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FCC RADIO TEST REPORT

Applicant's company	**TP-LINK TECHNOLOGIES CO., LTD.**
Applicant Address	Building 24 (floors 1,3,4,5) and 28 (floors1-4) Central Science and Technology Park, Nanshan, Shenzhen, 518057 China
FCC ID	**TE7AD7200**
Manufacturer's company	**TP-LINK TECHNOLOGIES CO., LTD.**
Manufacturer Address	Building 24 (floors 1,3,4,5) and 28 (floors1-4) Central Science and Technology Park, Nanshan, Shenzhen, 518057 China

Product Name	AD7200 Multi-Band Wi-Fi Router
Brand Name	TP-LINK
Model No.	AD7200
Test Rule Part(s)	47 CFR FCC Part 15 Subpart E § 15.407
Test Freq. Range	5150 ~ 5250 MHz / 5725 ~ 5850 MHz
Received Date	Oct. 19, 2015
Final Test Date	May 27, 2016
Submission Type	Original Equipment

Statement

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

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

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

The measurements and test results shown in this test report were made in accordance with the procedures and found in compliance with the limit given in **ANSI C63.10-2013**, **47 CFR FCC Part 15 Subpart E, KDB789033 D02 v01r01, KDB662911 D01 v02r01, KDB644545 D03 v01.**

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

Testing Laboratory
1190

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History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR5O1802AB	Rev. 01	Initial issue of report.	Mar. 17, 2016
FR5O1802AB	Rev. 02	Adding bridge mode.	Jun. 15, 2016

1. VERIFICATION OF COMPLIANCE

Product Name	:	AD7200 Multi-Band Wi-Fi Router
Brand Name	:	TP-LINK
Model No.	:	AD7200
Applicant	:	TP-LINK TECHNOLOGIES CO., LTD.
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 Oct. 19, 2015 would like to declare that the tested sample has been evaluated and found to be in compliance with the tested rule parts. The data recorded as well as the test configuration specified is true and accurate for showing the sample's EMC nature.

Sam Chen

SPORTON INTERNATIONAL INC.

2. SUMMARY OF THE TEST RESULT

Applied Standard: 47 CFR FCC Part 15 Subpart E				
Part	**Rule Section**	**Description of Test**	**Result**	**Under Limit**
4.1	15.207	AC Power Line Conducted Emissions	Complies	12.54 dB
4.2	15.407(a)	26dB Spectrum Bandwidth and 99% Occupied Bandwidth	Complies	-
4.3	15.407(e)	6dB Spectrum Bandwidth	Complies	-
4.4	15.407(a)	Maximum Conducted Output Power	Complies	0.01 dB
4.5	15.407(a)	Power Spectral Density	Complies	0.02 dB
4.6	15.407(b)	Radiated Emissions	Complies	3.10 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 (4TX, 4RX)
Radio Type	Intentional Transceiver
Power Type	From power adapter
Modulation	IEEE 802.11a: OFDM IEEE 802.11n/ac: see the below table
Data Modulation	IEEE 802.11a/n: OFDM (BPSK / QPSK / 16QAM / 64QAM) IEEE 802.11ac: OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM)
Data Rate (Mbps)	IEEE 802.11a: OFDM (6/9/12/18/24/36/48/54) IEEE 802.11n/ac: see the below table
Frequency Range	5150 ~ 5250 MHz / 5725 ~ 5850 MHz
Channel Number	9 for 20MHz bandwidth ; 4 for 40MHz bandwidth 2 for 80MHz bandwidth
Channel Band Width (99%)	For non-beamforming function: Band 1: IEEE 802.11a: 16.41 MHz IEEE 802.11ac MCS0/Nss1 (VHT20): 17.45 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 35.89 MHz IEEE 802.11ac MCS0/Nss1 (VHT80): 75.54 MHz Band 4: IEEE 802.11a: 16.50 MHz IEEE 802.11ac MCS0/Nss1 (VHT20): 17.54 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 35.60 MHz IEEE 802.11ac MCS0/Nss1 (VHT80): 74.38 MHz For beamforming function: Band 1: IEEE 802.11ac MCS1/Nss1 (VHT20): 17.71 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 36.32 MHz IEEE 802.11ac MCS0/Nss1 (VHT80): 75.83 MHz Band 4: IEEE 802.11ac MCS1/Nss1 (VHT20): 17.71 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 36.18 MHz IEEE 802.11ac MCS0/Nss1 (VHT80): 75.83 MHz

Maximum Conducted Output Power	For non-beamforming function: Band 1: IEEE 802.11a: 26.99 dBm IEEE 802.11ac MCS0/Nss1 (VHT20): 26.97 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 29.68 dBm IEEE 802.11ac MCS0/Nss1 (VHT80): 23.57 dBm Band 4: IEEE 802.11a: 29.83 dBm IEEE 802.11ac MCS0/Nss1 (VHT20): 29.99 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 29.90 dBm IEEE 802.11ac MCS0/Nss1 (VHT80): 23.72 dBm For beamforming function: Band 1: IEEE 802.11ac MCS1/Nss1 (VHT20): 26.40 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 26.33 dBm IEEE 802.11ac MCS0/Nss1 (VHT80): 26.66 dBm Band 4: IEEE 802.11ac MCS1/Nss1 (VHT20): 26.58 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 26.57 dBm IEEE 802.11ac MCS0/Nss1 (VHT80): 24.71 dBm
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

Note: This device contains 60GHz transmitter module FCC ID: PPD-QCA9008-SBD1.

Items	Description	
Communication Mode	☒ IP Based (Load Based)	☐ Frame Based
Beamforming Function	☒ With beamforming	☐ Without beamforming
	The product has beamforming function for 802.11ac.	
Operate Condition	☒ Indoor	☐ Outdoor

Antenna and Band width

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

IEEE 11n/ac Spec.

Protocol		Number of Transmit Chains (NTX)	Data Rate / MCS
For non-beamforming function:	802.11n (HT20)	4	MCS 0-31
	802.11n (HT40)	4	MCS 0-31
	802.11ac (VHT20)	4	MCS 0-9/Nss1-4
	802.11ac (VHT40)	4	MCS 0-9/Nss1-4
	802.11ac (VHT80)	4	MCS 0-9/Nss1-4
For beamforming function:	802.11ac (VHT20)	4	MCS 1-9/Nss1-4
	802.11ac (VHT40)	4	MCS 0-9/Nss1-4
	802.11ac (VHT80)	4	MCS 0-9/Nss1-4
Note 1: IEEE Std. 802.11n modulation consists of HT20 and HT40 (HT: High Throughput). Then EUT supports HT20 and HT40. Note 2: IEEE Std. 802.11ac modulation consists of VHT20, VHT40, VHT80 and VHT160 (VHT: Very High Throughput). Then EUT supports VHT20, VHT40 and VHT80 for 5GHz. Note 3: Modulation modes consist of below configuration: HT20/HT40: IEEE 802.11n, VHT20/VHT40/VHT80: IEEE 802.11ac.			

3.2. Accessories

Power	Brand	Model No.	Rating
Adapter	TP-LINK	T120420 (T120420-2B1)	Input: 100-240Vac, 50/60Hz, 1.2A Output: 12Vdc, 4.2A
Other			
Plug*1			

3.3. Table for Filed Antenna

Ant.	Brand	Product Number	Antenna Type	Connector	Gain (dBi)	Remark
1	TP-LINK	3101500712	Dipole Antenna	I-PEX	1.1	2.4GHz TX/RX
2	TP-LINK	3101500711	Dipole Antenna	I-PEX	1.6	2.4GHz TX/RX
3	TP-LINK	3101500710	Dipole Antenna	I-PEX	3.0	2.4GHz TX/RX
4	TP-LINK	3101500713	Dipole Antenna	I-PEX	1.5	2.4GHz TX/RX
5	TP-LINK	3101500707	Dipole Antenna	I-PEX	2.7	5GHz TX/RX
6	TP-LINK	3101500709	Dipole Antenna	I-PEX	3.4	5GHz TX/RX
7	TP-LINK	3101500708	Dipole Antenna	I-PEX	3.3	5GHz TX/RX
8	TP-LINK	3101500706	Dipole Antenna	I-PEX	2.6	5GHz TX/RX

Note: The EUT has eight antennas.

Then Ant. 1, Ant. 2, Ant. 3 and Ant. 4 supports 2.4GHz WLAN function / Ant. 5, Ant. 6, Ant. 7 and Ant. 8 supports 5GHz WLAN function.

For 2.4GHz WLAN function (4TX/4RX):

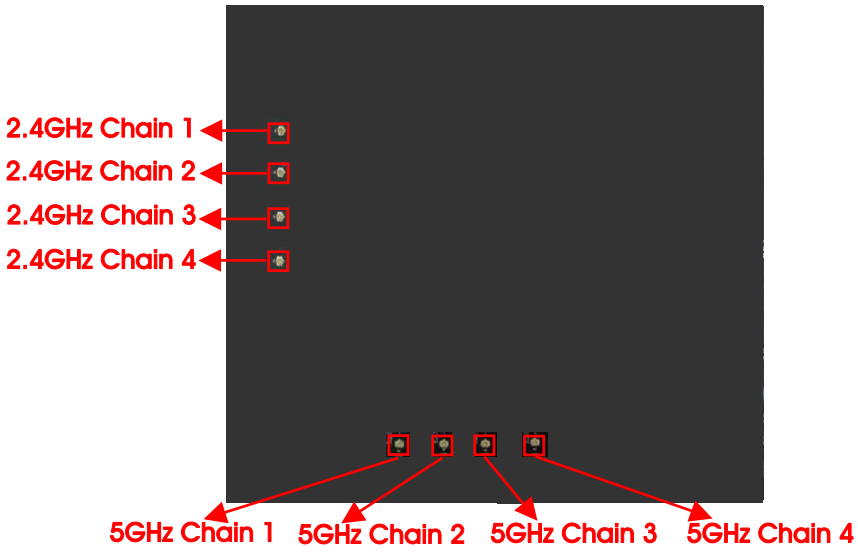
Chain 1, Chain 2, Chain 3 and Chain 4 could transmit/receive simultaneously.

Chain 1: Connect to Ant. 1, Chain 2: Connect to Ant. 2, Chain 3: Connect to Ant. 3, Chain 4: Connect to Ant. 4.

For 5GHz WLAN function (4TX/4RX):

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

Chain 1: Connect to Ant. 5, Chain 2: Connect to Ant. 6, Chain 3: Connect to Ant. 7, Chain 4: Connect to Ant. 8.



3.4. Table for Carrier Frequencies

There are three bandwidth systems.

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

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

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

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

3.5. Table for Test Modes

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

Test Items	Mode		Data Rate	Channel	Chain
AC Power Conducted Emission	Normal Link		-	-	-
Max. Conducted Output Power	For non-beamforming function:				
	11a/BPSK	Band 1&4	6Mbps	36/40/48/149/157/165	1+2+3+4
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	1+2+3+4
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1+2+3+4
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1+2+3+4
	For beamforming function:				
	11ac VHT20	Band 1&4	MCS1/Nss1	36/40/48/149/157/165	1+2+3+4
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1+2+3+4
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1+2+3+4
Power Spectral Density	For non-beamforming function:				
	11a/BPSK	Band 1&4	6Mbps	36/40/48/149/157/165	1+2+3+4
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	1+2+3+4
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1+2+3+4
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1+2+3+4
	For beamforming function:				
	11ac VHT20	Band 1&4	MCS1/Nss1	36/40/48/149/157/165	1+2+3+4
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1+2+3+4
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1+2+3+4

26dB Spectrum Bandwidth & 99% Occupied Bandwidth Measurement	For non-beamforming function:				
	11a/BPSK	Band 1&4	6Mbps	36/40/48/149/157/165	1+2+3+4
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	1+2+3+4
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1+2+3+4
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1+2+3+4
	For beamforming function:				
	11ac VHT20	Band 1&4	MCS1/Nss1	36/40/48/149/157/165	1+2+3+4
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1+2+3+4
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1+2+3+4
6dB Spectrum Bandwidth Measurement	For non-beamforming function:				
	11a/BPSK	Band 4	6Mbps	149/157/165	1+2+3+4
	11ac VHT20	Band 4	MCS0/Nss1	149/157/165	1+2+3+4
	11ac VHT40	Band 4	MCS0/Nss1	151/159	1+2+3+4
	11ac VHT80	Band 4	MCS0/Nss1	155	1+2+3+4
	For beamforming function:				
	11ac VHT20	Band 4	MCS1/Nss1	149/157/165	1+2+3+4
	11ac VHT40	Band 4	MCS0/Nss1	151/159	1+2+3+4
	11ac VHT80	Band 4	MCS0/Nss1	155	1+2+3+4
Radiated Emission Below 1GHz	Normal Link		-	-	-
Radiated Emission Above 1GHz	For non-beamforming function:				
	11a/BPSK	Band 1&4	6Mbps	36/40/48/149/157/165	1+2+3+4
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	1+2+3+4
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1+2+3+4
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1+2+3+4
	For beamforming function:				
	11ac VHT20	Band 1&4	MCS1/Nss1	36/40/48/149/157/165	1+2+3+4
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1+2+3+4
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1+2+3+4

Band Edge Emission	For non-beamforming function:				
	11a/BPSK	Band 1&4	6Mbps	36/40/48/149/157/165	1+2+3+4
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	1+2+3+4
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1+2+3+4
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1+2+3+4
	For beamforming function:				
	11ac VHT20	Band 1&4	MCS1/Nss1	36/40/48/149/157/165	1+2+3+4
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1+2+3+4
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1+2+3+4
Frequency Stability	20 MHz	Band 1&4	-	40/157	1
	40 MHz	Band 1&4	-	38/151	1
	80 MHz	Band 1&4	-	42/155	1

Note: 1. 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.

2. There are two modes of EUT, one is beamforming mode, and the other is non-beamforming mode for 802.11ac. All test results were recorded in this report.

The following test modes were performed for all tests:

For AC Power Line Conducted Emissions test:

Mode 1. Normal Link - Router mode

Mode 2. Normal Link - Bridge mode<2.4GHz>

Mode 2. Normal Link - Bridge mode<5GHz>

Mode 3 generated the worst test result, so it was recorded in this report.

For Radiated Emission below 1 GHz:

There are two modes of EUT, one EUT Y axis, and the other is EUT Z axis for Radiated emission below 1 GHz test, after evaluating, EUT Z axis has been evaluated to be the worst case, so it was selected to test and record in this test report.

Mode 1. Normal Link - EUT Z axis_Router mode

Mode 2. Normal Link - EUT Z axis_Bridge mode<2.4GHz>

Mode 3. Normal Link - EUT Z axis_Bridge mode<5GHz>

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

For Radiated Emission above 1 GHz test:

Mode 1. CTX - EUT Y axis + Antenna folded

Mode 2. CTX - EUT Z axis + Antenna folded

Mode 3. CTX - EUT Y axis + Antenna in 90°

Mode 4. CTX - EUT Z axis + Antenna in 90°

Mode 4 has been evaluated to be the worst case, so it was selected to test and record in this test report.

For Radiated Emission Co-location test:

There are two modes of EUT, one EUT Y axis, and the other is EUT Z axis for Radiated emission below 1 GHz test, after evaluating, EUT Z axis has been evaluated to be the worst case, so it was selected to test and record in this test report.

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

The EUT could be applied with 2.4GHz WLAN function, 5GHz WLAN function and 60GHz function; therefore Co-location Maximum Permissible Exposure (Please refer to FA5O1802) and Radiated Emission Co-location (please refer to Appendix B) tests are added for simultaneously transmit between 2.4GHz WLAN function, 5GHz WLAN function and 60GHz function.

3.6. Table for Testing Locations

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

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

3.7. Table for Supporting Units

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

Support Unit	Brand	Model	FCC ID
Notebook*4	DELL	E4300	DoC
Notebook	Apple	Mac Book	DoC
Flash disk3.0*2	Silicon Power	B06	DoC
AD7200 Multi-Band Wi-Fi Router (Device)	TP-LINK	AD7200	TE7AD7200

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

For non-beamforming function:

Support Unit	Brand	Model	FCC ID
Notebook	DELL	E4300	DoC

For beamforming function:

Support Unit	Brand	Model	FCC ID
Notebook	DELL	E4300	DoC
Notebook	Apple	Mac Book	DoC
AD7200 Multi-Band Wi-Fi Router (RX Device)	TP-LINK	AD7200	TE7AD7200

For Test Site No: CO01-CB

Support Unit	Brand	Model	FCC ID
Notebook*5	DELL	E6430	DoC
AD7200 Multi-Band Wi-Fi Router (Device)*2	TP-LINK	AD7200	TE7AD7200
Flash disk3.0*2	Transcend	JetFlash-700	DoC
PC	DELL	T3400	DoC
LCD Monitor	DELL	1704FPTt	DoC
Keyboard	iCooky	SK068	DoC
Mouse	HP	FM100	DoC
Modem	ACEEX	DM1414	IFAXDM1414
Printer	EPSON	LQ-300+	N/A

For Test Site No: TH01-CB

Support Unit	Brand	Model	FCC ID
Notebook	DELL	E4300	DoC

3.8. Table for Parameters of Test Software Setting

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

For non-beamforming function:

Test Software Version	QCARCT Version3.0.136.0					
Mode	Test Frequency (MHz)					
	NCB: 20MHz					
	5180 MHz	5200 MHz	5240 MHz	5745 MHz	5785 MHz	5825 MHz
802.11a	21	20.5	20.5	23.5	24	23
802.11ac MCS0/Nss1 VHT20	21	21	20.5	24.5	24.5	24.5
Mode	NCB: 40MHz					
802.11ac MCS0/Nss1 VHT40	5190 MHz		5230 MHz		5755 MHz	5795 MHz
	20.5		23		19.5	23.5
Mode	NCB: 80MHz					
802.11ac MCS0/Nss1 VHT80	5210 MHz				5775 MHz	
	19				20	

For beamforming function:

Test Software Version	QCARCT Version3.0.136.0					
Mode	Test Frequency (MHz)					
	NCB: 20MHz					
	5180 MHz	5200 MHz	5240 MHz	5745 MHz	5785 MHz	5825 MHz
802.11ac MCS1/Nss1 VHT20	26	26	26	26	26	26
Mode	NCB: 40MHz					
802.11ac MCS0/Nss1 VHT40	5190 MHz		5230 MHz		5755 MHz	5795 MHz
	25		26		22	26
Mode	NCB: 80MHz					
802.11ac MCS0/Nss1 VHT80	5210 MHz				5775 MHz	
	26				25	

3.9. EUT Operation during Test

For non-beamforming function:

The EUT was programmed to be in continuously transmitting mode.

For beamforming function:

For Conducted Mode:

The EUT was programmed to be in continuously transmitting mode.

For Radiated Mode:

During the test, the following programs under WIN 7 were executed.

The program was executed as follows:

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

3.10. Duty Cycle

For non-beamforming function:

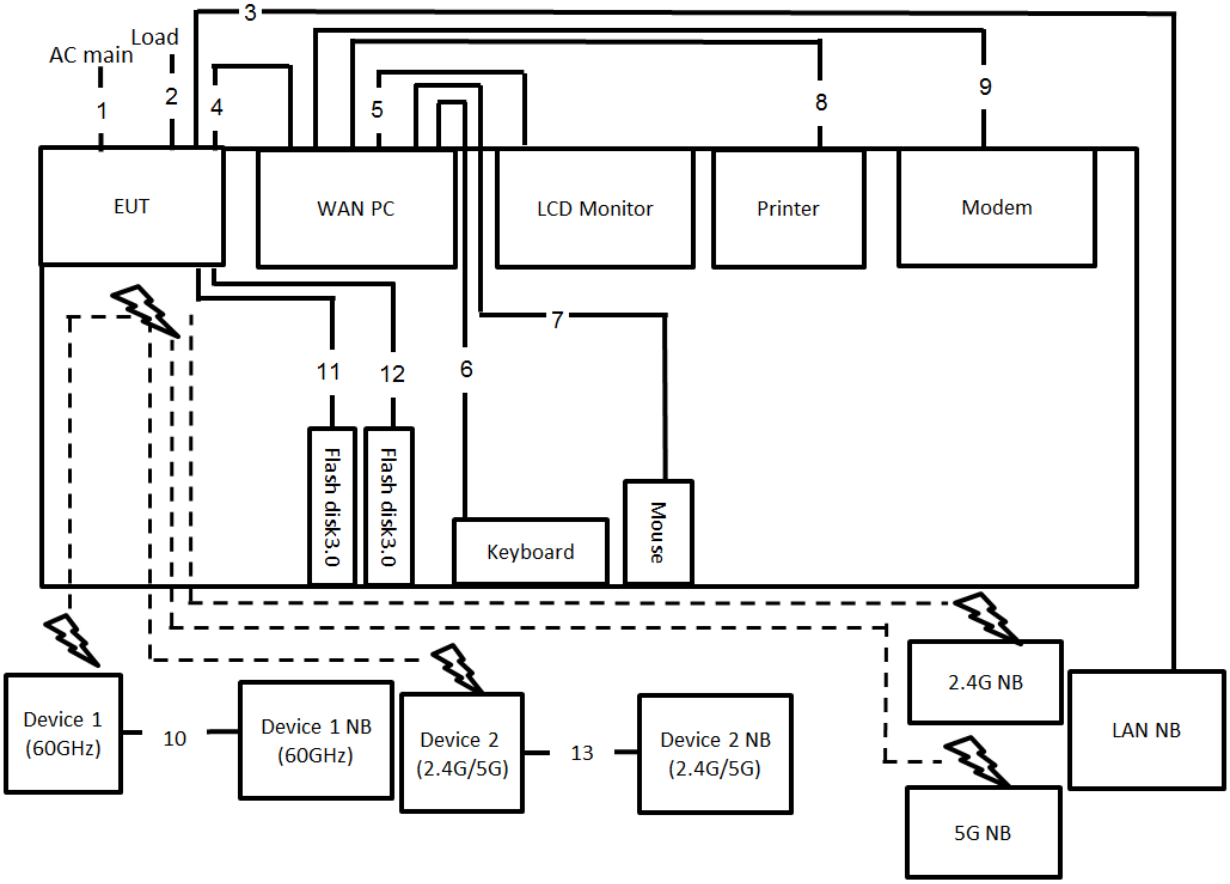
Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11a	2.019	2.099	96.19	0.17	0.50
802.11ac MCS0/Nss1 VHT20	4.974	5.049	98.51	0.07	0.01
802.11ac MCS0/Nss1 VHT40	2.378	2.479	95.93	0.18	0.42
802.11ac MCS0/Nss1 VHT80	1.127	1.200	93.92	0.27	0.89

For beamforming function:

Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11ac MCS1/Nss1 VHT20	3.404	3.611	94.27	0.26	0.29
802.11ac MCS0/Nss1 VHT40	3.305	3.512	94.11	0.26	0.30
802.11ac MCS0/Nss1 VHT80	1.511	1.689	89.46	0.48	0.66

3.11. Test Configurations

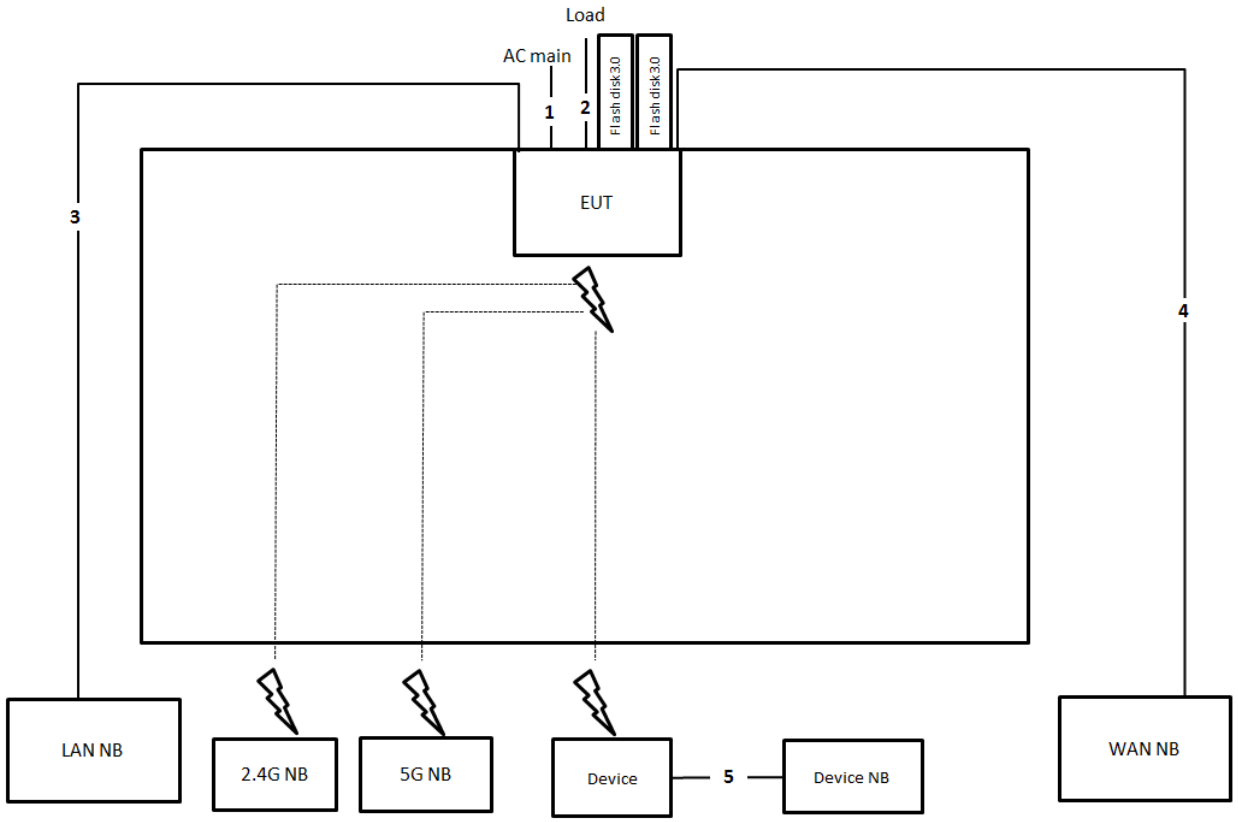
3.11.1. AC Power Line Conduction Emissions Test Configuration



Item	Connection	Shielded	Length
1	Power cable	No	1.5m
2	RJ-45 cable*3	No	1.5m
3	RJ-45 cable	No	10m
4	RJ-45 cable	No	1.5m
5	VGA cable	Yes	1.8m
6	USB cable	Yes	1.8m
7	USB cable	Yes	1.8m
8	USB cable	Yes	1.8m
9	RS232 cable	Yes	1.8m
10	RJ-45 cable	No	1.5m
11	USB cable	Yes	1.8m
12	USB cable	Yes	1.8m
13	RJ-45 cable	No	1.5m

3.11.2. Radiation Emissions Test Configuration

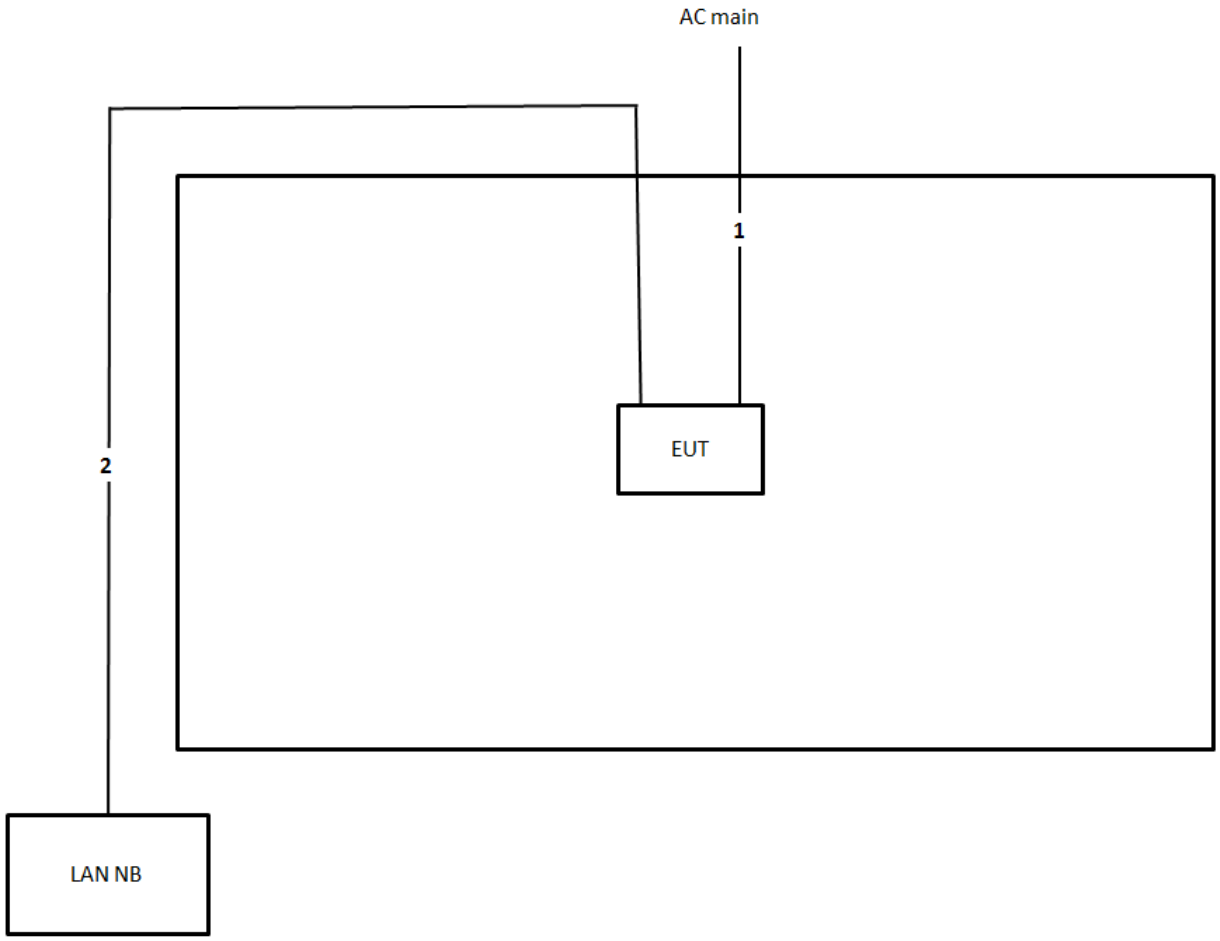
Test Configuration: 30MHz~1GHz



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

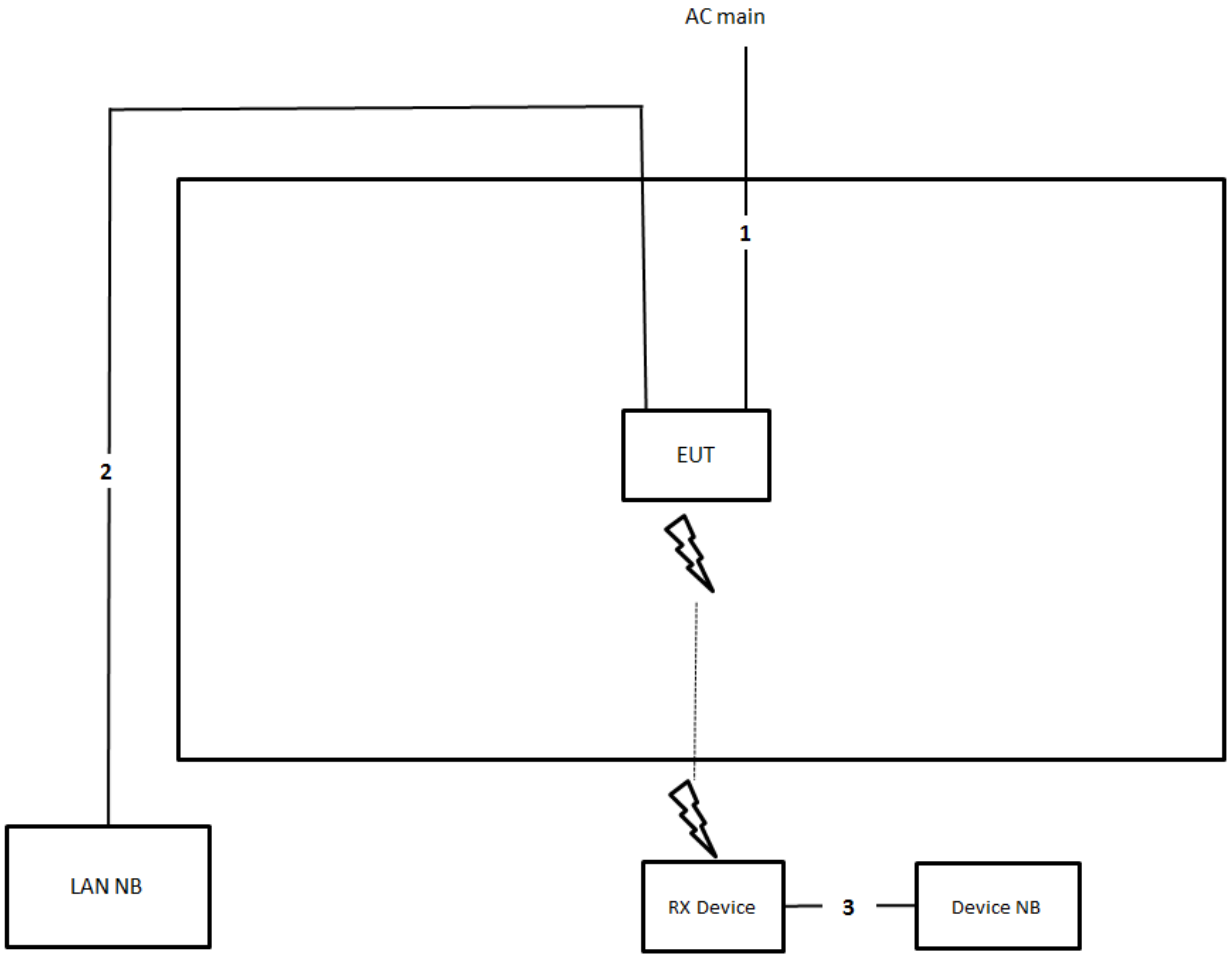
Test Configuration: above 1GHz

For non-beamforming function:



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

For beamforming function:



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

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

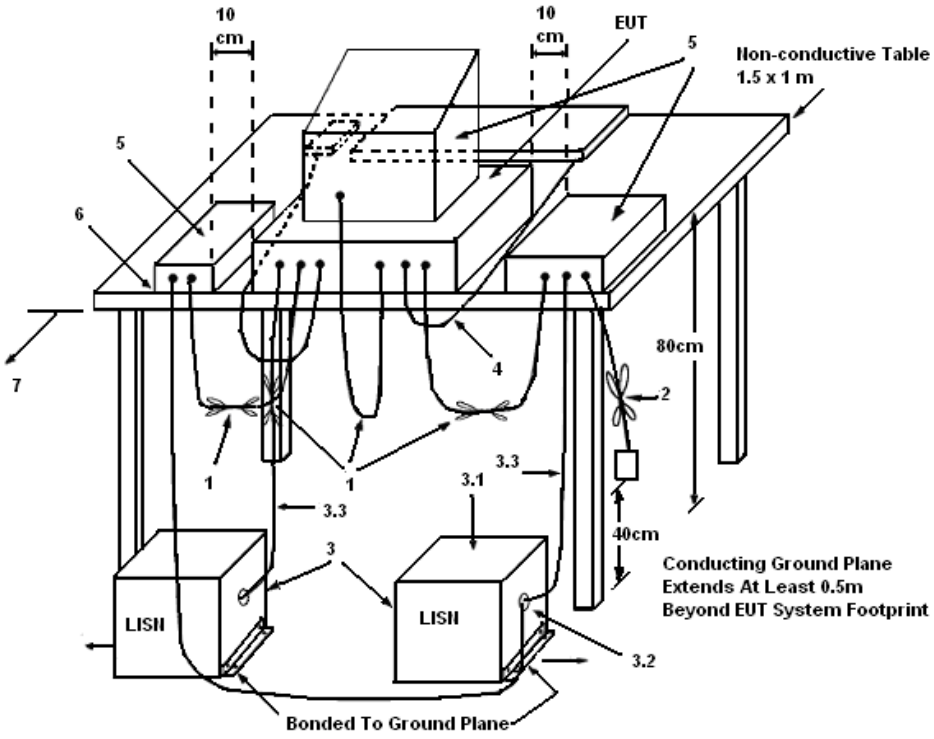
Please refer to section 5 of equipments list in this report. The following table is the setting of the receiver.

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

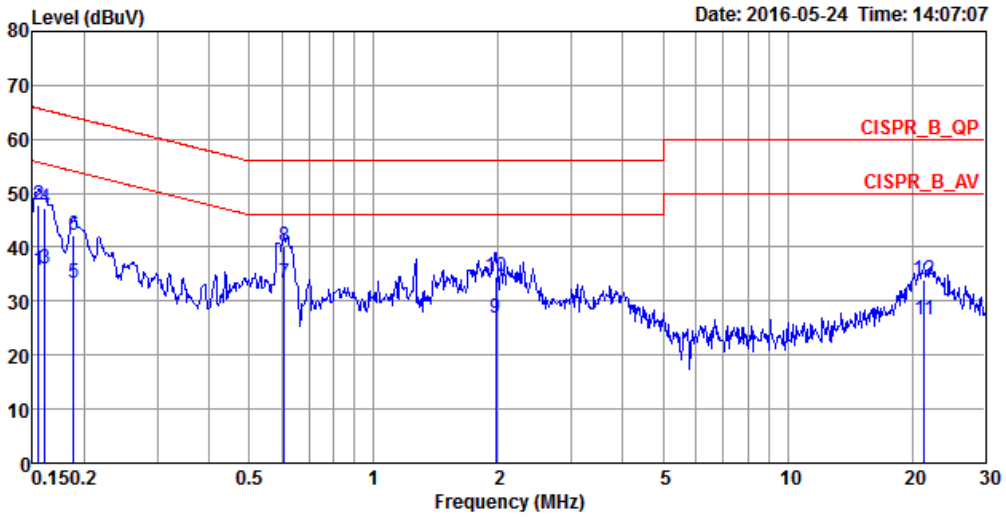
There is no deviation with the original standard.

4.1.6. EUT Operation during Test

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

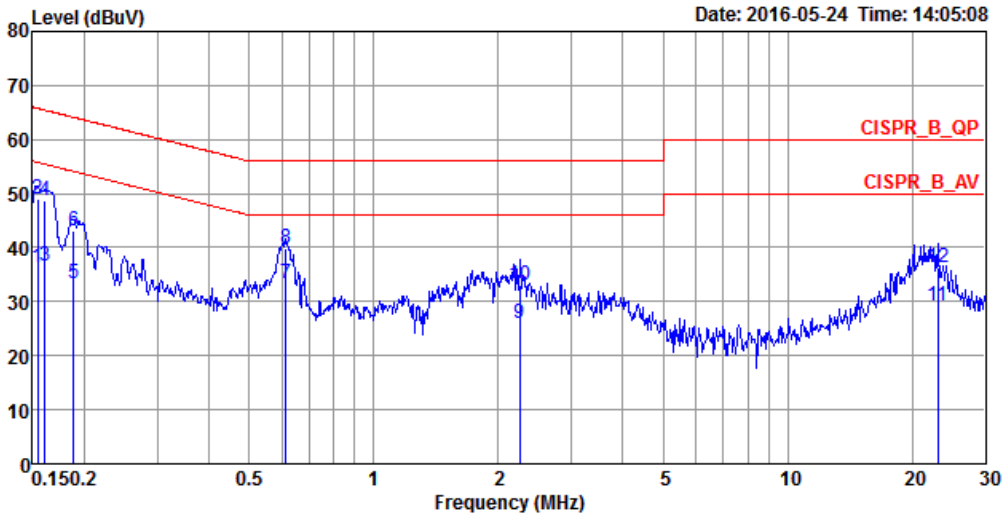
4.1.7. Results of AC Power Line Conducted Emissions Measurement

Temperature	20°C	Humidity	53%
Test Engineer	Deven Huang	Phase	Line
Configuration	Normal Link	Test Mode	Mode 3



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.1548	35.74	-20.00	55.74	25.70	10.02	0.02	LINE	Average
2	0.1548	47.76	-17.98	65.74	37.72	10.02	0.02	LINE	QP
3	0.1607	35.92	-19.51	55.43	25.88	10.02	0.02	LINE	Average
4	0.1607	47.33	-18.10	65.43	37.29	10.02	0.02	LINE	QP
5	0.1884	33.43	-20.68	54.11	23.49	9.92	0.02	LINE	Average
6	0.1884	42.15	-21.96	64.11	32.21	9.92	0.02	LINE	QP
7	0.6075	33.37	-12.63	46.00	23.40	9.93	0.04	LINE	Average
8	0.6075	40.21	-15.79	56.00	30.24	9.93	0.04	LINE	QP
9	1.9697	26.86	-19.14	46.00	16.84	9.96	0.06	LINE	Average
10	1.9697	34.40	-21.60	56.00	24.38	9.96	0.06	LINE	QP
11	21.3725	26.67	-23.33	50.00	16.06	10.35	0.26	LINE	Average
12	21.3725	33.81	-26.19	60.00	23.20	10.35	0.26	LINE	QP

Temperature	20°C	Humidity	53%
Test Engineer	Deven Huang	Phase	Neutral
Configuration	Normal Link	Test Mode	Mode 3



	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	36.17	-19.61	55.78	26.13	10.02	0.02	NEUTRAL	Average
2	0.1540	49.10	-16.68	65.78	39.06	10.02	0.02	NEUTRAL	QP
3	0.1607	36.70	-18.73	55.43	26.66	10.02	0.02	NEUTRAL	Average
4	0.1607	48.72	-16.71	65.43	38.68	10.02	0.02	NEUTRAL	QP
5	0.1884	33.50	-20.61	54.11	23.56	9.92	0.02	NEUTRAL	Average
6	0.1884	43.08	-21.03	64.11	33.14	9.92	0.02	NEUTRAL	QP
7	0.6140	33.46	-12.54	46.00	23.49	9.93	0.04	NEUTRAL	Average
8	0.6140	39.84	-16.16	56.00	29.87	9.93	0.04	NEUTRAL	QP
9	2.2486	25.95	-20.05	46.00	15.93	9.96	0.06	NEUTRAL	Average
10	2.2486	33.04	-22.96	56.00	23.02	9.96	0.06	NEUTRAL	QP
11	23.0181	29.34	-20.66	50.00	18.68	10.39	0.27	NEUTRAL	Average
12	23.0181	36.20	-23.80	60.00	25.54	10.39	0.27	NEUTRAL	QP

Note:

Level = Read Level + LISN Factor + Cable Loss.

4.2. 26dB Bandwidth and 99% Occupied Bandwidth Measurement

4.2.1. Limit

No restriction limits.

4.2.2. Measuring Instruments and Setting

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

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

4.2.3. Test Procedures

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

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

4.2.4. Test Setup Layout

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

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

4.2.5. Test Deviation

There is no deviation with the original standard.

4.2.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

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

Temperature	24°C	Humidity	55%
Test Engineer	Clemens Fang / Peter Wu		

For non-beamforming function:

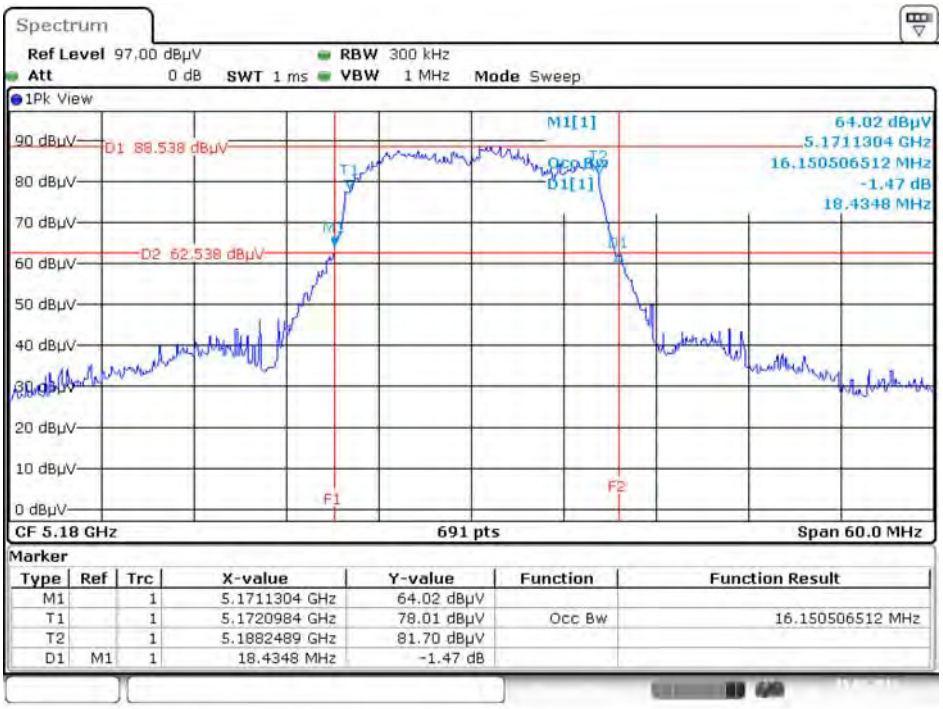
Mode	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11a	5180 MHz	18.43	16.15
	5200 MHz	19.13	16.32
	5240 MHz	18.96	16.41
	5745 MHz	18.78	16.24
	5785 MHz	18.96	16.41
	5825 MHz	18.70	16.50
802.11ac MCS0/Nss1 VHT20	5180 MHz	19.39	17.37
	5200 MHz	19.57	17.37
	5240 MHz	19.74	17.45
	5745 MHz	19.65	17.54
	5785 MHz	19.65	17.45
	5825 MHz	19.39	17.37
802.11ac MCS0/Nss1 VHT40	5190 MHz	39.57	35.89
	5230 MHz	39.86	35.89
	5755 MHz	39.42	35.31
	5795 MHz	39.42	35.60
802.11ac MCS0/Nss1 VHT80	5210 MHz	84.06	75.54
	5775 MHz	81.45	74.38

For beamforming function:

Mode	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11ac MCS1/Nss1 VHT20	5180 MHz	20.17	17.71
	5200 MHz	20.17	17.71
	5240 MHz	20.43	17.63
	5745 MHz	20.00	17.71
	5785 MHz	20.52	17.63
	5825 MHz	20.43	17.71
802.11ac MCS0/Nss1 VHT40	5190 MHz	40.44	36.18
	5230 MHz	40.15	36.32
	5755 MHz	40.73	36.18
	5795 MHz	40.73	36.18
802.11ac MCS0/Nss1 VHT80	5210 MHz	84.35	75.83
	5775 MHz	84.93	75.83

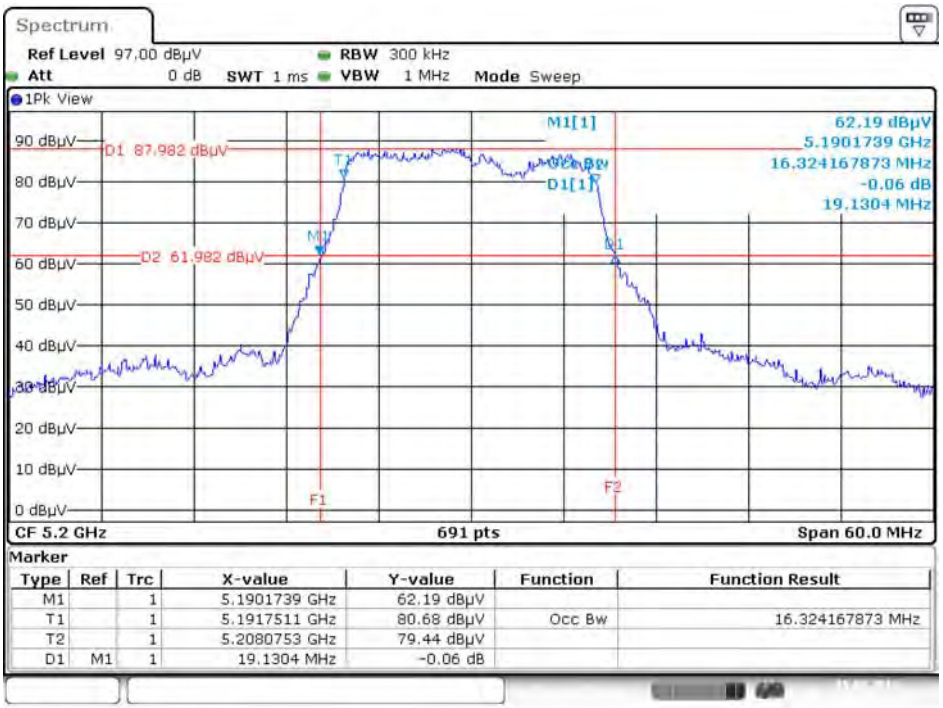
For non-beamforming function:

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



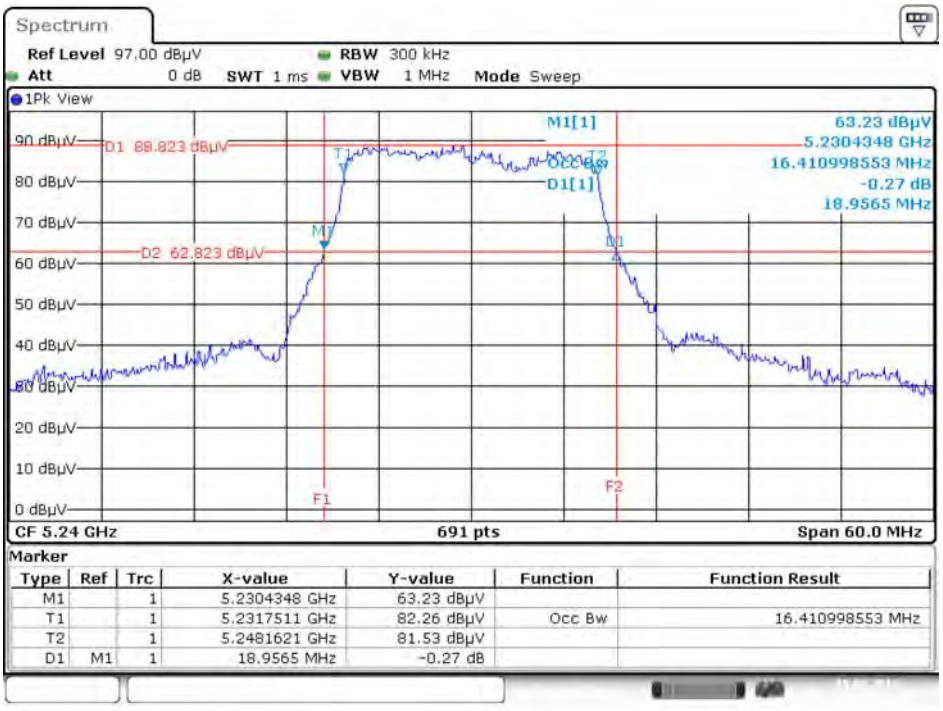
Date: 15.FEB.2016 22:07:56

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



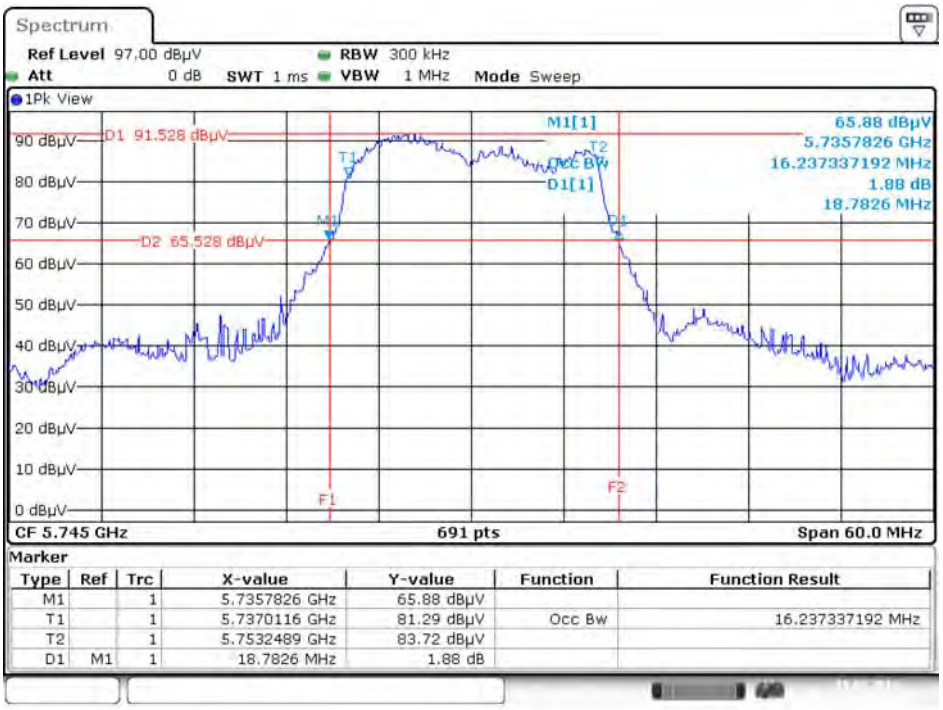
Date: 15.FEB.2016 22:09:05

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



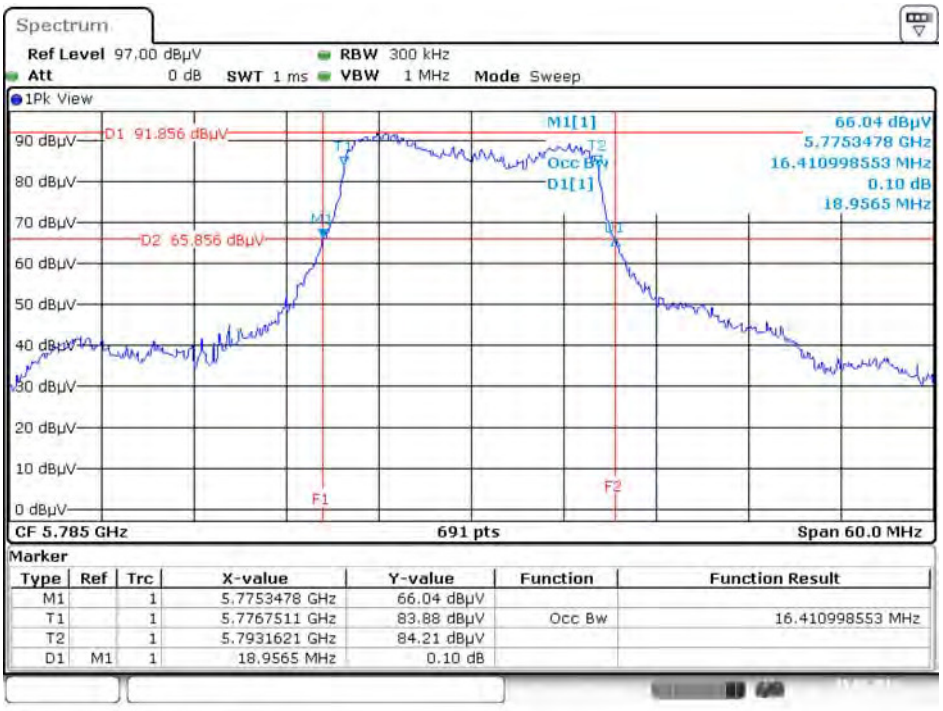
Date: 15.FEB.2016 22:09:44

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



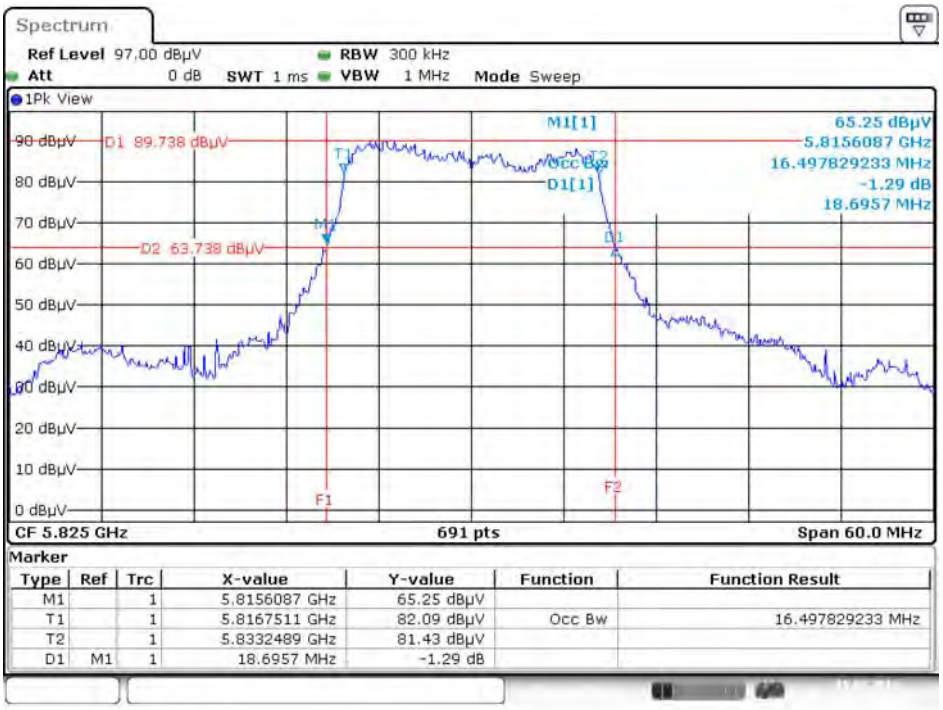
Date: 15.FEB.2016 22:12:20

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



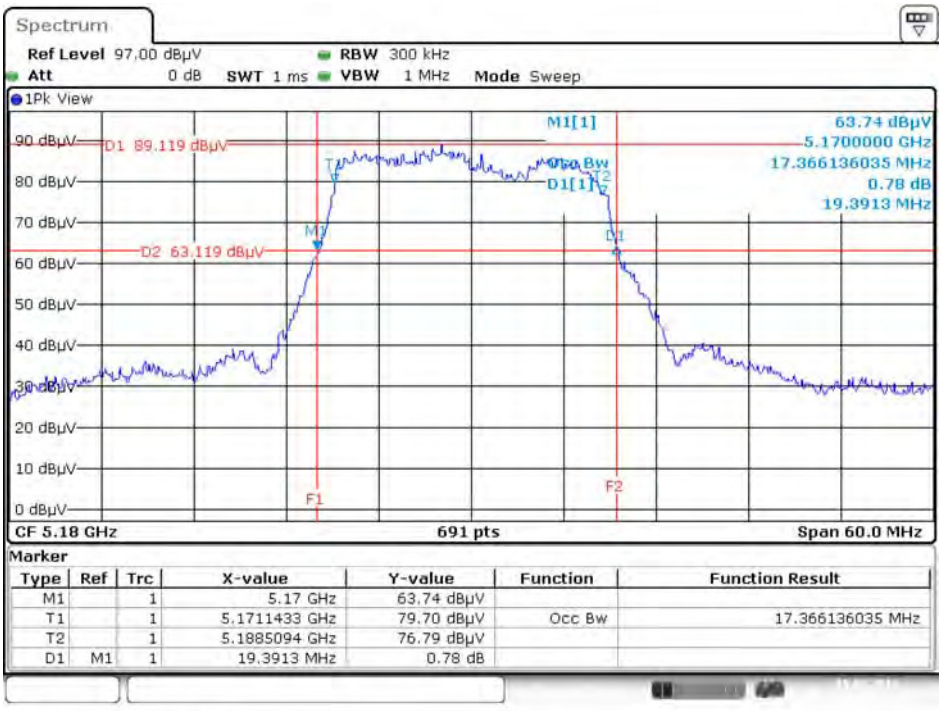
Date: 15.FEB.2016 22:12:56

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



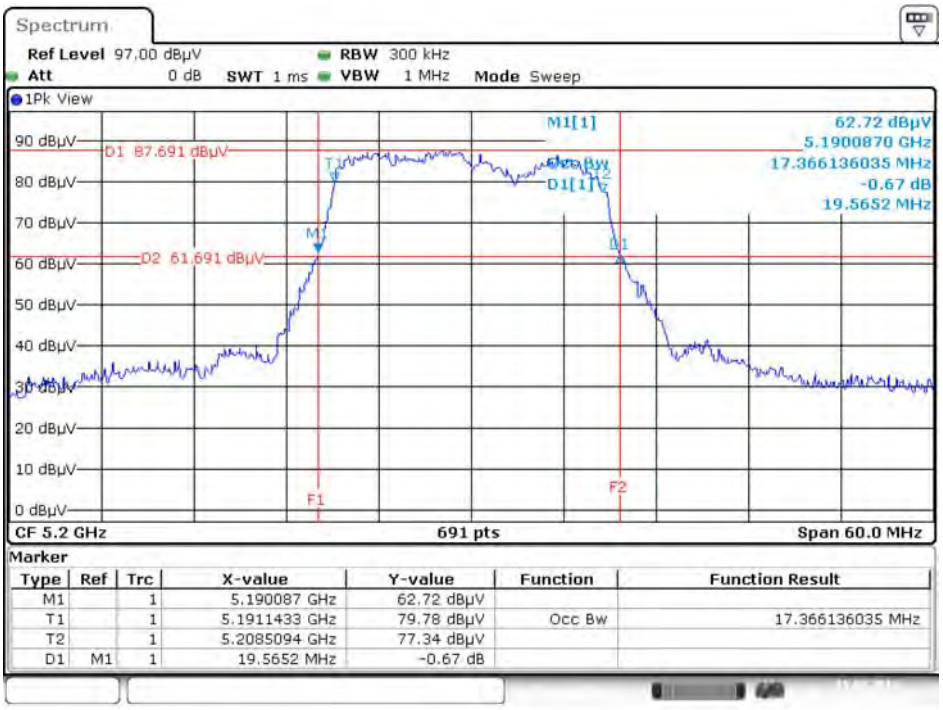
Date: 15.FEB.2016 22:13:38

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



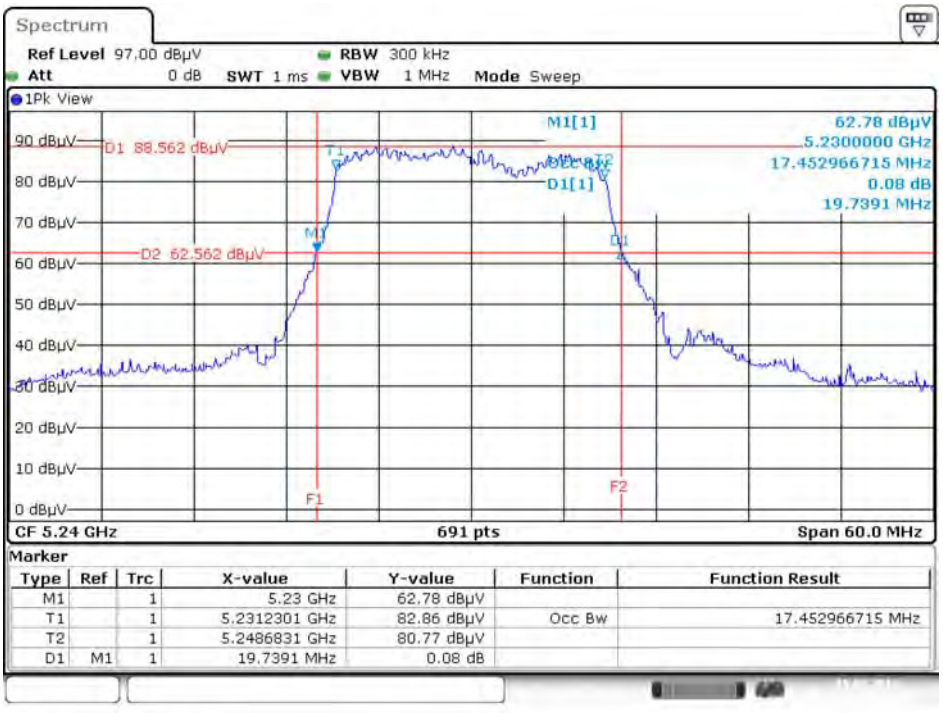
Date: 15.FEB.2016 22:22:22

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



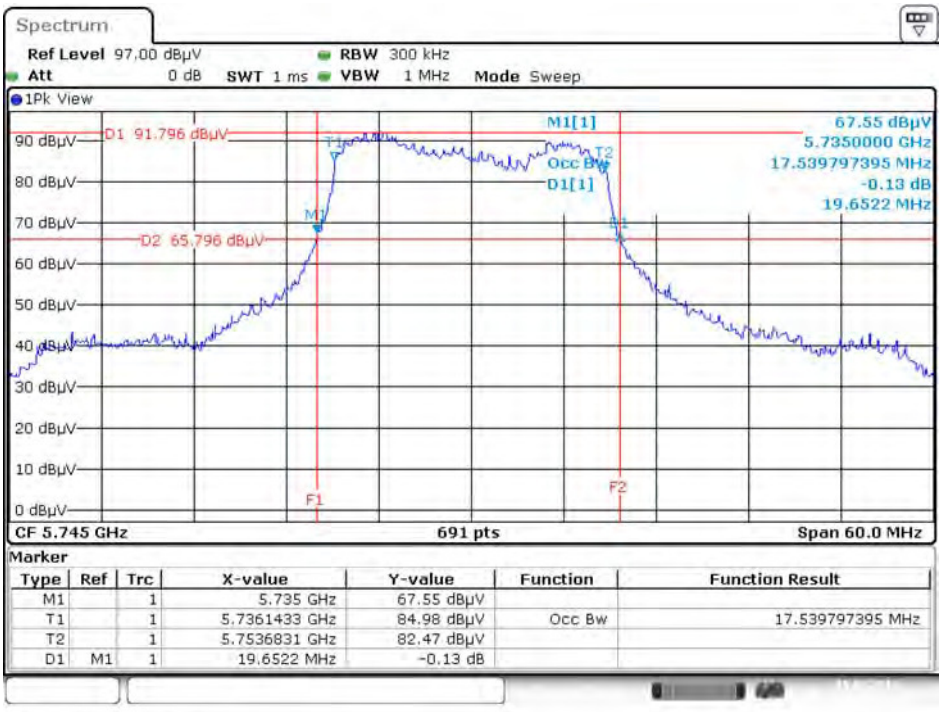
Date: 15.FEB.2016 22:23:11

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



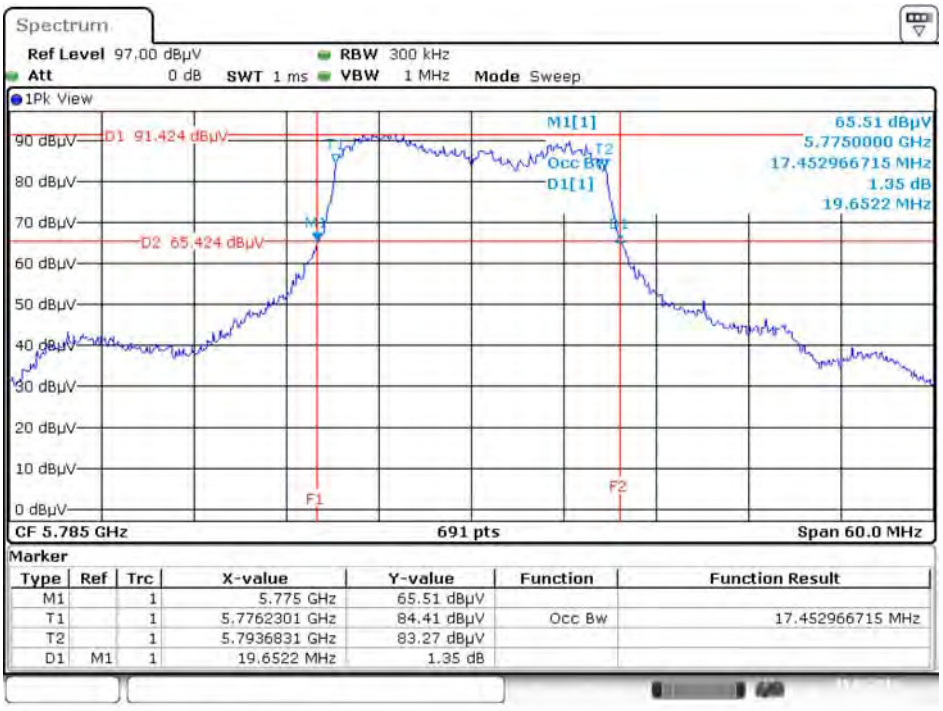
Date: 15.FEB.2016 22:24:00

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



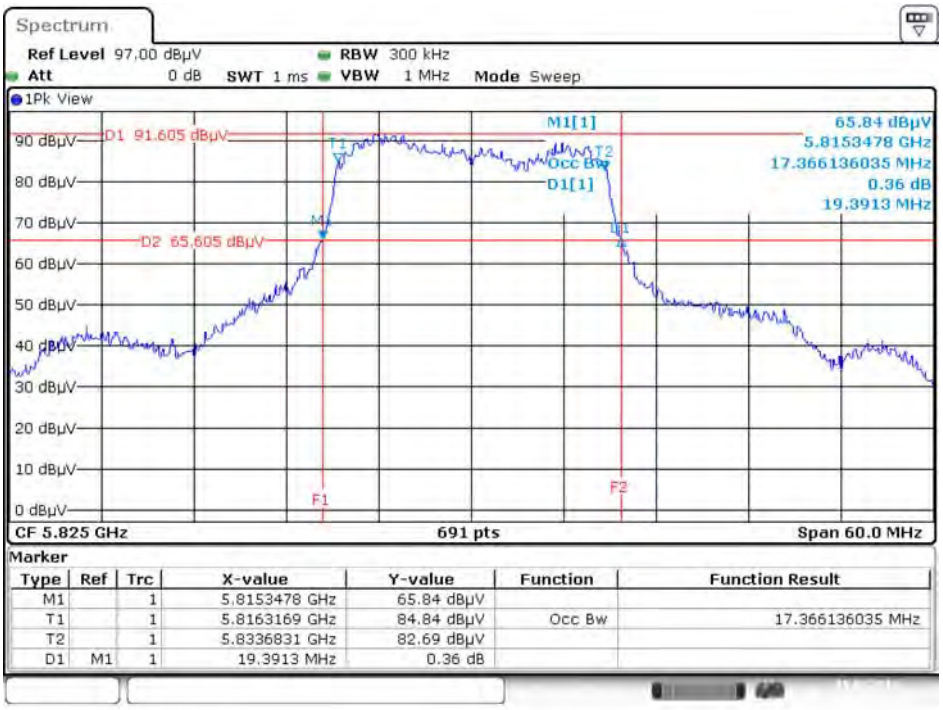
Date: 15.FEB.2016 22:20:25

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



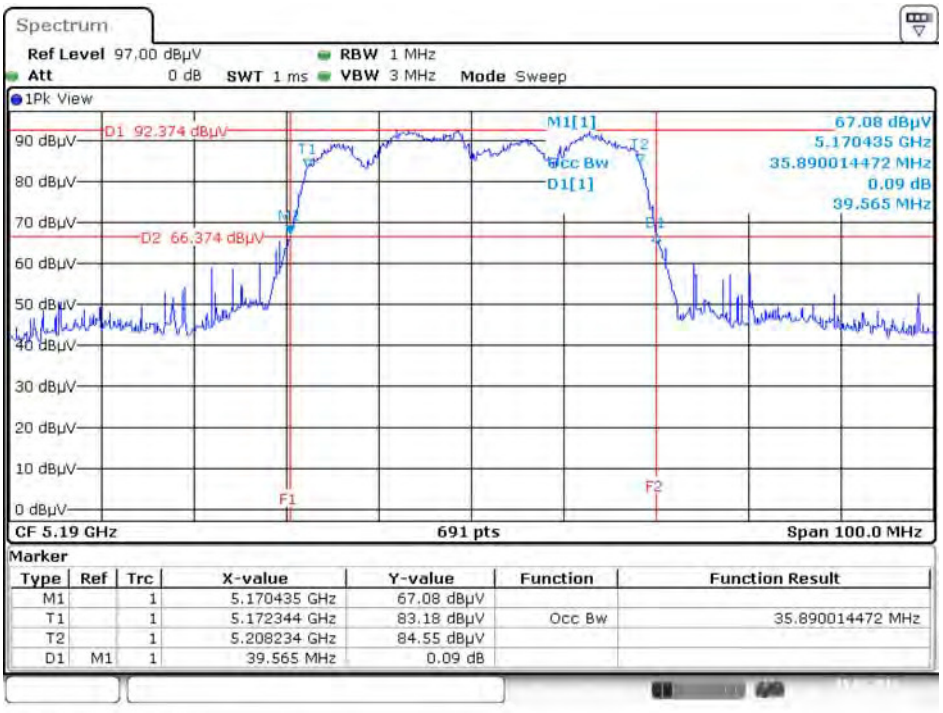
Date: 15.FEB.2016 22:17:22

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



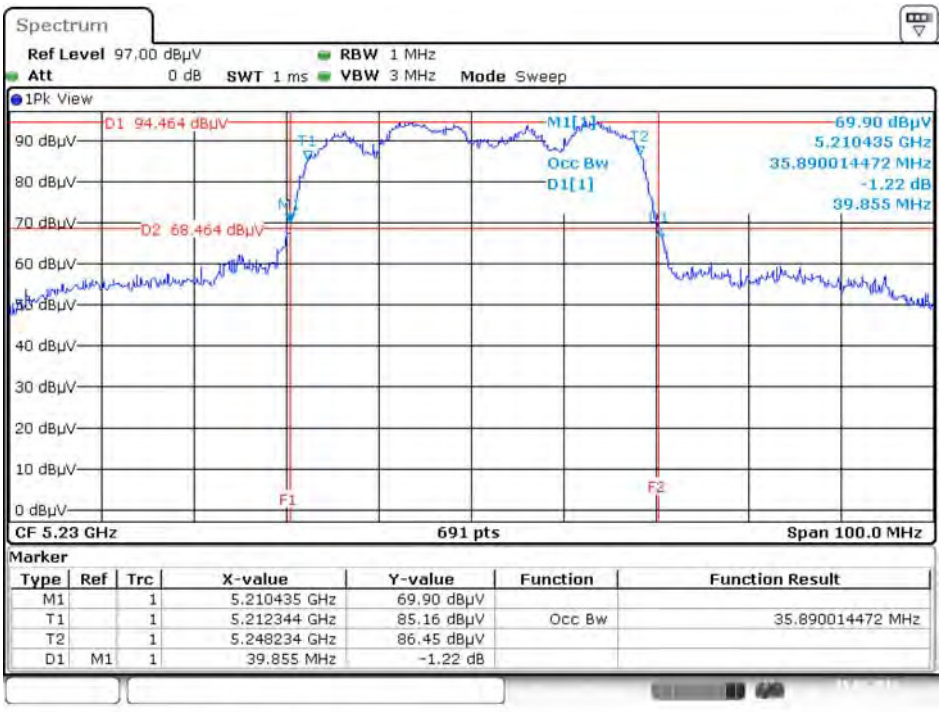
Date: 15.FEB.2016 22:16:04

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



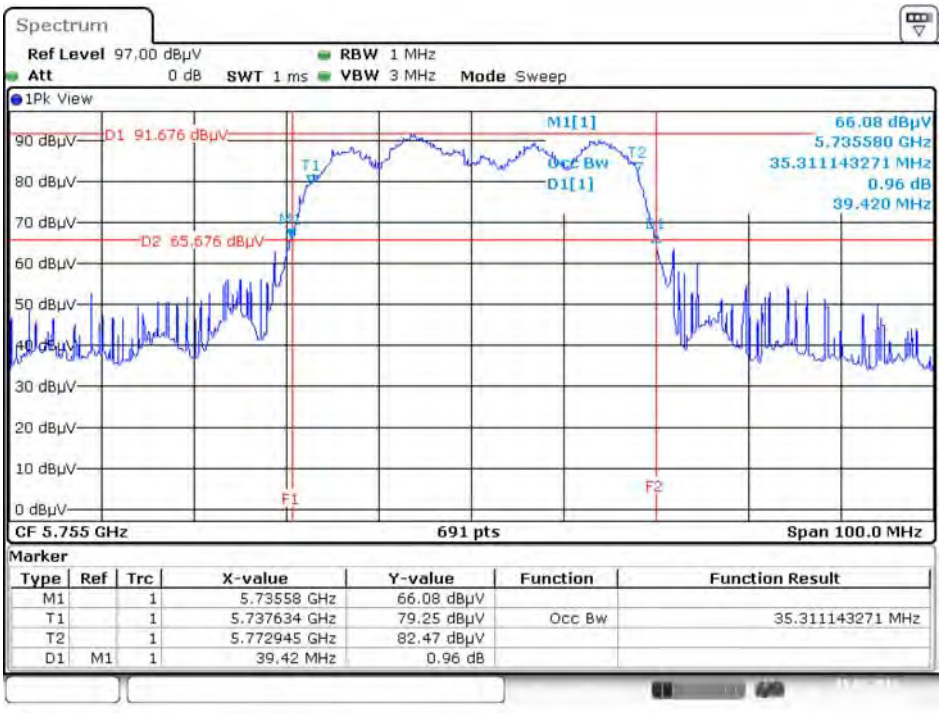
Date: 15.FEB.2016 22:25:33

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



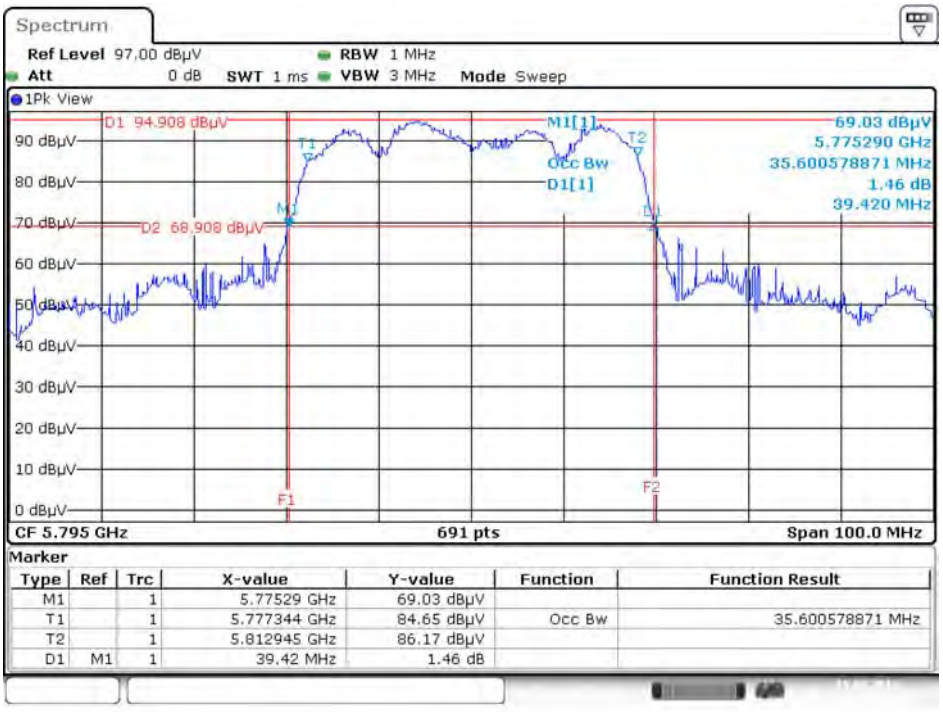
Date: 15.FEB.2016 22:26:17

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



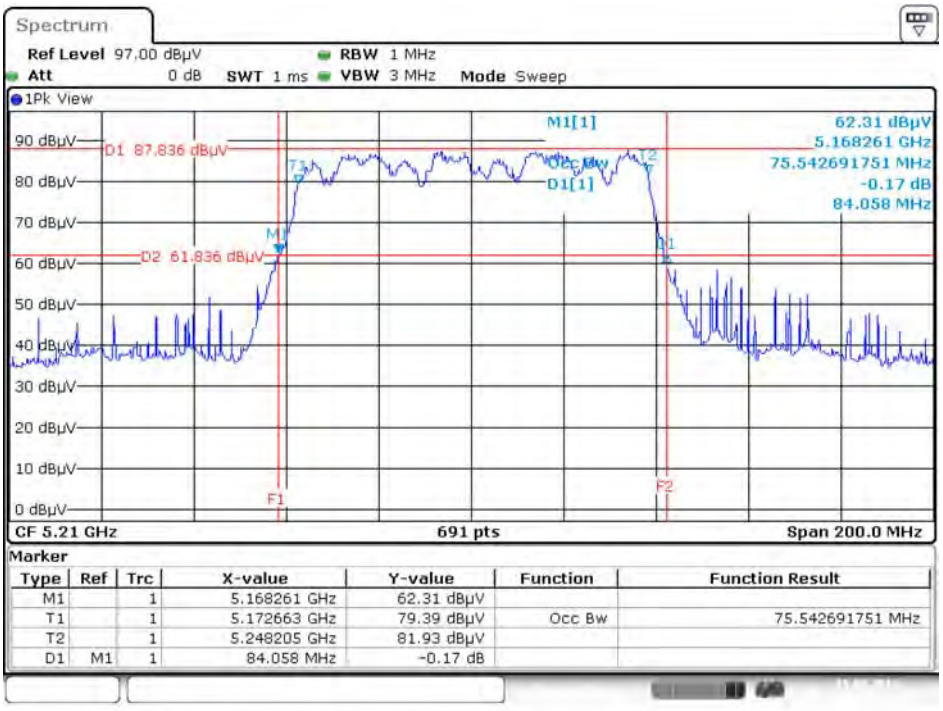
Date: 15.FEB.2016 22:28:06

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



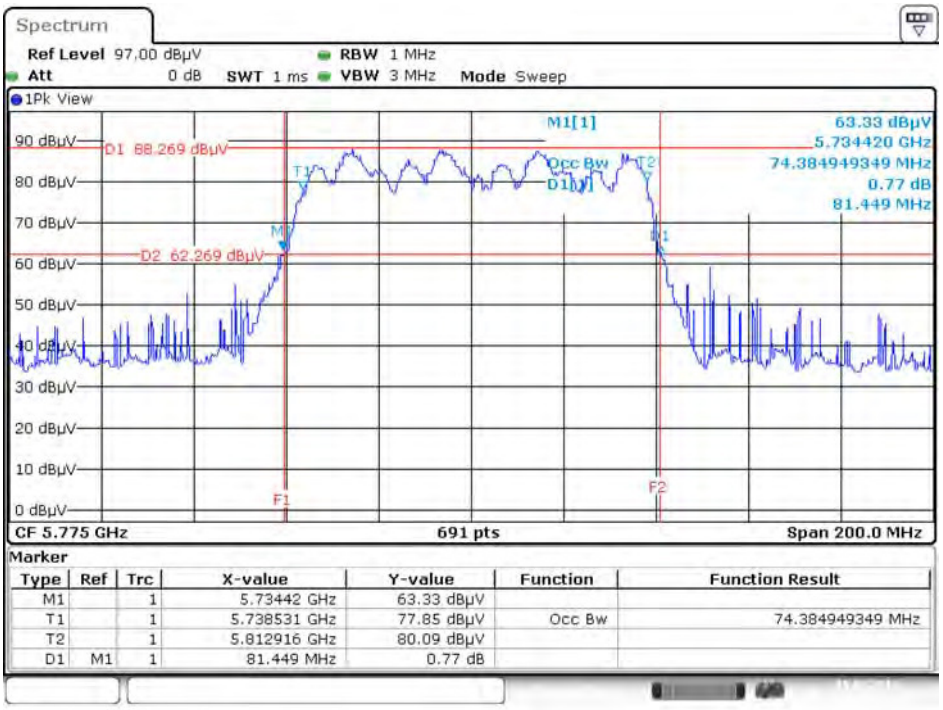
Date: 15.FEB.2016 22:27:08

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



Date: 15.FEB.2016 22:29:36

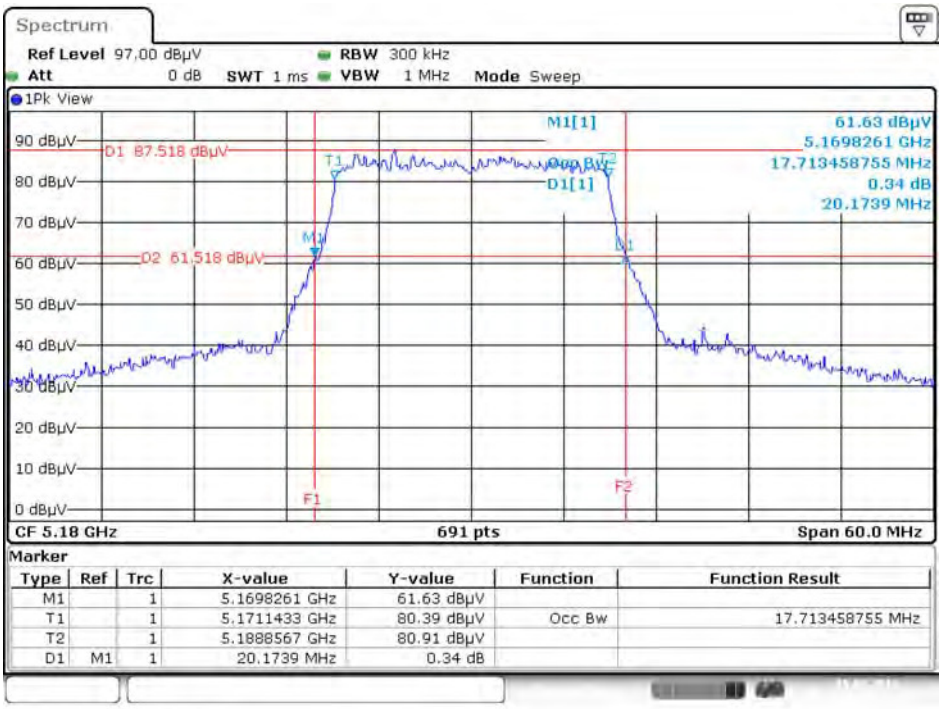
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5775 MHz



Date: 15.FEB.2016 22:30:54

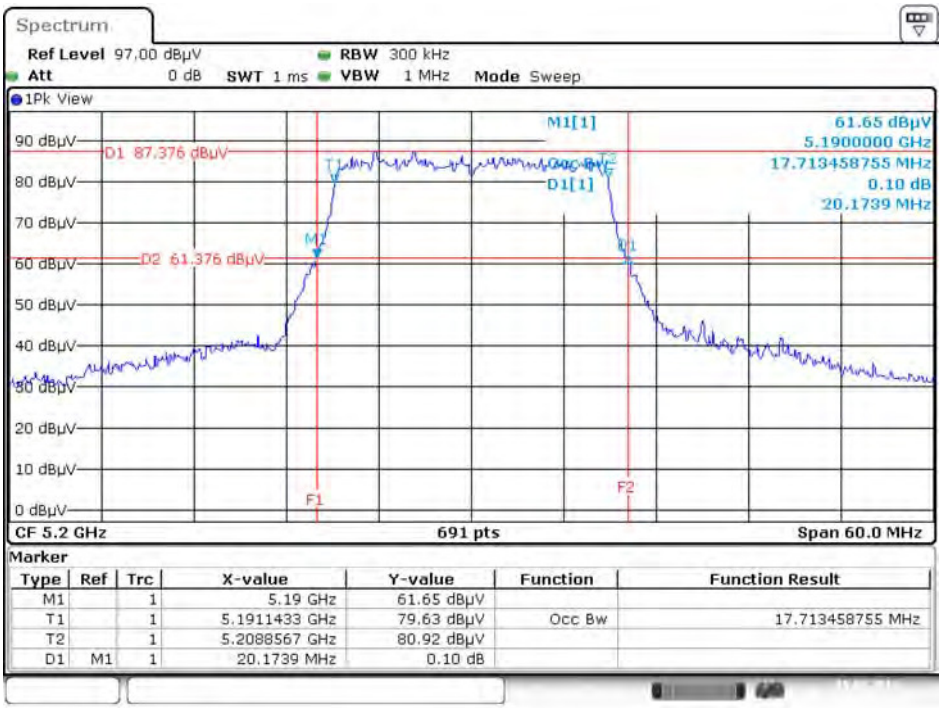
For beamforming function:

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS1/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5180 MHz



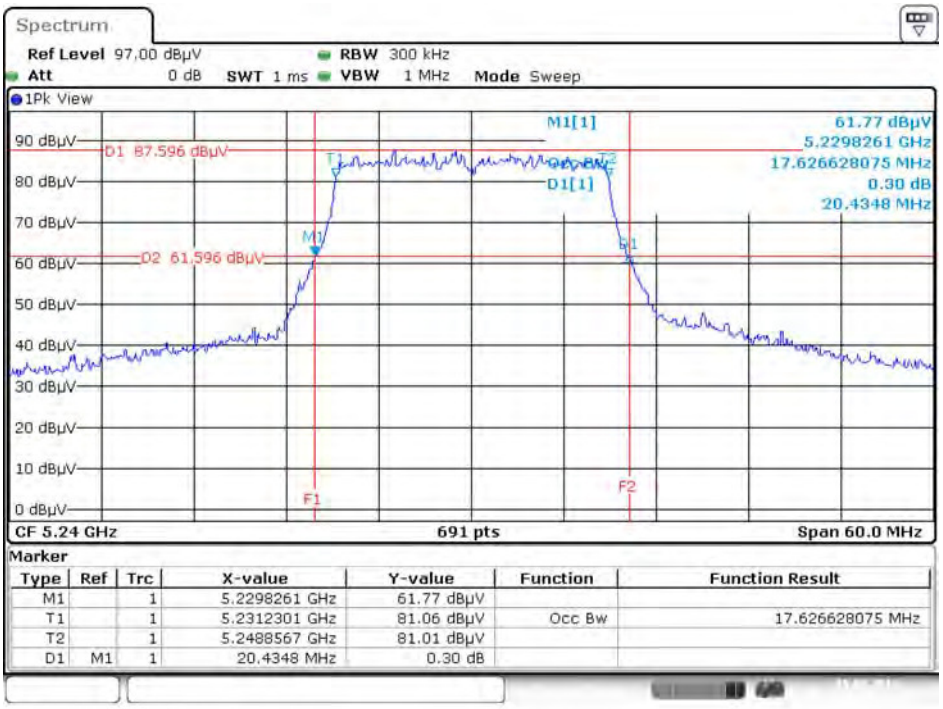
Date: 15.FEB.2016 23:01:42

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS1/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5200 MHz



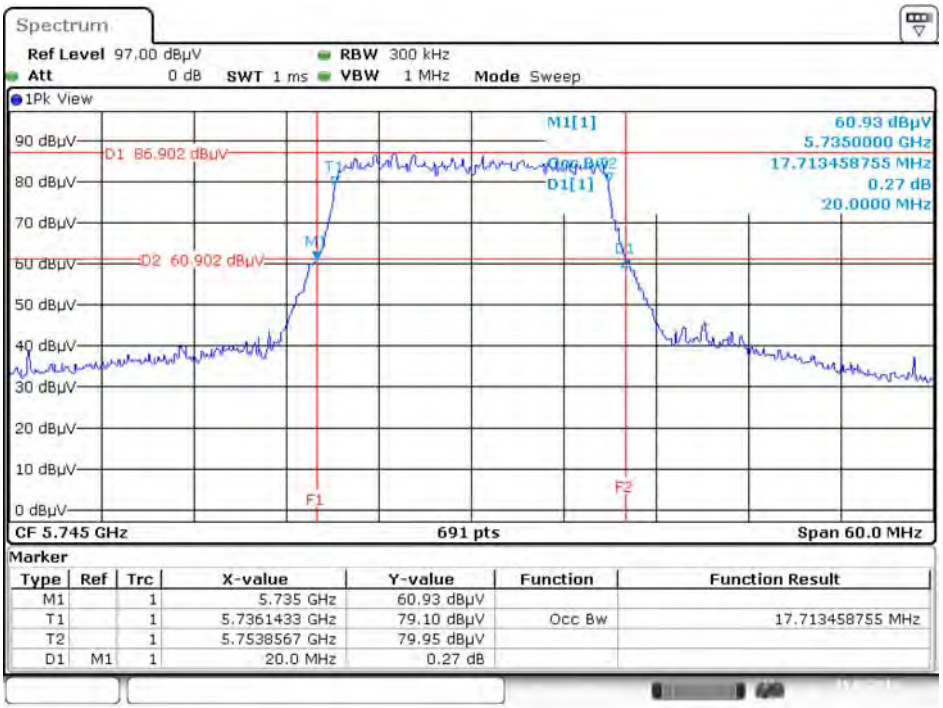
Date: 15.FEB.2016 23:00:13

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS1/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5240 MHz



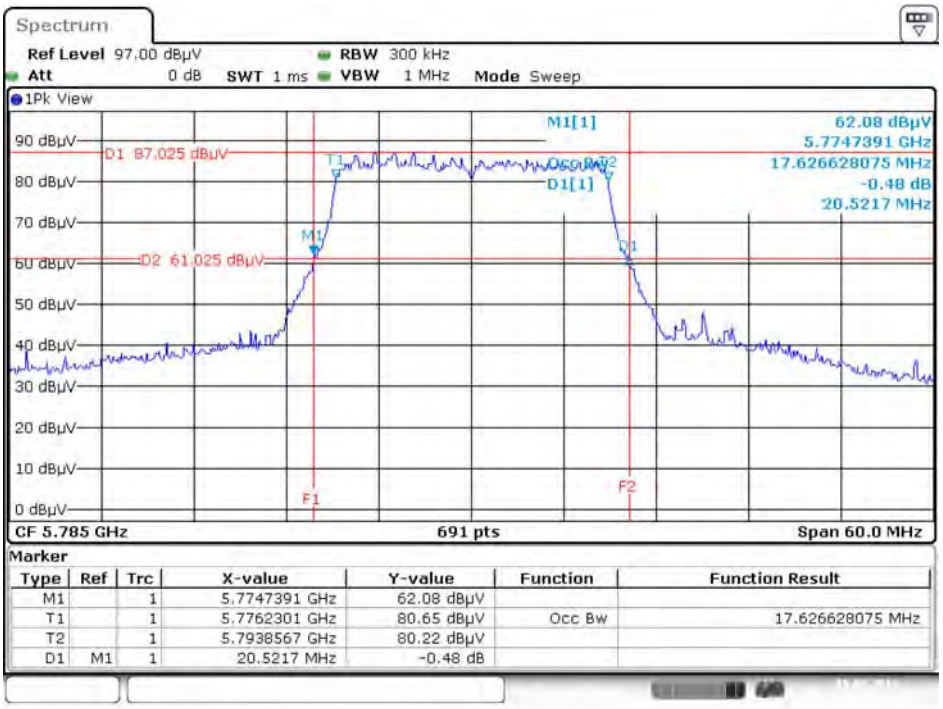
Date: 15.FEB.2016 23:01:05

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS1/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5745 MHz



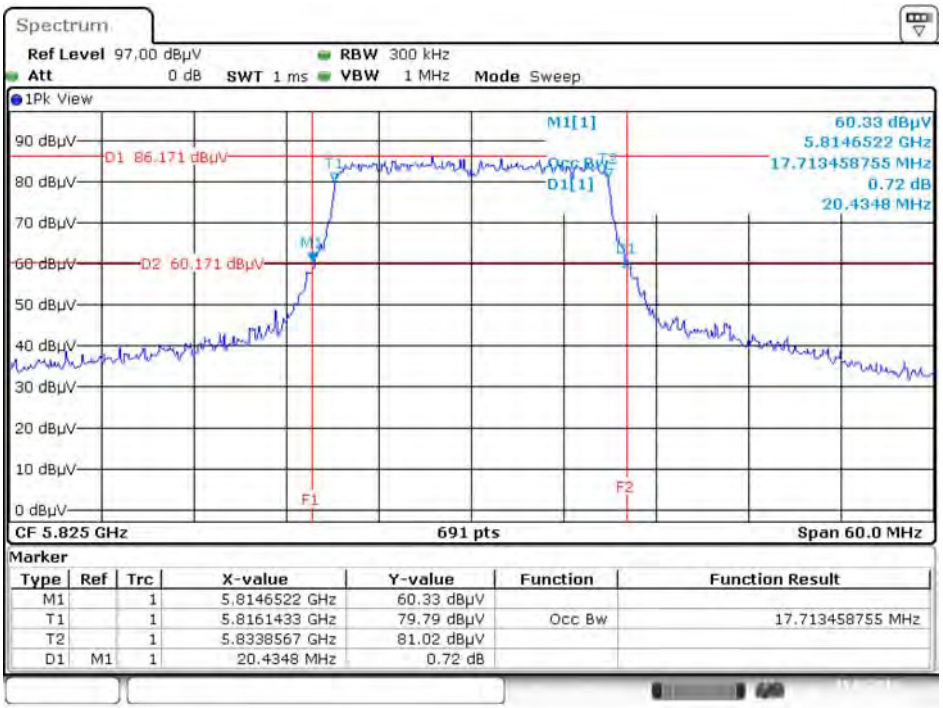
Date: 15.FEB.2016 22:58:45

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS1/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5785 MHz



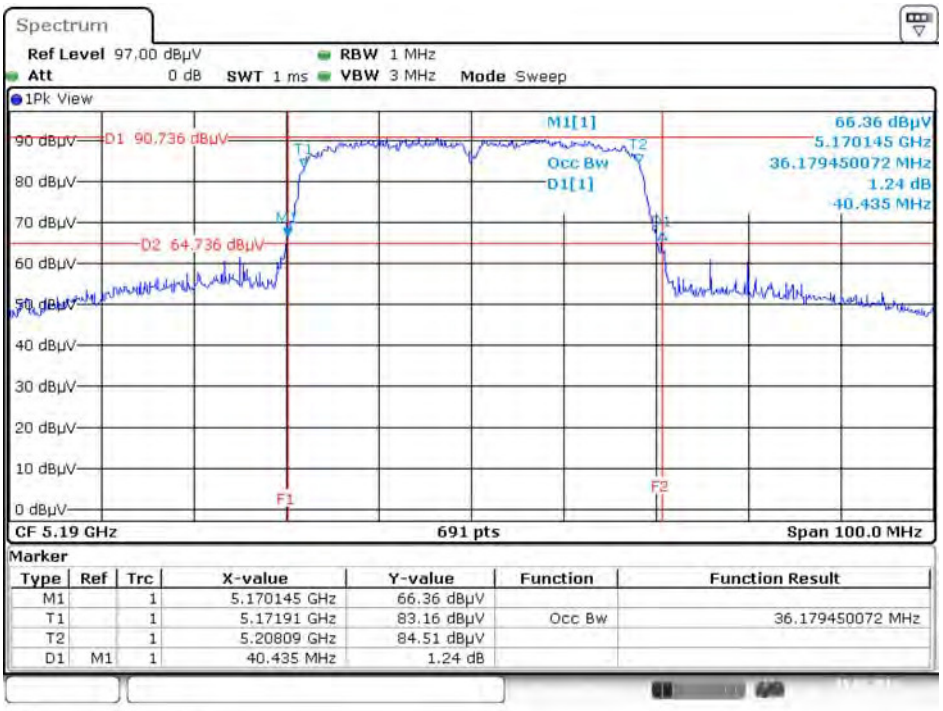
Date: 15.FEB.2016 22:56:34

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS1/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5825 MHz



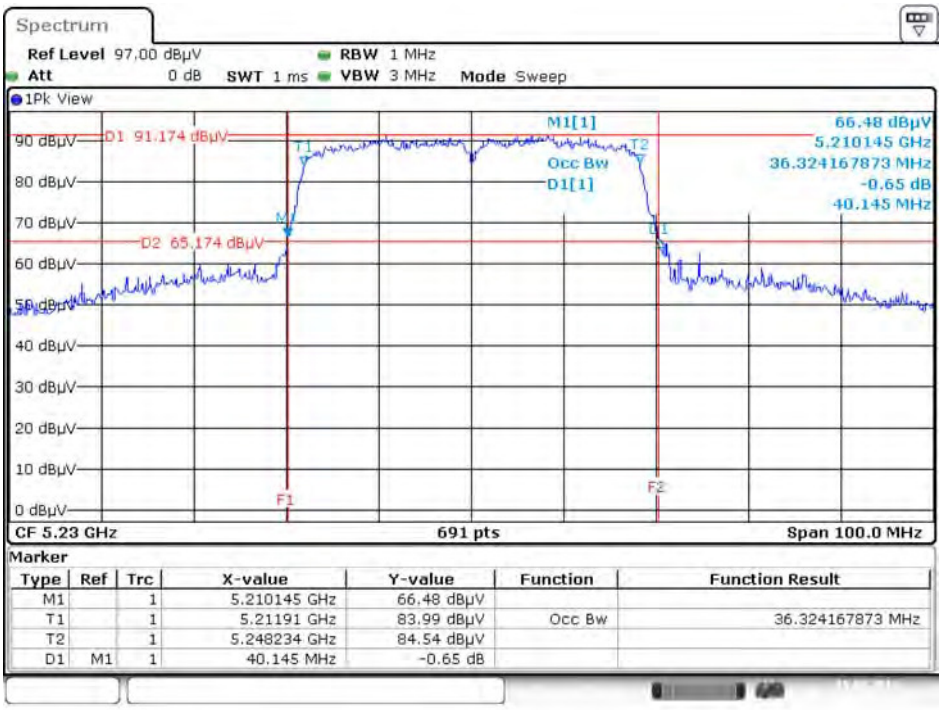
Date: 15.FEB.2016 22:55:48

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



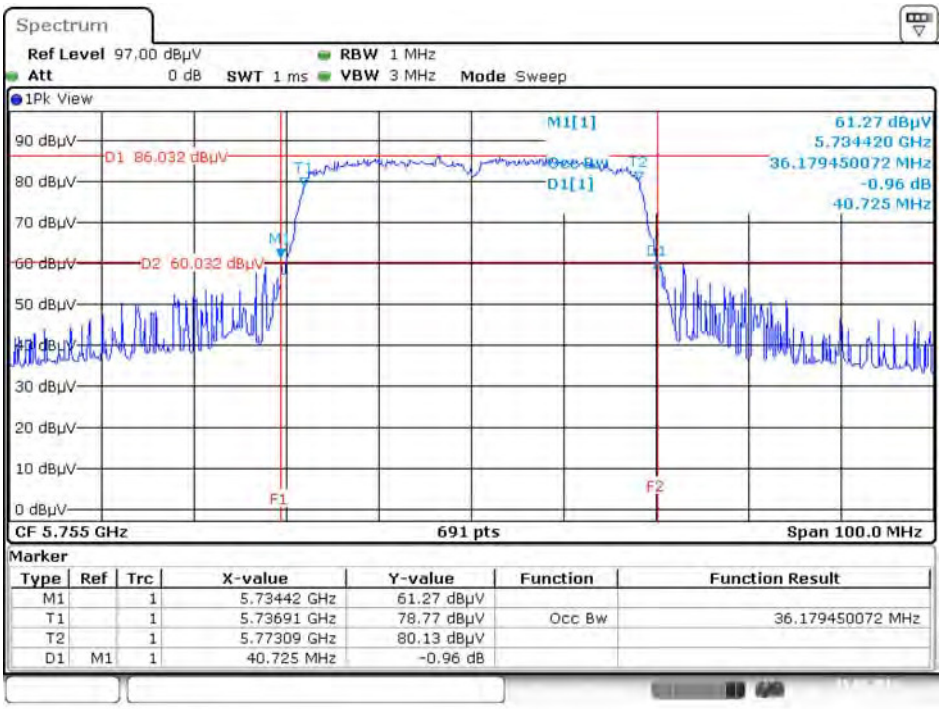
Date: 15.FEB.2016 22:52:17

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



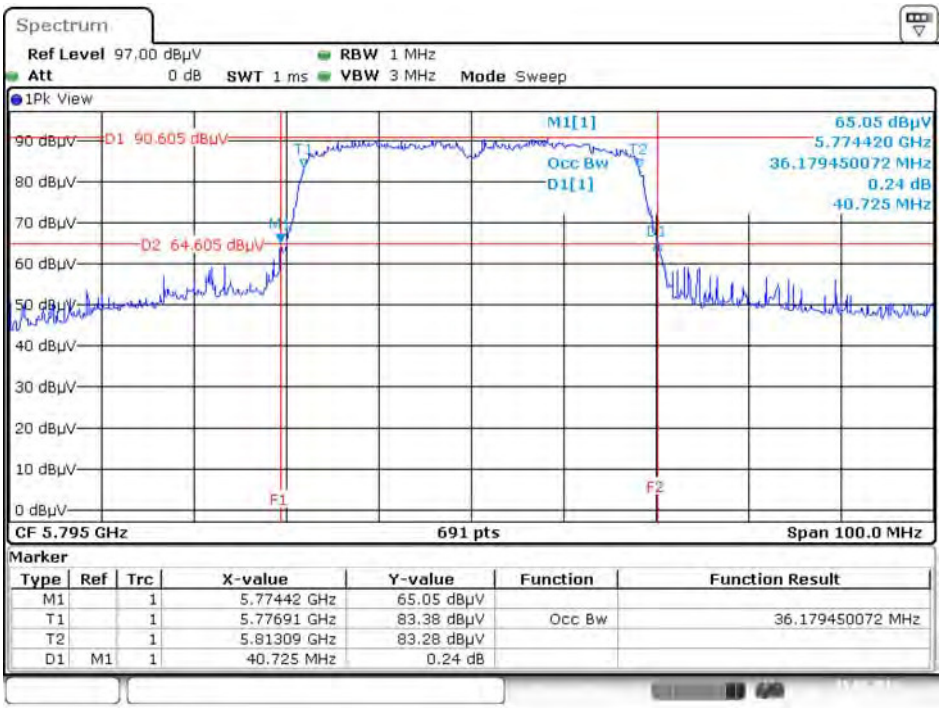
Date: 15.FEB.2016 22:52:55

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



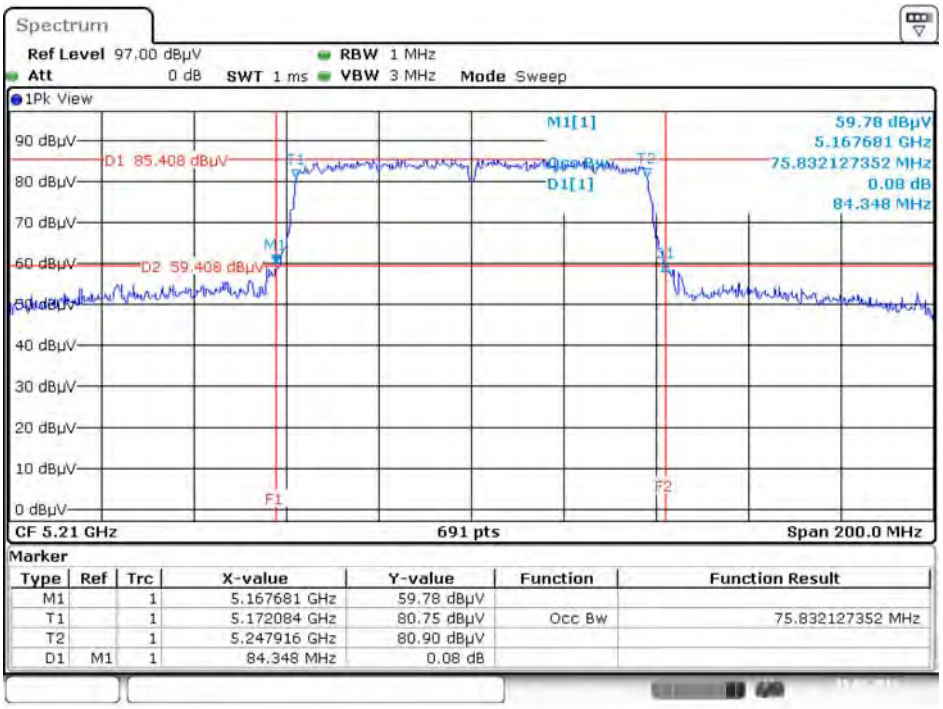
Date: 15.FEB.2016 22:53:42

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



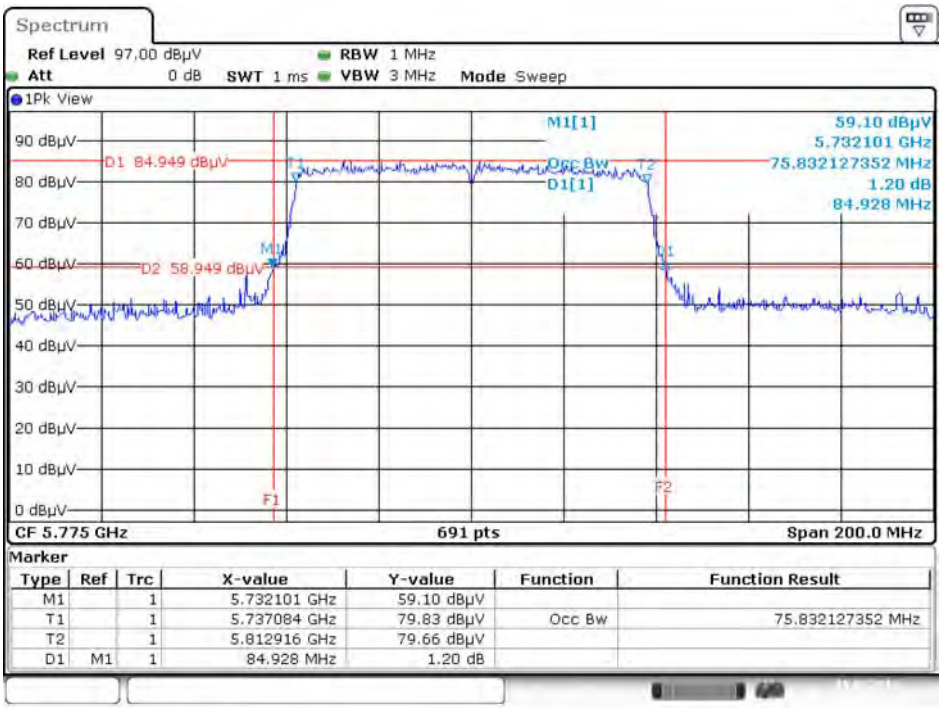
Date: 15.FEB.2016 22:54:26

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



Date: 15.FEB.2016 22:50:43

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



Date: 15.FEB.2016 22:50:02

4.3. 6dB Spectrum Bandwidth Measurement

4.3.1. Limit

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

4.3.2. Measuring Instruments and Setting

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

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

4.3.3. Test Procedures

For Radiated 6dB Bandwidth Measurement:

1. The transmitter was radiated to the spectrum analyzer in peak hold mode.
2. Test was performed in accordance with KDB789033 D02 v01r01 for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - section (C) Emission Bandwidth.
3. Multiple antenna system was performed in accordance with KDB662911 D01 v02r01 Emissions Testing of Transmitters with Multiple Outputs in the Same Band.
4. Measured the spectrum width with power higher than 6dB below carrier.

4.3.4. Test Setup Layout

For Radiated 6dB Bandwidth Measurement:

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

4.3.5. Test Deviation

There is no deviation with the original standard.

4.3.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.3.7. Test Result of 6dB Spectrum Bandwidth

Temperature	24°C	Humidity	55%
Test Engineer	Clemens Fang / Peter Wu		

For non-beamforming function:

Mode	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Test Result
802.11a	5745 MHz	16.12	500	Complies
	5785 MHz	15.71	500	Complies
	5825 MHz	16.29	500	Complies
802.11ac MCS0/Nss1 VHT20	5745 MHz	16.93	500	Complies
	5785 MHz	16.23	500	Complies
	5825 MHz	16.06	500	Complies
802.11ac MCS0/Nss1 VHT40	5755 MHz	30.73	500	Complies
	5795 MHz	32.58	500	Complies
802.11ac MCS0/Nss1 VHT80	5775 MHz	71.30	500	Complies

For beamforming function:

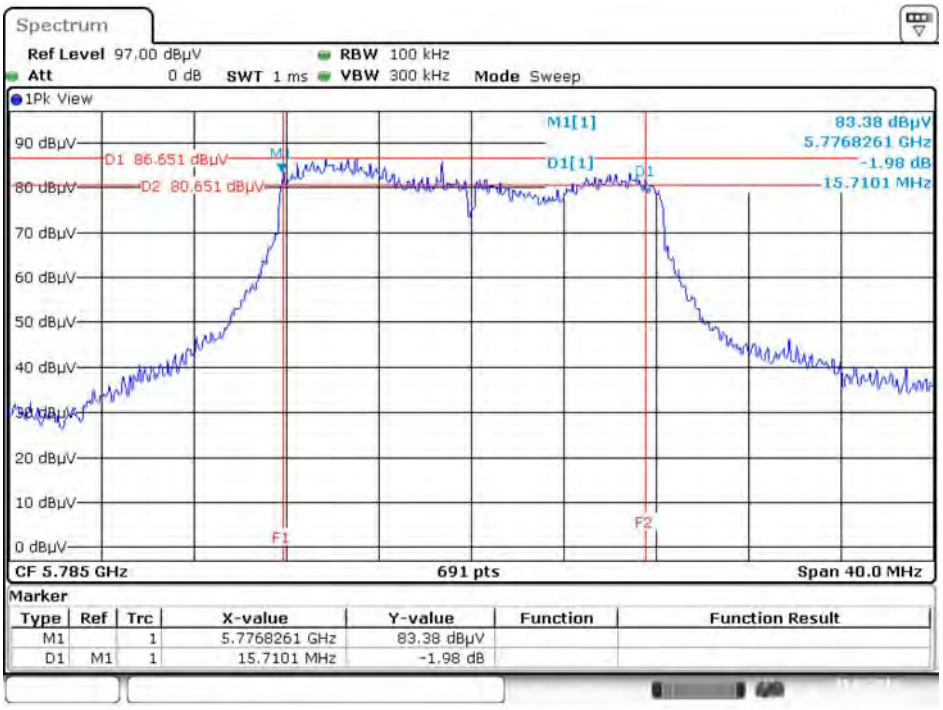
Mode	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Test Result
802.11ac MCS1/Nss1 VHT20	5745 MHz	16.64	500	Complies
	5785 MHz	17.68	500	Complies
	5825 MHz	16.29	500	Complies
802.11ac MCS0/Nss1 VHT40	5755 MHz	29.57	500	Complies
	5795 MHz	29.33	500	Complies
802.11ac MCS0/Nss1 VHT80	5775 MHz	76.52	500	Complies

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

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

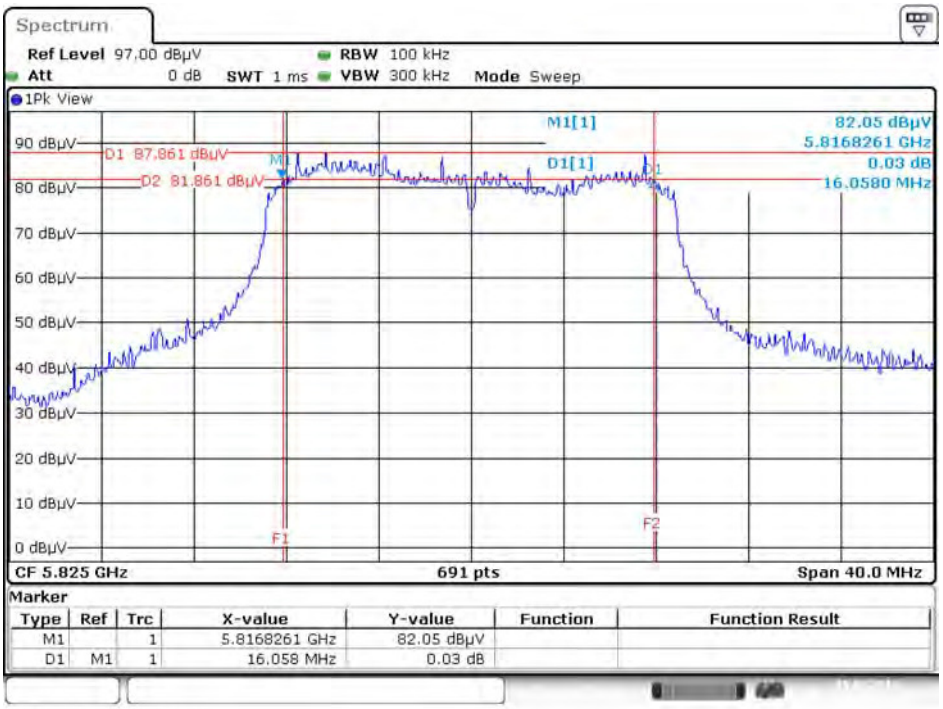
For non-beamforming function:

6 dB Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5785 MHz



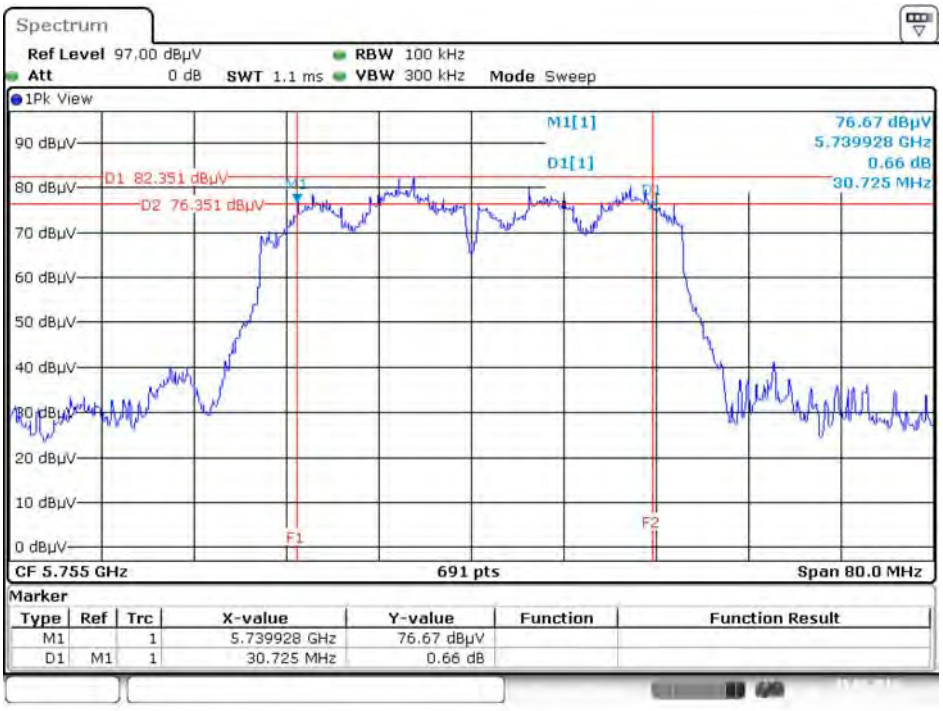
Date: 15.FEB.2016 22:38:43

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5825 MHz



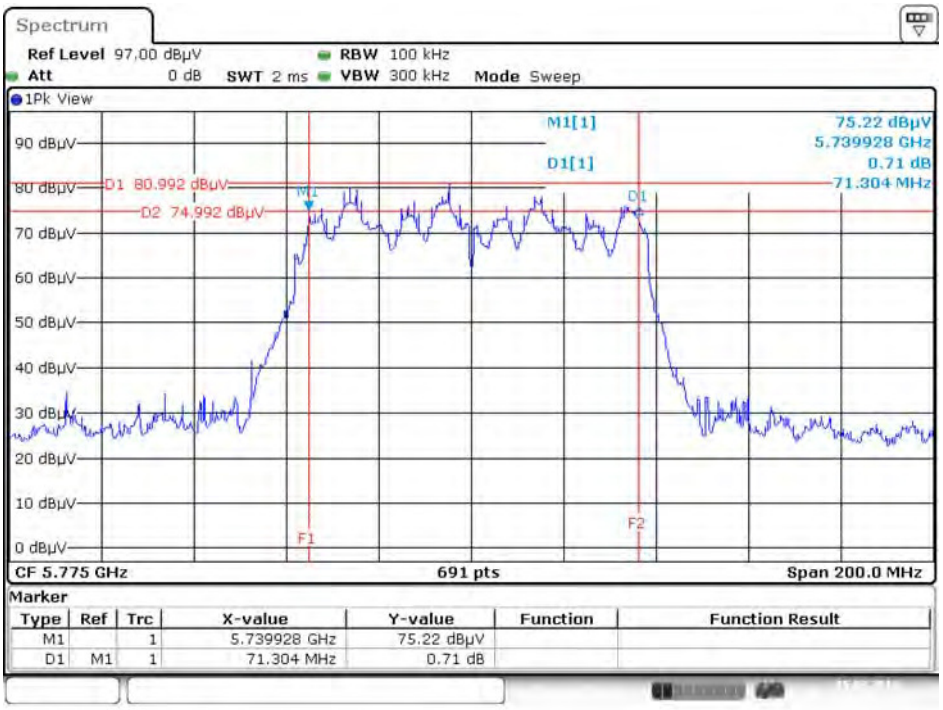
Date: 15.FEB.2016 22:36:14

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



Date: 15.FEB.2016 22:33:15

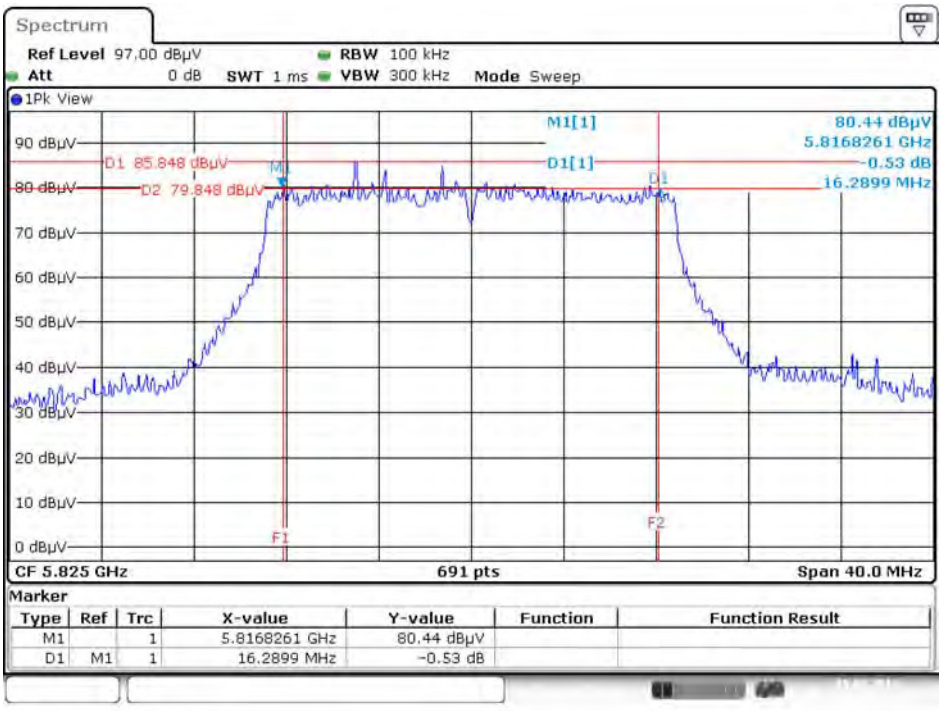
6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5775 MHz



Date: 15.FEB.2016 22:32:17

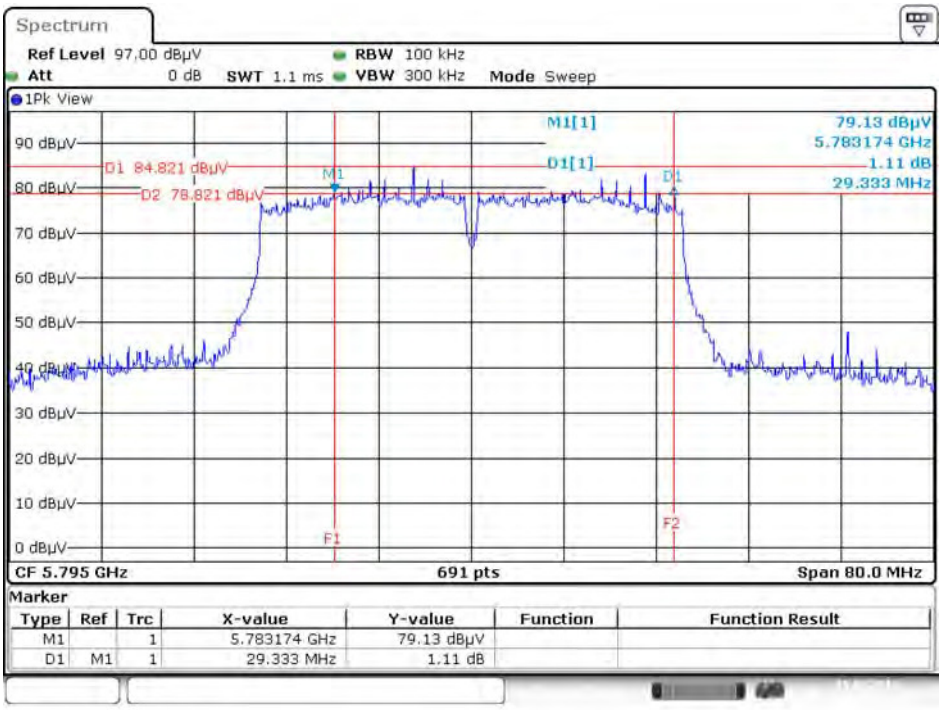
For beamforming function:

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS1/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5825 MHz



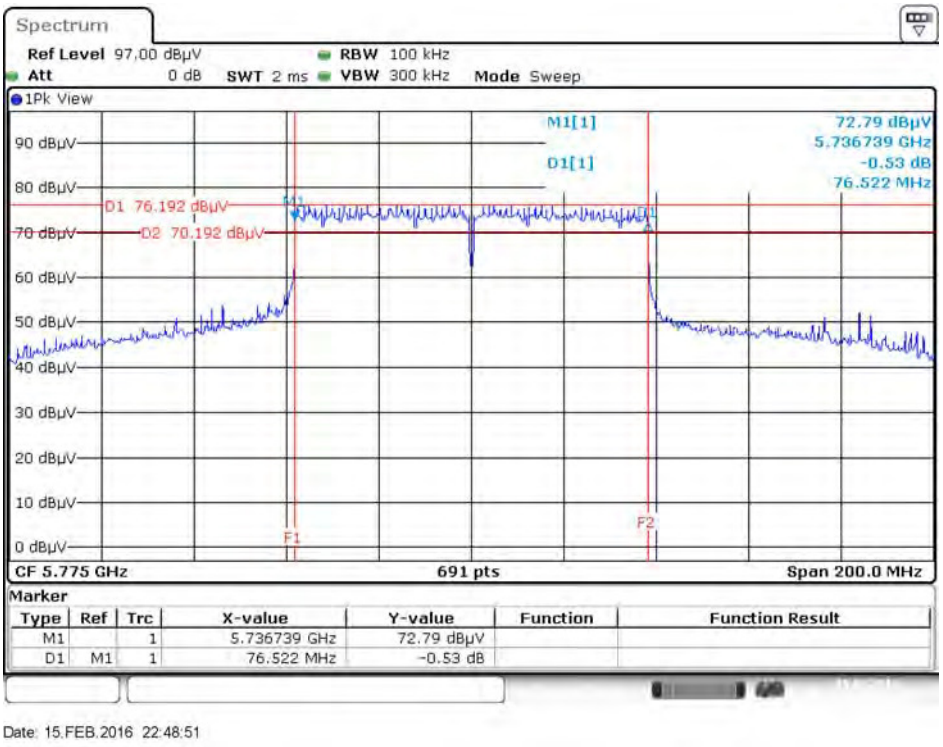
Date: 15.FEB.2016 22:44:51

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



Date: 15.FEB.2016 22:47:02

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



4.4. Maximum Conducted Output Power Measurement

4.4.1. Limit

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

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

4.4.2. Measuring Instruments and Setting

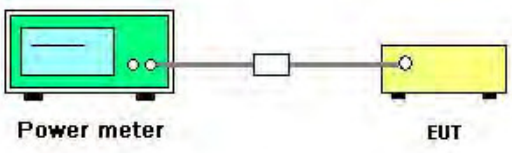
Please refer to section 5 of equipments list in this report. The following table is the setting of the power meter.

Power Meter Parameter	Setting
Detector	AVERAGE

4.4.3. Test Procedures

1. The transmitter output (antenna port) was connected to the power meter.
2. Test was performed in accordance with KDB789033 D02 v01r01 for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - section (E) Maximum conducted output power =>3. Measurement using a Power Meter (PM) =>b) Method PM-G (Measurement using a gated RF average power meter).
3. Multiple antenna systems was performed in accordance with KDB662911 D01 v02r01 Emissions Testing of Transmitters with Multiple Outputs in the Same Band.
4. When measuring maximum conducted output power with multiple antenna systems, add every result of the values by mathematic formula.

4.4.4. Test Setup Layout



4.4.5. Test Deviation

There is no deviation with the original standard.

4.4.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.4.7. Test Result of Maximum Conducted Output Power

Temperature	24°C	Humidity	55%
Test Engineer	Clemens Fang / Peter Wu	Test Date	Feb. 15, 2016

For non-beamforming function:

Mode	Frequency	Conducted Power (dBm)					Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Chain 4	Total		
802.11a	5180 MHz	21.01	21.15	21.06	20.51	26.96	30.00	Complies
	5200 MHz	21.06	20.98	21.04	20.77	26.98	30.00	Complies
	5240 MHz	20.88	20.98	21.14	20.88	26.99	30.00	Complies
	5745 MHz	23.21	23.29	22.89	22.81	29.08	30.00	Complies
	5785 MHz	24.00	23.66	23.84	23.72	29.83	30.00	Complies
	5825 MHz	22.68	22.45	22.33	22.64	28.55	30.00	Complies
802.11ac MCS0/Nss1 VHT20	5180 MHz	21.04	21.15	20.97	20.63	26.97	30.00	Complies
	5200 MHz	21.02	20.83	20.97	20.82	26.93	30.00	Complies
	5240 MHz	20.88	20.87	21.05	20.91	26.95	30.00	Complies
	5745 MHz	22.19	22.47	22.14	22.25	28.28	30.00	Complies
	5785 MHz	24.19	23.96	23.90	23.83	29.99	30.00	Complies
	5825 MHz	22.46	22.07	22.06	21.78	28.12	30.00	Complies
802.11ac MCS0/Nss1 VHT40	5190 MHz	20.57	20.62	21.56	20.53	26.86	30.00	Complies
	5230 MHz	23.57	23.63	23.79	23.66	29.68	30.00	Complies
	5755 MHz	20.24	20.28	20.12	20.21	26.23	30.00	Complies
	5795 MHz	21.03	19.63	21.81	20.77	26.90	30.00	Complies
802.11ac MCS0/Nss1 VHT80	5210 MHz	17.18	17.19	18.68	16.89	23.57	30.00	Complies
	5775 MHz	17.70	17.99	17.49	17.62	23.72	30.00	Complies

For beamforming function:

Mode	Frequency	Conducted Power (dBm)					Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Chain 4	Total		
802.11ac MCS1/Nss1 VHT20	5180 MHz	18.96	20.76	21.06	20.26	26.35	26.97	Complies
	5200 MHz	19.18	20.71	20.99	20.43	26.40	26.97	Complies
	5240 MHz	19.34	20.59	20.81	20.35	26.33	26.97	Complies
	5745 MHz	20.13	20.16	20.05	19.97	26.10	26.97	Complies
	5785 MHz	20.46	20.59	20.94	20.23	26.58	26.97	Complies
	5825 MHz	20.31	20.18	20.12	20.14	26.21	26.97	Complies
802.11ac MCS0/Nss1 VHT40	5190 MHz	19.51	19.72	20.02	19.58	25.73	26.97	Complies
	5230 MHz	20.11	20.59	20.19	20.34	26.33	26.97	Complies
	5755 MHz	16.18	16.42	16.31	16.19	22.30	26.97	Complies
	5795 MHz	20.19	20.59	21.25	20.08	26.57	26.97	Complies
802.11ac MCS0/Nss1 VHT80	5210 MHz	20.46	20.13	21.52	20.29	26.66	26.97	Complies
	5775 MHz	18.62	18.89	18.57	18.68	24.71	26.97	Complies

Note: $Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =9.03dBi >6dBi, so limit=30 – (9.03 – 6)=26.97dBm.

4.5. Power Spectral Density Measurement

4.5.1. Limit

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

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

4.5.2. Measuring Instruments and Setting

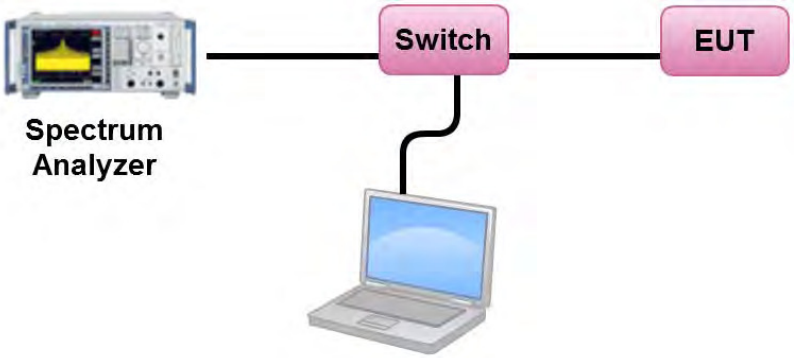
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

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

4.5.3. Test Procedures

1. The transmitter output (antenna port) was connected RF switch to the spectrum analyzer.
2. Test was performed in accordance with KDB789033 D02 v01r01 for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - section (F) Maximum Power Spectral Density (PSD).
3. Multiple antenna systems was performed in accordance KDB662911 D01 v02r01 in-Band Power Spectral Density (PSD) Measurements (a) Measure and sum the spectra across the outputs.
4. When measuring first spectral bin of output 1 is summed with that in the first spectral bin of output 2 and that from the first spectral bin of output 3 and so on up to the Nth output to obtain the value for the first frequency bin of the summed spectrum. The summed spectrum value for each of the other frequency bins is computed in the same way.
5. For 5.725~5.85 GHz, the measured result of PSD level must add 10log(500kHz/RBW) and the final result should ≤ 30 dBm.

4.5.4. Test Setup Layout



4.5.5. Test Deviation

There is no deviation with the original standard.

4.5.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.5.7. Test Result of Power Spectral Density

Temperature	24°C	Humidity	55%
Test Engineer	Clemens Fang / Peter Wu	Test Date	Feb. 15, 2016

For non-beamforming function:

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

Channel	Frequency	Power Density (dBm/MHz)		Max. Limit (dBm/MHz)		Result
36	5180 MHz	13.86		13.97		Complies
40	5200 MHz	13.92		13.97		Complies
48	5240 MHz	13.95		13.97		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	15.99	-3.01	12.98	26.97	Complies
157	5785 MHz	16.70	-3.01	13.69	26.97	Complies
165	5825 MHz	15.53	-3.01	12.52	26.97	Complies

Note: $Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$

1. For band 1 direction gain=9.03dBi >6dBi, so limit=17 – (9.03 – 6)=13.97dBm/MHz.
2. For band 4 direction gain=9.03dBi >6dBi, so limit=30 – (9.03 – 6)=26.97dBm/500kHz.

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

Channel	Frequency	Power Density (dBm/MHz)		Max. Limit (dBm/MHz)		Result
36	5180 MHz	13.91		13.97		Complies
40	5200 MHz	13.87		13.97		Complies
48	5240 MHz	13.89		13.97		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	16.91	-3.01	13.90	26.97	Complies
157	5785 MHz	16.97	-3.01	13.96	26.97	Complies
165	5825 MHz	16.68	-3.01	13.67	26.97	Complies

Note: $Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$

1. For band 1 direction gain=9.03dBi >6dBi, so limit=17 – (9.03 – 6)=13.97dBm/MHz.
2. For band 4 direction gain=9.03dBi >6dBi, so limit=30 – (9.03 – 6)=26.97dBm/500kHz.

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

Channel	Frequency	Power Density (dBm/MHz)		Max. Limit (dBm/MHz)		Result
38	5190 MHz	10.76		13.97		Complies
46	5230 MHz	13.49		13.97		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	9.49	-3.01	6.48	26.97	Complies
159	5795 MHz	13.67	-3.01	10.66	26.97	Complies

Note: $Directional\ Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$

1. For band 1 direction gain=9.03dBi >6dBi, so limit=17 – (9.03 – 6)=13.97dBm/MHz.
2. For band 4 direction gain=9.03dBi >6dBi, so limit=30 – (9.03 – 6)=26.97dBm/500kHz.

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

Channel	Frequency	Power Density (dBm/MHz)		Max. Limit (dBm/MHz)		Result
42	5210 MHz	5.57		13.97		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	6.34	-3.01	3.33	26.97	Complies

Note: $Directional\ Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$

1. For band 1 direction gain=9.03dBi >6dBi, so limit=17 – (9.03 – 6)=13.97dBm/MHz.
2. For band 4 direction gain=9.03dBi >6dBi, so limit=30 – (9.03 – 6)=26.97dBm/500kHz.

For beamforming function:

Configuration IEEE 802.11ac MCS1/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4

Channel	Frequency	Power Density (dBm/MHz)		Max. Limit (dBm/MHz)		Result
36	5180 MHz	13.03		13.97		Complies
40	5200 MHz	13.05		13.97		Complies
48	5240 MHz	13.13		13.97		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	12.76	-3.01	9.75	26.97	Complies
157	5785 MHz	12.36	-3.01	9.35	26.97	Complies
165	5825 MHz	12.48	-3.01	9.47	26.97	Complies

Note: $Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$

1. For band 1 direction gain=9.03dBi >6dBi, so limit=17 – (9.03 – 6)=13.97dBm/MHz.
2. For band 4 direction gain=9.03dBi >6dBi, so limit=30 – (9.03 – 6)=26.97dBm/500kHz.

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

Channel	Frequency	Power Density (dBm/MHz)		Max. Limit (dBm/MHz)		Result
38	5190 MHz	9.71		13.97		Complies
46	5230 MHz	10.21		13.97		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	6.27	-3.01	3.26	26.97	Complies
159	5795 MHz	10.50	-3.01	7.49	26.97	Complies

Note: $Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$

1. For band 1 direction gain=9.03dBi >6dBi, so limit=17 – (9.03 – 6)=13.97dBm/MHz.
2. For band 4 direction gain=9.03dBi >6dBi, so limit=30 – (9.03 – 6)=26.97dBm/500kHz.

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

Channel	Frequency	Power Density (dBm/MHz)		Max. Limit (dBm/MHz)		Result
42	5210 MHz	7.65		13.97		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	5.67	-3.01	2.66	26.97	Complies

Note: $Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$

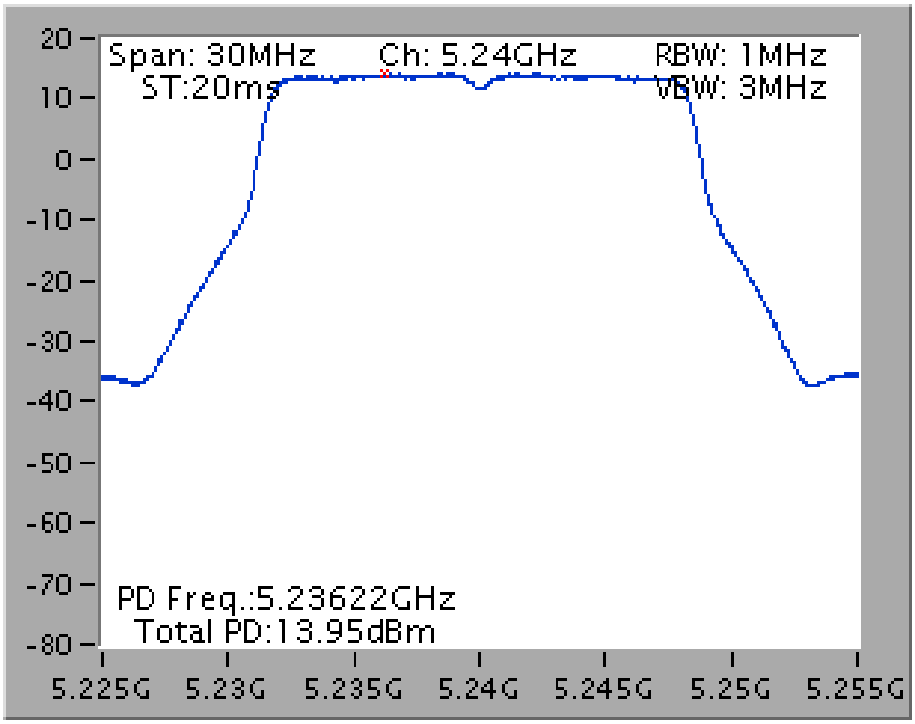
1. For band 1 direction gain=9.03dBi >6dBi, so limit=17 – (9.03 – 6)=13.97dBm/MHz.
2. For band 4 direction gain=9.03dBi >6dBi, so limit=30 – (9.03 – 6)=26.97dBm/500kHz.

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

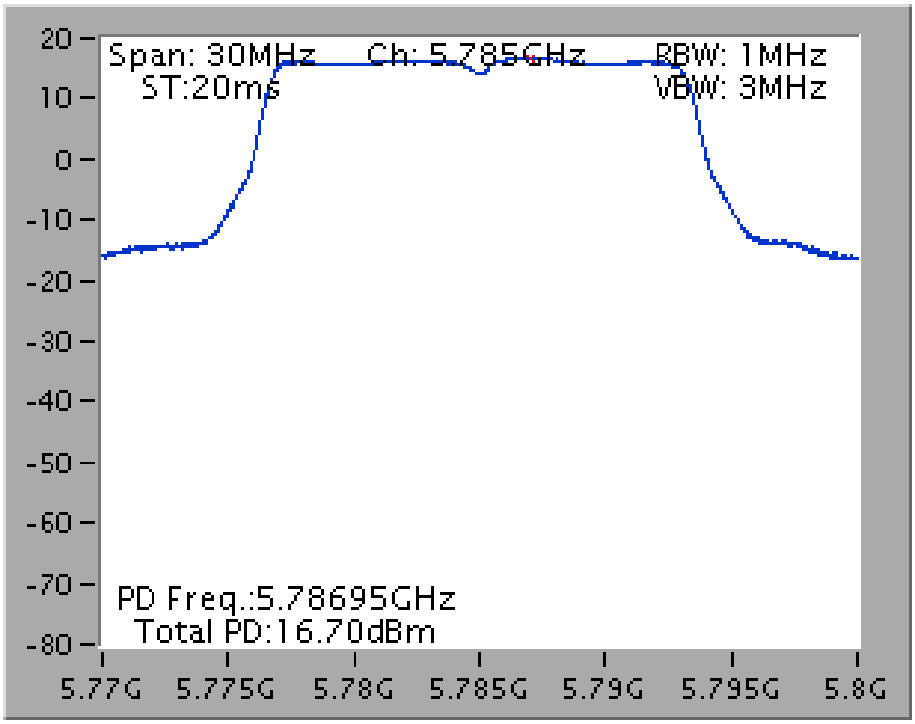
For plots, only the channel with worse result was shown.

For non-beamforming function:

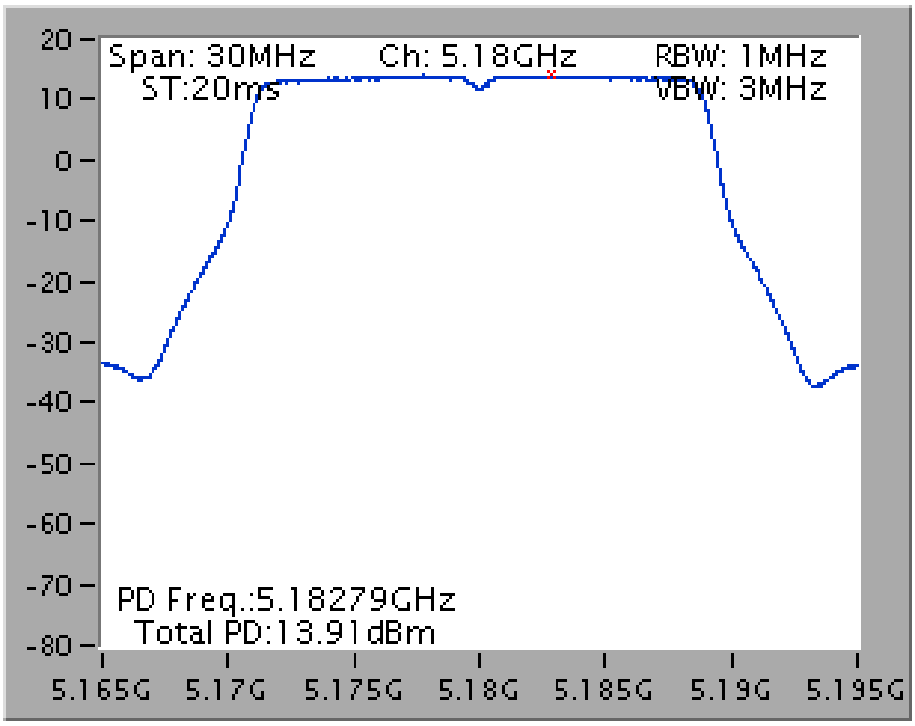
Power Density Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5240 MHz



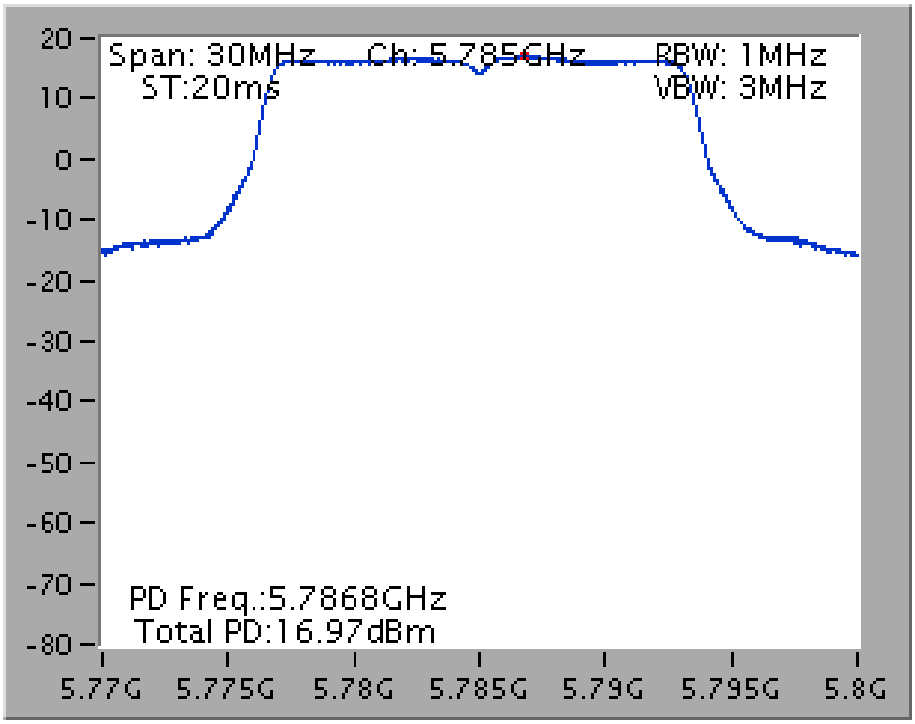
Power Density Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5785 MHz



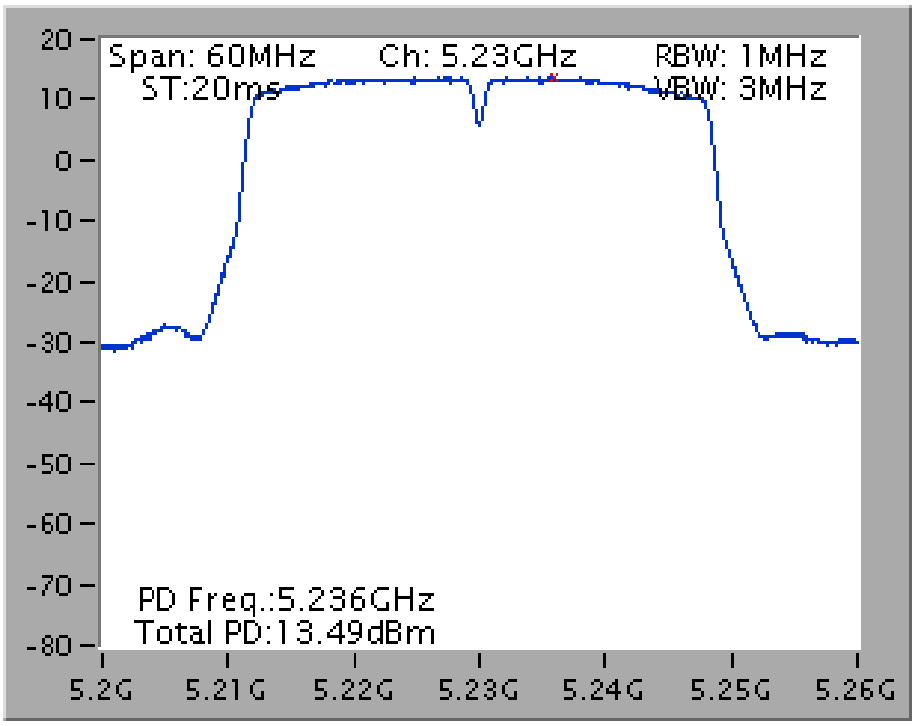
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5180 MHz



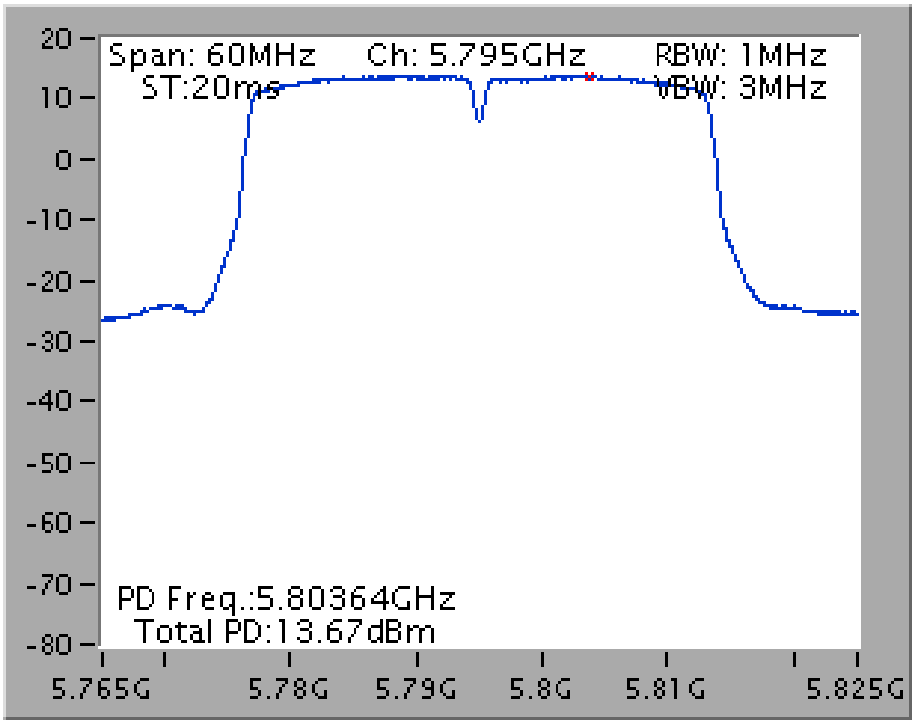
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3+ Chain 4 / 5785 MHz



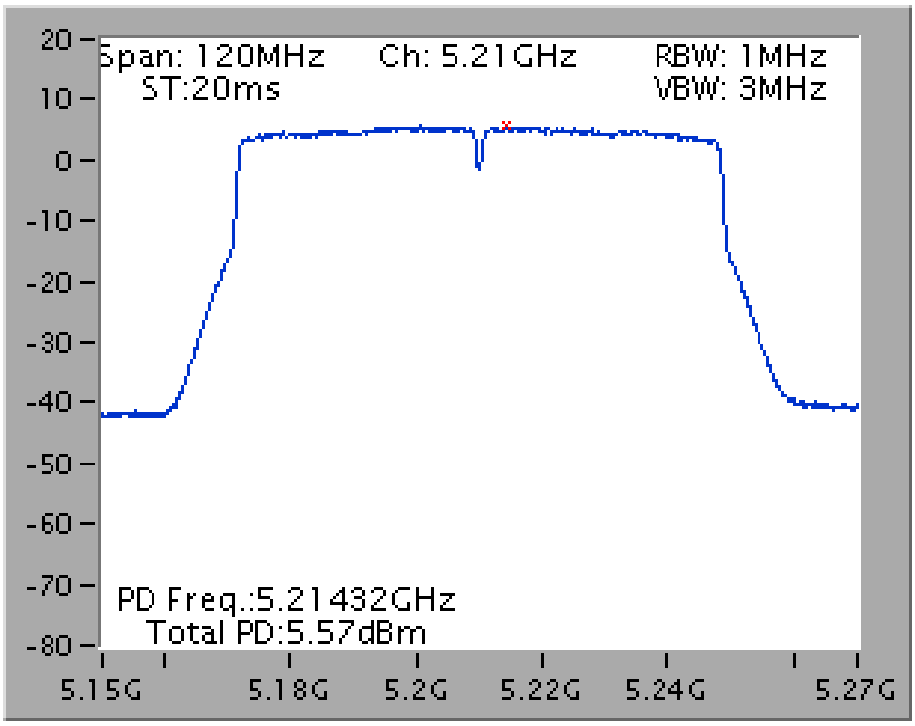
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5230 MHz



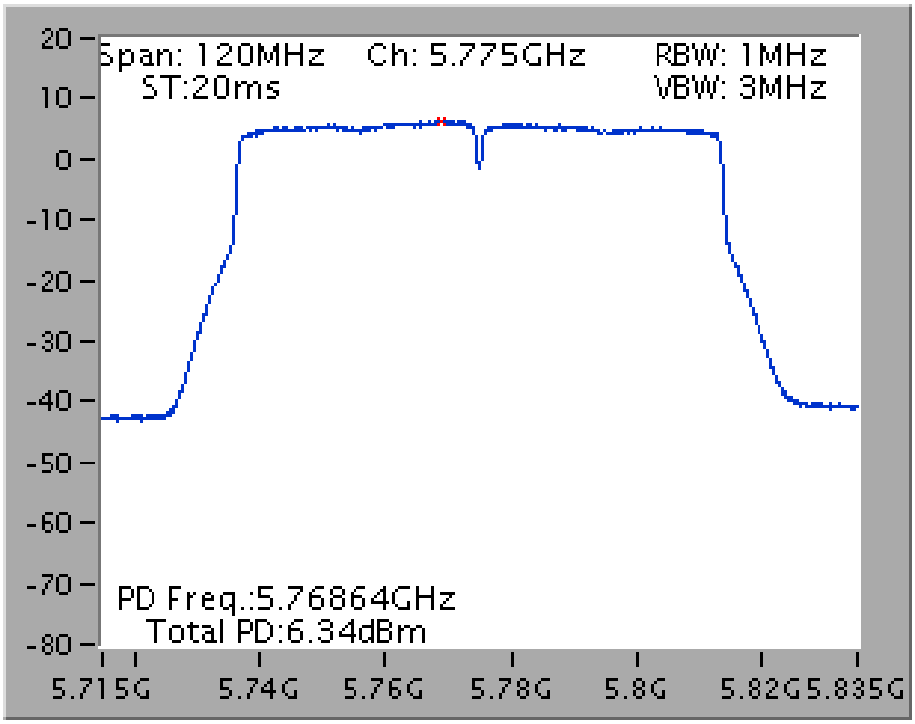
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5795 MHz



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

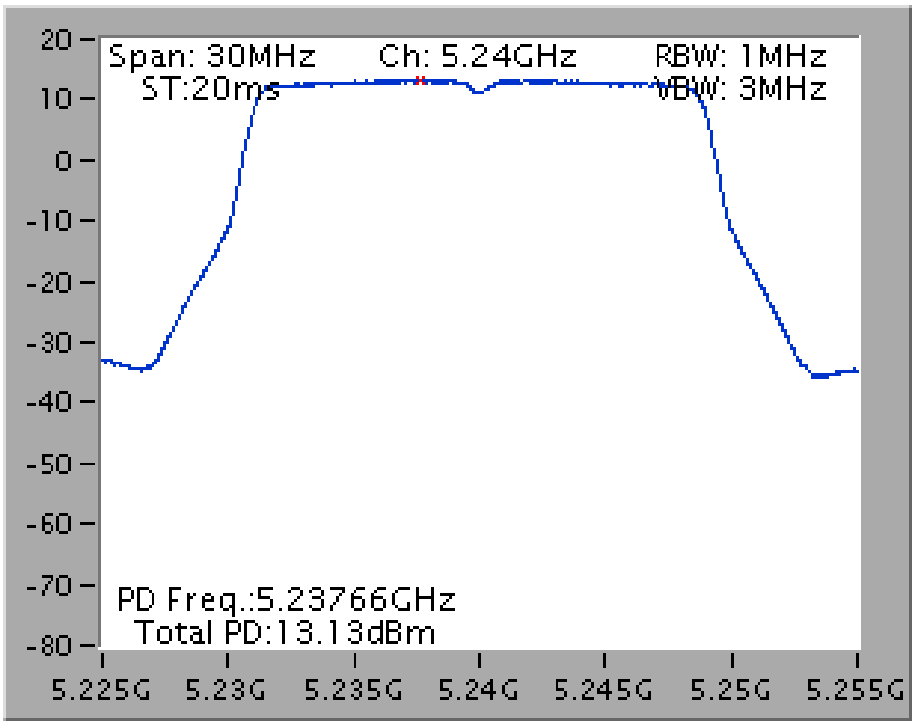


Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5775 MHz

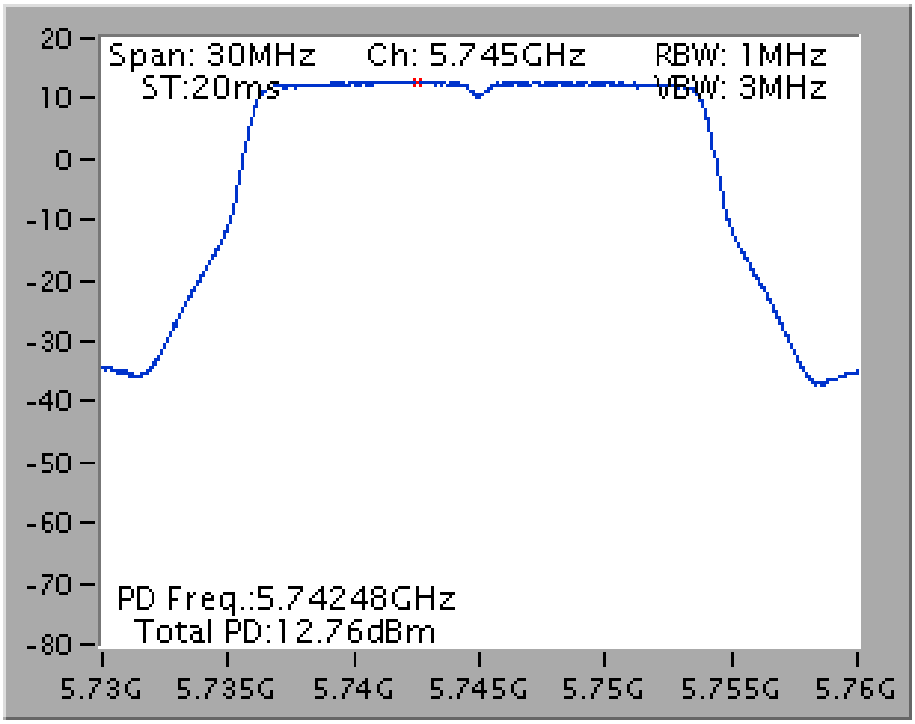


For beamforming function:

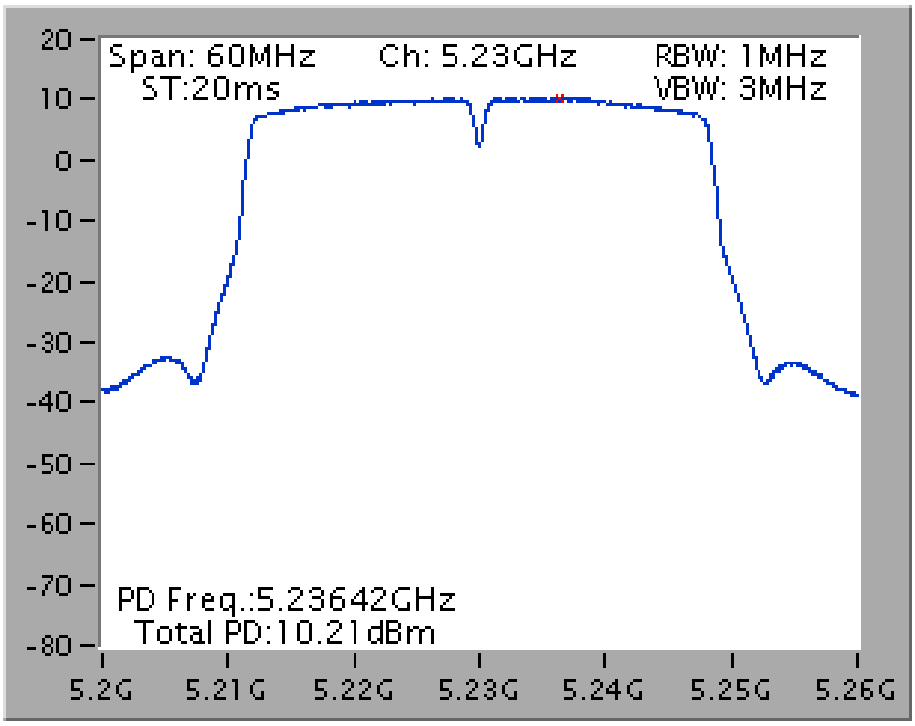
Power Density Plot on Configuration IEEE 802.11ac MCS1/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5240 MHz



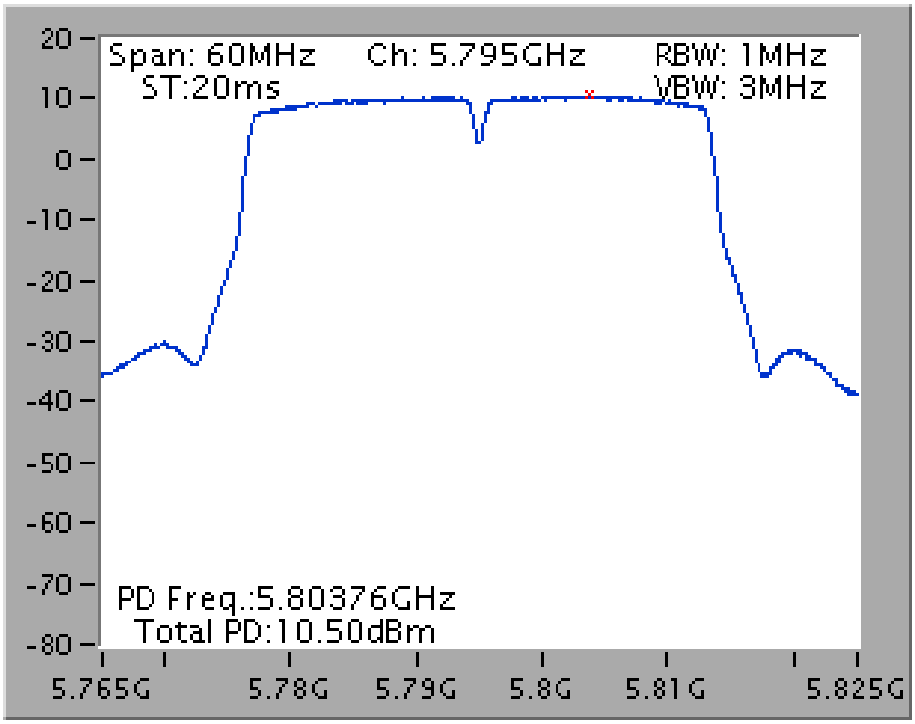
Power Density Plot on Configuration IEEE 802.11ac MCS1/Nss1 VHT20 / Chain 1 + Chain 2 + Chain 3+ Chain 4 / 5745 MHz



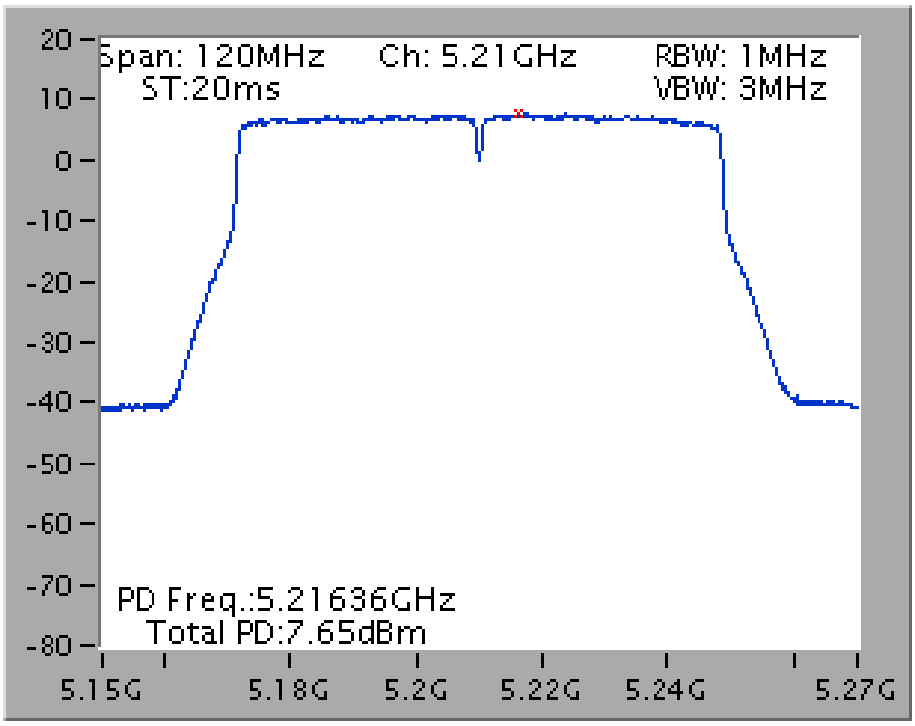
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5230 MHz



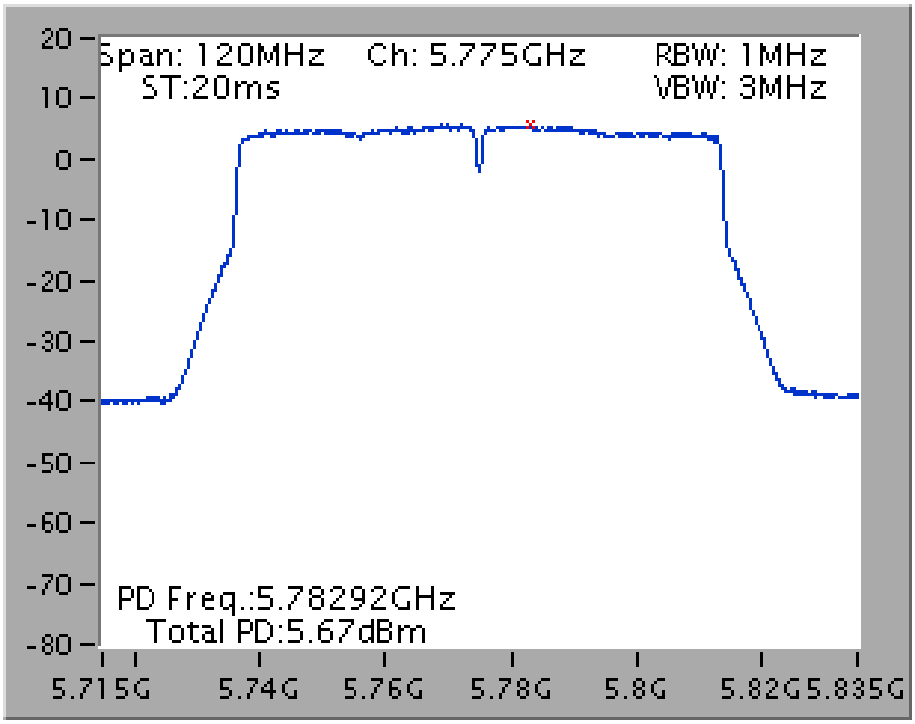
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 + Chain 3 + Chain 4 / 5795 MHz



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



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



4.6. Radiated Emissions Measurement

4.6.1. Limit

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

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

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

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

4.6.2. Measuring Instruments and Setting

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

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

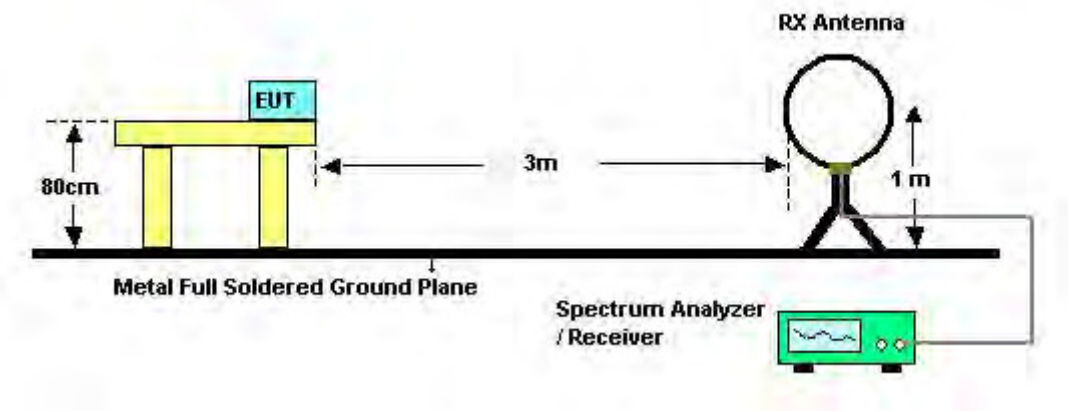
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RBW 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RBW 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RBW 120kHz for QP

4.6.3. Test Procedures

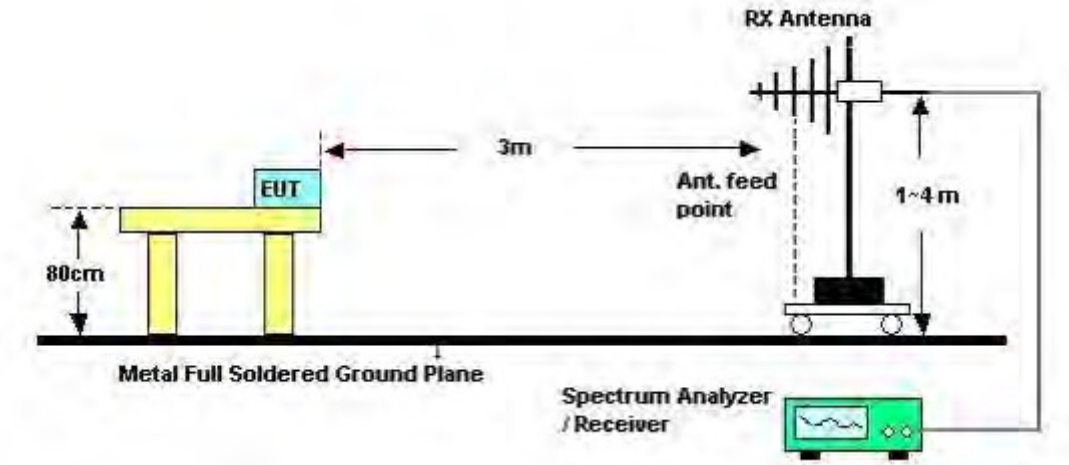
1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 1m & 3m far away from the turntable.
2. Power on the EUT and all the supporting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

4.6.4. Test Setup Layout

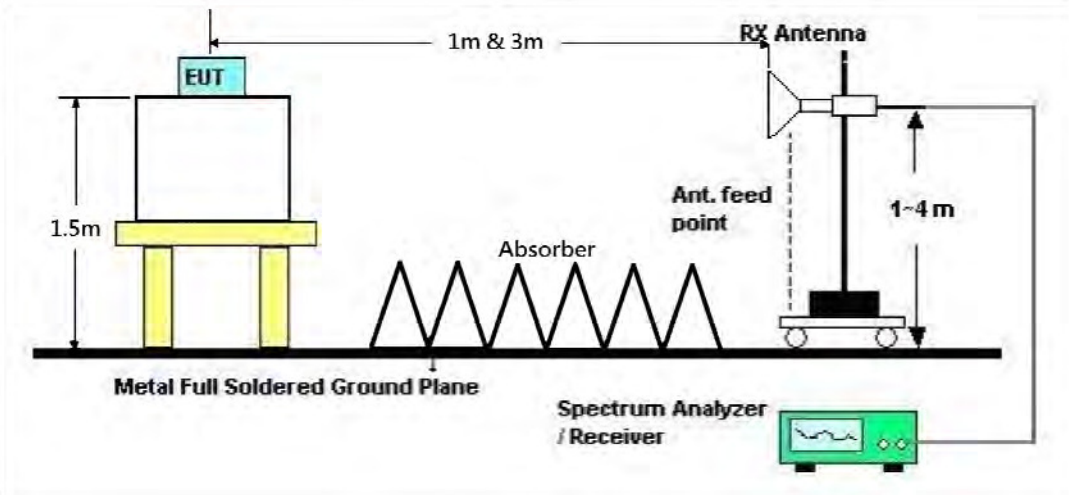
For Radiated Emissions: 9kHz ~30MHz



For Radiated Emissions: 30MHz~1GHz



For Radiated Emissions: Above 1GHz



4.6.5. Test Deviation

There is no deviation with the original standard.

4.6.6. EUT Operation during Test

For non-beamforming function:

The EUT was programmed to be in continuously transmitting mode.

For beamforming function:

The EUT was programmed to be in beamforming transmitting mode.

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

Temperature	24°C	Humidity	55%
Test Engineer	Eason Chen / Gino Huang / Brian Sun / Lucke Hsieh	Configurations	Normal Link
Test Date	Feb. 15, 2016		

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

Note:

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

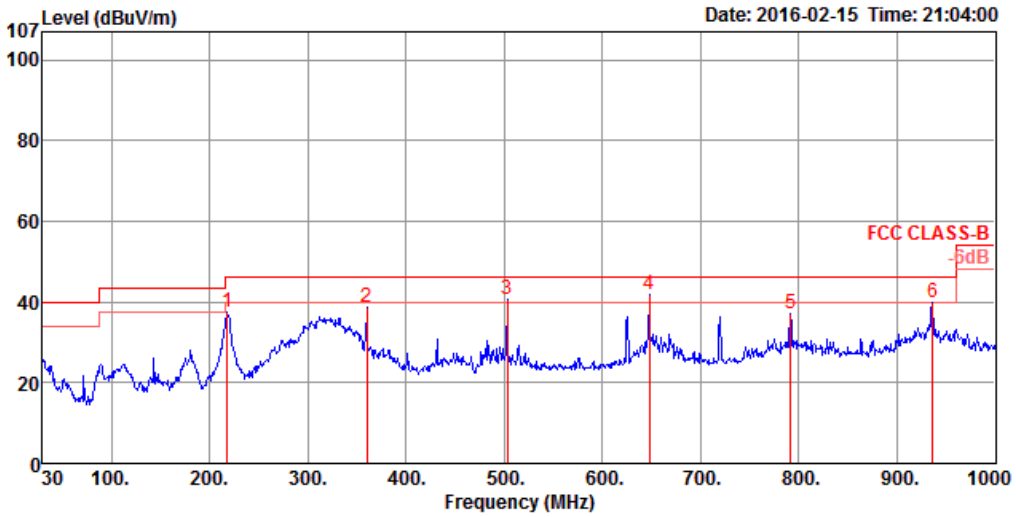
Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

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

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

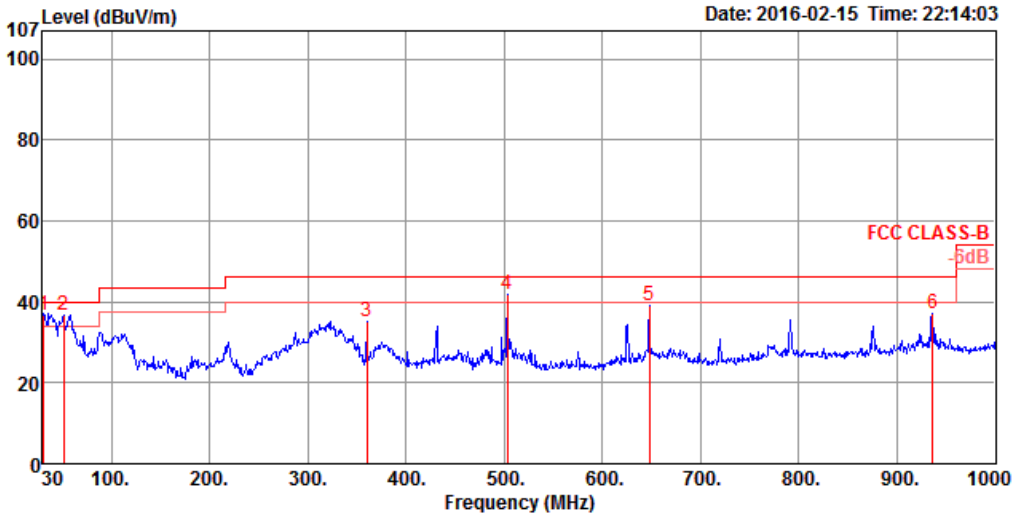
Temperature	24°C	Humidity	55%
Test Engineer	Eason Chen / Gino Huang / Brian Sun / Lucke Hsieh	Configurations	Normal Link

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	218.18	37.47	46.00	-8.53	50.48	1.18	16.10	30.29	150	215	Peak	HORIZONTAL
2	359.80	38.81	46.00	-7.19	44.98	1.47	21.14	28.78	150	9	Peak	HORIZONTAL
3	503.36	40.67	46.00	-5.33	42.15	1.77	23.76	27.01	100	68	Peak	HORIZONTAL
4	647.89	41.74	46.00	-4.26	42.38	2.01	25.28	27.93	150	92	Peak	HORIZONTAL
5	791.45	37.10	46.00	-8.90	35.81	2.27	26.43	27.41	150	39	Peak	HORIZONTAL
6	935.98	39.78	46.00	-6.22	36.25	2.42	27.69	26.58	125	84	Peak	HORIZONTAL

Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	30.97	36.90	40.00	-3.10	36.52	0.53	24.69	24.84	100	291	Peak	VERTICAL
2	51.34	36.64	40.00	-3.36	46.49	0.61	14.03	24.49	100	49	Peak	VERTICAL
3	359.80	35.31	46.00	-10.69	41.48	1.47	21.14	28.78	150	168	Peak	VERTICAL
4	503.36	41.75	46.00	-4.25	43.23	1.77	23.76	27.01	125	194	Peak	VERTICAL
5	647.89	39.26	46.00	-6.74	39.90	2.01	25.28	27.93	125	358	Peak	VERTICAL
6	935.98	37.19	46.00	-8.81	33.66	2.42	27.69	26.58	100	1	Peak	VERTICAL

Note:

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

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

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

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

Temperature	24°C	Humidity	55%
Test Engineer	Eason Chen / Gino Huang / Brian Sun / Lucke Hsieh	Configurations	IEEE 802.11a CH 36 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 02, 2015	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	6906.79	53.97	68.20	-14.23	43.53	8.53	36.64	34.73	227	236	HORIZONTAL	Peak
2	15541.22	60.24	74.00	-13.76	45.08	12.49	38.39	35.72	174	178	HORIZONTAL	Peak
3	15541.52	47.14	54.00	-6.86	31.98	12.49	38.39	35.72	174	178	HORIZONTAL	Average

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	6906.49	55.57	68.20	-12.63	45.13	8.53	36.64	34.73	178	91	VERTICAL	Peak
2	15541.46	47.39	54.00	-6.61	32.23	12.49	38.39	35.72	113	165	VERTICAL	Average
3	15541.80	60.43	74.00	-13.57	45.27	12.49	38.39	35.72	113	165	VERTICAL	Peak

Temperature	24°C	Humidity	55%
Test Engineer	Eason Chen / Gino Huang / Brian Sun / Lucke Hsieh	Configurations	IEEE 802.11a CH 40 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Nov. 26, 2015	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	6933.47	54.09	68.20	-14.11	43.61	8.54	36.68	34.74	104	316	HORIZONTAL	Peak
2	15599.50	59.72	74.00	-14.28	44.55	12.52	38.38	35.73	144	293	HORIZONTAL	Peak
3	15599.76	45.79	54.00	-8.21	30.62	12.52	38.38	35.73	144	293	HORIZONTAL	Average

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	6933.41	61.10	68.20	-7.10	50.62	8.54	36.68	34.74	258	142	VERTICAL	Peak
2	15599.61	45.83	54.00	-8.17	30.66	12.52	38.38	35.73	152	300	VERTICAL	Average
3	15600.73	59.57	74.00	-14.43	44.38	12.55	38.37	35.73	152	300	VERTICAL	Peak

Temperature	24°C	Humidity	55%
Test Engineer	Eason Chen / Gino Huang / Brian Sun / Lucke Hsieh	Configurations	IEEE 802.11a CH 48 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 02, 2015	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	6986.85	53.14	68.20	-15.06	42.50	8.59	36.80	34.75	243	168	HORIZONTAL	Peak
2	15718.86	60.62	74.00	-13.38	45.42	12.60	38.35	35.75	188	163	HORIZONTAL	Peak
3	15721.43	47.28	54.00	-6.72	32.08	12.60	38.35	35.75	188	163	HORIZONTAL	Average

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	6986.69	57.65	68.20	-10.55	47.01	8.59	36.80	34.75	229	229	VERTICAL	Peak
2	15719.60	47.17	54.00	-6.83	31.97	12.60	38.35	35.75	141	0	VERTICAL	Average
3	15720.12	60.13	74.00	-13.87	44.93	12.60	38.35	35.75	141	118	VERTICAL	Peak

Temperature	24°C	Humidity	55%
Test Engineer	Eason Chen / Gino Huang / Brian Sun / Lucke Hsieh	Configurations	IEEE 802.11a CH 149 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Nov. 26, 2015	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	7660.11	40.24	54.00	-13.76	28.79	9.19	37.34	35.08	244	324	HORIZONTAL	Average
2	7660.66	52.92	74.00	-21.08	41.47	9.19	37.34	35.08	244	324	HORIZONTAL	Peak
3	11489.54	58.25	74.00	-15.75	42.44	10.94	39.20	34.33	116	86	HORIZONTAL	Peak
4	11490.48	45.64	54.00	-8.36	29.83	10.94	39.20	34.33	116	86	HORIZONTAL	Average

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	7660.03	45.85	54.00	-8.15	34.40	9.19	37.34	35.08	248	316	VERTICAL	Average
2	7660.28	54.40	74.00	-19.60	42.95	9.19	37.34	35.08	248	316	VERTICAL	Peak
3	11490.17	57.29	74.00	-16.71	41.48	10.94	39.20	34.33	199	335	VERTICAL	Peak
4	11490.24	44.13	54.00	-9.87	28.32	10.94	39.20	34.33	199	335	VERTICAL	Average

Temperature	24°C	Humidity	55%
Test Engineer	Eason Chen / Gino Huang / Brian Sun / Lucke Hsieh	Configurations	IEEE 802.11a CH 157 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 02, 2015	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	7713.21	53.40	68.20	-14.80	42.19	9.03	37.27	35.09	131	292	HORIZONTAL	Peak
2	11569.79	59.57	74.00	-14.43	43.81	10.98	39.15	34.37	143	278	HORIZONTAL	Peak
3	11572.50	46.71	54.00	-7.29	30.95	10.98	39.15	34.37	143	278	HORIZONTAL	Average

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	7714.04	52.89	68.20	-15.31	41.68	9.03	37.27	35.09	239	30	VERTICAL	Peak
2	11568.59	48.35	54.00	-5.65	32.59	10.98	39.15	34.37	132	122	VERTICAL	Average
3	11569.05	60.25	74.00	-13.75	44.49	10.98	39.15	34.37	132	122	VERTICAL	Peak

Temperature	24°C	Humidity	55%
Test Engineer	Eason Chen / Gino Huang / Brian Sun / Lucke Hsieh	Configurations	IEEE 802.11a CH 165 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Nov. 27, 2015	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	7765.10	52.62	74.00	-21.38	41.57	8.92	37.23	35.10	202	28	HORIZONTAL	Peak
2	7766.74	39.64	54.00	-14.36	28.59	8.92	37.23	35.10	202	28	HORIZONTAL	Average
3	11649.39	56.87	74.00	-17.13	41.18	11.01	39.09	34.41	197	252	HORIZONTAL	Peak
4	11650.92	43.47	54.00	-10.53	27.78	11.03	39.07	34.41	197	252	HORIZONTAL	Average

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	7766.72	42.89	54.00	-11.11	31.84	8.92	37.23	35.10	280	322	VERTICAL	Average
2	7766.87	53.63	74.00	-20.37	42.59	8.92	37.23	35.11	280	322	VERTICAL	Peak
3	11649.50	44.84	54.00	-9.16	29.15	11.01	39.09	34.41	197	334	VERTICAL	Average
4	11650.87	56.84	74.00	-17.16	41.15	11.03	39.07	34.41	197	334	VERTICAL	Peak

Temperature	24°C	Humidity	55%
Test Engineer	Eason Chen / Gino Huang / Brian Sun / Lucke Hsieh	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 36 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 02, 2015	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	6906.60	54.52	68.20	-13.68	44.08	8.53	36.64	34.73	233	235	HORIZONTAL	Peak
2	15541.17	59.33	74.00	-14.67	44.17	12.49	38.39	35.72	189	198	HORIZONTAL	Peak
3	15541.23	47.21	54.00	-6.79	32.05	12.49	38.39	35.72	189	198	HORIZONTAL	Average

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	6906.70	55.11	68.20	-13.09	44.67	8.53	36.64	34.73	172	316	VERTICAL	Peak
2	15540.76	60.17	74.00	-13.83	45.01	12.49	38.39	35.72	170	275	VERTICAL	Peak
3	15541.22	47.15	54.00	-6.85	31.99	12.49	38.39	35.72	170	275	VERTICAL	Average

Temperature	24°C	Humidity	55%
Test Engineer	Eason Chen / Gino Huang / Brian Sun / Lucke Hsieh	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 40 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 02, 2015	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	6933.51	51.27	68.20	-16.93	40.79	8.54	36.68	34.74	219	235	HORIZONTAL	Peak
2	15600.58	60.03	74.00	-13.97	44.84	12.55	38.37	35.73	172	262	HORIZONTAL	Peak
3	15601.47	47.15	54.00	-6.85	31.96	12.55	38.37	35.73	172	262	HORIZONTAL	Average

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	6933.35	58.48	68.20	-9.72	48.00	8.54	36.68	34.74	261	138	VERTICAL	Peak
2	15598.25	47.36	54.00	-6.64	32.19	12.52	38.38	35.73	186	181	VERTICAL	Average
3	15598.89	60.24	74.00	-13.76	45.07	12.52	38.38	35.73	186	181	VERTICAL	Peak

Temperature	24°C	Humidity	55%
Test Engineer	Eason Chen / Gino Huang / Brian Sun / Lucke Hsieh	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 48 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 02, 2015	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	6986.90	51.72	68.20	-16.48	41.08	8.59	36.80	34.75	189	200	HORIZONTAL	Peak
2	15717.67	60.64	74.00	-13.36	45.44	12.60	38.35	35.75	168	253	HORIZONTAL	Peak
3	15718.45	47.24	54.00	-6.76	32.04	12.60	38.35	35.75	168	253	HORIZONTAL	Average

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	6986.54	57.38	68.20	-10.82	46.74	8.59	36.80	34.75	212	211	VERTICAL	Peak
2	15718.68	60.34	74.00	-13.66	45.14	12.60	38.35	35.75	185	196	VERTICAL	Peak
3	15720.47	47.23	54.00	-6.77	32.03	12.60	38.35	35.75	185	196	VERTICAL	Average

Temperature	24°C	Humidity	55%
Test Engineer	Eason Chen / Gino Huang / Brian Sun / Lucke Hsieh	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 149 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 02, 2015	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	7660.24	54.34	68.20	-13.86	42.89	9.19	37.34	35.08	125	217	HORIZONTAL	Peak
2	11487.91	59.45	74.00	-14.55	43.64	10.94	39.20	34.33	156	180	HORIZONTAL	Peak
3	11488.84	46.63	54.00	-7.37	30.82	10.94	39.20	34.33	156	180	HORIZONTAL	Average

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	7660.16	56.10	68.20	-12.10	44.65	9.19	37.34	35.08	254	312	VERTICAL	Peak
2	11489.25	47.70	54.00	-6.30	31.89	10.94	39.20	34.33	189	212	VERTICAL	Average
3	11492.35	59.70	74.00	-14.30	43.89	10.94	39.20	34.33	189	212	VERTICAL	Peak

Temperature	24°C	Humidity	55%
Test Engineer	Eason Chen / Gino Huang / Brian Sun / Lucke Hsieh	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 157 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 02, 2015	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	7713.40	52.62	68.20	-15.58	41.41	9.03	37.27	35.09	130	300	HORIZONTAL	Peak
2	11569.93	46.56	54.00	-7.44	30.80	10.98	39.15	34.37	142	268	HORIZONTAL	Average
3	11570.31	59.66	74.00	-14.34	43.90	10.98	39.15	34.37	142	268	HORIZONTAL	Peak

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	7713.53	53.38	68.20	-14.82	42.17	9.03	37.27	35.09	240	27	VERTICAL	Peak
2	11569.55	46.84	54.00	-7.16	31.08	10.98	39.15	34.37	165	94	VERTICAL	Average
3	11570.67	60.27	74.00	-13.73	44.51	10.98	39.15	34.37	165	94	VERTICAL	Peak

Temperature	24°C	Humidity	55%
Test Engineer	Eason Chen / Gino Huang / Brian Sun / Lucke Hsieh	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 165 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 02, 2015	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	7765.61	53.29	68.20	-14.91	42.24	8.92	37.23	35.10	113	79	HORIZONTAL	Peak
2	11649.71	46.43	54.00	-7.57	30.74	11.01	39.09	34.41	135	139	HORIZONTAL	Average
3	11650.28	59.50	74.00	-14.50	43.81	11.01	39.09	34.41	135	139	HORIZONTAL	Peak

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	7766.73	53.55	68.20	-14.65	42.50	8.92	37.23	35.10	279	30	VERTICAL	Peak
2	11649.46	46.77	54.00	-7.23	31.08	11.01	39.09	34.41	200	91	VERTICAL	Average
3	11650.07	59.29	74.00	-14.71	43.60	11.01	39.09	34.41	200	91	VERTICAL	Peak

Temperature	24°C	Humidity	55%
Test Engineer	Eason Chen / Gino Huang / Brian Sun / Lucke Hsieh	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 38 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 02, 2015	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	6919.99	53.22	68.20	-14.98	42.78	8.53	36.64	34.73	220	234	HORIZONTAL	Peak
2	15568.18	60.43	74.00	-13.57	45.26	12.52	38.38	35.73	154	151	HORIZONTAL	Peak
3	15572.14	47.27	54.00	-6.73	32.10	12.52	38.38	35.73	154	151	HORIZONTAL	Average

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	6920.05	56.98	68.20	-11.22	46.54	8.53	36.64	34.73	228	213	VERTICAL	Peak
2	15567.67	47.30	54.00	-6.70	32.13	12.52	38.38	35.73	179	200	VERTICAL	Average
3	15570.71	60.50	74.00	-13.50	45.33	12.52	38.38	35.73	179	200	VERTICAL	Peak

Temperature	24°C	Humidity	55%
Test Engineer	Eason Chen / Gino Huang / Brian Sun / Lucke Hsieh	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 46 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 02, 2015	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	6973.35	53.13	68.20	-15.07	42.55	8.57	36.76	34.75	210	32	HORIZONTAL	Peak
2	15688.55	60.86	74.00	-13.14	45.67	12.57	38.36	35.74	175	54	HORIZONTAL	Peak
3	15689.68	47.24	54.00	-6.76	32.05	12.57	38.36	35.74	175	54	HORIZONTAL	Average

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	6973.33	56.43	68.20	-11.77	45.85	8.57	36.76	34.75	224	211	VERTICAL	Peak
2	15687.82	60.10	74.00	-13.90	44.91	12.57	38.36	35.74	168	242	VERTICAL	Peak
3	15690.02	47.26	54.00	-6.74	32.07	12.57	38.36	35.74	168	242	VERTICAL	Average

Temperature	24°C	Humidity	55%
Test Engineer	Eason Chen / Gino Huang / Brian Sun / Lucke Hsieh	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 151 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 02, 2015	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	7672.95	53.16	74.00	-20.84	41.80	9.13	37.32	35.09	205	76	HORIZONTAL	Peak
2	7673.32	39.95	54.00	-14.05	28.59	9.13	37.32	35.09	205	76	HORIZONTAL	Average
3	11509.26	57.32	74.00	-16.68	41.53	10.94	39.20	34.35	178	107	HORIZONTAL	Peak
4	11509.94	44.19	54.00	-9.81	28.40	10.94	39.20	34.35	178	107	HORIZONTAL	Average

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	7673.39	46.27	54.00	-7.73	34.91	9.13	37.32	35.09	232	316	VERTICAL	Average
2	7673.40	55.26	74.00	-18.74	43.90	9.13	37.32	35.09	232	316	VERTICAL	Peak
3	11509.87	56.72	74.00	-17.28	40.93	10.94	39.20	34.35	187	110	VERTICAL	Peak
4	11510.21	44.13	54.00	-9.87	28.34	10.94	39.20	34.35	187	110	VERTICAL	Average

Temperature	24°C	Humidity	55%
Test Engineer	Eason Chen / Gino Huang / Brian Sun / Lucke Hsieh	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 159 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 02, 2015	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	7726.57	52.82	68.20	-15.38	41.62	9.03	37.27	35.10	137	116	HORIZONTAL	Peak
2	11589.59	46.59	54.00	-7.41	30.87	10.99	39.12	34.39	185	272	HORIZONTAL	Average
3	11589.62	59.81	74.00	-14.19	44.09	10.99	39.12	34.39	185	272	HORIZONTAL	Peak

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	7726.66	53.17	68.20	-15.03	41.97	9.03	37.27	35.10	252	39	VERTICAL	Peak
2	11589.97	46.67	54.00	-7.33	30.95	10.99	39.12	34.39	191	100	VERTICAL	Average
3	11590.74	59.42	74.00	-14.58	43.70	10.99	39.12	34.39	191	100	VERTICAL	Peak

Temperature	24°C	Humidity	55%
Test Engineer	Eason Chen / Gino Huang / Brian Sun / Lucke Hsieh	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 42 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 02, 2015	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	6945.54	52.48	68.20	-15.72	41.94	8.56	36.72	34.74	189	348	HORIZONTAL	Peak
2	15630.36	47.53	54.00	-6.47	32.34	12.55	38.37	35.73	158	242	HORIZONTAL	Average
3	15631.67	60.03	74.00	-13.97	44.84	12.55	38.37	35.73	158	242	HORIZONTAL	Peak

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	6946.52	55.01	68.20	-13.19	44.47	8.56	36.72	34.74	216	213	VERTICAL	Peak
2	15629.63	47.32	54.00	-6.68	32.13	12.55	38.37	35.73	177	174	VERTICAL	Average
3	15631.97	60.66	74.00	-13.34	45.47	12.55	38.37	35.73	177	174	VERTICAL	Peak

Temperature	24°C	Humidity	55%
Test Engineer	Eason Chen / Gino Huang / Brian Sun / Lucke Hsieh	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 155 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 02, 2015	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	7699.71	53.37	68.20	-14.83	42.08	9.08	37.30	35.09	143	212	HORIZONTAL	Peak
2	11549.52	46.42	54.00	-7.58	30.66	10.96	39.17	34.37	169	190	HORIZONTAL	Average
3	11550.71	59.35	74.00	-14.65	43.59	10.98	39.15	34.37	169	190	HORIZONTAL	Peak

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	7699.81	53.23	68.20	-14.97	41.94	9.08	37.30	35.09	227	47	VERTICAL	Peak
2	11549.71	46.65	54.00	-7.35	30.89	10.96	39.17	34.37	133	127	VERTICAL	Average
3	11550.07	59.87	74.00	-14.13	44.11	10.96	39.17	34.37	133	127	VERTICAL	Peak

Temperature	24°C	Humidity	55%
Test Engineer	Eason Chen / Gino Huang / Brian Sun / Lucke Hsieh	Configurations	IEEE 802.11ac MCS1/Nss1 VHT20 CH 36 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Jan. 21, 2016	Test Function	Beamforming function

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	15538.08	61.36	74.00	-12.64	42.38	14.34	38.13	33.49	142	133	Peak	HORIZONTAL
2	15541.71	47.74	54.00	-6.26	28.76	14.34	38.13	33.49	142	133	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15538.33	61.68	74.00	-12.32	42.70	14.34	38.13	33.49	161	169	Peak	VERTICAL
2	15541.24	47.93	54.00	-6.07	28.95	14.34	38.13	33.49	161	169	Average	VERTICAL

Temperature	24°C	Humidity	55%
Test Engineer	Eason Chen / Gino Huang / Brian Sun / Lucke Hsieh	Configurations	IEEE 802.11ac MCS1/Nss1 VHT20 CH 40 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Jan. 21, 2016	Test Function	Beamforming function

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	15597.83	48.00	54.00	-6.00	29.12	14.36	38.05	33.53	120	124	Average	HORIZONTAL
2	15597.86	61.16	74.00	-12.84	42.28	14.36	38.05	33.53	120	124	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15600.77	48.08	54.00	-5.92	29.25	14.38	37.98	33.53	134	84	Average	VERTICAL
2	15601.33	60.91	74.00	-13.09	42.08	14.38	37.98	33.53	134	84	Peak	VERTICAL

Temperature	24°C	Humidity	55%
Test Engineer	Eason Chen / Gino Huang / Brian Sun / Lucke Hsieh	Configurations	IEEE 802.11ac MCS1/Nss1 VHT20 CH 48 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Jan. 21, 2016	Test Function	Beamforming function

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	15717.81	47.75	54.00	-6.25	29.17	14.41	37.84	33.67	126	208	Average	HORIZONTAL
2	15719.10	61.27	74.00	-12.73	42.69	14.41	37.84	33.67	126	208	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15719.66	60.70	74.00	-13.30	42.12	14.41	37.84	33.67	104	169	Peak	VERTICAL
2	15722.16	47.92	54.00	-6.08	29.34	14.41	37.84	33.67	104	169	Average	VERTICAL

Temperature	24°C	Humidity	55%
Test Engineer	Eason Chen / Gino Huang / Brian Sun / Lucke Hsieh	Configurations	IEEE 802.11ac MCS1/Nss1 VHT20 CH 149 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Jan. 21, 2016	Test Function	Beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11488.34	46.08	54.00	-7.92	27.16	12.90	39.20	33.18	151	288	Average	HORIZONTAL
2	11489.59	59.33	74.00	-14.67	40.41	12.90	39.20	33.18	151	288	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11487.80	46.53	54.00	-7.47	27.61	12.90	39.20	33.18	169	226	Average	VERTICAL
2	11490.21	58.40	74.00	-15.60	39.48	12.90	39.20	33.18	169	226	Peak	VERTICAL

Temperature	24°C	Humidity	55%
Test Engineer	Eason Chen / Gino Huang / Brian Sun / Lucke Hsieh	Configurations	IEEE 802.11ac MCS1/Nss1 VHT20 CH 157 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Jan. 21, 2016	Test Function	Beamforming function

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	11566.29	60.79	74.00	-13.21	41.80	12.99	39.20	33.20	121	210	Peak	HORIZONTAL
2	11568.41	48.83	54.00	-5.17	29.84	12.99	39.20	33.20	121	210	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11566.02	49.93	54.00	-4.07	30.94	12.99	39.20	33.20	121	12	Average	VERTICAL
2	11567.92	63.24	74.00	-10.76	44.25	12.99	39.20	33.20	121	12	Peak	VERTICAL

Temperature	24°C	Humidity	55%
Test Engineer	Eason Chen / Gino Huang / Brian Sun / Lucke Hsieh	Configurations	IEEE 802.11ac MCS1/Nss1 VHT20 CH 165 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Jan. 21, 2016	Test Function	Beamforming function

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	11648.71	61.09	74.00	-12.91	42.03	13.08	39.20	33.22	130	208	Peak	HORIZONTAL
2	11650.42	48.38	54.00	-5.62	29.32	13.08	39.20	33.22	130	208	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11648.48	63.22	74.00	-10.78	44.16	13.08	39.20	33.22	116	24	Peak	VERTICAL
2	11650.72	49.35	54.00	-4.65	30.29	13.08	39.20	33.22	116	24	Average	VERTICAL

Temperature	24°C	Humidity	55%
Test Engineer	Eason Chen / Gino Huang / Brian Sun / Lucke Hsieh	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 38 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Jan. 21, 2016	Test Function	Beamforming function

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	15567.79	48.23	54.00	-5.77	29.35	14.36	38.05	33.53	153	124	Average	HORIZONTAL
2	15568.04	61.53	74.00	-12.47	42.65	14.36	38.05	33.53	153	124	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15570.03	48.20	54.00	-5.80	29.32	14.36	38.05	33.53	161	167	Average	VERTICAL
2	15570.89	61.14	74.00	-12.86	42.26	14.36	38.05	33.53	161	167	Peak	VERTICAL

Temperature	24°C	Humidity	55%
Test Engineer	Eason Chen / Gino Huang / Brian Sun / Lucke Hsieh	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 46 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Jan. 21, 2016	Test Function	Beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15690.00	60.79	74.00	-13.21	42.11	14.39	37.91	33.62	158	116	Peak	HORIZONTAL
2	15690.00	48.30	54.00	-5.70	29.62	14.39	37.91	33.62	158	116	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15690.00	61.54	74.00	-12.46	42.86	14.39	37.91	33.62	142	56	Peak	VERTICAL
2	15690.00	48.08	54.00	-5.92	29.40	14.39	37.91	33.62	142	56	Average	VERTICAL

Temperature	24°C	Humidity	55%
Test Engineer	Eason Chen / Gino Huang / Brian Sun / Lucke Hsieh	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 151 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Jan. 21, 2016	Test Function	Beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11508.75	46.34	54.00	-7.66	27.42	12.90	39.20	33.18	176	169	Average	HORIZONTAL
2	11509.03	60.40	74.00	-13.60	41.49	12.90	39.20	33.19	176	169	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11511.19	59.70	74.00	-14.30	40.79	12.90	39.20	33.19	139	260	Peak	VERTICAL
2	11511.85	46.33	54.00	-7.67	27.42	12.90	39.20	33.19	139	260	Average	VERTICAL

Temperature	24°C	Humidity	55%
Test Engineer	Eason Chen / Gino Huang / Brian Sun / Lucke Hsieh	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 159 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Jan. 21, 2016	Test Function	Beamforming function

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	11588.73	46.71	54.00	-7.29	27.68	13.04	39.20	33.21	155	344	Average	HORIZONTAL
2	11593.13	59.81	74.00	-14.19	40.78	13.04	39.20	33.21	155	344	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11586.92	59.84	74.00	-14.16	40.81	13.04	39.20	33.21	142	88	Peak	VERTICAL
2	11590.12	46.68	54.00	-7.32	27.65	13.04	39.20	33.21	142	88	Average	VERTICAL

Temperature	24°C	Humidity	55%
Test Engineer	Eason Chen / Gino Huang / Brian Sun / Lucke Hsieh	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 42 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Jan. 21, 2016	Test Function	Beamforming function

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	15629.75	61.60	74.00	-12.40	42.82	14.38	37.98	33.58	247	213	Peak	HORIZONTAL
2	15633.91	48.02	54.00	-5.98	29.24	14.38	37.98	33.58	247	213	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15625.40	48.14	54.00	-5.86	29.36	14.38	37.98	33.58	153	19	Average	VERTICAL
2	15634.05	61.72	74.00	-12.28	42.94	14.38	37.98	33.58	153	19	Peak	VERTICAL

Temperature	24°C	Humidity	55%
Test Engineer	Eason Chen / Gino Huang / Brian Sun / Lucke Hsieh	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 155 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Jan. 21, 2016	Test Function	Beamforming function

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	11549.96	47.18	54.00	-6.82	28.23	12.95	39.20	33.20	128	43	Average	HORIZONTAL
2	11551.08	59.79	74.00	-14.21	40.80	12.99	39.20	33.20	128	43	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11548.34	60.01	74.00	-13.99	41.06	12.95	39.20	33.20	145	327	Peak	VERTICAL
2	11548.99	46.63	54.00	-7.37	27.68	12.95	39.20	33.20	145	329	Average	VERTICAL

Note:

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

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

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

4.7. Band Edge Emissions Measurement

4.7.1. Limit

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

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

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

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

4.7.2. Measuring Instruments and Setting

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

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

4.7.3. Test Procedures

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

4.7.4. Test Setup Layout

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

4.7.5. Test Deviation

There is no deviation with the original standard.

4.7.6. EUT Operation during Test

For non-beamforming function:

The EUT was programmed to be in continuously transmitting mode.

For beamforming function:

The EUT was programmed to be in beamforming transmitting mode.

4.7.7. Test Result of Band Edge and Fundamental Emissions

Temperature	24°C	Humidity	55%
Test Engineer	Eason Chen / Gino Huang / Brian Sun / Lucke Hsieh	Configurations	IEEE 802.11a CH 36, 40, 48 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Nov. 26, 2015 / Dec. 01, 2015	Test Function	Non-beamforming function

Channel 36

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5142.60	45.89	54.00	-8.11	39.82	7.24	33.17	34.34	193	214	VERTICAL	Average
2	5145.00	61.95	74.00	-12.05	55.88	7.24	33.17	34.34	193	214	VERTICAL	Peak
3	5181.40	105.21			99.03	7.29	33.23	34.34	193	214	VERTICAL	Average
4	5181.40	116.32			110.14	7.29	33.23	34.34	193	214	VERTICAL	Peak

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

Channel 40

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5107.20	46.13	54.00	-7.87	40.23	7.16	33.09	34.35	208	214	VERTICAL	Average
2	5140.00	61.06	74.00	-12.94	55.03	7.22	33.15	34.34	208	214	VERTICAL	Peak
3	5202.00	120.61			114.34	7.33	33.28	34.34	208	214	VERTICAL	Peak
4	5202.40	109.56			103.29	7.33	33.28	34.34	208	214	VERTICAL	Average

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

Channel 48

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5120.00	45.61	54.00	-8.39	39.65	7.19	33.12	34.35	210	40	VERTICAL	Average
2	5122.40	58.12	74.00	-15.88	52.16	7.19	33.12	34.35	210	40	VERTICAL	Peak
3	5237.00	116.66			110.30	7.36	33.34	34.34	210	40	VERTICAL	Peak
4	5237.60	106.16			99.80	7.36	33.34	34.34	210	40	VERTICAL	Average
5	5370.80	61.14	74.00	-12.86	54.39	7.49	33.58	34.32	210	40	VERTICAL	Peak
6	5376.20	46.41	54.00	-7.59	39.66	7.49	33.58	34.32	210	40	VERTICAL	Average

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

Temperature	24°C	Humidity	55%
Test Engineer	Eason Chen / Gino Huang / Brian Sun / Lucke Hsieh	Configurations	IEEE 802.11a CH 149, 157, 165 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 01, 2015 / Dec. 04, 2015 / Jan. 13, 2016	Test Function	Non-beamforming function

Channel 149

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		cm	deg	
1	5705.00	68.17	68.20	-0.03	61.12	8.01	33.00	32.04	VERTICAL	212	320	Peak
2	5724.00	76.31	78.20	-1.89	69.19	8.04	33.00	32.08	VERTICAL	212	320	Peak
3	5742.00	123.25			116.10	8.06	33.01	32.10	VERTICAL	212	320	Peak
4	5743.00	112.23			105.08	8.06	33.01	32.10	VERTICAL	212	320	Average

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

Channel 157

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5690.60	63.43	68.20	-4.77	55.54	7.88	34.36	34.35	202	46	VERTICAL	Peak
2	5725.00	66.46	78.20	-11.74	58.50	7.87	34.45	34.36	202	46	VERTICAL	Peak
3	5783.80	112.35			104.28	7.86	34.59	34.38	202	46	VERTICAL	Average
4	5783.80	122.12			114.05	7.86	34.59	34.38	202	46	VERTICAL	Peak
5	5854.00	68.46	78.20	-9.74	60.23	7.84	34.78	34.39	202	46	VERTICAL	Peak
6	5870.20	66.78	68.20	-1.42	58.51	7.83	34.83	34.39	202	46	VERTICAL	Peak

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

Channel 165

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		cm	deg	
1	5826.20	123.80			116.49	8.16	33.05	32.20	VERTICAL	216	222	Peak
2	5826.60	112.42			105.11	8.16	33.05	32.20	VERTICAL	216	222	Average
3	5850.00	67.93	78.20	-10.27	60.58	8.18	33.05	32.22	VERTICAL	216	222	Peak
4	5865.40	68.18	68.20	-0.02	60.81	8.19	33.06	32.24	VERTICAL	216	222	Peak

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

Temperature	24°C	Humidity	55%
Test Engineer	Eason Chen / Gino Huang / Brian Sun / Lucke Hsieh	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 36, 40, 48 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 01, 2015	Test Function	Non-beamforming function

Channel 36

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5139.60	45.44	54.00	-8.56	39.41	7.22	33.15	34.34	202	233	HORIZONTAL	Average
2	5141.60	57.86	74.00	-16.14	51.83	7.22	33.15	34.34	202	233	HORIZONTAL	Peak
3	5178.80	103.90			97.72	7.29	33.23	34.34	202	233	HORIZONTAL	Average
4	5179.20	114.93			108.75	7.29	33.23	34.34	202	233	HORIZONTAL	Peak

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

Channel 40

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5119.60	45.72	54.00	-8.28	39.76	7.19	33.12	34.35	208	42	VERTICAL	Average
2	5148.40	60.23	74.00	-13.77	54.16	7.24	33.17	34.34	208	42	VERTICAL	Peak
3	5196.40	104.35			98.12	7.32	33.25	34.34	208	42	VERTICAL	Average
4	5196.40	116.23			110.00	7.32	33.25	34.34	208	42	VERTICAL	Peak

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

Channel 48

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5120.00	44.93	54.00	-9.07	38.97	7.19	33.12	34.35	195	40	VERTICAL	Average
2	5141.60	59.09	74.00	-14.91	53.06	7.22	33.15	34.34	195	40	VERTICAL	Peak
3	5237.00	117.04			110.68	7.36	33.34	34.34	195	40	VERTICAL	Peak
4	5237.60	104.91			98.55	7.36	33.34	34.34	195	40	VERTICAL	Average
5	5356.40	59.56	74.00	-14.44	52.86	7.47	33.55	34.32	195	40	VERTICAL	Peak
6	5376.20	46.09	54.00	-7.91	39.34	7.49	33.58	34.32	195	40	VERTICAL	Average

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

Temperature	24°C	Humidity	55%
Test Engineer	Eason Chen / Gino Huang / Brian Sun / Lucke Hsieh	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 149, 157, 165 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 01, 2015 / Dec. 04, 2015 / Jan. 13, 2016	Test Function	Non-beamforming function

Channel 149

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		cm	deg	
1	5711.80	67.83	68.20	-0.37	60.75	8.02	33.00	32.06	VERTICAL	224	320	Peak
2	5724.20	76.48	78.20	-1.72	69.36	8.04	33.00	32.08	VERTICAL	224	320	Peak
3	5742.20	121.67			114.52	8.06	33.01	32.10	VERTICAL	224	320	Peak
4	5743.40	111.30			104.15	8.06	33.01	32.10	VERTICAL	224	320	Average

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

Channel 157

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5708.40	51.98	54.00	-2.02	44.05	7.88	34.41	34.36	210	239	VERTICAL	Average
2	5715.00	68.75	74.00	-5.25	60.82	7.88	34.41	34.36	210	239	VERTICAL	Peak
3	5723.20	70.20	78.20	-8.00	62.24	7.87	34.45	34.36	210	239	VERTICAL	Peak
4	5785.60	126.96			118.89	7.86	34.59	34.38	210	239	VERTICAL	Peak
5	5786.20	116.01			107.94	7.86	34.59	34.38	210	239	VERTICAL	Average
6	5851.80	67.52	78.20	-10.68	59.29	7.84	34.78	34.39	210	239	VERTICAL	Peak
7	5863.00	51.12	54.00	-2.88	42.85	7.83	34.83	34.39	210	239	VERTICAL	Average
8	5866.60	66.86	74.00	-7.14	58.59	7.83	34.83	34.39	210	239	VERTICAL	Peak

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

Channel 165

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		cm	deg	
1	5824.20	111.36			104.05	8.16	33.05	32.20	VERTICAL	212	321	Average
2	5824.20	122.21			114.90	8.16	33.05	32.20	VERTICAL	212	321	Peak
3	5851.40	68.08	78.20	-10.12	60.73	8.18	33.05	32.22	VERTICAL	212	321	Peak
4	5865.40	67.74	68.20	-0.46	60.37	8.19	33.06	32.24	VERTICAL	212	321	Peak

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

Temperature	24°C	Humidity	55%
Test Engineer	Eason Chen / Gino Huang / Brian Sun / Lucke Hsieh	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 38, 46 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 02, 2015	Test Function	Non-beamforming function

Channel 38

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5146.80	67.04	74.00	-6.96	60.97	7.24	33.17	34.34	212	38	VERTICAL	Peak
2	5147.20	53.65	54.00	-0.35	47.58	7.24	33.17	34.34	212	38	VERTICAL	Average
3	5187.20	104.09			97.86	7.32	33.25	34.34	212	38	VERTICAL	Average
4	5187.60	114.49			108.26	7.32	33.25	34.34	212	38	VERTICAL	Peak

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

Channel 46

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5136.00	46.89	54.00	-7.11	40.87	7.22	33.15	34.35	214	127	VERTICAL	Average
2	5139.60	59.08	74.00	-14.92	53.05	7.22	33.15	34.34	214	127	VERTICAL	Peak
3	5234.40	115.95			109.59	7.36	33.34	34.34	214	127	VERTICAL	Peak
4	5235.60	105.23			98.87	7.36	33.34	34.34	214	127	VERTICAL	Average

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

Temperature	24°C	Humidity	55%
Test Engineer	Eason Chen / Gino Huang / Brian Sun / Lucke Hsieh	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 151, 159 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 29, 2015 / Jan. 13, 2016	Test Function	Non-beamforming function

Channel 151

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		cm	deg	
1	5707.00	67.94	68.20	-0.26	60.86	8.02	33.00	32.06	VERTICAL	211	360	Peak
2	5724.00	76.09	78.20	-2.11	68.97	8.04	33.00	32.08	VERTICAL	211	360	Peak
3	5747.00	105.77			98.63	8.06	33.02	32.10	VERTICAL	211	360	Average
4	5747.00	116.20			109.06	8.06	33.02	32.10	VERTICAL	211	360	Peak

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	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5708.00	67.72	68.20	-0.48	62.83	6.85	34.41	36.37	208	127	VERTICAL	Peak
2	5724.20	69.65	78.20	-8.55	64.71	6.86	34.45	36.37	208	127	VERTICAL	Peak
3	5786.60	111.28			106.17	6.87	34.59	36.35	208	127	VERTICAL	Average
4	5786.60	121.30			116.19	6.87	34.59	36.35	208	127	VERTICAL	Peak
5	5853.80	71.09	78.20	-7.11	65.77	6.88	34.78	36.34	208	127	VERTICAL	Peak
6	5862.80	66.16	68.20	-2.04	60.78	6.89	34.83	36.34	208	127	VERTICAL	Peak

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

Temperature	24°C	Humidity	55%
Test Engineer	Eason Chen / Gino Huang / Brian Sun / Lucke Hsieh	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 42, 155 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Dec. 29, 2015 / Jan. 13, 2016	Test Function	Non-beamforming function

Channel 42

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5145.00	53.69	54.00	-0.31	50.63	6.39	33.17	36.50	205	46	VERTICAL	Average
2	5147.00	69.80	74.00	-4.20	66.74	6.39	33.17	36.50	205	46	VERTICAL	Peak
3	5217.00	102.54			99.23	6.49	33.31	36.49	205	46	VERTICAL	Average
4	5218.00	111.84			108.53	6.49	33.31	36.49	205	46	VERTICAL	Peak
5	5350.00	45.40	54.00	-8.60	41.70	6.63	33.53	36.46	205	46	VERTICAL	Average
6	5373.00	58.72	74.00	-15.28	54.93	6.67	33.58	36.46	205	46	VERTICAL	Peak

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

Channel 155

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		cm	deg	
1	5715.00	53.26	54.00	-0.74	46.18	8.02	33.00	32.06	VERTICAL	212	222	Average
2	5715.00	73.00	74.00	-1.00	65.92	8.02	33.00	32.06	VERTICAL	212	222	Peak
3	5722.00	77.16	78.20	-1.04	70.08	8.02	33.00	32.06	VERTICAL	212	222	Peak
4	5776.00	102.42			95.21	8.10	33.03	32.14	VERTICAL	212	222	Average
5	5776.00	112.12			104.91	8.10	33.03	32.14	VERTICAL	212	222	Peak
6	5850.00	70.52	78.20	-7.68	63.17	8.18	33.05	32.22	VERTICAL	212	222	Peak
7	5864.00	68.26	74.00	-5.74	60.89	8.19	33.06	32.24	VERTICAL	212	222	Peak
8	5876.00	51.50	54.00	-2.50	44.09	8.21	33.06	32.26	VERTICAL	212	222	Average

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

Temperature	24°C	Humidity	55%
Test Engineer	Eason Chen / Gino Huang / Brian Sun / Lucke Hsieh	Configurations	IEEE 802.11ac MCS1/Nss1 VHT20 CH 36, 40, 48 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Jan. 20, 2016	Test Function	Beamforming function

Channel 36

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5148.16	67.70	74.00	-6.30	58.73	8.15	33.74	32.92	236	319	Peak	VERTICAL
2	5150.00	50.45	54.00	-3.55	41.48	8.15	33.74	32.92	236	319	Average	VERTICAL
3	5179.13	117.15			108.02	8.26	33.79	32.92	236	319	Peak	VERTICAL
4	5181.45	103.14			94.01	8.26	33.79	32.92	236	319	Average	VERTICAL

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

Channel 40

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5119.83	49.44	54.00	-4.56	41.54	7.12	33.69	32.91	220	44	Average	VERTICAL
2	5139.22	62.24	74.00	-11.76	54.27	7.17	33.72	32.92	220	44	Peak	VERTICAL
3	5199.13	107.17			98.90	7.37	33.82	32.92	220	44	Average	VERTICAL
4	5207.53	118.88			110.60	7.36	33.84	32.92	220	44	Peak	VERTICAL

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

Channel 48

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5147.40	60.97	74.00	-13.03	52.93	7.22	33.74	32.92	218	213	Peak	VERTICAL
2	5150.00	48.07	54.00	-5.93	40.03	7.22	33.74	32.92	218	213	Average	VERTICAL
3	5241.30	108.56			100.24	7.35	33.89	32.92	218	213	Average	VERTICAL
4	5241.74	121.07			112.75	7.35	33.89	32.92	218	213	Peak	VERTICAL
5	5350.43	48.78	54.00	-5.22	40.34	7.30	34.06	32.92	218	213	Average	VERTICAL
6	5352.60	61.51	74.00	-12.49	53.07	7.30	34.06	32.92	218	213	Peak	VERTICAL

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

Temperature	24°C	Humidity	55%
Test Engineer	Eason Chen / Gino Huang / Brian Sun / Lucke Hsieh	Configurations	IEEE 802.11ac MCS1/Nss1 VHT20 CH 149, 157, 165 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Jan. 20, 2016	Test Function	Beamforming function

Channel 149

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5698.40	67.51	68.20	-0.69	58.63	7.44	34.42	32.98	218	141	Peak	VERTICAL
2	5725.00	77.92	78.20	-0.28	69.09	7.38	34.44	32.99	218	141	Peak	VERTICAL
3	5741.24	108.62			99.81	7.35	34.45	32.99	218	141	Average	VERTICAL
4	5743.26	120.87			112.06	7.35	34.45	32.99	218	141	Peak	VERTICAL

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

Channel 157

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5709.21	64.33	68.20	-3.87	55.48	7.41	34.43	32.99	200	124	Peak	VERTICAL
2	5723.26	64.32	78.20	-13.88	55.49	7.38	34.44	32.99	200	124	Peak	VERTICAL
3	5789.92	120.13			111.41	7.25	34.48	33.01	200	124	Peak	VERTICAL
4	5792.24	109.29			100.57	7.25	34.48	33.01	200	124	Average	VERTICAL
5	5850.58	63.77	78.20	-14.43	54.76	7.52	34.51	33.02	200	124	Peak	VERTICAL
6	5860.87	62.42	68.20	-5.78	53.32	7.61	34.52	33.03	200	124	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	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5823.26	118.36			109.45	7.43	34.50	33.02	205	305	Peak	VERTICAL
2	5824.13	107.45			98.54	7.43	34.50	33.02	205	305	Average	VERTICAL
3	5850.47	75.15	78.20	-3.05	66.14	7.52	34.51	33.02	205	305	Peak	VERTICAL
4	5865.52	67.60	68.20	-0.60	58.50	7.61	34.52	33.03	205	305	Peak	VERTICAL

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

Temperature	24°C	Humidity	55%
Test Engineer	Eason Chen / Gino Huang / Brian Sun / Lucke Hsieh	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 38, 46 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Jan. 20, 2016 / Jan. 21, 2016	Test Function	Beamforming function

Channel 38

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5150.00	66.98	74.00	-7.02	58.94	7.22	33.74	32.92	193	139	Peak	VERTICAL
2	5150.00	53.07	54.00	-0.93	45.03	7.22	33.74	32.92	193	139	Average	VERTICAL
3	5182.76	116.50			108.31	7.32	33.79	32.92	193	139	Peak	VERTICAL
4	5191.45	102.21			93.94	7.37	33.82	32.92	193	139	Average	VERTICAL

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

Channel 46

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5145.95	62.31	74.00	-11.69	54.27	7.22	33.74	32.92	234	220	Peak	VERTICAL
2	5150.00	49.63	54.00	-4.37	41.59	7.22	33.74	32.92	234	220	Average	VERTICAL
3	5225.08	118.16			109.86	7.36	33.86	32.92	234	220	Peak	VERTICAL
4	5231.74	106.88			98.56	7.35	33.89	32.92	234	220	Average	VERTICAL

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

Temperature	24°C	Humidity	55%
Test Engineer	Eason Chen / Gino Huang / Brian Sun / Lucke Hsieh	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 151, 159 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Jan. 21, 2016	Test Function	Beamforming function

Channel 151

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5711.82	67.60	68.20	-0.60	58.75	7.41	34.43	32.99	215	141	Peak	VERTICAL
2	5723.26	77.67	78.20	-0.53	68.84	7.38	34.44	32.99	215	141	Peak	VERTICAL
3	5744.29	102.16			93.35	7.35	34.45	32.99	215	141	Average	VERTICAL
4	5744.87	115.24			106.43	7.35	34.45	32.99	215	141	Peak	VERTICAL

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

Channel 159

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5710.95	67.47	68.20	-0.73	58.62	7.41	34.43	32.99	203	306	Peak	VERTICAL
2	5721.24	66.33	78.20	-11.87	57.48	7.41	34.43	32.99	203	306	Peak	VERTICAL
3	5791.82	104.81			96.09	7.25	34.48	33.01	203	306	Average	VERTICAL
4	5792.68	118.99			110.27	7.25	34.48	33.01	203	306	Peak	VERTICAL
5	5851.74	69.46	78.20	-8.74	60.45	7.52	34.51	33.02	203	306	Peak	VERTICAL
6	5866.95	66.78	68.20	-1.42	57.68	7.61	34.52	33.03	203	306	Peak	VERTICAL

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

Temperature	24°C	Humidity	55%
Test Engineer	Eason Chen / Gino Huang / Brian Sun / Lucke Hsieh	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 42, 155 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Jan. 21, 2016	Test Function	Beamforming function

Channel 42

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5148.55	53.89	54.00	-0.11	45.85	7.22	33.74	32.92	211	225	Average	VERTICAL
2	5150.00	72.04	74.00	-1.96	64.00	7.22	33.74	32.92	211	225	Peak	VERTICAL
3	5202.76	112.44			104.16	7.36	33.84	32.92	211	225	Peak	VERTICAL
4	5233.88	98.68			90.36	7.35	33.89	32.92	211	225	Average	VERTICAL
5	5350.00	61.72	74.00	-12.28	53.28	7.30	34.06	32.92	211	225	Peak	VERTICAL
6	5350.00	49.61	54.00	-4.39	41.17	7.30	34.06	32.92	211	225	Average	VERTICAL

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

Channel 155

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5709.21	72.78	74.00	-1.22	63.93	7.41	34.43	32.99	197	49	Peak	VERTICAL
2	5715.00	53.94	54.00	-0.06	45.09	7.41	34.43	32.99	197	49	Average	VERTICAL
3	5725.00	77.54	78.20	-0.66	68.71	7.38	34.44	32.99	197	49	Peak	VERTICAL
4	5740.99	112.98			104.17	7.35	34.45	32.99	197	49	Peak	VERTICAL
5	5741.71	100.24			91.43	7.35	34.45	32.99	197	49	Average	VERTICAL
6	5850.00	68.65	78.20	-9.55	59.64	7.52	34.51	33.02	197	49	Peak	VERTICAL
7	5860.72	52.92	54.00	-1.08	43.82	7.61	34.52	33.03	197	49	Average	VERTICAL
8	5865.07	69.85	74.00	-4.15	60.75	7.61	34.52	33.03	197	49	Peak	VERTICAL

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

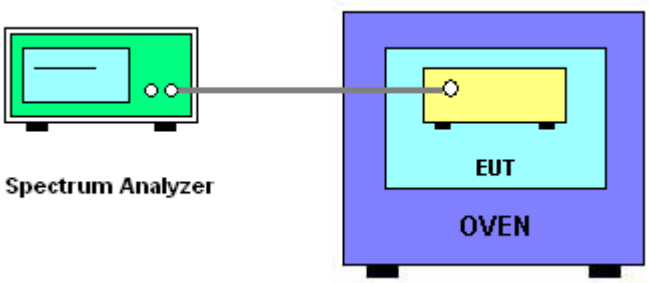
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

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 -30°C~50°C.

4.8.4. Test Setup Layout



4.8.5. Test Deviation

There is no deviation with the original standard.

4.8.6. EUT Operation during Test

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

4.8.7. Test Result of Frequency Stability

Temperature	24°C	Humidity	55%
Test Engineer	Clemens Fang / Peter Wu	Test Date	Feb. 15, 2016

Mode: 20 MHz / Chain 1

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5200 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5199.9801	5199.9787	5199.9769	5199.9748
110.00	5199.9789	5199.9776	5199.9760	5199.9741
93.50	5199.9775	5199.9764	5199.9752	5199.9730
Max. Deviation (MHz)	0.0225	0.0236	0.0248	0.0270
Max. Deviation (ppm)	4.33	4.54	4.77	5.19
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5200 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
-30	5199.9852	5199.9840	5199.9823	5199.9798
-20	5199.9850	5199.9837	5199.9820	5199.9796
-10	5199.9835	5199.9823	5199.9807	5199.9788
0	5199.9821	5199.9809	5199.9790	5199.9768
10	5199.9808	5199.9795	5199.9780	5199.9762
20	5199.9796	5199.9783	5199.9767	5199.9748
30	5199.9782	5199.9771	5199.9757	5199.9741
40	5199.9766	5199.9751	5199.9735	5199.9715
50	5199.9749	5199.9737	5199.9722	5199.9695
Max. Deviation (MHz)	0.0251	0.0263	0.0278	0.0305
Max. Deviation (ppm)	4.83	5.06	5.35	5.87
Result	Complies			

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5785 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5784.9777	5784.9763	5784.9745	5784.9724
110.00	5784.9765	5784.9752	5784.9736	5784.9717
93.50	5784.9751	5784.9740	5784.9728	5784.9706
Max. Deviation (MHz)	0.0249	0.0260	0.0272	0.0294
Max. Deviation (ppm)	4.30	4.49	4.70	5.08
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5785 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
-30	5784.9831	5784.9818	5784.9802	5784.9779
-20	5784.9828	5784.9815	5784.9798	5784.9774
-10	5784.9813	5784.9801	5784.9785	5784.9766
0	5784.9799	5784.9787	5784.9768	5784.9746
10	5784.9786	5784.9773	5784.9758	5784.9740
20	5784.9774	5784.9761	5784.9745	5784.9726
30	5784.9760	5784.9749	5784.9735	5784.9719
40	5784.9744	5784.9729	5784.9713	5784.9693
50	5784.9727	5784.9715	5784.9700	5784.9673
Max. Deviation (MHz)	0.0273	0.0285	0.0300	0.0327
Max. Deviation (ppm)	4.72	4.92	5.18	5.65
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	5189.9808	5189.9794	5189.9776	5189.9755
110.00	5189.9796	5189.9783	5189.9767	5189.9748
93.50	5189.9782	5189.9771	5189.9759	5189.9737
Max. Deviation (MHz)	0.0218	0.0229	0.0241	0.0263
Max. Deviation (ppm)	4.20	4.41	4.65	5.07
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5190 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
-30	5189.9866	5189.9853	5189.9836	5189.9812
-20	5189.9850	5189.9837	5189.9820	5189.9796
-10	5189.9835	5189.9823	5189.9807	5189.9788
0	5189.9821	5189.9809	5189.9790	5189.9768
10	5189.9808	5189.9795	5189.9780	5189.9762
20	5189.9796	5189.9783	5189.9767	5189.9748
30	5189.9782	5189.9771	5189.9757	5189.9741
40	5189.9766	5189.9751	5189.9735	5189.9715
50	5189.9749	5189.9737	5189.9722	5189.9695
Max. Deviation (MHz)	0.0251	0.0263	0.0278	0.0305
Max. Deviation (ppm)	4.84	5.07	5.36	5.88
Result	Complies			

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5755 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5754.9786	5754.9772	5754.9754	5754.9733
110.00	5754.9774	5754.9761	5754.9745	5754.9726
93.50	5754.9760	5754.9749	5754.9737	5754.9715
Max. Deviation (MHz)	0.0240	0.0251	0.0263	0.0285
Max. Deviation (ppm)	4.17	4.36	4.57	4.95
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5755 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
-30	5754.9844	5754.9831	5754.9814	5754.9790
-20	5754.9828	5754.9815	5754.9798	5754.9774
-10	5754.9813	5754.9801	5754.9785	5754.9766
0	5754.9799	5754.9787	5754.9768	5754.9746
10	5754.9786	5754.9773	5754.9758	5754.9740
20	5754.9774	5754.9761	5754.9745	5754.9726
30	5754.9760	5754.9749	5754.9735	5754.9719
40	5754.9744	5754.9729	5754.9713	5754.9693
50	5754.9727	5754.9715	5754.9700	5754.9673
Max. Deviation (MHz)	0.0273	0.0285	0.0300	0.0327
Max. Deviation (ppm)	4.74	4.95	5.21	5.68
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	5209.9803	5209.9789	5209.9771	5209.9750
110.00	5209.9791	5209.9778	5209.9762	5209.9743
93.50	5209.9777	5209.9766	5209.9754	5209.9732
Max. Deviation (MHz)	0.0223	0.0234	0.0246	0.0268
Max. Deviation (ppm)	4.28	4.49	4.72	5.15
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5210 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
-30	5209.9871	5209.9858	5209.9841	5209.9817
-20	5209.9850	5209.9837	5209.9820	5209.9796
-10	5209.9835	5209.9823	5209.9807	5209.9788
0	5209.9821	5209.9809	5209.9790	5209.9768
10	5209.9808	5209.9795	5209.9780	5209.9762
20	5209.9796	5209.9783	5209.9767	5209.9748
30	5209.9782	5209.9771	5209.9757	5209.9741
40	5209.9766	5209.9751	5209.9735	5209.9715
50	5209.9749	5209.9737	5209.9722	5209.9695
Max. Deviation (MHz)	0.0251	0.0263	0.0278	0.0305
Max. Deviation (ppm)	4.82	5.05	5.34	5.86
Result	Complies			

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5775 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5774.9778	5774.9764	5774.9746	5774.9725
110.00	5774.9766	5774.9753	5774.9737	5774.9718
93.50	5774.9752	5774.9741	5774.9729	5774.9707
Max. Deviation (MHz)	0.0248	0.0259	0.0271	0.0293
Max. Deviation (ppm)	4.29	4.48	4.69	5.07
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5775 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
-30	5774.9845	5774.9832	5774.9815	5774.9791
-20	5774.9824	5774.9811	5774.9794	5774.9770
-10	5774.9809	5774.9797	5774.9781	5774.9762
0	5774.9795	5774.9783	5774.9764	5774.9742
10	5774.9782	5774.9769	5774.9754	5774.9736
20	5774.9770	5774.9757	5774.9741	5774.9722
30	5774.9756	5774.9745	5774.9731	5774.9715
40	5774.9740	5774.9725	5774.9709	5774.9689
50	5774.9723	5774.9711	5774.9696	5774.9669
Max. Deviation (MHz)	0.0277	0.0289	0.0304	0.0331
Max. Deviation (ppm)	4.80	5.01	5.27	5.73
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)
EMI Receiver	Agilent	N9038A	My52260123	9kHz ~ 8.45GHz	Jan. 27, 2016	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150kHz ~ 100MHz	Dec. 08, 2015	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Dec. 23, 2015	Conduction (CO01-CB)
COND Cable	Woken	Cable	01	150kHz ~ 30MHz	May 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)
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	8447D	2944A10991	0.1MHz ~ 1.3GHz	Mar. 15, 2016	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Jan. 12, 2015	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Jan. 18, 2016	Radiation (03CH01-CB)
Pre-Amplifier	WM	TF-130N-R1	923365	26GHz ~ 40GHz	Nov.13, 2015	Radiation (03CH01-CB)
Spectrum Analyzer	R&S	FSP40	100056	9kHz ~ 40GHz	Oct. 27, 2015	Radiation (03CH01-CB)
EMI Receiver	Agilent	N9038A	MY52260123	9kHz ~ 8.4GHz	Jan. 27, 2016	Radiation (03CH01-CB)
EMI Test	R&S	ESCS	100355	9kHz ~ 2.75GHz	May 16, 2016	Radiation (03CH01-CB)
RF Cable-low	Woken	Low Cable-1	N/A	30 MHz ~ 1 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-16	N/A	1 GHz ~ 18 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-17	N/A	1 GHz ~ 18 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G-1	N/A	18GHz ~ 40 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G-2	N/A	18GHz ~ 40 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
Loop Antenna	Teseq	HLA 6120	24155	9kHz - 30 MHz	Mar. 12, 2015*	Radiation (03CH01-CB)
Spectrum analyzer	R&S	FSV40	100979	9kHz~40GHz	Dec. 12, 2014	Conducted (TH01-CB)
Spectrum analyzer	R&S	FSV40	100979	9kHz~40GHz	Dec. 09, 2015	Conducted (TH01-CB)
Temp. and Humidity Chamber	Ten Billion	TTH-D3SP	TBN-931011	-30~100 degree	Jun. 02, 2015	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-7	1 GHz – 26.5 GHz	Nov. 15, 2014	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. 15, 2014	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-8	1 GHz – 26.5 GHz	Nov. 02, 2015	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-9	1 GHz – 26.5 GHz	Nov. 15, 2014	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-9	1 GHz – 26.5 GHz	Nov. 02, 2015	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-10	1 GHz – 26.5 GHz	Nov. 15, 2014	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. 15, 2014	Conducted (TH01-CB)

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

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

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

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

6. MEASUREMENT UNCERTAINTY

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