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FCC RADIO TEST REPORT

Applicant's company	**Edgecore Networks Corporation**
Applicant Address	No.1 Creation Rd. III Hsinchu Science Park, Hsinchu, 30077 Taiwan
FCC ID	**YZKECW7211L**
Manufacturer's company	**Accton Networks Corporation**
Manufacturer Address	No.1 Creation Rd. III Hsinchu Science Park, Hsinchu, 30077 Taiwan

Product Name	802.11ac Cloud-based Indoor Dual Band Enterprise Acess Point
Brand Name	Edge-corE
Model No.	ECW7211-L
Test Rule	47 CFR FCC Part 15 Subpart C § 15.247
Test Freq. Range	2400 ~ 2483.5MHz
Received Date	Nov. 18, 2014
Final Test Date	Jan. 14, 2015
Submission Type	Original Equipment

Statement

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

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

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

The measurements and test results shown in this test report were made in accordance with the procedures and found in compliance with the limit given in **ANSI C63.10-2013**, **47 CFR FCC Part 15 Subpart C**, **KDB 558074 D01 v03r02** and **KDB 662911 D01 v02r01**.

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

Testing Laboratory
1190

Table of Contents

History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR4D0491AA	Rev. 01	Initial issue of report	Feb. 10, 2015

1. VERIFICATION OF COMPLIANCE

Product Name	:	802.11ac Cloud-based Indoor Dual Band Enterprise Acess Point
Brand Name	:	Edge-corE
Model No.	:	ECW7211-L
Applicant	:	Edgecore Networks Corporation
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 Nov. 18, 2014 would like to declare that the tested sample has been evaluated and found to be in compliance with the tested rule parts. The data recorded as well as the test configuration specified is true and accurate for showing the sample's EMC nature.

Sam Chen

SPORTON INTERNATIONAL INC.

2. SUMMARY OF THE TEST RESULT

Applied Standard: 47 CFR FCC Part 15 Subpart C				
Part	**Rule Section**	**Description of Test**	**Result**	**Under Limit**
4.1	15.207	AC Power Line Conducted Emissions	Complies	10.35 dB
4.2	15.247(b)(3)	Maximum Conducted Output Power	Complies	4.24 dB
4.3	15.247(e)	Power Spectral Density	Complies	3.94 dB
4.4	15.247(a)(2)	6dB Spectrum Bandwidth	Complies	-
4.5	15.247(d)	Radiated Emissions	Complies	0.06 dB
4.6	15.247(d)	Band Edge Emissions	Complies	0.03 dB
4.7	15.203	Antenna Requirements	Complies	-

3. GENERAL INFORMATION

3.1. Product Details

Items	Description
Product Type	IEEE 802.11b/g/n: WLAN (3TX, 3RX)
Radio Type	Intentional Transceiver
Power Type	From power adapter
Modulation	IEEE 802.11b: DSSS IEEE 802.11g: OFDM IEEE 802.11n: see the below table
Data Modulation	IEEE 802.11b: DSSS (BPSK / QPSK / CCK) IEEE 802.11g/n: OFDM (BPSK / QPSK / 16QAM / 64QAM)
Data Rate (Mbps)	IEEE 802.11b: DSSS (1/ 2/ 5.5/11) IEEE 802.11g: OFDM (6/9/12/18/24/36/48/54) IEEE 802.11n: see the below table
Frequency Range	2400 ~ 2483.5MHz
Channel Number	11 for 20MHz bandwidth ; 7 for 40MHz bandwidth
Channel Band Width (99%)	IEEE 802.11b: 10.44 MHz IEEE 802.11g: 21.96 MHz IEEE 802.11n MCS0 (HT20): 21.96 MHz IEEE 802.11n MCS0 (HT40): 36.20 MHz
Maximum Conducted Output Power	IEEE 802.11b: 24.04 dBm IEEE 802.11g: 25.61 dBm IEEE 802.11n MCS0 (HT20): 25.76 dBm IEEE 802.11n MCS0 (HT40): 20.13 dBm
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

Items	Description	
Beamforming Function	☐ With beamforming	☒ Without beamforming

Antenna and Band width

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

IEEE 11n Spec.

Protocol	Number of Transmit Chains (NTX)	Data Rate / MCS
802.11n (HT20)	3	MCS 0-23
802.11n (HT40)	3	MCS 0-23
Note 1: IEEE Std. 802.11n modulation consists of HT20 and HT40 (HT: High Throughput). Then EUT support HT20 and HT40. Note 2: Modulation modes consist of below configuration: HT20/HT40: IEEE 802.11n		

3.2. Accessories

Power	Brand	Model	Rating
Adapter	APD	WA-30B12FU	INPUT: 100-240V~50-60Hz, 0.8A Max. OUTPUT: 12V, 2.5A
Others			
Cradle*1			

3.3. Table for Filed Antenna

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	
					2.4GHz	5GHz
1	LYNwave	ALA130-051023	PCB Antenna	I-PEX	5.00	-
2	LYNwave	ALA130-051023	PCB Antenna	I-PEX	5.10	-
3	LYNwave	ALA130-051023	PCB Antenna	I-PEX	4.82	-
4	LYNwave	ALA120-091025	PCB Antenna	I-PEX	-	5.72
5	LYNwave	ALA120-091025	PCB Antenna	I-PEX	-	5.77
6	LYNwave	ALA120-091025	PCB Antenna	I-PEX	-	5.69

Note: The EUT has six antennas (3TX, 3RX).

For 2.4GHz

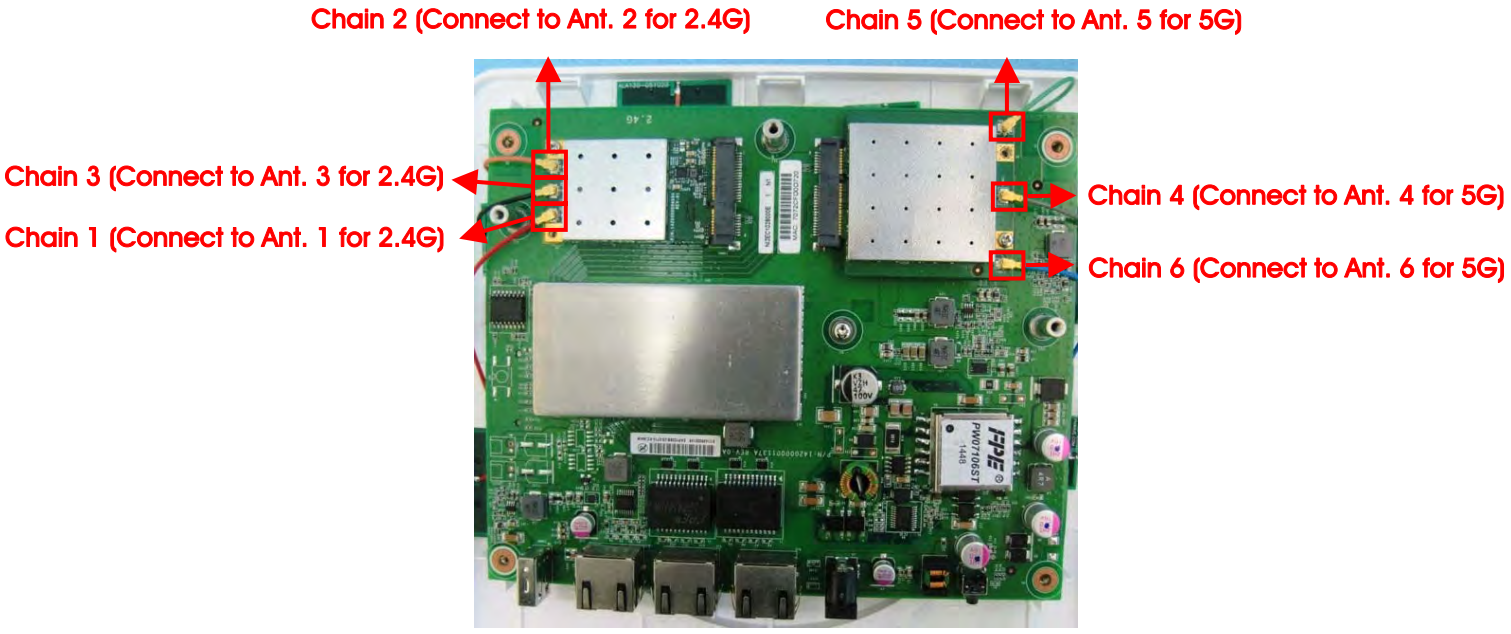
For IEEE 802.11b/g/n mode:

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

For 5GHz

For IEEE 802.11a/n/ac mode:

Chain 4, Chain 5 and Chain 6 could transmit/receive simultaneously.



3.4. Table for Carrier Frequencies

There are two bandwidth systems.

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

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

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

3.5. Table for Test Modes

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

Test Items	Mode	Data Rate	Channel	Chain
AC Power Line Conducted Emissions	CTX	-	-	-
Maximum Conducted Output Power	11b/CCK	1 Mbps	1/6/11	1+2+3
	11g/BPSK	6 Mbps	1/6/11	1+2+3
	11n HT20	MCS0	1/6/11	1+2+3
	11n HT40	MCS0	3/6/9	1+2+3
Power Spectral Density	11b/CCK	1 Mbps	1/6/11	1+2+3
	11g/BPSK	6 Mbps	1/6/11	1+2+3
	11n HT20	MCS0	1/6/11	1+2+3
	11n HT40	MCS0	3/6/9	1+2+3
6dB Spectrum Bandwidth	11b/CCK	1 Mbps	1/6/11	1+2+3
	11g/BPSK	6 Mbps	1/6/11	1+2+3
	11n HT20	MCS0	1/6/11	1+2+3
	11n HT40	MCS0	3/6/9	1+2+3
Radiated Emissions 9kHz~1GHz	CTX	-	-	-
Radiated Emissions 1GHz~10th Harmonic	11b/CCK	1 Mbps	1/6/11	1+2+3
	11g/BPSK	6 Mbps	1/6/11	1+2+3
	11n HT20	MCS0	1/6/11	1+2+3
	11n HT40	MCS0	3/6/9	1+2+3
Band Edge Emissions	11b/CCK	1 Mbps	1/6/11	1+2+3
	11g/BPSK	6 Mbps	1/6/11	1+2+3
	11n HT20	MCS0	1/6/11	1+2+3
	11n HT40	MCS0	3/6/9	1+2+3

Note: The PoE is for measurement only, would not be marketed.

The PoE information as below:

Power	Brand	Model	Rating
PoE	MOTOROLA	PD-7001G	INPUT: 100-240V~50-60Hz, 0.8A OUTPUT: 55V, 0.570A

The following test modes were performed for all tests:

For Conducted Emission test:

Mode 1. CTX-EUT + Adapter

For Radiated Emission test:

Mode 1. EUT laying + Adapter-2.4GHz function

Mode 2. EUT laying + Adapter-5GHz function

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

Mode 3. EUT standing + Adapter-5GHz function

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

Mode 4. EUT standing + PoE-5GHz function

For Radiated Emission test below 1GHz:

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

For Radiated Emission test above1GHz:

Mode 3 generated the worst test result for Radiated emission below 1GHz test, thus the measurement for Radiated emission above 1GHz test will follow this same test configuration.

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

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

3.6. Table for Testing Locations

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

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

3.7. Table for Supporting Units

For Test Site No: 03CH01-CB

Support Unit	Brand	Model	FCC ID
Notebook	DELL	M1330	DoC

For Test Site No: CO01-CB

Support Unit	Brand	Model	FCC ID
Notebook	DELL	E6430	DoC

For Test Site No: TH01-CB

Support Unit	Brand	Model	FCC ID
Notebook	DELL	D420	E2KWM3945ABG

3.8. Table for Parameters of Test Software Setting

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

Test Software Version	Mtool 2.0.1.0					
Mode	Test Frequency (MHz)					
	NCB: 20MHz			NCB: 40MHz		
	2412 MHz	2437 MHz	2462 MHz	2422 MHz	2437 MHz	2452 MHz
802.11b	75	71	74	-	-	-
802.11g	63	83	64	-	-	-
802.11n MCS0 HT20	57	84	60	-	-	-
802.11n MCS0 HT40	-	-	-	43	57	49

3.9. EUT Operation during Test

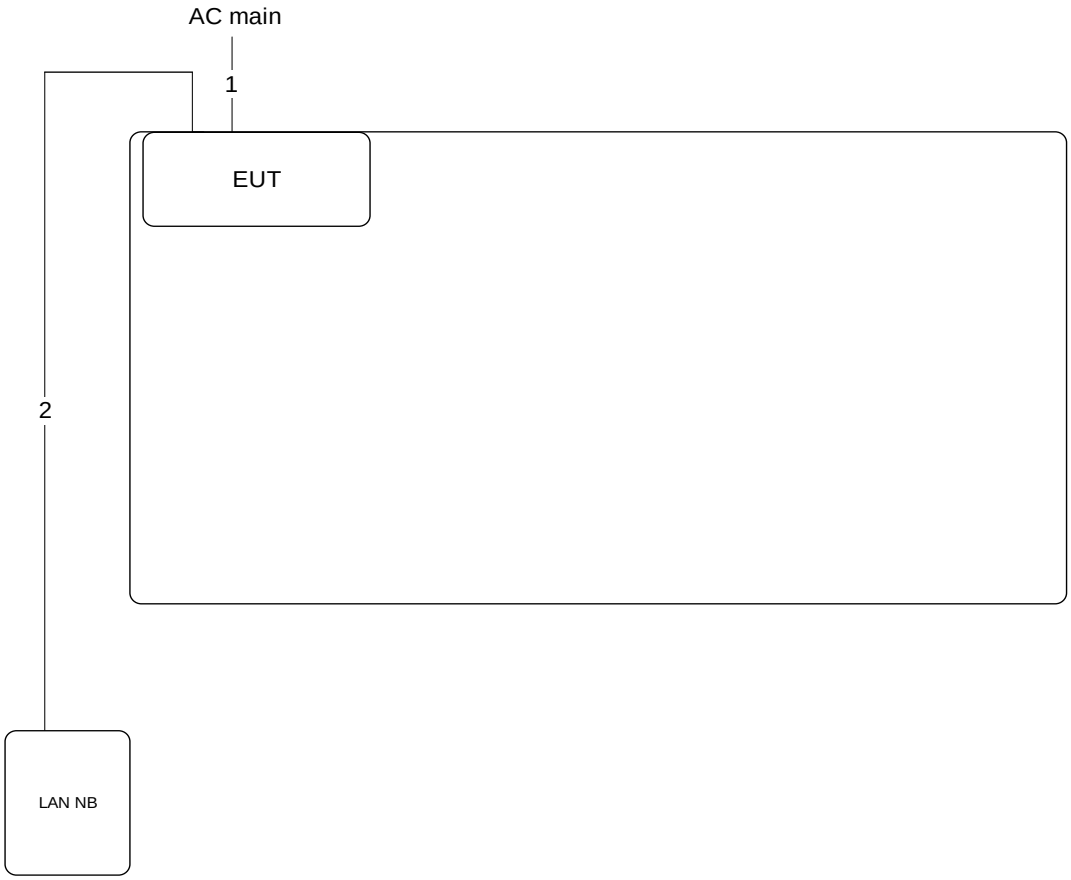
The EUT was programmed to be in continuously transmitting mode.

3.10. Duty Cycle

Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11b	1.000	1.000	100.00%	0.00	0.01
802.11g	2.060	2.090	98.56%	0.06	0.01
802.11n MCS0 HT20	1.910	1.940	98.45%	0.07	0.01
802.11n MCS0 HT40	0.916	0.976	93.85%	0.28	1.09

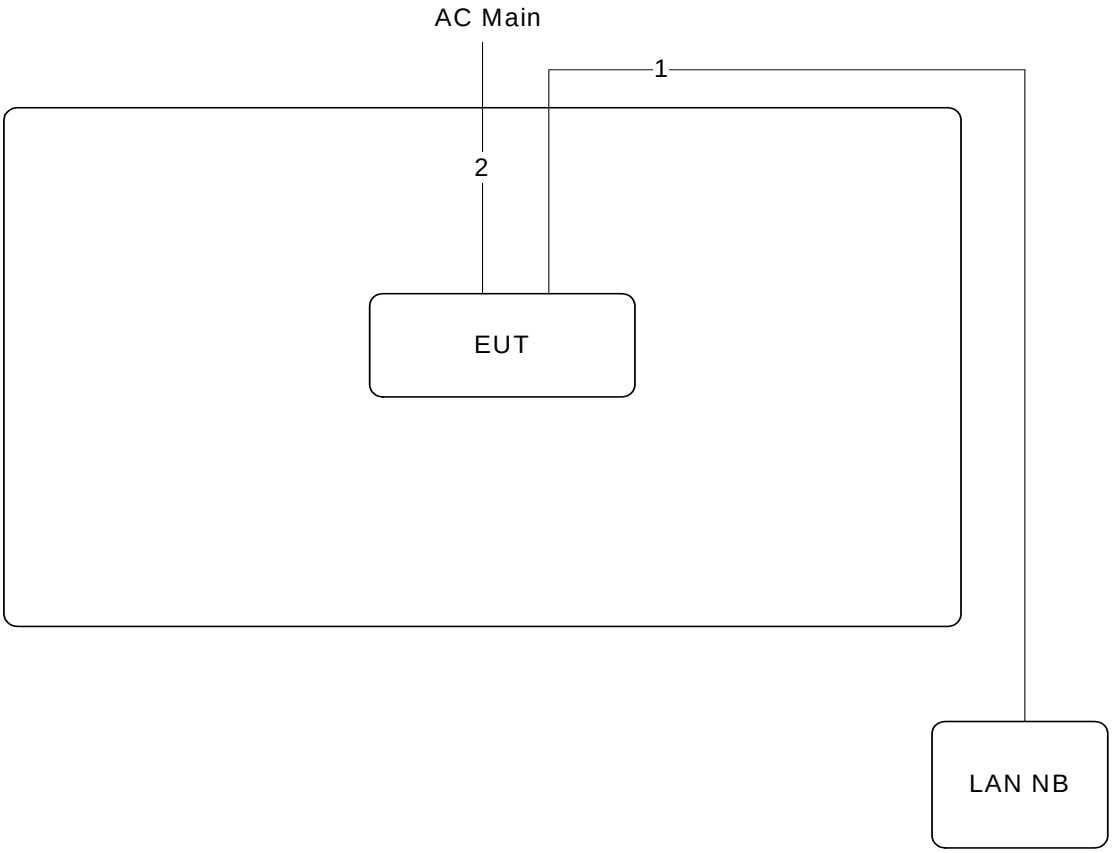
3.11. Test Configurations

3.11.1. AC Power Line Conduction Emissions Test Configuration



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

3.11.2. Radiation Emissions Test Configuration



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

4. TEST RESULT

4.1. AC Power Line Conducted Emissions Measurement

4.1.1. Limit

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

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

4.1.2. Measuring Instruments and Setting

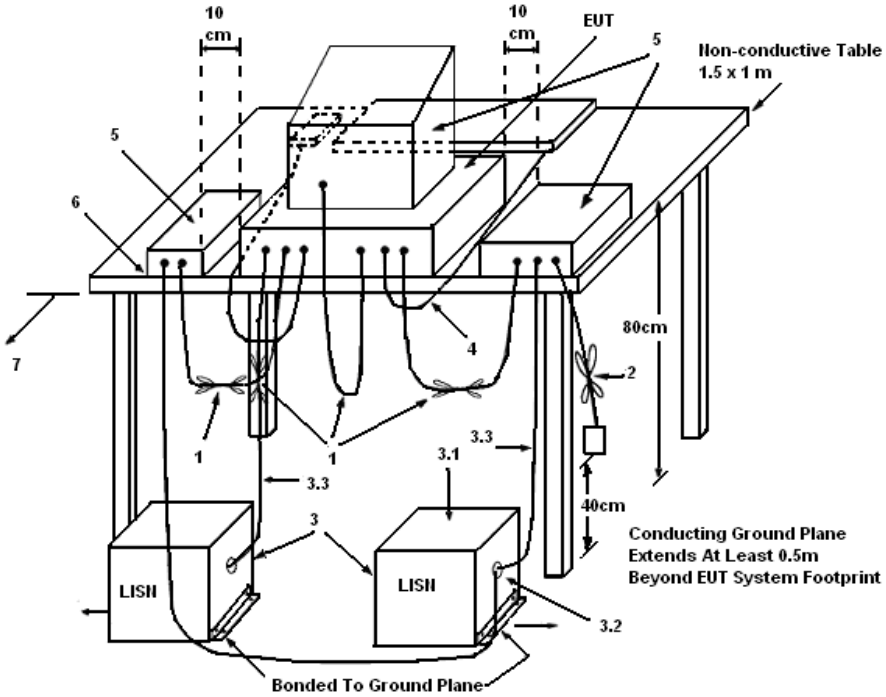
Please refer to section 5 of equipments list in this report. The following table is the setting of the receiver.

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

4.1.3. Test Procedures

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

4.1.4. Test Setup Layout



LEGEND:

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

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

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

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

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

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

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

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

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

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

4.1.5. Test Deviation

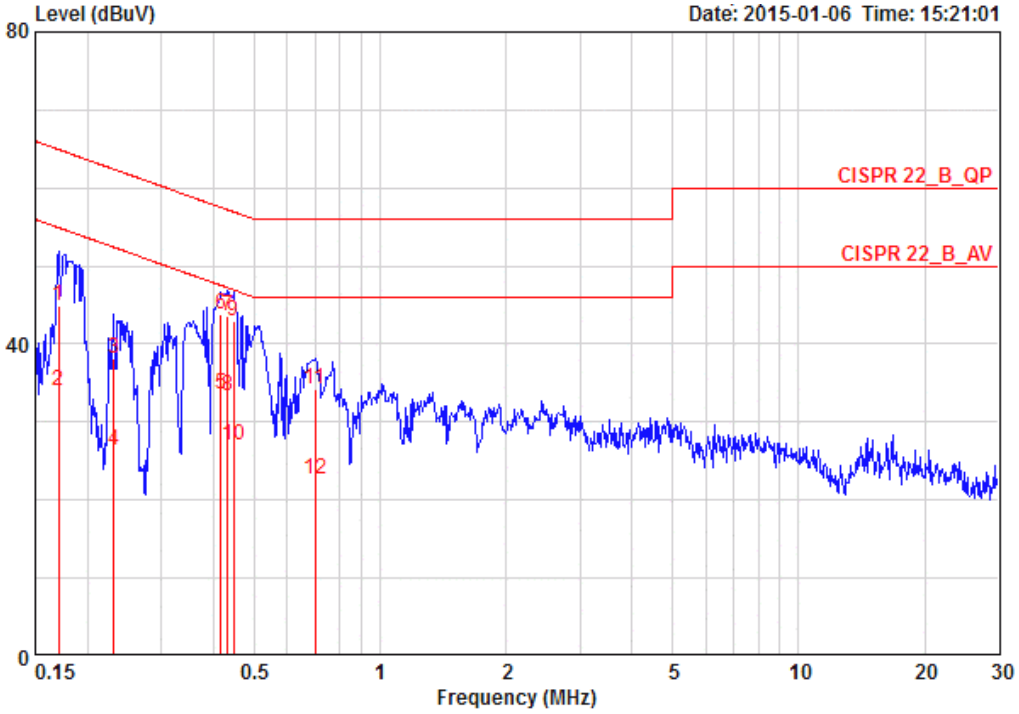
There is no deviation with the original standard.

4.1.6. EUT Operation during Test

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

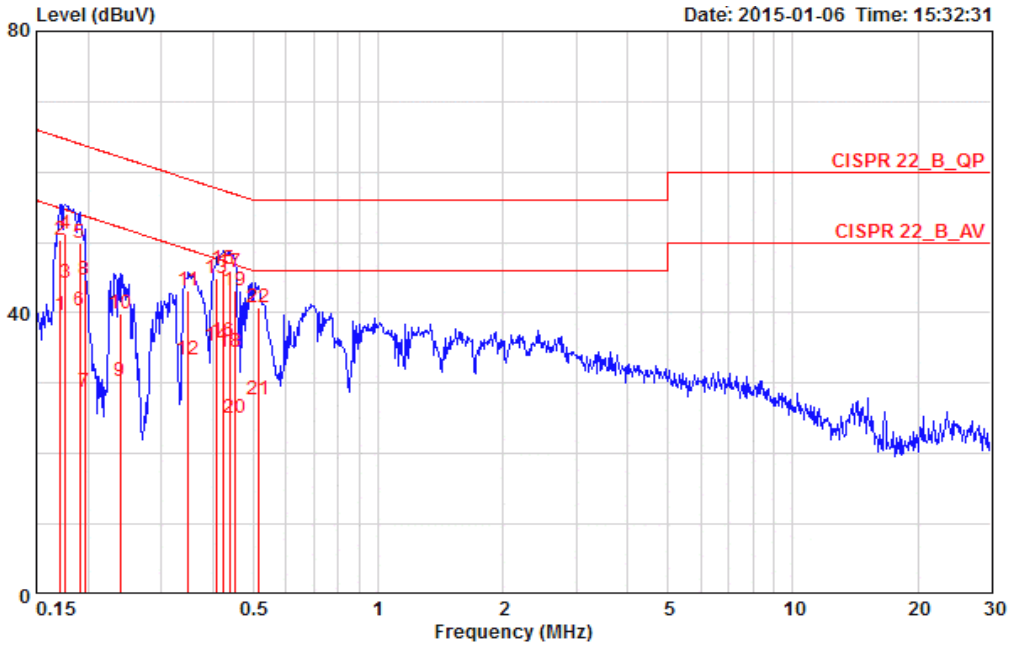
4.1.7. Results of AC Power Line Conducted Emissions Measurement

Temperature	25°C	Humidity	54%
Test Engineer	Deven Huang	Phase	Line
Configuration	CTX		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark	Pol/Phase
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.17034	44.96	-19.99	64.94	35.02	9.77	0.16	QP	LINE
2	0.17034	33.93	-21.02	54.94	23.99	9.77	0.16	AVERAGE	LINE
3	0.23162	38.26	-24.14	62.39	28.31	9.78	0.17	QP	LINE
4	0.23162	26.33	-26.07	52.39	16.38	9.78	0.17	AVERAGE	LINE
5	0.41705	33.46	-14.05	47.51	23.51	9.77	0.18	AVERAGE	LINE
6	0.41705	43.74	-13.77	57.51	33.79	9.77	0.18	QP	LINE
7	0.43281	43.69	-13.51	57.20	33.74	9.77	0.18	QP	LINE
8	0.43281	33.29	-13.91	47.20	23.34	9.77	0.18	AVERAGE	LINE
9	0.44679	42.94	-13.99	56.93	32.99	9.77	0.18	QP	LINE
10	0.44679	27.12	-19.81	46.93	17.17	9.77	0.18	AVERAGE	LINE
11	0.70096	34.28	-21.72	56.00	24.32	9.77	0.19	QP	LINE
12	0.70096	22.56	-23.44	46.00	12.60	9.77	0.19	AVERAGE	LINE

Temperature	25°C	Humidity	54%
Test Engineer	Deven Huang	Phase	Neutral
Configuration	CTX		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark	Pol/Phase
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.17125	39.76	-15.14	54.90	29.68	9.92	0.16	AVERAGE	NEUTRAL
2	0.17125	50.44	-14.46	64.90	40.36	9.92	0.16	QP	NEUTRAL
3 @	0.17584	44.33	-10.35	54.68	34.25	9.92	0.16	AVERAGE	NEUTRAL
4	0.17584	51.28	-13.40	64.68	41.20	9.92	0.16	QP	NEUTRAL
5	0.19039	49.92	-14.10	64.02	39.84	9.92	0.16	QP	NEUTRAL
6	0.19039	40.32	-13.70	54.02	30.24	9.92	0.16	AVERAGE	NEUTRAL
7	0.19654	28.71	-25.04	53.76	18.63	9.92	0.16	AVERAGE	NEUTRAL
8	0.19654	44.69	-19.06	63.76	34.61	9.92	0.16	QP	NEUTRAL
9	0.23910	30.39	-21.74	52.13	20.30	9.92	0.17	AVERAGE	NEUTRAL
10	0.23910	39.82	-22.31	62.13	29.73	9.92	0.17	QP	NEUTRAL
11	0.34830	43.10	-15.90	59.00	33.01	9.91	0.18	QP	NEUTRAL
12	0.34830	33.31	-15.69	49.00	23.22	9.91	0.18	AVERAGE	NEUTRAL
13	0.40831	44.96	-12.72	57.68	34.87	9.91	0.18	QP	NEUTRAL
14	0.40831	35.28	-12.40	47.68	25.19	9.91	0.18	AVERAGE	NEUTRAL
15	0.42373	46.21	-11.16	57.37	36.12	9.91	0.18	QP	NEUTRAL
16	0.42373	35.96	-11.41	47.37	25.87	9.91	0.18	AVERAGE	NEUTRAL
17	0.43742	45.73	-11.38	57.11	35.64	9.91	0.18	QP	NEUTRAL
18	0.43742	34.44	-12.67	47.11	24.35	9.91	0.18	AVERAGE	NEUTRAL
19	0.45155	43.14	-13.70	56.85	33.05	9.91	0.18	QP	NEUTRAL
20	0.45155	25.10	-21.74	46.85	15.01	9.91	0.18	AVERAGE	NEUTRAL
21	0.51278	27.58	-18.42	46.00	17.48	9.91	0.19	AVERAGE	NEUTRAL
22	0.51278	40.86	-15.14	56.00	30.76	9.91	0.19	QP	NEUTRAL

Note:

Level = Read Level + LISN Factor + Cable Loss.

4.2. Maximum Conducted Output Power Measurement

4.2.1. Limit

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

4.2.2. Measuring Instruments and Setting

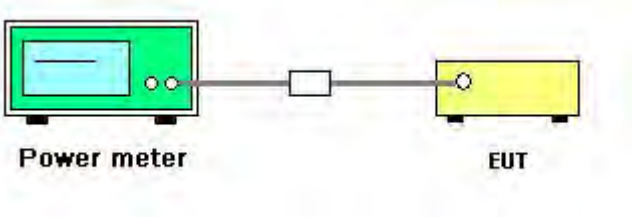
Please refer to section 5 of equipments list in this report. The following table is the setting of the power meter.

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

4.2.3. Test Procedures

1. Test procedures refer KDB 558074 D01 v03r02 section 9.2.3.2 Measurement using a power meter (PM).
2. Multiple antenna systems was performed in accordance with KDB 662911 D01 v02r01 Emissions Testing of Transmitters with Multiple Outputs in the Same Band.
3. This procedure provides an alternative for determining the RMS output power using a broadband RF average power meter with a thermocouple detector.

4.2.4. Test Setup Layout



4.2.5. Test Deviation

There is no deviation with the original standard.

4.2.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.2.7. Test Result of Maximum Conducted Output Power

Temperature	26°C	Humidity	63%
Test Engineer	Mars Lin	Test Date	Jan. 07, 2015

Mode	Frequency	Conducted Power (dBm)				Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Total		
802.11b	2412 MHz	19.52	19.24	19.02	24.04	30.00	Complies
	2437 MHz	18.10	18.01	17.94	22.79	30.00	Complies
	2462 MHz	19.01	18.65	18.64	23.54	30.00	Complies
802.11g	2412 MHz	15.98	15.90	16.27	20.82	30.00	Complies
	2437 MHz	21.23	20.66	20.61	25.61	30.00	Complies
	2462 MHz	16.32	16.01	16.24	20.96	30.00	Complies
802.11n MCS0 HT20	2412 MHz	14.82	14.66	14.83	19.54	30.00	Complies
	2437 MHz	21.40	20.84	20.70	25.76	30.00	Complies
	2462 MHz	15.49	15.06	15.17	20.02	30.00	Complies
802.11n MCS0 HT40	2422 MHz	12.01	11.97	11.47	16.59	30.00	Complies
	2437 MHz	15.50	15.08	15.47	20.13	30.00	Complies
	2452 MHz	13.54	13.31	13.61	18.26	30.00	Complies

4.3. Power Spectral Density Measurement

4.3.1. Limit

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

4.3.2. Measuring Instruments and Setting

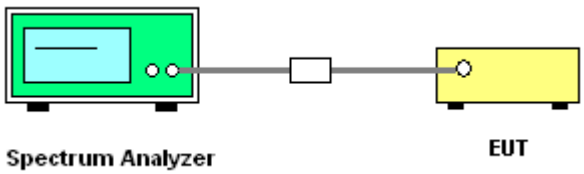
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

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

4.3.3. Test Procedures

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

4.3.4. Test Setup Layout



4.3.5. Test Deviation

There is no deviation with the original standard.

4.3.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.3.7. Test Result of Power Spectral Density

Temperature	26°C	Humidity	63%
Test Engineer	Mars Lin		

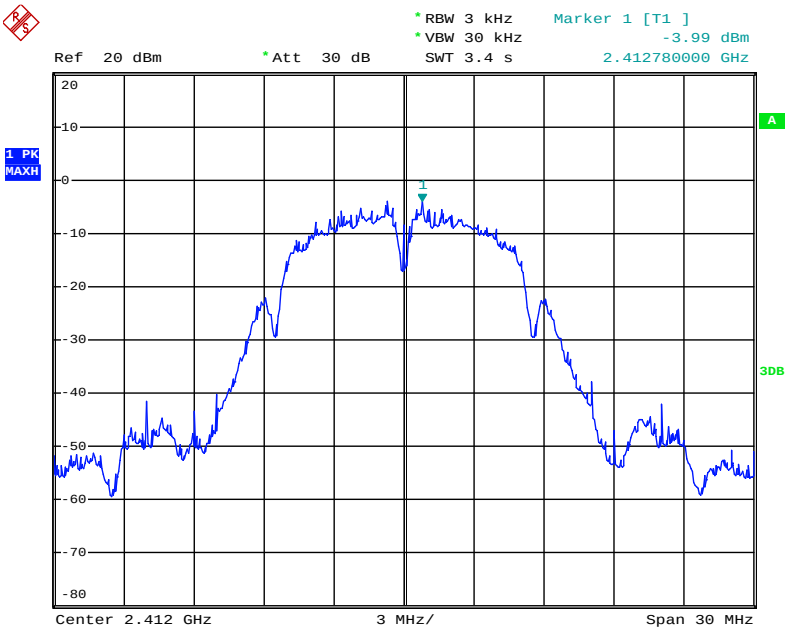
Mode	Frequency	Power Density (dBm/3kHz)				Power Density Limit (dBm/3kHz)	Result
		Chain 1	Chain 2	Chain 3	Total		
802.11b	2412 MHz	-3.99	-4.67	-4.75	0.31	4.25	Complies
	2437 MHz	-6.14	-6.16	-6.32	-1.43	4.25	Complies
	2462 MHz	-4.90	-5.02	-5.06	-0.22	4.25	Complies
802.11g	2412 MHz	-10.53	-10.90	-10.37	-5.82	4.25	Complies
	2437 MHz	-5.71	-5.91	-6.48	-1.25	4.25	Complies
	2462 MHz	-9.91	-10.52	-10.04	-5.38	4.25	Complies
802.11n MCS0 HT20	2412 MHz	-12.41	-12.53	-12.01	-7.54	4.25	Complies
	2437 MHz	-5.63	-5.92	-5.97	-1.07	4.25	Complies
	2462 MHz	-11.33	-11.78	-11.43	-6.74	4.25	Complies
802.11n MCS0 HT40	2422 MHz	-17.06	-17.17	-17.66	-12.52	4.25	Complies
	2437 MHz	-13.98	-14.38	-14.04	-9.36	4.25	Complies
	2452 MHz	-16.07	-16.19	-15.93	-11.29	4.25	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{n_{SS}} \left\{ \sum_{n_{ANT}} \right\}^2}{N_{ANT}}\right]$ =9.75dBi >6dBi,So PSD Limit =8-(9.75-6)=4.25dBm/MHz

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

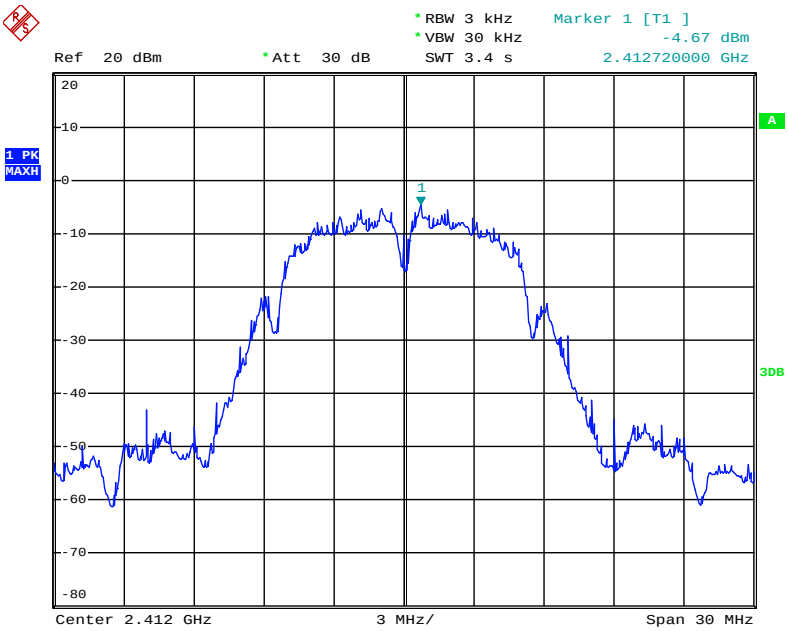
For plots, only the channel with worse result was shown.

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



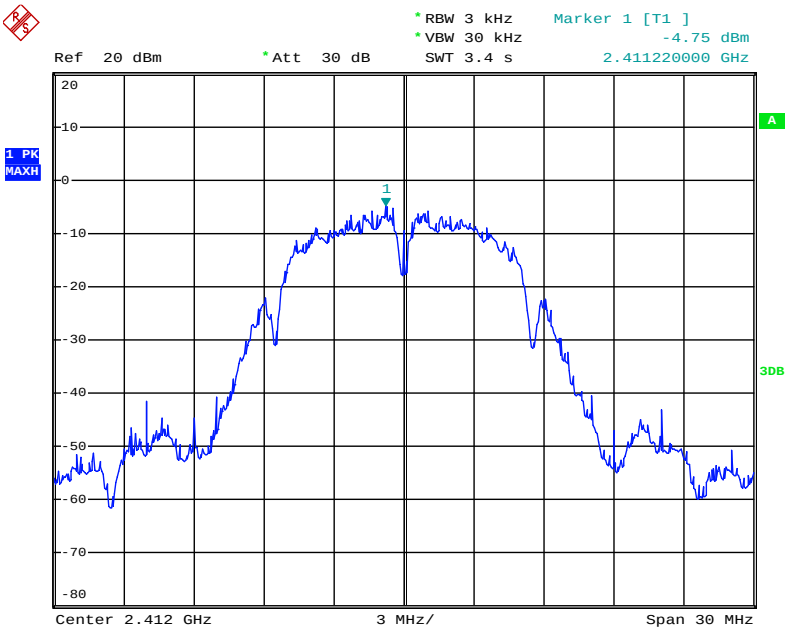
Date: 7.JAN.2015 10:50:16

Power Density Plot on Configuration IEEE 802.11b / 2412 MHz / Chain 2



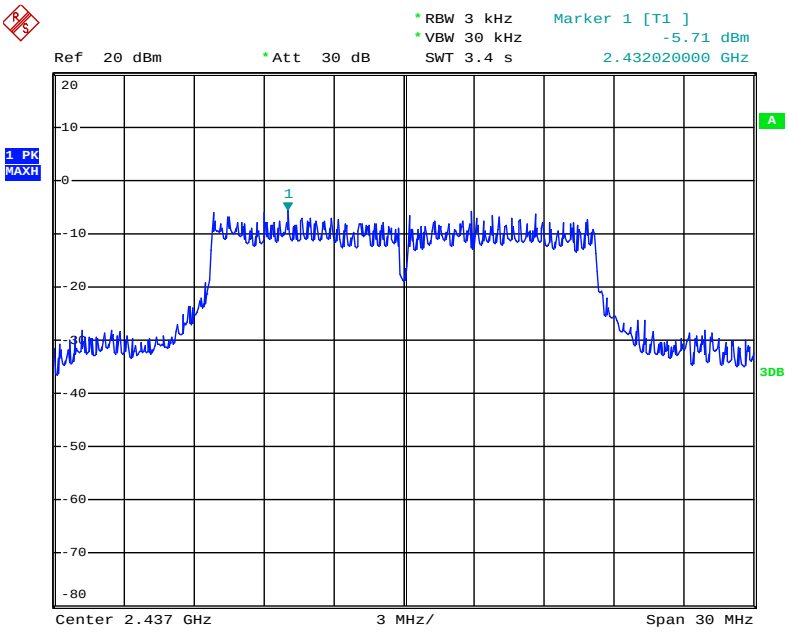
Date: 7.JAN.2015 10:48:10

Power Density Plot on Configuration IEEE 802.11b / 2412 MHz / Chain 3



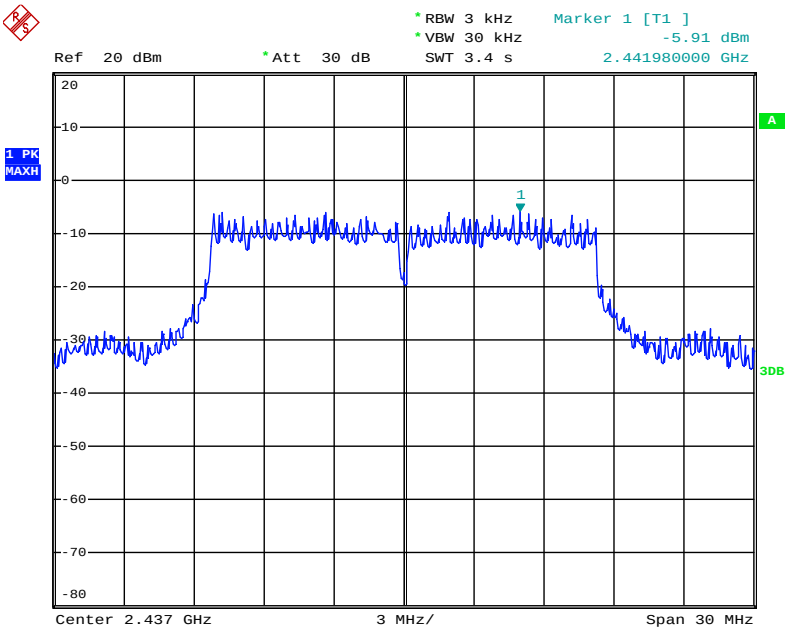
Date: 7.JAN.2015 10:49:46

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



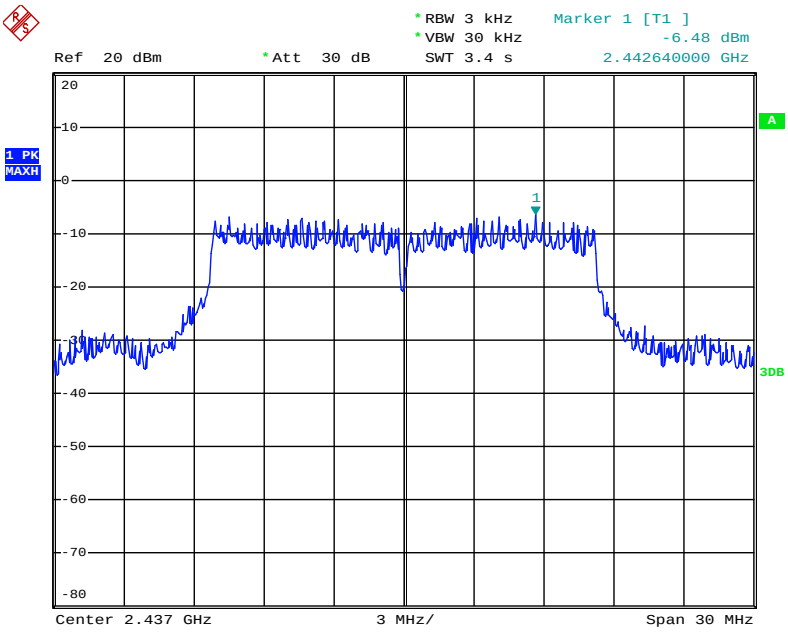
Date: 7.JAN.2015 11:07:50

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



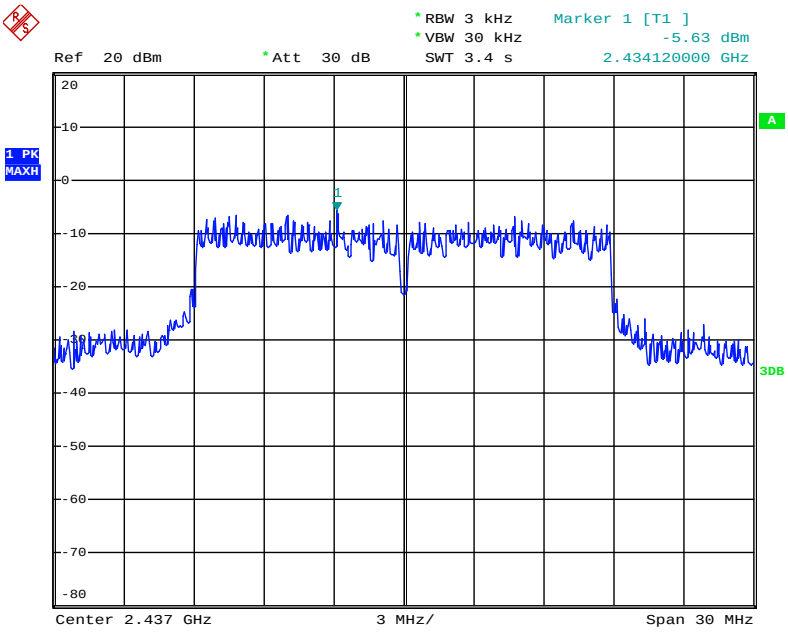
Date: 7.JAN.2015 11:07:33

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



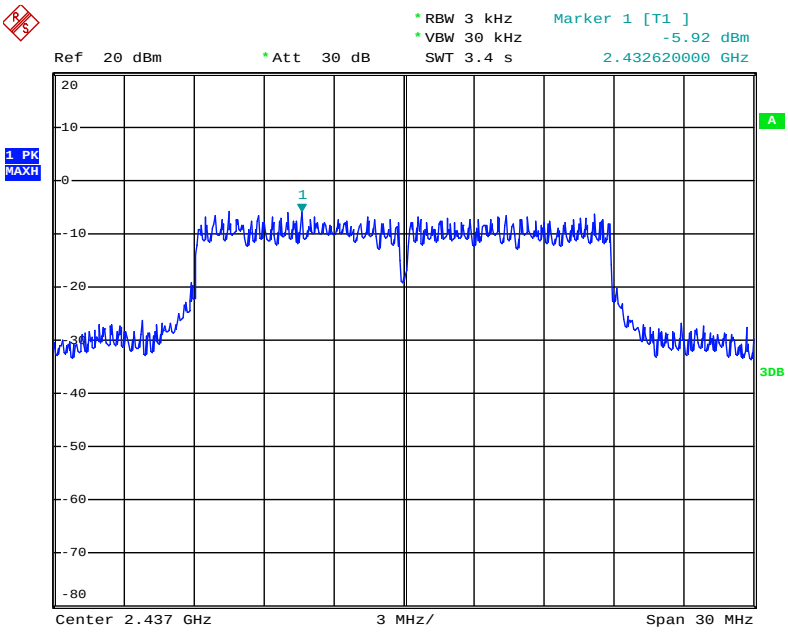
Date: 7.JAN.2015 11:07:42

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



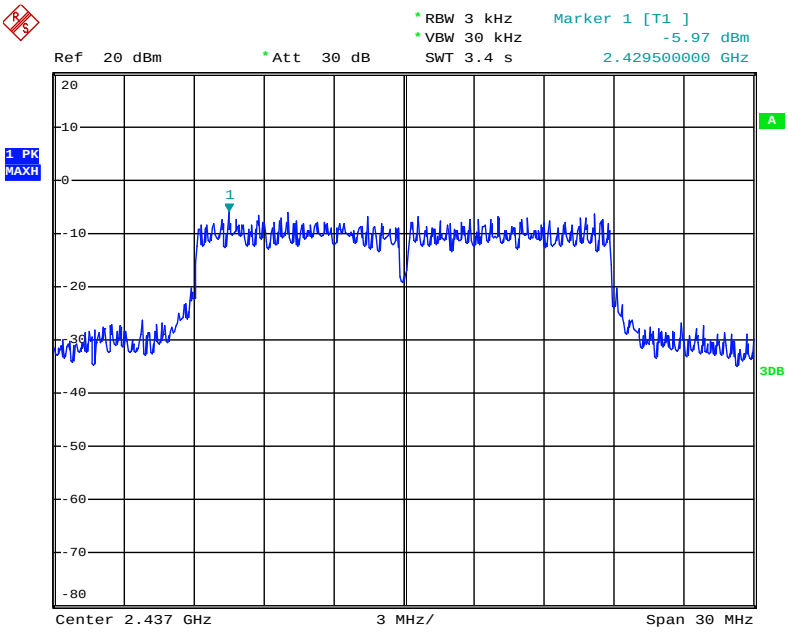
Date: 7.JAN.2015 12:44:31

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



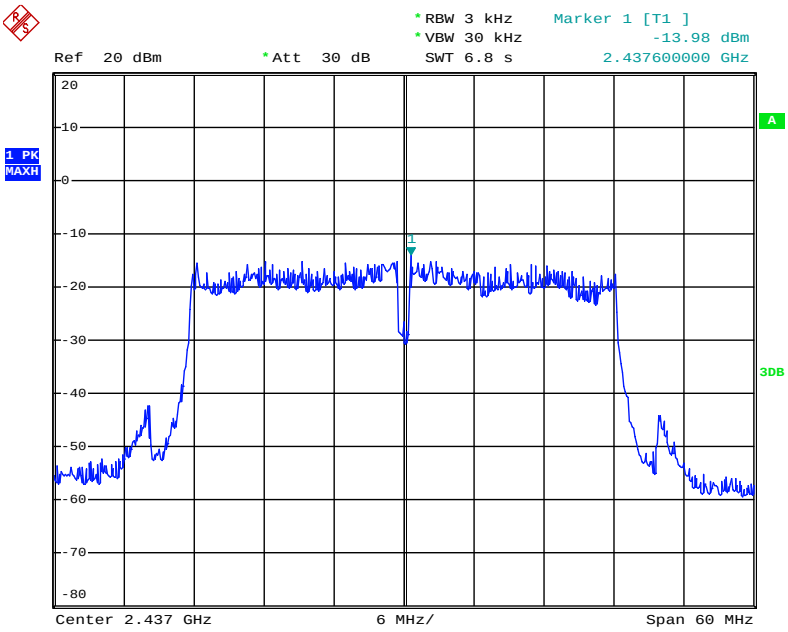
Date: 7.JAN.2015 12:45:02

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



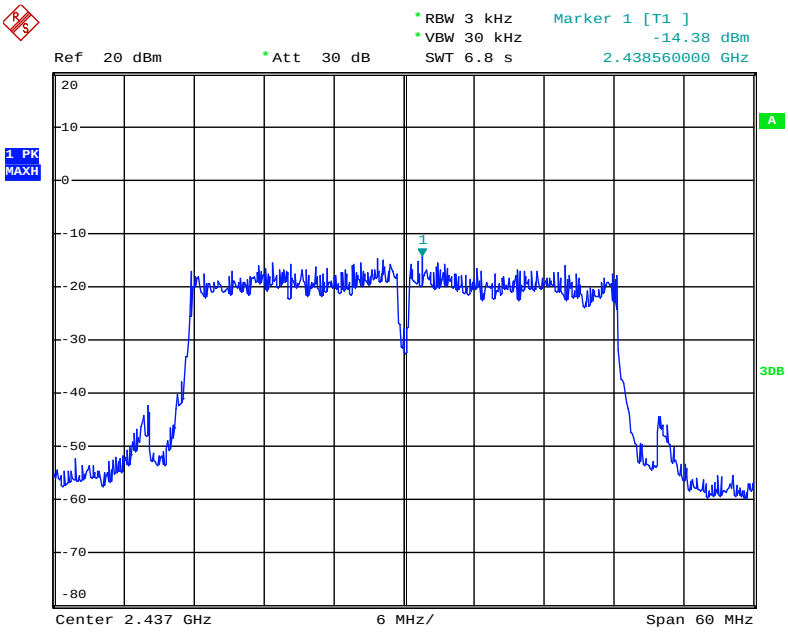
Date: 7.JAN.2015 12:44:52

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



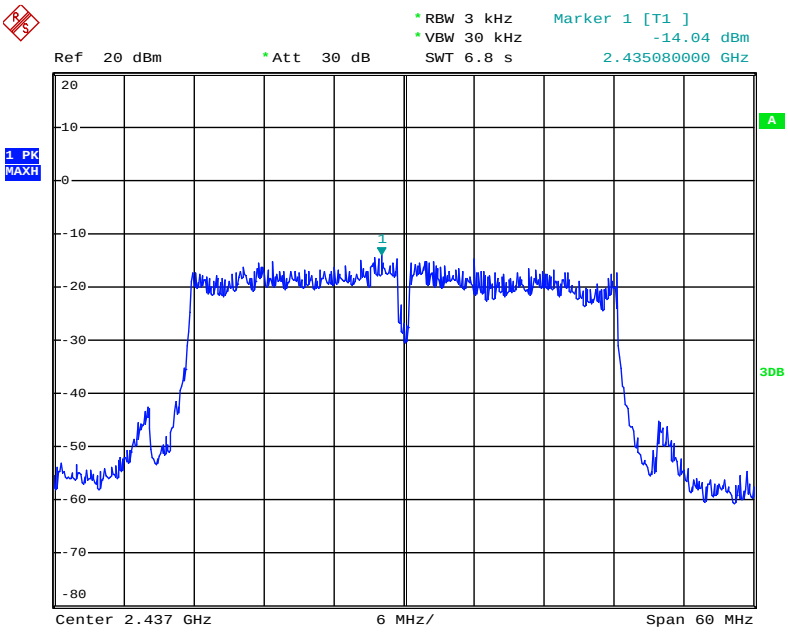
Date: 7.JAN.2015 12:55:13

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



Date: 7.JAN.2015 12:54:56

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



Date: 7.JAN.2015 12:54:43

4.4. 6dB Spectrum Bandwidth Measurement

4.4.1. Limit

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

4.4.2. Measuring Instruments and Setting

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

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

4.4.3. Test Procedures

For Radiated 6dB Bandwidth Measurement:

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

4.4.4. Test Setup Layout

For Radiated 6dB Bandwidth Measurement:

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

4.4.5. Test Deviation

There is no deviation with the original standard.

4.4.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.4.7. Test Result of 6dB Spectrum Bandwidth

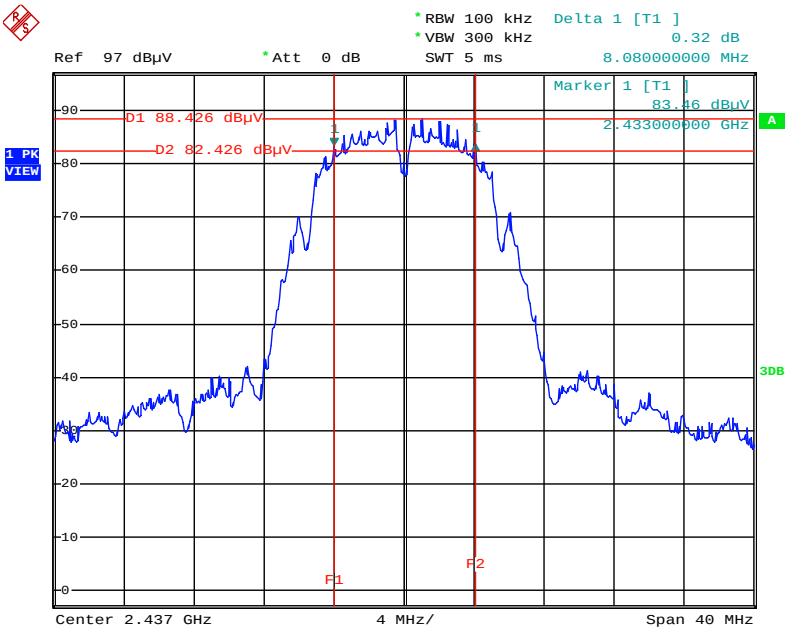
Temperature	26°C	Humidity	63%
Test Engineer	Mars Lin		

Mode	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
802.11b	2412 MHz	8.56	10.44	500	Complies
	2437 MHz	8.08	10.44	500	Complies
	2462 MHz	8.08	10.32	500	Complies
802.11g	2412 MHz	16.40	17.16	500	Complies
	2437 MHz	16.32	21.96	500	Complies
	2462 MHz	16.40	17.16	500	Complies
802.11n MCS0 HT20	2412 MHz	13.76	17.40	500	Complies
	2437 MHz	12.00	21.96	500	Complies
	2462 MHz	13.76	17.40	500	Complies
802.11n MCS0 HT40	2422 MHz	31.36	36.20	500	Complies
	2437 MHz	31.04	36.20	500	Complies
	2452 MHz	31.52	36.00	500	Complies

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

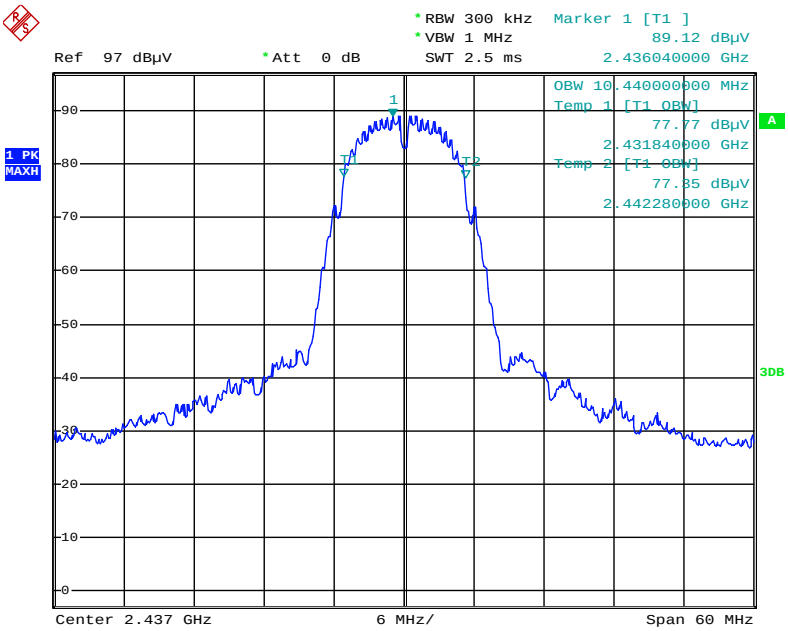
For plots, only the channel with worse result was shown.

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



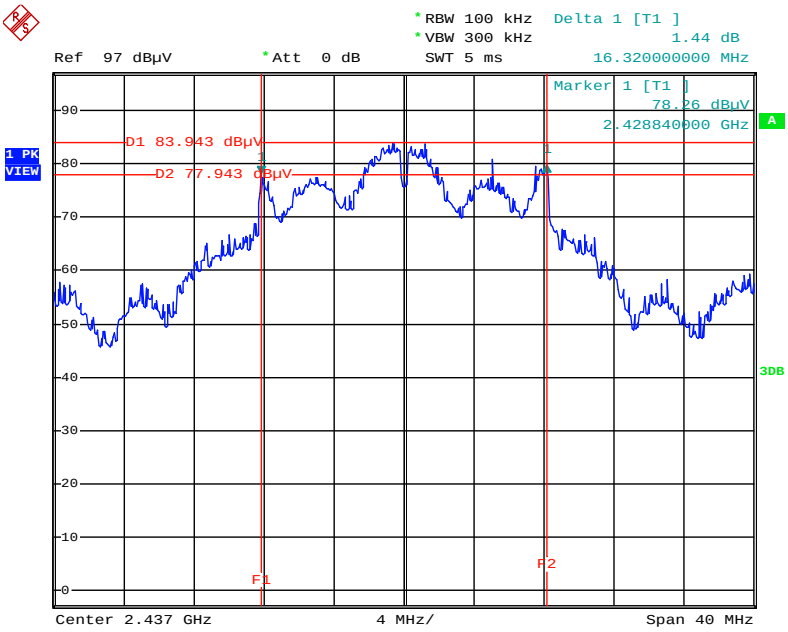
Date: 7.JAN.2015 13:07:53

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



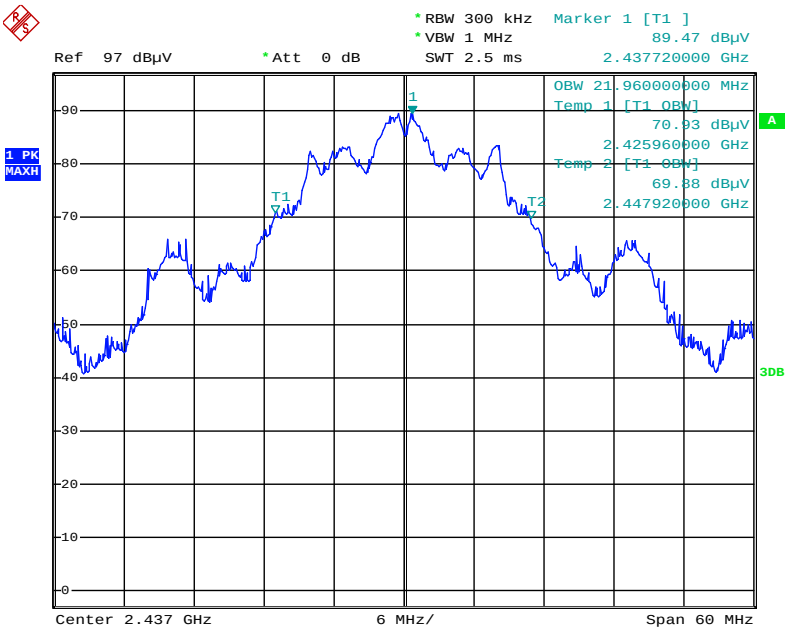
Date: 7.JAN.2015 13:24:35

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



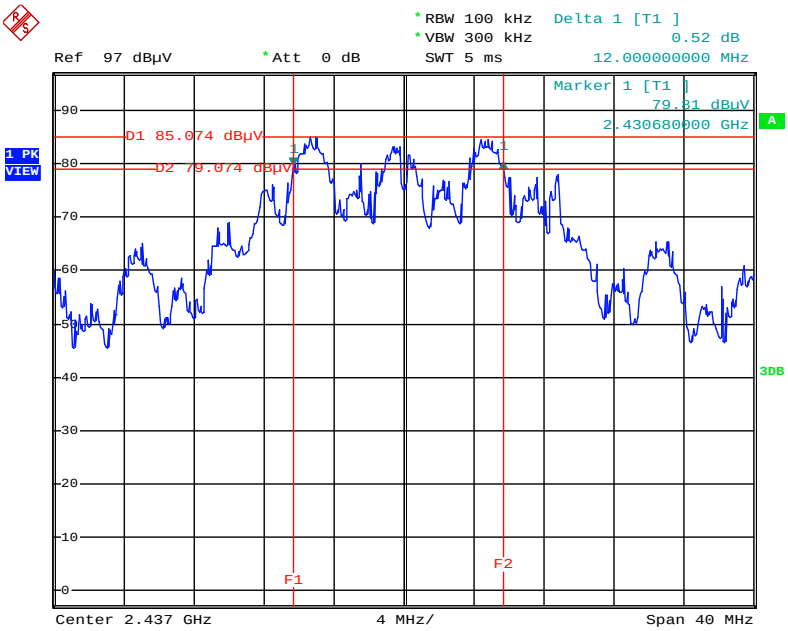
Date: 7.JAN.2015 13:12:14

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



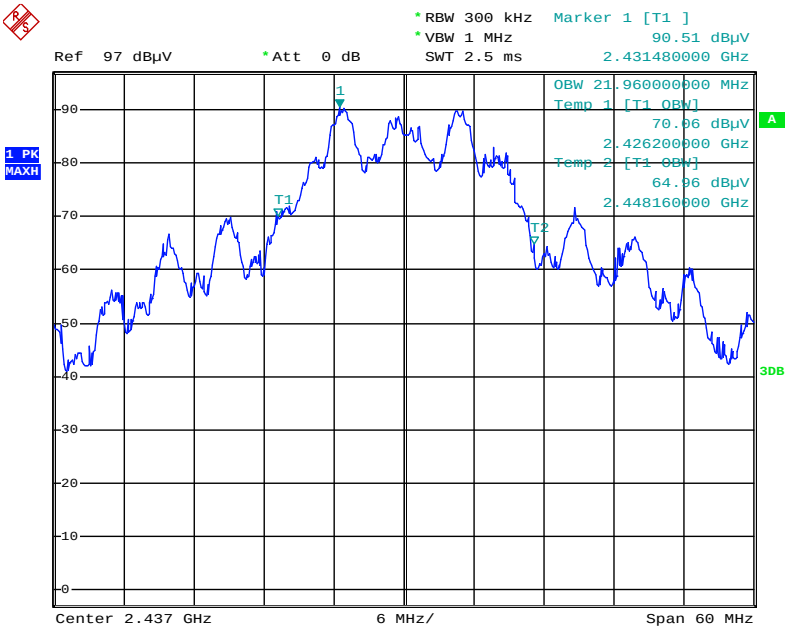
Date: 7.JAN.2015 13:27:05

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT20 / 2437 MHz / Chain 1 + Chain 2 + Chain 3



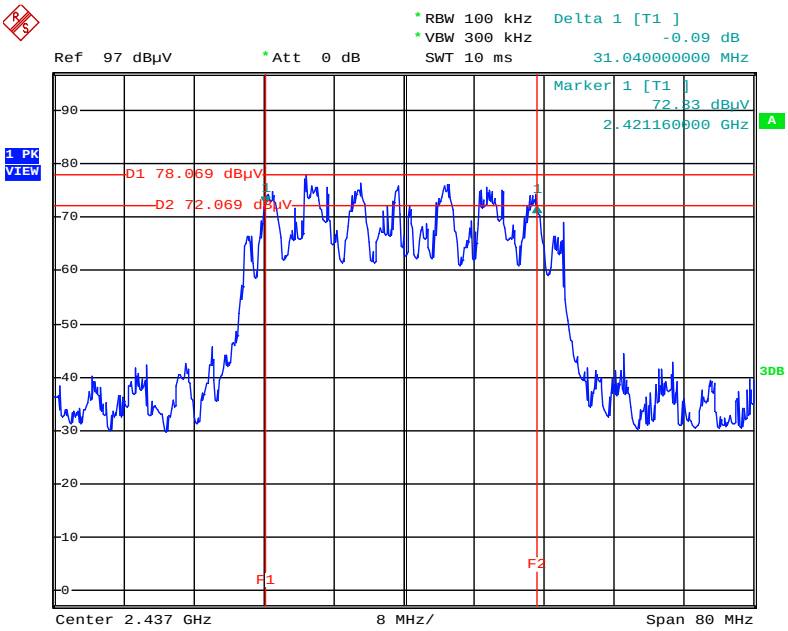
Date: 7.JAN.2015 13:16:13

99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT20 / 2437 MHz / Chain 1 + Chain 2 + Chain 3



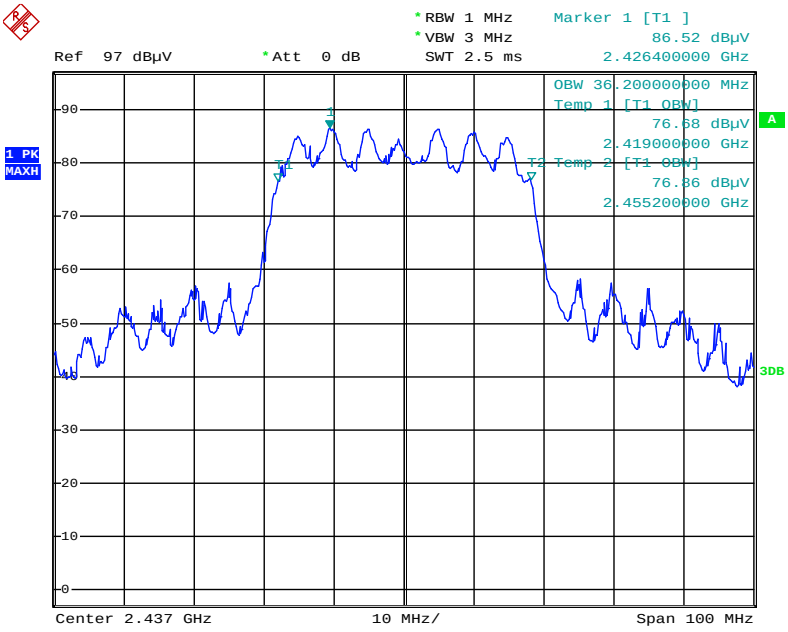
Date: 7.JAN.2015 13:29:09

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



Date: 7.JAN.2015 13:19:53

99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT40 / 2437 MHz / Chain 1 + Chain 2 + Chain 3



Date: 7.JAN.2015 13:32:29

4.5. Radiated Emissions Measurement

4.5.1. Limit

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

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

4.5.2. Measuring Instruments and Setting

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

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

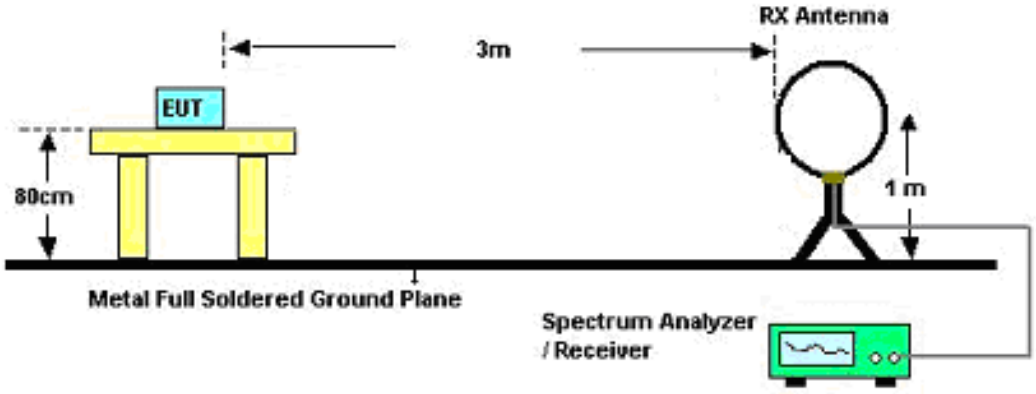
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RBW 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RBW 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RBW 120kHz for QP

4.5.3. Test Procedures

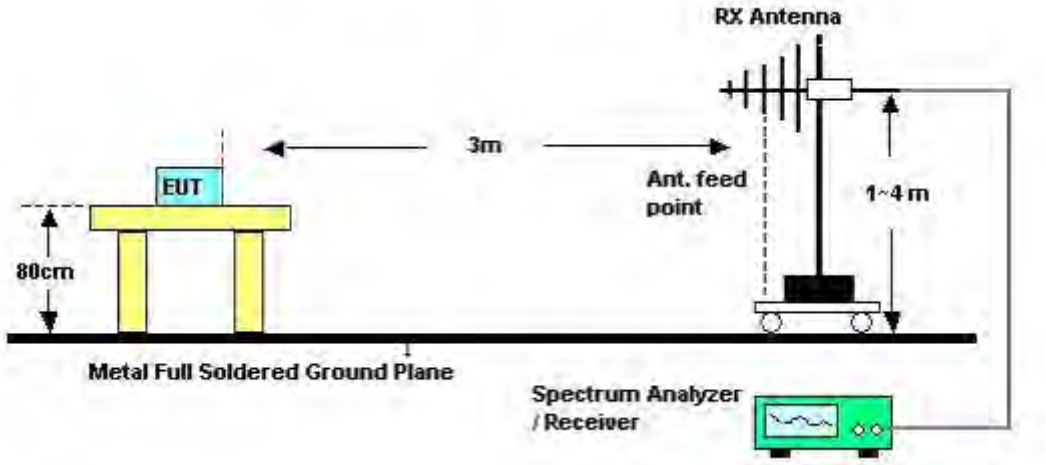
1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting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

4.5.4. Test Setup Layout

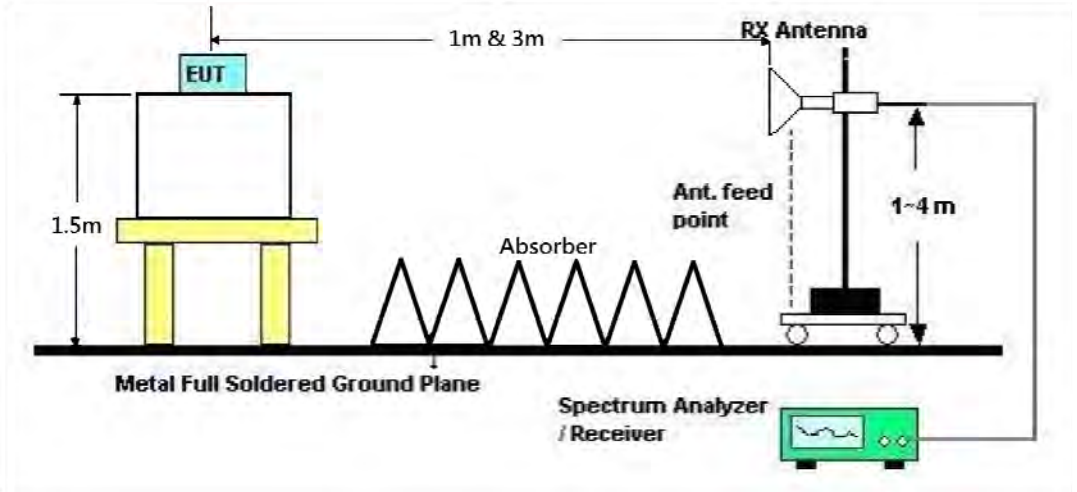
For Radiated Emissions: 9kHz ~30MHz



For Radiated Emissions: 30MHz~1GHz



For Radiated Emissions: Above 1GHz



4.5.5. Test Deviation

There is no deviation with the original standard.

4.5.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

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

Temperature	26°C	Humidity	68%
Test Engineer	Peter Wu	Configurations	CTX
Test Date	Jan. 10, 2015		

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

Note:

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

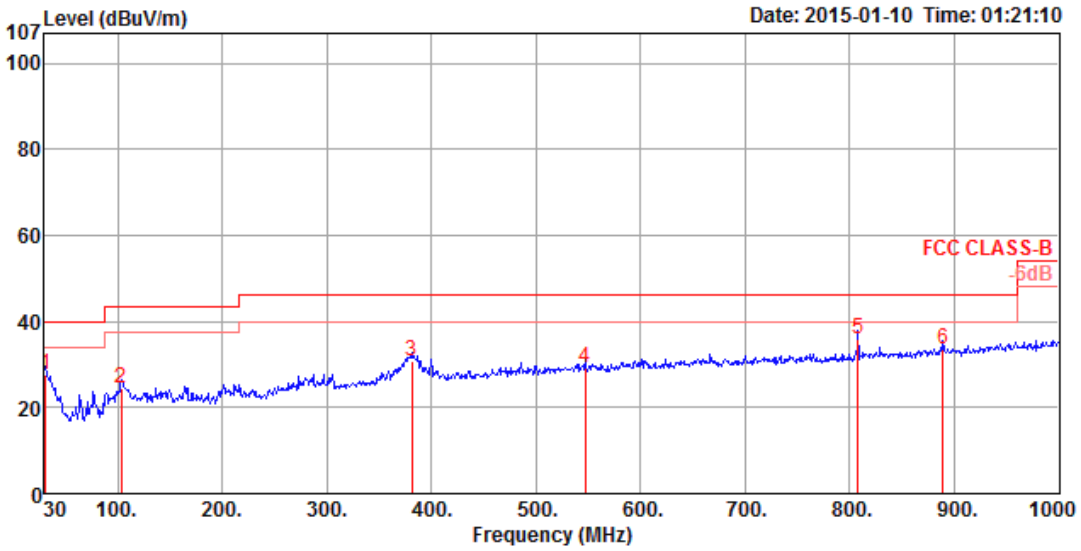
Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

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

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

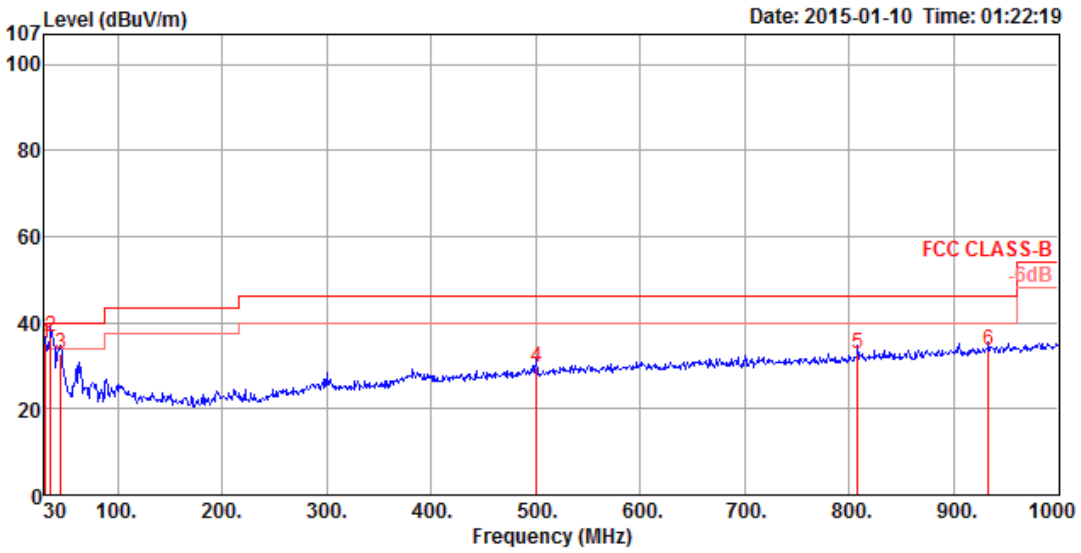
Temperature	26°C	Humidity	68%
Test Engineer	Peter Wu	Configurations	CTX

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Pol/Phase	T/Pos	A/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	30.97	27.71	40.00	-12.29	40.34	0.42	32.43	19.38	HORIZONTAL	121	100	QP
2	103.72	24.35	43.50	-19.15	44.53	0.73	32.47	11.56	HORIZONTAL	270	300	QP
3	381.14	30.92	46.00	-15.08	45.72	1.39	32.26	16.07	HORIZONTAL	197	100	QP
4	547.01	29.11	46.00	-16.89	41.28	1.68	32.40	18.55	HORIZONTAL	223	100	QP
5	807.94	36.05	46.00	-9.95	45.66	2.04	32.33	20.68	HORIZONTAL	159	100	QP
6	889.42	33.64	46.00	-12.36	41.92	2.15	31.93	21.50	HORIZONTAL	124	150	QP

Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Pol/Phase	T/Pos	A/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	30.97	34.99	40.00	-5.01	47.60	0.42	32.43	19.40	VERTICAL	112	100	QP
2	35.82	36.73	40.00	-3.27	52.31	0.43	32.43	16.42	VERTICAL	341	100	QP
3	45.52	32.75	40.00	-7.25	53.86	0.49	32.43	10.83	VERTICAL	360	125	QP
4	500.45	29.66	46.00	-16.34	42.67	1.60	32.41	17.80	VERTICAL	100	125	QP
5	807.94	32.63	46.00	-13.37	42.24	2.04	32.33	20.68	VERTICAL	103	125	QP
6	933.07	33.64	46.00	-12.36	40.98	2.28	31.42	21.80	VERTICAL	112	100	QP

Note:

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

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

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

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

Temperature	26°C	Humidity	68%
Test Engineer	Peter Wu	Configurations	IEEE 802.11b CH 1 / Chain 1 + Chain 2 + Chain 3
Test Date	Dec. 24, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4823.94	55.84	74.00	-18.16	51.78	5.87	33.39	35.20	Peak	180	49	HORIZONTAL
2	4824.00	52.79	54.00	-1.21	48.73	5.87	33.39	35.20	Average	180	49	HORIZONTAL
3	12059.00	58.60	74.00	-15.40	44.91	9.36	39.25	34.92	Peak	152	323	HORIZONTAL
4	12059.28	48.33	54.00	-5.67	34.64	9.36	39.25	34.92	Average	152	323	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	4824.00	53.83	54.00	-0.17	49.77	5.87	33.39	35.20	Average	162	26	VERTICAL
2	4824.01	56.66	74.00	-17.34	52.60	5.87	33.39	35.20	Peak	162	26	VERTICAL
3	12059.28	48.83	54.00	-5.17	35.14	9.36	39.25	34.92	Average	183	290	VERTICAL
4	12059.88	58.45	74.00	-15.55	44.76	9.36	39.25	34.92	Peak	183	290	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Peter Wu	Configurations	IEEE 802.11b CH 6 / Chain 1 + Chain 2 + Chain 3
Test Date	Dec. 24, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4873.98	54.30	74.00	-19.70	50.10	5.92	33.48	35.20	Peak	237	47	HORIZONTAL
2	4874.01	50.49	54.00	-3.51	46.29	5.92	33.48	35.20	Average	237	47	HORIZONTAL
3	7309.98	54.00	74.00	-20.00	45.79	7.13	36.51	35.43	Peak	143	36	HORIZONTAL
4	7310.26	46.18	54.00	-7.82	37.97	7.13	36.51	35.43	Average	143	36	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Limit	Level	Loss	Factor	Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4873.94	56.99	74.00	-17.01	52.79	5.92	33.48	35.20	Peak	168	22	VERTICAL
2	4874.00	53.81	54.00	-0.19	49.61	5.92	33.48	35.20	Average	168	22	VERTICAL
3	7310.28	47.74	54.00	-6.26	39.53	7.13	36.51	35.43	Average	202	298	VERTICAL
4	7310.62	55.23	74.00	-18.77	47.02	7.13	36.51	35.43	Peak	202	298	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Peter Wu	Configurations	IEEE 802.11b CH 11 / Chain 1 + Chain 2 + Chain 3
Test Date	Dec. 24, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4923.98	53.78	54.00	-0.22	49.43	5.97	33.58	35.20	Average	223	50	HORIZONTAL
2	4923.99	56.79	74.00	-17.21	52.44	5.97	33.58	35.20	Peak	223	50	HORIZONTAL
3	7385.26	48.29	54.00	-5.71	39.97	7.17	36.61	35.46	Average	138	34	HORIZONTAL
4	7385.60	55.59	74.00	-18.41	47.27	7.17	36.61	35.46	Peak	138	34	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4923.99	56.85	74.00	-17.15	52.50	5.97	33.58	35.20	Peak	169	22	VERTICAL
2	4924.01	53.94	54.00	-0.06	49.59	5.97	33.58	35.20	Average	169	22	VERTICAL
3	7385.10	55.55	74.00	-18.45	47.23	7.17	36.61	35.46	Peak	145	329	VERTICAL
4	7385.26	48.08	54.00	-5.92	39.76	7.17	36.61	35.46	Average	145	329	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Peter Wu	Configurations	IEEE 802.11g CH 1 / Chain 1 + Chain 2 + Chain 3
Test Date	Dec. 25, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4824.09	35.31	54.00	-18.69	31.25	5.87	33.39	35.20	Average	165	50	HORIZONTAL
2	4824.26	52.21	74.00	-21.79	48.15	5.87	33.39	35.20	Peak	165	50	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4823.35	52.43	74.00	-21.57	48.37	5.87	33.39	35.20	Peak	164	25	VERTICAL
2	4823.91	35.35	54.00	-18.65	31.29	5.87	33.39	35.20	Average	164	25	VERTICAL

Temperature	26℃	Humidity	68%
Test Engineer	Peter Wu	Configurations	IEEE 802.11g CH 6 / Chain 1 + Chain 2 + Chain 3
Test Date	Dec. 25, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4873.09	46.70	54.00	-7.30	42.50	5.92	33.48	35.20	Average	183	48	HORIZONTAL
2	4873.48	61.76	74.00	-12.24	57.56	5.92	33.48	35.20	Peak	183	48	HORIZONTAL
3	7309.00	49.09	54.00	-4.91	40.88	7.13	36.51	35.43	Average	154	21	HORIZONTAL
4	7309.09	63.98	74.00	-10.02	55.77	7.13	36.51	35.43	Peak	154	21	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	4873.13	48.49	54.00	-5.51	44.29	5.92	33.48	35.20	Average	163	22	VERTICAL
2	4874.13	64.41	74.00	-9.59	60.21	5.92	33.48	35.20	Peak	163	22	VERTICAL
3	7305.53	66.14	74.00	-7.86	57.95	7.13	36.48	35.42	Peak	156	339	VERTICAL
4	7306.14	48.42	54.00	-5.58	40.23	7.13	36.48	35.42	Average	156	339	VERTICAL

Temperature	26℃	Humidity	68%
Test Engineer	Peter Wu	Configurations	IEEE 802.11g CH 11 / Chain 1 + Chain 2 + Chain 3
Test Date	Dec. 25, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4921.02	36.14	54.00	-17.86	31.83	5.97	33.54	35.20	Average	164	284	HORIZONTAL
2	4930.95	51.88	74.00	-22.12	47.53	5.97	33.58	35.20	Peak	164	284	HORIZONTAL
3	7384.41	55.28	74.00	-18.72	46.96	7.17	36.61	35.46	Peak	154	34	HORIZONTAL
4	7384.73	39.07	54.00	-14.93	30.75	7.17	36.61	35.46	Average	154	34	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	4922.84	54.21	74.00	-19.79	49.86	5.97	33.58	35.20	Peak	193	48	VERTICAL
2	4923.93	37.78	54.00	-16.22	33.43	5.97	33.58	35.20	Average	193	48	VERTICAL
3	7381.28	56.23	74.00	-17.77	47.91	7.16	36.61	35.45	Peak	165	338	VERTICAL
4	7381.43	39.15	54.00	-14.85	30.83	7.16	36.61	35.45	Average	165	338	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Peter Wu	Configurations	IEEE 802.11n MCS0 HT20 CH 1 / Chain 1 + Chain 2 + Chain 3
Test Date	Dec. 25, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4824.07	32.61	54.00	-21.39	28.55	5.87	33.39	35.20	Average	165	145	HORIZONTAL
2	4824.83	46.41	74.00	-27.59	42.35	5.87	33.39	35.20	Peak	165	145	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	4824.36	48.19	74.00	-25.81	44.13	5.87	33.39	35.20	Peak	165	54	VERTICAL
2	4824.71	33.11	54.00	-20.89	29.05	5.87	33.39	35.20	Average	165	54	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Peter Wu	Configurations	IEEE 802.11n MCS0 HT20 CH 6 / Chain 1 + Chain 2 + Chain 3
Test Date	Dec. 24, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4875.52	46.05	54.00	-7.95	41.85	5.92	33.48	35.20	Average	178	7	HORIZONTAL
2	4875.65	63.45	74.00	-10.55	59.25	5.92	33.48	35.20	Peak	178	7	HORIZONTAL
3	7312.74	62.65	74.00	-11.35	54.44	7.13	36.51	35.43	Peak	166	22	HORIZONTAL
4	7313.04	47.87	54.00	-6.13	39.66	7.13	36.51	35.43	Average	166	22	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	4873.36	63.86	74.00	-10.14	59.66	5.92	33.48	35.20	Peak	174	23	VERTICAL
2	4873.94	48.71	54.00	-5.29	44.51	5.92	33.48	35.20	Average	174	23	VERTICAL
3	7306.79	47.57	54.00	-6.43	39.39	7.13	36.48	35.43	Average	166	39	VERTICAL
4	7307.05	62.48	74.00	-11.52	54.30	7.13	36.48	35.43	Peak	166	39	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Peter Wu	Configurations	IEEE 802.11n MCS0 HT20 CH 11 / Chain 1 + Chain 2 + Chain 3
Test Date	Dec. 24, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4925.71	34.20	54.00	-19.80	29.85	5.97	33.58	35.20	Average	188	291	HORIZONTAL
2	4925.74	49.11	74.00	-24.89	44.76	5.97	33.58	35.20	Peak	188	291	HORIZONTAL
3	7383.02	50.55	74.00	-23.45	42.23	7.16	36.61	35.45	Peak	100	132	HORIZONTAL
4	7388.20	36.57	54.00	-17.43	28.25	7.17	36.61	35.46	Average	100	132	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	4925.65	35.04	54.00	-18.96	30.69	5.97	33.58	35.20	Average	103	310	VERTICAL
2	4926.29	50.91	74.00	-23.09	46.56	5.97	33.58	35.20	Peak	103	310	VERTICAL
3	7385.45	37.54	54.00	-16.46	29.22	7.17	36.61	35.46	Average	100	120	VERTICAL
4	7386.43	50.86	74.00	-23.14	42.54	7.17	36.61	35.46	Peak	100	120	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Peter Wu	Configurations	IEEE 802.11n MCS0 HT40 CH 3 / Chain 1 + Chain 2 + Chain 3
Test Date	Dec. 24, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4843.25	46.25	74.00	-27.75	42.15	5.88	33.42	35.20	Peak	100	115	HORIZONTAL
2	4853.93	33.40	54.00	-20.60	29.25	5.90	33.45	35.20	Average	100	115	HORIZONTAL
3	7261.69	50.18	74.00	-23.82	42.06	7.10	36.43	35.41	Peak	100	238	HORIZONTAL
4	7268.81	37.07	54.00	-16.93	28.94	7.11	36.43	35.41	Average	100	238	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	4842.38	46.32	74.00	-27.68	42.22	5.88	33.42	35.20	Peak	100	240	VERTICAL
2	4853.41	33.61	54.00	-20.39	29.49	5.90	33.42	35.20	Average	100	240	VERTICAL
3	7265.10	50.29	74.00	-23.71	42.16	7.11	36.43	35.41	Peak	100	120	VERTICAL
4	7275.84	37.09	54.00	-16.91	28.94	7.11	36.45	35.41	Average	100	120	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Peter Wu	Configurations	IEEE 802.11n MCS0 HT40 CH 6 / Chain 1 + Chain 2 + Chain 3
Test Date	Dec. 24, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4875.27	33.50	54.00	-20.50	29.30	5.92	33.48	35.20	Average	100	189	HORIZONTAL
2	4883.12	46.98	74.00	-27.02	42.78	5.92	33.48	35.20	Peak	100	189	HORIZONTAL
3	7301.28	37.48	54.00	-16.52	29.29	7.13	36.48	35.42	Average	100	250	HORIZONTAL
4	7316.53	50.49	74.00	-23.51	42.27	7.14	36.51	35.43	Peak	100	250	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	4869.66	46.97	74.00	-27.03	42.80	5.92	33.45	35.20	Peak	100	306	VERTICAL
2	4875.77	34.32	54.00	-19.68	30.12	5.92	33.48	35.20	Average	100	306	VERTICAL
3	7301.48	37.49	54.00	-16.51	29.30	7.13	36.48	35.42	Average	100	120	VERTICAL
4	7315.78	50.38	74.00	-23.62	42.16	7.14	36.51	35.43	Peak	100	120	VERTICAL

Temperature	26℃	Humidity	68%
Test Engineer	Peter Wu	Configurations	IEEE 802.11n MCS0 HT40 CH 9 / Chain 1 + Chain 2 + Chain 3
Test Date	Dec. 24, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4896.27	47.03	74.00	-26.97	42.79	5.93	33.51	35.20	Peak	100	110	HORIZONTAL
2	4913.35	33.78	54.00	-20.22	29.49	5.95	33.54	35.20	Average	100	110	HORIZONTAL
3	7346.62	37.75	54.00	-16.25	29.48	7.15	36.56	35.44	Average	100	250	HORIZONTAL
4	7349.49	50.27	74.00	-23.73	42.00	7.15	36.56	35.44	Peak	100	250	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	4900.59	46.54	74.00	-27.46	42.30	5.93	33.51	35.20	Peak	100	120	VERTICAL
2	4903.67	33.84	54.00	-20.16	29.58	5.95	33.51	35.20	Average	100	120	VERTICAL
3	7347.49	37.90	54.00	-16.10	29.63	7.15	36.56	35.44	Average	100	280	VERTICAL
4	7349.55	50.57	74.00	-23.43	42.29	7.16	36.56	35.44	Peak	100	280	VERTICAL

Note:

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

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

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

4.6. Emissions Measurement

4.6.1. Limit

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

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

4.6.2. Measuring Instruments and Setting

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

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	100 MHz
RBW / VBW (Emission in restricted band)	1MHz / 3MHz for Peak, 1MHz / 1/T for Average
RBW / VBW (30dBc in any 100 kHz bandwidth emission)	100 kHz / 300 kHz for Peak

4.6.3. Test Procedures

For Radiated band edges Measurement:

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

For Radiated Out of Band Emission Measurement:

1. Test was performed in accordance with KDB 558074 D01 v03r02 for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247 section 10.1 Unwanted Emissions into Non-Restricted Frequency Bands Measurement Procedure.

4.6.4. Test Setup Layout

For Radiated band edges Measurement:

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

For Radiated Out of Band Emission Measurement:

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

4.6.5. Test Deviation

There is no deviation with the original standard.

4.6.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.6.7. Test Result of Band Edge and Fundamental Emissions

Temperature	26°C	Humidity	68%
Test Engineer	Peter Wu	Configurations	IEEE 802.11b CH 1, 6, 11 / Chain 1 + Chain 2 + Chain 3
Test Date	Dec. 24, 2014		

Channel 1

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2389.80	53.70	54.00	-0.30	21.56	4.09	28.05	0.00	Average	113	9	VERTICAL
2	2390.00	63.08	74.00	-10.92	30.94	4.09	28.05	0.00	Peak	113	9	VERTICAL
3	2411.00	115.22			83.02	4.11	28.09	0.00	Peak	113	9	VERTICAL
4	2411.20	111.25			79.05	4.11	28.09	0.00	Average	113	9	VERTICAL

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

Channel 6

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2379.80	60.09	74.00	-13.91	28.00	4.08	28.01	0.00	Peak	167	9	VERTICAL
2	2388.60	47.57	54.00	-6.43	15.43	4.09	28.05	0.00	Average	167	9	VERTICAL
3	2436.20	111.98			79.68	4.12	28.18	0.00	Average	167	9	VERTICAL
4	2436.20	115.93			83.63	4.12	28.18	0.00	Peak	167	9	VERTICAL
5	2493.10	58.65	74.00	-15.35	26.18	4.17	28.30	0.00	Peak	167	9	VERTICAL
6	2499.90	48.19	54.00	-5.81	15.72	4.17	28.30	0.00	Average	167	9	VERTICAL

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

Channel 11

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2463.00	115.55			83.19	4.14	28.22	0.00	Peak	173	8	VERTICAL
2	2463.80	111.42			79.06	4.14	28.22	0.00	Average	173	8	VERTICAL
3	2483.50	50.18	54.00	-3.82	17.76	4.16	28.26	0.00	Average	173	8	VERTICAL
4	2485.20	60.76	74.00	-13.24	28.30	4.16	28.30	0.00	Peak	173	8	VERTICAL

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

Temperature	26℃	Humidity	68%
Test Engineer	Peter Wu	Configurations	IEEE 802.11g CH 1, 6, 11 / Chain 1 + Chain 2 + Chain 3
Test Date	Dec. 24, 2014		

Channel 1

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2386.60	72.29	74.00	-1.71	40.15	4.09	28.05	0.00	Peak	195	37	VERTICAL
2	2387.60	53.90	54.00	-0.10	21.76	4.09	28.05	0.00	Average	195	37	VERTICAL
3	2407.40	113.27			81.07	4.11	28.09	0.00	Peak	195	37	VERTICAL
4	2407.60	103.02			70.82	4.11	28.09	0.00	Average	195	37	VERTICAL

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

Channel 6

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2381.80	67.55	74.00	-6.45	35.46	4.08	28.01	0.00	Peak	161	33	VERTICAL
2	2390.00	52.67	54.00	-1.33	20.53	4.09	28.05	0.00	Average	161	33	VERTICAL
3	2432.60	118.44			86.19	4.12	28.13	0.00	Peak	161	33	VERTICAL
4	2433.00	107.84			75.59	4.12	28.13	0.00	Average	161	33	VERTICAL
5	2483.50	53.88	54.00	-0.12	21.46	4.16	28.26	0.00	Average	161	33	VERTICAL
6	2484.20	70.15	74.00	-3.85	37.73	4.16	28.26	0.00	Peak	161	33	VERTICAL

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

Channel 11

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2457.40	114.62			82.26	4.14	28.22	0.00	Peak	181	33	VERTICAL
2	2457.60	103.65			71.29	4.14	28.22	0.00	Average	181	33	VERTICAL
3	2483.50	53.80	54.00	-0.20	21.38	4.16	28.26	0.00	Average	181	33	VERTICAL
4	2488.40	72.99	74.00	-1.01	40.52	4.17	28.30	0.00	Peak	181	33	VERTICAL

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

Temperature	26°C	Humidity	68%
Test Engineer	Peter Wu	Configurations	IEEE 802.11n MCS0 HT20 CH 1, 6, 11 / Chain 1 + Chain 2 + Chain 3
Test Date	Dec. 24, 2014		

Channel 1

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2389.80	73.26	74.00	-0.74	41.12	4.09	28.05	0.00	Peak	125	15	VERTICAL
2	2390.00	53.78	54.00	-0.22	21.64	4.09	28.05	0.00	Average	125	15	VERTICAL
3	2407.60	101.38			69.18	4.11	28.09	0.00	Average	125	15	VERTICAL
4	2407.60	112.04			79.84	4.11	28.09	0.00	Peak	125	15	VERTICAL

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

Channel 6

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2389.40	53.88	54.00	-0.12	21.74	4.09	28.05	0.00	Average	141	12	VERTICAL
2	2389.40	67.84	74.00	-6.16	35.70	4.09	28.05	0.00	Peak	141	12	VERTICAL
3	2432.20	107.29			75.04	4.12	28.13	0.00	Average	141	12	VERTICAL
4	2432.20	117.67			85.42	4.12	28.13	0.00	Peak	141	12	VERTICAL
5	2483.50	52.87	54.00	-1.13	20.45	4.16	28.26	0.00	Average	141	12	VERTICAL
6	2483.50	67.60	74.00	-6.40	35.18	4.16	28.26	0.00	Peak	141	12	VERTICAL

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

Channel 11

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2454.20	99.55			67.19	4.14	28.22	0.00	Average	161	12	HORIZONTAL
2	2454.20	110.73			78.37	4.14	28.22	0.00	Peak	161	12	HORIZONTAL
3	2483.50	53.18	54.00	-0.82	20.76	4.16	28.26	0.00	Average	161	12	HORIZONTAL
4	2484.40	73.10	74.00	-0.90	40.68	4.16	28.26	0.00	Peak	161	12	HORIZONTAL

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

Temperature	26℃	Humidity	68%
Test Engineer	Peter Wu	Configurations	IEEE 802.11n MCS0 HT40 CH 3, 6, 9 / Chain 1 + Chain 2 + Chain 3
Test Date	Dec. 24, 2014		

Channel 3

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2377.20	65.69	74.00	-8.31	33.60	4.08	28.01	0.00	Peak	116	21	VERTICAL
2	2387.60	53.91	54.00	-0.09	21.77	4.09	28.05	0.00	Average	116	21	VERTICAL
3	2422.80	97.73			65.48	4.12	28.13	0.00	Average	116	21	VERTICAL
4	2423.20	106.24			73.99	4.12	28.13	0.00	Peak	116	21	VERTICAL

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

Channel 6

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2387.97	68.90	74.00	-5.10	36.76	4.09	28.05	0.00	Peak	102	20	VERTICAL
2	2390.00	53.06	54.00	-0.94	20.92	4.09	28.05	0.00	Average	102	20	VERTICAL
3	2435.84	109.80			77.50	4.12	28.18	0.00	Peak	102	20	VERTICAL
4	2437.87	101.41			69.10	4.13	28.18	0.00	Average	102	20	VERTICAL
5	2483.50	53.68	54.00	-0.32	21.26	4.16	28.26	0.00	Average	102	20	VERTICAL
6	2483.50	70.85	74.00	-3.15	38.43	4.16	28.26	0.00	Peak	102	20	VERTICAL

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

Channel 9

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2452.87	99.72			67.37	4.13	28.22	0.00	Average	123	23	VERTICAL
2	2453.16	108.85			76.50	4.13	28.22	0.00	Peak	123	23	VERTICAL
3	2483.50	53.97	54.00	-0.03	21.55	4.16	28.26	0.00	Average	123	23	VERTICAL
4	2483.79	71.33	74.00	-2.67	38.91	4.16	28.26	0.00	Peak	123	23	VERTICAL

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

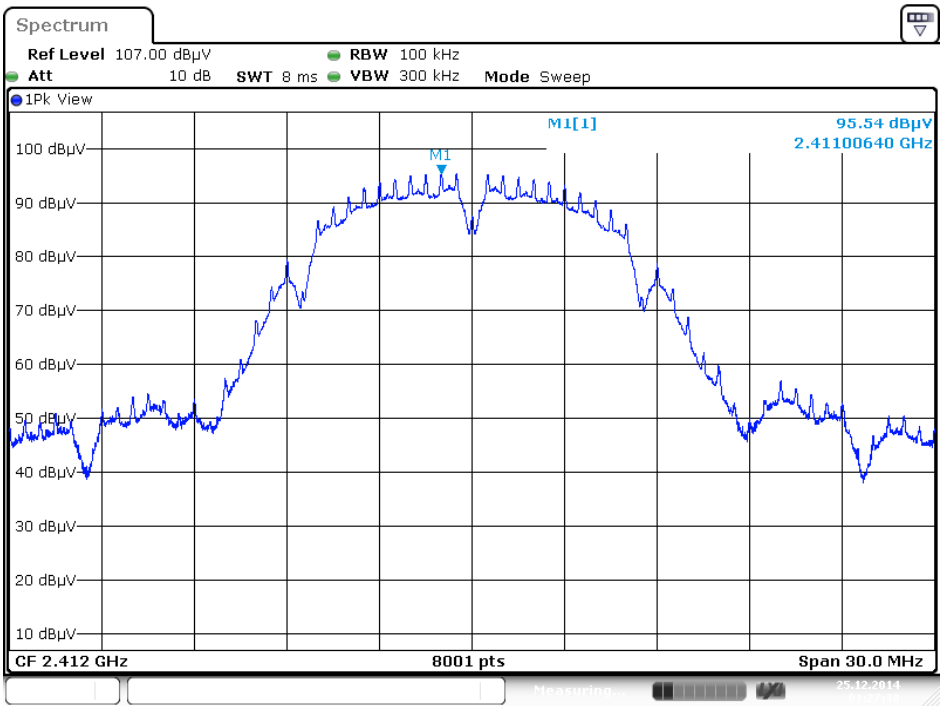
Note:

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

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

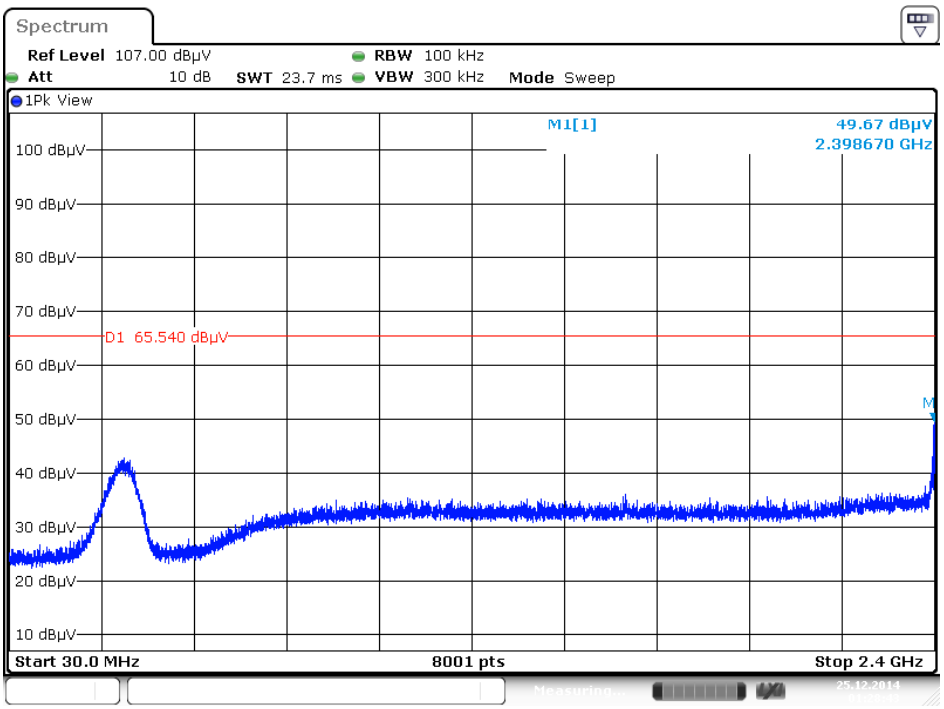
For Emission not in Restricted Band

Plot on Configuration IEEE 802.11b / Reference Level



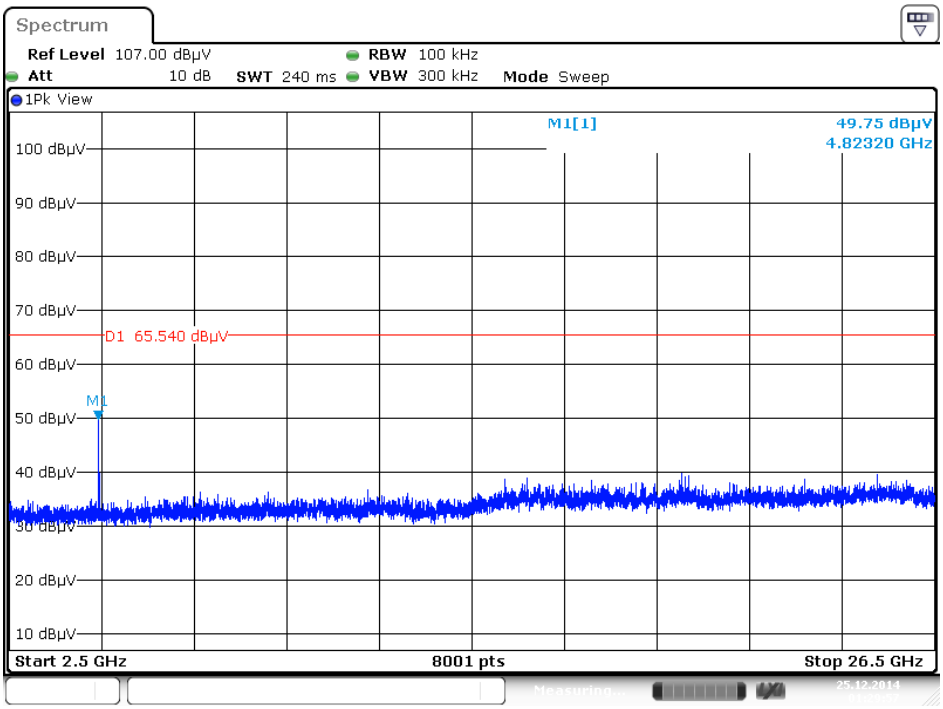
Date: 25.DEC.2014 01:27:30

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



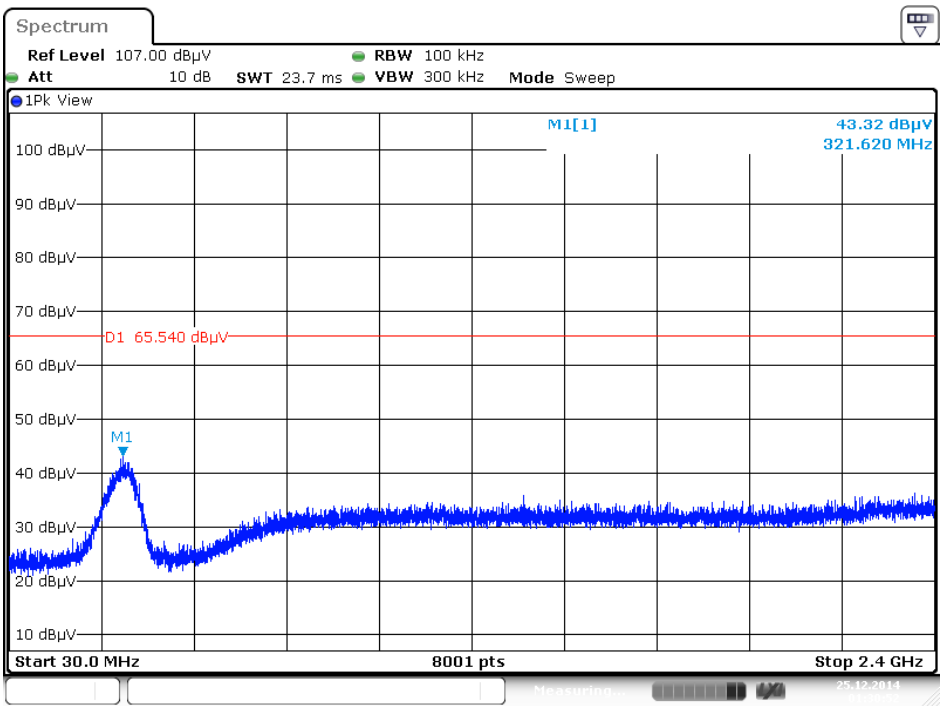
Date: 25.DEC.2014 01:28:43

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



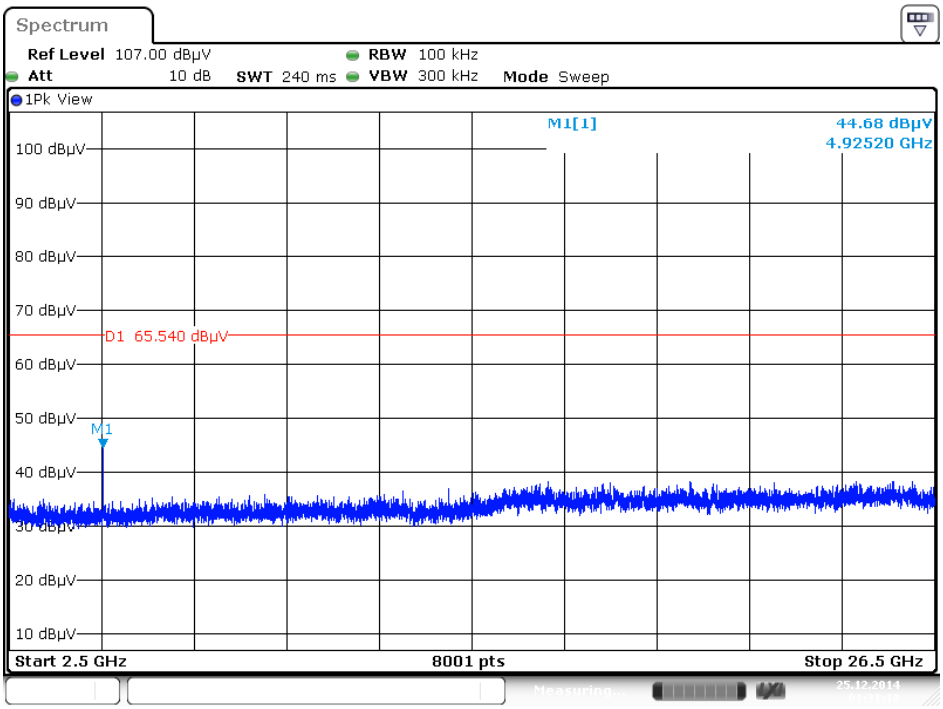
Date: 25.DEC.2014 01:29:57

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



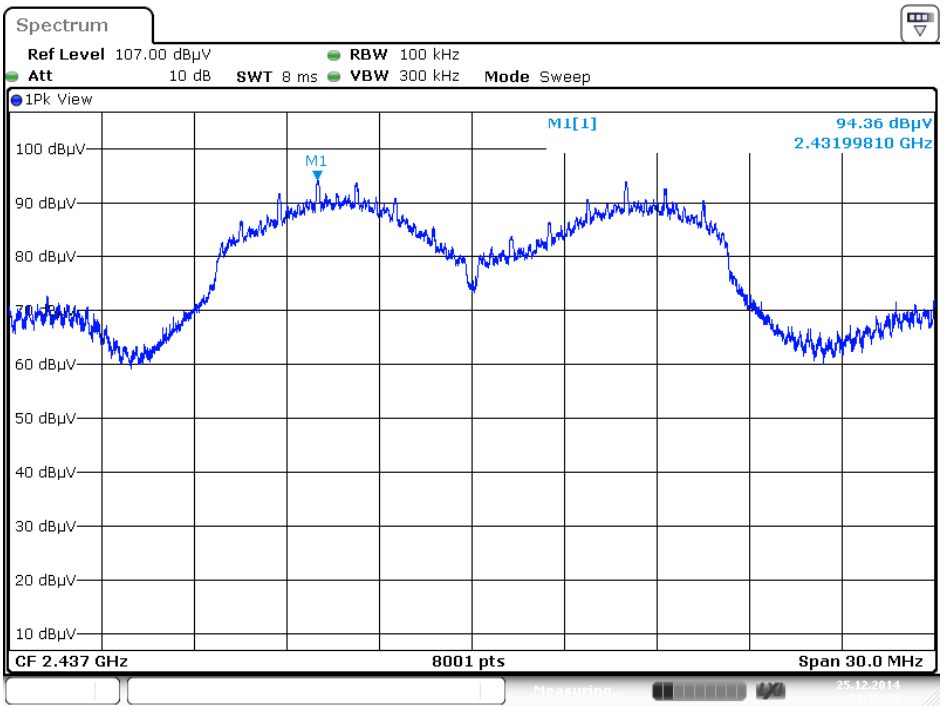
Date: 25.DEC.2014 01:30:52

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



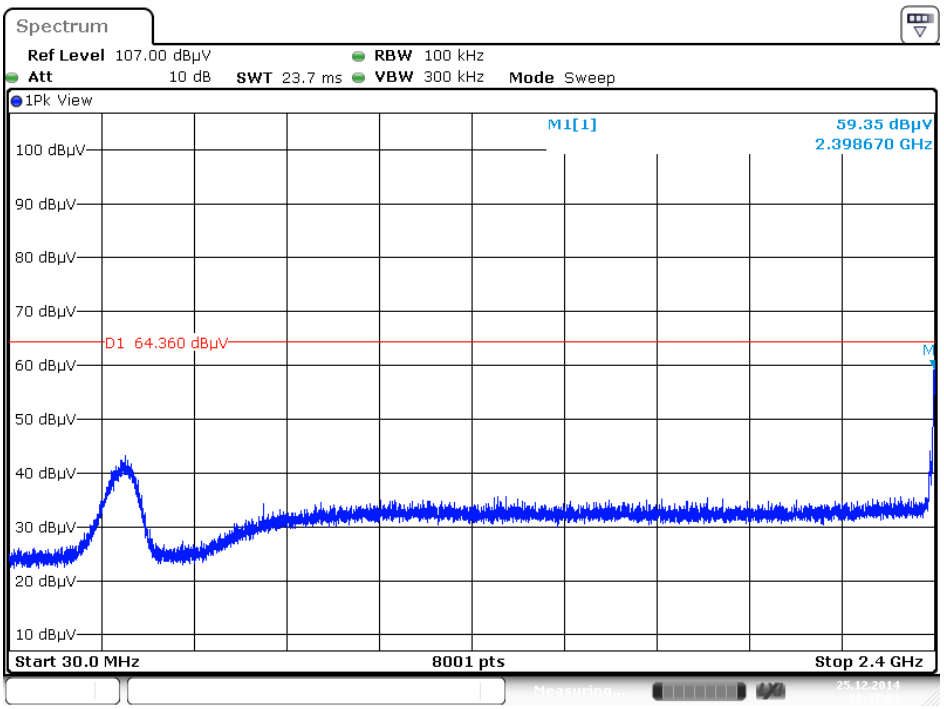
Date: 25.DEC.2014 01:31:19

Plot on Configuration IEEE 802.11g / Reference Level



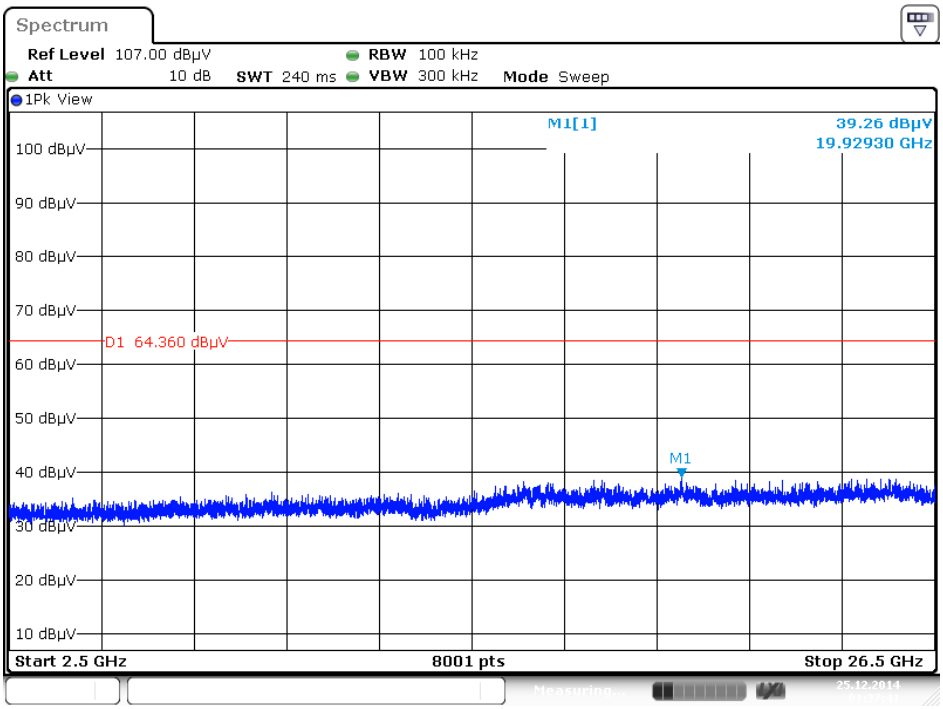
Date: 25.DEC.2014 01:35:35

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



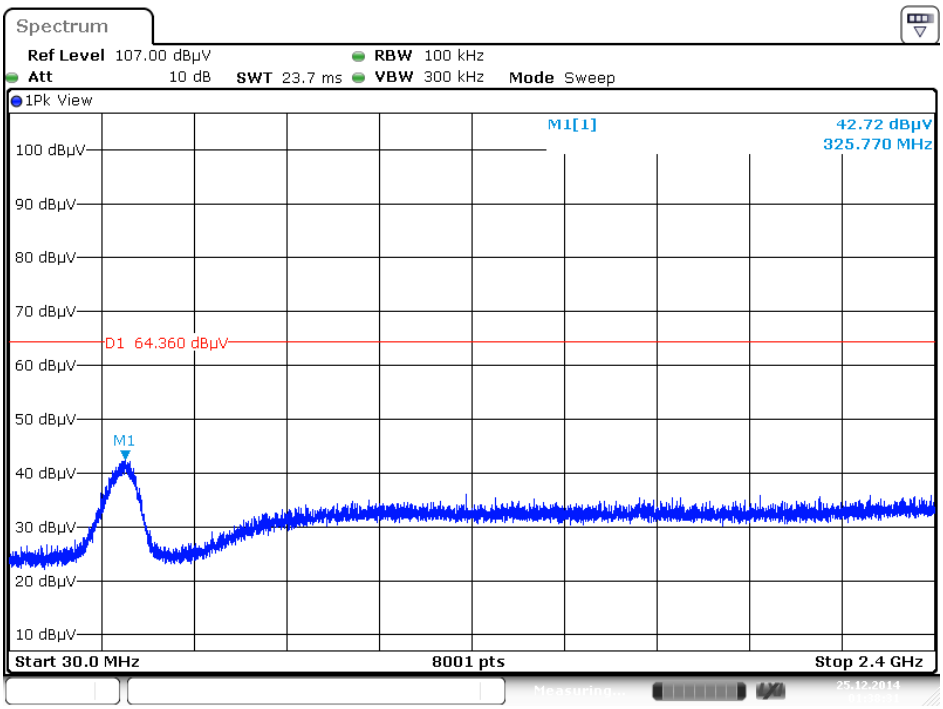
Date: 25.DEC.2014 01:37:04

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



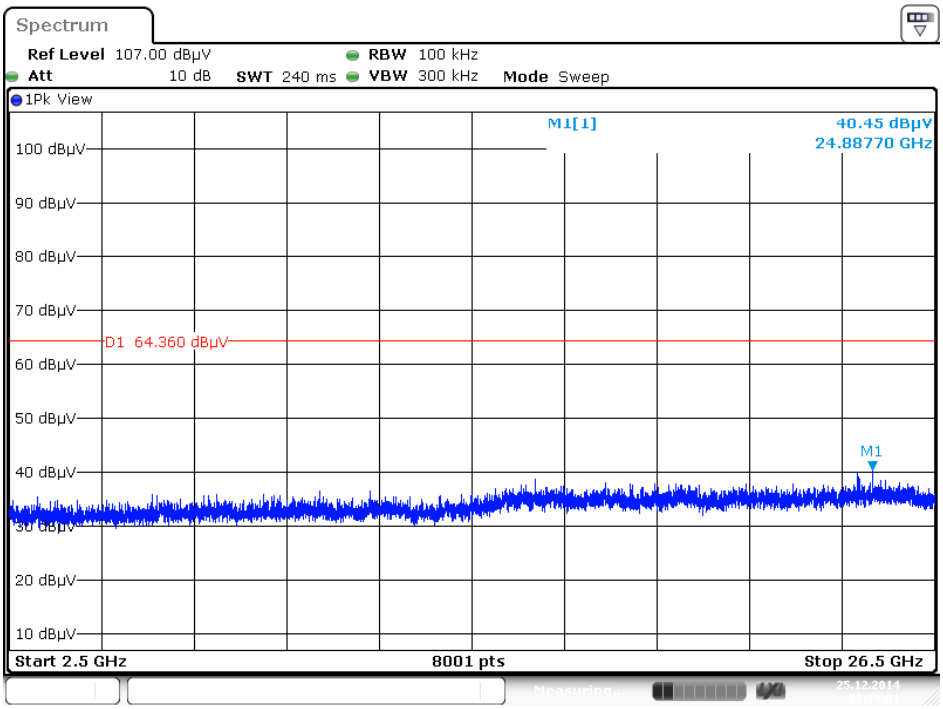
Date: 25.DEC.2014 01:37:41

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

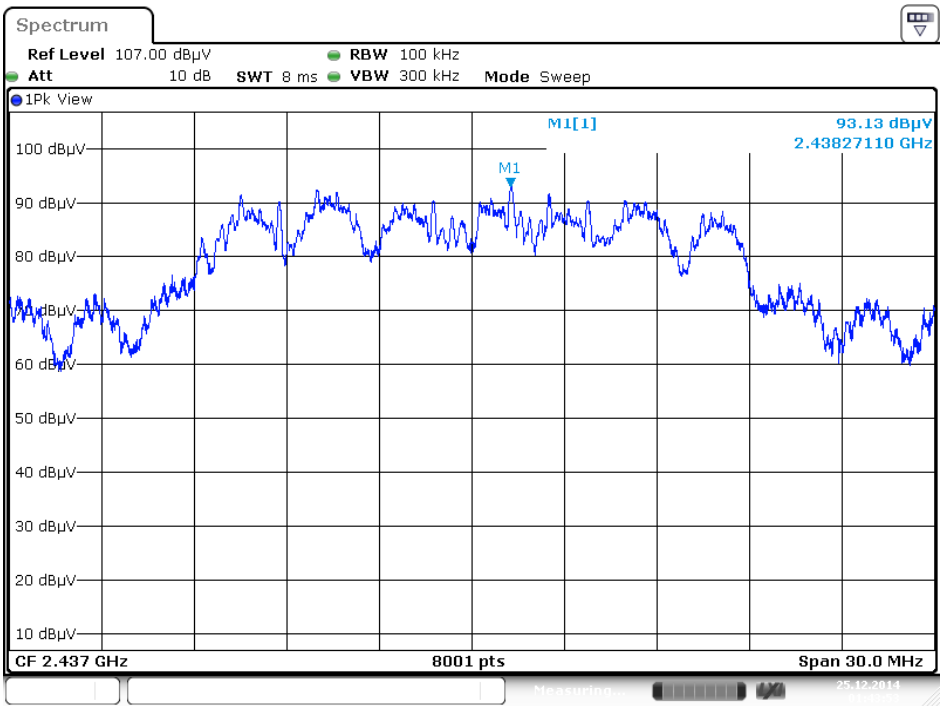


Date: 25.DEC.2014 01:38:31

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

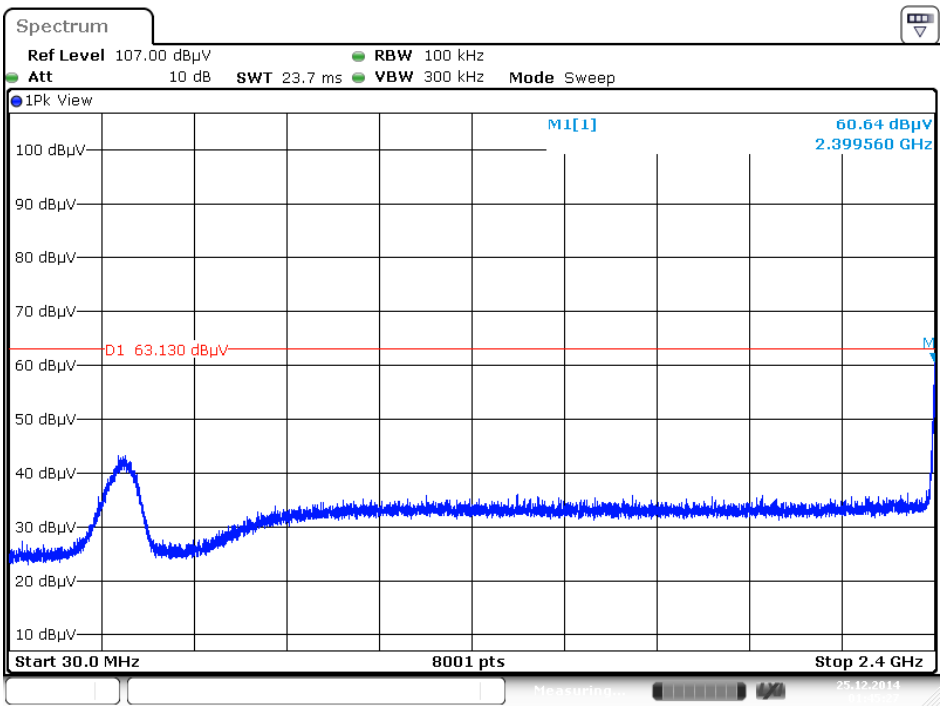


Plot on Configuration IEEE 802.11n MCS0 HT20 / Reference Level



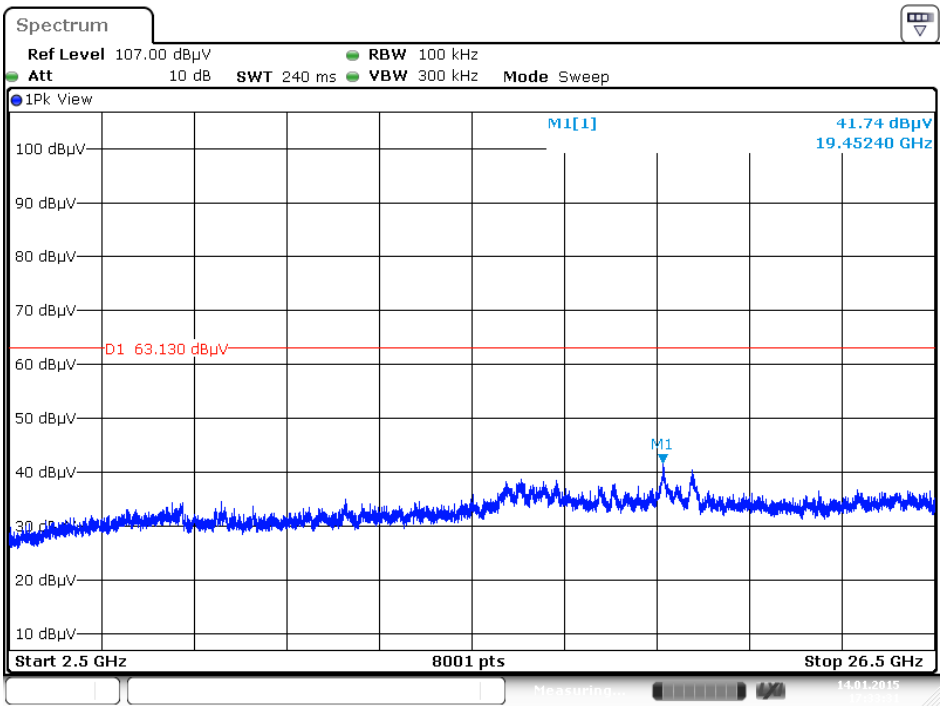
Date: 25.DEC.2014 01:43:53

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



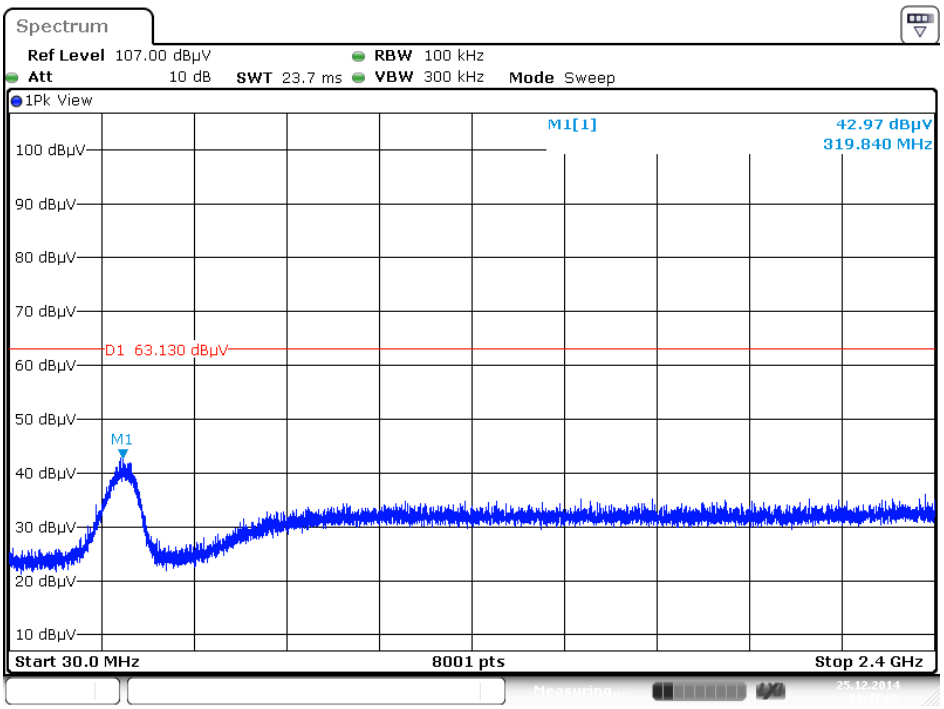
Date: 25.DEC.2014 01:45:27

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



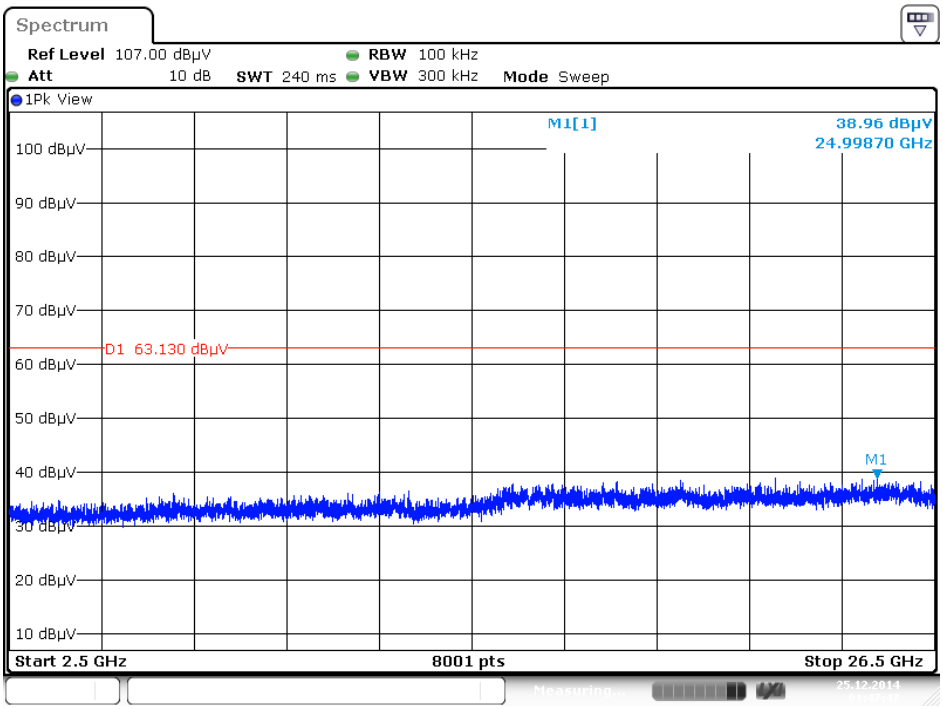
Date: 14.JAN.2015 17:33:32

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



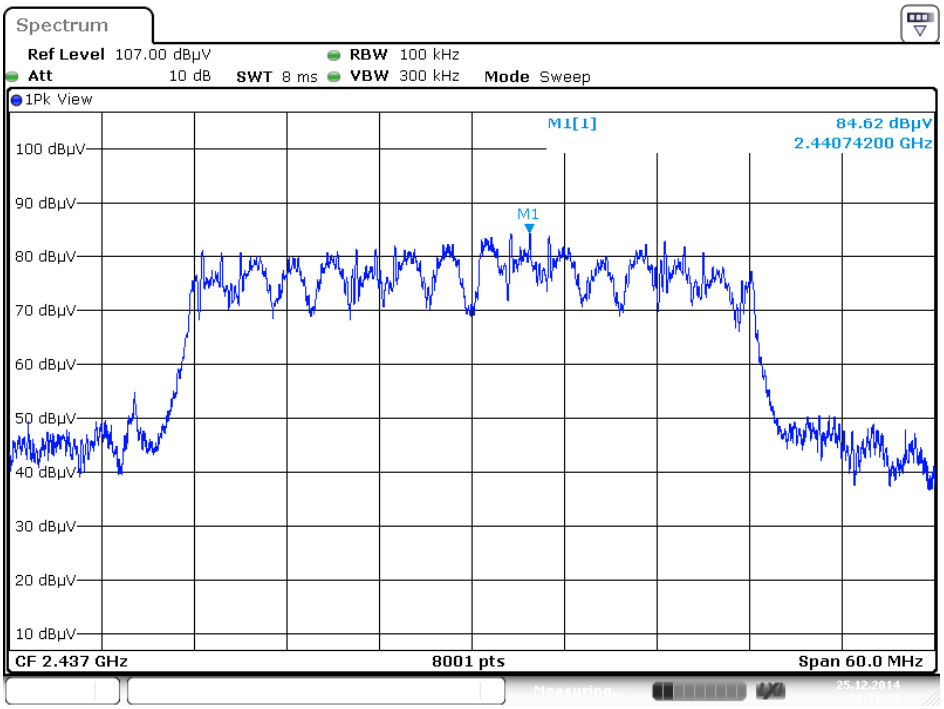
Date: 25.DEC.2014 01:47:09

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



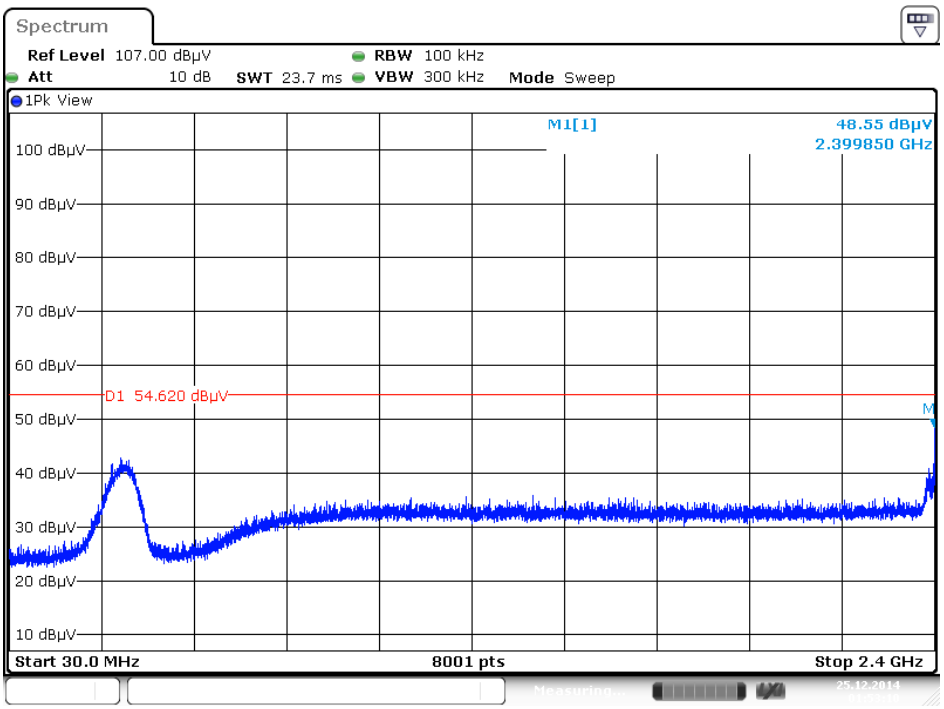
Date: 25.DEC.2014 01:47:47

Plot on Configuration IEEE 802.11n MCS0 HT40 / Reference Level



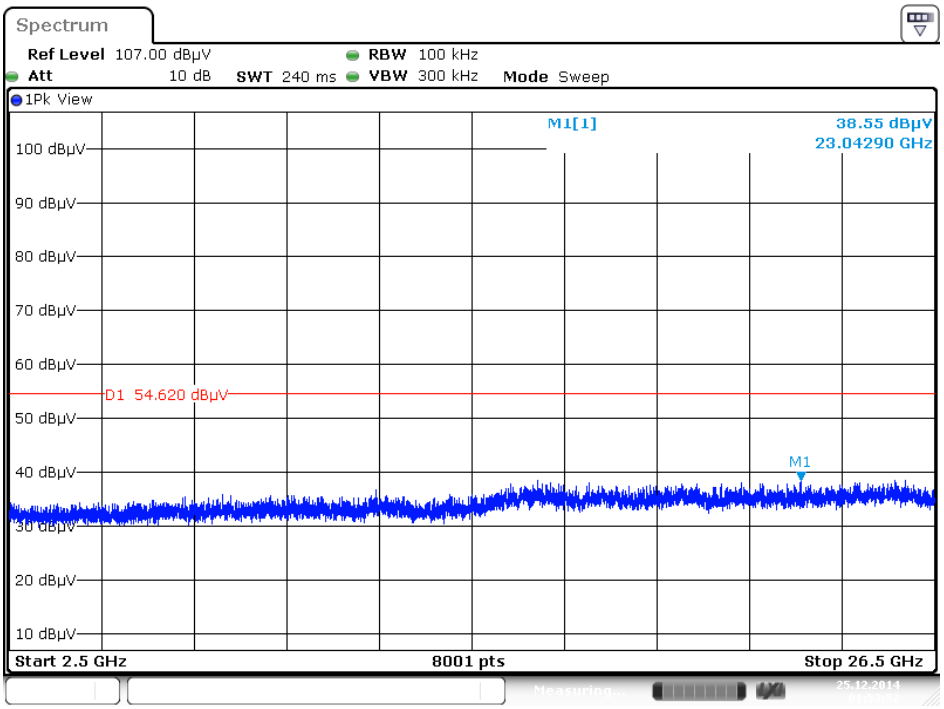
Date:25.DEC.2014 01:51:43

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



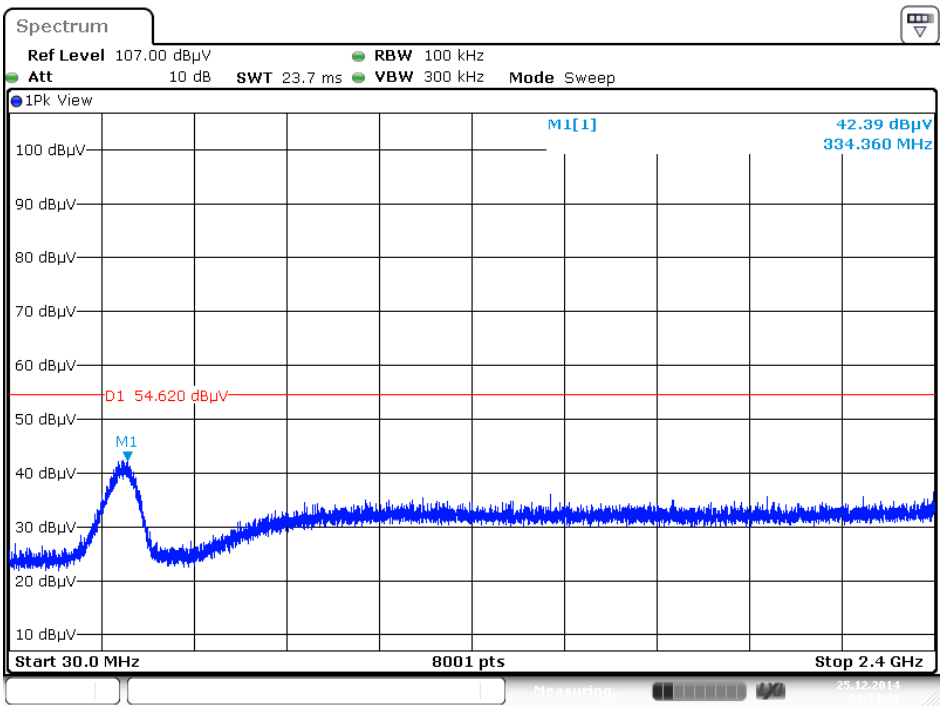
Date:25.DEC.2014 01:53:10

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



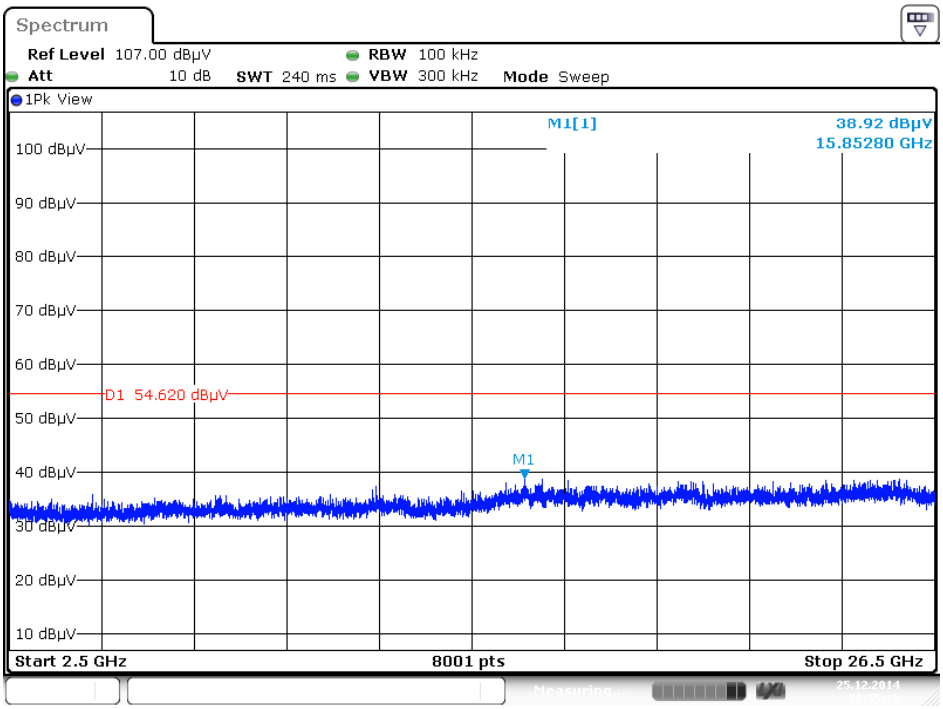
Date: 25.DEC.2014 01:53:52

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



Date: 25.DEC.2014 01:54:41

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



Date: 25.DEC.2014 01:55:16

4.7. Antenna Requirements

4.7.1. Limit

Except for special regulations, the Low-power Radio-frequency Devices must not be equipped with any jacket for installing an antenna with extension cable. An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. Further, this requirement does not apply to intentional radiators that must be professionally installed.

4.7.2. Antenna Connector Construction

Please refer to section 3.3 in this test report; antenna connector complied with the requirements.

5. LIST OF MEASURING EQUIPMENTS

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMI Test Receiver	R&S	ESCS 30	100355	9kHz ~ 2.75GHz	Apr. 23, 2014	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127650	9kHz ~ 30MHz	Nov. 17, 2014	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127478	9kHz ~ 30MHz	Nov. 17, 2014	Conduction (CO01-CB)
COND Cable	Woken	Cable	01	150kHz ~ 30MHz	Dec. 04, 2014	Conduction (CO01-CB)
Software	Audix	E3	5.410e	-	N.C.R.	Conduction (CO01-CB)
BILOG ANTENNA	Schaffner	CBL6112D	22021	20MHz ~ 2GHz	May 26, 2014	Radiation (03CH01-CB)
Loop Antenna	Rohde & chwarz	HFH2-Z2	100315	9 kHz~30 MHz	Jul. 28, 2014	Radiation (03CH01-CB)
Horn Antenna	EMCO	3115	00075790	750MHz~18GHz	Oct. 28, 2014	Radiation (03CH01-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Aug. 22, 2014	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8447D	2944A10991	0.1MHz ~ 1.3GHz	Nov. 15, 2014	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02009	1GHz ~ 26.5GHz	Dec. 17, 2014	Radiation (03CH01-CB)
Pre-Amplifier	WM	TF-130N-R1	923365	26GHz ~ 40GHz	Nov. 25, 2014	Radiation (03CH01-CB)
Spectrum Analyzer	R&S	FSP40	100080	9kHz ~ 40GHz	Oct. 15, 2014	Radiation (03CH01-CB)
EMI Test Receiver	R&S	ESR26	101289	9kHz~26GHz	Aug. 22, 2014	Radiation (03CH01-CB)
Turn Table	INN CO	CO 2000	N/A	0 ~ 360 degree	N.C.R.	Radiation (03CH01-CB)
Antenna Mast	INN CO	CO 2000	N/A	1 m - 4 m	N.C.R.	Radiation (03CH01-CB)
RF Cable-low	Woken	Low Cable-1	N/A	30 MHz - 1 GHz	Nov. 15, 2014	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-1	N/A	1 GHz – 26.5 GHz	Nov. 15, 2014	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-2	N/A	1 GHz – 26.5 GHz	Nov. 15, 2014	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-3	N/A	1 GHz - 40 GHz	Nov. 15, 2014	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-4	N/A	1 GHz - 40 GHz	Nov. 15, 2014	Radiation (03CH01-CB)
Signal analyzer	R&S	FSV40	100979	9kHz~40GHz	Dec.12, 2014	Conducted (TH01-CB)
RF Power Divider	Woken	2 Way	0120A02056002D	2GHz ~ 18GHz	Nov. 15, 2014	Conducted (TH01-CB)
RF Power Divider	Woken	3 Way	MDC2366	2GHz ~ 18GHz	Nov. 15, 2014	Conducted (TH01-CB)
RF Power Divider	Woken	4 Way	0120A04056002D	2GHz ~ 18GHz	Nov. 15, 2014	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-7	-	1 GHz – 26.5 GHz	Nov. 15, 2014	Conducted (TH01-CB)

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
RF Cable-high	Woken	High Cable-8	-	1 GHz – 26.5 GHz	Nov. 15, 2014	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-9	-	1 GHz – 26.5 GHz	Nov. 15, 2014	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-10	-	1 GHz – 26.5 GHz	Nov. 15, 2014	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-11	-	1 GHz – 26.5 GHz	Nov. 15, 2014	Conducted (TH01-CB)
Power Sensor	Anritsu	MA2411B	1126203	300MHz~40GHz	Oct. 06, 2014	Conducted (TH01-CB)
Power Meter	Anritsu	ML2495A	1210004	300MHz~40GHz	Oct. 06, 2014	Conducted (TH01-CB)

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

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

6. MEASUREMENT UNCERTAINTY

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