL
3	15618.50	45.15	54.00	-8.85	30.09	11.50	38.29	34.73	1	135	Average	VERTICAL

Temperature	24℃	Humidity	60%
Test Engineer	Gary Chu	Configurations	IEEE 802.11a CH 48 / Chain 1 + Chain 2
Test Date	Dec. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10481.20	68.18	68.20	-0.02	55.65	9.08	38.48	35.03	3	125	Peak	HORIZONTAL
2	15729.60	46.49	54.00	-7.51	31.32	11.56	38.42	34.81	2	144	Average	HORIZONTAL
3	15741.80	58.88	74.00	-15.12	43.63	11.58	38.48	34.81	2	144	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10485.20	62.89	68.20	-5.31	50.36	9.08	38.48	35.03	1	190	Peak	VERTICAL
2	15715.80	45.81	54.00	-8.19	30.64	11.56	38.42	34.81	18	162	Average	VERTICAL
3	15722.60	58.72	74.00	-15.28	43.55	11.56	38.42	34.81	18	162	Peak	VERTICAL

Temperature	24°C	Humidity	60%
Test Engineer	Gary Chu	Configurations	IEEE 802.11a CH 149 / Chain 1 + Chain 2
Test Date	Dec. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11474.50	54.73	74.00	-19.27	41.19	9.66	38.50	34.62	12	140	Peak	HORIZONTAL
2	11490.00	44.44	54.00	-9.56	30.89	9.67	38.50	34.62	12	140	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11490.04	43.96	54.00	-10.04	30.41	9.67	38.50	34.62	357	129	Average	VERTICAL
2	11498.76	55.72	74.00	-18.28	42.17	9.67	38.50	34.62	357	129	Peak	VERTICAL

Temperature	24℃	Humidity	60%
Test Engineer	Gary Chu	Configurations	IEEE 802.11a CH 157 / Chain 1 + Chain 2
Test Date	Dec. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11566.84	55.60	74.00	-18.40	42.01	9.71	38.53	34.65	352	118	Peak	HORIZONTAL
2	11569.84	43.87	54.00	-10.13	30.28	9.71	38.53	34.65	352	118	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11569.88	44.06	54.00	-9.94	30.47	9.71	38.53	34.65	353	144	Average	VERTICAL
2	11574.12	55.39	74.00	-18.61	41.80	9.71	38.53	34.65	353	144	Peak	VERTICAL

Temperature	24℃	Humidity	60%
Test Engineer	Gary Chu	Configurations	IEEE 802.11a CH 165 / Chain 1 + Chain 2
Test Date	Dec. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11646.00	55.50	74.00	-18.50	41.88	9.75	38.55	34.68	359	135	Peak	HORIZONTAL
2	11650.08	43.16	54.00	-10.84	29.54	9.75	38.55	34.68	359	135	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11640.40	54.46	74.00	-19.54	40.84	9.75	38.55	34.68	356	130	Peak	VERTICAL
2	11649.88	43.50	54.00	-10.50	29.88	9.75	38.55	34.68	356	130	Average	VERTICAL

Temperature	24℃	Humidity	60%
Test Engineer	Gary Chu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 36 / Chain 1 + Chain 2
Test Date	Dec. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10353.40	62.40	68.20	-5.80	50.14	9.01	38.38	35.13	3	212	Peak	HORIZONTAL
2	15538.72	56.74	74.00	-17.26	41.77	11.45	38.16	34.64	1	194	Peak	HORIZONTAL
3	15546.56	43.98	54.00	-10.02	29.01	11.45	38.16	34.64	1	194	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10362.00	58.30	68.20	-9.90	46.04	9.01	38.38	35.13	3	178	Peak	VERTICAL
2	15536.44	57.17	74.00	-16.83	42.20	11.45	38.16	34.64	2	175	Peak	VERTICAL
3	15550.00	43.99	54.00	-10.01	29.02	11.45	38.16	34.64	2	175	Average	VERTICAL

Temperature	24°C	Humidity	60%
Test Engineer	Gary Chu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 40 / Chain 1 + Chain 2
Test Date	Dec. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10403.80	68.05	68.20	-0.15	55.69	9.03	38.41	35.08	3	128	Peak	HORIZONTAL
2	15605.80	45.42	54.00	-8.58	30.31	11.50	38.29	34.68	9	107	Average	HORIZONTAL
3	15630.60	57.37	74.00	-16.63	42.31	11.50	38.29	34.73	9	107	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10390.00	62.94	68.20	-5.26	50.60	9.03	38.41	35.10	4	187	Peak	VERTICAL
2	15592.00	44.67	54.00	-9.33	29.64	11.48	38.23	34.68	2	113	Average	VERTICAL
3	15605.40	57.56	74.00	-16.44	42.45	11.50	38.29	34.68	2	113	Peak	VERTICAL

Temperature	24°C	Humidity	60%
Test Engineer	Gary Chu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 48 / Chain 1 + Chain 2
Test Date	Dec. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10487.00	67.92	68.20	-0.28	55.39	9.08	38.48	35.03	4	123	Peak	HORIZONTAL
2	15729.20	46.08	54.00	-7.92	30.91	11.56	38.42	34.81	1	124	Average	HORIZONTAL
3	15762.20	58.95	74.00	-15.05	43.70	11.58	38.48	34.81	1	124	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10485.40	58.93	68.20	-9.27	46.40	9.08	38.48	35.03	1	141	Peak	VERTICAL
2	15670.00	45.54	54.00	-8.46	30.43	11.53	38.35	34.77	6	135	Average	VERTICAL
3	15675.40	58.63	74.00	-15.37	43.52	11.53	38.35	34.77	6	135	Peak	VERTICAL

Temperature	24℃	Humidity	60%
Test Engineer	Gary Chu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 149 / Chain 1 + Chain 2
Test Date	Dec. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11489.92	55.31	74.00	-18.69	41.76	9.67	38.50	34.62	351	115	Peak	HORIZONTAL
2	11489.92	44.57	54.00	-9.43	31.02	9.67	38.50	34.62	351	115	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11490.04	43.16	54.00	-10.84	29.61	9.67	38.50	34.62	359	128	Average	VERTICAL
2	11498.36	55.42	74.00	-18.58	41.87	9.67	38.50	34.62	359	128	Peak	VERTICAL

Temperature	24℃	Humidity	60%
Test Engineer	Gary Chu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 157 / Chain 1 + Chain 2
Test Date	Dec. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11567.36	44.34	54.00	-9.66	30.75	9.71	38.53	34.65	357	135	Average	HORIZONTAL
2	11577.64	55.50	74.00	-18.50	41.91	9.71	38.53	34.65	357	135	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11573.24	55.62	74.00	-18.38	42.03	9.71	38.53	34.65	353	113	Peak	VERTICAL
2	11579.24	43.25	54.00	-10.75	29.66	9.71	38.53	34.65	353	113	Average	VERTICAL

Temperature	24℃	Humidity	60%
Test Engineer	Gary Chu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 165 / Chain 1 + Chain 2
Test Date	Dec. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11649.00	55.13	74.00	-18.87	41.51	9.75	38.55	34.68	350	111	Peak	HORIZONTAL
2	11650.16	43.95	54.00	-10.05	30.33	9.75	38.55	34.68	350	111	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11642.36	41.92	54.00	-12.08	28.30	9.75	38.55	34.68	356	132	Average	VERTICAL
2	11643.52	54.99	74.00	-19.01	41.37	9.75	38.55	34.68	356	132	Peak	VERTICAL

Temperature	24℃	Humidity	60%
Test Engineer	Gary Chu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 38 / Chain 1 + Chain 2
Test Date	Dec. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	15535.00	57.93	74.00	-16.07	42.96	11.45	38.16	34.64	20	146	Peak	HORIZONTAL
2	15616.00	44.76	54.00	-9.24	29.70	11.50	38.29	34.73	20	146	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	15528.00	57.17	74.00	-16.83	42.20	11.45	38.16	34.64	11	164	Peak	VERTICAL
2	15591.00	44.41	54.00	-9.59	29.38	11.48	38.23	34.68	11	164	Average	VERTICAL

Temperature	24°C	Humidity	60%
Test Engineer	Gary Chu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 46 / Chain 1 + Chain 2
Test Date	Dec. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10470.00	67.73	68.20	-0.47	55.20	9.08	38.48	35.03	4	126	Peak	HORIZONTAL
2	15685.00	58.85	74.00	-15.15	43.74	11.53	38.35	34.77	1	146	Peak	HORIZONTAL
3	15690.92	46.09	54.00	-7.91	30.88	11.56	38.42	34.77	1	146	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10470.00	62.81	68.20	-5.39	50.28	9.08	38.48	35.03	1	187	Peak	VERTICAL
2	15681.12	58.58	74.00	-15.42	43.47	11.53	38.35	34.77	4	141	Peak	VERTICAL
3	15695.80	45.46	54.00	-8.54	30.25	11.56	38.42	34.77	4	141	Average	VERTICAL

Temperature	24℃	Humidity	60%
Test Engineer	Gary Chu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 151 / Chain 1 + Chain 2
Test Date	Dec. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11512.68	42.09	54.00	-11.91	28.55	9.67	38.50	34.63	351	138	Average	HORIZONTAL
2	11514.08	55.07	74.00	-18.93	41.53	9.67	38.50	34.63	351	138	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11513.16	55.12	74.00	-18.88	41.58	9.67	38.50	34.63	358	141	Peak	VERTICAL
2	11514.44	42.14	54.00	-11.86	28.60	9.67	38.50	34.63	358	141	Average	VERTICAL

Temperature	24°C	Humidity	60%
Test Engineer	Gary Chu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 159 / Chain 1 + Chain 2
Test Date	Dec. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11582.64	54.87	74.00	-19.13	41.28	9.71	38.53	34.65	343	142	Peak	HORIZONTAL
2	11583.64	43.41	54.00	-10.59	29.79	9.73	38.54	34.65	343	142	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11592.40	54.87	74.00	-19.13	41.26	9.73	38.54	34.66	334	138	Peak	VERTICAL
2	11592.76	42.27	54.00	-11.73	28.66	9.73	38.54	34.66	334	138	Average	VERTICAL

Temperature	24℃	Humidity	60%
Test Engineer	Gary Chu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 42 / Chain 1 + Chain 2
Test Date	Dec. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	15630.44	45.06	54.00	-8.94	30.00	11.50	38.29	34.73	27	109	Average	HORIZONTAL
2	15632.64	58.62	74.00	-15.38	43.56	11.50	38.29	34.73	27	109	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	15632.36	44.87	54.00	-9.13	29.81	11.50	38.29	34.73	14	117	Average	VERTICAL
2	15635.52	58.22	74.00	-15.78	43.16	11.50	38.29	34.73	14	117	Peak	VERTICAL

Temperature	24°C	Humidity	60%
Test Engineer	Gary Chu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 155 / Chain 1 + Chain 2
Test Date	Dec. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11556.88	55.22	74.00	-18.78	41.63	9.71	38.53	34.65	329	129	Peak	HORIZONTAL
2	11559.60	42.37	54.00	-11.63	28.78	9.71	38.53	34.65	329	129	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11541.56	42.34	54.00	-11.66	28.77	9.69	38.51	34.63	351	130	Average	VERTICAL
2	11543.80	54.82	74.00	-19.18	41.25	9.69	38.51	34.63	351	130	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 within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of −17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of −27 dBm/MHz.

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

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

4.7.2. Measuring Instruments and Setting

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

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

4.7.3. Test Procedures

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

4.7.4. Test Setup Layout

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

4.7.5. Test Deviation

There is no deviation with the original standard.

4.7.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.7.7. Test Result of Band Edge and Fundamental Emissions

<Mode 1: External / Sector Ant.>

Temperature	24°C	Humidity	60%
Test Engineer	Gary Chu	Configurations	IEEE 802.11a CH 36, 40, 48 / Chain 1 + Chain 2
Test Date	Dec. 16, 2015		

Channel 36

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5150.00	68.02	74.00	-5.98	63.07	6.11	33.31	34.47	358	178	Peak	VERTICAL
2	5150.00	53.60	54.00	-0.40	48.65	6.11	33.31	34.47	358	178	Average	VERTICAL
3	5173.60	104.08			99.03	6.17	33.35	34.47	358	178	Peak	VERTICAL
4	5186.40	94.73			89.68	6.17	33.35	34.47	358	178	Average	VERTICAL

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

Channel 40

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5120.00	50.89	54.00	-3.11	46.05	6.04	33.27	34.47	357	174	Average	HORIZONTAL
2	5147.60	62.91	74.00	-11.09	57.96	6.11	33.31	34.47	357	174	Peak	HORIZONTAL
3	5205.60	109.13			103.96	6.24	33.40	34.47	357	174	Peak	HORIZONTAL
4	5206.40	100.13			94.96	6.24	33.40	34.47	357	174	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	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5115.00	58.60	74.00	-15.40	53.76	6.04	33.27	34.47	0	175	Peak	HORIZONTAL
2	5120.00	47.81	54.00	-6.19	42.97	6.04	33.27	34.47	0	175	Average	HORIZONTAL
3	5234.00	102.20			96.91	6.32	33.44	34.47	0	175	Peak	HORIZONTAL
4	5246.00	93.41			88.12	6.32	33.44	34.47	0	175	Average	HORIZONTAL
5	5380.00	59.11	74.00	-14.89	53.29	6.66	33.63	34.47	0	175	Peak	HORIZONTAL
6	5400.00	48.79	54.00	-5.21	42.91	6.70	33.65	34.47	0	175	Average	HORIZONTAL

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

Temperature	24℃	Humidity	60%
Test Engineer	Gary Chu	Configurations	IEEE 802.11a CH 149, 157, 165 / Chain 1 + Chain 2
Test Date	Dec. 16, 2015		

Channel 149

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5665.00	62.02	68.20	-6.18	55.50	6.72	34.30	34.50	356	175	Peak	HORIZONTAL
2	5725.00	62.63	78.20	-15.57	56.21	6.43	34.50	34.51	356	175	Peak	HORIZONTAL
3	5751.00	102.83			96.44	6.36	34.55	34.52	356	175	Average	HORIZONTAL
4	5752.00	111.79			105.40	6.36	34.55	34.52	356	175	Peak	HORIZONTAL
5	5850.00	62.87	78.20	-15.33	56.17	6.39	34.85	34.54	356	175	Peak	HORIZONTAL
6	5905.00	67.86	68.20	-0.34	60.78	6.63	35.00	34.55	356	175	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	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5705.00	63.59	68.20	-4.61	57.13	6.57	34.40	34.51	355	174	Peak	HORIZONTAL
2	5725.00	60.41	78.20	-17.79	53.99	6.43	34.50	34.51	355	174	Peak	HORIZONTAL
3	5791.00	113.71			107.39	6.15	34.70	34.53	355	174	Peak	HORIZONTAL
4	5791.00	104.63			98.31	6.15	34.70	34.53	355	174	Average	HORIZONTAL
5	5850.00	62.11	78.20	-16.09	55.41	6.39	34.85	34.54	355	174	Peak	HORIZONTAL
6	5866.00	67.93	68.20	-0.27	61.10	6.47	34.90	34.54	355	174	Peak	HORIZONTAL

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

Channel 165

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5699.00	62.04	68.20	-6.16	55.58	6.57	34.40	34.51	358	174	Peak	VERTICAL
2	5723.00	59.53	78.20	-18.67	53.11	6.43	34.50	34.51	358	174	Peak	VERTICAL
3	5778.00	108.94			102.60	6.22	34.65	34.53	358	174	Peak	VERTICAL
4	5778.00	99.25			92.91	6.22	34.65	34.53	358	174	Average	VERTICAL
5	5850.00	60.06	78.20	-18.14	53.36	6.39	34.85	34.54	358	174	Peak	VERTICAL
6	5865.00	62.49	68.20	-5.71	55.66	6.47	34.90	34.54	358	174	Peak	VERTICAL

Item 3, 4 are the fundamental frequency at 5825 MHz.

Temperature	24℃	Humidity	60%
Test Engineer	Gary Chu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 36, 40, 48 / Chain 1 + Chain 2
Test Date	Dec. 16, 2015		

Channel 36

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5146.40	68.04	74.00	-5.96	63.09	6.11	33.31	34.47	359	176	Peak	HORIZONTAL
2	5150.00	53.84	54.00	-0.16	48.89	6.11	33.31	34.47	359	176	Average	HORIZONTAL
3	5184.80	102.99			97.94	6.17	33.35	34.47	359	176	Peak	HORIZONTAL
4	5185.20	93.95			88.90	6.17	33.35	34.47	359	176	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	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5120.00	50.73	54.00	-3.27	45.89	6.04	33.27	34.47	3	175	Average	HORIZONTAL
2	5148.40	64.25	74.00	-9.75	59.30	6.11	33.31	34.47	3	175	Peak	HORIZONTAL
3	5205.20	108.81			103.64	6.24	33.40	34.47	3	175	Peak	HORIZONTAL
4	5205.20	99.74			94.57	6.24	33.40	34.47	3	175	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	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5080.00	47.23	54.00	-6.77	42.54	5.95	33.21	34.47	0	175	Average	HORIZONTAL
2	5137.00	58.98	74.00	-15.02	54.09	6.07	33.29	34.47	0	175	Peak	HORIZONTAL
3	5245.00	94.36			89.07	6.32	33.44	34.47	0	175	Average	HORIZONTAL
4	5247.00	103.55			98.21	6.35	33.46	34.47	0	175	Peak	HORIZONTAL
5	5400.00	48.57	54.00	-5.43	42.69	6.70	33.65	34.47	0	175	Average	HORIZONTAL
6	5453.00	59.50	74.00	-14.50	53.44	6.79	33.74	34.47	0	175	Peak	HORIZONTAL

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

Temperature	24℃	Humidity	60%
Test Engineer	Gary Chu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 149, 157, 165 / Chain 1 + Chain 2
Test Date	Dec. 16, 2015		

Channel 149

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5662.00	62.04	68.20	-6.16	55.52	6.72	34.30	34.50	360	178	Peak	HORIZONTAL
2	5725.00	62.49	78.20	-15.71	56.07	6.43	34.50	34.51	360	178	Peak	HORIZONTAL
3	5751.00	102.86			96.47	6.36	34.55	34.52	360	178	Average	HORIZONTAL
4	5752.00	112.30			105.91	6.36	34.55	34.52	360	178	Peak	HORIZONTAL
5	5851.00	63.24	78.20	-14.96	56.54	6.39	34.85	34.54	360	178	Peak	HORIZONTAL
6	5905.00	68.00	68.20	-0.20	60.92	6.63	35.00	34.55	360	178	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	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5705.00	63.17	68.20	-5.03	56.71	6.57	34.40	34.51	358	175	Peak	HORIZONTAL
2	5725.00	61.04	78.20	-17.16	54.62	6.43	34.50	34.51	358	175	Peak	HORIZONTAL
3	5780.00	113.34			107.00	6.22	34.65	34.53	358	175	Peak	HORIZONTAL
4	5790.00	104.39			98.07	6.15	34.70	34.53	358	175	Average	HORIZONTAL
5	5850.00	62.51	78.20	-15.69	55.81	6.39	34.85	34.54	358	175	Peak	HORIZONTAL
6	5865.00	67.89	68.20	-0.31	61.06	6.47	34.90	34.54	358	175	Peak	HORIZONTAL

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

Channel 165

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5708.00	62.63	68.20	-5.57	56.19	6.50	34.45	34.51	359	177	Peak	VERTICAL
2	5725.00	59.82	78.20	-18.38	53.40	6.43	34.50	34.51	359	177	Peak	VERTICAL
3	5819.00	101.03			94.58	6.23	34.75	34.53	359	177	Average	VERTICAL
4	5820.00	110.43			103.98	6.23	34.75	34.53	359	177	Peak	VERTICAL
5	5850.00	64.36	78.20	-13.84	57.66	6.39	34.85	34.54	359	177	Peak	VERTICAL
6	5905.00	67.84	68.20	-0.36	60.76	6.63	35.00	34.55	359	177	Peak	VERTICAL

Item 3, 4 are the fundamental frequency at 5825 MHz.

Temperature	24°C	Humidity	60%
Test Engineer	Gary Chu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 38, 46 / Chain 1 + Chain 2
Test Date	Dec. 16, 2015		

Channel 38

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5150.00	69.37	74.00	-4.63	64.42	6.11	33.31	34.47	360	176	Peak	HORIZONTAL
2	5150.00	53.81	54.00	-0.19	48.86	6.11	33.31	34.47	360	176	Average	HORIZONTAL
3	5200.00	100.84			95.73	6.20	33.38	34.47	360	176	Peak	HORIZONTAL
4	5203.00	91.27			86.10	6.24	33.40	34.47	360	176	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	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5147.80	61.63	74.00	-12.37	56.68	6.11	33.31	34.47	7	173	Peak	HORIZONTAL
2	5150.00	49.57	54.00	-4.43	44.62	6.11	33.31	34.47	7	173	Average	HORIZONTAL
3	5213.20	103.14			97.97	6.24	33.40	34.47	7	173	Peak	HORIZONTAL
4	5220.40	93.60			88.37	6.28	33.42	34.47	7	173	Average	HORIZONTAL

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

Temperature	24°C	Humidity	60%
Test Engineer	Gary Chu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 151, 159 / Chain 1 + Chain 2
Test Date	Dec. 16, 2015		

Channel 151

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5712.00	61.60	68.20	-6.60	55.16	6.50	34.45	34.51	356	179	Peak	HORIZONTAL
2	5724.00	62.64	78.20	-15.56	56.22	6.43	34.50	34.51	356	179	Peak	HORIZONTAL
3	5757.00	99.56			93.19	6.29	34.60	34.52	356	179	Average	HORIZONTAL
4	5765.00	109.01			102.65	6.29	34.60	34.53	356	179	Peak	HORIZONTAL
5	5850.00	62.16	78.20	-16.04	55.46	6.39	34.85	34.54	356	179	Peak	HORIZONTAL
6	5916.00	67.84	68.20	-0.36	60.63	6.71	35.05	34.55	356	179	Peak	HORIZONTAL

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

Channel 159

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5715.00	63.33	68.20	-4.87	56.89	6.50	34.45	34.51	356	174	Peak	HORIZONTAL
2	5723.00	62.93	78.20	-15.27	56.51	6.43	34.50	34.51	356	174	Peak	HORIZONTAL
3	5805.00	111.54			105.22	6.15	34.70	34.53	356	174	Peak	HORIZONTAL
4	5810.00	101.99			95.54	6.23	34.75	34.53	356	174	Average	HORIZONTAL
5	5851.00	66.60	78.20	-11.60	59.90	6.39	34.85	34.54	356	174	Peak	HORIZONTAL
6	5865.00	67.91	68.20	-0.29	61.08	6.47	34.90	34.54	356	174	Peak	HORIZONTAL

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

Temperature	24°C	Humidity	60%
Test Engineer	Gary Chu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 42, 155 / Chain 1 + Chain 2
Test Date	Dec. 16, 2015		

Channel 42

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5149.00	53.79	54.00	-0.21	48.84	6.11	33.31	34.47	4	178	Average	HORIZONTAL
2	5150.00	67.17	74.00	-6.83	62.22	6.11	33.31	34.47	4	178	Peak	HORIZONTAL
3	5201.00	88.76			83.65	6.20	33.38	34.47	4	178	Average	HORIZONTAL
4	5202.00	98.93			93.76	6.24	33.40	34.47	4	178	Peak	HORIZONTAL
5	5350.00	46.13	54.00	-7.87	40.43	6.58	33.59	34.47	4	178	Average	HORIZONTAL
6	5398.00	58.83	74.00	-15.17	52.95	6.70	33.65	34.47	4	178	Peak	HORIZONTAL

Item 4, 5 are the fundamental frequency at 5210 MHz.

Channel 155

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5149.00	48.26	54.00	-5.74	43.31	6.11	33.31	34.47	5	185	Average	VERTICAL
2	5150.00	60.11	74.00	-13.89	55.16	6.11	33.31	34.47	5	185	Peak	VERTICAL
3	5209.00	92.55			87.38	6.24	33.40	34.47	5	185	Peak	VERTICAL
4	5210.00	83.70			78.53	6.24	33.40	34.47	5	185	Average	VERTICAL
5	5350.00	46.80	54.00	-7.20	41.10	6.58	33.59	34.47	5	185	Average	VERTICAL
6	5359.00	59.13	74.00	-14.87	53.37	6.62	33.61	34.47	5	185	Peak	VERTICAL

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

Note:

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

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

<Mode 2: Internal / Dish Ant.>

Temperature	24°C	Humidity	60%
Test Engineer	Gary Chu	Configurations	IEEE 802.11a CH 36, 40, 48 / Chain 1 + Chain 2
Test Date	Dec. 16, 2015		

Channel 36

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5149.00	49.56	54.00	-4.44	44.61	6.11	33.31	34.47	0	172	Average	HORIZONTAL
2	5150.00	62.48	74.00	-11.52	57.53	6.11	33.31	34.47	0	172	Peak	HORIZONTAL
3	5173.00	100.01			94.96	6.17	33.35	34.47	0	172	Peak	HORIZONTAL
4	5173.00	91.05			86.00	6.17	33.35	34.47	0	172	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	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5120.00	58.30	74.00	-15.70	53.46	6.04	33.27	34.47	1	175	Peak	HORIZONTAL
2	5120.00	50.39	54.00	-3.61	45.55	6.04	33.27	34.47	1	175	Average	HORIZONTAL
3	5194.00	102.51			97.40	6.20	33.38	34.47	1	175	Peak	HORIZONTAL
4	5195.00	92.76			87.65	6.20	33.38	34.47	1	175	Average	HORIZONTAL
5	5360.00	58.77	74.00	-15.23	53.01	6.62	33.61	34.47	1	175	Peak	HORIZONTAL
6	5360.00	49.78	54.00	-4.22	44.02	6.62	33.61	34.47	1	175	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	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5120.00	45.64	54.00	-8.36	40.80	6.04	33.27	34.47	1	167	Average	VERTICAL
2	5143.00	57.22	74.00	-16.78	52.27	6.11	33.31	34.47	1	167	Peak	VERTICAL
3	5246.00	101.50			96.21	6.32	33.44	34.47	1	167	Peak	VERTICAL
4	5246.00	92.75			87.46	6.32	33.44	34.47	1	167	Average	VERTICAL
5	5350.00	45.47	54.00	-8.53	39.77	6.58	33.59	34.47	1	167	Average	VERTICAL
6	5360.00	58.62	74.00	-15.38	52.86	6.62	33.61	34.47	1	167	Peak	VERTICAL

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

Temperature	24°C	Humidity	60%
Test Engineer	Gary Chu	Configurations	IEEE 802.11a CH 149, 157, 165 / Chain 1 + Chain 2
Test Date	Dec. 16, 2015		

Channel 149

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5712.00	67.25	68.20	-0.95	60.81	6.50	34.45	34.51	0	159	Peak	HORIZONTAL
2	5724.00	68.55	78.20	-9.65	62.13	6.43	34.50	34.51	0	159	Peak	HORIZONTAL
3	5751.00	114.46			108.07	6.36	34.55	34.52	0	159	Peak	HORIZONTAL
4	5751.00	105.54			99.15	6.36	34.55	34.52	0	159	Average	HORIZONTAL
5	5850.00	66.04	78.20	-12.16	59.34	6.39	34.85	34.54	0	159	Peak	HORIZONTAL
6	5905.00	68.06	68.20	-0.14	60.98	6.63	35.00	34.55	0	159	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	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5712.00	63.93	68.20	-4.27	57.49	6.50	34.45	34.51	360	162	Peak	HORIZONTAL
2	5725.00	60.98	78.20	-17.22	54.56	6.43	34.50	34.51	360	162	Peak	HORIZONTAL
3	5779.00	115.26			108.92	6.22	34.65	34.53	360	162	Peak	HORIZONTAL
4	5780.00	106.16			99.82	6.22	34.65	34.53	360	162	Average	HORIZONTAL
5	5850.00	61.79	78.20	-16.41	55.09	6.39	34.85	34.54	360	162	Peak	HORIZONTAL
6	5865.00	67.91	68.20	-0.29	61.08	6.47	34.90	34.54	360	162	Peak	HORIZONTAL

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

Channel 165

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5665.00	65.33	68.20	-2.87	58.81	6.72	34.30	34.50	359	166	Peak	HORIZONTAL
2	5724.00	63.80	78.20	-14.40	57.38	6.43	34.50	34.51	359	166	Peak	HORIZONTAL
3	5831.00	106.86			100.29	6.31	34.80	34.54	359	166	Average	HORIZONTAL
4	5831.00	115.63			109.06	6.31	34.80	34.54	359	166	Peak	HORIZONTAL
5	5850.00	67.90	78.20	-10.30	61.20	6.39	34.85	34.54	359	166	Peak	HORIZONTAL
6	5905.00	68.13	68.20	-0.07	61.05	6.63	35.00	34.55	359	166	Peak	HORIZONTAL

Item 3, 4 are the fundamental frequency at 5825 MHz.

Temperature	24℃	Humidity	60%
Test Engineer	Gary Chu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 36, 40, 48 / Chain 1 + Chain 2
Test Date	Dec. 16, 2015		

Channel 36

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5148.00	65.66	74.00	-8.34	60.71	6.11	33.31	34.47	358	178	Peak	HORIZONTAL
2	5150.00	53.73	54.00	-0.27	48.78	6.11	33.31	34.47	358	178	Average	HORIZONTAL
3	5173.00	101.24			96.19	6.17	33.35	34.47	358	178	Peak	HORIZONTAL
4	5173.00	91.86			86.81	6.17	33.35	34.47	358	178	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	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5120.00	49.99	54.00	-4.01	45.15	6.04	33.27	34.47	1	176	Average	HORIZONTAL
2	5149.00	57.87	74.00	-16.13	52.92	6.11	33.31	34.47	1	176	Peak	HORIZONTAL
3	5195.00	100.76			95.65	6.20	33.38	34.47	1	176	Peak	HORIZONTAL
4	5206.00	91.60			86.43	6.24	33.40	34.47	1	176	Average	HORIZONTAL
5	5360.00	49.63	54.00	-4.37	43.87	6.62	33.61	34.47	1	176	Average	HORIZONTAL
6	5361.00	59.23	74.00	-14.77	53.47	6.62	33.61	34.47	1	176	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	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5120.00	45.78	54.00	-8.22	40.94	6.04	33.27	34.47	1	177	Average	HORIZONTAL
2	5144.00	56.80	74.00	-17.20	51.85	6.11	33.31	34.47	1	177	Peak	HORIZONTAL
3	5246.00	93.12			87.83	6.32	33.44	34.47	1	177	Average	HORIZONTAL
4	5247.00	102.25			96.91	6.35	33.46	34.47	1	177	Peak	HORIZONTAL
5	5350.00	45.68	54.00	-8.32	39.98	6.58	33.59	34.47	1	177	Average	HORIZONTAL
6	5371.00	58.32	74.00	-15.68	52.50	6.66	33.63	34.47	1	177	Peak	HORIZONTAL

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

Temperature	24°C	Humidity	60%
Test Engineer	Gary Chu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 149, 157, 165 / Chain 1 + Chain 2
Test Date	Dec. 16, 2015		

Channel 149

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5672.00	63.47	68.20	-4.73	56.96	6.72	34.30	34.51	0	152	Peak	HORIZONTAL
2	5725.00	63.08	78.20	-15.12	56.66	6.43	34.50	34.51	0	152	Peak	HORIZONTAL
3	5750.00	103.41			97.02	6.36	34.55	34.52	0	152	Average	HORIZONTAL
4	5752.00	112.15			105.76	6.36	34.55	34.52	0	152	Peak	HORIZONTAL
5	5850.00	62.09	78.20	-16.11	55.39	6.39	34.85	34.54	0	152	Peak	HORIZONTAL
6	5905.00	67.92	68.20	-0.28	60.84	6.63	35.00	34.55	0	152	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	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5662.00	60.61	68.20	-7.59	54.09	6.72	34.30	34.50	360	185	Peak	VERTICAL
2	5725.00	62.63	78.20	-15.57	56.21	6.43	34.50	34.51	360	185	Peak	VERTICAL
3	5740.00	111.94			105.55	6.36	34.55	34.52	360	185	Peak	VERTICAL
4	5751.00	102.48			96.09	6.36	34.55	34.52	360	185	Average	VERTICAL
5	5851.00	60.28	78.20	-17.92	53.58	6.39	34.85	34.54	360	185	Peak	VERTICAL
6	5884.00	61.00	68.20	-7.20	54.05	6.55	34.95	34.55	360	185	Peak	VERTICAL

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

Channel 165

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5699.00	65.54	68.20	-2.66	59.08	6.57	34.40	34.51	359	170	Peak	HORIZONTAL
2	5721.00	64.84	78.20	-13.36	58.40	6.50	34.45	34.51	359	170	Peak	HORIZONTAL
3	5819.00	106.20			99.75	6.23	34.75	34.53	359	170	Average	HORIZONTAL
4	5820.00	115.82			109.37	6.23	34.75	34.53	359	170	Peak	HORIZONTAL
5	5850.00	68.40	78.20	-9.80	61.70	6.39	34.85	34.54	359	170	Peak	HORIZONTAL
6	5905.00	68.17	68.20	-0.03	61.09	6.63	35.00	34.55	359	170	Peak	HORIZONTAL

Item 3, 4 are the fundamental frequency at 5825 MHz.

Temperature	24°C	Humidity	60%
Test Engineer	Gary Chu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 38, 46 / Chain 1 + Chain 2
Test Date	Dec. 16, 2015		

Channel 38

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5150.00	68.41	74.00	-5.59	63.46	6.11	33.31	34.47	359	175	Peak	HORIZONTAL
2	5150.00	53.98	54.00	-0.02	49.03	6.11	33.31	34.47	359	175	Average	HORIZONTAL
3	5174.40	88.30			83.25	6.17	33.35	34.47	359	175	Average	HORIZONTAL
4	5175.20	97.49			92.44	6.17	33.35	34.47	359	175	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	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5120.00	46.21	54.00	-7.79	41.37	6.04	33.27	34.47	1	176	Average	HORIZONTAL
2	5147.00	56.20	74.00	-17.80	51.25	6.11	33.31	34.47	1	176	Peak	HORIZONTAL
3	5244.00	99.23			93.94	6.32	33.44	34.47	1	176	Peak	HORIZONTAL
4	5245.00	90.07			84.78	6.32	33.44	34.47	1	176	Average	HORIZONTAL
5	5356.00	57.10	74.00	-16.90	51.34	6.62	33.61	34.47	1	176	Peak	HORIZONTAL
6	5360.00	46.10	54.00	-7.90	40.34	6.62	33.61	34.47	1	176	Average	HORIZONTAL

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

Temperature	24°C	Humidity	60%
Test Engineer	Gary Chu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 151, 159 / Chain 1 + Chain 2
Test Date	Dec. 16, 2015		

Channel 151

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5714.00	67.37	68.20	-0.83	60.93	6.50	34.45	34.51	360	163	Peak	HORIZONTAL
2	5716.00	67.85	78.20	-10.35	61.41	6.50	34.45	34.51	360	163	Peak	HORIZONTAL
3	5757.00	101.83			95.46	6.29	34.60	34.52	360	163	Average	HORIZONTAL
4	5769.00	111.66			105.30	6.29	34.60	34.53	360	163	Peak	HORIZONTAL
5	5851.00	66.38	78.20	-11.82	59.68	6.39	34.85	34.54	360	163	Peak	HORIZONTAL
6	5916.00	67.92	68.20	-0.28	60.71	6.71	35.05	34.55	360	163	Peak	HORIZONTAL

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

Channel 159

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5715.00	65.43	68.20	-2.77	58.99	6.50	34.45	34.51	360	173	Peak	HORIZONTAL
2	5723.00	64.09	78.20	-14.11	57.67	6.43	34.50	34.51	360	173	Peak	HORIZONTAL
3	5793.00	112.53			106.21	6.15	34.70	34.53	360	173	Peak	HORIZONTAL
4	5797.00	103.23			96.91	6.15	34.70	34.53	360	173	Average	HORIZONTAL
5	5850.00	67.82	78.20	-10.38	61.12	6.39	34.85	34.54	360	173	Peak	HORIZONTAL
6	5872.00	67.91	68.20	-0.29	61.08	6.47	34.90	34.54	360	173	Peak	HORIZONTAL

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

Temperature	24°C	Humidity	60%
Test Engineer	Gary Chu	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 42, 155 / Chain 1 + Chain 2
Test Date	Dec. 16, 2015		

Channel 42

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5145.00	66.32	74.00	-7.68	61.37	6.11	33.31	34.47	359	172	Peak	HORIZONTAL
2	5149.00	53.83	54.00	-0.17	48.88	6.11	33.31	34.47	359	172	Average	HORIZONTAL
3	5236.00	97.38			92.09	6.32	33.44	34.47	359	172	Peak	HORIZONTAL
4	5237.00	88.59			83.30	6.32	33.44	34.47	359	172	Average	HORIZONTAL
5	5355.00	45.80	54.00	-8.20	40.04	6.62	33.61	34.47	359	172	Average	HORIZONTAL
6	5407.00	58.51	74.00	-15.49	52.59	6.72	33.67	34.47	359	172	Peak	HORIZONTAL

Item 4, 5 are the fundamental frequency at 5210 MHz.

Channel 155

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5701.00	66.68	68.20	-1.52	60.22	6.57	34.40	34.51	1	152	Peak	HORIZONTAL
2	5725.00	67.91	78.20	-10.29	61.49	6.43	34.50	34.51	1	152	Peak	HORIZONTAL
3	5793.00	110.51			104.19	6.15	34.70	34.53	1	152	Peak	HORIZONTAL
4	5793.00	100.52			94.20	6.15	34.70	34.53	1	152	Average	HORIZONTAL
5	5850.00	67.32	78.20	-10.88	60.62	6.39	34.85	34.54	1	152	Peak	HORIZONTAL
6	5885.00	68.08	68.20	-0.12	61.13	6.55	34.95	34.55	1	152	Peak	HORIZONTAL

Item 4, 5 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

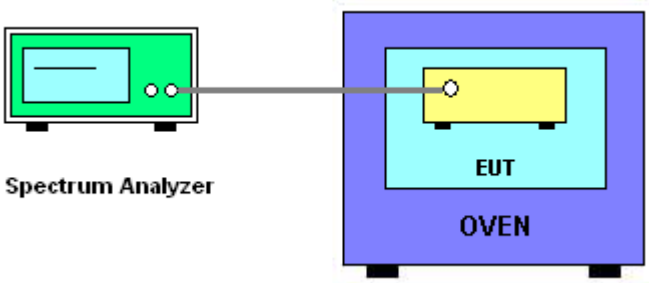
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

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 -40°C~70°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

<Mode 1: External / Sector Ant.>

Temperature	25°C	Humidity	45%
Test Engineer	Serway Li	Test Date	Dec. 18, 2015

Mode: 20 MHz / Chain 1

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5200 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5200.0051	5200.0050	5200.0045	5200.0039
110.00	5200.0048	5200.0042	5200.0034	5200.0024
93.50	5200.0044	5200.0037	5200.0034	5200.0026
Max. Deviation (MHz)	0.0051	0.0050	0.0045	0.0039
Max. Deviation (ppm)	0.98	0.96	0.87	0.75
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5200 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
-40	5200.0100	5200.0092	5200.0089	5200.0086
-30	5200.0100	5200.0092	5200.0089	5200.0086
-20	5200.0100	5200.0092	5200.0089	5200.0086
-10	5200.0080	5200.0070	5200.0066	5200.0061
0	5200.0073	5200.0066	5200.0059	5200.0055
10	5200.0057	5200.0056	5200.0055	5200.0047
20	5200.0048	5200.0038	5200.0032	5200.0028
30	5200.0032	5200.0024	5200.0020	5200.0015
40	5200.0021	5200.0018	5200.0016	5200.0006
50	5200.0017	5200.0011	5200.0007	5200.0000
60	5200.0017	5200.0011	5200.0007	5200.0000
70	5200.0017	5200.0011	5200.0007	5200.0000
Max. Deviation (MHz)	0.0100	0.0092	0.0089	0.0086
Max. Deviation (ppm)	1.92	1.77	1.71	1.65
Result	Complies			

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5785 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5785.0058	5785.0054	5785.0052	5785.0050
110.00	5785.0048	5785.0040	5785.0039	5785.0032
93.50	5785.0047	5785.0040	5785.0038	5785.0028
Max. Deviation (MHz)	0.0058	0.0054	0.0052	0.0050
Max. Deviation (ppm)	1.00	0.93	0.90	0.86
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5785 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
-40	5785.0108	5785.0102	5785.0093	5785.0084
-30	5785.0108	5785.0102	5785.0093	5785.0084
-20	5785.0108	5785.0102	5785.0093	5785.0084
-10	5785.0097	5785.0087	5785.0084	5785.0078
0	5785.0078	5785.0069	5785.0063	5785.0057
10	5785.0065	5785.0060	5785.0057	5785.0054
20	5785.0048	5785.0044	5785.0036	5785.0028
30	5785.0032	5785.0030	5785.0024	5785.0016
40	5785.0020	5785.0013	5785.0009	5785.0006
50	5785.0013	5785.0004	5785.0003	5784.9993
60	5785.0013	5785.0004	5785.0003	5784.9993
70	5785.0013	5785.0004	5785.0003	5784.9993
Max. Deviation (MHz)	0.0108	0.0102	0.0093	0.0084
Max. Deviation (ppm)	1.87	1.76	1.61	1.45
Result	Complies			

Mode: 40 MHz / Chain 1

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5190 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5190.0051	5190.0047	5190.0044	5190.0038
110.00	5190.0048	5190.0047	5190.0044	5190.0040
93.50	5190.0044	5190.0041	5190.0036	5190.0027
Max. Deviation (MHz)	0.0051	0.0047	0.0044	0.0040
Max. Deviation (ppm)	0.98	0.91	0.85	0.77
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5190 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
-40	5190.0099	5190.0091	5190.0088	5190.0080
-30	5190.0099	5190.0091	5190.0088	5190.0080
-20	5190.0099	5190.0091	5190.0088	5190.0080
-10	5190.0098	5190.0095	5190.0093	5190.0085
0	5190.0078	5190.0070	5190.0063	5190.0057
10	5190.0068	5190.0058	5190.0054	5190.0045
20	5190.0048	5190.0045	5190.0038	5190.0035
30	5190.0032	5190.0023	5190.0020	5190.0013
40	5190.0017	5190.0007	5190.0003	5190.0002
50	5189.9998	5189.9997	5189.9996	5189.9995
60	5189.9998	5189.9997	5189.9996	5189.9995
70	5189.9998	5189.9997	5189.9996	5189.9995
Max. Deviation (MHz)	0.0099	0.0095	0.0093	0.0085
Max. Deviation (ppm)	1.91	1.83	1.79	1.64
Result	Complies			

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5755 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5755.0049	5755.0041	5755.0033	5755.0031
110.00	5755.0048	5755.0039	5755.0029	5755.0019
93.50	5755.0041	5755.0032	5755.0031	5755.0029
Max. Deviation (MHz)	0.0049	0.0041	0.0033	0.0031
Max. Deviation (ppm)	0.85	0.71	0.57	0.54
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5755 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
-40	5755.0088	5755.0087	5755.0079	5755.0069
-30	5755.0088	5755.0087	5755.0079	5755.0069
-20	5755.0088	5755.0087	5755.0079	5755.0069
-10	5755.0074	5755.0069	5755.0066	5755.0062
0	5755.0067	5755.0059	5755.0054	5755.0048
10	5755.0064	5755.0062	5755.0058	5755.0048
20	5755.0048	5755.0047	5755.0044	5755.0035
30	5755.0032	5755.0024	5755.0015	5755.0005
40	5755.0013	5755.0006	5755.0003	5754.9995
50	5755.0006	5754.9998	5754.9992	5754.9989
60	5755.0006	5754.9998	5754.9992	5754.9989
70	5755.0006	5754.9998	5754.9992	5754.9989
Max. Deviation (MHz)	0.0088	0.0087	0.0079	0.0069
Max. Deviation (ppm)	1.53	1.51	1.37	1.20
Result	Complies			

Mode: 80 MHz / Chain 1

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5210 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5210.0049	5210.0045	5210.0035	5210.0034
110.00	5210.0048	5210.0040	5210.0031	5210.0026
93.50	5210.0038	5210.0037	5210.0035	5210.0030
Max. Deviation (MHz)	0.0049	0.0045	0.0035	0.0034
Max. Deviation (ppm)	0.94	0.86	0.67	0.65
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5210 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
-40	5210.0085	5210.0084	5210.0077	5210.0071
-30	5210.0085	5210.0084	5210.0077	5210.0071
-20	5210.0085	5210.0084	5210.0077	5210.0071
-10	5210.0079	5210.0078	5210.0077	5210.0073
0	5210.0071	5210.0069	5210.0066	5210.0057
10	5210.0056	5210.0052	5210.0048	5210.0046
20	5210.0048	5210.0047	5210.0038	5210.0033
30	5210.0032	5210.0027	5210.0018	5210.0010
40	5210.0018	5210.0011	5210.0008	5210.0004
50	5210.0011	5210.0009	5210.0000	5209.9992
60	5210.0011	5210.0009	5210.0000	5209.9992
70	5210.0011	5210.0009	5210.0000	5209.9992
Max. Deviation (MHz)	0.0085	0.0084	0.0077	0.0073
Max. Deviation (ppm)	1.63	1.61	1.48	1.40
Result	Complies			

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5775 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5775.0057	5775.0052	5775.0044	5775.0040
110.00	5775.0048	5775.0038	5775.0037	5775.0029
93.50	5775.0045	5775.0038	5775.0036	5775.0027
Max. Deviation (MHz)	0.0057	0.0052	0.0044	0.0040
Max. Deviation (ppm)	0.99	0.90	0.76	0.69
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5775 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
-40	5775.0087	5775.0083	5775.0082	5775.0077
-30	5775.0087	5775.0083	5775.0082	5775.0077
-20	5775.0087	5775.0083	5775.0082	5775.0077
-10	5775.0073	5775.0067	5775.0060	5775.0053
0	5775.0071	5775.0061	5775.0056	5775.0054
10	5775.0065	5775.0058	5775.0052	5775.0051
20	5775.0048	5775.0039	5775.0034	5775.0028
30	5775.0032	5775.0025	5775.0020	5775.0018
40	5775.0017	5775.0008	5775.0000	5774.9999
50	5775.0003	5775.0002	5774.9996	5774.9986
60	5775.0003	5775.0002	5774.9996	5774.9986
70	5775.0003	5775.0002	5774.9996	5774.9986
Max. Deviation (MHz)	0.0087	0.0083	0.0082	0.0077
Max. Deviation (ppm)	1.51	1.44	1.42	1.33
Result	Complies			

<Mode 2: Internal / Dish Ant.>

Temperature	25°C	Humidity	45%
Test Engineer	Serway Li	Test Date	Dec. 23, 2015

Mode: 20 MHz / Chain 1

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5200 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5199.9987	5199.9985	5199.9981	5199.9978
110.00	5199.9986	5199.9977	5199.9970	5199.9960
93.50	5199.9982	5199.9973	5199.9970	5199.9964
Max. Deviation (MHz)	0.0018	0.0027	0.0030	0.0040
Max. Deviation (ppm)	0.35	0.52	0.58	0.77
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5200 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
-40	5199.9947	5199.9938	5199.9934	5199.9926
-30	5199.9947	5199.9938	5199.9934	5199.9926
-20	5199.9947	5199.9938	5199.9934	5199.9926
-10	5199.9961	5199.9959	5199.9955	5199.9952
0	5199.9980	5199.9976	5199.9975	5199.9971
10	5199.9984	5199.9974	5199.9965	5199.9959
20	5199.9986	5199.9978	5199.9977	5199.9968
30	5199.9994	5199.9987	5199.9981	5199.9973
40	5200.0011	5200.0001	5199.9993	5199.9989
50	5200.0027	5200.0019	5200.0017	5200.0007
60	5200.0027	5200.0019	5200.0017	5200.0007
70	5200.0027	5200.0019	5200.0017	5200.0007
Max. Deviation (MHz)	0.0053	0.0062	0.0066	0.0074
Max. Deviation (ppm)	1.02	1.19	1.27	1.42
Result	Complies			

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5785 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5784.9989	5784.9980	5784.9977	5784.9967
110.00	5784.9986	5784.9980	5784.9973	5784.9965
93.50	5784.9976	5784.9966	5784.9956	5784.9946
Max. Deviation (MHz)	0.0024	0.0034	0.0044	0.0054
Max. Deviation (ppm)	0.41	0.59	0.76	0.93
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5785 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
-40	5784.9942	5784.9936	5784.9927	5784.9921
-30	5784.9942	5784.9936	5784.9927	5784.9921
-20	5784.9942	5784.9936	5784.9927	5784.9921
-10	5784.9955	5784.9949	5784.9942	5784.9932
0	5784.9965	5784.9964	5784.9959	5784.9955
10	5784.9979	5784.9974	5784.9972	5784.9964
20	5784.9986	5784.9979	5784.9974	5784.9972
30	5784.9994	5784.9989	5784.9979	5784.9973
40	5784.9998	5784.9992	5784.9986	5784.9979
50	5785.0001	5784.9998	5784.9992	5784.9991
60	5785.0001	5784.9998	5784.9992	5784.9991
70	5785.0001	5784.9998	5784.9992	5784.9991
Max. Deviation (MHz)	0.0058	0.0064	0.0073	0.0079
Max. Deviation (ppm)	1.00	1.11	1.26	1.37
Result	Complies			

Mode: 40 MHz / Chain 1

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5190 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5189.9993	5189.9988	5189.9981	5189.9976
110.00	5189.9986	5189.9979	5189.9975	5189.9971
93.50	5189.9976	5189.9975	5189.9968	5189.9964
Max. Deviation (MHz)	0.0024	0.0025	0.0032	0.0036
Max. Deviation (ppm)	0.46	0.48	0.62	0.69
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5190 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
-40	5189.9925	5189.9917	5189.9915	5189.9906
-30	5189.9932	5189.9925	5189.9918	5189.9912
-20	5189.9925	5189.9917	5189.9915	5189.9906
-10	5189.9932	5189.9925	5189.9918	5189.9912
0	5189.9950	5189.9942	5189.9938	5189.9937
10	5189.9967	5189.9965	5189.9958	5189.9951
20	5189.9986	5189.9976	5189.9970	5189.9965
30	5189.9994	5189.9986	5189.9978	5189.9970
40	5189.9999	5189.9995	5189.9993	5189.9991
50	5190.0017	5190.0014	5190.0010	5190.0003
60	5190.0017	5190.0014	5190.0010	5190.0003
70	5190.0017	5190.0014	5190.0010	5190.0003
Max. Deviation (MHz)	0.0075	0.0083	0.0085	0.0094
Max. Deviation (ppm)	1.45	1.60	1.64	1.81
Result	Complies			

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5755 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5754.9991	5754.9981	5754.9974	5754.9971
110.00	5754.9986	5754.9985	5754.9984	5754.9980
93.50	5754.9981	5754.9980	5754.9978	5754.9968
Max. Deviation (MHz)	0.0019	0.0020	0.0026	0.0032
Max. Deviation (ppm)	0.33	0.35	0.45	0.56
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5755 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
-40	5754.9966	5754.9958	5754.9948	5754.9943
-30	5754.9974	5754.9970	5754.9962	5754.9952
-20	5754.9966	5754.9958	5754.9948	5754.9943
-10	5754.9974	5754.9970	5754.9962	5754.9952
0	5754.9976	5754.9969	5754.9968	5754.9962
10	5754.9983	5754.9982	5754.9973	5754.9970
20	5754.9986	5754.9985	5754.9984	5754.9983
30	5754.9994	5754.9990	5754.9982	5754.9973
40	5755.0006	5755.0004	5755.0001	5754.9996
50	5755.0007	5754.9999	5754.9993	5754.9986
60	5755.0007	5754.9999	5754.9993	5754.9986
70	5755.0007	5754.9999	5754.9993	5754.9986
Max. Deviation (MHz)	0.0034	0.0042	0.0052	0.0057
Max. Deviation (ppm)	0.59	0.73	0.90	0.99
Result	Complies			

Mode: 80 MHz / Chain 1

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5210 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5209.9991	5209.9981	5209.9974	5209.9967
110.00	5209.9986	5209.9984	5209.9976	5209.9972
93.50	5209.9985	5209.9984	5209.9981	5209.9972
Max. Deviation (MHz)	0.0015	0.0019	0.0026	0.0033
Max. Deviation (ppm)	0.29	0.36	0.50	0.63
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5210 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
-40	5209.9962	5209.9955	5209.9954	5209.9952
-30	5209.9962	5209.9955	5209.9954	5209.9952
-20	5209.9962	5209.9955	5209.9954	5209.9952
-10	5209.9964	5209.9960	5209.9950	5209.9947
0	5209.9970	5209.9968	5209.9958	5209.9956
10	5209.9971	5209.9964	5209.9962	5209.9957
20	5209.9986	5209.9985	5209.9975	5209.9970
30	5209.9994	5209.9988	5209.9978	5209.9975
40	5210.0007	5210.0000	5209.9999	5209.9993
50	5210.0015	5210.0006	5209.9999	5209.9996
60	5210.0015	5210.0006	5209.9999	5209.9996
70	5210.0015	5210.0006	5209.9999	5209.9996
Max. Deviation (MHz)	0.0038	0.0045	0.0050	0.0053
Max. Deviation (ppm)	0.73	0.86	0.96	1.02
Result	Complies			

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5775 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5774.9989	5774.9979	5774.9977	5774.9975
110.00	5774.9986	5774.9978	5774.9970	5774.9966
93.50	5774.9984	5774.9979	5774.9977	5774.9968
Max. Deviation (MHz)	0.0016	0.0022	0.0030	0.0034
Max. Deviation (ppm)	0.28	0.38	0.52	0.59
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5775 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
-40	5774.9959	5774.9950	5774.9941	5774.9934
-30	5774.9959	5774.9950	5774.9941	5774.9934
-20	5774.9959	5774.9950	5774.9941	5774.9934
-10	5774.9978	5774.9972	5774.9965	5774.9961
0	5774.9982	5774.9977	5774.9968	5774.9960
10	5774.9983	5774.9974	5774.9964	5774.9960
20	5774.9986	5774.9981	5774.9979	5774.9977
30	5774.9994	5774.9985	5774.9975	5774.9967
40	5775.0010	5775.0003	5774.9997	5774.9995
50	5775.0014	5775.0008	5775.0001	5775.0000
60	5775.0014	5775.0008	5775.0001	5775.0000
70	5775.0014	5775.0008	5775.0001	5775.0000
Max. Deviation (MHz)	0.0041	0.0050	0.0059	0.0066
Max. Deviation (ppm)	0.71	0.87	1.02	1.14
Result	Complies			

4.9. Antenna Requirements

4.9.1. Limit

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

4.9.2. Antenna Connector Construction

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

5. LIST OF MEASURING EQUIPMENTS

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMI Test Receiver	R&S	ESCS 30	100355	9kHz ~ 2.75GHz	Apr. 22, 2015	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150kHz ~ 100MHz	Dec. 08, 2015	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127478	9kHz ~ 30MHz	Nov. 13, 2015	Conduction (CO01-CB)
COND Cable	Woken	Cable	01	150kHz ~ 30MHz	May 25, 2015	Conduction (CO01-CB)
Software	Audix	E3	6.120210n	-	N.C.R.	Conduction (CO01-CB)
BILOG ANTENNA	Schaffner	CBL6112D	37880	20MHz ~ 2GHz	Sep. 03, 2015	Radiation (03CH01-CB)
Loop Antenna	Teseq	HLA 6120	24155	9kHz - 30 MHz	Mar. 12, 2015*	Radiation (03CH01-CB)
Horn Antenna	EMCO	3115	00075790	750MHz ~ 18GHz	Oct. 22, 2015	Radiation (03CH01-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Jul. 21, 2015	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8447D	2944A10991	0.1MHz ~ 1.3GHz	Feb. 24, 2015	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Jan. 12, 2015	Radiation (03CH01-CB)
Pre-Amplifier	WM	TF-130N-R1	923365	26GHz ~ 40GHz	Feb.10, 2015	Radiation (03CH01-CB)
Spectrum Analyzer	R&S	FSP40	100056	9kHz ~ 40GHz	Oct. 27, 2015	Radiation (03CH01-CB)
EMI 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. 02, 2015	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-16	N/A	1 GHz ~ 18 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-17	N/A	1 GHz ~ 18 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G-1	N/A	18GHz ~ 40 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G-2	N/A	18GHz ~ 40 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
Test Software	Audix	E3	6.2009-I0-7	N/A	N/A	Radiation (03CH01-CB)
Spectrum analyzer	R&S	FSV40	100979	9kHz~40GHz	Dec. 09, 2015	Conducted (TH01-CB)
Temp. and Humidity Chamber	Ten Billion	TTH-D3SP	TBN-931011	-30~100 degree	Jun. 02, 2015	Conducted (TH01-CB)
RF Power Divider	Woken	2 Way	TH01-DV-02	1GHz ~ 6GHz	Nov. 07, 2015	Conducted (TH01-CB)
RF Power Divider	Woken	4 Way	TH01-DV-01	1GHz ~ 6GHz	Nov. 07, 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)

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
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)
RF Cable-high	Woken	RG402	High Cable-6	1 GHz – 26.5 GHz	Nov. 02, 2015	Conducted (TH01-CB)
Power Sensor	Agilent	U2021XA	MY53410001	50MHz~18GHz	Nov. 02, 2015	Conducted (TH01-CB)

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

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

NCR means Non-Calibration required.

6. MEASUREMENT UNCERTAINTY

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