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FCC RADIO TEST REPORT

Applicant's company	**Broadcom Corporation**
Applicant Address	190 Mathilda Place Sunnyvale CA 94086 U.S.A.
FCC ID	**QDS-BRCM1085**
Manufacturer's company	**Broadcom Corporation**
Manufacturer Address	190 Mathilda Place Sunnyvale CA 94086 U.S.A.

Product Name	Broadcom 802.11a/b/g/n/ac WLAN + Bluetooth PCI-E NGFF 2230 Card
Brand Name	Broadcom
Model No.	BCM94356Z
Part No.	BCM94356Z, BCM94356ZAE
Test Rule Part(s)	47 CFR FCC Part 15 Subpart E § 15.407
Test Freq. Range	5150 ~ 5350MHz / 5470 ~ 5725MHz / 5725 ~ 5850 MHz
Received Date	Jul. 31, 2014
Final Test Date	Nov. 14, 2014
Submission Type	Original Equipment
Operating Mode	Client (without radar detection function)

Statement

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

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

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

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

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

TAF
Testing Laboratory
1190

Table of Contents

History of This Test Report

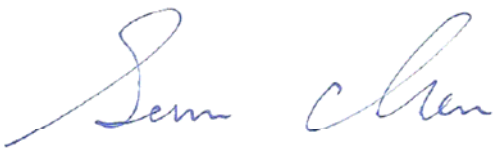
REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR473142AB	Rev. 01	Initial issue of report	Sep. 23, 2014
FR473142AB	Rev. 02	Test 6dB Spectrum Bandwidth and 99% Occupied Bandwidth for U-NII Band 3.	Oct. 31, 2014
FR473142AB	Rev. 03	Revise 6dB Spectrum Bandwidth data and remove 99% Occupied Bandwidth data for U-NII Band 3.	Nov. 14, 2014

Certificate No.: CB10309162

1. CERTIFICATE OF COMPLIANCE

Product Name	:	**Broadcom 802.11a/b/g/n/ac WLAN + Bluetooth PCI-E NGFF 2230 Card**
Brand Name	:	**Broadcom**
Model No.	:	**BCM94356Z**
Part No.	:	**BCM94356Z, BCM94356ZAE**
Applicant	:	**Broadcom Corporation**
Test Rule Part(s)	:	**47 CFR FCC Part 15 Subpart E § 15.407**

Sporton International as requested by the applicant to evaluate the EMC performance of the product sample received on Jul. 31, 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	Complies	12.54 dB
4.2	15.407(a)	26dB Spectrum Bandwidth and 99% Occupied Bandwidth	Complies	-
4.3	15.407(e)	6dB Spectrum Bandwidth and 99% Occupied Bandwidth	Complies	-
4.4	15.407(a)	Maximum Conducted Output Power	Complies	0.02 dB
4.5	15.407(a)	Power Spectral Density	Complies	0.02 dB
4.6	15.407(b)	Radiated Emissions	Complies	2.38 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	-

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 host system
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 ~ 5350MHz / 5470 ~ 5725MHz / 5725 ~ 5850 MHz
Channel Number	25 for 20MHz bandwidth ; 12 for 40MHz bandwidth 6 for 80MHz bandwidth
Channel Band Width (99%)	For non-beamforming function: Band 1: 802.11ac MCS0/Nss1 (VHT20): 19.20 MHz ; 802.11ac MCS0/Nss1 (VHT40): 38.08 MHz ; 802.11ac MCS0/Nss1 (VHT80): 76.16 MHz Band 2: 802.11ac MCS0/Nss1 (VHT20): 19.84 MHz ; 802.11ac MCS0/Nss1 (VHT40): 41.92 MHz ; 802.11ac MCS0/Nss1 (VHT80): 76.16 MHz Band 3: 802.11ac MCS0/Nss1 (VHT20): 19.04 MHz ; 802.11ac MCS0/Nss1 (VHT40): 51.20 MHz ; 802.11ac MCS0/Nss1 (VHT80): 78.08 MHz Band 4: 802.11ac MCS0/Nss1 (VHT20): 18.16 MHz ; 802.11ac MCS0/Nss1 (VHT40): 36.48 MHz ; 802.11ac MCS0/Nss1 (VHT80): 76.16 MHz

	For beamforming function: Band 1: 802.11ac MCS0/Nss1 (VHT20): 18.56 MHz ; 802.11ac MCS0/Nss1 (VHT40): 36.48 MHz ; 802.11ac MCS0/Nss1 (VHT80): 76.80 MHz Band 2: 802.11ac MCS0/Nss1 (VHT20): 18.88 MHz ; 802.11ac MCS0/Nss1 (VHT40): 36.80 MHz ; 802.11ac MCS0/Nss1 (VHT80): 76.16 MHz Band 3: 802.11ac MCS0/Nss1 (VHT20): 18.72 MHz ; 802.11ac MCS0/Nss1 (VHT40): 36.80 MHz ; 802.11ac MCS0/Nss1 (VHT80): 76.80 MHz Band 4: 802.11ac MCS0/Nss1 (VHT20): 18.40 MHz ; 802.11ac MCS0/Nss1 (VHT40): 36.48 MHz ; 802.11ac MCS0/Nss1 (VHT80): 75.84 MHz For STBC function: Band 1: 802.11n MCS0 (HT20): 19.84 MHz

Maximum Conducted Output Power	For non-beamforming function: Band 1: 802.11ac MCS0/Nss1 (VHT20): 21.57 dBm ; 802.11ac MCS0/Nss1 (VHT40): 21.64 dBm ; 802.11ac MCS0/Nss1 (VHT80): 17.35 dBm Band 2: 802.11ac MCS0/Nss1 (VHT20): 21.49 dBm ; 802.11ac MCS0/Nss1 (VHT40): 21.51 dBm ; 802.11ac MCS0/Nss1 (VHT80): 17.80 dBm Band 3: 802.11ac MCS0/Nss1 (VHT20): 21.16 dBm ; 802.11ac MCS0/Nss1 (VHT40): 21.57 dBm ; 802.11ac MCS0/Nss1 (VHT80): 21.10 dBm Band 4: 802.11ac MCS0/Nss1 (VHT20): 21.73 dBm ; 802.11ac MCS0/Nss1 (VHT40): 19.81 dBm ; 802.11ac MCS0/Nss1 (VHT80): 16.39 dBm For beamforming function: Band 1: 802.11ac MCS0/Nss1 (VHT20): 21.10 dBm ; 802.11ac MCS0/Nss1 (VHT40): 20.98 dBm ; 802.11ac MCS0/Nss1 (VHT80): 17.19 dBm Band 2: 802.11ac MCS0/Nss1 (VHT20): 21.12 dBm ; 802.11ac MCS0/Nss1 (VHT40): 21.05 dBm ; 802.11ac MCS0/Nss1 (VHT80): 17.80 dBm Band 3: 802.11ac MCS0/Nss1 (VHT20): 20.69 dBm ; 802.11ac MCS0/Nss1 (VHT40): 20.71 dBm ; 802.11ac MCS0/Nss1 (VHT80): 20.46 dBm Band 4: 802.11ac MCS0/Nss1 (VHT20): 21.73 dBm ; 802.11ac MCS0/Nss1 (VHT40): 19.67 dBm ; 802.11ac MCS0/Nss1 (VHT80): 14.49 dBm For STBC function: Band 1: 802.11n MCS0 (HT20): 21.73 dBm
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

IEEE 802.11a

Items	Description
Product Type	WLAN (2TX, 2RX)
Radio Type	Intentional Transceiver
Power Type	From host system
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 ~ 5350MHz / 5470 ~ 5725MHz / 5725 ~ 5850 MHz
Channel Number	25
Channel Band Width (99%)	Band 1: 18.56 MHz ; Band 2: 18.40 MHz ; Band 3: 18.56 MHz ; Band 4: 17.36 MHz
Maximum Conducted Output Power	Band 1: 21.59 dBm ; Band 2: 21.54 dBm ; Band 3: 21.18 dBm ; Band 4: 21.61 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
TPC Function	☒ With TPC	☐ Without TPC
Weather Band (5600~5650MHz)	☒ With 5600~5650MHz	☐ Without 5600~5650MHz
Beamforming Function	☒ With beamforming	☐ Without beamforming
STBC Function	☒ With STBC	☐ Without STBC

Note: 1. The EUT has beamforming function for 802.11n/ac in 5GHz band 1~4.

2. The EUT has STBC function for 802.11n/ac in 5GHz band 1~4.

3. The MIMO transmission mode is correlated.

Antenna and Band width

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

IEEE 11n/ac Spec.

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

Note 1: IEEE Std. 802.11n modulation consists of HT20 and HT40 (HT: High Throughput). Then EUT 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	Ant.	Brand	Part No.	Antenna Type	Connector	Gain (dBi)				
						2.4G/ BT	5G B1	5G B2	5G B3	5G B4
1	1	MAG.LAYERS	PCA-4077-25GC1-A1-RT	WLAN/BT antenna	I-PEX A13	3.33	5.85	5.85	6.21	6.21
	2	MAG.LAYERS	PCA-4077-25GC1-A1-RT	WLAN/BT antenna	I-PEX A13	3.33	5.85	5.85	6.21	6.21

Note: The EUT has one set of antenna, and each set contains two antennas.

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

For 2.4 GHz WLAN function (2TX/2RX):

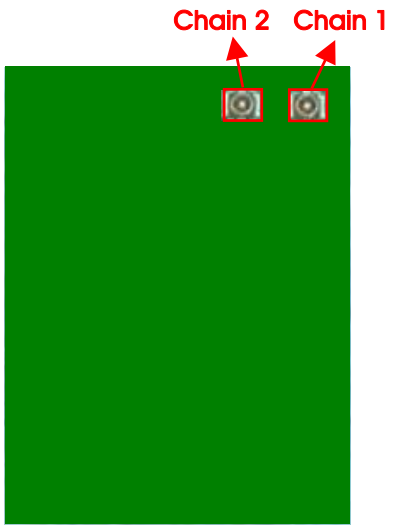
Chain 1 and Chain 2 could transmit/receive simultaneously.

For Bluetooth function (1TX/1RX):

Only Chain 1 could transmit/receive simultaneously.

For 5 GHz WLAN function (2TX/2RX):

Chain 1 and Chain 2 could transmit/receive simultaneously.



3.4. Table for Carrier Frequencies

There are three bandwidth systems.

For 20MHz bandwidth systems, use Channel 36, 40, 44, 48, 52, 56, 60, 64, 100, 104, 108, 112, 116, 120, 124, 128, 132, 136, 140, 144, 149, 153, 157, 161, 165.

For 40MHz bandwidth systems, use Channel 38, 46, 54, 62, 102, 110, 118, 126, 134, 142, 151, 159.

For 80MHz bandwidth systems, use Channel 42, 58, 106, 122, 138, 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	-	-
5250~5350 MHz Band 2	52	5260 MHz	60	5300 MHz
	54	5270 MHz	62	5310 MHz
	56	5280 MHz	64	5320 MHz
	58	5290 MHz	-	-
5470~5725 MHz Band 3	100	5500 MHz	124	5620 MHz
	102	5510 MHz	126	5630 MHz
	104	5520 MHz	128	5640 MHz
	106	5530 MHz	132	5660 MHz
	108	5540 MHz	134	5670 MHz
	110	5550 MHz	136	5680 MHz
	112	5560 MHz	138	5690 MHz
	116	5580 MHz	140	5700 MHz
	118	5590 MHz	142	5710 MHz
	120	5600 MHz	144	5720 MHz
	122	5610 MHz	-	-
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.

For non-beamforming function and beamforming function:

Test Items	Mode		Data Rate	Channel	Chain
AC Power Conducted Emission	Normal Link		-	-	-
Max. Conducted Output Power	11ac VHT20	Band 1~4	MCS0/Nss1	36/40/48/52/60/64/100/116/140/144/149/157/165	1+2
	11ac VHT40	Band 1~4	MCS0/Nss1	38/46/54/62/102/110/134/142/151/159	1+2
	11ac VHT80	Band 1~4	MCS0/Nss1	42/58/106/138/155	1+2
	11a/BPSK	Band 1~4	6Mbps	36/40/48/52/60/64/100/116/140/144/149/157/165	1+2
Power Spectral Density	11ac VHT20	Band 1~4	MCS0/Nss1	36/40/48/52/60/64/100/116/140/144/149/157/165	1+2
	11ac VHT40	Band 1~4	MCS0/Nss1	38/46/54/62/102/110/134/142/151/159	1+2
	11ac VHT80	Band 1~4	MCS0/Nss1	42/58/106/138/155	1+2
	11a/BPSK	Band 1~4	6Mbps	36/40/48/52/60/64/100/116/140/144/149/157/165	1+2
26dB&6dB Spectrum Bandwidth 99% Occupied Bandwidth Measurement	11ac VHT20	Band 1~4	MCS0/Nss1	36/40/48/52/60/64/100/116/140/144/149/157/165	1+2
	11ac VHT40	Band 1~4	MCS0/Nss1	38/46/54/62/102/110/134/142/151/159	1+2
	11ac VHT80	Band 1~4	MCS0/Nss1	42/58/106/138/155	1+2
	11a/BPSK	Band 1~4	6Mbps	36/40/48/52/60/64/100/116/140/144/149/157/165	1+2
Radiated Emission Below 1GHz	Normal Link		-	-	-

Radiated Emission Above 1GHz	11ac VHT20	Band 1~4	MCS0/Nss1	36/40/48/52/60/64/100 /116/140/144/149/157/ 165	1+2
	11ac VHT40	Band 1~4	MCS0/Nss1	38/46/54/62/102/110/ 134/142/151/159	1+2
	11ac VHT80	Band 1~4	MCS0/Nss1	42/58/106/138/155	1+2
	11a/BPSK	Band 1~4	6Mbps	36/40/48/52/60/64/100 /116/140/144/149/157/ 165	1+2
Band Edge Emission	11ac VHT20	Band 1~4	MCS0/Nss1	36/40/48/52/60/64/100 /140/149/157/165	1+2
	11ac VHT40	Band 1~4	MCS0/Nss1	38/46/54/62/102/110/ 134/151/159	1+2
	11ac VHT80	Band 1~4	MCS0/Nss1	42/58/106/155	1+2
	11a/BPSK	Band 1~4	6Mbps	36/40/48/52/60/64/100 /140/149/157/165	1+2
Frequency Stability	Un-modulation		-	40/60/100	1+2

Note: 1. VHT20/VHT40 covers HT20/HT40, due to same modulation.

2. Non-beamforming function and beamforming function for 802.11n/ac in 5GHz band 1~4, two functions test results were recorded in the report.

For STBC function:

Test Items	Mode		Data Rate	Channel	Chain
AC Power Conducted Emission	Normal Link		-	-	-
Max. Conducted Output Power	11n HT20	Band 1	MCS0	36/40/48	1+2
Power Spectral Density	11n HT20	Band 1	MCS0	36/40/48	1+2
26dB&6dB Spectrum Bandwidth 99% Occupied Bandwidth Measurement	11n HT20	Band 1	MCS0	36/40/48	1+2
Radiated Emission Below 1GHz	Normal Link		-	-	-
Radiated Emission Above 1GHz	11n HT20	Band 1	MCS0	36/40/48	1+2
Band Edge Emission	11n HT20	Band 1	MCS0	36/40/48	1+2

Note: For STBC function: only the 802.11n in 20MHz bandwidth system of 5GHz band 1 was performed for all the tests and recorded in this report, and it was base on customer's request.

The following test modes were performed for all tests:

For AC Power Line Conducted Emissions test:

Mode 1. 2.4GHz WLAN function + Bluetooth function

Mode 2. 5GHz WLAN function + Bluetooth function

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

For Radiated Emissions 9kHz~1GHz test:

Radiated Emissions 9kHz~1GHz test was perform at its 3-axis (X-axis, Y-axis and Z-axis). After evaluating, X-axis was the worst case. Thus, measurements for Radiated Emissions 9kHz~1GHz test will follow this test mode.

Mode 1. 2.4GHz WLAN function + Bluetooth function

Mode 2. 5GHz WLAN function + Bluetooth function

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

For Radiated Emissions above 1GHz test:

Radiated Emissions above 1GHz test was perform at its 3-axis (X-axis, Y-axis and Z-axis). X-axis was the worst case, so it's recorded in this test report.

For Radiated Emission Co-location test:

Mode 1. 2.4GHz WLAN function + Bluetooth function

Mode 2. 5GHz WLAN function + Bluetooth 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 Multiple Listing

The EUT has two part numbers which are identical to each other in all aspects except for the following table:

Model No.	Part No.	Description
BCM94356Z	BCM94356Z	The base pin between these two models is different.
	BCM94356ZAE	

From the above models, part number: BCM94356Z was selected as representative model for the test and its data was recorded in this report.

3.8. Table for Supporting Units

For Test Site No: CO01-CB

Support Unit	Brand	Model	FCC ID
Wireless AP	Planex	GW-AP54SGX	KA220030603014-1
Test fixture	Broadcom	BCM9NGFF2EC_1	N/A
Broadcom 802.11a/b/g/n/ac WLAN + Bluetooth PCI-E NGFF 2230 Card (Device)	Broadcom	BCM94356Z	QDS-BRCM1085
NB	DELL	E4300	DoC
Mouse	Logitech	M-U0026	DoC
Earphone	SHYARO CHI	MIC-04	N/A
NB	DELL	E4300	DoC
Test fixture	Broadcom	BCM9NGFF2EC_1	N/A

For Test Site No: TH01-CB

Support Unit	Brand	Model	FCC ID
NB	DELL	E6430	DoC
Test fixture	Broadcom	BCM9NGFF2EC_1	N/A

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

Support Unit	Brand	Model	FCC ID
Wireless AP	Netgear	R6300V2	PY313200227
Test fixture	Broadcom	BCM9NGFF2EC_1	N/A
Broadcom 802.11a/b/g/n/ac WLAN + Bluetooth PCI-E NGFF 2230 Card (Device)	Broadcom	BCM94356Z	QDS-BRCM1085
NB	DELL	M1340	E2K4965AGNM
Mouse	Logitech	M-U0026	DoC
Earphone	E-BOOKI	E-EPC040	N/A
NB	DELL	E4300	RSE-TG233
Test fixture	Broadcom	BCM9NGFF2EC_1	N/A

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

For non-beamforming function and STBC function:

Support Unit	Brand	Model	FCC ID
NB	DELL	E4300	RSE-TG233
Test fixture	Broadcom	BCM9NGFF2EC_1	N/A

For beamforming function:

Support Unit	Brand	Model	FCC ID
NB	DELL	E4300	RSE-TG233
Test fixture	Broadcom	BCM9NGFF2EC_1	N/A
Wireless AP	Netgear	R7000	PY313200233

3.9. Table for Parameters of Test Software Setting

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

For non-beamforming function:

Power Parameters of IEEE 802.11ac MCS0/Nss1 VHT20

Test Software Version	Manual Tool version: 2.0.2.1						
Frequency	5180 MHz	5200 MHz	5240 MHz	5260 MHz	5300 MHz	5320 MHz	5500 MHz
MCS0/Nss1 VHT20	68	78	78	79	79	70	70
Frequency	5580 MHz	5700 MHz	5720MHz	5745 MHz	5785 MHz	5825 MHz	
MCS0/Nss1 VHT20	79	68	76	67	80	71	

Power Parameters of IEEE 802.11ac MCS0/Nss1 VHT40

Test Software Version	Manual Tool version: 2.0.2.1						
Frequency	5190 MHz	5230 MHz	5270 MHz	5310 MHz	5510 MHz	5550 MHz	5670 MHz
MCS0/Nss1 VHT40	58	80	80	62	55	80	71
Frequency	5710 MHz	5755 MHz	5795 MHz				
MCS0/Nss1 VHT40	80	51	68				

Power Parameters of IEEE 802.11ac MCS0/Nss1 VHT80

Test Software Version	Manual Tool version: 2.0.2.1				
Frequency	5210 MHz	5290 MHz	5530 MHz	5690 MHz	5775 MHz
MCS0/Nss1 VHT80	62	63	58	80	56

Power Parameters of IEEE 802.11a

Test Software Version	Manual Tool version: 2.0.2.1						
Frequency	5180 MHz	5200 MHz	5240 MHz	5260 MHz	5300 MHz	5320 MHz	5500 MHz
MCS0/Nss1 VHT20	68	78	78	78	78	70	70
Frequency	5580 MHz	5700 MHz	5720MHz	5745 MHz	5785 MHz	5825 MHz	
MCS0/Nss1 VHT20	79	70	79	67	80	73	

For beamforming function:

Power Parameters of IEEE 802.11ac MCS0/Nss1 VHT20

Test Software Version	Manual Tool version: 2.0.2.1						
Frequency	5180 MHz	5200 MHz	5240 MHz	5260 MHz	5300 MHz	5320 MHz	5500 MHz
MCS0/Nss1 VHT20	70	75	75	76	76	69	72
Frequency	5580 MHz	5700 MHz	5720MHz	5745 MHz	5785 MHz	5825 MHz	
MCS0/Nss1 VHT20	76	68	76	67	80	70	

Power Parameters of IEEE 802.11ac MCS0/Nss1 VHT40

Test Software Version	Manual Tool version: 2.0.2.1						
Frequency	5190 MHz	5230 MHz	5270 MHz	5310 MHz	5510 MHz	5550 MHz	5670 MHz
MCS0/Nss1 VHT40	57	73	73	62	61	75	71
Frequency	5710 MHz	5755 MHz	5795 MHz				
MCS0/Nss1 VHT40	74	51	67				

Power Parameters of IEEE 802.11ac MCS0/Nss1 VHT80

Test Software Version	Manual Tool version: 2.0.2.1				
Frequency	5210 MHz	5290 MHz	5530 MHz	5690 MHz	5775 MHz
MCS0/Nss1 VHT80	61	63	61	77	48

For STBC function:

Power Parameters of IEEE 802.11n MCS0 HT20

Test Software Version	Manual Tool version: 2.0.2.1		
Frequency	5180 MHz	5200 MHz	5240 MHz
MCS0 HT20	71	100	100

3.10. EUT Operation during Test

For non-beamforming function and STBC function:

The EUT was programmed to be in continuously transmitting mode.

For beamforming function:

For Conducted Mode:

The EUT was programmed to be in continuously transmitting mode.

For Radiated Mode:

During the test, the following programs under WIN 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 Wireless AP and transmit duty cycle no less 98%

3.11. Duty Cycle

For non-beamforming function:

Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11ac MCS0/Nss1 VHT20	1.92	1.94	98.97	0.05	0.01
802.11ac MCS0/Nss1 VHT40	0.95	0.97	97.94	0.09	1.05
802.11ac MCS0/Nss1 VHT80	0.47	0.49	95.10	0.22	2.15
802.11a	2.07	2.16	95.83	0.18	0.48

For beamforming function:

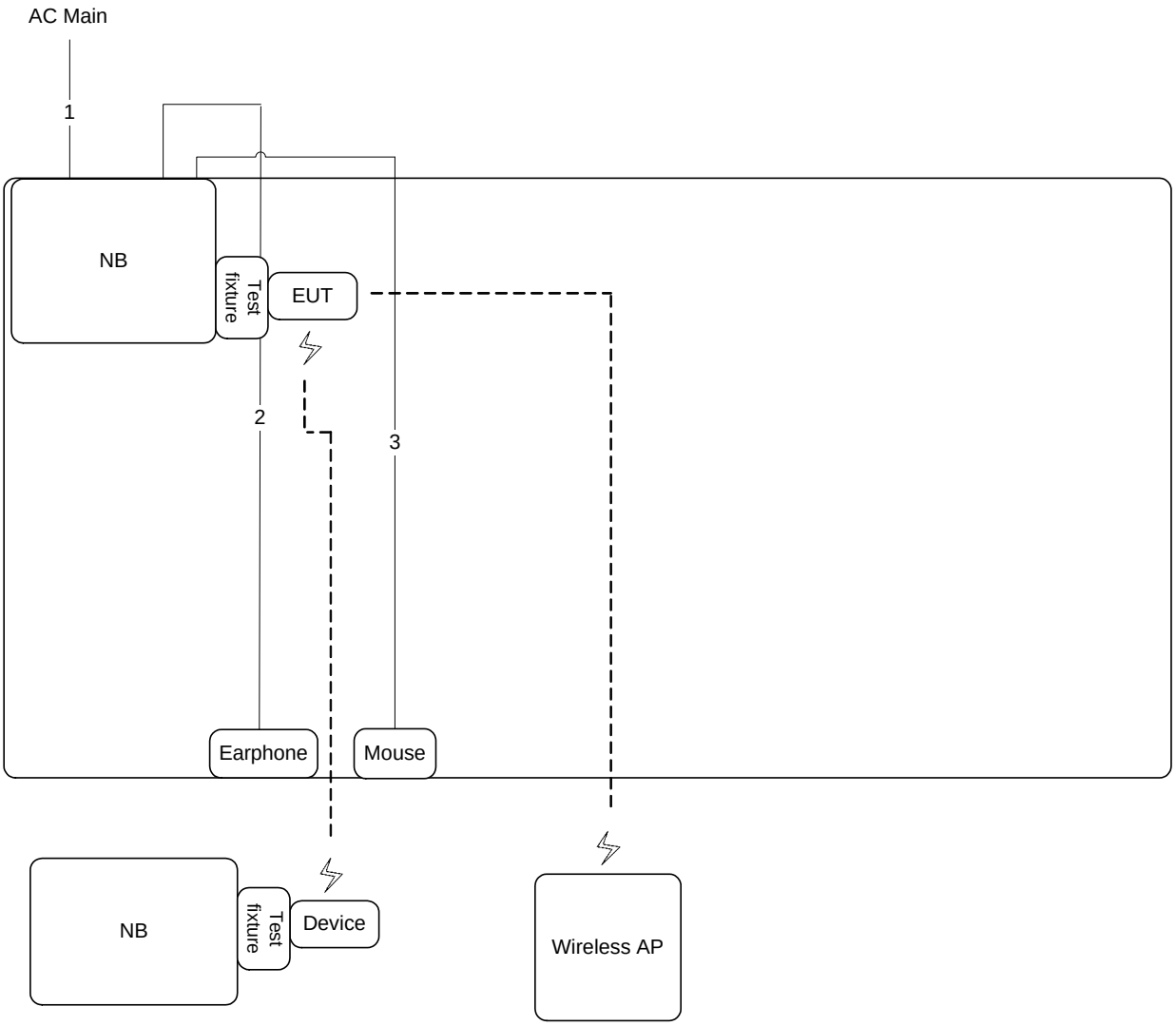
Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11ac MCS0/Nss1 VHT20	3.82	3.94	96.95	0.13	0.26
802.11ac MCS0/Nss1 VHT40	9.29	10.34	89.85	0.47	0.11
802.11ac MCS0/Nss1 VHT80	4.25	5.15	82.52	0.83	0.24

For STBC function:

Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11n MCS0 HT20	1.91	1.96	97.09	0.13	0.52

3.12. Test Configurations

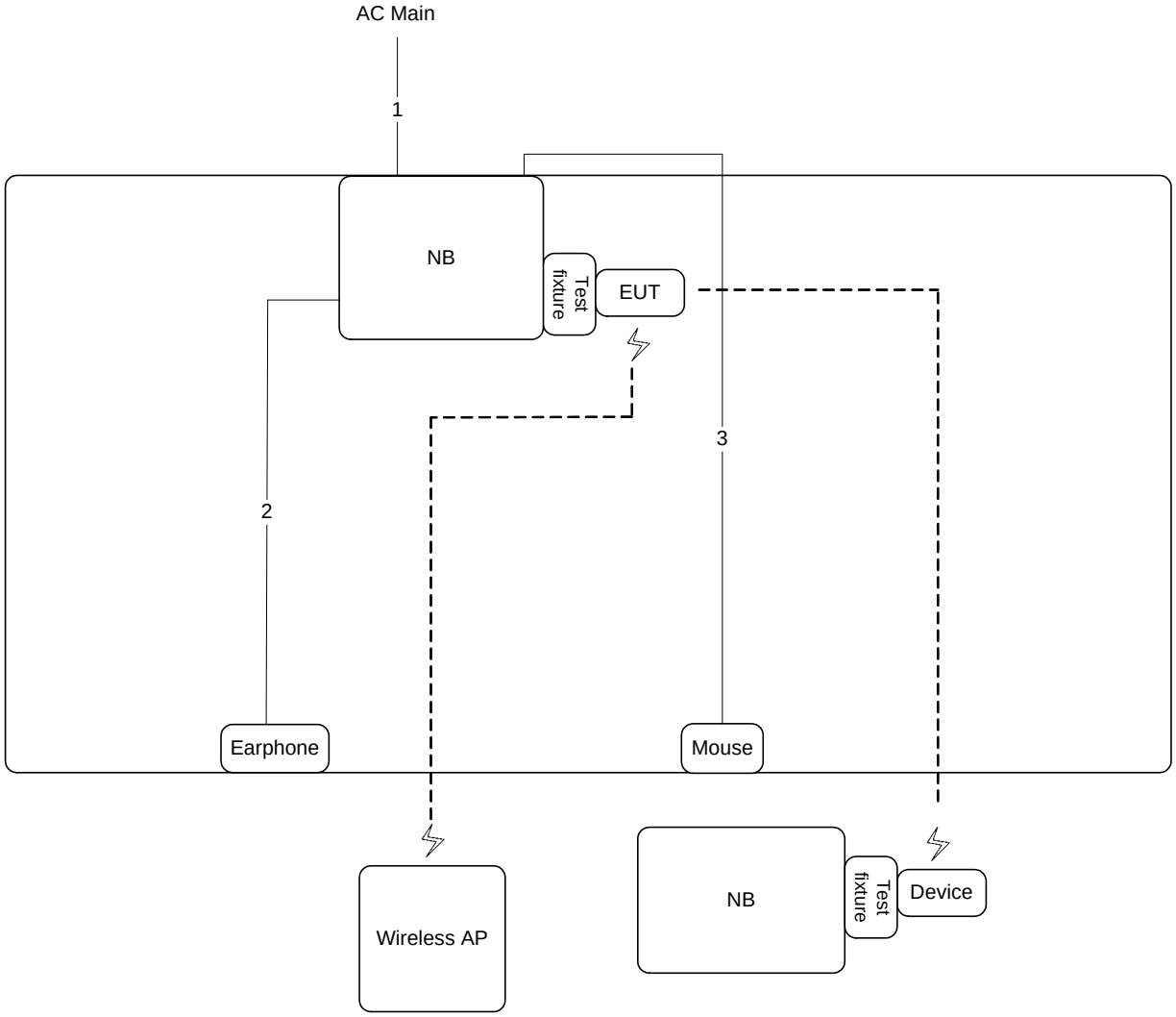
3.12.1. AC Power Line Conduction Emissions Test Configuration



Item	Connection	Shielded	Length
1	Power cable	No	2.6m
2	Audio cable	No	1.5m
3	USB cable	Yes	1.8m

3.12.2. Radiation Emissions Test Configuration

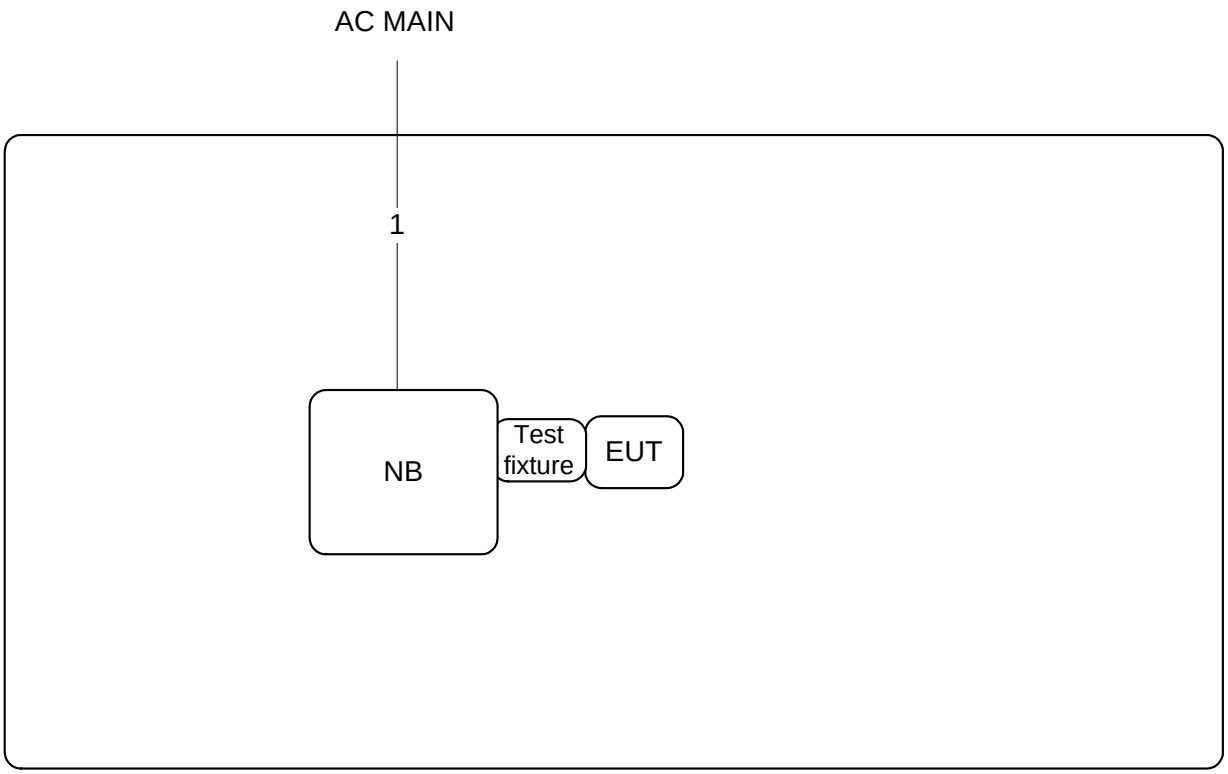
Test Configuration: 30MHz~1GHz



Item	Connection	Shielded	Length
1	Power cable	No	2.6m
2	Audio cable	No	1.1m
3	USB cable	Yes	1.8m

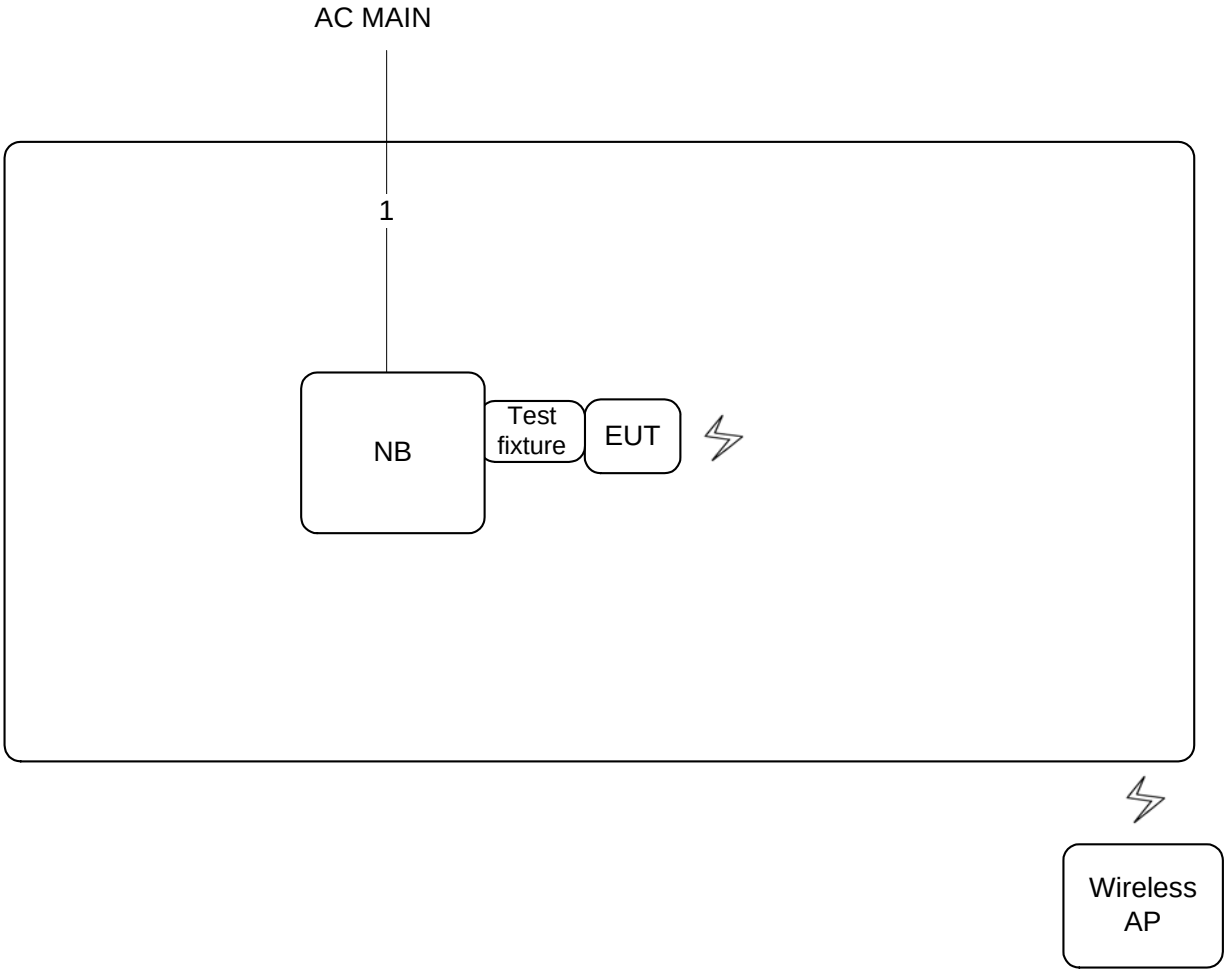
Test Configuration: above 1GHz

For non-beamforming function and STBC function:



Item	Connection	Shielded	Length
1	Power cable	No	1.8m

For beamforming function:



Item	Connection	Shielded	Length
1	Power cable	No	1.8m

4. TEST RESULT

4.1. AC Power Line Conducted Emissions Measurement

4.1.1. Limit

For this product that is designed to connect to the AC power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed below limits table.

Frequency (MHz)	QP Limit (dBuV)	AV Limit (dBuV)
0.15~0.5	66~56	56~46
0.5~5	56	46
5~30	60	50

4.1.2. Measuring Instruments and Setting

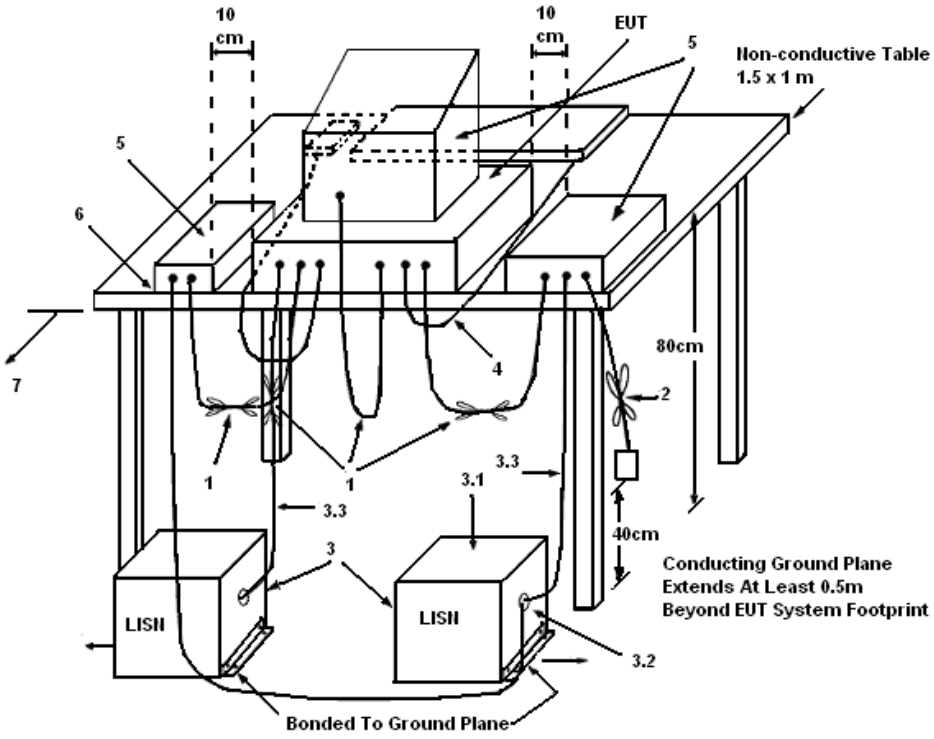
Please refer to section 5 of equipments list in this report. The following table is the setting of the receiver.

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

4.1.3. Test Procedures

1. Configure the EUT according to ANSI C63.10. The EUT or host of EUT has to be placed 0.4 meter far from the conducting wall of the shielding room and at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT or host of EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connected to the other LISNs. The LISN should provide 50uH/50ohms coupling impedance.
4. The frequency range from 150 kHz to 30 MHz was searched.
5. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. The measurement has to be done between each power line and ground at the power terminal.

4.1.4. Test Setup Layout



LEGEND:

(1) Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

(2) I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

(3) EUT connected to one LISN. Unused LISN measuring port connectors shall be terminated in 50 Ω. LISN can be placed on top of, or immediately beneath, reference ground plane.

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

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

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

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

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

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

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

4.1.5. Test Deviation

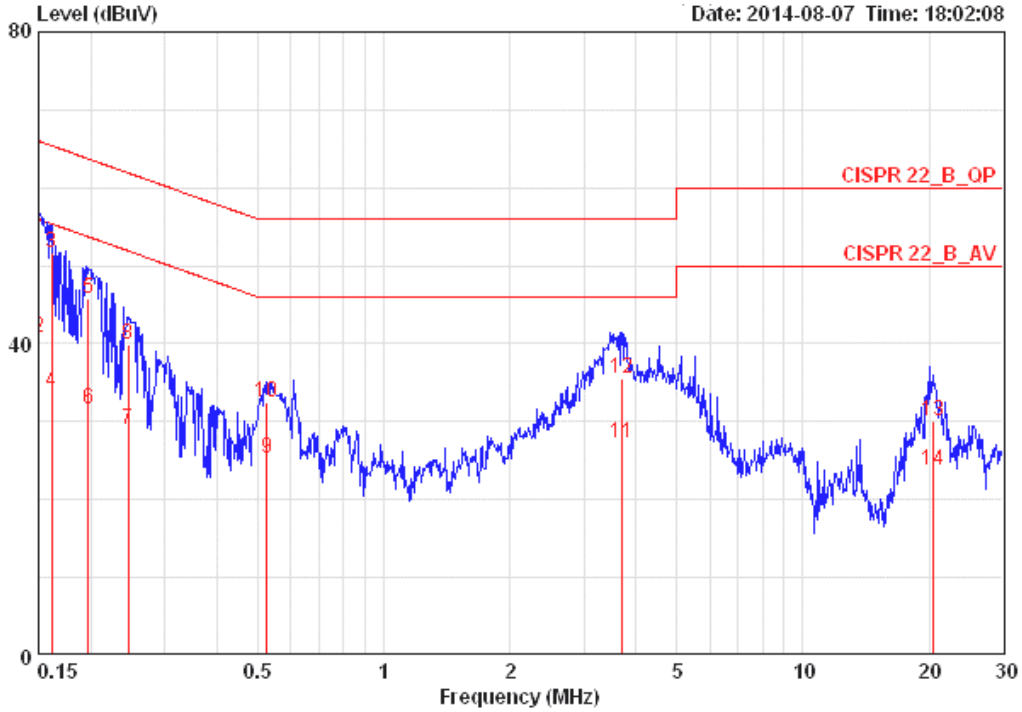
There is no deviation with the original standard.

4.1.6. EUT Operation during Test

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

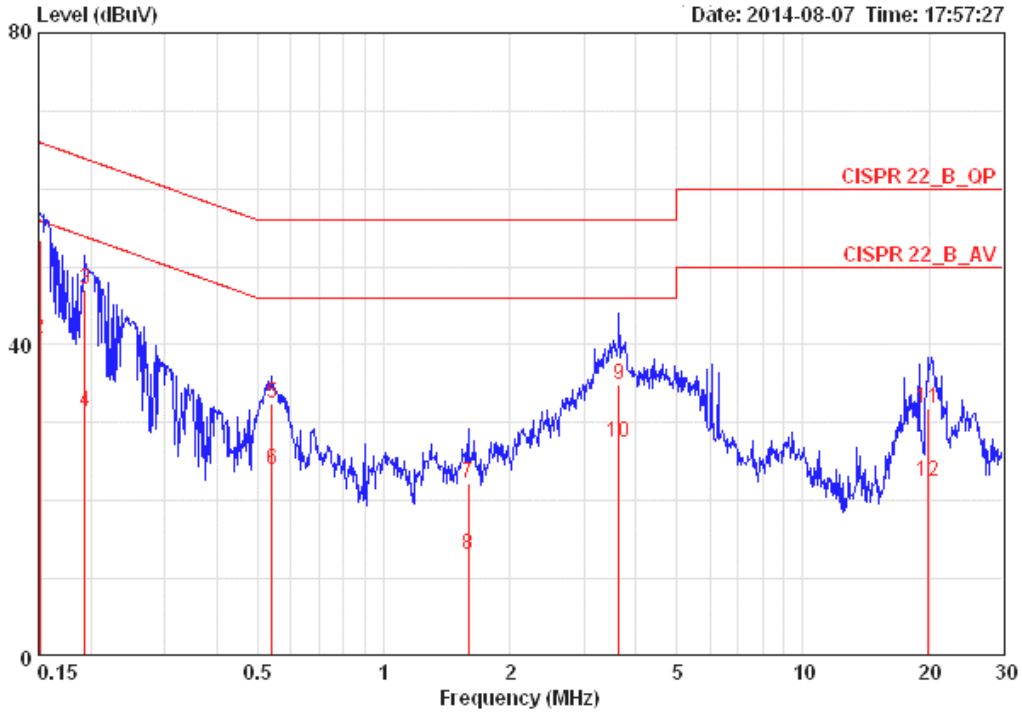
4.1.7. Results of AC Power Line Conducted Emissions Measurement

Temperature	25°C	Humidity	52%
Test Engineer	Parody Lin	Phase	Line
Configuration	Normal Link	Test Mode	Mode 1



	Freq	Level	Over Limit	Limit Line	LISN Factor	Read Level	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dB	dBuV	dB		
1 @	0.15000	53.37	-12.63	66.00	0.10	53.11	0.16	LINE	QP
2 @	0.15000	40.67	-15.33	56.00	0.10	40.41	0.16	LINE	AVERAGE
3 @	0.16155	51.63	-13.75	65.38	0.10	51.37	0.16	LINE	QP
4	0.16155	33.77	-21.61	55.38	0.10	33.51	0.16	LINE	AVERAGE
5	0.19758	45.86	-17.85	63.71	0.10	45.60	0.16	LINE	QP
6	0.19758	31.55	-22.16	53.71	0.10	31.29	0.16	LINE	AVERAGE
7	0.24552	28.97	-22.94	51.91	0.10	28.70	0.17	LINE	AVERAGE
8	0.24552	39.91	-22.00	61.91	0.10	39.64	0.17	LINE	QP
9	0.52655	25.28	-20.72	46.00	0.11	24.98	0.19	LINE	AVERAGE
10	0.52655	32.56	-23.44	56.00	0.11	32.26	0.19	LINE	QP
11	3.700	27.30	-18.70	46.00	0.20	26.80	0.29	LINE	AVERAGE
12	3.700	35.62	-20.38	56.00	0.20	35.12	0.29	LINE	QP
13	20.377	30.19	-29.81	60.00	0.48	29.19	0.52	LINE	QP
14	20.377	23.83	-26.17	50.00	0.48	22.83	0.52	LINE	AVERAGE

Temperature	25°C	Humidity	52%
Test Engineer	Parody Lin	Phase	Neutral
Configuration	Normal Link	Test Mode	Mode 1



	Freq	Level	Over Limit	Limit Line	LISN Factor	Read Level	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dB	dBuV	dB		
1 @	0.15080	53.42	-12.54	65.96	0.09	53.17	0.16	NEUTRAL	QP
2 @	0.15080	40.74	-15.22	55.96	0.09	40.49	0.16	NEUTRAL	AVERAGE
3 @	0.19344	47.04	-16.84	63.89	0.09	46.79	0.16	NEUTRAL	QP
4	0.19344	31.48	-22.40	53.89	0.09	31.23	0.16	NEUTRAL	AVERAGE
5	0.54068	32.46	-23.54	56.00	0.10	32.17	0.19	NEUTRAL	QP
6	0.54068	23.97	-22.03	46.00	0.10	23.68	0.19	NEUTRAL	AVERAGE
7	1.593	22.20	-33.80	56.00	0.13	21.83	0.23	NEUTRAL	QP
8	1.593	12.98	-33.02	46.00	0.13	12.61	0.23	NEUTRAL	AVERAGE
9	3.642	34.87	-21.13	56.00	0.18	34.39	0.29	NEUTRAL	QP
10	3.642	27.37	-18.63	46.00	0.18	26.89	0.29	NEUTRAL	AVERAGE
11	19.950	31.75	-28.25	60.00	0.44	30.80	0.51	NEUTRAL	QP
12	19.950	22.55	-27.45	50.00	0.44	21.60	0.51	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

1. The transmitter was conducted 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.
3. 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. Measurement perform conducted of each port.

4.2.4. Test Setup Layout

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

4.2.5. Test Deviation

There is no deviation with the original standard.

4.2.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

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

Temperature	20°C	Humidity	52%
Test Engineer	Robert Chang	Configurations	IEEE 802.11ac
Test Function	Non-beamforming function		

Configuration IEEE 802.11ac MCS0/Nss1 VHT20

Channel	Frequency	26dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 1	Chain 2	Chain 1	Chain 2
36	5180 MHz	22.08	21.60	18.40	18.24
40	5200 MHz	29.76	21.60	18.88	18.40
48	5240 MHz	29.44	21.76	19.20	18.56
52	5260 MHz	36.16	21.60	19.20	18.40
60	5300 MHz	41.12	21.76	19.84	18.40
64	5320 MHz	21.92	22.08	18.40	18.24
100	5500 MHz	21.92	21.60	18.40	18.24
116	5580 MHz	32.16	21.92	18.72	18.40
140	5700 MHz	21.92	21.92	18.24	18.08
144	5720 MHz	41.44	28.00	19.04	18.40

Configuration IEEE 802.11ac MCS0/Nss1 VHT40

Channel	Frequency	26dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 1	Chain 2	Chain 1	Chain 2
38	5190 MHz	40.00	39.68	36.48	36.48
46	5230 MHz	90.56	39.36	38.08	36.48
54	5270 MHz	82.56	39.36	41.92	36.48
62	5310 MHz	40.32	39.68	36.48	36.48
102	5510 MHz	39.68	39.36	36.48	36.48
110	5550 MHz	88.64	68.80	40.96	36.48
134	5670 MHz	39.68	39.68	36.48	36.48
142	5710 MHz	92.16	69.12	51.20	36.80

Configuration IEEE 802.11ac MCS0/Nss1 VHT80

Channel	Frequency	26dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 1	Chain 2	Chain 1	Chain 2
42	5210 MHz	81.92	81.92	76.16	76.16
58	5290 MHz	81.92	82.56	76.16	76.16
106	5530 MHz	82.56	81.92	76.80	76.80
138	5690 MHz	178.56	83.84	78.08	76.80

Temperature	20°C	Humidity	52%
Test Engineer	Robert Chang	Configurations	IEEE 802.11a
Test Function	Non-beamforming function		

Configuration IEEE 802.11a

Channel	Frequency	26dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 1	Chain 2	Chain 1	Chain 2
36	5180 MHz	21.76	21.60	17.28	17.28
40	5200 MHz	28.00	22.88	18.24	17.44
48	5240 MHz	31.52	22.72	18.56	17.44
52	5260 MHz	30.40	21.44	18.40	17.44
60	5300 MHz	32.48	21.44	18.24	17.44
64	5320 MHz	21.60	21.28	17.28	17.28
100	5500 MHz	21.76	21.60	17.44	17.28
116	5580 MHz	30.24	21.44	18.08	17.44
140	5700 MHz	21.60	21.76	17.44	17.28
144	5720 MHz	34.72	26.88	18.56	17.92

Temperature	20°C	Humidity	52%
Test Engineer	Robert Chang	Configurations	IEEE 802.11ac
Test Function	Beamforming function		

Configuration IEEE 802.11ac MCS0/Nss1 VHT20

Channel	Frequency	26dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 1	Chain 2	Chain 1	Chain 2
36	5180 MHz	22.08	21.76	18.40	18.08
40	5200 MHz	27.36	27.04	18.56	18.40
48	5240 MHz	25.76	21.60	18.40	18.24
52	5260 MHz	27.84	21.92	18.88	18.40
60	5300 MHz	27.36	21.60	18.72	18.24
64	5320 MHz	22.24	21.76	18.40	18.24
100	5500 MHz	22.08	21.44	18.56	18.08
116	5580 MHz	22.08	26.72	18.40	18.40
140	5700 MHz	22.08	21.60	18.24	18.24
144	5720 MHz	21.92	21.76	18.72	18.24

Configuration IEEE 802.11ac MCS0/Nss1 VHT40

Channel	Frequency	26dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 1	Chain 2	Chain 1	Chain 2
38	5190 MHz	39.68	39.36	36.48	36.48
46	5230 MHz	40.00	39.68	36.48	36.48
54	5270 MHz	48.96	45.12	36.80	36.48
62	5310 MHz	40.00	39.36	36.48	36.48
102	5510 MHz	39.68	39.36	36.48	36.48
110	5550 MHz	71.04	53.44	36.80	36.48
134	5670 MHz	40.00	39.68	36.48	36.48
142	5710 MHz	65.92	48.32	36.80	36.48

Configuration IEEE 802.11ac MCS0/Nss1 VHT80

Channel	Frequency	26dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 1	Chain 2	Chain 1	Chain 2
42	5210 MHz	82.56	81.92	76.80	76.16
58	5290 MHz	82.56	82.56	76.16	76.16
106	5530 MHz	82.56	82.56	76.80	76.80
138	5690 MHz	116.48	110.72	76.80	76.80

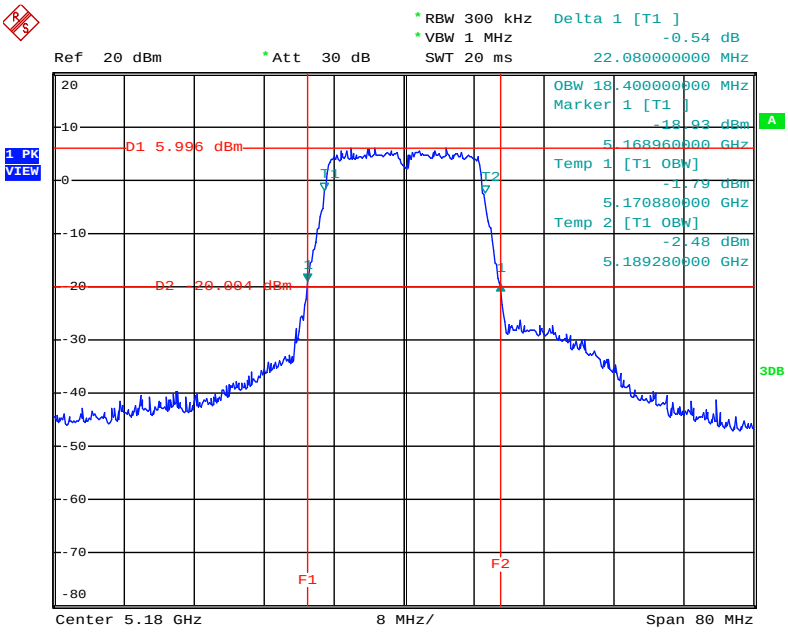
Temperature	20°C	Humidity	52%
Test Engineer	Jim Huang	Configurations	IEEE 802.11n
Test Function	STBC function		

Configuration IEEE 802.11n MCS0 HT20

Channel	Frequency	26dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		Chain 1	Chain 2	Chain 1	Chain 2
36	5180 MHz	21.92	21.92	18.40	18.08
40	5200 MHz	33.28	21.92	19.04	18.40
48	5240 MHz	34.56	21.76	19.84	18.24

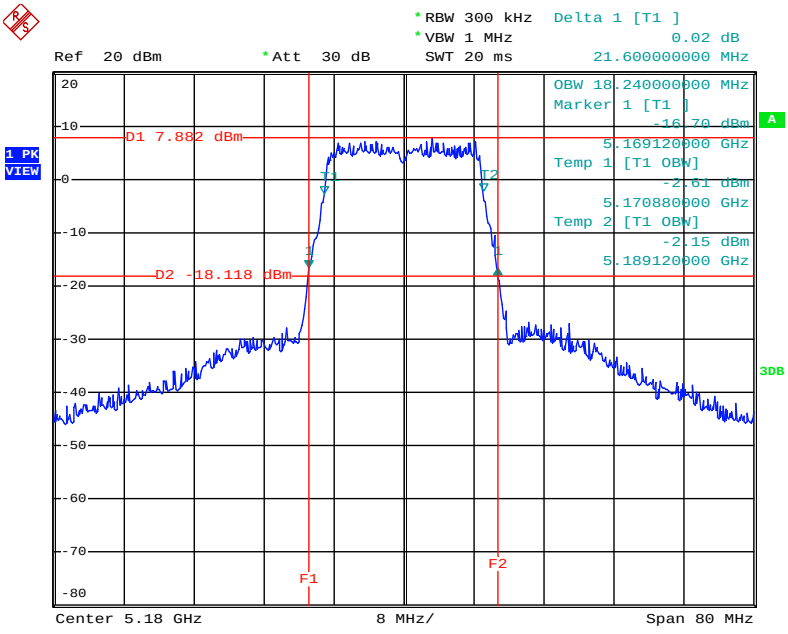
For non-beamforming function:

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



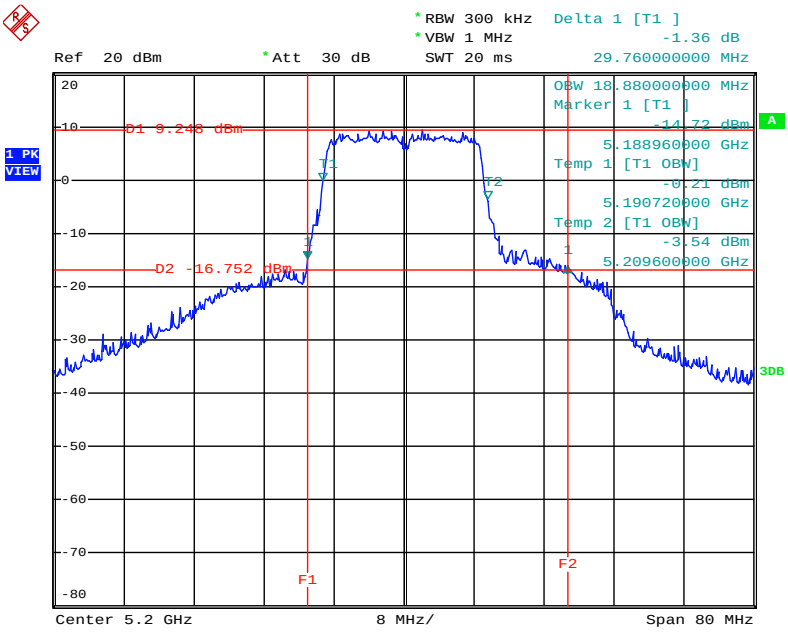
Date: 16.SEP.2014 17:50:56

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



Date: 16.SEP.2014 17:50:20

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



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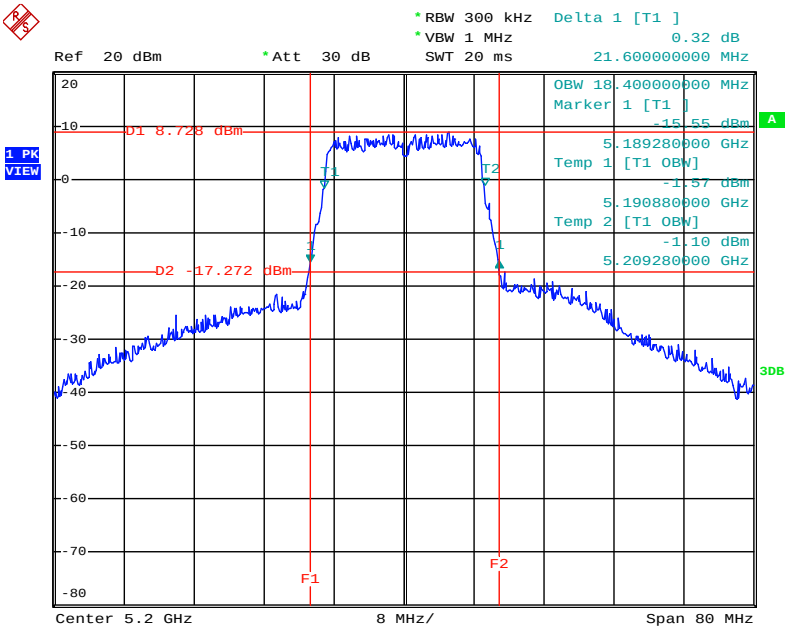
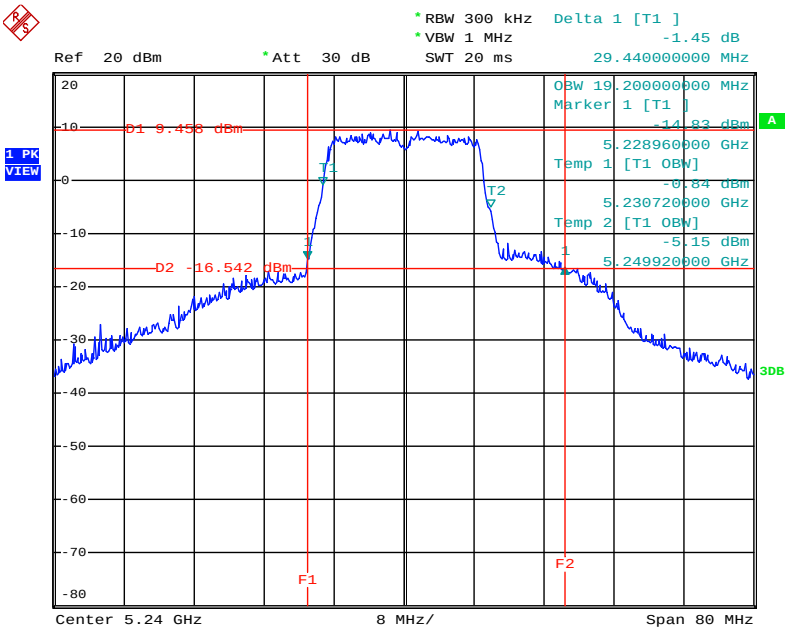
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 2 / 5200 MHz



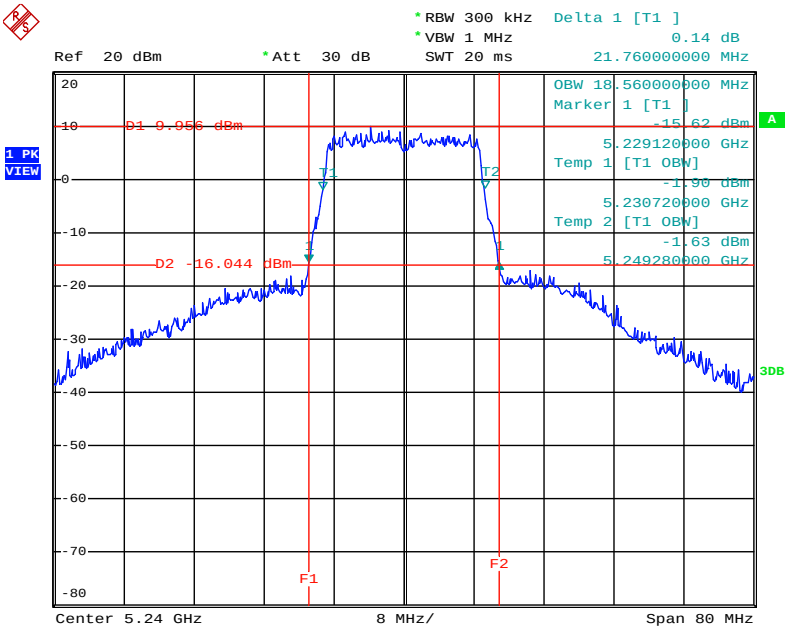
Date: 16.SEP.2014 17:51:59

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



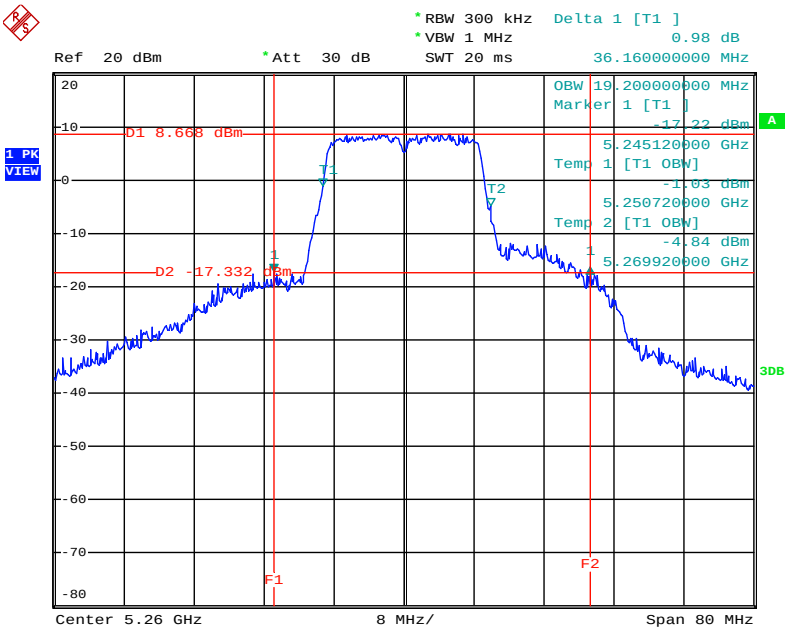
Date: 16.SEP.2014 17:53:04

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



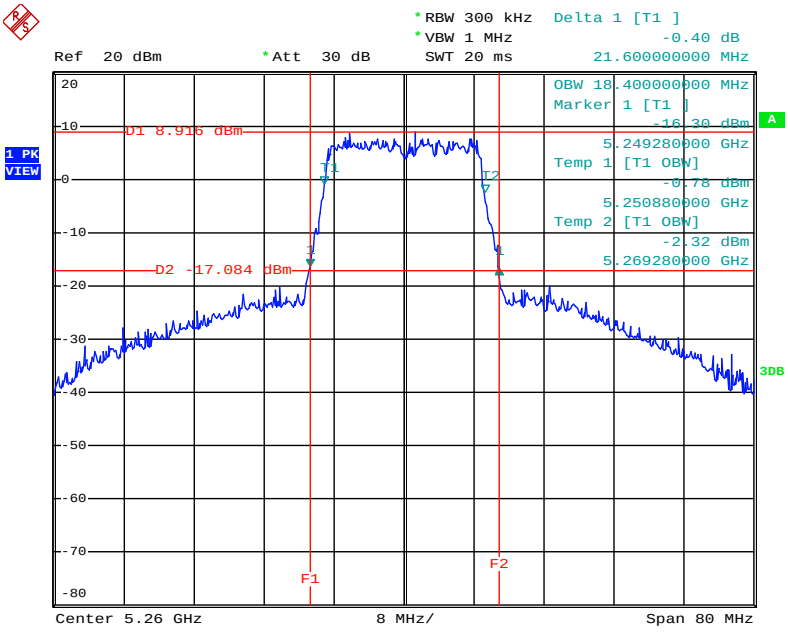
Date: 16.SEP.2014 17:52:32

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 / 5260 MHz



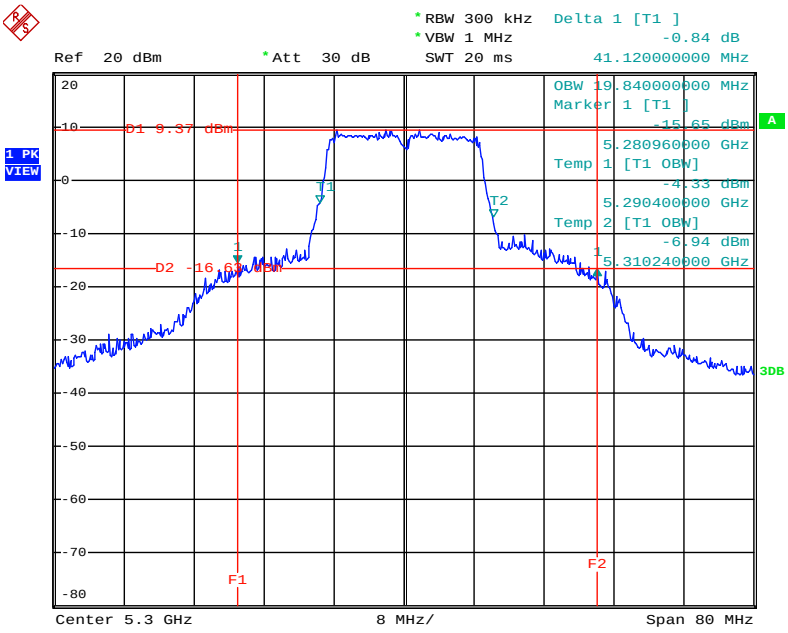
Date: 16.SEP.2014 17:53:40

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 2 / 5260 MHz



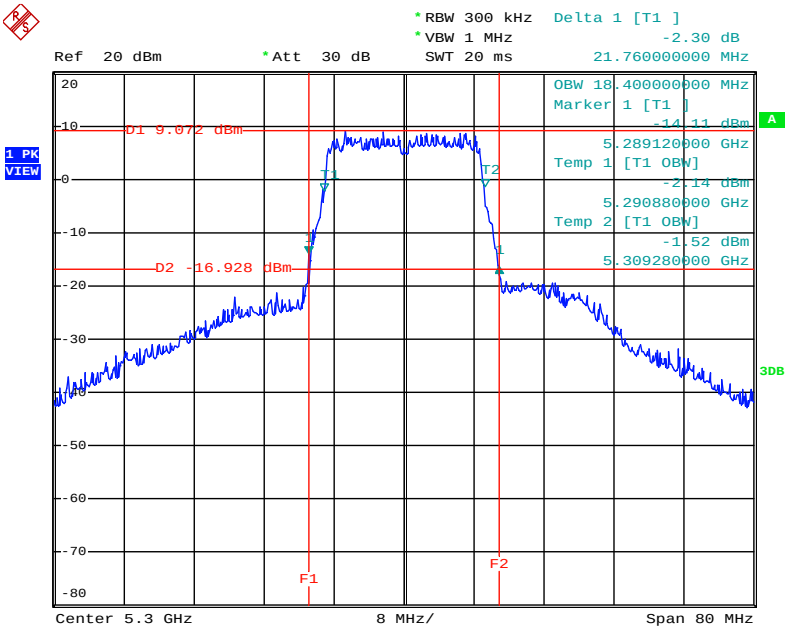
Date: 16.SEP.2014 17:54:27

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 / 5300 MHz



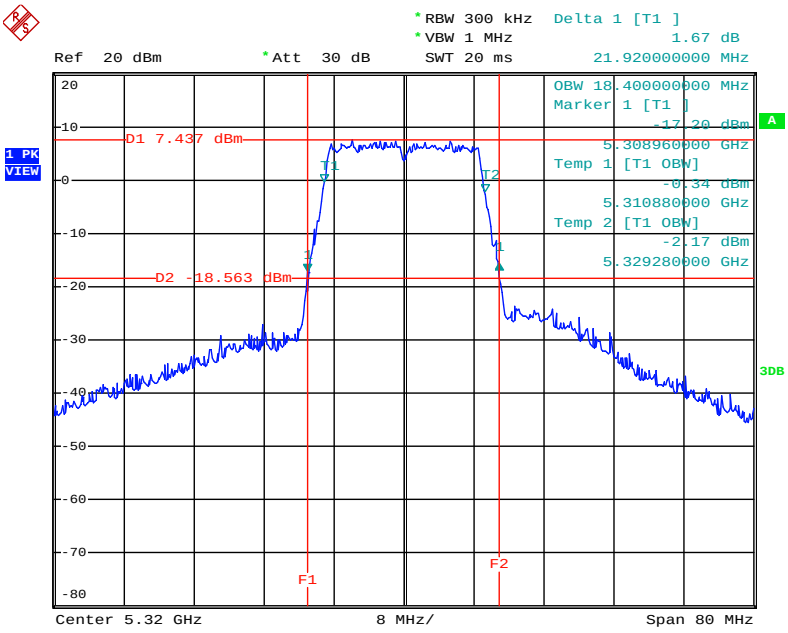
Date: 16.SEP.2014 17:55:35

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 2 / 5300 MHz



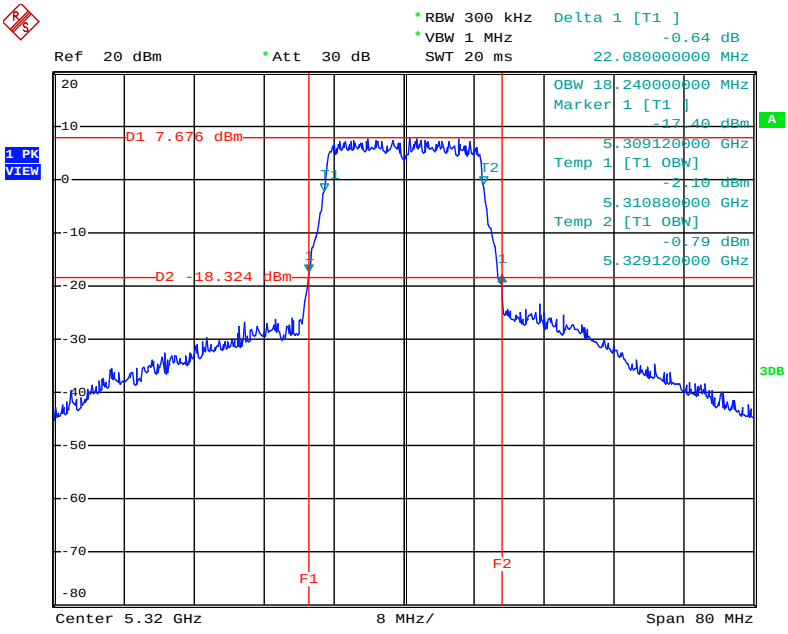
Date: 16.SEP.2014 17:55:05

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 / 5320 MHz



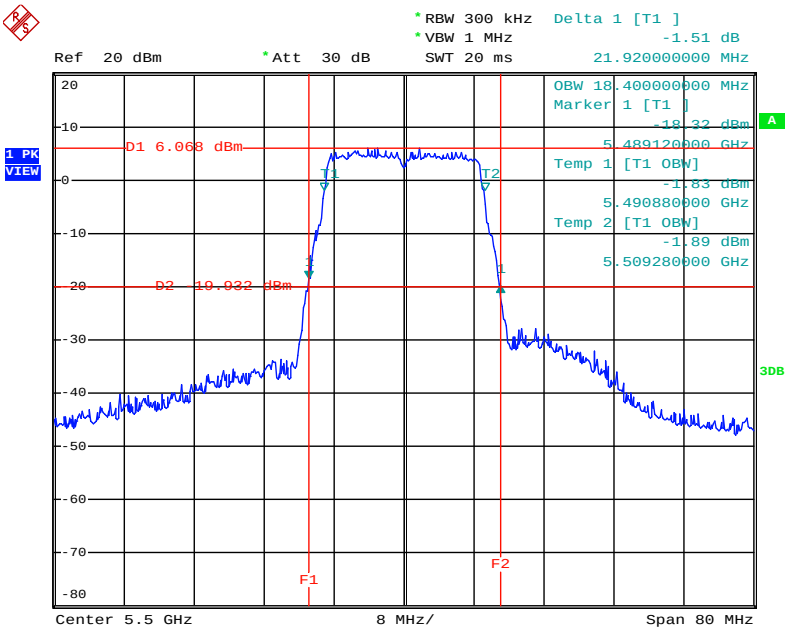
Date: 16.SEP.2014 17:56:09

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 2 / 5320 MHz



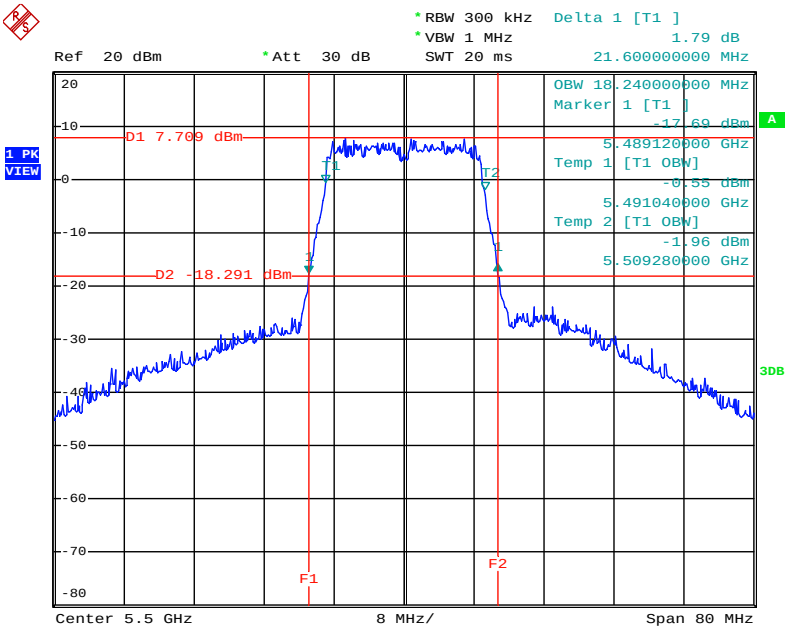
Date: 16.SEP.2014 17:56:49

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 / 5500 MHz



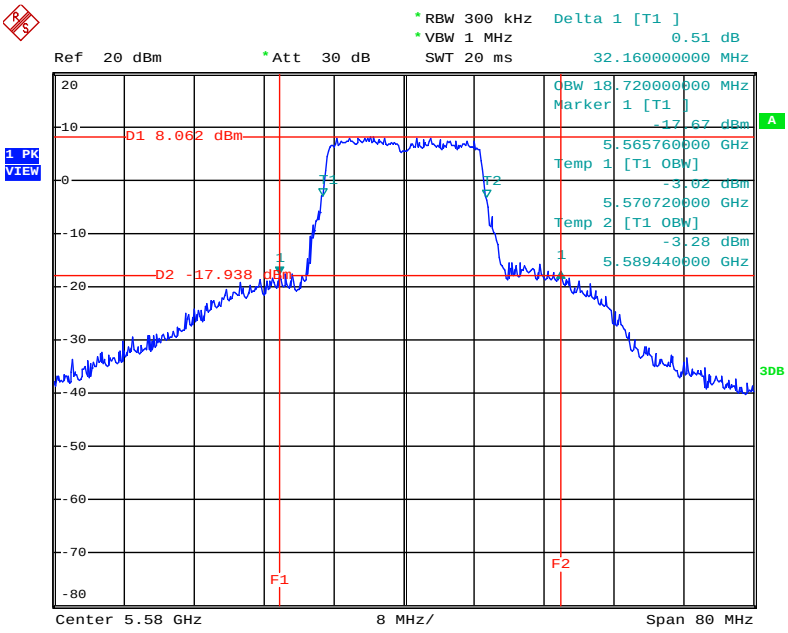
Date: 16.SEP.2014 17:48:58

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 2 / 5500 MHz



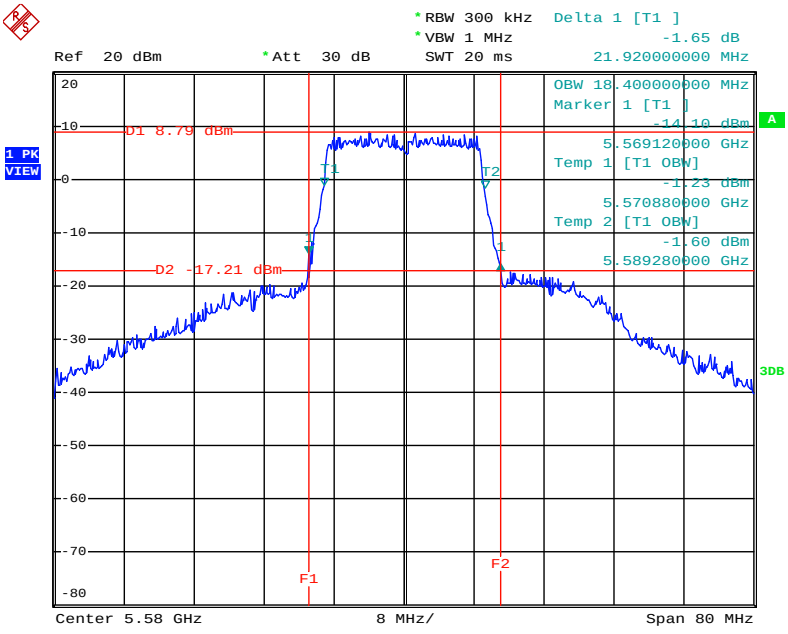
Date: 16.SEP.2014 17:49:33

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 / 5580 MHz



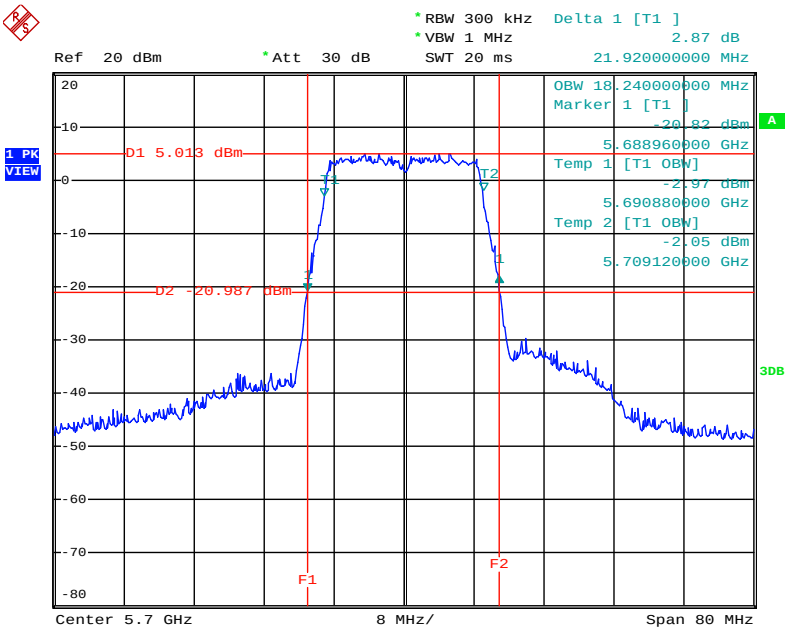
Date: 16.SEP.2014 17:48:16

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 2 / 5580 MHz



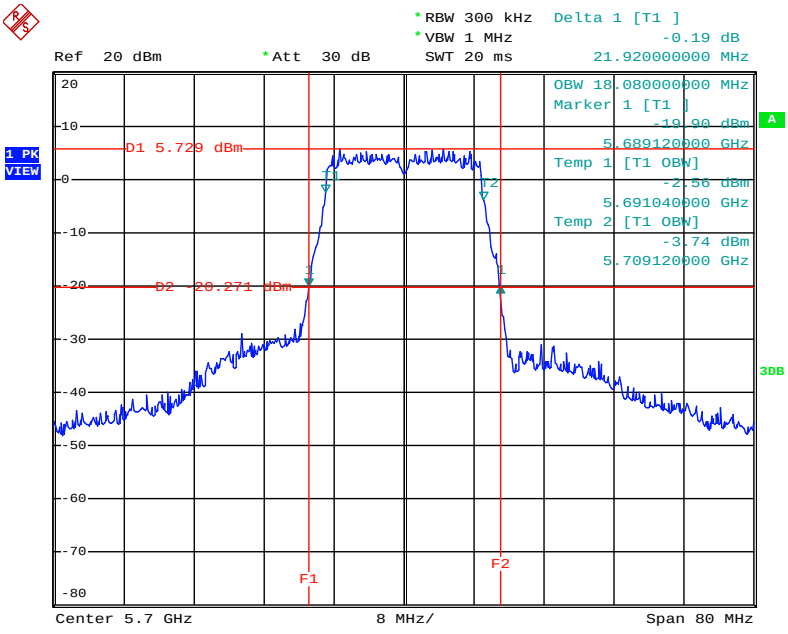
Date: 16.SEP.2014 17:47:40

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 / 5700 MHz



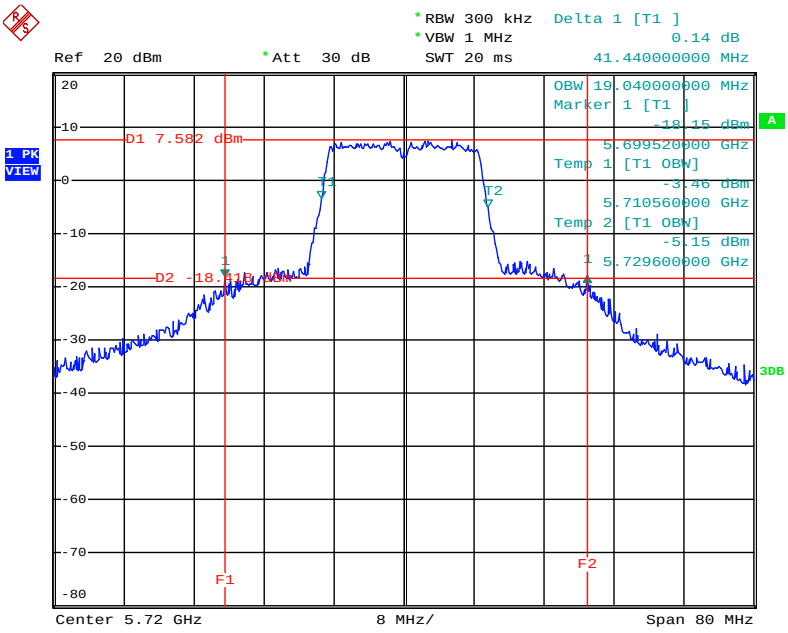
Date: 16.SEP.2014 17:46:14

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 2 / 5700 MHz



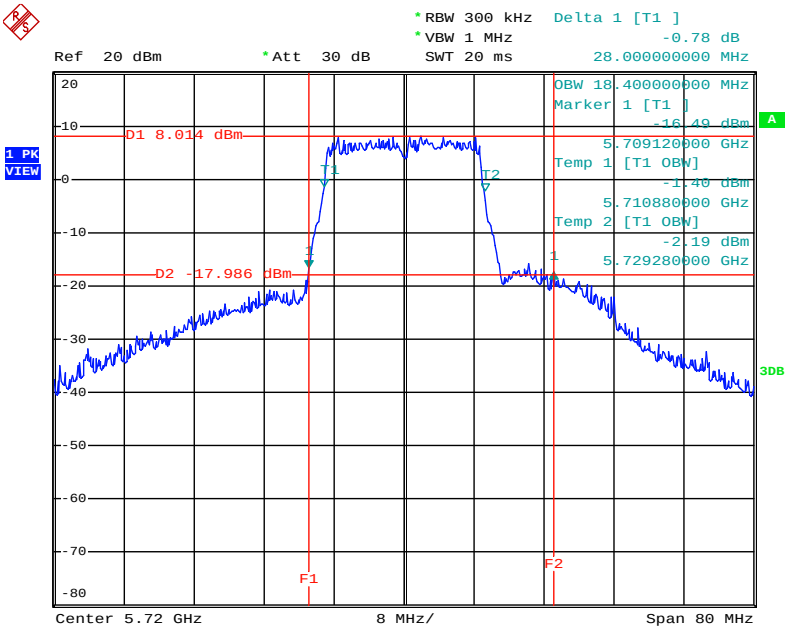
Date: 16.SEP.2014 17:46:57

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 / 5720 MHz



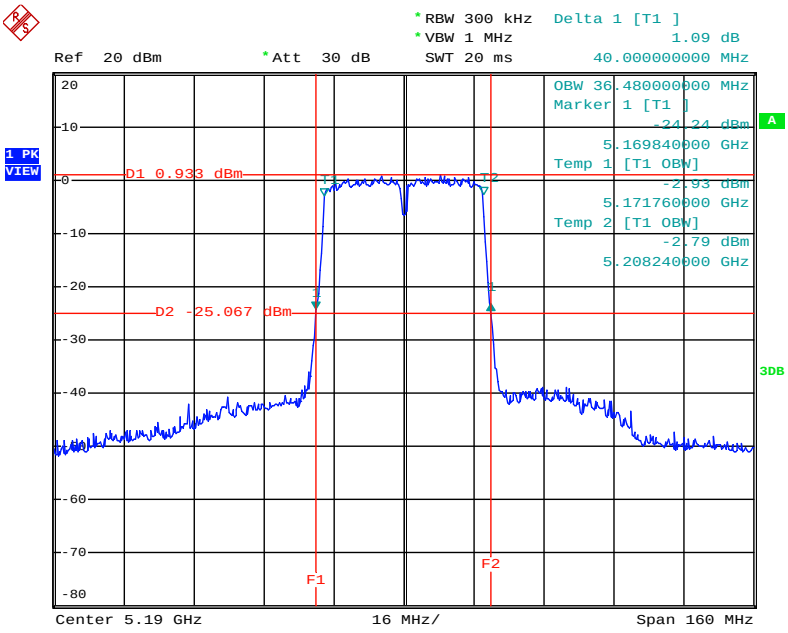
Date: 16.SEP.2014 17:45:27

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 2 / 5720 MHz



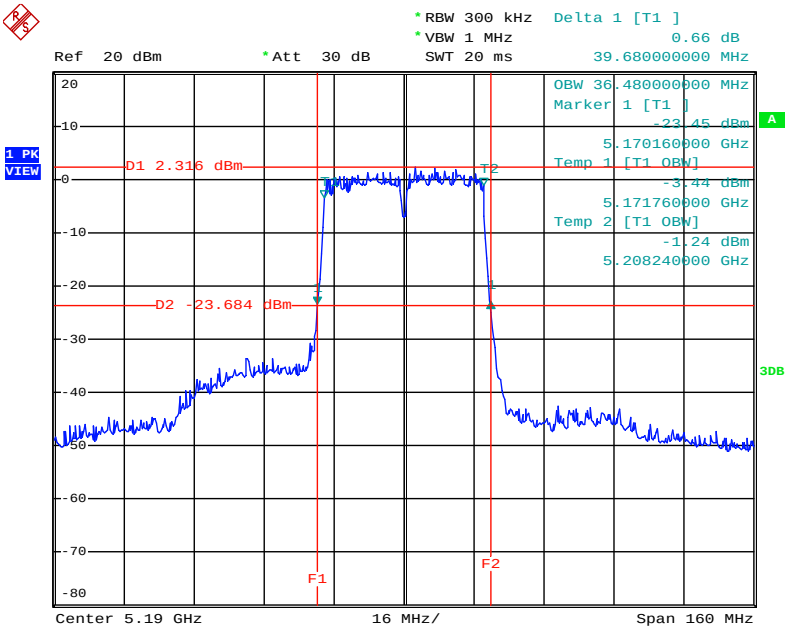
Date: 16.SEP.2014 17:44:40

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



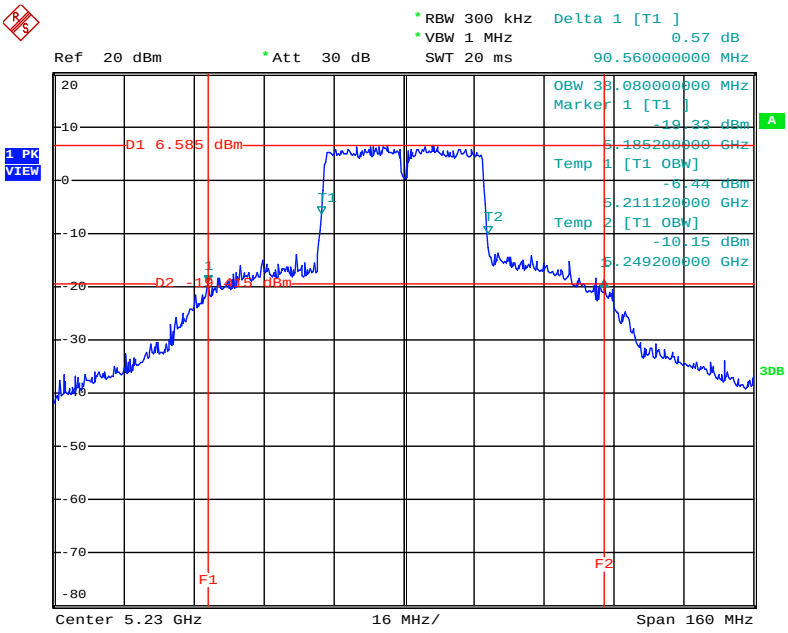
Date: 16.SEP.2014 17:58:30

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



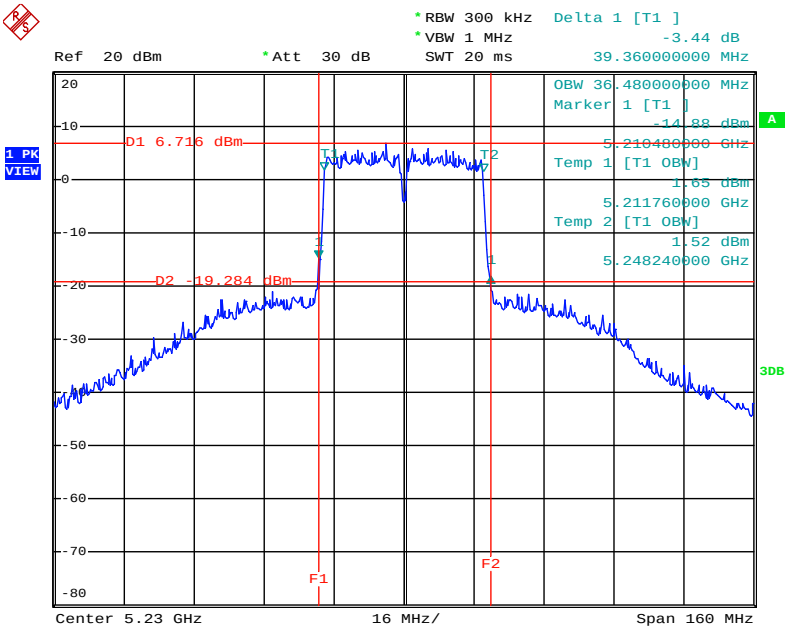
Date: 16.SEP.2014 17:57:52

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



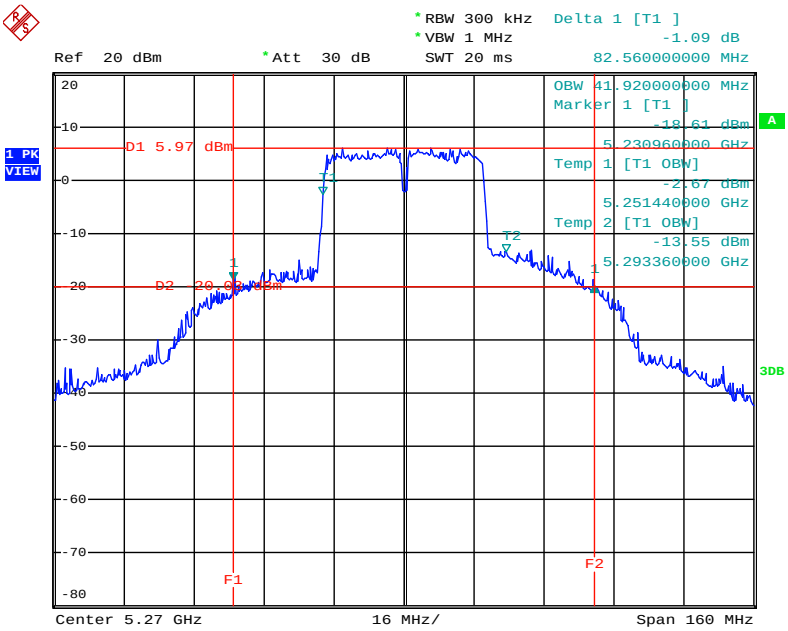
Date: 16.SEP.2014 17:59:09

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



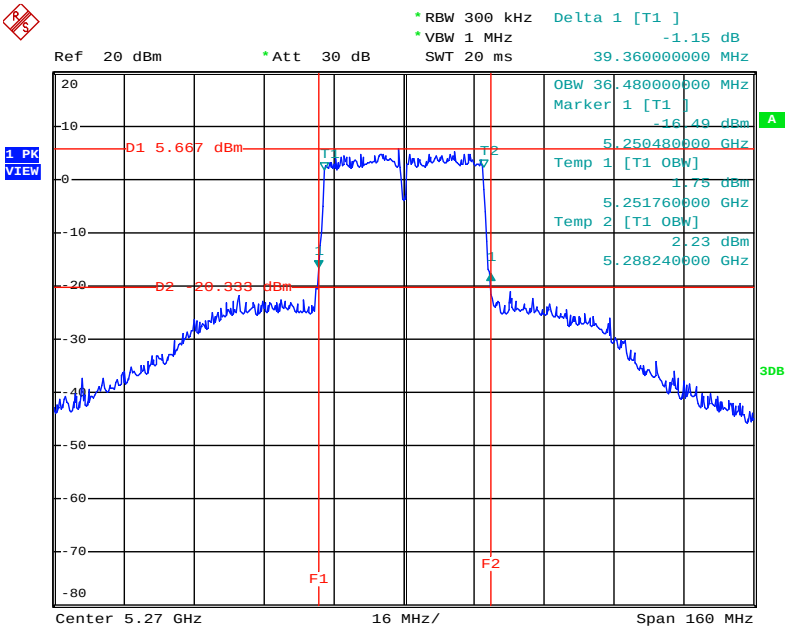
Date: 16.SEP.2014 17:59:45

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 / 5270 MHz



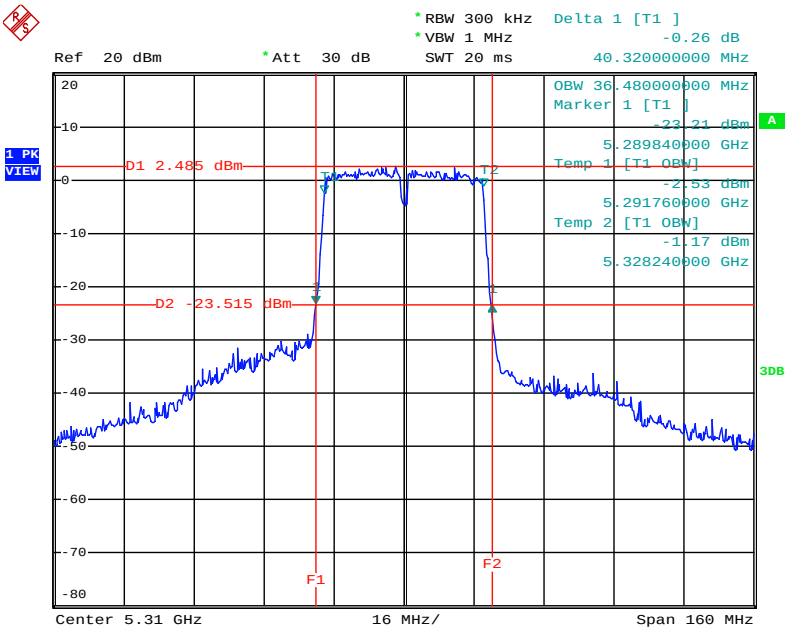
Date: 16.SEP.2014 18:01:34

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 2 / 5270 MHz



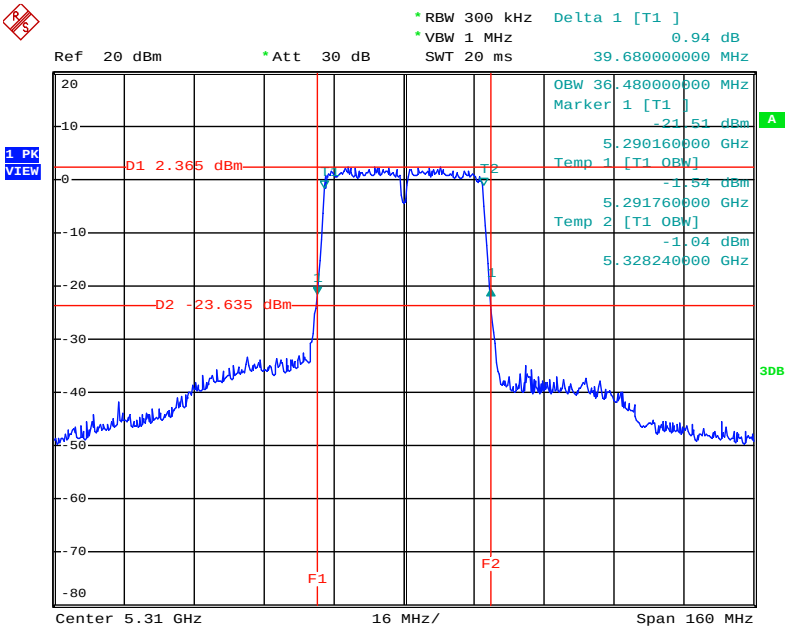
Date: 16.SEP.2014 18:00:15

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 / 5310 MHz



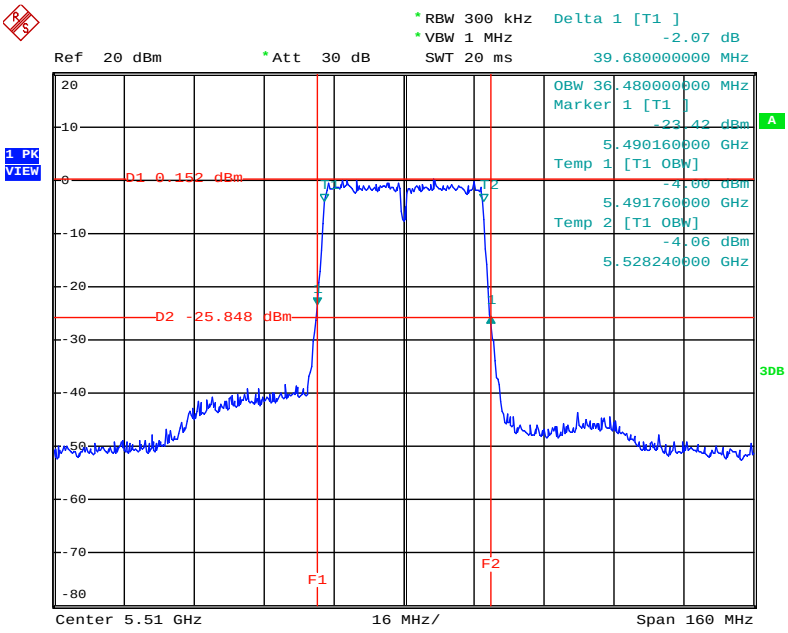
Date: 16.SEP.2014 18:03:25

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 2 / 5310 MHz



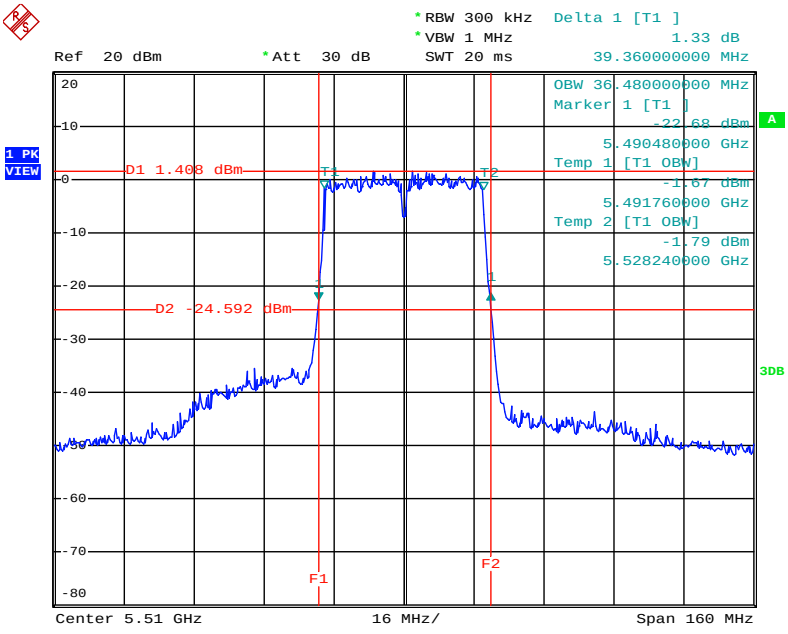
Date: 16.SEP.2014 18:02:12

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 / 5510 MHz



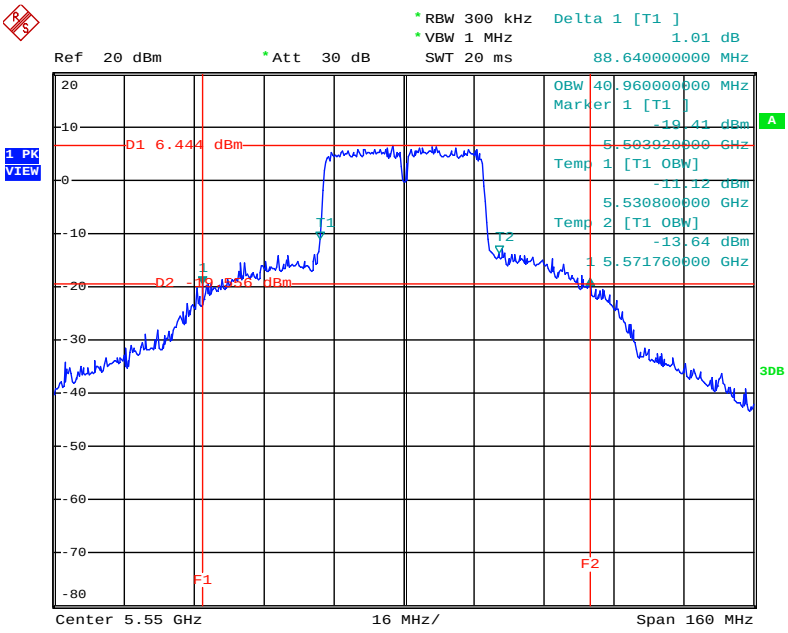
Date: 16.SEP.2014 18:04:20

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 2 / 5510 MHz

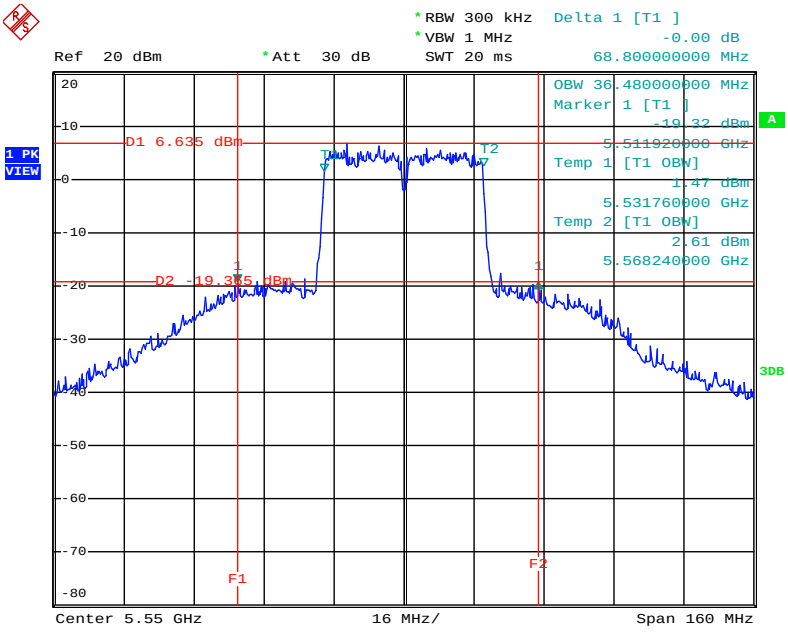


Date: 16.SEP.2014 18:05:06

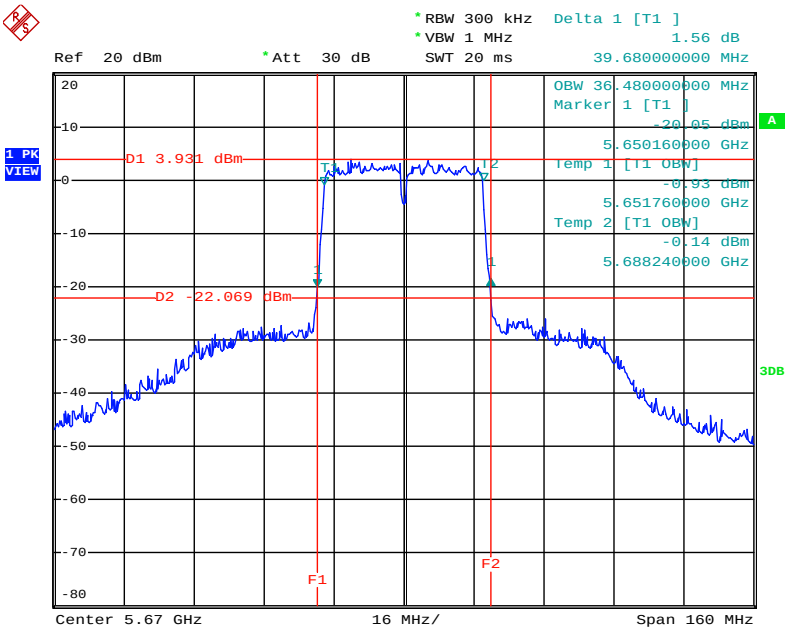
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 / 5550 MHz



26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 2 / 5550 MHz

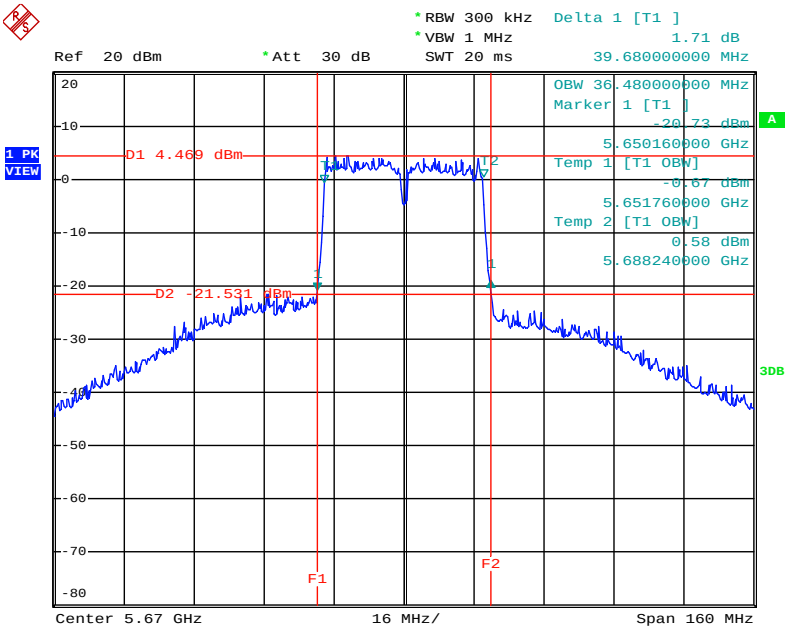


26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 / 5670 MHz



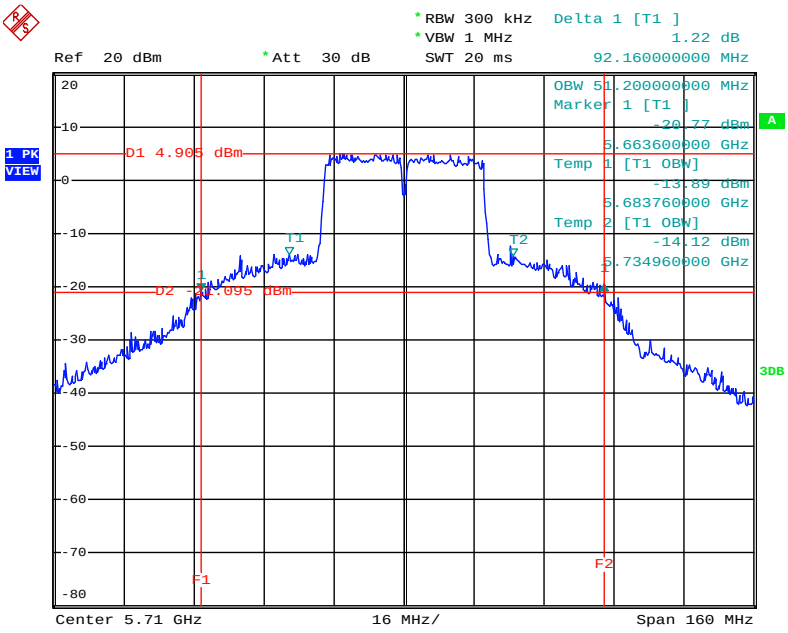
Date: 16.SEP.2014 18:07:14

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 2 / 5670 MHz



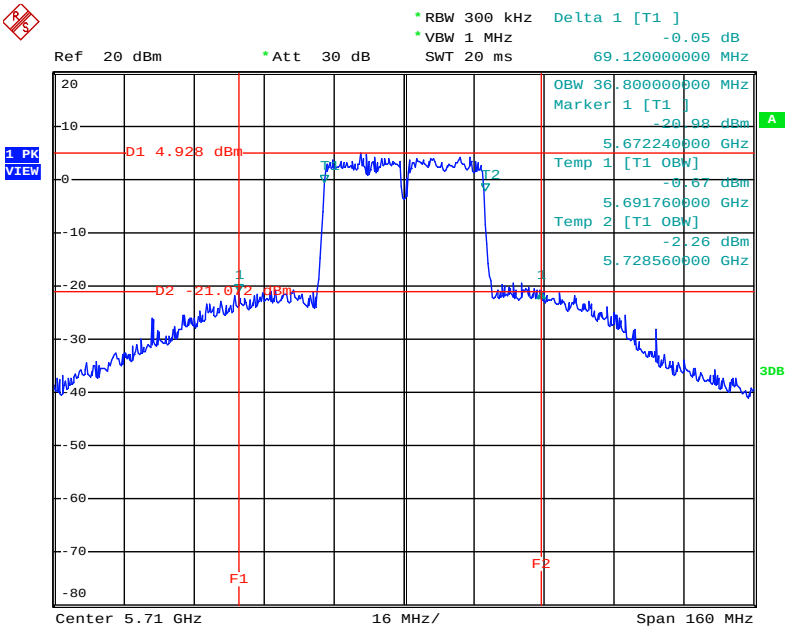
Date: 16.SEP.2014 18:07:51

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 / 5710 MHz



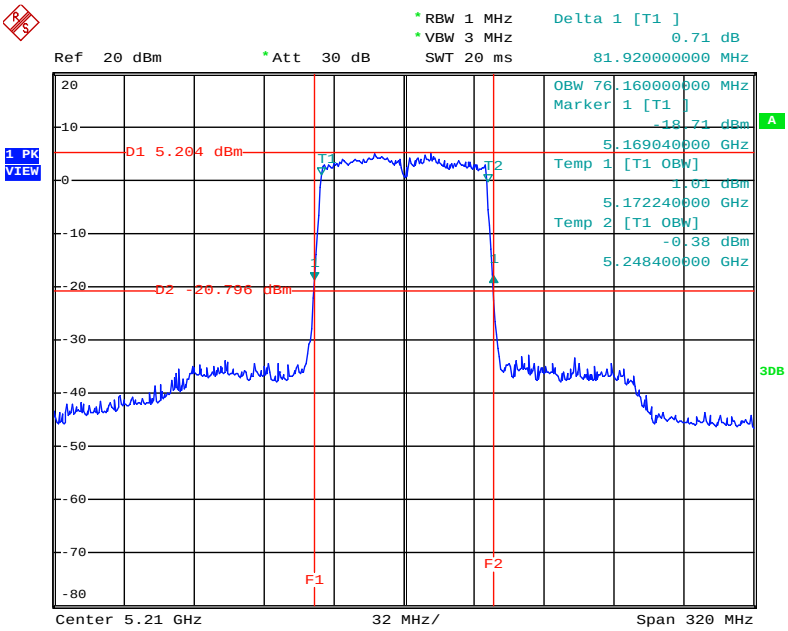
Date: 16.SEP.2014 18:11:05

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 2 / 5710 MHz



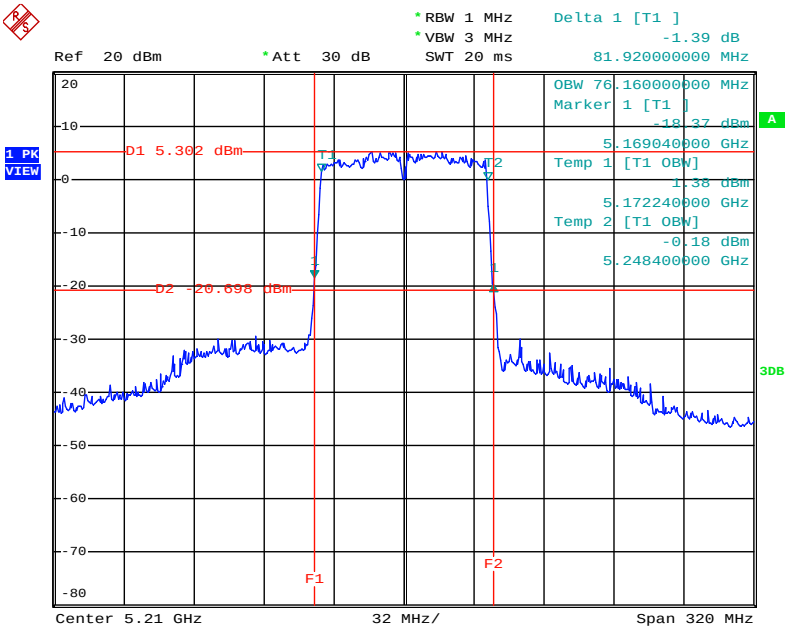
Date: 16.SEP.2014 18:10:38

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



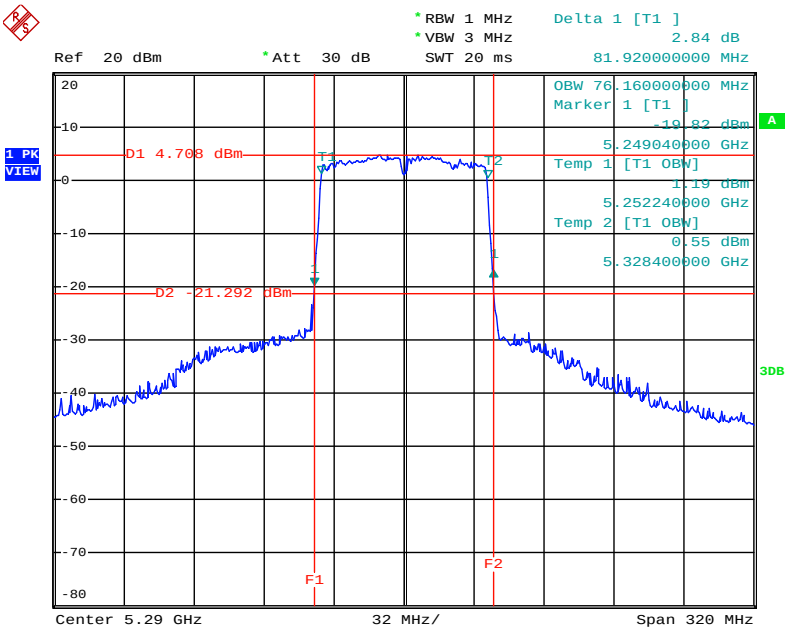
Date: 16.SEP.2014 18:12:08

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



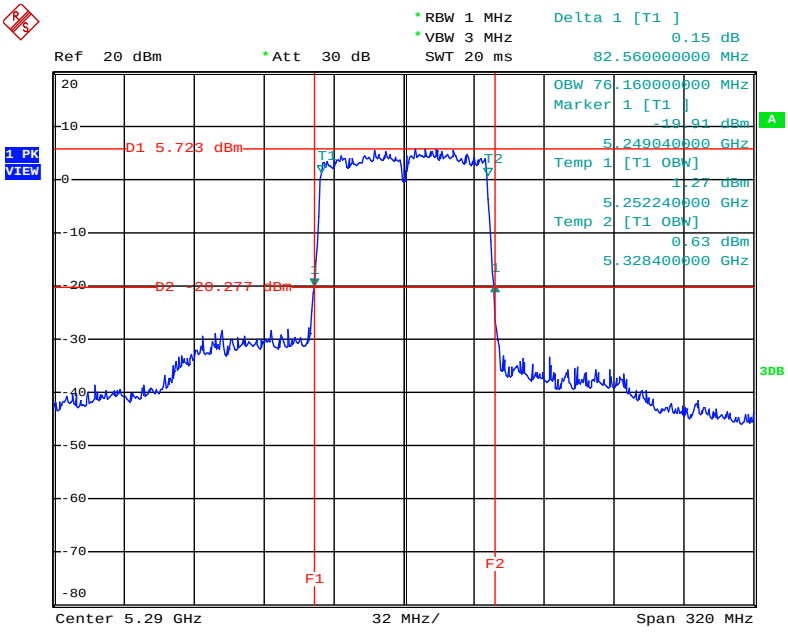
Date: 16.SEP.2014 18:12:37

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 / 5290 MHz



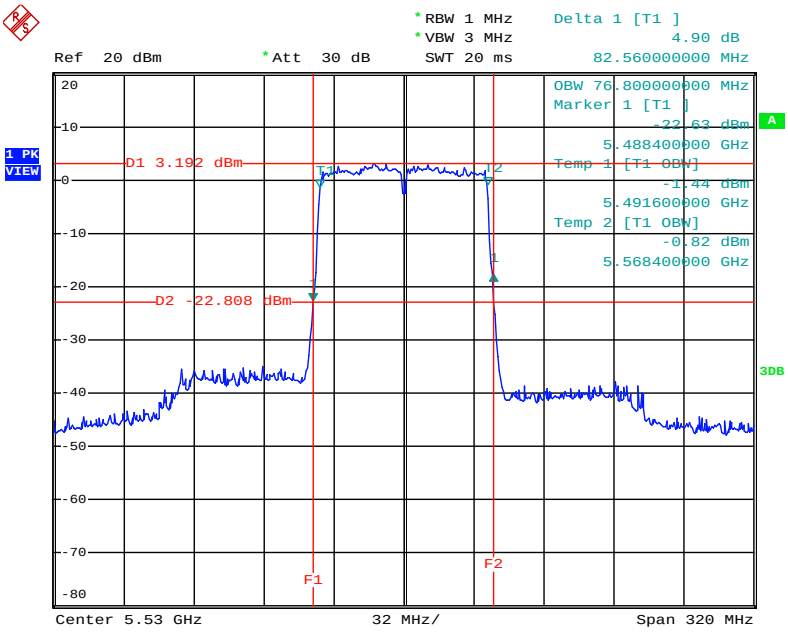
Date: 16.SEP.2014 18:14:05

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 2 / 5290 MHz



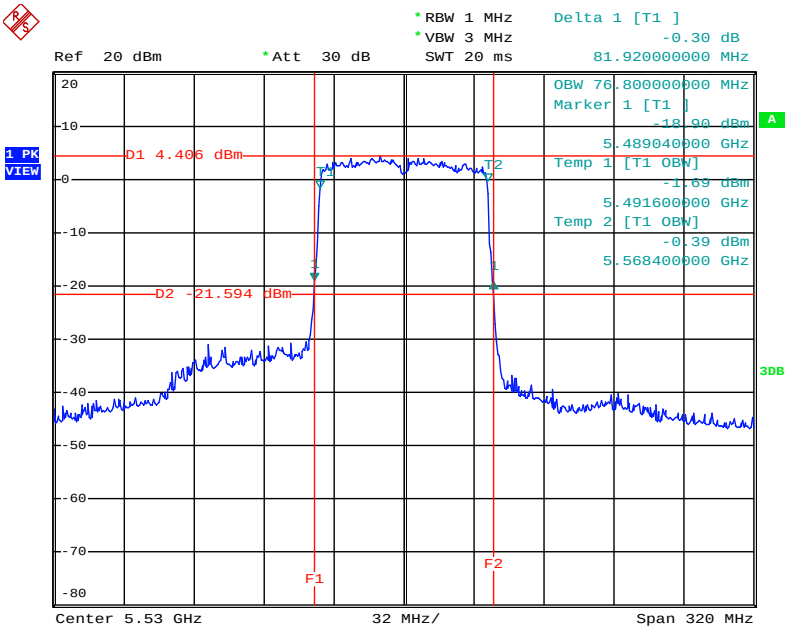
Date: 16.SEP.2014 18:13:27

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 / 5530 MHz



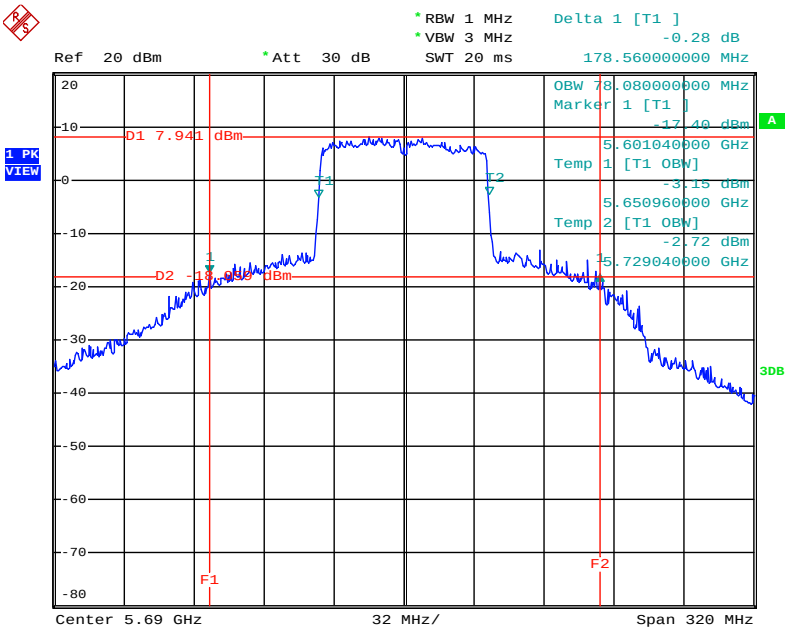
Date: 16.SEP.2014 18:14:46

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 2 / 5530 MHz



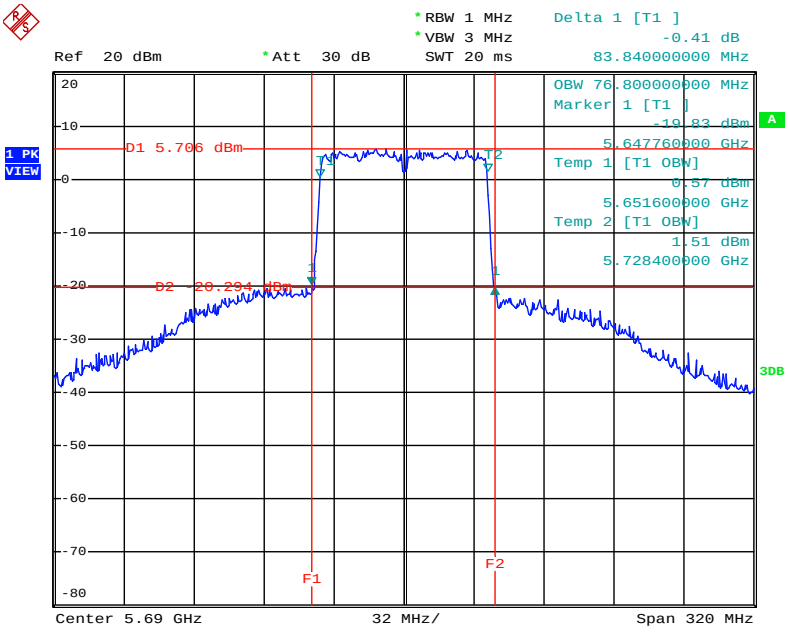
Date: 16.SEP.2014 18:15:27

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 / 5690 MHz



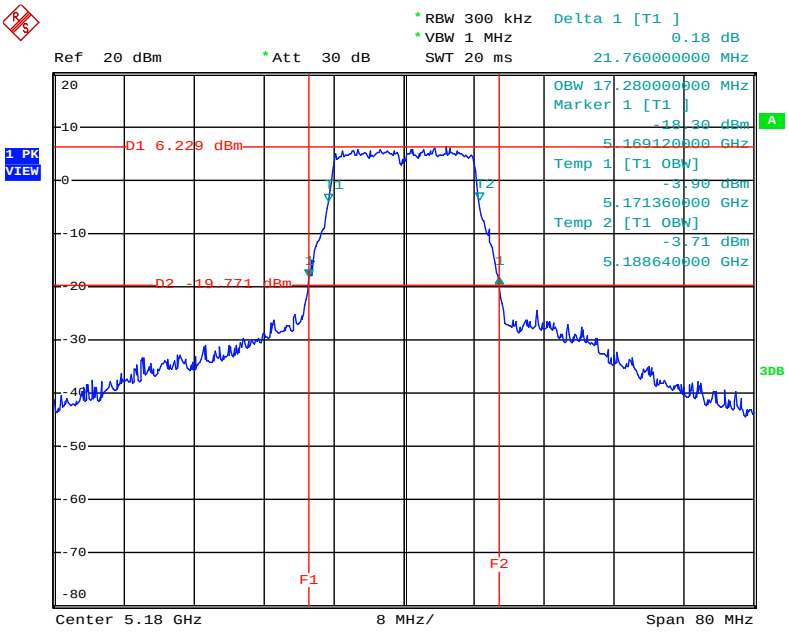
Date: 16.SEP.2014 18:19:53

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 2 / 5690 MHz



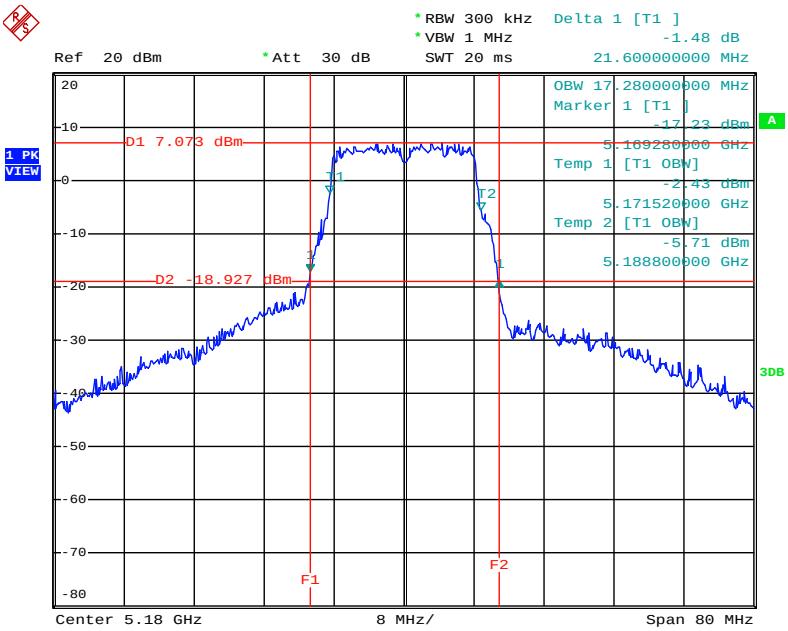
Date: 16.SEP.2014 18:19:12

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



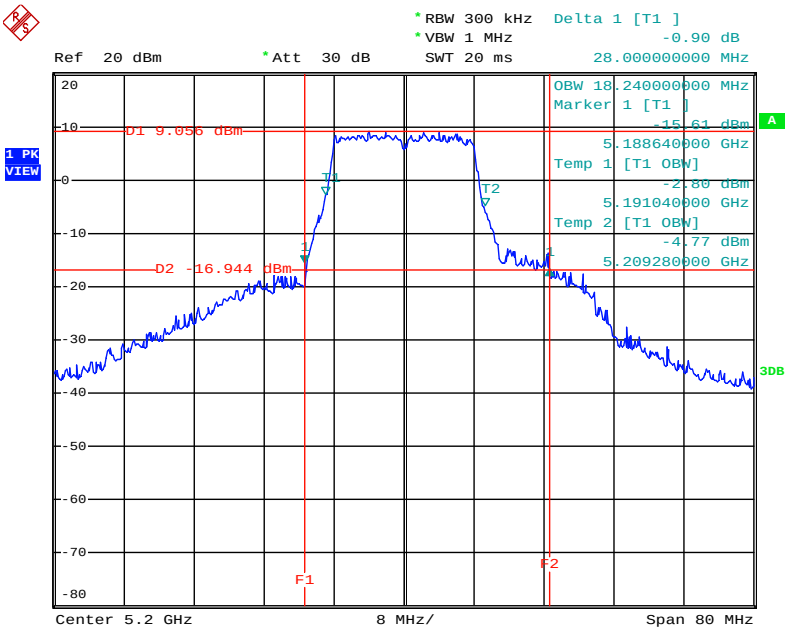
Date: 16.SEP.2014 17:07:12

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



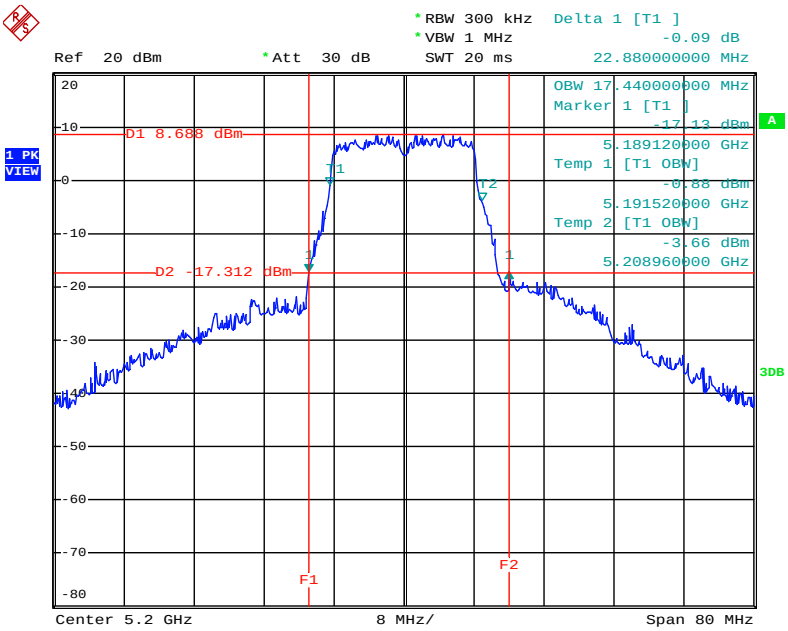
Date: 16.SEP.2014 17:06:39

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



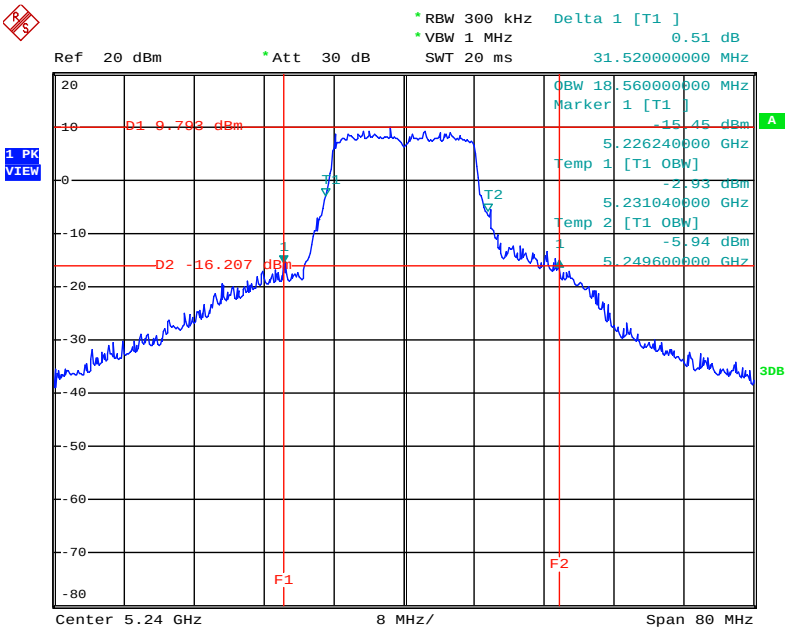
Date: 16.SEP.2014 17:07:53

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



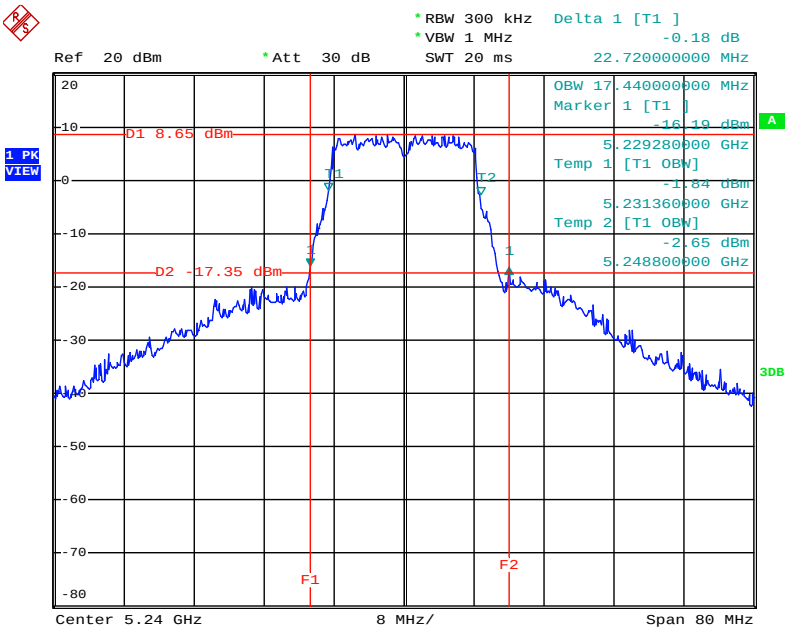
Date: 16.SEP.2014 17:08:23

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



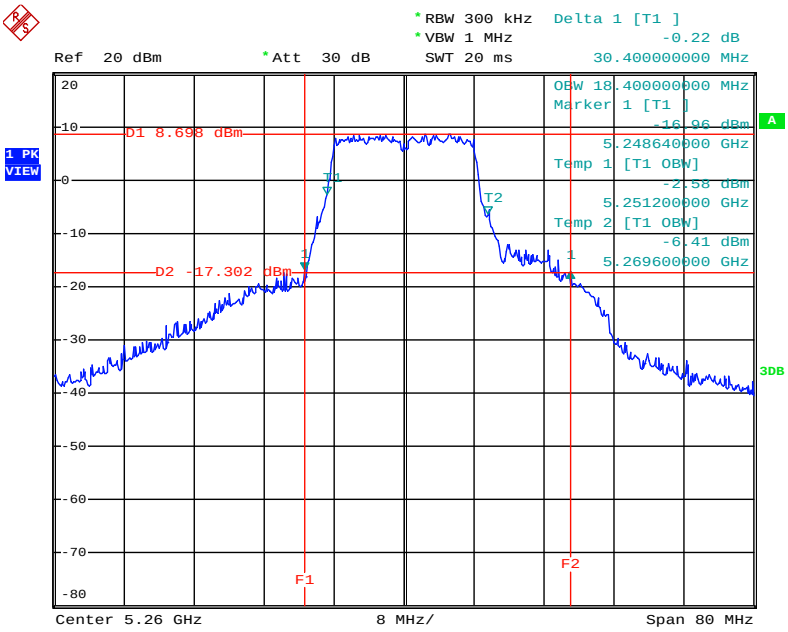
Date: 16.SEP.2014 17:09:34

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



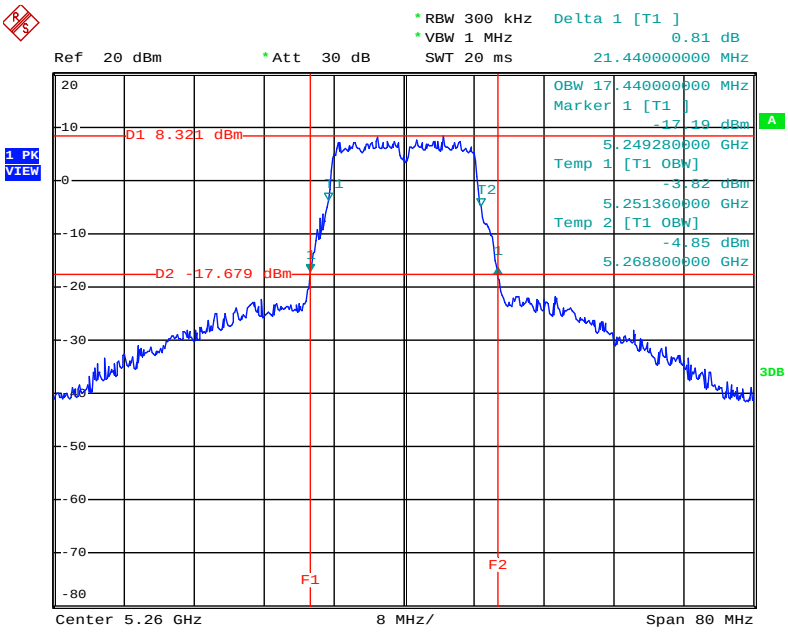
Date: 16.SEP.2014 17:08:57

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 / 5260 MHz



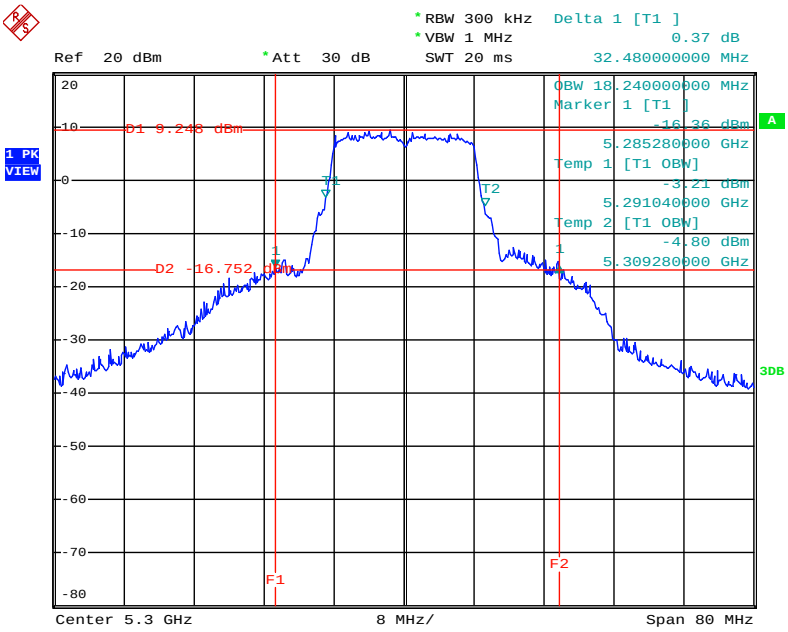
Date: 16.SEP.2014 17:10:12

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 2 / 5260 MHz



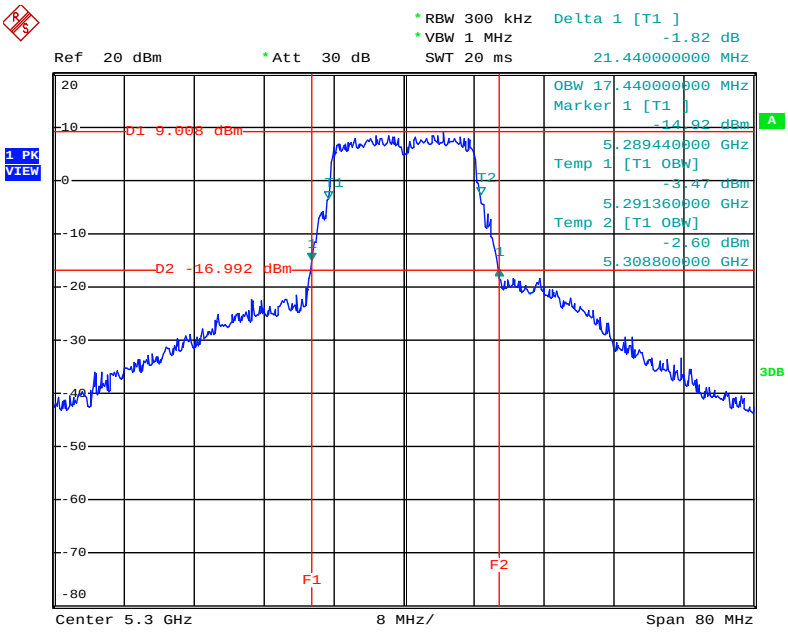
Date: 16.SEP.2014 17:10:45

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 / 5300 MHz



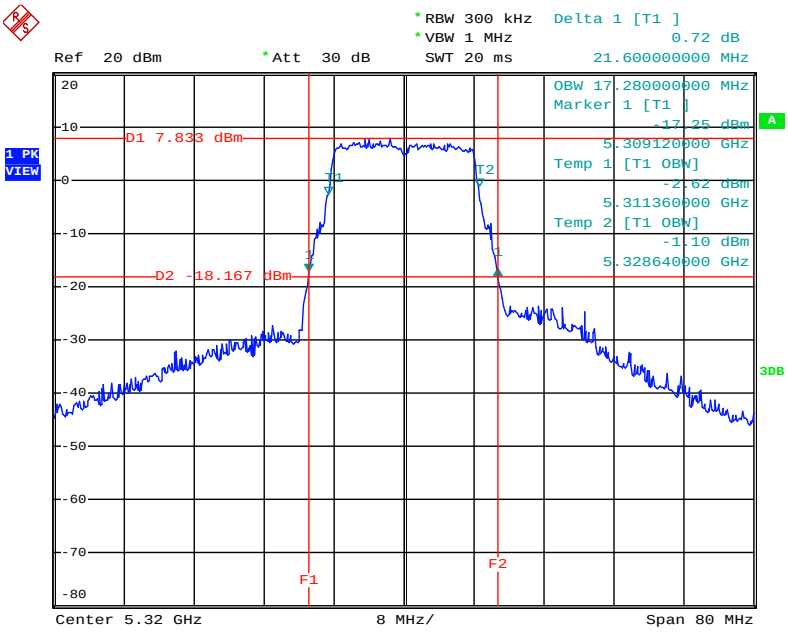
Date: 16.SEP.2014 17:11:50

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 2 / 5300 MHz



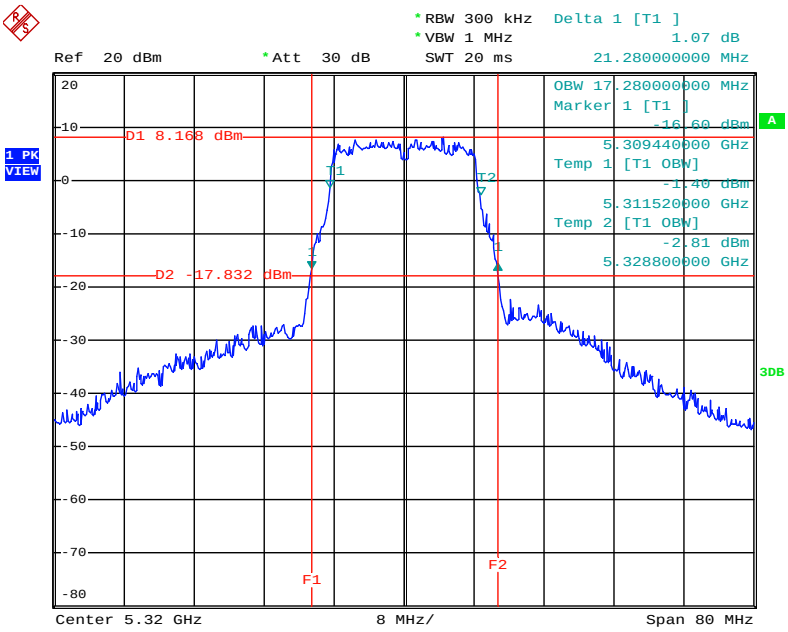
Date: 16.SEP.2014 17:11:16

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 / 5320 MHz



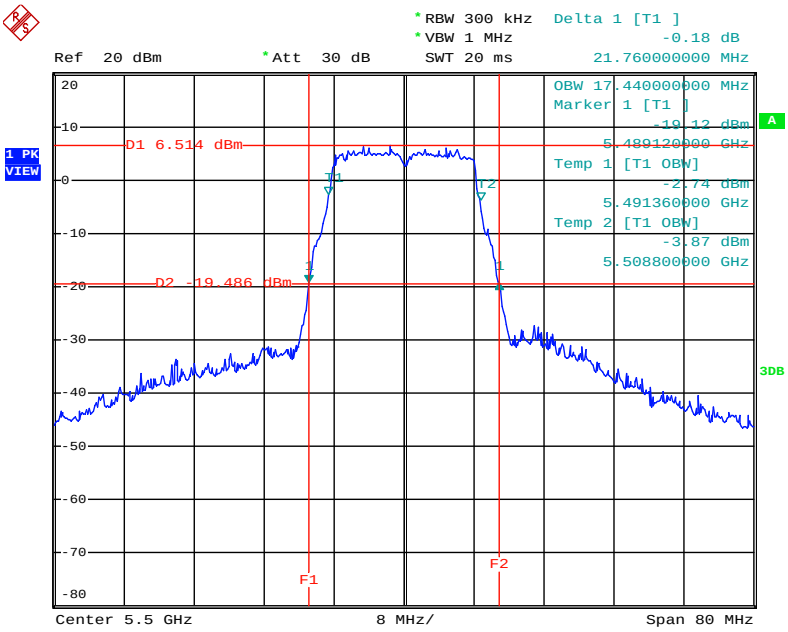
Date: 16.SEP.2014 17:12:32

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 2 / 5320 MHz



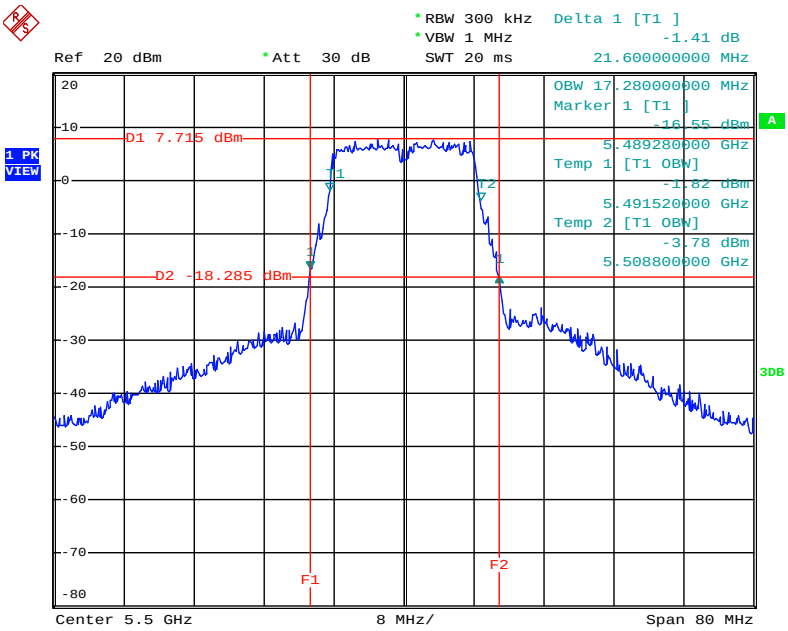
Date: 16.SEP.2014 17:13:09

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 / 5500 MHz



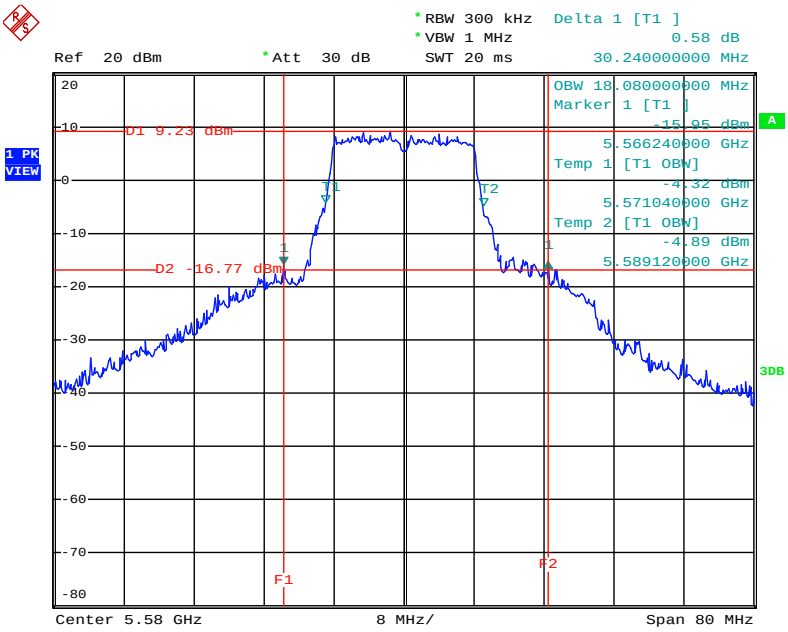
Date: 16.SEP.2014 17:15:22

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 2 / 5500 MHz



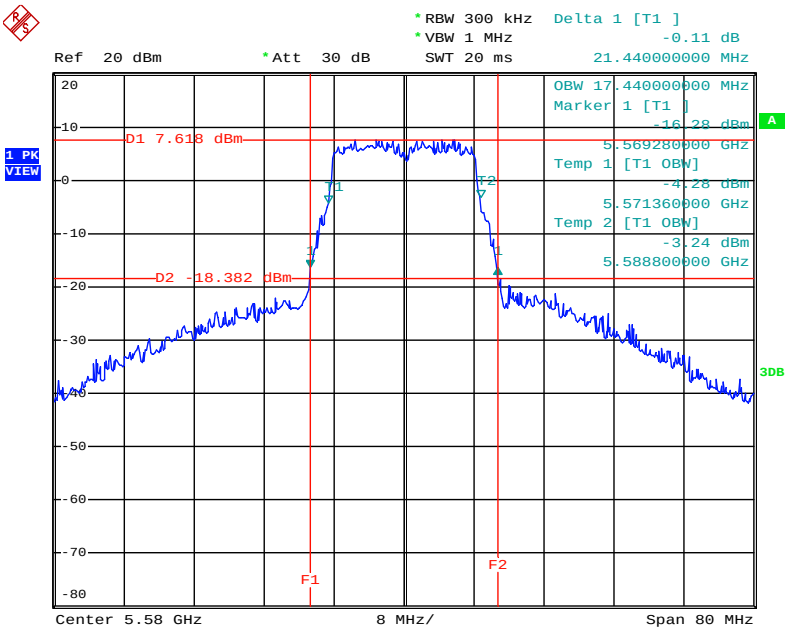
Date: 16.SEP.2014 17:13:51

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 / 5580 MHz



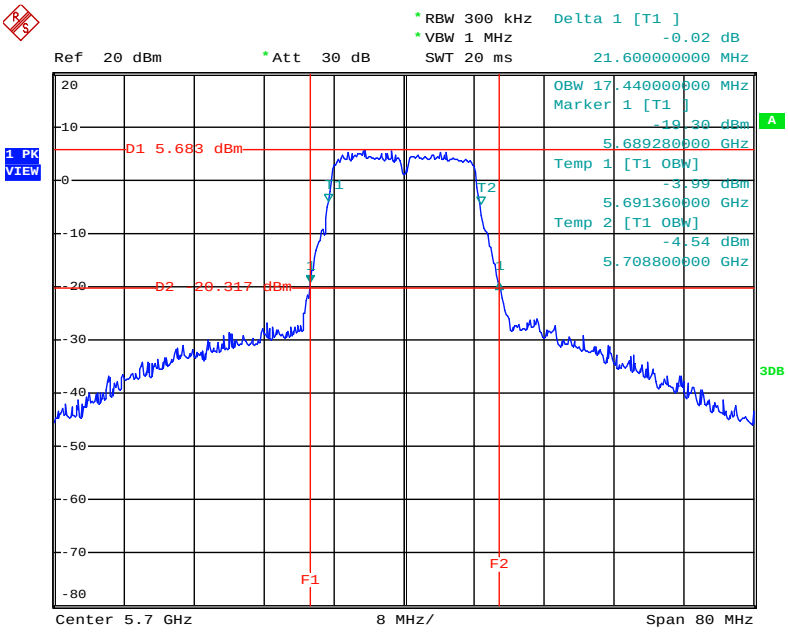
Date: 16.SEP.2014 17:16:50

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 2 / 5580 MHz



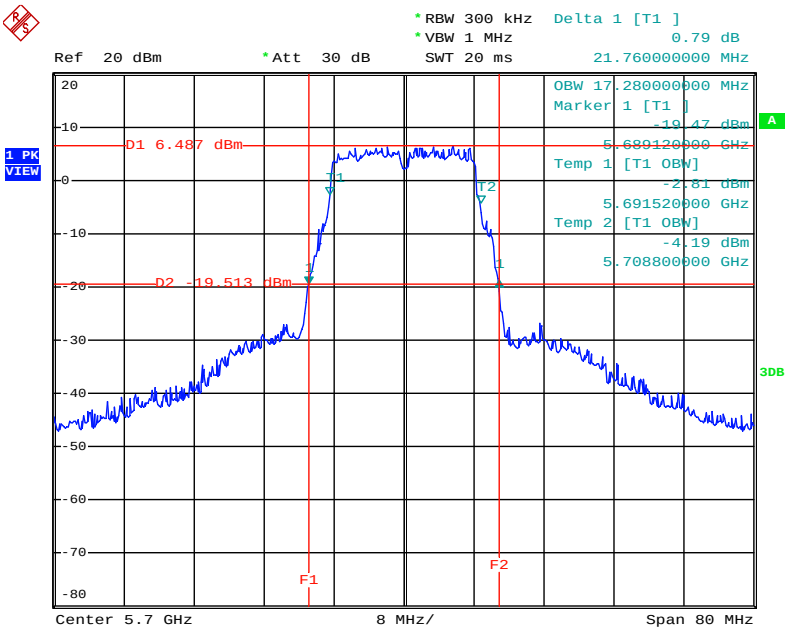
Date: 16.SEP.2014 17:17:37

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 / 5700 MHz



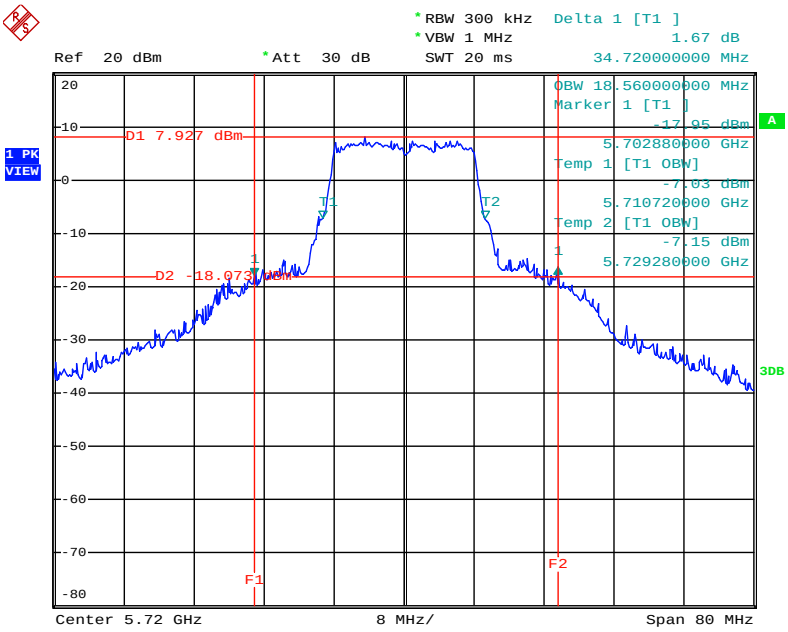
Date: 16.SEP.2014 17:22:56

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 / 5700 MHz



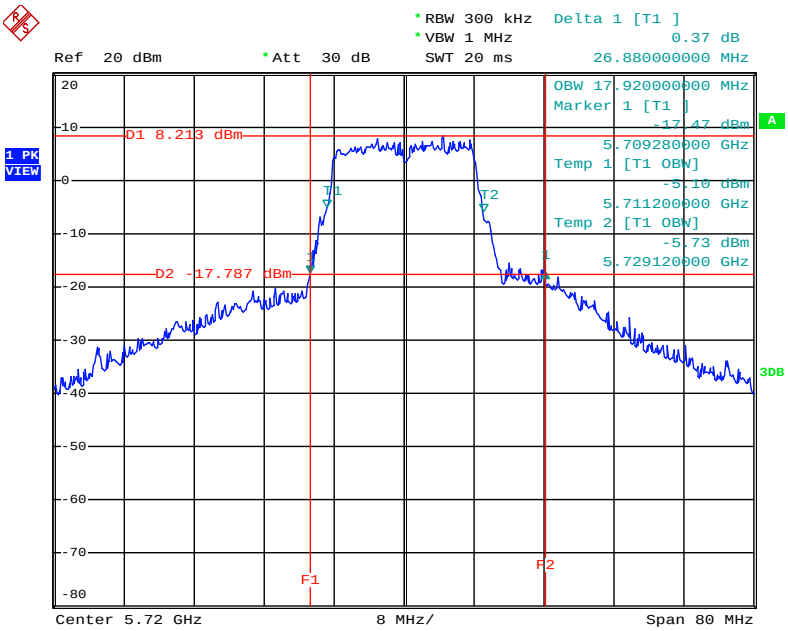
Date: 16.SEP.2014 17:20:50

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 / 5720 MHz



Date: 16.SEP.2014 17:29:27

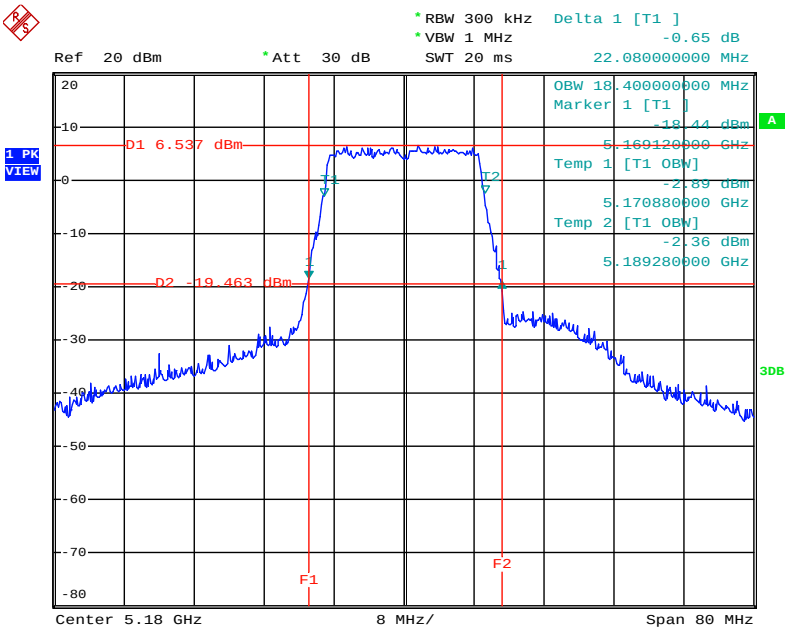
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 / 5720 MHz



Date: 16.SEP.2014 17:30:13

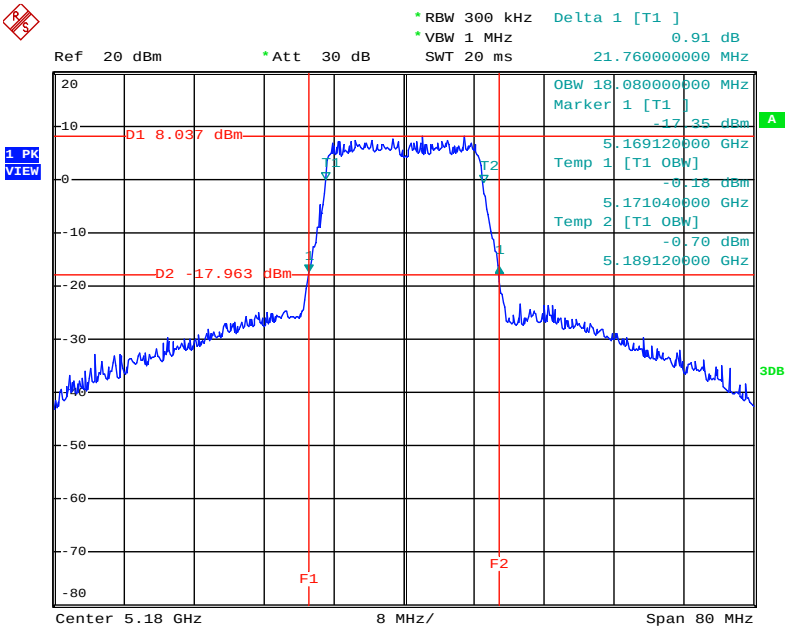
For beamforming function:

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



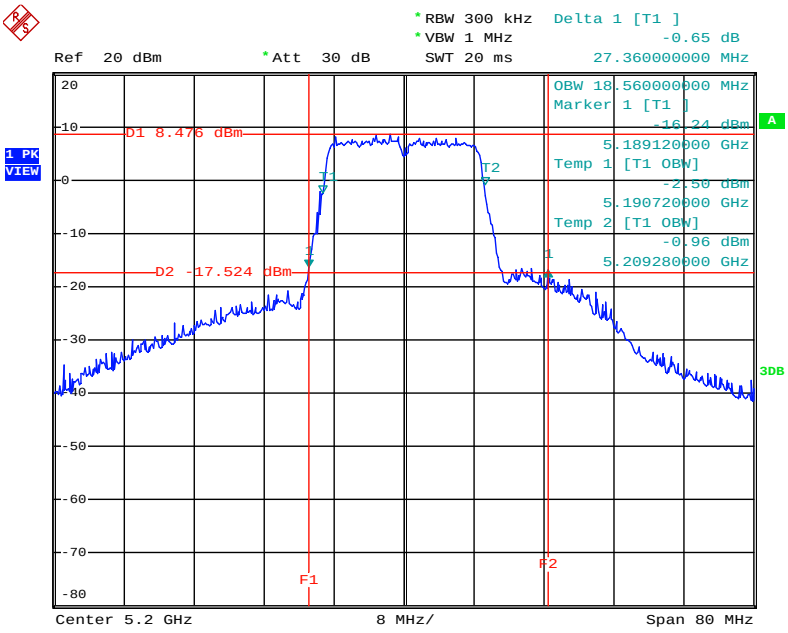
Date: 16.SEP.2014 18:43:56

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



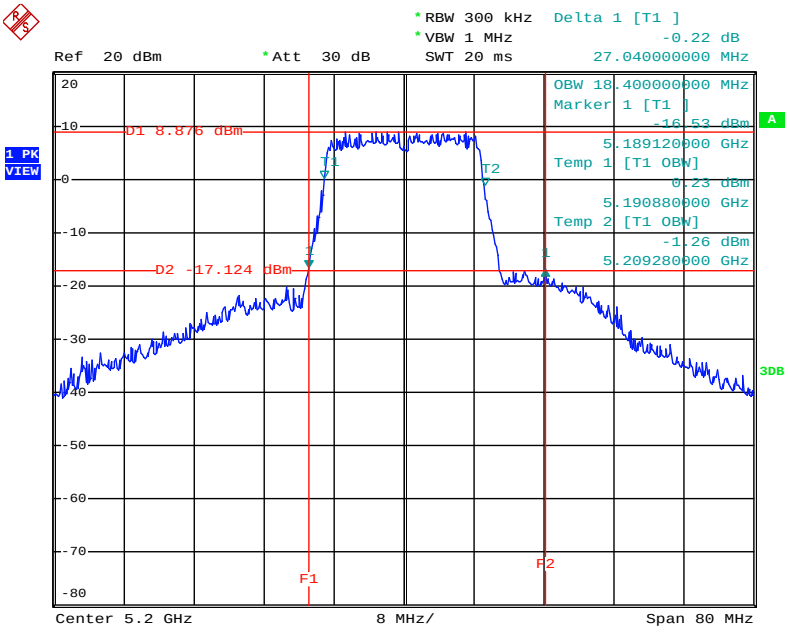
Date: 16.SEP.2014 18:44:37

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



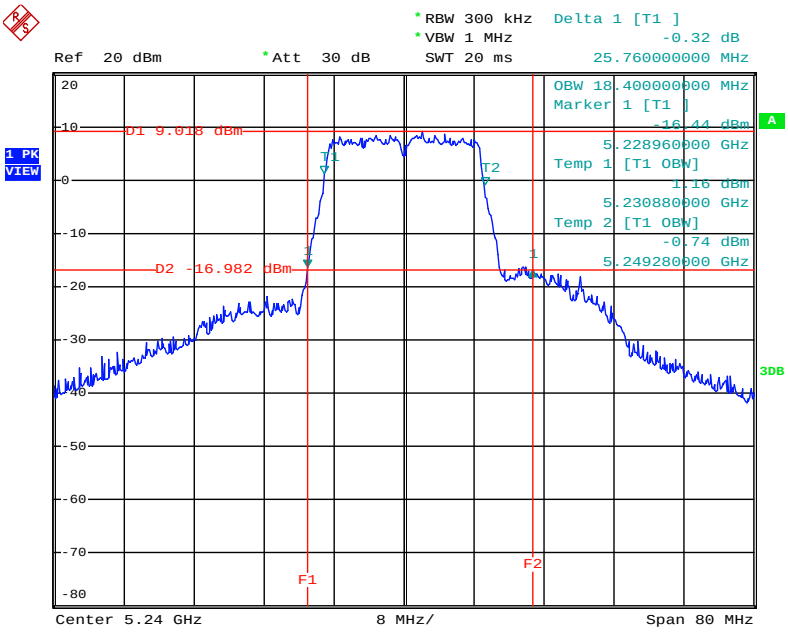
Date: 16.SEP.2014 18:45:47

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



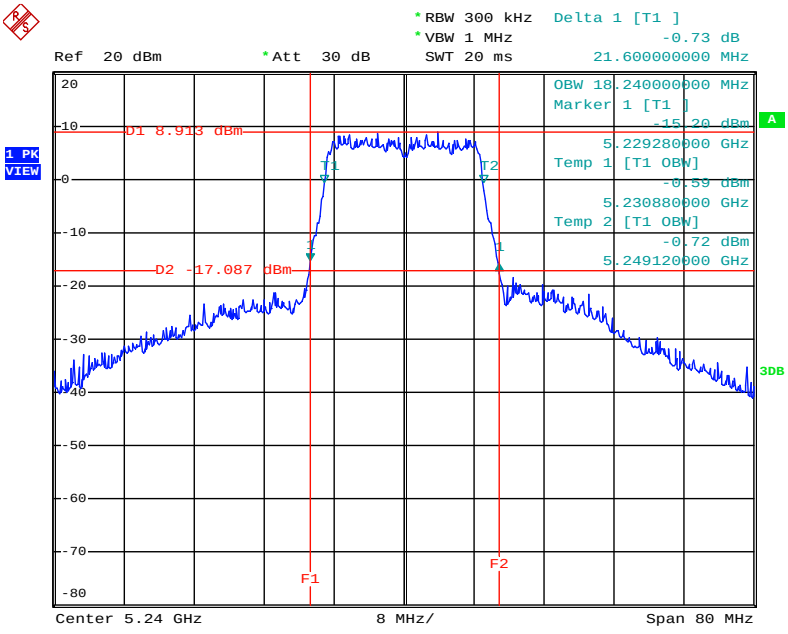
Date: 16.SEP.2014 18:45:11

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



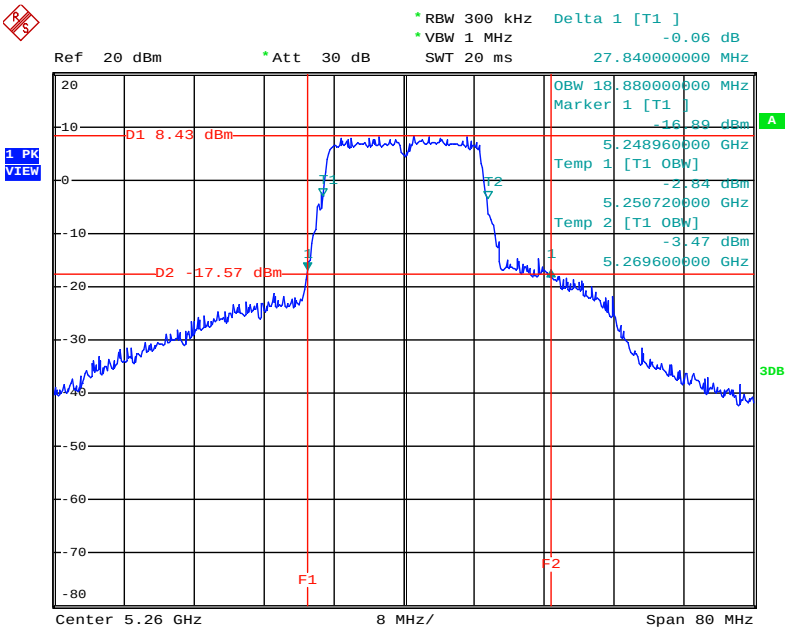
Date: 16.SEP.2014 18:46:19

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



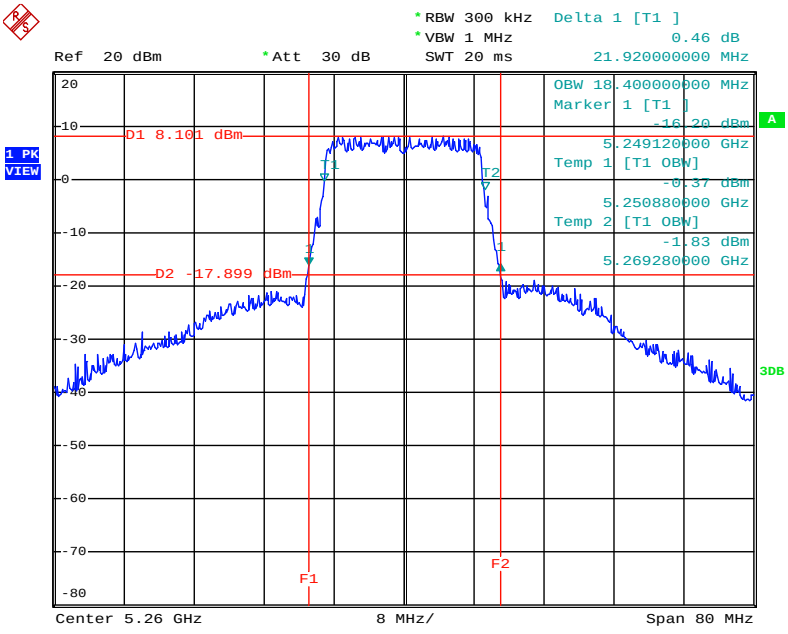
Date: 16.SEP.2014 18:46:51

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 / 5260 MHz



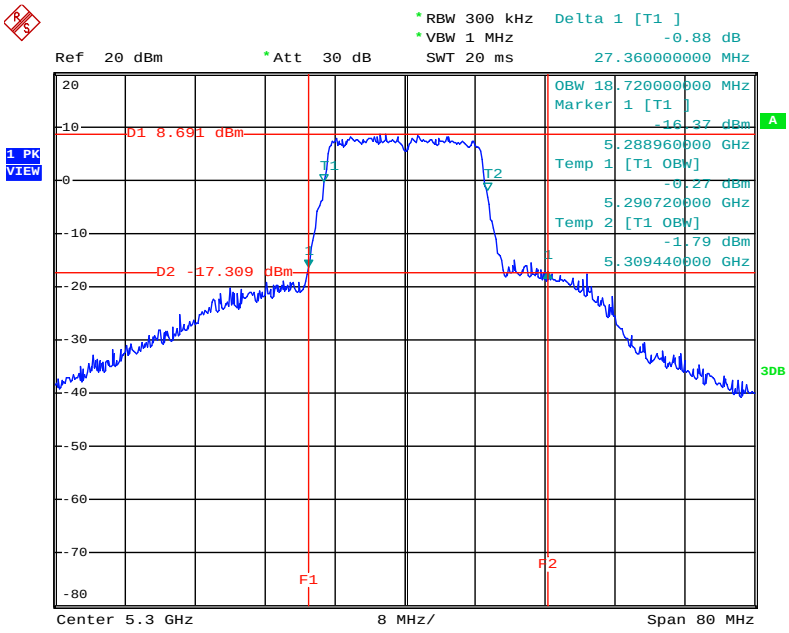
Date: 16.SEP.2014 18:47:57

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 2 / 5260 MHz



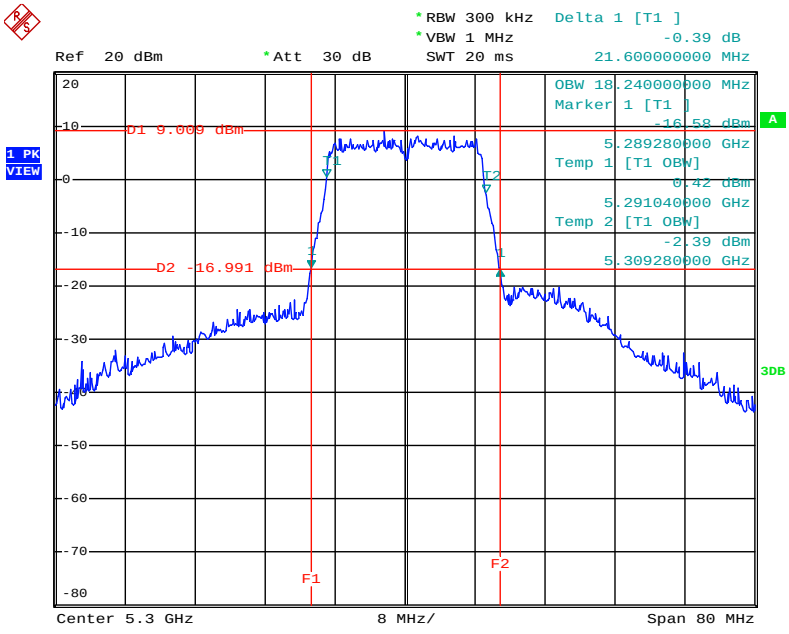
Date: 16.SEP.2014 18:47:25

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 / 5300 MHz



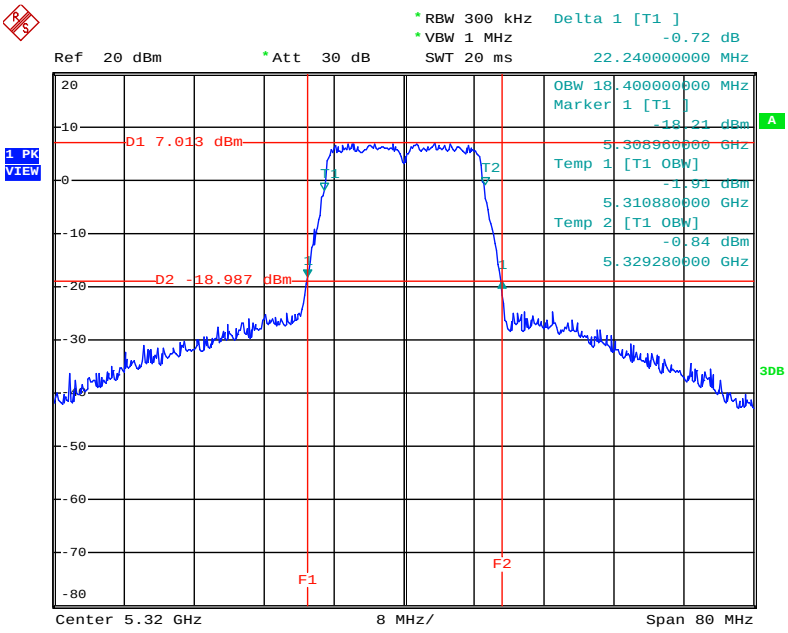
Date: 16.SEP.2014 18:48:29

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 2 / 5300 MHz



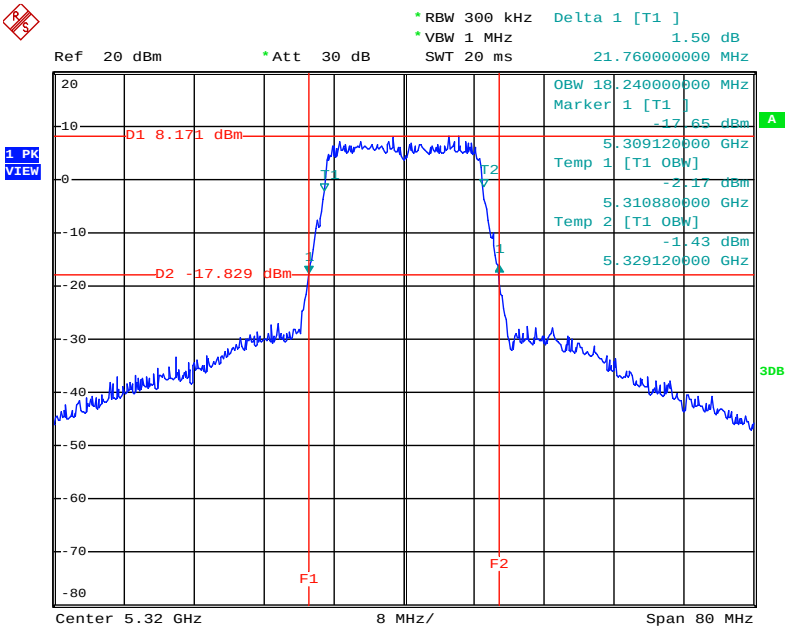
Date: 16.SEP.2014 18:49:02

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 / 5320 MHz



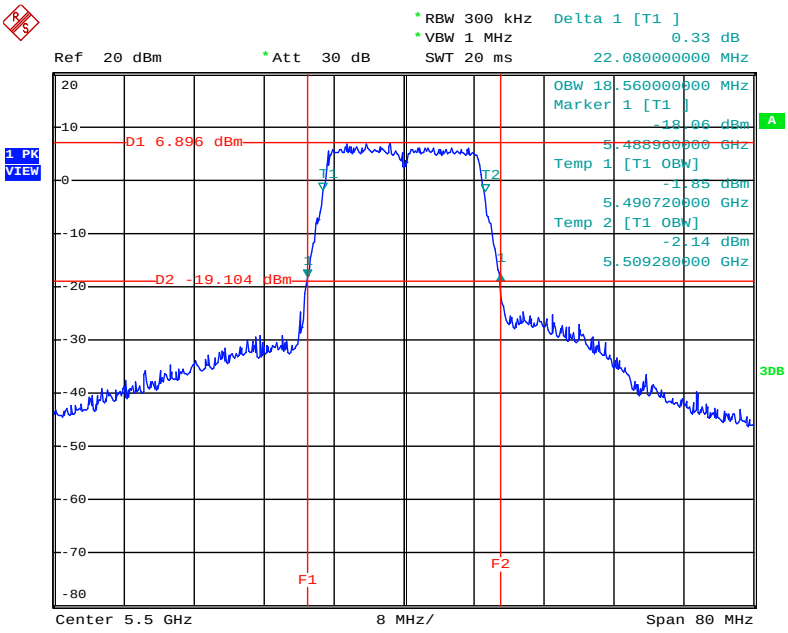
Date: 16.SEP.2014 18:50:11

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 2 / 5320 MHz



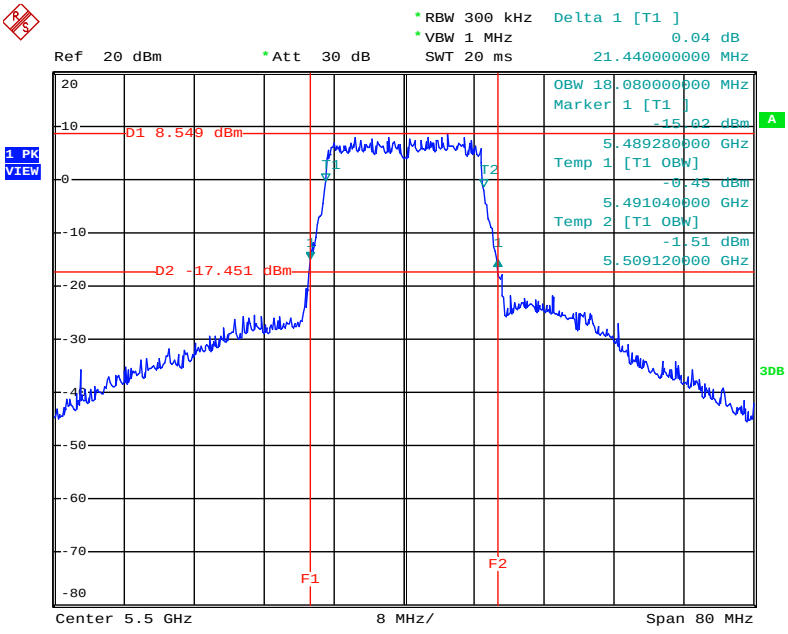
Date: 16.SEP.2014 18:49:38

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 / 5500 MHz



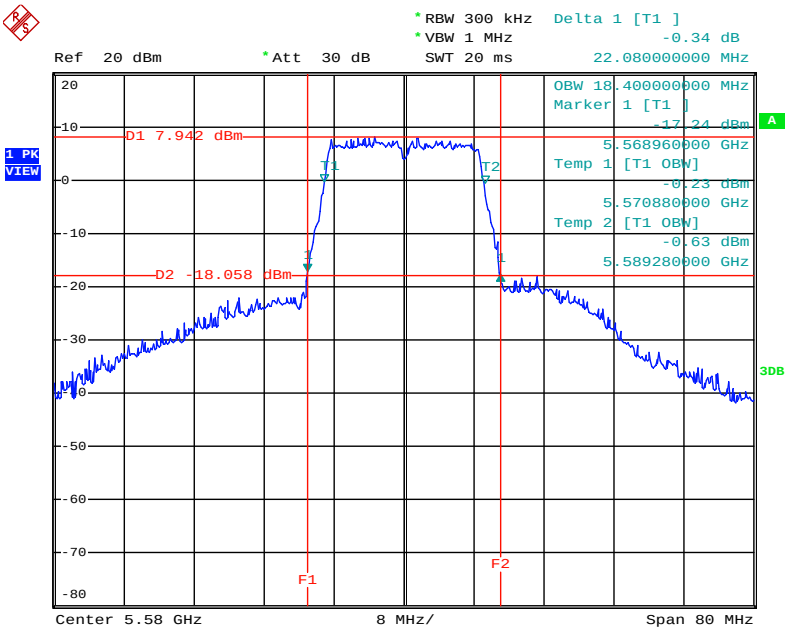
Date: 16.SEP.2014 18:50:54

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 2 / 5500 MHz



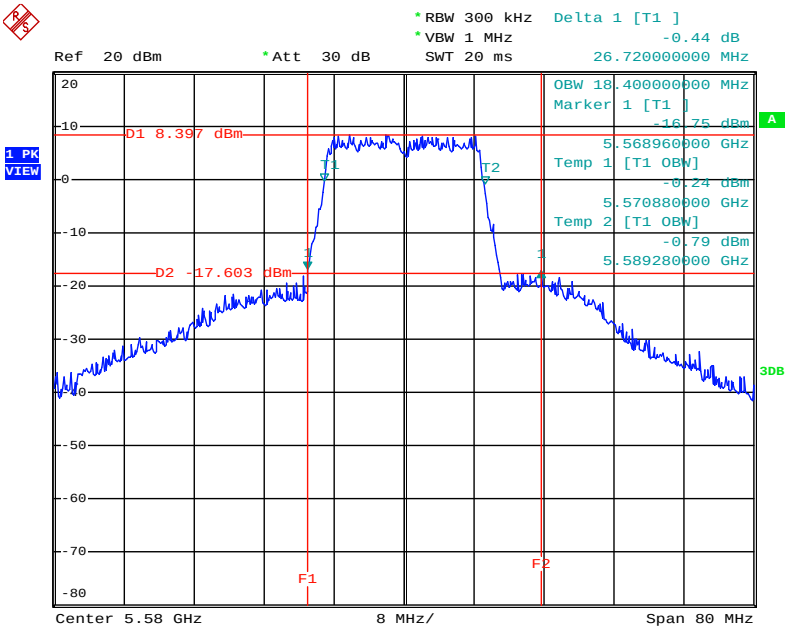
Date: 16.SEP.2014 18:51:27

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 / 5580 MHz



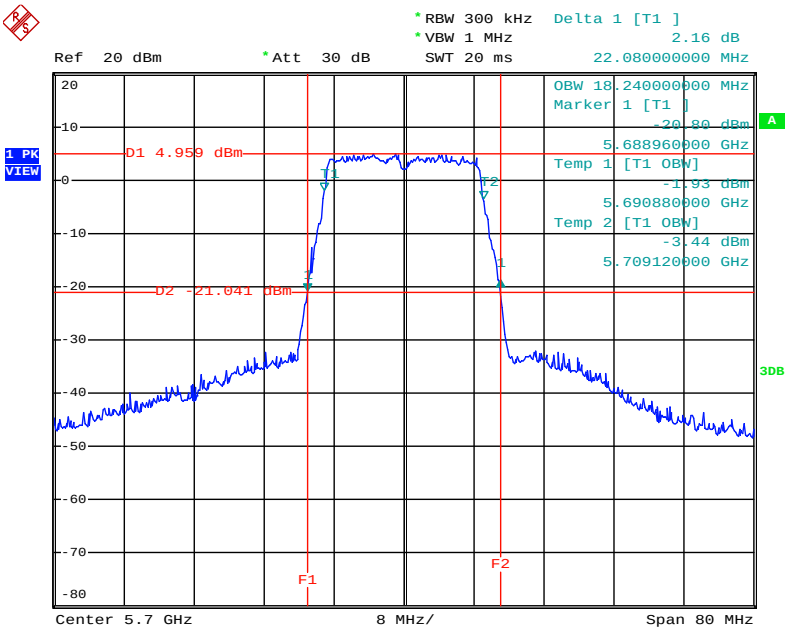
Date: 16.SEP.2014 18:52:39

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 2 / 5580 MHz



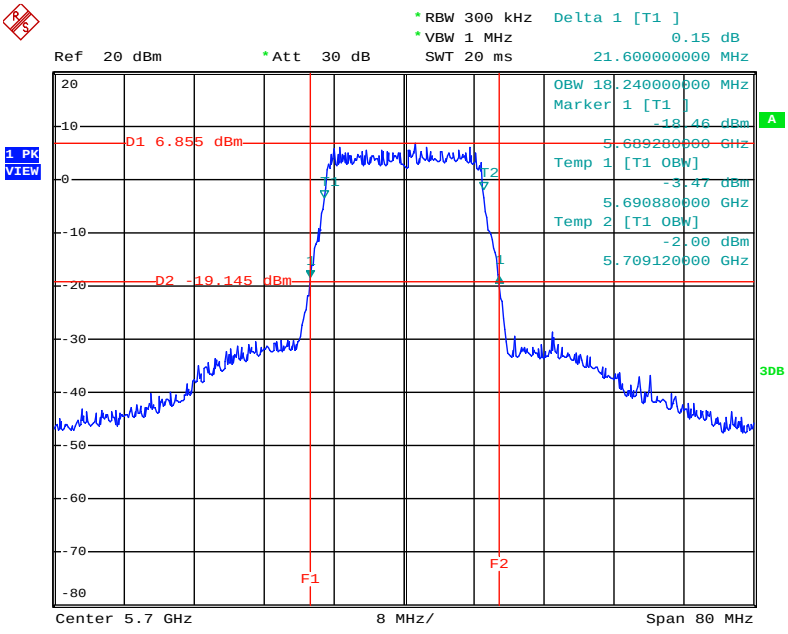
Date: 16.SEP.2014 18:52:03

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 / 5700 MHz



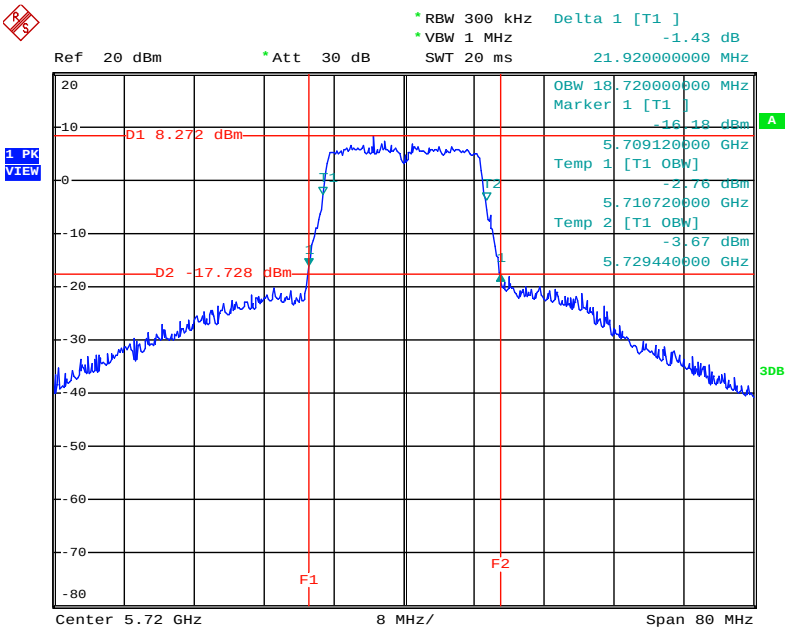
Date: 16.SEP.2014 18:53:16

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 2 / 5700 MHz



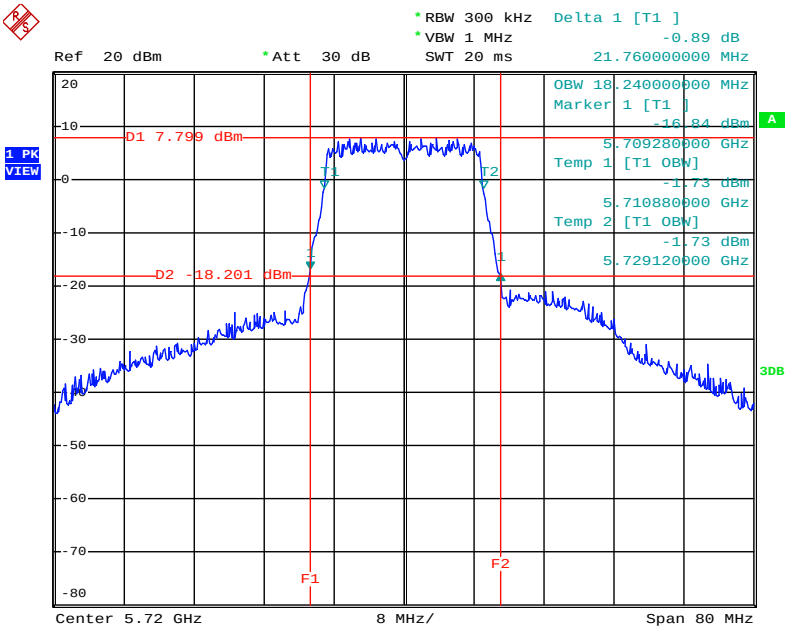
Date: 16.SEP.2014 18:53:49

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 / 5720 MHz



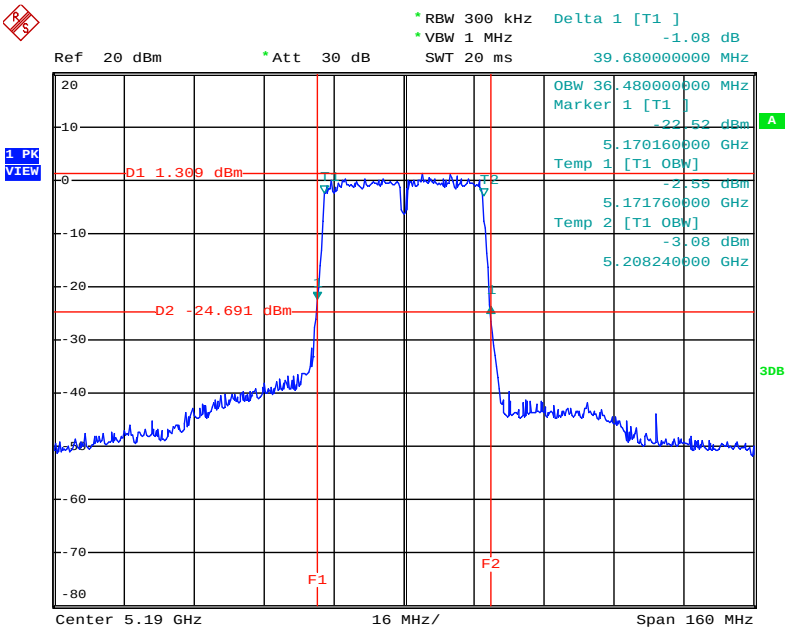
Date: 16.SEP.2014 18:55:11

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 2 / 5720 MHz



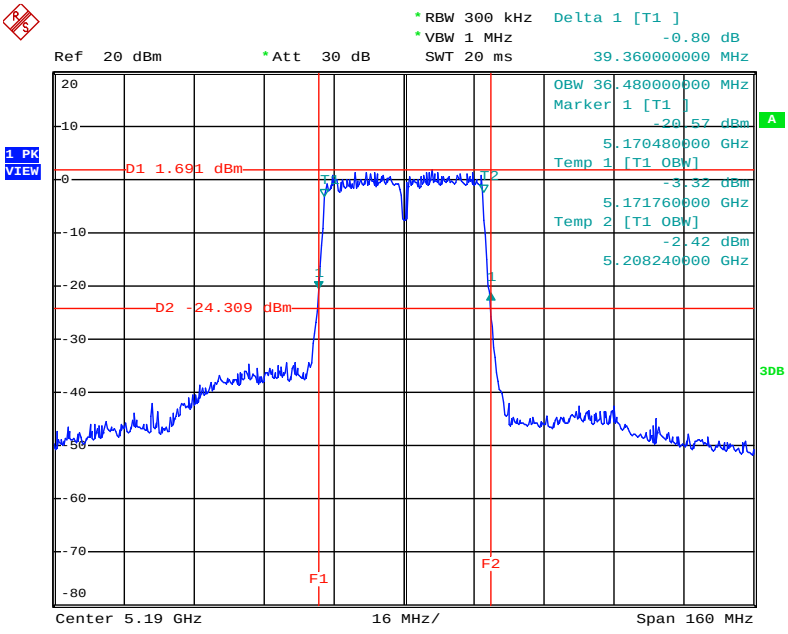
Date: 16.SEP.2014 18:54:38

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



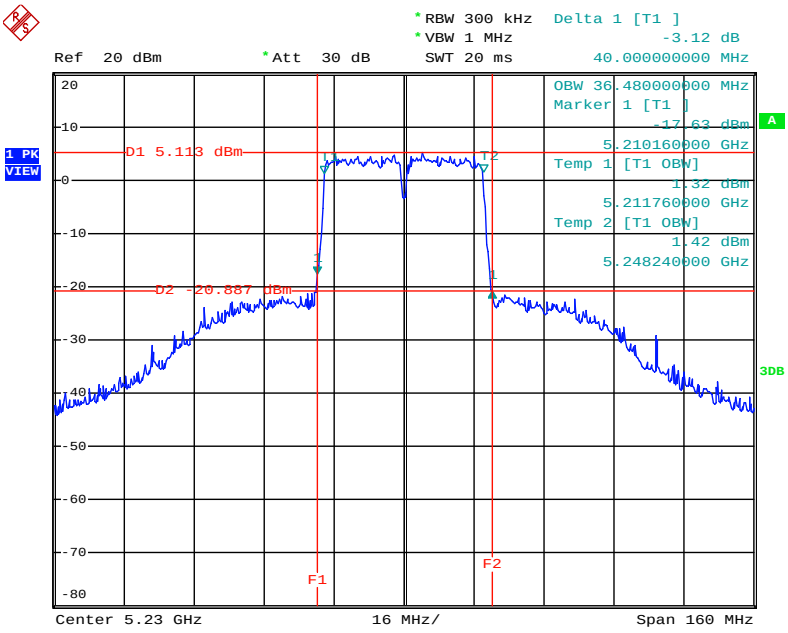
Date: 16.SEP.2014 18:55:59

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



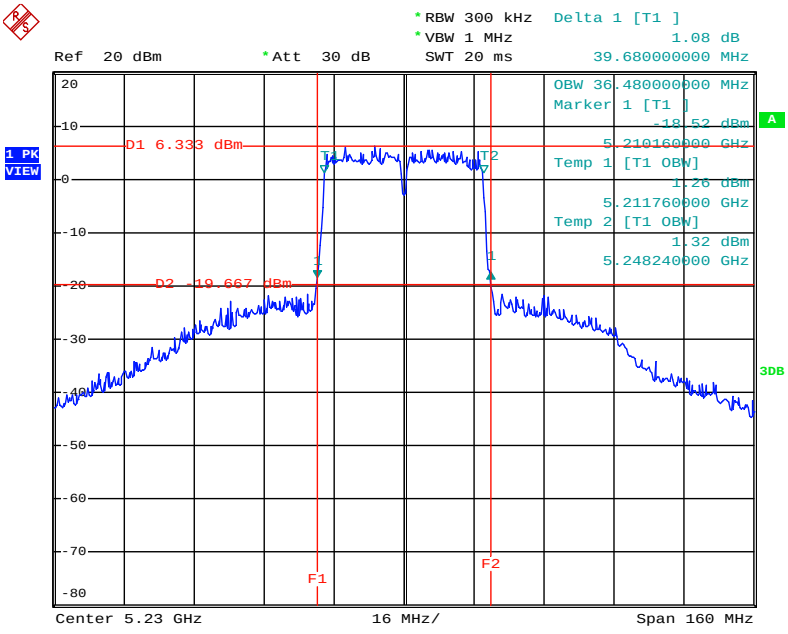
Date: 16.SEP.2014 18:56:57

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



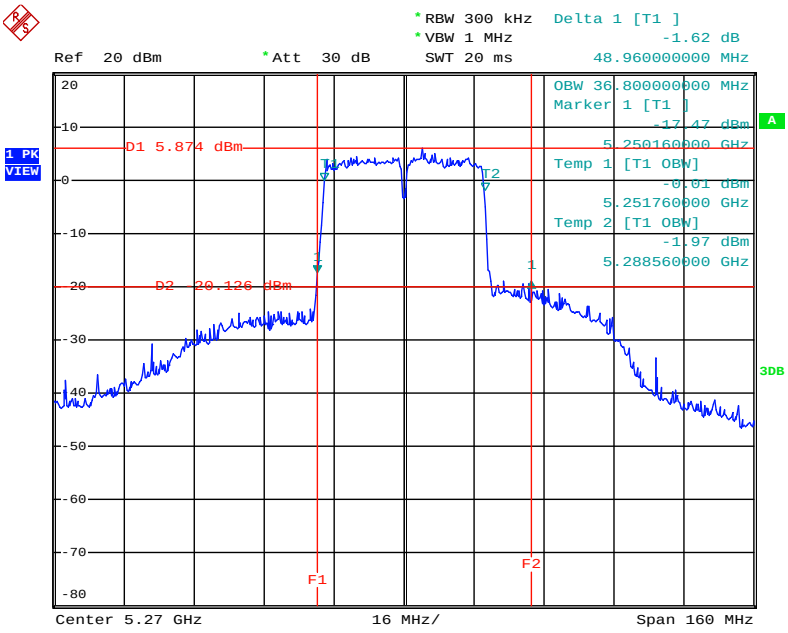
Date: 16.SEP.2014 18:58:16

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



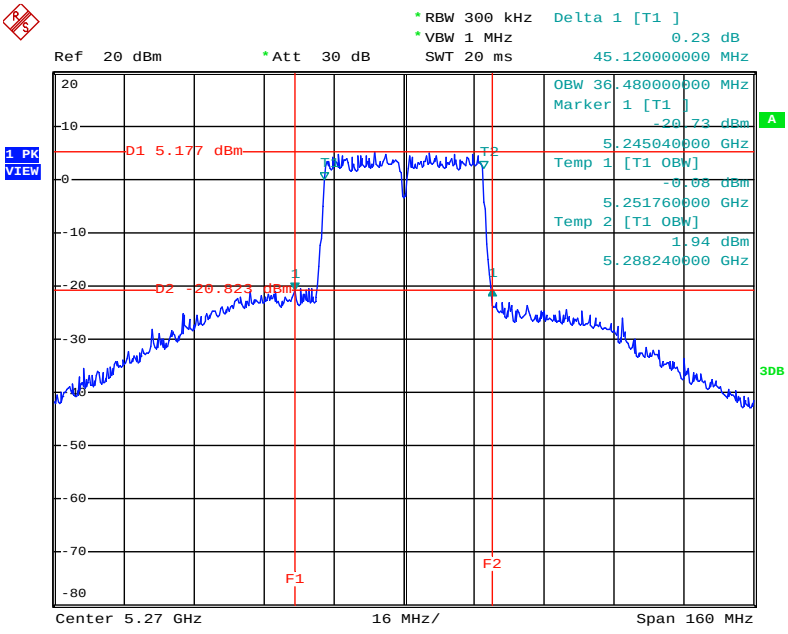
Date: 16.SEP.2014 18:57:40

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 / 5270 MHz



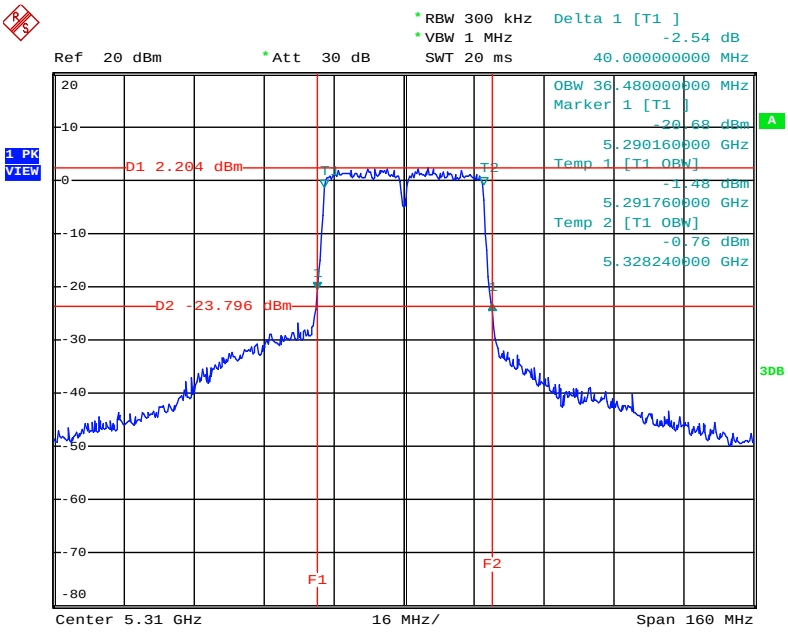
Date: 16.SEP.2014 18:58:46

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 2 / 5270 MHz



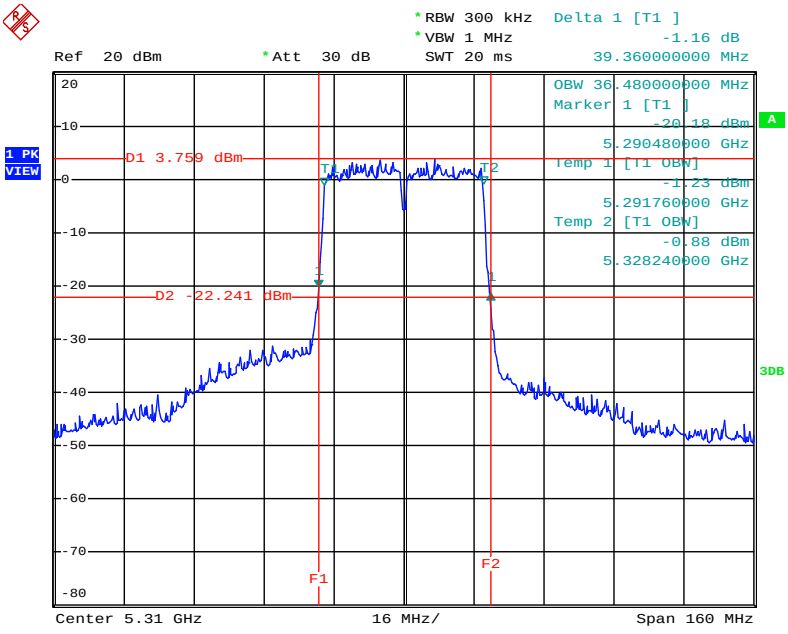
Date: 16.SEP.2014 18:59:38

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 / 5310 MHz



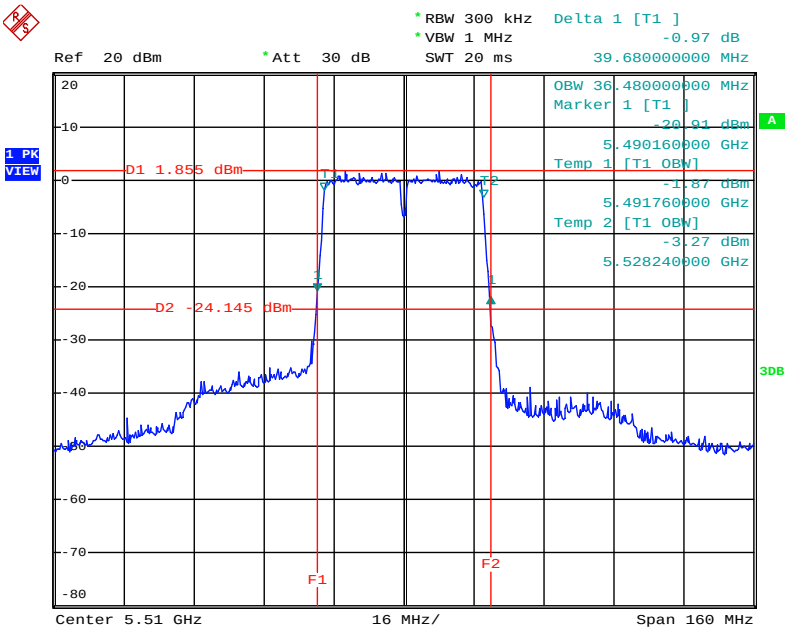
Date: 16.SEP.2014 19:01:14

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 2 / 5310 MHz



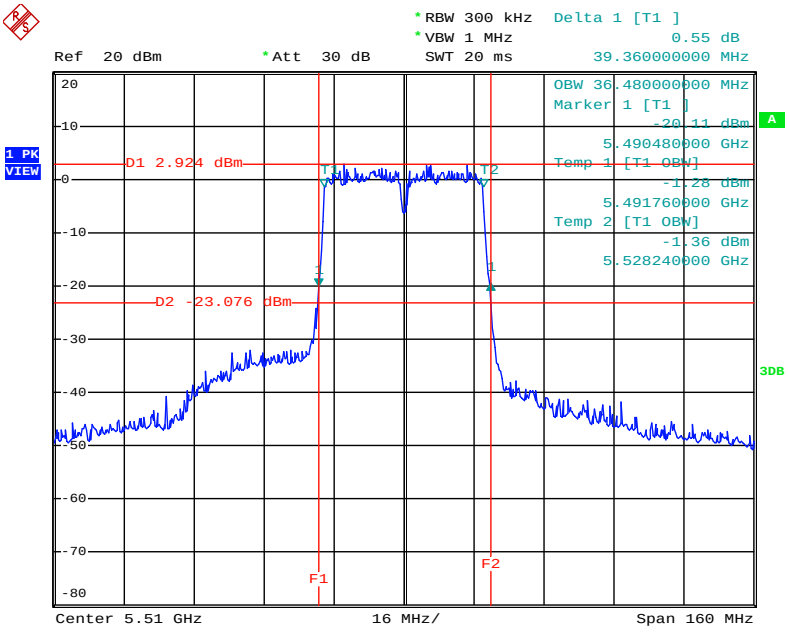
Date: 16.SEP.2014 19:00:19

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 / 5510 MHz



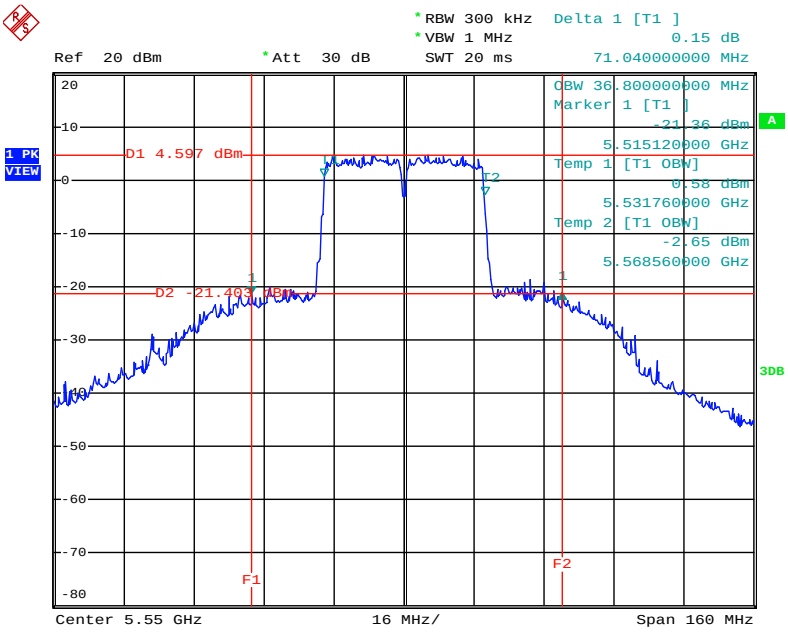
Date: 16.SEP.2014 19:01:53

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 2 / 5510 MHz



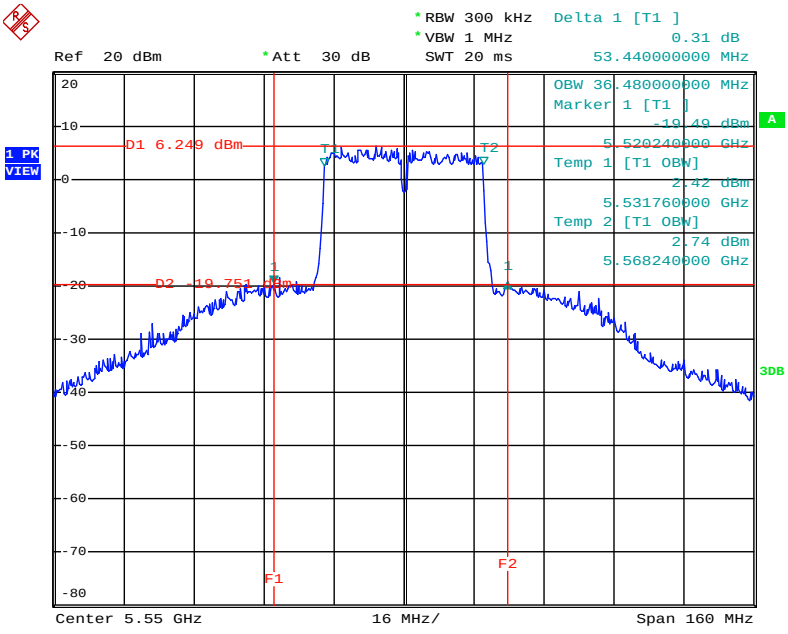
Date: 16.SEP.2014 19:02:26

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 / 5550 MHz



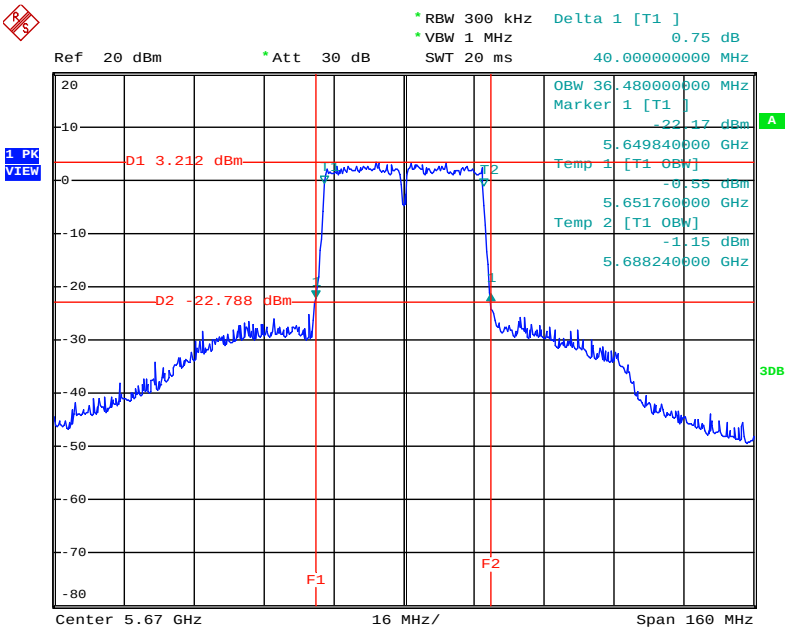
Date: 16.SEP.2014 19:03:45

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 2 / 5550 MHz



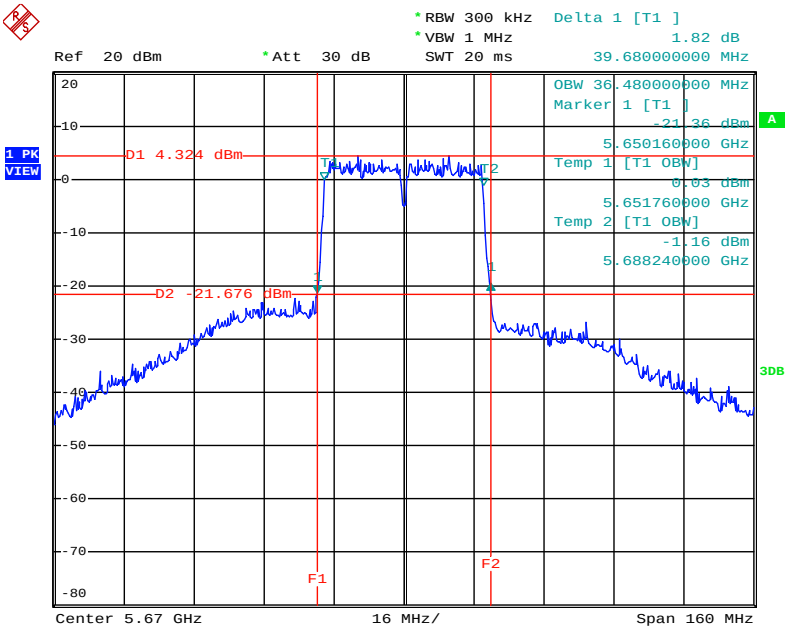
Date: 16.SEP.2014 19:03:12

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 / 5670 MHz



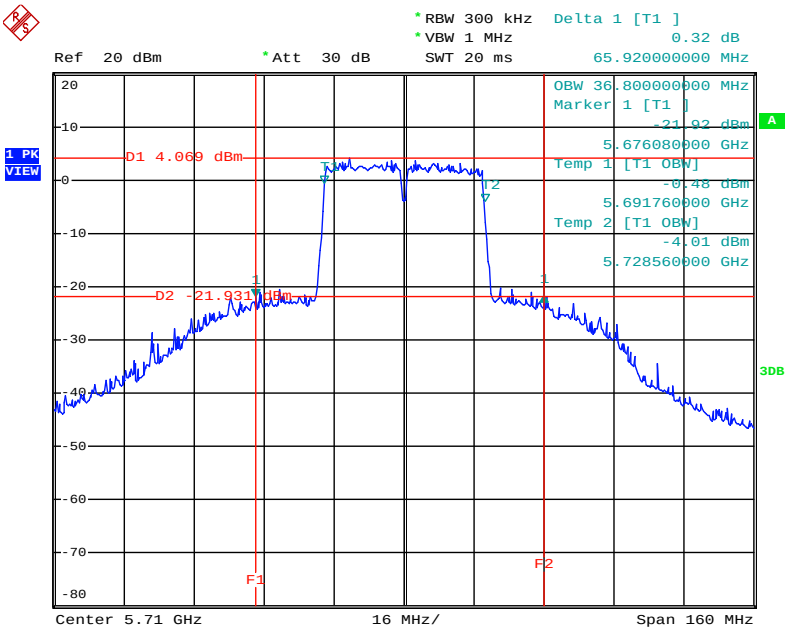
Date: 16.SEP.2014 19:04:21

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 2 / 5670 MHz



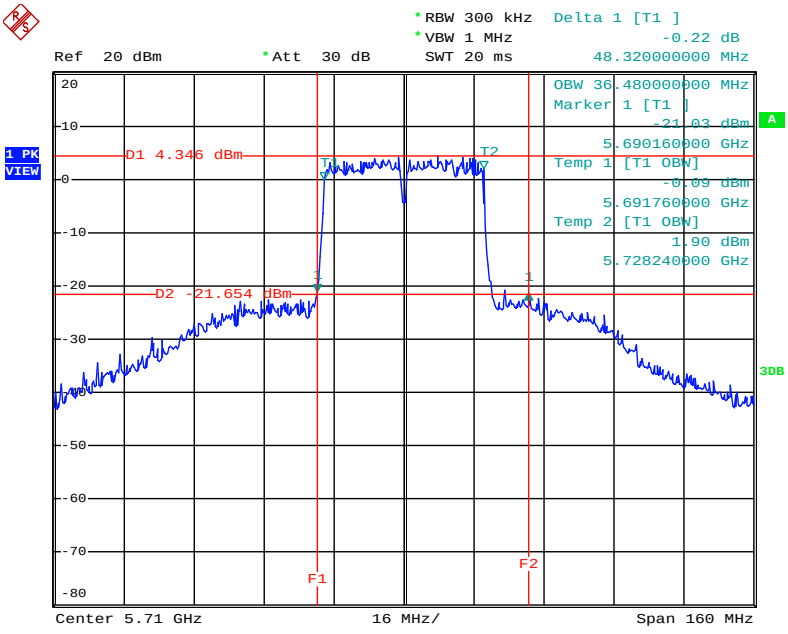
Date: 16.SEP.2014 19:04:53

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 / 5710 MHz



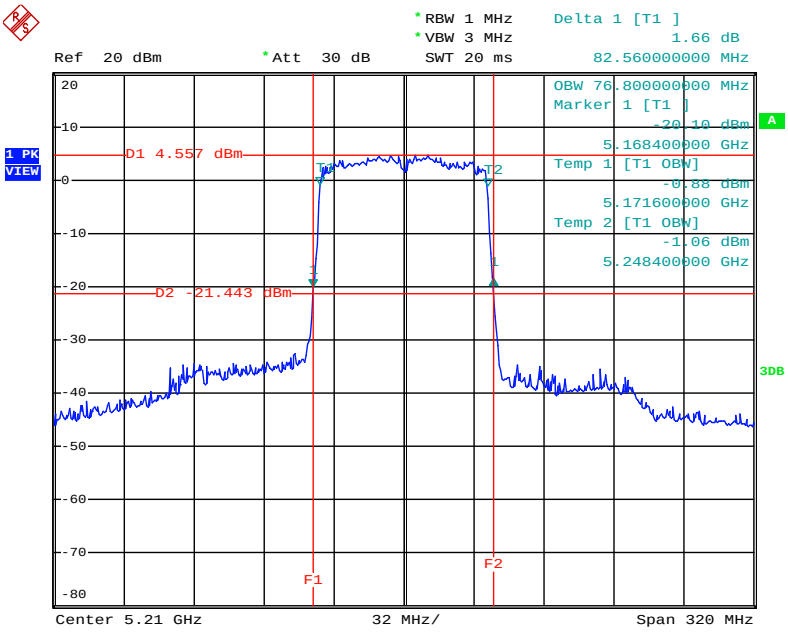
Date: 16.SEP.2014 19:06:17

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 2 / 5710 MHz



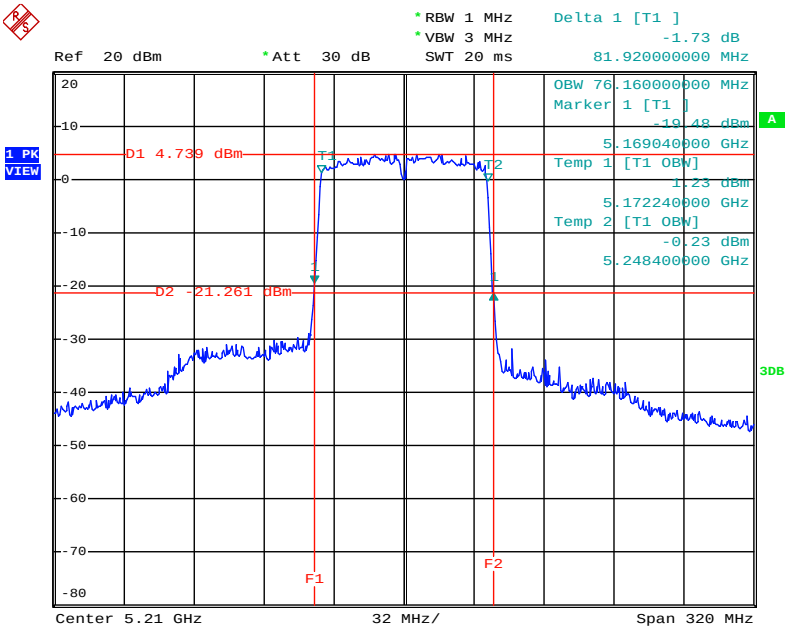
Date: 16.SEP.2014 19:05:32

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



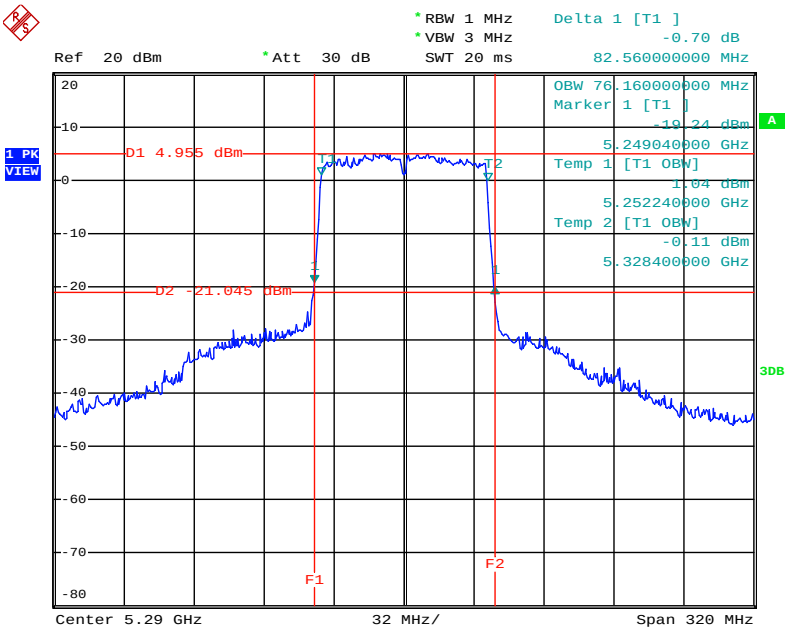
Date: 16.SEP.2014 19:07:06

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



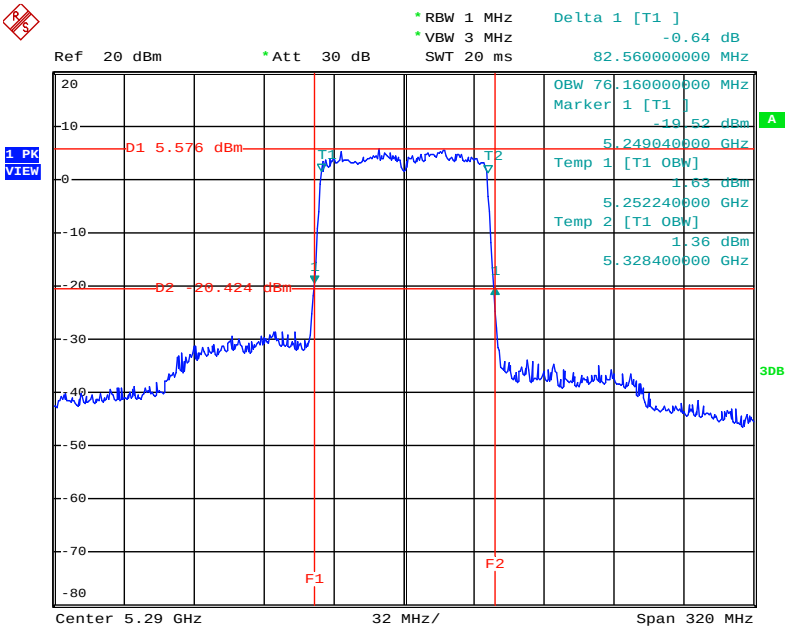
Date: 16.SEP.2014 19:07:41

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 / 5290 MHz



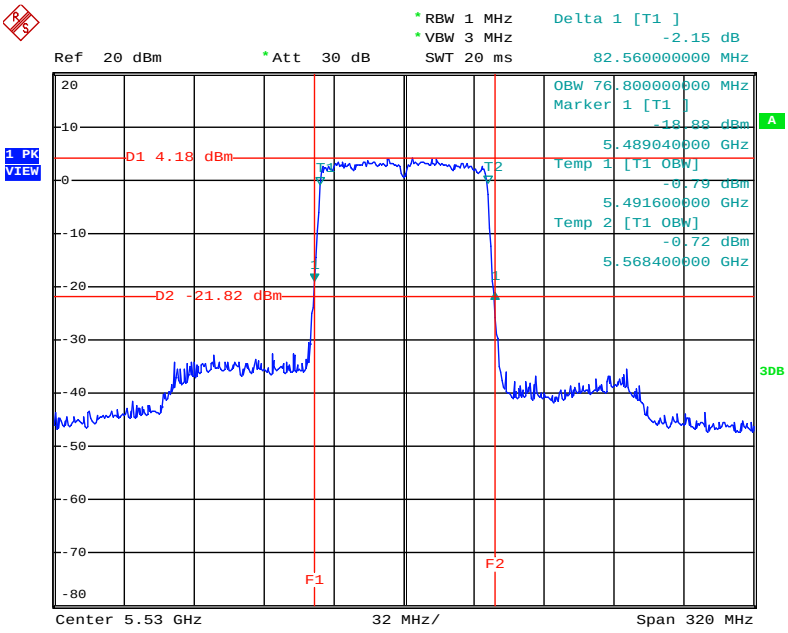
Date: 16.SEP.2014 19:08:58

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 2 / 5290 MHz



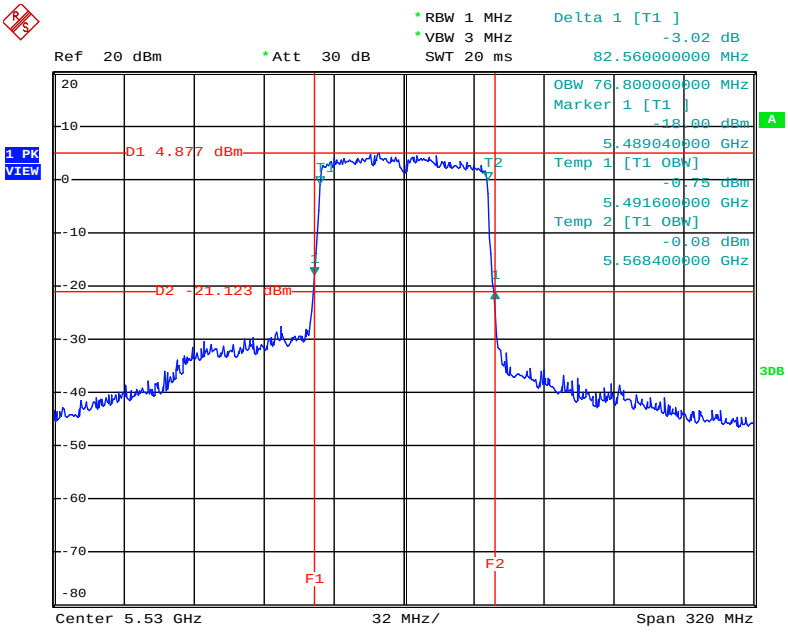
Date: 16.SEP.2014 19:08:22

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 / 5530 MHz



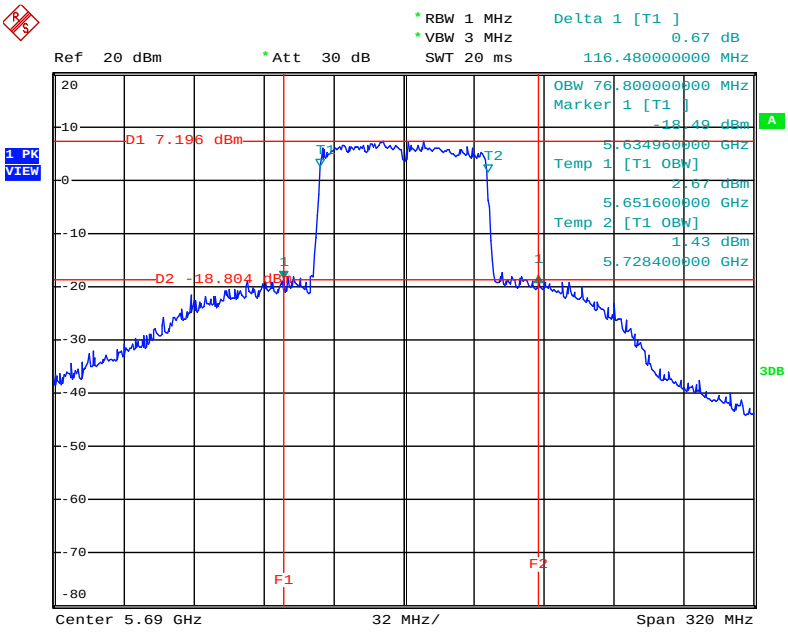
Date: 16.SEP.2014 19:09:43

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 2 / 5530 MHz



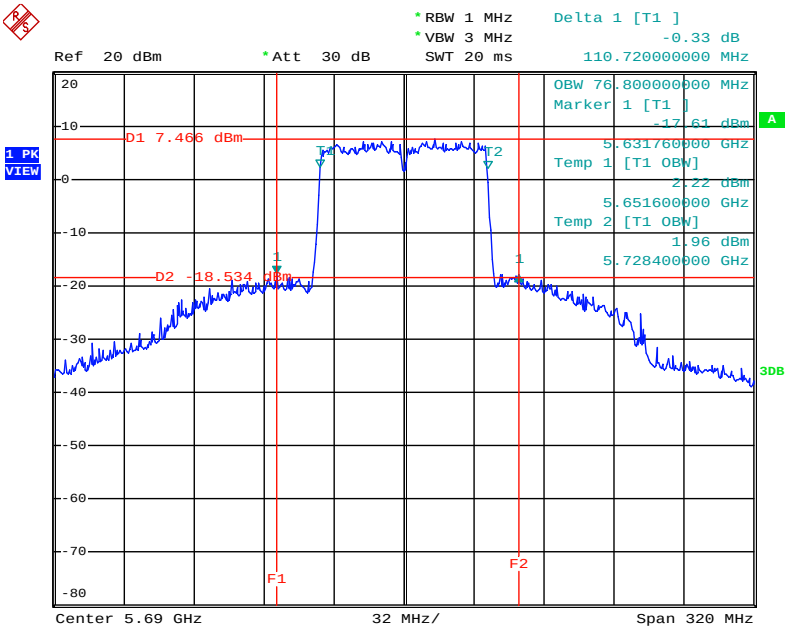
Date: 16.SEP.2014 19:10:11

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 / 5690 MHz



Date: 16.SEP.2014 19:12:08

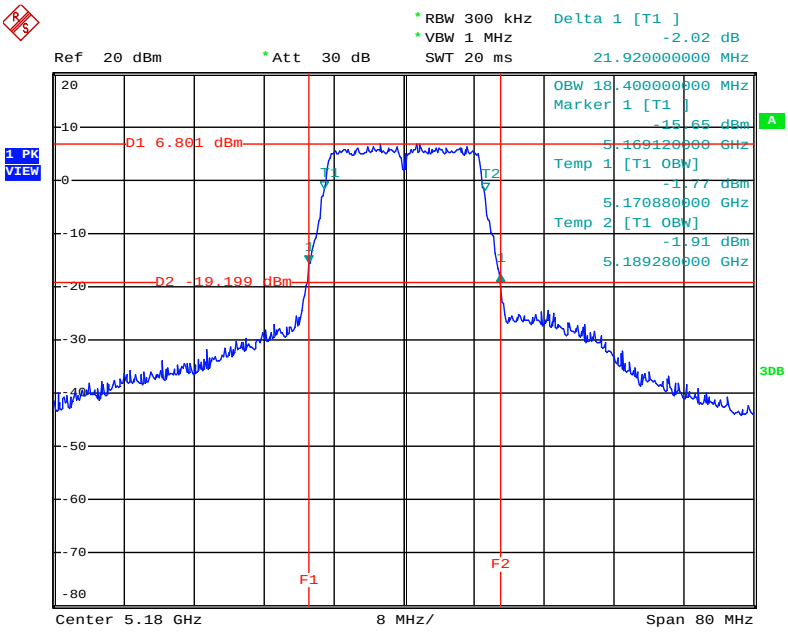
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 2 / 5690 MHz



Date: 16.SEP.2014 19:11:03

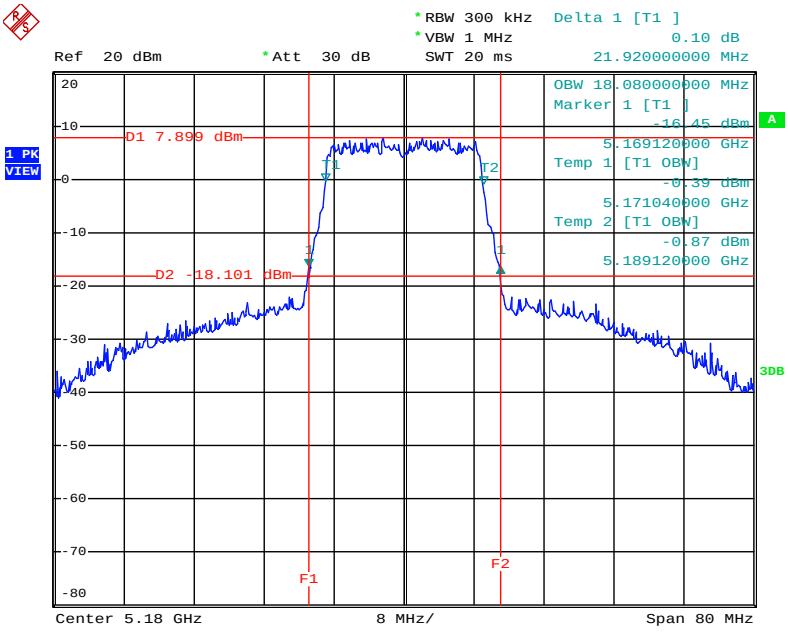
For STBC function:

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT20 / Chain 1 / 5180 MHz



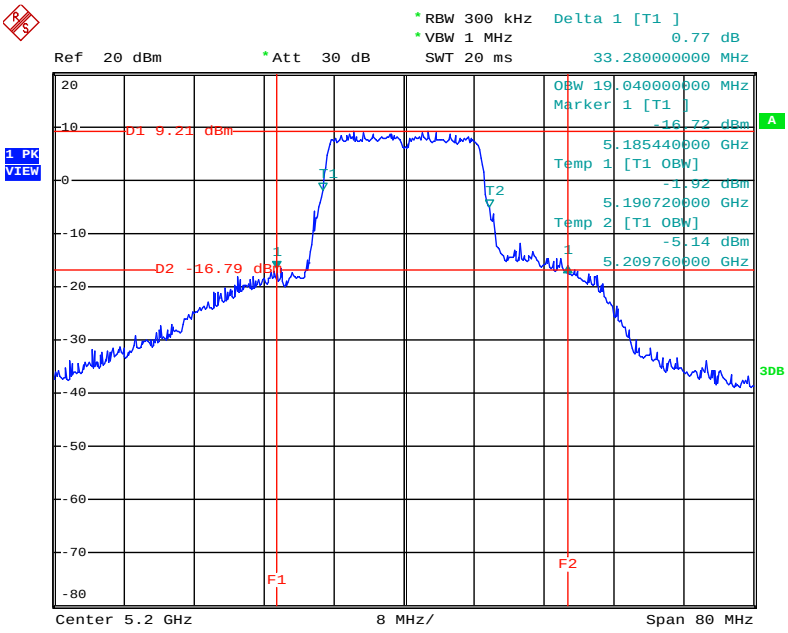
Date: 16.SEP.2014 19:15:00

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT20 / Chain 2 / 5180 MHz



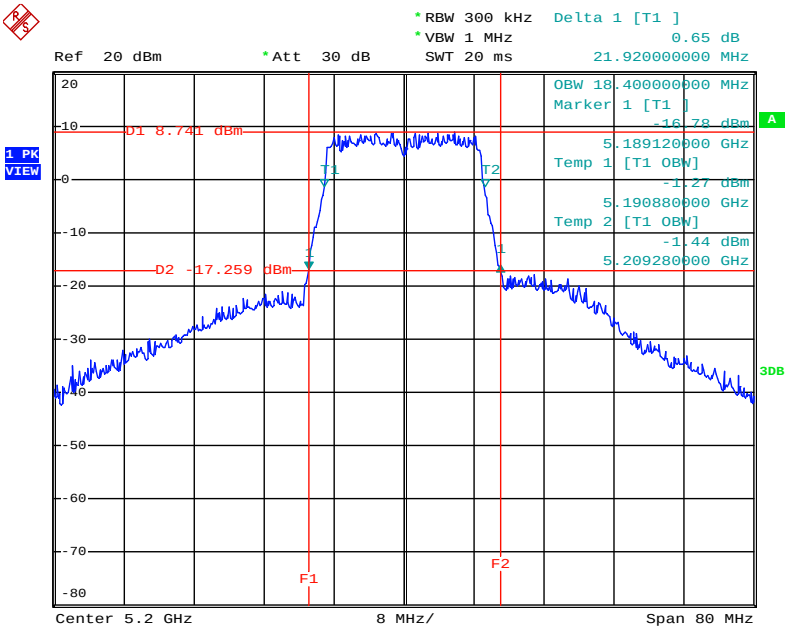
Date: 16.SEP.2014 19:15:35

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT20 / Chain 1 / 5200 MHz



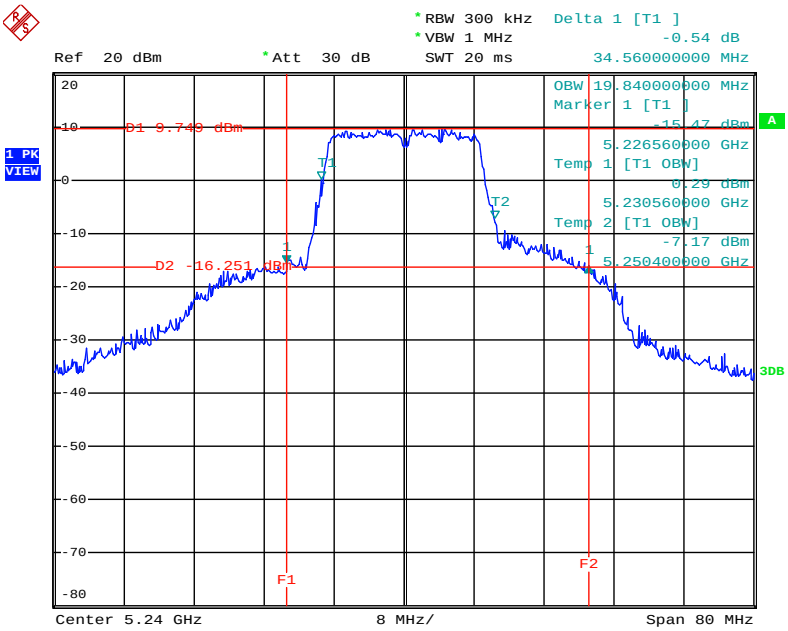
Date: 16.SEP.2014 19:16:38

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT20 / Chain 2 / 5200 MHz



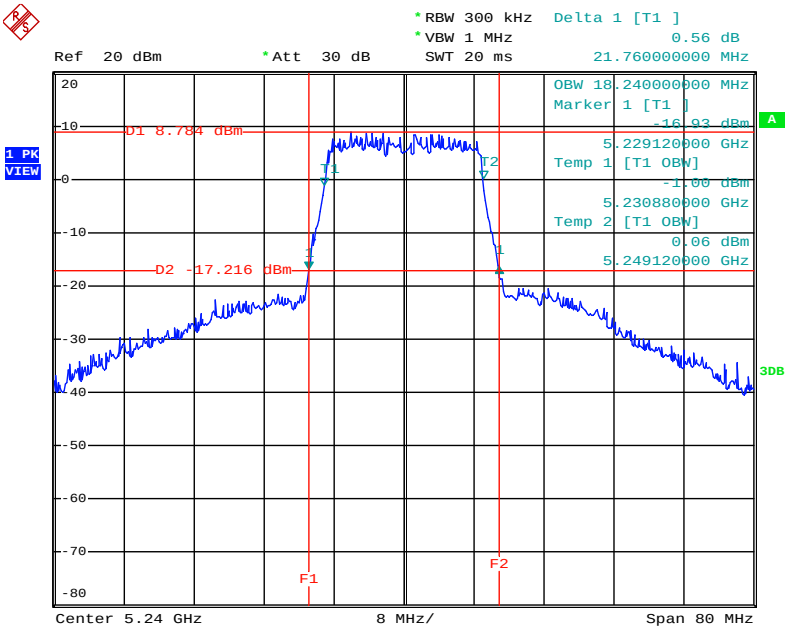
Date: 16.SEP.2014 19:16:06

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT20 / Chain 1 / 5240 MHz



Date: 16.SEP.2014 19:17:11

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT20 / Chain 2 / 5240 MHz



Date: 16.SEP.2014 19:17:54

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.

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

4.3.3. Test Procedures

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

4.3.4. Test Setup Layout

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

4.3.5. Test Deviation

There is no deviation with the original standard.

4.3.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

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

Temperature	20°C	Humidity	52%
Test Engineer	Robert Chang	Configurations	IEEE 802.11ac
Test Function	Non-beamforming function		

Configuration IEEE 802.11ac MCS0/Nss1 VHT20 (Straddle Channel)

Channel	Frequency	6dB Bandwidth (MHz)		Min. Limit (kHz)	Test Result
		Chain 1	Chain 2		
144	5720 MHz	3.86	3.86	500	Complies

Configuration IEEE 802.11ac MCS0/Nss1 VHT20

Channel	Frequency	6dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)		Min. Limit (kHz)	Test Result
		Chain 1	Chain 2	Chain 1	Chain 2		
149	5745 MHz	17.52	17.60	17.84	17.84	500	Complies
157	5785 MHz	17.52	17.52	18.16	18.08	500	Complies
165	5825 MHz	17.60	17.60	17.84	17.76	500	Complies

Configuration IEEE 802.11ac MCS0/Nss1 VHT40 (Straddle Channel)

Channel	Frequency	6dB Bandwidth (MHz)		Min. Limit (kHz)	Test Result
		Chain 1	Chain 2		
142	5710 MHz	3.29	3.29	500	Complies

Configuration IEEE 802.11ac MCS0/Nss1 VHT40

Channel	Frequency	6dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)		Min. Limit (kHz)	Test Result
		Chain 1	Chain 2	Chain 1	Chain 2		
151	5755 MHz	36.32	36.32	36.32	36.16	500	Complies
159	5795 MHz	35.36	36.00	36.32	36.48	500	Complies

Configuration IEEE 802.11ac MCS0/Nss1 VHT80 (Straddle Channel)

Channel	Frequency	6dB Bandwidth (MHz)		Min. Limit (kHz)	Test Result
		Chain 1	Chain 2		
138	5690 MHz	3.44	3.44	500	Complies

Configuration IEEE 802.11ac MCS0/Nss1 VHT80

Channel	Frequency	6dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)		Min. Limit (kHz)	Test Result
		Chain 1	Chain 2	Chain 1	Chain 2		
155	5775 MHz	73.92	76.48	75.84	76.16	500	Complies

Temperature	20°C	Humidity	52%
Test Engineer	Robert Chang	Configurations	IEEE 802.11a
Test Function	Non-beamforming function		

Configuration IEEE 802.11a (Straddle Channel)

Channel	Frequency	6dB Bandwidth (MHz)		Min. Limit (kHz)	Test Result
		Chain 1	Chain 2		
144	5720 MHz	3.22	3.22	500	Complies

Configuration IEEE 802.11a

Channel	Frequency	6dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)		Min. Limit (kHz)	Test Result
		Chain 1	Chain 2	Chain 1	Chain 2		
149	5745 MHz	16.40	16.32	16.64	16.64	500	Complies
157	5785 MHz	16.32	16.32	17.36	17.12	500	Complies
165	5825 MHz	16.32	16.32	16.72	16.72	500	Complies

Temperature	20°C	Humidity	52%
Test Engineer	Robert Chang	Configurations	IEEE 802.11ac
Test Function	Beamforming function		

Configuration IEEE 802.11ac MCS0/Nss1 VHT20 (Straddle Channel)

Channel	Frequency	6dB Bandwidth (MHz)		Min. Limit (kHz)	Test Result
		Chain 1	Chain 2		
144	5720 MHz	3.86	3.86	500	Complies

Configuration IEEE 802.11ac MCS0/Nss1 VHT20

Channel	Frequency	6dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)		Min. Limit (kHz)	Test Result
		Chain 1	Chain 2	Chain 1	Chain 2		
149	5745 MHz	17.52	17.60	17.84	17.84	500	Complies
157	5785 MHz	17.60	17.60	18.40	18.00	500	Complies
165	5825 MHz	17.52	17.52	17.84	17.76	500	Complies

Configuration IEEE 802.11ac MCS0/Nss1 VHT40 (Straddle Channel)

Channel	Frequency	6dB Bandwidth (MHz)		Min. Limit (kHz)	Test Result
		Chain 1	Chain 2		
142	5710 MHz	3.29	3.29	500	Complies

Configuration IEEE 802.11ac MCS0/Nss1 VHT40

Channel	Frequency	6dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)		Min. Limit (kHz)	Test Result
		Chain 1	Chain 2	Chain 1	Chain 2		
151	5755 MHz	36.32	36.48	36.32	36.32	500	Complies
159	5795 MHz	36.32	36.32	36.48	36.32	500	Complies

Configuration IEEE 802.11ac MCS0/Nss1 VHT80 (Straddle Channel)

Channel	Frequency	6dB Bandwidth (MHz)		Min. Limit (kHz)	Test Result
		Chain 1	Chain 2		
138	5690 MHz	3.44	3.44	500	Complies

Configuration IEEE 802.11ac MCS0/Nss1 VHT80

Channel	Frequency	6dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)		Min. Limit (kHz)	Test Result
		Chain 1	Chain 2	Chain 1	Chain 2		
155	5775 MHz	75.52	74.56	75.52	75.84	500	Complies

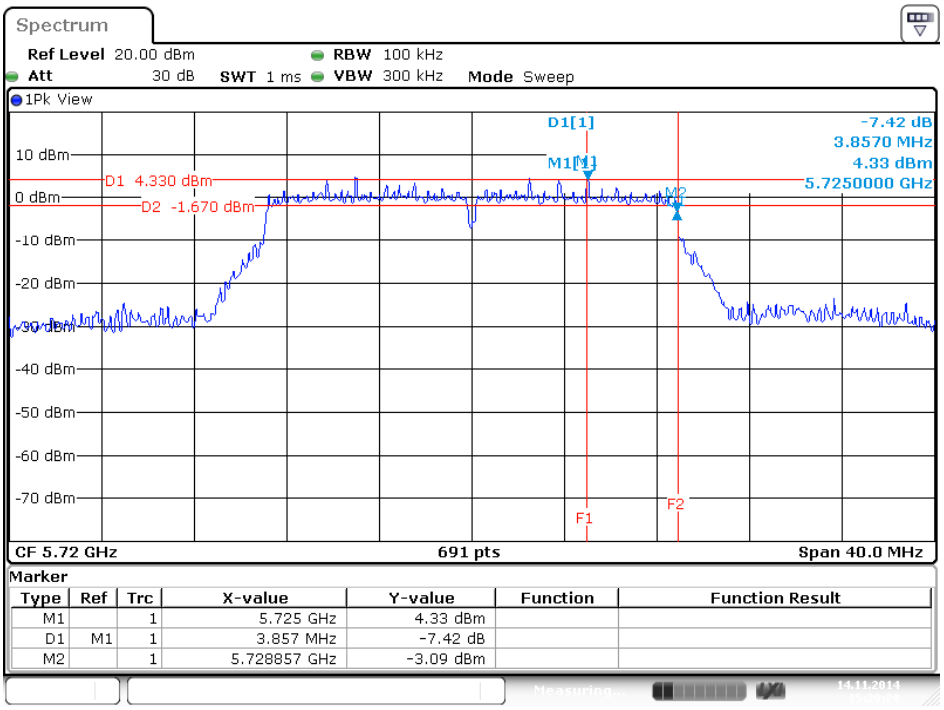
Note: All the test values were listed in the report.

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

For non-beamforming function:

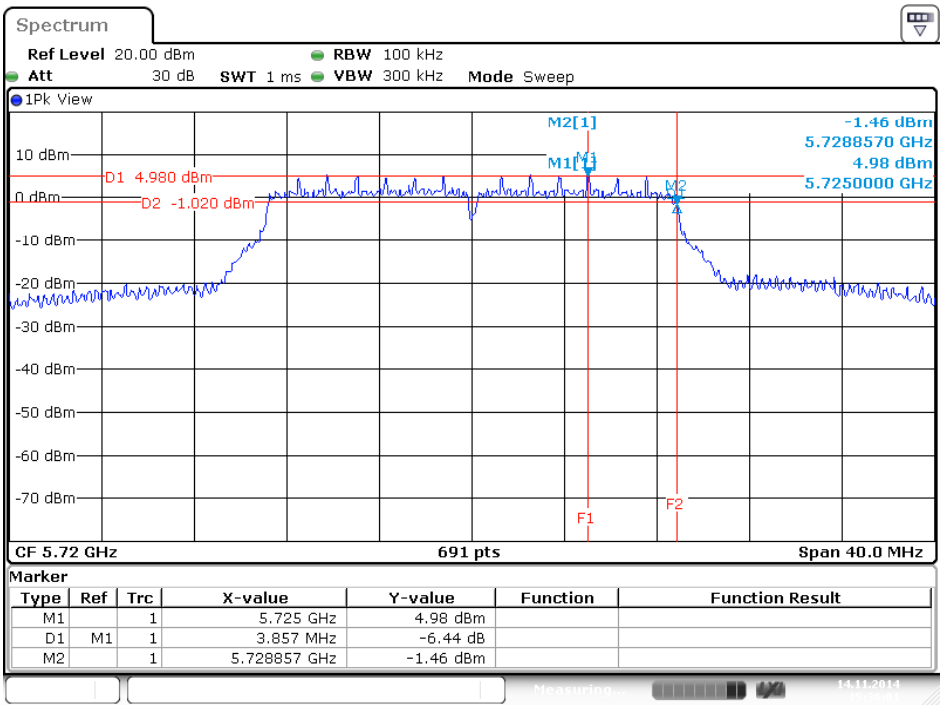
(straddle channel)

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 / 5720 MHz



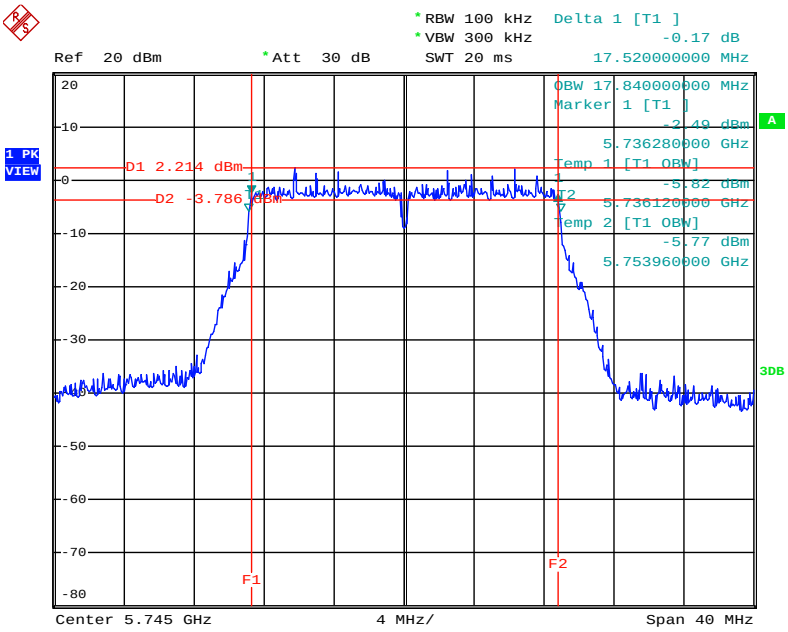
Date: 14.NOV.2014 15:29:28

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 2 / 5720 MHz



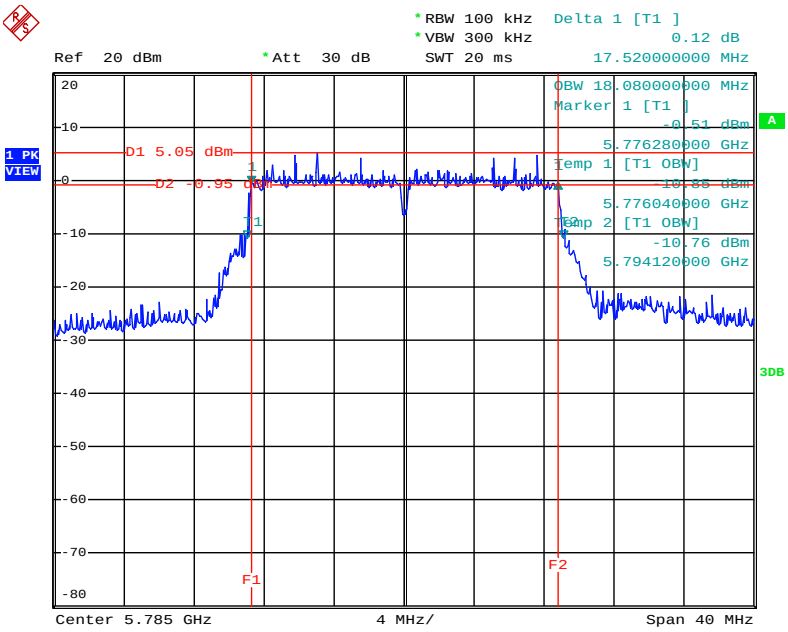
Date: 14.NOV.2014 15:36:01

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



Date: 16.SEP.2014 16:59:07

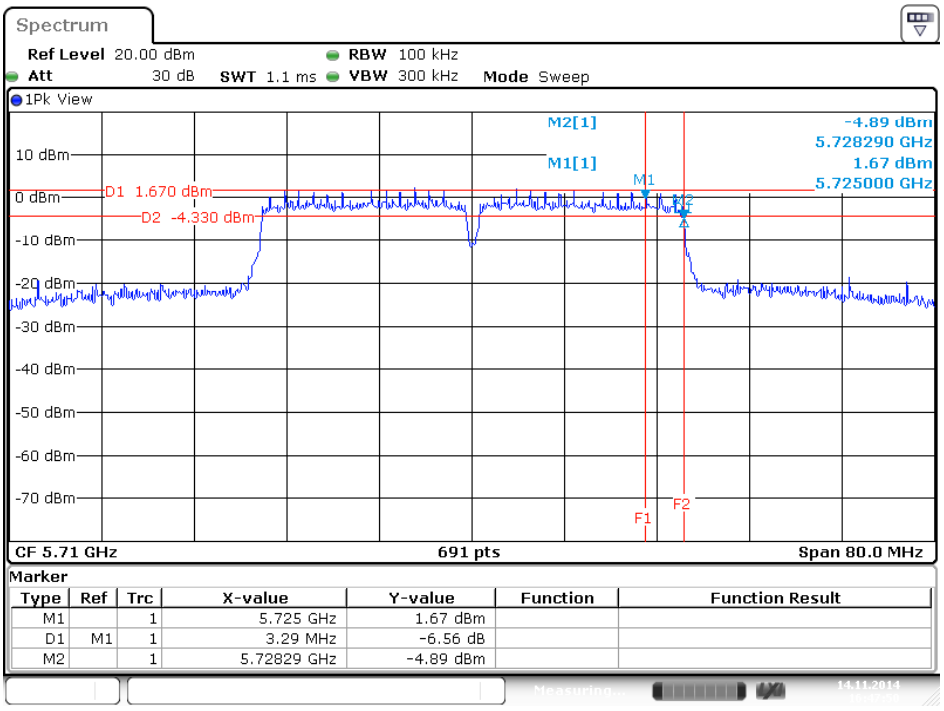
6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 2 / 5785 MHz



Date: 16.SEP.2014 16:57:38

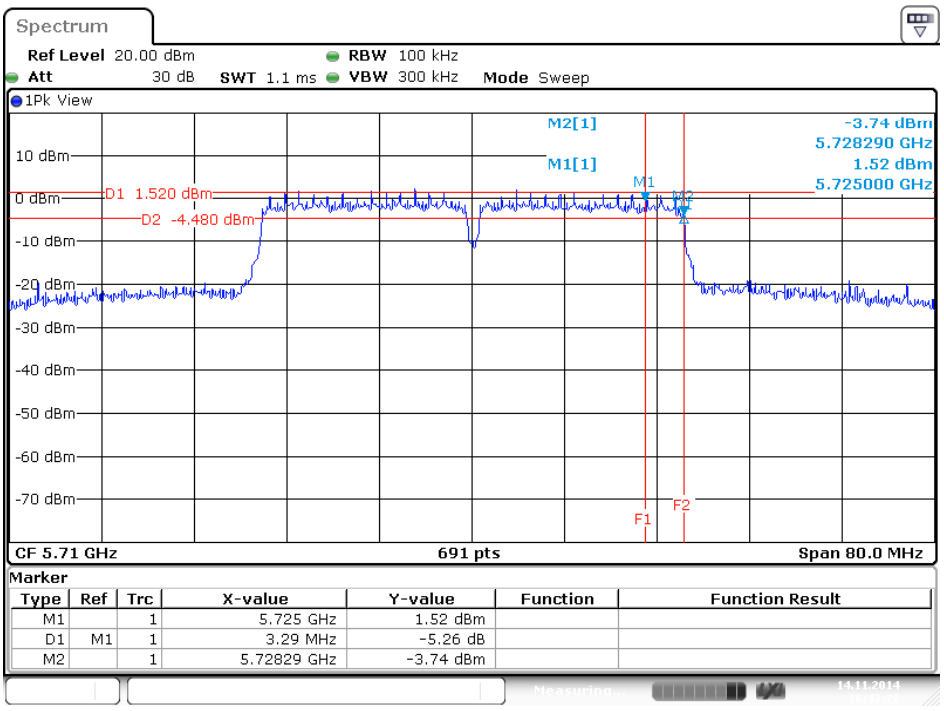
(straddle channel)

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 / 5710 MHz



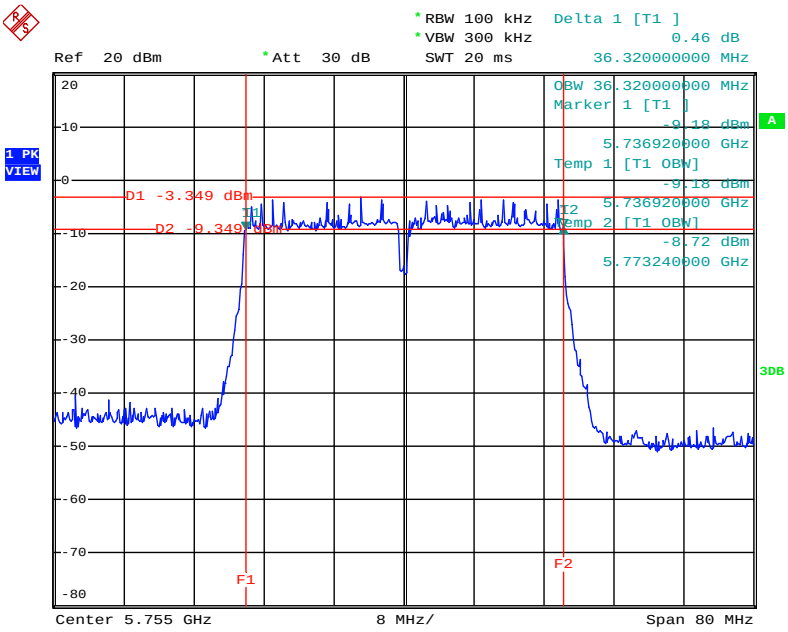
Date: 14.NOV.2014 16:47:50

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 2 / 5710 MHz



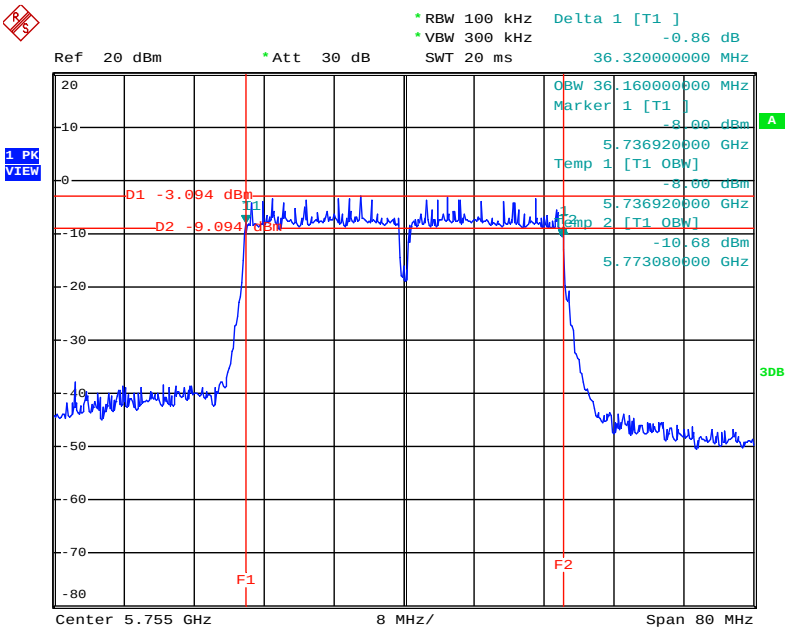
Date: 14.NOV.2014 16:43:22

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



Date: 16.SEP.2014 16:59:58

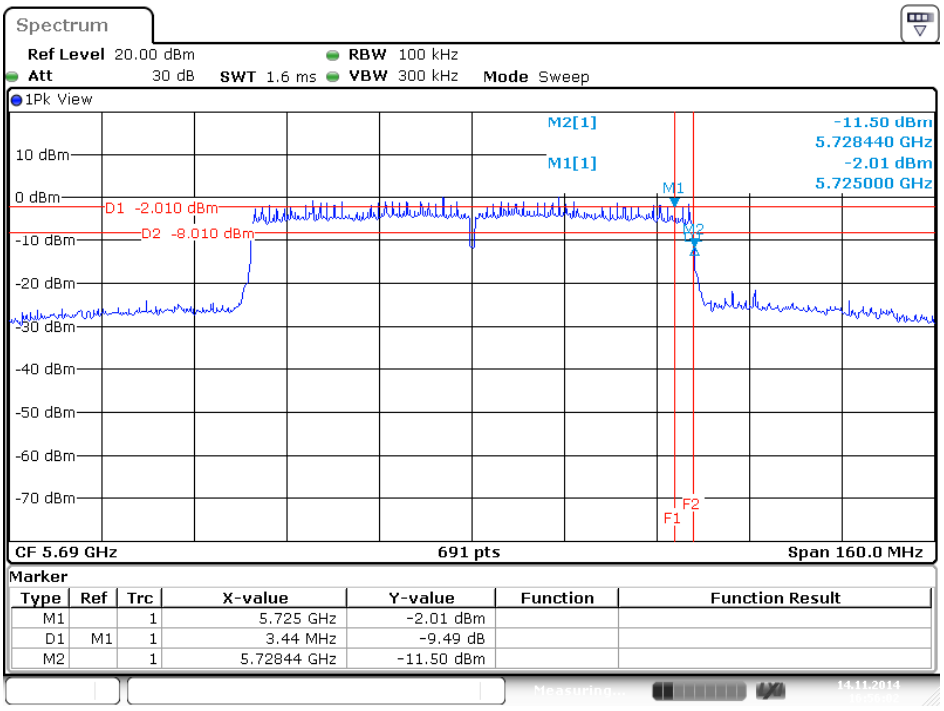
6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 2 / 5755 MHz



Date: 16.SEP.2014 17:00:39

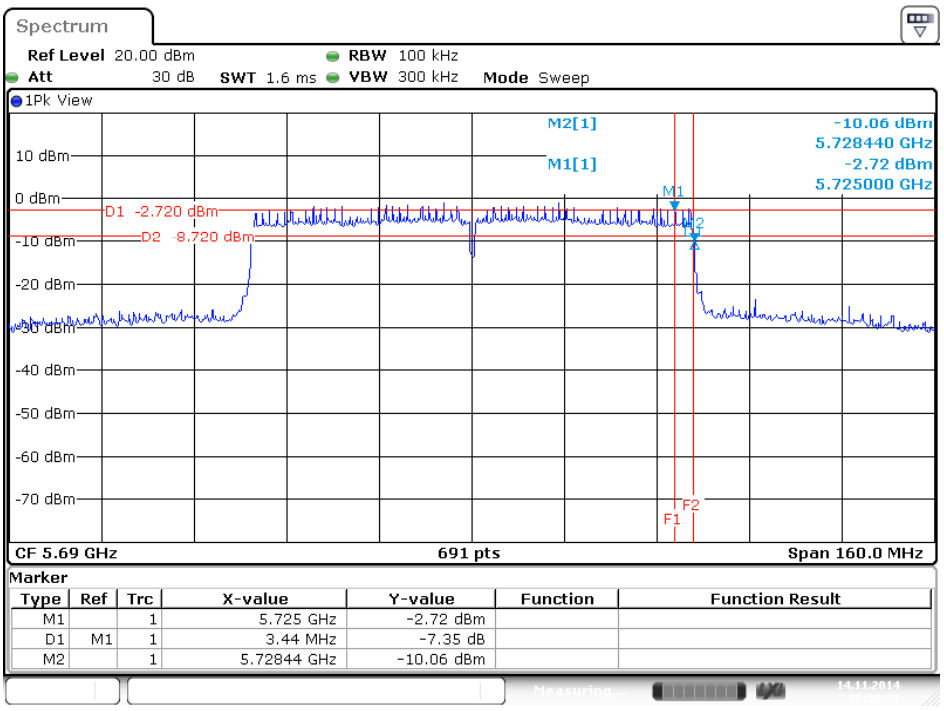
(straddle channel)

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 / 5690MHz



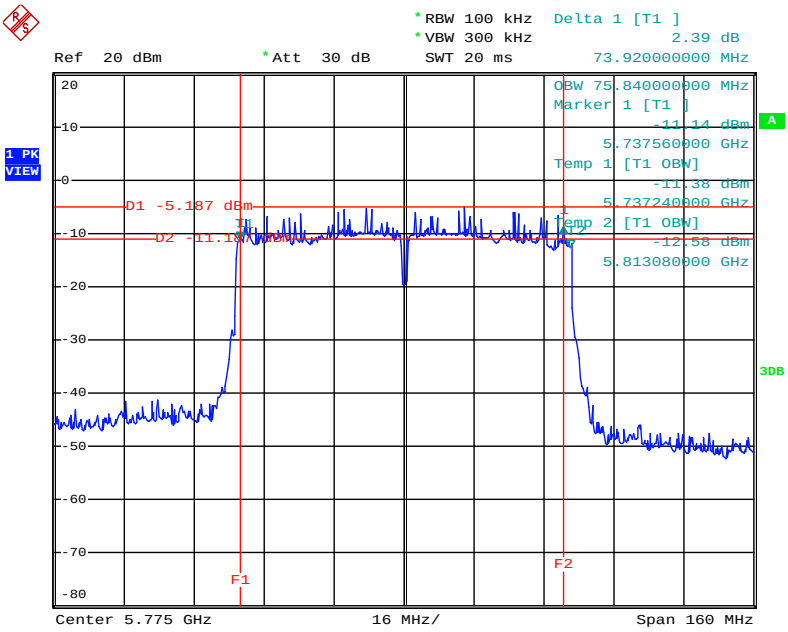
Date: 14.NOV.2014 16:56:02

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 2 / 5690 MHz



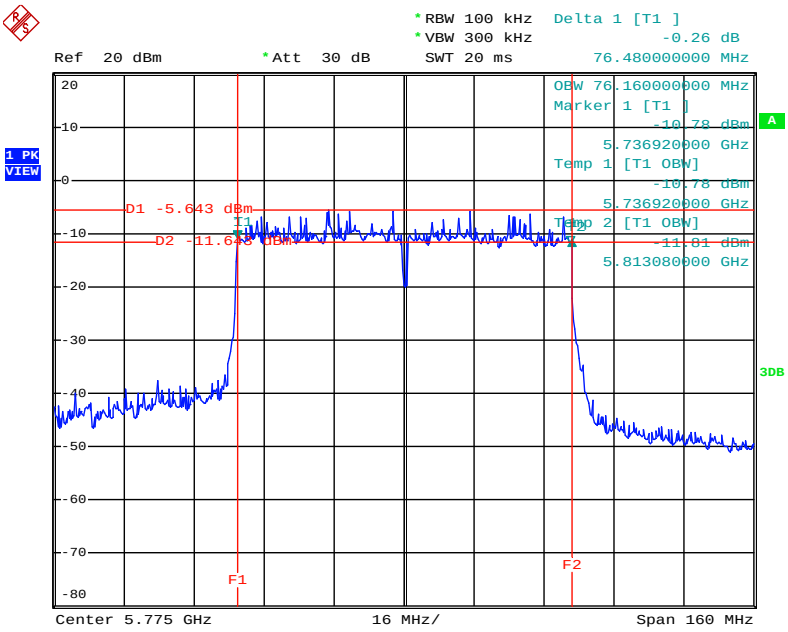
Date: 14.NOV.2014 16:59:31

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



Date: 16.SEP.2014 17:02:49

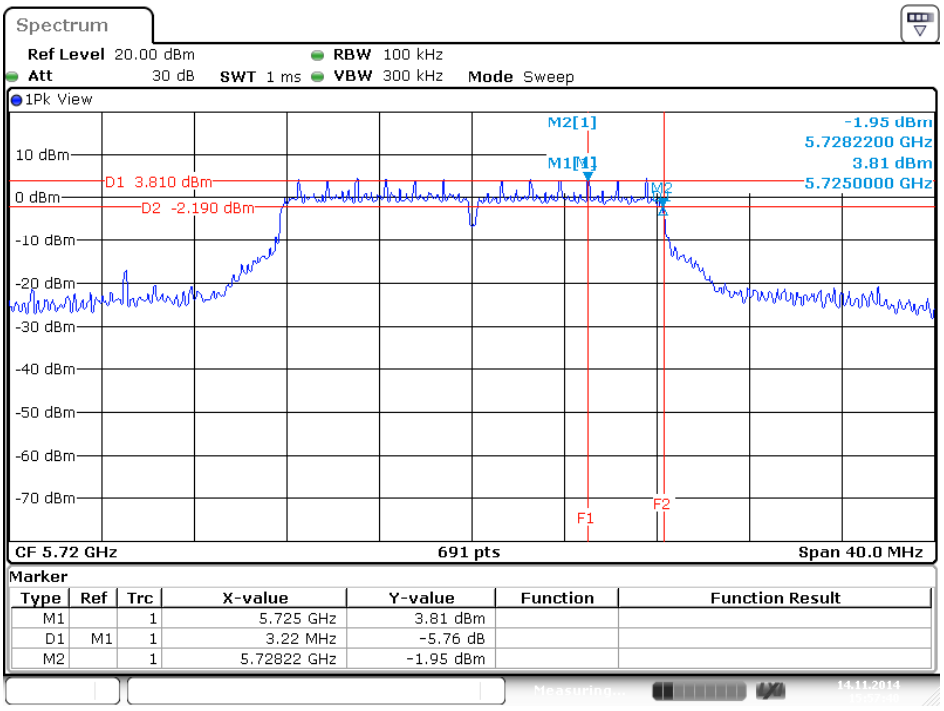
6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 2 / 5775 MHz



Date: 16.SEP.2014 17:03:25

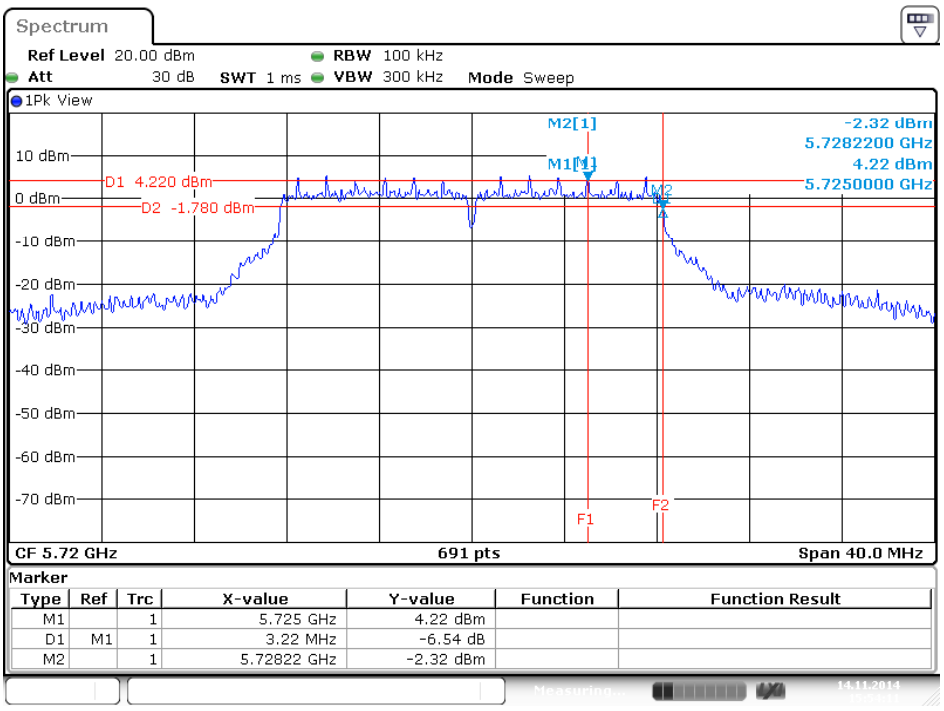
(straddle channel)

6 dB Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 / 5720 MHz



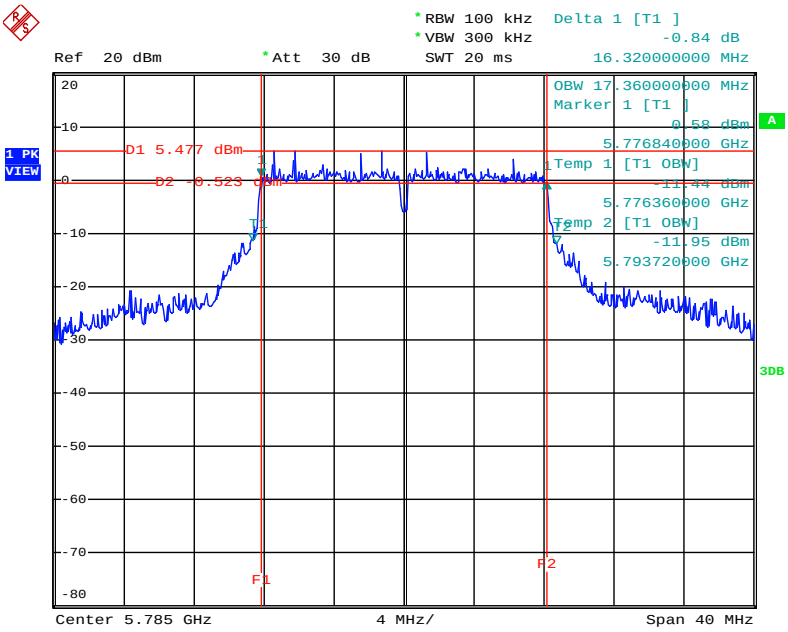
Date: 14.NOV.2014 15:57:40

6 dB Bandwidth Plot on Configuration IEEE 802.11a / Chain 2 / 5720 MHz



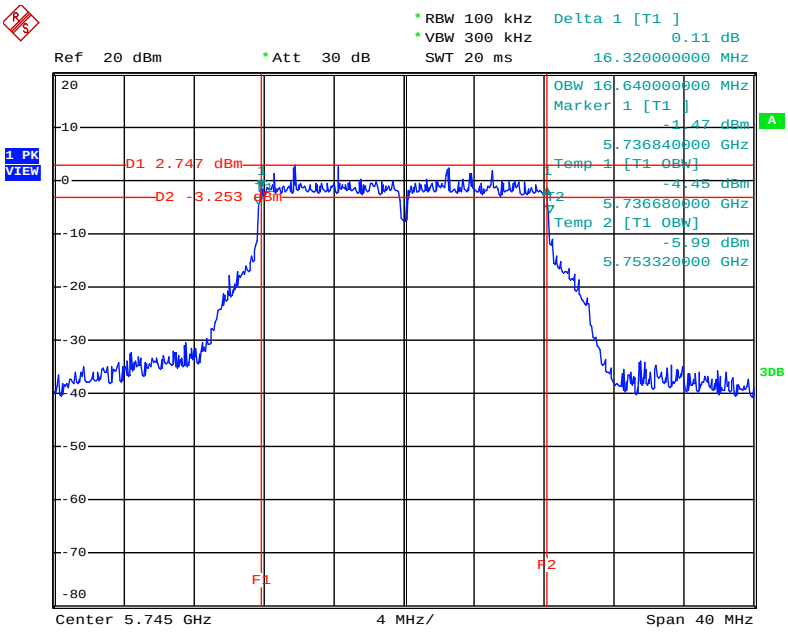
Date: 14.NOV.2014 15:54:11

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



Date: 16.SEP.2014 16:52:22

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

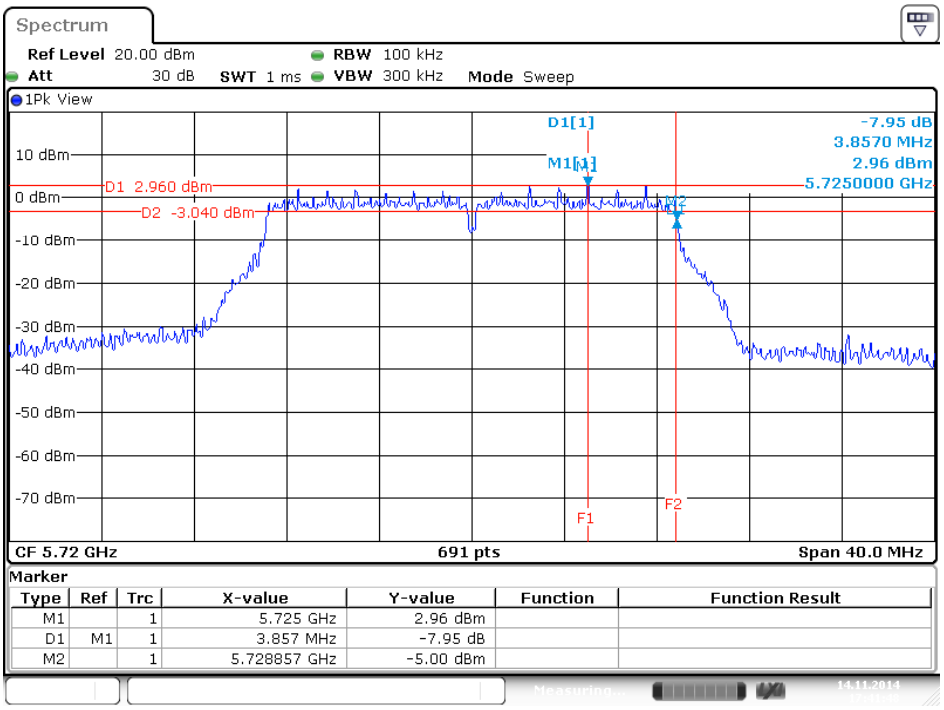


Date: 16.SEP.2014 16:50:34

For beamforming function:

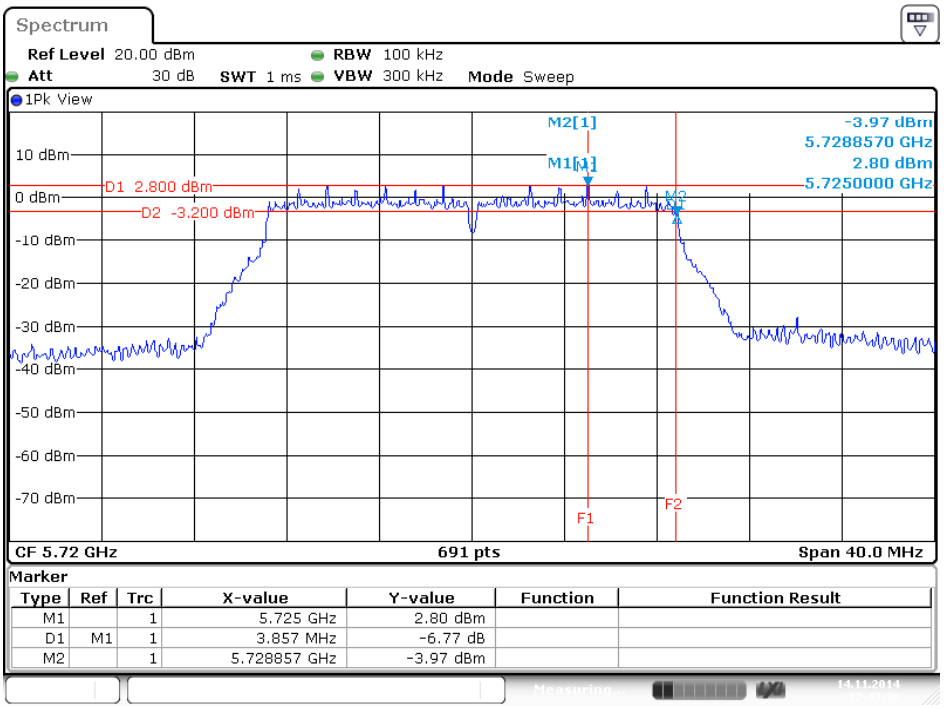
(straddle channel)

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 / 5720 MHz



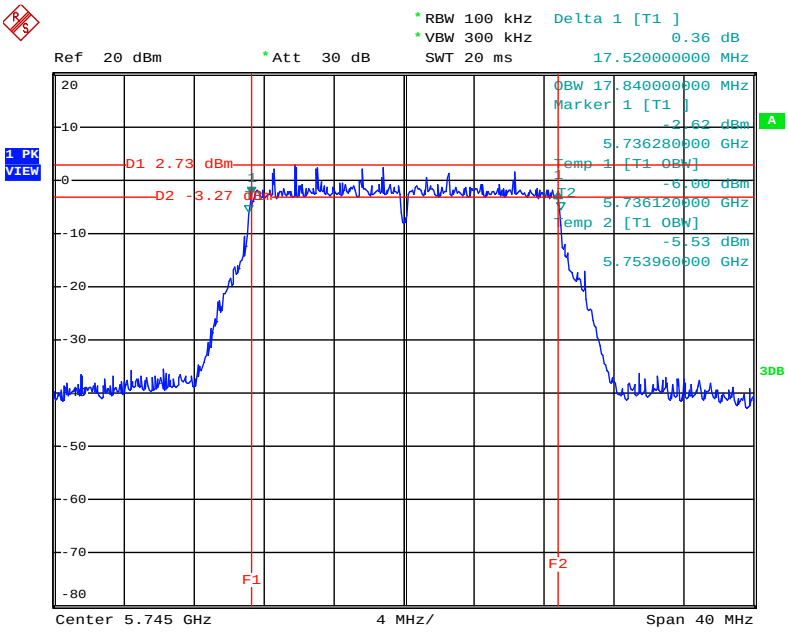
Date: 14.NOV.2014 17:41:48

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 2 / 5720 MHz



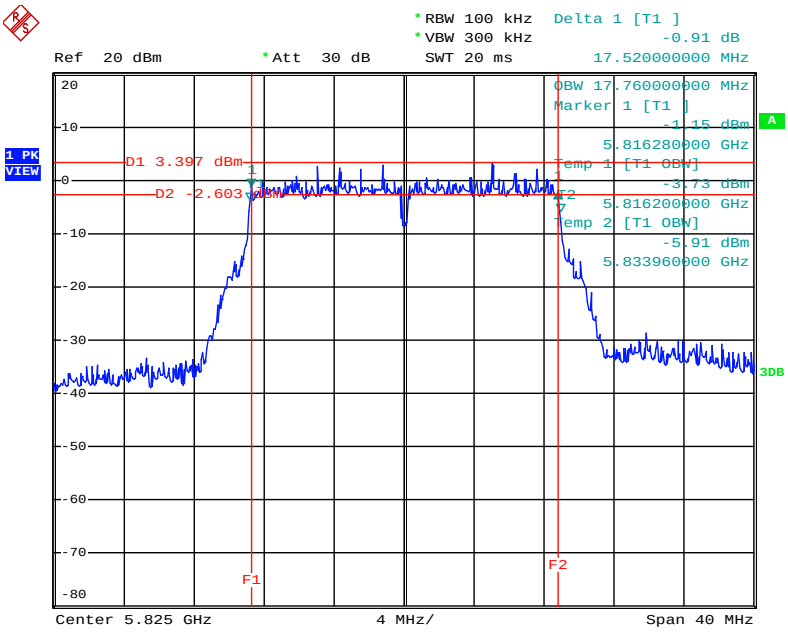
Date: 14.NOV.2014 17:43:31

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



Date: 16.SEP.2014 18:24:01

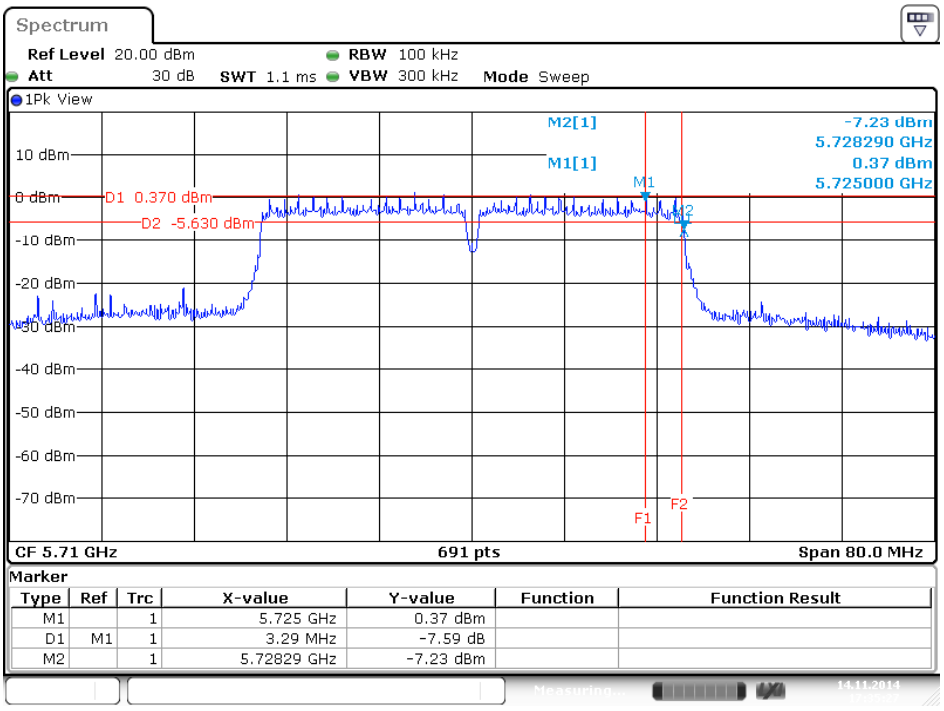
6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 2 / 5825 MHz



Date: 16.SEP.2014 18:27:15

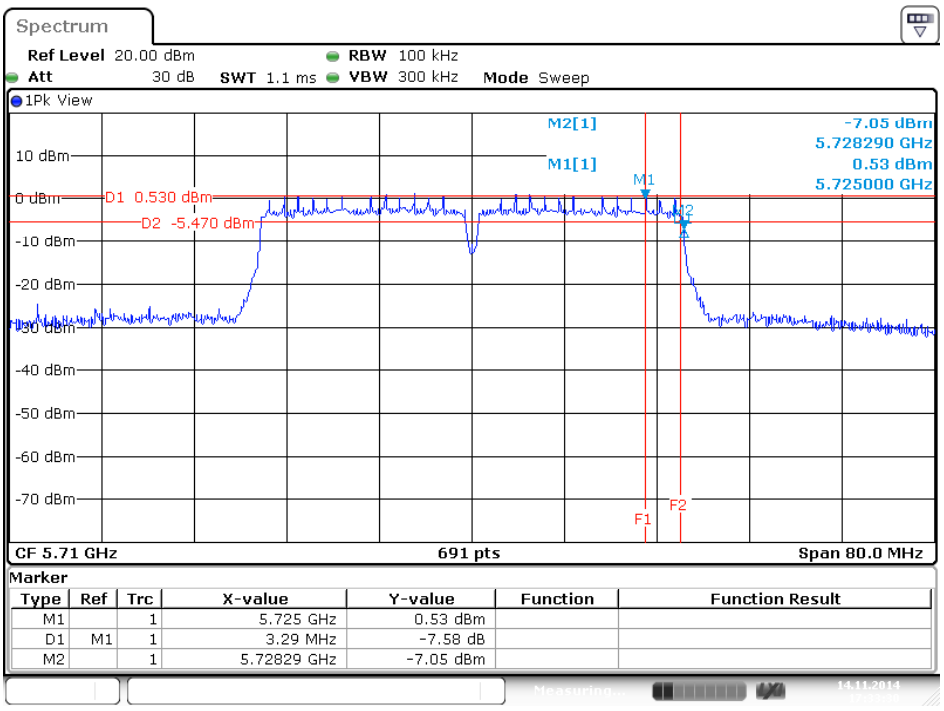
(straddle channel)

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 / 5710 MHz



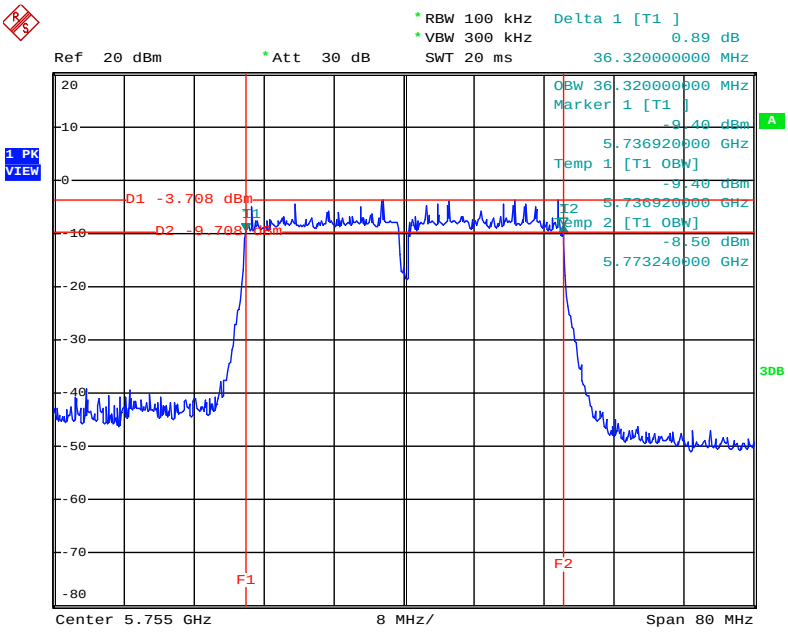
Date: 14.NOV.2014 17:35:27

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 2 / 5710 MHz



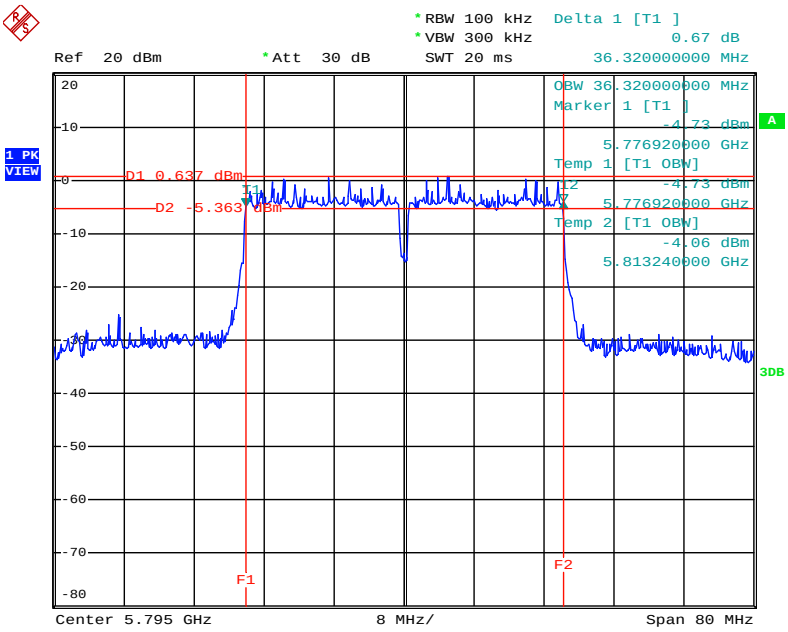
Date: 14.NOV.2014 17:33:30

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



Date: 16.SEP.2014 18:28:44

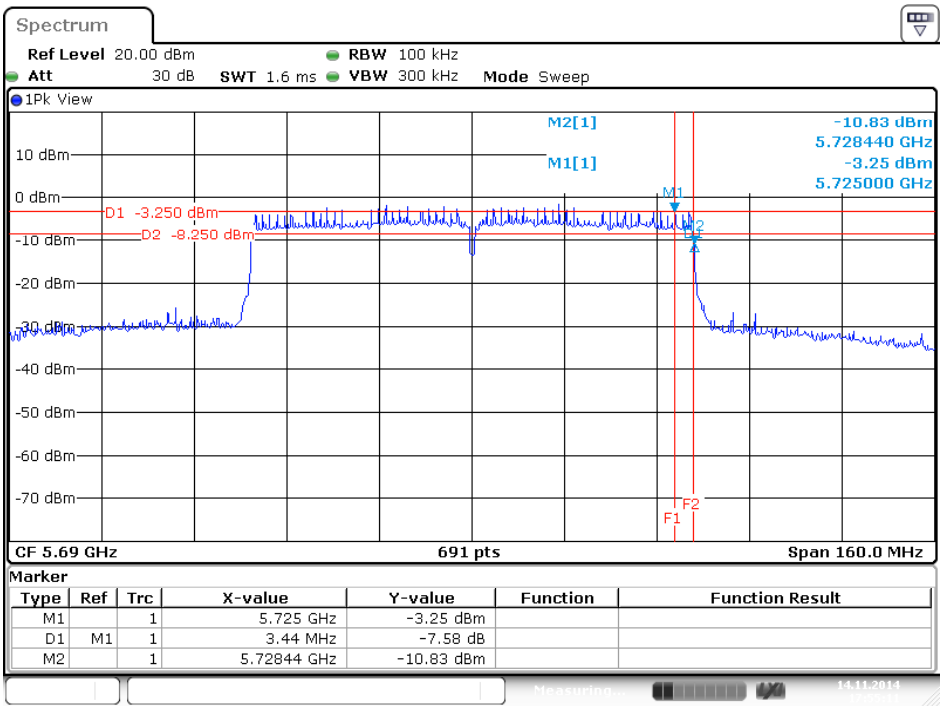
6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 2 / 5795 MHz



Date: 16.SEP.2014 18:29:59

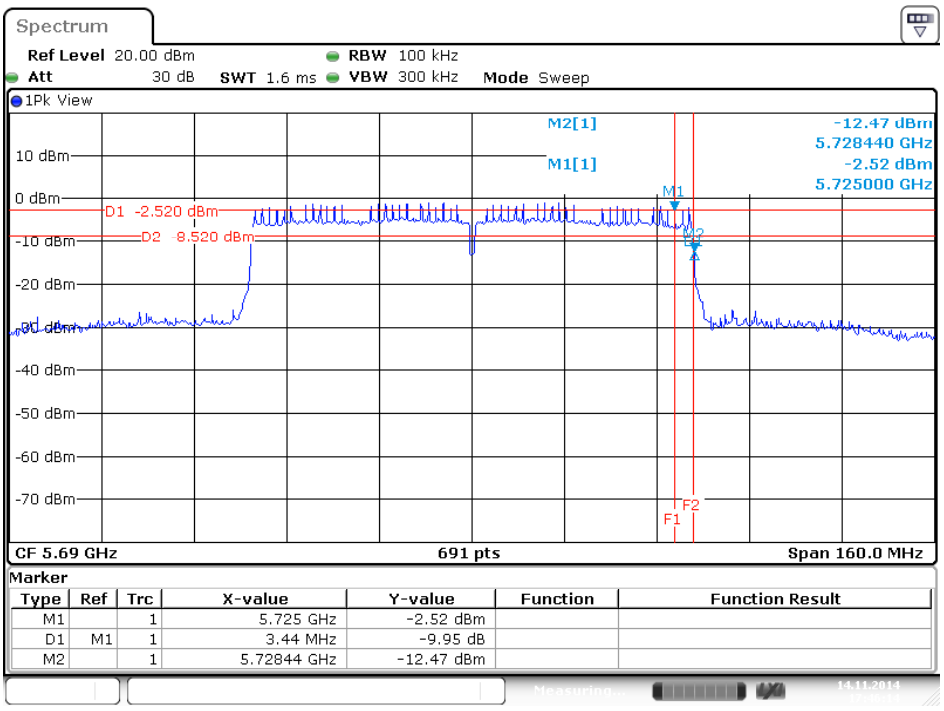
(straddle channel)

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 / 5690 MHz



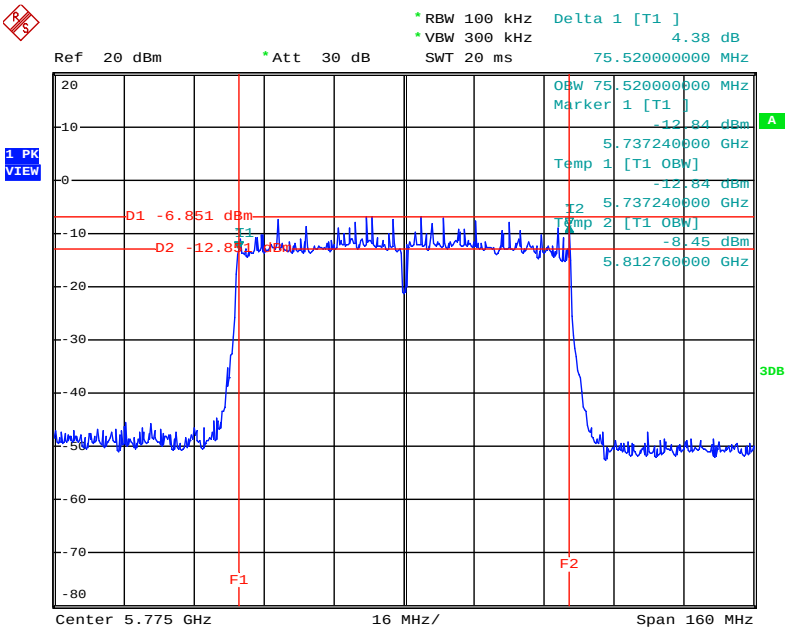
Date: 14.NOV.2014 17:55:11

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 2 / 5690 MHz



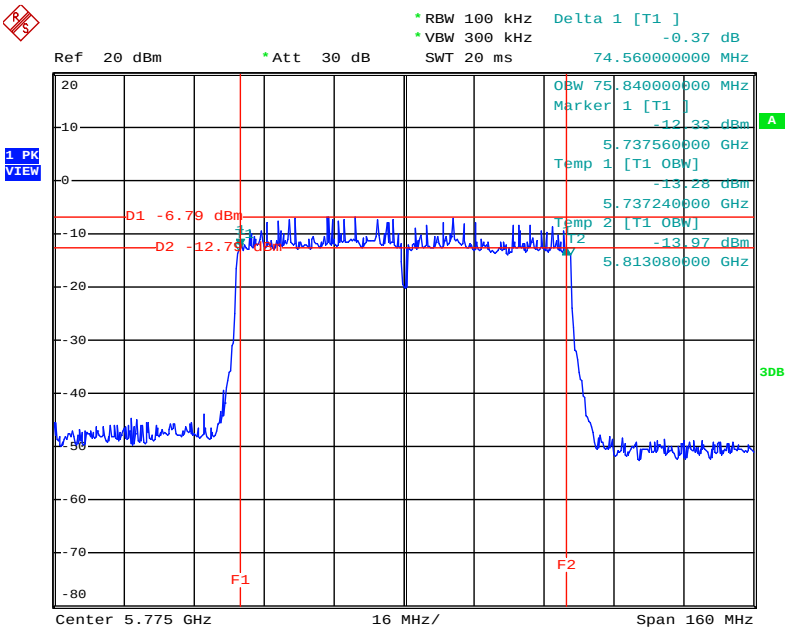
Date: 14.NOV.2014 17:46:14

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



Date: 16.SEP.2014 18:31:31

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



Date: 16.SEP.2014 18:30:54

4.4. Maximum Conducted Output Power Measurement

4.4.1. Limit

For the band 5.15~5.25 GHz, 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.

For the 5.25-5.35 GHz and 5.470-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW (24dBm) or 11 dBm + 10log B, where B is the 26-dB emission bandwidth in MHz. 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.

For the band 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. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

4.4.2. Measuring Instruments and Setting

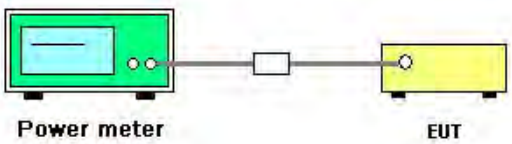
Please refer to section 5 of equipments list in this report. The following table is the setting of the power meter.

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

Temperature	20°C	Humidity	52%
Test Engineer	Robert Chang	Configurations	IEEE 802.11ac
Test Date	Sep. 10, 2014	Test Function	Non-beamforming function

Configuration IEEE 802.11ac MCS0/Nss1 VHT20

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Chain 1	Chain 2	Total		
36	5180 MHz	16.56	16.25	19.42	24.00	Complies
40	5200 MHz	18.95	18.14	21.57	24.00	Complies
48	5240 MHz	18.81	18.17	21.51	24.00	Complies
52	5260 MHz	18.84	18.08	21.49	24.00	Complies
60	5300 MHz	18.87	18.04	21.49	24.00	Complies
64	5320 MHz	16.91	16.88	19.91	24.00	Complies
100	5500 MHz	16.41	16.35	19.39	23.79	Complies
116	5580 MHz	18.37	17.92	21.16	23.79	Complies
140	5700 MHz	16.16	15.42	18.82	23.79	Complies
144	5720 MHz	18.41	17.78	21.12	22.80	Complies
149	5745 MHz	16.07	15.91	19.00	29.79	Complies
157	5785 MHz	18.75	18.68	21.73	29.79	Complies
165	5825 MHz	16.98	16.63	19.82	29.79	Complies

Note: CH100~140 antenna gain=6.21dBi >6dBi, so limit=24 – (6.21 – 6)=23.79dBm.

CH144 antenna gain=6.21dBi >6dBi, and limit=24dBm or 11+10*log(15.88) – (6.21 – 6)

=22.80dBm<24dBm, so limit=22.80dBm.

CH149~165 antenna gain=6.21dBi >6dBi, so limit=30 – (6.21 – 6)=29.79dBm.

Straddle channel complies with output power limit of Band 3 & Band4										
CH	26dB BW (MHz)	99% OBW (MHz)	26dB BW F1 (MHz)	99% OBW T1 (MHz)	UNII B3 BW (MHz)	UNII B4 BW (MHz)	Total Conducted Output Power (dBm)	UNII B3 Limit (dBm)	UNII B4 Limit (dBm)	Result
144	28.00	18.40	5709.12	5710.88	15.88	12.12	21.12	22.80	29.79	Complies

Note: UNII B3 antenna gain=6.21dBi >6dBi, and limit=24dBm or 11+10*log(15.88) – (6.21 – 6)

=22.80dBm<24dBm, so limit=22.80dBm.

UNII B4 antenna gain=6.21dBi >6dBi, so limit=30 – (6.21 – 6)=29.79dBm.

Configuration IEEE 802.11ac MCS0/Nss1 VHT40

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Chain 1	Chain 2	Total		
38	5190 MHz	14.14	13.85	17.01	24.00	Complies
46	5230 MHz	19.34	17.78	21.64	24.00	Complies
54	5270 MHz	19.28	17.54	21.51	24.00	Complies
62	5310 MHz	15.31	15.18	18.26	24.00	Complies
102	5510 MHz	13.25	13.23	16.25	23.79	Complies
110	5550 MHz	19.12	17.57	21.42	23.79	Complies
134	5670 MHz	16.85	16.32	19.60	23.79	Complies
142	5710 MHz	19.25	17.74	21.57	23.79	Complies
151	5755 MHz	12.88	12.59	15.75	29.79	Complies
159	5795 MHz	16.96	16.63	19.81	29.79	Complies

Note: UNII B3 antenna gain=6.21dBi >6dBi, so limit=24 – (6.21 – 6)=23.79dBm.

UNII B4 antenna gain=6.21dBi >6dBi, so limit=30 – (6.21 – 6)=29.79dBm.

Straddle channel complies with output power limit of Band 3 & Band4										
CH	26dB BW (MHz)	99% OBW (MHz)	26dB BW F1 (MHz)	99% OBW T1 (MHz)	UNII B3 BW (MHz)	UNII B4 BW (MHz)	Total Conducted Output Power (dBm)	UNII B3 Limit (dBm)	UNII B4 Limit (dBm)	Result
142	69.12	36.80	5672.24	5691.76	52.76	16.36	21.57	23.79	29.79	Complies

Note: UNII B3 antenna gain=6.21dBi >6dBi, so limit=24 – (6.21 – 6)=23.79dBm.

UNII B4 antenna gain=6.21dBi >6dBi, so limit=30 – (6.21 – 6)=29.79dBm.

Configuration IEEE 802.11ac MCS0/Nss1 VHT80

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Chain 1	Chain 2	Total		
42	5210 MHz	14.37	14.31	17.35	24.00	Complies
58	5290 MHz	14.95	14.63	17.80	24.00	Complies
106	5530 MHz	13.21	13.18	16.21	23.79	Complies
138	5690 MHz	18.52	17.61	21.10	23.79	Complies
155	5775 MHz	13.54	13.22	16.39	29.79	Complies

Note: UNII B3 antenna gain=6.21dBi >6dBi, so limit=24 – (6.21 – 6)=23.79dBm.

UNII B4 antenna gain=6.21dBi >6dBi, so limit=30 – (6.21 – 6)=29.79dBm.

Straddle channel complies with output power limit of Band 3 & Band4										
CH	26dB BW (MHz)	99% OBW (MHz)	26dB BW F1 (MHz)	99% OBW T1 (MHz)	UNII B3 BW (MHz)	UNII B4 BW (MHz)	Total Conducted Output Power (dBm)	UNII B3 Limit (dBm)	UNII B4 Limit (dBm)	Result
138	83.84	76.80	5647.76	5651.60	77.24	6.60	21.10	23.79	29.79	Complies

Note: UNII B3 antenna gain=6.21dBi >6dBi, so limit=24 – (6.21 – 6)=23.79dBm.

UNII B4 antenna gain=6.21dBi >6dBi, so limit=30 – (6.21 – 6)=29.79dBm.

Temperature	20°C	Humidity	52%
Test Engineer	Robert Chang	Configurations	IEEE 802.11a
Test Date	Sep. 10, 2014	Test Function	Non-beamforming function

Configuration IEEE 802.11a

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Chain 1	Chain 2	Total		
36	5180 MHz	16.72	16.45	19.60	24.00	Complies
40	5200 MHz	18.83	18.31	21.59	24.00	Complies
48	5240 MHz	18.82	18.02	21.45	24.00	Complies
52	5260 MHz	18.97	18.03	21.54	24.00	Complies
60	5300 MHz	18.87	18.15	21.54	24.00	Complies
64	5320 MHz	17.05	17.04	20.06	24.00	Complies
100	5500 MHz	16.63	16.57	19.61	23.79	Complies
116	5580 MHz	18.67	17.51	21.14	23.79	Complies
140	5700 MHz	16.45	16.13	19.30	23.79	Complies
144	5720 MHz	18.52	17.78	21.18	22.75	Complies
149	5745 MHz	16.14	16.13	19.15	29.79	Complies
157	5785 MHz	18.72	18.47	21.61	29.79	Complies
165	5825 MHz	17.51	17.12	20.33	29.79	Complies

Note: CH100~140 antenna gain=6.21dBi >6dBi, so limit=24 – (6.21 – 6)=23.79dBm.

CH144 antenna gain=6.21dBi >6dBi, and limit=24dBm or 11+10*log(15.72) – (6.21 – 6)

=22.75dBm<24dBm, so limit=22.75dBm.

CH149~165 antenna gain=6.21dBi >6dBi, so limit=30 – (6.21 – 6)=29.79dBm.

Straddle channel complies with output power limit of Band 3 & Band4										
CH	26dB BW (MHz)	99% OBW (MHz)	26dB BW F1 (MHz)	99% OBW T1 (MHz)	UNII B3 BW (MHz)	UNII B4 BW (MHz)	Total Conducted Output Power (dBm)	UNII B3 Limit (dBm)	UNII B4 Limit (dBm)	Result
144	26.88	17.92	5709.28	5711.20	15.72	11.16	21.18	22.75	29.79	Complies

Note: UNII B3 antenna gain=6.21dBi >6dBi, and limit=24dBm or 11+10*log(15.88) – (6.21 – 6)

=22.80dBm<24dBm, so limit=22.80dBm.

UNII B4 antenna gain=6.21dBi >6dBi, so limit=30 – (6.21 – 6)=29.79dBm.

Temperature	20°C	Humidity	52%
Test Engineer	Robert Chang	Configurations	IEEE 802.11ac
Test Date	Sep. 10, 2014	Test Function	Beamforming function

Configuration IEEE 802.11ac MCS0/Nss1 VHT20

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Chain 1	Chain 2	Total		
36	5180 MHz	17.12	17.21	20.18	21.14	Complies
40	5200 MHz	18.12	17.91	21.03	21.14	Complies
48	5240 MHz	18.17	18.01	21.10	21.14	Complies
52	5260 MHz	18.34	17.87	21.12	21.14	Complies
60	5300 MHz	18.33	17.49	20.94	21.14	Complies
64	5320 MHz	16.67	16.78	19.74	21.14	Complies
100	5500 MHz	17.01	16.95	19.99	20.78	Complies
116	5580 MHz	17.66	17.69	20.69	20.78	Complies
140	5700 MHz	16.16	15.42	18.82	20.78	Complies
144	5720 MHz	16.84	16.44	19.65	19.74	Complies
149	5745 MHz	16.07	15.91	19.00	26.78	Complies
157	5785 MHz	18.75	18.68	21.73	26.78	Complies
165	5825 MHz	16.70	16.46	19.59	26.78	Complies

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

CH36~64 directional gain=8.86dBi>6dBi, so limit=24 – (8.86 – 6)=21.14dBm.

CH100~140 directional gain=9.22dBi>6dBi, so limit=24 – (9.22 – 6)=20.78dBm.

CH144 directional gain=9.22dBi>6dBi and limit=24dBm or 11+10*log(15.72) – (9.22 – 6)
=19.73dBm<24dBm, so limit=19.74dBm.

CH149~165 directional gain=9.22dBi>6dBi, so limit=30 – (9.22 – 6)=26.78dBm.

Straddle channel complies with output power limit of Band 3 & Band4										
CH	26dB BW (MHz)	99% OBW (MHz)	26dB BW F1 (MHz)	99% OBW T1 (MHz)	UNII B3 BW (MHz)	UNII B4 BW (MHz)	Total Conducted Output Power (dBm)	UNII B3 Limit (dBm)	UNII B4 Limit (dBm)	Result
144	21.76	18.24	5709.28	5710.88	15.72	6.04	19.65	19.74	26.78	Complies

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

UNII B3 directional gain=9.22dBi>6dBi and limit=24dBm or 11+10*log(15.72) – (9.22 – 6)
=19.73dBm<24dBm, so limit=19.74dBm.

UNII B4 directional gain=9.22dBi>6dBi, so limit=30 – (9.22 – 6)=26.78dBm.

Configuration IEEE 802.11ac MCS0/Nss1 VHT40

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Chain 1	Chain 2	Total		
38	5190 MHz	13.96	13.75	16.87	21.14	Complies
46	5230 MHz	17.81	18.13	20.98	21.14	Complies
54	5270 MHz	17.97	18.11	21.05	21.14	Complies
62	5310 MHz	15.31	15.18	18.26	21.14	Complies
102	5510 MHz	14.52	14.69	17.62	20.78	Complies
110	5550 MHz	17.59	17.80	20.71	20.78	Complies
134	5670 MHz	16.85	16.32	19.60	20.78	Complies
142	5710 MHz	17.66	17.21	20.45	20.78	Complies
151	5755 MHz	12.88	12.59	15.75	26.78	Complies
159	5795 MHz	16.77	16.55	19.67	26.78	Complies

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

UNII B1 directional gain=8.86dBi>6dBi, so limit=24 – (8.86 – 6)=21.14dBm.

UNII B2 directional gain=8.86dBi>6dBi, so limit=24 – (8.86 – 6)=21.14dBm.

UNII B3 directional gain=9.22dBi>6dBi, so limit=24 – (9.22 – 6)=20.78dBm.

UNII B4 directional gain=9.22dBi>6dBi, so limit=30 – (9.22 – 6)=26.78dBm.

Straddle channel complies with output power limit of Band 3 & Band4										
CH	26dB BW (MHz)	99% OBW (MHz)	26dB BW F1 (MHz)	99% OBW T1 (MHz)	UNII B3 BW (MHz)	UNII B4 BW (MHz)	Total Conducted Output Power (dBm)	UNII B3 Limit (dBm)	UNII B4 Limit (dBm)	Result
142	48.32	36.48	5690.16	5691.76	34.84	13.48	20.45	20.78	26.78	Complies

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

UNII B3 directional gain=9.22dBi>6dBi, so limit=24 – (9.22 – 6)=20.78dBm.

UNII B4 directional gain=9.22dBi>6dBi, so limit=30 – (9.22 – 6)=26.78dBm.

Configuration IEEE 802.11ac MCS0/Nss1 VHT80

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Chain 1	Chain 2	Total		
42	5210 MHz	14.12	14.23	17.19	21.14	Complies
58	5290 MHz	14.95	14.63	17.80	21.14	Complies
106	5530 MHz	13.88	14.09	17.00	20.78	Complies
138	5690 MHz	17.66	17.23	20.46	20.78	Complies
155	5775 MHz	11.52	11.43	14.49	26.78	Complies

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

UNII B1 directional gain=8.86dBi>6dBi, so limit=24 – (8.86 – 6)=21.14dBm.

UNII B2 directional gain=8.86dBi>6dBi, so limit=24 – (8.86 – 6)=21.14dBm.

UNII B3 directional gain=9.22dBi>6dBi, so limit=24 – (9.22 – 6)=20.78dBm.

UNII B4 directional gain=9.22dBi>6dBi, so limit=30 – (9.22 – 6)=26.78dBm.

Straddle channel complies with output power limit of Band 3 & Band4										
CH	26dB BW (MHz)	99% OBW (MHz)	26dB BW F1 (MHz)	99% OBW T1 (MHz)	UNII B3 BW (MHz)	UNII B4 BW (MHz)	Total Conducted Output Power (dBm)	UNII B3 Limit (dBm)	UNII B4 Limit (dBm)	Result
138	110.72	76.8	5631.76	5651.60	93.24	17.48	20.46	20.78	26.78	Complies

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

UNII B3 directional gain=9.22dBi>6dBi, so limit=24 – (9.22 – 6)=20.78dBm.

UNII B4 directional gain=9.22dBi>6dBi, so limit=30 – (9.22 – 6)=26.78dBm.

Temperature	20°C	Humidity	52%
Test Engineer	Jim Huang	Configurations	IEEE 802.11n
Test Date	Sep. 02, 2014	Test Function	STBC function

Configuration IEEE 802.11n MCS0 HT20

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Chain 1	Chain 2	Total		
36	5180 MHz	17.28	17.11	20.21	24.00	Complies
40	5200 MHz	19.07	18.33	21.73	24.00	Complies
48	5240 MHz	19.24	17.58	21.50	24.00	Complies

Temperature	20°C	Humidity	52%
Test Engineer	Robert Chang	Configurations	IEEE 802.11ac
Test Date	Sep. 10, 2014	Test Function	Power table for SAR only

Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Power table for SAR only

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Chain 1	Chain 2	Total		
36	5180 MHz	14.06	13.72	16.90	24.00	Complies
40	5200 MHz	14.04	13.71	16.89	24.00	Complies
44	5220 MHz	14.11	13.78	16.96	24.00	Complies
48	5240 MHz	14.02	13.85	16.95	24.00	Complies
52	5260 MHz	13.96	13.91	16.95	24.00	Complies
56	5280 MHz	14.02	13.81	16.93	24.00	Complies
60	5300 MHz	13.89	13.86	16.89	24.00	Complies
64	5320 MHz	14.01	13.82	16.93	24.00	Complies
100	5500 MHz	13.39	13.21	16.31	23.79	Complies
104	5520 MHz	13.28	13.19	16.25	23.79	Complies
108	5540 MHz	13.36	13.32	16.35	23.79	Complies
112	5560 MHz	13.32	13.28	16.31	23.79	Complies
116	5580 MHz	13.35	13.34	16.36	23.79	Complies
120	5600 MHz	13.31	13.26	16.30	23.79	Complies
124	5620 MHz	13.44	13.42	16.44	23.79	Complies
128	5640 MHz	13.41	13.17	16.30	23.79	Complies
132	5660 MHz	13.48	13.34	16.42	23.79	Complies
136	5680 MHz	13.44	13.24	16.35	23.79	Complies
140	5700 MHz	13.65	13.16	16.42	23.79	Complies
144	5720 MHz	13.59	13.03	16.33	22.80	Complies
149	5745 MHz	14.02	13.85	16.95	29.79	Complies
153	5765 MHz	14.04	13.87	16.97	29.79	Complies
157	5785 MHz	14.07	13.71	16.90	29.79	Complies
161	5805 MHz	14.03	13.78	16.92	29.79	Complies
165	5825 MHz	13.94	13.81	16.89	29.79	Complies

Note: CH100~140 antenna gain=6.21dBi >6dBi, so limit=24 – (6.21 – 6)=23.79dBm.

CH144 antenna gain=6.21dBi >6dBi, and limit=24dBm or 11+10*log(15.88) – (6.21 – 6)

=22.80dBm<24dBm, so limit=22.80dBm.

CH149~165 antenna gain=6.21dBi >6dBi, so limit=30 – (6.21 – 6)=29.79dBm.

Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Power table for SAR only

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Chain 1	Chain 2	Total		
38	5190 MHz	13.89	13.86	16.89	24.00	Complies
46	5230 MHz	13.98	13.82	16.91	24.00	Complies
54	5270 MHz	13.89	13.74	16.83	24.00	Complies
62	5310 MHz	13.85	13.94	16.91	24.00	Complies
102	5510 MHz	13.25	13.23	16.25	23.79	Complies
110	5550 MHz	13.32	13.15	16.25	23.79	Complies
118	5590 MHz	13.38	13.31	16.36	23.79	Complies
126	5630 MHz	13.33	13.25	16.30	23.79	Complies
134	5670 MHz	13.41	13.22	16.33	23.79	Complies
142	5710 MHz	13.37	13.21	16.30	23.79	Complies
151	5755 MHz	12.88	12.59	15.75	29.79	Complies
159	5795 MHz	14.02	13.85	16.95	29.79	Complies

Note: UNII B3 antenna gain=6.21dBi >6dBi, so limit=24 – (6.21 – 6)=23.79dBm.

UNII B4 antenna gain=6.21dBi >6dBi, so limit=30 – (6.21 – 6)=29.79dBm.

Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Power table for SAR only

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Chain 1	Chain 2	Total		
42	5210 MHz	14.04	13.82	16.94	24.00	Complies
58	5290 MHz	13.99	13.87	16.94	24.00	Complies
106	5530 MHz	13.48	13.32	16.41	23.79	Complies
122	5610 MHz	13.45	13.23	16.35	23.79	Complies
138	5690 MHz	13.55	13.06	16.32	23.79	Complies
155	5775 MHz	13.54	13.22	16.39	29.79	Complies

Note: UNII B3 antenna gain=6.21dBi >6dBi, so limit=24 – (6.21 – 6)=23.79dBm.

UNII B4 antenna gain=6.21dBi >6dBi, so limit=30 – (6.21 – 6)=29.79dBm.

Temperature	20°C	Humidity	52%
Test Engineer	Robert Chang	Configurations	IEEE 802.11a
Test Date	Sep. 10, 2014	Test Function	Power table for SAR only

Configuration IEEE 802.11a / Power table for SAR only

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Chain 1	Chain 2	Total		
36	5180 MHz	13.95	13.81	16.89	24.00	Complies
40	5200 MHz	13.91	13.89	16.91	24.00	Complies
44	5220 MHz	13.73	13.71	16.73	24.00	Complies
48	5240 MHz	13.94	13.83	16.90	24.00	Complies
52	5260 MHz	13.89	13.83	16.87	24.00	Complies
56	5280 MHz	14.01	13.74	16.89	24.00	Complies
60	5300 MHz	13.97	13.82	16.91	24.00	Complies
64	5320 MHz	13.83	13.79	16.82	24.00	Complies
100	5500 MHz	13.13	13.08	16.12	23.79	Complies
104	5520 MHz	13.15	13.05	16.11	23.79	Complies
108	5540 MHz	13.11	13.04	16.09	23.79	Complies
112	5560 MHz	13.12	13.07	16.11	23.79	Complies
116	5580 MHz	13.25	13.21	16.24	23.79	Complies
120	5600 MHz	13.09	13.07	16.09	23.79	Complies
124	5620 MHz	13.12	13.08	16.11	23.79	Complies
128	5640 MHz	13.15	13.08	16.13	23.79	Complies
132	5660 MHz	13.17	13.02	16.11	23.79	Complies
136	5680 MHz	13.16	13.08	16.13	23.79	Complies
140	5700 MHz	13.36	13.02	16.20	23.79	Complies
144	5720 MHz	13.17	13.04	16.12	22.80	Complies
149	5745 MHz	13.92	13.82	16.88	29.79	Complies
153	5765 MHz	13.94	13.81	16.89	29.79	Complies
157	5785 MHz	14.04	13.78	16.92	29.79	Complies
161	5805 MHz	13.85	13.73	16.80	29.79	Complies
165	5825 MHz	14.02	13.76	16.90	29.79	Complies

4.5. Power Spectral Density Measurement

4.5.1. Limit

The power spectral density is defined as the highest level of power in dBm per MHz generated by the transmitter within the power envelope. The following table is power spectral density limits and decrease power density limit rule refer to section 4.4.1.

Frequency Range	Power Spectral Density limit
5.15~5.25 GHz	11 dBm/MHz
5.25-5.35 GHz	11 dBm/MHz
5.470-5.725 GHz	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 5.15-5.35 GHz / 5.470-5.725 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 5.15-5.35 GHz / 5.470-5.725 GHz

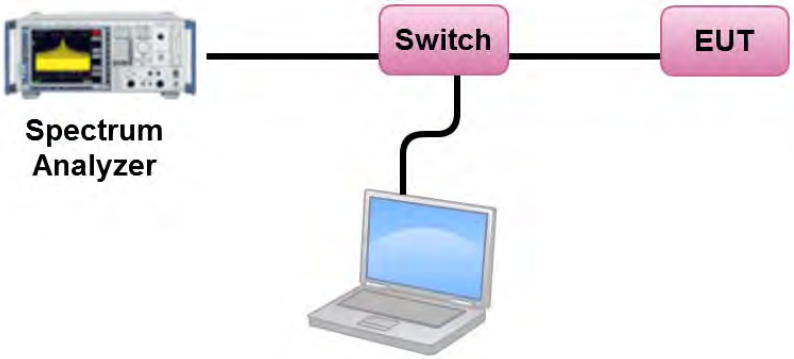
1. The transmitter output (antenna port) was connected RF switch to the spectrum analyzer.
2. Test was performed in accordance with KDB789033 D02 v01 for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - section (F) Maximum Power Spectral Density (PSD).
3. Multiple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

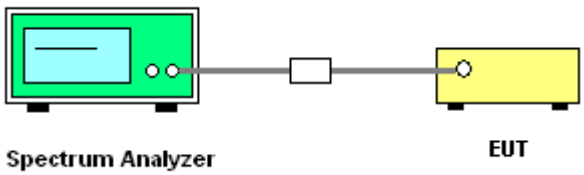
1. Test procedures refer KDB662911 D01 v02r01 section In-Band Power Spectral Density (PSD) Measurements option (b) Measure and sum spectral maximal across the outputs.
2. Use this procedure when the maximum conducted output power in the fundamental emission is used to demonstrate compliance. The EUT 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 5.15-5.35 GHz / 5.470-5.725 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

Temperature	20°C	Humidity	52%
Test Engineer	Robert Chang	Configurations	IEEE 802.11ac
Test Function	Non-beamforming function		

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

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	5.75	8.14	Complies
40	5200 MHz	7.90	8.14	Complies
48	5240 MHz	7.85	8.14	Complies
52	5260 MHz	7.87	8.14	Complies
60	5300 MHz	7.92	8.14	Complies
64	5320 MHz	6.43	8.14	Complies
100	5500 MHz	5.80	7.78	Complies
116	5580 MHz	7.54	7.78	Complies
140	5700 MHz	5.36	7.78	Complies
144	5720 MHz	7.63	7.78	Complies

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

For UNII B1, directional gain=8.86dBi>6dBi, so limit=11 – (8.86 – 6)=8.14dBm/MHz.

For UNII B2, directional gain=8.86dBi>6dBi, so limit=11 – (8.86 – 6)=8.14dBm/MHz.

For UNII B3, directional gain=9.22dBi>6dBi, so limit=11 – (9.22 – 6)=7.78dBm/MHz.

Channel	Frequency	Power Density (dBm/3kHz)			BWCF factor	Total Power Density	Power Density Limit	Result
		Chain 1	Chain 2	Total	3kHz to 500kHz	dBm/500kHz		
149	5745 MHz	-11.82	-11.84	-8.82	22.22	13.40	26.78	Complies
157	5785 MHz	-8.82	-9.08	-5.94	22.22	16.28	26.78	Complies
165	5825 MHz	-9.84	-10.66	-7.22	22.22	15.00	26.78	Complies

Note: Directional gain= $10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =9.22dBi>6dBi, so limit=30 – (9.22 – 6)=26.78dBm/500kHz.

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

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	0.97	8.14	Complies
46	5230 MHz	5.34	8.14	Complies
54	5270 MHz	5.54	8.14	Complies
62	5310 MHz	2.06	8.14	Complies
102	5510 MHz	0.15	7.78	Complies
110	5550 MHz	5.66	7.78	Complies
134	5670 MHz	3.59	7.78	Complies
142	5710 MHz	5.82	7.78	Complies

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

For UNII B1, directional gain=8.86dBi>6dBi, so limit=11 – (8.86 – 6)=8.14dBm/MHz.

For UNII B2, directional gain=8.86dBi>6dBi, so limit=11 – (8.86 – 6)=8.14dBm/MHz.

For UNII B3, directional gain=9.22dBi>6dBi, so limit=11 – (9.22 – 6)=7.78dBm/MHz.

Channel	Frequency	Power Density (dBm/3kHz)			BWCF factor	Total Power Density	Power Density Limit	Result
		Chain 1	Chain 2	Total	3kHz to 500kHz	dBm/500kHz		
151	5755 MHz	-18.18	-18.44	-15.30	22.22	6.92	26.78	Complies
159	5795 MHz	-14.27	-13.69	-10.96	22.22	11.26	26.78	Complies

Note: Directional gain= $10 \cdot \log\left[\frac{\sum_{j=1}^{N_{Sym}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =9.22dBi>6dBi, so limit=30 – (9.22 – 6)=26.78dBm/500kHz.

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

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
42	5210 MHz	-1.53	8.14	Complies
58	5290 MHz	-1.05	8.14	Complies
106	5530 MHz	-2.47	7.78	Complies
138	5690 MHz	2.17	7.78	Complies

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

For UNII B1, directional gain=8.86dBi>6dBi, so limit=11 – (8.86 – 6)=8.14dBm/MHz.

For UNII B2, directional gain=8.86dBi>6dBi, so limit=11 – (8.86 – 6)=8.14dBm/MHz.

For UNII B3, directional gain=9.22dBi>6dBi, so limit=11 – (9.22 – 6)=7.78dBm/MHz.

Channel	Frequency	Power Density (dBm/3kHz)			BWCF factor	Total Power Density	Power Density Limit	Result
		Chain 1	Chain 2	Total	3kHz to 500kHz	dBm/500kHz		
155	5775 MHz	-19.98	-19.88	-16.92	22.22	5.30	26.78	Complies

Note: Directional gain= $10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =9.22dBi>6dBi, so limit=30 – (9.22 – 6)=26.78dBm/500kHz.

Temperature	20°C	Humidity	52%
Test Engineer	Robert Chang	Configurations	IEEE 802.11a
Test Function	Non-beamforming function		

Configuration IEEE 802.11a / Chain 1 + Chain 2

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	6.20	8.14	Complies
40	5200 MHz	8.12	8.14	Complies
48	5240 MHz	7.96	8.14	Complies
52	5260 MHz	8.02	8.14	Complies
60	5300 MHz	8.09	8.14	Complies
64	5320 MHz	6.68	8.14	Complies
100	5500 MHz	6.11	7.78	Complies
116	5580 MHz	7.75	7.78	Complies
140	5700 MHz	5.78	7.78	Complies
144	5720 MHz	7.65	7.78	Complies

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

For UNII B1, directional gain=8.86dBi>6dBi, so limit=11 – (8.86 – 6)=8.14dBm/MHz.

For UNII B2, directional gain=8.86dBi>6dBi, so limit=11 – (8.86 – 6)=8.14dBm/MHz.

For UNII B3, directional gain=9.22dBi>6dBi, so limit=11 – (9.22 – 6)=7.78dBm/MHz.

Channel	Frequency	Power Density (dBm/3kHz)			BWCF factor	Total Power Density	Power Density Limit	Result
		Chain 1	Chain 2	Total	3kHz to 500kHz	dBm/500kHz		
149	5745 MHz	-10.98	-11.54	-8.24	22.22	13.98	26.78	Complies
157	5785 MHz	-9.11	-8.41	-5.74	22.22	16.48	26.78	Complies
165	5825 MHz	-10.58	-10.38	-7.47	22.22	14.75	26.78	Complies

Note: Directional gain= $10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =9.22dBi>6dBi, so limit=30 – (9.22 – 6)=26.78dBm/500kHz.

Temperature	20°C	Humidity	52%
Test Engineer	Robert Chang	Configurations	IEEE 802.11ac
Test Function	Beamforming function		

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

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	6.40	8.14	Complies
40	5200 MHz	7.67	8.14	Complies
48	5240 MHz	8.06	8.14	Complies
52	5260 MHz	8.07	8.14	Complies
60	5300 MHz	7.75	8.14	Complies
64	5320 MHz	6.39	8.14	Complies
100	5500 MHz	6.68	7.78	Complies
116	5580 MHz	7.55	7.78	Complies
140	5700 MHz	5.34	7.78	Complies
144	5720 MHz	6.66	7.78	

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

For UNII B1, directional gain=8.86dBi>6dBi, so limit=11 – (8.86 – 6)=8.14dBm/MHz.

For UNII B2, directional gain=8.86dBi>6dBi, so limit=11 – (8.86 – 6)=8.14dBm/MHz.

For UNII B3, directional gain=9.22dBi>6dBi, so limit=11 – (9.22 – 6)=7.78dBm/MHz.

Channel	Frequency	Power Density (dBm/3kHz)			BWCF factor	Total Power Density	Power Density Limit	Result
		Chain 1	Chain 2	Total	3kHz to 500kHz	dBm/500kHz		
149	5745 MHz	-11.02	-10.40	-7.69	22.22	14.53	26.78	Complies
157	5785 MHz	-8.30	-7.94	-5.11	22.22	17.11	26.78	Complies
165	5825 MHz	-11.65	-10.61	-8.09	22.22	14.13	26.78	Complies

Note: Directional gain= $10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =9.22dBi>6dBi, so limit=30 – (9.22 – 6)=26.78dBm/500kHz.

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

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	0.19	8.14	Complies
46	5230 MHz	4.59	8.14	Complies
54	5270 MHz	4.66	8.14	Complies
62	5310 MHz	1.91	8.14	Complies
102	5510 MHz	1.19	7.78	Complies
110	5550 MHz	4.57	7.78	Complies
134	5670 MHz	2.97	7.78	Complies
142	5710 MHz	3.59	7.78	Complies

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

For UNII B1, directional gain=8.86dBi>6dBi, so limit=11 – (8.86 – 6)=8.14dBm/MHz.

For UNII B2, directional gain=8.86dBi>6dBi, so limit=11 – (8.86 – 6)=8.14dBm/MHz.

For UNII B3, directional gain=9.22dBi>6dBi, so limit=11 – (9.22 – 6)=7.78dBm/MHz.

Channel	Frequency	Power Density (dBm/3kHz)			BWCF factor	Total Power Density	Power Density Limit	Result
		Chain 1	Chain 2	Total	3kHz to 500kHz	dBm/500kHz		
151	5755 MHz	-17.80	-18.15	-14.96	22.22	7.26	26.78	Complies
159	5795 MHz	-13.90	-13.51	-10.69	22.22	11.53	26.78	Complies

Note: Directional gain= $10 \cdot \log\left[\frac{\sum_{j=1}^{N_{Sym}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =9.22dBi>6dBi, so limit=30 – (9.22 – 6)=26.78dBm/500kHz.

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

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
42	5210 MHz	-2.00	8.14	Complies
58	5290 MHz	-1.39	8.14	Complies
106	5530 MHz	-2.30	7.78	Complies
138	5690 MHz	0.71	7.78	Complies

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

For UNII B1, directional gain=8.86dBi>6dBi, so limit=11 – (8.86 – 6)=8.14dBm/MHz.

For UNII B2, directional gain=8.86dBi>6dBi, so limit=11 – (8.86 – 6)=8.14dBm/MHz.

For UNII B3, directional gain=9.22dBi>6dBi, so limit=11 – (9.22 – 6)=7.78dBm/MHz.

Channel	Frequency	Power Density (dBm/3kHz)			BWCF factor	Total Power Density	Power Density Limit	Result
		Chain 1	Chain 2	Total	3kHz to 500kHz	dBm/500kHz		
155	5775 MHz	-21.30	-22.01	-18.63	22.22	3.59	26.78	Complies

Note: Directional gain= $10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =9.22dBi>6dBi, so limit=30 – (9.22 – 6)=26.78dBm/500kHz.

Temperature	20°C	Humidity	52%
Test Engineer	Jim Huang	Configurations	IEEE 802.11n
Test Function	STBC function		

Configuration IEEE 802.11n MCS0 HT20 / Chain 1 + Chain 2

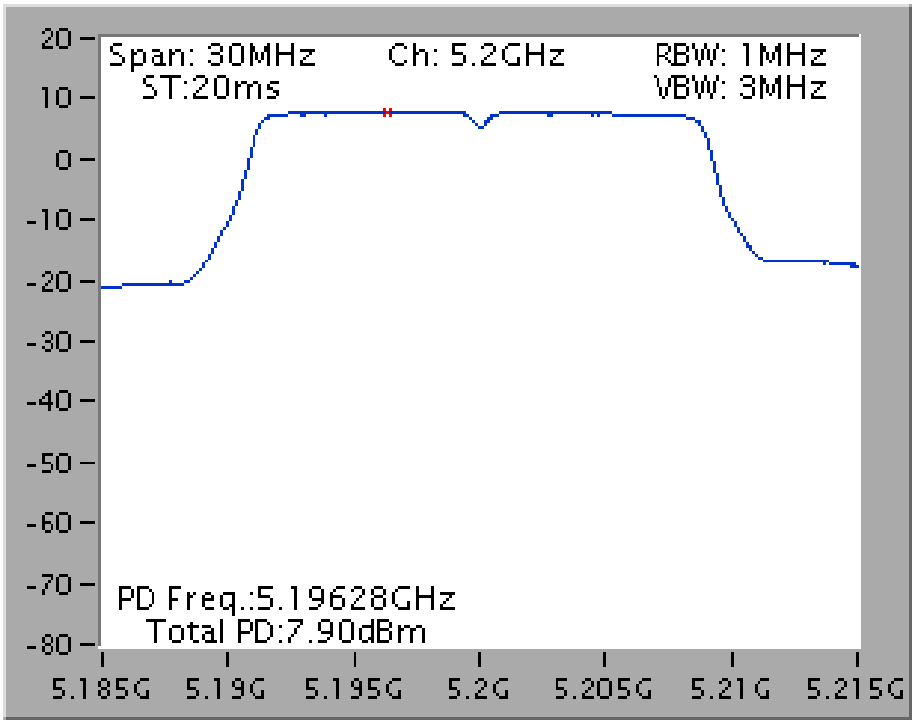
Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	7.08	11.00	Complies
40	5200 MHz	8.33	11.00	Complies
48	5240 MHz	8.15	11.00	Complies

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

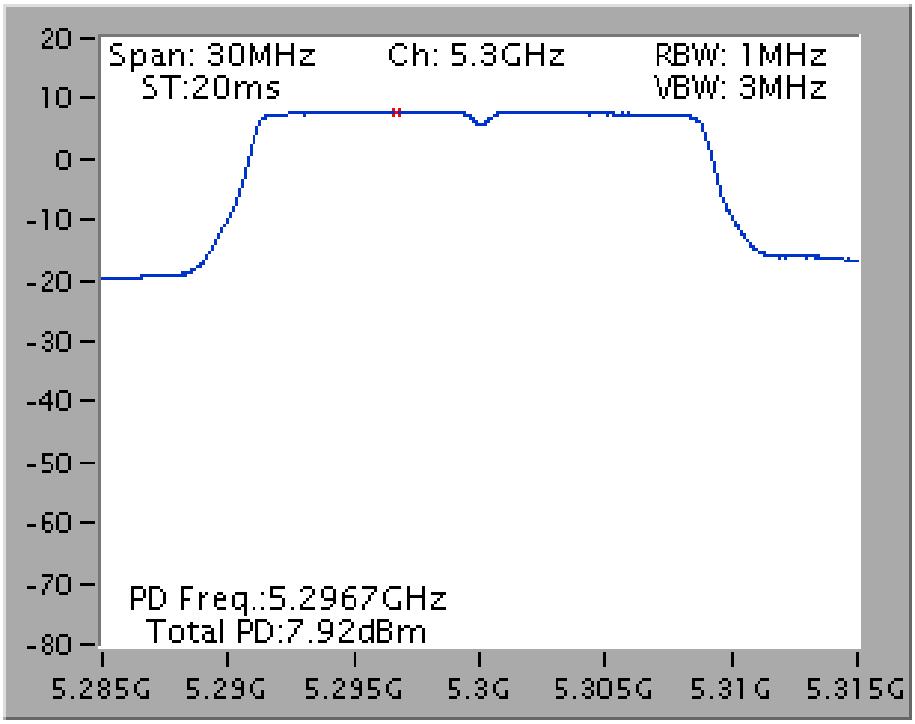
For plots, only the channel with worse result was shown.

For non-beamforming function:

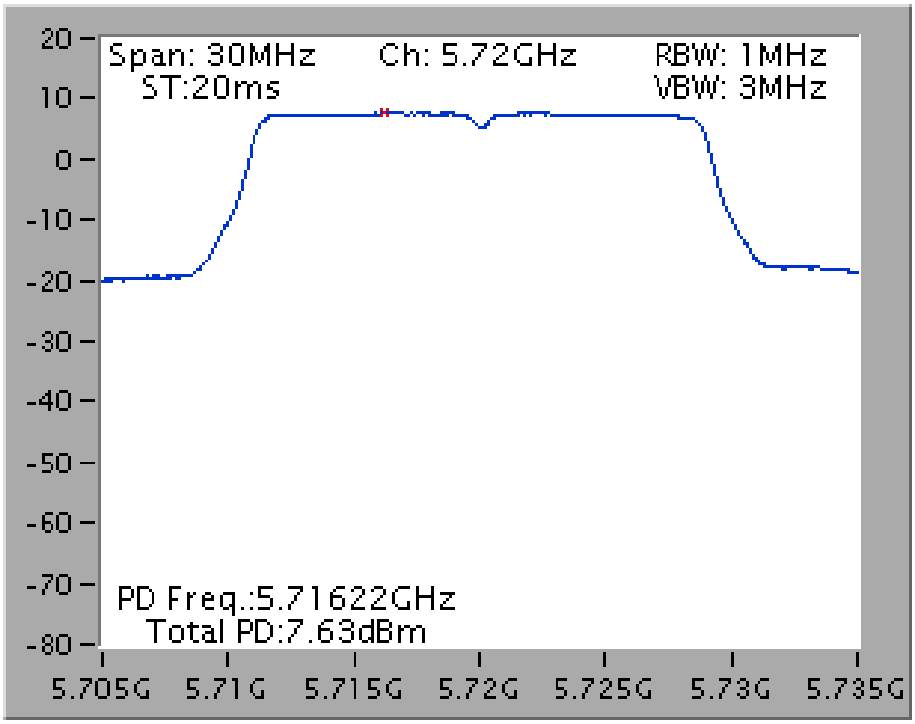
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 / 5200 MHz



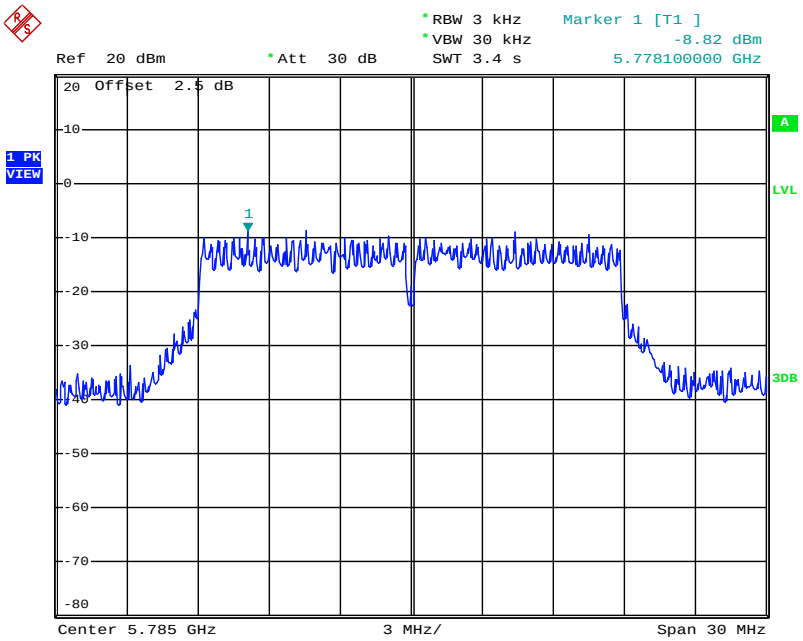
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 / 5300 MHz



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 / 5720 MHz



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



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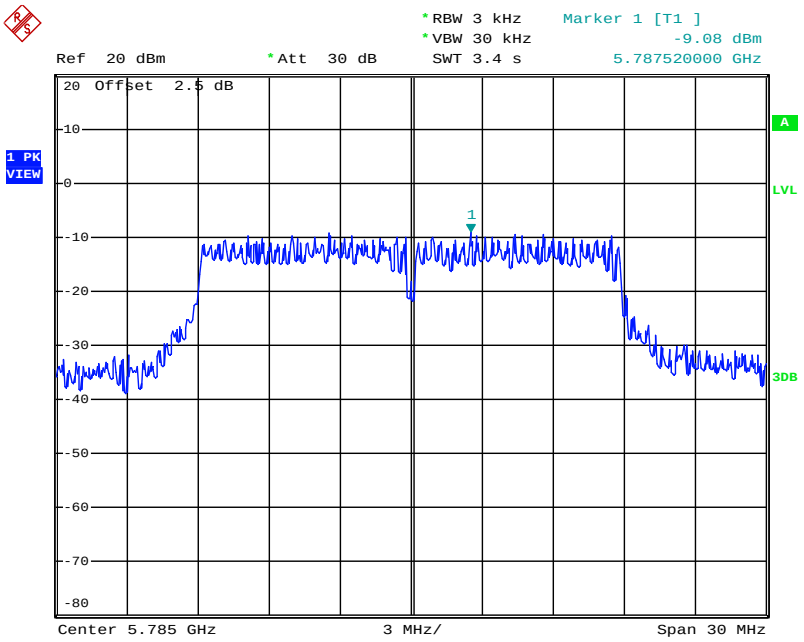
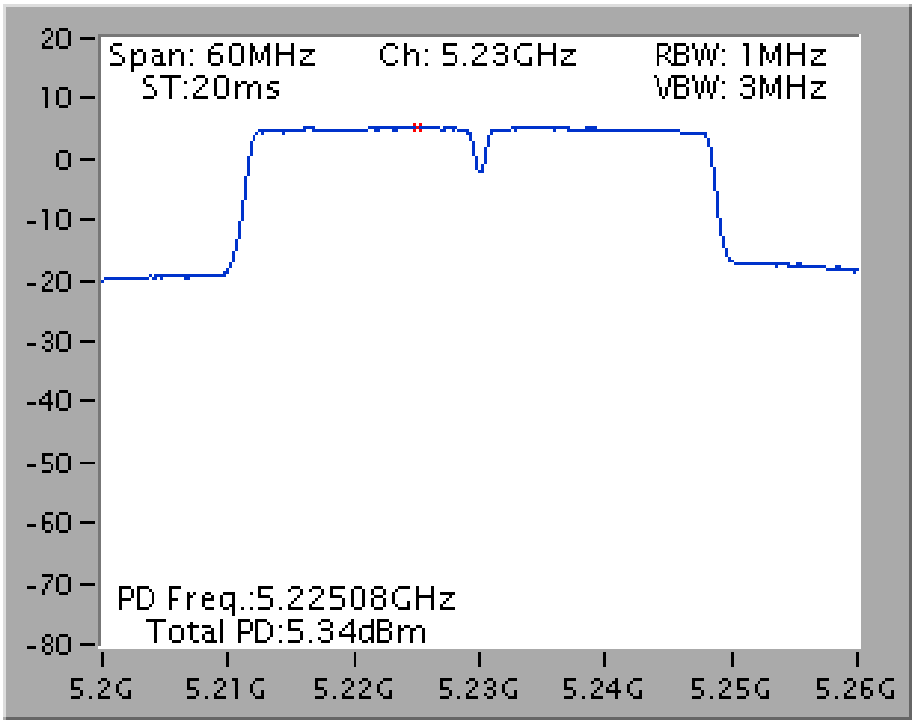
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 2 / 5785 MHz

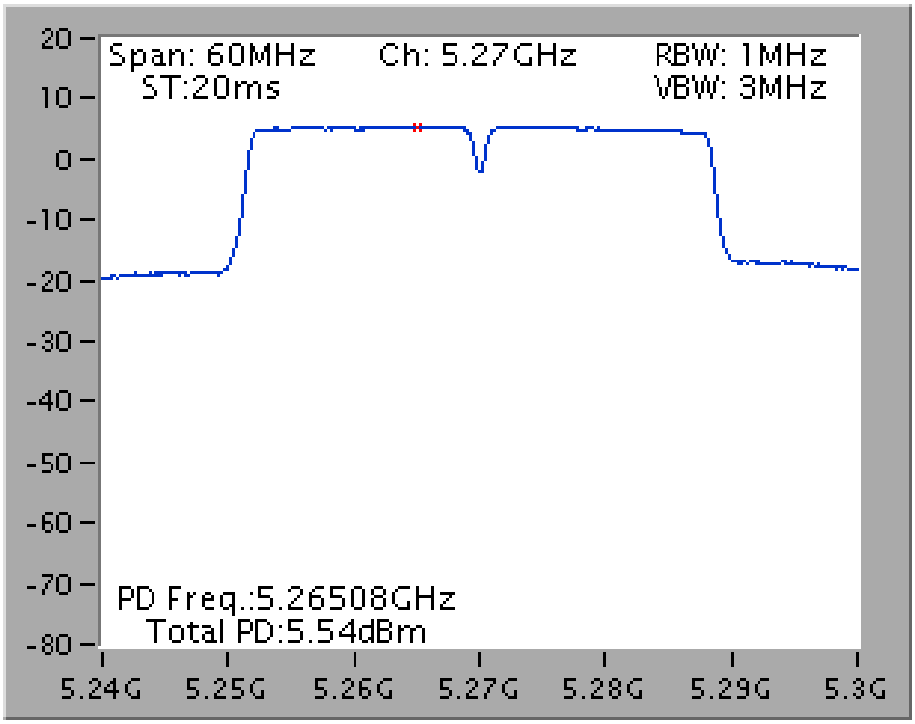


Date: 11.SEP.2014 11:23:38

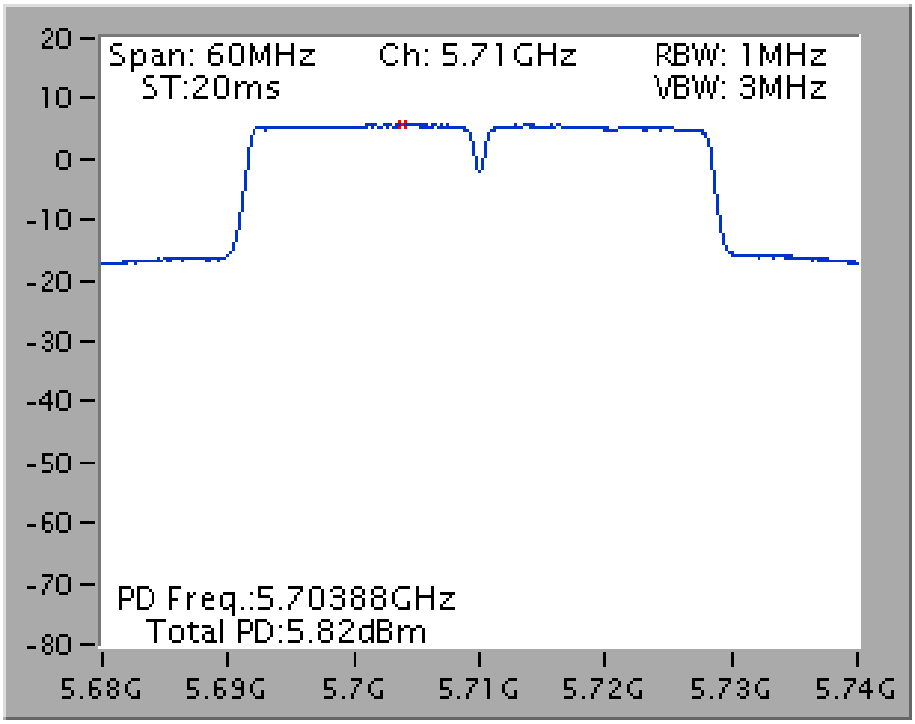
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 / 5230 MHz



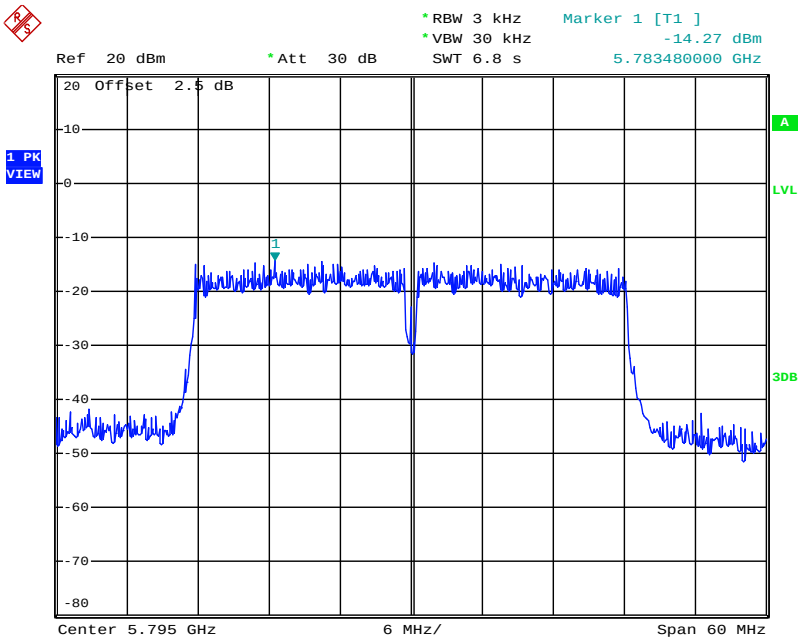
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 / 5270 MHz



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 / 5710 MHz

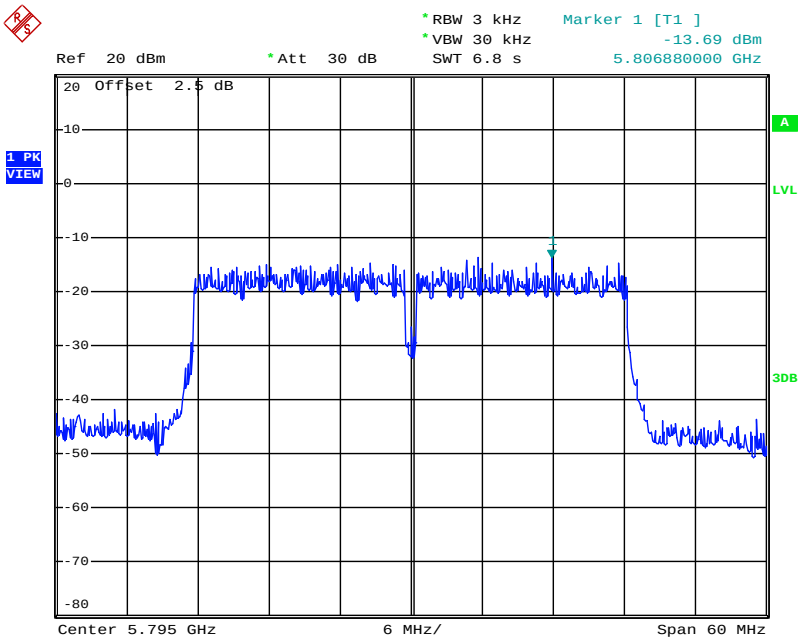


Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 / 5795 MHz



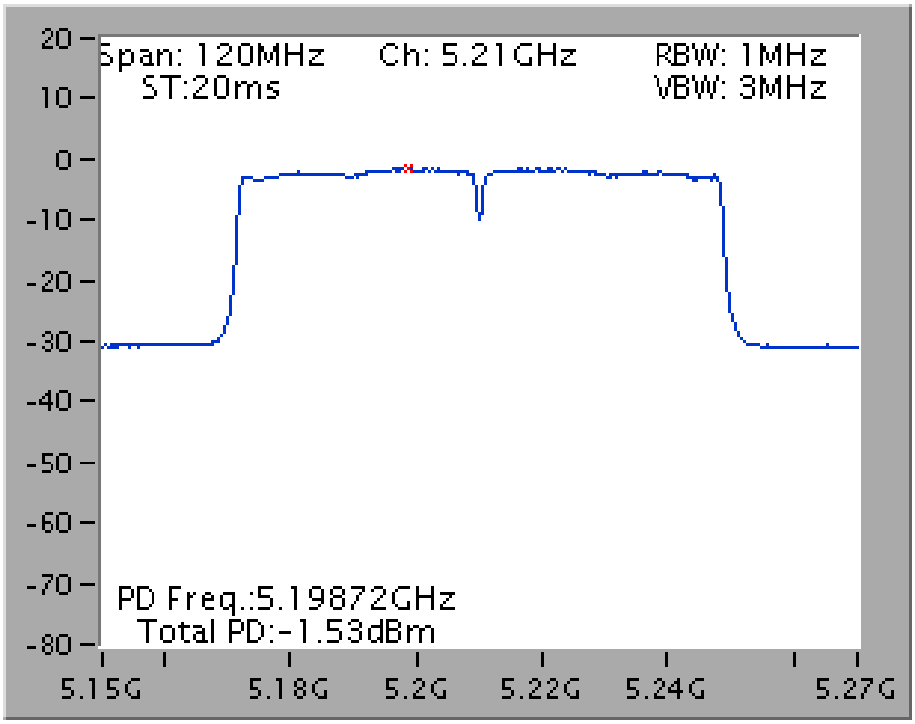
Date: 11.SEP.2014 11:15:39

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

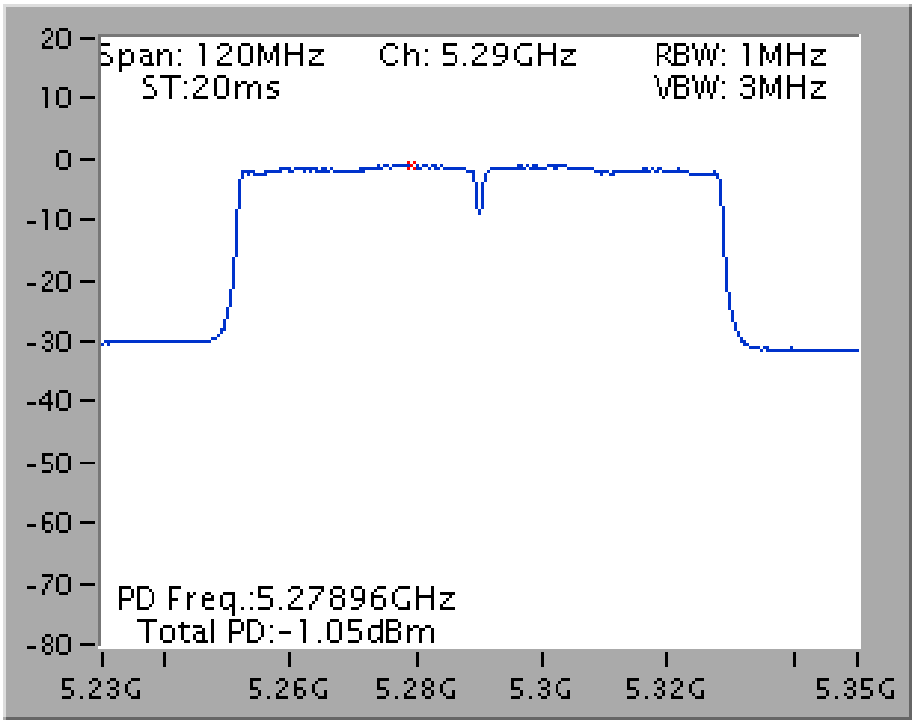


Date: 11.SEP.2014 11:21:31

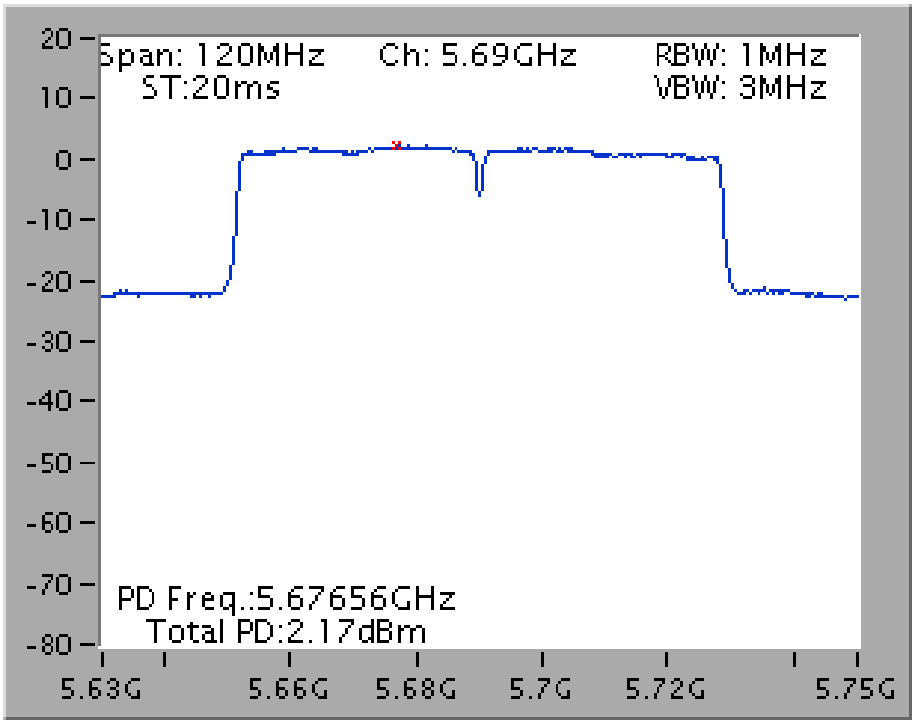
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 / 5210 MHz



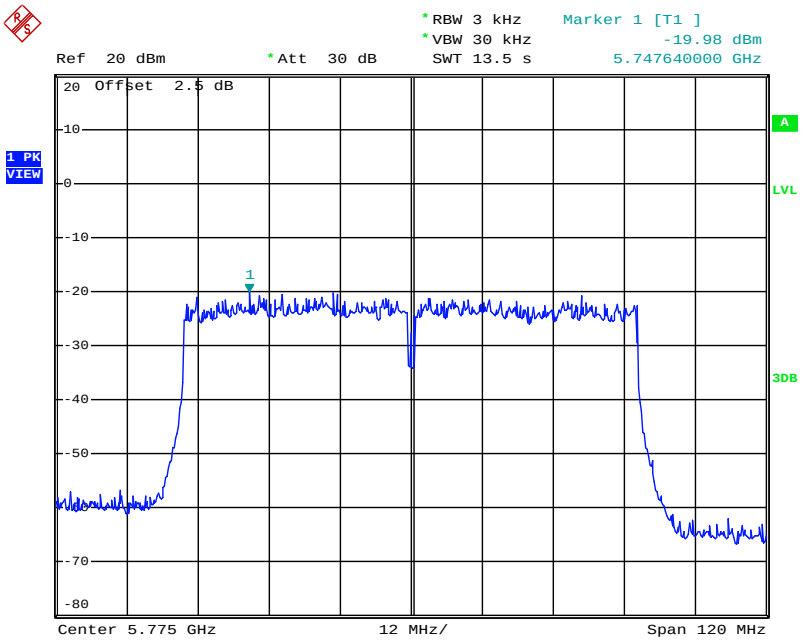
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 / 5290 MHz



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 / 5690 MHz

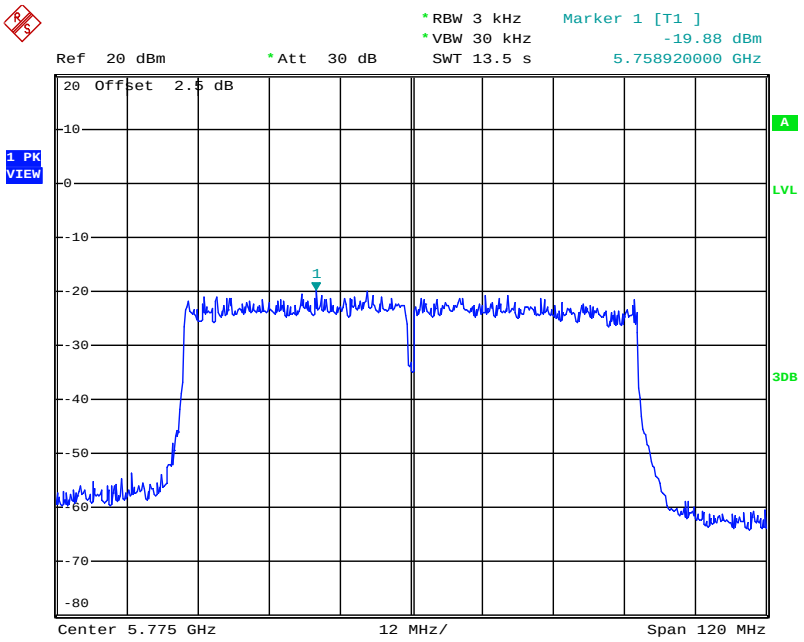


Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 / 5775 MHz



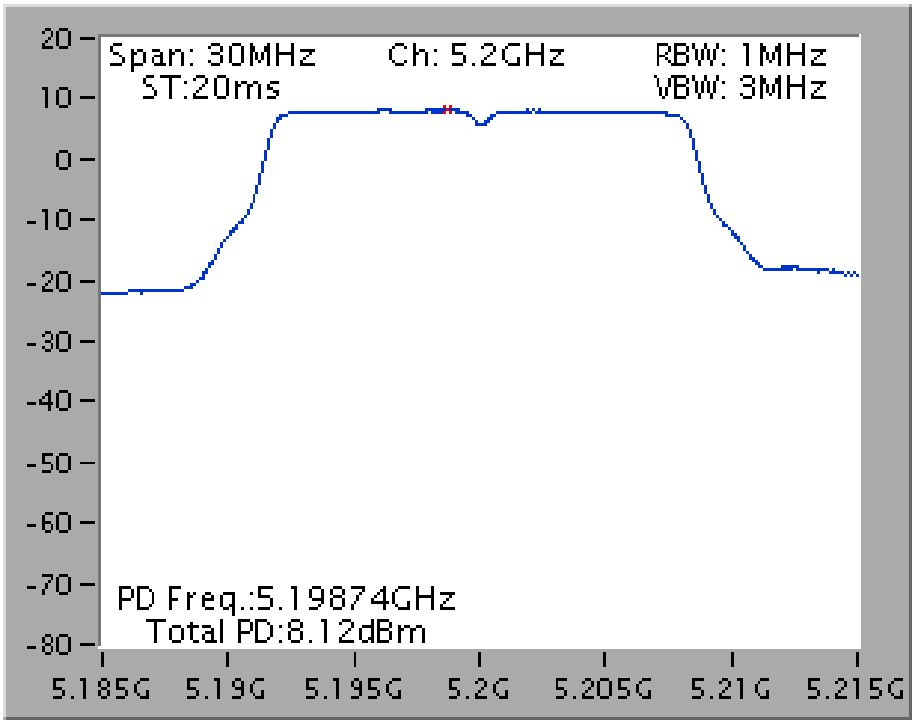
Date: 11.SEP.2014 11:17:08

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

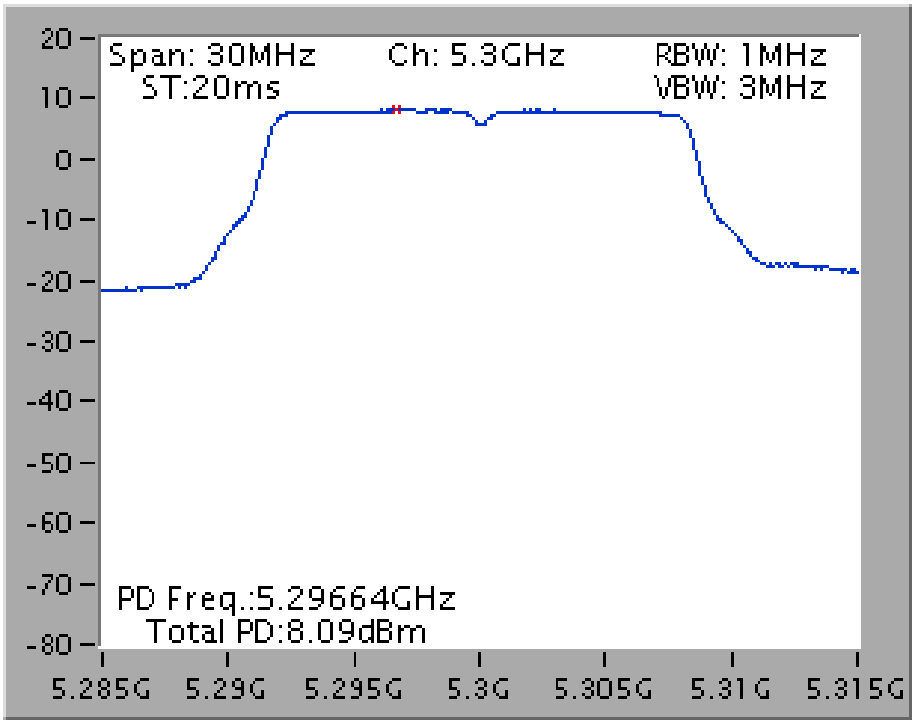


Date: 11.SEP.2014 11:18:53

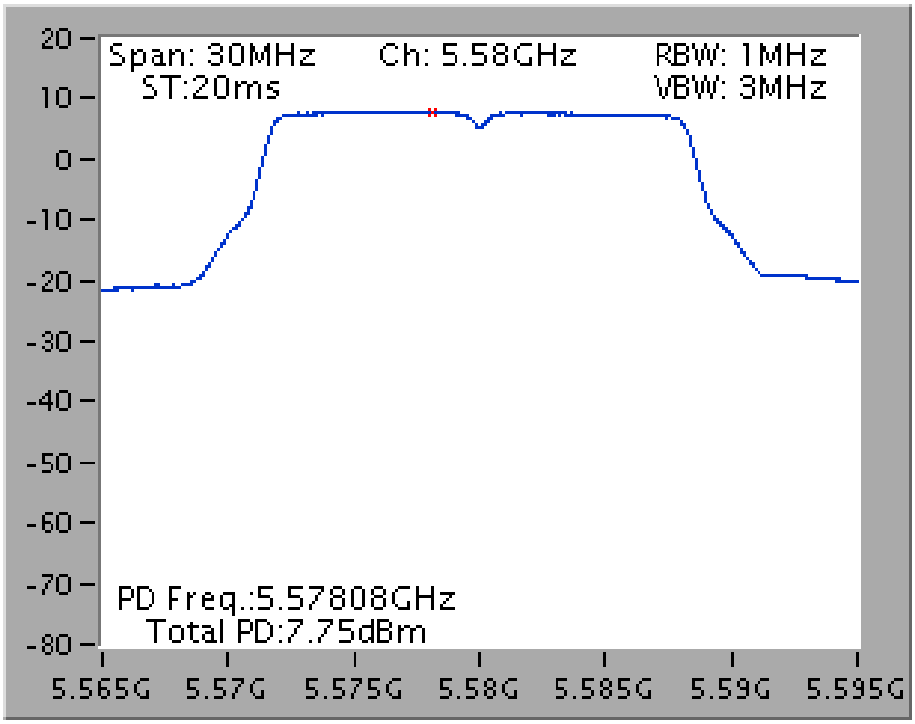
Power Density Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 / 5200 MHz



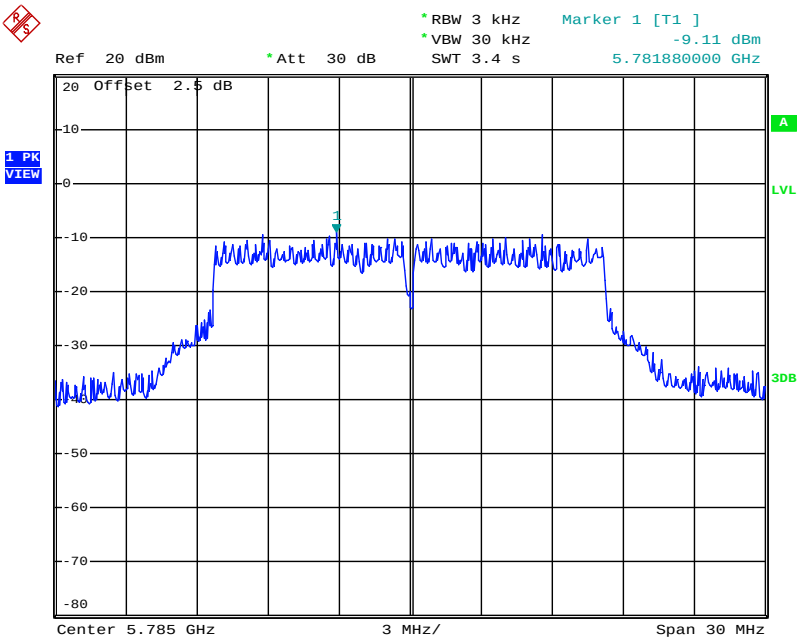
Power Density Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 / 5300 MHz



Power Density Plot on Configuration IEEE 802.11a / Chain 1 + Chain 2 / 5580 MHz

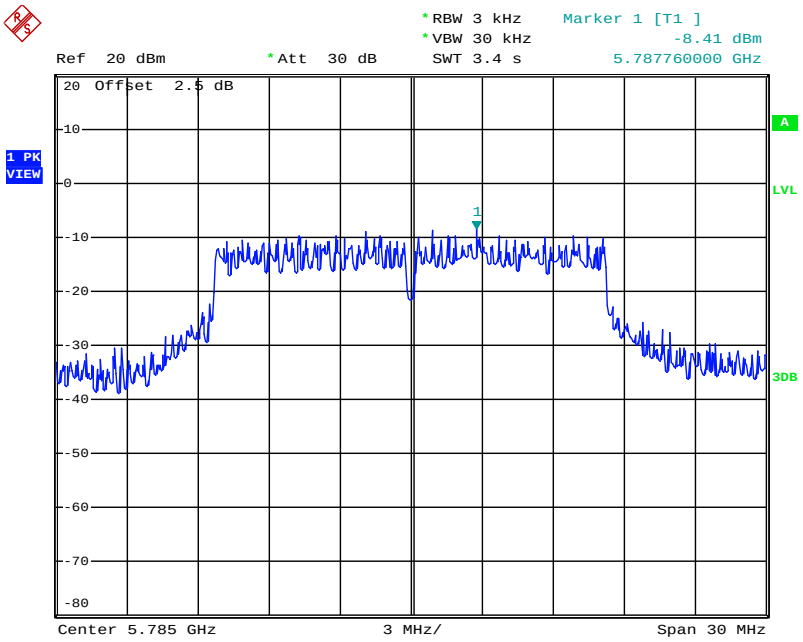


Power Density Plot on Configuration IEEE 802.11a / Chain 1 / 5785 MHz



Date: 11.SEP.2014 11:02:01

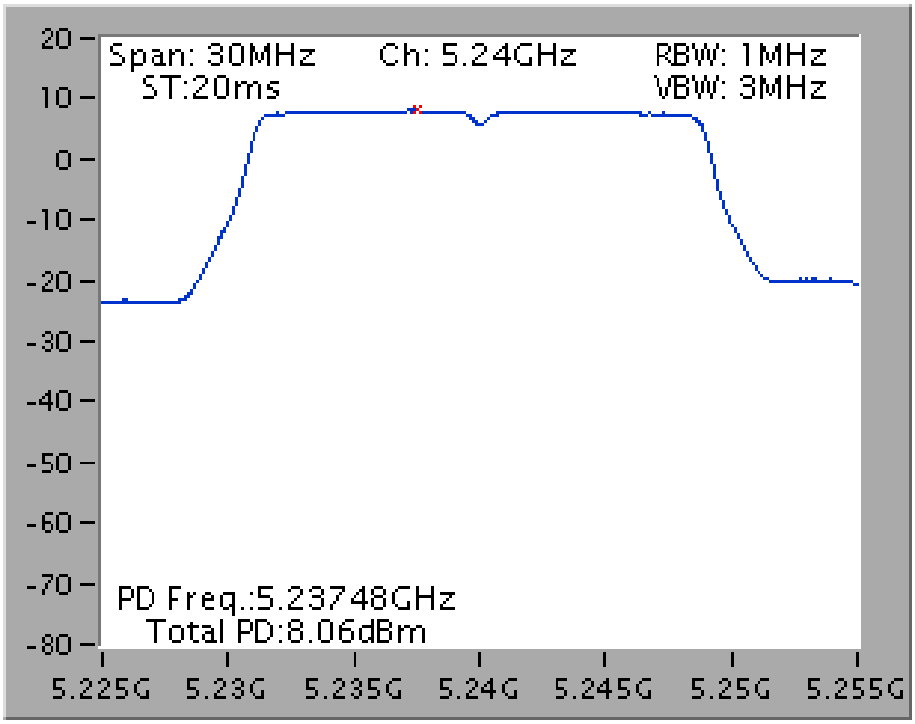
Power Density Plot on Configuration IEEE 802.11a / Chain 2 / 5785 MHz



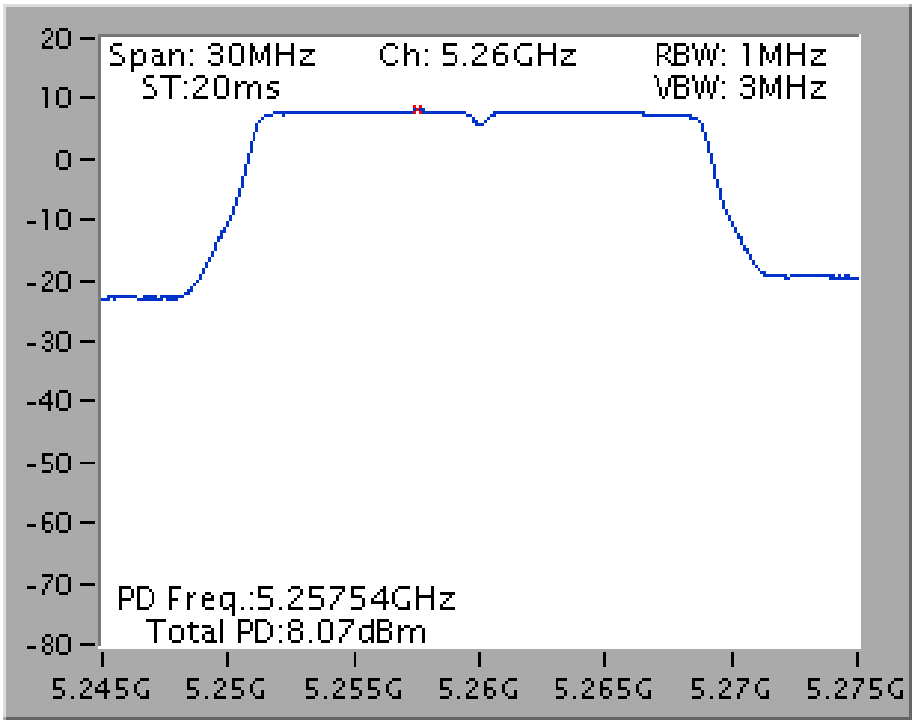
Date: 11.SEP.2014 11:27:46

For beamforming function:

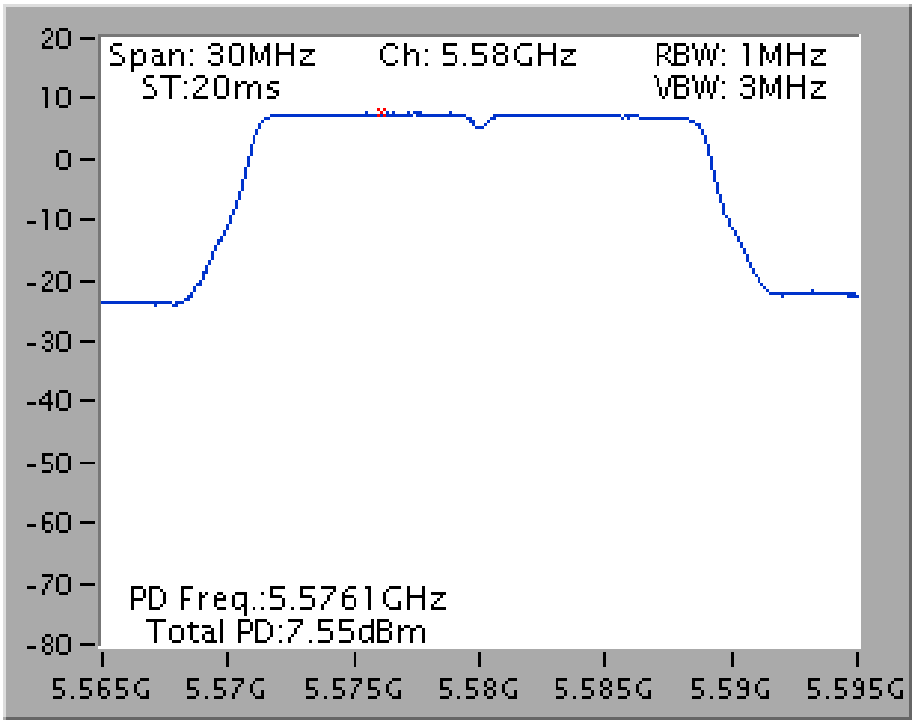
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 / 5240 MHz



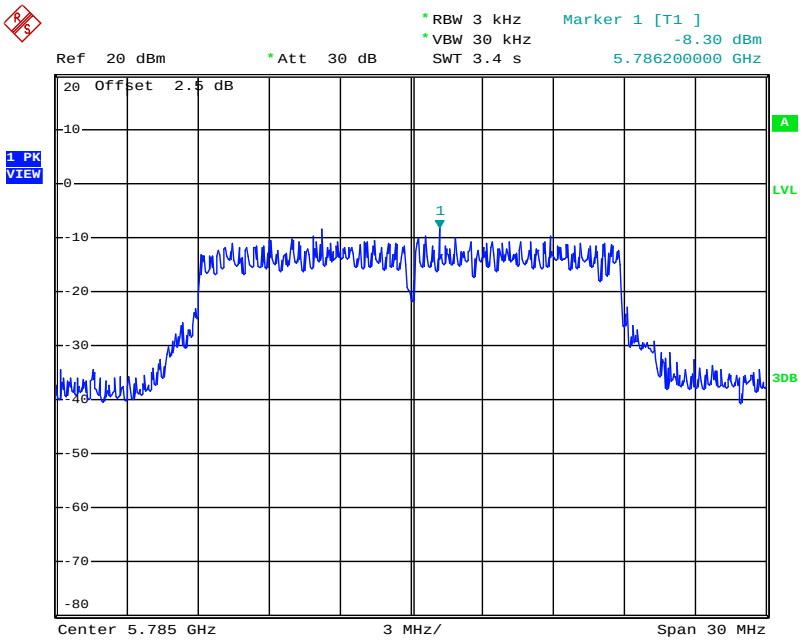
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 / 5260 MHz



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 1 + Chain 2 / 5580 MHz



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



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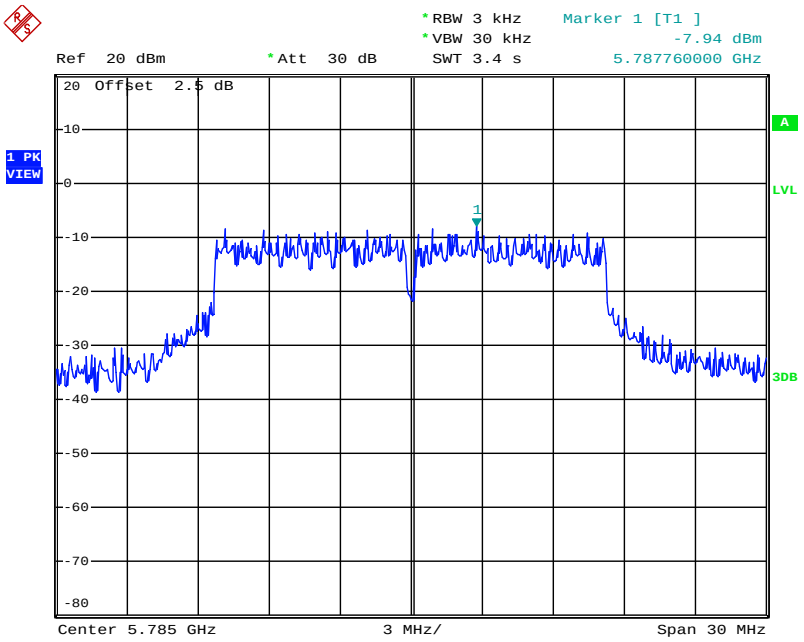
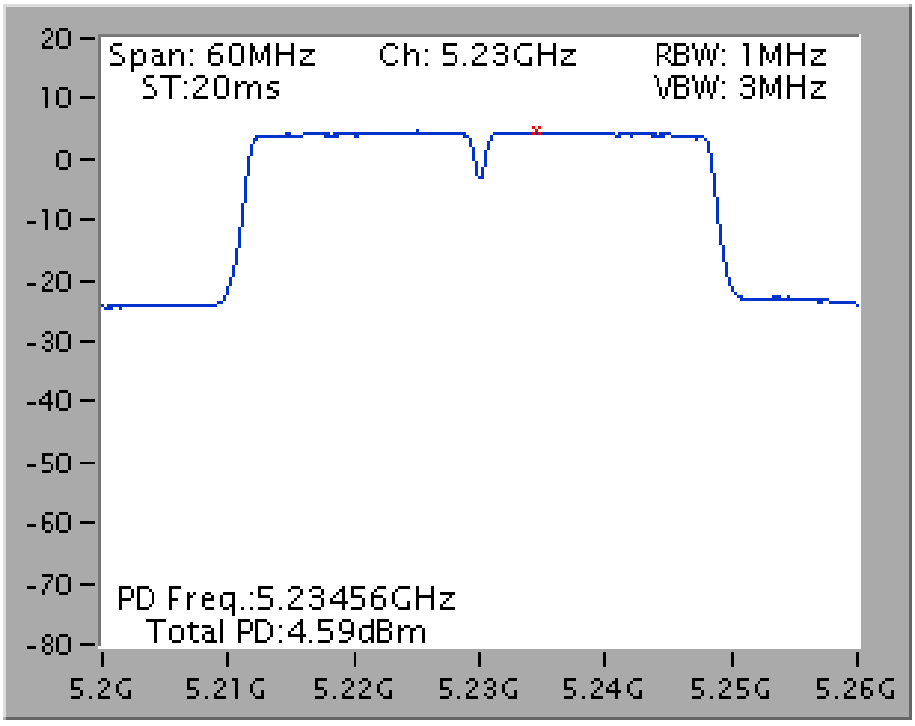
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Chain 2 / 5785 MHz

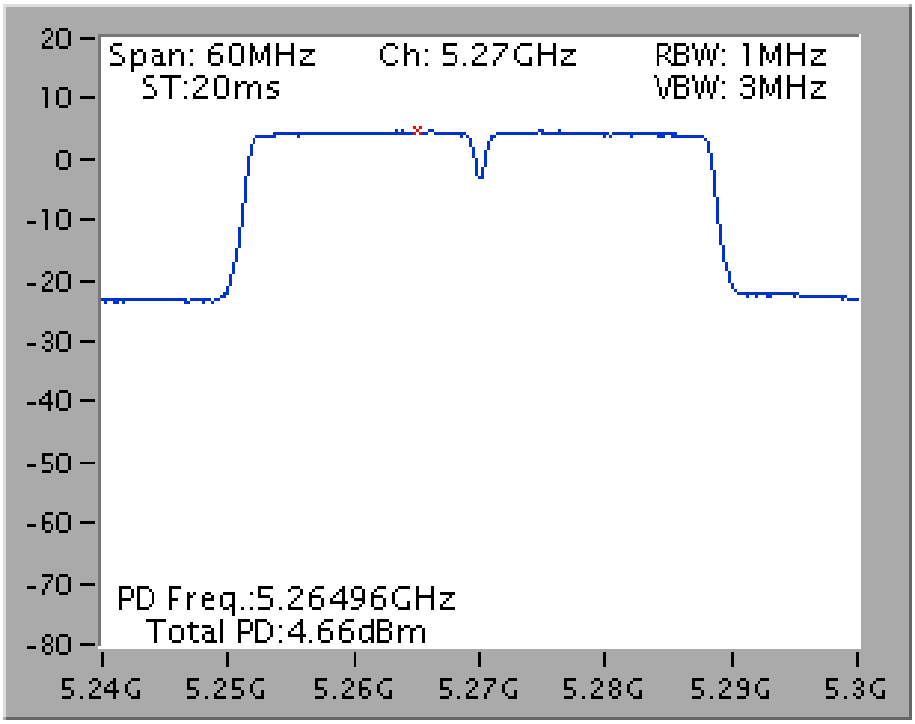


Date: 11.SEP.2014 14:10:33

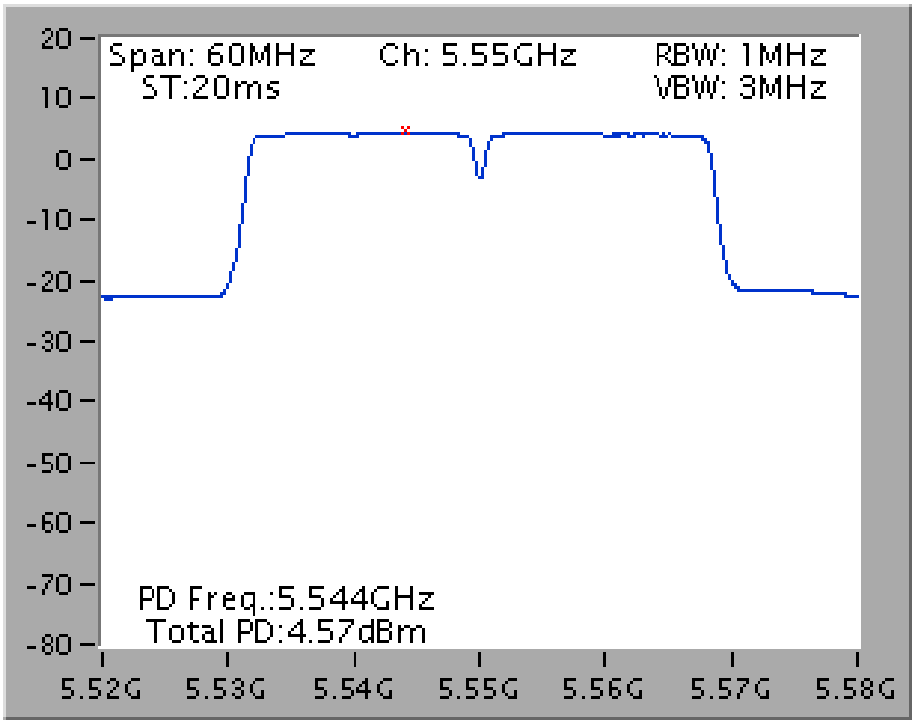
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 / 5230 MHz



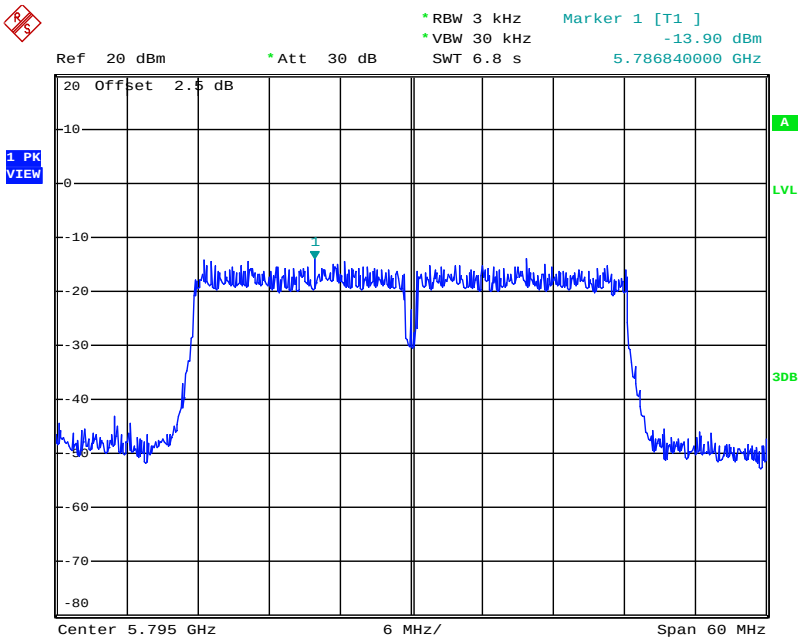
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 / 5270 MHz



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 + Chain 2 / 5550 MHz

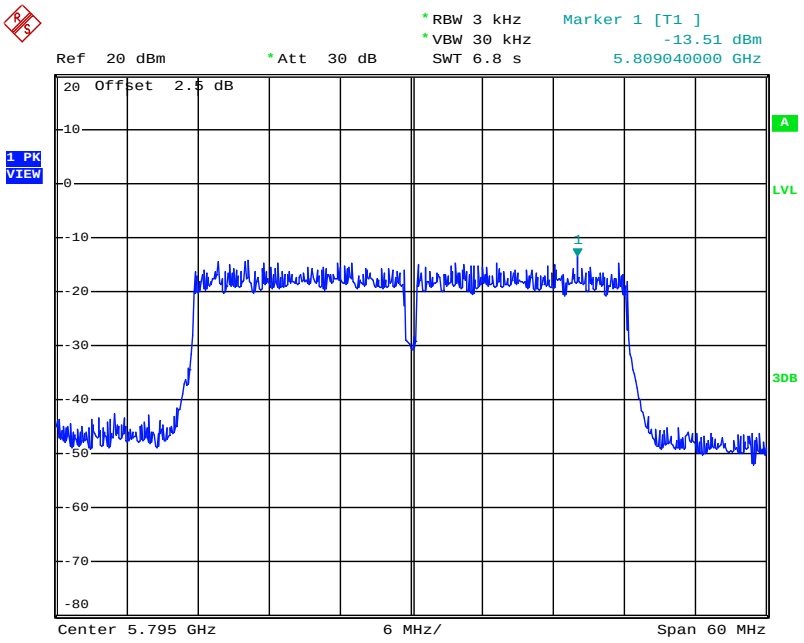


Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Chain 1 / 5795 MHz



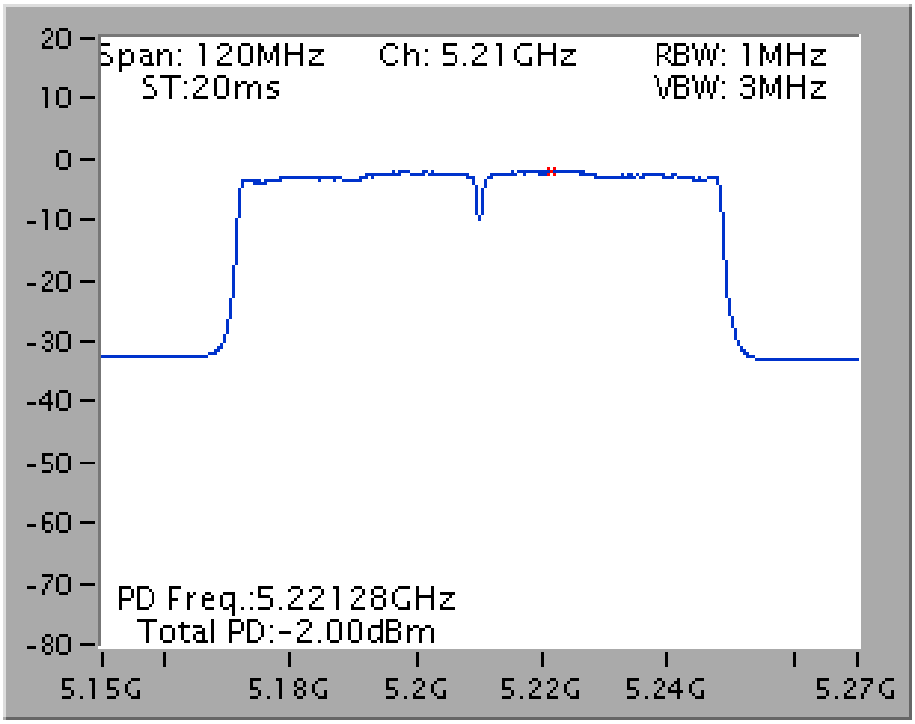
Date: 11.SEP.2014 14:29:25

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

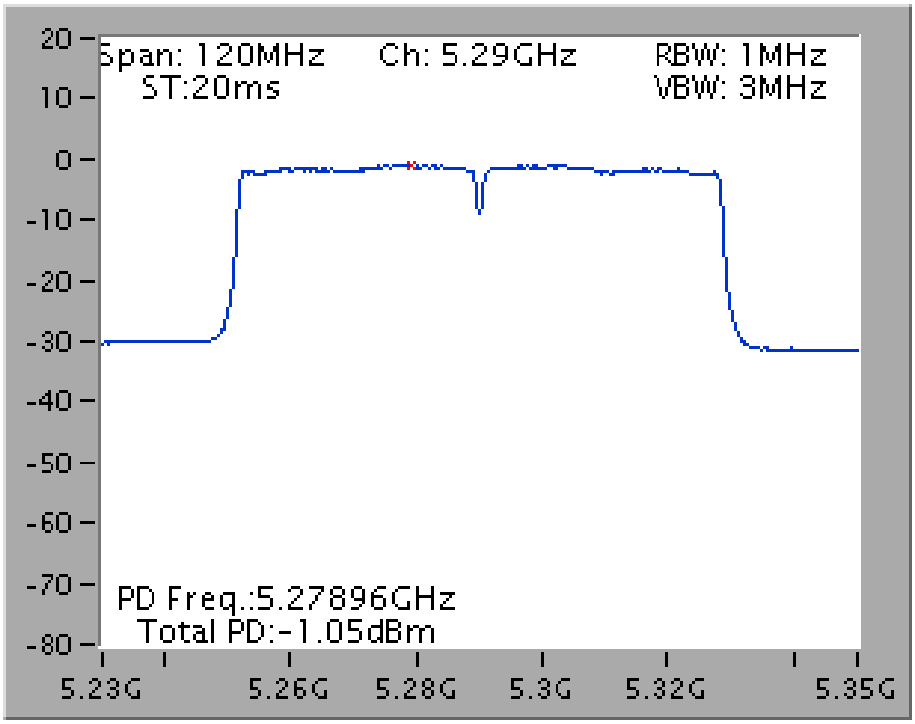


Date: 11.SEP.2014 14:27:34

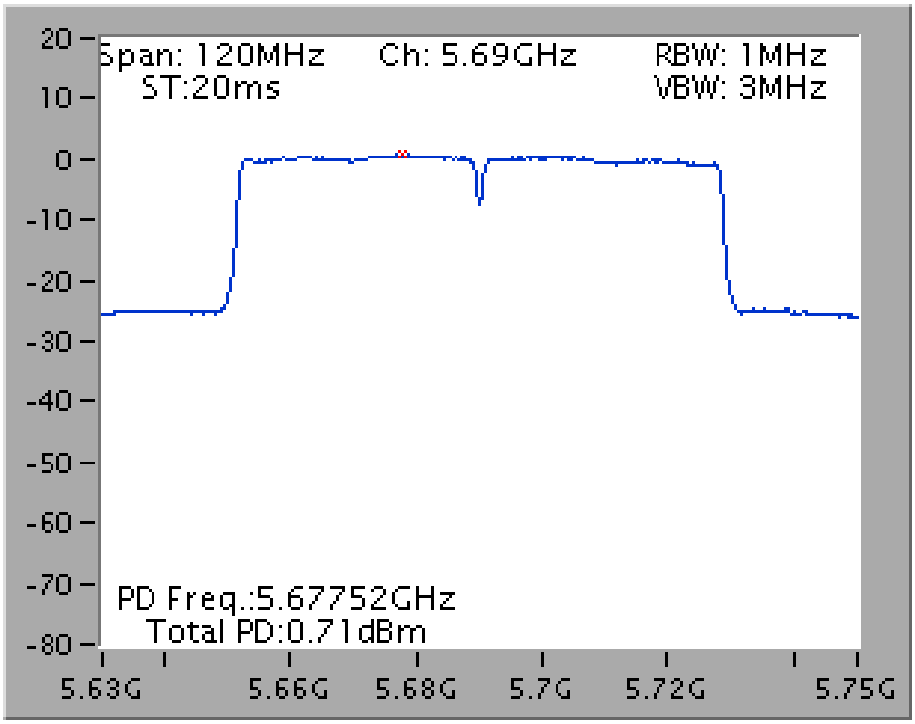
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 / 5210 MHz



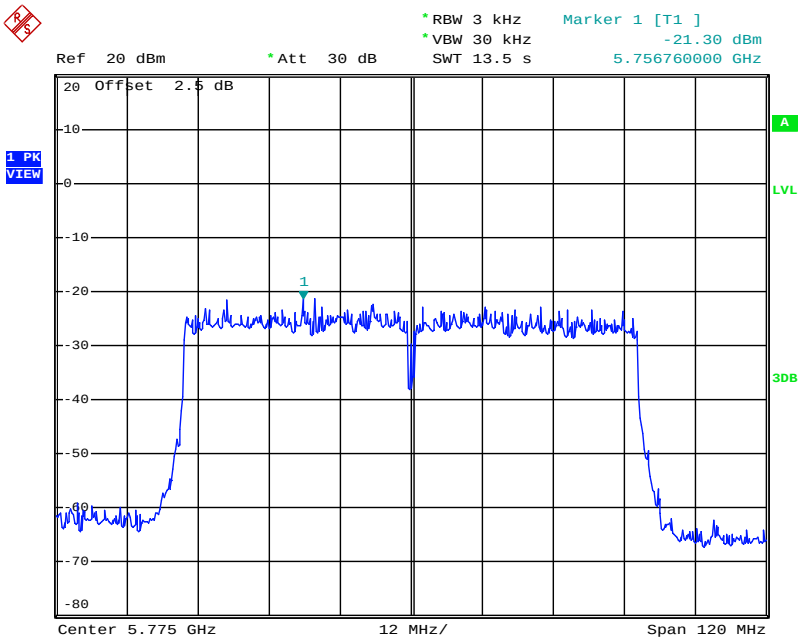
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 / 5290 MHz



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 + Chain 2 / 5690 MHz

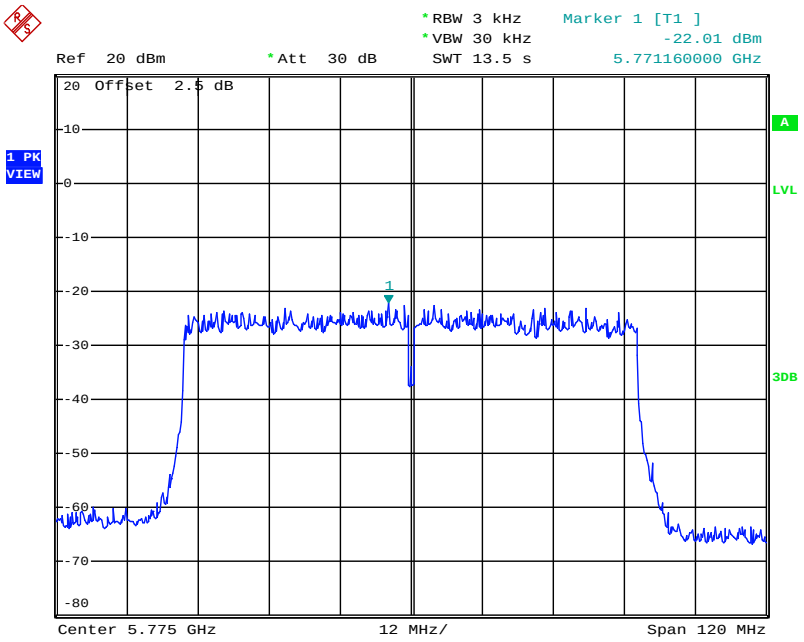


Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Chain 1 / 5775 MHz



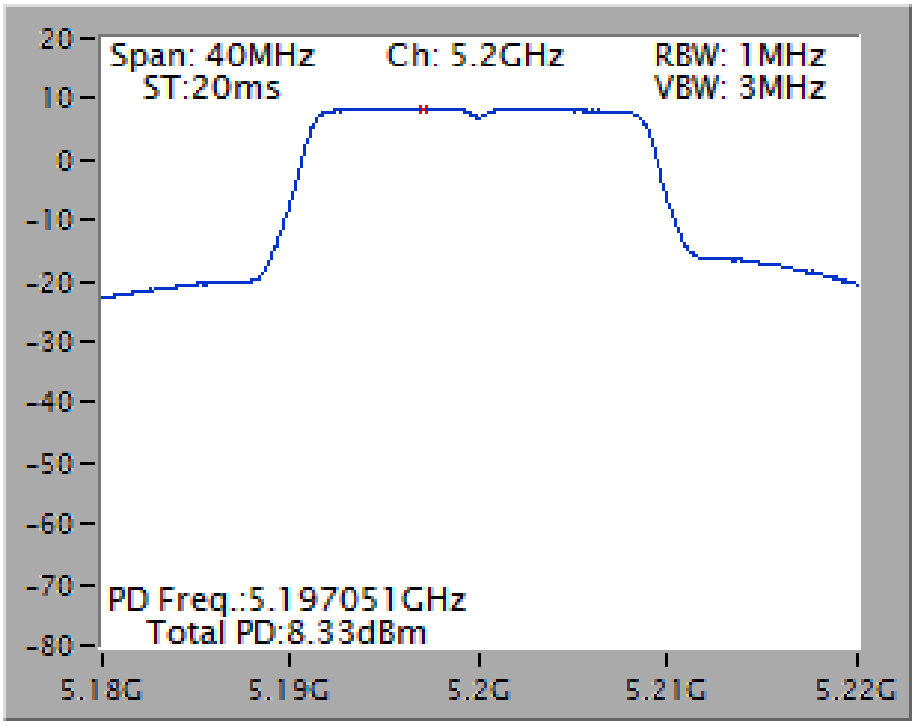
Date: 11.SEP.2014 14:33:20

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



For beamforming function:

Power Density Plot on Configuration 802.11n MCS0 HT20 / Chain 1 + Chain 2 / 5200 MHz



4.6. Radiated Emissions Measurement

4.6.1. Limit

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

For transmitters operating in the 5.470-5.725 GHz band: all emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

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

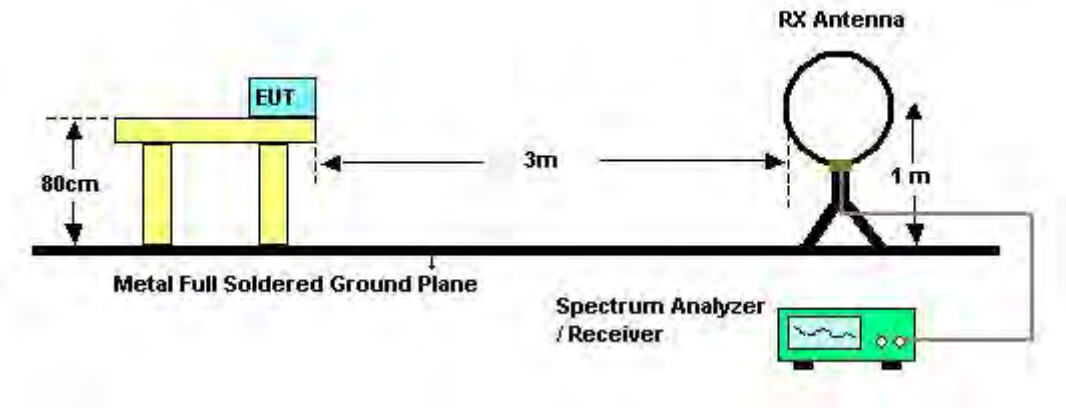
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RBW 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RBW 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RBW 120kHz for QP

4.6.3. Test Procedures

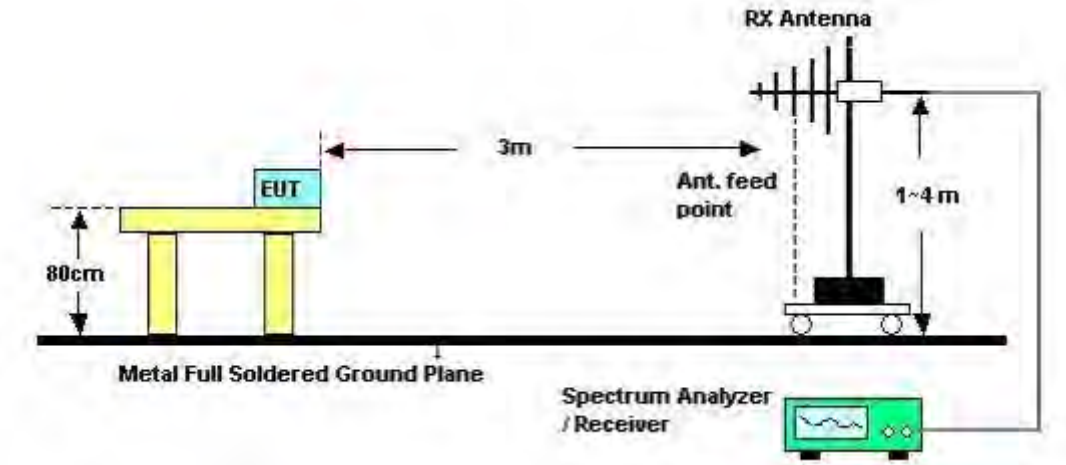
1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting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

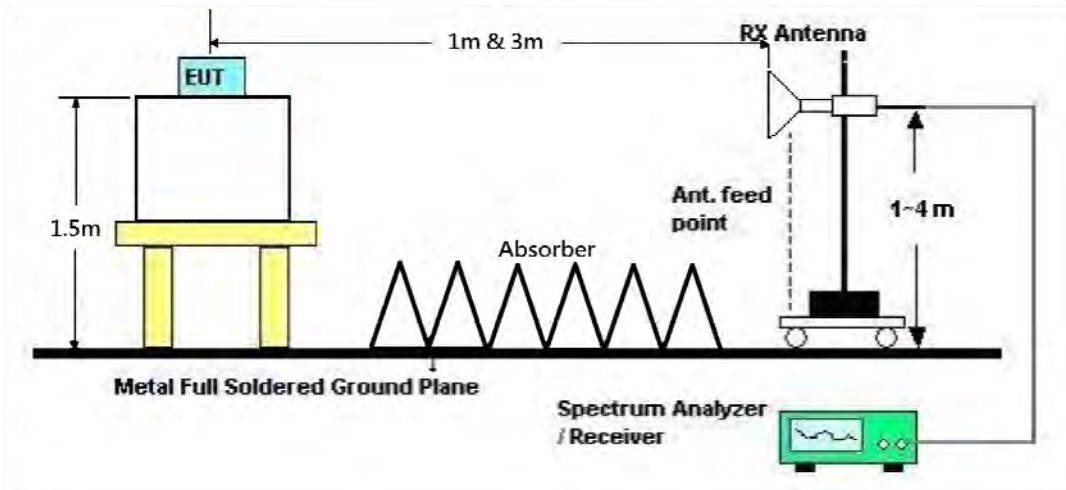
For Radiated Emissions: 9kHz ~30MHz



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 function and STBC function:

The EUT was programmed to be in continuously transmitting mode.

For beamforming function:

The EUT was programmed to be in beamforming transmitting mode.

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

Temperature	23°C	Humidity	61%
Test Engineer	YC Chen	Configurations	Normal Link
Test Date	Aug. 09, 2014	Test Mode	Mode 1

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

Note:

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

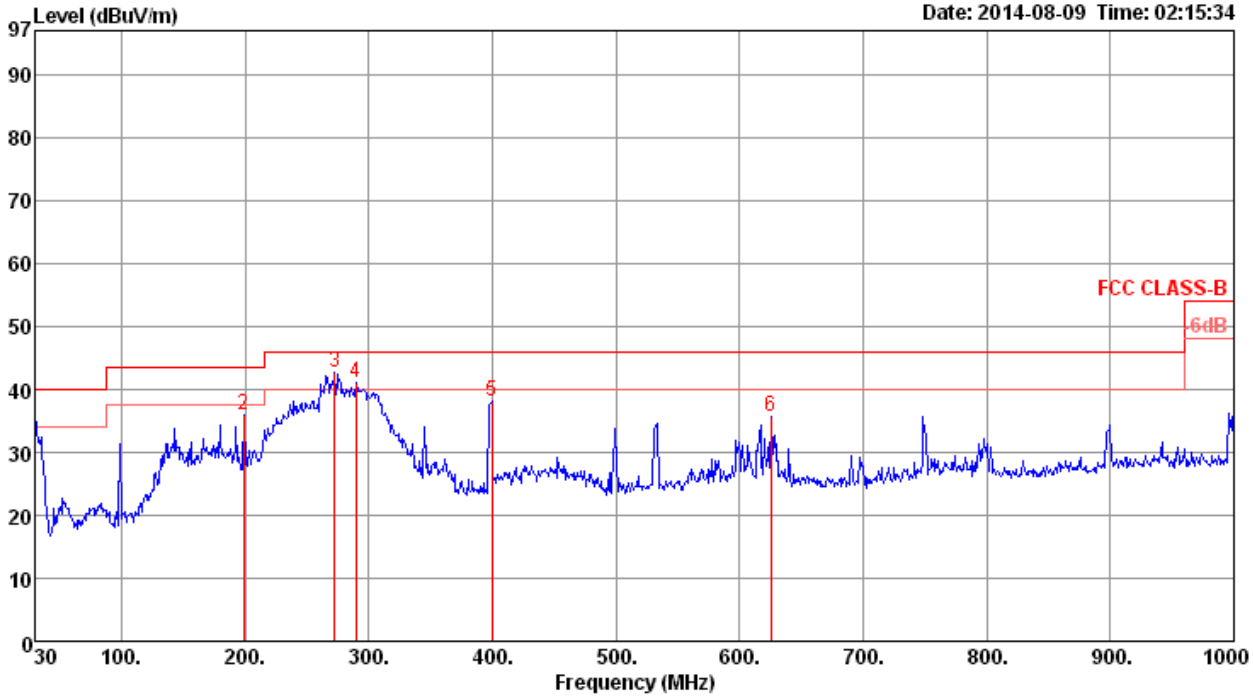
Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

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

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

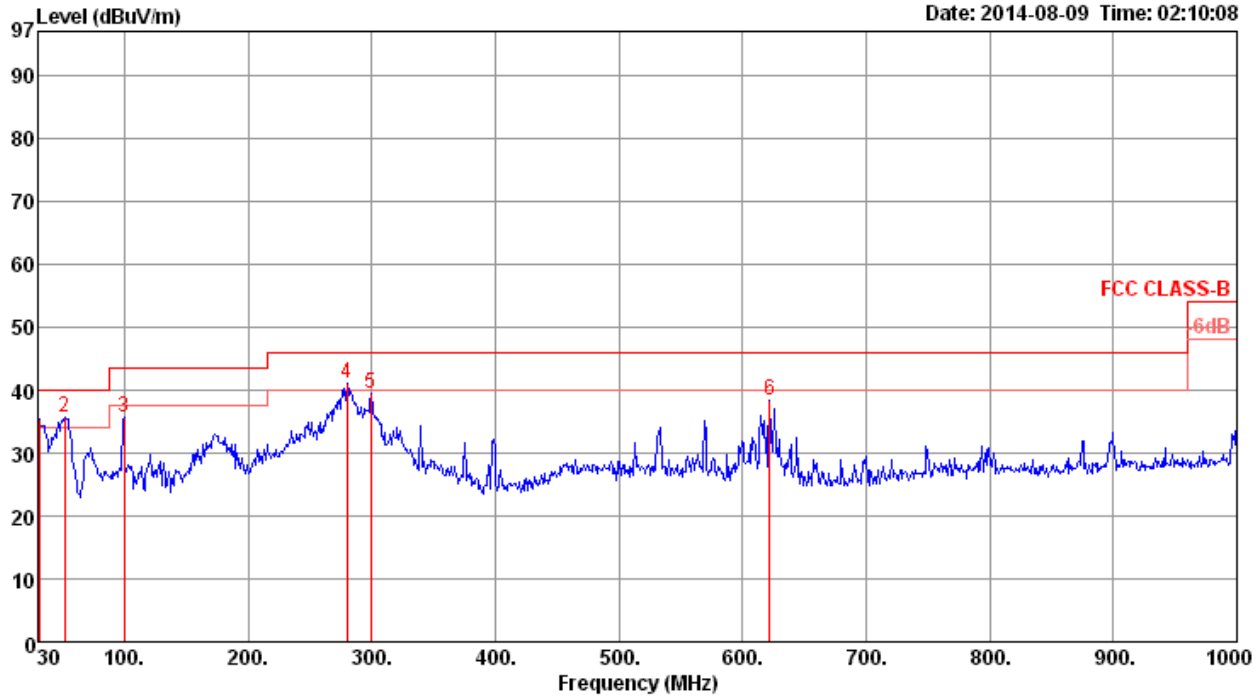
Temperature	23°C	Humidity	61%
Test Engineer	YC Chen	Configurations	Normal Link
Test Mode	Mode 1		

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	30.00	35.96	40.00	-4.04	44.39	0.61	18.76	27.80	Peak	100	0	HORIZONTAL
2	198.78	35.82	43.50	-7.68	52.02	1.66	9.25	27.11	Peak	100	0	HORIZONTAL
3	272.50	42.58	46.00	-3.42	54.61	1.89	13.04	26.96	Peak	100	0	HORIZONTAL
4	289.96	41.18	46.00	-4.82	52.88	1.98	13.24	26.92	Peak	100	0	HORIZONTAL
5	399.57	37.97	46.00	-8.03	47.21	2.30	16.06	27.60	Peak	100	0	HORIZONTAL
6	625.58	35.62	46.00	-10.38	41.94	2.90	18.85	28.07	Peak	100	0	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	30.97	35.48	40.00	-4.52	44.43	0.63	18.22	27.80	Peak	400	0	VERTICAL
2	51.34	35.71	40.00	-4.29	54.29	0.86	8.35	27.79	Peak	400	0	VERTICAL
3	99.84	35.64	43.50	-7.86	51.08	1.17	10.99	27.60	Peak	400	0	VERTICAL
4	280.26	41.16	46.00	-4.84	53.04	1.93	13.13	26.94	Peak	400	0	VERTICAL
5	299.66	39.58	46.00	-6.42	51.09	2.03	13.36	26.90	Peak	400	0	VERTICAL
6	621.70	38.34	46.00	-7.66	44.69	2.89	18.84	28.08	Peak	400	0	VERTICAL

Note:

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

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

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

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

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 36 / Chain 1 + Chain 2
Test Date	Aug. 17, 2014	Test Function	Non-beamforming function

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	10361.50	39.39	54.00	-14.61	30.82	4.97	39.01	35.41	Average	150	117	HORIZONTAL
2	10362.40	49.53	74.00	-24.47	40.96	4.97	39.01	35.41	Peak	150	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	10359.88	46.77	54.00	-7.23	38.20	4.97	39.01	35.41	Average	157	65	VERTICAL
2	10367.14	59.43	74.00	-14.57	50.86	4.97	39.01	35.41	Peak	157	65	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 40 / Chain 1 + Chain 2
Test Date	Aug. 13, 2014	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	10394.96	58.05	74.00	-15.95	48.31	6.56	38.34	35.16	HORIZONTAL	158	295	Peak
2	10404.60	44.78	54.00	-9.22	35.02	6.56	38.34	35.14	HORIZONTAL	158	295	Average
3	15599.88	42.38	54.00	-11.62	30.67	7.88	38.62	34.79	HORIZONTAL	100	107	Average
4	15600.52	55.50	74.00	-18.50	43.79	7.88	38.62	34.79	HORIZONTAL	100	107	Peak

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	10400.52	49.67	54.00	-4.33	39.91	6.56	38.34	35.14	VERTICAL	101	224	Average
2	10405.88	63.21	74.00	-10.79	53.45	6.56	38.34	35.14	VERTICAL	101	224	Peak
3	15591.88	55.47	74.00	-18.53	43.74	7.87	38.63	34.77	VERTICAL	100	269	Peak
4	15601.52	43.68	54.00	-10.32	31.97	7.88	38.62	34.79	VERTICAL	100	269	Average

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 48 / Chain 1 + Chain 2
Test Date	Aug. 17, 2014	Test Function	Non-beamforming function

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	10481.26	42.46	54.00	-11.54	33.87	5.00	38.91	35.32	Average	178	197	HORIZONTAL
2	10489.84	50.30	74.00	-23.70	41.71	5.00	38.91	35.32	Peak	178	197	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	10479.46	49.87	54.00	-4.13	41.28	5.00	38.91	35.32	Average	150	141	VERTICAL
2	10479.70	64.53	74.00	-9.47	55.94	5.00	38.91	35.32	Peak	150	141	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 52 / Chain 1 + Chain 2
Test Date	Aug. 17, 2014	Test Function	Non-beamforming function

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	10520.78	44.53	54.00	-9.47	35.92	5.01	38.90	35.30	Average	151	150	HORIZONTAL
2	10526.00	57.10	74.00	-16.90	48.47	5.01	38.90	35.28	Peak	151	150	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	10519.76	50.31	54.00	-3.69	41.70	5.01	38.90	35.30	Average	150	63	VERTICAL
2	10522.34	64.14	74.00	-9.86	55.53	5.01	38.90	35.30	Peak	150	63	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 60 / Chain 1 + Chain 2
Test Date	Aug. 17, 2014	Test Function	Non-beamforming function

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	10597.18	53.51	74.00	-20.49	44.83	5.01	38.92	35.25	Peak	157	299	HORIZONTAL
2	10597.72	43.70	54.00	-10.30	35.02	5.01	38.92	35.25	Average	157	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	10597.84	65.85	74.00	-8.15	57.17	5.01	38.92	35.25	Peak	155	143	VERTICAL
2	10599.82	51.04	54.00	-2.96	42.36	5.01	38.92	35.25	Average	155	143	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 64 / Chain 1 + Chain 2
Test Date	Aug. 17, 2014	Test Function	Non-beamforming function

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	10625.06	50.27	74.00	-23.73	41.57	5.01	38.92	35.23	Peak	147	55	HORIZONTAL
2	10640.48	40.19	54.00	-13.81	31.47	5.01	38.93	35.22	Average	147	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	10637.00	60.71	74.00	-13.29	51.99	5.01	38.93	35.22	Peak	146	65	VERTICAL
2	10639.88	48.38	54.00	-5.62	39.66	5.01	38.93	35.22	Average	146	65	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 100 / Chain 1 + Chain 2
Test Date	Aug. 17, 2014	Test Function	Non-beamforming function

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	10985.48	49.04	74.00	-24.96	40.01	5.01	39.00	34.98	Peak	145	132	HORIZONTAL
2	11001.86	36.60	54.00	-17.40	27.57	5.01	39.00	34.98	Average	145	132	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	11000.54	44.88	54.00	-9.12	35.85	5.01	39.00	34.98	Average	145	148	VERTICAL
2	11005.82	58.01	74.00	-15.99	48.97	5.01	39.01	34.98	Peak	145	148	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 116 / Chain 1 + Chain 2
Test Date	Aug. 17, 2014	Test Function	Non-beamforming function

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	11149.86	56.53	74.00	-17.47	47.37	5.04	39.12	35.00	Peak	153	145	HORIZONTAL
2	11160.90	45.38	54.00	-8.62	36.21	5.04	39.13	35.00	Average	153	145	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	11158.68	65.95	74.00	-8.05	56.78	5.04	39.13	35.00	Peak	153	140	VERTICAL
2	11158.92	51.62	54.00	-2.38	42.45	5.04	39.13	35.00	Average	153	140	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 140 / Chain 1 + Chain 2
Test Date	Aug. 17, 2014	Test Function	Non-beamforming function

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	11400.00	38.30	54.00	-15.70	28.92	5.10	39.32	35.04	Average	147	232	HORIZONTAL
2	11414.46	49.03	74.00	-24.97	39.64	5.10	39.33	35.04	Peak	147	232	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	11399.40	43.34	54.00	-10.66	33.96	5.10	39.32	35.04	Average	147	145	VERTICAL
2	11399.88	55.56	74.00	-18.44	46.18	5.10	39.32	35.04	Peak	147	145	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 144 / Chain 1 + Chain 2
Test Date	Aug. 17, 2014	Test Function	Non-beamforming function

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	11438.50	50.86	74.00	-23.14	41.45	5.10	39.35	35.04	Peak	156	113	HORIZONTAL
2	11440.84	39.29	54.00	-14.71	29.88	5.10	39.35	35.04	Average	156	113	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	11429.26	58.88	74.00	-15.12	49.49	5.10	39.33	35.04	Peak	156	144	VERTICAL
2	11439.28	47.09	54.00	-6.91	37.68	5.10	39.35	35.04	Average	156	144	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 149 / Chain 1 + Chain 2
Test Date	Aug. 18, 2014	Test Function	Non-beamforming function

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	11484.39	43.19	54.00	-10.81	29.53	9.24	39.50	35.08	Average	150	34	HORIZONTAL
2	11488.72	55.53	74.00	-18.47	41.87	9.24	39.50	35.08	Peak	150	34	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	11491.04	45.37	54.00	-8.63	31.71	9.24	39.50	35.08	Average	150	322	VERTICAL
2	11498.49	55.82	74.00	-18.18	42.17	9.25	39.50	35.10	Peak	150	322	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 157 / Chain 1 + Chain 2
Test Date	Aug. 18, 2014	Test Function	Non-beamforming function

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	11569.60	45.31	54.00	-8.69	31.67	9.26	39.47	35.09	Average	150	69	HORIZONTAL
2	11570.16	58.61	74.00	-15.39	44.97	9.26	39.47	35.09	Peak	150	69	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	11570.40	50.87	54.00	-3.13	37.23	9.26	39.47	35.09	Average	150	227	VERTICAL
2	11573.13	62.52	74.00	-11.48	48.87	9.26	39.47	35.08	Peak	150	227	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 165 / Chain 1 + Chain 2
Test Date	Aug. 18, 2014	Test Function	Non-beamforming function

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	11649.20	56.24	74.00	-17.76	42.59	9.28	39.44	35.07	Peak	163	308	HORIZONTAL
2	11653.14	45.14	54.00	-8.86	31.49	9.28	39.44	35.07	Average	163	308	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	11647.55	62.19	74.00	-11.81	48.54	9.28	39.44	35.07	Peak	150	23	VERTICAL
2	11649.94	49.10	54.00	-4.90	35.45	9.28	39.44	35.07	Average	150	23	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 38 / Chain 1 + Chain 2
Test Date	Aug. 17, 2014	Test Function	Non-beamforming function

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	10362.88	45.57	74.00	-28.43	37.00	4.97	39.01	35.41	Peak	151	96	HORIZONTAL
2	10370.80	36.43	54.00	-17.57	27.86	4.97	39.01	35.41	Average	151	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	10380.32	51.50	74.00	-22.50	42.92	4.98	38.99	35.39	Peak	148	83	VERTICAL
2	10380.56	39.12	54.00	-14.88	30.54	4.98	38.99	35.39	Average	148	83	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 46 / Chain 1 + Chain 2
Test Date	Aug. 17, 2014	Test Function	Non-beamforming function

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	10450.80	40.76	54.00	-13.24	32.16	5.00	38.94	35.34	Average	163	226	HORIZONTAL
2	10471.76	51.17	74.00	-22.83	42.58	5.00	38.93	35.34	Peak	163	226	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	10459.60	48.71	54.00	-5.29	40.11	5.00	38.94	35.34	Average	150	143	VERTICAL
2	10462.56	61.13	74.00	-12.87	52.54	5.00	38.93	35.34	Peak	150	143	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 54 / Chain 1 + Chain 2
Test Date	Aug. 17, 2014	Test Function	Non-beamforming function

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	10524.72	50.59	74.00	-23.41	41.96	5.01	38.90	35.28	Peak	149	157	HORIZONTAL
2	10552.72	38.05	54.00	-15.95	29.40	5.01	38.91	35.27	Average	149	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	10540.16	61.41	74.00	-12.59	52.77	5.01	38.91	35.28	Peak	149	144	VERTICAL
2	10542.56	49.50	54.00	-4.50	40.86	5.01	38.91	35.28	Average	149	144	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 62 / Chain 1 + Chain 2
Test Date	Aug. 17, 2014	Test Function	Non-beamforming function

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	10621.60	39.58	54.00	-14.42	30.88	5.01	38.92	35.23	Average	163	269	HORIZONTAL
2	10629.84	51.20	74.00	-22.80	42.49	5.01	38.92	35.22	Peak	163	269	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	10620.24	44.05	54.00	-9.95	35.35	5.01	38.92	35.23	Average	151	146	VERTICAL
2	10627.68	56.01	74.00	-17.99	47.30	5.01	38.92	35.22	Peak	151	146	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 102 / Chain 1 + Chain 2
Test Date	Aug. 18, 2014	Test Function	Non-beamforming function

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	11017.92	49.18	74.00	-24.82	40.13	5.02	39.01	34.98	Peak	153	125	HORIZONTAL
2	11038.88	36.79	54.00	-17.21	27.72	5.02	39.04	34.99	Average	153	125	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	11018.40	38.82	54.00	-15.18	29.77	5.02	39.01	34.98	Average	153	54	VERTICAL
2	11026.72	51.49	74.00	-22.51	42.42	5.02	39.03	34.98	Peak	153	54	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 110 / Chain 1 + Chain 2
Test Date	Aug. 18, 2014	Test Function	Non-beamforming function

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	11106.24	51.52	74.00	-22.48	42.40	5.03	39.08	34.99	Peak	154	121	HORIZONTAL
2	11112.24	39.88	54.00	-14.12	30.75	5.04	39.09	35.00	Average	154	121	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	11096.80	61.22	74.00	-12.78	52.10	5.03	39.08	34.99	Peak	154	142	VERTICAL
2	11102.00	48.75	54.00	-5.25	39.63	5.03	39.08	34.99	Average	154	142	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 134 / Chain 1 + Chain 2
Test Date	Aug. 18, 2014	Test Function	Non-beamforming function

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	11327.36	49.88	74.00	-24.12	40.58	5.08	39.25	35.03	Peak	156	0	HORIZONTAL
2	11331.12	37.79	54.00	-16.21	28.47	5.08	39.27	35.03	Average	156	0	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	11328.56	54.89	74.00	-19.11	45.57	5.08	39.27	35.03	Peak	161	56	VERTICAL
2	11336.24	42.35	54.00	-11.65	33.03	5.08	39.27	35.03	Average	161	56	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 142 / Chain 1 + Chain 2
Test Date	Aug. 18, 2014	Test Function	Non-beamforming function

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	11423.76	50.82	74.00	-23.18	41.43	5.10	39.33	35.04	Peak	161	90	HORIZONTAL
2	11428.40	38.32	54.00	-15.68	28.93	5.10	39.33	35.04	Average	161	90	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	11418.96	43.53	54.00	-10.47	34.14	5.10	39.33	35.04	Average	154	145	VERTICAL
2	11421.44	56.47	74.00	-17.53	47.08	5.10	39.33	35.04	Peak	154	145	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 151 / Chain 1 + Chain 2
Test Date	Aug. 18, 2014	Test Function	Non-beamforming function

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	11505.26	42.40	54.00	-11.60	28.75	9.25	39.50	35.10	Average	150	324	HORIZONTAL
2	11513.46	55.36	74.00	-18.64	41.71	9.25	39.50	35.10	Peak	150	324	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	11508.59	42.77	54.00	-11.23	29.12	9.25	39.50	35.10	Average	150	22	VERTICAL
2	11510.29	55.61	74.00	-18.39	41.96	9.25	39.50	35.10	Peak	150	22	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 159 / Chain 1 + Chain 2
Test Date	Aug. 18, 2014	Test Function	Non-beamforming function

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	11589.26	56.13	74.00	-17.87	42.47	9.27	39.47	35.08	Peak	150	27	HORIZONTAL
2	11592.28	43.46	54.00	-10.54	29.80	9.27	39.47	35.08	Average	150	27	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	11587.63	59.20	74.00	-14.80	45.54	9.27	39.47	35.08	Peak	150	227	VERTICAL
2	11590.40	46.06	54.00	-7.94	32.40	9.27	39.47	35.08	Average	150	227	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 42 / Chain 1 + Chain 2
Test Date	Aug. 17, 2014	Test Function	Non-beamforming function

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	10392.00	49.18	74.00	-24.82	40.60	4.98	38.99	35.39	Peak	165	265	HORIZONTAL
2	10415.36	38.42	54.00	-15.58	29.84	4.98	38.97	35.37	Average	165	265	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	10417.28	49.83	74.00	-24.17	41.25	4.98	38.97	35.37	Peak	159	342	VERTICAL
2	10419.84	39.60	54.00	-14.40	31.02	4.98	38.97	35.37	Average	159	342	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 58 / Chain 1 + Chain 2
Test Date	Aug. 18, 2014	Test Function	Non-beamforming function

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	10548.64	50.45	74.00	-23.55	41.81	5.01	38.91	35.28	Peak	157	188	HORIZONTAL
2	10587.36	38.36	54.00	-15.64	29.68	5.01	38.92	35.25	Average	157	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	10582.40	41.84	54.00	-12.16	33.16	5.01	38.92	35.25	Average	147	142	VERTICAL
2	10594.08	53.32	74.00	-20.68	44.64	5.01	38.92	35.25	Peak	147	142	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 106 / Chain 1 + Chain 2
Test Date	Aug. 17, 2014	Test Function	Non-beamforming function

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	11080.64	37.75	54.00	-16.25	28.64	5.03	39.07	34.99	Average	157	119	HORIZONTAL
2	11083.04	49.28	74.00	-24.72	40.17	5.03	39.07	34.99	Peak	157	119	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	11075.36	38.79	54.00	-15.21	29.68	5.03	39.07	34.99	Average	147	59	VERTICAL
2	11078.24	51.11	74.00	-22.89	42.00	5.03	39.07	34.99	Peak	147	59	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 138 / Chain 1 + Chain 2
Test Date	Aug. 17, 2014	Test Function	Non-beamforming function

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	11360.16	38.16	54.00	-15.84	28.82	5.09	39.28	35.03	Average	174	218	HORIZONTAL
2	11360.96	50.40	74.00	-23.60	41.06	5.09	39.28	35.03	Peak	174	218	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	11358.72	42.16	54.00	-11.84	32.82	5.09	39.28	35.03	Average	146	142	VERTICAL
2	11399.04	54.33	74.00	-19.67	44.95	5.10	39.32	35.04	Peak	146	142	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 155 / Chain 1 + Chain 2
Test Date	Aug. 18, 2014	Test Function	Non-beamforming function

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	11551.39	56.77	74.00	-17.23	43.12	9.26	39.48	35.09	Peak	150	164	HORIZONTAL
2	11551.70	42.75	54.00	-11.25	29.10	9.26	39.48	35.09	Average	150	164	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	11551.13	43.41	54.00	-10.59	29.76	9.26	39.48	35.09	Average	160	327	VERTICAL
2	11551.77	55.15	74.00	-18.85	41.50	9.26	39.48	35.09	Peak	160	327	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 36 / Chain 1 + Chain 2
Test Date	Aug. 17, 2014	Test Function	Non-beamforming function

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	10351.30	52.16	74.00	-21.84	43.58	4.97	39.02	35.41	Peak	140	342	HORIZONTAL
2	10361.50	41.56	54.00	-12.44	32.99	4.97	39.01	35.41	Average	140	342	HORIZONTAL
3	15533.56	40.82	54.00	-13.18	31.41	6.13	38.45	35.17	Average	140	149	HORIZONTAL
4	15547.04	53.48	74.00	-20.52	44.09	6.13	38.43	35.17	Peak	140	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	10359.46	47.81	54.00	-6.19	39.24	4.97	39.01	35.41	Average	153	142	VERTICAL
2	10360.48	60.32	74.00	-13.68	51.75	4.97	39.01	35.41	Peak	153	142	VERTICAL
3	15534.12	41.88	54.00	-12.12	32.47	6.13	38.45	35.17	Average	140	273	VERTICAL
4	15534.12	51.83	74.00	-22.17	42.42	6.13	38.45	35.17	Peak	140	273	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 40 / Chain 1 + Chain 2
Test Date	Aug. 17, 2014	Test Function	Non-beamforming function

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	10400.78	42.91	54.00	-11.09	34.32	4.98	38.98	35.37	Average	158	148	HORIZONTAL
2	10405.94	55.11	74.00	-18.89	46.52	4.98	38.98	35.37	Peak	158	148	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	10399.22	48.52	54.00	-5.48	39.93	4.98	38.98	35.37	Average	150	143	VERTICAL
2	10399.22	61.34	74.00	-12.66	52.75	4.98	38.98	35.37	Peak	150	143	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 48 / Chain 1 + Chain 2
Test Date	Aug. 17, 2014	Test Function	Non-beamforming function

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	10479.10	53.93	74.00	-20.07	45.34	5.00	38.91	35.32	Peak	148	315	HORIZONTAL
2	10480.70	43.09	54.00	-10.91	34.50	5.00	38.91	35.32	Average	148	315	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	10479.10	63.85	74.00	-10.15	55.26	5.00	38.91	35.32	Peak	153	140	VERTICAL
2	10484.00	49.79	54.00	-4.21	41.20	5.00	38.91	35.32	Average	153	140	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 52 / Chain 1 + Chain 2
Test Date	Aug. 17, 2014	Test Function	Non-beamforming function

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	10520.90	41.95	54.00	-12.05	33.34	5.01	38.90	35.30	Average	140	109	HORIZONTAL
2	10527.40	50.75	74.00	-23.25	42.12	5.01	38.90	35.28	Peak	140	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	10519.20	64.76	74.00	-9.24	56.15	5.01	38.90	35.30	Peak	148	63	VERTICAL
2	10519.70	50.44	54.00	-3.56	41.83	5.01	38.90	35.30	Average	148	63	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 60 / Chain 1 + Chain 2
Test Date	Aug. 17, 2014	Test Function	Non-beamforming function

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	10598.02	55.76	74.00	-18.24	47.08	5.01	38.92	35.25	Peak	149	259	HORIZONTAL
2	10600.72	45.15	54.00	-8.85	36.47	5.01	38.92	35.25	Average	149	259	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	10598.92	65.75	74.00	-8.25	57.07	5.01	38.92	35.25	Peak	149	142	VERTICAL
2	10599.76	51.11	54.00	-2.89	42.43	5.01	38.92	35.25	Average	149	142	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 64 / Chain 1 + Chain 2
Test Date	Aug. 17, 2014	Test Function	Non-beamforming function

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	10638.14	38.25	54.00	-15.75	29.53	5.01	38.93	35.22	Average	142	92	HORIZONTAL
2	10638.32	50.62	74.00	-23.38	41.90	5.01	38.93	35.22	Peak	142	92	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	10639.64	49.16	54.00	-4.84	40.44	5.01	38.93	35.22	Average	141	64	VERTICAL
2	10640.48	61.31	74.00	-12.69	52.59	5.01	38.93	35.22	Peak	141	64	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 100 / Chain 1 + Chain 2
Test Date	Aug. 17, 2014	Test Function	Non-beamforming function

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	10991.36	48.97	74.00	-25.03	39.94	5.01	39.00	34.98	Peak	156	159	HORIZONTAL
2	11001.38	38.71	54.00	-15.29	29.68	5.01	39.00	34.98	Average	156	159	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	10999.70	45.80	54.00	-8.20	36.77	5.01	39.00	34.98	Average	150	145	VERTICAL
2	11000.66	58.02	74.00	-15.98	48.99	5.01	39.00	34.98	Peak	150	145	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 116 / Chain 1 + Chain 2
Test Date	Aug. 17, 2014	Test Function	Non-beamforming function

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	11160.60	53.90	74.00	-20.10	44.73	5.04	39.13	35.00	Peak	167	134	HORIZONTAL
2	11160.72	44.46	54.00	-9.54	35.29	5.04	39.13	35.00	Average	167	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	11162.40	65.41	74.00	-8.59	56.23	5.05	39.13	35.00	Peak	149	139	VERTICAL
2	11162.82	51.15	54.00	-2.85	41.97	5.05	39.13	35.00	Average	149	139	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 140 / Chain 1 + Chain 2
Test Date	Aug. 17, 2014	Test Function	Non-beamforming function

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	11402.52	50.73	74.00	-23.27	41.35	5.10	39.32	35.04	Peak	157	60	HORIZONTAL
2	11402.58	37.30	54.00	-16.70	27.92	5.10	39.32	35.04	Average	157	60	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	11397.24	56.63	74.00	-17.37	47.25	5.10	39.32	35.04	Peak	149	140	VERTICAL
2	11397.78	44.51	54.00	-9.49	35.13	5.10	39.32	35.04	Average	149	140	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 144 / Chain 1 + Chain 2
Test Date	Aug. 17, 2014	Test Function	Non-beamforming function

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	11441.74	50.66	74.00	-23.34	41.25	5.10	39.35	35.04	Peak	145	125	HORIZONTAL
2	11442.70	39.17	54.00	-14.83	29.75	5.11	39.35	35.04	Average	145	125	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	11437.78	47.62	54.00	-6.38	38.21	5.10	39.35	35.04	Average	145	141	VERTICAL
2	11442.52	59.81	74.00	-14.19	50.39	5.11	39.35	35.04	Peak	145	141	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 149 / Chain 1 + Chain 2
Test Date	Aug. 18, 2014	Test Function	Non-beamforming function

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	11471.17	55.48	74.00	-18.52	41.83	9.23	39.50	35.08	Peak	150	92	HORIZONTAL
2	11493.37	43.88	54.00	-10.12	30.22	9.24	39.50	35.08	Average	150	92	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	11489.12	55.27	74.00	-18.73	41.61	9.24	39.50	35.08	Peak	150	251	VERTICAL
2	11492.00	46.08	54.00	-7.92	32.42	9.24	39.50	35.08	Average	150	251	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 157 / Chain 1 + Chain 2
Test Date	Aug. 18, 2014	Test Function	Non-beamforming function

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	11547.16	55.62	74.00	-18.38	41.96	9.26	39.49	35.09	Peak	150	98	HORIZONTAL
2	11571.28	45.91	54.00	-8.09	32.27	9.26	39.47	35.09	Average	150	98	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	11572.64	50.79	54.00	-3.21	37.14	9.26	39.47	35.08	Average	161	4	VERTICAL
2	11572.64	63.16	74.00	-10.84	49.51	9.26	39.47	35.08	Peak	161	4	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 165 / Chain 1 + Chain 2
Test Date	Aug. 18, 2014	Test Function	Non-beamforming function

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	11650.72	59.00	74.00	-15.00	45.35	9.28	39.44	35.07	Peak	150	229	HORIZONTAL
2	11651.20	46.21	54.00	-7.79	32.56	9.28	39.44	35.07	Average	150	229	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	11650.40	64.02	74.00	-9.98	50.37	9.28	39.44	35.07	Peak	150	228	VERTICAL
2	11650.56	50.36	54.00	-3.64	36.71	9.28	39.44	35.07	Average	150	228	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 36 / Chain 1 + Chain 2
Test Date	Aug. 20, 2014	Test Function	Beamforming function

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	15537.60	54.67	74.00	-19.33	45.26	6.13	38.45	35.17	Peak	100	176	HORIZONTAL
2	15543.32	40.89	54.00	-13.11	31.48	6.13	38.45	35.17	Average	100	176	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	15535.88	41.66	54.00	-12.34	32.25	6.13	38.45	35.17	Average	100	359	VERTICAL
2	15543.82	54.55	74.00	-19.45	45.16	6.13	38.43	35.17	Peak	100	359	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 40 / Chain 1 + Chain 2
Test Date	Aug. 20, 2014	Test Function	Beamforming function

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	15595.40	40.28	54.00	-13.72	30.97	6.13	38.36	35.18	Average	100	196	HORIZONTAL
2	15604.78	54.05	74.00	-19.95	44.75	6.13	38.36	35.19	Peak	100	196	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	15597.58	53.70	74.00	-20.30	44.39	6.13	38.36	35.18	Peak	100	47	VERTICAL
2	15601.44	40.49	54.00	-13.51	31.19	6.13	38.36	35.19	Average	100	47	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 48 / Chain 1 + Chain 2
Test Date	Aug. 20, 2014	Test Function	Beamforming function

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	15715.92	53.63	74.00	-20.37	44.51	6.14	38.19	35.21	Peak	100	248	HORIZONTAL
2	15720.62	40.03	54.00	-13.97	30.91	6.14	38.19	35.21	Average	100	248	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	15719.50	41.24	54.00	-12.76	32.12	6.14	38.19	35.21	Average	100	331	VERTICAL
2	15721.30	54.20	74.00	-19.80	45.08	6.14	38.19	35.21	Peak	100	331	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 52 / Chain 1 + Chain 2
Test Date	Aug. 20, 2014	Test Function	Beamforming function

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	15775.12	40.69	54.00	-13.31	31.67	6.14	38.11	35.23	Average	100	305	HORIZONTAL
2	15777.16	53.77	74.00	-20.23	44.75	6.14	38.11	35.23	Peak	100	305	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	15776.94	41.10	54.00	-12.90	32.08	6.14	38.11	35.23	Average	100	27	VERTICAL
2	15777.34	53.99	74.00	-20.01	44.98	6.14	38.11	35.24	Peak	100	27	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 60 / Chain 1 + Chain 2
Test Date	Aug. 20, 2014	Test Function	Beamforming function

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	10595.30	47.33	54.00	-6.67	38.65	5.01	38.92	35.25	Average	100	242	HORIZONTAL
2	10597.54	60.47	74.00	-13.53	51.79	5.01	38.92	35.25	Peak	100	242	HORIZONTAL
3	15902.02	53.82	74.00	-20.18	45.01	6.15	37.92	35.26	Peak	100	205	HORIZONTAL
4	15902.84	40.24	54.00	-13.76	31.43	6.15	37.92	35.26	Average	100	205	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	10599.88	61.36	74.00	-12.64	52.68	5.01	38.92	35.25	Peak	100	44	VERTICAL
2	10601.44	49.27	54.00	-4.73	40.57	5.01	38.92	35.23	Average	100	44	VERTICAL
3	15896.48	53.60	74.00	-20.40	44.77	6.15	37.94	35.26	Peak	100	167	VERTICAL
4	15902.98	40.29	54.00	-13.71	31.48	6.15	37.92	35.26	Average	100	167	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 64 / Chain 1 + Chain 2
Test Date	Aug. 20, 2014	Test Function	Beamforming function

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	10638.70	55.15	74.00	-18.85	46.43	5.01	38.93	35.22	Peak	100	200	HORIZONTAL
2	10640.36	43.04	54.00	-10.96	34.32	5.01	38.93	35.22	Average	100	200	HORIZONTAL
3	15960.54	53.60	74.00	-20.40	44.88	6.15	37.85	35.28	Peak	100	332	HORIZONTAL
4	15964.70	40.36	54.00	-13.64	31.64	6.15	37.85	35.28	Average	100	332	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	10636.40	59.32	74.00	-14.68	50.60	5.01	38.93	35.22	Peak	100	302	VERTICAL
2	10639.54	46.15	54.00	-7.85	37.43	5.01	38.93	35.22	Average	100	302	VERTICAL
3	15956.94	54.19	74.00	-19.81	45.47	6.15	37.85	35.28	Peak	100	258	VERTICAL
4	15964.20	40.13	54.00	-13.87	31.41	6.15	37.85	35.28	Average	100	258	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 100 / Chain 1 + Chain 2
Test Date	Aug. 20, 2014	Test Function	Beamforming function

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	11003.18	39.72	54.00	-14.28	30.69	5.01	39.00	34.98	Average	100	334	HORIZONTAL
2	11003.94	51.41	74.00	-22.59	42.38	5.01	39.00	34.98	Peak	100	334	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	10996.88	54.07	74.00	-19.93	45.04	5.01	39.00	34.98	Peak	100	59	VERTICAL
2	10999.16	42.47	54.00	-11.53	33.44	5.01	39.00	34.98	Average	100	59	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 116 / Chain 1 + Chain 2
Test Date	Aug. 20, 2014	Test Function	Beamforming function

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	11156.68	55.95	74.00	-18.05	46.79	5.04	39.12	35.00	Peak	100	238	HORIZONTAL
2	11162.50	42.90	54.00	-11.10	33.72	5.05	39.13	35.00	Average	100	238	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	11159.84	44.84	54.00	-9.16	35.67	5.04	39.13	35.00	Average	100	53	VERTICAL
2	11162.46	58.35	74.00	-15.65	49.17	5.05	39.13	35.00	Peak	100	53	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 140 / Chain 1 + Chain 2
Test Date	Aug. 20, 2014	Test Function	Beamforming function

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	11398.18	42.80	54.00	-11.20	33.42	5.10	39.32	35.04	Average	100	239	HORIZONTAL
2	11399.02	54.53	74.00	-19.47	45.15	5.10	39.32	35.04	Peak	100	239	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	11395.74	56.90	74.00	-17.10	47.52	5.10	39.32	35.04	Peak	100	354	VERTICAL
2	11399.62	45.54	54.00	-8.46	36.16	5.10	39.32	35.04	Average	100	354	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 144 / Chain 1 + Chain 2
Test Date	Aug. 20, 2014	Test Function	Beamforming function

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	11436.62	50.36	74.00	-23.64	40.95	5.10	39.35	35.04	Peak	100	217	HORIZONTAL
2	11444.94	37.21	54.00	-16.79	27.79	5.11	39.35	35.04	Average	100	217	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	11437.10	50.41	74.00	-23.59	41.00	5.10	39.35	35.04	Peak	100	179	VERTICAL
2	11444.16	37.03	54.00	-16.97	27.61	5.11	39.35	35.04	Average	100	179	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 149 / Chain 1 + Chain 2
Test Date	Aug. 20, 2014	Test Function	Beamforming function

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	11490.56	38.73	54.00	-15.27	29.28	5.11	39.39	35.05	Average	100	103	HORIZONTAL
2	11491.36	51.71	74.00	-22.29	42.26	5.11	39.39	35.05	Peak	100	103	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	11488.86	40.49	54.00	-13.51	31.04	5.11	39.39	35.05	Average	100	25	VERTICAL
2	11492.26	50.56	74.00	-23.44	41.11	5.11	39.39	35.05	Peak	100	25	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 157 / Chain 1 + Chain 2
Test Date	Aug. 20, 2014	Test Function	Beamforming function

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	11570.88	52.34	74.00	-21.66	42.82	5.14	39.44	35.06	Peak	100	212	HORIZONTAL
2	11574.98	38.80	54.00	-15.20	29.28	5.14	39.44	35.06	Average	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	11566.84	38.65	54.00	-15.35	29.14	5.13	39.44	35.06	Average	100	134	VERTICAL
2	11568.76	51.62	74.00	-22.38	42.11	5.13	39.44	35.06	Peak	100	134	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 165 / Chain 1 + Chain 2
Test Date	Aug. 20, 2014	Test Function	Beamforming function

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	11652.78	37.95	54.00	-16.05	28.38	5.16	39.49	35.08	Average	100	280	HORIZONTAL
2	11653.24	53.71	74.00	-20.29	44.14	5.16	39.49	35.08	Peak	100	280	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	11652.92	41.02	54.00	-12.98	31.45	5.16	39.49	35.08	Average	100	245	VERTICAL
2	11653.24	54.34	74.00	-19.66	44.77	5.16	39.49	35.08	Peak	100	245	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 38 / Chain 1 + Chain 2
Test Date	Aug. 20, 2014	Test Function	Beamforming function

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	15567.57	39.40	54.00	-14.60	30.04	6.13	38.40	35.17	Average	100	226	HORIZONTAL
2	15570.30	53.40	74.00	-20.60	44.04	6.13	38.40	35.17	Peak	100	226	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	15568.58	53.08	74.00	-20.92	43.72	6.13	38.40	35.17	Peak	100	313	VERTICAL
2	15571.37	39.38	54.00	-14.62	30.02	6.13	38.40	35.17	Average	100	313	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 46 / Chain 1 + Chain 2
Test Date	Aug. 20, 2014	Test Function	Beamforming function

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	15689.58	39.30	54.00	-14.70	30.14	6.14	38.23	35.21	Average	100	63	HORIZONTAL
2	15692.12	53.62	74.00	-20.38	44.46	6.14	38.23	35.21	Peak	100	63	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	15689.88	39.45	54.00	-14.55	30.29	6.14	38.23	35.21	Average	100	266	VERTICAL
2	15690.01	52.91	74.00	-21.09	43.75	6.14	38.23	35.21	Peak	100	266	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 54 / Chain 1 + Chain 2
Test Date	Aug. 20, 2014	Test Function	Beamforming function

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	15807.63	38.78	54.00	-15.22	29.81	6.14	38.07	35.24	Average	100	240	HORIZONTAL
2	15807.73	53.26	74.00	-20.74	44.29	6.14	38.07	35.24	Peak	100	240	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	15809.00	52.95	74.00	-21.05	43.98	6.14	38.07	35.24	Peak	100	306	VERTICAL
2	15810.74	39.12	54.00	-14.88	30.15	6.14	38.07	35.24	Average	100	306	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 62 / Chain 1 + Chain 2
Test Date	Aug. 20, 2014	Test Function	Beamforming function

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	10611.92	39.89	54.00	-14.11	31.19	5.01	38.92	35.23	Average	214	232	HORIZONTAL
2	10620.08	56.87	74.00	-17.13	48.17	5.01	38.92	35.23	Peak	214	232	HORIZONTAL
3	15921.92	39.46	54.00	-14.54	30.68	6.15	37.90	35.27	Average	100	177	HORIZONTAL
4	15938.04	53.51	74.00	-20.49	44.77	6.15	37.87	35.28	Peak	100	177	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	10592.00	43.31	54.00	-10.69	34.63	5.01	38.92	35.25	Average	156	303	VERTICAL
2	10620.20	59.43	74.00	-14.57	50.73	5.01	38.92	35.23	Peak	156	303	VERTICAL
3	15922.20	39.43	54.00	-14.57	30.65	6.15	37.90	35.27	Average	100	101	VERTICAL
4	15928.72	53.82	74.00	-20.18	45.04	6.15	37.90	35.27	Peak	100	101	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 102 / Chain 1 + Chain 2
Test Date	Aug. 20, 2014	Test Function	Beamforming function

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	11018.80	35.42	54.00	-18.58	26.37	5.02	39.01	34.98	Average	100	57	HORIZONTAL
2	11019.99	51.62	74.00	-22.38	42.57	5.02	39.01	34.98	Peak	100	57	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	11020.00	53.68	74.00	-20.32	44.63	5.02	39.01	34.98	Peak	100	290	VERTICAL
2	11021.60	37.85	54.00	-16.15	28.78	5.02	39.03	34.98	Average	100	290	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 110 / Chain 1 + Chain 2
Test Date	Aug. 20, 2014	Test Function	Beamforming function

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	11098.62	52.63	74.00	-21.37	43.51	5.03	39.08	34.99	Peak	100	152	HORIZONTAL
2	11101.43	39.54	54.00	-14.46	30.42	5.03	39.08	34.99	Average	100	152	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	11099.98	56.92	74.00	-17.08	47.80	5.03	39.08	34.99	Peak	100	293	VERTICAL
2	11100.45	40.39	54.00	-13.61	31.27	5.03	39.08	34.99	Average	100	293	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 134 / Chain 1 + Chain 2
Test Date	Aug. 20, 2014	Test Function	Beamforming function

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	11339.37	39.00	54.00	-15.00	29.68	5.08	39.27	35.03	Average	100	106	HORIZONTAL
2	11339.51	52.66	74.00	-21.34	43.34	5.08	39.27	35.03	Peak	100	106	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	11338.97	40.46	54.00	-13.54	31.14	5.08	39.27	35.03	Average	100	157	VERTICAL
2	11339.88	55.86	74.00	-18.14	46.54	5.08	39.27	35.03	Peak	100	157	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 142 / Chain 1 + Chain 2
Test Date	Aug. 20, 2014	Test Function	Beamforming function

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	11419.94	53.59	74.00	-20.41	44.20	5.10	39.33	35.04	Peak	100	55	HORIZONTAL
2	11422.41	39.98	54.00	-14.02	30.59	5.10	39.33	35.04	Average	100	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	11417.55	39.62	54.00	-14.38	30.23	5.10	39.33	35.04	Average	100	242	VERTICAL
2	11419.98	55.27	74.00	-18.73	45.88	5.10	39.33	35.04	Peak	100	242	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 151 / Chain 1 + Chain 2
Test Date	Aug. 20, 2014	Test Function	Beamforming function

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	11509.07	50.14	74.00	-23.86	40.67	5.12	39.40	35.05	Peak	100	196	HORIZONTAL
2	11512.35	36.52	54.00	-17.48	27.05	5.12	39.40	35.05	Average	100	196	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	11509.98	49.83	74.00	-24.17	40.36	5.12	39.40	35.05	Peak	100	86	VERTICAL
2	11510.57	36.87	54.00	-17.13	27.40	5.12	39.40	35.05	Average	100	86	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 159 / Chain 1 + Chain 2
Test Date	Aug. 20, 2014	Test Function	Beamforming function

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	11588.12	36.09	54.00	-17.91	26.56	5.14	39.45	35.06	Average	100	261	HORIZONTAL
2	11590.11	54.84	74.00	-19.16	45.31	5.14	39.45	35.06	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	11587.90	38.72	54.00	-15.28	29.19	5.14	39.45	35.06	Average	100	160	VERTICAL
2	11590.01	53.67	74.00	-20.33	44.14	5.14	39.45	35.06	Peak	100	160	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 42 / Chain 1 + Chain 2
Test Date	Aug. 20, 2014	Test Function	Beamforming function

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	15626.58	39.64	54.00	-14.36	30.36	6.14	38.33	35.19	Average	100	329	HORIZONTAL
2	15627.08	54.45	74.00	-19.55	45.17	6.14	38.33	35.19	Peak	100	329	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	15625.46	39.89	54.00	-14.11	30.61	6.14	38.33	35.19	Average	100	27	VERTICAL
2	15627.06	53.40	74.00	-20.60	44.12	6.14	38.33	35.19	Peak	100	27	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 58 / Chain 1 + Chain 2
Test Date	Aug. 20, 2014	Test Function	Beamforming function

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	15872.22	53.51	74.00	-20.49	44.66	6.14	37.97	35.26	Peak	100	151	HORIZONTAL
2	15874.18	39.50	54.00	-14.50	30.65	6.14	37.97	35.26	Average	100	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	15869.06	53.07	74.00	-20.93	44.22	6.14	37.97	35.26	Peak	100	44	VERTICAL
2	15873.58	39.74	54.00	-14.26	30.89	6.14	37.97	35.26	Average	100	44	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 106 / Chain 1 + Chain 2
Test Date	Aug. 20, 2014	Test Function	Beamforming function

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	11055.94	36.36	54.00	-17.64	27.28	5.02	39.05	34.99	Average	100	234	HORIZONTAL
2	11057.60	50.00	74.00	-24.00	40.92	5.02	39.05	34.99	Peak	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	11057.16	50.61	74.00	-23.39	41.53	5.02	39.05	34.99	Peak	100	296	VERTICAL
2	11061.26	37.49	54.00	-16.51	28.40	5.03	39.05	34.99	Average	100	296	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 138 / Chain 1 + Chain 2
Test Date	Aug. 20, 2014	Test Function	Beamforming function

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	11378.08	51.15	74.00	-22.85	41.80	5.09	39.29	35.03	Peak	100	121	HORIZONTAL
2	11382.92	37.74	54.00	-16.26	28.37	5.09	39.31	35.03	Average	100	121	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	11375.38	39.76	54.00	-14.24	30.41	5.09	39.29	35.03	Average	100	47	VERTICAL
2	11379.18	52.37	74.00	-21.63	43.00	5.09	39.31	35.03	Peak	100	47	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 155 / Chain 1 + Chain 2
Test Date	Aug. 20, 2014	Test Function	Beamforming function

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	11548.44	50.42	74.00	-23.58	40.93	5.13	39.42	35.06	Peak	100	210	HORIZONTAL
2	11549.34	36.79	54.00	-17.21	27.29	5.13	39.43	35.06	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	11549.80	36.93	54.00	-17.07	27.43	5.13	39.43	35.06	Average	100	61	VERTICAL
2	11553.38	50.41	74.00	-23.59	40.91	5.13	39.43	35.06	Peak	100	61	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 36 / Chain 1 + Chain 2
Test Date	Aug. 25, 2014	Test Function	STBC function

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	15531.90	51.03	74.00	-22.97	41.62	6.13	38.45	35.17	Peak	100	349	HORIZONTAL
2	15544.47	37.74	54.00	-16.26	28.35	6.13	38.43	35.17	Average	100	349	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	15535.25	51.32	74.00	-22.68	41.91	6.13	38.45	35.17	Peak	100	315	VERTICAL
2	15549.72	37.89	54.00	-16.11	28.50	6.13	38.43	35.17	Average	100	315	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 40 / Chain 1 + Chain 2
Test Date	Aug. 25, 2014	Test Function	STBC function

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	15597.90	37.67	54.00	-16.33	28.36	6.13	38.36	35.18	Average	100	113	HORIZONTAL
2	15601.45	50.63	74.00	-23.37	41.33	6.13	38.36	35.19	Peak	100	113	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	15591.25	50.35	74.00	-23.65	41.02	6.13	38.38	35.18	Peak	100	15	VERTICAL
2	15596.95	38.96	54.00	-15.04	29.65	6.13	38.36	35.18	Average	100	15	VERTICAL

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 48 / Chain 1 + Chain 2
Test Date	Aug. 25, 2014	Test Function	STBC function

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	15713.03	37.44	54.00	-16.56	28.30	6.14	38.21	35.21	Average	100	103	HORIZONTAL
2	15720.60	50.95	74.00	-23.05	41.83	6.14	38.19	35.21	Peak	100	103	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	15715.08	37.48	54.00	-16.52	28.36	6.14	38.19	35.21	Average	100	75	VERTICAL
2	15725.92	50.16	74.00	-23.84	41.04	6.14	38.19	35.21	Peak	100	75	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 5.15-5.35 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

For transmitters operating in the 5.470-5.725 GHz band: all emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

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 function and STBC function:

The EUT was programmed to be in continuously transmitting mode.

For beamforming function:

The EUT was programmed to be in beamforming transmitting mode.

4.7.7. Test Result of Band Edge and Fundamental Emissions

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 36, 40, 48 / Chain 1 + Chain 2
Test Date	Aug. 12, 2014 / Aug. 13, 2014	Test Function	Non-beamforming function

Channel 36

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5148.80	69.69	74.00	-4.31	66.74	4.34	33.14	34.53	VERTICAL	112	279	Peak
2	5149.80	53.64	54.00	-0.36	50.69	4.34	33.14	34.53	VERTICAL	112	279	Average
3	5172.00	101.97			98.98	4.35	33.17	34.53	VERTICAL	112	279	Average
4	5177.00	112.80			109.78	4.36	33.19	34.53	VERTICAL	112	279	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	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5147.20	67.31	74.00	-6.69	64.36	4.34	33.14	34.53	VERTICAL	101	279	Peak
2	5150.00	52.05	54.00	-1.95	49.10	4.34	33.14	34.53	VERTICAL	101	279	Average
3	5202.00	105.68			102.62	4.37	33.22	34.53	VERTICAL	101	279	Average
4	5204.40	116.47			113.41	4.37	33.22	34.53	VERTICAL	101	279	Peak

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

Channel 48

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5145.20	56.42	74.00	-17.58	52.82	5.99	33.02	35.41	100	161	VERTICAL	Peak
2	5150.00	45.98	54.00	-8.02	42.38	5.99	33.02	35.41	100	161	VERTICAL	Average
3	5232.50	108.80			105.11	6.04	33.09	35.44	100	161	VERTICAL	Peak
4	5237.60	101.92			98.23	6.05	33.09	35.45	100	161	VERTICAL	Average
5	5350.00	45.86	54.00	-8.14	41.84	6.11	33.40	35.49	100	161	VERTICAL	Average
6	5356.60	57.69	74.00	-16.31	53.61	6.12	33.45	35.49	100	161	VERTICAL	Peak

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

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 52, 60, 64 / Chain 1 + Chain 2
Test Date	Aug. 15, 2014	Test Function	Non-beamforming function

Channel 52

	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	5255.50	109.98			106.27	6.06	33.10	35.45	169	150	VERTICAL	Peak
2	5258.20	104.20			100.49	6.06	33.10	35.45	169	150	VERTICAL	Average
3	5350.00	46.52	54.00	-7.48	42.50	6.11	33.40	35.49	169	150	VERTICAL	Average
4	5351.80	55.52	74.00	-18.48	51.50	6.11	33.40	35.49	169	150	VERTICAL	Peak

Item 1, 2 are the fundamental frequency at 5260 MHz.

Channel 60

	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	5303.00	109.20			105.33	6.09	33.25	35.47	177	152	VERTICAL	Peak
2	5305.40	102.99			99.12	6.09	33.25	35.47	177	152	VERTICAL	Average
3	5350.00	49.69	54.00	-4.31	45.67	6.11	33.40	35.49	177	152	VERTICAL	Average
4	5351.20	58.22	74.00	-15.78	54.20	6.11	33.40	35.49	177	152	VERTICAL	Peak

Item 1, 2 are the fundamental frequency at 5300 MHz.

Channel 64

	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	5315.30	101.79			97.87	6.09	33.30	35.47	178	155	VERTICAL	Average
2	5317.50	108.71			104.79	6.09	33.30	35.47	178	155	VERTICAL	Peak
3	5350.20	63.75	74.00	-10.25	59.73	6.11	33.40	35.49	178	155	VERTICAL	Peak
4	5350.30	53.22	54.00	-0.78	49.20	6.11	33.40	35.49	178	155	VERTICAL	Average

Item 1, 2 are the fundamental frequency at 5320 MHz.

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 100, 140 / Chain 1 + Chain 2
Test Date	Aug. 15, 2014	Test Function	Non-beamforming function

Channel 100

	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	5458.90	59.00	74.00	-15.00	54.60	6.18	33.75	35.53	100	155	VERTICAL	Peak
2	5460.00	48.52	54.00	-5.48	44.12	6.18	33.75	35.53	100	155	VERTICAL	Average
3	5468.80	65.21	74.00	-8.79	60.76	6.18	33.80	35.53	100	155	VERTICAL	Peak
4	5470.00	53.56	54.00	-0.44	49.11	6.18	33.80	35.53	100	155	VERTICAL	Average
5	5495.20	100.38			95.82	6.20	33.90	35.54	100	155	VERTICAL	Average
6	5495.60	107.51			102.95	6.20	33.90	35.54	100	155	VERTICAL	Peak

Item 5, 6 are the fundamental frequency at 5500 MHz.

Channel 140

	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	5694.00	102.51			97.41	6.33	34.14	35.37	176	131	VERTICAL	Average
2	5698.90	110.39			105.28	6.33	34.14	35.36	176	131	VERTICAL	Peak
3	5727.10	68.11	68.20	-0.09	62.92	6.35	34.18	35.34	176	131	VERTICAL	Peak

Item 1, 2 are the fundamental frequency at 5700 MHz.

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 149, 157, 165 / Chain 1 + Chain 2
Test Date	Aug. 18, 2014	Test Function	Non-beamforming function

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	5714.04	67.63	68.20	-0.57	61.52	6.44	34.87	35.20	Peak	169	129	VERTICAL
2	5718.91	73.66	78.20	-4.54	67.54	6.45	34.87	35.20	Peak	169	129	VERTICAL
3	5744.04	101.36			95.21	6.45	34.90	35.20	Average	169	129	VERTICAL
4	5746.28	112.58			106.43	6.45	34.90	35.20	Peak	169	129	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	5713.08	61.11	68.20	-7.09	55.00	6.44	34.87	35.20	Peak	161	135	VERTICAL
2	5723.08	63.99	78.20	-14.21	57.85	6.45	34.89	35.20	Peak	161	135	VERTICAL
3	5785.96	104.02			97.82	6.47	34.93	35.20	Average	161	135	VERTICAL
4	5787.40	115.34			109.14	6.47	34.93	35.20	Peak	161	135	VERTICAL
5	5850.00	60.67	78.20	-17.53	54.40	6.49	34.98	35.20	Peak	161	135	VERTICAL
6	5860.96	58.60	68.20	-9.60	52.31	6.50	34.99	35.20	Peak	161	135	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	5821.80	113.28			107.05	6.48	34.95	35.20	Peak	176	128	VERTICAL
2	5824.04	102.46			96.23	6.48	34.95	35.20	Average	176	128	VERTICAL
3	5850.00	74.52	78.20	-3.68	68.25	6.49	34.98	35.20	Peak	176	128	VERTICAL
4	5861.92	67.79	68.20	-0.41	61.50	6.50	34.99	35.20	Peak	176	128	VERTICAL

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

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 38, 46 / Chain 1 + Chain 2
Test Date	Aug. 13, 2014 / Aug. 17, 2014	Test Function	Non-beamforming function

Channel 38

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5149.20	53.91	54.00	-0.09	50.31	5.99	33.02	35.41	179	132	VERTICAL	Average
2	5149.40	62.59	74.00	-11.41	58.99	5.99	33.02	35.41	179	132	VERTICAL	Peak
3	5191.80	103.04			99.40	6.02	33.05	35.43	179	132	VERTICAL	Peak
4	5194.20	95.95			92.31	6.02	33.05	35.43	179	132	VERTICAL	Average

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	5144.80	69.00	74.00	-5.00	66.37	3.43	34.11	34.91	Peak	185	62	VERTICAL
2	5150.00	52.49	54.00	-1.51	49.86	3.43	34.11	34.91	Average	185	62	VERTICAL
3	5223.60	99.74			96.99	3.46	34.20	34.91	Average	185	62	VERTICAL
4	5224.00	111.18			108.43	3.46	34.20	34.91	Peak	185	62	VERTICAL

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

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 54, 62 / Chain 1 + Chain 2
Test Date	Aug. 17, 2014	Test Function	Non-beamforming function

Channel 54

	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	5266.40	99.11			96.29	3.46	34.27	34.91	Average	178	60	VERTICAL
2	5266.40	110.67			107.85	3.46	34.27	34.91	Peak	178	60	VERTICAL
3	5350.00	50.04	54.00	-3.96	47.07	3.49	34.39	34.91	Average	178	60	VERTICAL
4	5350.00	63.06	74.00	-10.94	60.09	3.49	34.39	34.91	Peak	178	60	VERTICAL

Item 1, 2 are the fundamental frequency at 5270 MHz.

Channel 62

	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	5306.40	97.64			94.75	3.48	34.32	34.91	Average	184	148	VERTICAL
2	5316.40	108.43			105.52	3.48	34.34	34.91	Peak	184	148	VERTICAL
3	5351.60	72.18	74.00	-1.82	69.21	3.49	34.39	34.91	Peak	184	148	VERTICAL
4	5354.40	53.98	54.00	-0.02	51.01	3.49	34.39	34.91	Average	184	148	VERTICAL

Item 1, 2 are the fundamental frequency at 5310 MHz.

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 102, 110, 134 / Chain 1 + Chain 2
Test Date	Aug. 17, 2014	Test Function	Non-beamforming function

Channel 102

	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	5459.60	48.43	54.00	-5.57	45.30	3.52	34.53	34.92	Average	171	53	VERTICAL
2	5464.00	67.98	74.00	-6.02	64.83	3.52	34.55	34.92	Peak	171	53	VERTICAL
3	5469.60	53.93	54.00	-0.07	50.78	3.52	34.55	34.92	Average	171	53	VERTICAL
4	5514.00	95.51			92.28	3.54	34.61	34.92	Average	171	53	VERTICAL
5	5516.40	107.84			104.61	3.54	34.61	34.92	Peak	171	53	VERTICAL

Item 4, 5 are the fundamental frequency at 5510 MHz.

Channel 110

	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	5460.00	50.67	54.00	-3.33	47.54	3.52	34.53	34.92	Average	163	54	VERTICAL
2	5460.00	65.47	74.00	-8.53	62.34	3.52	34.53	34.92	Peak	163	54	VERTICAL
3	5469.60	68.86	74.00	-5.14	65.71	3.52	34.55	34.92	Peak	163	54	VERTICAL
4	5470.00	52.41	54.00	-1.59	49.26	3.52	34.55	34.92	Average	163	54	VERTICAL
5	5561.60	111.01			107.77	3.55	34.62	34.93	Peak	163	54	VERTICAL
6	5564.00	100.03			96.79	3.55	34.62	34.93	Average	163	54	VERTICAL

Item 5, 6 are the fundamental frequency at 5550 MHz.

Channel 134

	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	5684.00	98.36			95.03	3.59	34.68	34.94	Average	146	53	VERTICAL
2	5684.00	109.55			106.22	3.59	34.68	34.94	Peak	146	53	VERTICAL
3	5731.00	53.90	54.00	-0.10	50.54	3.61	34.69	34.94	Average	146	53	VERTICAL
4	5736.20	67.93	74.00	-6.07	64.56	3.61	34.70	34.94	Peak	146	53	VERTICAL

Item 1, 2 are the fundamental frequency at 5670 MHz.

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 151, 159 / Chain 1 + Chain 2
Test Date	Aug. 18, 2014	Test Function	Non-beamforming function

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	5714.04	67.50	68.20	-0.70	61.39	6.44	34.87	35.20	Peak	183	131	VERTICAL
2	5718.91	69.52	78.20	-8.68	63.40	6.45	34.87	35.20	Peak	183	131	VERTICAL
3	5746.35	106.85			100.70	6.45	34.90	35.20	Peak	183	131	VERTICAL
4	5746.67	95.15			89.00	6.45	34.90	35.20	Average	183	131	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	5786.35	101.22			95.02	6.47	34.93	35.20	Average	169	133	VERTICAL
2	5793.72	111.63			105.42	6.47	34.94	35.20	Peak	169	133	VERTICAL
3	5851.28	71.31	78.20	-6.89	65.04	6.49	34.98	35.20	Peak	169	133	VERTICAL
4	5866.09	67.59	68.20	-0.61	61.30	6.50	34.99	35.20	Peak	169	133	VERTICAL

Item 1, 2 are the fundamental frequency at 5795 MHz.

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 42, 58 / Chain 1 + Chain 2
Test Date	Aug. 17, 2014	Test Function	Non-beamforming function

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	5144.00	68.04	74.00	-5.96	65.41	3.43	34.11	34.91	Peak	185	154	VERTICAL
2	5149.00	53.79	54.00	-0.21	51.16	3.43	34.11	34.91	Average	185	154	VERTICAL
3	5220.00	91.00			88.26	3.45	34.20	34.91	Average	185	154	VERTICAL
4	5220.00	103.51			100.77	3.45	34.20	34.91	Peak	185	154	VERTICAL

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

Channel 58

	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	5279.00	92.83			89.97	3.47	34.30	34.91	Average	232	145	VERTICAL
2	5281.00	105.58			102.72	3.47	34.30	34.91	Peak	232	145	VERTICAL
3	5350.00	53.53	54.00	-0.47	50.56	3.49	34.39	34.91	Average	232	145	VERTICAL
4	5354.00	68.07	74.00	-5.93	65.10	3.49	34.39	34.91	Peak	232	145	VERTICAL

Item 1, 2 are the fundamental frequency at 5290 MHz.

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 106, 155 / Chain 1 + Chain 2
Test Date	Aug. 17, 2014 / Aug. 18, 2014	Test Function	Non-beamforming function

Channel 106

	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	5453.00	67.23	74.00	-6.77	64.10	3.52	34.53	34.92	Peak	222	150	VERTICAL
2	5459.00	53.78	54.00	-0.22	50.65	3.52	34.53	34.92	Average	222	150	VERTICAL
3	5464.00	67.52	74.00	-6.48	64.37	3.52	34.55	34.92	Peak	222	150	VERTICAL
4	5466.00	53.58	54.00	-0.42	50.43	3.52	34.55	34.92	Average	222	150	VERTICAL
5	5519.00	91.56			88.33	3.54	34.61	34.92	Average	222	150	VERTICAL
6	5554.00	104.33			101.09	3.55	34.62	34.93	Peak	222	150	VERTICAL

Item 5, 6 are the fundamental frequency at 5530 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	5711.64	67.42	68.20	-0.78	61.31	6.44	34.87	35.20	Peak	181	134	VERTICAL
2	5717.79	69.04	78.20	-9.16	62.92	6.45	34.87	35.20	Peak	181	134	VERTICAL
3	5762.02	104.52			98.35	6.46	34.91	35.20	Peak	181	134	VERTICAL
4	5768.75	94.66			88.49	6.46	34.91	35.20	Average	181	134	VERTICAL
5	5858.65	63.27	78.20	-14.93	56.99	6.50	34.98	35.20	Peak	181	134	VERTICAL
6	5862.40	61.86	68.20	-6.34	55.57	6.50	34.99	35.20	Peak	181	134	VERTICAL

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

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 36, 40, 48 / Chain 1 + Chain 2
Test Date	Aug. 12, 2014	Test Function	Non-beamforming function

Channel 36

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5149.80	53.63	54.00	-0.37	50.68	4.34	33.14	34.53	VERTICAL	113	280	Average
2	5150.00	71.14	74.00	-2.86	68.19	4.34	33.14	34.53	VERTICAL	113	280	Peak
3	5174.20	103.72			100.70	4.36	33.19	34.53	VERTICAL	113	280	Average
4	5174.40	114.47			111.45	4.36	33.19	34.53	VERTICAL	113	280	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	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5150.00	64.04	74.00	-9.96	61.09	4.34	33.14	34.53	VERTICAL	102	279	Peak
2	5150.00	51.75	54.00	-2.25	48.80	4.34	33.14	34.53	VERTICAL	102	279	Average
3	5203.60	106.66			103.60	4.37	33.22	34.53	VERTICAL	102	279	Average
4	5204.00	116.59			113.53	4.37	33.22	34.53	VERTICAL	102	279	Peak

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

Channel 48

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5150.00	57.77	74.00	-16.23	54.82	4.34	33.14	34.53	VERTICAL	100	279	Peak
2	5150.00	45.06	54.00	-8.94	42.11	4.34	33.14	34.53	VERTICAL	100	279	Average
3	5244.00	106.34			103.17	4.40	33.30	34.53	VERTICAL	100	279	Average
4	5244.40	116.74			113.57	4.40	33.30	34.53	VERTICAL	100	279	Peak

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

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 52, 60, 64 / Chain 1 + Chain 2
Test Date	Aug. 15, 2014	Test Function	Non-beamforming function

Channel 52

	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	5144.00	57.11	74.00	-16.89	53.51	5.99	33.02	35.41	100	152	VERTICAL	Peak
2	5150.00	46.39	54.00	-7.61	42.79	5.99	33.02	35.41	100	152	VERTICAL	Average
3	5261.20	103.61			99.90	6.06	33.10	35.45	100	152	VERTICAL	Average
4	5261.20	110.38			106.67	6.06	33.10	35.45	100	152	VERTICAL	Peak
5	5350.00	46.70	54.00	-7.30	42.68	6.11	33.40	35.49	100	152	VERTICAL	Average
6	5350.00	54.43	74.00	-19.57	50.41	6.11	33.40	35.49	100	152	VERTICAL	Peak

Item 3, 4 are the fundamental frequency at 5260 MHz.

Channel 60

	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	5297.60	105.89			102.03	6.08	33.25	35.47	171	138	VERTICAL	Average
2	5298.00	111.93			108.07	6.08	33.25	35.47	171	138	VERTICAL	Peak
3	5350.00	50.46	54.00	-3.54	46.44	6.11	33.40	35.49	171	138	VERTICAL	Average
4	5350.80	60.36	74.00	-13.64	56.34	6.11	33.40	35.49	171	138	VERTICAL	Peak

Item 1, 2 are the fundamental frequency at 5300 MHz.

Channel 64

	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	5315.40	102.84			98.92	6.09	33.30	35.47	160	154	VERTICAL	Average
2	5315.80	109.33			105.41	6.09	33.30	35.47	160	154	VERTICAL	Peak
3	5350.00	53.63	54.00	-0.37	49.61	6.11	33.40	35.49	160	154	VERTICAL	Average
4	5351.60	65.44	74.00	-8.56	61.42	6.11	33.40	35.49	160	154	VERTICAL	Peak

Item 1, 2 are the fundamental frequency at 5320 MHz.

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 100, 140 / Chain 1 + Chain 2
Test Date	Aug. 15, 2014	Test Function	Non-beamforming function

Channel 100

	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	5460.00	48.60	54.00	-5.40	44.20	6.18	33.75	35.53	186	35	VERTICAL	Average
2	5460.00	58.69	74.00	-15.31	54.29	6.18	33.75	35.53	186	35	VERTICAL	Peak
3	5467.80	65.42	74.00	-8.58	60.97	6.18	33.80	35.53	186	35	VERTICAL	Peak
4	5469.20	53.40	54.00	-0.60	48.95	6.18	33.80	35.53	186	35	VERTICAL	Average
5	5493.10	101.51			97.00	6.20	33.85	35.54	186	35	VERTICAL	Average
6	5493.10	108.37			103.86	6.20	33.85	35.54	186	35	VERTICAL	Peak

Item 5, 6 are the fundamental frequency at 5500 MHz.

Channel 140

	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	5702.20	110.66			105.54	6.34	34.14	35.36	171	133	VERTICAL	Peak
2	5702.60	103.81			98.69	6.34	34.14	35.36	171	133	VERTICAL	Average
3	5727.30	67.90	68.20	-0.30	62.71	6.35	34.18	35.34	171	133	VERTICAL	Peak

Item 1, 2 are the fundamental frequency at 5700 MHz.

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	EEE 802.11a CH 149, 157, 165 / Chain 1 + Chain 2
Test Date	Aug. 18, 2014	Test Function	Non-beamforming function

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	67.93	68.20	-0.27	61.82	6.44	34.87	35.20	Peak	174	129	VERTICAL
2	5723.40	74.75	78.20	-3.45	68.61	6.45	34.89	35.20	Peak	174	129	VERTICAL
3	5742.44	104.30			98.15	6.45	34.90	35.20	Average	174	129	VERTICAL
4	5742.44	114.47			108.32	6.45	34.90	35.20	Peak	174	129	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	5703.46	59.70	68.20	-8.50	53.60	6.44	34.86	35.20	Peak	170	324	VERTICAL
2	5722.12	61.21	78.20	-16.99	55.09	6.45	34.87	35.20	Peak	170	324	VERTICAL
3	5783.08	115.98			109.79	6.46	34.93	35.20	Peak	170	324	VERTICAL
4	5783.56	106.12			99.93	6.46	34.93	35.20	Average	170	324	VERTICAL
5	5858.65	61.42	78.20	-16.78	55.14	6.50	34.98	35.20	Peak	170	324	VERTICAL
6	5863.37	59.53	68.20	-8.67	53.24	6.50	34.99	35.20	Peak	170	324	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	5821.80	105.26			99.03	6.48	34.95	35.20	Average	165	136	VERTICAL
2	5821.80	114.97			108.74	6.48	34.95	35.20	Peak	165	136	VERTICAL
3	5851.28	75.86	78.20	-2.34	69.59	6.49	34.98	35.20	Peak	165	136	VERTICAL
4	5863.21	67.83	68.20	-0.37	61.54	6.50	34.99	35.20	Peak	165	136	VERTICAL

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

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 36, 40, 48 / Chain 1 + Chain 2
Test Date	Aug. 19, 2014	Test Function	Beamforming function

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	5143.00	67.99	74.00	-6.01	65.36	3.43	34.11	34.91	Peak	180	25	VERTICAL
2	5150.00	53.19	54.00	-0.81	50.56	3.43	34.11	34.91	Average	180	25	VERTICAL
3	5178.20	112.71			110.02	3.44	34.16	34.91	Peak	180	25	VERTICAL
4	5187.60	101.65			98.96	3.44	34.16	34.91	Average	180	25	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	5150.00	48.25	54.00	-5.75	45.62	3.43	34.11	34.91	Average	183	13	VERTICAL
2	5150.00	60.61	74.00	-13.39	57.98	3.43	34.11	34.91	Peak	183	13	VERTICAL
3	5207.20	103.84			101.12	3.45	34.18	34.91	Average	183	13	VERTICAL
4	5207.60	113.07			110.33	3.45	34.20	34.91	Peak	183	13	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	5148.40	55.23	74.00	-18.77	52.60	3.43	34.11	34.91	Peak	169	347	VERTICAL
2	5150.00	43.69	54.00	-10.31	41.06	3.43	34.11	34.91	Average	169	347	VERTICAL
3	5246.40	105.33			102.53	3.46	34.25	34.91	Average	169	347	VERTICAL
4	5247.20	114.52			111.72	3.46	34.25	34.91	Peak	169	347	VERTICAL

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

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 52, 60, 64 / Chain 1 + Chain 2
Test Date	Aug. 19, 2014	Test Function	Beamforming function

Channel 52

	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	5254.40	103.18			100.38	3.46	34.25	34.91	Average	188	309	VERTICAL
2	5261.60	113.97			111.15	3.46	34.27	34.91	Peak	188	309	VERTICAL
3	5350.00	44.76	54.00	-9.24	41.79	3.49	34.39	34.91	Average	188	309	VERTICAL
4	5350.40	57.64	74.00	-16.36	54.67	3.49	34.39	34.91	Peak	188	309	VERTICAL

Item 1, 2 are the fundamental frequency at 5260 MHz.

Channel 60

	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	5302.40	104.39			101.50	3.48	34.32	34.91	Average	197	335	VERTICAL
2	5303.20	114.09			111.20	3.48	34.32	34.91	Peak	197	335	VERTICAL
3	5350.00	47.26	54.00	-6.74	44.29	3.49	34.39	34.91	Average	197	335	VERTICAL
4	5351.20	61.57	74.00	-12.43	58.60	3.49	34.39	34.91	Peak	197	335	VERTICAL

Item 1, 2 are the fundamental frequency at 5300 MHz.

Channel 64

	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	5327.20	104.41			101.46	3.49	34.37	34.91	Average	213	0	VERTICAL
2	5327.20	114.44			111.49	3.49	34.37	34.91	Peak	213	0	VERTICAL
3	5350.00	53.40	54.00	-0.60	50.43	3.49	34.39	34.91	Average	213	0	VERTICAL
4	5350.00	67.22	74.00	-6.78	64.25	3.49	34.39	34.91	Peak	213	0	VERTICAL

Item 1, 2 are the fundamental frequency at 5320 MHz.

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 100, 140 / Chain 1 + Chain 2
Test Date	Aug. 19, 2014	Test Function	Beamforming function

Channel 100

	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	5459.60	62.79	74.00	-11.21	59.66	3.52	34.53	34.92	Peak	202	122	VERTICAL
2	5460.00	48.06	54.00	-5.94	44.93	3.52	34.53	34.92	Average	202	122	VERTICAL
3	5470.00	53.08	54.00	-0.92	49.93	3.52	34.55	34.92	Average	202	122	VERTICAL
4	5470.20	69.50	74.00	-4.50	66.35	3.52	34.55	34.92	Peak	202	122	VERTICAL
5	5496.00	113.43			110.24	3.53	34.58	34.92	Peak	202	122	VERTICAL
6	5496.80	103.29			100.08	3.53	34.60	34.92	Average	202	122	VERTICAL

Item 5, 6 are the fundamental frequency at 5500 MHz.

Channel 140

	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	5704.40	102.84			99.51	3.59	34.68	34.94	Average	167	130	VERTICAL
2	5704.40	112.30			108.97	3.59	34.68	34.94	Peak	167	130	VERTICAL
3	5725.00	53.92	54.00	-0.08	50.57	3.60	34.69	34.94	Average	167	130	VERTICAL
4	5725.00	67.05	74.00	-6.95	63.70	3.60	34.69	34.94	Peak	167	130	VERTICAL

Item 1, 2 are the fundamental frequency at 5700 MHz.

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 149, 157, 165 / Chain 1 + Chain 2
Test Date	Aug. 19, 2014	Test Function	Beamforming function

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	68.11	68.20	-0.09	64.77	3.60	34.68	34.94	Peak	197	29	VERTICAL
2	5725.00	77.53	78.20	-0.67	74.18	3.60	34.69	34.94	Peak	197	29	VERTICAL
3	5737.00	101.64			98.27	3.61	34.70	34.94	Average	197	29	VERTICAL
4	5739.00	112.24			108.87	3.61	34.70	34.94	Peak	197	29	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	5714.50	61.84	68.20	-6.36	58.50	3.60	34.68	34.94	Peak	161	126	VERTICAL
2	5724.40	63.61	78.20	-14.59	60.26	3.60	34.69	34.94	Peak	161	126	VERTICAL
3	5776.60	104.68			101.29	3.62	34.71	34.94	Average	161	126	VERTICAL
4	5778.40	115.36			111.97	3.62	34.71	34.94	Peak	161	126	VERTICAL
5	5850.40	57.01	78.20	-21.19	53.58	3.64	34.74	34.95	Peak	161	126	VERTICAL
6	5862.40	55.62	68.20	-12.58	52.18	3.65	34.74	34.95	Peak	161	126	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	5829.00	103.41			100.00	3.63	34.73	34.95	Average	182	121	VERTICAL
2	5829.00	114.36			110.95	3.63	34.73	34.95	Peak	182	121	VERTICAL
3	5850.00	78.18	78.20	-0.02	74.75	3.64	34.74	34.95	Peak	182	121	VERTICAL
4	5860.20	66.42	68.20	-1.78	62.98	3.65	34.74	34.95	Peak	182	121	VERTICAL

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

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 38, 46 / Chain 1 + Chain 2
Test Date	Aug. 19, 2014 / Aug. 20, 2014	Test Function	Beamforming function

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	5139.20	67.23	74.00	-6.77	64.62	3.43	34.09	34.91	Peak	169	349	VERTICAL
2	5149.60	53.78	54.00	-0.22	51.15	3.43	34.11	34.91	Average	169	349	VERTICAL
3	5204.80	107.34			104.62	3.45	34.18	34.91	Peak	169	349	VERTICAL
4	5206.80	96.47			93.75	3.45	34.18	34.91	Average	169	349	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	5146.40	64.79	74.00	-9.21	62.16	3.43	34.11	34.91	Peak	181	355	VERTICAL
2	5150.00	51.42	54.00	-2.58	48.79	3.43	34.11	34.91	Average	181	355	VERTICAL
3	5221.00	101.75			99.00	3.46	34.20	34.91	Average	181	355	VERTICAL
4	5221.00	111.81			109.06	3.46	34.20	34.91	Peak	181	355	VERTICAL

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

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 54, 62 / Chain 1 + Chain 2
Test Date	Aug. 20, 2014	Test Function	Beamforming function

Channel 54

	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	5264.80	101.01			98.19	3.46	34.27	34.91	Average	176	340	VERTICAL
2	5265.20	112.43			109.61	3.46	34.27	34.91	Peak	176	340	VERTICAL
3	5350.00	50.86	54.00	-3.14	47.89	3.49	34.39	34.91	Average	176	340	VERTICAL
4	5350.00	67.62	74.00	-6.38	64.65	3.49	34.39	34.91	Peak	176	340	VERTICAL

Item 1, 2 are the fundamental frequency at 5270 MHz.

Channel 62

	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	5321.20	98.74			95.83	3.48	34.34	34.91	Average	147	322	VERTICAL
2	5321.20	109.53			106.62	3.48	34.34	34.91	Peak	147	322	VERTICAL
3	5352.40	72.97	74.00	-1.03	70.00	3.49	34.39	34.91	Peak	147	322	VERTICAL
4	5353.60	53.75	54.00	-0.25	50.78	3.49	34.39	34.91	Average	147	322	VERTICAL

Item 1, 2 are the fundamental frequency at 5310 MHz.

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 102, 110, 134 / Chain 1 + Chain 2
Test Date	Aug. 20, 2014	Test Function	Beamforming function

Channel 102

	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	5458.00	62.27	74.00	-11.73	59.14	3.52	34.53	34.92	Peak	100	174	VERTICAL
2	5460.00	47.75	54.00	-6.25	44.62	3.52	34.53	34.92	Average	100	174	VERTICAL
3	5469.60	72.28	74.00	-1.72	69.13	3.52	34.55	34.92	Peak	100	174	VERTICAL
4	5470.00	53.95	54.00	-0.05	50.80	3.52	34.55	34.92	Average	100	174	VERTICAL
5	5518.00	107.83			104.60	3.54	34.61	34.92	Peak	100	174	VERTICAL
6	5518.80	97.09			93.86	3.54	34.61	34.92	Average	100	174	VERTICAL

Item 5, 6 are the fundamental frequency at 5510 MHz.

Channel 110

	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	5460.00	49.99	54.00	-4.01	46.86	3.52	34.53	34.92	Average	169	126	VERTICAL
2	5460.00	63.46	74.00	-10.54	60.33	3.52	34.53	34.92	Peak	169	126	VERTICAL
3	5469.40	69.59	74.00	-4.41	66.44	3.52	34.55	34.92	Peak	169	126	VERTICAL
4	5470.00	53.78	54.00	-0.22	50.63	3.52	34.55	34.92	Average	169	126	VERTICAL
5	5540.40	114.14			110.90	3.55	34.61	34.92	Peak	169	126	VERTICAL
6	5545.80	103.01			99.77	3.55	34.61	34.92	Average	169	126	VERTICAL

Item 5, 6 are the fundamental frequency at 5550 MHz.

Channel 134

	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	5661.60	111.43			108.11	3.59	34.66	34.93	Peak	185	132	VERTICAL
2	5665.60	100.78			97.46	3.59	34.66	34.93	Average	185	132	VERTICAL
3	5725.00	53.88	54.00	-0.12	50.53	3.60	34.69	34.94	Average	185	132	VERTICAL
4	5732.20	67.83	74.00	-6.17	64.47	3.61	34.69	34.94	Peak	185	132	VERTICAL

Item 1, 2 are the fundamental frequency at 5670 MHz.

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 151, 159 / Chain 1 + Chain 2
Test Date	Aug. 20, 2014	Test Function	Beamforming function

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	68.19	68.20	-0.01	64.85	3.60	34.68	34.94	Peak	174	114	VERTICAL
2	5722.60	75.22	78.20	-2.98	71.87	3.60	34.69	34.94	Peak	174	114	VERTICAL
3	5765.80	108.14			104.76	3.62	34.70	34.94	Peak	174	114	VERTICAL
4	5767.00	96.83			93.45	3.62	34.70	34.94	Average	174	114	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	5714.20	66.92	68.20	-1.28	63.58	3.60	34.68	34.94	Peak	174	123	VERTICAL
2	5721.40	73.30	78.20	-4.90	69.95	3.60	34.69	34.94	Peak	174	123	VERTICAL
3	5786.60	113.27			109.86	3.63	34.72	34.94	Peak	174	123	VERTICAL
4	5788.60	101.49			98.08	3.63	34.72	34.94	Average	174	123	VERTICAL
5	5853.20	75.69	78.20	-2.51	72.26	3.64	34.74	34.95	Peak	174	123	VERTICAL
6	5860.60	68.12	68.20	-0.08	64.68	3.65	34.74	34.95	Peak	174	123	VERTICAL

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

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 42, 58 / Chain 1 + Chain 2
Test Date	Aug. 20, 2014	Test Function	Beamforming function

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	5135.60	53.79	54.00	-0.21	51.18	3.43	34.09	34.91	Average	181	349	VERTICAL
2	5148.00	70.39	74.00	-3.61	67.76	3.43	34.11	34.91	Peak	181	349	VERTICAL
3	5219.20	104.62			101.88	3.45	34.20	34.91	Peak	181	349	VERTICAL
4	5219.60	94.27			91.53	3.45	34.20	34.91	Average	181	349	VERTICAL

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

Channel 58

	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	5276.40	106.36			103.50	3.47	34.30	34.91	Peak	169	325	VERTICAL
2	5278.80	95.37			92.51	3.47	34.30	34.91	Average	169	325	VERTICAL
3	5350.00	53.71	54.00	-0.29	50.74	3.49	34.39	34.91	Average	169	325	VERTICAL
4	5356.80	72.22	74.00	-1.78	69.25	3.49	34.39	34.91	Peak	169	325	VERTICAL

Item 1, 2 are the fundamental frequency at 5290 MHz.

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 106, 155 / Chain 1 + Chain 2
Test Date	Aug. 20, 2014	Test Function	Beamforming function

Channel 106

	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	5450.40	53.94	54.00	-0.06	50.81	3.52	34.53	34.92	Average	167	318	VERTICAL
2	5455.60	73.61	74.00	-0.39	70.48	3.52	34.53	34.92	Peak	167	318	VERTICAL
3	5470.00	53.61	54.00	-0.39	50.46	3.52	34.55	34.92	Average	167	318	VERTICAL
4	5470.00	70.49	74.00	-3.51	67.34	3.52	34.55	34.92	Peak	167	318	VERTICAL
5	5542.00	95.13			91.89	3.55	34.61	34.92	Average	167	318	VERTICAL
6	5542.80	105.94			102.70	3.55	34.61	34.92	Peak	167	318	VERTICAL

Item 5, 6 are the fundamental frequency at 5530 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	5702.60	68.13	68.20	-0.07	64.80	3.59	34.68	34.94	Peak	179	114	VERTICAL
2	5722.60	70.74	78.20	-7.46	67.39	3.60	34.69	34.94	Peak	179	114	VERTICAL
3	5762.20	103.96			100.58	3.62	34.70	34.94	Peak	179	114	VERTICAL
4	5763.00	92.11			88.73	3.62	34.70	34.94	Average	179	114	VERTICAL
5	5852.80	66.02	78.20	-12.18	62.59	3.64	34.74	34.95	Peak	179	114	VERTICAL
6	5867.60	64.17	68.20	-4.03	60.73	3.65	34.74	34.95	Peak	179	114	VERTICAL

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

Temperature	23℃	Humidity	61%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 36, 40, 48 / Chain 1 + Chain 2
Test Date	Aug. 25, 2014	Test Function	STBC function

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	5149.52	67.63	74.00	-6.37	65.00	3.43	34.11	34.91	Peak	177	167	VERTICAL
2	5150.00	53.87	54.00	-0.13	51.24	3.43	34.11	34.91	Average	177	167	VERTICAL
3	5175.13	112.02			109.33	3.44	34.16	34.91	Peak	177	167	VERTICAL
4	5175.88	100.40			97.71	3.44	34.16	34.91	Average	177	167	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	5148.72	61.12	74.00	-12.88	58.49	3.43	34.11	34.91	Peak	174	172	VERTICAL
2	5150.00	49.68	54.00	-4.32	47.05	3.43	34.11	34.91	Average	174	172	VERTICAL
3	5192.75	112.53			109.82	3.44	34.18	34.91	Peak	174	172	VERTICAL
4	5193.25	100.79			98.08	3.44	34.18	34.91	Average	174	172	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	5147.60	56.90	74.00	-17.10	54.27	3.43	34.11	34.91	Peak	188	171	VERTICAL
2	5150.00	44.30	54.00	-9.70	41.67	3.43	34.11	34.91	Average	188	171	VERTICAL
3	5238.50	100.98			98.20	3.46	34.23	34.91	Average	188	171	VERTICAL
4	5240.75	111.51			108.73	3.46	34.23	34.91	Peak	188	171	VERTICAL
5	5350.00	44.16	54.00	-9.84	41.19	3.49	34.39	34.91	Average	188	171	VERTICAL
6	5350.96	57.04	74.00	-16.96	54.07	3.49	34.39	34.91	Peak	188	171	VERTICAL

Item 3, 4 are the fundamental frequency at 5240 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

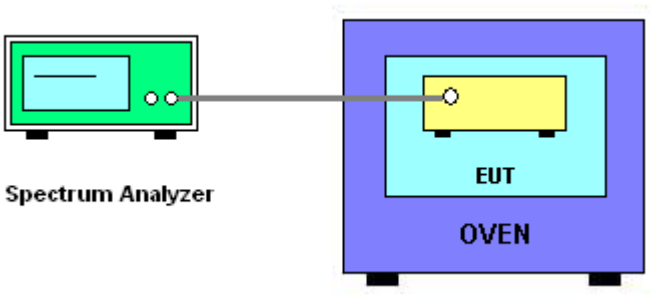
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

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 0°C~70°C.

4.8.4. Test Setup Layout



4.8.5. Test Deviation

There is no deviation with the original standard.

4.8.6. EUT Operation during Test

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

4.8.7. Test Result of Frequency Stability

Temperature	20°C	Humidity	52%
Test Engineer	Robert Chang	Test Date	Sep. 10, 2014

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)		
(V)	5200 MHz	5300 MHz	5500 MHz
126.50	5199.9944	5299.9930	5499.9862
110.00	5199.9952	5299.9942	5500.0022
93.50	5199.9974	5299.9956	5500.0086
Max. Deviation (MHz)	0.0056	0.0070	0.0138
Max. Deviation (ppm)	1.08	1.32	2.51

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)		
(°C)	5200 MHz	5300 MHz	5500 MHz
0	5199.9926	5299.9912	5499.9988
10	5199.9944	5299.9938	5500.0004
20	5199.9952	5299.9942	5500.0022
30	5199.9994	5299.9956	5500.0034
40	5200.0036	5299.9986	5500.0068
50	5200.0088	5300.0012	5500.0122
60	5200.0143	5300.0068	5500.0172
70	5200.0162	5300.0113	5500.0193
Max. Deviation (MHz)	0.0162	0.0113	0.0193
Max. Deviation (ppm)	3.12	2.13	3.51

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	9 kHz ~ 2.75 GHz	Apr. 23, 2014	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150 kHz ~ 100 MHz	Nov. 23, 2013	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127478	9kHz ~ 30MHz	Nov. 11, 2013	Conduction (CO01-CB)
COND Cable	Woken	Cable	01	150 kHz ~ 30 MHz	Dec. 04, 2013	Conduction (CO01-CB)
Software	Audix	E3	5.410e	-	N.C.R.	Conduction (CO01-CB)
Signal analyzer	R&S	FSV40	100979	9kHz~40GHz	Nov. 29, 2013	Conducted (TH01-CB)
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)
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	Anritsu	MA2411B	0917223	300MHz~40GHz	Sep. 18, 2013	Conducted (TH01-CB)
Power Meter	Anritsu	ML2495A	1035008	300MHz~40GHz	Sep. 18, 2013	Conducted (TH01-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	9170-507	15GHz ~ 40GHz	Feb. 13, 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	CO2000	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)

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%