SPORTON International Inc.
No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.
Ph: 886-3-327-3456 / FAX: 886-3-327-0973 / www.sporton.com.tw

FCC RADIO TEST REPORT

Applicant's company	**Linksys LLC**
Applicant Address	121 Theory, Drive Irvine CA 92617, USA
FCC ID	**Q87-WRT3200ACM**
Manufacturer's company	**Wistron NeWeb Corporation**
Manufacturer Address	20 Park Ave. II, Hsinchu Science Park, Hsinchu 308, Taiwan

Product Name	Dual-band gigabit Wi-Fi Router
Brand Name	LINKSYS
Model No.	WRT3200ACM
Test Rule	47 CFR FCC Part 15 Subpart C § 15.247
Test Freq. Range	2400 ~ 2483.5MHz
Received Date	Mar. 23, 2016
Final Test Date	Jun. 01, 2016
Submission Type	Original Equipment

Statement

Test result included in this report is for the IEEE 802.11n and IEEE 802.11b/g/ac of the product.

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

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

The measurements and test results shown in this test report were made in accordance with the procedures and found in compliance with the limit given in **ANSI C63.10-2013**, **47 CFR FCC Part 15 Subpart C**, **KDB558074 D01 v03r05** and **KDB 662911 D01 v02r01, KDB644545 D03 v01**.

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

TAF
Testing Laboratory
1190

Table of Contents

History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR640850AA	Rev. 01	Initial issue of report	Jul. 06, 2016

1. VERIFICATION OF COMPLIANCE

Product Name	:	Dual-band gigabit Wi-Fi Router
Brand Name	:	LINKSYS
Model No.	:	WRT3200ACM
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 Mar. 23, 2016 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**
4.1	15.207	AC Power Line Conducted Emissions	Complies
4.2	15.247(b)(3)	Maximum Conducted Output Power	Complies
4.3	15.247(e)	Power Spectral Density	Complies
4.4	15.247(a)(2)	6dB Spectrum Bandwidth	Complies
4.5	15.247(d)	Radiated Emissions	Complies
4.6	15.247(d)	Band Edge Emissions	Complies
4.7	15.203	Antenna Requirements	Complies

3. GENERAL INFORMATION

3.1. Product Details

Items	Description
Product Type	WLAN (4TX, 4RX)
Radio Type	Intentional Transceiver
Power Type	From power adapter
Modulation	IEEE 802.11b: DSSS IEEE 802.11g: OFDM IEEE 802.11n/ac: see the below table
Data Modulation	IEEE 802.11b: DSSS (BPSK / QPSK / CCK) IEEE 802.11g/n: OFDM (BPSK / QPSK / 16QAM / 64QAM) IEEE 802.11ac: OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM)
Data Rate (Mbps)	IEEE 802.11b: DSSS (1/ 2/ 5.5/11) IEEE 802.11g: OFDM (6/9/12/18/24/36/48/54) IEEE 802.11n/ac: see the below table
Frequency Range	2400 ~ 2483.5MHz
Channel Number	11 for 20MHz bandwidth ; 7 for 40MHz bandwidth
Channel Band Width (99%)	For non-beamforming function: IEEE 802.11b: 13.46 MHz IEEE 802.11g: 16.93 MHz IEEE 802.11ac MCS0/Nss1 (VHT20): 17.80 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 36.61 MHz For beamforming function: IEEE 802.11g: 16.85 MHz IEEE 802.11ac MCS0/Nss1 (VHT20): 17.80 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 36.76 MHz
Maximum Conducted Output Power	For non-beamforming function: IEEE 802.11b: 29.10 dBm IEEE 802.11g: 28.36 dBm IEEE 802.11ac MCS0/Nss1 (VHT20): 28.45 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 23.13 dBm For beamforming function: IEEE 802.11g: 22.71 dBm IEEE 802.11ac MCS0/Nss1 (VHT20): 27.52 dBm IEEE 802.11ac MCS0/Nss1 (VHT40): 25.24 dBm
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

Items	Description	
Beamforming Function	☒ With beamforming	☐ Without beamforming
	The product has beamforming function for 802.11a/g/n/ac in 2.4GHz and 5GHz.	

Note: For non-beamforming function, the EUT supports STBC mode only.

Antenna and Band width

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

IEEE 11n/ac Spec.

Protocol	Number of Transmit Chains (NTX)	Data Rate / MCS
802.11n (HT20)	4	MCS 0-31
802.11n (HT40)	4	MCS 0-31
802.11ac (VHT20)	4	MCS 0-9/Nss1-4
802.11ac (VHT40)	4	MCS 0-9/Nss1-4

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

Note 2: IEEE Std. 802.11ac modulation consists of VHT20, VHT40, VHT80 and VHT160 (VHT: Very High Throughput). Then EUT supports VHT20, and VHT40 for 2.4GHz.

Note 3: Modulation modes consist of below configuration:
HT20/HT40: IEEE 802.11n, VHT20/VHT40: IEEE 802.11ac

3.2. Accessories

Power	Brand	Model No.	Rating
Adapter 1	LEI	MU42-3120300-A1	INPUT: 100-240Vac, 50/60Hz, 1.5A OUTPUT: 12Vdc, 3A
Adapter 2	CWT	2ABN036F US	INPUT: 100-240Vac, 50/60Hz, 1.0A OUTPUT: 12.0Vdc, 3.0A

3.3. Table for Filed Antenna

Ant.	Brand	Part Number	Type	Connector	Gain (dBi)		Cable Loss (dB)		True Gain (dBi)	
					2.4GHz	5GHz	2.4GHz	5GHz	2.4GHz	5GHz
1	WNC	08.22450.002	Dipole	I-PEX	2.52	3.81	1.10	2.30	1.42	1.51
2	WNC	08.22450.002	Dipole	I-PEX	2.52	3.81	1.50	2.40	1.02	1.41
3	WNC	08.22450.002	Dipole	I-PEX	2.52	3.81	1.60	2.10	0.92	1.71
4	WNC	08.22450.002	Dipole	I-PEX	2.52	3.81	1.60	1.60	0.92	2.21
Ant.	Brand	Model No.	Type	Connector	Gain (dBi)					
					Bluetooth		5GHz			
5	WNC	81XKAA15.GAV	PIFA	I-PEX	3.60		5.10			

Note: 1. The EUT has five antennas.

2. The EUT has three radios. (Radio 1 supports 2.4GHz WLAN TX/RX function, Radio 2 supports 5GHz WLAN TX/RX function, Radio 3 supports Bluetooth TX/RX function and 5GHz WLAN RX function.)

3. For Radio 1:

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

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

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

4. For Radio 2:

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

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

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

4. For Radio 3:

For Bluetooth function (1TX/1RX):

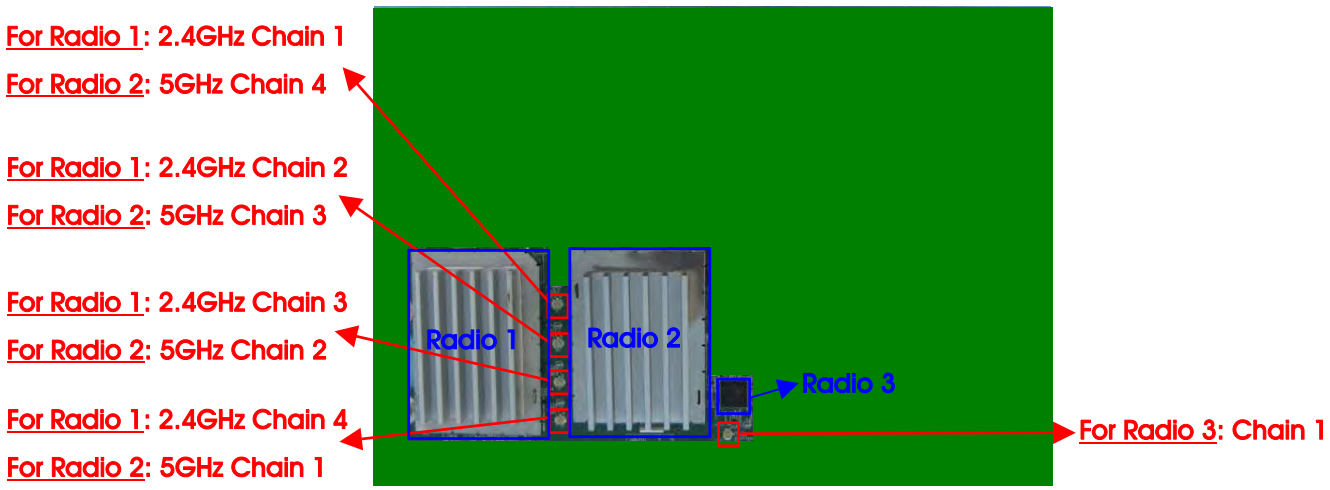
Chain 1: Connect to Ant. 5

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

For 5GHz WLAN function (1RX):

Chain 1: Connect to Ant. 5

Only Chain 1 can be used as receiving function.



3.4. Table for Carrier Frequencies

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	-	-

3.5. Table for Test Modes

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

Test Items	Mode	Data Rate	Channel	Chain
AC Power Line Conducted Emissions	Normal Link	-	-	-
Maximum Conducted Output Power	For non-beamforming function:			
	11b/CCK	1 Mbps	1/6/11	1+2+3+4
	11g/BPSK	6 Mbps	1/6/11	1+2+3+4
	11ac VHT20	MCS0/Nss1	1/6/11	1+2+3+4
	11ac VHT40	MCS0/Nss1	3/6/9	1+2+3+4
	For beamforming function:			
	11g/BPSK	6 Mbps	1/6/11	1+2+3+4
	11ac VHT20	MCS0/Nss1	1/6/11	1+2+3+4
	11ac VHT40	MCS0/Nss1	3/6/9	1+2+3+4
Power Spectral Density	For non-beamforming function:			
	11b/CCK	1 Mbps	1/6/11	1+2+3+4
	11g/BPSK	6 Mbps	1/6/11	1+2+3+4
	11ac VHT20	MCS0/Nss1	1/6/11	1+2+3+4
	11ac VHT40	MCS0/Nss1	3/6/9	1+2+3+4
	For beamforming function:			
	11g/BPSK	6 Mbps	1/6/11	1+2+3+4
	11ac VHT20	MCS0/Nss1	1/6/11	1+2+3+4
	11ac VHT40	MCS0/Nss1	3/6/9	1+2+3+4
6dB Spectrum Bandwidth	For non-beamforming function:			
	11b/CCK	1 Mbps	1/6/11	1+2+3+4
	11g/BPSK	6 Mbps	1/6/11	1+2+3+4
	11ac VHT20	MCS0/Nss1	1/6/11	1+2+3+4
	11ac VHT40	MCS0/Nss1	3/6/9	1+2+3+4
	For beamforming function:			
	11g/BPSK	6 Mbps	1/6/11	1+2+3+4
	11ac VHT20	MCS0/Nss1	1/6/11	1+2+3+4
	11ac VHT40	MCS0/Nss1	3/6/9	1+2+3+4
Radiated Emissions 9kHz~1GHz	Normal Link	-	-	-

Radiated Emissions 1GHz~10th Harmonic	For non-beamforming function:			
	11b/CCK	1 Mbps	1/6/11	1+2+3+4
	11g/BPSK	6 Mbps	1/6/11	1+2+3+4
	11ac VHT20	MCS0/Nss1	1/6/11	1+2+3+4
	11ac VHT40	MCS0/Nss1	3/6/9	1+2+3+4
	For beamforming function:			
	11g/BPSK	6 Mbps	1/6/11	1+2+3+4
	11ac VHT20	MCS0/Nss1	1/6/11	1+2+3+4
	11ac VHT40	MCS0/Nss1	3/6/9	1+2+3+4
Band Edge Emissions	For non-beamforming function:			
	11b/CCK	1 Mbps	1/6/11	1+2+3+4
	11g/BPSK	6 Mbps	1/6/11	1+2+3+4
	11ac VHT20	MCS0/Nss1	1/6/11	1+2+3+4
	11ac VHT40	MCS0/Nss1	3/6/9	1+2+3+4
	For beamforming function:			
	11g/BPSK	6 Mbps	1/6/11	1+2+3+4
	11ac VHT20	MCS0/Nss1	1/6/11	1+2+3+4
	11ac VHT40	MCS0/Nss1	3/6/9	1+2+3+4

Note: 1. VHT20/VHT40 covers HT20/HT40, due to same modulation. The power setting for 802.11n HT20 and HT40 are the same or lower than 802.11ac VHT20 and VHT40.

2. There are two functions of EUT, one is beamforming function, and the other is non-beamforming function for 802.11a/g/n/ac in 2.4GHz and 5GHz. All test results were recorded in the report.

3. For non-beamforming function, the EUT supports STBC mode only.

The following test modes were performed for all tests:

AC Power Conducted Emission	
Test Mode	Description
1	EUT + Adapter 1
2	EUT + Adapter 2
Mode 2 generated the worst test result, so it was recorded in this report.	

Radiated Emission Below 1GHz	
Test Mode	Description
1	EUT Y axis + Adapter 1
2	EUT Z axis + Adapter 1
Mode 1 has been evaluated to be the worst case among Mode 1~2, thus measurement for Mode 3 will follow this same test mode.	
3	EUT Y axis + Adapter 2
Mode 1 generated the worst test result, so it was recorded in this report.	

Radiated Emission Above 1GHz and Band Edge Emission	
There are two modes of EUT, one is EUT Y axis, and the other is EUT Z axis. EUT Y axis has been evaluated to be the worst case after evaluating. Consequently, measurement will follow this same test mode.	
Test Mode	Description
1	EUT Y axis

Radiated Emission Co-location	
The 2.4GHz and 5GHz WLAN function share a common antenna; therefore Radiated Emission Co-location (please refer to Appendix B) test is added for simultaneously transmit between 2.4GHz WLAN function and 5GHz WLAN function.	
Test Mode	Description
1	EUT Y axis (2.4GHz WLAN function + 5GHz WLAN function)
2	EUT Z axis (2.4GHz WLAN function + 5GHz WLAN function)
Mode 1 generated the worst test result, so it was recorded in this report.	

Co-location MPE
The EUT could be applied with 2.4GHz WLAN function, 5GHz WLAN function and Bluetooth function; therefore Co-location Maximum Permissible Exposure (Please refer to FA640850) test is added for simultaneously transmit between 2.4GHz WLAN function, 5GHz WLAN function and Bluetooth function.

3.6. Table for Testing Locations

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

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

3.7. Table for Supporting Units

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

Support Unit	Brand	Model	FCC ID
NB*4	DELL	E4300	DoC
NB	Apple	Mac Book	DoC
CBT Bluetooth tester (Bluetooth base station)	Anritsu	MT8852B	DoC
Flash disk3.0	Transcend	JetFlash 790	DoC
eSATA disk	Hitachi	HTS545032B9A30	DoC

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

For non-beamforming function:

Support Unit	Brand	Model	FCC ID
NB	DELL	E4300	DoC

For beamforming function:

Support Unit	Brand	Model	FCC ID
NB*2	DELL	E4300	DoC
Dual-band gigabit Wi-Fi Router (Rx Device)	LINKSYS	WRT3200ACM	Q87-WRT3200ACM

For Test Site No: CO01-CB

Support Unit	Brand	Model	FCC ID
NB*5	DELL	E6430	DoC
CBT Bluetooth tester (Bluetooth base station)	Anritsu	MT8852B	DoC
Flash disk3.0	Transcend	JetFlash 790	DoC
eSATA disk	Hitachi	HTS545032B9A30	DoC

For Test Site No: TH01-CB

Support Unit	Brand	Model	FCC ID
NB	DELL	E4300	DoC

3.8. Table for Parameters of Test Software Setting

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

Test Function	Non-beamforming function					
Test Software Version	DutApiMimoApApp					
Mode	Test Frequency (MHz)					
	NCB: 20MHz			NCB: 40MHz		
	2412 MHz	2437 MHz	2462 MHz	2422 MHz	2437 MHz	2452 MHz
802.11b	22	25	22	-	-	-
802.11g	17	25	14	-	-	-
802.11ac MCS0/Nss1 VHT20	16	25	14	-	-	-
802.11ac MCS0/Nss1 VHT40	-	-	-	15	18	15

Test Function	Beamforming function					
Test Software Version	DutApiMimoApApp					
Mode	Test Frequency (MHz)					
	NCB: 20MHz			NCB: 40MHz		
	2412 MHz	2437 MHz	2462 MHz	2422 MHz	2437 MHz	2452 MHz
802.11g	17	18	17	-	-	-
802.11ac MCS0/Nss1 VHT20	15	23	17	-	-	-
802.11ac MCS0/Nss1 VHT40	-	-	-	17	20	17

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 Telnet.
3. Executed "Lantest.exe" to link with the remote workstation to receive and transmit packet by Rx Device and transmit duty cycle no less 98%

3.10. Duty Cycle

For non-beamforming function:

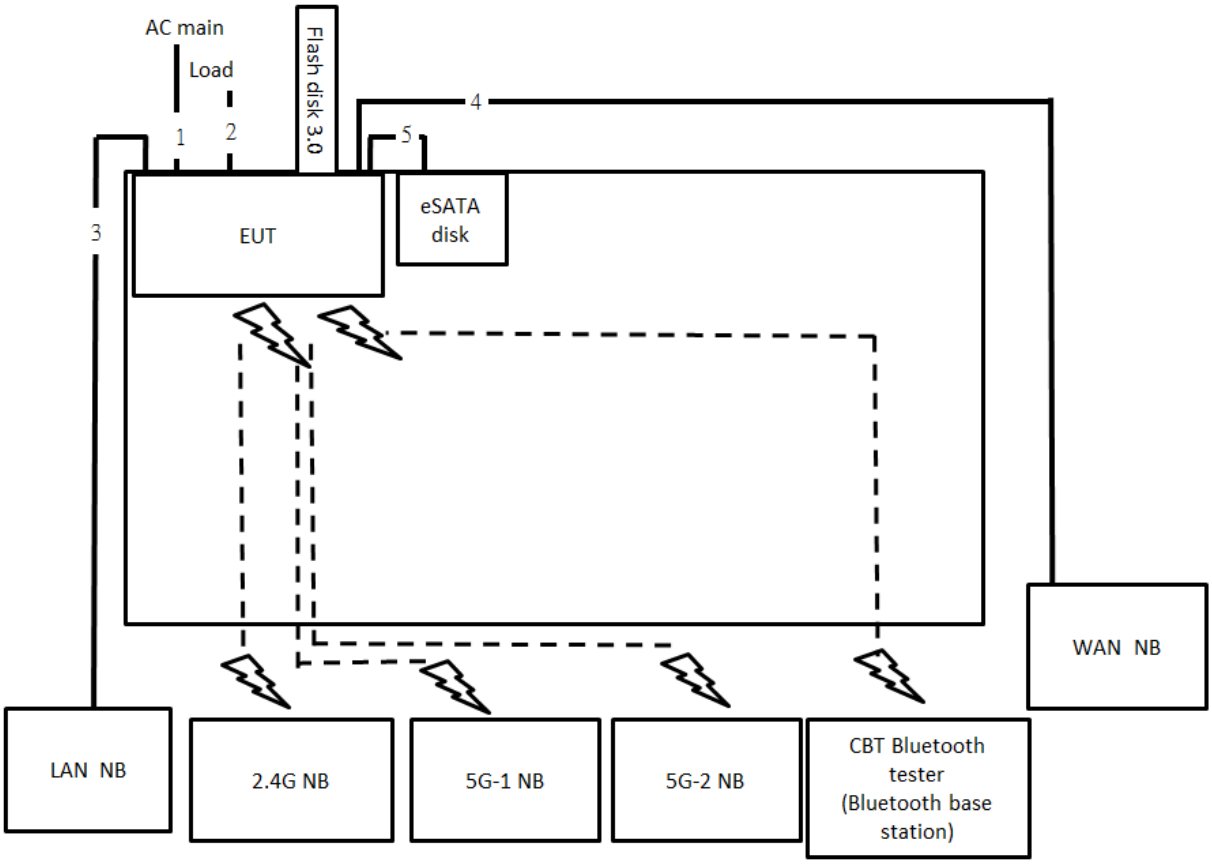
Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11b	1.000	1.000	100.00	0.00	0.01
802.11g	1.395	1.409	98.97	0.04	0.01
802.11ac MCS0/Nss1 VHT20	1.319	1.333	98.91	0.05	0.01
802.11ac MCS0/Nss1 VHT40	0.663	0.678	97.86	0.09	1.51

For beamforming function:

Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11g	2.080	2.300	90.43	0.44	0.48
802.11ac MCS0/Nss1 VHT20	5.200	5.740	90.59	0.43	0.19
802.11ac MCS0/Nss1 VHT40	4.950	5.370	92.18	0.35	0.20

3.11. Test Configurations

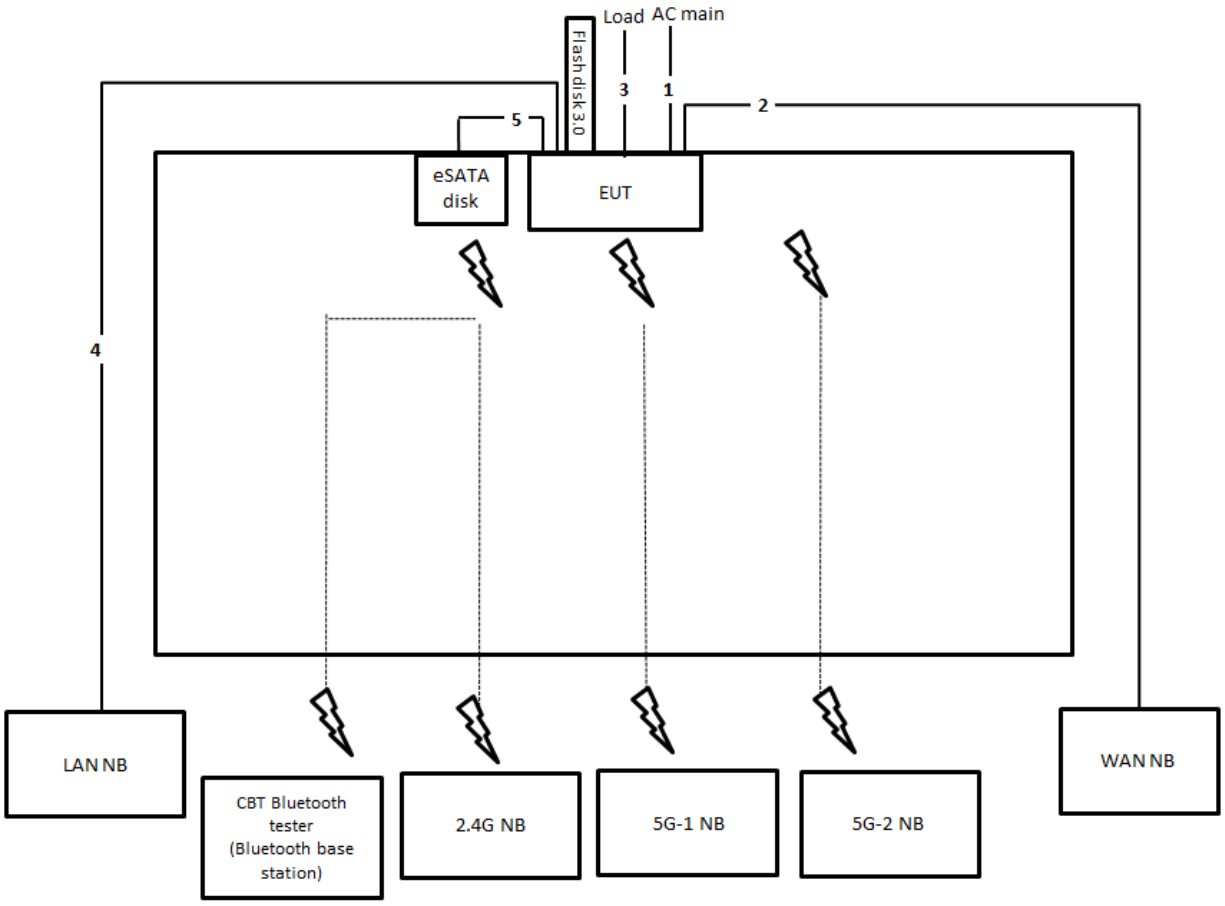
3.11.1. AC Power Line Conduction Emissions Test Configuration



Item	Connection	Shielded	Length
1	Power cable	No	1.5m
2	RJ-45 cable*3	No	1.5m
3	RJ-45 cable	No	10m
4	RJ-45 cable	No	10m
5	USB cable	Yes	0.5m

3.11.2. Radiation Emissions Test Configuration

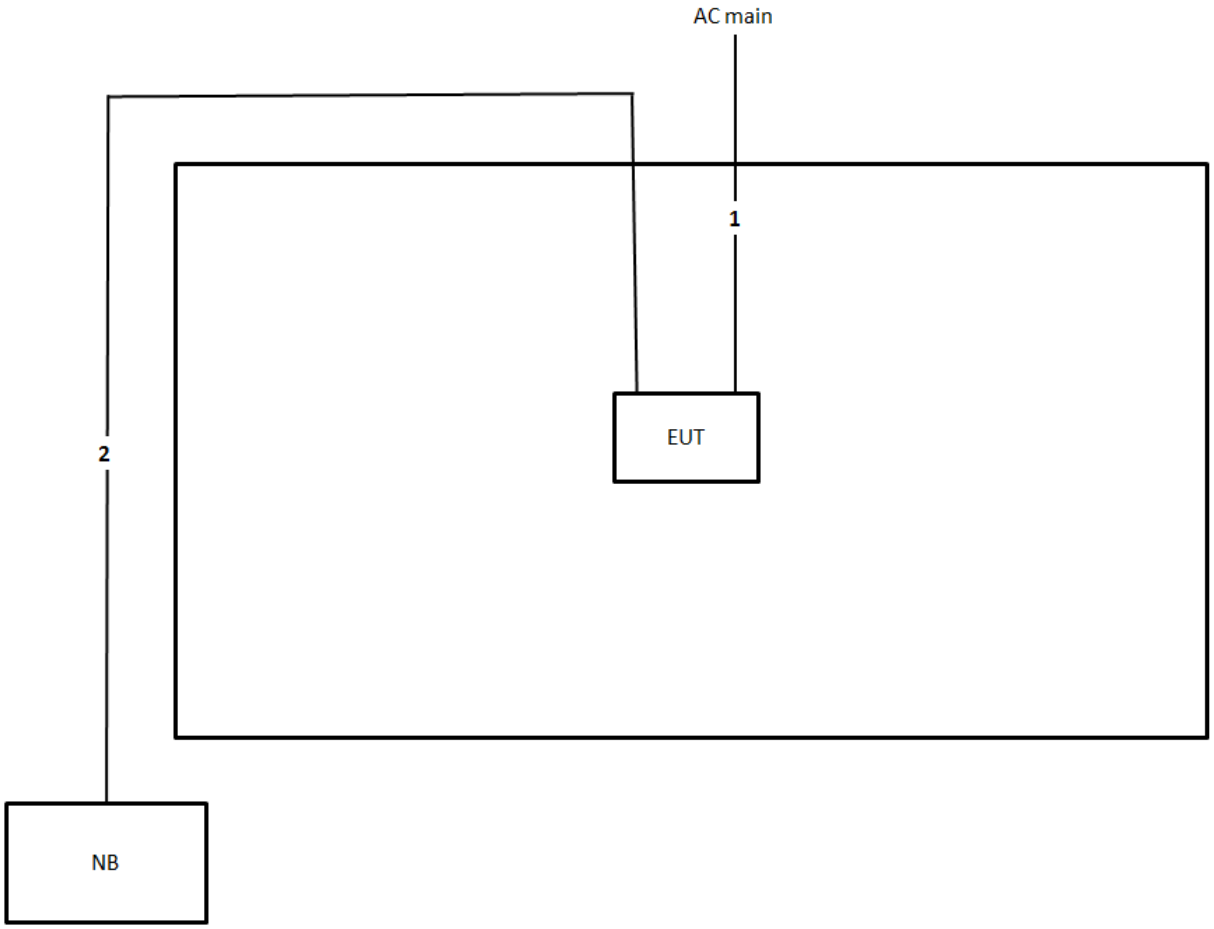
Test Configuration: 30MHz~1GHz



Item	Connection	Shielded	Length
1	Power cable	No	1.5m
2	RJ-45 cable	No	10m
3	RJ-45 cable*3	No	1.5m
4	RJ-45 cable	No	10m
5	USB cable	Yes	0.5m

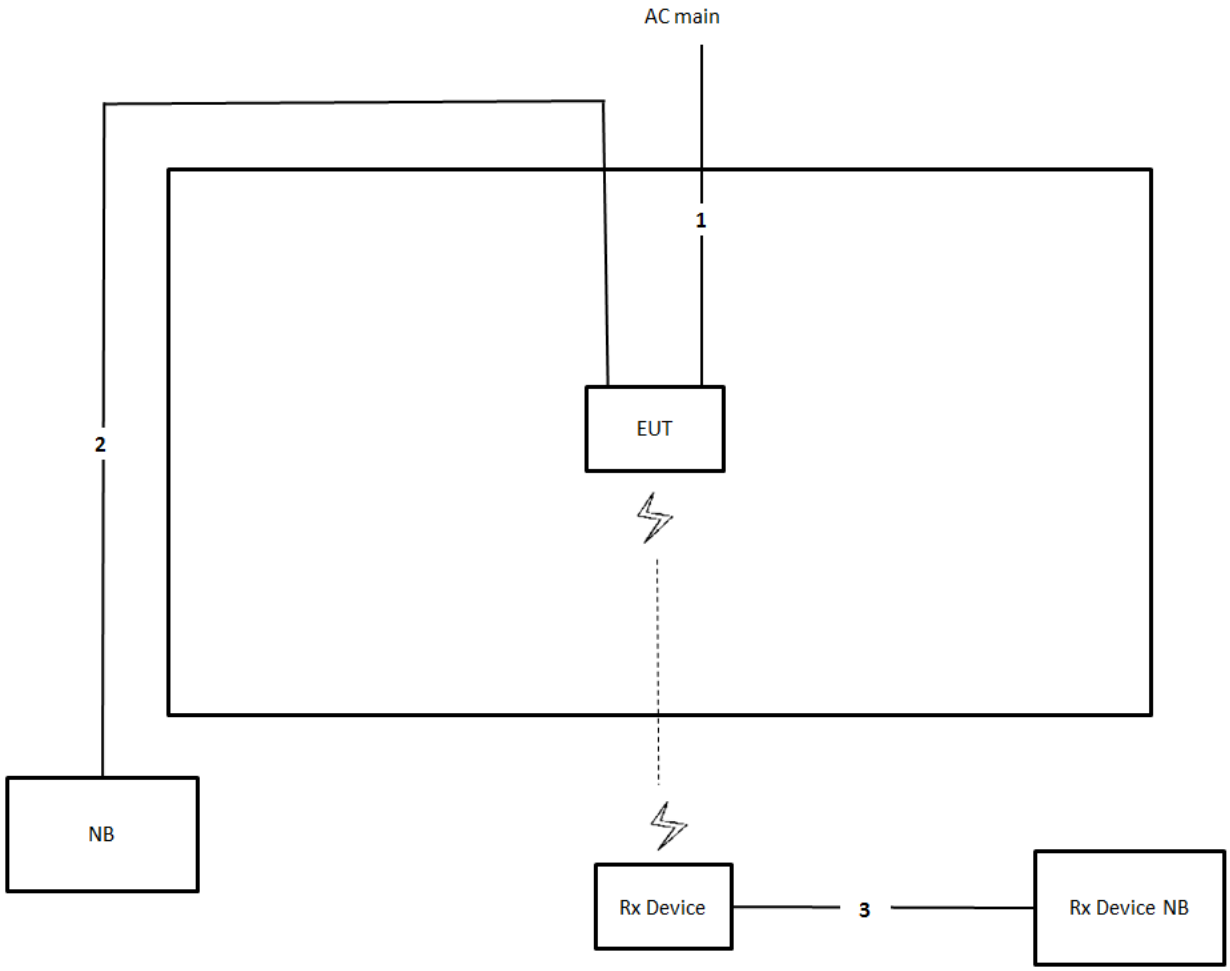
Test Configuration: above 1GHz

For non-beamforming function:



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

For beamforming function:



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

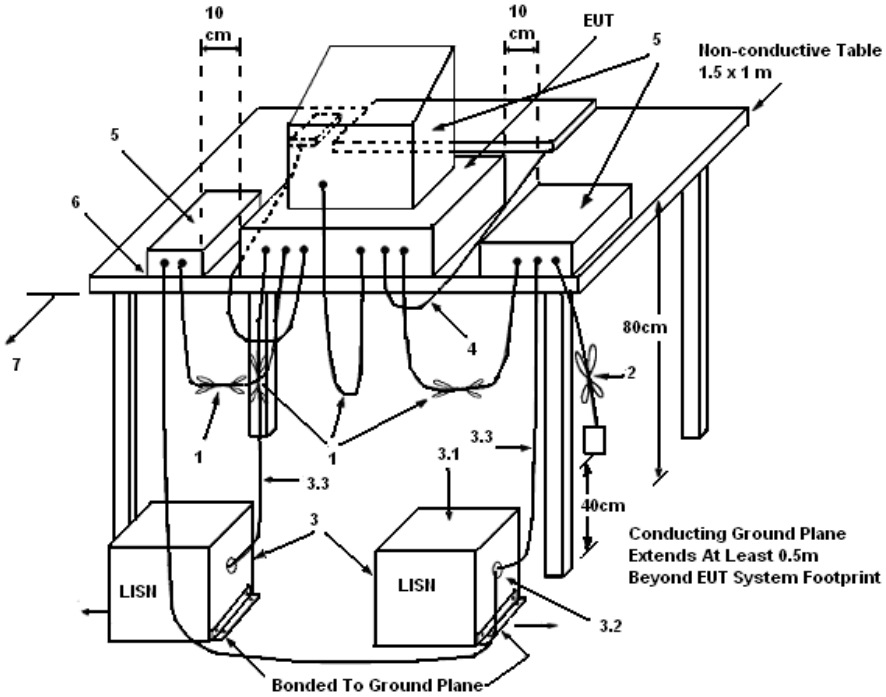
Please refer to section 5 of equipments list in this report. The following table is the setting of the receiver.

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

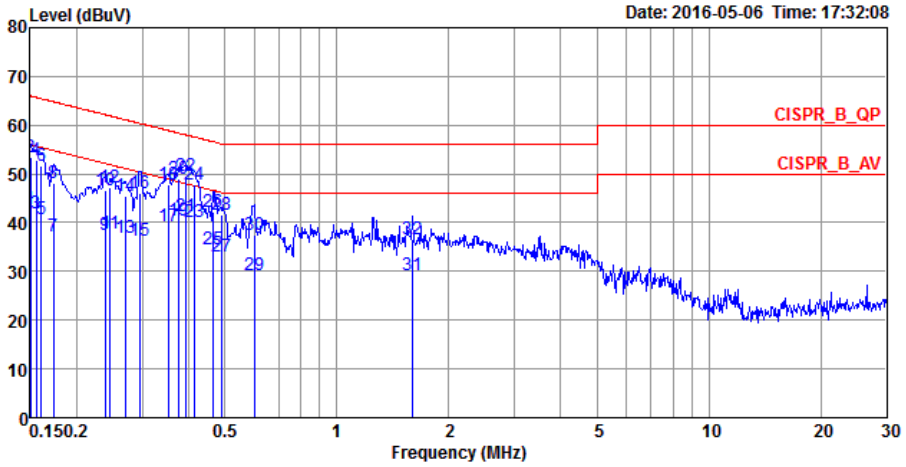
There is no deviation with the original standard.

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

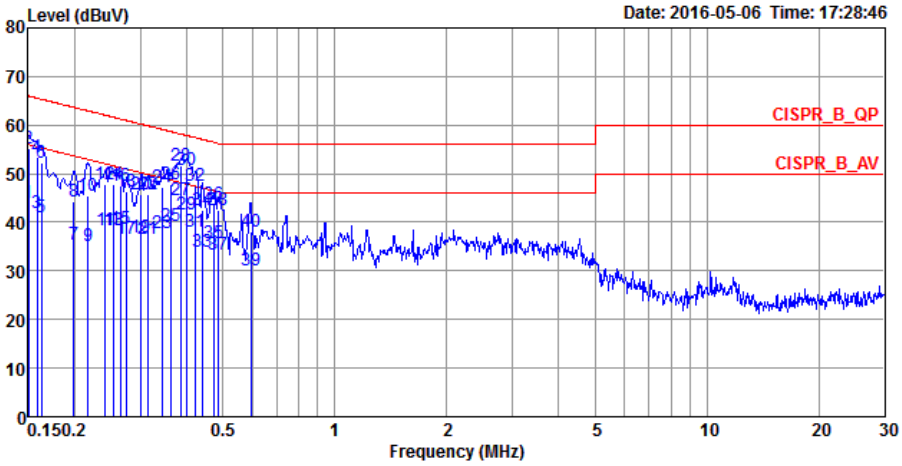
Temperature	22°C	Humidity	62%
Test Engineer	Deven Huang	Phase	Line
Configuration	Normal Link	Test Mode	Mode 2



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.1500	42.76	-13.24	56.00	32.72	10.02	0.02	LINE	Average
2	0.1500	53.53	-12.47	66.00	43.49	10.02	0.02	LINE	QP
3	0.1557	41.90	-13.79	55.69	31.86	10.02	0.02	LINE	Average
4	0.1557	52.70	-12.99	65.69	42.66	10.02	0.02	LINE	QP
5	0.1607	40.83	-14.60	55.43	30.79	10.02	0.02	LINE	Average
6	0.1607	51.59	-13.84	65.43	41.55	10.02	0.02	LINE	QP
7	0.1731	37.18	-17.63	54.81	27.14	10.02	0.02	LINE	Average
8	0.1731	48.19	-16.62	64.81	38.15	10.02	0.02	LINE	QP
9	0.2378	37.48	-14.69	52.17	27.53	9.92	0.03	LINE	Average
10	0.2378	46.75	-15.42	62.17	36.80	9.92	0.03	LINE	QP
11	0.2455	37.78	-14.13	51.91	27.83	9.92	0.03	LINE	Average
12	0.2455	47.22	-14.69	61.91	37.27	9.92	0.03	LINE	QP
13	0.2701	36.85	-14.27	51.12	26.90	9.92	0.03	LINE	Average
14	0.2701	45.47	-15.65	61.12	35.52	9.92	0.03	LINE	QP
15	0.2955	36.31	-14.06	50.37	26.35	9.92	0.04	LINE	Average
16	0.2955	45.93	-14.44	60.37	35.97	9.92	0.04	LINE	QP
17	0.3520	39.40	-9.51	48.91	29.44	9.92	0.04	LINE	Average

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
18	0.3520	47.73	-11.18	58.91	37.77	9.92	0.04	LINE	QP
19	0.3771	40.58	-7.76	48.34	30.62	9.92	0.04	LINE	Average
20	0.3771	48.88	-9.46	58.34	38.92	9.92	0.04	LINE	QP
21	0.3914	41.39	-6.64	48.03	31.43	9.92	0.04	LINE	Average
22	0.3914	49.57	-8.46	58.03	39.61	9.92	0.04	LINE	QP
23	0.4127	40.15	-7.44	47.59	30.19	9.92	0.04	LINE	Average
24	0.4127	47.93	-9.66	57.59	37.97	9.92	0.04	LINE	QP
25	0.4661	34.39	-12.19	46.58	24.43	9.92	0.04	LINE	Average
26	0.4661	42.29	-14.29	56.58	32.33	9.92	0.04	LINE	QP
27	0.4889	33.06	-13.13	46.19	23.10	9.92	0.04	LINE	Average
28	0.4889	41.74	-14.45	56.19	31.78	9.92	0.04	LINE	QP
29	0.6011	29.21	-16.79	46.00	19.24	9.93	0.04	LINE	Average
30	0.6011	37.41	-18.59	56.00	27.44	9.93	0.04	LINE	QP
31	1.6020	29.31	-16.69	46.00	19.30	9.95	0.06	LINE	Average
32	1.6020	36.67	-19.33	56.00	26.66	9.95	0.06	LINE	QP

Temperature	22°C	Humidity	62%
Test Engineer	Deven Huang	Phase	Neutral
Configuration	Normal Link	Test Mode	Mode 2



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.1500	43.96	-12.04	56.00	33.92	10.02	0.02	NEUTRAL	Average
2	0.1500	55.29	-10.71	66.00	45.25	10.02	0.02	NEUTRAL	QP
3	0.1582	41.92	-13.64	55.56	31.88	10.02	0.02	NEUTRAL	Average
4	0.1582	53.34	-12.22	65.56	43.30	10.02	0.02	NEUTRAL	QP
5	0.1624	40.91	-14.43	55.34	30.87	10.02	0.02	NEUTRAL	Average
6	0.1624	52.37	-12.97	65.34	42.33	10.02	0.02	NEUTRAL	QP
7	0.1986	35.53	-18.14	53.67	25.59	9.92	0.02	NEUTRAL	Average
8	0.1986	44.42	-19.25	63.67	34.48	9.92	0.02	NEUTRAL	QP
9	0.2174	35.16	-17.76	52.92	25.22	9.92	0.02	NEUTRAL	Average
10	0.2174	45.41	-17.51	62.92	35.47	9.92	0.02	NEUTRAL	QP
11	0.2416	38.47	-13.57	52.04	28.52	9.92	0.03	NEUTRAL	Average
12	0.2416	47.88	-14.16	62.04	37.93	9.92	0.03	NEUTRAL	QP
13	0.2535	38.40	-13.24	51.64	28.45	9.92	0.03	NEUTRAL	Average
14	0.2535	47.70	-13.94	61.64	37.75	9.92	0.03	NEUTRAL	QP
15	0.2658	38.79	-12.46	51.25	28.84	9.92	0.03	NEUTRAL	Average
16	0.2658	47.41	-13.84	61.25	37.46	9.92	0.03	NEUTRAL	QP
17	0.2759	36.47	-14.47	50.94	26.51	9.92	0.04	NEUTRAL	Average

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
18	0.2759	46.34	-14.60	60.94	36.38	9.92	0.04	NEUTRAL	QP
19	0.3003	37.01	-13.23	50.24	27.05	9.92	0.04	NEUTRAL	Average
20	0.3003	45.62	-14.62	60.24	35.66	9.92	0.04	NEUTRAL	QP
21	0.3149	36.74	-13.10	49.84	26.78	9.92	0.04	NEUTRAL	Average
22	0.3149	45.86	-13.98	59.84	35.90	9.92	0.04	NEUTRAL	QP
23	0.3446	37.74	-11.35	49.09	27.78	9.92	0.04	NEUTRAL	Average
24	0.3446	47.34	-11.75	59.09	37.38	9.92	0.04	NEUTRAL	QP
25	0.3615	39.39	-9.30	48.69	29.43	9.92	0.04	NEUTRAL	Average
26	0.3615	47.91	-10.78	58.69	37.95	9.92	0.04	NEUTRAL	QP
27	0.3852	44.45	-3.72	48.17	34.49	9.92	0.04	NEUTRAL	Average
28	0.3852	51.57	-6.60	58.17	41.61	9.92	0.04	NEUTRAL	QP
29	0.3997	41.59	-6.27	47.86	31.63	9.92	0.04	NEUTRAL	Average
30	0.3997	50.66	-7.20	57.86	40.70	9.92	0.04	NEUTRAL	QP
31	0.4215	37.93	-9.49	47.42	27.97	9.92	0.04	NEUTRAL	Average
32	0.4215	47.56	-9.86	57.42	37.60	9.92	0.04	NEUTRAL	QP
33	0.4421	33.99	-13.03	47.02	24.03	9.92	0.04	NEUTRAL	Average
34	0.4421	42.41	-14.61	57.02	32.45	9.92	0.04	NEUTRAL	QP
35	0.4711	35.87	-10.62	46.49	25.91	9.92	0.04	NEUTRAL	Average
36	0.4711	43.79	-12.70	56.49	33.83	9.92	0.04	NEUTRAL	QP
37	0.4863	33.49	-12.74	46.23	23.53	9.92	0.04	NEUTRAL	Average
38	0.4863	42.49	-13.74	56.23	32.53	9.92	0.04	NEUTRAL	QP
39	0.5948	30.14	-15.86	46.00	20.17	9.93	0.04	NEUTRAL	Average
40	0.5948	38.05	-17.95	56.00	28.08	9.93	0.04	NEUTRAL	QP

Note:

Level = Read Level + LISN Factor + Cable Loss.

4.2. Maximum Conducted Output Power Measurement

4.2.1. Limit

The limit for output power is 30dBm.

4.2.2. Measuring Instruments and Setting

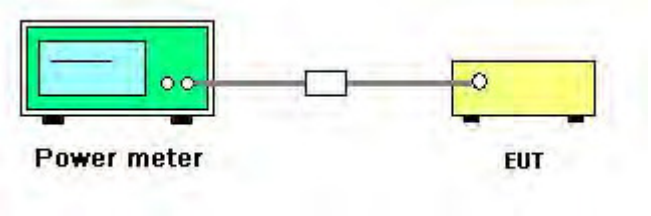
Please refer to section 5 of equipments list in this report. The following table is the setting of the power meter.

Power Meter Parameter	Setting
Bandwidth	50MHz bandwidth is greater than the EUT emission bandwidth
Detector	Average

4.2.3. Test Procedures

1. Test procedures refer KDB558074 D01 v03r05 section 9.2.3.2 Measurement using a power meter (PM).
2. Multiple antenna systems 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	22℃	Humidity	64%
Test Engineer	Akina Chiu	Test Function	Non-beamforming function
Test Date	May 23, 2016~May 24, 2016		

Mode	Frequency	Conducted Power (dBm)					Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Chain 4	Total		
802.11b	2412 MHz	20.02	20.53	19.67	19.79	26.04	30.00	Complies
	2437 MHz	23.12	23.08	22.94	23.18	29.10	30.00	Complies
	2462 MHz	20.58	21.23	20.71	20.28	26.73	30.00	Complies
802.11g	2412 MHz	15.39	15.62	15.21	15.73	21.51	30.00	Complies
	2437 MHz	22.45	22.48	21.88	22.52	28.36	30.00	Complies
	2462 MHz	13.46	13.72	13.27	13.58	19.53	30.00	Complies
802.11ac MCS0/Nss1 VHT20	2412 MHz	14.98	14.52	14.06	14.92	20.66	30.00	Complies
	2437 MHz	22.63	22.34	21.86	22.84	28.45	30.00	Complies
	2462 MHz	13.25	13.68	13.31	13.74	19.52	30.00	Complies
802.11ac MCS0/Nss1 VHT40	2422 MHz	14.33	14.14	13.68	14.51	20.20	30.00	Complies
	2437 MHz	17.25	17.13	16.65	17.36	23.13	30.00	Complies
	2452 MHz	14.54	14.59	14.07	14.56	20.47	30.00	Complies

Temperature	22℃	Humidity	64%
Test Engineer	Akina Chiu	Test Function	Beamforming function
Test Date	May 23, 2016~Jun. 01, 2016		

Mode	Frequency	Conducted Power (dBm)					Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Chain 4	Total		
802.11g	2412 MHz	16.61	16.02	16.15	15.79	22.17	28.91	Complies
	2437 MHz	17.09	16.56	16.55	16.52	22.71	28.91	Complies
	2462 MHz	16.01	15.68	15.52	15.42	21.68	28.91	Complies
802.11ac MCS0/Nss1 VHT20	2412 MHz	14.08	14.27	14.33	14.62	20.35	28.91	Complies
	2437 MHz	21.15	21.66	21.72	21.45	27.52	28.91	Complies
	2462 MHz	16.32	16.87	16.91	16.77	22.74	28.91	Complies
802.11ac MCS0/Nss1 VHT40	2422 MHz	16.91	16.85	16.91	16.97	22.93	28.91	Complies
	2437 MHz	19.19	19.12	19.25	19.32	25.24	28.91	Complies
	2452 MHz	17.15	16.88	16.92	16.98	23.00	28.91	Complies

Note: $Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =7.09dBi >6dBi, so limit=30 – (7.09 – 6)=28.91dBm.

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 8 dBm in any 3 kHz band during any time interval of continuous transmission.

4.3.2. Measuring Instruments and Setting

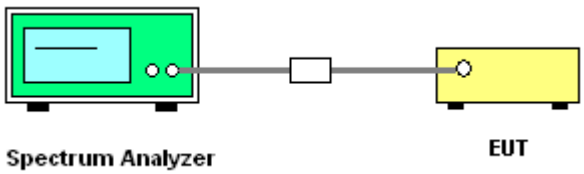
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Set the span to 1.5 times the DTS channel bandwidth.
RBW	3 kHz ≤ RBW ≤ 100kHz
VBW	≥ 3 x RBW
Detector	Peak
Trace	Max Hold
Sweep Time	Auto couple

4.3.3. Test Procedures

1. Test was performed in accordance with KDB558074 D01 v03r05 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 ≥ 2 x span/RBW (use of a greater number of measurement points than this minimum requirement is recommended).
4. Use the peak marker function to determine the maximum level in any 3 kHz band segment within the fundamental EBW.
5. The resulting PSD level must be ≤ 8 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	22°C	Humidity	64%
Test Engineer	Akina Chiu	Test Function	Non-beamforming function

Mode	Frequency	Power Density (dBm/3kHz)					Power Density Limit (dBm/3kHz)	Result
		Chain 1	Chain 2	Chain 3	Chain 4	Total		
802.11b	2412 MHz	0.80	-0.40	2.28	0.35	6.89	8.00	Complies
	2437 MHz	0.75	1.56	1.05	1.43	7.23	8.00	Complies
	2462 MHz	2.36	0.75	1.98	0.54	7.50	8.00	Complies
802.11g	2412 MHz	-9.82	-9.21	-9.43	-10.00	-3.58	8.00	Complies
	2437 MHz	-2.81	-3.45	-3.00	-3.25	2.90	8.00	Complies
	2462 MHz	-11.97	-12.69	-11.91	-11.68	-6.03	8.00	Complies
802.11ac MCS0/Nss1 VHT20	2412 MHz	-9.09	-8.70	-8.53	-8.69	-2.73	8.00	Complies
	2437 MHz	-1.24	-1.16	-1.08	-1.34	4.82	8.00	Complies
	2462 MHz	-10.77	-10.91	-10.56	-10.47	-4.65	8.00	Complies
802.11ac MCS0/Nss1 VHT40	2422 MHz	-13.60	-12.90	-12.31	-11.61	-6.52	8.00	Complies
	2437 MHz	-10.11	-9.81	-9.14	-9.42	-3.58	8.00	Complies
	2452 MHz	-12.92	-12.21	-12.23	-12.72	-6.49	8.00	Complies

Temperature	22°C	Humidity	64%
Test Engineer	Akina Chiu	Test Function	Beamforming function

Mode	Frequency	Power Density (dBm/3kHz)					Power Density Limit (dBm/3kHz)	Result
		Chain 1	Chain 2	Chain 3	Chain 4	Total		
802.11g	2412 MHz	-11.23	-11.69	-10.80	-11.07	-5.16	6.91	Complies
	2437 MHz	-10.80	-10.74	-10.78	-10.92	-4.79	6.91	Complies
	2462 MHz	-12.55	-12.42	-12.33	-12.72	-6.48	6.91	Complies
802.11ac MCS0/Nss1 VHT20	2412 MHz	-11.81	-11.54	-12.11	-11.83	-5.80	6.91	Complies
	2437 MHz	-4.48	-2.94	-2.94	-4.10	2.46	6.91	Complies
	2462 MHz	-9.31	-9.17	-9.25	-9.55	-3.30	6.91	Complies
802.11ac MCS0/Nss1 VHT40	2422 MHz	-13.98	-13.05	-12.36	-13.11	-7.07	6.91	Complies
	2437 MHz	-11.73	-12.16	-13.19	-13.70	-6.60	6.91	Complies
	2452 MHz	-12.12	-12.21	-12.47	-11.53	-6.05	6.91	Complies

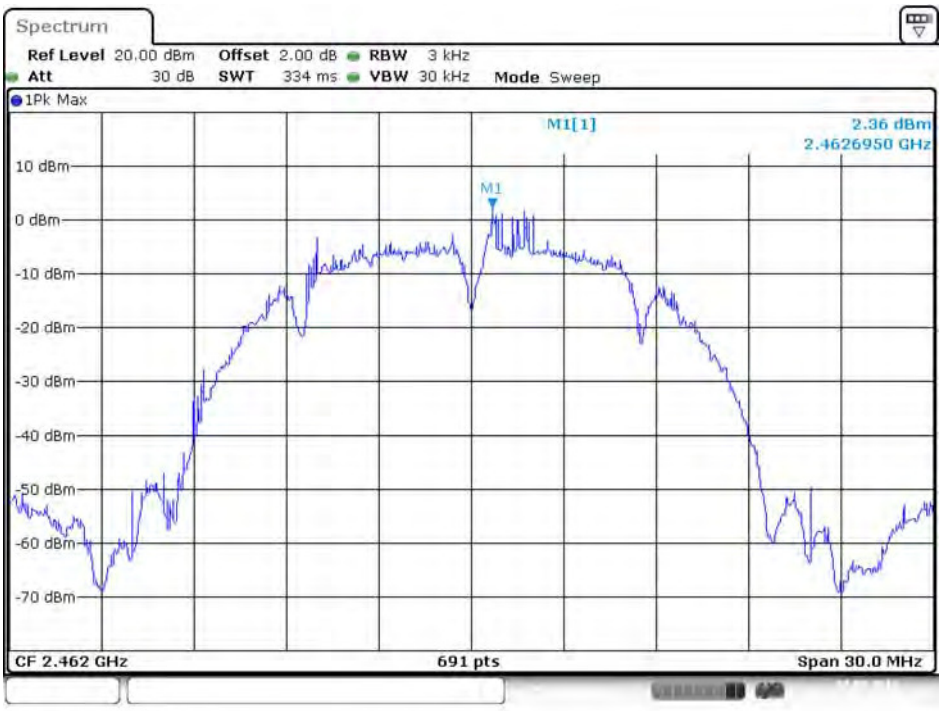
Note: $Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =7.09dBi >6dBi, so limit=8 – (7.09 – 6)=6.91dBm/3kHz.

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

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

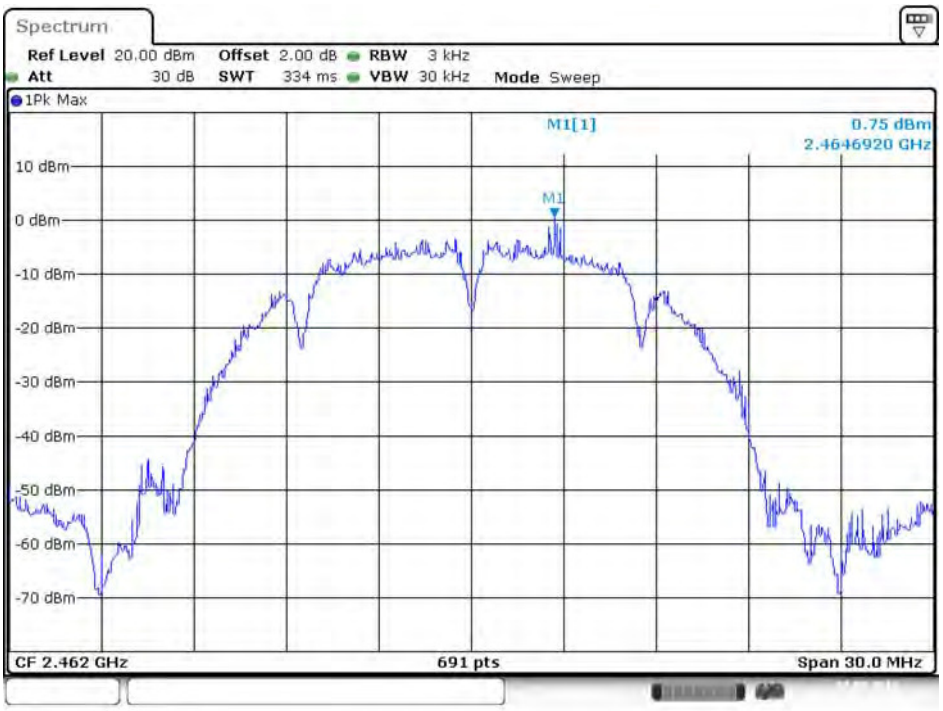
For non-beamforming function:

Power Density Plot on Configuration IEEE 802.11b / 2462 MHz / Chain 1



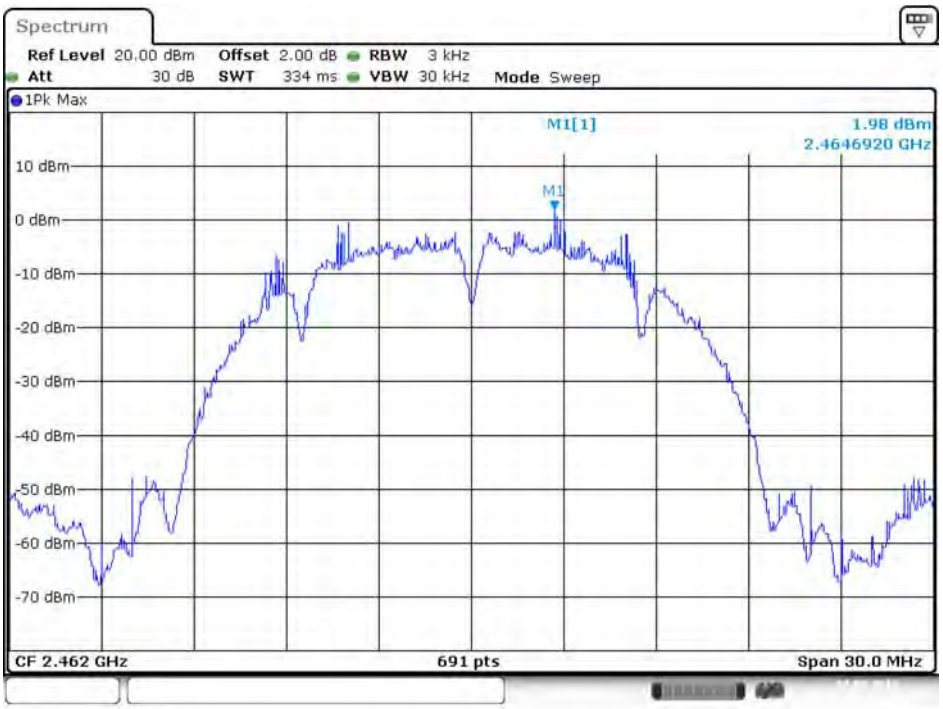
Date: 23.MAY.2016 15:13:58

Power Density Plot on Configuration IEEE 802.11b / 2462 MHz / Chain 2



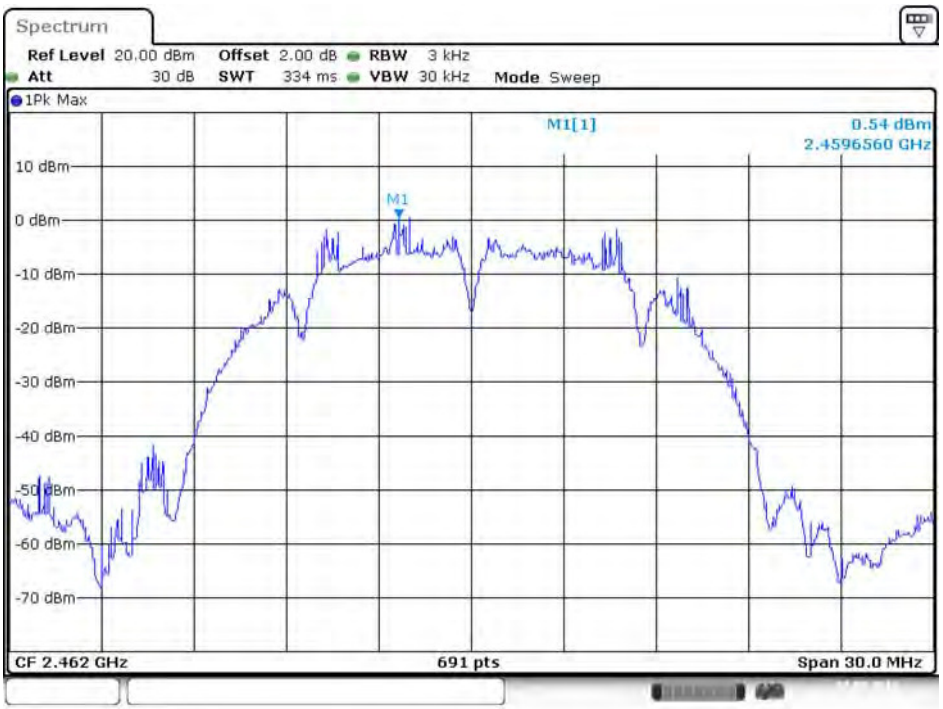
Date: 23.MAY.2016 15:13:23

Power Density Plot on Configuration IEEE 802.11b / 2462 MHz / Chain 3



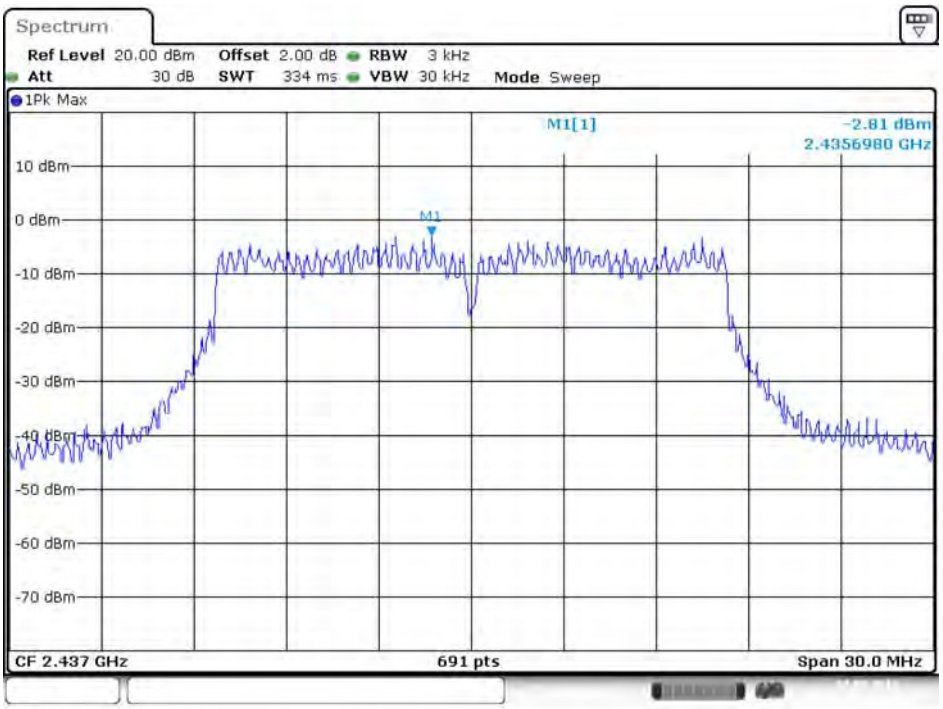
Date: 23.MAY.2016 15:12:41

Power Density Plot on Configuration IEEE 802.11b / 2462 MHz / Chain 4



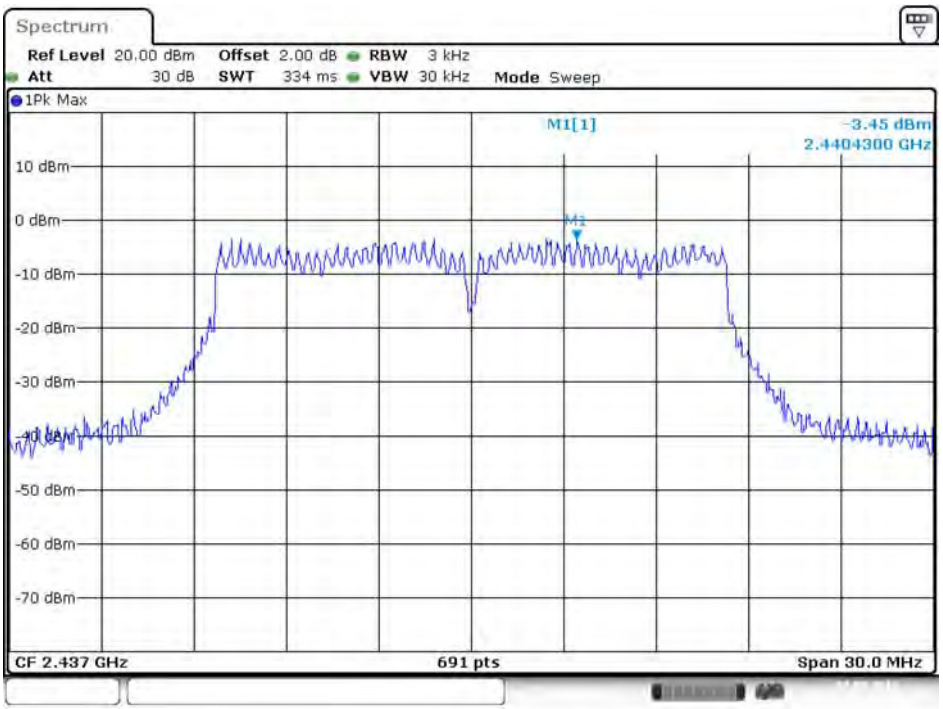
Date: 23.MAY.2016 15:12:03

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



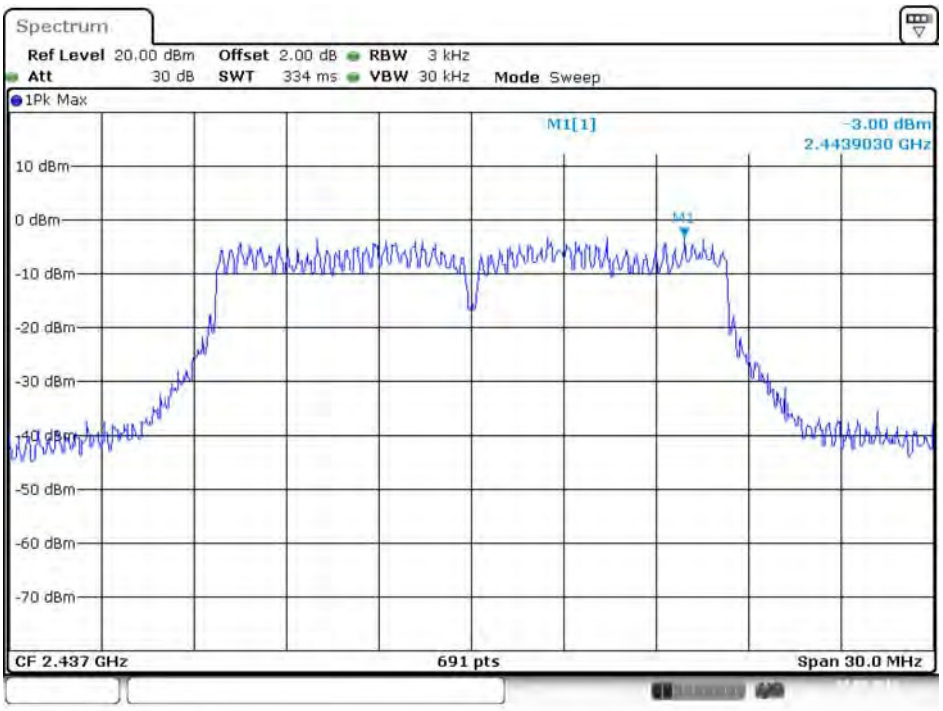
Date: 23.MAY.2016 15:25:05

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



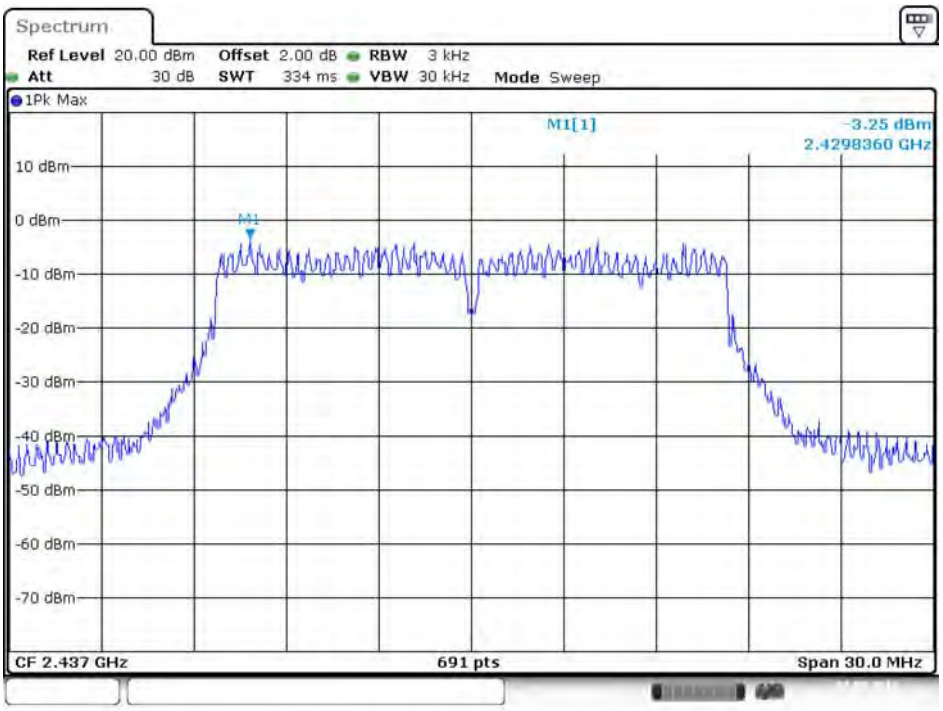
Date: 23.MAY.2016 15:24:27

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



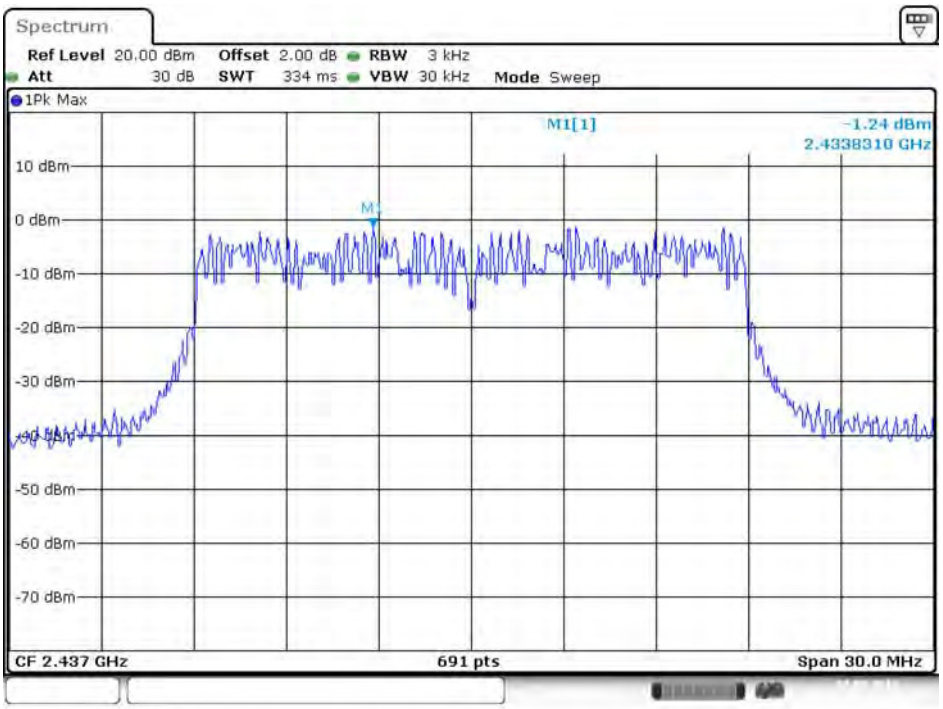
Date: 23.MAY.2016 15:23:46

Power Density Plot on Configuration IEEE 802.11g / 2437 MHz / Chain 4



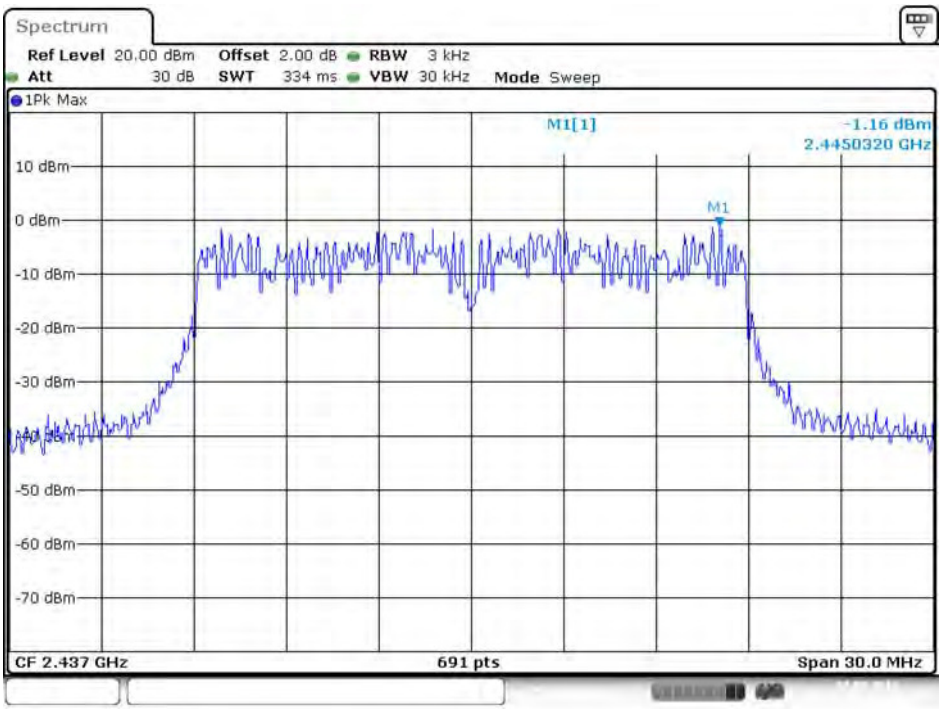
Date: 23.MAY.2016 15:23:09

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / 2437 MHz / Chain 1



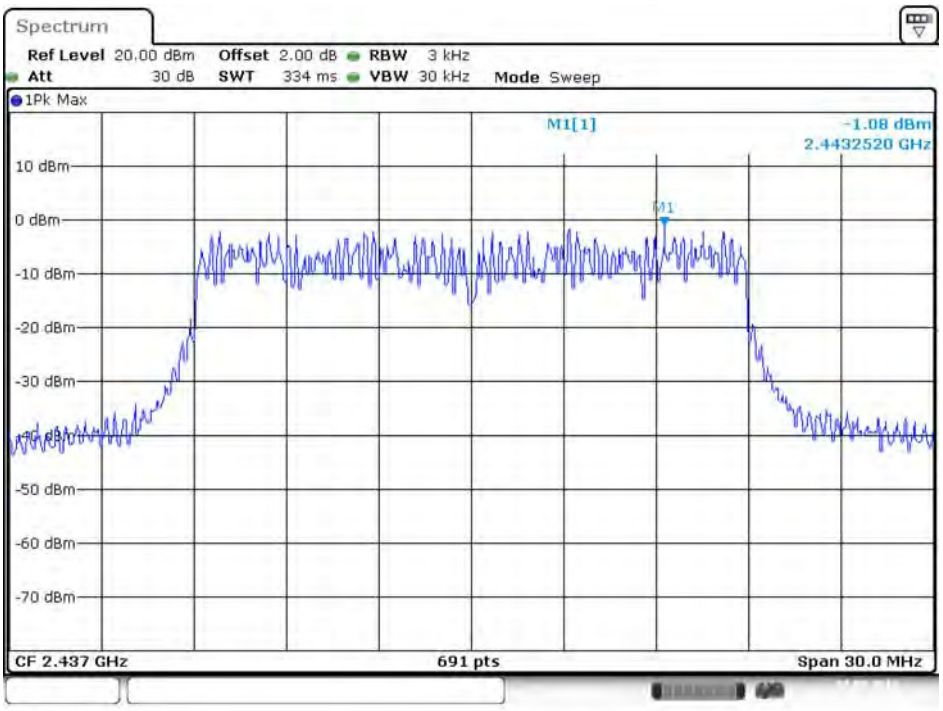
Date: 23.MAY.2016 15:42:40

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / 2437 MHz / Chain 2



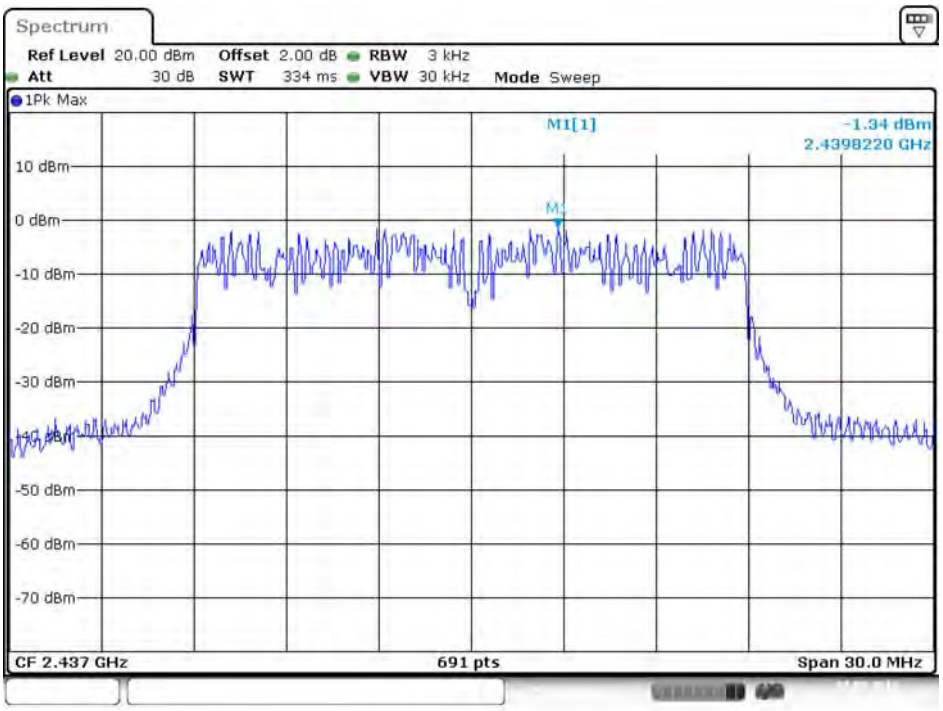
Date: 23.MAY.2016 15:43:19

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / 2437 MHz / Chain 3



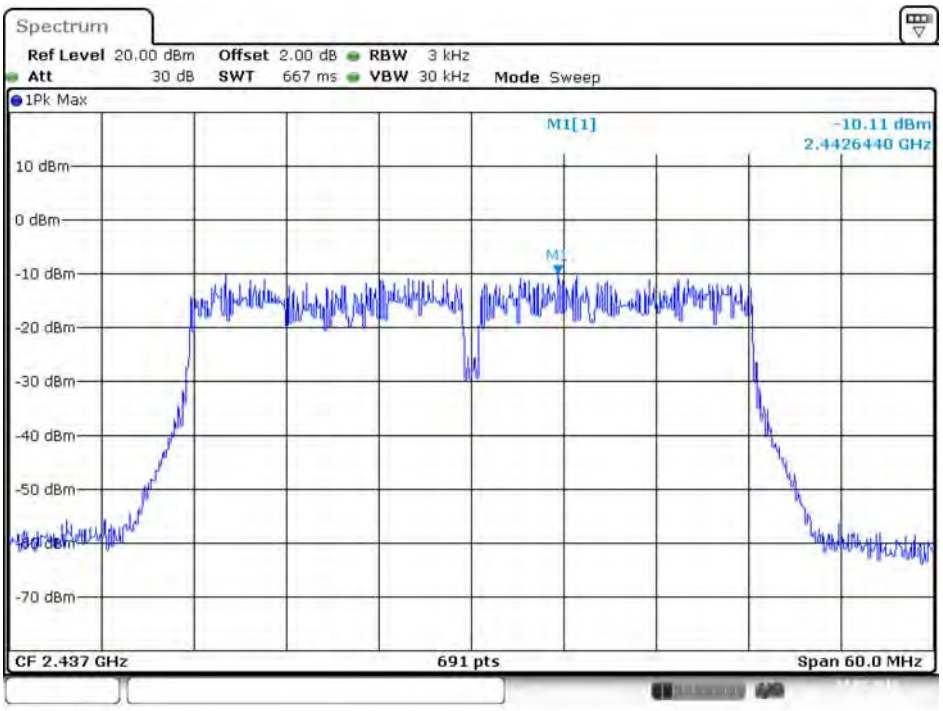
Date: 23.MAY.2016 15:43:54

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / 2437 MHz / Chain 4



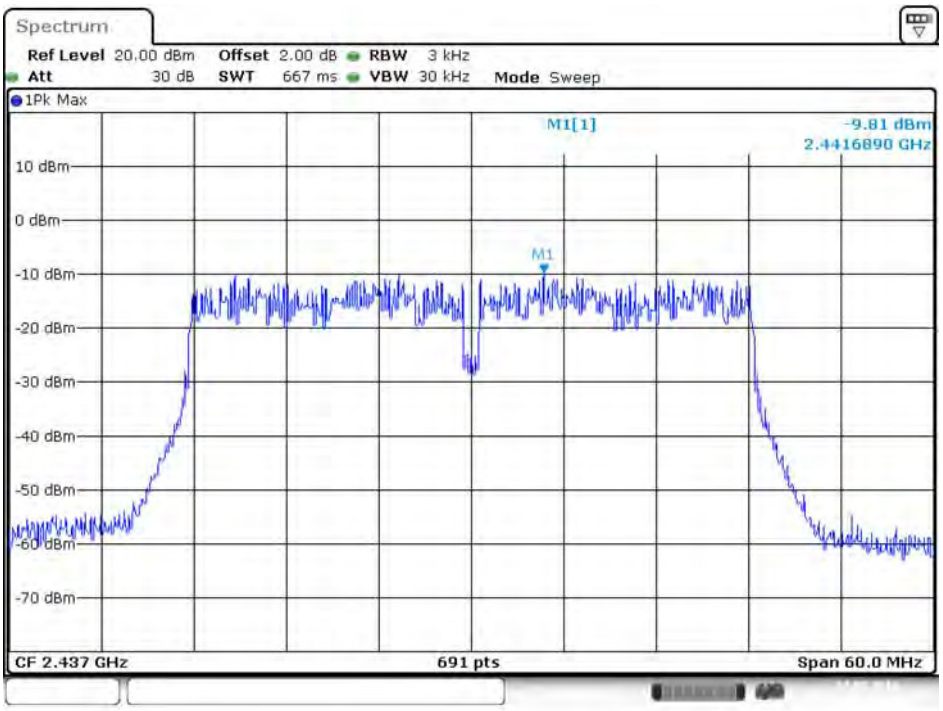
Date: 23.MAY.2016 15:44:28

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / 2437 MHz / Chain 1



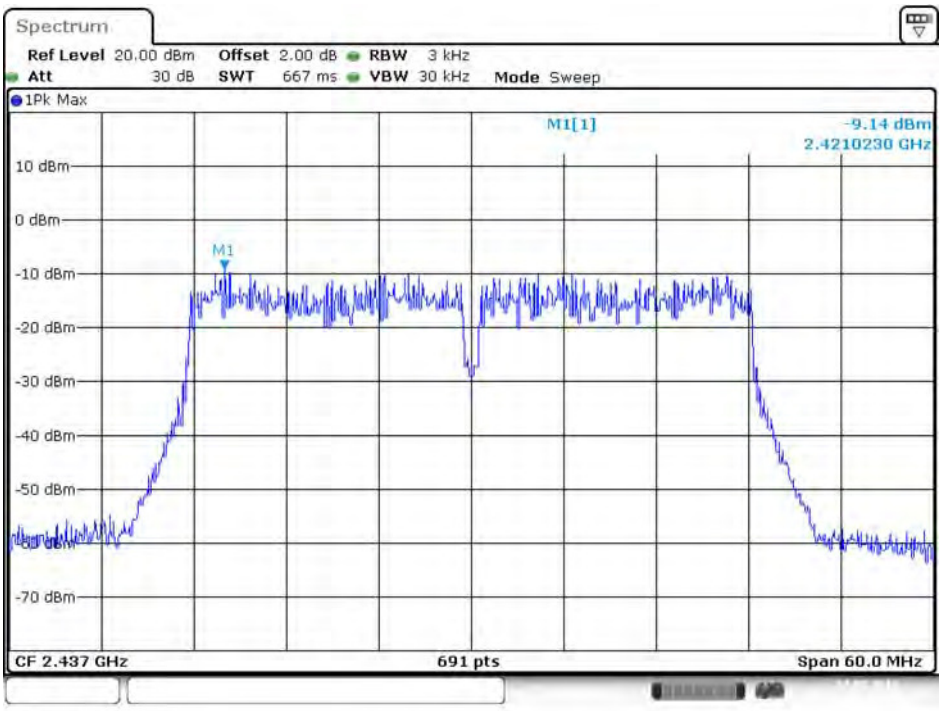
Date: 23.MAY.2016 15:56:15

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / 2437 MHz / Chain 2



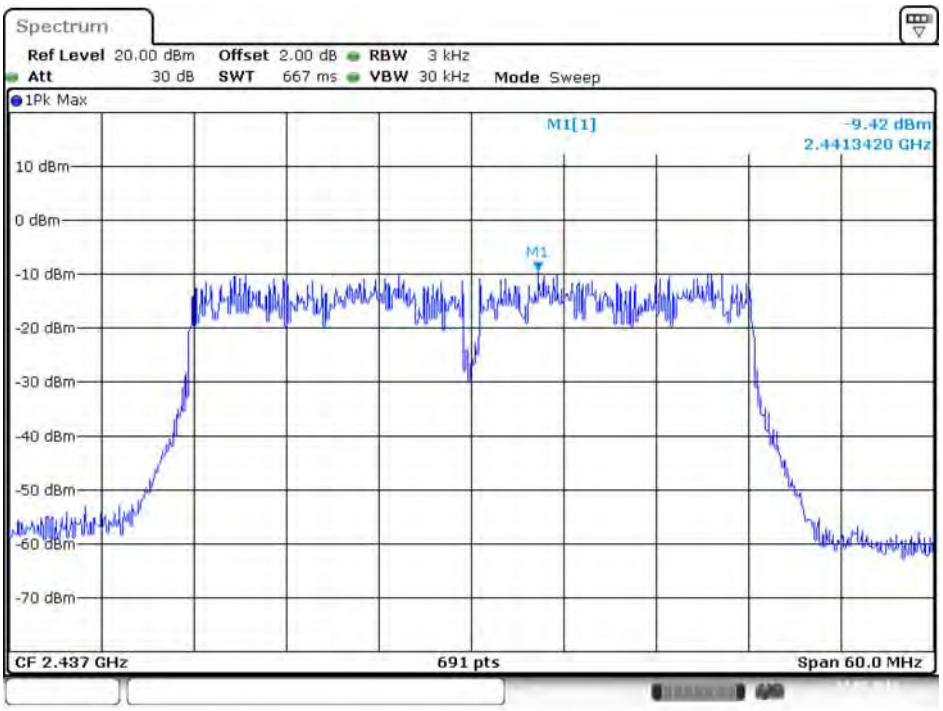
Date: 23.MAY.2016 15:55:38

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / 2437 MHz / Chain 3



Date: 23.MAY.2016 15:54:57

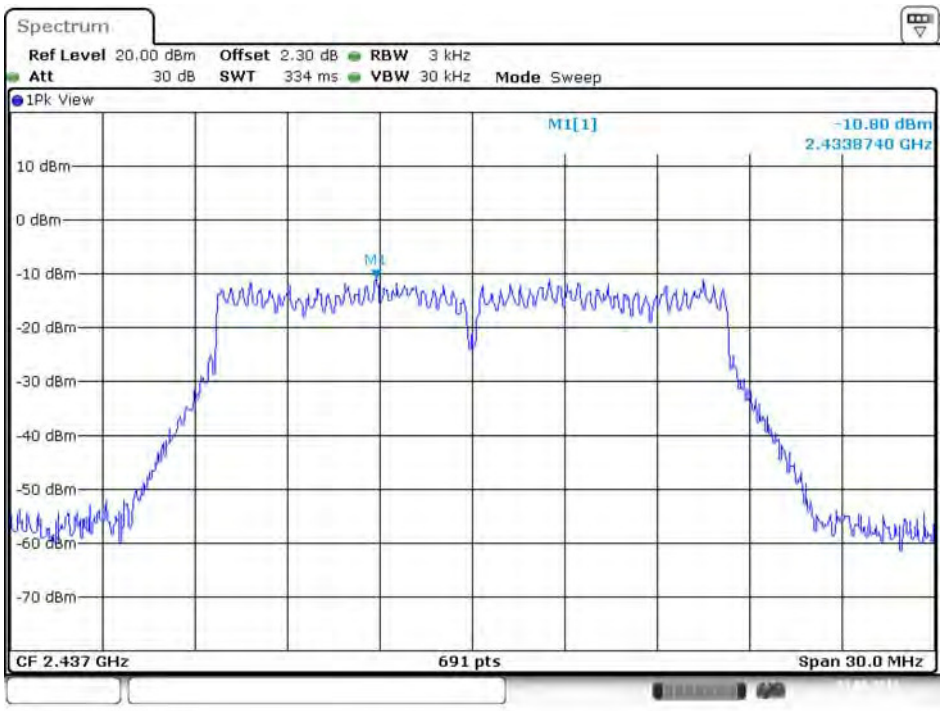
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / 2437 MHz / Chain 4



Date: 23.MAY.2016 15:54:30

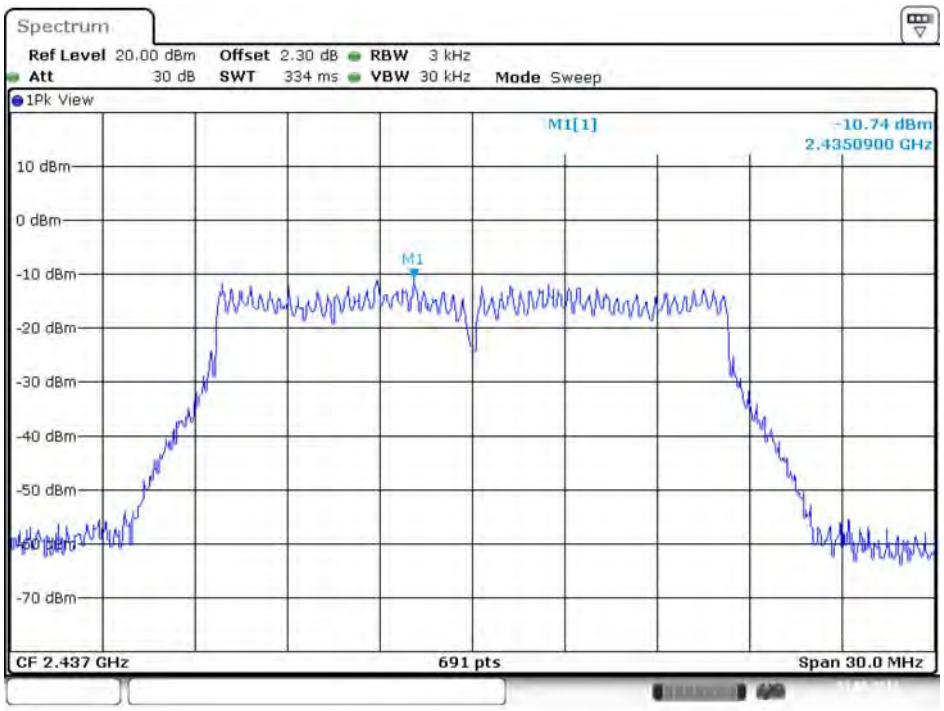
For beamforming function:

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



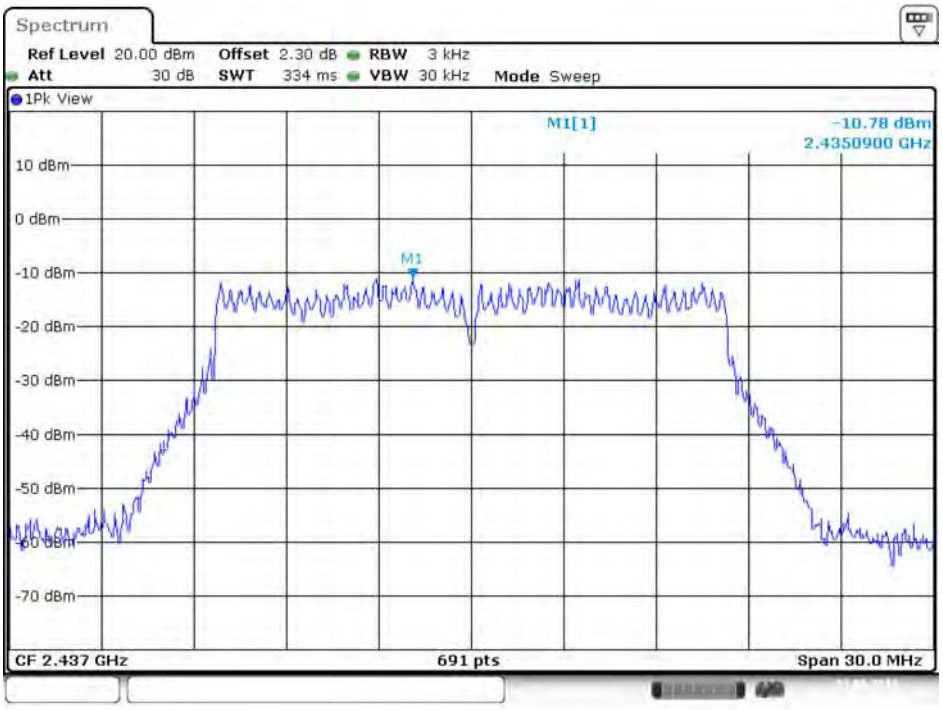
Date: 1.JUN.2016 01:57:24

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



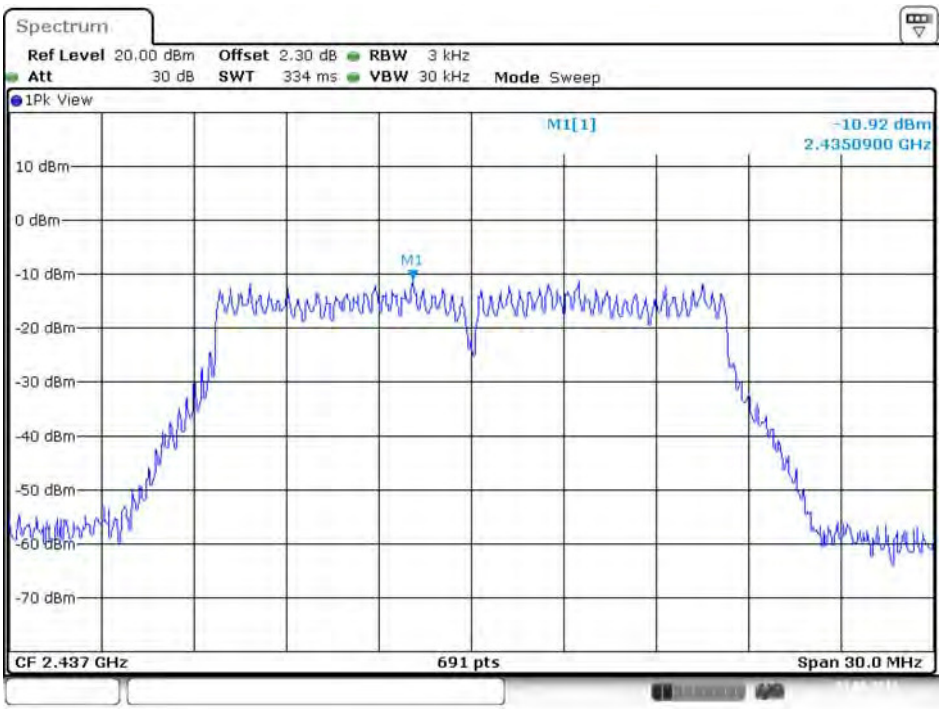
Date: 1.JUN.2016 01:57:49

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



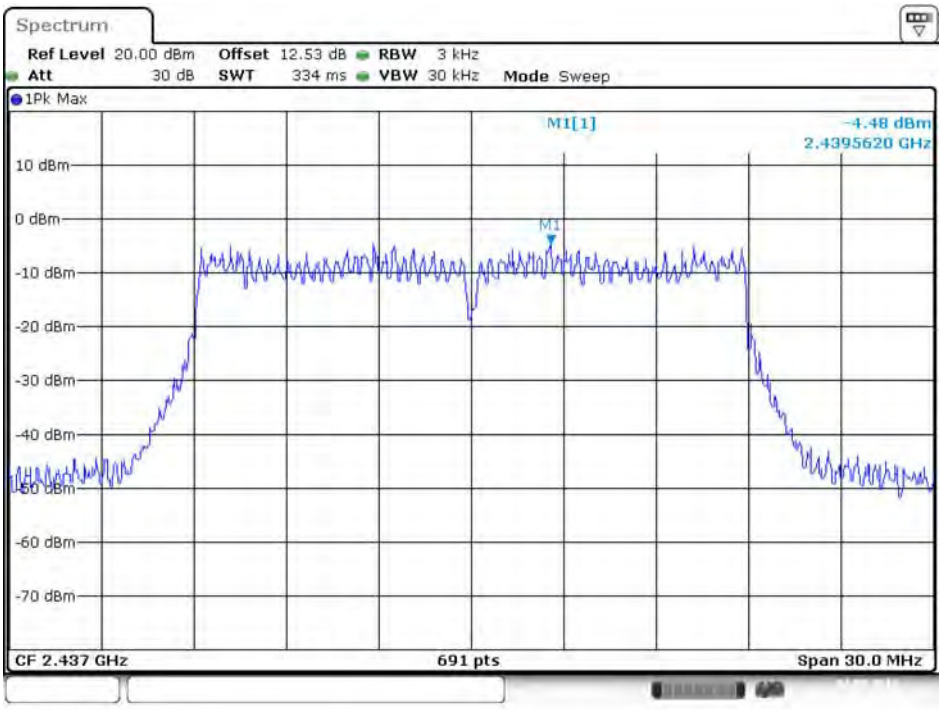
Date: 1.JUN.2016 01:58:05

Power Density Plot on Configuration IEEE 802.11g / 2437 MHz / Chain 4



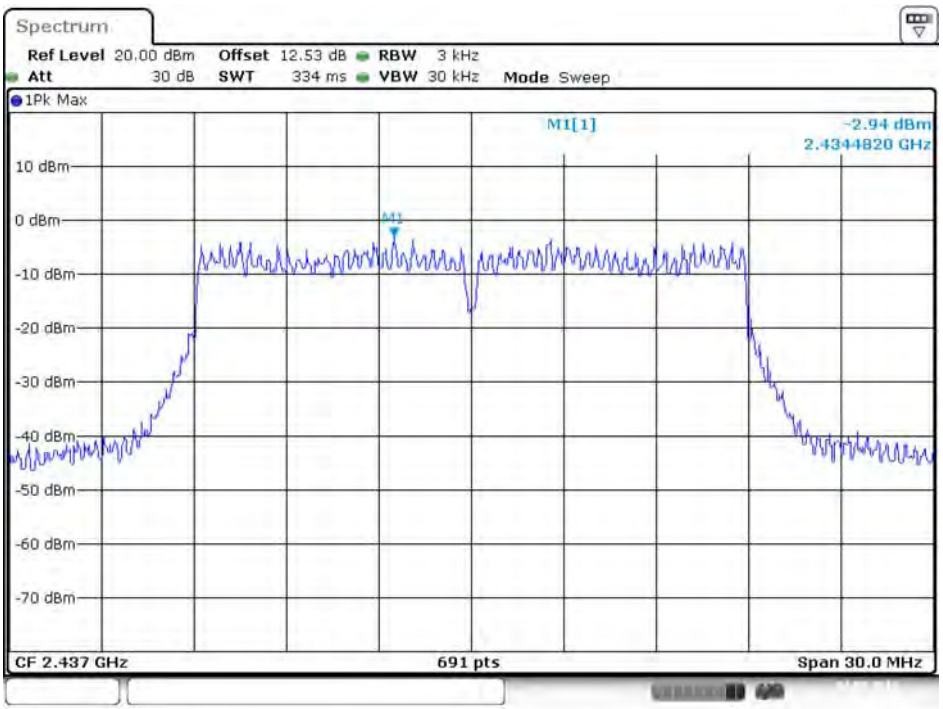
Date: 1.JUN.2016 01:58:31

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / 2437 MHz / Chain 1



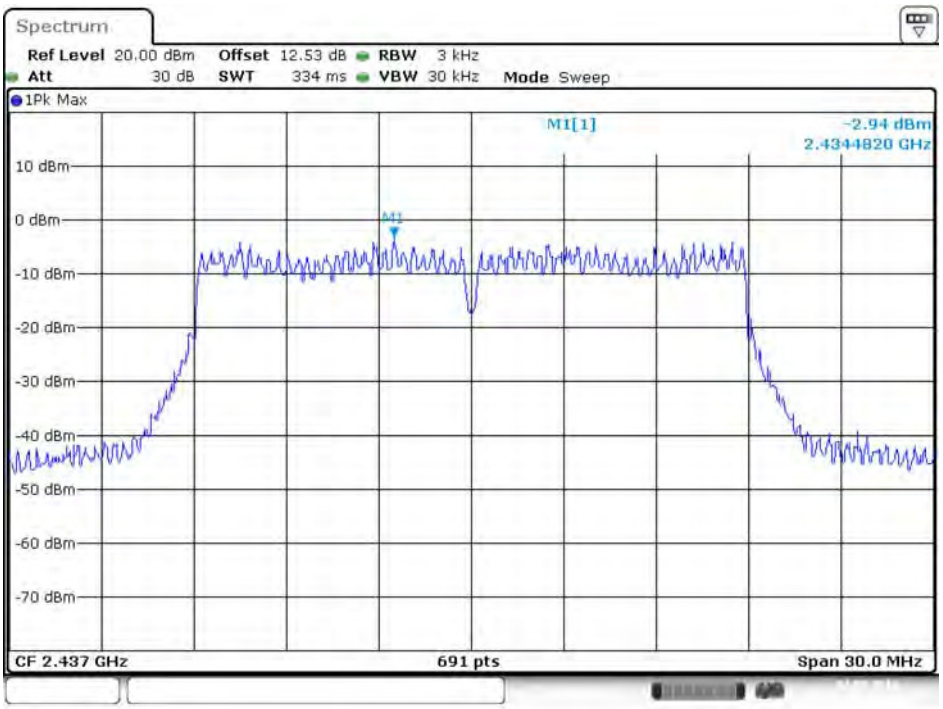
Date: 24.MAY.2016 15:08:36

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / 2437 MHz / Chain 2



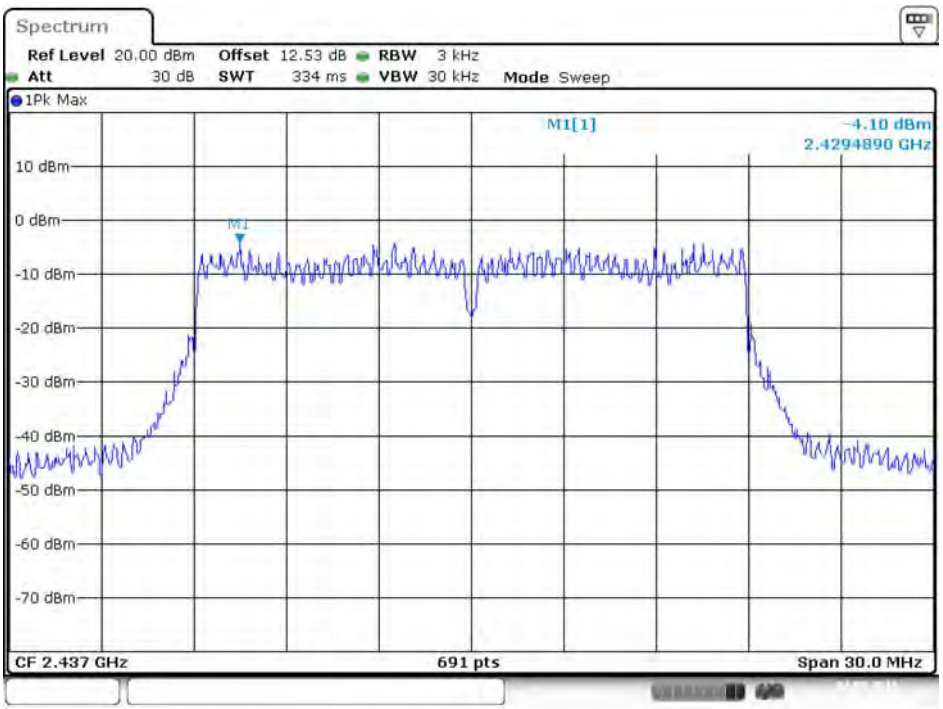
Date: 24.MAY.2016 15:08:21

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / 2437 MHz / Chain 3



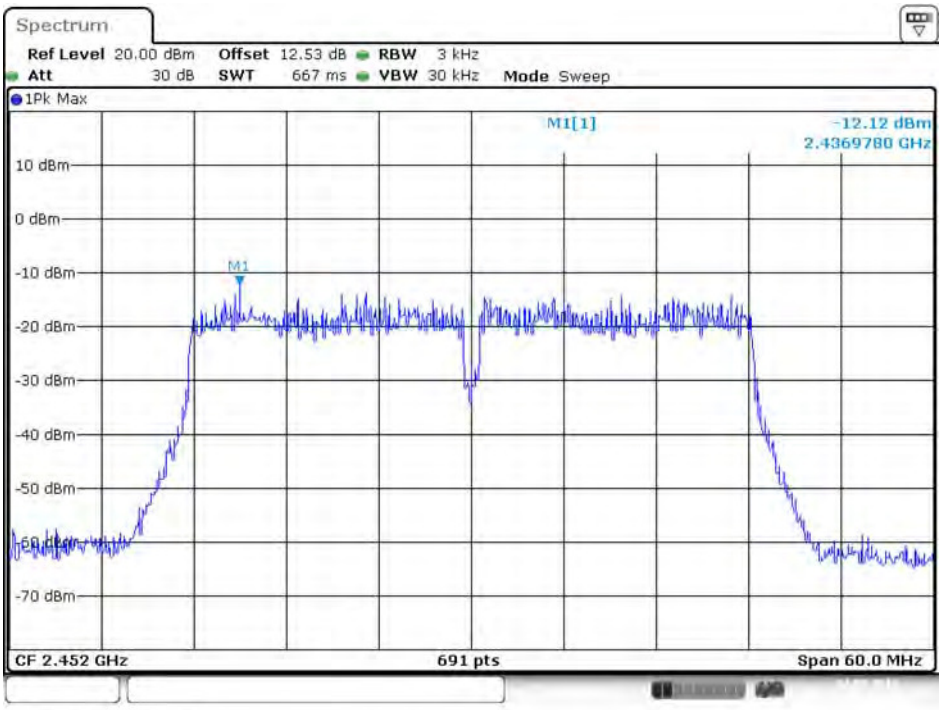
Date: 24.MAY.2016 15:08:13

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / 2437 MHz / Chain 4



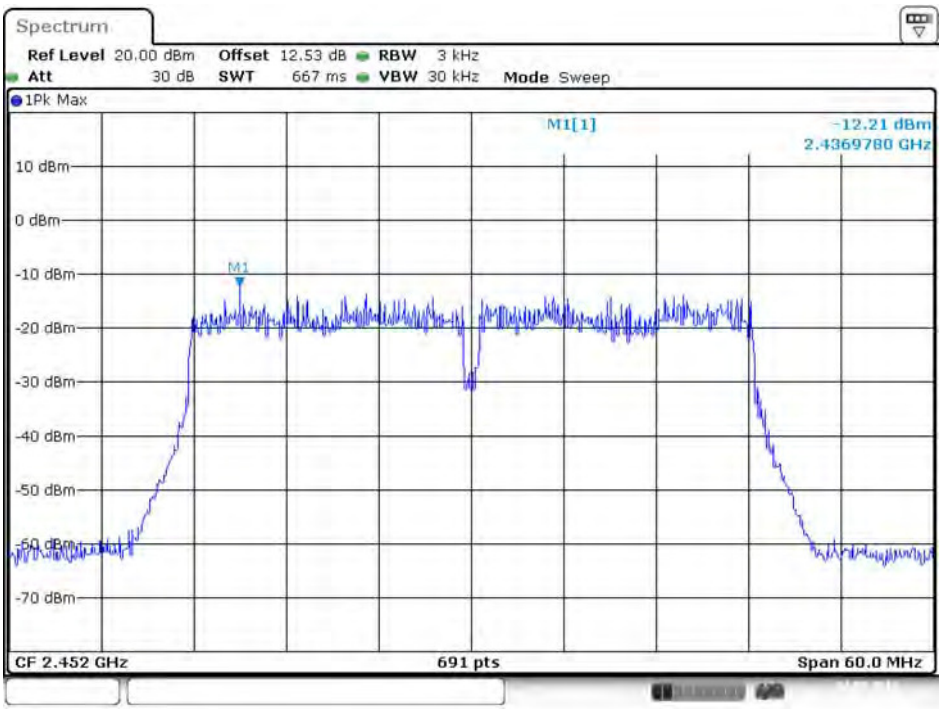
Date: 24.MAY.2016 15:08:03

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / 2452 MHz / Chain 1



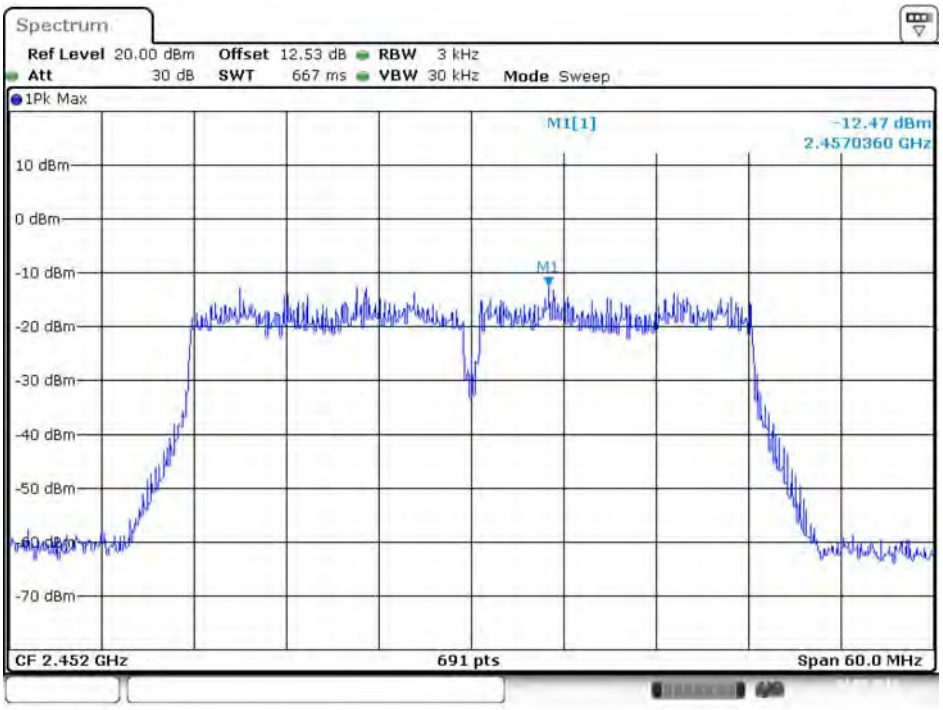
Date: 24.MAY.2016 15:26:40

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / 2452 MHz / Chain 2



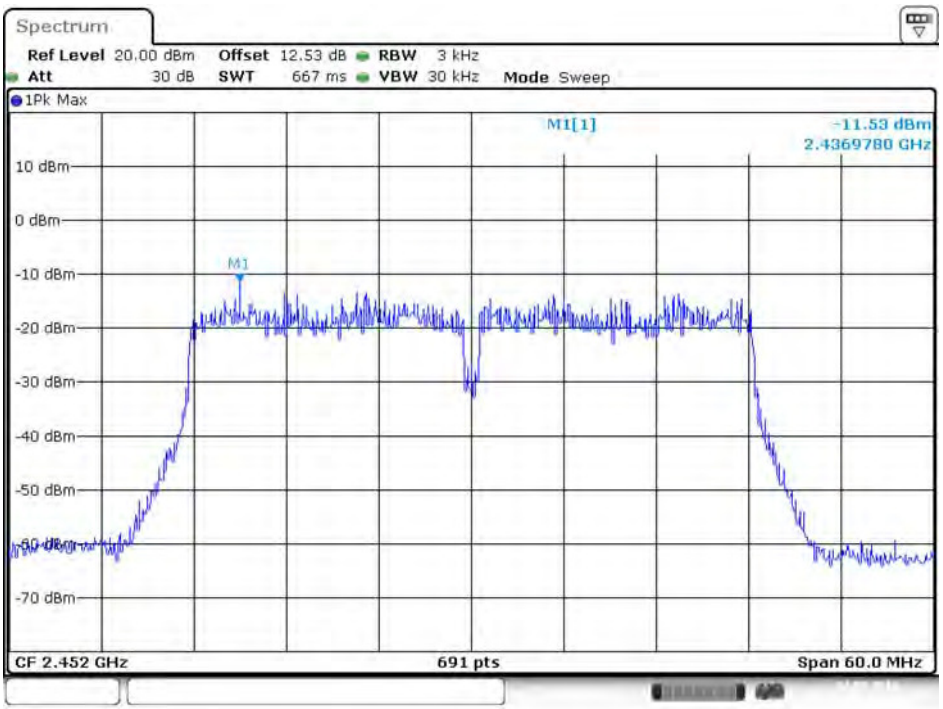
Date: 24.MAY.2016 15:25:29

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / 2452 MHz / Chain 3



Date: 24.MAY.2016 15:25:50

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / 2452 MHz / Chain 4



Date: 24.MAY.2016 15:26:11

4.4. 6dB Spectrum Bandwidth Measurement

4.4.1. Limit

For digital modulation systems, the minimum 6 dB 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 the Spectrum Analyzer.

6dB Spectrum Bandwidth	
Spectrum Parameters	**Setting**
Attenuation	Auto
Span Frequency	> 6dB Bandwidth
RBW	100kHz
VBW	≥ 3 x RBW
Detector	Peak
Trace	Max Hold
Sweep Time	Auto
99% Occupied Bandwidth	
Spectrum Parameters	**Setting**
Span	1.5 times to 5.0 times the OBW
RBW	1 % to 5 % of the OBW
VBW	≥ 3 x RBW
Detector	Peak
Trace	Max Hold

4.4.3. 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 KDB558074 D01 v03r05 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	22°C	Humidity	64%
Test Engineer	Akina Chiu	Test Function	Non-beamforming function

Mode	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
802.11b	2412 MHz	10.09	13.46	500	Complies
	2437 MHz	10.09	13.46	500	Complies
	2462 MHz	10.09	13.46	500	Complies
802.11g	2412 MHz	16.35	16.85	500	Complies
	2437 MHz	16.35	16.93	500	Complies
	2462 MHz	16.35	16.85	500	Complies
802.11ac MCS0/Nss1 VHT20	2412 MHz	17.57	17.80	500	Complies
	2437 MHz	16.75	17.80	500	Complies
	2462 MHz	17.04	17.71	500	Complies
802.11ac MCS0/Nss1 VHT40	2422 MHz	35.36	36.61	500	Complies
	2437 MHz	35.48	36.61	500	Complies
	2452 MHz	35.48	36.61	500	Complies

Temperature	22°C	Humidity	64%
Test Engineer	Akina Chiu	Test Function	Beamforming function

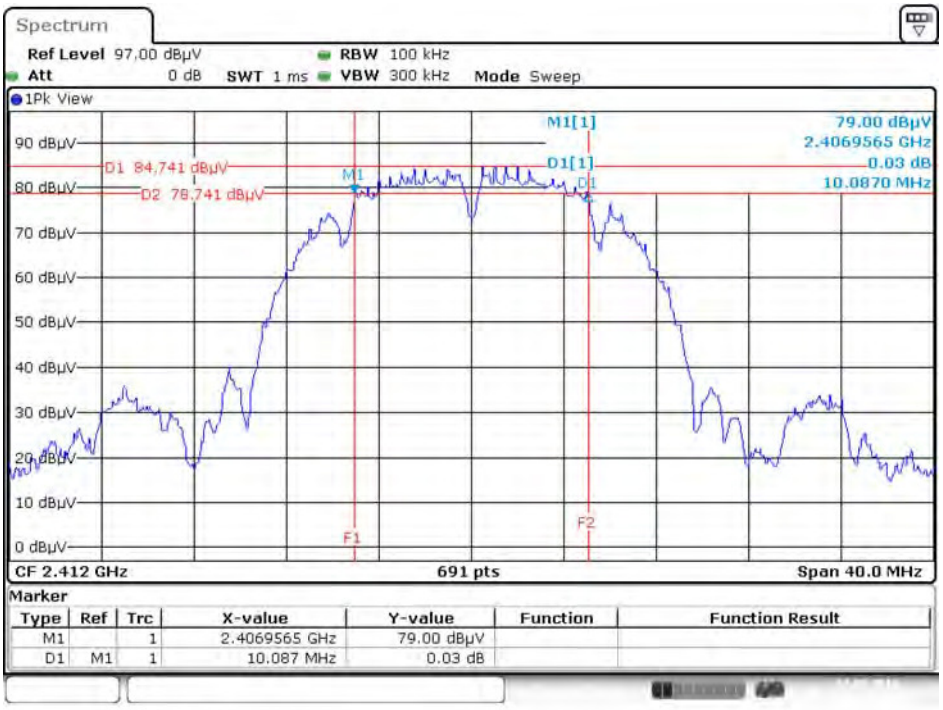
Mode	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
802.11g	2412 MHz	13.57	16.85	500	Complies
	2437 MHz	15.42	16.76	500	Complies
	2462 MHz	14.90	16.32	500	Complies
802.11ac MCS0/Nss1 VHT20	2412 MHz	17.68	17.80	500	Complies
	2437 MHz	17.74	17.80	500	Complies
	2462 MHz	17.80	17.80	500	Complies
802.11ac MCS0/Nss1 VHT40	2422 MHz	36.41	36.76	500	Complies
	2437 MHz	36.41	36.76	500	Complies
	2452 MHz	36.41	36.61	500	Complies

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

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

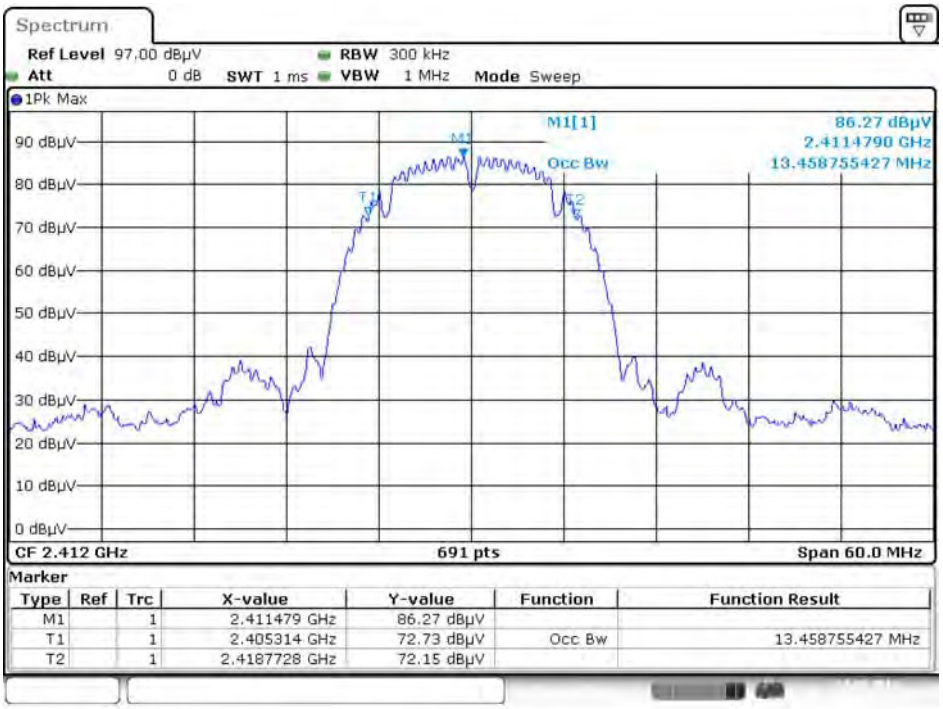
For non-beamforming function:

6 dB Bandwidth Plot on Configuration IEEE 802.11b / 2412 MHz / Chain 1 + Chain 2 + Chain 3 + Chain 4



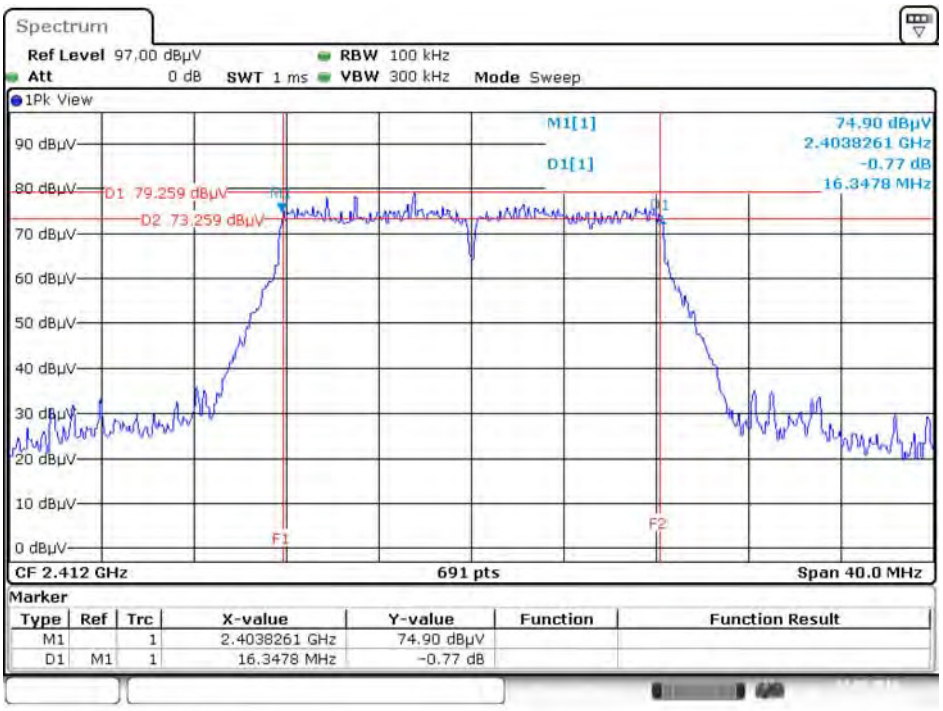
Date: 23.MAY.2016 16:26:51

99% Occupied Bandwidth Plot on Configuration IEEE 802.11b / 2412 MHz / Chain 1 + Chain 2 + Chain 3 + Chain 4



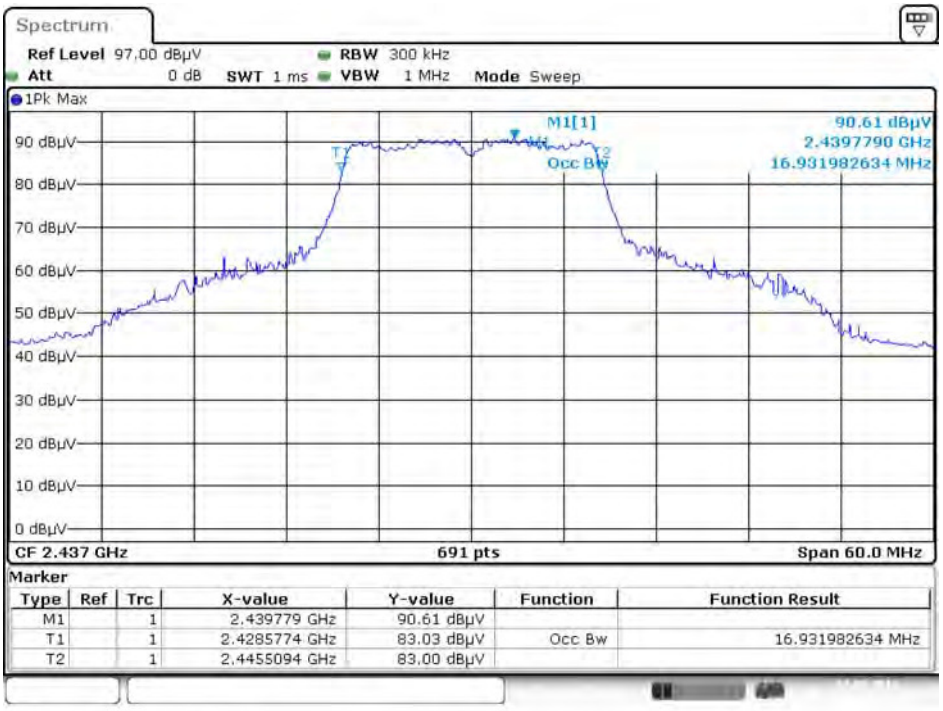
Date: 23.MAY.2016 16:20:07

6 dB Bandwidth Plot on Configuration IEEE 802.11g / 2412 MHz / Chain 1 + Chain 2 + Chain 3 + Chain 4



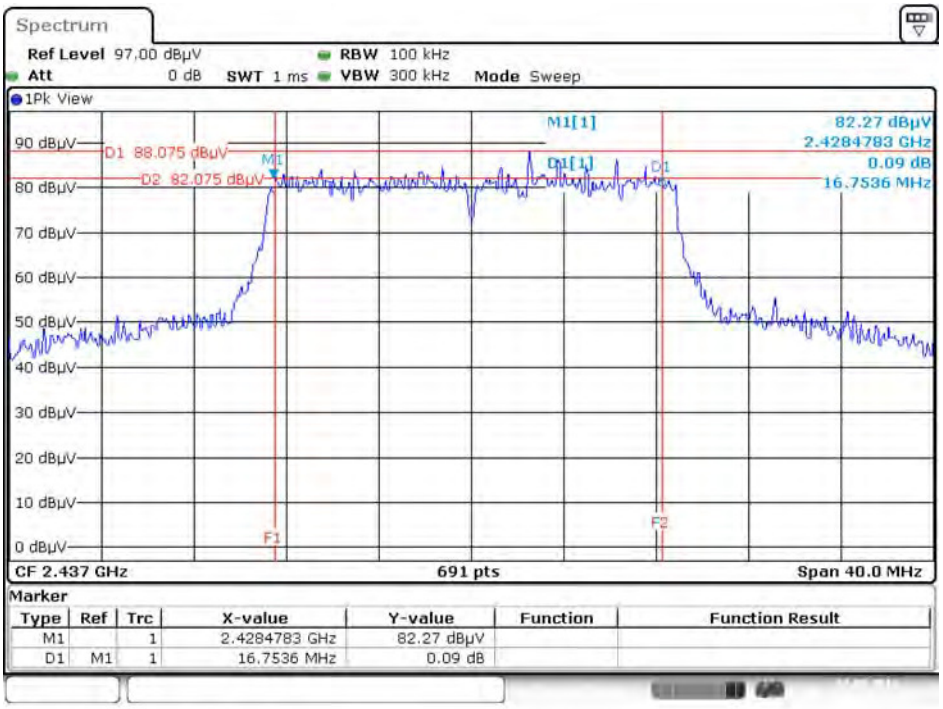
Date: 23.MAY.2016 16:29:20

99% Occupied Bandwidth Plot on Configuration IEEE 802.11g / 2437 MHz / Chain 1 + Chain 2 + Chain 3 + Chain 4



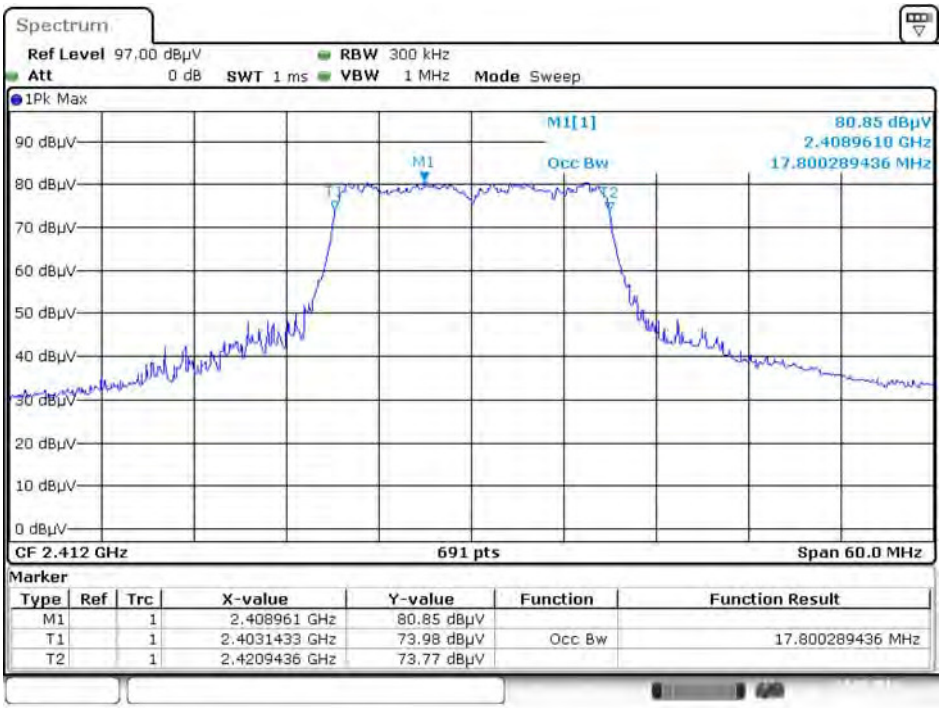
Date: 23.MAY.2016 16:17:51

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / 2437 MHz / Chain 1 + Chain 2 + Chain 3 + Chain 4



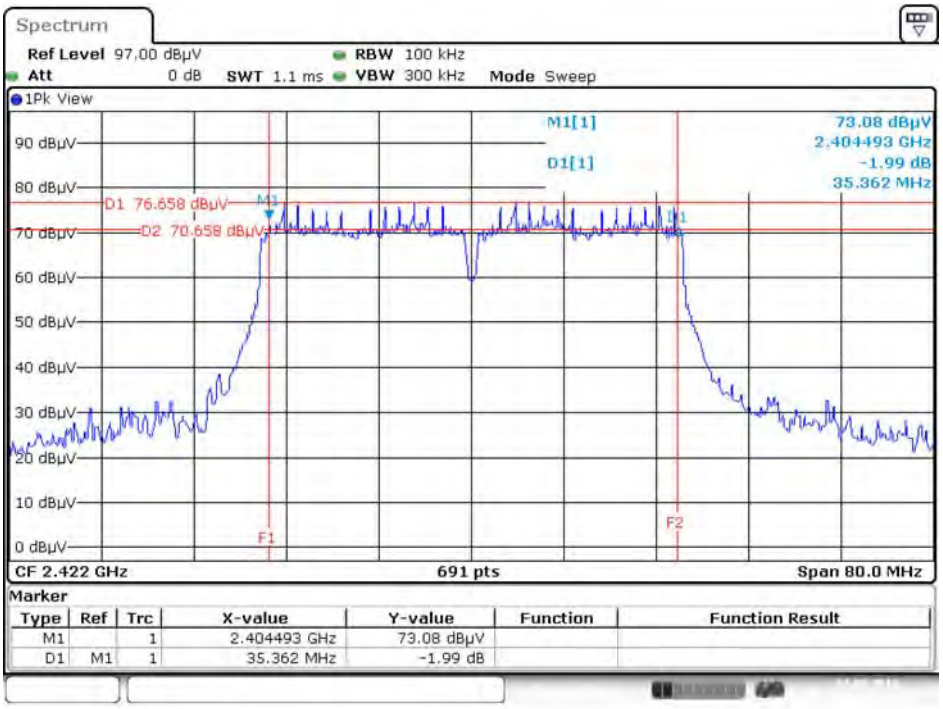
Date: 23.MAY.2016 16:32:26

99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / 2412 MHz / Chain 1 + Chain 2 + Chain 3 + Chain 4



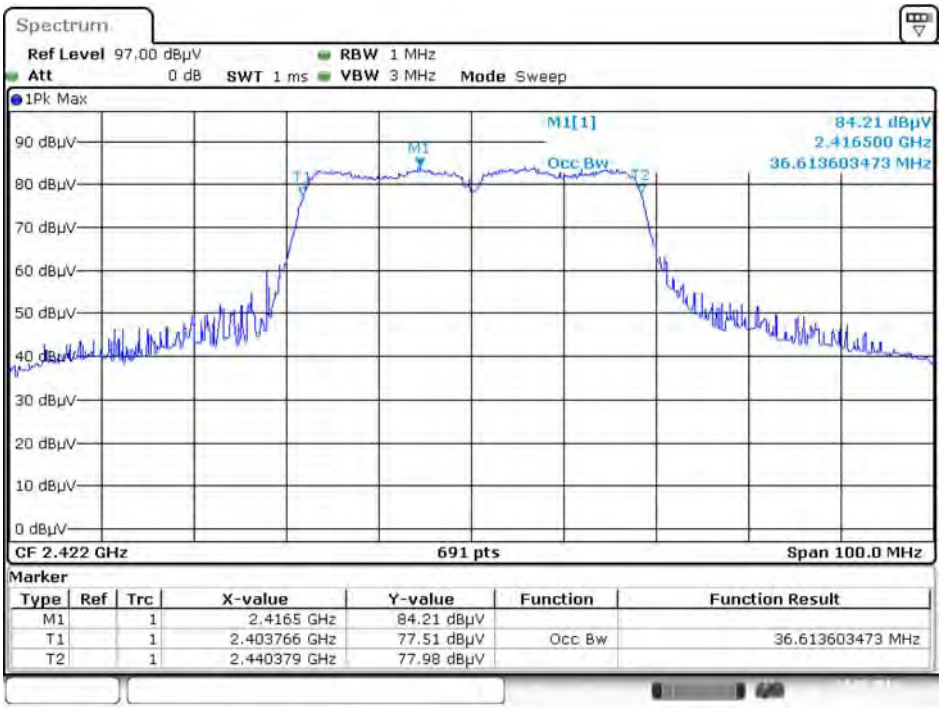
Date: 23.MAY.2016 16:12:33

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / 2422 MHz / Chain 1 + Chain 2 + Chain 3 + Chain 4



Date: 23.MAY.2016 16:33:52

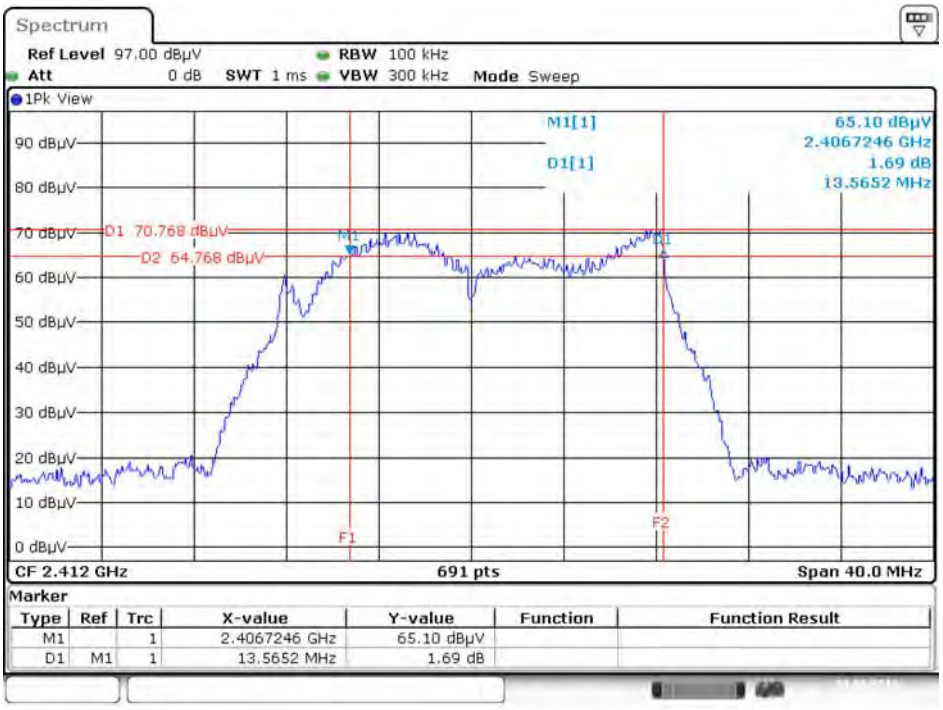
99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / 2422 MHz /Chain 1 + Chain 2 + Chain 3 + Chain 4



Date: 23.MAY.2016 16:10:55

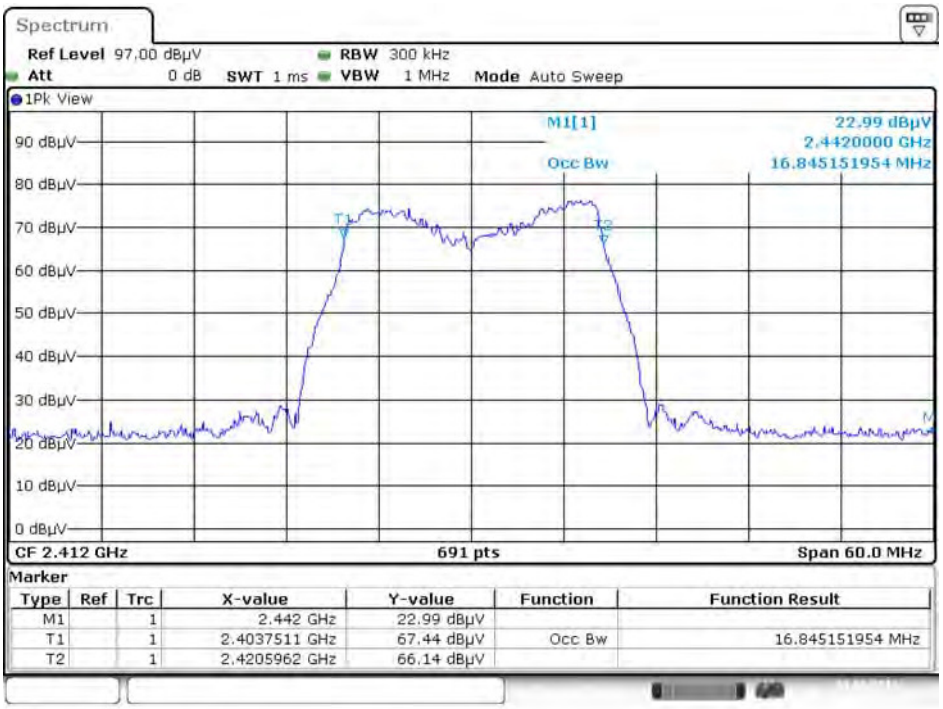
For beamforming function:

6 dB Bandwidth Plot on Configuration IEEE 802.11g / 2412 MHz / Chain 1 + Chain 2 + Chain 3 + Chain 4



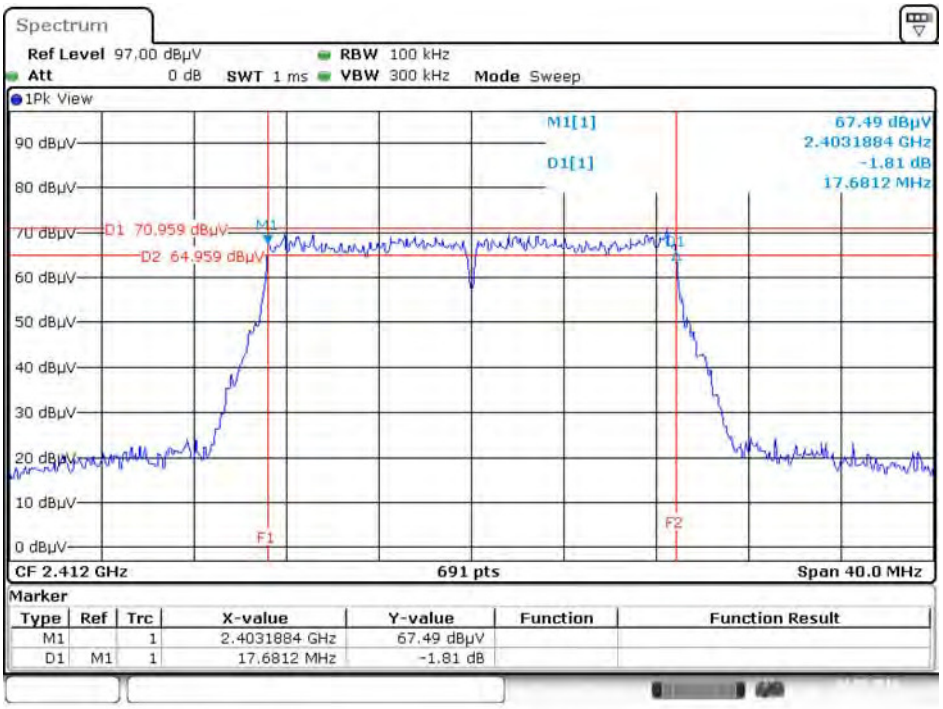
Date: 1.JUN.2016 02:05:27

99% Occupied Bandwidth Plot on Configuration IEEE 802.11g / 2412 MHz / Chain 1 + Chain 2 + Chain 3 + Chain 4



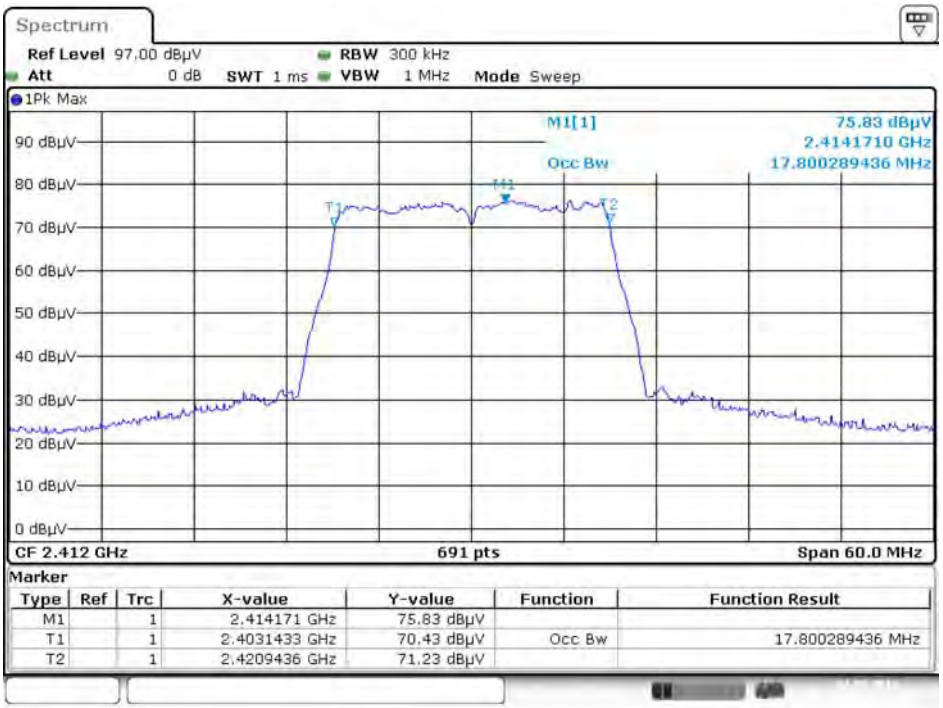
Date: 1.JUN.2016 02:12:15

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / 2412 MHz / Chain 1 + Chain 2 + Chain 3 + Chain 4



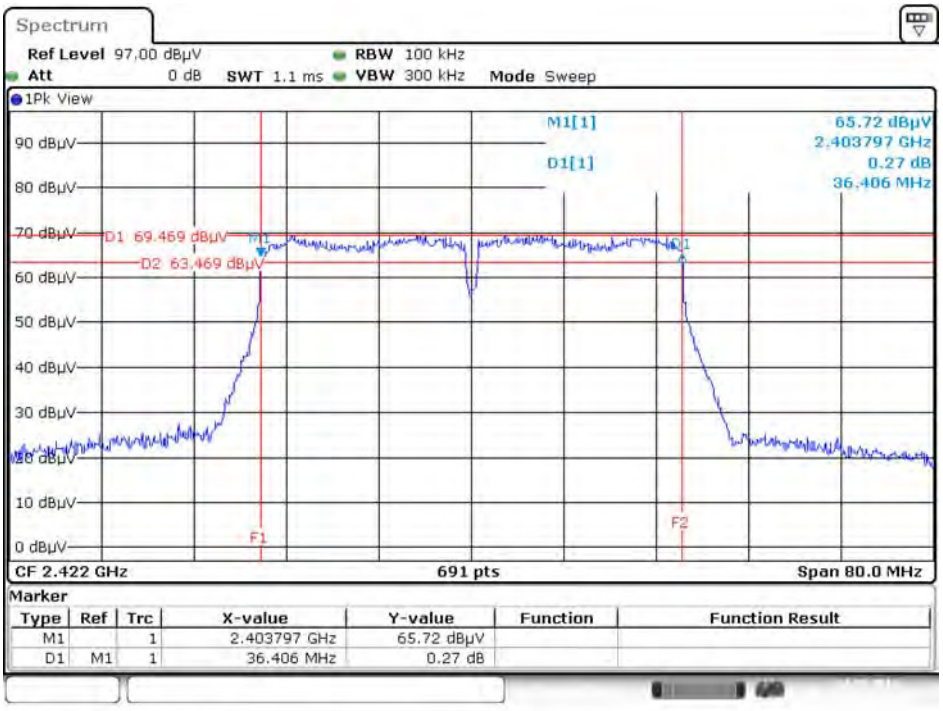
Date: 24.MAY.2016 15:50:15

99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / 2412 MHz / Chain 1 + Chain 2 + Chain 3 + Chain 4



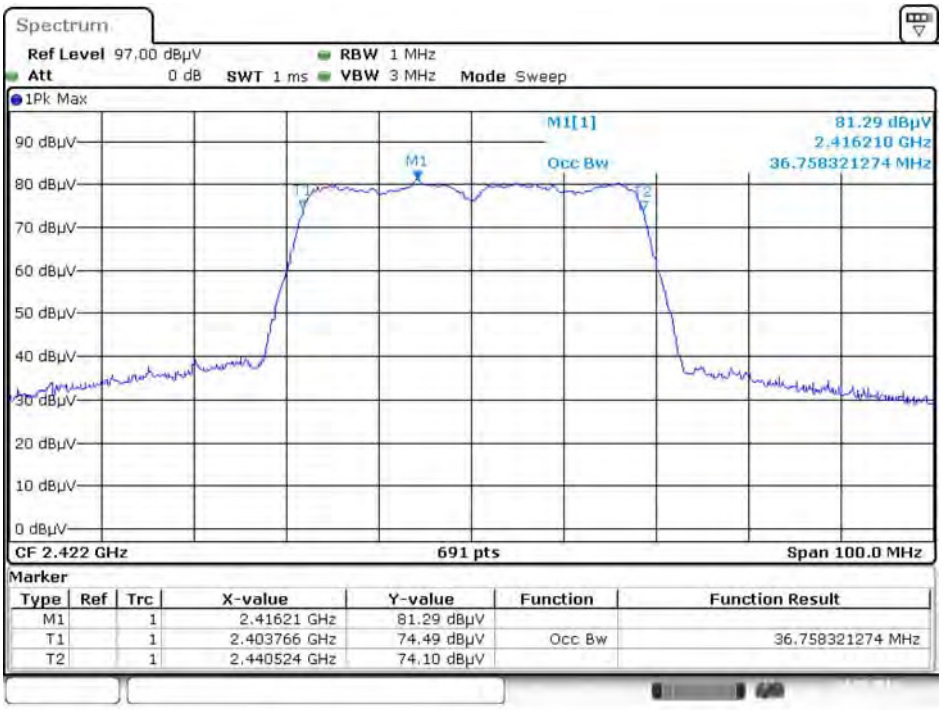
Date: 24.MAY.2016 15:34:55

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / 2422 MHz / Chain 1 + Chain 2 + Chain 3 + Chain 4



Date: 24.MAY.2016 15:48:18

99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / 2422 MHz /Chain 1 + Chain 2 + Chain 3 + Chain 4



Date: 24.MAY.2016 15:41:11

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	1000 MHz
Stop Frequency	10th carrier harmonic
RBW / VBW (Emission in restricted band)	1MHz / 3MHz for Peak, 1MHz / 1/T for Average
RBW / VBW (Emission in non-restricted band)	100kHz / 300kHz for peak

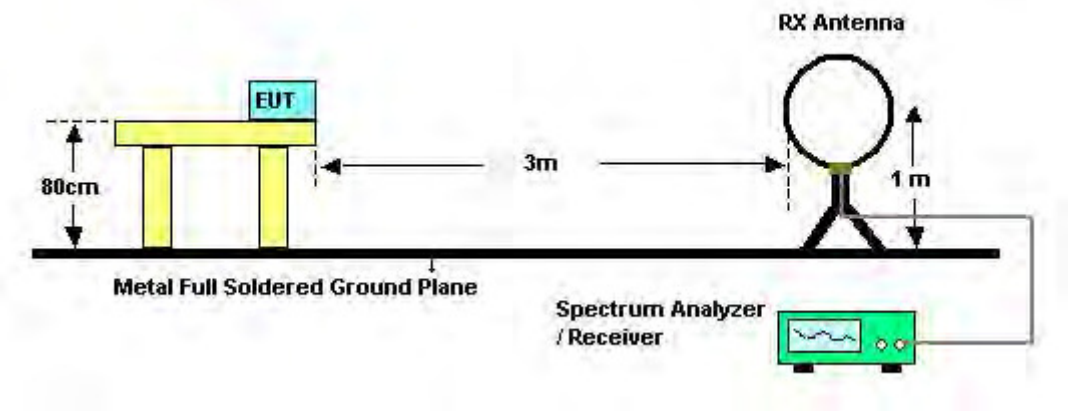
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RBW 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RBW 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RBW 120kHz for QP

4.5.3. Test Procedures

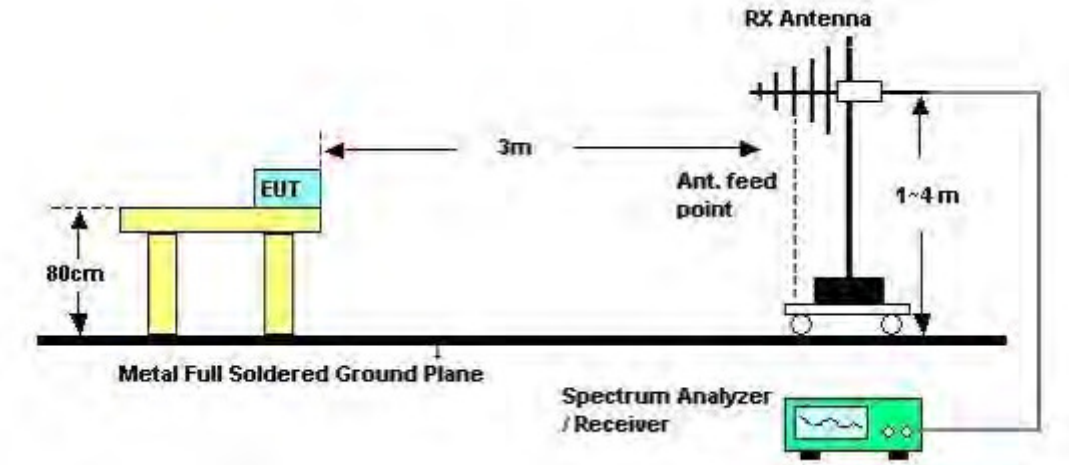
1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 1m & 3m far away from the turntable.
2. Power on the EUT and all the supporting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

4.5.4. Test Setup Layout

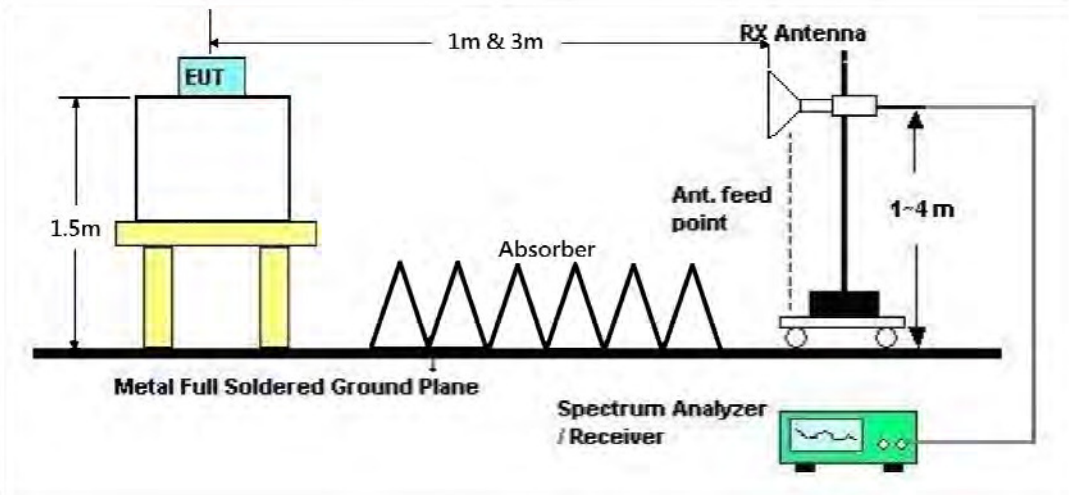
For Radiated Emissions: 9kHz ~30MHz



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	20.7°C	Humidity	63%
Test Engineer	John Tang	Configurations	Normal Link
Test Date	Apr. 15, 2016	Test Mode	Mode 1

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

Note:

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

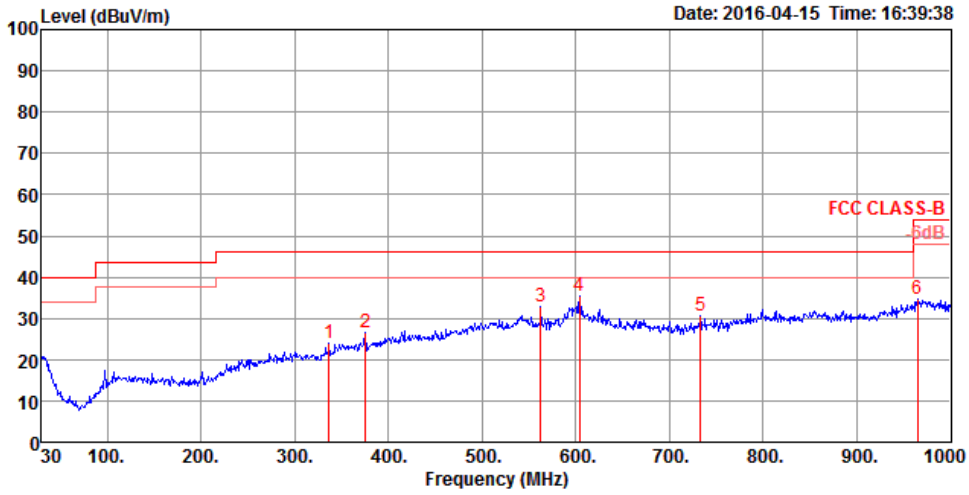
Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

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

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

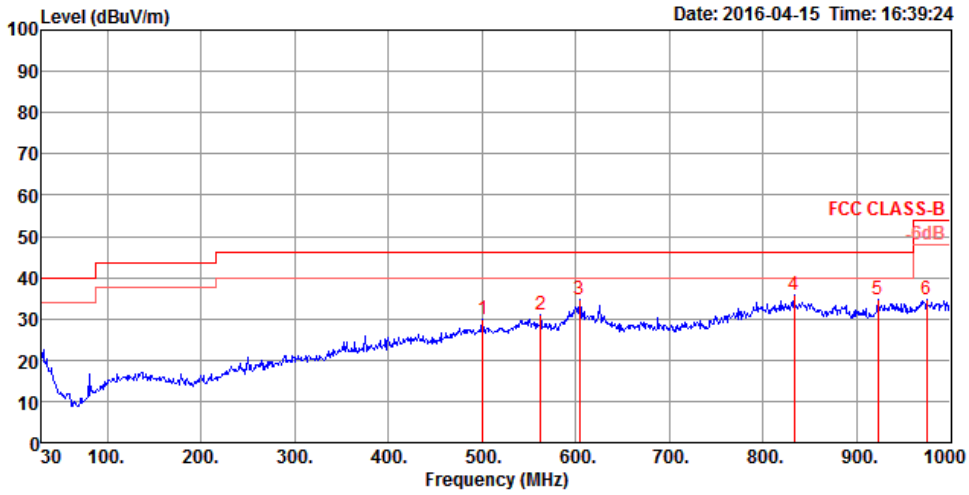
Temperature	20.7°C	Humidity	63%
Test Engineer	John Tang	Configurations	Normal Link
Test Mode	Mode 1		

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	336.52	24.16	46.00	-21.84	33.87	1.57	21.02	32.30	125	0	Peak	HORIZONTAL
2	375.32	26.63	46.00	-19.37	35.20	1.67	22.08	32.32	125	196	Peak	HORIZONTAL
3	562.53	32.84	46.00	-13.16	38.23	2.05	24.95	32.39	100	324	Peak	HORIZONTAL
4	604.24	35.29	46.00	-10.71	40.11	2.13	25.46	32.41	100	341	Peak	HORIZONTAL
5	733.25	30.48	46.00	-15.52	34.21	2.34	26.25	32.32	125	225	Peak	HORIZONTAL
6	965.08	34.70	54.00	-19.30	34.88	2.70	28.27	31.15	100	296	Peak	HORIZONTAL

Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	500.45	29.96	46.00	-16.04	36.34	1.94	24.03	32.35	100	249	Peak	VERTICAL
2	562.53	31.10	46.00	-14.90	36.49	2.05	24.95	32.39	100	318	Peak	VERTICAL
3	604.24	34.60	46.00	-11.40	39.42	2.13	25.46	32.41	100	150	Peak	VERTICAL
4	833.16	35.98	46.00	-10.02	38.36	2.50	27.20	32.08	100	34	Peak	VERTICAL
5	922.40	34.72	46.00	-11.28	35.75	2.62	27.89	31.54	100	50	Peak	VERTICAL
6	974.78	34.81	54.00	-19.19	34.79	2.72	28.37	31.07	100	290	Peak	VERTICAL

Note:

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

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

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

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

Temperature	20.7°C	Humidity	63%
Test Engineer	John Tang	Configurations	IEEE 802.11b CH 1 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Apr. 20, 2016	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4824.01	49.52	74.00	-24.48	43.21	7.04	34.17	34.90	235	34	Peak	HORIZONTAL
2	4824.02	38.93	54.00	-15.07	32.62	7.04	34.17	34.90	235	34	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4823.99	42.92	54.00	-11.08	36.61	7.04	34.17	34.90	149	338	Average	VERTICAL
2	4824.16	50.72	74.00	-23.28	44.41	7.04	34.17	34.90	149	338	Peak	VERTICAL

Temperature	20.7°C	Humidity	63%
Test Engineer	John Tang	Configurations	IEEE 802.11b CH 6 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Apr. 20, 2016	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4873.99	39.17	54.00	-14.83	32.55	7.18	34.34	34.90	198	40	Average	HORIZONTAL
2	4874.11	50.29	74.00	-23.71	43.67	7.18	34.34	34.90	198	40	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4874.01	42.13	54.00	-11.87	35.51	7.18	34.34	34.90	146	49	Average	VERTICAL
2	4874.20	50.71	74.00	-23.29	44.09	7.18	34.34	34.90	146	49	Peak	VERTICAL

Temperature	20.7°C	Humidity	63%
Test Engineer	John Tang	Configurations	IEEE 802.11b CH 11 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Apr. 20, 2016	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4923.80	49.86	74.00	-24.14	42.95	7.31	34.50	34.90	100	41	Peak	HORIZONTAL
2	4924.00	38.18	54.00	-15.82	31.27	7.31	34.50	34.90	100	41	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4923.95	50.70	74.00	-23.30	43.79	7.31	34.50	34.90	122	32	Peak	VERTICAL
2	4924.02	40.93	54.00	-13.07	34.02	7.31	34.50	34.90	122	32	Average	VERTICAL

Temperature	20.7°C	Humidity	63%
Test Engineer	John Tang	Configurations	IEEE 802.11g CH 1 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Apr. 20, 2016	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4823.08	35.67	54.00	-18.33	29.36	7.04	34.17	34.90	150	272	Average	HORIZONTAL
2	4824.48	48.33	74.00	-25.67	42.02	7.04	34.17	34.90	150	272	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4823.51	48.74	74.00	-25.26	42.43	7.04	34.17	34.90	150	15	Peak	VERTICAL
2	4823.85	35.77	54.00	-18.23	29.46	7.04	34.17	34.90	150	15	Average	VERTICAL

Temperature	20.7°C	Humidity	63%
Test Engineer	John Tang	Configurations	IEEE 802.11g CH 6 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Apr. 20, 2016	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4874.39	36.48	54.00	-17.52	29.86	7.18	34.34	34.90	150	90	Average	HORIZONTAL
2	4874.88	48.29	74.00	-25.71	41.67	7.18	34.34	34.90	150	90	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4874.47	36.70	54.00	-17.30	30.08	7.18	34.34	34.90	150	336	Average	VERTICAL
2	4874.95	49.11	74.00	-24.89	42.49	7.18	34.34	34.90	150	336	Peak	VERTICAL

Temperature	20.7°C	Humidity	63%
Test Engineer	John Tang	Configurations	IEEE 802.11g CH 11 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Apr. 20, 2016	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4923.46	36.08	54.00	-17.92	29.24	7.28	34.46	34.90	150	249	Average	HORIZONTAL
2	4924.07	48.72	74.00	-25.28	41.81	7.31	34.50	34.90	150	249	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4923.36	36.13	54.00	-17.87	29.29	7.28	34.46	34.90	150	74	Average	VERTICAL
2	4923.59	49.64	74.00	-24.36	42.80	7.28	34.46	34.90	150	74	Peak	VERTICAL

Temperature	20.7°C	Humidity	63%
Test Engineer	John Tang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 1 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Apr. 20, 2016	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4823.99	35.52	54.00	-18.48	29.21	7.04	34.17	34.90	150	296	Average	HORIZONTAL
2	4824.68	48.43	74.00	-25.57	42.12	7.04	34.17	34.90	150	296	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4823.38	35.71	54.00	-18.29	29.40	7.04	34.17	34.90	150	240	Average	VERTICAL
2	4824.12	48.46	74.00	-25.54	42.15	7.04	34.17	34.90	150	240	Peak	VERTICAL

Temperature	20.7°C	Humidity	63%
Test Engineer	John Tang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 6 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Apr. 20, 2016	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4873.34	49.37	74.00	-24.63	42.75	7.18	34.34	34.90	150	142	Peak	HORIZONTAL
2	4873.75	36.21	54.00	-17.79	29.59	7.18	34.34	34.90	150	142	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4874.03	49.09	74.00	-24.91	42.47	7.18	34.34	34.90	150	347	Peak	VERTICAL
2	4874.62	36.49	54.00	-17.51	29.87	7.18	34.34	34.90	150	347	Average	VERTICAL

Temperature	20.7°C	Humidity	63%
Test Engineer	John Tang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 11 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Apr. 20, 2016	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4924.28	36.10	54.00	-17.90	29.19	7.31	34.50	34.90	150	121	Average	HORIZONTAL
2	4924.90	49.01	74.00	-24.99	42.10	7.31	34.50	34.90	150	121	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4923.26	36.03	54.00	-17.97	29.19	7.28	34.46	34.90	150	203	Average	VERTICAL
2	4924.18	49.74	74.00	-24.26	42.83	7.31	34.50	34.90	150	203	Peak	VERTICAL

Temperature	20.7°C	Humidity	63%
Test Engineer	John Tang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 3 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Apr. 20, 2016	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4844.69	35.32	54.00	-18.68	28.86	7.11	34.25	34.90	150	239	Average	HORIZONTAL
2	4844.72	48.70	74.00	-25.30	42.24	7.11	34.25	34.90	150	239	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4843.34	35.31	54.00	-18.69	28.85	7.11	34.25	34.90	150	319	Average	VERTICAL
2	4843.35	48.47	74.00	-25.53	42.01	7.11	34.25	34.90	150	319	Peak	VERTICAL

Temperature	20.7°C	Humidity	63%
Test Engineer	John Tang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 6 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Apr. 20, 2016	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4874.58	36.23	54.00	-17.77	29.61	7.18	34.34	34.90	150	39	Average	HORIZONTAL
2	4874.87	49.23	74.00	-24.77	42.61	7.18	34.34	34.90	150	39	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4874.60	49.01	74.00	-24.99	42.39	7.18	34.34	34.90	150	224	Peak	VERTICAL
2	4874.98	36.21	54.00	-17.79	29.59	7.18	34.34	34.90	150	224	Average	VERTICAL

Temperature	20.7°C	Humidity	63%
Test Engineer	John Tang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 9 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Apr. 20, 2016	Test Function	Non-beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4903.05	49.31	74.00	-24.69	42.55	7.24	34.42	34.90	150	119	Peak	HORIZONTAL
2	4904.12	36.16	54.00	-17.84	29.40	7.24	34.42	34.90	150	119	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4903.56	36.18	54.00	-17.82	29.42	7.24	34.42	34.90	150	290	Average	VERTICAL
2	4903.60	50.03	74.00	-23.97	43.27	7.24	34.42	34.90	150	290	Peak	VERTICAL

Temperature	20.7°C	Humidity	63%
Test Engineer	John Tang	Configurations	IEEE 802.11g CH 1 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Jun. 01, 2016	Test Function	Beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4817.24	49.20	74.00	-24.80	43.32	7.58	32.82	34.52	276	346	Peak	HORIZONTAL
2	4830.92	35.13	54.00	-18.87	29.23	7.58	32.84	34.52	276	346	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4816.56	47.95	74.00	-26.05	42.07	7.58	32.82	34.52	177	91	Peak	VERTICAL
2	4833.84	35.34	54.00	-18.66	29.44	7.58	32.84	34.52	177	91	Average	VERTICAL

Temperature	20.7°C	Humidity	63%
Test Engineer	John Tang	Configurations	IEEE 802.11g CH 6 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	May 31, 2016	Test Function	Beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4864.80	35.27	54.00	-18.73	29.31	7.59	32.88	34.51	185	329	Average	HORIZONTAL
2	4869.72	48.00	74.00	-26.00	42.00	7.60	32.91	34.51	185	329	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4876.28	35.37	54.00	-18.63	29.37	7.60	32.91	34.51	136	63	Average	VERTICAL
2	4881.84	48.93	74.00	-25.07	42.90	7.60	32.93	34.50	136	63	Peak	VERTICAL

Temperature	20.7°C	Humidity	63%
Test Engineer	John Tang	Configurations	IEEE 802.11g CH 11 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	May 31, 2016	Test Function	Beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4918.80	47.99	74.00	-26.01	41.90	7.61	32.97	34.49	246	316	Peak	HORIZONTAL
2	4924.00	35.16	54.00	-18.84	29.04	7.62	32.99	34.49	246	316	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4914.28	48.35	74.00	-25.65	42.26	7.61	32.97	34.49	147	279	Peak	VERTICAL
2	4925.28	35.14	54.00	-18.86	29.02	7.62	32.99	34.49	147	279	Average	VERTICAL

Temperature	20.7°C	Humidity	63%
Test Engineer	John Tang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 1 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Mar. 23, 2016	Test Function	Beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4823.63	50.83	74.00	-23.17	40.51	10.29	33.11	33.08	200	80	Peak	HORIZONTAL
2	4823.82	38.28	54.00	-15.72	27.96	10.29	33.11	33.08	200	80	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4825.88	52.13	74.00	-21.87	41.78	10.29	33.14	33.08	200	146	Peak	VERTICAL
2	4827.46	38.87	54.00	-15.13	28.52	10.29	33.14	33.08	200	146	Average	VERTICAL

Temperature	20.7°C	Humidity	63%
Test Engineer	John Tang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 6 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Mar. 23, 2016	Test Function	Beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4869.02	37.31	54.00	-16.69	26.88	10.28	33.23	33.08	204	278	Average	HORIZONTAL
2	4873.81	50.45	74.00	-23.55	40.02	10.28	33.23	33.08	204	278	Peak	HORIZONTAL
3	7309.01	41.80	54.00	-12.20	26.76	12.42	36.09	33.47	204	312	Average	HORIZONTAL
4	7312.15	55.28	74.00	-18.72	40.24	12.42	36.09	33.47	204	312	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4869.06	36.89	54.00	-17.11	26.46	10.28	33.23	33.08	246	28	Average	VERTICAL
2	4876.18	50.22	74.00	-23.78	39.79	10.28	33.23	33.08	246	28	Peak	VERTICAL
3	7308.58	55.14	74.00	-18.86	40.10	12.42	36.09	33.47	218	145	Peak	VERTICAL
4	7309.27	42.28	54.00	-11.72	27.24	12.42	36.09	33.47	218	145	Average	VERTICAL

Temperature	20.7°C	Humidity	63%
Test Engineer	John Tang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 11 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Mar. 23, 2016	Test Function	Beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4922.69	37.65	54.00	-16.35	27.12	10.28	33.32	33.07	215	47	Average	HORIZONTAL
2	4923.60	50.90	74.00	-23.10	40.37	10.28	33.32	33.07	215	47	Peak	HORIZONTAL
3	7388.44	41.84	54.00	-12.16	26.73	12.33	36.27	33.49	196	136	Average	HORIZONTAL
4	7389.38	55.77	74.00	-18.23	40.66	12.33	36.27	33.49	196	136	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4923.22	36.24	54.00	-17.76	25.71	10.28	33.32	33.07	208	168	Average	VERTICAL
2	4924.40	50.32	74.00	-23.68	39.76	10.28	33.35	33.07	208	168	Peak	VERTICAL
3	7382.60	42.30	54.00	-11.70	27.19	12.33	36.27	33.49	200	68	Average	VERTICAL
4	7386.59	55.06	74.00	-18.94	39.95	12.33	36.27	33.49	200	68	Peak	VERTICAL

Temperature	20.7°C	Humidity	63%
Test Engineer	John Tang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 3 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Mar. 23, 2016	Test Function	Beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4839.06	51.00	74.00	-23.00	40.62	10.29	33.17	33.08	200	256	Peak	HORIZONTAL
2	4840.83	37.93	54.00	-16.07	27.55	10.29	33.17	33.08	200	256	Average	HORIZONTAL
3	7263.95	54.85	74.00	-19.15	39.84	12.47	36.00	33.46	200	284	Peak	HORIZONTAL
4	7267.84	42.15	54.00	-11.85	27.14	12.47	36.00	33.46	200	284	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4839.83	51.98	74.00	-22.02	41.60	10.29	33.17	33.08	200	184	Peak	VERTICAL
2	4840.68	38.09	54.00	-15.91	27.71	10.29	33.17	33.08	200	184	Average	VERTICAL
3	7262.15	54.81	74.00	-19.19	39.80	12.47	36.00	33.46	200	340	Peak	VERTICAL
4	7262.67	42.19	54.00	-11.81	27.18	12.47	36.00	33.46	200	340	Average	VERTICAL

Temperature	20.7°C	Humidity	63%
Test Engineer	John Tang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 6 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Mar. 23, 2016	Test Function	Beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4869.08	37.83	54.00	-16.17	27.40	10.28	33.23	33.08	200	155	Average	HORIZONTAL
2	4877.91	50.64	74.00	-23.36	40.20	10.28	33.23	33.07	200	155	Peak	HORIZONTAL
3	7307.31	42.26	54.00	-11.74	27.22	12.42	36.09	33.47	200	204	Average	HORIZONTAL
4	7314.83	55.15	74.00	-18.85	40.11	12.42	36.09	33.47	200	204	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4869.00	38.13	54.00	-15.87	27.70	10.28	33.23	33.08	200	39	Average	VERTICAL
2	4873.81	50.72	74.00	-23.28	40.29	10.28	33.23	33.08	200	39	Peak	VERTICAL
3	7312.65	42.38	54.00	-11.62	27.34	12.42	36.09	33.47	200	112	Average	VERTICAL
4	7313.21	55.80	74.00	-18.20	40.76	12.42	36.09	33.47	200	112	Peak	VERTICAL

Temperature	20.7°C	Humidity	63%
Test Engineer	John Tang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 9 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Mar. 23, 2016	Test Function	Beamforming function

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4903.14	49.65	74.00	-24.35	39.15	10.28	33.29	33.07	200	145	Peak	HORIZONTAL
2	4903.44	37.23	54.00	-16.77	26.73	10.28	33.29	33.07	200	145	Average	HORIZONTAL
3	7354.96	55.82	74.00	-18.18	40.74	12.38	36.18	33.48	200	207	Peak	HORIZONTAL
4	7360.76	42.61	54.00	-11.39	27.52	12.35	36.22	33.48	200	207	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4902.32	37.31	54.00	-16.69	26.81	10.28	33.29	33.07	200	322	Average	VERTICAL
2	4908.38	49.90	74.00	-24.10	39.40	10.28	33.29	33.07	200	322	Peak	VERTICAL
3	7356.66	42.71	54.00	-11.29	27.63	12.38	36.18	33.48	200	268	Average	VERTICAL
4	7358.39	55.78	74.00	-18.22	40.69	12.35	36.22	33.48	200	268	Peak	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, 1MHz / 1/T for Average
RBW / VBW (30dBc in any 100 kHz bandwidth emission)	100 kHz / 300 kHz for Peak

4.6.3. Test Procedures

For Radiated band edges Measurement:

The test procedure is the same as section 4.5.3.

For Radiated Out of Band Emission Measurement:

Test was performed in accordance with KDB558074 D01 v03r05 for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247 section 11.0 Unwanted Emissions into Non-Restricted Frequency Bands Measurement Procedure.

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	20.7℃	Humidity	63%
Test Engineer	John Tang	Configurations	IEEE 802.11b CH 1, 6, 11 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Apr. 19, 2016	Test Function	Non-beamforming function

Channel 1

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2388.26	53.75	54.00	-0.25	20.33	4.85	28.57	0.00	297	176	Average	VERTICAL
2	2388.41	64.71	74.00	-9.29	31.29	4.85	28.57	0.00	297	176	Peak	VERTICAL
3	2413.01	119.74			86.23	4.88	28.63	0.00	297	176	Peak	VERTICAL
4	2413.74	116.80			83.29	4.88	28.63	0.00	297	176	Average	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	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2381.90	49.05	54.00	-4.95	15.65	4.84	28.56	0.00	301	178	Average	VERTICAL
2	2385.66	62.59	74.00	-11.41	29.17	4.85	28.57	0.00	301	178	Peak	VERTICAL
3	2436.13	118.33			84.76	4.90	28.67	0.00	301	178	Average	VERTICAL
4	2436.42	121.20			87.63	4.90	28.67	0.00	301	178	Peak	VERTICAL
5	2484.95	62.43	74.00	-11.57	28.71	4.95	28.77	0.00	301	178	Peak	VERTICAL
6	2488.42	49.51	54.00	-4.49	15.79	4.95	28.77	0.00	301	178	Average	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	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2462.72	116.54			82.88	4.93	28.73	0.00	317	141	Average	VERTICAL
2	2463.01	119.43			85.77	4.93	28.73	0.00	317	141	Peak	VERTICAL
3	2487.55	53.37	54.00	-0.63	19.65	4.95	28.77	0.00	317	141	Average	VERTICAL
4	2488.42	65.36	74.00	-8.64	31.64	4.95	28.77	0.00	317	141	Peak	VERTICAL

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

Temperature	20.7°C	Humidity	63%
Test Engineer	John Tang	Configurations	IEEE 802.11g CH 1, 6, 11 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Apr. 19, 2016	Test Function	Non-beamforming function

Channel 1

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2389.86	73.73	74.00	-0.27	40.31	4.85	28.57	0.00	299	175	Peak	VERTICAL
2	2390.00	51.87	54.00	-2.13	18.45	4.85	28.57	0.00	299	175	Average	VERTICAL
3	2414.32	119.28			85.77	4.88	28.63	0.00	299	175	Peak	VERTICAL
4	2414.75	107.28			73.77	4.88	28.63	0.00	299	175	Average	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	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2389.42	52.44	54.00	-1.56	19.02	4.85	28.57	0.00	300	179	Average	VERTICAL
2	2390.00	72.67	74.00	-1.33	39.25	4.85	28.57	0.00	300	179	Peak	VERTICAL
3	2429.47	112.76			79.21	4.89	28.66	0.00	300	179	Average	VERTICAL
4	2433.53	124.56			90.99	4.90	28.67	0.00	300	179	Peak	VERTICAL
5	2483.50	52.54	54.00	-1.46	18.82	4.95	28.77	0.00	300	179	Average	VERTICAL
6	2487.26	73.53	74.00	-0.47	39.81	4.95	28.77	0.00	300	179	Peak	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	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2464.46	104.03			70.37	4.93	28.73	0.00	321	177	Average	VERTICAL
2	2464.46	116.11			82.45	4.93	28.73	0.00	321	177	Peak	VERTICAL
3	2483.50	49.57	54.00	-4.43	15.85	4.95	28.77	0.00	321	177	Average	VERTICAL
4	2483.50	73.71	74.00	-0.29	39.99	4.95	28.77	0.00	321	177	Peak	VERTICAL

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

Temperature	20.7°C	Humidity	63%
Test Engineer	John Tang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 1, 6, 11 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Apr. 19, 2016	Test Function	Non-beamforming function

Channel 1

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2390.00	51.35	54.00	-2.65	17.93	4.85	28.57	0.00	275	178	Average	VERTICAL
2	2390.00	73.52	74.00	-0.48	40.10	4.85	28.57	0.00	275	178	Peak	VERTICAL
3	2409.25	117.15			83.67	4.87	28.61	0.00	275	178	Peak	VERTICAL
4	2409.83	105.41			71.93	4.87	28.61	0.00	275	178	Average	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	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2390.00	52.50	54.00	-1.50	19.08	4.85	28.57	0.00	300	180	Average	VERTICAL
2	2390.00	73.59	74.00	-0.41	40.17	4.85	28.57	0.00	300	180	Peak	VERTICAL
3	2434.40	124.27			90.70	4.90	28.67	0.00	300	180	Peak	VERTICAL
4	2434.68	112.30			78.73	4.90	28.67	0.00	300	180	Average	VERTICAL
5	2483.50	52.74	54.00	-1.26	19.02	4.95	28.77	0.00	300	180	Average	VERTICAL
6	2483.50	73.84	74.00	-0.16	40.12	4.95	28.77	0.00	300	180	Peak	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	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2459.11	115.11			81.48	4.92	28.71	0.00	322	179	Peak	VERTICAL
2	2459.68	103.35			69.72	4.92	28.71	0.00	322	179	Average	VERTICAL
3	2483.50	49.80	54.00	-4.20	16.08	4.95	28.77	0.00	322	179	Average	VERTICAL
4	2483.50	73.82	74.00	-0.18	40.10	4.95	28.77	0.00	322	179	Peak	VERTICAL

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

Temperature	20.7°C	Humidity	63%
Test Engineer	John Tang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 3, 6, 9 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Apr. 19, 2016	Test Function	Non-beamforming function

Channel 3

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2387.40	72.55	74.00	-1.45	39.13	4.85	28.57	0.00	300	184	Peak	VERTICAL
2	2389.42	53.57	54.00	-0.43	20.15	4.85	28.57	0.00	300	184	Average	VERTICAL
3	2427.79	112.48			78.93	4.89	28.66	0.00	300	184	Peak	VERTICAL
4	2429.81	101.73			68.18	4.89	28.66	0.00	300	184	Average	VERTICAL

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

Channel 6

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2386.24	71.07	74.00	-2.93	37.65	4.85	28.57	0.00	343	181	Peak	VERTICAL
2	2390.00	53.71	54.00	-0.29	20.29	4.85	28.57	0.00	343	181	Average	VERTICAL
3	2420.21	104.28			70.76	4.88	28.64	0.00	343	181	Average	VERTICAL
4	2421.08	114.71			81.19	4.88	28.64	0.00	343	181	Peak	VERTICAL
5	2484.08	70.44	74.00	-3.56	36.72	4.95	28.77	0.00	343	181	Peak	VERTICAL
6	2484.37	52.30	54.00	-1.70	18.58	4.95	28.77	0.00	343	181	Average	VERTICAL

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

Channel 9

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2455.47	102.00			68.37	4.92	28.71	0.00	323	179	Average	VERTICAL
2	2459.53	112.73			79.10	4.92	28.71	0.00	323	179	Peak	VERTICAL
3	2484.40	53.06	54.00	-0.94	19.34	4.95	28.77	0.00	323	179	Average	VERTICAL
4	2484.95	73.59	74.00	-0.41	39.87	4.95	28.77	0.00	323	179	Peak	VERTICAL

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

Temperature	20.7°C	Humidity	63%
Test Engineer	John Tang	Configurations	IEEE 802.11g CH 1, 6, 11 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	May 31, 2016 / Jun. 01, 2016	Test Function	Beamforming function

Channel 1

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2388.60	73.35	74.00	-0.65	41.43	3.90	28.02	0.00	200	295	Peak	VERTICAL
2	2389.60	49.98	54.00	-4.02	18.06	3.90	28.02	0.00	200	295	Average	VERTICAL
3	2419.60	118.96			87.02	3.95	27.99	0.00	200	295	Peak	VERTICAL
4	2419.80	108.37			76.43	3.95	27.99	0.00	200	295	Average	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	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2389.20	73.02	74.00	-0.98	41.10	3.90	28.02	0.00	146	214	Peak	VERTICAL
2	2389.60	45.49	54.00	-8.51	13.57	3.90	28.02	0.00	146	214	Average	VERTICAL
3	2441.80	118.87			86.93	3.98	27.96	0.00	146	214	Peak	VERTICAL
4	2444.60	109.12			77.18	3.98	27.96	0.00	146	214	Average	VERTICAL
5	2484.40	73.38	74.00	-0.62	41.42	4.04	27.92	0.00	146	214	Peak	VERTICAL
6	2485.00	45.60	54.00	-8.40	13.64	4.04	27.92	0.00	146	214	Average	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	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2469.40	106.71			74.76	4.02	27.93	0.00	234	44	Average	VERTICAL
2	2469.60	116.51			84.56	4.02	27.93	0.00	234	44	Peak	VERTICAL
3	2483.80	72.86	74.00	-1.14	40.90	4.04	27.92	0.00	234	44	Peak	VERTICAL
4	2484.00	46.55	54.00	-7.45	14.59	4.04	27.92	0.00	234	44	Average	VERTICAL

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

Temperature	20.7°C	Humidity	63%
Test Engineer	John Tang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 1, 6, 11 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Mar. 23, 2016 / Mar. 31, 2016	Test Function	Beamforming function

Channel 1

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2384.00	73.71	74.00	-0.29	40.29	4.85	28.57	0.00	199	210	Peak	VERTICAL
2	2389.40	49.30	54.00	-4.70	15.88	4.85	28.57	0.00	199	210	Average	VERTICAL
3	2404.20	104.79			71.33	4.86	28.60	0.00	199	210	Average	VERTICAL
4	2409.60	115.47			81.99	4.87	28.61	0.00	199	210	Peak	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	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2388.28	73.71	74.00	-0.29	39.75	5.65	28.31	0.00	200	313	Peak	VERTICAL
2	2390.00	51.33	54.00	-2.67	17.37	5.65	28.31	0.00	200	313	Average	VERTICAL
3	2444.69	112.17			78.02	5.74	28.41	0.00	200	313	Average	VERTICAL
4	2445.01	124.50			90.35	5.74	28.41	0.00	200	313	Peak	VERTICAL
5	2483.50	51.23	54.00	-2.77	16.95	5.80	28.48	0.00	200	313	Average	VERTICAL
6	2484.44	73.79	74.00	-0.21	39.51	5.80	28.48	0.00	200	313	Peak	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	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2459.60	120.09			86.46	4.92	28.71	0.00	196	141	Peak	VERTICAL
2	2464.40	109.21			75.55	4.93	28.73	0.00	196	141	Average	VERTICAL
3	2483.50	53.82	54.00	-0.18	20.10	4.95	28.77	0.00	196	141	Average	VERTICAL
4	2483.80	71.82	74.00	-2.18	38.10	4.95	28.77	0.00	196	141	Peak	VERTICAL

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

Temperature	20.7°C	Humidity	63%
Test Engineer	John Tang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 3, 6, 9 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Mar. 31, 2016 / Apr. 01, 2016	Test Function	Beamforming function

Channel 3

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2384.00	68.48	74.00	-5.52	35.06	4.85	28.57	0.00	208	311	Peak	VERTICAL
2	2390.00	53.91	54.00	-0.09	20.49	4.85	28.57	0.00	208	311	Average	VERTICAL
3	2406.40	103.09			69.61	4.87	28.61	0.00	208	311	Average	VERTICAL
4	2408.00	114.59			81.11	4.87	28.61	0.00	208	311	Peak	VERTICAL

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

Channel 6

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2387.00	67.84	74.00	-6.16	34.42	4.85	28.57	0.00	202	142	Peak	VERTICAL
2	2390.00	51.50	54.00	-2.50	18.08	4.85	28.57	0.00	202	142	Average	VERTICAL
3	2452.20	107.63			74.02	4.91	28.70	0.00	202	142	Average	VERTICAL
4	2452.20	117.98			84.37	4.91	28.70	0.00	202	142	Peak	VERTICAL
5	2483.50	53.91	54.00	-0.09	20.19	4.95	28.77	0.00	202	142	Average	VERTICAL
6	2485.40	73.57	74.00	-0.43	39.85	4.95	28.77	0.00	202	142	Peak	VERTICAL

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

Channel 9

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2463.60	115.95			82.29	4.93	28.73	0.00	184	316	Peak	VERTICAL
2	2467.20	105.84			72.18	4.93	28.73	0.00	184	316	Average	VERTICAL
3	2483.50	53.89	54.00	-0.11	20.17	4.95	28.77	0.00	184	316	Average	VERTICAL
4	2486.00	69.66	74.00	-4.34	35.94	4.95	28.77	0.00	184	316	Peak	VERTICAL

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

Note:

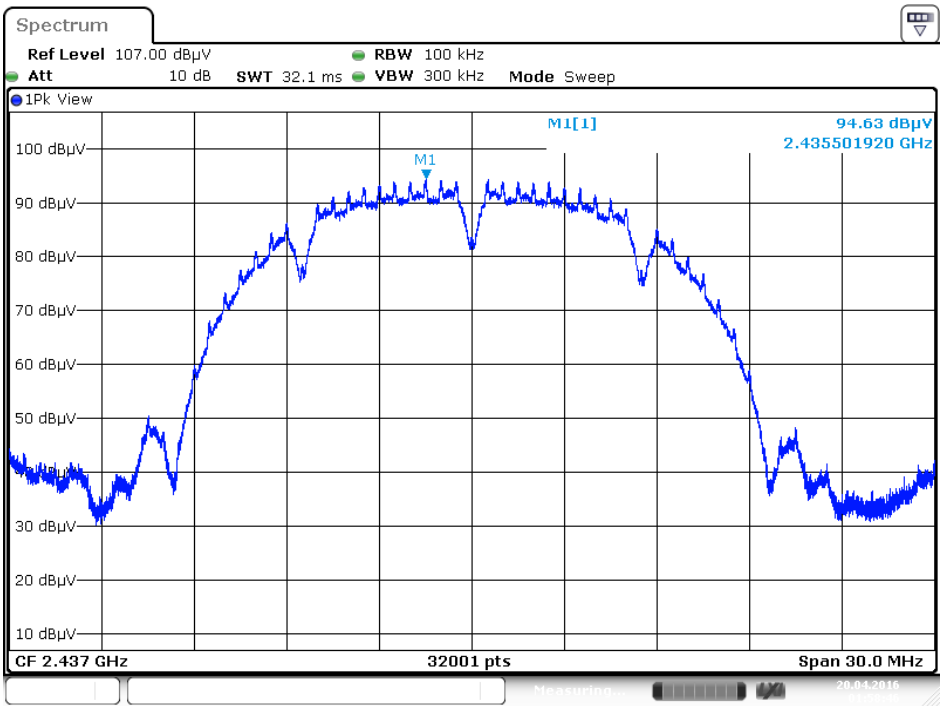
Emission level (dBuV/m) = 20 log Emission level (uV/m).

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

For Emission not in Restricted Band

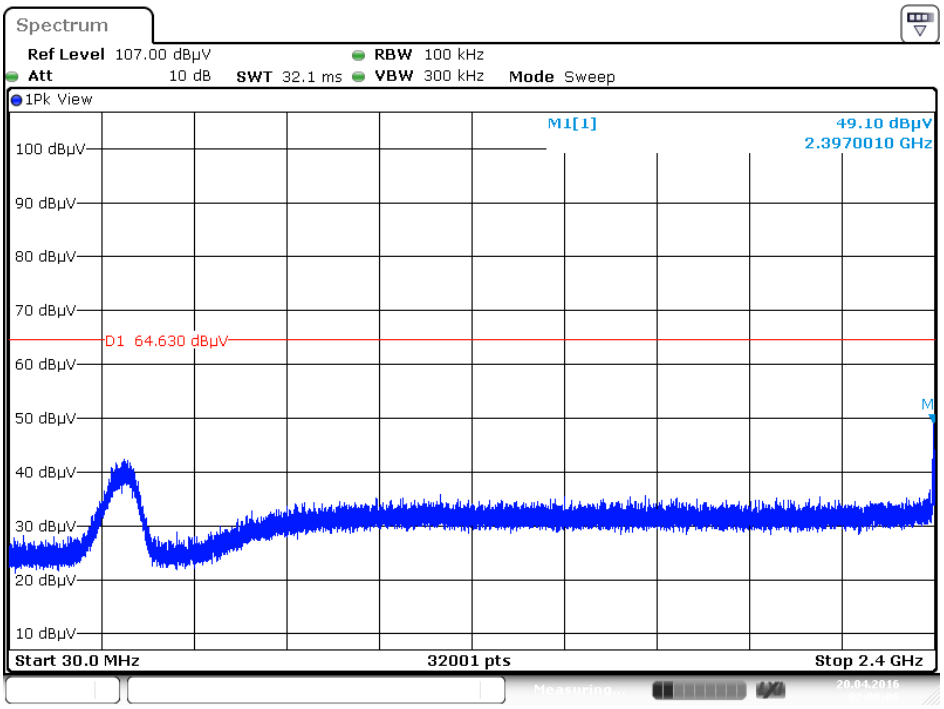
For non-beamforming function:

Plot on Configuration IEEE 802.11b / Reference Level



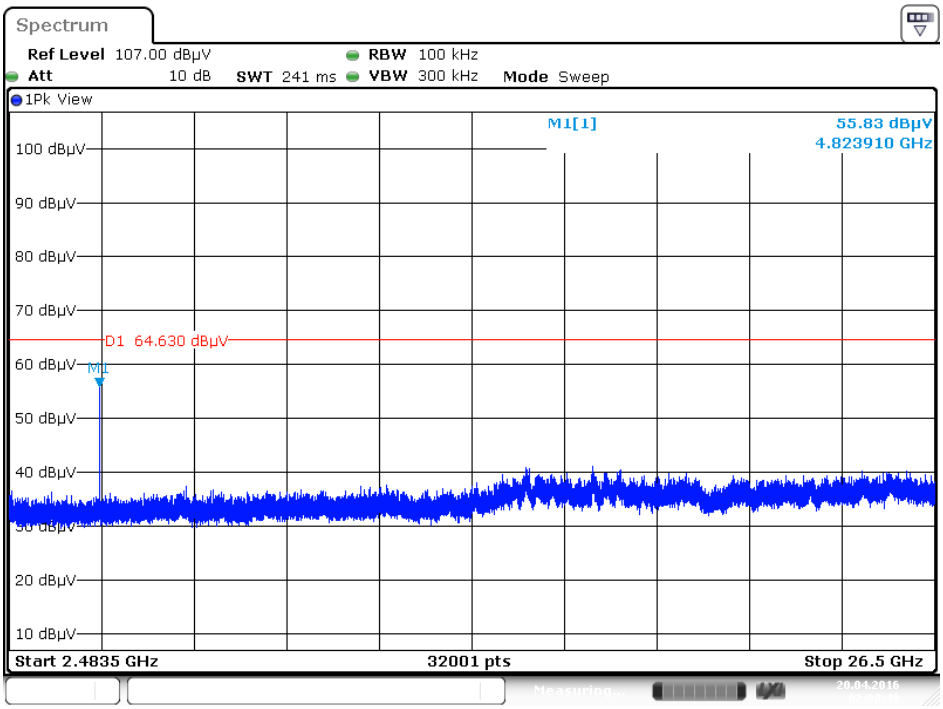
Date: 20.APR.2016 01:58:47

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



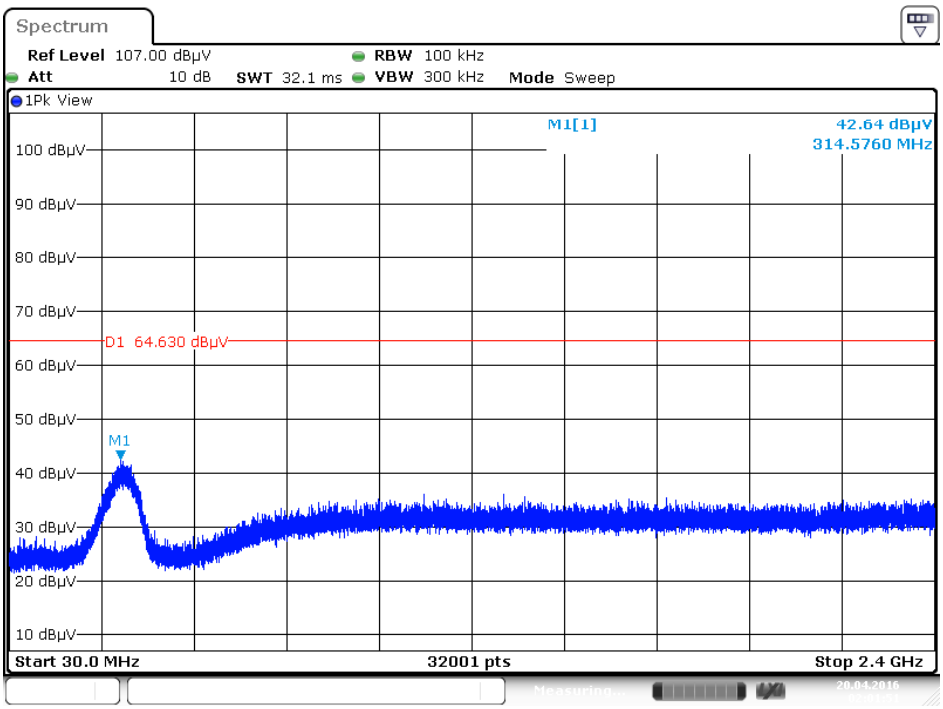
Date: 20.APR.2016 02:00:07

Plot on Configuration IEEE 802.11b / CH 1 / 2483.5MHz~26500MHz (down 30dBc)



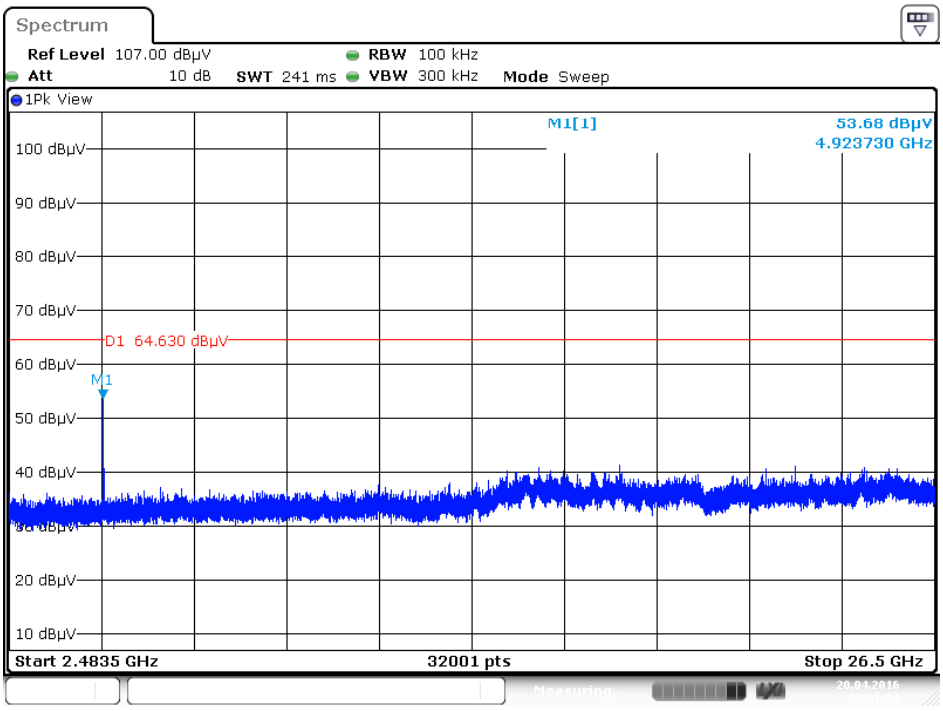
Date: 20.APR.2016 02:00:49

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



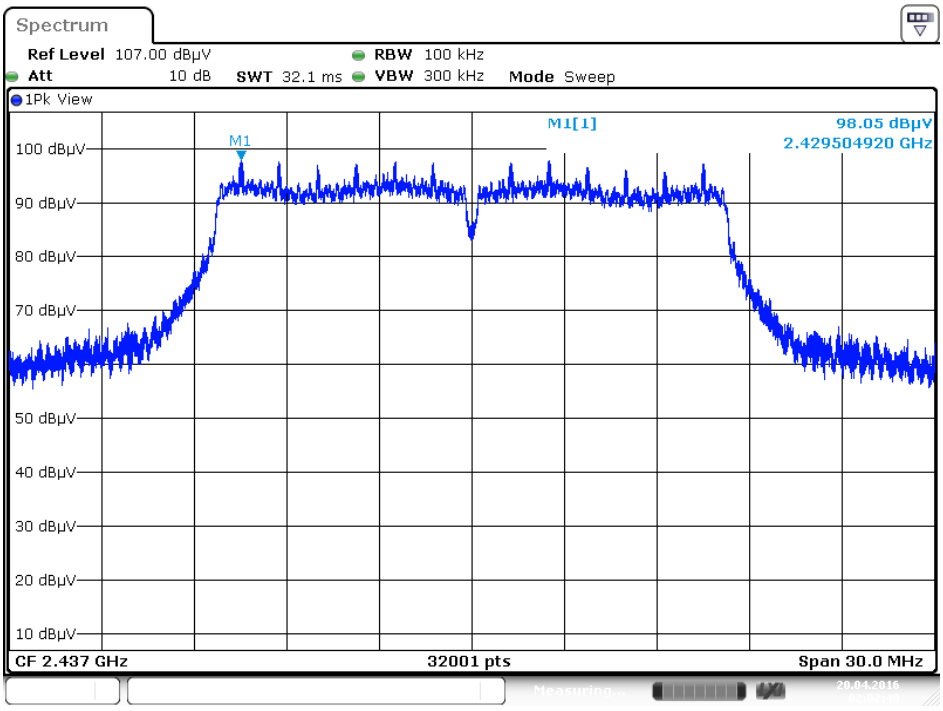
Date: 20.APR.2016 02:01:50

Plot on Configuration IEEE 802.11b / CH 11 / 2483.5MHz~26500MHz (down 30dBc)



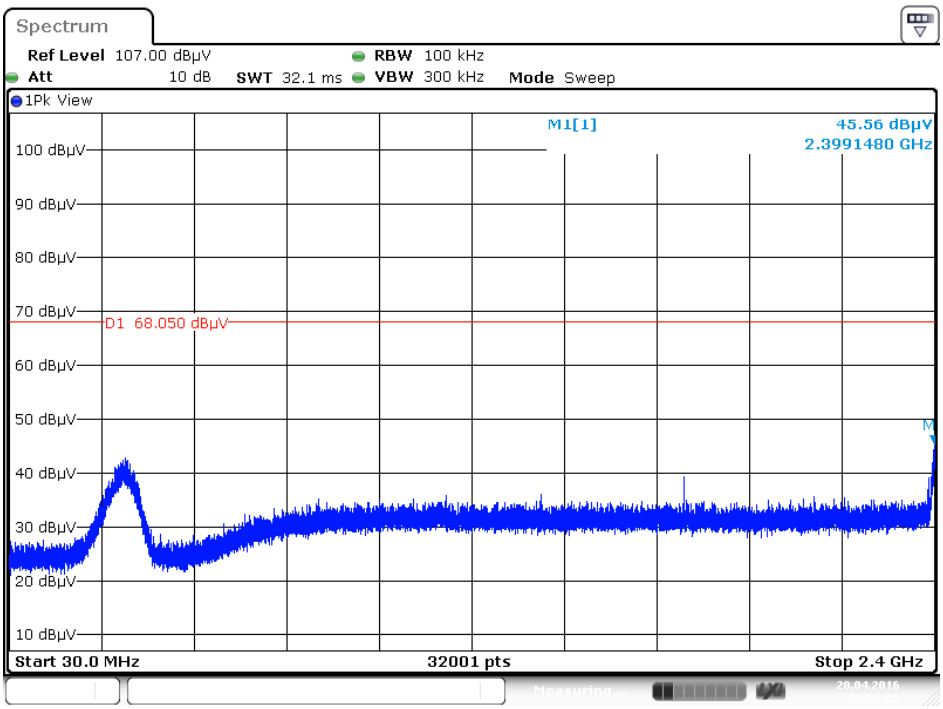
Date: 20.APR.2016 02:01:24

Plot on Configuration IEEE 802.11g / Reference Level



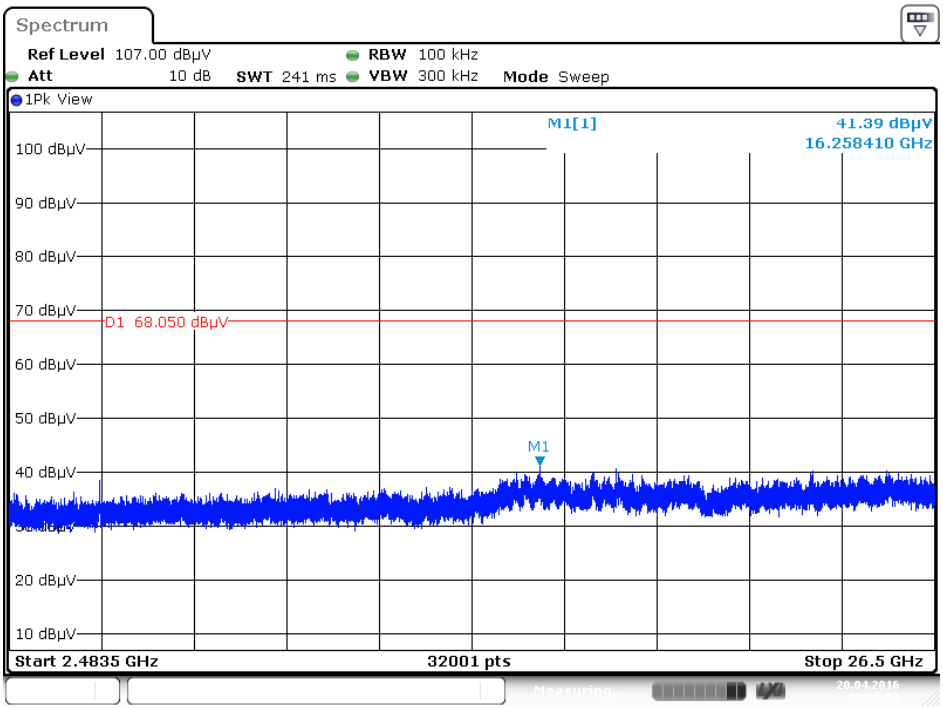
Date: 20.APR.2016 02:02:40

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



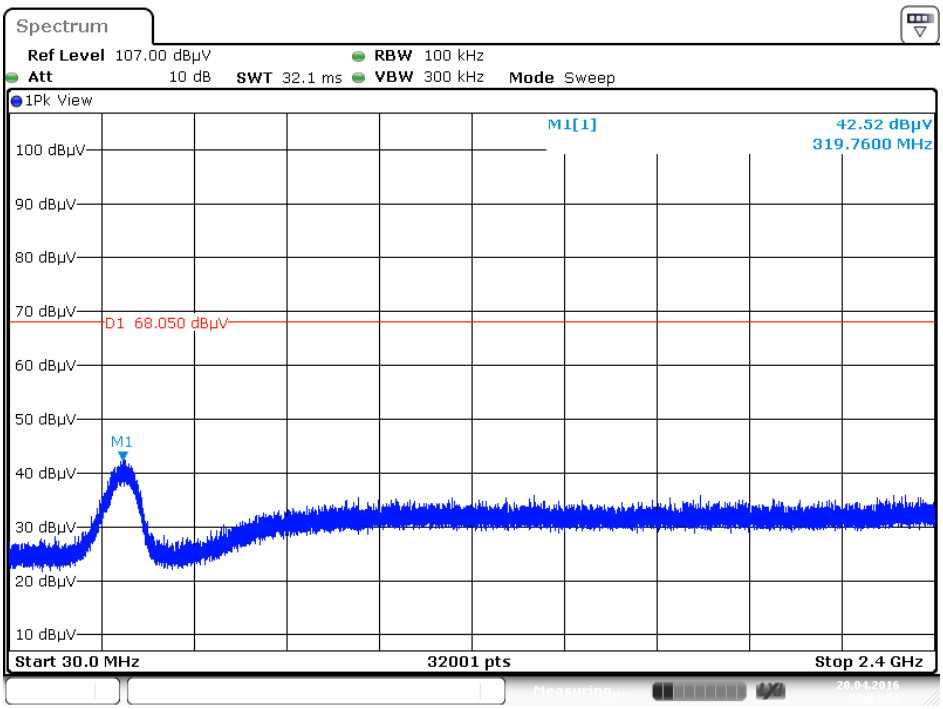
Date: 20.APR.2016 02:03:25

Plot on Configuration IEEE 802.11g / CH 1 / 2483.5MHz~26500MHz (down 30dBc)



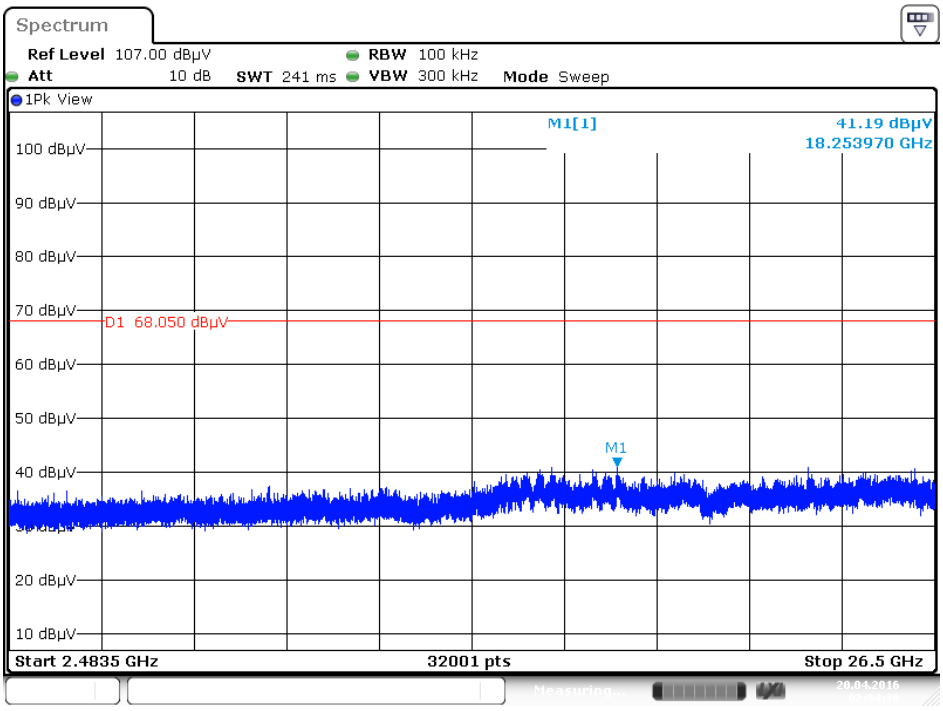
Date: 20.APR.2016 02:03:54

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



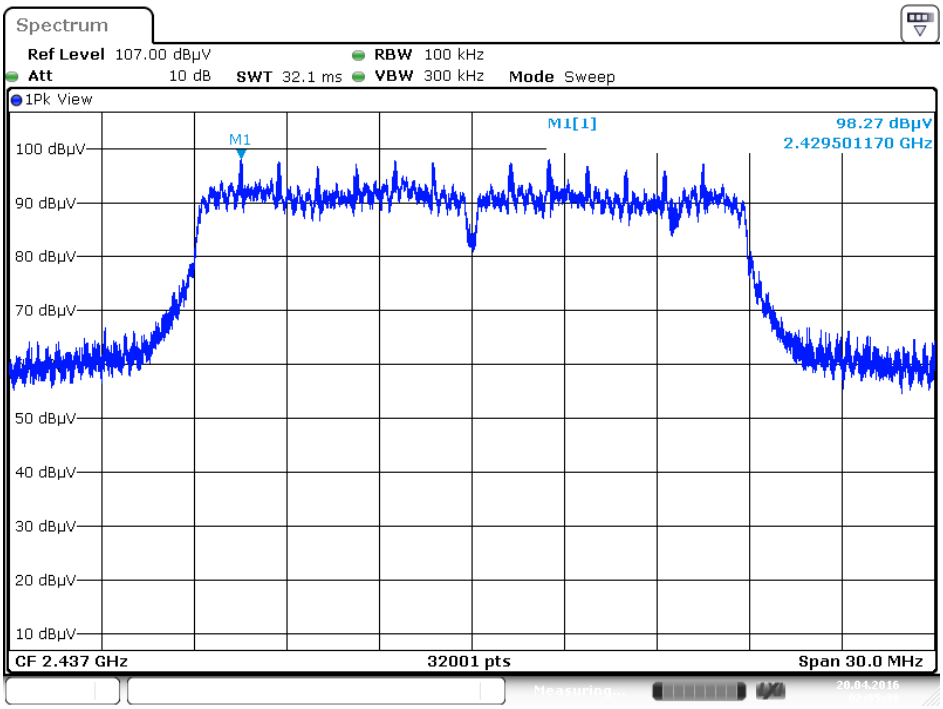
Date: 20.APR.2016 02:04:53

Plot on Configuration IEEE 802.11g / CH 11 / 2483.5MHz~26500MHz (down 30dBc)



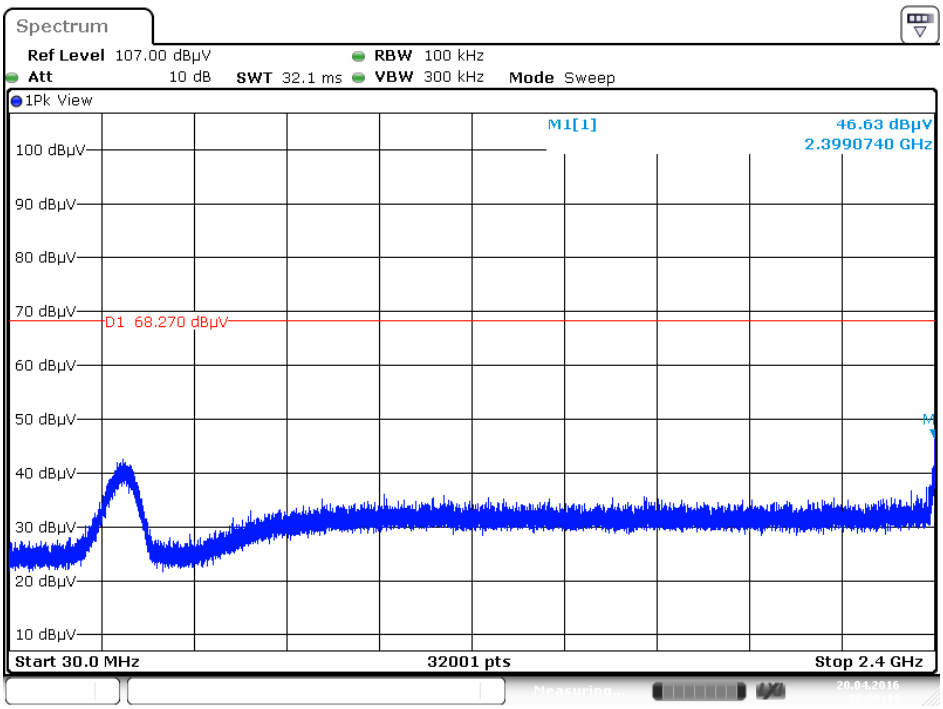
Date: 20.APR.2016 02:04:29

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



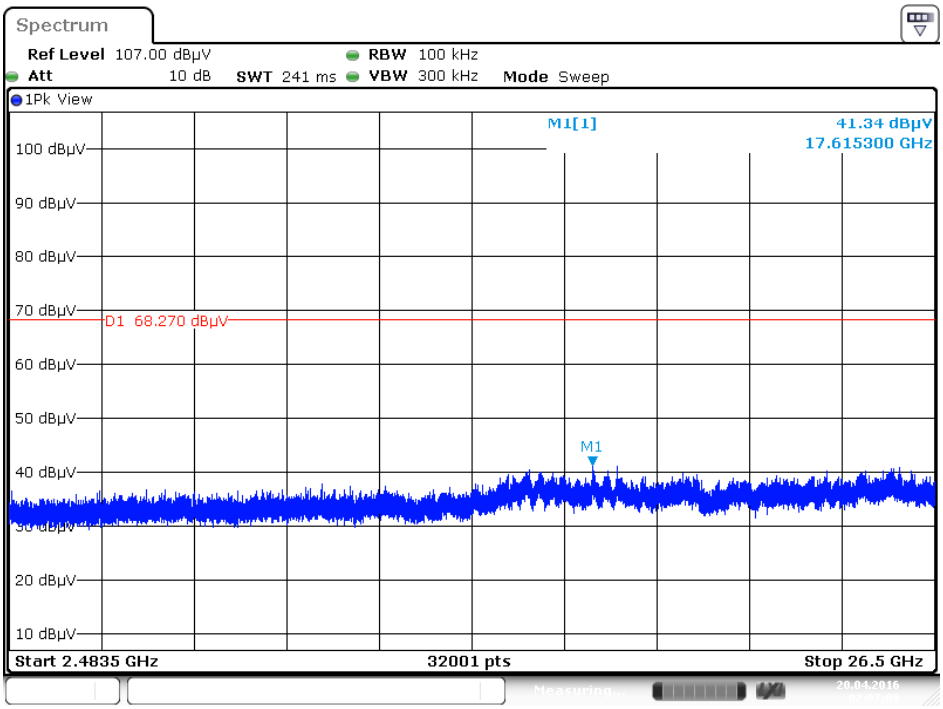
Date: 20.APR.2016 02:05:38

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 1 / 30MHz~2400MHz (down 30dBc)



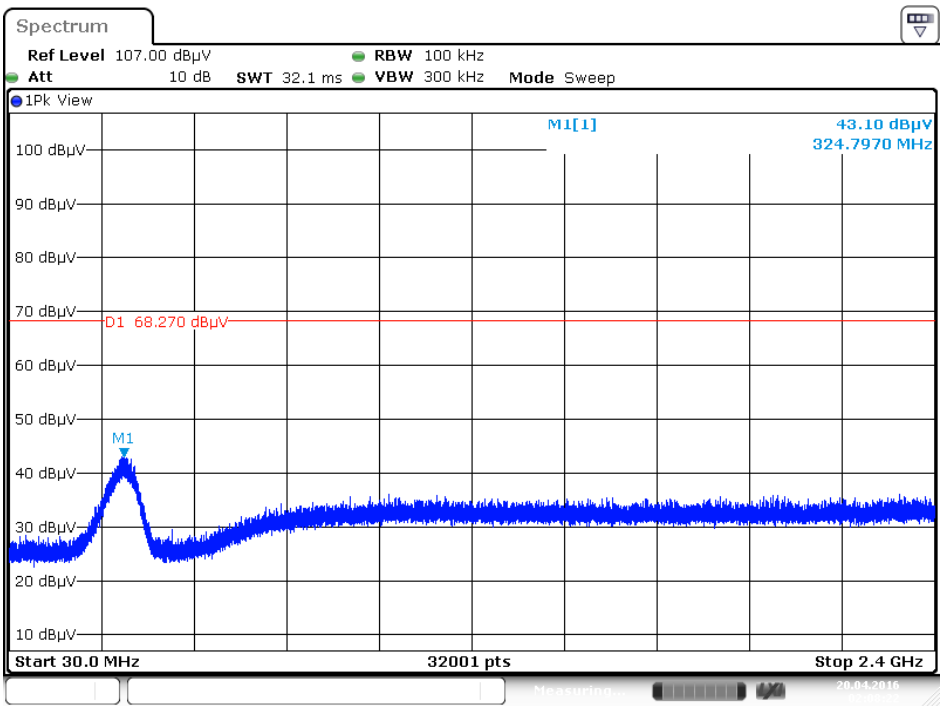
Date: 20.APR.2016 02:06:44

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 1 / 2483.5MHz~26500MHz (down 30dBc)



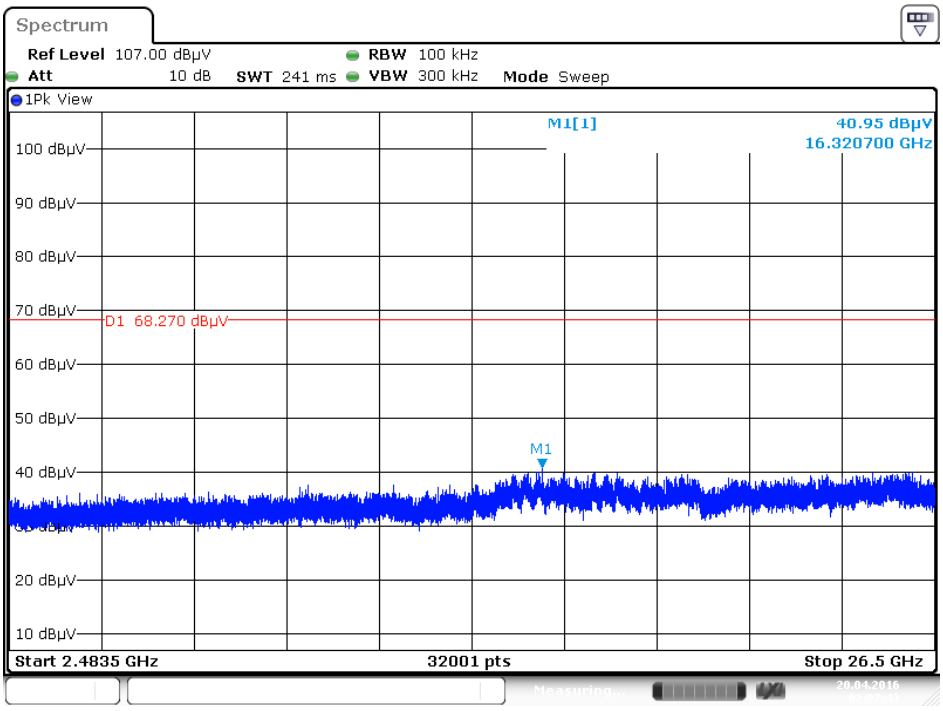
Date: 20.APR.2016 02:07:09

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 11 / 30MHz~2400MHz (down 30dBc)



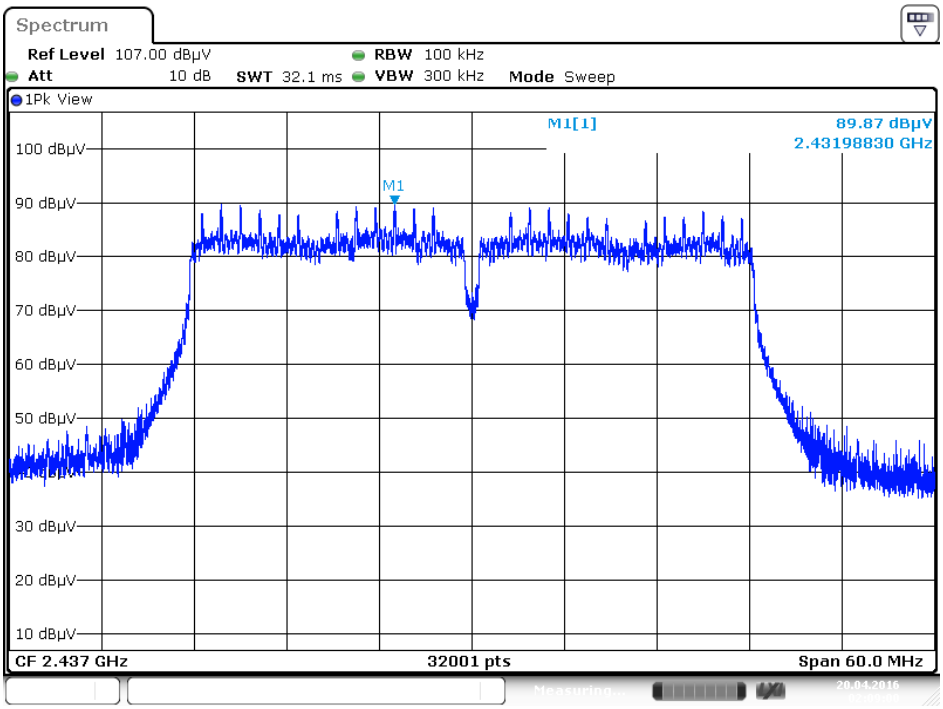
Date: 20.APR.2016 02:08:22

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 11 / 2483.5MHz~26500MHz (down 30dBc)



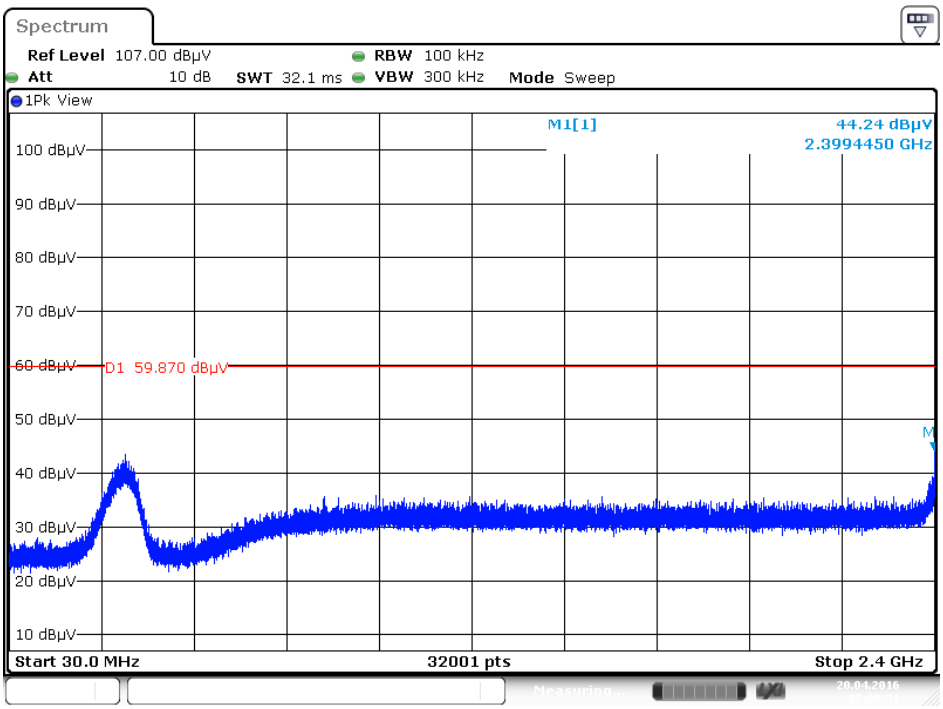
Date: 20.APR.2016 02:07:44

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



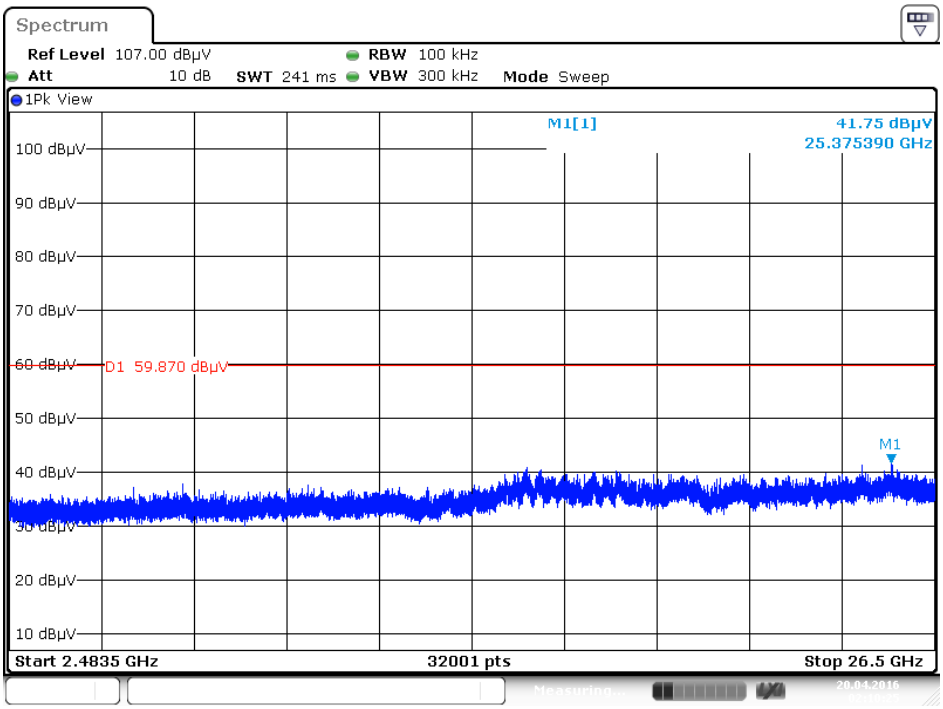
Date: 20.APR.2016 02:09:00

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 3 / 30MHz~2400MHz (down 30dBc)



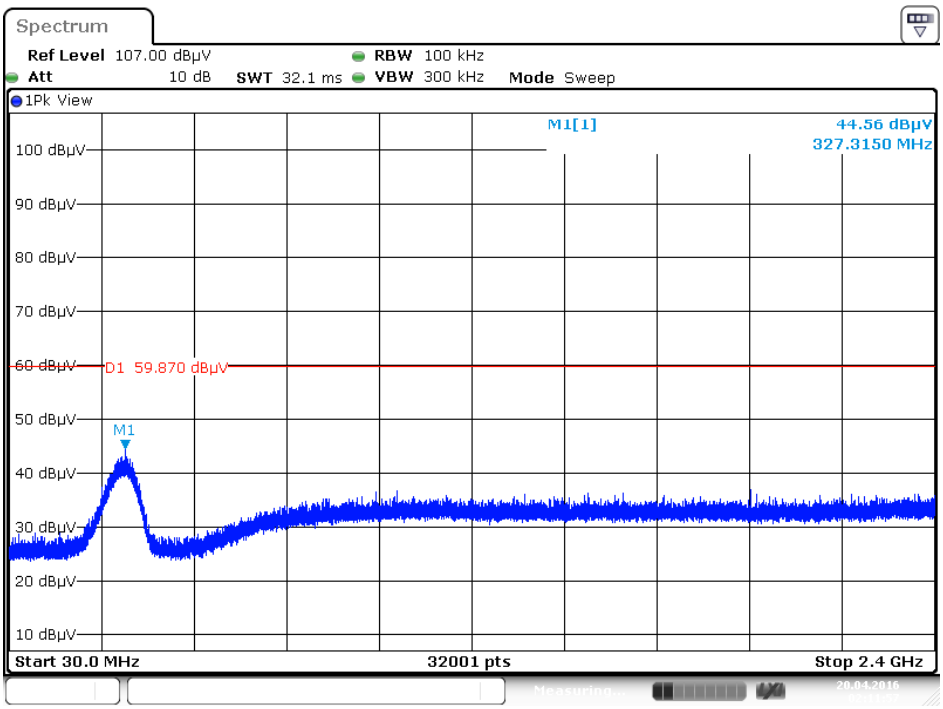
Date: 20.APR.2016 02:09:52

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 3 / 2483.5MHz~26500MHz (down 30dBc)



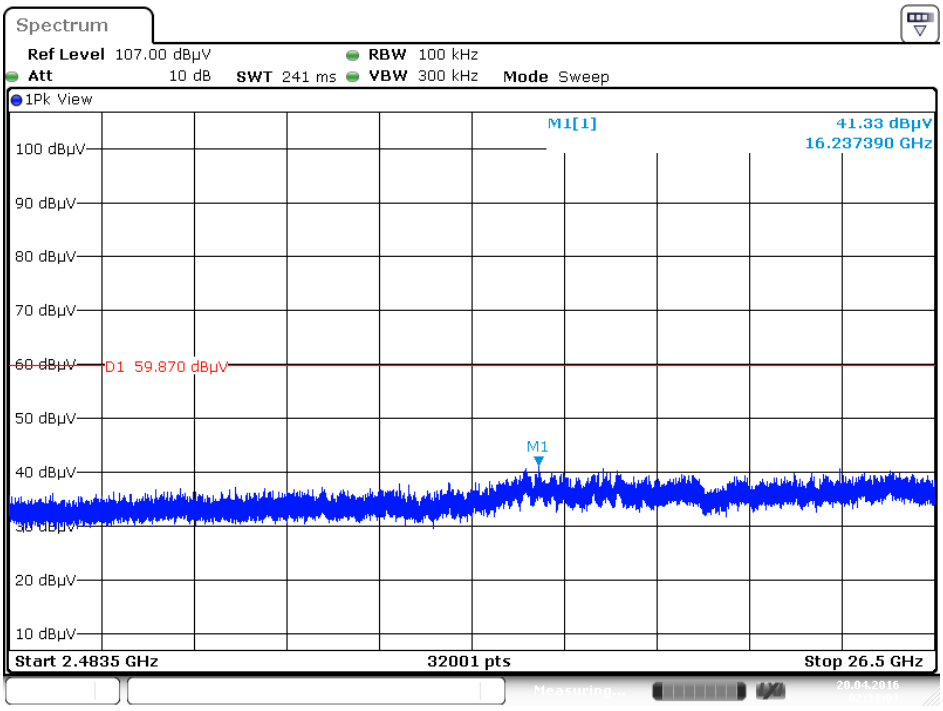
Date: 20.APR.2016 02:10:25

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 9 / 30MHz~2400MHz (down 30dBc)



Date: 20.APR.2016 02:11:57

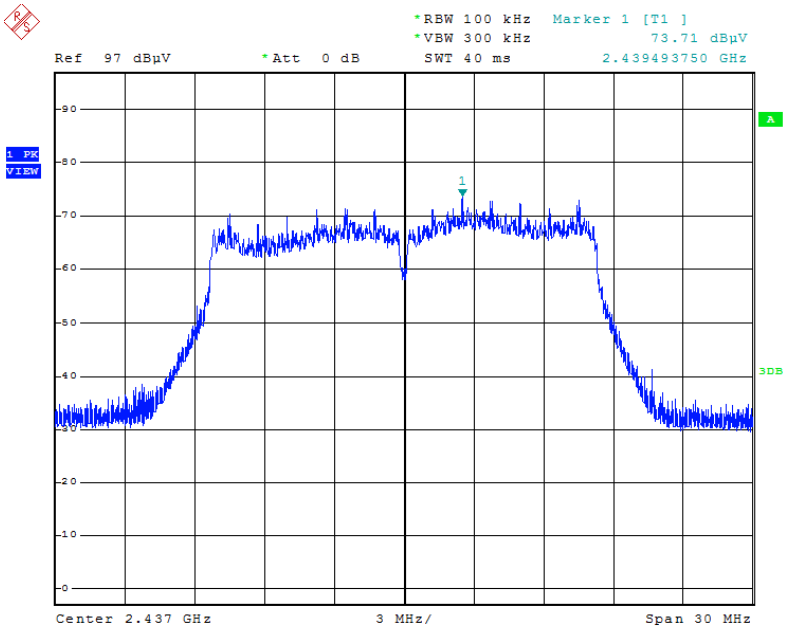
Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 9 / 2483.5MHz~26500MHz (down 30dBc)



Date: 20.APR.2016 02:11:02

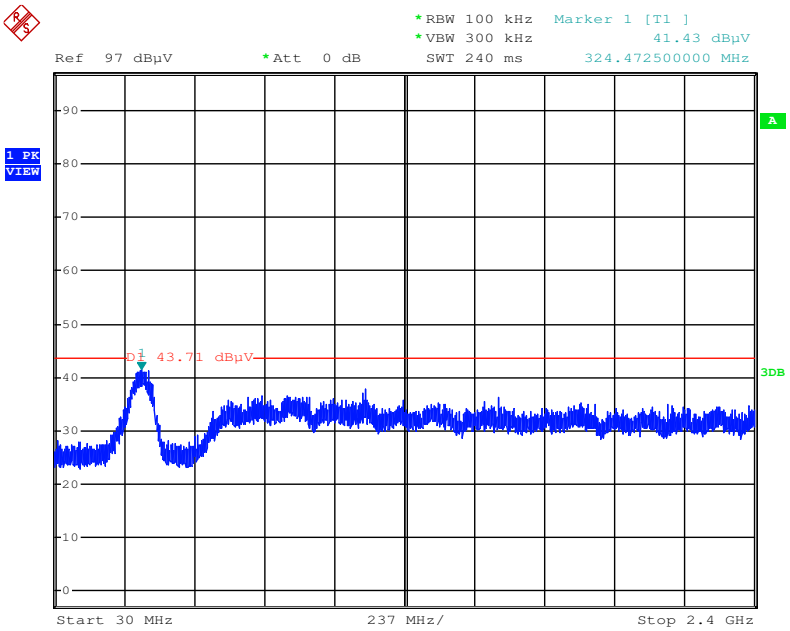
For beamforming function:

Plot on Configuration IEEE 802.11g / Reference Level



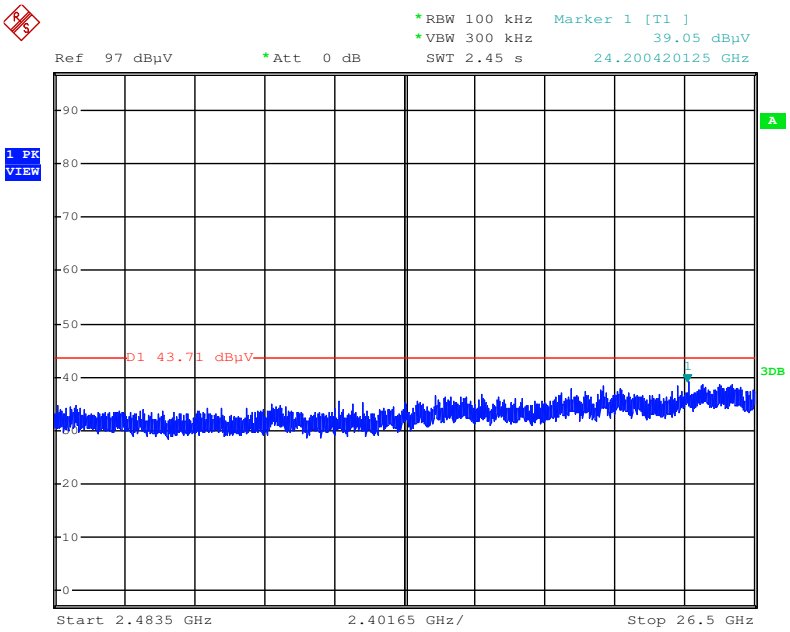
Date: 31.MAY.2016 21:12:17

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



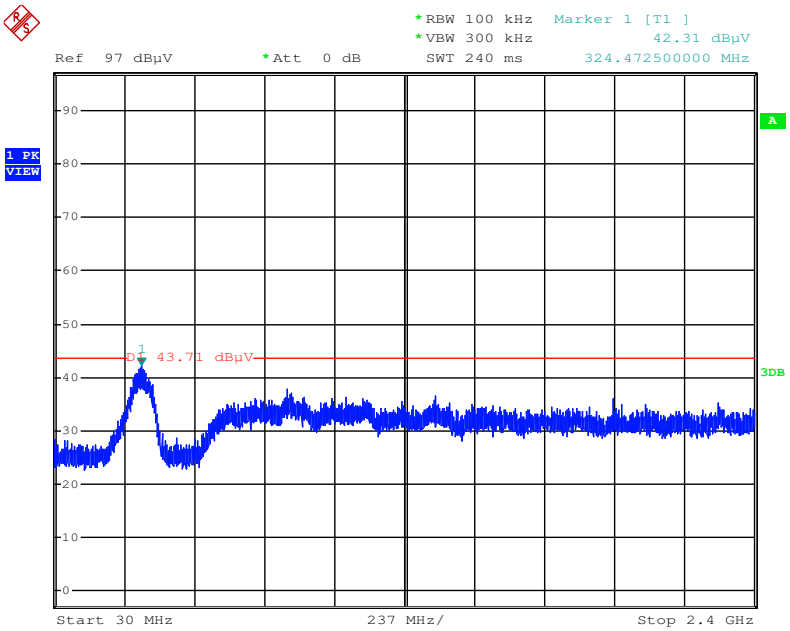
Date: 31.MAY.2016 21:16:51

Plot on Configuration IEEE 802.11g / CH 1 / 2483.5MHz~26500MHz (down 30dBc)



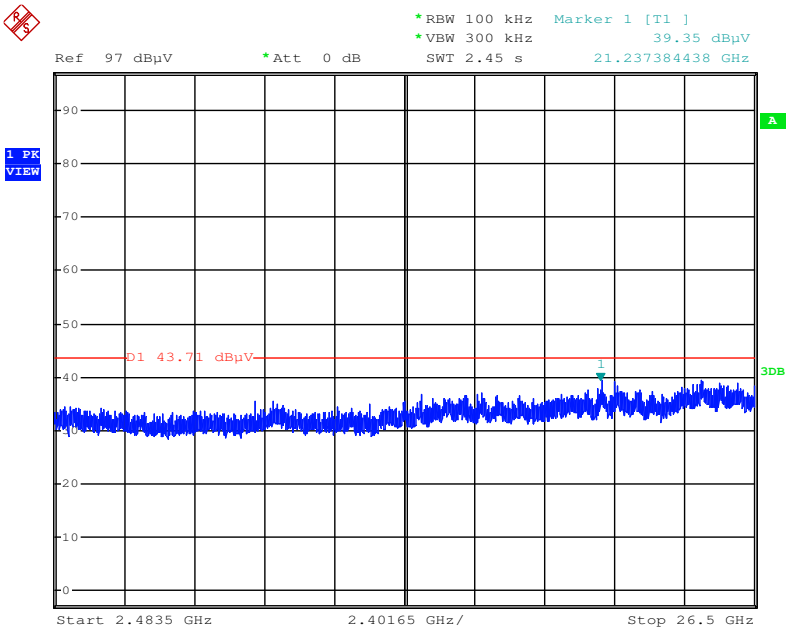
Date: 31.MAY.2016 21:18:21

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



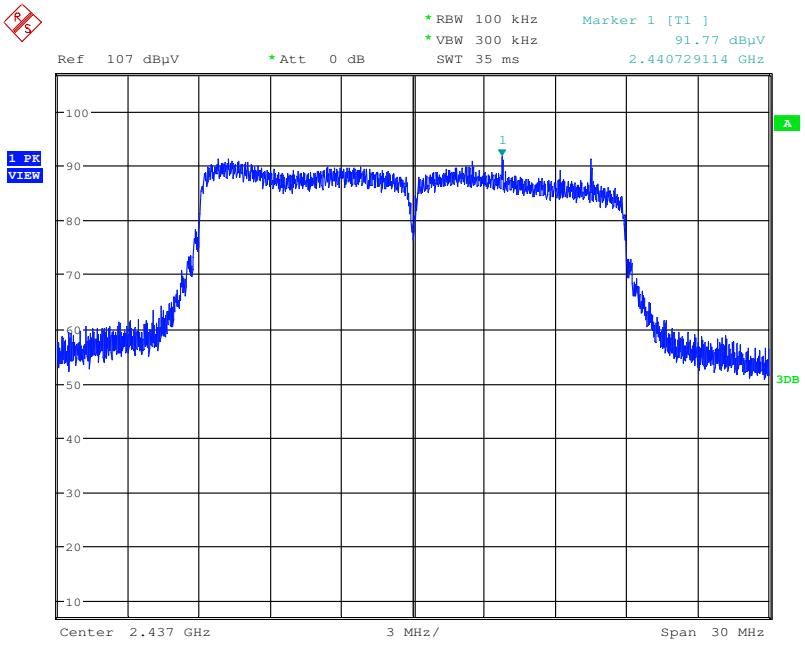
Date: 31.MAY.2016 21:22:07

Plot on Configuration IEEE 802.11g / CH 11 / 2483.5MHz~26500MHz (down 30dBc)



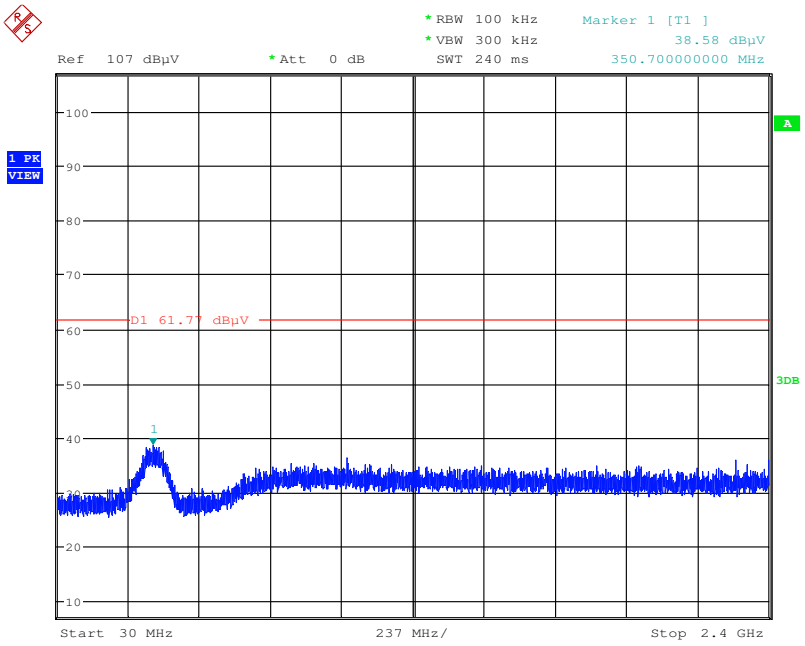
Date: 31.MAY.2016 21:22:54

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



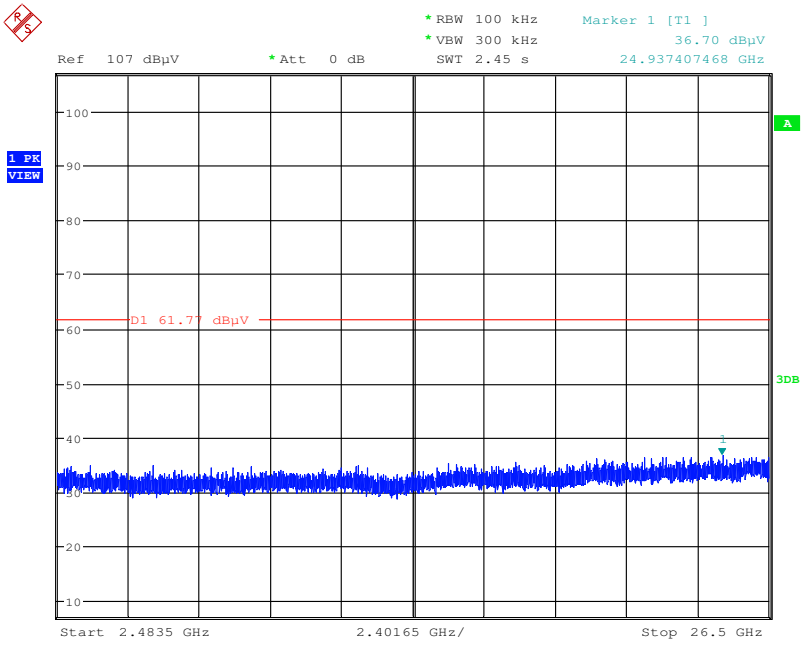
Date: 23.MAR.2016 23:26:13

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 1 / 30MHz~2400MHz (down 30dBc)



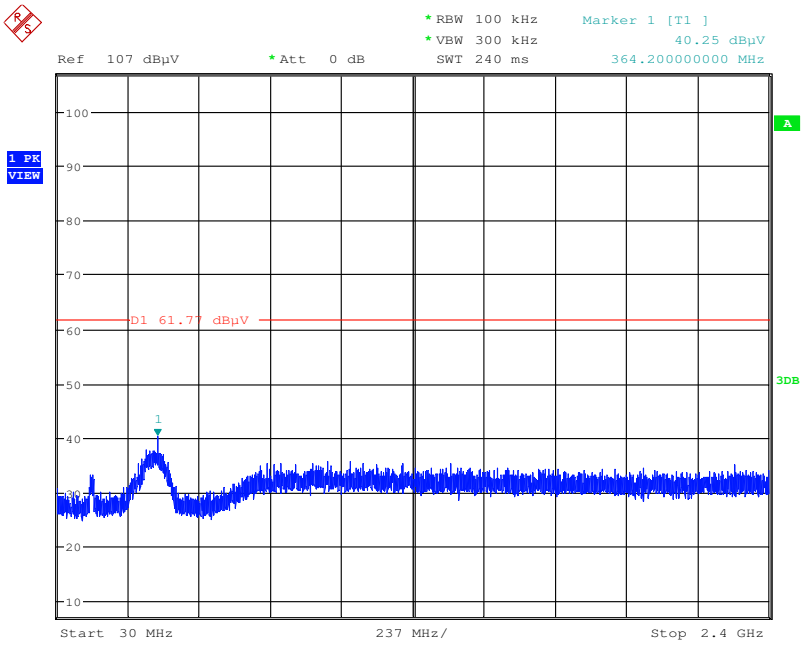
Date: 23.MAR.2016 23:39:40

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 1 / 2483.5MHz~26500MHz (down 30dBc)



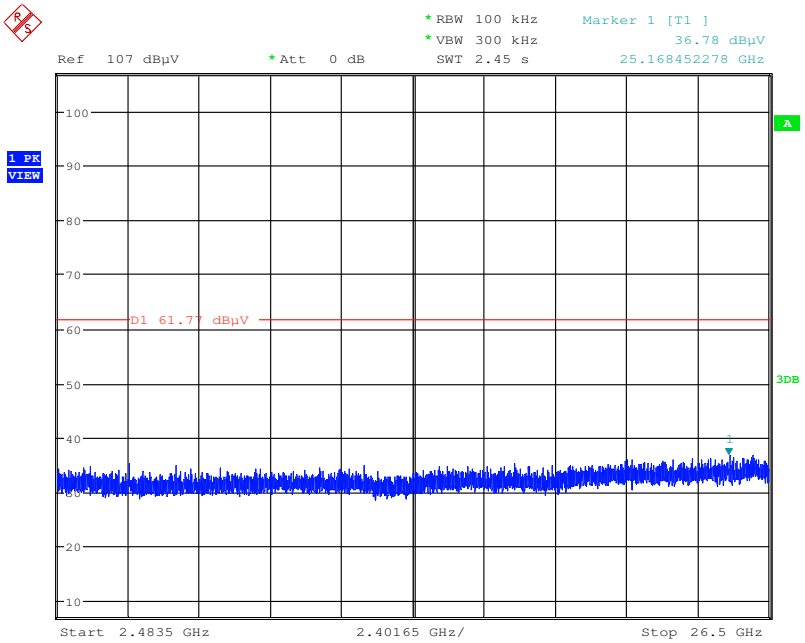
Date: 23.MAR.2016 23:40:28

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 11 / 30MHz~2400MHz (down 30dBc)



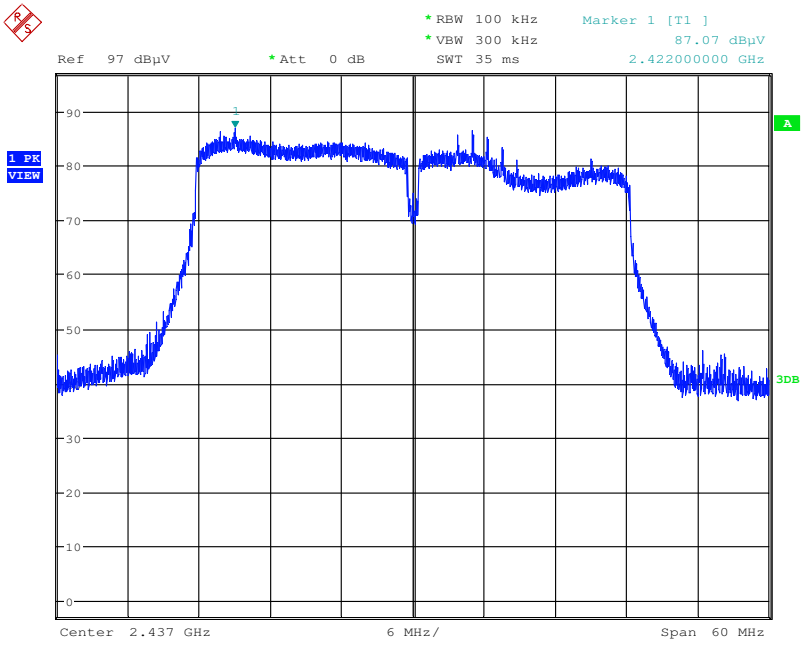
Date: 23.MAR.2016 23:36:14

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 11 / 2483.5MHz~26500MHz (down 30dBc)



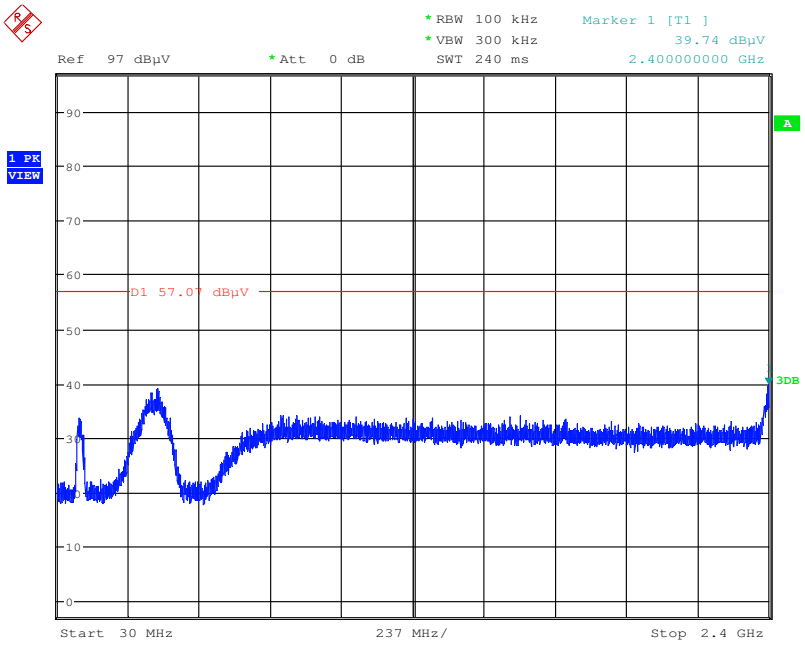
Date: 23.MAR.2016 23:36:50

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



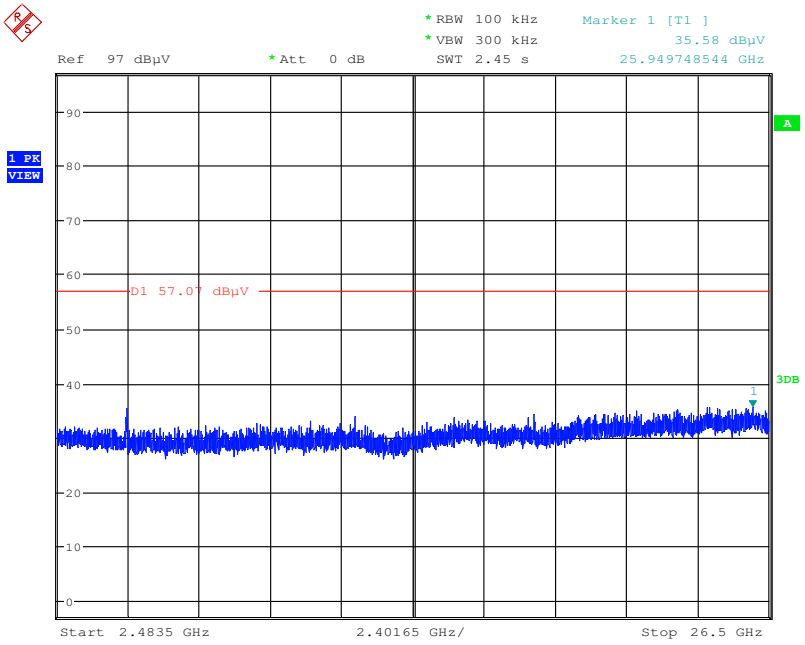
Date: 23.MAR.2016 23:08:56

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 3 / 30MHz~2400MHz (down 30dBc)



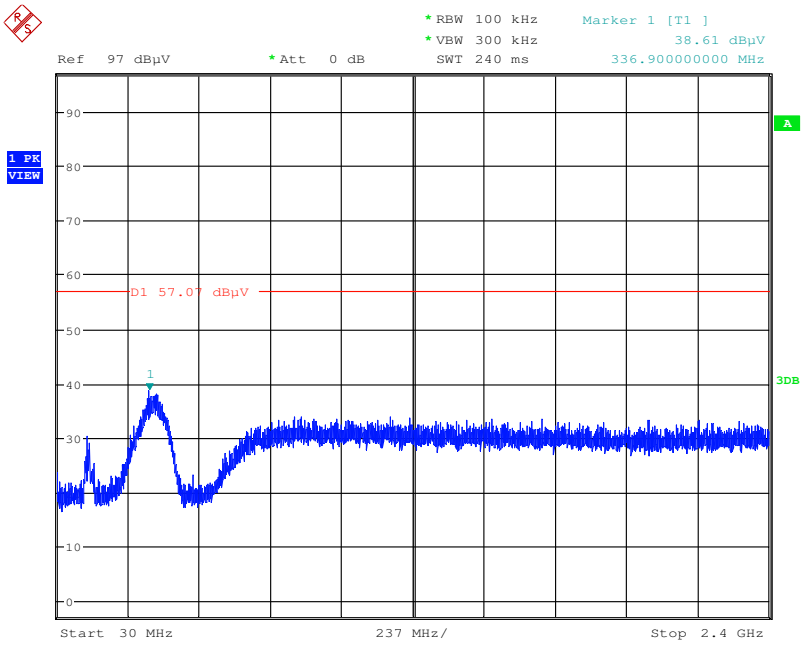
Date: 23.MAR.2016 23:11:42

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 3 / 2483.5MHz~26500MHz (down 30dBc)



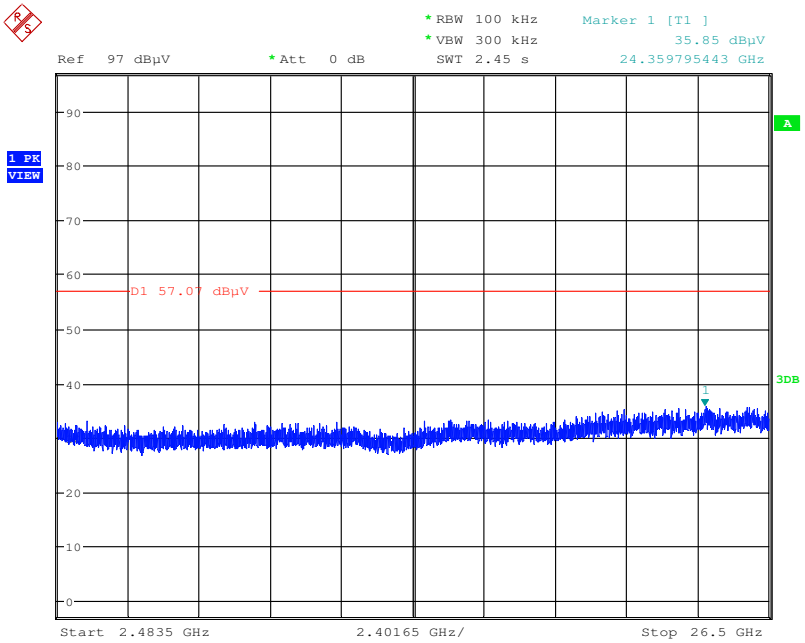
Date: 23.MAR.2016 23:12:21

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 9 / 30MHz~2400MHz (down 30dBc)



Date: 23.MAR.2016 23:22:16

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 9 / 2483.5MHz~26500MHz (down 30dBc)



Date: 23.MAR.2016 23:21:52

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
EMI Receiver	Agilent	N9038A	My52260123	9kHz ~ 8.45GHz	Jan. 27, 0216	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150kHz ~ 100MHz	Dec. 08, 2015	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Dec. 23, 2015	Conduction (CO01-CB)
COND Cable	Woken	Cable	01	150kHz ~ 30MHz	May 25, 2015	Conduction (CO01-CB)
Software	Audix	E3	6.120210n	-	N.C.R.	Conduction (CO01-CB)
BILOG ANTENNA	TESEQ	CBL6112D	37880	20MHz ~ 2GHz	Sep. 03, 2015	Radiation (03CH01-CB)
Horn Antenna	EMCO	3115	00075790	750MHz ~ 18GHz	Oct. 22, 2015	Radiation (03CH01-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Jul. 21, 2015	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8447D	2944A10991	0.1MHz ~ 1.3GHz	Mar. 15, 2016	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Jan. 18, 2016	Radiation (03CH01-CB)
Pre-Amplifier	WM	TF-130N-R1	923365	26GHz ~ 40GHz	Nov. 13, 2015	Radiation (03CH01-CB)
Spectrum Analyzer	R&S	FSP40	100056	9kHz ~ 40GHz	Oct. 27, 2015	Radiation (03CH01-CB)
EMI Receiver	Agilent	N9038A	MY52260123	9kHz ~ 8.4GHz	Jan. 27, 2016	Radiation (03CH01-CB)
RF Cable-low	Woken	Low Cable-1	N/A	30 MHz ~ 1 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-16	N/A	1 GHz ~ 18 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-17	N/A	1 GHz ~ 18 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G-1	N/A	18GHz ~ 40 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G-2	N/A	18GHz ~ 40 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
Loop Antenna	Teseq	HLA 6120	24155	9kHz - 30 MHz	Mar. 16, 2016*	Radiation (03CH01-CB)
Spectrum analyzer	R&S	FSV40	100979	9kHz~40GHz	Dec. 09, 2015	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-6	1 GHz – 26.5 GHz	Nov. 02, 2015	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-7	1 GHz – 26.5 GHz	Nov. 02, 2015	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-8	1 GHz – 26.5 GHz	Nov. 02, 2015	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-9	1 GHz – 26.5 GHz	Nov. 02, 2015	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-10	1 GHz – 26.5 GHz	Nov. 02, 2015	Conducted (TH01-CB)
Power Sensor	Agilent	U2021XA	MY53410001	50MHz~18GHz	Nov. 02, 2015	Conducted (TH01-CB)

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

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

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

6. MEASUREMENT UNCERTAINTY

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