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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	5150 ~ 5250MHz / 5725 ~ 5850 MHz
Received Date	Jul. 22, 2014
Final Test Date	Nov. 11, 2014
Submission Type	Original Equipment

Statement

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

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

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

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

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

Testing Laboratory
1190

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History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR472301AB	Rev. 01	Initial issue of report	Nov. 03, 2014
FR472301AB	Rev. 02	Re-test 99% Occupied Bandwidth of Band 4.	Nov. 12, 2014

Certificate No.: CB10310162

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

Sporton 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.

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(e)	6dB Spectrum Bandwidth and 99% Occupied Bandwidth	Complies	-
4.4	15.407(a)	Maximum Conducted Output Power	Complies	0.08 dB
0	15.407(a)	Power Spectral Density	Complies	1.29 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	5150 ~ 5250MHz / 5725 ~ 5850 MHz
Channel Number	9 for 20MHz bandwidth ; 4 for 40MHz bandwidth 2 for 80MHz bandwidth
Channel Band Width (99%)	**<For Non-Beamforming Mode>** **For 5GHz Band: Ant. 2** Band 1: 802.11ac MCS0/Nss1 (VHT20): 27.30 MHz ; 802.11ac MCS0/Nss1 (VHT40): 37.17 MHz ; 802.11ac MCS0/Nss1 (VHT80): 75.89 MHz Band 4: 802.11ac MCS0/Nss1 (VHT20): 19.02 MHz ; 802.11ac MCS0/Nss1 (VHT40): 36.48 MHz ; 802.11ac MCS0/Nss1 (VHT80): 76.32 MHz **For 5GHz Band: Ant. 3** Band 1: 802.11ac MCS0/Nss1 (VHT20): 18.07 MHz ; 802.11ac MCS0/Nss1 (VHT40): 36.41 MHz ; 802.11ac MCS0/Nss1 (VHT80): 75.89 MHz Band 4: 802.11ac MCS0/Nss1 (VHT20): 18.12 MHz ; 802.11ac MCS0/Nss1 (VHT40): 36.60 MHz ; 802.11ac MCS0/Nss1 (VHT80): 76.08 MHz

Channel Band Width (99%)	<For Beamforming Mode> For 5GHz Band: Ant. 2 Band 1: 802.11ac MCS0/Nss1 (VHT20): 18.46 MHz ; 802.11ac MCS0/Nss1 (VHT40): 36.92 MHz ; 802.11ac MCS0/Nss1 (VHT80): 75.89 MHz Band 4: 802.11ac MCS0/Nss1 (VHT20): 18.12 MHz ; 802.11ac MCS0/Nss1 (VHT40): 36.96 MHz ; 802.11ac MCS0/Nss1 (VHT80): 76.08 MHz For 5GHz Band: Ant. 3 Band 1: 802.11ac MCS0/Nss1 (VHT20): 17.94 MHz ; 802.11ac MCS0/Nss1 (VHT40): 36.41 MHz ; 802.11ac MCS0/Nss1 (VHT80): 75.89 MHz Band 4: 802.11ac MCS0/Nss1 (VHT20): 18.00 MHz ; 802.11ac MCS0/Nss1 (VHT40): 36.84 MHz ; 802.11ac MCS0/Nss1 (VHT80): 76.08 MHz
Maximum Conducted Output Power	<For Non-Beamforming Mode> For 5GHz Band: Ant. 2 Band 1: 802.11ac MCS0/Nss1 (VHT20): 25.19 dBm ; 802.11ac MCS0/Nss1 (VHT40): 24.44 dBm ; 802.11ac MCS0/Nss1 (VHT80): 19.52 dBm Band 4: 802.11ac MCS0/Nss1 (VHT20): 26.29 dBm ; 802.11ac MCS0/Nss1 (VHT40): 19.87 dBm ; 802.11ac MCS0/Nss1 (VHT80): 14.53 dBm For 5GHz Band: Ant. 3 Band 1: 802.11ac MCS0/Nss1 (VHT20): 20.22 dBm ; 802.11ac MCS0/Nss1 (VHT40): 20.81 dBm ; 802.11ac MCS0/Nss1 (VHT80): 12.77 dBm Band 4: 802.11ac MCS0/Nss1 (VHT20): 19.76 dBm ; 802.11ac MCS0/Nss1 (VHT40): 18.28 dBm ; 802.11ac MCS0/Nss1 (VHT80): 13.81 dBm

Maximum Conducted Output Power	<For Beamforming Mode> For 5GHz Band: Ant. 2 Band 1: 802.11ac MCS0/Nss1 (VHT20): 22.07dBm ; 802.11ac MCS0/Nss1 (VHT40): 22.09dBm ; 802.11ac MCS0/Nss1 (VHT80): 19.52 dBm Band 4: 802.11ac MCS0/Nss1 (VHT20): 24.17 dBm ; 802.11ac MCS0/Nss1 (VHT40): 19.68 dBm ; 802.11ac MCS0/Nss1 (VHT80): 14.91 dBm For 5GHz Band: Ant. 3 Band 1: 802.11ac MCS0/Nss1 (VHT20): 17.47 dBm ; 802.11ac MCS0/Nss1 (VHT40): 20.81 dBm ; 802.11ac MCS0/Nss1 (VHT80): 12.77 dBm Band 4: 802.11ac MCS0/Nss1 (VHT20): 19.40 dBm ; 802.11ac MCS0/Nss1 (VHT40): 17.65 dBm ; 802.11ac MCS0/Nss1 (VHT80): 13.19 dBm
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	5150 ~ 5250MHz / 5725 ~ 5850 MHz
Channel Number	9
Channel Band Width (99%)	**<For Non-Beamforming Mode>** **For 5GHz Band: Ant. 2** Band 1: 28.71 MHz ; Band 4: 24.18 MHz **For 5GHz Band: Ant. 3** Band 1: 17.17 MHz ; Band 4: 17.04 MHz
Maximum Conducted Output Power	**<For Non-Beamforming Mode>** **For 5GHz Band: Ant. 2** Band 1: 24.91 dBm ; Band 4: 24.52 dBm **For 5GHz Band: Ant. 3** Band 1: 17.54 dBm ; Band 4: 17.09 dBm
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

Items	Description	
Communication Mode	☒ IP Based (Load Based)	☐ Frame Based
Beamforming Function	☒ With beamforming in 802.11n/ac for 2.4G/5GHz	☐ Without beamforming
Operating Mode	☒ Outdoor access point	
	☐ Indoor access point	
	☒ Fixed point-to-point access points	
	☐ 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.

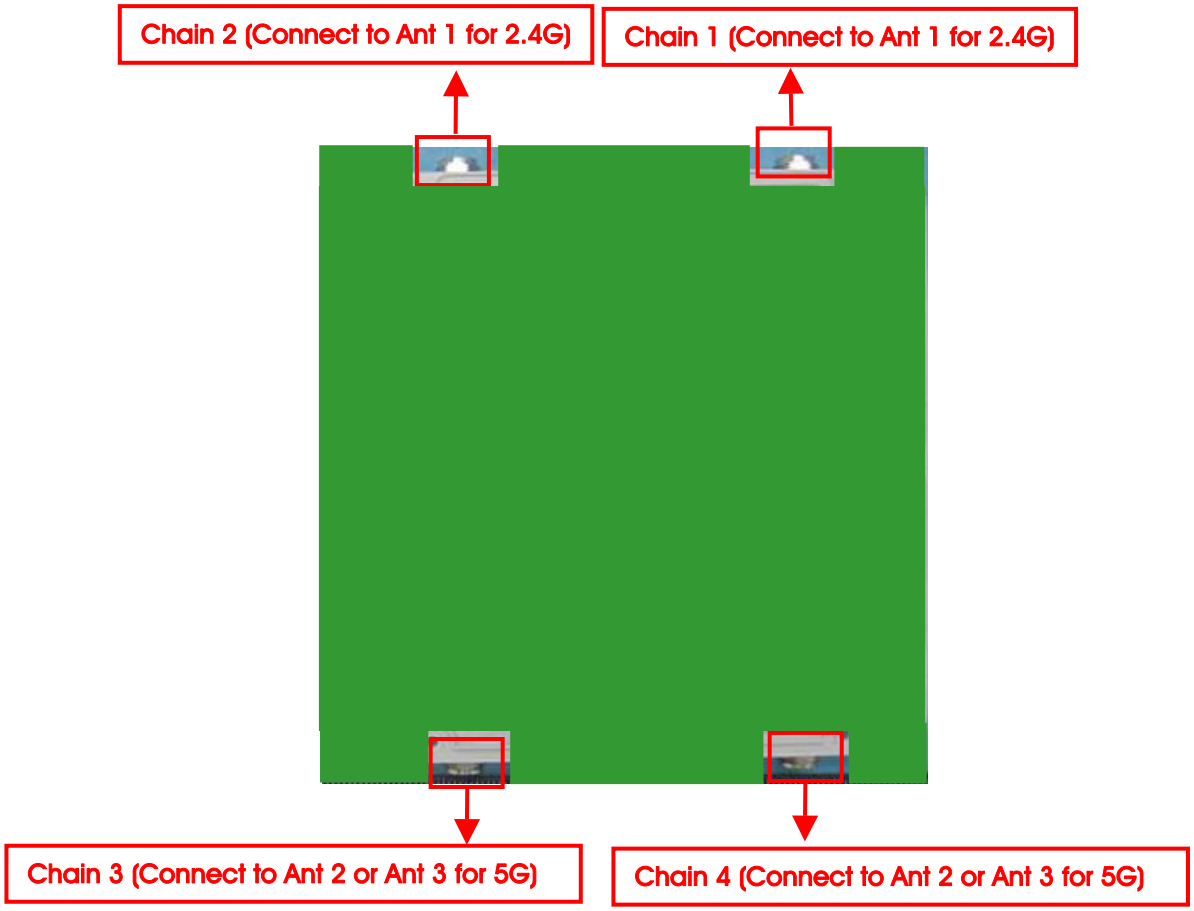
<For 5GHz Band>

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.


Chain 2 (Connect to Ant 1 for 2.4G)
Chain 1 (Connect to Ant 1 for 2.4G)
Chain 3 (Connect to Ant 2 or Ant 3 for 5G)
Chain 4 (Connect to Ant 2 or Ant 3 for 5G)

3.4. Table for Carrier Frequencies

There are three bandwidth systems.

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

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

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

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

3.5. Table for Test Modes

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

Test Items	Mode		Data Rate	Channel	Chain
AC Power Conducted Emission	Normal Link		-	-	-
Max. Conducted Output Power	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	3+4
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/134/151/159	3+4
	11ac VHT80	Band 1&4	MCS0/Nss1	42//138/155	3+4
	11a/BPSK	Band 1&4	6Mbps	36/40/48/149/157/165	3
Power Spectral Density	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	3+4
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/134/151/159	3+4
	11ac VHT80	Band 1&4	MCS0/Nss1	42//138/155	3+4
	11a/BPSK	Band 1&4	6Mbps	36/40/48/149/157/165	3
26dB&6dB Spectrum Bandwidth 99% Occupied Bandwidth Measurement	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	3+4
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/134/151/159	3+4
	11ac VHT80	Band 1&4	MCS0/Nss1	42//138/155	3+4
	11a/BPSK	Band 1&4	6Mbps	36/40/48/149/157/165	3
Radiated Emission Below 1GHz	Normal Link		-	-	-
Radiated Emission Above 1GHz	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	3+4
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/134/151/159	3+4
	11ac VHT80	Band 1&4	MCS0/Nss1	42//138/155	3+4
	11a/BPSK	Band 1&4	6Mbps	36/40/48/149/157/165	3
Band Edge Emission	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	3+4
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/134/151/159	3+4
	11ac VHT80	Band 1&4	MCS0/Nss1	42//138/155	3+4
	11a/BPSK	Band 1&4	6Mbps	36/40/48/149/157/165	3
Frequency Stability	Un-modulation		-	40	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					
Address:	No.8, Lane 724, Bo-ai St., Jhubei City, Hsinchu County 302, Taiwan, R.O.C.				
TEL:	886-3-656-9065				
FAX:	886-3-656-9085				
Test Site No.	**Site Category**	**Location**	**FCC Reg. No.**	**IC File No.**	**VCCI Reg. No**
03CH01-CB	SAC	Hsin Chu	262045	IC 4086D	-
CO01-CB	Conduction	Hsin Chu	262045	IC 4086D	-
TH01-CB	OVEN Room	Hsin Chu	-	-	-

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

3.7. Table for 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 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	5180 MHz	5200 MHz	5240 MHz	
MCS0/Nss1 VHT20	78	87	87	
Frequency	5720MHz	5745 MHz	5785 MHz	5825 MHz
MCS0/Nss1 VHT20	77	66	92	72

Power Parameters of IEEE 802.11ac MCS0/Nss1 VHT40

Test Software Version	Putty ver 0.62.0.0				
Frequency	5190 MHz	5230 MHz	5710 MHz	5755 MHz	5795 MHz
MCS0/Nss1 VHT40	66	84	85	51	68

Power Parameters of IEEE 802.11ac MCS0/Nss1 VHT80

Test Software Version	Putty ver 0.62.0.0			
Frequency	5210 MHz	5610 MHz	5690 MHz	5775 MHz
MCS0/Nss1 VHT80	67	74	83	46

Power Parameters of IEEE 802.11a

Test Software Version	Putty ver 0.62.0.0			
Frequency	5180 MHz	5200 MHz	5240 MHz	
802.11a	91	95	96	
Frequency	5720MHz	5745 MHz	5785 MHz	5825 MHz
802.11a	96	71	96	78

For 5GHz Band: Ant. 3

Power Parameters of IEEE 802.11ac MCS0/Nss1 VHT20

Test Software Version	Putty ver 0.62.0.0			
Frequency	5180 MHz	5200 MHz	5240 MHz	
MCS0/Nss1 VHT20	68	68	60	
Frequency	5720MHz	5745 MHz	5785 MHz	5825 MHz
MCS0/Nss1 VHT20	27	56	68	61

Power Parameters of IEEE 802.11ac MCS0/Nss1 VHT40

Test Software Version	Putty ver 0.62.0.0				
Frequency	5190 MHz	5230 MHz	5710 MHz	5755 MHz	5795 MHz
MCS0/Nss1 VHT40	42	70	38	43	62

Power Parameters of IEEE 802.11ac MCS0/Nss1 VHT80

Test Software Version	Putty ver 0.62.0.0			
Frequency	5210 MHz	5610 MHz	5690 MHz	5775 MHz
MCS0/Nss1 VHT80	36	38	40	42

Power Parameters of IEEE 802.11a

Test Software Version	Putty ver 0.62.0.0			
Frequency	5180 MHz	5200 MHz	5240 MHz	
802.11a	68	68	60	
Frequency	5720MHz	5745 MHz	5785 MHz	5825 MHz
802.11a	52	60	68	63

<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	5180 MHz	5200 MHz	5240 MHz	
MCS0/Nss1 VHT20	74	86	86	
Frequency	5720MHz	5745 MHz	5785 MHz	5825 MHz
MCS0/Nss1 VHT20	76	61	84	66

Power Parameters of IEEE 802.11ac MCS0/Nss1 VHT40

Test Software Version	Putty ver 0.62.0.0				
Frequency	5190 MHz	5230 MHz	5710 MHz	5755 MHz	5795 MHz
MCS0/Nss1 VHT40	62	84	74	46	68

Power Parameters of IEEE 802.11ac MCS0/Nss1 VHT80

Test Software Version	Putty ver 0.62.0.0			
Frequency	5210 MHz	5610 MHz	5690 MHz	5775 MHz
MCS0/Nss1 VHT80	67	70	76	47

For 5GHz Band: Ant. 3

Power Parameters of IEEE 802.11ac MCS0/Nss1 VHT20

Test Software Version	Putty ver 0.62.0.0			
Frequency	5180 MHz	5200 MHz	5240 MHz	
MCS0/Nss1 VHT20	56	56	54	
Frequency	5720MHz	5745 MHz	5785 MHz	5825 MHz
MCS0/Nss1 VHT20	26	52	66	62

Power Parameters of IEEE 802.11ac MCS0/Nss1 VHT40

Test Software Version	Putty ver 0.62.0.0				
Frequency	5190 MHz	5230 MHz	5710 MHz	5755 MHz	5795 MHz
MCS0/Nss1 VHT40	42	70	25	42	60

Power Parameters of IEEE 802.11ac MCS0/Nss1 VHT80

Test Software Version	Putty ver 0.62.0.0			
Frequency	5210 MHz	5610 MHz	5690 MHz	5775 MHz
MCS0/Nss1 VHT80	36	26	28	40

3.9. 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%

3.10. Duty Cycle

For non-beamforming mode:

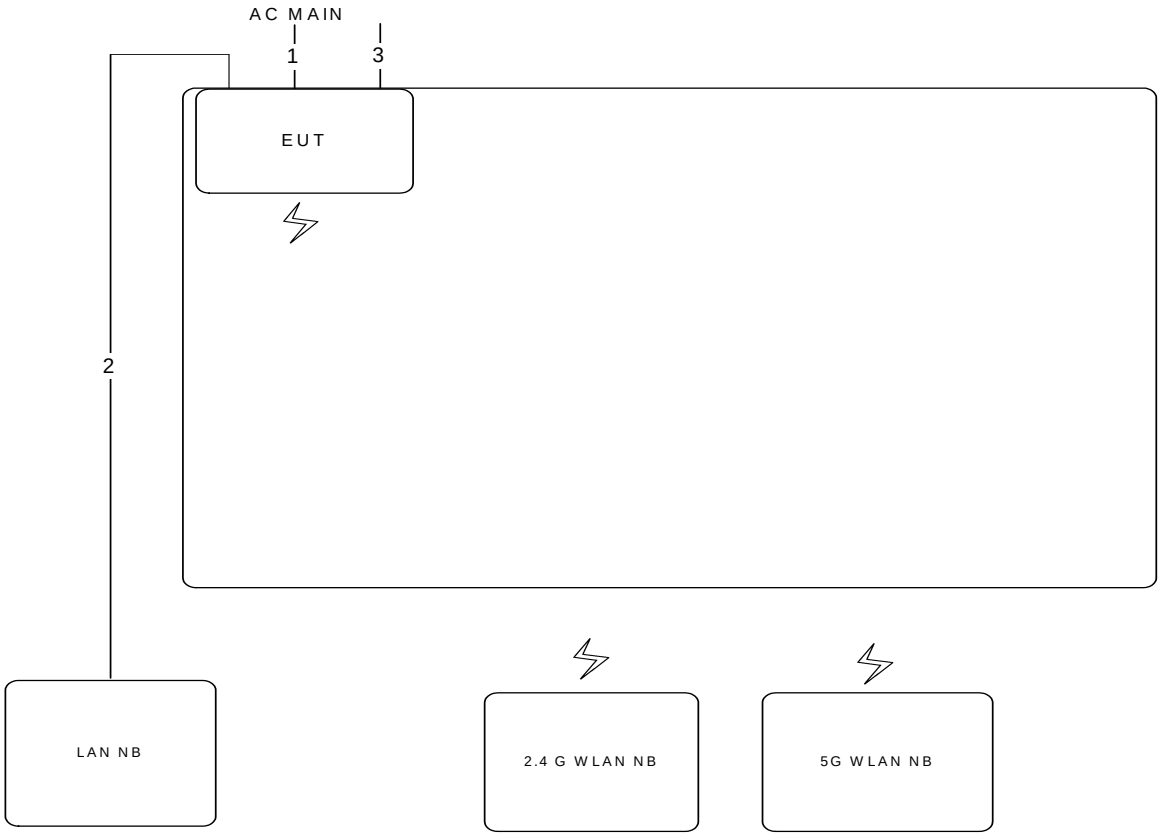
Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11ac MCS0/Nss1 VHT20	1.920	2.02	95.05%	0.22	0.52
802.11ac MCS0/Nss1 VHT40	0.940	1.05	89.52%	0.48	1.06
802.11ac MCS0/Nss1 VHT80	0.420	0.55	76.36%	1.17	2.38
802.11a	2.058	2.156	95.45%	0.20	0.49

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

3.11.Test Configurations

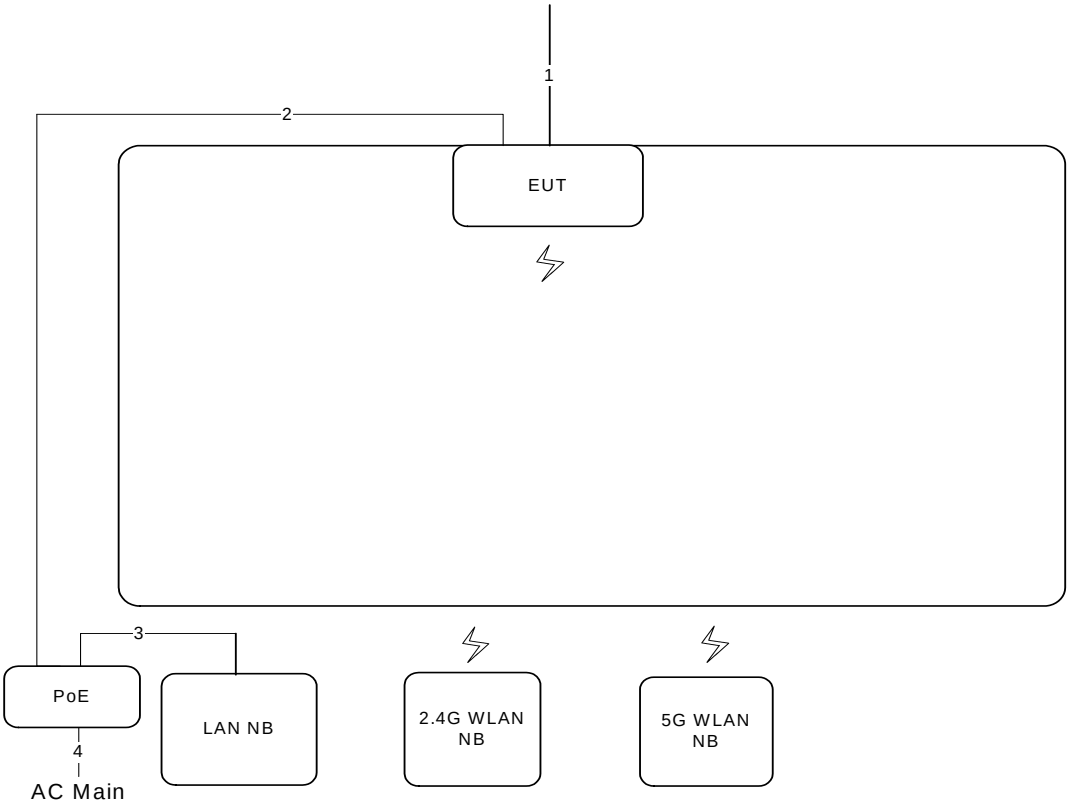
3.11.1. AC Power Line Conduction Emissions Test Configuration



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

3.11.2. Radiation Emissions Test Configuration

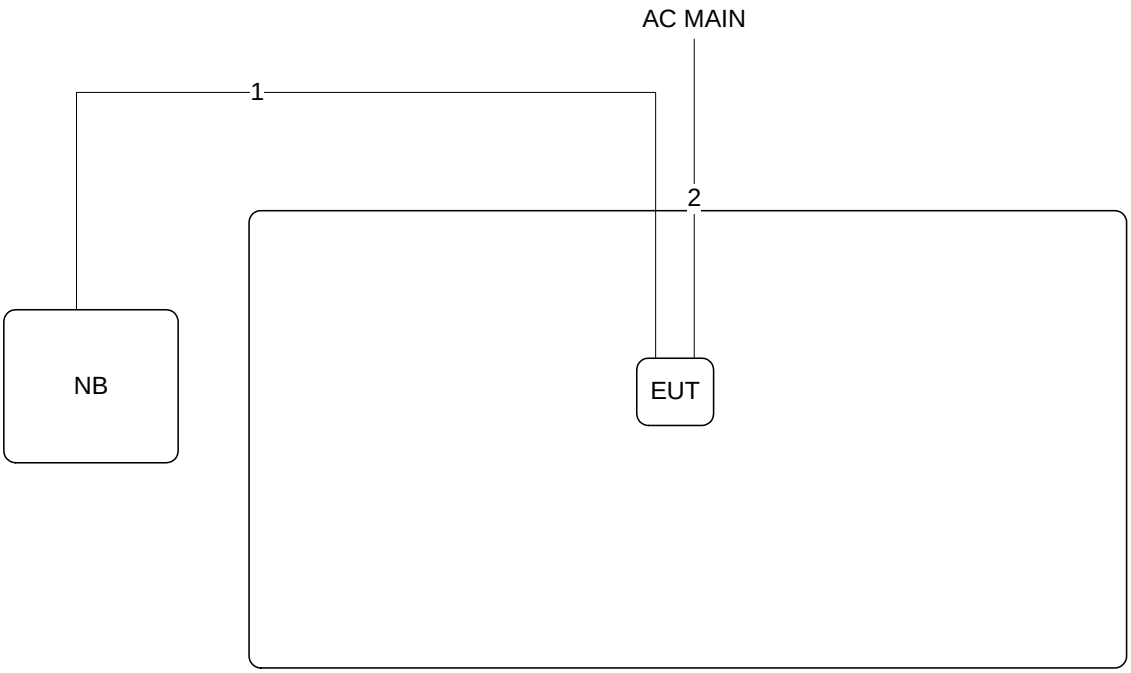
Test Configuration: 30MHz~1GHz



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

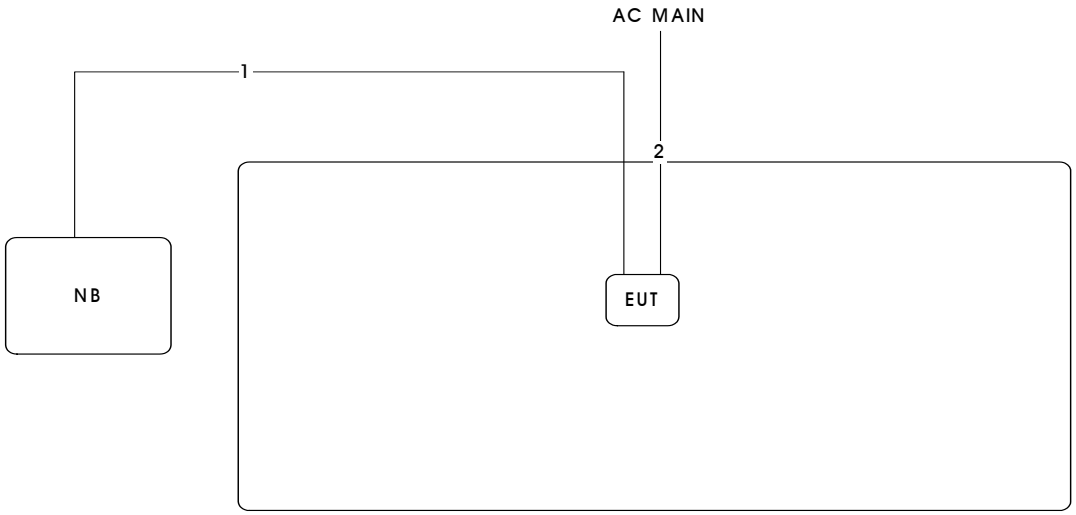
<For Non-Beamforming Mode>

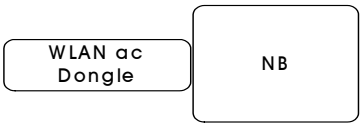


Item	Connection	Shielded	Length
1	RJ-45 cable	No	10m
2	Power cable	No	1.5m

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

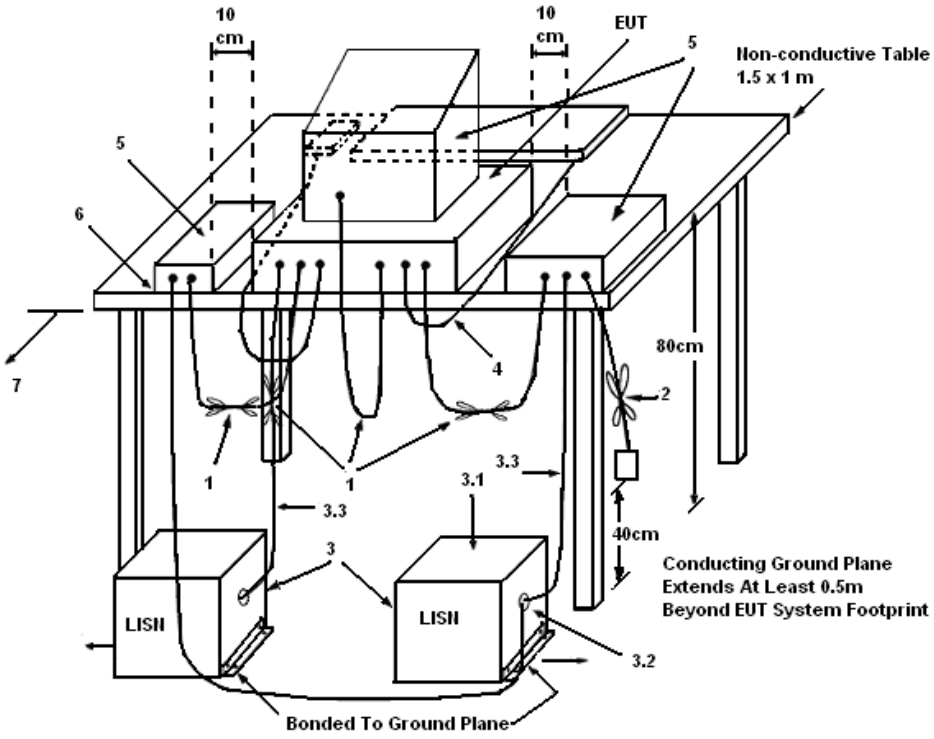
Please refer to section 5 of equipments list in this report. The following table is the setting of the receiver.

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 50 Ω. LISN can be placed on top of, or immediately beneath, reference ground plane.

(3.1) All other equipment powered from additional LISN(s).

(3.2) Multiple outlet strip can be used for multiple power cords of non-EUT equipment.

(3.3) LISN at least 80 cm from nearest part of EUT chassis.

(4) Cables of hand-operated devices, such as keyboards, mice, etc., shall be placed as for normal use.

(5) Non-EUT components of EUT system being tested.

(6) Rear of EUT, including peripherals, shall all be aligned and flush with rear of tabletop.

(7) Rear of tabletop shall be 40 cm removed from a vertical conducting plane that is bonded to the ground plane.

4.1.5. Test Deviation

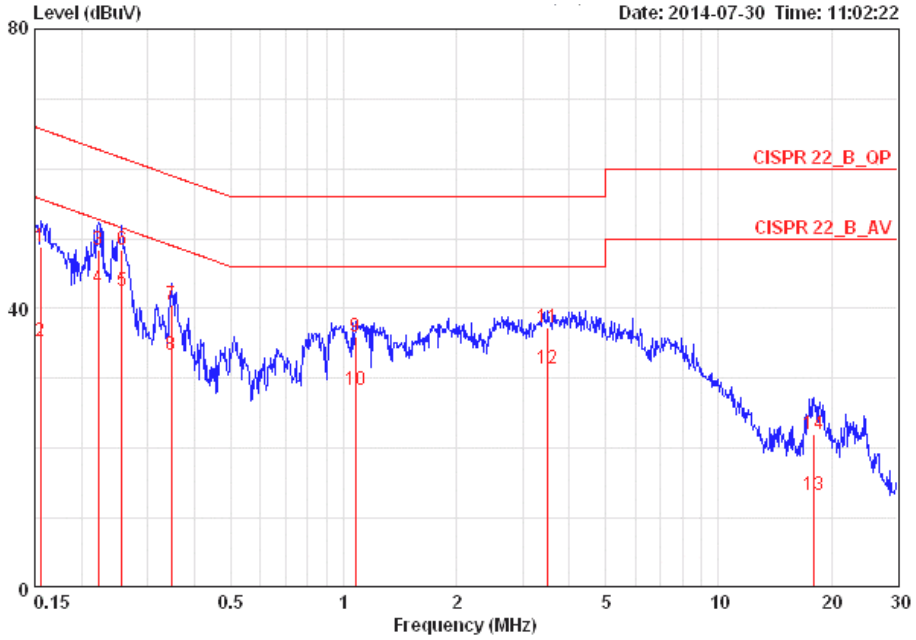
There is no deviation with the original standard.

4.1.6. EUT Operation during Test

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

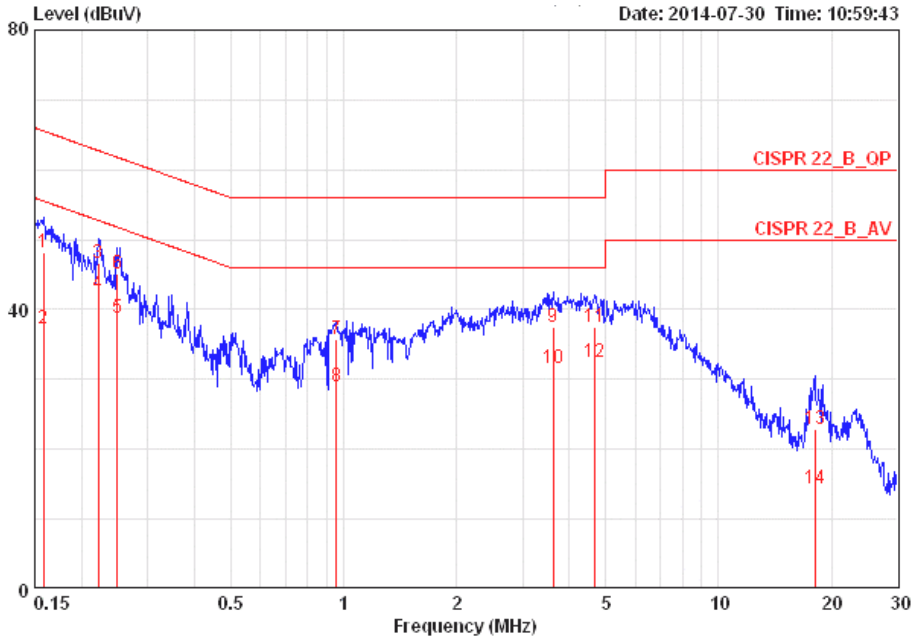
4.1.7. Results of AC Power Line Conducted Emissions Measurement

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



	Freq	Level	Over Limit	Limit Line	LISN Factor	Read Level	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dB	dBuV	dB		
1	0.15567	48.81	-16.88	65.69	0.10	48.55	0.16	LINE	QP
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	QP
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	QP
7	0.34646	40.45	-18.60	59.05	0.10	40.17	0.18	LINE	QP
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	QP
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	QP
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	QP

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



	Freq	Level	Over Limit	Limit Line	LISN Factor	Read Level	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dB	dBuV	dB		
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	≥ 3 x RBW
Detector	Peak
Trace	Max Hold

4.2.3. Test Procedures

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

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

4.2.4. Test Setup Layout

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

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

4.2.5. Test Deviation

There is no deviation with the original standard.

4.2.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

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

<For Non-Beamforming Mode>

Temperature	26℃	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)
36	5180 MHz	28.07	18.07
40	5200 MHz	41.15	23.58
48	5240 MHz	42.94	27.30

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

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
38	5190 MHz	38.97	36.15
46	5230 MHz	75.89	37.17

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

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
42	5210 MHz	82.56	75.89

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)
36	5180 MHz	20.38	17.94
40	5200 MHz	20.64	17.94
48	5240 MHz	20.38	18.07

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

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
38	5190 MHz	38.97	36.41
46	5230 MHz	39.23	36.15

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

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
42	5210 MHz	81.53	75.89

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)
36	5180 MHz	37.43	21.79
40	5200 MHz	41.66	26.53
48	5240 MHz	42.56	28.71

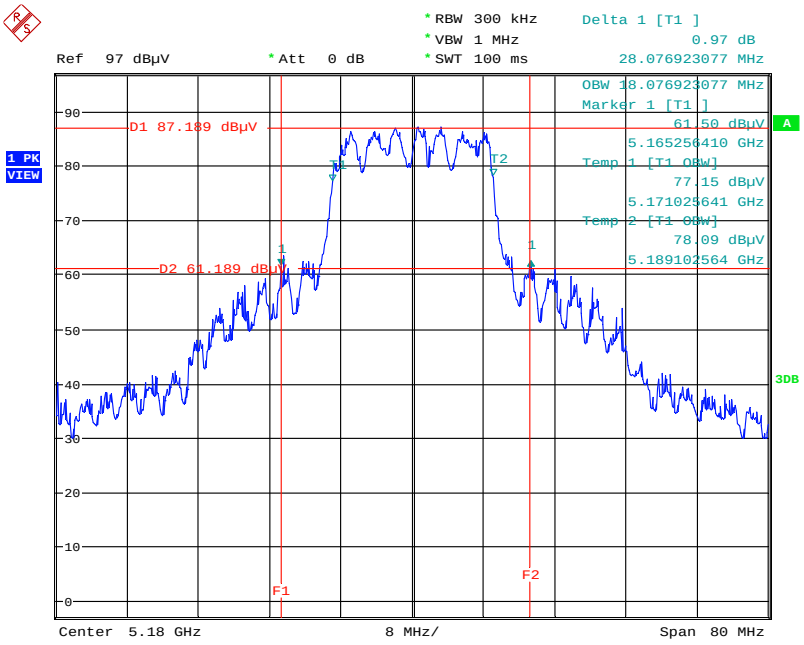
For 5GHz Band : Ant. 3

Configuration IEEE 802.11a / Chain 3

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
36	5180 MHz	20.38	17.05
40	5200 MHz	20.51	17.17
48	5240 MHz	20.38	17.05

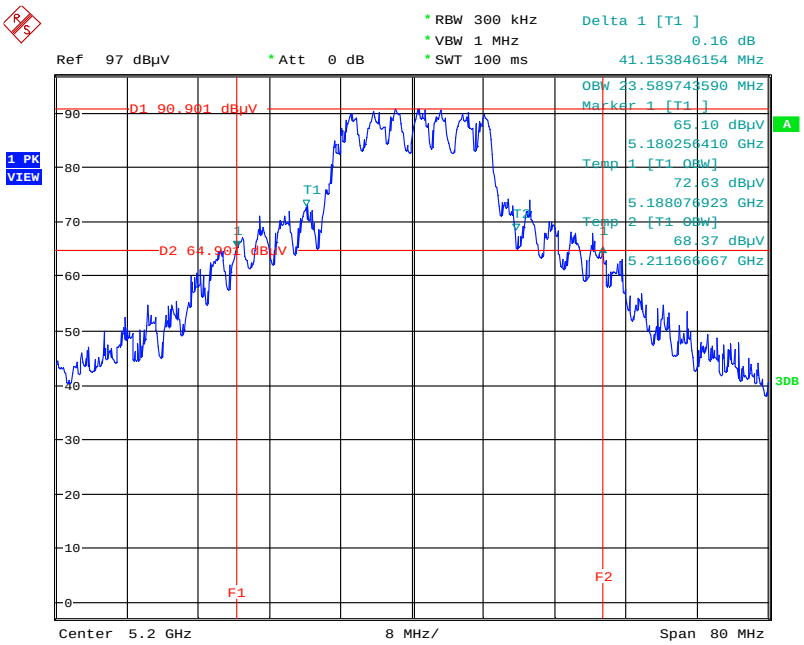
For 5GHz Band : Ant. 2

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



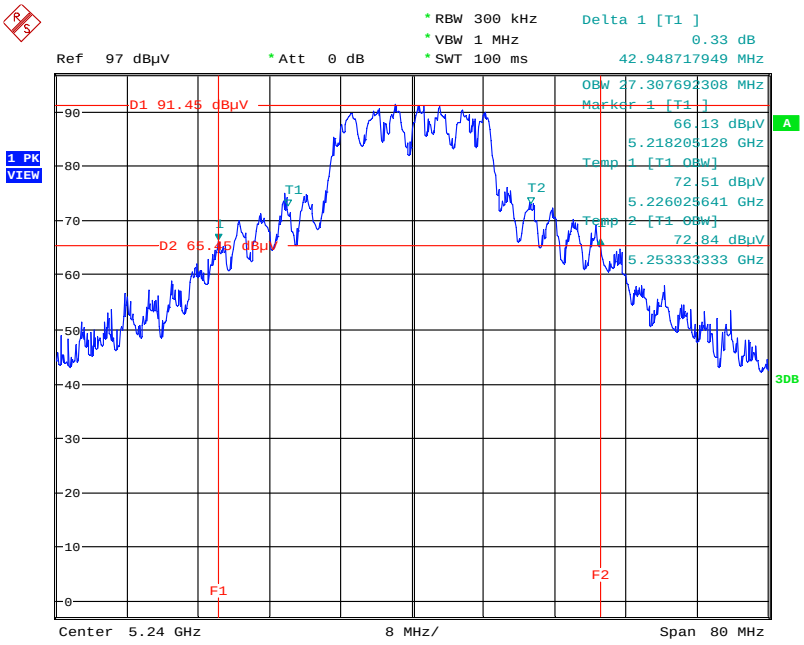
Date: 10.SEP.2014 12:13:12

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



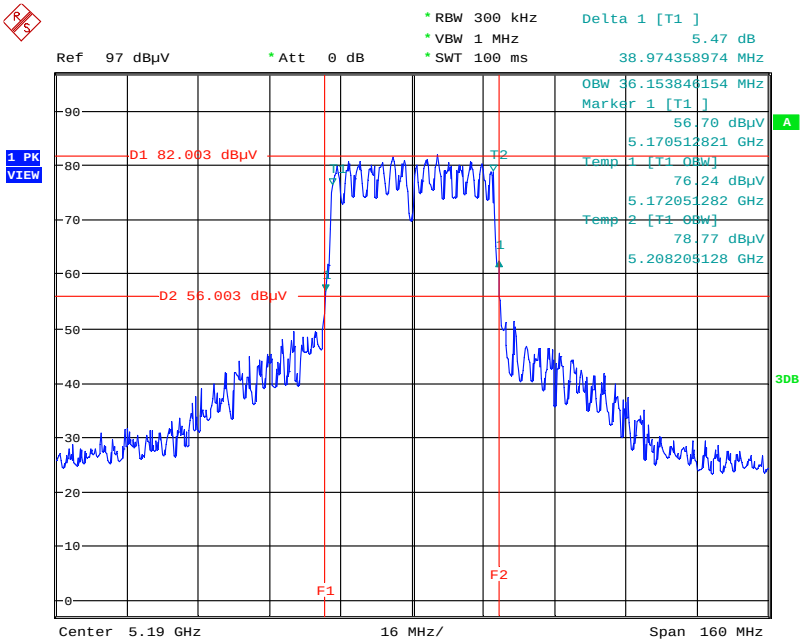
Date: 10.SEP.2014 12:13:49

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



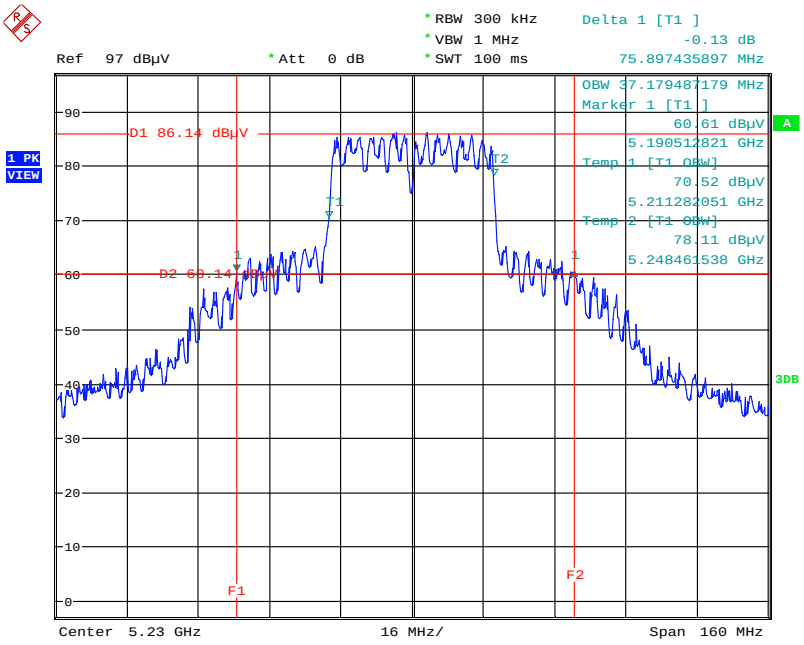
Date: 10.SEP.2014 12:14:18

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



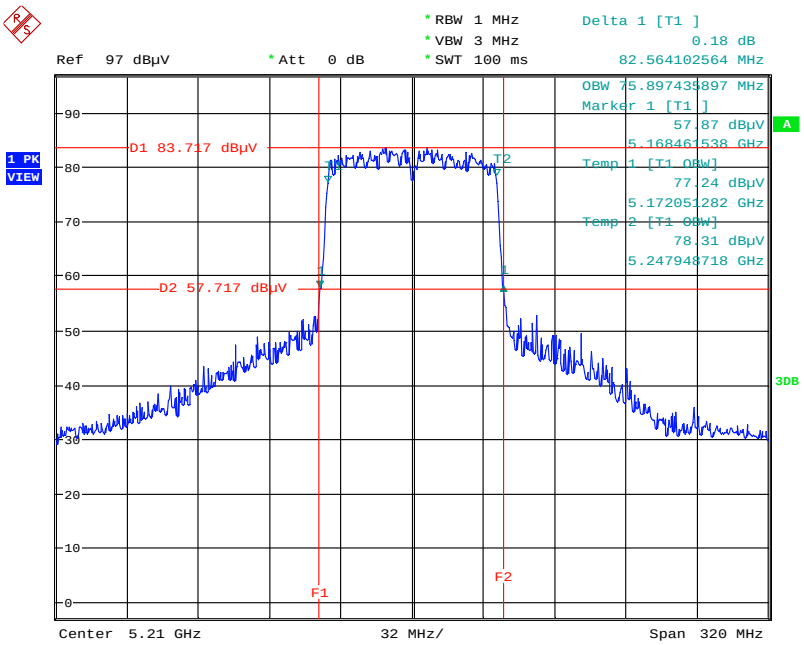
Date: 10.SEP.2014 12:18:01

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



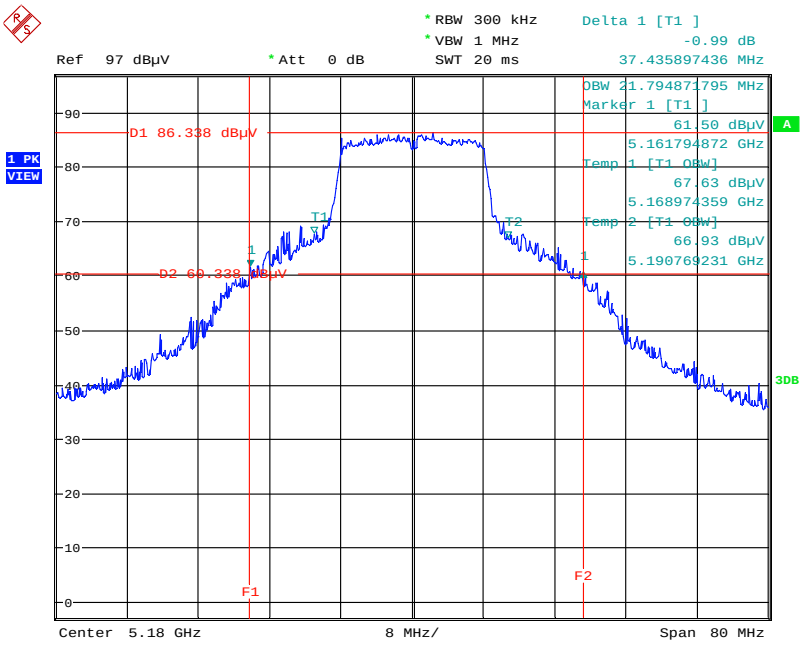
Date: 10.SEP.2014 12:18:30

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



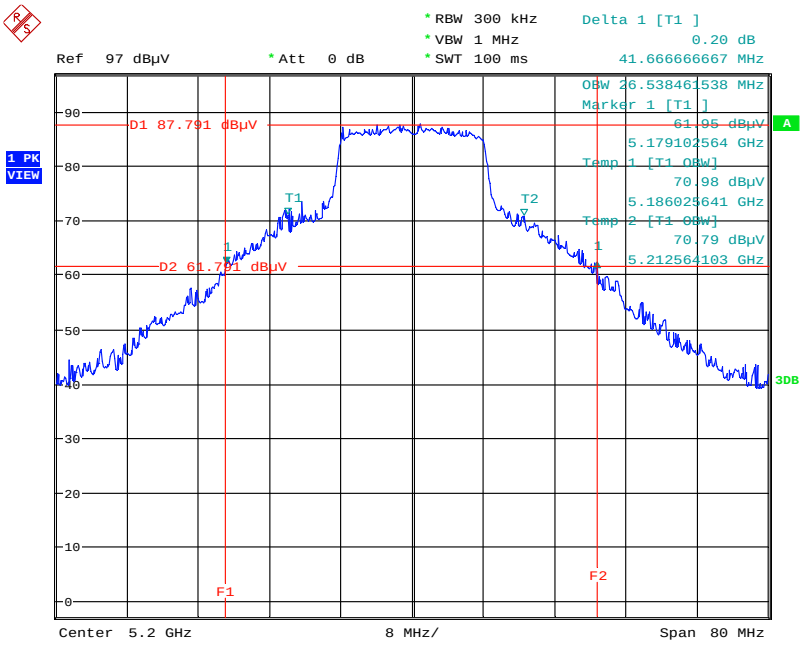
Date: 10.SEP.2014 12:22:09

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



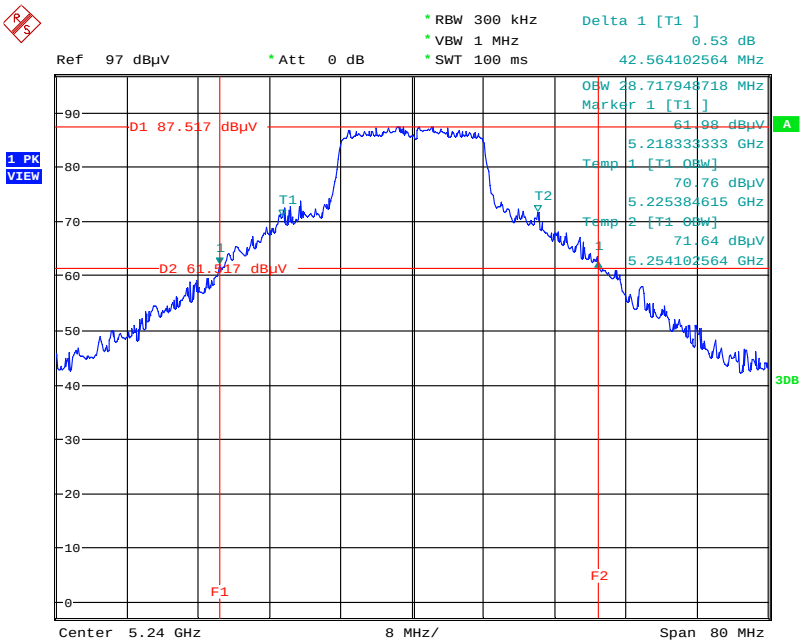
Date: 10.SEP.2014 12:07:30

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



Date: 10.SEP.2014 12:08:13

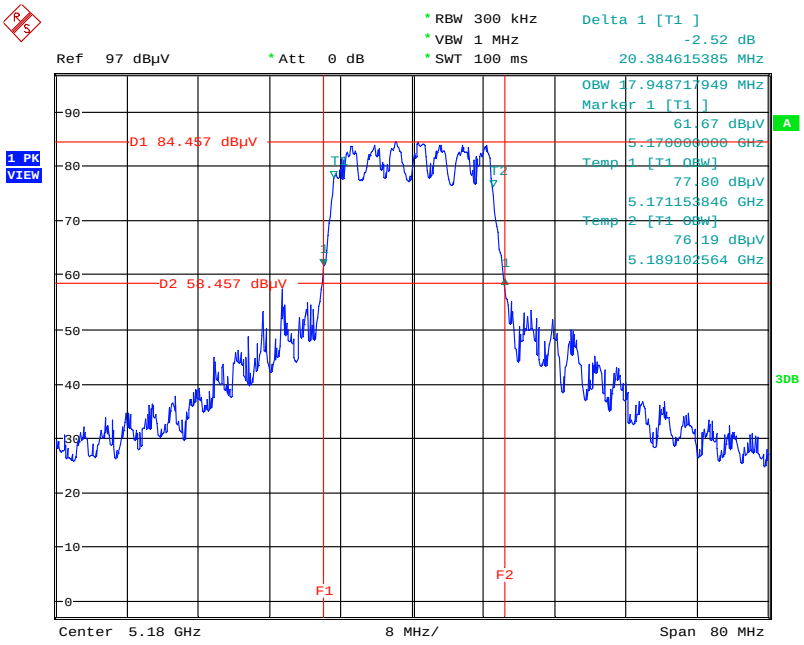
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 3 / 5240 MHz



Date: 10.SEP.2014 12:08:43

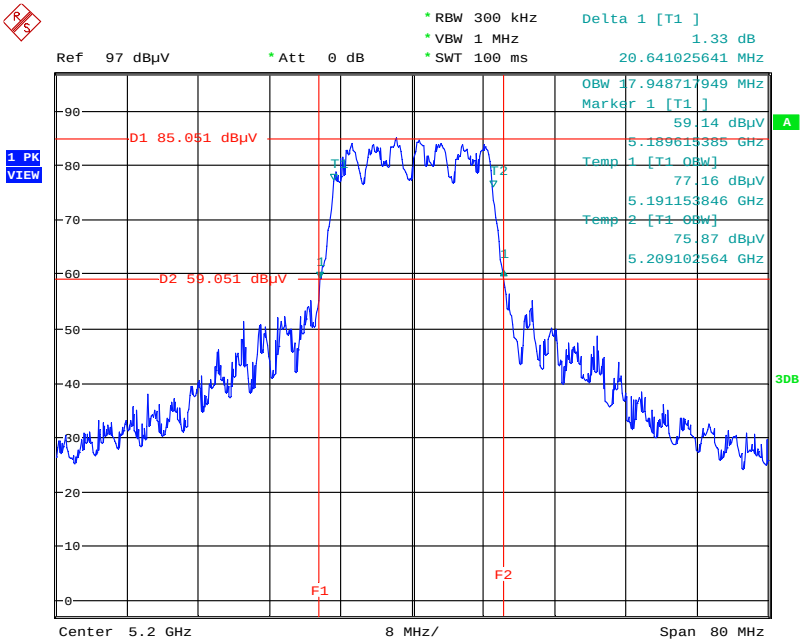
For 5GHz Band : Ant. 3

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



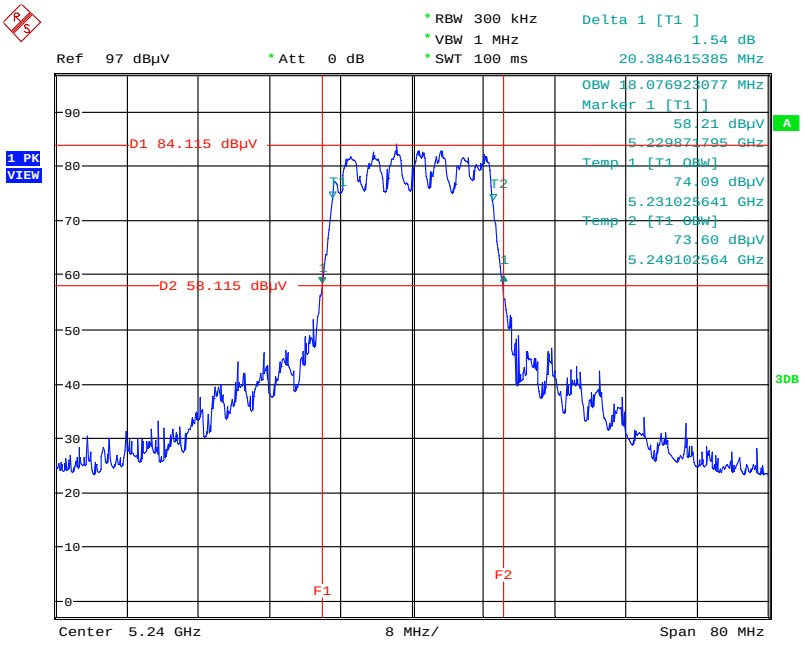
Date: 10.SEP.2014 15:29:02

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



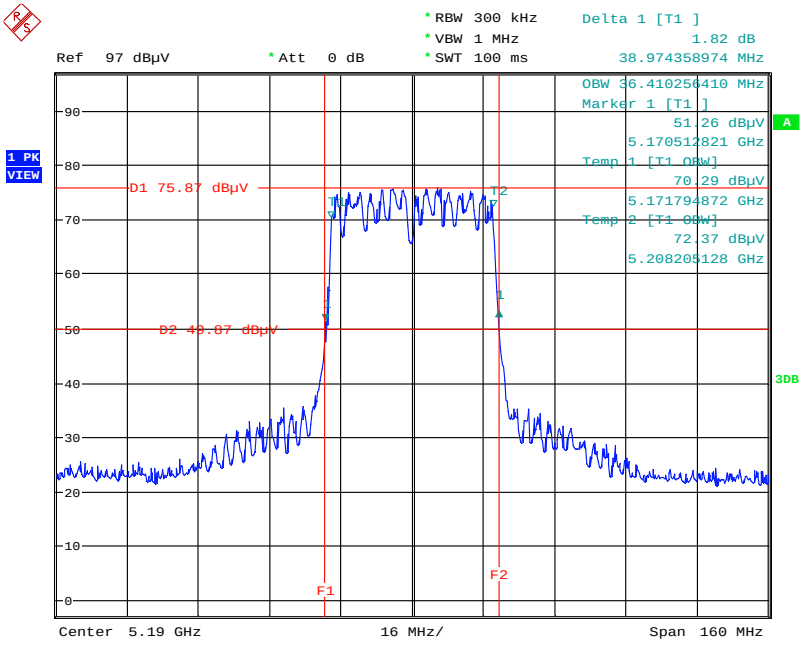
Date: 10.SEP.2014 15:29:31

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



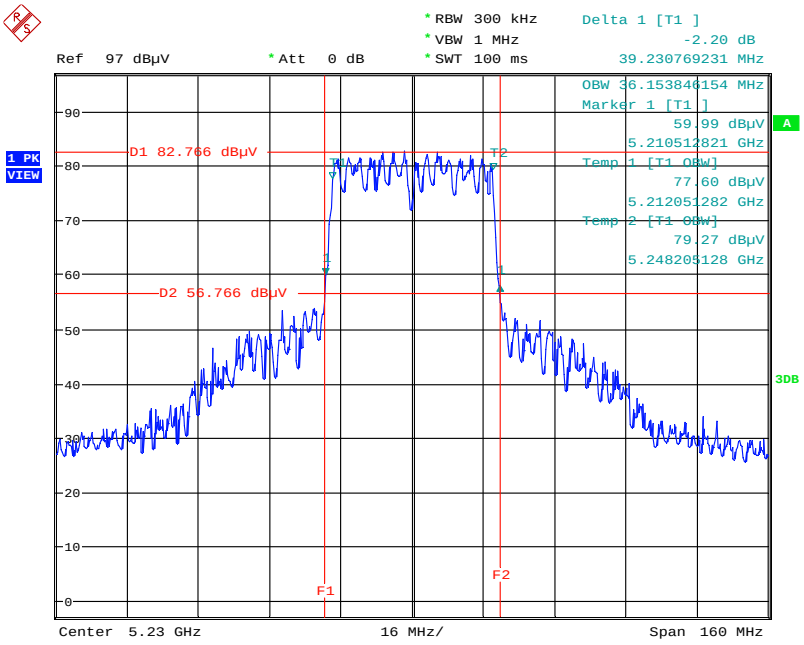
Date: 10.SEP.2014 15:30:06

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



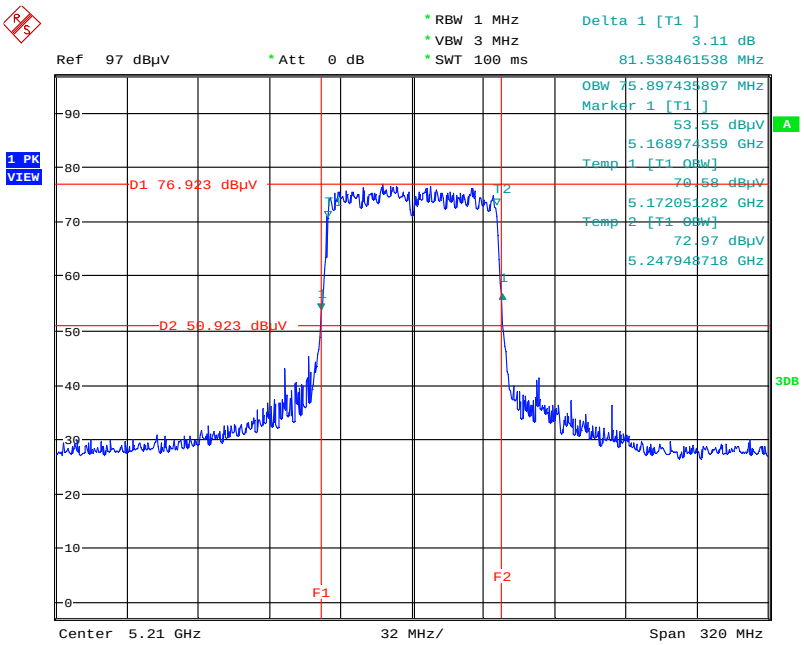
Date: 10.SEP.2014 15:34:05

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



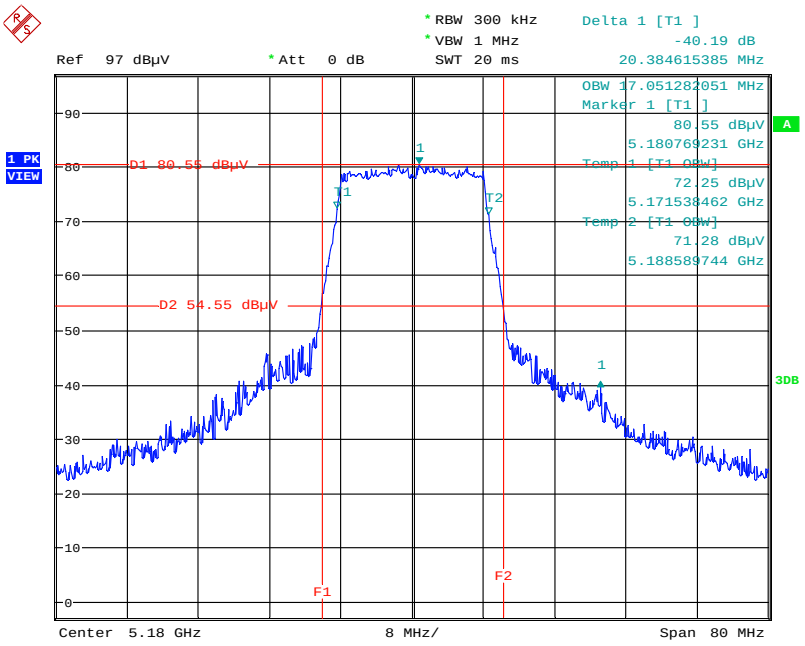
Date: 10.SEP.2014 15:34:38

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



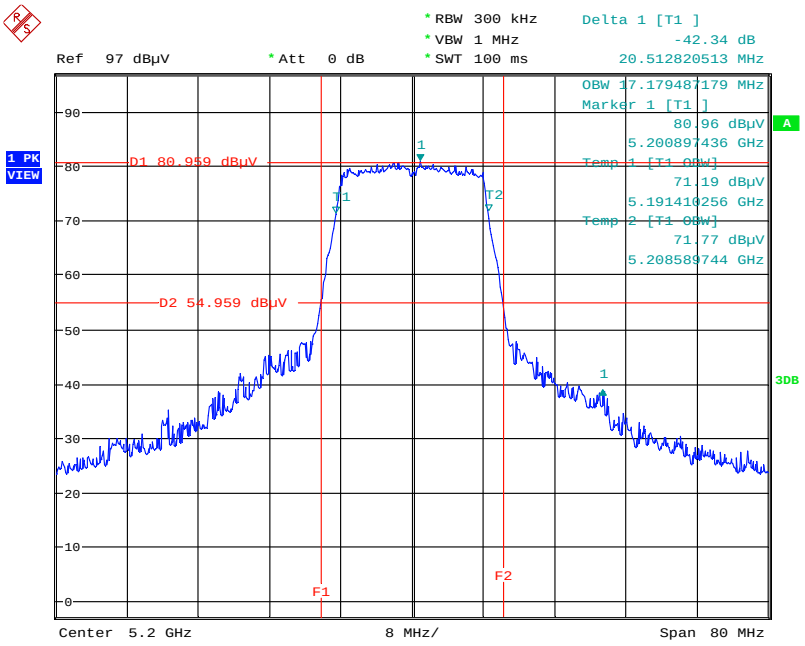
Date: 10.SEP.2014 15:38:30

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



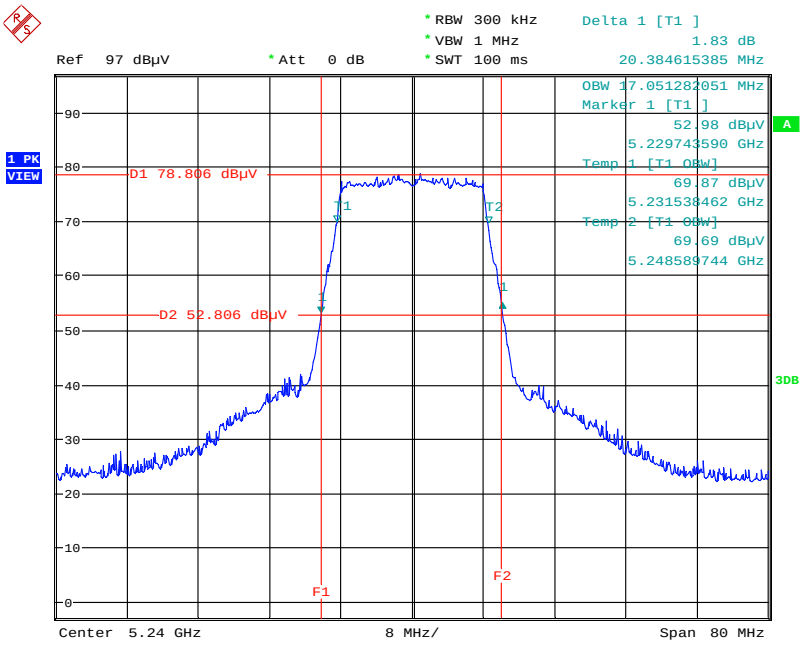
Date: 10.SEP.2014 15:21:39

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



Date: 10.SEP.2014 15:22:53

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



Date: 10.SEP.2014 15:24:02

<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)
36	5180 MHz	20.38	17.94
40	5200 MHz	34.10	18.46
48	5240 MHz	31.79	18.46

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

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
38	5190 MHz	38.97	36.41
46	5230 MHz	66.66	36.92

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

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
42	5210 MHz	82.05	75.89

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)
36	5180 MHz	20.51	17.82
40	5200 MHz	20.51	17.94
48	5240 MHz	20.38	17.94

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

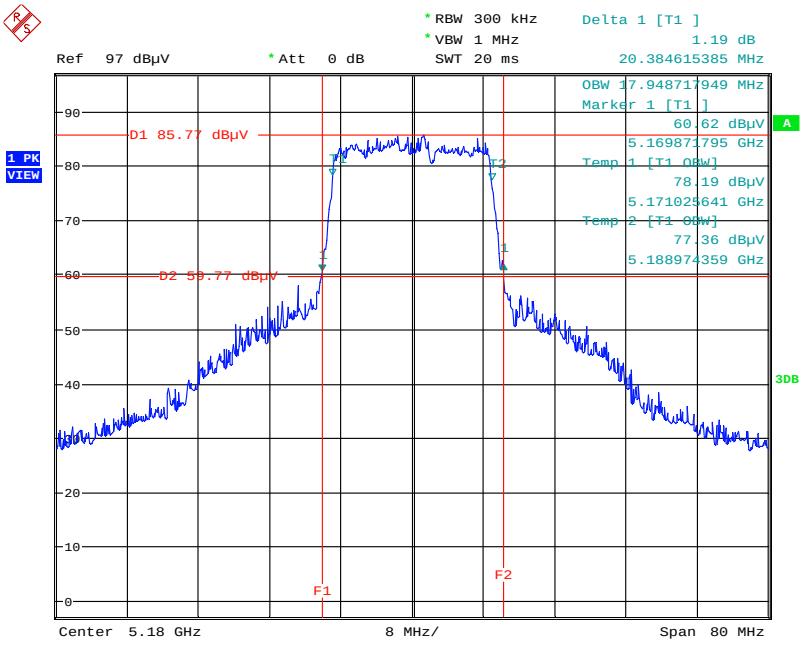
Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
38	5190 MHz	39.23	36.41
46	5230 MHz	39.48	36.41

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

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
42	5210 MHz	81.53	75.89

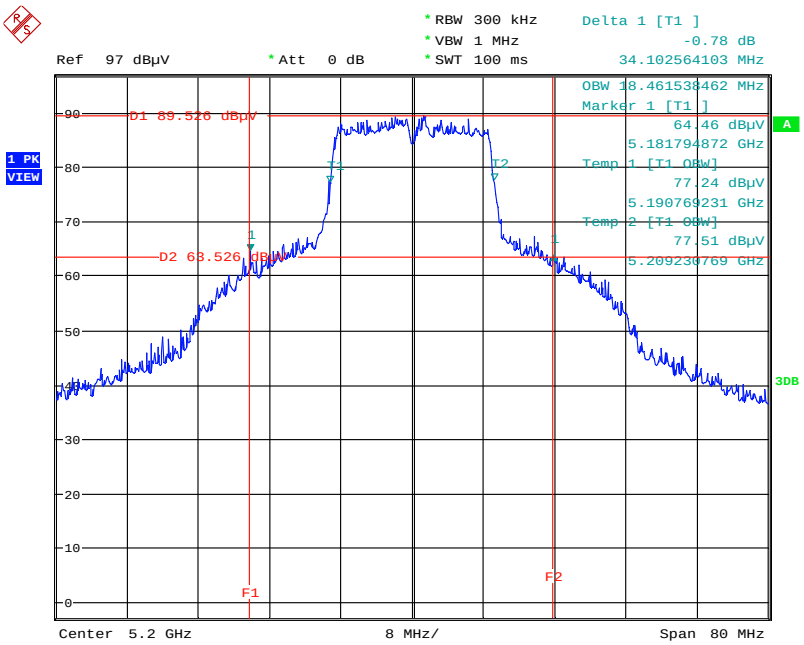
For 5GHz Band : Ant. 2

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



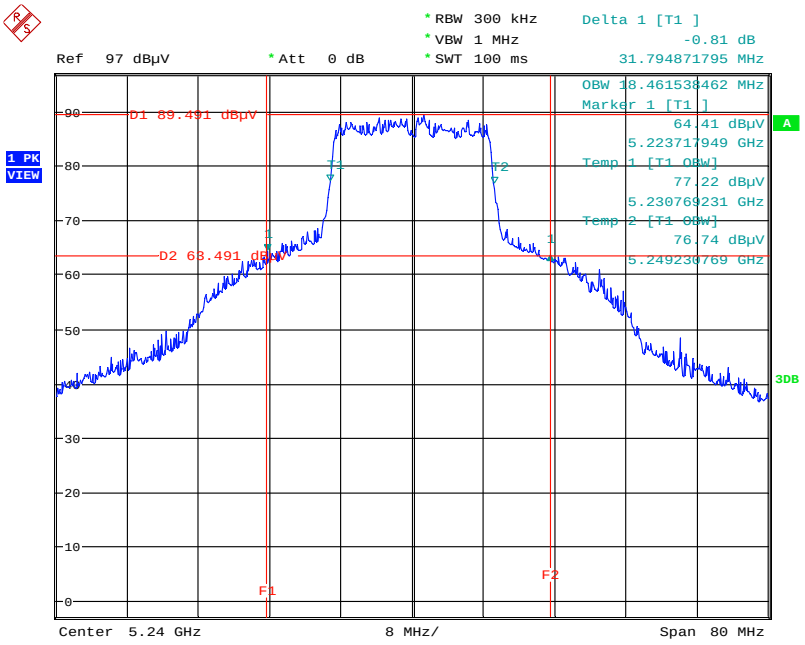
Date: 10.SEP.2014 16:27:37

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



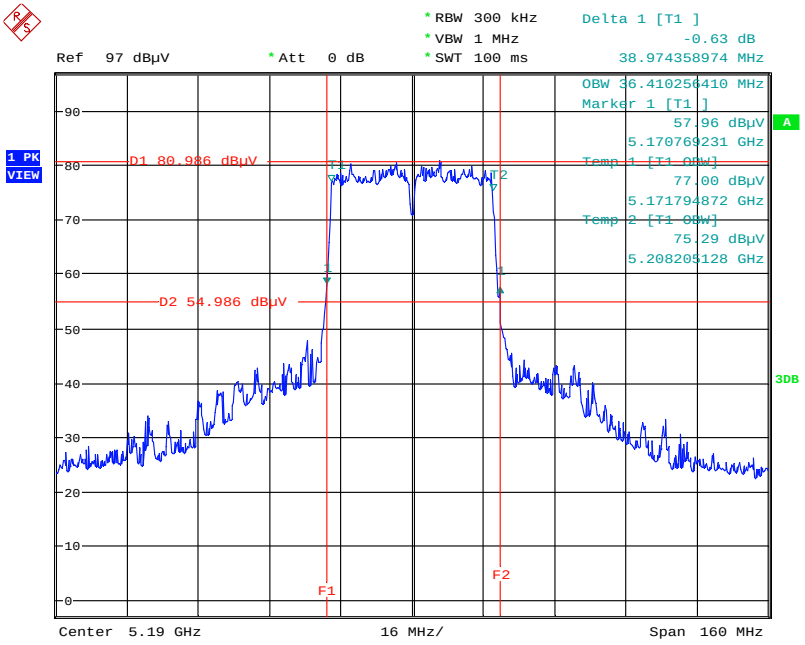
Date: 10.SEP.2014 16:28:35

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



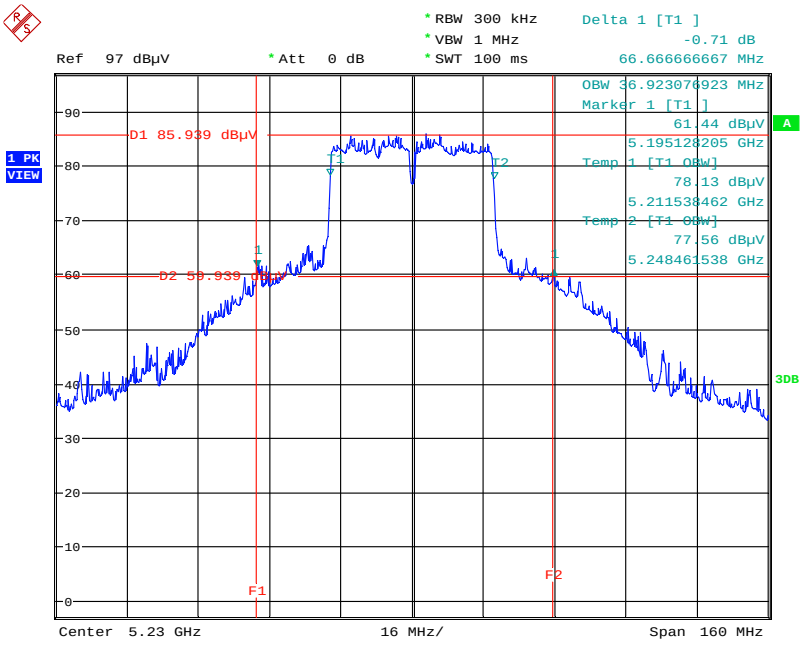
Date: 10.SEP.2014 16:29:34

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



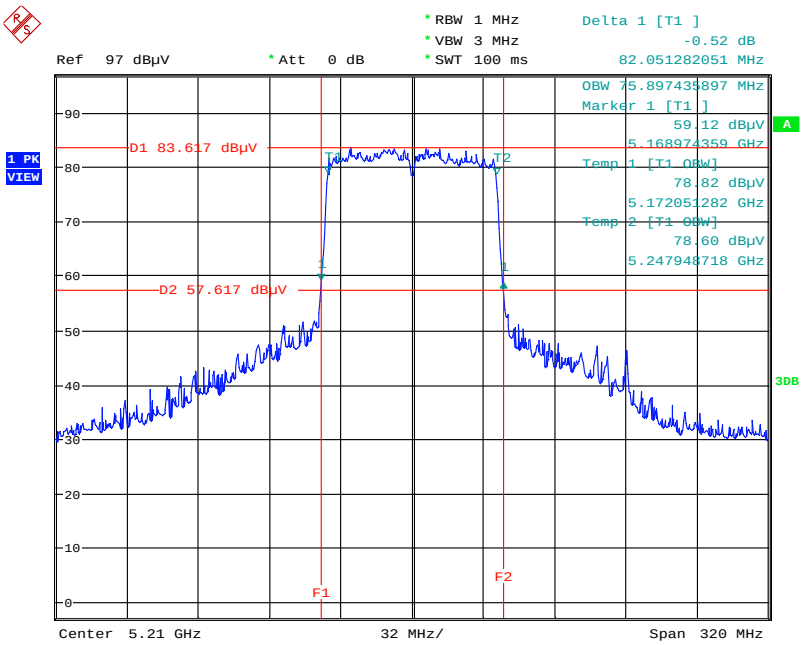
Date: 10.SEP.2014 16:34:24

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



Date: 10.SEP.2014 16:35:01

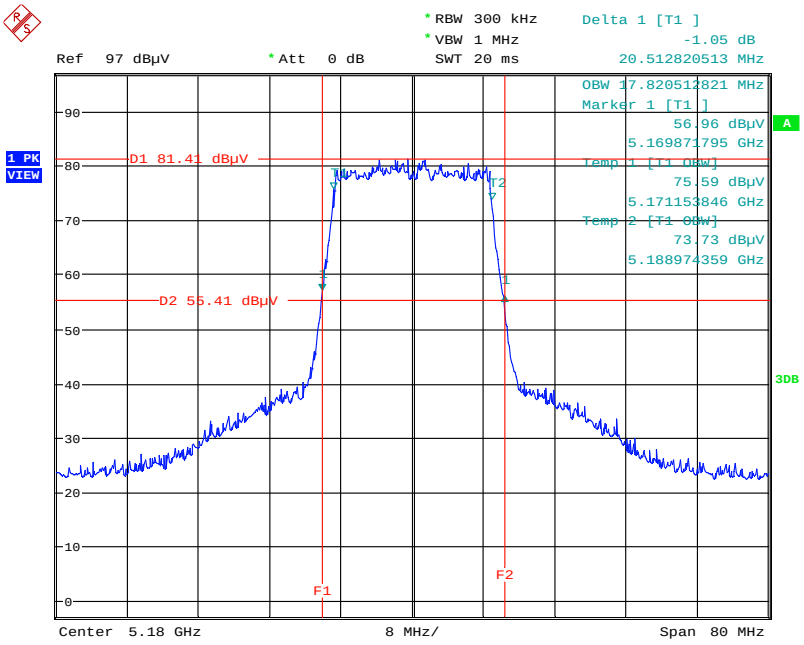
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 3 + Chain 4 / 5210 MHz



Date: 10.SEP.2014 16:39:04

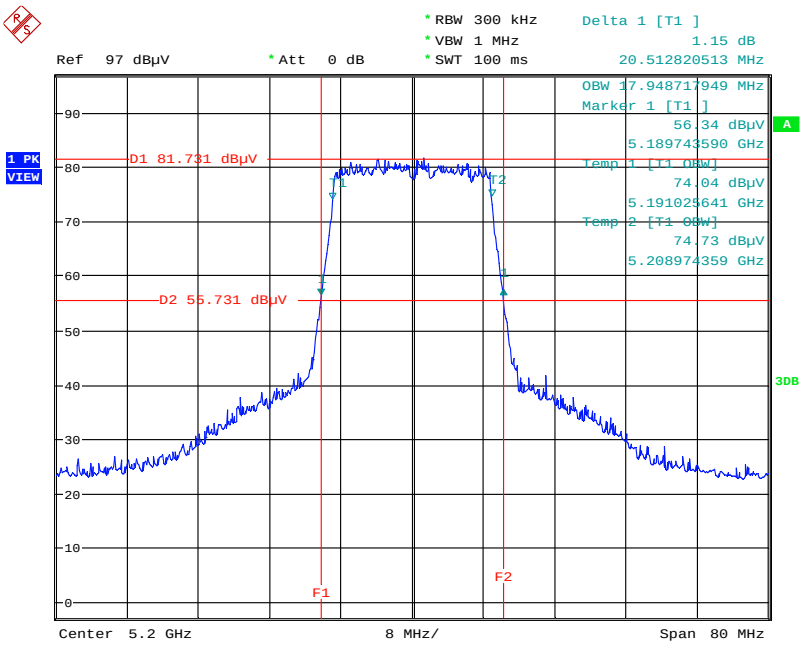
For 5GHz Band : Ant. 3

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



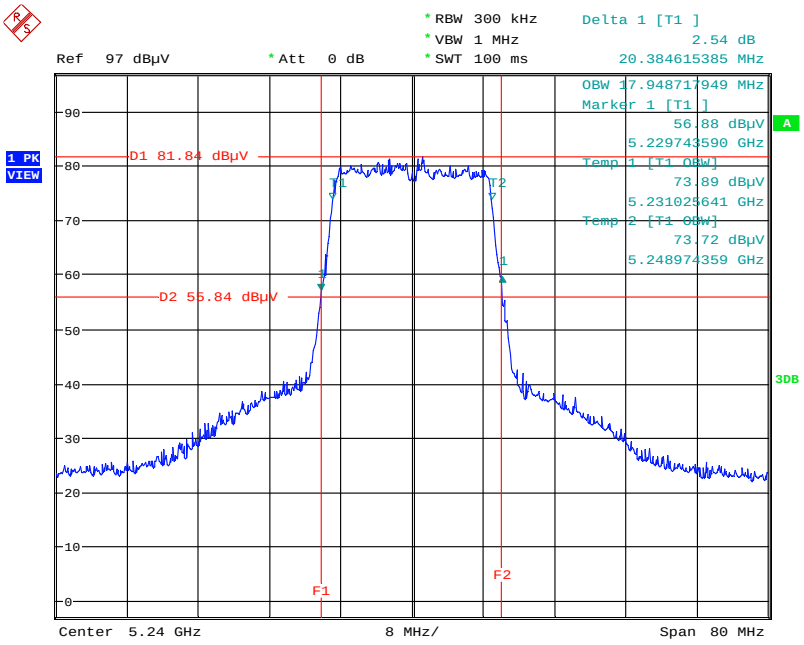
Date: 10.SEP.2014 17:29:42

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



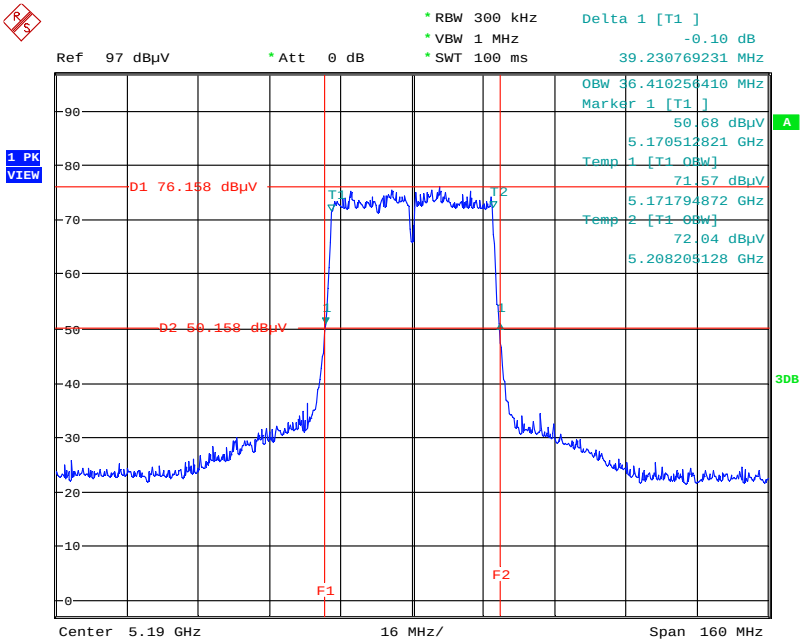
Date: 10.SEP.2014 17:30:13

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



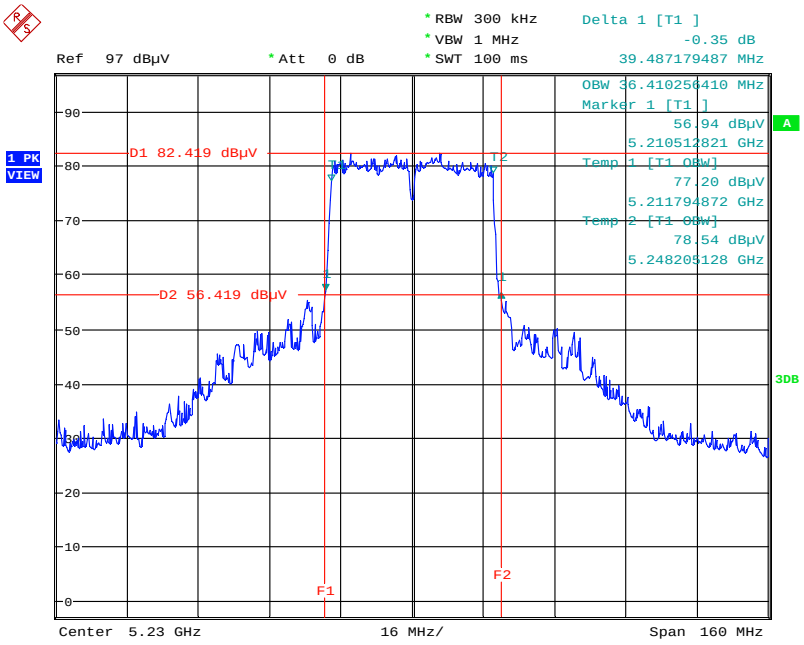
Date: 10.SEP.2014 17:30:42

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



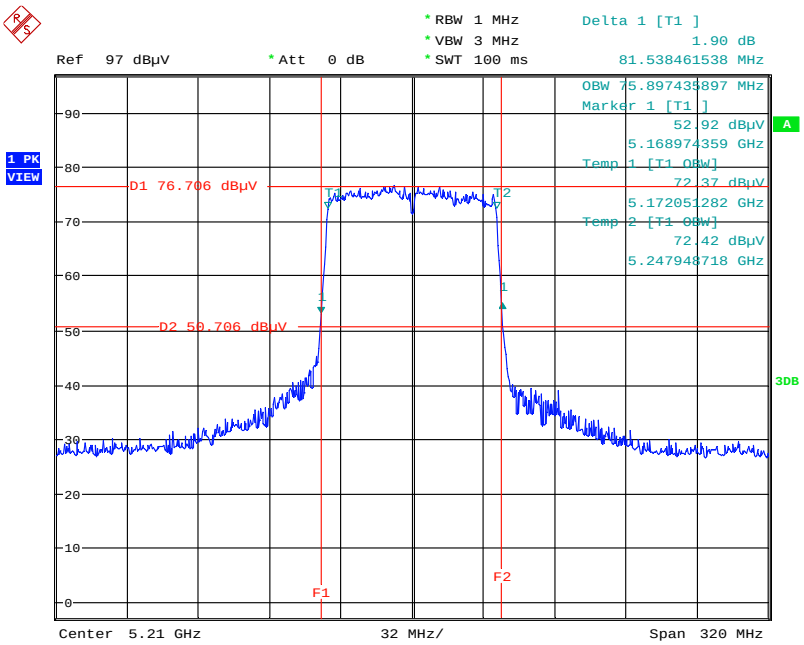
Date: 10.SEP.2014 17:35:45

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



Date: 10.SEP.2014 17:36:21

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



Date: 10.SEP.2014 17:39:27

4.3. 6dB Spectrum Bandwidth and 99% Occupied Bandwidth Measurement

4.3.1. Limit

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

4.3.2. Measuring Instruments and Setting

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

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

99% Occupied Bandwidth	
Spectrum Parameters	**Setting**
Span	1.5 times to 5.0 times the OBW
RBW	1 % to 5 % of the OBW
VBW	≥ 3 x RBW
Detector	Peak
Trace	Max Hold

4.3.3. Test Procedures

For Radiated 6dB Bandwidth and 99% Occupied Bandwidth Measurement:

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

4.3.4. Test Setup Layout

For Radiated 6dB Bandwidth and 99% Occupied Bandwidth Measurement:

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

4.3.5. Test Deviation

There is no deviation with the original standard.

4.3.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.3.7. Test Result of 6dB Spectrum Bandwidth and 99% Occupied Bandwidth

<For Non-Beamforming Mode>

Temperature	23℃	Humidity	61%
Test Engineer	Mars Lin	Configurations	IEEE 802.11n/ac

For 5GHz Band : Ant. 2

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

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
149	5745 MHz	16.08	18.12	500	Complies
157	5785 MHz	15.76	19.02	500	Complies
165	5825 MHz	16.40	18.12	500	Complies

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

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
151	5755 MHz	36.00	36.48	500	Complies
159	5795 MHz	36.16	36.48	500	Complies

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

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
155	5775 MHz	75.52	76.32	500	Complies

For 5GHz Band : Ant. 3

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

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
149	5745 MHz	16.16	18.06	500	Complies
157	5785 MHz	16.40	18.06	500	Complies
165	5825 MHz	16.16	18.12	500	Complies

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

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
151	5755 MHz	36.16	36.48	500	Complies
159	5795 MHz	36.16	36.60	500	Complies

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

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
155	5775 MHz	75.84	76.08	500	Complies

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	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
149	5745 MHz	16.48	17.04	500	Complies
157	5785 MHz	16.40	24.18	500	Complies
165	5825 MHz	16.40	17.10	500	Complies

For 5GHz Band : Ant. 3

Configuration IEEE 802.11a / Chain 3

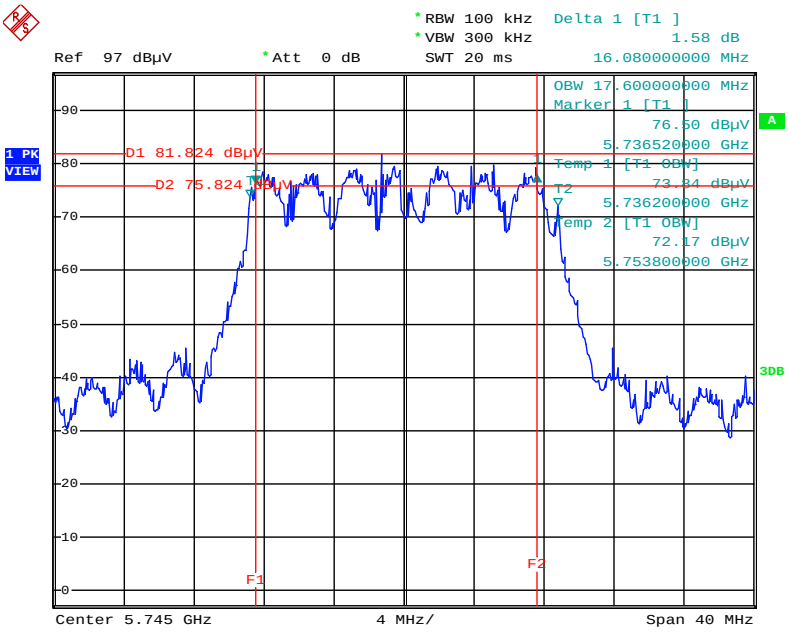
Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
149	5745 MHz	16.40	16.98	500	Complies
157	5785 MHz	16.40	17.04	500	Complies
165	5825 MHz	16.40	16.98	500	Complies

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

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

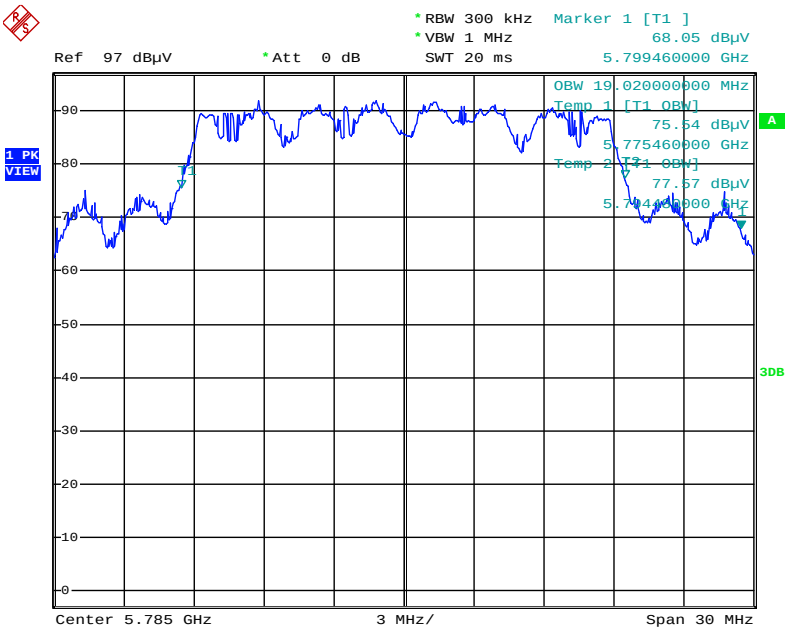
For 5GHz Band : Ant. 2

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4 / 5745 MHz



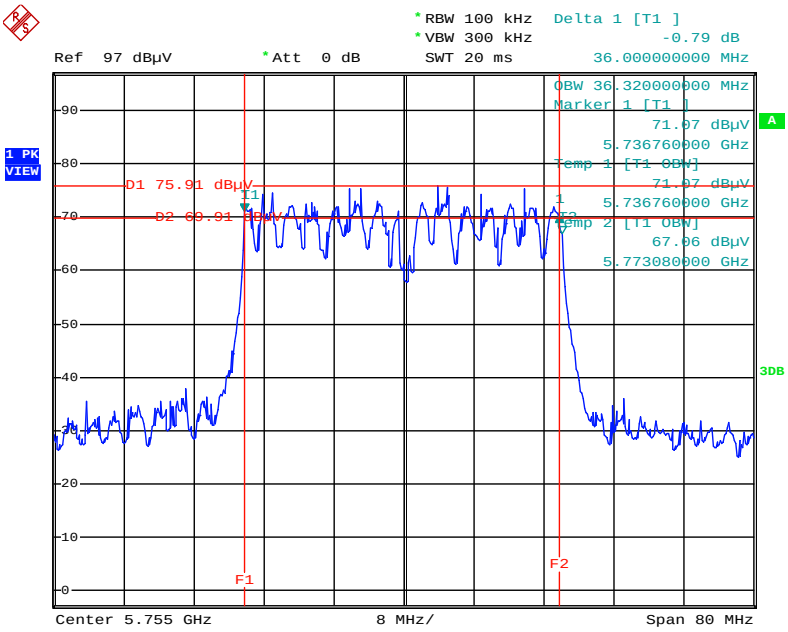
Date: 3.OCT.2014 08:35:51

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



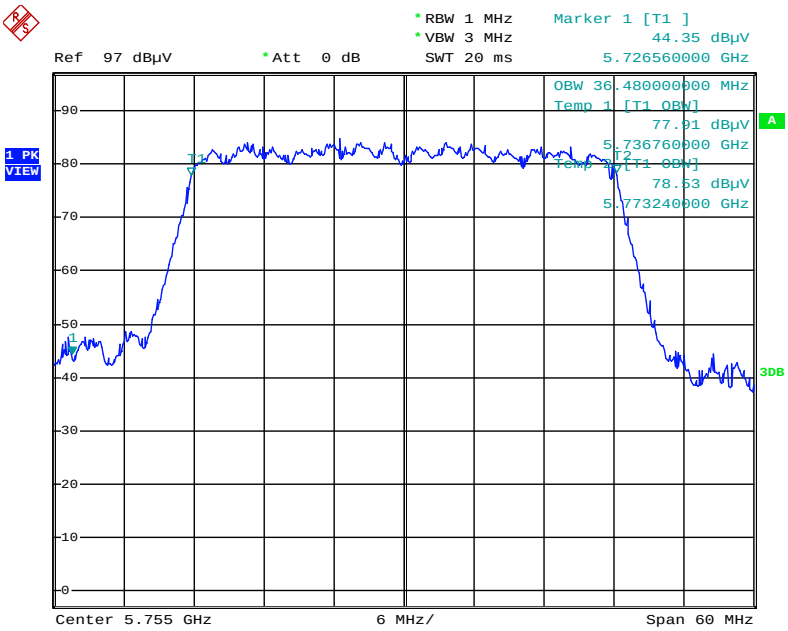
Date: 11.NOV.2014 20:20:13

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



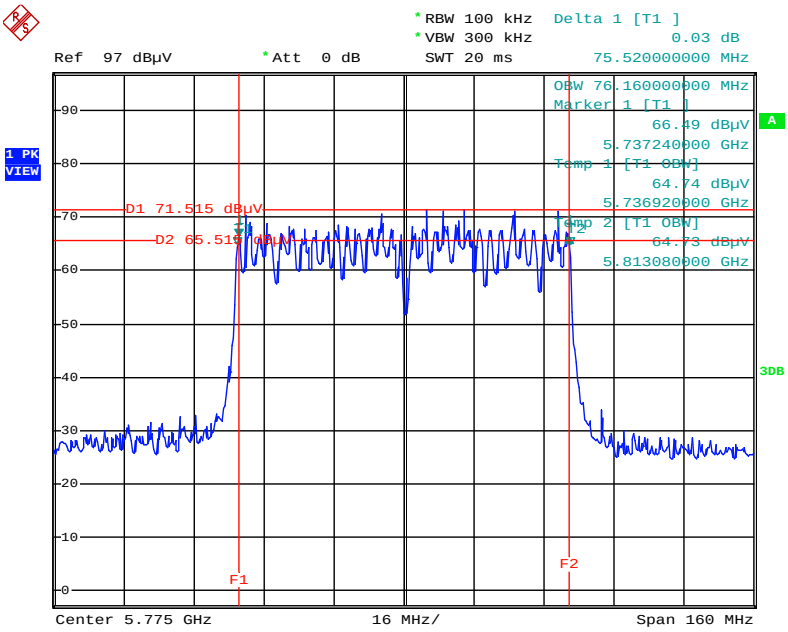
Date: 3.OCT.2014 08:37:33

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



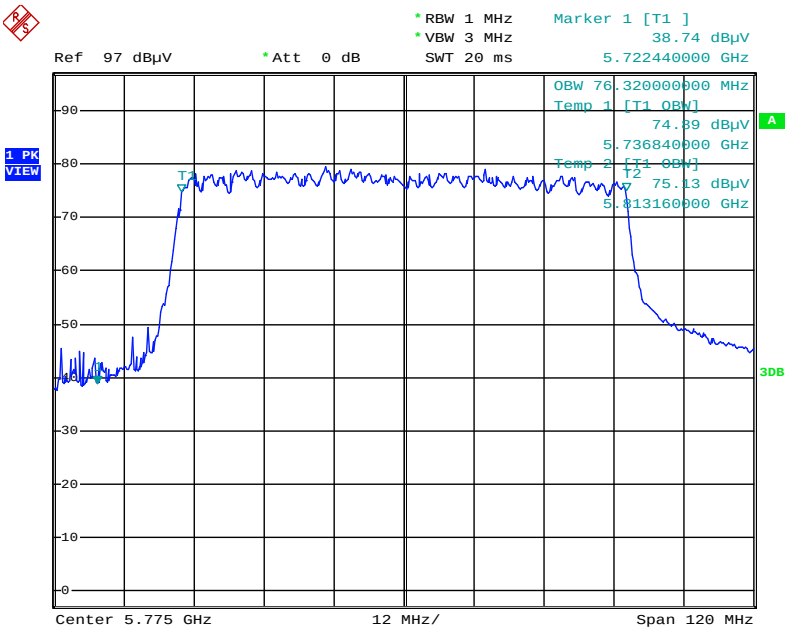
Date: 11.NOV.2014 20:22:10

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



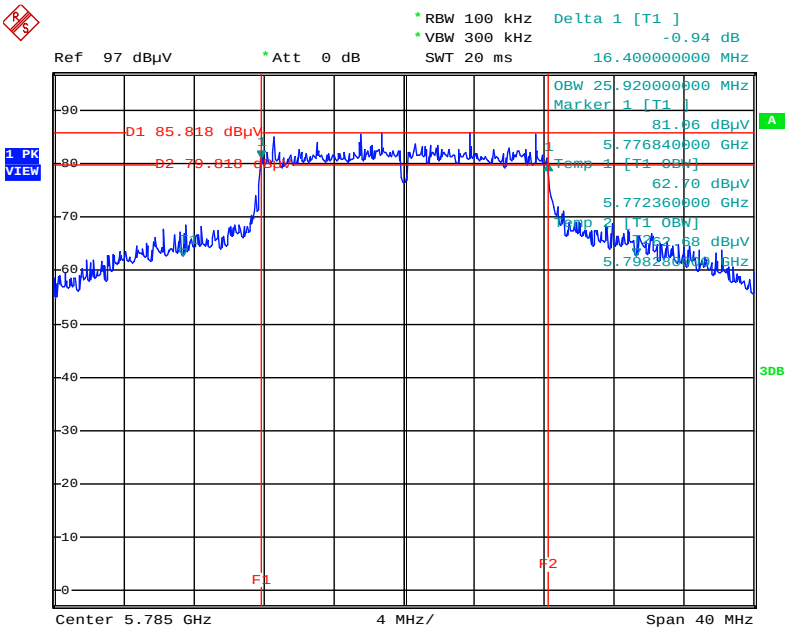
Date: 3.OCT.2014 08:38:44

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



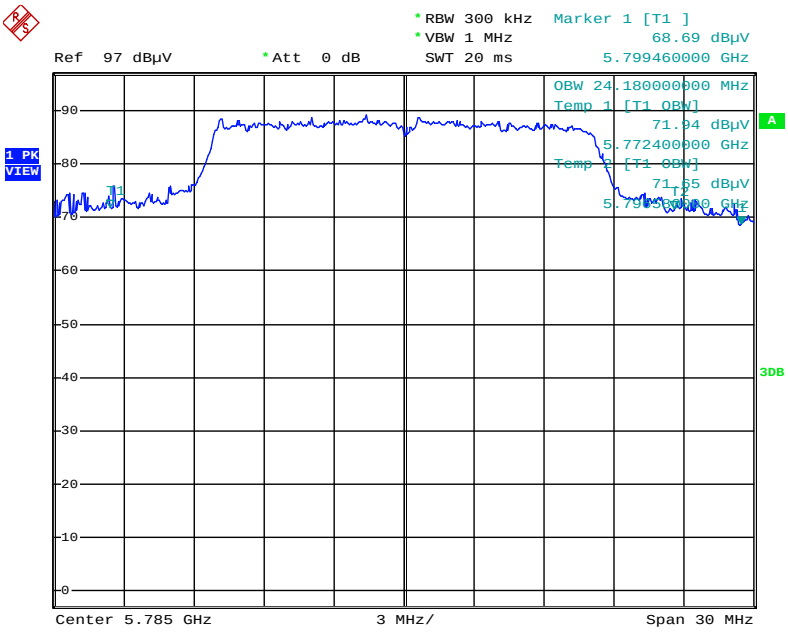
Date: 11.NOV.2014 20:23:50

6 dB Bandwidth Plot on Configuration IEEE 802.11a / Chain 3 / 5785 MHz



Date: 3.OCT.2014 08:33:05

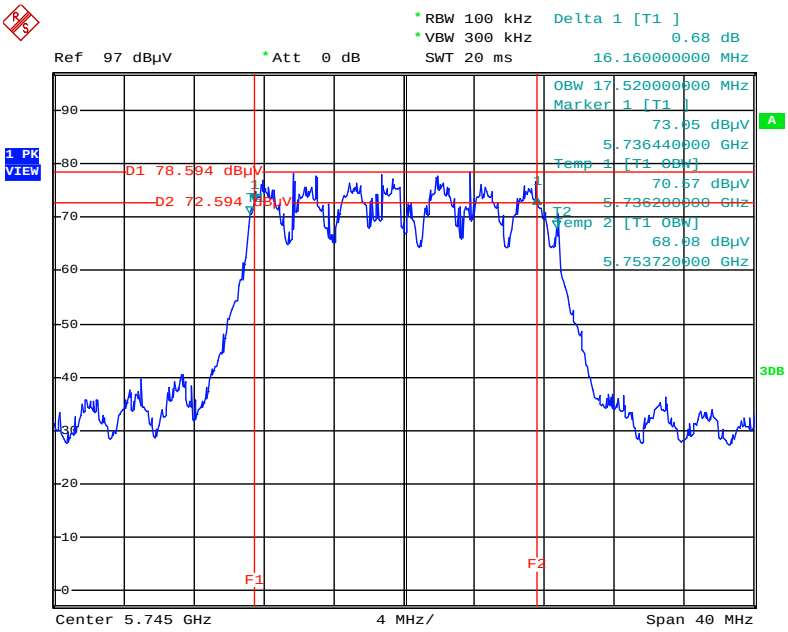
99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 3 / 5785 MHz



Date: 11.NOV.2014 20:17:20

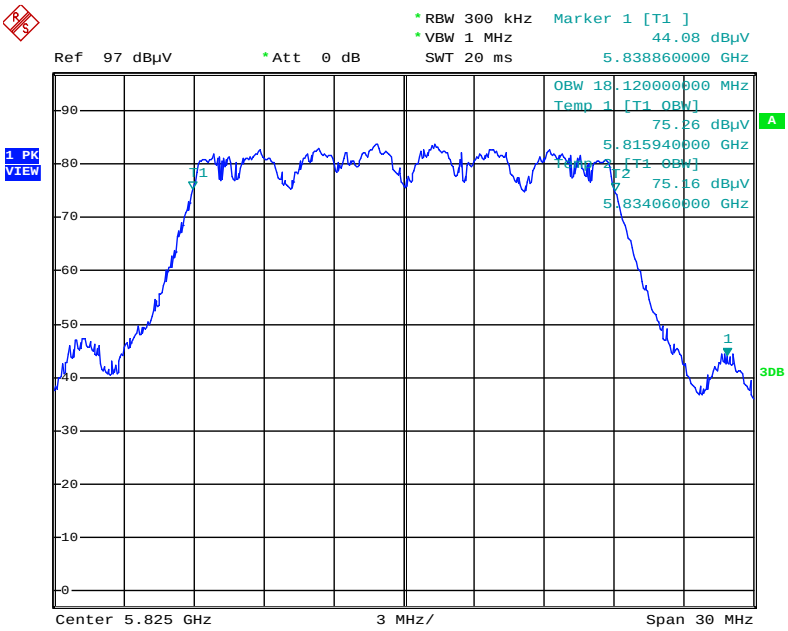
For 5GHz Band : Ant. 3

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4 / 5745 MHz



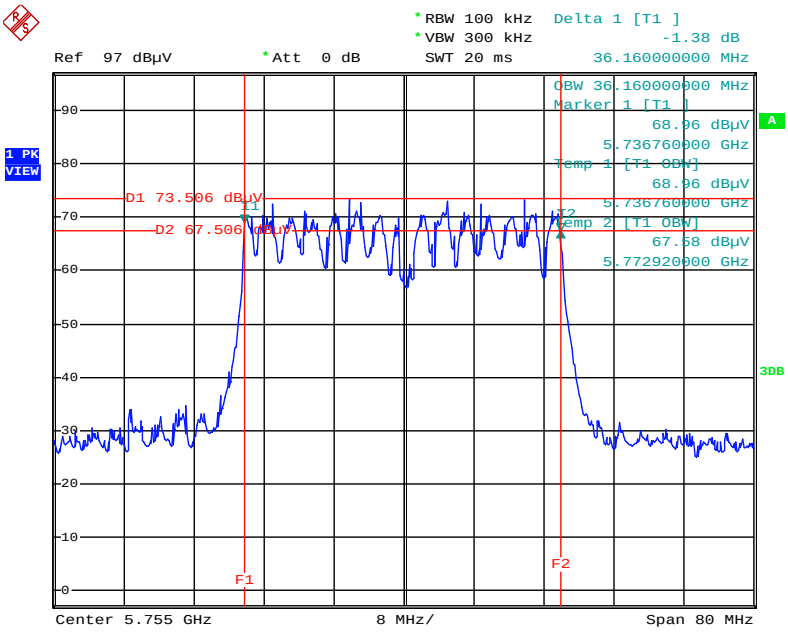
Date: 3.OCT.2014 11:21:06

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



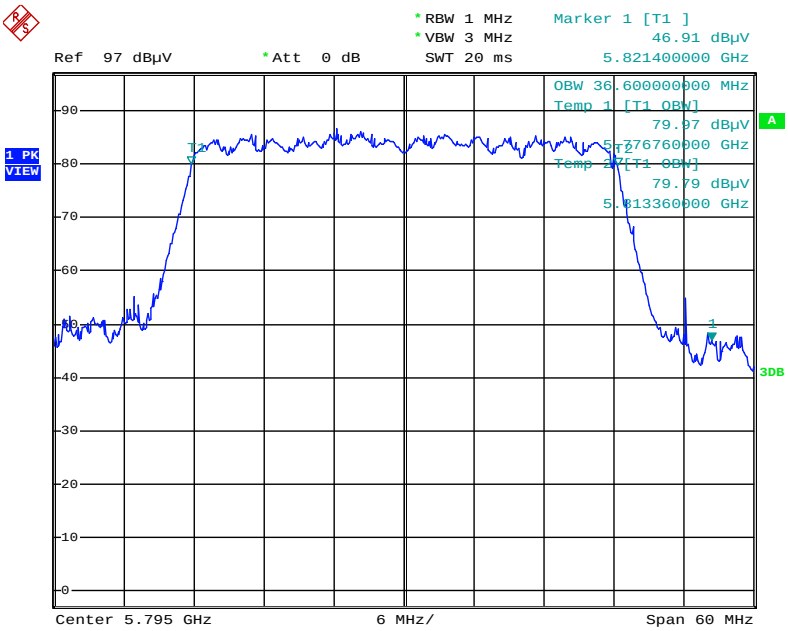
Date: 11.NOV.2014 20:42:48

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



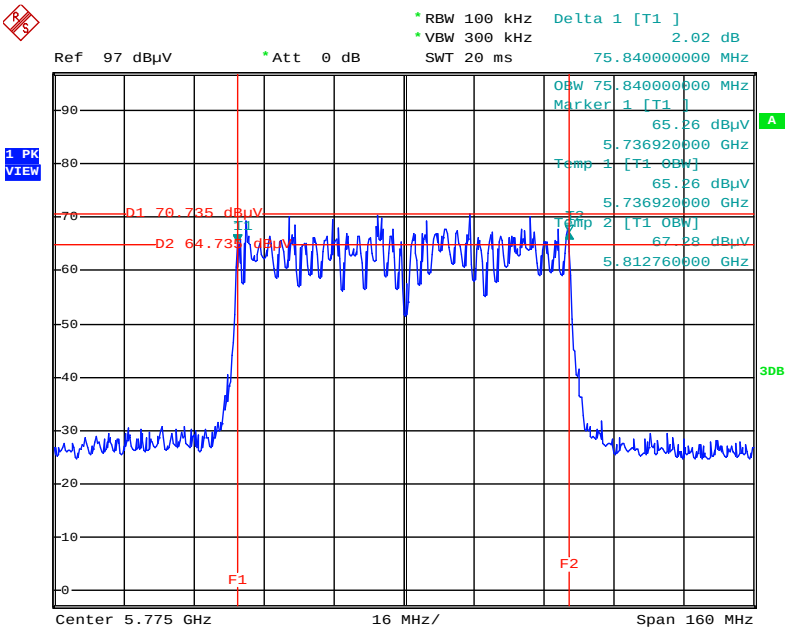
Date: 3.OCT.2014 11:22:52

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



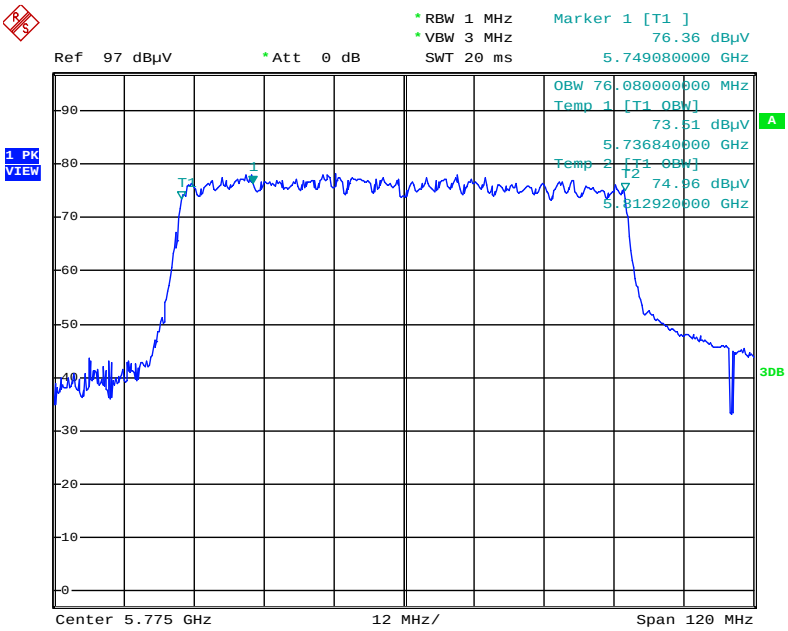
Date: 11.NOV.2014 20:44:02

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



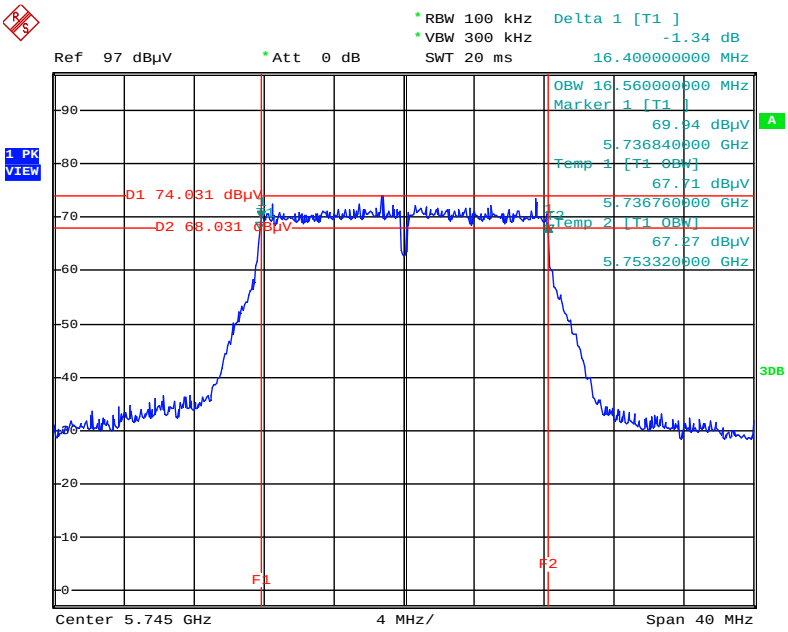
Date: 3.OCT.2014 11:23:58

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



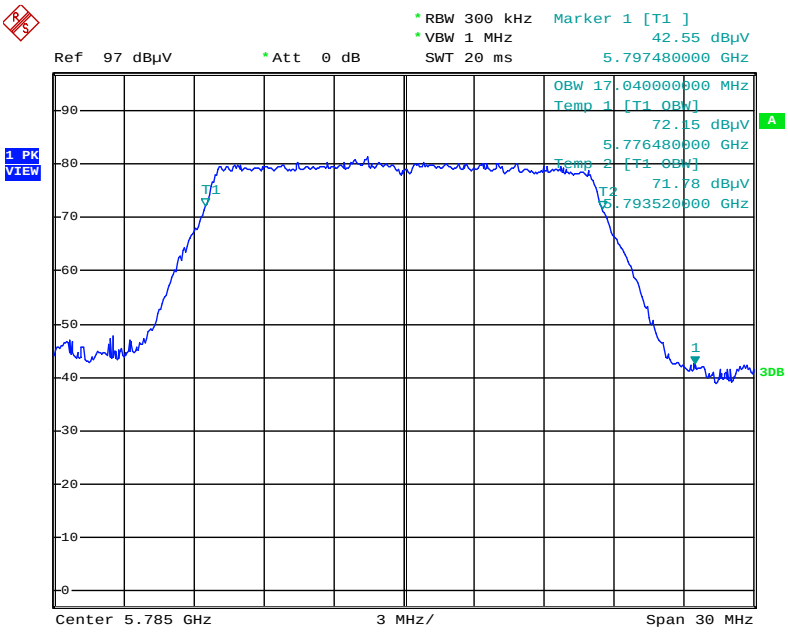
Date: 11.NOV.2014 20:45:47

6 dB Bandwidth Plot on Configuration IEEE 802.11a / Chain 3 / 5745 MHz



Date: 3.OCT.2014 11:19:13

99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 3 / 5785 MHz



Date: 11.NOV.2014 20:40:08

<For Beamforming Mode>

Temperature	23℃	Humidity	61%
Test Engineer	Mars Lin	Configurations	IEEE 802.11n/ac

For 5GHz Band : Ant. 2

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

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
149	5745 MHz	17.52	18.00	500	Complies
157	5785 MHz	17.60	18.12	500	Complies
165	5825 MHz	17.60	17.94	500	Complies

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

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
151	5755 MHz	35.68	36.72	500	Complies
159	5795 MHz	35.68	36.96	500	Complies

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

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
155	5775 MHz	74.24	76.08	500	Complies

For 5GHz Band : Ant. 3

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

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
149	5745 MHz	17.12	17.94	500	Complies
157	5785 MHz	17.60	18.00	500	Complies
165	5825 MHz	17.60	18.00	500	Complies

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

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
151	5755 MHz	36.48	36.84	500	Complies
159	5795 MHz	36.32	36.84	500	Complies

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

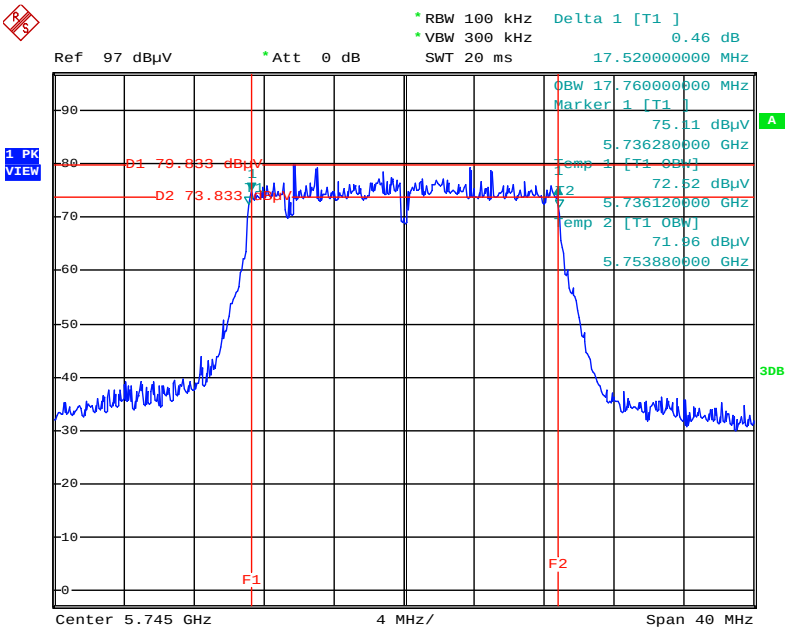
Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
155	5775 MHz	74.56	76.08	500	Complies

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

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

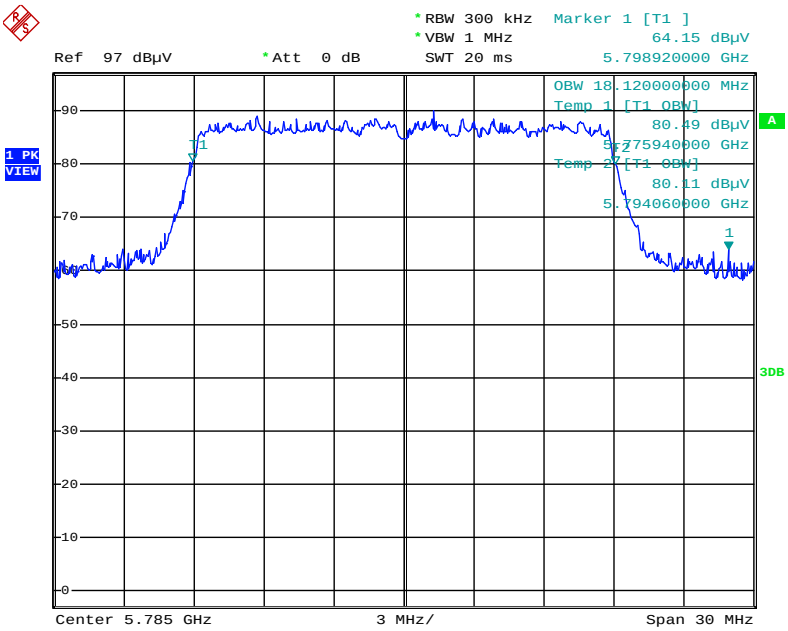
For 5GHz Band : Ant. 2

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4 / 5745 MHz



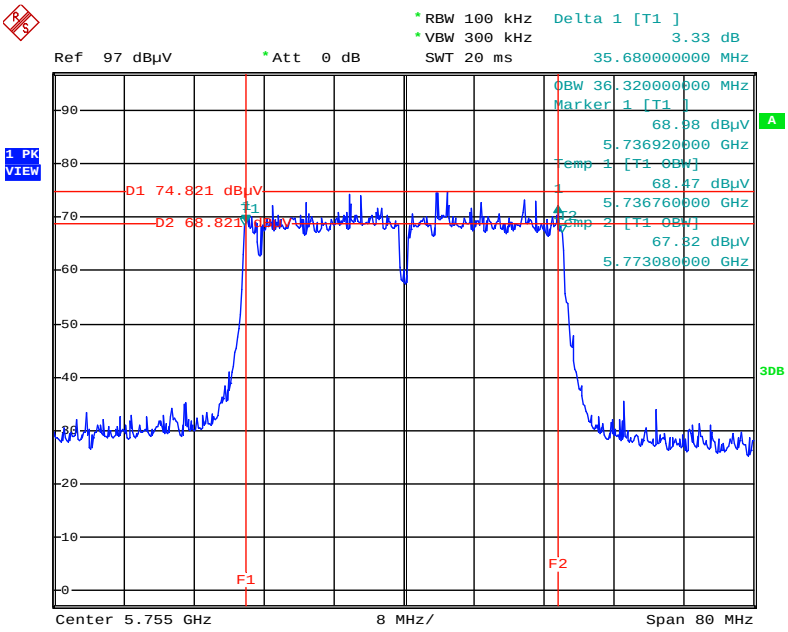
Date: 3.OCT.2014 08:40:39

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



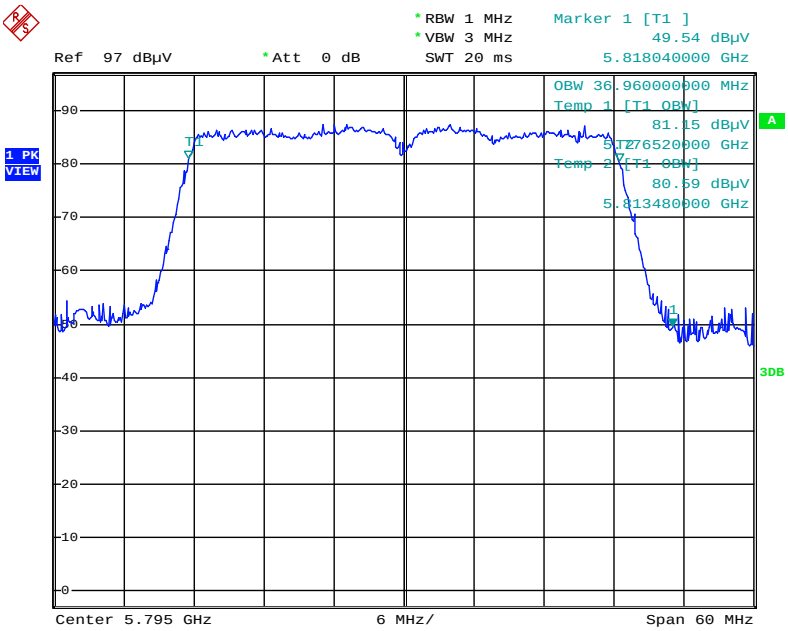
Date: 11.NOV.2014 20:27:39

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



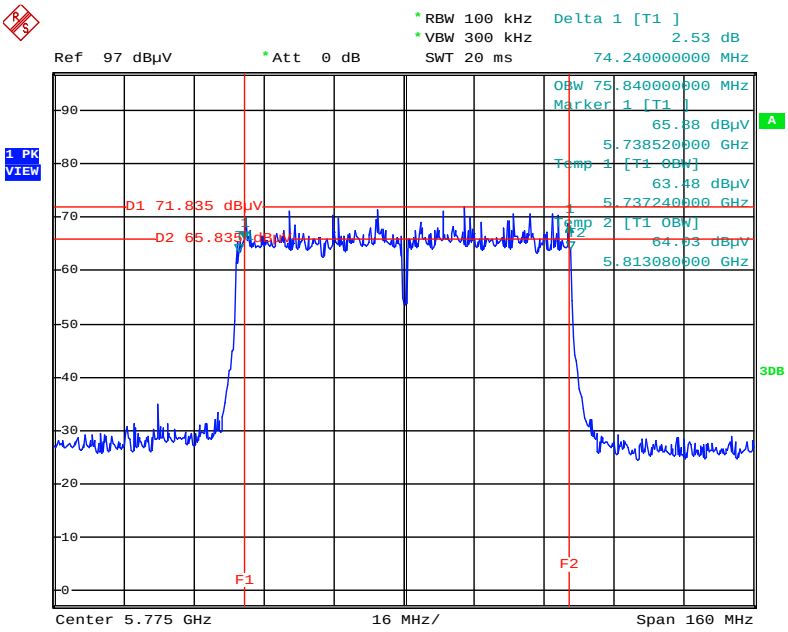
Date: 3.OCT.2014 08:41:45

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



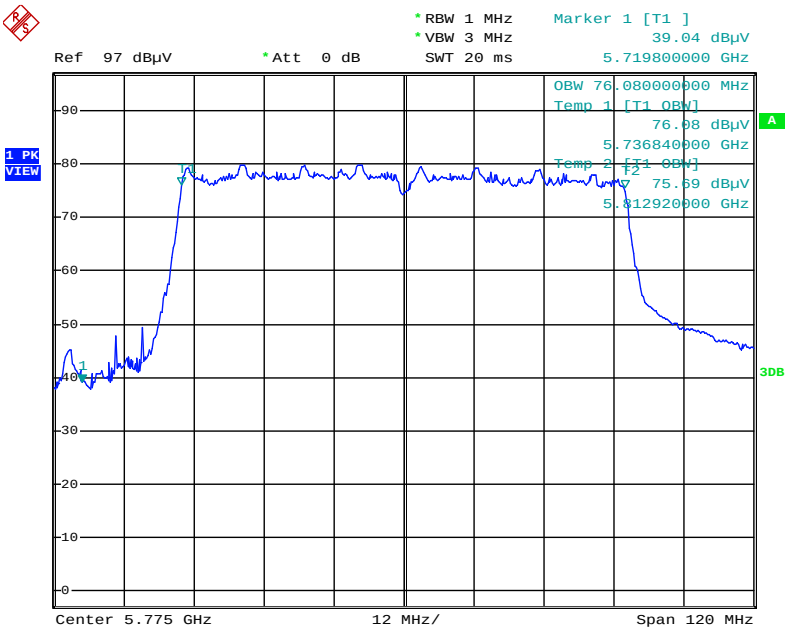
Date: 11.NOV.2014 20:29:46

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



Date: 3.OCT.2014 08:39:55

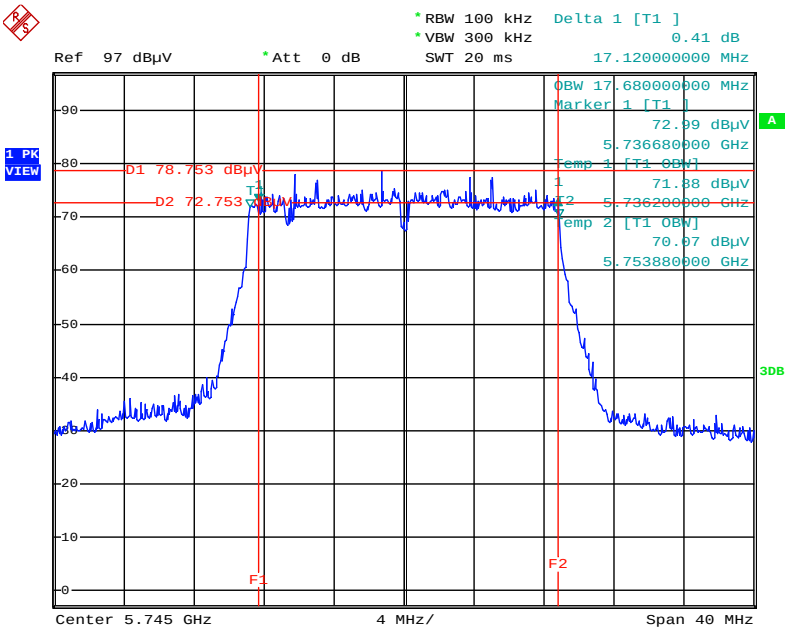
99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 3 + Chain 4 / 5775 MHz



Date: 11.NOV.2014 20:30:30

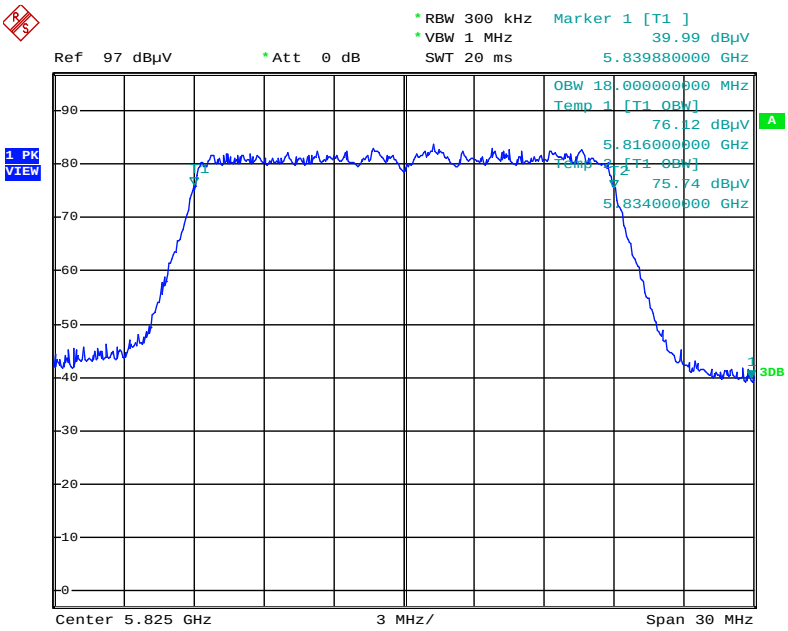
For 5GHz Band : Ant. 3

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4 / 5745 MHz



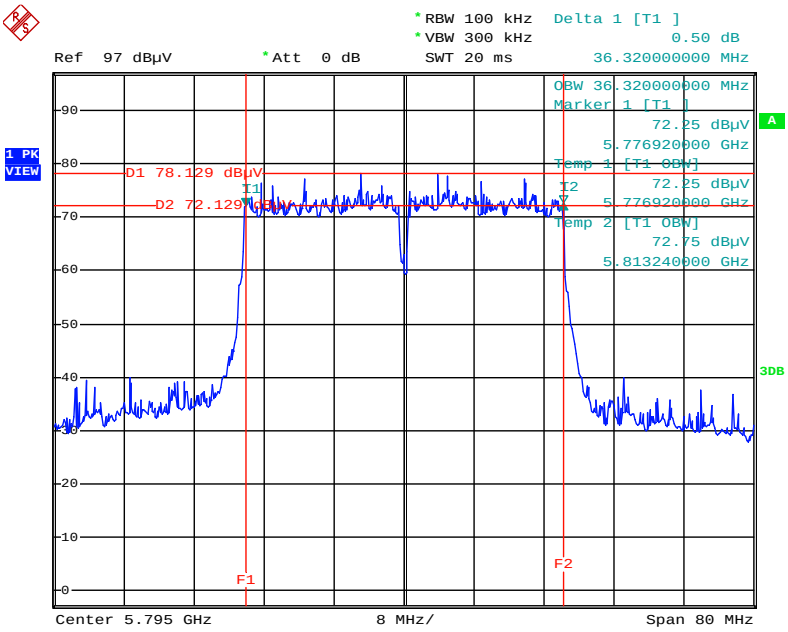
Date: 3.OCT.2014 11:14:40

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



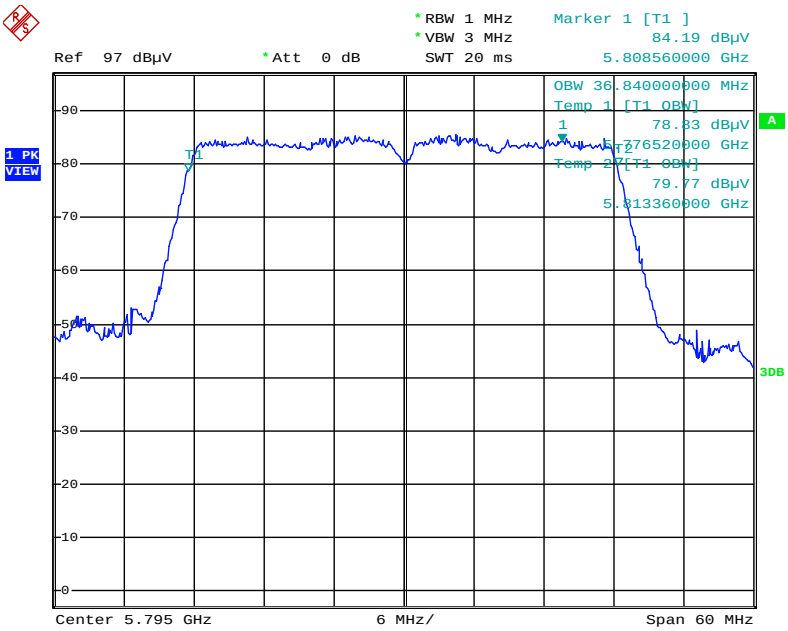
Date: 11.NOV.2014 20:34:18

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



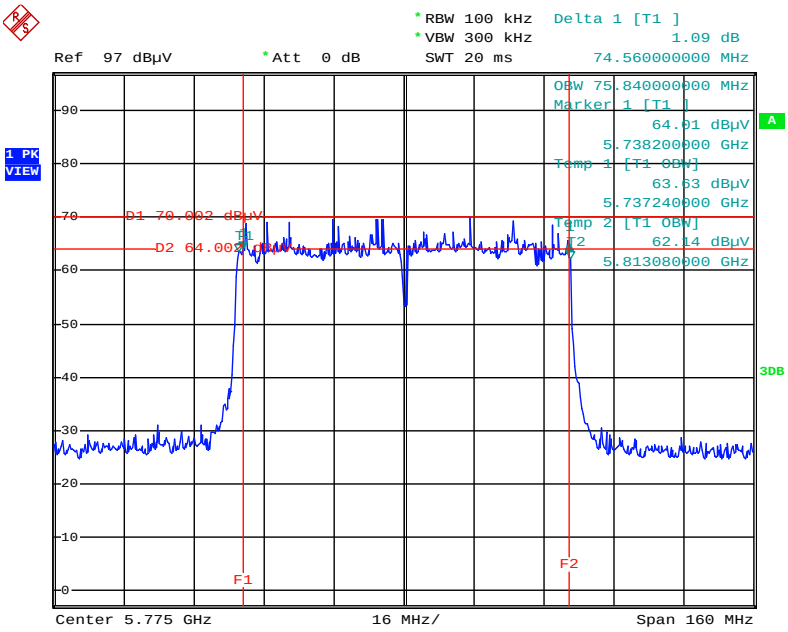
Date: 3.OCT.2014 11:17:31

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



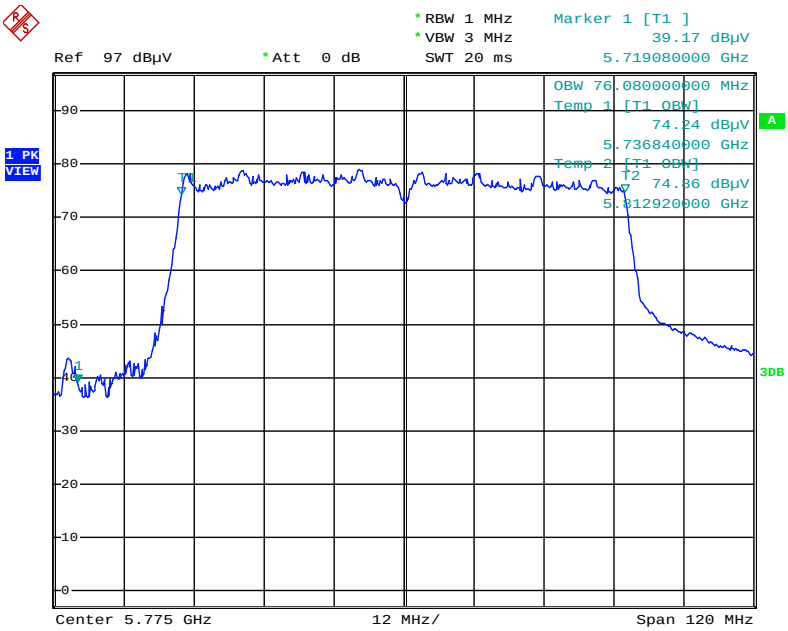
Date: 11.NOV.2014 20:35:50

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



Date: 3.OCT.2014 11:18:08

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



Date: 11.NOV.2014 20:36:23

4.4. Maximum Conducted Output Power Measurement

4.4.1. Limit

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

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

4.4.2. Measuring Instruments and Setting

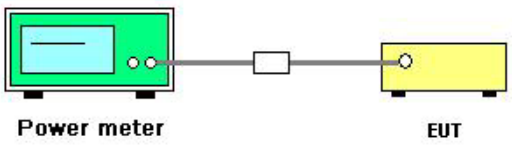
Please refer to section 5 of equipments list in this report. The following table is the setting of the power meter.

Power Meter Parameter	Setting
Detector	AVERAGE

4.4.3. Test Procedures

1. The transmitter output (antenna port) was connected to the power meter.
2. Test was performed in accordance with KDB789033 D02 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 / Mars Lin	Configurations	IEEE 802.11ac
Test Date	Sep. 10, 2014 / Oct. 03, 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		
36	5180 MHz	19.82	19.46	22.65	30.00	Complies
40	5200 MHz	22.33	21.94	25.15	30.00	Complies
48	5240 MHz	22.50	21.83	25.19	30.00	Complies
149	5745 MHz	16.28	16.72	19.52	30.00	Complies
157	5785 MHz	23.47	23.09	26.29	30.00	Complies
165	5825 MHz	17.51	17.86	20.70	30.00	Complies

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		
38	5190 MHz	17.22	16.76	20.01	30.00	Complies
46	5230 MHz	21.77	21.06	24.44	30.00	Complies
151	5755 MHz	12.47	12.87	15.68	30.00	Complies
159	5795 MHz	16.80	16.92	19.87	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		
42	5210 MHz	16.76	16.24	19.52	30.00	Complies
155	5775 MHz	11.08	11.91	14.53	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		
36	5180 MHz	17.42	16.84	20.15	30.00	Complies
40	5200 MHz	17.56	16.82	20.22	30.00	Complies
48	5240 MHz	15.84	15.22	18.55	30.00	Complies
149	5745 MHz	13.76	14.23	17.01	30.00	Complies
157	5785 MHz	16.81	16.68	19.76	30.00	Complies
165	5825 MHz	14.73	14.93	17.84	30.00	Complies

Note: Ant. Gain=17.1dBi, but Ant. 3 only support P to P, thus the Power limit doesn't need to reduce.

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		
38	5190 MHz	11.93	11.22	14.60	30.00	Complies
46	5230 MHz	18.07	17.52	20.81	30.00	Complies
151	5755 MHz	10.62	11.09	13.87	30.00	Complies
159	5795 MHz	14.82	15.68	18.28	30.00	Complies

Note: Ant. Gain=17.1dBi, but Ant. 3 only support P to P, thus the Power limit doesn't need to reduce.

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		
42	5210 MHz	9.79	9.72	12.77	30.00	Complies
155	5775 MHz	10.51	11.08	13.81	30.00	Complies

Note: Ant. Gain=17.1dBi, but Ant. 3 only support P to P, thus the Power limit doesn't need to reduce.

Temperature	26°C	Humidity	63%
Test Engineer	Jim Huang / Mars Lin	Configurations	IEEE 802.11a
Test Date	Sep. 10, 2014 / Oct. 03, 2014		

For 5GHz Band : Ant. 2

Configuration IEEE 802.11a / Chain 3

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
36	5180 MHz	23.41	30.00	Complies
40	5200 MHz	24.68	30.00	Complies
48	5240 MHz	24.91	30.00	Complies
149	5745 MHz	17.67	30.00	Complies
157	5785 MHz	24.52	30.00	Complies
165	5825 MHz	19.36	30.00	Complies

For 5GHz Band : Ant. 3

Configuration IEEE 802.11a / Chain 3

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
36	5180 MHz	17.35	30.00	Complies
40	5200 MHz	17.54	30.00	Complies
48	5240 MHz	15.92	30.00	Complies
149	5745 MHz	14.81	30.00	Complies
157	5785 MHz	17.09	30.00	Complies
165	5825 MHz	15.57	30.00	Complies

<For Beamforming Mode>

Temperature	26°C	Humidity	63%
Test Engineer	Jim Huang / Mars Lin	Configurations	IEEE 802.11ac
Test Date	Sep. 10, 2014 / Oct. 03, 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		
36	5180 MHz	18.92	18.38	21.67	27.49	Complies
40	5200 MHz	19.02	18.81	21.93	27.49	Complies
48	5240 MHz	19.31	18.79	22.07	27.49	Complies
149	5745 MHz	14.91	15.56	18.26	27.49	Complies
157	5785 MHz	21.35	20.97	24.17	27.49	Complies
165	5825 MHz	15.36	16.41	18.93	27.49	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =8.51dBi >6dBi,So Band1 Power Limit =30-(8.51-6)=27.49dBm

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =8.51dBi > 6dBi,So Band4 Power Limit =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		
38	5190 MHz	16.28	15.61	18.97	27.49	Complies
46	5230 MHz	19.34	18.81	22.09	27.49	Complies
151	5755 MHz	11.05	11.97	14.54	27.49	Complies
159	5795 MHz	16.38	16.95	19.68	27.49	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =8.51dBi >6dBi,So Band1 Power Limit =30-(8.51-6)=27.49dBm

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =8.51dBi > 6dBi,So Band4 Power Limit =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		
42	5210 MHz	16.76	16.24	19.52	27.49	Complies
155	5775 MHz	11.67	12.11	14.91	27.49	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =8.51dBi >6dBi,So Band1 Power Limit =30-(8.51-6)=27.49dBm

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =8.51dBi > 6dBi,So Band4 Power Limit =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		
36	5180 MHz	14.43	14.26	17.36	30.00	Complies
40	5200 MHz	14.56	14.36	17.47	30.00	Complies
48	5240 MHz	14.48	14.06	17.29	30.00	Complies
149	5745 MHz	13.62	13.22	16.43	30.00	Complies
157	5785 MHz	16.46	16.32	19.40	30.00	Complies
165	5825 MHz	15.42	15.36	18.40	30.00	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =20.11dBi >6dBi, but Ant. 3 only support P to P, thus the Power limit doesn't need to reduce.

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		
38	5190 MHz	11.93	11.22	14.60	30.00	Complies
46	5230 MHz	18.07	17.52	20.81	30.00	Complies
151	5755 MHz	10.64	10.16	13.42	30.00	Complies
159	5795 MHz	14.94	14.32	17.65	30.00	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =20.11dBi >6dBi, but Ant. 3 only support P to P, thus the Power limit doesn't need to reduce.

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		
42	5210 MHz	9.79	9.72	12.77	30.00	Complies
155	5775 MHz	10.60	9.72	13.19	30.00	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =20.11dBi >6dBi, but Ant. 3 only support P to P, thus the Power limit doesn't need to reduce.

4.5. Power Spectral Density Measurement

4.5.1. Limit

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

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

4.5.2. Measuring Instruments and Setting

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

For 5.15~5.25 GHz

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

For 5.725~5.85 GHz

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Set the span to 1.5 times the DTS channel bandwidth.
RBW	RBW ≥ 1/T
VBW	VBW ≥ 3 RBW
Detector	Peak
Trace	Max Hold
Sweep Time	Auto couple
Note: If measurement bandwidth of Maximum PSD is specified in 500 kHz, add 10log(500kHz/RBW) to the measured result, whereas RBW (< 500 kHz) is the reduced resolution bandwidth of the spectrum analyzer set during measurement.	

4.5.3. Test Procedures

For 5.15~5.25 GHz

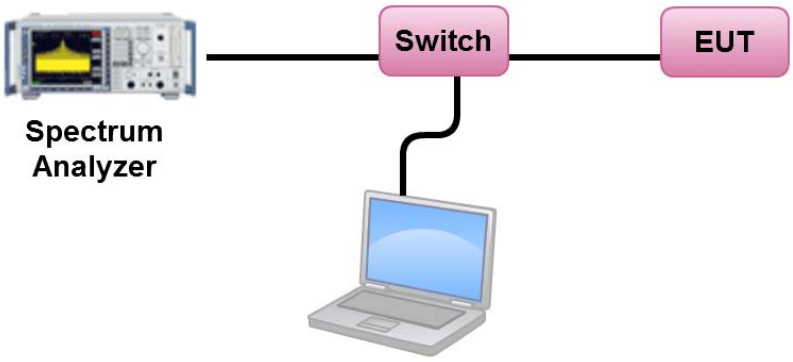
1. The transmitter output (antenna port) was connected RF switch to the spectrum analyzer.
2. Test was performed in accordance with KDB789033 D02 v01 for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - section (F) Maximum Power Spectral Density (PSD).
3. Multiple 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.

For 5.725~5.85 GHz

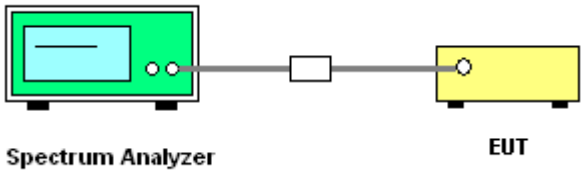
1. Test procedures refer KDB662911 D01 v02r01 section In-Band Power Spectral Density (PSD) Measurements option (b) Measure and sum spectral maximal across the outputs.
2. Use this procedure when the maximum conducted output power in the fundamental emission is used to demonstrate compliance. The EUT must be configured to transmit continuously at full power over the measurement duration.
3. Ensure that the number of measurement points in the sweep ≥ 2 x span/RBW (use of a greater number of measurement points than this minimum requirement is recommended).
4. Use the peak marker function to determine the maximum level in any 3 kHz band segment within the fundamental EBW.
5. The measured result of PSD level must add 10log(500kHz/RBW) and the final result should ≤ 30 dBm.

4.5.4. Test Setup Layout

For 5.15~5.25 GHz



For 5.725~5.85 GHz



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 / Mars Lin	Configurations	IEEE 802.11ac
Test Date	Sep. 10, 2014 / Oct. 03, 2014		

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
36	5180 MHz	9.02	14.49	Complies
40	5200 MHz	12.15	14.49	Complies
48	5240 MHz	13.20	14.49	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =8.51dBi >6dBi,So Band1 PSD Limit =17-(8.51-6)=14.49dBm/MHz

Channel	Frequency	Power Density (dBm/3kHz)			BWCF factor	Total Power Density	Power Density Limit	Result
		Chain 3	Chain 4	Total	3kHz to 500kHz	dBm/500kHz		
149	5745 MHz	-9.52	-8.82	-6.15	22.22	16.07	27.49	Complies
157	5785 MHz	-3.38	-3.24	-0.30	22.22	21.92	27.49	Complies
165	5825 MHz	-6.47	-7.49	-3.94	22.22	18.28	27.49	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =8.51dBi > 6dBi,So Power Density 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
38	5190 MHz	3.15	14.49	Complies
46	5230 MHz	8.01	14.49	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =8.51dBi >6dBi,So Band1 PSD Limit =17-(8.51-6)=14.49dBm/MHz

Channel	Frequency	Power Density (dBm/3kHz)			BWCF factor	Total Power Density	Power Density Limit	Result
		Chain 3	Chain 4	Total	3kHz to 500kHz	dBm/500kHz		
151	5755 MHz	-15.24	-14.19	-11.67	22.22	10.55	27.49	Complies
159	5795 MHz	-11.84	-11.21	-8.50	22.22	13.72	27.49	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =8.51dBi > 6dBi,So Power Density Limit =30-(8.51-6)=27.49dBm/500kHz

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

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
42	5210 MHz	-0.07	14.49	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =8.51dBi >6dBi,So Band1 PSD Limit =17-(8.51-6)=14.49dBm/MHz

Channel	Frequency	Power Density (dBm/3kHz)			BWCF factor	Total Power Density	Power Density Limit	Result
		Chain 3	Chain 4	Total	3kHz to 500kHz	dBm/500kHz		
155	5775 MHz	-20.91	-19.92	-17.38	22.22	4.84	27.49	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =8.51dBi > 6dBi,So Power Density Limit =30-(8.51-6)=27.49dBm/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
36	5180 MHz	6.63	17.00	Complies
40	5200 MHz	7.04	17.00	Complies
48	5240 MHz	5.19	17.00	Complies

Channel	Frequency	Power Density (dBm/3kHz)			BWCF factor	Total Power Density	Power Density Limit	Result
		Chain 3	Chain 4	Total	3kHz to 500kHz	dBm/500kHz		
149	5745 MHz	-11.30	-11.26	-8.27	22.22	13.95	30.00	Complies
157	5785 MHz	-7.50	-7.84	-4.66	22.22	17.56	30.00	Complies
165	5825 MHz	-10.04	-10.30	-7.16	22.22	15.06	30.00	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =17.1dBi, but Ant. 3 only support P to P, thus the PSD limit doesn't need to reduce.

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

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	-1.75	17.00	Complies
46	5230 MHz	4.52	17.00	Complies

Channel	Frequency	Power Density (dBm/3kHz)			BWCF factor	Total Power Density	Power Density Limit	Result
		Chain 3	Chain 4	Total	3kHz to 500kHz	dBm/500kHz		
151	5755 MHz	-17.56	-15.94	-13.66	22.22	8.56	30.00	Complies
159	5795 MHz	-11.70	-12.26	-8.96	22.22	13.26	30.00	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =17.1dBi, but Ant. 3 only support P to P, thus the PSD limit doesn't need to reduce.

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

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
42	5210 MHz	-6.75	17.00	Complies

Channel	Frequency	Power Density (dBm/3kHz)			BWCF factor	Total Power Density	Power Density Limit	Result
		Chain 3	Chain 4	Total	3kHz to 500kHz	dBm/500kHz		
155	5775 MHz	-21.27	-20.66	-17.94	22.22	4.28	30.00	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =17.1dBi, but Ant. 3 only support P to P, thus the PSD limit doesn't need to reduce.

Temperature	26°C	Humidity	63%
Test Engineer	Jim Huang / Mars Lin	Configurations	IEEE 802.11a
Test Date	Sep. 10, 2014 / Oct. 03, 2014		

For 5GHz Band : Ant. 2

Configuration IEEE 802.11a / Chain 3

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	9.82	17.00	Complies
40	5200 MHz	10.93	17.00	Complies
48	5240 MHz	11.68	17.00	Complies

Channel	Frequency	Power Density (dBm/3kHz)	BWCF factor	Total Power Density	Power Density Limit	Result
			3kHz to 500kHz	dBm/500kHz		
149	5745 MHz	-7.89	22.22	14.33	30.00	Complies
157	5785 MHz	-0.67	22.22	21.55	30.00	Complies
165	5825 MHz	-5.37	22.22	16.85	30.00	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =17.1dBi, but Ant. 3 only support P to P, thus the PSD limit doesn't need to reauce.

For 5GHz Band : Ant. 3

Configuration IEEE 802.11a / Chain 3

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	4.09	17.00	Complies
40	5200 MHz	4.21	17.00	Complies
48	5240 MHz	2.69	17.00	Complies

Channel	Frequency	Power Density (dBm/3kHz)	BWCF factor	Total Power Density	Power Density Limit	Result
			3kHz to 500kHz	dBm/500kHz		
149	5745 MHz	-9.73	22.22	12.49	30.00	Complies
157	5785 MHz	-8.18	22.22	14.04	30.00	Complies
165	5825 MHz	-8.72	22.22	13.50	30.00	Complies

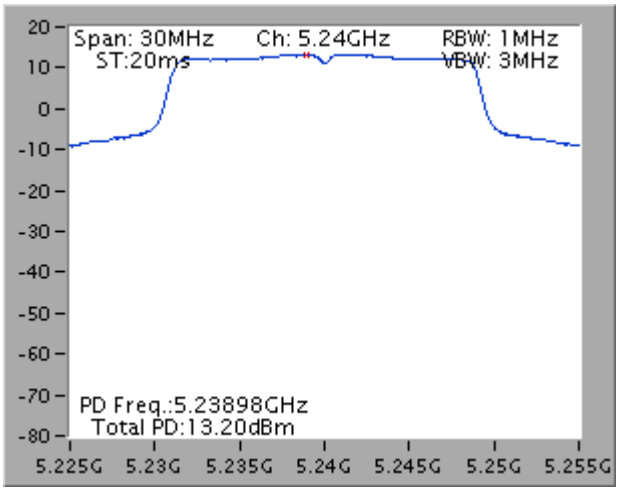
Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =17.1dBi, but Ant. 3 only support P to P, thus the PSD limit doesn't need to reauce.

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

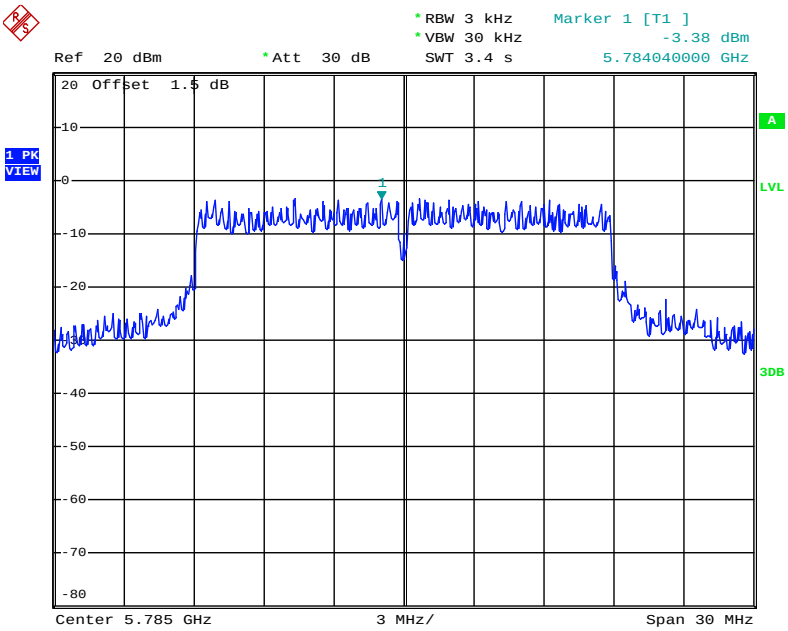
For plots, only the channel with worse result was shown.

For 5GHz Band : Ant. 2

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4 / 5240 MHz

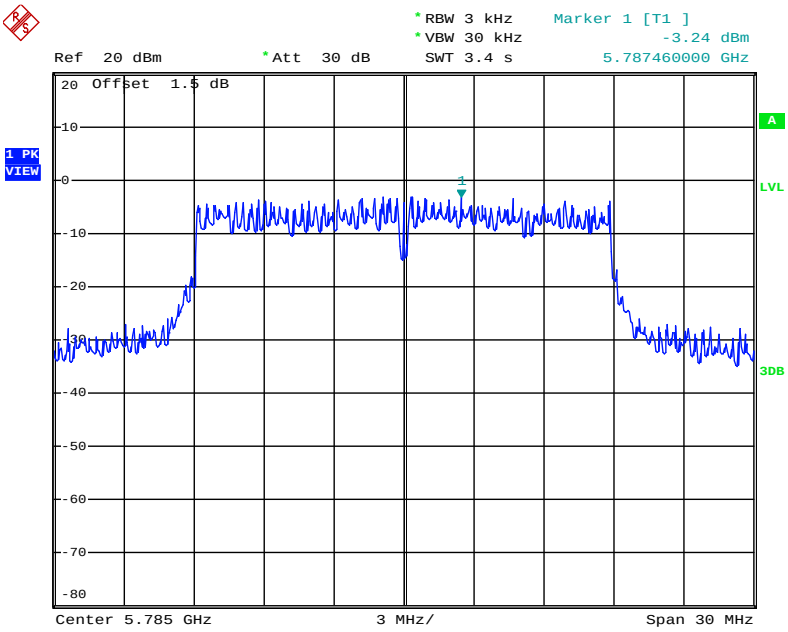


Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 / 5785 MHz



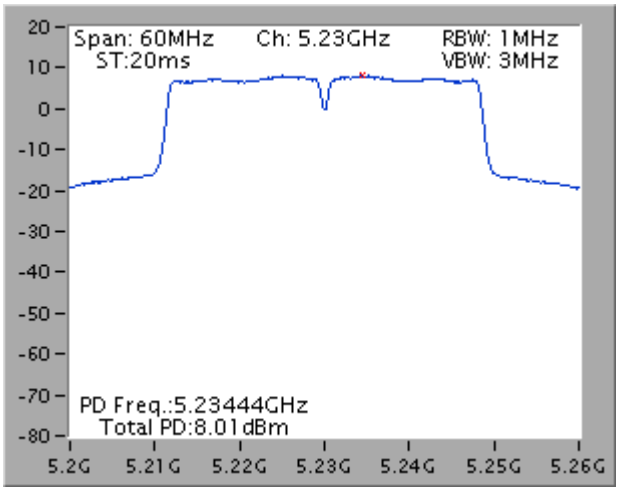
Date: 3.OCT.2014 08:47:57

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

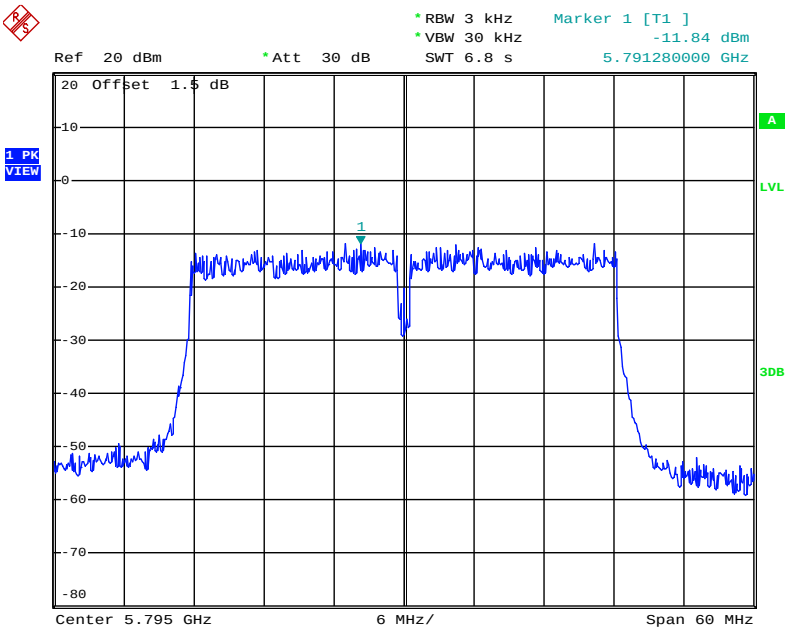


Date: 3.OCT.2014 08:49:09

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

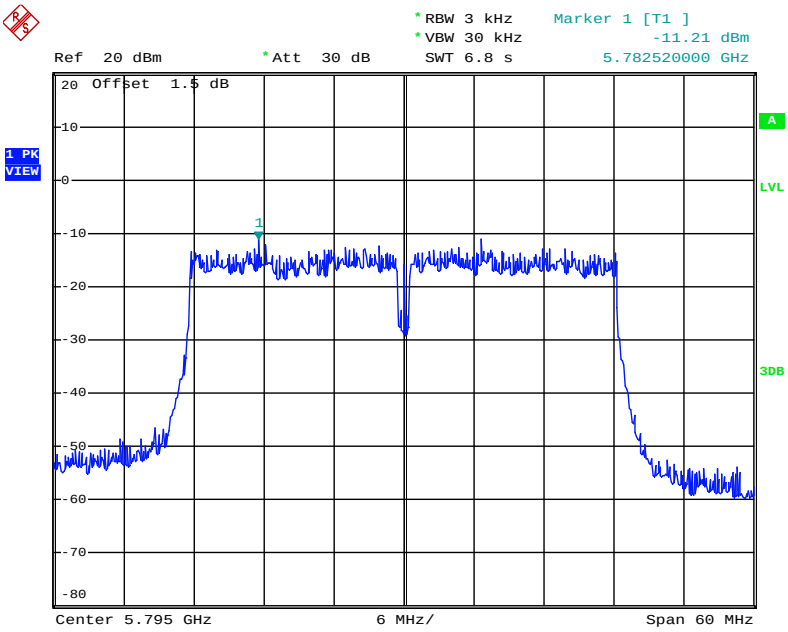


Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 3 / 5795 MHz



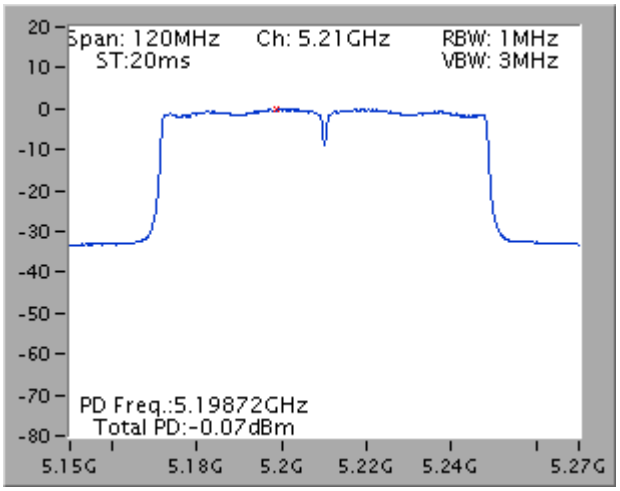
Date: 3.OCT.2014 08:52:38

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

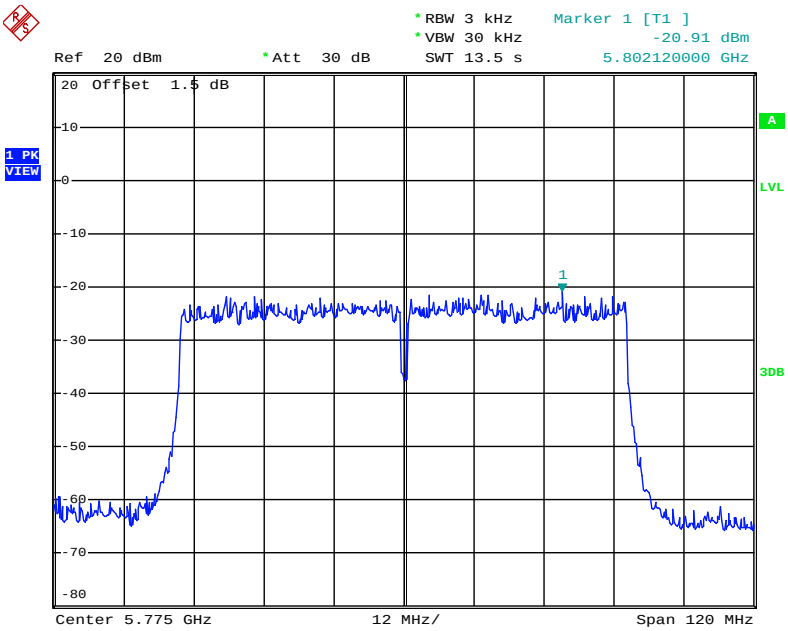


Date: 3.OCT.2014 08:51:35

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

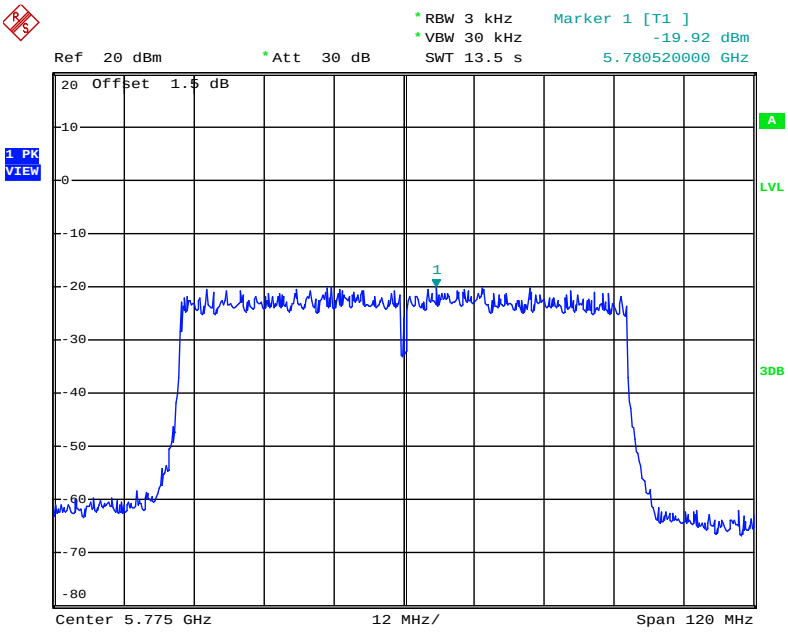


Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 3 / 5775 MHz



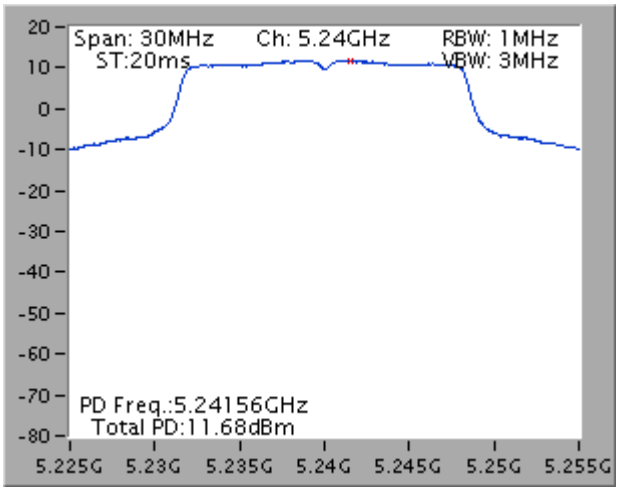
Date: 3.OCT.2014 08:53:37

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

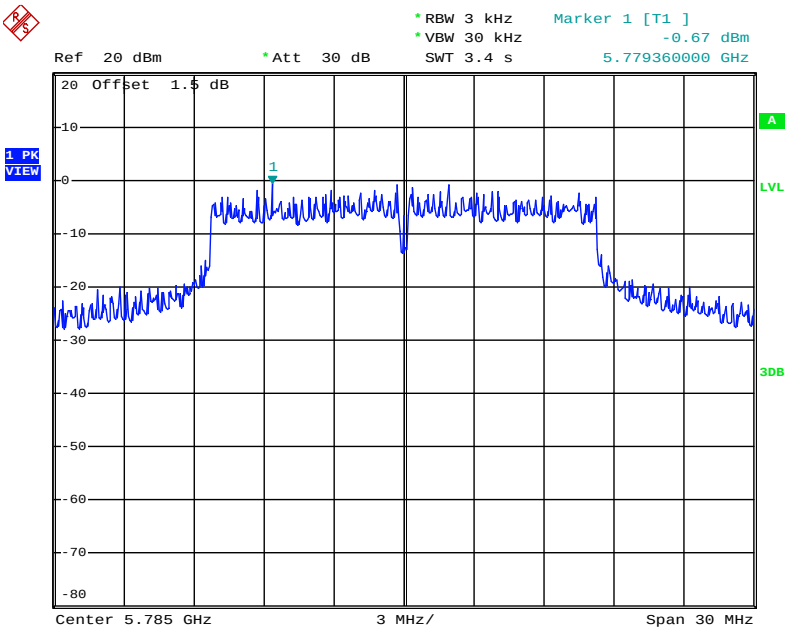


Date: 3.OCT.2014 08:54:22

Power Density Plot on Configuration IEEE 802.11a / Chain 3 / 5240 MHz



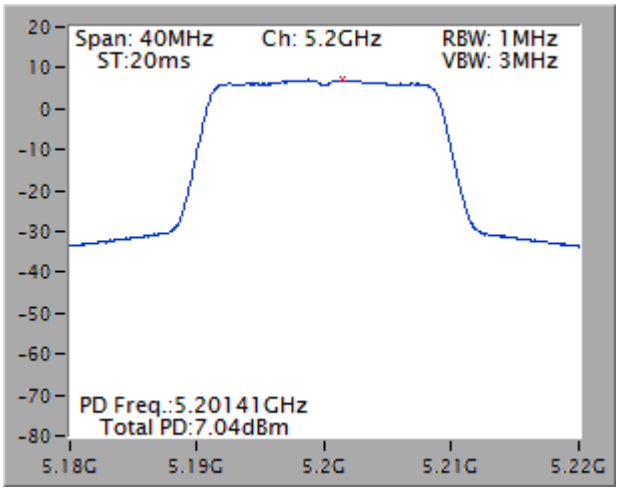
Power Density Plot on Configuration IEEE 802.11a / Chain 3 / 5785 MHz



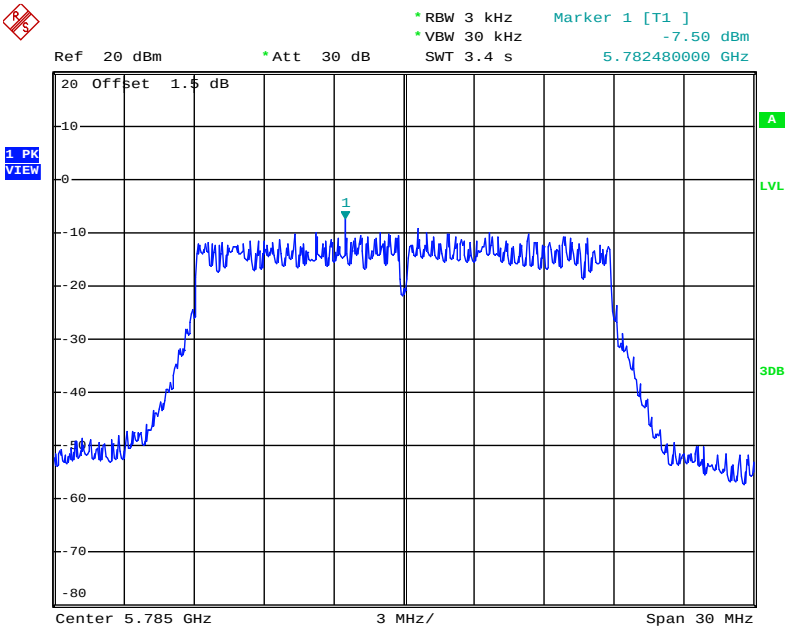
Date: 3.OCT.2014 08:45:12

For 5GHz Band : Ant. 3

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4 / 5200 MHz

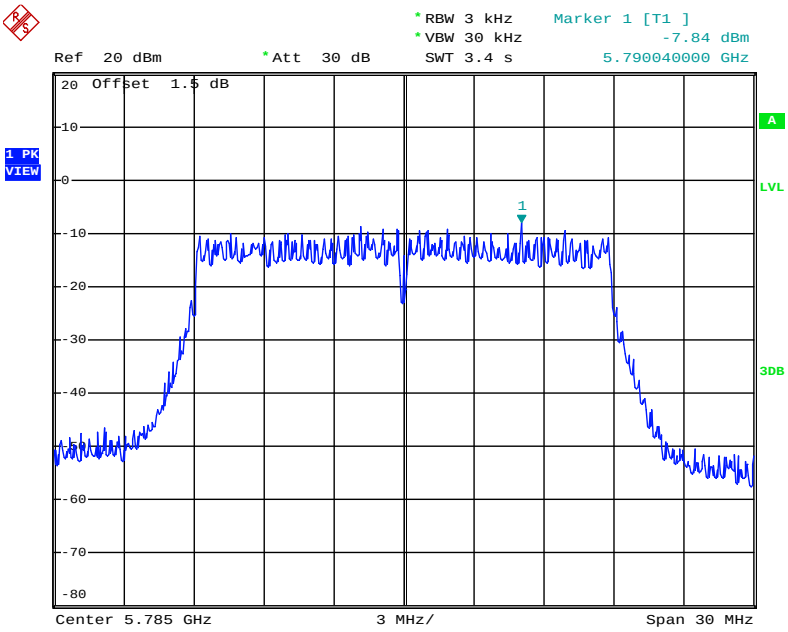


Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 / 5785 MHz



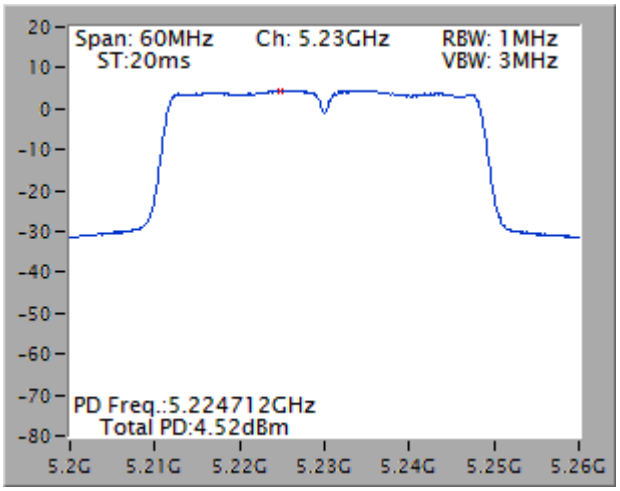
Date: 3.OCT.2014 10:57:54

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

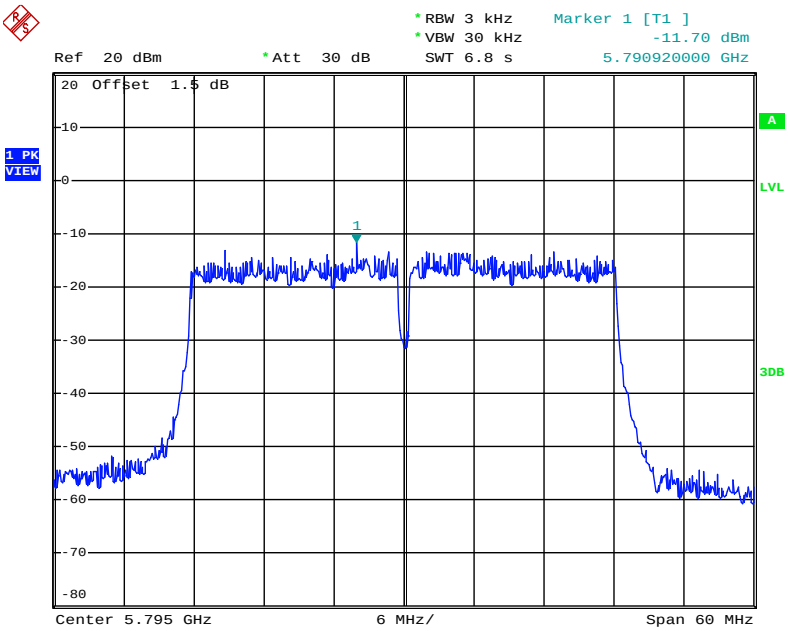


Date: 3.OCT.2014 10:57:25

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

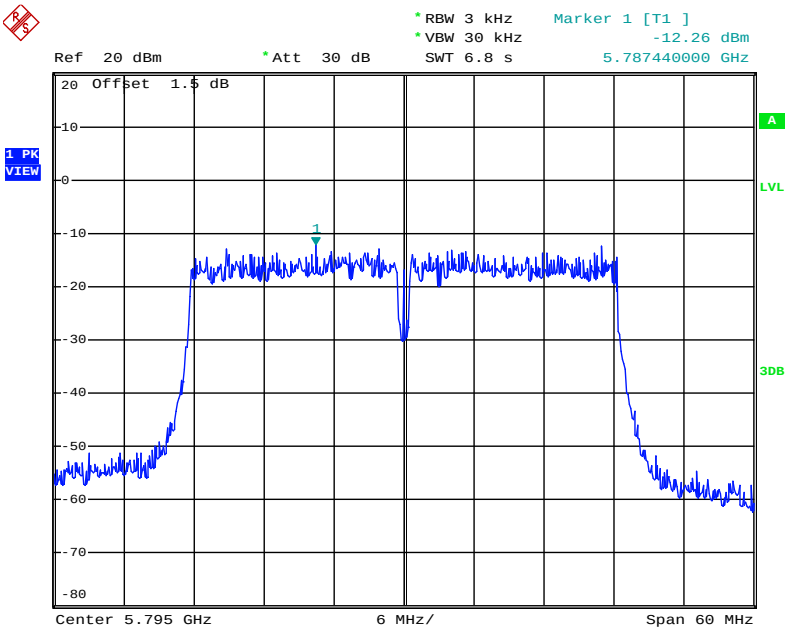


Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 3 / 5795 MHz



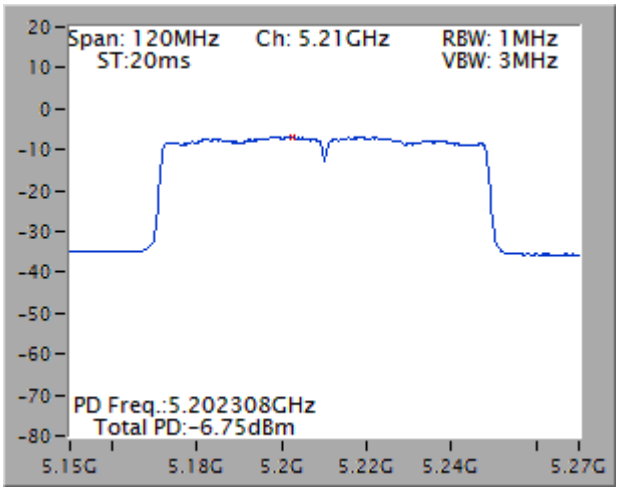
Date: 3.OCT.2014 11:01:05

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

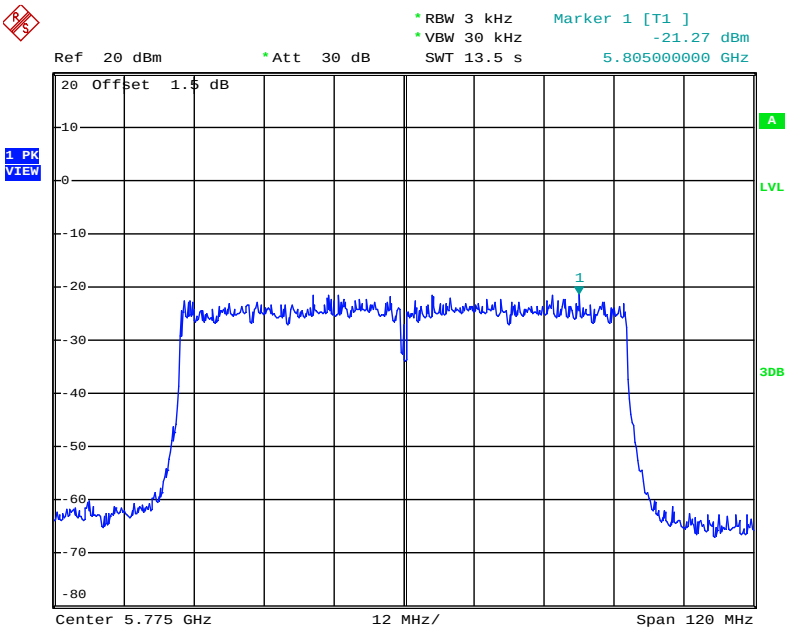


Date: 3.OCT.2014 11:01:40

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

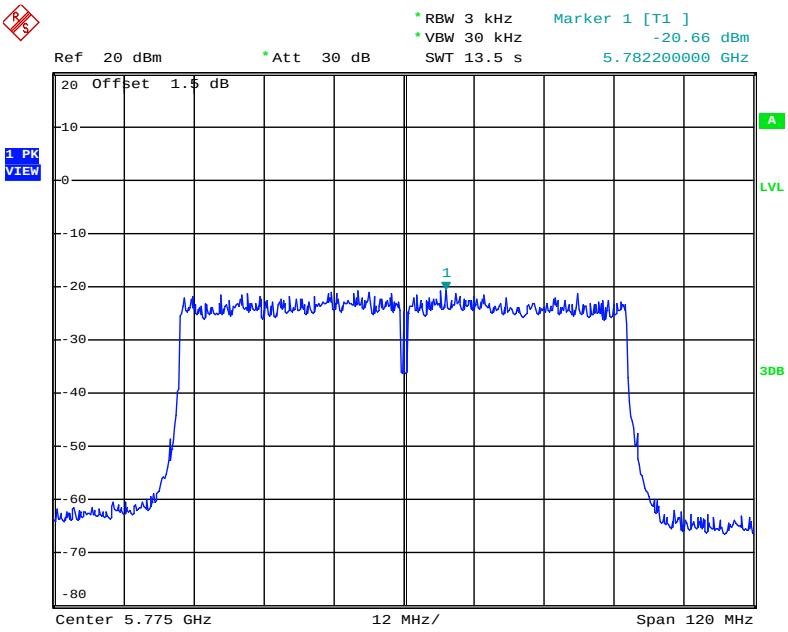


Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 3 / 5775 MHz

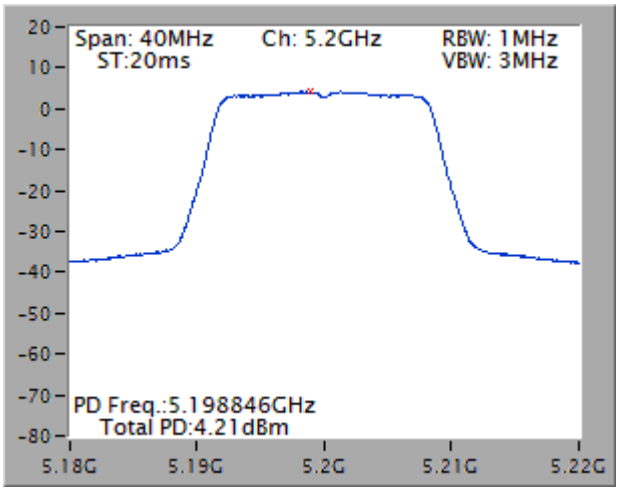


Date: 3.OCT.2014 11:03:31

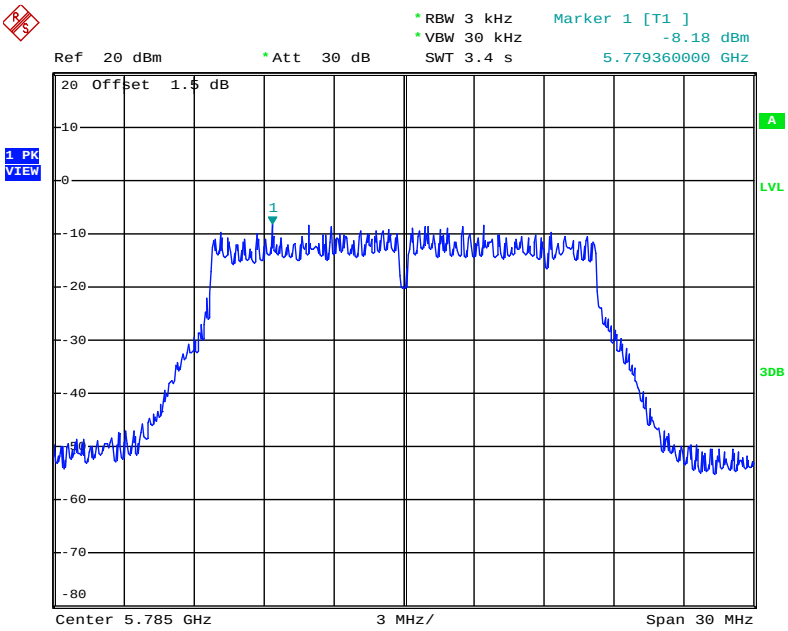
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 4 / 5775 MHz



Power Density Plot on Configuration IEEE 802.11a / Chain 3 / 5200 MHz



Power Density Plot on Configuration IEEE 802.11a / Chain 3 / 5785 MHz



Date: 3.OCT.2014 10:53:56

<For Beamforming Mode>

Temperature	26°C	Humidity	63%
Test Engineer	Jim Huang / Mars Lin	Configurations	IEEE 802.11ac
Test Date	Sep. 10, 2014 / Oct. 03, 2014		

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
36	5180 MHz	9.50	14.49	Complies
40	5200 MHz	11.50	14.49	Complies
48	5240 MHz	11.89	14.49	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =8.51dBi >6dBi,So Band1 PSD Limit =17-(8.51-6)=14.49dBm/MHz

Channel	Frequency	Power Density (dBm/3kHz)			BWCF factor	Total Power Density	Power Density Limit	Result
		Chain 3	Chain 4	Total	3kHz to 500kHz	dBm/500kHz		
149	5745 MHz	-9.75	-9.95	-6.84	22.22	15.38	27.49	Complies
157	5785 MHz	-3.39	-3.61	-0.49	22.22	21.73	27.49	Complies
165	5825 MHz	-7.73	-8.45	-5.06	22.22	17.16	27.49	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =8.51dBi > 6dBi,So Power Density 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
38	5190 MHz	4.44	14.49	Complies
46	5230 MHz	9.74	14.49	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =8.51dBi >6dBi,So Band1 PSD Limit =17-(8.51-6)=14.49dBm/MHz

Channel	Frequency	Power Density (dBm/3kHz)			BWCF factor	Total Power Density	Power Density Limit	Result
		Chain 3	Chain 4	Total	3kHz to 500kHz	dBm/500kHz		
151	5755 MHz	-16.83	-15.90	-13.33	22.22	8.89	27.49	Complies
159	5795 MHz	-10.43	-10.97	-7.68	22.22	14.54	27.49	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =8.51dBi > 6dBi,So Power Density Limit =30-(8.51-6)=27.49dBm/500kHz

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

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
42	5210 MHz	-0.07	14.49	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =8.51dBi >6dBi,So Band1 PSD Limit =17-(8.51-6)=14.49dBm/MHz

Channel	Frequency	Power Density (dBm/3kHz)			BWCF factor	Total Power Density	Power Density Limit	Result
		Chain 3	Chain 4	Total	3kHz to 500kHz	dBm/500kHz		
155	5775 MHz	-19.57	-18.60	-16.05	22.22	6.17	27.49	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =8.51dBi > 6dBi,So Power Density Limit =30-(8.51-6)=27.49dBm/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
36	5180 MHz	3.94	17.00	Complies
40	5200 MHz	4.07	17.00	Complies
48	5240 MHz	3.87	17.00	Complies

Channel	Frequency	Power Density (dBm/3kHz)			BWCF factor	Total Power Density	Power Density Limit	Result
		Chain 3	Chain 4	Total	3kHz to 500kHz	dBm/500kHz		
149	5745 MHz	-12.00	-12.14	-9.06	22.22	13.16	30.00	Complies
157	5785 MHz	-9.00	-8.92	-5.95	22.22	16.27	30.00	Complies
165	5825 MHz	-9.51	-9.34	-6.41	22.22	15.81	30.00	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =17.1dBi, but Ant. 3 only support P to P, thus the PSD limit doesn't need to reduce.

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

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	-1.79	17.00	Complies
46	5230 MHz	4.48	17.00	Complies

Channel	Frequency	Power Density (dBm/3kHz)			BWCF factor	Total Power Density	Power Density Limit	Result
		Chain 3	Chain 4	Total	3kHz to 500kHz	dBm/500kHz		
151	5755 MHz	-16.88	-17.34	-14.09	22.22	8.13	30.00	Complies
159	5795 MHz	-12.85	-13.00	-9.91	22.22	12.31	30.00	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =17.1dBi, but Ant. 3 only support P to P, thus the PSD limit doesn't need to reduce.

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

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
42	5210 MHz	-6.68	17.00	Complies

Channel	Frequency	Power Density (dBm/3kHz)			BWCF factor	Total Power Density	Power Density Limit	Result
		Chain 3	Chain 4	Total	3kHz to 500kHz	dBm/500kHz		
155	5775 MHz	-21.58	-19.32	-17.29	22.22	4.93	30.00	Complies

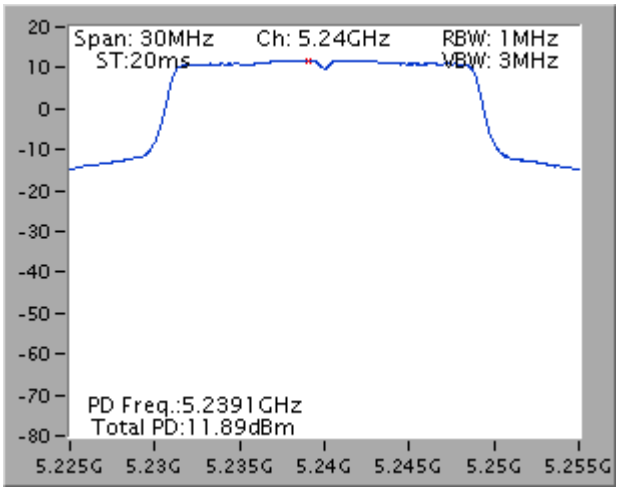
Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =17.1dBi, but Ant. 3 only support P to P, thus the PSD limit doesn't need to reduce.

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

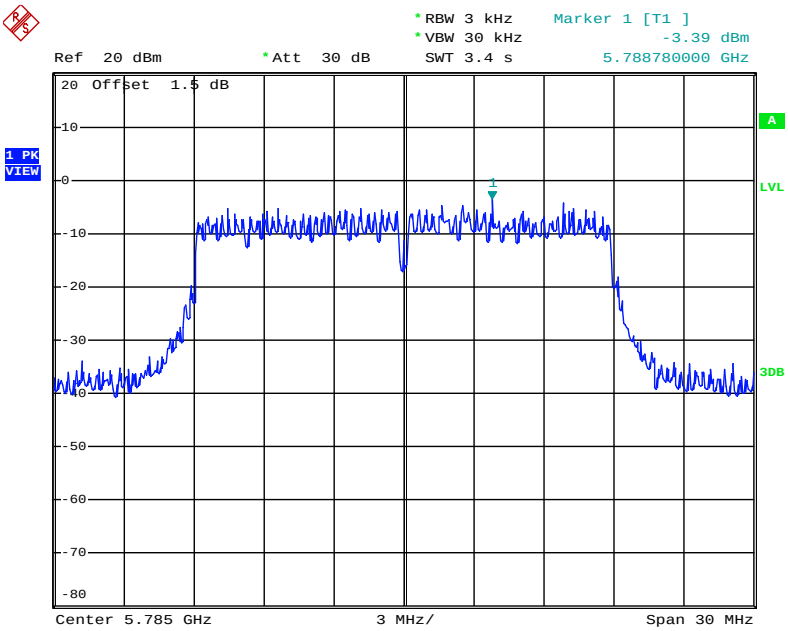
For plots, only the channel with worse result was shown.

For 5GHz Band : Ant. 2

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4 / 5240 MHz

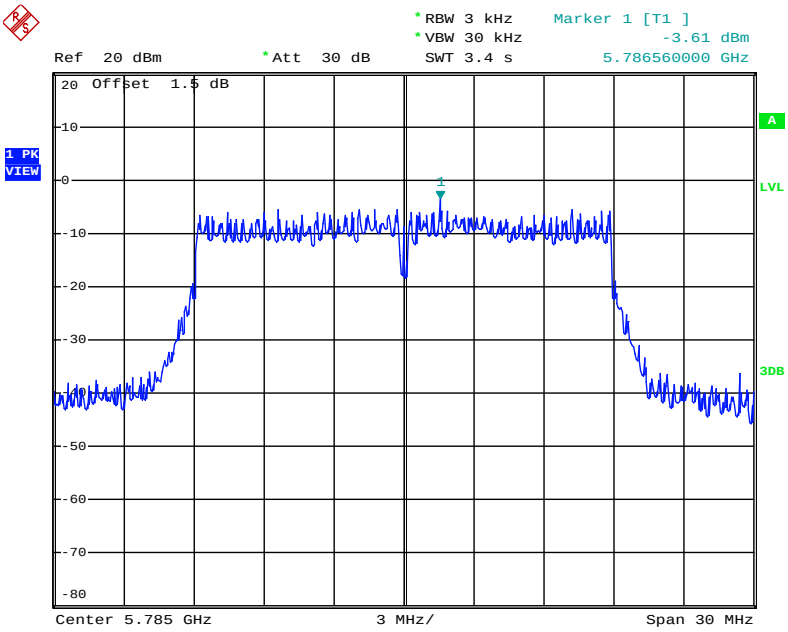


Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 / 5785 MHz



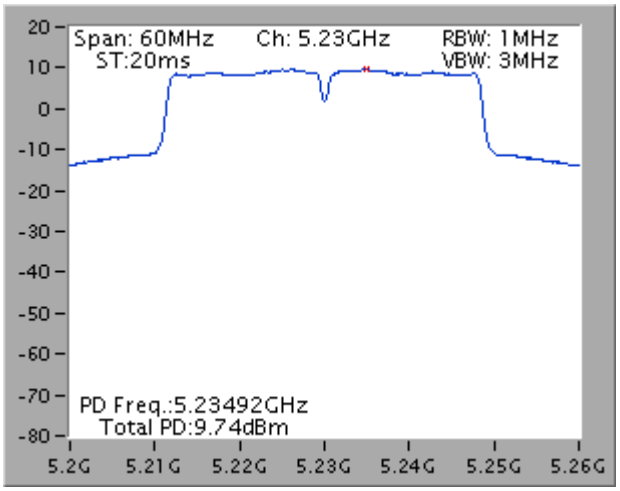
Date: 3.OCT.2014 08:57:18

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4 / 5845 MHz

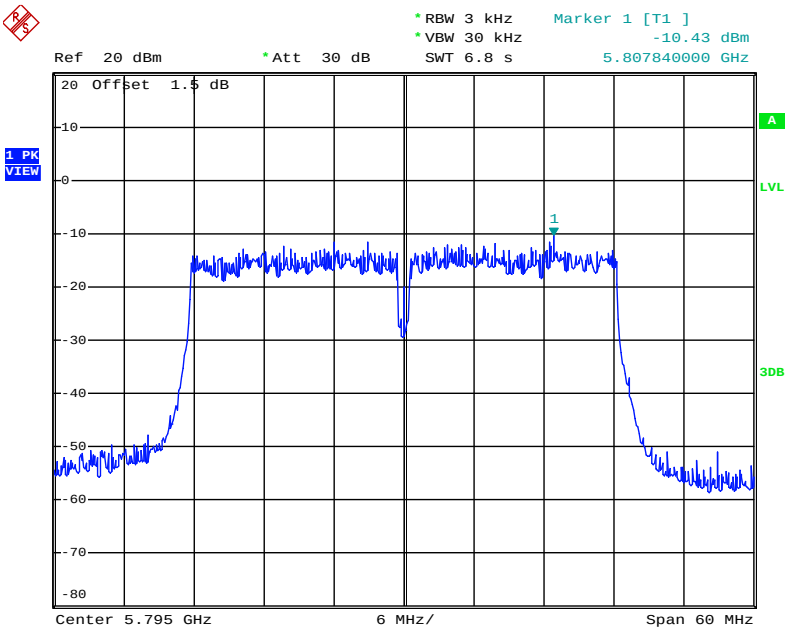


Date: 3.OCT.2014 08:57:48

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

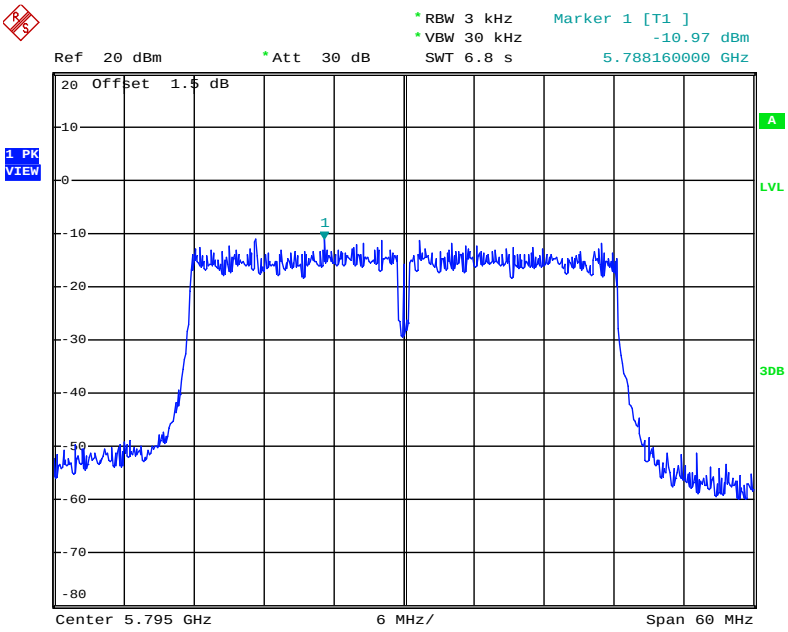


Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 3 / 5795 MHz



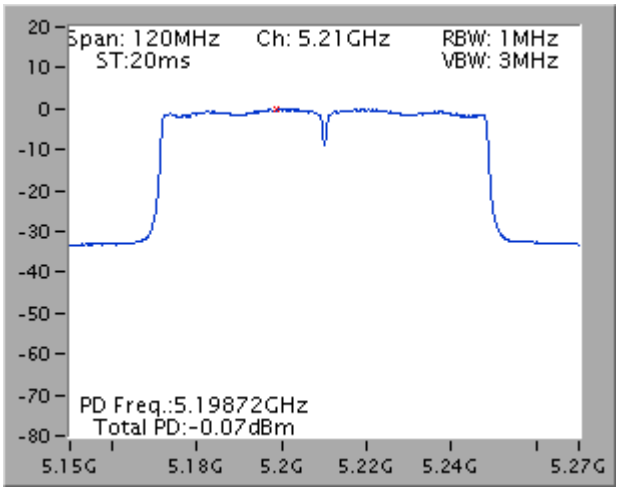
Date: 3.OCT.2014 09:00:52

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

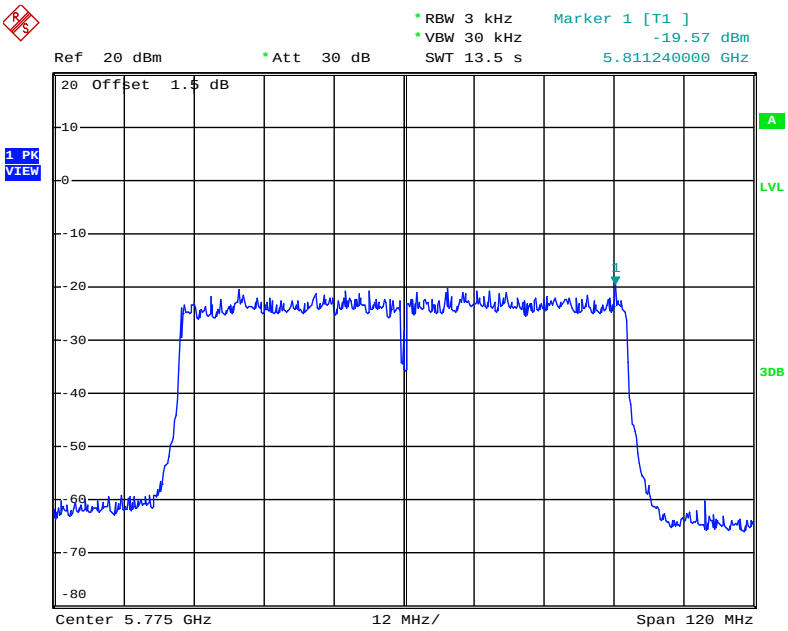


Date: 3.OCT.2014 09:00:22

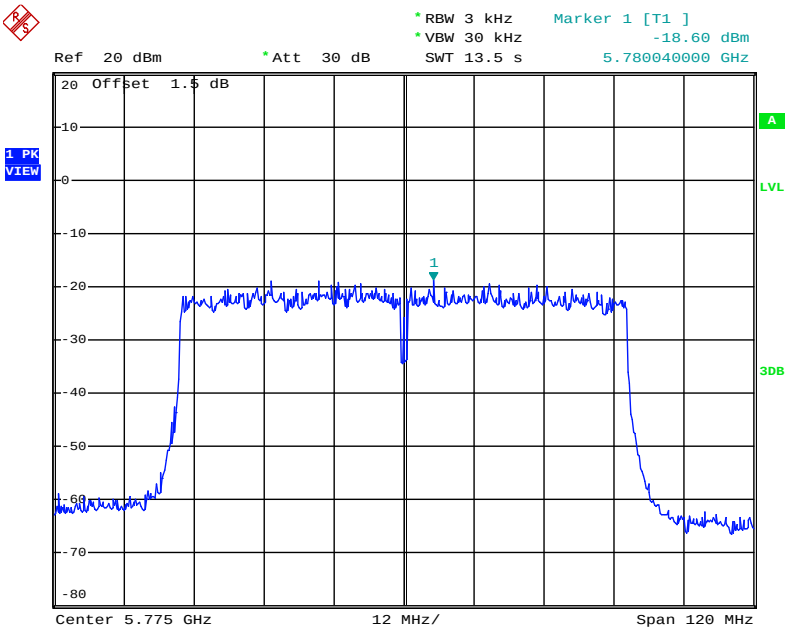
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 3 + Chain 4 / 5210 MHz



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

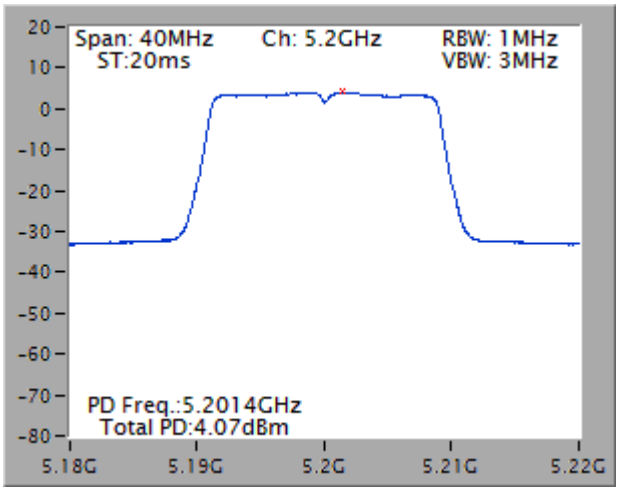


Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 4 / 5775 MHz

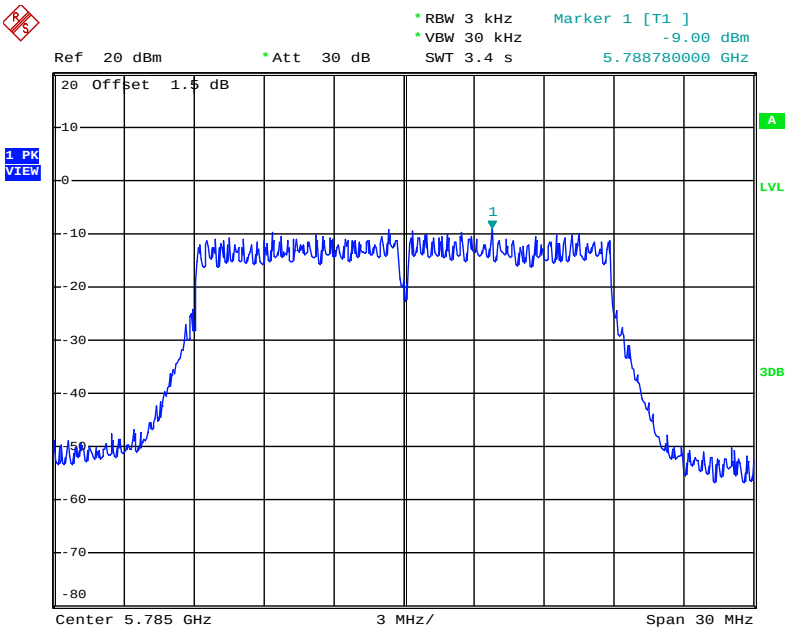


For 5GHz Band : Ant. 3

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 + Chain 4 / 5200 MHz

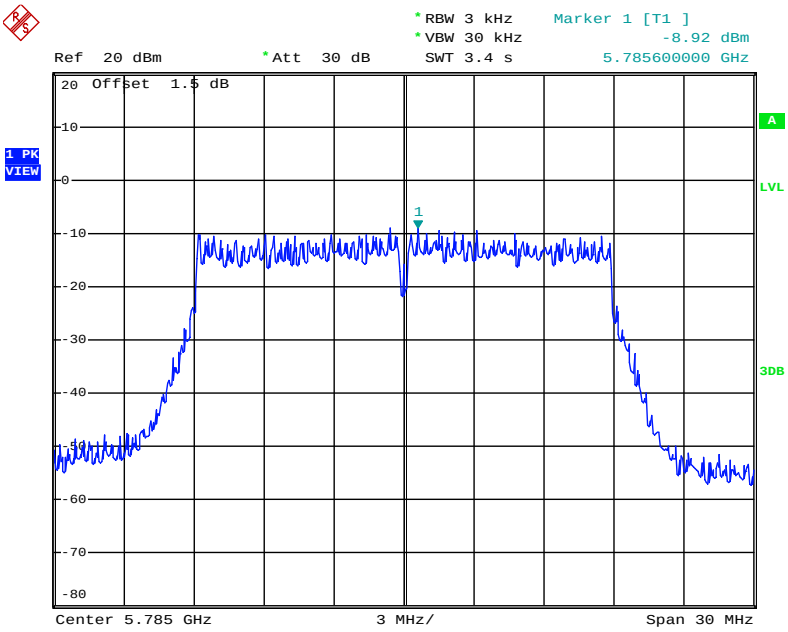


Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 3 / 5785 MHz

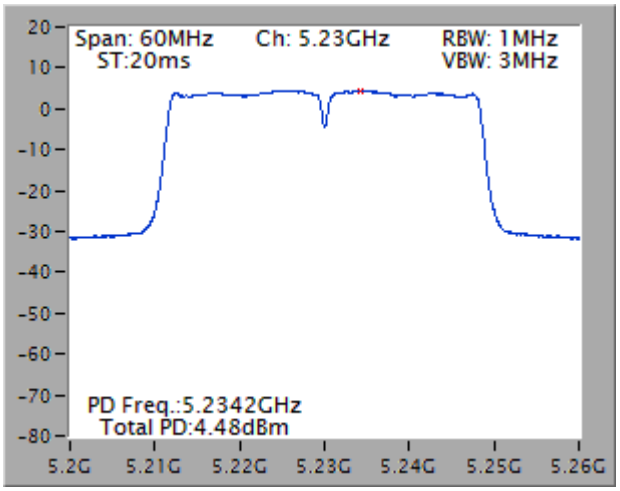


Date: 3.OCT.2014 11:07:57

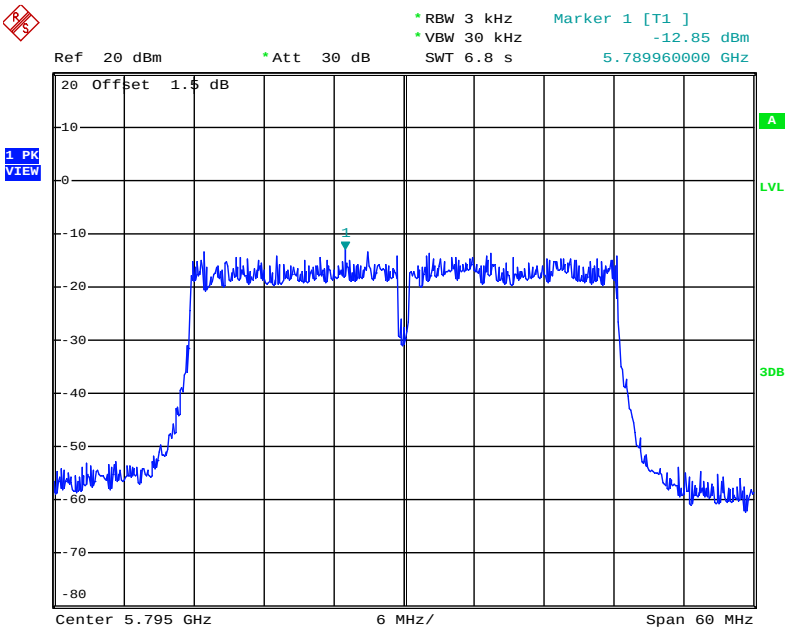
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 4 / 5785 MHz



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

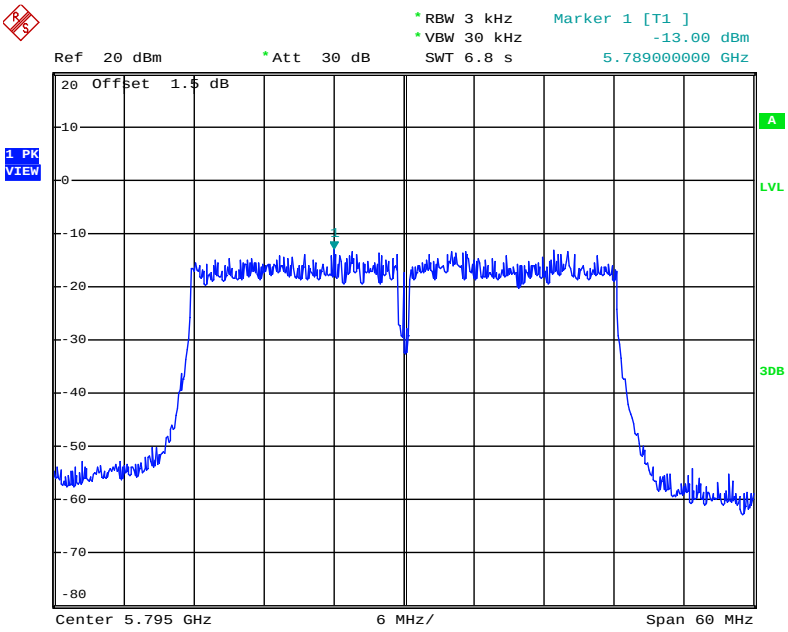


Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 3 / 5795 MHz



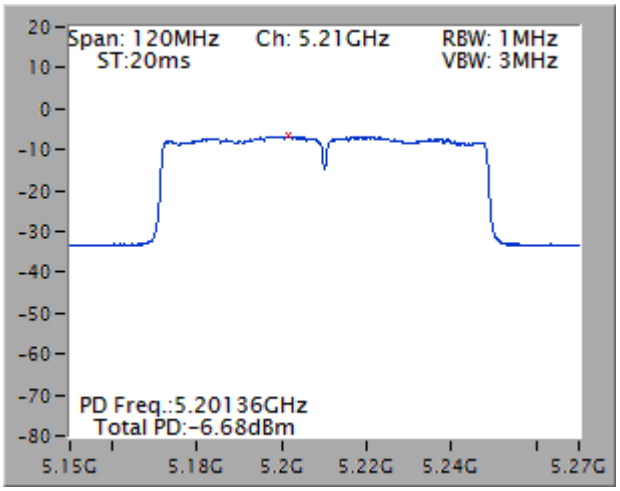
Date: 3.OCT.2014 11:12:28

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

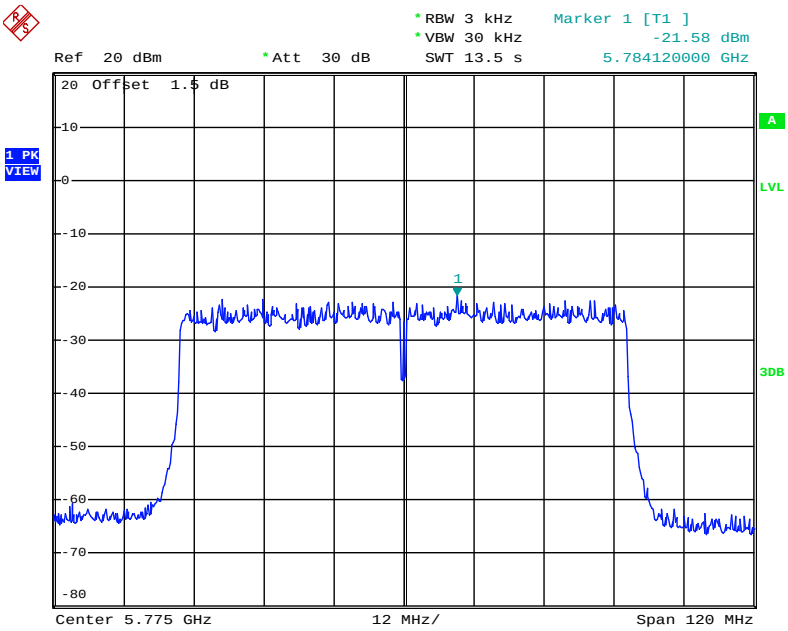


Date: 3.OCT.2014 11:11:54

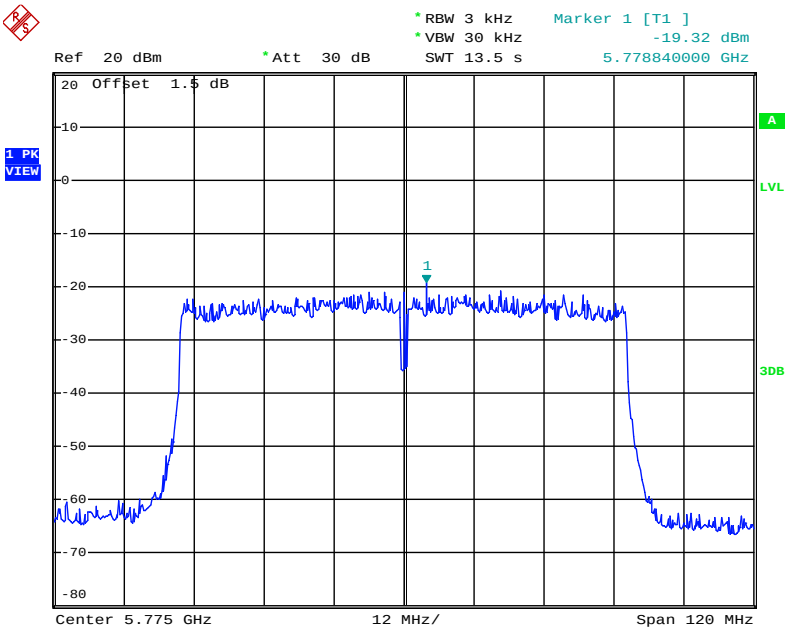
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 3 + Chain 4 / 5210 MHz



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



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



4.6. Radiated Emissions Measurement

4.6.1. Limit

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

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

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

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

4.6.2. Measuring Instruments and Setting

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

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

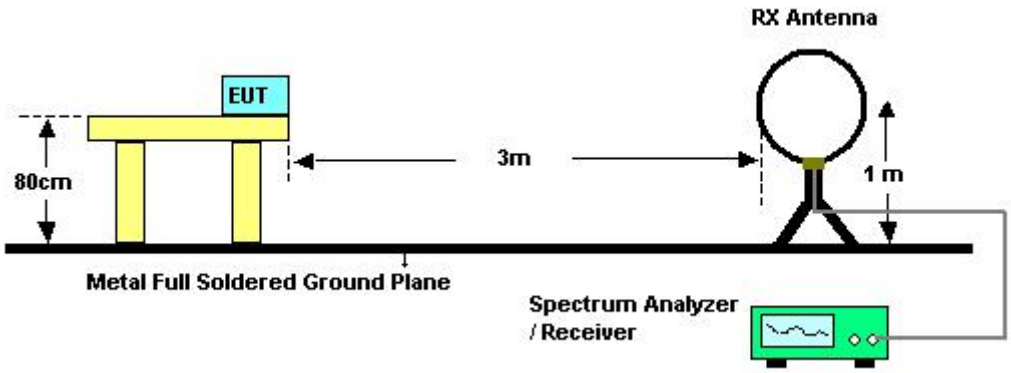
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RBW 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RBW 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RBW 120kHz for QP

4.6.3. Test Procedures

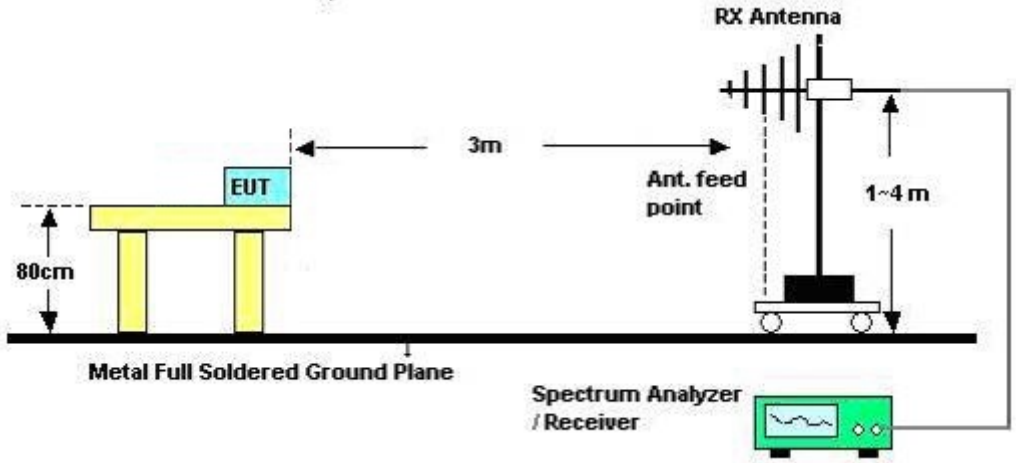
1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting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

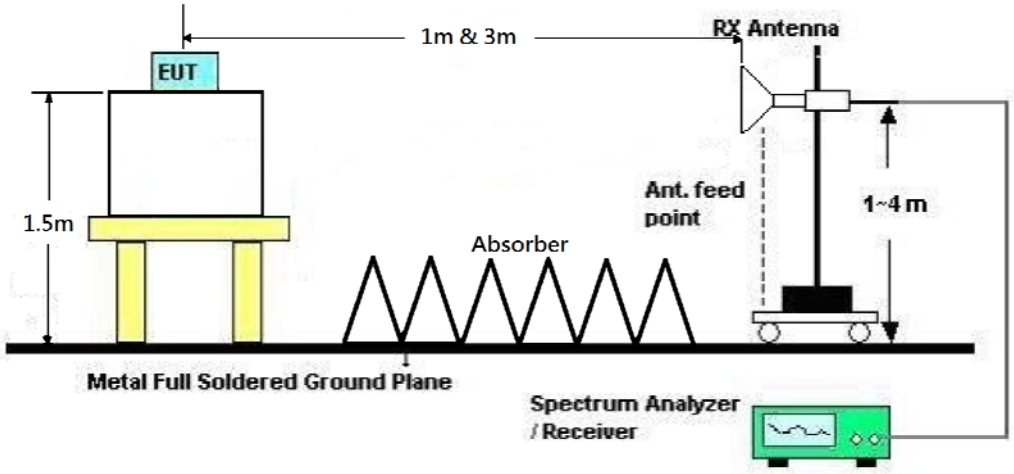
For Radiated Emissions: 9kHz ~30MHz



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.

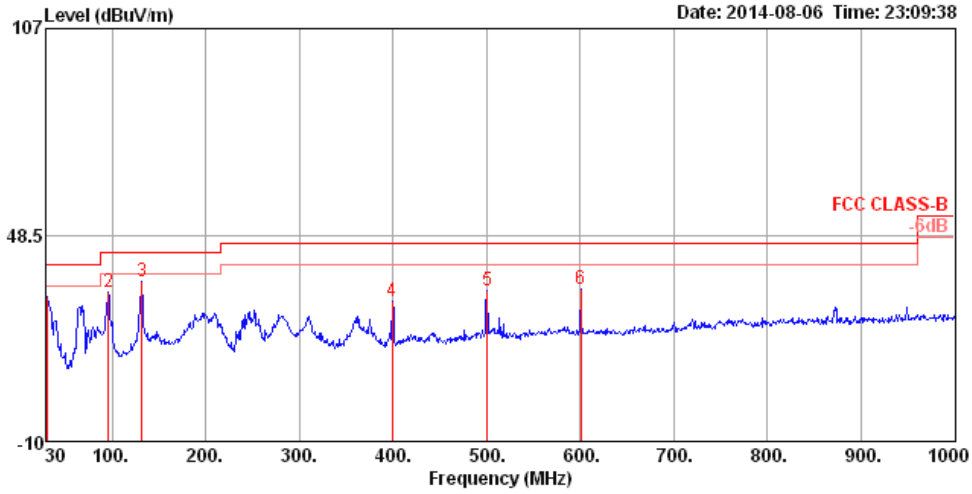
Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

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

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

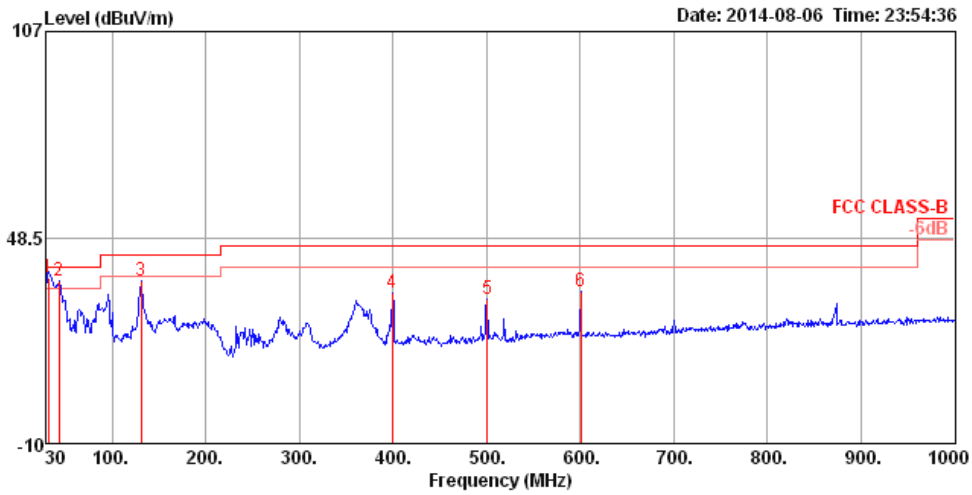
Temperature	26°C	Humidity	63%
Test Engineer	Serway Li	Configurations	Normal Link
Test Mode	Mode 3		

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	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 Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	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℃	**Humidity**	67%
Test Engineer	Lucas Huang	**Configurations**	IEEE 802.11ac MCS0/Nss1 VHT20 CH 36 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	15535.44	55.25	74.00	-18.75	45.84	6.13	38.45	35.17	Peak	100	111	HORIZONTAL
2	15543.34	40.73	54.00	-13.27	31.32	6.13	38.45	35.17	Average	100	111	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	15536.64	54.28	74.00	-19.72	44.87	6.13	38.45	35.17	Peak	100	346	VERTICAL
2	15544.12	41.01	54.00	-12.99	31.62	6.13	38.43	35.17	Average	100	346	VERTICAL

Temperature	25℃	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 40 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	15596.16	54.96	74.00	-19.04	45.65	6.13	38.36	35.18	Peak	100	271	HORIZONTAL
2	15596.62	40.16	54.00	-13.84	30.85	6.13	38.36	35.18	Average	100	271	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	15598.70	41.61	54.00	-12.39	32.30	6.13	38.36	35.18	Average	100	195	VERTICAL
2	15600.86	54.72	74.00	-19.28	45.42	6.13	38.36	35.19	Peak	100	195	VERTICAL

Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 48 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	15715.02	39.66	54.00	-14.34	30.54	6.14	38.19	35.21	Average	100	244	HORIZONTAL
2	15721.20	53.78	74.00	-20.22	44.66	6.14	38.19	35.21	Peak	100	244	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	15723.48	52.97	74.00	-21.03	43.85	6.14	38.19	35.21	Peak	100	53	VERTICAL
2	15724.38	40.04	54.00	-13.96	30.92	6.14	38.19	35.21	Average	100	53	VERTICAL

Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 149 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	11488.81	53.19	74.00	-20.81	39.53	9.24	39.50	35.08	Peak	100	299	HORIZONTAL
2	11492.05	40.70	54.00	-13.30	27.04	9.24	39.50	35.08	Average	100	299	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	11489.64	53.87	74.00	-20.13	40.21	9.24	39.50	35.08	Peak	100	172	VERTICAL
2	11489.83	40.80	54.00	-13.20	27.14	9.24	39.50	35.08	Average	100	172	VERTICAL

Temperature	25℃	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 157 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	11528.53	40.47	54.00	-13.53	26.82	9.25	39.49	35.09	Average	100	76	HORIZONTAL
2	11531.57	53.21	74.00	-20.79	39.55	9.26	39.49	35.09	Peak	100	76	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	11527.50	40.47	54.00	-13.53	26.82	9.25	39.49	35.09	Average	100	228	VERTICAL
2	11529.48	53.33	74.00	-20.67	39.68	9.25	39.49	35.09	Peak	100	228	VERTICAL

Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 165 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	11648.18	54.26	74.00	-19.74	40.61	9.28	39.44	35.07	Peak	100	233	HORIZONTAL
2	11650.12	41.05	54.00	-12.95	27.40	9.28	39.44	35.07	Average	100	233	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	11648.03	54.66	74.00	-19.34	41.01	9.28	39.44	35.07	Peak	100	132	VERTICAL
2	11650.84	41.11	54.00	-12.89	27.46	9.28	39.44	35.07	Average	100	132	VERTICAL

Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 38 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	15565.60	40.39	54.00	-13.61	31.03	6.13	38.40	35.17	Average	100	135	HORIZONTAL
2	15568.32	54.65	74.00	-19.35	45.29	6.13	38.40	35.17	Peak	100	135	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	15565.56	40.55	54.00	-13.45	31.19	6.13	38.40	35.17	Average	100	260	VERTICAL
2	15573.90	53.48	74.00	-20.52	44.13	6.13	38.40	35.18	Peak	100	260	VERTICAL

Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 46 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	15686.88	54.08	74.00	-19.92	44.92	6.14	38.23	35.21	Peak	100	96	HORIZONTAL
2	15687.14	39.97	54.00	-14.03	30.81	6.14	38.23	35.21	Average	100	96	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	15686.58	53.51	74.00	-20.49	44.35	6.14	38.23	35.21	Peak	100	273	VERTICAL
2	15688.96	40.12	54.00	-13.88	30.96	6.14	38.23	35.21	Average	100	273	VERTICAL

Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 151 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	11507.90	53.88	74.00	-20.12	40.23	9.25	39.50	35.10	Peak	100	234	HORIZONTAL
2	11508.35	40.43	54.00	-13.57	26.78	9.25	39.50	35.10	Average	100	234	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	11508.21	54.18	74.00	-19.82	40.53	9.25	39.50	35.10	Peak	100	73	VERTICAL
2	11510.33	40.48	54.00	-13.52	26.83	9.25	39.50	35.10	Average	100	73	VERTICAL

Temperature	25℃	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 159 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	11588.32	41.20	54.00	-12.80	27.54	9.27	39.47	35.08	Average	100	292	HORIZONTAL
2	11592.41	54.09	74.00	-19.91	40.43	9.27	39.47	35.08	Peak	100	292	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	11587.70	41.01	54.00	-12.99	27.35	9.27	39.47	35.08	Average	100	146	VERTICAL
2	11589.41	53.96	74.00	-20.04	40.30	9.27	39.47	35.08	Peak	100	146	VERTICAL

Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 42 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	15625.80	39.90	54.00	-14.10	30.62	6.14	38.33	35.19	Average	100	212	HORIZONTAL
2	15630.00	53.41	74.00	-20.59	44.15	6.14	38.31	35.19	Peak	100	212	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	15630.00	53.41	74.00	-20.59	44.15	6.14	38.31	35.19	Peak	100	165	VERTICAL
2	15632.88	39.95	54.00	-14.05	30.69	6.14	38.31	35.19	Average	100	165	VERTICAL

Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 155 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	11550.29	40.71	54.00	-13.29	27.05	9.26	39.49	35.09	Average	100	52	HORIZONTAL
2	11551.79	53.95	74.00	-20.05	40.30	9.26	39.48	35.09	Peak	100	52	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	11548.96	53.41	74.00	-20.59	39.75	9.26	39.49	35.09	Peak	167	360	VERTICAL
2	11551.85	40.62	54.00	-13.38	26.97	9.26	39.48	35.09	Average	167	360	VERTICAL

Temperature	25℃	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11a CH 36 / Chain 3
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	15535.74	40.51	54.00	-13.49	31.10	6.13	38.45	35.17	Average	100	261	HORIZONTAL
2	15540.54	54.38	74.00	-19.62	44.97	6.13	38.45	35.17	Peak	100	261	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	15535.30	40.67	54.00	-13.33	31.26	6.13	38.45	35.17	Average	100	20	VERTICAL
2	15542.54	54.04	74.00	-19.96	44.63	6.13	38.45	35.17	Peak	100	20	VERTICAL

Temperature	25℃	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11a CH 40 / Chain 3
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	15601.76	40.33	54.00	-13.67	31.03	6.13	38.36	35.19	Average	100	263	HORIZONTAL
2	15603.84	53.94	74.00	-20.06	44.64	6.13	38.36	35.19	Peak	100	263	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	15595.52	40.57	54.00	-13.43	31.26	6.13	38.36	35.18	Average	100	33	VERTICAL
2	15602.06	53.43	74.00	-20.57	44.13	6.13	38.36	35.19	Peak	100	33	VERTICAL

Temperature	25℃	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11a CH 48 / Chain 3
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	15722.26	53.31	74.00	-20.69	44.19	6.14	38.19	35.21	Peak	100	262	HORIZONTAL
2	15724.42	39.76	54.00	-14.24	30.64	6.14	38.19	35.21	Average	100	262	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	15721.46	40.16	54.00	-13.84	31.04	6.14	38.19	35.21	Average	100	63	VERTICAL
2	15721.86	53.44	74.00	-20.56	44.32	6.14	38.19	35.21	Peak	100	63	VERTICAL

Temperature	25℃	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11a CH 149 / Chain 3
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	11487.98	40.65	54.00	-13.35	26.99	9.24	39.50	35.08	Average	100	297	HORIZONTAL
2	11491.00	54.03	74.00	-19.97	40.37	9.24	39.50	35.08	Peak	100	297	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	11490.58	40.70	54.00	-13.30	27.04	9.24	39.50	35.08	Average	100	175	VERTICAL
2	11491.21	53.54	74.00	-20.46	39.88	9.24	39.50	35.08	Peak	100	175	VERTICAL

Temperature	25℃	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11a CH 157 / Chain 3
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	11569.50	41.67	54.00	-12.33	28.03	9.26	39.47	35.09	Average	100	215	HORIZONTAL
2	11569.84	54.97	74.00	-19.03	41.33	9.26	39.47	35.09	Peak	100	215	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	11569.28	55.32	74.00	-18.68	41.68	9.26	39.47	35.09	Peak	100	10	VERTICAL
2	11569.92	42.13	54.00	-11.87	28.49	9.26	39.47	35.09	Average	100	10	VERTICAL

Temperature	25℃	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11a CH 165 / Chain 3
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	11647.94	41.08	54.00	-12.92	27.43	9.28	39.44	35.07	Average	100	43	HORIZONTAL
2	11651.56	53.83	74.00	-20.17	40.18	9.28	39.44	35.07	Peak	100	43	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	11648.40	54.82	74.00	-19.18	41.17	9.28	39.44	35.07	Peak	100	155	VERTICAL
2	11650.37	41.23	54.00	-12.77	27.58	9.28	39.44	35.07	Average	100	155	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℃	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 36 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	15540.68	53.16	74.00	-20.84	43.75	6.13	38.45	35.17	Peak	194	97	HORIZONTAL
2	15548.16	39.46	54.00	-14.54	30.07	6.13	38.43	35.17	Average	194	97	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	15533.56	53.40	74.00	-20.60	43.99	6.13	38.45	35.17	Peak	194	222	VERTICAL
2	15549.92	39.57	54.00	-14.43	30.18	6.13	38.43	35.17	Average	194	222	VERTICAL

Temperature	25℃	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 40 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	15594.84	38.66	54.00	-15.34	29.35	6.13	38.36	35.18	Average	194	151	HORIZONTAL
2	15600.48	51.54	74.00	-22.46	42.24	6.13	38.36	35.19	Peak	194	151	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	15592.84	38.62	54.00	-15.38	29.29	6.13	38.38	35.18	Average	194	235	VERTICAL
2	15596.44	50.89	74.00	-23.11	41.58	6.13	38.36	35.18	Peak	194	235	VERTICAL

Temperature	25℃	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 48 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	15725.88	37.47	54.00	-16.53	28.35	6.14	38.19	35.21	Average	194	179	HORIZONTAL
2	15728.16	51.49	74.00	-22.51	42.38	6.14	38.19	35.22	Peak	194	179	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	15719.84	50.52	74.00	-23.48	41.40	6.14	38.19	35.21	Peak	194	281	VERTICAL
2	15729.80	37.66	54.00	-16.34	28.55	6.14	38.19	35.22	Average	194	281	VERTICAL

Temperature	25℃	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 149 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	11485.04	42.08	54.00	-11.92	28.42	9.24	39.50	35.08	Average	195	169	HORIZONTAL
2	11485.76	54.63	74.00	-19.37	40.97	9.24	39.50	35.08	Peak	195	169	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	11491.84	41.83	54.00	-12.17	28.17	9.24	39.50	35.08	Average	158	27	VERTICAL
2	11497.92	54.77	74.00	-19.23	41.12	9.25	39.50	35.10	Peak	158	27	VERTICAL

Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 157 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	11562.60	41.92	54.00	-12.08	28.27	9.26	39.48	35.09	Average	201	99	HORIZONTAL
2	11576.36	55.40	74.00	-18.60	41.75	9.26	39.47	35.08	Peak	201	99	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	11567.20	41.87	54.00	-12.13	28.22	9.26	39.48	35.09	Average	145	352	VERTICAL
2	11576.00	55.33	74.00	-18.67	41.68	9.26	39.47	35.08	Peak	145	352	VERTICAL

Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 165 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	11646.92	54.34	74.00	-19.66	40.69	9.28	39.44	35.07	Peak	197	117	HORIZONTAL
2	11653.52	41.52	54.00	-12.48	27.87	9.28	39.44	35.07	Average	197	117	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	11642.08	54.39	74.00	-19.61	40.74	9.28	39.44	35.07	Peak	154	47	VERTICAL
2	11659.68	41.88	54.00	-12.12	28.23	9.28	39.44	35.07	Average	154	47	VERTICAL

Temperature	25℃	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 38 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	15566.32	39.43	54.00	-14.57	30.07	6.13	38.40	35.17	Average	194	188	HORIZONTAL
2	15579.00	52.05	74.00	-21.95	42.72	6.13	38.38	35.18	Peak	194	188	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	15564.72	52.64	74.00	-21.36	43.28	6.13	38.40	35.17	Peak	194	137	VERTICAL
2	15567.52	39.50	54.00	-14.50	30.14	6.13	38.40	35.17	Average	194	137	VERTICAL

Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 46 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	15680.64	38.06	54.00	-15.94	28.90	6.14	38.23	35.21	Average	194	310	HORIZONTAL
2	15697.08	51.68	74.00	-22.32	42.54	6.14	38.21	35.21	Peak	194	310	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	15683.08	38.02	54.00	-15.98	28.86	6.14	38.23	35.21	Average	194	221	VERTICAL
2	15690.60	50.92	74.00	-23.08	41.76	6.14	38.23	35.21	Peak	194	221	VERTICAL

Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 151 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	11502.16	41.18	54.00	-12.82	27.53	9.25	39.50	35.10	Average	172	149	HORIZONTAL
2	11503.12	54.18	74.00	-19.82	40.53	9.25	39.50	35.10	Peak	172	149	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	11502.16	54.20	74.00	-19.80	40.55	9.25	39.50	35.10	Peak	172	83	VERTICAL
2	11509.52	41.48	54.00	-12.52	27.83	9.25	39.50	35.10	Average	172	83	VERTICAL

Temperature	25℃	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 159 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	11585.24	55.30	74.00	-18.70	41.64	9.27	39.47	35.08	Peak	198	206	HORIZONTAL
2	11594.88	41.82	54.00	-12.18	28.16	9.27	39.47	35.08	Average	198	206	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	11582.44	54.77	74.00	-19.23	41.12	9.26	39.47	35.08	Peak	198	45	VERTICAL
2	11597.08	41.84	54.00	-12.16	28.18	9.27	39.47	35.08	Average	198	45	VERTICAL

Temperature	25℃	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 42 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	15620.76	52.25	74.00	-21.75	42.98	6.13	38.33	35.19	Peak	194	131	HORIZONTAL
2	15633.08	38.25	54.00	-15.75	28.99	6.14	38.31	35.19	Average	194	131	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	15631.48	38.17	54.00	-15.83	28.91	6.14	38.31	35.19	Average	194	80	VERTICAL
2	15633.20	50.95	74.00	-23.05	41.69	6.14	38.31	35.19	Peak	194	80	VERTICAL

Temperature	25℃	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 155 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	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 Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	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℃	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11a CH 36 / Chain 3
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	15541.24	39.44	54.00	-14.56	30.03	6.13	38.45	35.17	Average	100	67	HORIZONTAL
2	15542.16	52.72	74.00	-21.28	43.31	6.13	38.45	35.17	Peak	100	67	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	15540.58	52.70	74.00	-21.30	43.29	6.13	38.45	35.17	Peak	100	196	VERTICAL
2	15544.46	39.42	54.00	-14.58	30.03	6.13	38.43	35.17	Average	100	196	VERTICAL

Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11a CH 40 / Chain 3
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	15595.02	38.52	54.00	-15.48	29.21	6.13	38.36	35.18	Average	100	26	HORIZONTAL
2	15595.30	51.69	74.00	-22.31	42.38	6.13	38.36	35.18	Peak	100	26	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	15600.20	51.17	74.00	-22.83	41.87	6.13	38.36	35.19	Peak	100	217	VERTICAL
2	15601.64	38.47	54.00	-15.53	29.17	6.13	38.36	35.19	Average	100	217	VERTICAL

Temperature	25℃	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11a CH 48 / Chain 3
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	15719.68	50.41	74.00	-23.59	41.29	6.14	38.19	35.21	Peak	100	262	HORIZONTAL
2	15722.50	37.50	54.00	-16.50	28.38	6.14	38.19	35.21	Average	100	262	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	15724.26	37.40	54.00	-16.60	28.28	6.14	38.19	35.21	Average	100	121	VERTICAL
2	15724.30	50.68	74.00	-23.32	41.56	6.14	38.19	35.21	Peak	100	121	VERTICAL

Temperature	25℃	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11a CH 149 / Chain 3
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	11483.00	41.68	54.00	-12.32	28.02	9.24	39.50	35.08	Average	180	147	HORIZONTAL
2	11499.92	55.12	74.00	-18.88	41.47	9.25	39.50	35.10	Peak	180	147	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	11485.16	41.63	54.00	-12.37	27.97	9.24	39.50	35.08	Average	166	16	VERTICAL
2	11487.12	54.70	74.00	-19.30	41.04	9.24	39.50	35.08	Peak	163	16	VERTICAL

Temperature	25℃	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11a CH 157 / Chain 3
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	11562.64	41.88	54.00	-12.12	28.23	9.26	39.48	35.09	Average	193	311	HORIZONTAL
2	11575.92	54.37	74.00	-19.63	40.72	9.26	39.47	35.08	Peak	193	311	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	11566.84	41.67	54.00	-12.33	28.02	9.26	39.48	35.09	Average	167	343	VERTICAL
2	11577.08	55.29	74.00	-18.71	41.64	9.26	39.47	35.08	Peak	167	343	VERTICAL

Temperature	25℃	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11a CH 165 / Chain 3
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	11642.76	41.43	54.00	-12.57	27.78	9.28	39.44	35.07	Average	197	157	HORIZONTAL
2	11656.48	53.98	74.00	-20.02	40.33	9.28	39.44	35.07	Peak	197	157	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	11640.20	41.80	54.00	-12.20	28.15	9.28	39.44	35.07	Average	181	28	VERTICAL
2	11646.24	54.67	74.00	-19.33	41.02	9.28	39.44	35.07	Peak	167	28	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 36 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	15539.80	53.87	74.00	-20.13	44.46	6.13	38.45	35.17	Peak	100	157	HORIZONTAL
2	15547.96	40.96	54.00	-13.04	31.57	6.13	38.43	35.17	Average	100	157	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	15545.16	40.45	54.00	-13.55	31.06	6.13	38.43	35.17	Average	100	64	VERTICAL
2	15546.64	53.10	74.00	-20.90	43.71	6.13	38.43	35.17	Peak	100	64	VERTICAL

Temperature	25℃	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 40 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	15598.00	40.41	54.00	-13.59	31.10	6.13	38.36	35.18	Average	100	38	HORIZONTAL
2	15606.20	53.27	74.00	-20.73	43.97	6.13	38.36	35.19	Peak	100	38	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	15595.40	53.11	74.00	-20.89	43.80	6.13	38.36	35.18	Peak	100	350	VERTICAL
2	15604.48	40.65	54.00	-13.35	31.35	6.13	38.36	35.19	Average	100	350	VERTICAL

Temperature	25℃	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 48 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	15712.32	40.31	54.00	-13.69	31.17	6.14	38.21	35.21	Average	100	99	HORIZONTAL
2	15729.48	53.19	74.00	-20.81	44.08	6.14	38.19	35.22	Peak	100	99	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	15718.80	53.02	74.00	-20.98	43.90	6.14	38.19	35.21	Peak	100	348	VERTICAL
2	15720.96	40.25	54.00	-13.75	31.13	6.14	38.19	35.21	Average	100	348	VERTICAL

Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 149 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	11489.83	40.66	54.00	-13.34	27.00	9.24	39.50	35.08	Average	100	134	HORIZONTAL
2	11489.91	53.87	74.00	-20.13	40.21	9.24	39.50	35.08	Peak	100	134	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	11487.59	53.73	74.00	-20.27	40.07	9.24	39.50	35.08	Peak	100	256	VERTICAL
2	11488.95	40.63	54.00	-13.37	26.97	9.24	39.50	35.08	Average	100	256	VERTICAL

Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 157 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	11569.78	41.20	54.00	-12.80	27.56	9.26	39.47	35.09	Average	100	294	HORIZONTAL
2	11569.96	53.78	74.00	-20.22	40.14	9.26	39.47	35.09	Peak	100	294	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	11569.35	41.15	54.00	-12.85	27.51	9.26	39.47	35.09	Average	100	131	VERTICAL
2	11571.94	54.19	74.00	-19.81	40.54	9.26	39.47	35.08	Peak	100	131	VERTICAL

Temperature	25℃	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 165 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	11650.22	41.10	54.00	-12.90	27.45	9.28	39.44	35.07	Average	100	337	HORIZONTAL
2	11651.60	54.24	74.00	-19.76	40.59	9.28	39.44	35.07	Peak	100	337	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	11648.83	41.00	54.00	-13.00	27.35	9.28	39.44	35.07	Average	100	144	VERTICAL
2	11651.85	55.48	74.00	-18.52	41.83	9.28	39.44	35.07	Peak	100	144	VERTICAL

Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 38 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	15560.72	53.13	74.00	-20.87	43.77	6.13	38.40	35.17	Peak	100	32	HORIZONTAL
2	15561.48	40.68	54.00	-13.32	31.32	6.13	38.40	35.17	Average	100	32	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	15561.56	40.70	54.00	-13.30	31.34	6.13	38.40	35.17	Average	100	338	VERTICAL
2	15564.00	53.31	74.00	-20.69	43.95	6.13	38.40	35.17	Peak	100	338	VERTICAL

Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 46 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	15688.56	53.09	74.00	-20.91	43.93	6.14	38.23	35.21	Peak	100	13	HORIZONTAL
2	15698.52	40.30	54.00	-13.70	31.16	6.14	38.21	35.21	Average	100	13	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	15689.44	53.26	74.00	-20.74	44.10	6.14	38.23	35.21	Peak	100	326	VERTICAL
2	15694.56	39.16	54.00	-14.84	30.00	6.14	38.23	35.21	Average	100	326	VERTICAL

Temperature	25℃	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 151 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	11509.18	40.65	54.00	-13.35	27.00	9.25	39.50	35.10	Average	100	257	HORIZONTAL
2	11512.12	53.76	74.00	-20.24	40.11	9.25	39.50	35.10	Peak	100	257	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	11508.91	53.81	74.00	-20.19	40.16	9.25	39.50	35.10	Peak	100	172	VERTICAL
2	11509.66	40.72	54.00	-13.28	27.07	9.25	39.50	35.10	Average	100	172	VERTICAL

Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 159 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	11590.57	54.47	74.00	-19.53	40.81	9.27	39.47	35.08	Peak	100	210	HORIZONTAL
2	11592.14	41.05	54.00	-12.95	27.39	9.27	39.47	35.08	Average	100	210	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	11587.72	54.31	74.00	-19.69	40.65	9.27	39.47	35.08	Peak	100	304	VERTICAL
2	11590.92	41.19	54.00	-12.81	27.53	9.27	39.47	35.08	Average	100	304	VERTICAL

Temperature	25℃	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 42 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	15626.52	40.06	54.00	-13.94	30.78	6.14	38.33	35.19	Average	100	186	HORIZONTAL
2	15632.52	52.47	74.00	-21.53	43.21	6.14	38.31	35.19	Peak	100	186	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	15633.20	40.07	54.00	-13.93	30.81	6.14	38.31	35.19	Average	100	310	VERTICAL
2	15635.04	53.33	74.00	-20.67	44.07	6.14	38.31	35.19	Peak	100	310	VERTICAL

Temperature	25℃	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 155 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	11548.21	53.67	74.00	-20.33	40.01	9.26	39.49	35.09	Peak	100	194	HORIZONTAL
2	11551.01	40.60	54.00	-13.40	26.95	9.26	39.48	35.09	Average	100	194	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	11551.19	54.09	74.00	-19.91	40.44	9.26	39.48	35.09	Peak	100	297	VERTICAL
2	11552.11	40.66	54.00	-13.34	27.01	9.26	39.48	35.09	Average	100	297	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 36 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	15535.86	42.71	54.00	-11.29	33.30	6.13	38.45	35.17	Average	100	82	HORIZONTAL
2	15537.26	56.28	74.00	-17.72	46.87	6.13	38.45	35.17	Peak	100	82	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	15536.00	42.56	54.00	-11.44	33.15	6.13	38.45	35.17	Average	100	170	VERTICAL
2	15536.54	56.50	74.00	-17.50	47.09	6.13	38.45	35.17	Peak	100	170	VERTICAL

Temperature	25℃	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 40 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	15596.26	42.09	54.00	-11.91	32.78	6.13	38.36	35.18	Average	100	312	HORIZONTAL
2	15596.90	55.66	74.00	-18.34	46.35	6.13	38.36	35.18	Peak	100	312	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	15596.96	41.86	54.00	-12.14	32.55	6.13	38.36	35.18	Average	100	186	VERTICAL
2	15603.72	56.78	74.00	-17.22	47.48	6.13	38.36	35.19	Peak	100	186	VERTICAL

Temperature	25℃	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 48 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	15716.98	41.63	54.00	-12.37	32.51	6.14	38.19	35.21	Average	100	51	HORIZONTAL
2	15724.08	55.05	74.00	-18.95	45.93	6.14	38.19	35.21	Peak	100	51	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	15716.62	55.52	74.00	-18.48	46.40	6.14	38.19	35.21	Peak	100	157	VERTICAL
2	15717.48	41.72	54.00	-12.28	32.60	6.14	38.19	35.21	Average	100	157	VERTICAL

Temperature	25℃	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 149 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	11475.50	41.64	54.00	-12.36	27.99	9.23	39.50	35.08	Average	181	99	HORIZONTAL
2	11495.20	55.07	74.00	-18.93	41.41	9.24	39.50	35.08	Peak	181	99	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	11484.10	41.44	54.00	-12.56	27.78	9.24	39.50	35.08	Average	179	37	VERTICAL
2	11491.40	54.16	74.00	-19.84	40.50	9.24	39.50	35.08	Peak	166	37	VERTICAL

Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 157 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	11557.30	55.59	74.00	-18.41	41.94	9.26	39.48	35.09	Peak	183	109	HORIZONTAL
2	11571.10	41.71	54.00	-12.29	28.07	9.26	39.47	35.09	Average	183	109	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	11547.60	41.70	54.00	-12.30	28.04	9.26	39.49	35.09	Average	176	56	VERTICAL
2	11550.50	54.59	74.00	-19.41	40.94	9.26	39.48	35.09	Peak	176	56	VERTICAL

Temperature	25℃	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 165 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	11627.90	41.80	54.00	-12.20	28.15	9.27	39.45	35.07	Average	187	123	HORIZONTAL
2	11639.60	54.71	74.00	-19.29	41.06	9.28	39.44	35.07	Peak	187	123	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	11625.20	41.47	54.00	-12.53	27.82	9.27	39.45	35.07	Average	172	70	VERTICAL
2	11661.20	54.66	74.00	-19.34	41.01	9.28	39.44	35.07	Peak	172	70	VERTICAL

Temperature	25℃	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 38 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	15565.50	42.46	54.00	-11.54	33.10	6.13	38.40	35.17	Average	100	327	HORIZONTAL
2	15568.64	55.72	74.00	-18.28	46.36	6.13	38.40	35.17	Peak	100	327	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	15567.72	42.54	54.00	-11.46	33.18	6.13	38.40	35.17	Average	100	360	VERTICAL
2	15568.88	56.28	74.00	-17.72	46.92	6.13	38.40	35.17	Peak	100	360	VERTICAL

Temperature	25℃	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 46 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	15686.40	55.05	74.00	-18.95	45.89	6.14	38.23	35.21	Peak	100	224	HORIZONTAL
2	15694.68	41.81	54.00	-12.19	32.65	6.14	38.23	35.21	Average	100	224	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	15690.54	56.14	74.00	-17.86	46.98	6.14	38.23	35.21	Peak	100	286	VERTICAL
2	15694.74	41.79	54.00	-12.21	32.63	6.14	38.23	35.21	Average	100	286	VERTICAL

Temperature	25℃	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 151 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	11507.40	41.24	54.00	-12.76	27.59	9.25	39.50	35.10	Average	185	55	HORIZONTAL
2	11508.08	54.16	74.00	-19.84	40.51	9.25	39.50	35.10	Peak	185	55	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	11501.36	41.16	54.00	-12.84	27.51	9.25	39.50	35.10	Average	159	107	VERTICAL
2	11504.76	54.05	74.00	-19.95	40.40	9.25	39.50	35.10	Peak	159	107	VERTICAL

Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 159 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	11587.64	41.45	54.00	-12.55	27.79	9.27	39.47	35.08	Average	189	61	HORIZONTAL
2	11599.32	55.67	74.00	-18.33	42.01	9.27	39.47	35.08	Peak	189	61	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	11590.96	55.00	74.00	-19.00	41.34	9.27	39.47	35.08	Peak	171	113	VERTICAL
2	11598.08	41.37	54.00	-12.63	27.71	9.27	39.47	35.08	Average	171	113	VERTICAL

Temperature	25℃	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 42 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	15626.74	41.75	54.00	-12.25	32.47	6.14	38.33	35.19	Average	100	303	HORIZONTAL
2	15633.84	55.46	74.00	-18.54	46.20	6.14	38.31	35.19	Peak	100	303	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	15626.38	41.81	54.00	-12.19	32.53	6.14	38.33	35.19	Average	100	270	VERTICAL
2	15627.82	55.75	74.00	-18.25	46.47	6.14	38.33	35.19	Peak	100	270	VERTICAL

Temperature	25℃	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 155 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	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	
1	11542.28	40.54	54.00	-13.46	26.88	9.26	39.49	35.09	Average	179	87	HORIZONTAL
2	11542.28	54.36	74.00	-19.64	40.70	9.26	39.49	35.09	Peak	179	87	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	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	
1	11544.00	54.81	74.00	-19.19	41.15	9.26	39.49	35.09	Peak	165	13	VERTICAL
2	11556.60	41.87	54.00	-12.13	28.22	9.26	39.48	35.09	Average	164	13	VERTICAL

Note:

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

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

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

4.7. Band Edge Emissions Measurement

4.7.1. Limit

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

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

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

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

4.7.2. Measuring Instruments and Setting

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

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

4.7.3. Test Procedures

1. The test procedure is the same as section 4.6.3, 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℃	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 36, 40, 48 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Channel 36

	Freq	Level	Limit Line	Over Limit	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	
1	5149.20	72.20	74.00	-1.80	69.57	3.43	34.11	34.91	Peak	144	44	VERTICAL
2	5149.40	53.97	54.00	-0.03	51.34	3.43	34.11	34.91	Average	144	44	VERTICAL
3	5178.80	115.53			112.84	3.44	34.16	34.91	Peak	144	44	VERTICAL
4	5179.00	105.89			103.20	3.44	34.16	34.91	Average	144	44	VERTICAL

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

Channel 40

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5149.20	67.27	74.00	-6.73	64.64	3.43	34.11	34.91	Peak	150	43	VERTICAL
2	5150.00	53.52	54.00	-0.48	50.89	3.43	34.11	34.91	Average	150	43	VERTICAL
3	5199.20	108.71			105.99	3.45	34.18	34.91	Average	150	43	VERTICAL
4	5199.20	115.75			113.03	3.45	34.18	34.91	Peak	150	43	VERTICAL

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

Channel 48

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5243.00	115.95			113.15	3.46	34.25	34.91	Peak	160	126	VERTICAL
2	5247.20	108.38			105.58	3.46	34.25	34.91	Average	160	126	VERTICAL
3	5354.80	66.25	74.00	-7.75	63.28	3.49	34.39	34.91	Peak	160	126	VERTICAL
4	5357.80	53.47	54.00	-0.53	50.50	3.49	34.39	34.91	Average	160	126	VERTICAL

Item 1, 2 are the fundamental frequency at 5240 MHz.

Temperature	25℃	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 149, 157, 165 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Channel 149

	Freq	Level	Limit Line	Over Limit	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	
1	5710.20	67.81	68.20	-0.39	61.70	6.44	34.87	35.20	Peak	169	192	VERTICAL
2	5722.20	76.66	78.20	-1.54	70.54	6.45	34.87	35.20	Peak	169	192	VERTICAL
3	5742.60	115.79			109.64	6.45	34.90	35.20	Peak	169	192	VERTICAL
4	5743.00	105.91			99.76	6.45	34.90	35.20	Average	169	192	VERTICAL

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

Channel 157

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5707.80	67.32	68.20	-0.88	61.21	6.44	34.87	35.20	Peak	158	134	VERTICAL
2	5719.00	70.07	78.20	-8.13	63.95	6.45	34.87	35.20	Peak	158	134	VERTICAL
3	5783.00	111.87			105.68	6.46	34.93	35.20	Average	158	134	VERTICAL
4	5783.00	121.53			115.34	6.46	34.93	35.20	Peak	158	134	VERTICAL
5	5850.00	68.62	78.20	-9.58	62.35	6.49	34.98	35.20	Peak	158	134	VERTICAL
6	5865.60	67.66	68.20	-0.54	61.37	6.50	34.99	35.20	Peak	158	134	VERTICAL

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

Channel 165

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5822.60	117.40			111.17	6.48	34.95	35.20	Peak	178	138	VERTICAL
2	5823.00	107.40			101.17	6.48	34.95	35.20	Average	178	138	VERTICAL
3	5850.00	77.60	78.20	-0.60	71.33	6.49	34.98	35.20	Peak	178	138	VERTICAL
4	5864.80	68.08	68.20	-0.12	61.79	6.50	34.99	35.20	Peak	178	138	VERTICAL

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

Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 38, 46 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Channel 38

	Freq	Level	Limit Line	Over Limit	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	
1	5146.40	67.74	74.00	-6.26	65.11	3.43	34.11	34.91	Peak	100	42	VERTICAL
2	5149.20	53.96	54.00	-0.04	51.33	3.43	34.11	34.91	Average	100	42	VERTICAL
3	5186.40	100.94			98.25	3.44	34.16	34.91	Average	100	42	VERTICAL
4	5186.40	109.45			106.76	3.44	34.16	34.91	Peak	100	42	VERTICAL

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

Channel 46

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5149.20	53.00	54.00	-1.00	50.37	3.43	34.11	34.91	Average	173	143	VERTICAL
2	5150.00	66.16	74.00	-7.84	63.53	3.43	34.11	34.91	Peak	173	143	VERTICAL
3	5224.40	105.43			102.68	3.46	34.20	34.91	Average	173	143	VERTICAL
4	5224.40	115.20			112.45	3.46	34.20	34.91	Peak	173	143	VERTICAL

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

Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 151, 159 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Channel 151

	Freq	Level	Limit Line	Over Limit	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	
1	5714.60	67.81	68.20	-0.39	61.70	6.44	34.87	35.20	Peak	166	171	VERTICAL
2	5724.20	71.20	78.20	-7.00	65.06	6.45	34.89	35.20	Peak	166	171	VERTICAL
3	5749.80	99.35			93.20	6.45	34.90	35.20	Average	166	171	VERTICAL
4	5750.20	108.93			102.78	6.45	34.90	35.20	Peak	166	171	VERTICAL

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

Channel 159

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5712.20	62.66	68.20	-5.54	56.55	6.44	34.87	35.20	Peak	177	137	VERTICAL
2	5722.20	68.11	78.20	-10.09	61.99	6.45	34.87	35.20	Peak	177	137	VERTICAL
3	5790.20	113.20			107.00	6.47	34.93	35.20	Peak	177	137	VERTICAL
4	5792.60	103.79			97.58	6.47	34.94	35.20	Average	177	137	VERTICAL
5	5850.40	69.98	78.20	-8.22	63.71	6.49	34.98	35.20	Peak	177	137	VERTICAL
6	5862.80	67.57	68.20	-0.63	61.28	6.50	34.99	35.20	Peak	177	137	VERTICAL

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

Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 42, CH 155 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Channel 42

	Freq	Level	Limit Line	Over Limit	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	
1	5146.80	70.60	74.00	-3.40	67.97	3.43	34.11	34.91	Peak	180	130	VERTICAL
2	5149.60	53.92	54.00	-0.08	51.29	3.43	34.11	34.91	Average	180	130	VERTICAL
3	5200.00	98.19			95.47	3.45	34.18	34.91	Average	180	130	VERTICAL
4	5200.00	106.92			104.20	3.45	34.18	34.91	Peak	180	130	VERTICAL

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

Channel 155

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5707.20	67.80	68.20	-0.40	61.69	6.44	34.87	35.20	Peak	168	165	VERTICAL
2	5719.60	71.47	78.20	-6.73	65.35	6.45	34.87	35.20	Peak	168	165	VERTICAL
3	5764.80	105.66			99.49	6.46	34.91	35.20	Peak	168	165	VERTICAL
4	5765.40	96.53			90.36	6.46	34.91	35.20	Average	168	165	VERTICAL
5	5850.60	62.10	78.20	-16.10	55.83	6.49	34.98	35.20	Peak	168	165	VERTICAL
6	5861.20	61.43	68.20	-6.77	55.14	6.50	34.99	35.20	Peak	168	165	VERTICAL

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

Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11a CH 36, 40, 48 / Chain 3
Test Date	Aug. 18, 2014		

Channel 36

	Freq	Level	Line	Limit	Level	Loss	Factor	Factor	Remark			Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5149.00	67.83	74.00	-6.17	65.20	3.43	34.11	34.91	Peak	179	245	VERTICAL
2	5150.00	53.51	54.00	-0.49	50.88	3.43	34.11	34.91	Average	179	245	VERTICAL
3	5181.00	104.86			102.17	3.44	34.16	34.91	Average	179	245	VERTICAL
4	5182.00	114.38			111.69	3.44	34.16	34.91	Peak	179	245	VERTICAL
5	5350.00	59.85	74.00	-14.15	56.88	3.49	34.39	34.91	Peak	179	245	VERTICAL
6	5415.00	48.88	54.00	-5.12	45.81	3.51	34.48	34.92	Average	179	245	VERTICAL

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

Channel 40

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5147.00	67.45	74.00	-6.55	64.82	3.43	34.11	34.91	Peak	182	234	VERTICAL
2	5150.00	53.53	54.00	-0.47	50.90	3.43	34.11	34.91	Average	182	234	VERTICAL
3	5197.88	117.24			114.52	3.45	34.18	34.91	Peak	182	234	VERTICAL
4	5198.88	106.53			103.81	3.45	34.18	34.91	Average	182	234	VERTICAL
5	5363.00	62.23	74.00	-11.77	59.24	3.49	34.41	34.91	Peak	182	234	VERTICAL
6	5368.00	49.65	54.00	-4.35	46.66	3.49	34.41	34.91	Average	182	234	VERTICAL

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

Channel 48

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5118.00	48.64	54.00	-5.36	46.06	3.42	34.06	34.90	Average	168	246	VERTICAL
2	5118.00	60.82	74.00	-13.18	58.24	3.42	34.06	34.90	Peak	168	246	VERTICAL
3	5238.00	115.65			112.87	3.46	34.23	34.91	Peak	168	246	VERTICAL
4	5239.00	104.90			102.12	3.46	34.23	34.91	Average	168	246	VERTICAL
5	5357.00	53.38	54.00	-0.62	50.41	3.49	34.39	34.91	Average	168	246	VERTICAL
6	5366.00	65.38	74.00	-8.62	62.39	3.49	34.41	34.91	Peak	168	246	VERTICAL

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

Temperature	25℃	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11a CH 149, 157, 165 / Chain 3
Test Date	Aug. 18, 2014		

Channel 149

	Freq	Level	Limit Line	Over Limit	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	
1	5714.60	68.04	68.20	-0.16	61.93	6.44	34.87	35.20	Peak	196	96	VERTICAL
2	5725.00	75.20	78.20	-3.00	69.06	6.45	34.89	35.20	Peak	196	96	VERTICAL
3	5743.40	112.60			106.45	6.45	34.90	35.20	Peak	196	96	VERTICAL
4	5744.20	102.80			96.65	6.45	34.90	35.20	Average	196	96	VERTICAL

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

Channel 157

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5712.20	67.06	68.20	-1.14	60.95	6.44	34.87	35.20	Peak	158	140	VERTICAL
2	5723.80	68.62	78.20	-9.58	62.48	6.45	34.89	35.20	Peak	158	140	VERTICAL
3	5783.40	119.15			112.96	6.46	34.93	35.20	Peak	158	140	VERTICAL
4	5784.20	109.39			103.20	6.46	34.93	35.20	Average	158	140	VERTICAL
5	5852.80	69.27	78.20	-8.93	63.00	6.49	34.98	35.20	Peak	158	140	VERTICAL
6	5866.00	68.05	68.20	-0.15	61.76	6.50	34.99	35.20	Peak	158	140	VERTICAL

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

Channel 165

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5823.00	115.77			109.54	6.48	34.95	35.20	Peak	174	146	VERTICAL
2	5823.40	105.83			99.60	6.48	34.95	35.20	Average	174	146	VERTICAL
3	5850.00	76.43	78.20	-1.77	70.16	6.49	34.98	35.20	Peak	174	146	VERTICAL
4	5864.00	67.62	68.20	-0.58	61.33	6.50	34.99	35.20	Peak	174	146	VERTICAL

Item 1, 2 are the fundamental frequency at 5825 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℃	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 36, 40, 48 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Channel 36

	Freq	Level	Limit Line	Over Limit	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	
1	5147.00	70.99	74.00	-3.01	68.36	3.43	34.11	34.91	Peak	187	10	HORIZONTAL
2	5150.00	53.52	54.00	-0.48	50.89	3.43	34.11	34.91	Average	187	10	HORIZONTAL
3	5179.00	109.46			106.77	3.44	34.16	34.91	Average	187	10	HORIZONTAL
4	5179.00	119.26			116.57	3.44	34.16	34.91	Peak	187	10	HORIZONTAL

Item 1, 2 are the fundamental frequency at 5180 MHz.

Channel 40

	Freq	Level	Limit Line	Over Limit	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	
1	5198.00	109.80			107.08	3.45	34.18	34.91	Average	191	10	HORIZONTAL
2	5207.00	119.08			116.36	3.45	34.18	34.91	Peak	191	10	HORIZONTAL
3	5358.00	64.40	74.00	-9.60	61.43	3.49	34.39	34.91	Peak	191	10	HORIZONTAL
4	5417.00	53.89	54.00	-0.11	50.82	3.51	34.48	34.92	Average	191	10	HORIZONTAL

Item 1, 2 are the fundamental frequency at 5200 MHz.

Channel 48

	Freq	Level	Limit Line	Over Limit	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	
1	5021.00	53.77	54.00	-0.23	51.32	3.40	33.95	34.90	Average	191	6	HORIZONTAL
2	5022.00	63.33	74.00	-10.67	60.88	3.40	33.95	34.90	Peak	191	6	HORIZONTAL
3	5242.00	107.99			105.19	3.46	34.25	34.91	Average	191	6	HORIZONTAL
4	5243.00	119.09			116.29	3.46	34.25	34.91	Peak	191	6	HORIZONTAL
5	5354.00	65.61	74.00	-8.39	62.64	3.49	34.39	34.91	Peak	191	6	HORIZONTAL
6	5358.00	53.29	54.00	-0.71	50.32	3.49	34.39	34.91	Average	191	6	HORIZONTAL

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

Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 149, 157, 165 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Channel 149

	Freq	Level	Limit Line	Over Limit	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	
1	5711.80	68.01	68.20	-0.19	61.90	6.44	34.87	35.20	Peak	176	0	HORIZONTAL
2	5724.60	77.77	78.20	-0.43	71.63	6.45	34.89	35.20	Peak	176	0	HORIZONTAL
3	5743.80	118.34			112.19	6.45	34.90	35.20	Peak	176	0	HORIZONTAL
4	5747.00	105.18			99.03	6.45	34.90	35.20	Average	176	0	HORIZONTAL

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

Channel 157

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5712.20	65.35	68.20	-2.85	59.24	6.44	34.87	35.20	Peak	183	0	HORIZONTAL
2	5721.80	62.55	78.20	-15.65	56.43	6.45	34.87	35.20	Peak	183	0	HORIZONTAL
3	5783.00	121.26			115.07	6.46	34.93	35.20	Peak	183	0	HORIZONTAL
4	5787.00	107.74			101.54	6.47	34.93	35.20	Average	183	0	HORIZONTAL
5	5859.20	66.16	78.20	-12.04	59.87	6.50	34.99	35.20	Peak	183	0	HORIZONTAL
6	5867.60	67.14	68.20	-1.06	60.85	6.50	34.99	35.20	Peak	183	0	HORIZONTAL

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

Channel 165

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5822.20	118.19			111.96	6.48	34.95	35.20	Peak	166	0	HORIZONTAL
2	5824.20	104.76			98.53	6.48	34.95	35.20	Average	166	0	HORIZONTAL
3	5850.00	72.34	78.20	-5.86	66.07	6.49	34.98	35.20	Peak	166	0	HORIZONTAL
4	5861.60	67.65	68.20	-0.55	61.36	6.50	34.99	35.20	Peak	166	0	HORIZONTAL

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

Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 38, 46 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Channel 38

	Freq	Level	Limit Line	Over Limit	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	
1	5150.00	53.49	54.00	-0.51	50.86	3.43	34.11	34.91	Average	184	7	HORIZONTAL
2	5150.00	66.51	74.00	-7.49	63.88	3.43	34.11	34.91	Peak	184	7	HORIZONTAL
3	5194.80	102.14			99.42	3.45	34.18	34.91	Average	184	7	HORIZONTAL
4	5196.40	113.22			110.50	3.45	34.18	34.91	Peak	184	7	HORIZONTAL

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

Channel 46

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5224.40	107.94			105.19	3.46	34.20	34.91	Average	194	8	HORIZONTAL
2	5235.60	118.10			115.32	3.46	34.23	34.91	Peak	194	8	HORIZONTAL
3	5350.00	64.90	74.00	-9.10	61.93	3.49	34.39	34.91	Peak	194	8	HORIZONTAL
4	5356.40	53.46	54.00	-0.54	50.49	3.49	34.39	34.91	Average	194	8	HORIZONTAL

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

Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 151, 159 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Channel 151

	Freq	Level	Limit Line	Over Limit	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	
1	5714.20	67.85	68.20	-0.35	61.74	6.44	34.87	35.20	Peak	175	0	HORIZONTAL
2	5723.40	71.81	78.20	-6.39	65.67	6.45	34.89	35.20	Peak	175	0	HORIZONTAL
3	5762.20	111.77			105.60	6.46	34.91	35.20	Peak	175	0	HORIZONTAL
4	5767.40	96.34			90.17	6.46	34.91	35.20	Average	175	0	HORIZONTAL

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

Channel 159

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5713.80	64.66	68.20	-3.54	58.55	6.44	34.87	35.20	Peak	187	0	HORIZONTAL
2	5724.60	65.98	78.20	-12.22	59.84	6.45	34.89	35.20	Peak	187	0	HORIZONTAL
3	5789.80	100.76			94.56	6.47	34.93	35.20	Average	187	0	HORIZONTAL
4	5791.00	116.25			110.04	6.47	34.94	35.20	Peak	187	0	HORIZONTAL
5	5853.20	70.86	78.20	-7.34	64.59	6.49	34.98	35.20	Peak	187	0	HORIZONTAL
6	5860.40	67.66	68.20	-0.54	61.37	6.50	34.99	35.20	Peak	187	0	HORIZONTAL

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

Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 42, CH155 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Channel 42

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5149.40	65.80	74.00	-8.20	63.17	3.43	34.11	34.91	9	194	Peak	HORIZONTAL
2	5150.00	53.99	54.00	-0.01	51.36	3.43	34.11	34.91	9	194	Average	HORIZONTAL
3	5200.40	98.99			96.27	3.45	34.18	34.91	9	194	Average	HORIZONTAL
4	5220.80	108.33			105.58	3.46	34.20	34.91	9	194	Peak	HORIZONTAL

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

Channel 155

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5710.20	67.68	68.20	-0.52	61.57	6.44	34.87	35.20	Peak	181	0	HORIZONTAL
2	5719.60	70.23	78.20	-7.97	64.11	6.45	34.87	35.20	Peak	181	0	HORIZONTAL
3	5784.60	108.23			102.04	6.46	34.93	35.20	Peak	181	0	HORIZONTAL
4	5787.00	88.91			82.71	6.47	34.93	35.20	Average	181	0	HORIZONTAL
5	5850.60	65.23	78.20	-12.97	58.96	6.49	34.98	35.20	Peak	181	0	HORIZONTAL
6	5861.20	64.06	68.20	-4.14	57.77	6.50	34.99	35.20	Peak	181	0	HORIZONTAL

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

Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11a CH 36, 40, 48 / Chain 3
Test Date	Aug. 18, 2014		

Channel 36

	Freq	Level	Limit Line	Over Limit	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	
1	5149.00	70.23	74.00	-3.77	67.60	3.43	34.11	34.91	Peak	191	6	HORIZONTAL
2	5150.00	52.83	54.00	-1.17	50.20	3.43	34.11	34.91	Average	191	6	HORIZONTAL
3	5178.00	120.22	74.00	46.22	117.53	3.44	34.16	34.91	Peak	191	6	HORIZONTAL
4	5181.00	109.67	54.00	55.67	106.98	3.44	34.16	34.91	Average	191	6	HORIZONTAL
5	5395.00	53.95	54.00	-0.05	50.91	3.50	34.46	34.92	Average	191	6	HORIZONTAL
6	5395.00	65.58	74.00	-8.42	62.54	3.50	34.46	34.92	Peak	191	6	HORIZONTAL

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

Channel 40

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4983.00	53.05	54.00	-0.95	50.70	3.38	33.87	34.90	Average	191	6	HORIZONTAL
2	5081.00	65.53	74.00	-8.47	63.00	3.41	34.02	34.90	Peak	191	6	HORIZONTAL
3	5201.00	110.55			107.83	3.45	34.18	34.91	Average	191	6	HORIZONTAL
4	5203.00	120.18			117.46	3.45	34.18	34.91	Peak	191	6	HORIZONTAL
5	5359.00	64.70	74.00	-9.30	61.73	3.49	34.39	34.91	Peak	191	6	HORIZONTAL
6	5417.00	53.98	54.00	-0.02	50.91	3.51	34.48	34.92	Average	191	6	HORIZONTAL

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

Channel 48

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5028.00	51.95	54.00	-2.05	49.50	3.40	33.95	34.90	Average	191	6	HORIZONTAL
2	5028.00	63.81	74.00	-10.19	61.36	3.40	33.95	34.90	Peak	191	6	HORIZONTAL
3	5238.00	118.95			116.17	3.46	34.23	34.91	Peak	191	6	HORIZONTAL
4	5241.00	108.78			106.00	3.46	34.23	34.91	Average	191	6	HORIZONTAL
5	5353.00	65.91	74.00	-8.09	62.94	3.49	34.39	34.91	Peak	191	6	HORIZONTAL
6	5361.00	53.88	54.00	-0.12	50.89	3.49	34.41	34.91	Average	191	6	HORIZONTAL

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

Temperature	25℃	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11a CH 149, 157, 165 / Chain 3
Test Date	Aug. 18, 2014		

Channel 149

	Freq	Level	Limit Line	Over Limit	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	
1	5712.00	67.70	68.20	-0.50	61.59	6.44	34.87	35.20	Peak	178	360	HORIZONTAL
2	5723.20	73.84	78.20	-4.36	67.70	6.45	34.89	35.20	Peak	178	360	HORIZONTAL
3	5743.20	117.16	78.20	38.96	111.01	6.45	34.90	35.20	Peak	178	360	HORIZONTAL
4	5743.80	104.32	78.20	26.12	98.17	6.45	34.90	35.20	Average	178	360	HORIZONTAL

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

Channel 157

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5705.80	66.38	68.20	-1.82	60.27	6.44	34.87	35.20	Peak	169	360	HORIZONTAL
2	5720.60	62.40	78.20	-15.80	56.28	6.45	34.87	35.20	Peak	169	360	HORIZONTAL
3	5783.80	120.98			114.79	6.46	34.93	35.20	Peak	169	360	HORIZONTAL
4	5786.20	108.05			101.85	6.47	34.93	35.20	Average	169	360	HORIZONTAL
5	5858.00	66.29	78.20	-11.91	60.01	6.50	34.98	35.20	Peak	169	360	HORIZONTAL
6	5869.40	67.69	68.20	-0.51	61.40	6.50	34.99	35.20	Peak	169	360	HORIZONTAL

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

Channel 165

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5823.40	117.75			111.52	6.48	34.95	35.20	Peak	185	360	HORIZONTAL
2	5824.20	104.93			98.70	6.48	34.95	35.20	Average	185	360	HORIZONTAL
3	5850.80	74.91	78.20	-3.29	68.64	6.49	34.98	35.20	Peak	185	360	HORIZONTAL
4	5861.60	67.91	68.20	-0.29	61.62	6.50	34.99	35.20	Peak	185	360	HORIZONTAL

Item 1, 2 are the fundamental frequency at 5825 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 36, 40, 48 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Channel 36

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5149.00	66.59	74.00	-7.41	62.99	5.99	33.02	35.41	148	217	VERTICAL	Peak
2	5150.00	53.53	54.00	-0.47	49.93	5.99	33.02	35.41	148	217	VERTICAL	Average
3	5181.40	104.84			101.22	6.01	33.04	35.43	148	217	VERTICAL	Average
4	5181.60	111.99			108.37	6.01	33.04	35.43	148	217	VERTICAL	Peak

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

Channel 40

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5082.00	53.46	54.00	-0.54	50.93	3.41	34.02	34.90	Average	100	360	VERTICAL
2	5082.80	65.11	74.00	-8.89	62.58	3.41	34.02	34.90	Peak	100	360	VERTICAL
3	5203.20	110.35			107.63	3.45	34.18	34.91	Average	100	360	VERTICAL
4	5203.20	119.75			117.03	3.45	34.18	34.91	Peak	100	360	VERTICAL

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

Channel 48

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5232.00	109.82			107.04	3.46	34.23	34.91	Average	115	0	VERTICAL
2	5232.80	118.94			116.16	3.46	34.23	34.91	Peak	115	0	VERTICAL
3	5353.20	53.53	54.00	-0.47	50.56	3.49	34.39	34.91	Average	115	0	VERTICAL
4	5353.20	65.21	74.00	-8.79	62.24	3.49	34.39	34.91	Peak	115	0	VERTICAL

Item 1, 2 are the fundamental frequency at 5240 MHz.

Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 149, 157, 165 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Channel 149

	Freq	Level	Limit Line	Over Limit	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	
1	5715.00	67.48	68.20	-0.72	61.37	6.44	34.87	35.20	Peak	177	139	VERTICAL
2	5724.60	74.86	78.20	-3.34	68.72	6.45	34.89	35.20	Peak	177	139	VERTICAL
3	5743.80	106.35	78.20	28.15	100.20	6.45	34.90	35.20	Average	177	139	VERTICAL
4	5745.80	116.45	78.20	38.25	110.30	6.45	34.90	35.20	Peak	177	139	VERTICAL

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

Channel 157

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5709.00	67.65	68.20	-0.55	61.54	6.44	34.87	35.20	Peak	158	166	VERTICAL
2	5724.20	67.65	78.20	-10.55	61.51	6.45	34.89	35.20	Peak	158	166	VERTICAL
3	5784.20	112.09			105.90	6.46	34.93	35.20	Average	158	166	VERTICAL
4	5787.40	121.78			115.58	6.47	34.93	35.20	Peak	158	166	VERTICAL
5	5851.60	66.44	78.20	-11.76	60.17	6.49	34.98	35.20	Peak	158	166	VERTICAL
6	5863.20	67.08	68.20	-1.12	60.79	6.50	34.99	35.20	Peak	158	166	VERTICAL

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

Channel 165

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5823.40	107.33			101.10	6.48	34.95	35.20	Average	179	138	VERTICAL
2	5823.80	117.47			111.24	6.48	34.95	35.20	Peak	179	138	VERTICAL
3	5851.20	73.39	78.20	-4.81	67.12	6.49	34.98	35.20	Peak	179	138	VERTICAL
4	5860.40	67.91	68.20	-0.29	61.62	6.50	34.99	35.20	Peak	179	138	VERTICAL

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

Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 38, 46 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Channel 38

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5149.40	64.51	74.00	-9.49	60.91	5.99	33.02	35.41	156	226	VERTICAL	Peak
2	5150.00	53.22	54.00	-0.78	49.62	5.99	33.02	35.41	156	226	VERTICAL	Average
3	5182.80	102.40			98.78	6.01	33.04	35.43	156	226	VERTICAL	Average
4	5194.00	107.37			103.73	6.02	33.05	35.43	156	226	VERTICAL	Peak

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

Channel 46

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5148.00	63.30	74.00	-10.70	59.70	5.99	33.02	35.41	155	200	VERTICAL	Peak
2	5148.20	53.52	54.00	-0.48	49.92	5.99	33.02	35.41	155	200	VERTICAL	Average
3	5218.60	110.19			106.52	6.03	33.08	35.44	155	200	VERTICAL	Peak
4	5225.20	105.05			101.37	6.04	33.08	35.44	155	200	VERTICAL	Average

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

Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 151, 159 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Channel 151

	Freq	Level	Limit Line	Over Limit	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	
1	5708.20	67.85	68.20	-0.35	61.74	6.44	34.87	35.20	Peak	166	169	VERTICAL
2	5722.60	70.28	78.20	-7.92	64.16	6.45	34.87	35.20	Peak	166	169	VERTICAL
3	5749.40	110.10			103.95	6.45	34.90	35.20	Peak	166	169	VERTICAL
4	5750.20	99.10			92.95	6.45	34.90	35.20	Average	166	169	VERTICAL

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

Channel 159

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5710.20	67.89	68.20	-0.31	61.78	6.44	34.87	35.20	Peak	165	165	VERTICAL
2	5722.00	71.19	78.20	-7.01	65.07	6.45	34.87	35.20	Peak	165	165	VERTICAL
3	5745.60	109.65			103.50	6.45	34.90	35.20	Peak	165	165	VERTICAL
4	5766.00	96.02			89.85	6.46	34.91	35.20	Average	165	165	VERTICAL
5	5850.00	62.84	78.20	-15.36	56.57	6.49	34.98	35.20	Peak	165	165	VERTICAL
6	5871.40	64.59	68.20	-3.61	58.30	6.50	34.99	35.20	Peak	165	165	VERTICAL

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

Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 42, CH155 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Channel 42

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5148.40	53.52	54.00	-0.48	50.89	3.43	34.11	34.91	0	133	Average	VERTICAL
2	5148.40	69.63	74.00	-4.37	67.00	3.43	34.11	34.91	0	133	Peak	VERTICAL
3	5214.80	108.71			105.97	3.45	34.20	34.91	0	133	Peak	VERTICAL
4	5215.60	97.94			95.20	3.45	34.20	34.91	0	133	Average	VERTICAL

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

Channel 155

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5710.20	67.89	68.20	-0.31	61.78	6.44	34.87	35.20	Peak	165	165	VERTICAL
2	5722.00	71.19	78.20	-7.01	65.07	6.45	34.87	35.20	Peak	165	165	VERTICAL
3	5745.60	109.65			103.50	6.45	34.90	35.20	Peak	165	165	VERTICAL
4	5766.00	96.02			89.85	6.46	34.91	35.20	Average	165	165	VERTICAL
5	5850.00	62.84	78.20	-15.36	56.57	6.49	34.98	35.20	Peak	165	165	VERTICAL
6	5871.40	64.59	68.20	-3.61	58.30	6.50	34.99	35.20	Peak	165	165	VERTICAL

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

Note:

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

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

For 5GHz Band : Ant. 3

Temperature	25℃	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 36, 40, 48 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Channel 36

	Freq	Level	Limit Line	Over Limit	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	
1	5150.00	51.38	54.00	-2.62	48.75	3.43	34.11	34.91	Average	177	17	HORIZONTAL
2	5150.00	64.83	74.00	-9.17	62.20	3.43	34.11	34.91	Peak	177	17	HORIZONTAL
3	5183.00	107.54			104.85	3.44	34.16	34.91	Average	177	17	HORIZONTAL
4	5187.00	117.06			114.37	3.44	34.16	34.91	Peak	177	17	HORIZONTAL
5	5396.00	53.92	54.00	-0.08	50.88	3.50	34.46	34.92	Average	177	17	HORIZONTAL
6	5396.00	64.68	74.00	-9.32	61.64	3.50	34.46	34.92	Peak	177	17	HORIZONTAL

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

Channel 40

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5196.00	118.62			115.90	3.45	34.18	34.91	Peak	177	16	VERTICAL
2	5199.00	107.57			104.85	3.45	34.18	34.91	Average	177	16	VERTICAL
3	5355.00	63.24	74.00	-10.76	60.27	3.49	34.39	34.91	Peak	177	16	VERTICAL
4	5417.00	53.65	54.00	-0.35	50.58	3.51	34.48	34.92	Average	177	16	VERTICAL

Item 1, 2 are the fundamental frequency at 5200 MHz.

Channel 48

	Freq	Level	Limit Line	Over Limit	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	
1	5021.00	53.89	54.00	-0.11	51.44	3.40	33.95	34.90	Average	177	18	HORIZONTAL
2	5021.00	64.19	74.00	-9.81	61.74	3.40	33.95	34.90	Peak	177	18	HORIZONTAL
3	5236.00	117.38			114.60	3.46	34.23	34.91	Peak	177	18	HORIZONTAL
4	5237.00	106.56			103.78	3.46	34.23	34.91	Average	177	18	HORIZONTAL
5	5354.00	65.50	74.00	-8.50	62.53	3.49	34.39	34.91	Peak	177	18	HORIZONTAL
6	5459.00	53.32	54.00	-0.68	50.19	3.52	34.53	34.92	Average	177	18	HORIZONTAL

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

Temperature	25℃	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 149, 157, 165 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Channel 149

	Freq	Level	Limit Line	Over Limit	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	
1	5713.40	67.88	68.20	-0.32	61.77	6.44	34.87	35.20	Peak	187	0	VERTICAL
2	5723.40	76.43	78.20	-1.77	70.29	6.45	34.89	35.20	Peak	187	0	VERTICAL
3	5747.80	102.43	78.20	24.23	96.28	6.45	34.90	35.20	Average	187	0	VERTICAL
4	5748.20	117.71	78.20	39.51	111.56	6.45	34.90	35.20	Peak	187	0	VERTICAL

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

Channel 157

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5708.60	66.25	68.20	-1.95	60.14	6.44	34.87	35.20	Peak	180	0	HORIZONTAL
2	5720.60	63.28	78.20	-14.92	57.16	6.45	34.87	35.20	Peak	180	0	HORIZONTAL
3	5782.20	106.33			100.14	6.46	34.93	35.20	Average	180	0	HORIZONTAL
4	5787.00	117.09			110.89	6.47	34.93	35.20	Peak	180	0	HORIZONTAL
5	5858.00	66.38	78.20	-11.82	60.10	6.50	34.98	35.20	Peak	180	0	HORIZONTAL
6	5870.40	67.71	68.20	-0.49	61.42	6.50	34.99	35.20	Peak	180	0	HORIZONTAL

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

Channel 165

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5712.60	65.26	68.20	-2.94	59.15	6.44	34.87	35.20	Peak	168	0	VERTICAL
2	5723.80	62.55	78.20	-15.65	56.41	6.45	34.89	35.20	Peak	168	0	VERTICAL
3	5777.80	102.99			96.80	6.46	34.93	35.20	Average	168	0	VERTICAL
4	5791.80	116.81			110.60	6.47	34.94	35.20	Peak	168	0	VERTICAL
5	5856.40	63.86	78.20	-14.34	57.58	6.50	34.98	35.20	Peak	168	0	VERTICAL
6	5862.40	65.20	68.20	-3.00	58.91	6.50	34.99	35.20	Peak	168	0	VERTICAL

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

Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 38, 46 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Channel 38

	Freq	Level	Limit Line	Over Limit	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	
1	5150.00	53.65	54.00	-0.35	51.02	3.43	34.11	34.91	Average	174	18	HORIZONTAL
2	5150.00	65.28	74.00	-8.72	62.65	3.43	34.11	34.91	Peak	174	18	HORIZONTAL
3	5193.60	101.83			99.12	3.44	34.18	34.91	Average	174	18	HORIZONTAL
4	5194.20	111.85			109.14	3.44	34.18	34.91	Peak	174	18	HORIZONTAL

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

Channel 46

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5104.00	53.85	54.00	-0.15	51.29	3.42	34.04	34.90	Average	180	16	VERTICAL
2	5150.00	66.20	74.00	-7.80	63.57	3.43	34.11	34.91	Peak	180	16	VERTICAL
3	5226.00	106.20			103.42	3.46	34.23	34.91	Average	180	16	VERTICAL
4	5226.00	118.33			115.55	3.46	34.23	34.91	Peak	180	16	VERTICAL

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

Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 151, 159 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Channel 151

	Freq	Level	Limit Line	Over Limit	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	
1	5714.20	68.04	68.20	-0.16	61.93	6.44	34.87	35.20	Peak	185	360	HORIZONTAL
2	5725.00	73.23	78.20	-4.97	67.09	6.45	34.89	35.20	Peak	185	360	HORIZONTAL
3	5749.40	112.56			106.41	6.45	34.90	35.20	Peak	185	360	HORIZONTAL
4	5749.80	98.91			92.76	6.45	34.90	35.20	Average	185	360	HORIZONTAL

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

Channel 159

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5713.40	64.46	68.20	-3.74	58.35	6.44	34.87	35.20	Peak	178	360	HORIZONTAL
2	5721.80	66.73	78.20	-11.47	60.61	6.45	34.87	35.20	Peak	178	360	HORIZONTAL
3	5789.40	104.68			98.48	6.47	34.93	35.20	Average	178	360	HORIZONTAL
4	5791.40	116.66			110.45	6.47	34.94	35.20	Peak	178	360	HORIZONTAL
5	5855.20	70.21	78.20	-7.99	63.93	6.50	34.98	35.20	Peak	178	360	HORIZONTAL
6	5861.60	68.03	68.20	-0.17	61.74	6.50	34.99	35.20	Peak	178	360	HORIZONTAL

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

Temperature	25°C	Humidity	67%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 42, CH155 / Chain 3 + Chain 4
Test Date	Aug. 18, 2014		

Channel 42

	Freq	Level	Limit Line	Over Limit	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	
1	5147.00	64.94	74.00	-9.06	62.31	3.43	34.11	34.91	Peak	180	16	HORIZONTAL
2	5150.00	53.87	54.00	-0.13	51.24	3.43	34.11	34.91	Average	180	16	HORIZONTAL
3	5196.00	106.61			103.89	3.45	34.18	34.91	Peak	180	16	HORIZONTAL
4	5220.00	96.99			94.25	3.45	34.20	34.91	Average	180	16	HORIZONTAL

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

Channel 155

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5709.60	67.62	68.20	-0.58	61.51	6.44	34.87	35.20	Peak	184	360	HORIZONTAL
2	5722.60	70.00	78.20	-8.20	63.88	6.45	34.87	35.20	Peak	184	360	HORIZONTAL
3	5768.40	112.82			106.65	6.46	34.91	35.20	Peak	184	360	HORIZONTAL
4	5787.00	96.84			90.64	6.47	34.93	35.20	Average	184	360	HORIZONTAL
5	5851.20	64.23	78.20	-13.97	57.96	6.49	34.98	35.20	Peak	184	360	HORIZONTAL
6	5862.40	64.83	68.20	-3.37	58.54	6.50	34.99	35.20	Peak	184	360	HORIZONTAL

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

Note:

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

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

4.8. Frequency Stability Measurement

4.8.1. Limit

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

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

4.8.2. Measuring Instruments and Setting

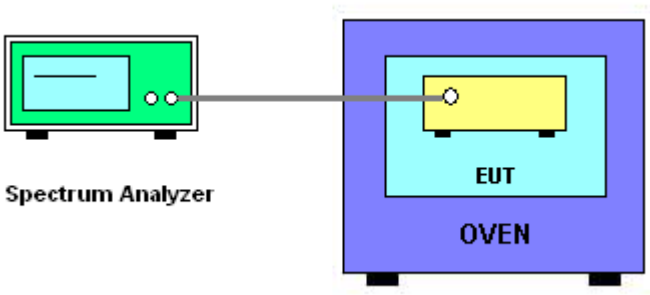
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

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

4.8.3. Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. EUT have transmitted absence of modulation signal and fixed channelize.
3. Set the spectrum analyzer span to view the entire absence of modulation emissions bandwidth.
4. Set RBW = 10 kHz, VBW = 10 kHz with peak detector and maxhold settings.
5. fc is declaring of channel frequency. Then the frequency error formula is (fc-f)/fc × 10^6 ppm and the limit is less than ±20ppm (IEEE 802.11nspecification).
6. 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)	5200 MHz
126.50	5200.0064
110.00	5200.0105
93.50	5200.0216
Max. Deviation (MHz)	0.021600
Max. Deviation (ppm)	4.15

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)
(°C)	5200 MHz
-40	5199.9788
-30	5199.9834
-20	5199.9922
-10	5199.9956
0	5200.0046
10	5200.0084
20	5200.0105
30	5200.0158
40	5200.0230
55	5200.0286
Max. Deviation (MHz)	0.028600
Max. Deviation (ppm)	5.50

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%