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FCC RADIO TEST REPORT

Applicant's company	Aerohive Networks Inc.
Applicant Address	330 Gibraltar Drive, Sunnyvale, CA 94089, USA
FCC ID	WBV-AP1130
Manufacturer's company	Wistron NeWeb Corporation
Manufacturer Address	20 Park Avenue II, Hsinchu Science Park, Hsinchu 308, Taiwan, R.O.C.

Product Name	Access Point
Brand Name	Aerohive
Model No.	AP1130
Test Rule Part(s)	47 CFR FCC Part 15 Subpart E § 15.407
Test Freq. Range	5250 ~ 5350MHz / 5470 ~ 5725MHz
Received Date	Jul. 22, 2014
Final Test Date	Feb. 10, 2015
Submission Type	Class II Change

Statement

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

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

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

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

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



Table of Contents

1. CERTIFICATE OF COMPLIANCE	1
2. SUMMARY OF THE TEST RESULT	2
3. GENERAL INFORMATION	3
3.1. Product Details.....	3
3.2. Accessories.....	7
3.3. Table for Filed Antenna.....	8
3.4. Table for Carrier Frequencies	10
3.5. Table for Test Modes.....	11
3.6. Table for Testing Locations.....	12
3.7. Table for Supporting Units	13
3.8. Table for Class II Change	14
3.9. Table for Parameters of Test Software Setting	14
3.10. EUT Operation during Test	17
3.11. Duty Cycle	17
3.12. Test Configurations	18
4. TEST RESULT	22
4.1. AC Power Line Conducted Emissions Measurement.....	22
4.2. 26dB Bandwidth and 99% Occupied Bandwidth Measurement.....	26
4.3. 6dB Spectrum Bandwidth	76
4.4. Maximum Conducted Output Power Measurement.....	88
4.5. Power Spectral Density Measurement	98
4.6. Radiated Emissions Measurement.....	139
4.7. Band Edge Emissions Measurement	228
4.8. Frequency Stability Measurement	258
4.9. Antenna Requirements	260
5. LIST OF MEASURING EQUIPMENTS	261
6. MEASUREMENT UNCERTAINTY.....	263
APPENDIX A. TEST PHOTOS	A1 ~ A6
APPENDIX B. MAXIMUM PERMISSIBLE EXPOSURE	B1 ~ B3
APPENDIX C. RADIATED EMISSION CO-LOCATION REPORT.....	C1 ~ C3



History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR472301AC	Rev. 01	Initial issue of report	Feb. 12, 2015



1. CERTIFICATE OF COMPLIANCE

Product Name : Access Point
Brand Name : Aerohive
Model No. : AP1130
Applicant : Aerohive Networks Inc.
Test Rule Part(s) : 47 CFR FCC Part 15 Subpart E § 15.407

Sportun International as requested by the applicant to evaluate the EMC performance of the product sample received on Jul. 22, 2014 would like to declare that the tested sample has been evaluated and found to be in compliance with the tested rule parts. The data recorded as well as the test configuration specified is true and accurate for showing the sample's EMC nature.

A handwritten signature in blue ink that reads "Sam Chen".

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 (Note 1)	Complies	9.04 dB
4.2	15.407(a)	26dB Spectrum Bandwidth and 99% Occupied Bandwidth	Complies	-
4.3	15.407(a)	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	0.05 dB
4.6	15.407(b)	Radiated Emissions	Complies	3.14 dB
4.7	15.407(b)	Band Edge Emissions	Complies	0.01 dB
4.8	15.407(g)	Frequency Stability	Complies	-
4.9	15.203	Antenna Requirements	Complies	-

Note 1: The adapter and PoE are for measurement only, would not be marketed. Thus, only adapter mode was tested for conducted emission test.

Note 2: The customer designated the test mode.

3. GENERAL INFORMATION

3.1. Product Details

IEEE 802.11n/ac

Items	Description
Product Type	WLAN (2TX, 2RX)
Radio Type	Intentional Transceiver
Power Type	From Power Adapter or PoE
Modulation	see the below table for IEEE 802.11n/ac
Data Modulation	For 802.11n: OFDM (BPSK / QPSK / 16QAM / 64QAM) For 802.11ac: OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM)
Data Rate (Mbps)	see the below table for IEEE 802.11n/ac
Frequency Range	5250 ~ 5350MHz / 5470 ~ 5725MHz
Channel Number	16 for 20MHz bandwidth ; 8 for 40MHz bandwidth 4 for 80MHz bandwidth
Channel Band Width (99%)	<p style="text-align: center;"><For Non-Beamforming Mode></p> <p><u>For 5GHz Band: Ant. 2</u></p> <p>Band 2: 802.11ac MCS0/Nss1 (VHT20): 18.07 MHz ; 802.11ac MCS0/Nss1 (VHT40): 36.41 MHz ; 802.11ac MCS0/Nss1 (VHT80): 75.89 MHz</p> <p>Band 3: 802.11ac MCS0/Nss1 (VHT20): 18.20 MHz ; 802.11ac MCS0/Nss1 (VHT40): 36.48 MHz ; 802.11ac MCS0/Nss1 (VHT80): 76.92 MHz</p> <p><u>For 5GHz Band: Ant. 3</u></p> <p>Band 2: 802.11ac MCS0/Nss1 (VHT20): 18.07 MHz ; 802.11ac MCS0/Nss1 (VHT40): 36.15 MHz ; 802.11ac MCS0/Nss1 (VHT80): 75.89 MHz</p> <p>Band 3: 802.11ac MCS0/Nss1 (VHT20): 18.07 MHz ; 802.11ac MCS0/Nss1 (VHT40): 36.48 MHz ; 802.11ac MCS0/Nss1 (VHT80): 76.80 MHz</p>

Channel Band Width (99%)	<p><For Beamforming Mode></p> <p><u>For 5GHz Band: Ant. 2</u></p> <p>Band 2:</p> <p>802.11ac MCS0/Nss1 (VHT20): 17.94 MHz ; 802.11ac MCS0/Nss1 (VHT40): 36.41 MHz ; 802.11ac MCS0/Nss1 (VHT80): 75.89 MHz</p> <p>Band 3:</p> <p>802.11ac MCS0/Nss1 (VHT20): 17.94 MHz ; 802.11ac MCS0/Nss1 (VHT40): 36.48 MHz ; 802.11ac MCS0/Nss1 (VHT80): 76.80 MHz</p> <p><u>For 5GHz Band: Ant. 3</u></p> <p>Band 2:</p> <p>802.11ac MCS0/Nss1 (VHT20): 17.94 MHz ; 802.11ac MCS0/Nss1 (VHT40): 36.41 MHz ; 802.11ac MCS0/Nss1 (VHT80): 75.89 MHz</p> <p>Band 3:</p> <p>802.11ac MCS0/Nss1 (VHT20): 18.07 MHz ; 802.11ac MCS0/Nss1 (VHT40): 36.48 MHz ; 802.11ac MCS0/Nss1 (VHT80): 76.80 MHz</p>
Maximum Conducted Output Power	<p><For Non-Beamforming Mode></p> <p><u>For 5GHz Band: Ant. 2</u></p> <p>Band 2:</p> <p>802.11ac MCS0/Nss1 (VHT20): 21.85 dBm ; 802.11ac MCS0/Nss1 (VHT40): 23.81 dBm ; 802.11ac MCS0/Nss1 (VHT80): 15.69 dBm</p> <p>Band 3:</p> <p>802.11ac MCS0/Nss1 (VHT20): 21.93 dBm ; 802.11ac MCS0/Nss1 (VHT40): 23.87 dBm ; 802.11ac MCS0/Nss1 (VHT80): 22.77 dBm</p> <p><u>For 5GHz Band: Ant. 3</u></p> <p>Band 2:</p> <p>802.11ac MCS0/Nss1 (VHT20): 10.21 dBm ; 802.11ac MCS0/Nss1 (VHT40): 12.84 dBm ; 802.11ac MCS0/Nss1 (VHT80): 11.91 dBm</p> <p>Band 3:</p> <p>802.11ac MCS0/Nss1 (VHT20): 10.27 dBm ; 802.11ac MCS0/Nss1 (VHT40): 12.83 dBm ; 802.11ac MCS0/Nss1 (VHT80): 12.88 dBm</p>

Maximum Conducted Output Power	<p><For Beamforming Mode></p> <p><u>For 5GHz Band: Ant. 2</u></p> <p>Band 2: 802.11ac MCS0/Nss1 (VHT20): 21.43 dBm ; 802.11ac MCS0/Nss1 (VHT40): 21.24 dBm ; 802.11ac MCS0/Nss1 (VHT80): 15.64 dBm</p> <p>Band 3: 802.11ac MCS0/Nss1 (VHT20): 21.46 dBm ; 802.11ac MCS0/Nss1 (VHT40): 21.28 dBm ; 802.11ac MCS0/Nss1 (VHT80): 20.94 dBm</p> <p><u>For 5GHz Band: Ant. 3</u></p> <p>Band 2: 802.11ac MCS0/Nss1 (VHT20): 9.87dBm ; 802.11ac MCS0/Nss1 (VHT40): 9.88 dBm ; 802.11ac MCS0/Nss1 (VHT80): 9.83 dBm</p> <p>Band 3: 802.11ac MCS0/Nss1 (VHT20): 9.87 dBm ; 802.11ac MCS0/Nss1 (VHT40): 9.82 dBm ; 802.11ac MCS0/Nss1 (VHT80): 9.85 dBm</p>
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

IEEE 802.11a

Items	Description
Product Type	WLAN (1TX, 1RX)
Radio Type	Intentional Transceiver
Power Type	From Power Adapter or PoE
Modulation	OFDM for IEEE 802.11a
Data Modulation	OFDM (BPSK / QPSK / 16QAM / 64QAM)
Data Rate (Mbps)	OFDM (6/9/12/18/24/36/48/54)
Frequency Range	5250 ~ 5350MHz / 5470 ~ 5725MHz
Channel Number	16
Channel Band Width (99%)	<p style="text-align: center;"><For Non-Beamforming Mode></p> <p style="text-align: center;"><u>For 5GHz Band: Ant. 2</u></p> <p style="text-align: center;">Band 2: 20.51 MHz ; Band 3: 28.00 MHz</p> <p style="text-align: center;"><u>For 5GHz Band: Ant. 3</u></p> <p style="text-align: center;">Band 2: 17.05 MHz ; Band 3: 16.96 MHz</p>
Maximum Conducted Output Power	<p style="text-align: center;"><For Non-Beamforming Mode></p> <p style="text-align: center;"><u>For 5GHz Band: Ant. 2</u></p> <p style="text-align: center;">Band 2: 23.89 dBm ; Band 3: 23.75 dBm</p> <p style="text-align: center;"><u>For 5GHz Band: Ant. 3</u></p> <p style="text-align: center;">Band 2: 12.77 dBm ; Band 3: 12.82 dBm</p>
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

Items	Description	
Communication Mode	<input checked="" type="checkbox"/> IP Based (Load Based)	<input type="checkbox"/> Frame Based
TPC Function	<input checked="" type="checkbox"/> With TPC	<input type="checkbox"/> Without TPC
Weather Band (5600~5650MHz)	<input checked="" type="checkbox"/> With 5600~5650MHz	<input type="checkbox"/> Without 5600~5650MHz
Beamforming Function	<input checked="" type="checkbox"/> With beamforming in 802.11n/ac for 2.4G/5GHz	<input type="checkbox"/> Without beamforming
Operating Mode	<input checked="" type="checkbox"/> Outdoor access point <input type="checkbox"/> Indoor access point <input checked="" type="checkbox"/> Fixed point-to-point access points <input type="checkbox"/> Mobile and portable client devices	

Antenna and Band width

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

IEEE 11n/ac Spec.

Protocol	Number of Transmit Chains (NTX)	Data Rate / MCS
802.11n (HT20)	2	MCS 0-15
802.11n (HT40)	2	MCS 0-15
802.11ac (VHT20)	2	MCS 0-8/Nss1-2
802.11ac (VHT40)	2	MCS 0-9/Nss1-2
802.11ac (VHT80)	2	MCS 0-9/Nss1-2

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

Then EUT support HT20 and HT40.

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

Note 3: Modulation modes consist of below configuration:

HT20/HT40: IEEE 802.11n, VHT20/VHT40/VHT80: IEEE 802.11ac

3.2. Accessories

N/A

3.3. Table for Filed Antenna

Set	Brand	Model Name	Antenna Type	Connector
1	WNC	Veab-n01	Diople Antenna	N Type
2	WNC	Veab-n01	Diople Antenna	N Type
3	KBT	TDJ-5158BKR X 2A-RZ1	Panel Antenna	N Type

Set	Antenna Gain (dBi)		Cable Loss (dBi)		True Gain (dBi)		Remark
	2.4GHz	5GHz	2.4GHz	5GHz	2.4GHz	5GHz	
1	4.38	-	-	-	4.38	-	P to M
2	-	5.5	-	-	-	5.5	
3	-	18	-	0.9	-	17.1	P to P

Note : 1. The EUT has three set antennas.

2. The panel antenna polarization one is Horizontal and the other one is Vertical. Thus panel antenna doesn't need to evaluate array gain.
3. This product will require professional installation.

<For 2.4GHz Band>

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

Only Chain 1 can be used as transmitting/receiving antenna.

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

Both Chain 1 and Chain 2 could transmit/receive simultaneously.

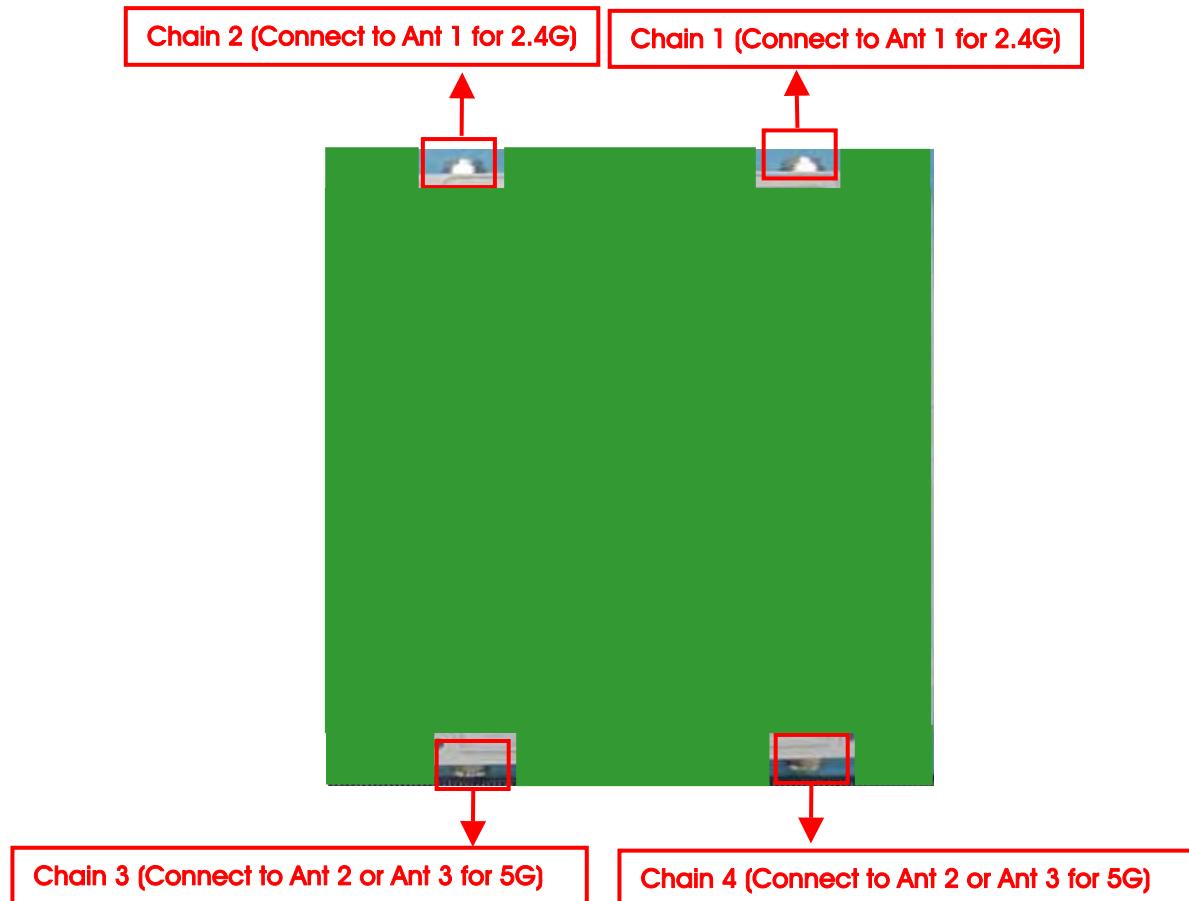
<For 5GHz Band>

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

Only Chain 3 can be used as transmitting/receiving antenna.

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

Both Chain 3 and Chain 4 could transmit/receive simultaneously.



3.4. Table for Carrier Frequencies

There are three bandwidth systems.

For 20MHz bandwidth systems, use Channel 52, 56, 60, 64, 100, 104, 108, 112, 116, 120, 124, 128, 132, 136, 140, 144.

For 40MHz bandwidth systems, use Channel 54, 62, 102, 110, 118, 126, 134, 144.

For 80MHz bandwidth systems, use Channel 58, 106, 122,138.

Frequency Band	Channel No.	Frequency	Channel No.	Frequency
5250~5350 MHz Band 2	52	5260 MHz	60	5300 MHz
	54	5270 MHz	62	5310 MHz
	56	5280 MHz	64	5320 MHz
	58	5290 MHz	-	-
5470~5725 MHz Band 3	100	5500 MHz	124	5620 MHz
	102	5510 MHz	126	5630 MHz
	104	5520 MHz	128	5640 MHz
	106	5530 MHz	132	5660 MHz
	108	5540 MHz	134	5670 MHz
	110	5550 MHz	136	5680 MHz
	112	5560 MHz	138	5690 MHz
	116	5580 MHz	140	5700 MHz
	118	5590 MHz	142	5710 MHz
	120	5600 MHz	144	5720 MHz
	122	5610 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	11ac VHT20	Band 2-3	MCS0/Nss1	52/60/64/100/116/140/144	3+4
	11ac VHT40	Band 2-3	MCS0/Nss1	/54/62/102/110/134/142	3+4
	11ac VHT80	Band 2-3	MCS0/Nss1	58/106/122/138	3+4
	11a/BPSK	Band 2-3	6Mbps	52/60/64/100/116/140/144	3
Power Spectral Density	11ac VHT20	Band 2-3	MCS0/Nss1	52/60/64/100/116/140/144	3+4
	11ac VHT40	Band 2-3	MCS0/Nss1	54/62/102/110/134/142	3+4
	11ac VHT80	Band 2-3	MCS0/Nss1	58/106/122/138	3+4
	11a/BPSK	Band 2-3	6Mbps	52/60/64/100/116/140/144	3
26dB&6dB Spectrum Bandwidth 99% Occupied Bandwidth Measurement	11ac VHT20	Band 2-3	MCS0/Nss1	52/60/64/100/116/140/144	3+4
	11ac VHT40	Band 2-3	MCS0/Nss1	54/62/102/110/134/142	3+4
	11ac VHT80	Band 2-3	MCS0/Nss1	58/106/122/138	3+4
	11a/BPSK	Band 2-3	6Mbps	52/60/64/100/116/140/144	3
Radiated Emission Below 1GHz	Normal Link		-	-	-
Radiated Emission Above 1GHz	11ac VHT20	Band 2-3	MCS0/Nss1	52/60/64/100/116/140/144	3+4
	11ac VHT40	Band 2-3	MCS0/Nss1	54/62/102/110/134/142	3+4
	11ac VHT80	Band 2-3	MCS0/Nss1	58/106/122/138	3+4
	11a/BPSK	Band 2-3	6Mbps	52/60/64/100/116/140/144	3
Band Edge Emission	11ac VHT20	Band 2-3	MCS0/Nss1	52/60/64/100/116/140/144	3+4
	11ac VHT40	Band 2-3	MCS0/Nss1	54/62/102/110/134/142	3+4
	11ac VHT80	Band 2-3	MCS0/Nss1	58/106/122/138	3+4
	11a/BPSK	Band 2-3	6Mbps	52/60/64/100/116/140/144	3
Frequency Stability	Un-modulation		-	60/100	3+4

Note 1: There are two modes of EUT, one is beamforming mode, and the other is non-beamforming mode for 802.11n/ac in 2.4GHz/5GHz, Beamforming mode and non-beamforming mode has been test and record in this test report.

Note 2: VHT20/VHT40 covers HT20/HT40, due to same modulation.

The following test modes were performed for all tests:

For Conducted Emission test:

Mode 1. EUT standing with Adapter

For Radiated Emission test <Below 1GHz>:

Mode 1. EUT standing with Adapter

Mode 2. EUT standing with PoE (9001GO)

Mode 3. EUT standing with PoE (PD-9001GR/AT/AC)

Mode 3 is the worst case, so it was selected to record in this test report.

For Radiated Emission test <Above 1GHz>:

Mode 1. EUT standing with Ant. 2 (5GHz)

Mode 2. EUT standing with Ant. 3 (5GHz)

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

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

3.6. Table for Testing Locations

Test Site Location					
Test Site No.	Site Category	Location	FCC Reg. No.	IC File No.	VCCI Reg. No.
03CH01-CB	SAC	Hsin Chu	262045	IC 4086D	-
CO01-CB	Conduction	Hsin Chu	262045	IC 4086D	-
TH01-CB	OVEN Room	Hsin Chu	-	-	-

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



3.7. Table for Supporting Units

For Test Site No: CO01-CB

Support Unit	Brand	Model	FCC ID
NB*3	DELL	E6430	DoC
Adapter	DVE	DSA-24PFD-15 FUK 120200	N/A

For Test Site No: 03CH01-CB<Below 1GHz>

Support Unit	Brand	Model	FCC ID
NB	DELL	M1340	E2K4965AGNM
NB	DELL	E6430	DoC
NB	DELL	D420	E2KWM3945ABG
PoE	Power Dsine	PD-9001GR/AT/AC	N/A

<For Non-Beamforming Mode>

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

Support Unit	Brand	Model	FCC ID
NB	DELL	M1330	E2K4965AGNM

<For Beamforming Mode>

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

Support Unit	Brand	Model	FCC ID
NB	DELL	M1330	E2K4965AGNM
NB	DELL	M1340	E2K4965AGNM
WLAN ac Dongle	Netgear	A6200	PY31220200

For Test Site No: TH01-CB

Support Unit	Brand	Model	FCC ID
NB	DELL	E6220	DoC

3.8. Table for Class II Change

This product is an extension of original one reported under Sporton project number: FR472301AB

Below is the table for the change of the product with respect to the original one.

Modifications	Performance Checking
Add Band 2 and Band 3 (5250~5350 MHz, 5470~5725 MHz) for this device.	1. AC Power Line Conducted Emissions 2. 26dB Spectrum Bandwidth and 99% Occupied Bandwidth 3. Maximum Conducted Output Power 4. Power Spectral Density 5. Radiated Emissions 6. Band Edge Emissions 7. Frequency Stability 8. Co-location MPE 9. Radiated Emission Co-location

3.9. Table for Parameters of Test Software Setting

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

<For Non-Beamforming Mode>

For 5GHz Band: Ant. 2

Power Parameters of IEEE 802.11ac MCS0/Nss1 VHT20

Test Software Version	Putty ver 0.62.0.0			
Frequency	5260 MHz	5300 MHz	5320 MHz	
MCS0/Nss1 VHT20	72	72	72	
Frequency	5500 MHz	5580 MHz	5700 MHz	5720MHz
MCS0/Nss1 VHT20	72	70	68	77

Power Parameters of IEEE 802.11ac MCS0/Nss1 VHT40

Test Software Version	Putty ver 0.62.0.0					
Frequency	5270 MHz	5310 MHz	5510 MHz	5550 MHz	5670 MHz	5710 MHz
MCS0/Nss1 VHT40	80	58	59	70	70	85

Power Parameters of IEEE 802.11ac MCS0/Nss1 VHT80

Test Software Version	Putty ver 0.62.0.0			
Frequency	5290 MHz	5530 MHz	5610 MHz	5690 MHz
MCS0/Nss1 VHT80	49	42	74	83

Power Parameters of IEEE 802.11a

Test Software Version		Putty ver 0.62.0.0		
Frequency	5260 MHz	5300 MHz	5320 MHz	
802.11a	89	89	78	
Frequency	5500 MHz	5580 MHz	5700 MHz	5720MHz
802.11a	83	93	76	96

For 5GHz Band: Ant. 3
Power Parameters of IEEE 802.11ac MCS0/Nss1 VHT20

Test Software Version		Putty ver 0.62.0.0		
Frequency	5260 MHz	5300 MHz	5320 MHz	
MCS0/Nss1 VHT20	24	24	24	
Frequency	5500 MHz	5580 MHz	5700 MHz	5720MHz
MCS0/Nss1 VHT20	22	25	27	27

Power Parameters of IEEE 802.11ac MCS0/Nss1 VHT40

Test Software Version		Putty ver 0.62.0.0				
Frequency	5270 MHz	5310 MHz	5510 MHz	5550 MHz	5670 MHz	5710 MHz
MCS0/Nss1 VHT40	33	32	32	33	36	38

Power Parameters of IEEE 802.11ac MCS0/Nss1 VHT80

Test Software Version		Putty ver 0.62.0.0		
Frequency	5290 MHz	5530 MHz	5610 MHz	5690 MHz
MCS0/Nss1 VHT80	32	32	38	40

Power Parameters of IEEE 802.11a

Test Software Version		Putty ver 0.62.0.0		
Frequency	5260 MHz	5300 MHz	5320 MHz	
802.11a	45	45	45	
Frequency	5500 MHz	5580 MHz	5700 MHz	5720MHz
802.11a	43	44	50	52

<For Beamforming Mode>
For 5GHz Band: Ant. 2
Power Parameters of IEEE 802.11ac MCS0/Nss1 VHT20

Test Software Version	Putty ver 0.62.0.0			
Frequency	5260 MHz	5300 MHz	5320 MHz	
MCS0/Nss1 VHT20	71	70	70	
Frequency	5500 MHz	5580 MHz	5700 MHz	5720MHz
MCS0/Nss1 VHT20	70	71	60	76

Power Parameters of IEEE 802.11ac MCS0/Nss1 VHT40

Test Software Version	Putty ver 0.62.0.0					
Frequency	5270 MHz	5310 MHz	5510 MHz	5550 MHz	5670 MHz	5710 MHz
MCS0/Nss1 VHT40	70	54	55	70	66	74

Power Parameters of IEEE 802.11ac MCS0/Nss1 VHT80

Test Software Version	Putty ver 0.62.0.0				
Frequency	5290 MHz		5530 MHz		5610 MHz
MCS0/Nss1 VHT80	48		42		70
					76

For 5GHz Band: Ant. 3
Power Parameters of IEEE 802.11ac MCS0/Nss1 VHT20

Test Software Version	Putty ver 0.62.0.0			
Frequency	5260 MHz	5300 MHz	5320 MHz	
MCS0/Nss1 VHT20	22	22	22	
Frequency	5500 MHz	5580 MHz	5700 MHz	5720MHz
MCS0/Nss1 VHT20	20	22	26	26

Power Parameters of IEEE 802.11ac MCS0/Nss1 VHT40

Test Software Version	Putty ver 0.62.0.0					
Frequency	5270 MHz	5310 MHz	5510 MHz	5550 MHz	5670 MHz	5710 MHz
MCS0/Nss1 VHT40	22	22	20	20	25	25

Power Parameters of IEEE 802.11ac MCS0/Nss1 VHT80

Test Software Version	Putty ver 0.62.0.0				
Frequency	5290 MHz	5530 MHz	5610 MHz	5690 MHz	
MCS0/Nss1 VHT80	25	24	26	28	

3.10. EUT Operation during Test

For non-beamforming mode:

The EUT was programmed to be in continuously transmitting mode.

For beamforming mode:

For Conducted Mode:

The EUT was programmed to be in continuously transmitting mode.

For Radiated Mode:

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

The program was executed as follows:

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

3.11. Duty Cycle

For non-beamforming mode:

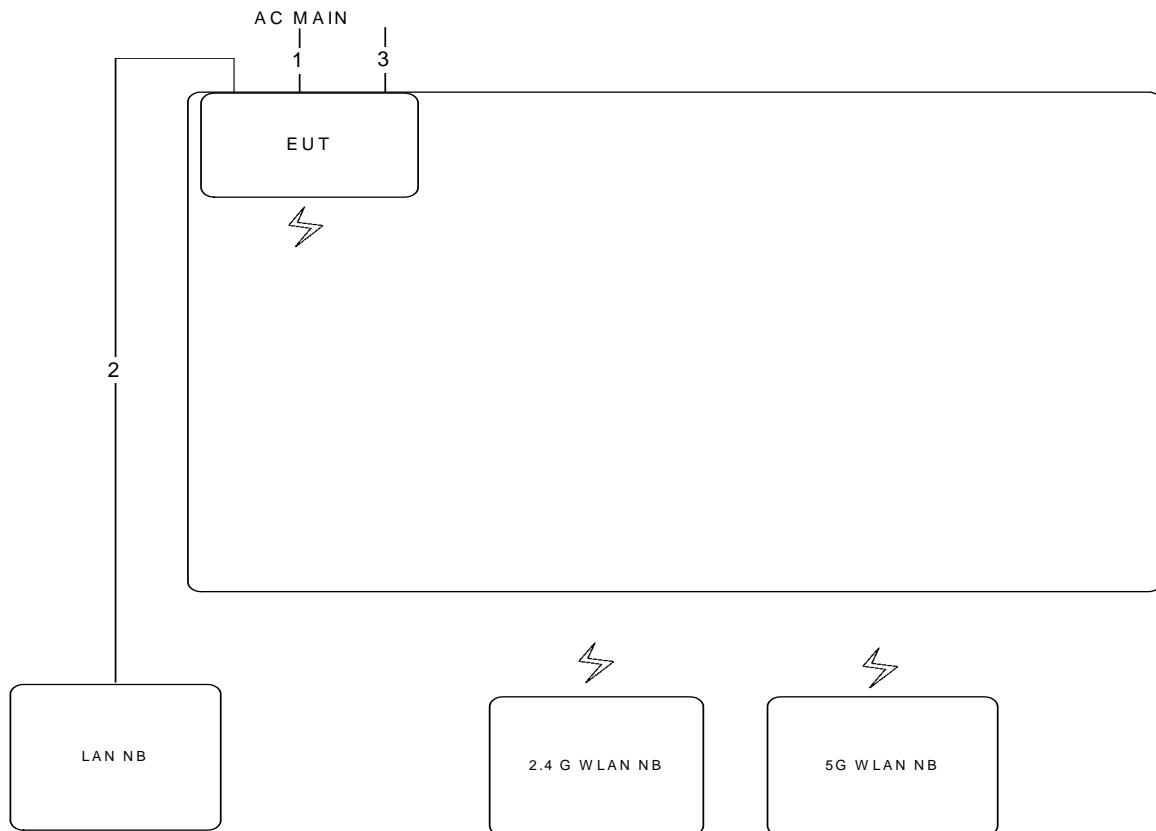
Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11ac MCS0/Nss1 VHT20	1.920	2.02	95.05%	0.22	0.52
802.11ac MCS0/Nss1 VHT40	0.940	1.05	89.52%	0.48	1.06
802.11ac MCS0/Nss1 VHT80	0.420	0.55	76.36%	1.17	2.38
802.11a	2.058	2.156	95.45%	0.20	0.49

For beamforming mode:

Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11ac MCS0/Nss1 VHT20	3.840	4.2	91.43%	0.39	0.26
802.11ac MCS0/Nss1 VHT40	4.600	4.88	94.26%	0.26	0.22
802.11ac MCS0/Nss1 VHT80	5.080	5.44	93.38%	0.30	0.20

3.12. Test Configurations

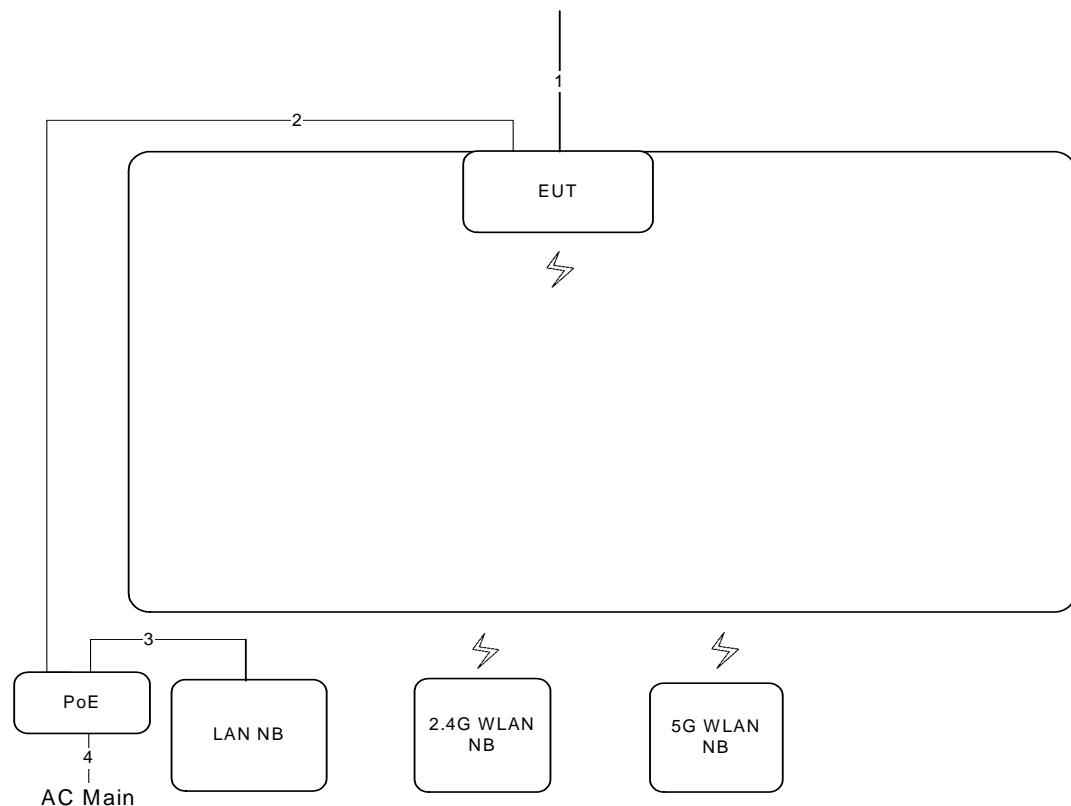
3.12.1. AC Power Line Conduction Emissions Test Configuration



Item	Connection	Shield	Length
1	Power cable	No	1.5m
2	RJ-45 cable	No	10m
3	Ground cable	No	1.8m

3.12.2. Radiation Emissions Test Configuration

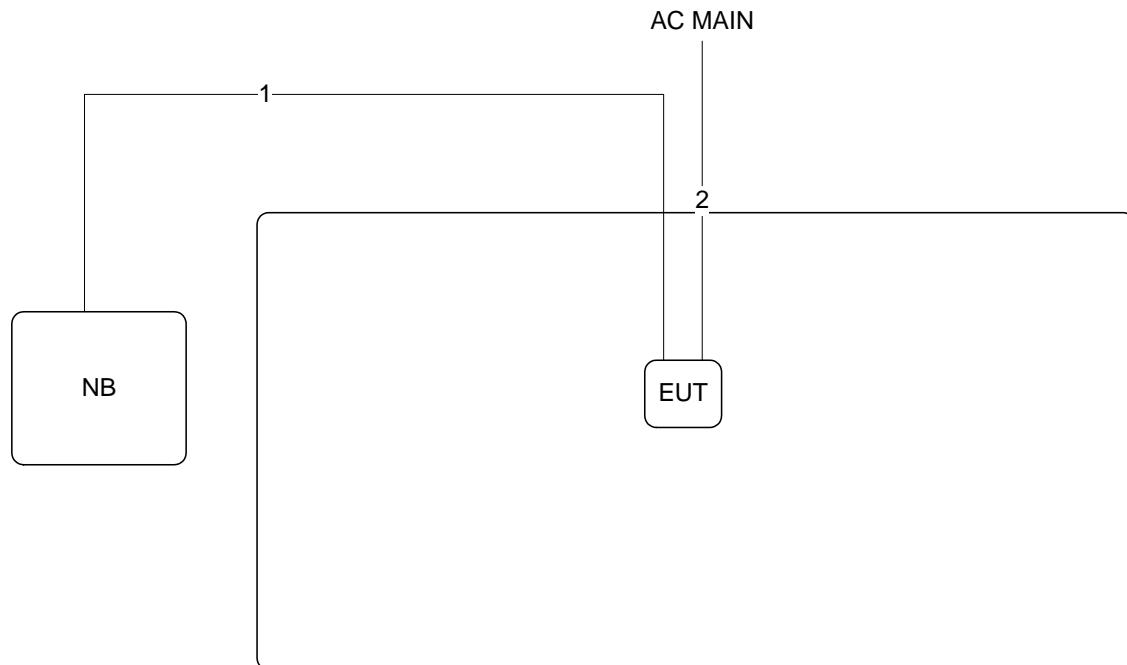
Test Configuration: 30MHz~1GHz



Item	Connection	Shield	Length
1	Ground cable	No	1.8m
2	RJ-45 cable	No	10m
3	RJ-45 cable	No	1.5m
4	Power cable	No	2m

Test Configuration: above 1GHz

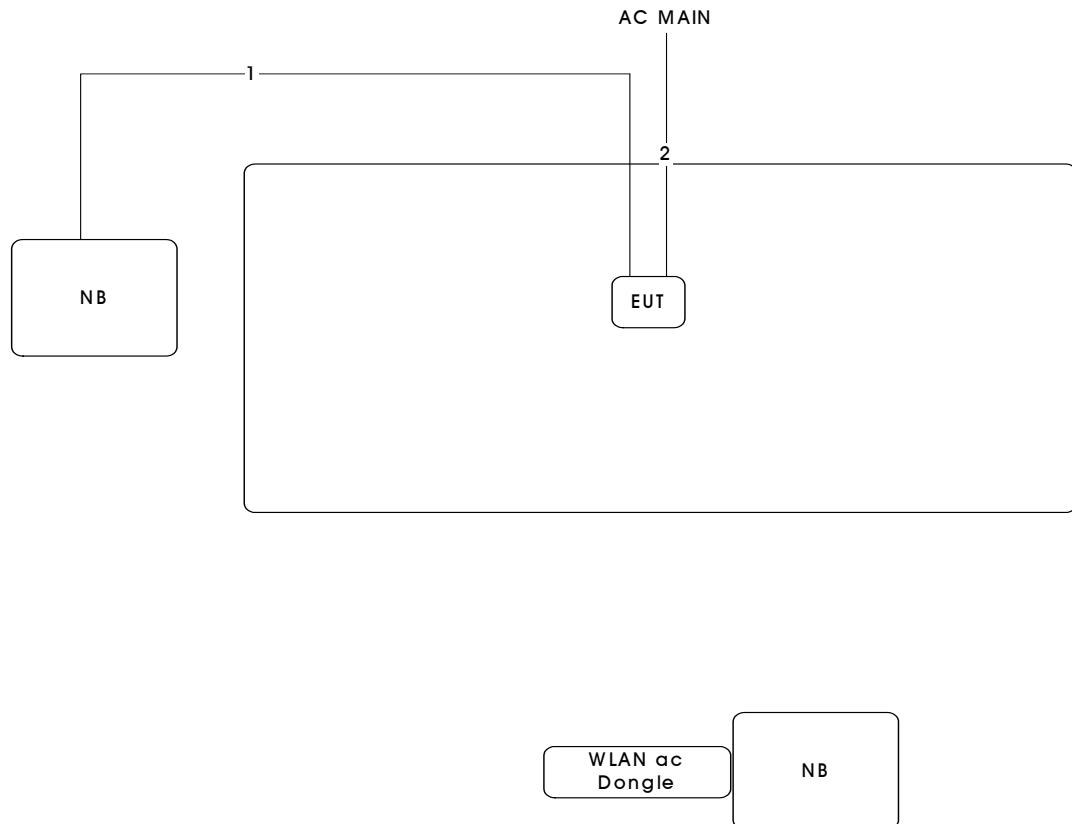
<For Non-Beamforming Mode>



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

Test Configuration: above 1GHz

<For Beamforming Mode>



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

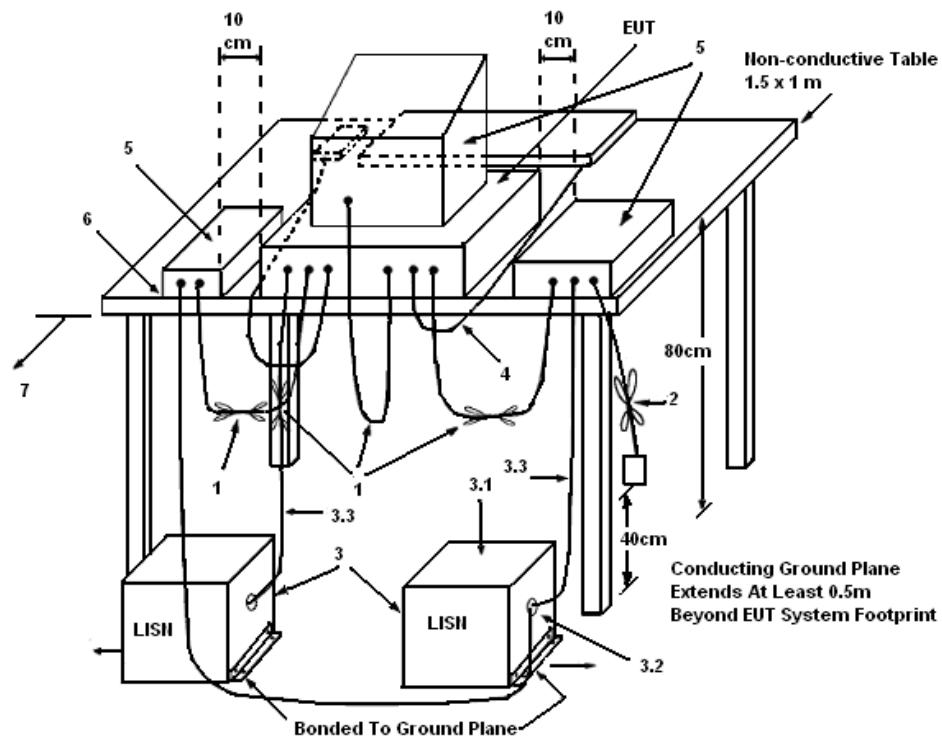
Please refer to section 5 of equipments list in this report. The following table is the setting of the receiver.

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 50Ω . 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

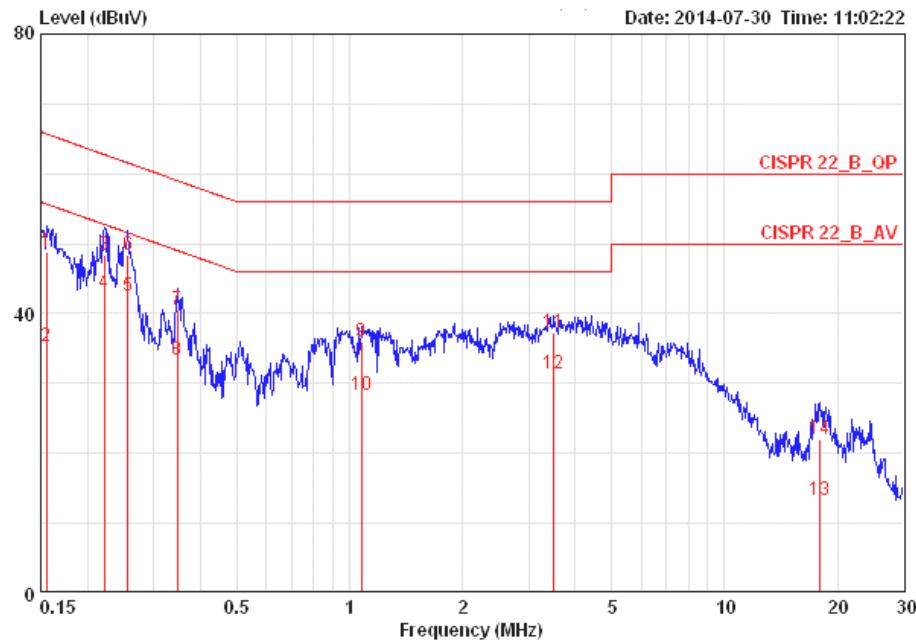
There is no deviation with the original standard.

4.1.6. EUT Operation during Test

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

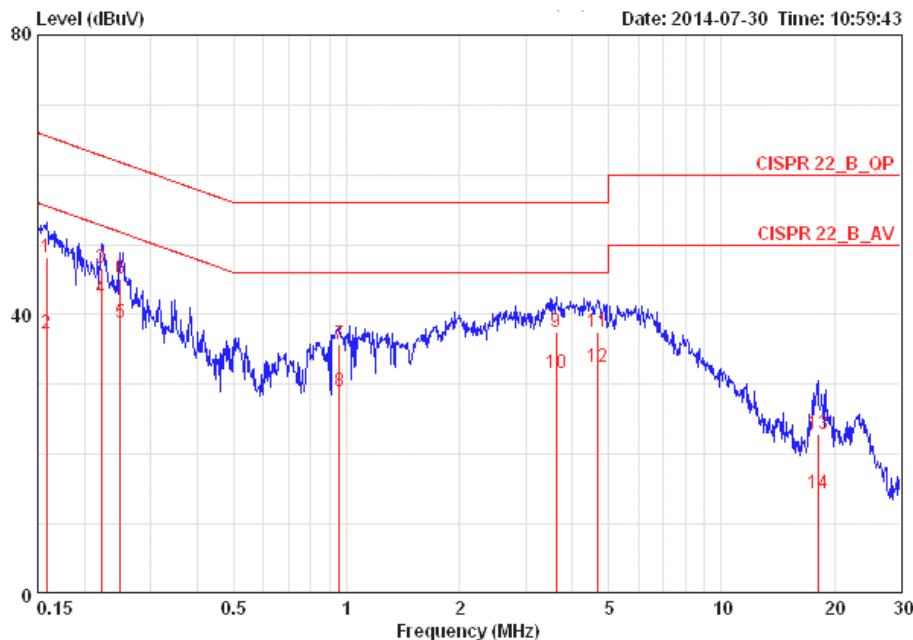
4.1.7. Results of AC Power Line Conducted Emissions Measurement

Temperature	24°C	Humidity	55%
Test Engineer	Parody Lin	Phase	Line
Configuration	Normal Link		



Freq	Level	Over Limit	Limit	LISN	Read	Cable		Remark
						MHz	dBuV	
							dB	
1	0.15567	48.81	-16.88	65.69	0.10	48.55	0.16	LINE OP
2	0.15567	35.40	-20.29	55.69	0.10	35.14	0.16	LINE AVERAGE
3	0.22201	48.34	-14.41	62.74	0.10	48.07	0.17	LINE OP
4	0.22201	42.97	-9.78	52.74	0.10	42.70	0.17	LINE AVERAGE
5	0.25615	42.51	-9.04	51.56	0.10	42.24	0.17	LINE AVERAGE
6	0.25615	48.37	-13.18	61.56	0.10	48.10	0.17	LINE OP
7	0.34646	40.45	-18.60	59.05	0.10	40.17	0.18	LINE OP
8	0.34646	33.25	-15.80	49.05	0.10	32.97	0.18	LINE AVERAGE
9	1.077	35.95	-20.05	56.00	0.13	35.61	0.21	LINE OP
10	1.077	28.31	-17.69	46.00	0.13	27.97	0.21	LINE AVERAGE
11	3.509	37.27	-18.73	56.00	0.20	36.78	0.29	LINE OP
12	3.509	31.48	-14.52	46.00	0.20	30.99	0.29	LINE AVERAGE
13	17.944	13.38	-36.62	50.00	0.46	12.43	0.49	LINE AVERAGE
14	17.944	22.01	-37.99	60.00	0.46	21.06	0.49	LINE OP

Temperature	24°C	Humidity	55%
Test Engineer	Parody Lin	Phase	Neutral
Configuration	Normal Link		



Freq	Over Limit		LISN	Read	Cable	Remark		
	MHz	dBuV	dB	Line Factor	Level	Loss	Pol/Phase	
1	0.15816	48.24	-17.32	65.56	0.09	47.99	0.16	NEUTRAL QP
2	0.15816	37.23	-18.33	55.56	0.09	36.98	0.16	NEUTRAL AVERAGE
3	0.22201	46.75	-16.00	62.74	0.09	46.49	0.17	NEUTRAL QP
4	0.22201	42.34	-10.41	52.74	0.09	42.08	0.17	NEUTRAL AVERAGE
5	0.24945	38.72	-13.06	51.78	0.09	38.46	0.17	NEUTRAL AVERAGE
6	0.24945	45.09	-16.69	61.78	0.09	44.83	0.17	NEUTRAL QP
7	0.95819	35.75	-20.25	56.00	0.12	35.43	0.20	NEUTRAL QP
8	0.95819	29.02	-16.98	46.00	0.12	28.70	0.20	NEUTRAL AVERAGE
9	3.623	37.44	-18.56	56.00	0.18	36.97	0.29	NEUTRAL QP
10	3.623	31.71	-14.29	46.00	0.18	31.24	0.29	NEUTRAL AVERAGE
11	4.672	37.57	-18.43	56.00	0.21	37.04	0.31	NEUTRAL QP
12	4.672	32.52	-13.48	46.00	0.21	31.99	0.31	NEUTRAL AVERAGE
13	18.039	22.83	-37.17	60.00	0.42	21.92	0.49	NEUTRAL QP
14	18.039	14.30	-35.70	50.00	0.42	13.39	0.49	NEUTRAL AVERAGE

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	$\geq 3 \times$ 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

<For Non-Beamforming Mode>

Temperature	26°C	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11ac

For 5GHz Band : Ant. 2

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

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
52	5260 MHz	20.64	17.94
60	5300 MHz	20.51	18.07
64	5320 MHz	22.56	18.07
100	5500 MHz	20.89	18.07
116	5580 MHz	20.51	18.07
140	5700 MHz	20.38	18.20
144	5720 MHz	22.24	17.92

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

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
54	5270 MHz	60.76	36.15
62	5310 MHz	38.97	36.41
102	5510 MHz	38.71	36.41
110	5550 MHz	38.97	36.41
134	5670 MHz	38.97	36.15
142	5710 MHz	57.92	36.48

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

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
58	5290 MHz	82.05	75.89
106	5530 MHz	82.05	76.92
122	5610 MHz	87.04	76.16
138	5690 MHz	103.68	76.80

For 5GHz Band : Ant. 3
Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
52	5260 MHz	20.51	17.94
60	5300 MHz	20.51	17.94
64	5320 MHz	20.38	18.07
100	5500 MHz	20.38	18.07
116	5580 MHz	20.25	18.07
140	5700 MHz	20.64	17.94
144	5720 MHz	20.32	17.92

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

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
54	5270 MHz	38.97	36.15
62	5310 MHz	39.23	36.15
102	5510 MHz	38.71	36.15
110	5550 MHz	38.71	36.41
134	5670 MHz	38.71	36.15
142	5710 MHz	39.04	36.48

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

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
58	5290 MHz	82.56	75.89
106	5530 MHz	82.05	76.41
122	5610 MHz	81.28	76.80
138	5690 MHz	82.56	76.16

Temperature	26°C	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11a

For 5GHz Band : Ant. 2

Configuration IEEE 802.11a / Chain 3

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
52	5260 MHz	35.64	20.25
60	5300 MHz	35.76	20.51
64	5320 MHz	22.69	17.17
100	5500 MHz	29.35	17.69
116	5580 MHz	41.66	25.76
140	5700 MHz	20.76	17.17
144	5720 MHz	42.56	28.00

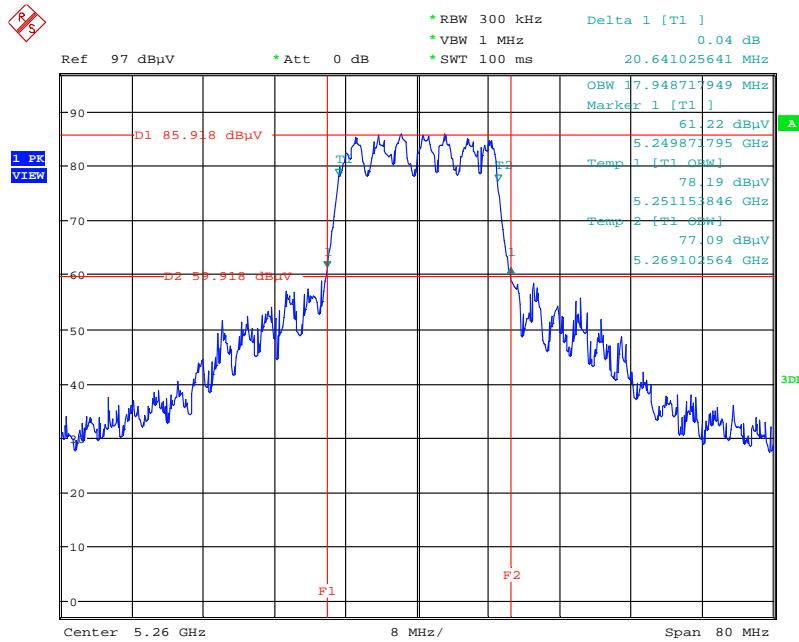
For 5GHz Band : Ant. 3

Configuration IEEE 802.11a / Chain 3

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
52	5260 MHz	20.51	17.05
60	5300 MHz	20.51	17.05
64	5320 MHz	20.38	17.05
100	5500 MHz	20.25	16.92
116	5580 MHz	20.38	16.92
140	5700 MHz	20.51	16.92
144	5720 MHz	20.48	16.96

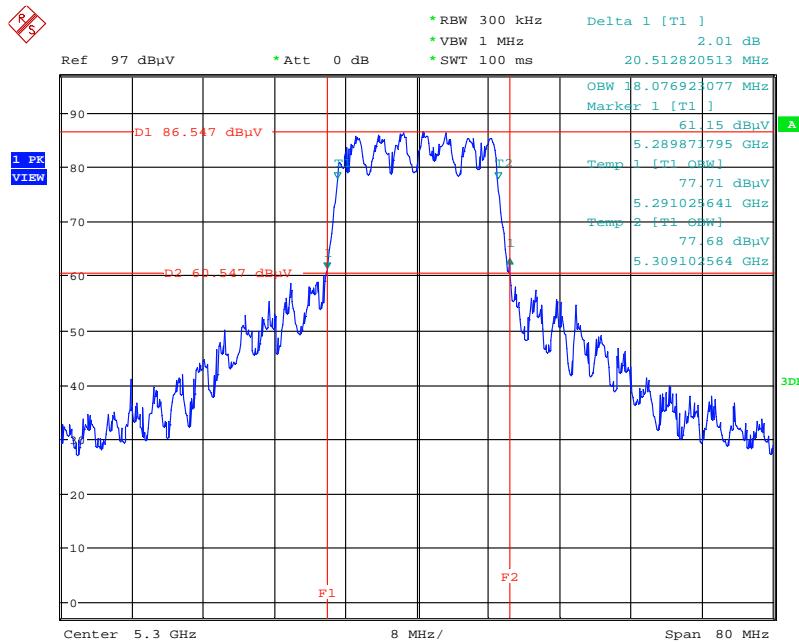
For 5GHz Band : Ant. 2

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4 / 5260 MHz



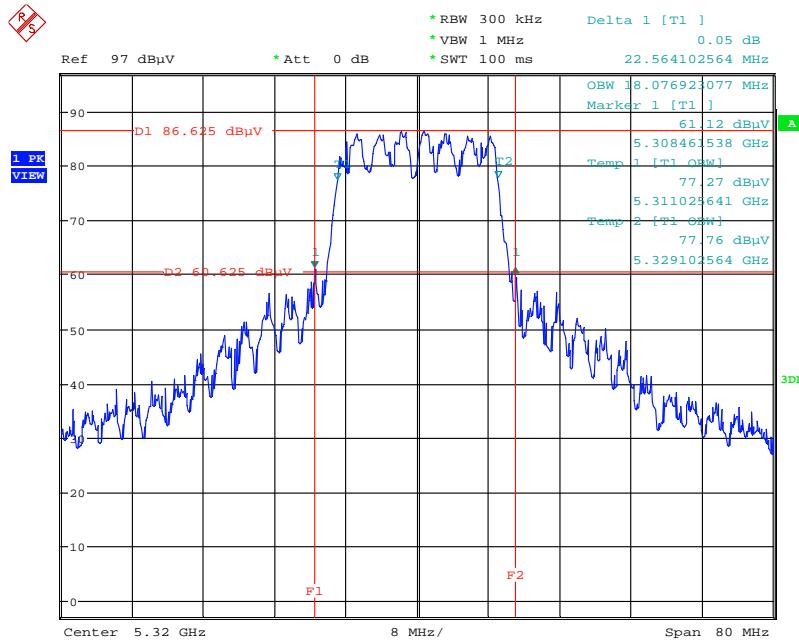
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26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4 / 5300 MHz



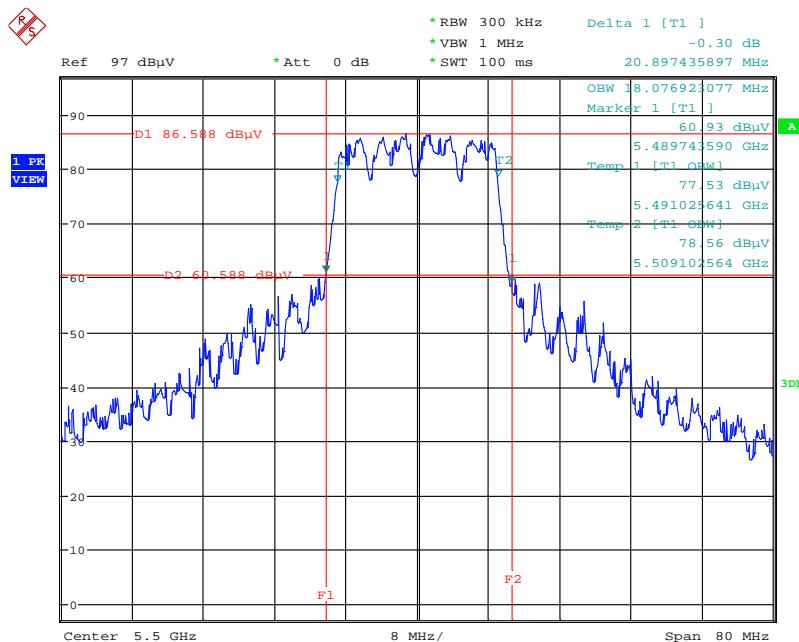
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26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4 / 5320 MHz



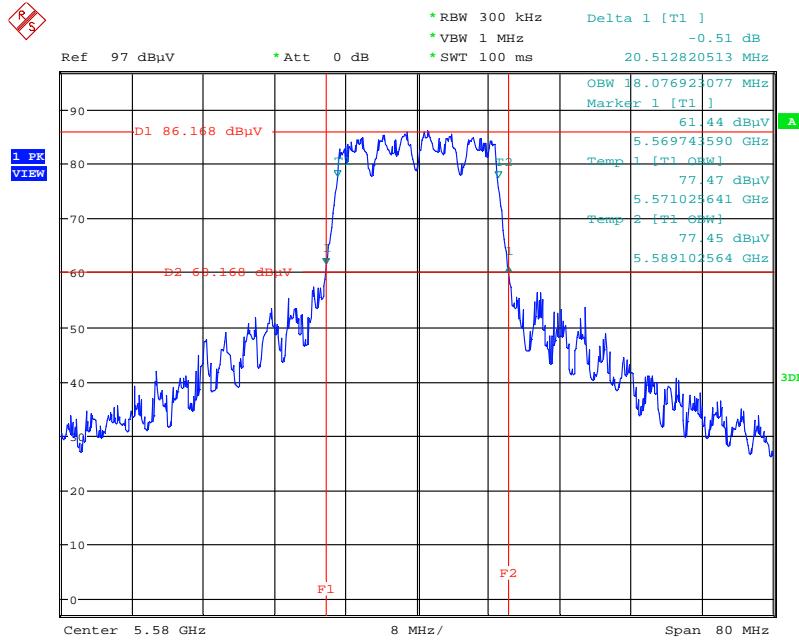
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26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4 / 5500 MHz



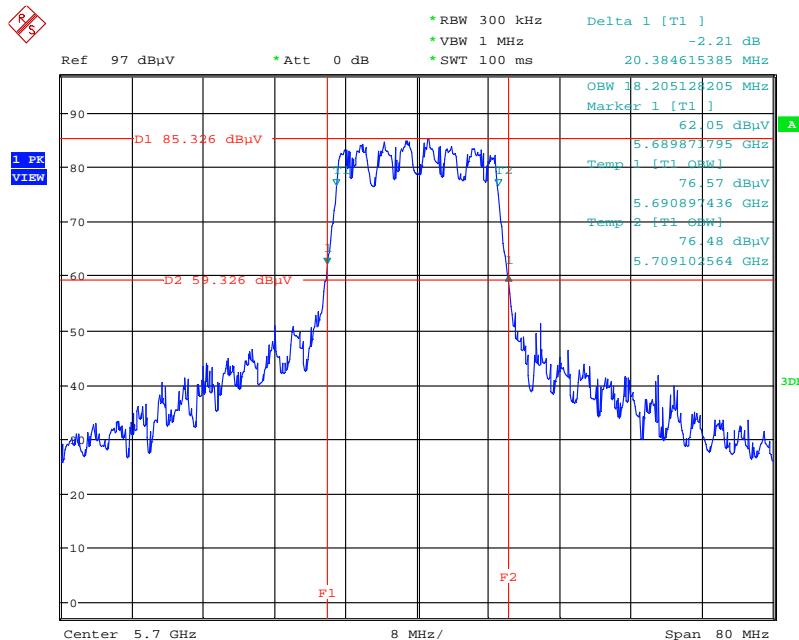
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26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4 / 5580 MHz



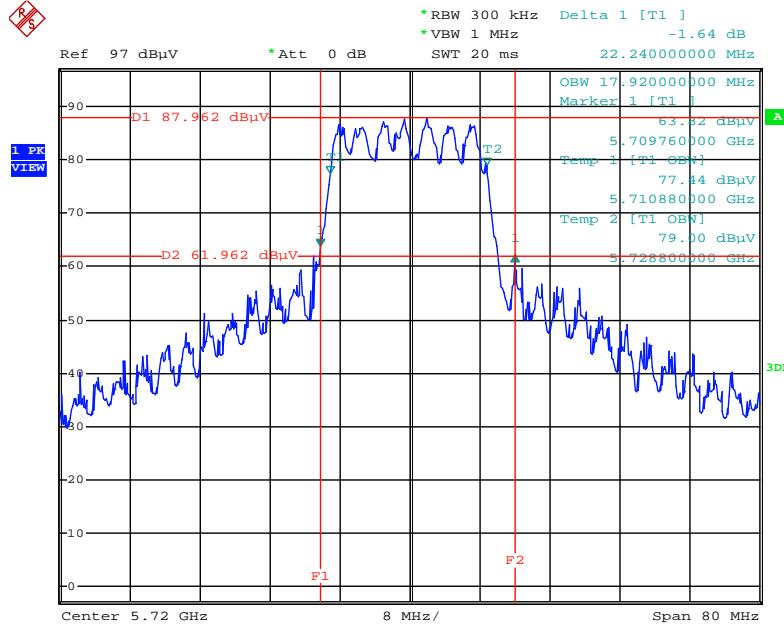
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26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4 / 5700 MHz



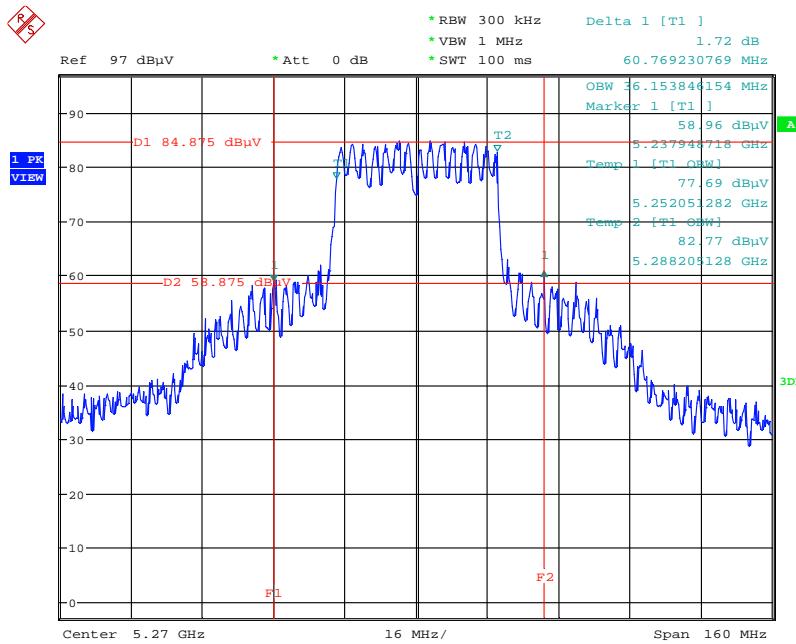
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26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4 / 5720 MHz



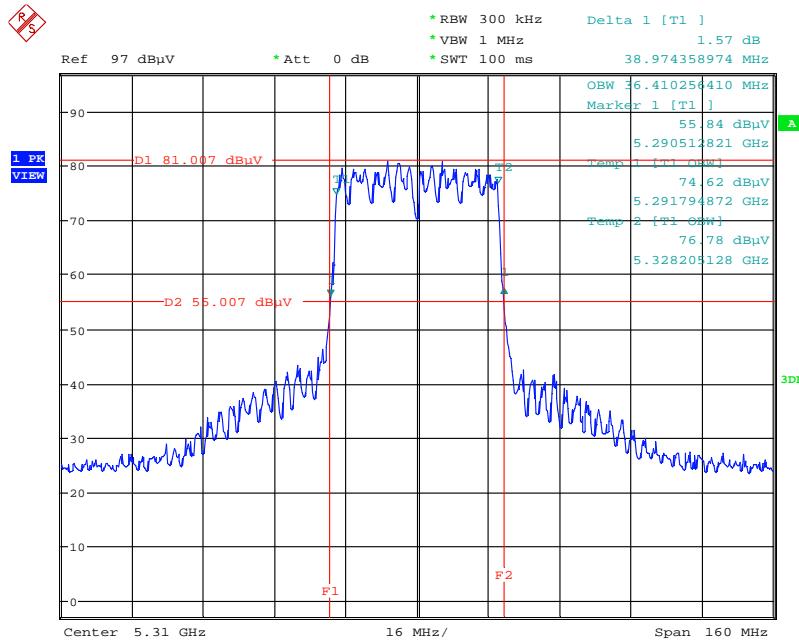
Date: 3.OCT.2014 12:55:44

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 3 + Chain 4 / 5270 MHz



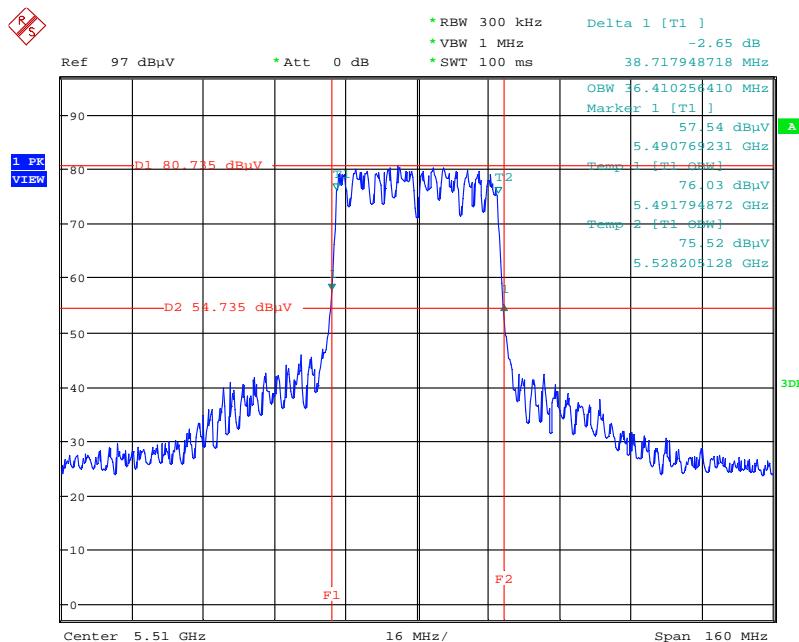
Date: 10.SEP.2014 12:19:28

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 3 + Chain 4 / 5310 MHz



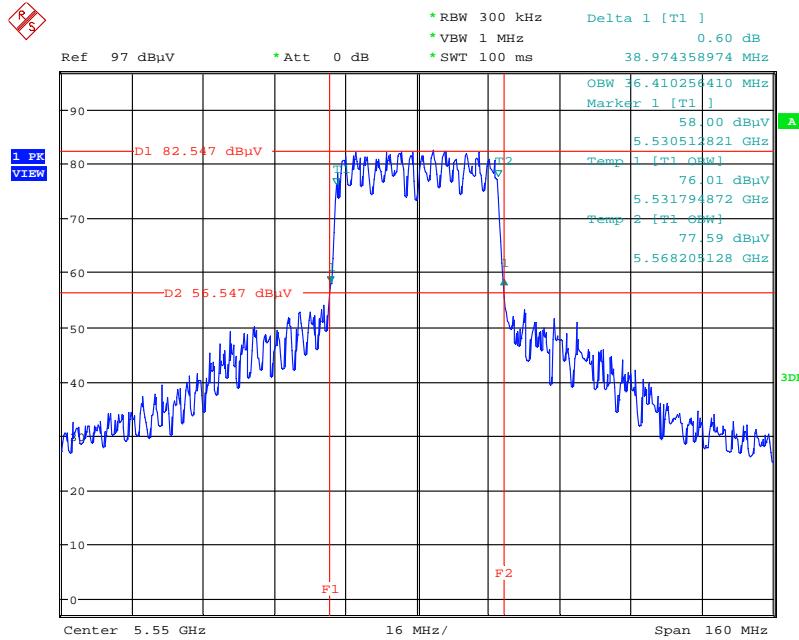
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26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 3 + Chain 4 / 5510 MHz



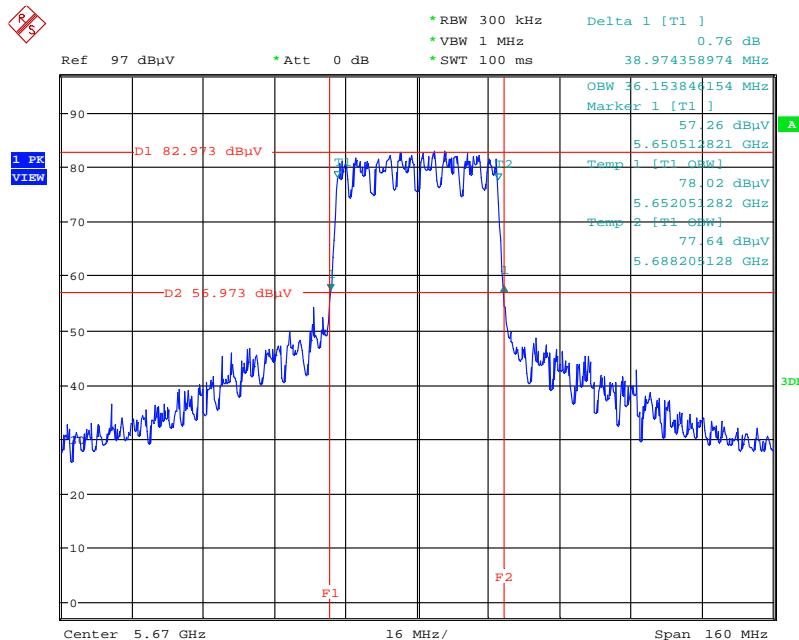
Date: 10.SEP.2014 12:20:33

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 3 + Chain 4 / 5550 MHz



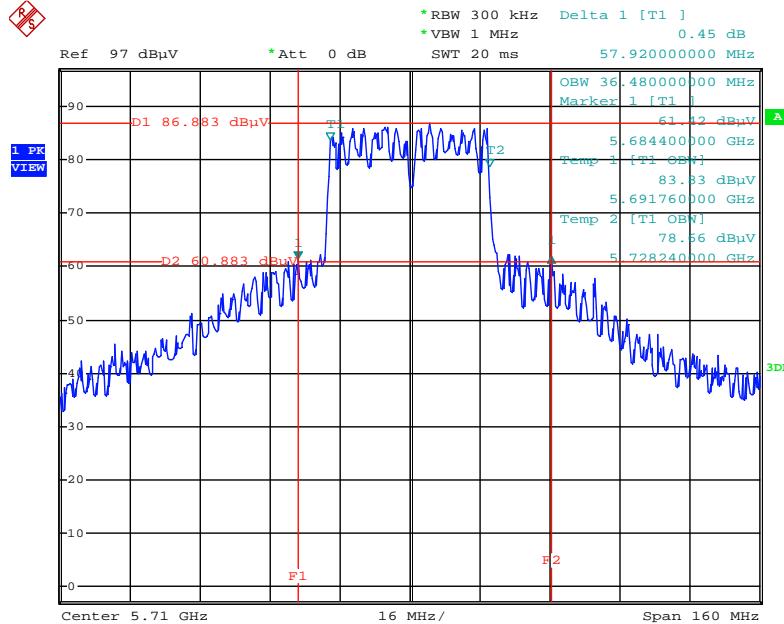
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26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 3 + Chain 4 / 5670 MHz



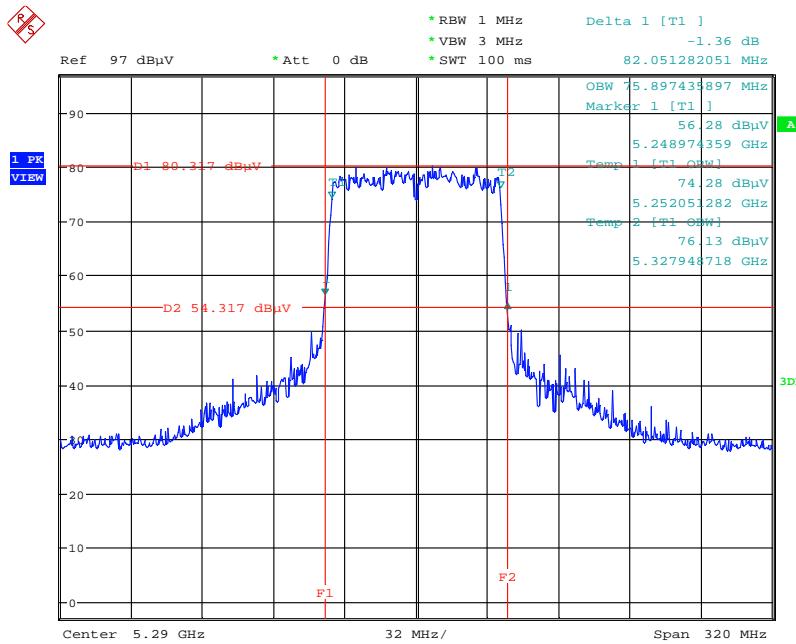
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26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 3 + Chain 4 / 5710 MHz



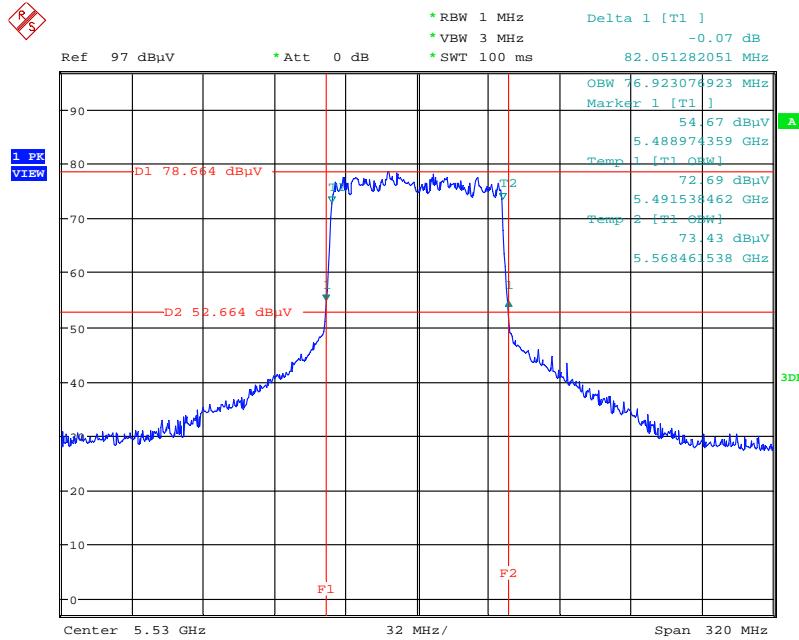
Date: 3.OCT.2014 12:56:54

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 3 + Chain 4 / 5290 MHz



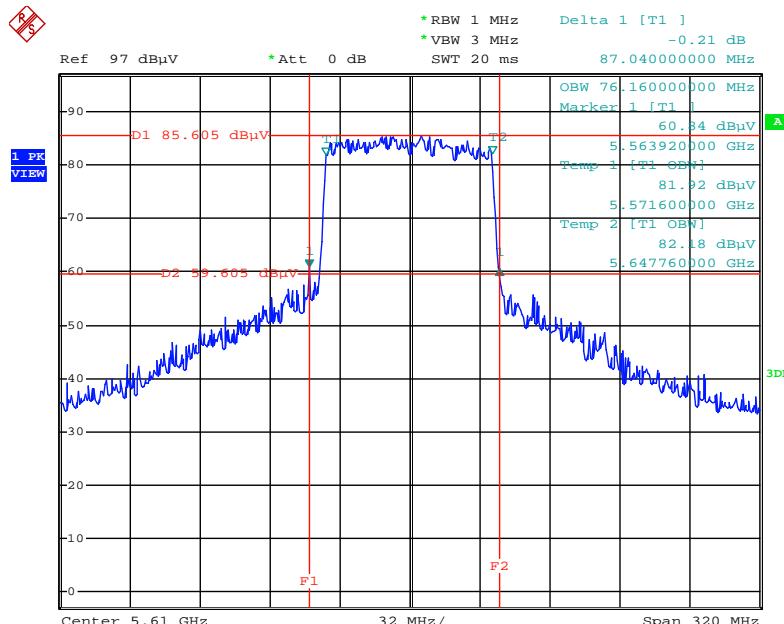
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26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 3 + Chain 4 / 5530 MHz



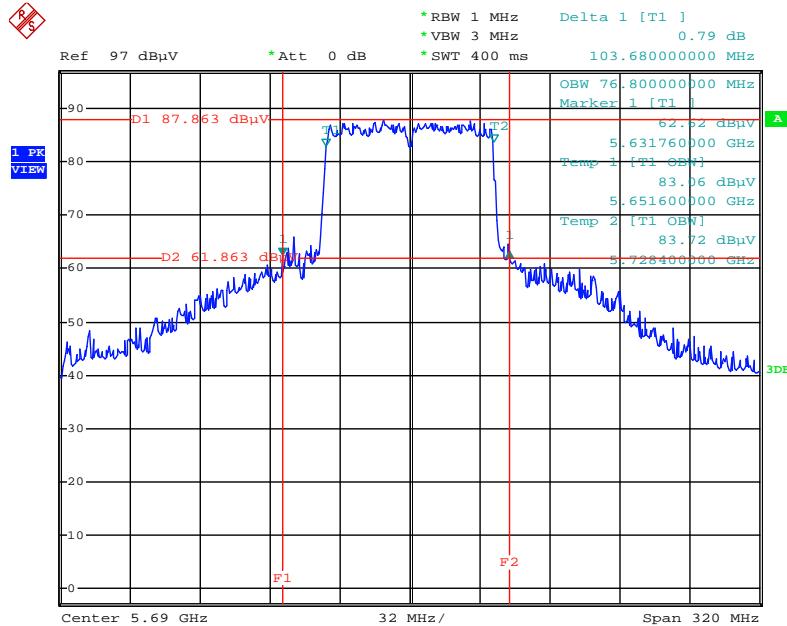
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26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 3 + Chain 4 / 5610 MHz



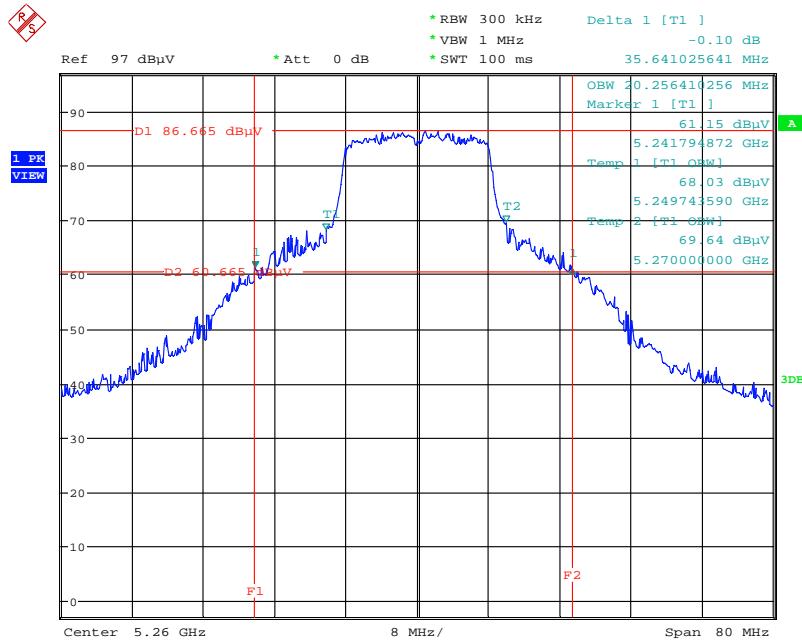
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26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 3 + Chain 4 / 5690 MHz



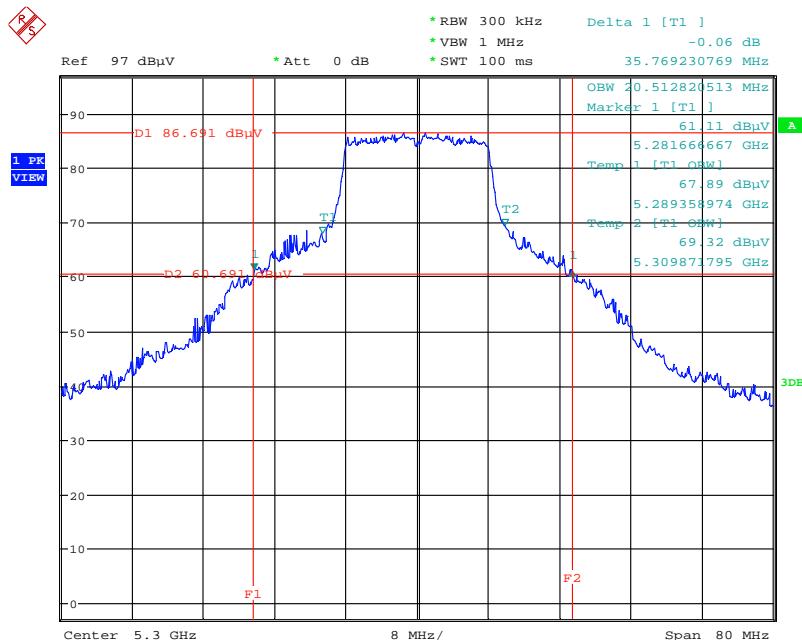
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26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 3 / 5260 MHz



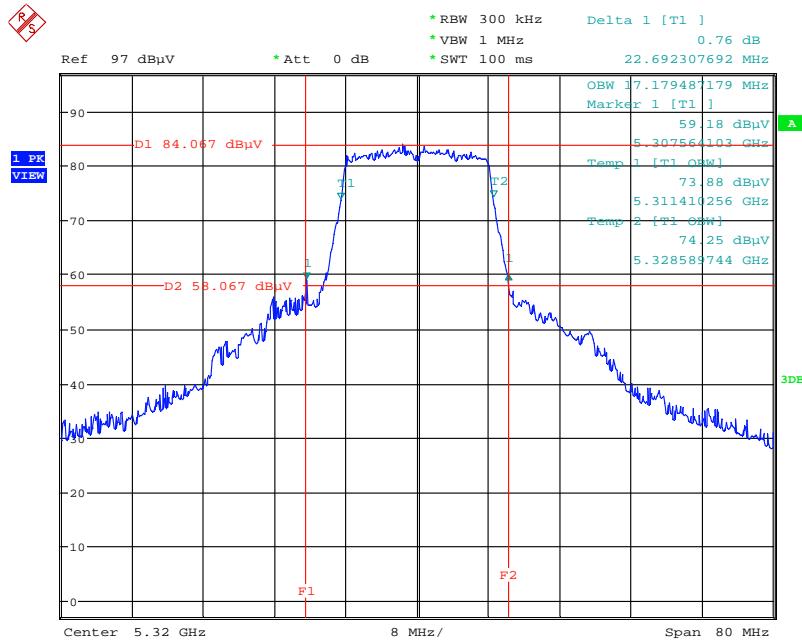
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26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 3 / 5300 MHz



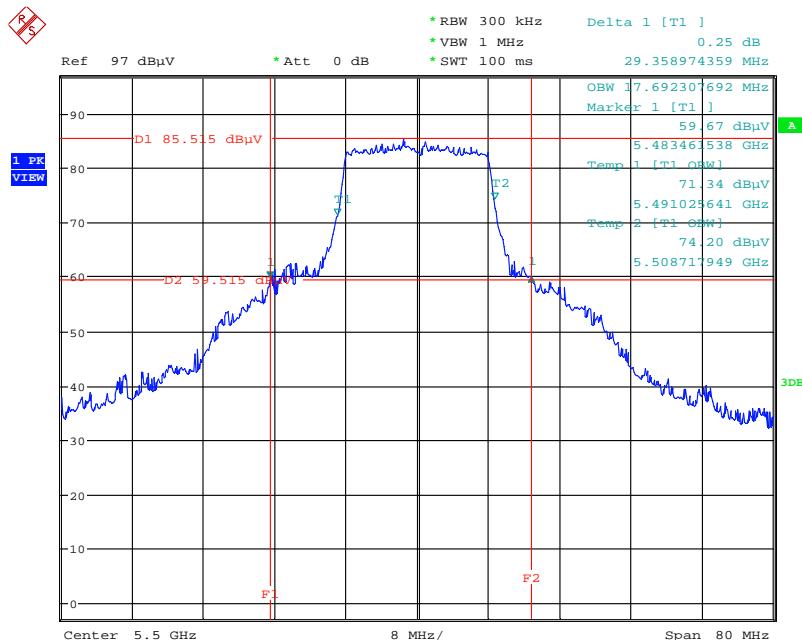
Date: 10.SEP.2014 12:09:52

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 3 / 5320 MHz



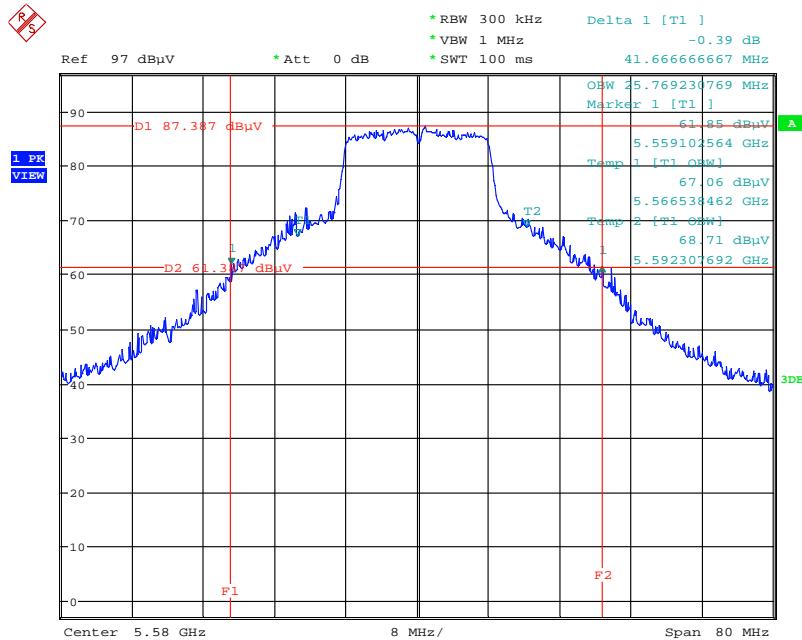
Date: 10.SEP.2014 12:10:26

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 3 / 5500 MHz



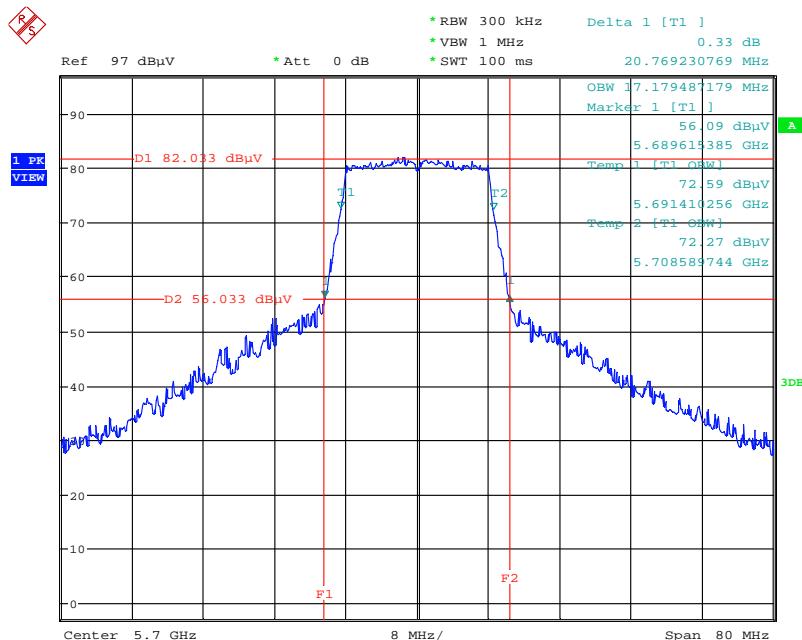
Date: 10.SEP.2014 12:11:09

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 3 / 5580 MHz



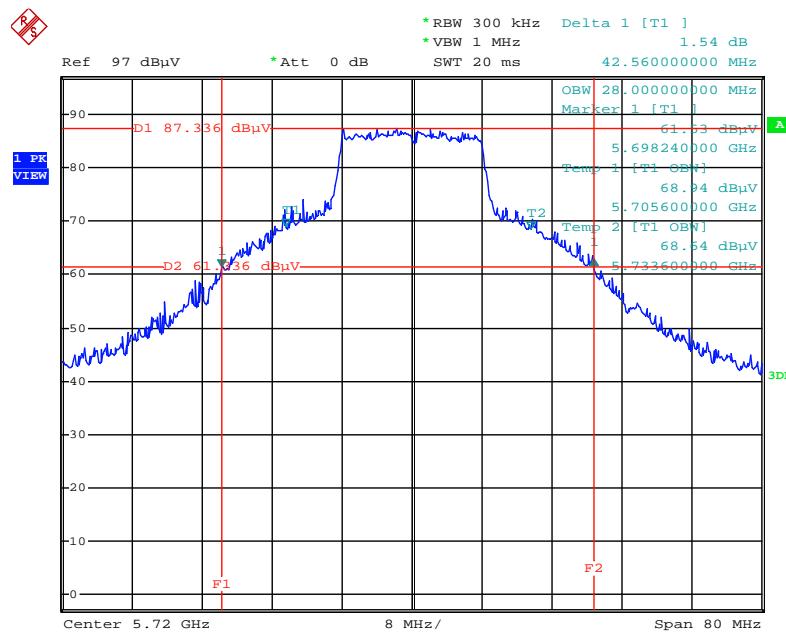
Date: 10.SEP.2014 12:11:46

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 3 / 5700 MHz



Date: 10.SEP.2014 12:12:12

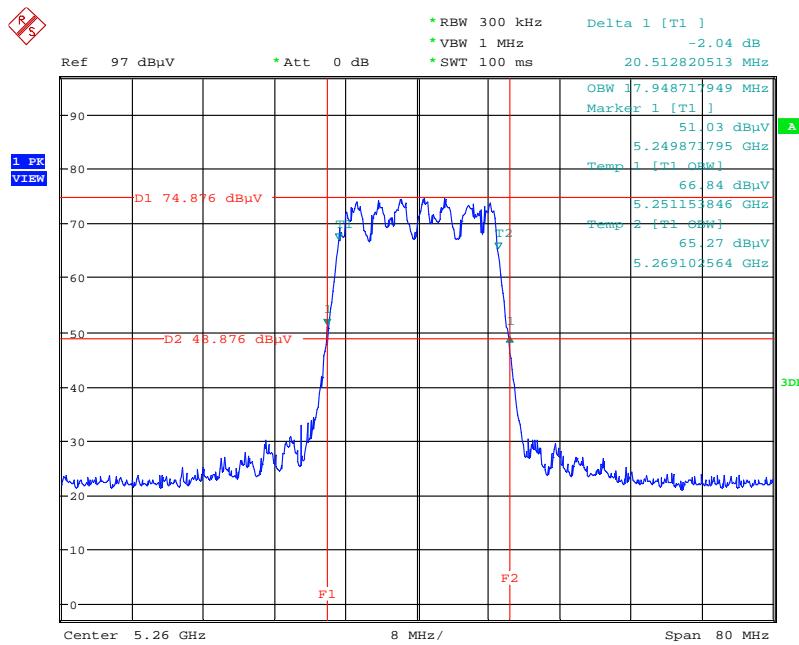
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 3 / 5720 MHz



Date: 3.OCT.2014 12:54:44

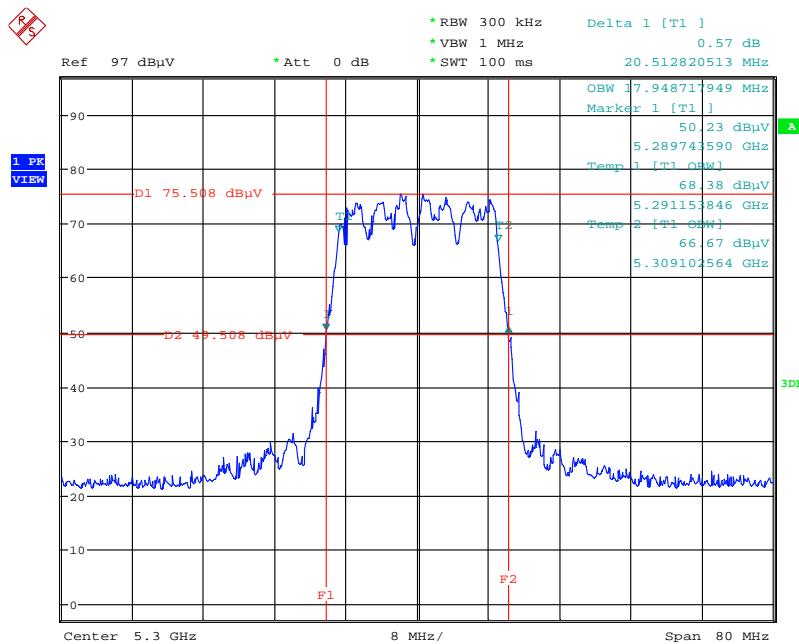
For 5GHz Band : Ant. 3

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4 / 5260 MHz



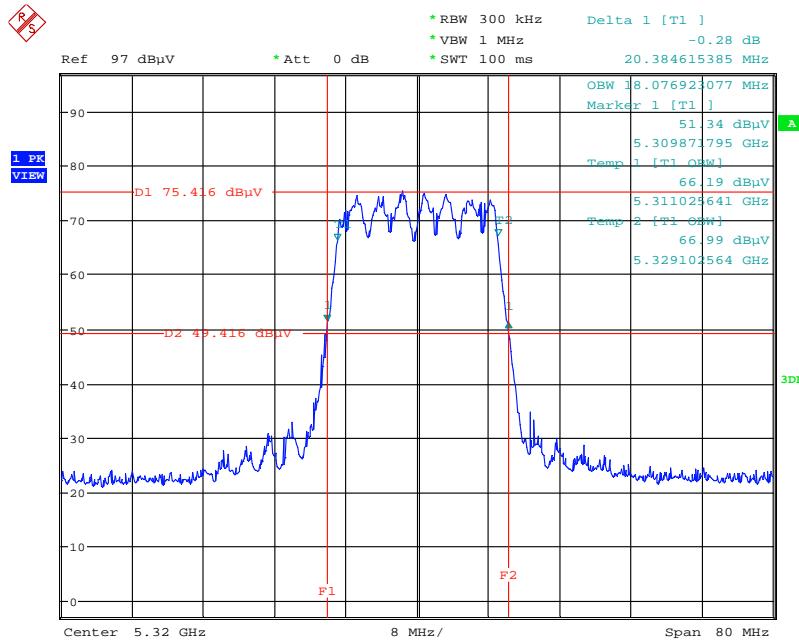
Date: 10.SEP.2014 15:30:46

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4 / 5300 MHz



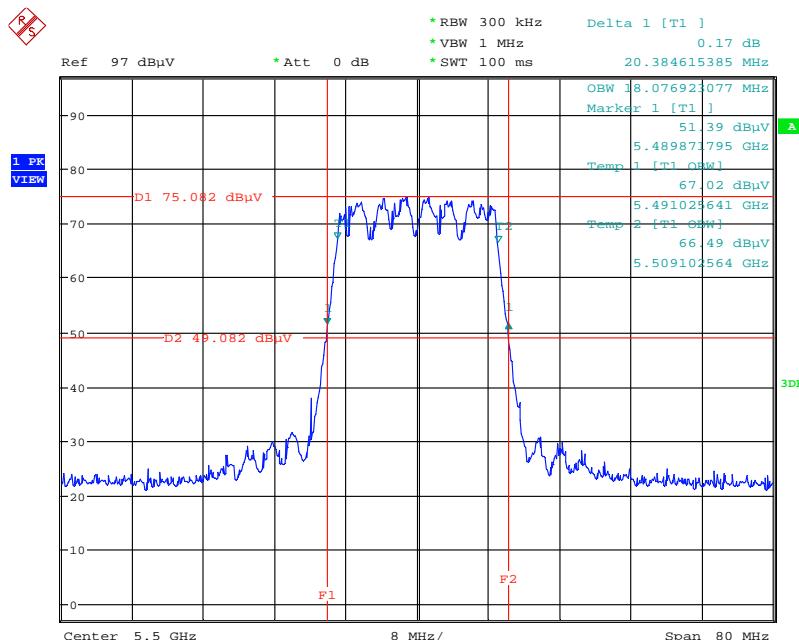
Date: 10.SEP.2014 15:31:23

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4 / 5320 MHz



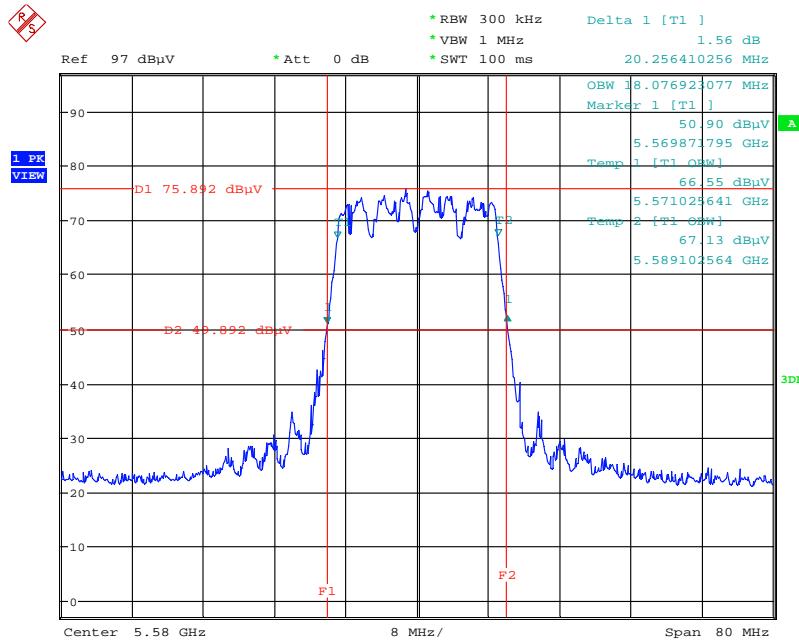
Date: 10.SEP.2014 15:31:46

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4 / 5500 MHz



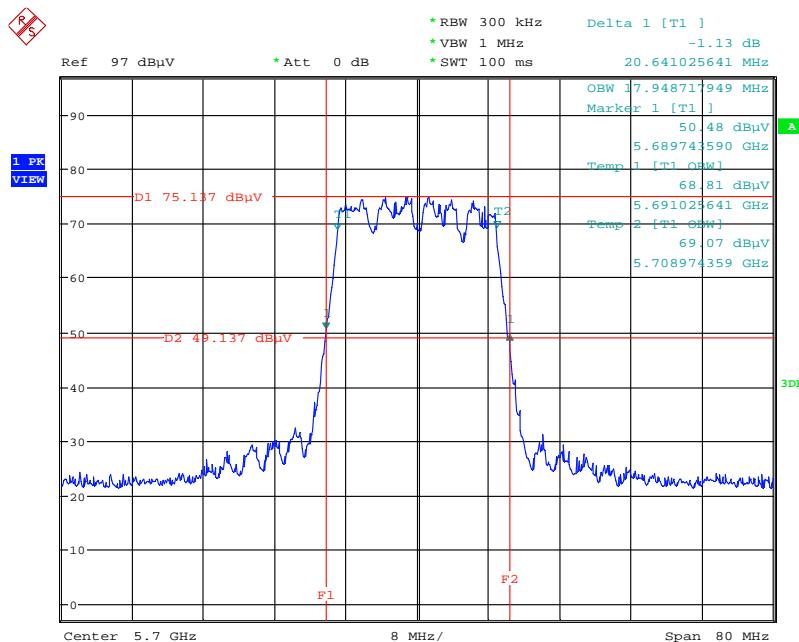
Date: 10.SEP.2014 15:32:16

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4 / 5580 MHz



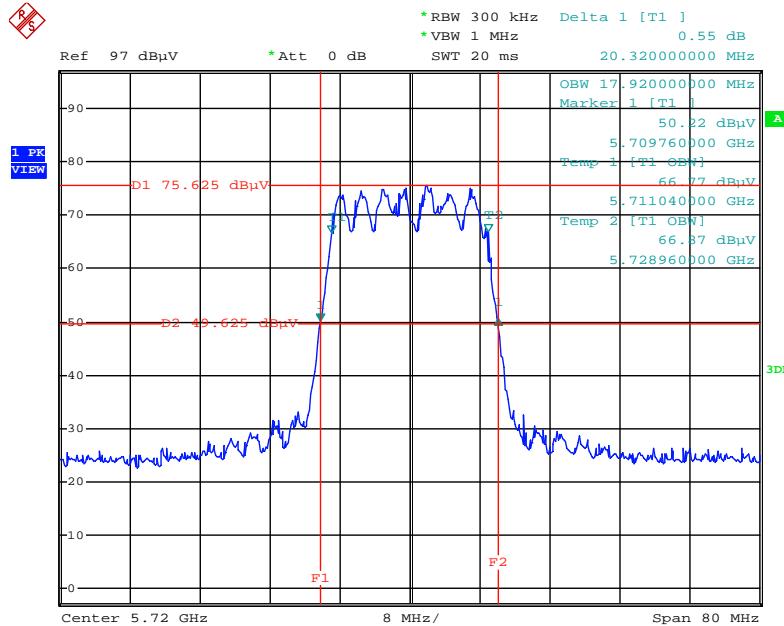
Date: 10.SEP.2014 15:32:47

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4 / 5700 MHz



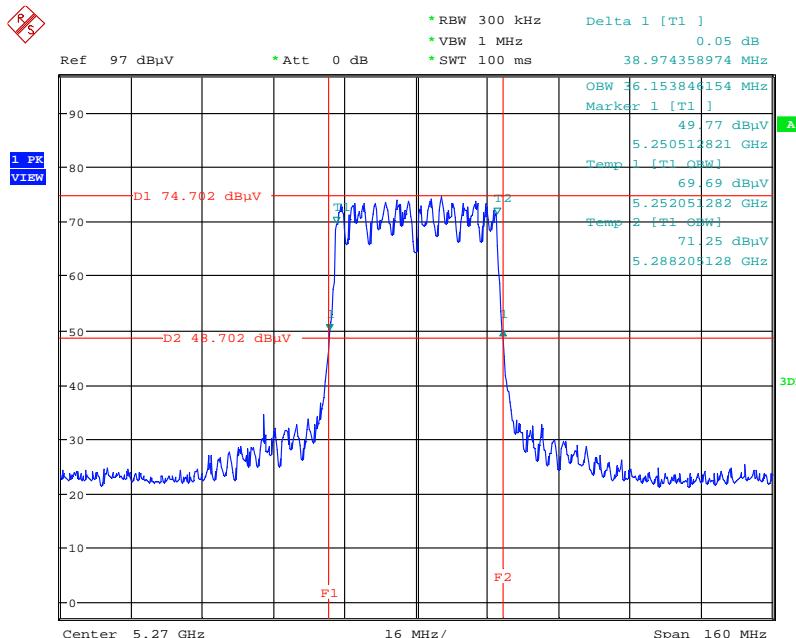
Date: 10.SEP.2014 15:33:20

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4 / 5720 MHz



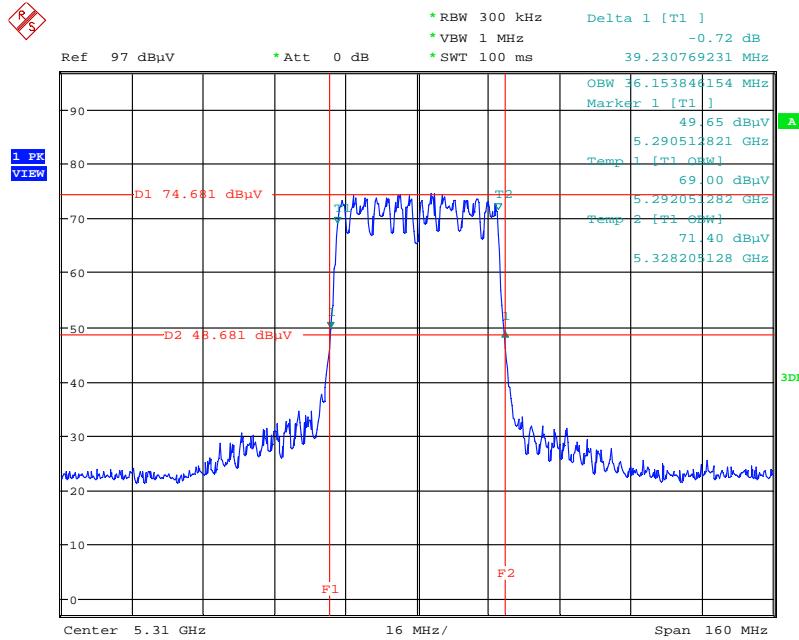
Date: 3.OCT.2014 13:37:17

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 3 + Chain 4 / 5270 MHz



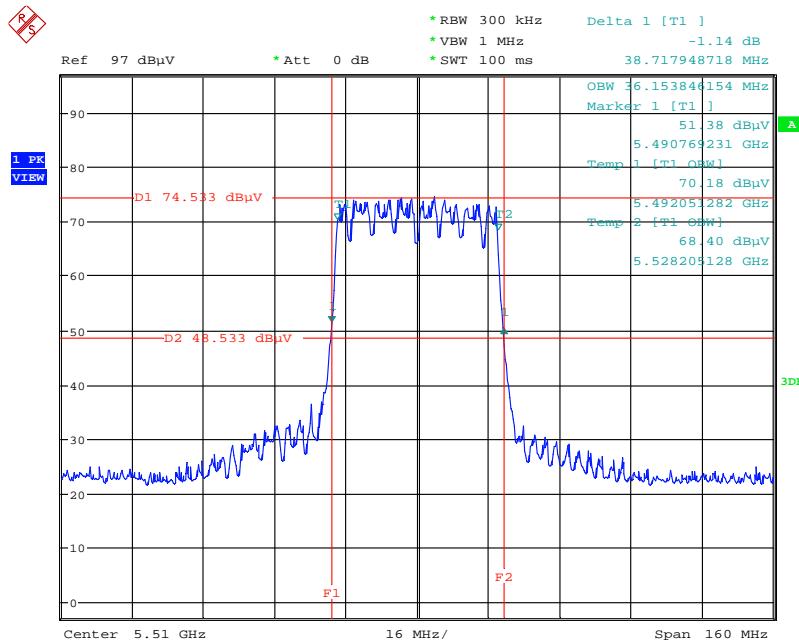
Date: 10.SEP.2014 15:35:10

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 3 + Chain 4 / 5310 MHz



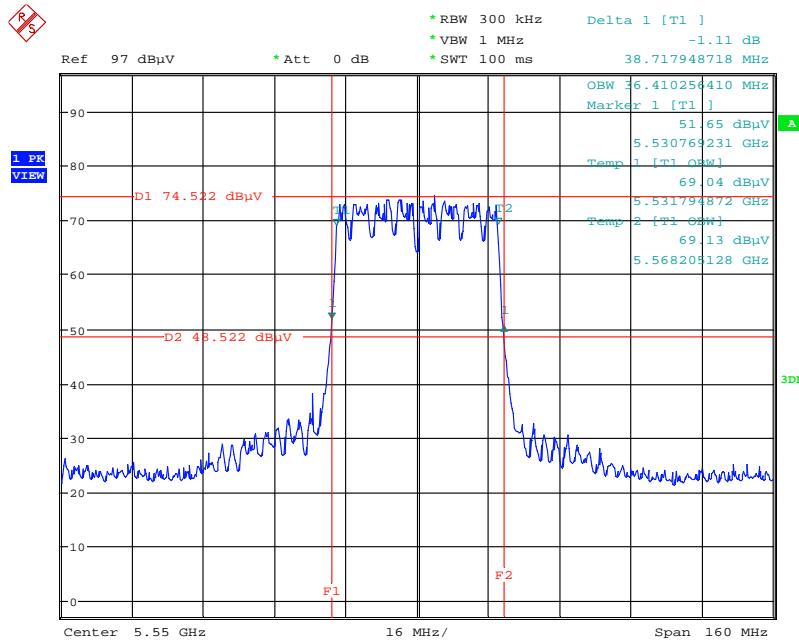
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26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 3 + Chain 4 / 5510 MHz



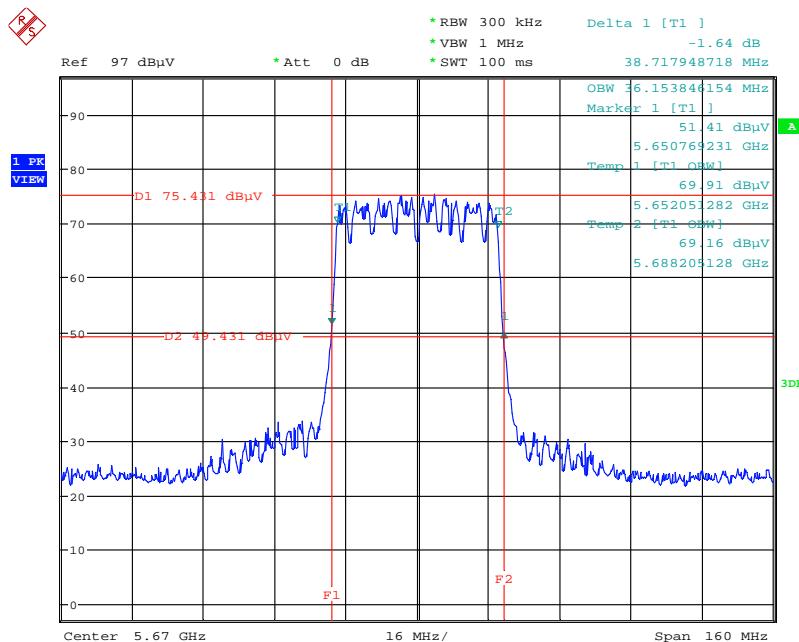
Date: 10.SEP.2014 15:36:20

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 3 + Chain 4 / 5550 MHz



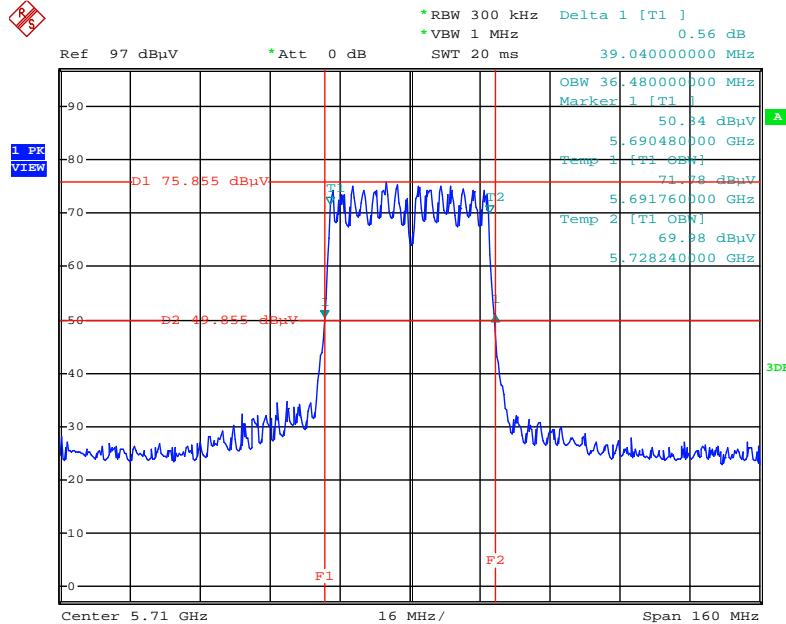
Date: 10.SEP.2014 15:37:00

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 3 + Chain 4 / 5670 MHz



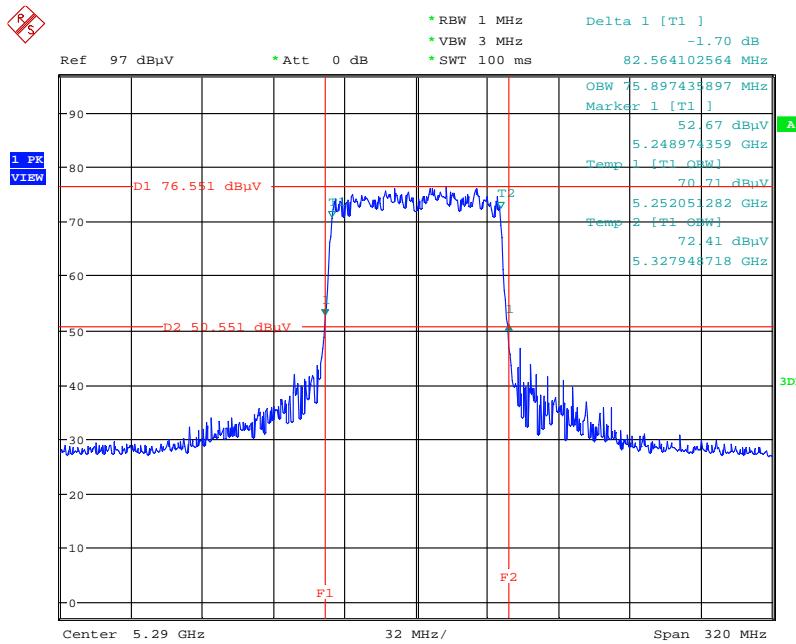
Date: 10.SEP.2014 15:37:28

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 3 + Chain 4 / 5710 MHz



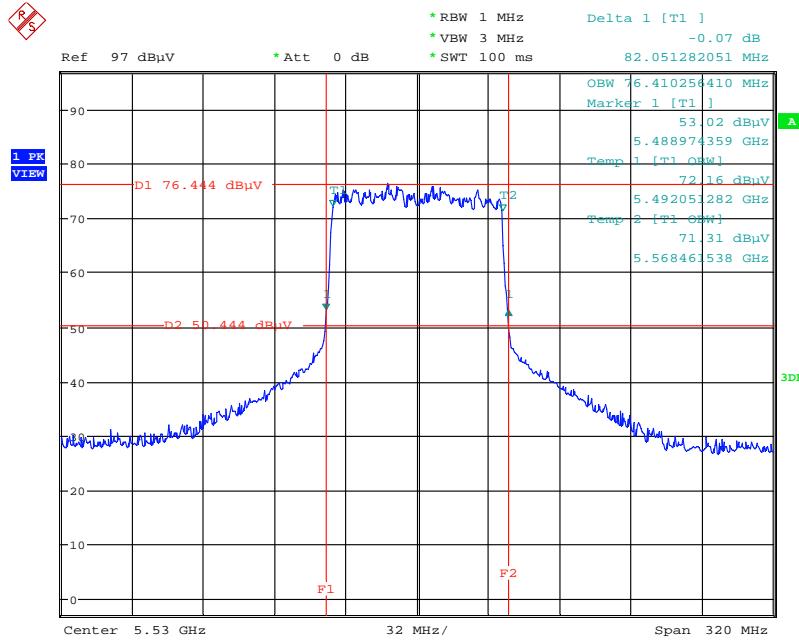
Date: 3.OCT.2014 13:37:57

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 3 + Chain 4 / 5290 MHz



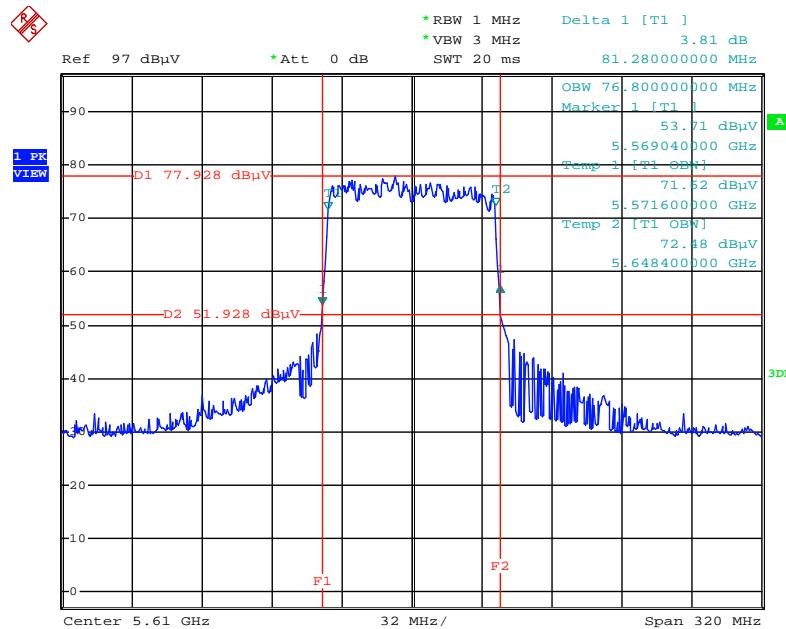
Date: 10.SEP.2014 15:39:00

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 3 + Chain 4 / 5530 MHz



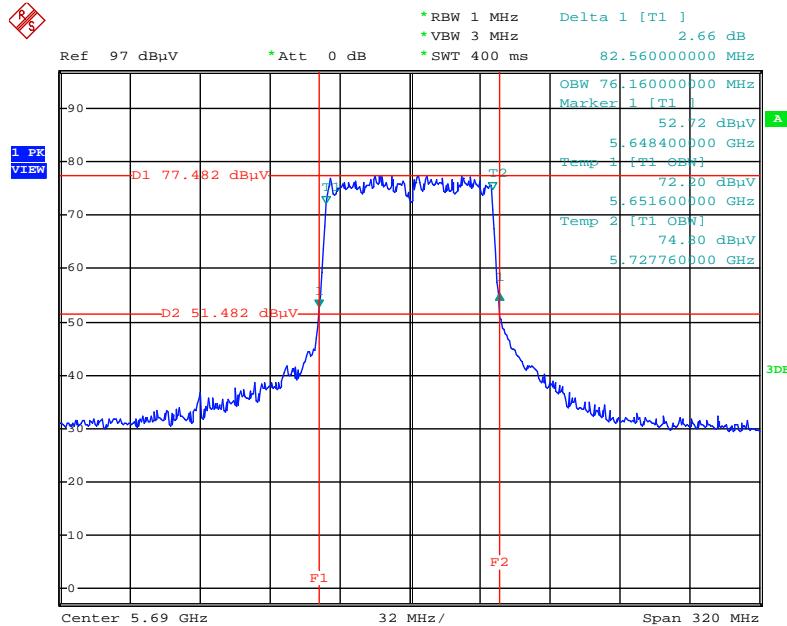
Date: 10.SEP.2014 15:39:36

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 3 + Chain 4 / 5610 MHz



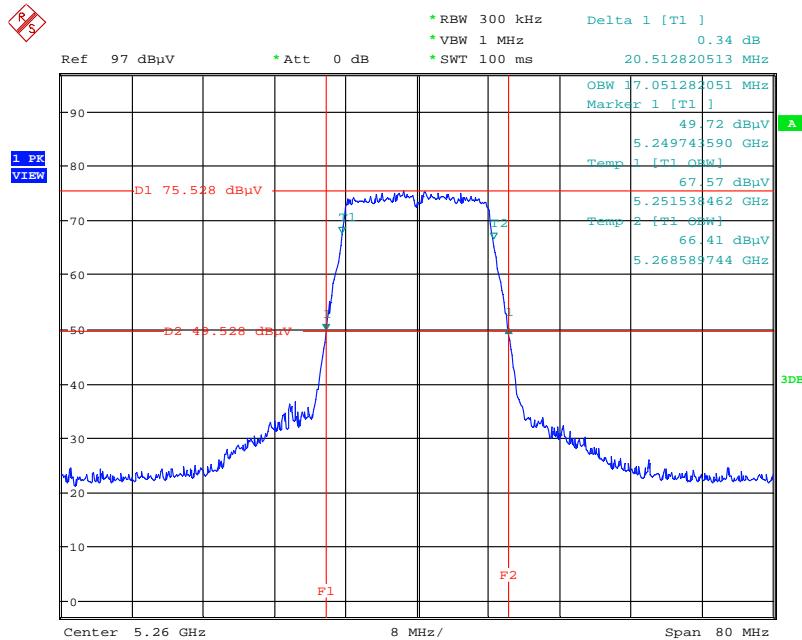
Date: 24.OCT.2014 14:56:45

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 3 + Chain 4 / 5690 MHz



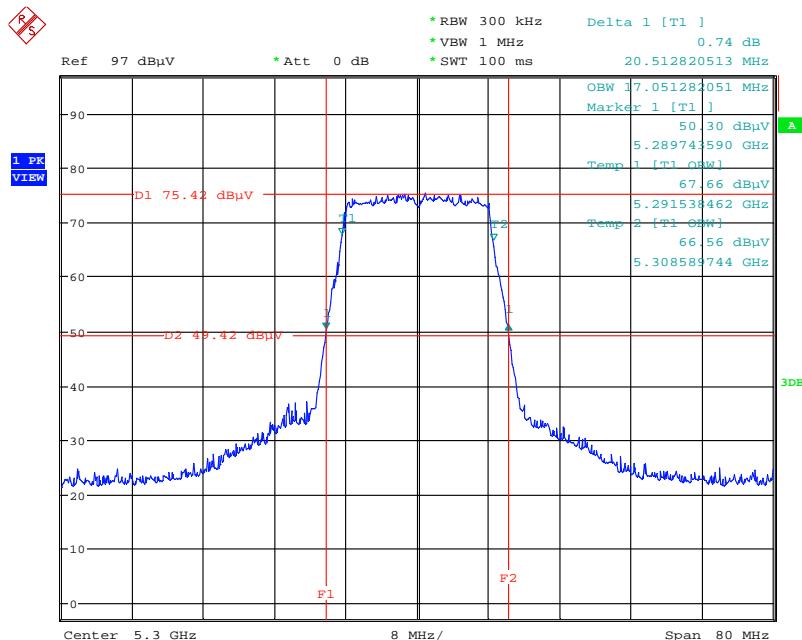
Date: 3.OCT.2014 13:38:42

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 3 / 5260 MHz



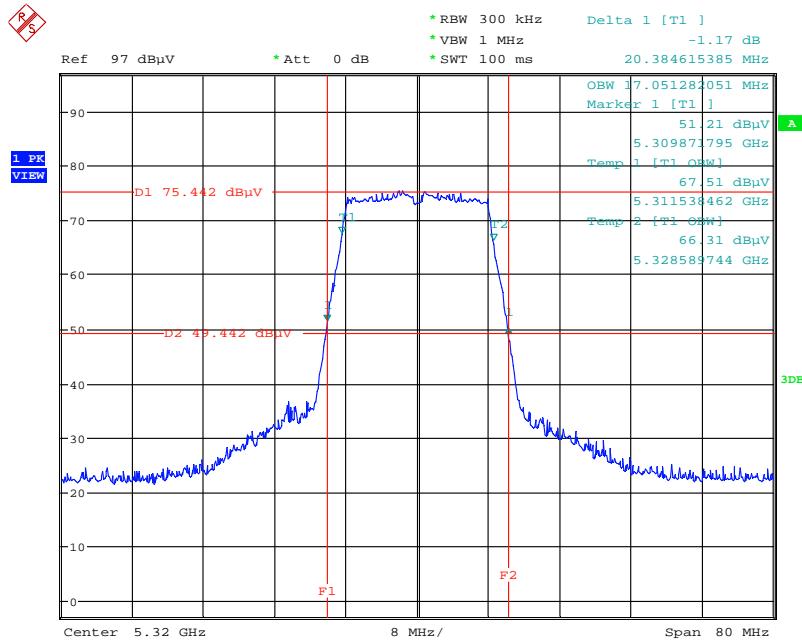
Date: 10.SEP.2014 15:24:38

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 3 / 5300 MHz



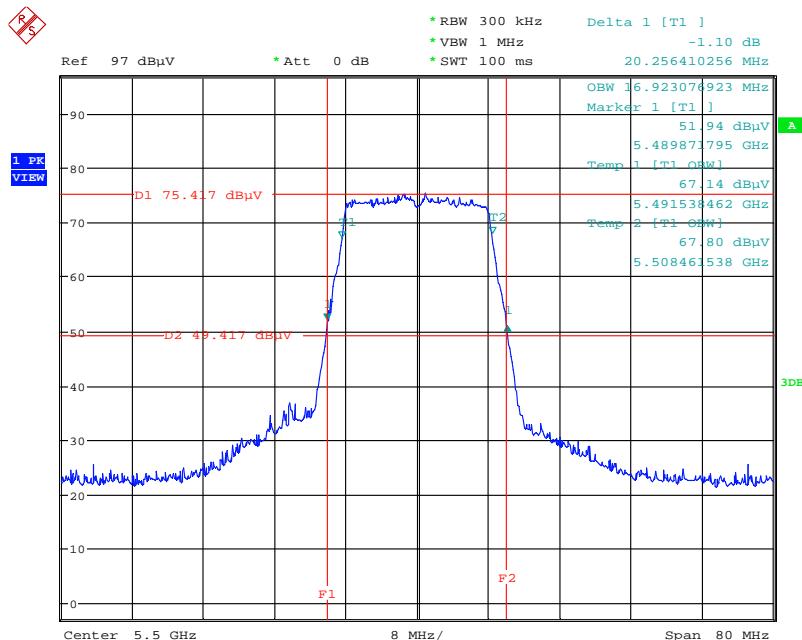
Date: 10.SEP.2014 15:25:12

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 3 / 5320 MHz



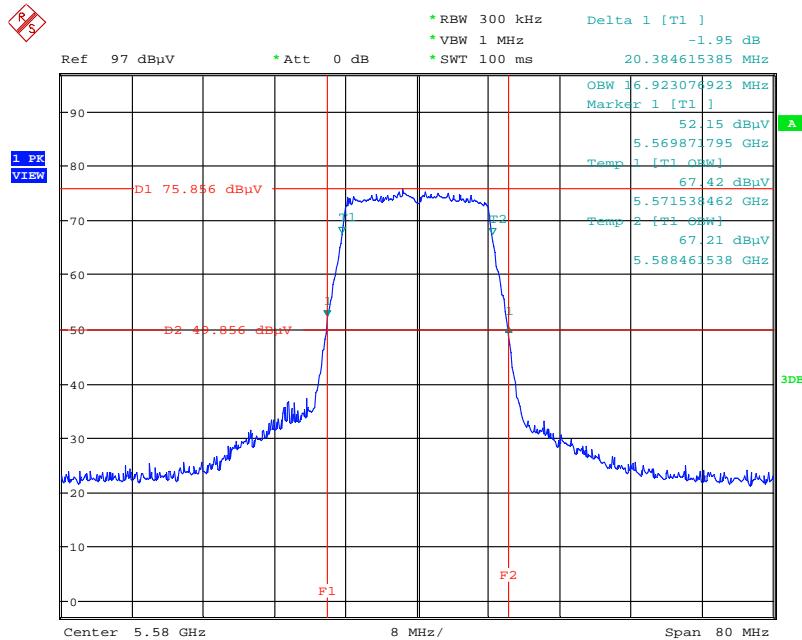
Date: 10.SEP.2014 15:25:44

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 3 / 5500 MHz



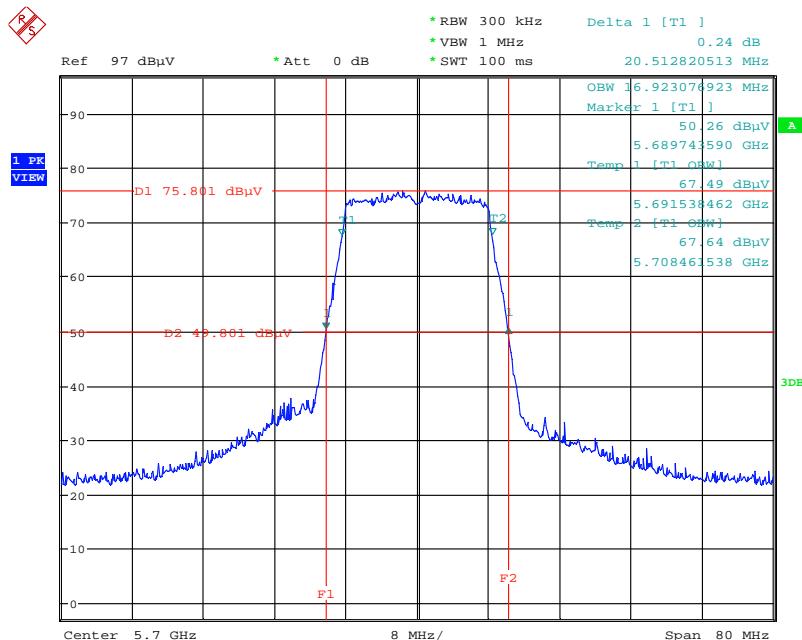
Date: 10.SEP.2014 15:26:18

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 3 / 5580 MHz



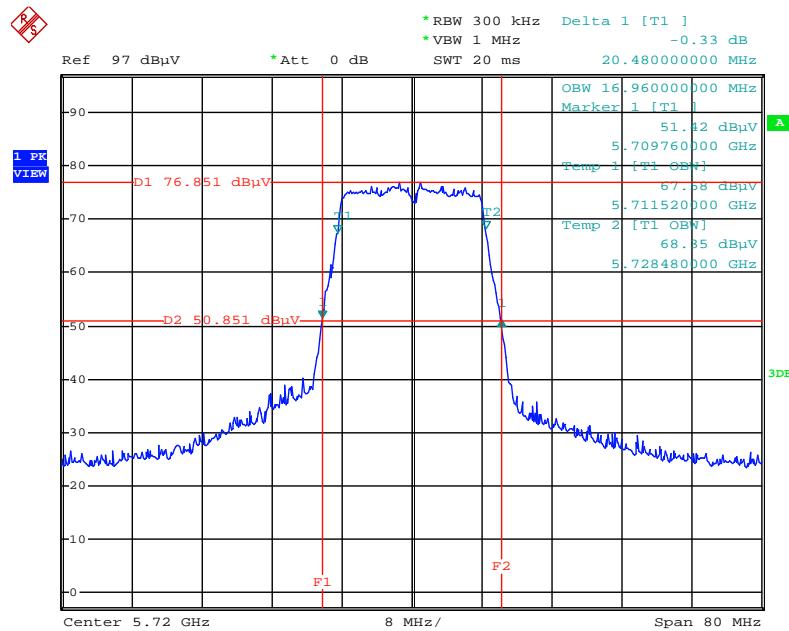
Date: 10.SEP.2014 15:26:48

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 3 / 5700 MHz



Date: 10.SEP.2014 15:27:15

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 3 / 5720 MHz



Date: 3.OCT.2014 13:36:20

<For Beamforming Mode>

Temperature	26°C	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11ac

For 5GHz Band : Ant. 2
Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
52	5260 MHz	20.51	17.94
60	5300 MHz	20.51	17.94
64	5320 MHz	20.51	17.94
100	5500 MHz	20.64	17.94
116	5580 MHz	20.64	17.94
140	5700 MHz	20.64	17.94
144	5720 MHz	20.64	17.92

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

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
54	5270 MHz	39.23	36.41
62	5310 MHz	38.97	36.41
102	5510 MHz	39.23	36.41
110	5550 MHz	39.48	36.41
134	5670 MHz	38.97	36.41
142	5710 MHz	39.36	36.48

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

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
58	5290 MHz	81.53	75.89
106	5530 MHz	82.05	75.89
122	5610 MHz	81.28	76.16
138	5690 MHz	82.56	76.80

For 5GHz Band : Ant. 3
Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
52	5260 MHz	20.51	17.94
60	5300 MHz	20.51	17.94
64	5320 MHz	20.51	17.94
100	5500 MHz	20.51	17.94
116	5580 MHz	20.38	18.07
140	5700 MHz	20.38	17.94
144	5720 MHz	20.32	17.92

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

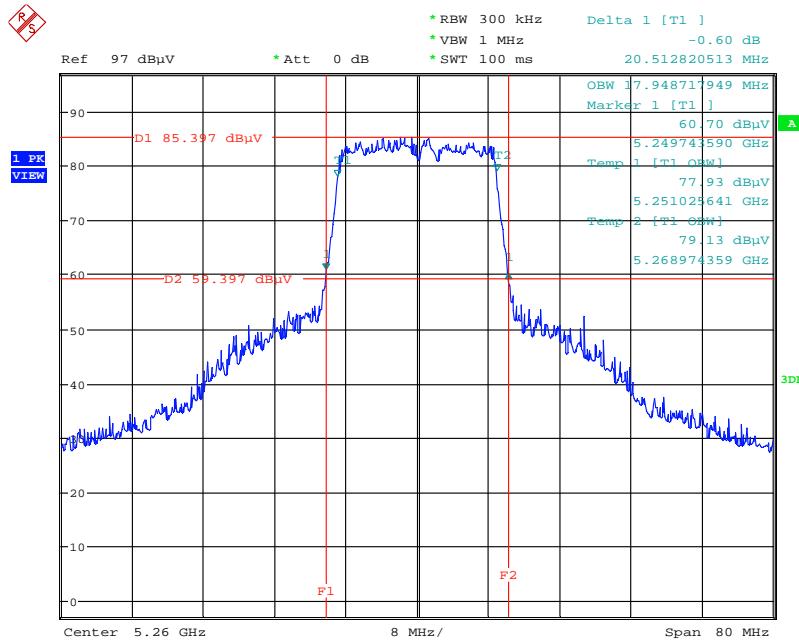
Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
54	5270 MHz	39.23	36.41
62	5310 MHz	38.97	36.41
102	5510 MHz	38.97	36.41
110	5550 MHz	39.23	36.41
134	5670 MHz	38.97	36.15
142	5710 MHz	39.36	36.48

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

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
58	5290 MHz	82.05	75.89
106	5530 MHz	82.05	75.89
122	5610 MHz	81.92	76.80
138	5690 MHz	81.92	76.80

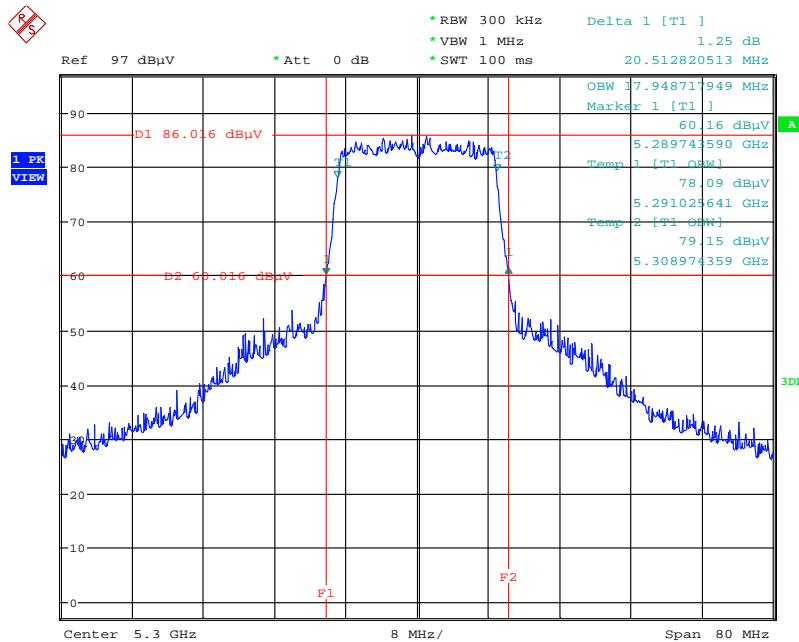
For 5GHz Band : Ant. 2

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4 / 5260 MHz



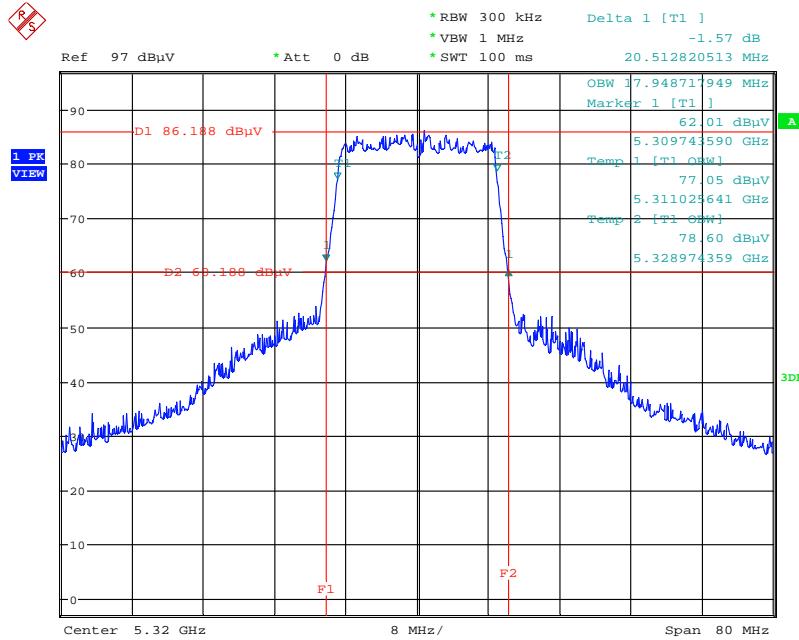
Date: 10.SEP.2014 16:30:29

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4 / 5300 MHz



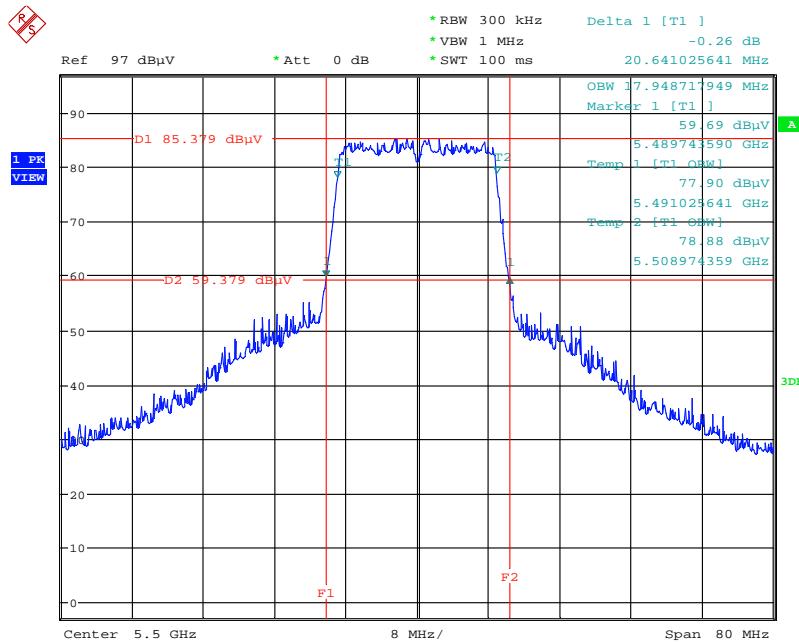
Date: 10.SEP.2014 16:31:20

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4 / 5320 MHz



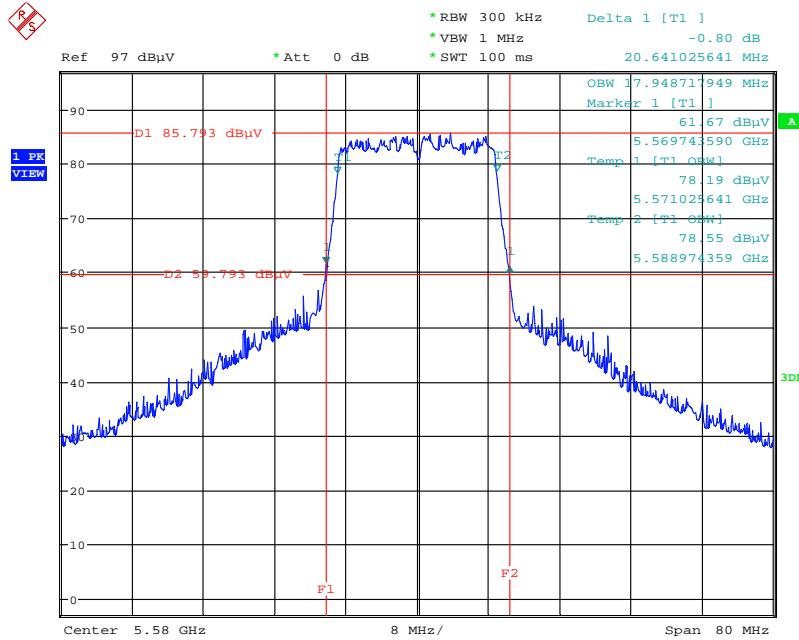
Date: 10.SEP.2014 16:31:49

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4 / 5500 MHz



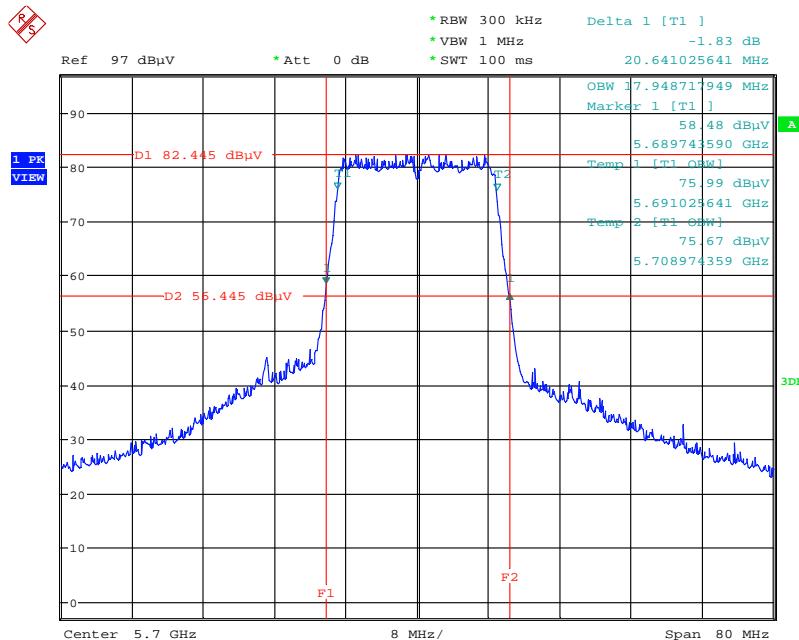
Date: 10.SEP.2014 16:32:30

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4 / 5580 MHz



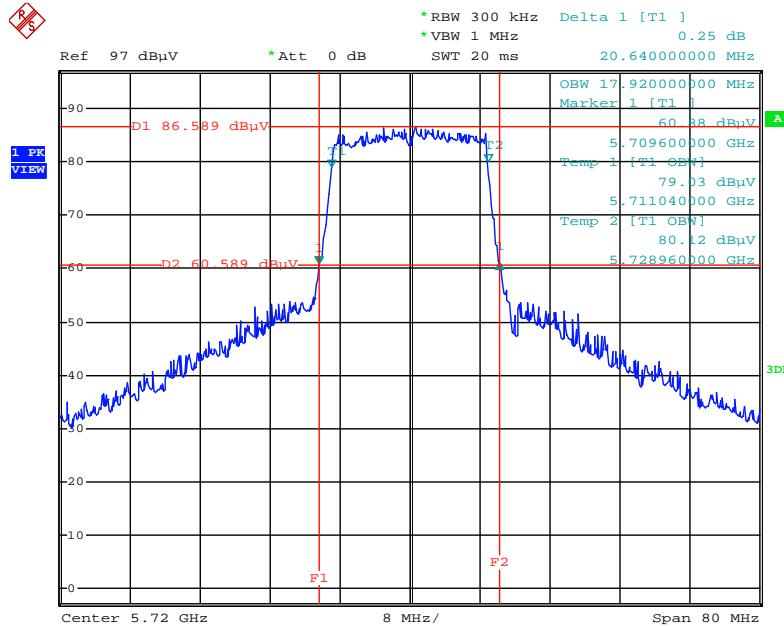
Date: 10.SEP.2014 16:33:06

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4 / 5700 MHz



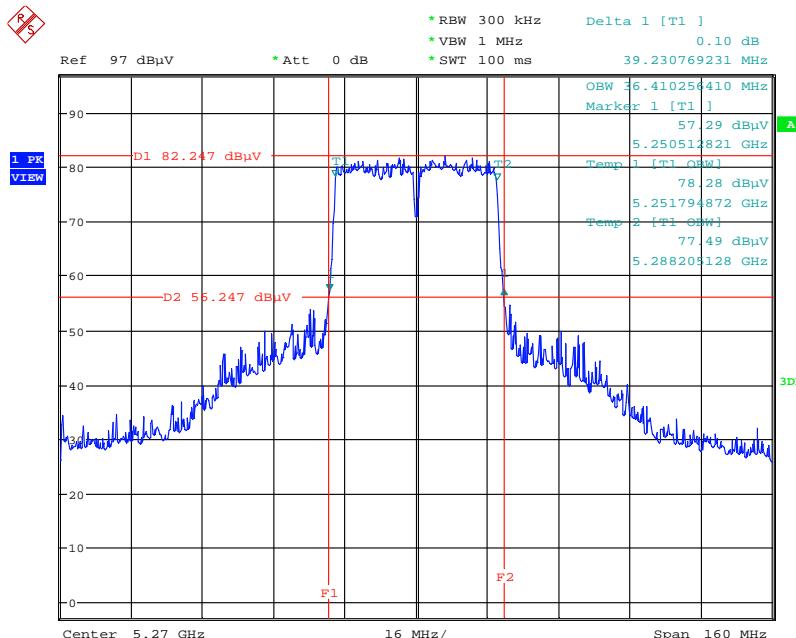
Date: 10.SEP.2014 16:33:34

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4 / 5720 MHz



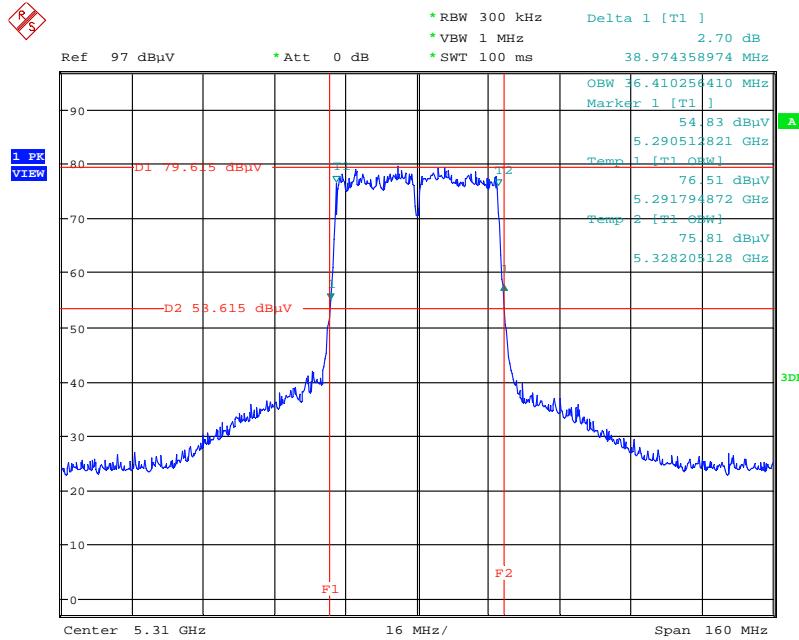
Date: 3.OCT.2014 13:14:37

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 3 + Chain 4 / 5270 MHz



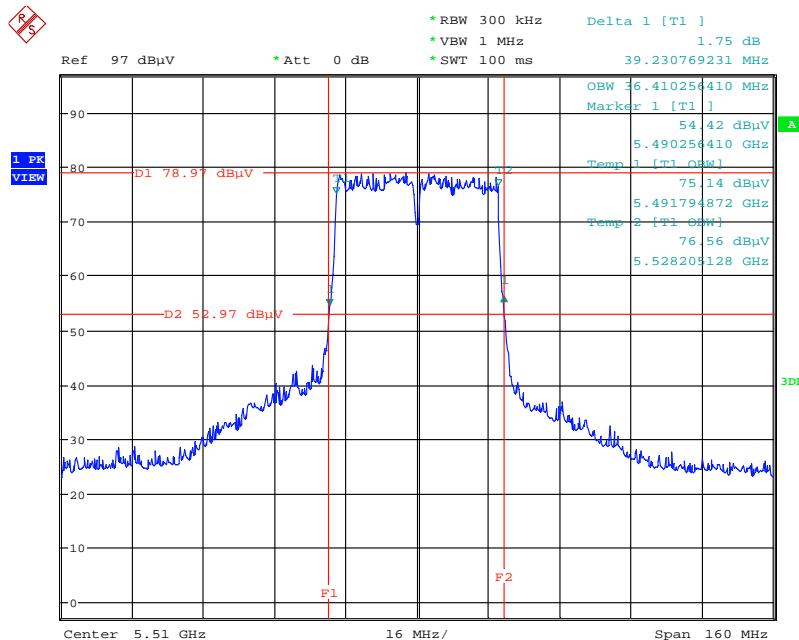
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26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 3 + Chain 4 / 5310 MHz



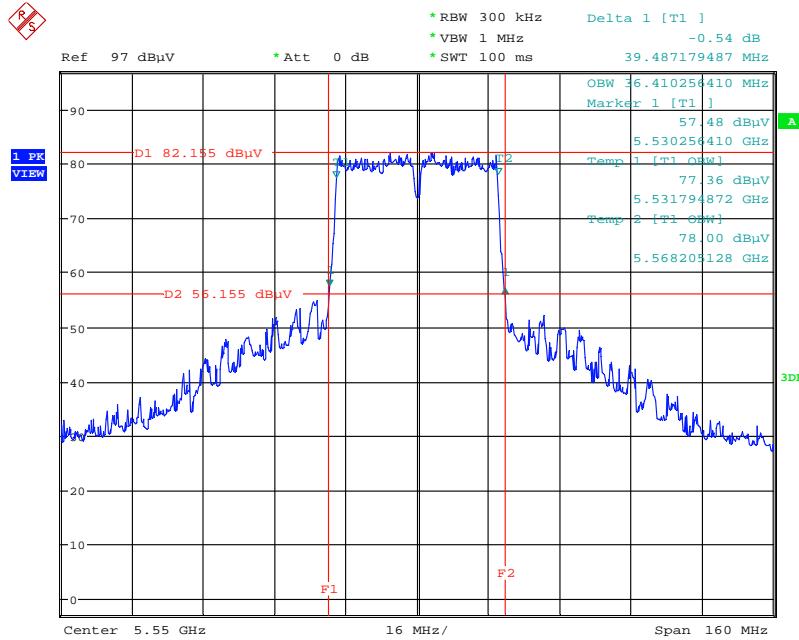
Date: 10.SEP.2014 16:36:38

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 3 + Chain 4 / 5510 MHz



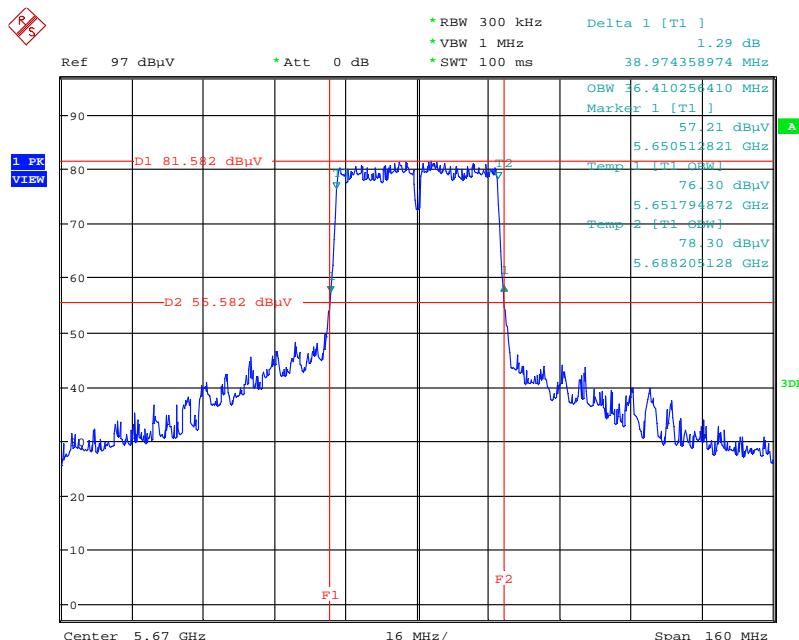
Date: 10.SEP.2014 16:37:11

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 3 + Chain 4 / 5550 MHz



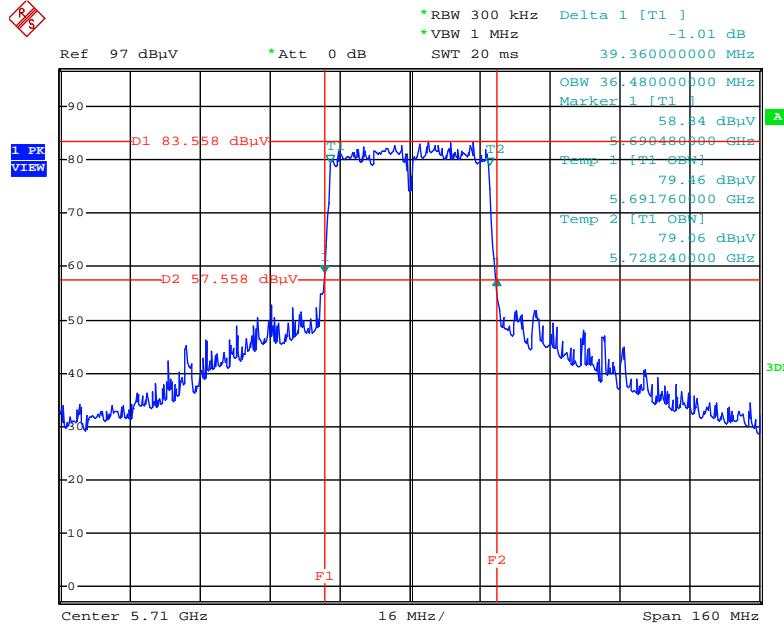
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26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 3 + Chain 4 / 5670 MHz



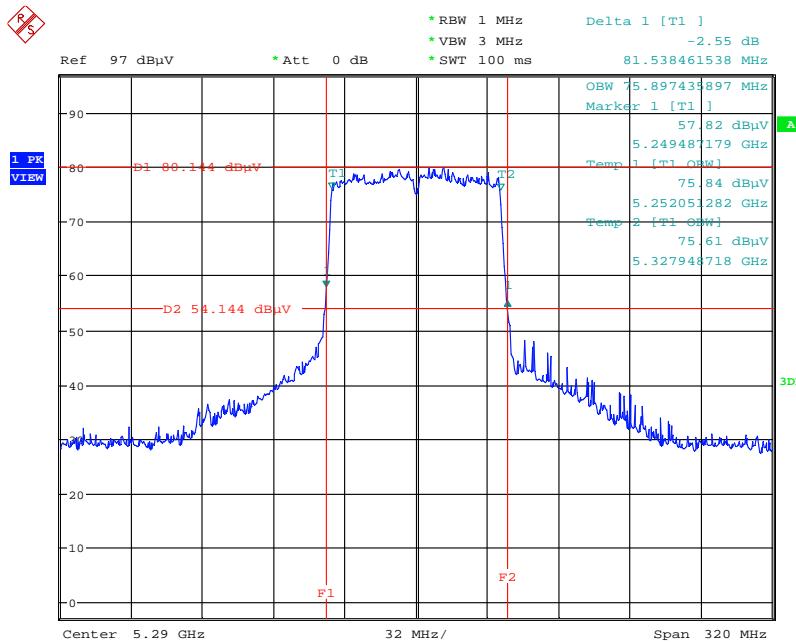
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26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 3 + Chain 4 / 5710 MHz



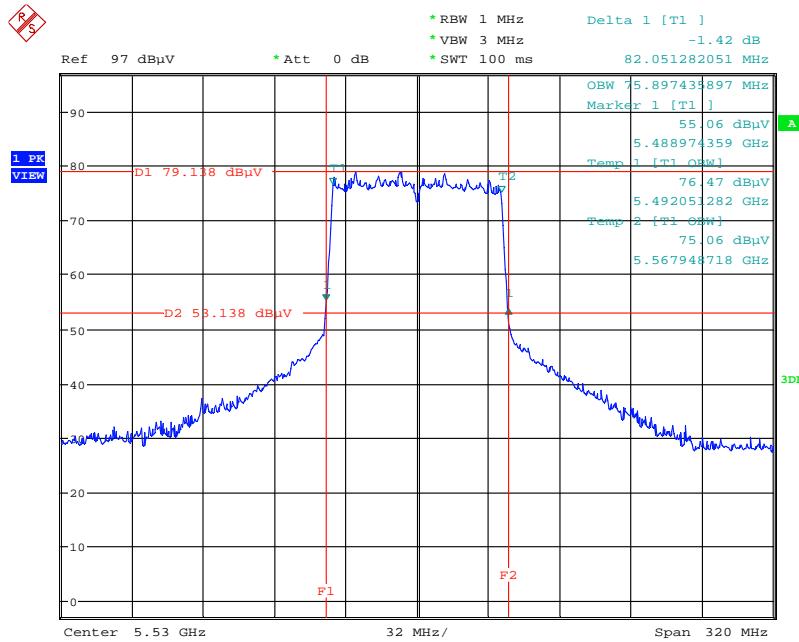
Date: 3.OCT.2014 13:15:51

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 3 + Chain 4 / 5290 MHz



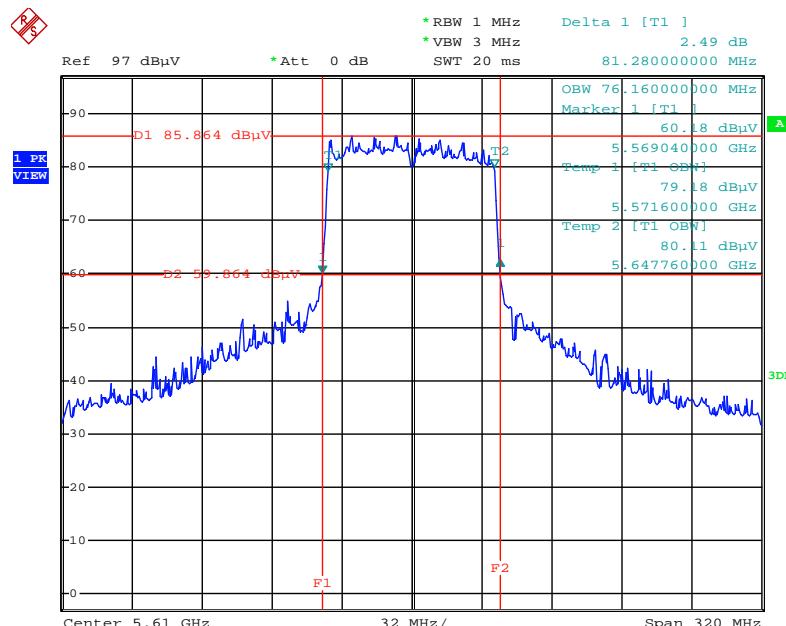
Date: 10.SEP.2014 16:39:39

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 3 + Chain 4 / 5530 MHz



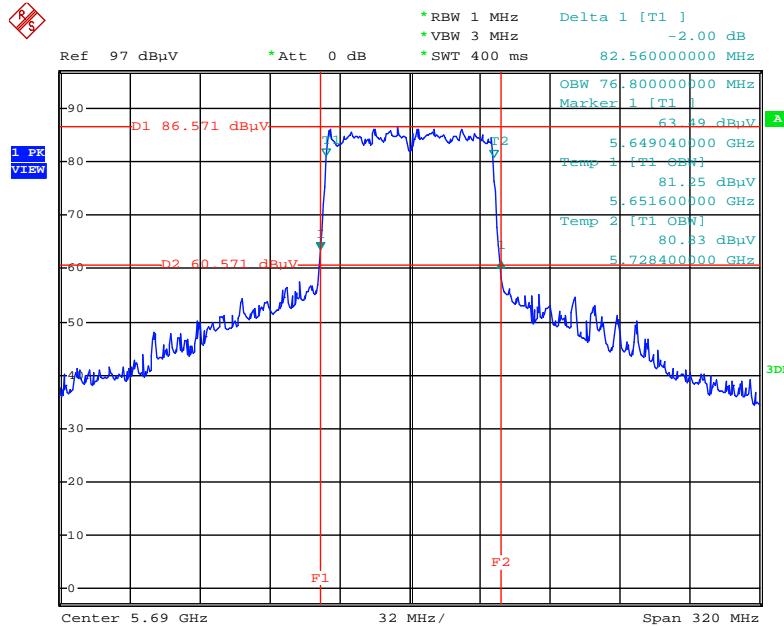
Date: 10.SEP.2014 16:40:03

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 3 + Chain 4 / 5610 MHz



Date: 24.OCT.2014 14:42:41

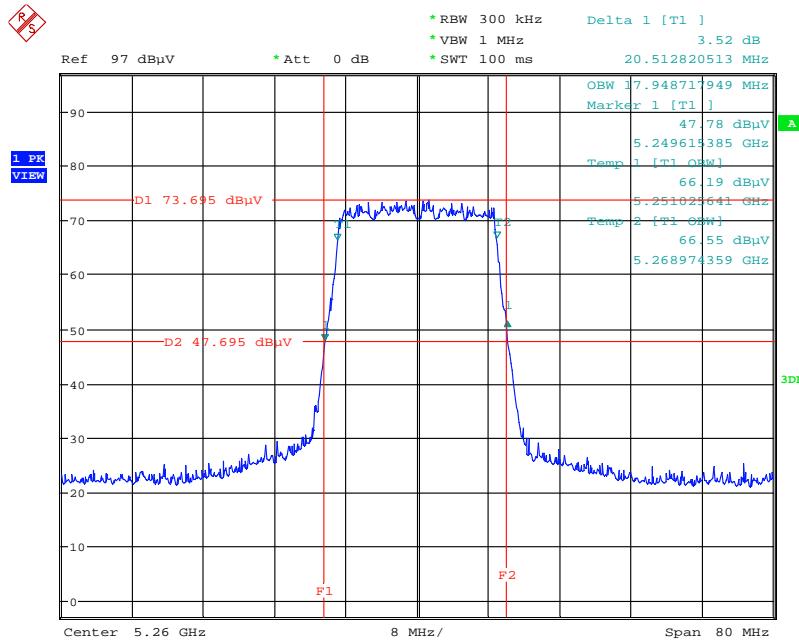
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 3 + Chain 4 / 5690 MHz



Date: 3.OCT.2014 13:16:29

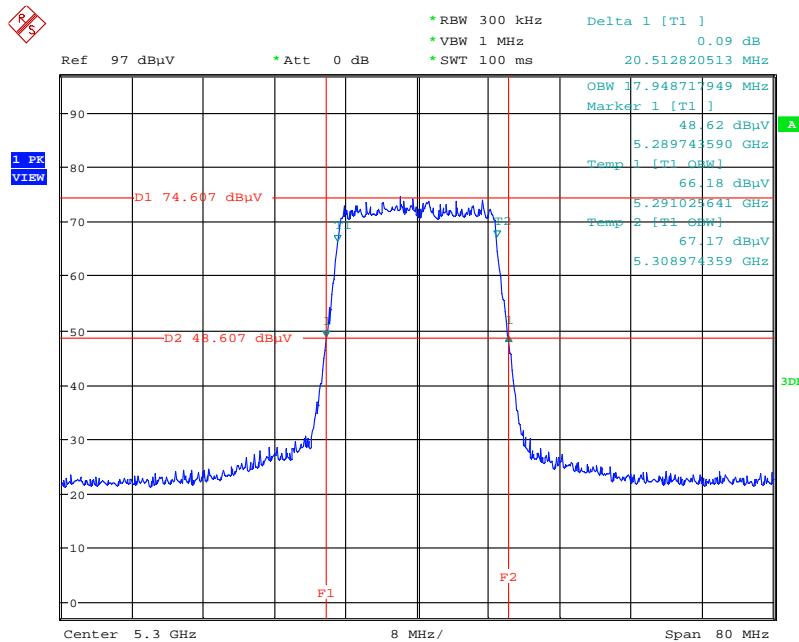
For 5GHz Band : Ant. 3

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4 / 5260 MHz



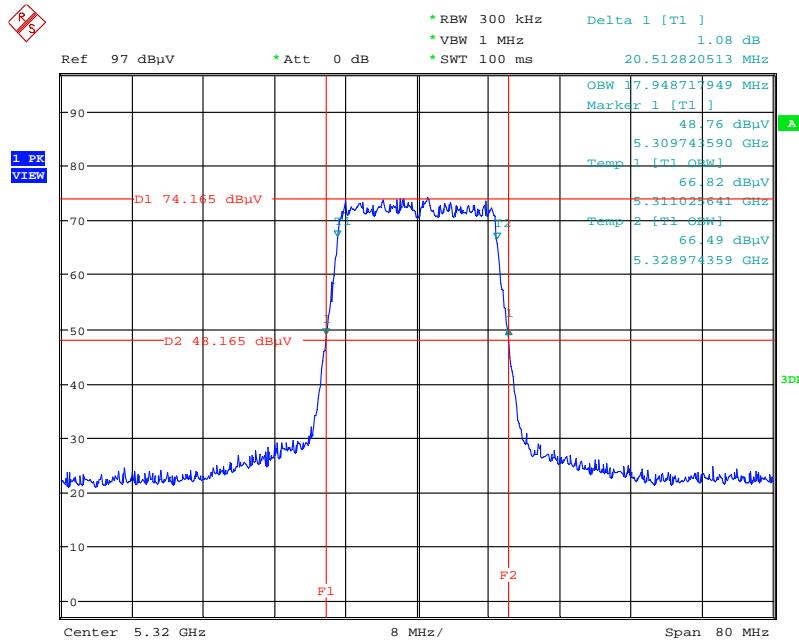
Date: 10.SEP.2014 17:31:10

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4 / 5300 MHz



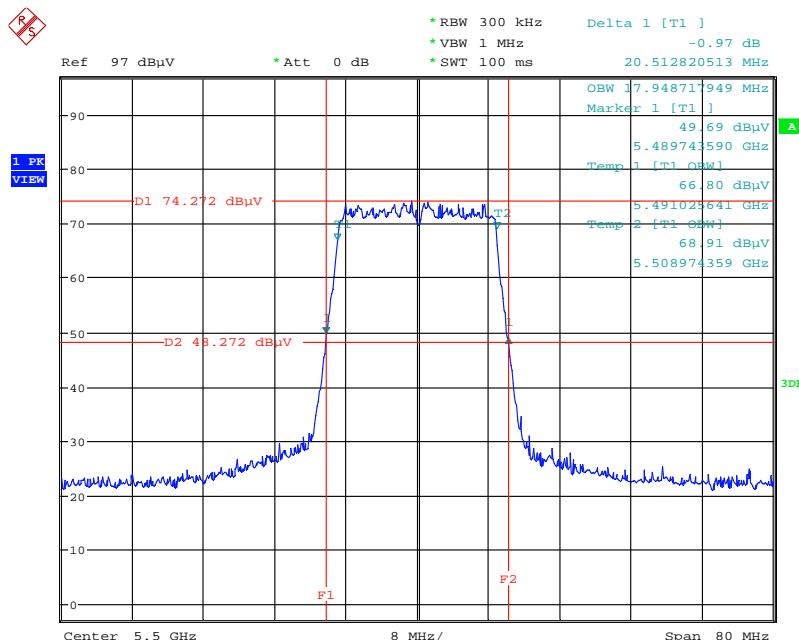
Date: 10.SEP.2014 17:31:41

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4 / 5320 MHz



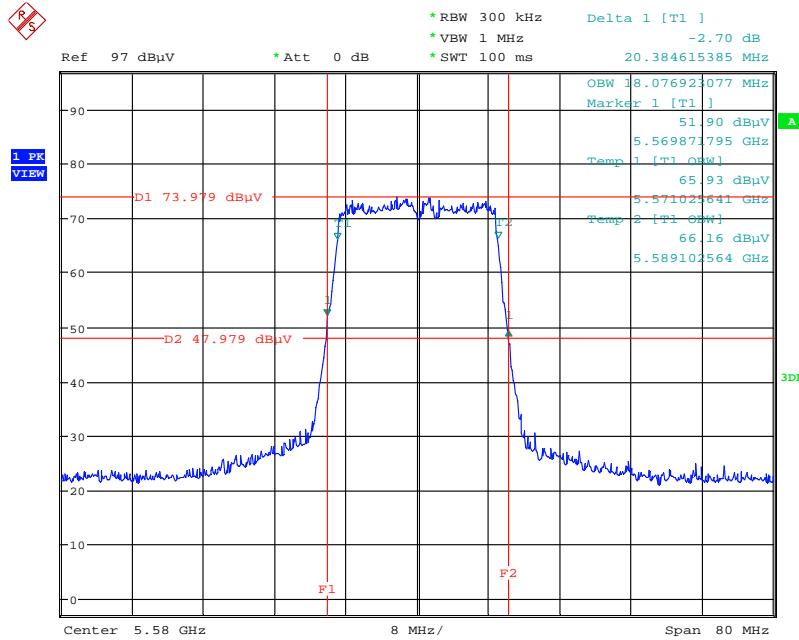
Date: 10.SEP.2014 17:32:13

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4 / 5500 MHz



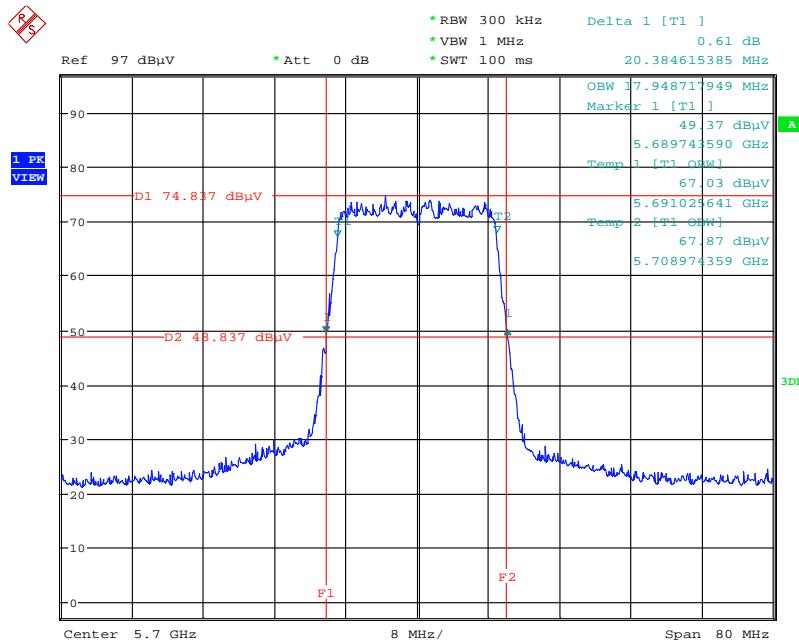
Date: 10.SEP.2014 17:32:42

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4 / 5580 MHz



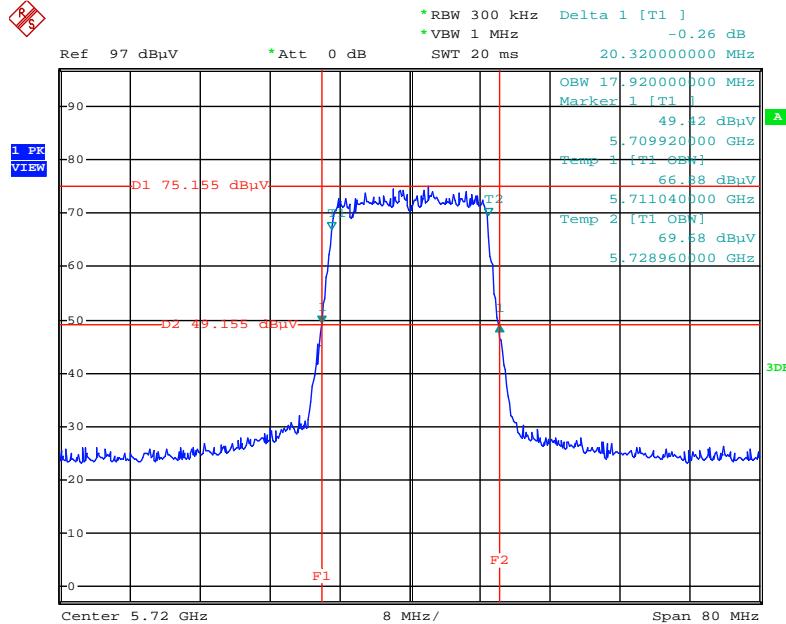
Date: 10.SEP.2014 17:33:16

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4 / 5700 MHz



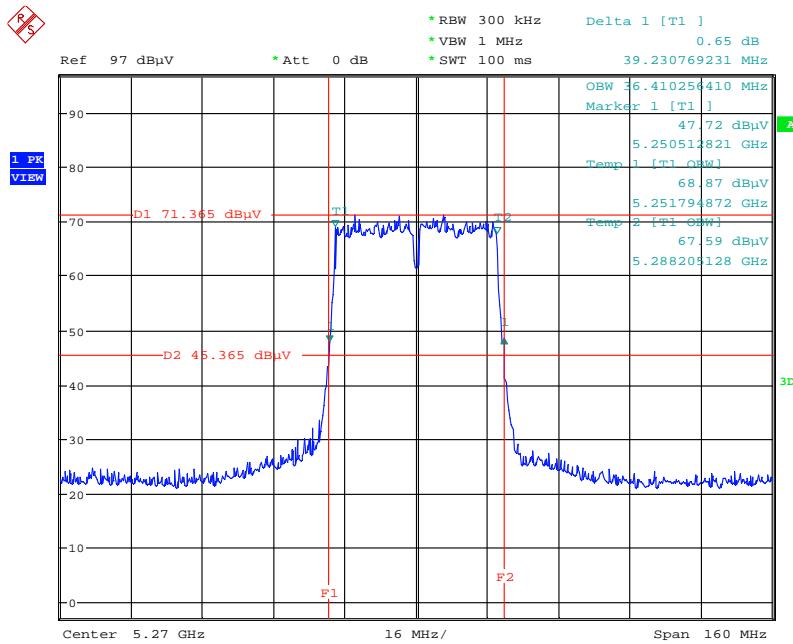
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26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4 / 5720 MHz



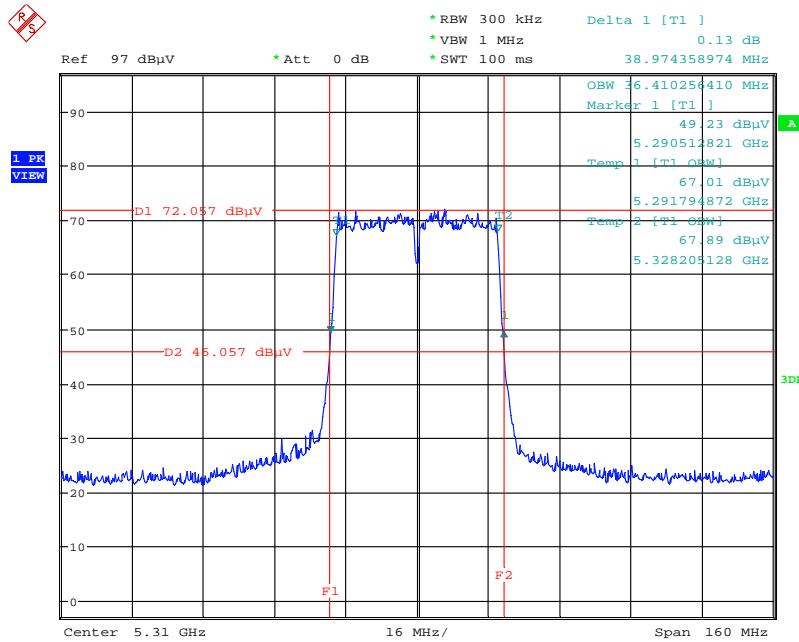
Date: 3.OCT.2014 13:50:16

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 3 + Chain 4 / 5270 MHz



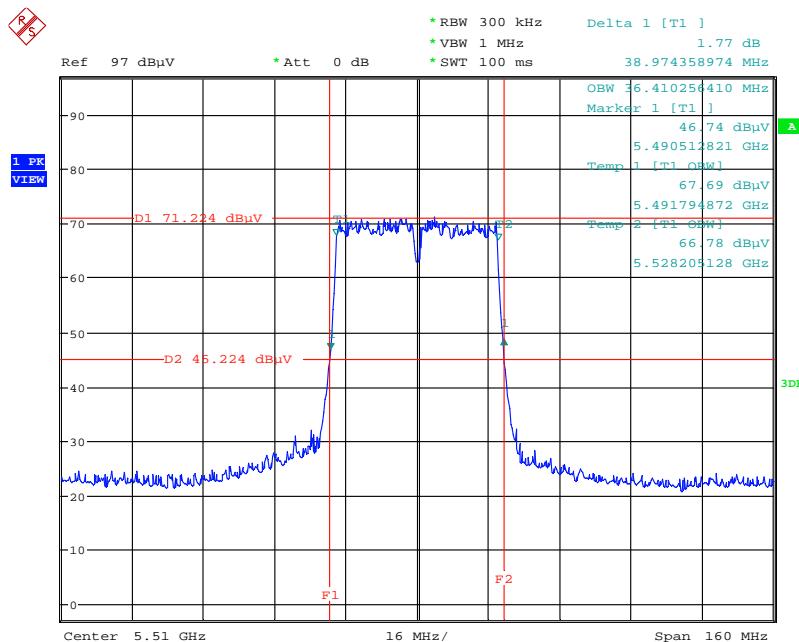
Date: 10.SEP.2014 17:36:49

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 3 + Chain 4 / 5310 MHz



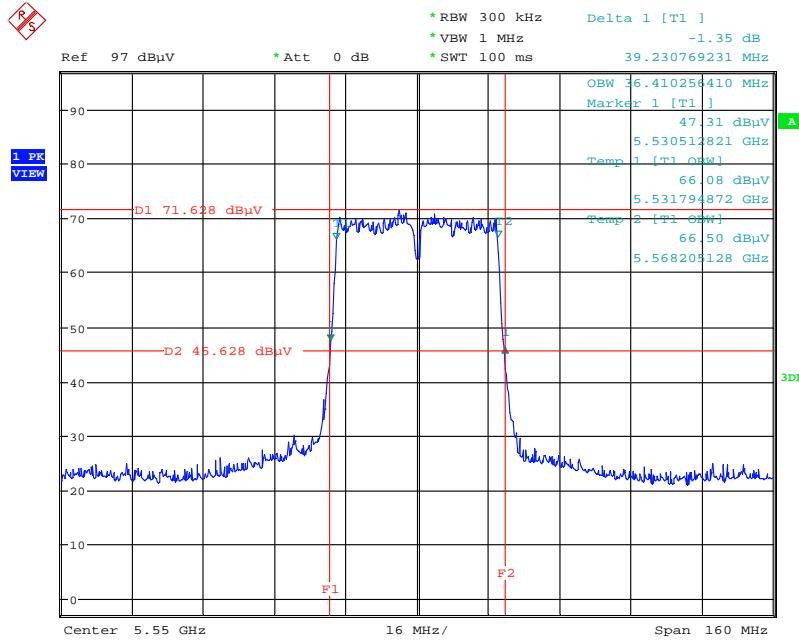
Date: 10.SEP.2014 17:37:17

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 3 + Chain 4 / 5510 MHz



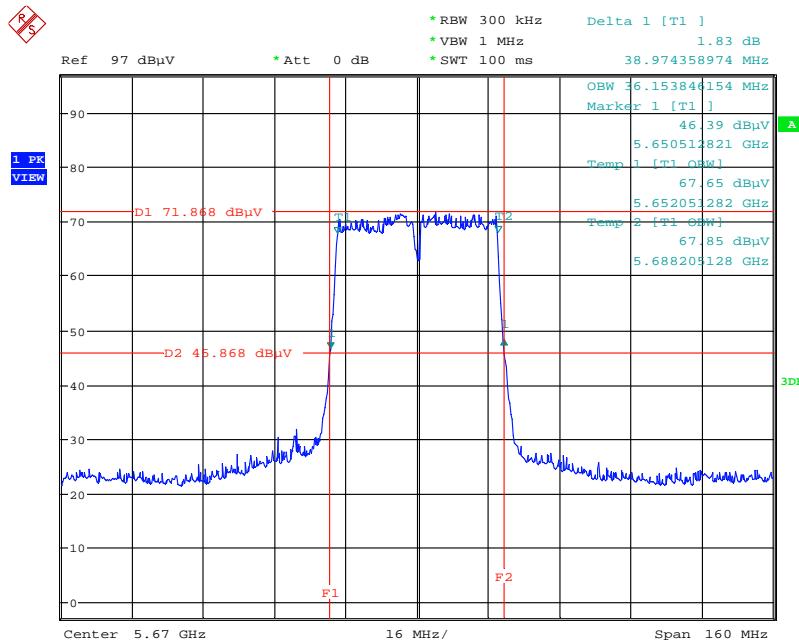
Date: 10.SEP.2014 17:37:49

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 3 + Chain 4 / 5550 MHz



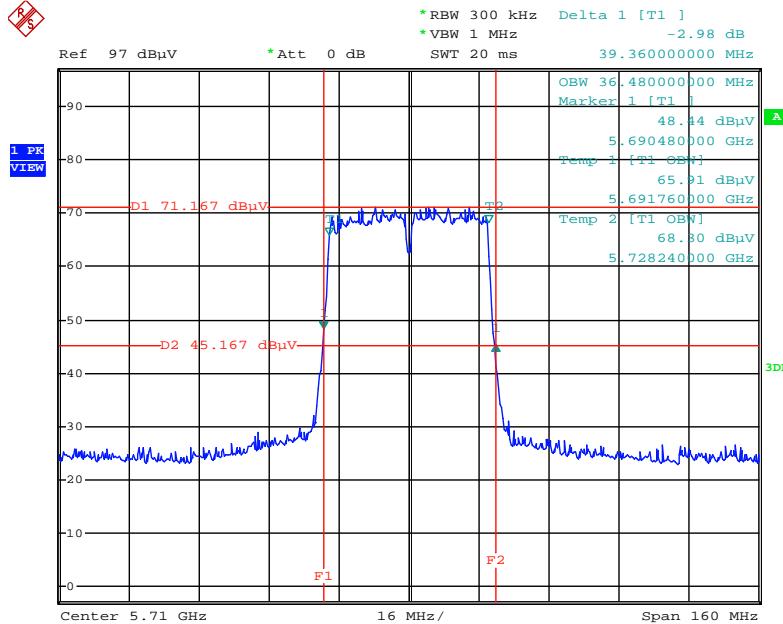
Date: 10.SEP.2014 17:38:18

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 3 + Chain 4 / 5670 MHz



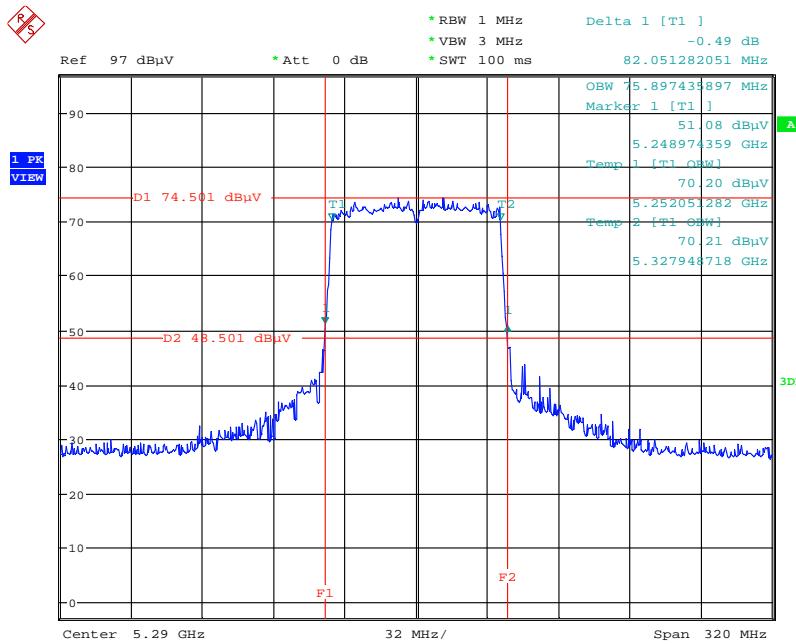
Date: 10.SEP.2014 17:38:44

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 3 + Chain 4 / 5710 MHz



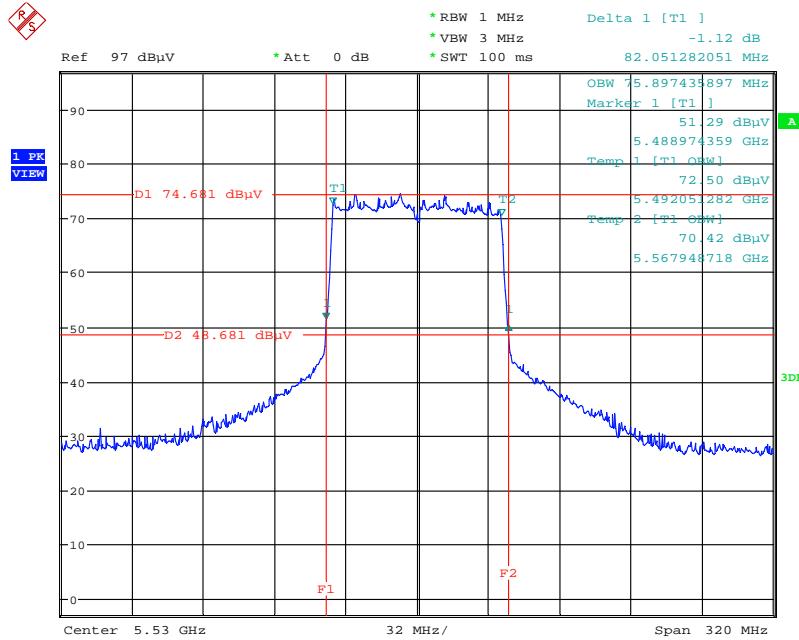
Date: 3.OCT.2014 13:51:07

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 3 + Chain 4 / 5290 MHz



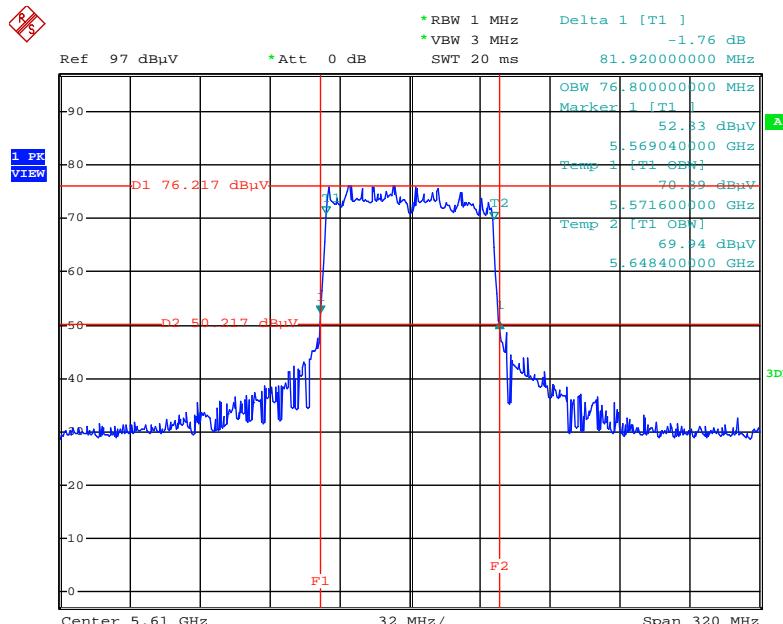
Date: 10.SEP.2014 17:39:57

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 3 + Chain 4 / 5530 MHz



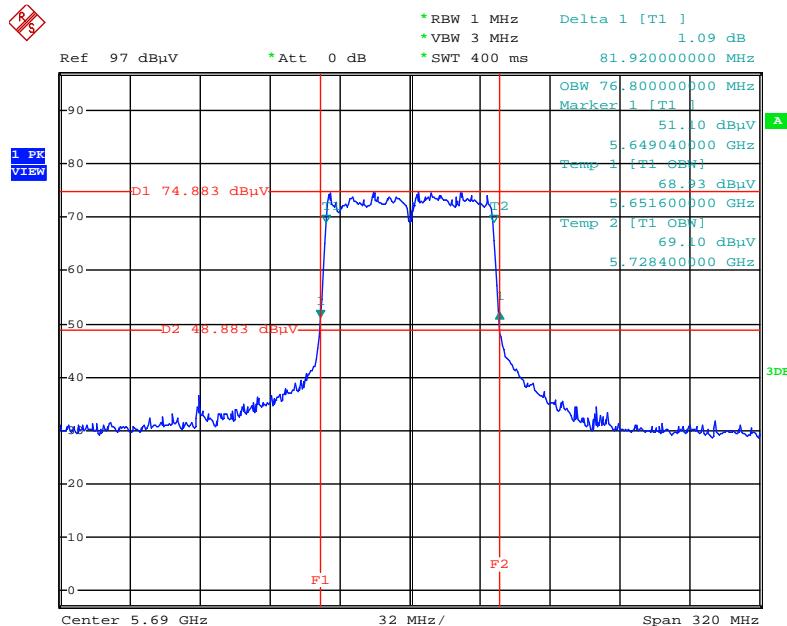
Date: 10.SEP.2014 17:40:35

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 3 + Chain 4 / 5610 MHz



Date: 24.OCT.2014 15:09:24

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 3 + Chain 4 / 5690 MHz



Date: 3.OCT.2014 13:51:48

4.3. 6dB Spectrum Bandwidth

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.

Spectrum Parameters	Setting
Attenuation	Auto
Span Frequency	> 6dB Bandwidth
RBW	approximately 1% of the emission bandwidth
VBW	VBW > RBW
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

4.3.3. Test Procedures

1. The transmitter was conducted to the spectrum analyzer in peak hold mode.
2. Test was performed in accordance with KDB789033 D02 General UNII Test Procedures New Rules v01 for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - section (C) Emission Bandwidth.
3. Multiple antenna system was performed in accordance with KDB662911 D01 v02r01 Emissions Testing of Transmitters with Multiple Outputs in the Same Band.
4. Measurement perform conducted of each port.
5. Measured the spectrum width with power higher than 6dB below carrier.

4.3.4. Test Setup Layout

This test setup layout is the same as that shown in section 4.5.4.

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	26°C	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11ac
Test Function	Non-beamforming function		

For 5GHz Band : Ant. 2

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

Channel	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Test Result
144	5720 MHz	17.57	500	Complies

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

Channel	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Test Result
142	5710 MHz	35.71	500	Complies

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

Channel	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Test Result
138	5690 MHz	75.36	500	Complies

For 5GHz Band : Ant. 3

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

Channel	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Test Result
144	5720 MHz	17.57	500	Complies

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

Channel	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Test Result
142	5710 MHz	35.71	500	Complies

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

Channel	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Test Result
138	5690 MHz	75.36	500	Complies



Temperature	26°C	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11a
Test Function	Non-beamforming function		

For 5GHz Band : Ant. 2**Configuration IEEE 802.11a / Chain 3**

Channel	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Test Result
144	5720 MHz	16.35	500	Complies

For 5GHz Band : Ant. 3**Configuration IEEE 802.11a / Chain 3**

Channel	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Test Result
144	5720 MHz	16.41	500	Complies

Temperature	26°C	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11ac
Test Function	Beamforming function		

For 5GHz Band : Ant. 2

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

Channel	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Test Result
144	5720 MHz	17.04	500	Complies

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

Channel	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Test Result
142	5710 MHz	36.41	500	Complies

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

Channel	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Test Result
138	5690 MHz	75.36	500	Complies

For 5GHz Band : Ant. 3

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

Channel	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Test Result
144	5720 MHz	17.04	500	Complies

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

Channel	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Test Result
142	5710 MHz	36.29	500	Complies

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

Channel	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Test Result
138	5690 MHz	75.36	500	Complies

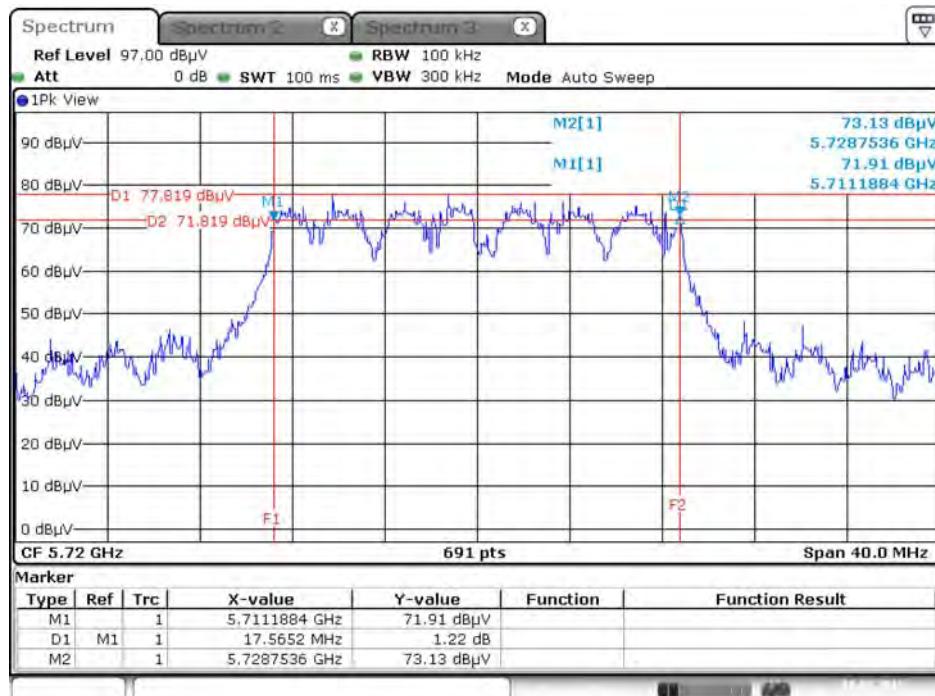
Note: All the test values were listed in the report.

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

For non-beamforming function:

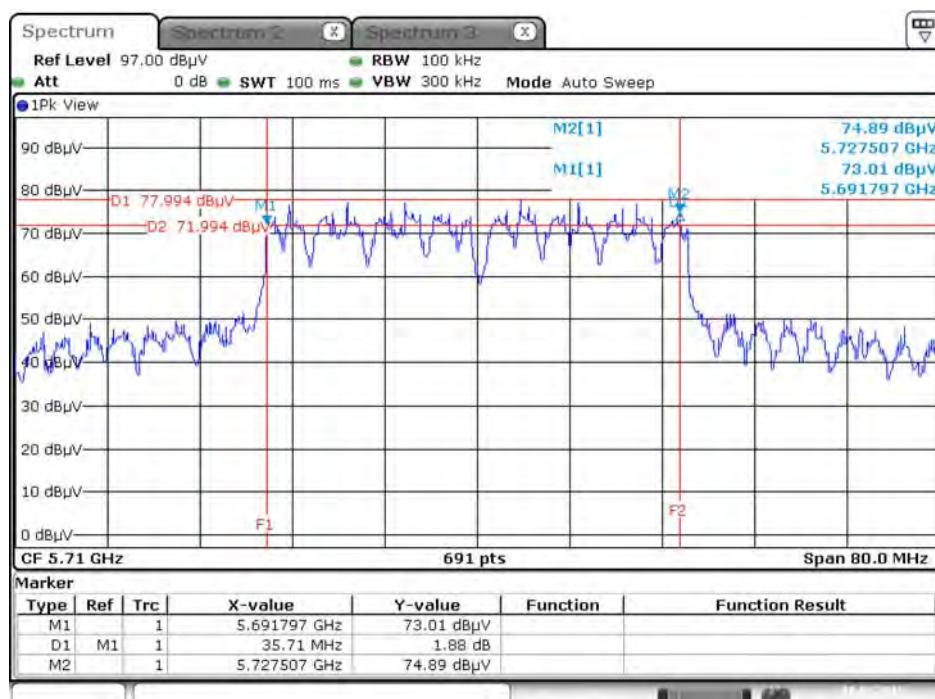
For 5GHz Band : Ant. 2

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4 / 5720 MHz



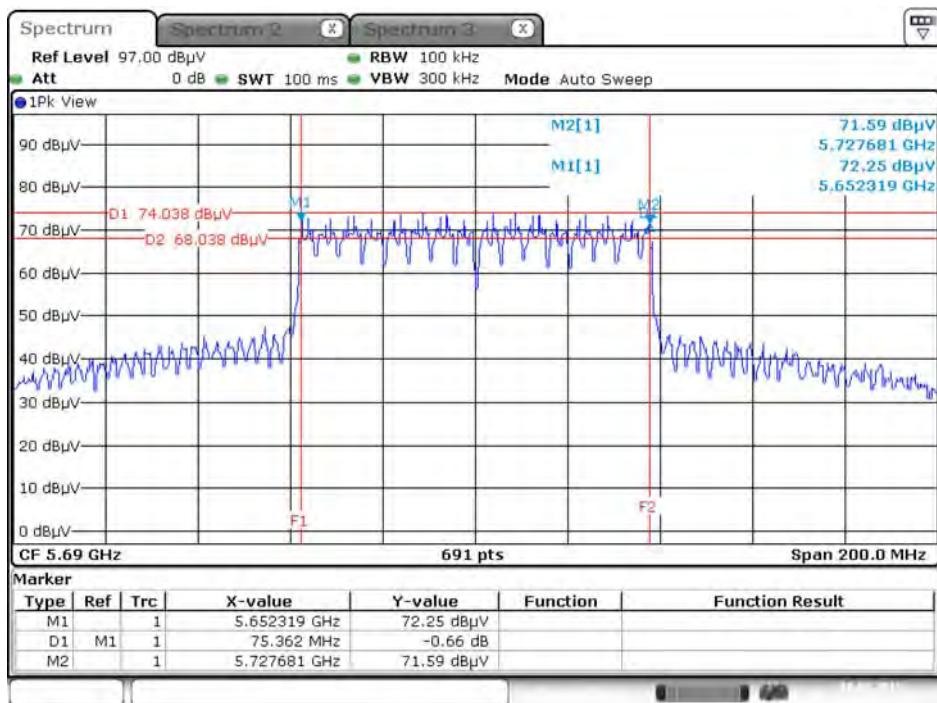
Date: 10.FEB.2015 00:21:41

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 3 + Chain 4 / 5710 MHz



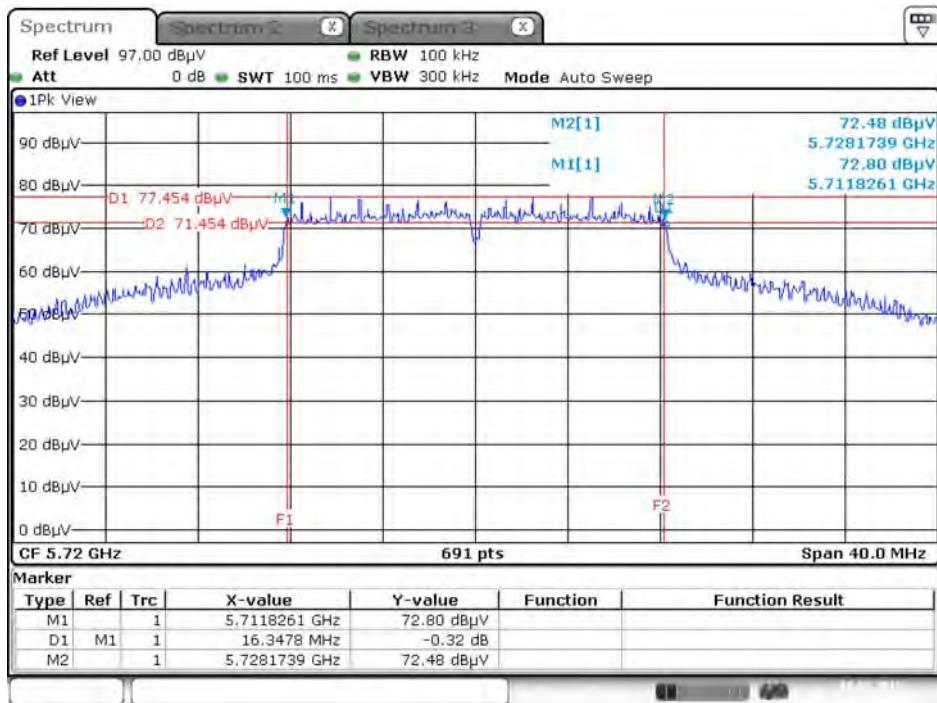
Date: 10.FEB.2015 00:20:34

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 3 + Chain 4 / 5690 MHz

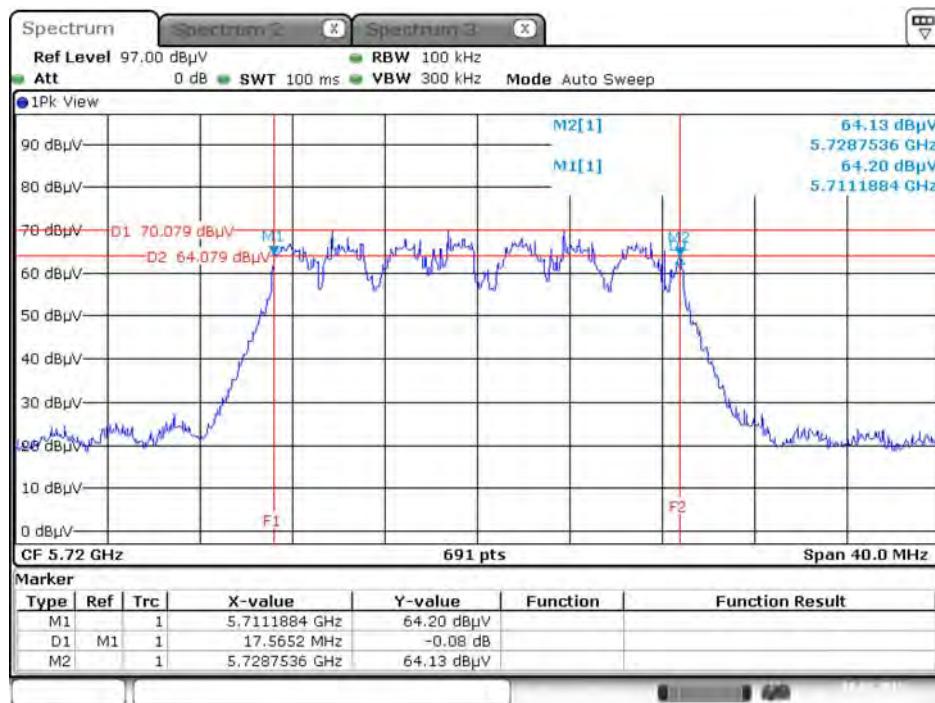
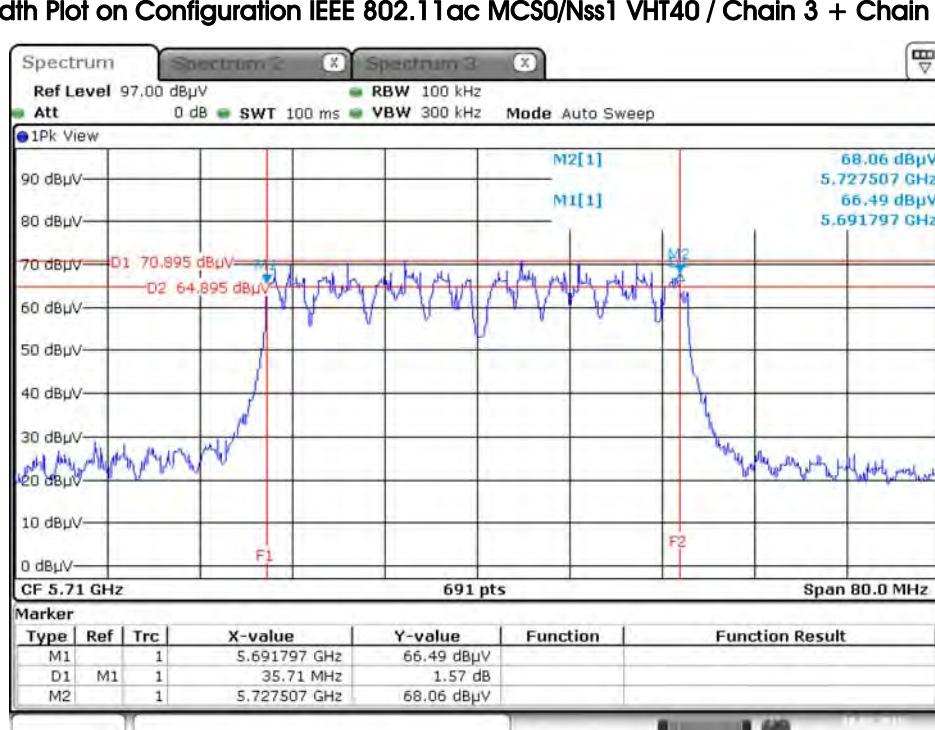


Date: 10.FEB.2015 00:19:31

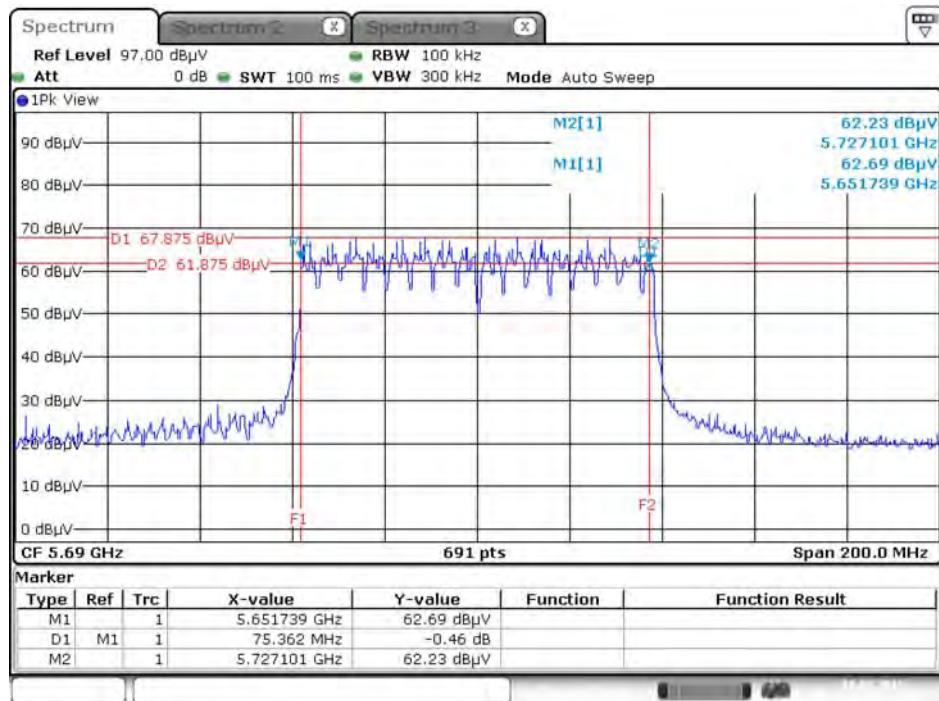
6 dB Bandwidth Plot on Configuration IEEE 802.11a / Chain 3 / 5720 MHz



Date: 10.FEB.2015 00:22:55

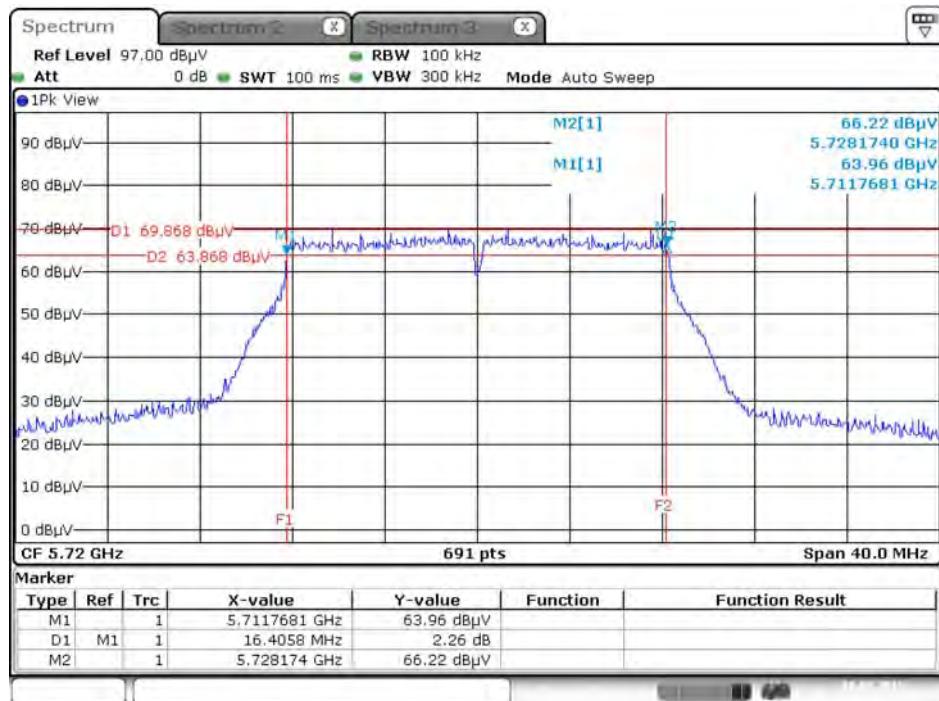
For 5GHz Band : Ant. 3**6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4 / 5720 MHz****6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 3 + Chain 4 / 5710 MHz**

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 3 + Chain 4 / 5690 MHz



Date: 10.FEB.2015 00:14:24

6 dB Bandwidth Plot on Configuration IEEE 802.11a / Chain 3 / 5720 MHz

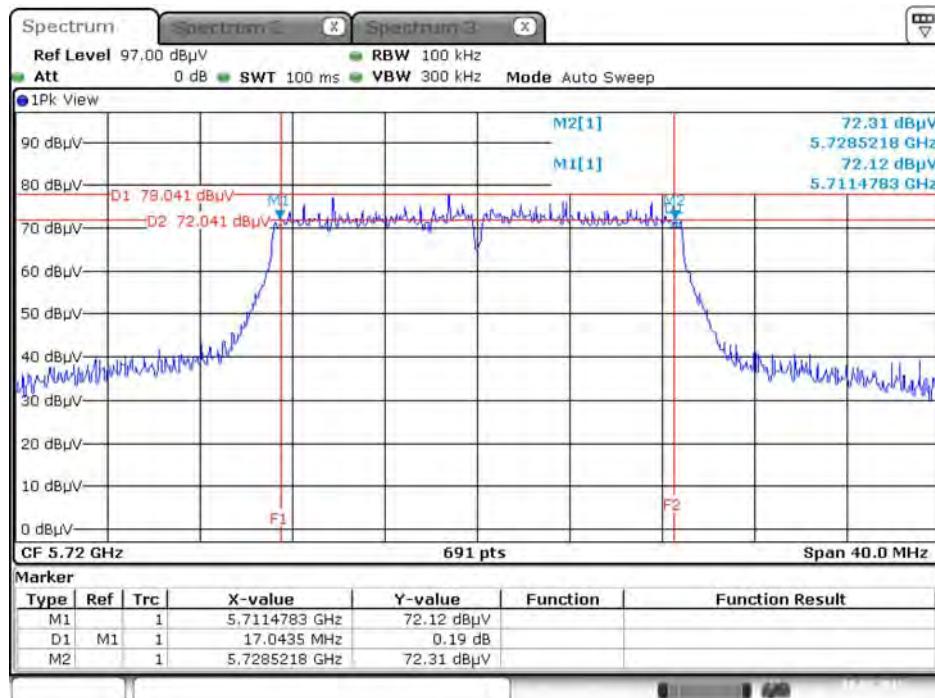


Date: 10.FEB.2015 00:00:31

For beamforming function:

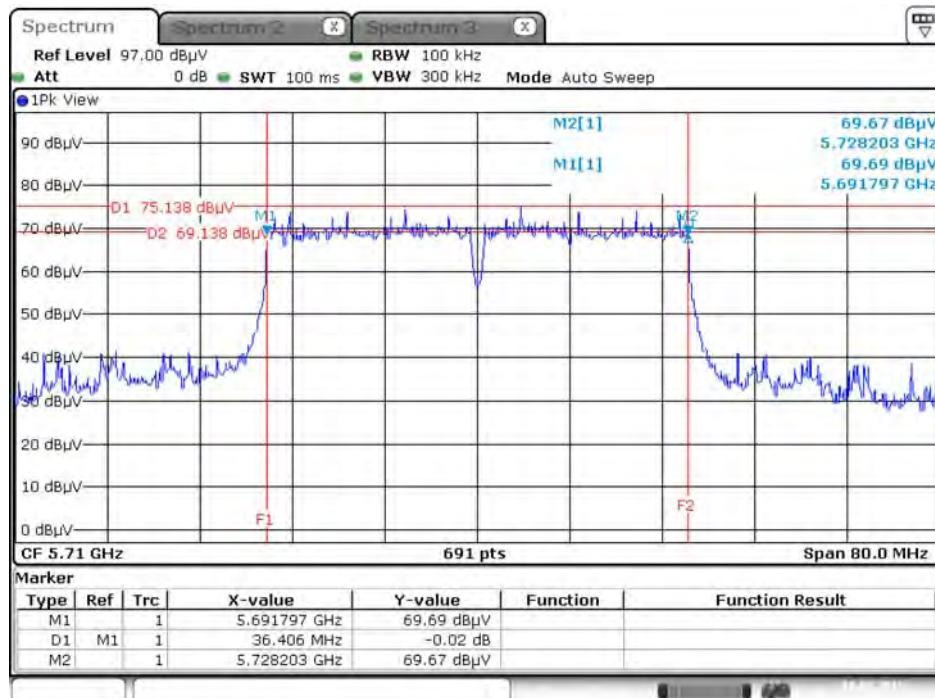
For 5GHz Band : Ant. 2

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4 / 5720 MHz



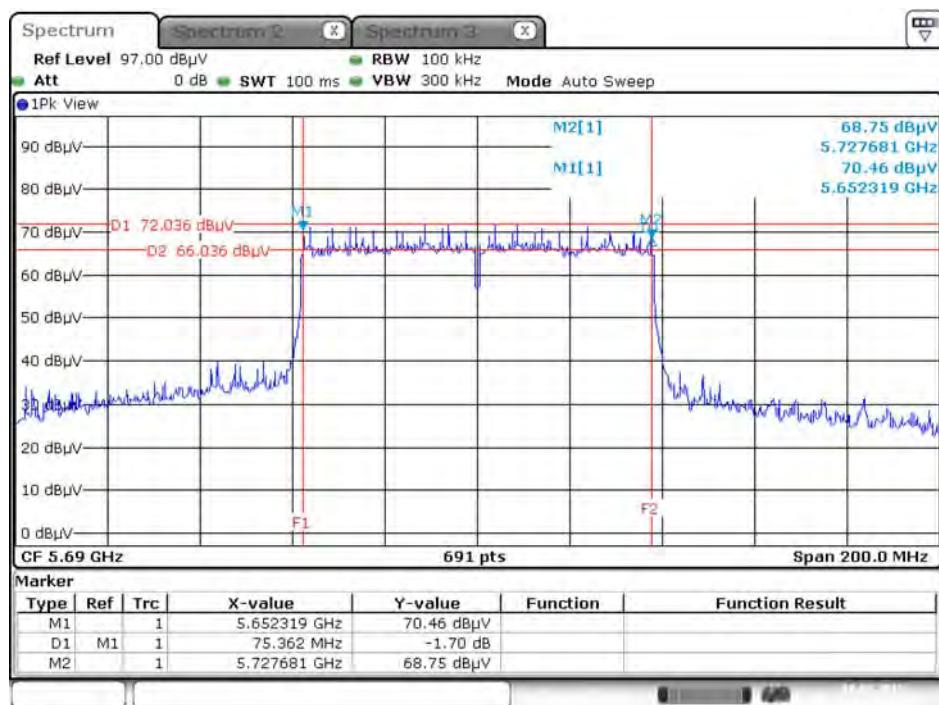
Date: 10.FEB.2015 00:39:10

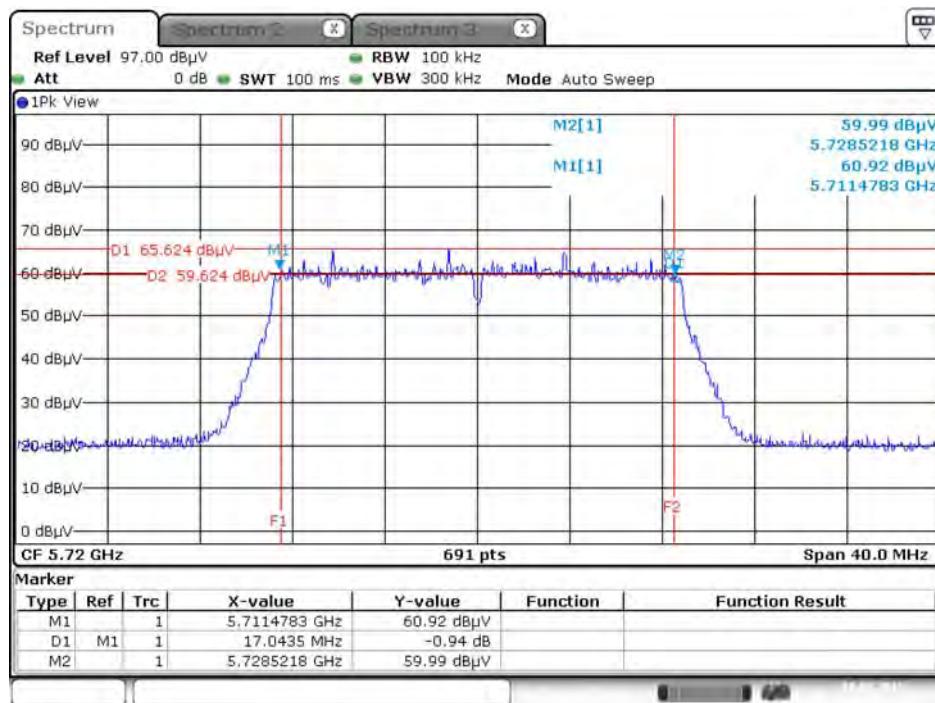
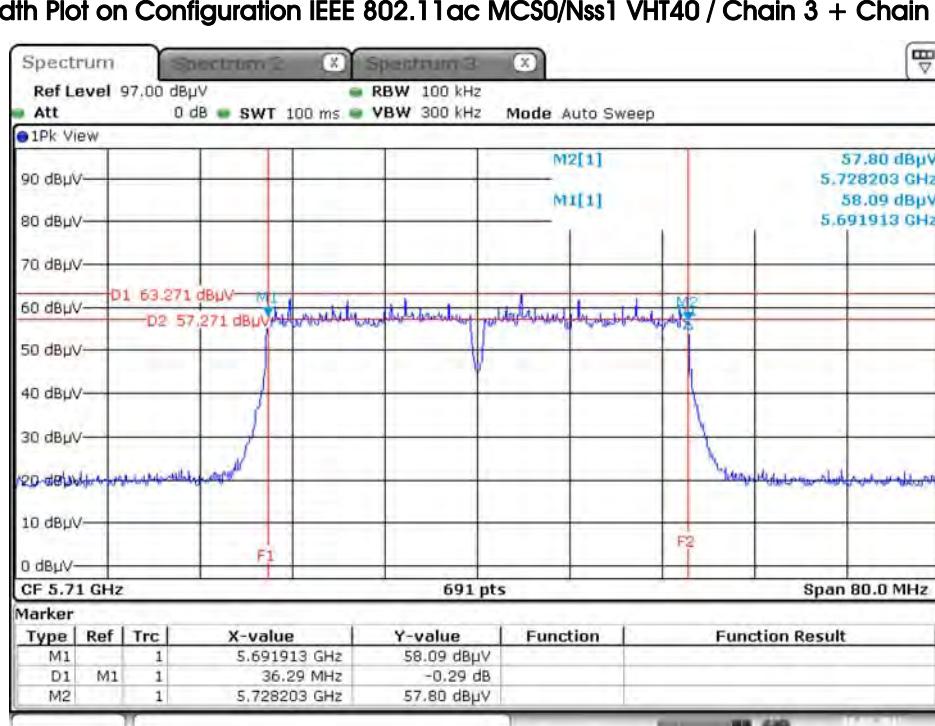
6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 3 + Chain 4 / 5710 MHz



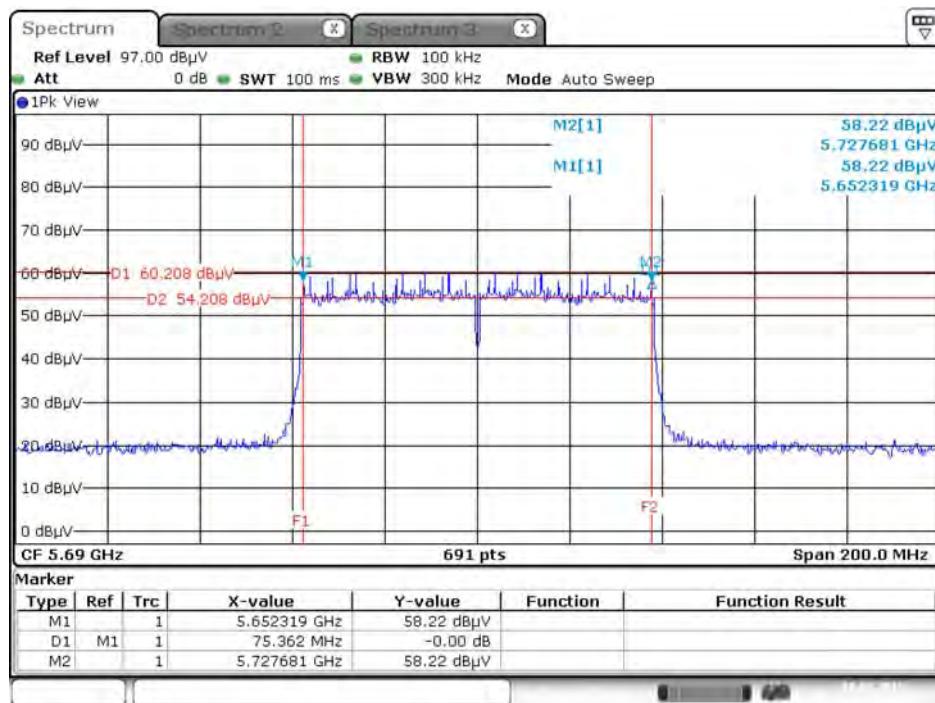
Date: 10.FEB.2015 00:40:51

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 3 + Chain 4 / 5690 MHz



For 5GHz Band : Ant. 3**6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4 / 5720 MHz****6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 3 + Chain 4 / 5710 MHz**

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 3 + Chain 4 / 5690 MHz



Date: 10.FEB.2015 00:43:20

4.4. Maximum Conducted Output Power Measurement

4.4.1. Limit

Frequency Band	Limit
<input checked="" type="checkbox"/> 5.25-5.35 GHz	The maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW (24dBm) or 11 dBm $10 \log B$, where B is the 26 dB emission bandwidth in megahertz. 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.
<input checked="" type="checkbox"/> 5.470-5.725 GHz	

4.4.2. Measuring Instruments and Setting

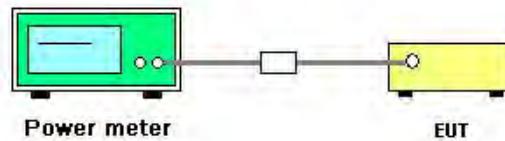
Please refer to section 5 of equipments list in this report. The following table is the setting of the power meter.

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 v01 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

<For Non-Beamforming Mode>

Temperature	26°C	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11ac
Test Date	Sep. 10, 2014 / Feb. 09, 2015		

For 5GHz Band : Ant. 2

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

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Chain 3	Chain 4	Total		
52	5260 MHz	19.01	18.28	21.67	24.00	Complies
60	5300 MHz	19.21	18.44	21.85	24.00	Complies
64	5320 MHz	19.17	18.47	21.84	24.00	Complies
100	5500 MHz	19.31	18.48	21.93	24.00	Complies
116	5580 MHz	18.09	17.36	20.75	24.00	Complies
140	5700 MHz	17.19	17.17	20.19	24.00	Complies
144-UNII 2C	5720 MHz	18.13	18.03	21.09	22.83	Complies
144-UNII 3	5720 MHz	12.22	12.14	15.19	30.00	Complies

Note: 5720MHz power limit (UNII 2C)=11+10log(B);11+10log(15.24)=22.83dBm<24dBm, so power limit=22.83dBm

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

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Chain 3	Chain 4	Total		
54	5270 MHz	21.10	20.48	23.81	24.00	Complies
62	5310 MHz	15.88	14.73	18.35	24.00	Complies
102	5510 MHz	16.33	14.98	18.72	24.00	Complies
110	5550 MHz	18.85	17.51	21.24	24.00	Complies
134	5670 MHz	18.02	17.53	20.79	24.00	Complies
142-UNII 2C	5710 MHz	20.93	20.78	23.87	24.00	Complies
142-UNII 3	5710 MHz	10.19	10.43	13.32	30.00	Complies

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

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Chain 3	Chain 4	Total		
58	5290 MHz	12.79	12.57	15.69	24.00	Complies
106	5530 MHz	11.44	11.03	14.25	24.00	Complies
122	5610 MHz	18.45	17.98	21.23	24.00	Complies
138-UNII 2C	5690 MHz	19.65	19.87	22.77	24.00	Complies
138-UNII 3	5690 MHz	5.66	5.80	8.74	30.00	Complies

For 5GHz Band : Ant. 3
Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Chain 3	Chain 4	Total		
52	5260 MHz	7.33	7.07	10.21	12.90	Complies
60	5300 MHz	7.18	7.12	10.16	12.90	Complies
64	5320 MHz	7.18	7.19	10.20	12.90	Complies
100	5500 MHz	7.43	7.09	10.27	12.90	Complies
116	5580 MHz	7.51	6.64	10.11	12.90	Complies
140	5700 MHz	7.18	7.12	10.16	12.90	Complies
144-UNII 2C	5720 MHz	5.40	5.68	8.55	11.73	Complies
144-UNII 3	5720 MHz	-0.44	-0.55	2.52	18.90	Complies

Note: ANT Gain=17.1dBi > 6dBi, So Band2 Power Limit =24-(17.1-6)=12.9dBm

Note: ANT Gain=17.1dBi > 6dBi, So Band3 Power Limit =24-(17.1-6)=12.9dBm

Note: 5720MHz power limit (UNII 2C)= 11+10log(B); 11+10log(15.24)-(17.1-6)=11.73dBm<12.9dBm, so power limit=11.73dBm

Note: ANT Gain=17.1dBi, so 5720MHz power limit (UNII 3)=30-(17.1-6)=18.9dBm

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

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Chain 3	Chain 4	Total		
54	5270 MHz	10.12	9.51	12.84	12.90	Complies
62	5310 MHz	9.95	9.51	12.75	12.90	Complies
102	5510 MHz	10.05	9.36	12.73	12.90	Complies
110	5550 MHz	10.11	9.51	12.83	12.90	Complies
134	5670 MHz	9.96	9.51	12.75	12.90	Complies
142-UNII 2C	5710 MHz	9.35	9.70	12.54	12.90	Complies
142-UNII 3	5710 MHz	-0.90	-0.79	2.17	18.90	Complies

Note: ANT Gain=17.1dBi > 6dBi, So Band2 Power Limit =24-(17.1-6)=12.9dBm

Note: ANT Gain=17.1dBi > 6dBi, So Band3 Power Limit =24-(17.1-6)=12.9dBm

Note: ANT Gain=17.1dBi, so 5710MHz power limit (UNII 3)=30-(17.1-6)=18.9dBm

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

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Chain 3	Chain 4	Total		
58	5290 MHz	8.91	8.89	11.91	12.90	Complies
106	5530 MHz	8.96	8.87	11.93	12.90	Complies
122	5610 MHz	10.06	9.67	12.88	12.90	Complies
138-UNII 2C	5690 MHz	8.94	9.32	12.14	12.90	Complies
138-UNII 3	5690 MHz	-4.68	-4.69	-1.67	18.90	Complies

Note: ANT Gain=17.1dBi > 6dBi, So Band2 Power Limit =24-(17.1-6)=12.9dBm

Note: ANT Gain=17.1dBi > 6dBi, So Band3 Power Limit =24-(17.1-6)=12.9dBm

Note: ANT Gain=17.1dBi, so 5690MHz power limit (UNII 3)=30-(17.1-6)=18.9dBm

Temperature	26°C	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11a
Test Date	Sep. 10, 2014 / Feb. 09, 2015		

For 5GHz Band : Ant. 2

Configuration IEEE 802.11a / Chain 3

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
52	5260 MHz	23.65	24.00	Complies
60	5300 MHz	23.89	24.00	Complies
64	5320 MHz	20.65	24.00	Complies
100	5500 MHz	22.21	24.00	Complies
116	5580 MHz	23.75	24.00	Complies
140	5700 MHz	19.38	24.00	Complies
144-UNII 2C	5720 MHz	22.77	24.00	Complies
144-UNII 3	5720 MHz	16.28	30.00	Complies

For 5GHz Band : Ant. 3

Configuration IEEE 802.11a / Chain 3

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
52	5260 MHz	12.58	12.90	Complies
60	5300 MHz	12.56	12.90	Complies
64	5320 MHz	12.77	12.90	Complies
100	5500 MHz	12.69	12.90	Complies
116	5580 MHz	12.23	12.90	Complies
140	5700 MHz	12.82	12.90	Complies
144-UNII 2C	5720 MHz	11.60	11.73	Complies
144-UNII 3	5720 MHz	5.86	18.90	Complies

Note: ANT Gain=17.1dBi > 6dBi, So Band2 Power Limit =24-(17.1-6)=12.9dBm

Note: ANT Gain=17.1dBi > 6dBi, So Band3 Power Limit =24-(17.1-6)=12.9dBm

Note: 5720MHz power limit (UNII 2C)= 11+10log(B); 11+10log(15.24)-(17.1-6)=11.73dBm<12.9dBm, so power limit=11.73dBm

Note: ANT Gain=17.1dBi, so 5720MHz power limit (UNII 3)=30-(17.1-6)=18.9dBm



<For Beamforming Mode>

Temperature	26°C	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11ac
Test Date	Sep. 10, 2014		

For 5GHz Band : Ant. 2

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

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Chain 3	Chain 4	Total		
52	5260 MHz	18.83	17.96	21.43	21.49	Complies
60	5300 MHz	18.72	17.96	21.37	21.49	Complies
64	5320 MHz	18.77	18.01	21.42	21.49	Complies
100	5500 MHz	18.81	18.06	21.46	21.49	Complies
116	5580 MHz	18.92	17.87	21.44	21.49	Complies
140	5700 MHz	15.43	15.33	18.39	21.49	Complies
144-UNII 2C	5720 MHz	17.50	17.17	20.35	20.36	Complies
144-UNII 3	5720 MHz	11.86	11.85	14.87	27.49	Complies

Note: $\text{DirectionalGain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{\text{ANT}}} \left\{ \sum_{k=1}^{N_{\text{ANT}}} g_{j,k} \right\}^2}{N_{\text{ANT}}} \right] = 8.51 \text{dBi} > 6 \text{dBi}, \text{So Band2 Power Limit} = 24 - (8.51 - 6) = 21.49 \text{dBm}$

Note: $\text{DirectionalGain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{\text{ANT}}} \left\{ \sum_{k=1}^{N_{\text{ANT}}} g_{j,k} \right\}^2}{N_{\text{ANT}}} \right] = 8.51 \text{dBi} > 6 \text{dBi}, \text{So Band3 Power Limit} = 24 - (8.51 - 6) = 21.49 \text{dBm}$

Note: 5720MHz power limit (UNII 2C)=11+10log(B);11+10log(15.40)-(8.51-6)=20.36dBm<24dBm, so power limit=20.36dBm

Note: Directional Gain=8.51dBi, so 5720MHz power limit (UNII 3)=30-(8.51-6)=27.49dBm

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

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Chain 3	Chain 4	Total		
54	5270 MHz	18.55	17.88	21.24	21.49	Complies
62	5310 MHz	15.02	14.61	17.83	21.49	Complies
102	5510 MHz	15.42	14.64	18.06	21.49	Complies
110	5550 MHz	18.82	17.65	21.28	21.49	Complies
134	5670 MHz	17.01	16.93	19.98	21.49	Complies
142-UNII 2C	5710 MHz	18.21	17.73	20.99	21.49	Complies
142-UNII 3	5710 MHz	7.75	7.32	10.55	27.49	Complies

Note: $\text{DirectionalGain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{\text{ANT}}} \left\{ \sum_{k=1}^{N_{\text{ANT}}} g_{j,k} \right\}^2}{N_{\text{ANT}}} \right] = 8.51 \text{dBi} > 6 \text{dBi}, \text{So Band2 Power Limit} = 24 - (8.51 - 6) = 21.49 \text{dBm}$

Note: $\text{DirectionalGain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{\text{ANT}}} \left\{ \sum_{k=1}^{N_{\text{ANT}}} g_{j,k} \right\}^2}{N_{\text{ANT}}} \right] = 8.51 \text{dBi} > 6 \text{dBi}, \text{So Band3 Power Limit} = 24 - (8.51 - 6) = 21.49 \text{dBm}$

Note: Directional Gain=8.51dBi, so 5710MHz power limit (UNII 3)=30-(8.51-6)=27.49dBm

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

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Chain 3	Chain 4	Total		
58	5290 MHz	12.72	12.53	15.64	21.49	Complies
106	5530 MHz	11.44	11.03	14.25	21.49	Complies
122	5610 MHz	17.35	16.98	20.18	21.49	Complies
138-UNII 2C	5690 MHz	17.92	17.94	20.94	21.49	Complies
138-UNII 3	5690 MHz	3.87	3.92	6.91	27.49	Complies

Note: $\text{DirectionalGain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{\text{ANT}}} \left\{ \sum_{k=1}^{N_{\text{ANT}}} g_{j,k} \right\}^2}{N_{\text{ANT}}} \right] = 8.51 \text{dBi} > 6 \text{dBi}, \text{So Band2 Power Limit} = 24 - (8.51 - 6) = 21.49 \text{dBm}$

Note: $\text{DirectionalGain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{\text{ANT}}} \left\{ \sum_{k=1}^{N_{\text{ANT}}} g_{j,k} \right\}^2}{N_{\text{ANT}}} \right] = 8.51 \text{dBi} > 6 \text{dBi}, \text{So Band3 Power Limit} = 24 - (8.51 - 6) = 21.49 \text{dBm}$

Note: Directional Gain=8.51dBi, so 5690MHz power limit (UNII 3)=30-(8.51-6)=27.49dBm

For 5GHz Band : Ant. 3
Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Chain 3	Chain 4	Total		
52	5260 MHz	7.12	6.58	9.87	9.89	Complies
60	5300 MHz	6.87	6.63	9.76	9.89	Complies
64	5320 MHz	6.88	6.69	9.80	9.89	Complies
100	5500 MHz	6.56	6.76	9.67	9.89	Complies
116	5580 MHz	7.25	6.42	9.87	9.89	Complies
140	5700 MHz	6.87	6.81	9.85	9.89	Complies
144-UNII 2C	5720 MHz	5.31	5.50	8.42	8.67	Complies
144-UNII 3	5720 MHz	-0.42	-0.35	2.63	15.89	Complies

Note: $\text{DirectionalGain} = 10 \cdot \log \left[\sum_{j=1}^{N_{\text{ANT}}} \left\{ \sum_{k=1}^{N_{\text{ANT}}} g_{j,k} \right\}^2 \right] = 20.11 \text{dBi} > 6 \text{dBi}$, So Band2 Power Limit = $24 - (20.11 - 6) = 9.89 \text{dBm}$

Note: $\text{DirectionalGain} = 10 \cdot \log \left[\sum_{j=1}^{N_{\text{ANT}}} \left\{ \sum_{k=1}^{N_{\text{ANT}}} g_{j,k} \right\}^2 \right] = 20.11 \text{dBi} > 6 \text{dBi}$, So Band3 Power Limit = $24 - (20.11 - 6) = 9.89 \text{dBm}$

Note: 5720MHz power limit (UNII 2C)= $11+10\log(8); 11+10\log(15.08)-(20.11-6)=8.67 \text{dBm} < 9.89 \text{dBm}$, so power limit=8.67dBm

Note: Directional Gain=20.11dBi, so 5720MHz power limit (UNII 3)= $30-(20.11-6)=15.89 \text{dBm}$

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

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Chain 3	Chain 4	Total		
54	5270 MHz	6.97	6.75	9.87	9.89	Complies
62	5310 MHz	6.86	6.87	9.88	9.89	Complies
102	5510 MHz	6.49	6.92	9.72	9.89	Complies
110	5550 MHz	6.36	6.89	9.64	9.89	Complies
134	5670 MHz	6.86	6.75	9.82	9.89	Complies
142-UNII 2C	5710 MHz	5.94	6.16	9.06	9.89	Complies
142-UNII 3	5710 MHz	-4.76	-4.01	-1.36	15.89	Complies

Note: $\text{DirectionalGain} = 10 \cdot \log \left[\sum_{j=1}^{N_{\text{ANT}}} \left\{ \sum_{k=1}^{N_{\text{ANT}}} g_{j,k} \right\}^2 \right] = 20.11 \text{dBi} > 6 \text{dBi}$, So Band2 Power Limit = $24 - (20.11 - 6) = 9.89 \text{dBm}$

Note: $\text{DirectionalGain} = 10 \cdot \log \left[\sum_{j=1}^{N_{\text{ANT}}} \left\{ \sum_{k=1}^{N_{\text{ANT}}} g_{j,k} \right\}^2 \right] = 20.11 \text{dBi} > 6 \text{dBi}$, So Band3 Power Limit = $24 - (20.11 - 6) = 9.89 \text{dBm}$

Note: Directional Gain=20.11dBi, so 5710MHz power limit (UNII 3)= $30-(20.11-6)=15.89 \text{dBm}$

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

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Chain 3	Chain 4	Total		
58	5290 MHz	6.53	7.09	9.83	9.89	Complies
106	5530 MHz	6.76	6.92	9.85	9.89	Complies
122	5610 MHz	6.77	6.84	9.82	9.89	Complies
138-UNII 2C	5690 MHz	6.00	6.29	9.16	9.89	Complies
138-UNII 3	5690 MHz	-8.22	-7.68	-4.93	15.89	Complies

Note: $\text{DirectionalGain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{\text{ANT}}} \left\{ \sum_{k=1}^{N_{\text{ANT}}} g_{j,k} \right\}^2}{N_{\text{ANT}}} \right] = 20.11 \text{dBi} > 6 \text{dBi}$, So Band2 Power Limit = $24 - (20.11 - 6) = 9.89 \text{dBm}$

Note: $\text{DirectionalGain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{\text{ANT}}} \left\{ \sum_{k=1}^{N_{\text{ANT}}} g_{j,k} \right\}^2}{N_{\text{ANT}}} \right] = 20.11 \text{dBi} > 6 \text{dBi}$, So Band3 Power Limit = $24 - (20.11 - 6) = 9.89 \text{dBm}$

Note: Directional Gain=20.11dBi, so 5690MHz power limit (UNII 3)= $30 - (20.11 - 6) = 15.89 \text{dBm}$

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
<input checked="" type="checkbox"/> 5.25-5.35 GHz	11 dBm/MHz
<input checked="" type="checkbox"/> 5.470-5.725 GHz	11 dBm/MHz

4.5.2. Measuring Instruments and Setting

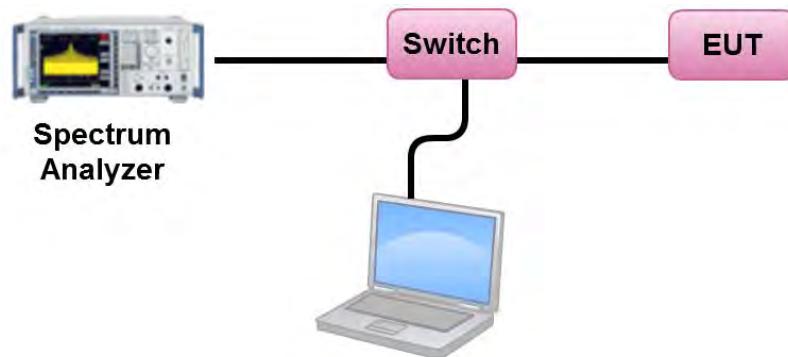
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

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

4.5.3. Test Procedures

1. The transmitter output (antenna port) was connected RF switch to the spectrum analyzer.
2. Test was performed in accordance with KDB789033 D02 v01 for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - section (F) Maximum Power Spectral Density (PSD).
3. Multiple antenna systems was performed in accordance KDB662911 D01 v02r01 in-Band Power Spectral Density (PSD) Measurements (a) Measure and sum the spectra across the outputs.
4. When measuring first spectral bin of output 1 is summed with that in the first spectral bin of output 2 and that from the first spectral bin of output 3 and so on up to the Nth output to obtain the value for the first frequency bin of the summed spectrum. The summed spectrum value for each of the other frequency bins is computed in the same way.

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

<For Non-Beamforming Mode>

Temperature	26°C	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11ac
Test Date	Sep. 10, 2014 / Feb. 09, 2015		

For 5GHz Band : Ant. 2

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

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
52	5260 MHz	8.20	8.49	Complies
60	5300 MHz	8.26	8.49	Complies
64	5320 MHz	8.16	8.49	Complies
100	5500 MHz	8.44	8.49	Complies
116	5580 MHz	7.42	8.49	Complies
140	5700 MHz	6.99	8.49	Complies
144-UNII 2C	5720 MHz	8.38	8.49	Complies

Note: $\text{DirectionalGain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{\text{ANT}}} \left\{ \sum_{k=1}^{N_{\text{ANT}}} g_{j,k} \right\}^2}{N_{\text{ANT}}} \right] = 8.51 \text{dBi} > 6 \text{dBi}$, So Band2 PSD Limit = $11 - (8.51 - 6) = 8.49 \text{dBm/MHz}$

Note: $\text{DirectionalGain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{\text{ANT}}} \left\{ \sum_{k=1}^{N_{\text{ANT}}} g_{j,k} \right\}^2}{N_{\text{ANT}}} \right] = 8.51 \text{dBi} > 6 \text{dBi}$, So Band3 PSD Limit = $11 - (8.51 - 6) = 8.49 \text{dBm/MHz}$

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
144-UNII 3	5720 MHz	7.47	-3.01	4.46	27.49	Complies

Note: Directional Gain = 8.51 dBi, so PSD limit = $30 - (8.51 - 6) = 27.49 \text{dBm/500kHz}$

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

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
54	5270 MHz	7.38	8.49	Complies
62	5310 MHz	2.13	8.49	Complies
102	5510 MHz	2.56	8.49	Complies
110	5550 MHz	4.79	8.49	Complies
134	5670 MHz	4.32	8.49	Complies
142-UNII 2C	5710 MHz	7.45	8.49	Complies

Note: $\text{DirectionalGain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{\text{ANT}}} \left\{ \sum_{k=1}^{N_{\text{ANT}}} g_{j,k} \right\}^2}{N_{\text{ANT}}} \right] = 8.51 \text{dBi} > 6 \text{dBi}$, So Band2 PSD Limit = $11 - (8.51 - 6) = 8.49 \text{dBm/MHz}$

Note: $\text{DirectionalGain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{\text{ANT}}} \left\{ \sum_{k=1}^{N_{\text{ANT}}} g_{j,k} \right\}^2}{N_{\text{ANT}}} \right] = 8.51 \text{dBi} > 6 \text{dBi}$, So Band3 PSD Limit = $11 - (8.51 - 6) = 8.49 \text{dBm/MHz}$

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
142-UNII 3	5710 MHz	6.58	-3.01	3.57	27.49	Complies

Note: Directional Gain = 8.51 dBi, so PSD limit = $30 - (8.51 - 6) = 27.49 \text{dBm/500kHz}$

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

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
58	5290 MHz	-3.86	8.49	Complies
106	5530 MHz	-5.09	8.49	Complies
122	5610 MHz	1.80	8.49	Complies
138-UNII 2C	5690 MHz	3.71	8.49	Complies

Note: $\text{DirectionalGain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{\text{ANT}}} \left\{ \sum_{k=1}^{N_{\text{ANT}}} g_{j,k} \right\}^2}{N_{\text{ANT}}} \right] = 8.51 \text{dBi} > 6 \text{dBi}$, So Band2 PSD Limit = $11 - (8.51 - 6) = 8.49 \text{dBm/MHz}$

Note: $\text{DirectionalGain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{\text{ANT}}} \left\{ \sum_{k=1}^{N_{\text{ANT}}} g_{j,k} \right\}^2}{N_{\text{ANT}}} \right] = 8.51 \text{dBi} > 6 \text{dBi}$, So Band3 PSD Limit = $11 - (8.51 - 6) = 8.49 \text{dBm/MHz}$

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
138-UNII 3	5690 MHz	2.35	-3.01	-0.66	27.49	Complies

Note: Directional Gain = 8.51 dBi, so PSD limit = $30 - (8.51 - 6) = 27.49 \text{dBm/500kHz}$

For 5GHz Band : Ant. 3

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

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
52	5260 MHz	-3.17	-3.11	Complies
60	5300 MHz	-3.16	-3.11	Complies
64	5320 MHz	-3.20	-3.11	Complies
100	5500 MHz	-3.25	-3.11	Complies
116	5580 MHz	-3.22	-3.11	Complies
140	5700 MHz	-3.16	-3.11	Complies
144-UNII 2C	5720 MHz	-3.24	-3.11	Complies

Note: $\text{DirectionalGain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{\text{ANT}}} \left(\sum_{k=1}^{N_{\text{ANT}}} g_{j,k} \right)^2}{N_{\text{ANT}}} \right]$ = 17.1 dBi > 6 dBi, So Band2 Limit = 11-(17.1-6)=-0.1 dBm/MHz

Note: $\text{DirectionalGain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{\text{ANT}}} \left(\sum_{k=1}^{N_{\text{ANT}}} g_{j,k} \right)^2}{N_{\text{ANT}}} \right]$ = 17.1 dBi > 6 dBi, So Band3 Limit = 11-(17.1-6)=-0.1 dBm/MHz

Note: Directional Gain=20.11dBi, so 5720MHz power limit (UNII 2C)=11-(20.11-6)=-3.11dBm/MHz

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
144-UNII 3	5720 MHz	-3.97	-3.01	-6.98	15.89	Complies

Note: Directional Gain=20.11dBi, so PSD limit=30-(20.11-6)=15.89dBm/500kHz

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

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
54	5270 MHz	-3.66	-3.11	Complies
62	5310 MHz	-3.83	-3.11	Complies
102	5510 MHz	-3.80	-3.11	Complies
110	5550 MHz	-3.68	-3.11	Complies
134	5670 MHz	-3.83	-3.11	Complies
142-UNII 2C	5710 MHz	-3.20	-3.11	Complies

Note: $\text{DirectionalGain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{\text{ANT}}} \left(\sum_{k=1}^{N_{\text{ANT}}} g_{j,k} \right)^2}{N_{\text{ANT}}} \right]$ = 17.1 dBi > 6 dBi, So Band2 Limit = 11-(17.1-6)=-0.1 dBm/MHz

Note: $\text{DirectionalGain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{\text{ANT}}} \left(\sum_{k=1}^{N_{\text{ANT}}} g_{j,k} \right)^2}{N_{\text{ANT}}} \right]$ = 17.1 dBi > 6 dBi, So Band3 Limit = 11-(17.1-6)=-0.1 dBm/MHz

Note: Directional Gain=20.11dBi, so 5710MHz power limit (UNII 2C)=11-(20.11-6)=-3.11dBm/MHz

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
142-UNII 3	5710 MHz	-4.09	-3.01	-7.10	15.89	Complies

Note: Directional Gain=20.11dBi, so PSD limit=30-(20.11-6)=15.89dBm/500kHz

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

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
58	5290 MHz	-7.37	-3.11	Complies
106	5530 MHz	-7.59	-3.11	Complies
122	5610 MHz	-6.24	-3.11	Complies
138-UNII 2C	5690 MHz	-6.75	-3.11	Complies

Note: $\text{Directional Gain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{\text{ANT}}} \left\{ \sum_{k=1}^{N_{\text{ANT}}} G_{j,k} \right\}^2}{N_{\text{ANT}}} \right]$ = 17.1 dBi > 6 dBi, So Band2 Limit = 11-(17.1-6)=-0.1 dBm/MHz

Note: $\text{Directional Gain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{\text{ANT}}} \left\{ \sum_{k=1}^{N_{\text{ANT}}} G_{j,k} \right\}^2}{N_{\text{ANT}}} \right]$ = 17.1 dBi > 6 dBi, So Band3 Limit = 11-(17.1-6)=-0.1 dBm/MHz

Note: Directional Gain=20.11dBi, so 5690MHz power limit (UNII 2C)=11-(20.11-6)=-3.11dBm/MHz

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/ RBW)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
138-UNII 3	5690 MHz	-8.08	-3.01	-11.09	15.89	Complies

Note: Directional Gain=20.11dBi, so PSD limit=30-(20.11-6)=15.89dBm/500kHz



Temperature	26°C	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11a
Test Date	Sep. 10, 2014 / Feb. 09, 2015		

For 5GHz Band : Ant. 2**Configuration IEEE 802.11a / Chain 3**

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
52	5260 MHz	10.35	11.00	Complies
60	5300 MHz	10.55	11.00	Complies
64	5320 MHz	7.48	11.00	Complies
100	5500 MHz	8.99	11.00	Complies
116	5580 MHz	10.44	11.00	Complies
140	5700 MHz	5.96	11.00	Complies
144-UNII 2C	5720 MHz	10.76	11.00	Complies

Channel	Frequency	Power Density (dBm/MHz)	$10\log(500\text{kHz}/\text{RBW})$	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
144-UNII 3	5720 MHz	9.92	-3.01	6.91	30.00	Complies

For 5GHz Band : Ant. 3
Configuration IEEE 802.11a / Chain 3

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
52	5260 MHz	-0.64	-0.10	Complies
60	5300 MHz	-0.76	-0.10	Complies
64	5320 MHz	-0.61	-0.10	Complies
100	5500 MHz	-0.57	-0.10	Complies
116	5580 MHz	-1.03	-0.10	Complies
140	5700 MHz	-0.75	-0.10	Complies
144-UNII 2C	5720 MHz	-0.18	-0.10	Complies

Note: Ant. Gain = 17.1dBi > 6dBi, So Band2 Limit = 11-(17.1-6)=-0.1dBm/MHz

Note: Ant. Gain = 17.1dBi > 6dBi, So Band3 Limit = 11-(17.1-6)=-0.1dBm/MHz

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/ RBW)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
144-UNII 3	5720 MHz	-1.08	-3.01	-4.09	18.90	Complies

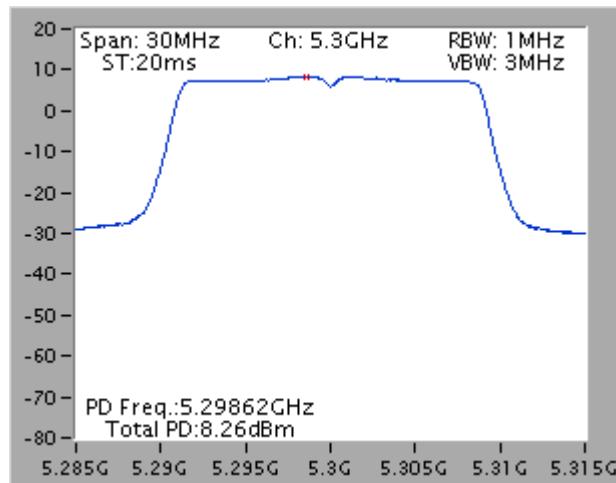
Note: Directional Gain=17.1dBi, so PSD limit=30-(17.1-6)=18.9dBm/500kHz

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

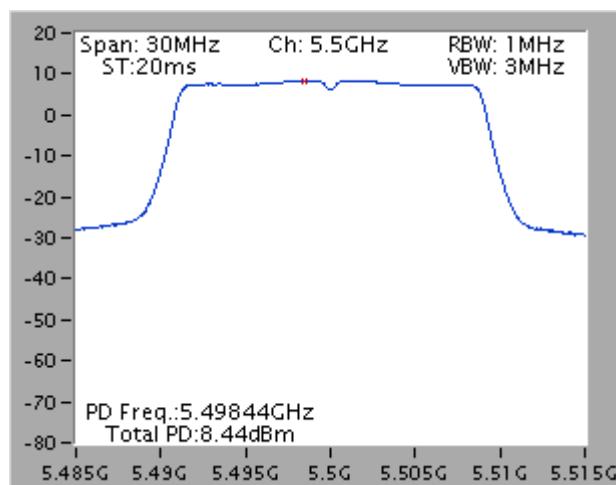
For plots, only the channel with worse result was shown.

For 5GHz Band : Ant. 2

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4 / 5300 MHz

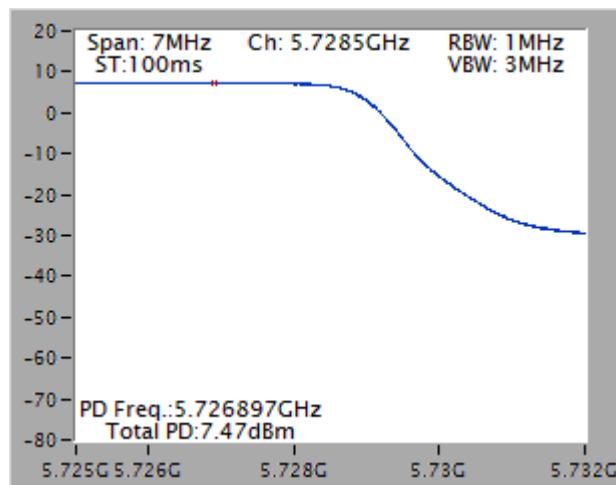


Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4 / 5500 MHz

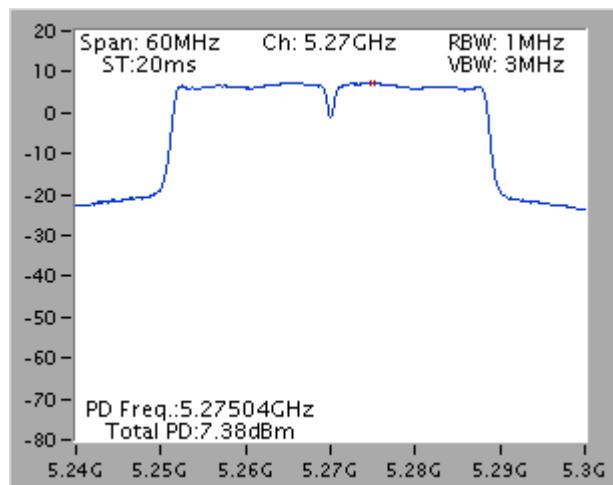


Straddle Channel- 5720 MHz / UNII 3

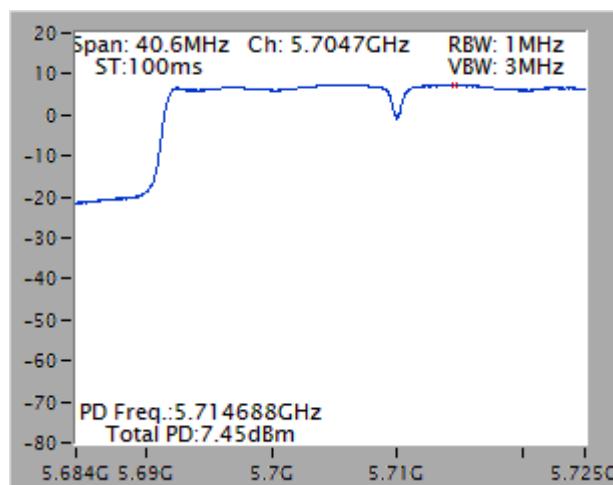
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4 / 5720 MHz



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 3 + Chain 4 / 5270 MHz

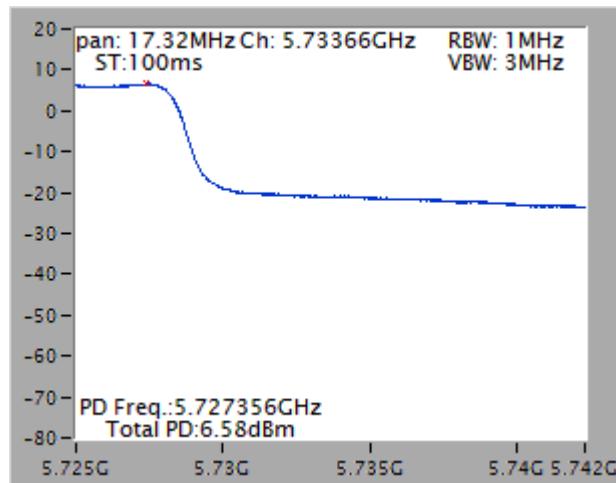


Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 3 + Chain 4 / 5710 MHz

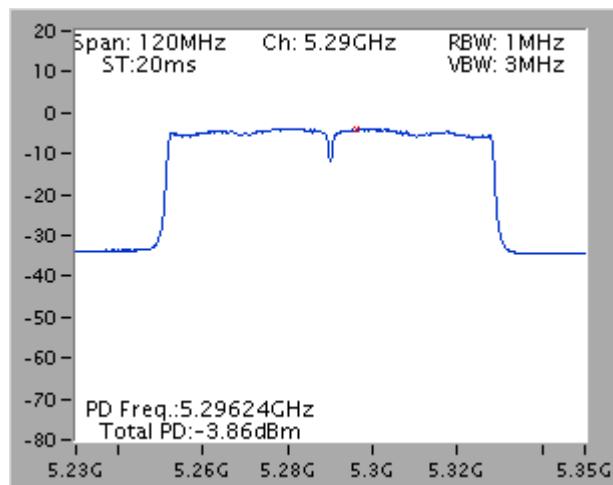


Straddle Channel-5710 MHz / UNII 3

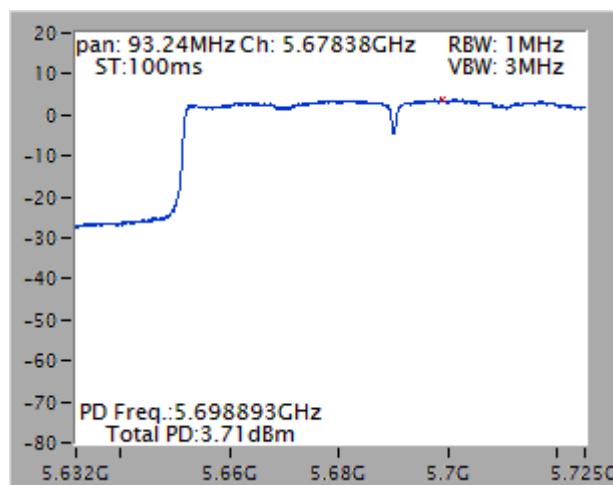
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 3 + Chain 4 / 5710 MHz



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 3 + Chain 4 / 5290 MHz

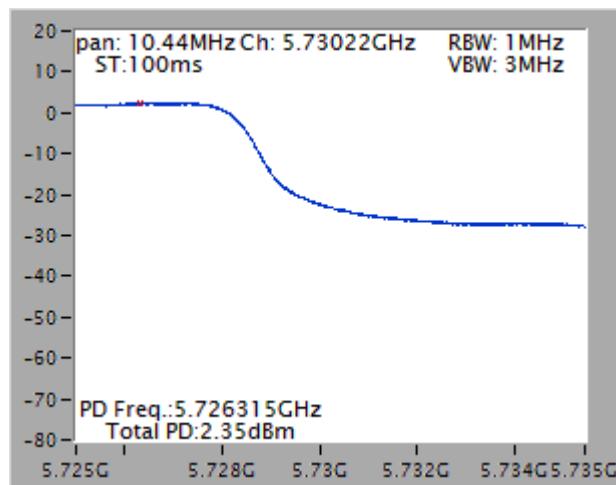


Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 3 + Chain 4 / 5690 MHz

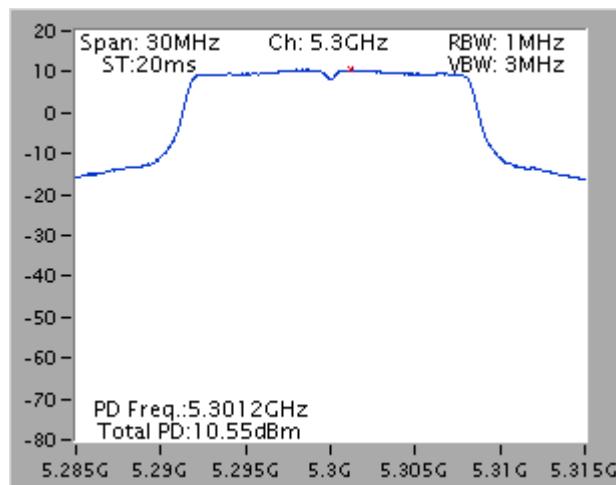


Straddle Channel-5690 MHz / UNII 3

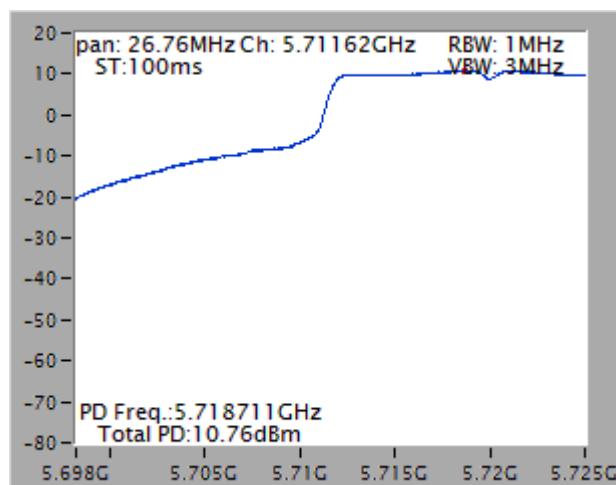
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 3 + Chain 4 / 5690 MHz



Power Density Plot on Configuration IEEE 802.11a / Chain 3 / 5300 MHz

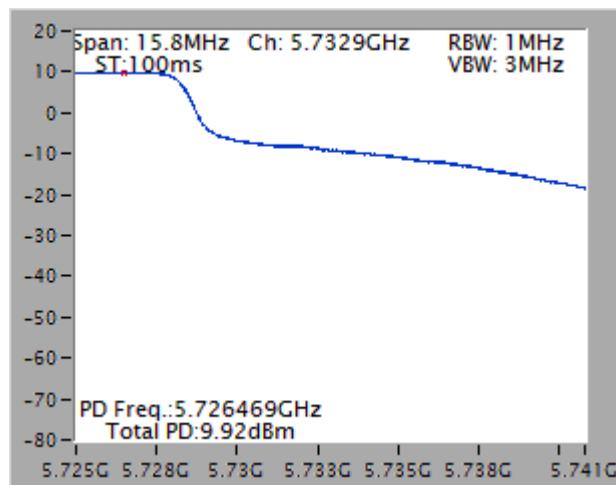


Power Density Plot on Configuration IEEE 802.11a / Chain 3 / 5720 MHz



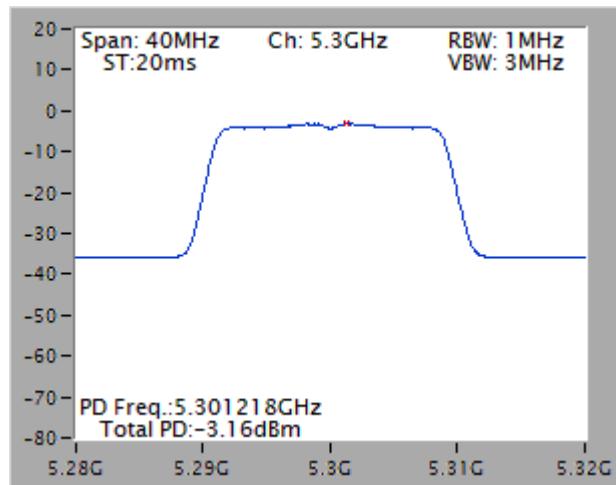
Straddle Channel-5720 MHz / UNII 3

Power Density Plot on Configuration IEEE 802.11a / Chain 3 / 5720 MHz

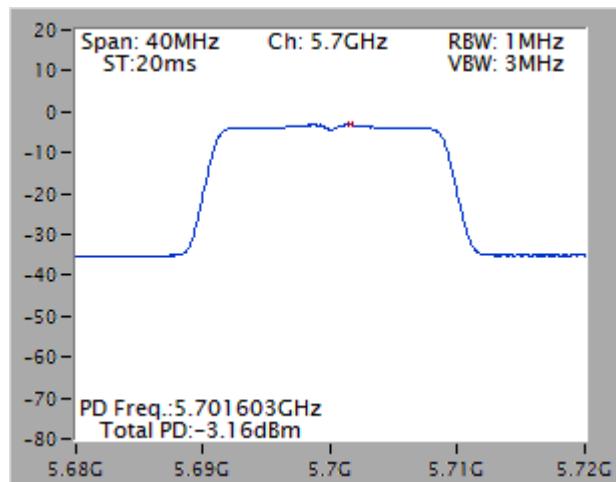


For 5GHz Band : Ant. 3

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4 / 5300 MHz

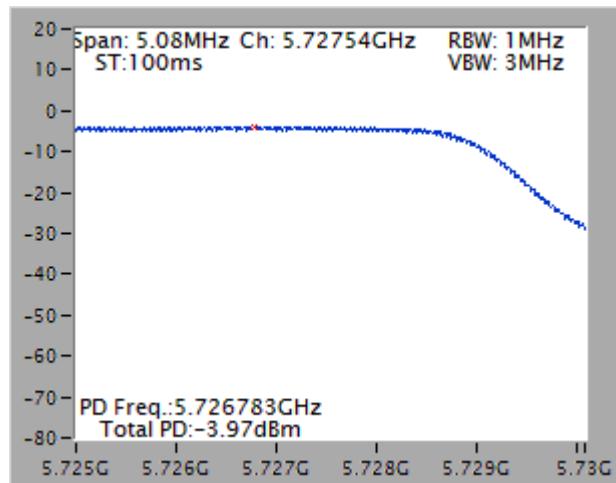


Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4 / 5700 MHz

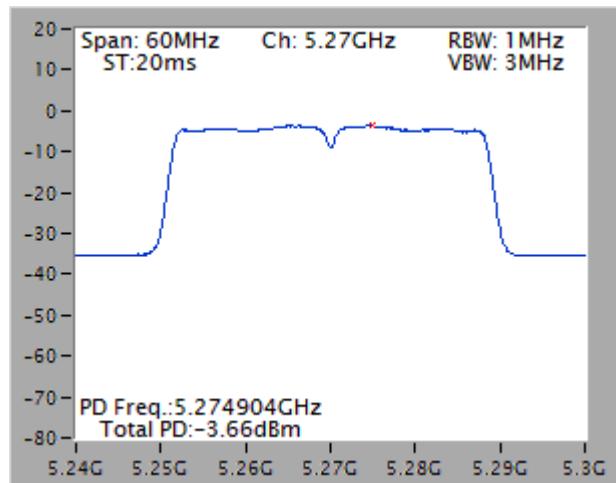


Straddle Channel- 5720 MHz / UNII 3

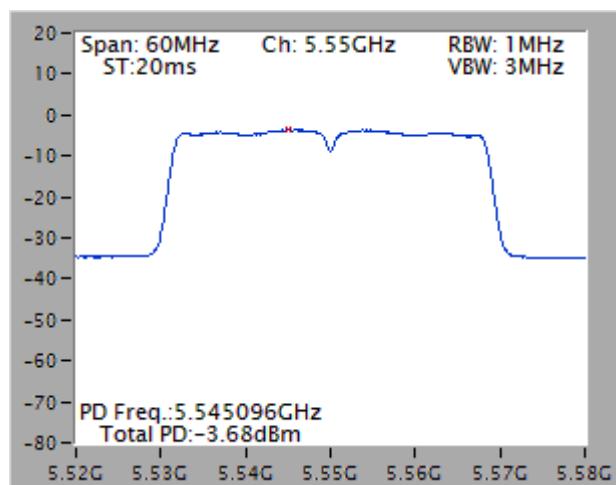
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4 / 5720 MHz



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 3 + Chain 4 / 5270 MHz

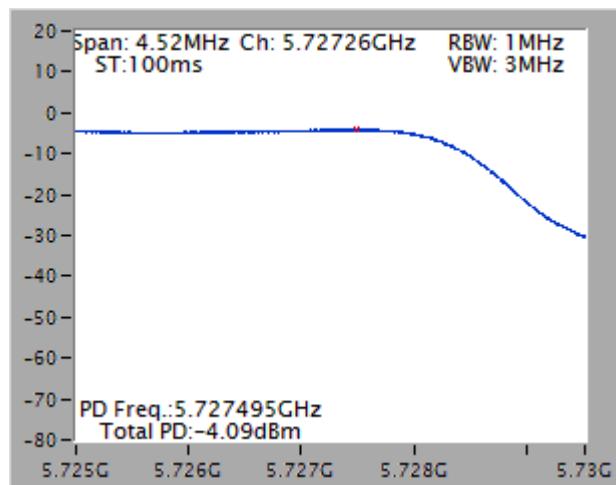


Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 3 + Chain 4 / 5550 MHz

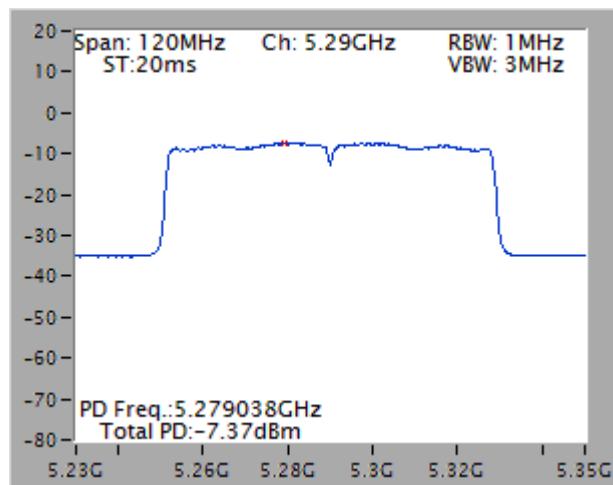


Straddle Channel- 5710 MHz / UNII 3

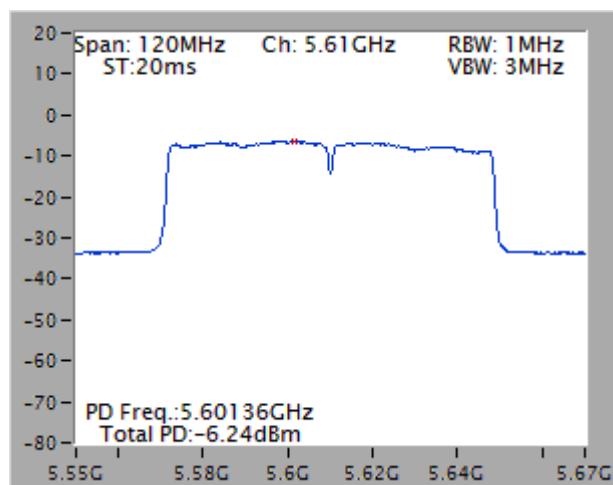
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 3 + Chain 4 / 5710 MHz



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 3 + Chain 4 / 5290 MHz

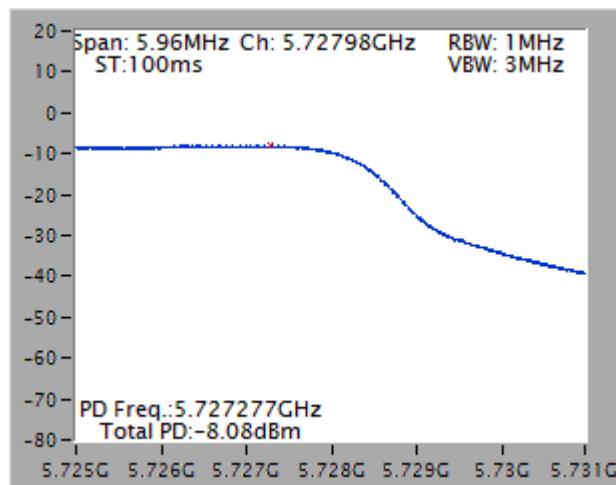


Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 3 + Chain 4 / 5610 MHz

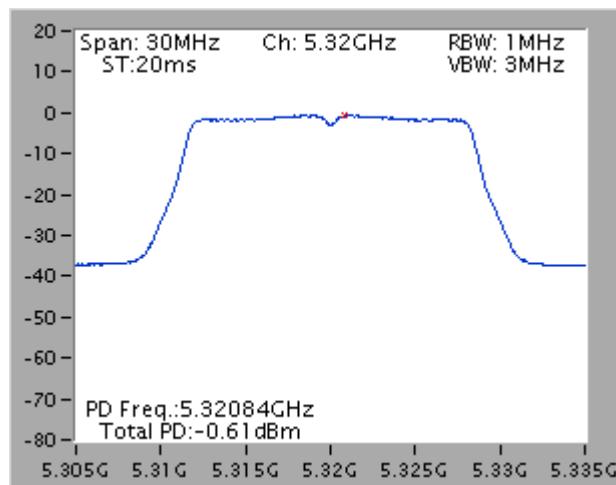


Straddle Channel- 5690 MHz / UNII 3

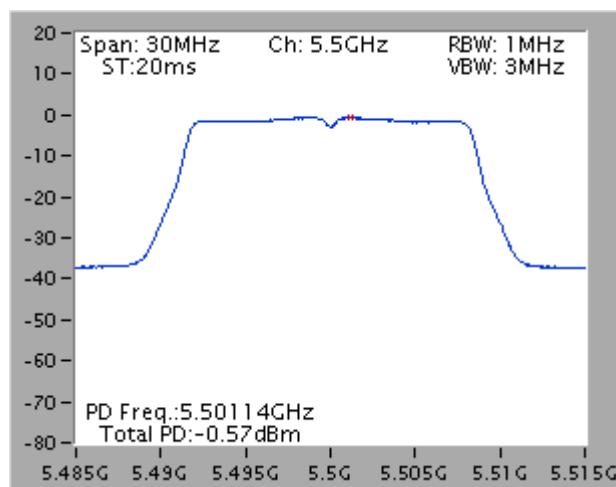
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 3 + Chain 4 / 5690 MHz



Power Density Plot on Configuration IEEE 802.11a / Chain 3 / 5320 MHz

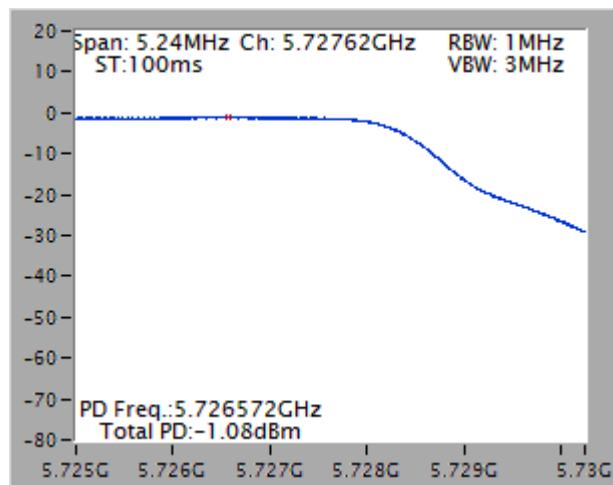


Power Density Plot on Configuration IEEE 802.11a / Chain 3 / 5500 MHz



Straddle Channel- 5720 MHz / UNII 3

Power Density Plot on Configuration IEEE 802.11a / Chain 3 / 5720 MHz



<For Beamforming Mode>

Temperature	26°C	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11ac
Test Date	Sep. 10, 2014 / Feb. 09, 2015		

For 5GHz Band : Ant. 2
Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
52	5260 MHz	8.14	8.49	Complies
60	5300 MHz	8.12	8.49	Complies
64	5320 MHz	7.97	8.49	Complies
100	5500 MHz	8.17	8.49	Complies
116	5580 MHz	8.35	8.49	Complies
140	5700 MHz	4.56	8.49	Complies
144-UNII 2C	5720 MHz	8.41	8.49	Complies

Note: $\text{DirectionalGain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{ANT}} \left(\sum_{k=1}^{N_{SUB}} g_{j,k} \right)^2}{N_{ANT}} \right] = 8.51 \text{dBi} > 6 \text{dBi}$, So Band2 PSD Limit = $11 - (8.51 - 6) = 8.49 \text{dBm/MHz}$

Note: $\text{DirectionalGain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{ANT}} \left(\sum_{k=1}^{N_{SUB}} g_{j,k} \right)^2}{N_{ANT}} \right] = 8.51 \text{dBi} > 6 \text{dBi}$, So Band3 PSD Limit = $11 - (8.51 - 6) = 8.49 \text{dBm/MHz}$

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
144-UNII 3	5720 MHz	7.49	-3.01	4.48	27.49	Complies

Note: Directional Gain=8.51dBi, so PSD limit=30-(8.51-6)=27.49dBm/500kHz

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

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
54	5270 MHz	5.20	8.49	Complies
62	5310 MHz	3.05	8.49	Complies
102	5510 MHz	1.84	8.49	Complies
110	5550 MHz	5.05	8.49	Complies
134	5670 MHz	4.87	8.49	Complies
142-UNII 2C	5710 MHz	5.40	8.49	Complies

Note: $\text{DirectionalGain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{\text{ANT}}} \left(\sum_{k=1}^{N_{\text{REG}}} g_{j,k} \right)^2}{N_{\text{ANT}}} \right] = 8.51 \text{dBi} > 6 \text{dBi}$, So Band2 PSD Limit = $11 - (8.51 - 6) = 8.49 \text{dBm/MHz}$

Note: $\text{DirectionalGain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{\text{ANT}}} \left(\sum_{k=1}^{N_{\text{REG}}} g_{j,k} \right)^2}{N_{\text{ANT}}} \right] = 8.51 \text{dBi} > 6 \text{dBi}$, So Band3 PSD Limit = $11 - (8.51 - 6) = 8.49 \text{dBm/MHz}$

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/ RBW)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
142-UNII 3	5710 MHz	4.45	-3.01	1.44	27.49	Complies

Note: Directional Gain = 8.51 dBi, so PSD limit = $30 - (8.51 - 6) = 27.49 \text{dBm/500kHz}$

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

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
58	5290 MHz	-2.38	8.49	Complies
106	5530 MHz	-3.26	8.49	Complies
122	5610 MHz	0.70	8.49	Complies
138-UNII 2C	5690 MHz	1.97	8.49	Complies

Note: $\text{DirectionalGain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{\text{ANT}}} \left(\sum_{k=1}^{N_{\text{LOG}}} g_{j,k} \right)^2}{N_{\text{ANT}}} \right] = 8.51 \text{dBi} > 6 \text{dBi}$, So Band2 PSD Limit = $11 - (8.51 - 6) = 8.49 \text{dBm/MHz}$

Note: $\text{DirectionalGain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{\text{ANT}}} \left(\sum_{k=1}^{N_{\text{LOG}}} g_{j,k} \right)^2}{N_{\text{ANT}}} \right] = 8.51 \text{dBi} > 6 \text{dBi}$, So Band3 PSD Limit = $11 - (8.51 - 6) = 8.49 \text{dBm/MHz}$

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
138-UNII 3	5690 MHz	0.62	-3.01	-2.39	27.49	Complies

Note: Directional Gain = 8.51 dBi, so PSD limit = $30 - (8.51 - 6) = 27.49 \text{dBm/500kHz}$

For 5GHz Band : Ant. 3
Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
52	5260 MHz	-3.51	-3.11	Complies
60	5300 MHz	-3.56	-3.11	Complies
64	5320 MHz	-3.67	-3.11	Complies
100	5500 MHz	-3.54	-3.11	Complies
116	5580 MHz	-3.50	-3.11	Complies
140	5700 MHz	-3.59	-3.11	Complies
144-UNII 2C	5720 MHz	-3.34	-3.11	Complies

Note: $\text{DirectionalGain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{\text{ANT}}} \left(\sum_{k=1}^{N_{\text{REG}}} g_{j,k} \right)^2}{N_{\text{ANT}}} \right] = 20.11 \text{dBi} > 6 \text{dBi}$, So Band2 PSD Limit = $11 - (20.11 - 6) = -3.11 \text{dBm/MHz}$

Note: $\text{DirectionalGain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{\text{ANT}}} \left(\sum_{k=1}^{N_{\text{REG}}} g_{j,k} \right)^2}{N_{\text{ANT}}} \right] = 20.11 \text{dBi} > 6 \text{dBi}$, So Band3 PSD Limit = $11 - (20.11 - 6) = -3.11 \text{dBm/MHz}$

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
144-UNII 3	5720 MHz	-4.13	-3.01	-7.14	15.89	Complies

Note: Directional Gain=20.11dBi, so PSD limit=30-(20.11-6)=15.89dBm/500kHz

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

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
54	5270 MHz	-6.45	-3.11	Complies
62	5310 MHz	-6.44	-3.11	Complies
102	5510 MHz	-6.47	-3.11	Complies
110	5550 MHz	-6.38	-3.11	Complies
134	5670 MHz	-6.51	-3.11	Complies
142-UNII 2C	5710 MHz	-6.62	-3.11	Complies

Note: $\text{DirectionalGain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{\text{ANT}}} \left(\sum_{k=1}^{N_{\text{REG}}} g_{j,k} \right)^2}{N_{\text{ANT}}} \right] = 20.11 \text{dBi} > 6 \text{dBi}$, So Band2 PSD Limit = $11 - (20.11 - 6) = -3.11 \text{dBm/MHz}$

Note: $\text{DirectionalGain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{\text{ANT}}} \left(\sum_{k=1}^{N_{\text{REG}}} g_{j,k} \right)^2}{N_{\text{ANT}}} \right] = 20.11 \text{dBi} > 6 \text{dBi}$, So Band3 PSD Limit = $11 - (20.11 - 6) = -3.11 \text{dBm/MHz}$

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
142-UNII 3	5710 MHz	-7.58	-3.01	-10.59	15.89	Complies

Note: Directional Gain=20.11dBi, so PSD limit=30-(20.11-6)=15.89dBm/500kHz

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

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
58	5290 MHz	-9.76	-3.11	Complies
106	5530 MHz	-9.15	-3.11	Complies
122	5610 MHz	-9.87	-3.11	Complies
138-UNII 2C	5690 MHz	-9.75	-3.11	Complies

Note: $\text{DirectionalGain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{\text{ANT}}} \left(\sum_{k=1}^{N_{\text{ANT}}} g_{j,k} \right)^2}{N_{\text{ANT}}} \right] = 20.11 \text{dBi} > 6 \text{dBi}$, So Band2 PSD Limit = $11 - (20.11 - 6) = -3.11 \text{dBm/MHz}$

Note: $\text{DirectionalGain} = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{\text{ANT}}} \left(\sum_{k=1}^{N_{\text{ANT}}} g_{j,k} \right)^2}{N_{\text{ANT}}} \right] = 20.11 \text{dBi} > 6 \text{dBi}$, So Band3 PSD Limit = $11 - (20.11 - 6) = -3.11 \text{dBm/MHz}$

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
138-UNII 3	5690 MHz	-11.08	-3.01	-14.09	15.89	Complies

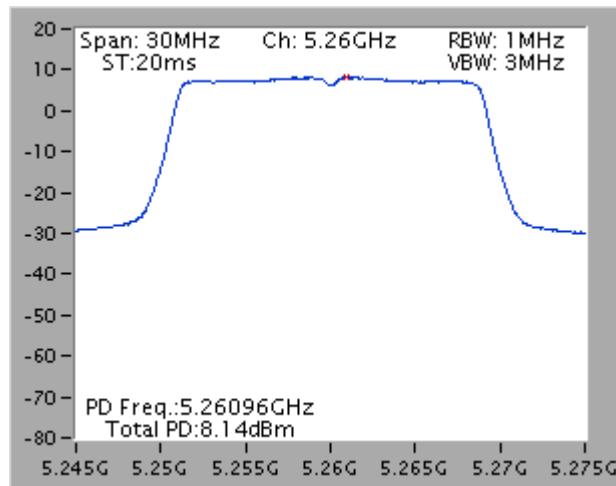
Note: Directional Gain = 20.11 dBi, so PSD limit = $30 - (20.11 - 6) = 15.89 \text{dBm/500kHz}$

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

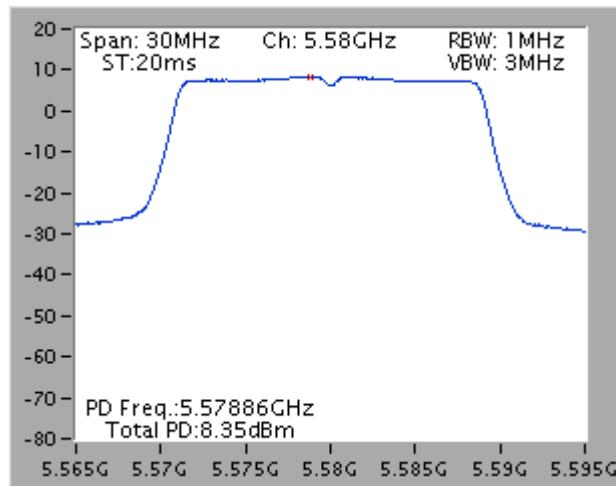
For plots, only the channel with worse result was shown.

For 5GHz Band : Ant. 2

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4 / 5260 MHz

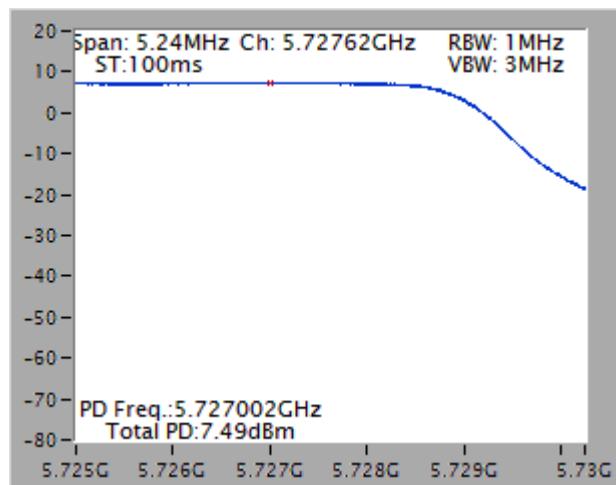


Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4 / 5580 MHz

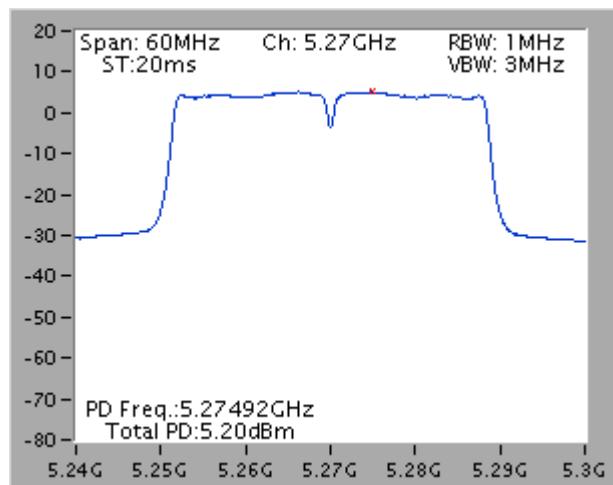


Straddle Channel- 5720 MHz / UNII 3

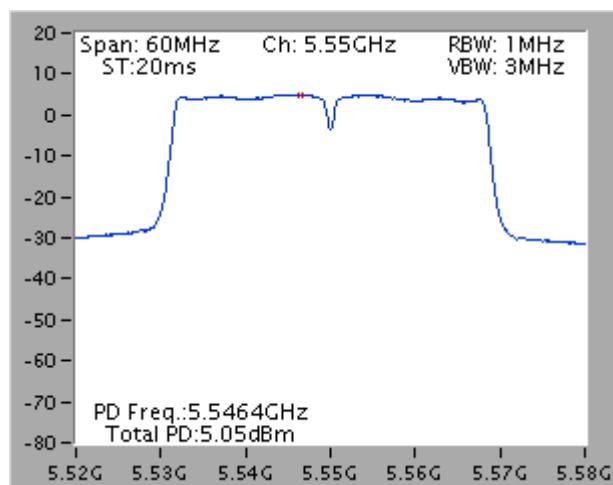
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4 / 5720 MHz



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 3 + Chain 4 / 5270 MHz

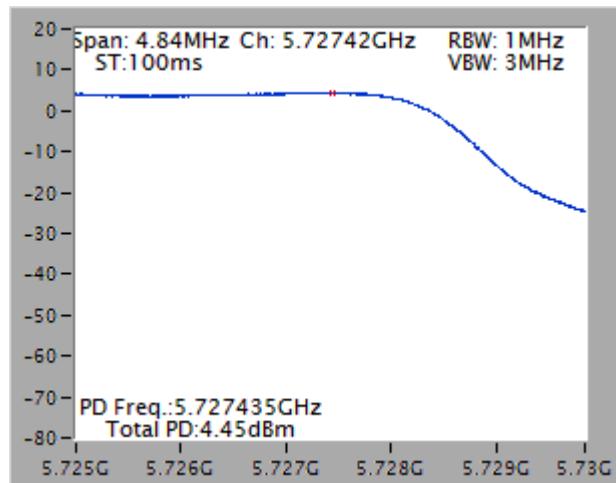


Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 3 + Chain 4 / 5550 MHz

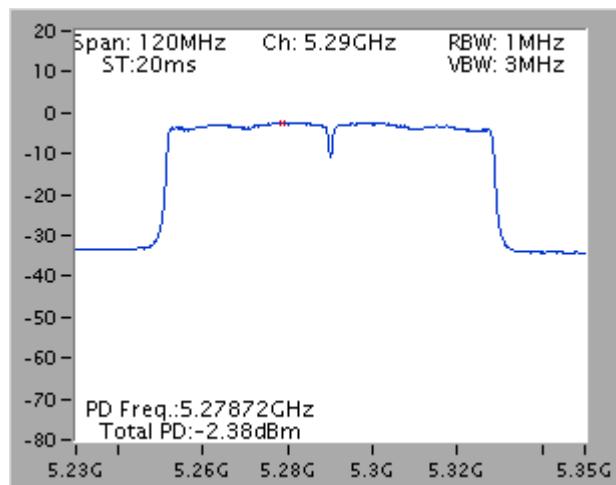


Straddle Channel- 5710 MHz / UNII 3

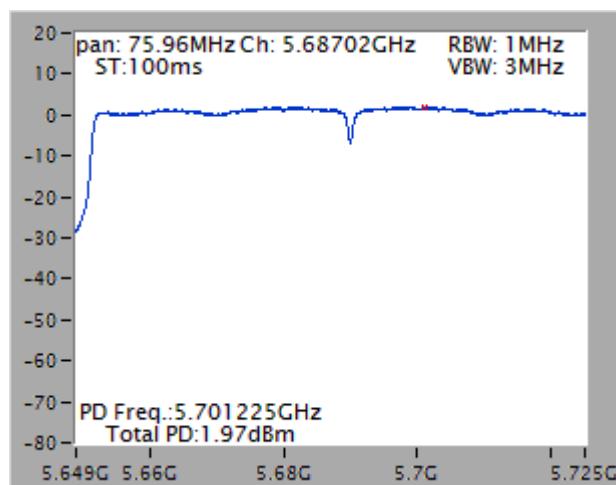
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 3 + Chain 4 / 5710 MHz



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 3 + Chain 4 / 5290 MHz

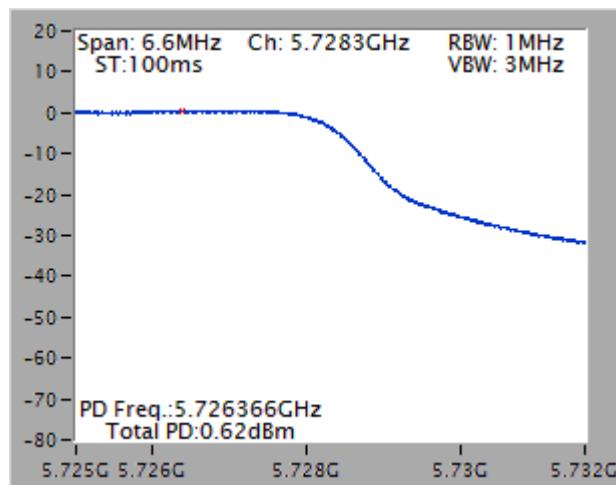


Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 3 + Chain 4 / 5690 MHz



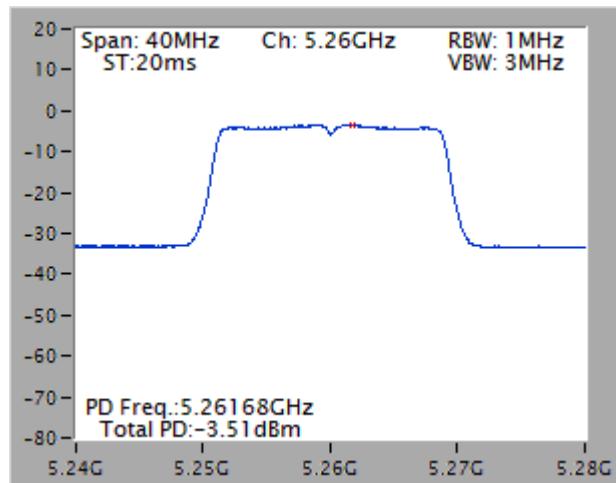
Straddle Channel- 5690 MHz / UNII 3

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 3 + Chain 4 / 5690 MHz

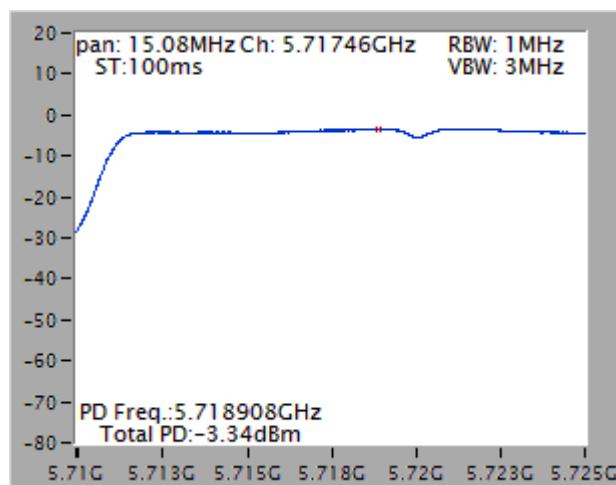


For 5GHz Band : Ant. 3

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4 / 5260 MHz

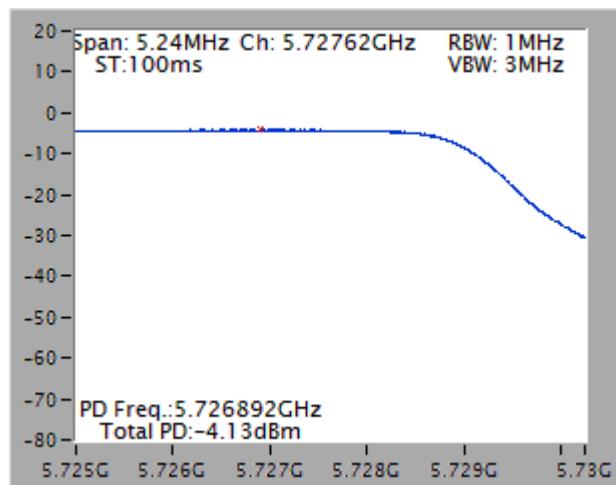


Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4 / 5720 MHz

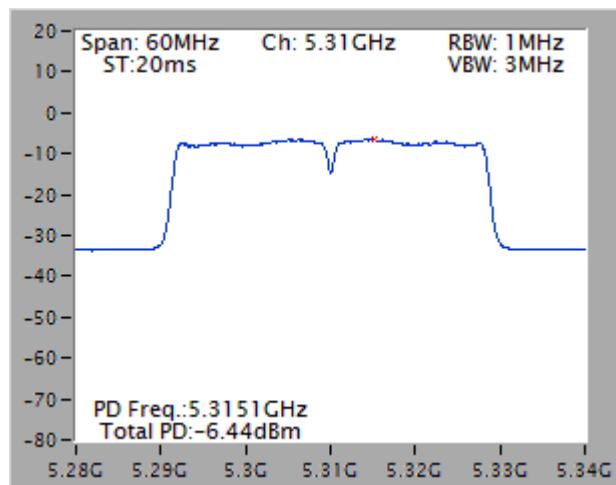


Straddle Channel- 5720 MHz / UNII 3

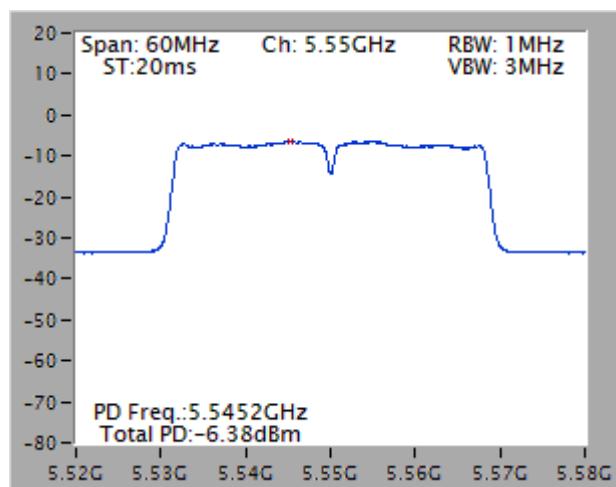
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4 / 5720 MHz



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 3 + Chain 4 / 5310 MHz

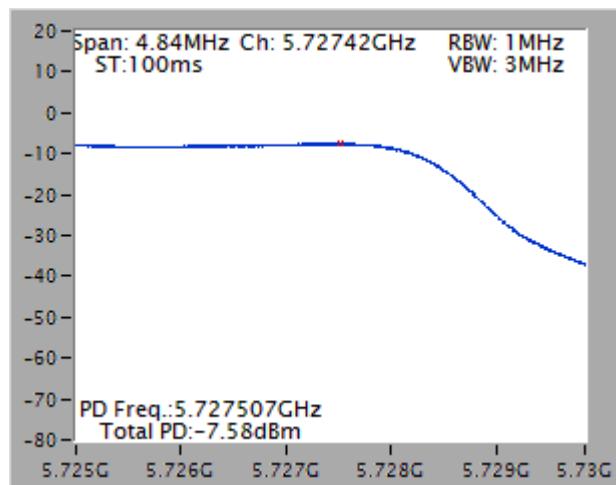


Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 3 + Chain 4 / 5550 MHz

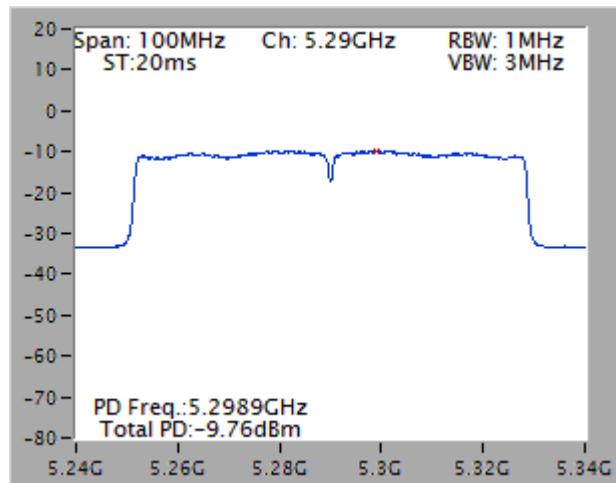


Straddle Channel- 5710 MHz / UNII 3

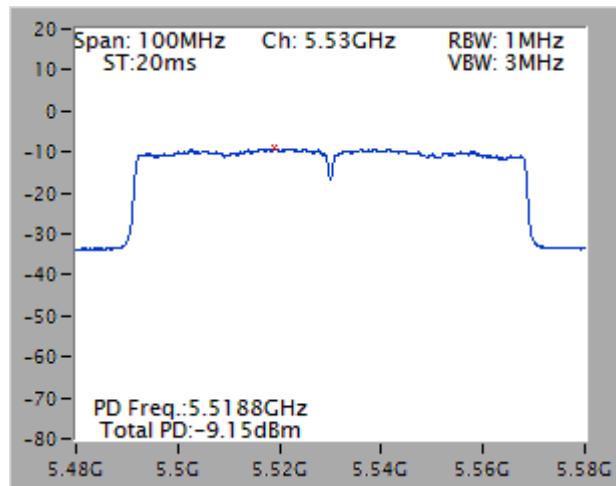
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 3 + Chain 4 / 5710 MHz



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 3 + Chain 4 / 5290 MHz

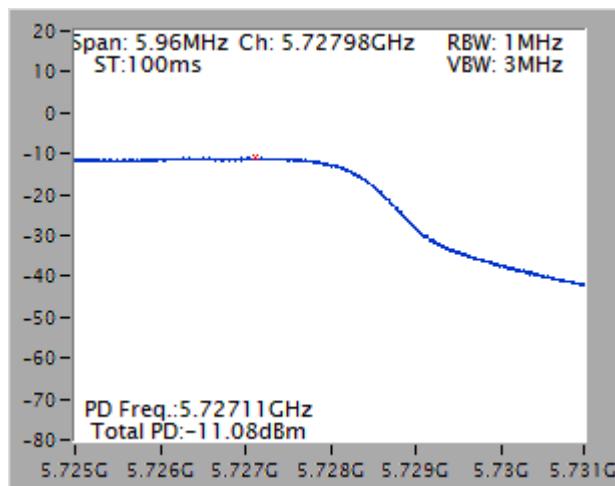


Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 3 + Chain 4 / 5530 MHz



Straddle Channel- 5690 MHz / UNII 3

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 3 + Chain 4 / 5690 MHz



4.6. Radiated Emissions Measurement

4.6.1. Limit

For transmitters operating in the 5.25-5.35 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 5.470-5.725 GHz band: all emissions outside of the 5.47-5.725 GHz band 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

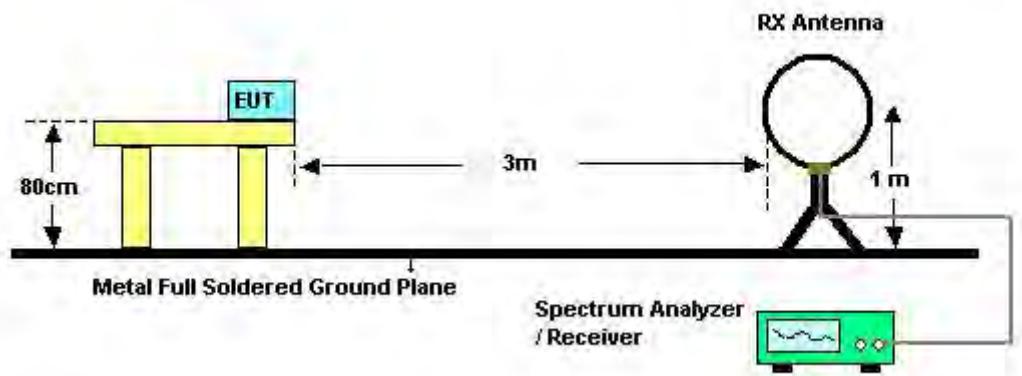
- Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a

height-variable antenna tower was placed 3 meters far away from the turntable.

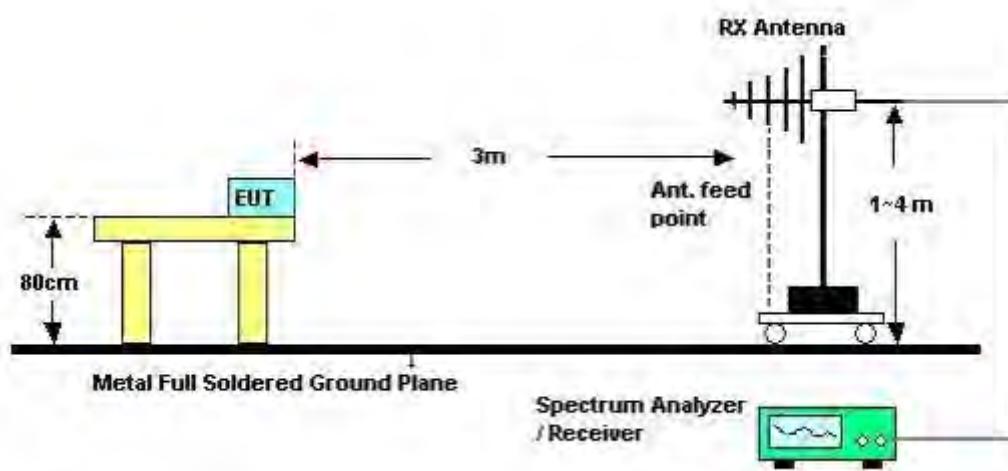
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both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

4.6.4. Test Setup Layout

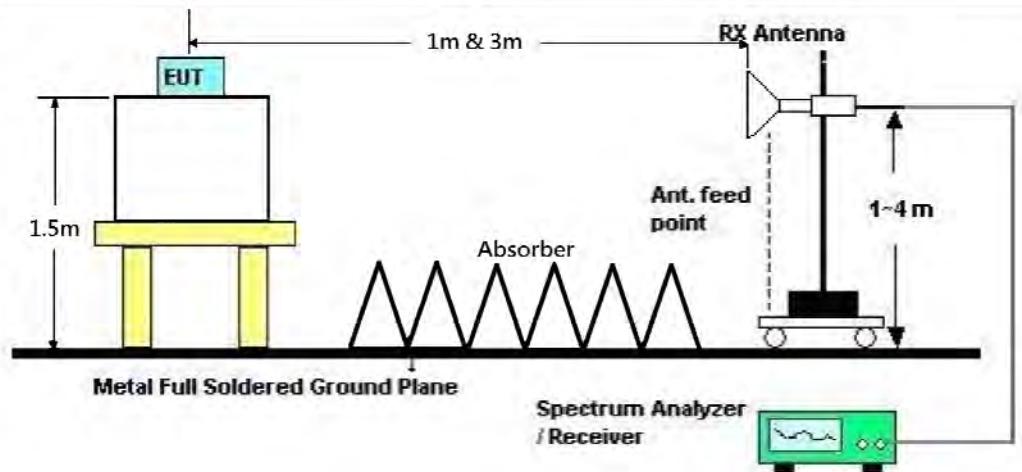
For Radiated Emissions: 9kHz ~30MHz



For Radiated Emissions: 30MHz~1GHz



For Radiated Emissions: Above 1GHz



4.6.5. Test Deviation

There is no deviation with the original standard.

4.6.6. EUT Operation during Test

For Non-beamforming mode:

The EUT was programmed to be in continuously transmitting mode.

For beamforming mode:

The EUT was programmed to be in beamforming transmitting mode.

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

Temperature	25°C	Humidity	67%
Test Engineer	Serway Li	Configurations	Normal Link
Test Date	Aug. 06, 2014	Test Mode	Mode 3

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.

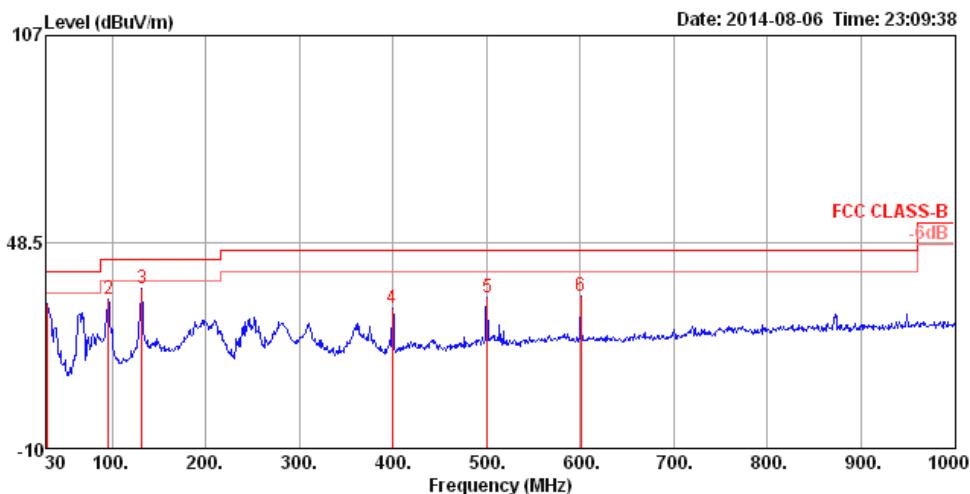
Distance extrapolation factor = $40 \log (\text{specific distance} / \text{test distance})$ (dB);

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

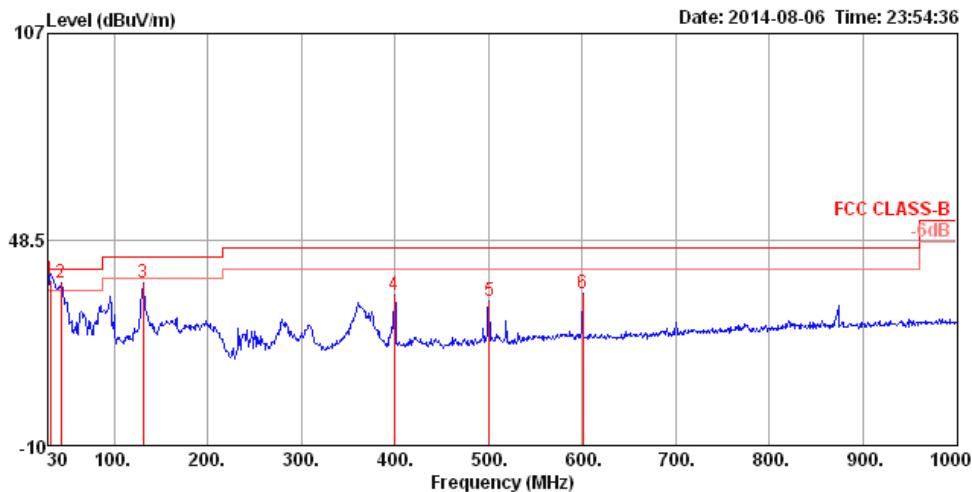
4.6.8. Results of Radiated Emissions (30MHz~1GHz)

Temperature	26°C	Humidity	63%
Test Engineer	Serway Li	Configurations	Normal Link
Test Mode	Mode 3		

Horizontal



Freq	Level	Limit		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	30.00	31.13	40.00	-8.87	44.32	0.64	17.98	31.81	200	34	HORIZONTAL	Peak
2	95.96	32.29	43.50	-11.21	52.99	1.16	9.72	31.58	200	162	HORIZONTAL	Peak
3	131.85	35.54	43.50	-7.96	54.22	1.37	11.51	31.56	200	158	HORIZONTAL	Peak
4	399.57	29.91	46.00	-16.09	43.02	2.49	15.86	31.46	100	164	HORIZONTAL	Peak
5	500.45	32.69	46.00	-13.31	44.36	2.82	16.92	31.41	200	212	HORIZONTAL	Peak
6	600.36	32.99	46.00	-13.01	42.66	3.12	18.45	31.24	100	198	HORIZONTAL	Peak

Vertical


Freq	Level	Limit		Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
		Line	dB									
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m	dB	cm	deg		
1	31.94	36.86	40.00	-3.14	51.13	0.66	16.91	31.84	100	180	VERTICAL	QP
2	43.58	36.40	40.00	-3.60	57.21	0.78	10.25	31.84	100	266	VERTICAL	QP
3	130.88	36.17	43.50	-7.33	54.79	1.36	11.59	31.57	125	142	VERTICAL	Peak
4	399.57	32.91	46.00	-13.09	46.02	2.49	15.86	31.46	150	256	VERTICAL	Peak
5	500.45	31.00	46.00	-15.00	42.67	2.82	16.92	31.41	100	198	VERTICAL	Peak
6	600.36	33.30	46.00	-12.70	42.97	3.12	18.45	31.24	200	192	VERTICAL	Peak

Note:

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

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

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

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

<For Non-Beamforming Mode>

For 5GHz Band : Ant. 2

Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 52 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

Freq	Level	Limit		Over Limit	Read Level	Cable			Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			dB	dBuV	dB						
1	15780.82	39.81	54.00	-14.19	30.80	6.14	38.11	35.24	Average			100	60	HORIZONTAL
2	15781.18	53.52	74.00	-20.48	44.51	6.14	38.11	35.24	Peak			100	60	HORIZONTAL

Vertical

Freq	Level	Limit		Over Limit	Read Level	Cable			Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			dB	dBuV	dB						
1	15776.74	40.19	54.00	-13.81	31.17	6.14	38.11	35.23	Average			100	132	VERTICAL
2	15784.80	52.78	74.00	-21.22	43.79	6.14	38.09	35.24	Peak			100	132	VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 60 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	Limit	Level	Loss	Factor	Factor		cm	deg	
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB				
1	10595.56	37.50	54.00	-16.50	28.82	5.01	38.92	35.25 Average	100	73	HORIZONTAL
2	10596.16	50.40	74.00	-23.60	41.72	5.01	38.92	35.25 Peak	100	73	HORIZONTAL
3	15902.44	40.34	54.00	-13.66	31.53	6.15	37.92	35.26 Average	100	181	HORIZONTAL
4	15903.72	53.76	74.00	-20.24	44.95	6.15	37.92	35.26 Peak	100	181	HORIZONTAL

Vertical

Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	Limit	Level	Loss	Factor	Factor		cm	deg	
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB				
1	10597.00	50.65	74.00	-23.35	41.97	5.01	38.92	35.25 Peak	100	270	VERTICAL
2	10598.36	38.41	54.00	-15.59	29.73	5.01	38.92	35.25 Average	100	270	VERTICAL
3	15898.26	53.37	74.00	-20.63	44.54	6.15	37.94	35.26 Peak	100	316	VERTICAL
4	15902.62	40.19	54.00	-13.81	31.38	6.15	37.92	35.26 Average	100	316	VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 64 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		Line	dB			dBuV	dB	dB/m			
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m	dB	cm	deg	
1	10638.98	50.60	74.00	-23.40	41.88	5.01	38.93	35.22	Peak	100	10 HORIZONTAL
2	10639.70	37.19	54.00	-16.81	28.47	5.01	38.93	35.22	Average	100	10 HORIZONTAL
3	15957.92	53.46	74.00	-20.54	44.74	6.15	37.85	35.28	Peak	100	62 HORIZONTAL
4	15964.36	40.66	54.00	-13.34	31.94	6.15	37.85	35.28	Average	100	62 HORIZONTAL

Vertical

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		Line	dB			dBuV	dB	dB/m			
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m	dB	cm	deg	
1	10636.58	50.41	74.00	-23.59	41.69	5.01	38.93	35.22	Peak	100	229 VERTICAL
2	10639.94	37.24	54.00	-16.76	28.52	5.01	38.93	35.22	Average	100	229 VERTICAL
3	15964.58	40.70	54.00	-13.30	31.98	6.15	37.85	35.28	Average	100	320 VERTICAL
4	15964.80	54.08	74.00	-19.92	45.36	6.15	37.85	35.28	Peak	100	320 VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 100 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			Remark	A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			dB	dBuV	dB				
1	10996.30	35.49	54.00	-18.51	26.46	5.01	39.00	34.98	Average	100	130	HORIZONTAL
2	11001.44	49.61	74.00	-24.39	40.58	5.01	39.00	34.98	Peak	100	130	HORIZONTAL

Vertical

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			Remark	A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			dB	dBuV	dB				
1	10995.98	48.49	74.00	-25.51	39.46	5.01	39.00	34.98	Peak	100	284	VERTICAL
2	11000.06	37.23	54.00	-16.77	28.20	5.01	39.00	34.98	Average	100	284	VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 116 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			Remark	A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			Cable Loss	Antenna Factor	Preamp Factor				
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg			
1	11157.00	37.20	54.00	-16.80	28.04	5.04	39.12	35.00	Average	100	118	HORIZONTAL
2	11158.92	50.97	74.00	-23.03	41.80	5.04	39.13	35.00	Peak	100	118	HORIZONTAL

Vertical

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			Remark	A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			Cable Loss	Antenna Factor	Preamp Factor				
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg			
1	11157.24	37.92	54.00	-16.08	28.76	5.04	39.12	35.00	Average	100	262	VERTICAL
2	11157.76	50.54	74.00	-23.46	41.37	5.04	39.13	35.00	Peak	100	262	VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 140 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			Remark	A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			dB	dBuV	dB				
1	11398.88	50.26	74.00	-23.74	40.88	5.10	39.32	35.04	Peak	100	78	HORIZONTAL
2	11401.92	36.94	54.00	-17.06	27.56	5.10	39.32	35.04	Average	100	78	HORIZONTAL

Vertical

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			Remark	A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			dB	dBuV	dB				
1	11396.48	49.98	74.00	-24.02	40.60	5.10	39.32	35.04	Peak	100	245	VERTICAL
2	11403.72	36.80	54.00	-17.20	27.42	5.10	39.32	35.04	Average	100	245	VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 144 / Chain 3 + Chain 4
Test Date	Sep. 13, 2014		

Horizontal

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			Cable Loss	Antenna Factor	Preamp Factor			
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11439.27	42.34	54.00	-11.66	28.69	9.21	39.50	35.06	Average	106	130 HORIZONTAL
2	11439.41	54.95	74.00	-19.05	41.30	9.21	39.50	35.06	Peak	106	130 HORIZONTAL

Vertical

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			Cable Loss	Antenna Factor	Preamp Factor			
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11440.67	42.61	54.00	-11.39	28.96	9.21	39.50	35.06	Average	100	2 VERTICAL
2	11441.07	55.93	74.00	-18.07	42.28	9.21	39.50	35.06	Peak	100	2 VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 54 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			Remark	A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			dB	dBuV	dB				
1	15813.12	52.14	74.00	-21.86	43.17	6.14	38.07	35.24	Peak	100	93	HORIZONTAL
2	15814.44	39.48	54.00	-14.52	30.51	6.14	38.07	35.24	Average	100	93	HORIZONTAL

Vertical

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			Remark	A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			dB	dBuV	dB				
1	15805.38	39.49	54.00	-14.51	30.52	6.14	38.07	35.24	Average	100	266	VERTICAL
2	15810.10	52.73	74.00	-21.27	43.76	6.14	38.07	35.24	Peak	100	266	HORIZONTAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 62 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

Freq	Level	Limit		Over Line	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		dBuV/m	dBuV/m			dB	dBuV	dB			
1	10623.48	50.66	74.00	-23.34	41.96	5.01	38.92	35.23	Peak	100	149 HORIZONTAL
2	10624.96	37.04	54.00	-16.96	28.34	5.01	38.92	35.23	Average	100	149 HORIZONTAL
3	15925.36	40.31	54.00	-13.69	31.53	6.15	37.90	35.27	Average	100	219 HORIZONTAL
4	15934.06	53.73	74.00	-20.27	44.96	6.15	37.90	35.28	Peak	100	219 HORIZONTAL

Vertical

Freq	Level	Limit		Over Line	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		dBuV/m	dBuV/m			dB	dBuV	dB			
1	10616.04	37.53	54.00	-16.47	28.83	5.01	38.92	35.23	Average	100	325 VERTICAL
2	10623.52	50.09	74.00	-23.91	41.39	5.01	38.92	35.23	Peak	100	325 VERTICAL
3	15925.02	40.10	54.00	-13.90	31.32	6.15	37.90	35.27	Average	100	287 VERTICAL
4	15930.02	53.39	74.00	-20.61	44.61	6.15	37.90	35.27	Peak	100	287 VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 102 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	Limit	Level	Loss	Factor	Factor				
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11019.54	49.39	74.00	-24.61	40.34	5.02	39.01	34.98 Peak	100	105	HORIZONTAL
2	11024.88	35.58	54.00	-18.42	26.51	5.02	39.03	34.98 Average	100	105	HORIZONTAL

Vertical

Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	Limit	Level	Loss	Factor	Factor				
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11022.98	48.71	74.00	-25.29	39.64	5.02	39.03	34.98 Peak	100	251	VERTICAL
2	11024.48	35.82	54.00	-18.18	26.75	5.02	39.03	34.98 Average	100	251	VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 110 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			Remark	A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			Loss	Factor	Factor				
1	11095.42	36.67	54.00	-17.33	27.55	5.03	39.08	34.99	Average	100	156	HORIZONTAL
2	11104.68	50.34	74.00	-23.66	41.22	5.03	39.08	34.99	Peak	100	156	HORIZONTAL

Vertical

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			Remark	A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			Loss	Factor	Factor				
1	11095.10	36.84	54.00	-17.16	27.72	5.03	39.08	34.99	Average	100	333	VERTICAL
2	11098.90	50.16	74.00	-23.84	41.04	5.03	39.08	34.99	Peak	100	333	VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 134 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			Remark	A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			dBuV	dB	dB/m				
1	11342.92	36.93	54.00	-17.07	27.60	5.09	39.27	35.03	Average	100	111	HORIZONTAL
2	11344.80	51.35	74.00	-22.65	42.01	5.09	39.28	35.03	Peak	100	111	HORIZONTAL

Vertical

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			Remark	A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			dBuV	dB	dB/m				
1	11343.64	50.25	74.00	-23.75	40.92	5.09	39.27	35.03	Peak	100	310	VERTICAL
2	11344.98	37.22	54.00	-16.78	27.88	5.09	39.28	35.03	Average	100	310	VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 142 / Chain 3 + Chain 4
Test Date	Sep. 13, 2014		

Horizontal

Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	Limit	Level	Loss	Factor	Factor		cm	deg	
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB			
1	11419.06	41.37	54.00	-12.63	27.73	9.20	39.50	35.06	Average	100	126 HORIZONTAL
2	11420.45	55.06	74.00	-18.94	41.42	9.20	39.50	35.06	Peak	100	126 HORIZONTAL

Vertical

Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	Limit	Level	Loss	Factor	Factor		cm	deg	
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB			
1	11417.62	55.51	74.00	-18.49	41.85	9.20	39.50	35.04	Peak	100	155 VERTICAL
2	11419.82	41.81	54.00	-12.19	28.17	9.20	39.50	35.06	Average	100	155 VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 58 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			Remark	A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			dB	dBuV	dB				
1	15866.06	39.52	54.00	-14.48	30.65	6.14	37.99	35.26	Average	100	171	HORIZONTAL
2	15874.52	53.37	74.00	-20.63	44.52	6.14	37.97	35.26	Peak	100	171	HORIZONTAL

Vertical

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			Remark	A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			dB	dBuV	dB				
1	15866.20	39.52	54.00	-14.48	30.65	6.14	37.99	35.26	Average	100	269	VERTICAL
2	15867.58	52.40	74.00	-21.60	43.55	6.14	37.97	35.26	Peak	100	269	VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 106 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			Remark	A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			Loss	Factor	Factor				
1	11056.04	36.02	54.00	-17.98	26.94	5.02	39.05	34.99	Average	100	203	HORIZONTAL
2	11059.12	49.70	74.00	-24.30	40.62	5.02	39.05	34.99	Peak	100	203	HORIZONTAL

Vertical

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			Remark	A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			Loss	Factor	Factor				
1	11062.42	49.21	74.00	-24.79	40.12	5.03	39.05	34.99	Peak	100	109	VERTICAL
2	11064.64	36.30	54.00	-17.70	27.21	5.03	39.05	34.99	Average	100	109	VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 122 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
		Line	m			dB	dBuV	dB	dB/m	dB	cm	
1	11219.92	53.56	74.00	-20.44	40.43	8.88	39.10	34.85	162	82	HORIZONTAL	Peak
2	11220.30	44.49	54.00	-9.51	31.36	8.88	39.10	34.85	162	82	HORIZONTAL	Average

Vertical

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
		Line	m			dB	dBuV	dB	dB/m	dB	cm	
1	11219.97	44.55	54.00	-9.45	31.42	8.88	39.10	34.85	161	160	VERTICAL	Average
2	11220.01	54.37	74.00	-19.63	41.24	8.88	39.10	34.85	161	160	VERTICAL	Peak



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 138 / Chain 3 + Chain 4
Test Date	Sep. 13, 2014		

Horizontal

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
		Line	dB			Loss	Factor	Factor	cm	deg		
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg			
1	11379.68	54.26	74.00	-19.74	41.00	9.01	39.10	34.85	164	64	HORIZONTAL	Peak
2	11379.86	44.49	54.00	-9.51	31.23	9.01	39.10	34.85	164	64	HORIZONTAL	Average

Vertical

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
		Line	dB			Loss	Factor	Factor	cm	deg		
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg			
1	11380.00	44.57	54.00	-9.43	31.31	9.01	39.10	34.85	162	136	VERTICAL	Average
2	11380.11	53.89	74.00	-20.11	40.63	9.01	39.10	34.85	162	136	VERTICAL	Peak



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11a CH 52 / Chain 3
Test Date	Aug. 18, 2014		

Horizontal

Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	Limit	Level	Loss	Factor	Factor				
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	15775.46	53.45	74.00	-20.55	44.43	6.14	38.11	35.23 Peak	100	262	HORIZONTAL
2	15780.86	39.76	54.00	-14.24	30.75	6.14	38.11	35.24 Average	100	262	HORIZONTAL

Vertical

Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	Limit	Level	Loss	Factor	Factor				
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	15775.32	52.88	74.00	-21.12	43.86	6.14	38.11	35.23 Peak	100	35	VERTICAL
2	15775.96	40.00	54.00	-14.00	30.98	6.14	38.11	35.23 Average	100	35	VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11a CH 60 / Chain 3
Test Date	Aug. 18, 2014		

Horizontal

Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	Limit	Level	Loss	Factor	Factor		cm	deg	
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB				
1	10596.08	38.75	54.00	-15.25	30.07	5.01	38.92	35.25 Average	100	145	HORIZONTAL
2	10597.04	52.08	74.00	-21.92	43.40	5.01	38.92	35.25 Peak	100	145	HORIZONTAL
3	15895.36	53.76	74.00	-20.24	44.93	6.15	37.94	35.26 Peak	100	249	HORIZONTAL
4	15901.14	40.39	54.00	-13.61	31.58	6.15	37.92	35.26 Average	100	249	HORIZONTAL

Vertical

Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	Limit	Level	Loss	Factor	Factor		cm	deg	
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB				
1	10595.92	41.22	54.00	-12.78	32.54	5.01	38.92	35.25 Average	100	231	VERTICAL
2	10598.82	54.90	74.00	-19.10	46.22	5.01	38.92	35.25 Peak	100	231	VERTICAL
3	15897.34	40.07	54.00	-13.93	31.24	6.15	37.94	35.26 Average	100	138	VERTICAL
4	15899.82	53.63	74.00	-20.37	44.80	6.15	37.94	35.26 Peak	100	138	VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11a CH 64 / Chain 3
Test Date	Aug. 18, 2014		

Horizontal

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			Remark	A/Pos	T/Pos	Pol/Phase
		Line	dB			dBuV	dB	dB/m				
1	10636.66	37.23	54.00	-16.77	28.51	5.01	38.93	35.22	Average	100	288	HORIZONTAL
2	10636.78	50.79	74.00	-23.21	42.07	5.01	38.93	35.22	Peak	100	288	HORIZONTAL
3	15956.66	53.68	74.00	-20.32	44.96	6.15	37.85	35.28	Peak	100	135	HORIZONTAL
4	15959.02	40.36	54.00	-13.64	31.64	6.15	37.85	35.28	Average	100	135	HORIZONTAL

Vertical

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			Remark	A/Pos	T/Pos	Pol/Phase
		Line	dB			dBuV	dB	dB/m				
1	10639.58	37.36	54.00	-16.64	28.64	5.01	38.93	35.22	Average	100	230	VERTICAL
2	10642.82	50.70	74.00	-23.30	41.98	5.01	38.93	35.22	Peak	100	230	VERTICAL
3	15964.08	40.24	54.00	-13.76	31.52	6.15	37.85	35.28	Average	100	14	VERTICAL
4	15964.78	54.30	74.00	-19.70	45.58	6.15	37.85	35.28	Peak	100	14	VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11a CH 100 / Chain 3
Test Date	Aug. 18, 2014		

Horizontal

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			Remark	A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			dBuV	dB	dB/m				
1	10996.08	50.09	74.00	-23.91	41.06	5.01	39.00	34.98	Peak	100	111	HORIZONTAL
2	10996.28	37.24	54.00	-16.76	28.21	5.01	39.00	34.98	Average	100	111	HORIZONTAL

Vertical

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			Remark	A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			dBuV	dB	dB/m				
1	10999.30	37.85	54.00	-16.15	28.82	5.01	39.00	34.98	Average	100	142	VERTICAL
2	11002.76	51.72	74.00	-22.28	42.69	5.01	39.00	34.98	Peak	100	142	VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11a CH 116 / Chain 3
Test Date	Aug. 18, 2014		

Horizontal

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	dB			dBuV	dB	dB/m		cm	deg	
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	cm	deg	
1	11162.30	53.93	74.00	-20.07	44.75	5.05	39.13	35.00	Peak	100	181	HORIZONTAL
2	11162.78	40.45	54.00	-13.55	31.27	5.05	39.13	35.00	Average	100	181	HORIZONTAL

Vertical

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	dB			dBuV	dB	dB/m		cm	deg	
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	cm	deg	
1	11156.16	43.95	54.00	-10.05	34.79	5.04	39.12	35.00	Average	100	228	VERTICAL
2	11163.36	57.21	74.00	-16.79	48.03	5.05	39.13	35.00	Peak	100	228	VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11a CH 140 / Chain 3
Test Date	Aug. 18, 2014		

Horizontal

Freq	Level	Limit		Over Line	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		
1	11398.54	37.72	54.00	-16.28	28.34	5.10	39.32	35.04	Average	100	104 HORIZONTAL
2	11401.90	50.69	74.00	-23.31	41.31	5.10	39.32	35.04	Peak	100	104 HORIZONTAL

Vertical

Freq	Level	Limit		Over Line	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		
1	11398.58	50.59	74.00	-23.41	41.21	5.10	39.32	35.04	Peak	100	128 VERTICAL
2	11401.66	38.18	54.00	-15.82	28.80	5.10	39.32	35.04	Average	100	128 VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11a CH 144 / Chain 3
Test Date	Sep. 13, 2014		

Horizontal

Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	Limit	Level	Loss	Factor	Factor		cm	deg	
MHz	dBuV/m	dBuV/m		dB	dBuV	dB	dB/m	dB			
1	11438.90	55.61	74.00	-18.39	41.96	9.21	39.50	35.06	Peak	100	175 HORIZONTAL
2	11439.10	42.11	54.00	-11.89	28.46	9.21	39.50	35.06	Average	100	175 HORIZONTAL

Vertical

Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	Limit	Level	Loss	Factor	Factor		cm	deg	
MHz	dBuV/m	dBuV/m		dB	dBuV	dB	dB/m	dB			
1	11440.52	57.35	74.00	-16.65	43.70	9.21	39.50	35.06	Peak	100	3 VERTICAL
2	11442.10	44.00	54.00	-10.00	30.35	9.21	39.50	35.06	Average	100	3 VERTICAL

Note:

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

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

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



For 5GHz Band : Ant. 3

Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 52 / Chain 3 + Chain 4
Test Date	Aug. 19, 2014		

Horizontal

Freq	Level	Limit		Over Line	Read Level	Cable			Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	dB	cm	deg	cm	deg
1	15774.68	39.23	54.00	-14.77	30.21	6.14	38.11	35.23	Average		194	302	HORIZONTAL	
2	15779.44	52.21	74.00	-21.79	43.20	6.14	38.11	35.24	Peak		194	302	HORIZONTAL	

Vertical

Freq	Level	Limit		Over Line	Read Level	Cable			Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	dB	cm	deg	cm	deg
1	15785.80	39.24	54.00	-14.76	30.25	6.14	38.09	35.24	Average		194	118	VERTICAL	
2	15789.08	52.04	74.00	-21.96	43.05	6.14	38.09	35.24	Peak		194	118	VERTICAL	



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 60 / Chain 3 + Chain 4
Test Date	Aug. 19, 2014		

Horizontal

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			Loss	Factor	Factor			
1	10598.84	37.88	54.00	-16.12	29.20	5.01	38.92	35.25	Average	194	98 HORIZONTAL
2	10599.88	51.32	74.00	-22.68	42.64	5.01	38.92	35.25	Peak	194	98 HORIZONTAL
3	15892.24	38.66	54.00	-15.34	29.83	6.15	37.94	35.26	Average	194	193 HORIZONTAL
4	15892.84	52.10	74.00	-21.90	43.27	6.15	37.94	35.26	Peak	194	193 HORIZONTAL

Vertical

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			Loss	Factor	Factor			
1	10598.48	50.02	74.00	-23.98	41.34	5.01	38.92	35.25	Peak	194	131 VERTICAL
2	10598.60	37.42	54.00	-16.58	28.74	5.01	38.92	35.25	Average	194	131 VERTICAL
3	15893.20	51.29	74.00	-22.71	42.46	6.15	37.94	35.26	Peak	194	291 VERTICAL
4	15894.36	38.65	54.00	-15.35	29.82	6.15	37.94	35.26	Average	194	291 VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 64 / Chain 3 + Chain 4
Test Date	Aug. 19, 2014		

Horizontal

Freq	Level	Limit		Over Line	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	10632.48	37.05	54.00	-16.95	28.33	5.01	38.93	35.22	Average	194	207	HORIZONTAL
2	10639.88	50.27	74.00	-23.73	41.55	5.01	38.93	35.22	Peak	194	207	HORIZONTAL
3	15967.72	51.64	74.00	-22.36	42.92	6.15	37.85	35.28	Peak	194	106	HORIZONTAL
4	15968.28	39.27	54.00	-14.73	30.55	6.15	37.85	35.28	Average	194	106	HORIZONTAL

Vertical

Freq	Level	Limit		Over Line	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	10634.64	37.10	54.00	-16.90	28.38	5.01	38.93	35.22	Average	194	75	VERTICAL
2	10638.76	50.64	74.00	-23.36	41.92	5.01	38.93	35.22	Peak	194	75	VERTICAL
3	15962.88	52.05	74.00	-21.95	43.33	6.15	37.85	35.28	Peak	194	215	VERTICAL
4	15970.00	39.41	54.00	-14.59	30.72	6.15	37.82	35.28	Average	194	215	VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 100 / Chain 3 + Chain 4
Test Date	Aug. 19, 2014		

Horizontal

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	dB			dBuV	dB	dB/m		cm	deg	
MHz	dBuV/m	dBuV/m	dB	dB	dB	dB	dB/m	dB	cm	deg	cm	deg
1	10998.36	35.23	54.00	-18.77	26.20	5.01	39.00	34.98	Average	194	249	HORIZONTAL
2	10998.40	47.99	74.00	-26.01	38.96	5.01	39.00	34.98	Peak	194	249	HORIZONTAL

Vertical

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	dB			dBuV	dB	dB/m		cm	deg	
MHz	dBuV/m	dBuV/m	dB	dB	dB	dB	dB/m	dB	cm	deg	cm	deg
1	10990.12	47.47	74.00	-26.53	38.44	5.01	39.00	34.98	Peak	194	140	VERTICAL
2	11007.04	35.19	54.00	-18.81	26.15	5.01	39.01	34.98	Average	194	140	VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 116 / Chain 3 + Chain 4
Test Date	Aug. 19, 2014		

Horizontal

Freq	Level	Limit		Over Line	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	11150.84	36.93	54.00	-17.07	27.77	5.04	39.12	35.00	Average	194	243	HORIZONTAL
2	11156.28	49.90	74.00	-24.10	40.74	5.04	39.12	35.00	Peak	194	243	HORIZONTAL

Vertical

Freq	Level	Limit		Over Line	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	11155.68	36.78	54.00	-17.22	27.62	5.04	39.12	35.00	Average	194	106	VERTICAL
2	11160.04	49.57	74.00	-24.43	40.40	5.04	39.13	35.00	Peak	194	106	VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 140 / Chain 3 + Chain 4
Test Date	Aug. 19, 2014		

Horizontal

Freq	Level	Limit		Over Line	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	11404.72	35.95	54.00	-18.05	26.57	5.10	39.32	35.04	Average	194	39	HORIZONTAL
2	11406.32	49.40	74.00	-24.60	40.02	5.10	39.32	35.04	Peak	194	39	HORIZONTAL

Vertical

Freq	Level	Limit		Over Line	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	11390.48	35.80	54.00	-18.20	26.43	5.09	39.31	35.03	Average	194	168	VERTICAL
2	11399.64	48.77	74.00	-25.23	39.39	5.10	39.32	35.04	Peak	194	168	VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 144 / Chain 3 + Chain 4
Test Date	Sep. 13, 2014		

Horizontal

Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	Limit	Level	Loss	Factor	Factor		cm	deg	
MHz	dBuV/m	dBuV/m		dB	dBuV	dB	dB/m	dB			
1	11433.28	41.83	54.00	-12.17	28.18	9.21	39.50	35.06	Average	183	141 HORIZONTAL
2	11434.96	54.89	74.00	-19.11	41.24	9.21	39.50	35.06	Peak	183	141 HORIZONTAL

Vertical

Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	Limit	Level	Loss	Factor	Factor		cm	deg	
MHz	dBuV/m	dBuV/m		dB	dBuV	dB	dB/m	dB			
1	11436.08	54.39	74.00	-19.61	40.74	9.21	39.50	35.06	Peak	146	39 VERTICAL
2	11446.04	41.71	54.00	-12.29	28.07	9.21	39.50	35.07	Average	146	39 VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 54 / Chain 3 + Chain 4
Test Date	Aug. 19, 2014		

Horizontal

Freq	Level	Limit		Over Line	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	15803.72	38.86	54.00	-15.14	29.89	6.14	38.07	35.24	Average	194	101	HORIZONTAL
2	15813.84	51.86	74.00	-22.14	42.89	6.14	38.07	35.24	Peak	194	101	HORIZONTAL

Vertical

Freq	Level	Limit		Over Line	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	15801.40	38.88	54.00	-15.12	29.91	6.14	38.07	35.24	Average	194	219	VERTICAL
2	15812.92	52.03	74.00	-21.97	43.06	6.14	38.07	35.24	Peak	194	219	VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 62 / Chain 3 + Chain 4
Test Date	Aug. 19, 2014		

Horizontal

Freq	Level	Limit		Over Limit	Read Level	Cable			Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m						
1	10611.20	37.51	54.00	-16.49	28.81	5.01	38.92	35.23	Average			194	193	HORIZONTAL
2	10613.96	51.20	74.00	-22.80	42.50	5.01	38.92	35.23	Peak			194	193	HORIZONTAL
3	15936.84	51.90	74.00	-22.10	43.16	6.15	37.87	35.28	Peak			194	257	HORIZONTAL
4	15937.56	38.42	54.00	-15.58	29.68	6.15	37.87	35.28	Average			194	257	HORIZONTAL

Vertical

Freq	Level	Limit		Over Limit	Read Level	Cable			Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m						
1	10610.16	37.38	54.00	-16.62	28.68	5.01	38.92	35.23	Average			194	138	VERTICAL
2	10624.36	50.51	74.00	-23.49	41.81	5.01	38.92	35.23	Peak			194	138	VERTICAL
3	15921.36	51.06	74.00	-22.94	42.28	6.15	37.90	35.27	Peak			194	224	VERTICAL
4	15935.64	38.31	54.00	-15.69	29.57	6.15	37.87	35.28	Average			194	224	VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 102 / Chain 3 + Chain 4
Test Date	Aug. 19, 2014		

Horizontal

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	dB			dBuV	dB	dB/m		cm	deg	
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	cm	deg	
1	11012.80	48.91	74.00	-25.09	39.86	5.02	39.01	34.98	Peak	194	260	HORIZONTAL
2	11023.88	35.33	54.00	-18.67	26.26	5.02	39.03	34.98	Average	194	260	HORIZONTAL

Vertical

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	dB			dBuV	dB	dB/m		cm	deg	
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	cm	deg	
1	11015.72	48.14	74.00	-25.86	39.09	5.02	39.01	34.98	Peak	194	25	VERTICAL
2	11029.52	35.51	54.00	-18.49	26.44	5.02	39.03	34.98	Average	194	25	VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 110 / Chain 3 + Chain 4
Test Date	Aug. 19, 2014		

Horizontal

Freq	Level	Limit		Over Line	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	11099.92	37.68	54.00	-16.32	28.56	5.03	39.08	34.99	Average	194	130	HORIZONTAL
2	11106.08	50.79	74.00	-23.21	41.67	5.03	39.08	34.99	Peak	194	130	HORIZONTAL

Vertical

Freq	Level	Limit		Over Line	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	11092.96	37.67	54.00	-16.33	28.55	5.03	39.08	34.99	Average	194	333	VERTICAL
2	11108.92	50.78	74.00	-23.22	41.65	5.03	39.09	34.99	Peak	194	333	VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 134 / Chain 3 + Chain 4
Test Date	Aug. 19, 2014		

Horizontal

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	dB			dBuV	dB	dB/m		cm	deg	
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	cm	deg	
1	11332.16	49.44	74.00	-24.56	40.12	5.08	39.27	35.03	Peak	194	283	HORIZONTAL
2	11343.96	35.98	54.00	-18.02	26.65	5.09	39.27	35.03	Average	194	283	HORIZONTAL

Vertical

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	dB			dBuV	dB	dB/m		cm	deg	
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	cm	deg	
1	11331.44	35.77	54.00	-18.23	26.45	5.08	39.27	35.03	Average	194	18	VERTICAL
2	11341.00	48.28	74.00	-25.72	38.95	5.09	39.27	35.03	Peak	194	18	VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 142 / Chain 3 + Chain 4
Test Date	Sep. 13, 2014		

Horizontal

Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	Limit	Level	Loss	Factor	Factor		cm	deg	
1	11410.92	54.62	74.00	-19.38	40.97	9.19	39.50	35.04 Peak	172	226	HORIZONTAL
2	11420.40	41.81	54.00	-12.19	28.17	9.20	39.50	35.06 Average	172	226	HORIZONTAL

Vertical

Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	Limit	Level	Loss	Factor	Factor		cm	deg	
1	11421.00	41.68	54.00	-12.32	28.04	9.20	39.50	35.06 Average	172	12	VERTICAL
2	11421.96	54.70	74.00	-19.30	41.06	9.20	39.50	35.06 Peak	172	12	VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 58 / Chain 3 + Chain 4
Test Date	Aug. 19, 2014		

Horizontal

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	15862.08	51.33	74.00	-22.67	42.46	6.14	37.99	35.26	Peak	194	32	HORIZONTAL
2	15877.96	38.50	54.00	-15.50	29.65	6.14	37.97	35.26	Average	194	32	HORIZONTAL

Vertical

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	15871.56	51.53	74.00	-22.47	42.68	6.14	37.97	35.26	Peak	194	219	VERTICAL
2	15879.96	38.79	54.00	-15.21	29.93	6.15	37.97	35.26	Average	194	219	VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 106 / Chain 3 + Chain 4
Test Date	Aug. 19, 2014		

Horizontal

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	dB			dBuV	dB	dB/m		cm	deg	
MHz	dBuV/m	dBuV/m	dB	dB	dB	dB	dB/m	dB	cm	deg	cm	deg
1	11068.76	49.32	74.00	-24.68	40.23	5.03	39.05	34.99	Peak	194	345	HORIZONTAL
2	11069.60	36.85	54.00	-17.15	27.76	5.03	39.05	34.99	Average	194	345	HORIZONTAL

Vertical

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	dB			dBuV	dB	dB/m		cm	deg	
MHz	dBuV/m	dBuV/m	dB	dB	dB	dB	dB/m	dB	cm	deg	cm	deg
1	11068.44	49.92	74.00	-24.08	40.83	5.03	39.05	34.99	Peak	194	77	VERTICAL
2	11069.72	36.94	54.00	-17.06	27.85	5.03	39.05	34.99	Average	194	77	VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 122 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

Freq	Level	Limit		Over Line Limit	Read Level	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	11219.75	54.49	74.00	-19.51	41.36	8.88	39.10	34.85	203	196	HORIZONTAL	Peak
2	11220.50	44.75	54.00	-9.25	31.62	8.88	39.10	34.85	203	196	HORIZONTAL	Average

Vertical

Freq	Level	Limit		Over Line Limit	Read Level	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	11219.52	44.64	54.00	-9.36	31.51	8.88	39.10	34.85	165	254	VERTICAL	Average
2	11219.61	54.77	74.00	-19.23	41.64	8.88	39.10	34.85	165	254	VERTICAL	Peak



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 138 / Chain 3 + Chain 4
Test Date	Sep. 13, 2014		

Horizontal

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase	Remark
		Line	Cable			Loss	Antenna Factor	Preamp Factor				
		MHz	dBuV/m	dBuV/m	dB	dB	dBuV	dB	dB/m	dB	cm	deg
1	11380.31	44.54	54.00	-9.46	31.28	9.01	39.10	34.85	140	122	HORIZONTAL	Average
2	11380.34	54.24	74.00	-19.76	40.98	9.01	39.10	34.85	140	122	HORIZONTAL	Peak

Vertical

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase	Remark
		Line	Cable			Loss	Antenna Factor	Preamp Factor				
		MHz	dBuV/m	dBuV/m	dB	dB	dBuV	dB	dB/m	dB	cm	deg
1	11379.63	44.62	54.00	-9.38	31.36	9.01	39.10	34.85	161	71	VERTICAL	Average
2	11380.43	54.51	74.00	-19.49	41.25	9.01	39.10	34.85	161	71	VERTICAL	Peak



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11a CH 52 / Chain 3
Test Date	Aug. 19, 2014		

Horizontal

Freq	Level	Limit		Over Line	Read Limit	Cable Antenna Preamp			Remark	A/Pos	T/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	15775.84	39.43	54.00	-14.57	30.41	6.14	38.11	35.23	Average	100	319	HORIZONTAL
2	15780.04	52.70	74.00	-21.30	43.69	6.14	38.11	35.24	Peak	100	319	HORIZONTAL

Vertical

Freq	Level	Limit		Over Line	Read Limit	Cable Antenna Preamp			Remark	A/Pos	T/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	15775.22	39.22	54.00	-14.78	30.20	6.14	38.11	35.23	Average	100	171	VERTICAL
2	15778.30	52.13	74.00	-21.87	43.12	6.14	38.11	35.24	Peak	100	171	VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11a CH 60 / Chain 3
Test Date	Aug. 19, 2014		

Horizontal

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			dB	dBuV	dB		cm	deg	
1	10598.22	37.59	54.00	-16.41	28.91	5.01	38.92	35.25	Average	100	238	HORIZONTAL
2	10600.22	50.76	74.00	-23.24	42.08	5.01	38.92	35.25	Peak	100	238	HORIZONTAL
3	15897.96	51.11	74.00	-22.89	42.28	6.15	37.94	35.26	Peak	100	324	HORIZONTAL
4	15904.82	38.25	54.00	-15.75	29.45	6.15	37.92	35.27	Average	100	324	HORIZONTAL

Vertical

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			dB	dBuV	dB		cm	deg	
1	10601.38	50.47	74.00	-23.53	41.77	5.01	38.92	35.23	Peak	100	102	VERTICAL
2	10602.58	37.77	54.00	-16.23	29.07	5.01	38.92	35.23	Average	100	102	VERTICAL
3	15898.62	50.74	74.00	-23.26	41.91	6.15	37.94	35.26	Peak	100	230	VERTICAL
4	15899.84	38.48	54.00	-15.52	29.65	6.15	37.94	35.26	Average	100	230	VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11a CH 64 / Chain 3
Test Date	Aug. 19, 2014		

Horizontal

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			dB	dBuV	dB		cm	deg	
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	cm	deg	
1	10635.44	49.56	74.00	-24.44	40.84	5.01	38.93	35.22	Peak	100	204	HORIZONTAL
2	10640.08	37.24	54.00	-16.76	28.52	5.01	38.93	35.22	Average	100	204	HORIZONTAL
3	15961.20	52.15	74.00	-21.85	43.43	6.15	37.85	35.28	Peak	100	275	HORIZONTAL
4	15963.94	39.02	54.00	-14.98	30.30	6.15	37.85	35.28	Average	100	275	HORIZONTAL

Vertical

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			dB	dBuV	dB		cm	deg	
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	cm	deg	
1	10637.64	36.95	54.00	-17.05	28.23	5.01	38.93	35.22	Average	100	53	VERTICAL
2	10638.96	50.98	74.00	-23.02	42.26	5.01	38.93	35.22	Peak	100	53	VERTICAL
3	15963.80	52.13	74.00	-21.87	43.41	6.15	37.85	35.28	Peak	100	179	VERTICAL
4	15964.48	39.15	54.00	-14.85	30.43	6.15	37.85	35.28	Average	100	179	VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11a CH 100 / Chain 3
Test Date	Aug. 19, 2014		

Horizontal

Freq	Level	Limit		Over Line	Read Limit	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		dB	dB			Loss	Factor	Factor			
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11004.16	35.36	54.00	-18.64	26.33	5.01	39.00	34.98	Average	194	235 HORIZONTAL
2	11006.84	48.07	74.00	-25.93	39.03	5.01	39.01	34.98	Peak	194	235 HORIZONTAL

Vertical

Freq	Level	Limit		Over Line	Read Limit	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		dB	dB			Loss	Factor	Factor			
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11006.88	35.45	54.00	-18.55	26.41	5.01	39.01	34.98	Average	194	99 VERTICAL
2	11006.96	47.71	74.00	-26.29	38.67	5.01	39.01	34.98	Peak	194	99 VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11a CH 116 / Chain 3
Test Date	Aug. 19, 2014		

Horizontal

Freq	Level	Limit		Over Line	Read Limit	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg
1	11150.32	36.80	54.00	-17.20	27.64	5.04	39.12	35.00	Average	194	253 HORIZONTAL
2	11155.16	49.56	74.00	-24.44	40.40	5.04	39.12	35.00	Peak	194	253 HORIZONTAL

Vertical

Freq	Level	Limit		Over Line	Read Limit	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg
1	11150.92	36.65	54.00	-17.35	27.49	5.04	39.12	35.00	Average	194	85 VERTICAL
2	11158.96	49.88	74.00	-24.12	40.71	5.04	39.13	35.00	Peak	194	85 VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11a CH 140 / Chain 3
Test Date	Aug. 19, 2014		

Horizontal

Freq	Level	Limit		Over Line	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		
1	11390.44	48.61	74.00	-25.39	39.24	5.09	39.31	35.03	Peak	194	220 HORIZONTAL
2	11397.12	35.85	54.00	-18.15	26.47	5.10	39.32	35.04	Average	194	220 HORIZONTAL

Vertical

Freq	Level	Limit		Over Line	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		
1	11391.80	48.63	74.00	-25.37	39.26	5.10	39.31	35.04	Peak	194	56 VERTICAL
2	11403.52	35.79	54.00	-18.21	26.41	5.10	39.32	35.04	Average	194	56 VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11a CH 144 / Chain 3
Test Date	Sep. 13, 2014		

Horizontal

Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	Limit	Level	Loss	Factor	Factor		cm	deg	
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB				
1	11431.28	42.02	54.00	-11.98	28.37	9.21	39.50	35.06	Average	179	129 HORIZONTAL
2	11444.44	55.59	74.00	-18.41	41.95	9.21	39.50	35.07	Peak	176	129 HORIZONTAL

Vertical

Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	Limit	Level	Loss	Factor	Factor		cm	deg	
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB				
1	11430.92	55.73	74.00	-18.27	42.08	9.21	39.50	35.06	Peak	141	31 VERTICAL
2	11432.84	41.62	54.00	-12.38	27.97	9.21	39.50	35.06	Average	141	31 VERTICAL

Note:

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

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

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



<For Beamforming Mode>

For 5GHz Band : Ant. 2

Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 52 / Chain 3 + Chain 4
Test Date	Aug. 14, 2014		

Horizontal

Freq	Level	Limit		Over Line	Read Level	Cable Loss			Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	cm	deg	
1	15770.08	52.11	74.00	-21.89	43.09	6.14	38.11	35.23	Peak	100	63	HORIZONTAL		
2	15771.88	40.17	54.00	-13.83	31.15	6.14	38.11	35.23	Average	100	63	HORIZONTAL		

Vertical

Freq	Level	Limit		Over Line	Read Level	Cable Loss			Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	cm	deg	
1	15770.52	52.30	74.00	-21.70	43.28	6.14	38.11	35.23	Peak	100	59	VERTICAL		
2	15778.44	40.23	54.00	-13.77	31.22	6.14	38.11	35.24	Average	100	59	VERTICAL		



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 60 / Chain 3 + Chain 4
Test Date	Aug. 14, 2014		

Horizontal

Freq	Level	Limit		Over Line	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		dB	dBuV/m			dB	dBuV	dB			
1	10598.72	37.68	54.00	-16.32	29.00	5.01	38.92	35.25	Average	100	346 HORIZONTAL
2	10602.96	50.85	74.00	-23.15	42.15	5.01	38.92	35.23	Peak	100	346 HORIZONTAL
3	15902.16	53.24	74.00	-20.76	44.43	6.15	37.92	35.26	Peak	100	327 HORIZONTAL
4	15904.00	40.52	54.00	-13.48	31.71	6.15	37.92	35.26	Average	100	327 HORIZONTAL

Vertical

Freq	Level	Limit		Over Line	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		dB	dBuV/m			dB	dBuV	dB			
1	10596.60	49.94	74.00	-24.06	41.26	5.01	38.92	35.25	Peak	100	140 VERTICAL
2	10599.60	39.01	54.00	-14.99	30.33	5.01	38.92	35.25	Average	100	140 VERTICAL
3	15902.28	40.33	54.00	-13.67	31.52	6.15	37.92	35.26	Average	100	63 VERTICAL
4	15902.32	52.32	74.00	-21.68	43.51	6.15	37.92	35.26	Peak	100	63 VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 64 / Chain 3 + Chain 4
Test Date	Aug. 14, 2014		

Horizontal

Freq	Level	Limit		Over Line	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		dB	dBuV/m			dB	dBuV	dB			
1	10645.40	50.47	74.00	-23.53	41.75	5.01	38.93	35.22	Peak	100	61 HORIZONTAL
2	10647.88	37.49	54.00	-16.51	28.77	5.01	38.93	35.22	Average	100	61 HORIZONTAL
3	15969.04	52.71	74.00	-21.29	44.02	6.15	37.82	35.28	Peak	100	87 HORIZONTAL
4	15969.96	40.64	54.00	-13.36	31.95	6.15	37.82	35.28	Average	100	86 HORIZONTAL

Vertical

Freq	Level	Limit		Over Line	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		dB	dBuV/m			dB	dBuV	dB			
1	10630.64	49.93	74.00	-24.07	41.21	5.01	38.93	35.22	Peak	100	56 VERTICAL
2	10637.04	38.23	54.00	-15.77	29.51	5.01	38.93	35.22	Average	100	56 VERTICAL
3	15967.40	40.68	54.00	-13.32	31.96	6.15	37.85	35.28	Average	100	76 VERTICAL
4	15969.08	52.86	74.00	-21.14	44.17	6.15	37.82	35.28	Peak	100	76 VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 100 / Chain 3 + Chain 4
Test Date	Aug. 14, 2014		

Horizontal

Freq	Level	Limit		Over Limit	Read Level	Cable			Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			dB	dBuV	dB						
1	10994.92	36.12	54.00	-17.88	27.09	5.01	39.00	34.98	Average			100	26	HORIZONTAL
2	11008.20	48.94	74.00	-25.06	39.90	5.01	39.01	34.98	Peak			100	26	HORIZONTAL

Vertical

Freq	Level	Limit		Over Limit	Read Level	Cable			Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			dB	dBuV	dB						
1	11000.04	39.02	54.00	-14.98	29.99	5.01	39.00	34.98	Average			191	360	VERTICAL
2	11000.04	54.20	74.00	-19.80	45.17	5.01	39.00	34.98	Peak			191	360	VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 116 / Chain 3 + Chain 4
Test Date	Aug. 14, 2014		

Horizontal

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			Loss	Factor	Factor			
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11158.96	38.12	54.00	-15.88	28.95	5.04	39.13	35.00	Average	100	348 HORIZONTAL
2	11168.80	50.40	74.00	-23.60	41.22	5.05	39.13	35.00	Peak	100	348 HORIZONTAL

Vertical

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			Loss	Factor	Factor			
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11158.96	56.71	74.00	-17.29	47.54	5.04	39.13	35.00	Peak	197	25 VERTICAL
2	11159.20	42.87	54.00	-11.13	33.70	5.04	39.13	35.00	Average	197	25 VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 140 / Chain 3 + Chain 4
Test Date	Aug. 14, 2014		

Horizontal

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		Line	dB			dBuV	dB	dB/m			
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m	dB	cm	deg	
1	11391.92	50.26	74.00	-23.74	40.89	5.10	39.31	35.04	Peak	100	42 HORIZONTAL
2	11403.40	37.35	54.00	-16.65	27.97	5.10	39.32	35.04	Average	100	42 HORIZONTAL

Vertical

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		Line	dB			dBuV	dB	dB/m			
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m	dB	cm	deg	
1	11391.80	46.29	74.00	-27.71	36.92	5.10	39.31	35.04	Peak	100	360 VERTICAL
2	11402.36	36.65	54.00	-17.35	27.27	5.10	39.32	35.04	Average	100	122 VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 144 / Chain 3 + Chain 4
Test Date	Sep. 13, 2014		

Horizontal

Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	Limit	Level	Loss	Factor	Factor		cm	deg	
MHz	dBuV/m	dBuV/m		dB	dBuV	dB	dB/m	dB			
1	11438.97	42.13	54.00	-11.87	28.48	9.21	39.50	35.06	Average	100	196 HORIZONTAL
2	11441.98	54.66	74.00	-19.34	41.01	9.21	39.50	35.06	Peak	100	196 HORIZONTAL

Vertical

Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	Limit	Level	Loss	Factor	Factor		cm	deg	
MHz	dBuV/m	dBuV/m		dB	dBuV	dB	dB/m	dB			
1	11439.44	55.03	74.00	-18.97	41.38	9.21	39.50	35.06	Peak	100	0 VERTICAL
2	11441.86	42.41	54.00	-11.59	28.76	9.21	39.50	35.06	Average	100	0 VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 54 / Chain 3 + Chain 4
Test Date	Aug. 14, 2014		

Horizontal

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			Loss	Factor	Factor			
1	15802.80	39.71	54.00	-14.29	30.74	6.14	38.07	35.24	Average	100	54 HORIZONTAL
2	15810.12	52.78	74.00	-21.22	43.81	6.14	38.07	35.24	Peak	100	54 HORIZONTAL

Vertical

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			Loss	Factor	Factor			
1	15800.48	52.19	74.00	-21.81	43.22	6.14	38.07	35.24	Peak	100	338 VERTICAL
2	15815.60	40.71	54.00	-13.29	31.77	6.14	38.04	35.24	Average	100	338 VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 62 / Chain 3 + Chain 4
Test Date	Aug. 14, 2014		

Horizontal

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			dB	dBuV	dB		cm	deg	
1	10624.40	50.15	74.00	-23.85	41.45	5.01	38.92	35.23	Peak	100	36	HORIZONTAL
2	10625.80	37.26	54.00	-16.74	28.56	5.01	38.92	35.23	Average	100	36	HORIZONTAL
3	15921.96	40.27	54.00	-13.73	31.49	6.15	37.90	35.27	Average	100	57	HORIZONTAL
4	15925.84	53.23	74.00	-20.77	44.45	6.15	37.90	35.27	Peak	100	57	HORIZONTAL

Vertical

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			dB	dBuV	dB		cm	deg	
1	10616.56	50.21	74.00	-23.79	41.51	5.01	38.92	35.23	Peak	100	103	VERTICAL
2	10624.08	37.58	54.00	-16.42	28.88	5.01	38.92	35.23	Average	100	103	VERTICAL
3	15920.68	41.33	54.00	-12.67	32.55	6.15	37.90	35.27	Average	100	122	VERTICAL
4	15938.84	53.13	74.00	-20.87	44.39	6.15	37.87	35.28	Peak	100	122	VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 102 / Chain 3 + Chain 4
Test Date	Aug. 14, 2014		

Horizontal

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			Loss	Factor	Factor			
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1 11010.92	35.71	54.00	-18.29	26.66	5.02	39.01	34.98	Average	100	321	HORIZONTAL
2 11028.80	48.58	74.00	-25.42	39.51	5.02	39.03	34.98	Peak	100	321	HORIZONTAL

Vertical

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			Loss	Factor	Factor			
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1 11011.32	49.10	74.00	-24.90	40.05	5.02	39.01	34.98	Peak	100	344	VERTICAL
2 11015.36	35.71	54.00	-18.29	26.66	5.02	39.01	34.98	Average	100	344	VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 110 / Chain 3 + Chain 4
Test Date	Aug. 14, 2014		

Horizontal

Freq	Level	Limit		Over Limit	Read Level	Cable			Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			dB	dBuV	dB						
1	11103.68	36.67	54.00	-17.33	27.55	5.03	39.08	34.99	Average			100	115	HORIZONTAL
2	11108.80	50.14	74.00	-23.86	41.01	5.03	39.09	34.99	Peak			100	115	HORIZONTAL

Vertical

Freq	Level	Limit		Over Limit	Read Level	Cable			Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			dB	dBuV	dB						
1	11095.72	49.19	74.00	-24.81	40.07	5.03	39.08	34.99	Peak			100	13	VERTICAL
2	11106.84	36.61	54.00	-17.39	27.48	5.03	39.09	34.99	Average			100	13	VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 134 / Chain 3 + Chain 4
Test Date	Aug. 14, 2014		

Horizontal

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			Loss	Factor	Factor			
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11340.40	37.38	54.00	-16.62	28.05	5.09	39.27	35.03	Average	100	114 HORIZONTAL
2	11341.84	49.93	74.00	-24.07	40.60	5.09	39.27	35.03	Peak	100	114 HORIZONTAL

Vertical

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			Loss	Factor	Factor			
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11340.48	37.43	54.00	-16.57	28.10	5.09	39.27	35.03	Average	100	39 VERTICAL
2	11349.60	50.94	74.00	-23.06	41.60	5.09	39.28	35.03	Peak	100	39 VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 142 / Chain 3 + Chain 4
Test Date	Sep. 13, 2014		

Horizontal

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		Line	dB			dBuV	dB	dB/m			
1	11420.00	55.32	74.00	-18.68	41.68	9.20	39.50	35.06	Peak	100	127 HORIZONTAL
2	11420.77	41.51	54.00	-12.49	27.87	9.20	39.50	35.06	Average	100	127 HORIZONTAL

Vertical

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		Line	dB			dBuV	dB	dB/m			
1	11418.48	54.46	74.00	-19.54	40.80	9.20	39.50	35.04	Peak	100	234 VERTICAL
2	11420.04	42.18	54.00	-11.82	28.54	9.20	39.50	35.06	Average	100	234 VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 58 / Chain 3 + Chain 4
Test Date	Aug. 14, 2014		

Horizontal

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		Line	dB			dBuV	dB	dB/m			
1	15869.48	52.85	74.00	-21.15	44.00	6.14	37.97	35.26	Peak	100	247 HORIZONTAL
2	15870.12	39.86	54.00	-14.14	31.01	6.14	37.97	35.26	Average	100	247 HORIZONTAL

Vertical

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		Line	dB			dBuV	dB	dB/m			
1	15874.68	52.77	74.00	-21.23	43.92	6.14	37.97	35.26	Peak	100	23 VERTICAL
2	15876.96	39.81	54.00	-14.19	30.96	6.14	37.97	35.26	Average	100	23 VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 106 / Chain 3 + Chain 4
Test Date	Aug. 14, 2014		

Horizontal

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			Loss	Factor	Factor			
1	11066.20	49.65	74.00	-24.35	40.56	5.03	39.05	34.99	Peak	100	114 HORIZONTAL
2	11069.40	36.24	54.00	-17.76	27.15	5.03	39.05	34.99	Average	100	114 HORIZONTAL

Vertical

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			Loss	Factor	Factor			
1	11067.44	36.38	54.00	-17.62	27.29	5.03	39.05	34.99	Average	100	53 VERTICAL
2	11068.80	49.70	74.00	-24.30	40.61	5.03	39.05	34.99	Peak	100	53 VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 122 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

Freq	Level	Limit		Over Line	Read Limit	Cable	Antenna	Preamplifier	A/Pos	T/Pos	Pol/Phase	Remark
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	11220.06	55.44	74.00	-18.56	42.31	8.88	39.10	34.85	178	165	HORIZONTAL	Peak
2	11220.50	44.71	54.00	-9.29	31.58	8.88	39.10	34.85	178	165	HORIZONTAL	Average

Vertical

Freq	Level	Limit		Over Line	Read Limit	Cable	Antenna	Preamplifier	A/Pos	T/Pos	Pol/Phase	Remark
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	11220.21	44.67	54.00	-9.33	31.54	8.88	39.10	34.85	190	77	VERTICAL	Average
2	11220.27	53.94	74.00	-20.06	40.81	8.88	39.10	34.85	190	77	VERTICAL	Peak



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 138 / Chain 3 + Chain 4
Test Date	Sep. 13, 2014		

Horizontal

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamplifier	A/Pos	T/Pos	Pol/Phase	Remark
		Line	dB			Loss	Factor	Factor	cm	deg		
1	11380.18	53.79	74.00	-20.21	40.53	9.01	39.10	34.85	148	226	HORIZONTAL	Peak
2	11380.21	44.64	54.00	-9.36	31.38	9.01	39.10	34.85	148	226	HORIZONTAL	Average

Vertical

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamplifier	A/Pos	T/Pos	Pol/Phase	Remark
		Line	dB			Loss	Factor	Factor	cm	deg		
1	11379.53	44.87	54.00	-9.13	31.61	9.01	39.10	34.85	159	295	VERTICAL	Average
2	11379.99	54.84	74.00	-19.16	41.58	9.01	39.10	34.85	159	295	VERTICAL	Peak

Note:

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

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

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



For 5GHz Band : Ant. 3

Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 52 / Chain 3 + Chain 4
Test Date	Aug. 15, 2014		

Horizontal

Freq	Level	Limit		Over Line	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	15776.60	42.00	54.00	-12.00	32.98	6.14	38.11	35.23	Average	100	276	HORIZONTAL
2	15778.84	55.68	74.00	-18.32	46.67	6.14	38.11	35.24	Peak	100	276	HORIZONTAL

Vertical

Freq	Level	Limit		Over Line	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	15778.06	41.78	54.00	-12.22	32.77	6.14	38.11	35.24	Average	100	171	VERTICAL
2	15781.18	55.69	74.00	-18.31	46.68	6.14	38.11	35.24	Peak	100	171	VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 60 / Chain 3 + Chain 4
Test Date	Aug. 15, 2014		

Horizontal

Freq	Level	Limit		Over Limit	Read Level	CableAntenna Preamp			A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			dBuV	dB	dB/m			
1	10596.20	53.59	74.00	-20.41	44.91	5.01	38.92	35.25	Peak	100	115 HORIZONTAL
2	10597.92	39.68	54.00	-14.32	31.00	5.01	38.92	35.25	Average	100	115 HORIZONTAL
3	15896.70	55.82	74.00	-18.18	46.99	6.15	37.94	35.26	Peak	100	216 HORIZONTAL
4	15904.70	41.78	54.00	-12.22	32.97	6.15	37.92	35.26	Average	100	216 HORIZONTAL

Vertical

Freq	Level	Limit		Over Limit	Read Level	CableAntenna Preamp			A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			dBuV	dB	dB/m			
1	10597.52	53.06	74.00	-20.94	44.38	5.01	38.92	35.25	Peak	100	168 VERTICAL
2	10598.10	39.27	54.00	-14.73	30.59	5.01	38.92	35.25	Average	100	168 VERTICAL
3	15901.70	55.05	74.00	-18.95	46.24	6.15	37.92	35.26	Peak	100	59 VERTICAL
4	15904.24	41.91	54.00	-12.09	33.10	6.15	37.92	35.26	Average	100	59 VERTICAL

Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 64 / Chain 3 + Chain 4
Test Date	Aug. 15, 2014		

Horizontal

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna			Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
		MHz	dBuV/m	Line	dBuV/m	dB	dB	dB/m					
1	10635.86	39.67	54.00	-14.33	30.95	5.01	38.93	35.22	Average		100	145	HORIZONTAL
2	10637.38	53.25	74.00	-20.75	44.53	5.01	38.93	35.22	Peak		100	145	HORIZONTAL
3	15955.00	41.97	54.00	-12.03	33.25	6.15	37.85	35.28	Average		100	208	HORIZONTAL
4	15960.54	56.40	74.00	-17.60	47.68	6.15	37.85	35.28	Peak		100	208	HORIZONTAL

Vertical

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna			Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
		MHz	dBuV/m	Line	dBuV/m	dB	dB	dB/m					
1	10636.50	39.27	54.00	-14.73	30.55	5.01	38.93	35.22	Average		100	245	VERTICAL
2	10637.58	53.02	74.00	-20.98	44.30	5.01	38.93	35.22	Peak		100	245	VERTICAL
3	15960.04	56.09	74.00	-17.91	47.37	6.15	37.85	35.28	Peak		100	326	VERTICAL
4	15964.58	42.16	54.00	-11.84	33.44	6.15	37.85	35.28	Average		100	326	VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 100 / Chain 3 + Chain 4
Test Date	Aug. 15, 2014		

Horizontal

Freq	Level	Limit		Over Line	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	10996.50	37.70	54.00	-16.30	28.67	5.01	39.00	34.98	Average	100	231	HORIZONTAL
2	10999.24	51.23	74.00	-22.77	42.20	5.01	39.00	34.98	Peak	100	231	HORIZONTAL

Vertical

Freq	Level	Limit		Over Line	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	10995.56	37.59	54.00	-16.41	28.56	5.01	39.00	34.98	Average	100	326	VERTICAL
2	11003.32	51.37	74.00	-22.63	42.34	5.01	39.00	34.98	Peak	100	326	VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 116 / Chain 3 + Chain 4
Test Date	Aug. 15, 2014		

Horizontal

Freq	Level	Limit		Over Line	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	11156.04	39.64	54.00	-14.36	30.48	5.04	39.12	35.00	Average	100	143	HORIZONTAL
2	11159.16	53.03	74.00	-20.97	43.86	5.04	39.13	35.00	Peak	100	143	HORIZONTAL

Vertical

Freq	Level	Limit		Over Line	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	11157.30	53.32	74.00	-20.68	44.16	5.04	39.12	35.00	Peak	100	268	VERTICAL
2	11164.76	39.45	54.00	-14.55	30.27	5.05	39.13	35.00	Average	100	268	VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 140 / Chain 3 + Chain 4
Test Date	Aug. 15, 2014		

Horizontal

Freq	Level	Limit		Over Line	Read Limit	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	11399.20	52.18	74.00	-21.82	42.80	5.10	39.32	35.04	Peak	100	213	HORIZONTAL
2	11404.48	39.10	54.00	-14.90	29.72	5.10	39.32	35.04	Average	100	213	HORIZONTAL

Vertical

Freq	Level	Limit		Over Line	Read Limit	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	11398.00	52.45	74.00	-21.55	43.07	5.10	39.32	35.04	Peak	100	298	VERTICAL
2	11398.52	39.04	54.00	-14.96	29.66	5.10	39.32	35.04	Average	100	298	VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 144 / Chain 3 + Chain 4
Test Date	Aug. 15, 2014		

Horizontal

Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	Limit	Level	Loss	Factor	Factor		cm	deg	
1	11430.64	41.73	54.00	-12.27	28.08	9.21	39.50	35.06 Average	189	31	HORIZONTAL
2	11435.20	54.49	74.00	-19.51	40.84	9.21	39.50	35.06 Peak	189	31	HORIZONTAL

Vertical

Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	Limit	Level	Loss	Factor	Factor		cm	deg	
1	11446.04	53.90	74.00	-20.10	40.26	9.21	39.50	35.07 Peak	132	74	VERTICAL
2	11449.96	41.63	54.00	-12.37	27.98	9.22	39.50	35.07 Average	132	74	VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 54 / Chain 3 + Chain 4
Test Date	Aug. 15, 2014		

Horizontal

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		Line	dB			dBuV	dB	dB/m			
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m	dB	cm	deg	
1	15805.10	41.18	54.00	-12.82	32.21	6.14	38.07	35.24	Average	100	270 HORIZONTAL
2	15805.84	54.61	74.00	-19.39	45.64	6.14	38.07	35.24	Peak	100	270 HORIZONTAL

Vertical

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		Line	dB			dBuV	dB	dB/m			
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m	dB	cm	deg	
1	15807.60	41.20	54.00	-12.80	32.23	6.14	38.07	35.24	Average	100	176 VERTICAL
2	15811.06	54.84	74.00	-19.16	45.87	6.14	38.07	35.24	Peak	100	176 VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 62 / Chain 3 + Chain 4
Test Date	Aug. 15, 2014		

Horizontal

Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
		Line	Limit	Level	Loss	Factor	Factor	deg	cm		
1	10616.82	39.30	54.00	-14.70	30.60	5.01	38.92	35.23	335	100 Average	HORIZONTAL
2	10619.60	52.52	74.00	-21.48	43.82	5.01	38.92	35.23	335	100 Peak	HORIZONTAL

Vertical

Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	Limit	Level	Loss	Factor	Factor		cm	deg	
1	10622.82	53.10	74.00	-20.90	44.40	5.01	38.92	35.23	Peak	100	354 VERTICAL
2	10623.80	39.27	54.00	-14.73	30.57	5.01	38.92	35.23	Average	100	354 VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 102 / Chain 3 + Chain 4
Test Date	Aug. 15, 2014		

Horizontal

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	11015.58	37.87	54.00	-16.13	28.82	5.02	39.01	34.98	Average	100	342	HORIZONTAL
2	11016.38	51.61	74.00	-22.39	42.56	5.02	39.01	34.98	Peak	100	342	HORIZONTAL

Vertical

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm	
1	11015.76	37.76	54.00	-16.24	28.71	5.02	39.01	34.98	303	100	Average	VERTICAL
2	11024.38	51.94	74.00	-22.06	42.87	5.02	39.03	34.98	303	100	Peak	VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 110 / Chain 3 + Chain 4
Test Date	Aug. 15, 2014		

Horizontal

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			dB	dBuV	dB		cm	deg	
1	11096.30	52.27	74.00	-21.73	43.15	5.03	39.08	34.99	Peak	100	295	HORIZONTAL
2	11097.74	38.93	54.00	-15.07	29.81	5.03	39.08	34.99	Average	100	295	HORIZONTAL

Vertical

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			dB	dBuV	dB		cm	deg	
1	11097.88	39.01	54.00	-14.99	29.89	5.03	39.08	34.99	Average	100	324	VERTICAL
2	11100.02	53.59	74.00	-20.41	44.47	5.03	39.08	34.99	Peak	100	324	VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 134 / Chain 3 + Chain 4
Test Date	Aug. 15, 2014		

Horizontal

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			dBuV	dB	dB/m			
1	11342.98	52.70	74.00	-21.30	43.37	5.09	39.27	35.03	Peak	100	338 HORIZONTAL
2	11344.86	39.30	54.00	-14.70	29.96	5.09	39.28	35.03	Average	100	338 HORIZONTAL

Vertical

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			dBuV	dB	dB/m			
1	11338.08	52.98	74.00	-21.02	43.66	5.08	39.27	35.03	Peak	100	313 VERTICAL
2	11340.42	39.11	54.00	-14.89	29.78	5.09	39.27	35.03	Average	100	313 VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 142 / Chain 3 + Chain 4
Test Date	Sep. 13, 2014		

Horizontal

Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	Limit	Level	Loss	Factor	Factor		cm	deg	
1	11422.40	41.73	54.00	-12.27	28.09	9.20	39.50	35.06 Average	159	64	HORIZONTAL
2	11427.48	54.87	74.00	-19.13	41.23	9.20	39.50	35.06 Peak	160	64	HORIZONTAL

Vertical

Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	Limit	Level	Loss	Factor	Factor		cm	deg	
1	11412.08	55.24	74.00	-18.76	41.59	9.19	39.50	35.04 Peak	153	287	VERTICAL
2	11417.36	41.82	54.00	-12.18	28.16	9.20	39.50	35.04 Average	153	287	VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 58 / Chain 3 + Chain 4
Test Date	Aug. 15, 2014		

Horizontal

Freq	Level	Limit		Over Line	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg
1	15865.32	41.20	54.00	-12.80	32.33	6.14	37.99	35.26	Average	100	337 HORIZONTAL
2	15866.12	55.07	74.00	-18.93	46.20	6.14	37.99	35.26	Peak	100	337 HORIZONTAL

Vertical

Freq	Level	Limit		Over Line	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg
1	15866.18	41.22	54.00	-12.78	32.35	6.14	37.99	35.26	Average	100	282 VERTICAL
2	15869.22	54.72	74.00	-19.28	45.87	6.14	37.97	35.26	Peak	100	282 VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 106 / Chain 3 + Chain 4
Test Date	Aug. 15, 2014		

Horizontal

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	dB			dBuV	dB	dB/m		cm	deg	
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	cm	deg	
1	11055.44	38.53	54.00	-15.47	29.46	5.02	39.04	34.99	Average	100	336	HORIZONTAL
2	11055.86	51.49	74.00	-22.51	42.41	5.02	39.05	34.99	Peak	100	336	HORIZONTAL

Vertical

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	dB			dBuV	dB	dB/m		cm	deg	
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	cm	deg	
1	11055.60	38.42	54.00	-15.58	29.34	5.02	39.05	34.99	Average	100	279	VERTICAL
2	11064.22	51.38	74.00	-22.62	42.29	5.03	39.05	34.99	Peak	100	279	VERTICAL



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 122 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
		Line	dBuV/m			dB	dBuV	dB	dB/m	dB	cm	
1	11219.74	54.55	74.00	-19.45	41.42	8.88	39.10	34.85	158	226	HORIZONTAL	Peak
2	11219.93	44.63	54.00	-9.37	31.50	8.88	39.10	34.85	158	226	HORIZONTAL	Average

Vertical

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
		Line	dBuV/m			dB	dBuV	dB	dB/m	dB	cm	
1	11219.72	54.60	74.00	-19.40	41.47	8.88	39.10	34.85	155	183	VERTICAL	Peak
2	11220.13	44.50	54.00	-9.50	31.37	8.88	39.10	34.85	155	183	VERTICAL	Average



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 138 / Chain 3 + Chain 4
Test Date	Sep. 13, 2014		

Horizontal

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
		Line	dB			Loss	Factor	Factor	cm	deg		
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg			
1	11380.08	44.69	54.00	-9.31	31.43	9.01	39.10	34.85	169	270	HORIZONTAL	Average
2	11380.10	53.95	74.00	-20.05	40.69	9.01	39.10	34.85	169	270	HORIZONTAL	Peak

Vertical

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
		Line	dB			Loss	Factor	Factor	cm	deg		
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg			
1	11379.56	44.79	54.00	-9.21	31.53	9.01	39.10	34.85	168	327	VERTICAL	Average
2	11380.43	53.96	74.00	-20.04	40.70	9.01	39.10	34.85	168	327	VERTICAL	Peak

Note:

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

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

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

4.7. Band Edge Emissions Measurement

4.7.1. Limit

For transmitters operating in the 5.25-5.35 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 5.470-5.725 GHz band: all emissions outside of the 5.47-5.725 GHz band 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 (microvolt/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(kHz)	300
0.490~1.705	24000/F(kHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

4.7.2. Measuring Instruments and Setting

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

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

4.7.3. Test Procedures

- The test procedure is the same as section 4.6.3, only the frequency range investigated is limited to 100MHz around bandedges.

4.7.4. Test Setup Layout

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

4.7.5. Test Deviation

There is no deviation with the original standard.



4.7.6. EUT Operation during Test

For Non-beamforming mode:

The EUT was programmed to be in continuously transmitting mode.

For beamforming mode:

The EUT was programmed to be in beamforming transmitting mode.

4.7.7. Test Result of Band Edge and Fundamental Emissions

<For Non-Beamforming Mode>

For 5GHz Band : Ant. 2

Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 52, 60, 64 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Channel 52

Freq	Level	Limit		Over Limit	Read Level	Cable Loss Factor			Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m						
1	5256.00	115.88				113.08	3.46	34.25	34.91	Peak		173	37	VERTICAL
2	5258.40	107.53				104.73	3.46	34.25	34.91	Average		173	37	VERTICAL
3	5378.80	64.49	74.00	-9.51	61.47	3.50	34.44	34.92	Peak			173	37	VERTICAL
4	5381.20	53.69	54.00	-0.31	50.67	3.50	34.44	34.92	Average			173	37	VERTICAL

Item 1, 2 are the fundamental frequency at 5260 MHz.

Channel 60

Freq	Level	Limit		Over Limit	Read Level	Cable Loss Factor			Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m						
1	5299.20	115.97				113.08	3.48	34.32	34.91	Peak		189	39	VERTICAL
2	5301.60	108.53				105.64	3.48	34.32	34.91	Average		189	39	VERTICAL
3	5373.20	65.65	74.00	-8.35	62.66	3.49	34.41	34.91	Peak			189	39	VERTICAL
4	5374.00	53.63	54.00	-0.37	50.64	3.50	34.41	34.92	Average			189	39	VERTICAL

Item 1, 2 are the fundamental frequency at 5300 MHz.

Channel 64

Freq	Level	Limit		Over Limit	Read Level	Cable Loss Factor			Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m						
1	5321.60	106.99				104.08	3.48	34.34	34.91	Average		163	45	VERTICAL
2	5321.60	115.84				112.93	3.48	34.34	34.91	Peak		163	45	VERTICAL
3	5350.00	53.95	54.00	-0.05	50.98	3.49	34.39	34.91	Average			163	45	VERTICAL
4	5351.60	69.63	74.00	-4.37	66.66	3.49	34.39	34.91	Peak			163	45	VERTICAL

Item 1, 2 are the fundamental frequency at 5320 MHz.



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 100, 116, 140 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Channel 100

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			Remark	A/Pos	T/Pos	Pol/Phase
		Freq	Line			Cable Loss	Antenna Factor	Preamp Factor				
1	5387.20	52.67	54.00	-1.33	49.65	3.50	34.44	34.92	Average	193	24	VERTICAL
2	5460.00	69.19	74.00	-4.81	66.06	3.52	34.53	34.92	Peak	193	24	VERTICAL
3	5467.60	71.09	74.00	-2.91	67.94	3.52	34.55	34.92	Peak	193	24	VERTICAL
4	5470.00	53.37	54.00	-0.63	50.22	3.52	34.55	34.92	Average	193	24	VERTICAL
5	5497.60	108.79			105.58	3.53	34.60	34.92	Average	193	24	VERTICAL
6	5497.60	116.30			113.09	3.53	34.60	34.92	Peak	193	24	VERTICAL

Item 5, 6 are the fundamental frequency at 5500 MHz.

Channel 116

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			Remark	A/Pos	T/Pos	Pol/Phase
		Freq	Line			Cable Loss	Antenna Factor	Preamp Factor				
1	5459.20	53.72	54.00	-0.28	50.59	3.52	34.53	34.92	Average	167	138	VERTICAL
2	5459.20	64.32	74.00	-9.68	61.19	3.52	34.53	34.92	Peak	167	138	VERTICAL
3	5461.20	53.87	54.00	-0.13	50.74	3.52	34.53	34.92	Average	167	138	VERTICAL
4	5466.80	64.50	74.00	-9.50	61.35	3.52	34.55	34.92	Peak	167	138	VERTICAL
5	5572.80	105.92			102.67	3.55	34.63	34.93	Average	167	138	VERTICAL
6	5575.20	115.91			112.66	3.55	34.63	34.93	Peak	167	138	VERTICAL

Item 5, 6 are the fundamental frequency at 5580 MHz.

Channel 140

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			Remark	A/Pos	T/Pos	Pol/Phase
		Freq	Line			Cable Loss	Antenna Factor	Preamp Factor				
1	5702.00	116.03			112.70	3.59	34.68	34.94	Peak	179	144	VERTICAL
2	5702.40	106.71			103.38	3.59	34.68	34.94	Average	179	144	VERTICAL
3	5725.00	53.59	54.00	-0.41	50.24	3.60	34.69	34.94	Average	179	144	VERTICAL
4	5725.00	72.91	74.00	-1.09	69.56	3.60	34.69	34.94	Peak	179	144	VERTICAL

Item 1, 2 are the fundamental frequency at 5700 MHz.



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 54, 62 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Channel 54

Freq	Level	Limit		Over Limit	Read Level	Cable			Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
		MHz	dBuV/m	Line	dBuV/m	dB	dBuV	dB	dB/m	cm	deg	cm	deg	
1	5274.80	105.68			102.85	3.47	34.27	34.91	Average	138	129	VERTICAL		
2	5274.80	115.43			112.60	3.47	34.27	34.91	Peak	138	129	VERTICAL		
3	5350.80	65.79	74.00	-8.21	62.82	3.49	34.39	34.91	Peak	138	129	VERTICAL		
4	5352.40	53.74	54.00	-0.26	50.77	3.49	34.39	34.91	Average	138	129	VERTICAL		

Item 1, 2 are the fundamental frequency at 5270 MHz.

Channel 62

Freq	Level	Limit		Over Limit	Read Level	Cable			Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
		MHz	dBuV/m	Line	dBuV/m	dB	dBuV	dB	dB/m	cm	deg	cm	deg	
1	5306.80	100.75			97.86	3.48	34.32	34.91	Average	182	46	VERTICAL		
2	5307.20	110.48			107.59	3.48	34.32	34.91	Peak	182	46	VERTICAL		
3	5350.00	53.31	54.00	-0.69	50.34	3.49	34.39	34.91	Average	182	46	VERTICAL		
4	5350.00	65.71	74.00	-8.29	62.74	3.49	34.39	34.91	Peak	182	46	VERTICAL		

Item 1, 2 are the fundamental frequency at 5310 MHz.



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 102, 110, 134 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Channel 102

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			Cable Loss	Antenna Factor	Preamp Factor			
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5460.00	51.01	54.00	-2.99	47.88	3.52	34.53	34.92	Average	190	26 VERTICAL
2	5470.00	53.46	68.20	-14.74	50.31	3.52	34.55	34.92	Average	190	26 VERTICAL
3	5470.00	67.96	68.20	-0.24	64.81	3.52	34.55	34.92	Peak	190	26 VERTICAL
4	5496.00	110.58			107.39	3.53	34.58	34.92	Peak	190	26 VERTICAL
5	5506.00	101.43			98.21	3.54	34.60	34.92	Average	190	26 VERTICAL

Item 4, 5 are the fundamental frequency at 5510 MHz.

Channel 110

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			Cable Loss	Antenna Factor	Preamp Factor			
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5432.40	64.29	74.00	-9.71	61.18	3.52	34.51	34.92	Peak	189	133 VERTICAL
2	5432.60	53.51	54.00	-0.49	50.40	3.52	34.51	34.92	Average	189	133 VERTICAL
3	5464.00	64.95	74.00	-9.05	61.80	3.52	34.55	34.92	Peak	189	133 VERTICAL
4	5467.00	51.38	54.00	-2.62	48.23	3.52	34.55	34.92	Average	189	133 VERTICAL
5	5547.60	104.91			101.66	3.55	34.62	34.92	Average	189	133 VERTICAL
6	5547.60	114.64			111.39	3.55	34.62	34.92	Peak	189	133 VERTICAL

Item 5, 6 are the fundamental frequency at 5550 MHz.

Channel 134

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			Cable Loss	Antenna Factor	Preamp Factor			
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5674.80	112.66			109.33	3.59	34.67	34.93	Peak	173	134 VERTICAL
2	5675.20	103.41			100.08	3.59	34.67	34.93	Average	173	134 VERTICAL
3	5725.40	71.87	74.00	-2.13	68.52	3.60	34.69	34.94	Peak	173	134 VERTICAL
4	5725.80	53.62	54.00	-0.38	50.27	3.60	34.69	34.94	Average	173	134 VERTICAL

Item 1, 2 are the fundamental frequency at 5670 MHz.



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 58 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Channel 58

Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	Limit	Level	Loss	Factor	Factor		cm	deg	
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB				
1	5302.00	96.18			93.29	3.48	34.32	34.91 Average	176	39	VERTICAL
2	5304.00	105.70			102.81	3.48	34.32	34.91 Peak	176	39	VERTICAL
3	5350.00	53.97	54.00	-0.03	51.00	3.49	34.39	34.91 Average	176	39	VERTICAL
4	5352.00	64.43	74.00	-9.57	61.46	3.49	34.39	34.91 Peak	176	39	VERTICAL

Item 1, 2 are the fundamental frequency at 5290 MHz.



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 106, 122, 138/ Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Channel 106

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamplifier	Remark	A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			dB	dBuV	dB		cm	deg	
1	5456.80	53.98	54.00	-0.02	50.85	3.52	34.53	34.92	Average	172	137	VERTICAL
2	5459.20	66.17	74.00	-7.83	63.04	3.52	34.53	34.92	Peak	172	137	VERTICAL
3	5469.20	67.66	68.20	-0.54	64.51	3.52	34.55	34.92	Peak	172	137	VERTICAL
4	5470.00	55.12	68.20	-13.08	51.97	3.52	34.55	34.92	Average	172	137	VERTICAL
5	5522.00	105.94			102.71	3.54	34.61	34.92	Peak	172	137	VERTICAL
6	5539.60	96.65			93.41	3.55	34.61	34.92	Average	172	137	VERTICAL

Item 5, 6 are the fundamental frequency at 5530 MHz.

Channel 122

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamplifier	A/Pos	T/Pos	Pol/Phase	Remark
		Line	dBuV/m			dB	dBuV	dB				
1	5582.10	109.38			104.59	6.26	34.00	35.47	197	221	VERTICAL	Peak
2	5604.60	100.85			96.01	6.27	34.02	35.45	197	221	VERTICAL	Average
3	5725.00	53.13	54.00	-0.87	47.94	6.35	34.18	35.34	197	221	VERTICAL	Average
4	5725.00	63.71	74.00	-10.29	58.52	6.35	34.18	35.34	197	221	VERTICAL	Peak

Item 1, 2 are the fundamental frequency at 5610MHz

Channel 138

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamplifier	A/Pos	T/Pos	Pol/Phase	Remark
		Line	dBuV/m			dB	dBuV	dB				
1	5460.00	48.81	54.00	-5.19	44.41	6.18	33.75	35.53	202	220	VERTICAL	Average
2	5460.00	62.68	74.00	-11.32	58.28	6.18	33.75	35.53	202	220	VERTICAL	Peak
3	5470.00	49.04	54.00	-4.96	44.59	6.18	33.80	35.53	202	220	VERTICAL	Average
4	5470.00	61.64	74.00	-12.36	57.19	6.18	33.80	35.53	202	220	VERTICAL	Peak
5	5699.50	104.04			98.92	6.34	34.14	35.36	202	220	VERTICAL	Average
6	5699.50	113.33			108.21	6.34	34.14	35.36	202	220	VERTICAL	Peak
7	5850.00	53.14	54.00	-0.86	47.34	6.43	34.60	35.23	202	220	VERTICAL	Average
8	5850.00	65.71	74.00	-8.29	59.91	6.43	34.60	35.23	202	220	VERTICAL	Peak

Item 5, 6 are the fundamental frequency at 5690 MHz



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11a CH 52, 60, 64 / Chain 3
Test Date	Aug. 18, 2014		

Channel 52

Freq	Level	Limit		Over Limit	Read Level	Cable			Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			dB	dBuV	dB	dB/m				
1	5135.00	60.70	74.00	-13.30	58.09	3.43	34.09	34.91	Peak		197	233	VERTICAL
2	5139.00	49.16	54.00	-4.84	46.55	3.43	34.09	34.91	Average		197	233	VERTICAL
3	5257.00	116.50			113.70	3.46	34.25	34.91	Peak		197	233	VERTICAL
4	5258.00	105.99			103.19	3.46	34.25	34.91	Average		197	233	VERTICAL
5	5384.00	53.63	54.00	-0.37	50.61	3.50	34.44	34.92	Average		197	233	VERTICAL
6	5388.00	65.81	74.00	-8.19	62.79	3.50	34.44	34.92	Peak		197	233	VERTICAL

Item 3, 4 are the fundamental frequency at 5260 MHz.

Channel 60

Freq	Level	Limit		Over Limit	Read Level	Cable			Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			dB	dBuV	dB	dB/m					
1	5146.00	59.57	74.00	-14.43	56.94	3.43	34.11	34.91	Peak		152	235	VERTICAL	
2	5147.00	47.59	54.00	-6.41	44.96	3.43	34.11	34.91	Average		152	235	VERTICAL	
3	5299.00	117.35			114.46	3.48	34.32	34.91	Peak		152	235	VERTICAL	
4	5301.00	106.83			103.94	3.48	34.32	34.91	Average		152	235	VERTICAL	
5	5350.00	53.37	54.00	-0.63	50.40	3.49	34.39	34.91	Average		152	235	VERTICAL	
6	5350.00	67.60	74.00	-6.40	64.63	3.49	34.39	34.91	Peak		152	235	VERTICAL	

Item 3, 4 are the fundamental frequency at 5300 MHz.

Channel 64

Freq	Level	Limit		Over Limit	Read Level	Cable			Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			dB	dBuV	dB	dB/m					
1	5318.00	105.04			102.13	3.48	34.34	34.91	Average		149	210	VERTICAL	
2	5318.00	115.77			112.86	3.48	34.34	34.91	Peak		149	210	VERTICAL	
3	5350.00	52.90	54.00	-1.10	49.93	3.49	34.39	34.91	Average		149	210	VERTICAL	
4	5354.00	69.33	74.00	-4.67	66.36	3.49	34.39	34.91	Peak		149	210	VERTICAL	

Item 1, 2 are the fundamental frequency at 5320 MHz.

Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11a CH 100, 116, 140 / Chain 3
Test Date	Aug. 18, 2014		

Channel 100

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	dB			dBuV	dB	dB/m		cm	deg	
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg			
1	5458.00	68.49	74.00	-5.51	65.36	3.52	34.53	34.92	Peak	145	213	VERTICAL
2	5460.00	51.99	54.00	-2.01	48.86	3.52	34.53	34.92	Average	145	213	VERTICAL
3	5467.00	53.82	54.00	-0.18	50.67	3.52	34.55	34.92	Average	145	213	VERTICAL
4	5470.00	73.51	74.00	-0.49	70.36	3.52	34.55	34.92	Peak	145	213	VERTICAL
5	5499.00	106.56			103.35	3.53	34.60	34.92	Average	145	213	VERTICAL
6	5499.00	116.80			113.59	3.53	34.60	34.92	Peak	145	213	VERTICAL

Item 5, 6 are the fundamental frequency at 5500 MHz.

Channel 116

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	dB			dBuV	dB	dB/m		cm	deg	
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg			
1	5418.00	52.33	54.00	-1.67	49.26	3.51	34.48	34.92	Average	198	194	VERTICAL
2	5456.00	62.81	74.00	-11.19	59.68	3.52	34.53	34.92	Peak	198	194	VERTICAL
3	5466.00	63.85	74.00	-10.15	60.70	3.52	34.55	34.92	Peak	198	194	VERTICAL
4	5468.00	51.30	54.00	-2.70	48.15	3.52	34.55	34.92	Average	198	194	VERTICAL
5	5581.00	110.87			107.61	3.56	34.63	34.93	Average	198	194	VERTICAL
6	5582.00	119.31			116.05	3.56	34.63	34.93	Peak	198	194	VERTICAL
7	5745.00	62.83	74.00	-11.17	59.46	3.61	34.70	34.94	Peak	198	194	VERTICAL
8	5748.00	50.70	54.00	-3.30	47.33	3.61	34.70	34.94	Average	198	194	VERTICAL

Item 5, 6 are the fundamental frequency at 5580 MHz.

Channel 140

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	dB			dBuV	dB	dB/m		cm	deg	
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg			
1	5216.00	49.16	54.00	-4.84	46.42	3.45	34.20	34.91	Average	176	238	VERTICAL
2	5220.00	60.67	74.00	-13.33	57.93	3.45	34.20	34.91	Peak	176	238	VERTICAL
3	5462.00	49.45	54.00	-4.55	46.32	3.52	34.53	34.92	Average	176	238	VERTICAL
4	5466.00	61.03	74.00	-12.97	57.88	3.52	34.55	34.92	Peak	176	238	VERTICAL
5	5696.00	115.25			111.92	3.59	34.68	34.94	Peak	176	238	VERTICAL
6	5698.00	105.52			102.19	3.59	34.68	34.94	Average	176	238	VERTICAL
7	5725.00	53.33	54.00	-0.67	49.98	3.60	34.69	34.94	Average	176	238	VERTICAL
8	5727.00	69.05	74.00	-4.95	65.70	3.60	34.69	34.94	Peak	176	238	VERTICAL

Item 5, 6 are the fundamental frequency at 5700 MHz.

Note:

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

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

For 5GHz Band : Ant. 3

Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 52, 60, 64 / Chain 3 + Chain 4
Test Date	Aug. 19, 2014		

Channel 52

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			Loss	Factor	dB		cm	deg	
MHz		dBuV/m	dBuV/m			dB	dBuV	dB	dB/m			
1	5040.00	53.39	54.00	-0.61	50.92	3.40	33.97	34.90	Average	191	3	HORIZONTAL
2	5139.00	63.33	74.00	-10.67	60.72	3.43	34.09	34.91	Peak	191	3	HORIZONTAL
3	5259.00	118.39			115.57	3.46	34.27	34.91	Peak	191	3	HORIZONTAL
4	5261.00	107.98			105.16	3.46	34.27	34.91	Average	191	3	HORIZONTAL
5	5374.00	64.82	74.00	-9.18	61.83	3.50	34.41	34.92	Peak	191	3	HORIZONTAL
6	5378.00	53.28	54.00	-0.72	50.26	3.50	34.44	34.92	Average	191	3	HORIZONTAL

Item 3, 4 are the fundamental frequency at 5260 MHz.

Channel 60

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			Loss	Factor	dB		cm	deg	
MHz		dBuV/m	dBuV/m			dB	dBuV	dB	dB/m			
1	5079.00	53.44	54.00	-0.56	50.91	3.41	34.02	34.90	Average	191	8	HORIZONTAL
2	5079.00	62.81	74.00	-11.19	60.28	3.41	34.02	34.90	Peak	191	8	HORIZONTAL
3	5298.00	109.06			106.17	3.48	34.32	34.91	Average	191	8	HORIZONTAL
4	5299.00	118.70			115.81	3.48	34.32	34.91	Peak	191	8	HORIZONTAL
5	5381.00	53.80	54.00	-0.20	50.78	3.50	34.44	34.92	Average	191	8	HORIZONTAL
6	5416.00	66.72	74.00	-7.28	63.65	3.51	34.48	34.92	Peak	191	8	HORIZONTAL

Item 3, 4 are the fundamental frequency at 5300 MHz.

Channel 64

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			Loss	Factor	dB		cm	deg	
MHz		dBuV/m	dBuV/m			dB	dBuV	dB	dB/m			
1	5098.00	53.44	54.00	-0.56	50.88	3.42	34.04	34.90	Average	191	7	HORIZONTAL
2	5098.00	62.95	74.00	-11.05	60.39	3.42	34.04	34.90	Peak	191	7	HORIZONTAL
3	5315.00	118.33			115.42	3.48	34.34	34.91	Peak	191	7	HORIZONTAL
4	5318.00	108.21			105.30	3.48	34.34	34.91	Average	191	7	HORIZONTAL
5	5437.00	52.67	54.00	-1.33	49.56	3.52	34.51	34.92	Average	191	7	HORIZONTAL
6	5438.00	65.39	74.00	-8.61	62.28	3.52	34.51	34.92	Peak	191	7	HORIZONTAL

Item 3, 4 are the fundamental frequency at 5320 MHz.



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 100, 116, 140 / Chain 3 + Chain 4
Test Date	Aug. 19, 2014		

Channel 100

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	dB			dBuV	dB	dB/m		cm	deg	
MHz	dBuV/m	dBuV/m	dB	dB	dBuV	dB	dB/m	dB	cm	deg	cm	deg
1	5040.00	53.95	54.00	-0.05	51.48	3.40	33.97	34.90	Average	191	7	HORIZONTAL
2	5042.00	62.71	74.00	-11.29	60.24	3.40	33.97	34.90	Peak	191	7	HORIZONTAL
3	5376.00	64.29	74.00	-9.71	61.30	3.50	34.41	34.92	Peak	191	7	HORIZONTAL
4	5380.00	52.53	54.00	-1.47	49.51	3.50	34.44	34.92	Average	191	7	HORIZONTAL
5	5470.00	49.68	54.00	-4.32	46.53	3.52	34.55	34.92	Average	191	7	HORIZONTAL
6	5470.00	60.89	74.00	-13.11	57.74	3.52	34.55	34.92	Peak	191	7	HORIZONTAL
7	5498.00	107.23			104.02	3.53	34.60	34.92	Average	191	7	HORIZONTAL
8	5498.00	116.47			113.26	3.53	34.60	34.92	Peak	191	7	HORIZONTAL

Item 7, 8 are the fundamental frequency at 5500 MHz.

Channel 116

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	dB			dBuV	dB	dB/m		cm	deg	
MHz	dBuV/m	dBuV/m	dB	dB	dBuV	dB	dB/m	dB	cm	deg	cm	deg
1	5114.00	53.87	54.00	-0.13	51.29	3.42	34.06	34.90	Average	191	8	HORIZONTAL
2	5114.00	63.80	74.00	-10.20	61.22	3.42	34.06	34.90	Peak	191	8	HORIZONTAL
3	5340.00	63.96	74.00	-10.04	61.01	3.49	34.37	34.91	Peak	191	8	HORIZONTAL
4	5348.00	51.75	54.00	-2.25	48.78	3.49	34.39	34.91	Average	191	8	HORIZONTAL
5	5578.00	117.33			114.07	3.56	34.63	34.93	Peak	191	8	HORIZONTAL
6	5582.00	107.05			103.79	3.56	34.63	34.93	Average	191	8	HORIZONTAL

Item 5, 6 are the fundamental frequency at 5580 MHz.

Channel 140

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	dB			dBuV	dB	dB/m		cm	deg	
MHz	dBuV/m	dBuV/m	dB	dB	dBuV	dB	dB/m	dB	cm	deg	cm	deg
1	5694.00	106.85			103.52	3.59	34.68	34.94	Average	191	9	HORIZONTAL
2	5694.00	117.70			114.37	3.59	34.68	34.94	Peak	191	9	HORIZONTAL
3	5725.00	68.19	68.20	-0.01	64.84	3.60	34.69	34.94	Peak	191	9	HORIZONTAL

Item 1, 2 are the fundamental frequency at 5700 MHz.



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 54, 62 / Chain 3 + Chain 4
Test Date	Aug. 19, 2014		

Channel 54

Freq	Level	Limit		Over Limit	Read Level	Cable			Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m				cm	deg	
1	5275.60	108.06			105.20	3.47	34.30	34.91	Average			194	10	HORIZONTAL
2	5275.60	118.49			115.63	3.47	34.30	34.91	Peak			194	10	HORIZONTAL
3	5352.40	66.24	74.00	-7.76	63.27	3.49	34.39	34.91	Peak			194	10	HORIZONTAL
4	5394.00	53.71	54.00	-0.29	50.69	3.50	34.44	34.92	Average			194	10	HORIZONTAL

Item 1, 2 are the fundamental frequency at 5270 MHz.

Channel 62

Freq	Level	Limit		Over Limit	Read Level	Cable			Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m				cm	deg	
1	5306.80	111.81			108.92	3.48	34.32	34.91	Peak			194	6	HORIZONTAL
2	5307.60	102.44			99.55	3.48	34.32	34.91	Average			194	6	HORIZONTAL
3	5350.00	53.98	54.00	-0.02	51.01	3.49	34.39	34.91	Average			194	6	HORIZONTAL
4	5350.00	66.88	74.00	-7.12	63.91	3.49	34.39	34.91	Peak			194	6	HORIZONTAL

Item 1, 2 are the fundamental frequency at 5310 MHz.



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 102, 110, 134 / Chain 3 + Chain 4
Test Date	Aug. 19, 2014		

Channel 102

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			Cable Loss	Antenna Factor	Preamp Factor			
1	5354.40	62.62	74.00	-11.38	59.65	3.49	34.39	34.91	Peak	194	8 VERTICAL
2	5356.00	50.78	54.00	-3.22	47.81	3.49	34.39	34.91	Average	194	8 VERTICAL
3	5470.00	67.96	68.20	-0.24	64.81	3.52	34.55	34.92	Peak	194	8 VERTICAL
4	5514.00	101.04			97.81	3.54	34.61	34.92	Average	194	8 VERTICAL
5	5523.60	112.60			109.37	3.54	34.61	34.92	Peak	194	8 VERTICAL

Item 4, 5 are the fundamental frequency at 5510 MHz.

Channel 110

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			Cable Loss	Antenna Factor	Preamp Factor			
1	5086.00	53.00	54.00	-1.00	50.47	3.41	34.02	34.90	Average	194	4 HORIZONTAL
2	5460.00	53.81	54.00	-0.19	50.68	3.52	34.53	34.92	Average	194	4 HORIZONTAL
3	5460.00	63.28			60.15	3.52	34.53	34.92	Peak	194	4 HORIZONTAL
4	5466.00	67.06			63.91	3.52	34.55	34.92	Peak	194	4 HORIZONTAL
5	5554.00	108.62	68.20	40.42	105.38	3.55	34.62	34.93	Average	194	4 HORIZONTAL
6	5556.00	117.68	68.20	49.48	114.44	3.55	34.62	34.93	Peak	194	4 HORIZONTAL

Item 3, 4 are the fundamental frequency at 5550 MHz.

Channel 134

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			Cable Loss	Antenna Factor	Preamp Factor			
1	5657.20	106.44			103.12	3.59	34.66	34.93	Average	194	11 HORIZONTAL
2	5683.60	116.45			113.12	3.59	34.68	34.94	Peak	194	11 HORIZONTAL
3	5725.00	53.54	54.00	-0.46	50.19	3.60	34.69	34.94	Average	194	11 HORIZONTAL
4	5725.00	69.33	74.00	-4.67	65.98	3.60	34.69	34.94	Peak	194	11 HORIZONTAL

Item 1, 2 are the fundamental frequency at 5670 MHz.



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 58 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Channel 58

Freq	Level	Limit		Over Line	Read Level	Cable Antenna Preamp			Remark	A/Pos	T/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	5278.00	96.83			93.97	3.47	34.30	34.91	Average	194	8	HORIZONTAL
2	5278.00	108.51			105.65	3.47	34.30	34.91	Peak	194	8	HORIZONTAL
3	5350.00	67.09	74.00	-6.91	64.12	3.49	34.39	34.91	Peak	194	8	HORIZONTAL
4	5350.60	53.54	54.00	-0.46	50.57	3.49	34.39	34.91	Average	194	8	HORIZONTAL

Item 1, 2 are the fundamental frequency at 5290 MHz.



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 106, 122, 138/ Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Channel 106

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			dB	dBuV	dB		cm	deg	
1	5459.20	66.59	74.00	-7.41	63.46	3.52	34.53	34.92	Peak	194	10	HORIZONTAL
2	5460.00	53.22	54.00	-0.78	50.09	3.52	34.53	34.92	Average	194	10	HORIZONTAL
3	5467.60	70.93	74.00	-3.07	67.78	3.52	34.55	34.92	Peak	194	10	HORIZONTAL
4	5470.00	53.97	54.00	-0.03	50.82	3.52	34.55	34.92	Average	194	10	HORIZONTAL
5	5542.00	106.95			103.71	3.55	34.61	34.92	Peak	194	10	HORIZONTAL
6	5544.40	96.78			93.54	3.55	34.61	34.92	Average	194	10	HORIZONTAL

Item 5, 6 are the fundamental frequency at 5530 MHz.

Channel 122

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
		Line	dBuV/m			dB	dBuV	dB		cm	deg	
1	5582.40	102.72			97.93	6.26	34.00	35.47	194	2	HORIZONTAL	Average
2	5582.70	111.89			107.10	6.26	34.00	35.47	194	2	HORIZONTAL	Peak
3	5725.00	53.83	54.00	-0.17	48.64	6.35	34.18	35.34	194	2	HORIZONTAL	Average
4	5749.60	65.23	74.00	-8.77	59.98	6.37	34.20	35.32	194	2	HORIZONTAL	Peak

Item 1, 2 are the fundamental frequency at 5690 MHz

Channel 138

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
		Line	dBuV/m			dB	dBuV	dB		cm	deg	
1	5460.00	50.04	54.00	-3.96	45.64	6.18	33.75	35.53	187	0	HORIZONTAL	Average
2	5460.00	61.80	74.00	-12.20	57.40	6.18	33.75	35.53	187	0	HORIZONTAL	Peak
3	5470.00	50.44	54.00	-3.56	45.99	6.18	33.80	35.53	187	0	HORIZONTAL	Average
4	5470.00	61.66	74.00	-12.34	57.21	6.18	33.80	35.53	187	0	HORIZONTAL	Peak
5	5679.50	105.48			100.42	6.32	34.12	35.38	187	0	HORIZONTAL	Average
6	5684.50	114.45			109.38	6.33	34.12	35.38	187	0	HORIZONTAL	Peak
7	5851.50	53.50	54.00	-0.50	47.70	6.43	34.60	35.23	187	0	HORIZONTAL	Average
8	5859.50	65.14	74.00	-8.86	59.25	6.44	34.67	35.22	187	0	HORIZONTAL	Peak

Item 5, 6 are the fundamental frequency at 5690 MHz



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11a CH 52, 60, 64 / Chain 3
Test Date	Aug. 19, 2014		

Channel 52

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	dBm			dB	dBuV	dB		cm	deg	
1	5033.00	51.75	54.00	-2.25	49.30	3.40	33.95	34.90	Average	191	6	HORIZONTAL
2	5139.00	63.92	74.00	-10.08	61.31	3.43	34.09	34.91	Peak	191	6	HORIZONTAL
3	5258.00	120.20			117.40	3.46	34.25	34.91	Peak	191	6	HORIZONTAL
4	5261.00	109.88			107.06	3.46	34.27	34.91	Average	191	6	HORIZONTAL
5	5376.00	65.41	74.00	-8.59	62.42	3.50	34.41	34.92	Peak	191	6	HORIZONTAL
6	5382.00	53.84	54.00	-0.16	50.82	3.50	34.44	34.92	Average	191	6	HORIZONTAL

Item 3, 4 are the fundamental frequency at 5260 MHz.

Channel 60

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	dBm			dB	dBuV	dB		cm	deg	
1	5079.00	51.55	54.00	-2.45	49.02	3.41	34.02	34.90	Average	191	6	HORIZONTAL
2	5079.00	61.78	74.00	-12.22	59.25	3.41	34.02	34.90	Peak	191	6	HORIZONTAL
3	5299.00	118.23			115.34	3.48	34.32	34.91	Peak	191	6	HORIZONTAL
4	5302.00	108.90			106.01	3.48	34.32	34.91	Average	191	6	HORIZONTAL
5	5383.00	53.73	54.00	-0.27	50.71	3.50	34.44	34.92	Average	191	6	HORIZONTAL
6	5417.00	65.53	74.00	-8.47	62.46	3.51	34.48	34.92	Peak	191	6	HORIZONTAL

Item 3, 4 are the fundamental frequency at 5300 MHz.

Channel 64

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	dBm			dB	dBuV	dB		cm	deg	
1	5096.00	63.13	74.00	-10.87	60.57	3.42	34.04	34.90	Peak	191	6	HORIZONTAL
2	5098.00	52.53	54.00	-1.47	49.97	3.42	34.04	34.90	Average	191	6	HORIZONTAL
3	5321.00	109.40			106.49	3.48	34.34	34.91	Average	191	6	HORIZONTAL
4	5327.00	118.75			115.80	3.49	34.37	34.91	Peak	191	6	HORIZONTAL
5	5432.00	65.86	74.00	-8.14	62.75	3.52	34.51	34.92	Peak	191	6	HORIZONTAL
6	5480.00	53.90	54.00	-0.10	50.71	3.53	34.58	34.92	Average	191	6	HORIZONTAL

Item 3, 4 are the fundamental frequency at 5320 MHz.

Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11a CH 100, 116, 140 / Chain 3
Test Date	Aug. 19, 2014		

Channel 100

Freq	Level	Limit		Over Limit	Read Level	Cable			Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
		Line	dB			dB	dB	dB/m						
		MHz	dBuV/m	dBuV/m		dB	dBuV	dB				cm	deg	
1	5038.00	64.19	74.00	-9.81	61.72	3.40	33.97	34.90	Peak			191	6	HORIZONTAL
2	5040.00	53.90	54.00	-0.10	51.43	3.40	33.97	34.90	Average			191	6	HORIZONTAL
3	5470.00	61.83	68.20	-6.37	58.68	3.52	34.55	34.92	Peak			191	6	HORIZONTAL
4	5498.00	107.61	68.20	39.41	104.40	3.53	34.60	34.92	Average			191	6	HORIZONTAL
5	5498.00	117.03	68.20	48.83	113.82	3.53	34.60	34.92	Peak			191	6	HORIZONTAL

Item 4, 5 are the fundamental frequency at 5500 MHz.

Channel 116

Freq	Level	Limit		Over Limit	Read Level	Cable			Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
		Line	dB			dB	dB	dB/m						
		MHz	dBuV/m	dBuV/m		dB	dBuV	dB				cm	deg	
1	5114.00	53.55	54.00	-0.45	50.97	3.42	34.06	34.90	Average			191	6	HORIZONTAL
2	5114.00	64.34	74.00	-9.66	61.76	3.42	34.06	34.90	Peak			191	6	HORIZONTAL
3	5464.00	61.43	68.20	-6.77	58.28	3.52	34.55	34.92	Peak			191	6	HORIZONTAL
4	5582.00	105.97			102.71	3.56	34.63	34.93	Average			191	6	HORIZONTAL
5	5582.00	115.58			112.32	3.56	34.63	34.93	Peak			191	6	HORIZONTAL

Item 4, 5 are the fundamental frequency at 5580 MHz.

Channel 140

Freq	Level	Limit		Over Limit	Read Level	Cable			Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
		Line	dB			dB	dB	dB/m						
		MHz	dBuV/m	dBuV/m		dB	dBuV	dB				cm	deg	
1	5222.00	64.70	68.20	-3.50	61.95	3.46	34.20	34.91	Peak			191	6	HORIZONTAL
2	5460.00	51.14	54.00	-2.86	48.01	3.52	34.53	34.92	Average			191	6	HORIZONTAL
3	5466.00	61.95	68.20	-6.25	58.80	3.52	34.55	34.92	Peak			191	6	HORIZONTAL
4	5700.00	106.80			103.47	3.59	34.68	34.94	Average			191	6	HORIZONTAL
5	5700.00	116.66			113.33	3.59	34.68	34.94	Peak			191	6	HORIZONTAL
6	5725.00	66.68	68.20	-1.52	63.33	3.60	34.69	34.94	Peak			191	6	HORIZONTAL
7	5779.00	54.31	68.20	-13.89	50.92	3.62	34.71	34.94	Average			191	6	HORIZONTAL

Item 4, 5 are the fundamental frequency at 5700 MHz.

Note:

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

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



<For Beamforming Mode>

For 5GHz Band : Ant. 2

Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 52, 60, 64 / Chain 3 + Chain 4
Test Date	Aug. 14, 2014		

Channel 52

Freq	Level	Limit		Over Limit	Read Level	Cable Loss			Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
		MHz	dBuV/m	Line	dB	dBuV	dB	dB/m	dB					
1	5258.40	106.35				103.55	3.46	34.25	34.91	Average		160	360	VERTICAL
2	5262.40	115.87				113.05	3.46	34.27	34.91	Peak		160	360	VERTICAL
3	5373.20	53.54	54.00	-0.46	50.55	3.49	34.41	34.91	Average			160	360	VERTICAL
4	5374.00	65.93	74.00	-8.07	62.94	3.50	34.41	34.92	Peak			160	360	VERTICAL

Item 1, 2 are the fundamental frequency at 5260 MHz.

Channel 60

Freq	Level	Limit		Over Limit	Read Level	Cable Loss			Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
		MHz	dBuV/m	Line	dB	dBuV	dB	dB/m	dB					
1	5307.60	115.98				113.09	3.48	34.32	34.91	Peak		169	26	VERTICAL
2	5308.40	106.57				103.68	3.48	34.32	34.91	Average		169	26	VERTICAL
3	5350.00	65.06	74.00	-8.94	62.09	3.49	34.39	34.91	Peak			169	26	VERTICAL
4	5387.60	53.97	54.00	-0.03	50.95	3.50	34.44	34.92	Average			169	26	VERTICAL

Item 1, 2 are the fundamental frequency at 5300 MHz.

Channel 64

Freq	Level	Limit		Over Limit	Read Level	Cable Loss			Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
		MHz	dBuV/m	Line	dB	dBuV	dB	dB/m	dB					
1	5318.40	106.46				103.55	3.48	34.34	34.91	Average		147	276	VERTICAL
2	5320.80	116.45				113.54	3.48	34.34	34.91	Peak		147	276	VERTICAL
3	5350.00	53.45	54.00	-0.55	50.48	3.49	34.39	34.91	Average			147	276	VERTICAL
4	5351.20	71.53	74.00	-2.47	68.56	3.49	34.39	34.91	Peak			147	276	VERTICAL

Item 1, 2 are the fundamental frequency at 5320 MHz.



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 100, 116, 140 / Chain 3 + Chain 4
Test Date	Aug. 14, 2014		

Channel 100

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		Freq	Line			Cable Loss	Antenna Factor	Preamp Factor			
1	5378.40	65.05	74.00	-8.95	62.03	3.50	34.44	34.92	Peak	108	346 VERTICAL
2	5379.20	52.61	54.00	-1.39	49.59	3.50	34.44	34.92	Average	108	346 VERTICAL
3	5470.00	53.80	54.00	-0.20	50.65	3.52	34.55	34.92	Average	108	346 VERTICAL
4	5470.00	69.15	74.00	-4.85	66.00	3.52	34.55	34.92	Peak	108	346 VERTICAL
5	5500.00	110.10			106.89	3.53	34.60	34.92	Average	108	346 VERTICAL
6	5500.80	119.53			116.31	3.54	34.60	34.92	Peak	108	346 VERTICAL

Item 5, 6 are the fundamental frequency at 5500 MHz.

Channel 116

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		Freq	Line			Cable Loss	Antenna Factor	Preamp Factor			
1	5456.00	62.27	74.00	-11.73	57.87	6.17	33.75	35.52	173	217 VERTICAL	Peak
2	5458.00	53.05	54.00	-0.95	48.64	6.18	33.75	35.52	173	217 VERTICAL	Average
3	5463.00	62.47	74.00	-11.53	58.07	6.18	33.75	35.53	173	217 VERTICAL	Peak
4	5467.00	52.41	54.00	-1.59	47.96	6.18	33.80	35.53	173	217 VERTICAL	Average
5	5579.00	117.30			112.52	6.25	34.00	35.47	173	217 VERTICAL	Peak
6	5582.00	110.75			105.96	6.26	34.00	35.47	173	217 VERTICAL	Average

Item 5, 6 are the fundamental frequency at 5580 MHz.

Channel 140

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		Freq	Line			Cable Loss	Antenna Factor	Preamp Factor			
1	5708.00	106.16			102.82	3.60	34.68	34.94	Average	155	0 VERTICAL
2	5708.00	115.55			112.21	3.60	34.68	34.94	Peak	155	0 VERTICAL
3	5725.00	53.93	54.00	-0.07	50.58	3.60	34.69	34.94	Average	155	0 VERTICAL
4	5725.00	67.54	74.00	-6.46	64.19	3.60	34.69	34.94	Peak	155	0 VERTICAL

Item 1, 2 are the fundamental frequency at 5700 MHz.



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 54, 62 / Chain 3 + Chain 4
Test Date	Aug. 14, 2014		

Channel 54

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		Line	dBm			Loss	Factor	Factor			
1	5265.80	106.29			103.47	3.46	34.27	34.91	Average	100	12 VERTICAL
2	5267.60	117.43			114.61	3.46	34.27	34.91	Peak	100	12 VERTICAL
3	5350.00	53.59	54.00	-0.41	50.62	3.49	34.39	34.91	Average	100	12 VERTICAL
4	5352.40	66.21	74.00	-7.79	63.24	3.49	34.39	34.91	Peak	100	12 VERTICAL

Item 1, 2 are the fundamental frequency at 5270 MHz.

Channel 62

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		Line	dBm			Loss	Factor	Factor			
1	5306.20	106.07			102.20	6.09	33.25	35.47	168	256 VERTICAL	Peak
2	5306.60	101.23			97.36	6.09	33.25	35.47	168	256 VERTICAL	Average
3	5350.00	53.10	54.00	-0.90	49.08	6.11	33.40	35.49	168	256 VERTICAL	Average
4	5350.40	60.95	74.00	-13.05	56.93	6.11	33.40	35.49	168	256 VERTICAL	Peak

Item 1, 2 are the fundamental frequency at 5310 MHz.

Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 102, 110, 134 / Chain 3 + Chain 4
Test Date	Aug. 14, 2014		

Channel 102

Freq	Level	Limit		Over Limit	Read Level	Cable			Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			dB	dBuV	dB						
MHz														
1	5460.00	50.30	54.00	-3.70	47.17	3.52	34.53	34.92	Average		143	286	VERTICAL	
2	5460.00	62.26	74.00	-11.74	59.13	3.52	34.53	34.92	Peak		143	286	VERTICAL	
3	5469.40	68.00	68.20	-0.20	64.85	3.52	34.55	34.92	Peak		143	286	VERTICAL	
4	5505.20	112.65			109.43	3.54	34.60	34.92	Peak		143	286	VERTICAL	
5	5506.40	101.32			98.10	3.54	34.60	34.92	Average		143	286	VERTICAL	

Item 4, 5 are the fundamental frequency at 5510 MHz.

Channel 110

Freq	Level	Limit		Over Limit	Read Level	Cable			Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			dB	dBuV	dB						
MHz														
1	5456.80	65.79	74.00	-8.21	62.66	3.52	34.53	34.92	Peak		161	0	VERTICAL	
2	5460.00	52.77	54.00	-1.23	49.64	3.52	34.53	34.92	Average		161	0	VERTICAL	
3	5466.00	53.97	54.00	-0.03	50.82	3.52	34.55	34.92	Average		161	0	VERTICAL	
4	5469.20	68.71	74.00	-5.29	65.56	3.52	34.55	34.92	Peak		161	0	VERTICAL	
5	5534.80	117.19			113.95	3.55	34.61	34.92	Peak		161	0	VERTICAL	
6	5545.20	106.85			103.61	3.55	34.61	34.92	Average		161	0	VERTICAL	

Item 5, 6 are the fundamental frequency at 5550 MHz.

Channel 134

Freq	Level	Limit		Over Limit	Read Level	Cable			Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
		Line	dBuV/m			dB	dBuV	dB						
MHz														
1	5653.00	103.29			98.32	6.30	34.08	35.41		202	254	VERTICAL	Average	
2	5657.00	108.64			103.63	6.31	34.10	35.40		202	254	VERTICAL	Peak	
3	5725.00	63.46	74.00	-10.54	58.27	6.35	34.18	35.34		202	254	VERTICAL	Peak	
4	5733.00	53.36	54.00	-0.64	48.15	6.36	34.18	35.33		202	254	VERTICAL	Average	

Item 1, 2 are the fundamental frequency at 5670 MHz.



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 58 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Channel 58

Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
		Line	Limit	Level	Loss	Factor	Factor				
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5274.40	101.66		97.90	6.07	33.15	35.46	159	138	VERTICAL	Peak
2	5299.00	93.29		89.43	6.08	33.25	35.47	159	138	VERTICAL	Average
3	5350.00	53.11	54.00 -0.89	49.09	6.11	33.40	35.49	159	138	VERTICAL	Average
4	5350.00	61.18	74.00 -12.82	57.16	6.11	33.40	35.49	159	138	VERTICAL	Peak

Item 1, 2 are the fundamental frequency at 5290 MHz.



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 106, 122, 138/ Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Channel 106

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
		Line	dBm			Loss	Factor	Factor	cm	deg		
1	5458.80	61.48	74.00	-12.52	57.08	6.18	33.75	35.53	160	139	VERTICAL	Peak
2	5460.00	50.65	54.00	-3.35	46.25	6.18	33.75	35.53	160	139	VERTICAL	Average
3	5466.70	61.95	74.00	-12.05	57.50	6.18	33.80	35.53	160	139	VERTICAL	Peak
4	5469.40	53.04	54.00	-0.96	48.59	6.18	33.80	35.53	160	139	VERTICAL	Average
5	5515.90	103.53			98.93	6.21	33.92	35.53	160	139	VERTICAL	Peak
6	5541.10	93.08			88.41	6.23	33.94	35.50	160	139	VERTICAL	Average

Item 5, 6 are the fundamental frequency at 5530 MHz.

Channel 122

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
		Line	dBm			Loss	Factor	Factor	cm	deg		
1	5574.00	109.17			104.41	6.25	33.98	35.47	192	317	VERTICAL	Peak
2	5616.60	99.74			94.86	6.28	34.04	35.44	192	317	VERTICAL	Average
3	5726.20	53.18	54.00	-0.82	47.99	6.35	34.18	35.34	192	317	VERTICAL	Average
4	5726.20	62.81	74.00	-11.19	57.62	6.35	34.18	35.34	192	317	VERTICAL	Peak

Item 1, 2 are the fundamental frequency at 5610 MHz

Channel 138

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
		Line	dBm			Loss	Factor	Factor	cm	deg		
1	5460.00	49.33	54.00	-4.67	44.93	6.18	33.75	35.53	194	323	VERTICAL	Average
2	5460.00	60.67	74.00	-13.33	56.27	6.18	33.75	35.53	194	323	VERTICAL	Peak
3	5470.00	49.17	54.00	-4.83	44.72	6.18	33.80	35.53	194	323	VERTICAL	Average
4	5470.00	60.56	74.00	-13.44	56.11	6.18	33.80	35.53	194	323	VERTICAL	Peak
5	5659.00	101.33			96.32	6.31	34.10	35.40	194	323	VERTICAL	Average
6	5664.00	114.61			109.60	6.31	34.10	35.40	194	323	VERTICAL	Peak
7	5850.00	65.60	74.00	-8.40	59.80	6.43	34.60	35.23	194	323	VERTICAL	Peak
8	5852.00	53.11	54.00	-0.89	47.30	6.44	34.60	35.23	194	323	VERTICAL	Average

Note:

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

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

For 5GHz Band : Ant. 3

Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 52, 60, 64 / Chain 3 + Chain 4
Test Date	Aug. 15, 2014		

Channel 52

Freq	Level	Limit		Over Limit	Read Level	Cable			Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			dB	dBuV	dB						
MHz												cm	deg	
1	5041.00	53.25	54.00	-0.75	50.78	3.40	33.97	34.90	Average			177	18	HORIZONTAL
2	5139.00	62.79	74.00	-11.21	60.18	3.43	34.09	34.91	Peak			177	18	HORIZONTAL
3	5258.00	106.69			103.89	3.46	34.25	34.91	Average			177	18	HORIZONTAL
4	5265.00	117.67			114.85	3.46	34.27	34.91	Peak			177	18	HORIZONTAL

Item 3, 4 are the fundamental frequency at 5260 MHz.

Channel 60

Freq	Level	Limit		Over Limit	Read Level	Cable			Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			dB	dBuV	dB						
MHz												cm	deg	
1	5079.00	53.29	54.00	-0.71	50.76	3.41	34.02	34.90	Average			177	17	HORIZONTAL
2	5080.00	62.41	74.00	-11.59	59.88	3.41	34.02	34.90	Peak			177	17	HORIZONTAL
3	5299.00	118.38			115.49	3.48	34.32	34.91	Peak			177	17	HORIZONTAL
4	5302.00	107.93			105.04	3.48	34.32	34.91	Average			177	17	HORIZONTAL

Item 3, 4 are the fundamental frequency at 5300 MHz.

Channel 64

Freq	Level	Limit		Over Limit	Read Level	Cable			Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			dB	dBuV	dB						
MHz												cm	deg	
1	5098.00	53.77	54.00	-0.23	51.21	3.42	34.04	34.90	Average			177	14	HORIZONTAL
2	5098.00	63.44	74.00	-10.56	60.88	3.42	34.04	34.90	Peak			177	14	HORIZONTAL
3	5317.00	106.48			103.57	3.48	34.34	34.91	Average			177	14	HORIZONTAL
4	5317.00	117.35			114.44	3.48	34.34	34.91	Peak			177	14	HORIZONTAL
5	5350.00	65.60	74.00	-8.40	62.63	3.49	34.39	34.91	Peak			177	14	HORIZONTAL
6	5439.00	52.39	54.00	-1.61	49.28	3.52	34.51	34.92	Average			177	14	HORIZONTAL

Item 3, 4 are the fundamental frequency at 5320 MHz.



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 100, 116, 140 / Chain 3 + Chain 4
Test Date	Aug. 15, 2014		

Channel 100

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	dB			dBuV	dB	dB/m		cm	deg	
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	cm	deg	
1	5041.00	53.80	54.00	-0.20	51.33	3.40	33.97	34.90	Average	174	14	VERTICAL
2	5042.00	63.54	74.00	-10.46	61.07	3.40	33.97	34.90	Peak	174	14	VERTICAL
3	5388.00	52.58	54.00	-1.42	49.56	3.50	34.44	34.92	Average	174	14	VERTICAL
4	5388.00	64.30	74.00	-9.70	61.28	3.50	34.44	34.92	Peak	174	14	VERTICAL
5	5470.00	49.74	54.00	-4.26	46.59	3.52	34.55	34.92	Average	174	14	VERTICAL
6	5470.00	62.44	74.00	-11.56	59.29	3.52	34.55	34.92	Peak	174	14	VERTICAL
7	5497.00	113.64			110.43	3.53	34.60	34.92	Peak	174	14	VERTICAL
8	5499.00	104.90			101.69	3.53	34.60	34.92	Average	174	14	VERTICAL

Item 7, 8 are the fundamental frequency at 5500 MHz.

Channel 116

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	dB			dBuV	dB	dB/m		cm	deg	
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	cm	deg	
1	5114.00	53.87	54.00	-0.13	51.29	3.42	34.06	34.90	Average	174	21	HORIZONTAL
2	5114.00	63.73	74.00	-10.27	61.15	3.42	34.06	34.90	Peak	174	21	HORIZONTAL
3	5577.00	106.00			102.75	3.55	34.63	34.93	Average	174	21	HORIZONTAL
4	5582.00	115.56			112.30	3.56	34.63	34.93	Peak	174	21	HORIZONTAL

Item 3, 4 are the fundamental frequency at 5580 MHz.

Channel 140

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase
		Line	dB			dBuV	dB	dB/m		cm	deg	
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	cm	deg	
1	5692.00	105.89			102.56	3.59	34.68	34.94	Average	174	17	HORIZONTAL
2	5699.00	116.72			113.39	3.59	34.68	34.94	Peak	174	17	HORIZONTAL
3	5725.00	53.57	54.00	-0.43	50.22	3.60	34.69	34.94	Average	174	17	HORIZONTAL
4	5725.00	67.72	74.00	-6.28	64.37	3.60	34.69	34.94	Peak	174	17	HORIZONTAL

Item 1, 2 are the fundamental frequency at 5700 MHz.



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 54, 62 / Chain 3 + Chain 4
Test Date	Aug. 15, 2014		

Channel 54

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			Cable Loss	Antenna Factor	Preamp Factor			
1	5254.00	117.27			114.47	3.46	34.25	34.91	Peak	180	14 HORIZONTAL
2	5261.00	107.92			105.10	3.46	34.27	34.91	Average	180	14 HORIZONTAL
3	5352.00	65.42	74.00	-8.58	62.45	3.49	34.39	34.91	Peak	180	14 HORIZONTAL
4	5388.00	53.86	54.00	-0.14	50.84	3.50	34.44	34.92	Average	180	14 HORIZONTAL

Item 1, 2 are the fundamental frequency at 5270 MHz.

Channel 62

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			Cable Loss	Antenna Factor	Preamp Factor			
1	5301.00	100.30			97.41	3.48	34.32	34.91	Average	180	17 HORIZONTAL
2	5302.00	110.94			108.05	3.48	34.32	34.91	Peak	180	17 HORIZONTAL
3	5350.00	53.34	54.00	-0.66	50.37	3.49	34.39	34.91	Average	180	17 HORIZONTAL
4	5350.00	66.68	74.00	-7.32	63.71	3.49	34.39	34.91	Peak	180	17 HORIZONTAL

Item 1, 2 are the fundamental frequency at 5310 MHz.



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 102, 110, 134 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Channel 102

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			Cable Loss	Antenna Factor	Preamp Factor			
1	5458.80	63.90	74.00	-10.10	60.77	3.52	34.53	34.92	Peak	180	18 HORIZONTAL
2	5460.00	49.43	54.00	-4.57	46.30	3.52	34.53	34.92	Average	180	18 HORIZONTAL
3	5468.20	66.92	68.20	-1.28	63.77	3.52	34.55	34.92	Peak	180	18 HORIZONTAL
4	5494.40	112.21			109.02	3.53	34.58	34.92	Peak	180	18 HORIZONTAL
5	5505.20	101.08			97.86	3.54	34.60	34.92	Average	180	18 HORIZONTAL

Item 4, 5 are the fundamental frequency at 5510 MHz.

Channel 110

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			Cable Loss	Antenna Factor	Preamp Factor			
1	5086.00	53.59	54.00	-0.41	51.06	3.41	34.02	34.90	Average	180	19 HORIZONTAL
2	5088.00	60.92	74.00	-13.08	58.39	3.41	34.02	34.90	Peak	180	19 HORIZONTAL
3	5546.00	105.55			102.31	3.55	34.61	34.92	Average	180	19 HORIZONTAL
4	5554.00	117.74			114.50	3.55	34.62	34.93	Peak	180	19 HORIZONTAL

Item 3, 4 are the fundamental frequency at 5550 MHz.

Channel 134

Freq	Level	Limit		Over Limit	Read Level	Cable Antenna Preamp			A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			Cable Loss	Antenna Factor	Preamp Factor			
1	5654.00	116.30			112.98	3.59	34.66	34.93	Peak	180	17 HORIZONTAL
2	5665.00	104.56			101.24	3.59	34.66	34.93	Average	180	17 HORIZONTAL
3	5777.00	53.02	54.00	-0.98	49.63	3.62	34.71	34.94	Average	180	17 HORIZONTAL
4	5785.00	65.29	74.00	-8.71	61.89	3.63	34.71	34.94	Peak	180	17 HORIZONTAL

Item 1, 2 are the fundamental frequency at 5670 MHz.



Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 58 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Channel 58

Freq	Level	Limit Line	Over Limit	Read Level	Cable	Antenna	Preamp	Remark	A/Pos	T/Pos	Pol/Phase	
					dB	dB	dB/m		cm	deg		
MHz	dBuV/m	dBuV/m										
1	5264.00	100.76		97.94	3.46	34.27	34.91	Average	180	22	HORIZONTAL	
2	5266.00	109.60		106.78	3.46	34.27	34.91	Peak	180	22	HORIZONTAL	
3	5350.00	53.68	54.00	-0.32	50.71	3.49	34.39	34.91	Average	180	22	HORIZONTAL
4	5350.00	65.46	74.00	-8.54	62.49	3.49	34.39	34.91	Peak	180	22	HORIZONTAL

Item 1, 2 are the fundamental frequency at 5290 MHz.

Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 106, 122, 138/ Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Channel 106

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			Loss	Factor	Factor			
MHz		dBuV/m	dBuV/m		dB	dBuV	dB	dB/m	dB	cm	deg
1	5459.00	66.69	74.00	-7.31	63.56	3.52	34.53	34.92	Peak	180	22 HORIZONTAL
2	5460.00	53.92	54.00	-0.08	50.79	3.52	34.53	34.92	Average	180	22 HORIZONTAL
3	5468.00	67.98	68.20	-0.22	64.83	3.52	34.55	34.92	Peak	180	22 HORIZONTAL
4	5498.00	109.21			106.00	3.53	34.60	34.92	Peak	180	22 HORIZONTAL
5	5499.00	101.47			98.26	3.53	34.60	34.92	Average	180	22 HORIZONTAL

Item 4, 5 are the fundamental frequency at 5530 MHz.

Channel 122

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			Loss	Factor	Factor			
MHz		dBuV/m	dBuV/m		dB	dBuV	dB	dB/m	dB	cm	deg
1	5575.50	103.04			98.26	6.25	34.00	35.47	192	0 HORIZONTAL	Average
2	5584.80	115.46			110.67	6.26	34.00	35.47	192	0 HORIZONTAL	Peak
3	5725.00	53.11	54.00	-0.89	47.92	6.35	34.18	35.34	192	0 HORIZONTAL	Average
4	5725.00	64.64	74.00	-9.36	59.45	6.35	34.18	35.34	192	0 HORIZONTAL	Peak

Item 1, 2 are the fundamental frequency at 5610 MHz

Channel 138

Freq	Level	Limit		Over Limit	Read Level	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase
		Line	dBuV/m			Loss	Factor	Factor			
MHz		dBuV/m	dBuV/m		dB	dBuV	dB	dB/m	dB	cm	deg
1	5460.00	49.86	54.00	-4.14	45.46	6.18	33.75	35.53	182	360 HORIZONTAL	Average
2	5460.00	60.95	74.00	-13.05	56.55	6.18	33.75	35.53	182	360 HORIZONTAL	Peak
3	5470.00	49.71	54.00	-4.29	45.26	6.18	33.80	35.53	182	360 HORIZONTAL	Average
4	5470.00	61.87	74.00	-12.13	57.42	6.18	33.80	35.53	182	360 HORIZONTAL	Peak
5	5661.00	115.73			110.72	6.31	34.10	35.40	182	360 HORIZONTAL	Peak
6	5679.00	105.37			100.31	6.32	34.12	35.38	182	360 HORIZONTAL	Average
7	5851.00	53.67	54.00	-0.33	47.87	6.43	34.60	35.23	182	360 HORIZONTAL	Average
8	5869.00	64.09	74.00	-9.91	58.19	6.45	34.67	35.22	182	360 HORIZONTAL	Peak

Item 5, 6 are the fundamental frequency at 5690 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

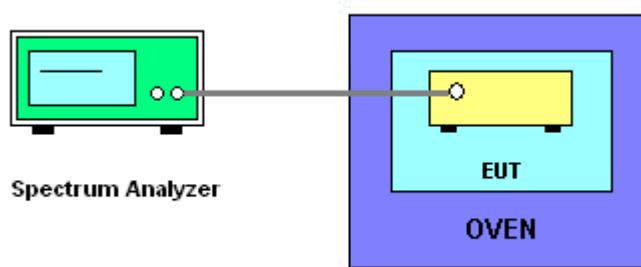
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

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 $(fc-f)/fc \times 10^6$ ppm and the limit is less than ± 20 ppm (IEEE 802.11n specification).
6. The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value
7. Extreme temperature is -40°C~55°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	26°C	Humidity	63%
Test Engineer	Jim Huang	Test Date	Sep. 10, 2014

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)	
(V)	5300 MHz	5500 MHz
126.50	5299.9964	5499.9944
110.00	5300.0008	5500.0058
93.50	5300.0066	5500.0132
Max. Deviation (MHz)	0.006600	0.013200
Max. Deviation (ppm)	1.25	2.40

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)	
(°C)	5300 MHz	5500 MHz
-40	5299.9764	5499.9732
-30	5299.9812	5499.9812
-20	5299.9834	5499.9908
-10	5299.9902	5499.9954
0	5299.9956	5499.9976
10	5299.9984	5500.0004
20	5300.0008	5500.0058
30	5300.0032	5500.0072
40	5300.0094	5500.0124
55	5300.0138	5500.0188
Max. Deviation (MHz)	0.023600	0.026800
Max. Deviation (ppm)	4.45	4.87



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. 23, 2014	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150kHz ~ 100MHz	Nov. 23, 2013	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Nov. 23, 2013	Conduction (CO01-CB)
COND Cable	Woken	Cable	01	150kHz ~ 30MHz	Dec. 04, 2013	Conduction (CO01-CB)
Software	Audix	E3	5.410e	-	N.C.R.	Conduction (CO01-CB)
BILOG ANTENNA	Schaffner	CBL6112D	22021	20MHz ~ 2GHz	May 26, 2014	Radiation (03CH01-CB)
Loop Antenna	Teseq	HLA 6120	24155	9 kHz - 30 MHz	Nov. 05, 2012*	Radiation (03CH01-CB)
Horn Antenna	EMCO	3115	00075790	750MHz~18GHz	Nov. 01, 2013	Radiation (03CH01-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Aug. 22, 2014	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8447D	2944A10991	0.1MHz ~ 1.3GHz	Nov. 12, 2013	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Dec. 16, 2013	Radiation (03CH01-CB)
Pre-Amplifier	WM	TF-130N-R1	923365	26GHz ~ 40GHz	Oct. 23, 2013	Radiation (03CH01-CB)
Spectrum analyzer	R&S	FSP40	100019	9kHz~40GHz	Dec. 02, 2013	Radiation (03CH01-CB)
EMI Test Receiver	Agilent	N9038A	MY52260123	9kHz ~ 8GHz	Dec. 12, 2013	Radiation (03CH01-CB)
Turn Table	INN CO	CO 2000	N/A	0 ~ 360 degree	N.C.R.	Radiation (03CH01-CB)
Antenna Mast	INN CO	CO 2000	N/A	1 m - 4 m	N.C.R.	Radiation (03CH01-CB)
RF Cable-low	Woken	Low Cable-1	N/A	30 MHz - 1 GHz	Nov. 17, 2013	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-1	N/A	1 GHz – 26.5 GHz	Nov. 17, 2013	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-2	N/A	1 GHz – 26.5 GHz	Nov. 17, 2013	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-3	N/A	1 GHz - 40 GHz	Nov. 17, 2013	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-4	N/A	1 GHz - 40 GHz	Nov. 17, 2013	Radiation (03CH01-CB)
Signal analyzer	R&S	FSV40	100979	9kHz~40GHz	Nov. 29, 2013	Conducted (TH01-CB)
Signal analyzer	Agilent	N9010A	MY52220519	10Hz~44GHz	Dec. 11, 2013	Conducted (DF02)
Temp. and Humidity Chamber	Ten Billion	TTH-D3SP	TBN-931011	-30~100 degree	Jun. 03, 2014	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-7	-	1 GHz – 26.5 GHz	Nov. 17, 2013	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-8	-	1 GHz – 26.5 GHz	Nov. 17, 2013	Conducted (TH01-CB)



Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
RF Cable-high	Woken	High Cable-9	-	1 GHz – 26.5 GHz	Nov. 17, 2013	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-10	-	1 GHz – 26.5 GHz	Nov. 17, 2013	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-11	-	1 GHz – 26.5 GHz	Nov. 17, 2013	Conducted (TH01-CB)
Power Sensor	Agilent	E9327A	US40442088	50MHz~18GHz	Dec. 02, 2013	Conducted (TH01-CB)
Power Meter	Agilent	E4416A	GB41291199	50MHz~18GHz	Dec. 02, 2013	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)	2.4 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%