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FCC RADIO TEST REPORT

Applicant's company	Linksys LLC
Applicant Address	131 Theory Drive Irvine California 92617 United States
FCC ID	Q87-E8350
Manufacturer's company	Linksys LLC
Manufacturer Address	131 Theory Drive Irvine California 92617 United States

Product Name	Linksys Dual-Band Wireless-AC Router
Brand Name	Linksys
Model No.	E8350
Test Rule Part(s)	47 CFR FCC Part 15 Subpart C § 15.247
Test Freq. Range	2400 ~ 2483.5MHz / 5725 ~ 5850MHz
Received Date	May 05, 2014
Final Test Date	Jun. 17, 2014
Submission Type	Original Equipment

Statement

Test result included is only for the IEEE 802.11n, IEEE 802.11b/g 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 C63.10-2009, 47 CFR FCC Part 15 Subpart C, KDB 558074 D01 v03r02, KDB 662911 D01 v02r01, KDB644545 D01 v01r02.**

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



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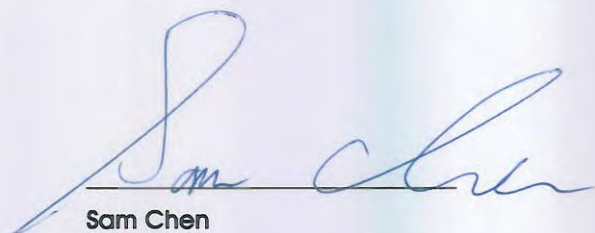
History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR452068AA	Rev. 01	Initial issue of report.	Jul. 16, 2014

1. CERTIFICATE OF COMPLIANCE

Product Name : Linksys Dual-Band Wireless-AC Router
Brand Name : Linksys
Model No. : E8350
Applicant : Linksys LLC
Test Rule Part(s) : 47 CFR FCC Part 15 Subpart C § 15.247

Sporton International as requested by the applicant to evaluate the EMC performance of the product sample received on May 05, 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 C				
Part	Rule Section	Description of Test	Result	Under Limit
4.1	15.207	AC Power Line Conducted Emissions	Complies	13.90 dB
4.2	15.247(b)(3)	Maximum Conducted Output Power	Complies	0.23 dB
4.3	15.247(e)	Power Spectral Density	Complies	1.85 dB
4.4	15.247(a)(2)	6dB Spectrum Bandwidth	Complies	-
4.5	15.247(d)	Radiated Emissions	Complies	3.26 dB
4.6	15.247(d)	Band Edge Emissions	Complies	1.01 dB
4.7	15.203	Antenna Requirements	Complies	-

3. GENERAL INFORMATION

3.1. Product Details

IEEE 802.11n/ac

Items	Description
Product Type	For 2.4GHz Band: WLAN (3TX, 3RX) For 5GHz Band: WLAN (4TX, 4RX)
Radio Type	Intentional Transceiver
Power Type	From power adapter
Modulation	see the below table for IEEE 802.11n/ac
Data Modulation	For 2.4GHz Band: OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM) For 5GHz Band: 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	2400 ~ 2483.5MHz / 5725 ~ 5850MHz
Channel Number	For 2.4GHz Band: 11 for 20MHz bandwidth ; 7 for 40MHz bandwidth For 5GHz Band: 5 for 20MHz bandwidth ; 2 for 40MHz bandwidth ; 1 for 80MHz bandwidth
Channel Band Width (99%)	For 2.4GHz Band: MCS0 (HT20): 17.84 MHz ; MCS0 (HT40): 36.48 MHz For 5GHz Band: For non-beamforming function: 802.11ac MCS0/Nss1 (VHT20): 17.36 MHz ; 802.11ac MCS0/Nss1 (VHT40): 36.80 MHz ; 802.11ac MCS0/Nss1 (VHT80): 75.84 MHz For beamforming function: 802.11ac MCS0/Nss1 (VHT20): 17.20 MHz ; 802.11ac MCS0/Nss1 (VHT40): 36.80 MHz ; 802.11ac MCS0/Nss1 (VHT80): 75.84 MHz

Maximum Conducted Output Power	<u>For 2.4GHz Band:</u> MCS0 (HT20): 28.98 dBm ; MCS0 (HT40): 20.45 dBm <u>For 5GHz Band:</u> <u>For non-beamforming function:</u> 802.11ac MCS0/Nss1 (VHT20): 29.63 dBm ; 802.11ac MCS0/Nss1 (VHT40): 29.68 dBm ; 802.11ac MCS0/Nss1 (VHT80): 28.41 dBm <u>For beamforming function:</u> 802.11ac MCS0/Nss1 (VHT20): 28.01 dBm ; 802.11ac MCS0/Nss1 (VHT40): 28.19 dBm ; 802.11ac MCS0/Nss1 (VHT80): 27.42 dBm
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

IEEE 802.11a/b/g

Items	Description
Product Type	802.11a: WLAN (4TX, 4RX) 802.11b/g: WLAN (3TX, 3RX)
Radio Type	Intentional Transceiver
Power Type	From power adapter
Modulation	DSSS for IEEE 802.11b ; OFDM for IEEE 802.11a/g
Data Modulation	DSSS (BPSK / QPSK / CCK) ; OFDM (BPSK / QPSK / 16QAM / 64QAM)
Data Rate (Mbps)	DSSS (1/ 2/ 5.5/11) ; OFDM (6/9/12/18/24/36/48/54)
Frequency Range	2400 ~ 2483.5MHz / 5725 ~ 5850MHz
Channel Number	11b/g: 11 ; 11a: 5
Channel Band Width (99%)	11b: 14.32 MHz ; 11g: 16.40 MHz ; 11a: 16.16 MHz
Maximum Conducted Output Power	11b: 29.46 dBm ; 11g: 29.41 dBm ; 11a: 29.77 dBm
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

Beamforming Function

Band width Mode	Description	
IEEE 802.11a	☐ With beamforming	☒ Without beamforming
IEEE 802.11b	☐ With beamforming	☒ Without beamforming
IEEE 802.11g	☐ With beamforming	☒ Without beamforming
For 2.4GHz Band: IEEE 802.11n	☐ With beamforming	☒ Without beamforming
For 5GHz Band: IEEE 802.11n	☒ With beamforming	☐ Without beamforming
IEEE 802.11ac	☒ With beamforming	☐ Without beamforming

Antenna and Band width

Antenna	Three (TX)		Four (TX)		
Band width Mode	20 MHz	40 MHz	20 MHz	40 MHz	80 MHz
IEEE 802.11a	X	X	V	X	X
IEEE 802.11b	V	X	X	X	X
IEEE 802.11g	V	X	X	X	X
For 2.4GHz Band: IEEE 802.11n	V	V	X	X	X
For 5GHz Band: IEEE 802.11n	X	X	V	V	X
IEEE 802.11ac	X	X	V	V	V

Note: The product has beamforming function for 802.11n/ac in 5150-5250MHz and 5725-5850MHz.

IEEE 11n/ac Spec.

Protocol		Number of Transmit Chains (NTX)	Data Rate / MCS
2.4GHz Band	802.11n (HT20)	3	MCS0-23
	802.11n (HT40)	3	MCS0-23
5GHz Band	802.11n (HT20)	4	MCS0-31
	802.11n (HT40)	4	MCS0-31
802.11ac (VHT20)		4	MCS 0-9/Nss1-4
802.11ac (VHT40)		4	MCS 0-9/Nss1-4
802.11ac (VHT80)		4	MCS 0-9/Nss1-4
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

Power	Brand	Model No.	Rating
Adapter 1 (Interchangeable plug)	APD	WA-36A12	Input: 100-240Vac, 50-60Hz, 0.9A Max. Output: 12Vdc, 3A
Adapter 2 (Fixed plug)	APD	WA-36A12U	Input: 100-240Vac, 50-60Hz, 0.9A Max. Output: 12Vdc, 3A
Adapter 3 (Fixed plug)	HK	HK-X142-A12	Input: 100-240Vac, 50/60Hz, 1.5A Output: 12Vdc, 0-3.5A (SET AT 3.0A)
Others			
Plug*1 (Only for Adapter 1)			

3.3. Table for Filed Antenna

Ant.	Brand	Model No.	Type	Connector	Antenna Cable		Remark
					Brand	Model No.	
1	GALTRONICS	02109140-05620-1	Dipole	Reversed-SMA	Whayu	C120-510440-A (SRF2014480)	2.4GHz/5GHz Ant.
2	GALTRONICS	02109140-05620-1	Dipole	Reversed-SMA	Whayu	C120-510439-A (SRF2014479)	2.4GHz/5GHz Ant.
3	GALTRONICS	02109140-05620-1	Dipole	Reversed-SMA	Whayu	C120-510442-A (SRF2014482)	2.4GHz/5GHz Ant.
4	GALTRONICS	02109140-05620-1	Dipole	Reversed-SMA	Whayu	C120-510441-A (SRF2014481)	5GHz Ant.

2.4GHz Band				
Ant.	Frequency	Gain (dBi)	Cable Loss (dB)	True Gain (dBi)
1	2412 MHz	1.8	0.9	0.9
	2422 MHz	1.8	0.9	0.9
	2437 MHz	1.81	0.9	0.91
	2452 MHz	1.81	0.9	0.91
	2462 MHz	1.81	0.9	0.91
2	2412 MHz	1.8	0.6	1.2
	2422 MHz	1.8	0.6	1.2
	2437 MHz	1.81	0.6	1.21
	2452 MHz	1.81	0.6	1.21
	2462 MHz	1.81	0.6	1.21
3	2412 MHz	1.8	0.7	1.1
	2422 MHz	1.8	0.7	1.1
	2437 MHz	1.81	0.7	1.11
	2452 MHz	1.81	0.7	1.11
	2462 MHz	1.81	0.7	1.11

5GHz Band 4				
Ant.	Frequency	Gain (dBi)	Cable Loss (dB)	True Gain (dBi)
1	5745 MHz	2.83	1.8	1.03
	5755 MHz	2.83	1.8	1.03
	5775 MHz	3.05	1.8	1.25
	5785 MHz	3.05	1.8	1.25
	5795 MHz	3.05	1.8	1.25
	5825 MHz	3.05	1.8	1.25
2	5745 MHz	2.83	1.4	1.43
	5755 MHz	2.83	1.4	1.43
	5775 MHz	3.05	1.4	1.65
	5785 MHz	3.05	1.4	1.65
	5795 MHz	3.05	1.4	1.65
	5825 MHz	3.05	1.4	1.65
3	5745 MHz	2.83	1.5	1.33
	5755 MHz	2.83	1.5	1.33
	5775 MHz	3.05	1.5	1.55
	5785 MHz	3.05	1.5	1.55
	5795 MHz	3.05	1.5	1.55
	5825 MHz	3.05	1.5	1.55
4	5745 MHz	2.83	2.4	0.43
	5755 MHz	2.83	2.4	0.43
	5775 MHz	3.05	2.4	0.65
	5785 MHz	3.05	2.4	0.65
	5795 MHz	3.05	2.4	0.65
	5825 MHz	3.05	2.4	0.65

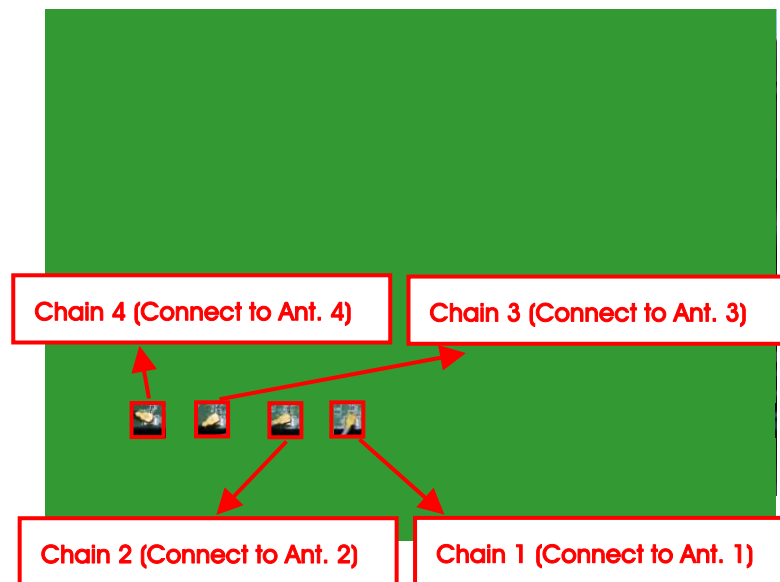
Note: The EUT has four antennas.

For 2.4GHz Band (3TX/3RX)

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

For 5GHz Band (4TX/4RX)

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



3.4. Table for Carrier Frequencies

For 2.4GHz Band:

There are two bandwidth systems.

For 20MHz bandwidth systems, use Channel 1~Channel 11.

For 40MHz bandwidth systems, use Channel 3~Channel 9.

Frequency Band	Channel No.	Frequency	Channel No.	Frequency
2400~2483.5MHz	1	2412 MHz	7	2442 MHz
	2	2417 MHz	8	2447 MHz
	3	2422 MHz	9	2452 MHz
	4	2427 MHz	10	2457 MHz
	5	2432 MHz	11	2462 MHz
	6	2437 MHz	-	-

For 5GHz Band:

There are three bandwidth systems.

For 20MHz bandwidth systems, use Channel 149, 153, 157, 161, 165.

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

For 80MHz bandwidth systems, use Channel 155.

Frequency Band	Channel No.	Frequency	Channel No.	Frequency
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 2.4GHz Band:

Test Items	Mode	Data Rate	Channel	Chain
AC Power Line Conducted Emissions	Normal Link	-	-	-
Maximum Conducted Output Power	11n HT20	MCS0	1/6/11	1+2+3
	11n HT40	MCS0	3/6/9	1+2+3
	11b/CCK	1 Mbps	1/6/11	1+2+3
	11g/BPSK	6 Mbps	1/6/11	1+2+3
Power Spectral Density	11n HT20	MCS0	1/6/11	1+2+3
	11n HT40	MCS0	3/6/9	1+2+3
	11b/CCK	1 Mbps	1/6/11	1+2+3
	11g/BPSK	6 Mbps	1/6/11	1+2+3
6dB Spectrum Bandwidth	11n HT20	MCS0	1/6/11	1+2+3
	11n HT40	MCS0	3/6/9	1+2+3
	11b/CCK	1 Mbps	1/6/11	1+2+3
	11g/BPSK	6 Mbps	1/6/11	1+2+3
Radiated Emissions Below 1GHz	Normal Link	-	-	-
Radiated Emissions Above 1GHz	11n HT20	MCS0	1/6/11	1+2+3
	11n HT40	MCS0	3/6/9	1+2+3
	11b/CCK	1 Mbps	1/6/11	1+2+3
	11g/BPSK	6 Mbps	1/6/11	1+2+3
Band Edge Emissions	11n HT20	MCS0	1/6/11	1+2+3
	11n HT40	MCS0	3/6/9	1+2+3
	11b/CCK	1 Mbps	1/6/11	1+2+3
	11g/BPSK	6 Mbps	1/6/11	1+2+3

For 5GHz Band:

Test Items	Mode	Data Rate	Channel	Chain
AC Power Line Conducted Emissions	Normal Link	-	-	-
Maximum Conducted Output Power	11ac VHT20	MCS0/Nss1	149/157/165	1+2+3+4
	11ac VHT40	MCS0/Nss1	151/159	1+2+3+4
	11ac VHT80	MCS0/Nss1	155	1+2+3+4
	11a/BPSK	6 Mbps	149/157/165	1+2+3+4
Power Spectral Density	11ac VHT20	MCS0/Nss1	149/157/165	1+2+3+4
	11ac VHT40	MCS0/Nss1	151/159	1+2+3+4
	11ac VHT80	MCS0/Nss1	155	1+2+3+4
	11a/BPSK	6 Mbps	149/157/165	1+2+3+4
6dB Spectrum Bandwidth	11ac VHT20	MCS0/Nss1	149/157/165	1+2+3+4
	11ac VHT40	MCS0/Nss1	151/159	1+2+3+4
	11ac VHT80	MCS0/Nss1	155	1+2+3+4
	11a/BPSK	6 Mbps	149/157/165	1+2+3+4
Radiated Emissions Below 1GHz	Normal Link	-	-	-
Radiated Emissions Above 1GHz	11ac VHT20	MCS0/Nss1	149/157/165	1+2+3+4
	11ac VHT40	MCS0/Nss1	151/159	1+2+3+4
	11ac VHT80	MCS0/Nss1	155	1+2+3+4
	11a/BPSK	6 Mbps	149/157/165	1+2+3+4
Band Edge Emissions	11ac VHT20	MCS0/Nss1	149/157/165	1+2+3+4
	11ac VHT40	MCS0/Nss1	151/159	1+2+3+4
	11ac VHT80	MCS0/Nss1	155	1+2+3+4
	11a/BPSK	6 Mbps	149/157/165	1+2+3+4

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

The following test modes were performed for all tests:

For AC Power Line Conducted Emissions test:

Mode 1. EUT + Adapter 1

Mode 2. EUT + Adapter 2

Mode 3. EUT + Adapter 3

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

For Radiated Emissions Below 1GHz and Radiated Emission Co-location tests:

There are two modes of EUT, one is EUT Laying, and the other is EUT Standing.

After evaluating, EUT Laying has been evaluated to be the worst case.

Consequently, measurement for Radiated Emissions Below 1GHz test will follow this same test mode.

Mode 1. EUT Laying + Adapter 1

Mode 2. EUT Laying + Adapter 2

Mode 3. EUT Laying + Adapter 3

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

For Radiated Emission above 1GHz test:

Mode 1. Place EUT in X axis + Antenna in 90°

Mode 2. Place EUT in Y axis + Antenna in 90°

Mode 3. Place EUT in Y axis + Antenna in 0°

Mode 4. Place EUT in Z axis + Antenna in 90°

Mode 5. Place EUT in Z axis + Antenna in 0°

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

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

The EUT could be applied with 2.4GHz WLAN function and 5GHz WLAN function; therefore Co-location Maximum Permissible Exposure (please refer to Sporton test report: FA452068) and Radiated Emission Co-location (please refer to Appendix B) tests are added for simultaneously transmit between 2.4GHz WLAN function and 5GHz WLAN function.

3.6. Table for Testing Locations

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

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

3.7. Table for Supporting Units

For Test Site No: CO01-CB

Support Unit	Brand	Model	FCC ID
NB	DELL	E6400	DoC
NB	DELL	E6430	DoC
NB	DELL	E6430	DoC
NB	DELL	E6430	DoC
Flash Disk	Sony	USML	DoC
Flash Disk	Transcend	JetFlash-700	DoC

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

Support Unit	Brand	Model	FCC ID
NB	DELL	E6430	DoC
NB	DELL	E6220	DoC
NB	Apple	Mac Book	DoC
NB	Apple	Mac Book	DoC
Flash Disk	Sony	USML	DoC
Flash Disk	Transcend	JetFlash-700	DoC

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

For non-beamforming function:

Support Unit	Brand	Model	FCC ID
NB	DELL	E6430	DoC

For beamforming function:

Support Unit	Brand	Model	FCC ID
NB	DELL	E6430	DoC
NB	DELL	E6220	DoC
WiFi USB Adapter	NETGEAR	A6200	PY312200200

For Test Site No: TH01-CB

Support Unit	Brand	Model	FCC ID
NB	DELL	E6430	DoC

3.8. Table for Parameters of Test Software Setting

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

For non-beamforming function:

For 2.4GHz Band:

Power Parameters of IEEE 802.11n MCS0 HT20

Test Software Version	DOS		
Frequency	2412 MHz	2437 MHz	2462 MHz
MCS0 HT20	16	24	16

Power Parameters of IEEE 802.11n MCS0 HT40

Test Software Version	DOS		
Frequency	2422 MHz	2437 MHz	2452 MHz
MCS0 HT40	9	16	9.5

Power Parameters of IEEE 802.11b/g

Test Software Version	DOS		
Frequency	2412 MHz	2437 MHz	2462 MHz
IEEE 802.11b	17	24	16
IEEE 802.11g	16	24.5	15.5

For 5GHz Band:

Power Parameters of IEEE 802.11ac MCS0/Nss1 VHT20

Test Software Version	DOS		
Frequency	5745 MHz	5785 MHz	5825 MHz
MCS0/Nss1 VHT20	23	23	23

Power Parameters of IEEE 802.11ac MCS0/Nss1 VHT40

Test Software Version	DOS	
Frequency	5755 MHz	5795 MHz
MCS0/Nss1 VHT40	23	23

Power Parameters of IEEE 802.11ac MCS0/Nss1 VHT80

Test Software Version	DOS
Frequency	5775 MHz
MCS0/Nss1 VHT80	22

Power Parameters of IEEE 802.11a

Test Software Version	DOS		
Frequency	5745 MHz	5785 MHz	5825 MHz
IEEE 802.11a	23	23	23

For beamforming function:

Power Parameters of IEEE 802.11ac MCS0/Nss1 VHT20

Test Software Version	DOS		
Frequency	5745 MHz	5785 MHz	5825 MHz
MCS0/Nss1 VHT20	21	21	21

Power Parameters of IEEE 802.11ac MCS0/Nss1 VHT40

Test Software Version	DOS	
Frequency	5755 MHz	5795 MHz
MCS0/Nss1 VHT40	21	21

Power Parameters of IEEE 802.11ac MCS0/Nss1 VHT80

Test Software Version	DOS
Frequency	5775 MHz
MCS0/Nss1 VHT80	22

3.9. EUT Operation during Test

For non-beamforming function:

The EUT was programmed to be in continuously transmitting mode.

For beamforming function:

For Conducted Mode:

The EUT was programmed to be in continuously transmitting mode.

For Radiated Mode:

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

The program was executed as follows:

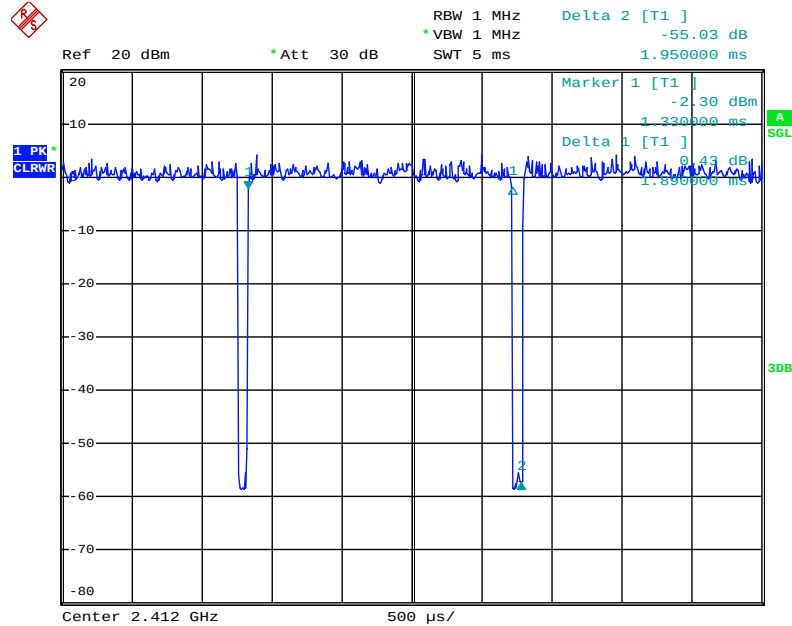
1. During the test, the EUT operation to normal function.
2. Executed command fixed test channel under DOS.
3. Executed "Lantest.exe" to link with the remote workstation to receive and transmit packet by WiFi USB Adapter and transmit duty cycle no less 98%

3.10. Duty Cycle

For non-beamforming function:

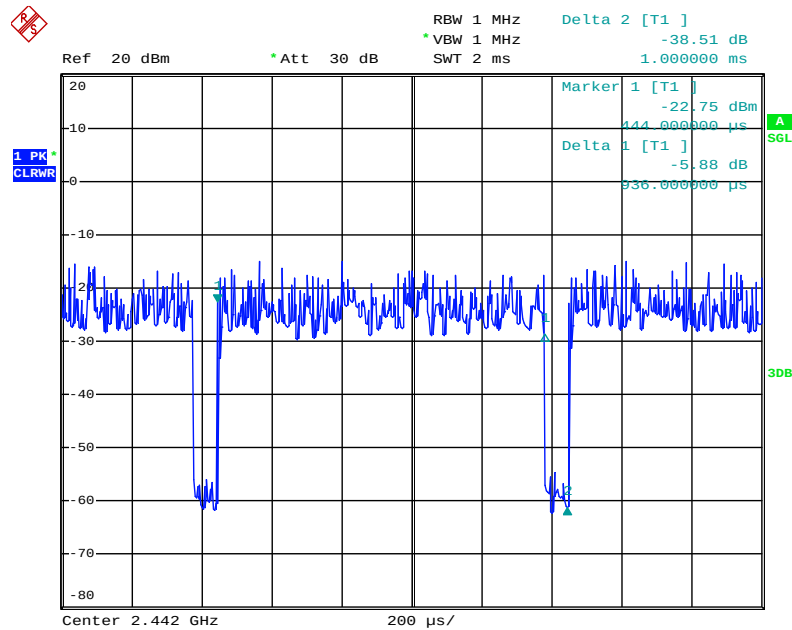
For 2.4GHz Band:

IEEE 802.11n MCS0 HT20



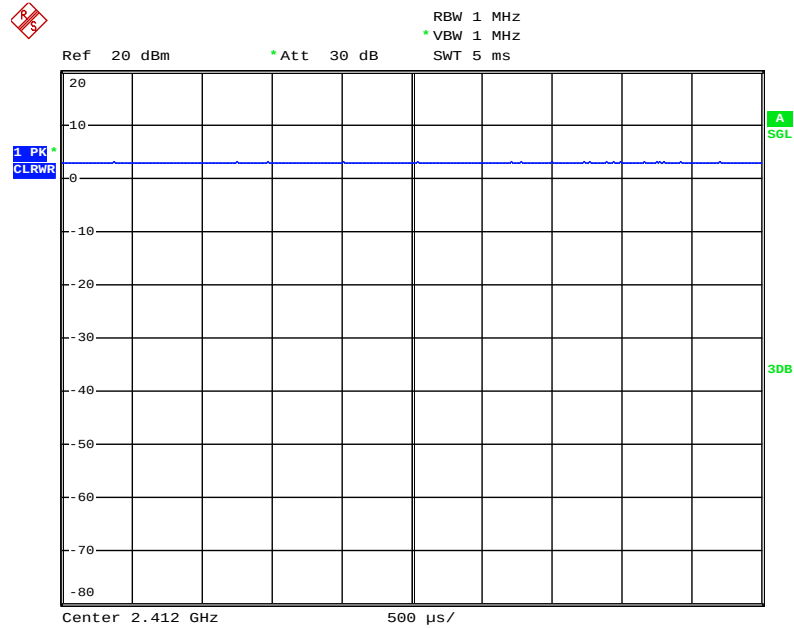
Date: 15.MAY.2014 16:09:25

IEEE 802.11n MCS0 HT40



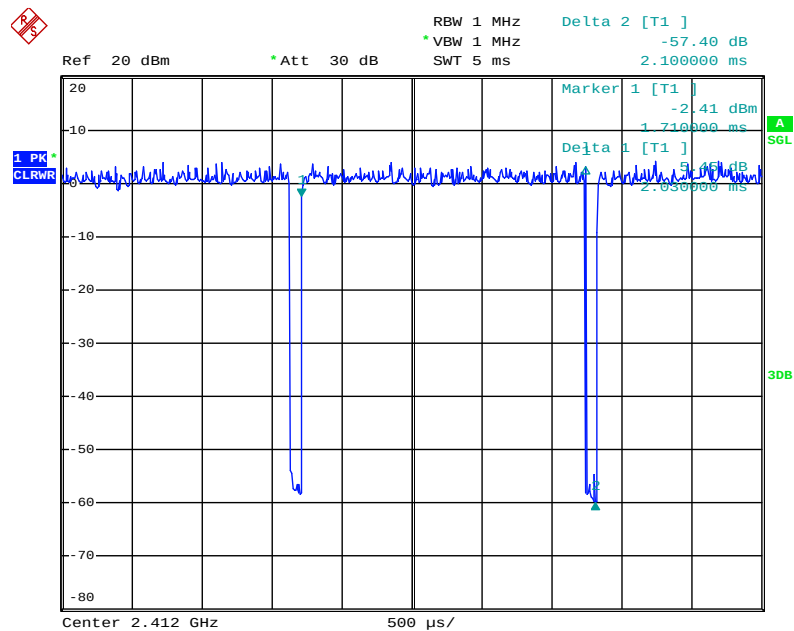
Date: 15.MAY.2014 16:11:00

IEEE 802.11b



Date: 15.MAY.2014 16:07:04

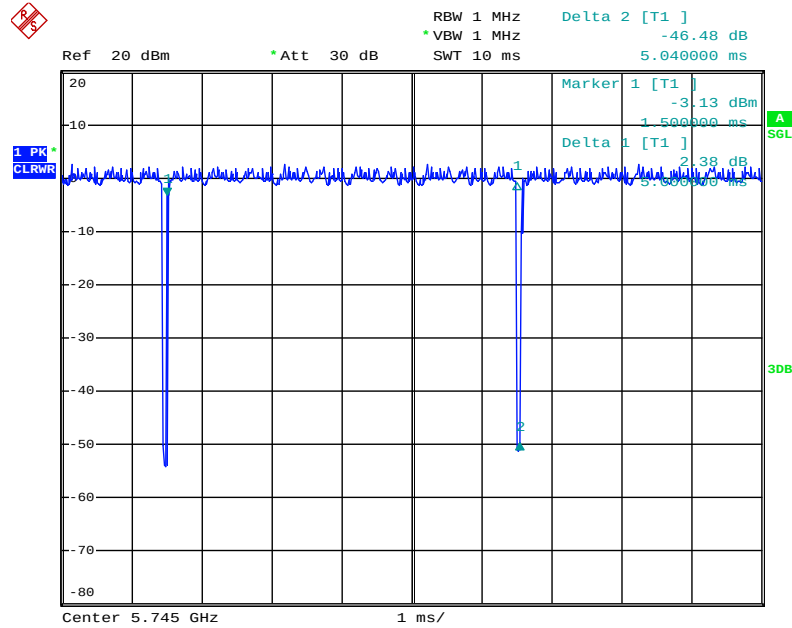
IEEE 802.11g



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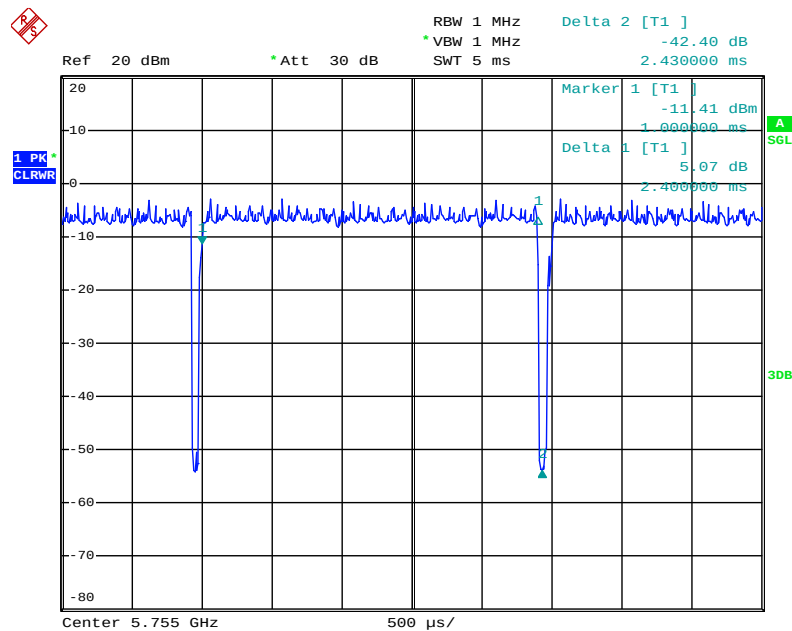
For 5GHz Band:

IEEE 802.11ac MCS0/Nss1 VHT20



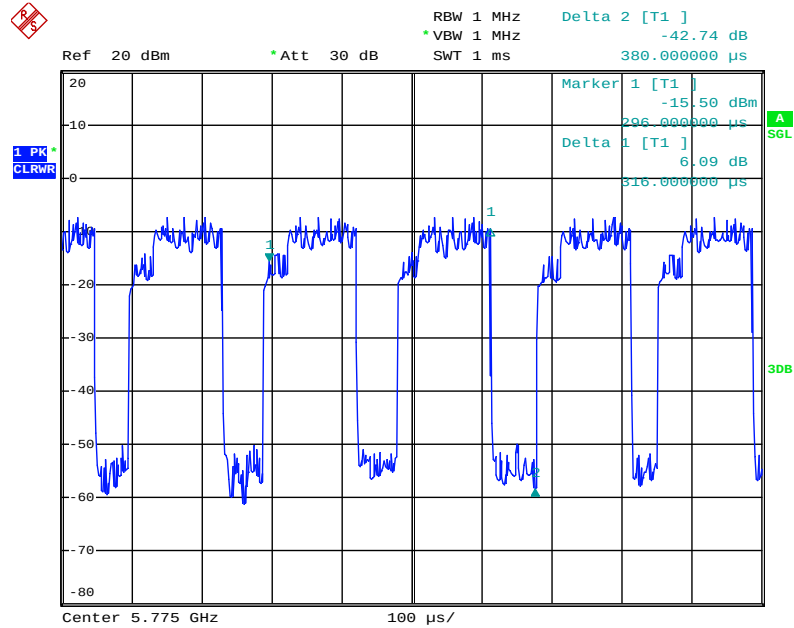
Date: 20.MAY.2014 07:06:37

IEEE 802.11ac MCS0/Nss1 VHT40



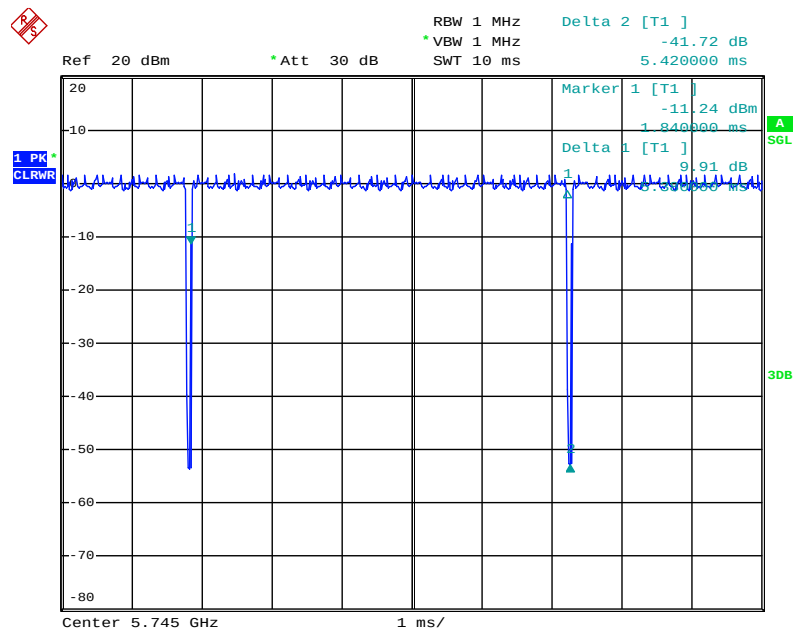
Date: 20.MAY.2014 07:11:47

IEEE 802.11ac MCS0/Nss1 VHT80



Date: 20.MAY.2014 07:13:44

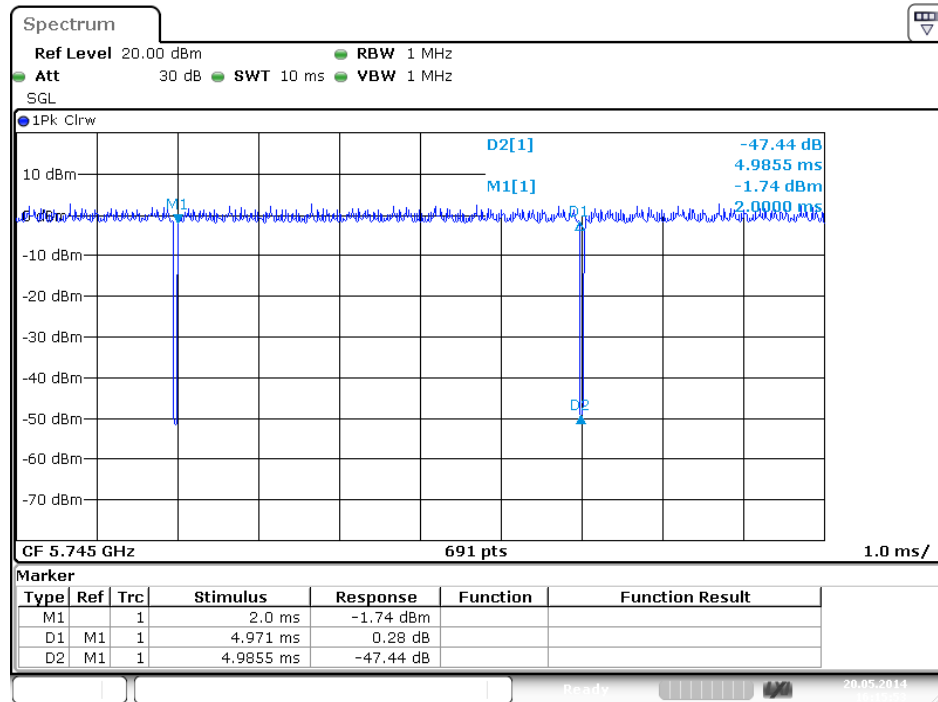
IEEE 802.11a



Date: 20.MAY.2014 07:09:44

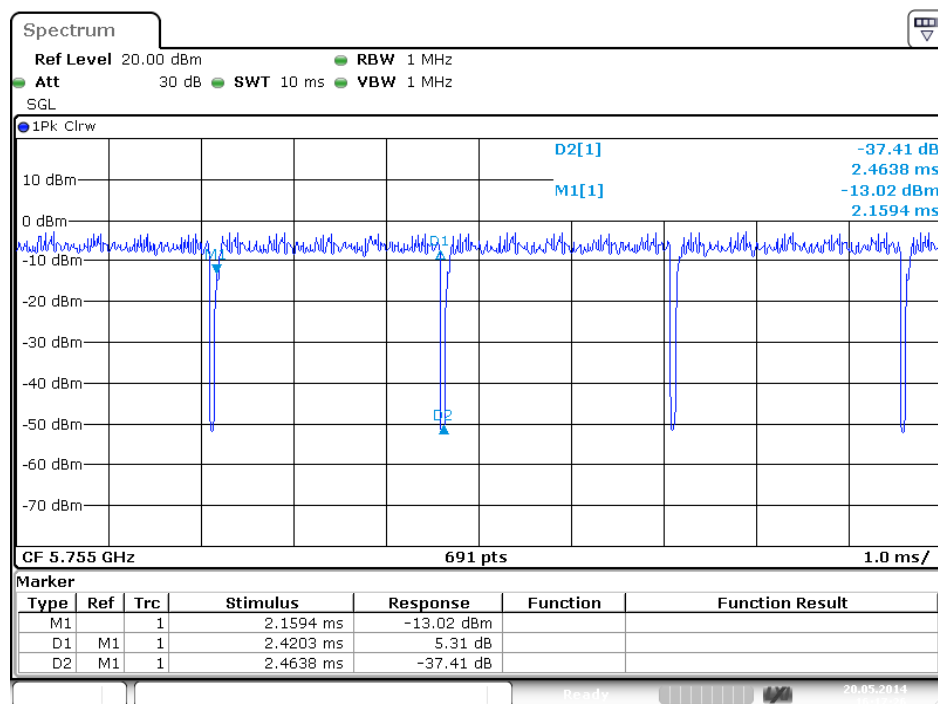
For beamforming mode:

IEEE 802.11ac MCS0/Nss1 VHT20



Date: 20.MAY.2014 16:15:54

IEEE 802.11ac MCS0/Nss1 VHT40



Date: 20.MAY.2014 16:17:27



Spectrum

Ref Level 20.00 dBm RBW 1 MHz

Att 30 dB SWT 1 ms VBW 1 MHz

SQL

1Pk Clrw

D1[1] 3.49 dBm
M1[1] -25.30 dBm
553.62 μs

CF 5.775 GHz 691 pts 100.0 μs/

Marker

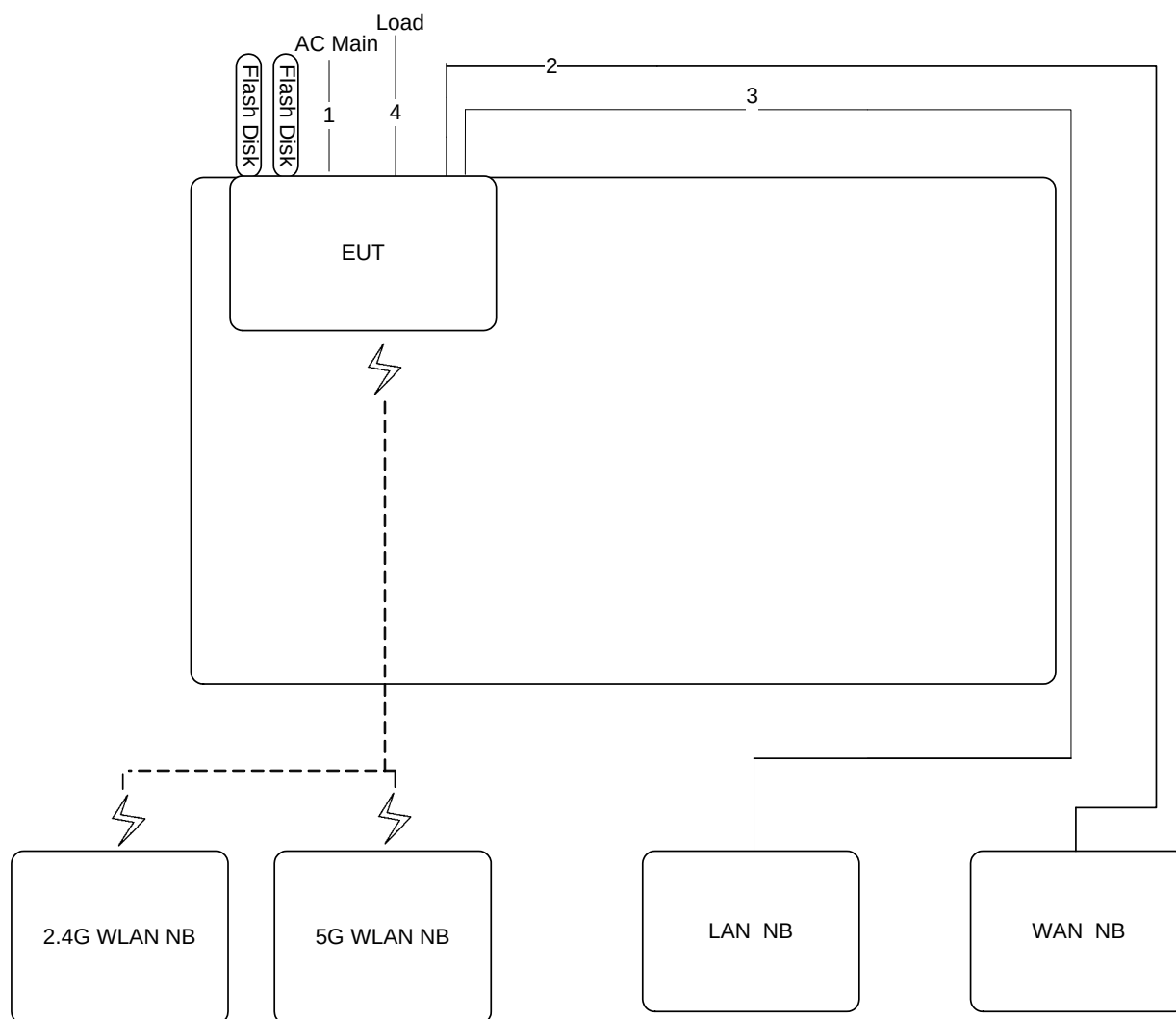
Type	Ref	Trc	Stimulus	Response	Function	Function Result
M1		1	553.62 μs	-25.30 dBm		
D1	M1	1	133.33 μs	3.49 dB		
D2	M1	1	179.71 μs	-28.99 dB		

Date: 20.MAY.2014 16:20:24

3.11. Test Configurations

3.11.1. AC Power Line Conduction Emissions Test Configuration

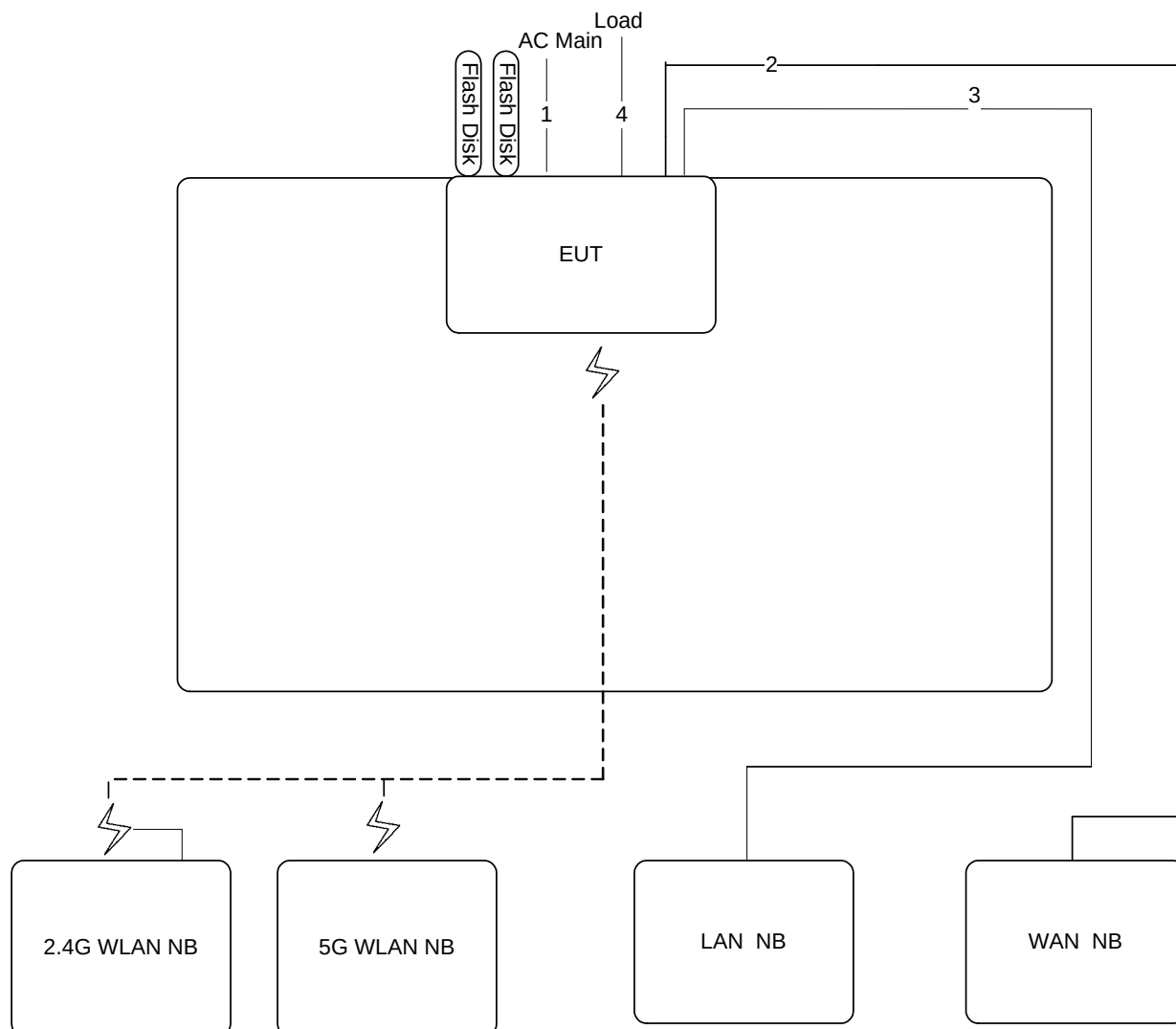
Test Mode: Mode 2



Item	Connection	Shielded	Length	Remark
1	AC power cable	No	1.8m	-
2	RJ45 cable	No	10m	-
3	RJ45 cable	No	10m	-
4	RJ45 cable*3	No	1m	Load

3.11.2. Radiation Emissions Test Configuration

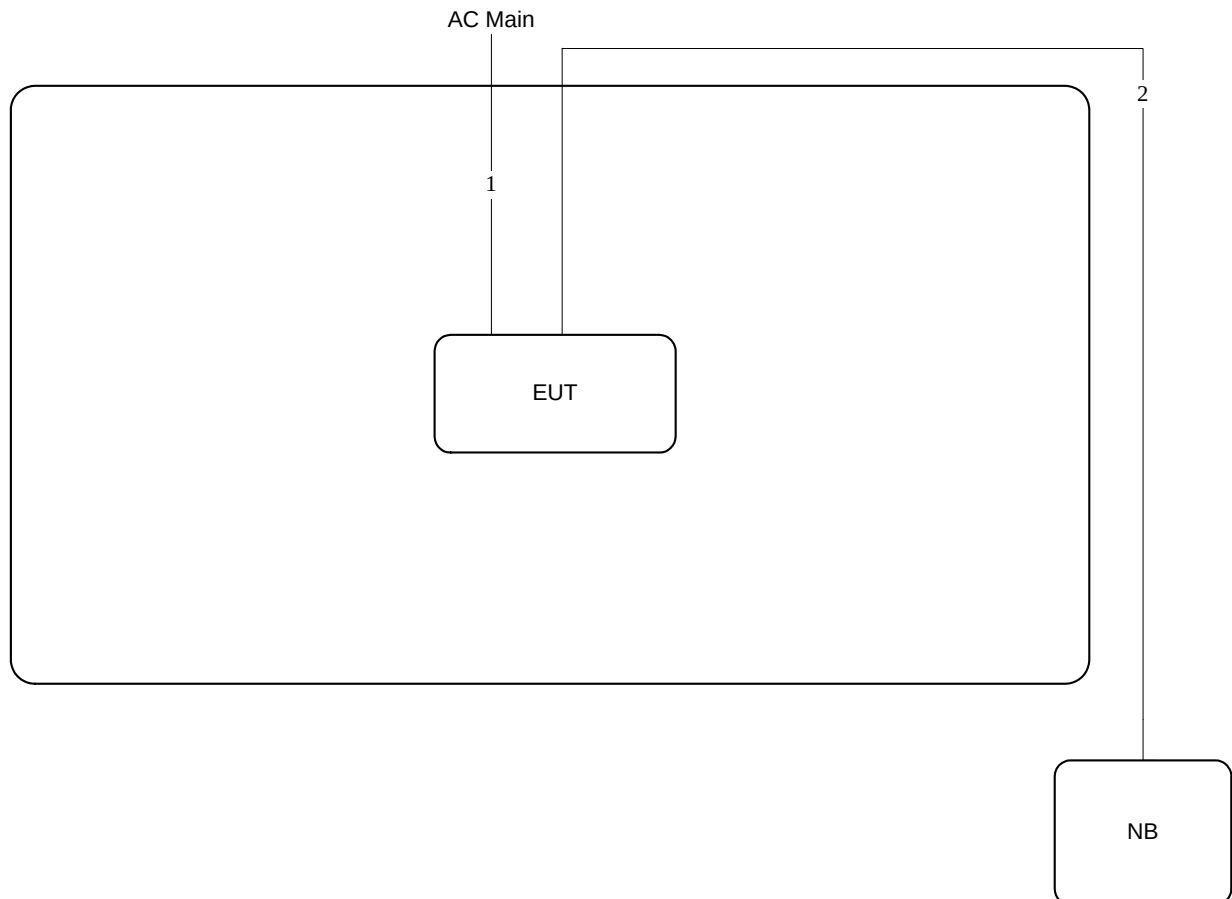
Test Configuration: below 1GHz / Test Mode: Mode 2



Item	Connection	Shielded	Length	Remark
1	AC power cable	No	1.6m	-
2	RJ45 cable	No	10m	-
3	RJ45 cable	No	10m	-
4	RJ45 cable*3	No	1.5m	Load

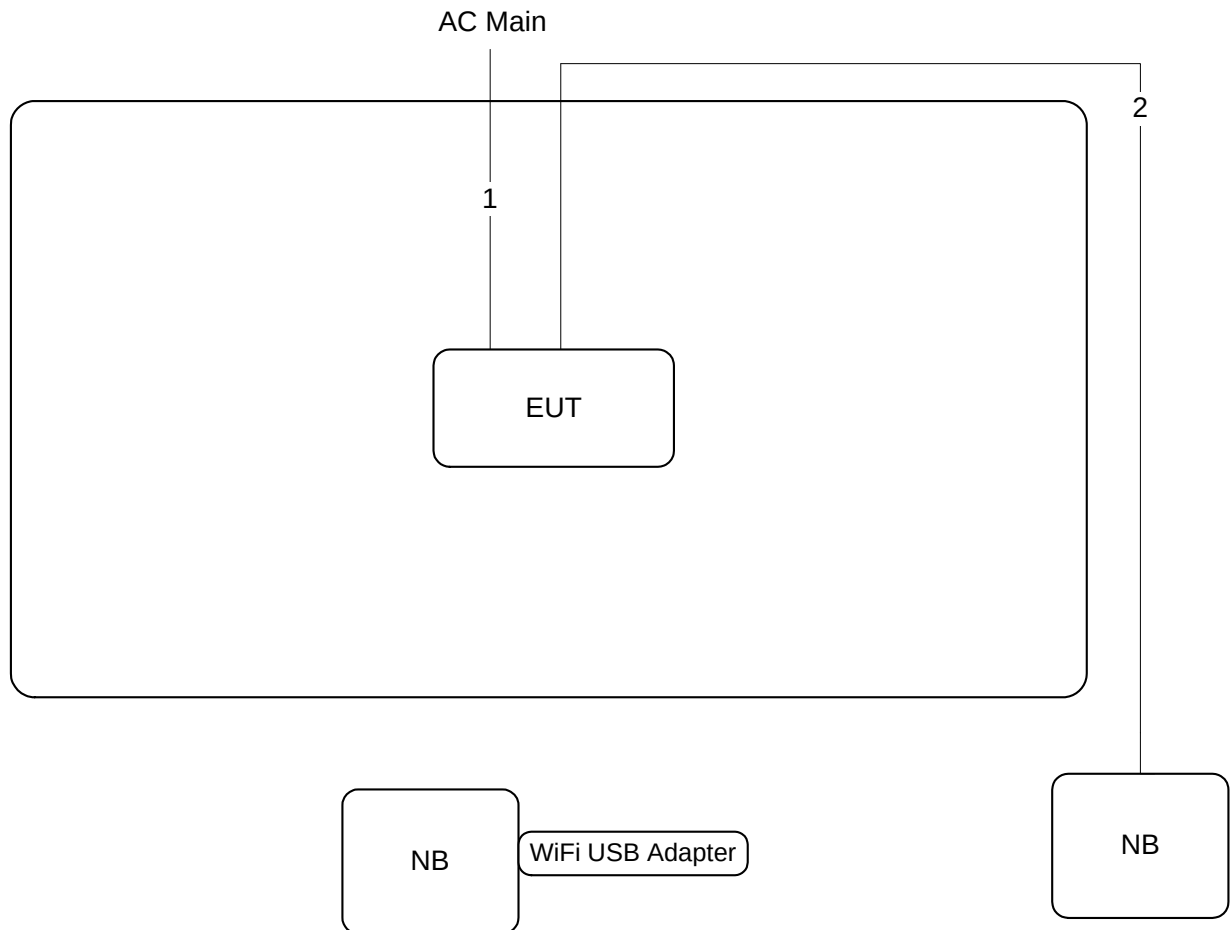
Test Configuration: above 1GHz / Test Mode: Mode 3

For non-beamforming function:



Item	Connection	Shielded	Length
1	AC power cable	No	1.6m
2	RJ45 cable	No	10m

For beamforming function:



Item	Connection	Shielded	Length
1	AC power cable	No	1.6m
2	RJ45 cable	No	10m

4. TEST RESULT

4.1. AC Power Line Conducted Emissions Measurement

4.1.1. Limit

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

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

4.1.2. Measuring Instruments and Setting

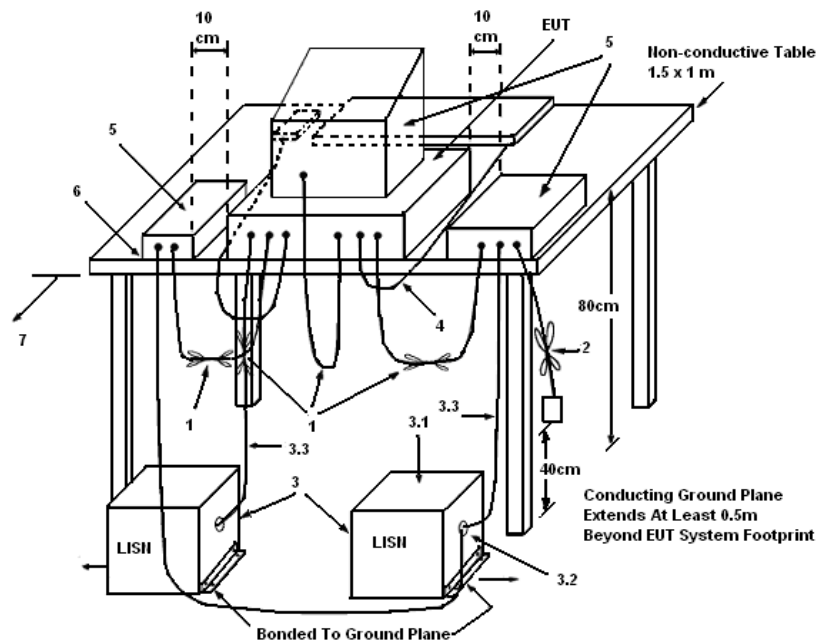
Please refer to section 5 of equipments list in this report. The following table is the setting of the receiver.

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

4.1.3. Test Procedures

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

4.1.4. Test Setup Layout



LEGEND:

- (1) Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- (2) I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- (3) EUT connected to one LISN. Unused LISN measuring port connectors shall be terminated in 50 Ω . LISN can be placed on top of, or immediately beneath, reference ground plane.
- (3.1) All other equipment powered from additional LISN(s).
- (3.2) Multiple outlet strip can be used for multiple power cords of non-EUT equipment.
- (3.3) LISN at least 80 cm from nearest part of EUT chassis.
- (4) Cables of hand-operated devices, such as keyboards, mice, etc., shall be placed as for normal use.
- (5) Non-EUT components of EUT system being tested.
- (6) Rear of EUT, including peripherals, shall all be aligned and flush with rear of tabletop.
- (7) Rear of tabletop shall be 40 cm removed from a vertical conducting plane that is bonded to the ground plane.

4.1.5. Test Deviation

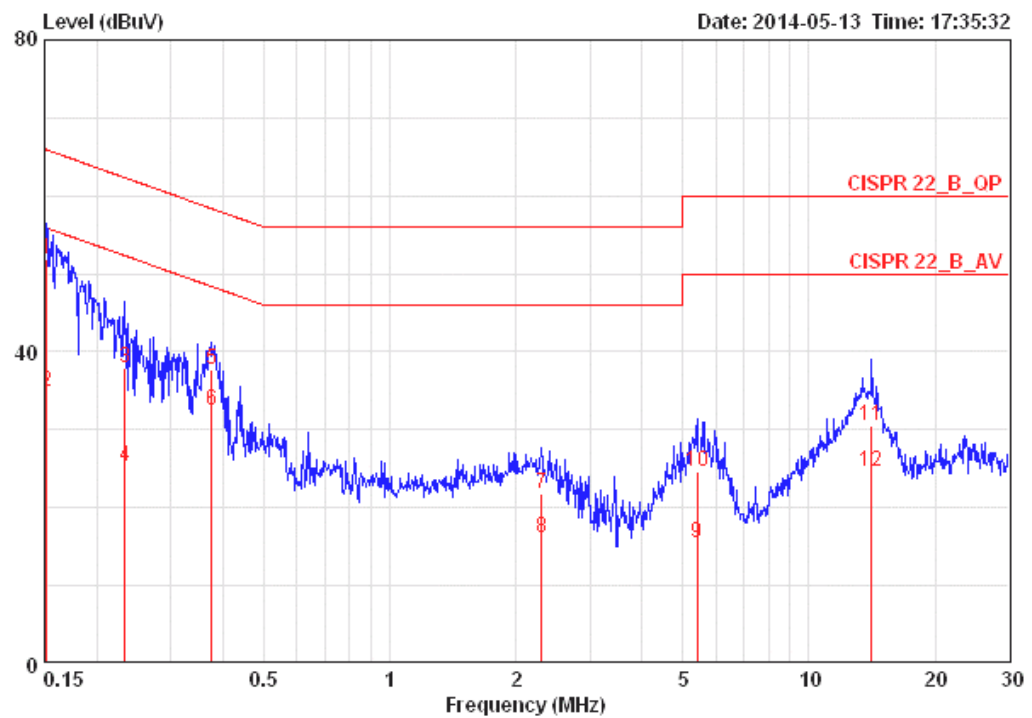
There is no deviation with the original standard.

4.1.6. EUT Operation during Test

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

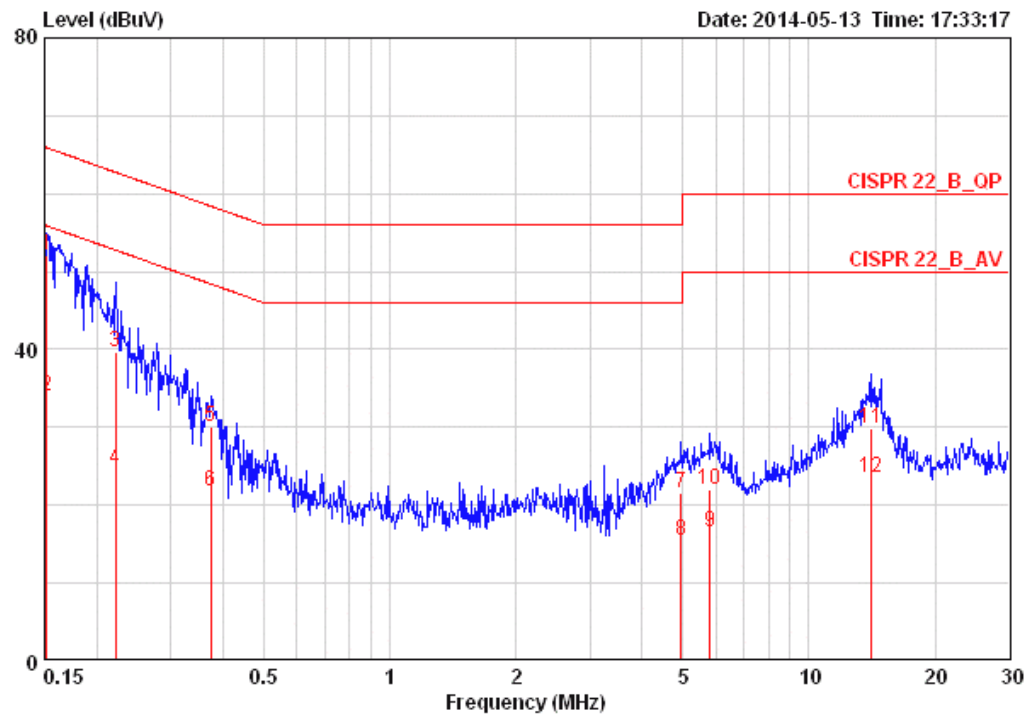
4.1.7. Results of AC Power Line Conducted Emissions Measurement

Temperature	24°C	Humidity	54%
Test Engineer	Hank Yang	Phase	Line
Configuration	Normal Link		



	Freq	Level	Over	Limit	LISN	Read	Cable		
	MHz	dBuV	Limit	Line	Factor	Level	Loss	Pol/Phase	Remark
			dB	dBuV	dB		dB		
1	0.15160	51.91	-14.00	65.91	0.08	51.67	0.16	LINE	QP
2	0.15160	34.95	-20.96	55.91	0.08	34.71	0.16	LINE	AVERAGE
3	0.23285	37.96	-24.39	62.35	0.08	37.71	0.17	LINE	QP
4	0.23285	25.27	-27.08	52.35	0.08	25.02	0.17	LINE	AVERAGE
5	0.37512	37.80	-20.59	58.39	0.08	37.54	0.18	LINE	QP
6	0.37512	32.58	-15.81	48.39	0.08	32.32	0.18	LINE	AVERAGE
7	2.297	21.81	-34.19	56.00	0.12	21.43	0.26	LINE	QP
8	2.297	16.13	-29.87	46.00	0.12	15.75	0.26	LINE	AVERAGE
9	5.419	15.57	-34.43	50.00	0.18	15.07	0.33	LINE	AVERAGE
10	5.419	24.52	-35.48	60.00	0.18	24.02	0.33	LINE	QP
11	14.138	30.62	-29.38	60.00	0.30	29.88	0.44	LINE	QP
12	14.138	24.65	-25.35	50.00	0.30	23.91	0.44	LINE	AVERAGE

Temperature	24°C	Humidity	54%
Test Engineer	Hank Yang	Phase	Neutral
Configuration	Normal Link		



	Freq	Level	Over Limit	Limit Line	LISN Factor	Read Level	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dB	dBuV	dB		
1	0.15160	52.01	-13.90	65.91	0.08	51.77	0.16	NEUTRAL	QP
2	0.15160	33.93	-21.98	55.91	0.08	33.69	0.16	NEUTRAL	AVERAGE
3	0.22201	39.58	-23.16	62.74	0.08	39.33	0.17	NEUTRAL	QP
4	0.22201	24.57	-28.17	52.74	0.08	24.32	0.17	NEUTRAL	AVERAGE
5	0.37314	30.15	-28.28	58.43	0.09	29.88	0.18	NEUTRAL	QP
6	0.37314	21.81	-26.62	48.43	0.09	21.54	0.18	NEUTRAL	AVERAGE
7	4.952	21.61	-34.39	56.00	0.18	21.11	0.32	NEUTRAL	QP
8	4.952	15.52	-30.48	46.00	0.18	15.02	0.32	NEUTRAL	AVERAGE
9	5.805	16.50	-33.50	50.00	0.19	15.98	0.33	NEUTRAL	AVERAGE
10	5.805	22.03	-37.97	60.00	0.19	21.51	0.33	NEUTRAL	QP
11	14.138	29.84	-30.16	60.00	0.30	29.11	0.44	NEUTRAL	QP
12	14.138	23.63	-26.37	50.00	0.30	22.90	0.44	NEUTRAL	AVERAGE

Note:

Level = Read Level + LISN Factor + Cable Loss

4.2. Maximum Conducted Output Power Measurement

4.2.1. Limit

For systems using digital modulation in the 2400-2483.5MHz, the limit for output power is 30dBm. The limited has to be reduced by the amount in dB that the gain of the antenna exceed 6dBi. In case of point-to-point operation, the limit has to be reduced by 1dB for every 3dB that the directional gain of the antenna exceeds 6dBi. Systems operating in the 5725-5850 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter output power.

4.2.2. Measuring Instruments and Setting

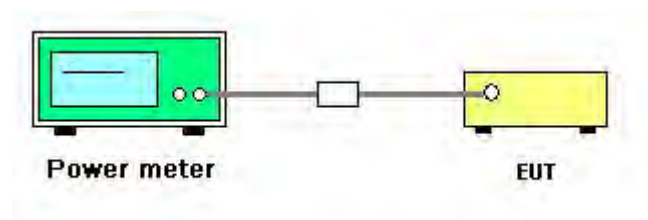
Please refer to section 5 of equipments list in this report. The following table is the setting of the power meter.

Power Meter Parameter	Setting
Detector	Average

4.2.3. Test Procedures

1. Test was performed in accordance with KDB 558074 D01 v03r02 for Performing Compliance Measurements on Digital Transmission Systems (DTS) - section 9.2.3.2 Method AVGPM-G (Measurement using a gated RF average power meter).
2. Multiple antenna system was performed in accordance with KDB 662911 D01 v02r01 Emissions Testing of Transmitters with Multiple Outputs in the Same Band.
3. This procedure provides an alternative for determining the RMS output power using a broadband RF average power meter with a thermocouple detector.

4.2.4. Test Setup Layout



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 Maximum Conducted Output Power

Temperature	26°C	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11n/ac
Test Date	May 15, 2014	Test Function	Non-beamforming function

For 2.4GHz Band

Configuration IEEE 802.11n MCS0 HT20

Channel	Frequency	Conducted Power (dBm)				Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Total		
1	2412 MHz	16.72	15.94	16.12	21.04	30.00	Complies
6	2437 MHz	24.51	24.37	23.72	28.98	30.00	Complies
11	2462 MHz	16.10	16.14	16.02	20.86	30.00	Complies

Configuration IEEE 802.11n MCS0 HT40

Channel	Frequency	Conducted Power (dBm)				Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Total		
3	2422 MHz	9.23	8.47	8.68	13.58	30.00	Complies
6	2437 MHz	16.02	15.42	15.56	20.45	30.00	Complies
9	2452 MHz	9.47	9.34	9.67	14.27	30.00	Complies

For 5GHz Band

Configuration IEEE 802.11ac MCS0/Nss1 VHT20

Channel	Frequency	Conducted Power (dBm)					Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Chain 4	Total		
149	5745 MHz	23.34	23.72	23.69	23.58	29.61	30.00	Complies
157	5785 MHz	23.17	23.87	23.64	23.71	29.63	30.00	Complies
165	5825 MHz	23.14	23.76	23.52	23.29	29.45	30.00	Complies

Configuration IEEE 802.11ac MCS0/Nss1 VHT40

Channel	Frequency	Conducted Power (dBm)					Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Chain 4	Total		
151	5755 MHz	23.29	23.39	23.69	24.21	29.68	30.00	Complies
159	5795 MHz	23.35	23.42	23.61	23.78	29.56	30.00	Complies

Configuration IEEE 802.11ac MCS0/Nss1 VHT80

Channel	Frequency	Conducted Power (dBm)					Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Chain 4	Total		
155	5775 MHz	22.49	22.07	22.54	22.44	28.41	30.00	Complies

Temperature	26°C	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11 a/b/g
Test Date	May 15, 2014	Test Function	Non-beamforming function

Configuration IEEE 802.11b

Channel	Frequency	Conducted Power (dBm)				Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Total		
1	2412 MHz	18.17	17.27	17.48	22.43	30.00	Complies
6	2437 MHz	25.02	24.72	24.29	29.46	30.00	Complies
11	2462 MHz	16.62	16.28	16.35	21.19	30.00	Complies

Configuration IEEE 802.11g

Channel	Frequency	Conducted Power (dBm)				Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Total		
1	2412 MHz	16.77	16.07	16.31	21.16	30.00	Complies
6	2437 MHz	24.98	24.75	24.16	29.41	30.00	Complies
11	2462 MHz	15.78	15.66	15.67	20.47	30.00	Complies

Configuration IEEE 802.11a

Channel	Frequency	Conducted Power (dBm)					Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Chain 4	Total		
149	5745 MHz	23.44	23.82	23.72	24.01	29.77	30.00	Complies
157	5785 MHz	23.14	23.61	23.64	23.44	29.48	30.00	Complies
165	5825 MHz	23.28	23.73	23.62	23.21	29.49	30.00	Complies

Temperature	26°C	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11n/ac
Test Date	May 20, 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	Chain 3	Chain 4	Total		
149	5745 MHz	22.23	21.51	21.85	22.32	28.01	28.91	Complies
157	5785 MHz	21.73	21.63	21.71	22.04	27.80	28.69	Complies
165	5825 MHz	21.71	21.36	21.68	22.11	27.74	28.69	Complies

Note: Ch 149 directional gain

$$= 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{ch}} \left\{ \sum_{k=1}^{N_{ant}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 7.09 \text{ dBi} > 6 \text{ dBi, so limit} = 30 - (7.09 - 6) = 28.91 \text{ dBm.}$$

Note: Ch 157, 165 directional gain

$$= 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{ch}} \left\{ \sum_{k=1}^{N_{ant}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 7.31 \text{ dBi} > 6 \text{ dBi, so limit} = 30 - (7.31 - 6) = 28.69 \text{ dBm.}$$

Configuration IEEE 802.11ac MCS0/Nss1 VHT40

Channel	Frequency	Conducted Power (dBm)					Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Chain 4	Total		
151	5755 MHz	22.23	21.85	22.08	22.51	28.19	28.91	Complies
159	5795 MHz	21.93	21.78	21.65	22.16	27.90	28.69	Complies

Note: Ch 151 directional gain

$$= 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{ch}} \left\{ \sum_{k=1}^{N_{ant}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 7.09 \text{ dBi} > 6 \text{ dBi, so limit} = 30 - (7.09 - 6) = 28.91 \text{ dBm.}$$

Note: Ch 159 directional gain

$$= 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{ch}} \left\{ \sum_{k=1}^{N_{ant}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 7.31 \text{ dBi} > 6 \text{ dBi, so limit} = 30 - (7.31 - 6) = 28.69 \text{ dBm.}$$

Configuration IEEE 802.11ac MCS0/Nss1 VHT80

Channel	Frequency	Conducted Power (dBm)					Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Chain 4	Total		
155	5775 MHz	21.28	21.12	21.25	21.89	27.42	28.69	Complies

Note: Ch 155 directional gain

$$= 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{AS}} \left\{ \sum_{k=1}^{N_{SS}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 7.31 \text{ dBi} > 6 \text{ dBi}, \text{ so limit} = 30 - (7.31 - 6) = 28.69 \text{ dBm}.$$

4.3. Power Spectral Density Measurement

4.3.1. Limit

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3 kHz band during any time interval of continuous transmission.

4.3.2. Measuring Instruments and Setting

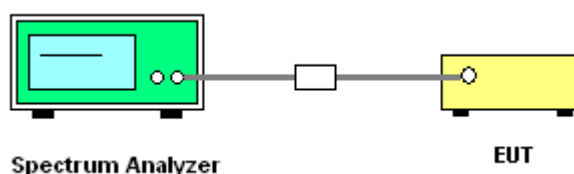
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Set the span to 1.5 times the DTS channel bandwidth.
RBW	$3 \text{ kHz} \leq \text{RBW} \leq 100\text{kHz}$
VBW	$\geq 3 \times \text{RBW}$
Detector	Peak
Trace	Max Hold
Sweep Time	Auto couple

4.3.3. Test Procedures

1. Test was performed in accordance with KDB 558074 D01 v03r02 for Performing Compliance Measurements on Digital Transmission Systems (DTS) - section 10.2 Method PKPSD (peak PSD) and KDB 662911 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 $\geq 2 \times \text{span/RBW}$ (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 resulting PSD level must be $\leq 8 \text{ dBm}$.

4.3.4. Test Setup Layout



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 Power Spectral Density

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

For 2.4GHz Band

Configuration IEEE 802.11n MCS0 HT20

Channel	Frequency	Power Density (dBm/3kHz)				Power Density Limit (dBm/3kHz)	Result
		Chain 1	Chain 2	Chain 3	Total		
1	2412 MHz	-9.02	-9.42	-9.51	-4.54	8.00	Complies
6	2437 MHz	-0.68	-1.17	-0.83	3.88	8.00	Complies
11	2462 MHz	-9.39	-9.11	-9.08	-4.42	8.00	Complies

Note: Directional gain

$$= 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{AS}} \left\{ \sum_{k=1}^{N_{ISF}} g_{j,k} \right\}^2}{N_{ANT}} \right] < 6\text{dBi, so the limit doesn't reduce.}$$

Configuration IEEE 802.11n MCS0 HT40

Channel	Frequency	Power Density (dBm/3kHz)				Power Density Limit (dBm/3kHz)	Result
		Chain 1	Chain 2	Chain 3	Total		
3	2422 MHz	-17.65	-19.53	-19.66	-14.07	8.00	Complies
6	2437 MHz	-12.55	-12.42	-12.13	-7.59	8.00	Complies
9	2452 MHz	-18.96	-19.39	-18.97	-14.33	8.00	Complies

Note: Directional gain

$$= 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{AS}} \left\{ \sum_{k=1}^{N_{ISF}} g_{j,k} \right\}^2}{N_{ANT}} \right] < 6\text{dBi, so the limit doesn't reduce.}$$

For 5GHz Band

Configuration IEEE 802.11ac MCS0/Nss1 VHT20

Channel	Frequency	Power Density (dBm/3kHz)					Power Density Limit (dBm/3kHz)	Result
		Chain 1	Chain 2	Chain 3	Chain 4	Total		
149	5745 MHz	-5.07	-5.64	-4.85	-4.70	0.97	6.91	Complies
157	5785 MHz	-4.54	-5.14	-4.35	-5.02	1.27	6.69	Complies
165	5825 MHz	-1.75	-5.18	-5.23	-4.27	2.16	6.69	Complies

Note: Ch 149 directional gain

$$= 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{ss}} \left\{ \sum_{k=1}^{N_{ant}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 7.09 \text{ dBi} > 6 \text{ dBi, so limit} = 8 - (7.09 - 6) = 6.91 \text{ dBm/3kHz.}$$

Note: Ch 157, 165 directional gain

$$= 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{ss}} \left\{ \sum_{k=1}^{N_{ant}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 7.31 \text{ dBi} > 6 \text{ dBi, so limit} = 8 - (7.31 - 6) = 6.69 \text{ dBm/3kHz.}$$

Configuration IEEE 802.11ac MCS0/Nss1 VHT40

Channel	Frequency	Power Density (dBm/3kHz)					Power Density Limit (dBm/3kHz)	Result
		Chain 1	Chain 2	Chain 3	Chain 4	Total		
151	5755 MHz	-5.18	-7.42	-7.32	-5.01	-0.06	6.91	Complies
159	5795 MHz	-2.17	-7.57	-6.20	-6.13	1.02	6.69	Complies

Note: Ch 151 directional gain

$$= 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{ss}} \left\{ \sum_{k=1}^{N_{ant}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 7.09 \text{ dBi} > 6 \text{ dBi, so limit} = 8 - (7.09 - 6) = 6.91 \text{ dBm/3kHz.}$$

Note: Ch 159 directional gain

$$= 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{ss}} \left\{ \sum_{k=1}^{N_{ant}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 7.31 \text{ dBi} > 6 \text{ dBi, so limit} = 8 - (7.31 - 6) = 6.69 \text{ dBm/3kHz.}$$

Configuration IEEE 802.11ac MCS0/Nss1 VHT80

Channel	Frequency	Power Density (dBm/3kHz)					Power Density Limit (dBm/3kHz)	Result
		Chain 1	Chain 2	Chain 3	Chain 4	Total		
155	5775 MHz	-7.91	-11.07	-11.21	-8.75	-3.48	6.69	Complies

Note: Ch 155 directional gain

$$= 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{ss}} \left\{ \sum_{k=1}^{N_{ant}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 7.31 \text{ dBi} > 6 \text{ dBi, so limit} = 8 - (7.31 - 6) = 6.69 \text{ dBm/3kHz.}$$

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

Configuration IEEE 802.11b

Channel	Frequency	Power Density (dBm/3kHz)				Power Density Limit (dBm/3kHz)	Result
		Chain 1	Chain 2	Chain 3	Total		
1	2412 MHz	-6.43	-4.93	-6.04	-0.98	8.00	Complies
6	2437 MHz	1.55	1.26	1.31	6.15	8.00	Complies
11	2462 MHz	-7.41	-7.27	-7.61	-2.66	8.00	Complies

Note: Directional gain

$$= 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{ch}} \left\{ \sum_{k=1}^{N_{ant}} g_{j,k} \right\}^2}{N_{ANT}} \right] < 6\text{dBi, so the limit doesn't reduce.}$$

Configuration IEEE 802.11g

Channel	Frequency	Power Density (dBm/3kHz)				Power Density Limit (dBm/3kHz)	Result
		Chain 1	Chain 2	Chain 3	Total		
1	2412 MHz	-8.39	-9.25	-8.57	-3.95	8.00	Complies
6	2437 MHz	0.69	0.20	-1.02	4.79	8.00	Complies
11	2462 MHz	-8.65	-8.62	-8.86	-3.94	8.00	Complies

Note: Directional gain

$$= 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{ch}} \left\{ \sum_{k=1}^{N_{ant}} g_{j,k} \right\}^2}{N_{ANT}} \right] < 6\text{dBi, so the limit doesn't reduce.}$$

Configuration IEEE 802.11a

Channel	Frequency	Power Density (dBm/3kHz)					Power Density Limit (dBm/3kHz)	Result
		Chain 1	Chain 2	Chain 3	Chain 4	Total		
149	5745 MHz	-5.04	-5.54	-4.87	-4.80	0.97	6.91	Complies
157	5785 MHz	-5.97	-5.77	-6.11	-5.08	0.31	6.69	Complies
165	5825 MHz	-5.92	-6.43	-5.50	-4.92	0.36	6.69	Complies

Note: Ch 149 directional gain

$$= 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{\text{ch}}} \left\{ \sum_{k=1}^{N_{\text{ant}}} g_{j,k} \right\}^2}{N_{\text{ANT}}} \right] = 7.09 \text{ dBi} > 6 \text{ dBi, so limit} = 8 - (7.09 - 6) = 6.91 \text{ dBm/3kHz.}$$

Note: Ch 157, 165 directional gain

$$= 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{\text{ch}}} \left\{ \sum_{k=1}^{N_{\text{ant}}} g_{j,k} \right\}^2}{N_{\text{ANT}}} \right] = 7.31 \text{ dBi} > 6 \text{ dBi, so limit} = 8 - (7.31 - 6) = 6.69 \text{ dBm/3kHz.}$$

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

Configuration IEEE 802.11ac MCS0/Nss1 VHT20

Channel	Frequency	Power Density (dBm/3kHz)					Power Density Limit (dBm/3kHz)	Result
		Chain 1	Chain 2	Chain 3	Chain 4	Total		
149	5745 MHz	-4.78	-1.23	-6.59	-3.39	2.46	6.91	Complies
157	5785 MHz	-5.87	-4.48	-5.51	-5.41	0.73	6.69	Complies
165	5825 MHz	-5.92	-3.97	-6.34	-5.65	0.65	6.69	Complies

Note: Ch 149 directional gain

$$= 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SA}} \left\{ \sum_{k=1}^{N_{SS}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 7.09 \text{ dBi} > 6 \text{ dBi, so limit} = 8 - (7.09 - 6) = 6.91 \text{ dBm/3kHz.}$$

Note: Ch 157, 165 directional gain

$$= 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SA}} \left\{ \sum_{k=1}^{N_{SS}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 7.31 \text{ dBi} > 6 \text{ dBi, so limit} = 8 - (7.31 - 6) = 6.69 \text{ dBm/3kHz.}$$

Configuration IEEE 802.11ac MCS0/Nss1 VHT40

Channel	Frequency	Power Density (dBm/3kHz)					Power Density Limit (dBm/3kHz)	Result
		Chain 1	Chain 2	Chain 3	Chain 4	Total		
151	5755 MHz	-2.77	-4.59	-7.58	-7.30	0.92	6.91	Complies
159	5795 MHz	-4.96	-4.10	-8.34	-7.68	0.11	6.69	Complies

Note: Ch 151 directional gain

$$= 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SA}} \left\{ \sum_{k=1}^{N_{SS}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 7.09 \text{ dBi} > 6 \text{ dBi, so limit} = 8 - (7.09 - 6) = 6.91 \text{ dBm/3kHz.}$$

Note: Ch 159 directional gain

$$= 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SA}} \left\{ \sum_{k=1}^{N_{SS}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 7.31 \text{ dBi} > 6 \text{ dBi, so limit} = 8 - (7.31 - 6) = 6.69 \text{ dBm/3kHz.}$$

Configuration IEEE 802.11ac MCS0/Nss1 VHT80

Channel	Frequency	Power Density (dBm/3kHz)					Power Density Limit (dBm/3kHz)	Result
		Chain 1	Chain 2	Chain 3	Chain 4	Total		
155	5775 MHz	-8.08	-8.28	-8.70	-7.96	-2.23	6.69	Complies

Note: Ch 155 directional gain

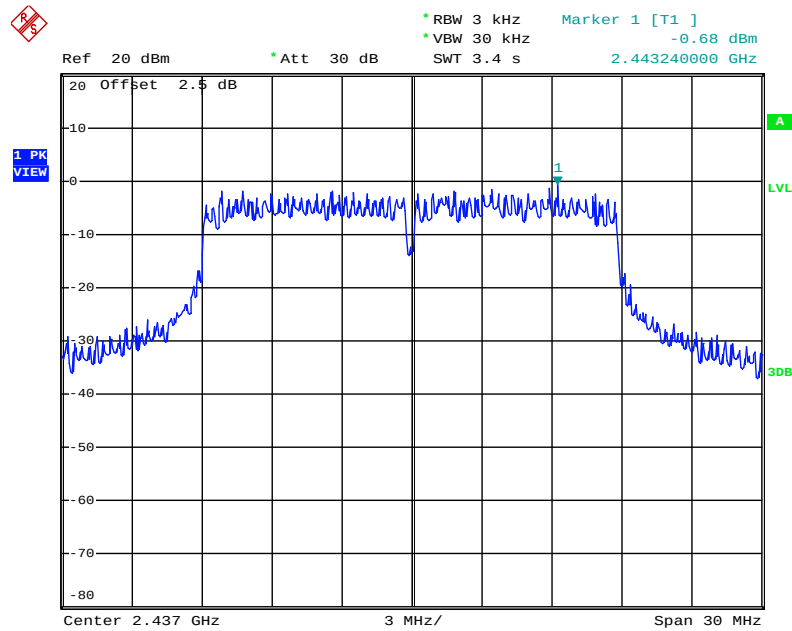
$$= 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{ch}} \left\{ \sum_{k=1}^{N_{sub}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 7.31 \text{ dBi} > 6 \text{ dBi}, \text{ so limit} = 8 - (7.31 - 6) = 6.69 \text{ dBm/3kHz}.$$

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

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

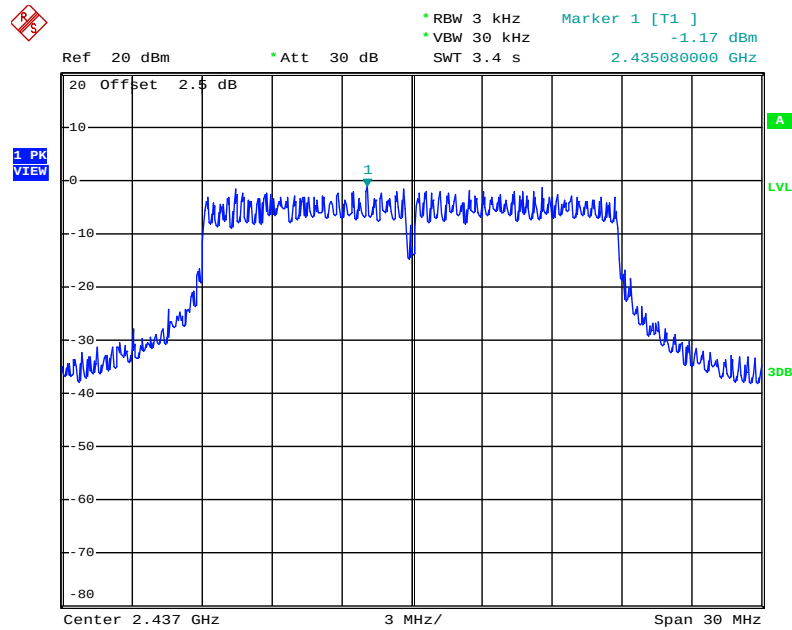
For non-beamforming function:

Power Density Plot on Configuration IEEE 802.11n MCS0 HT20 / 2437 MHz / Chain 1



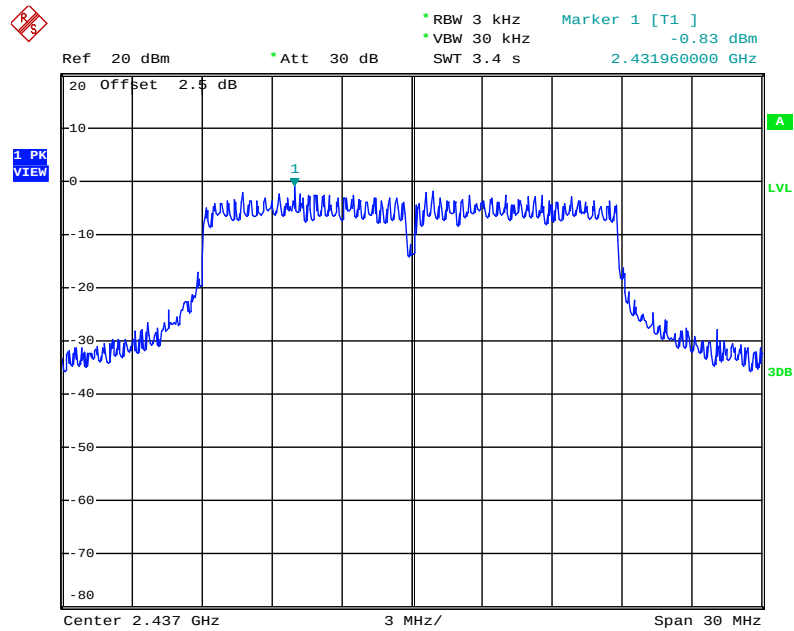
Date: 15.MAY.2014 15:17:16

Power Density Plot on Configuration IEEE 802.11n MCS0 HT20 / 2437 MHz / Chain 2



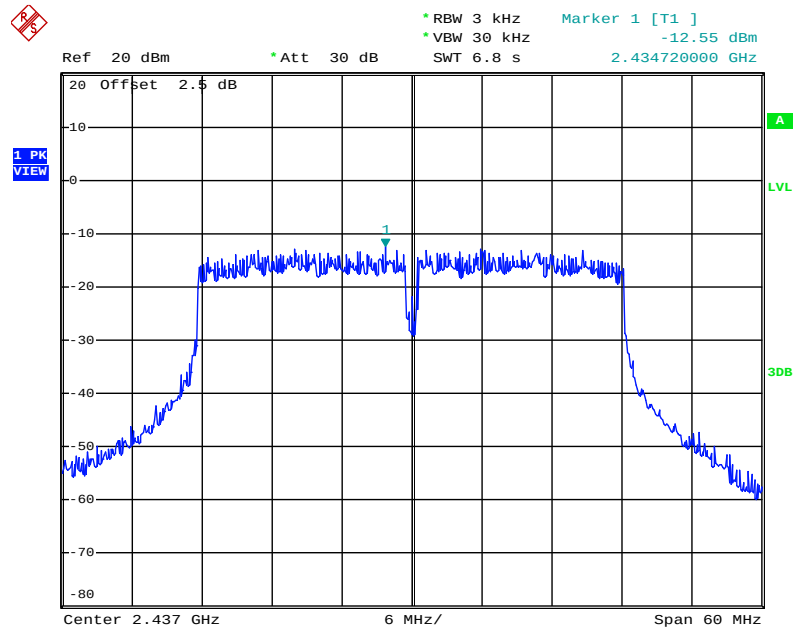
Date: 15.MAY.2014 15:16:26

Power Density Plot on Configuration IEEE 802.11n MCS0 HT20 / 2437 MHz / Chain 3



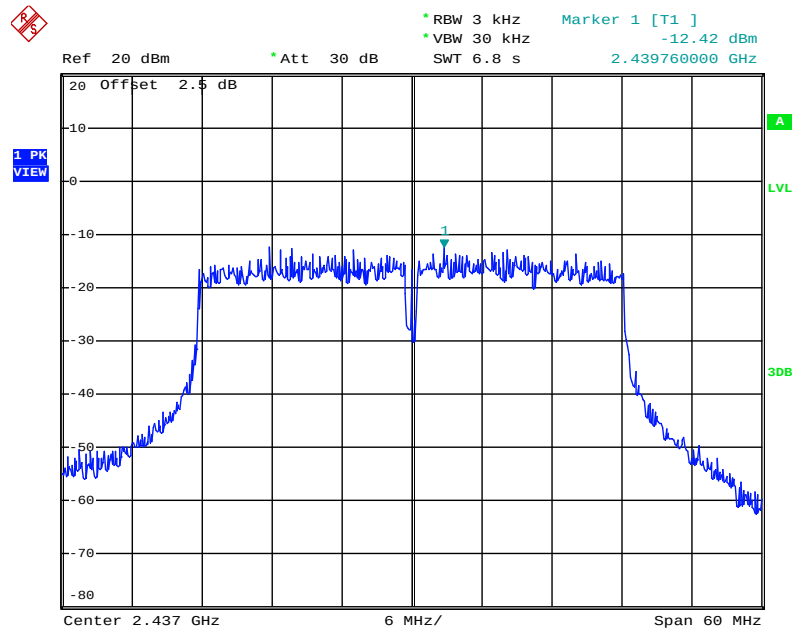
Date: 15.MAY.2014 15:15:35

Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / 2437 MHz / Chain 1



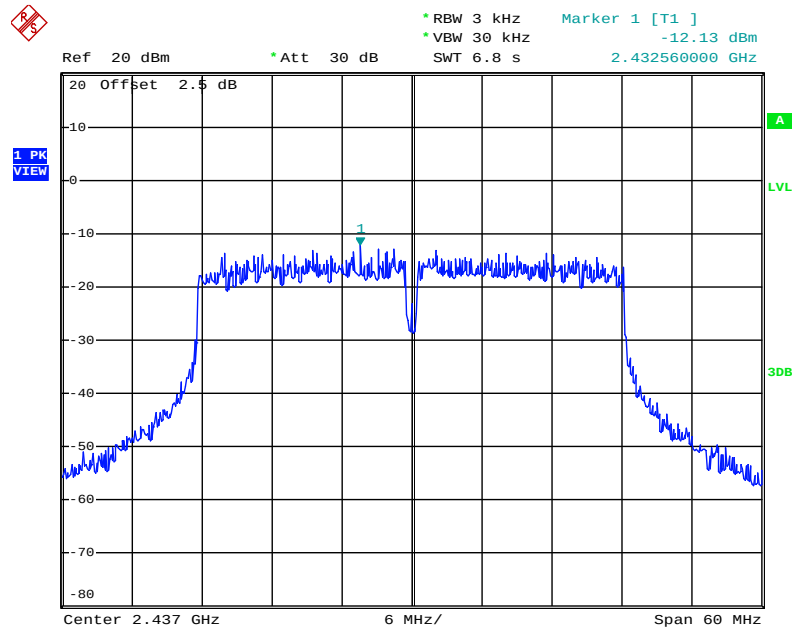
Date: 15.MAY.2014 15:24:26

Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / 2437 MHz / Chain 2



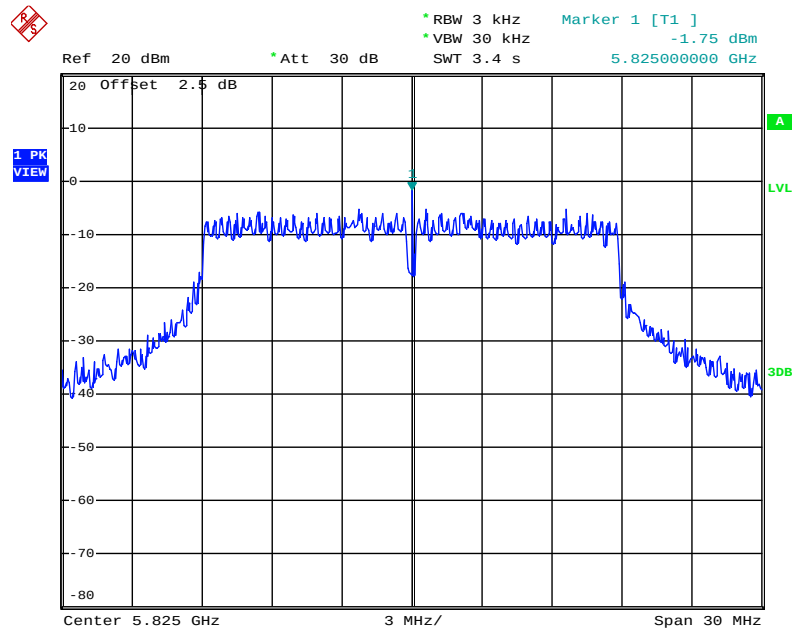
Date: 15.MAY.2014 15:25:26

Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / 2437 MHz / Chain 3



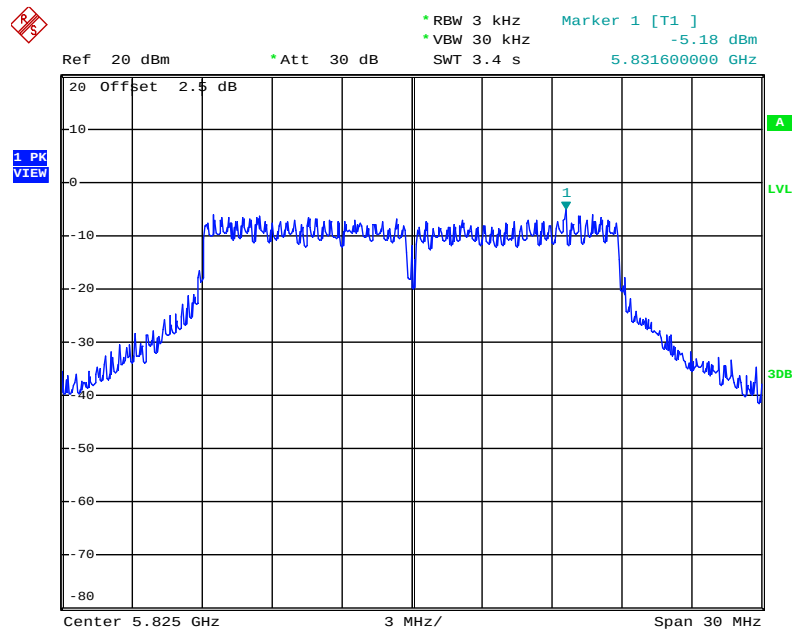
Date: 15.MAY.2014 15:26:14

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



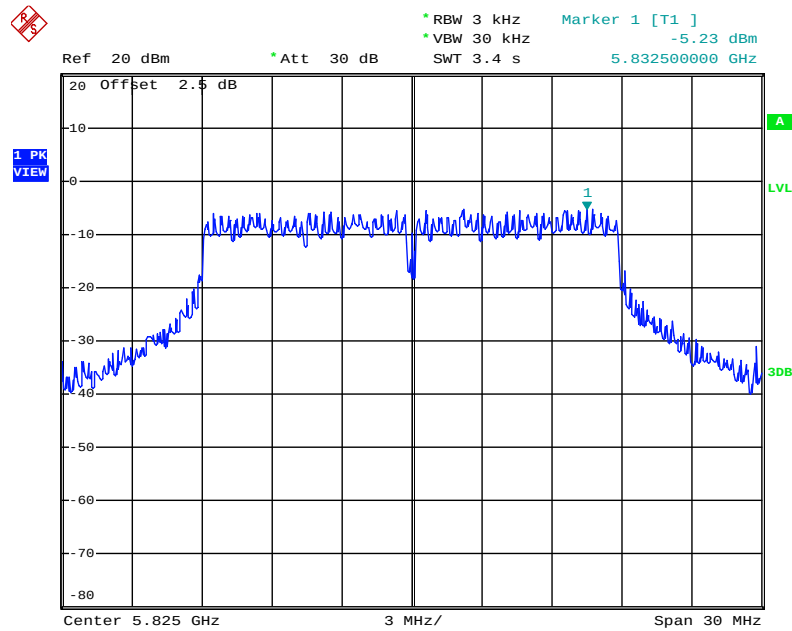
Date: 15.MAY.2014 12:08:53

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



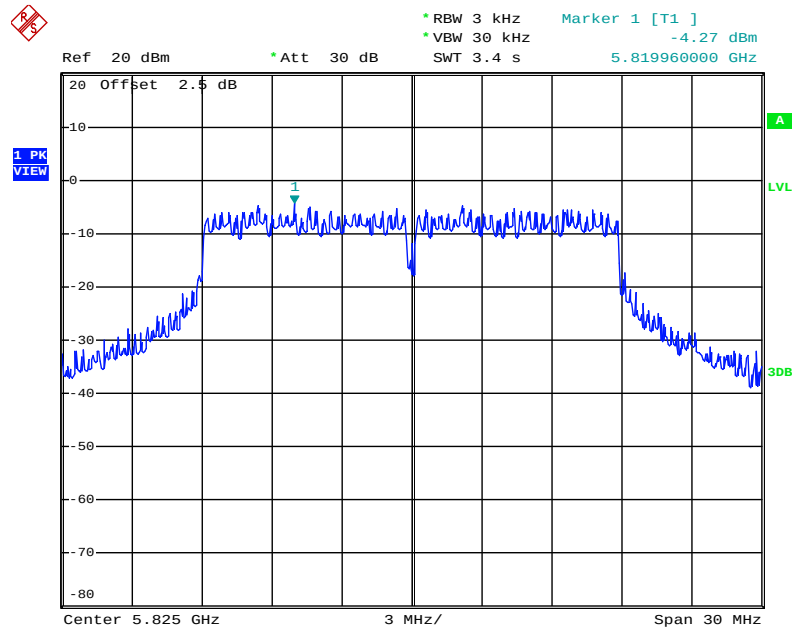
Date: 15.MAY.2014 12:08:16

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / 5825 MHz / Chain 3



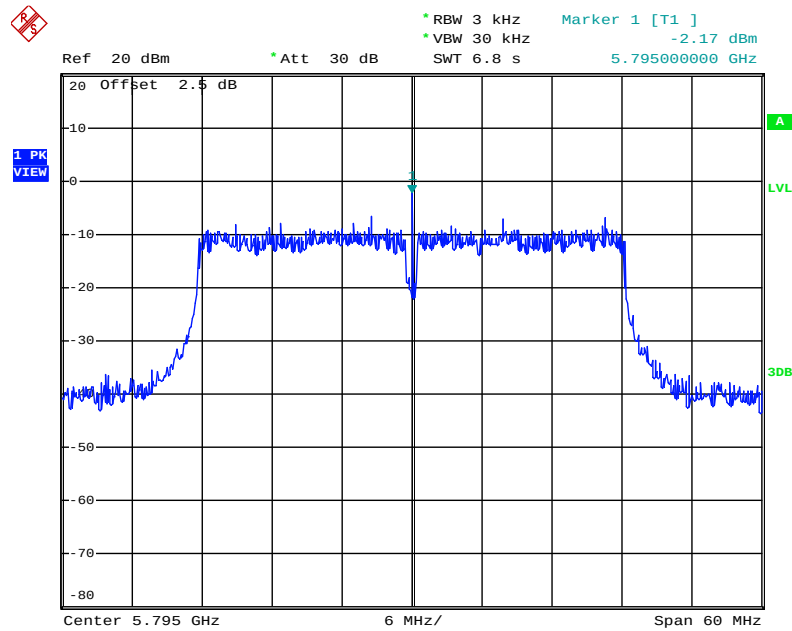
Date: 15.MAY.2014 12:06:45

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / 5825 MHz / Chain 4



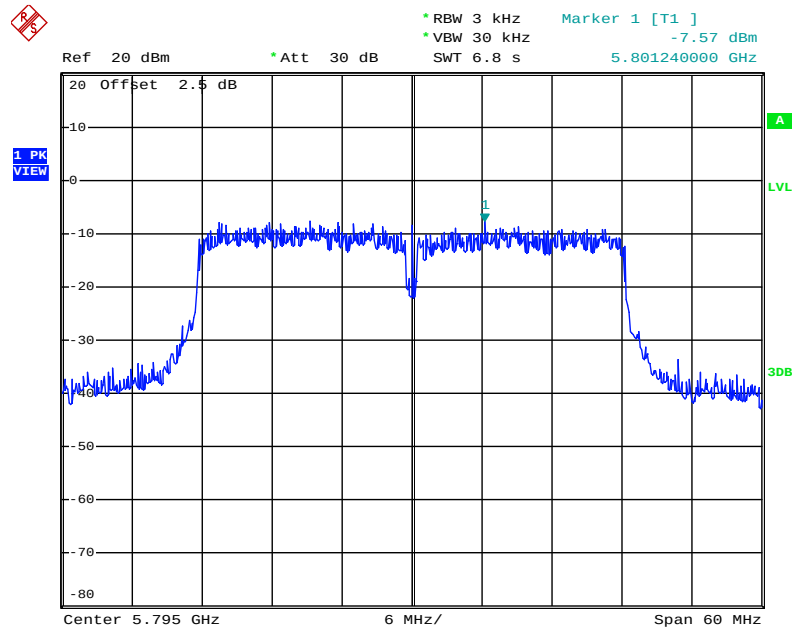
Date: 15.MAY.2014 12:07:31

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



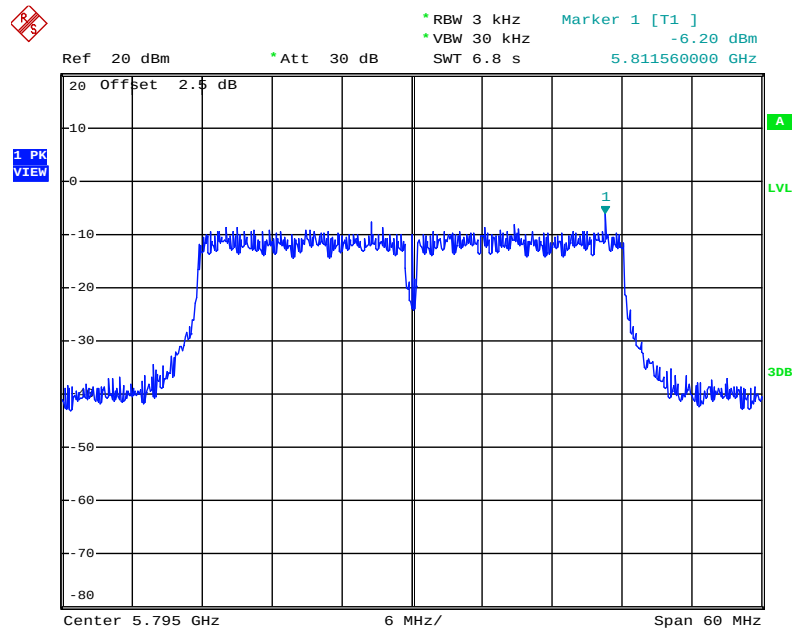
Date: 15.MAY.2014 12:15:48

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



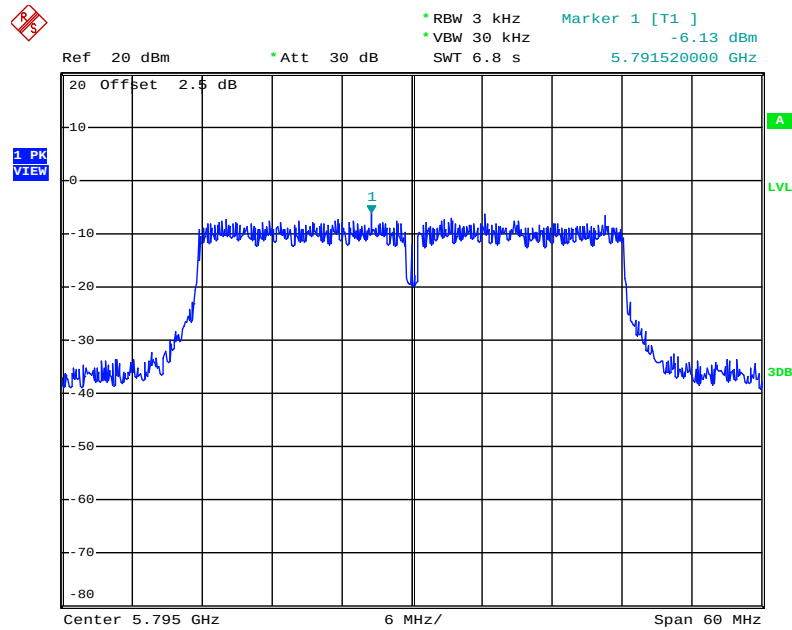
Date: 15.MAY.2014 12:14:59

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



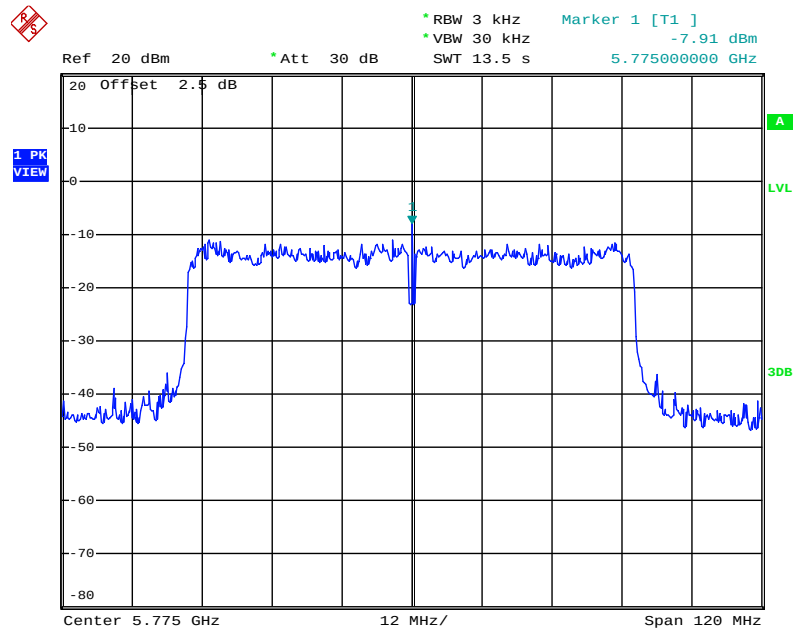
Date: 15.MAY.2014 12:14:03

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



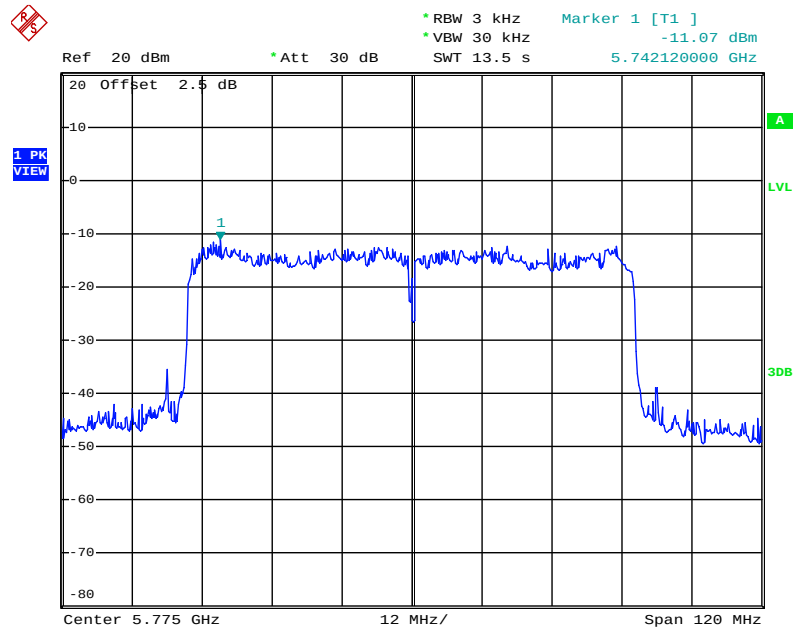
Date: 15.MAY.2014 12:13:27

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



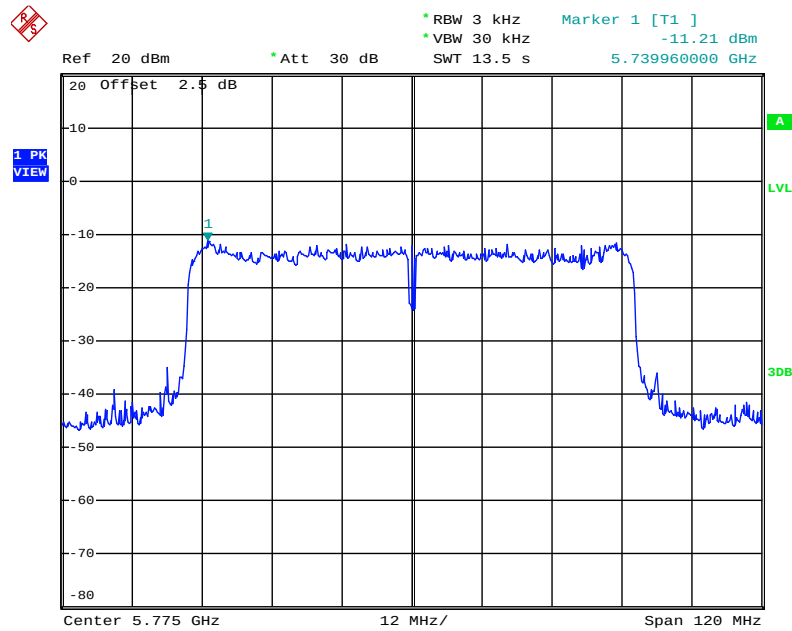
Date: 15.MAY.2014 12:17:04

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



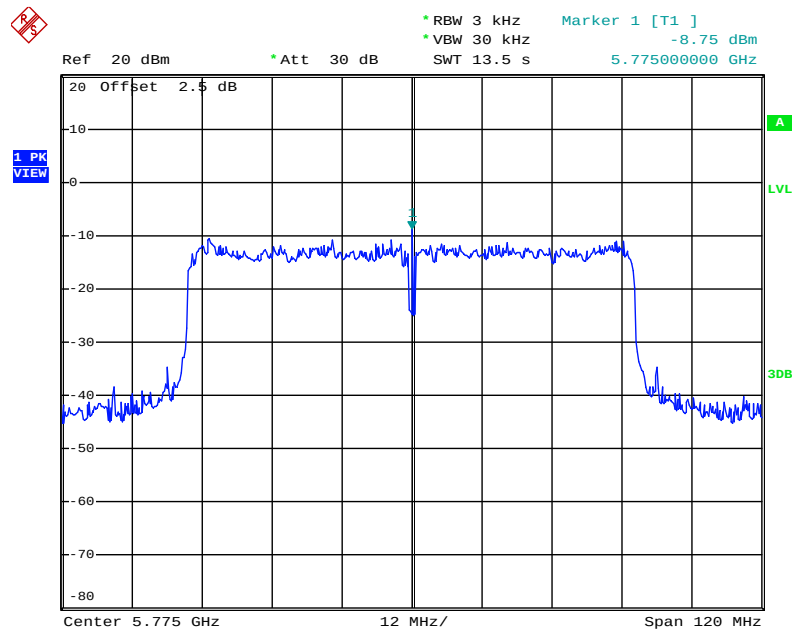
Date: 15.MAY.2014 12:17:59

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



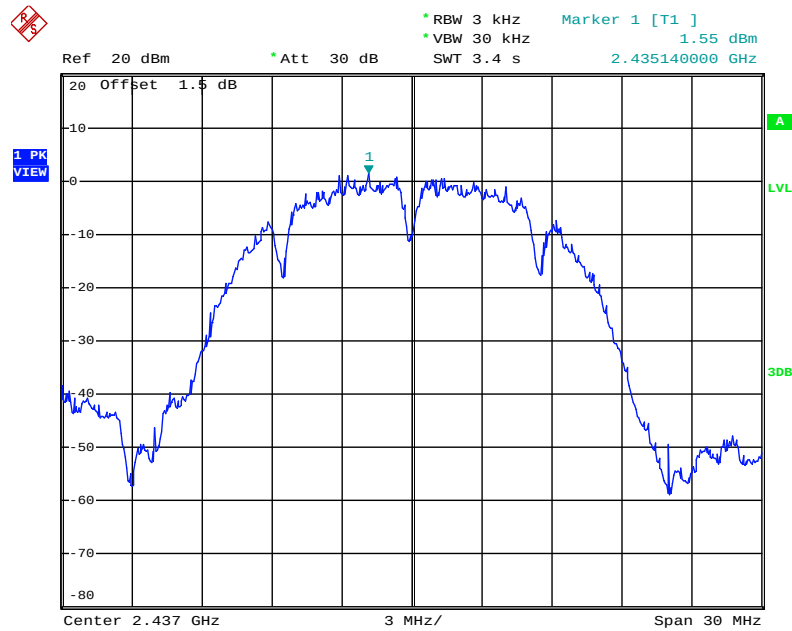
Date: 15.MAY.2014 12:19:08

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



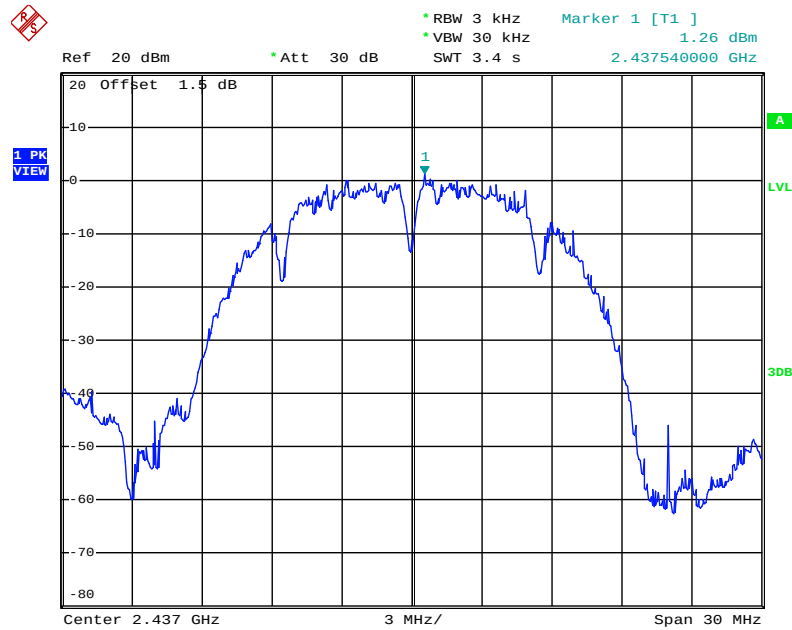
Date: 15.MAY.2014 12:20:21

Power Density Plot on Configuration IEEE 802.11b / 2437 MHz / Chain 1



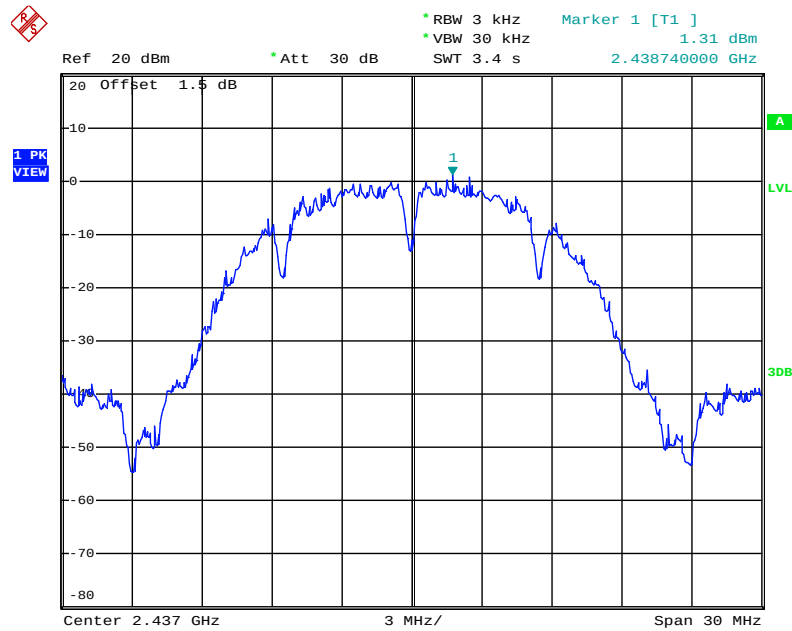
Date: 15.MAY.2014 14:29:53

Power Density Plot on Configuration IEEE 802.11b / 2437 MHz / Chain 2



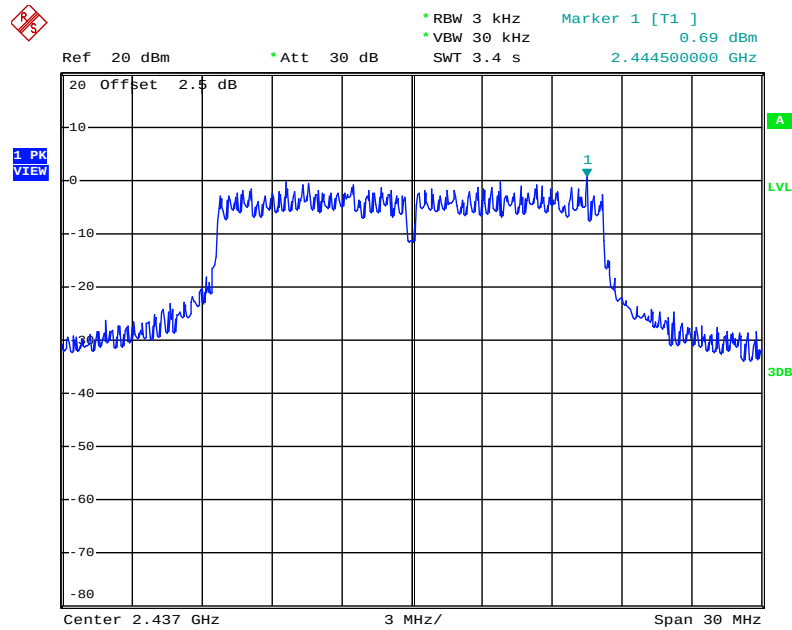
Date: 15.MAY.2014 14:27:45

Power Density Plot on Configuration IEEE 802.11b / 2437 MHz / Chain 3



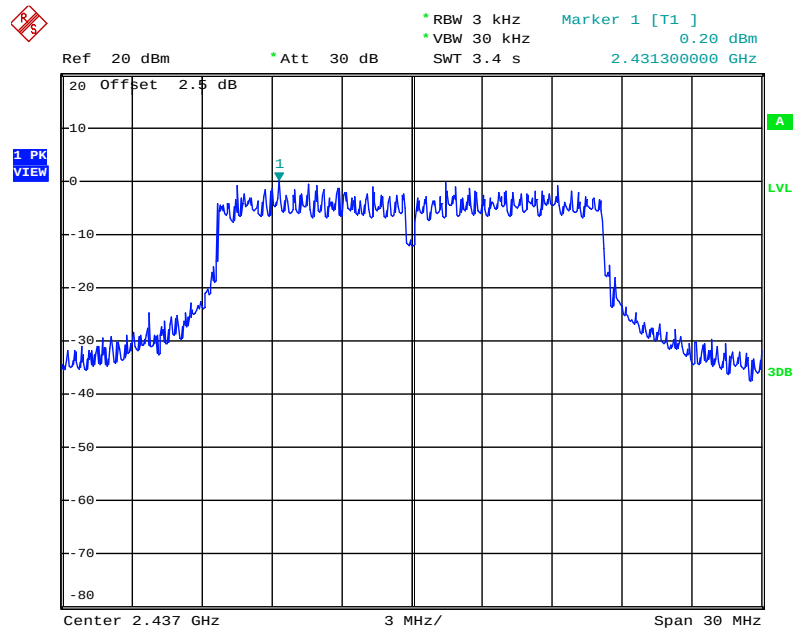
Date: 15.MAY.2014 14:26:58

Power Density Plot on Configuration IEEE 802.11g / 2437 MHz / Chain 1



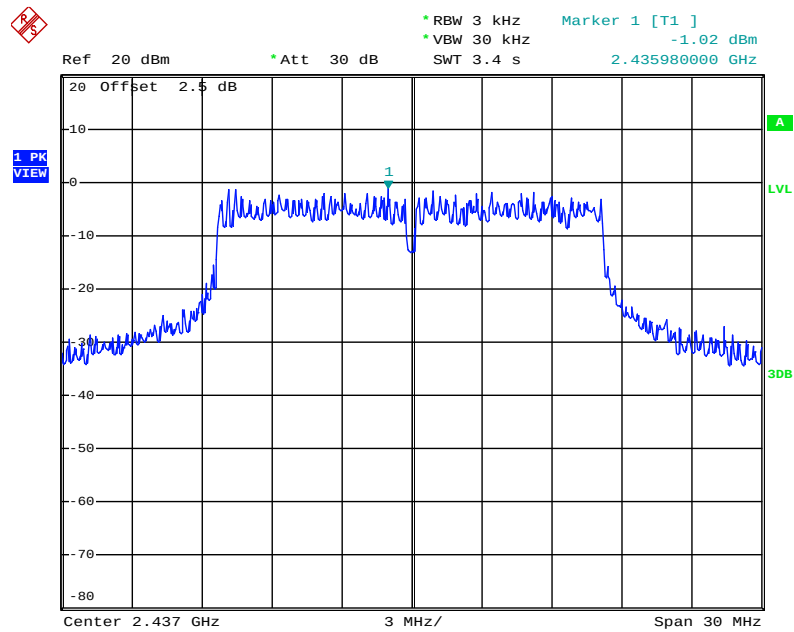
Date: 15.MAY.2014 15:04:14

Power Density Plot on Configuration IEEE 802.11g / 2437 MHz / Chain 2



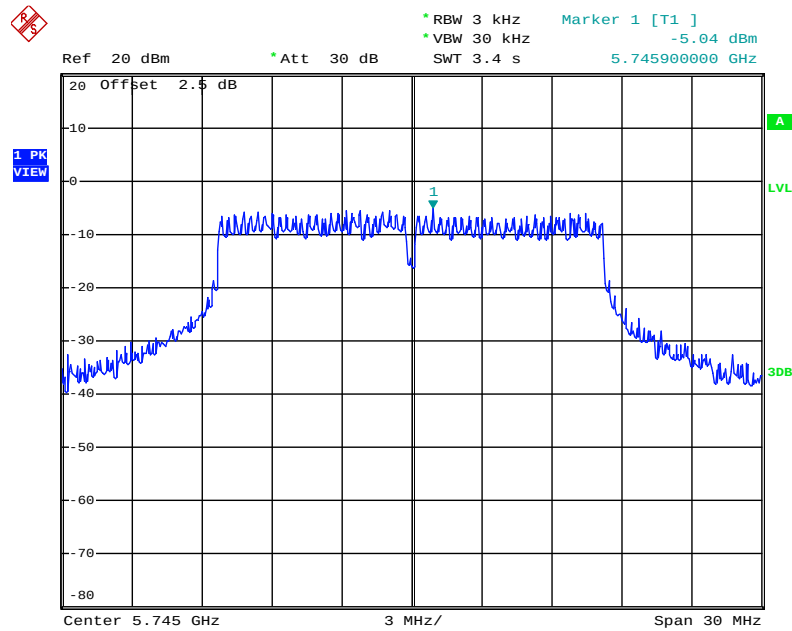
Date: 15.MAY.2014 15:05:00

Power Density Plot on Configuration IEEE 802.11g / 2437 MHz / Chain 3



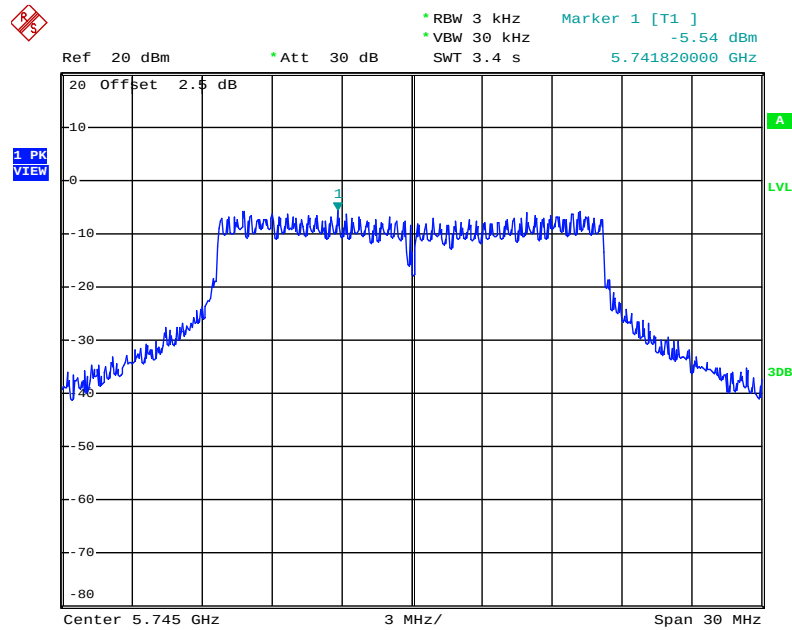
Date: 15.MAY.2014 15:08:26

Power Density Plot on Configuration IEEE 802.11a / 5745 MHz / Chain 1



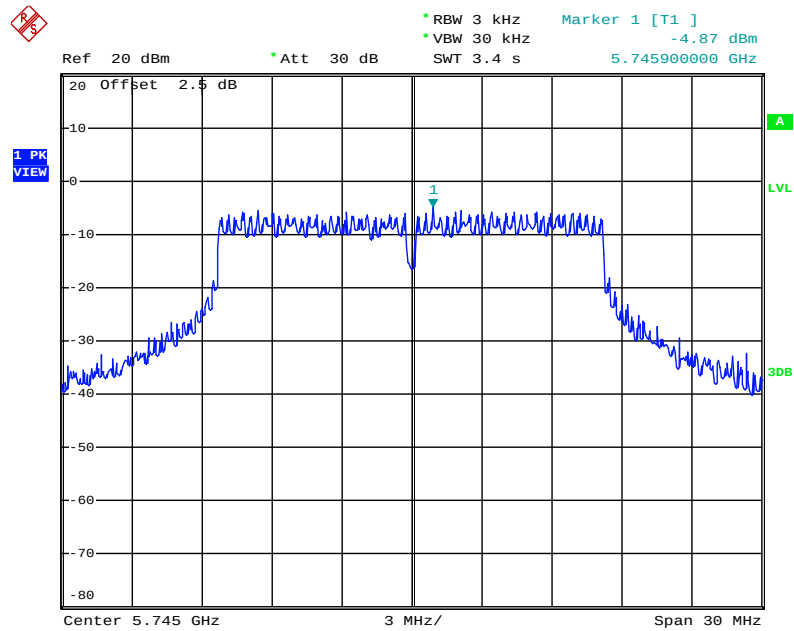
Date: 15.MAY.2014 11:47:56

Power Density Plot on Configuration IEEE 802.11a / 5745 MHz / Chain 2



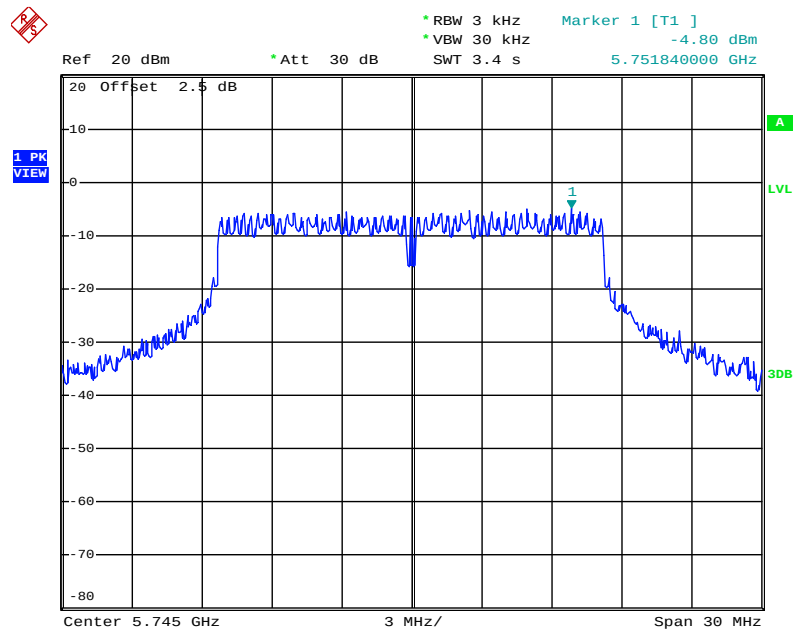
Date: 15.MAY.2014 11:48:48

Power Density Plot on Configuration IEEE 802.11a / 5745 MHz / Chain 3



Date: 15.MAY.2014 11:49:33

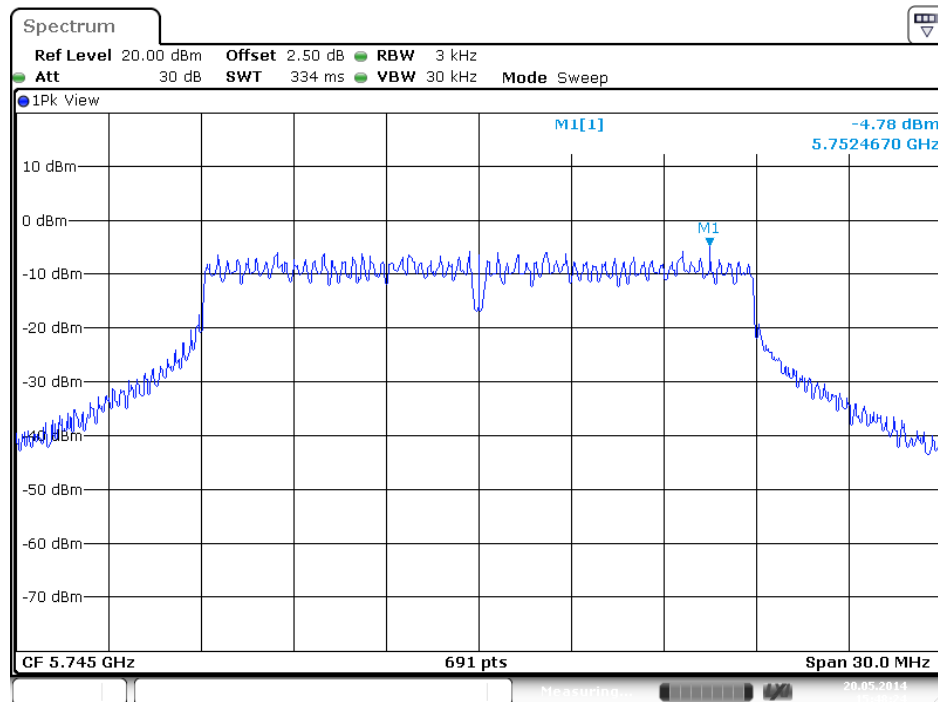
Power Density Plot on Configuration IEEE 802.11a / 5745 MHz / Chain 4



Date: 15.MAY.2014 11:51:56

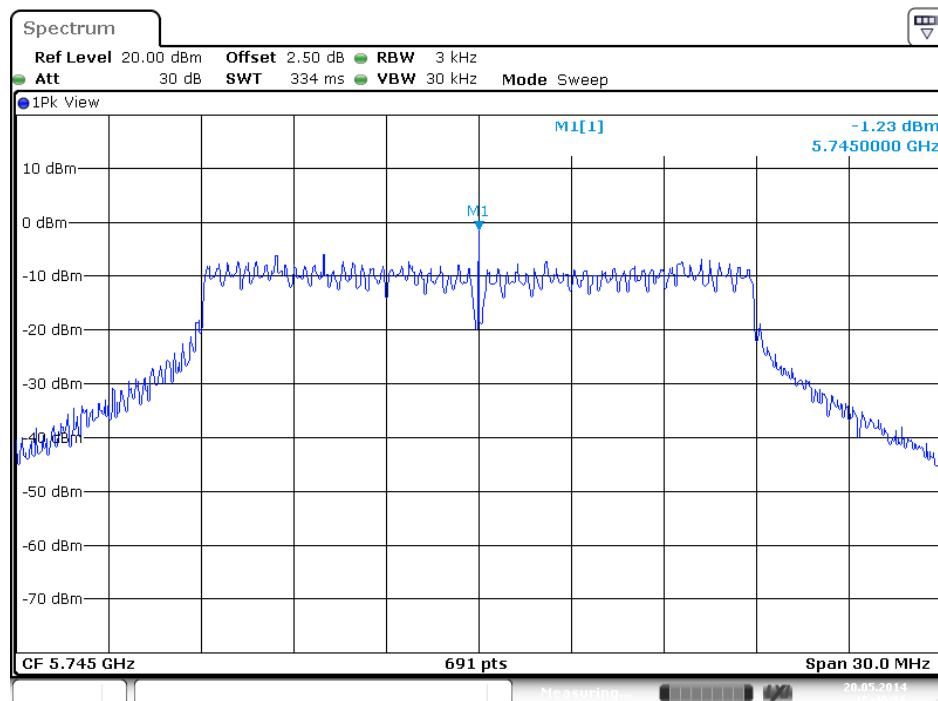
For beamforming function:

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / 5745 MHz / Chain 1



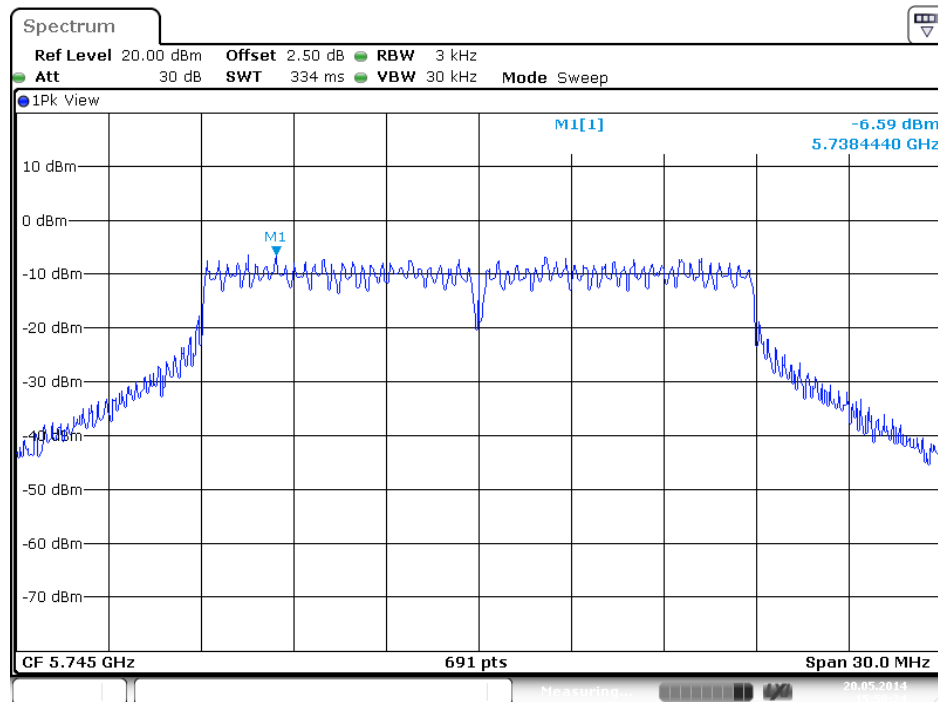
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Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / 5745 MHz / Chain 2



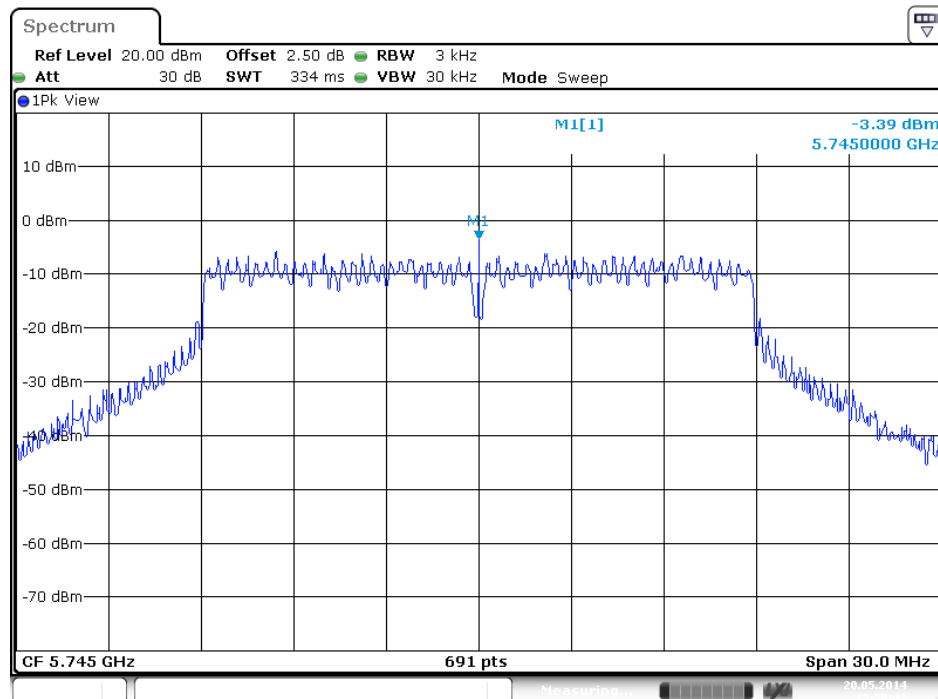
Date: 20.MAY.2014 15:49:17

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / 5745 MHz / Chain 3



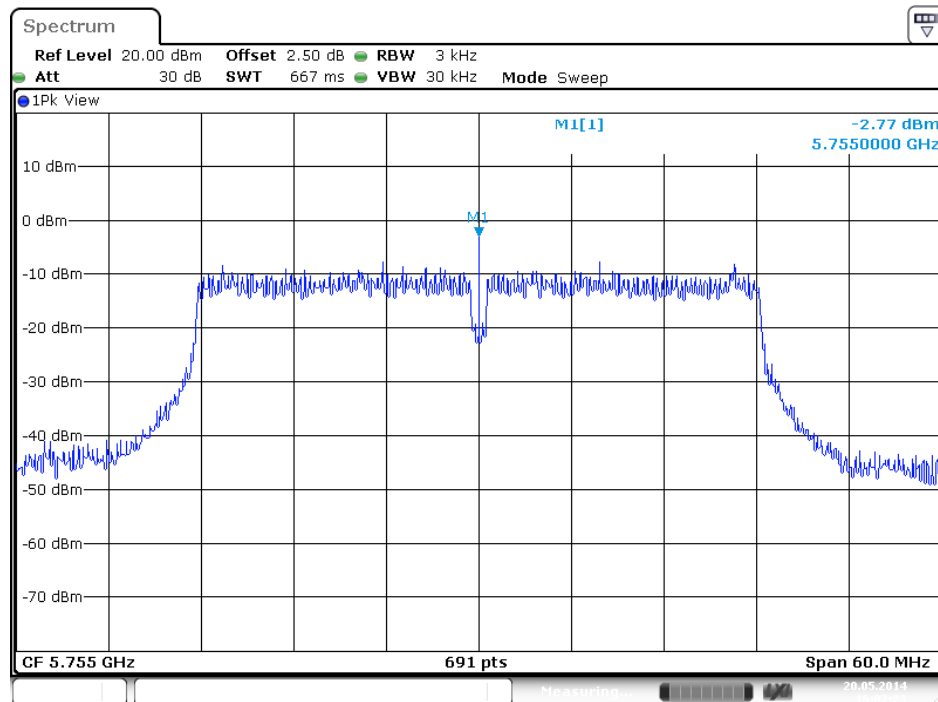
Date: 20.MAY.2014 15:50:23

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / 5745 MHz / Chain 4



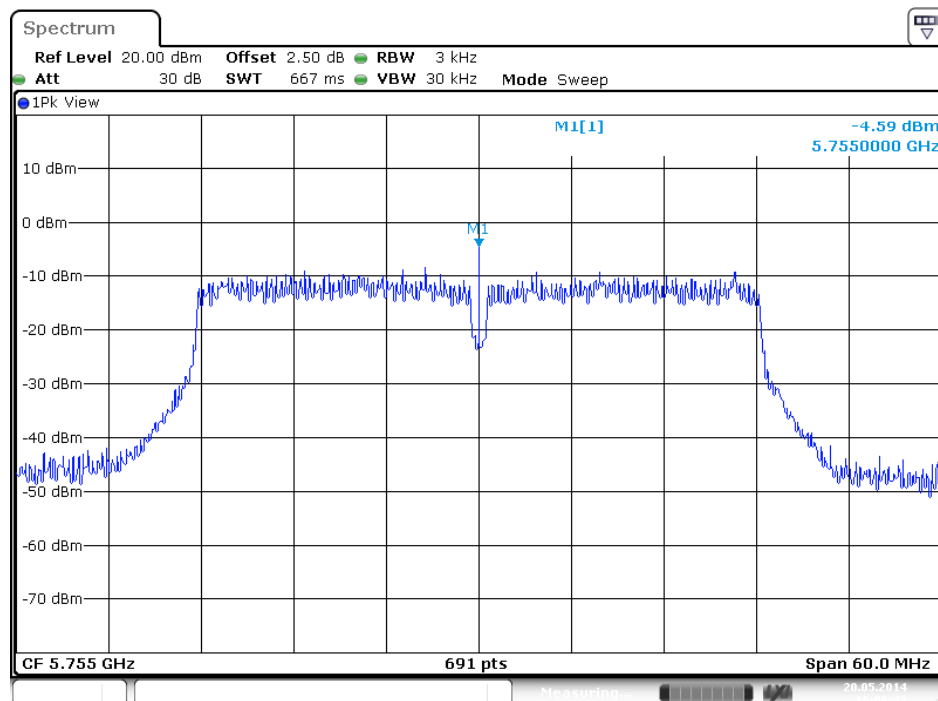
Date: 20.MAY.2014 15:50:43

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / 5755 MHz / Chain 1



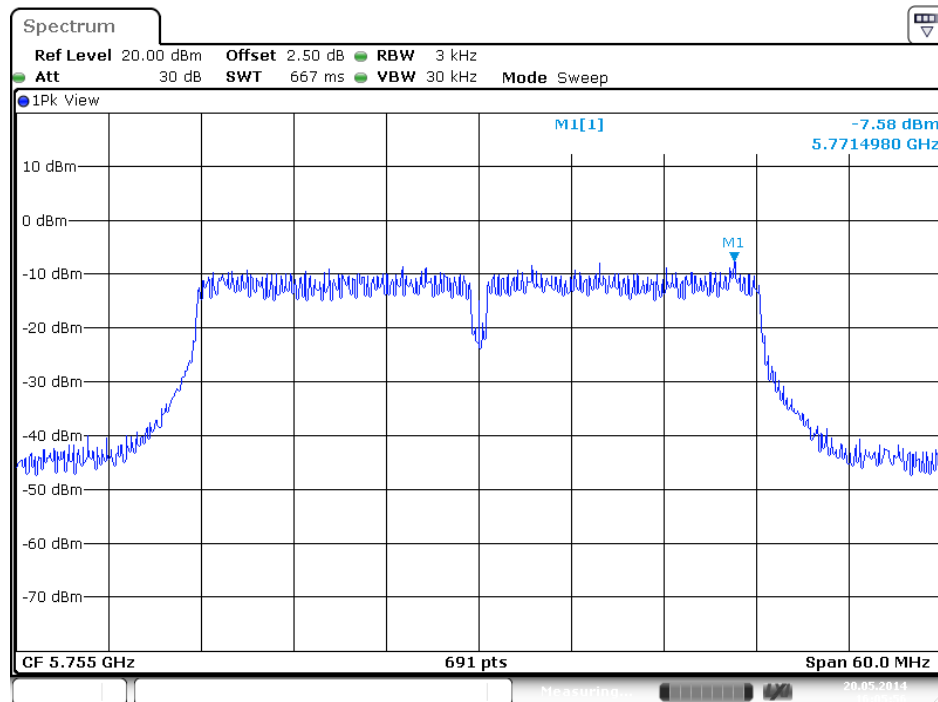
Date: 20.MAY.2014 16:07:24

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / 5755 MHz / Chain 2



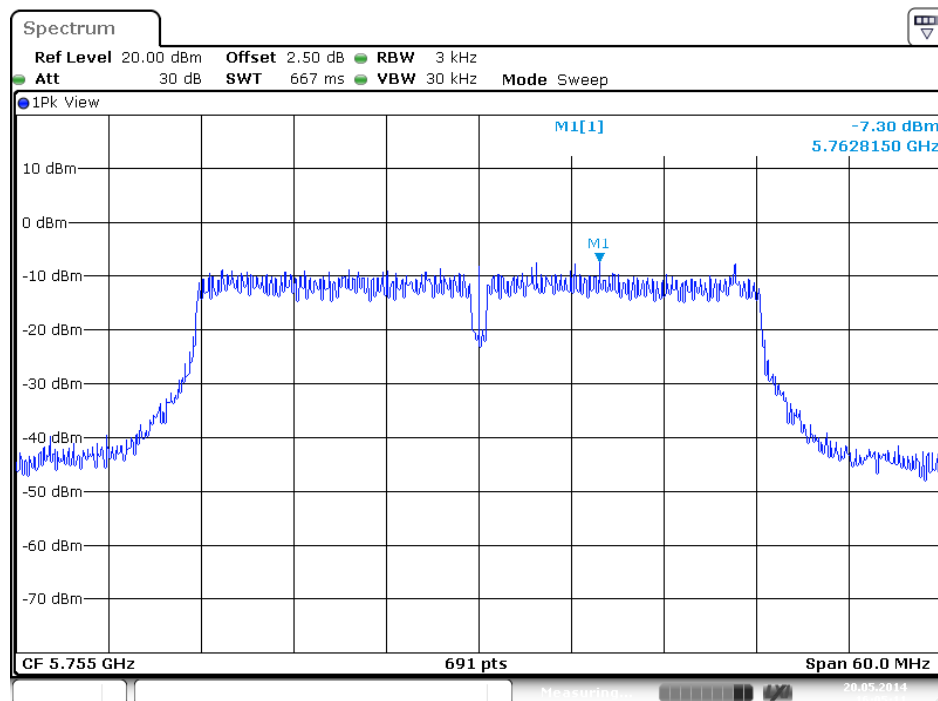
Date: 20.MAY.2014 16:06:44

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / 5755 MHz / Chain 3



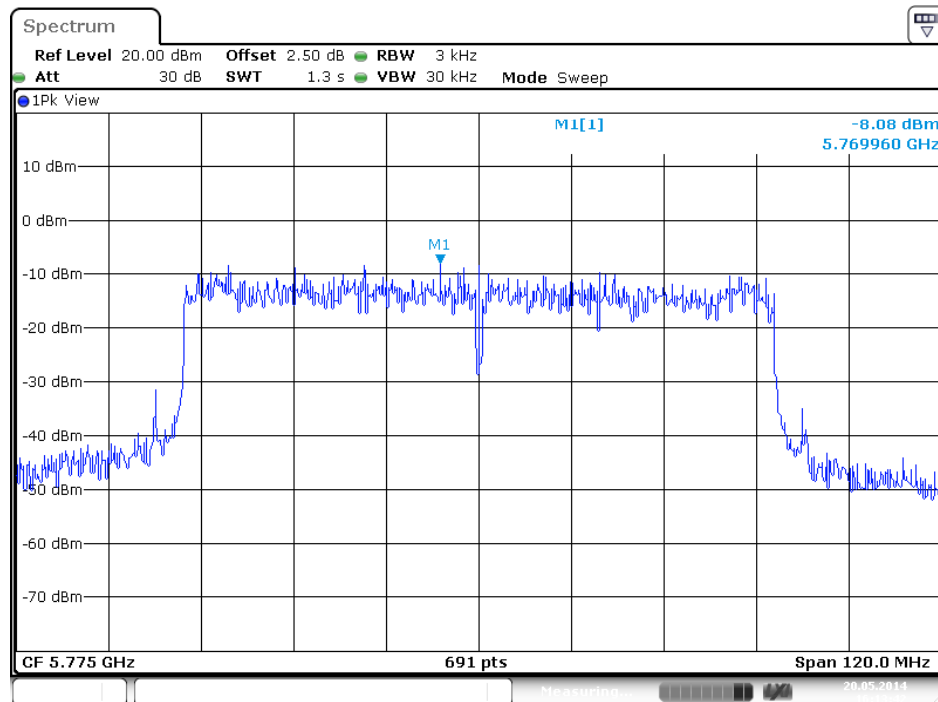
Date: 20.MAY.2014 16:05:57

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / 5755 MHz / Chain 4



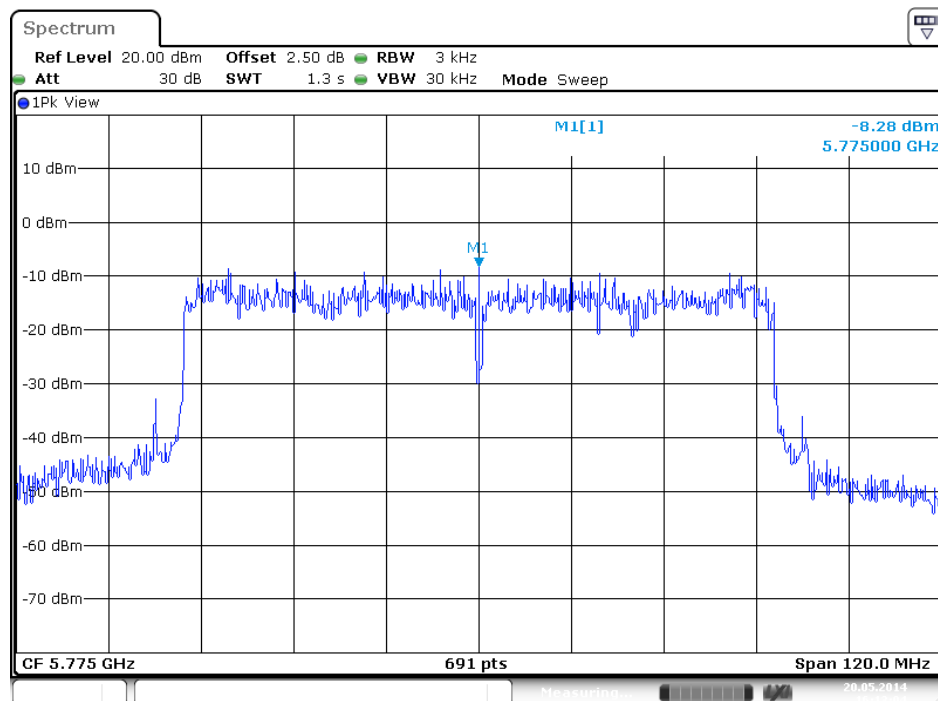
Date: 20.MAY.2014 16:05:12

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



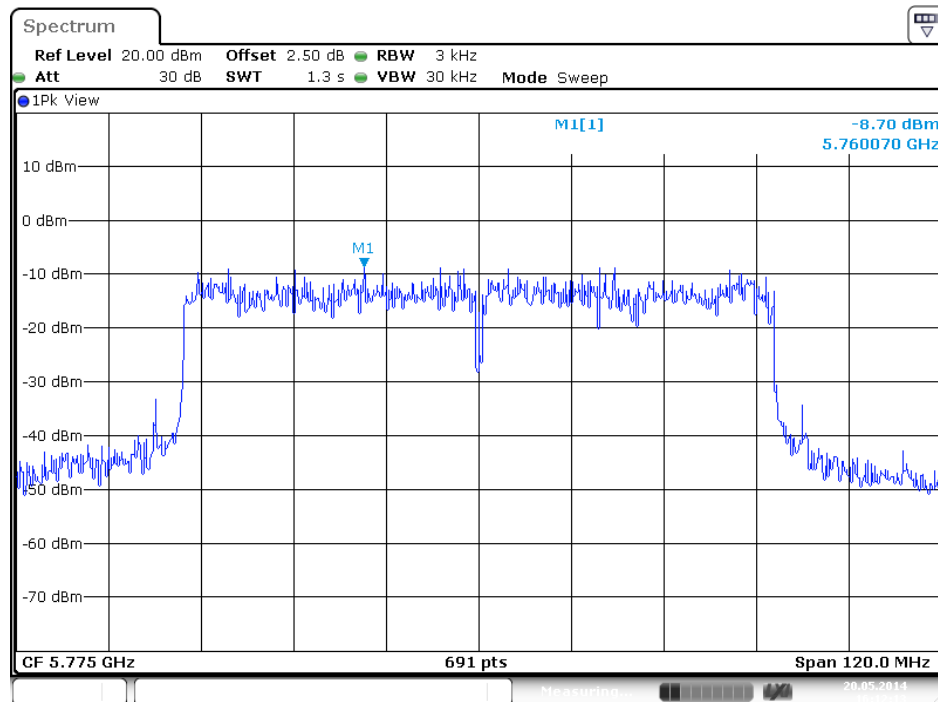
Date: 20.MAY.2014 16:13:42

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



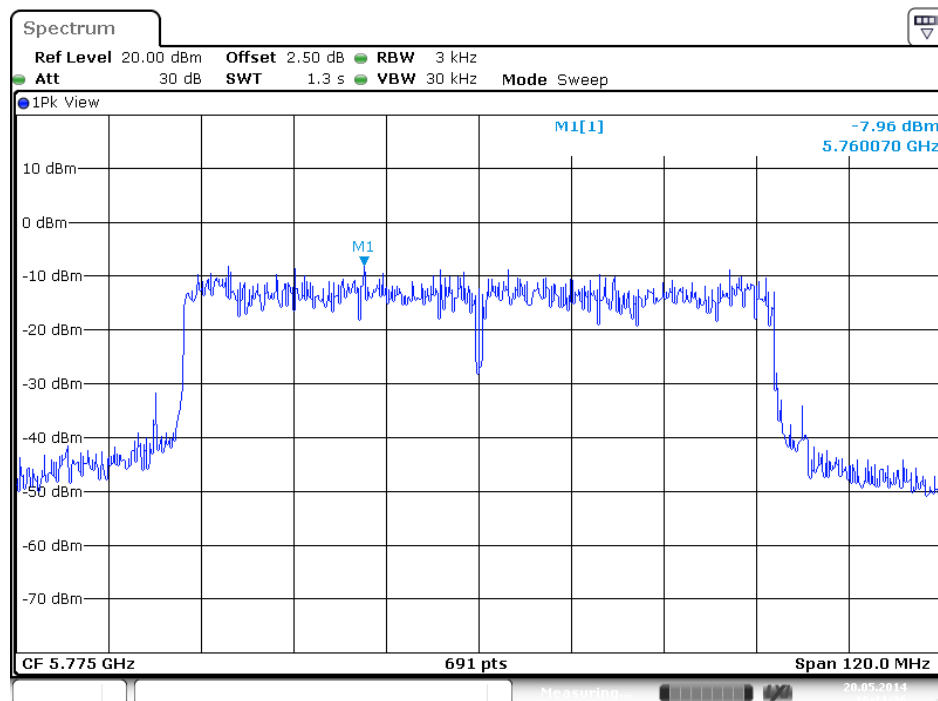
Date: 20.MAY.2014 16:13:05

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



Date: 20.MAY.2014 16:12:14

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



Date: 20.MAY.2014 16:11:37

4.4. 6dB Spectrum Bandwidth Measurement

4.4.1. Limit

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

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 spectrum analyzer.

Spectrum Parameters	Setting
Attenuation	Auto
Span Frequency	> 6dB Bandwidth
RBW	100kHz
VBW	$\geq 3 \times \text{RBW}$
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

4.4.3. Test Procedures

For Radiated 6dB Bandwidth Measurement:

1. The transmitter was radiated to the spectrum analyzer in peak hold mode.
2. Test was performed in accordance with KDB 558074 D01 v03r02 for Performing Compliance Measurements on Digital Transmission Systems (DTS) - section 8.0 DTS bandwidth=> 8.1 Option 1.
3. Multiple antenna system was performed in accordance with KDB 662911 D01 v02r01 Emissions Testing of Transmitters with Multiple Outputs in the Same Band.
4. Measured the spectrum width with power higher than 6dB below carrier.

4.4.4. Test Setup Layout

For Radiated 6dB Bandwidth Measurement:

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

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 6dB Spectrum Bandwidth

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

For 2.4GHz Band

Configuration IEEE 802.11n MCS0 HT20 / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	16.72	17.68	500	Complies
6	2437 MHz	15.60	17.84	500	Complies
11	2462 MHz	13.52	17.04	500	Complies

Configuration IEEE 802.11n MCS0 HT40 / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
3	2422 MHz	34.56	36.48	500	Complies
6	2437 MHz	31.36	35.84	500	Complies
9	2452 MHz	29.60	36.32	500	Complies

For 5GHz Band

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

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
149	5745 MHz	15.76	16.96	500	Complies
157	5785 MHz	15.12	17.36	500	Complies
165	5825 MHz	15.28	16.72	500	Complies

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

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
151	5755 MHz	32.80	36.80	500	Complies
159	5795 MHz	35.04	36.48	500	Complies

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

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

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

Configuration IEEE 802.11b / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	8.08	14.32	500	Complies
6	2437 MHz	8.08	14.32	500	Complies
11	2462 MHz	8.04	14.32	500	Complies

Configuration IEEE 802.11g / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	14.56	16.40	500	Complies
6	2437 MHz	13.76	16.40	500	Complies
11	2462 MHz	14.48	16.40	500	Complies

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

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
149	5745 MHz	14.80	16.16	500	Complies
157	5785 MHz	14.88	16.08	500	Complies
165	5825 MHz	14.88	16.16	500	Complies

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

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

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
149	5745 MHz	16.08	17.12	500	Complies
157	5785 MHz	15.12	16.88	500	Complies
165	5825 MHz	15.12	17.20	500	Complies

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

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
151	5755 MHz	35.84	36.48	500	Complies
159	5795 MHz	35.84	36.80	500	Complies

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

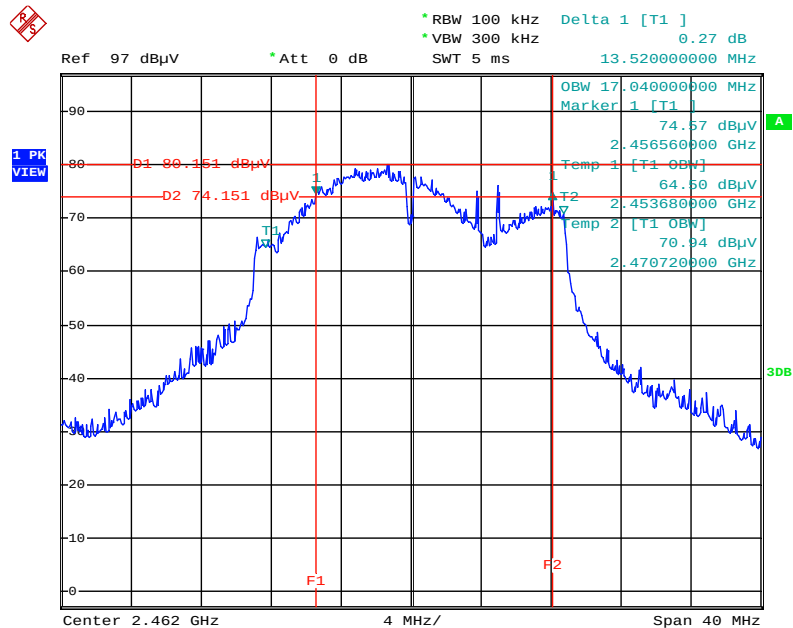
Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
155	5775 MHz	75.52	75.84	500	Complies

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

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

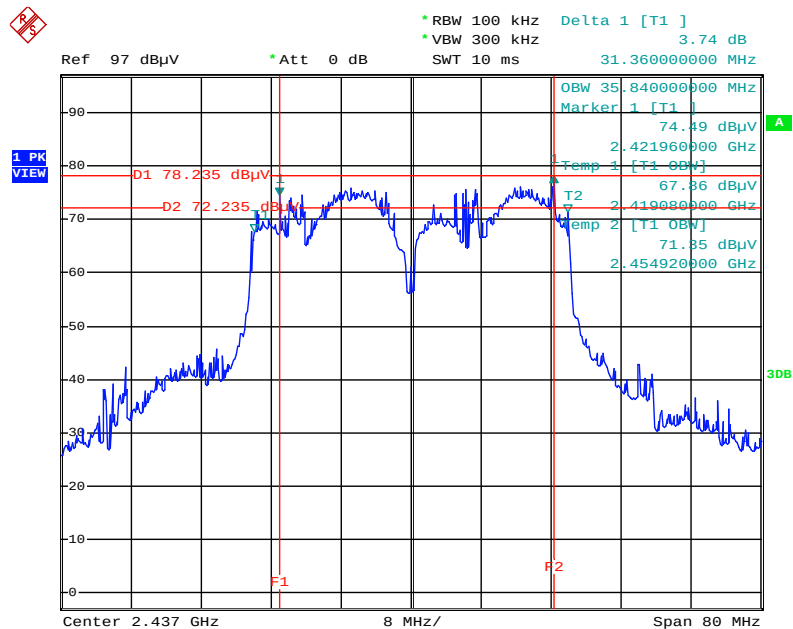
For non-beamforming function:

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT20 / 2462 MHz / Chain 1 + Chain 2 + Chain 3



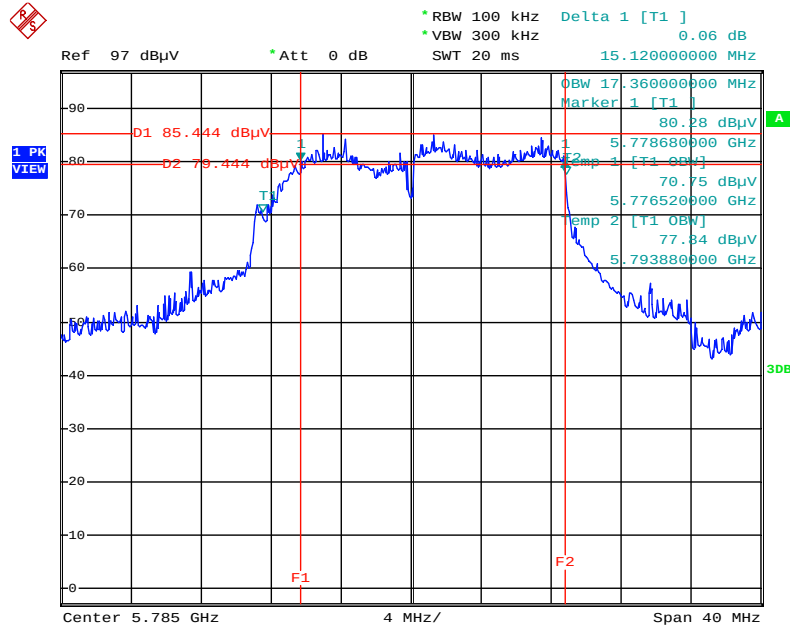
Date: 15.MAY.2014 15:43:08

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT40 / 2437 MHz / Chain 1 + Chain 2 + Chain 3



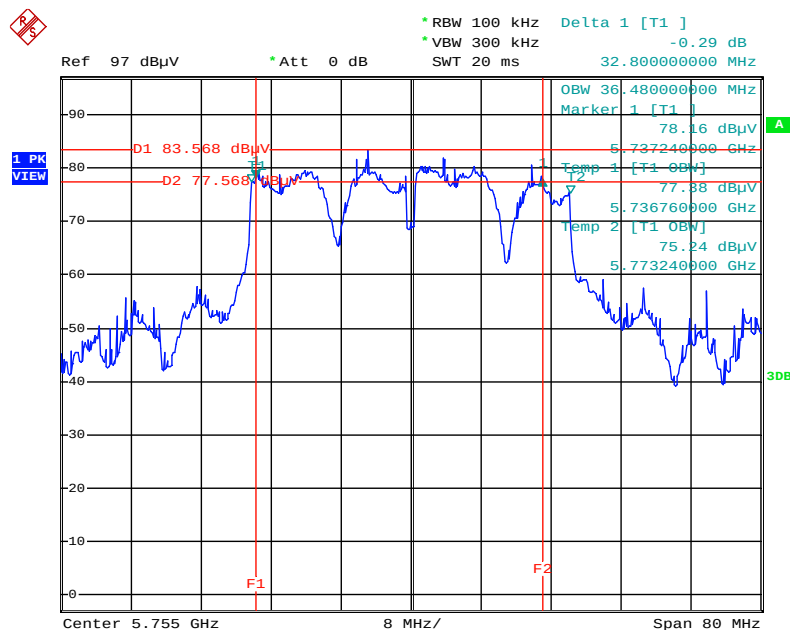
Date: 15.MAY.2014 15:44:41

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / 5785 MHz / Chain 1 + Chain 2 + Chain 3 + Chain 4



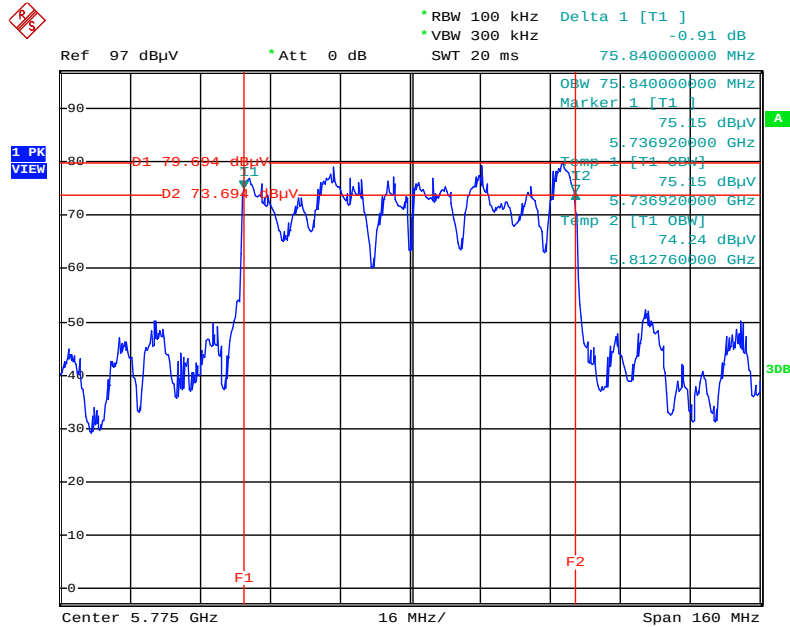
Date: 15.MAY.2014 11:37:43

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



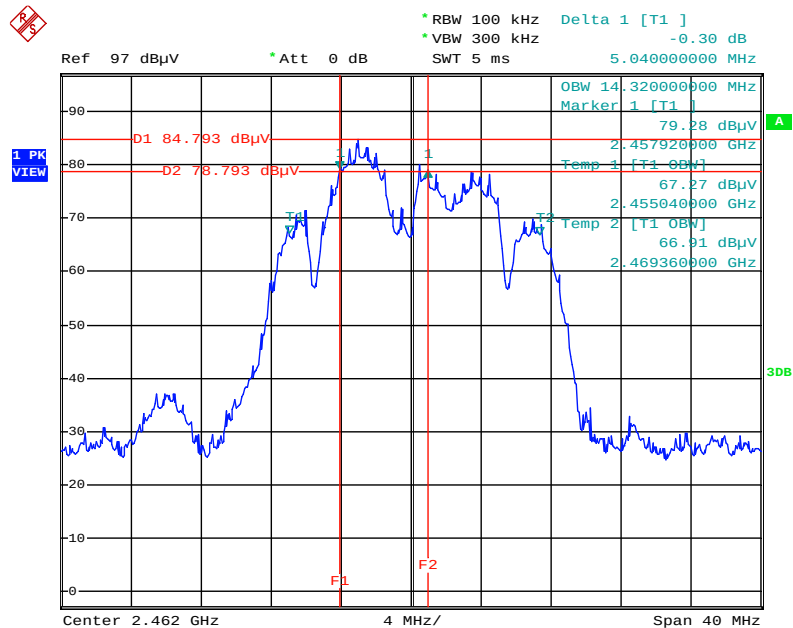
Date: 15.MAY.2014 11:42:04

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



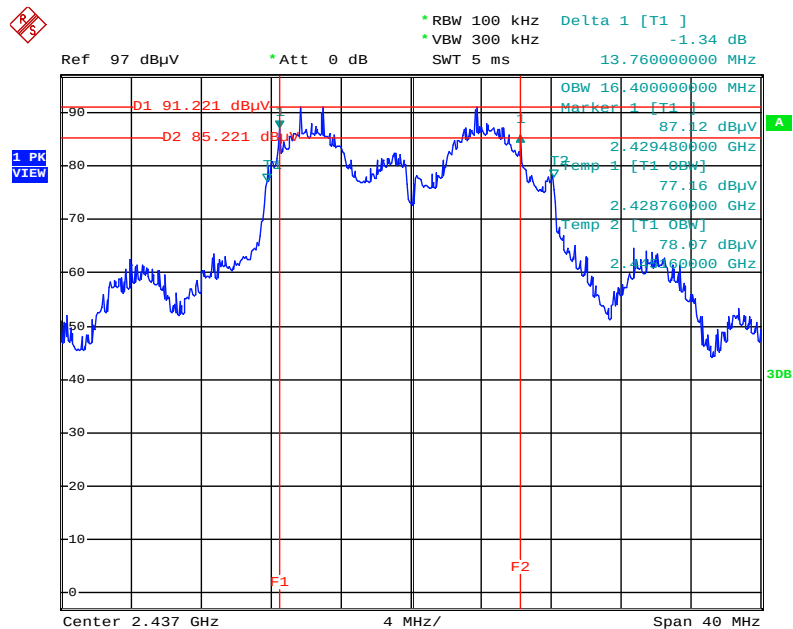
Date: 15.MAY.2014 11:43:38

6 dB Bandwidth Plot on Configuration IEEE 802.11b / 2462 MHz / Chain 1 + Chain 2 + Chain 3



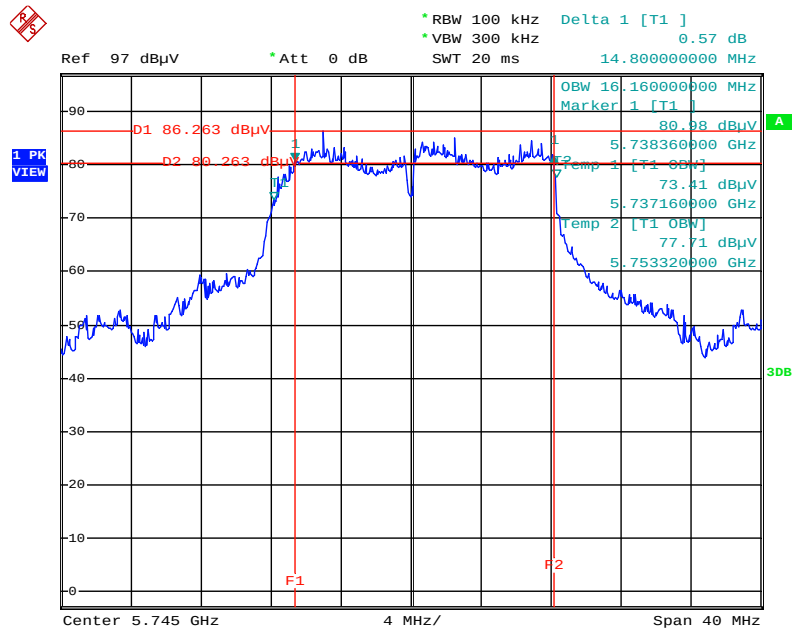
Date: 15.MAY.2014 15:37:52

6 dB Bandwidth Plot on Configuration IEEE 802.11g / 2437 MHz / Chain 1 + Chain 2 + Chain 3



Date: 15.MAY.2014 15:40:01

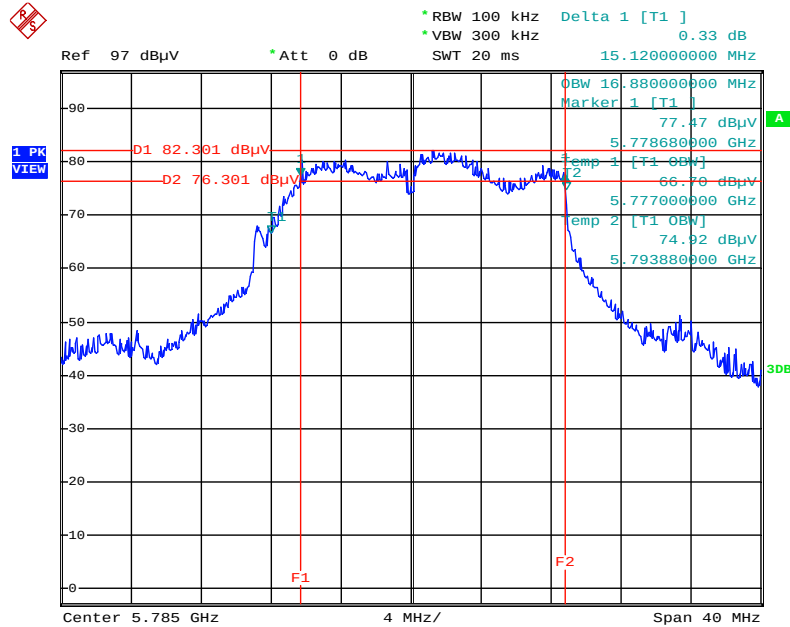
6 dB Bandwidth Plot on Configuration IEEE 802.11a / 5745 MHz / Chain 1 + Chain 2 + Chain 3 + Chain 4



Date: 15.MAY.2014 11:32:13

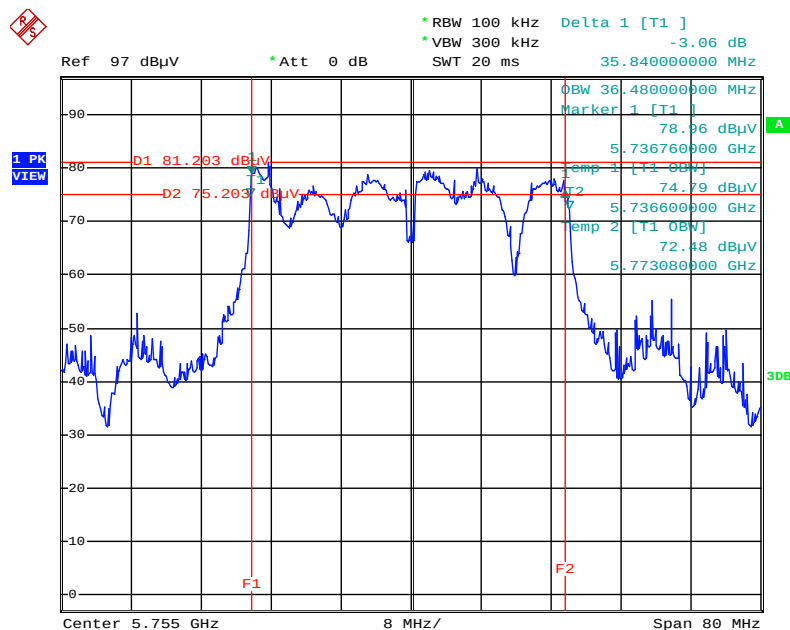
For beamforming function:

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / 5785 MHz / Chain 1 + Chain 2 + Chain 3 + Chain 4



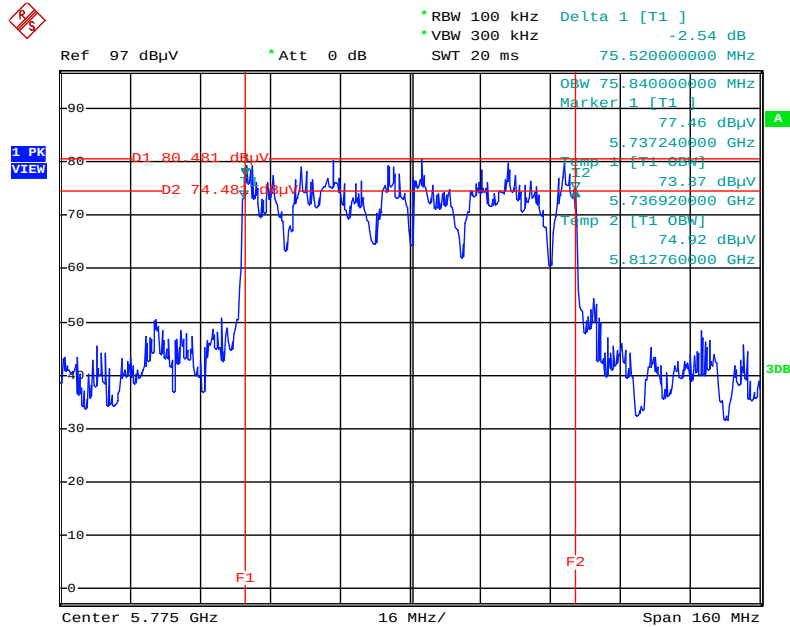
Date: 20.MAY.2014 14:23:36

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



Date: 20.MAY.2014 14:25:16

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



Date: 20.MAY.2014 14:26:43

4.5. Radiated Emissions Measurement

4.5.1. Limit

30dBc in any 100 kHz bandwidth outside the operating frequency band. 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

4.5.2. 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	1GHz
Stop Frequency	10th carrier harmonic
RBW / VBW (Emission in restricted band)	1MHz / 3MHz for Peak, 1MHz / 10Hz for Average
RBW / VBW (Emission in non-restricted band)	100kHz / 300kHz for peak

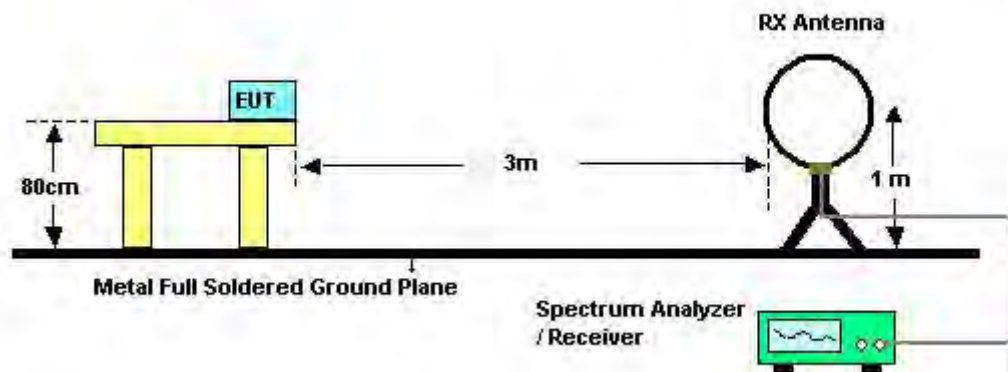
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RBW 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RBW 9kHz for QP
Start ~ Stop Frequency	30MHz~1GHz / RBW 120kHz for QP

4.5.3. Test Procedures

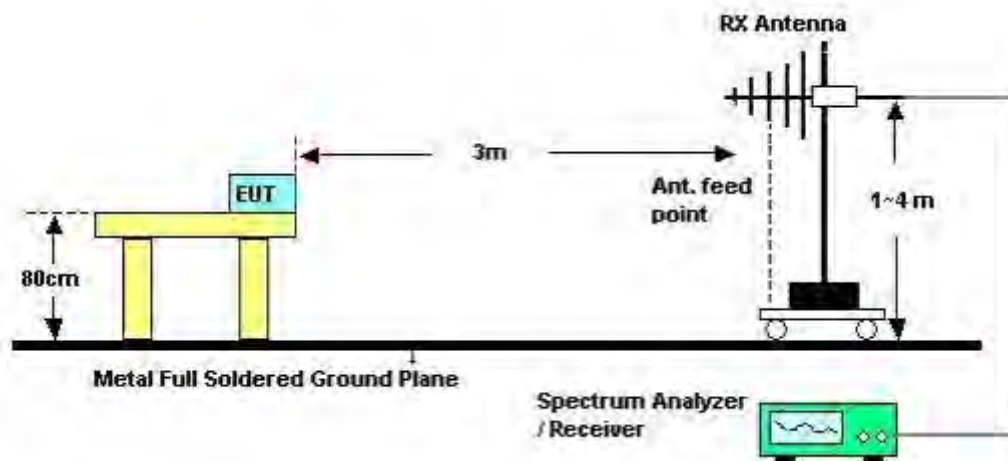
1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting 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 10Hz 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.

4.5.4. Test Setup Layout

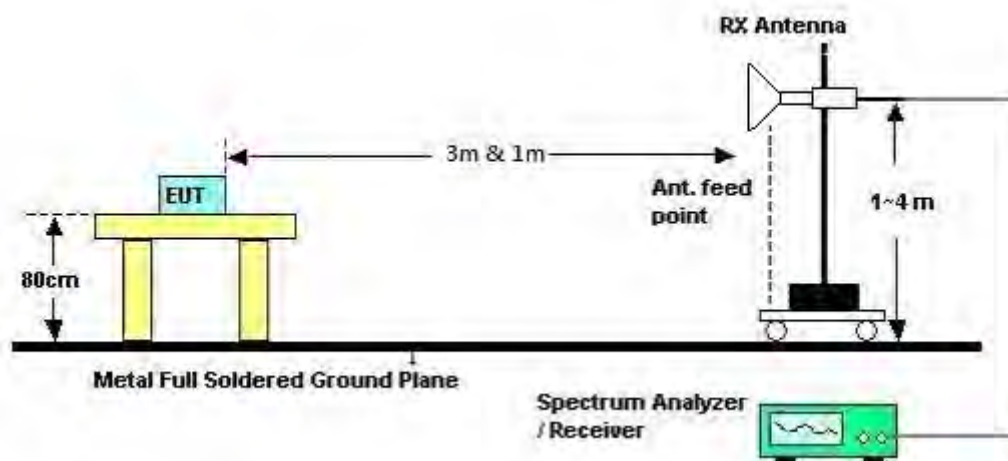
For Radiated Emissions: 9kHz ~30MHz



For Radiated Emissions: 30MHz~1GHz



For Radiated Emissions: Above 1GHz



4.5.5. Test Deviation

There is no deviation with the original standard.

4.5.6. EUT Operation during Test

For non-beamforming function:

The EUT was programmed to be in continuously transmitting mode.

For beamforming function:

The EUT was programmed to be in beamforming transmitting mode.

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

Temperature	23°C	Humidity	62%
Test Engineer	Satoshi Yang	Configurations	Normal Link
Test Date	Jun. 13, 2014	Test Mode	Mode 3

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

Note:

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

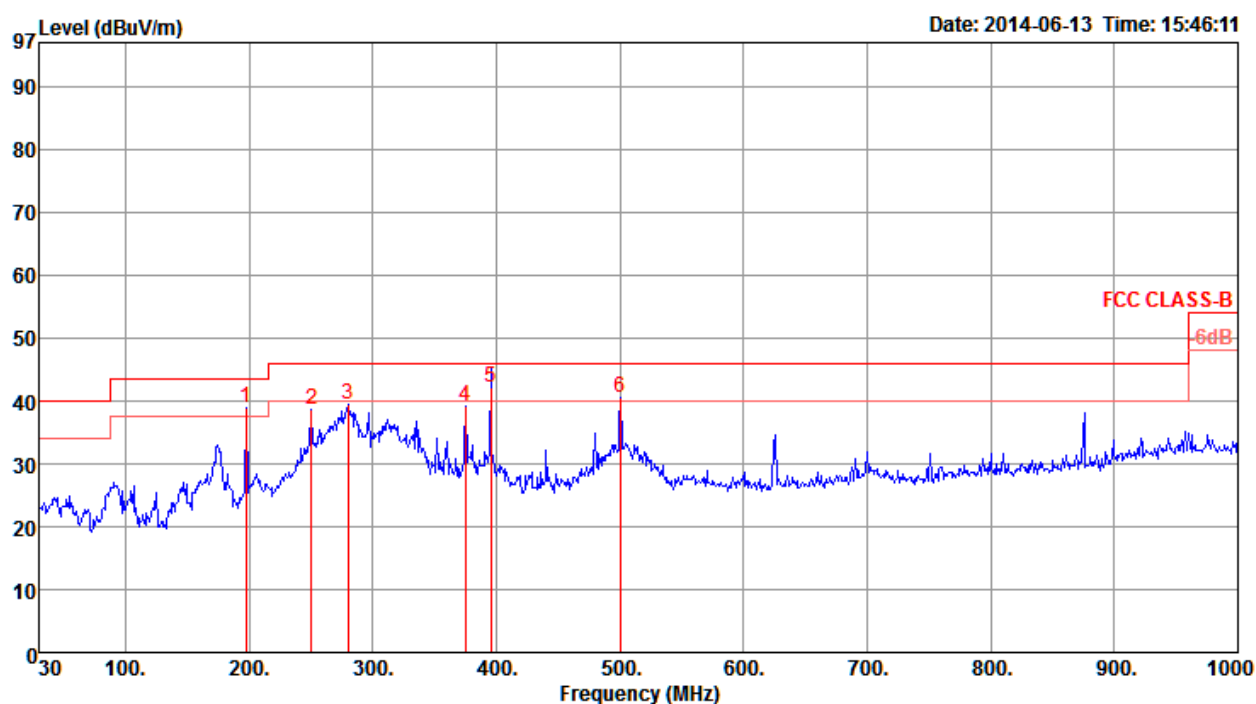
Distance extrapolation factor = $40 \log (\text{specific distance} / \text{test distance})$ (dB);

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

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

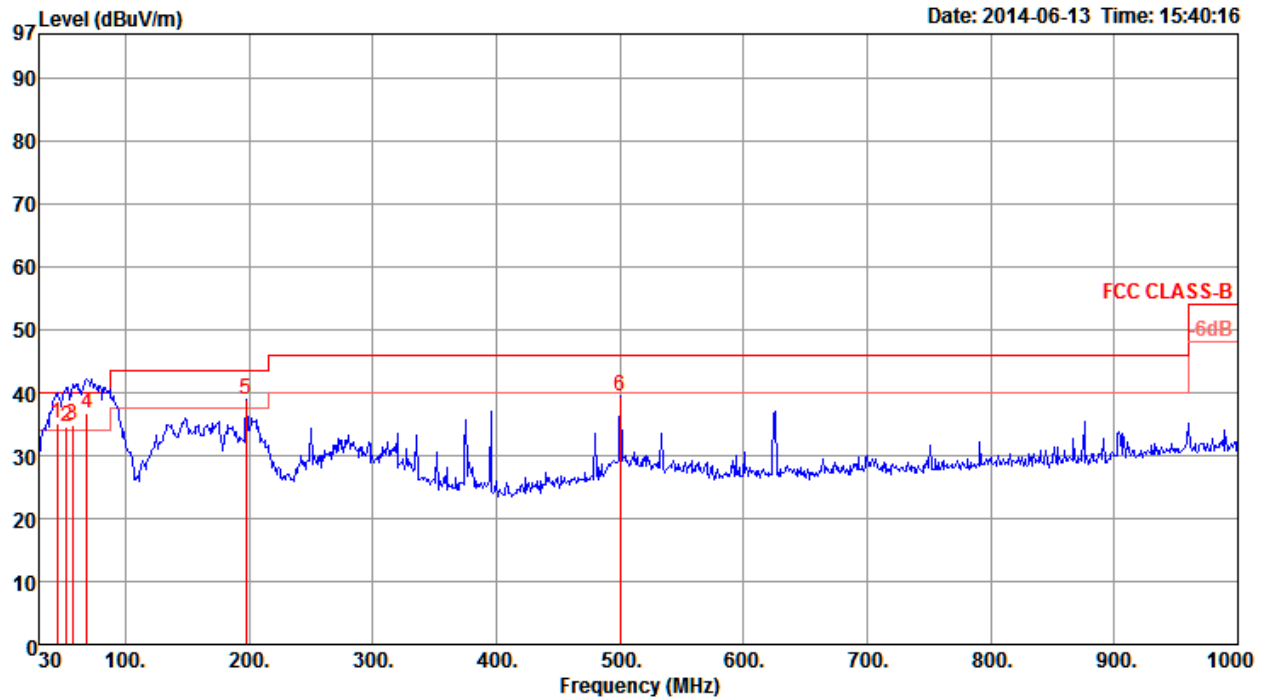
Temperature	23°C	Humidity	62%
Test Engineer	Satoshi Yang	Configurations	Normal Link
Test Mode	Mode 3		

Horizontal



	Freq	Level	Limit	Over	Read	CableAntenna	Preamp			T/Pos	A/Pos	
	MHz	dBuV/m	dBuV/m	Limit	Level	Loss	Factor	Factor	Remark	deg	cm	Pol/Phase
1	197.81	39.02	43.50	-4.48	53.92	2.08	10.28	27.26	Peak	0	100	HORIZONTAL
2	250.19	38.64	46.00	-7.36	50.31	2.38	12.90	26.95	Peak	0	100	HORIZONTAL
3	280.26	39.45	46.00	-6.55	50.30	2.53	13.50	26.88	Peak	0	100	HORIZONTAL
4	375.32	39.10	46.00	-6.90	47.56	2.89	15.91	27.26	Peak	0	100	HORIZONTAL
5	395.69	42.07	46.00	-3.93	50.12	2.97	16.41	27.43	QP	143	100	HORIZONTAL
6	500.45	40.41	46.00	-5.59	47.16	3.38	17.80	27.93	Peak	0	100	HORIZONTAL

Vertical



	Freq	Level	Limit	Over	Read	CableAntenna	Preamp			T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	Remark	deg	cm	
1	44.55	35.25	40.00	-4.75	51.39	1.00	10.80	27.94	QP	48	100	VERTICAL
2	52.31	34.60	40.00	-5.40	53.08	1.09	8.34	27.91	QP	187	100	VERTICAL
3	57.16	34.88	40.00	-5.12	54.22	1.15	7.44	27.93	QP	152	100	VERTICAL
4	68.80	36.64	40.00	-3.36	56.51	1.26	6.81	27.94	QP	273	100	VERTICAL
5	197.81	38.94	43.50	-4.56	53.84	2.08	10.28	27.26	Peak	0	400	VERTICAL
6	500.45	39.49	46.00	-6.51	46.24	3.38	17.80	27.93	Peak	0	400	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.

4.5.9. Results for Radiated Emissions (1GHz~10th Harmonic)

Temperature	23°C	Humidity	62%
Test Engineer	Satoshi Yang	Configurations	IEEE 802.11n MCS0 HT20 CH 1 / Chain 1 + Chain 2 + Chain 3
Test Date	May 05, 2014	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp		A/Pos	T/Pos	
	MHz	dBuV/m	Line	Limit	Level	Loss	Factor	Factor	Remark	cm	deg
				dB	dBuV	dB	dB/m	dB			Pol/Phase
1	4819.13	31.95	54.00	-22.05	30.00	3.31	33.56	34.92	Average	100	215 HORIZONTAL
2	4822.56	44.41	74.00	-29.59	42.46	3.31	33.56	34.92	Peak	100	215 HORIZONTAL

Vertical

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp		A/Pos	T/Pos	
	MHz	dBuV/m	Line	Limit	Level	Loss	Factor	Factor	Remark	cm	deg
				dB	dBuV	dB	dB/m	dB			Pol/Phase
1	4825.60	43.33	74.00	-30.67	41.38	3.31	33.56	34.92	Peak	100	105 VERTICAL
2	4833.52	32.35	54.00	-21.65	30.37	3.31	33.59	34.92	Average	100	105 VERTICAL

Temperature	23°C	Humidity	62%
Test Engineer	Satoshi Yang	Configurations	IEEE 802.11n MCS0 HT20 CH 6 / Chain 1 + Chain 2 + Chain 3
Test Date	May 05, 2014	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp		A/Pos	T/Pos	
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	Remark	cm	deg	Pol/Phase
1	4867.40	49.93	74.00	-24.07	47.90	3.33	33.62	34.92	Peak	144	213	HORIZONTAL
2	4882.01	37.25	54.00	-16.75	35.18	3.33	33.66	34.92	Average	144	213	HORIZONTAL
3	7301.95	56.40	74.00	-17.60	50.89	4.06	36.64	35.19	Peak	131	49	HORIZONTAL
4	7305.47	43.04	54.00	-10.96	37.53	4.06	36.64	35.19	Average	131	49	HORIZONTAL

Vertical

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp		A/Pos	T/Pos	
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	Remark	cm	deg	Pol/Phase
1	4854.13	43.51	74.00	-30.49	41.49	3.32	33.62	34.92	Peak	100	222	VERTICAL
2	4869.61	31.59	54.00	-22.41	29.52	3.33	33.66	34.92	Average	100	222	VERTICAL
3	7300.18	53.75	74.00	-20.25	48.24	4.06	36.64	35.19	Peak	100	35	VERTICAL
4	7301.22	39.63	54.00	-14.37	34.12	4.06	36.64	35.19	Average	100	35	VERTICAL

Temperature	23°C	Humidity	62%
Test Engineer	Satoshi Yang	Configurations	IEEE 802.11n MCS0 HT20 CH 11 / Chain 1 + Chain 2 + Chain 3
Test Date	May 05, 2014	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp		A/Pos	T/Pos	
	MHz	dBuV/m	Line	Limit	Level	Loss	Factor	Factor	Remark	cm	deg
			dBuV/m	dB	dBuV	dB	dB/m	dB			Pol/Phase
1	4918.87	33.00	54.00	-21.00	30.80	3.35	33.76	34.91	Average	140	200 HORIZONTAL
2	4919.75	45.40	74.00	-28.60	43.20	3.35	33.76	34.91	Peak	140	200 HORIZONTAL
3	7367.17	47.33	74.00	-26.67	41.67	4.06	36.81	35.21	Peak	100	323 HORIZONTAL
4	7388.72	34.70	54.00	-19.30	29.00	4.06	36.85	35.21	Average	100	323 HORIZONTAL

Vertical

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp		A/Pos	T/Pos	
	MHz	dBuV/m	Line	Limit	Level	Loss	Factor	Factor	Remark	cm	deg
			dBuV/m	dB	dBuV	dB	dB/m	dB			Pol/Phase
1	4920.72	31.20	54.00	-22.80	29.00	3.35	33.76	34.91	Average	100	67 VERTICAL
2	4922.00	43.35	74.00	-30.65	41.15	3.35	33.76	34.91	Peak	100	67 VERTICAL
3	7370.38	47.54	74.00	-26.46	41.88	4.06	36.81	35.21	Peak	100	218 VERTICAL
4	7382.31	34.62	54.00	-19.38	28.96	4.06	36.81	35.21	Average	100	218 VERTICAL

Temperature	23°C	Humidity	62%
Test Engineer	Satoshi Yang	Configurations	IEEE 802.11n MCS0 HT40 CH 3 / Chain 1 + Chain 2 + Chain 3
Test Date	May 05, 2014	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp		A/Pos	T/Pos	
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	Remark	cm	deg	Pol/Phase
1	4843.81	30.51	54.00	-23.49	28.52	3.32	33.59	34.92	Average	100	172	HORIZONTAL
2	4848.84	43.89	74.00	-30.11	41.90	3.32	33.59	34.92	Peak	100	172	HORIZONTAL
3	7270.94	46.71	74.00	-27.29	41.28	4.06	36.56	35.19	Peak	100	292	HORIZONTAL
4	7271.10	33.84	54.00	-20.16	28.41	4.06	36.56	35.19	Average	100	292	HORIZONTAL

Vertical

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp		A/Pos	T/Pos	
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	Remark	cm	deg	Pol/Phase
1	4849.29	43.26	74.00	-30.74	41.27	3.32	33.59	34.92	Peak	100	104	VERTICAL
2	4853.65	30.36	54.00	-23.64	28.34	3.32	33.62	34.92	Average	100	104	VERTICAL
3	7256.74	46.50	74.00	-27.50	41.10	4.06	36.52	35.18	Peak	100	196	VERTICAL
4	7273.37	33.94	54.00	-20.06	28.51	4.06	36.56	35.19	Average	100	196	VERTICAL

Temperature	23°C	Humidity	62%
Test Engineer	Satoshi Yang	Configurations	IEEE 802.11n MCS0 HT40 CH 6 / Chain 1 + Chain 2 + Chain 3
Test Date	May 05, 2014	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp		A/Pos	T/Pos	
	MHz	dBuV/m	Line	Limit	Level	Loss	Factor	Factor	Remark	cm	deg
			dBuV/m	dB	dBuV	dB	dB/m	dB			Pol/Phase
1	4864.48	42.51	74.00	-31.49	40.48	3.33	33.62	34.92	Peak	100	319 HORIZONTAL
2	4869.35	30.90	54.00	-23.10	28.83	3.33	33.66	34.92	Average	100	319 HORIZONTAL
3	7301.64	35.24	54.00	-18.76	29.73	4.06	36.64	35.19	Average	100	165 HORIZONTAL
4	7308.44	46.65	74.00	-27.35	41.14	4.06	36.64	35.19	Peak	100	165 HORIZONTAL

Vertical

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp		A/Pos	T/Pos	
	MHz	dBuV/m	Line	Limit	Level	Loss	Factor	Factor	Remark	cm	deg
			dBuV/m	dB	dBuV	dB	dB/m	dB			Pol/Phase
1	4870.03	43.11	74.00	-30.89	41.04	3.33	33.66	34.92	Peak	100	255 VERTICAL
2	4881.69	31.10	54.00	-22.90	29.03	3.33	33.66	34.92	Average	100	255 VERTICAL
3	7307.12	34.18	54.00	-19.82	28.67	4.06	36.64	35.19	Average	100	131 VERTICAL
4	7310.39	47.53	74.00	-26.47	42.02	4.06	36.64	35.19	Peak	100	131 VERTICAL

Temperature	23°C	Humidity	62%
Test Engineer	Satoshi Yang	Configurations	IEEE 802.11n MCS0 HT40 CH 9 / Chain 1 + Chain 2 + Chain 3
Test Date	May 05, 2014	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp		A/Pos	T/Pos	
	MHz	dBuV/m	Line	Limit	Level	Loss	Factor	Factor	Remark	cm	deg
			dBuV/m	dB	dBuV	dB	dB/m	dB			Pol/Phase
1	4904.10	43.07	74.00	-30.93	40.91	3.34	33.73	34.91	Peak	100	352 HORIZONTAL
2	4911.28	30.72	54.00	-23.28	28.56	3.34	33.73	34.91	Average	100	352 HORIZONTAL
3	7362.73	34.61	54.00	-19.39	28.99	4.06	36.77	35.21	Average	100	176 HORIZONTAL
4	7363.72	47.05	74.00	-26.95	41.43	4.06	36.77	35.21	Peak	100	176 HORIZONTAL

Vertical

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp		A/Pos	T/Pos	
	MHz	dBuV/m	Line	Limit	Level	Loss	Factor	Factor	Remark	cm	deg
			dBuV/m	dB	dBuV	dB	dB/m	dB			Pol/Phase
1	4903.84	30.63	54.00	-23.37	28.47	3.34	33.73	34.91	Average	100	304 VERTICAL
2	4904.10	43.01	74.00	-30.99	40.85	3.34	33.73	34.91	Peak	100	304 VERTICAL
3	7359.05	47.73	74.00	-26.27	42.10	4.06	36.77	35.20	Peak	100	98 VERTICAL
4	7361.74	34.45	54.00	-19.55	28.82	4.06	36.77	35.20	Average	100	98 VERTICAL

Temperature	23°C	Humidity	62%
Test Engineer	Satoshi Yang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 149 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	May 13, 2014	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg
1	11484.04	60.57	74.00	-13.43	51.12	5.11	39.39	35.05	Peak	100	279 HORIZONTAL
2	11484.48	45.22	54.00	-8.78	35.77	5.11	39.39	35.05	Average	100	279 HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg
1	11492.48	63.85	74.00	-10.15	54.40	5.11	39.39	35.05	Peak	100	40 VERTICAL
2	11492.96	49.13	54.00	-4.87	39.68	5.11	39.39	35.05	Average	100	40 VERTICAL

Temperature	23°C	Humidity	62%
Test Engineer	Satoshi Yang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 157 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	May 13, 2014	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp		A/Pos	T/Pos	
	MHz	dBuV/m	Line	Limit	Level	Loss Factor	Factor	Remark	cm	deg	Pol/Phase
1	11564.72	44.19	54.00	-9.81	34.69	5.13	39.43	35.06 Average	101	281	HORIZONTAL
2	11565.16	59.76	74.00	-14.24	50.26	5.13	39.43	35.06 Peak	101	281	HORIZONTAL

Vertical

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp		A/Pos	T/Pos	
	MHz	dBuV/m	Line	Limit	Level	Loss Factor	Factor	Remark	cm	deg	Pol/Phase
1	11564.08	64.96	74.00	-9.04	55.46	5.13	39.43	35.06 Peak	101	318	VERTICAL
2	11564.24	49.27	54.00	-4.73	39.77	5.13	39.43	35.06 Average	101	318	VERTICAL

Temperature	23°C	Humidity	62%
Test Engineer	Satoshi Yang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 165 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	May 13, 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	11646.30	46.38	54.00	-7.62	36.82	5.16	39.48	35.08	Average	215	43	HORIZONTAL
2	11646.40	61.12	74.00	-12.88	51.56	5.16	39.48	35.08	Peak	215	43	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11644.00	65.48	74.00	-8.52	55.91	5.16	39.48	35.07	Peak	100	319	VERTICAL
2	11644.44	50.55	54.00	-3.45	40.98	5.16	39.48	35.07	Average	100	319	VERTICAL

Temperature	23°C	Humidity	62%
Test Engineer	Satoshi Yang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 151 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	May 13, 2014	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp		A/Pos	T/Pos	
	MHz	dBuV/m	Line	Limit	Level	Loss	Factor	Factor	Remark	cm	deg
			dBuV/m	dB	dBuV	dB	dB/m	dB			Pol/Phase
1	11504.24	45.30	54.00	-8.70	35.83	5.12	39.40	35.05	Average	100	281 HORIZONTAL
2	11504.40	57.16	74.00	-16.84	47.69	5.12	39.40	35.05	Peak	100	281 HORIZONTAL

Vertical

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp		A/Pos	T/Pos	
	MHz	dBuV/m	Line	Limit	Level	Loss	Factor	Factor	Remark	cm	deg
			dBuV/m	dB	dBuV	dB	dB/m	dB			Pol/Phase
1	11499.68	61.39	74.00	-12.61	51.92	5.12	39.40	35.05	Peak	100	29 VERTICAL
2	11500.96	47.32	54.00	-6.68	37.85	5.12	39.40	35.05	Average	100	29 VERTICAL

Temperature	23°C	Humidity	62%
Test Engineer	Satoshi Yang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 159 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	May 13, 2014	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp		A/Pos	T/Pos	
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	Remark	cm	deg	Pol/Phase
1	11586.72	57.52	74.00	-16.48	47.99	5.14	39.45	35.06	Peak	171	55	HORIZONTAL
2	11594.24	46.01	54.00	-7.99	36.48	5.14	39.45	35.06	Average	171	55	HORIZONTAL

Vertical

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp		A/Pos	T/Pos	
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	Remark	cm	deg	Pol/Phase
1	11584.16	48.96	54.00	-5.04	39.43	5.14	39.45	35.06	Average	101	318	VERTICAL
2	11584.40	61.88	74.00	-12.12	52.35	5.14	39.45	35.06	Peak	101	318	VERTICAL

Temperature	23°C	Humidity	62%
Test Engineer	Satoshi Yang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 155 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	May 13, 2014	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp		A/Pos	T/Pos	
	MHz	dBuV/m	Line	Limit	Level	Loss	Factor	Factor	Remark	cm	deg
			dBuV/m	dB	dBuV	dB	dB/m	dB			Pol/Phase
1	11554.16	41.95	54.00	-12.05	32.45	5.13	39.43	35.06	Average	169	60 HORIZONTAL
2	11554.40	54.39	74.00	-19.61	44.89	5.13	39.43	35.06	Peak	169	60 HORIZONTAL

Vertical

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp		A/Pos	T/Pos	
	MHz	dBuV/m	Line	Limit	Level	Loss	Factor	Factor	Remark	cm	deg
			dBuV/m	dB	dBuV	dB	dB/m	dB			Pol/Phase
1	11540.56	59.03	74.00	-14.97	49.53	5.13	39.42	35.05	Peak	100	29 VERTICAL
2	11560.64	46.44	54.00	-7.56	36.94	5.13	39.43	35.06	Average	100	29 VERTICAL

Temperature	23°C	Humidity	62%
Test Engineer	Satoshi Yang	Configurations	IEEE 802.11b CH 1 / Chain 1 + Chain 2 + Chain 3
Test Date	May 05, 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	4823.86	48.42	74.00	-25.58	46.47	3.31	33.56	34.92	Peak	180	205	HORIZONTAL
2	4823.94	43.31	54.00	-10.69	41.36	3.31	33.56	34.92	Average	180	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	4823.95	34.31	54.00	-19.69	32.36	3.31	33.56	34.92	Average	100	95	VERTICAL
2	4824.04	45.13	74.00	-28.87	43.18	3.31	33.56	34.92	Peak	100	95	VERTICAL

Temperature	23°C	Humidity	62%
Test Engineer	Satoshi Yang	Configurations	IEEE 802.11b CH 6 / Chain 1 + Chain 2 + Chain 3
Test Date	May 05, 2014	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamplifier Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4870.94	46.14	54.00	-7.86	44.07	3.33	33.66	34.92	Average	176	217	HORIZONTAL
2	4871.04	51.13	74.00	-22.87	49.06	3.33	33.66	34.92	Peak	176	217	HORIZONTAL
3	7311.58	58.38	74.00	-15.62	52.87	4.06	36.64	35.19	Peak	116	49	HORIZONTAL
4	7311.64	50.41	54.00	-3.59	44.90	4.06	36.64	35.19	Average	116	49	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamplifier Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4873.94	43.15	54.00	-10.85	41.08	3.33	33.66	34.92	Average	102	360	VERTICAL
2	4873.94	49.65	74.00	-24.35	47.58	3.33	33.66	34.92	Peak	102	360	VERTICAL
3	7309.46	58.19	74.00	-15.81	52.68	4.06	36.64	35.19	Peak	146	35	VERTICAL
4	7310.23	50.68	54.00	-3.32	45.17	4.06	36.64	35.19	Average	146	35	VERTICAL

Temperature	23°C	Humidity	62%
Test Engineer	Satoshi Yang	Configurations	IEEE 802.11b CH 11 / Chain 1 + Chain 2 + Chain 3
Test Date	May 05, 2014	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp		A/Pos	T/Pos	
	MHz	dBuV/m	Line	Limit	Level	Loss	Factor	Factor	Remark	cm	deg
			dBuV/m	dB	dBuV	dB	dB/m	dB			Pol/Phase
1	4923.91	43.95	54.00	-10.05	41.75	3.35	33.76	34.91	Average	190	199 HORIZONTAL
2	4923.92	48.91	74.00	-25.09	46.71	3.35	33.76	34.91	Peak	190	199 HORIZONTAL
3	7386.31	48.95	74.00	-25.05	43.25	4.06	36.85	35.21	Peak	123	42 HORIZONTAL
4	7386.59	37.19	54.00	-16.81	31.49	4.06	36.85	35.21	Average	123	42 HORIZONTAL

Vertical

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp		A/Pos	T/Pos	
	MHz	dBuV/m	Line	Limit	Level	Loss	Factor	Factor	Remark	cm	deg
			dBuV/m	dB	dBuV	dB	dB/m	dB			Pol/Phase
1	4923.82	45.45	74.00	-28.55	43.25	3.35	33.76	34.91	Peak	100	4 VERTICAL
2	4924.01	36.20	54.00	-17.80	34.00	3.35	33.76	34.91	Average	100	4 VERTICAL
3	7383.71	47.23	74.00	-26.77	41.53	4.06	36.85	35.21	Peak	100	306 VERTICAL
4	7384.09	35.63	54.00	-18.37	29.93	4.06	36.85	35.21	Average	100	306 VERTICAL

Temperature	23°C	Humidity	62%
Test Engineer	Satoshi Yang	Configurations	IEEE 802.11g CH 1 / Chain 1 + Chain 2 + Chain 3
Test Date	May 05, 2014	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp		A/Pos	T/Pos	
	MHz	dBuV/m	Line	Limit	Level	Loss	Factor	Factor	Remark	cm	deg	Pol/Phase
1	4820.92	33.34	54.00	-20.66	31.39	3.31	33.56	34.92	Average	100	226	HORIZONTAL
2	4822.59	43.54	74.00	-30.46	41.59	3.31	33.56	34.92	Peak	100	226	HORIZONTAL

Vertical

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp		A/Pos	T/Pos	
	MHz	dBuV/m	Line	Limit	Level	Loss	Factor	Factor	Remark	cm	deg	Pol/Phase
1	4820.80	43.56	74.00	-30.44	41.61	3.31	33.56	34.92	Peak	100	223	VERTICAL
2	4831.08	31.79	54.00	-22.21	29.84	3.31	33.56	34.92	Average	100	223	VERTICAL

Temperature	23°C	Humidity	62%
Test Engineer	Satoshi Yang	Configurations	IEEE 802.11g CH 6 / Chain 1 + Chain 2 + Chain 3
Test Date	May 05, 2014	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp		A/Pos	T/Pos	
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	Remark	cm	deg
1	4868.74	51.59	74.00	-22.41	49.52	3.33	33.66	34.92	Peak	155	215
2	4879.13	38.43	54.00	-15.57	36.36	3.33	33.66	34.92	Average	155	215
3	7305.62	56.28	74.00	-17.72	50.77	4.06	36.64	35.19	Peak	115	37
4	7307.03	43.24	54.00	-10.76	37.73	4.06	36.64	35.19	Average	115	37

Vertical

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp		A/Pos	T/Pos	
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	Remark	cm	deg
1	4868.23	43.27	74.00	-30.73	41.20	3.33	33.66	34.92	Peak	100	33
2	4874.39	31.97	54.00	-22.03	29.90	3.33	33.66	34.92	Average	100	33
3	7311.55	55.38	74.00	-18.62	49.87	4.06	36.64	35.19	Peak	100	36
4	7312.19	42.42	54.00	-11.58	36.91	4.06	36.64	35.19	Average	100	36

Temperature	23°C	Humidity	62%
Test Engineer	Satoshi Yang	Configurations	IEEE 802.11g CH 11 / Chain 1 + Chain 2 + Chain 3
Test Date	May 05, 2014	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp		A/Pos	T/Pos	
	MHz	dBuV/m	Line	Limit	Level	Loss	Factor	Factor	Remark	cm	deg	Pol/Phase
1	4922.08	34.19	54.00	-19.81	31.99	3.35	33.76	34.91	Average	169	117	HORIZONTAL
2	4930.01	47.20	74.00	-26.80	45.00	3.35	33.76	34.91	Peak	169	117	HORIZONTAL
3	7371.98	47.69	74.00	-26.31	42.03	4.06	36.81	35.21	Peak	100	114	HORIZONTAL
4	7380.87	34.67	54.00	-19.33	29.01	4.06	36.81	35.21	Average	100	114	HORIZONTAL

Vertical

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp		A/Pos	T/Pos	
	MHz	dBuV/m	Line	Limit	Level	Loss	Factor	Factor	Remark	cm	deg	Pol/Phase
1	4914.95	43.74	74.00	-30.26	41.57	3.35	33.73	34.91	Peak	100	274	VERTICAL
2	4942.59	30.82	54.00	-23.18	28.56	3.37	33.80	34.91	Average	100	274	VERTICAL
3	7379.59	34.71	54.00	-19.29	29.05	4.06	36.81	35.21	Average	100	46	VERTICAL
4	7381.99	47.28	74.00	-26.72	41.62	4.06	36.81	35.21	Peak	100	46	VERTICAL

Temperature	23°C	Humidity	62%
Test Engineer	Satoshi Yang	Configurations	IEEE 802.11a CH 149 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	May 13, 2014	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp		A/Pos	T/Pos	
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	Remark	cm	deg	Pol/Phase
1	11483.68	45.34	54.00	-8.66	35.89	5.11	39.39	35.05	Average	100	279	HORIZONTAL
2	11484.16	59.13	74.00	-14.87	49.68	5.11	39.39	35.05	Peak	100	279	HORIZONTAL

Vertical

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp		A/Pos	T/Pos	
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	Remark	cm	deg	Pol/Phase
1	11491.96	63.81	74.00	-10.19	54.36	5.11	39.39	35.05	Peak	100	41	VERTICAL
2	11492.00	49.50	54.00	-4.50	40.05	5.11	39.39	35.05	Average	100	41	VERTICAL

Temperature	23°C	Humidity	62%
Test Engineer	Satoshi Yang	Configurations	IEEE 802.11a CH 157 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	May 13, 2014	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp		A/Pos	T/Pos	
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	Remark	cm	deg	Pol/Phase
1	11565.80	44.40	54.00	-9.60	34.89	5.13	39.44	35.06	Average	100	65	HORIZONTAL
2	11566.96	58.35	74.00	-15.65	48.84	5.13	39.44	35.06	Peak	100	65	HORIZONTAL

Vertical

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp		A/Pos	T/Pos	
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	Remark	cm	deg	Pol/Phase
1	11563.64	49.95	54.00	-4.05	40.45	5.13	39.43	35.06	Average	100	319	VERTICAL
2	11563.72	63.52	74.00	-10.48	54.02	5.13	39.43	35.06	Peak	100	319	VERTICAL

Temperature	23°C	Humidity	62%
Test Engineer	Satoshi Yang	Configurations	IEEE 802.11a CH 165 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	May 13, 2014	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp		A/Pos	T/Pos	
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	Remark	cm	deg	Pol/Phase
1	11653.20	45.29	54.00	-8.71	35.72	5.16	39.49	35.08	Average	178	41	HORIZONTAL
2	11653.56	59.35	74.00	-14.65	49.78	5.16	39.49	35.08	Peak	178	41	HORIZONTAL

Vertical

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp		A/Pos	T/Pos	
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	Remark	cm	deg	Pol/Phase
1	11643.56	50.12	54.00	-3.88	40.55	5.16	39.48	35.07	Average	100	319	VERTICAL
2	11643.64	63.85	74.00	-10.15	54.28	5.16	39.48	35.07	Peak	100	319	VERTICAL

Temperature	23°C	Humidity	62%
Test Engineer	Satoshi Yang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 149 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	May 15, 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	11487.63	58.80	74.00	-15.20	49.35	5.11	39.39	35.05	Peak	178	56	HORIZONTAL
2	11490.20	44.97	54.00	-9.03	35.52	5.11	39.39	35.05	Average	178	56	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11490.58	49.61	54.00	-4.39	40.16	5.11	39.39	35.05	Average	127	344	VERTICAL
2	11494.05	65.31	74.00	-8.69	55.85	5.12	39.39	35.05	Peak	127	344	VERTICAL

Temperature	23°C	Humidity	62%
Test Engineer	Satoshi Yang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 157 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	May 15, 2014	Test Function	Beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11565.46	46.37	54.00	-7.63	36.87	5.13	39.43	35.06	Average	176	48	HORIZONTAL
2	11566.29	61.12	74.00	-12.88	51.61	5.13	39.44	35.06	Peak	176	48	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11567.80	64.24	74.00	-9.76	54.73	5.13	39.44	35.06	Peak	134	52	VERTICAL
2	11570.12	50.12	54.00	-3.88	40.60	5.14	39.44	35.06	Average	134	52	VERTICAL

Temperature	23°C	Humidity	62%
Test Engineer	Satoshi Yang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 165 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	May 15, 2014	Test Function	Beamforming function

Horizontal

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp		A/Pos	T/Pos	
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	Remark	cm	deg	Pol/Phase
1	11649.62	47.95	54.00	-6.05	38.39	5.16	39.48	35.08	Average	100	320	HORIZONTAL
2	11651.53	59.49	74.00	-14.51	49.92	5.16	39.49	35.08	Peak	100	320	HORIZONTAL

Vertical

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp		A/Pos	T/Pos	
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	Remark	cm	deg	Pol/Phase
1	11652.55	50.74	54.00	-3.26	41.17	5.16	39.49	35.08	Average	106	318	VERTICAL
2	11654.17	65.15	74.00	-8.85	55.58	5.16	39.49	35.08	Peak	106	318	VERTICAL

Temperature	23°C	Humidity	62%
Test Engineer	Satoshi Yang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 151 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	May 15, 2014	Test Function	Beamforming function

Horizontal

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp		A/Pos	T/Pos	
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	Remark	cm	deg	Pol/Phase
1	11510.00	44.43	54.00	-9.57	34.96	5.12	39.40	35.05	Average	177	44	HORIZONTAL
2	11512.49	57.68	74.00	-16.32	48.21	5.12	39.40	35.05	Peak	177	44	HORIZONTAL

Vertical

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp		A/Pos	T/Pos	
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	Remark	cm	deg	Pol/Phase
1	11506.64	48.05	54.00	-5.95	38.58	5.12	39.40	35.05	Average	101	345	VERTICAL
2	11509.10	60.98	74.00	-13.02	51.51	5.12	39.40	35.05	Peak	101	345	VERTICAL

Temperature	23°C	Humidity	62%
Test Engineer	Satoshi Yang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 159 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	May 15, 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	11586.27	56.37	74.00	-17.63	46.84	5.14	39.45	35.06	Peak	106	317	HORIZONTAL
2	11587.25	44.31	54.00	-9.69	34.78	5.14	39.45	35.06	Average	106	317	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	11586.44	61.21	74.00	-12.79	51.68	5.14	39.45	35.06	Peak	156	42	VERTICAL
2	11590.00	48.70	54.00	-5.30	39.17	5.14	39.45	35.06	Average	156	42	VERTICAL

Temperature	23°C	Humidity	62%
Test Engineer	Satoshi Yang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 155 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	May 15, 2014	Test Function	Beamforming function

Horizontal

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp		A/Pos	T/Pos	
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	Remark	cm	deg
1	11552.66	54.25	74.00	-19.75	44.75	5.13	39.43	35.06	Peak	102	305 HORIZONTAL
2	11565.98	43.93	54.00	-10.07	34.42	5.13	39.44	35.06	Average	102	305 HORIZONTAL

Vertical

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp		A/Pos	T/Pos	
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	Remark	cm	deg
1	11557.41	56.72	74.00	-17.28	47.22	5.13	39.43	35.06	Peak	100	23 VERTICAL
2	11564.93	46.37	54.00	-7.63	36.87	5.13	39.43	35.06	Average	100	23 VERTICAL

Note:

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

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

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

4.6. Emissions Measurement

4.6.1. Limit

30dBc in any 100 kHz bandwidth outside the operating frequency band. 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 the spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	100 MHz
RBW / VBW (Emission in restricted band)	1MHz / 3MHz for Peak, 1 MHz / 10Hz for Average
RBW / VBW (Emission in non-restricted band)	100 kHz / 300 kHz for Peak

4.6.3. Test Procedures

For Radiated band edges Measurement:

1. The test procedure is the same as section 4.5.3, only the frequency range investigated is limited to 100MHz around band edges.

For Radiated Out of Band Emission Measurement:

1. Test was performed in accordance with KDB 558074 D01 v03r02 for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247 section 10.1 Unwanted Emissions into Non-Restricted Frequency Bands Measurement Procedure
2. The radiated emission test is performed on each TX port of operating mode without summing or adding $10\log(N)$ since the limit is relative emission limit.
Only worst data of each operating mode is presented.

4.6.4. Test Setup Layout

For Radiated band edges Measurement:

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

For Radiated Out of Band Emission Measurement:

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

4.6.5. Test Deviation

There is no deviation with the original standard.

4.6.6. EUT Operation during Test

For non-beamforming function:

The EUT was programmed to be in continuously transmitting mode.

For beamforming function:

The EUT was programmed to be in beamforming transmitting mode.

4.6.7. Test Result of Band Edge and Fundamental Emissions

Temperature	23°C	Humidity	62%
Test Engineer	Satoshi Yang	Configurations	IEEE 802.11n MCS0 HT20 CH 1, 6, 11 / Chain 1 + Chain 2 + Chain 3
Test Date	May 05, 2014	Test Function	Non-beamforming function

Channel 1

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2388.72	52.92	54.00	-1.08	22.22	2.21	28.49	0.00	Average	100	341	VERTICAL
2	2389.04	69.32	74.00	-4.68	38.62	2.21	28.49	0.00	Peak	100	341	VERTICAL
3	2405.91	104.93			74.18	2.22	28.53	0.00	Average	100	341	VERTICAL
4	2405.91	117.24			86.49	2.22	28.53	0.00	Peak	100	341	VERTICAL

Item 3, 4 are the fundamental frequency at 2412 MHz.

Channel 6

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2389.04	66.73	74.00	-7.27	36.03	2.21	28.49	0.00	Peak	100	5	VERTICAL
2	2389.36	51.77	54.00	-2.23	21.07	2.21	28.49	0.00	Average	100	5	VERTICAL
3	2428.99	111.31			80.52	2.23	28.56	0.00	Average	100	5	VERTICAL
4	2432.51	124.74			93.95	2.23	28.56	0.00	Peak	100	5	VERTICAL
5	2485.42	52.71	54.00	-1.29	21.78	2.26	28.67	0.00	Average	100	5	VERTICAL
6	2486.39	70.64	74.00	-3.36	39.71	2.26	28.67	0.00	Peak	100	5	VERTICAL

Item 3, 4 are the fundamental frequency at 2437 MHz.

Channel 11

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2465.85	105.03			74.16	2.24	28.63	0.00	Average	100	343	VERTICAL
2	2465.85	117.45			86.58	2.24	28.63	0.00	Peak	100	343	VERTICAL
3	2483.50	52.90	54.00	-1.10	21.97	2.26	28.67	0.00	Average	100	343	VERTICAL
4	2484.46	67.68	74.00	-6.32	36.75	2.26	28.67	0.00	Peak	100	343	VERTICAL

Item 1, 2 are the fundamental frequency at 2462 MHz.

Temperature	23°C	Humidity	62%
Test Engineer	Satoshi Yang	Configurations	IEEE 802.11n MCS0 HT40 CH 3, 6, 9 / Chain 1 + Chain 2 + Chain 3
Test Date	May 05, 2014	Test Function	Non-beamforming function

Channel 3

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	2389.04	65.10	74.00	-8.90	34.40	2.21	28.49	0.00 Peak	100	353	VERTICAL
2	2390.00	52.66	54.00	-1.34	21.95	2.22	28.49	0.00 Average	100	353	VERTICAL
3	2429.37	94.33			63.54	2.23	28.56	0.00 Average	100	353	VERTICAL
4	2430.33	108.09			77.30	2.23	28.56	0.00 Peak	100	353	VERTICAL

Item 3, 4 are the fundamental frequency at 2422 MHz.

Channel 6

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	2388.72	67.90	74.00	-6.10	37.20	2.21	28.49	0.00 Peak	100	352	VERTICAL
2	2390.00	52.99	54.00	-1.01	22.28	2.22	28.49	0.00 Average	100	352	VERTICAL
3	2428.99	101.17			70.38	2.23	28.56	0.00 Average	100	352	VERTICAL
4	2429.31	115.64			84.85	2.23	28.56	0.00 Peak	100	352	VERTICAL
5	2487.99	48.07	54.00	-5.93	17.11	2.26	28.70	0.00 Average	100	352	VERTICAL
6	2488.63	61.02	74.00	-12.98	30.06	2.26	28.70	0.00 Peak	100	352	VERTICAL

Item 3, 4 are the fundamental frequency at 2437 MHz.

Channel 9

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	2445.27	107.96			77.12	2.24	28.60	0.00 Peak	100	341	VERTICAL
2	2445.91	93.72			62.88	2.24	28.60	0.00 Average	100	341	VERTICAL
3	2483.50	52.82	54.00	-1.18	21.89	2.26	28.67	0.00 Average	100	341	VERTICAL
4	2485.10	67.33	74.00	-6.67	36.40	2.26	28.67	0.00 Peak	100	341	VERTICAL

Item 1, 2 are the fundamental frequency at 2452 MHz.

Temperature	23°C	Humidity	62%
Test Engineer	Satoshi Yang	Configurations	IEEE 802.11b CH 1, 6, 11 / Chain 1 + Chain 2 + Chain 3
Test Date	May 05, 2014	Test Function	Non-beamforming function

Channel 1

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp		A/Pos	T/Pos	
	MHz	dBuV/m	Line	Limit	Level	Loss	Factor	Factor	Remark	cm	deg
			dBuV/m	dB	dBuV	dB	dB/m	dB			Pol/Phase
1	2386.80	61.66	74.00	-12.34	30.96	2.21	28.49	0.00	Peak	100	352 VERTICAL
2	2387.12	52.53	54.00	-1.47	21.83	2.21	28.49	0.00	Average	100	352 VERTICAL
3	2412.96	115.60			84.85	2.22	28.53	0.00	Peak	100	352 VERTICAL
4	2413.12	111.86			81.11	2.22	28.53	0.00	Average	100	352 VERTICAL

Item 3, 4 are the fundamental frequency at 2412 MHz.

Channel 6

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp		A/Pos	T/Pos	
	MHz	dBuV/m	Line	Limit	Level	Loss	Factor	Factor	Remark	cm	deg
			dBuV/m	dB	dBuV	dB	dB/m	dB			Pol/Phase
1	2389.04	61.67	74.00	-12.33	30.97	2.21	28.49	0.00	Peak	100	198 VERTICAL
2	2389.36	52.64	54.00	-1.36	21.94	2.21	28.49	0.00	Average	100	198 VERTICAL
3	2433.15	118.93			88.14	2.23	28.56	0.00	Average	100	198 VERTICAL
4	2433.15	122.03			91.24	2.23	28.56	0.00	Peak	100	198 VERTICAL
5	2485.74	48.57	54.00	-5.43	17.64	2.26	28.67	0.00	Average	100	198 VERTICAL
6	2486.71	59.35	74.00	-14.65	28.42	2.26	28.67	0.00	Peak	100	198 VERTICAL

Item 3, 4 are the fundamental frequency at 2437 MHz.

Channel 11

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp		A/Pos	T/Pos	
	MHz	dBuV/m	Line	Limit	Level	Loss	Factor	Factor	Remark	cm	deg
			dBuV/m	dB	dBuV	dB	dB/m	dB			Pol/Phase
1	2460.56	115.99			85.12	2.24	28.63	0.00	Peak	100	344 VERTICAL
2	2460.72	112.22			81.35	2.24	28.63	0.00	Average	100	344 VERTICAL
3	2483.50	52.74	54.00	-1.26	21.81	2.26	28.67	0.00	Average	100	344 VERTICAL
4	2483.50	60.32	74.00	-13.68	29.39	2.26	28.67	0.00	Peak	100	344 VERTICAL

Item 1, 2 are the fundamental frequency at 2462 MHz.

Temperature	23°C	Humidity	62%
Test Engineer	Satoshi Yang	Configurations	IEEE 802.11g CH 1, 6, 11 / Chain 1 + Chain 2 + Chain 3
Test Date	May 05, 2014	Test Function	Non-beamforming function

Channel 1

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2389.36	52.79	54.00	-1.21	22.09	2.21	28.49	0.00	Average	163	6	VERTICAL
2	2389.36	71.73	74.00	-2.27	41.03	2.21	28.49	0.00	Peak	163	6	VERTICAL
3	2410.72	103.96			73.21	2.22	28.53	0.00	Average	163	6	VERTICAL
4	2410.72	115.88			85.13	2.22	28.53	0.00	Peak	163	6	VERTICAL

Item 3, 4 are the fundamental frequency at 2412 MHz.

Channel 6

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2386.15	51.96	54.00	-2.04	21.26	2.21	28.49	0.00	Average	100	354	VERTICAL
2	2386.80	66.54	74.00	-7.46	35.84	2.21	28.49	0.00	Peak	100	354	VERTICAL
3	2435.72	113.60			82.81	2.23	28.56	0.00	Average	100	354	VERTICAL
4	2436.36	125.68			94.89	2.23	28.56	0.00	Peak	100	354	VERTICAL
5	2484.78	52.67	54.00	-1.33	21.74	2.26	28.67	0.00	Average	100	354	VERTICAL
6	2484.78	72.40	74.00	-1.60	41.47	2.26	28.67	0.00	Peak	100	354	VERTICAL

Item 3, 4 are the fundamental frequency at 2437 MHz.

Channel 11

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2463.28	116.30			85.43	2.24	28.63	0.00	Peak	103	188	VERTICAL
2	2464.40	104.53			73.66	2.24	28.63	0.00	Average	103	188	VERTICAL
3	2483.50	52.85	54.00	-1.15	21.92	2.26	28.67	0.00	Average	103	188	VERTICAL
4	2483.50	67.38	74.00	-6.62	36.45	2.26	28.67	0.00	Peak	103	188	VERTICAL

Item 1, 2 are the fundamental frequency at 2462 MHz.

Note:

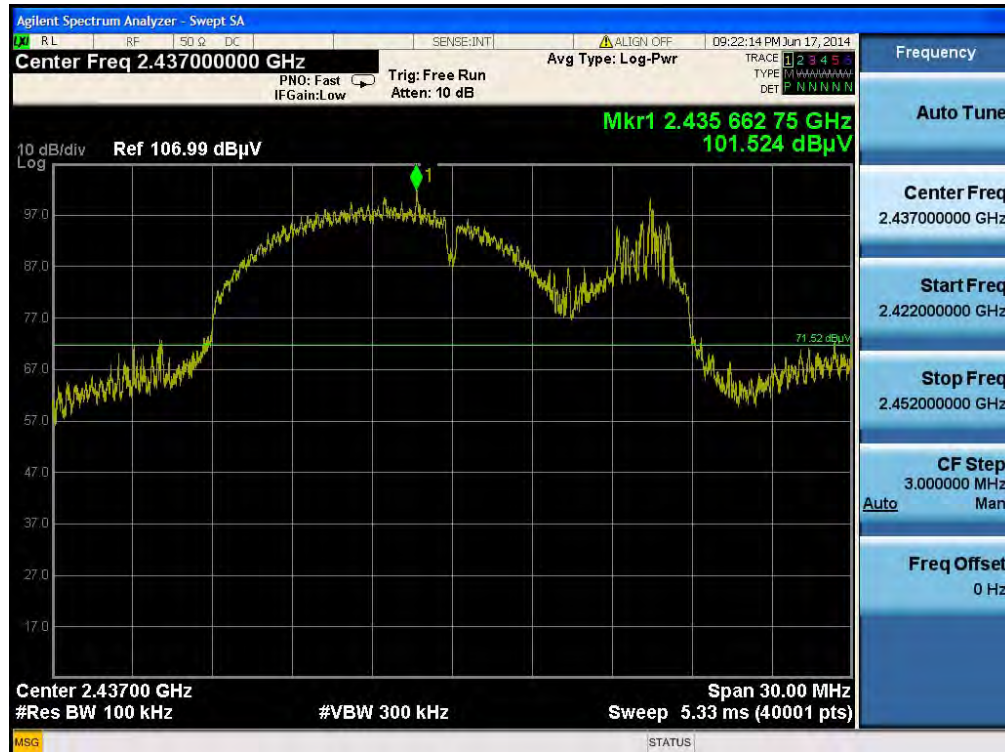
Emission level (dBuV/m) = 20 log Emission level (uV/m).

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

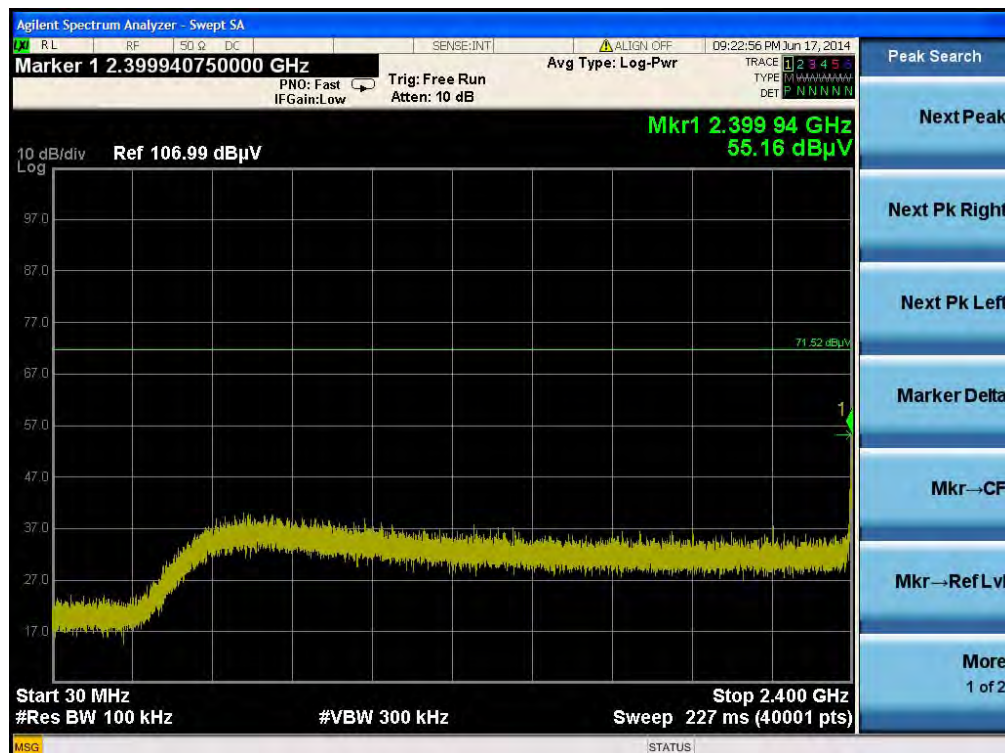
For Emission not in Restricted Band

For non-beamforming function:

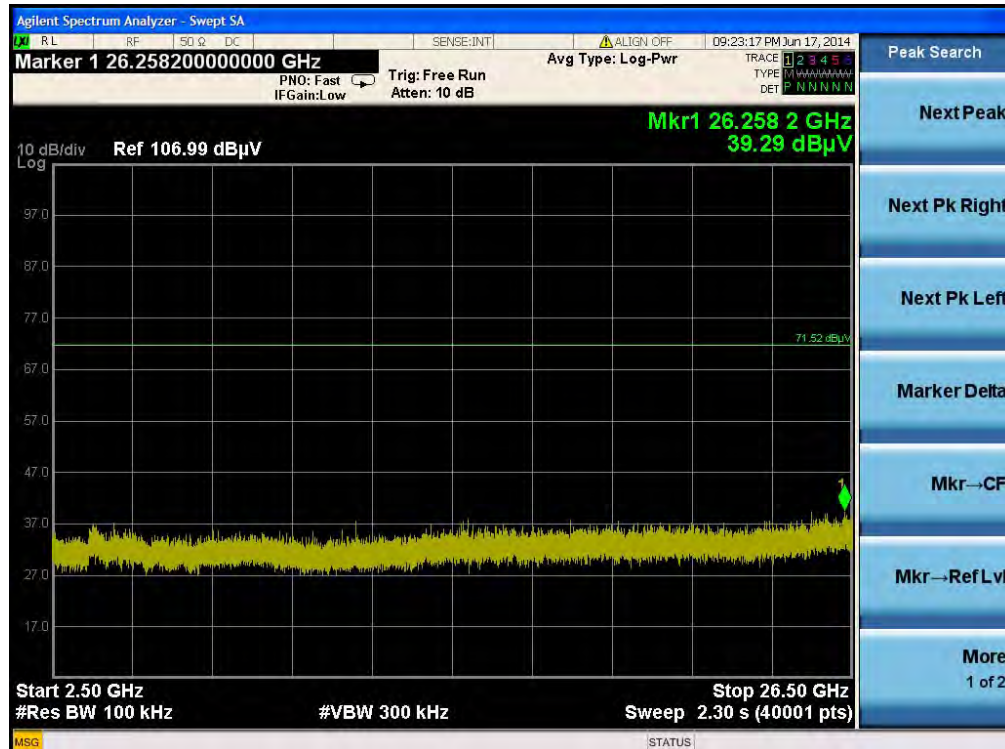
Plot on Configuration IEEE 802.11n MCS0 HT20 / Reference Level



Plot on Configuration IEEE 802.11n MCS0 HT20 / CH 1 / 30MHz~2400MHz (down 30dBc)



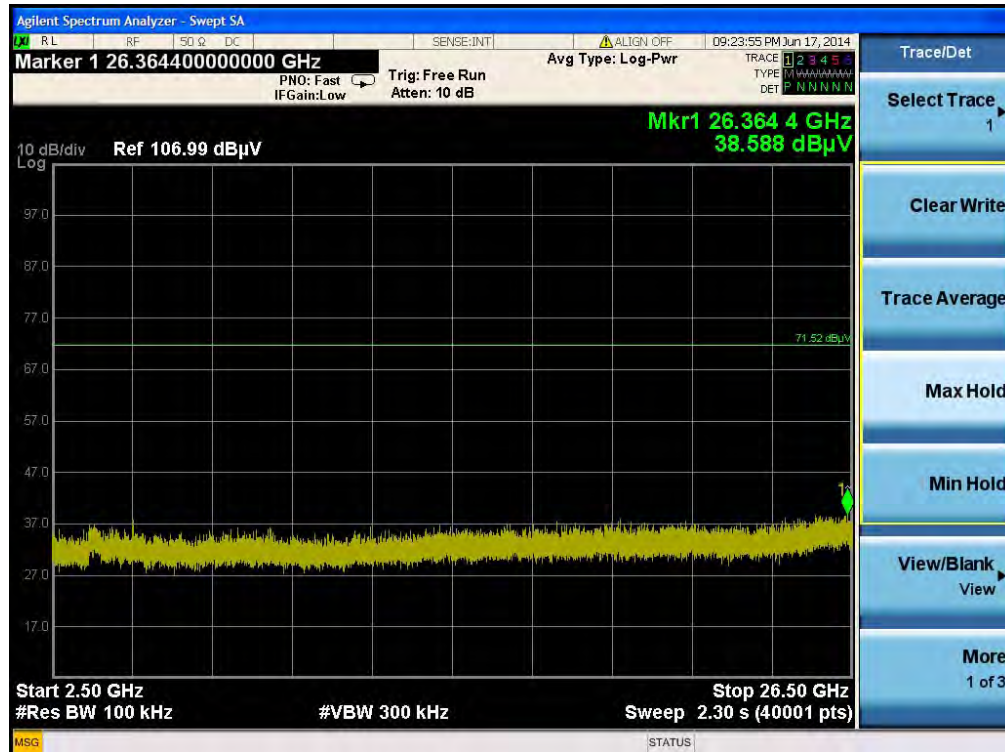
Plot on Configuration IEEE 802.11n MCS0 HT20 / CH 1 / 2500MHz~26500MHz (down 30dBc)



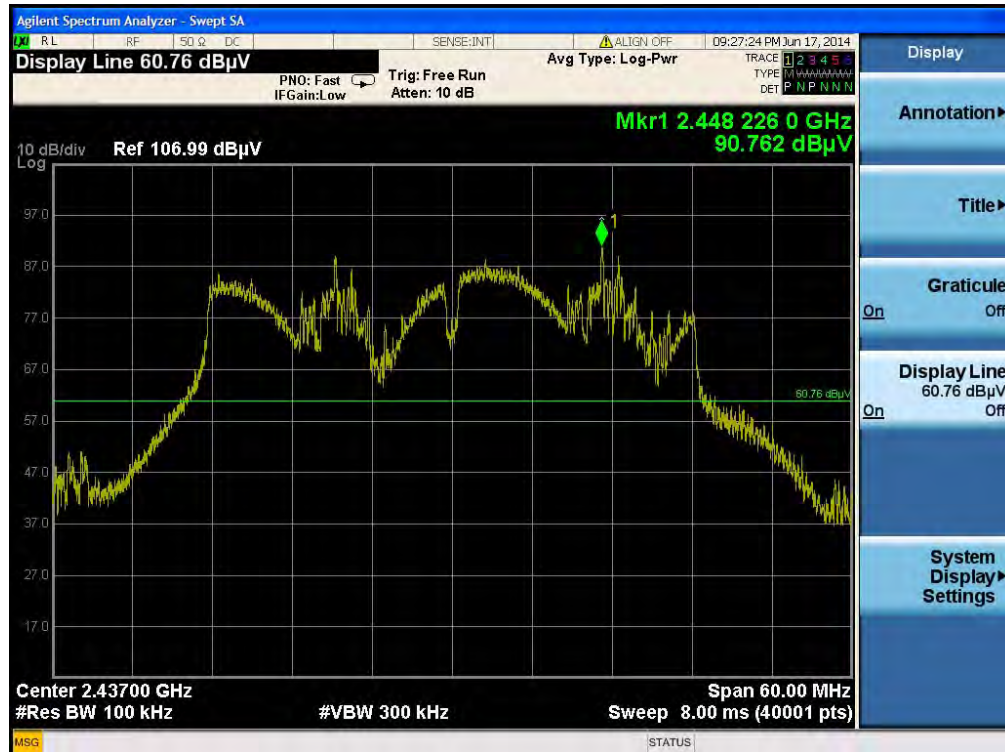
Plot on Configuration IEEE 802.11n MCS0 HT20 / CH 11 / 30MHz~2400MHz (down 30dBc)



Plot on Configuration IEEE 802.11n MCS0 HT20 / CH 11 / 2500MHz~26500MHz (down 30dBc)



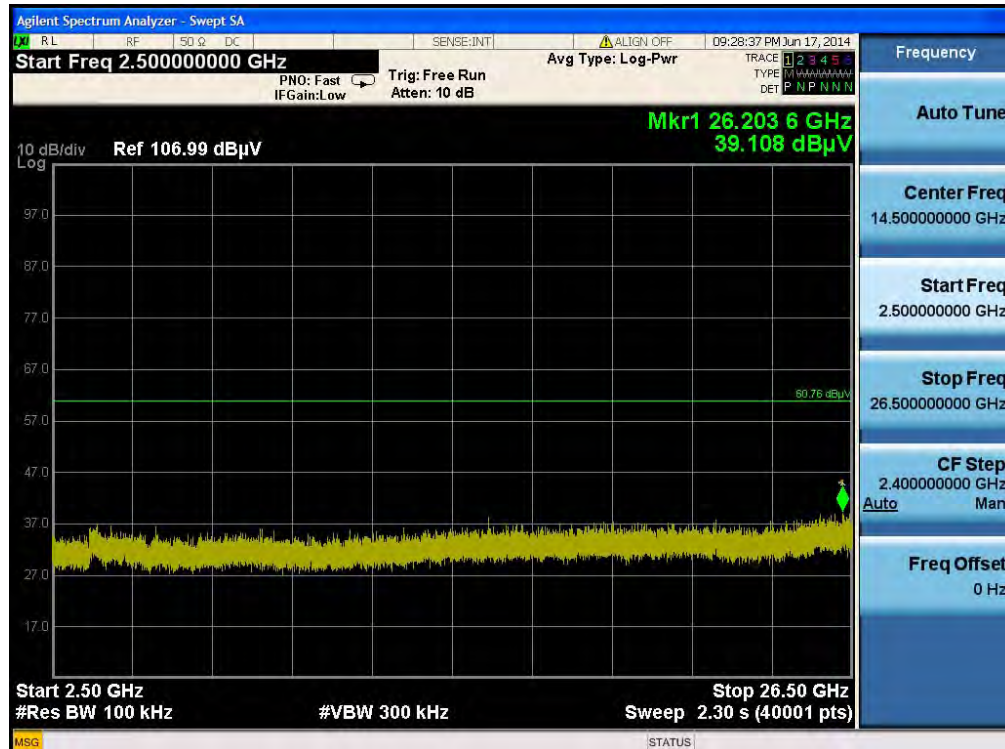
Plot on Configuration IEEE 802.11n MCS0 HT40 / Reference Level



Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 3 / 30MHz~2400MHz (down 30dBc)



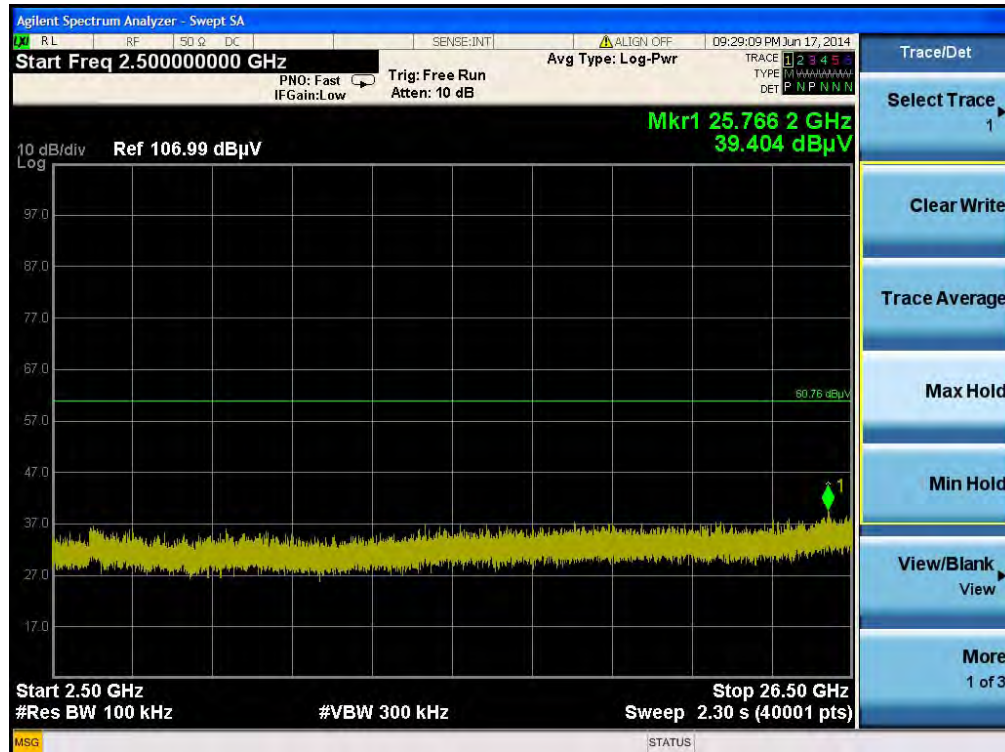
Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 3 / 2500MHz~26500MHz (down 30dBc)



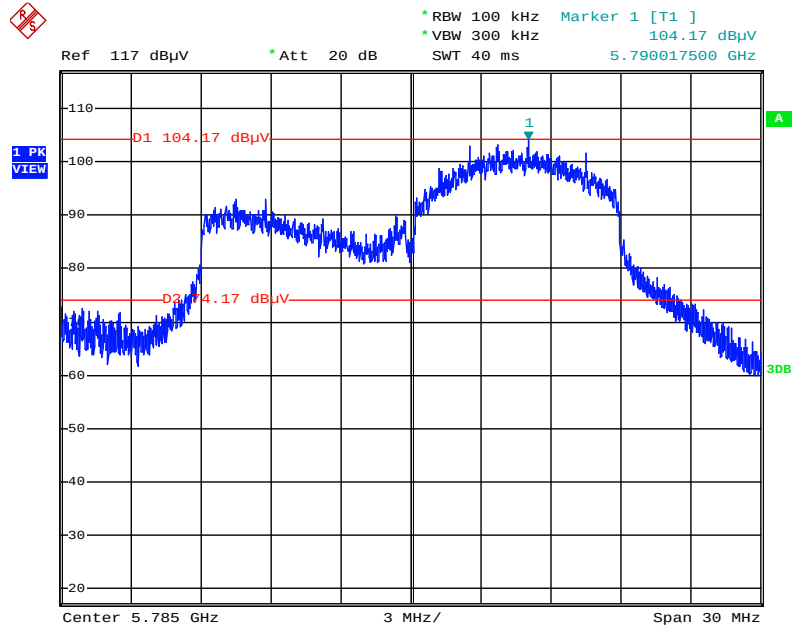
Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 9 / 30MHz~2400MHz (down 30dBc)



Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 9 / 2500MHz~26500MHz (down 30dBc)

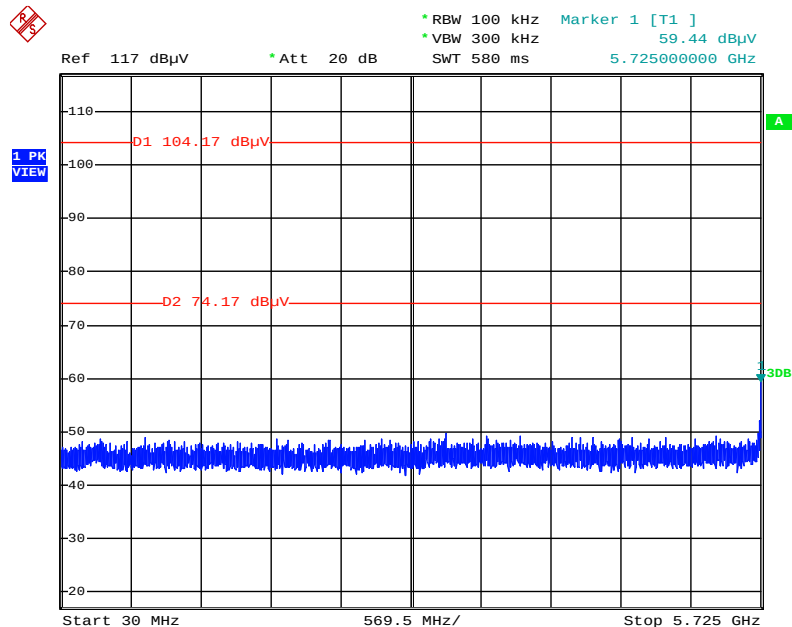


Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Reference Level



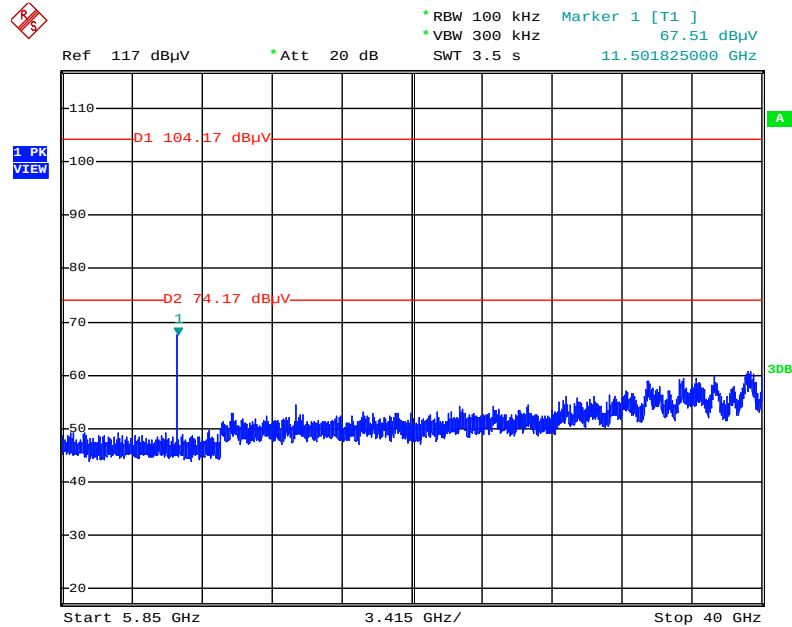
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Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 149 / 30MHz~5725MHz (down 30dBc)



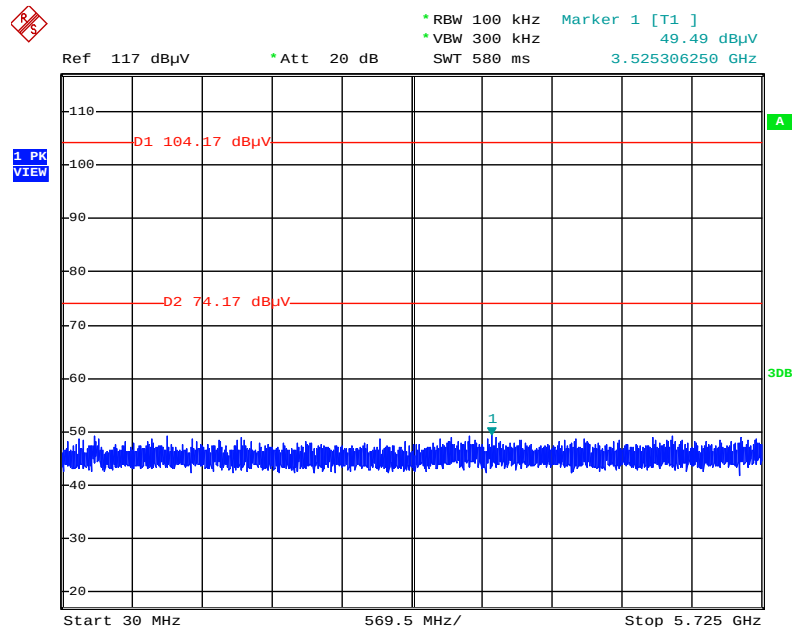
Date: 13.MAY.2014 14:01:44

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 149 / 5850MHz~40000MHz (down 30dBc)



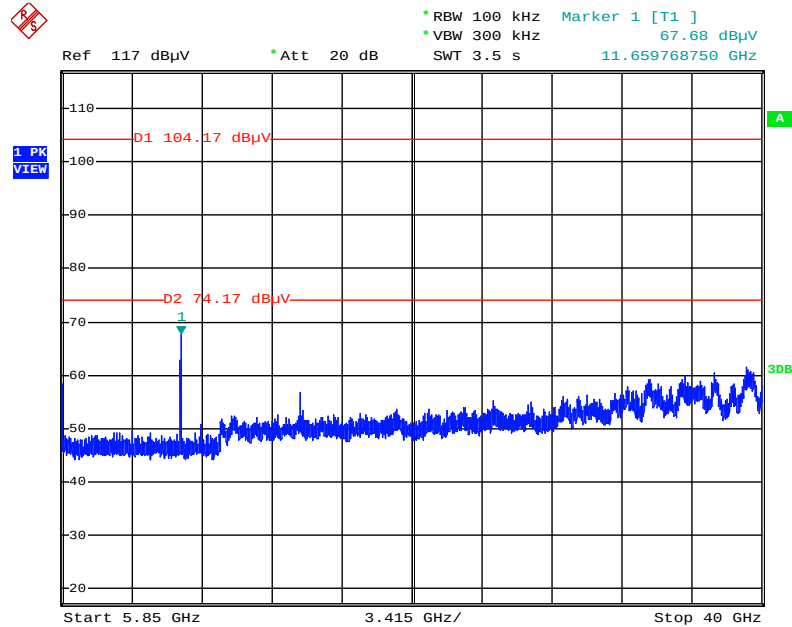
Date: 13.MAY.2014 14:02:25

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 165 / 30MHz~5725MHz (down 30dBc)



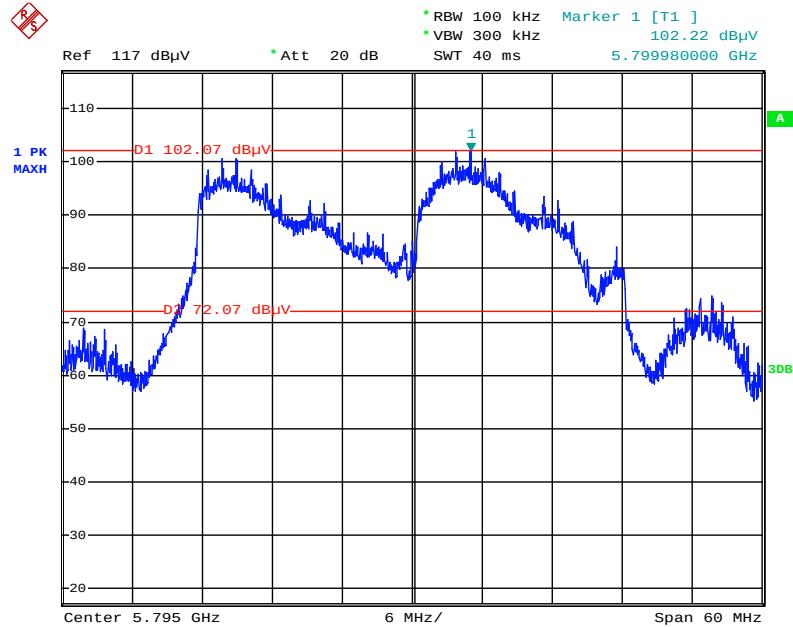
Date: 13.MAY.2014 14:03:45

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 165 / 5850MHz~40000MHz (down 30dBc)



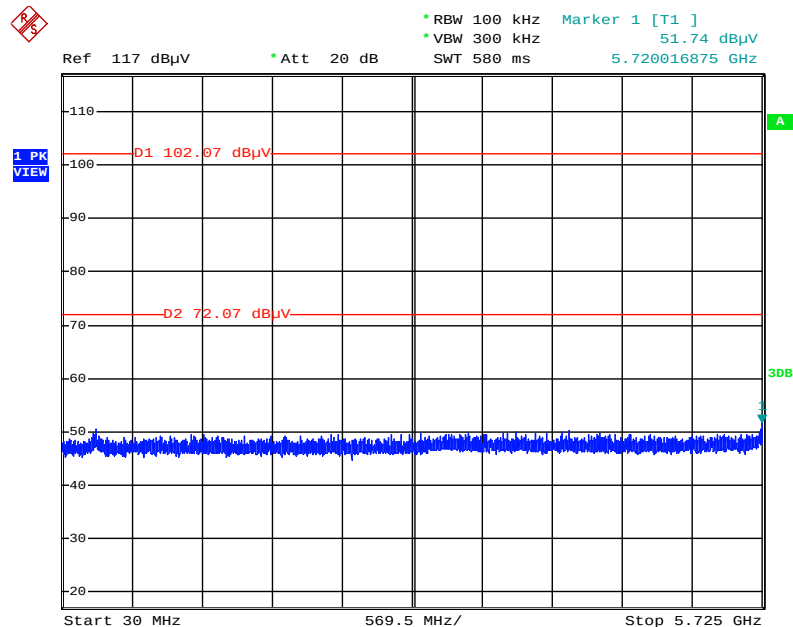
Date: 13.MAY.2014 14:03:14

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Reference Level



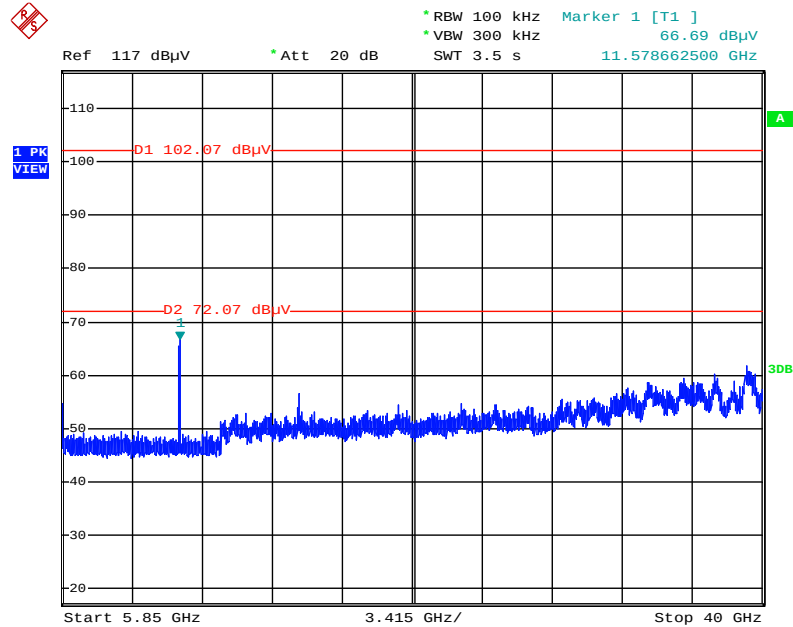
Date: 13.MAY.2014 11:23:16

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 151 / 30MHz~5725MHz (down 30dBc)



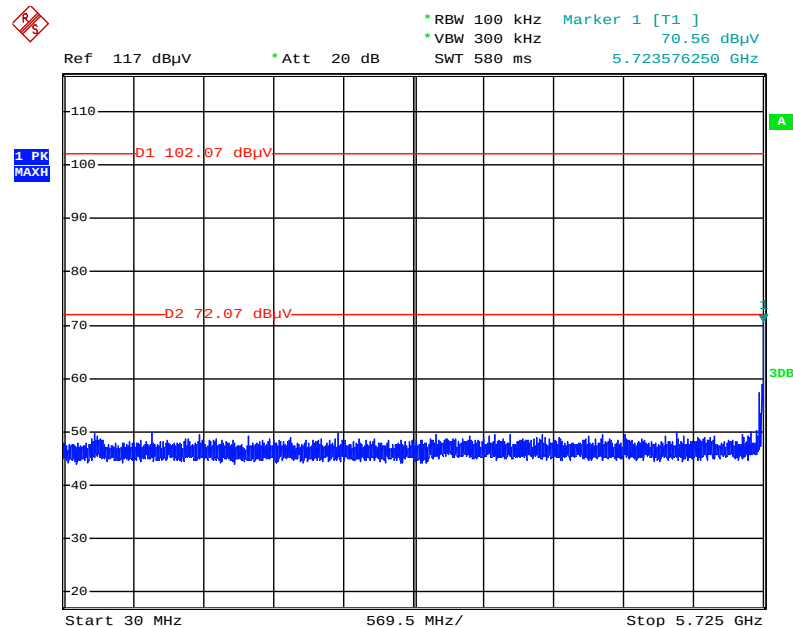
Date: 13.MAY.2014 11:27:17

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 151 / 5850MHz~40000MHz (down 30dBc)



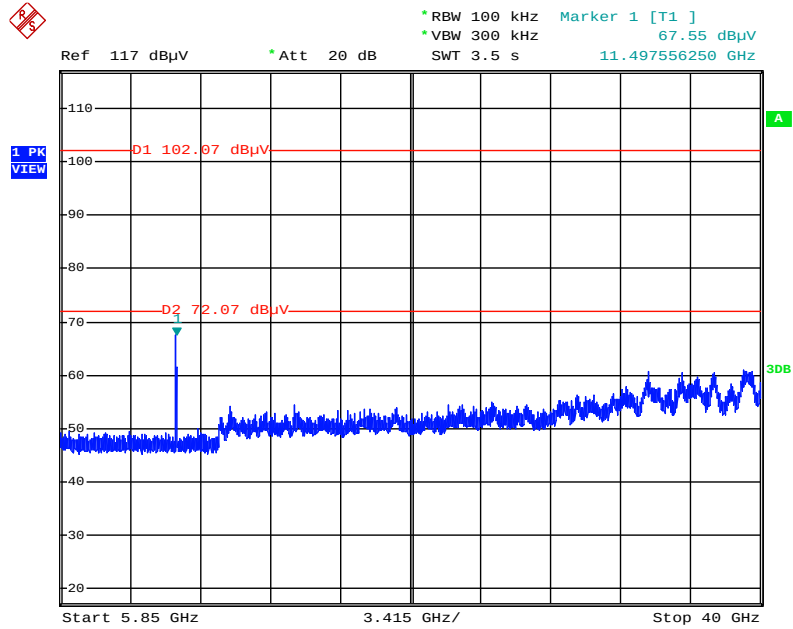
Date: 13.MAY.2014 11:28:33

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 159 / 30MHz~5725MHz (down 30dBc)



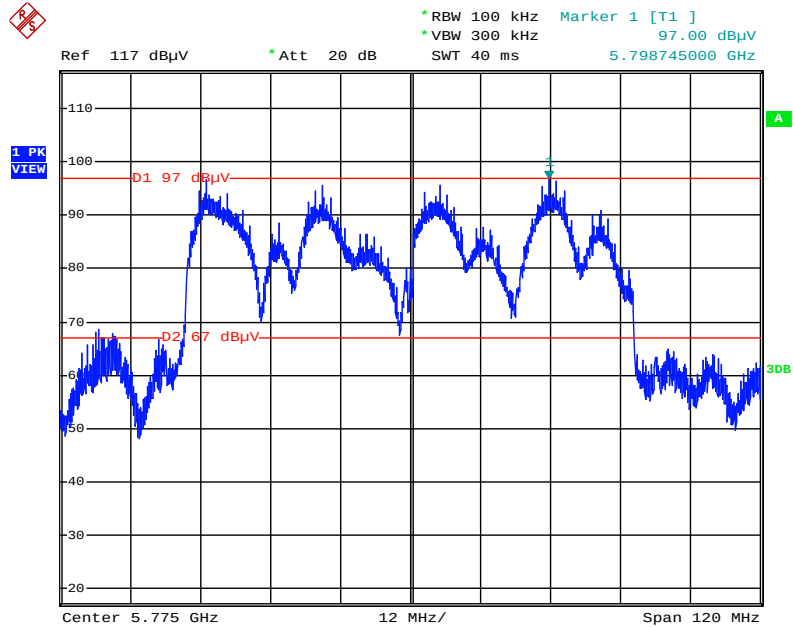
Date: 13.MAY.2014 11:32:13

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 159 / 5850MHz~40000MHz (down 30dBc)



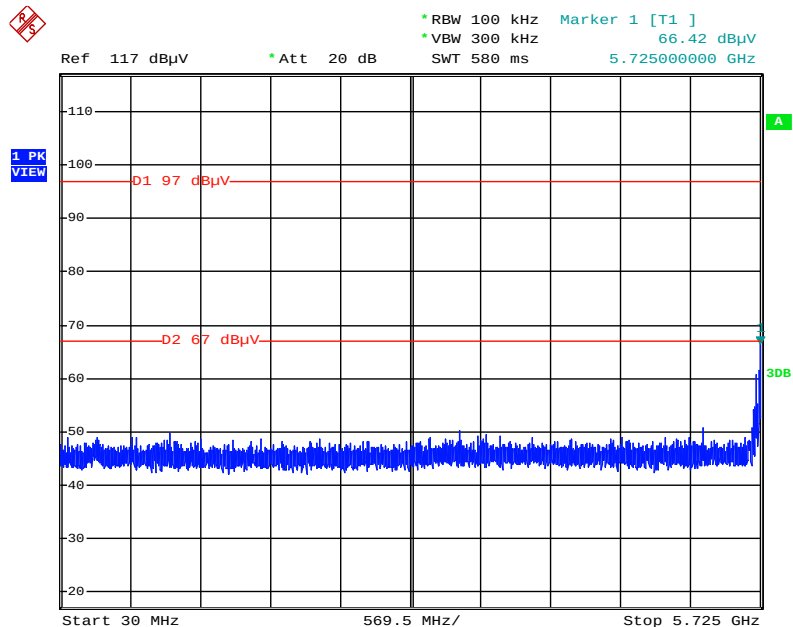
Date: 13.MAY.2014 11:30:56

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Reference Level



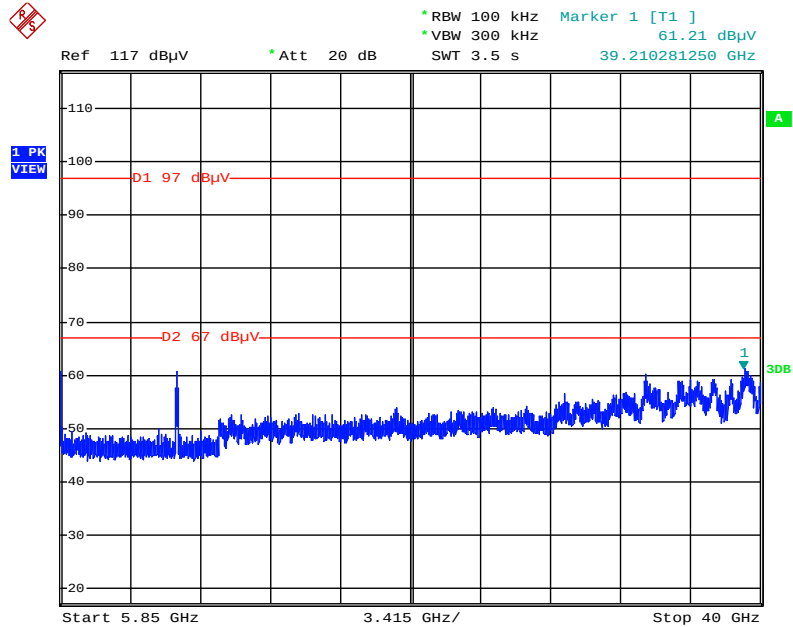
Date: 13.MAY.2014 11:38:53

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / CH 155 / 30MHz~5725MHz (down 30dBc)



Date: 13.MAY.2014 11:39:31

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / CH 155 / 5850MHz~40000MHz (down 30dBc)



Date: 13.MAY.2014 11:40:16

Plot on Configuration IEEE 802.11b / Reference Level



Plot on Configuration IEEE 802.11b / CH 1 / 30MHz~2400MHz (down 30dBc)





Agilent Spectrum Analyzer - Swept SA

Marker 1 26.290000000000 GHz

PNO: Fast P Gain: Low Trig: Free Run #Atten: 10 dB

Avg Type: Log-Pwr

08:30:29 PM Jun 17, 2014

Peak Search

Next Peak

Next Pk Right

Next Pk Left

Marker Delta

Mkr→CF

Mkr→Ref Lvl

More

1 of 2

10 dB/div Log

Ref 106.99 dBμV

Mkr1 26.290 0 GHz

40.95 dBμV

74.75 dBμV

Start 2.50 GHz

#Res BW 100 kHz

#VBW 300 kHz

Stop 26.50 GHz

Sweep 2.30 s (40001 pts)

MSG STATUS

Agilent Spectrum Analyzer - Swept SA

RL RF 50 Ω DC SENSE:INT ALIGN:AUTO 08:34:12 PM Jun 17, 2014

Marker 1 653.487750000 MHz Avg Type: Log-Pwr

PNO: Fast Trig: Free Run
IF Gain: Low #Atten: 10 dB

TRACE 1 2 3 4 5
TYPE 1 1 1 1 1 1 1 1 1 1
DET P N N N N N

10 dB/div Ref 106.99 dB μ V

Mkr1 653.49 MHz
40.65 dB μ V

Start 30 MHz Stop 2.400 GHz
#Res BW 100 kHz #VBW 300 kHz Sweep 227 ms (40001 pts)

MSG STATUS

Peak Search

Next Peak

Next Pk Right

Next Pk Left

Marker Delta

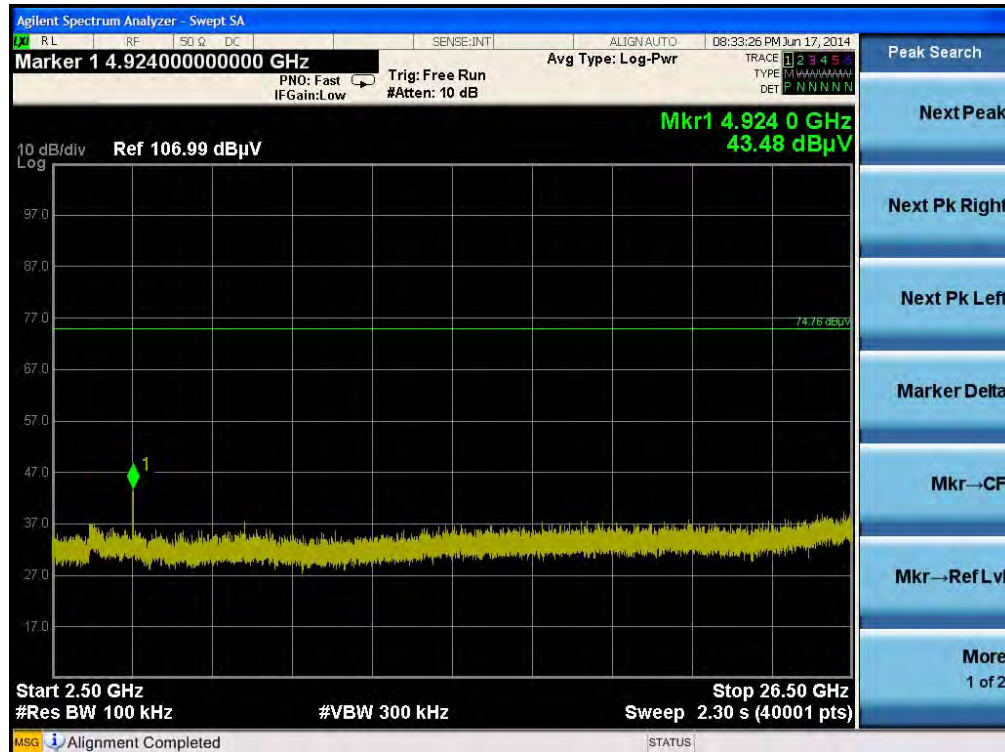
Mkr→CF

Mkr→Ref Lvl

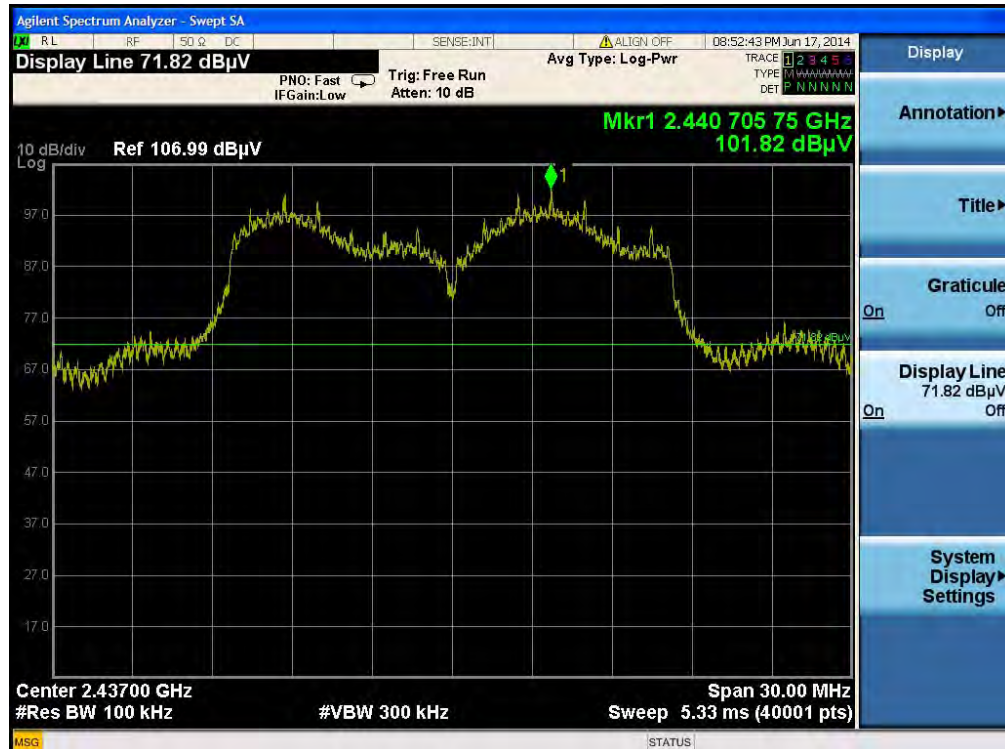
More

1 of 2

Plot on Configuration IEEE 802.11b / CH 11 / 2500MHz~26500MHz (down 30dBc)



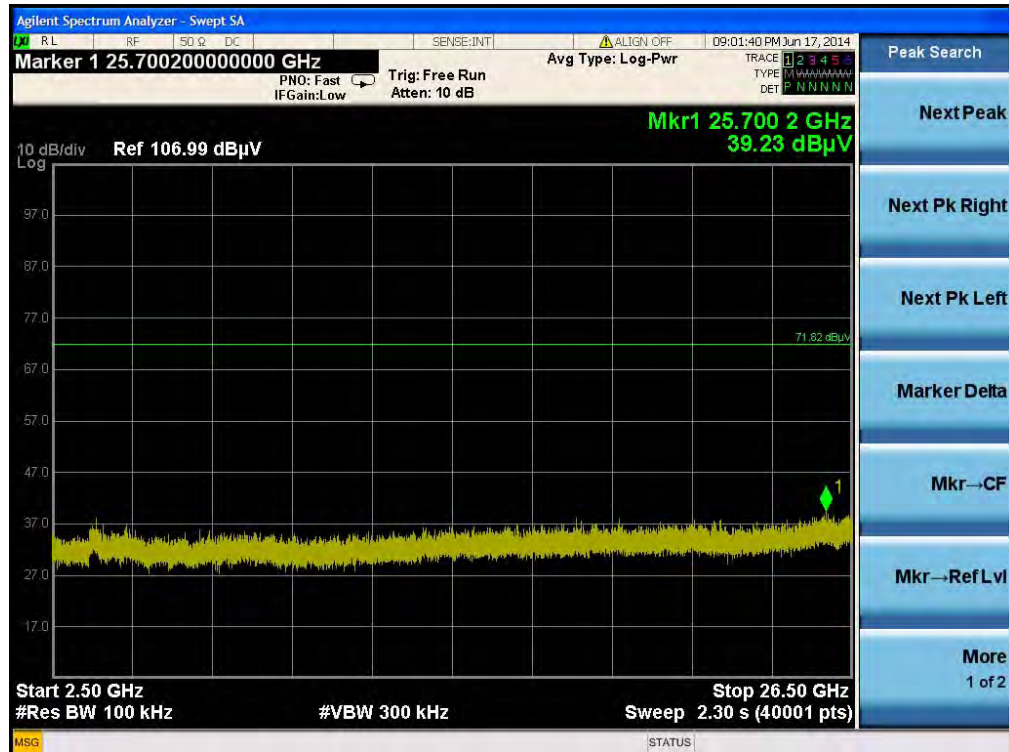
Plot on Configuration IEEE 802.11g / Reference Level



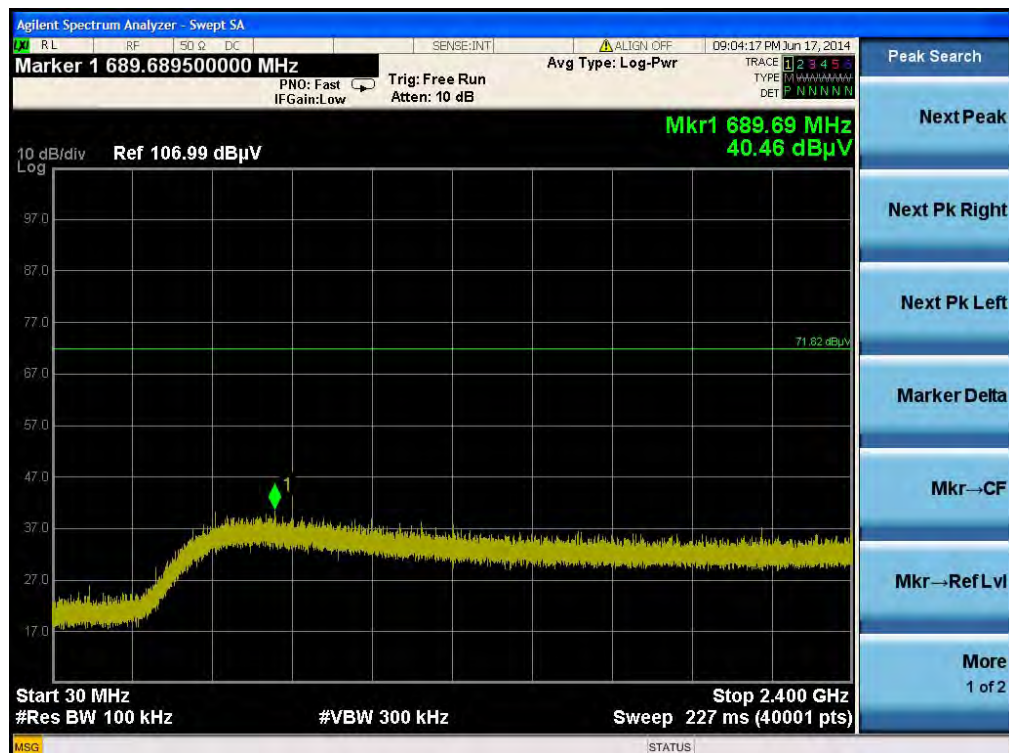
Plot on Configuration IEEE 802.11g / CH 1 / 30MHz~2400MHz (down 30dBc)



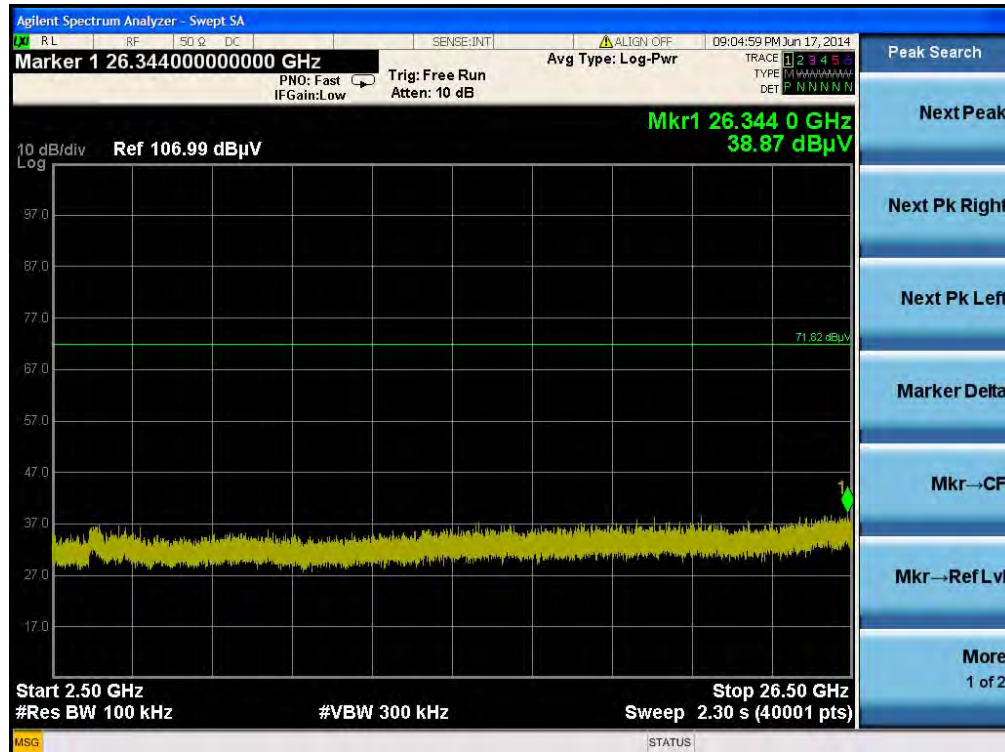
Plot on Configuration IEEE 802.11g / CH 1 / 2500MHz~26500MHz (down 30dBc)



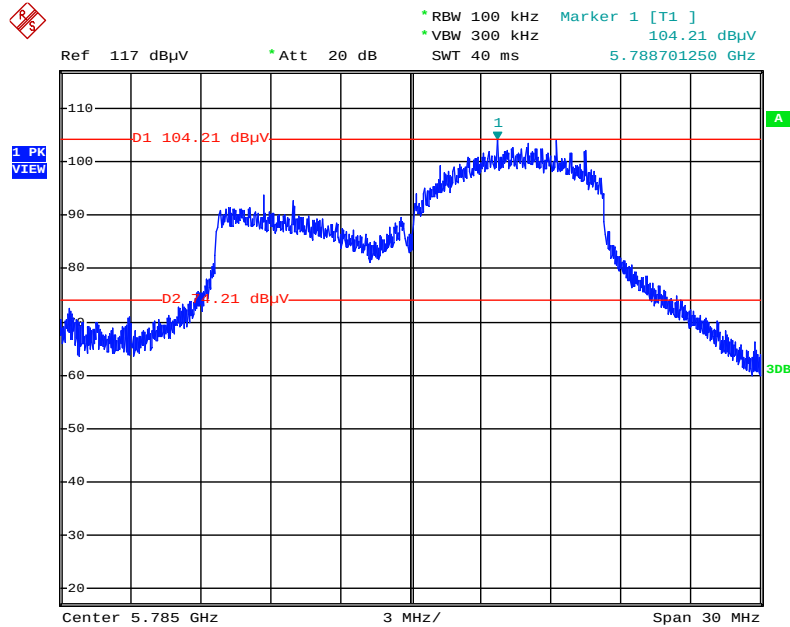
Plot on Configuration IEEE 802.11g / CH 11 / 30MHz~2400MHz (down 30dBc)



Plot on Configuration IEEE 802.11g / CH 11 / 2500MHz~26500MHz (down 30dBc)

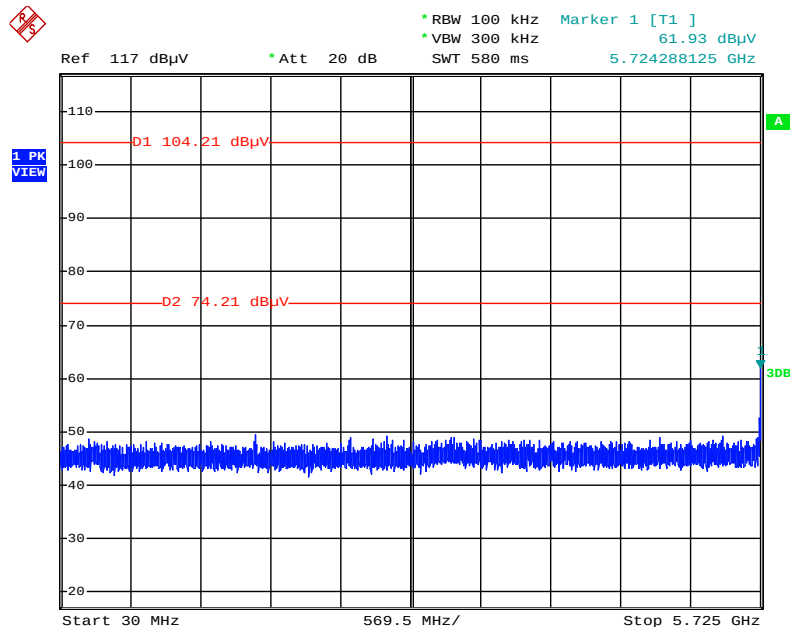


Plot on Configuration IEEE 802.11a / Reference Level



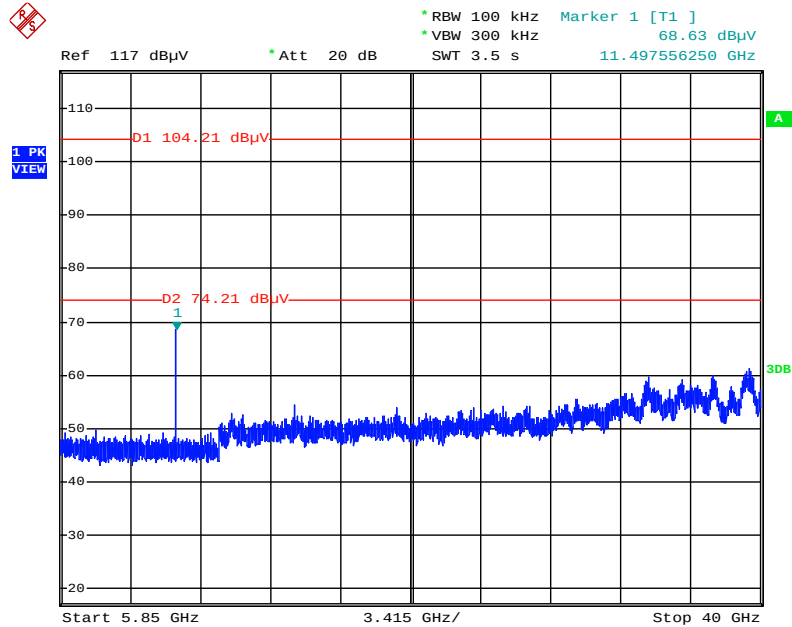
Date: 13.MAY.2014 13:56:28

Plot on Configuration IEEE 802.11a / CH 149 / 30MHz~5725MHz (down 30dBc)



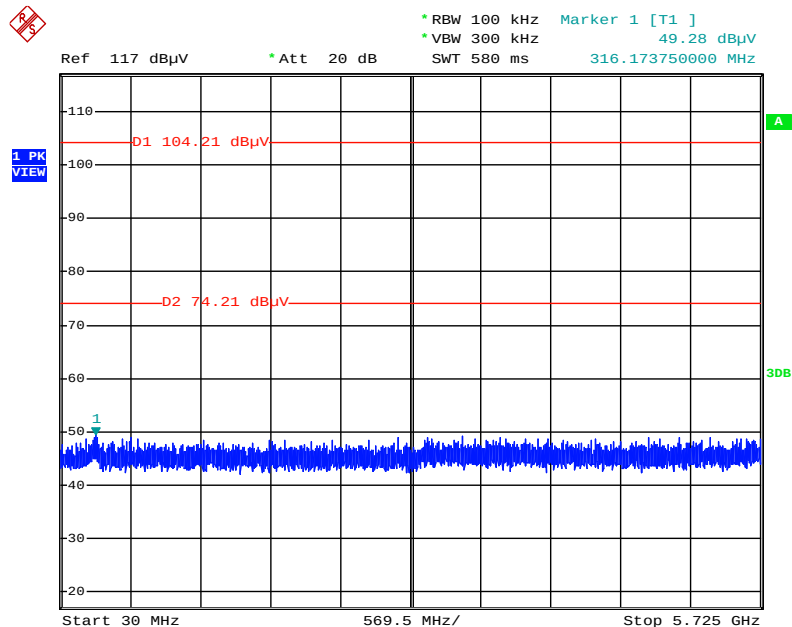
Date: 13.MAY.2014 13:57:08

Plot on Configuration IEEE 802.11a / CH 149 / 5850MHz~40000MHz (down 30dBc)



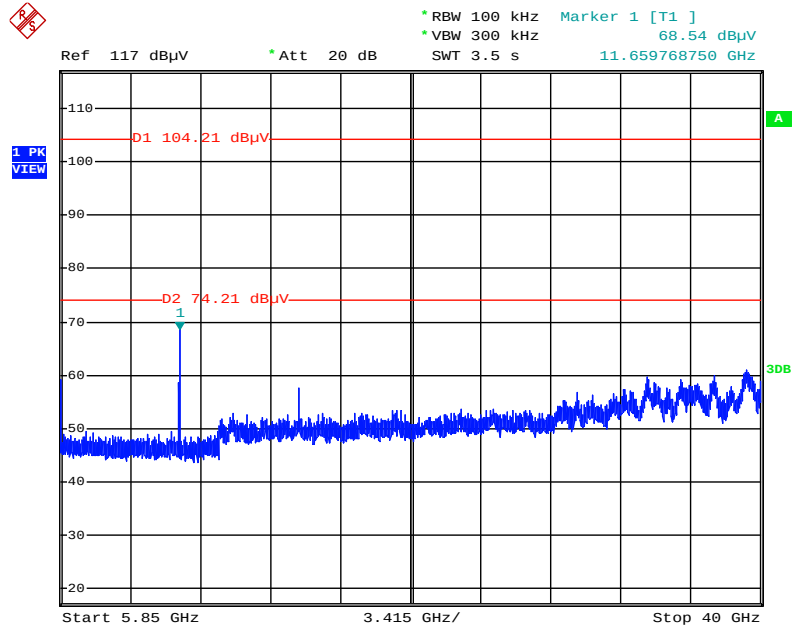
Date: 13.MAY.2014 13:58:50

Plot on Configuration IEEE 802.11a / CH 165 / 30MHz~5725MHz (down 30dBc)



Date: 13.MAY.2014 14:00:09

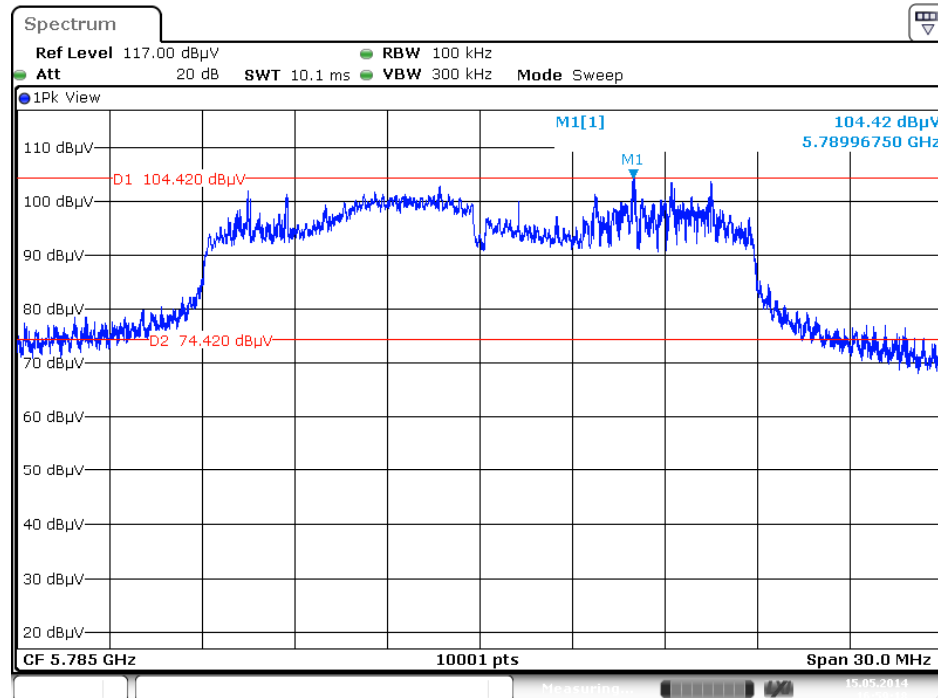
Plot on Configuration IEEE 802.11a / CH 165 / 5850MHz~40000MHz (down 30dBc)



Date: 13.MAY.2014 13:59:40

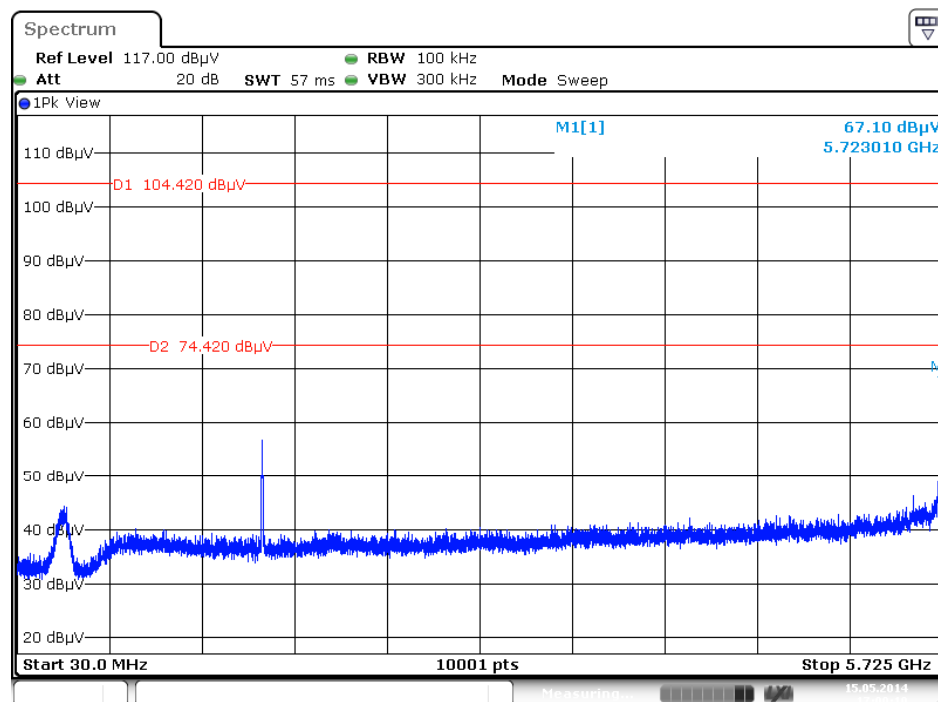
For beamforming function:

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Reference Level



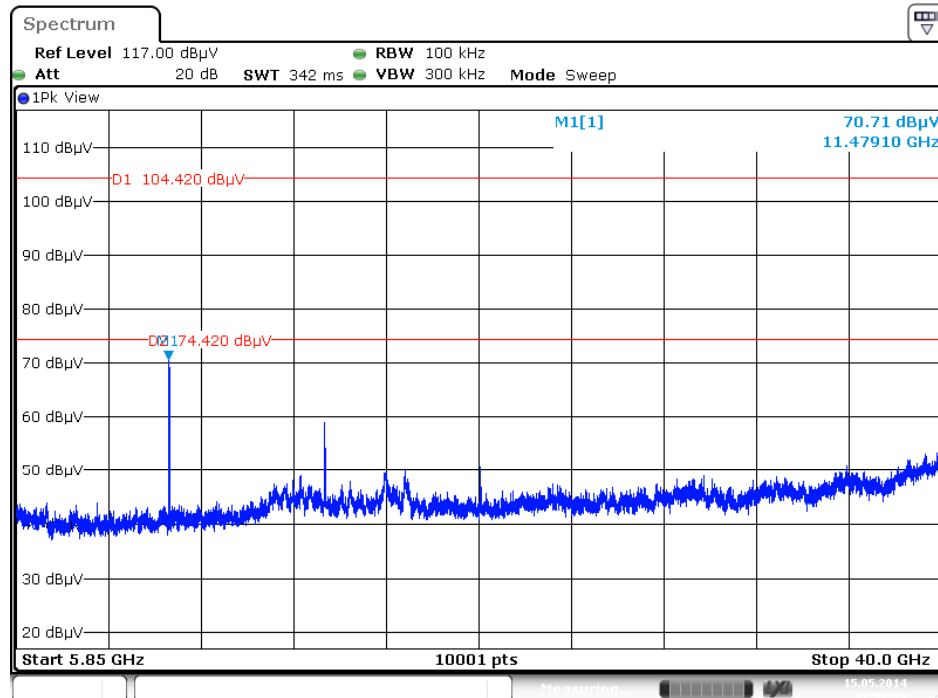
Date: 15.MAY.2014 16:59:18

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 149 / 30MHz~5725MHz (down 30dBc)



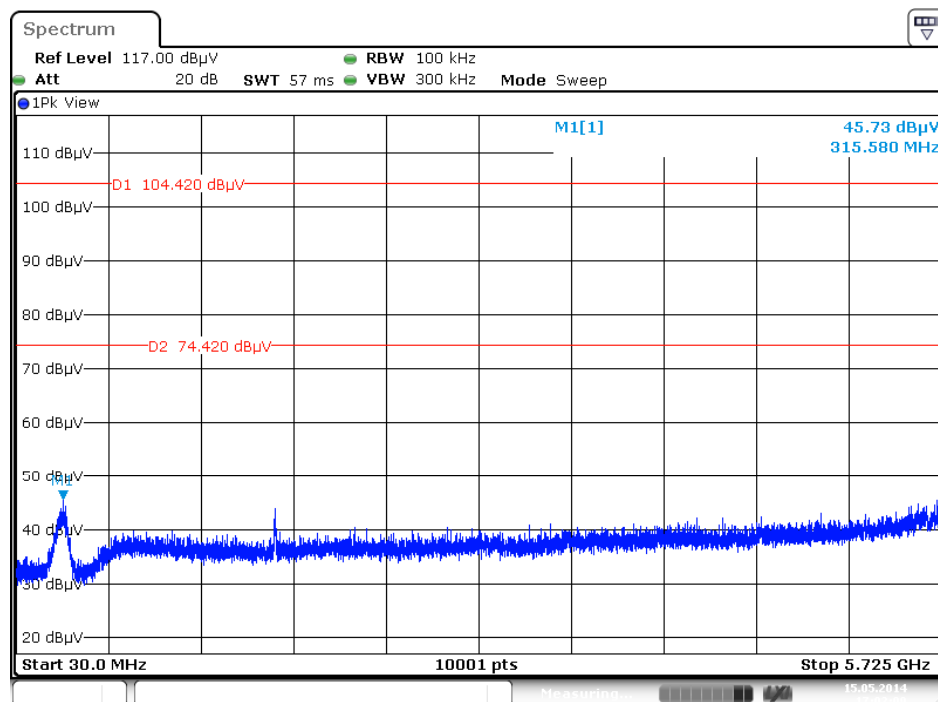
Date: 15.MAY.2014 17:00:10

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 149 / 5850MHz~40000MHz (down 30dBc)



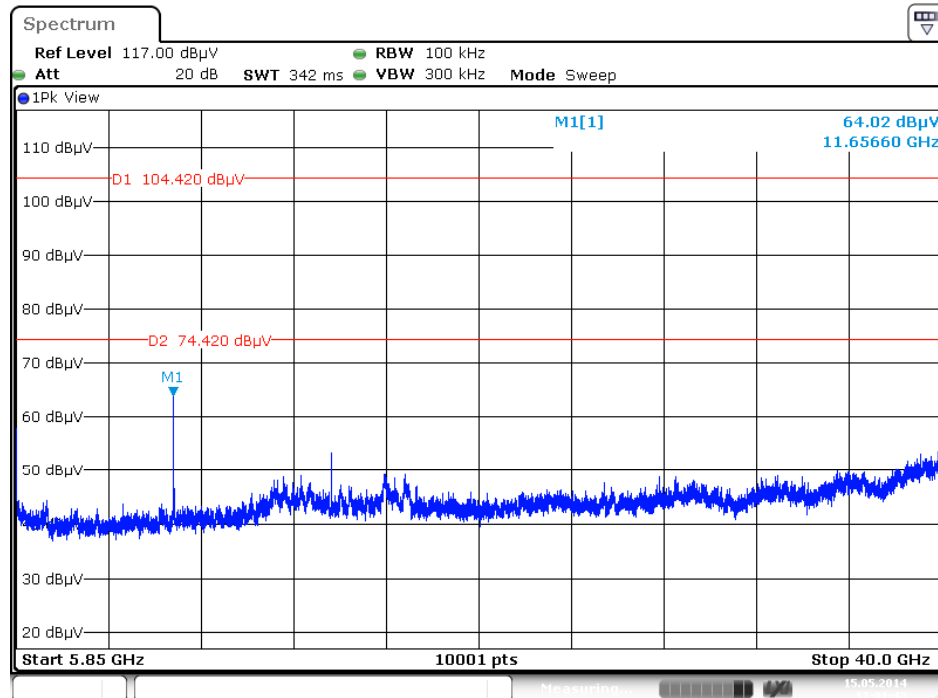
Date: 15.MAY.2014 17:00:59

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 165 / 30MHz~5725MHz (down 30dBc)



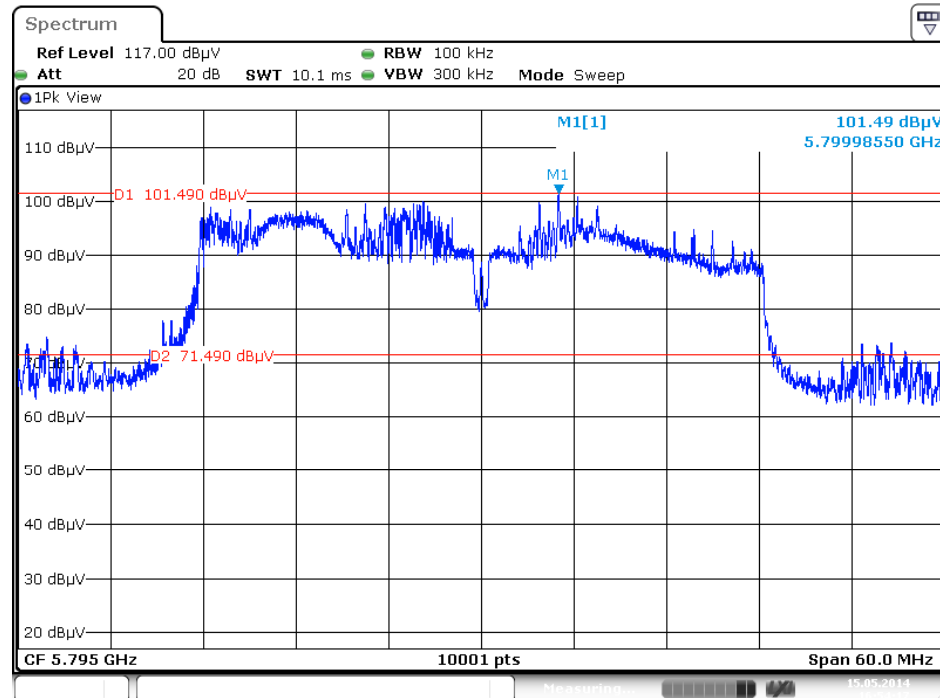
Date: 15.MAY.2014 17:02:09

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 165 / 5850MHz~40000MHz (down 30dBc)



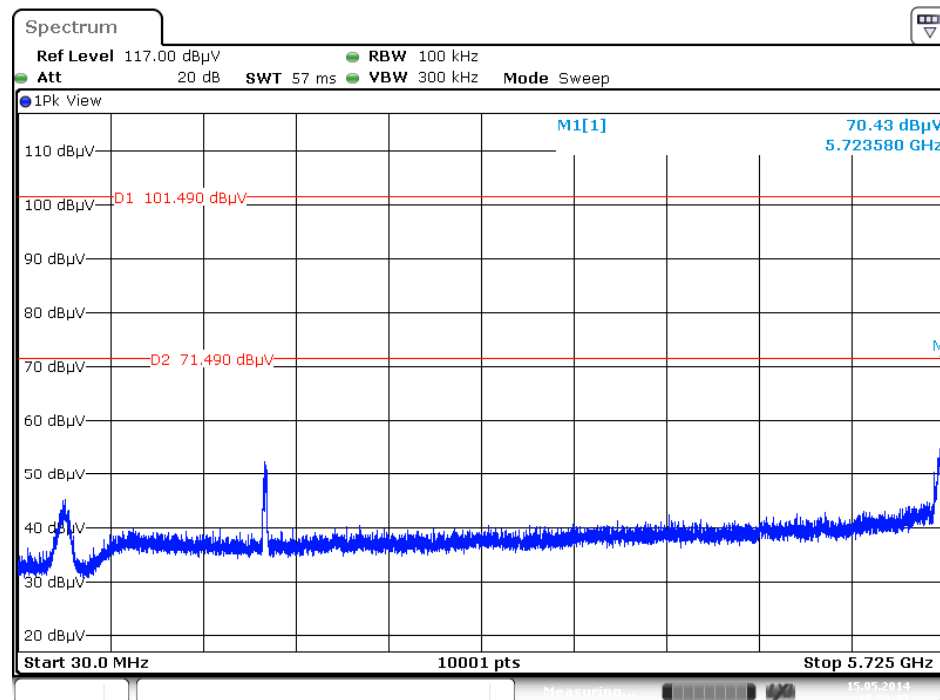
Date: 15.MAY.2014 17:01:42

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Reference Level



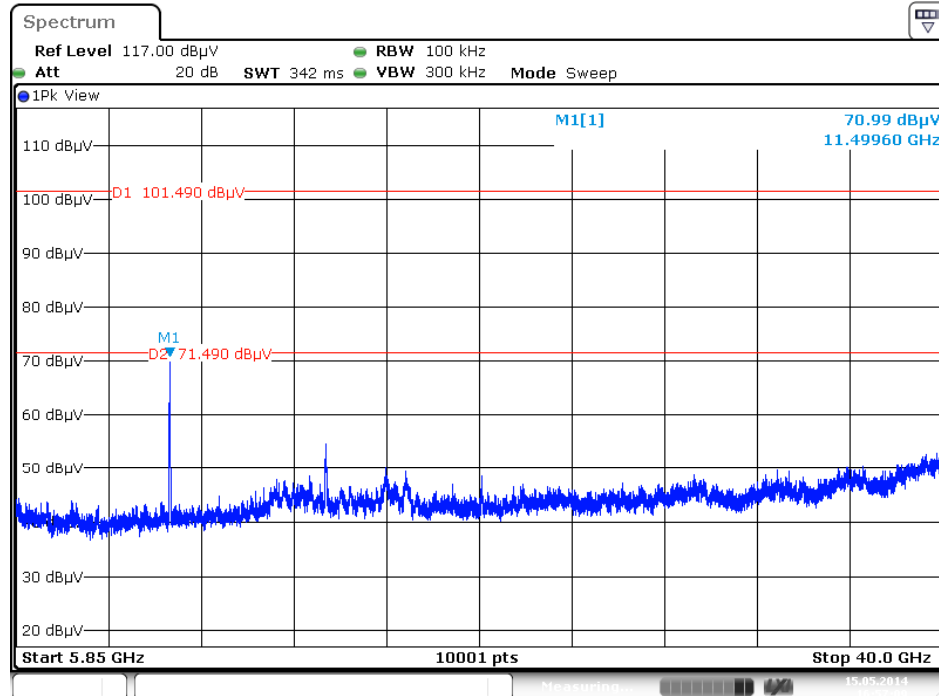
Date: 15.MAY.2014 16:54:16

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 151 / 30MHz~5725MHz (down 30dBc)



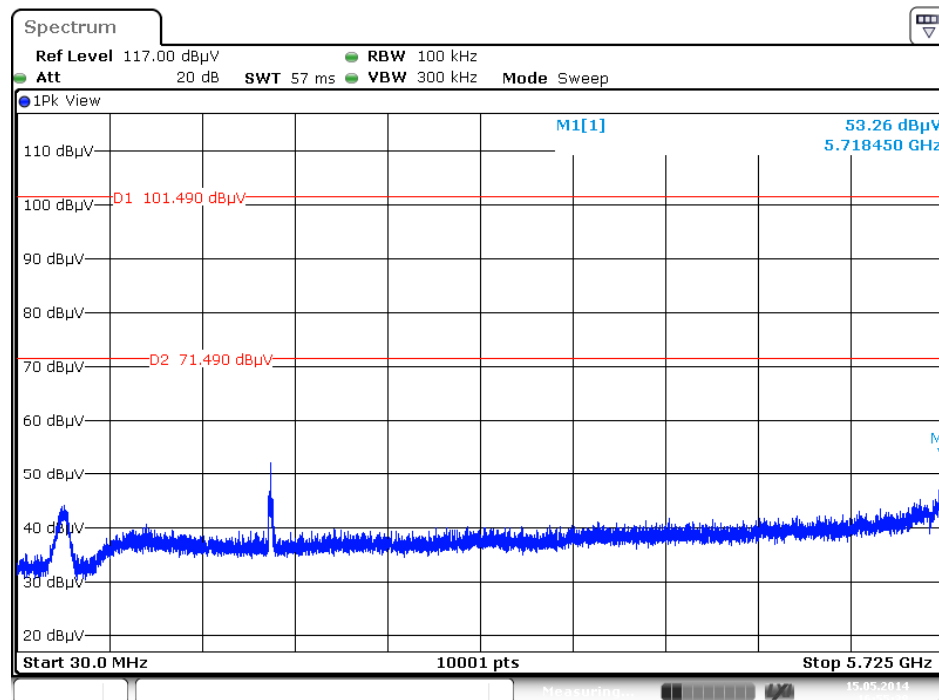
Date: 15.MAY.2014 16:56:37

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 151 / 5850MHz~40000MHz (down 30dBc)



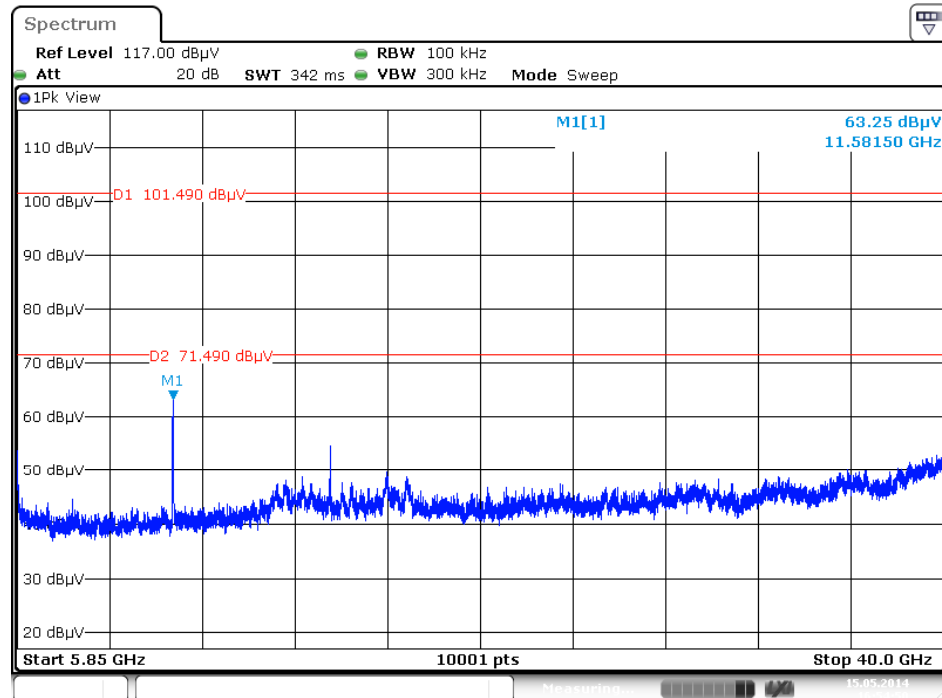
Date: 15.MAY.2014 16:57:09

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 159 / 30MHz~5725MHz (down 30dBc)



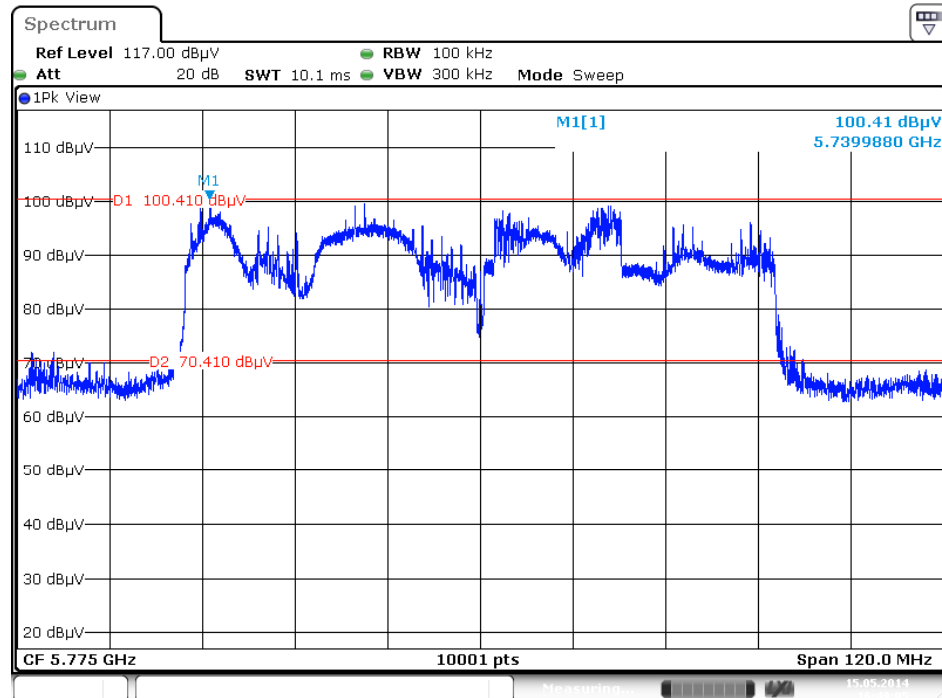
Date: 15.MAY.2014 16:55:38

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 159 / 5850MHz~40000MHz (down 30dBc)



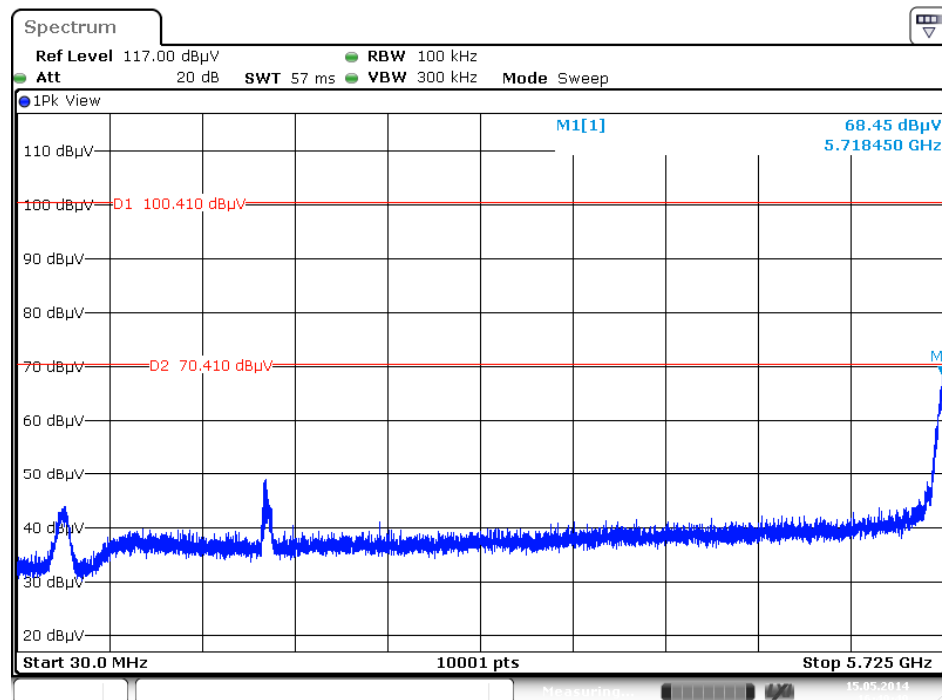
Date: 15.MAY.2014 16:54:50

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / Reference Level



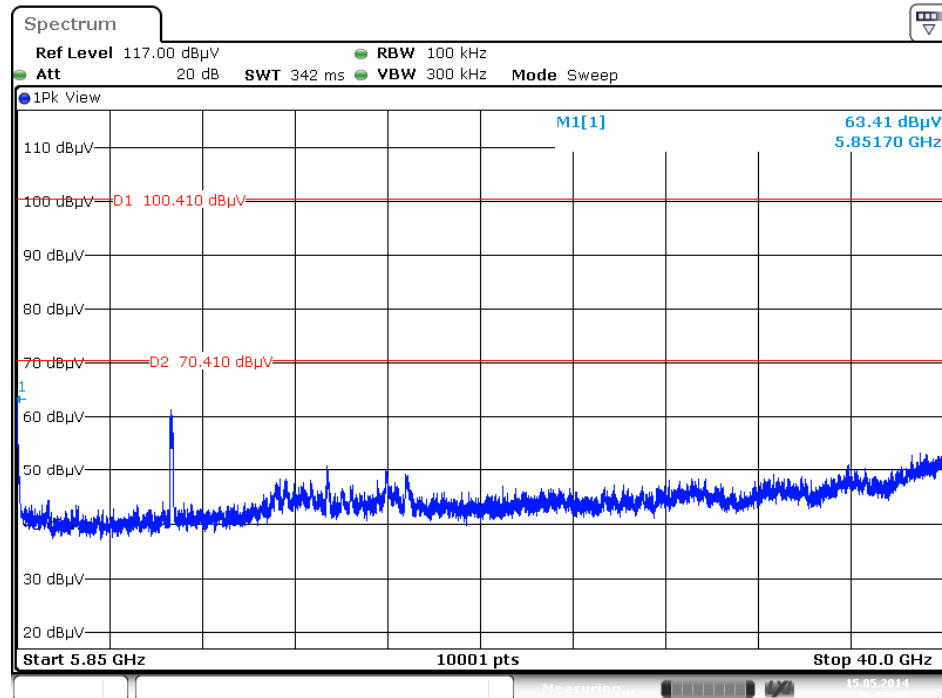
Date: 15.MAY.2014 16:49:05

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / CH 155 / 30MHz~5725MHz (down 30dBc)



Date: 15.MAY.2014 16:49:49

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT80 / CH 155 / 5850MHz~40000MHz (down 30dBc)



Date: 15.MAY.2014 16:50:40

4.7. Antenna Requirements

4.7.1. 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.

4.7.2. 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
MXE EMI Receiver	Agilent	N9038A	MY52260140	9kHz ~ 8 GHz	Dec. 25, 2013	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)
Signal analyzer	Agilent	N9010A	MY52220519	10Hz~44GHz	Dec. 11, 2013	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	Teseq GmbH	CBL 6112D	35236	30MHz ~ 2GHz	Nov. 29, 2013	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	SCHWARZBEAK	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Dec. 17, 2013	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%