



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	Mojo Networks, Inc.
Applicant Address	339 N. Bernardo Avenue, Suite #200 Mountain View, CA 94043 United States
FCC ID	TOR-C130
Manufacturer's company	Mojo Networks, Inc.
Manufacturer Address	339 N. Bernardo Avenue, Suite #200 Mountain View, CA 94043 United States

Product Name	802.11a/b/g/n/ac AP
Brand Name	MOJO
Model No.	C-130
Test Rule	47 CFR FCC Part 15 Subpart C § 15.247
Test Freq. Range	2400 ~ 2483.5MHz
Received Date	Apr. 13, 2016
Final Test Date	Jul. 14, 2016
Submission Type	Original Equipment

Statement

Test result included in this report is for the IEEE 802.11n, IEEE 802.11b/g and IEEE 802.11ac 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, KDB 662911 D01 v02r01 and KDB644545 D01 v01r02.**

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



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History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR641226-02AA	Rev. 01	Initial issue of report	Jul. 18, 2016

1. VERIFICATION OF COMPLIANCE

Product Name : 802.11 a/b/g/n/ac AP
Brand Name : MOJO
Model No. : C-130
Applicant : Mojo Networks, Inc.
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 Apr. 13, 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	For rado 1- WLAN (4TX, 4RX) For rado 3- WLAN (2TX, 2RX)
Radio Type	Intentional Transceiver
Power Type	From power adapter or PoE
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 radio 1 <For Non-Beamforming Mode> IEEE 802.11b: 14.15 MHz IEEE 802.11g: 17.97 MHz IEEE 802.11ac MCS0/Nss1 (VHT20): 17.89 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 34.01 MHz <For Beamforming Mode> IEEE 802.11ac MCS0/Nss1 (VHT20): 17.89 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 37.05 MHz For radio 3 IEEE 802.11b: 14.33 MHz IEEE 802.11g: 17.11 MHz IEEE 802.11ac MCS0/Nss1 (VHT20): 18.41 MHz IEEE 802.11ac MCS0/Nss1 (VHT40): 37.48 MHz

Maximum Conducted Output Power	<p>For radio 1</p> <p><For Non-Beamforming Mode></p> <p>IEEE 802.11b: 27.49 dBm</p> <p>IEEE 802.11g: 27.23 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT20): 27.25 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT40): 19.82 dBm</p> <p><For Beamforming Mode></p> <p>IEEE 802.11ac MCS0/Nss1 (VHT20): 21.89 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT40): 19.90 dBm</p> <p>For radio 3</p> <p>IEEE 802.11b: 24.82 dBm</p> <p>IEEE 802.11g: 24.50 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT20): 24.41 dBm</p> <p>IEEE 802.11ac MCS0/Nss1 (VHT40): 21.70 dBm</p>
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

Items	Description	
Beamforming Function	<input checked="" type="checkbox"/> With beamforming	<input type="checkbox"/> Without beamforming

Note: The product has beamforming function for 802.11n/ac in 2.4GHz and 5GHz.

Antenna and Band width

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

IEEE 11n/ac Spec.

Radio	Protocol	Number of Transmit Chains (NTX)	Data Rate / MCS
Radio 1	802.11n (HT20)	4	MCS 0-31
Radio 1	802.11n (HT40)	4	MCS 0-31
Radio 1	802.11ac (VHT20)	4	MCS 0-9/Nss1-4
Radio 1	802.11ac (VHT40)	4	MCS 0-9/Nss1-4
Radio 3	802.11n (HT20)	2	MCS 0-15
Radio 3	802.11n (HT40)	2	MCS 0-15
Radio 3	802.11ac (VHT20)	2	MCS 0-9/Nss1-2
Radio 3	802.11ac (VHT40)	2	MCS 0-9/Nss1-2

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, VHT40 in 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	Rating
Adapter (Switchable Adapter)	APD	WA-24Q12R	Input: 100-240V~, 50-60Hz, 0.7A Max Output: 12V, 2A
Others			
RJ-45 cable, Non-shielded, 1m			
US Plug*1			

3.3. Table for Filed Antenna

Ant.	Brand	P/N	Antenna Type	Connector	Gain (dBi)	
					2.4GHz	5GHz
1	WNC	95XKAA15.GBV	PIFA Antenna	I-PEX	4.64	-
2	WNC	95XKAA15.GBW	PIFA Antenna	I-PEX	4.56	-
3	WNC	95XKAA15.GBX	PIFA Antenna	I-PEX	4.47	-
4	WNC	95XKAA15.GBY	PIFA Antenna	I-PEX	4.82	-
5	WNC	95XKAA15.GBZ	PIFA Antenna	I-PEX	-	5.71
6	WNC	95XKAA15.GB1	PIFA Antenna	I-PEX	-	5.64
7	WNC	95XKAA15.GB2	PIFA Antenna	I-PEX	-	5.67
8	WNC	95XKAA15.GB3	PIFA Antenna	I-PEX	-	5.68
9	WNC	95XKAA15.GAI	PIFA Antenna	I-PEX	4.20	5.77
10	WNC	95XKAA15.GAH	PIFA Antenna	I-PEX	4.64	5.75

Note1: The EUT has ten antennas.

Note2: The EUT has three radios, Radio 1 supports WLAN 2.4GHz, Radio 2 supports WLAN 5GHz and Radio 3 supports WLAN 2.4GHz + 5GHz (scanning radio) function.

For radio 1

For 2.4GHz WLAN function:

For IEEE 802.11b/g/n/ac mode (4TX/4RX)

Chain 1, Chain 2, Chain 3 and Chain 4 can be used as transmitting/receiving antenna.

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

For radio 2

For 5GHz WLAN function:

For IEEE 802.11a/n/ac mode (4TX/4RX)

Chain 5, Chain 6, Chain 7 and Chain 8 can be used as transmitting/receiving antenna.

Chain 5, Chain 6, Chain 7 and Chain 8 could transmit/receive simultaneously.

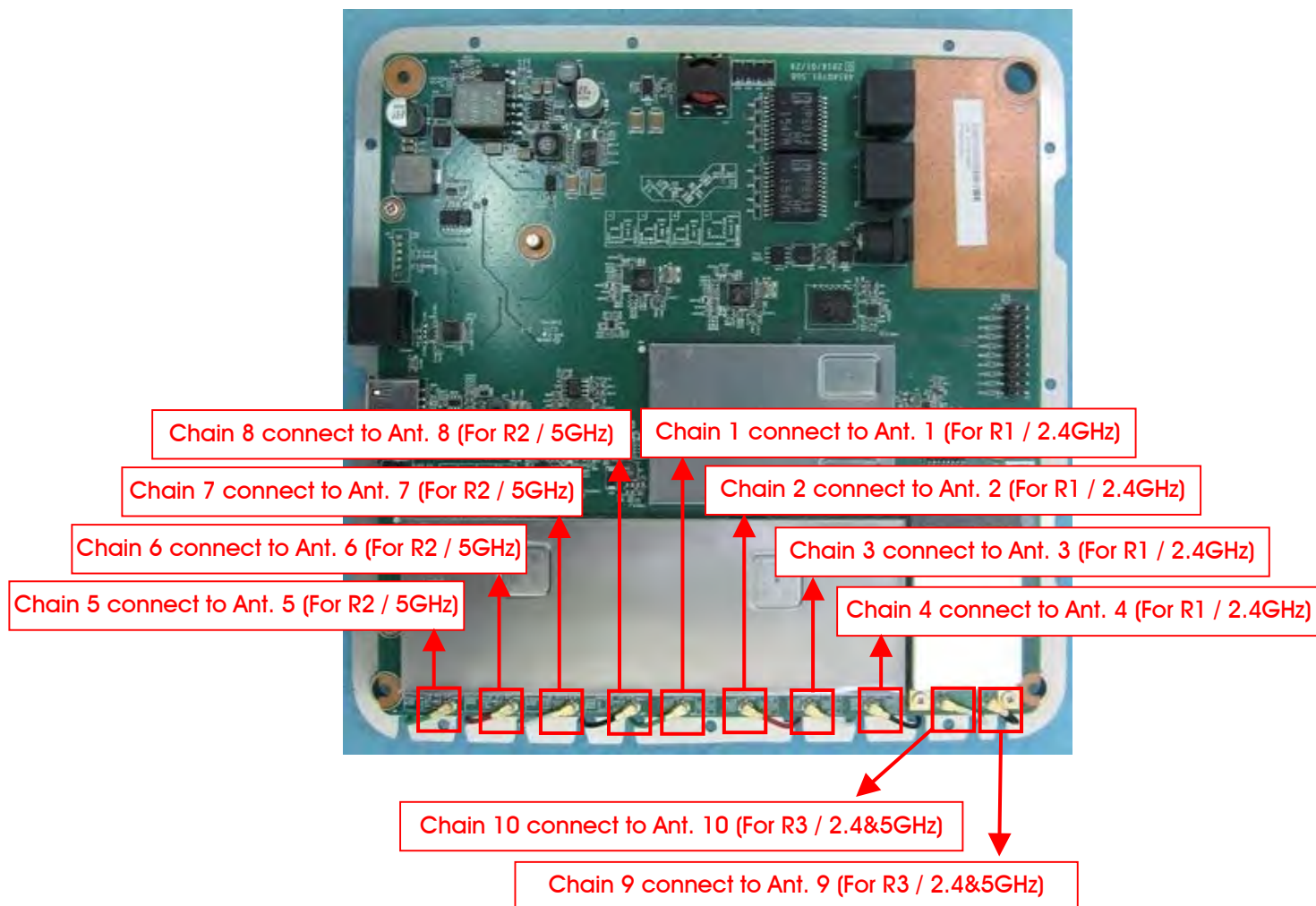
For radio 3

For 2.4GHz / 5GHz WLAN function:

For IEEE 802.11a/b/g/n/ac mode (2TX/2RX)

Chain 9 and Chain 10 can be used as transmitting/receiving antenna.

Chain 9 and Chain 10 could transmit/receive simultaneously.



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 radio 1			
	<For Non-Beamforming Mode>			
	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 Mode>			
	11ac VHT20	MCS0/Nss1	1/6/11	1+2+3+4
	11ac VHT40	MCS0/Nss1	3/6/9	1+2+3+4
	For radio 3			
	11b/CCK	1 Mbps	1/6/11	9+10
	11g/BPSK	6 Mbps	1/6/11	9+10
	11ac VHT20	MCS0/Nss1	1/6/11	9+10
	11ac VHT40	MCS0/Nss1	3/6/9	9+10
Power Spectral Density	For radio 1			
	<For Non-Beamforming Mode>			
	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 Mode>			
	11ac VHT20	MCS0/Nss1	1/6/11	1+2+3+4
	11ac VHT40	MCS0/Nss1	3/6/9	1+2+3+4
	For radio 3			
	11b/CCK	1 Mbps	1/6/11	9+10
	11g/BPSK	6 Mbps	1/6/11	9+10
	11ac VHT20	MCS0/Nss1	1/6/11	9+10
	11ac VHT40	MCS0/Nss1	3/6/9	9+10

6dB Spectrum Bandwidth	For radio 1			
	<For Non-Beamforming Mode>			
	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 Mode>			
	11ac VHT20	MCS0/Nss1	1/6/11	1+2+3+4
	11ac VHT40	MCS0/Nss1	3/6/9	1+2+3+4
	For radio 3			
	11b/CCK	1 Mbps	1/6/11	9+10
	11g/BPSK	6 Mbps	1/6/11	9+10
	11ac VHT20	MCS0/Nss1	1/6/11	9+10
	11ac VHT40	MCS0/Nss1	3/6/9	9+10
Radiated Emissions 9kHz~1GHz	Normal Link	-	-	-
Radiated Emissions 1GHz~10 th Harmonic	For radio 1			
	<For Non-Beamforming Mode>			
	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 Mode>			
	11ac VHT20	MCS0/Nss1	1/6/11	1+2+3+4
	11ac VHT40	MCS0/Nss1	3/6/9	1+2+3+4
	For radio 3			
	11b/CCK	1 Mbps	1/6/11	9+10
	11g/BPSK	6 Mbps	1/6/11	9+10
	11ac VHT20	MCS0/Nss1	1/6/11	9+10
	11ac VHT40	MCS0/Nss1	3/6/9	9+10

Band Edge Emissions	For radio 1			
	<For Non-Beamforming Mode>			
	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 Mode>			
	11ac VHT20	MCS0/Nss1	1/6/11	1+2+3+4
	11ac VHT40	MCS0/Nss1	3/6/9	1+2+3+4
	For radio 3			
	11b/CCK	1 Mbps	1/6/11	9+10
	11g/BPSK	6 Mbps	1/6/11	9+10
	11ac VHT20	MCS0/Nss1	1/6/11	9+10
	11ac VHT40	MCS0/Nss1	3/6/9	9+10

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.

Note 2: There are two modes of EUT, one is beamforming mode, and the other is non-beamforming mode for 802.11n/ac. All test results were recorded in the report.

Note 3: The PoE information as below, The PoE is for measurement only and it would not be marketed.

Support Unit	Brand	Model	FCC ID
PoE	PHIHONG	POE16R-1AF	DoC

The following test modes were performed for all tests:

For Conducted Emission test:

Mode 1. EUT + Radio 1 (2.4GHz) + Radio 2 (5GHz) + Radio 3 (2.4GHz) + adapter

Mode 2. EUT + Radio 1 (2.4GHz) + Radio 2 (5GHz) + Radio 3 (2.4GHz) + PoE

Mode 2 has been evaluated to be the worst case among Mode 1~2, thus measurement for Mode 3 will follow this same test mode.

Mode 3. EUT + Radio 1 (2.4GHz) + Radio 2 (5GHz) + Radio 3 (5GHz) + PoE

Mode 3 generated the worst test result, so it was recorded in this report.

For Radiated Emission test (Below 1GHz):

Mode 1. EUT in Z axis + Radio 1 (2.4GHz) + Radio 2 (5GHz) + Radio 3 (2.4GHz) + adapter

Mode 2. EUT in Y axis + Radio 1 (2.4GHz) + Radio 2 (5GHz) + Radio 3 (2.4GHz) + adapter

Mode 2 has been evaluated to be the worst case among Mode 1~2, thus measurement for Mode 3 will follow this same test mode.

Mode 3. EUT in Y axis + Radio 1 (2.4GHz) + Radio 2 (5GHz) + Radio 3 (2.4GHz) + PoE

Mode 3 has been evaluated to be the worst case among Mode 1~3, thus measurement for Mode 4 will follow this same test mode.

Mode 4. EUT in Y axis + Radio 1 (2.4GHz) + Radio 2 (5GHz) + Radio 3 (5GHz) + PoE

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

For Radiated Emission test (Above 1GHz):

For radio 1

The EUT was performed at Y axis and Z axis position for Radiated emission above 1GHz test, and the worst case was found at Z axis. So the measurement will follow this same test configuration.

For radio 3

The EUT was performed at Y axis and Z axis position for Radiated emission above 1GHz test, and the worst case was found at Y axis. So the measurement will follow this same test configuration.

Mode 1. CTX - EUT in Z axis + Radio 1 (2.4GHz)

Mode 2. CTX - EUT in Y axis + Radio 3 (2.4GHz)

For Co-location MPE Test:

Mode 1. EUT + Radio 1 (2.4GHz) + Radio 2 (5GHz) + Radio 3 (2.4GHz)

Mode 2. EUT + Radio 1 (2.4GHz) + Radio 2 (5GHz) + Radio 3 (5GHz)

The EUT could be applied with 2.4GHz WLAN function and 5GHz WLAN function; therefore Co-location Maximum Permissible Exposure (Please refer to FA641226-02) is added for simultaneously transmit between 2.4GHz WLAN function and 5GHz WLAN function.

3.6. Table for Testing Locations

Test Site Location				
Address:	No.8, Lane 724, Bo-ai St., Jhubei City, Hsinchu County 302, Taiwan, R.O.C.			
TEL:	886-3-656-9065			
FAX:	886-3-656-9085			
Test Site No.	Site Category	Location	FCC 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: CO01-CB

Support Unit	Brand	Model	FCC ID
NB*5	DELL	E6430	DoC
Flash disk3.0	Transcend	JetFlash-700	DoC
PoE	PHIHONG	POE16R-1AF	DoC

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

Support Unit	Brand	Model	FCC ID
NB*4	DELL	E4300	DoC
NB	Apple	Mac Book	DoC
Flash disk	Silicon Power	I-Series	DoC
PoE	PHIHONG	POE16R-1AF	DoC

For Test Site No: TH01-CB

Support Unit	Brand	Model	FCC ID
NB	DELL	E4300	DoC

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

For radio 1

<For Non-Beamforming Mode>

Support Unit	Brand	Model	FCC ID
NB	DELL	E4300	DoC

<For Beamforming Mode>

Support Unit	Brand	Model	FCC ID
NB*2	DELL	E4300	DoC
RX Device	MOJO	C-130	TOR-C130

For radio 3

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.

For radio 1

<For Non-Beamforming Mode>

Test Software Version	QCARCT Ver3.0.144.0					
Mode	Test Frequency (MHz)					
	NCB: 20MHz			NCB: 40MHz		
	2412 MHz	2437 MHz	2462 MHz	2422 MHz	2437 MHz	2452 MHz
802.11b	19.5	21	19	-	-	-
802.11g	12.5	20.5	15	-	-	-
802.11ac MCS0/Nss1 VHT20	12.5	20	15	-	-	-
802.11ac MCS0/Nss1 VHT40	-	-	-	9	13	11

<For Beamforming Mode>

Test Software Version	QCARCT Ver3.0.144.0					
Mode	Test Frequency (MHz)					
	NCB: 20MHz			NCB: 40MHz		
	2412 MHz	2437 MHz	2462 MHz	2422 MHz	2437 MHz	2452 MHz
802.11ac MCS0/Nss1 VHT20	18	21	20.5	-	-	-
802.11ac MCS0/Nss1 VHT40	-	-	-	14	16	19.5

For radio 3

Test Software Version	QCARCT Ver3.0.144.0					
Mode	Test Frequency (MHz)					
	NCB: 20MHz			NCB: 40MHz		
	2412 MHz	2437 MHz	2462 MHz	2422 MHz	2437 MHz	2452 MHz
802.11b	21	21	21	-	-	-
802.11g	18	21	17.5	-	-	-
802.11ac MCS0/Nss1 VHT20	17.5	21	17.5	-	-	-
802.11ac MCS0/Nss1 VHT40	-	-	-	15.5	18.5	16

3.9. EUT Operation during Test

<For Non-Beamforming Mode>

The EUT was programmed to be in continuously transmitting mode.

<For Beamforming Mode>

For Conducted Mode:

The EUT was programmed to be in continuously transmitting mode.

For Radiated Mode:

During the test, the following programs under WIN 7 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 radio 1

<For Non-beamforming Mode>

Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11b	12.340	12.380	99.68%	0.01	0.01
802.11g	2.020	2.080	97.12%	0.13	0.50
802.11ac MCS0/Nss1 VHT20	5.020	5.080	98.82%	0.05	0.01
802.11ac MCS0/Nss1 VHT40	2.450	2.500	98.00%	0.09	0.41

<For Beamforming Mode>

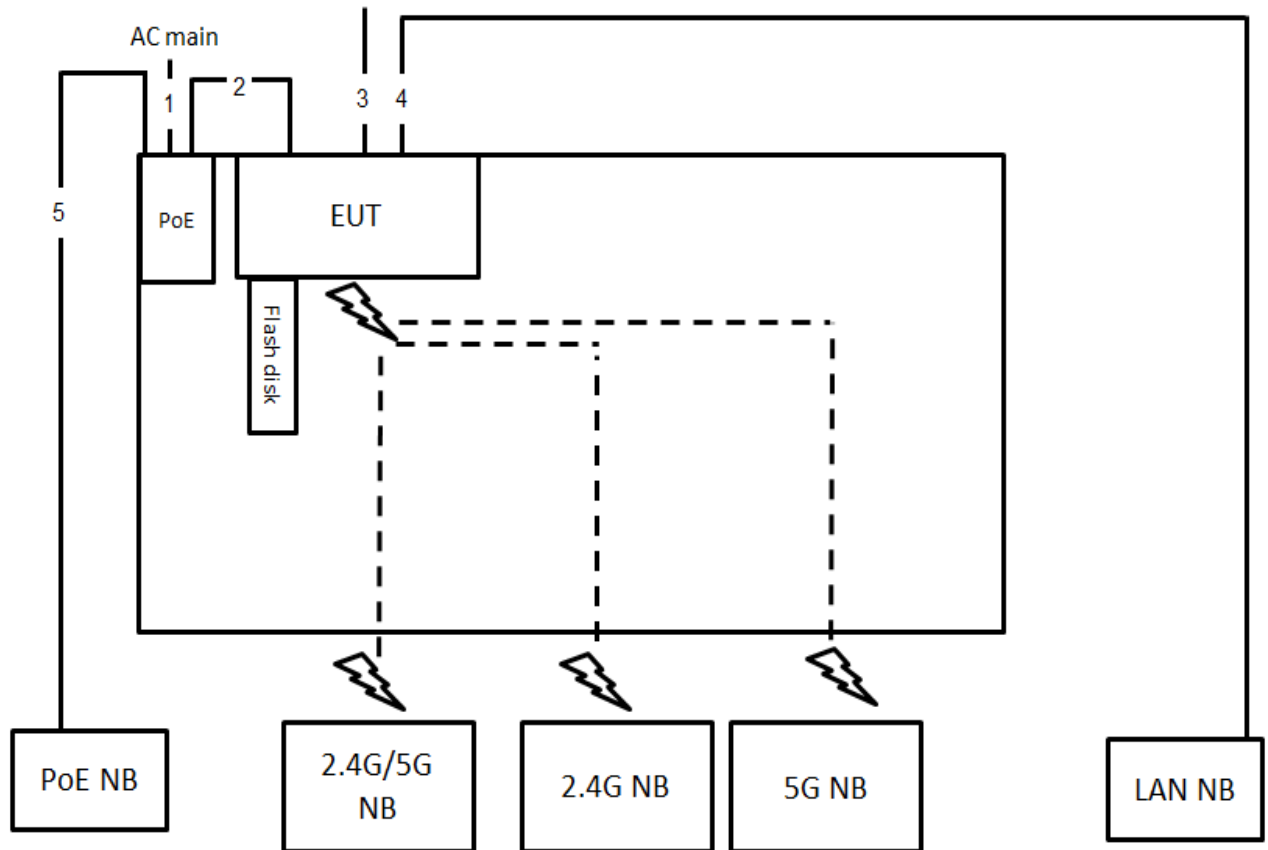
Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11ac MCS0/Nss1 VHT20	1.764	1.926	91.59%	0.38	0.57
802.11ac MCS0/Nss1 VHT40	1.698	1.860	91.29%	0.40	0.59

For radio 3

Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11b	12.460	12.500	99.68%	0.01	0.01
802.11g	2.070	2.140	96.73%	0.14	0.48
802.11ac MCS0/Nss1 VHT20	1.930	2.010	96.02%	0.18	0.52
802.11ac MCS0/Nss1 VHT40	0.952	1.014	93.89%	0.27	1.05

3.11. Test Configurations

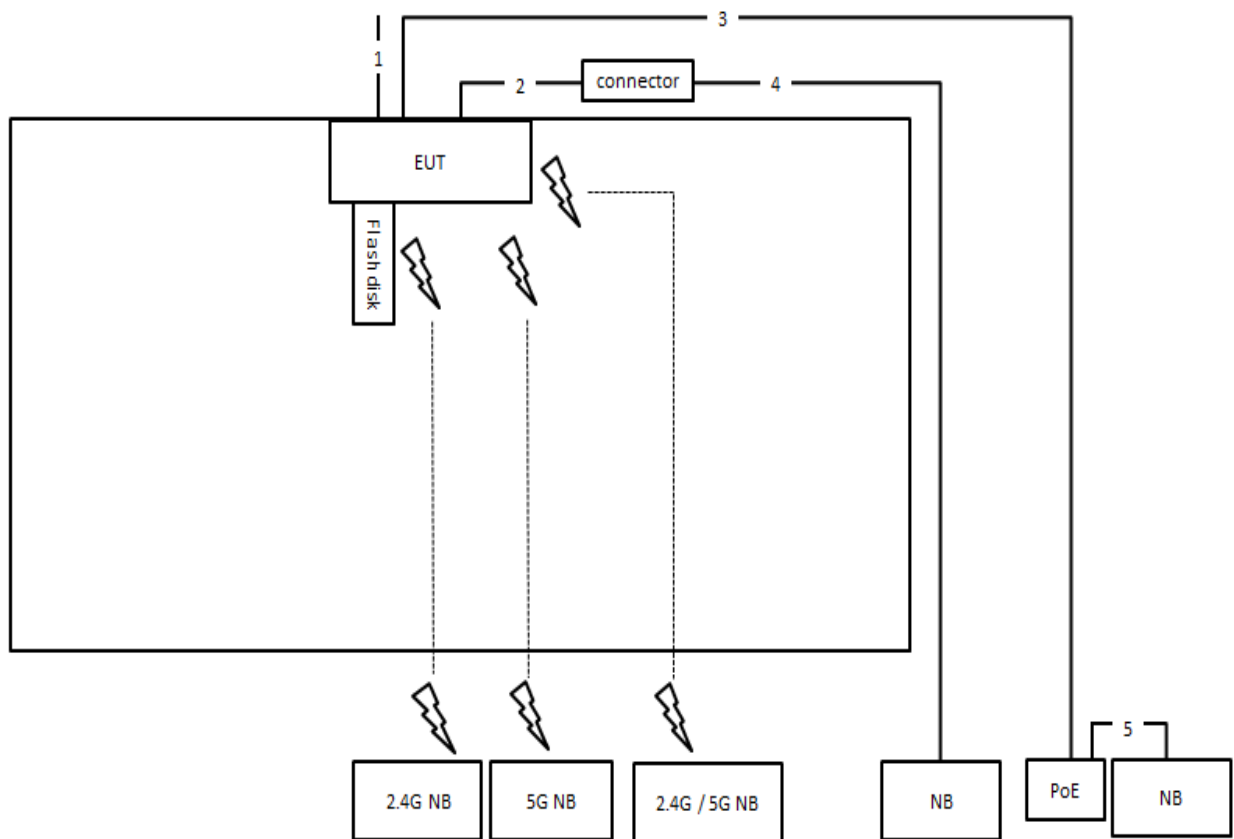
3.11.1. AC Power Line Conduction Emissions Test Configuration



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

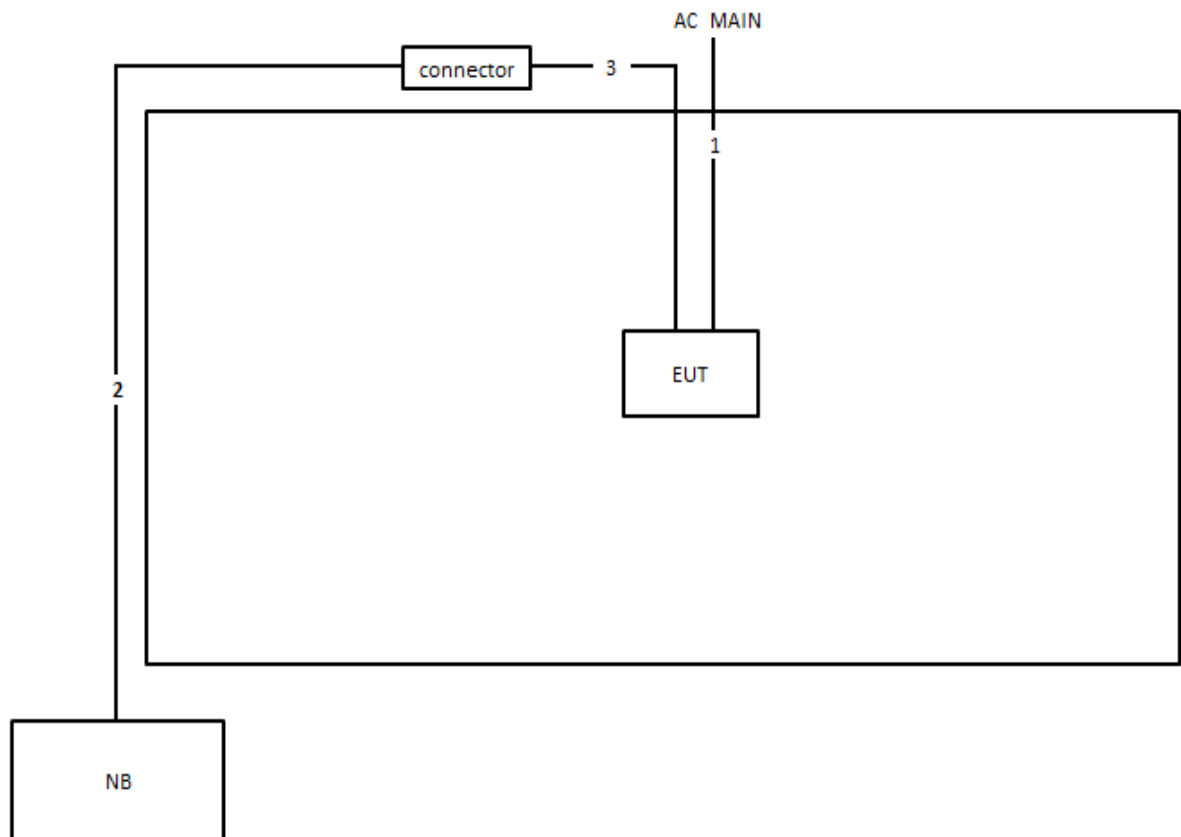
3.11.2. Radiation Emissions Test Configuration

Test Configuration: 30MHz~1GHz



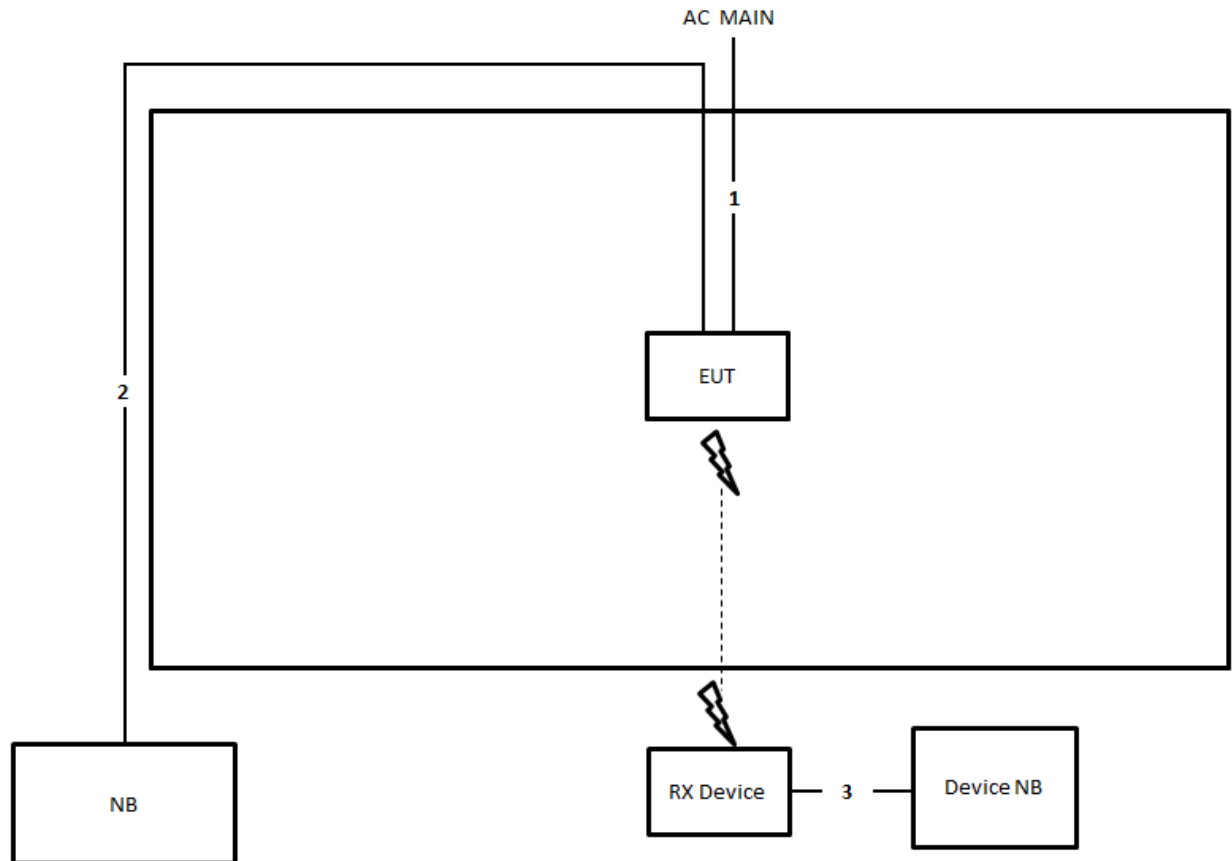
Item	Connection	Shielded	Length
1	Console cable	Yes	1.5m
2	RJ-45 cable	No	1m
3	RJ-45 cable	No	10m
4	RJ-45 cable	No	10m
5	RJ-45 cable	No	1.5m

Test Configuration: above 1GHz
<For Non-Beamforming Mode>



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

<For Beamforming Mode>



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

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

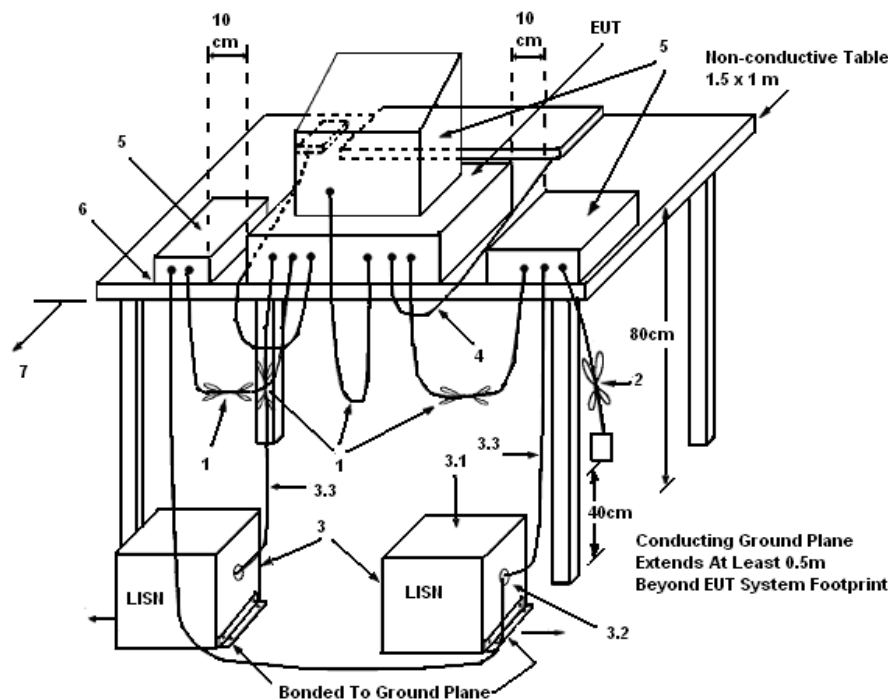
Please refer to section 5 of equipments list in this report. The following table is the setting of the receiver.

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

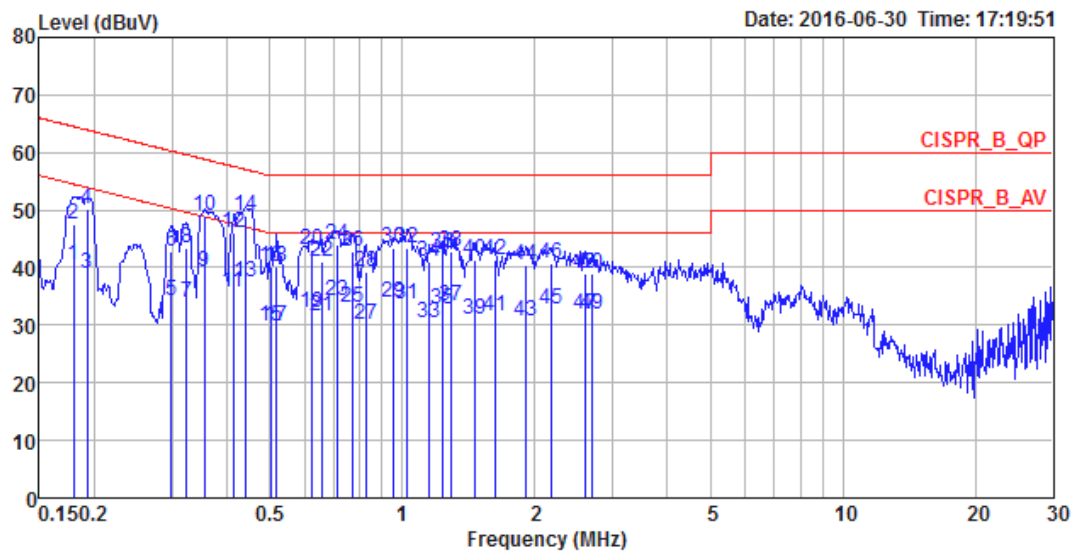
There is no deviation with the original standard.

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

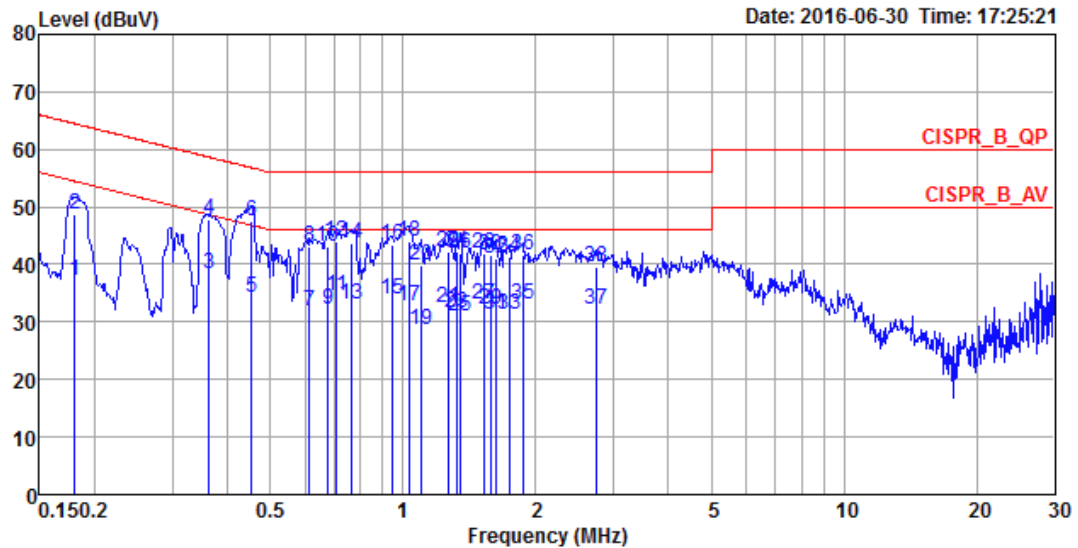
Temperature	23°C	Humidity	63%
Test Engineer	GN Hou	Phase	Line
Configuration	Normal Link	Test Mode	Mode 3



	Freq	Level	Over Limit	Limit Line	Read Level	LISM Factor	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.1796	40.54	-13.96	54.50	30.44	9.92	0.18	LINE	Average
2	0.1796	47.49	-17.01	64.50	37.39	9.92	0.18	LINE	QP
3	0.1924	38.85	-15.08	53.93	28.74	9.92	0.19	LINE	Average
4	0.1924	50.07	-13.86	63.93	39.96	9.92	0.19	LINE	QP
5	0.2987	34.10	-16.18	50.28	24.09	9.92	0.09	LINE	Average
6	0.2987	42.79	-17.49	60.28	32.78	9.92	0.09	LINE	QP
7	0.3234	33.91	-15.71	49.62	23.93	9.92	0.06	LINE	Average
8	0.3234	43.47	-16.15	59.62	33.49	9.92	0.06	LINE	QP
9	0.3558	39.28	-9.55	48.83	29.32	9.92	0.04	LINE	Average
10	0.3558	49.03	-9.80	58.83	39.07	9.92	0.04	LINE	QP
11	0.4127	35.85	-11.74	47.59	25.89	9.92	0.04	LINE	Average
12	0.4127	46.09	-11.50	57.59	36.13	9.92	0.04	LINE	QP
13	0.4421	37.63	-9.39	47.02	27.62	9.92	0.09	LINE	Average
14	0.4421	49.11	-7.91	57.02	39.10	9.92	0.09	LINE	QP
15	0.5047	29.90	-16.10	46.00	19.79	9.92	0.19	LINE	Average
16	0.5047	40.09	-15.91	56.00	29.98	9.92	0.19	LINE	QP
17	0.5182	29.95	-16.05	46.00	19.81	9.92	0.22	LINE	Average

	Freq	Level	Over Limit	Limit Line	Read Level	LISM Factor	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
18	0.5182	40.13	-15.87	56.00	29.99	9.92	0.22	LINE	QP
19	0.6205	32.10	-13.90	46.00	21.81	9.93	0.36	LINE	Average
20	0.6205	43.04	-12.96	56.00	32.75	9.93	0.36	LINE	QP
21	0.6543	31.52	-14.48	46.00	21.19	9.93	0.40	LINE	Average
22	0.6543	41.11	-14.89	56.00	30.78	9.93	0.40	LINE	QP
23	0.7122	34.12	-11.88	46.00	23.72	9.93	0.47	LINE	Average
24	0.7122	43.87	-12.13	56.00	33.47	9.93	0.47	LINE	QP
25	0.7711	33.08	-12.92	46.00	22.62	9.93	0.53	LINE	Average
26	0.7711	42.93	-13.07	56.00	32.47	9.93	0.53	LINE	QP
27	0.8261	30.16	-15.84	46.00	19.65	9.93	0.58	LINE	Average
28	0.8261	39.27	-16.73	56.00	28.76	9.93	0.58	LINE	QP
29	0.9582	33.94	-12.06	46.00	23.30	9.94	0.70	LINE	Average
30	0.9582	43.52	-12.48	56.00	32.88	9.94	0.70	LINE	QP
31	1.0211	33.69	-12.31	46.00	23.03	9.94	0.72	LINE	Average
32	1.0211	43.52	-12.48	56.00	32.86	9.94	0.72	LINE	QP
33	1.1534	30.39	-15.61	46.00	19.85	9.94	0.60	LINE	Average
34	1.1534	41.08	-14.92	56.00	30.54	9.94	0.60	LINE	QP
35	1.2357	32.76	-13.24	46.00	22.29	9.94	0.53	LINE	Average
36	1.2357	42.42	-13.58	56.00	31.95	9.94	0.53	LINE	QP
37	1.2892	33.46	-12.54	46.00	23.02	9.95	0.49	LINE	Average
38	1.2892	42.95	-13.05	56.00	32.51	9.95	0.49	LINE	QP
39	1.4562	31.14	-14.86	46.00	20.82	9.95	0.37	LINE	Average
40	1.4562	41.38	-14.62	56.00	31.06	9.95	0.37	LINE	QP
41	1.6190	31.63	-14.37	46.00	21.41	9.95	0.27	LINE	Average
42	1.6190	41.34	-14.66	56.00	31.12	9.95	0.27	LINE	QP
43	1.9080	30.78	-15.22	46.00	20.71	9.96	0.11	LINE	Average
44	1.9080	40.41	-15.59	56.00	30.34	9.96	0.11	LINE	QP
45	2.1783	32.75	-13.25	46.00	22.73	9.96	0.06	LINE	Average
46	2.1783	40.74	-15.26	56.00	30.72	9.96	0.06	LINE	QP
47	2.5945	31.74	-14.26	46.00	21.70	9.97	0.07	LINE	Average
48	2.5945	39.09	-16.91	56.00	29.05	9.97	0.07	LINE	QP
49	2.6925	32.03	-13.97	46.00	21.99	9.97	0.07	LINE	Average
50	2.6925	39.04	-16.96	56.00	29.00	9.97	0.07	LINE	QP

Temperature	23°C	Humidity	63%
Test Engineer	GN Hou	Phase	Neutral
Configuration	Normal Link	Test Mode	Mode 3



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.1806	37.29	-17.17	54.46	27.19	9.92	0.18	NEUTRAL	Average
2	0.1806	48.76	-15.70	64.46	38.66	9.92	0.18	NEUTRAL	QP
3	0.3634	38.48	-10.17	48.65	28.52	9.92	0.04	NEUTRAL	Average
4	0.3634	47.89	-10.76	58.65	37.93	9.92	0.04	NEUTRAL	QP
5	0.4539	34.34	-12.46	46.80	24.31	9.92	0.11	NEUTRAL	Average
6	0.4539	47.66	-9.14	56.80	37.63	9.92	0.11	NEUTRAL	QP
7	0.6140	31.95	-14.05	46.00	21.67	9.93	0.35	NEUTRAL	Average
8	0.6140	43.05	-12.95	56.00	32.77	9.93	0.35	NEUTRAL	QP
9	0.6754	32.05	-13.95	46.00	21.70	9.93	0.42	NEUTRAL	Average
10	0.6754	43.00	-13.00	56.00	32.65	9.93	0.42	NEUTRAL	QP
11	0.7084	34.65	-11.35	46.00	24.26	9.93	0.46	NEUTRAL	Average
12	0.7084	44.07	-11.93	56.00	33.68	9.93	0.46	NEUTRAL	QP
13	0.7670	33.02	-12.98	46.00	22.56	9.93	0.53	NEUTRAL	Average
14	0.7670	43.57	-12.43	56.00	33.11	9.93	0.53	NEUTRAL	QP
15	0.9481	33.93	-12.07	46.00	23.30	9.94	0.69	NEUTRAL	Average
16	0.9481	43.34	-12.66	56.00	32.71	9.94	0.69	NEUTRAL	QP
17	1.0320	32.83	-13.17	46.00	22.18	9.94	0.71	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	1.0320	43.99	-12.01	56.00	33.34	9.94	0.71	NEUTRAL	QP
19	1.0997	28.62	-17.38	46.00	18.03	9.94	0.65	NEUTRAL	Average
20	1.0997	39.87	-16.13	56.00	29.28	9.94	0.65	NEUTRAL	QP
21	1.2688	32.51	-13.49	46.00	22.05	9.95	0.51	NEUTRAL	Average
22	1.2688	42.33	-13.67	56.00	31.87	9.95	0.51	NEUTRAL	QP
23	1.3238	31.50	-14.50	46.00	21.08	9.95	0.47	NEUTRAL	Average
24	1.3238	42.12	-13.88	56.00	31.70	9.95	0.47	NEUTRAL	QP
25	1.3521	30.99	-15.01	46.00	20.60	9.95	0.44	NEUTRAL	Average
26	1.3521	41.83	-14.17	56.00	31.44	9.95	0.44	NEUTRAL	QP
27	1.5274	32.99	-13.01	46.00	22.72	9.95	0.32	NEUTRAL	Average
28	1.5274	41.83	-14.17	56.00	31.56	9.95	0.32	NEUTRAL	QP
29	1.5851	32.17	-13.83	46.00	21.93	9.95	0.29	NEUTRAL	Average
30	1.5851	41.51	-14.49	56.00	31.27	9.95	0.29	NEUTRAL	QP
31	1.6190	31.19	-14.81	46.00	20.97	9.95	0.27	NEUTRAL	Average
32	1.6190	40.91	-15.09	56.00	30.69	9.95	0.27	NEUTRAL	QP
33	1.7437	31.25	-14.75	46.00	21.09	9.96	0.20	NEUTRAL	Average
34	1.7437	41.20	-14.80	56.00	31.04	9.96	0.20	NEUTRAL	QP
35	1.8680	32.97	-13.03	46.00	22.89	9.96	0.12	NEUTRAL	Average
36	1.8680	41.62	-14.38	56.00	31.54	9.96	0.12	NEUTRAL	QP
37	2.7502	32.20	-13.80	46.00	22.16	9.97	0.07	NEUTRAL	Average
38	2.7502	39.70	-16.30	56.00	29.66	9.97	0.07	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

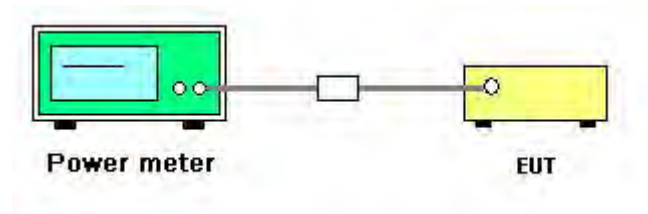
Please refer to section 5 of equipments list in this report. The following table is the setting of the power meter.

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

For radio 1

Temperature	24°C	Humidity	60%
Test Engineer	Clemens Fang	Test Date	May 18, 2016

<For Non-Beamforming Mode>

Mode	Frequency	Conducted Power (dBm)					Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Chain 4	Total		
802.11b	2412 MHz	20.52	20.72	20.29	20.45	26.52	30.00	Complies
	2437 MHz	20.27	21.94	21.36	22.10	27.49	30.00	Complies
	2462 MHz	18.92	20.07	19.67	20.35	25.81	30.00	Complies
802.11g	2412 MHz	13.25	14.05	13.32	13.24	19.50	30.00	Complies
	2437 MHz	20.89	21.58	21.02	21.32	27.23	30.00	Complies
	2462 MHz	14.36	15.63	15.24	15.32	21.18	30.00	Complies
802.11ac MCS0/Nss1 VHT20	2412 MHz	12.52	13.35	13.25	13.26	19.13	30.00	Complies
	2437 MHz	20.35	21.05	21.67	21.72	27.25	30.00	Complies
	2462 MHz	15.12	16.35	16.22	16.05	21.98	30.00	Complies
802.11ac MCS0/Nss1 VHT40	2422 MHz	9.37	10.34	10.02	10.06	15.98	30.00	Complies
	2437 MHz	13.12	14.27	13.61	14.12	19.82	30.00	Complies
	2452 MHz	11.23	11.15	10.35	11.14	17.00	30.00	Complies

<For Beamforming Mode>

Mode	Frequency	Conducted Power (dBm)					Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Chain 4	Total		
802.11ac MCS0/Nss1 VHT20	2412 MHz	12.37	13.73	12.63	11.94	18.74	25.36	Complies
	2437 MHz	15.41	15.91	16.20	15.94	21.89	25.36	Complies
	2462 MHz	14.52	15.36	15.39	15.07	21.12	25.36	Complies
802.11ac MCS0/Nss1 VHT40	2422 MHz	8.41	9.10	9.69	8.77	15.04	25.36	Complies
	2437 MHz	10.53	11.09	11.24	10.93	16.98	25.36	Complies
	2452 MHz	13.02	14.18	13.68	14.50	19.90	25.36	Complies

Note: $Directional\ Gain = 10 \log \left[\frac{\sum_{j=1}^{N_{ss}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 10.64 \text{ dBi} > 6 \text{ dBi}$, so Limit = $30 - (10.64 - 6) = 25.36 \text{ dBm}$.

For radio 3

Temperature	22°C	Humidity	54%
Test Engineer	Akina Chiu	Test Date	Jul. 12, 2016

Mode	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Chain 9	Chain 10	Total		
802.11b	2412 MHz	21.67	21.53	24.61	30.00	Complies
	2437 MHz	21.82	21.79	24.82	30.00	Complies
	2462 MHz	21.59	21.69	24.65	30.00	Complies
802.11g	2412 MHz	18.82	19.09	21.97	30.00	Complies
	2437 MHz	21.31	21.66	24.50	30.00	Complies
	2462 MHz	18.18	18.38	21.29	30.00	Complies
802.11ac MCS0/Nss1 VHT20	2412 MHz	18.28	18.51	21.41	30.00	Complies
	2437 MHz	21.29	21.50	24.41	30.00	Complies
	2462 MHz	18.05	18.27	21.17	30.00	Complies
802.11ac MCS0/Nss1 VHT40	2422 MHz	15.94	15.96	18.96	30.00	Complies
	2437 MHz	18.80	18.57	21.70	30.00	Complies
	2452 MHz	16.38	16.43	19.42	30.00	Complies

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

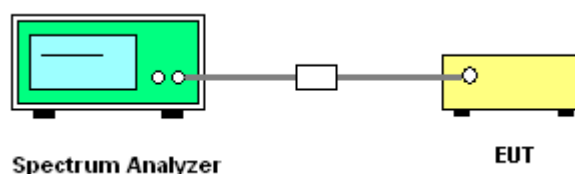
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

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

4.3.3. Test Procedures

1. Test was performed in accordance with 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 $\geq 2 \times \text{span/RBW}$ (use of a greater number of measurement points than this minimum requirement is recommended).
4. Use the peak marker function to determine the maximum level in any 3 kHz band segment within the fundamental EBW.
5. The resulting PSD level must be $\leq 8 \text{ dBm}$.

4.3.4. Test Setup Layout



4.3.5. Test Deviation

There is no deviation with the original standard.

4.3.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.3.7. Test Result of Power Spectral Density

For radio 1

Temperature	24°C	Humidity	60%
Test Engineer	Clemens Fang		

<For Non-Beamforming Mode>

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	-13.19	-13.35	-13.04	-13.00	-7.12	3.36	Complies
	2437 MHz	-13.30	-12.55	-12.11	-12.25	-6.51	3.36	Complies
	2462 MHz	-13.95	-13.44	-13.82	-13.26	-7.59	3.36	Complies
802.11g	2412 MHz	-13.09	-13.17	-12.18	-12.67	-6.74	3.36	Complies
	2437 MHz	-5.00	-4.86	-5.11	-4.87	1.06	3.36	Complies
	2462 MHz	-11.61	-11.12	-10.82	-11.18	-5.15	3.36	Complies
802.11ac MCS0/Nss1 VHT20	2412 MHz	-12.41	-13.26	-12.92	-13.36	-6.95	3.36	Complies
	2437 MHz	-6.08	-6.12	-5.40	-6.15	0.09	3.36	Complies
	2462 MHz	-10.92	-11.20	-11.18	-11.84	-5.25	3.36	Complies
802.11ac MCS0/Nss1 VHT40	2422 MHz	-18.41	-21.05	-18.19	-18.94	-12.99	3.36	Complies
	2437 MHz	-15.36	-17.34	-15.60	-15.85	-9.95	3.36	Complies
	2452 MHz	-13.08	-14.69	-12.78	-12.26	-7.09	3.36	Complies

Note: $Directional\ Gain = 10 \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{K=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 10.64 \text{dBi} > 6 \text{dBi}$, so Limit = 8 - (10.64 - 6) = 3.36 dBm/3kHz.

<For Beamforming Mode>

Mode	Frequency	Power Density (dBm/3kHz)					Power Density Limit (dBm/3kHz)	Result
		Chain 1	Chain 2	Chain 3	Chain 4	Total		
802.11ac MCS0/Nss1 VHT20	2412 MHz	-14.39	-14.02	-13.20	-13.77	-7.80	3.36	Complies
	2437 MHz	-11.17	-11.47	-11.33	-12.81	-5.63	3.36	Complies
	2462 MHz	-12.52	-12.49	-11.52	-12.37	-6.18	3.36	Complies
802.11ac MCS0/Nss1 VHT40	2422 MHz	-19.93	-20.22	-19.64	-20.06	-13.94	3.36	Complies
	2437 MHz	-18.65	-18.97	-17.58	-17.96	-12.23	3.36	Complies
	2452 MHz	-15.72	-17.21	-14.97	-14.83	-9.57	3.36	Complies

Note: $Directional\ Gain = 10 \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{K=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 10.64 \text{dBi} > 6 \text{dBi}$, so Limit = 8 - (10.64 - 6) = 3.36 dBm/3kHz.

For radio 3

Temperature	22°C	Humidity	54%
Test Engineer	Akina Chiu		

Mode	Frequency	Power Density (dBm/3kHz)			Power Density Limit (dBm/3kHz)	Result
		Chain 9	Chain 10	Total		
802.11b	2412 MHz	-12.98	-12.49	-9.72	6.57	Complies
	2437 MHz	-13.14	-12.91	-10.01	6.57	Complies
	2462 MHz	-13.27	-12.93	-10.09	6.57	Complies
802.11g	2412 MHz	-10.84	-10.24	-7.52	6.57	Complies
	2437 MHz	-6.83	-7.02	-3.91	6.57	Complies
	2462 MHz	-10.60	-10.38	-7.48	6.57	Complies
802.11ac	2412 MHz	-11.01	-10.64	-7.81	6.57	Complies
MCS0/Nss1	2437 MHz	-6.90	-7.39	-4.13	6.57	Complies
VHT20	2462 MHz	-10.45	-9.89	-7.15	6.57	Complies
802.11ac	2422 MHz	-14.36	-15.39	-11.83	6.57	Complies
MCS0/Nss1	2437 MHz	-12.71	-12.04	-9.35	6.57	Complies
VHT40	2452 MHz	-15.16	-14.43	-11.77	6.57	Complies

Note: $Directional\ Gain = 10 \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{K=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 7.43 \text{ dBi} > 6 \text{ dBi}$, so Limit = $8 - (7.43 - 6) = 6.57 \text{ dBm/3kHz}$.

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

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

For radio 1

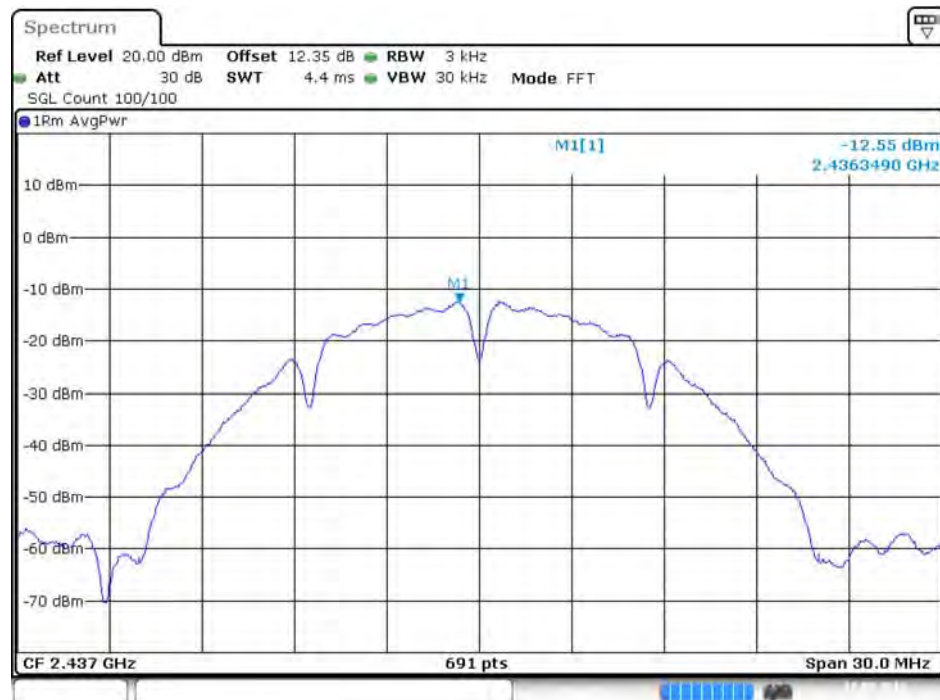
<For Non-Beamforming Mode>

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



Date: 18.MAY.2016 21:14:52

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



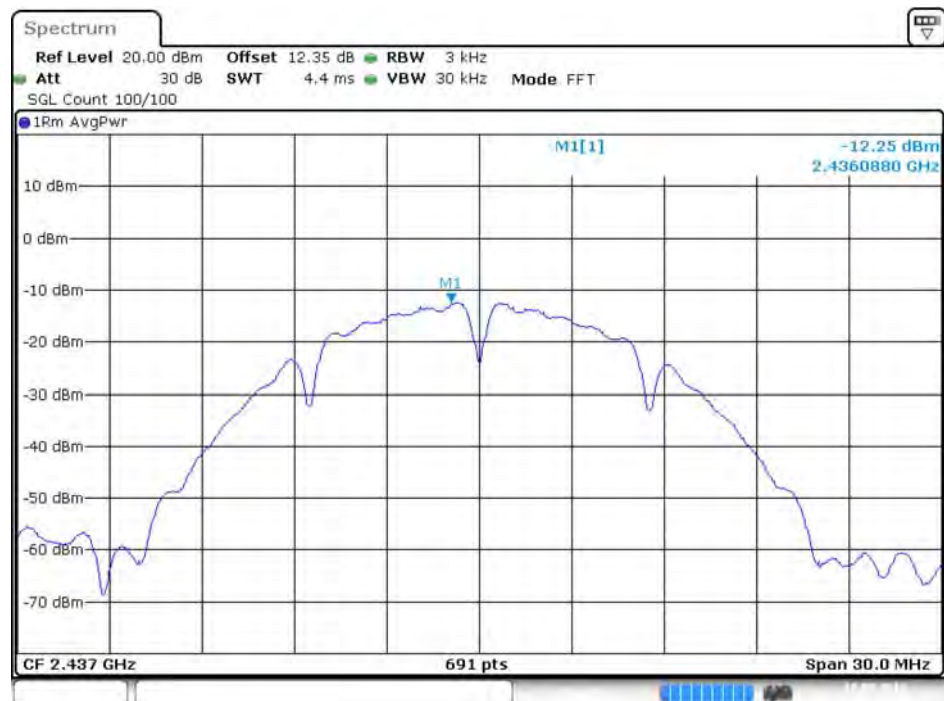
Date: 18.MAY.2016 21:14:39

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



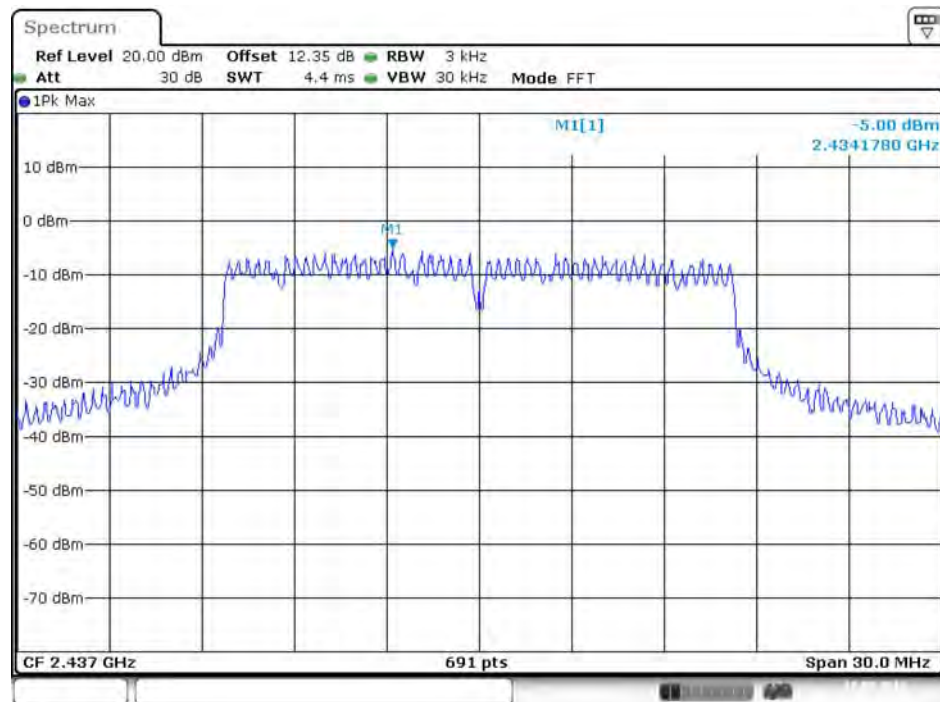
Date: 18.MAY.2016 21:14:15

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



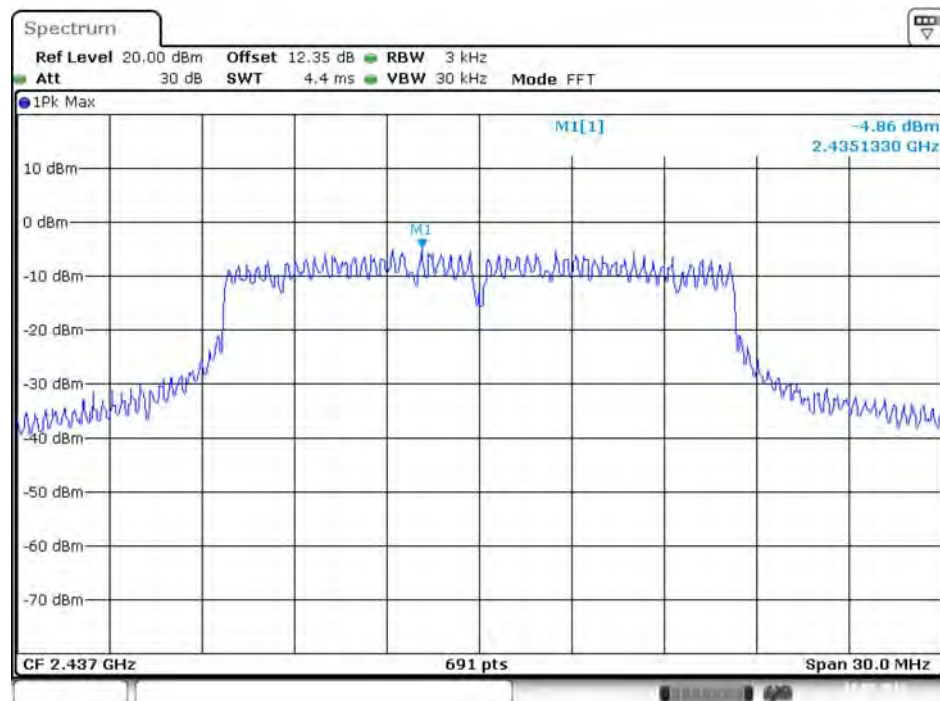
Date: 18.MAY.2016 21:14:28

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



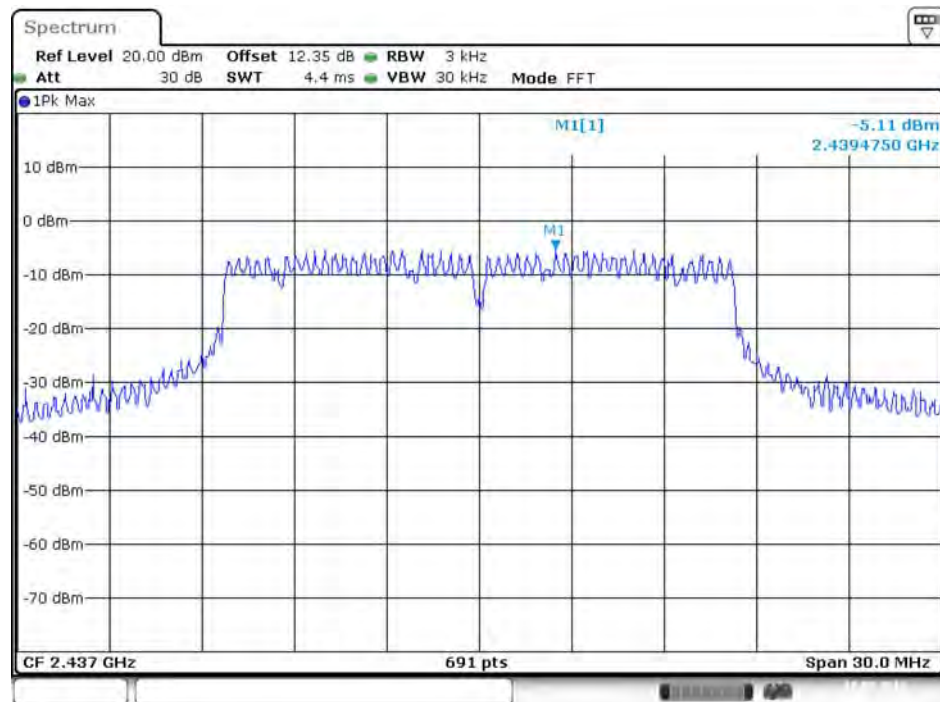
Date: 18.MAY.2016 21:22:00

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



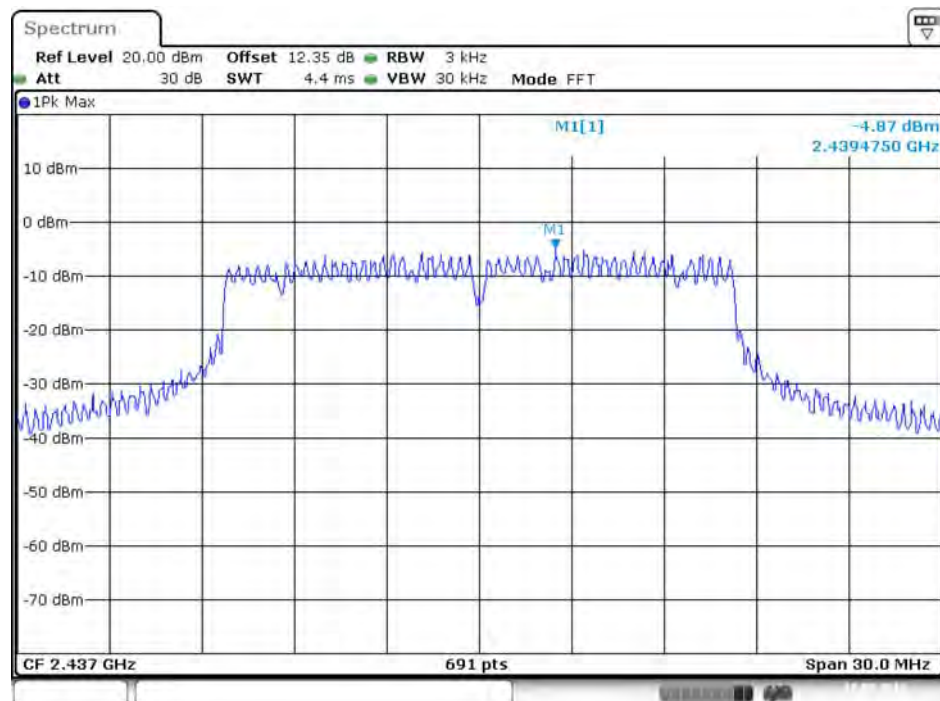
Date: 18.MAY.2016 21:21:50

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



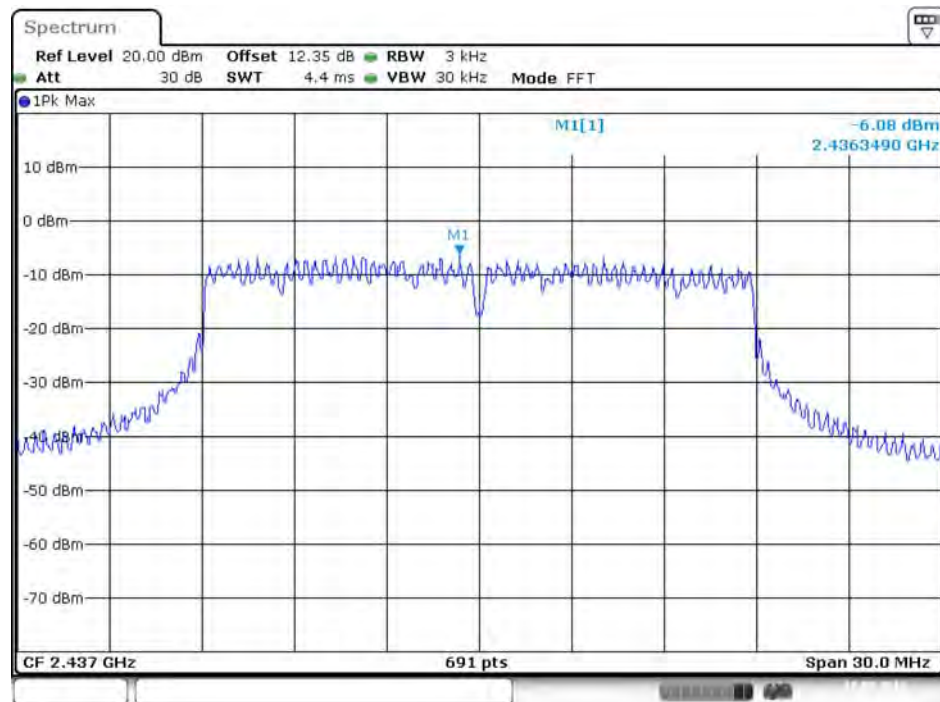
Date: 18.MAY.2016 21:21:22

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



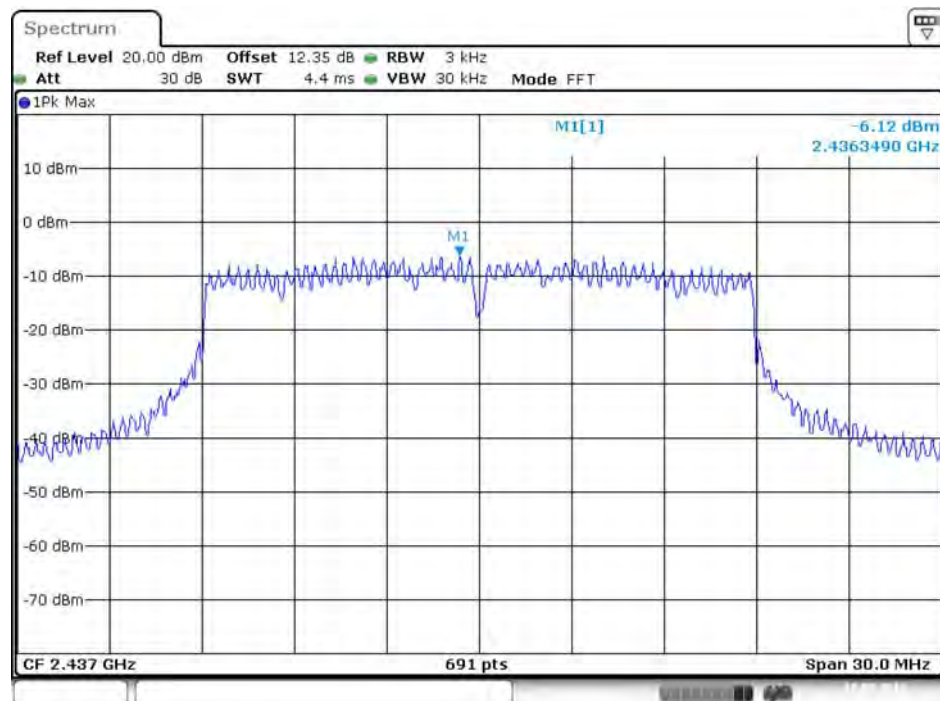
Date: 18.MAY.2016 21:21:10

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



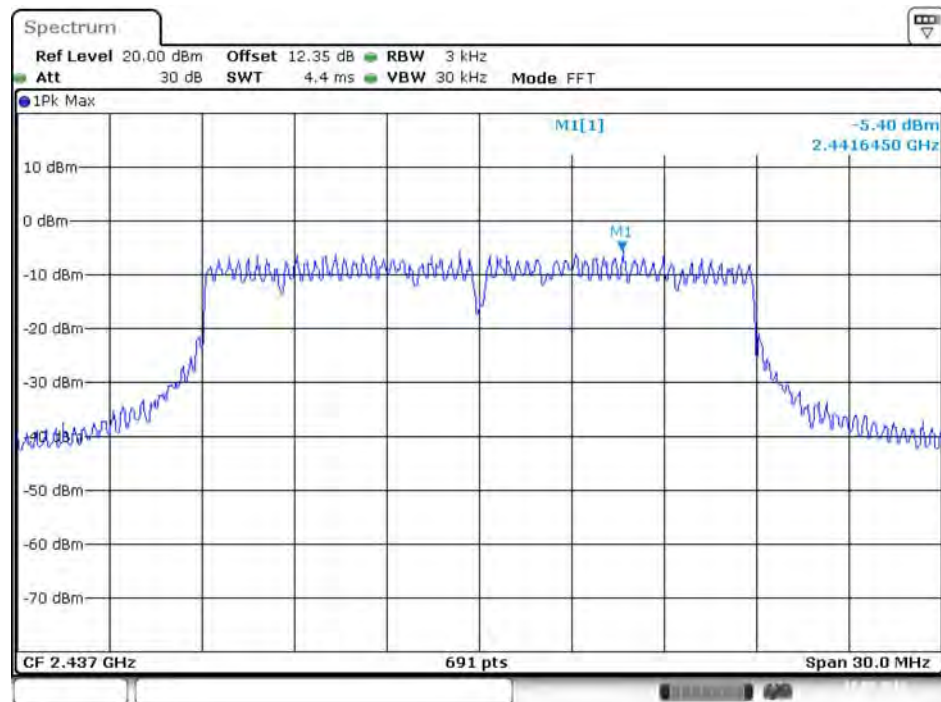
Date: 18.MAY.2016 21:33:36

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



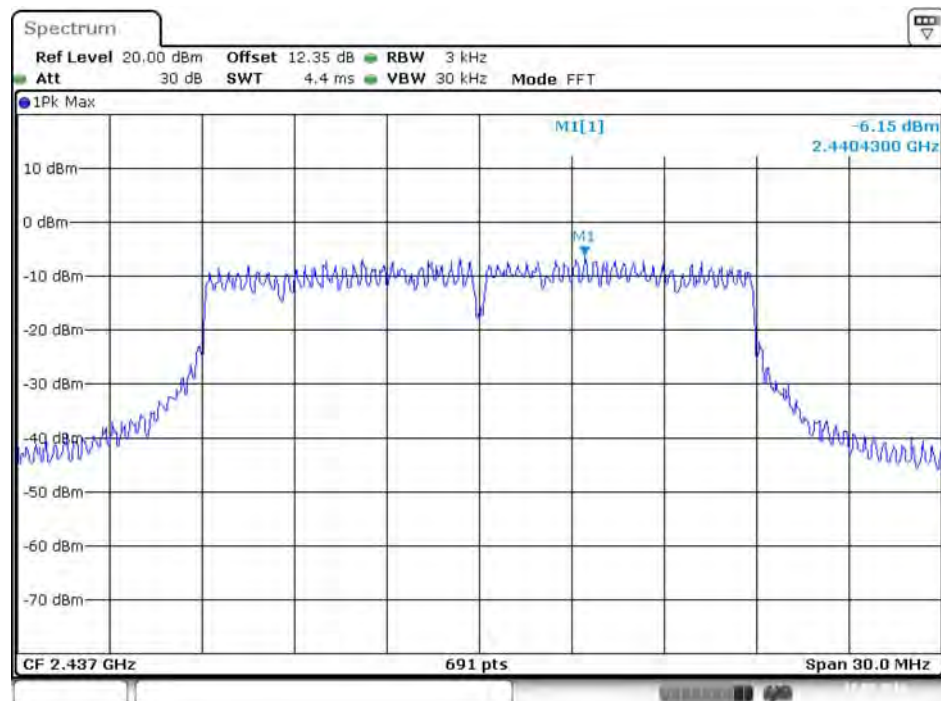
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Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / 2437 MHz / Chain 3



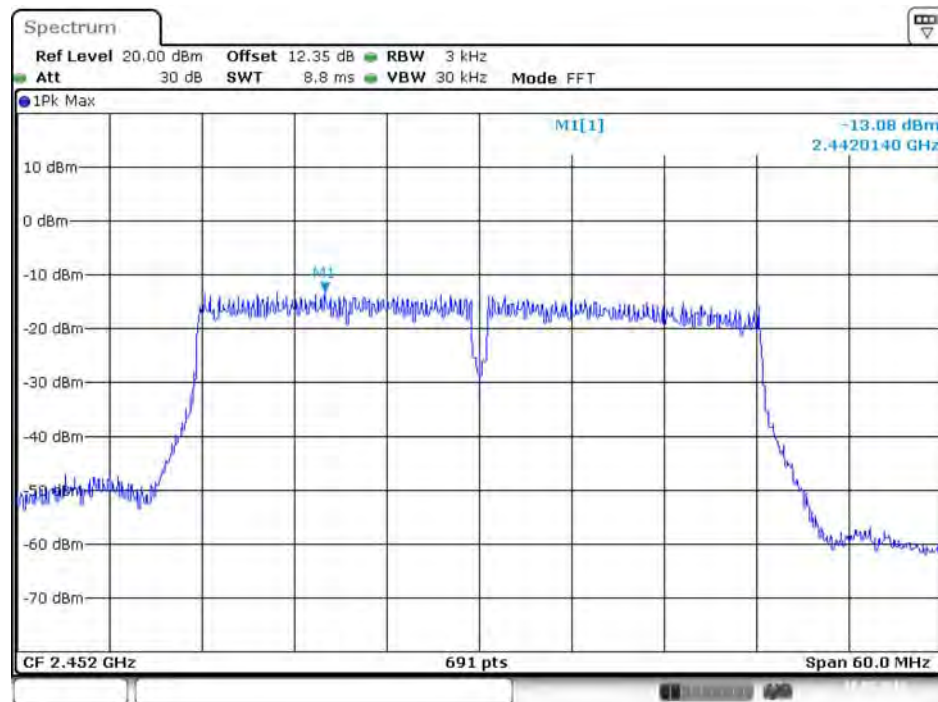
Date: 18.MAY.2016 21:34:13

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



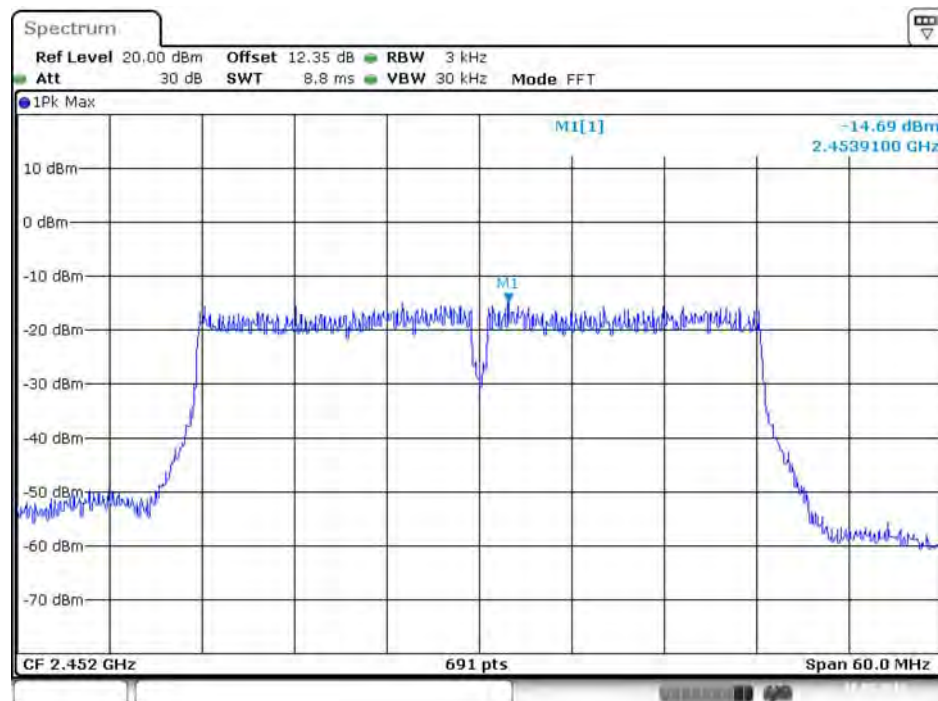
Date: 18.MAY.2016 21:34:22

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



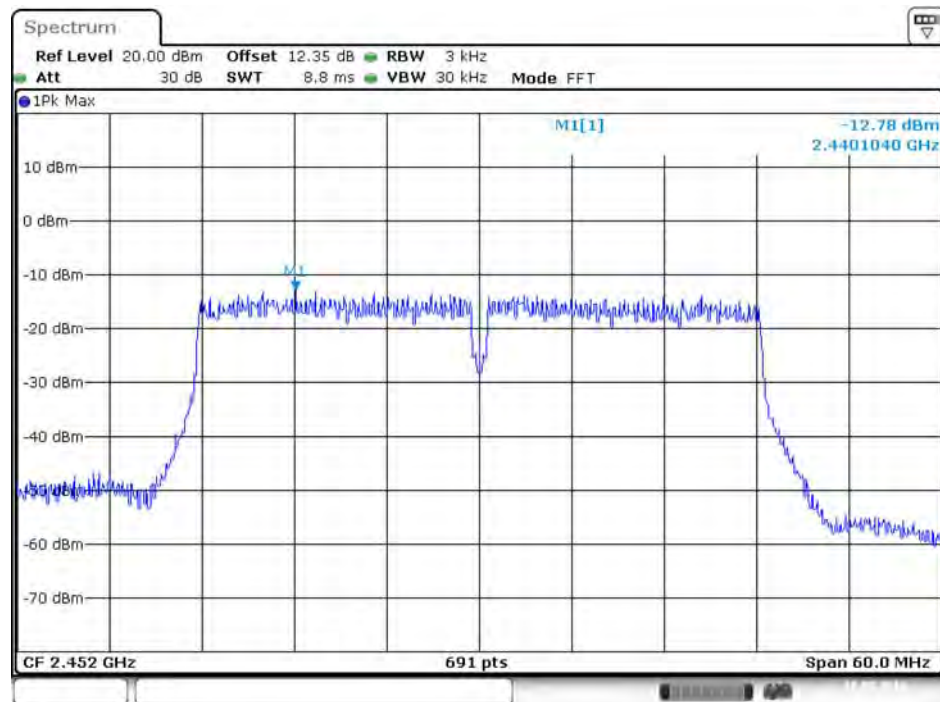
Date: 18.MAY.2016 21:50:38

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

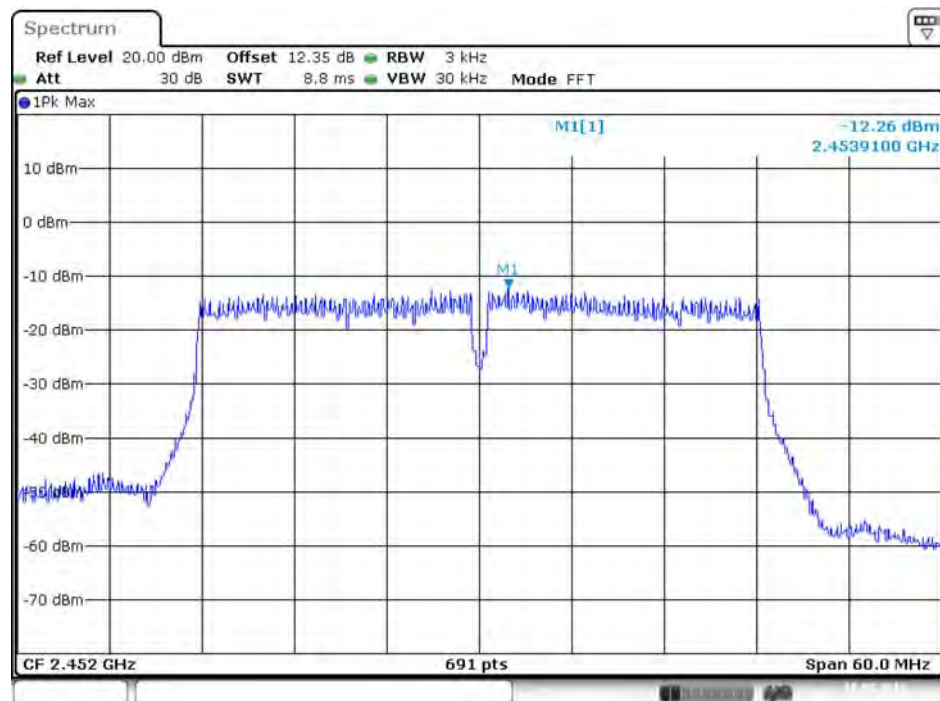


Date: 18.MAY.2016 21:50:19

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

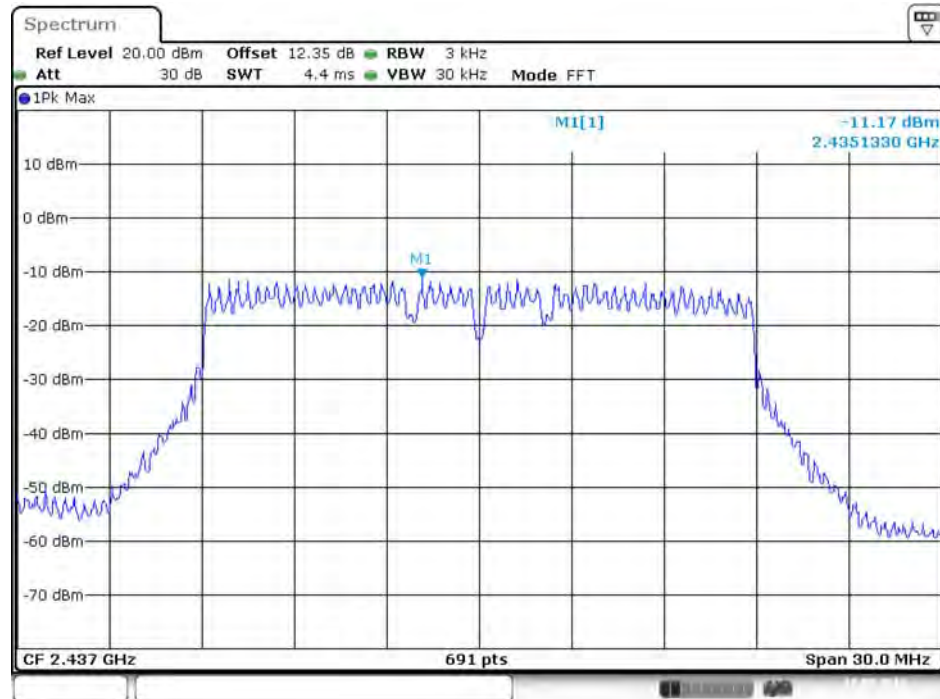


Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / 2452 MHz / Chain 4



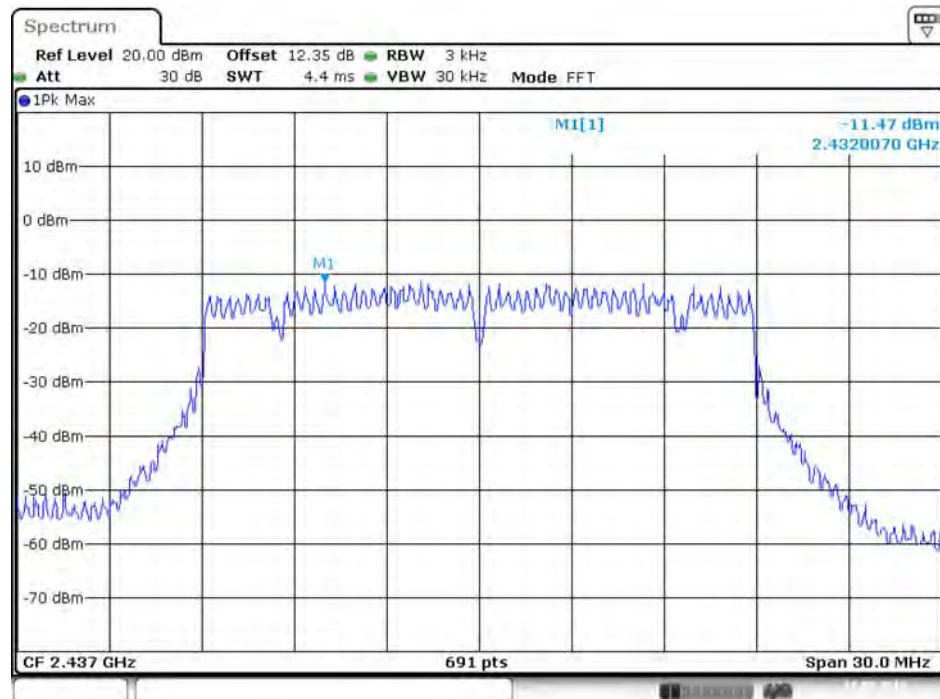
<For Beamforming Mode>

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



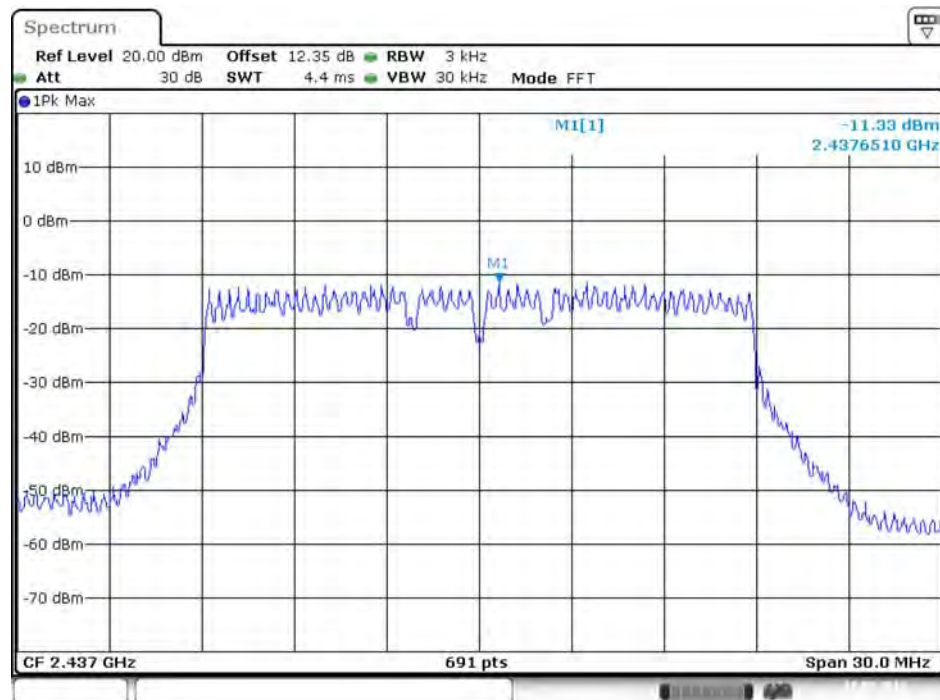
Date: 18.MAY.2016 21:32:22

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



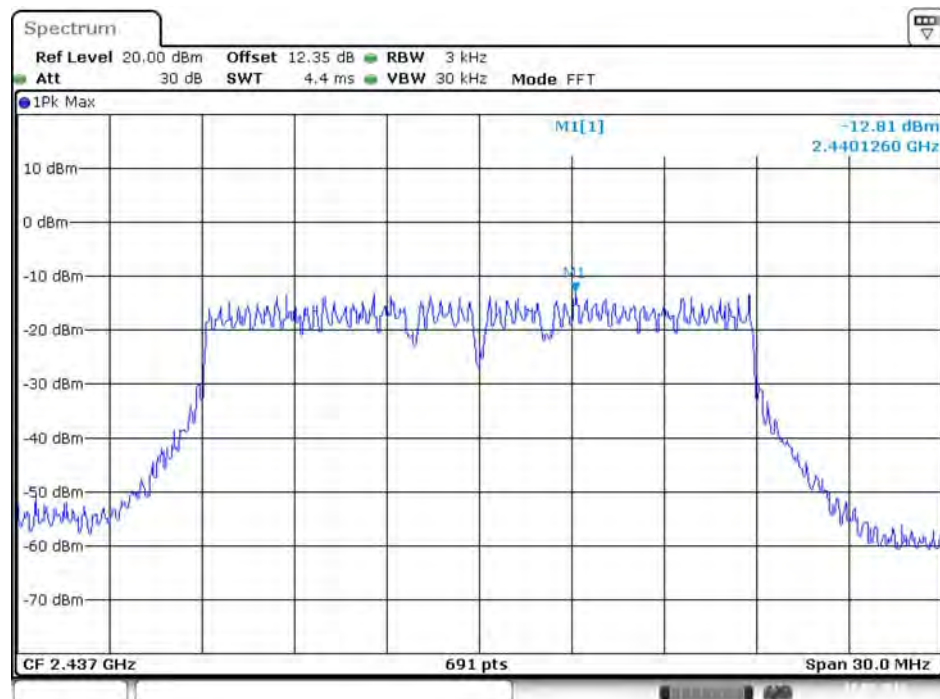
Date: 18.MAY.2016 21:29:10

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



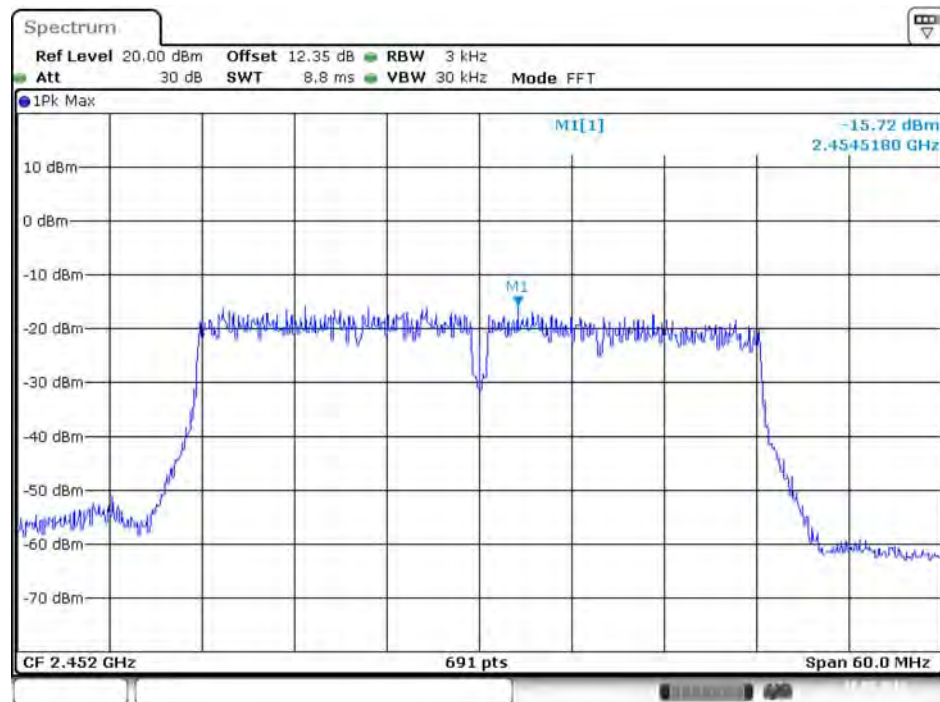
Date: 18.MAY.2016 21:28:58

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



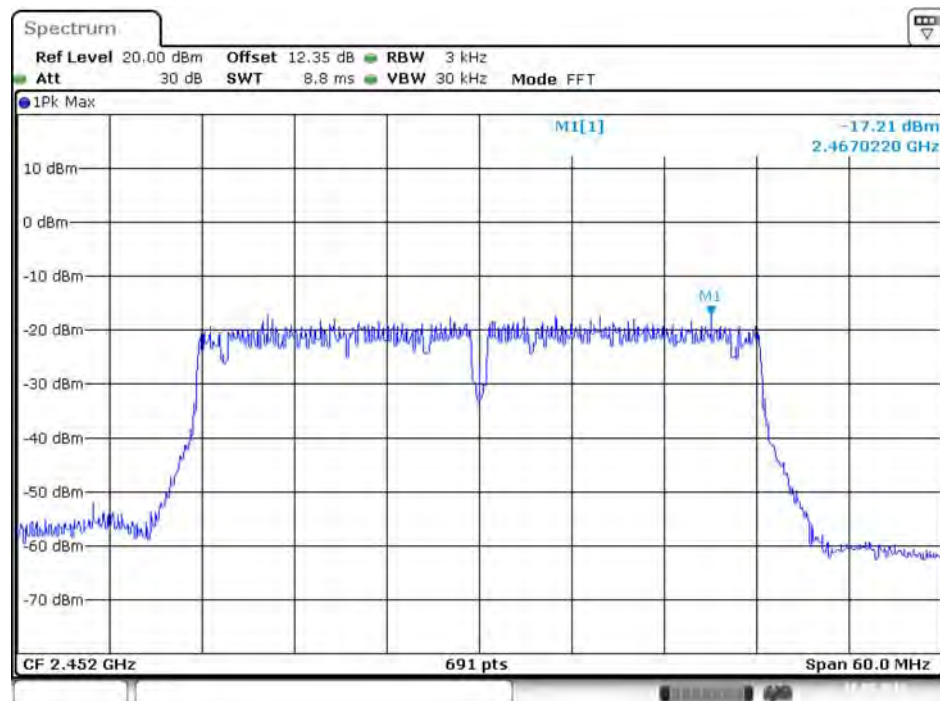
Date: 18.MAY.2016 21:28:50

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



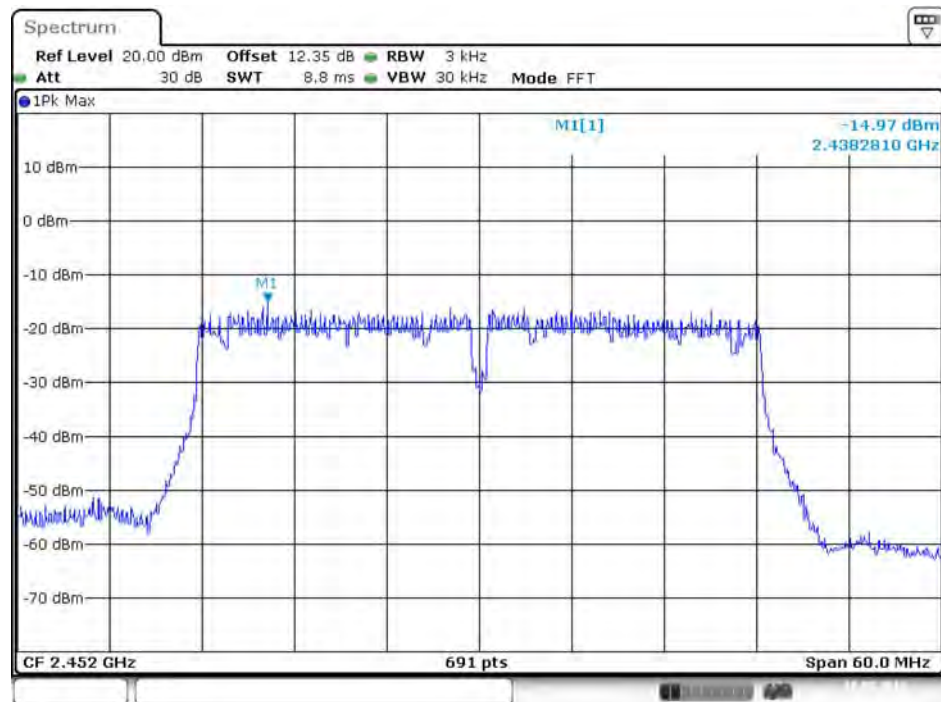
Date: 18.MAY.2016 21:51:22

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



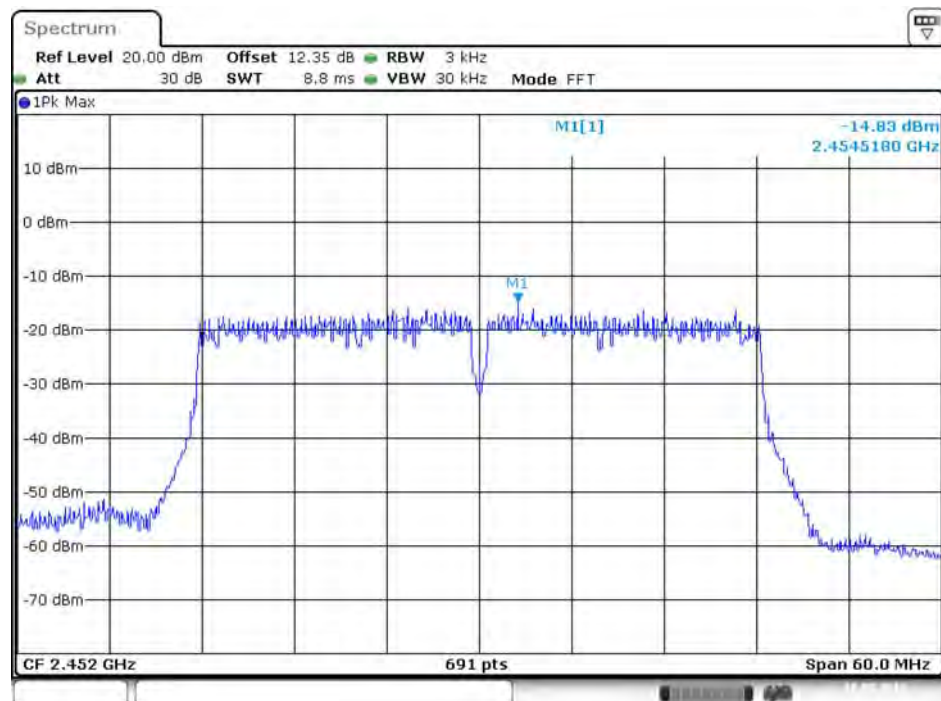
Date: 18.MAY.2016 21:51:44

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



Date: 18.MAY.2016 21:51:59

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



Date: 18.MAY.2016 21:52:19

For radio 3

Power Density Plot on Configuration IEEE 802.11b / 2412 MHz / Chain 9



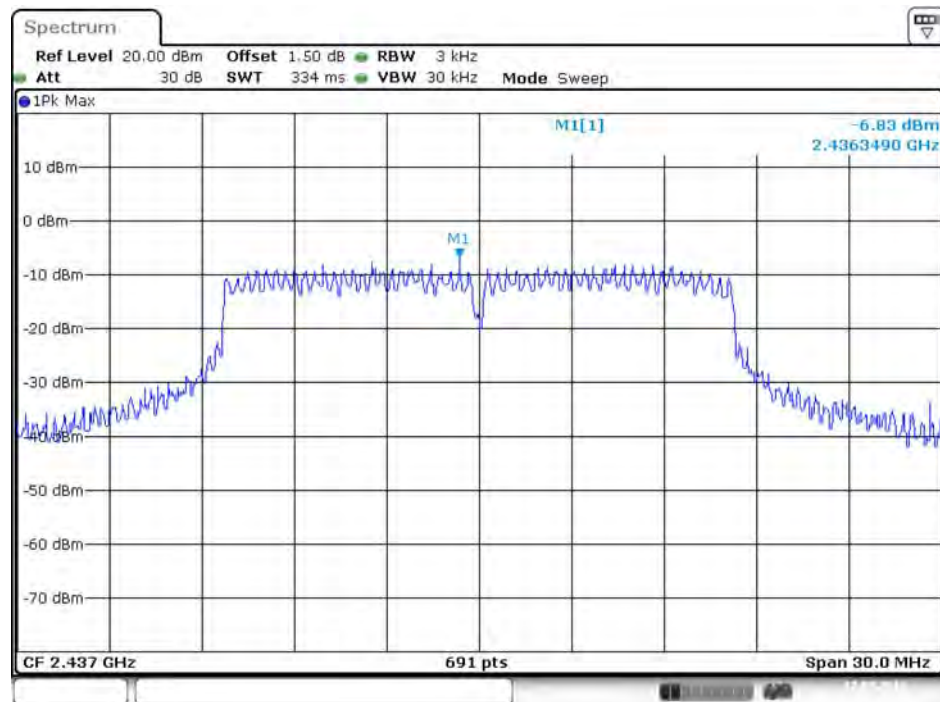
Date: 12 JUL 2016 22:28:59

Power Density Plot on Configuration IEEE 802.11b / 2412 MHz / Chain 10



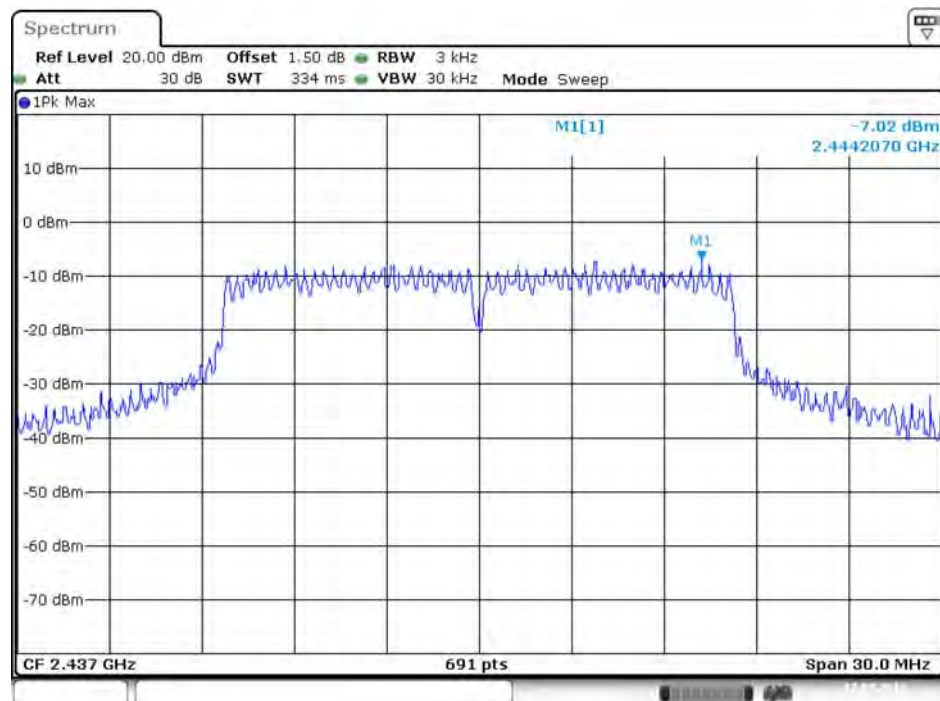
Date: 12 JUL 2016 22:29:46

Power Density Plot on Configuration IEEE 802.11g / 2437 MHz / Chain 9



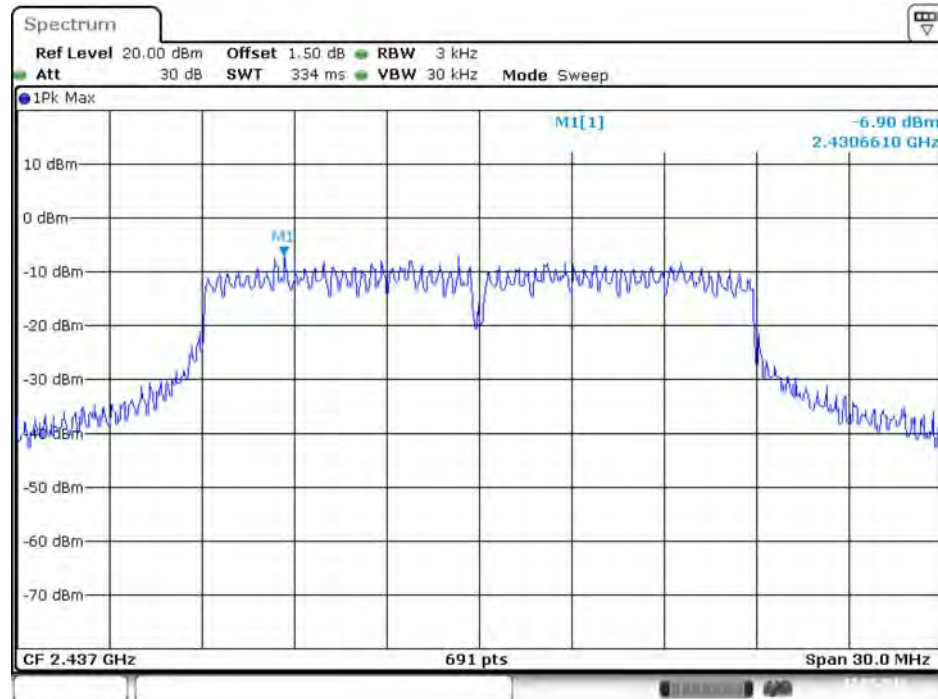
Date: 12.JUL.2016 22:40:55

Power Density Plot on Configuration IEEE 802.11g / 2437 MHz / Chain 10



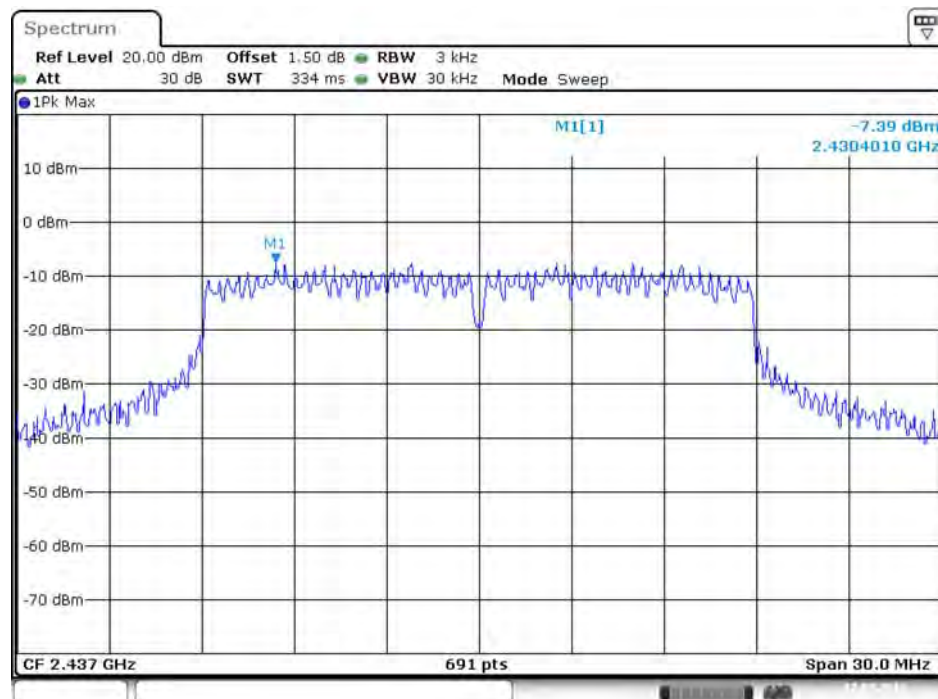
Date: 12.JUL.2016 22:41:38

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / 2437 MHz / Chain 9



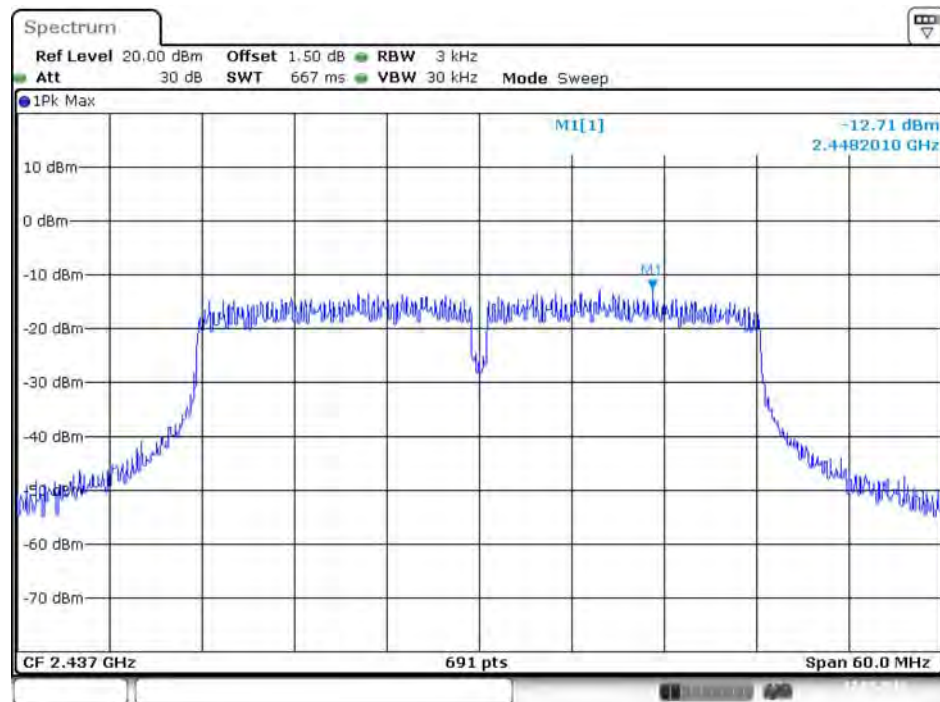
Date: 12.JUL.2016 22:47:29

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / 2437 MHz / Chain 10



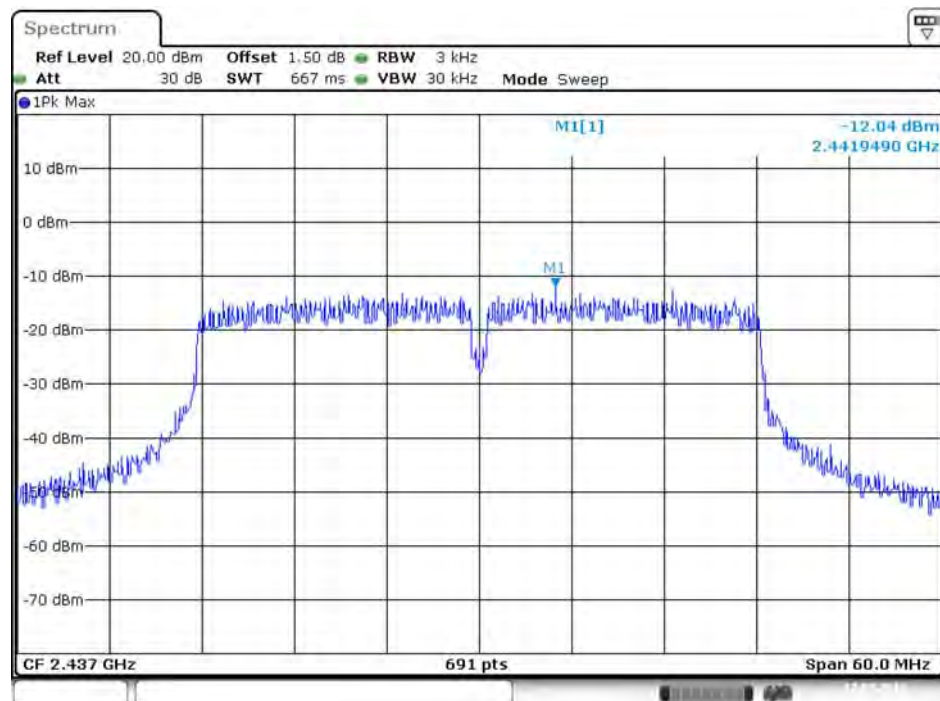
Date: 12.JUL.2016 22:46:44

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / 2437 MHz / Chain 9



Date: 12.JUL.2016 22:52:18

Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / 2437 MHz / Chain 10



Date: 12.JUL.2016 22:53:09

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	$\geq 3 \times \text{RBW}$
Detector	Peak
Trace	Max Hold
Sweep Time	Auto
99% Occupied Bandwidth	
Spectrum Parameters	Setting
Span	1.5 times to 5.0 times the OBW
RBW	1 % to 5 % of the OBW
VBW	$\geq 3 \times \text{RBW}$
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

For radio 1

Temperature	24°C	Humidity	60%
Test Engineer	Clemens Fang		

<For Non-Beamforming Mode>

Mode	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
802.11b	2412 MHz	10.14	13.89	500	Complies
	2437 MHz	9.57	14.15	500	Complies
	2462 MHz	11.07	13.72	500	Complies
802.11g	2412 MHz	7.59	16.67	500	Complies
	2437 MHz	3.59	17.97	500	Complies
	2462 MHz	9.45	16.58	500	Complies
802.11ac MCS0/Nss1 VHT20	2412 MHz	8.70	17.89	500	Complies
	2437 MHz	5.10	17.71	500	Complies
	2462 MHz	13.91	17.63	500	Complies
802.11ac MCS0/Nss1 VHT40	2422 MHz	25.04	33.72	500	Complies
	2437 MHz	26.32	34.01	500	Complies
	2452 MHz	25.39	33.57	500	Complies

<For Beamforming Mode>

Mode	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
802.11ac MCS0/Nss1 VHT20	2412 MHz	17.74	17.89	500	Complies
	2437 MHz	17.68	17.89	500	Complies
	2462 MHz	17.62	17.89	500	Complies
802.11ac MCS0/Nss1 VHT40	2422 MHz	32.12	36.76	500	Complies
	2437 MHz	32.23	36.76	500	Complies
	2452 MHz	36.41	37.05	500	Complies

For radio 3

Temperature	22°C	Humidity	54%
Test Engineer	Akina Chiu		

Mode	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
802.11b	2412 MHz	10.15	14.33	500	Complies
	2437 MHz	8.12	13.46	500	Complies
	2462 MHz	8.12	13.46	500	Complies
802.11g	2412 MHz	16.46	16.85	500	Complies
	2437 MHz	16.46	17.11	500	Complies
	2462 MHz	16.41	16.06	500	Complies
802.11ac MCS0/Nss1 VHT20	2412 MHz	17.62	18.15	500	Complies
	2437 MHz	17.16	18.41	500	Complies
	2462 MHz	17.62	18.06	500	Complies
802.11ac MCS0/Nss1 VHT40	2422 MHz	33.86	37.34	500	Complies
	2437 MHz	33.86	37.34	500	Complies
	2452 MHz	35.01	37.48	500	Complies

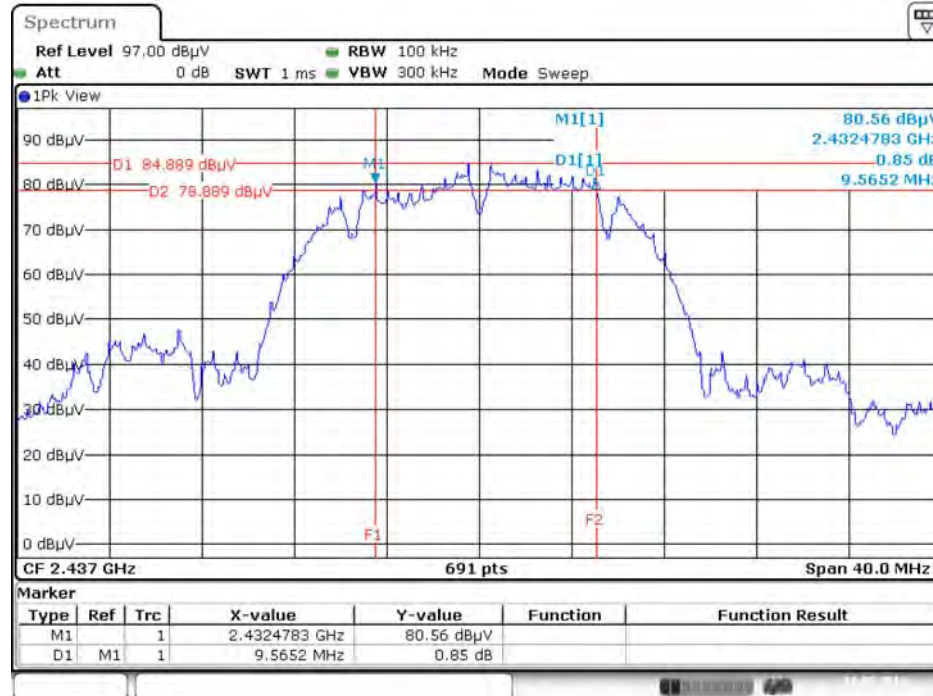
Note: All the test values were listed in the report.

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

For radio 1

<For Non-Beamforming Mode>

6 dB Bandwidth Plot on Configuration IEEE 802.11b / 2437 MHz / Chain 1 + Chain 2 + Chain 3 + Chain 4



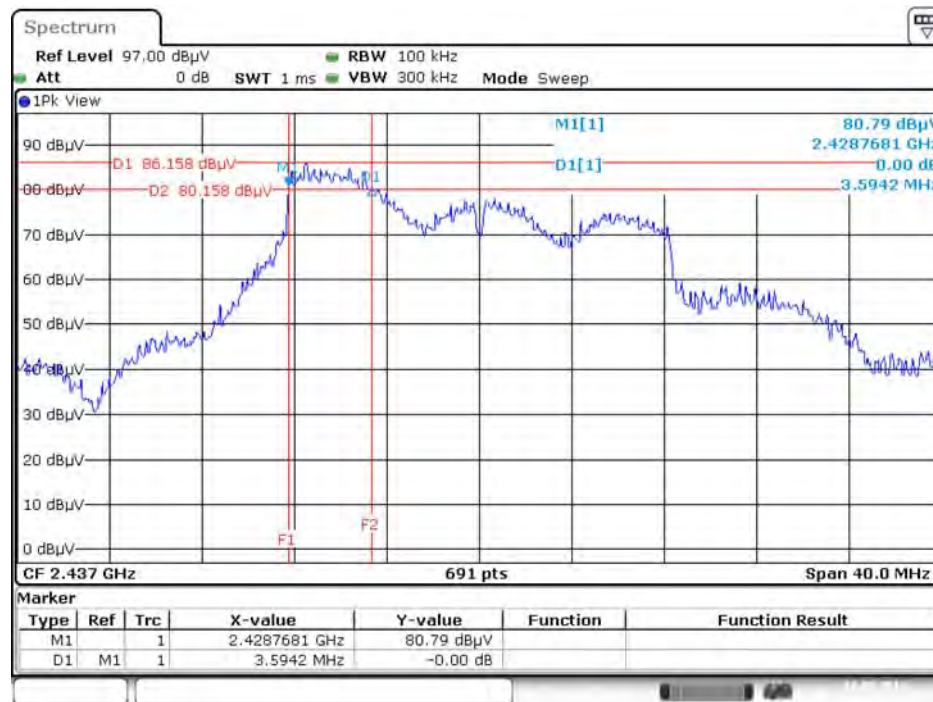
Date: 18.MAY.2016 23:00:50

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



Date: 18.MAY.2016 22:16:48

6 dB Bandwidth Plot on Configuration IEEE 802.11g / 2437 MHz / Chain 1 + Chain 2 + Chain 3 + Chain 4



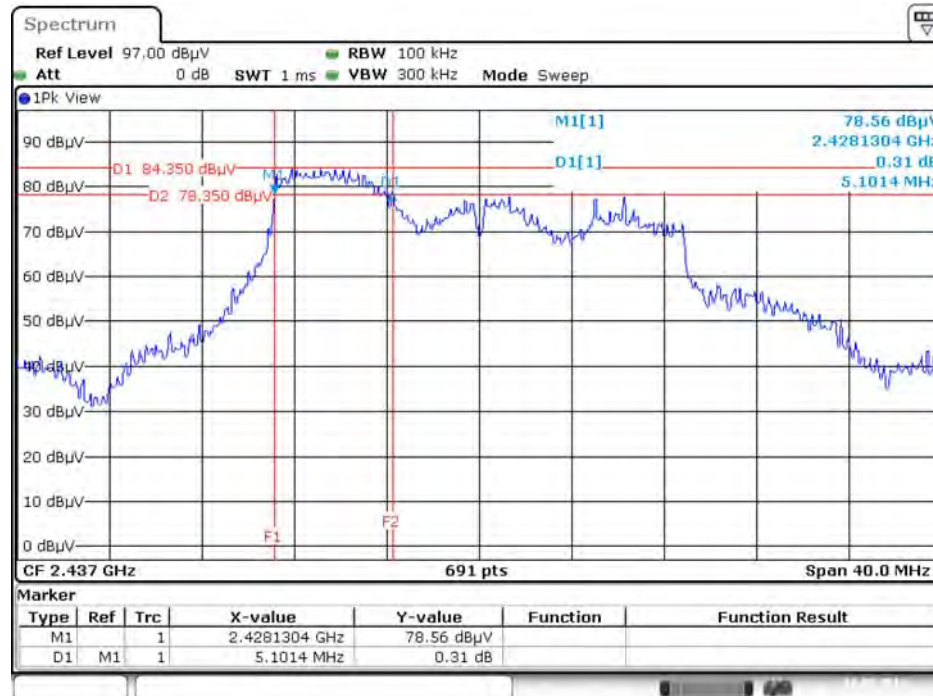
Date: 18.MAY.2016 23:03:13

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



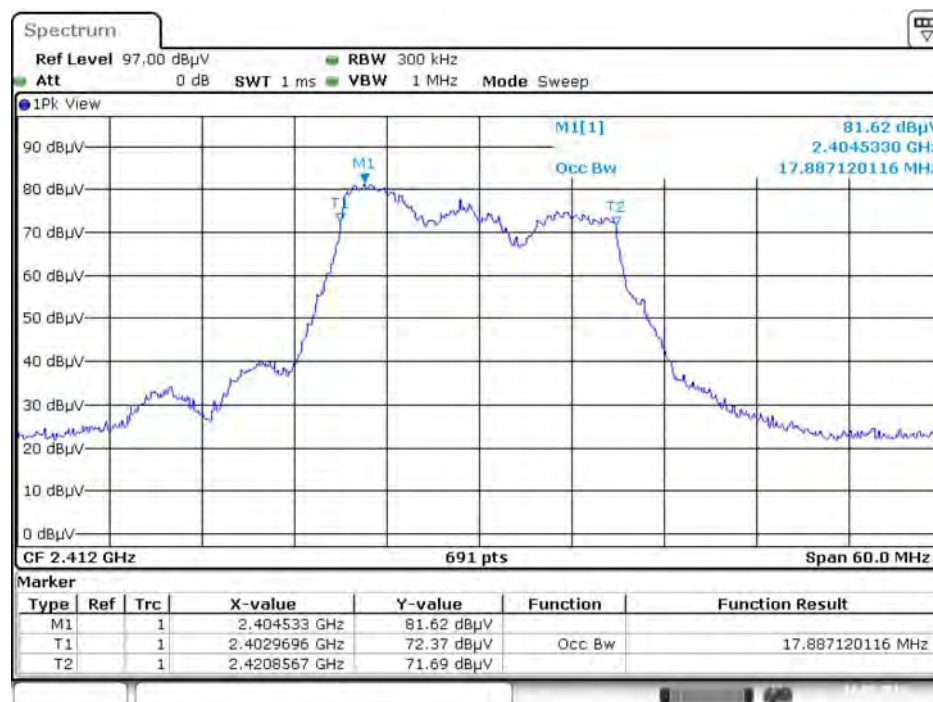
Date: 18.MAY.2016 22:18:16

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



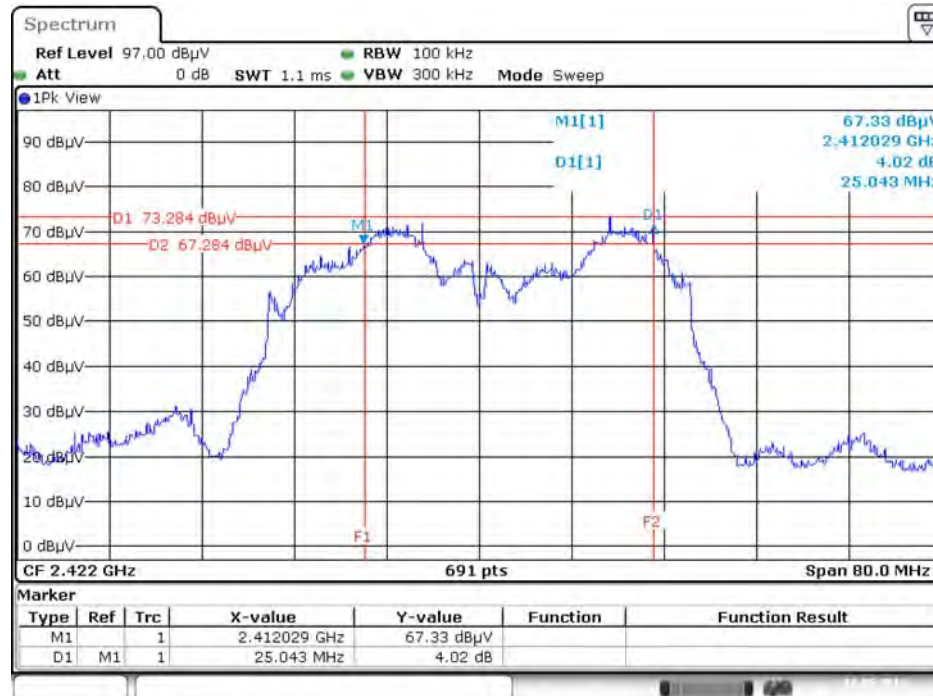
Date: 18.MAY.2016 23:05:13

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



Date: 18.MAY.2016 22:11:59

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



Date: 18.MAY.2016 23:08:21

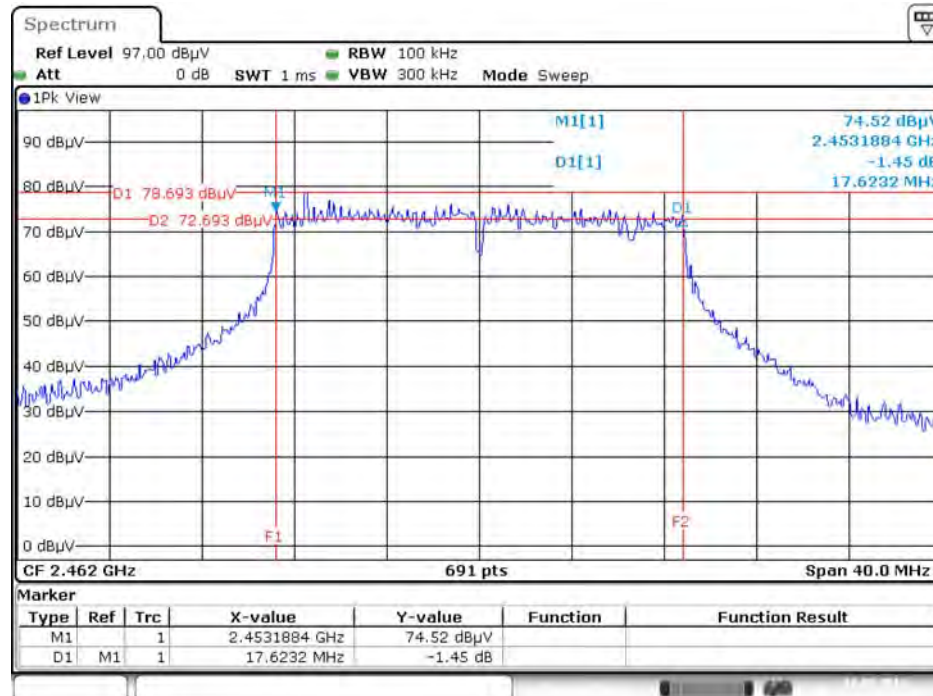
99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / 2437 MHz / Chain 1 + Chain 2 + Chain 3 + Chain 4



Date: 18.MAY.2016 22:08:03

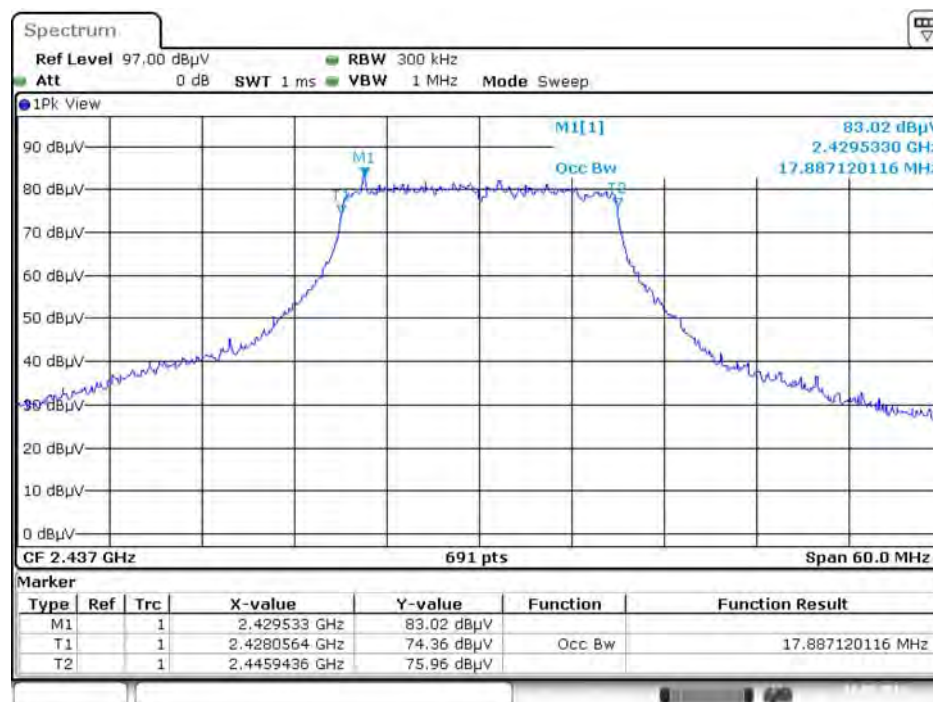
<For Beamforming Mode>

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / 2462 MHz / Chain 1 + Chain 2
+ Chain 3 + Chain 4



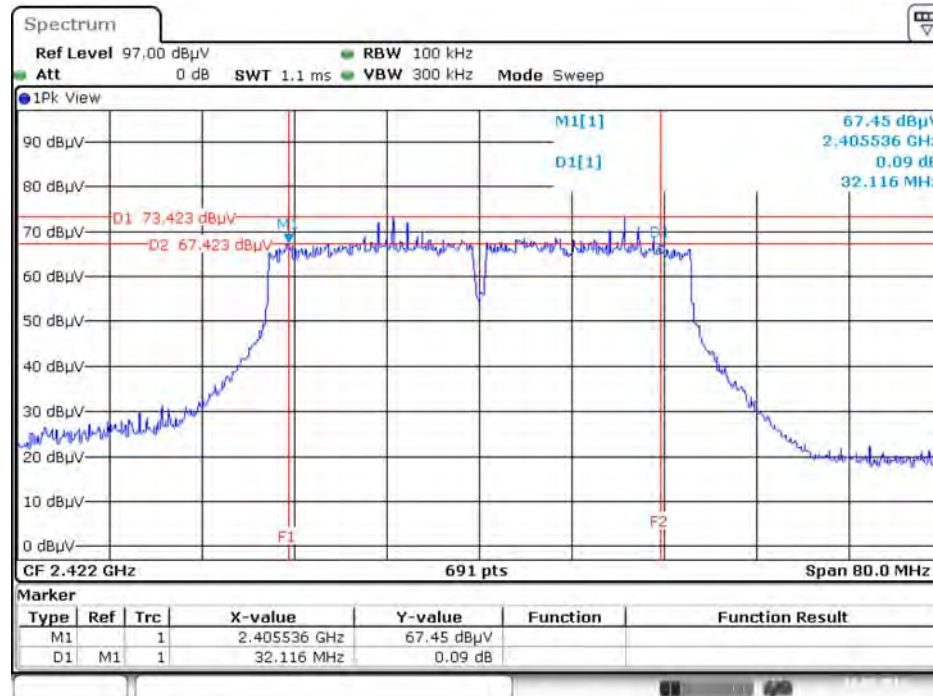
Date: 18.MAY.2016 23:06:42

99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / 2437 MHz / Chain 1
+ Chain 2 + Chain 3 + Chain 4

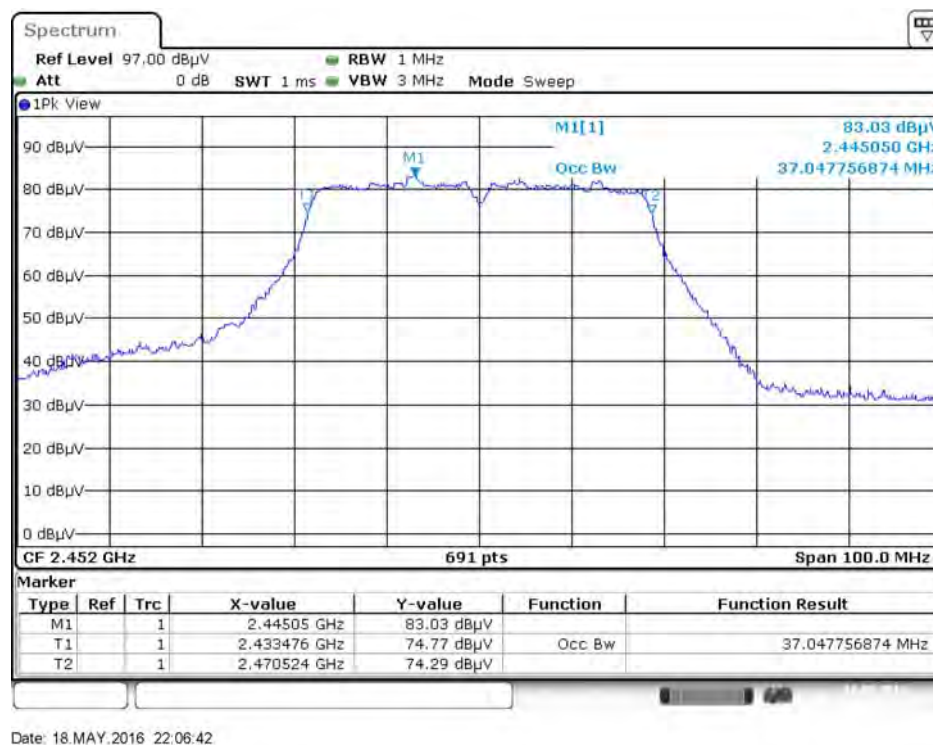


Date: 18.MAY.2016 22:13:17

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

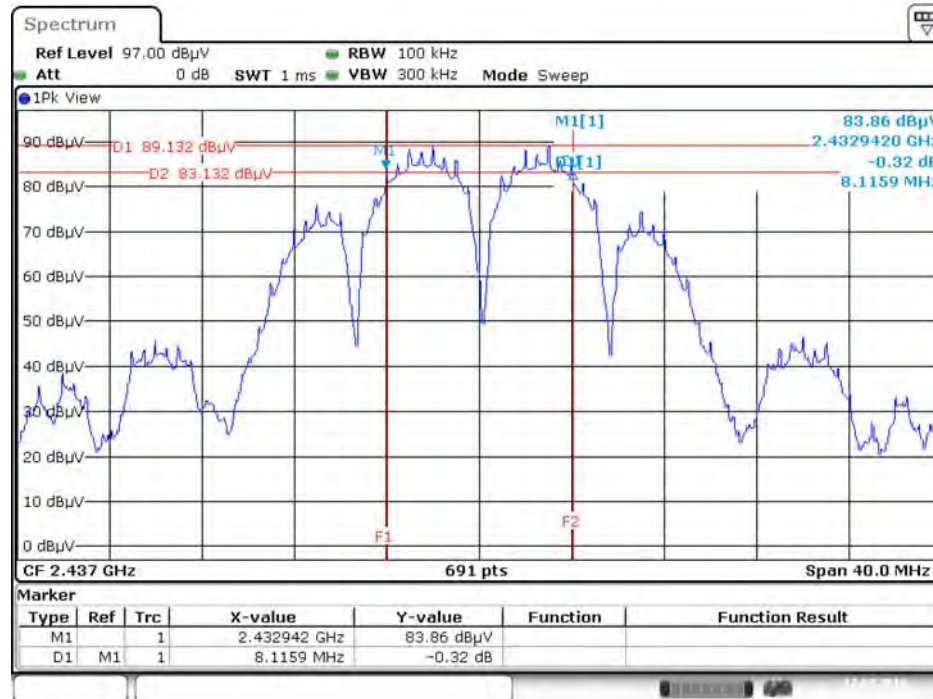


99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / 2452 MHz / Chain 1 + Chain 2 + Chain 3 + Chain 4



For radio 3

6 dB Bandwidth Plot on Configuration IEEE 802.11b / 2437 MHz / Chain 9 + Chain 10



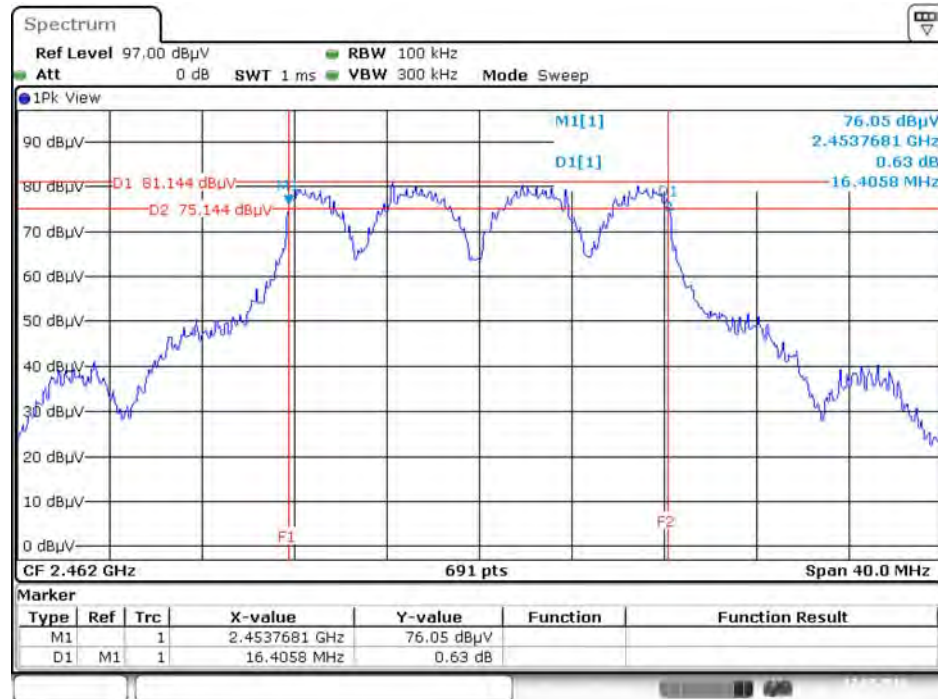
Date: 12.JUL.2016 23:36:39

99% Occupied Bandwidth Plot on Configuration IEEE 802.11b / 2412 MHz / Chain 9 + Chain 10



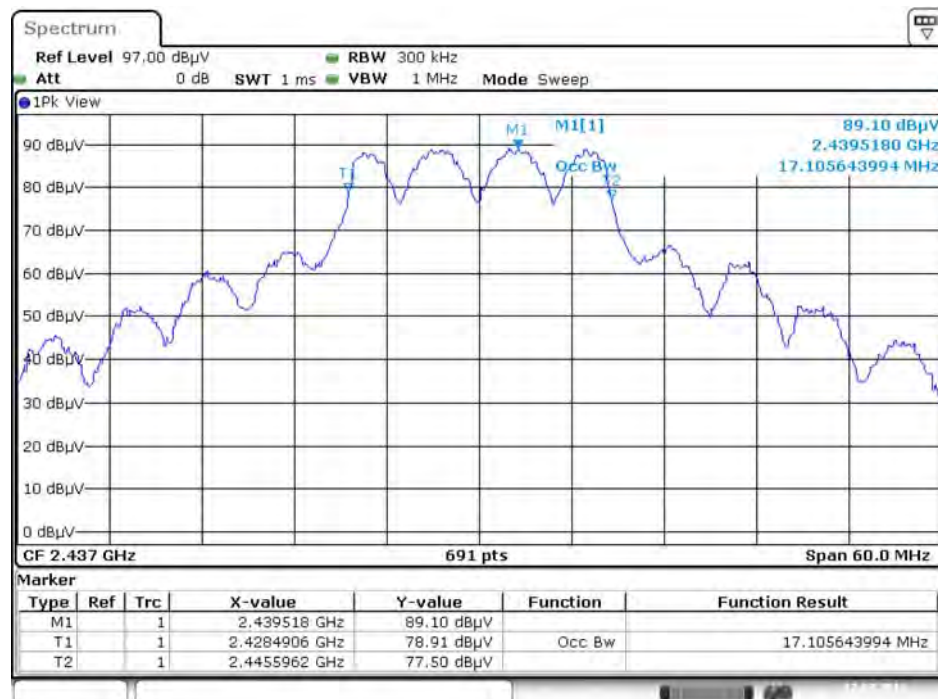
Date: 12.JUL.2016 23:26:37

6 dB Bandwidth Plot on Configuration IEEE 802.11g / 2462 MHz / Chain 9 + Chain 10



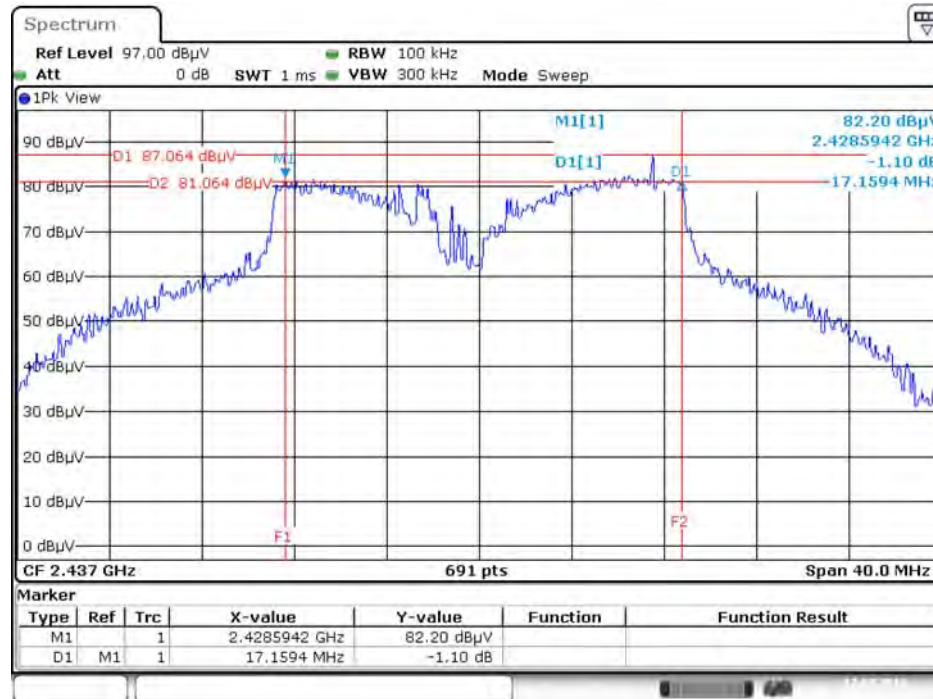
Date: 12 JUL 2016 23:38:12

99% Occupied Bandwidth Plot on Configuration IEEE 802.11g / 2437 MHz / Chain 9 + Chain 10



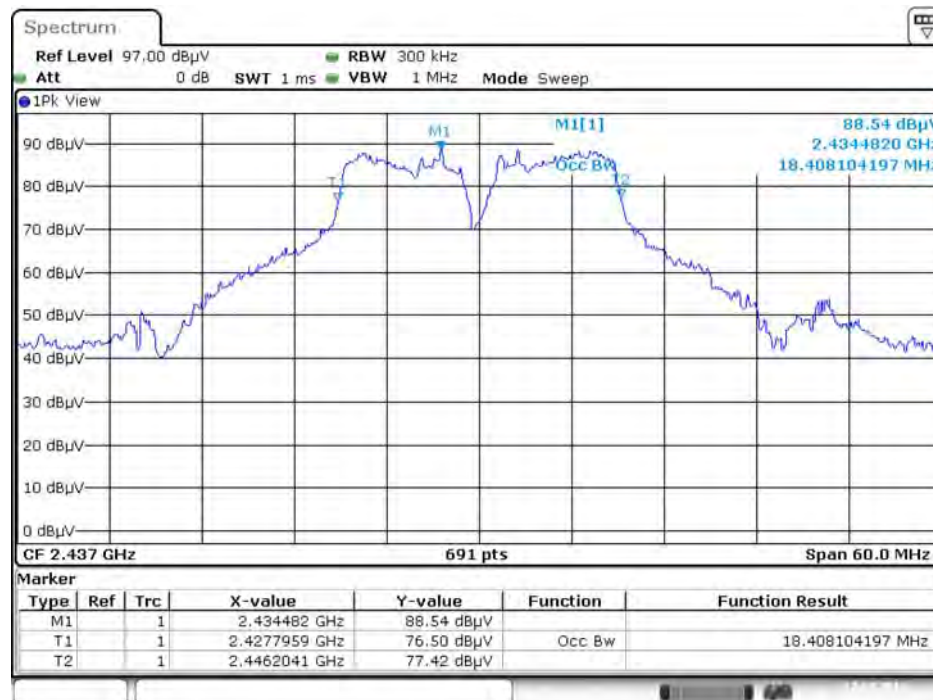
Date: 12 JUL 2016 23:28:04

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / 2437 MHz / Chain 9 + Chain 10



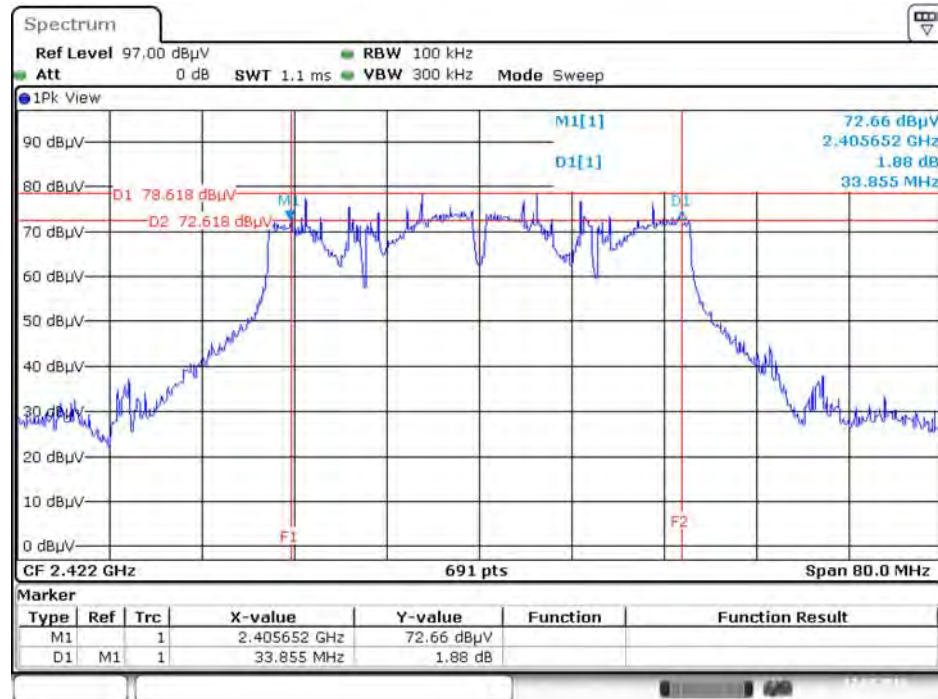
Date: 12.JUL.2016 23:39:18

99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / 2437 MHz / Chain 9 + Chain 10



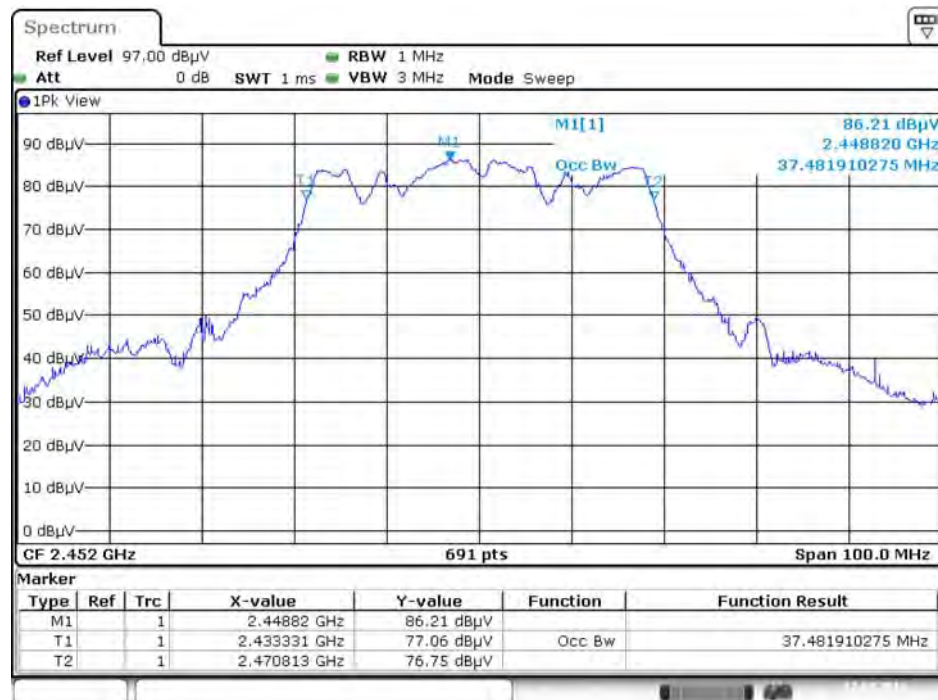
Date: 12.JUL.2016 23:29:15

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / 2422 MHz / Chain 9 + Chain 10



Date: 12 JUL 2016 23:40:23

99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / 2452 MHz / Chain 9 + Chain 10



Date: 12 JUL 2016 23:31:44

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

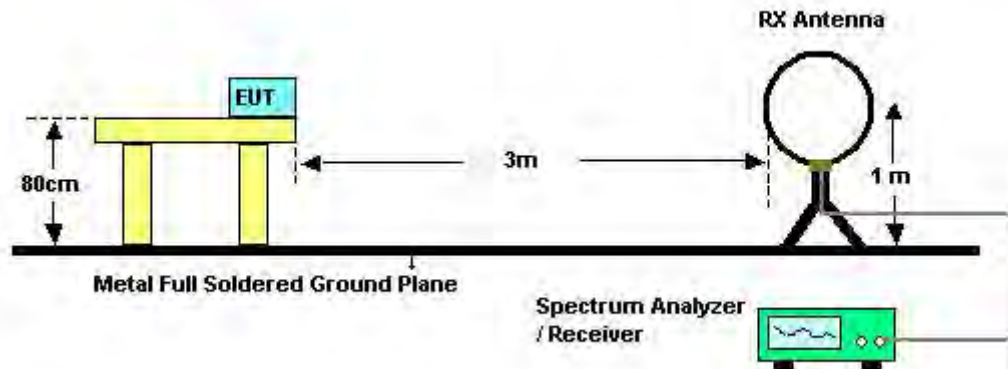
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RBW 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RBW 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RBW 120kHz for QP

4.5.3. Test Procedures

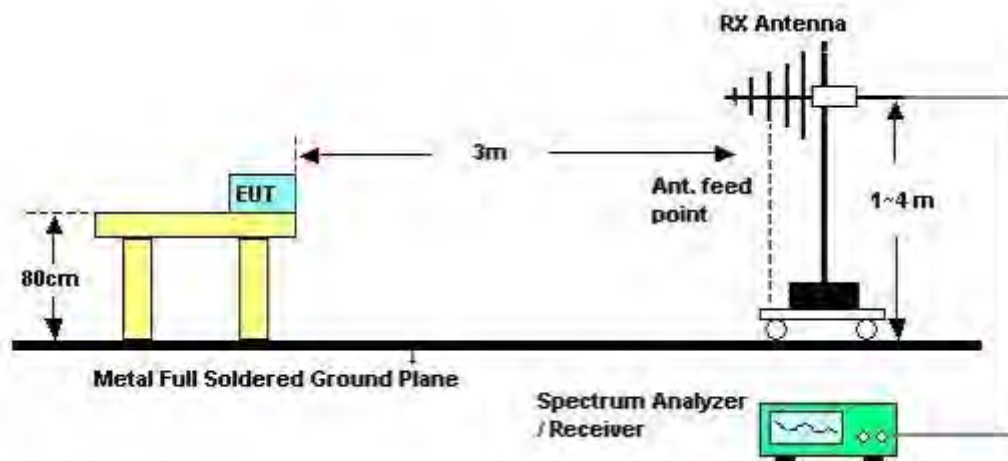
1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 1m & 3m far away from the turntable.
2. Power on the EUT and all the supporting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

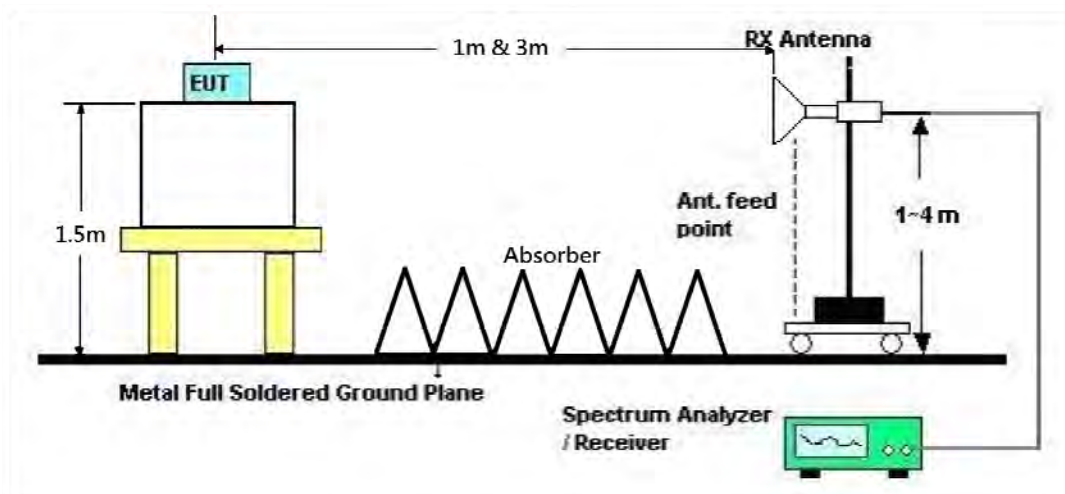
For Radiated Emissions: 9kHz ~30MHz



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 Mode>

The EUT was programmed to be in continuously transmitting mode.

<For Beamforming Mode>

The EUT was programmed to be in beamforming transmitting mode.

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

Temperature	24°C	Humidity	58%
Test Engineer	Peter Wu	Configurations	Normal Link
Test Date	Jul. 06, 2016	Test Mode	Mode 3

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.

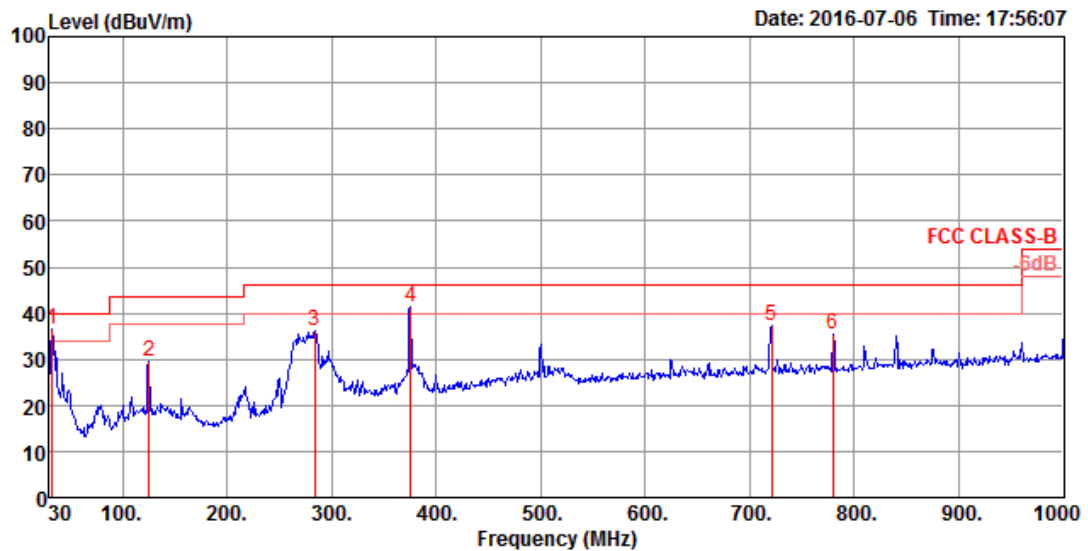
Distance extrapolation factor = $40 \log (\text{specific distance} / \text{test distance})$ (dB);

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

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

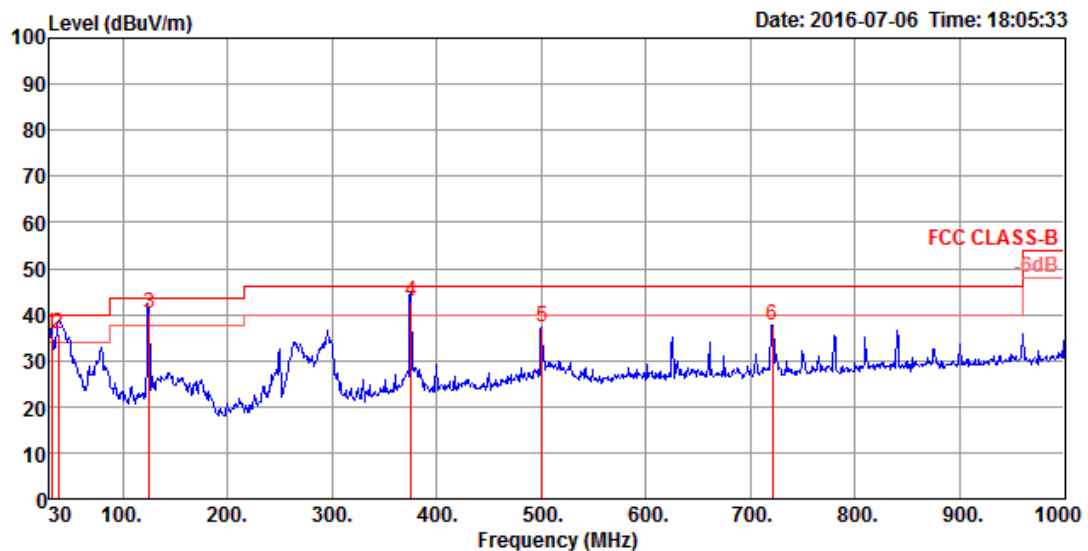
Temperature	24°C	Humidity	58%
Test Engineer	Peter Wu	Configurations	Normal Link
Test Mode	Mode 3		

Horizontal



	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	32.91	36.63	40.00	-3.37	44.28	0.51	24.24	32.40	100	140 Peak	HORIZONTAL
2	125.06	29.40	43.50	-14.10	41.86	0.97	18.94	32.37	200	139 Peak	HORIZONTAL
3	284.14	36.00	46.00	-10.00	47.11	1.44	19.74	32.29	150	226 Peak	HORIZONTAL
4	375.32	41.32	46.00	-4.68	49.89	1.67	22.08	32.32	200	191 Peak	HORIZONTAL
5	720.64	37.14	46.00	-8.86	41.04	2.32	26.12	32.34	200	162 Peak	HORIZONTAL
6	779.81	35.56	46.00	-10.44	38.76	2.42	26.64	32.26	100	132 Peak	HORIZONTAL

Vertical



	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	31.94	35.76	40.00	-4.24	43.00	0.50	24.66	32.40	100	161	QP	VERTICAL
2	38.73	35.66	40.00	-4.34	46.60	0.54	20.93	32.41	100	350	QP	VERTICAL
3	125.06	40.24	43.50	-3.26	52.70	0.97	18.94	32.37	100	251	QP	VERTICAL
4	375.32	42.84	46.00	-3.16	51.41	1.67	22.08	32.32	100	247	QP	VERTICAL
5	500.45	37.32	46.00	-8.68	43.70	1.94	24.03	32.35	125	284	Peak	VERTICAL
6	720.64	37.80	46.00	-8.20	41.70	2.32	26.12	32.34	200	145	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)

For radio 1

<For Non-Beamforming Mode>

Temperature	23°C	Humidity	55%
Test Engineer	Brian Sun/Andy Tsai/DK Chang/Gary Chu/Ron Huang	Configurations	IEEE 802.11b CH 1 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Apr. 19, 2016	Test Mode	Mode 1

Horizontal

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm	
1	4823.78	47.23	74.00	-26.77	41.35	7.58	32.82	34.52	74	286 Peak	HORIZONTAL
2	4823.87	36.23	54.00	-17.77	30.35	7.58	32.82	34.52	74	286 Average	HORIZONTAL

Vertical

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm	
1	4823.89	48.21	74.00	-25.79	42.33	7.58	32.82	34.52	58	237 Peak	VERTICAL
2	4823.98	38.90	54.00	-15.10	33.02	7.58	32.82	34.52	58	237 Average	VERTICAL

Temperature	23°C	Humidity	55%
Test Engineer	Brian Sun/Andy Tsai/DK Chang/Gary Chu/Ron Huang	Configurations	IEEE 802.11b CH 6 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Apr. 19, 2016	Test Mode	Mode 1

Horizontal

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	deg	cm		
1	4873.91	49.58	74.00	-24.42	43.58	7.60	32.91	34.51	199	115	Peak	HORIZONTAL
2	4873.95	37.03	54.00	-16.97	31.03	7.60	32.91	34.51	199	115	Average	HORIZONTAL

Vertical

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	deg	cm		
1	4873.83	49.68	74.00	-24.32	43.68	7.60	32.91	34.51	57	214	Peak	VERTICAL
2	4874.04	41.12	54.00	-12.88	35.12	7.60	32.91	34.51	57	214	Average	VERTICAL

Temperature	23°C	Humidity	55%
Test Engineer	Brian Sun/Andy Tsai/DK Chang/Gary Chu/Ron Huang	Configurations	IEEE 802.11b CH 11 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Apr. 19, 2016	Test Mode	Mode 1

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4923.92	39.68	54.00	-14.32	33.56	7.62	32.99	34.49	197	240	Average	HORIZONTAL
2	4923.96	48.43	74.00	-25.57	42.31	7.62	32.99	34.49	197	240	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4923.92	49.13	74.00	-24.87	43.01	7.62	32.99	34.49	218	277	Peak	VERTICAL
2	4923.99	40.31	54.00	-13.69	34.19	7.62	32.99	34.49	218	277	Average	VERTICAL

Temperature	23°C	Humidity	55%
Test Engineer	Brian Sun/Andy Tsai/DK Chang/Gary Chu/Ron Huang	Configurations	IEEE 802.11g CH 1 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Apr. 19, 2016	Test Mode	Mode 1

Horizontal

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4823.86	31.72	54.00	-22.28	27.40	6.02	32.82	34.52	298	139	Average	HORIZONTAL
2	4823.87	44.98	74.00	-29.02	40.66	6.02	32.82	34.52	298	139	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4823.56	32.56	54.00	-21.44	28.24	6.02	32.82	34.52	137	122	Average	VERTICAL
2	4824.02	44.21	74.00	-29.79	39.89	6.02	32.82	34.52	137	122	Peak	VERTICAL

Temperature	23°C	Humidity	55%
Test Engineer	Brian Sun/Andy Tsai/DK Chang/Gary Chu/Ron Huang	Configurations	IEEE 802.11g CH 6 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Apr. 23, 2016	Test Mode	Mode 1

Horizontal

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4873.22	33.67	54.00	-20.33	29.25	6.02	32.91	34.51	42	147	Average	HORIZONTAL
2	4877.94	46.51	74.00	-27.49	42.08	6.02	32.91	34.50	42	147	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4874.20	33.89	54.00	-20.11	29.47	6.02	32.91	34.51	350	240	Average	VERTICAL
2	4877.60	46.60	74.00	-27.40	42.17	6.02	32.91	34.50	350	240	Peak	VERTICAL

Temperature	23°C	Humidity	55%
Test Engineer	Brian Sun/Andy Tsai/DK Chang/Gary Chu/Ron Huang	Configurations	IEEE 802.11g CH 11 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Apr. 23, 2016	Test Mode	Mode 1

Horizontal

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4923.40	33.37	54.00	-20.63	28.88	6.01	32.97	34.49	110	167	Average	HORIZONTAL
2	4928.42	46.84	74.00	-27.16	42.33	6.01	32.99	34.49	110	167	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4920.82	46.88	74.00	-27.12	42.39	6.01	32.97	34.49	80	170	Peak	VERTICAL
2	4923.42	33.55	54.00	-20.45	29.06	6.01	32.97	34.49	80	170	Average	VERTICAL

Temperature	23°C	Humidity	55%
Test Engineer	Brian Sun/Andy Tsai/DK Chang/Gary Chu/Ron Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 1 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Apr. 23, 2016	Test Mode	Mode 1

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4820.68	33.65	54.00	-20.35	29.33	6.02	32.82	34.52	188	170	Average	HORIZONTAL
2	4826.54	46.41	74.00	-27.59	42.07	6.02	32.84	34.52	188	170	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4821.38	46.53	74.00	-27.47	42.21	6.02	32.82	34.52	151	204	Peak	VERTICAL
2	4821.78	33.49	54.00	-20.51	29.17	6.02	32.82	34.52	151	204	Average	VERTICAL

Temperature	23°C	Humidity	55%
Test Engineer	Brian Sun/Andy Tsai/DK Chang/Gary Chu/Ron Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 6 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Apr. 23, 2016	Test Mode	Mode 1

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4871.24	33.49	54.00	-20.51	29.07	6.02	32.91	34.51	233	143	Average	HORIZONTAL
2	4872.10	46.78	74.00	-27.22	42.36	6.02	32.91	34.51	233	143	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4876.98	33.52	54.00	-20.48	29.09	6.02	32.91	34.50	202	180	Average	VERTICAL
2	4877.18	46.73	74.00	-27.27	42.30	6.02	32.91	34.50	202	180	Peak	VERTICAL

Temperature	23°C	Humidity	55%
Test Engineer	Brian Sun/Andy Tsai/DK Chang/Gary Chu/Ron Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 11 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Apr. 23, 2016	Test Mode	Mode 1

Horizontal

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4920.00	32.44	54.00	-21.56	27.95	6.01	32.97	34.49	273	178	Average	HORIZONTAL
2	4928.50	46.62	74.00	-27.38	42.11	6.01	32.99	34.49	273	178	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4921.34	46.43	74.00	-27.57	41.94	6.01	32.97	34.49	258	166	Peak	VERTICAL
2	4923.58	33.44	54.00	-20.56	28.95	6.01	32.97	34.49	258	166	Average	VERTICAL

Temperature	23°C	Humidity	55%
Test Engineer	Brian Sun/Andy Tsai/DK Chang/Gary Chu/Ron Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 3 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Apr. 23, 2016	Test Mode	Mode 1

Horizontal

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm	
1	4839.84	46.33	74.00	-27.67	41.97	6.02	32.86	34.52	321	166 Peak	HORIZONTAL
2	4848.18	33.31	54.00	-20.69	28.94	6.02	32.86	34.51	321	166 Average	HORIZONTAL

Vertical

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm	
1	4840.38	33.42	54.00	-20.58	29.06	6.02	32.86	34.52	288	192 Average	VERTICAL
2	4845.70	46.13	74.00	-27.87	41.76	6.02	32.86	34.51	288	192 Peak	VERTICAL

Temperature	23°C	Humidity	55%
Test Engineer	Brian Sun/Andy Tsai/DK Chang/Gary Chu/Ron Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 6 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Apr. 23, 2016	Test Mode	Mode 1

Horizontal

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm	
1	4871.12	46.15	74.00	-27.85	41.73	6.02	32.91	34.51	240	195 Peak	HORIZONTAL
2	4878.30	33.44	54.00	-20.56	29.01	6.02	32.91	34.50	240	195 Average	HORIZONTAL

Vertical

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm	
1	4873.70	33.40	54.00	-20.60	28.98	6.02	32.91	34.51	279	205 Average	VERTICAL
2	4874.06	46.83	74.00	-27.17	42.41	6.02	32.91	34.51	279	205 Peak	VERTICAL

Temperature	23°C	Humidity	55%
Test Engineer	Brian Sun/Andy Tsai/DK Chang/Gary Chu/Ron Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 9 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Apr. 23, 2016	Test Mode	Mode 1

Horizontal

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm	
1	4905.40	46.21	74.00	-27.79	41.75	6.01	32.95	34.50	167	170 Peak	HORIZONTAL
2	4908.22	33.09	54.00	-20.91	28.63	6.01	32.95	34.50	167	170 Average	HORIZONTAL

Vertical

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm	
1	4901.06	46.15	74.00	-27.85	41.69	6.01	32.95	34.50	213	218 Peak	VERTICAL
2	4908.62	33.20	54.00	-20.80	28.74	6.01	32.95	34.50	213	218 Average	VERTICAL

<For Beamforming Mode>

Temperature	23°C	Humidity	55%
Test Engineer	Brian Sun/Andy Tsai/DK Chang/Gary Chu/Ron Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 1 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	May 07, 2016	Test Mode	Mode 1

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	4823.82	34.96	54.00	-19.04	28.65	7.04	34.17	34.90	142	64 Average	HORIZONTAL
2	4824.38	47.93	74.00	-26.07	41.62	7.04	34.17	34.90	142	64 Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	4823.85	48.22	74.00	-25.78	41.91	7.04	34.17	34.90	161	215 Peak	VERTICAL
2	4824.41	34.99	54.00	-19.01	28.68	7.04	34.17	34.90	161	215 Average	VERTICAL

Temperature	23°C	Humidity	55%
Test Engineer	Brian Sun/Andy Tsai/DK Chang/Gary Chu/Ron Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 6 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	May 07, 2016	Test Mode	Mode 1

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase	
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4873.84	35.94	54.00	-18.06	29.32	7.18	34.34	34.90	136	330	Average	HORIZONTAL
2	4873.93	48.84	74.00	-25.16	42.22	7.18	34.34	34.90	136	330	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase	
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4873.77	48.20	74.00	-25.80	41.58	7.18	34.34	34.90	193	195	Peak	VERTICAL
2	4874.10	36.20	54.00	-17.80	29.58	7.18	34.34	34.90	193	195	Average	VERTICAL

Temperature	23°C	Humidity	55%
Test Engineer	Brian Sun/Andy Tsai/DK Chang/Gary Chu/Ron Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 11 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	May 07, 2016	Test Mode	Mode 1

Horizontal

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	4923.56	48.82	74.00	-25.18	41.98	7.28	34.46	34.90	161	112 Peak	HORIZONTAL
2	4924.05	36.18	54.00	-17.82	29.27	7.31	34.50	34.90	161	112 Average	HORIZONTAL

Vertical

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	4923.69	49.63	74.00	-24.37	42.72	7.31	34.50	34.90	143	261 Peak	VERTICAL
2	4924.01	36.96	54.00	-17.04	30.05	7.31	34.50	34.90	143	261 Average	VERTICAL

Temperature	23°C	Humidity	55%
Test Engineer	Brian Sun/Andy Tsai/DK Chang/Gary Chu/Ron Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 3 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	May 07, 2016	Test Mode	Mode 1

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4843.45	47.92	74.00	-26.08	41.46	7.11	34.25	34.90	117	321	Peak	HORIZONTAL
2	4844.39	35.25	54.00	-18.75	28.79	7.11	34.25	34.90	117	321	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4844.40	48.83	74.00	-25.17	42.37	7.11	34.25	34.90	162	175	Peak	VERTICAL
2	4844.92	35.07	54.00	-18.93	28.61	7.11	34.25	34.90	162	175	Average	VERTICAL

Temperature	23°C	Humidity	55%
Test Engineer	Brian Sun/Andy Tsai/DK Chang/Gary Chu/Ron Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 6 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	May 07, 2016	Test Mode	Mode 1

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	4874.27	49.17	74.00	-24.83	42.55	7.18	34.34	34.90	147	167 Peak	HORIZONTAL
2	4874.81	35.74	54.00	-18.26	29.12	7.18	34.34	34.90	147	167 Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	4874.24	48.23	74.00	-25.77	41.61	7.18	34.34	34.90	160	335 Peak	VERTICAL
2	4874.70	35.66	54.00	-18.34	29.04	7.18	34.34	34.90	160	335 Average	VERTICAL

Temperature	23°C	Humidity	55%
Test Engineer	Brian Sun/Andy Tsai/DK Chang/Gary Chu/Ron Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 9 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	May 07, 2016	Test Mode	Mode 1

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	4905.40	48.43	74.00	-25.57	41.67	7.24	34.42	34.90	126	231 Peak	HORIZONTAL
2	4906.92	35.83	54.00	-18.17	29.07	7.24	34.42	34.90	126	231 Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	4903.18	49.08	74.00	-24.92	42.32	7.24	34.42	34.90	141	146 Peak	VERTICAL
2	4904.77	35.84	54.00	-18.16	29.08	7.24	34.42	34.90	141	146 Average	VERTICAL

For radio 3

Temperature	24°C	Humidity	58%
Test Engineer	Eason Chen/John Tang/Zero Chen	Configurations	IEEE 802.11b CH 1 / Chain 9 + Chain 10
Test Date	Jul. 12, 2016	Test Mode	Mode 2

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	4823.90	38.09	54.00	-15.91	32.21	7.58	32.82	34.52	104	20	Average	HORIZONTAL
2	4824.04	50.30	74.00	-23.70	44.42	7.58	32.82	34.52	104	20	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	4823.95	44.36	54.00	-9.64	38.48	7.58	32.82	34.52	102	2	Average	VERTICAL
2	4824.04	51.37	74.00	-22.63	45.49	7.58	32.82	34.52	102	2	Peak	VERTICAL

Temperature	24°C	Humidity	58%
Test Engineer	Eason Chen/John Tang/Zero Chen	Configurations	IEEE 802.11b CH 6 / Chain 9 + Chain 10
Test Date	Jul. 02, 2016	Test Mode	Mode 2

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	4873.98	42.24	54.00	-11.76	36.40	6.35	31.21	31.72	100	65 Average	HORIZONTAL
2	4874.07	49.16	74.00	-24.84	43.32	6.35	31.21	31.72	100	65 Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	4873.92	50.87	74.00	-23.13	45.03	6.35	31.21	31.72	197	30 Peak	VERTICAL
2	4873.94	44.98	54.00	-9.02	39.14	6.35	31.21	31.72	197	30 Average	VERTICAL

Temperature	24°C	Humidity	58%
Test Engineer	Eason Chen/John Tang/Zero Chen	Configurations	IEEE 802.11b CH 11 / Chain 9 + Chain 10
Test Date	Jul. 02, 2016	Test Mode	Mode 2

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna 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	4923.99	43.57	54.00	-10.43	37.62	6.36	31.29	31.70	271	29	Average	HORIZONTAL
2	4924.00	50.88	74.00	-23.12	44.93	6.36	31.29	31.70	271	29	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna 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	4924.01	47.55	54.00	-6.45	41.60	6.36	31.29	31.70	182	360	Average	VERTICAL
2	4924.09	52.25	74.00	-21.75	46.30	6.36	31.29	31.70	182	360	Peak	VERTICAL

Temperature	24°C	Humidity	58%
Test Engineer	Eason Chen/John Tang/Zero Chen	Configurations	IEEE 802.11g CH 1 / Chain 9 + Chain 10
Test Date	Jul. 03, 2016	Test Mode	Mode 2

Horizontal

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	cm	deg		
1	4820.12	45.85	74.00	-28.15	40.14	6.33	31.12	31.74	163	57	Peak	HORIZONTAL
2	4825.26	33.19	54.00	-20.81	27.46	6.33	31.14	31.74	163	57	Average	HORIZONTAL

Vertical

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	cm	deg		
1	4820.12	46.09	74.00	-27.91	40.38	6.33	31.12	31.74	170	78	Peak	VERTICAL
2	4826.00	33.65	54.00	-20.35	27.92	6.33	31.14	31.74	170	78	Average	VERTICAL

Temperature	24°C	Humidity	58%
Test Engineer	Eason Chen/John Tang/Zero Chen	Configurations	IEEE 802.11g CH 6 / Chain 9 + Chain 10
Test Date	Jul. 03, 2016	Test Mode	Mode 2

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	4871.46	46.44	74.00	-27.56	40.60	6.35	31.21	31.72	152	105	Peak	HORIZONTAL
2	4874.06	33.58	54.00	-20.42	27.74	6.35	31.21	31.72	152	105	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	4875.32	48.20	74.00	-25.80	42.36	6.35	31.21	31.72	161	330	Peak	VERTICAL
2	4875.98	35.37	54.00	-18.63	29.53	6.35	31.21	31.72	161	330	Average	VERTICAL

Temperature	24°C	Humidity	58%
Test Engineer	Eason Chen/John Tang/Zero Chen	Configurations	IEEE 802.11g CH 11 / Chain 9 + Chain 10
Test Date	Jul. 03, 2016	Test Mode	Mode 2

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase	
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4919.20	47.12	74.00	-26.88	41.19	6.36	31.27	31.70	197	145	Peak	HORIZONTAL
2	4928.70	33.99	54.00	-20.01	28.03	6.36	31.29	31.69	196	145	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase	
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4924.80	34.97	54.00	-19.03	29.02	6.36	31.29	31.70	152	234	Average	VERTICAL
2	4928.16	46.86	74.00	-27.14	40.90	6.36	31.29	31.69	152	234	Peak	VERTICAL

Temperature	24°C	Humidity	58%
Test Engineer	Eason Chen/John Tang/Zero Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 1 / Chain 9 + Chain 10
Test Date	Jul. 03, 2016	Test Mode	Mode 2

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	4828.02	46.37	74.00	-27.63	40.64	6.33	31.14	31.74	146	130	Peak	HORIZONTAL
2	4828.46	32.59	54.00	-21.41	26.86	6.33	31.14	31.74	146	130	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	4822.80	45.47	74.00	-28.53	39.76	6.33	31.12	31.74	175	187	Peak	VERTICAL
2	4827.16	33.12	54.00	-20.88	27.39	6.33	31.14	31.74	175	187	Average	VERTICAL

Temperature	24°C	Humidity	58%
Test Engineer	Eason Chen/John Tang/Zero Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 6 / Chain 9 + Chain 10
Test Date	Jul. 03, 2016	Test Mode	Mode 2

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	4871.62	45.95	74.00	-28.05	40.11	6.35	31.21	31.72	160	117	Peak	HORIZONTAL
2	4876.90	33.38	54.00	-20.62	27.53	6.35	31.21	31.71	160	117	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	4878.18	34.48	54.00	-19.52	28.63	6.35	31.21	31.71	168	360	Average	VERTICAL
2	4878.46	47.49	74.00	-26.51	41.64	6.35	31.21	31.71	168	360	Peak	VERTICAL

Temperature	24°C	Humidity	58%
Test Engineer	Eason Chen/John Tang/Zero Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 11 / Chain 9 + Chain 10
Test Date	Jul. 03, 2016	Test Mode	Mode 2

Horizontal

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	4927.74	33.66	54.00	-20.34	27.70	6.36	31.29	31.69	165	266 Average	HORIZONTAL
2	4928.50	45.30	74.00	-28.70	39.34	6.36	31.29	31.69	165	266 Peak	HORIZONTAL

Vertical

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	4928.24	34.39	54.00	-19.61	28.43	6.36	31.29	31.69	201	325 Average	VERTICAL
2	4928.88	47.76	74.00	-26.24	41.80	6.36	31.29	31.69	202	325 Peak	VERTICAL

Temperature	24°C	Humidity	58%
Test Engineer	Eason Chen/John Tang/Zero Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 3 / Chain 9 + Chain 10
Test Date	Jul. 12, 2016	Test Mode	Mode 2

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	4844.57	35.41	54.00	-18.59	29.48	7.59	32.86	34.52	101	39	Average	HORIZONTAL
2	4844.96	48.33	74.00	-25.67	42.40	7.59	32.86	34.52	101	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	4844.76	48.82	74.00	-25.18	42.89	7.59	32.86	34.52	102	33	Peak	VERTICAL
2	4844.85	35.56	54.00	-18.44	29.63	7.59	32.86	34.52	102	33	Average	VERTICAL

Temperature	24°C	Humidity	58%
Test Engineer	Eason Chen/John Tang/Zero Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 6 / Chain 9 + Chain 10
Test Date	Jul. 03, 2016	Test Mode	Mode 2

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna 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	4872.16	46.72	74.00	-27.28	40.88	6.35	31.21	31.72	160	131	Peak	HORIZONTAL
2	4873.46	32.98	54.00	-21.02	27.14	6.35	31.21	31.72	160	131	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna 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	4872.84	46.56	74.00	-27.44	40.72	6.35	31.21	31.72	168	82	Peak	VERTICAL
2	4875.56	33.08	54.00	-20.92	27.24	6.35	31.21	31.72	168	82	Average	VERTICAL

Temperature	24°C	Humidity	58%
Test Engineer	Eason Chen/John Tang/Zero Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 9 / Chain 9 + Chain 10
Test Date	Jul. 12, 2016	Test Mode	Mode 2

Horizontal

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4903.96	48.44	74.00	-25.56	42.38	7.61	32.95	34.50	102	48	Peak	HORIZONTAL
2	4904.61	34.96	54.00	-19.04	28.90	7.61	32.95	34.50	102	48	Average	HORIZONTAL

Vertical

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4903.86	48.72	74.00	-25.28	42.66	7.61	32.95	34.50	100	41	Peak	VERTICAL
2	4904.70	35.35	54.00	-18.65	29.29	7.61	32.95	34.50	100	41	Average	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 Mode>

The EUT was programmed to be in continuously transmitting mode.

<For Beamforming Mode>

The EUT was programmed to be in beamforming transmitting mode.

4.6.7. Test Result of Band Edge and Fundamental Emissions

For radio 1

<For Non-Beamforming Mode>

Temperature	23°C	Humidity	55%
Test Engineer	Brian Sun/Andy Tsai/DK Chang/Gary Chu/Ron Huang	Configurations	IEEE 802.11b CH 1, 6, 11 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Apr. 19, 2016	Test Mode	Mode 1

Channel 1

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm	
1	2390.00	61.16	74.00	-12.84	29.24	3.90	28.02	0.00	121	292 Peak	VERTICAL
2	2390.00	53.80	54.00	-0.20	21.88	3.90	28.02	0.00	121	292 Average	VERTICAL
3	2411.00	120.11			88.18	3.93	28.00	0.00	121	292 Peak	VERTICAL
4	2411.20	117.05			85.12	3.94	27.99	0.00	121	292 Average	VERTICAL

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

Channel 6

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm	
1	2388.80	61.53	74.00	-12.47	29.61	3.90	28.02	0.00	129	308 Peak	VERTICAL
2	2389.60	52.14	54.00	-1.86	20.22	3.90	28.02	0.00	129	308 Average	VERTICAL
3	2438.20	120.26			88.32	3.97	27.97	0.00	129	308 Peak	VERTICAL
4	2439.00	115.87			83.93	3.97	27.97	0.00	129	308 Average	VERTICAL
5	2485.90	51.14	54.00	-2.86	19.18	4.04	27.92	0.00	129	308 Average	VERTICAL
6	2487.90	59.09	74.00	-14.91	27.13	4.04	27.92	0.00	129	308 Peak	VERTICAL

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

Channel 11

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm	
1	2460.00	117.75			85.80	4.00	27.95	0.00	11	274 Peak	VERTICAL
2	2460.20	114.51			82.56	4.00	27.95	0.00	11	274 Average	VERTICAL
3	2500.00	60.99	74.00	-13.01	29.03	4.06	27.90	0.00	11	274 Peak	VERTICAL
4	2500.00	53.59	54.00	-0.41	21.63	4.06	27.90	0.00	11	274 Average	VERTICAL

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

Temperature	23°C	Humidity	55%
Test Engineer	Brian Sun/Andy Tsai/DK Chang/Gary Chu/Ron Huang	Configurations	IEEE 802.11g CH 1, 6, 11 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Apr. 19, 2016	Test Mode	Mode 1

Channel 1

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	2390.00	67.49	74.00	-6.51	35.57	3.90	28.02	0.00	350	295	Peak	VERTICAL
2	2390.00	53.25	54.00	-0.75	21.33	3.90	28.02	0.00	350	295	Average	VERTICAL
3	2410.60	104.56			72.63	3.93	28.00	0.00	350	295	Average	VERTICAL
4	2410.80	115.83			83.90	3.93	28.00	0.00	350	295	Peak	VERTICAL

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

Channel 6

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	2390.00	67.29	74.00	-6.71	35.37	3.90	28.02	0.00	258	285	Peak	VERTICAL
2	2390.00	53.37	54.00	-0.63	21.45	3.90	28.02	0.00	258	285	Average	VERTICAL
3	2433.40	120.93			88.99	3.97	27.97	0.00	258	285	Peak	VERTICAL
4	2433.80	109.07			77.13	3.97	27.97	0.00	258	285	Average	VERTICAL
5	2483.50	49.95	54.00	-4.05	17.99	4.04	27.92	0.00	258	285	Average	VERTICAL
6	2483.90	61.65	74.00	-12.35	29.69	4.04	27.92	0.00	258	285	Peak	VERTICAL

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

Channel 11

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	2462.80	115.08			83.13	4.01	27.94	0.00	282	314	Peak	VERTICAL
2	2463.20	103.97			72.02	4.01	27.94	0.00	282	314	Average	VERTICAL
3	2483.50	53.14	54.00	-0.86	21.18	4.04	27.92	0.00	282	314	Average	VERTICAL
4	2484.50	65.99	74.00	-8.01	34.03	4.04	27.92	0.00	282	314	Peak	VERTICAL

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

Temperature	23°C	Humidity	55%
Test Engineer	Brian Sun/Andy Tsai/DK Chang/Gary Chu/Ron Huang	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 Mode	Mode 1

Channel 1

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm	
1	2390.00	65.96	74.00	-8.04	34.04	3.90	28.02	0.00	93	274 Peak	VERTICAL
2	2390.00	53.16	54.00	-0.84	21.24	3.90	28.02	0.00	93	274 Average	VERTICAL
3	2410.60	113.29			81.36	3.93	28.00	0.00	93	274 Peak	VERTICAL
4	2410.60	101.48			69.55	3.93	28.00	0.00	93	274 Average	VERTICAL

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

Channel 6

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm	
1	2388.80	67.88	74.00	-6.12	35.96	3.90	28.02	0.00	257	270 Peak	VERTICAL
2	2390.00	53.13	54.00	-0.87	21.21	3.90	28.02	0.00	257	270 Average	VERTICAL
3	2433.40	119.90			87.96	3.97	27.97	0.00	257	270 Peak	VERTICAL
4	2433.40	109.80			77.86	3.97	27.97	0.00	257	270 Average	VERTICAL
5	2483.50	60.56	74.00	-13.44	28.60	4.04	27.92	0.00	257	270 Peak	VERTICAL
6	2483.50	49.44	54.00	-4.56	17.48	4.04	27.92	0.00	257	270 Average	VERTICAL

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

Channel 11

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm	
1	2462.80	115.83			83.88	4.01	27.94	0.00	281	280 Peak	VERTICAL
2	2463.00	103.86			71.91	4.01	27.94	0.00	281	280 Average	VERTICAL
3	2483.50	66.87	74.00	-7.13	34.91	4.04	27.92	0.00	281	280 Peak	VERTICAL
4	2483.80	53.34	54.00	-0.66	21.38	4.04	27.92	0.00	281	280 Average	VERTICAL

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

Temperature	23°C	Humidity	55%
Test Engineer	Brian Sun/Andy Tsai/DK Chang/Gary Chu/Ron Huang	Configurations	IEEE 802.11 ac MCS0/Nss1 VHT40 CH 3, 6, 9 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	Apr. 19, 2016	Test Mode	Mode 1

Channel 3

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm	
1	2390.00	65.99	74.00	-8.01	34.07	3.90	28.02	0.00	320	288 Peak	VERTICAL
2	2390.00	53.59	54.00	-0.41	21.67	3.90	28.02	0.00	320	288 Average	VERTICAL
3	2412.00	107.73			75.80	3.94	27.99	0.00	320	288 Peak	VERTICAL
4	2412.40	95.75			63.82	3.94	27.99	0.00	320	288 Average	VERTICAL

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

Channel 6

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm	
1	2387.60	68.25	74.00	-5.75	36.33	3.90	28.02	0.00	326	304 Peak	VERTICAL
2	2387.60	53.82	54.00	-0.18	21.90	3.90	28.02	0.00	326	304 Average	VERTICAL
3	2427.40	99.48			67.54	3.96	27.98	0.00	326	304 Average	VERTICAL
4	2427.80	111.19			79.25	3.96	27.98	0.00	326	304 Peak	VERTICAL
5	2487.90	58.76	74.00	-15.24	26.80	4.04	27.92	0.00	326	304 Peak	VERTICAL
6	2487.90	46.84	54.00	-7.16	14.88	4.04	27.92	0.00	326	304 Average	VERTICAL

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

Channel 9

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm	
1	2442.40	102.81			70.87	3.98	27.96	0.00	320	269 Average	VERTICAL
2	2442.80	112.31			80.37	3.98	27.96	0.00	320	269 Peak	VERTICAL
3	2483.50	65.23	74.00	-8.77	33.27	4.04	27.92	0.00	320	269 Peak	VERTICAL
4	2483.50	53.77	54.00	-0.23	21.81	4.04	27.92	0.00	320	269 Average	VERTICAL

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

<For Beamforming Mode>

Temperature	23°C	Humidity	55%
Test Engineer	Brian Sun/Andy Tsai/DK Chang/Gary Chu/Ron Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 1, 6, 11 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	May 07, 2016	Test Mode	Mode 1

Channel 1

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	cm	deg	
1	2389.60	67.62	74.00	-6.38	34.20	4.85	28.57	0.00	307	356 Peak	VERTICAL
2	2390.00	53.85	54.00	-0.15	20.43	4.85	28.57	0.00	307	356 Average	VERTICAL
3	2413.60	118.60			85.09	4.88	28.63	0.00	307	356 Peak	VERTICAL
4	2415.20	104.16			70.65	4.88	28.63	0.00	307	356 Average	VERTICAL

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

Channel 6

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	cm	deg	
1	2389.00	62.04	74.00	-11.96	28.62	4.85	28.57	0.00	287	142 Peak	VERTICAL
2	2390.00	50.97	54.00	-3.03	17.55	4.85	28.57	0.00	287	142 Average	VERTICAL
3	2435.00	109.18			75.61	4.90	28.67	0.00	287	142 Average	VERTICAL
4	2439.00	122.54			88.97	4.90	28.67	0.00	287	142 Peak	VERTICAL
5	2483.50	63.65	74.00	-10.35	29.93	4.95	28.77	0.00	287	142 Peak	VERTICAL
6	2483.80	51.68	54.00	-2.32	17.96	4.95	28.77	0.00	287	142 Average	VERTICAL

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

Channel 11

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	cm	deg	
1	2457.60	119.77			86.14	4.92	28.71	0.00	255	137 Peak	VERTICAL
2	2460.00	107.89			74.26	4.92	28.71	0.00	255	137 Average	VERTICAL
3	2483.50	66.46	74.00	-7.54	32.74	4.95	28.77	0.00	255	137 Peak	VERTICAL
4	2484.40	53.76	54.00	-0.24	20.04	4.95	28.77	0.00	255	137 Average	VERTICAL

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

Temperature	23°C	Humidity	55%
Test Engineer	Brian Sun/Andy Tsai/DK Chang/Gary Chu/Ron Huang	Configurations	IEEE 802.11 ac MCS0/Nss1 VHT40 CH 3, 6, 9 / Chain 1 + Chain 2 + Chain 3 + Chain 4
Test Date	May 07, 2016	Test Mode	Mode 1

Channel 3

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	cm	deg	
1	2386.40	66.98	74.00	-7.02	33.56	4.85	28.57	0.00	299	348 Peak	VERTICAL
2	2388.80	53.51	54.00	-0.49	20.09	4.85	28.57	0.00	299	348 Average	VERTICAL
3	2413.60	99.99			66.48	4.88	28.63	0.00	299	348 Average	VERTICAL
4	2419.60	111.19			77.67	4.88	28.64	0.00	299	348 Peak	VERTICAL

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

Channel 6

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	cm	deg	
1	2389.80	53.90	54.00	-0.10	20.48	4.85	28.57	0.00	285	205 Average	VERTICAL
2	2389.80	66.84	74.00	-7.16	33.42	4.85	28.57	0.00	285	205 Peak	VERTICAL
3	2424.20	99.96			66.44	4.88	28.64	0.00	285	205 Average	VERTICAL
4	2427.00	111.25			77.70	4.89	28.66	0.00	285	205 Peak	VERTICAL
5	2485.00	60.53	74.00	-13.47	26.81	4.95	28.77	0.00	285	205 Peak	VERTICAL
6	2485.80	46.97	54.00	-7.03	13.25	4.95	28.77	0.00	285	205 Average	VERTICAL

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

Channel 9

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	cm	deg	
1	2443.60	104.22			70.62	4.91	28.69	0.00	301	354 Average	VERTICAL
2	2455.60	114.57			80.94	4.92	28.71	0.00	301	354 Peak	VERTICAL
3	2484.00	70.11	74.00	-3.89	36.39	4.95	28.77	0.00	301	354 Peak	VERTICAL
4	2485.20	53.59	54.00	-0.41	19.87	4.95	28.77	0.00	301	354 Average	VERTICAL

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

For radio 3

Temperature	24°C	Humidity	58%
Test Engineer	Eason Chen/John Tang/ Zero Chen	Configurations	IEEE 802.11b CH 1, 6, 11 / Chain 9 + Chain 10
Test Date	Jul. 02, 2016 ~ Jul. 12, 2016	Test Mode	Mode 2

Channel 1

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	2385.80	53.35	54.00	-0.65	21.43	3.90	28.02	0.00	238	51 Average	HORIZONTAL
2	2386.00	60.37	74.00	-13.63	28.45	3.90	28.02	0.00	238	51 Peak	HORIZONTAL
3	2412.80	110.40			78.47	3.94	27.99	0.00	238	51 Average	HORIZONTAL
4	2413.00	114.10			82.17	3.94	27.99	0.00	238	51 Peak	HORIZONTAL

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

Channel 6

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	2377.80	56.43	74.00	-17.57	24.50	3.90	28.03	0.00	136	360 Peak	VERTICAL
2	2389.00	45.02	54.00	-8.98	13.10	3.90	28.02	0.00	136	360 Average	VERTICAL
3	2438.20	115.08			83.14	3.97	27.97	0.00	136	360 Peak	VERTICAL
4	2438.60	111.42			79.48	3.97	27.97	0.00	136	360 Average	VERTICAL
5	2483.50	44.90	54.00	-9.10	12.94	4.04	27.92	0.00	136	360 Average	VERTICAL
6	2484.70	56.31	74.00	-17.69	24.35	4.04	27.92	0.00	136	360 Peak	VERTICAL

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

Channel 11

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	2460.00	114.23			82.63	4.39	27.21	0.00	252	56 Peak	HORIZONTAL
2	2460.20	110.99			79.39	4.39	27.21	0.00	252	56 Average	HORIZONTAL
3	2483.50	53.66	54.00	-0.34	21.97	4.42	27.27	0.00	252	56 Average	HORIZONTAL
4	2483.50	60.04	74.00	-13.96	28.35	4.42	27.27	0.00	252	56 Peak	HORIZONTAL

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

Temperature	24°C	Humidity	58%
Test Engineer	Eason Chen/John Tang/Zero Chen	Configurations	IEEE 802.11g CH 1, 6, 11 / Chain 9 + Chain 10
Test Date	Jul. 03, 2016	Test Mode	Mode 2

Channel 1

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	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	53.14	54.00	-0.86	21.76	4.33	27.05	0.00	125	57 Average	HORIZONTAL
2	2390.00	65.63	74.00	-8.37	34.25	4.33	27.05	0.00	125	57 Peak	HORIZONTAL
3	2406.00	103.22			71.77	4.35	27.10	0.00	125	57 Average	HORIZONTAL
4	2406.40	113.31			81.86	4.35	27.10	0.00	125	57 Peak	HORIZONTAL

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

Channel 6

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	2388.40	45.37	54.00	-8.63	13.99	4.33	27.05	0.00	125	360 Average	VERTICAL
2	2389.60	59.80	74.00	-14.20	28.42	4.33	27.05	0.00	125	360 Peak	VERTICAL
3	2433.40	104.59			73.06	4.37	27.16	0.00	125	360 Average	VERTICAL
4	2434.00	115.16			83.63	4.37	27.16	0.00	125	360 Peak	VERTICAL
5	2483.50	46.57	54.00	-7.43	14.88	4.42	27.27	0.00	125	360 Average	VERTICAL
6	2483.50	60.72	74.00	-13.28	29.03	4.42	27.27	0.00	125	360 Peak	VERTICAL

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

Channel 11

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	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	103.35			71.73	4.40	27.22	0.00	253	51 Average	HORIZONTAL
2	2464.00	113.06			81.44	4.40	27.22	0.00	253	51 Peak	HORIZONTAL
3	2483.50	53.36	54.00	-0.64	21.67	4.42	27.27	0.00	253	51 Average	HORIZONTAL
4	2484.00	65.76	74.00	-8.24	34.07	4.42	27.27	0.00	253	51 Peak	HORIZONTAL

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

Temperature	24°C	Humidity	58%
Test Engineer	Eason Chen/John Tang/ Zero Chen	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 1, 6, 11 / Chain 9 + Chain 10
Test Date	Jul. 03, 2016 ~ Jul. 06, 2016	Test Mode	Mode 2

Channel 1

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	2390.00	53.34	54.00	-0.66	21.96	4.33	27.05	0.00	125	49 Average	HORIZONTAL
2	2390.00	67.94	74.00	-6.06	36.56	4.33	27.05	0.00	125	49 Peak	HORIZONTAL
3	2408.40	113.42			81.97	4.35	27.10	0.00	125	49 Peak	HORIZONTAL
4	2409.20	102.84			71.39	4.35	27.10	0.00	125	49 Average	HORIZONTAL

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

Channel 6

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	2385.40	45.03	54.00	-8.97	13.65	4.33	27.05	0.00	125	0 Average	VERTICAL
2	2386.60	59.13	74.00	-14.87	27.75	4.33	27.05	0.00	125	0 Peak	VERTICAL
3	2441.80	114.64			83.08	4.38	27.18	0.00	125	0 Peak	VERTICAL
4	2442.40	104.68			73.12	4.38	27.18	0.00	125	0 Average	VERTICAL
5	2483.50	46.68	54.00	-7.32	14.99	4.42	27.27	0.00	125	0 Average	VERTICAL
6	2485.60	59.45	74.00	-14.55	27.76	4.42	27.27	0.00	125	0 Peak	VERTICAL

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

Channel 11

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	2467.20	102.73			71.11	4.40	27.22	0.00	258	51 Average	HORIZONTAL
2	2468.40	112.63			80.98	4.41	27.24	0.00	258	51 Peak	HORIZONTAL
3	2483.50	52.47	54.00	-1.53	20.78	4.42	27.27	0.00	258	51 Average	HORIZONTAL
4	2484.00	66.09	74.00	-7.91	34.40	4.42	27.27	0.00	258	51 Peak	HORIZONTAL

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

Temperature	24°C	Humidity	58%
Test Engineer	Eason Chen/John Tang/ Zero Chen	Configurations	IEEE 802.11 ac MCS0/Nss1 VHT40 CH 3, 6, 9 / Chain 9 + Chain 10
Test Date	Jul. 03, 2016 ~ Jul. 12, 2016	Test Mode	Mode 2

Channel 3

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	2389.20	53.54	54.00	-0.46	21.62	3.90	28.02	0.00	239	58 Average	HORIZONTAL
2	2390.00	67.89	74.00	-6.11	35.97	3.90	28.02	0.00	239	58 Peak	HORIZONTAL
3	2410.00	107.53			75.60	3.93	28.00	0.00	239	58 Peak	HORIZONTAL
4	2410.00	97.50			65.57	3.93	28.00	0.00	239	58 Average	HORIZONTAL

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

Channel 6

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	2385.00	49.94	54.00	-4.06	18.56	4.33	27.05	0.00	236	62 Average	HORIZONTAL
2	2389.00	62.52	74.00	-11.48	31.14	4.33	27.05	0.00	236	62 Peak	HORIZONTAL
3	2441.80	101.78			70.22	4.38	27.18	0.00	236	62 Average	HORIZONTAL
4	2441.80	110.84			79.28	4.38	27.18	0.00	236	62 Peak	HORIZONTAL
5	2483.50	52.22	54.00	-1.78	20.53	4.42	27.27	0.00	236	62 Average	HORIZONTAL
6	2483.50	65.28	74.00	-8.72	33.59	4.42	27.27	0.00	236	62 Peak	HORIZONTAL

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

Channel 9

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	2466.40	107.42			75.47	4.01	27.94	0.00	147	355 Peak	VERTICAL
2	2467.20	97.65			65.70	4.01	27.94	0.00	147	355 Average	VERTICAL
3	2483.50	69.64	74.00	-4.36	37.68	4.04	27.92	0.00	147	355 Peak	VERTICAL
4	2483.50	53.84	54.00	-0.16	21.88	4.04	27.92	0.00	147	355 Average	VERTICAL

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

Note:

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

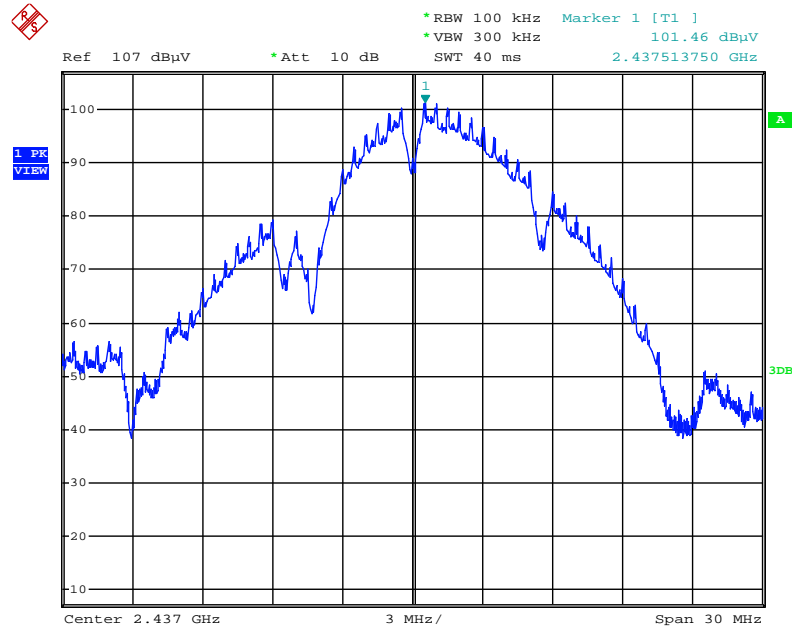
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

For Emission not in Restricted Band

For radio 1

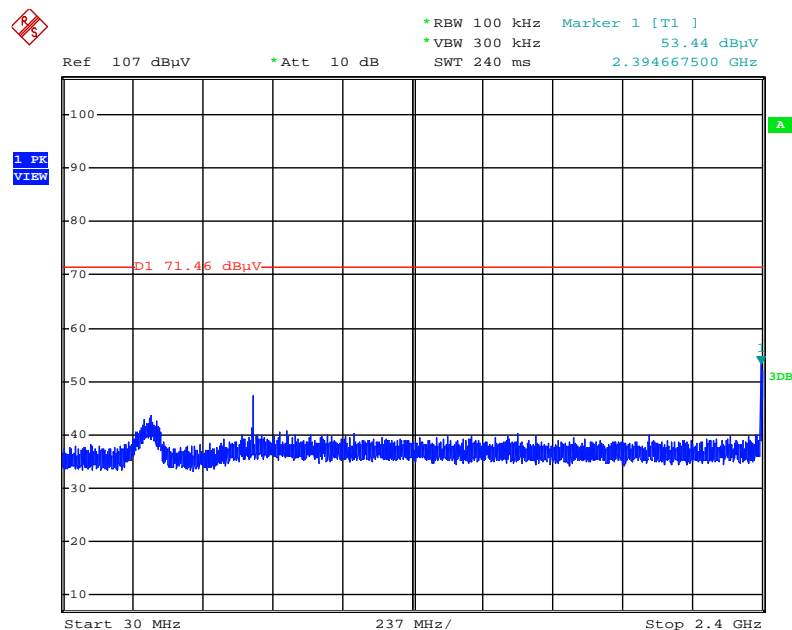
<For Non-Beamforming Mode>

Plot on Configuration IEEE 802.11b / Reference Level



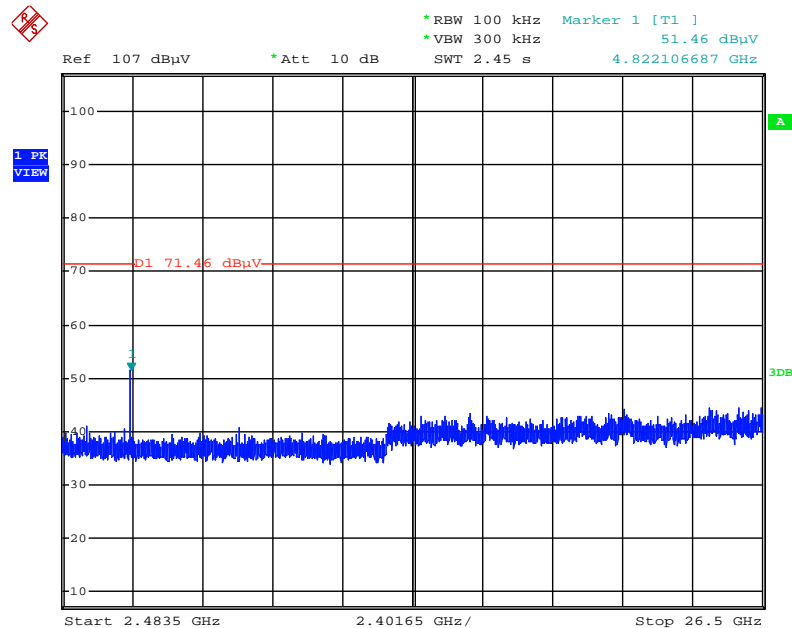
Date: 23.APR.2016 19:10:06

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



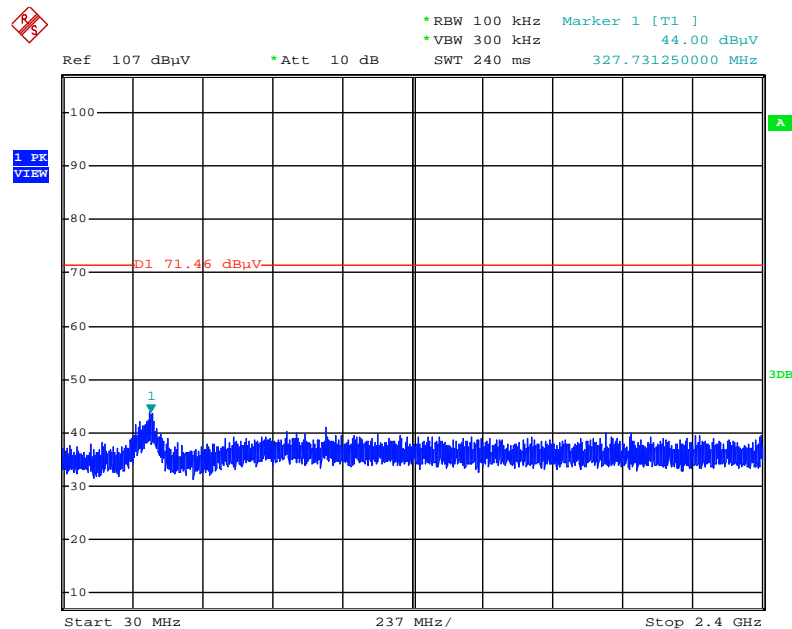
Date: 23.APR.2016 19:13:34

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



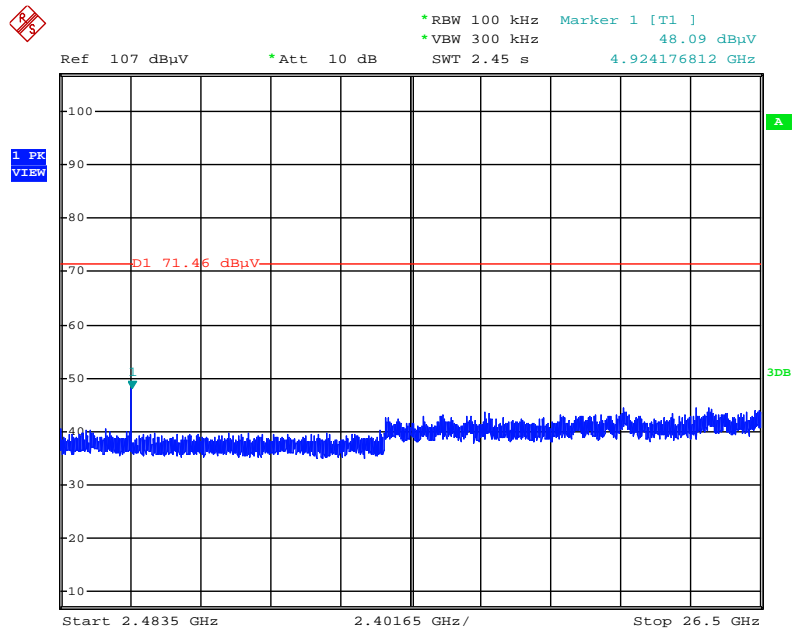
Date: 23.APR.2016 19:14:23

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



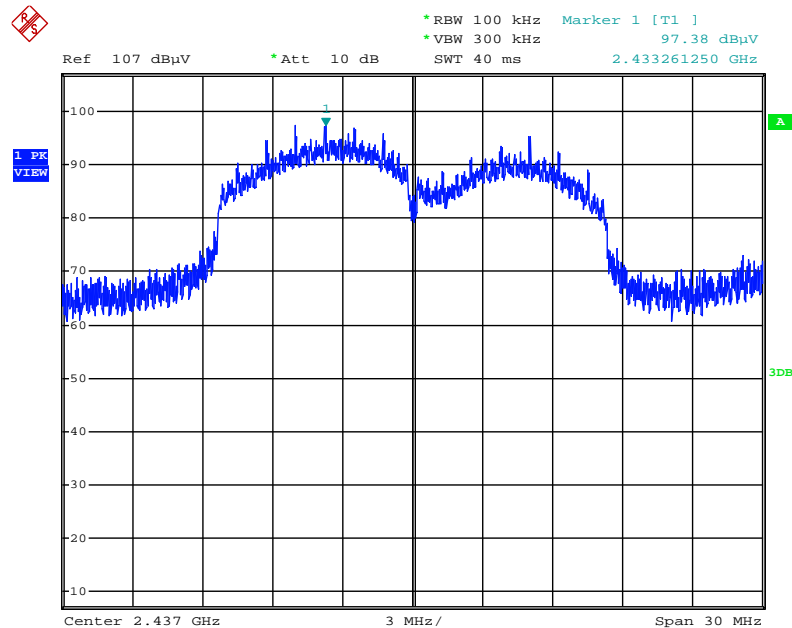
Date: 23.APR.2016 19:15:17

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



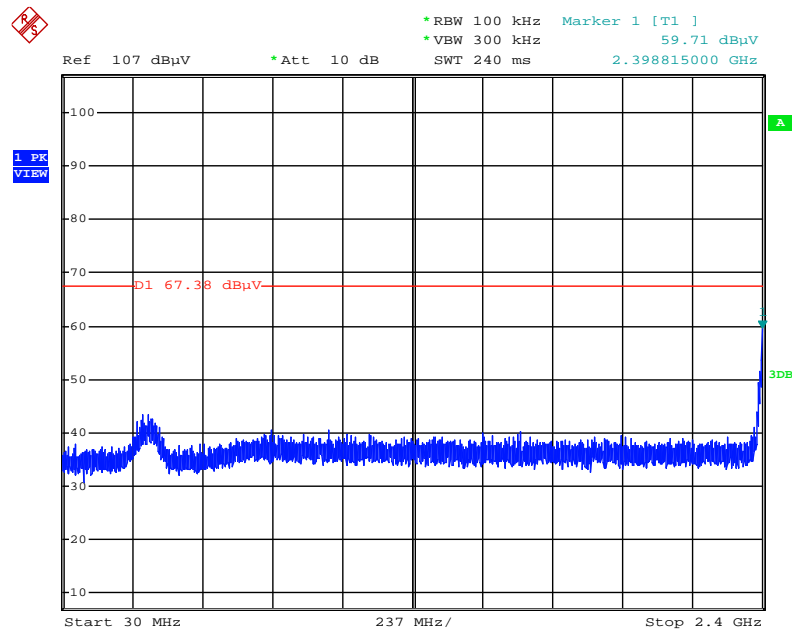
Date: 23.APR.2016 19:41:58

Plot on Configuration IEEE 802.11g / Reference Level



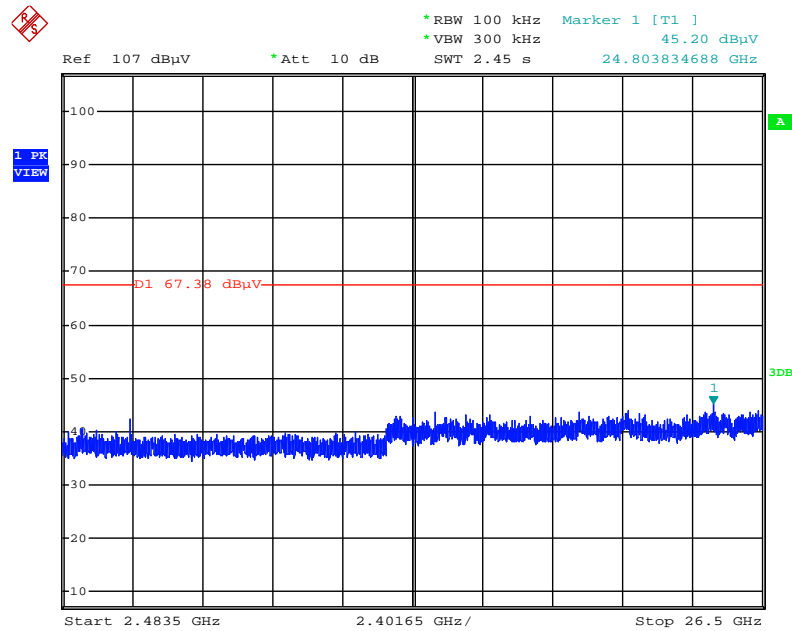
Date: 23.APR.2016 19:18:13

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



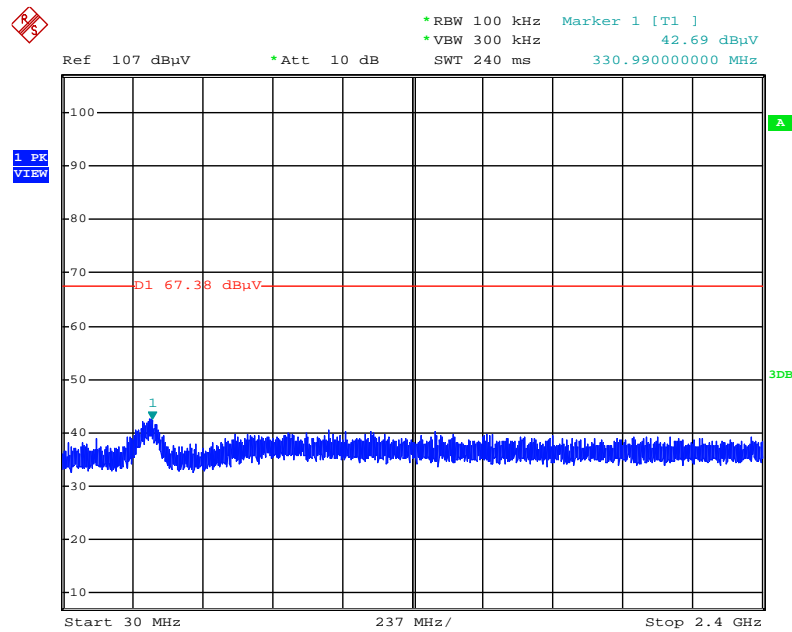
Date: 23.APR.2016 19:43:25

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



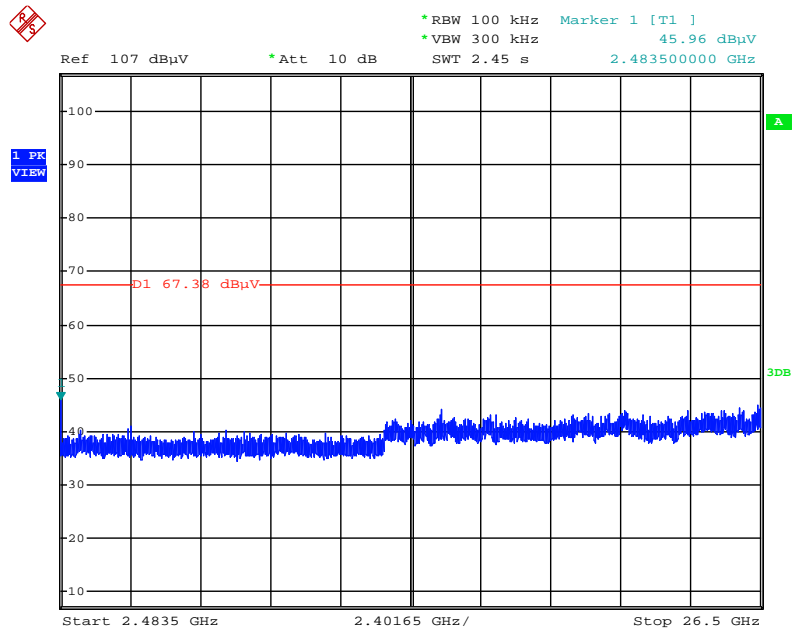
Date: 23.APR.2016 19:21:12

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



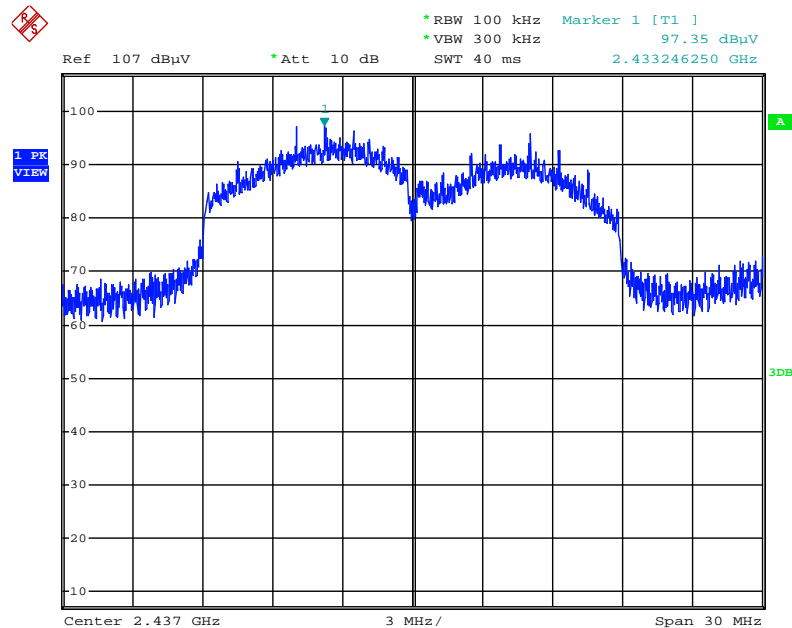
Date: 23.APR.2016 19:22:02

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



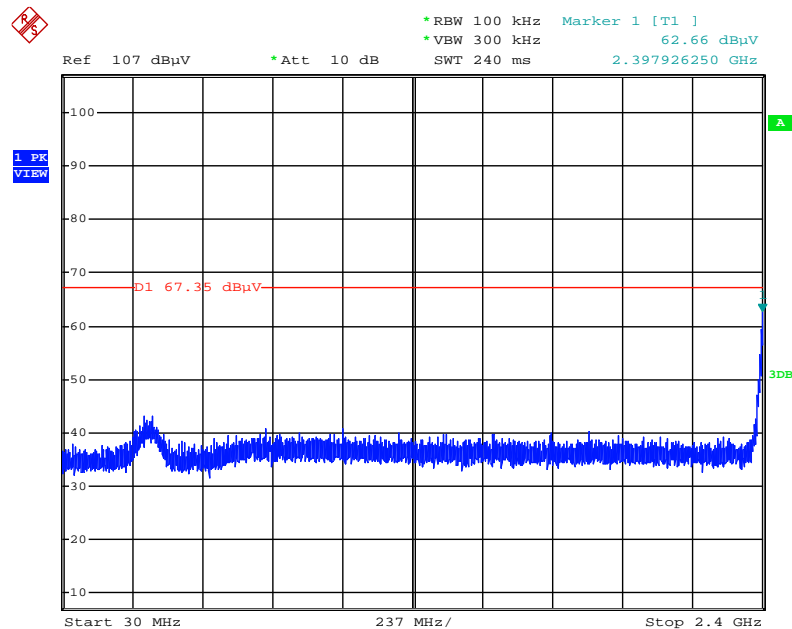
Date: 23.APR.2016 19:23:06

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



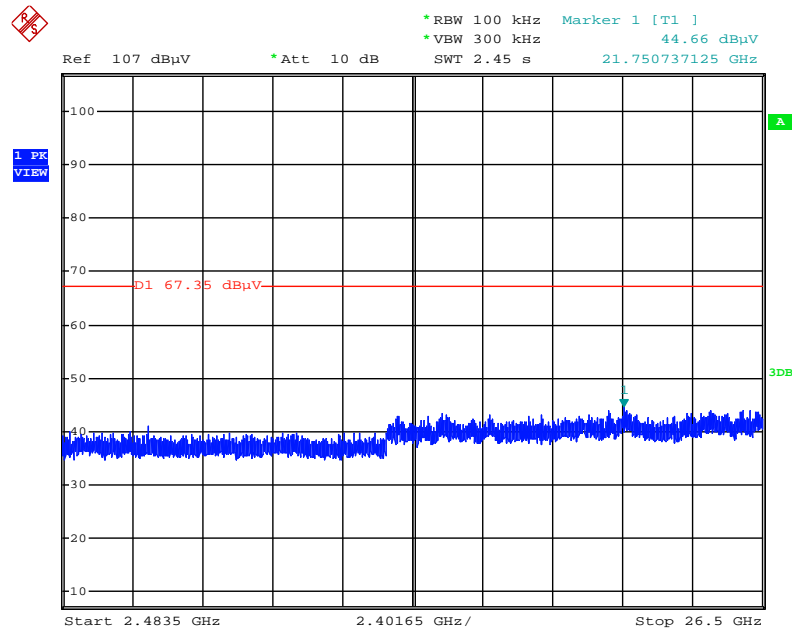
Date: 23.APR.2016 19:26:09

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



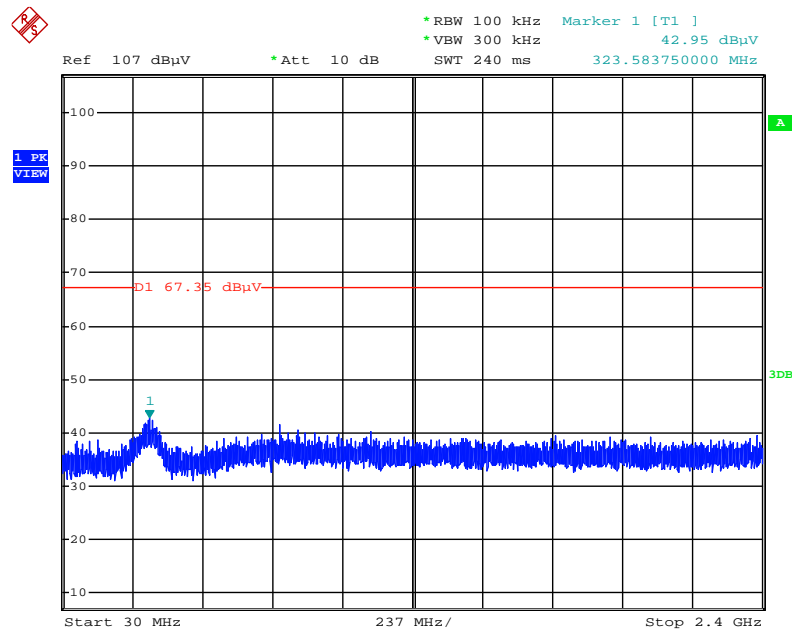
Date: 23.APR.2016 19:27:24

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



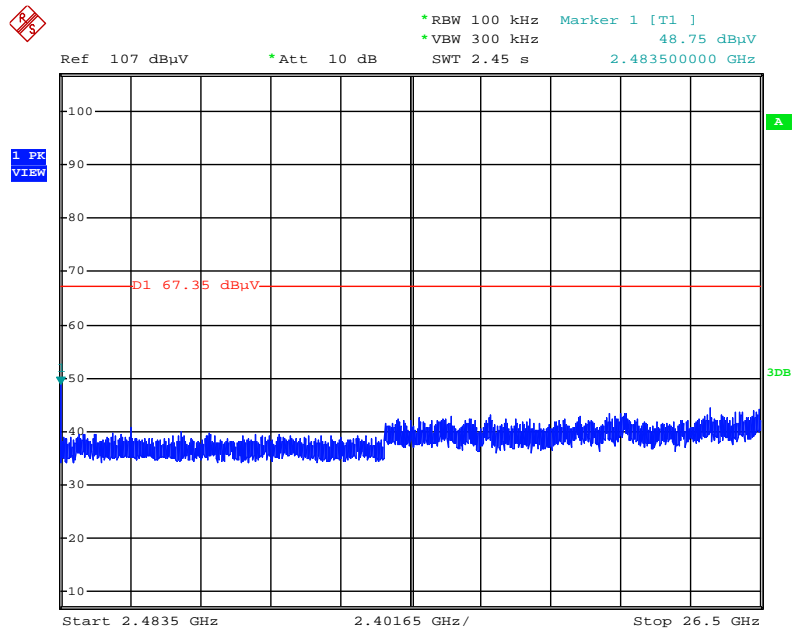
Date: 23.APR.2016 19:28:10

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



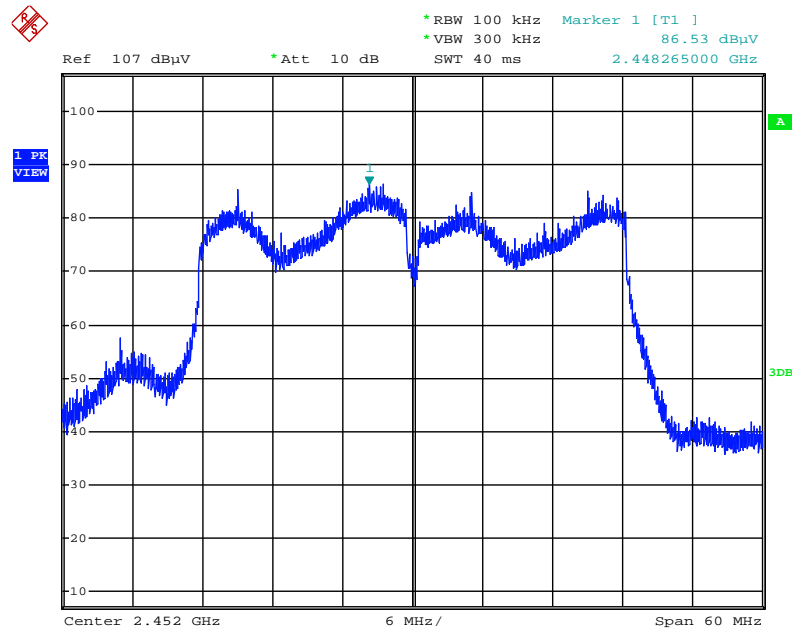
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Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 11 / 2483.5MHz~26500MHz (down 30dBc)



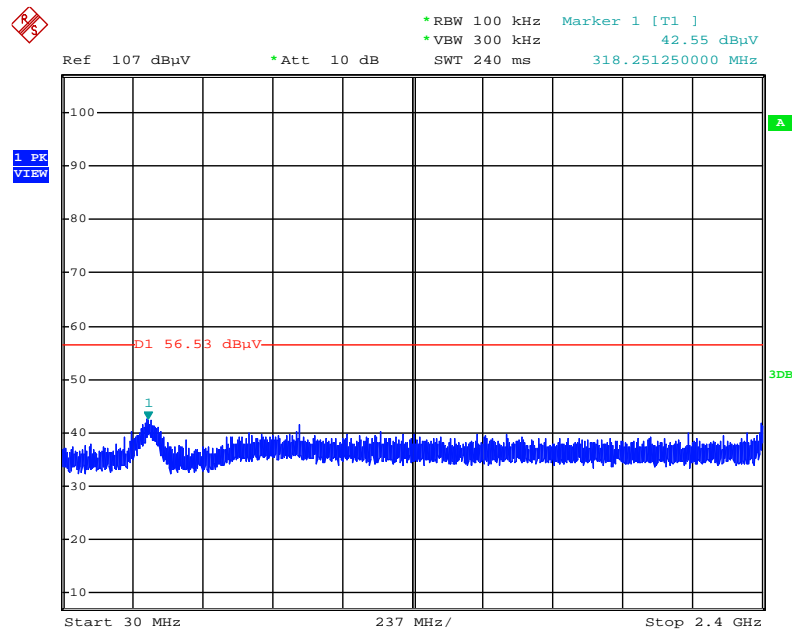
Date: 23.APR.2016 19:29:23

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



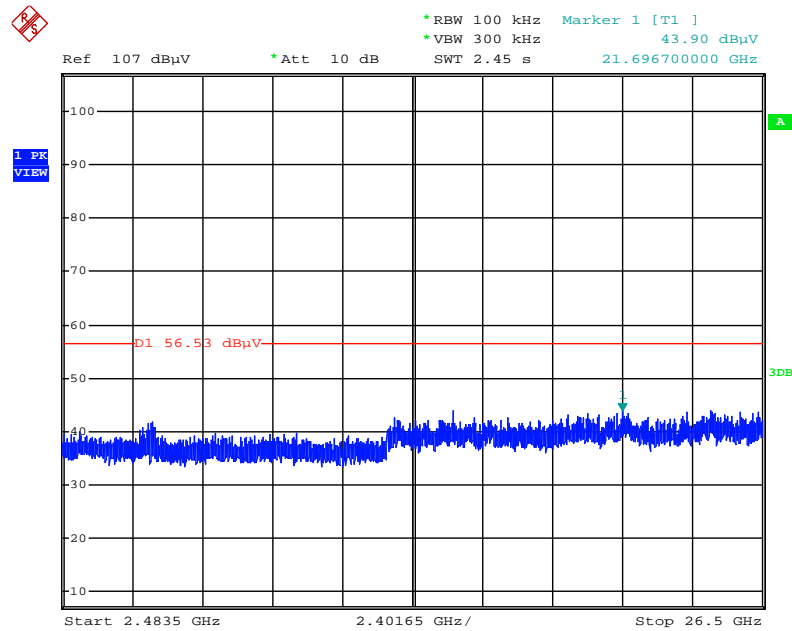
Date: 23.APR.2016 19:35:13

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



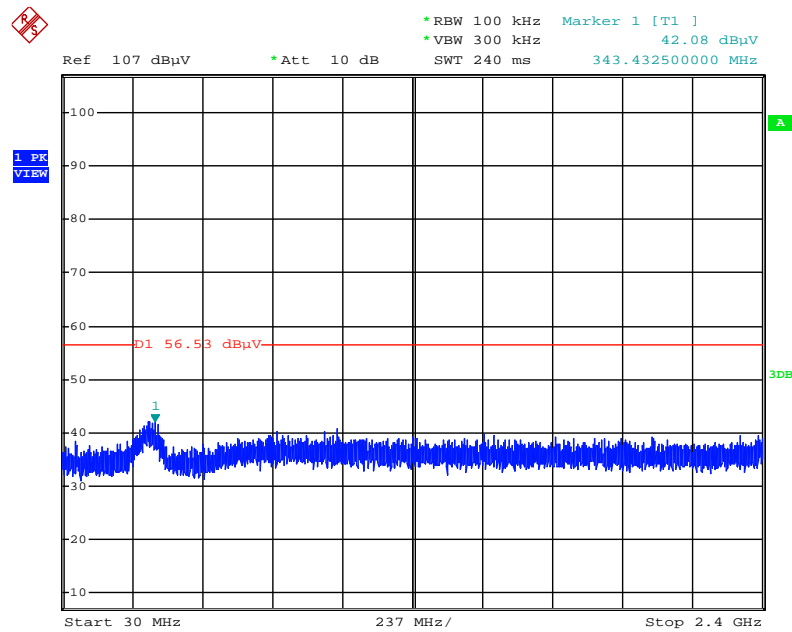
Date: 23.APR.2016 19:36:49

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



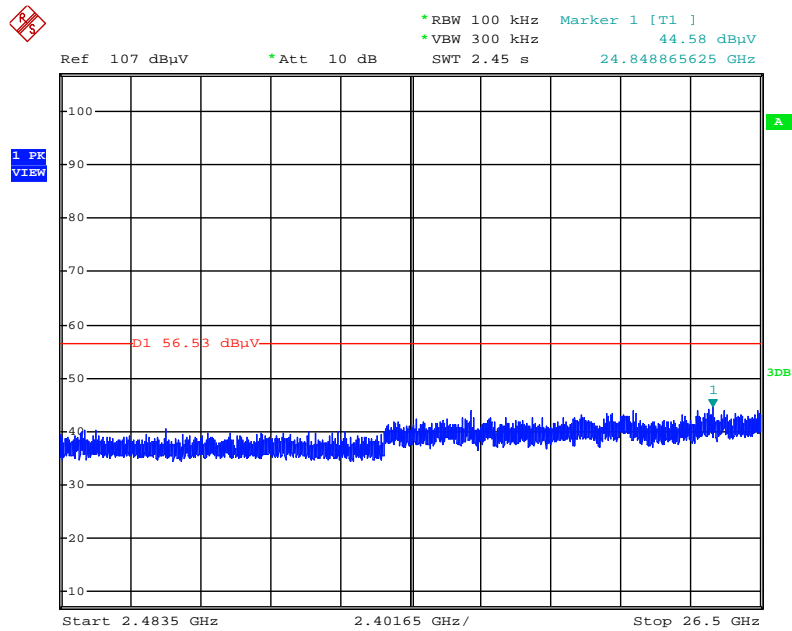
Date: 23.APR.2016 19:37:13

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



Date: 23.APR.2016 19:37:52

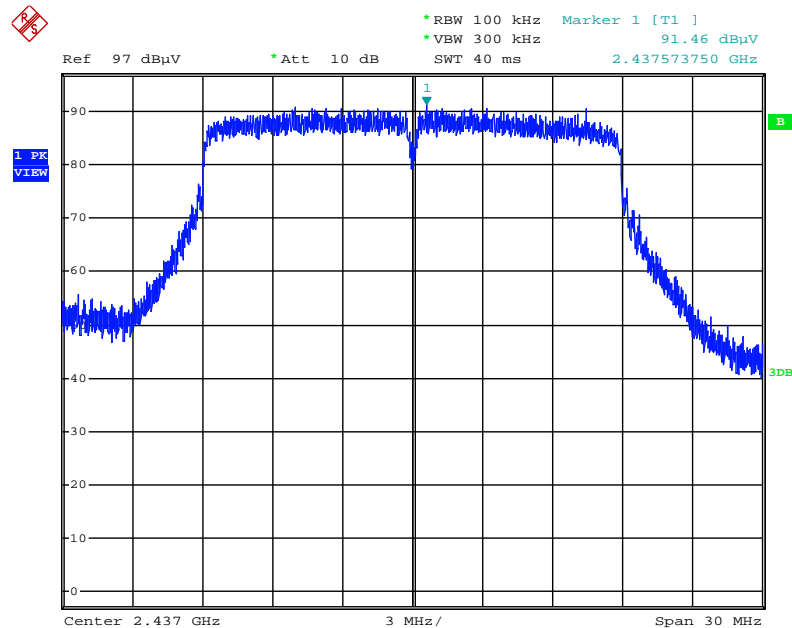
Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 9 / 2483.5MHz~26500MHz (down 30dBc)



Date: 23.APR.2016 19:38:25

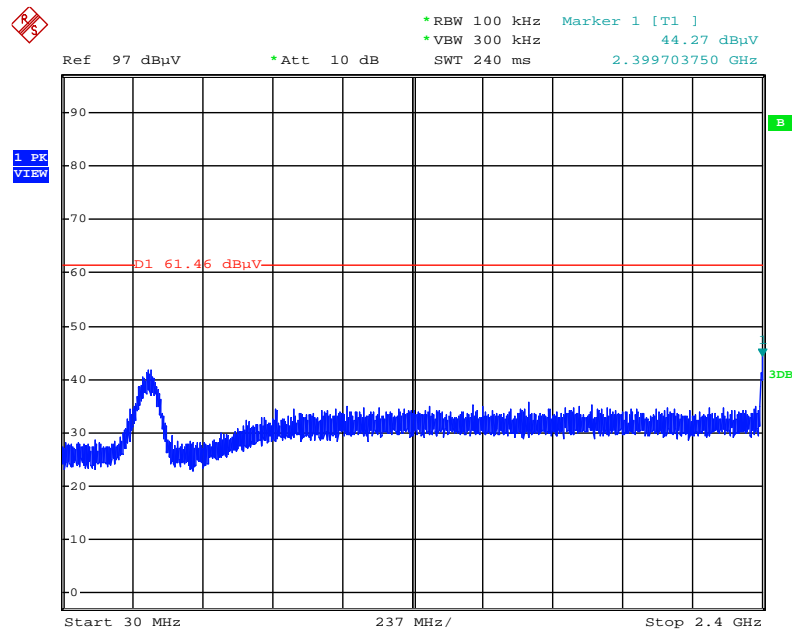
<For Beamforming Mode>

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



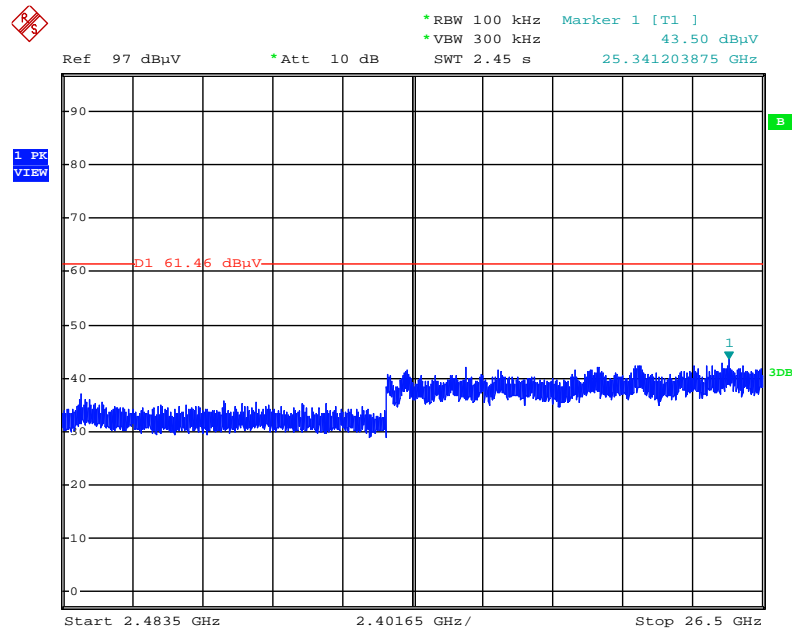
Date: 7.MAY.2016 16:16:41

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



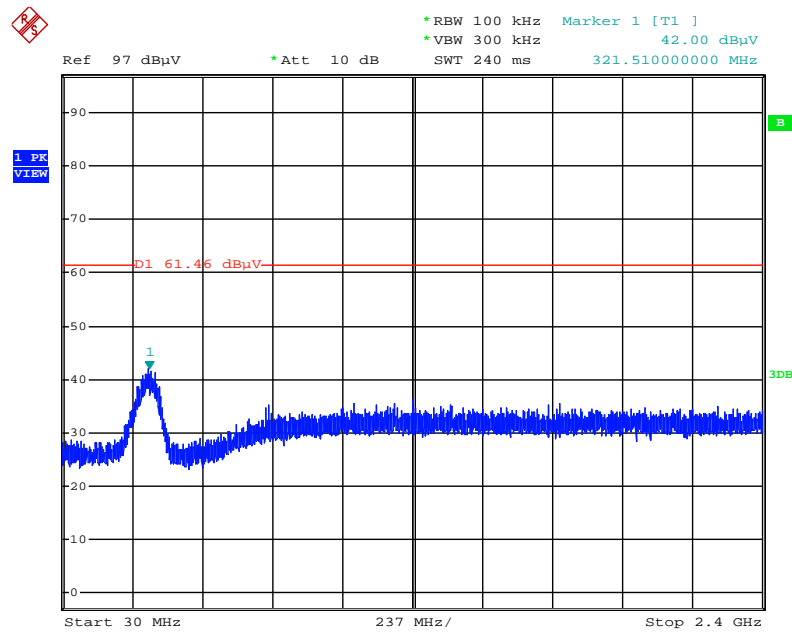
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Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 1 / 2483.5MHz~26500MHz (down 30dBc)



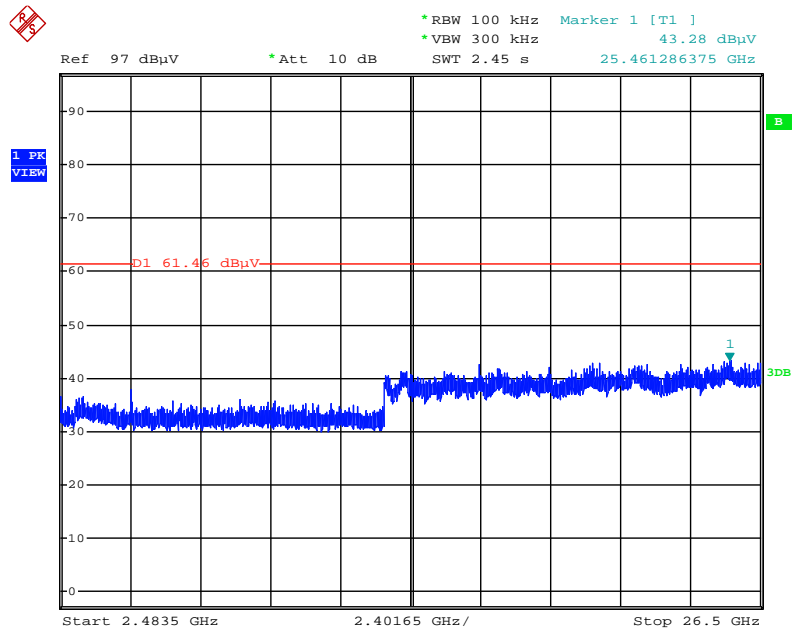
Date: 7.MAY.2016 16:18:50

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



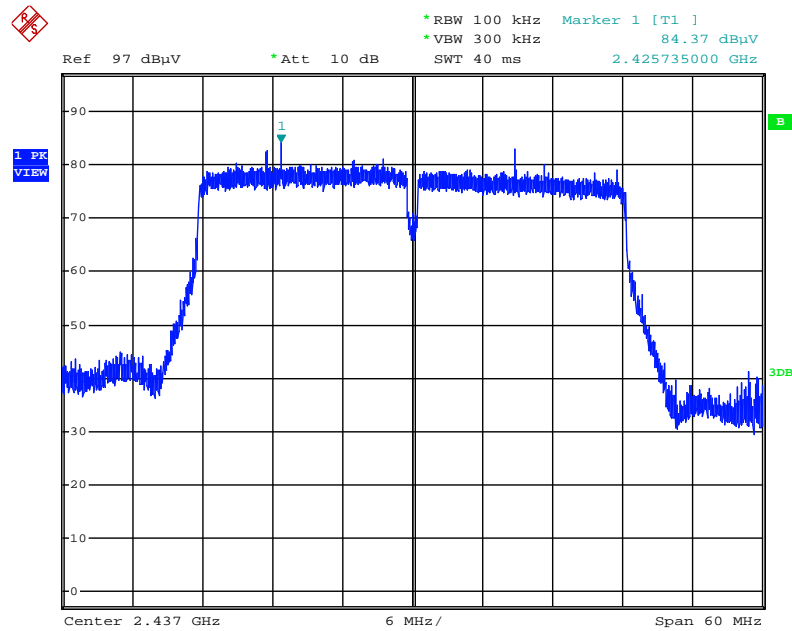
Date: 7.MAY.2016 16:19:39

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



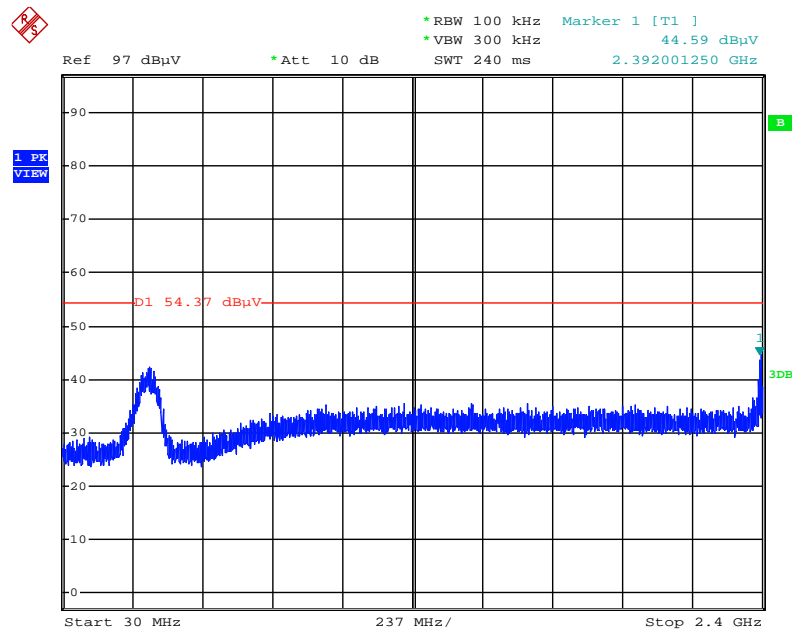
Date: 7.MAY.2016 16:20:26

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



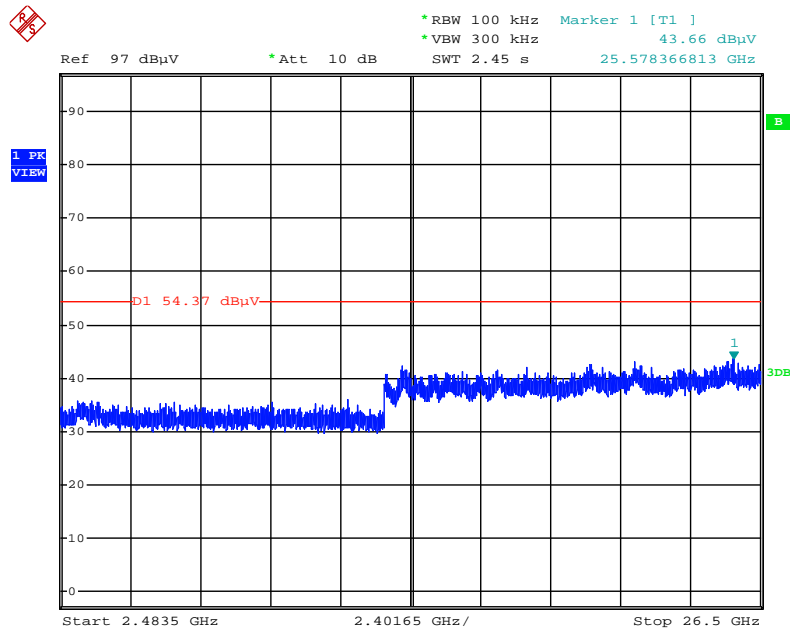
Date: 7.MAY.2016 16:26:40

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



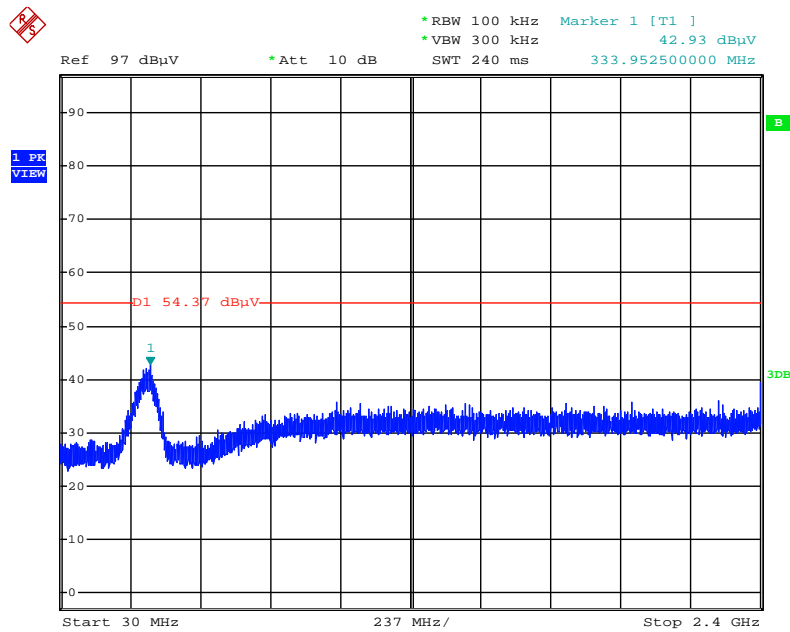
Date: 7.MAY.2016 16:27:58

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



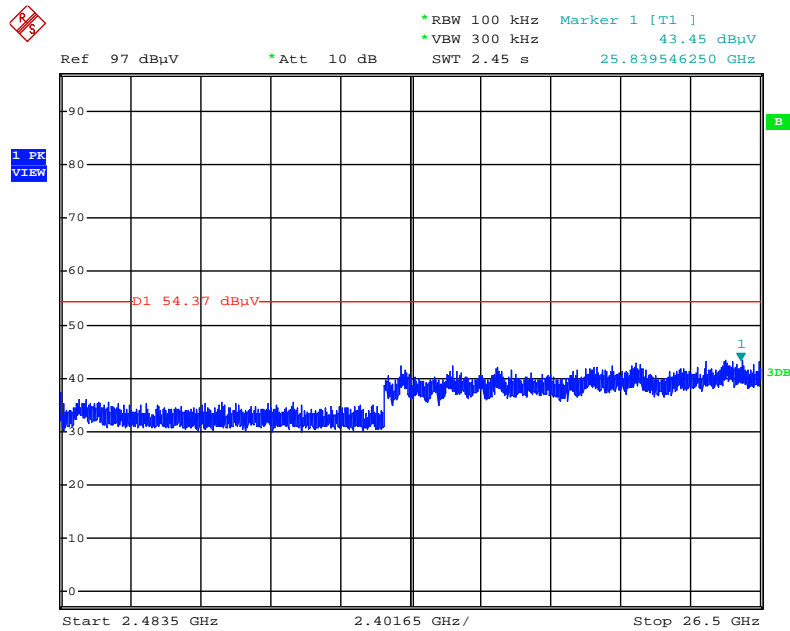
Date: 7.MAY.2016 16:33:41

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



Date: 7.MAY.2016 16:29:47

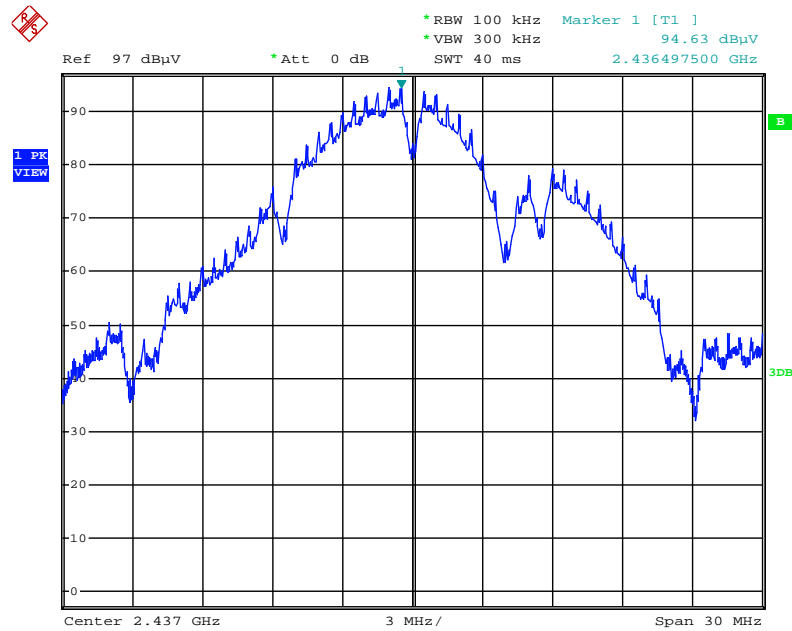
Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 9 / 2483.5MHz~26500MHz (down 30dBc)



Date: 7.MAY.2016 16:32:15

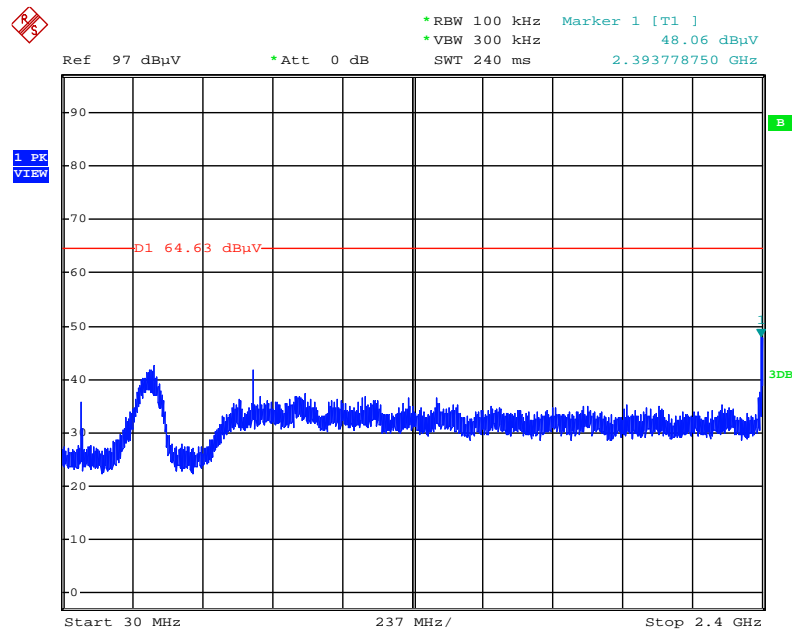
For radio 3

Plot on Configuration IEEE 802.11b / Reference Level



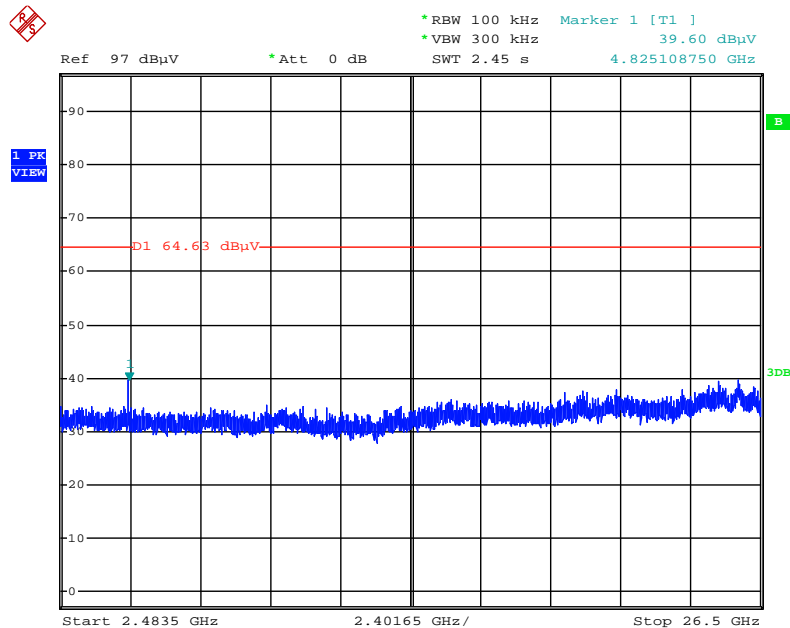
Date: 14.JUL.2016 20:58:46

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



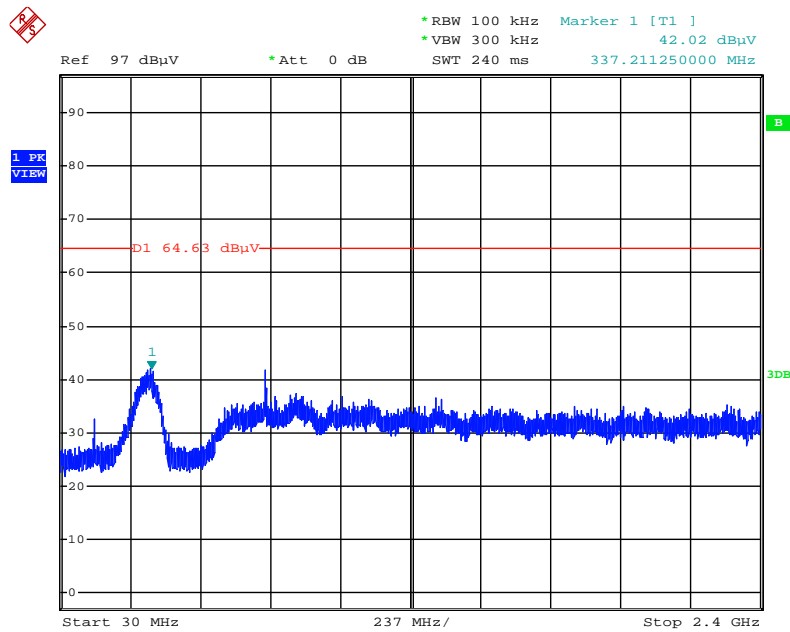
Date: 14.JUL.2016 21:05:34

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



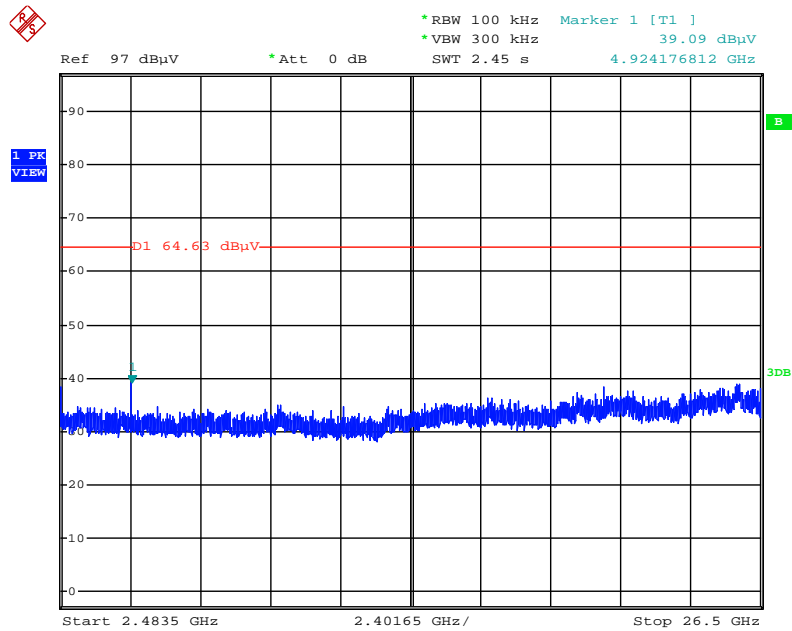
Date: 14.JUL.2016 21:06:21

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



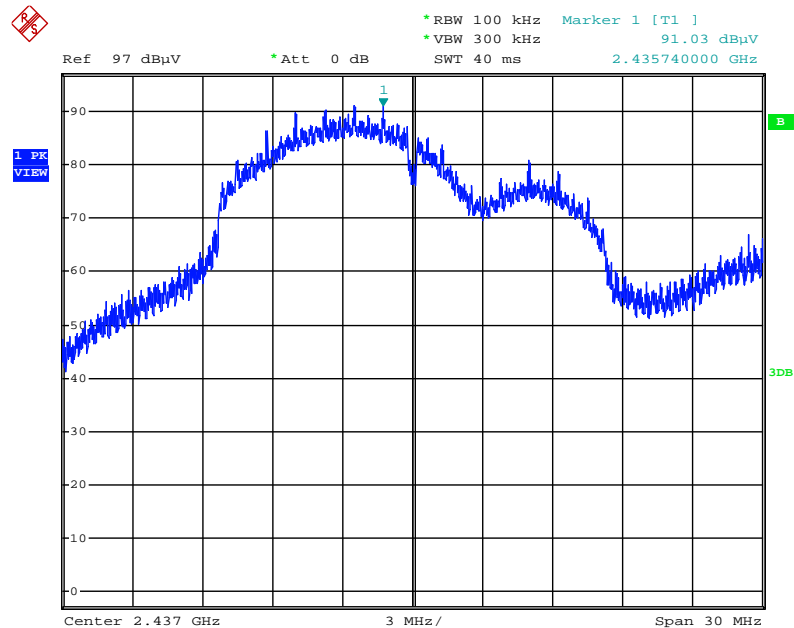
Date: 14.JUL.2016 21:10:46

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



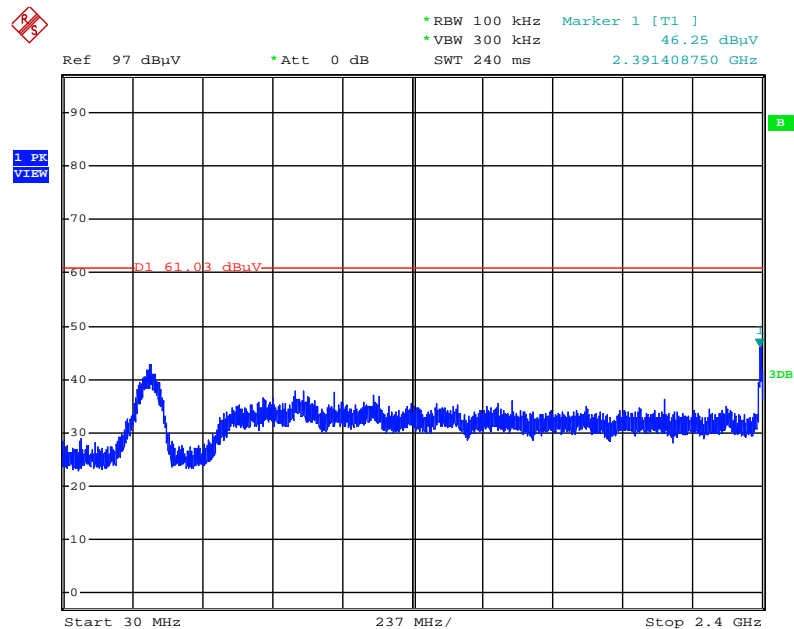
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Plot on Configuration IEEE 802.11g / Reference Level



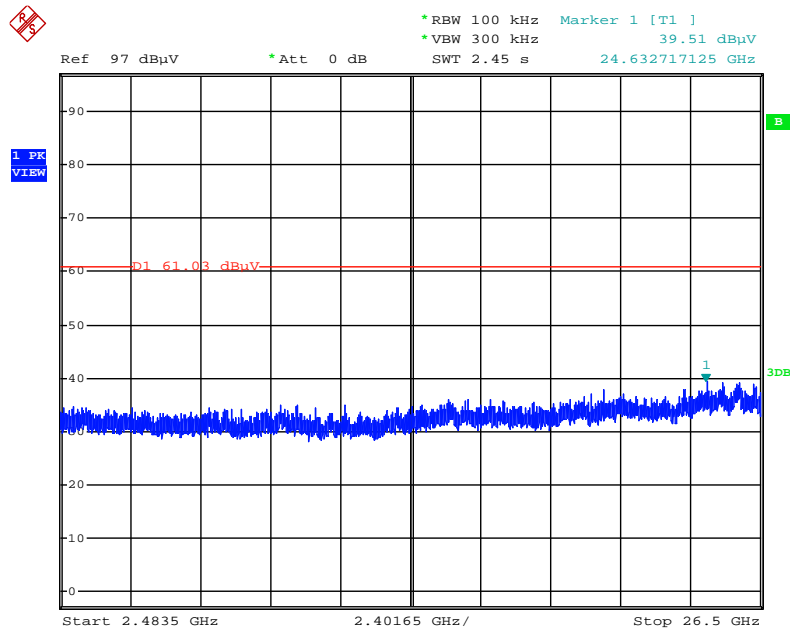
Date: 14.JUL.2016 21:15:03

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



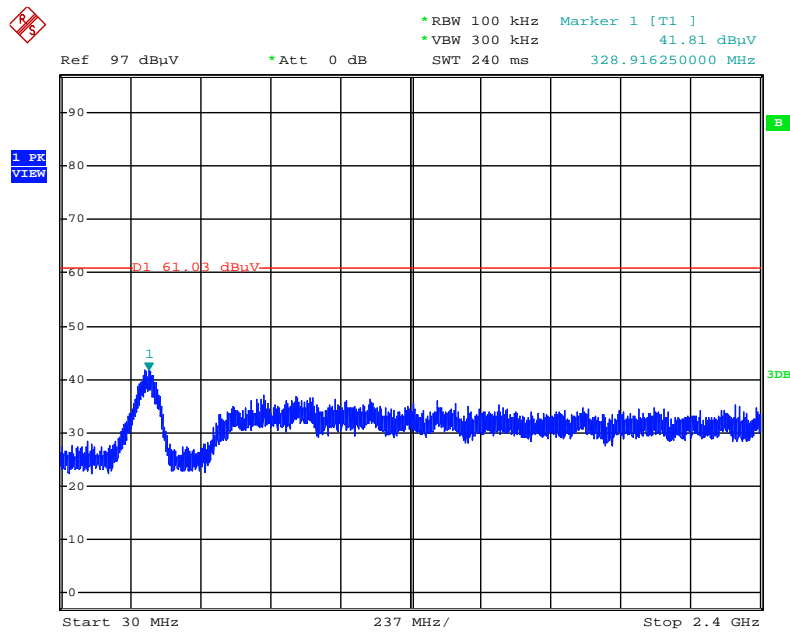
Date: 14.JUL.2016 21:18:41

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



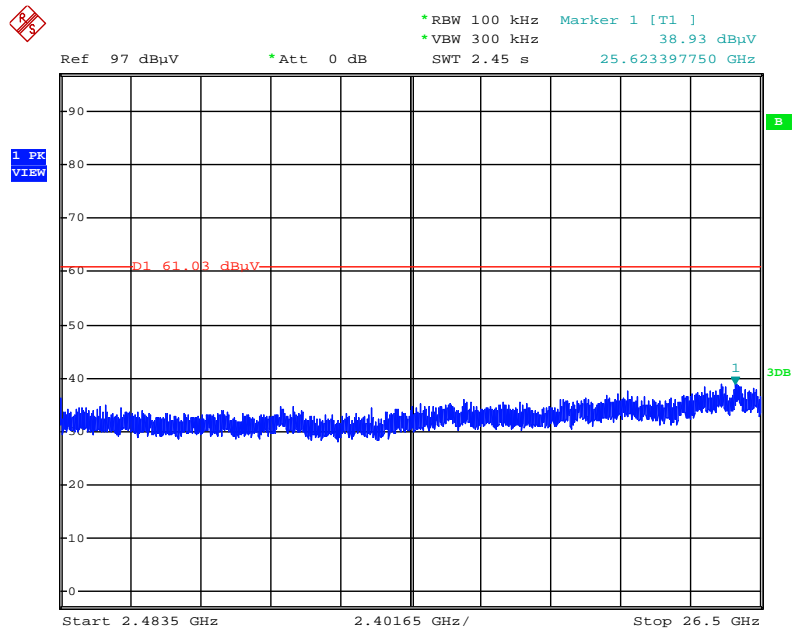
Date: 14.JUL.2016 21:19:23

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



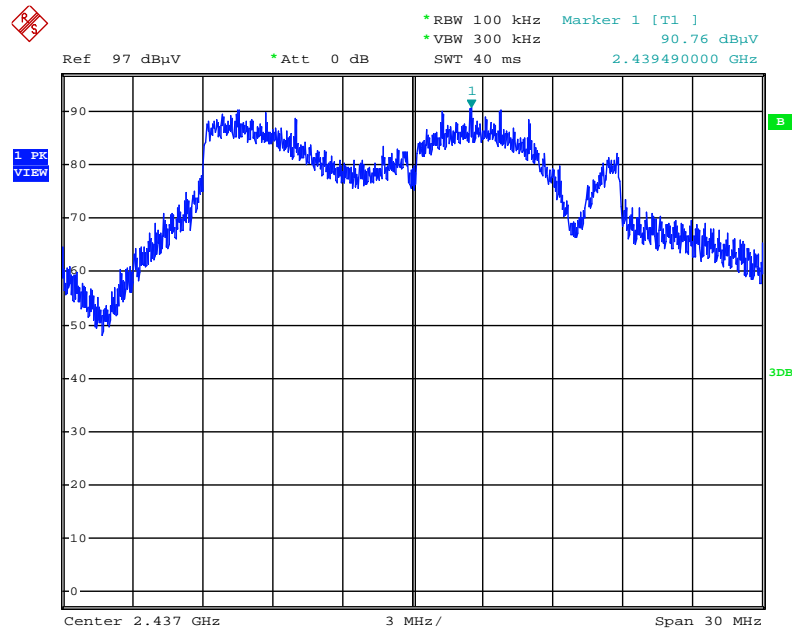
Date: 14.JUL.2016 21:23:49

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



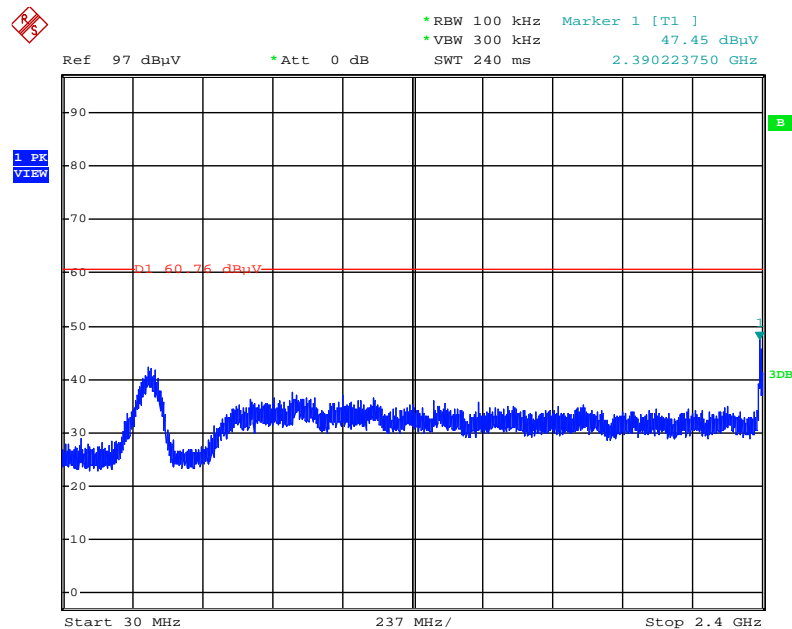
Date: 14.JUL.2016 21:23:18

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



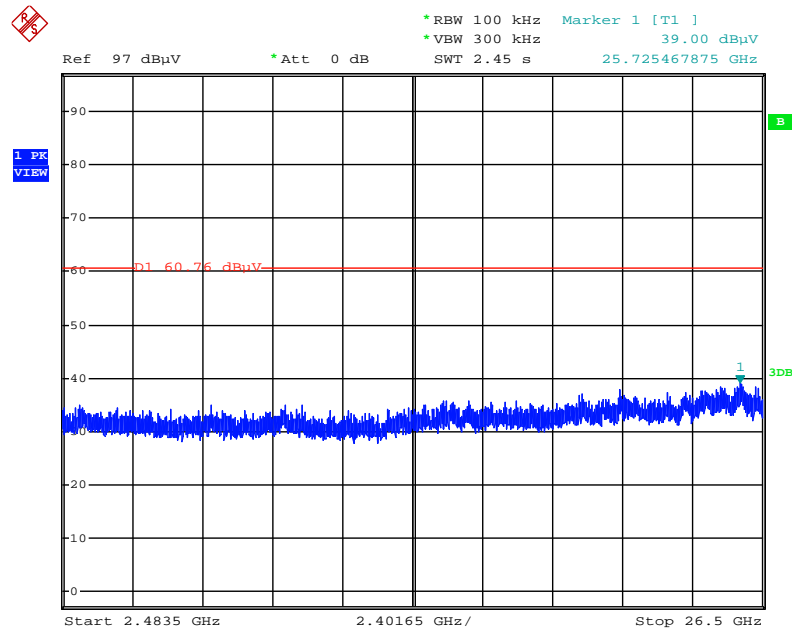
Date: 14.JUL.2016 21:26:49

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



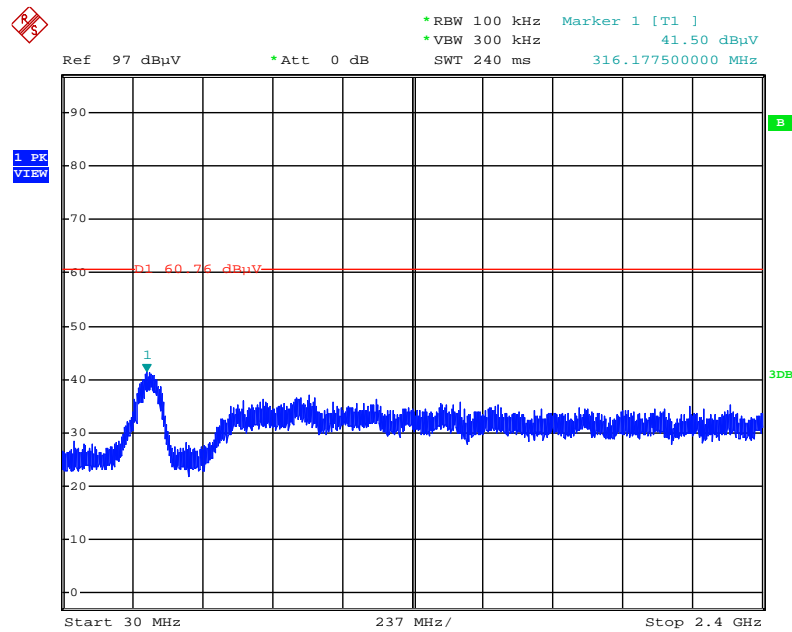
Date: 14.JUL.2016 21:30:07

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



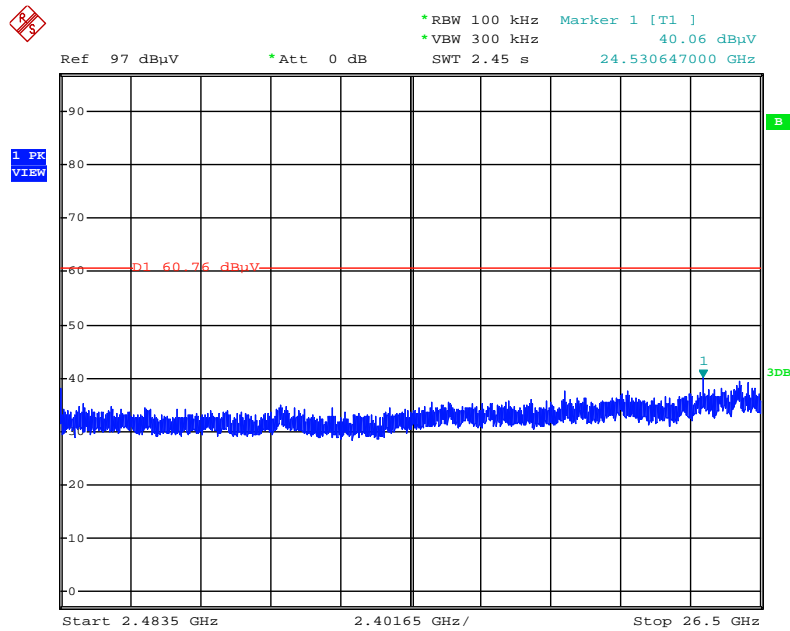
Date: 14.JUL.2016 21:30:42

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



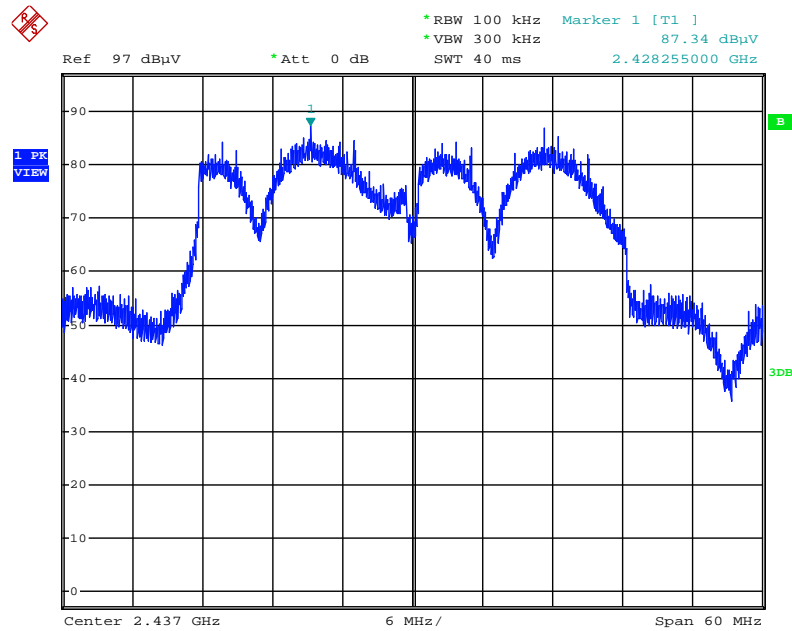
Date: 14.JUL.2016 21:34:25

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



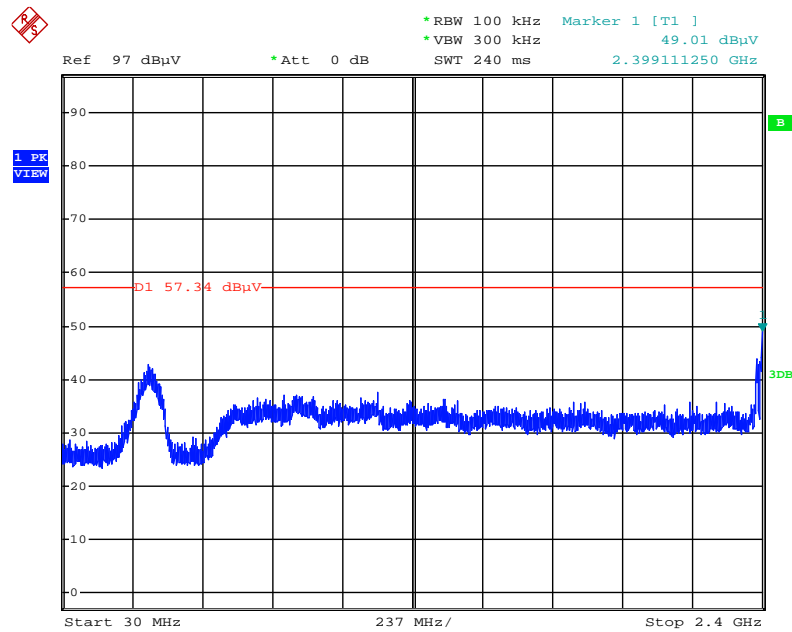
Date: 14.JUL.2016 21:33:50

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



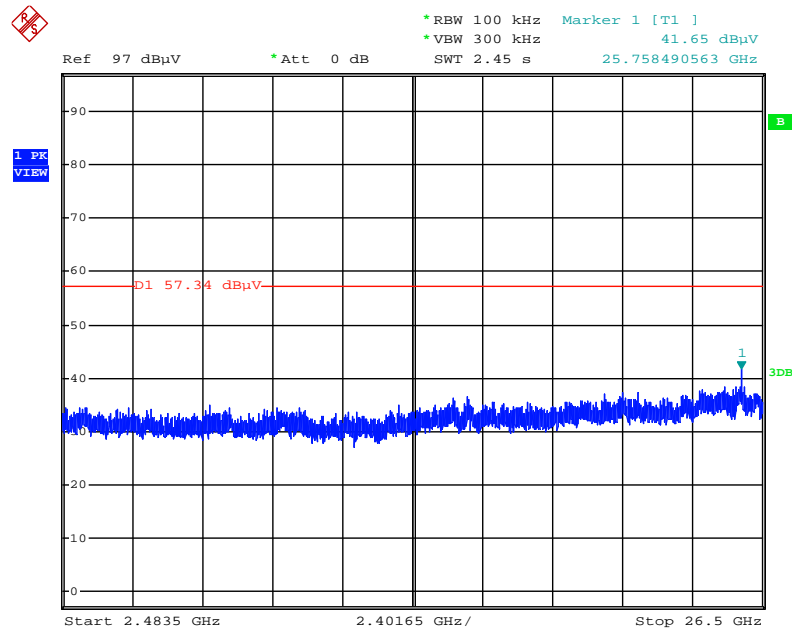
Date: 14.JUL.2016 21:37:55

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



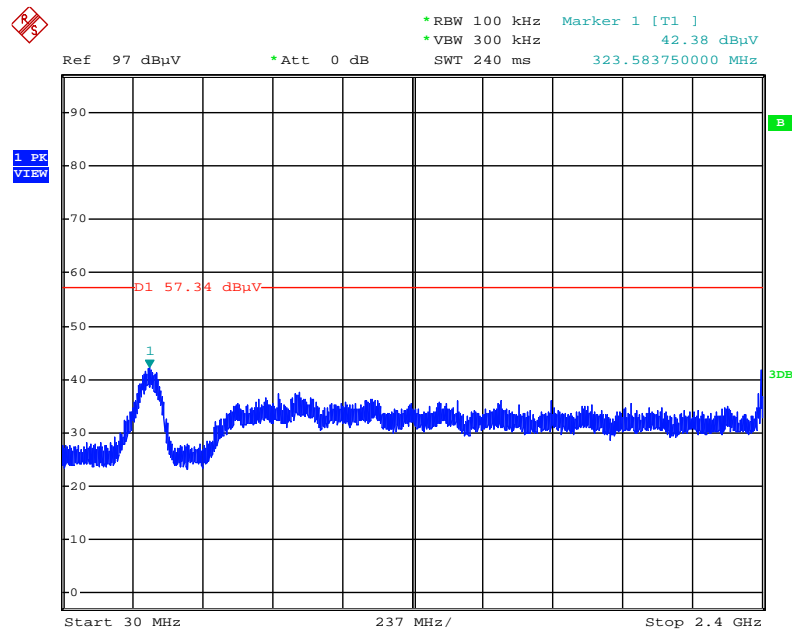
Date: 14.JUL.2016 21:41:26

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



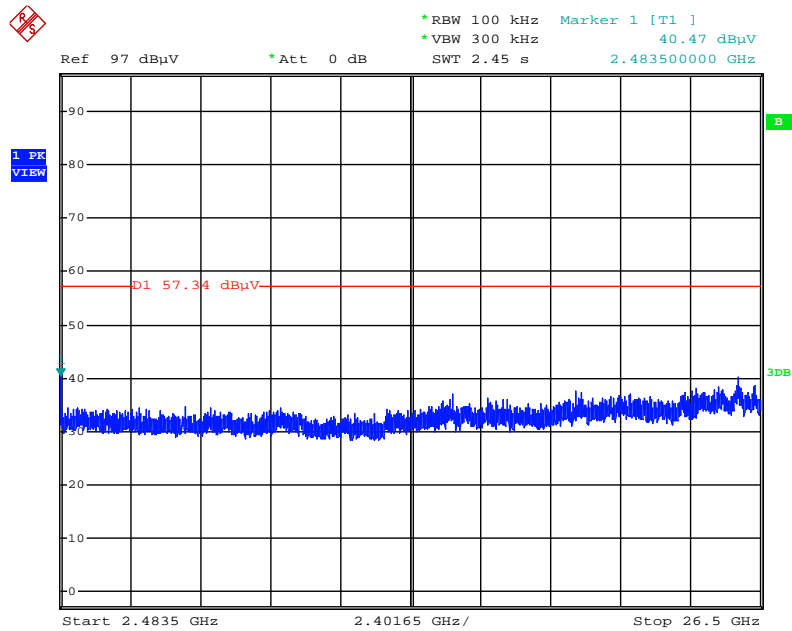
Date: 14.JUL.2016 21:42:03

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



Date: 14.JUL.2016 21:45:30

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



Date: 14.JUL.2016 21:44:48

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, 2016	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 24, 2016	Conduction (CO01-CB)
Software	Audix	E3	6.120210n	-	N.C.R.	Conduction (CO01-CB)
Loop Antenna	Teseq	HLA 6120	24155	9kHz - 30 MHz	Mar. 16, 2016*	Radiation (03CH01-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 Test	R&S	ESCS	100355	9kHz ~ 2.75GHz	May 16, 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)
Test Software	Audix	E3	6.2009-10-7	N/A	N/A	Radiation (03CH01-CB)
Spectrum analyzer	R&S	FSV40	100979	9kHz~40GHz	Dec. 09, 2015	Conducted (TH01-CB)
Temp. and Humidity Chamber	Ten Billion	TTH-D3SP	TBN-931011	-30~100 degree	Jun. 02, 2015	Conducted (TH01-CB)

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Temp. and Humidity Chamber	Ten Billion	TTH-D3SP	TBN-931011	-30~100 degree	Jun. 03, 2016	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%