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FCC RADIO TEST REPORT

Applicant's company	**Netgear Inc.**
Applicant Address	350 East Plumeria Drive San Jose, CA 95134 U.S.A.
FCC ID	**PY312400216**
Manufacturer's company	**Netgear Inc.**
Manufacturer Address	350 East Plumeria Drive San Jose, CA 95134 U.S.A.

Product Name	D6200 WiFi Modem Router
Brand Name	Netgear
Model Name	D6200xxxxx (The "X" in model name can be 0 to 9, A to Z or blank, for marking purpose)
Test Rule Part(s)	47 CFR FCC Part 15 Subpart C § 15.247
Test Freq. Range	2400 ~ 2483.5MHz / 5725 ~ 5850MHz
Received Date	Jan. 09, 2013
Final Test Date	Jan. 27, 2013
Submission Type	Original Equipment

Statement

Test result included is only for the IEEE 802.11n, IEEE 802.11b/g part and IEEE 802.11a/ac (5725 ~ 5850MHz) of the product.

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

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

The measurements and test results shown in this test report were made in accordance with the procedures and found in compliance with the limit given in **ANSI C63.10-2009**, **47 CFR FCC Part 15 Subpart C**, **KDB 558074 D01 v02**, **KDB 662911 D01 v01r02** and **KDB644545 D01 v01**.

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
FR310915AB	Rev. 01	Initial issue of report	Feb. 01, 2013

Certificate No.: CB10201180

1. CERTIFICATE OF COMPLIANCE

Product Name	:	D6200 WiFi Modem Router
Brand Name	:	Netgear
Model Name	:	D6200xxxxx (The "X" in model name can be 0 to 9, A to Z or blank, for marking purpose)
Applicant	:	Netgear Inc.
Test Rule Part(s)	:	47 CFR FCC Part 15 Subpart C § 15.247

Sporton International as requested by the applicant to evaluate the EMC performance of the product sample received on Jan. 09, 2013 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

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	6.38 dB
4.2	15.247(b)(3)	Maximum Conducted Output Power	Complies	3.71 dB
4.3	15.247(e)	Power Spectral Density	Complies	8.86 dB
4.4	15.247(a)(2)	6dB Spectrum Bandwidth	Complies	-
4.5	15.247(d)	Radiated Emissions	Complies	0.04 dB
4.6	15.247(d)	Band Edge Emissions	Complies	0.03 dB
4.7	15.203	Antenna Requirements	Complies	-

Test Items	Uncertainty	Remark
AC Power Line Conducted Emissions	±2.3dB	Confidence levels of 95%
Maximum Conducted Output Power	±0.8dB	Confidence levels of 95%
Power Spectral Density	±0.5dB	Confidence levels of 95%
6dB Spectrum Bandwidth	$\pm 8.5\times10^{-8}$	Confidence levels of 95%
Radiated Emissions (9kHz~30MHz)	±0.8dB	Confidence levels of 95%
Radiated Emissions (30MHz~1GHz)	±1.9dB	Confidence levels of 95%
Radiated / Band Edge Emissions (1GHz~18GHz)	±1.9dB	Confidence levels of 95%
Radiated Emissions (18GHz~40GHz)	±1.9dB	Confidence levels of 95%
Temperature	±0.7℃	Confidence levels of 95%
Humidity	±3.2%	Confidence levels of 95%
DC / AC Power Source	±1.4%	Confidence levels of 95%

3. GENERAL INFORMATION

3.1. Product Details

IEEE 802.11n/ac

Items	Description
Product Type	WLAN (2TX, 2RX)
Radio Type	Intentional Transceiver
Power Type	From Power Adapter
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
Frequency Range	2400 ~ 2483.5MHz / 5725 ~ 5850MHz
Channel Number	For 2.4GHz Band: 11 for 20MHz bandwidth ; 7 for 40MHz bandwidth For 5GHz Band: 5 for 20MHz bandwidth ; 2 for 40MHz bandwidth ; 1 for 80MHz bandwidth
Channel Band Width (99%)	For 2.4GHz Band: MCS8 HT20: 17.60 MHz ; MCS8 HT40: 36.32 MHz For 5GHz Band: MCS8 HT20: 21.92 MHz ; MCS8 HT40: 60.64 MHz ; MCS0-Nss2 VTH80: 103.68 MHz
Maximum Conducted Output Power	For 2.4GHz Band: MCS8 HT20: 20.77 dBm ; MCS8 HT40: 15.84 dBm For 5GHz Band: MCS8 HT20: 24.54 dBm ; MCS8 HT40: 26.28 dBm ; MCS0-Nss2 VHT20: 24.33 dBm ; MCS0-Nss2 VHT40: 26.20 dBm ; MCS0-Nss2 VHT80: 26.29 dBm
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

802.11a/b/g

Items	Description
Product Type	WLAN (1TX, 1RX)
Radio Type	Intentional Transceiver
Power Type	From Power Adapter
Modulation	DSSS for IEEE 802.11b ; OFDM for IEEE 802.11a/g
Data Modulation	DSSS (BPSK / QPSK / CCK) ; OFDM (BPSK / QPSK / 16QAM / 64QAM)
Data Rate (Mbps)	DSSS (1/ 2/ 5.5/11) ; OFDM (6/9/12/18/24/36/48/54)
Frequency Range	2400 ~ 2483.5MHz / 5725 ~ 5850MHz
Channel Number	11b/g: 11 ; 11a: 5
Channel Band Width (99%)	11b: 10.08 MHz ; 11g: 16.40 MHz ; 11a: 23.52 MHz
Maximum Conducted Output Power	11b: 16.67 dBm ; 11g: 19.78 dBm ; 11a: 22.76 dBm
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

Antenna & Band width

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

IEEE 802.11n spec

MCS Index	Nss	Modulation	R	NBPSC	NCBPS		NDBPS		Datarate(Mbps)			
									800nsGI		400nsGI	
					20MHz	40MHz	20MHz	40MHz	20MHz	40MHz	20MHz	40MHz
8	2	BPSK	1/2	1	104	216	52	108	13.0	27.0	14.444	30
9	2	QPSK	1/2	2	208	432	104	216	26.0	54.0	28.889	60
10	2	QPSK	3/4	2	208	432	156	324	39.0	81.0	43.333	90
11	2	16-QAM	1/2	4	416	864	208	432	52.0	108.0	57.778	120
12	2	16-QAM	3/4	4	416	864	312	648	78.0	162.0	86.667	180
13	2	64-QAM	2/3	6	624	1296	416	864	104.0	216.0	115.556	240
14	2	64-QAM	3/4	6	624	1296	468	972	117.0	243.0	130.000	270
15	2	64-QAM	5/6	6	624	1296	520	1080	130.0	270.0	144.444	300

Symbol	Explanation
NSS	Number of spatial streams
R	Code rate
NBPSC	Number of coded bits per single carrier
NCBPS	Number of coded bits per symbol
NDBPS	Number of data bits per symbol
GI	guard interval

IEEE 802. 11a, 11n and 11ac Spec.

Worst Modulation Used for Conformance Testing				
Protocol	Number of Transmit Chains (NTX)	Data Rate / MCS	Worst Data Rate / MCS	Worst Modulation Mode
802.11a	1	6-54 Mbps	6Mbps	11A5.8G-20M
802.11n HT20	2	MCS 8-15	MCS 8	11N5.8G-20M
802.11n HT40	2	MCS 8-15	MCS 8	11N5.8G-40M
802.11ac VHT20	2	MCS 0-9	MCS0-Nss2	11AC5.8G-20M
802.11ac VHT40	2	MCS 0-9	MCS0-Nss2	11AC5.8G-40M
802.11ac VHT80	2	MCS 0-9	MCS0-Nss2	11AC5.8G-80M
Note 1: IEEE 802.11 modulation consists of IEEE 802.11a.				
Note 2: IEEE 802.11n modulation consists of HT20 and HT40 (HT: High Throughput). Then EUT support HT20 and HT40. Worst modulation mode of Guard Interval (GI) is 400ns.				
Note 3: IEEE 802.11ac modulation consists of VHT20, VHT40, VHT80 and VHT160. Then EUT support VHT20, VHT40, VHT80. (VHT: Very High Throughput).				
Note 4: Modulation modes consist of 11A5.8G-20M, 11N5.8G-20M, 11N5.8G-40M, 11AC5.8G-20M, 11AC5.8G-40M, 11AC5.8G-80M				
Note 5: 11A: IEEE 802.11a, 11N: IEEE 802.11n, 11AC: IEEE 802.11ac. 5.8G: 5.725-5.850GHz band				
Note 6: 20M/40M/80M: Channel Bandwidth 20MHz/40MHz/80MHz				

3.2. Accessories

Power	Brand	Model	P/N	Rating
Adapter 1	NETGEAR	P030WF120B 11200-6LF	332-10200-02	Input:100-240V~50/60Hz 1.0A Output:12V-2.5A
Adapter 2	NETGEAR	MU30-5120250-A1	332-10234-01	Input:100-240V~50/60Hz 0.8A Output:12V-2.5A
Others				
DS RJ-11 Cable Non-Shield, 1.5m *1				
HL RJ-11 Cable Non-Shield, 1.5m *1				
RJ45 Cable Shield, 1.5m*1				
RJ45 Cable Non-Shield, 1.5m*1				

3.3. Table for Filed Antenna

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)		
					2.4GHz	5GHz	
1	Wistron NeWeb Corp	D6200	PCB Antenna	I-PEX	3.91	-	
2	Wistron NeWeb Corp	D6200	PCB Antenna	I-PEX	3.37	-	
3	Wistron NeWeb Corp	D6200	PCB Antenna	I-PEX	-	B4	4.70
4	Wistron NeWeb Corp	D6200	PCB Antenna	I-PEX	-	B4	3.94

Note:

For 2.4GHz Band:

For IEEE 802.11b/g mode (1TX/1RX):

Only Ant 1 can be used as transmitting/receiving antenna.

For IEEE 802.11n mode (2TX/2RX):

Ant 1 and Ant 2 can be used as transmitting/receiving antennas

Ant 1 and Ant 2 could transmit/receive simultaneously.

For 5GHz Band:

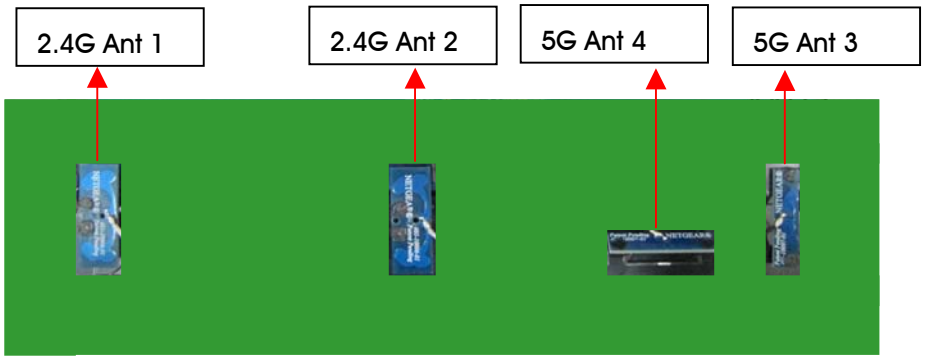
For IEEE 802.11a mode (1TX/1RX):

Only Ant 3 can be used as transmitting/receiving antenna.

For IEEE 802.11n/ac mode (2TX/2RX):

Ant 3 and Ant 4 can be used as transmitting/receiving antennas

Ant 3 and Ant 4 could transmit/receive simultaneously.



3.4. Table for Carrier Frequencies

For 2.4GHz Band:

There are two bandwidth systems.

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

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

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

For 5GHz Band:

There are three bandwidth systems.

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

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

For 80MHz bandwidth systems, use Channel 155.

Frequency Band	Channel No.	Frequency	Channel No.	Frequency
5725~5850 MHz Band 4	149	5745 MHz	157	5785 MHz
	151	5755 MHz	159	5795 MHz
	153	5765 MHz	161	5805 MHz
	155	5775 MHz	165	5825 MHz

3.5. Table for Test Modes

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

For 2.4GHz Band

Test Items	Mode	Data Rate	Channel	Antenna
AC Power Line Conducted Emissions	CTX	-	-	-
Maximum Conducted Output Power	MCS8/HT20	13 Mbps	1/6/11	1+2
	MCS8/HT40	27 Mbps	3/6/9	1+2
	11b/CCK	1 Mbps	1/6/11	1
	11g/BPSK	6 Mbps	1/6/11	1
Power Spectral Density	MCS8/HT20	13 Mbps	1/6/11	1/2
	MCS8/HT40	27 Mbps	3/6/9	1/2
	11b/CCK	1 Mbps	1/6/11	1
	11g/BPSK	6 Mbps	1/6/11	1
6dB Spectrum Bandwidth	MCS8/HT20	13 Mbps	1/6/11	1+2
	MCS8/HT40	27 Mbps	3/6/9	1+2
	11b/CCK	1 Mbps	1/6/11	1
	11g/BPSK	6 Mbps	1/6/11	1
Radiated Emissions Below 1GHz	CTX	-	-	-
Radiated Emissions Above 1GHz	MCS8/HT20	13 Mbps	1/6/11	1+2
	MCS8/HT40	27 Mbps	3/6/9	1+2
	11b/CCK	1 Mbps	1/6/11	1
	11g/BPSK	6 Mbps	1/6/11	1
Band Edge Emissions	MCS8/HT20	13 Mbps	1/6/11	1+2
	MCS8/HT40	27 Mbps	3/6/9	1+2
	11b/CCK	1 Mbps	1/6/11	1
	11g/BPSK	6 Mbps	1/6/11	1

For 5GHz Band

Test Items	Mode	Data Rate	Channel	Antenna
AC Power Line Conducted Emissions	CTX	-	-	-
Maximum Conducted Output Power	MCS8/HT20	13 Mbps	149/157/165	3+4
	MCS8/HT40	27 Mbps	151/159	3+4
	MCS0/VHT20	MCS0-Nss2	149/157/165	3+4
	MCS0/VHT40	MCS0-Nss2	151/159	3+4
	MCS0/VHT80	MCS0-Nss2	155	3+4
	11a/BPSK	6 Mbps	149/157/165	3
Power Spectral Density	MCS8/HT20	13 Mbps	149/157/165	3/4
	MCS8/HT40	27 Mbps	151/159	3/4
	MCS0/VHT20	MCS0-Nss2	149/157/165	3/4
	MCS0/VHT40	MCS0-Nss2	151/159	3/4
	MCS0/VHT80	MCS0-Nss2	155	3/4
	11a/BPSK	6 Mbps	149/157/165	3
6dB Spectrum Bandwidth	MCS8/HT20	13 Mbps	149/157/165	3+4
	MCS8/HT40	27 Mbps	151/159	3+4
	MCS0/VHT20	MCS0-Nss2	149/157/165	3+4
	MCS0/VHT40	MCS0-Nss2	151/159	3+4
	MCS0/VHT80	MCS0-Nss2	155	3+4
	11a/BPSK	6 Mbps	149/157/165	3
Radiated Emissions Below 1GHz	CTX	-	-	-
Radiated Emissions Above 1GHz	MCS8/HT20	13 Mbps	149/157/165	3+4
	MCS8/HT40	27 Mbps	151/159	3+4
	MCS0/VHT20	MCS0-Nss2	149/157/165	3+4
	MCS0/VHT40	MCS0-Nss2	151/159	3+4
	MCS0/VHT80	MCS0-Nss2	155	3+4
	11a/BPSK	6 Mbps	149/157/165	3
Band Edge Emissions	MCS8/HT20	13 Mbps	149/157/165	3+4
	MCS8/HT40	27 Mbps	151/159	3+4
	MCS0/VHT20	MCS0-Nss2	149/157/165	3+4
	MCS0/VHT40	MCS0-Nss2	151/159	3+4
	MCS0/VHT80	MCS0-Nss2	155	3+4
	11a/BPSK	6 Mbps	149/157/165	3

The following test modes were performed for all tests:

For Conducted Emission test:

Mode 1. EUT + Adapter 1

Mode 2. EUT + Adapter 2

All test results were recorded in the report.

For Radiated Emission test:

Mode 1. EUT + Adapter 1

Mode 2. EUT + Adapter 2

Due to Mode 1 generated the worst test result, it was recorded in this report.

<For MPE and Co-location Test>:

The EUT could be applied with 2.4GHz WLAN function and 5GHz WLAN function; therefore Maximum Permissible Exposure (Please refer to Appendix B) and 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 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) Please refer section 6 for Test Site Address.

3.7. Table for Supporting Units

Support Unit	Brand	Model	FCC ID
Notebook	DELL	E6220	QDS-BRCM1049LE

3.8. Table for Parameters of Test Software Setting

During testing, Channel & 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 2.4GHz Band

Power Parameters of IEEE 802.11n MCS8 HT20

Test Software Version	Manual Toov Version 1.0.0.9		
Frequency	2412 MHz	2437 MHz	2462 MHz
MCS8 HT20	46	70	51

Power Parameters of IEEE 802.11n MCS8 HT40

Test Software Version	Manual Toov Version 1.0.0.9		
Frequency	2422 MHz	2437 MHz	2452 MHz
MCS8 HT40	39	50	40

Power Parameters of IEEE 802.11b/g

Test Software Version	Manual Toov Version 1.0.0.9		
Frequency	2412 MHz	2437 MHz	2462 MHz
IEEE 802.11b	62	58	54
IEEE 802.11g	52	76	54

For 5GHz Band

Power Parameters of IEEE 802.11n MCS8 HT20

Test Software Version	Manual Toov Version 1.0.0.9		
Frequency	5745 MHz	5785 MHz	5825 MHz
MCS8 HT20	82	82	82

Power Parameters of IEEE 802.11n MCS8 HT40

Test Software Version	Manual Toov Version 1.0.0.9	
Frequency	5755 MHz	5795 MHz
MCS8 HT40	88	88

Power Parameters of IEEE 802.11n MCS0-Nss2 VHT20

Test Software Version	Manual Toov Version 1.0.0.9		
Frequency	5745 MHz	5785 MHz	5825 MHz
MCS0-Nss2 VHT20	81	81	81

Power Parameters of IEEE 802.11n MCS0-Nss2 VHT40

Test Software Version	Manual Toov Version 1.0.0.9	
Frequency	5755 MHz	5795 MHz
MCS0-Nss2 VHT40	88	88

Power Parameters of IEEE 802.11ac MCS0-Nss2 VHT80

Test Software Version	Manual Toov Version 1.0.0.9
Frequency	5775 MHz
MCS0-Nss2 VHT80	100

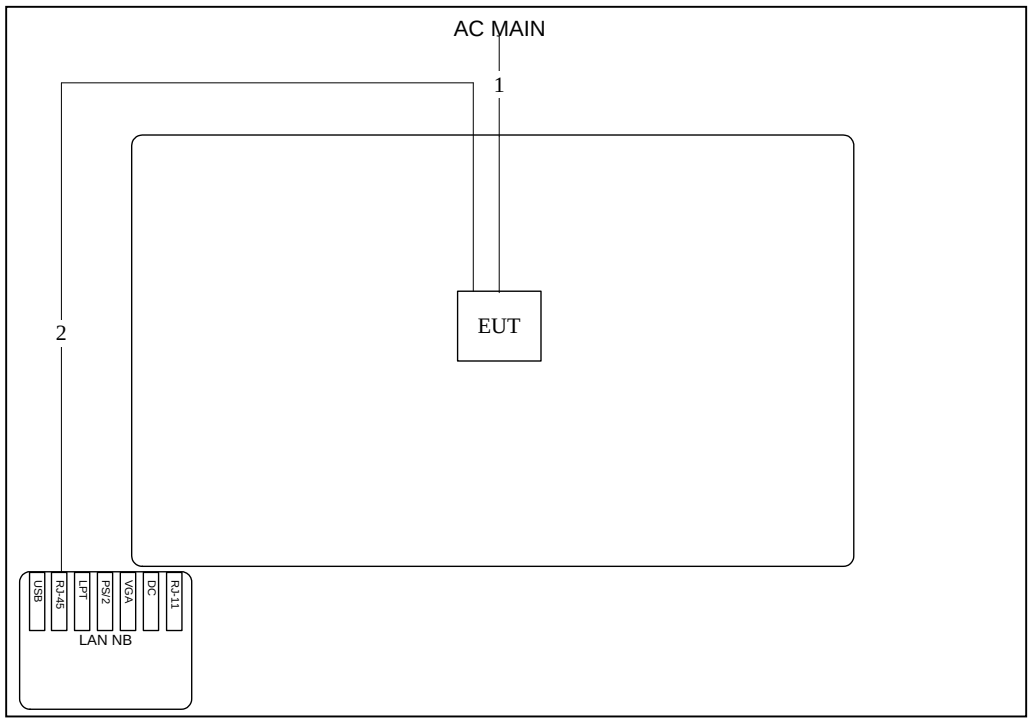
Power Parameters of IEEE 802.11a

Test Software Version	Manual Toov Version 1.0.0.9		
Frequency	5745 MHz	5785 MHz	5825 MHz
IEEE 802.11a	85	85	86

During the test, “Manual Toov Version 1.0.0.9” under WIN XP was executed the test program to control the EUT continuously transmit RF signal.

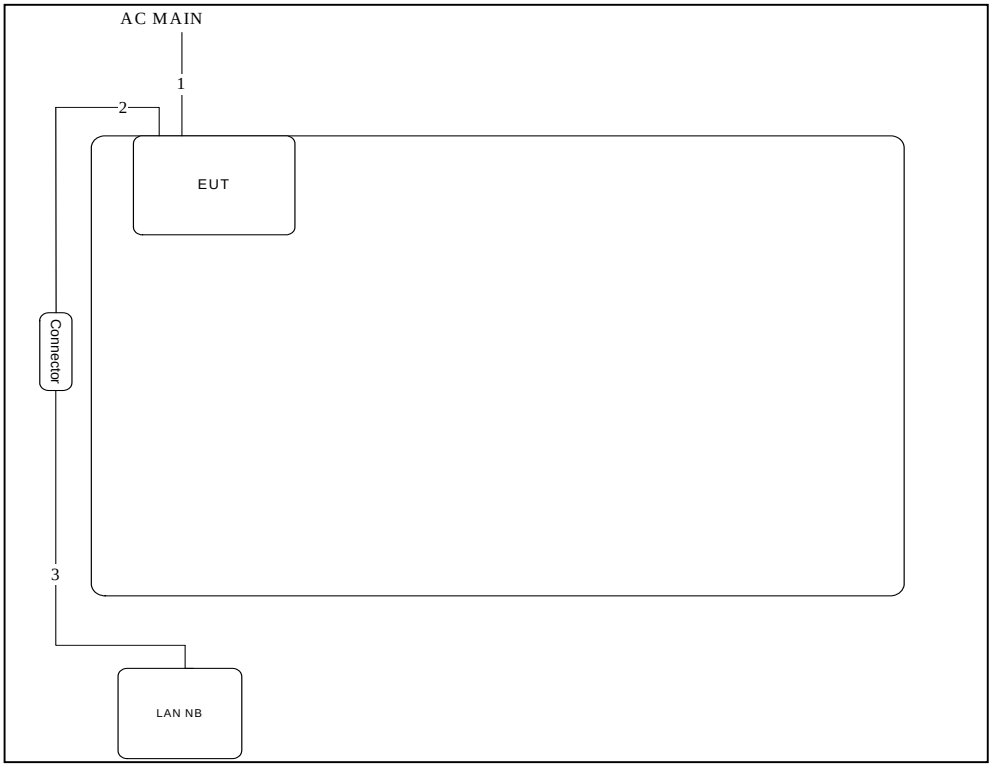
3.9. Test Configurations

3.9.1. Radiation Emissions Test Configuration



Item	Connection	Shield	Length
1	Power cable	No	1.8m
2	RJ-45 Cable	No	10m

3.9.2. AC Power Line Conduction Emissions Test Configuration



Item	Connection	Shield	Length
1	Power cable	No	1.8m
2	RJ-45 cable	Yes	1.5m
3	RJ-45 cable	Yes	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

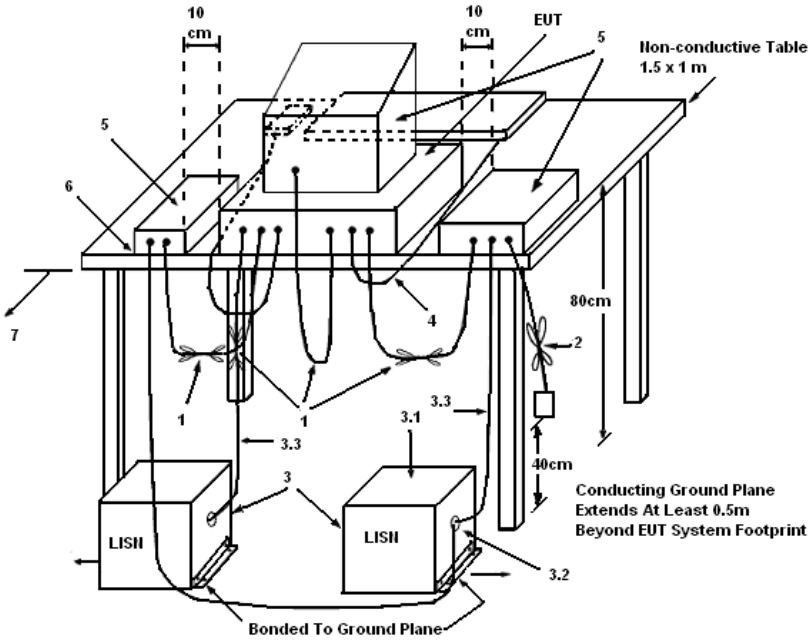
Please refer to section 5 of equipments list in this report. The following table is the setting of the receiver.

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

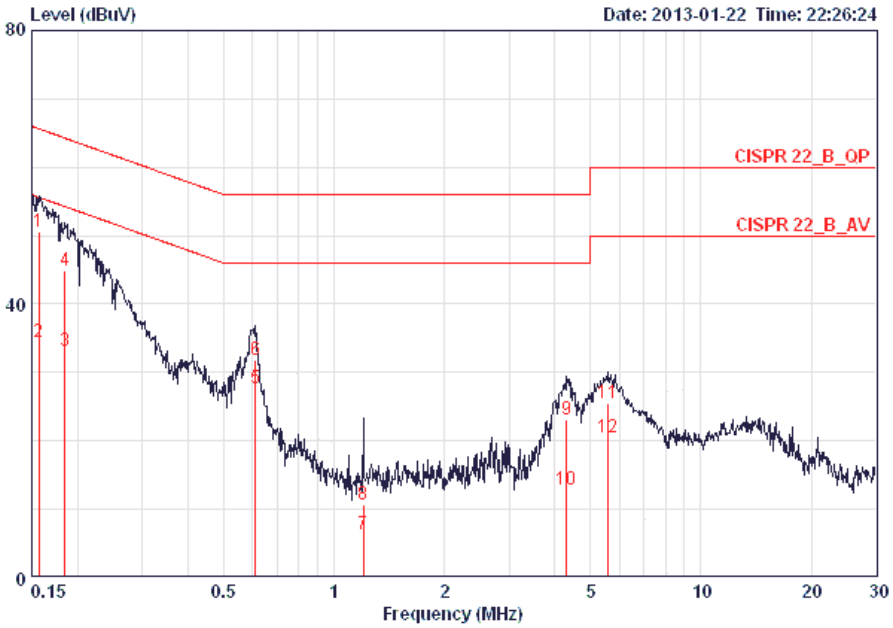
There is no deviation with the original standard.

4.1.6. EUT Operation during Test

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

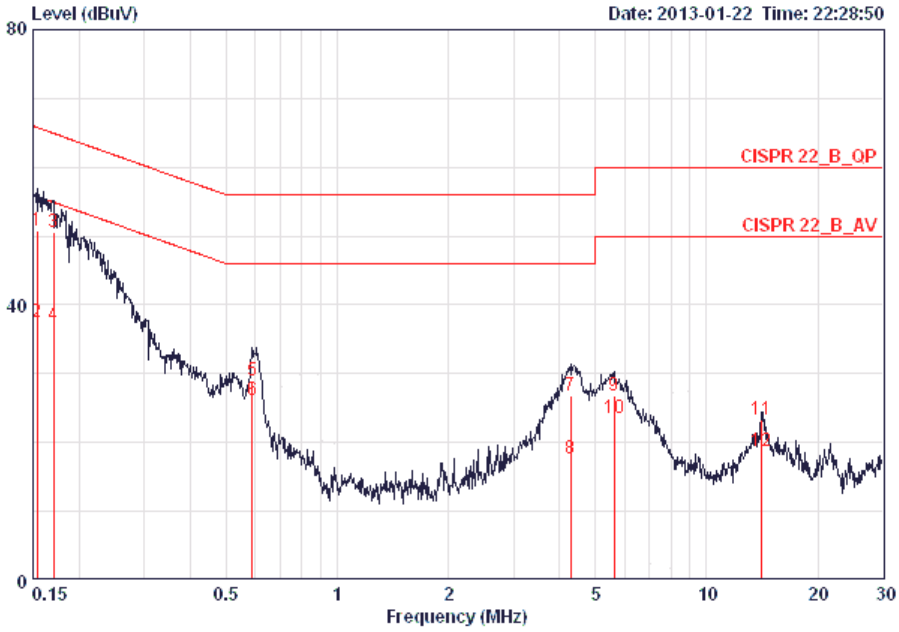
4.1.7. Results of AC Power Line Conducted Emissions Measurement

Temperature	24°C	Humidity	60%
Test Engineer	Simon Yang	Phase	Line
Configuration	CTX	Test Mode	Mode 1



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1 @	0.15650	50.65	-15.00	65.65	50.31	0.16	0.18	QP
2	0.15650	34.35	-21.30	55.65	34.01	0.16	0.18	AVERAGE
3	0.18443	33.03	-21.25	54.28	32.69	0.15	0.19	AVERAGE
4	0.18443	45.00	-19.28	64.28	44.66	0.15	0.19	QP
5	0.61075	27.65	-18.35	46.00	27.29	0.16	0.20	AVERAGE
6	0.61075	31.85	-24.15	56.00	31.49	0.16	0.20	QP
7	1.203	6.22	-39.78	46.00	5.84	0.17	0.21	AVERAGE
8	1.203	10.65	-45.35	56.00	10.27	0.17	0.21	QP
9	4.315	23.04	-32.96	56.00	22.51	0.23	0.31	QP
10	4.315	12.79	-33.21	46.00	12.26	0.23	0.31	AVERAGE
11	5.564	25.41	-34.59	60.00	24.83	0.25	0.33	QP
12	5.564	20.47	-29.53	50.00	19.89	0.25	0.33	AVERAGE

Temperature	24°C	Humidity	60%
Test Engineer	Simon Yang	Phase	Neutral
Configuration	CTX	Test Mode	Mode 1

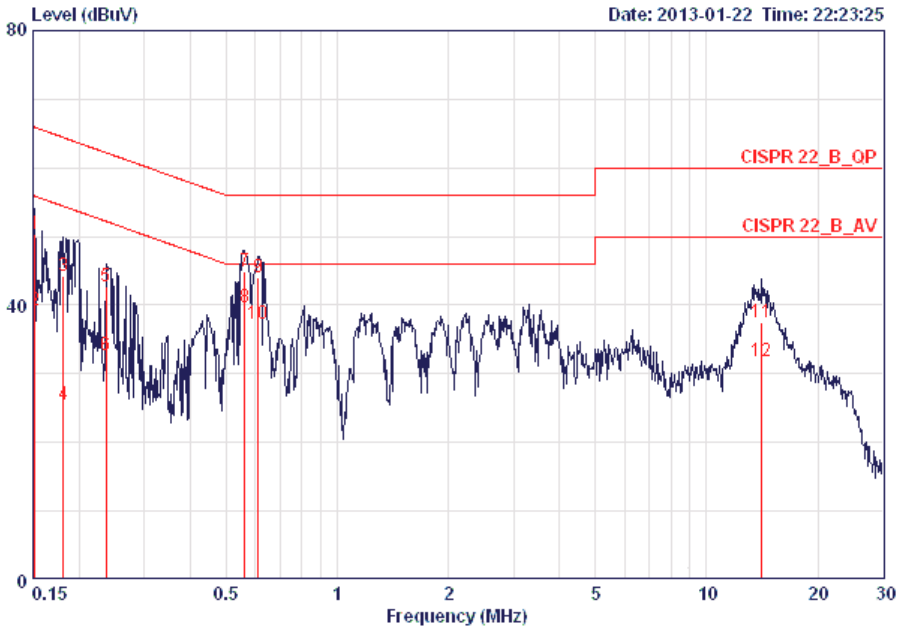


	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1 @	0.15403	50.69	-15.09	65.78	50.43	0.08	0.18	QP
2	0.15403	37.45	-18.33	55.78	37.19	0.08	0.18	AVERAGE
3 @	0.17034	50.47	-14.48	64.94	50.20	0.08	0.19	QP
4	0.17034	36.97	-17.98	54.94	36.70	0.08	0.19	AVERAGE
5	0.58851	29.07	-26.93	56.00	28.79	0.08	0.20	QP
6	0.58851	26.25	-19.75	46.00	25.97	0.08	0.20	AVERAGE
7	4.292	26.77	-29.23	56.00	26.33	0.14	0.31	QP
8	4.292	17.62	-28.38	46.00	17.18	0.14	0.31	AVERAGE
9	5.623	26.88	-33.12	60.00	26.39	0.16	0.33	QP
10	5.623	23.48	-26.52	50.00	22.99	0.16	0.33	AVERAGE
11	14.138	23.33	-36.67	60.00	22.63	0.30	0.40	QP
12	14.138	18.77	-31.23	50.00	18.07	0.30	0.40	AVERAGE

Note:

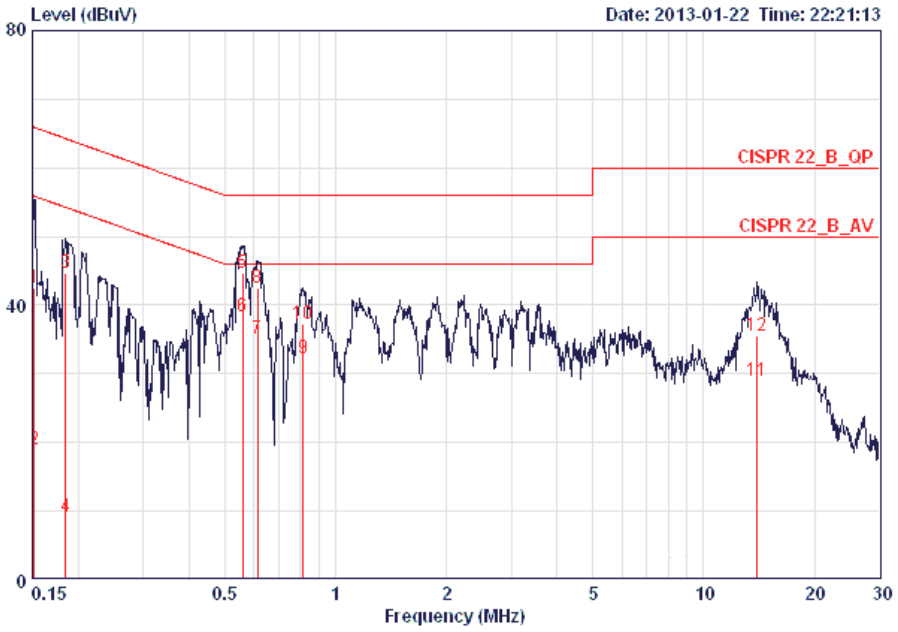
Level = Read Level + LISN Factor + Cable Loss

Temperature	24°C	Humidity	60%
Test Engineer	Simon Yang	Phase	Line
Configuration	CTX	Test Mode	Mode 2



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1 @	0.15160	50.39	-15.52	65.91	50.05	0.16	0.18	QP
2 @	0.15160	39.30	-16.61	55.91	38.96	0.16	0.18	AVERAGE
3	0.18152	44.20	-20.21	64.42	43.86	0.15	0.19	QP
4	0.18152	25.60	-28.81	54.42	25.26	0.15	0.19	AVERAGE
5	0.23658	42.63	-19.59	62.22	42.28	0.15	0.20	QP
6	0.23658	32.61	-19.61	52.22	32.26	0.15	0.20	AVERAGE
7 @	0.56111	44.83	-11.18	56.00	44.47	0.16	0.20	QP
8 @	0.56111	39.62	-6.38	46.00	39.26	0.16	0.20	AVERAGE
9 @	0.61075	44.12	-11.88	56.00	43.76	0.16	0.20	QP
10 @	0.61075	37.20	-8.80	46.00	36.84	0.16	0.20	AVERAGE
11	14.138	37.58	-22.42	60.00	36.78	0.40	0.40	QP
12	14.138	31.89	-18.11	50.00	31.09	0.40	0.40	AVERAGE

Temperature	24°C	Humidity	60%
Test Engineer	Simon Yang	Phase	Neutral
Configuration	CTX	Test Mode	Mode 2



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.15160	42.54	-23.37	65.91	42.28	0.08	0.18	QP
2	0.15160	19.07	-36.84	55.91	18.81	0.08	0.18	AVERAGE
3	0.18443	44.61	-19.67	64.28	44.34	0.08	0.19	QP
4	0.18443	9.22	-45.06	54.28	8.95	0.08	0.19	AVERAGE
5 @	0.55815	44.71	-11.29	56.00	44.43	0.08	0.20	QP
6 @	0.55815	38.34	-7.66	46.00	38.06	0.08	0.20	AVERAGE
7 @	0.61400	35.14	-10.86	46.00	34.86	0.08	0.20	AVERAGE
8 @	0.61400	42.47	-13.53	56.00	42.19	0.08	0.20	QP
9 @	0.81737	32.19	-13.81	46.00	31.90	0.09	0.20	AVERAGE
10	0.81737	37.38	-18.62	56.00	37.09	0.09	0.20	QP
11	13.989	28.98	-21.02	50.00	28.28	0.30	0.40	AVERAGE
12	13.989	35.61	-24.39	60.00	34.91	0.30	0.40	QP

Note:

Level = Read Level + LISN Factor + Cable Loss

4.2. Maximum Conducted Output Power Measurement

4.2.1. Limit

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

4.2.2. Measuring Instruments and Setting

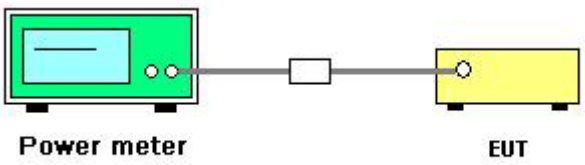
Please refer to section 5 of equipments list in this report. The following table is the setting of the power meter.

Power Meter Parameter	Setting
Detector	Average

4.2.3. Test Procedures

1. Test procedures refer KDB558074 v01 r02 section 8.2.3 option 3.
2. This procedure provides an alternative for determining the RMS output power using a broadband RF average power meter with a thermocouple detector.

4.2.4. Test Setup Layout



4.2.5. Test Deviation

There is no deviation with the original standard.

4.2.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.2.7. Test Result of Maximum Conducted Output Power

Temperature	26°C	Humidity	60%
Test Engineer	Sean Ku	Configurations	IEEE 802.11n/ac
Test Date	Jan. 26, 2013		

For 2.4GHz Band

Configuration IEEE 802.11n MCS8 HT20

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Ant 1	Ant 2			
1	2412 MHz	12.73	12.42	15.59	30.00	Complies
6	2437 MHz	17.83	17.69	20.77	30.00	Complies
11	2462 MHz	13.29	12.7	16.02	30.00	Complies

Configuration IEEE 802.11n MCS8 HT40

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Ant 1	Ant 2			
3	2422 MHz	9.68	9.55	12.63	30.00	Complies
6	2437 MHz	13.01	12.65	15.84	30.00	Complies
9	2452 MHz	10.01	10.02	13.03	30.00	Complies

For 5GHz Band

Configuration IEEE 802.11n MCS8 HT20

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Ant 3	Ant 4			
149	5745 MHz	21.66	21.23	24.46	30.00	Complies
157	5785 MHz	21.61	21.28	24.46	30.00	Complies
165	5825 MHz	21.73	21.31	24.54	30.00	Complies

Configuration IEEE 802.11n MCS8 HT40

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Ant 3	Ant 4			
151	5755 MHz	23.36	22.83	26.11	30.00	Complies
159	5795 MHz	23.48	23.05	26.28	30.00	Complies

Configuration IEEE 802.11ac MCS0-Nss2 VHT20

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Ant 3	Ant 4			
149	5745 MHz	21.44	21.16	24.31	30.00	Complies
157	5785 MHz	21.53	21.09	24.33	30.00	Complies
165	5825 MHz	21.39	21.18	24.30	30.00	Complies

Configuration IEEE 802.11ac MCS0-Nss2 VHT40

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Ant 3	Ant 4			
151	5755 MHz	23.21	22.84	26.04	30.00	Complies
159	5795 MHz	23.32	23.06	26.20	30.00	Complies

Configuration IEEE 802.11ac MCS0-Nss2 VHT80

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Ant 3	Ant 4			
155	5775 MHz	23.16	23.39	26.29	30.00	Complies

Temperature	26°C	Humidity	60%
Test Engineer	Sean Ku	Configurations	IEEE 802.11a/b/g
Test Date	Jan. 26, 2013		

Configuration IEEE 802.11b / Ant 1

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	16.67	30.00	Complies
6	2437 MHz	15.50	30.00	Complies
11	2462 MHz	14.32	30.00	Complies

Configuration IEEE 802.11g / Ant 1

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	13.59	30.00	Complies
6	2437 MHz	19.78	30.00	Complies
11	2462 MHz	14.09	30.00	Complies

Configuration IEEE 802.11a / Ant 3

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
149	5745 MHz	22.34	30.00	Complies
157	5785 MHz	22.30	30.00	Complies
165	5825 MHz	22.76	30.00	Complies

4.3. Power Spectral Density Measurement

4.3.1. Limit

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

4.3.2. Measuring Instruments and Setting

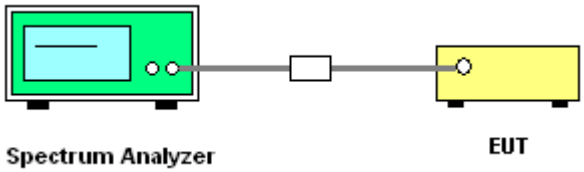
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Set the span to 1.5 times the DTS channel bandwidth.
RB	100 kHz
VB	300 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto couple

4.3.3. Test Procedures

1. Test procedures refer KDB558074 v01 r02 section 9.1 option 1
2. Spectrum analyzer must be capable of utilizing a number of measurement points in each sweep that is greater than or equal to twice the span/RBW in order to ensure bin-to-bin spacing of ≤ RBW/2 so that narrowband signals are not lost between frequency bins.
3. 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.
4. 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).
5. Use the peak marker function to determine the maximum level in any 100 kHz band segment within the fundamental EBW.
6. Scale the observed power level to an equivalent level in 3 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where: BWCF = 10log (3 kHz/100 kHz = -15.2 dB).
7. The resulting PSD level must be ≤ 8 dBm.
8. When measuring power spectral density with multiple antenna systems, add every result of the values by mathematic formula.

4.3.4. Test Setup Layout



4.3.5. Test Deviation

There is no deviation with the original standard.

4.3.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.3.7. Test Result of Power Spectral Density

Temperature	26°C	Humidity	60%
Test Engineer	Sean Ku	Configurations	IEEE 802.11n / ac

For 2.4GHz Band

Configuration IEEE 802.11n MCS8 HT20

Channel	Frequency	Power Density (dBm/100kHz)		BWCF factor (100kHz to 3kHz)	Power Density (dBm/3kHz)		Single Port Limit (dBm/3kHz)	Result
		Ant 1	Ant 2		Ant 1	Ant 2		
1	2412 MHz	1.34	1.00	-15.23	-13.89	-14.23	4.99	Complies
6	2437 MHz	7.49	6.71	-15.23	-7.74	-8.52	4.99	Complies
11	2462 MHz	2.87	2.38	-15.23	-12.36	-12.85	4.99	Complies

Note: PSD Limit =(8dBm/MHz –(10log(2))=4.99dBm/MHz

Configuration IEEE 802.11n MCS8 HT40

Channel	Frequency	Power Density (dBm/100kHz)		BWCF factor (100kHz to 3kHz)	Power Density (dBm/3kHz)		Single Port Limit (dBm/3kHz)	Result
		Ant 1	Ant 2		Ant 1	Ant 2		
3	2422 MHz	-3.86	-4.06	-15.23	-19.09	-19.29	4.99	Complies
6	2437 MHz	-0.46	-0.64	-15.23	-15.69	-15.87	4.99	Complies
9	2452 MHz	-3.69	-3.72	-15.23	-18.92	-18.95	4.99	Complies

Note: PSD Limit =(8dBm/MHz –(10log(2))=4.99dBm/MHz

For 5GHz Band

Configuration IEEE 802.11n MCS8 HT20

Channel	Frequency	Power Density (dBm/100kHz)		BWCF factor (100kHz to 3kHz)	Power Density (dBm/3kHz)		Single Port Limit (dBm/3kHz)	Result
		Ant 3	Ant 4		Ant 3	Ant 4		
149	5745 MHz	10.65	9.97	-15.23	-4.58	-5.26	4.99	Complies
157	5785 MHz	11.32	10.74	-15.23	-3.91	-4.49	4.99	Complies
165	5825 MHz	11.36	10.50	-15.23	-3.87	-4.73	4.99	Complies

Note: PSD Limit =(8dBm/MHz –(10log(2))=4.99dBm/MHz

Configuration IEEE 802.11n MCS8 HT40

Channel	Frequency	Power Density (dBm/100kHz)		BWCF factor (100kHz to 3kHz)	Power Density (dBm/3kHz)		Single Port Limit (dBm/3kHz)	Result
		Ant 3	Ant 4		Ant 3	Ant 4		
151	5755 MHz	9.41	9.33	-15.23	-5.82	-5.90	4.99	Complies
159	5795 MHz	9.73	9.35	-15.23	-5.50	-5.88	4.99	Complies

Note: PSD Limit =(8dBm/MHz –(10log(2))=4.99dBm/MHz

Configuration IEEE 802.11ac MCS0-Nss2 VHT80

Channel	Frequency	Power Density (dBm/100kHz)		BWCF factor (100kHz to 3kHz)	Power Density (dBm/3kHz)		Single Port Limit (dBm/3kHz)	Result
		Ant 3	Ant 4		Ant 3	Ant 4		
155	5775 MHz	7.43	8.69	-15.23	-7.80	-6.54	4.99	Complies

Note: PSD Limit =(8dBm/MHz –(10log(2))=4.99dBm/MHz

Temperature	26°C	Humidity	60%
Test Engineer	Sean Ku	Configurations	IEEE 802.11 a/b/g

Configuration IEEE 802.11b / Ant 1

Channel	Frequency	Power Density (dBm/100kHz)	BWCF factor (100kHz to 3kHz)	Power Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Result
1	2412 MHz	7.59	-15.23	-7.64	8.00	Complies
6	2437 MHz	6.08	-15.23	-9.15	8.00	Complies
11	2462 MHz	5.58	-15.23	-9.65	8.00	Complies

Configuration IEEE 802.11g / Ant 1

Channel	Frequency	Power Density (dBm/100kHz)	BWCF factor (100KHz to 3KHz)	Power Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Result
1	2412 MHz	2.75	-15.23	-12.48	8.00	Complies
6	2437 MHz	9.50	-15.23	-5.73	8.00	Complies
11	2462 MHz	2.76	-15.23	-12.47	8.00	Complies

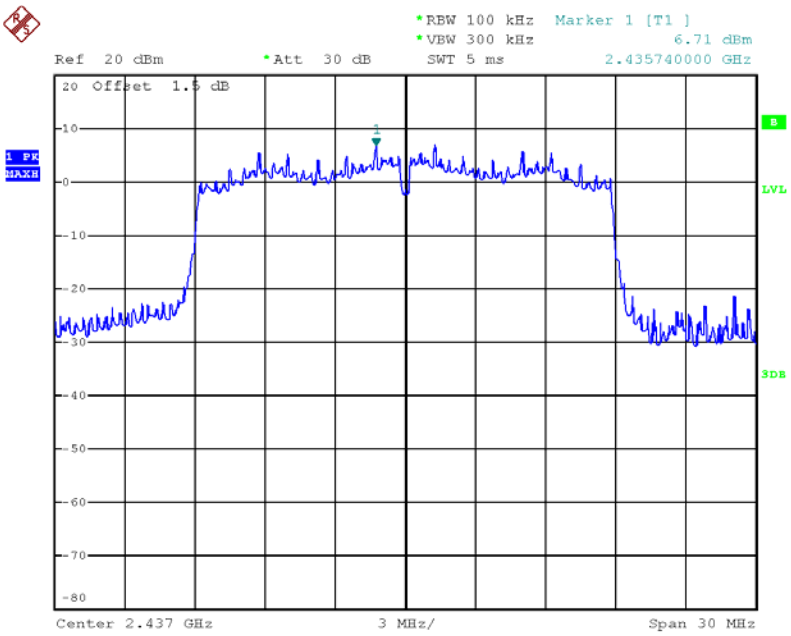
Configuration IEEE 802.11a / Ant 3

Channel	Frequency	Power Density (dBm/100kHz)	BWCF factor (100KHz to 3KHz)	Power Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Result
149	5745 MHz	11.53	-15.23	-3.70	8.00	Complies
157	5785 MHz	12.12	-15.23	-3.11	8.00	Complies
165	5825 MHz	11.99	-15.23	-3.24	8.00	Complies

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

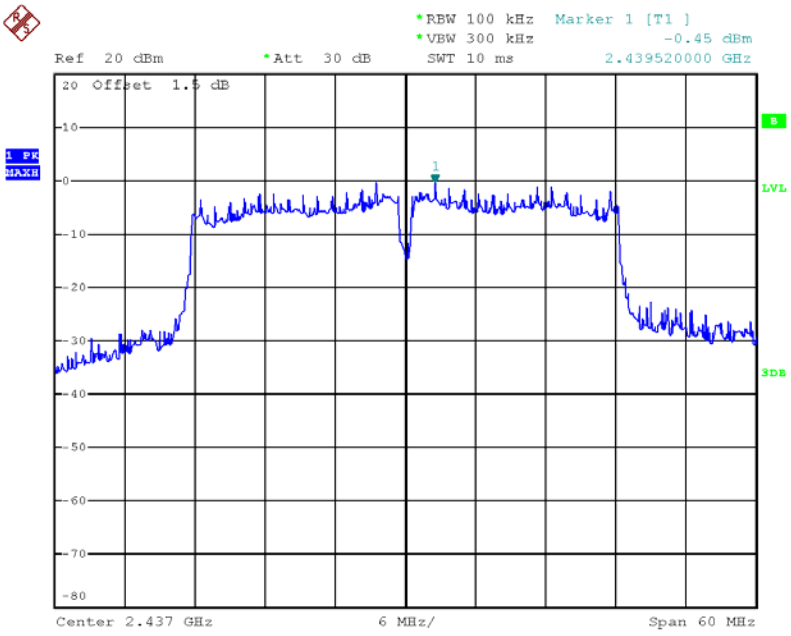
For plots, only the channel with maximum results was shown.

Power Density Plot on Configuration IEEE 802.11n MCS8 HT20 / Ant 2 / 2437 MHz



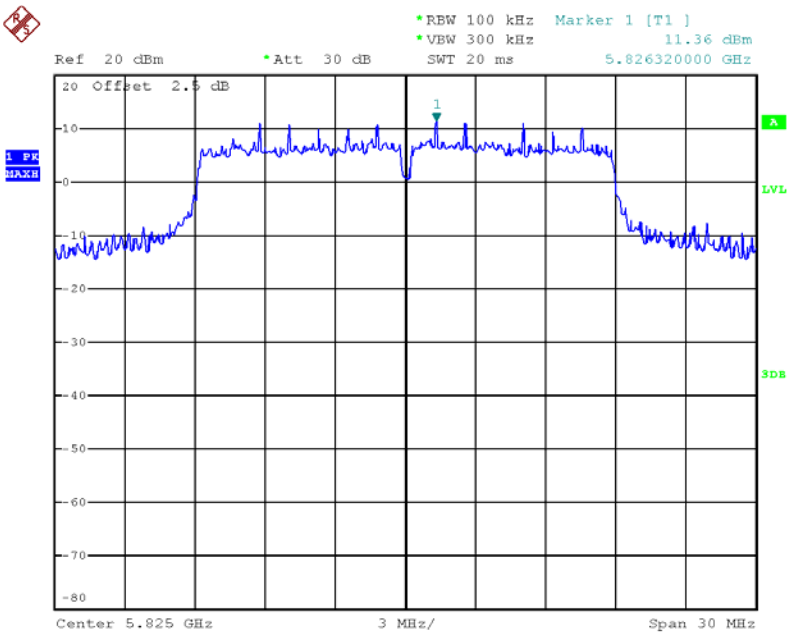
Date: 26.JAN.2013 09:27:51

Power Density Plot on Configuration IEEE 802.11n MCS8 HT40 / Ant 1 / 2437 MHz



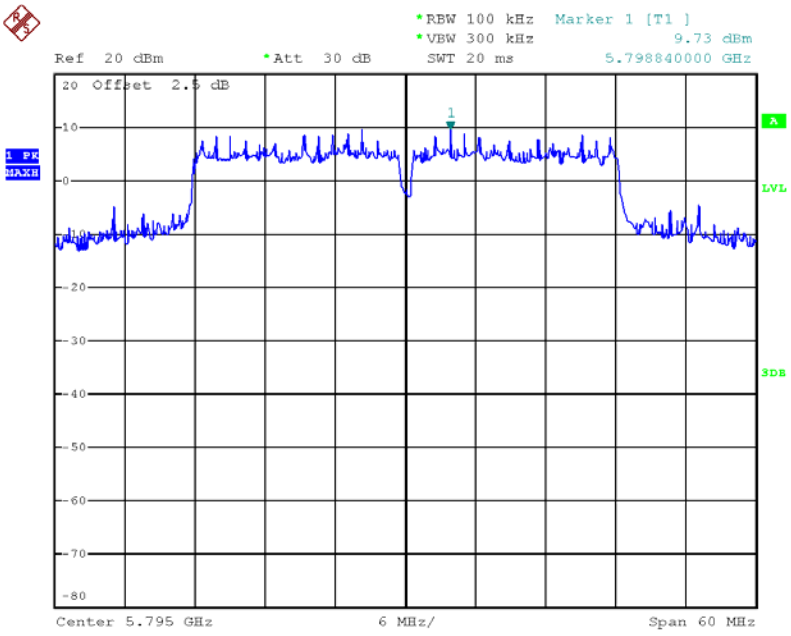
Date: 26.JAN.2013 09:35:02

Power Density Plot on Configuration IEEE 802.11n MCS8 HT20 / Ant 3 / 5825 MHz



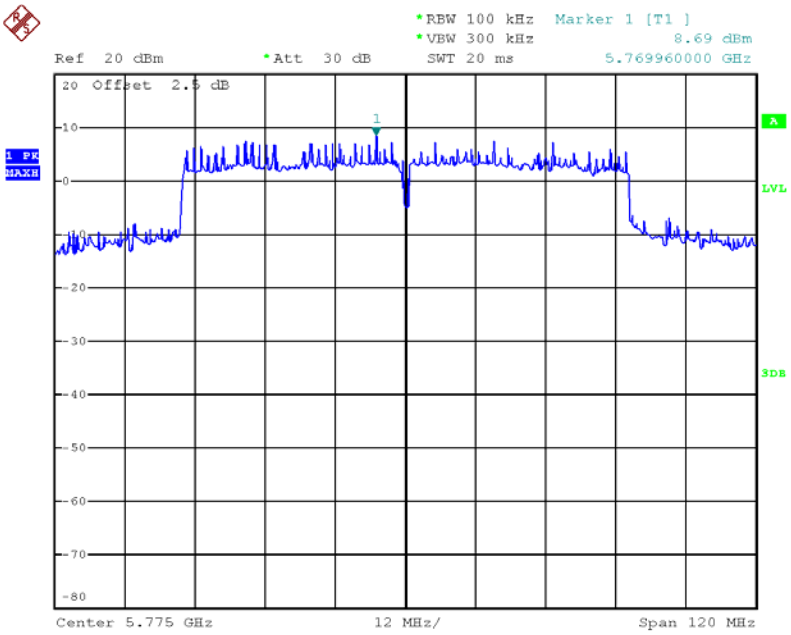
Date: 26.JAN.2013 11:17:36

Power Density Plot on Configuration IEEE 802.11n MCS8 HT40 / Ant 3 / 5795 MHz



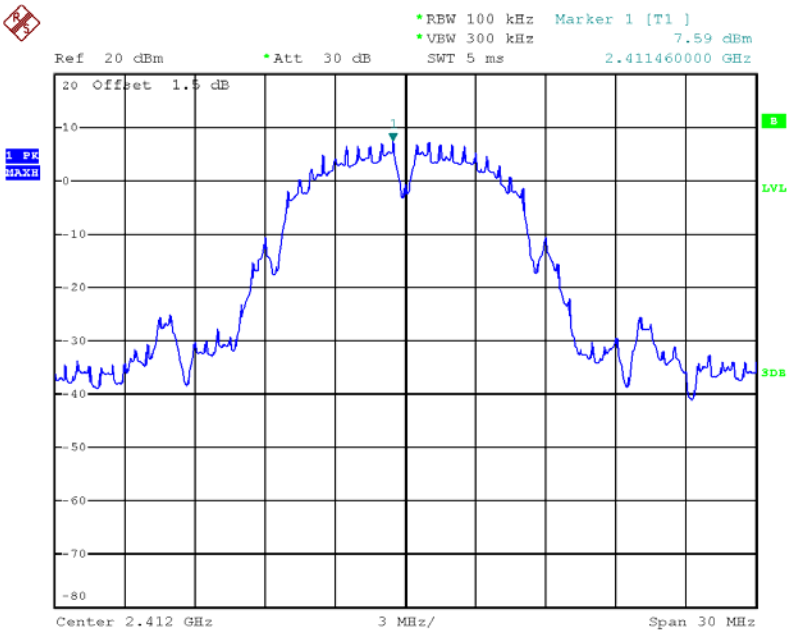
Date: 26.JAN.2013 11:20:43

Power Density Plot on Configuration IEEE 802.11n MCS0 VHT80 / Ant 4 / 5775 MHz



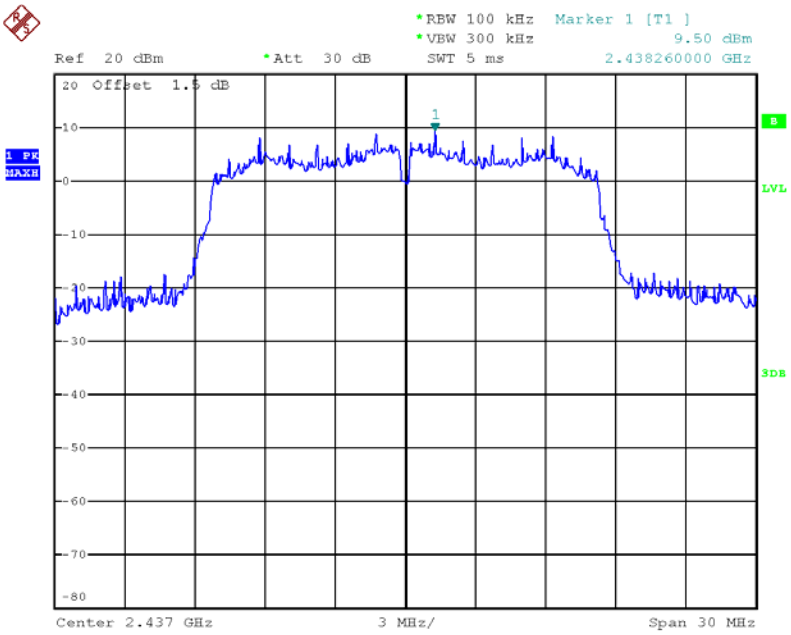
Date: 26.JAN.2013 11:23:40

Power Density Plot on Configuration IEEE 802.11b / Ant 1 / 2412 MHz



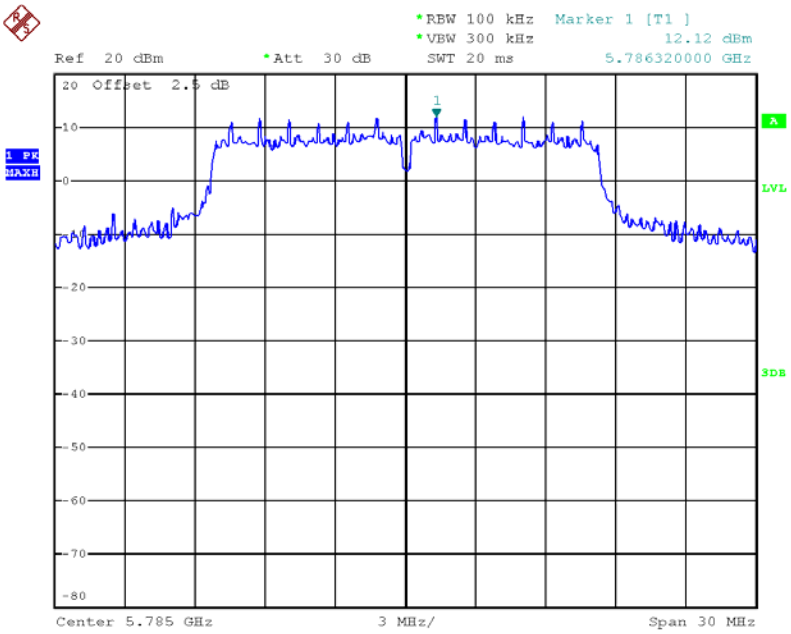
Date: 26.JAN.2013 09:11:41

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



Date: 26.JAN.2013 09:15:19

Power Density Plot on Configuration IEEE 802.11a / Ant 3 / 5785 MHz



Date: 26.JAN.2013 11:11:16

4.4. 6dB Spectrum Bandwidth Measurement

4.4.1. Limit

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

4.4.2. Measuring Instruments and Setting

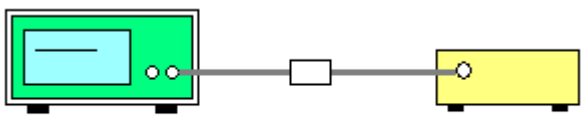
Please refer to section 5 of equipments list in this report. The following table is the setting of spectrum analyzer.

Spectrum Parameters	Setting
Attenuation	Auto
Span Frequency	> 6dB Bandwidth
RB	1-5 % or DTS BW, not exceed 100KHz
VB	≥ 3 x RBW
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

4.4.3. Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer in peak hold mode.
2. Test was performed in accordance with KDB 558074 Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247 section 5.1.1 EBW Measurement Procedure
3. Multiple antenna system was performed in accordance with KDB 662911 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



4.4.5. Test Deviation

There is no deviation with the original standard.

4.4.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.4.7. Test Result of 6dB Spectrum Bandwidth

Temperature	26°C	Humidity	60%
Test Engineer	Sean Ku	Configurations	IEEE 802.11n/ac

For 2.4GHz Band

Configuration IEEE 802.11n MCS8 HT20 / Ant 1 + Ant 2

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	15.12	17.60	500	Complies
6	2437 MHz	15.04	17.60	500	Complies
11	2462 MHz	17.60	17.60	500	Complies

Configuration IEEE 802.11n MCS8 HT40 / Ant 1 + Ant 2

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
3	2422 MHz	35.20	36.32	500	Complies
6	2437 MHz	35.20	36.32	500	Complies
9	2452 MHz	35.20	36.32	500	Complies

For 5GHz Band

Configuration IEEE 802.11n MCS8 HT20 / Ant 3 + Ant 4

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
149	5745 MHz	17.60	21.92	500	Complies
157	5785 MHz	17.36	20.88	500	Complies
165	5825 MHz	17.52	20.80	500	Complies

Configuration IEEE 802.11n MCS8 HT40 / Ant 3 + Ant 4

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
151	5755 MHz	36.00	60.64	500	Complies
159	5795 MHz	36.32	58.40	500	Complies

Configuration IEEE 802.11ac MCS0-Nss2 VHT80 / Ant 3 + Ant 4

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
155	5775 MHz	75.84	103.68	500	Complies

Temperature	26°C	Humidity	60%
Test Engineer	Sean Ku	Configurations	IEEE 802.11 a/b/g

Configuration IEEE 802.11b / Ant 1

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	8.56	10.08	500	Complies
6	2437 MHz	8.00	10.08	500	Complies
11	2462 MHz	8.48	10.08	500	Complies

Configuration IEEE 802.11g / Ant 1

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	16.08	16.40	500	Complies
6	2437 MHz	14.48	16.40	500	Complies
11	2462 MHz	16.00	16.32	500	Complies

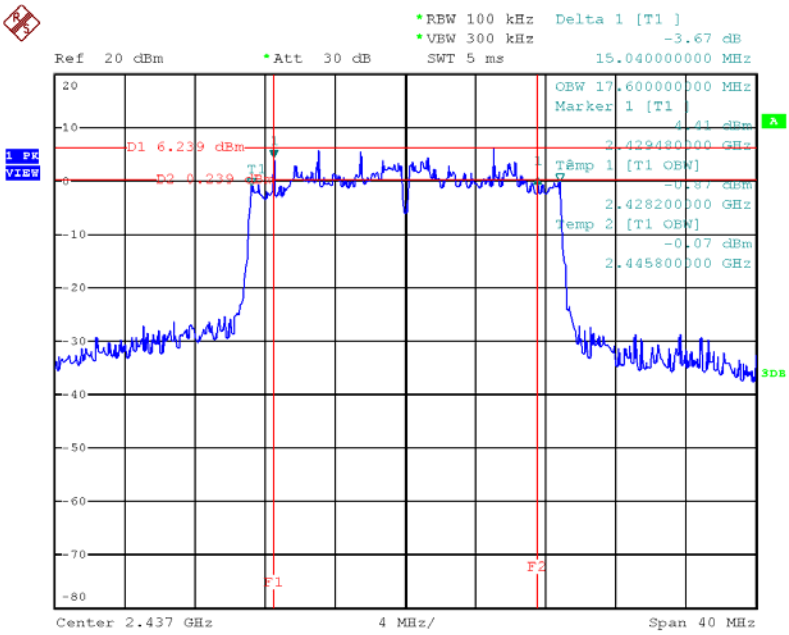
Configuration IEEE 802.11a / Ant 3

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
149	5745 MHz	16.40	23.44	500	Complies
157	5785 MHz	16.40	23.20	500	Complies
165	5825 MHz	16.32	23.52	500	Complies

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

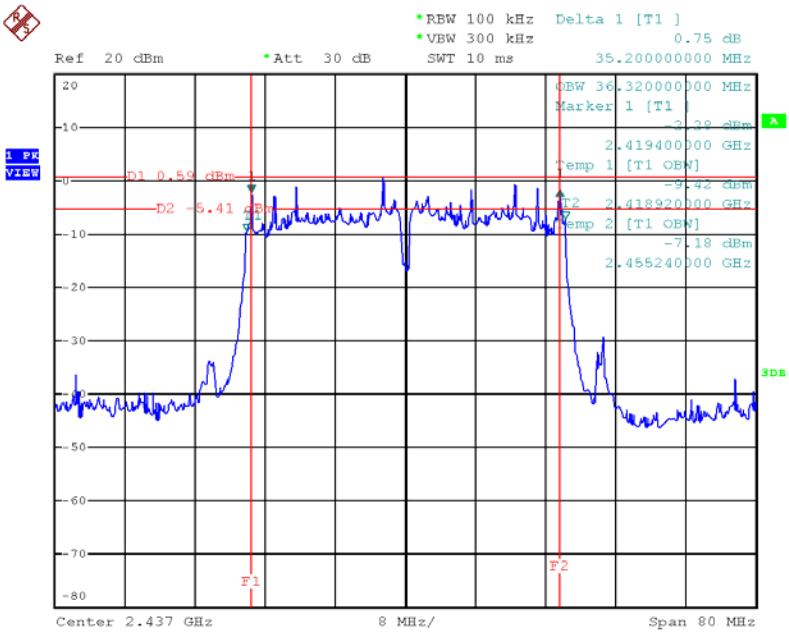
For plots, only the channel with maximum results was shown.

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 HT20 / Ant 1 + Ant 2 / 2437 MHz



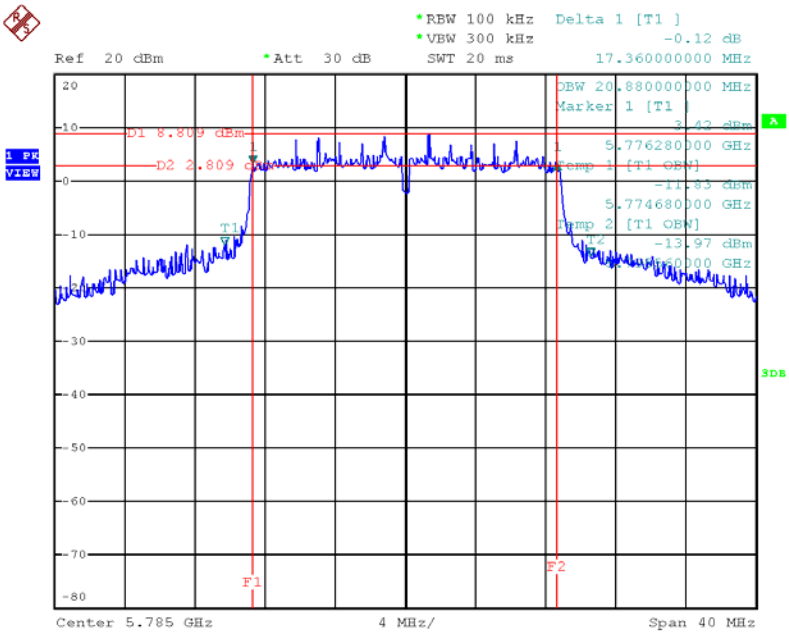
Date: 26.JAN.2013 10:12:52

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 HT40 / Ant 1 + Ant 2 / 2437 MHz



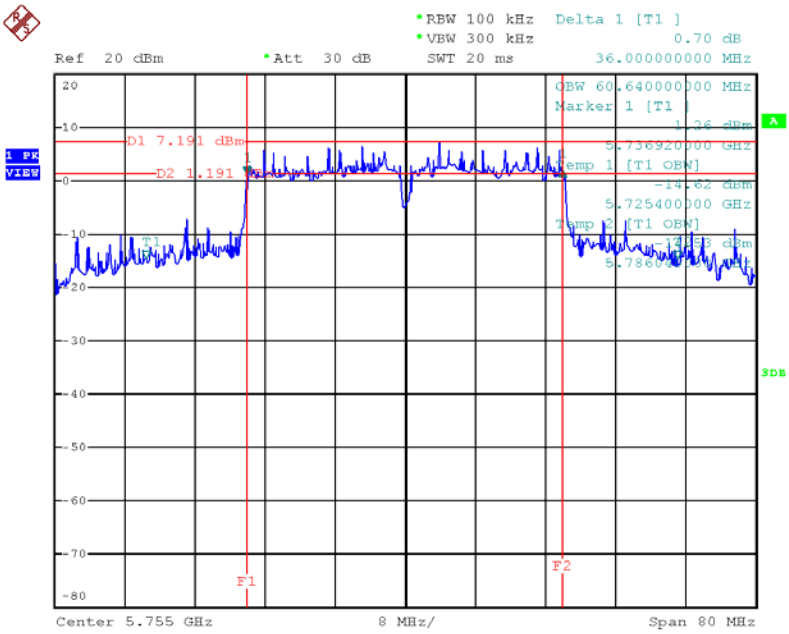
Date: 26.JAN.2013 10:18:10

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 HT20 / Ant 1 + Ant 2 / 5785 MHz



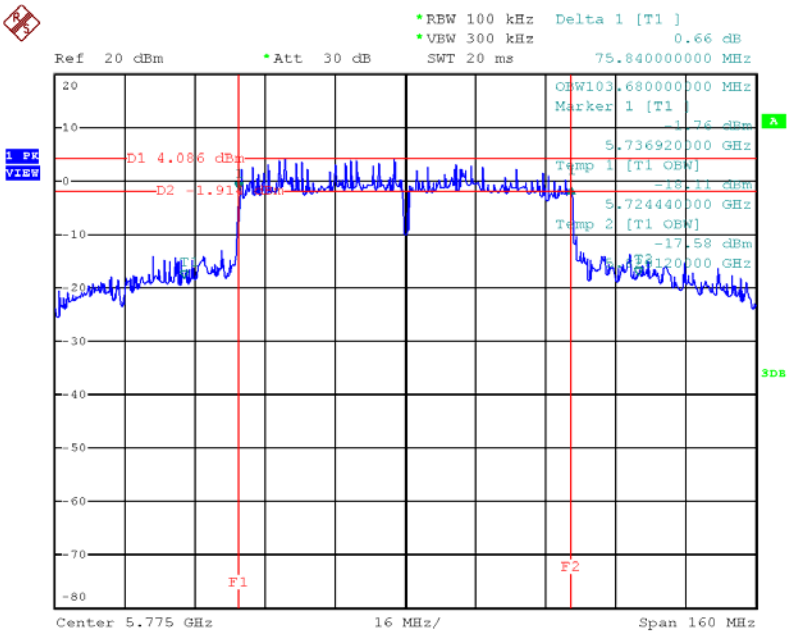
Date: 26.JAN.2013 11:37:40

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 HT40 / Ant 1 + Ant 2 / 5755 MHz



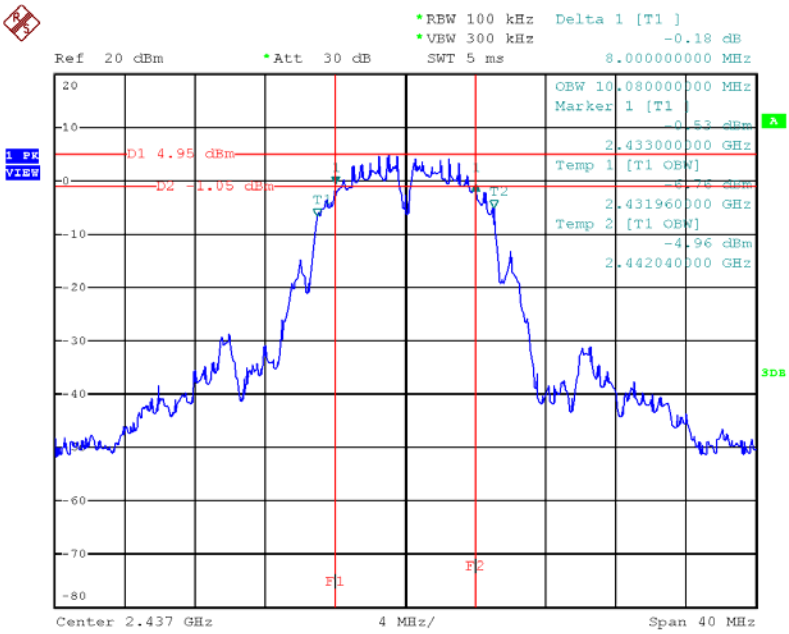
Date: 26.JAN.2013 11:40:04

6 dB Bandwidth Plot on Configuration IEEE 802.11ac MCS0 VHT80 / Ant 1 + Ant 2 / 5775 MHz



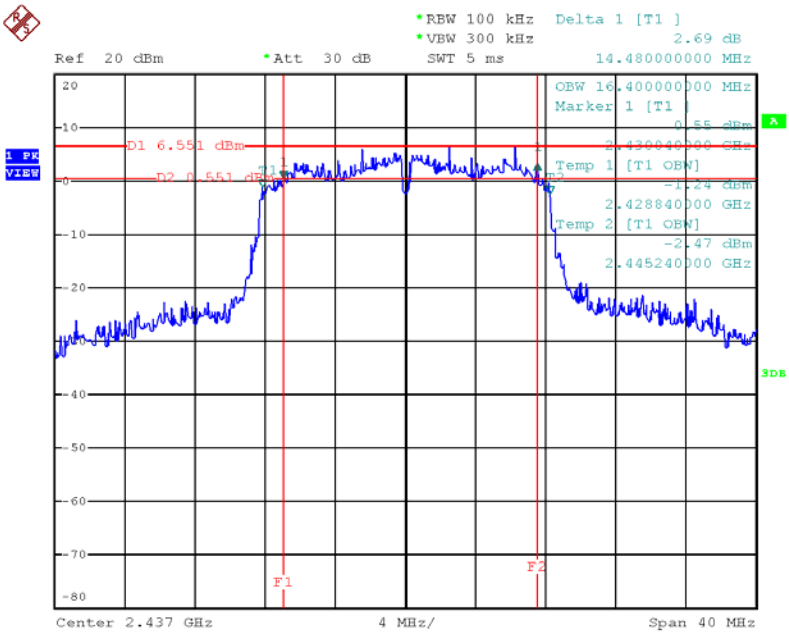
Date: 26.JAN.2013 11:27:46

6 dB Bandwidth Plot on Configuration IEEE 802.11b / Ant 1 / 2437 MHz



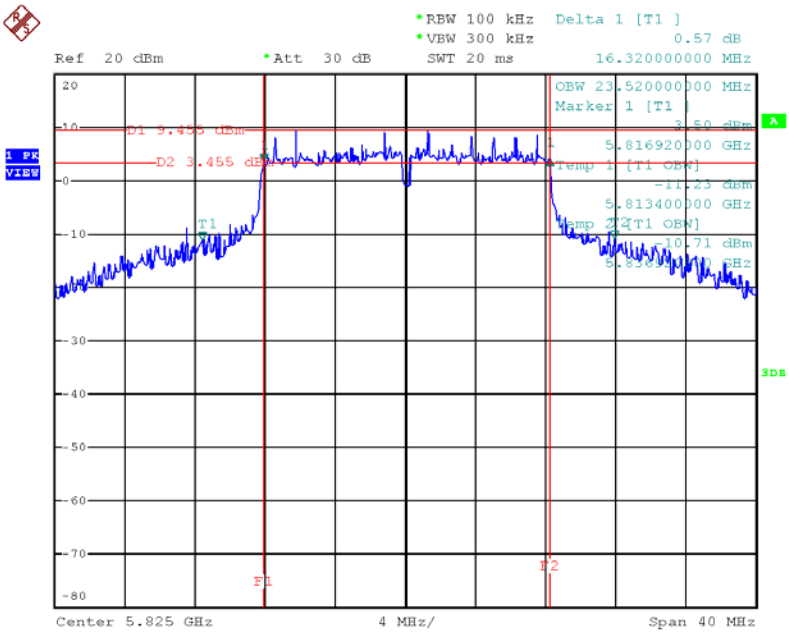
Date: 26.JAN.2013 09:07:52

6 dB Bandwidth Plot on Configuration IEEE 802.11g / Ant 1 / 2437 MHz



Date: 26.JAN.2013 10:05:59

6 dB Bandwidth Plot on Configuration IEEE 802.11a / Ant 3 / 5825 MHz



Date: 26.JAN.2013 11:34:37

4.5. Radiated Emissions Measurement

4.5.1. Limit

30dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

4.5.2. Measuring Instruments and Setting

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

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1GHz
Stop Frequency	10th carrier harmonic
RB / VB (Emission in restricted band)	1MHz / 3MHz for Peak, 1MHz / 10Hz for Average
RB / VB (Emission in non-restricted band)	100kHz / 300kHz for peak

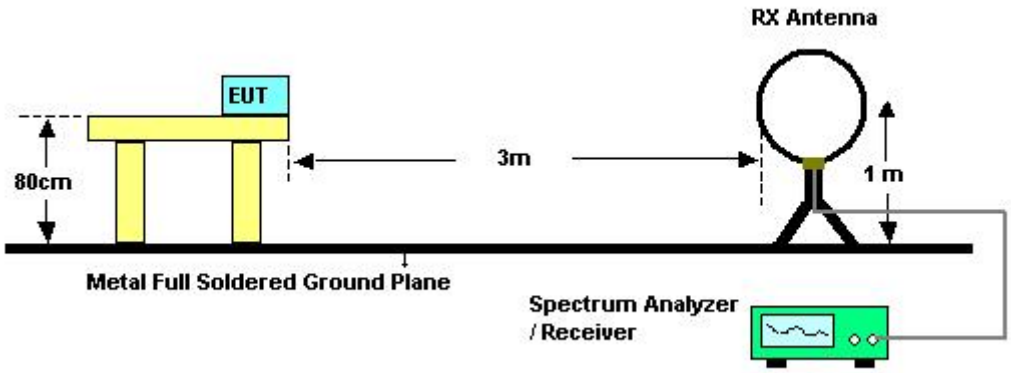
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1GHz / RB 120kHz for QP

4.5.3. Test Procedures

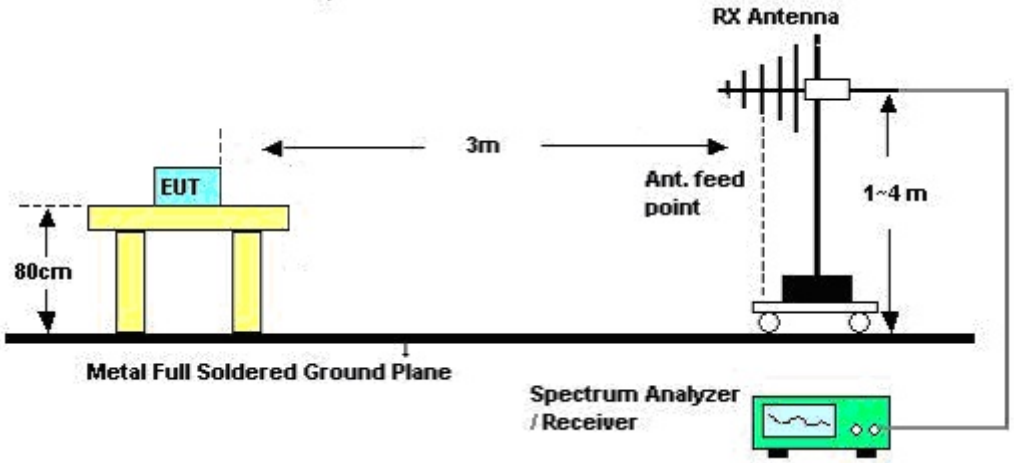
1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. For emissions above 1GHz, use 1MHz VBW and 3MHz RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer.
7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.
8. 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.
9. 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.
10. 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 below 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

The EUT was programmed to be in continuously transmitting mode.

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

Temperature	20°C	Humidity	63%
Test Engineer	Serway Li	Configurations	CTX
Test Date	Jan. 27, 2013	Test Mode	Mode 1

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

Note:

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

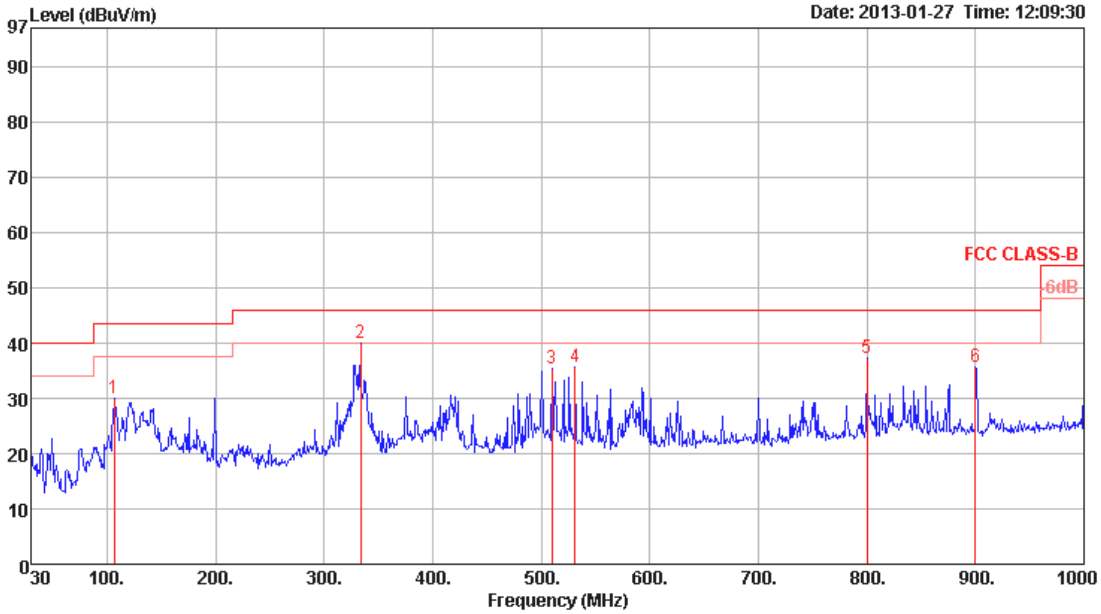
Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

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

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

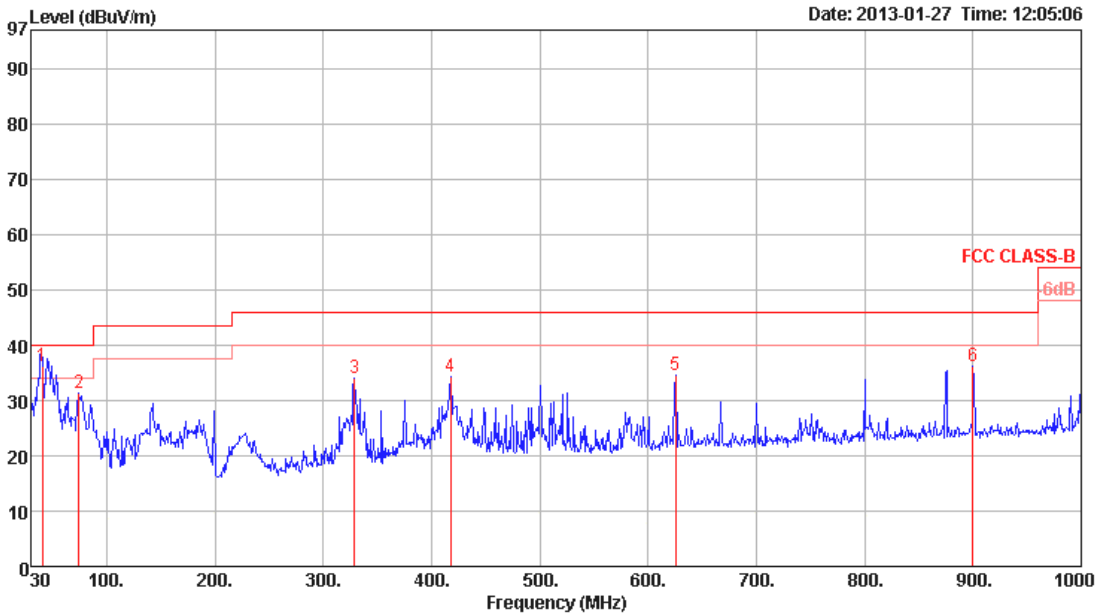
Temperature	20°C	Humidity	63%
Test Engineer	Serway Li	Configurations	CTX
Test Mode	Mode 1		

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	106.63	29.86	43.50	-13.64	44.73	1.20	11.50	27.57	Peak	100	0	HORIZONTAL
2	333.61	40.07	46.00	-5.93	50.75	2.17	14.28	27.13	Peak	100	0	HORIZONTAL
3	510.15	35.31	46.00	-10.69	42.95	2.72	17.74	28.10	Peak	100	0	HORIZONTAL
4	531.49	35.72	46.00	-10.28	43.08	2.76	17.98	28.10	Peak	100	0	HORIZONTAL
5	800.18	37.35	46.00	-8.65	41.88	3.30	19.77	27.60	Peak	100	0	HORIZONTAL
6	900.09	35.67	46.00	-10.33	38.94	3.60	20.53	27.40	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	40.35	36.15	40.00	-3.85	50.70	0.70	12.55	27.80	QP	100	111	VERTICAL
2	74.62	31.27	40.00	-8.73	51.19	0.90	6.88	27.70	Peak	400	0	VERTICAL
3	328.76	33.94	46.00	-12.06	44.73	2.16	14.15	27.10	Peak	400	0	VERTICAL
4	418.00	34.38	46.00	-11.62	43.31	2.41	16.35	27.69	Peak	400	0	VERTICAL
5	625.58	34.62	46.00	-11.38	40.79	3.05	18.85	28.07	Peak	400	0	VERTICAL
6	900.09	36.33	46.00	-9.67	39.60	3.60	20.53	27.40	Peak	400	0	VERTICAL

Note:

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

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

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

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

Temperature	20°C	Humidity	63%
Test Engineer	Serway Li	Configurations	IEEE 802.11n MCS8 HT20 Ch 1 / Ant 1 + Ant 2
Test Date	Jan. 27, 2013	Test Mode	Mode 1

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 p	4823.98	49.95	74.00	-24.05	47.87	4.21	34.69	32.56	Peak	355	102	HORIZONTAL
2 a	4824.26	36.31	54.00	-17.69	34.23	4.21	34.69	32.56	Average	355	102	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 a	4823.87	36.02	54.00	-17.98	33.94	4.21	34.69	32.56	Average	326	100	VERTICAL
2 p	4823.90	50.66	74.00	-23.34	48.58	4.21	34.69	32.56	Peak	326	100	VERTICAL

Temperature	20°C	Humidity	63%
Test Engineer	Serway Li	Configurations	IEEE 802.11n MCS8 HT20 Ch 6 / Ant 1 + Ant 2
Test Date	Jan. 27, 2013	Test Mode	Mode 1

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 p	4872.69	57.03	74.00	-16.97	54.82	4.22	34.67	32.66	Peak	1	100	HORIZONTAL
2 a	4874.16	43.26	54.00	-10.74	41.05	4.22	34.67	32.66	Average	1	100	HORIZONTAL
3	7310.23	40.16	54.00	-13.84	32.78	5.34	34.93	36.97	Average	281	100	HORIZONTAL
4	7315.42	52.05	74.00	-21.95	44.68	5.34	34.94	36.97	Peak	281	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	4872.17	54.96	74.00	-19.04	52.75	4.22	34.67	32.66	Peak	265	100	VERTICAL
2	4873.94	42.10	54.00	-11.90	39.89	4.22	34.67	32.66	Average	265	100	VERTICAL
3 p	7304.97	65.87	74.00	-8.13	58.49	5.34	34.93	36.97	Peak	197	101	VERTICAL
4 a	7310.33	49.96	54.00	-4.04	42.58	5.34	34.93	36.97	Average	197	101	VERTICAL

Temperature	20°C	Humidity	63%
Test Engineer	Serway Li	Configurations	IEEE 802.11n MCS8 HT20 Ch 11 / Ant 1 + Ant 2
Test Date	Jan. 27, 2013	Test Mode	Mode 1

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 p	4923.71	50.47	74.00	-23.53	48.13	4.23	34.65	32.76	Peak	359	100	HORIZONTAL
2 a	4924.29	36.10	54.00	-17.90	33.76	4.23	34.65	32.76	Average	359	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 a	4922.43	37.04	54.00	-16.96	34.70	4.23	34.65	32.76	Average	201	100	VERTICAL
2 p	4922.46	49.67	74.00	-24.33	47.33	4.23	34.65	32.76	Peak	201	100	VERTICAL

Temperature	20°C	Humidity	63%
Test Engineer	Serway Li	Configurations	IEEE 802.11n MCS8 HT40 Ch 3 / Ant 1 + Ant 2
Test Date	Jan. 27, 2013	Test Mode	Mode 1

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 a	4844.15	31.43	54.00	-22.57	29.31	4.21	34.68	32.59	Average	186	100	HORIZONTAL
2 p	4844.50	44.70	74.00	-29.30	42.58	4.21	34.68	32.59	Peak	186	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 a	4843.51	32.41	54.00	-21.59	30.29	4.21	34.68	32.59	Average	280	100	VERTICAL
2 p	4844.13	44.35	74.00	-29.65	42.23	4.21	34.68	32.59	Peak	280	100	VERTICAL

Temperature	20°C	Humidity	63%
Test Engineer	Serway Li	Configurations	IEEE 802.11n MCS8 HT40 Ch 6 / Ant 1 + Ant 2
Test Date	Jan. 27, 2013	Test Mode	Mode 1

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 a	4873.70	32.69	54.00	-21.31	30.48	4.22	34.67	32.66	Average	140	100	HORIZONTAL
2 p	4874.29	46.11	74.00	-27.89	43.90	4.22	34.67	32.66	Peak	140	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 a	4874.22	32.84	54.00	-21.16	30.63	4.22	34.67	32.66	Average	237	100	VERTICAL
2 p	4874.27	46.04	74.00	-27.96	43.83	4.22	34.67	32.66	Peak	237	100	VERTICAL

Temperature	20°C	Humidity	63%
Test Engineer	Serway Li	Configurations	IEEE 802.11n MCS8 HT40 Ch 9 / Ant 1 + Ant 2
Test Date	Jan. 27, 2013	Test Mode	Mode 1

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 p	4903.76	44.47	74.00	-29.53	42.18	4.22	34.66	32.73	Peak	187	100	HORIZONTAL
2 a	4904.36	31.80	54.00	-22.20	29.51	4.22	34.66	32.73	Average	187	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 p	4904.24	45.09	74.00	-28.91	42.80	4.22	34.66	32.73	Peak	258	100	VERTICAL
2 a	4904.24	32.52	54.00	-21.48	30.23	4.22	34.66	32.73	Average	258	100	VERTICAL

Temperature	20°C	Humidity	63%
Test Engineer	Serway Li	Configurations	IEEE 802.11n MCS8 HT20 Ch 149 / Ant 1 + Ant 2
Test Date	Jan. 27, 2013	Test Mode	Mode 1

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11486.76	60.74	74.00	-13.26	46.64	9.68	39.50	35.08	Peak	100	108	HORIZONTAL
2	11489.68	46.64	54.00	-7.36	32.51	9.71	39.50	35.08	Average	100	108	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	11485.16	68.89	74.00	-5.11	54.79	9.68	39.50	35.08	Peak	100	202	VERTICAL
2	11486.88	53.91	54.00	-0.09	39.81	9.68	39.50	35.08	Average	100	202	VERTICAL

Temperature	20°C	Humidity	63%
Test Engineer	Serway Li	Configurations	IEEE 802.11n MCS8 HT20 Ch 157 / Ant 1 + Ant 2
Test Date	Jan. 27, 2013	Test Mode	Mode 1

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11571.24	47.30	54.00	-6.70	33.27	9.65	39.47	35.09	Average	159	109	HORIZONTAL
2	11571.36	61.95	74.00	-12.05	47.92	9.65	39.47	35.09	Peak	159	109	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11566.48	68.93	74.00	-5.07	54.89	9.65	39.48	35.09	Peak	100	141	VERTICAL
2	11571.24	53.87	54.00	-0.13	39.84	9.65	39.47	35.09	Average	100	141	VERTICAL

Temperature	20°C	Humidity	63%
Test Engineer	Serway Li	Configurations	IEEE 802.11n MCS8 HT20 Ch 165 / Ant 1 + Ant 2
Test Date	Jan. 27, 2013	Test Mode	Mode 1

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11648.76	60.70	74.00	-13.30	46.74	9.59	39.44	35.07	Peak	100	113	HORIZONTAL
2	11649.88	48.36	54.00	-5.64	34.40	9.59	39.44	35.07	Average	100	113	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11650.48	53.78	54.00	-0.22	39.82	9.59	39.44	35.07	Average	100	208	VERTICAL
2	11652.36	67.35	74.00	-6.65	53.39	9.59	39.44	35.07	Peak	100	208	VERTICAL

Temperature	20°C	Humidity	63%
Test Engineer	Serway Li	Configurations	IEEE 802.11n MCS8 HT40 Ch 151 / Ant 1 + Ant 2
Test Date	Jan. 27, 2013	Test Mode	Mode 1

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11511.60	46.00	54.00	-8.00	31.89	9.71	39.50	35.10	Average	100	192	HORIZONTAL
2	11521.30	60.25	74.00	-13.75	46.16	9.69	39.49	35.09	Peak	100	192	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	11511.20	53.96	54.00	-0.04	39.85	9.71	39.50	35.10	Average	123	200	VERTICAL
2	11511.30	68.93	74.00	-5.07	54.82	9.71	39.50	35.10	Peak	123	200	VERTICAL

Temperature	20°C	Humidity	63%
Test Engineer	Serway Li	Configurations	IEEE 802.11n MCS8 HT40 Ch 159 / Ant 1 + Ant 2
Test Date	Jan. 27, 2013	Test Mode	Mode 1

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11581.60	47.10	54.00	-6.90	33.06	9.65	39.47	35.08	Average	100	112	HORIZONTAL
2	11586.70	59.88	74.00	-14.12	45.84	9.65	39.47	35.08	Peak	100	112	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	11577.60	67.44	74.00	-6.56	53.40	9.65	39.47	35.08	Peak	196	205	VERTICAL
2	11580.20	53.21	54.00	-0.79	39.17	9.65	39.47	35.08	Average	196	205	VERTICAL

Temperature	20°C	Humidity	63%
Test Engineer	Serway Li	Configurations	IEEE 802.11ac MCS0-Nss2 VHT20 CH 149 / Ant 1 + Ant 2
Test Date	Jan. 27, 2013	Test Mode	Mode 1

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11486.50	60.26	74.00	-13.74	46.16	9.68	39.50	35.08	Peak	168	111	HORIZONTAL
2	11489.60	47.03	54.00	-6.97	32.90	9.71	39.50	35.08	Average	168	111	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	11485.60	68.97	74.00	-5.03	54.87	9.68	39.50	35.08	Peak	100	202	VERTICAL
2	11489.50	53.84	54.00	-0.16	39.71	9.71	39.50	35.08	Average	100	202	VERTICAL

Temperature	20°C	Humidity	63%
Test Engineer	Serway Li	Configurations	IEEE 802.11ac MCS0-Nss2 VHT20 CH 157 / Ant 1 + Ant 2
Test Date	Jan. 27, 2013	Test Mode	Mode 1

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11570.30	48.08	54.00	-5.92	34.05	9.65	39.47	35.09	Average	100	113	HORIZONTAL
2	11571.40	60.91	74.00	-13.09	46.88	9.65	39.47	35.09	Peak	100	113	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11565.60	67.76	74.00	-6.24	53.72	9.65	39.48	35.09	Peak	100	207	VERTICAL
2	11569.20	53.37	54.00	-0.63	39.34	9.65	39.47	35.09	Average	100	207	VERTICAL

Temperature	20°C	Humidity	63%
Test Engineer	Serway Li	Configurations	IEEE 802.11ac MCS0-Nss2 VHT20 CH 165 / Ant 1 + Ant 2
Test Date	Jan. 27, 2013	Test Mode	Mode 1

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11649.00	47.33	54.00	-6.67	33.37	9.59	39.44	35.07	Average	100	113	HORIZONTAL
2	11650.90	60.55	74.00	-13.45	46.59	9.59	39.44	35.07	Peak	100	113	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11645.40	67.15	74.00	-6.85	53.19	9.59	39.44	35.07	Peak	100	207	VERTICAL
2	11649.10	53.39	54.00	-0.61	39.43	9.59	39.44	35.07	Average	100	207	VERTICAL

Temperature	20°C	Humidity	63%
Test Engineer	Serway Li	Configurations	IEEE 802.11ac MCS0-Nss2 VHT40 CH 151 / Ant 1 + Ant 2
Test Date	Jan. 27, 2013	Test Mode	Mode 1

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11506.80	59.81	74.00	-14.19	45.70	9.71	39.50	35.10	Peak	106	110	HORIZONTAL
2	11511.10	46.14	54.00	-7.86	32.03	9.71	39.50	35.10	Average	106	110	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	11510.80	69.54	74.00	-4.46	55.43	9.71	39.50	35.10	Peak	123	197	VERTICAL
2	11511.00	53.55	54.00	-0.45	39.44	9.71	39.50	35.10	Average	123	197	VERTICAL

Temperature	20°C	Humidity	63%
Test Engineer	Serway Li	Configurations	IEEE 802.11ac MCS0-Nss2 VHT40 CH 159 / Ant 1 + Ant 2
Test Date	Jan. 27, 2013	Test Mode	Mode 1

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11581.00	45.86	54.00	-8.14	31.82	9.65	39.47	35.08	Average	100	111	HORIZONTAL
2	11581.80	59.14	74.00	-14.86	45.10	9.65	39.47	35.08	Peak	100	111	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	11577.70	67.49	74.00	-6.51	53.45	9.65	39.47	35.08	Peak	100	206	VERTICAL
2	11580.30	53.18	54.00	-0.82	39.14	9.65	39.47	35.08	Average	100	206	VERTICAL

Temperature	20°C	Humidity	63%
Test Engineer	Serway Li	Configurations	IEEE 802.11ac MCS0-Nss2 VHT80 CH 155 / Ant 1 + Ant 2
Test Date	Jan. 27, 2013	Test Mode	Mode 1

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11565.84	45.80	54.00	-8.20	31.76	9.65	39.48	35.09	Average	100	112	HORIZONTAL
2	11577.36	59.09	74.00	-14.91	45.05	9.65	39.47	35.08	Peak	100	112	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11551.28	51.88	54.00	-2.12	37.82	9.67	39.48	35.09	Average	128	205	VERTICAL
2	11565.36	66.82	74.00	-7.18	52.78	9.65	39.48	35.09	Peak	128	205	VERTICAL

Temperature	20°C	Humidity	63%
Test Engineer	Serway Li	Configurations	IEEE 802.11b CH 1 / Ant 1
Test Date	Jan. 27, 2013	Test Mode	Mode 1

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 p	4823.86	54.38	74.00	-19.62	52.30	4.21	34.69	32.56	Peak	136	100	HORIZONTAL
2 a	4824.00	51.63	54.00	-2.37	49.55	4.21	34.69	32.56	Average	136	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 a	4823.97	53.54	54.00	-0.46	51.46	4.21	34.69	32.56	Average	328	101	VERTICAL
2 p	4823.98	56.43	74.00	-17.57	54.35	4.21	34.69	32.56	Peak	328	101	VERTICAL

Temperature	20°C	Humidity	63%
Test Engineer	Serway Li	Configurations	IEEE 802.11b CH 6 / Ant 1
Test Date	Jan. 27, 2013	Test Mode	Mode 1

Horizontal

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	p	4873.96	52.32	74.00	-21.68	50.11	4.22	34.67	32.66	Peak	137	100	HORIZONTAL
2	a	4873.97	49.36	54.00	-4.64	47.15	4.22	34.67	32.66	Average	137	100	HORIZONTAL
3		7311.67	41.25	54.00	-12.75	33.88	5.34	34.94	36.97	Average	148	171	HORIZONTAL
4		7311.87	51.67	74.00	-22.33	44.30	5.34	34.94	36.97	Peak	148	171	HORIZONTAL

Vertical

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	!	4873.98	51.31	54.00	-2.69	49.10	4.22	34.67	32.66	Average	326	101	VERTICAL
2		4874.01	54.00	74.00	-20.00	51.79	4.22	34.67	32.66	Peak	326	101	VERTICAL
3	p	7309.91	58.46	74.00	-15.54	51.08	5.34	34.93	36.97	Peak	197	102	VERTICAL
4	a	7310.26	53.16	54.00	-0.84	45.78	5.34	34.93	36.97	Average	197	102	VERTICAL

Temperature	20°C	Humidity	63%
Test Engineer	Serway Li	Configurations	IEEE 802.11b CH 11 / Ant 1
Test Date	Jan. 27, 2013	Test Mode	Mode 1

Horizontal

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1		4923.92	49.83	74.00	-24.17	47.49	4.23	34.65	32.76	Peak	311	100	HORIZONTAL
2	a	4923.99	45.52	54.00	-8.48	43.18	4.23	34.65	32.76	Average	311	100	HORIZONTAL
3	p	7383.98	51.14	74.00	-22.86	43.66	5.36	34.96	37.08	Peak	139	165	HORIZONTAL
4		7385.20	40.88	54.00	-13.12	33.40	5.36	34.96	37.08	Average	139	165	HORIZONTAL

Vertical

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1		4923.94	56.36	74.00	-17.64	54.02	4.23	34.65	32.76	Peak	200	103	VERTICAL
2	a	4924.00	53.38	54.00	-0.62	51.04	4.23	34.65	32.76	Average	200	103	VERTICAL
3	!	7386.71	49.36	54.00	-4.64	41.88	5.36	34.96	37.08	Average	201	100	VERTICAL
4	p	7386.90	56.57	74.00	-17.43	49.09	5.36	34.96	37.08	Peak	201	100	VERTICAL

Temperature	20°C	Humidity	63%
Test Engineer	Serway Li	Configurations	IEEE 802.11g CH 1 / Ant 1
Test Date	Jan. 27, 2013	Test Mode	Mode 1

Horizontal

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	a	4823.83	35.80	54.00	-18.20	33.72	4.21	34.69	32.56	Average	136	100	HORIZONTAL
2	p	4824.07	49.60	74.00	-24.40	47.52	4.21	34.69	32.56	Peak	136	100	HORIZONTAL

Vertical

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	a	4823.94	37.02	54.00	-16.98	34.94	4.21	34.69	32.56	Average	327	100	VERTICAL
2	p	4824.03	51.99	74.00	-22.01	49.91	4.21	34.69	32.56	Peak	327	100	VERTICAL

Temperature	20°C	Humidity	63%
Test Engineer	Serway Li	Configurations	IEEE 802.11g CH 6 / Ant 1
Test Date	Jan. 27, 2013	Test Mode	Mode 1

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	4866.69	53.96	74.00	-20.04	51.80	4.21	34.67	32.62	Peak	139	100	HORIZONTAL
2 a	4873.90	40.95	54.00	-13.05	38.74	4.22	34.67	32.66	Average	139	100	HORIZONTAL
3	7311.39	40.05	54.00	-13.95	32.68	5.34	34.94	36.97	Average	186	100	HORIZONTAL
4 p	7311.80	55.76	74.00	-18.24	48.39	5.34	34.94	36.97	Peak	186	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	4873.55	42.05	54.00	-11.95	39.84	4.22	34.67	32.66	Average	274	100	VERTICAL
2	4878.84	54.71	74.00	-19.29	52.50	4.22	34.67	32.66	Peak	274	100	VERTICAL
3 a	7311.80	53.28	54.00	-0.72	45.91	5.34	34.94	36.97	Average	197	102	VERTICAL
4 p	7313.76	68.10	74.00	-5.90	60.73	5.34	34.94	36.97	Peak	197	102	VERTICAL

Temperature	20°C	Humidity	63%
Test Engineer	Serway Li	Configurations	IEEE 802.11g CH 11 / Ant 1
Test Date	Jan. 27, 2013	Test Mode	Mode 1

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 p	4919.03	48.25	74.00	-25.75	45.91	4.23	34.65	32.76	Peak	144	100	HORIZONTAL
2 a	4924.48	34.10	54.00	-19.90	31.76	4.23	34.65	32.76	Average	144	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 a	4924.55	40.48	54.00	-13.52	38.14	4.23	34.65	32.76	Average	200	103	VERTICAL
2 p	4927.21	54.25	74.00	-19.75	51.91	4.23	34.65	32.76	Peak	200	103	VERTICAL

Temperature	20°C	Humidity	63%
Test Engineer	Serway Li	Configurations	IEEE 802.11a CH 149 / Ant 3
Test Date	Jan. 27, 2013	Test Mode	Mode 1

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11491.68	46.39	54.00	-7.61	32.26	9.71	39.50	35.08	Average	100	202	HORIZONTAL
2	11492.28	58.56	74.00	-15.44	44.43	9.71	39.50	35.08	Peak	100	202	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	11486.48	53.76	54.00	-0.24	39.66	9.68	39.50	35.08	Average	130	206	VERTICAL
2	11488.36	67.88	74.00	-6.12	53.75	9.71	39.50	35.08	Peak	130	206	VERTICAL

Temperature	20°C	Humidity	63%
Test Engineer	Serway Li	Configurations	IEEE 802.11a CH 157 / Ant 3
Test Date	Jan. 27, 2013	Test Mode	Mode 1

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11566.28	46.26	54.00	-7.74	32.22	9.65	39.48	35.09	Average	100	200	HORIZONTAL
2	11570.40	58.98	74.00	-15.02	44.95	9.65	39.47	35.09	Peak	100	200	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	11569.28	67.27	74.00	-6.73	53.24	9.65	39.47	35.09	Peak	100	141	VERTICAL
2	11569.52	53.26	54.00	-0.74	39.23	9.65	39.47	35.09	Average	100	141	VERTICAL

Temperature	20°C	Humidity	63%
Test Engineer	Serway Li	Configurations	IEEE 802.11a CH 165 / Ant 3
Test Date	Jan. 27, 2013	Test Mode	Mode 1

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11646.36	59.00	74.00	-15.00	45.04	9.59	39.44	35.07	Peak	100	196	HORIZONTAL
2	11650.56	47.00	54.00	-7.00	33.04	9.59	39.44	35.07	Average	100	196	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11649.36	67.40	74.00	-6.60	53.44	9.59	39.44	35.07	Peak	100	207	VERTICAL
2	11651.80	53.22	54.00	-0.78	39.26	9.59	39.44	35.07	Average	100	207	VERTICAL

Note:

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

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

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

4.6. Band Edge 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
RB / VB (Emission in restricted band)	1MHz / 3MHz for Peak, 1 MHz / 10Hz for Average
RB / VB (Emission in non-restricted band)	100 KHz / 300 KHz for Peak

4.6.3. Test Procedures

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

4.6.4. Test Setup Layout

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

The EUT was programmed to be in continuously transmitting mode.

4.6.7. Test Result of Band Edge and Fundamental Emissions

Temperature	20°C	Humidity	63%
Test Engineer	Serway Li	Configurations	IEEE 802.11n MCS8 HT20 Ch 1, 6, 11 / Ant 1 + Ant 2
Test date	Jan. 27, 2013		

Channel 1

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	!	2389.04	70.61	74.00	-3.39	39.83	2.91	0.00	27.87	Peak	166	105	VERTICAL
2	!	2390.00	53.90	54.00	-0.10	23.12	2.91	0.00	27.87	Average	166	105	VERTICAL
3	p	2412.64	111.82	74.00			2.92	0.00	27.84	Peak	166	105	VERTICAL
4	a	2412.64	99.23	54.00			2.92	0.00	27.84	Average	166	105	VERTICAL

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

Channel 6

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	!	2388.08	68.98	74.00	-5.02	38.20	2.91	0.00	27.87	Peak	335	106	VERTICAL
2	!	2390.00	51.23	54.00	-2.77	20.45	2.91	0.00	27.87	Average	335	106	VERTICAL
3	p	2436.36	118.27	74.00			2.93	0.00	27.81	Peak	335	106	VERTICAL
4	a	2437.96	104.91	54.00			2.94	0.00	27.78	Average	335	106	VERTICAL
5	!	2483.50	53.51	54.00	-0.49	22.82	2.96	0.00	27.73	Average	335	106	VERTICAL
6	!	2484.46	71.73	74.00	-2.27	41.04	2.96	0.00	27.73	Peak	335	106	VERTICAL

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

Channel 11

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	p	2461.20	111.44	74.00			2.95	0.00	27.76	Peak	337	103	VERTICAL
2	a	2462.96	98.01	54.00			2.95	0.00	27.76	Average	337	103	VERTICAL
3	!	2494.72	53.41	54.00	-0.59	22.74	2.97	0.00	27.70	Average	337	103	VERTICAL
4		2495.20	67.37	74.00	-6.63	36.70	2.97	0.00	27.70	Peak	337	103	VERTICAL

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

Temperature	20°C	Humidity	63%
Test Engineer	Serway Li	Configurations	IEEE 802.11n MCS8 40MHz Ch 3, 6, 9 / Ant 1 + Ant 2
Test date	Jan. 27, 2013		

Channel 3

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	!	2388.72	68.28	74.00	-5.72	37.50	2.91	0.00	27.87	Peak	337	104	VERTICAL
2	!	2390.00	53.97	54.00	-0.03	23.19	2.91	0.00	27.87	Average	337	104	VERTICAL
3	p	2423.60	106.09	74.00			2.93	0.00	27.81	Peak	337	104	VERTICAL
4	a	2424.24	92.13	54.00			2.93	0.00	27.81	Average	337	104	VERTICAL

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

Channel 6

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	!	2389.04	69.71	74.00	-4.29	38.93	2.91	0.00	27.87	Peak	336	104	VERTICAL
2	!	2390.00	53.94	54.00	-0.06	23.16	2.91	0.00	27.87	Average	336	104	VERTICAL
3	a	2438.92	95.24	54.00			2.94	0.00	27.78	Average	336	104	VERTICAL
4	p	2439.56	109.95	74.00			2.94	0.00	27.78	Peak	336	104	VERTICAL
5	!	2483.50	53.67	54.00	-0.33	22.98	2.96	0.00	27.73	Average	336	104	VERTICAL
6	!	2483.82	69.09	74.00	-4.91	38.40	2.96	0.00	27.73	Peak	336	104	VERTICAL

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

Channel 9

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	p	2442.71	106.06	74.00			2.94	0.00	27.78	Peak	335	105	VERTICAL
2	a	2453.92	91.63	54.00			2.95	0.00	27.76	Average	335	105	VERTICAL
3	!	2498.56	53.46	54.00	-0.54	22.79	2.97	0.00	27.70	Average	335	105	VERTICAL
4		2499.53	66.49	74.00	-7.51	35.82	2.97	0.00	27.70	Peak	335	105	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	20°C	Humidity	63%
Test Engineer	Serway Li	Configurations	IEEE 802.11b CH 1, 6, 11 / Ant 1
Test date	Jan. 27, 2013		

Channel 1

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1		2389.20	60.97	74.00	-13.03	30.19	2.91	0.00	27.87	Peak	165	104	VERTICAL
2	!	2390.00	53.41	54.00	-0.59	22.63	2.91	0.00	27.87	Average	165	104	VERTICAL
3	p	2411.04	111.90	74.00			2.92	0.00	27.84	Peak	165	104	VERTICAL
4	a	2411.20	107.93	54.00			2.92	0.00	27.84	Average	165	104	VERTICAL

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

Channel 6

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1		2387.44	56.23	74.00	-17.77	25.45	2.91	0.00	27.87	Peak	166	130	VERTICAL
2		2388.40	43.22	54.00	-10.78	12.44	2.91	0.00	27.87	Average	166	130	VERTICAL
3	p	2436.04	109.79	74.00			2.93	0.00	27.81	Peak	166	130	VERTICAL
4	a	2436.36	106.02	54.00			2.93	0.00	27.81	Average	166	130	VERTICAL
5		2483.50	41.74	54.00	-12.26	11.05	2.96	0.00	27.73	Average	166	130	VERTICAL
6		2488.63	54.64	74.00	-19.36	23.97	2.97	0.00	27.70	Peak	166	130	VERTICAL

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

Channel 11

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	a	2461.20	105.08	54.00			2.95	0.00	27.76	Average	98	151	VERTICAL
2	p	2462.96	108.95	74.00			2.95	0.00	27.76	Peak	98	151	VERTICAL
3	!	2483.50	48.93	54.00	-5.07	18.24	2.96	0.00	27.73	Average	98	151	VERTICAL
4		2483.66	61.61	74.00	-12.39	30.92	2.96	0.00	27.73	Peak	98	151	VERTICAL

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

Temperature	20°C	Humidity	63%
Test Engineer	Serway Li	Configurations	IEEE 802.11g CH 1, 6, 11 / Ant 1
Test date	Jan. 27, 2013		

Channel 1

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	!	2389.20	69.19	74.00	-4.81	38.41	2.91	0.00	27.87	Peak	164	103	VERTICAL
2	!	2390.00	53.48	54.00	-0.52	22.70	2.91	0.00	27.87	Average	164	103	VERTICAL
3	a	2411.36	100.23	54.00			2.92	0.00	27.84	Average	164	103	VERTICAL
4	p	2412.16	111.44	74.00			2.92	0.00	27.84	Peak	164	103	VERTICAL

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

Channel 6

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	!	2389.68	71.40	74.00	-2.60	40.62	2.91	0.00	27.87	Peak	166	128	VERTICAL
2	!	2390.00	53.84	54.00	-0.16	23.06	2.91	0.00	27.87	Average	166	128	VERTICAL
3	p	2437.00	115.53	74.00			2.94	0.00	27.78	Peak	166	128	VERTICAL
4	a	2437.64	105.11	54.00			2.94	0.00	27.78	Average	166	128	VERTICAL
5	!	2483.50	53.53	54.00	-0.47	22.84	2.96	0.00	27.73	Average	166	128	VERTICAL
6	!	2485.10	68.61	74.00	-5.39	37.92	2.96	0.00	27.73	Peak	166	128	VERTICAL

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

Channel 11

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	a	2462.80	100.14	54.00			2.95	0.00	27.76	Average	97	150	VERTICAL
2	p	2463.44	111.33	74.00			2.95	0.00	27.76	Peak	97	150	VERTICAL
3	!	2483.50	53.30	54.00	-0.70	22.61	2.96	0.00	27.73	Average	97	150	VERTICAL
4	!	2484.46	68.10	74.00	-5.90	37.41	2.96	0.00	27.73	Peak	97	150	VERTICAL

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

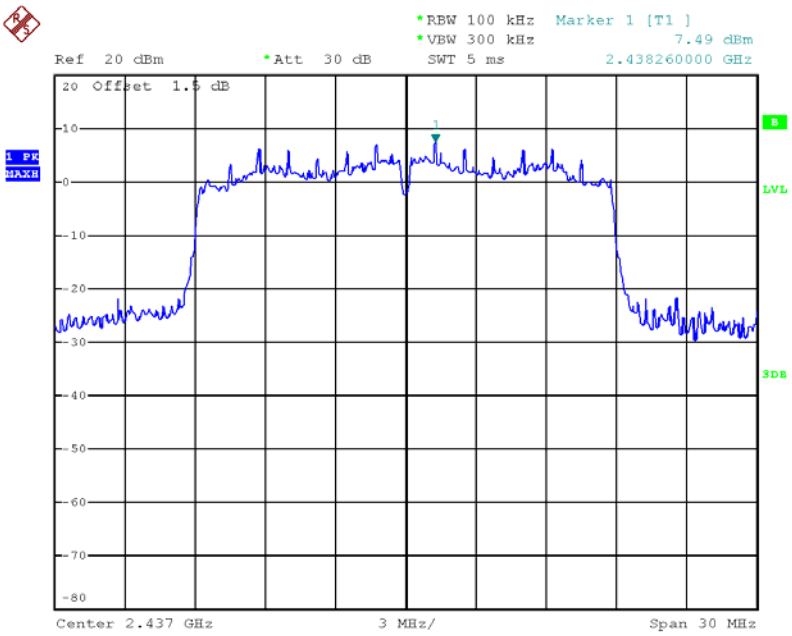
Note:

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

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

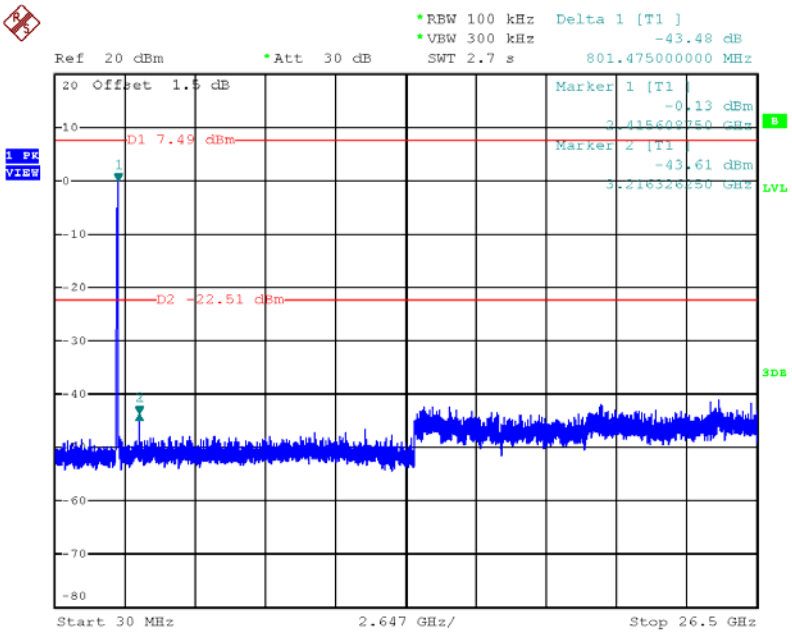
For Emission not in Restricted Band

Plot on Configuration IEEE 802.11n MCS8 HT20 / Reference Level



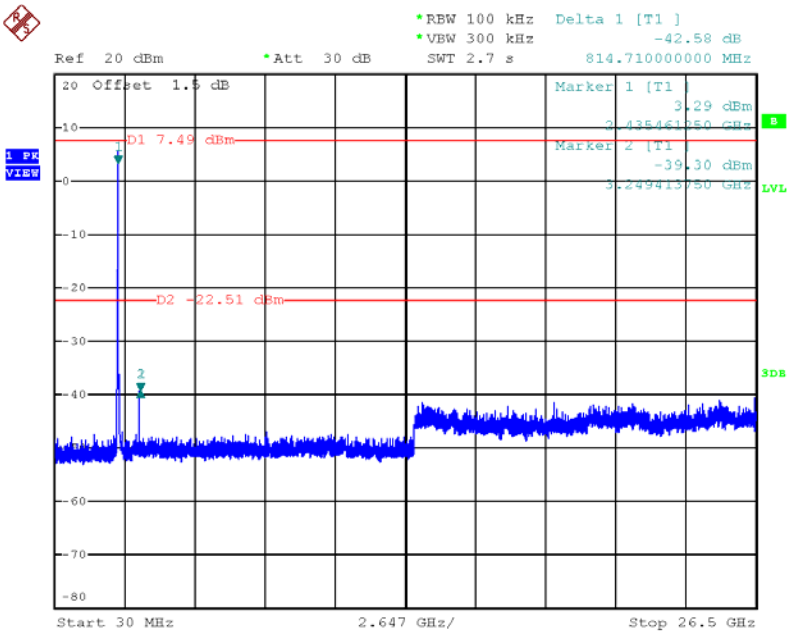
Date: 26.JAN.2013 09:28:39

Plot on Configuration IEEE 802.11n MCS8 HT20 / CH 1 (down 30dBc)



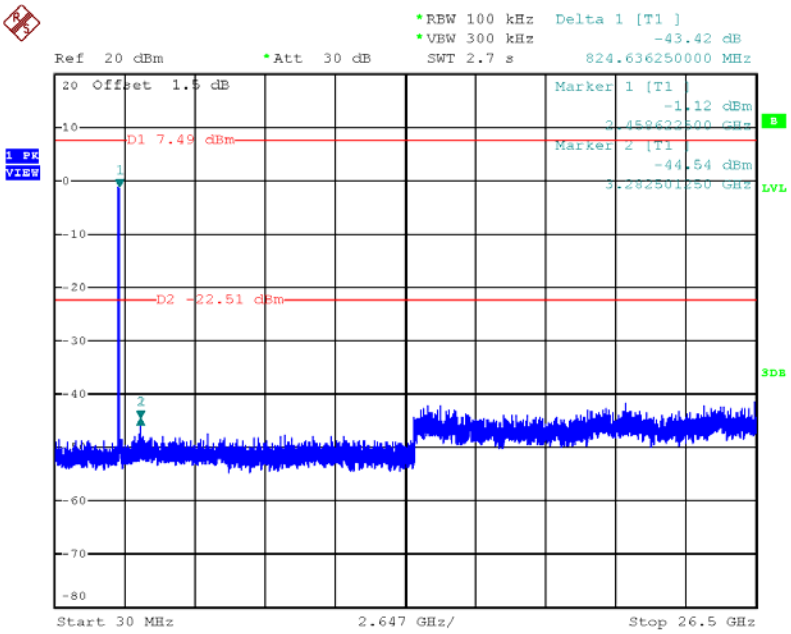
Date: 26.JAN.2013 10:52:46

Plot on Configuration IEEE 802.11n MCS8 HT20 / CH 6 (down 30dBc)



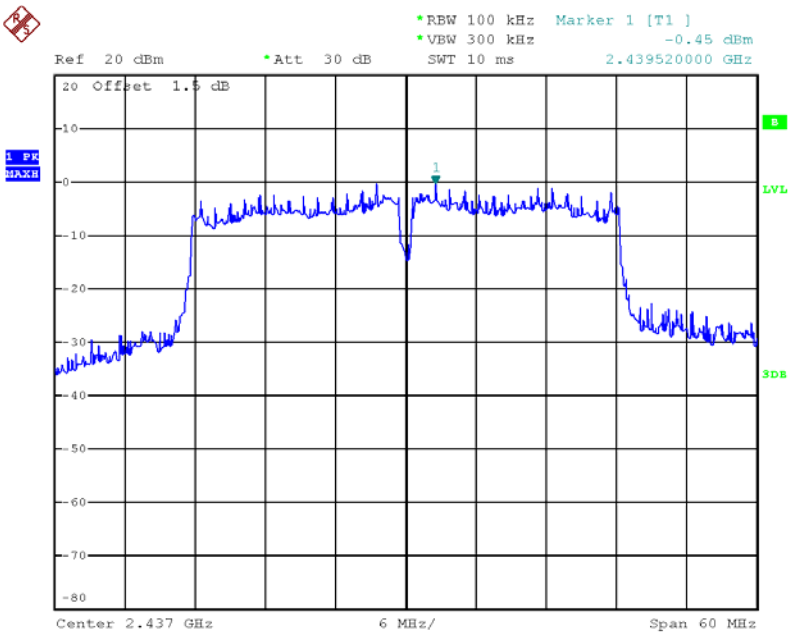
Date: 26.JAN.2013 10:54:51

Plot on Configuration IEEE 802.11n MCS8 HT20 / CH 11 (down 30dBc)



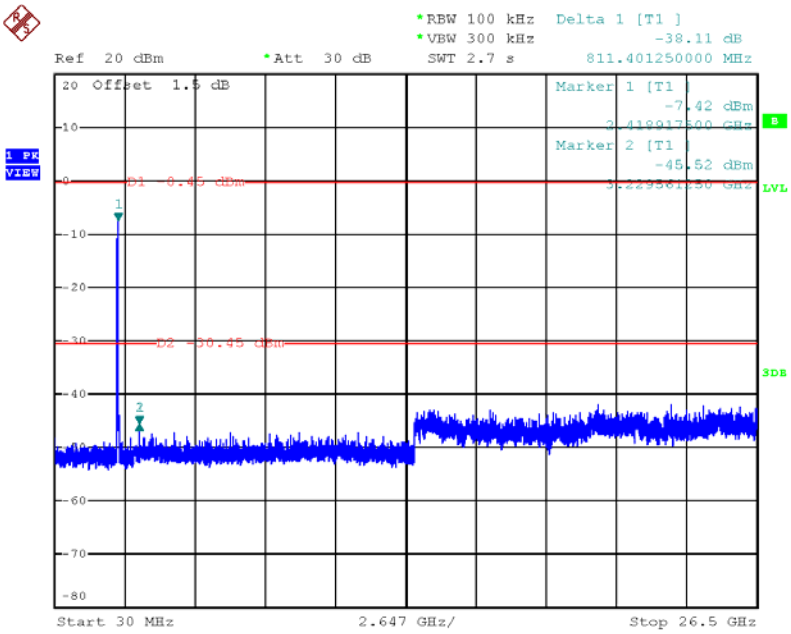
Date: 26.JAN.2013 10:57:03

Plot on Configuration IEEE 802.11n MCS8 HT40 / Reference Level



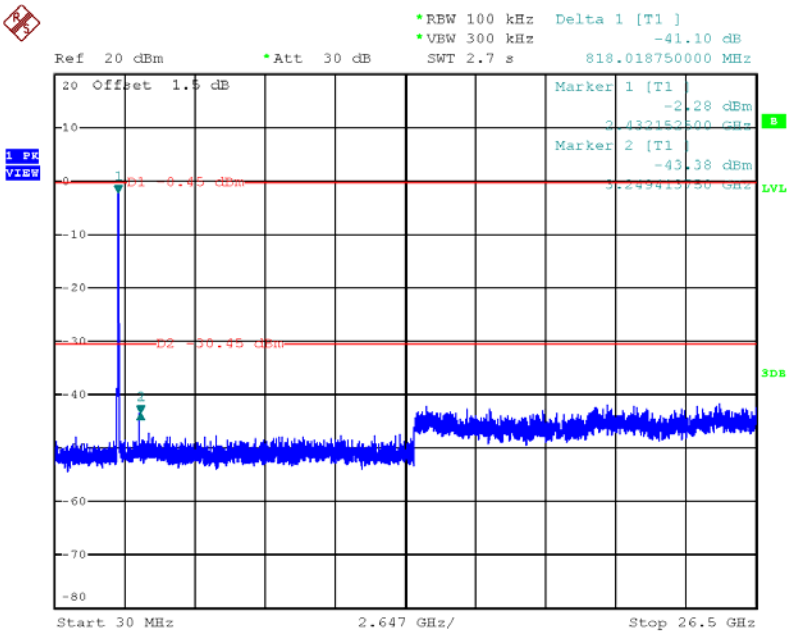
Date: 26.JAN.2013 09:35:02

Plot on Configuration IEEE 802.11n MCS8 HT40 / CH 3 (down 30dBc)



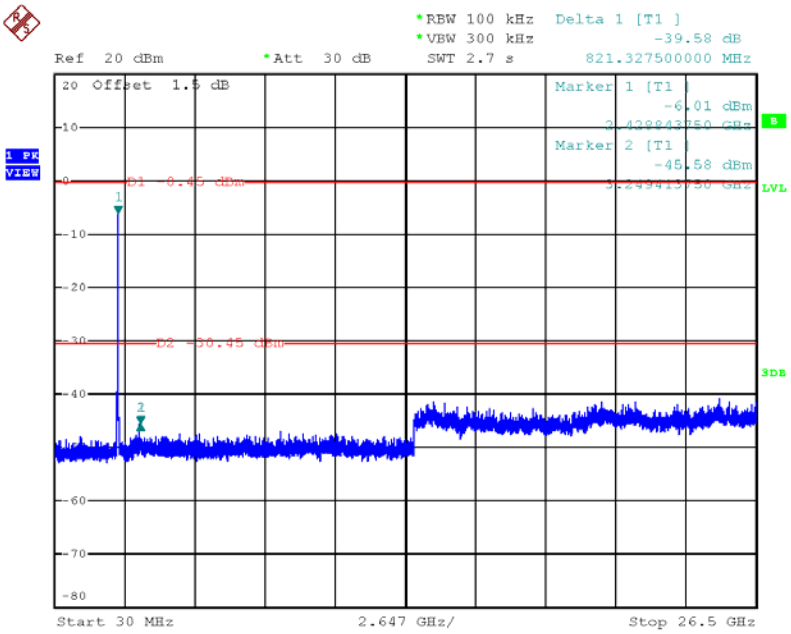
Date: 26.JAN.2013 11:00:30

Plot on Configuration IEEE 802.11n MCS8 HT40 / CH 6 (down 30dBc)



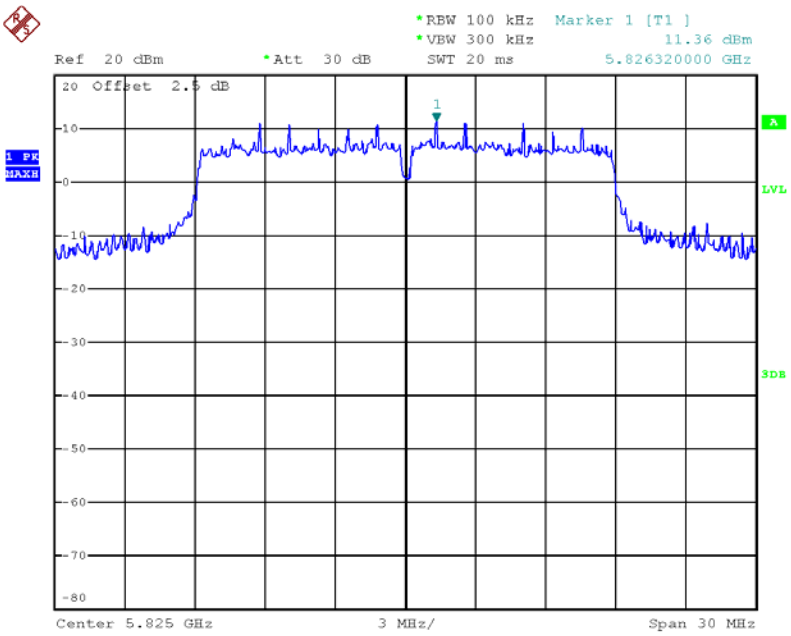
Date: 26.JAN.2013 11:01:29

Plot on Configuration IEEE 802.11n MCS8 HT40 / CH 9 (down 30dBc)



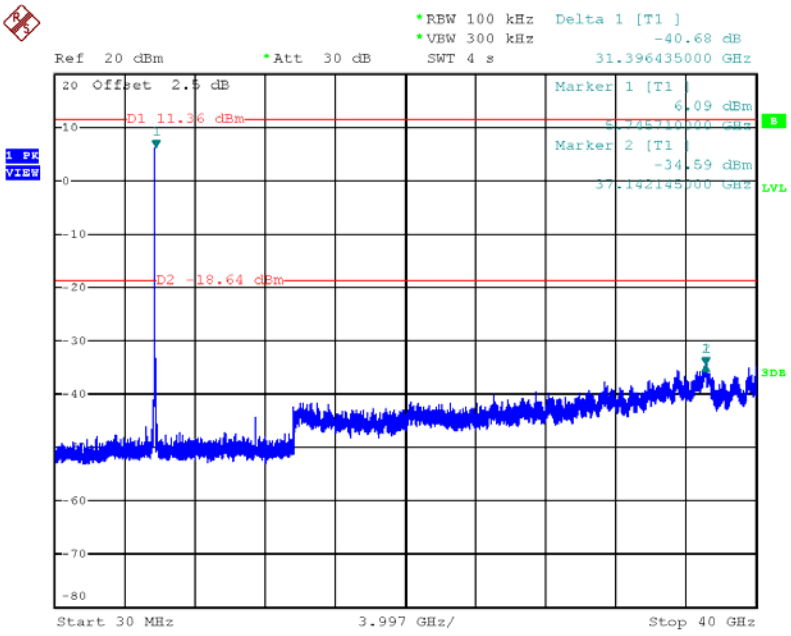
Date: 26.JAN.2013 11:02:34

Plot on Configuration IEEE 802.11n MCS8 HT20 / Reference Level



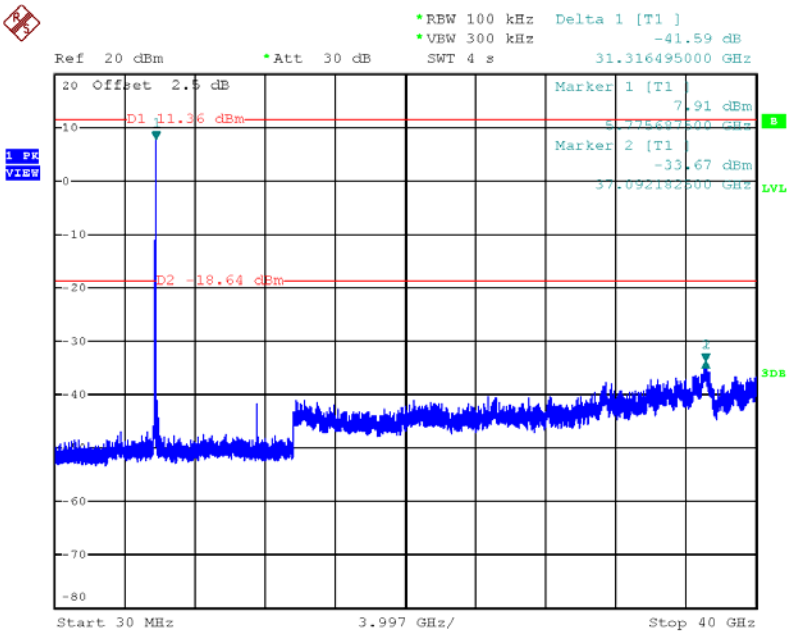
Date: 26.JAN.2013 11:17:36

Plot on Configuration IEEE 802.11n MCS8 HT20 / CH 149 (down 30dBc)



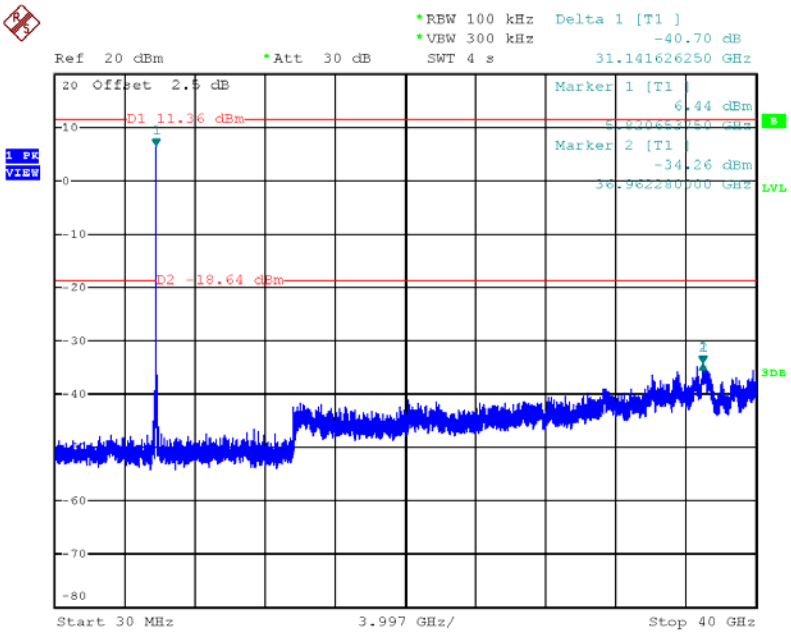
Date: 26.JAN.2013 12:14:46

Plot on Configuration IEEE 802.11n MCS8 HT20 / CH 157 (down 30dBc)



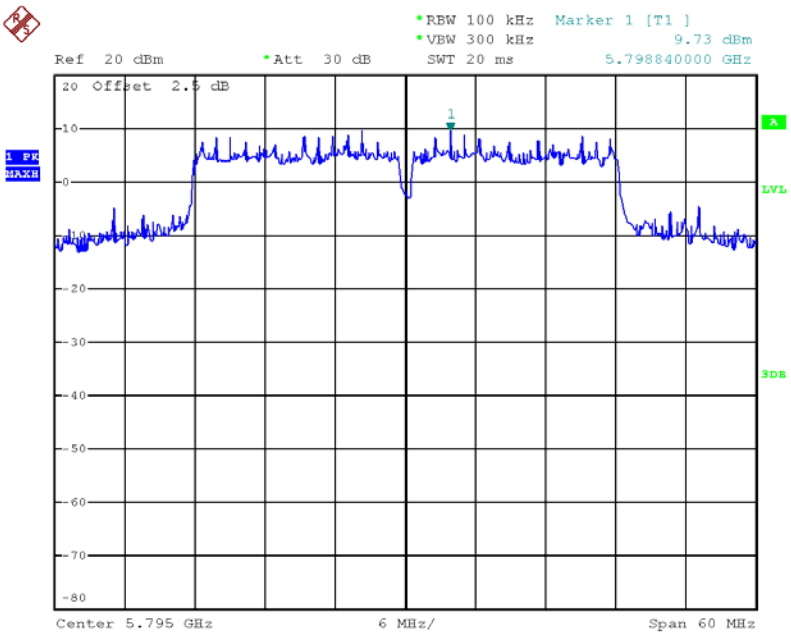
Date: 26.JAN.2013 12:15:42

Plot on Configuration IEEE 802.11n MCS8 HT20 / CH 165 (down 30dBc)



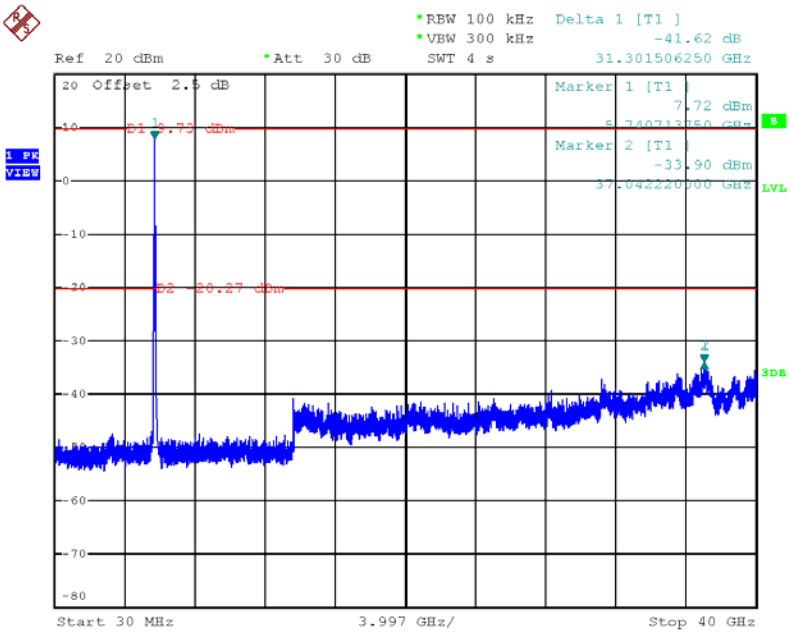
Date: 26.JAN.2013 12:16:35

Plot on Configuration IEEE 802.11n MCS8 HT40 / Reference Level



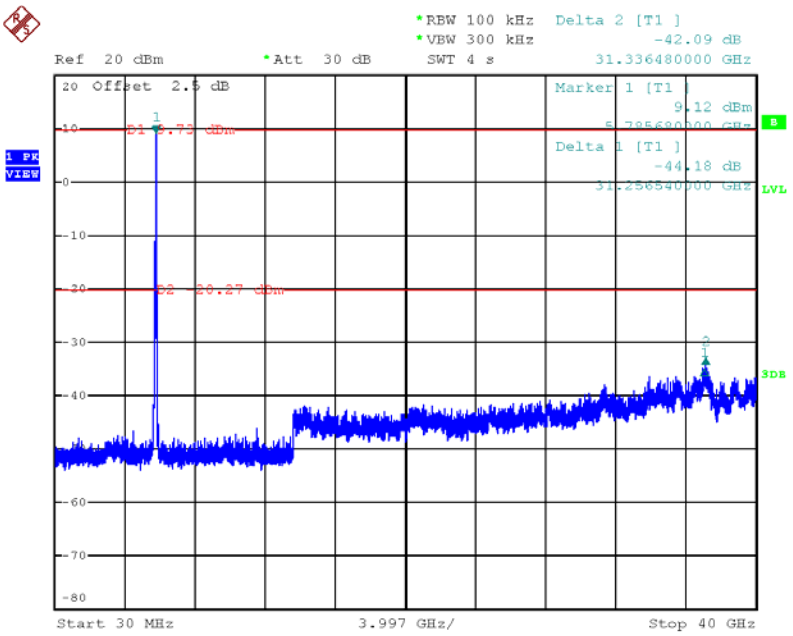
Date: 26.JAN.2013 11:20:43

Plot on Configuration IEEE 802.11n MCS8 HT40 / CH 151 (down 30dBc)



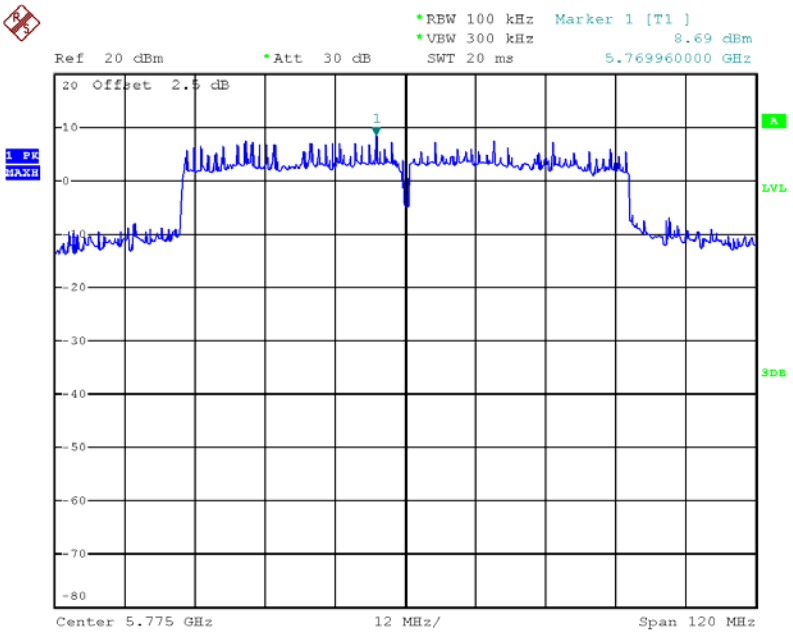
Date: 26.JAN.2013 12:19:27

Plot on Configuration IEEE 802.11n MCS8 HT40 / CH 159 (down 30dBc)



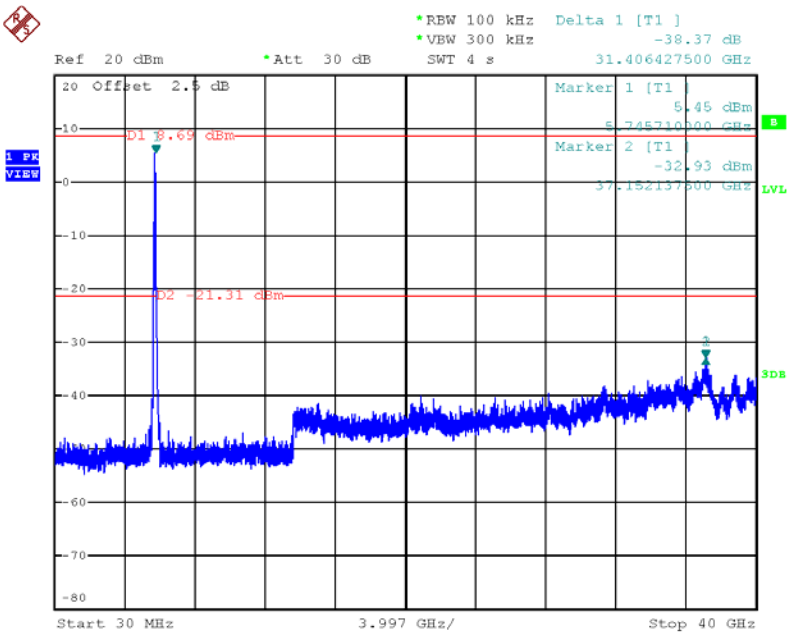
Date: 26.JAN.2013 12:20:26

Plot on Configuration IEEE 802.11ac MCS0-Nss2 VHT80 / Reference Level



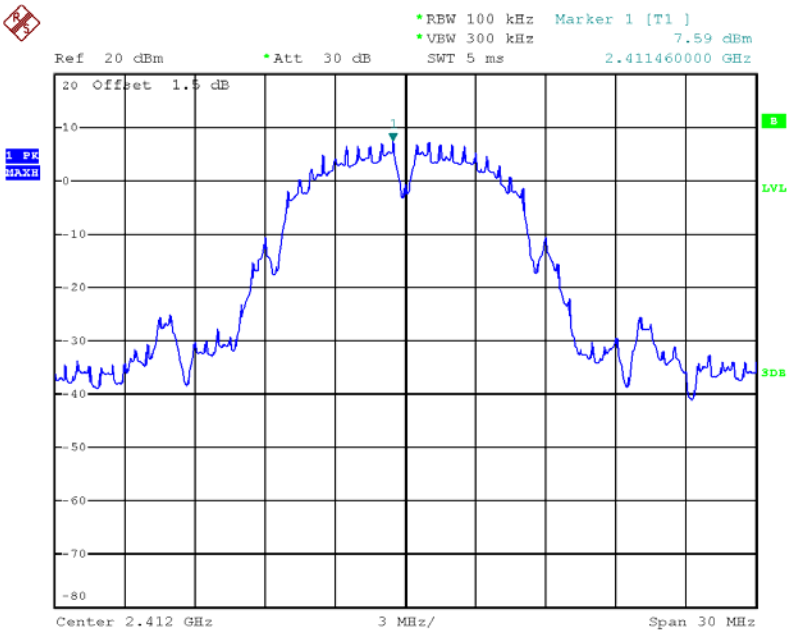
Date: 26.JAN.2013 11:23:40

Plot on Configuration IEEE 802.11ac MCS0-Nss2 VHT80 / CH 155 (down 30dBc)



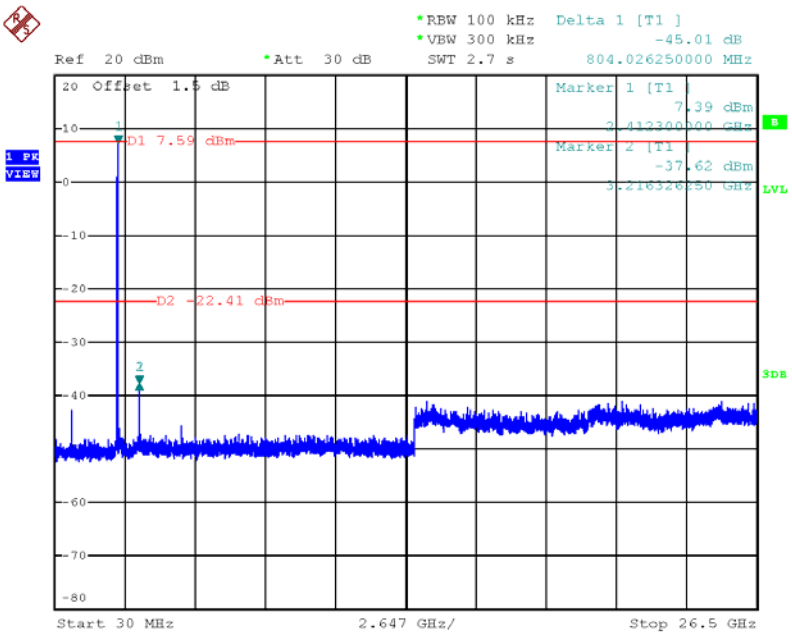
Date: 26.JAN.2013 12:23:07

Plot on Configuration IEEE 802.11b / Reference Level



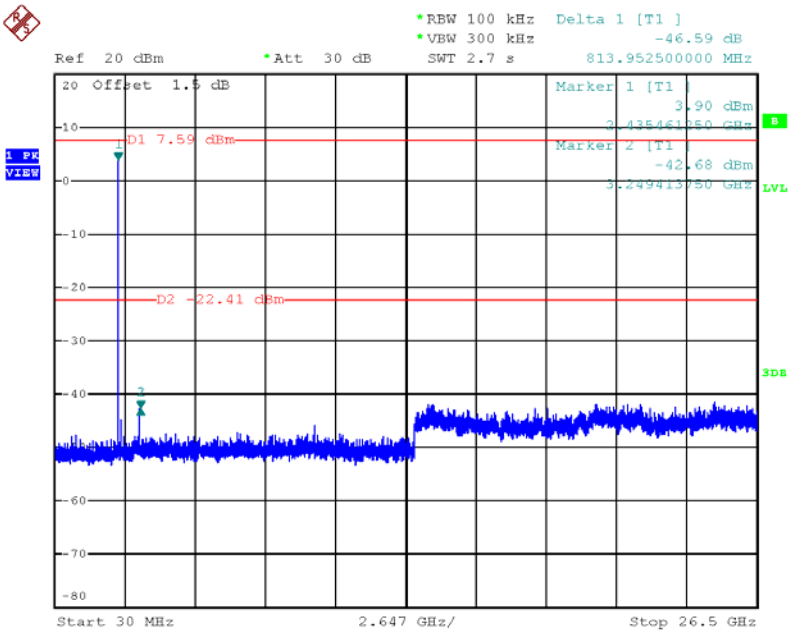
Date: 26.JAN.2013 09:11:41

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



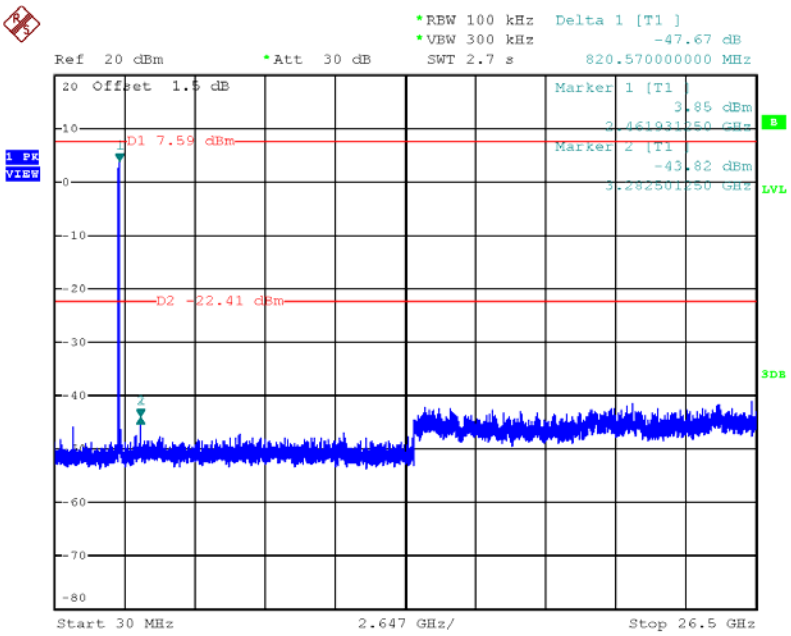
Date: 26.JAN.2013 10:30:53

Plot on Configuration IEEE 802.11b / CH 6 (down 30dBc)



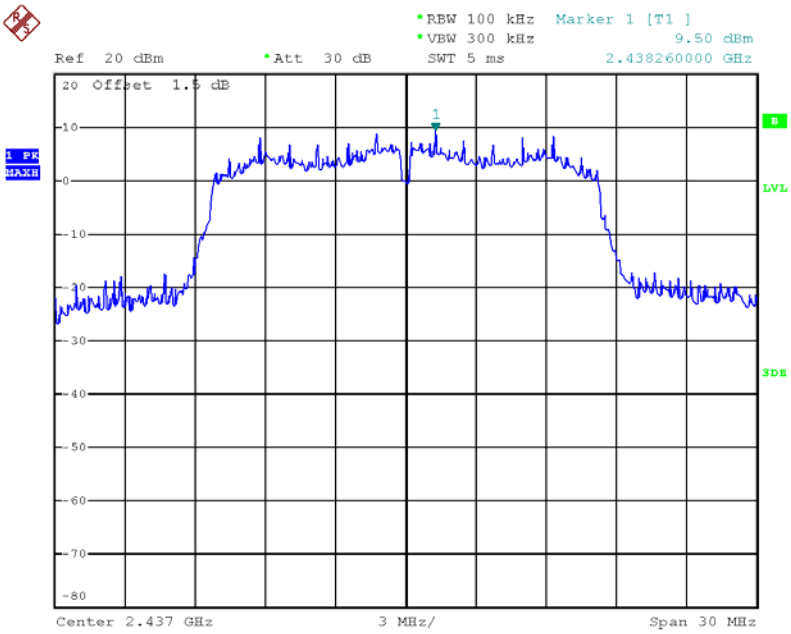
Date: 26.JAN.2013 10:32:35

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



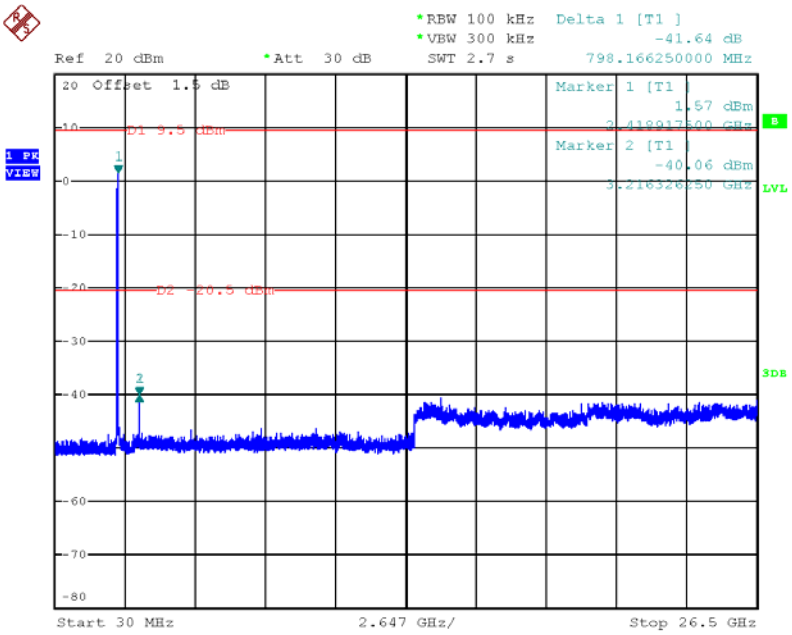
Date: 26.JAN.2013 10:34:11

Plot on Configuration IEEE 802.11g / Reference Level



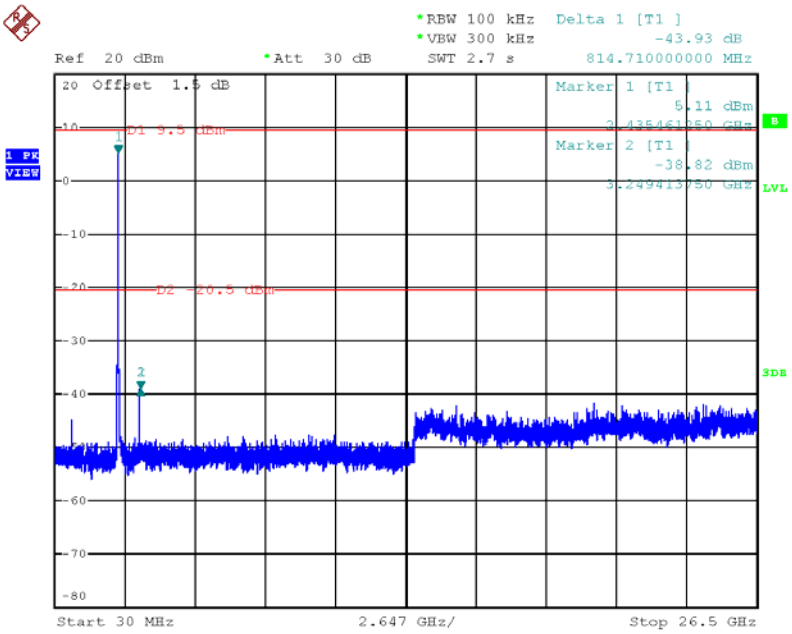
Date: 26.JAN.2013 09:15:19

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



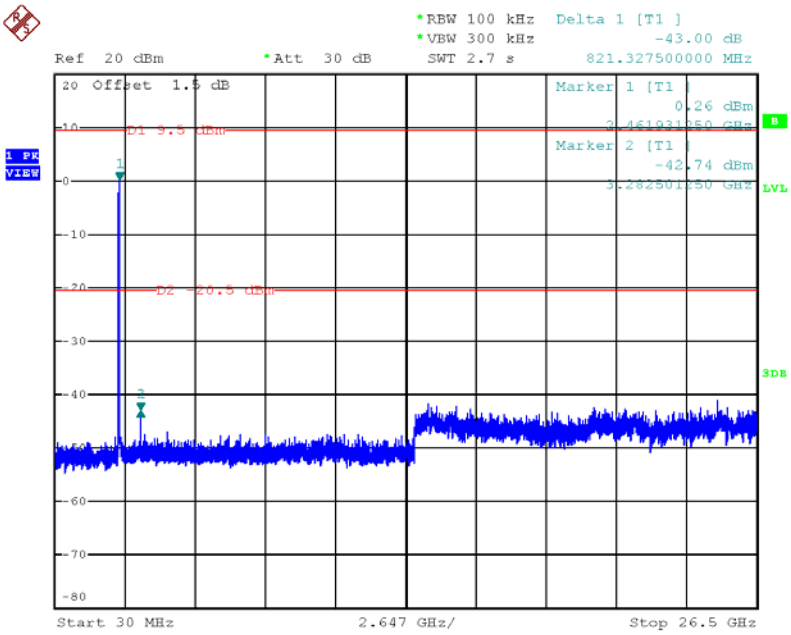
Date: 26.JAN.2013 10:40:00

Plot on Configuration IEEE 802.11g / CH 6 (down 30dBc)



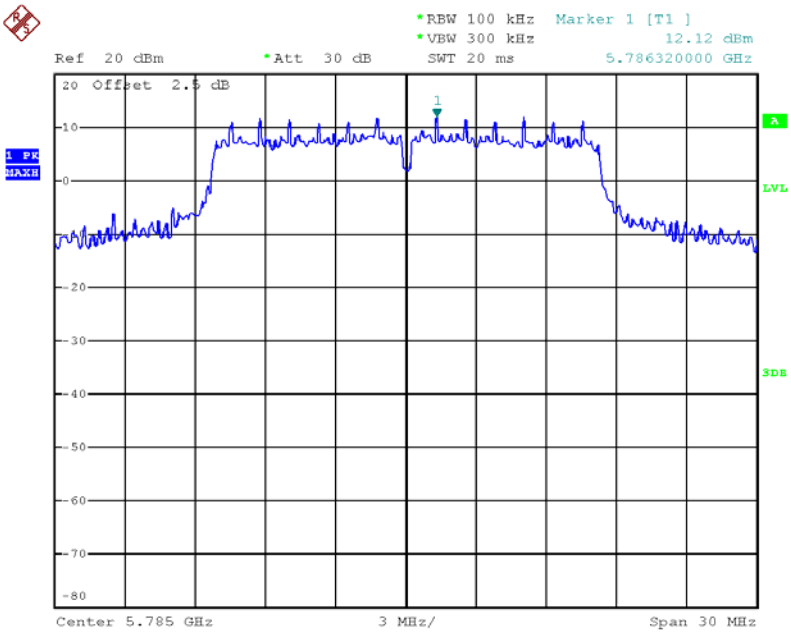
Date: 26.JAN.2013 10:42:31

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



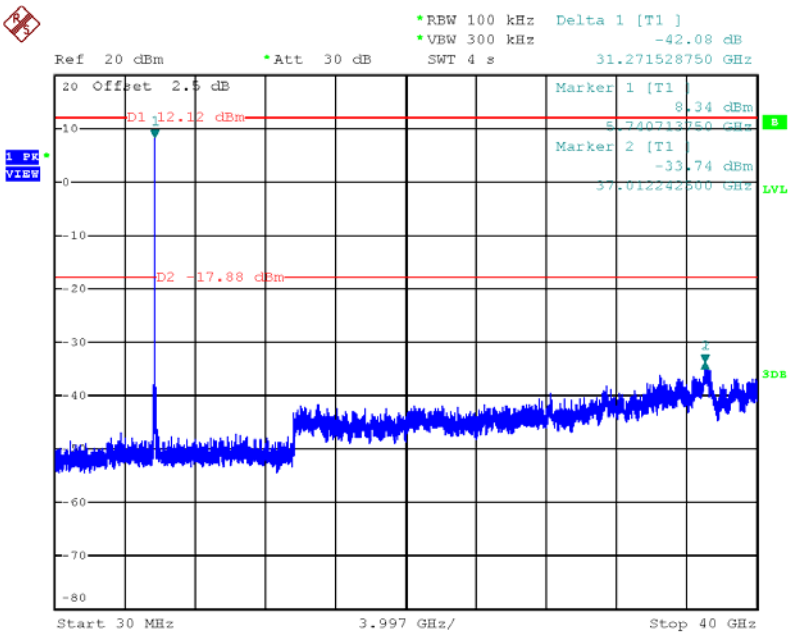
Date: 26.JAN.2013 10:47:25

Plot on Configuration IEEE 802.11a / Reference Level



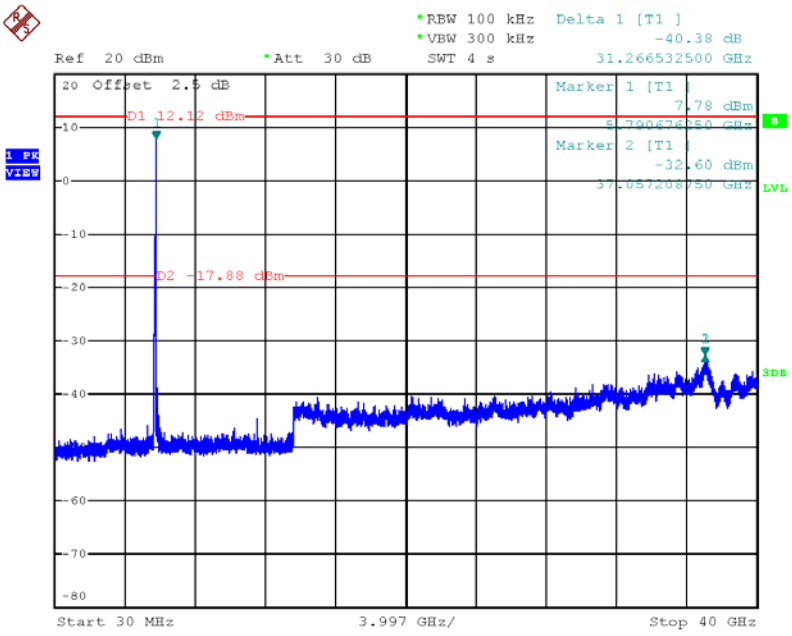
Date: 26.JAN.2013 11:11:16

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



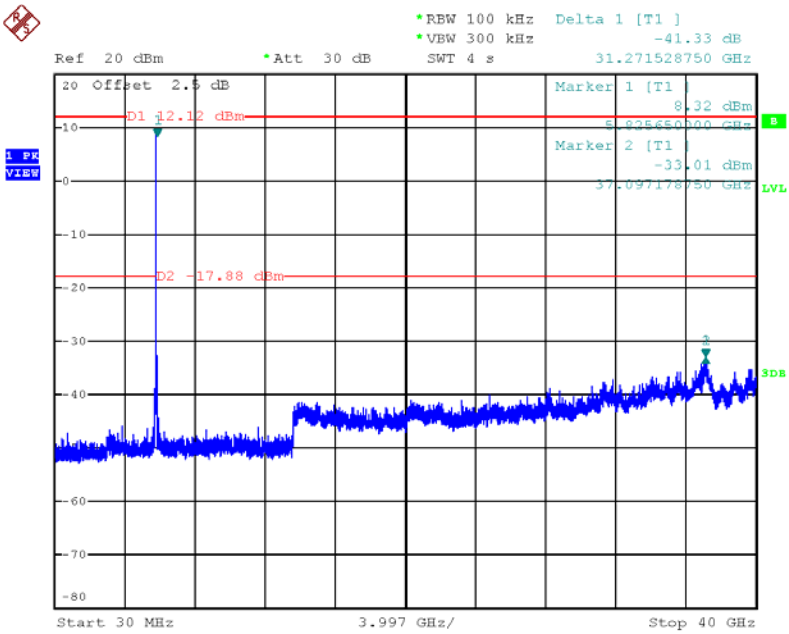
Date: 26.JAN.2013 12:09:02

Plot on Configuration IEEE 802.11a / CH 157 (down 30dBc)



Date: 26.JAN.2013 12:11:31

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



Date: 26.JAN.2013 12:12:18

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	100377	9kHz ~ 2.75GHz	Oct. 23, 2012	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150kHz ~ 100MHz	Nov. 26, 2012	Conduction (CO01-CB)
V- LISN	Schwarzbeck	NSLK 8127	8127-478	9kHz ~ 30MHz	Jun. 22, 2012	Conduction (CO01-CB)
Impulsbegrenzer Pulse Limiter	Rohde&Schwarz	ESH3-Z2	100430	9kHz~30MHz	Feb. 03, 2012	Conduction (CO01-CB)
COND Cable	Woken	Cable	01	0.15MHz~30MHz	Dec. 04, 2012	Conduction (CO01-CB)
Software	Audix	E3	5.410e	-	-	Conduction (CO01-CB)
BILOG ANTENNA	Schaffner	CBL6112D	22021	20MHz ~ 2GHz	Jan. 11, 2013	Radiation (03CH01-CB)
Loop Antenna	Teseq	HLA 6120	24155	9 kHz - 30 MHz	Nov. 05, 2012*	Radiation (03CH01-CB)
forHorn Antenna	EMCO	3115	00075790	750MHz~18GHz	Nov. 27, 2012	Radiation (03CH01-CB)
Horn Antenna	SCHWARZBEAK	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Nov. 23, 2012	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8447D	2944A10991	0.1MHz ~ 1.3GHz	Nov. 27, 2012	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Nov. 23, 2012	Radiation (03CH01-CB)
Pre-Amplifier	WM	TF-130N-R1	923365	26.5GHz ~ 40GHz	Jul. 31, 2012	Radiation (03CH01-CB)
Spectrum analyzer	R&S	FSP40	100056	9KHz~40GHz	Nov. 16, 2012	Radiation (03CH01-CB)
EMI Test Receiver	R&S	ESCS 30	100355	9KHz ~ 2.75GHz	Mar. 20, 2012	Radiation (03CH01-CB)
Turn Table	INN CO	CO 2000	N/A	0 ~ 360 degree	N.C.R	Radiation (03CH01-CB)
Antenna Mast	INN CO	CO2000	N/A	1 m - 4 m	N.C.R	Radiation (03CH01-CB)
RF Cable-low	Woken	Low Cable-1	N/A	30 MHz - 1 GHz	Nov. 18, 2012	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-1	N/A	1 GHz – 26.5 GHz	Nov. 18, 2012	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-2	N/A	1 GHz – 26.5 GHz	Nov. 18, 2012	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-3	N/A	1 GHz - 40 GHz	Nov. 18, 2012	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-4	N/A	1 GHz - 40 GHz	Nov. 18, 2012	Radiation (03CH01-CB)
Signal analyzer	R&S	FSV40	100979	9KHz~40GHz	Oct. 08, 2012	Conducted (TH01-CB)
Temp. and Humidity Chamber	Ten Billion	TTH-D3SP	TBN-931011	-30~100 degree	Jun. 05, 2012	Conducted (TH01-CB)
RF Power Divider	Woken	2 Way	0120A02056002D	2GHz ~ 18GHz	Nov. 18, 2012	Conducted (TH01-CB)

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
RF Power Divider	Woken	3 Way	MDC2366	2GHz ~ 18GHz	Nov. 18, 2012	Conducted (TH01-CB)
RF Power Divider	Woken	4 Way	0120A04056002D	2GHz ~ 18GHz	Nov. 18, 2012	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-7	-	1 GHz – 26.5 GHz	Nov. 19, 2012	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-8	-	1 GHz – 26.5 GHz	Nov. 19, 2012	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-9	-	1 GHz – 26.5 GHz	Nov. 19, 2012	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-10	-	1 GHz – 26.5 GHz	Nov. 19, 2012	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-11	-	1 GHz – 26.5 GHz	Nov. 19, 2012	Conducted (TH01-CB)

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

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

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

6. TEST LOCATION

SHIJR	ADD	:	6Fl., No. 106, Sec. 1, Shintai 5th Rd., Shijr City, Taipei, Taiwan 221, R.O.C.
	TEL	:	886-2-2696-2468
	FAX	:	886-2-2696-2255
HWA YA	ADD	:	No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.
	TEL	:	886-3-327-3456
	FAX	:	886-3-318-0055
LINKOU	ADD	:	No. 30-2, Dingfu Tsuen, Linkou Shiang, Taipei, Taiwan 244, R.O.C
	TEL	:	886-2-2601-1640
	FAX	:	886-2-2601-1695
DUNGHU	ADD	:	No. 3, Lane 238, Kangle St., Neihu Chiu, Taipei, Taiwan 114, R.O.C.
	TEL	:	886-2-2631-4739
	FAX	:	886-2-2631-9740
JUNGHE	ADD	:	7Fl., No. 758, Jungjeng Rd., Junghe City, Taipei, Taiwan 235, R.O.C.
	TEL	:	886-2-8227-2020
	FAX	:	886-2-8227-2626
NEIHU	ADD	:	4Fl., No. 339, Hsin Hu 2nd Rd., Taipei 114, Taiwan, R.O.C.
	TEL	:	886-2-2794-8886
	FAX	:	886-2-2794-9777
JHUBEI	ADD	:	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

Appendix B. Maximum Permissible Exposure

1. Maximum Permissible Exposure

1.1. Applicable Standard

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.2 m normally can be maintained between the user and the device.

(A) Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm²)	Averaging Time |E|², |H|² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842 / f	4.89 / f	(900 / f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-100,000			5	6

(B) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm²)	Averaging Time |E|², |H|² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

Note: f = frequency in MHz ; *Plane-wave equivalent power density

1.2. MPE Calculation Method

E (V/m) = $\frac{\sqrt{30 \times P \times G}}{d}$ Power Density: *Pd* (W/m²) = $\frac{E^2}{377}$

E = Electric field (V/m)

P = Average RF output power (W)

G = EUT Antenna numeric gain (numeric)

d = Separation distance between radiator and human body (m)

The formula can be changed to

Pd = $\frac{30 \times P \times G}{377 \times d^2}$

From the EUT RF output power, the minimum mobile separation distance, d=0.2m, as well as the gain of the used antenna, the RF power density can be obtained.

1.3. Calculated Result and Limit

For 5GHz UNII Band:

Antenna Type : PCB Antenna

Max Conducted Power for IEEE 802.11n HT20 : 16.93 dBm

Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power (dBm)	Average Output Power (mW)	Power Density (S) (mW/cm²)	Limit of Power Density (S) (mW/cm²)	Test Result
3.87	2.4378	16.9309	49.3272	0.023935	1	Complies

For 5GHz ISM Band:

Antenna Type : PCB Antenna

Max Conducted Power for IEEE 802.11ac VHT80 : 26.29 dBm

Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power (dBm)	Average Output Power (mW)	Power Density (S) (mW/cm²)	Limit of Power Density (S) (mW/cm²)	Test Result
4.70	2.9512	26.2868	425.2871	0.249823	1	Complies

For 2.4GHz Band:

Antenna Type : PCB Antenna

Max Conducted Power for IEEE 802.11n HT20 : 20.77 dBm

Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power (dBm)	Average Output Power (mW)	Power Density (S) (mW/cm²)	Limit of Power Density (S) (mW/cm²)	Test Result
3.91	2.4604	20.7709	119.4226	0.058484	1	Complies

CONCULSION:

Both of the WLAN 2.4GHz Band and WLAN 5GHz Band can transmit simultaneously, the formula of calculatedthe MPE is:

CPD1 / LPD1 + CPD2 / LPD2 + ...etc. < 1

CPD = Calculation power density

LPD = Limit of power density

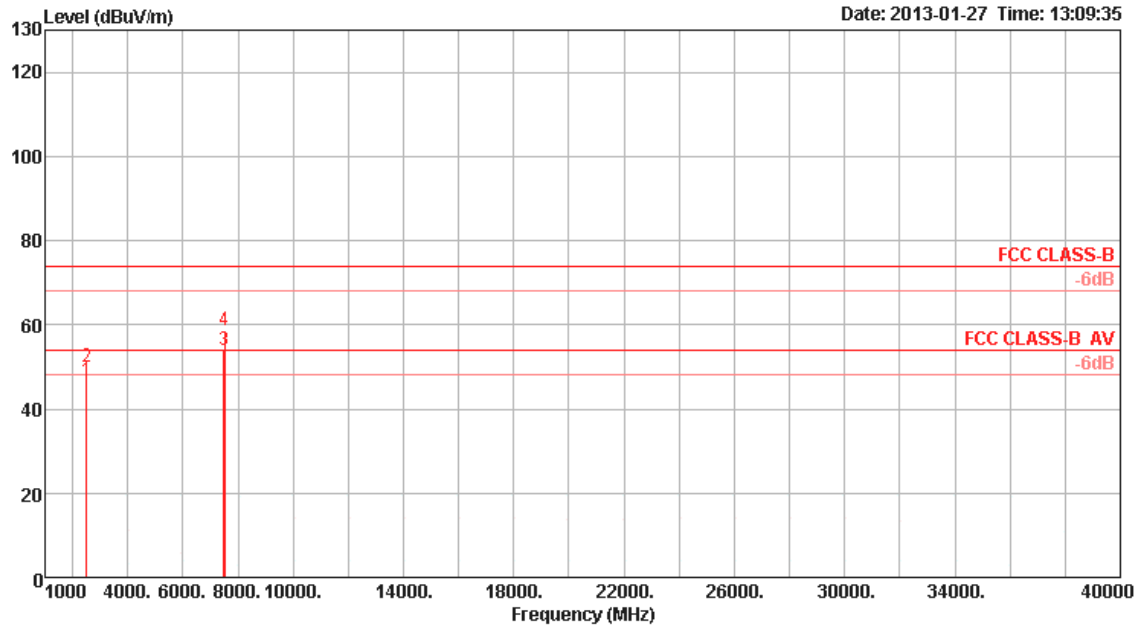
Therefore, the worst-case situation is 0.058484 / 1 + 0.249823 / 1 = 0.308307, which isless than “1”. This confirmed that the device comply with FCC 1.1310 MPE limit.

Appendix C. Co-location

1. Results of Radiated Emissions for Co-located

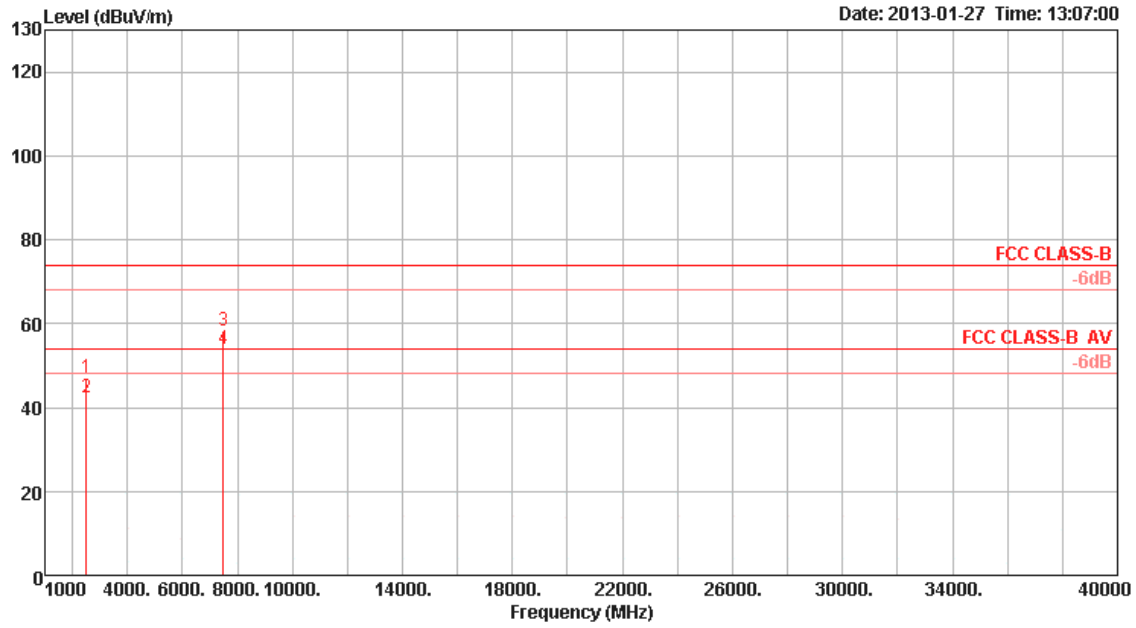
Temperature	20°C	Humidity	63%
Test Engineer	Serway Li	Configurations	2.4G + 5G

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	2500.00	46.88	54.00	-7.12	49.16	4.42	28.30	35.00	Average	120	256	HORIZONTAL
2	2500.08	49.90	74.00	-24.10	52.18	4.42	28.30	35.00	Peak	120	256	HORIZONTAL
3	7499.97	53.99	54.00	-0.01	44.92	7.77	36.80	35.50	Average	100	164	HORIZONTAL
4	7500.03	58.55	74.00	-15.45	49.48	7.77	36.80	35.50	Peak	100	164	HORIZONTAL

Vertial



	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	2499.97	47.19	74.00	-26.81	49.47	4.42	28.30	35.00	Peak	100	259	VERTICAL
2	2499.97	42.31	54.00	-11.69	44.59	4.42	28.30	35.00	Average	100	259	VERTICAL
3	7499.91	58.46	74.00	-15.54	49.39	7.77	36.80	35.50	Peak	103	140	VERTICAL
4	7499.97	53.98	54.00	-0.02	44.91	7.77	36.80	35.50	Average	103	140	VERTICAL