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FCC RADIO TEST REPORT

Applicant's company	**Ubee Interactive Corp.**
Applicant Address	10F-1, No.5, Taiyuan 1st St. Jhubei, Hsinchu, 302, Taiwan
FCC ID	**XCNDVW32C**
Manufacturer's company	**Ubee Interactive Corp.**
Manufacturer Address	10F-1, No.5, Taiyuan 1st St. Jhubei, Hsinchu, 302, Taiwan

Product Name	Wireless eMTA
Brand Name	Ubee
Model No.	DVW32C
Test Rule	47 CFR FCC Part 15 Subpart C § 15.247
Test Freq. Range	2400 ~ 2483.5MHz
Received Date	Sep. 19, 2014
Final Test Date	Oct. 28, 2014
Submission Type	Original Equipment

Statement

Test result included in this report is for the IEEE 802.11n/ac and IEEE 802.11b/g 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**, **KDB 558074 D01 v03r02** and **KDB 662911 D01 v02r01**.

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

Testing Laboratory
1190

Table of Contents

History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR4O0315AA	Rev. 01	Initial issue of report	Nov. 10, 2014

Certificate No.: CB10310204

1. CERTIFICATE OF COMPLIANCE

Product Name	:	Wireless eMTA
Brand Name	:	Ubee
Model No.	:	DVW32C
Applicant	:	Ubee Interactive Corp.
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 Sep. 19, 2014 would like to declare that the tested sample has been evaluated and found to be in compliance with the tested rule parts. The data recorded as well as the test configuration specified is true and accurate for showing the sample's EMC nature.

Sam Chen
SPORTON INTERNATIONAL INC.

2. SUMMARY OF THE TEST RESULT

Applied Standard: 47 CFR FCC Part 15 Subpart C				
Part	**Rule Section**	**Description of Test**	**Result**	**Under Limit**
4.1	15.207	AC Power Line Conducted Emissions	Complies	16.83 dB
4.2	15.247(b)(3)	Maximum Conducted Output Power	Complies	0.51 dB
4.3	15.247(e)	Power Spectral Density	Complies	0.18 dB
4.4	15.247(a)(2)	6dB Spectrum Bandwidth	Complies	-
4.5	15.247(d)	Radiated Emissions	Complies	0.11 dB
4.6	15.247(d)	Band Edge Emissions	Complies	0.03 dB
4.7	15.203	Antenna Requirements	Complies	-

3. GENERAL INFORMATION

3.1. Product Details

IEEE 802.11n/ac

Items	Description
Product Type	WLAN (3TX, 3RX)
Radio Type	Intentional Transceiver
Power Type	From battery 7.4V or Internal power supply
Modulation	see the below table for IEEE 802.11n/ac
Data Modulation	For 802.11n: OFDM (BPSK / QPSK / 16QAM / 64QAM) For 802.11ac: OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM)
Data Rate (Mbps)	see the below table for IEEE 802.11n/ac
Frequency Range	2400 ~ 2483.5MHz
Channel Number	11 for 20MHz bandwidth ; 7 for 40MHz bandwidth
Channel Band Width (99%)	For Non-Beamforming Mode MCS0/Nss1 (VHT20): 19.28 MHz ; MCS0/Nss1 (VHT40): 36.00 MHz For Beamforming Mode MCS0/Nss1 (VHT20): 17.76 MHz ; MCS0/Nss1 (VHT40): 36.48 MHz
Maximum Conducted Output Power	For Non-Beamforming Mode MCS0/Nss1 (VHT20): 29.15 dBm ; MCS0/Nss1 (VHT40): 24.51 dBm For Beamforming Mode MCS0/Nss1 (VHT20): 26.08 dBm ; MCS0/Nss1 (VHT40): 21.03 dBm
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

IEEE 802.11b/g

Items	Description
Product Type	WLAN (3TX, 3RX)
Radio Type	Intentional Transceiver
Power Type	From battery 7.4V or Internal power supply
Modulation	DSSS for IEEE 802.11b ; OFDM for IEEE 802.11g
Data Modulation	DSSS (BPSK / QPSK / CCK) ; OFDM (BPSK / QPSK / 16QAM / 64QAM)
Data Rate (Mbps)	DSSS (1/ 2/ 5.5/11) ; OFDM (6/9/12/18/24/36/48/54)
Frequency Range	2400 ~ 2483.5MHz
Channel Number	11
Channel Band Width (99%)	11b: 12.40 MHz ; 11g: 20.64 MHz
Maximum Conducted Output Power	11b: 29.49 dBm ; 11g: 28.94 dBm
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

Items	Description	
Beamforming Function	☒ With beamforming for 802.11n/ac in 2.4GHz/5GHz.	☐ Without beamforming

Antenna and Band width

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

IEEE 11n/ac Spec.

Protocol	Number of Transmit Ant.s (NTX)	Data Rate / MCS
802.11n (HT20)	3	MCS 0-23
802.11n (HT40)	3	MCS 0-23
802.11ac (VHT20)	3	MCS 0-9/Nss1-3
802.11ac (VHT40)	3	MCS 0-9/Nss1-3
Note 1: IEEE Std. 802.11n modulation consists of HT20 and HT40 (HT: High Throughput). Then EUT support HT20 and HT40. Note 2: IEEE Std. 802.11ac modulation consists of VHT20, VHT40, VHT80 and VHT160 (VHT: Very High Throughput). Then EUT support VHT20, VHT40 in 2.4GHz. Note 3: Modulation modes consist of below configuration: HT20/HT40: IEEE 802.11n, VHT20/VHT40/VHT80: IEEE 802.11ac		

3.2. Accessories

Name	Brand	Model	Rating
Rechargeable Li-Ion Battery	SMP	SMPCM10	7.4V, 2.55Ahr 18 87Wh
Others			
AC Power Cable*1, Non-shielded, 1.5m RJ-45 Cable*1, Non-shielded, 1.5m RJ-11 Cable*1, Non-shielded, 1.5m			

3.3. Table for Filed Antenna

Set	Ant.	Brand Holder	P/N	Antenna Type	Connector
1	1	TONGDA COMMUNICATION CO., LTD	T-543-8201046-1	PCB Antenna	I-PEX
	2	TONGDA COMMUNICATION CO., LTD	T-543-8201046-2	PCB Antenna	I-PEX
	3	TONGDA COMMUNICATION CO., LTD	T-543-8201046-3	PCB Antenna	I-PEX
2	1	WHA YU INDUSTRIAL CO., LTD.	C107-511155-A	PCB Antenna	I-PEX
	2	WHA YU INDUSTRIAL CO., LTD.	C107-511156-A	PCB Antenna	I-PEX
	3	WHA YU INDUSTRIAL CO., LTD.	C107-511157-A	PCB Antenna	I-PEX

Antenna Gain (dBi)						
Frequency	Ant. 1		Ant. 2		Ant. 3	
	Set 1	Set 2	Set 1	Set 2	Set 1	Set 2
2400MHz	4.815	5.0	5.424	5.5	4.567	4.6
2450MHz	4.509	4.6	4.242	4.3	3.718	3.8
2500MHz	4.978	5.0	4.860	5.0	4.771	4.9

Band	Ant. 1		Ant. 2		Ant. 3	
	Set 1	Set 2	Set 1	Set 2	Set 1	Set 2
Band1	4.518	4.7	4.228	4.4	2.785	2.8
Band4	4.301	4.5	5.217	5.4	3.469	3.6

Note 1: The EUT has two sets of antennas and there are three antennas for each set.

Note 2: Because TONGDA antennas and WHAYU antennas are the same type antennas; only the higher gain antennas "WHAYU antennas" was tested and recorded in the report.

For 2.4GHz function (3TX/3RX):

For IEEE 802.11b/g/n/ac mode:

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

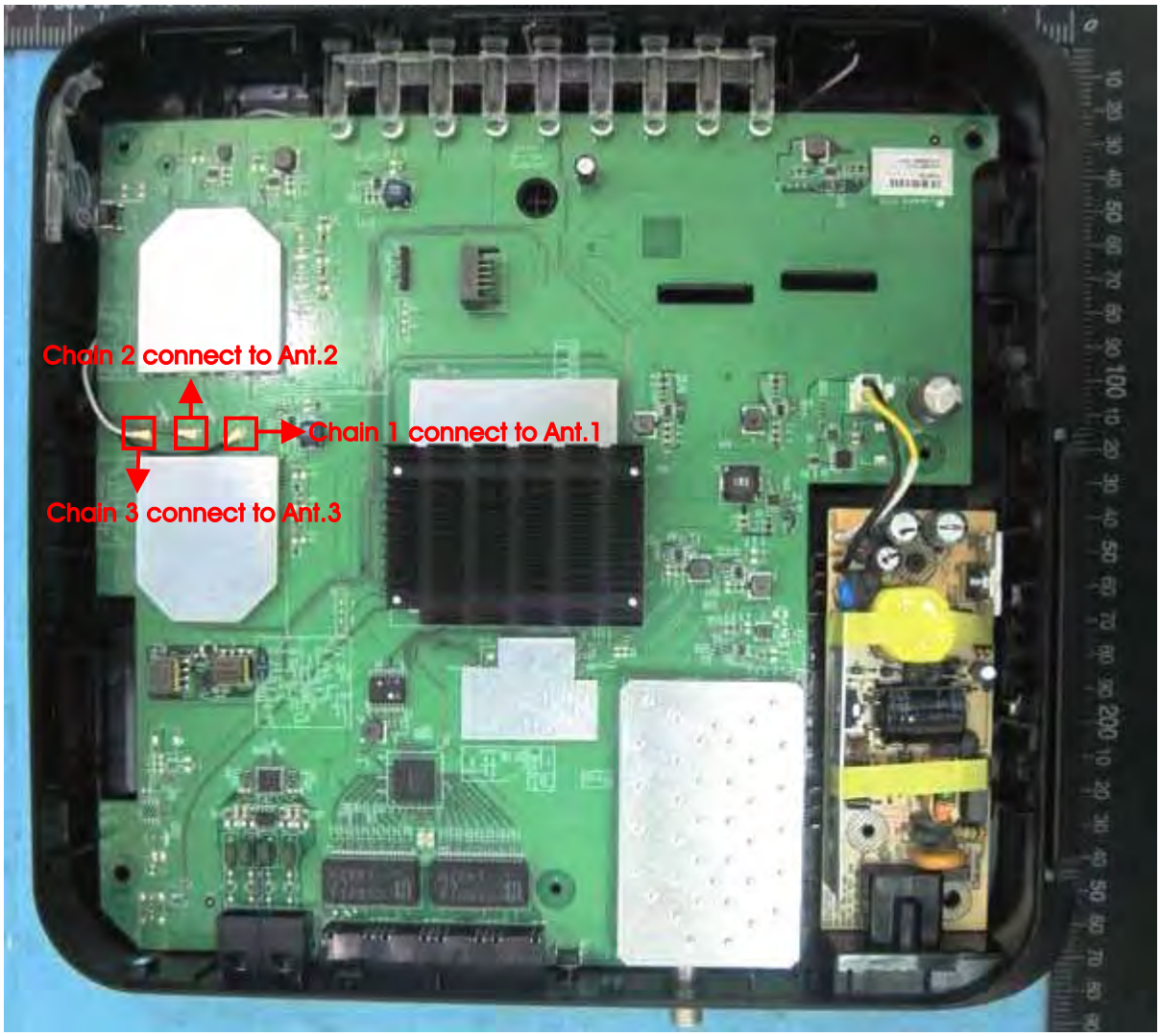
Ant. 1, Ant. 2 and Ant. 3 could transmit/receive simultaneously.

For 5Hz function (3TX/3RX):

For IEEE 802.11a/n/ac mode:

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

Ant. 1, Ant. 2 and Ant. 3 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	Antenna
AC Power Line Conducted Emissions	Normal Link	-	-	-
Maximum Conducted Output Power	802.11ac VHT20	MCS0/Nss1	1/6/11	1+2+3
	802.11ac VHT40	MCS0/Nss1	3/6/9	1+2+3
	11b/BPSK	1 Mbps	1/6/11	1+2+3
	11g/BPSK	6 Mbps	1/6/11	1+2+3
Power Spectral Density	802.11ac VHT20	MCS0/Nss1	1/6/11	1+2+3
	802.11ac VHT40	MCS0/Nss1	3/6/9	1+2+3
	11b/BPSK	1 Mbps	1/6/11	1+2+3
	11g/BPSK	6 Mbps	1/6/11	1+2+3
6dB Spectrum Bandwidth	802.11ac VHT20	MCS0/Nss1	1/6/11	1+2+3
	802.11ac VHT40	MCS0/Nss1	3/6/9	1+2+3
	11b/BPSK	1 Mbps	1/6/11	1+2+3
	11g/BPSK	6 Mbps	1/6/11	1+2+3
Radiated Emissions 9kHz~1GHz	Normal Link	-	-	-
Radiated Emissions 1GHz~10th Harmonic	802.11ac VHT20	MCS0/Nss1	1/6/11	1+2+3
	802.11ac VHT40	MCS0/Nss1	3/6/9	1+2+3
	11b/BPSK	1 Mbps	1/6/11	1+2+3
	11g/BPSK	6 Mbps	1/6/11	1+2+3
Band Edge Emissions	802.11ac VHT20	MCS0/Nss1	1/6/11	1+2+3
	802.11ac VHT40	MCS0/Nss1	3/6/9	1+2+3
	11b/BPSK	1 Mbps	1/6/11	1+2+3
	11g/BPSK	6 Mbps	1/6/11	1+2+3

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

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

The following test modes were performed for all tests:

For Conducted Emission test:

Mode 1. Normal Link - Battery with AC Power

For Radiated Emission test (Below 1G):

Mode 1. Normal Link - Battery

Mode 2. Normal Link - Battery with AC Power

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

For Radiated Emission test (Above 1G):

Mode 1. CTX

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

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

3.6. Table for Testing Locations

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

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

3.7. Table for Supporting Units

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

Support Unit	Brand	Model	FCC ID
Phone*2	H-T-T	F-689	N/A
CMTS (Terminal System)	CASA SYSTEM	CASA C2200	N/A
PC	ACER	VT7600G	N/A
Keyboard	Broadcom	BCM97428 MoCA 2.0 GN	N/A
Mouse	Casa systems	C2200	N/A
LCD Monitor	DELL	1704FPTt	DoC
NB*3	DELL	E6430	DoC

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

For Non-Beamforming Mode:

Support Unit	Brand	Model	FCC ID
NB	DELL	E6430	DoC

For Beamforming Mode:

Support Unit	Brand	Model	FCC ID
NB*2	DELL	E6430	DoC
WLAN ac Dongle	Netgear	A6200	PY312200200

For Test Site No: CO01-CB

Support Unit	Brand	Model	FCC ID
Phone*2	H-T-T	F-689	N/A
CMTS (Terminal System)	CASA SYSTEM	CASA C2200	N/A
PC	ACER	VT7600G	N/A
NB*3	DELL	E6430	DoC
LCD Monitor	DELL	1704FPTt	DoC
Keyboard	iCooky	SK068	DoC
Mouse	HP	FM100	DoC

For Test Site No: TH01-CB

Support Unit	Brand	Model	FCC ID
NB	DELL	E6430	DoC

3.8. Table for Parameters of Test Software Setting

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

For Non-Beamforming Mode:

Power Parameters of IEEE 802.11ac

Test Software Version	Mtool: 2.0.1.0		
Frequency	2412 MHz	2437 MHz	2462 MHz
MCS0/Nss1VHT20	81	100	77
Frequency	2422 MHz	2437 MHz	2452 MHz
MCS0/Nss1 VHT40	66	77	59

Power Parameters of IEEE 802.11b/g

Test Software Version	Mtool: 2.0.1.0		
Frequency	2412 MHz	2437 MHz	2462 MHz
IEEE 802.11b	84	100	86
IEEE 802.11g	80	100	75

For Beamforming Mode:

Power Parameters of IEEE 802.11ac

Test Software Version	Mtool: 2.0.1.0		
Frequency	2412 MHz	2437 MHz	2462 MHz
MCS0/Nss1 VHT20	75	87	59
Frequency	2422 MHz	2437 MHz	2452 MHz
MCS0/Nss1 VHT40	62	65	52

3.9. EUT Operation during Test

For Non-Beamforming mode:

The EUT was programmed to be in continuously transmitting mode.

For Beamforming mode:

For Conducted Mode:

The EUT was programmed to be in continuously transmitting mode.

For Radiated Mode:

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

The program was executed as follows:

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

3.10. Duty Cycle

For Non-Beamforming Mode:

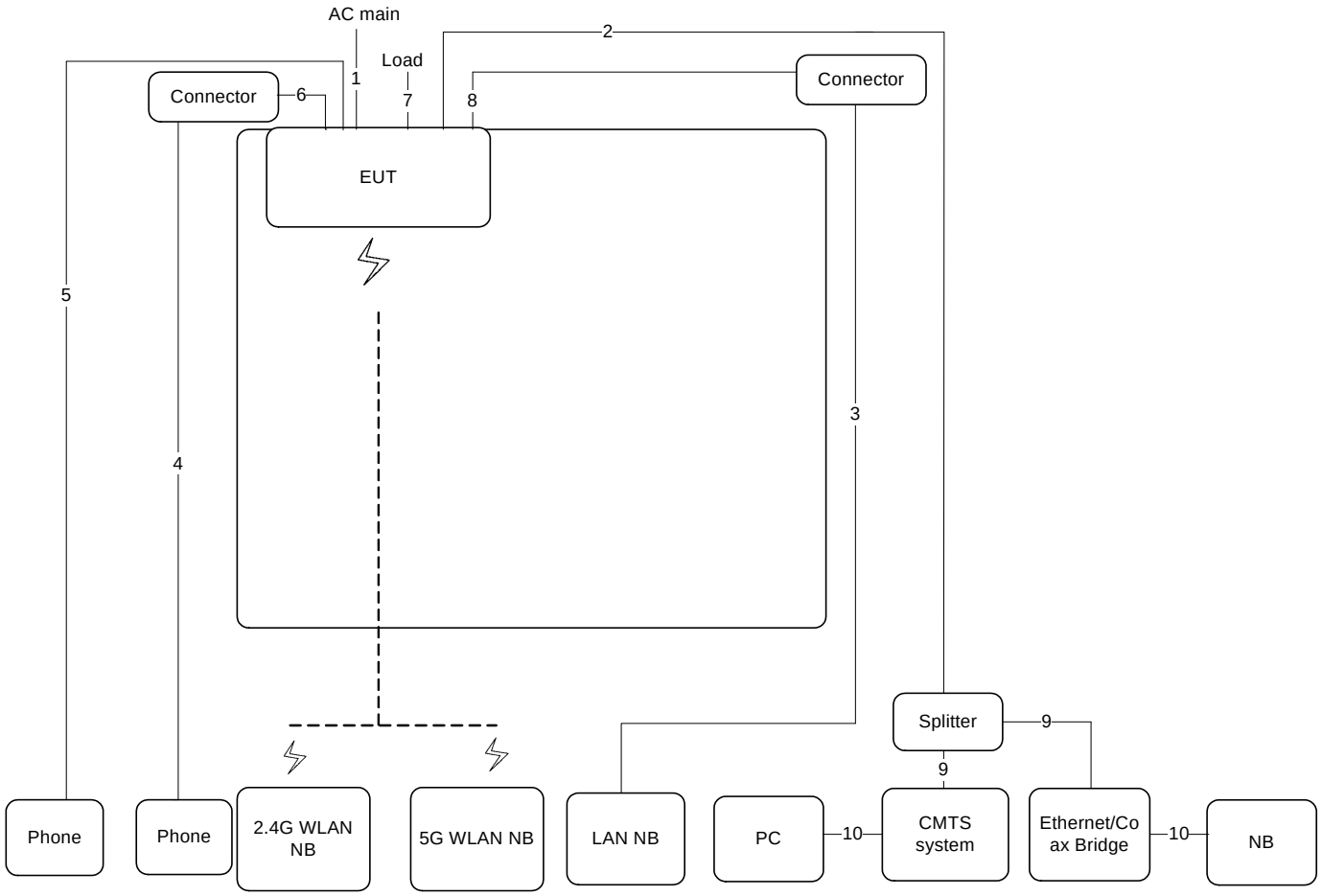
Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11n MCS0/Nss1 VHT20	1.923	1.947	98.77%	0.05	0.01
802.11n MCS0/Nss1 VHT40	0.938	0.970	96.69%	0.15	1.07
802.11b	1.000	1.000	100.00%	0.00	0.01
802.11g	2.067	2.083	99.23%	0.03	0.01

For Beamforming Mode:

Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11n MCS0/Nss1 VHT20	3.855	3.942	97.79%	0.10	0.26
802.11n MCS0/Nss1 VHT40	4.536	4.667	97.20%	0.12	0.22

3.11. Test Configurations

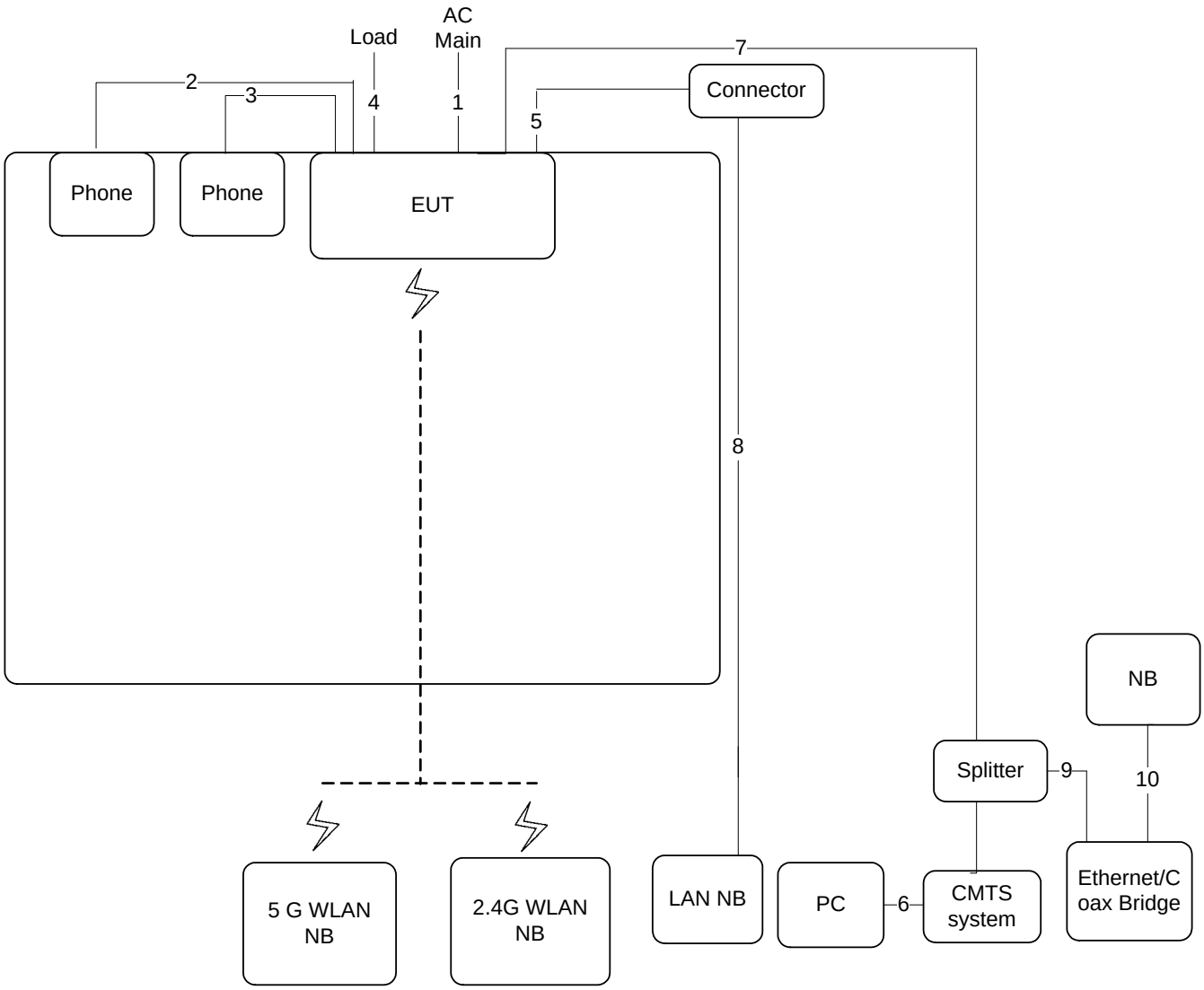
3.11.1. AC Power Line Conduction Emissions Test Configuration



Item	Connection	Shielded	Length	Remark
1	Power cable	No	1.5m	-
2	Coaxial cable	Yes	10m	-
3	RJ-45 cable	No	10m	-
4	RJ-11 cable	No	10m	-
5	RJ-11 cable	No	10m	-
6	RJ-11 cable	No	1.5m	-
7	RJ-45 cable	No	1.5m	Load*3
8	RJ-45 cable	No	1.5m	-
9	Coaxial cable	Yes	1m	-
10	RJ-45 cable	No	1.5m	-

3.11.2. Radiation Emissions Test Configuration

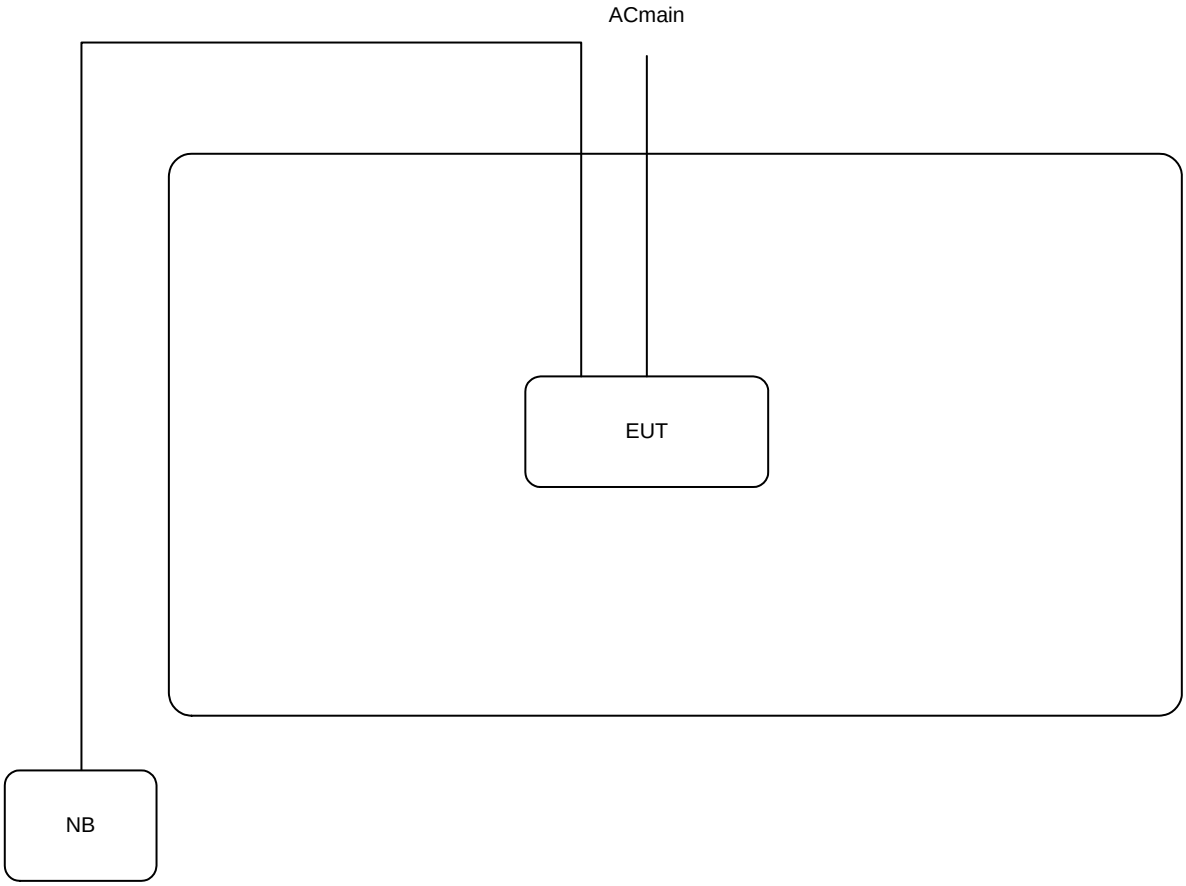
Test Configuration: 30MHz~1GHz



Item	Connection	Shielded	Length	Remark
1	Power cable	No	1.5m	-
2	RJ-11 cable	No	1.5m	-
3	RJ-11 cable	No	1m	-
4	RJ-45 cable	No	1.5m	Load*3
5	RJ-45 cable	No	1.5m	-
6	RJ-45 cable	No	1.5m	-
7	Coaxial cable	Yes	10m	-
8	RJ-45 cable	No	10m	-
9	Coaxial cable	Yes	1m	-
10	RJ-45 cable	No	1.5m	-

For Non-Beamforming mode:

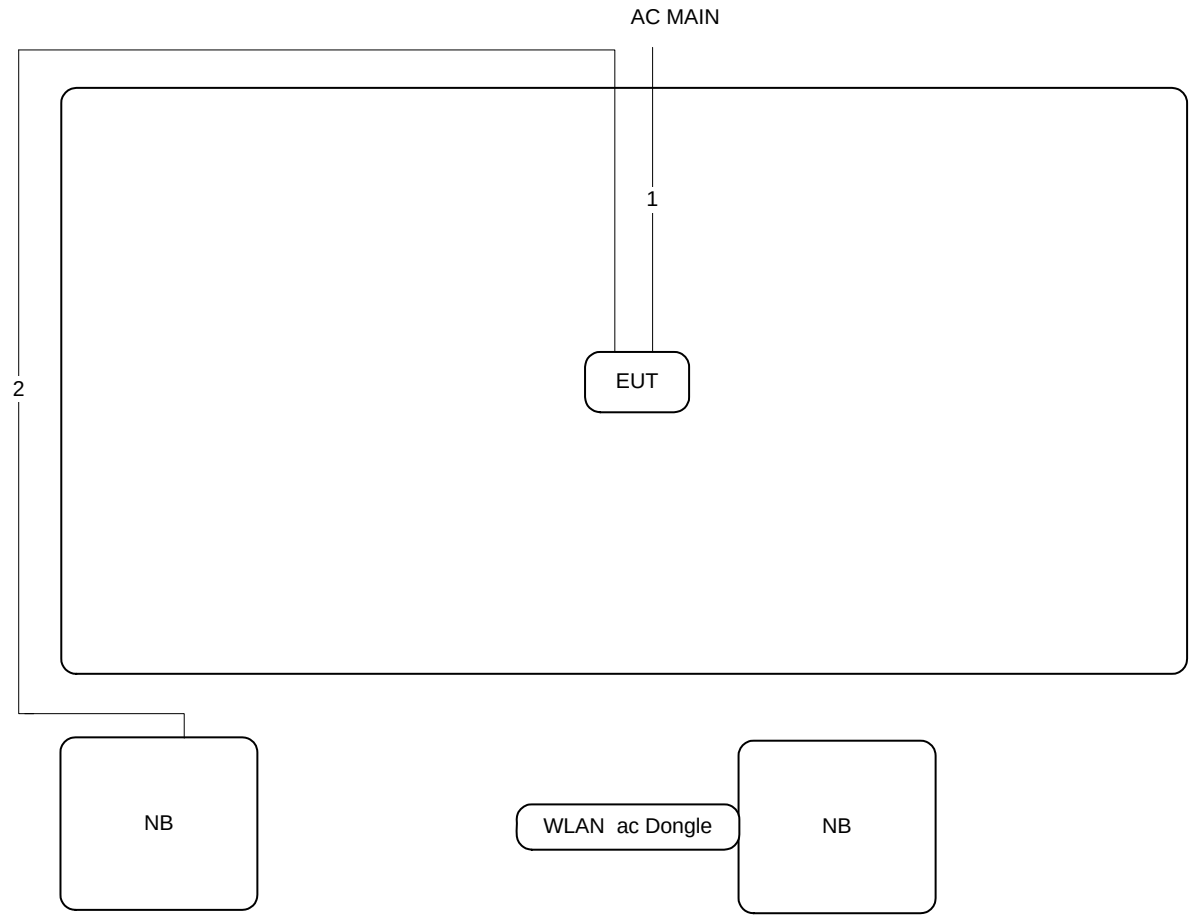
Test Configuration: above 1GHz



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

For Beamforming mode:

Test Configuration: above 1GHz



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

4. TEST RESULT

4.1. AC Power Line Conducted Emissions Measurement

4.1.1. Limit

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

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

4.1.2. Measuring Instruments and Setting

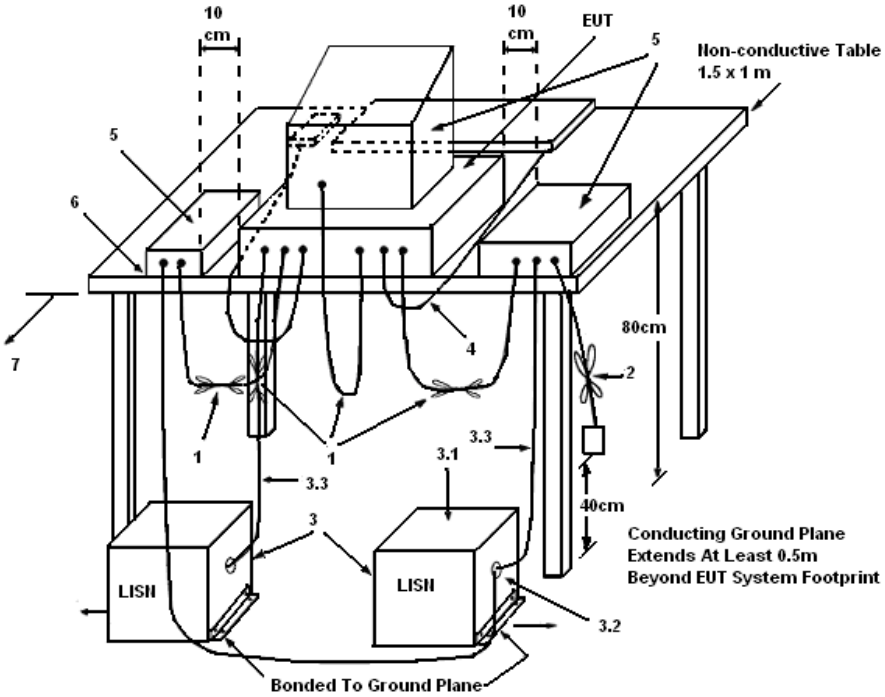
Please refer to section 5 of equipments list in this report. The following table is the setting of the receiver.

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

4.1.3. Test Procedures

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

4.1.4. Test Setup Layout



LEGEND:

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

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

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

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

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

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

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

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

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

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

4.1.5. Test Deviation

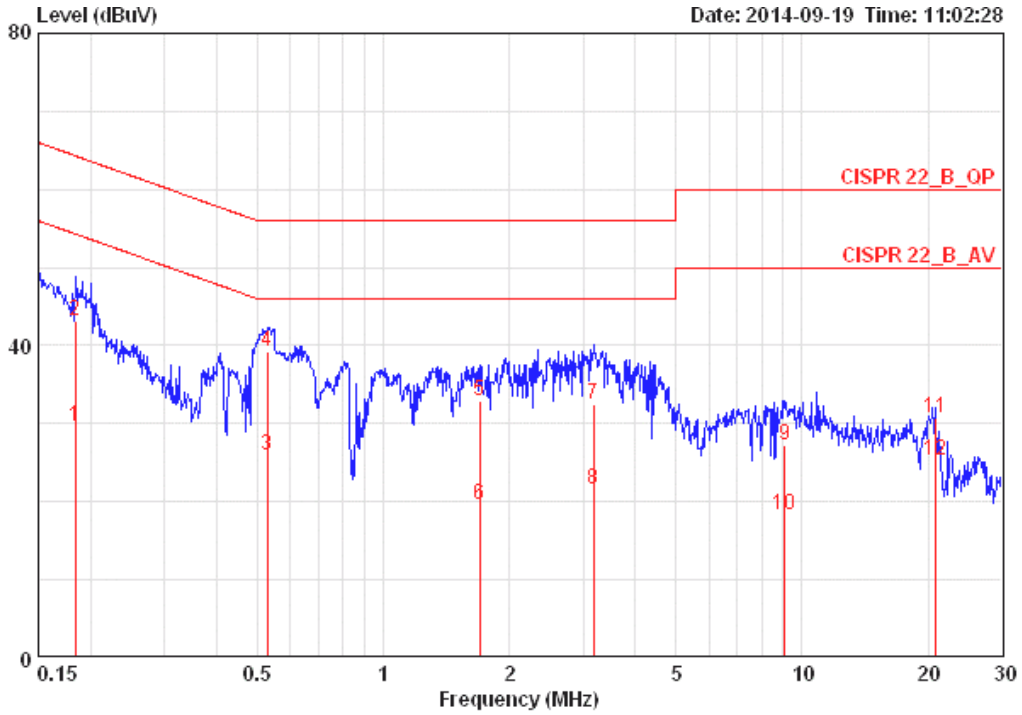
There is no deviation with the original standard.

4.1.6. EUT Operation during Test

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

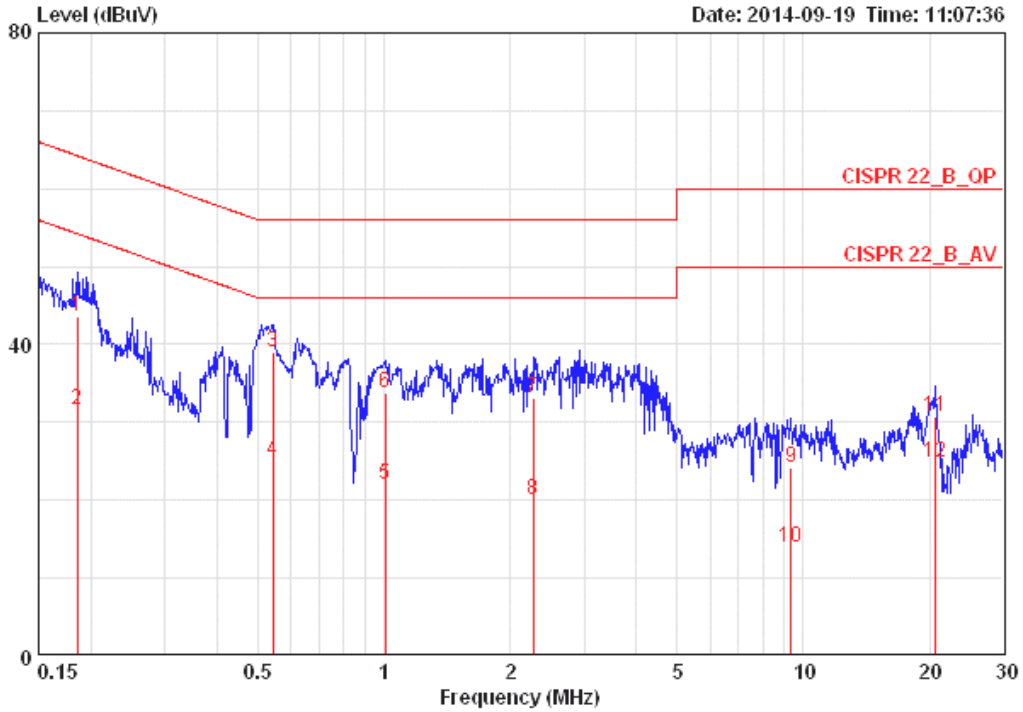
4.1.7. Results of AC Power Line Conducted Emissions Measurement

Temperature	24°C	Humidity	55%
Test Engineer	Sollo Luo	Phase	Line
Configuration	Normal Link		



	Freq	Level	Over Limit	Limit Line	LISN Factor	Read Level	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dB	dBuV	dB		
1	0.18346	29.66	-24.66	54.33	0.10	29.40	0.16	LINE	AVERAGE
2	0.18346	43.20	-21.12	64.33	0.10	42.94	0.16	LINE	QP
3	0.52934	25.94	-20.06	46.00	0.11	25.64	0.19	LINE	AVERAGE
4 @	0.52934	39.17	-16.83	56.00	0.11	38.87	0.19	LINE	QP
5	1.698	33.01	-22.99	56.00	0.15	32.62	0.24	LINE	QP
6	1.698	19.72	-26.28	46.00	0.15	19.33	0.24	LINE	AVERAGE
7	3.173	32.39	-23.61	56.00	0.19	31.91	0.28	LINE	QP
8	3.173	21.60	-24.40	46.00	0.19	21.12	0.28	LINE	AVERAGE
9	9.107	27.31	-32.69	60.00	0.33	26.61	0.37	LINE	QP
10	9.107	18.31	-31.69	50.00	0.33	17.61	0.37	LINE	AVERAGE
11	20.814	30.78	-29.22	60.00	0.48	29.78	0.52	LINE	QP
12	20.814	25.19	-24.81	50.00	0.48	24.19	0.52	LINE	AVERAGE

Temperature	24°C	Humidity	55%
Test Engineer	Sollo Luo	Phase	Neutral
Configuration	Normal Link		



	Freq	Level	Over Limit	Limit Line	LISN Factor	Read Level	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dB	dBuV	dB		
1	0.18541	43.57	-20.67	64.24	0.09	43.32	0.16	NEUTRAL	QP
2	0.18541	31.60	-22.64	54.24	0.09	31.35	0.16	NEUTRAL	AVERAGE
3 @	0.54355	38.96	-17.04	56.00	0.10	38.67	0.19	NEUTRAL	QP
4	0.54355	25.16	-20.84	46.00	0.10	24.87	0.19	NEUTRAL	AVERAGE
5	1.005	21.95	-24.05	46.00	0.12	21.63	0.20	NEUTRAL	AVERAGE
6	1.005	33.81	-22.19	56.00	0.12	33.49	0.20	NEUTRAL	QP
7	2.273	33.16	-22.84	56.00	0.15	32.75	0.26	NEUTRAL	QP
8	2.273	20.09	-25.91	46.00	0.15	19.68	0.26	NEUTRAL	AVERAGE
9	9.352	24.28	-35.72	60.00	0.31	23.59	0.38	NEUTRAL	QP
10	9.352	13.99	-36.01	50.00	0.31	13.30	0.38	NEUTRAL	AVERAGE
11	20.704	30.66	-29.34	60.00	0.44	29.70	0.52	NEUTRAL	QP
12	20.704	24.90	-25.10	50.00	0.44	23.94	0.52	NEUTRAL	AVERAGE

Note:

Level = Read Level + LISN Factor + Cable Loss.

4.2. Maximum Conducted Output Power Measurement

4.2.1. Limit

For systems using digital modulation in the 2400-2483.5MHz, the limit for output power is 30dBm. The limited has to be reduced by the amount in dB that the gain of the antenna exceed 6dBi. In case of point-to-point operation, the limit has to be reduced by 1dB for every 3dB that the directional gain of the antenna exceeds 6dBi.

4.2.2. Measuring Instruments and Setting

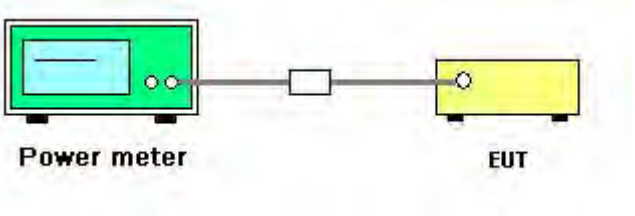
Please refer to section 5 of equipments list in this report. The following table is the setting of the power meter.

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 KDB 558074 D01 v03r02 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 Non-Beamforming mode:

Temperature	26°C	Humidity	63%
Test Engineer	Serway Li	Configurations	IEEE 802.11ac
Test Date	Oct. 22, 2014		

Configuration IEEE 802.11ac MCS0/Nss1 VHT20

Channel	Frequency	Conducted Power (dBm)				Max. Limit (dBm)	Result
		Ant. 1	Ant. 2	Ant. 3	Total		
1	2412 MHz	20.11	19.83	20.41	24.89	30.00	Complies
6	2437 MHz	24.11	24.46	24.54	29.15	30.00	Complies
11	2462 MHz	19.16	18.96	19.48	23.98	30.00	Complies

Configuration IEEE 802.11ac MCS0/Nss1 VHT40

Channel	Frequency	Conducted Power (dBm)				Max. Limit (dBm)	Result
		Ant. 1	Ant. 2	Ant. 3	Total		
3	2422 MHz	17.02	16.69	17.37	21.81	30.00	Complies
6	2437 MHz	19.77	19.48	19.96	24.51	30.00	Complies
9	2452 MHz	15.24	15.07	15.68	20.11	30.00	Complies

Temperature	26°C	Humidity	63%
Test Engineer	Serway Li	Configurations	IEEE 802.11b/g
Test Date	Oct. 22, 2014		

Configuration IEEE 802.11b

Channel	Frequency	Conducted Power (dBm)				Max. Limit (dBm)	Result
		Ant. 1	Ant. 2	Ant. 3	Total		
1	2412 MHz	21.39	21.25	21.75	26.24	30.00	Complies
6	2437 MHz	24.38	24.83	24.93	29.49	30.00	Complies
11	2462 MHz	21.91	21.72	22.34	26.77	30.00	Complies

Configuration IEEE 802.11g

Channel	Frequency	Conducted Power (dBm)				Max. Limit (dBm)	Result
		Ant. 1	Ant. 2	Ant. 3	Total		
1	2412 MHz	19.91	19.75	20.21	24.73	30.00	Complies
6	2437 MHz	24.26	24.21	24.03	28.94	30.00	Complies
11	2462 MHz	18.78	18.28	19.08	23.50	30.00	Complies

For Beamforming mode:

Temperature	26°C	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11ac
Test Date	Oct. 23, 2014		

Configuration IEEE 802.11ac MCS0/Nss1 VHT20

Channel	Frequency	Conducted Power (dBm)				Max. Limit (dBm)	Result
		Ant. 1	Ant. 2	Ant. 3	Total		
1	2412 MHz	18.11	17.73	18.51	22.90	26.18	Complies
6	2437 MHz	21.23	21.14	21.56	26.08	26.98	Complies
11	2462 MHz	14.01	14.12	14.78	19.09	26.26	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =9.82dBi > 6dBi,So CH1Power Limit =30-(9.82-6)=26.18dBm/3kHz

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =9.02dBi > 6dBi,So CH6Power Limit =30-(9.02-6)=26.98dBm/3kHz

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =9.74dBi > 6dBi,So CH11Power Limit =30-(9.74-6)=26.26dBm/3kHz

Configuration IEEE 802.11ac MCS0/Nss1 VHT40

Channel	Frequency	Conducted Power (dBm)				Max. Limit (dBm)	Result
		Ant. 1	Ant. 2	Ant. 3	Total		
3	2422 MHz	15.25	15.18	15.93	20.24	26.18	Complies
6	2437 MHz	16.02	16.04	16.67	21.03	26.98	Complies
9	2452 MHz	12.86	12.87	13.36	17.81	26.26	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =9.82dBi > 6dBi,So CH1Power Limit =30-(9.82-6)=26.18dBm/3kHz

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =9.02dBi > 6dBi,So CH6Power Limit =30-(9.02-6)=26.98dBm/3kHz

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =9.74dBi > 6dBi,So CH11Power Limit =30-(9.74-6)=26.26dBm/3kHz

4.3. Power Spectral Density Measurement

4.3.1. Limit

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

4.3.2. Measuring Instruments and Setting

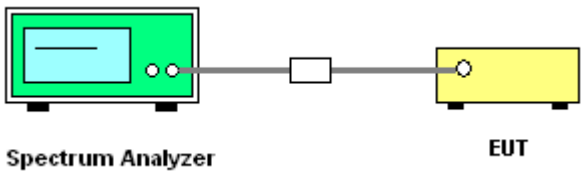
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

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

4.3.3. Test Procedures

1. Test was performed in accordance with KDB 558074 D01 v03r02 for Performing Compliance Measurements on Digital Transmission Systems (DTS) - section 10.2 Method PKPSD (peak PSD) and KDB 662911 D01 v02r01 section In-Band Power Spectral Density (PSD) Measurements option (b) Measure and sum spectral maximal across the outputs.
2. Use this procedure when the maximum conducted output power in the fundamental emission is used to demonstrate compliance. The EUT must be configured to transmit continuously at full power over the measurement duration.
3. Ensure that the number of measurement points in the sweep ≥ 2 x span/RBW (use of a greater number of measurement points than this minimum requirement is recommended).
4. Use the peak marker function to determine the maximum level in any 3 kHz band segment within the fundamental EBW.
5. The resulting PSD level must be ≤ 8 dBm.

4.3.4. Test Setup Layout



4.3.5. Test Deviation

There is no deviation with the original standard.

4.3.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.3.7. Test Result of Power Spectral Density

For Non-Beamforming mode:

Temperature	26°C	Humidity	63%
Test Engineer	serway Li	Configurations	IEEE 802.11ac

Configuration IEEE 802.11ac MCS0/Nss1 VHT20

Channel	Frequency	Power Density (dBm/3kHz)				Power Density Limit (dBm/3kHz)	Result
		Ant. 1	Ant. 2	Ant. 3	Total		
1	2412 MHz	-5.53	-5.63	-4.82	-0.54	4.18	Complies
6	2437 MHz	-2.38	-2.14	-1.89	2.64	4.98	Complies
11	2462 MHz	-6.62	-6.81	-6.6	-1.90	4.26	Complies

Note: $DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{jk} \right\}^2}{N_{ANT}} \right]$ =9.82dBi > 6dBi,So Power Density Limit =8-(9.82-6)=4.18dBm/3kHz

Note: $DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{jk} \right\}^2}{N_{ANT}} \right]$ =9.02dBi > 6dBi,So Power Density Limit =8-(9.02-6)=4.98dBm/3kHz

Note: $DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{jk} \right\}^2}{N_{ANT}} \right]$ =9.74dBi > 6dBi,So Power Density Limit =8-(9.74-6)=4.26dBm/3kHz

Configuration IEEE 802.11ac MCS0/Nss1 VHT40

Channel	Frequency	Power Density (dBm/3kHz)				Power Density Limit (dBm/3kHz)	Result
		Ant. 1	Ant. 2	Ant. 3	Total		
3	2422 MHz	-11.92	-12.41	-11.84	-7.28	4.18	Complies
6	2437 MHz	-9.72	-9.76	-9.03	-4.72	4.98	Complies
9	2452 MHz	-12.42	-12.93	-12.36	-7.79	4.26	Complies

Note: $DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{jk} \right\}^2}{N_{ANT}} \right]$ =9.82dBi > 6dBi,So Power Density Limit =8-(9.82-6)=4.18dBm/3kHz

Note: $DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{jk} \right\}^2}{N_{ANT}} \right]$ =9.02dBi > 6dBi,So Power Density Limit =8-(9.02-6)=4.98dBm/3kHz

Note: $DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{jk} \right\}^2}{N_{ANT}} \right]$ =9.74dBi > 6dBi,So Power Density Limit =8-(9.74-6)=4.26dBm/3kHz

Temperature	26°C	Humidity	63%
Test Engineer	Serway Li	Configurations	IEEE 802.11b/g

Configuration IEEE 802.11b

Channel	Frequency	Power Density (dBm/3kHz)				Power Density Limit (dBm/3kHz)	Result
		Ant. 1	Ant. 2	Ant. 3	Total		
1	2412 MHz	-2.22	-2.41	-2.12	2.52	4.18	Complies
6	2437 MHz	-0.21	-0.05	0.32	4.80	4.98	Complies
11	2462 MHz	-0.8	-0.93	-0.29	4.11	4.26	Complies

Note: $Directional Gain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{jk} \right\}^2}{N_{ANT}} \right]$ =9.82dBi > 6dBi,So Power Density Limit =8-(9.82-6)=4.18dBm/3kHz

Note: $Directional Gain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{jk} \right\}^2}{N_{ANT}} \right]$ =9.02dBi > 6dBi,So Power Density Limit =8-(9.02-6)=4.98dBm/3kHz

Note: $Directional Gain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{jk} \right\}^2}{N_{ANT}} \right]$ =9.74dBi > 6dBi,So Power Density Limit =8-(9.74-6)=4.26dBm/3kHz

Configuration IEEE 802.11g

Channel	Frequency	Power Density (dBm/3kHz)				Power Density Limit (dBm/3kHz)	Result
		Ant. 1	Ant. 2	Ant. 3	Total		
1	2412 MHz	-5.9	-6.23	-5.79	-1.20	4.18	Complies
6	2437 MHz	-1.88	-2.19	-1.85	2.80	4.98	Complies
11	2462 MHz	-6.77	-6.84	-6.67	-1.99	4.26	Complies

Note: $DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{jk} \right\}^2}{N_{ANT}} \right]$ =9.82dBi > 6dBi,So Power Density Limit =8-(9.82-6)=4.18dBm/3kHz

Note: $DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{jk} \right\}^2}{N_{ANT}} \right]$ =9.02dBi > 6dBi,So Power Density Limit =8-(9.02-6)=4.98dBm/3kHz

Note: $DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{jk} \right\}^2}{N_{ANT}} \right]$ =9.74dBi > 6dBi,So Power Density Limit =8-(9.74-6)=4.26dBm/3kHz

For Beamforming mode:

Temperature	26°C	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11ac

Configuration IEEE 802.11ac MCS0/Nss1 VHT20

Channel	Frequency	Power Density (dBm/3kHz)				Power Density Limit (dBm/3kHz)	Result
		Ant. 1	Ant. 2	Ant. 3	Total		
1	2412 MHz	-5.54	-7.06	-6.79	-1.64	4.18	Complies
6	2437 MHz	-3.87	-3.50	-2.94	1.35	4.98	Complies
11	2462 MHz	-9.66	-9.99	-10.02	-5.12	4.26	Complies

Note: $DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{jk} \right\}^2}{N_{ANT}} \right]$ =9.82dBi > 6dBi,So Power Density Limit =8-(9.82-6)=4.18dBm/3kHz

Note: $DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{jk} \right\}^2}{N_{ANT}} \right]$ =9.02dBi > 6dBi,So Power Density Limit =8-(9.02-6)=4.98dBm/3kHz

Note: $DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{jk} \right\}^2}{N_{ANT}} \right]$ =9.74dBi > 6dBi,So Power Density Limit =8-(9.74-6)=4.26dBm/3kHz

Configuration IEEE 802.11ac MCS0/Nss1 VHT40

Channel	Frequency	Power Density (dBm/3kHz)				Power Density Limit (dBm/3kHz)	Result
		Ant. 1	Ant. 2	Ant. 3	Total		
3	2422 MHz	-12.79	-12.62	-12.19	-7.75	4.18	Complies
6	2437 MHz	-11.74	-11.50	-11.35	-6.76	4.98	Complies
9	2452 MHz	-13.47	-14.96	-14.88	-9.61	4.26	Complies

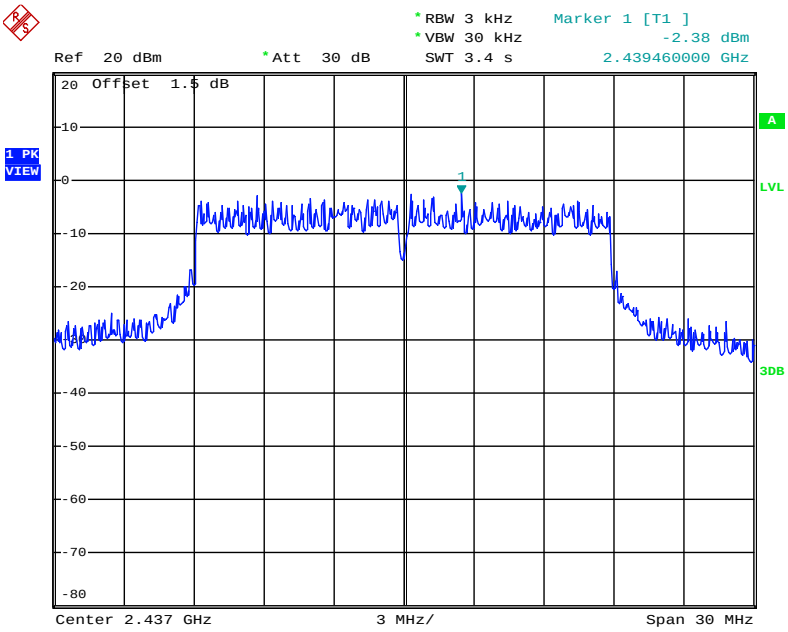
Note: $DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{jk} \right\}^2}{N_{ANT}} \right]$ =9.82dBi > 6dBi,So Power Density Limit =8-(9.82-6)=4.18dBm/3kHz

Note: $DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{jk} \right\}^2}{N_{ANT}} \right]$ =9.02dBi > 6dBi,So Power Density Limit =8-(9.02-6)=4.98dBm/3kHz

Note: $DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{jk} \right\}^2}{N_{ANT}} \right]$ =9.74dBi > 6dBi,So Power Density Limit =8-(9.74-6)=4.26dBm/3kHz

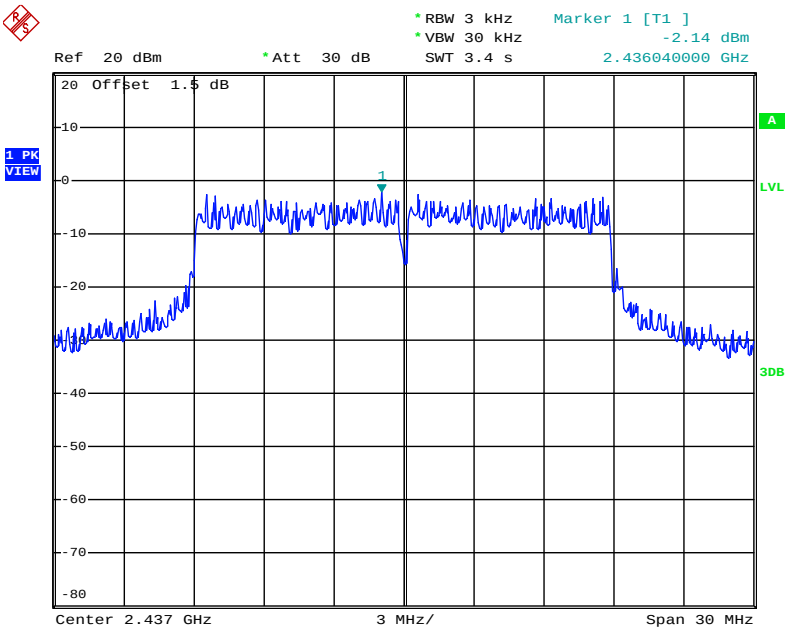
For Non-Beamforming mode:

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



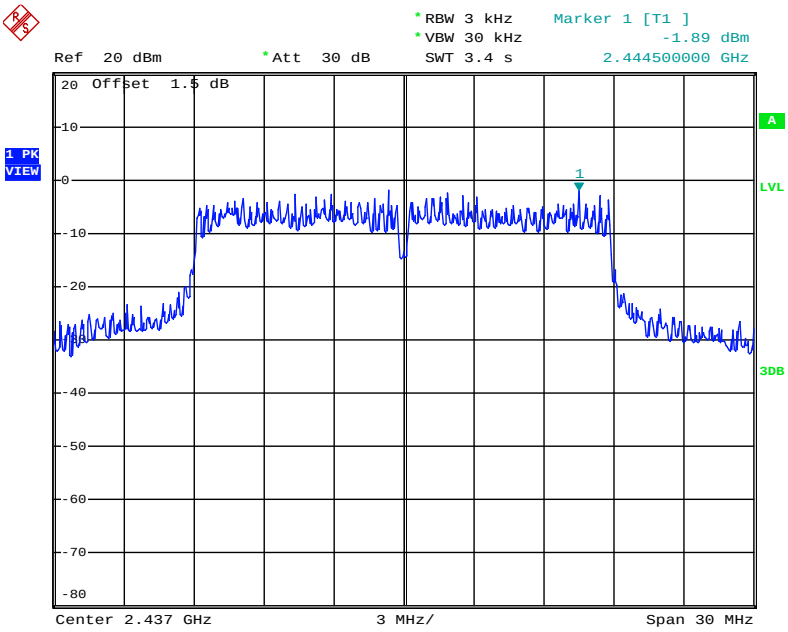
Date: 23.OCT.2014 09:39:41

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



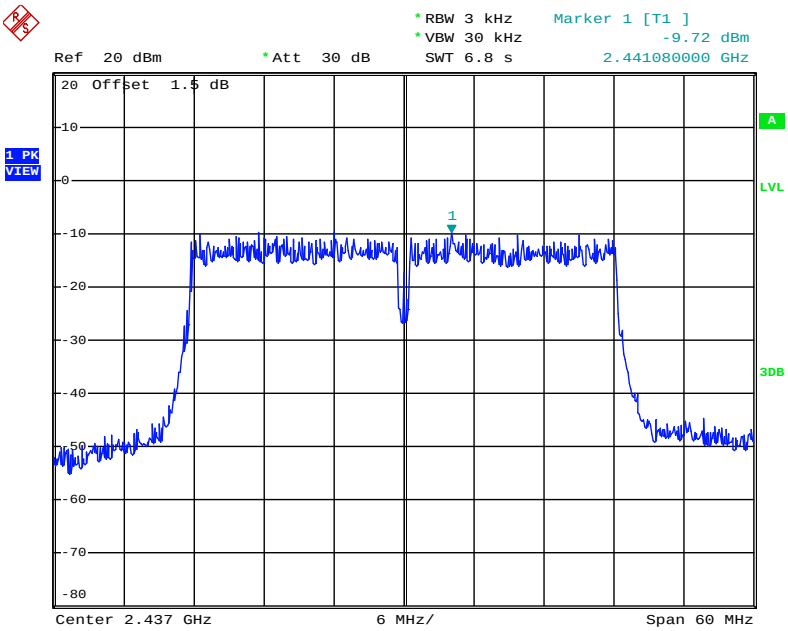
Date: 23.OCT.2014 09:40:14

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



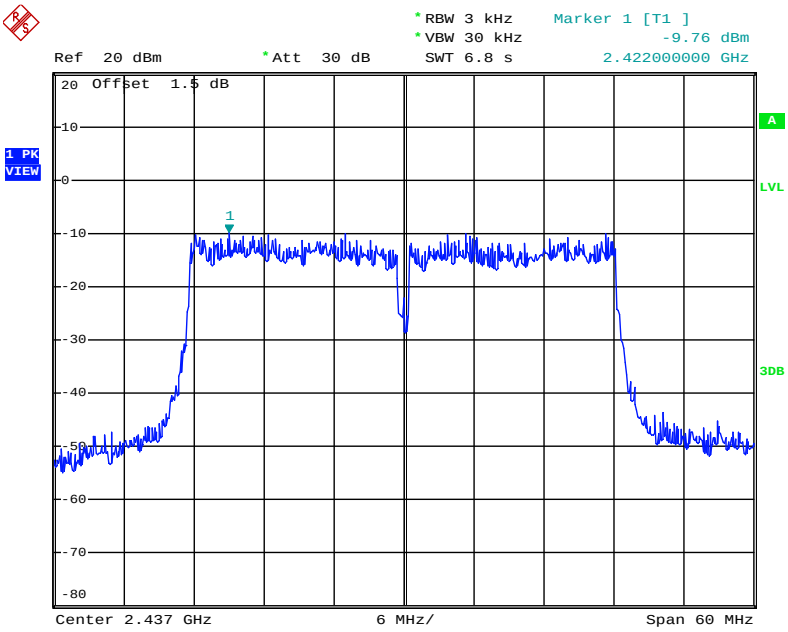
Date: 23.OCT.2014 09:39:26

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



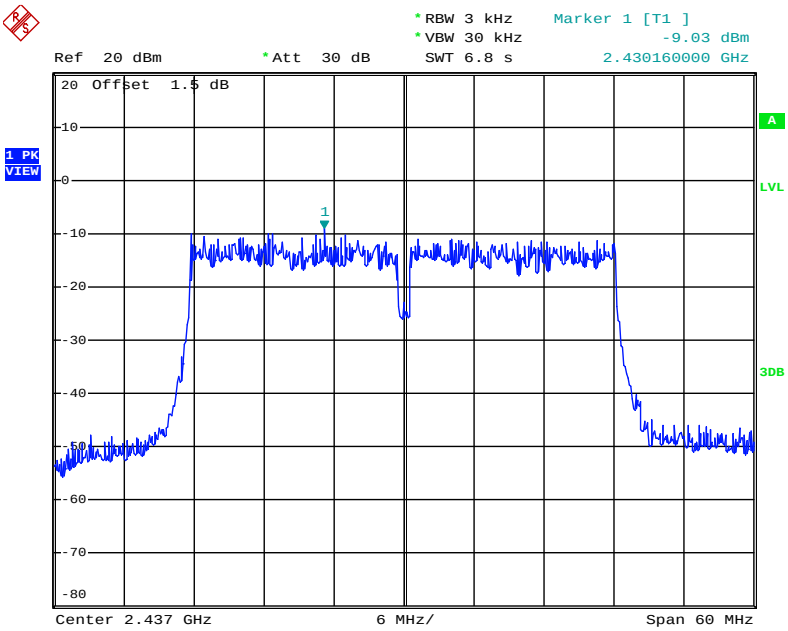
Date: 23.OCT.2014 09:50:37

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



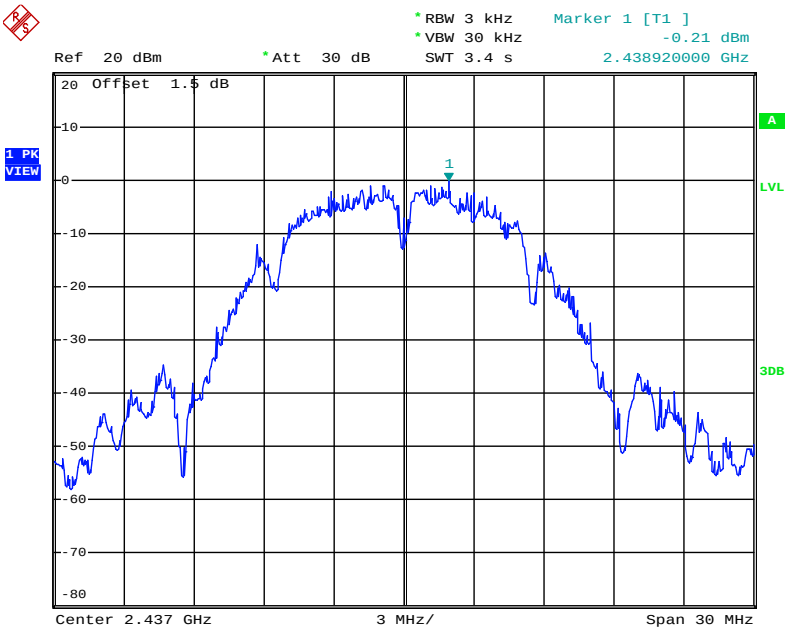
Date: 23.OCT.2014 09:50:53

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

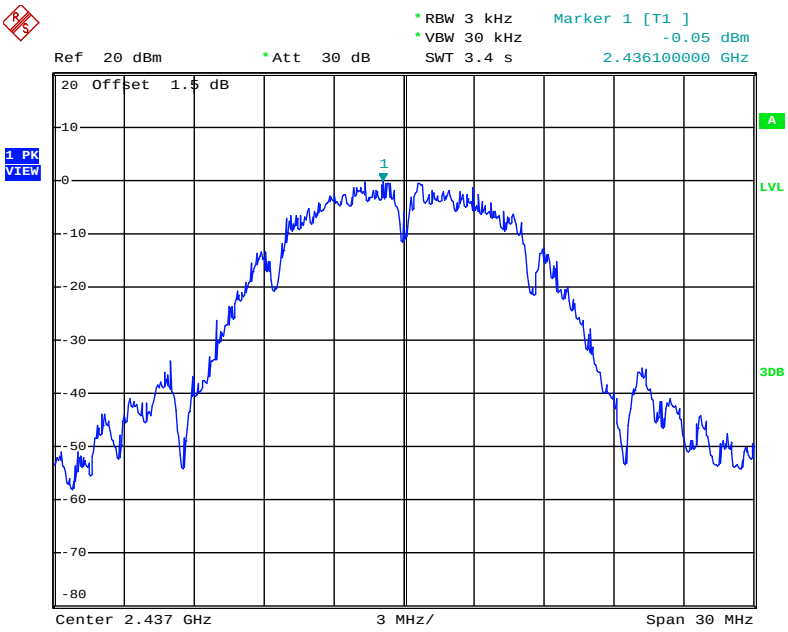


Date: 23.OCT.2014 09:51:06

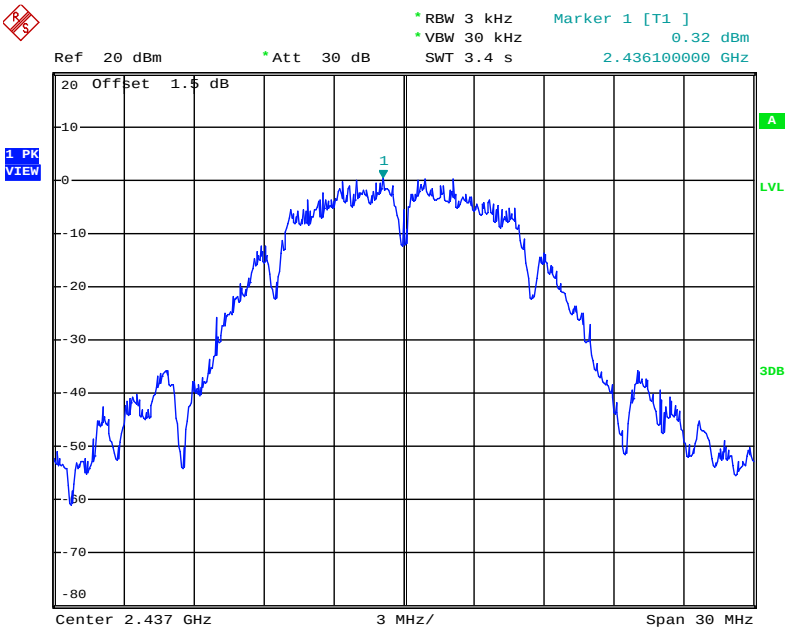
Power Density Plot on Configuration IEEE 802.11b / 2437 MHz / Ant. 1



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

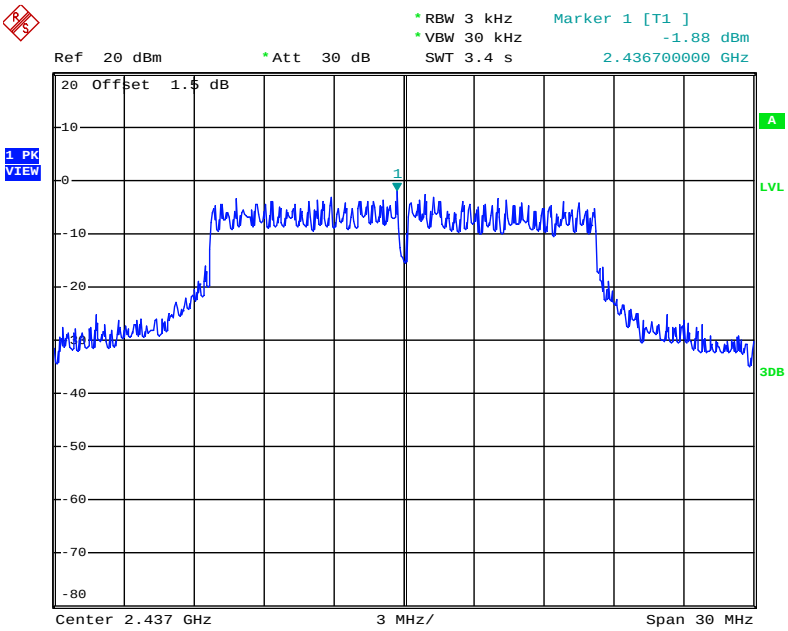


Power Density Plot on Configuration IEEE 802.11b / 2437 MHz / Ant. 3



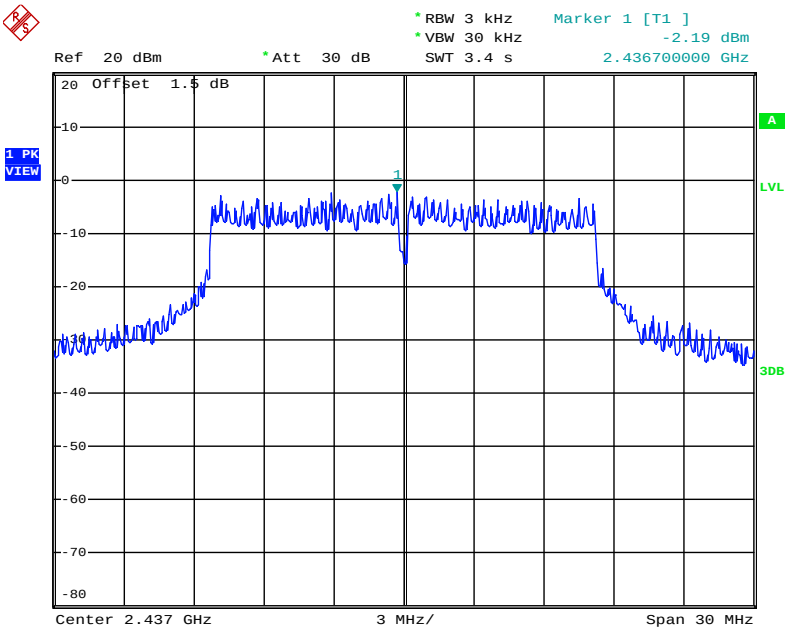
Date: 23.OCT.2014 09:17:25

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



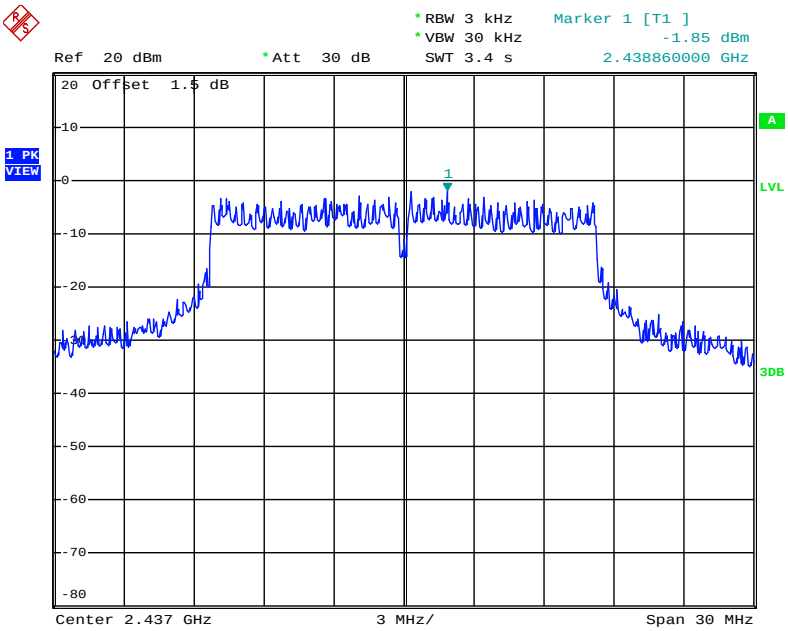
Date: 23.OCT.2014 09:29:31

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



Date: 23.OCT.2014 09:30:14

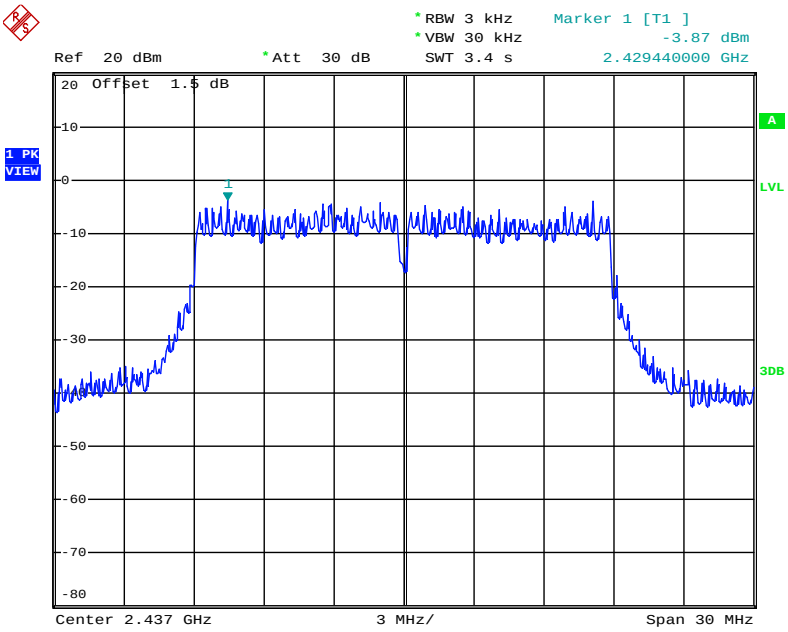
Power Density Plot on Configuration IEEE 802.11g / 2437 MHz / Ant. 3



Date: 23.OCT.2014 09:29:50

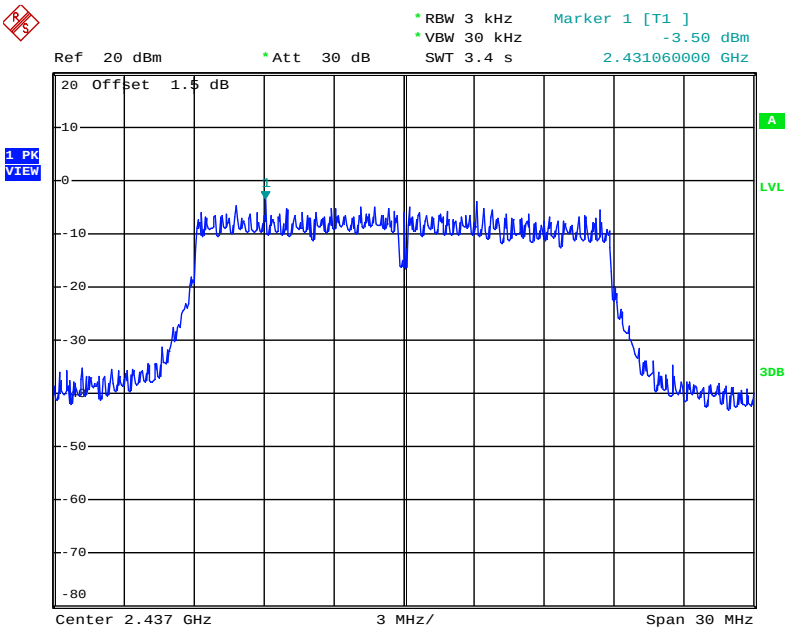
For Beamforming mode:

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



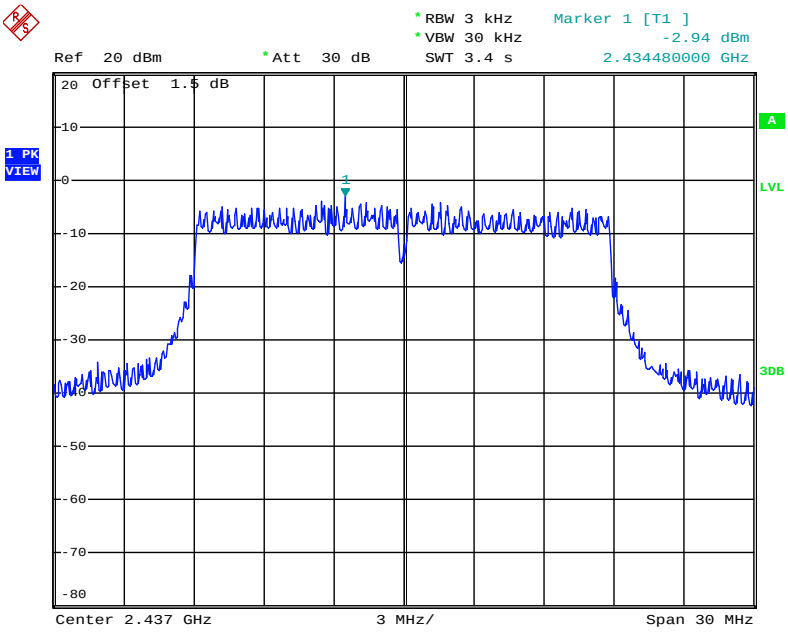
Date: 28.OCT.2014 13:30:20

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



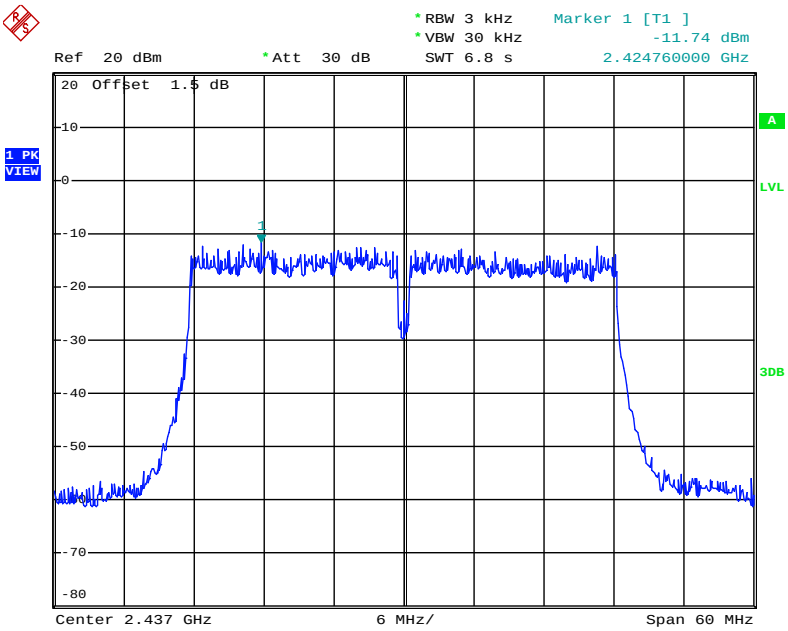
Date: 28.OCT.2014 13:29:38

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



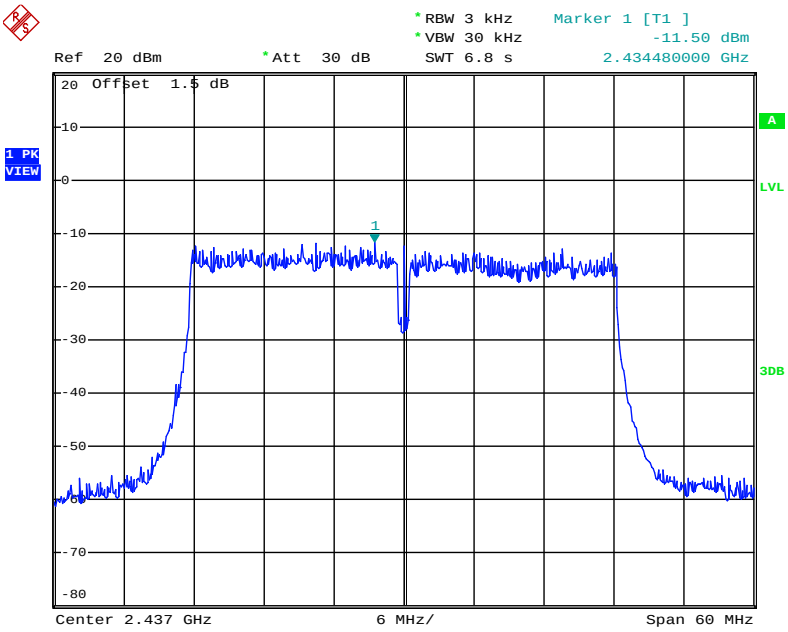
Date: 28.OCT.2014 13:28:52

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



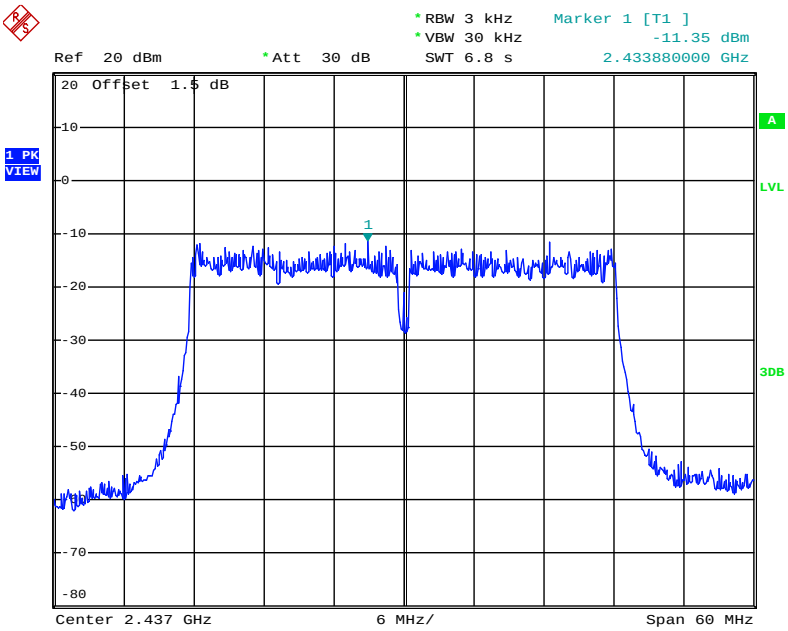
Date: 28.OCT.2014 13:36:58

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



Date: 28.OCT.2014 13:38:40

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



Date: 28.OCT.2014 13:39:25

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.

Spectrum Parameters	Setting
Attenuation	Auto
Span Frequency	> 6dB Bandwidth
RBW	100kHz
VBW	≥ 3 x RBW
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

4.4.3. Test Procedures

For Radiated 6dB Bandwidth Measurement:

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

4.4.4. Test Setup Layout

For Radiated 6dB Bandwidth Measurement:

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

4.4.5. Test Deviation

There is no deviation with the original standard.

4.4.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.4.7. Test Result of 6dB Spectrum Bandwidth

For Non-Beamforming mode:

Temperature	26°C	Humidity	63%
Test Engineer	Serway Li	Configurations	IEEE 802.11ac

Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 + Ant. 3

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	14.32	17.28	500	Complies
6	2437 MHz	15.12	19.28	500	Complies
11	2462 MHz	14.00	17.52	500	Complies

Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 1 + Ant. 2 + Ant. 3

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
3	2422 MHz	31.36	35.68	500	Complies
6	2437 MHz	33.60	36.00	500	Complies
9	2452 MHz	33.28	36.00	500	Complies

Temperature	26°C	Humidity	63%
Test Engineer	Serway Li	Configurations	IEEE 802.11b/g

Configuration IEEE 802.11b / Ant. 1 + Ant. 2 + Ant. 3

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	8.16	11.84	500	Complies
6	2437 MHz	8.08	12.40	500	Complies
11	2462 MHz	8.08	12.00	500	Complies

Configuration IEEE 802.11g / Ant. 1 + Ant. 2 + Ant. 3

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	10.72	16.48	500	Complies
6	2437 MHz	16.32	20.64	500	Complies
11	2462 MHz	10.56	16.64	500	Complies

For Beamforming mode:

Temperature	26°C	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11ac

Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Ant. 1 + Ant. 2 + Ant. 3

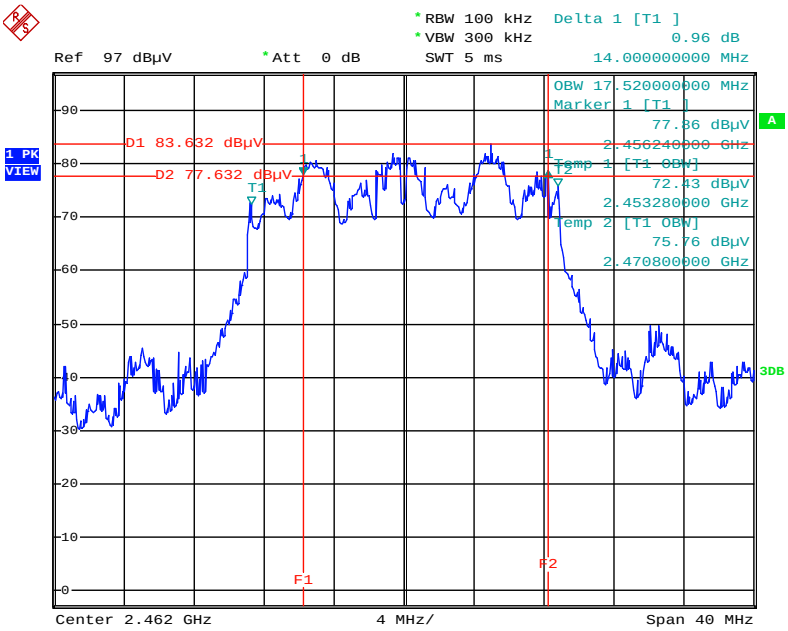
Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	17.60	17.76	500	Complies
6	2437 MHz	17.60	17.76	500	Complies
11	2462 MHz	16.96	17.68	500	Complies

Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Ant. 1 + Ant. 2 + Ant. 3

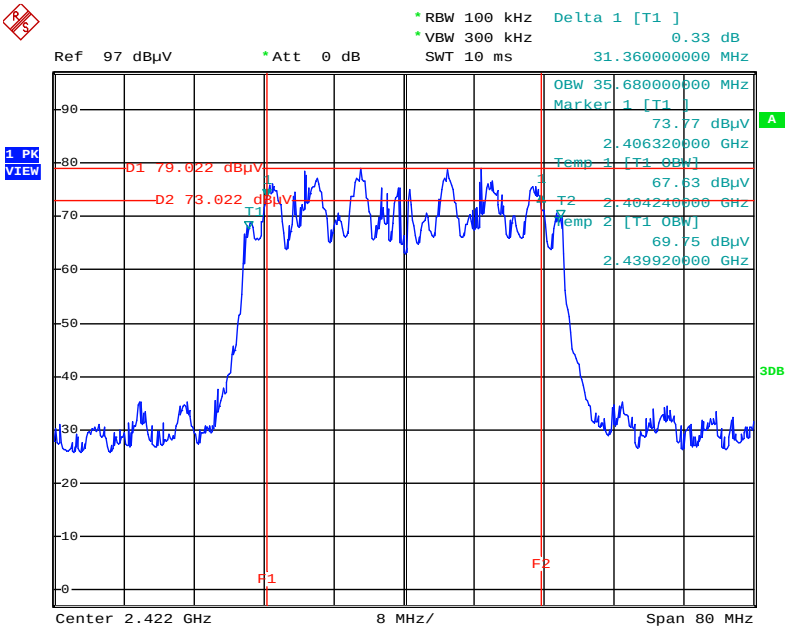
Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
3	2422 MHz	36.48	36.32	500	Complies
6	2437 MHz	36.48	36.48	500	Complies
9	2452 MHz	36.32	36.32	500	Complies

For Non-Beamforming mode:

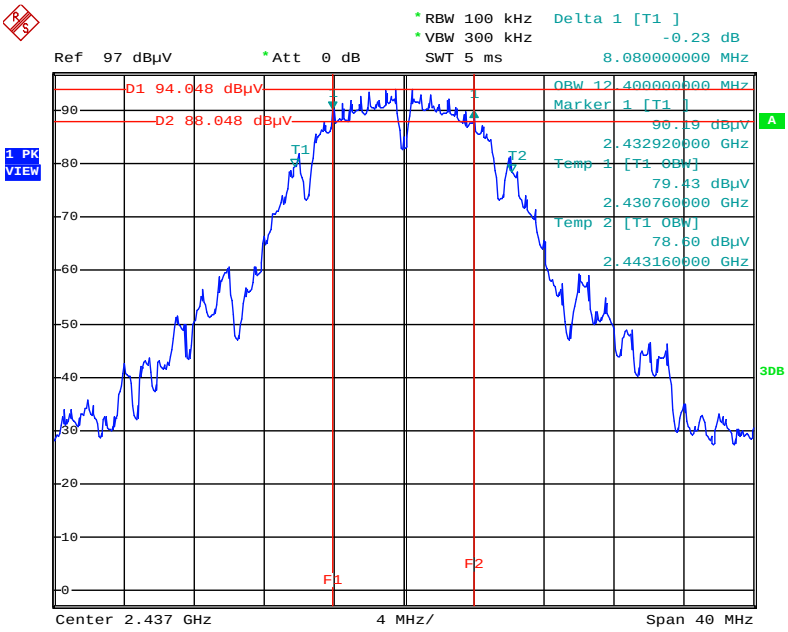
6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / 2462 MHz / Ant. 1 + Ant. 2 + Ant. 3



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

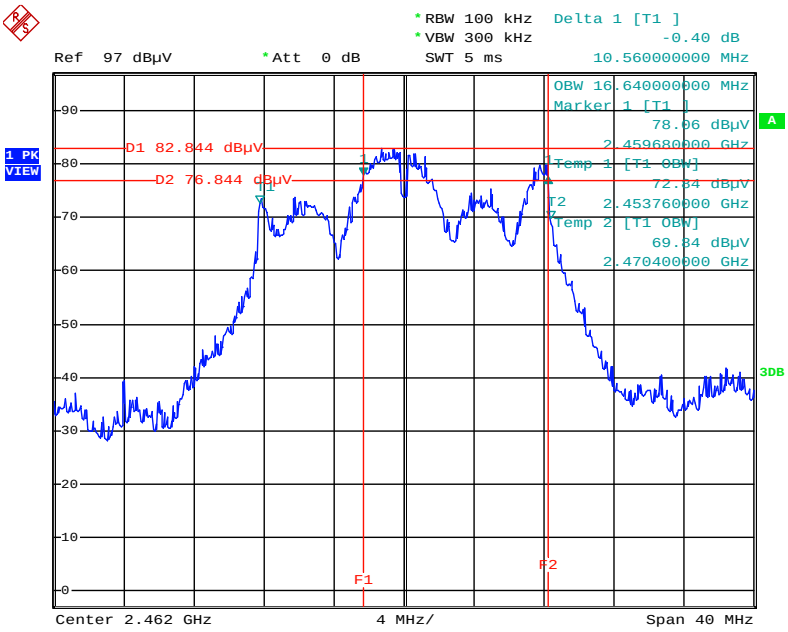


6 dB Bandwidth Plot on Configuration IEEE 802.11b / 2437 MHz / Ant. 1 + Ant. 2 + Ant. 3



Date: 22.OCT.2014 17:21:54

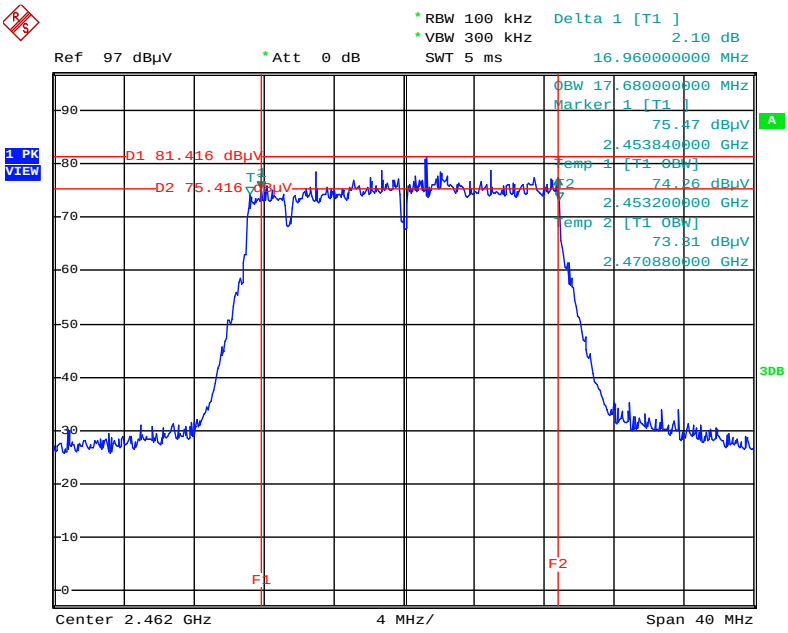
6 dB Bandwidth Plot on Configuration IEEE 802.11g / 2462 MHz / Ant. 1 + Ant. 2 + Ant. 3



Date: 22.OCT.2014 17:31:15

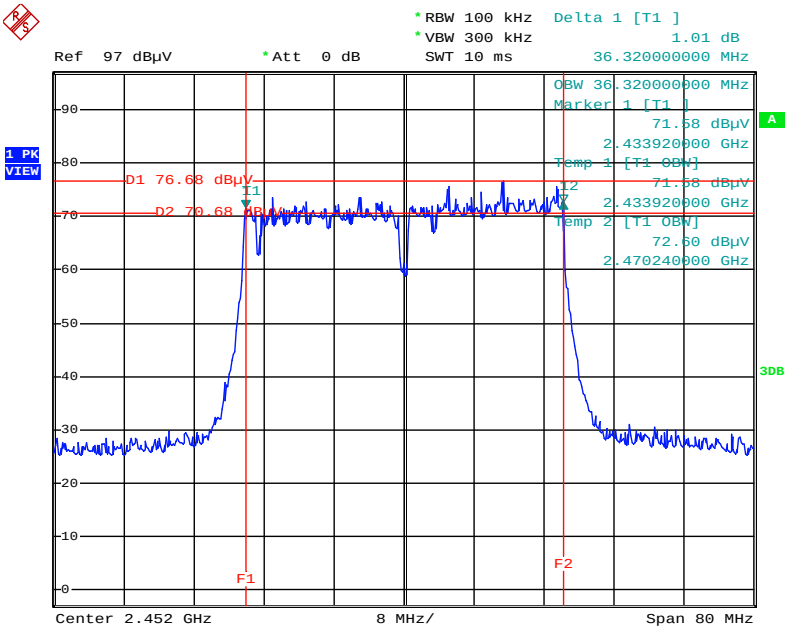
For Beamforming mode:

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



Date: 28.OCT.2014 13:51:06

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / 2452 MHz / Ant. 1 + Ant. 2 + Ant. 3



Date: 28.OCT.2014 13:53:29

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

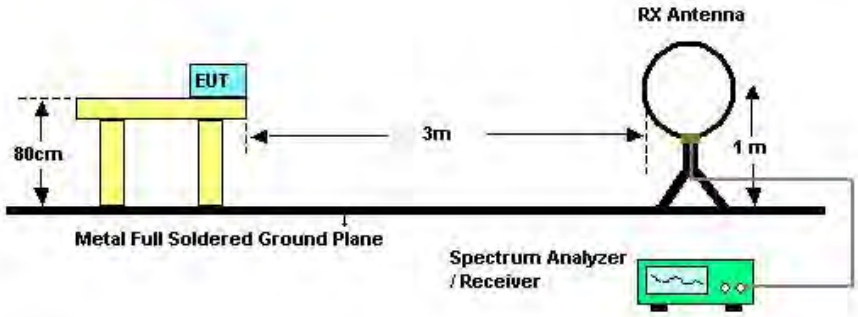
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RBW 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RBW 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RBW 120kHz for QP

4.5.3. Test Procedures

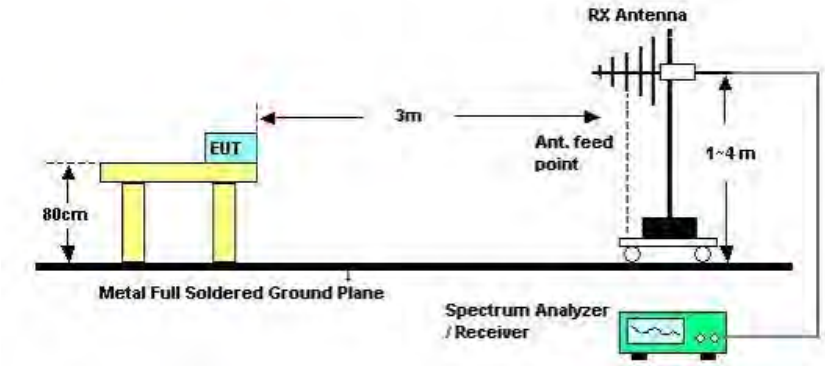
1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting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

4.5.4. Test Setup Layout

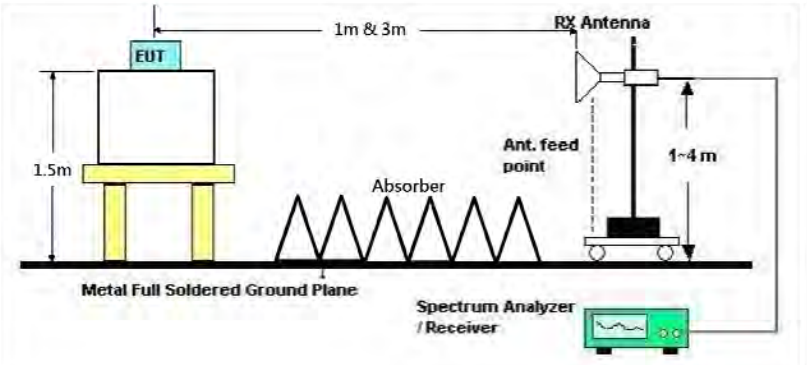
For Radiated Emissions: 9kHz ~30MHz



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	26°C	Humidity	68%
Test Engineer	Lucas Huang	Configurations	Normal Link / Mode 2
Test Date	Oct. 17, 2014		

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

Note:

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

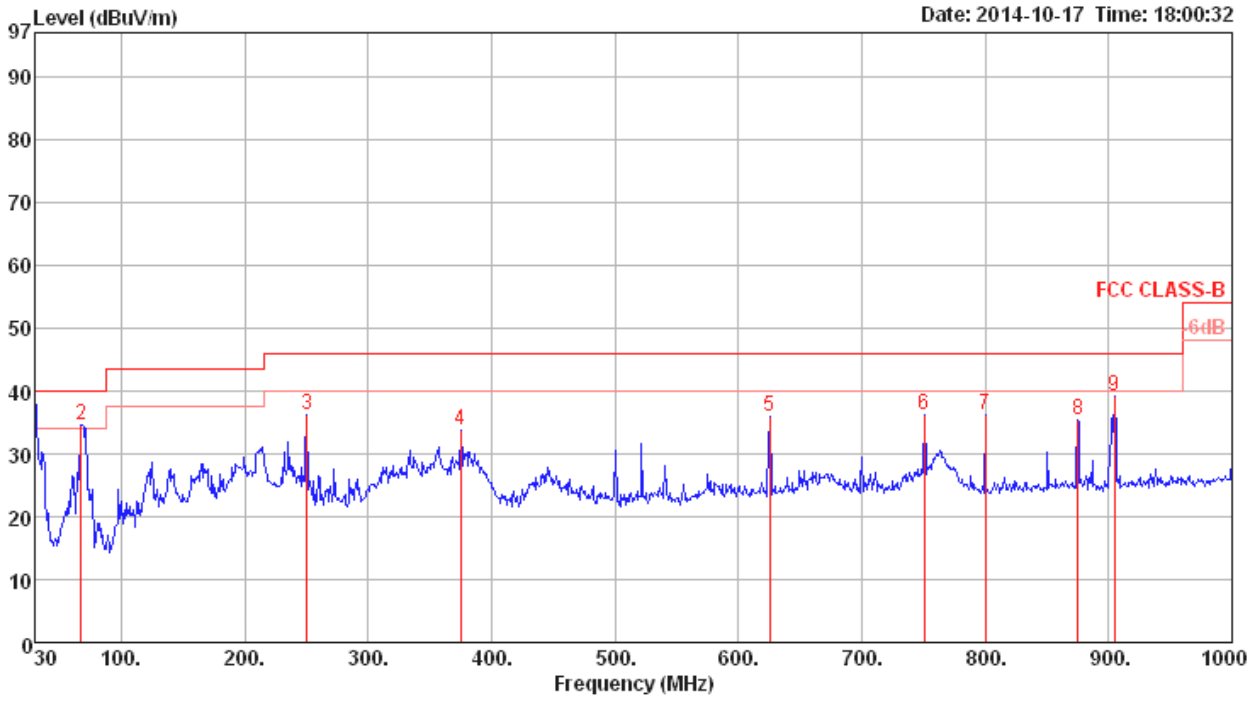
Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

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

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

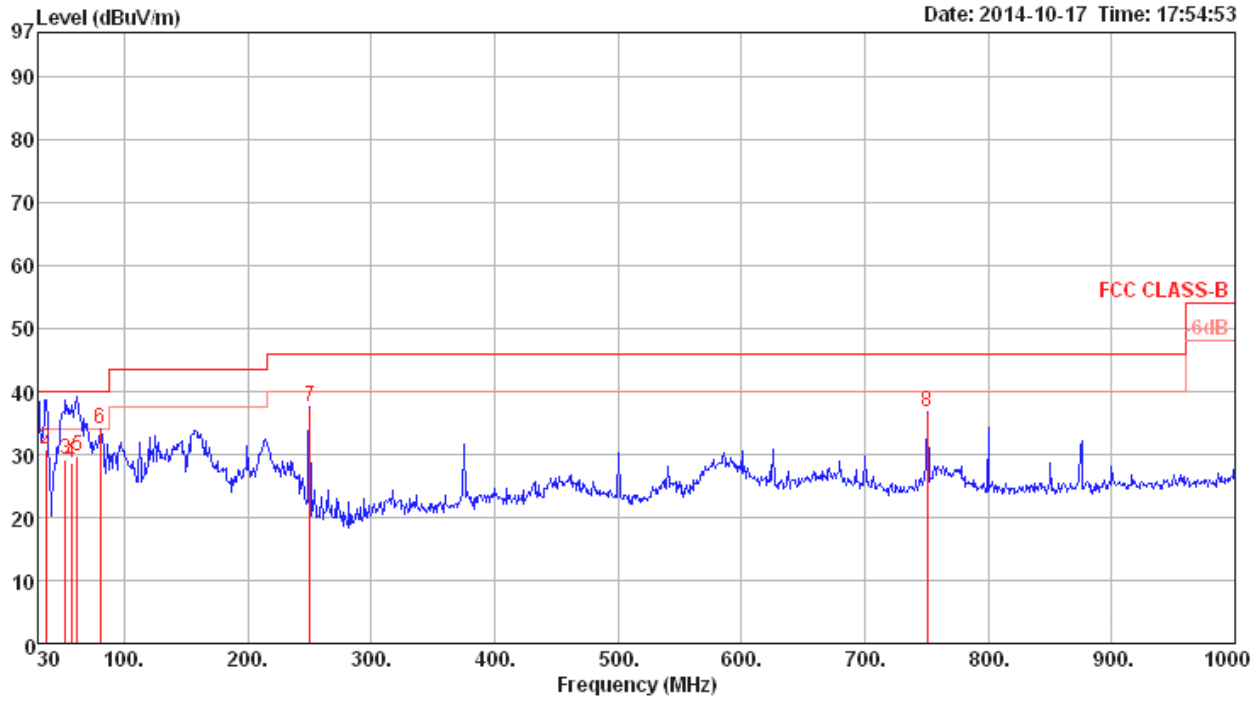
Temperature	26°C	Humidity	68%
Test Engineer	Lucas Huang	Configurations	Normal Link / Mode 2

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	30.00	33.00	40.00	-7.00	41.43	0.61	18.76	27.80	QP	221	36	HORIZONTAL
2	67.83	34.56	40.00	-5.44	54.65	0.97	6.67	27.73	Peak	100	0	HORIZONTAL
3	250.19	36.25	46.00	-9.75	48.70	1.78	12.77	27.00	Peak	100	0	HORIZONTAL
4	375.32	33.85	46.00	-12.15	43.68	2.20	15.40	27.43	Peak	100	0	HORIZONTAL
5	625.58	35.88	46.00	-10.12	42.20	2.90	18.85	28.07	Peak	100	0	HORIZONTAL
6	750.71	36.24	46.00	-9.76	41.41	3.20	19.43	27.80	Peak	100	0	HORIZONTAL
7	800.18	36.10	46.00	-9.90	40.71	3.22	19.77	27.60	Peak	100	0	HORIZONTAL
8	874.87	35.30	46.00	-10.70	38.95	3.46	20.34	27.45	Peak	100	0	HORIZONTAL
9	904.94	39.10	46.00	-6.90	42.36	3.55	20.57	27.38	Peak	100	0	HORIZONTAL

Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	30.00	28.26	40.00	-11.74	36.69	0.61	18.76	27.80	QP	100	44	VERTICAL
2	36.79	30.67	40.00	-9.33	42.90	0.68	14.89	27.80	QP	337	100	VERTICAL
3	52.31	29.16	40.00	-10.84	47.91	0.86	8.18	27.79	QP	346	100	VERTICAL
4	57.16	28.53	40.00	-11.47	48.13	0.87	7.30	27.77	QP	100	22	VERTICAL
5	62.01	29.74	40.00	-10.26	49.83	0.92	6.74	27.75	QP	100	245	VERTICAL
6	80.44	34.15	40.00	-5.85	53.69	0.97	7.17	27.68	Peak	400	0	VERTICAL
7	250.19	37.56	46.00	-8.44	50.01	1.78	12.77	27.00	Peak	400	0	VERTICAL
8	750.71	36.75	46.00	-9.25	41.92	3.20	19.43	27.80	Peak	400	0	VERTICAL

Note:

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

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

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

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

For Non-Beamforming mode:

Temperature	26°C	Humidity	68%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 1 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	Oct. 17, 2014		

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	4819.56	33.89	54.00	-20.11	29.14	6.11	33.56	34.92	252	100	Average	HORIZONTAL
2	4824.76	47.05	74.00	-26.95	42.30	6.11	33.56	34.92	252	100	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	4820.96	53.51	74.00	-20.49	48.76	6.11	33.56	34.92	269	143	Peak	VERTICAL
2	4826.00	38.59	54.00	-15.41	33.84	6.11	33.56	34.92	269	143	Average	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 6 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	Oct. 17, 2014		

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	4866.16	50.19	74.00	-23.81	45.41	6.08	33.62	34.92	333	100	Peak	HORIZONTAL
2	4871.16	38.41	54.00	-15.59	33.59	6.08	33.66	34.92	333	100	Average	HORIZONTAL
3	7308.28	35.96	54.00	-18.04	26.23	8.28	36.64	35.19	104	140	Average	HORIZONTAL
4	7314.64	47.61	74.00	-26.39	37.86	8.30	36.64	35.19	104	140	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	4876.00	60.37	74.00	-13.63	55.55	6.08	33.66	34.92	256	155	Peak	VERTICAL
2	4876.20	47.98	54.00	-6.02	43.16	6.08	33.66	34.92	256	155	Average	VERTICAL
3	7305.12	39.54	54.00	-14.46	29.81	8.28	36.64	35.19	239	270	Average	VERTICAL
4	7305.40	51.60	74.00	-22.40	41.87	8.28	36.64	35.19	239	270	Peak	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 11 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	Oct. 17, 2014		

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	4914.52	32.31	54.00	-21.69	27.44	6.05	33.73	34.91	46	136	Average	HORIZONTAL
2	4922.60	44.55	74.00	-29.45	39.65	6.05	33.76	34.91	46	103	Peak	HORIZONTAL
3	7377.12	49.23	74.00	-24.77	39.29	8.34	36.81	35.21	272	109	Peak	HORIZONTAL
4	7391.56	36.35	54.00	-17.65	26.34	8.37	36.85	35.21	272	109	Average	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	4920.72	49.30	74.00	-24.70	44.40	6.05	33.76	34.91	274	157	Peak	VERTICAL
2	4926.16	35.86	54.00	-18.14	30.96	6.05	33.76	34.91	274	157	Average	VERTICAL
3	7377.04	48.80	74.00	-25.20	38.86	8.34	36.81	35.21	142	129	Peak	VERTICAL
4	7391.52	36.56	54.00	-17.44	26.55	8.37	36.85	35.21	142	129	Average	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 3 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	Oct. 17, 2014		

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	4844.32	44.03	74.00	-29.97	39.26	6.10	33.59	34.92	250	129	Peak	HORIZONTAL
2	4851.40	32.03	54.00	-21.97	27.23	6.10	33.62	34.92	250	129	Average	HORIZONTAL
3	7271.80	47.97	74.00	-26.03	38.34	8.26	36.56	35.19	160	114	Peak	HORIZONTAL
4	7275.12	35.93	54.00	-18.07	26.30	8.26	36.56	35.19	160	114	Average	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	4844.12	43.43	74.00	-30.57	38.66	6.10	33.59	34.92	29	121	Peak	VERTICAL
2	4853.00	32.15	54.00	-21.85	27.35	6.10	33.62	34.92	29	121	Average	VERTICAL
3	7270.16	35.91	54.00	-18.09	26.28	8.26	36.56	35.19	284	106	Average	VERTICAL
4	7275.88	48.25	74.00	-25.75	38.62	8.26	36.56	35.19	284	106	Peak	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 6 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	Oct. 17, 2014		

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	4880.92	32.51	54.00	-21.49	27.69	6.08	33.66	34.92	324	125	Average	HORIZONTAL
2	4881.24	45.33	74.00	-28.67	40.51	6.08	33.66	34.92	324	125	Peak	HORIZONTAL
3	7345.60	36.56	54.00	-17.44	26.71	8.32	36.73	35.20	148	136	Average	HORIZONTAL
4	7359.20	48.78	74.00	-25.22	38.89	8.32	36.77	35.20	148	136	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	4870.20	45.11	74.00	-28.89	40.29	6.08	33.66	34.92	126	105	Peak	VERTICAL
2	4875.36	32.52	54.00	-21.48	27.70	6.08	33.66	34.92	126	105	Average	VERTICAL
3	7318.84	47.97	74.00	-26.03	38.17	8.30	36.69	35.19	166	103	Peak	VERTICAL
4	7320.96	36.04	54.00	-17.96	26.24	8.30	36.69	35.19	166	103	Average	VERTICAL

Temperature	26℃	Humidity	68%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 9 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	Oct. 17, 2014		

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	4901.20	32.62	54.00	-21.38	27.77	6.07	33.69	34.91	285	124	Average	HORIZONTAL
2	4906.68	45.12	74.00	-28.88	40.23	6.07	33.73	34.91	285	124	Peak	HORIZONTAL
3	7351.20	36.70	54.00	-17.30	26.81	8.32	36.77	35.20	147	118	Average	HORIZONTAL
4	7362.60	48.89	74.00	-25.11	38.99	8.34	36.77	35.21	147	118	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	4875.20	32.61	54.00	-21.39	27.79	6.08	33.66	34.92	185	119	Average	VERTICAL
2	4894.80	45.63	74.00	-28.37	40.78	6.07	33.69	34.91	185	119	Peak	VERTICAL
3	7346.32	36.61	54.00	-17.39	26.76	8.32	36.73	35.20	257	132	Average	VERTICAL
4	7346.32	49.93	74.00	-24.07	40.08	8.32	36.73	35.20	257	132	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.

Temperature	26°C	Humidity	68%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11b CH 1 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	Oct. 16, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4823.78	50.20	74.00	-23.80	46.14	5.87	33.39	35.20	Peak	130	324	HORIZONTAL
2	4823.97	43.49	54.00	-10.51	39.43	5.87	33.39	35.20	Average	130	324	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4823.98	51.74	54.00	-2.26	47.68	5.87	33.39	35.20	Average	168	259	VERTICAL
2	4824.00	54.97	74.00	-19.03	50.91	5.87	33.39	35.20	Peak	168	259	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11b CH 6 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	Oct. 17, 2014		

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	4873.80	48.74	74.00	-25.26	43.92	6.08	33.66	34.92	189	101	Peak	HORIZONTAL
2	4874.00	41.73	54.00	-12.27	36.91	6.08	33.66	34.92	189	101	Average	HORIZONTAL
3	7306.60	49.05	74.00	-24.95	39.32	8.28	36.64	35.19	79	141	Peak	HORIZONTAL
4	7312.64	36.04	54.00	-17.96	26.29	8.30	36.64	35.19	79	141	Average	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	4873.94	48.94	54.00	-5.06	44.12	6.08	33.66	34.92	272	100	Average	VERTICAL
2	4873.96	52.09	74.00	-21.91	47.27	6.08	33.66	34.92	272	100	Peak	VERTICAL
3	7309.92	36.95	54.00	-17.05	27.22	8.28	36.64	35.19	24	148	Average	VERTICAL
4	7318.20	48.60	74.00	-25.40	38.80	8.30	36.69	35.19	24	148	Peak	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11b CH 11 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	Oct. 16, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4924.00	46.81	54.00	-7.19	42.46	5.97	33.58	35.20	Average	198	301	HORIZONTAL
2	4924.14	51.84	74.00	-22.16	47.49	5.97	33.58	35.20	Peak	198	301	HORIZONTAL
3	7384.22	51.45	74.00	-22.55	43.13	7.17	36.61	35.46	Peak	100	96	HORIZONTAL
4	7385.33	37.24	54.00	-16.76	28.92	7.17	36.61	35.46	Average	100	96	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4923.97	56.81	74.00	-17.19	52.46	5.97	33.58	35.20	Peak	157	256	VERTICAL
2	4924.00	53.89	54.00	-0.11	49.54	5.97	33.58	35.20	Average	157	256	VERTICAL
3	7384.82	51.10	74.00	-22.90	42.78	7.17	36.61	35.46	Peak	153	259	VERTICAL
4	7386.89	38.25	54.00	-15.75	29.93	7.17	36.61	35.46	Average	153	259	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11g CH 1 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	Oct. 17, 2014		

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	4821.76	35.13	54.00	-18.87	30.38	6.11	33.56	34.92	48	101	Average	HORIZONTAL
2	4826.32	46.18	74.00	-27.82	41.43	6.11	33.56	34.92	48	101	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	4821.72	38.12	54.00	-15.88	33.37	6.11	33.56	34.92	262	161	Average	VERTICAL
2	4821.96	50.64	74.00	-23.36	45.89	6.11	33.56	34.92	262	161	Peak	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11g CH 6 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	Oct. 17, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4871.98	40.31	54.00	-13.69	36.11	5.92	33.48	35.20	Average	100	332	HORIZONTAL
2	4872.22	55.44	74.00	-18.56	51.24	5.92	33.48	35.20	Peak	100	332	HORIZONTAL
3	7297.35	50.67	74.00	-23.33	42.49	7.12	36.48	35.42	Peak	100	35	HORIZONTAL
4	7311.24	37.62	54.00	-16.38	29.41	7.13	36.51	35.43	Average	100	35	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4871.93	47.49	54.00	-6.51	43.29	5.92	33.48	35.20	Average	168	263	VERTICAL
2	4872.41	62.97	74.00	-11.03	58.77	5.92	33.48	35.20	Peak	168	263	VERTICAL
3	7309.70	52.76	74.00	-21.24	44.55	7.13	36.51	35.43	Peak	196	250	VERTICAL
4	7310.81	38.88	54.00	-15.12	30.67	7.13	36.51	35.43	Average	196	250	VERTICAL

Temperature	26℃	Humidity	68%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11g CH 11 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	Oct. 17, 2014		

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	4918.28	47.72	74.00	-26.28	42.85	6.05	33.73	34.91	32	100	Peak	HORIZONTAL
2	4921.20	34.80	54.00	-19.20	29.90	6.05	33.76	34.91	32	100	Average	HORIZONTAL
3	7387.44	51.45	74.00	-22.55	41.47	8.34	36.85	35.21	226	162	Peak	HORIZONTAL
4	7387.72	39.33	54.00	-14.67	29.35	8.34	36.85	35.21	226	162	Average	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	4920.84	48.76	74.00	-25.24	43.86	6.05	33.76	34.91	248	100	Peak	VERTICAL
2	4921.60	36.22	54.00	-17.78	31.32	6.05	33.76	34.91	248	100	Average	VERTICAL
3	7379.76	39.34	54.00	-14.66	29.40	8.34	36.81	35.21	123	162	Average	VERTICAL
4	7385.24	52.08	74.00	-21.92	42.10	8.34	36.85	35.21	123	162	Peak	VERTICAL

Note:

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

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

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

For Beamforming mode:

Temperature	26°C	Humidity	68%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 1 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	Oct. 24, 2014		

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	4817.08	31.58	54.00	-22.42	26.83	6.11	33.56	34.92	187	173	Average	HORIZONTAL
2	4817.31	44.44	74.00	-29.56	39.69	6.11	33.56	34.92	187	173	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	4814.22	31.56	54.00	-22.44	26.85	6.11	33.52	34.92	164	184	Average	VERTICAL
2	4819.92	44.25	74.00	-29.75	39.50	6.11	33.56	34.92	164	184	Peak	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 6 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	Oct. 24, 2014		

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	4873.57	44.32	74.00	-29.68	39.50	6.08	33.66	34.92	180	150	Peak	HORIZONTAL
2	4875.87	31.85	54.00	-22.15	27.03	6.08	33.66	34.92	180	150	Average	HORIZONTAL
3	7306.15	36.22	54.00	-17.78	26.49	8.28	36.64	35.19	228	115	Average	HORIZONTAL
4	7309.96	49.20	74.00	-24.80	39.47	8.28	36.64	35.19	228	115	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	4873.45	31.72	54.00	-22.28	26.90	6.08	33.66	34.92	216	176	Average	VERTICAL
2	4876.27	44.22	74.00	-29.78	39.40	6.08	33.66	34.92	216	176	Peak	VERTICAL
3	7312.98	36.24	54.00	-17.76	26.49	8.30	36.64	35.19	123	140	Average	VERTICAL
4	7315.28	48.61	74.00	-25.39	38.86	8.30	36.64	35.19	123	140	Peak	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 11 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	Oct. 24, 2014		

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	4924.84	30.91	54.00	-23.09	26.01	6.05	33.76	34.91	167	184	Average	HORIZONTAL
2	4926.66	44.62	74.00	-29.38	39.72	6.05	33.76	34.91	167	184	Peak	HORIZONTAL
3	7377.55	36.78	54.00	-17.22	26.84	8.34	36.81	35.21	190	157	Average	HORIZONTAL
4	7383.11	49.78	74.00	-24.22	39.84	8.34	36.81	35.21	190	157	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	4874.22	31.50	54.00	-22.50	26.68	6.08	33.66	34.92	280	134	Average	VERTICAL
2	4970.16	44.61	74.00	-29.39	39.62	6.02	33.87	34.90	280	134	Peak	VERTICAL
3	7378.59	36.73	54.00	-17.27	26.79	8.34	36.81	35.21	195	139	Average	VERTICAL
4	7394.57	49.63	74.00	-24.37	39.62	8.37	36.85	35.21	195	139	Peak	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 3 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	Oct. 24, 2014		

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	4850.37	31.29	54.00	-22.71	26.52	6.10	33.59	34.92	190	137	Average	HORIZONTAL
2	4853.99	44.87	74.00	-29.13	40.07	6.10	33.62	34.92	190	137	Peak	HORIZONTAL
3	7268.40	36.31	54.00	-17.69	26.68	8.26	36.56	35.19	250	150	Average	HORIZONTAL
4	7270.43	49.13	74.00	-24.87	39.50	8.26	36.56	35.19	250	150	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	4839.98	43.91	74.00	-30.09	39.14	6.10	33.59	34.92	145	170	Peak	VERTICAL
2	4851.55	31.21	54.00	-22.79	26.41	6.10	33.62	34.92	145	170	Average	VERTICAL
3	7257.03	49.73	74.00	-24.27	40.15	8.24	36.52	35.18	242	103	Peak	VERTICAL
4	7275.61	36.23	74.00	-37.77	26.60	8.26	36.56	35.19	242	103	Peak	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 6 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	Oct. 24, 2014		

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	4873.62	32.01	54.00	-21.99	27.19	6.08	33.66	34.92	59	117	Average	HORIZONTAL
2	4874.72	44.54	74.00	-29.46	39.72	6.08	33.66	34.92	59	117	Peak	HORIZONTAL
3	7303.74	36.69	54.00	-17.31	26.96	8.28	36.64	35.19	227	182	Average	HORIZONTAL
4	7315.46	49.11	74.00	-24.89	39.36	8.30	36.64	35.19	227	182	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	4871.77	32.01	54.00	-21.99	27.19	6.08	33.66	34.92	298	241	Average	VERTICAL
2	4875.48	44.49	74.00	-29.51	39.67	6.08	33.66	34.92	298	241	Peak	VERTICAL
3	7302.35	36.69	54.00	-17.31	26.96	8.28	36.64	35.19	175	132	Average	VERTICAL
4	7314.30	49.08	74.00	-24.92	39.33	8.30	36.64	35.19	175	132	Peak	VERTICAL

Temperature	26℃	Humidity	68%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 9 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	Oct. 24, 2014		

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	4897.37	31.54	54.00	-22.46	26.69	6.07	33.69	34.91	118	154	Average	HORIZONTAL
2	4902.12	44.21	74.00	-29.79	39.32	6.07	33.73	34.91	118	154	Peak	HORIZONTAL
3	7350.73	50.34	74.00	-23.66	40.45	8.32	36.77	35.20	282	174	Peak	HORIZONTAL
4	7354.15	37.33	54.00	-16.67	27.44	8.32	36.77	35.20	282	174	Average	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	4900.27	44.44	74.00	-29.56	39.59	6.07	33.69	34.91	207	170	Peak	VERTICAL
2	4901.57	31.76	54.00	-22.24	26.87	6.07	33.73	34.91	207	170	Average	VERTICAL
3	7352.79	50.36	74.00	-23.64	40.47	8.32	36.77	35.20	50	171	Peak	VERTICAL
4	7365.12	37.29	54.00	-16.71	27.39	8.34	36.77	35.21	50	171	Average	VERTICAL

Note:

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

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

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

4.6. 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:

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

For Radiated Out of Band Emission Measurement:

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

4.6.4. Test Setup Layout

For Radiated band edges Measurement:

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

For Radiated Out of Band Emission Measurement:

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

4.6.5. Test Deviation

There is no deviation with the original standard.

4.6.6. EUT Operation during Test

For non-beamforming 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 Non-Beamforming mode:

Temperature	26°C	Humidity	68%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 1, 6, 11 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	Oct. 16, 2014		

Channel 1

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2386.96	73.03	74.00	-0.97	40.89	4.09	28.05	0.00	Peak	215	351	VERTICAL
2	2390.00	53.79	54.00	-0.21	21.65	4.09	28.05	0.00	Average	215	351	VERTICAL
3	2411.52	108.86			76.66	4.11	28.09	0.00	Average	215	351	VERTICAL
4	2411.52	119.55			87.35	4.11	28.09	0.00	Peak	215	351	VERTICAL

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

Channel 6

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2387.44	69.86	74.00	-4.14	37.72	4.09	28.05	0.00	Peak	199	357	VERTICAL
2	2390.00	53.48	54.00	-0.52	21.34	4.09	28.05	0.00	Average	199	357	VERTICAL
3	2436.36	113.35			81.05	4.12	28.18	0.00	Average	199	357	VERTICAL
4	2436.36	123.62			91.32	4.12	28.18	0.00	Peak	199	357	VERTICAL
5	2483.50	51.66	54.00	-2.34	19.24	4.16	28.26	0.00	Average	199	357	VERTICAL
6	2483.50	65.30	74.00	-8.70	32.88	4.16	28.26	0.00	Peak	199	357	VERTICAL

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

Channel 11

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2466.81	106.94			74.58	4.14	28.22	0.00	Average	164	9	VERTICAL
2	2466.97	117.41			85.05	4.14	28.22	0.00	Peak	164	9	VERTICAL
3	2483.50	53.97	54.00	-0.03	21.55	4.16	28.26	0.00	Average	164	9	VERTICAL
4	2485.90	73.97	74.00	-0.03	41.51	4.16	28.30	0.00	Peak	164	9	VERTICAL

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

Temperature	26℃	Humidity	68%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 3, 6, 9 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	Oct. 16, 2014		

Channel 3

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2386.47	53.69	54.00	-0.31	21.55	4.09	28.05	0.00	Average	210	324	VERTICAL
2	2387.44	67.74	74.00	-6.26	35.60	4.09	28.05	0.00	Peak	210	324	VERTICAL
3	2426.49	102.09			69.84	4.12	28.13	0.00	Average	210	324	VERTICAL
4	2426.49	113.64			81.39	4.12	28.13	0.00	Peak	210	324	VERTICAL

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

Channel 6

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2386.47	51.70	54.00	-2.30	19.56	4.09	28.05	0.00	Average	191	359	VERTICAL
2	2387.12	68.33	74.00	-5.67	36.19	4.09	28.05	0.00	Peak	191	359	VERTICAL
3	2431.55	105.19				4.12	28.13	0.00	Average	191	359	VERTICAL
4	2431.55	116.27				4.12	28.13	0.00	Peak	191	359	VERTICAL
5	2486.39	53.81	54.00	-0.19	21.35	4.16	28.30	0.00	Average	191	359	VERTICAL
6	2486.71	70.83	74.00	-3.17	38.37	4.16	28.30	0.00	Peak	191	359	VERTICAL

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

Channel 9

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2466.74	100.18			67.82	4.14	28.22	0.00	Average	165	11	VERTICAL
2	2467.06	111.51			79.15	4.14	28.22	0.00	Peak	165	11	VERTICAL
3	2486.71	53.85	54.00	-0.15	21.39	4.16	28.30	0.00	Average	165	11	VERTICAL
4	2491.67	69.83	74.00	-4.17	37.36	4.17	28.30	0.00	Peak	165	11	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.

Temperature	26°C	Humidity	68%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11b CH 1, 6, 11 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	Oct. 16, 2014		

Channel 1

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2373.01	49.30	54.00	-4.70	17.21	4.08	28.01	0.00	Average	179	6	VERTICAL
2	2373.01	59.57	74.00	-14.43	27.48	4.08	28.01	0.00	Peak	179	6	VERTICAL
3	2411.36	116.42			84.22	4.11	28.09	0.00	Average	179	6	VERTICAL
4	2411.36	120.12			87.92	4.11	28.09	0.00	Peak	179	6	VERTICAL
5	2491.03	53.67	54.00	-0.33	21.20	4.17	28.30	0.00	Average	179	6	VERTICAL
6	2491.99	63.79	74.00	-10.21	31.32	4.17	28.30	0.00	Peak	179	6	VERTICAL

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

Channel 6

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	2390.00	47.34	54.00	-6.66	14.44	4.41	28.49	0.00	14	175	Average	VERTICAL
2	2390.00	58.95	74.00	-15.05	26.05	4.41	28.49	0.00	14	175	Peak	VERTICAL
3	2436.20	118.27			85.27	4.44	28.56	0.00	14	175	Average	VERTICAL
4	2436.20	122.27			89.27	4.44	28.56	0.00	14	175	Peak	VERTICAL
5	2483.50	50.95	54.00	-3.05	17.77	4.51	28.67	0.00	14	175	Average	VERTICAL
6	2486.70	64.05	74.00	-9.95	30.87	4.51	28.67	0.00	14	175	Peak	VERTICAL

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

Channel 11

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2381.35	52.86	54.00	-1.14	20.77	4.08	28.01	0.00	Average	171	6	VERTICAL
2	2383.27	62.13	74.00	-11.87	30.00	4.08	28.05	0.00	Peak	171	6	VERTICAL
3	2462.64	116.63			84.27	4.14	28.22	0.00	Average	171	6	VERTICAL
4	2462.96	120.41			88.05	4.14	28.22	0.00	Peak	171	6	VERTICAL
5	2500.00	53.75	54.00	-0.25	21.28	4.17	28.30	0.00	Average	171	6	VERTICAL
6	2500.00	63.29	74.00	-10.71	30.82	4.17	28.30	0.00	Peak	171	6	VERTICAL

Item 3, 4 are the fundamental frequency at 2462 MHz.

Temperature	26℃	Humidity	68%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11g CH 1, 6, 11 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	Oct. 16, 2014		

Channel 1

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2389.68	71.79	74.00	-2.21	39.65	4.09	28.05	0.00	Peak	211	359	VERTICAL
2	2390.00	53.73	54.00	-0.27	21.59	4.09	28.05	0.00	Average	211	359	VERTICAL
3	2410.88	119.29			87.09	4.11	28.09	0.00	Peak	211	359	VERTICAL
4	2411.04	108.89			76.69	4.11	28.09	0.00	Average	211	359	VERTICAL

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

Channel 6

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2390.00	49.76	54.00	-4.24	17.62	4.09	28.05	0.00	Average	201	8	VERTICAL
2	2390.00	67.87	74.00	-6.13	35.73	4.09	28.05	0.00	Peak	201	8	VERTICAL
3	2436.04	113.08			80.78	4.12	28.18	0.00	Average	201	8	VERTICAL
4	2436.36	123.30			91.00	4.12	28.18	0.00	Peak	201	8	VERTICAL
5	2485.10	52.15	54.00	-1.85	19.69	4.16	28.30	0.00	Average	8955	8	VERTICAL
6	2486.71	65.60	74.00	-8.40	33.14	4.16	28.30	0.00	Peak	201	8	VERTICAL

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

Channel 11

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2461.52	106.52			74.16	4.14	28.22	0.00	Average	172	13	VERTICAL
2	2461.52	116.49			84.13	4.14	28.22	0.00	Peak	172	13	VERTICAL
3	2483.50	53.85	54.00	-0.15	21.43	4.16	28.26	0.00	Average	172	13	VERTICAL
4	2483.50	71.13	74.00	-2.87	38.71	4.16	28.26	0.00	Peak	172	13	VERTICAL

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

Note:

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

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

For Beamforming mode:

Temperature	26°C	Humidity	68%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 1, 6, 11 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	Oct. 24, 2014		

Channel 1

	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	2387.97	72.80	74.00	-1.20	39.94	4.37	28.49	0.00	324	210	Peak	VERTICAL
2	2390.00	53.82	54.00	-0.18	20.92	4.41	28.49	0.00	324	210	Average	VERTICAL
3	2419.38	121.38			88.41	4.44	28.53	0.00	324	210	Peak	VERTICAL
4	2420.10	111.57			78.57	4.44	28.56	0.00	324	210	Average	VERTICAL

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

Channel 6

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	2389.13	64.68	74.00	-9.32	31.82	4.37	28.49	0.00	303	226	Peak	VERTICAL
2	2390.00	51.48	54.00	-2.52	18.58	4.41	28.49	0.00	303	226	Average	VERTICAL
3	2428.61	113.71			80.71	4.44	28.56	0.00	303	226	Average	VERTICAL
4	2428.90	123.05			90.05	4.44	28.56	0.00	303	226	Peak	VERTICAL
5	2483.50	66.50	74.00	-7.50	33.32	4.51	28.67	0.00	303	226	Peak	VERTICAL
6	2484.08	53.44	54.00	-0.56	20.26	4.51	28.67	0.00	303	226	Average	VERTICAL

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

Channel 11

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	2469.67	118.76			85.62	4.51	28.63	0.00	324	241	Peak	VERTICAL
2	2469.81	108.79			75.65	4.51	28.63	0.00	324	241	Average	VERTICAL
3	2483.79	53.78	54.00	-0.22	20.60	4.51	28.67	0.00	324	241	Average	VERTICAL
4	2484.22	71.32	74.00	-2.68	38.14	4.51	28.67	0.00	324	241	Peak	VERTICAL

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

Temperature	26℃	Humidity	68%
Test Engineer	Lucas Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 3, 6, 9 / Ant. 1 + Ant. 2 + Ant. 3
Test Date	Oct. 16, 2014		

Channel 3

	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	2389.71	66.33	74.00	-7.67	33.47	4.37	28.49	0.00	305	194	Peak	VERTICAL
2	2390.00	53.77	54.00	-0.23	20.87	4.41	28.49	0.00	305	194	Average	VERTICAL
3	2415.63	116.52			83.55	4.44	28.53	0.00	305	194	Peak	VERTICAL
4	2415.92	106.07			73.10	4.44	28.53	0.00	305	194	Average	VERTICAL

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

Channel 6

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	2389.42	66.47	74.00	-7.53	33.61	4.37	28.49	0.00	271	216	Peak	VERTICAL
2	2389.71	48.59	54.00	-5.41	15.73	4.37	28.49	0.00	271	216	Average	VERTICAL
3	2419.63	105.90			72.90	4.44	28.56	0.00	271	216	Average	VERTICAL
4	2423.40	116.48			83.48	4.44	28.56	0.00	271	216	Peak	VERTICAL
5	2483.50	53.61	54.00	-0.39	20.43	4.51	28.67	0.00	271	216	Average	VERTICAL
6	2484.95	71.71	74.00	-2.29	38.53	4.51	28.67	0.00	271	216	Peak	VERTICAL

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

Channel 9

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	2458.66	104.35			71.24	4.48	28.63	0.00	325	218	Average	VERTICAL
2	2458.95	115.91			82.80	4.48	28.63	0.00	325	218	Peak	VERTICAL
3	2483.50	69.94	74.00	-4.06	36.76	4.51	28.67	0.00	325	218	Peak	VERTICAL
4	2484.95	53.67	54.00	-0.33	20.49	4.51	28.67	0.00	325	218	Average	VERTICAL

Item 3, 4 are the fundamental frequency at 2452 MHz.

Note:

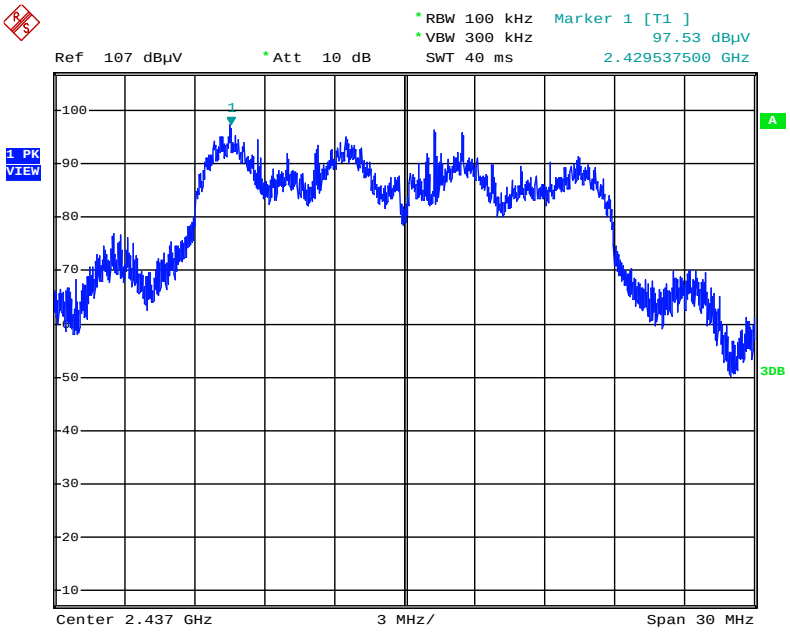
Emission level (dBuV/m) = 20 log Emission level (uV/m).

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

For Emission not in Restricted Band

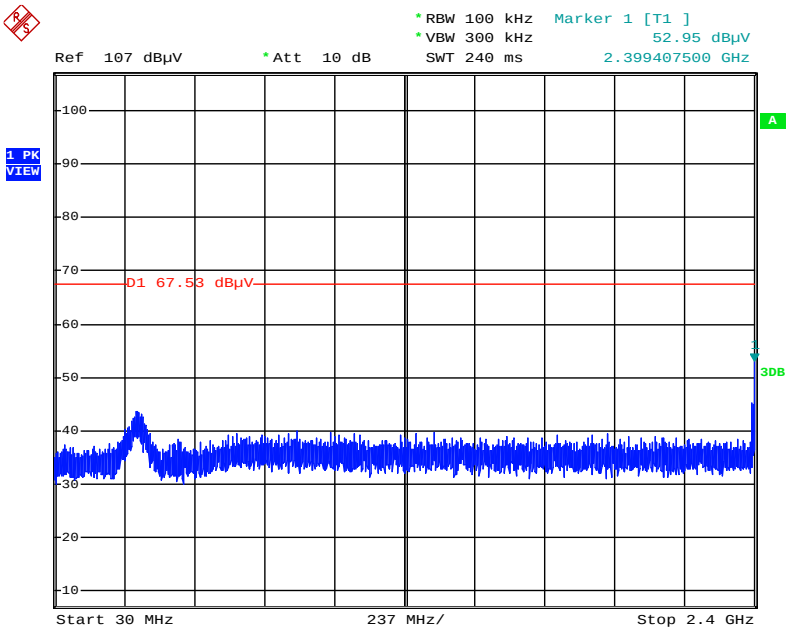
For Non-Beamforming mode:

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



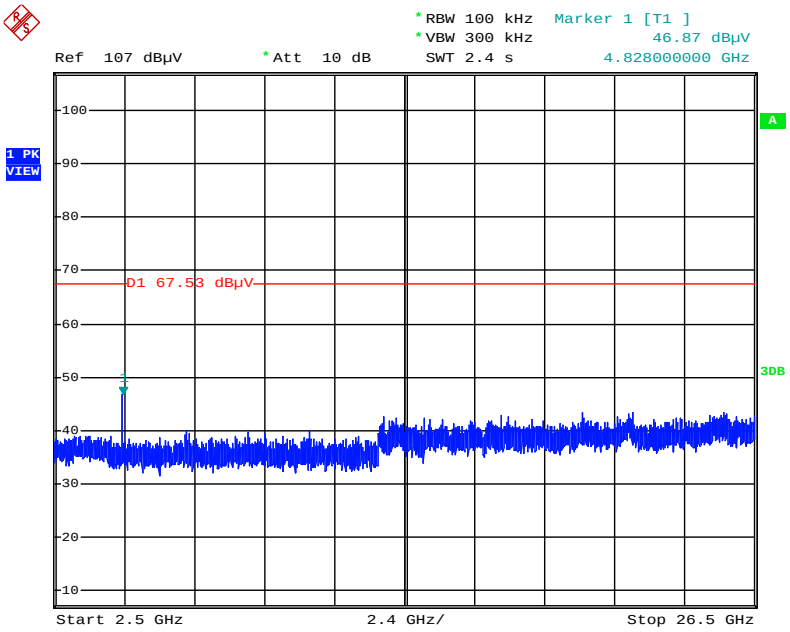
Date: 17.OCT.2014 14:46:23

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



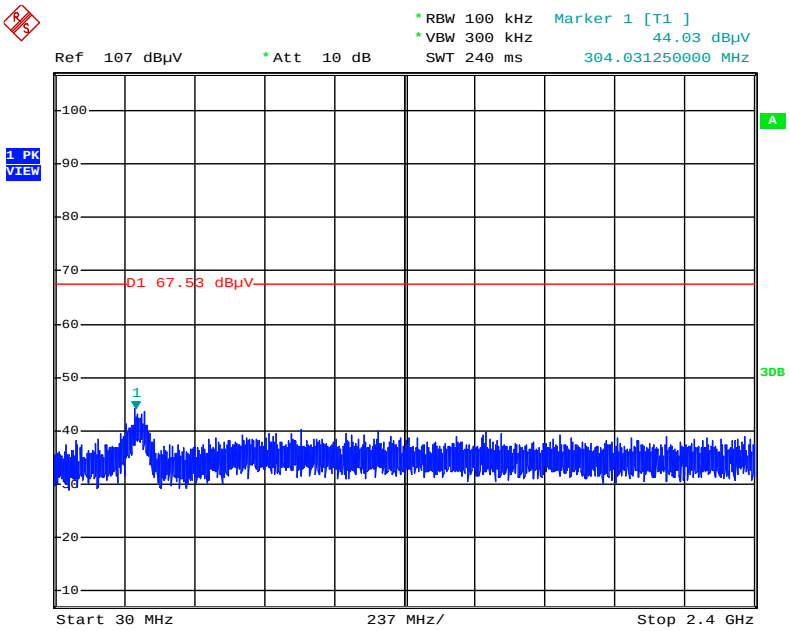
Date: 17.OCT.2014 14:47:49

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 1 / 2500MHz~26500MHz (down 30dBc)



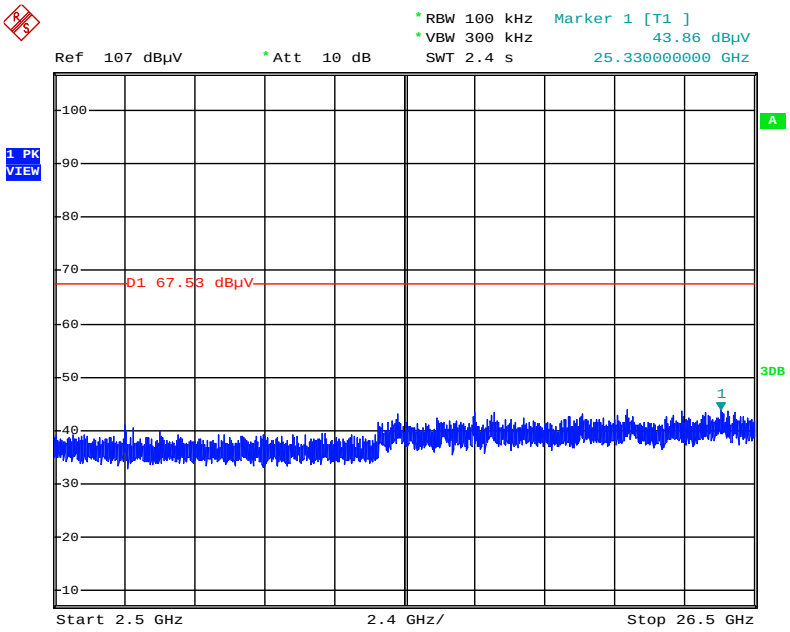
Date: 17.OCT.2014 14:48:27

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



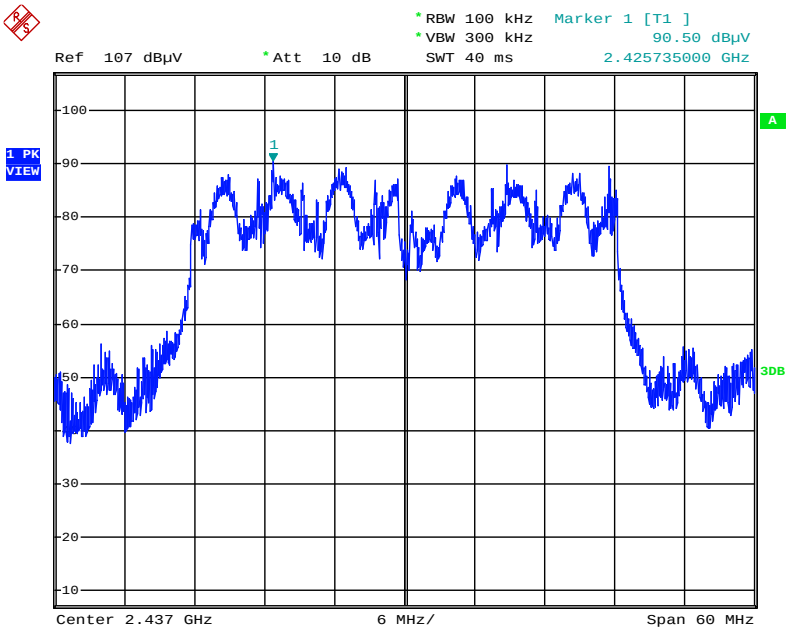
Date: 17.OCT.2014 14:49:37

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 11 / 2500MHz~26500MHz (down 30dBc)



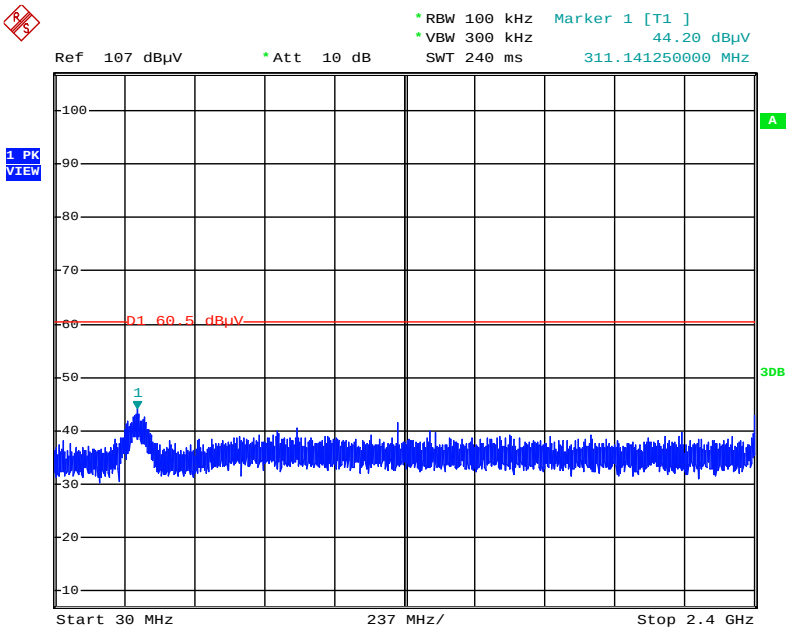
Date: 17.OCT.2014 14:49:10

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



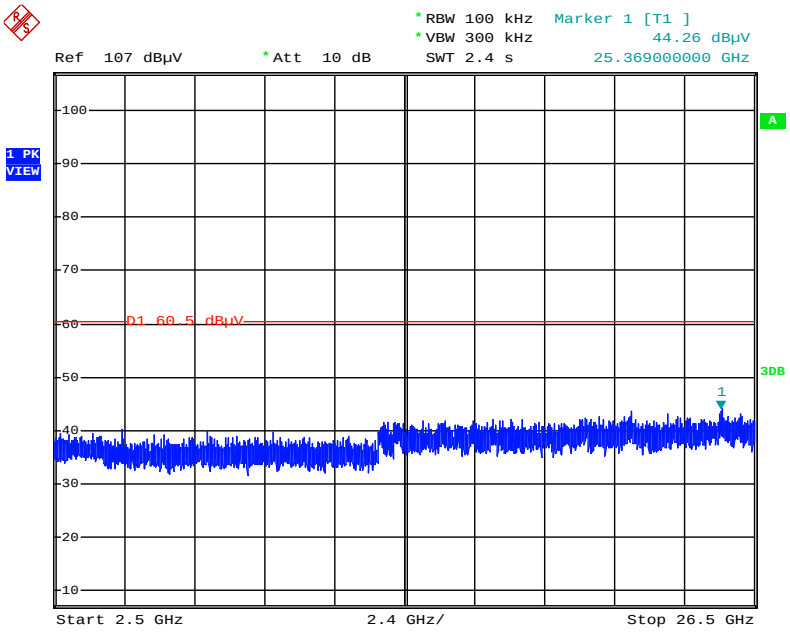
Date: 17.OCT.2014 14:56:23

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



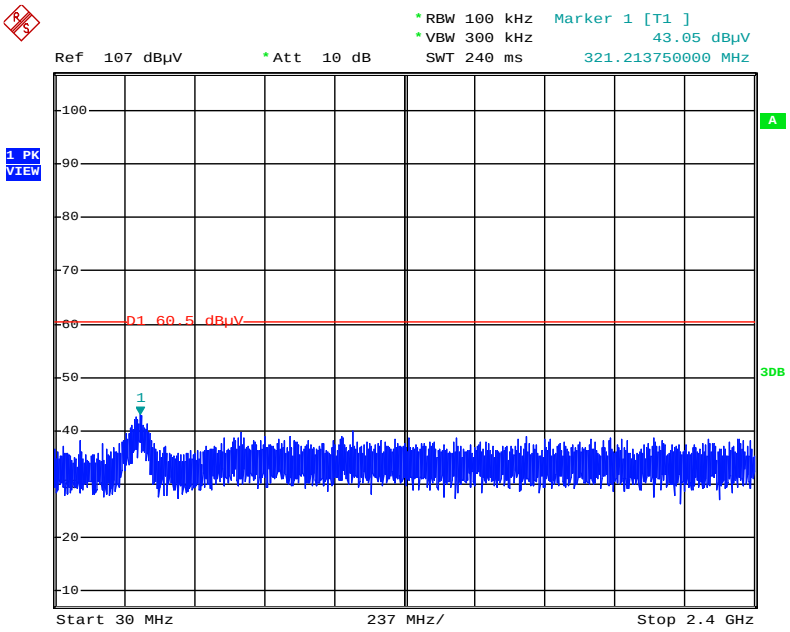
Date: 17.OCT.2014 14:57:55

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 3 / 2500MHz~26500MHz (down 30dBc)



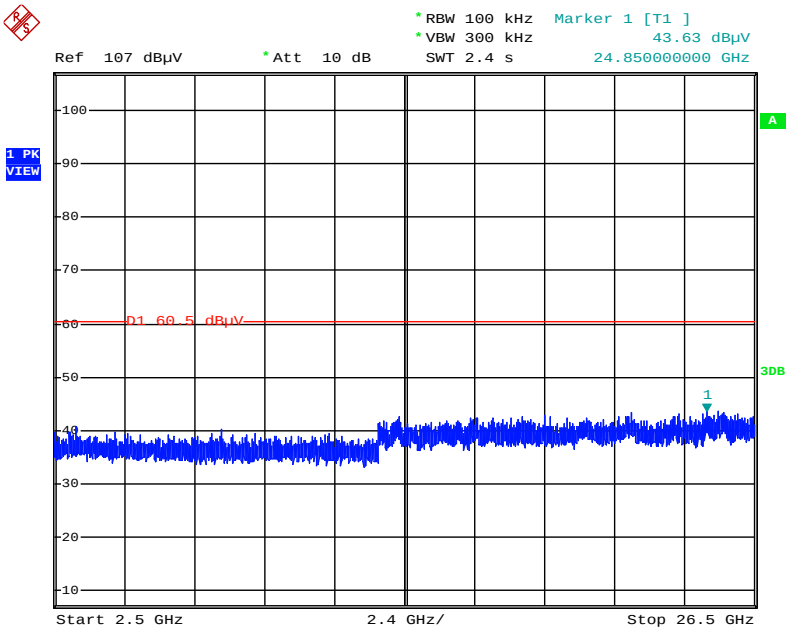
Date: 17.OCT.2014 14:58:22

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



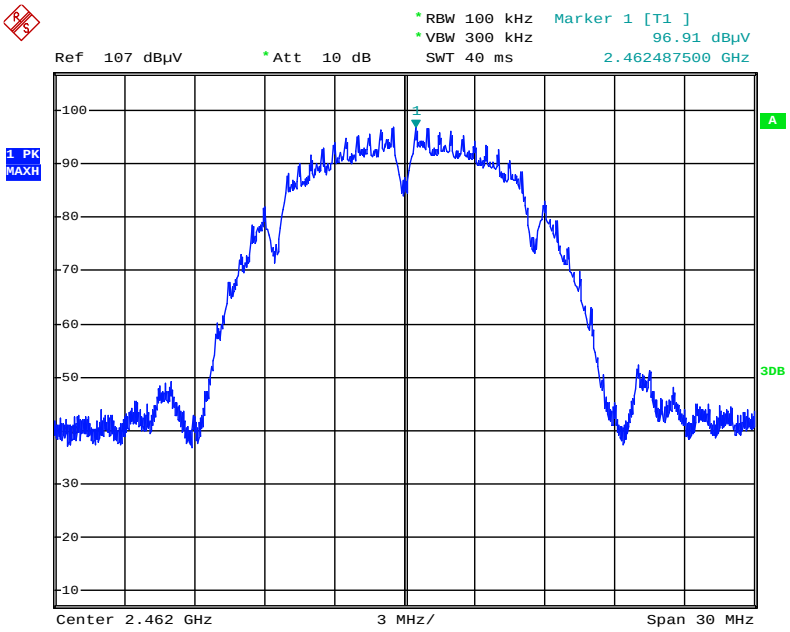
Date: 17.OCT.2014 14:59:23

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 9 / 2500MHz~26500MHz (down 30dBc)



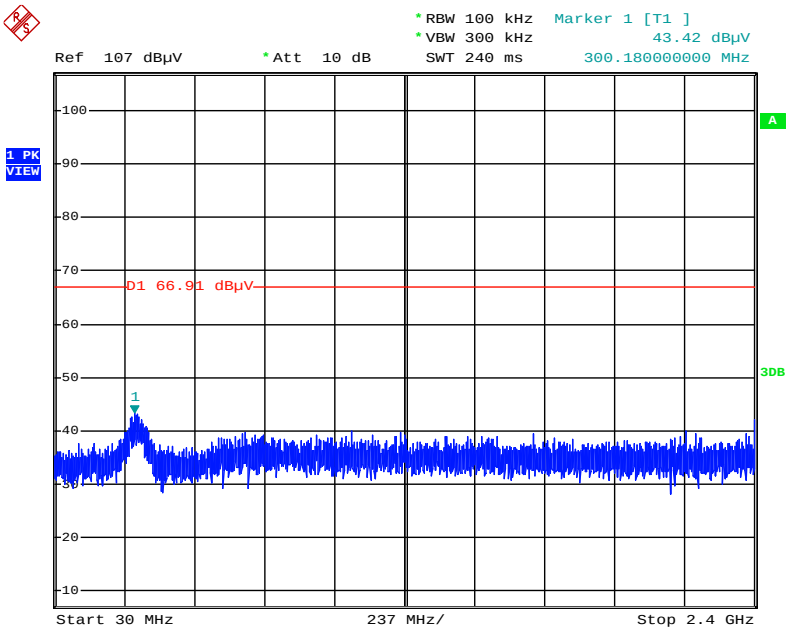
Date: 17.OCT.2014 14:58:56

Plot on Configuration IEEE 802.11b / Reference Level



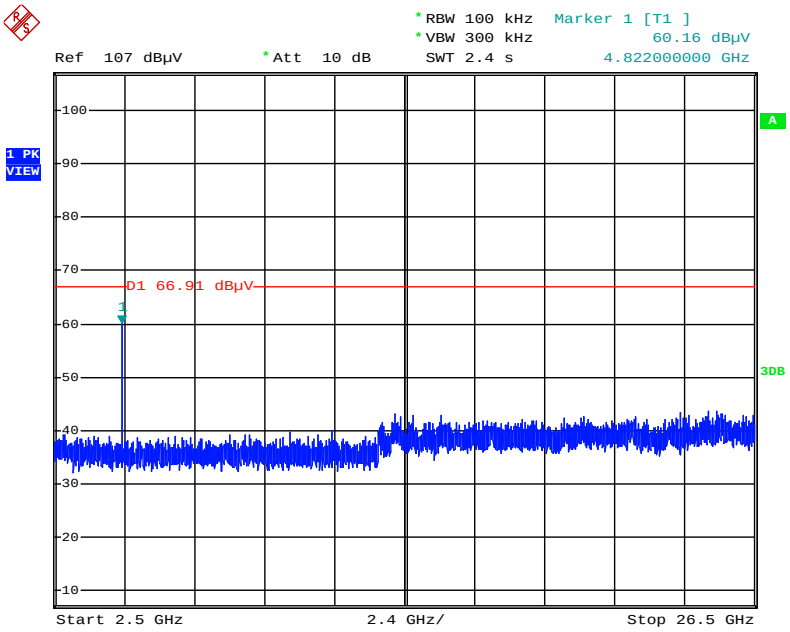
Date: 17.OCT.2014 12:18:15

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



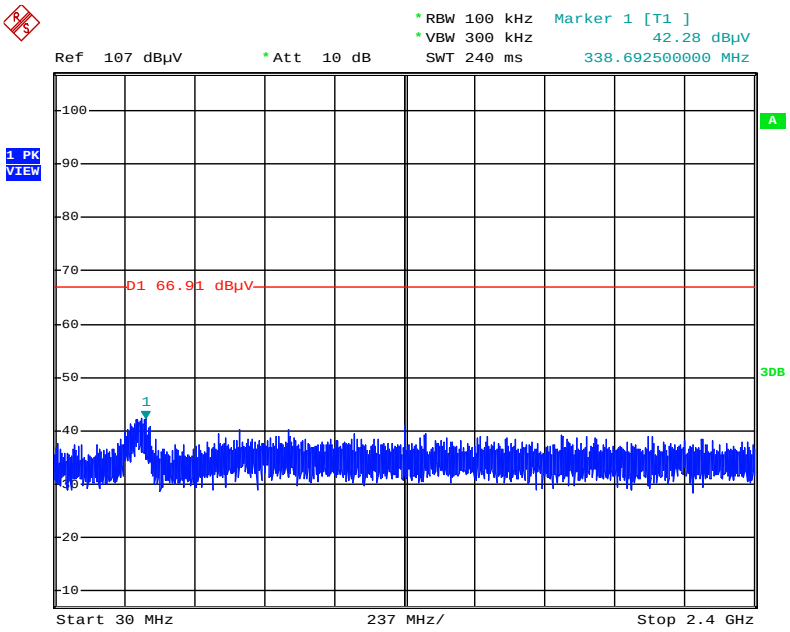
Date: 17.OCT.2014 14:23:44

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



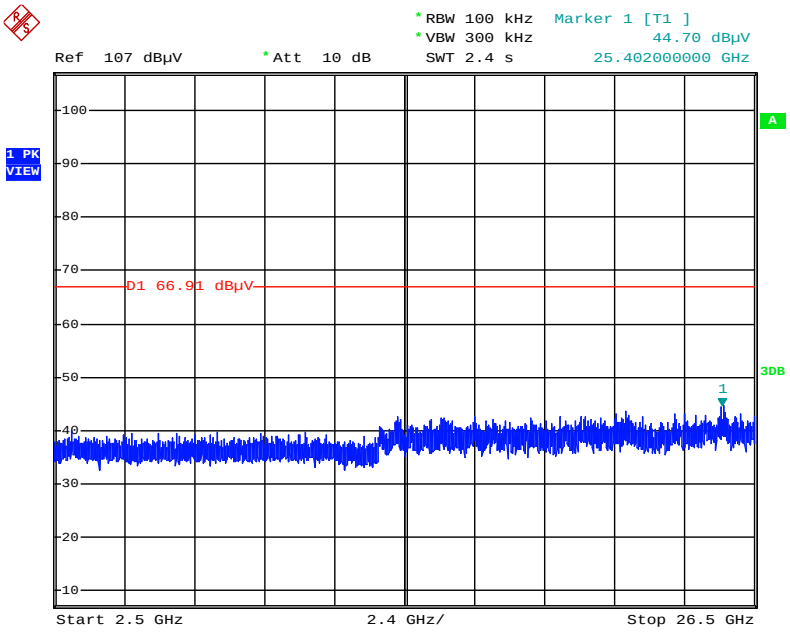
Date: 17.OCT.2014 14:22:15

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



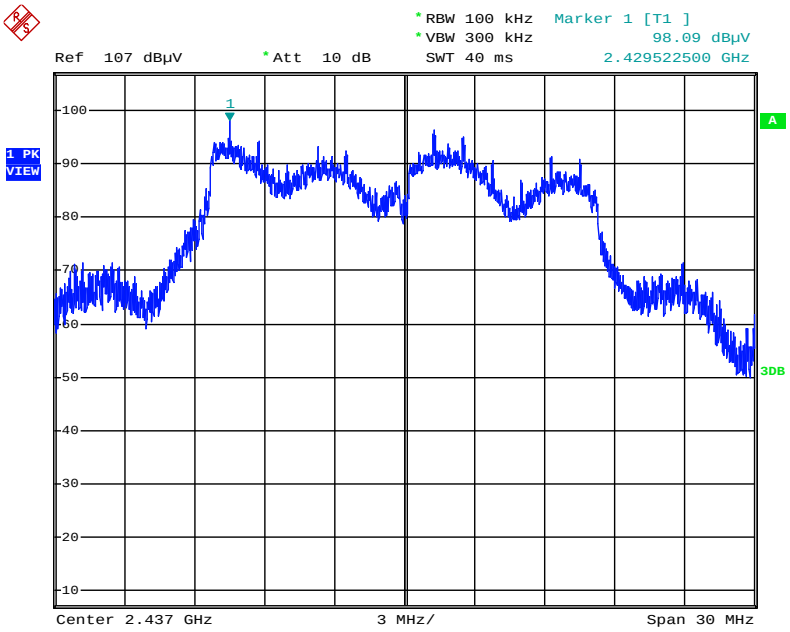
Date: 17.OCT.2014 14:24:23

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



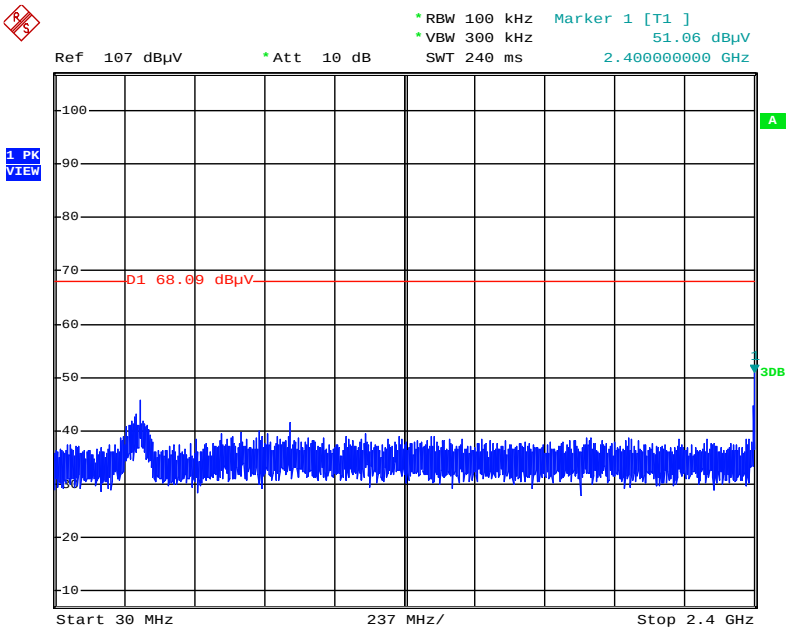
Date: 17.OCT.2014 14:26:27

Plot on Configuration IEEE 802.11g / Reference Level



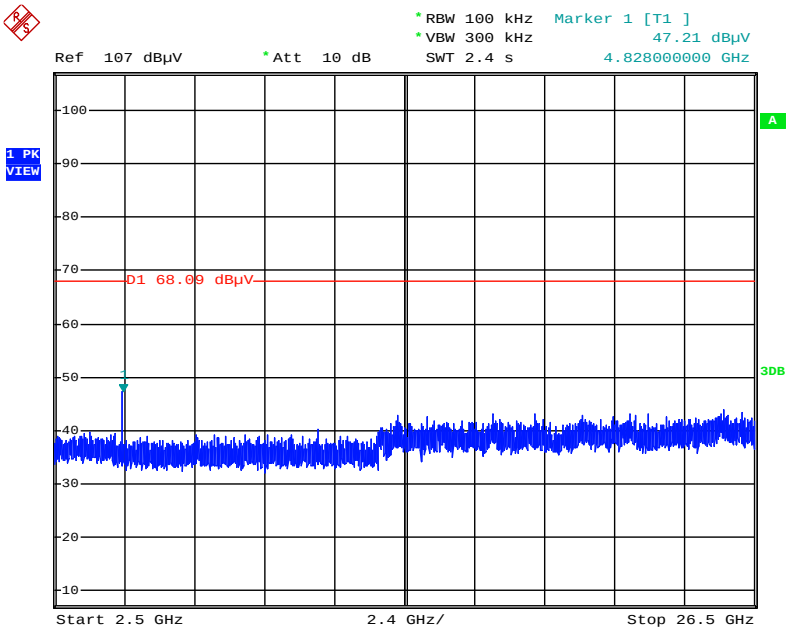
Date: 17.OCT.2014 14:36:15

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



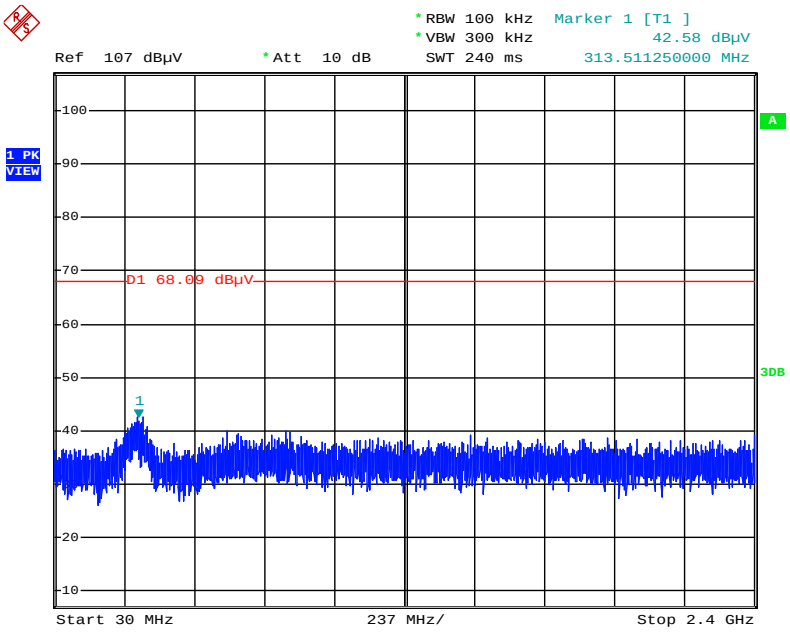
Date: 17.OCT.2014 14:37:56

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



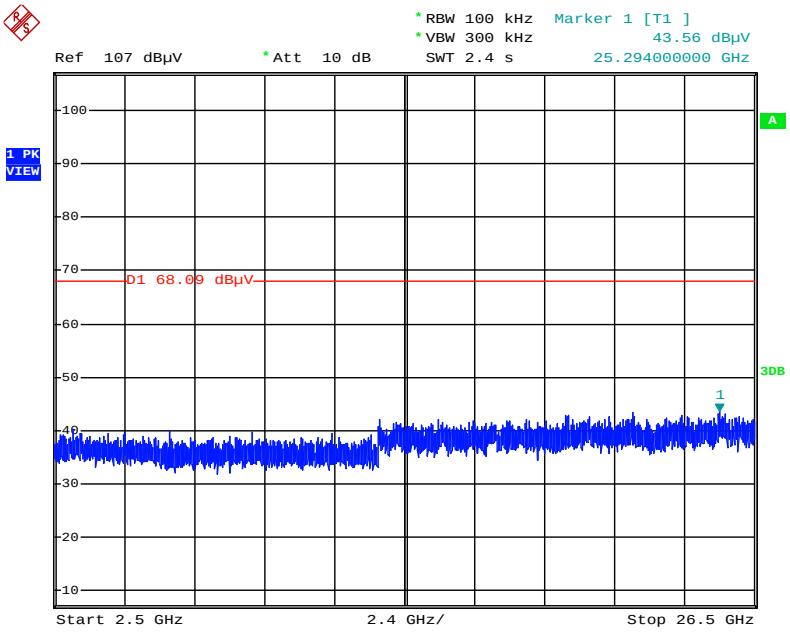
Date: 17.OCT.2014 14:39:12

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



Date: 17.OCT.2014 14:40:50

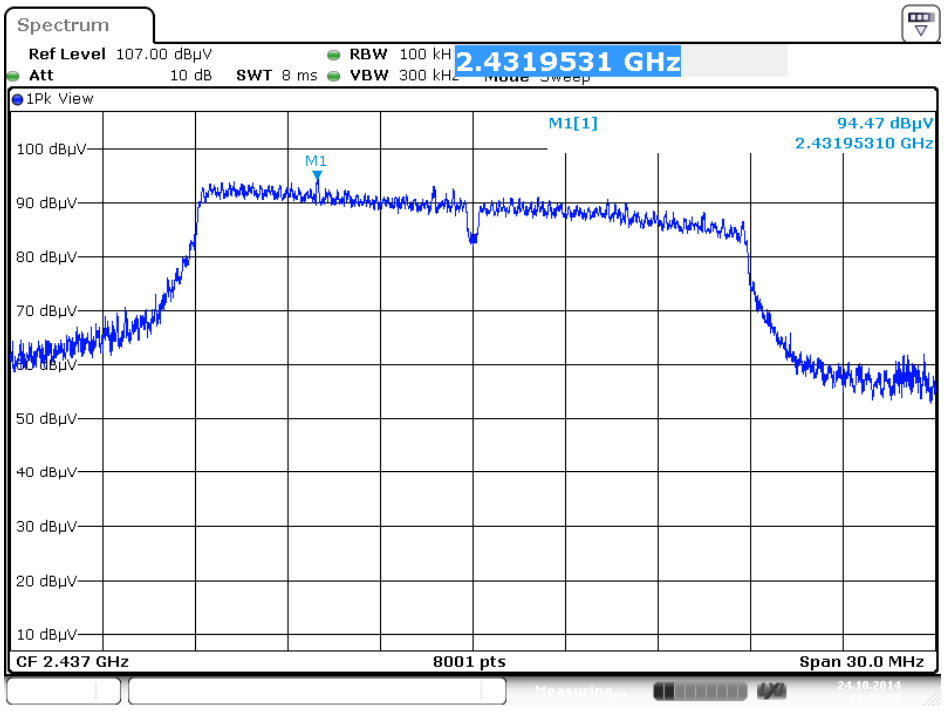
Plot on Configuration IEEE 802.11g / CH 11 / 2500MHz~26500MHz (down 30dBc)



Date: 17.OCT.2014 14:40:15

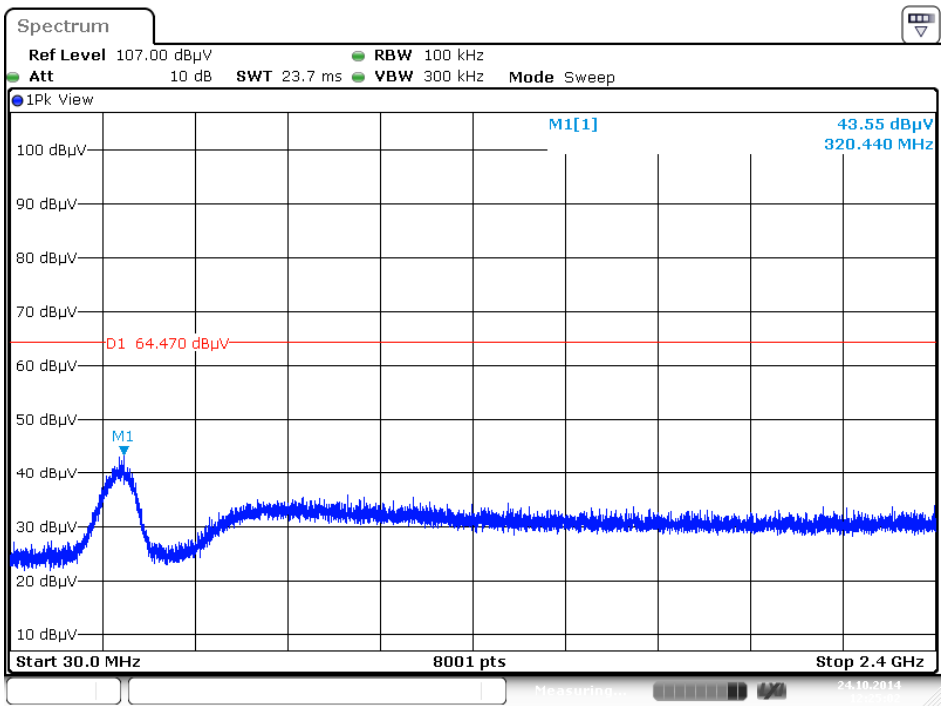
For Non-Beamforming mode:

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



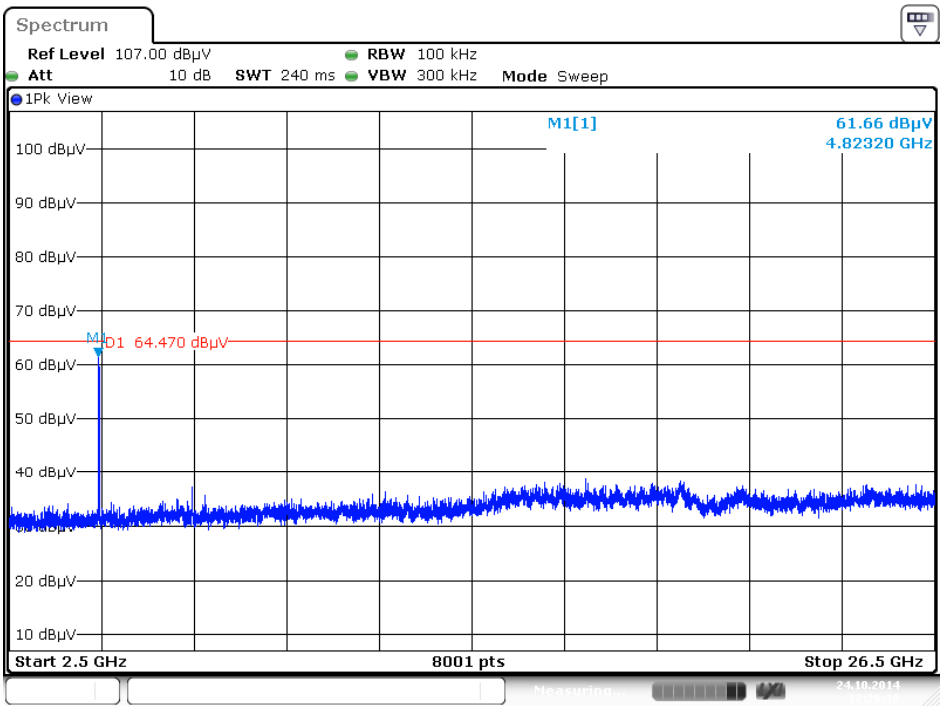
Date: 24.OCT.2014 12:23:57

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



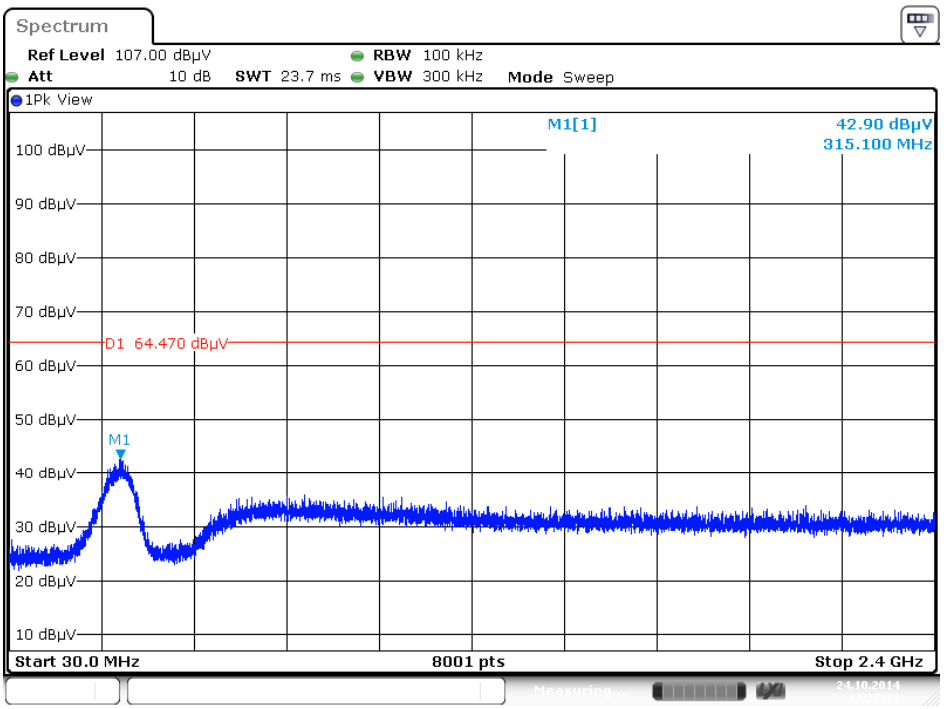
Date: 24.OCT.2014 12:25:02

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 1 / 2500MHz~26500MHz (down 30dBc)



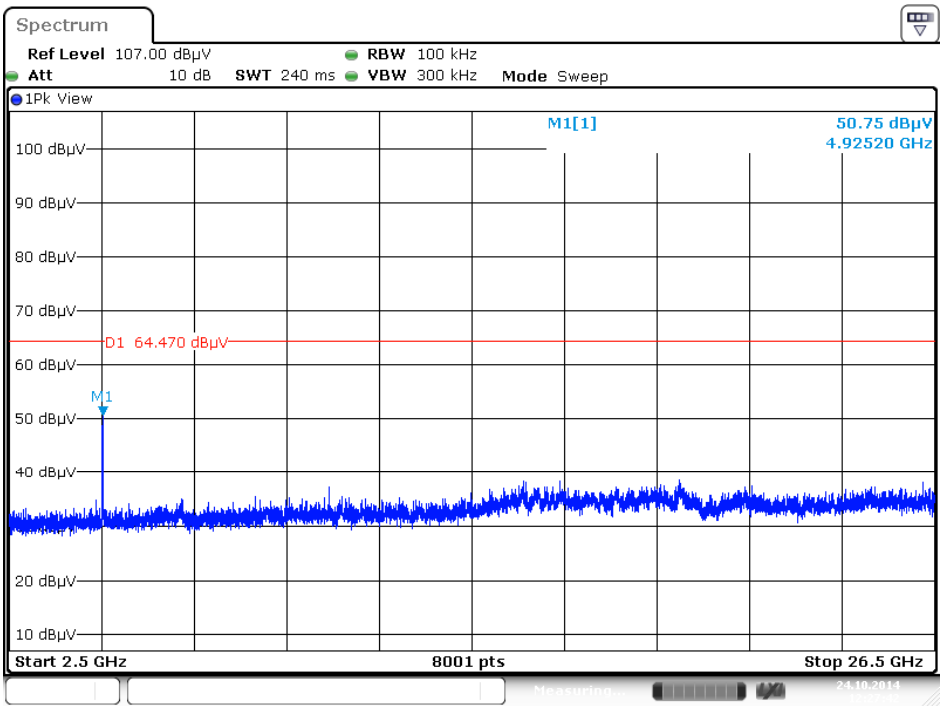
Date: 24.OCT.2014 12:26:18

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



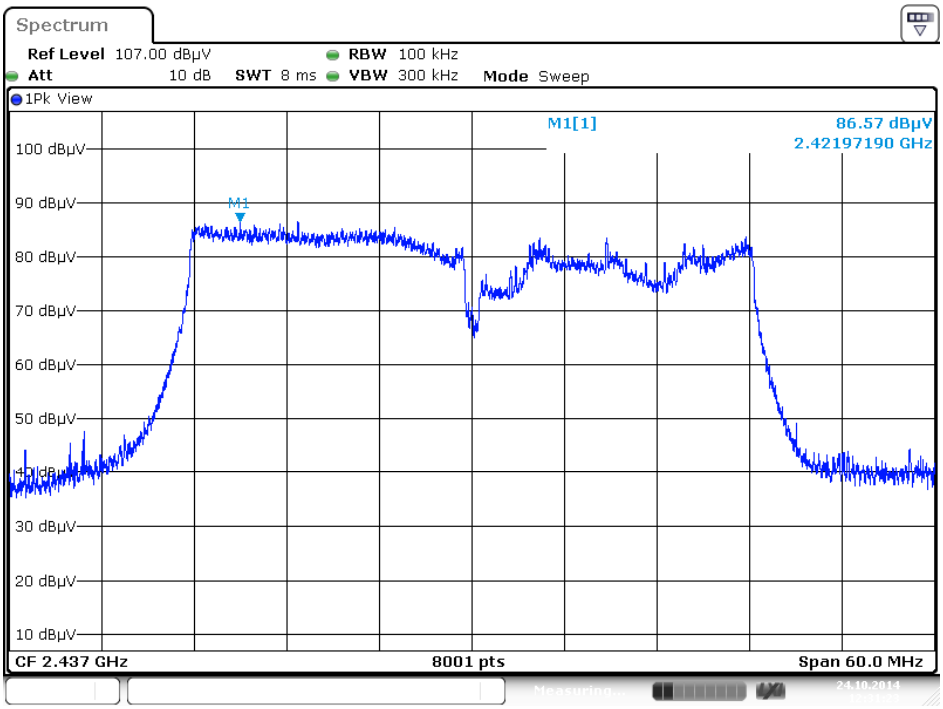
Date: 24.OCT.2014 12:27:14

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 11 / 2500MHz~26500MHz (down 30dBc)



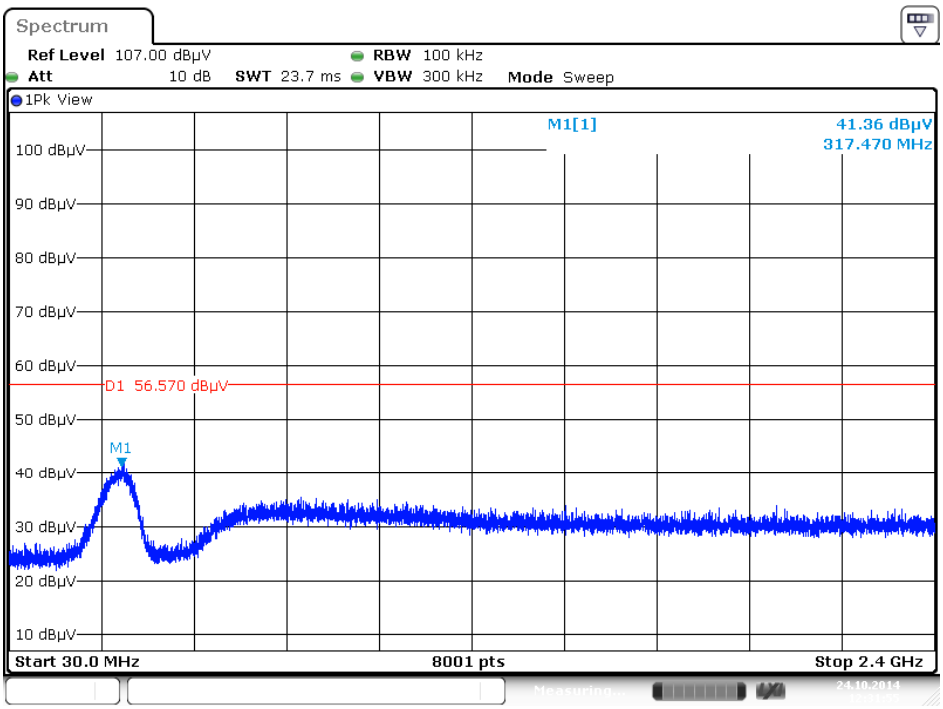
Date: 24.OCT.2014 12:27:42

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



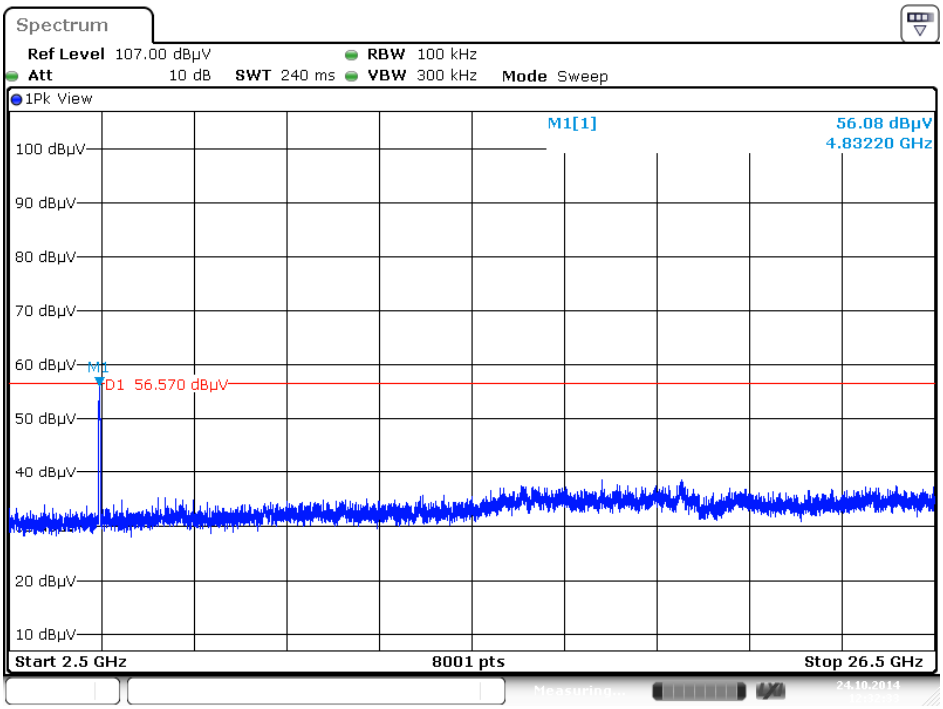
Date: 24.OCT.2014 12:31:23

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



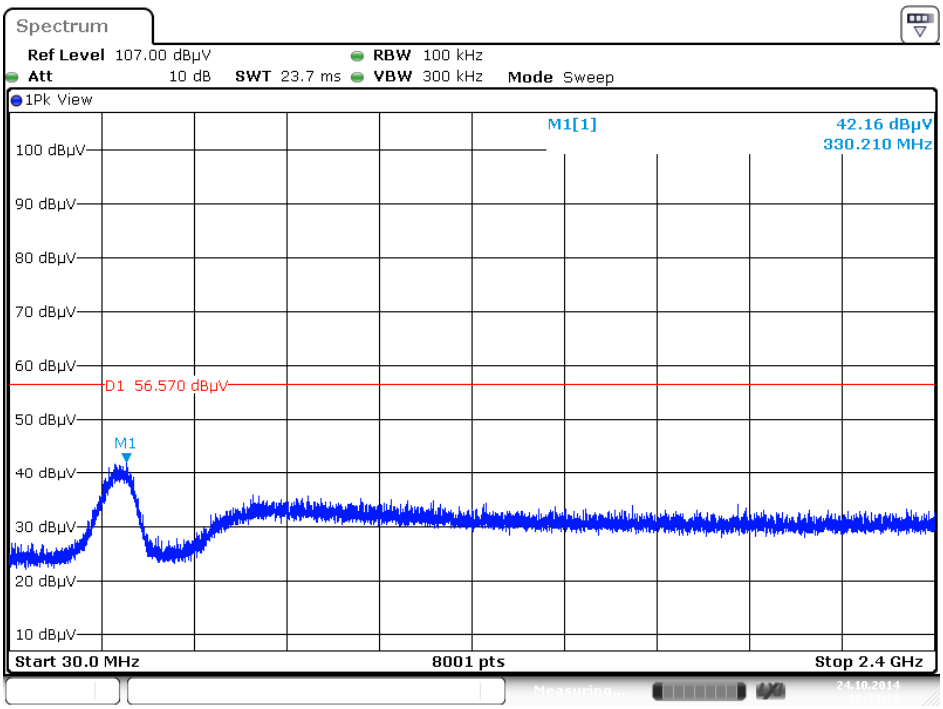
Date: 24.OCT.2014 12:31:56

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 3 / 2500MHz~26500MHz (down 30dBc)



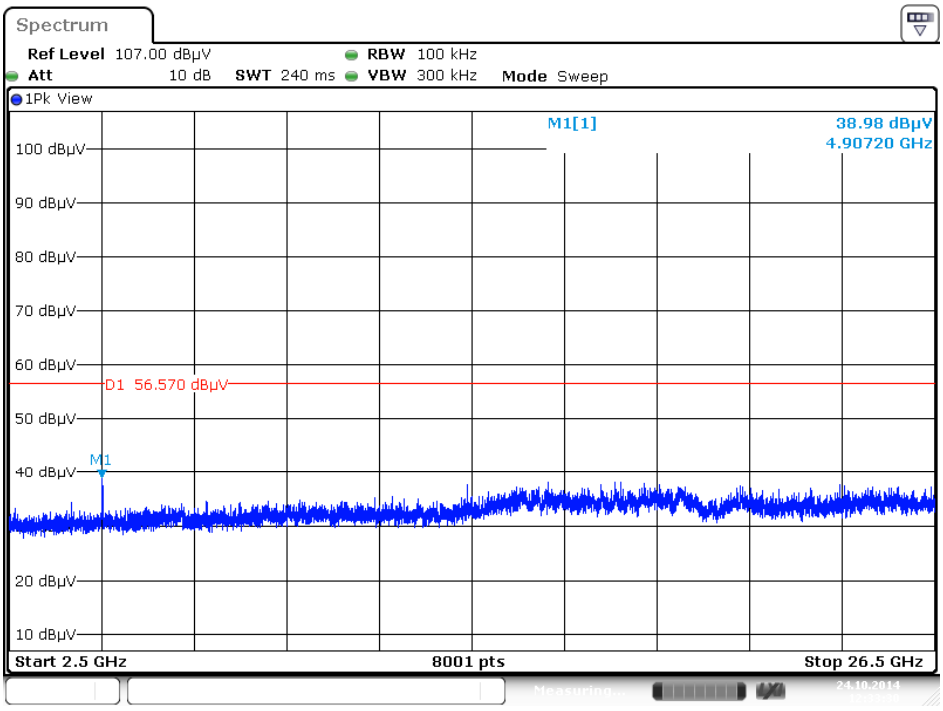
Date: 24.OCT.2014 12:32:33

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



Date: 24.OCT.2014 12:33:11

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 9 / 2500MHz~26500MHz (down 30dBc)



Date: 24.OCT.2014 12:33:30

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 Test Receiver	R&S	ESCS 30	100355	9kHz ~ 2.75GHz	Apr. 23, 2014	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150kHz ~ 100MHz	Nov. 23, 2013	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Nov. 23, 2013	Conduction (CO01-CB)
COND Cable	Woken	Cable	01	150kHz ~ 30MHz	Dec. 04, 2013	Conduction (CO01-CB)
Software	Audix	E3	5.410e	-	N.C.R.	Conduction (CO01-CB)
BILOG ANTENNA	Schaffner	CBL6112D	22021	20MHz ~ 2GHz	May 26, 2014	Radiation (03CH01-CB)
Loop Antenna	Teseq	HLA 6120	24155	9 kHz - 30 MHz	Nov. 05, 2012*	Radiation (03CH01-CB)
Horn Antenna	EMCO	3115	00075790	750MHz~18GHz	Nov. 01, 2013	Radiation (03CH01-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Aug. 22, 2014	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8447D	2944A10991	0.1MHz ~ 1.3GHz	Nov. 12, 2013	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Dec. 16, 2013	Radiation (03CH01-CB)
Pre-Amplifier	WM	TF-130N-R1	--	26GHz ~ 40GHz	Feb. 17, 2014	Radiation (03CH01-CB)
Spectrum analyzer	R&S	FSP40	100019	9kHz~40GHz	Dec. 02, 2013	Radiation (03CH01-CB)
EMI Test Receiver	Agilent	N9038A	MY52260123	9kHz ~ 8GHz	Dec. 12, 2013	Radiation (03CH01-CB)
Turn Table	INN CO	CO 2000	N/A	0 ~ 360 degree	N.C.R.	Radiation (03CH01-CB)
Antenna Mast	INN CO	CO 2000	N/A	1 m - 4 m	N.C.R.	Radiation (03CH01-CB)
RF Cable-low	Woken	Low Cable-1	N/A	30 MHz - 1 GHz	Nov. 17, 2013	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-3	N/A	1 GHz - 40 GHz	Nov. 17, 2013	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-4	N/A	1 GHz - 40 GHz	Nov. 17, 2013	Radiation (03CH01-CB)
RF Cable-low	Woken	Low Cable-1	N/A	30 MHz - 1 GHz	Nov. 17, 2013	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-3	N/A	1 GHz - 40 GHz	Nov. 17, 2013	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-4	N/A	1 GHz - 40 GHz	Nov. 17, 2013	Radiation (03CH01-CB)
Signal analyzer	R&S	FSV40	100979	9kHz~40GHz	Nov. 29, 2013	Conducted (TH01-CB)
Temp. and Humidity Chamber	Ten Billion	TTH-D3SP	TBN-931011	-30~100 degree	Jun. 03, 2014	Conducted (TH01-CB)
RF Power Divider	Woken	2 Way	0120A02056002D	2GHz ~ 18GHz	Nov. 17, 2013	Conducted (TH01-CB)
RF Power Divider	Woken	3 Way	MDC2366	2GHz ~ 18GHz	Nov. 17, 2013	Conducted (TH01-CB)

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
RF Power Divider	Woken	4 Way	0120A04056002D	2GHz ~ 18GHz	Nov. 17, 2013	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-7	-	1 GHz – 26.5 GHz	Nov. 17, 2013	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-8	-	1 GHz – 26.5 GHz	Nov. 17, 2013	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-9	-	1 GHz – 26.5 GHz	Nov. 17, 2013	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-10	-	1 GHz – 26.5 GHz	Nov. 17, 2013	Conducted (TH01-CB)
Power Sensor	Anritsu	MA2411B	1126203	300MHz~40GHz	Oct. 06, 2014	Conducted (TH01-CB)
Power Meter	Anritsu	ML2495A	1210004	300MHz~40GHz	Oct. 06, 2014	Conducted (TH01-CB)

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

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

NCR means Non-Calibration required.

6. MEASUREMENT UNCERTAINTY

Test Items	Uncertainty	Remark
Conducted Emission (150kHz ~ 30MHz)	2.4 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	3.6 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	3.7 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	3.5 dB	Confidence levels of 95%
Conducted Emission	1.7 dB	Confidence levels of 95%