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

FCC RADIO TEST REPORT

Applicant's company	**Broadcom Corporation**
Applicant Address	190 Mathilda Place Sunnyvale CA 94086 U.S.A.
FCC ID	**QDS-BRCM1084**
Manufacturer's company	**Broadcom Corporation**
Manufacturer Address	190 Mathilda Place Sunnyvale CA 94086 U.S.A.

Product Name	Broadcom 802.11a/b/g/n WLAN+ Bluetooth PCI-E NGFF2230 card
Brand Name	Broadcom
Model No.	BCM943228Z
Test Rule Part(s)	47 CFR FCC Part 15 Subpart C § 15.247
Test Freq. Range	2400 ~ 2483.5MHz / 5725 ~ 5850MHz
Received Date	Apr. 01, 2014
Final Test Date	Jun. 20, 2014
Submission Type	Original Equipment

Statement

Test result included is only for the IEEE 802.11n, IEEE 802.11b/g and IEEE 802.11a 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 v03r01** and **KDB 662911 D01 v02r01**.

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

Testing Laboratory
1190

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History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR440181AA	Rev. 01	Initial issue of report	Jun. 23, 2014

Certificate No.: CB10305258

1. CERTIFICATE OF COMPLIANCE

Product Name	:	Broadcom 802.11a/b/g/n WLAN+ Bluetooth PCI-E NGFF2230 card
Brand Name	:	Broadcom
Model No.	:	BCM943228Z
Applicant	:	Broadcom 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 Apr. 01, 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

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	14.24 dB
4.2	15.247(b)(3)	Maximum Conducted Output Power	Complies	7.34 dB
4.3	15.247(e)	Power Spectral Density	Complies	10.84 dB
4.4	15.247(a)(2)	6dB Spectrum Bandwidth	Complies	-
4.5	15.247(d)	Radiated Emissions	Complies	0.13 dB
4.6	15.247(d)	Band Edge Emissions	Complies	0.19 dB
4.7	15.203	Antenna Requirements	Complies	-

3. GENERAL INFORMATION

3.1. Product Details

IEEE 802.11n

Items	Description
Product Type	WLAN (2TX, 2RX)
Radio Type	Intentional Transceiver
Power Type	From host system
Modulation	see the below table for IEEE 802.11n
Data Modulation	OFDM (BPSK / QPSK / 16QAM / 64QAM)
Data Rate (Mbps)	see the below table for IEEE 802.11n
Frequency Range	2400 ~ 2483.5MHz / 5725 ~ 5850MHz
Channel Number	For 2.4GHz Band: 13 for 20MHz bandwidth ; 9 for 40MHz bandwidth For 5GHz Band: 5 for 20MHz bandwidth ; 2 for 40MHz bandwidth
Channel Band Width (99%)	For 2.4GHz Band: MCS0 (HT20): 17.69 MHz ; MCS0 (HT40): 36.41 MHz For 5GHz Band: MCS0 (HT20): 17.62 MHz ; MCS0 (HT40): 43.20 MHz
Maximum Conducted Output Power	For 2.4GHz Band: MCS0 (HT20): 22.66 dBm ; MCS0 (HT40): 15.04 dBm For 5GHz Band: MCS0 (HT20): 18.33 dBm ; MCS0 (HT40): 20.17 dBm
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

IEEE 802.11a/b/g

Items	Description
Product Type	802.11a/g: WLAN (2TX, 2RX) 802.11b: WLAN (1TX, 1RX)
Radio Type	Intentional Transceiver
Power Type	From host system
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: 13; 11a: 5
Channel Band Width (99%)	11b: 10.12 MHz ; 11g: 16.66 MHz ; 11a: 16.53 MHz
Maximum Conducted Output Power	11b: 18.71 dBm ; 11g: 22.40 dBm ; 11a: 18.38 dBm
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

Note: The MIMO transmission mode is correlated.

Items	Description	
Beamforming Function	☐ With beamforming	☒ Without beamforming

Antenna and Band width

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

IEEE 11n Spec.

Protocol	Number of Transmit Chains (NTX)	Data Rate / MCS
802.11n (HT20)	2	MCS 0-15
802.11n (HT40)	2	MCS 0-15
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

N/A

3.3. Table for Filed Antenna

Set	Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)				
						2.4G	5G B1	5G B2	5G B3	5G B4
1	1	MAG.LAYERS	PCA-4077-25GC1-A1-RT	WLAN/BT antenna	I-PEX A13	3.33	5.85	5.85	6.21	6.21
	2	MAG.LAYERS	PCA-4077-25GC1-A1-RT	WLAN/BT antenna	I-PEX A13	3.33	5.85	5.85	6.21	6.21

Note1: The each set has two antennas.

For 2.4GHz:

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

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

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

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

Chain 1 and Chain 2 could transmit/receive simultaneously.

For 5GHz:

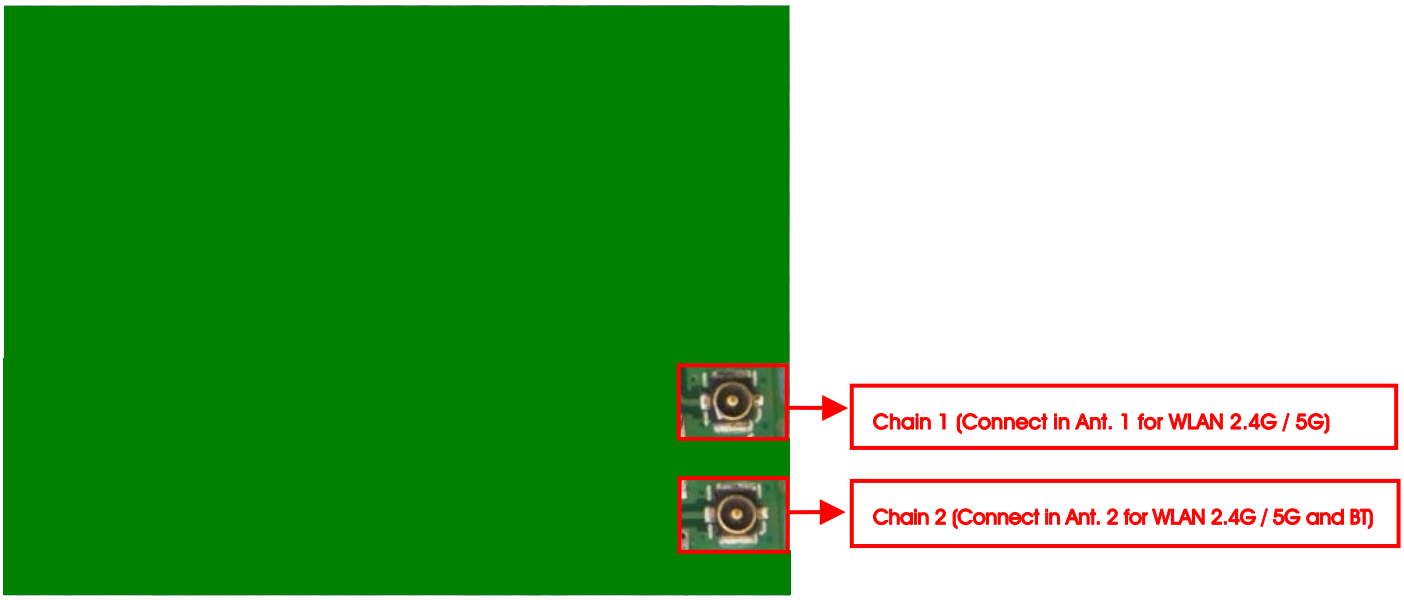
For IEEE 802.11a/n mode (2TX/2RX)

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

Chain 1 and Chain 2 could transmit/receive simultaneously.

For Bluetooth mode (1TX/1RX)

Only Chain 2 can be used as transmitting/receiving antenna.



3.4. Table for Carrier Frequencies

For 2.4GHz Band:

There are two bandwidth systems.

For 20MHz bandwidth systems, use Channel 1~Channel 13.

For 40MHz bandwidth systems, use Channel 3~Channel 11.

Frequency Band	Channel No.	Frequency	Channel No.	Frequency
2400~2483.5MHz	1	2412 MHz	8	2447 MHz
	2	2417 MHz	9	2452 MHz
	3	2422 MHz	10	2457 MHz
	4	2427 MHz	11	2462 MHz
	5	2432 MHz	12	2467 MHz
	6	2437 MHz	13	2472 MHz
	7	2442 MHz	-	-

For 5GHz Band:

There are two bandwidth systems.

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

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

Frequency Band	Channel No.	Frequency	Channel No.	Frequency
5725~5850 MHz Band 4	149	5745 MHz	159	5795 MHz
	151	5755 MHz	161	5805 MHz
	153	5765 MHz	165	5825 MHz
	157	5785 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	Chain
AC Power Line Conducted Emissions	Normal Link	-	-	-
Maximum Conducted Output Power	11n HT20	MCS0	1/6/11/12/13	1+2
	11n HT40	MCS0	3/6/9/10/11	1+2
	11b/CCK	1 Mbps	1/6/11/12/13	1
	11g/BPSK	6 Mbps	1/6/11/12/13	1+2
Power Spectral Density	11n HT20	MCS0	1/6/11/12/13	1+2
	11n HT40	MCS0	3/6/9/10/11	1+2
	11b/CCK	1 Mbps	1/6/11/12/13	1
	11g/BPSK	6 Mbps	1/6/11/12/13	1+2
6dB Spectrum Bandwidth	11n HT20	MCS0	1/6/11/12/13	1+2
	11n HT40	MCS0	3/6/9/10/11	1+2
	11b/CCK	1 Mbps	1/6/11/12/13	1
	11g/BPSK	6 Mbps	1/6/11/12/13	1+2
Radiated Emissions Below 1GHz	Normal Link	-	-	-
Radiated Emissions Above 1GHz	11n HT20	MCS0	1/6/11/12/13	1+2
	11n HT40	MCS0	3/6/9/10/11	1+2
	11b/CCK	1 Mbps	1/6/11/12/13	1
	11g/BPSK	6 Mbps	1/6/11/12/13	1+2
Band Edge Emissions	11n HT20	MCS0	1/6/11/12/13	1+2
	11n HT40	MCS0	3/6/9/10/11	1+2
	11b/CCK	1 Mbps	1/6/11/12/13	1
	11g/BPSK	6 Mbps	1/6/11/12/13	1+2

For 5GHz Band

Test Items	Mode	Data Rate	Channel	Chain
AC Power Line Conducted Emissions	Normal Link	-	-	-
Maximum Conducted Output Power	11n HT20	MCS0	149/157/165	1+2
	11n HT40	MCS0	151/159	1+2
	11a/BPSK	6 Mbps	149/157/165	1+2
Power Spectral Density	11n HT20	MCS0	149/157/165	1+2
	11n HT40	MCS0	151/159	1+2
	11a/BPSK	6 Mbps	149/157/165	1+2
6dB Spectrum Bandwidth	11n HT20	MCS0	149/157/165	1+2
	11n HT40	MCS0	151/159	1+2
	11a/BPSK	6 Mbps	149/157/165	1+2
Radiated Emissions Below 1GHz	Normal Link	-	-	-
Radiated Emissions Above 1GHz	11n HT20	MCS0	149/157/165	1+2
	11n HT40	MCS0	151/159	1+2
	11a/BPSK	6 Mbps	149/157/165	1+2
Band Edge Emissions	11n HT20	MCS0	149/157/165	1+2
	11n HT40	MCS0	151/159	1+2
	11a/BPSK	6 Mbps	149/157/165	1+2

The following test modes were performed for all tests:

For Conducted Emission test:

Mode 1. 2.4GHz WLAN Function + Bluetooth Function

Mode 2. 5GHz WLAN Function + Bluetooth Function

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

For Radiated Emission Below 1GHz test:

Mode 1. 2.4GHz WLAN Function + Bluetooth Function

Mode 2. 5GHz WLAN Function + Bluetooth Function

Mode 1 is the worst case, so it was selected to record in this test report.

For Radiated Emission Above 1GHz test:

Mode 1. CTX-EUT

For Co-location test:

Mode 1. 2.4GHz WLAN function + Bluetooth function

Mode 2. 5GHz WLAN function + Bluetooth function

3.6. Table for Testing Locations

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

Support Unit	Brand	Model	FCC ID
AP Router	Planex	GW-AP54SGX	KA220030603014-1
NB	DELL	E6430	DoC
Broadcom 802.11a/b/g/n WLAN+ Bluetooth PCI-E NGFF2230 card (Device)	Broadcom	BCM943228Z	QDS-BRCM1084
NB	DELL	E6510	N/A
Mouse	Logitech	M-U0026	DoC
Earphone	SHYARO CHI	MIC-04	N/A
Test Fixture*2	Broadcom	BCM9NGFF2EC_1	N/A

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

Support Unit	Brand	Model	FCC ID
AP Router	Planex	GW-AP54SGX	KA220030603014-1
NB	DELL	E6430	DoC
Broadcom 802.11a/b/g/n WLAN+ Bluetooth PCI-E NGFF2230 card (Device)	Broadcom	BCM943228Z	QDS-BRCM1084
NB	DELL	M1330	DoC
Mouse	Logitech	M-U0026	DoC
Earphone	SHYARO CHI	MIC-04	N/A
Test Fixture*2	Broadcom	BCM9NGFF2EC_1	N/A

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

Support Unit	Brand	Model	FCC ID
NB	DELL	M1330	DoC
Test Fixture	Broadcom	BCM9NGFF2EC_1	N/A

For Test Site No: TH01-CB

Support Unit	Brand	Model	FCC ID
Notebook	DELL	E6430	DoC
Test Fixture	Broadcom	BCM9NGFF2EC_1	N/A

3.8. Table for Parameters of Test Software Setting

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

For 2.4GHz Band

Power Parameters of IEEE 802.11n MCS0 HT20

Test Software Version	Manual Tool Version : 2.0.1.6				
Frequency	2412 MHz	2437 MHz	2462 MHz	2467 MHz	2472 MHz
MCS0 HT20	50	73	48	43	34

Power Parameters of IEEE 802.11n MCS0 HT40

Test Software Version	Manual Tool Version : 2.0.1.6				
Frequency	2422 MHz	2437 MHz	2452 MHz	2457 MHz	2462 MHz
MCS0 HT40	44	44	42	40	25

Power Parameters of IEEE 802.11b/g

Test Software Version	Manual Tool Version : 2.0.1.6				
Frequency	2412 MHz	2437 MHz	2462 MHz	2467 MHz	2472 MHz
IEEE 802.11b	66	71	71	65	48
IEEE 802.11g	50	72	54	45	38

For 5GHz Band

Power Parameters of IEEE 802.11n MCS0 HT20

Test Software Version	Manual Tool Version : 2.0.1.6		
Frequency	5745 MHz	5785 MHz	5825 MHz
MCS0 HT20	61	62	61

Power Parameters of IEEE 802.11n MCS0 HT40

Test Software Version	Manual Tool Version : 2.0.1.6	
Frequency	5755 MHz	5795 MHz
MCS0 HT40	62	70

Power Parameters of IEEE 802.11a

Test Software Version	Manual Tool Version : 2.0.1.6		
Frequency	5745 MHz	5785 MHz	5825 MHz
IEEE 802.11a	61	61	61

3.9. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

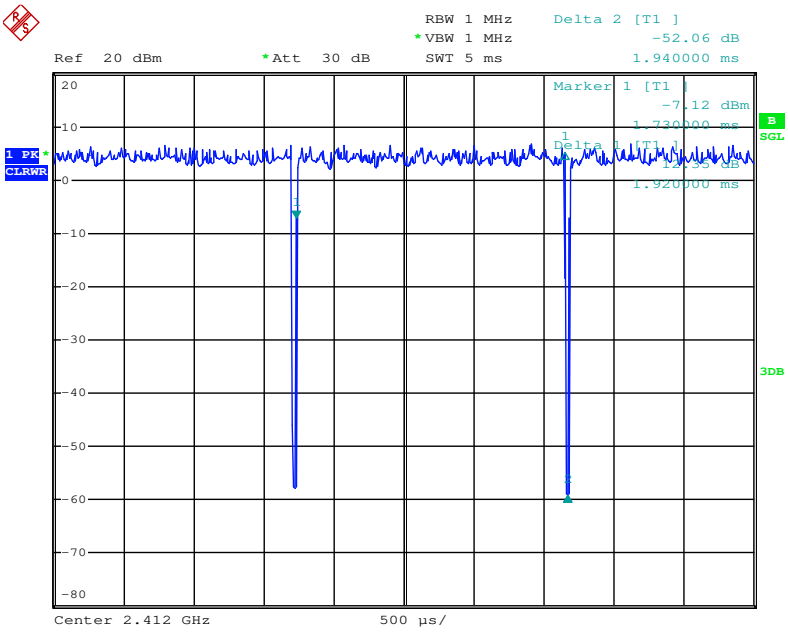
3.10. Test Signal Duty Cycle

Band	Mode	TX-on (ms)	TX-on+TX-off (ms)	TX-on/(TX-on+TX-off)x100= Duty cycle (%)	Duty Factor (dB)
2.4G	802.11b	-	-	100	0.00
	802.11g	2.070	2.090	99.04	0.04
	802.11n MCS0 HT20	1.920	1.940	98.97	0.05
	802.11n MCS0 HT40	0.950	0.975	97.44	0.11
5G	802.11a	2.060	2.090	98.56	0.06
	802.11n MCS0 HT20	1.910	1.940	98.45	0.07
	802.11n MCS0 HT40	0.930	0.950	97.89	0.09

3.11. Duty Cycle

For 2.4GHz Band:

IEEE 802.11n MCS0 HT20



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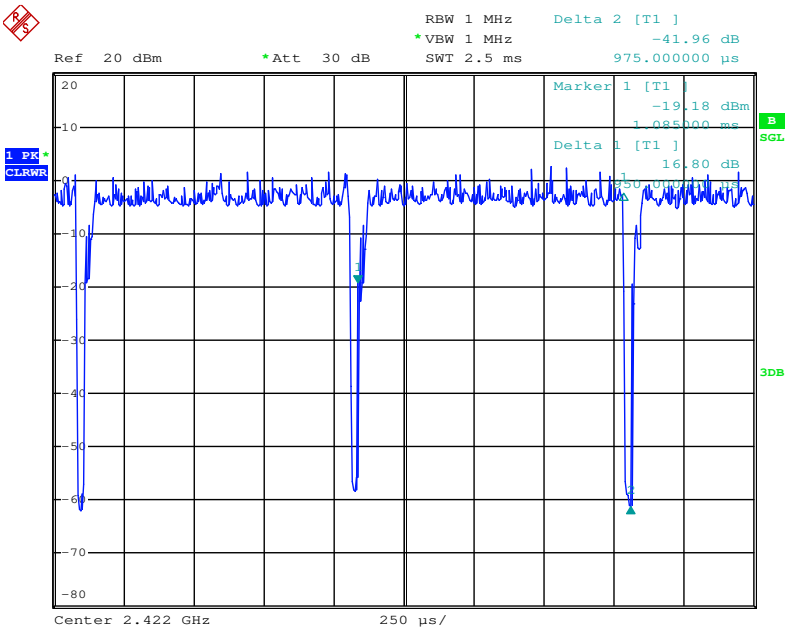
IEEE 802.11n MCS0 HT40



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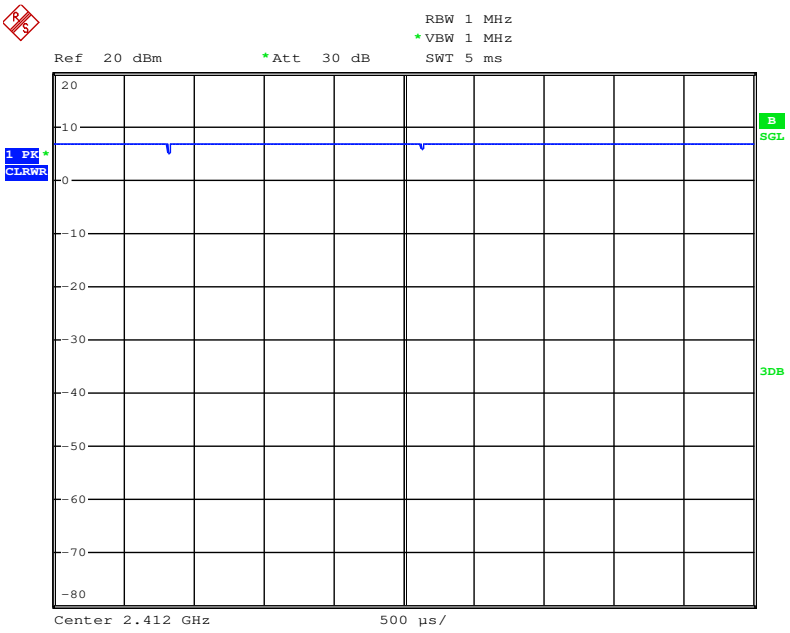
IEEE 802.11b



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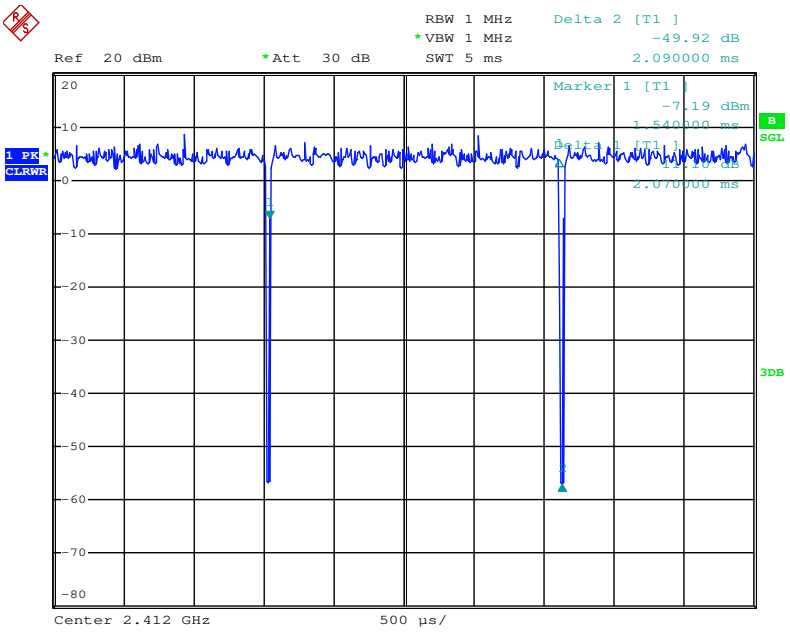
IEEE 802.11g



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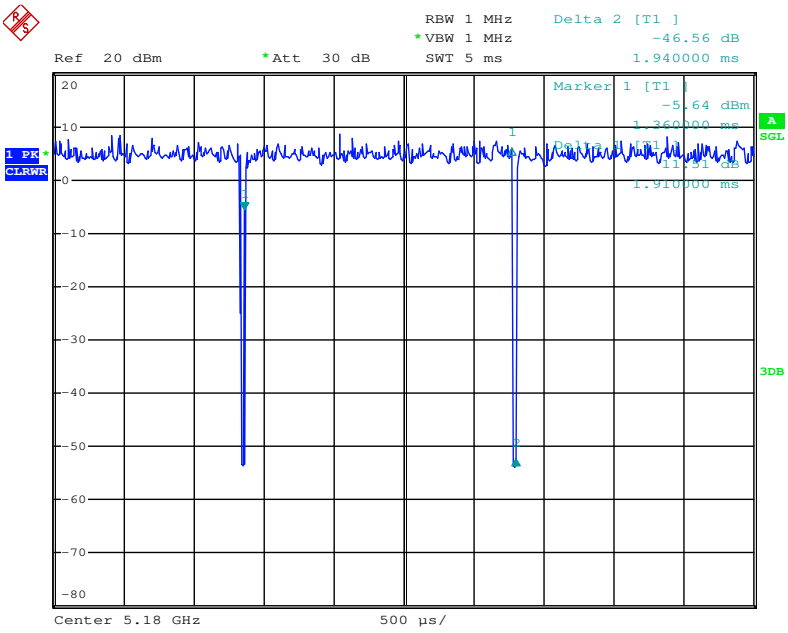
For 5GHz Band:

IEEE 802.11n MCS0 HT20



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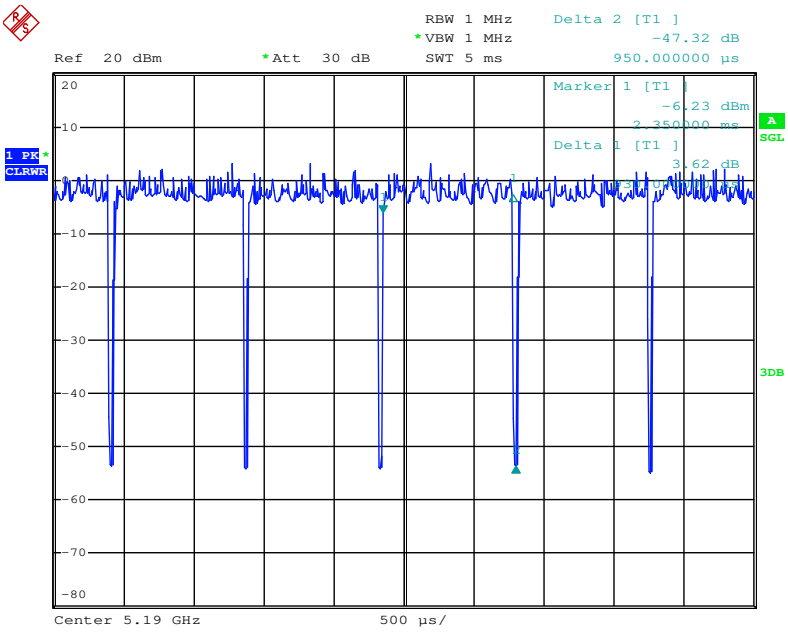
IEEE 802.11n MCS0 HT40



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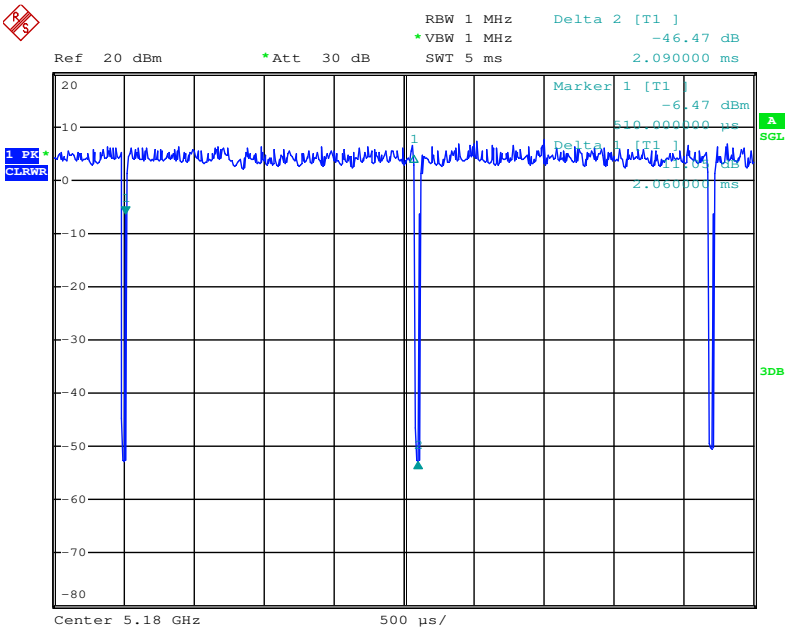
IEEE 802.11a



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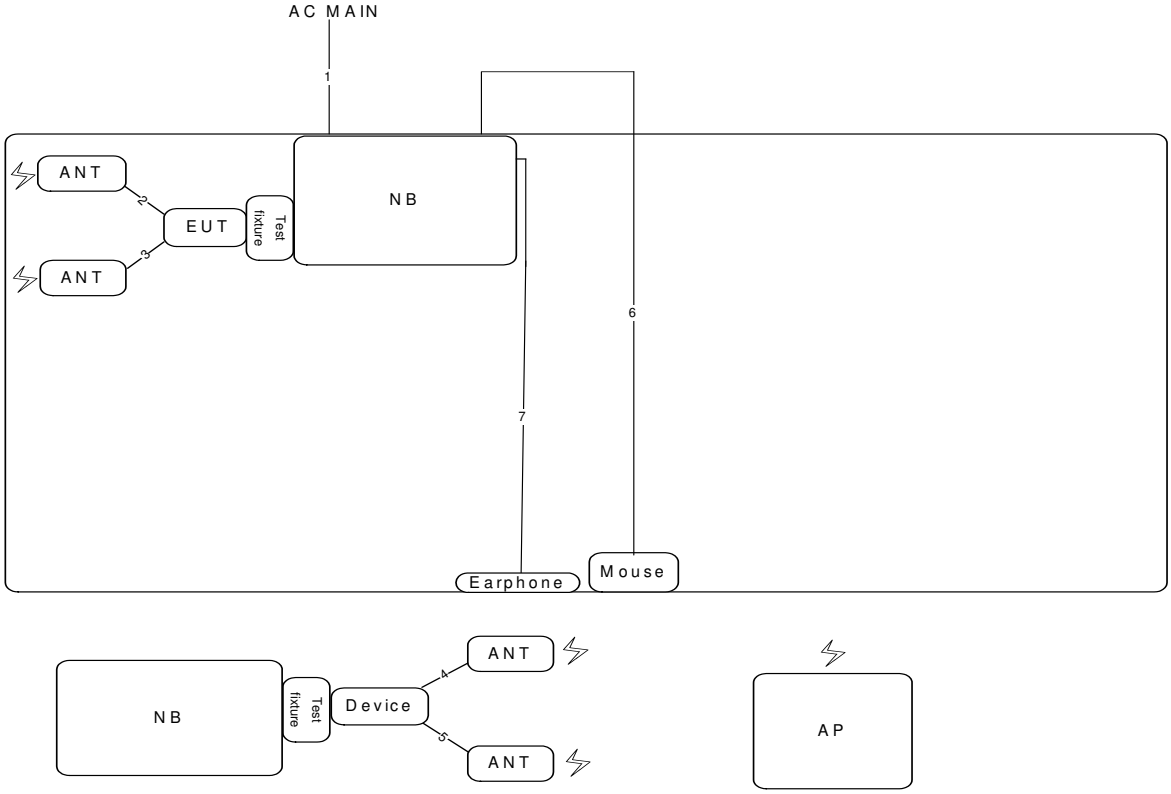
3.12. Test Configurations

3.12.1. AC Power Line Conduction Emissions Test Configuration

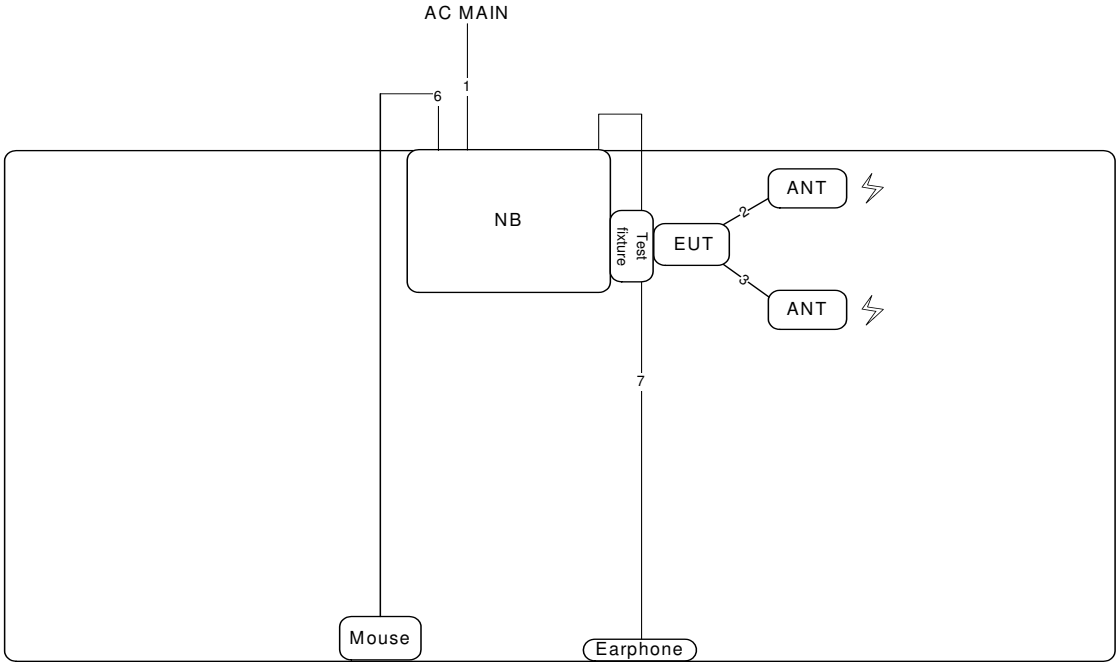
Test Mode: Mode 2

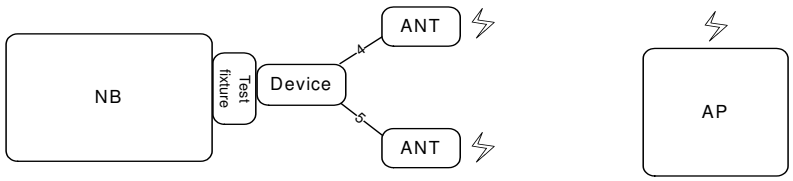


Item	Connection	Shield	Length
1	Power cable	No	1.8m
2	ANT cable	Yes	0.2m
3	ANT cable	Yes	0.2m
4	ANT cable	Yes	0.2m
5	ANT cable	Yes	0.2m
6	USB cable	Yes	1.8m
7	Audio cable	No	1.5m

3.12.2. Radiation Emissions Test Configuration

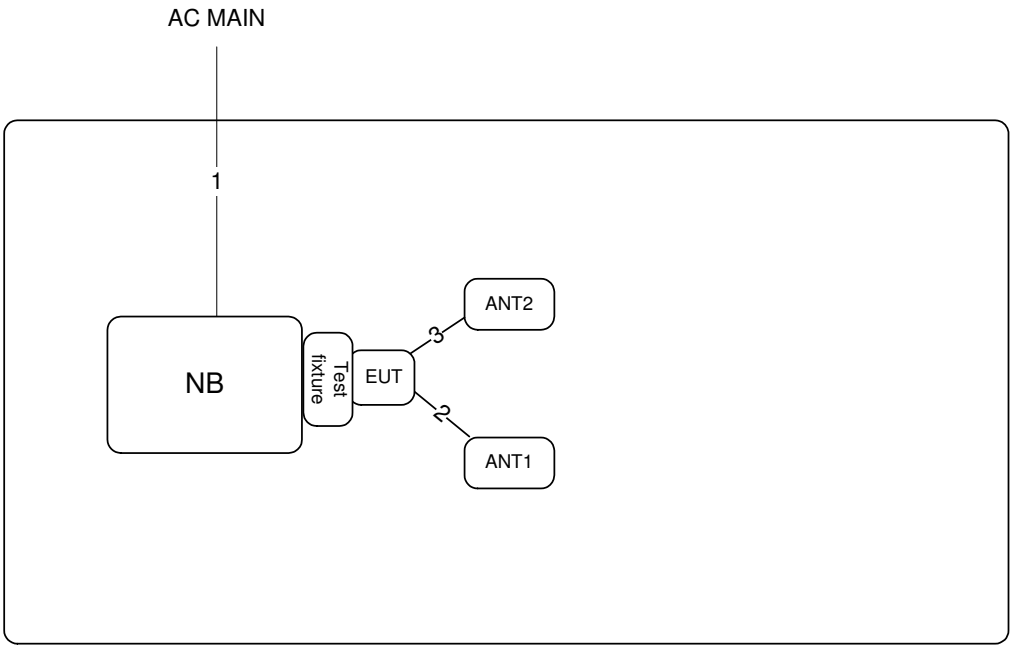
Test Configuration: 30MHz ~1GHz / Test Mode: Mode 1





Item	Connection	Shield	Length
1	Power cable	No	1.8m
2	ANT cable	Yes	0.2m
3	ANT cable	Yes	0.2m
4	ANT cable	Yes	0.2m
5	ANT cable	Yes	0.2m
6	USB cable	Yes	1.8m
7	Audio cable	No	1.5m

Test Configuration: above 1GHz



Item	Connection	Shield	Length
1	Power cable	No	2.6m
2	ANT cable	Yes	0.2m
3	ANT cable	Yes	0.2m

4. EST 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

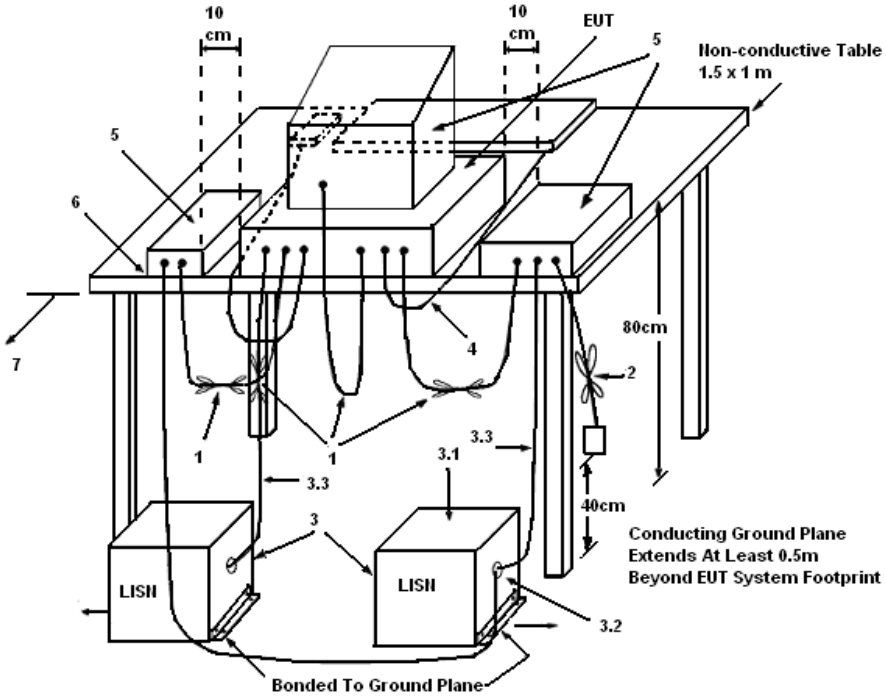
Please refer to section 5 of equipments list in this report. The following table is the setting of the receiver.

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

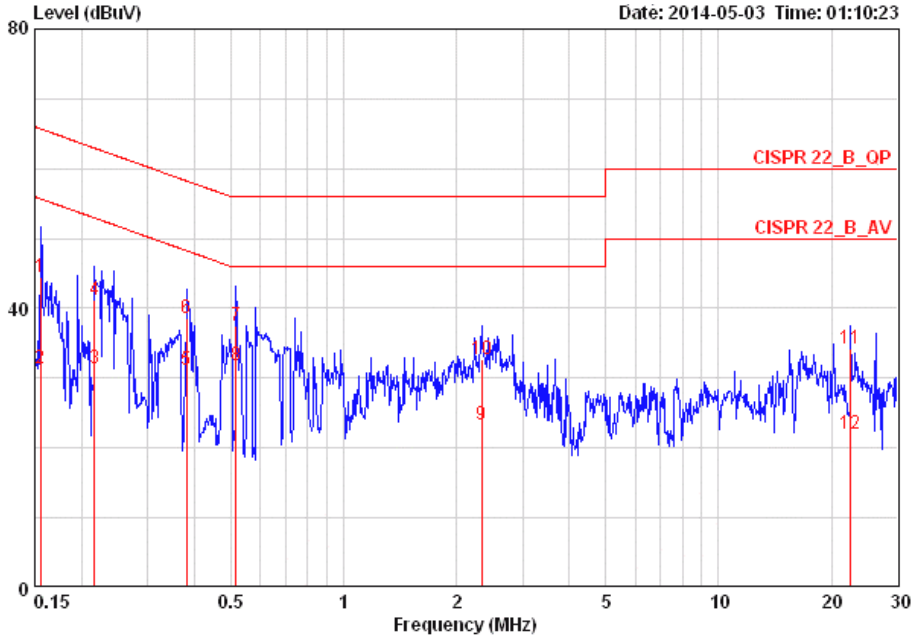
There is no deviation with the original standard.

4.1.6. EUT Operation during Test

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

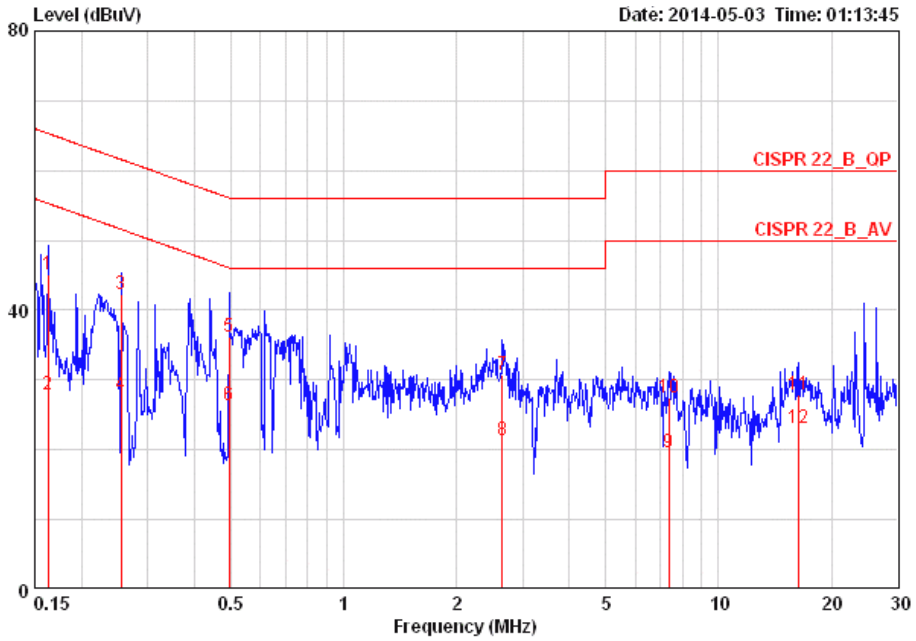
4.1.7. Results of AC Power Line Conducted Emissions Measurement

Temperature	25°C	Humidity	52%
Test Engineer	Parody Lin	Phase	Line
Configuration	Normal Link / Mode 2		



	Freq	Level	Over Limit	Limit Line	LISN Factor	Read Level	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dB	dBuV	dB		
1	0.15567	44.55	-21.14	65.69	0.08	44.29	0.18	LINE	QP
2	0.15567	31.40	-24.29	55.69	0.08	31.14	0.18	LINE	AVERAGE
3	0.21620	31.45	-21.51	52.96	0.08	31.17	0.20	LINE	AVERAGE
4	0.21620	41.28	-21.68	62.96	0.08	41.00	0.20	LINE	QP
5	0.38113	31.09	-17.16	48.25	0.08	30.81	0.20	LINE	AVERAGE
6	0.38113	38.51	-19.74	58.25	0.08	38.23	0.20	LINE	QP
7	0.51550	37.44	-18.56	56.00	0.08	37.16	0.20	LINE	QP
8	0.51550	31.76	-14.24	46.00	0.08	31.48	0.20	LINE	AVERAGE
9	2.334	23.23	-22.77	46.00	0.13	22.87	0.24	LINE	AVERAGE
10	2.334	32.60	-23.40	56.00	0.13	32.24	0.24	LINE	QP
11	22.535	34.22	-25.78	60.00	0.39	33.31	0.52	LINE	QP
12	22.535	21.96	-28.04	50.00	0.39	21.05	0.52	LINE	AVERAGE

Temperature	25°C	Humidity	52%
Test Engineer	Parody Lin	Phase	Neutral
Configuration	Normal Link / Mode 2		



	Freq	Level	Over Limit	Limit Line	LISN Factor	Read Level	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dB	dBuV	dB		
1	0.16241	45.18	-20.16	65.34	0.08	44.92	0.18	NEUTRAL	QP
2	0.16241	27.91	-27.43	55.34	0.08	27.65	0.18	NEUTRAL	AVERAGE
3	0.25480	42.32	-19.28	61.60	0.08	42.04	0.20	NEUTRAL	QP
4	0.25480	27.94	-23.66	51.60	0.08	27.66	0.20	NEUTRAL	AVERAGE
5	0.49411	36.26	-19.84	56.10	0.09	35.97	0.20	NEUTRAL	QP
6	0.49411	26.42	-19.68	46.10	0.09	26.13	0.20	NEUTRAL	AVERAGE
7	2.650	30.77	-25.23	56.00	0.13	30.39	0.24	NEUTRAL	QP
8	2.650	21.45	-24.55	46.00	0.13	21.07	0.24	NEUTRAL	AVERAGE
9	7.368	19.56	-30.44	50.00	0.22	19.04	0.30	NEUTRAL	AVERAGE
10	7.368	27.50	-32.50	60.00	0.22	26.98	0.30	NEUTRAL	QP
11	16.398	27.97	-32.03	60.00	0.32	27.24	0.41	NEUTRAL	QP
12	16.398	23.02	-26.98	50.00	0.32	22.29	0.41	NEUTRAL	AVERAGE

Note:

Level = Read Level + LISN Factor + Cable Loss

4.2. Maximum Conducted Output Power Measurement

4.2.1. Limit

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

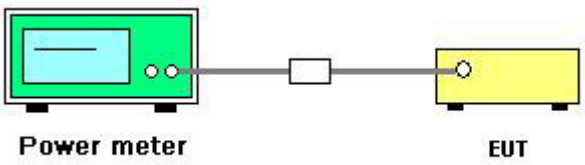
Please refer to section 5 of equipments list in this report. The following table is the setting of the power meter.

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

4.2.3. Test Procedures

1. Test procedures refer KDB 558074 D01 v03r01 section 9.2.3.2 Measurement using a power meter (PM).
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	63%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11n
Test Date	May 18, 2014		

For 2.4GHz Band

Configuration IEEE 802.11n MCS0 HT20 / Chain 1 + Chain 2

Channel	Frequency	Duty Factor	Conducted Power (dBm)			Max. Limit (dBm)	Result
			Chain 1	Chain 2	Total		
1	2412 MHz	0.05	12.82	14.02	16.47	30.00	Complies
6	2437 MHz		18.77	20.38	22.66	30.00	Complies
11	2462 MHz		12.63	12.96	15.81	30.00	Complies
12	2467 MHz		11.14	11.64	14.41	30.00	Complies
13	2472 MHz		7.74	8.87	11.35	30.00	Complies

Only for power table of SAR

Channel	Frequency	Duty Factor	Total Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	0.05	16.47	30.00	Complies
6	2437 MHz		18.18	30.00	Complies
11	2462 MHz		15.81	30.00	Complies

Configuration IEEE 802.11n MCS0 HT40 / Chain 1 + Chain 2

Channel	Frequency	Duty Factor	Conducted Power (dBm)			Max. Limit (dBm)	Result
			Chain 1	Chain 2	Total		
3	2422 MHz	0.11	11.14	12.76	15.04	30.00	Complies
6	2437 MHz		11.17	12.53	14.91	30.00	Complies
9	2452 MHz		10.54	11.82	14.24	30.00	Complies
10	2457 MHz		9.77	11.29	13.61	30.00	Complies
11	2462 MHz		1.96	5.43	7.04	30.00	Complies

Only for power table of SAR

Channel	Frequency	Duty Factor	Total Conducted Power (dBm)	Max. Limit (dBm)	Result
3	2422 MHz	0.11	15.04	30.00	Complies
6	2437 MHz		14.91	30.00	Complies
9	2452 MHz		14.24	30.00	Complies

For 5GHz Band

Configuration IEEE 802.11n MCS0 HT20 / Chain 1 + Chain 2

Channel	Frequency	Duty Factor	Conducted Power (dBm)			Max. Limit (dBm)	Result
			Chain 1	Chain 2	Total		
149	5745 MHz	0.07	15.62	14.78	18.23	29.79	Complies
157	5785 MHz		15.88	14.67	18.33	29.79	Complies
165	5825 MHz		15.49	14.05	17.84	29.79	Complies

Note: Antenna gain=6.21dBi>6dBi,so B4 Power Limit=30-(6.21-6)=29.79dBm

Only for power table of SAR

Channel	Frequency	Duty Factor	Total Conducted Power (dBm)	Max. Limit (dBm)	Result
149	5745 MHz	0.07	16.23	30.00	Complies
153	5765 MHz		16.24	30.00	Complies
157	5785 MHz		16.23	30.00	Complies
161	5805 MHz		16.26	30.00	Complies
165	5825 MHz		16.28	30.00	Complies

Configuration IEEE 802.11n MCS0 HT40 / Chain 1 + Chain 2

Channel	Frequency	Duty Factor	Conducted Power (dBm)			Max. Limit (dBm)	Result
			Chain 1	Chain 2	Total		
151	5755 MHz	0.09	15.69	15.27	18.50	29.79	Complies
159	5795 MHz		17.44	16.85	20.17	29.79	Complies

Note: Antenna gain=6.21dBi>6dBi,so B4 Power Limit=30-(6.21-6)=29.79dBm

Only for power table of SAR

Channel	Frequency	Duty Factor	Total Conducted Power (dBm)	Max. Limit (dBm)	Result
151	5755 MHz	0.09	16.21	30.00	Complies
159	5795 MHz		16.15	30.00	Complies

Temperature	26°C	Humidity	63%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11a/b/g
Test Date	May 18, 2014		

Configuration IEEE 802.11b / Chain 1

Channel	Frequency	Duty Factor	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	0	16.84	30.00	Complies
6	2437 MHz		18.71	30.00	Complies
11	2462 MHz		18.54	30.00	Complies
12	2467 MHz		16.89	30.00	Complies
13	2472 MHz		11.75	30.00	Complies

Only for power table of SAR

Channel	Frequency	Duty Factor	Total Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	0	14.73	30.00	Complies
6	2437 MHz		14.75	30.00	Complies
11	2462 MHz		14.71	30.00	Complies

Configuration IEEE 802.11g / Chain 1 + Chain 2

Channel	Frequency	Duty Factor	Conducted Power (dBm)			Max. Limit (dBm)	Result
			Chain 1	Chain 2	Total		
1	2412 MHz	0.04	13.04	13.83	16.46	30.00	Complies
6	2437 MHz		18.49	20.14	22.40	30.00	Complies
11	2462 MHz		14.18	14.69	17.45	30.00	Complies
12	2467 MHz		11.44	12.36	14.93	30.00	Complies
13	2472 MHz		9.36	10.71	13.10	30.00	Complies

Only for power table of SAR

Channel	Frequency	Duty Factor	Total Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	0.04	16.46	30.00	Complies
6	2437 MHz		18.25	30.00	Complies
11	2462 MHz		17.45	30.00	Complies

Configuration IEEE 802.11a / Chain 1 + Chain 2

Channel	Frequency	Duty Factor	Conducted Power (dBm)			Max. Limit (dBm)	Result
			Chain 1	Chain 2	Total		
149	5745 MHz	0.06	15.78	14.92	18.38	29.79	Complies
157	5785 MHz		15.54	14.72	18.16	29.79	Complies
165	5825 MHz		15.47	14.23	17.90	29.79	Complies

Note: Antenna gain=6.21dBi>6dBi,so B4 Power Limit=30-(6.21-6)=29.79dBm

Only for power table of SAR

Channel	Frequency	Duty Factor	Total Conducted Power (dBm)	Max. Limit (dBm)	Result
149	5745 MHz	0.06	16.18	30.00	Complies
153	5765 MHz		16.15	30.00	Complies
157	5785 MHz		16.22	30.00	Complies
161	5805 MHz		16.20	30.00	Complies
165	5825 MHz		16.16	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

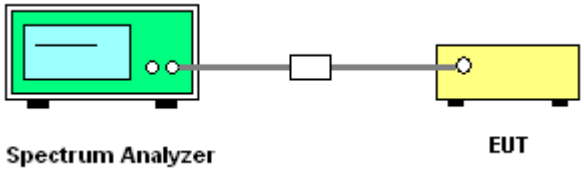
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Set the span to 1.5 times the DTS channel bandwidth.
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 procedures refer KDB 558074 D01 v03r01 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	Kenneth Huang	Configurations	IEEE 802.11n

For 2.4GHz Band

Configuration IEEE 802.11n MCS0 HT20 / Chain 1 + Chain 2

Channel	Frequency	Power Density (dBm/3kHz)			Power Density Limit (dBm/3kHz)	Result
		Chain 1	Chain 2	Total		
1	2412 MHz	-12.45	-11.85	-9.13	8.00	Complies
6	2437 MHz	-7.06	-4.90	-2.84	8.00	Complies
11	2462 MHz	-13.43	-12.96	-10.18	8.00	Complies
12	2467 MHz	-14.09	-13.22	-10.62	8.00	Complies
13	2472 MHz	-17.39	-15.14	-13.11	8.00	Complies

Configuration IEEE 802.11n MCS0 HT40 / Chain 1 + Chain 2

Channel	Frequency	Power Density (dBm/3kHz)			Power Density Limit (dBm/3kHz)	Result
		Chain 1	Chain 2	Total		
3	2422 MHz	-16.66	-16.12	-13.37	8.00	Complies
6	2437 MHz	-17.58	-16.53	-14.01	8.00	Complies
9	2452 MHz	-17.12	-16.58	-13.83	8.00	Complies
10	2457 MHz	-18.76	-17.06	-14.82	8.00	Complies
11	2462 MHz	-25.94	-20.58	-19.47	8.00	Complies

For 5GHz Band

Configuration IEEE 802.11n MCS0 HT20 / Chain 1 + Chain 2

Channel	Frequency	Power Density (dBm/3kHz)			Power Density Limit (dBm/3kHz)	Result
		Chain 1	Chain 2	Total		
149	5745 MHz	-9.38	-9.40	-6.38	7.79	Complies
157	5785 MHz	-8.31	-8.81	-5.54	7.79	Complies
165	5825 MHz	-8.95	-9.45	-6.18	7.79	Complies

Note: Antenna gain=6.21dBi>6dBi,so B4 Power Limit=8-(6.21-6)=7.79dBm/3kHz

Configuration IEEE 802.11n MCS0 HT40 / Chain 1 + Chain 2

Channel	Frequency	Power Density (dBm/3kHz)			Power Density Limit (dBm/3kHz)	Result
		Chain 1	Chain 2	Total		
151	5755 MHz	-11.31	-11.22	-8.25	7.79	Complies
159	5795 MHz	-9.58	-11.19	-7.30	7.79	Complies

Note: Antenna gain=6.21dBi>6dBi,so B4 Power Limit=8-(6.21-6)=7.79dBm/3kHz

Temperature	26°C	Humidity	63%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11a/b/g

Configuration IEEE 802.11b / Chain 1

Channel	Frequency	Power Density (dBm/3kHz)	Power Density Limit (dBm/3kHz)	Result
1	2412 MHz	-6.11	8.00	Complies
6	2437 MHz	-4.29	8.00	Complies
11	2462 MHz	-4.39	8.00	Complies
12	2467 MHz	-6.72	8.00	Complies
13	2472 MHz	-11.15	8.00	Complies

Configuration IEEE 802.11g / Chain 1 + Chain 2

Channel	Frequency	Power Density (dBm/3kHz)			Power Density Limit (dBm/3kHz)	Result
		Chain 1	Chain 2	Total		
1	2412 MHz	-12.45	-10.17	-8.15	8.00	Complies
6	2437 MHz	-6.02	-6.37	-3.18	8.00	Complies
11	2462 MHz	-10.69	-10.37	-7.52	8.00	Complies
12	2467 MHz	-11.80	-12.10	-8.94	8.00	Complies
13	2472 MHz	-14.95	-14.19	-11.54	8.00	Complies

Configuration IEEE 802.11a / Chain 1 + Chain 2

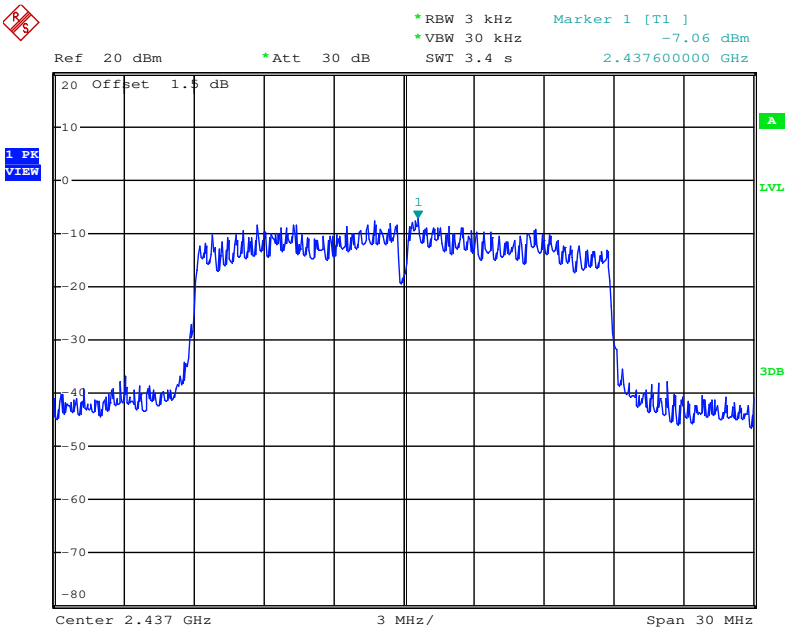
Channel	Frequency	Power Density (dBm/3kHz)			Power Density Limit (dBm/3kHz)	Result
		Chain 1	Chain 2	Total		
149	5745 MHz	-9.18	-10.23	-6.66	7.79	Complies
157	5785 MHz	-9.41	-9.59	-6.49	7.79	Complies
165	5825 MHz	-8.85	-9.09	-5.96	7.79	Complies

Note: Antenna gain=6.21dBi>6dBi,so B4 Power Limit=8-(6.21-6)=7.79dBm/3kHz

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

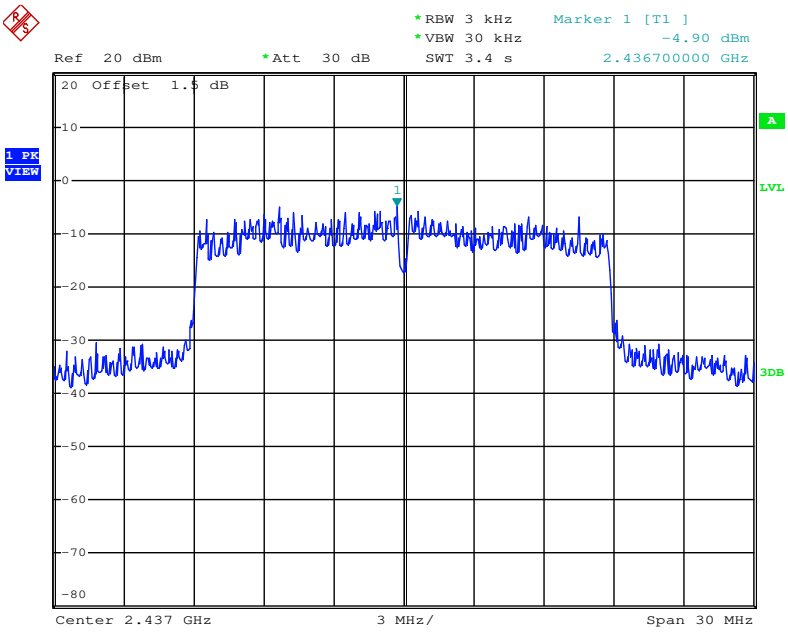
For plots, only the channel with worse result was shown.

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



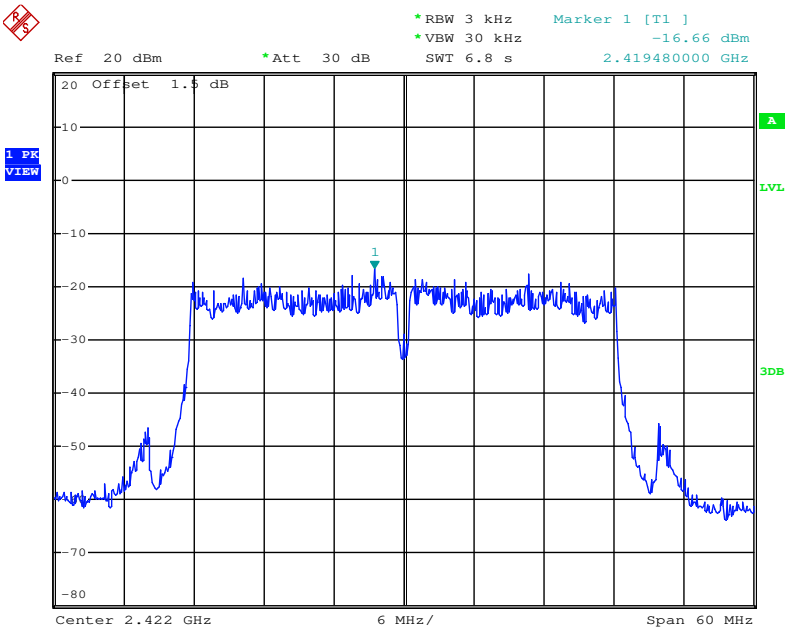
Date: 18.MAY.2014 16:17:09

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



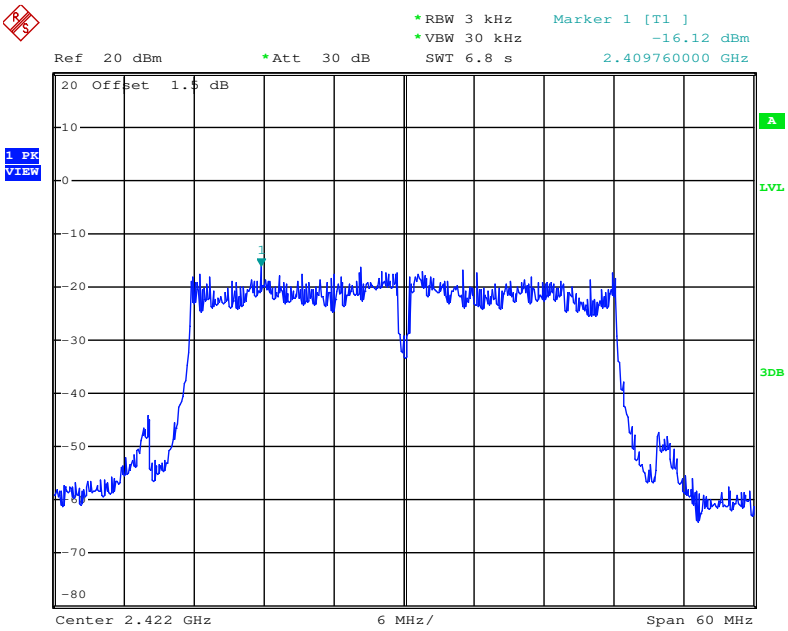
Date: 18.MAY.2014 16:31:14

Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / 2422 MHz / Chain 1



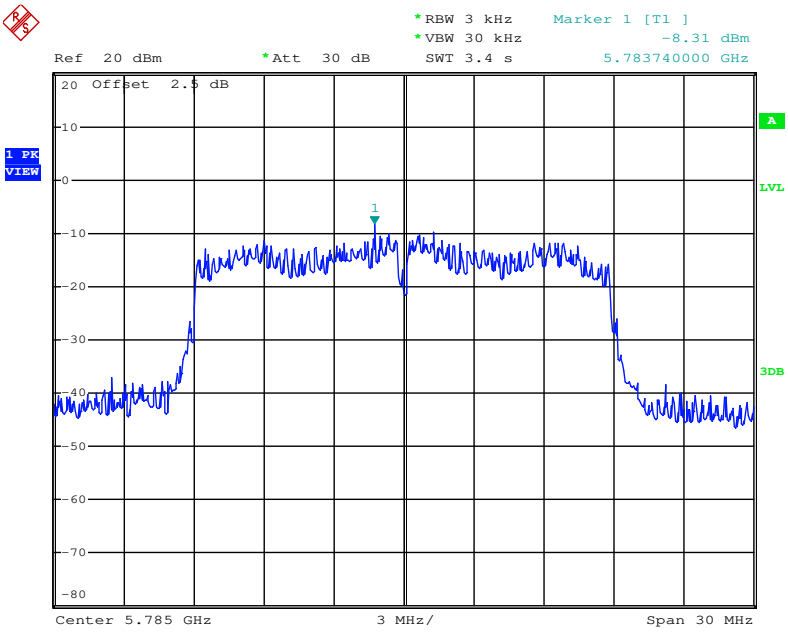
Date: 18.MAY.2014 16:18:11

Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / 2422 MHz / Chain 2



Date: 18.MAY.2014 16:32:16

Power Density Plot on Configuration IEEE 802.11n MCS0 HT20 / 5785 MHz / Chain 1



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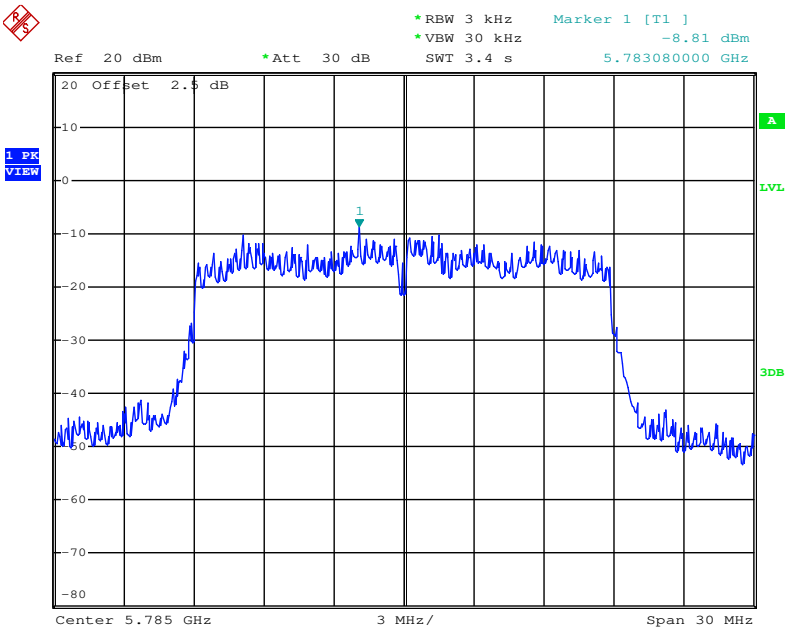
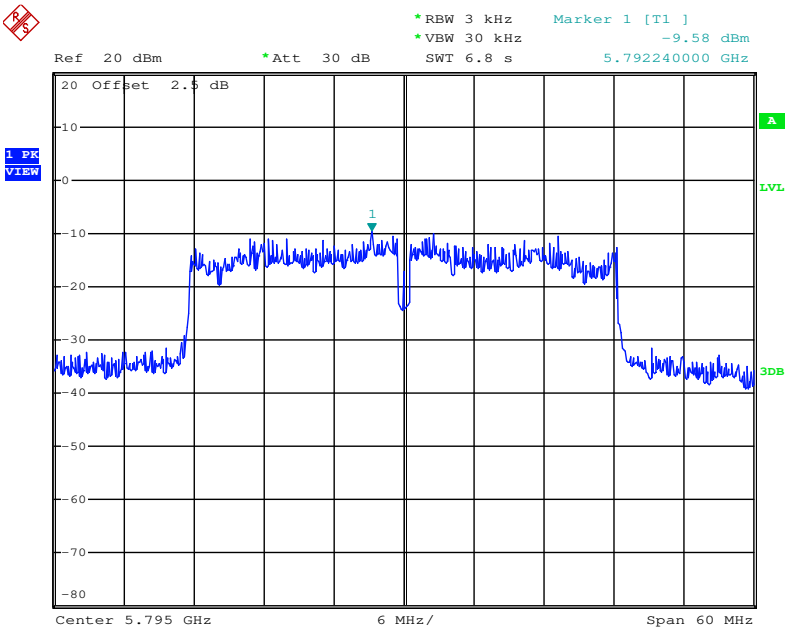
Power Density Plot on Configuration IEEE 802.11n MCS0 HT20 / 5785 MHz / Chain 2



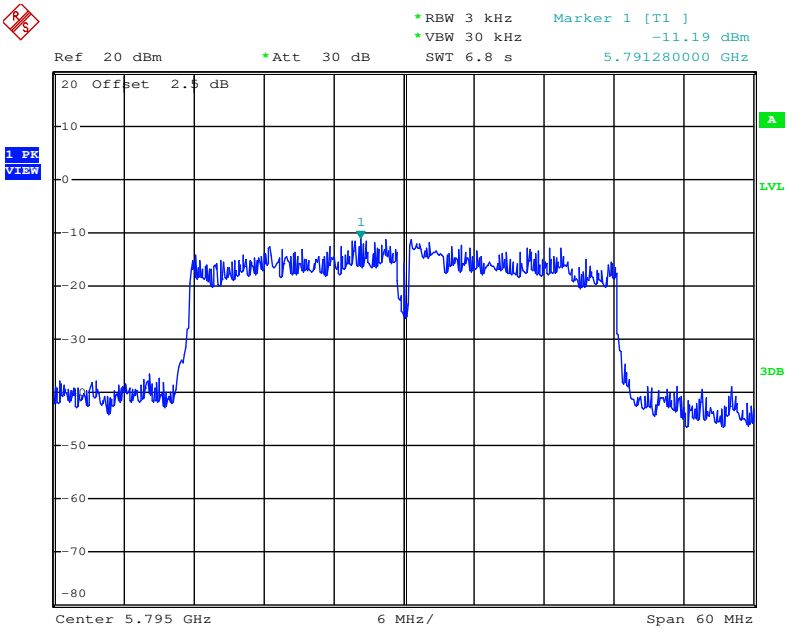
Date: 18.MAY.2014 16:28:45

Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / 5795 MHz / Chain 1



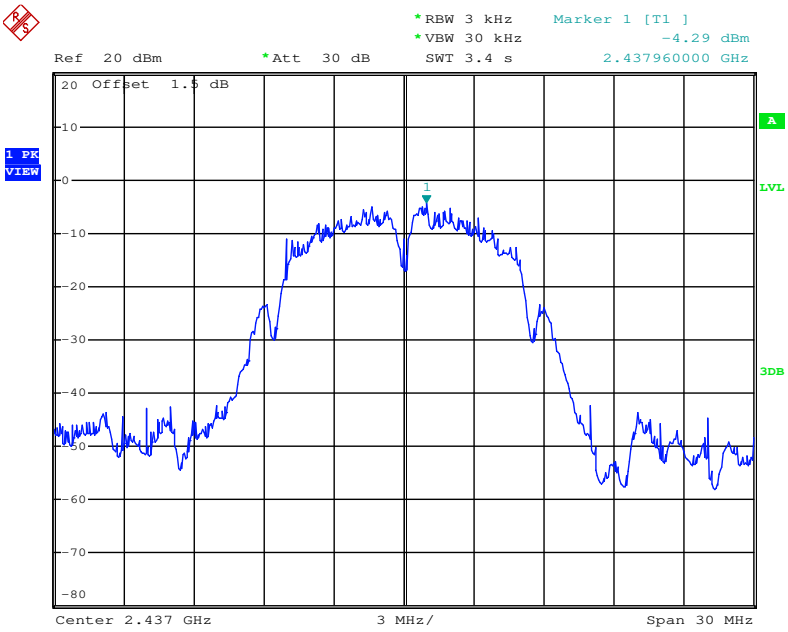
Date: 18.MAY.2014 16:15:56

Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / 5795 MHz / Chain 2



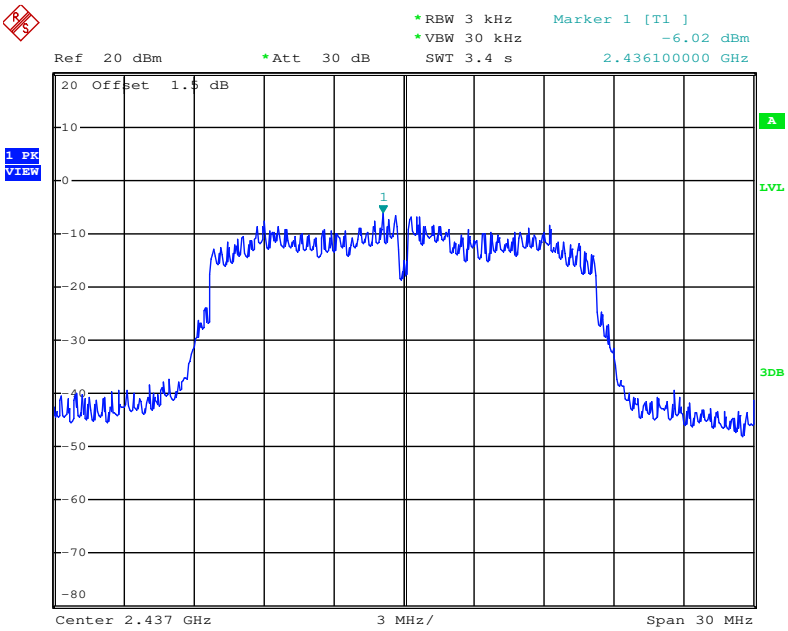
Date: 18.MAY.2014 16:30:06

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



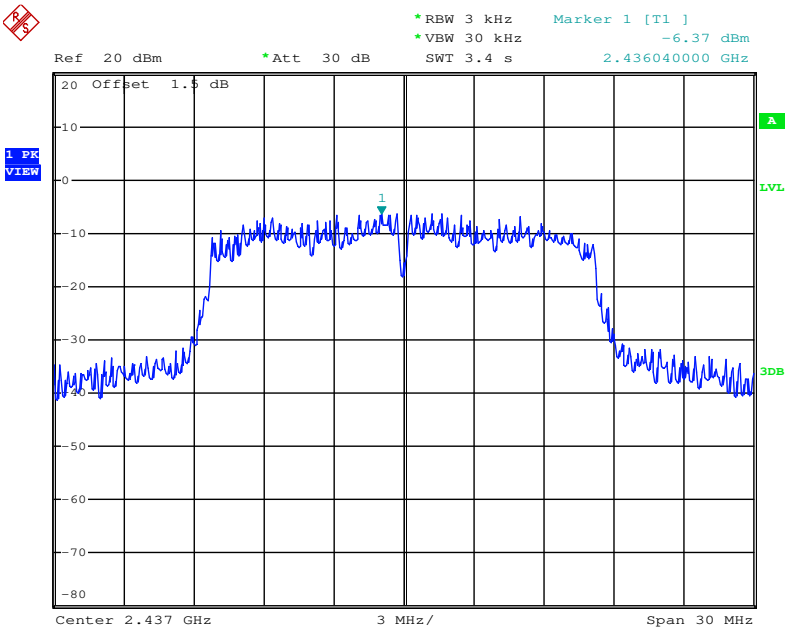
Date: 18.MAY.2014 16:07:46

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



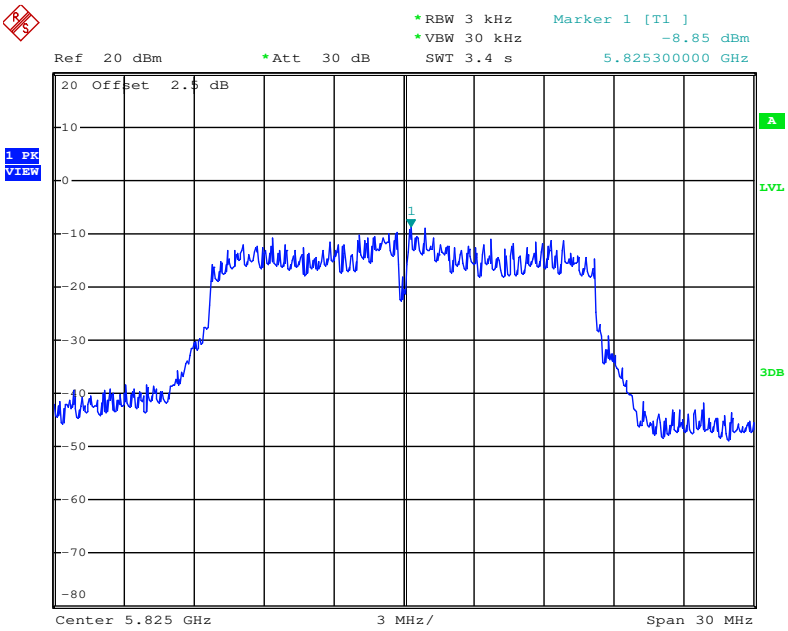
Date: 18.MAY.2014 16:11:00

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



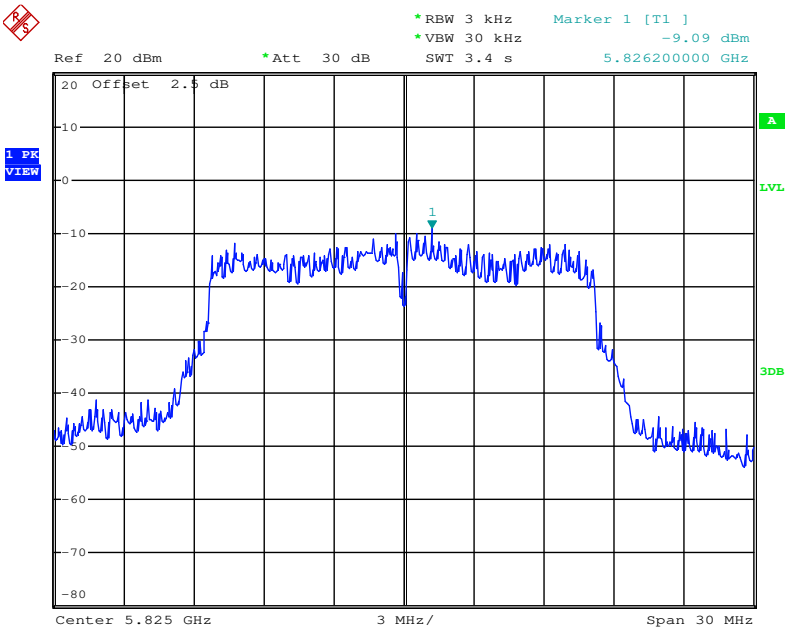
Date: 18.MAY.2014 16:25:40

Power Density Plot on Configuration IEEE 802.11a / 5825 MHz / Chain 1



Date: 18.MAY.2014 16:12:57

Power Density Plot on Configuration IEEE 802.11a / 5825 MHz / Chain 2



Date: 18.MAY.2014 16:27:37

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 the spectrum analyzer.

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

4.4.3. Test Procedures

1. The transmitter was conducted to the spectrum analyzer in peak hold mode.
2. Test was performed in accordance with KDB 558074 D01 v03r01 for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247 section 8.0 DTS 6-dB signal bandwidth 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. Measurement perform conducted of each port.
5. Measured the spectrum width with power higher than 6dB below carrier.

4.4.4. Test Setup Layout

This test setup layout is the same as that shown in section 4.3.4.

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	Kenneth Huang	Configurations	IEEE 802.11n

For 2.4GHz Band

Configuration IEEE 802.11n MCS0 HT20

Channel	Frequency	6dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)		Min. Limit (kHz)	Test Result
		Chain 1	Chain 2	Chain 1	Chain 2		
1	2412 MHz	16.02	16.85	17.43	17.50	500	Complies
6	2437 MHz	16.08	16.28	17.56	17.69	500	Complies
11	2462 MHz	15.38	16.28	17.50	17.50	500	Complies
12	2467 MHz	15.38	16.73	17.50	17.43	500	Complies
13	2472 MHz	15.57	16.53	17.50	17.50	500	Complies

Configuration IEEE 802.11n MCS0 HT40

Channel	Frequency	6dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)		Min. Limit (kHz)	Test Result
		Chain 1	Chain 2	Chain 1	Chain 2		
3	2422 MHz	36.28	36.41	36.41	36.41	500	Complies
6	2437 MHz	36.41	36.41	36.41	36.41	500	Complies
9	2452 MHz	36.15	36.41	36.41	36.41	500	Complies
10	2457 MHz	36.41	36.41	36.41	36.41	500	Complies
11	2462 MHz	36.41	36.41	36.41	36.41	500	Complies

For 5GHz Band

Configuration IEEE 802.11n MCS0 HT20

Channel	Frequency	6dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)		Min. Limit (kHz)	Test Result
		Chain 1	Chain 2	Chain 1	Chain 2		
149	5745 MHz	15.25	15.06	17.62	17.56	500	Complies
157	5785 MHz	15.06	15.06	17.62	17.56	500	Complies
165	5825 MHz	15.25	15.06	17.62	17.62	500	Complies

Configuration IEEE 802.11n MCS0 HT40

Channel	Frequency	6dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)		Min. Limit (kHz)	Test Result
		Chain 1	Chain 2	Chain 1	Chain 2		
151	5755 MHz	33.20	35.76	36.66	36.41	500	Complies
159	5795 MHz	35.89	36.41	43.20	36.41	500	Complies

Temperature	26℃	Humidity	63%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11a/b/g

Configuration IEEE 802.11b / Chain 1

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	8.01	10.12	500	Complies
6	2437 MHz	8.01	10.06	500	Complies
11	2462 MHz	7.56	10.06	500	Complies
12	2467 MHz	8.07	10.06	500	Complies
13	2472 MHz	8.07	10.06	500	Complies

Configuration IEEE 802.11g

Channel	Frequency	6dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)		Min. Limit (kHz)	Test Result
		Chain 1	Chain 2	Chain 1	Chain 2		
1	2412 MHz	13.84	14.48	16.34	16.28	500	Complies
6	2437 MHz	13.78	14.61	16.34	16.66	500	Complies
11	2462 MHz	14.42	14.55	16.34	16.34	500	Complies
12	2467 MHz	14.29	14.10	16.34	16.34	500	Complies
13	2472 MHz	14.10	14.87	16.34	16.34	500	Complies

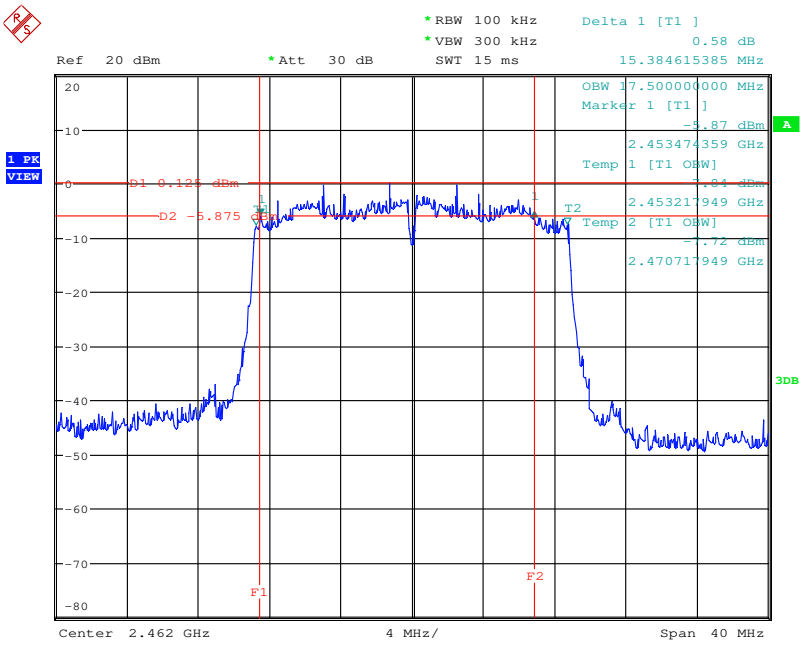
Configuration IEEE 802.11a

Channel	Frequency	6dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)		Min. Limit (kHz)	Test Result
		Chain 1	Chain 2	Chain 1	Chain 2		
149	5745 MHz	15.76	15.64	16.47	16.41	500	Complies
157	5785 MHz	15.76	15.06	16.47	16.34	500	Complies
165	5825 MHz	15.64	15.83	16.53	16.41	500	Complies

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

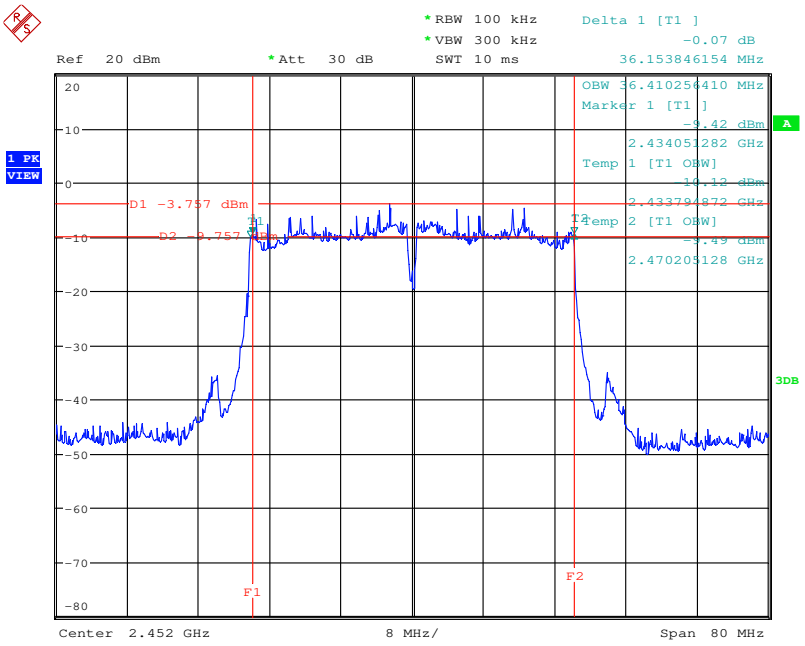
For plots, only the channel with worse result was shown.

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT20 / 2462 MHz / Chain 1



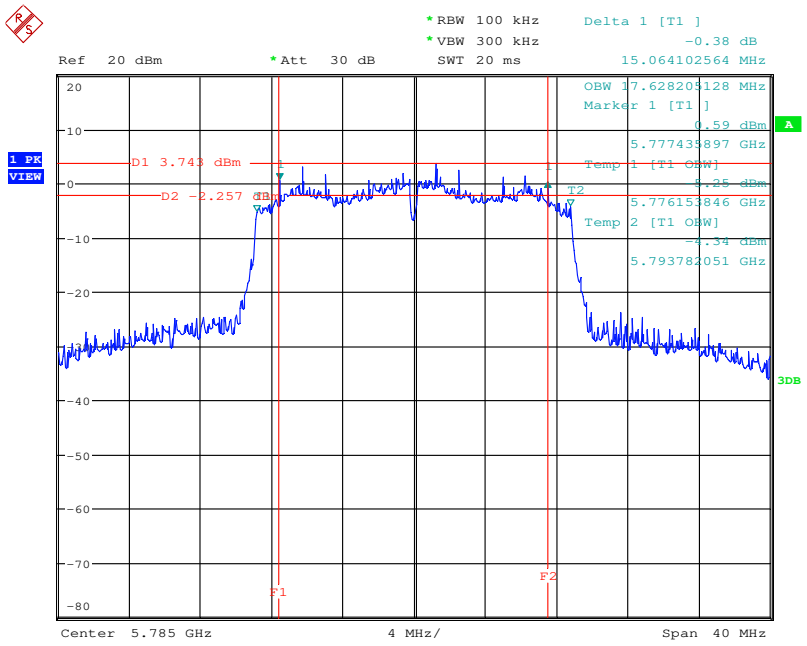
Date: 16.JUN.2014 19:46:04

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT40 / 2452 MHz / Chain 1



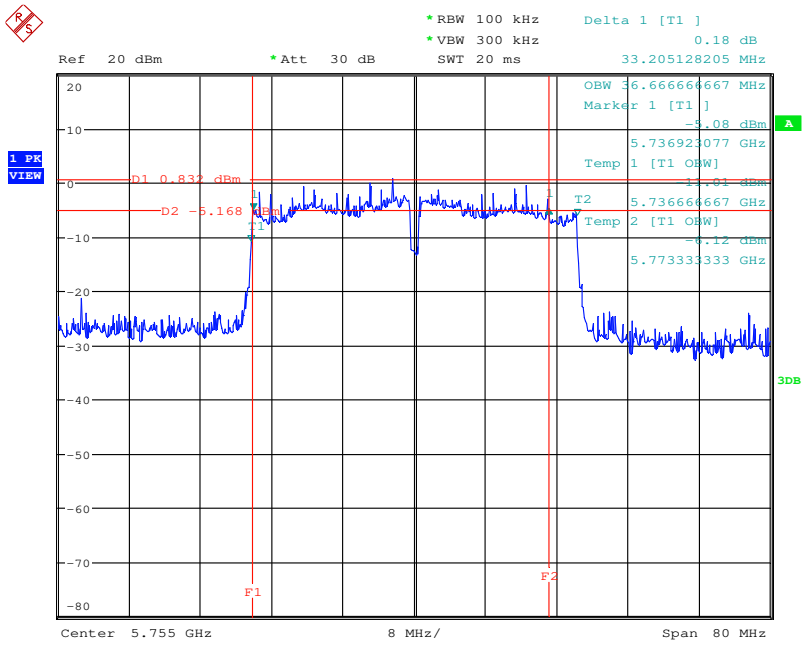
Date: 16.JUN.2014 19:49:47

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT20 / 5785MHz / Chain 1



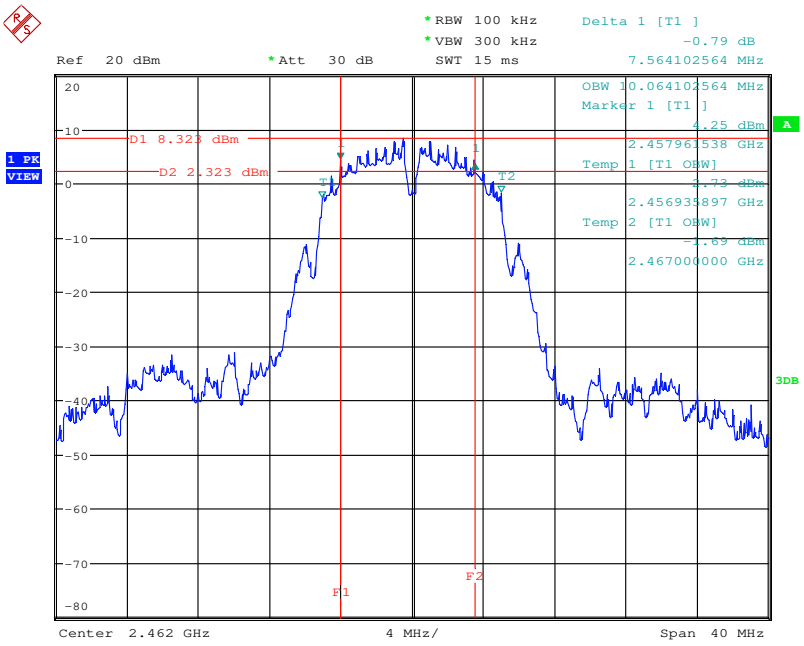
Date: 16.JUN.2014 20:02:21

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT40 / 5755MHz / Chain 1



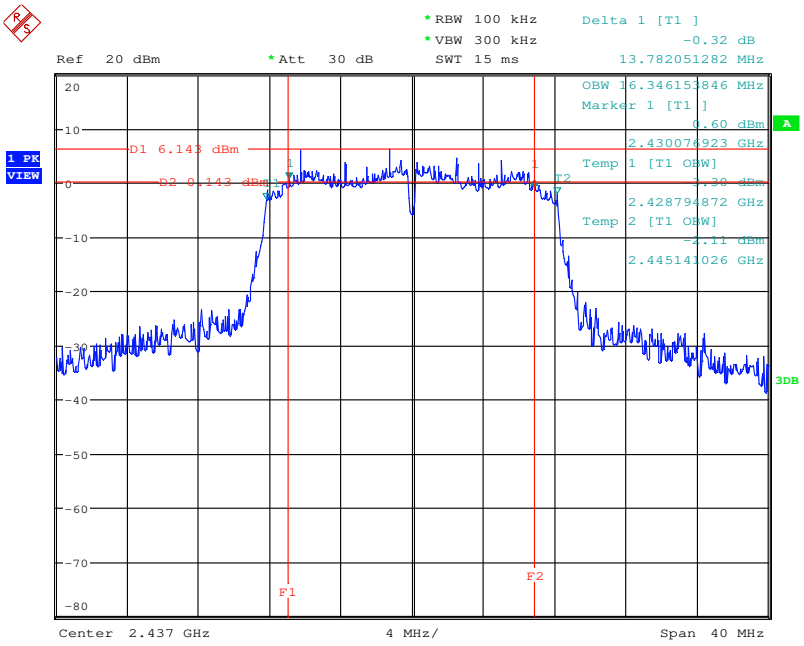
Date: 16.JUN.2014 20:08:56

6 dB Bandwidth Plot on Configuration IEEE 802.11b / 2462 MHz / Chain 1



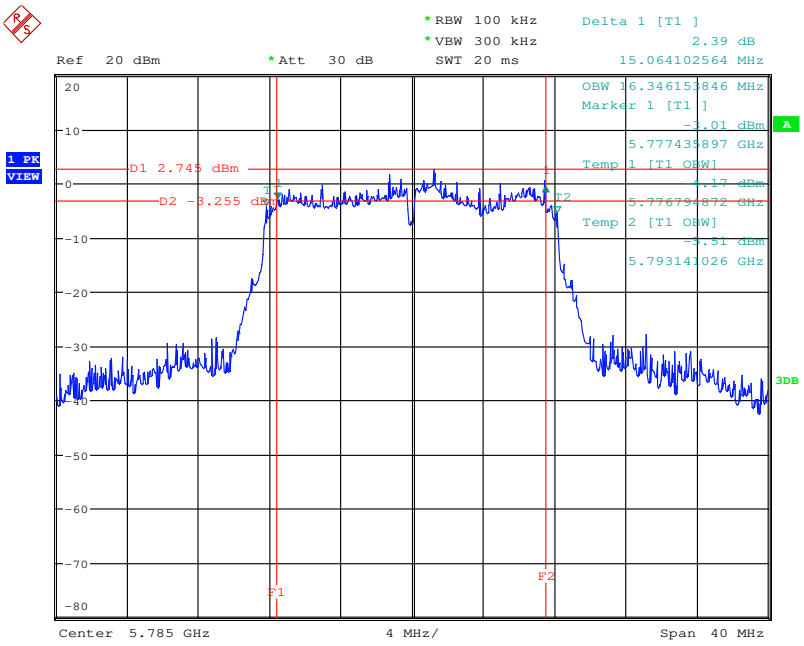
Date: 16.JUN.2014 18:30:48

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



Date: 16.JUN.2014 18:34:52

6 dB Bandwidth Plot on Configuration IEEE 802.11a / 5785 MHz / Chain 2



Date: 16.JUN.2014 19:57:13

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, Please refer to below table for Average
RBW / VBW (Emission in non-restricted band)	100kHz / 300kHz for peak

Band	Mode	On Time(ms)	On+Off Time(ms)	Duty Cycle(%)	1/T Minimum VBW (kHz)
2.4G	802.11b	-	-	100	0.01
	802.11g	2.070	2.090	99.04	0.01
	802.11n MCS0 HT20	1.920	1.940	98.97	0.01
	802.11n MCS0 HT40	0.950	0.975	97.44	1.05
5G	802.11a	2.060	2.090	98.56	0.01
	802.11n MCS0 HT20	1.910	1.940	98.45	0.01
	802.11n MCS0 HT40	0.930	0.950	97.89	1.08

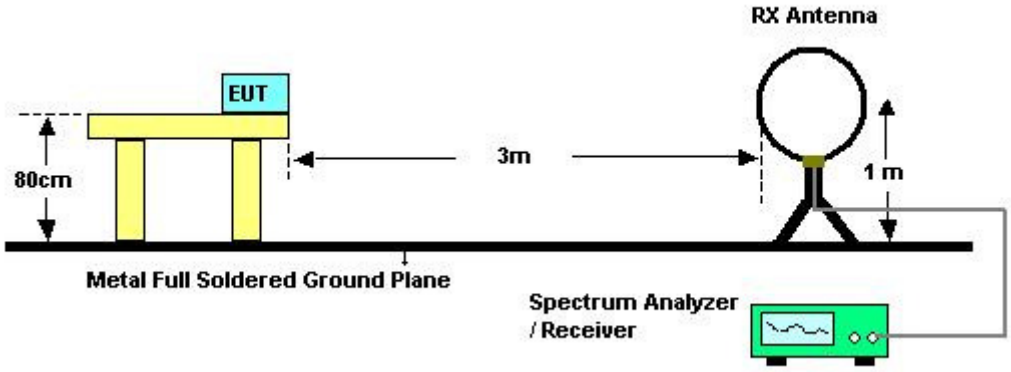
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RBW 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RBW 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RBW 120kHz for QP

4.5.3. Test Procedures

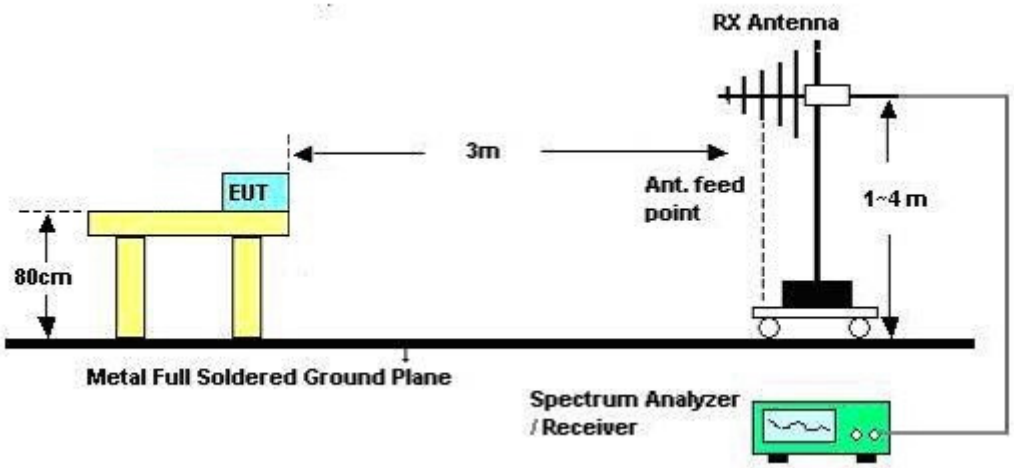
1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting 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

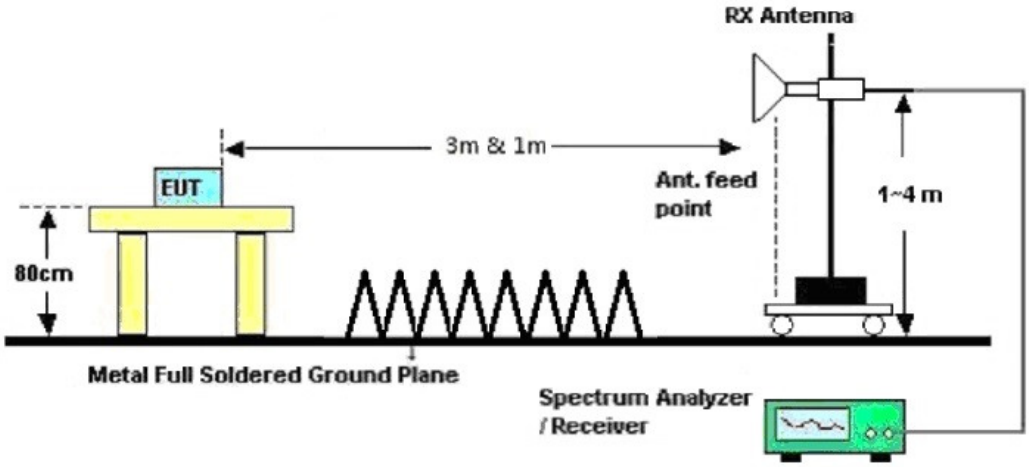
For Radiated Emissions: 9kHz ~30MHz



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	20°C	Humidity	55%
Test Engineer	Nick Peng	Configurations	Normal Link / Mode 1
Test Date	Apr. 28, 2014		

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.

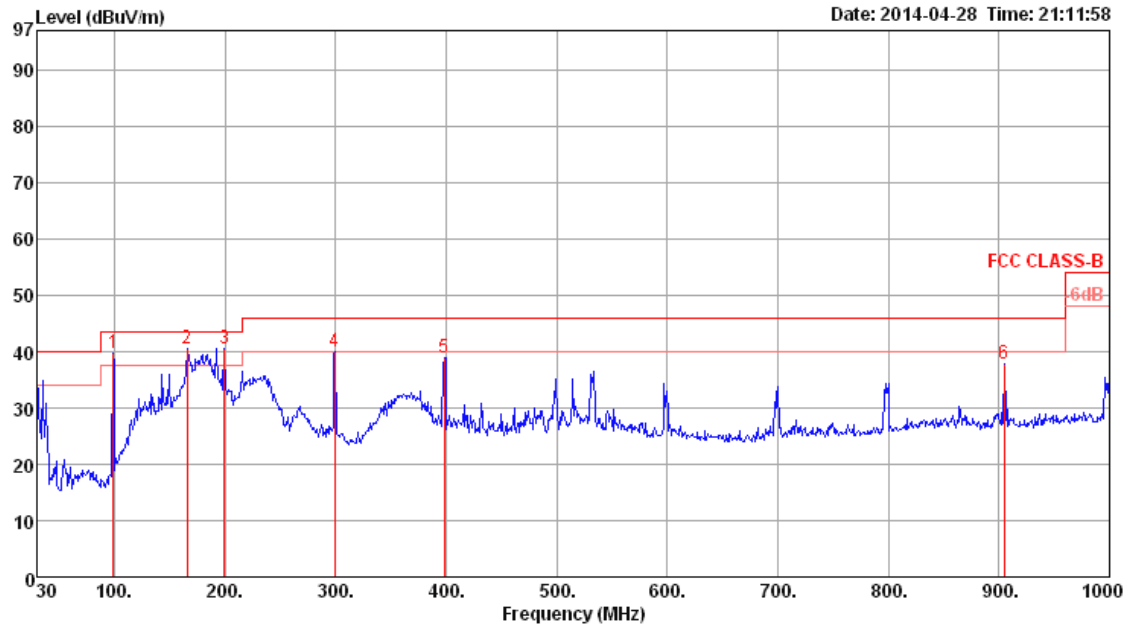
Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

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

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

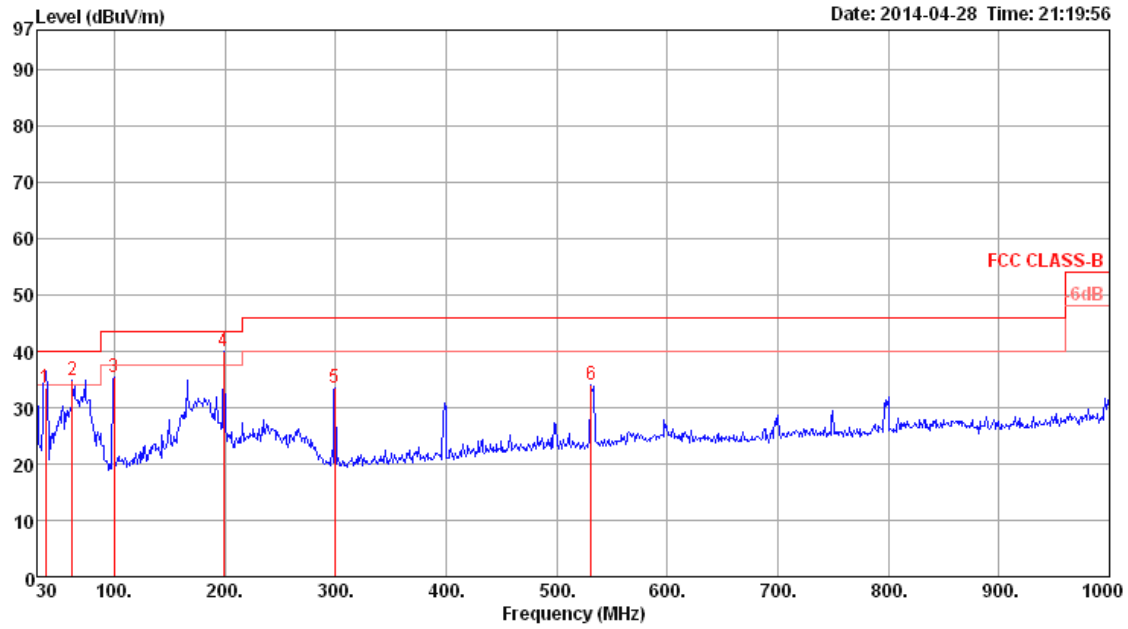
Temperature	20°C	Humidity	55%
Test Engineer	Nick Peng	Configurations	Normal Link / Mode 1

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	98.87	39.60	43.50	-3.90	55.25	1.17	10.79	27.61	Peak	400	0	HORIZONTAL
2	165.80	40.40	43.50	-3.10	53.75	1.45	12.47	27.27	Peak	400	0	HORIZONTAL
3	199.75	40.41	43.50	-3.09	56.80	1.66	9.05	27.10	Peak	400	0	HORIZONTAL
4	299.66	40.04	46.00	-5.96	51.55	2.03	13.36	26.90	Peak	400	0	HORIZONTAL
5	398.60	38.96	46.00	-7.04	48.22	2.30	16.03	27.59	Peak	400	0	HORIZONTAL
6	904.94	37.75	46.00	-8.25	41.01	3.55	20.57	27.38	Peak	400	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	37.76	33.50	40.00	-6.50	46.32	0.68	14.30	27.80	QP	198	221	VERTICAL
2	62.01	34.87	40.00	-5.13	54.96	0.92	6.74	27.75	Peak	400	0	VERTICAL
3	99.84	35.38	43.50	-8.12	50.82	1.17	10.99	27.60	Peak	400	0	VERTICAL
4	198.78	40.12	43.50	-3.38	56.32	1.66	9.25	27.11	Peak	400	0	VERTICAL
5	299.66	33.55	46.00	-12.45	45.06	2.03	13.36	26.90	Peak	400	0	VERTICAL
6	531.49	33.98	46.00	-12.02	41.36	2.74	17.98	28.10	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	55%
Test Engineer	Nick Peng	Configurations	IEEE 802.11n MCS0 HT20 CH 1 / Chain 1 + Chain 2
Test Date	Apr. 26, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	4823.55	39.30	54.00	-14.70	37.11	4.21	32.56	34.58	Average	203	100	HORIZONTAL
2	4829.32	51.78	74.00	-22.22	49.59	4.21	32.56	34.58	Peak	203	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	4821.82	59.76	74.00	-14.24	57.57	4.21	32.56	34.58	Peak	100	100	VERTICAL
2	4823.55	45.65	54.00	-8.35	43.46	4.21	32.56	34.58	Average	100	100	VERTICAL

Temperature	20°C	Humidity	55%
Test Engineer	Nick Peng	Configurations	IEEE 802.11n MCS0 HT20 CH 6 / Chain 1 + Chain 2
Test Date	Apr. 26, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	4870.86	60.76	74.00	-13.24	58.45	4.22	32.66	34.57	Peak	194	100	HORIZONTAL
2	4874.00	48.67	54.00	-5.33	46.36	4.22	32.66	34.57	Average	194	100	HORIZONTAL
3	7312.54	37.35	54.00	-16.65	29.77	5.34	37.07	34.83	Average	63	100	HORIZONTAL
4	7315.36	49.63	74.00	-24.37	42.05	5.34	37.07	34.83	Peak	63	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	4873.74	52.77	54.00	-1.23	50.46	4.22	32.66	34.57	Average	100	100	VERTICAL
2	4874.13	67.32	74.00	-6.68	65.01	4.22	32.66	34.57	Peak	100	100	VERTICAL
3	7307.35	44.61	54.00	-9.39	37.02	5.34	37.07	34.82	Average	332	100	VERTICAL
4	7315.17	56.93	74.00	-17.07	49.35	5.34	37.07	34.83	Peak	332	100	VERTICAL

Temperature	20°C	Humidity	55%
Test Engineer	Nick Peng	Configurations	IEEE 802.11n MCS0 HT20 CH 11 / Chain 1 + Chain 2
Test Date	Apr. 26, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	4919.19	35.41	54.00	-18.59	32.97	4.23	32.76	34.55	Average	95	100	HORIZONTAL
2	4921.95	46.39	74.00	-27.61	43.95	4.23	32.76	34.55	Peak	95	100	HORIZONTAL
3	7368.50	48.54	74.00	-25.46	40.86	5.36	37.16	34.84	Peak	189	100	HORIZONTAL
4	7396.51	35.36	54.00	-18.64	27.66	5.36	37.18	34.84	Average	189	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	4922.14	41.13	54.00	-12.87	38.69	4.23	32.76	34.55	Average	175	100	VERTICAL
2	4926.18	56.97	74.00	-17.03	54.53	4.23	32.76	34.55	Peak	175	100	VERTICAL
3	7379.27	35.48	54.00	-18.52	27.80	5.36	37.16	34.84	Average	253	100	VERTICAL
4	7397.47	48.53	74.00	-25.47	40.83	5.36	37.18	34.84	Peak	253	100	VERTICAL

Temperature	20°C	Humidity	55%
Test Engineer	Nick Peng	Configurations	IEEE 802.11n MCS0 HT20 CH 12 / Chain 1 + Chain 2
Test Date	Apr. 26, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	4932.21	33.46	54.00	-20.54	31.02	4.23	32.76	34.55	Average	346	100	HORIZONTAL
2	4937.33	43.12	74.00	-30.88	40.64	4.23	32.80	34.55	Peak	346	100	HORIZONTAL
3	7387.67	48.29	74.00	-25.71	40.59	5.36	37.18	34.84	Peak	135	100	HORIZONTAL
4	7400.74	35.32	54.00	-18.68	27.60	5.36	37.20	34.84	Average	136	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	4936.50	52.80	74.00	-21.20	50.32	4.23	32.80	34.55	Peak	159	100	VERTICAL
2	4936.76	37.88	54.00	-16.12	35.40	4.23	32.80	34.55	Average	159	100	VERTICAL
3	7395.04	35.41	54.00	-18.59	27.71	5.36	37.18	34.84	Average	237	100	VERTICAL
4	7401.19	48.29	74.00	-25.71	40.57	5.36	37.20	34.84	Peak	237	100	VERTICAL

Temperature	20°C	Humidity	55%
Test Engineer	Nick Peng	Configurations	IEEE 802.11n MCS0 HT20 CH 13 / Chain 1 + Chain 2
Test Date	Apr. 26, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	4934.77	42.38	74.00	-31.62	39.94	4.23	32.76	34.55	Peak	318	100	HORIZONTAL
2	4944.00	30.68	54.00	-23.32	28.19	4.23	32.80	34.54	Average	318	100	HORIZONTAL
3	7396.90	49.18	74.00	-24.82	41.48	5.36	37.18	34.84	Peak	244	100	HORIZONTAL
4	7398.76	35.38	54.00	-18.62	27.68	5.36	37.18	34.84	Average	244	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	4944.00	32.69	54.00	-21.31	30.20	4.23	32.80	34.54	Average	217	100	VERTICAL
2	4949.06	43.37	74.00	-30.63	40.88	4.23	32.80	34.54	Peak	217	100	VERTICAL
3	7416.90	35.26	54.00	-18.74	27.55	5.36	37.20	34.85	Average	154	100	VERTICAL
4	7419.27	48.32	74.00	-25.68	40.58	5.37	37.22	34.85	Peak	154	100	VERTICAL

Temperature	20°C	Humidity	55%
Test Engineer	Nick Peng	Configurations	IEEE 802.11n MCS0 HT40 CH 3 / Chain 1 + Chain 2
Test Date	Apr. 26, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	4828.62	42.28	74.00	-31.72	40.09	4.21	32.56	34.58	Peak	144	100	HORIZONTAL
2	4834.22	33.44	54.00	-20.56	31.22	4.21	32.59	34.58	Average	144	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	4836.47	51.13	74.00	-22.87	48.91	4.21	32.59	34.58	Peak	160	100	VERTICAL
2	4841.44	39.07	54.00	-14.93	36.85	4.21	32.59	34.58	Average	160	100	VERTICAL

Temperature	20°C	Humidity	55%
Test Engineer	Nick Peng	Configurations	IEEE 802.11n MCS0 HT40 CH 6 / Chain 1 + Chain 2
Test Date	Apr. 26, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	4833.62	42.34	74.00	-31.66	40.12	4.21	32.59	34.58	Peak	209	100	HORIZONTAL
2	4880.09	32.19	54.00	-21.81	29.88	4.22	32.66	34.57	Average	209	100	HORIZONTAL
3	7333.44	47.89	74.00	-26.11	40.26	5.35	37.11	34.83	Peak	360	100	HORIZONTAL
4	7350.90	35.35	54.00	-18.65	27.70	5.35	37.13	34.83	Average	360	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	4884.26	34.59	54.00	-19.41	32.28	4.22	32.66	34.57	Average	284	100	VERTICAL
2	4885.06	43.99	74.00	-30.01	41.65	4.22	32.69	34.57	Peak	284	100	VERTICAL
3	7335.84	35.39	54.00	-18.61	27.76	5.35	37.11	34.83	Average	181	100	VERTICAL
4	7336.00	47.69	74.00	-26.31	40.06	5.35	37.11	34.83	Peak	181	100	VERTICAL

Temperature	20°C	Humidity	55%
Test Engineer	Nick Peng	Configurations	IEEE 802.11n MCS0 HT40 CH 9 / Chain 1 + Chain 2
Test Date	Apr. 26, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	4891.98	42.13	74.00	-31.87	39.78	4.22	32.69	34.56	Peak	120	100	HORIZONTAL
2	4899.19	31.24	54.00	-22.76	28.89	4.22	32.69	34.56	Average	120	100	HORIZONTAL
3	7339.81	47.88	74.00	-26.12	40.25	5.35	37.11	34.83	Peak	50	100	HORIZONTAL
4	7400.55	35.46	54.00	-18.54	27.74	5.36	37.20	34.84	Average	50	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	4903.84	42.72	74.00	-31.28	40.33	4.22	32.73	34.56	Peak	111	100	VERTICAL
2	4903.84	35.34	54.00	-18.66	32.95	4.22	32.73	34.56	Average	111	100	VERTICAL
3	7353.76	35.38	54.00	-18.62	27.73	5.35	37.13	34.83	Average	248	100	VERTICAL
4	7398.31	48.26	74.00	-25.74	40.56	5.36	37.18	34.84	Peak	248	100	VERTICAL

Temperature	20°C	Humidity	55%
Test Engineer	Nick Peng	Configurations	IEEE 802.11n MCS0 HT40 CH 10 / Chain 1 + Chain 2
Test Date	Apr. 26, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	4911.76	42.63	74.00	-31.37	40.24	4.22	32.73	34.56	Peak	174	100	HORIZONTAL
2	4916.24	31.12	54.00	-22.88	28.72	4.22	32.73	34.55	Average	174	100	HORIZONTAL
3	7324.53	47.10	74.00	-26.90	39.49	5.35	37.09	34.83	Peak	279	100	HORIZONTAL
4	7342.64	35.38	54.00	-18.62	27.75	5.35	37.11	34.83	Average	279	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	4903.74	45.01	74.00	-28.99	42.62	4.22	32.73	34.56	Peak	199	100	VERTICAL
2	4914.32	32.82	54.00	-21.18	30.42	4.22	32.73	34.55	Average	199	100	VERTICAL
3	7333.50	35.39	54.00	-18.61	27.76	5.35	37.11	34.83	Average	271	100	VERTICAL
4	7341.51	47.36	74.00	-26.64	39.73	5.35	37.11	34.83	Peak	271	100	VERTICAL

Temperature	20°C	Humidity	55%
Test Engineer	Nick Peng	Configurations	IEEE 802.11n MCS0 HT40 CH 11 / Chain 1 + Chain 2
Test Date	Apr. 26, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	4908.78	42.32	74.00	-31.68	39.93	4.22	32.73	34.56	Peak	322	100	HORIZONTAL
2	4924.00	30.54	54.00	-23.46	28.10	4.23	32.76	34.55	Average	322	100	HORIZONTAL
3	7336.96	35.48	54.00	-18.52	27.85	5.35	37.11	34.83	Average	11	100	HORIZONTAL
4	7416.93	47.71	74.00	-26.29	40.00	5.36	37.20	34.85	Peak	11	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	4924.00	31.85	54.00	-22.15	29.41	4.23	32.76	34.55	Average	160	100	VERTICAL
2	4947.08	42.46	74.00	-31.54	39.97	4.23	32.80	34.54	Peak	160	100	VERTICAL
3	7344.81	35.14	54.00	-18.86	27.51	5.35	37.11	34.83	Average	239	100	VERTICAL
4	7347.22	47.79	74.00	-26.21	40.16	5.35	37.11	34.83	Peak	239	100	VERTICAL

Temperature	20°C	Humidity	55%
Test Engineer	Nick Peng	Configurations	IEEE 802.11n MCS0 HT20 CH 149 / Chain 1 + Chain 2
Test Date	May 10, 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	11489.71	55.66	74.00	-18.34	46.21	5.11	39.39	35.05	Peak	100	164	HORIZONTAL
2	11490.10	43.36	54.00	-10.64	33.91	5.11	39.39	35.05	Average	100	164	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	11489.55	67.17	74.00	-6.83	57.72	5.11	39.39	35.05	Peak	120	80	VERTICAL
2	11490.03	53.66	54.00	-0.34	44.21	5.11	39.39	35.05	Average	120	80	VERTICAL

Temperature	20℃	Humidity	55%
Test Engineer	Nick Peng	Configurations	IEEE 802.11n MCS0 HT20 CH 157 / Chain 1 + Chain 2
Test Date	May 10, 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	11569.78	43.23	54.00	-10.77	33.71	5.14	39.44	35.06	Average	102	169	HORIZONTAL
2	11572.56	57.27	74.00	-16.73	47.75	5.14	39.44	35.06	Peak	102	169	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	11567.37	67.50	74.00	-6.50	57.99	5.13	39.44	35.06	Peak	121	82	VERTICAL
2	11569.74	53.54	54.00	-0.46	44.03	5.13	39.44	35.06	Average	121	82	VERTICAL

Temperature	20℃	Humidity	55%
Test Engineer	Nick Peng	Configurations	IEEE 802.11n MCS0 HT20 CH 165 / Chain 1 + Chain 2
Test Date	May 10, 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	11649.78	55.79	74.00	-18.21	46.23	5.16	39.48	35.08	Peak	101	168	HORIZONTAL
2	11649.87	41.75	54.00	-12.25	32.19	5.16	39.48	35.08	Average	101	168	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	11649.81	66.85	74.00	-7.15	57.29	5.16	39.48	35.08	Peak	120	83	VERTICAL
2	11649.84	53.52	54.00	-0.48	43.96	5.16	39.48	35.08	Average	120	83	VERTICAL

Temperature	20°C	Humidity	55%
Test Engineer	Nick Peng	Configurations	IEEE 802.11n MCS0 HT40 CH 151 / Chain 1 + Chain 2
Test Date	May 10, 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	11504.62	53.80	74.00	-20.20	44.33	5.12	39.40	35.05	Peak	100	171	HORIZONTAL
2	11507.18	42.33	54.00	-11.67	32.86	5.12	39.40	35.05	Average	100	171	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	11509.94	53.56	54.00	-0.44	44.09	5.12	39.40	35.05	Average	121	80	VERTICAL
2	11510.06	67.25	74.00	-6.75	57.78	5.12	39.40	35.05	Peak	121	80	VERTICAL

Temperature	20°C	Humidity	55%
Test Engineer	Nick Peng	Configurations	IEEE 802.11n MCS0 HT40 CH 159 / Chain 1 + Chain 2
Test Date	May 10, 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	11589.36	54.58	74.00	-19.42	45.05	5.14	39.45	35.06	Peak	100	165	HORIZONTAL
2	11594.81	43.43	54.00	-10.57	33.90	5.14	39.45	35.06	Average	100	165	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	11589.55	67.41	74.00	-6.59	57.88	5.14	39.45	35.06	Peak	121	82	VERTICAL
2	11590.00	53.82	54.00	-0.18	44.29	5.14	39.45	35.06	Average	121	82	VERTICAL

Temperature	20℃	Humidity	55%
Test Engineer	Nick Peng	Configurations	IEEE 802.11b CH 1 / Chain 1
Test Date	Apr. 26, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	4823.90	52.93	54.00	-1.07	50.85	4.21	32.56	34.69	Average	36	100	HORIZONTAL
2	4823.92	56.12	74.00	-17.88	54.04	4.21	32.56	34.69	Peak	36	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	4823.94	55.93	74.00	-18.07	53.85	4.21	32.56	34.69	Peak	97	100	VERTICAL
2	4823.98	53.42	54.00	-0.58	51.34	4.21	32.56	34.69	Average	97	100	VERTICAL

Temperature	20℃	Humidity	55%
Test Engineer	Nick Peng	Configurations	IEEE 802.11b CH 6 / Chain 1
Test Date	Apr. 26, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	4873.92	53.58	54.00	-0.42	51.37	4.22	32.66	34.67	Average	34	100	HORIZONTAL
2	4873.96	55.61	74.00	-18.39	53.40	4.22	32.66	34.67	Peak	34	100	HORIZONTAL
3	7311.70	34.88	54.00	-19.12	27.41	5.34	37.07	34.94	Average	352	100	HORIZONTAL
4	7326.90	47.09	74.00	-26.91	39.59	5.35	37.09	34.94	Peak	352	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	4873.93	55.72	74.00	-18.28	53.51	4.22	32.66	34.67	Peak	95	100	VERTICAL
2	4873.95	53.45	54.00	-0.55	51.24	4.22	32.66	34.67	Average	95	100	VERTICAL
3	7311.66	39.80	54.00	-14.20	32.33	5.34	37.07	34.94	Average	130	100	VERTICAL
4	7312.94	49.06	74.00	-24.94	41.59	5.34	37.07	34.94	Peak	130	100	VERTICAL

Temperature	20℃	Humidity	55%
Test Engineer	Nick Peng	Configurations	IEEE 802.11b CH 11 / Chain 1
Test Date	Apr. 26, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	4923.91	55.42	74.00	-18.58	53.08	4.23	32.76	34.65	Peak	37	113	HORIZONTAL
2	4923.95	53.17	54.00	-0.83	50.83	4.23	32.76	34.65	Average	37	113	HORIZONTAL
3	7383.70	47.41	74.00	-26.59	39.83	5.36	37.18	34.96	Peak	254	100	HORIZONTAL
4	7399.80	35.12	54.00	-18.88	27.54	5.36	37.18	34.96	Average	254	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	4923.92	55.16	74.00	-18.84	52.82	4.23	32.76	34.65	Peak	94	100	VERTICAL
2	4923.96	53.37	54.00	-0.63	51.03	4.23	32.76	34.65	Average	94	100	VERTICAL
3	7386.70	36.94	54.00	-17.06	29.36	5.36	37.18	34.96	Average	75	100	VERTICAL
4	7387.20	49.22	74.00	-24.78	41.64	5.36	37.18	34.96	Peak	75	100	VERTICAL

Temperature	20℃	Humidity	55%
Test Engineer	Nick Peng	Configurations	IEEE 802.11b CH 12 / Chain 1
Test Date	Apr. 26, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	4933.94	51.37	74.00	-22.63	48.93	4.23	32.76	34.55	Peak	40	100	HORIZONTAL
2	4933.97	48.37	54.00	-5.63	45.93	4.23	32.76	34.55	Average	40	100	HORIZONTAL
3	7402.22	35.57	54.00	-18.43	27.85	5.36	37.20	34.84	Average	236	100	HORIZONTAL
4	7424.97	48.13	74.00	-25.87	40.39	5.37	37.22	34.85	Peak	236	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	4933.92	54.85	74.00	-19.15	52.41	4.23	32.76	34.55	Peak	96	108	VERTICAL
2	4933.94	52.56	54.00	-1.44	50.12	4.23	32.76	34.55	Average	96	108	VERTICAL
3	7401.74	36.23	54.00	-17.77	28.51	5.36	37.20	34.84	Average	130	108	VERTICAL
4	7418.89	48.62	74.00	-25.38	40.88	5.37	37.22	34.85	Peak	130	108	VERTICAL

Temperature	20℃	Humidity	55%
Test Engineer	Nick Peng	Configurations	IEEE 802.11b CH 13 / Chain 1
Test Date	Apr. 26, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	4944.00	37.19	54.00	-16.81	34.70	4.23	32.80	34.54	Average	220	100	HORIZONTAL
2	4944.17	45.11	74.00	-28.89	42.62	4.23	32.80	34.54	Peak	220	100	HORIZONTAL
3	7408.21	48.54	74.00	-25.46	40.82	5.36	37.20	34.84	Peak	160	100	HORIZONTAL
4	7419.59	35.36	54.00	-18.64	27.62	5.37	37.22	34.85	Average	160	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	4943.91	44.28	74.00	-29.72	41.79	4.23	32.80	34.54	Peak	311	100	VERTICAL
2	4943.97	40.54	54.00	-13.46	38.05	4.23	32.80	34.54	Average	311	100	VERTICAL
3	7411.83	35.57	54.00	-18.43	27.85	5.36	37.20	34.84	Average	45	100	VERTICAL
4	7415.07	49.46	74.00	-24.54	41.75	5.36	37.20	34.85	Peak	45	100	VERTICAL

Temperature	20℃	Humidity	55%
Test Engineer	Nick Peng	Configurations	IEEE 802.11g CH 1 / Chain 1 + Chain 2
Test Date	Apr. 26, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	4824.64	40.48	54.00	-13.52	38.29	4.21	32.56	34.58	Average	230	100	HORIZONTAL
2	4829.32	48.62	74.00	-25.38	46.43	4.21	32.56	34.58	Peak	230	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	4818.81	61.31	74.00	-12.69	59.12	4.21	32.56	34.58	Peak	180	100	VERTICAL
2	4823.81	47.15	54.00	-6.85	44.96	4.21	32.56	34.58	Average	180	100	VERTICAL

Temperature	20℃	Humidity	55%
Test Engineer	Nick Peng	Configurations	IEEE 802.11g CH 6 / Chain 1 + Chain 2
Test Date	Apr. 26, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	4873.94	52.14	54.00	-1.86	49.83	4.22	32.66	34.57	Average	32	110	HORIZONTAL
2	4874.34	64.74	74.00	-9.26	62.43	4.22	32.66	34.57	Peak	32	110	HORIZONTAL
3	7306.77	51.43	74.00	-22.57	43.84	5.34	37.07	34.82	Peak	225	100	HORIZONTAL
4	7307.25	40.67	54.00	-13.33	33.08	5.34	37.07	34.82	Average	225	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	4867.85	67.92	74.00	-6.08	65.61	4.22	32.66	34.57	Peak	100	100	VERTICAL
2	4873.30	53.56	54.00	-0.44	51.25	4.22	32.66	34.57	Average	100	100	VERTICAL
3	7308.21	44.99	54.00	-9.01	37.40	5.34	37.07	34.82	Average	117	100	VERTICAL
4	7314.14	56.93	74.00	-17.07	49.35	5.34	37.07	34.83	Peak	117	100	VERTICAL

Temperature	20℃	Humidity	55%
Test Engineer	Nick Peng	Configurations	IEEE 802.11g CH 11 / Chain 1 + Chain 2
Test Date	Apr. 26, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	4919.51	53.14	74.00	-20.86	50.70	4.23	32.76	34.55	Peak	257	100	HORIZONTAL
2	4925.41	38.74	54.00	-15.26	36.30	4.23	32.76	34.55	Average	257	100	HORIZONTAL
3	7372.41	47.86	74.00	-26.14	40.18	5.36	37.16	34.84	Peak	215	100	HORIZONTAL
4	7382.67	35.60	54.00	-18.40	27.92	5.36	37.16	34.84	Average	215	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	4923.87	48.59	54.00	-5.41	46.15	4.23	32.76	34.55	Average	284	100	VERTICAL
2	4925.67	57.81	74.00	-16.19	55.37	4.23	32.76	34.55	Peak	284	100	VERTICAL
3	7383.63	48.62	74.00	-25.38	40.92	5.36	37.18	34.84	Peak	159	100	VERTICAL
4	7388.44	36.48	54.00	-17.52	28.78	5.36	37.18	34.84	Average	159	100	VERTICAL

Temperature	20℃	Humidity	55%
Test Engineer	Nick Peng	Configurations	IEEE 802.11g CH 12 / Chain 1 + Chain 2
Test Date	Apr. 26, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	4934.39	43.63	74.00	-30.37	41.19	4.23	32.76	34.55	Peak	55	100	HORIZONTAL
2	4934.71	34.90	54.00	-19.10	32.46	4.23	32.76	34.55	Average	55	100	HORIZONTAL
3	7400.87	48.15	74.00	-25.85	40.43	5.36	37.20	34.84	Peak	307	100	HORIZONTAL
4	7405.17	35.39	54.00	-18.61	27.67	5.36	37.20	34.84	Average	307	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	4929.06	43.99	74.00	-30.01	41.55	4.23	32.76	34.55	Peak	59	100	VERTICAL
2	4934.13	39.60	54.00	-14.40	37.16	4.23	32.76	34.55	Average	59	100	VERTICAL
3	7398.24	35.76	54.00	-18.24	28.06	5.36	37.18	34.84	Average	150	100	VERTICAL
4	7405.10	48.26	74.00	-25.74	40.54	5.36	37.20	34.84	Peak	150	100	VERTICAL

Temperature	20℃	Humidity	55%
Test Engineer	Nick Peng	Configurations	IEEE 802.11g CH 13 / Chain 1 + Chain 2
Test Date	Apr. 26, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	4939.58	42.94	74.00	-31.06	40.46	4.23	32.80	34.55	Peak	301	100	HORIZONTAL
2	4943.87	32.22	54.00	-21.78	29.73	4.23	32.80	34.54	Average	301	100	HORIZONTAL
3	7403.12	36.02	54.00	-17.98	28.30	5.36	37.20	34.84	Average	329	100	HORIZONTAL
4	7404.46	50.04	74.00	-23.96	42.32	5.36	37.20	34.84	Peak	329	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	4942.14	44.71	74.00	-29.29	42.22	4.23	32.80	34.54	Peak	228	100	VERTICAL
2	4943.17	35.48	54.00	-18.52	32.99	4.23	32.80	34.54	Average	228	100	VERTICAL
3	7417.35	36.40	54.00	-17.60	28.69	5.36	37.20	34.85	Average	160	100	VERTICAL
4	7435.30	48.17	74.00	-25.83	40.41	5.37	37.24	34.85	Peak	160	100	VERTICAL

Temperature	20°C	Humidity	55%
Test Engineer	Nick Peng	Configurations	IEEE 802.11a CH 149 / Chain 1 + Chain 2
Test Date	May 10, 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	11489.26	45.37	54.00	-8.63	35.92	5.11	39.39	35.05	Average	100	333	HORIZONTAL
2	11489.34	57.74	74.00	-16.26	48.29	5.11	39.39	35.05	Peak	100	333	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	11489.58	67.47	74.00	-6.53	58.02	5.11	39.39	35.05	Peak	126	81	VERTICAL
2	11489.98	53.61	54.00	-0.39	44.16	5.11	39.39	35.05	Average	126	81	VERTICAL

Temperature	20°C	Humidity	55%
Test Engineer	Nick Peng	Configurations	IEEE 802.11a CH 157 / Chain 1 + Chain 2
Test Date	May 10, 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	11569.17	57.12	74.00	-16.88	47.61	5.13	39.44	35.06	Peak	100	170	HORIZONTAL
2	11569.49	42.95	54.00	-11.05	33.44	5.13	39.44	35.06	Average	100	170	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	11569.84	53.87	54.00	-0.13	44.35	5.14	39.44	35.06	Average	121	81	VERTICAL
2	11570.42	68.67	74.00	-5.33	59.15	5.14	39.44	35.06	Peak	121	81	VERTICAL

Temperature	20°C	Humidity	55%
Test Engineer	Nick Peng	Configurations	IEEE 802.11a CH 165 / Chain 1 + Chain 2
Test Date	May 10, 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	11645.00	56.34	74.00	-17.66	46.77	5.16	39.48	35.07	Peak	100	168	HORIZONTAL
2	11649.26	43.76	54.00	-10.24	34.20	5.16	39.48	35.08	Average	100	168	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	11649.87	53.53	54.00	-0.47	43.97	5.16	39.48	35.08	Average	122	84	VERTICAL
2	11650.13	68.27	74.00	-5.73	58.71	5.16	39.48	35.08	Peak	122	84	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, Please refer to below table for Average
RBW / VBW (30dBc in any 100 kHz bandwidth emission)	100 kHz / 300 kHz for Peak

Band	Mode	On Time(ms)	On+Off Time(ms)	Duty Cycle(%)	1/T Minimum VBW (kHz)
2.4G	802.11b	-	-	100	0.01
	802.11g	2.070	2.090	99.04	0.01
	802.11n MCS0 HT20	1.920	1.940	98.97	0.01
	802.11n MCS0 HT40	0.950	0.975	97.44	1.05
5G	802.11a	2.060	2.090	98.56	0.01
	802.11n MCS0 HT20	1.910	1.940	98.45	0.01
	802.11n MCS0 HT40	0.930	0.950	97.89	1.08

4.6.3. Test Procedures

For Radiated band edges Measurement:

1. The test procedure is the same as section 4.5.3, only the frequency 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 v03r01 for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247 section 10.1 Unwanted Emissions into Non-Restricted Frequency Bands Measurement Procedure
2. The radiated emission test is performed on each TX port of operating mode without summing or adding 10log (N) since the limit is relative emission limit.
   Only worst data of each operating mode is presented.

4.6.4. Test Setup Layout

For Radiated band edges Measurement:

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

For Radiated Out of Band Emission Measurement:

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

4.6.5. Test Deviation

There is no deviation with the original standard.

4.6.6. EUT Operation during Test

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	55%
Test Engineer	Nick Peng	Configurations	IEEE 802.11n MCS0 HT20 CH 1, 6, 11 / Chain 1 + Chain 2
Test date	Apr. 26, 2014		

Channel 1

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	2387.76	68.43	74.00	-5.57	37.60	2.91	27.92	0.00	Peak	267	127	VERTICAL
2	2390.00	53.56	54.00	-0.44	22.73	2.91	27.92	0.00	Average	267	127	VERTICAL
3	2412.32	100.20			69.38	2.92	27.90	0.00	Average	267	127	VERTICAL
4	2412.64	110.29			79.47	2.92	27.90	0.00	Peak	267	127	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	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	2389.36	50.63	54.00	-3.37	19.80	2.91	27.92	0.00	Average	261	122	VERTICAL
2	2390.00	66.27	74.00	-7.73	35.44	2.91	27.92	0.00	Peak	261	122	VERTICAL
3	2437.64	104.59			73.79	2.94	27.86	0.00	Average	261	122	VERTICAL
4	2437.96	114.97			84.17	2.94	27.86	0.00	Peak	261	122	VERTICAL
5	2483.82	70.64	74.00	-3.36	39.86	2.96	27.82	0.00	Peak	261	122	VERTICAL
6	2484.14	52.76	54.00	-1.24	21.98	2.96	27.82	0.00	Average	261	122	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	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	2462.64	99.42			68.63	2.95	27.84	0.00	Average	267	128	VERTICAL
2	2467.77	109.57			78.78	2.95	27.84	0.00	Peak	267	128	VERTICAL
3	2483.50	67.16	74.00	-6.84	36.38	2.96	27.82	0.00	Peak	267	128	VERTICAL
4	2483.50	53.57	54.00	-0.43	22.79	2.96	27.82	0.00	Average	267	128	VERTICAL

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

Temperature	20°C	Humidity	55%
Test Engineer	Nick Peng	Configurations	IEEE 802.11n MCS0 HT20 CH 12, 13 / Chain 1 + Chain 2
Test date	Apr. 26, 2014		

Channel 12

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	2467.64	98.90			68.11	2.95	27.84	0.00	Average	266	130	VERTICAL
2	2467.96	109.37			78.58	2.95	27.84	0.00	Peak	266	130	VERTICAL
3	2483.50	53.66	54.00	-0.34	22.88	2.96	27.82	0.00	Average	266	130	VERTICAL
4	2485.10	72.18	74.00	-1.82	41.40	2.96	27.82	0.00	Peak	266	130	VERTICAL

Item 1, 2 are the fundamental frequency at 2467 MHz.

Channel 13

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	2472.32	94.82			64.04	2.96	27.82	0.00	Average	158	131	VERTICAL
2	2472.64	104.35			73.57	2.96	27.82	0.00	Peak	158	131	VERTICAL
3	2483.50	65.49	74.00	-8.51	34.71	2.96	27.82	0.00	Peak	158	131	VERTICAL
4	2483.50	53.50	54.00	-0.50	22.72	2.96	27.82	0.00	Average	158	131	VERTICAL

Item 1, 2 are the fundamental frequency at 2472 MHz.

Temperature	20℃	Humidity	55%
Test Engineer	Nick Peng	Configurations	IEEE 802.11n MCS0 HT40 CH 3, 6, 9 / Chain 1 + Chain 2
Test date	May 10, 2014		

Channel 3

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	Cm	
1	2385.51	68.56	74.00	-5.44	37.73	2.91	27.92	0.00	Peak	259	106	VERTICAL
2	2385.51	53.43	54.00	-0.57	22.60	2.91	27.92	0.00	Average	259	106	VERTICAL
3	2425.21	105.45			74.64	2.93	27.88	0.00	Peak	259	106	VERTICAL
4	2425.21	94.14			63.33	2.93	27.88	0.00	Average	259	106	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	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	Cm	
1	2388.72	64.72	74.00	-9.28	33.89	2.91	27.92	0.00	Peak	264	130	VERTICAL
2	2390.00	52.43	54.00	-1.57	21.60	2.91	27.92	0.00	Average	264	130	VERTICAL
3	2435.08	107.01			76.20	2.93	27.88	0.00	Peak	264	130	VERTICAL
4	2435.08	95.42			64.61	2.93	27.88	0.00	Average	264	130	VERTICAL
5	2483.50	53.72	54.00	-0.28	22.94	2.96	27.82	0.00	Average	264	130	VERTICAL
6	2484.14	67.59	74.00	-6.41	36.81	2.96	27.82	0.00	Peak	264	130	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	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	Cm	
1	2450.40	105.25			74.45	2.94	27.86	0.00	Peak	259	130	VERTICAL
2	2450.40	94.33			63.53	2.94	27.86	0.00	Average	259	130	VERTICAL
3	2488.63	69.53	74.00	-4.47	38.76	2.97	27.80	0.00	Peak	259	130	VERTICAL
4	2495.68	53.63	54.00	-0.37	22.86	2.97	27.80	0.00	Average	259	130	VERTICAL

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

Temperature	20℃	Humidity	55%
Test Engineer	Nick Peng	Configurations	IEEE 802.11n MCS0 HT40 CH 10, 11 / Chain 1 + Chain 2
Test date	May 10, 2014		

Channel 10

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	2467.90	93.48			62.69	2.95	27.84	0.00	Average	261	125	VERTICAL
2	2468.22	104.31			73.52	2.95	27.84	0.00	Peak	261	125	VERTICAL
3	2483.50	67.10	74.00	-6.90	36.32	2.96	27.82	0.00	Peak	261	125	VERTICAL
4	2497.92	53.37	54.00	-0.63	22.60	2.97	27.80	0.00	Average	261	125	VERTICAL

Item 1, 2 are the fundamental frequency at 2457 MHz.

Channel 11

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	2465.21	97.47			66.68	2.95	27.84	0.00	Peak	260	125	VERTICAL
2	2465.21	86.89			56.10	2.95	27.84	0.00	Average	260	125	VERTICAL
3	2484.14	64.88	74.00	-9.12	34.10	2.96	27.82	0.00	Peak	260	125	VERTICAL
4	2485.10	53.72	54.00	-0.28	22.94	2.96	27.82	0.00	Average	260	125	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.

Temperature	20℃	Humidity	55%
Test Engineer	Nick Peng	Configurations	IEEE 802.11b CH 1, 6, 11 / Chain 1
Test Date	Apr. 26, 2014		

Channel 1

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	2389.68	53.27	54.00	-0.73	22.44	2.91	27.92	0.00	Average	256	106	VERTICAL
2	2390.00	61.42	74.00	-12.58	30.59	2.91	27.92	0.00	Peak	256	106	VERTICAL
3	2411.04	110.52			79.70	2.92	27.90	0.00	Peak	256	106	VERTICAL
4	2411.20	106.79			75.97	2.92	27.90	0.00	Average	256	106	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	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	2357.95	45.37	54.00	-8.63	14.51	2.89	27.97	0.00	Average	258	105	VERTICAL
2	2358.27	55.71	74.00	-18.29	24.85	2.89	27.97	0.00	Peak	258	105	VERTICAL
3	2436.36	108.10			77.29	2.93	27.88	0.00	Average	258	105	VERTICAL
4	2437.96	111.87			81.07	2.94	27.86	0.00	Peak	258	105	VERTICAL
5	2490.87	56.90	74.00	-17.10	26.13	2.97	27.80	0.00	Peak	258	105	VERTICAL
6	2491.03	43.20	54.00	-10.80	12.43	2.97	27.80	0.00	Average	258	105	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	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	2462.64	106.32			75.53	2.95	27.84	0.00	Average	261	127	VERTICAL
2	2462.96	110.27			79.48	2.95	27.84	0.00	Peak	261	127	VERTICAL
3	2483.50	61.71	74.00	-12.29	30.93	2.96	27.82	0.00	Peak	261	127	VERTICAL
4	2483.82	53.76	54.00	-0.24	22.98	2.96	27.82	0.00	Average	261	127	VERTICAL

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

Temperature	20°C	Humidity	55%
Test Engineer	Nick Peng	Configurations	IEEE 802.11b CH 12, 13 / Chain 1
Test date	Apr. 26, 2014		

Channel 12

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	2466.20	105.38			74.59	2.95	27.84	0.00	Average	279	124	VERTICAL
2	2467.96	109.20			78.41	2.95	27.84	0.00	Peak	279	124	VERTICAL
3	2484.46	62.18	74.00	-11.82	31.40	2.96	27.82	0.00	Peak	279	124	VERTICAL
4	2488.31	51.35	54.00	-2.65	20.58	2.97	27.80	0.00	Average	279	124	VERTICAL

Item 1, 2 are the fundamental frequency at 2467 MHz.

Channel 13

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	2471.20	100.41			69.63	2.96	27.82	0.00	Average	258	103	VERTICAL
2	2473.12	104.11			73.33	2.96	27.82	0.00	Peak	258	103	VERTICAL
3	2484.14	64.33	74.00	-9.67	33.55	2.96	27.82	0.00	Peak	258	103	VERTICAL
4	2485.42	52.83	54.00	-1.17	22.05	2.96	27.82	0.00	Average	258	103	VERTICAL

Item 1, 2 are the fundamental frequency at 2472 MHz.

Temperature	20℃	Humidity	55%
Test Engineer	Nick Peng	Configurations	IEEE 802.11g CH 1, 6, 11 / Chain 1 + Chain 2
Test Date	Apr. 26, 2014		

Channel 1

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	2387.44	53.32	54.00	-0.68	22.49	2.91	27.92	0.00	Average	137	122	HORIZONTAL
2	2388.88	66.63	74.00	-7.37	35.80	2.91	27.92	0.00	Peak	137	122	HORIZONTAL
3	2411.24	110.71			79.89	2.92	27.90	0.00	Peak	137	122	HORIZONTAL
4	2411.56	100.86			70.04	2.92	27.90	0.00	Average	137	122	HORIZONTAL

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	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	2387.76	65.09	74.00	-8.91	34.26	2.91	27.92	0.00	Peak	160	121	HORIZONTAL
2	2390.00	48.94	54.00	-5.06	18.11	2.91	27.92	0.00	Average	160	121	HORIZONTAL
3	2437.64	106.17			75.37	2.94	27.86	0.00	Average	160	121	HORIZONTAL
4	2438.28	116.33			85.53	2.94	27.86	0.00	Peak	160	121	HORIZONTAL
5	2484.78	50.76	54.00	-3.24	19.98	2.96	27.82	0.00	Average	160	121	HORIZONTAL
6	2487.67	68.11	74.00	-5.89	37.34	2.97	27.80	0.00	Peak	160	121	HORIZONTAL

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	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	2462.96	110.20			79.41	2.95	27.84	0.00	Peak	169	106	VERTICAL
2	2462.96	100.31			69.52	2.95	27.84	0.00	Average	169	106	VERTICAL
3	2483.50	65.25	74.00	-8.75	34.47	2.96	27.82	0.00	Peak	169	106	VERTICAL
4	2483.50	53.34	54.00	-0.66	22.56	2.96	27.82	0.00	Average	169	106	VERTICAL

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

Temperature	20°C	Humidity	55%
Test Engineer	Nick Peng	Configurations	IEEE 802.11g CH 12, 13 / Chain 1 + Chain 2
Test date	Apr. 26, 2014		

Channel 12

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	2467.96	99.36			68.57	2.95	27.84	0.00	Average	158	128	VERTICAL
2	2468.28	110.16			79.37	2.95	27.84	0.00	Peak	158	128	VERTICAL
3	2483.50	53.41	54.00	-0.59	22.63	2.96	27.82	0.00	Average	158	128	VERTICAL
4	2484.78	67.95	74.00	-6.05	37.17	2.96	27.82	0.00	Peak	158	128	VERTICAL

Item 1, 2 are the fundamental frequency at 2467 MHz.

Channel 13

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	2472.96	97.64			66.86	2.96	27.82	0.00	Average	160	130	VERTICAL
2	2473.28	108.53			77.75	2.96	27.82	0.00	Peak	160	130	VERTICAL
3	2483.50	65.56	74.00	-8.44	34.78	2.96	27.82	0.00	Peak	160	130	VERTICAL
4	2483.82	53.81	54.00	-0.19	23.03	2.96	27.82	0.00	Average	160	130	VERTICAL

Item 1, 2 are the fundamental frequency at 2472 MHz.

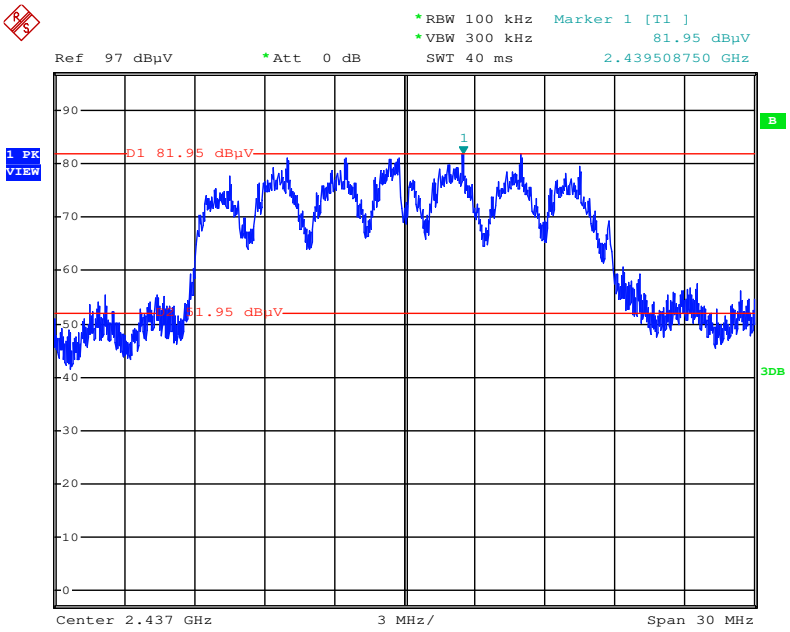
Note:

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

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

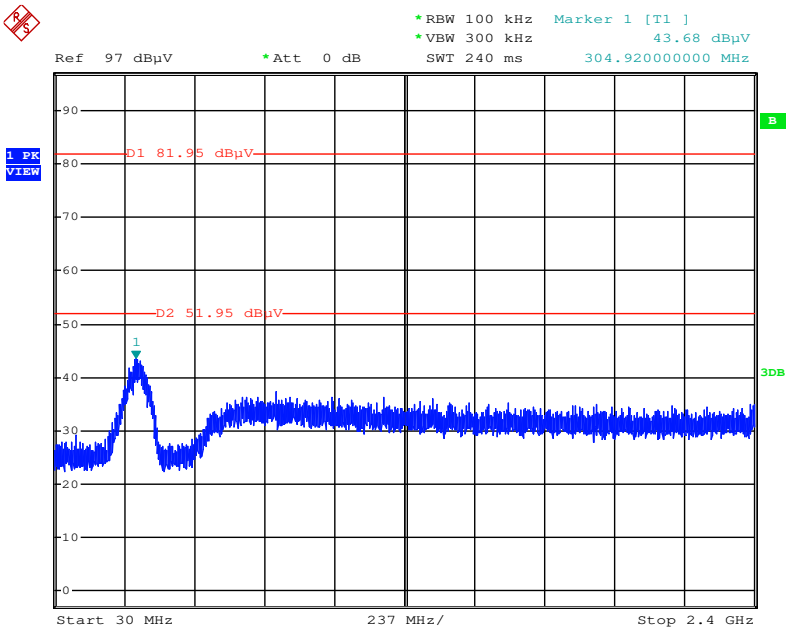
For Emission not in Restricted Band

Plot on Configuration IEEE 802.11n MCS0 HT20 / Reference Level (Horizontal)



Date: 28.APR.2014 17:51:08

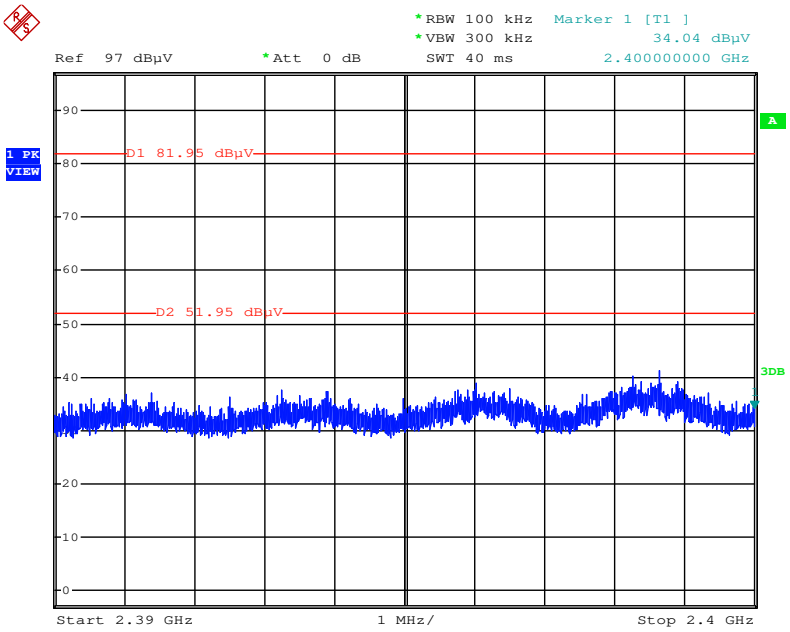
Plot on Configuration IEEE 802.11n MCS0 HT20 / CH 1 / 30MHz~2400MHz (down 30dBc) (Horizontal)



Date: 28.APR.2014 17:51:33

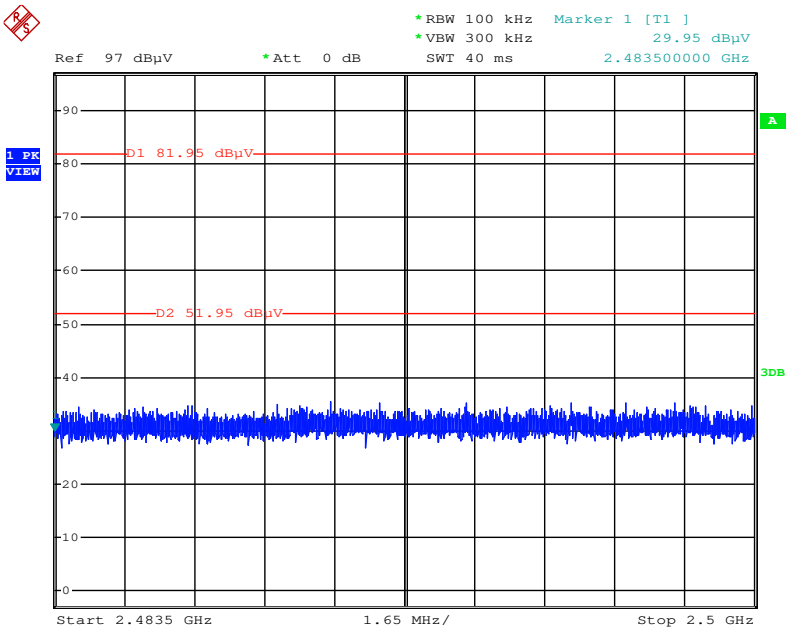
Note: Only the worse polarization (Horizontal) is tested and recorded in test report.

Plot on Configuration IEEE 802.11n MCS0 HT20 / CH 1 / 2390MHz~2400MHz (down 30dBc) (Horizontal)



Date: 20.JUN.2014 16:31:06

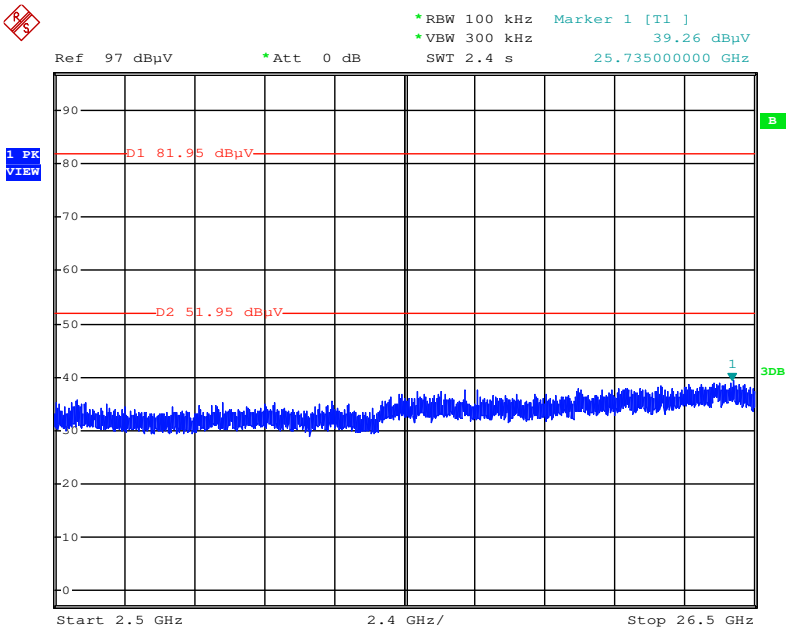
Plot on Configuration IEEE 802.11n MCS0 HT20 / CH 1 / 2483.5MHz~2500MHz (down 30dBc) (Horizontal)



Date: 20.JUN.2014 16:31:40

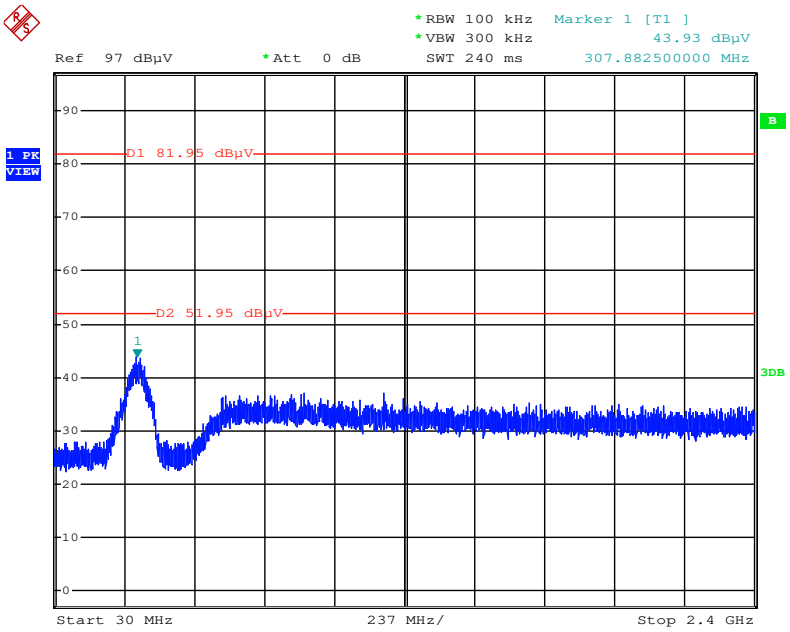
Note: Only the worse polarization (Horizontal) is tested and recorded in test report.

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



Date: 28.APR.2014 17:52:02

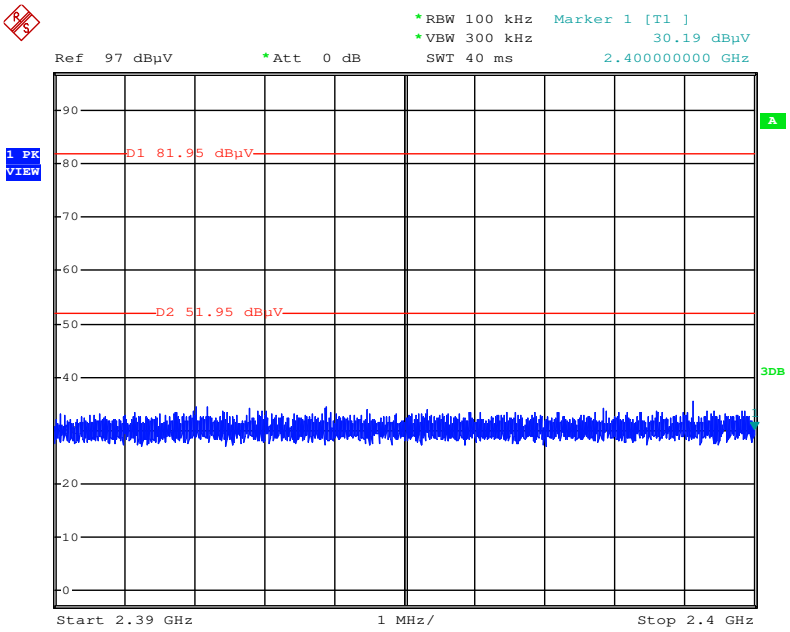
Plot on Configuration IEEE 802.11n MCS0 HT20 / CH 11 / 30MHz~2400MHz (down 30dBc) (Horizontal)



Date: 28.APR.2014 17:52:37

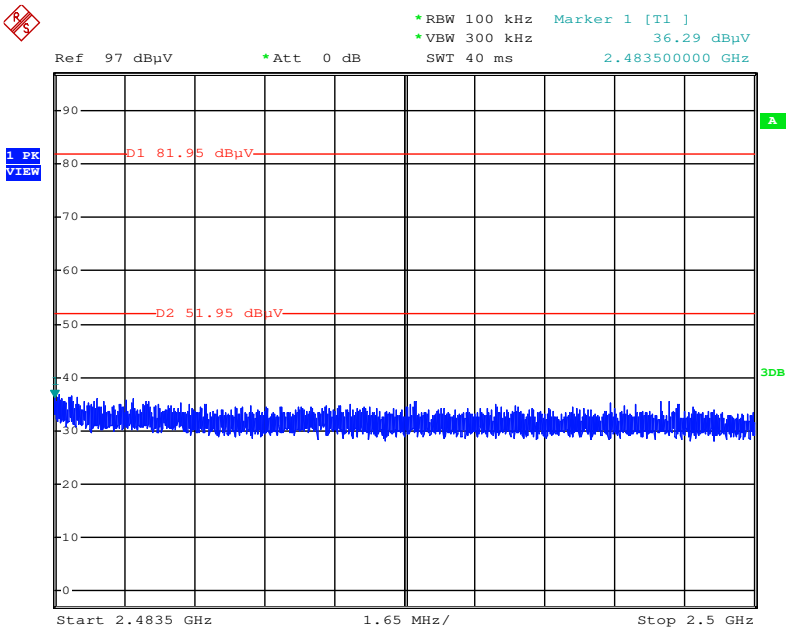
Note: Only the worse polarization (Horizontal) is tested and recorded in test report.

Plot on Configuration IEEE 802.11n MCS0 HT20 / CH 11 / 2390MHz~2400MHz (down 30dBc) (Horizontal)



Date: 20.JUN.2014 16:32:31

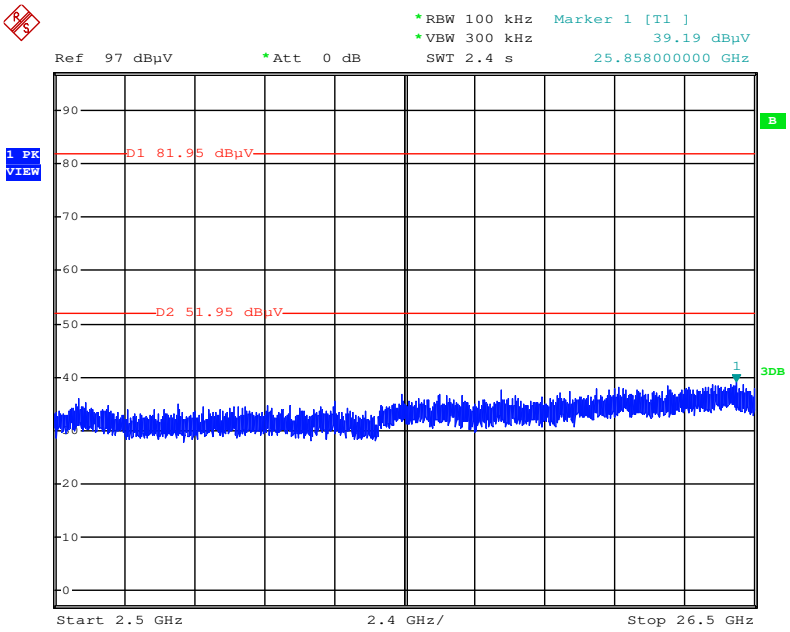
Plot on Configuration IEEE 802.11n MCS0 HT20 / CH 11 / 2483.5MHz~2500MHz (down 30dBc) (Horizontal)



Date: 20.JUN.2014 16:32:04

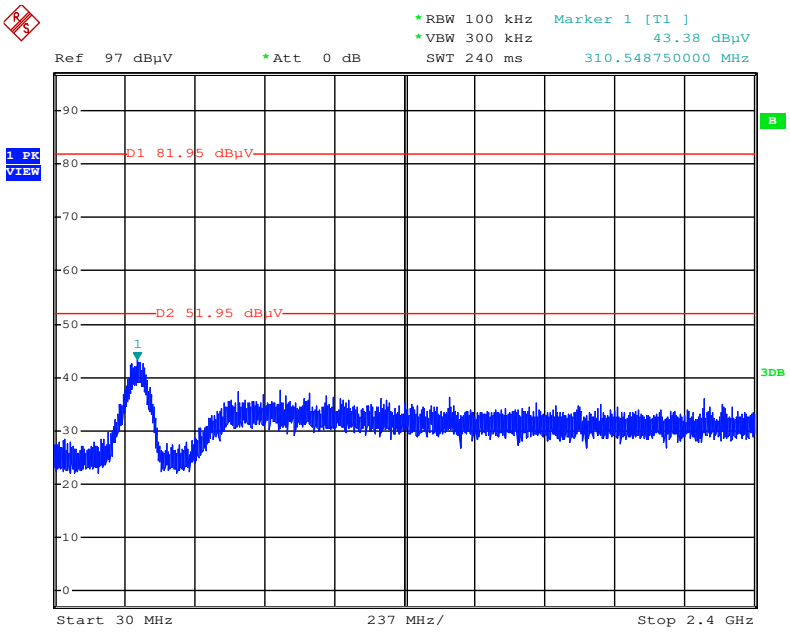
Note: Only the worse polarization (Horizontal) is tested and recorded in test report.

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



Date: 28.APR.2014 17:52:23

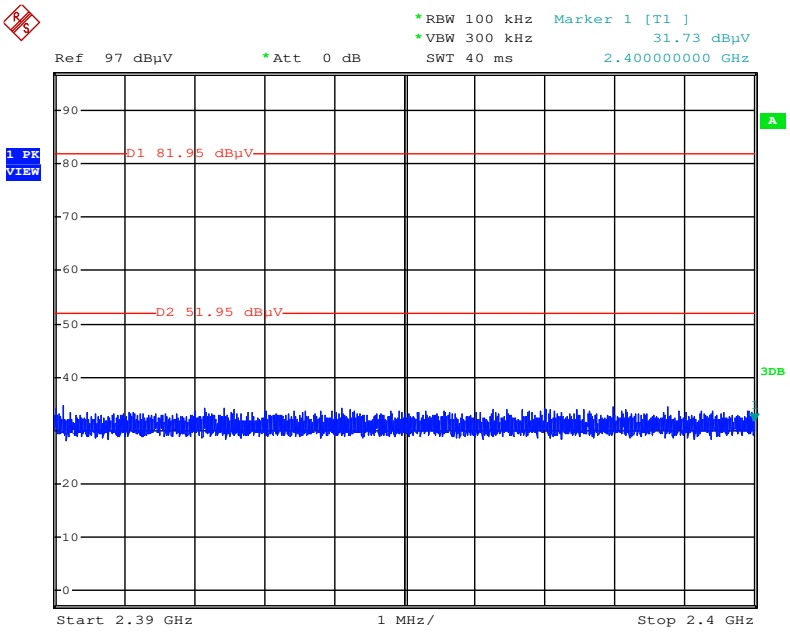
Plot on Configuration IEEE 802.11n MCS0 HT20 / CH 12 / 30MHz~2400MHz (down 30dBc) (Horizontal)



Date: 28.APR.2014 17:52:56

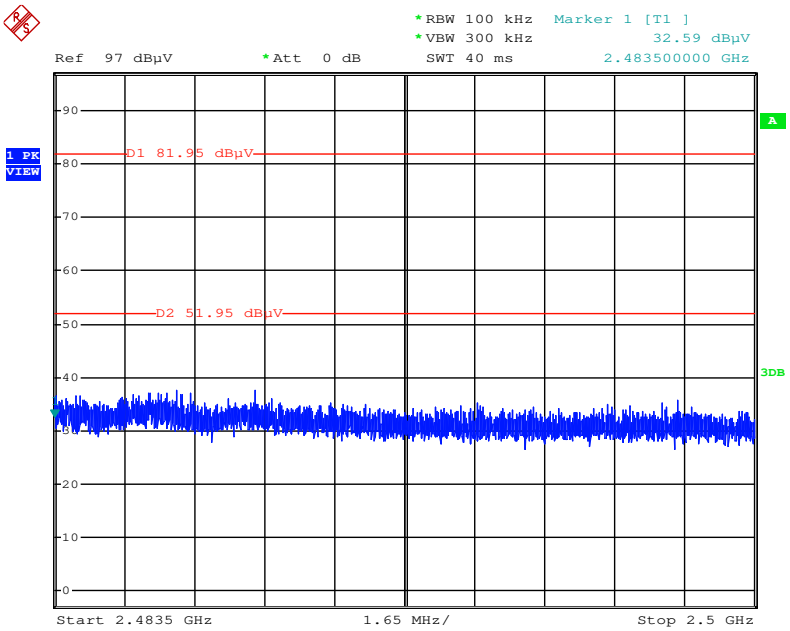
Note: Only the worse polarization (Horizontal) is tested and recorded in test report.

Plot on Configuration IEEE 802.11n MCS0 HT20 / CH 12 / 2390MHz~2400MHz (down 30dBc) (Horizontal)



Date: 20.JUN.2014 16:39:28

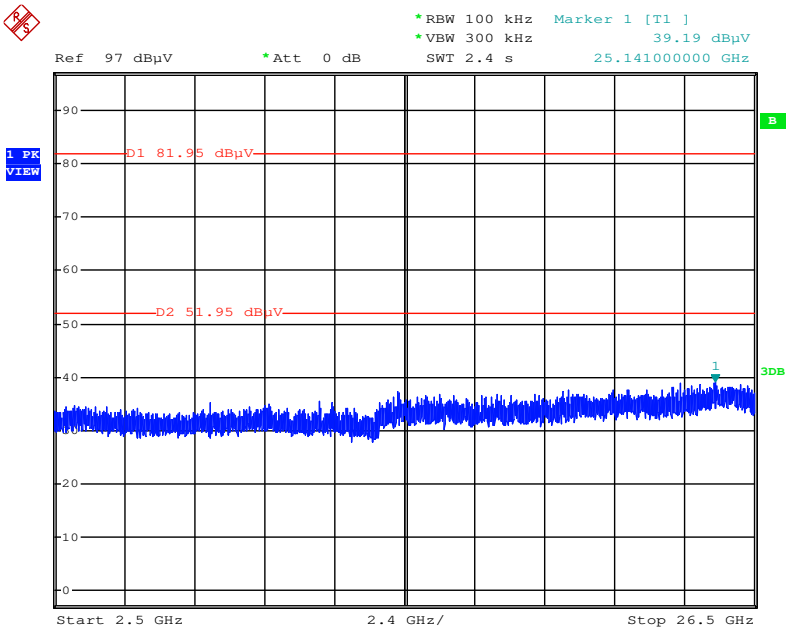
Plot on Configuration IEEE 802.11n MCS0 HT20 / CH 12 / 2483.5MHz~2500MHz (down 30dBc) (Horizontal)



Date: 20.JUN.2014 16:39:54

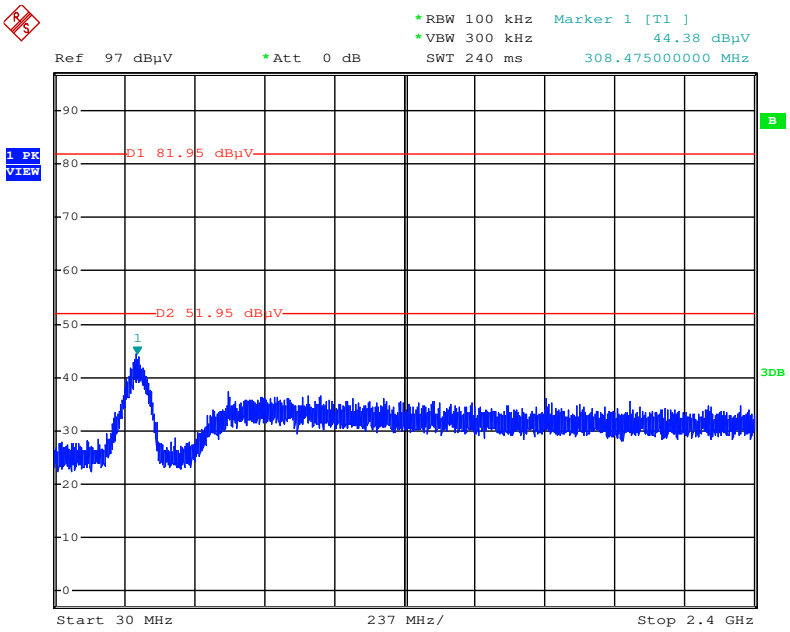
Note: Only the worse polarization (Horizontal) is tested and recorded in test report.

Plot on Configuration IEEE 802.11n MCS0 HT20 / CH 12 / 2500MHz~26500MHz (down 30dBc) (Horizontal)



Date: 28.APR.2014 17:53:14

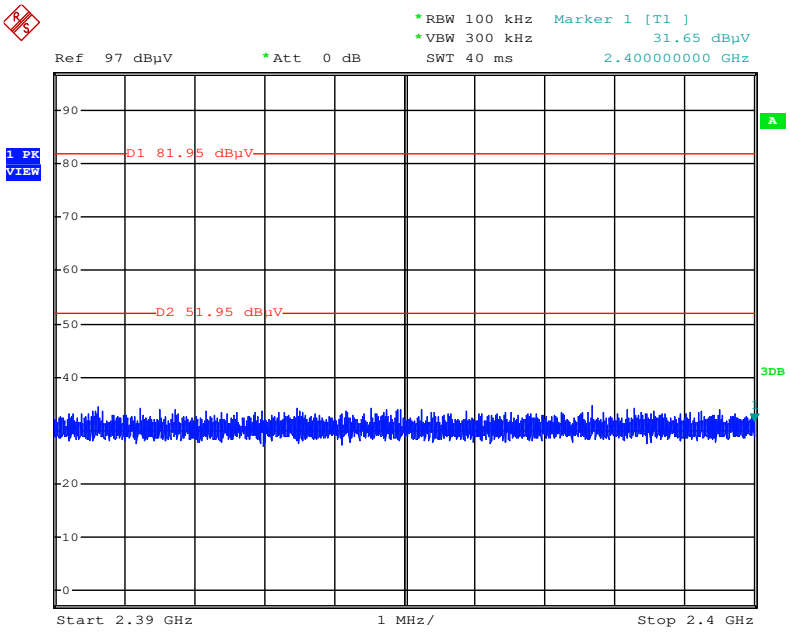
Plot on Configuration IEEE 802.11n MCS0 HT20 / CH 13 / 30MHz~2400MHz (down 30dBc) (Horizontal)



Date: 28.APR.2014 17:54:05

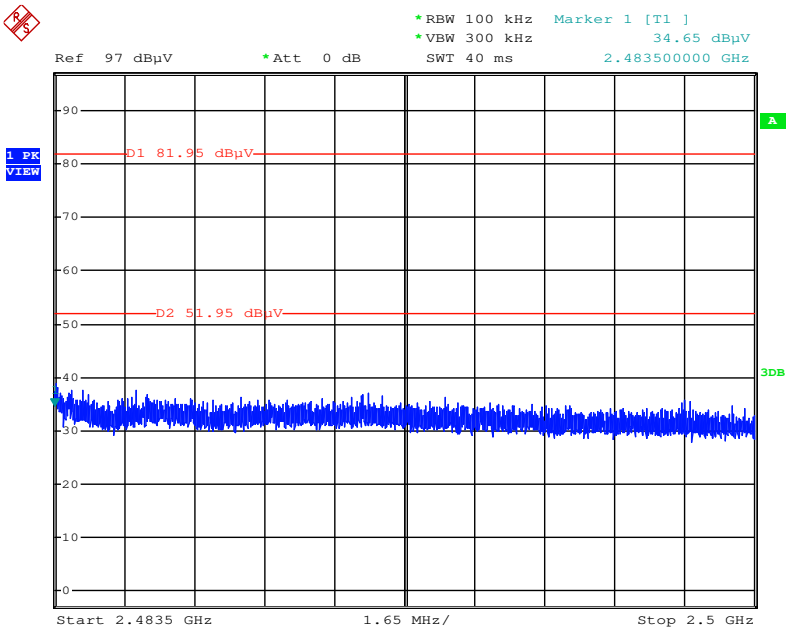
Note: Only the worse polarization (Horizontal) is tested and recorded in test report.

Plot on Configuration IEEE 802.11n MCS0 HT20 / CH 13 / 2390MHz~2400MHz (down 30dBc) (Horizontal)



Date: 20.JUN.2014 16:41:29

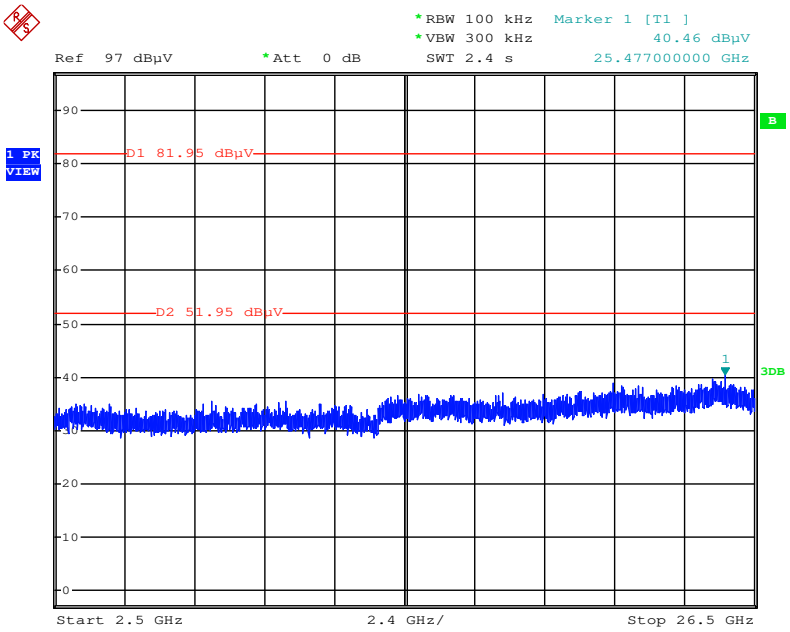
Plot on Configuration IEEE 802.11n MCS0 HT20 / CH 13 / 2483.5MHz~2500MHz (down 30dBc) (Horizontal)



Date: 20.JUN.2014 16:41:03

Note: Only the worse polarization (Horizontal) is tested and recorded in test report.

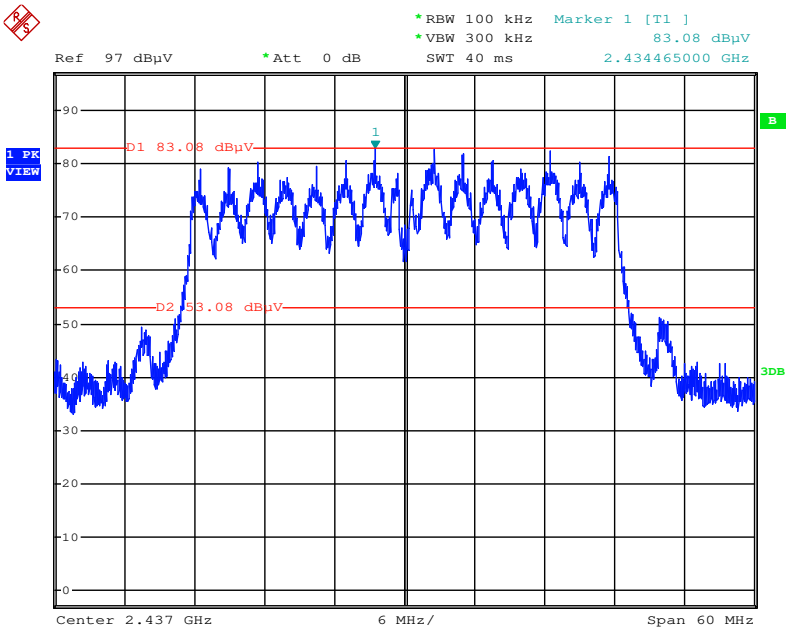
Plot on Configuration IEEE 802.11n MCS0 HT20 / CH 13 / 2500MHz~26500MHz (down 30dBc) (Horizontal)



Date: 28.APR.2014 17:53:44

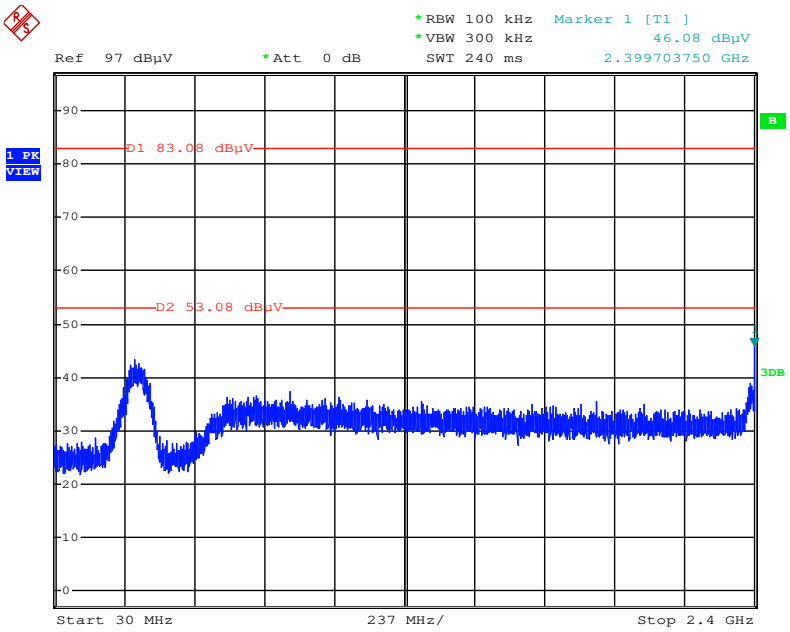
Note: Only the worse polarization (Horizontal) is tested and recorded in test report.

Plot on Configuration IEEE 802.11n MCS0 HT40 / Reference Level (Horizontal)



Date: 28.APR.2014 17:56:10

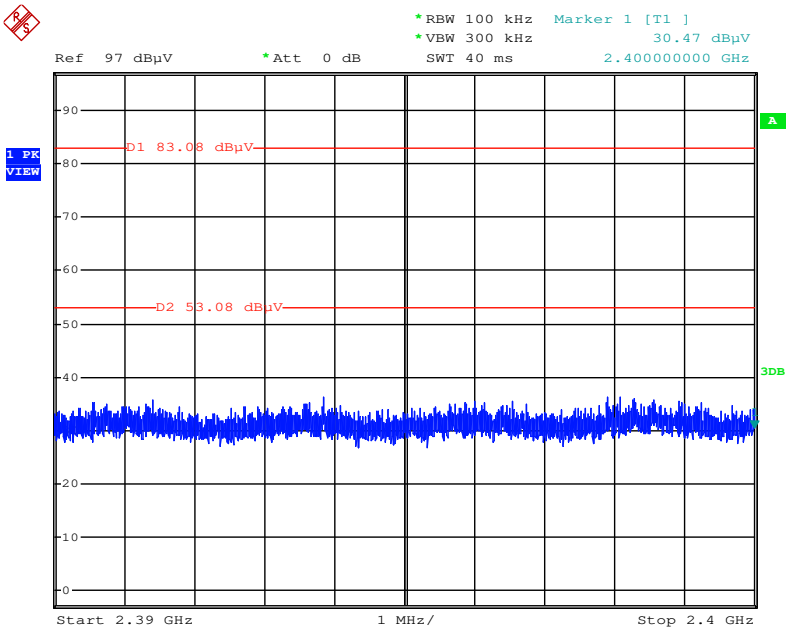
Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 3 / 30MHz~2400MHz (down 30dBc) (Horizontal)



Date: 28.APR.2014 17:56:40

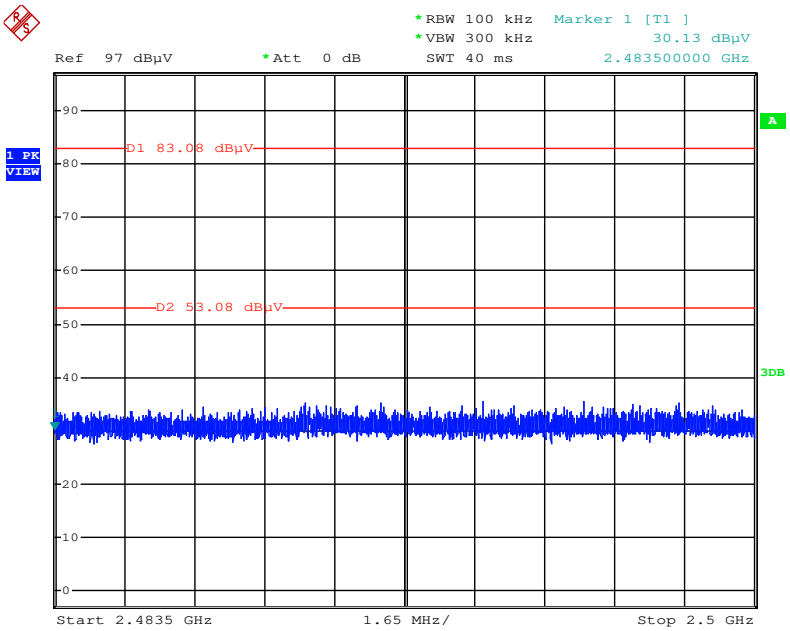
Note: Only the worse polarization (Horizontal) is tested and recorded in test report.

Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 3 / 2390MHz~2400MHz (down 30dBc) (Horizontal)



Date: 20.JUN.2014 16:43:46

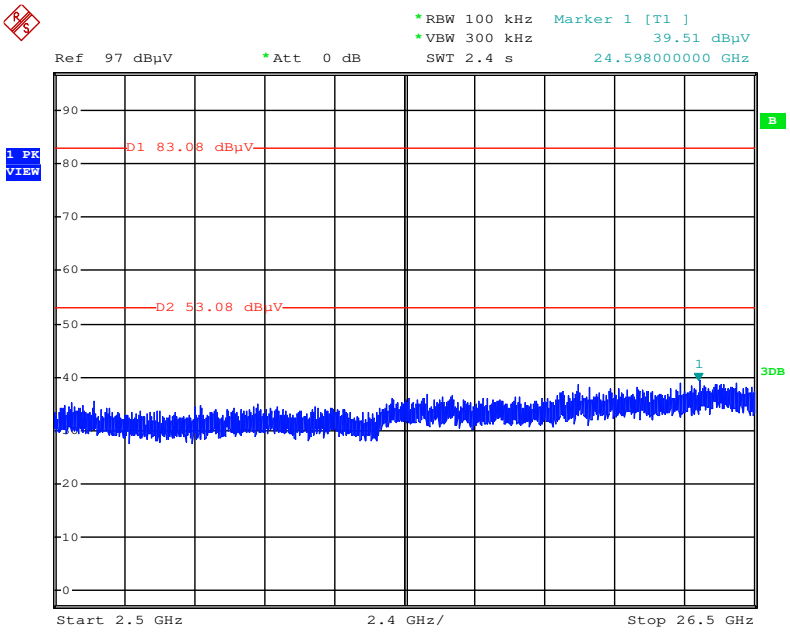
Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 3 / 2483.5MHz~2500MHz (down 30dBc) (Horizontal)



Date: 20.JUN.2014 16:45:12

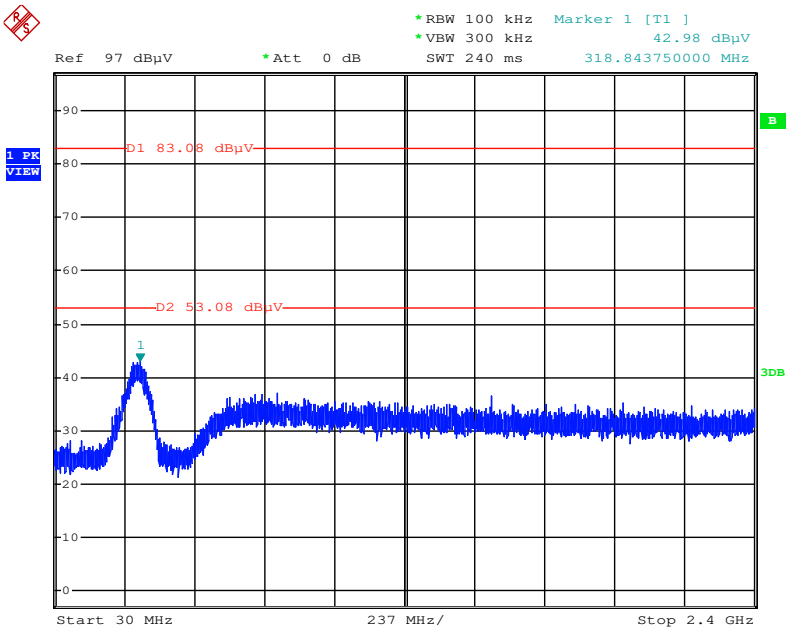
Note: Only the worse polarization (Horizontal) is tested and recorded in test report.

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



Date: 28.APR.2014 17:56:55

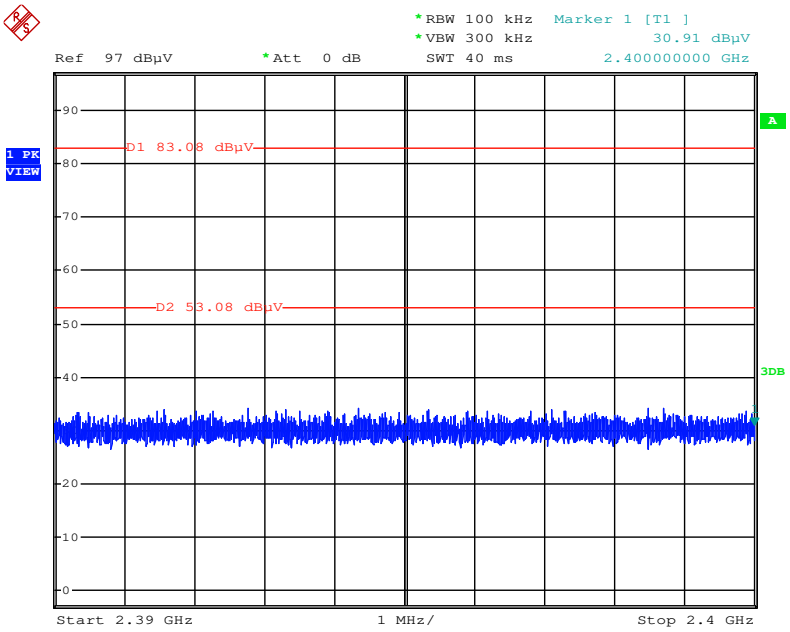
Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 9 / 30MHz~2400MHz (down 30dBc) (Horizontal)



Date: 28.APR.2014 17:57:42

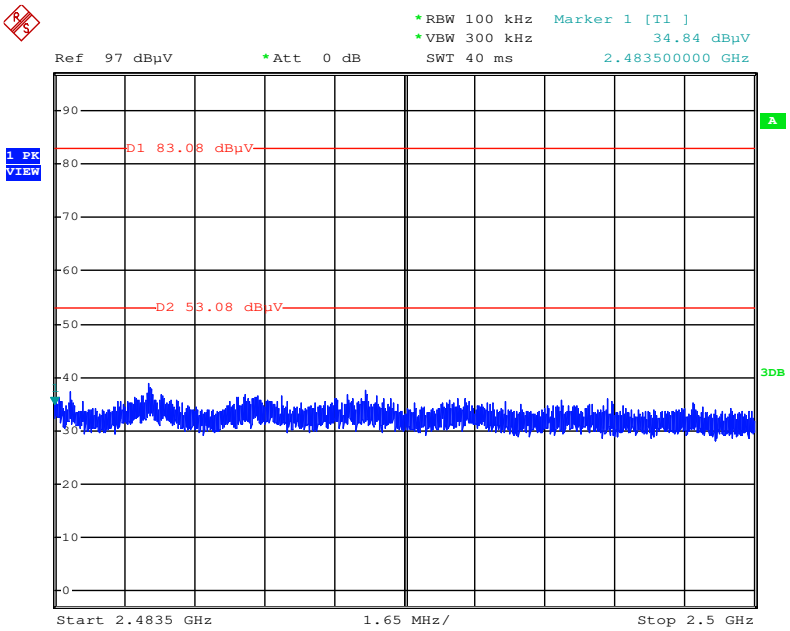
Note: Only the worse polarization (Horizontal) is tested and recorded in test report.

Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 9 / 2390MHz~2400MHz (down 30dBc) (Horizontal)



Date: 20.JUN.2014 16:46:54

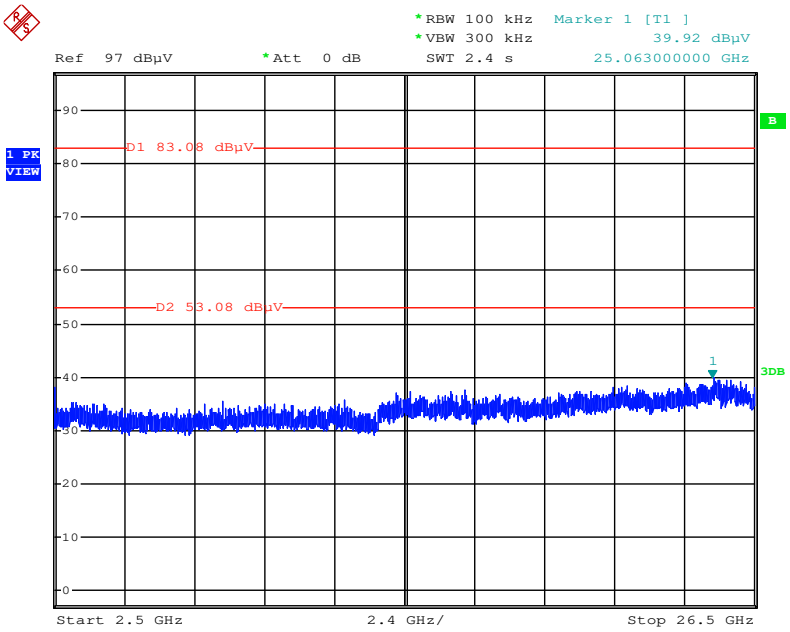
Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 9 / 2483.5MHz~2500MHz (down 30dBc) (Horizontal)



Date: 20.JUN.2014 16:46:23

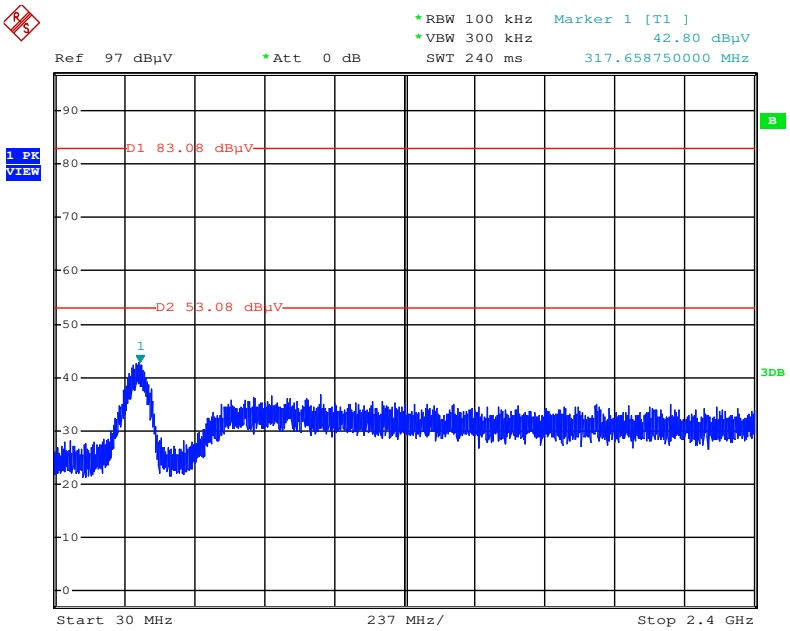
Note: Only the worse polarization (Horizontal) is tested and recorded in test report.

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



Date: 28.APR.2014 17:57:30

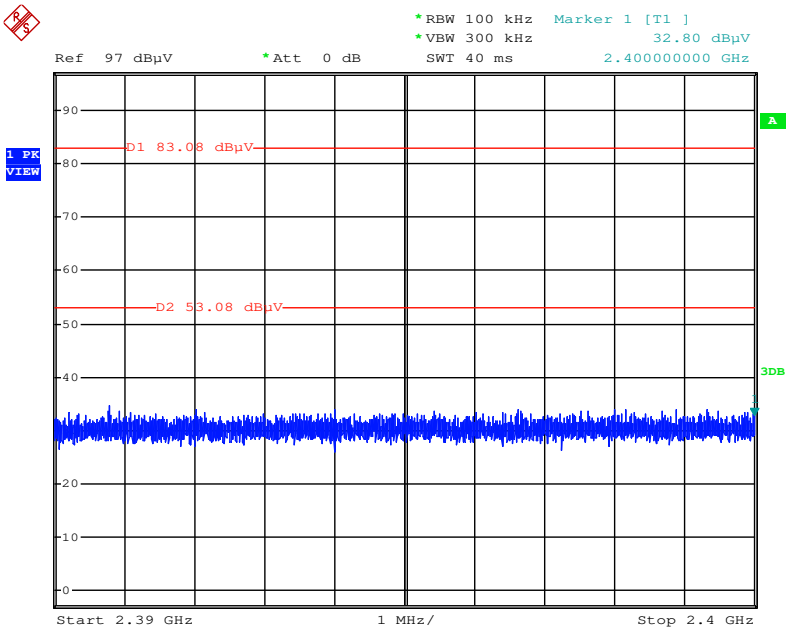
Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 10 / 30MHz~2400MHz (down 30dBc) (Horizontal)



Date: 28.APR.2014 17:58:02

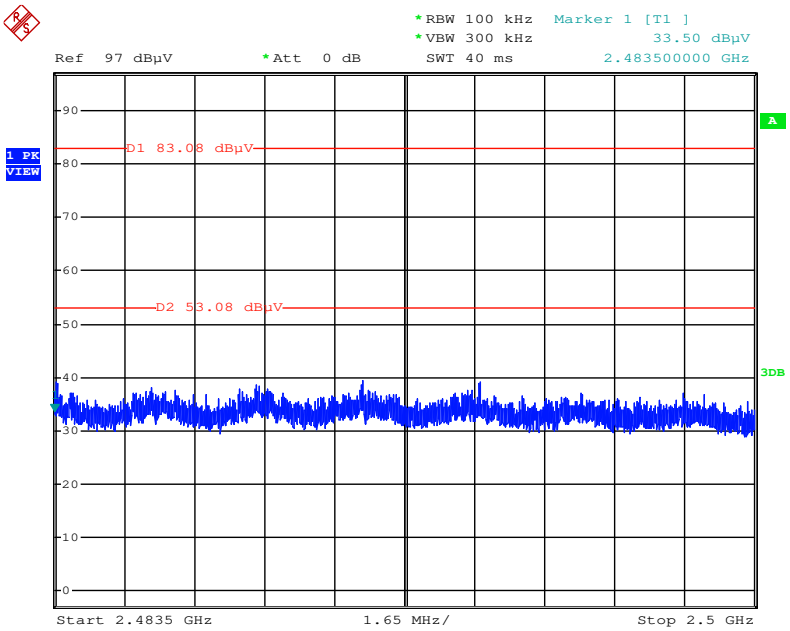
Note: Only the worse polarization (Horizontal) is tested and recorded in test report.

Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 10 / 2390MHz~2400MHz (down 30dBc) (Horizontal)



Date: 20.JUN.2014 16:47:29

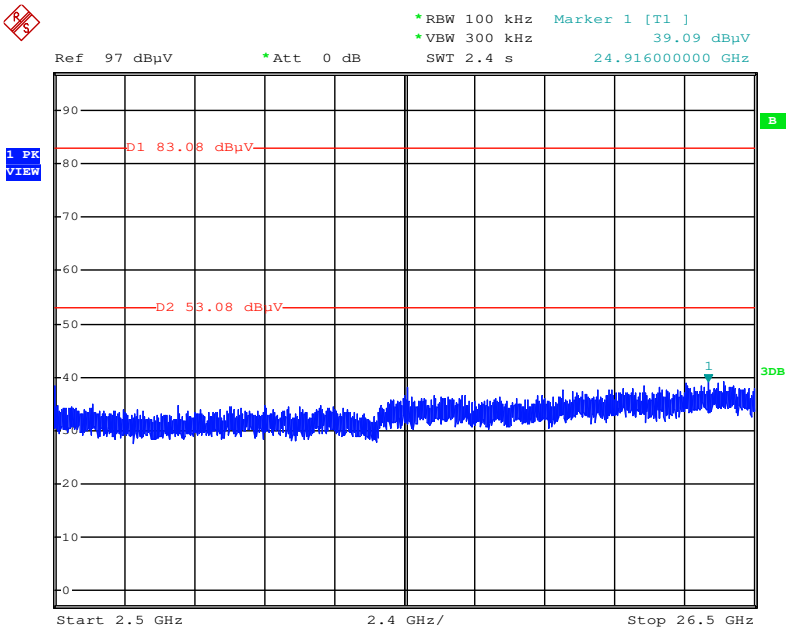
Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 10 / 2483.5MHz~2500MHz (down 30dBc) (Horizontal)



Date: 20.JUN.2014 16:47:57

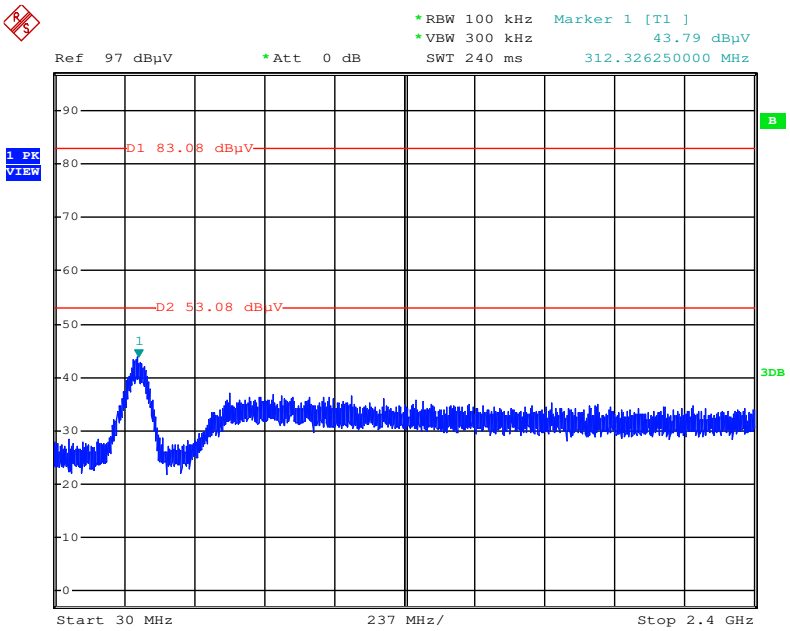
Note: Only the worse polarization (Horizontal) is tested and recorded in test report.

Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 10 / 2500MHz~26500MHz (down 30dBc) (Horizontal)



Date: 28.APR.2014 17:58:18

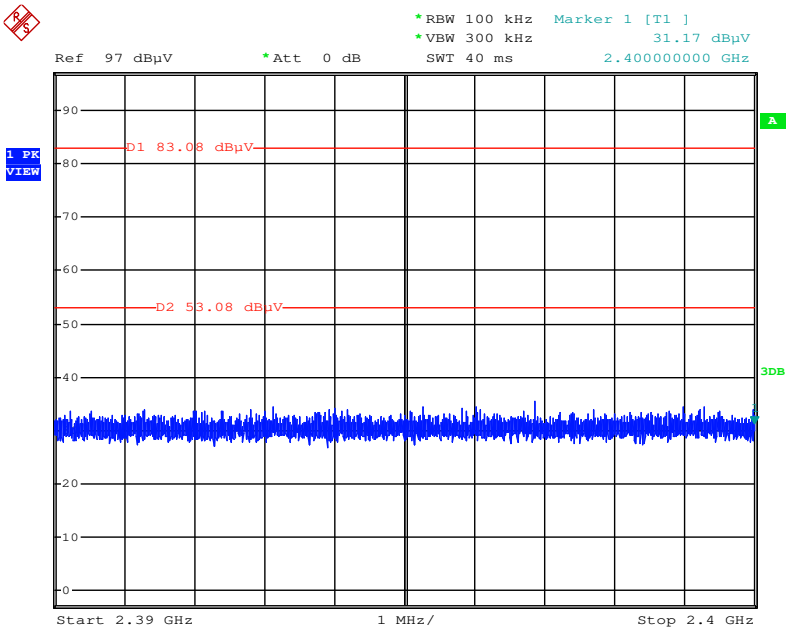
Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 11 / 30MHz~2400MHz (down 30dBc) (Horizontal)



Date: 28.APR.2014 17:59:01

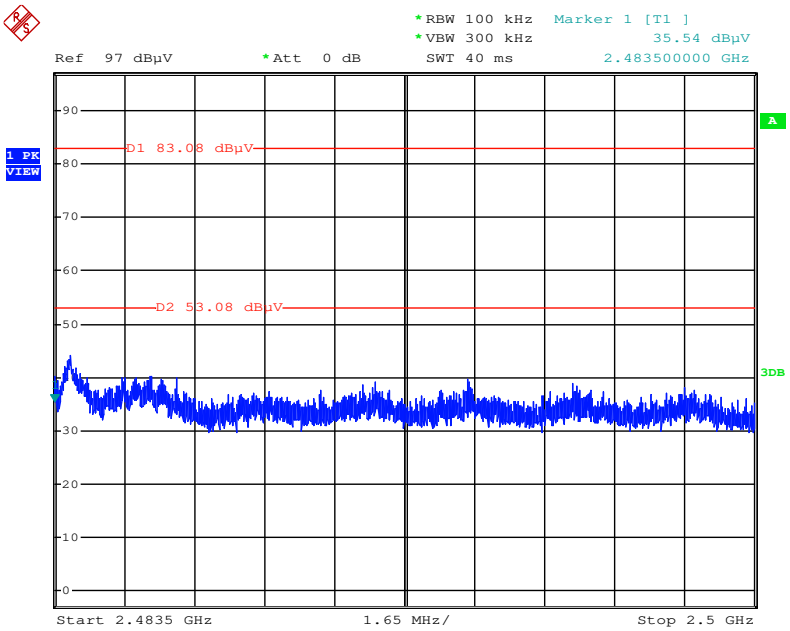
Note: Only the worse polarization (Horizontal) is tested and recorded in test report.

Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 11 / 2390MHz~2400MHz (down 30dBc) (Horizontal)



Date: 20.JUN.2014 16:49:07

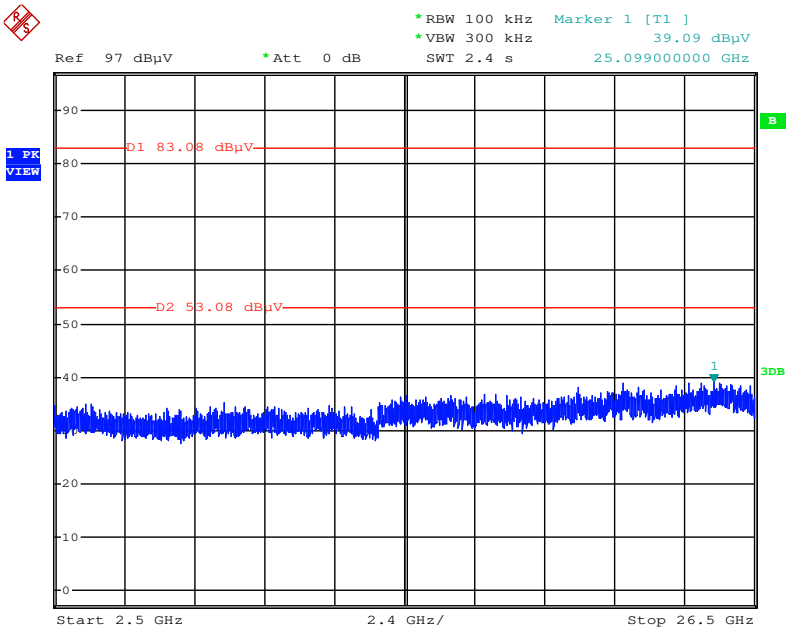
Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 11 / 2483.5MHz~2500MHz (down 30dBc) (Horizontal)



Date: 20.JUN.2014 16:48:33

Note: Only the worse polarization (Horizontal) is tested and recorded in test report.

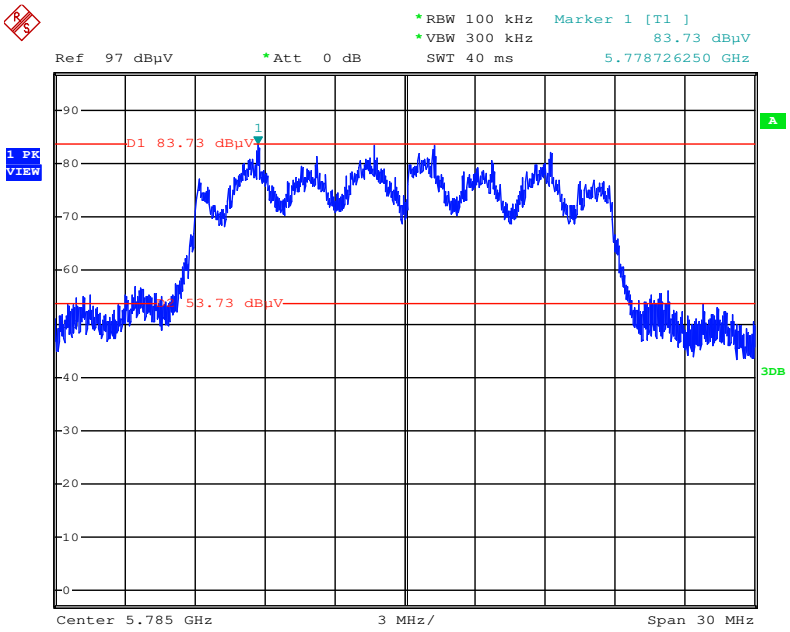
Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 11 / 2500MHz~26500MHz (down 30dBc) (Horizontal)



Date: 28.APR.2014 17:58:45

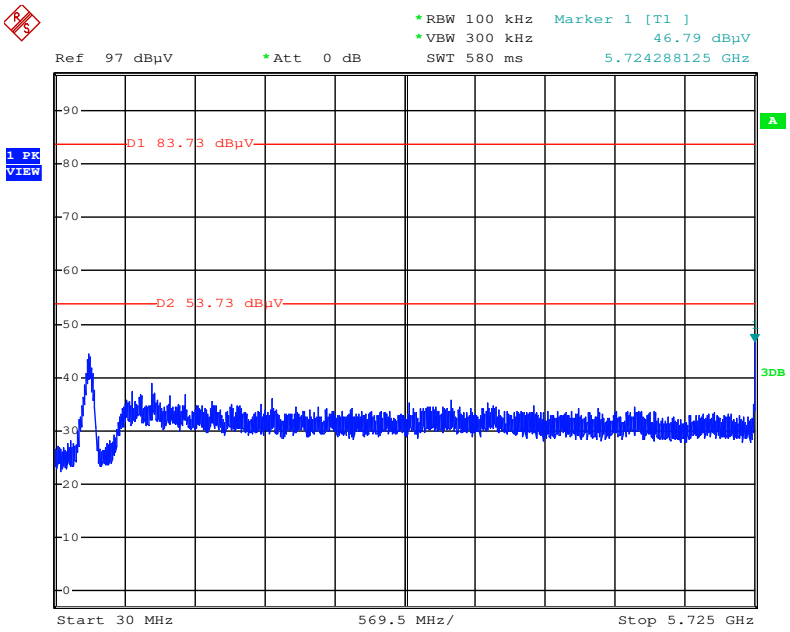
Note: Only the worse polarization (Horizontal) is tested and recorded in test report.

Plot on Configuration IEEE 802.11n MCS0 HT20 / Reference Level (Horizontal)



Date: 10.MAY.2014 16:18:32

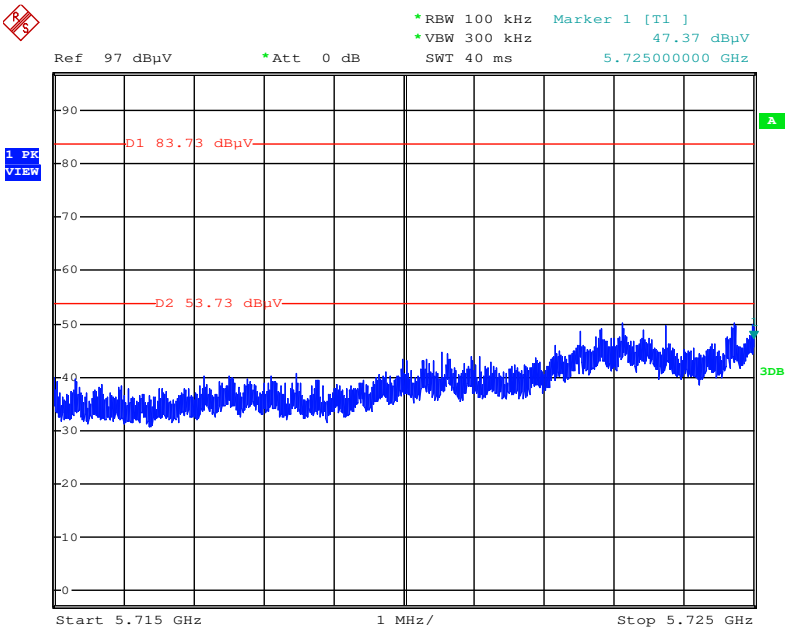
Plot on Configuration IEEE 802.11n MCS0 HT20 / CH 149 / 30MHz~5725MHz (down 30dBc) (Horizontal)



Date: 10.MAY.2014 16:19:14

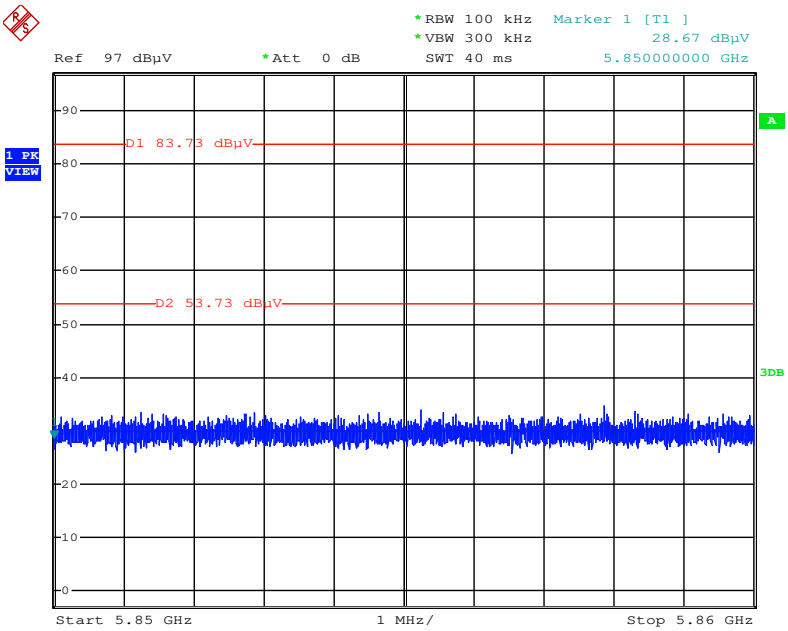
Note: Only the worse polarization (Horizontal) is tested and recorded in test report.

Plot on Configuration IEEE 802.11n MCS0 HT20 / CH 149 / 5715MHz~5725MHz (down 30dBc) (Horizontal)



Date: 20.JUN.2014 16:59:52

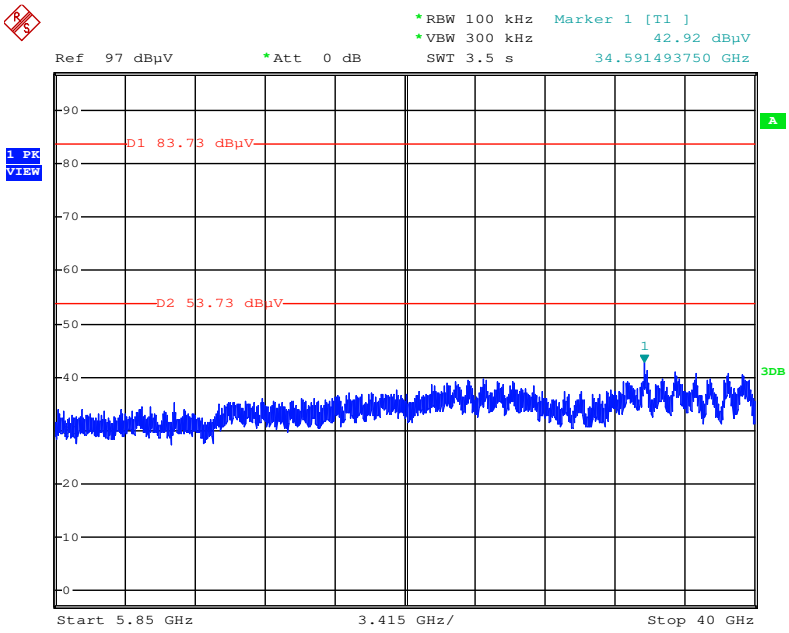
Plot on Configuration IEEE 802.11n MCS0 HT20 / CH 149 / 5850MHz~5860MHz (down 30dBc) (Horizontal)



Date: 20.JUN.2014 17:00:18

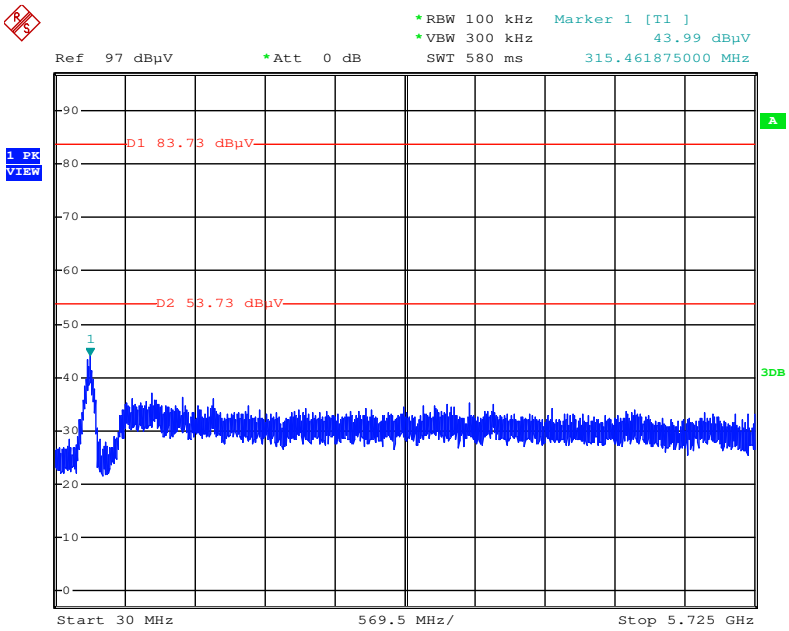
Note: Only the worse polarization (Horizontal) is tested and recorded in test report.

Plot on Configuration IEEE 802.11n MCS0 HT20 / CH 149 / 5850MHz~40000MHz (down 30dBc) (Horizontal)



Date: 10.MAY.2014 16:19:48

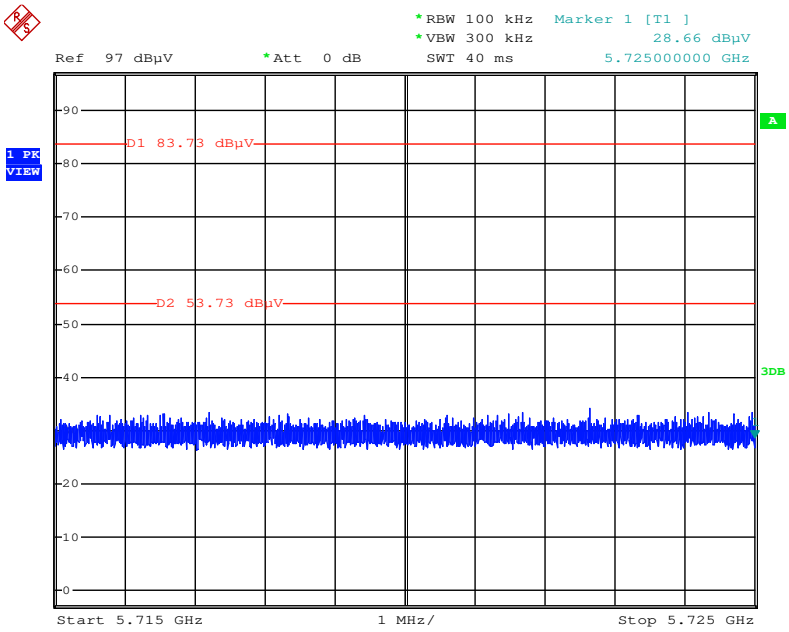
Plot on Configuration IEEE 802.11n MCS0 HT20 / CH 165 / 30MHz~5725MHz (down 30dBc) (Horizontal)



Date: 10.MAY.2014 16:20:43

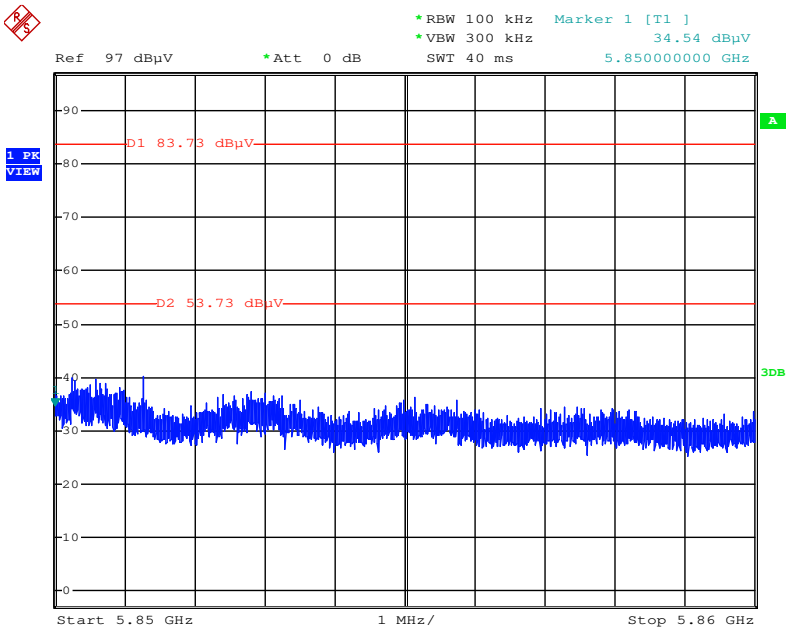
Note: Only the worse polarization (Horizontal) is tested and recorded in test report.

Plot on Configuration IEEE 802.11n MCS0 HT20 / CH 165 / 5715MHz~5725MHz (down 30dBc) (Horizontal)



Date: 20.JUN.2014 17:01:38

Plot on Configuration IEEE 802.11n MCS0 HT20 / CH 165 / 5850MHz~5860MHz (down 30dBc) (Horizontal)

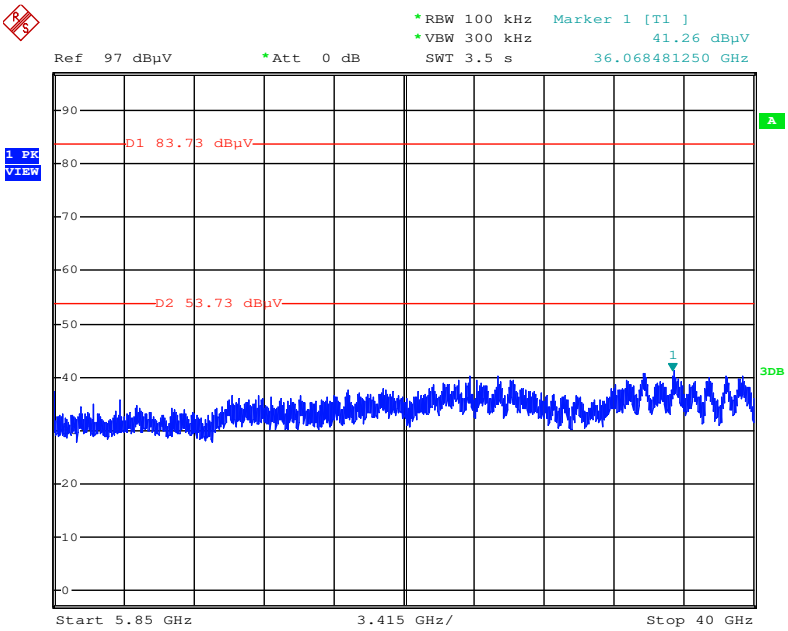


Date: 20.JUN.2014 17:01:03

Note: Only the worse polarization (Horizontal) is tested and recorded in test report.

Plot on Configuration IEEE 802.11n MCS0 HT20 / CH 165 / 5850MHz~40000MHz (down 30dBc)

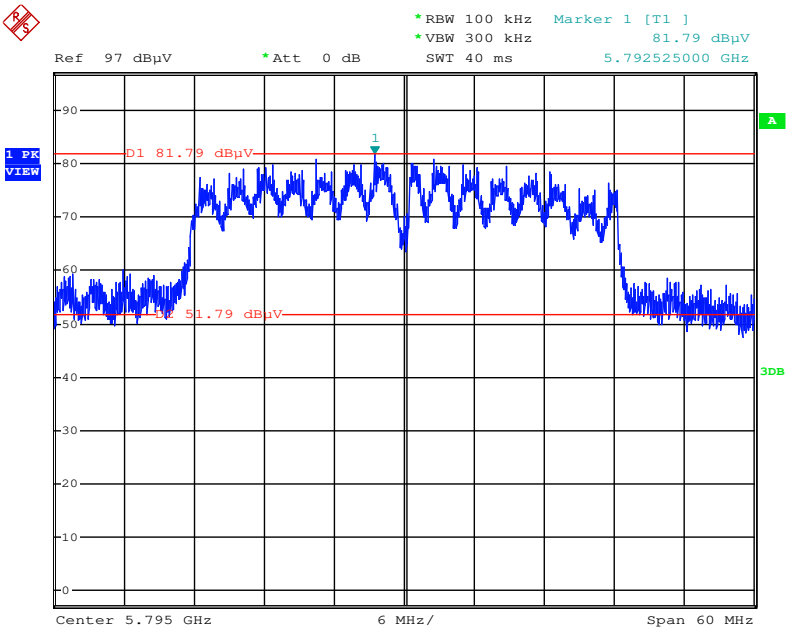
(Horizontal)



Date: 10.MAY.2014 16:20:22

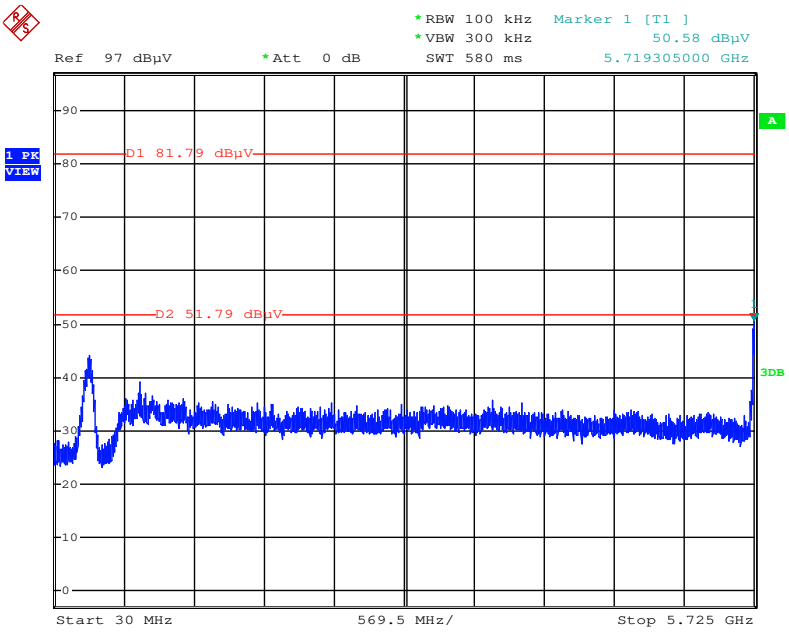
Note: Only the worse polarization (Horizontal) is tested and recorded in test report.

Plot on Configuration IEEE 802.11n MCS0 HT40 / Reference Level (Horizontal)



Date: 10.MAY.2014 16:28:28

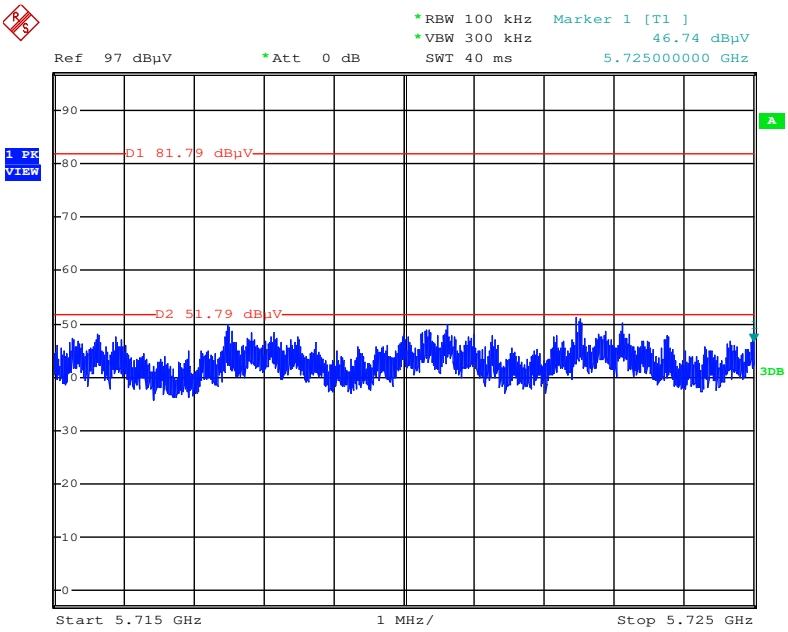
Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 151 / 30MHz~5725MHz (down 30dBc) (Horizontal)



Date: 10.MAY.2014 16:33:15

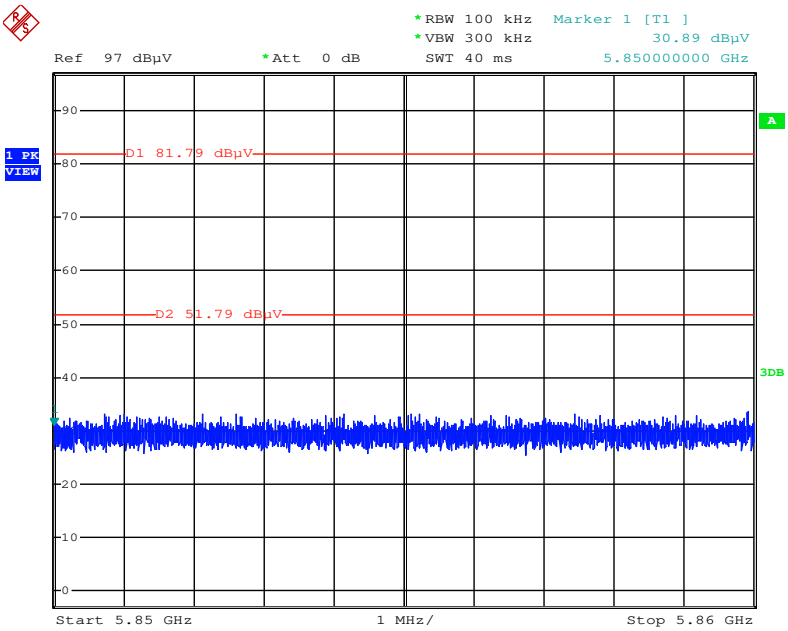
Note: Only the worse polarization (Horizontal) is tested and recorded in test report.

Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 151 / 5715MHz~5725MHz (down 30dBc) (Horizontal)



Date: 20.JUN.2014 17:04:01

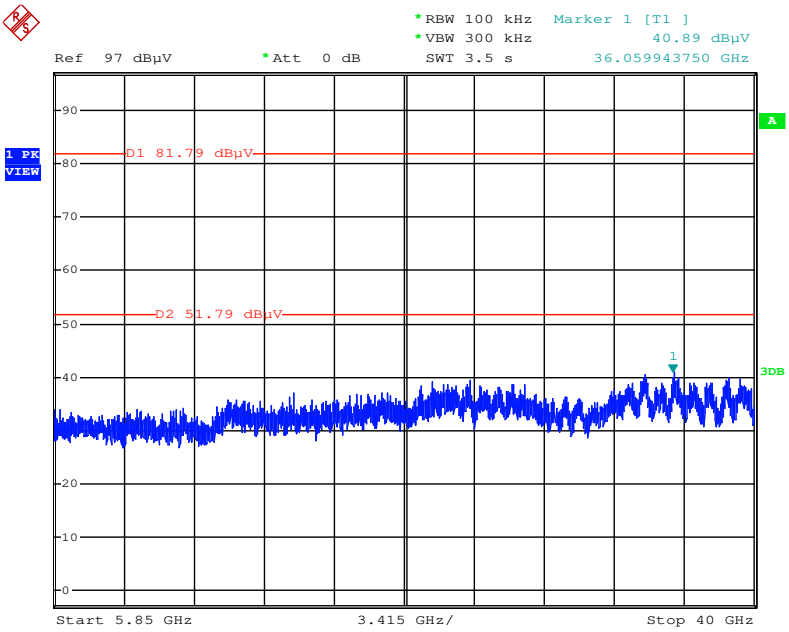
Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 151 / 5850MHz~5860MHz (down 30dBc) (Horizontal)



Date: 20.JUN.2014 17:04:23

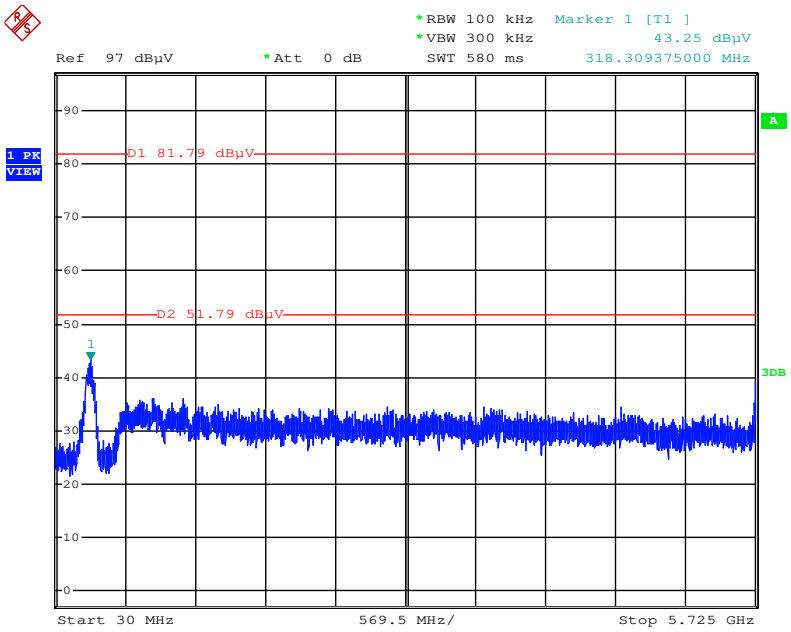
Note: Only the worse polarization (Horizontal) is tested and recorded in test report.

Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 151 / 5850MHz~40000MHz (down 30dBc) (Horizontal)



Date: 10.MAY.2014 16:33:39

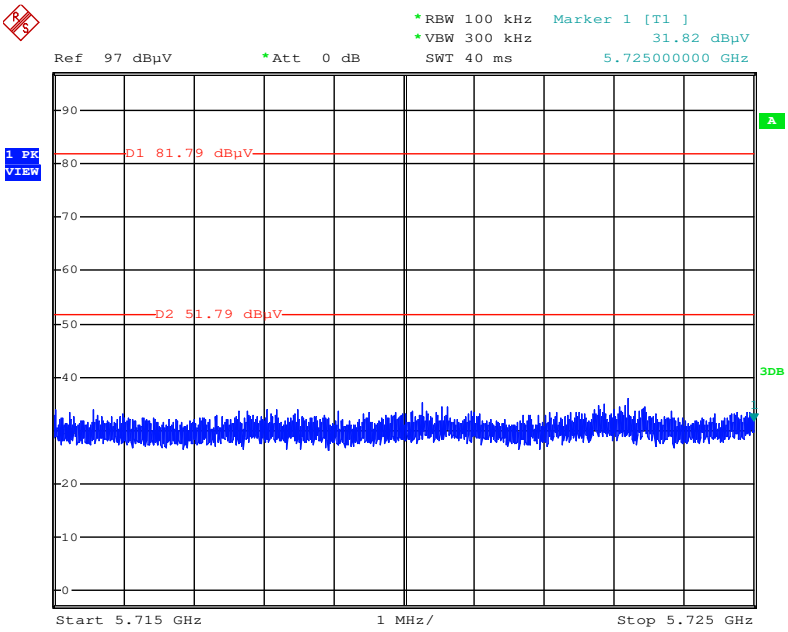
Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 159 / 30MHz~5725MHz (down 30dBc) (Horizontal)



Date: 10.MAY.2014 16:28:52

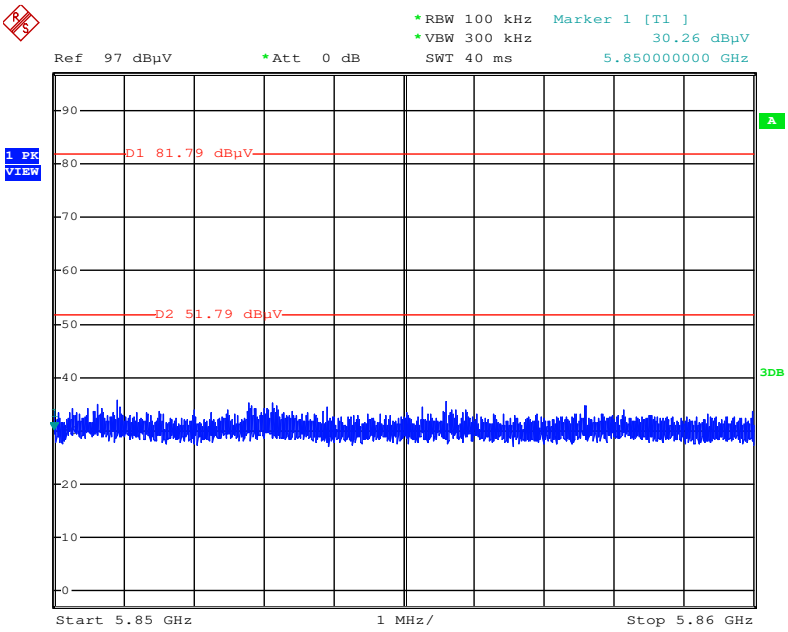
Note: Only the worse polarization (Horizontal) is tested and recorded in test report.

Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 159 / 5715MHz~5725MHz (down 30dBc) (Horizontal)



Date: 20.JUN.2014 17:05:13

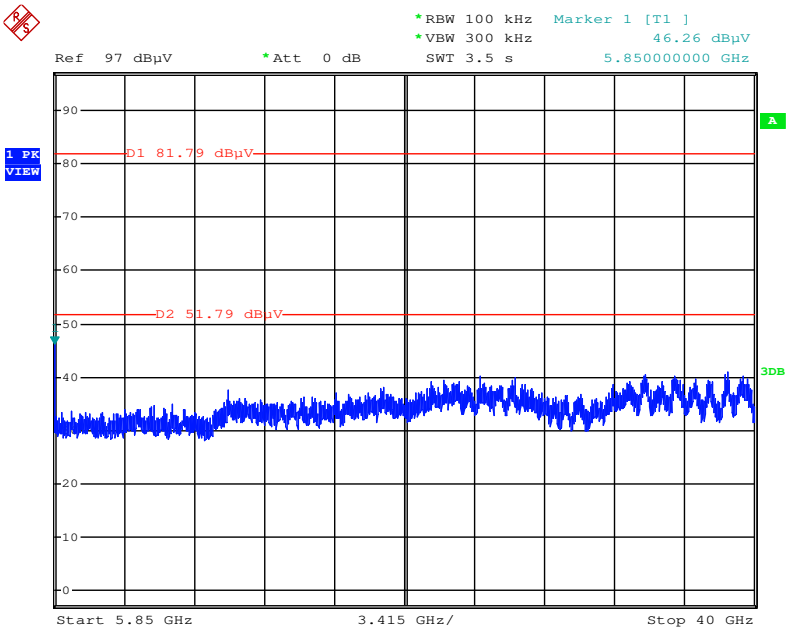
Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 159 / 5850MHz~5860MHz (down 30dBc) (Horizontal)



Date: 20.JUN.2014 17:04:50

Note: Only the worse polarization (Horizontal) is tested and recorded in test report.

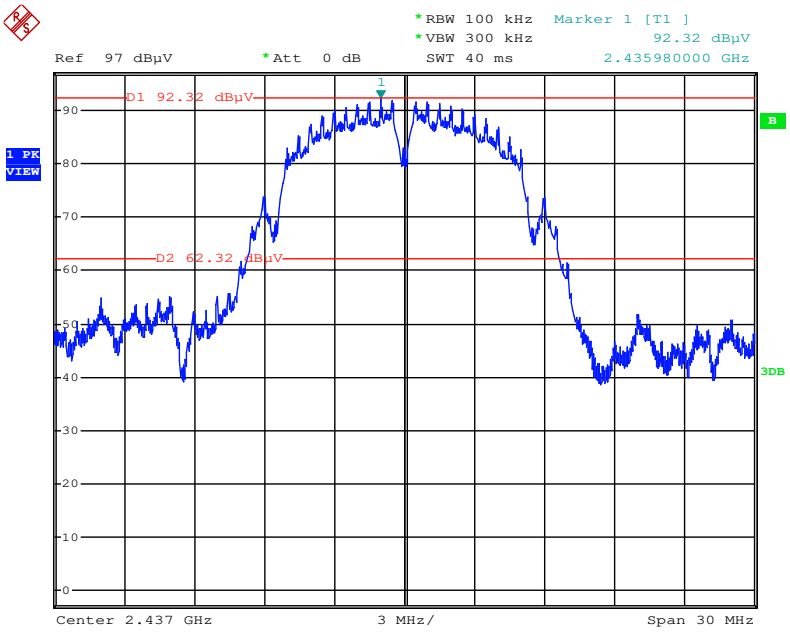
Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 159 / 5850MHz~40000MHz (down 30dBc) (Horizontal)



Date: 10.MAY.2014 16:29:27

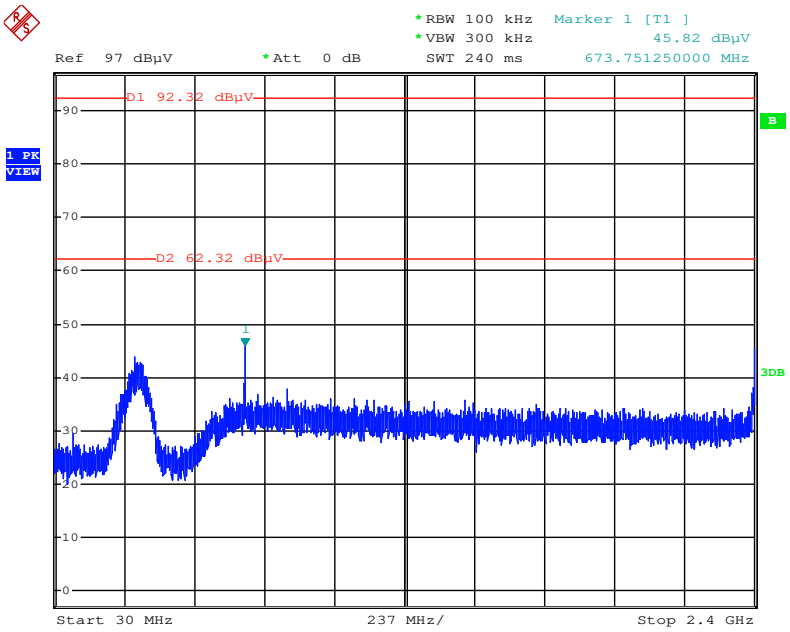
Note: Only the worse polarization (Horizontal) is tested and recorded in test report.

Plot on Configuration IEEE 802.11b / Reference Level (Horizontal)



Date: 28.APR.2014 17:34:01

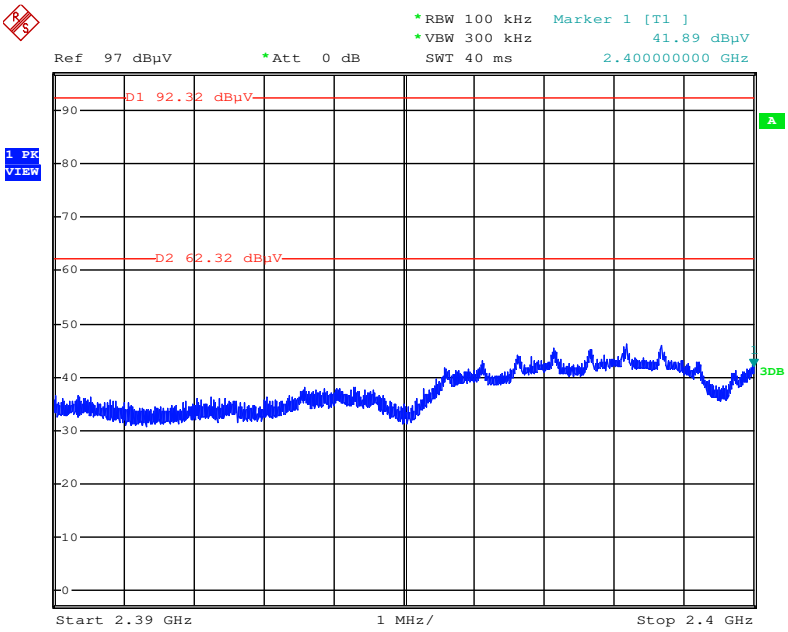
Plot on Configuration IEEE 802.11b / CH 1 / 30MHz~2400MHz (down 30dBc) (Horizontal)



Date: 28.APR.2014 17:38:12

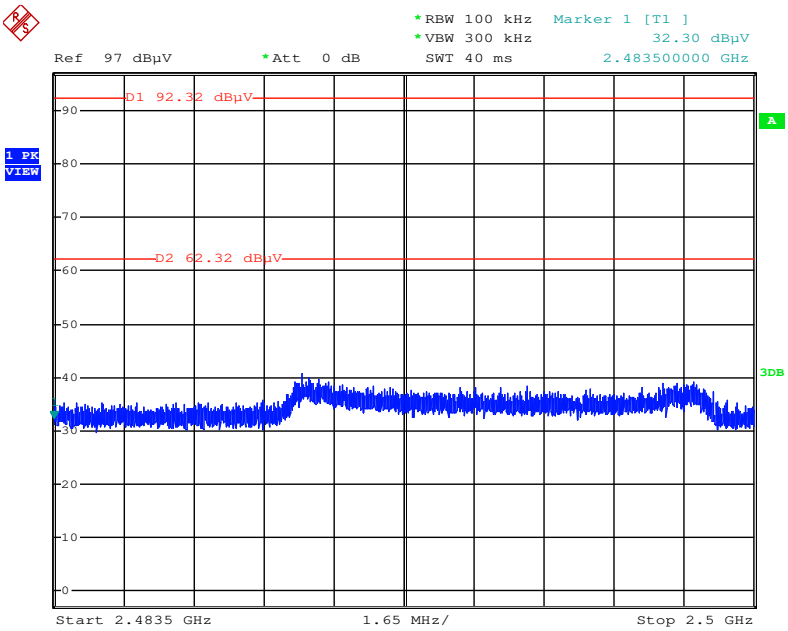
Note: Only the worse polarization (Horizontal) is tested and recorded in test report.

Plot on Configuration IEEE 802.11b / CH 1 / 2390MHz~2400MHz (down 30dBc) (Horizontal)



Date: 20.JUN.2014 16:09:16

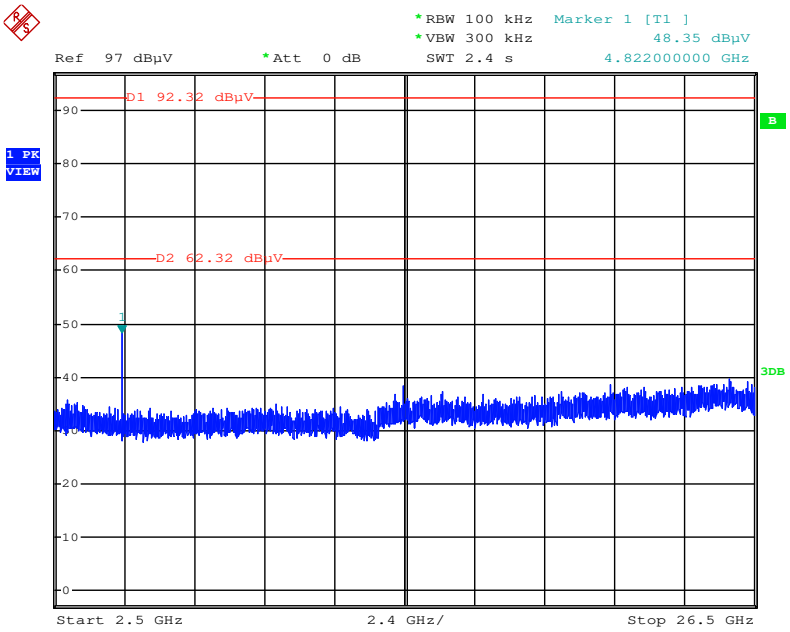
Plot on Configuration IEEE 802.11b / CH 1 / 2483.5MHz~2500MHz (down 30dBc) (Horizontal)



Date: 20.JUN.2014 16:10:01

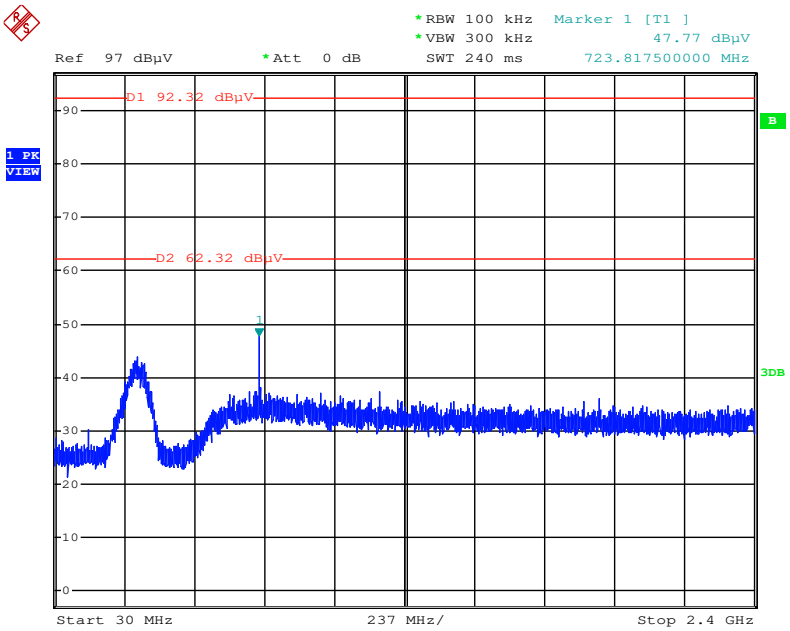
Note: Only the worse polarization (Horizontal) is tested and recorded in test report.

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



Date: 28.APR.2014 17:38:28

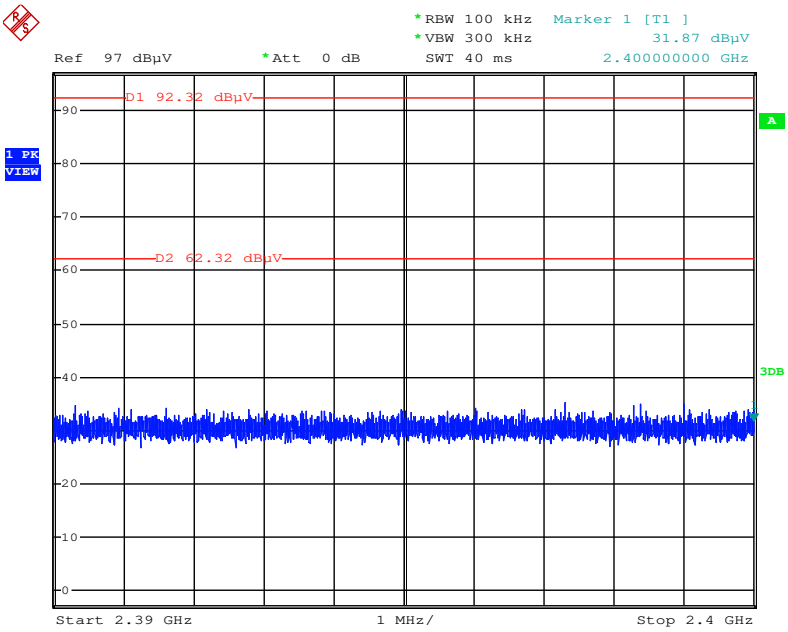
Plot on Configuration IEEE 802.11b / CH 11 / 30MHz~2400MHz (down 30dBc) (Horizontal)



Date: 28.APR.2014 17:39:17

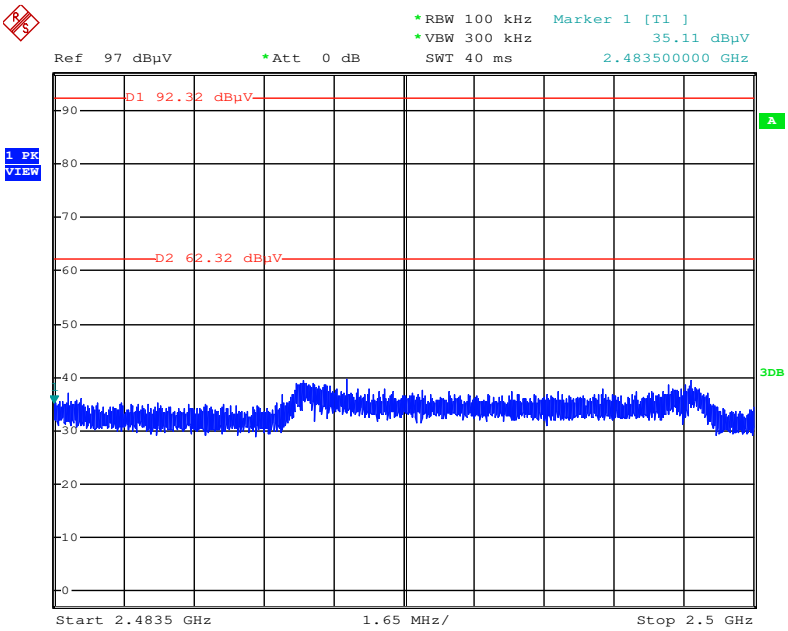
Note: Only the worse polarization (Horizontal) is tested and recorded in test report.

Plot on Configuration IEEE 802.11b / CH 11 / 2390MHz~2400MHz (down 30dBc) (Horizontal)



Date: 20.JUN.2014 16:11:31

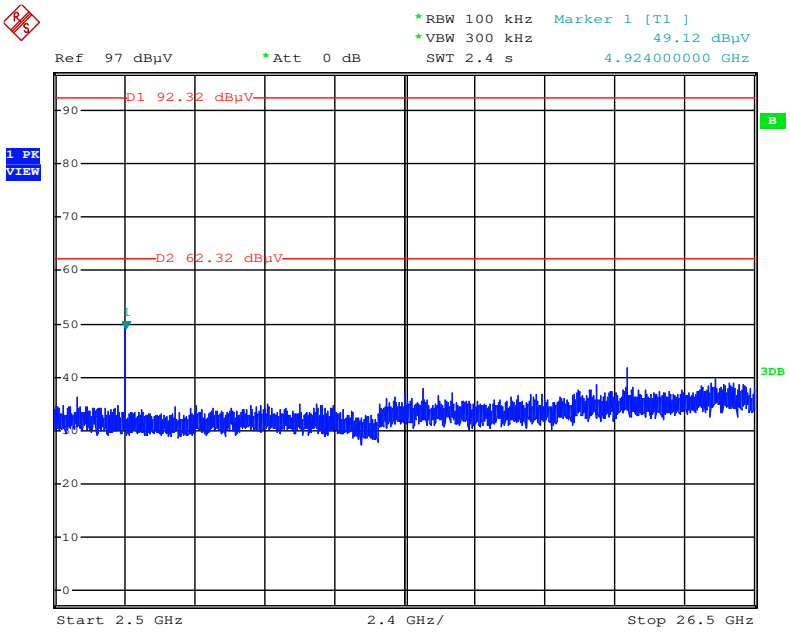
Plot on Configuration IEEE 802.11b / CH 11 / 2483.5MHz~2500MHz (down 30dBc) (Horizontal)



Date: 20.JUN.2014 16:10:58

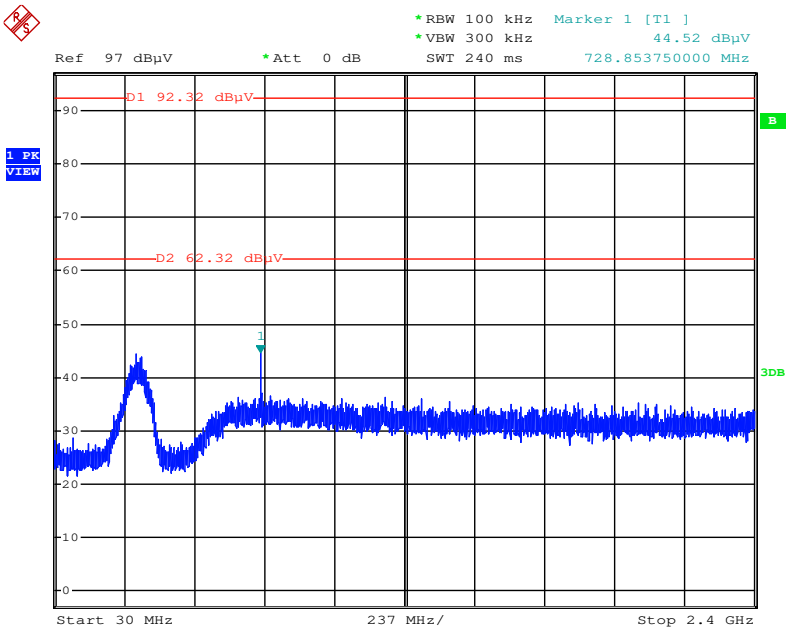
Note: Only the worse polarization (Horizontal) is tested and recorded in test report.

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



Date: 28.APR.2014 17:39:00

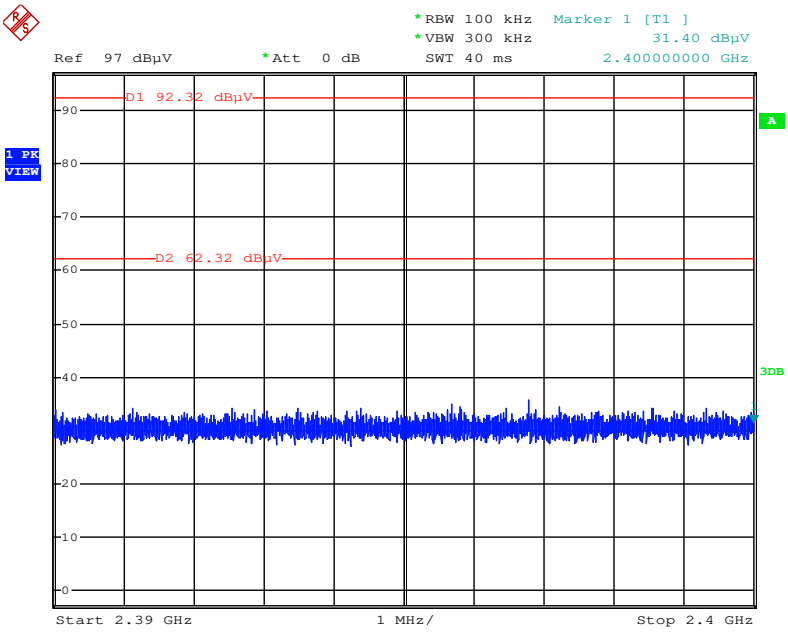
Plot on Configuration IEEE 802.11b / CH 12 / 30MHz~2400MHz (down 30dBc) (Horizontal)



Date: 28.APR.2014 17:39:42

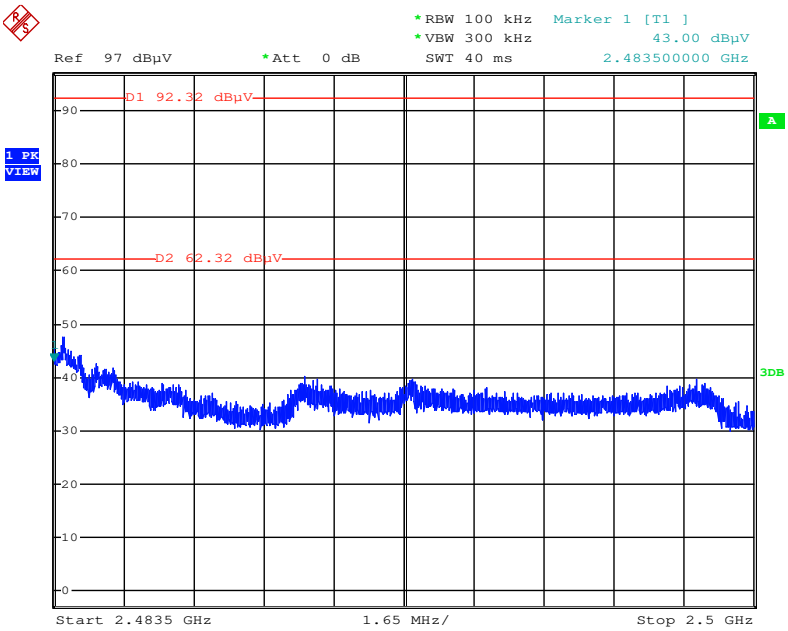
Note: Only the worse polarization (Horizontal) is tested and recorded in test report.

Plot on Configuration IEEE 802.11b / CH 12 / 2390MHz~2400MHz (down 30dBc) (Horizontal)



Date: 20.JUN.2014 16:12:18

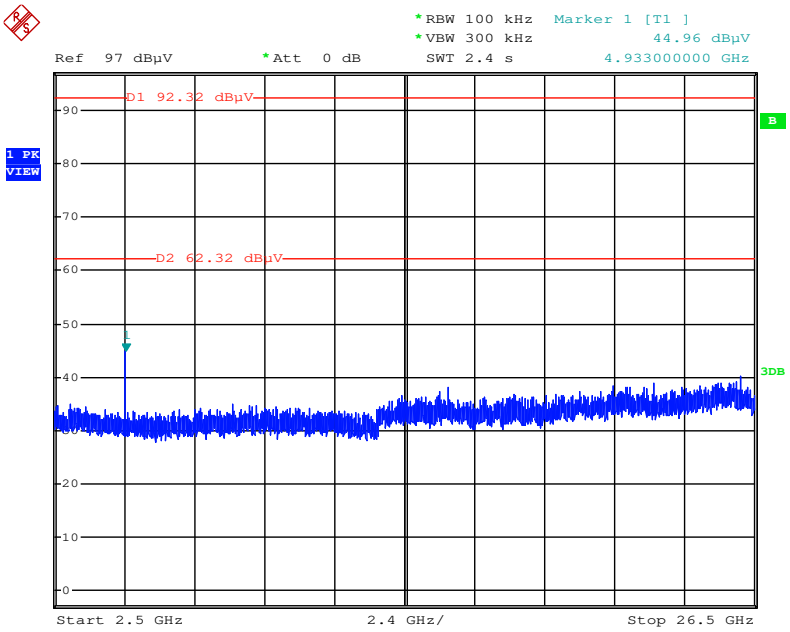
Plot on Configuration IEEE 802.11b / CH 12 / 2483.5MHz~2500MHz (down 30dBc) (Horizontal)



Date: 20.JUN.2014 16:13:30

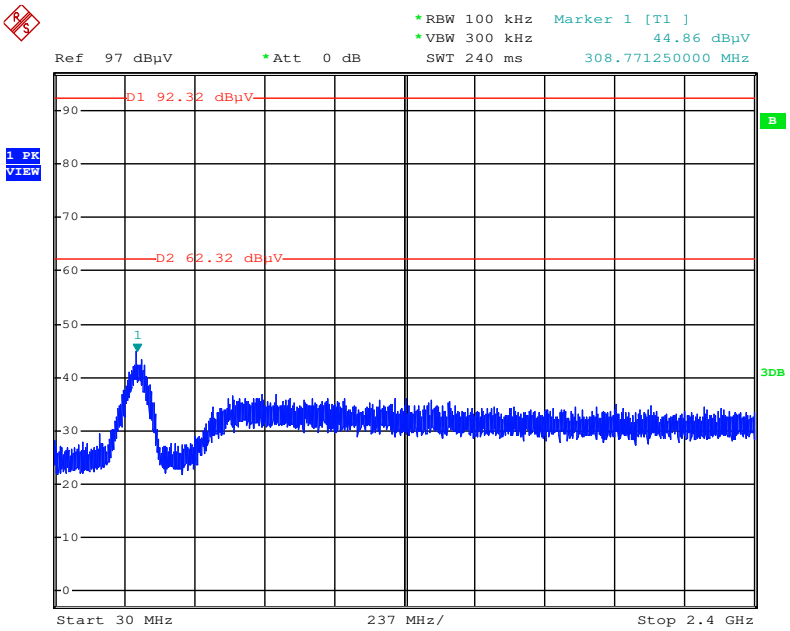
Note: Only the worse polarization (Horizontal) is tested and recorded in test report.

Plot on Configuration IEEE 802.11b / CH 12 / 2500MHz~26500MHz (down 30dBc) (Horizontal)



Date: 28.APR.2014 17:39:59

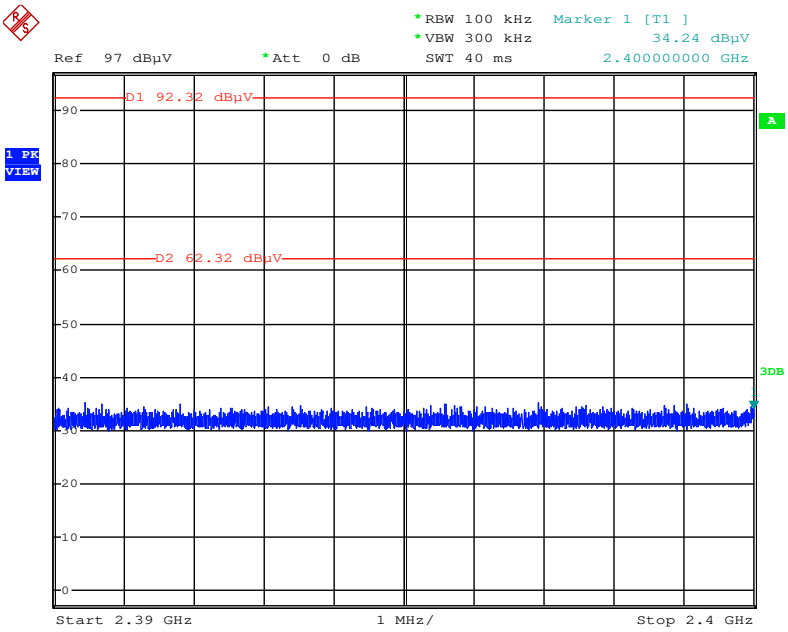
Plot on Configuration IEEE 802.11b / CH 13 / 30MHz~2400MHz (down 30dBc) (Horizontal)



Date: 28.APR.2014 17:40:47

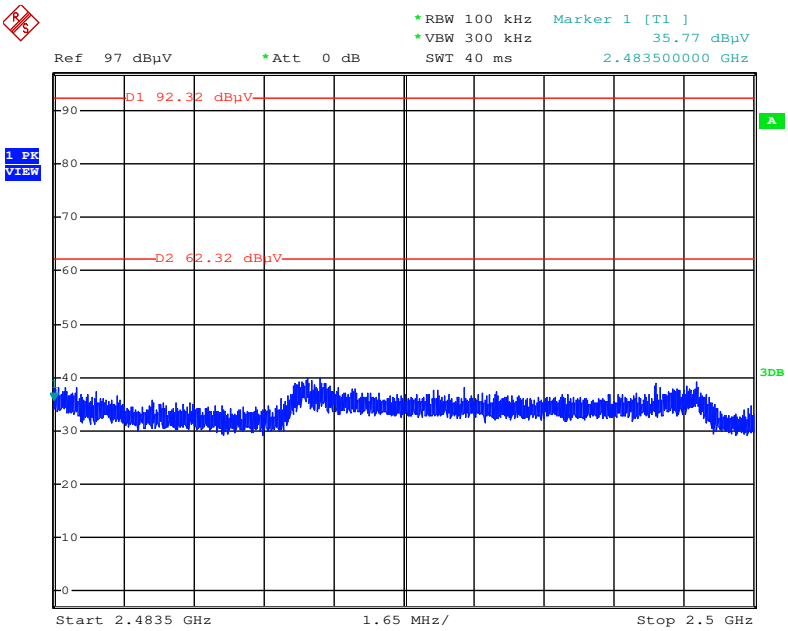
Note: Only the worse polarization (Horizontal) is tested and recorded in test report.

Plot on Configuration IEEE 802.11b / CH 13 / 2390MHz~2400MHz (down 30dBc) (Horizontal)



Date: 20.JUN.2014 16:16:26

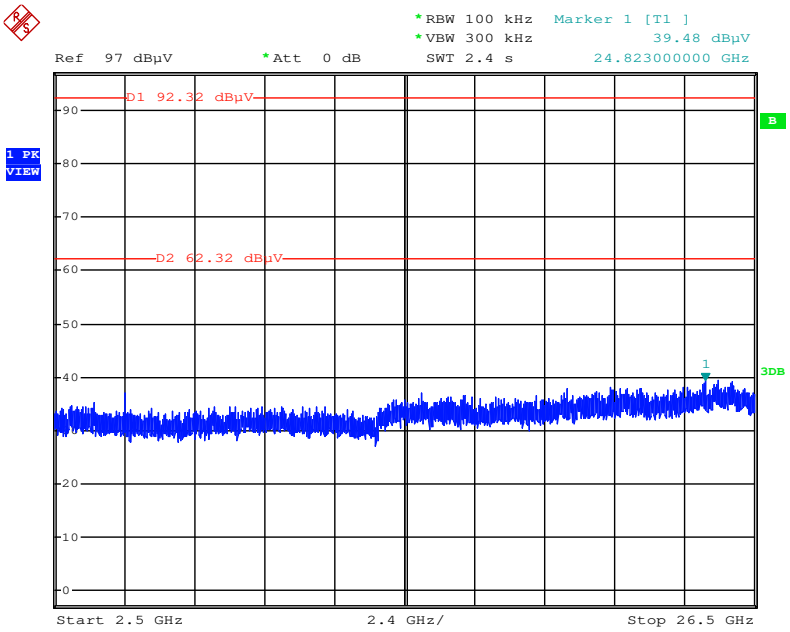
Plot on Configuration IEEE 802.11b / CH 13 / 2483.5MHz~2500MHz (down 30dBc) (Horizontal)



Date: 20.JUN.2014 16:15:03

Note: Only the worse polarization (Horizontal) is tested and recorded in test report.

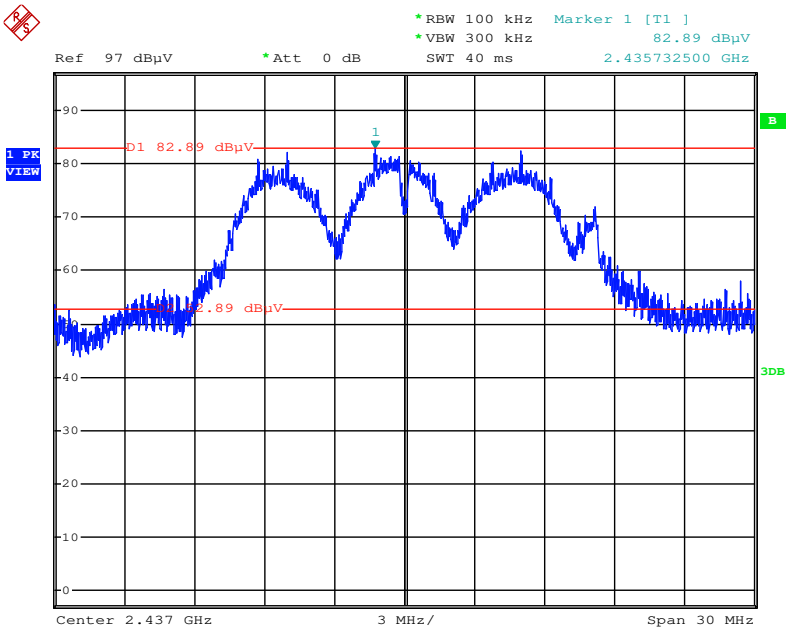
Plot on Configuration IEEE 802.11b / CH 13 / 2500MHz~26500MHz (down 30dBc) (Horizontal)



Date: 28.APR.2014 17:40:35

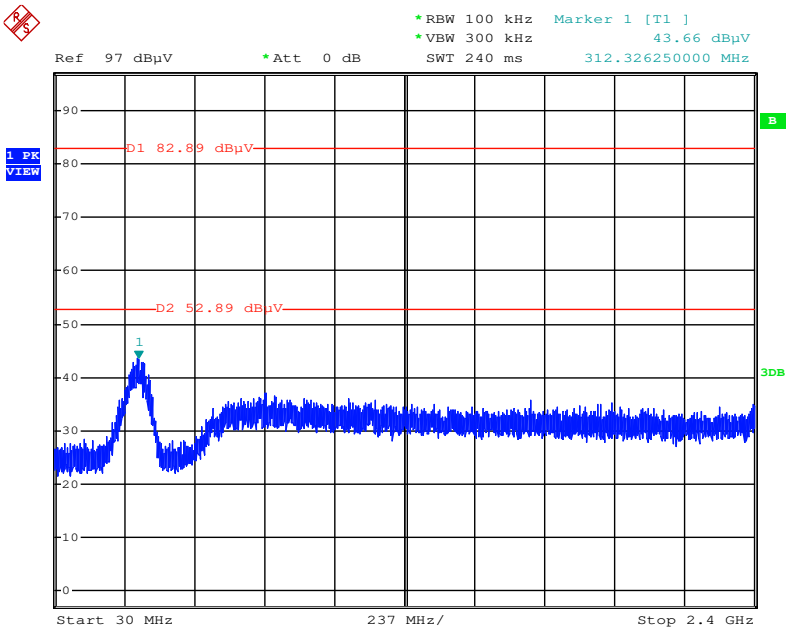
Note: Only the worse polarization (Horizontal) is tested and recorded in test report.

Plot on Configuration IEEE 802.11g / Reference Level (Horizontal)



Date: 28.APR.2014 17:44:43

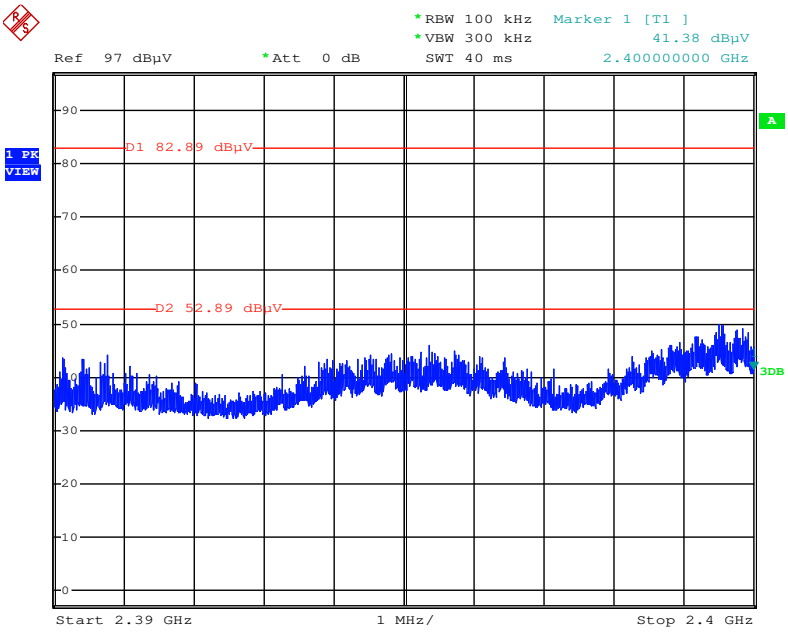
Plot on Configuration IEEE 802.11g / CH 1 / 30MHz~2400MHz (down 30dBc) (Horizontal)



Date: 28.APR.2014 17:45:22

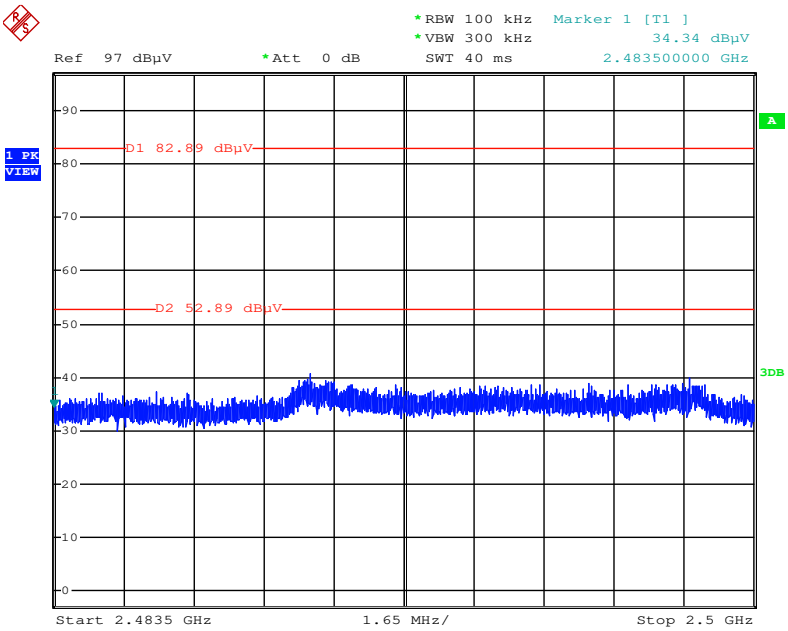
Note: Only the worse polarization (Horizontal) is tested and recorded in test report.

Plot on Configuration IEEE 802.11g / CH 1 / 2390MHz~2400MHz (down 30dBc) (Horizontal)



Date: 20.JUN.2014 16:23:19

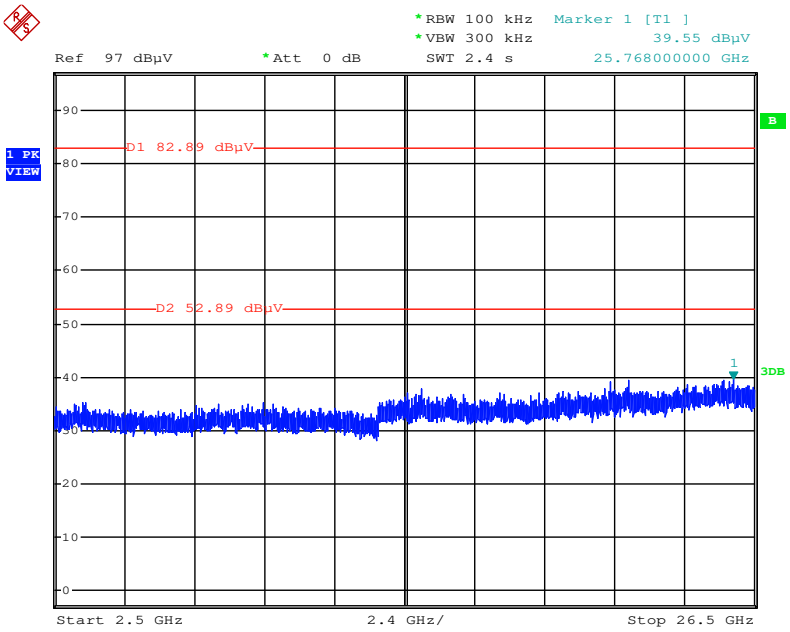
Plot on Configuration IEEE 802.11g / CH 1 / 2483.5MHz~2500MHz (down 30dBc) (Horizontal)



Date: 20.JUN.2014 16:23:52

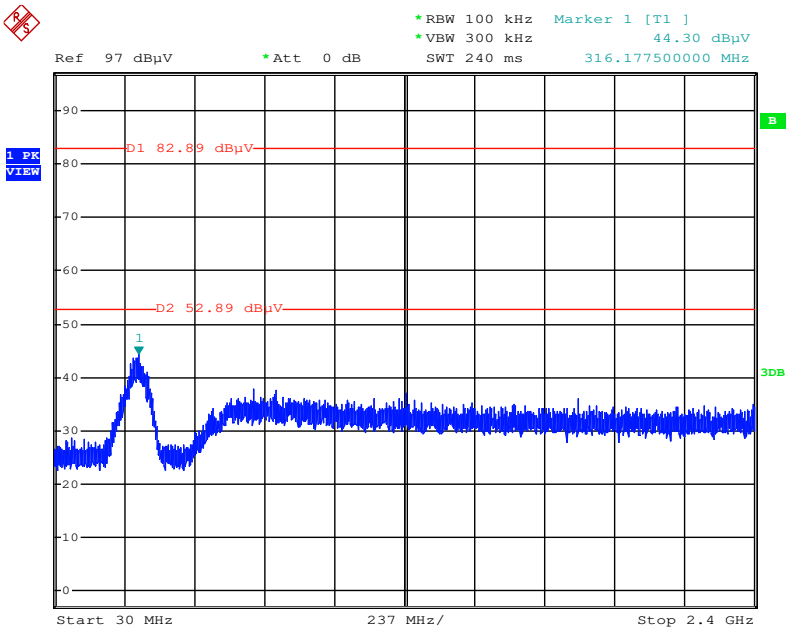
Note: Only the worse polarization (Horizontal) is tested and recorded in test report.

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



Date: 28.APR.2014 17:45:44

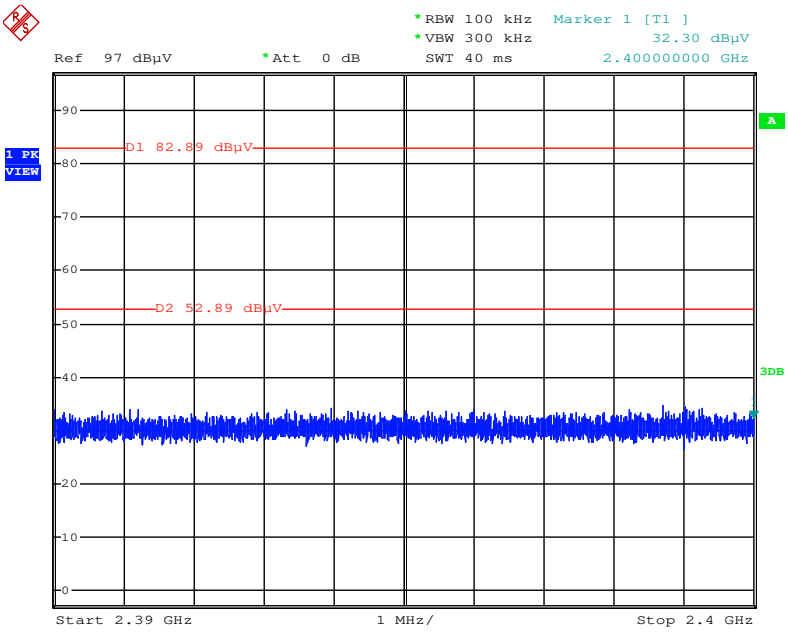
Plot on Configuration IEEE 802.11g / CH 11 / 30MHz~2400MHz (down 30dBc) (Horizontal)



Date: 28.APR.2014 17:46:41

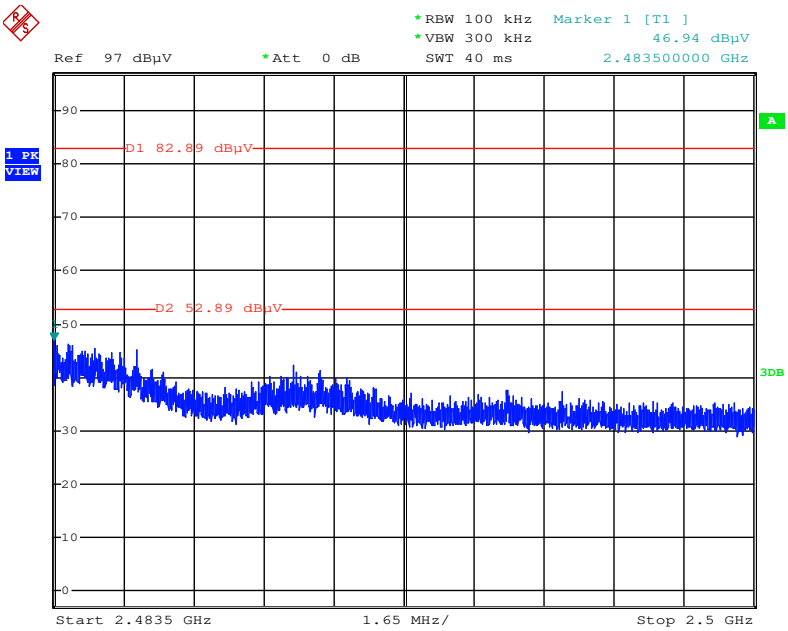
Note: Only the worse polarization (Horizontal) is tested and recorded in test report.

Plot on Configuration IEEE 802.11g / CH 11 / 2390MHz~2400MHz (down 30dBc) (Horizontal)



Date: 20.JUN.2014 16:26:20

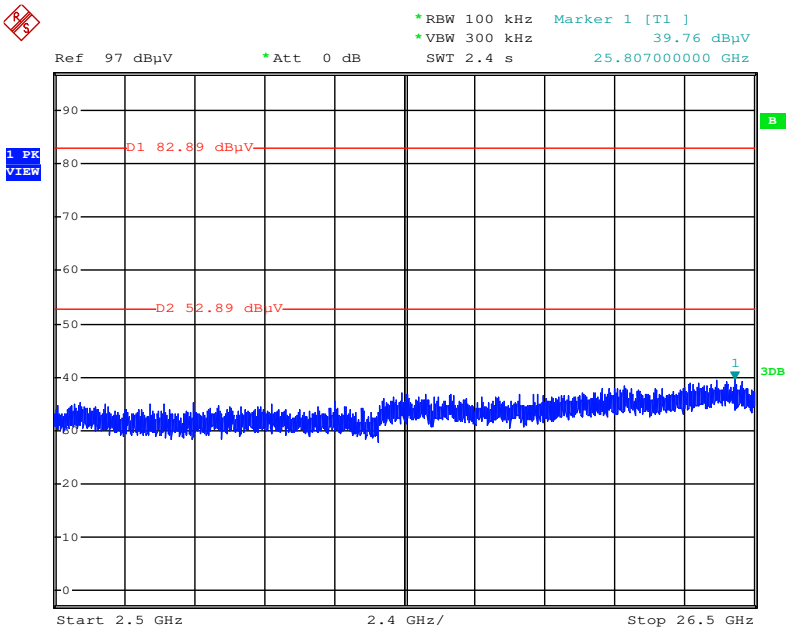
Plot on Configuration IEEE 802.11g / CH 11 / 2483.5MHz~2500MHz (down 30dBc) (Horizontal)



Date: 20.JUN.2014 16:25:42

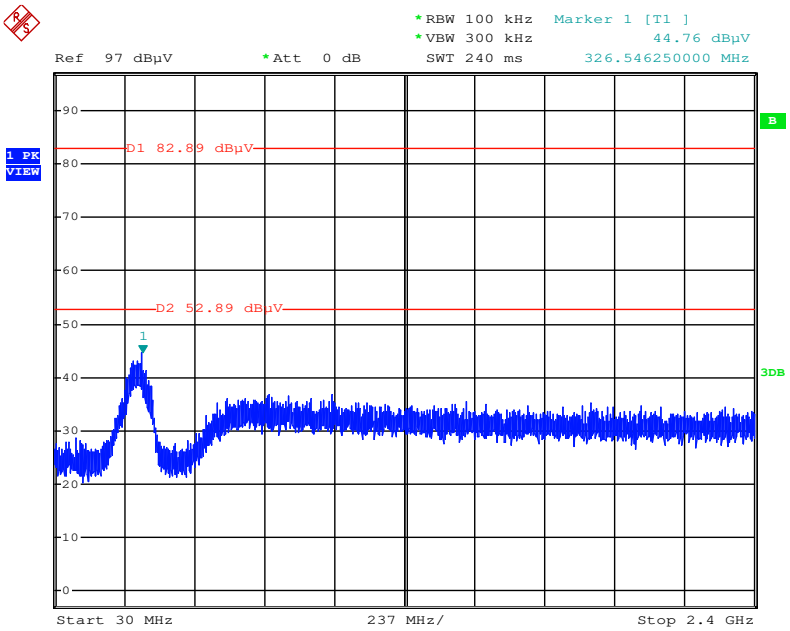
Note: Only the worse polarization (Horizontal) is tested and recorded in test report.

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



Date: 28.APR.2014 17:46:18

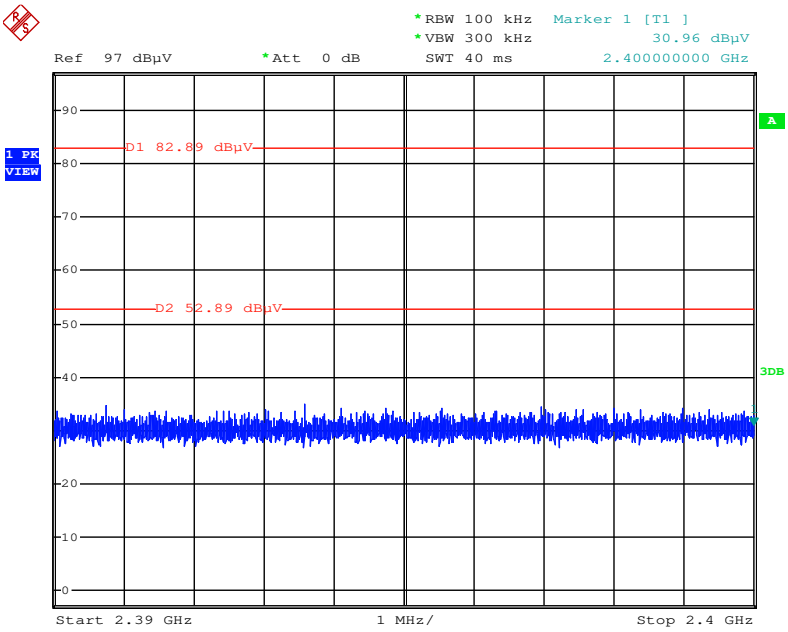
Plot on Configuration IEEE 802.11g / CH 12 / 30MHz~2400MHz (down 30dBc) (Horizontal)



Date: 28.APR.2014 17:47:10

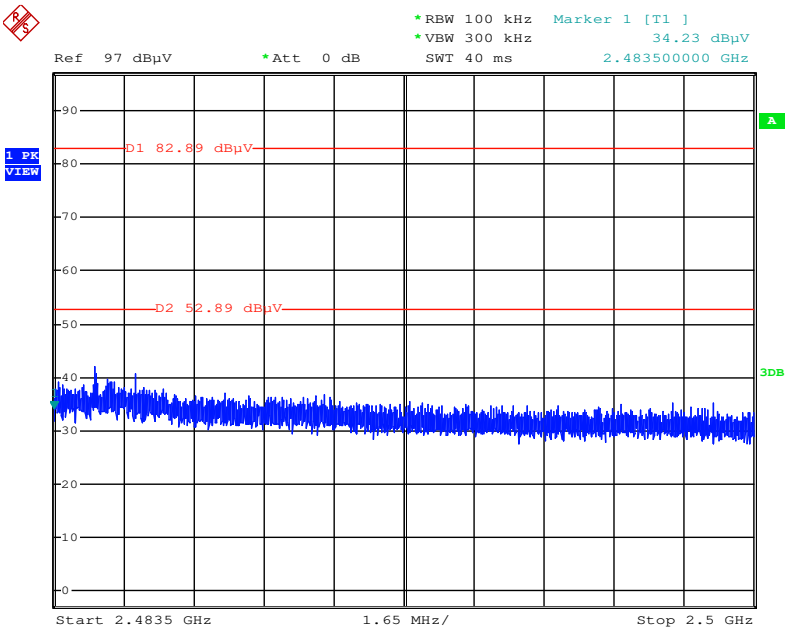
Note: Only the worse polarization (Horizontal) is tested and recorded in test report.

Plot on Configuration IEEE 802.11g / CH 12 / 2390MHz~2400MHz (down 30dBc) (Horizontal)



Date: 20.JUN.2014 16:26:52

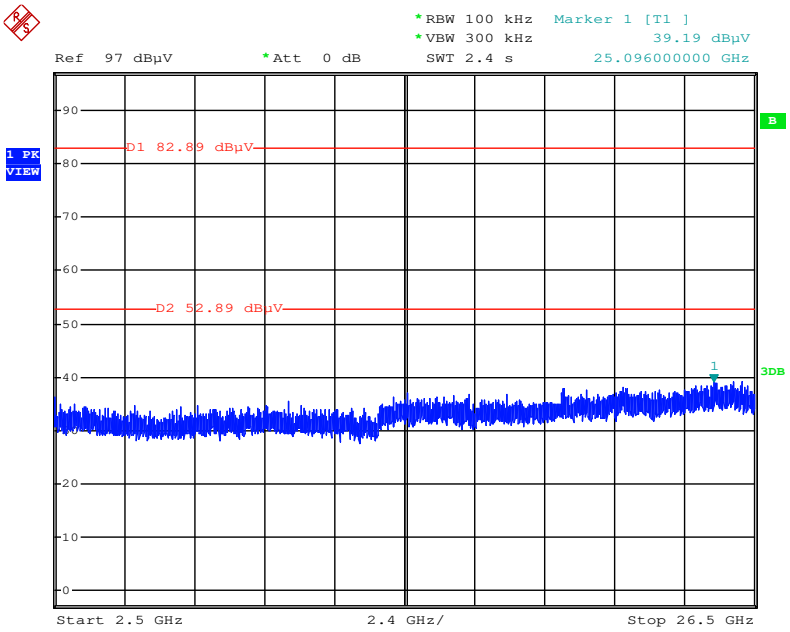
Plot on Configuration IEEE 802.11g / CH 12 / 2483.5MHz~2500MHz (down 30dBc) (Horizontal)



Date: 20.JUN.2014 16:27:31

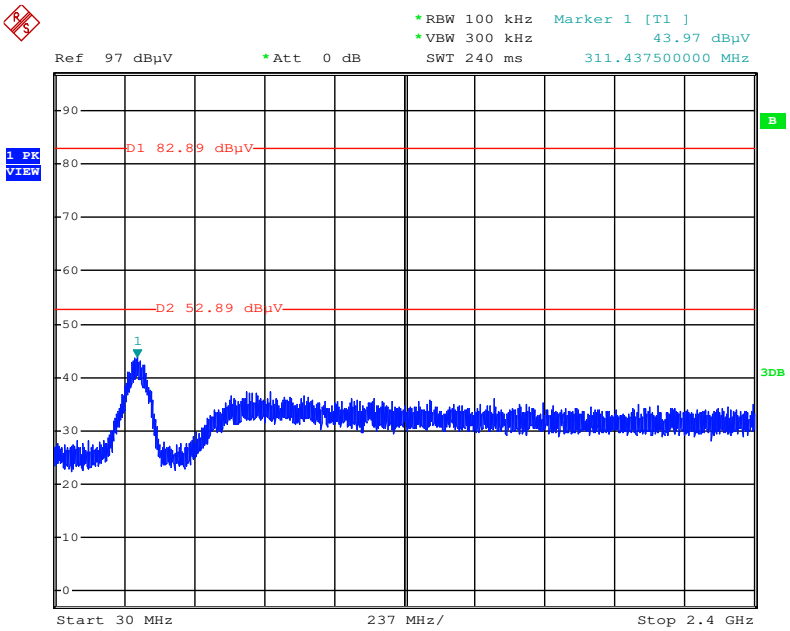
Note: Only the worse polarization (Horizontal) is tested and recorded in test report.

Plot on Configuration IEEE 802.11g / CH 12 / 2500MHz~26500MHz (down 30dBc) (Horizontal)



Date: 28.APR.2014 17:47:32

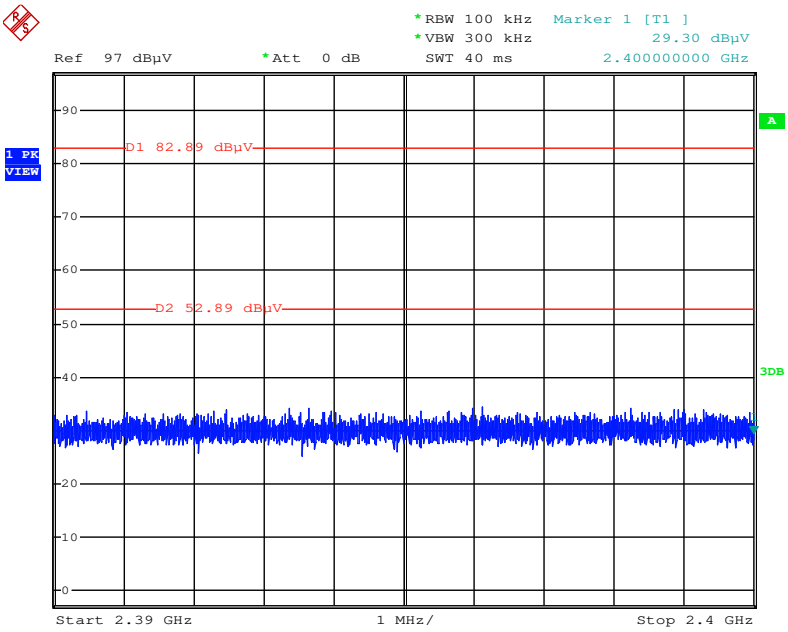
Plot on Configuration IEEE 802.11g / CH 13 / 30MHz~2400MHz (down 30dBc) (Horizontal)



Date: 28.APR.2014 17:48:45

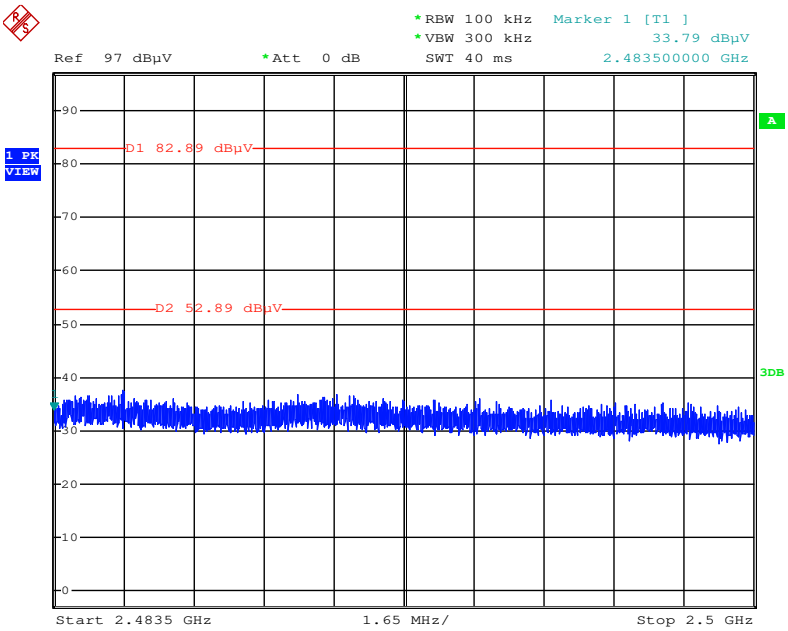
Note: Only the worse polarization (Horizontal) is tested and recorded in test report.

Plot on Configuration IEEE 802.11g / CH 13 / 2390MHz~2400MHz (down 30dBc) (Horizontal)



Date: 20.JUN.2014 16:28:50

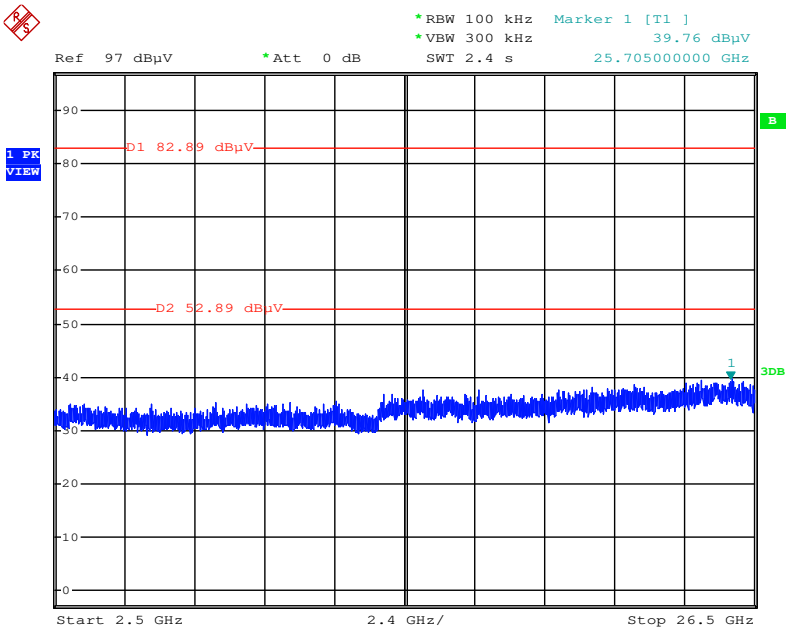
Plot on Configuration IEEE 802.11g / CH 13 / 2483.5MHz~2500MHz (down 30dBc) (Horizontal)



Date: 20.JUN.2014 16:28:25

Note: Only the worse polarization (Horizontal) is tested and recorded in test report.

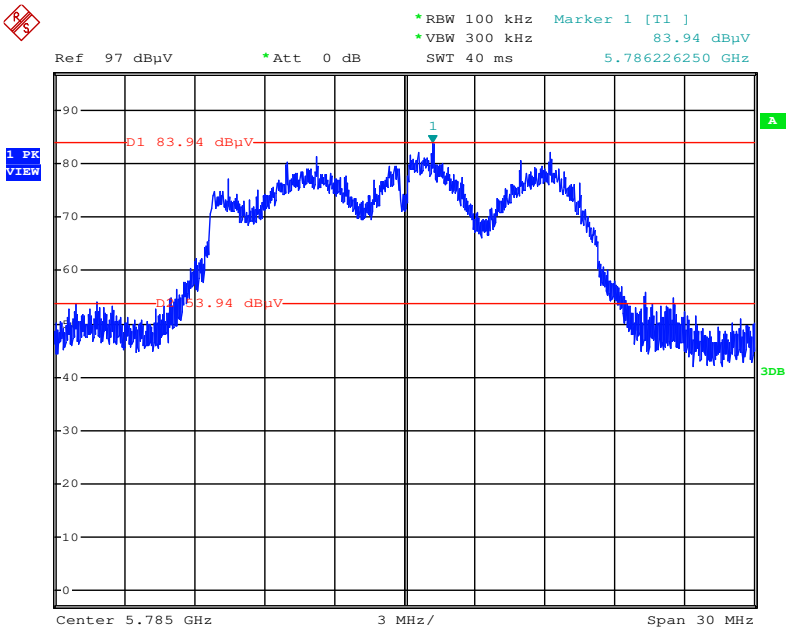
Plot on Configuration IEEE 802.11g / CH 13 / 2500MHz~26500MHz (down 30dBc) (Horizontal)



Date: 28.APR.2014 17:48:24

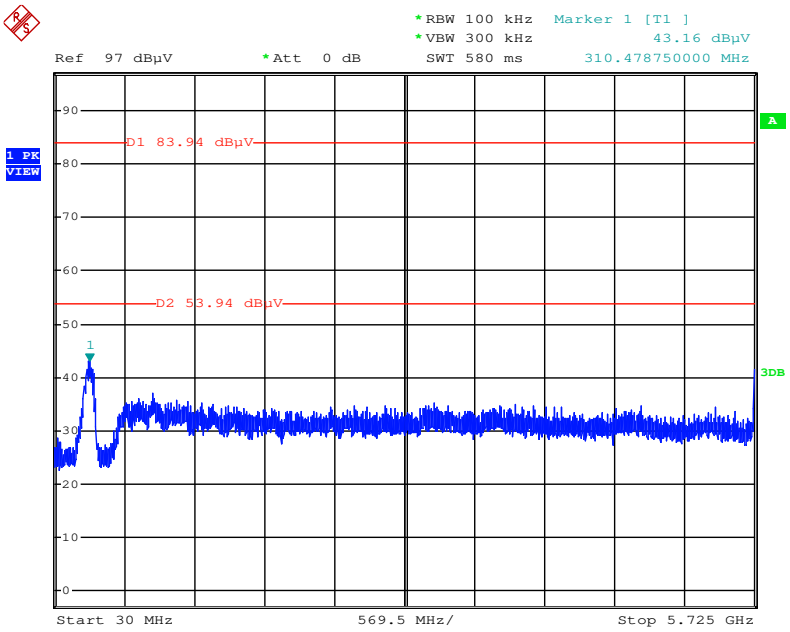
Note: Only the worse polarization (Horizontal) is tested and recorded in test report.

Plot on Configuration IEEE 802.11a / Reference Level (Horizontal)



Date: 10.MAY.2014 16:23:59

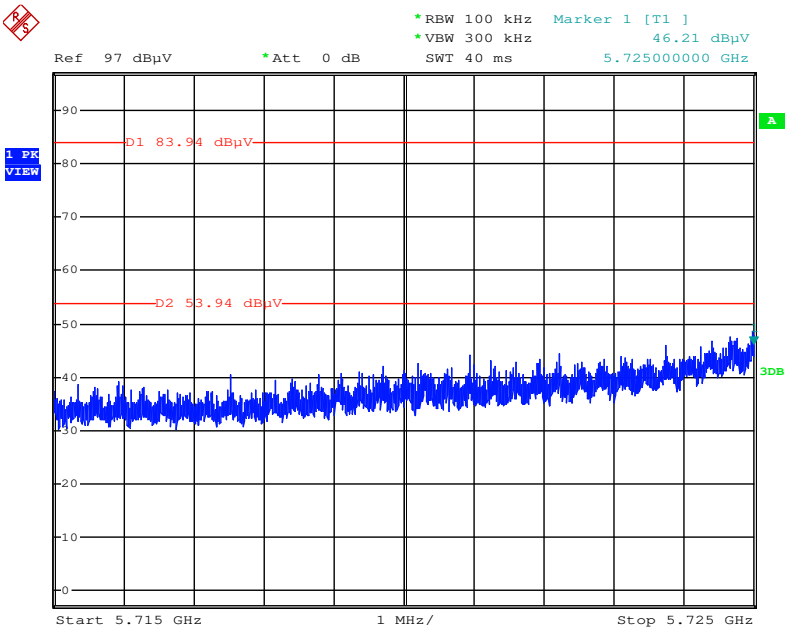
Plot on Configuration IEEE 802.11a / CH 149 / 30MHz~5725MHz (down 30dBc) (Horizontal)



Date: 10.MAY.2014 16:24:39

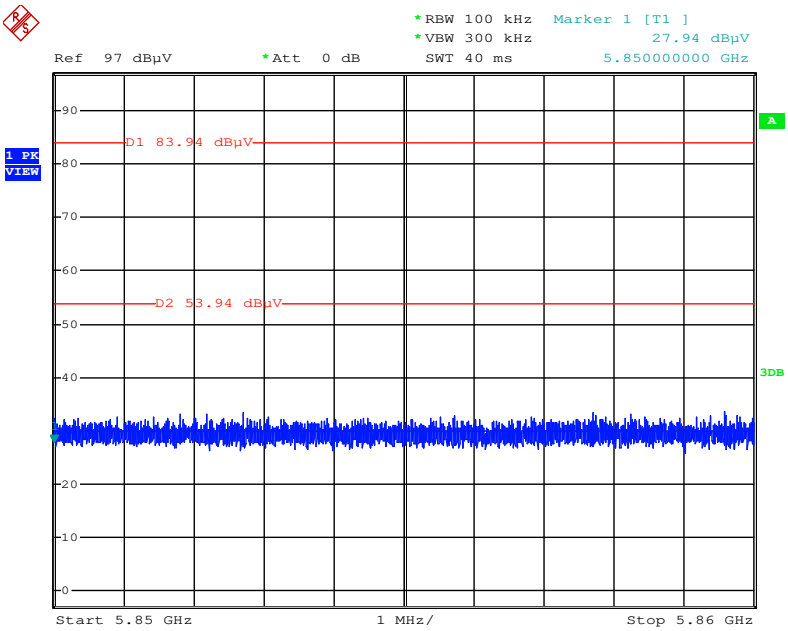
Note: Only the worse polarization (Horizontal) is tested and recorded in test report.

Plot on Configuration IEEE 802.11a / CH 149 / 5715MHz~5725MHz (down 30dBc) (Horizontal)



Date: 20.JUN.2014 16:55:54

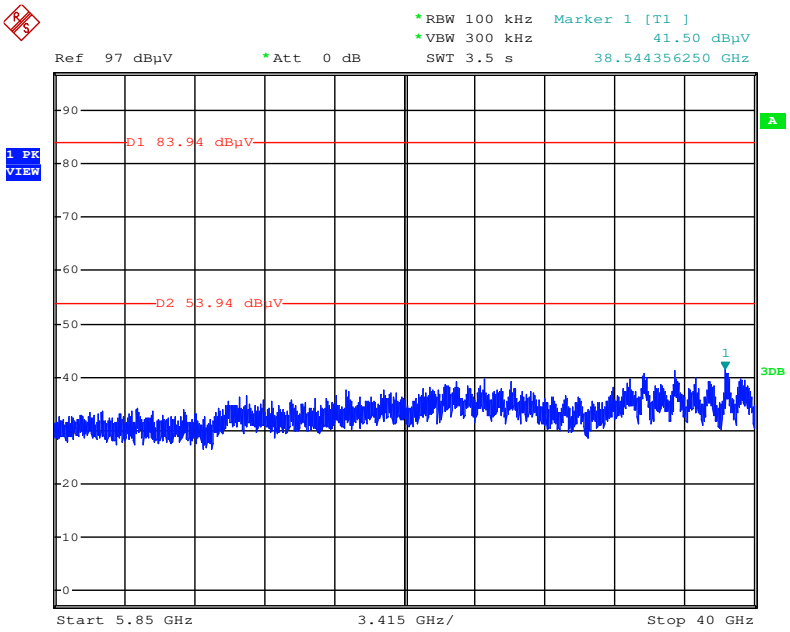
Plot on Configuration IEEE 802.11a / CH 149 / 5850MHz~5860MHz (down 30dBc) (Horizontal)



Date: 20.JUN.2014 16:56:30

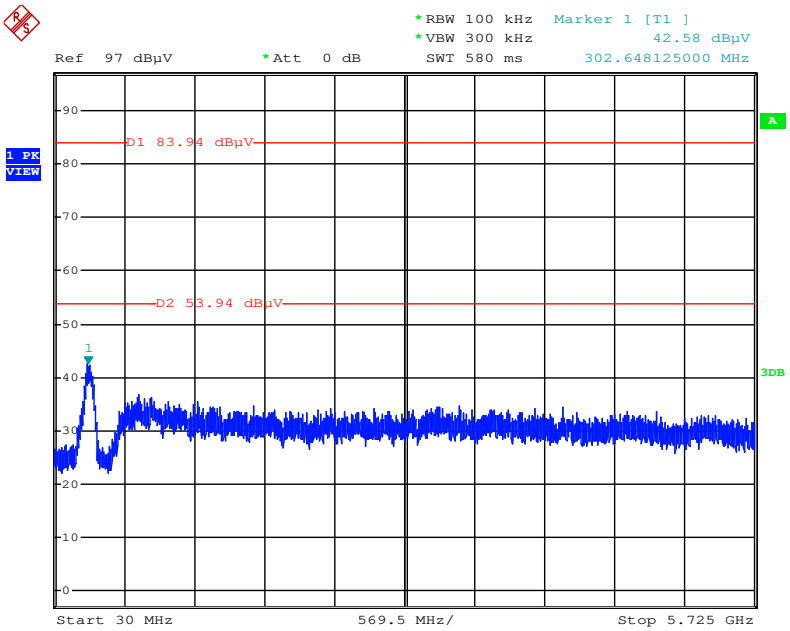
Note: Only the worse polarization (Horizontal) is tested and recorded in test report.

Plot on Configuration IEEE 802.11a / CH 149 / 5850MHz~40000MHz (down 30dBc) (Horizontal)



Date: 10.MAY.2014 16:25:03

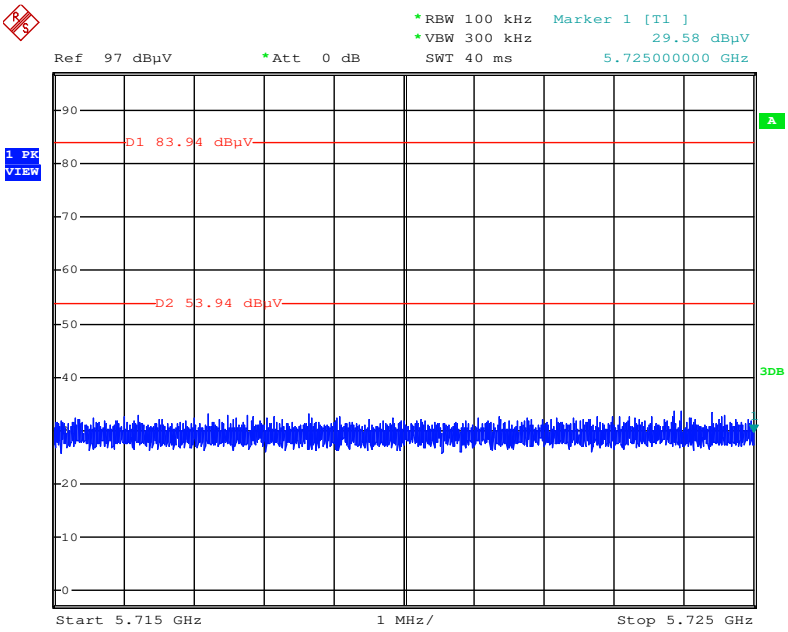
Plot on Configuration IEEE 802.11a / CH 165 / 30MHz~5725MHz (down 30dBc) (Horizontal)



Date: 10.MAY.2014 16:25:52

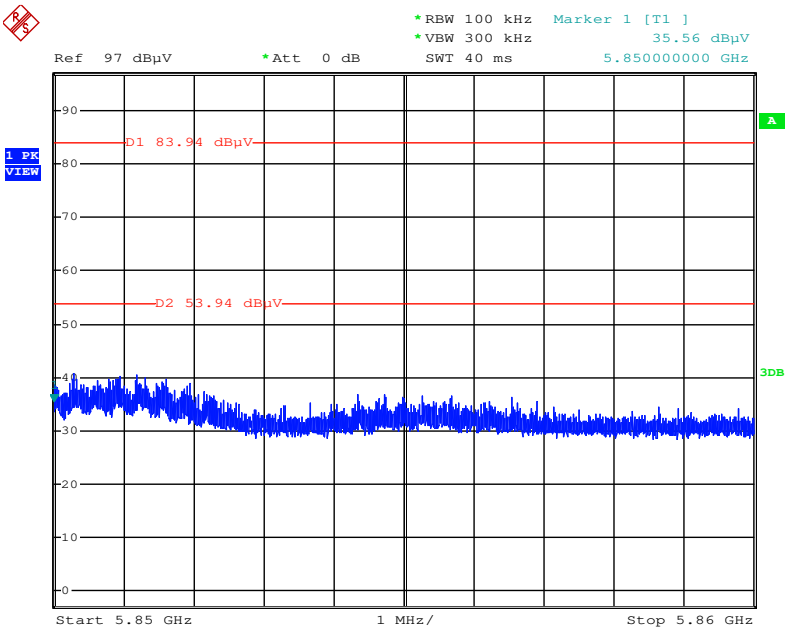
Note: Only the worse polarization (Horizontal) is tested and recorded in test report.

Plot on Configuration IEEE 802.11a / CH 165 / 5715MHz~5725MHz (down 30dBc) (Horizontal)



Date: 20.JUN.2014 16:58:19

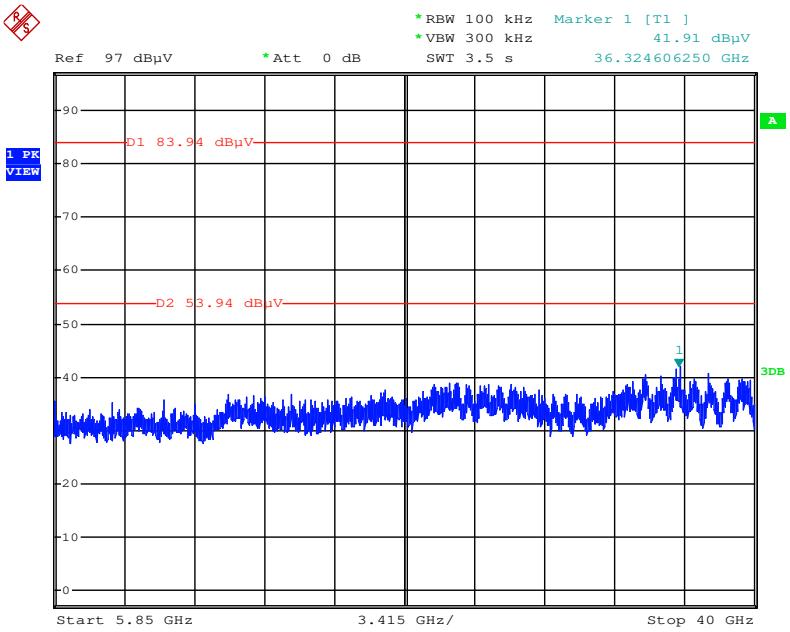
Plot on Configuration IEEE 802.11a / CH 165 / 5850MHz~5860MHz (down 30dBc) (Horizontal)



Date: 20.JUN.2014 16:57:51

Note: Only the worse polarization (Horizontal) is tested and recorded in test report.

Plot on Configuration IEEE 802.11a / CH 165 / 5850MHz~40000MHz (down 30dBc) (Horizontal)



Date: 10.MAY.2014 16:25:34

Note: Only the worse polarization (Horizontal) is tested and recorded in test report.

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	9 kHz ~ 2.75 GHz	Apr. 23, 2014	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150 kHz ~ 100 MHz	Nov. 23, 2013	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127478	9kHz ~ 30MHz	Nov. 11, 2013	Conduction (CO01-CB)
COND Cable	Woken	Cable	01	150 kHz ~ 30 MHz	Dec. 04, 2013	Conduction (CO01-CB)
Software	Audix	E3	5.410e	-	N.C.R.	Conduction (CO01-CB)
BILOG ANTENNA	Schaffner	CBL6112D	2888	20MHz ~ 2GHz	Jan. 15, 2014	Radiation (03CH01-CB)
Loop Antenna	Teseq	HLA 6120	24155	9 kHz - 30 MHz	Nov. 05, 2012*	Radiation (03CH01-CB)
Horn Antenna	EMCO	3115	00075790	750MHz~18GHz	Nov. 01, 2013	Radiation (03CH01-CB)
Horn Antenna	SCHWARZBEAK	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Dec. 17, 2013	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8447D	2944A10991	0.1MHz ~ 1.3GHz	Nov. 12, 2013	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Dec. 16, 2013	Radiation (03CH01-CB)
Pre-Amplifier	WM	TF-130N-R1	923365	26GHz ~ 40GHz	Oct. 23, 2013	Radiation (03CH01-CB)
Spectrum analyzer	R&S	FSP40	100019	9kHz~40GHz	Dec. 02, 2013	Radiation (03CH01-CB)
EMI Test Receiver	Agilent	N9038A	MY52260123	9kHz ~ 8GHz	Dec. 12, 2013	Radiation (03CH01-CB)
Turn Table	INN CO	CO 2000	N/A	0 ~ 360 degree	N.C.R	Radiation (03CH01-CB)
Antenna Mast	INN CO	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. 17, 2013	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-3	N/A	1 GHz - 40 GHz	Nov. 17, 2013	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-4	N/A	1 GHz - 40 GHz	Nov. 17, 2013	Radiation (03CH01-CB)
Signal analyzer	R&S	FSV40	100979	9kHz~40GHz	Nov. 29, 2013	Conducted (TH01-CB)
RF Power Divider	Woken	2 Way	0120A02056002D	2GHz ~ 18GHz	Nov. 17, 2013	Conducted (TH01-CB)
RF Power Divider	Woken	3 Way	MDC2366	2GHz ~ 18GHz	Nov. 17, 2013	Conducted (TH01-CB)
RF Power Divider	Woken	4 Way	0120A04056002D	2GHz ~ 18GHz	Nov. 17, 2013	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-7	-	1 GHz – 26.5 GHz	Nov. 17, 2013	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-8	-	1 GHz – 26.5 GHz	Nov. 17, 2013	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-9	-	1 GHz – 26.5 GHz	Nov. 17, 2013	Conducted (TH01-CB)

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
RF Cable-high	Woken	High Cable-10	-	1 GHz – 26.5 GHz	Nov. 17, 2013	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-11	-	1 GHz – 26.5 GHz	Nov. 17, 2013	Conducted (TH01-CB)
Power Sensor	Anritsu	MA2411B	0917223	300MHz~40GHz	Sep. 18, 2013	Conducted (TH01-CB)
Power Meter	Anritsu	ML2495A	1035008	300MHz~40GHz	Sep. 18, 2013	Conducted (TH01-CB)

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

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

NCR means Non-Calibration required.

6. MEASUREMENT UNCERTAINTY

Uncertainty of Conducted Emission Measurement (150kHz ~ 30MHz)

Contribution	Uncertainty of x_i			$u(x_i)$
	Value	Unit	Probability Distribution k	
Receiver reading	0.026	dB	normal(k=2)	0.013
Cable loss	0.002	dB	normal(k=2)	0.001
AMN/LISN specification	1.200	dB	normal(k=2)	0.600
Mismatch Receiver VSWR 1= AMN/LISN VSWR 2=	-0.080	dB	U-shaped	0.060
Combined standard uncertainty Uc(y)				1.2
Measuring uncertainty for a level of confidence of 95% U=2Uc(y)				2.4

Uncertainty of Radiated Emission Measurement (30MHz ~ 1,000MHz)

Contribution	Uncertainty of x_i			$u(x_i)$
	Value	Unit	Probability Distribution k	
Receiver reading	±0.173	dB	k=1	0.086
Cable loss	±0.174	dB	k=2	0.087
Antenna gain	±0.169	dB	k=2	0.084
Site imperfection	±0.433	dB	Triangular	0.214
Pre-amplifier gain	±0.366	dB	k=2	0.183
Transmitter antenna	±1.200	dB	Rectangular	0.600
Signal generator	±0.461	dB	Rectangular	0.231
Mismatch	±0.080	dB	U-shape	0.040
Spectrum analyzer	±0.500	dB	Rectangular	0.250
Combined standard uncertainty Uc(y)				1.778
Measuring uncertainty for a level of confidence of 95% U=2Uc(y)				3.555

Uncertainty of Radiated Emission Measurement (1GHz ~ 18GHz)

Contribution	Uncertainty of x_i			$u(x_i)$
	Value	Unit	Probability Distribution k	
Receiver reading	±0.191	dB	k=1	0.095
Cable loss	±0.169	dB	k=2	0.084
Antenna gain	±0.191	dB	k=2	0.096
Site imperfection	±0.582	dB	Triangular	0.291
Pre-amplifier gain	±0.304	dB	k=2	0.152
Transmitter antenna	±1.200	dB	Rectangular	0.600
Signal generator	±0.461	dB	Rectangular	0.231
Mismatch	±0.080	dB	U-shape	0.040
Spectrum analyzer	±0.500	dB	Rectangular	0.250
Combined standard uncertainty Uc(y)				1.839
Measuring uncertainty for a level of confidence of 95% U=2Uc(y)				3.678

Uncertainty of Radiated Emission Measurement (18GHz ~ 40GHz)

Contribution	Uncertainty of x_i			$u(x_i)$
	Value	Unit	Probability Distribution k	
Receiver reading	±0.186	dB	k=1	0.093
Cable loss	±0.167	dB	k=2	0.083
Antenna gain	±0.190	dB	k=2	0.095
Site imperfection	±0.488	dB	Triangular	0.244
Pre-amplifier gain	±0.269	dB	k=2	0.134
Transmitter antenna	±1.200	dB	Rectangular	0.600
Signal generator	±0.461	dB	Rectangular	0.231
Mismatch	±0.080	dB	U-shape	0.040
Spectrum analyzer	±0.500	dB	Rectangular	0.250
Combined standard uncertainty Uc(y)				1.771
Measuring uncertainty for a level of confidence of 95% U=2Uc(y)				3.541

Uncertainty of Conducted Emission Measurement

Contribution	Uncertainty of x_i			$u(x_i)$
	Value	Unit	Probability Distribution k	
Cable loss	±0.038	dB	k=2	0.019
Attenuator	±0.047	dB	k=2	0.024
Power Meter specification	±0.300	dB	Triangular	0.150
Power Sensor specification	±0.300	dB	Rectangular	0.150
Signal generator	±0.461	dB	Rectangular	0.231
Mismatch	±0.080	dB	U-shape	0.040
Spectrum analyzer	±0.500	dB	Rectangular	0.250
Combined standard uncertainty Uc(y)				0.863
Measuring uncertainty for a level of confidence of 95% U=2Uc(y)				1.726