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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	Jul. 22, 2015
Submission Type	Class II Change

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 C63.10-2013**, **47 CFR FCC Part 15 Subpart C**, **KDB558074 D01 v03r03** 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
FR440181-03AA	Rev. 01	Initial issue of report	Jul. 29, 2015

1. VERIFICATION 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

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	14.38 dB
4.2	15.247(b)(3)	Maximum Conducted Output Power	Complies	7.34 dB
4.3	15.247(e)	Power Spectral Density	Complies	16.14 dB
4.4	15.247(a)(2)	6dB Spectrum Bandwidth	Complies	-
4.5	15.247(d)	Radiated Emissions	Complies	0.04 dB
4.6	15.247(d)	Band Edge Emissions	Complies	0.12 dB
4.7	15.203	Antenna Requirements	Complies	-

3. GENERAL INFORMATION

3.1. Product Details

Items	Description
Product Type	For 2.4GHz Band: IEEE 802.11b: WLAN (1TX, 1RX) IEEE 802.11g: WLAN (2TX, 2RX) IEEE 802.11n: WLAN (2TX, 2RX) For 5GHz Band: IEEE 802.11a: WLAN (2TX, 2RX) IEEE 802.11n: WLAN (2TX, 2RX)
Radio Type	Intentional Transceiver
Power Type	From host system
Modulation	IEEE 802.11b: DSSS IEEE 802.11a/g: OFDM IEEE 802.11n: see the below table
Data Modulation	IEEE 802.11b: DSSS (BPSK / QPSK / CCK) IEEE 802.11a/g/n: OFDM (BPSK / QPSK / 16QAM / 64QAM)
Data Rate (Mbps)	IEEE 802.11b: DSSS (1/ 2/ 5.5/11) IEEE 802.11a/g: OFDM (6/9/12/18/24/36/48/54) IEEE 802.11n: see the below table
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
Maximum Conducted Output Power	For 2.4GHz Band: IEEE 802.11b: 18.71 dBm IEEE 802.11g: 22.40 dBm IEEE 802.11n MCS0 (HT20): 22.66 dBm IEEE 802.11n MCS0 (HT40): 15.04 dBm For 5GHz Band: IEEE 802.11a: 18.38 dBm IEEE 802.11n MCS0 (HT20): 18.33 dBm IEEE 802.11n MCS0 (HT40): 20.17 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
2.4G	IEEE 802.11b	V	X	X	X
	IEEE 802.11g	X	X	V	X
	IEEE 802.11n	X	X	V	V
5G	IEEE 802.11a	X	X	V	X
	IEEE 802.11n	X	X	V	V

IEEE 11n Spec.

Protocol		Number of Transmit Chains (NTX)	Data Rate / MCS
2.4G	802.11n (HT20)	2	MCS 0-15
	802.11n (HT40)	2	MCS 0-15
5G	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 supports 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 (Part Number)	Antenna Type	Connector	Gain (dBi)				
						2.4G	5G B1	5G B2	5G B3	5G B4
1	1	WNC	81XCAA15.G03 (497317-003)	Dipole antenna	Reversed-SMA	1.26	1.58	1.58	1.01	1.09
	2	WNC	81XCAA15.G03 (497317-003)	Dipole antenna	Reversed-SMA	1.26	1.58	1.58	1.01	1.09
2	1	ACON	DM(External) SMA Dipole	Dipole antenna	Reversed-SMA	-1.04	-2.45	-3.28	-4.13	-4.17
	2	ACON	DM(External) SMA Dipole	Dipole antenna	Reversed-SMA	-1.04	-2.45	-3.28	-4.13	-4.17

Note1: The each set has two antennas.

Note2: Set 1~2 are the same type antenna. Only the highest gain antenna was selected to test and record in this report.

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:

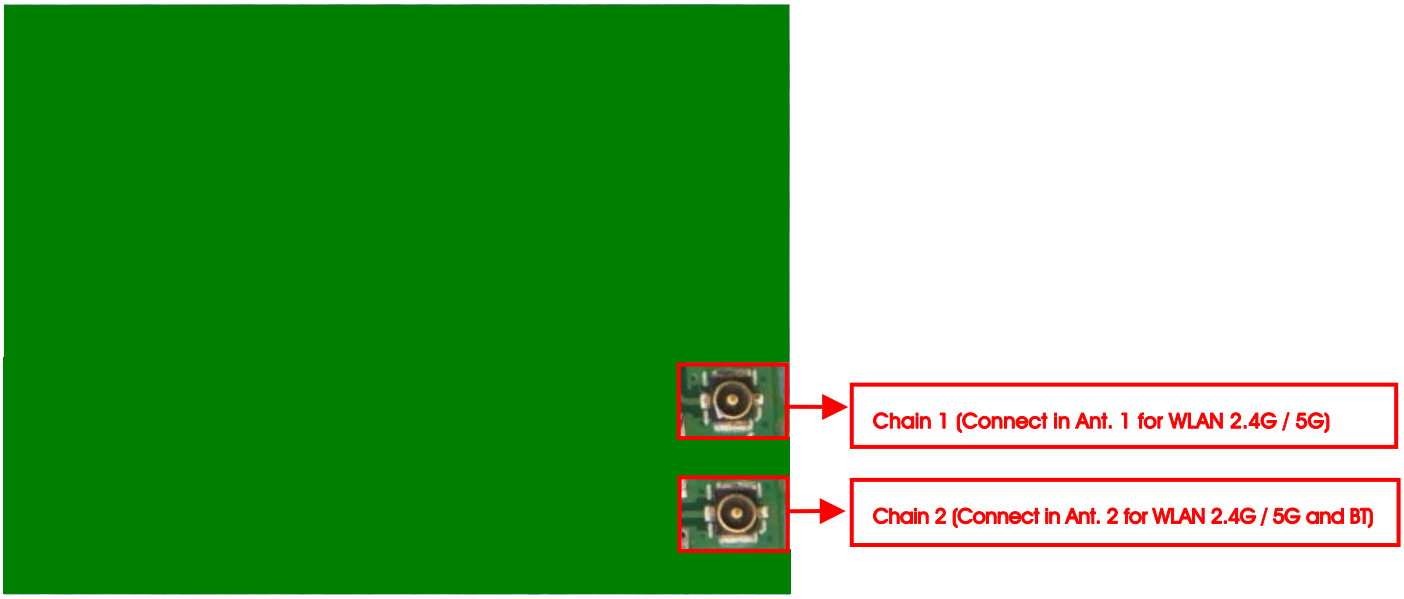
For IEEE 802.11a/n mode (2TX/2RX)

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.


Chain 1 (Connect in Ant. 1 for WLAN 2.4G / 5G)
Chain 2 (Connect in Ant. 2 for WLAN 2.4G / 5G and BT)

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	11b/CCK	1 Mbps	11	1
Power Spectral Density	11b/CCK	1 Mbps	11	1
6dB Spectrum Bandwidth	11b/CCK	1 Mbps	11	1
Radiated Emissions Below 1GHz	Normal Link	-	-	-
Radiated Emissions Above 1GHz	11b/CCK	1 Mbps	1/6/11/12/13	1
	11g/BPSK	6 Mbps	1/6/11/12/13	1+2
	11n HT20	MCS0	1/6/11/12/13	1+2
	11n HT40	MCS0	3/6/9/10/11	1+2
Band Edge Emissions	11b/CCK	1 Mbps	1/6/11/12/13	1
	11g/BPSK	6 Mbps	1/6/11/12/13	1+2
	11n HT20	MCS0	1/6/11/12/13	1+2
	11n HT40	MCS0	3/6/9/10/11	1+2

For 5GHz Band

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

This product is an extension of original one reported under Sporton project number: FR440181AA

Below is the table for the change of the product with respect to the original one.

Modifications	Performance Checking
Adding two set dipole antennas for the device.	1. AC Conducted Emissions 2. Maximum Conducted Output Power Measurement 3. Power Spectral Density Measurement 4. 6dB Spectrum Bandwidth Measurement 5. Radiated Emissions Measurement 6. Emissions Measurement 7. Radiated Emission Co-location

Note1: The above test items will be based on original output power to re-test.

Note2: There is no change in hardware or in existing RF relevant portion.

Note3: Configuration IEEE 802.11b 1 Mbps Channel 11 / IEEE 802.11n MCS0 HT40 Channel 159 power reduced due to limitation of Radiated Out of Band Emission, so the Maximum Conducted Output Power Measurement、Power Spectral Density Measurement and 6dB Spectrum Bandwidth Measurement were retested.

3.8. Table for Supporting Units

For Test Site No: CO01-CB

Support Unit	Brand	Model	FCC ID
NB	DELL	E6220	DoC
AP Router	Planex	GW-AP54SGX	KA220030603014-1
Broadcom 802.11a/b/g/n WLAN+ Bluetooth PCI-E NGFF2230 card (Device)	Broadcom	BCM943228Z	QDS-BRCM1084
NB	DELL	E6430	DoC
Mouse	HP	FM100	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
NB	DELL	E4300	DoC
Wireless ac AP	Netgear	R6300V2	PY313200227
Broadcom 802.11a/b/g/n WLAN+ Bluetooth PCI-E NGFF2230 card (Device)	Broadcom	BCM943228Z	QDS-BRCM1084
NB	DELL	E4300	DoC
Mouse	Logitech	M-U0026	DoC
Earphone	e-Power	S90W	N/A
Test Fixture*2	Broadcom	BCM9NGFF2EC_1	N/A

For Test Site No: 03CH01-CB (For Above 1GHz) and TH01-CB

Support Unit	Brand	Model	FCC ID
NB	DELL	E4300	DoC
Test Fixture	Broadcom	BCM9NGFF2EC_1	N/A

3.9. 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

Test Software Version	MTool 2.0.1.6				
Mode	Test Frequency (MHz)				
	NCB: 20MHz				
	2412 MHz	2437 MHz	2462 MHz	2467 MHz	2472 MHz
802.11b	64	71	60	64	46
802.11g	50	74	54	45	38
802.11n MCS0 HT20	50	75	48	43	34

Test Software Version	MTool 2.0.1.6				
Mode	Test Frequency (MHz)				
	NCB: 40MHz				
	2422 MHz	2437 MHz	2452 MHz	2457 MHz	2462 MHz
802.11n MCS0 HT40	42	43	42	40	25

For 5GHz Band

Test Software Version	MTool 2.0.1.6				
Mode	Test Frequency (MHz)				
	NCB: 20MHz			NCB: 40MHz	
	5745 MHz	5785 MHz	5825 MHz	5755 MHz	5795 MHz
802.11a	62	62	61	-	-
802.11n MCS0 HT20	62	62	61	-	-
802.11n MCS0 HT40	-	-	-	50	70

3.10. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

3.11. Duty Cycle

Band	Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
2.4G	802.11b	-	-	100	0.00	0.01
	802.11g	2.070	2.090	99.04	0.04	0.01
	802.11n MCS0 HT20	1.920	1.940	98.97	0.05	0.01
	802.11n MCS0 HT40	0.950	0.975	97.44	0.11	1.05
5G	802.11a	2.060	2.090	98.56	0.06	0.01
	802.11n MCS0 HT20	1.910	1.940	98.45	0.07	0.01
	802.11n MCS0 HT40	0.930	0.950	97.89	0.09	1.08

3.12. Maximum Conducted Output Power for original report

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

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

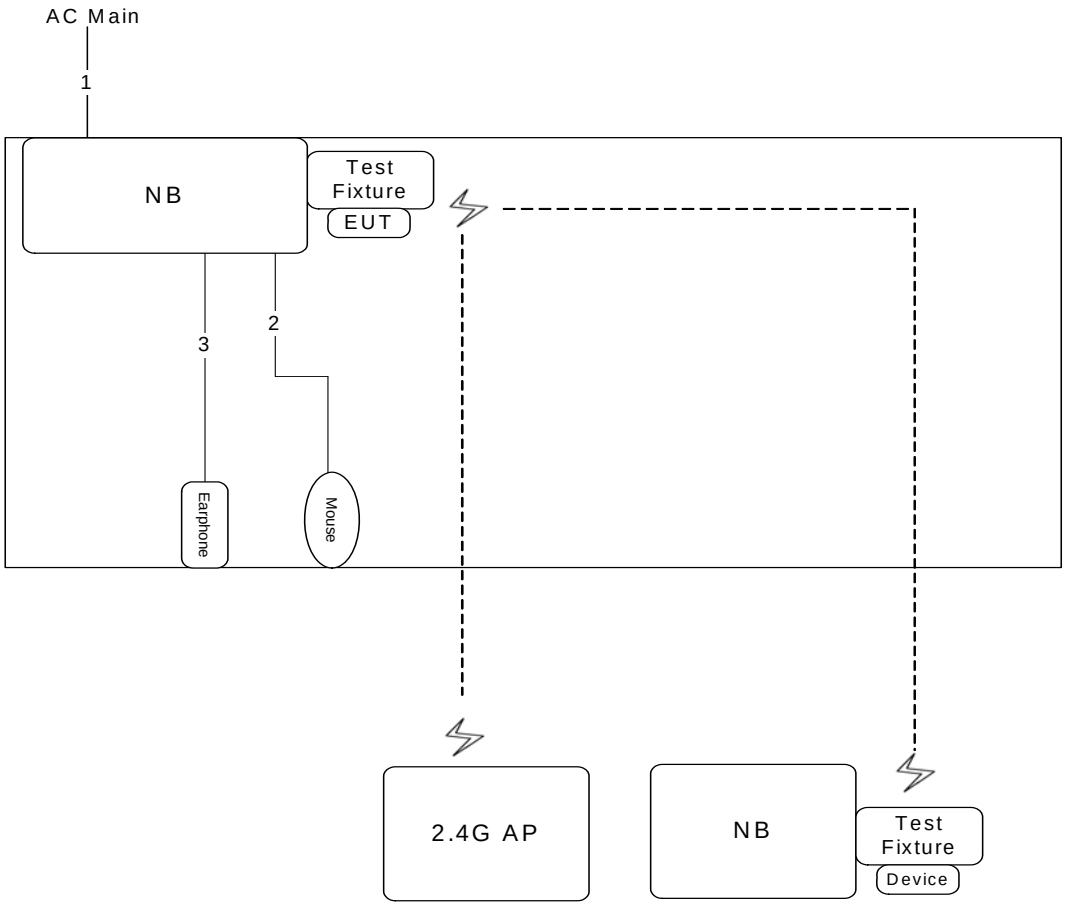
Note: Antenna gain=6.21dBi>6dBi,so B4 Power Limit=30-(6.21-6)=29.79dBm

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

3.13. Test Configurations

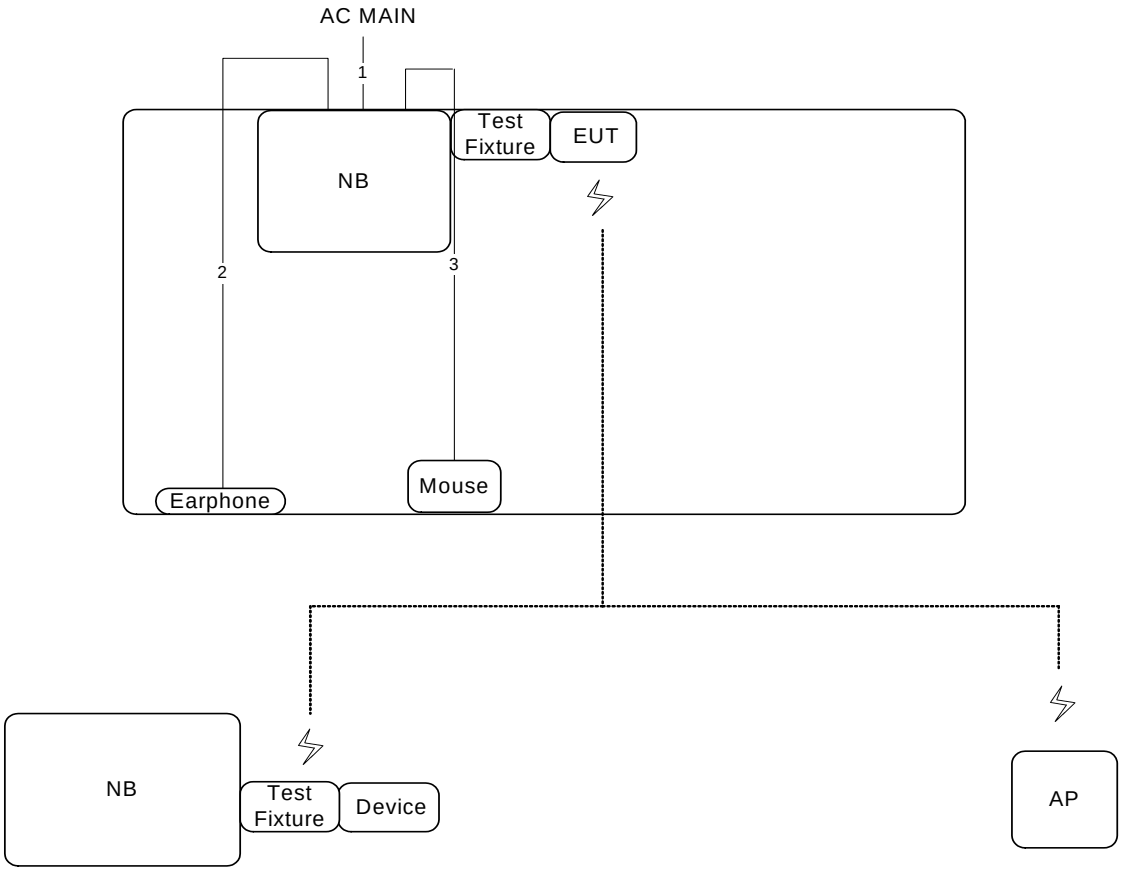
3.13.1. AC Power Line Conduction Emissions Test Configuration



Item	Connection	Shielded	Length(m)
1	Power cable	No	2.6
2	USB cable	Yes	1.8
3	Audio cable	No	1.1

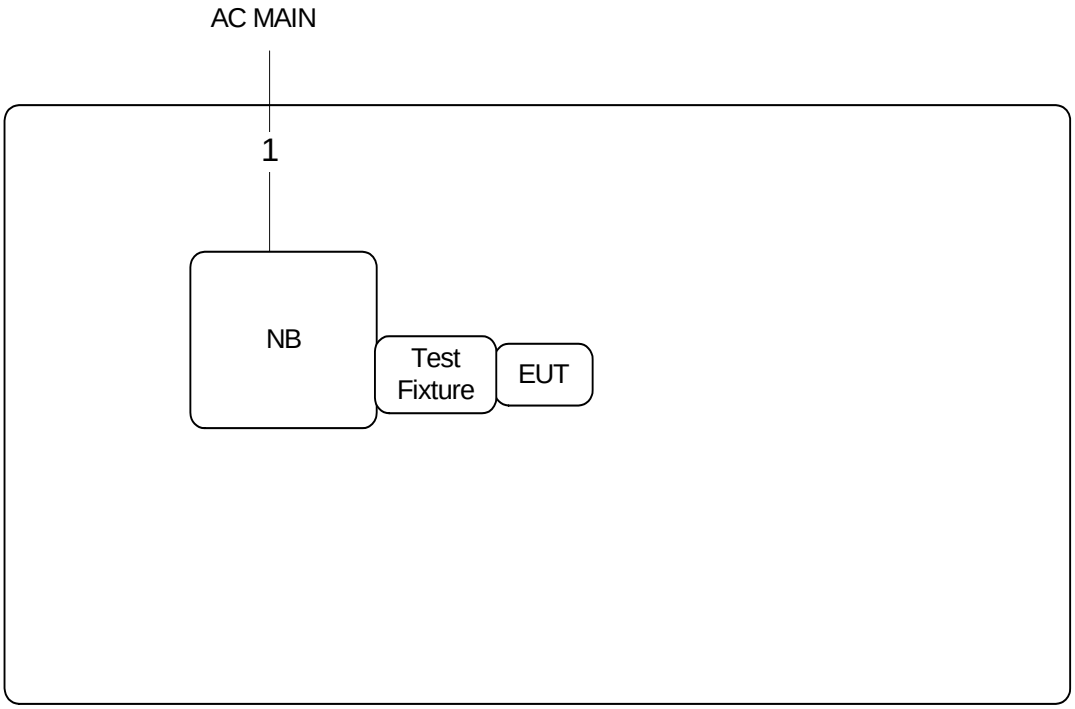
3.13.2. Radiation Emissions Test Configuration

Test Configuration: 30MHz~1GHz



Item	Connection	Shielded	Length(m)
1	Power cable	No	2.6
2	Audio cable	No	1.4
3	USB cable	Yes	1.8

Test Configuration: above 1GHz



Item	Connection	Shielded	Length(m)
1	Power cable	No	2.6

4. TEST RESULT

4.1. AC Power Line Conducted Emissions Measurement

4.1.1. Limit

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

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

4.1.2. Measuring Instruments and Setting

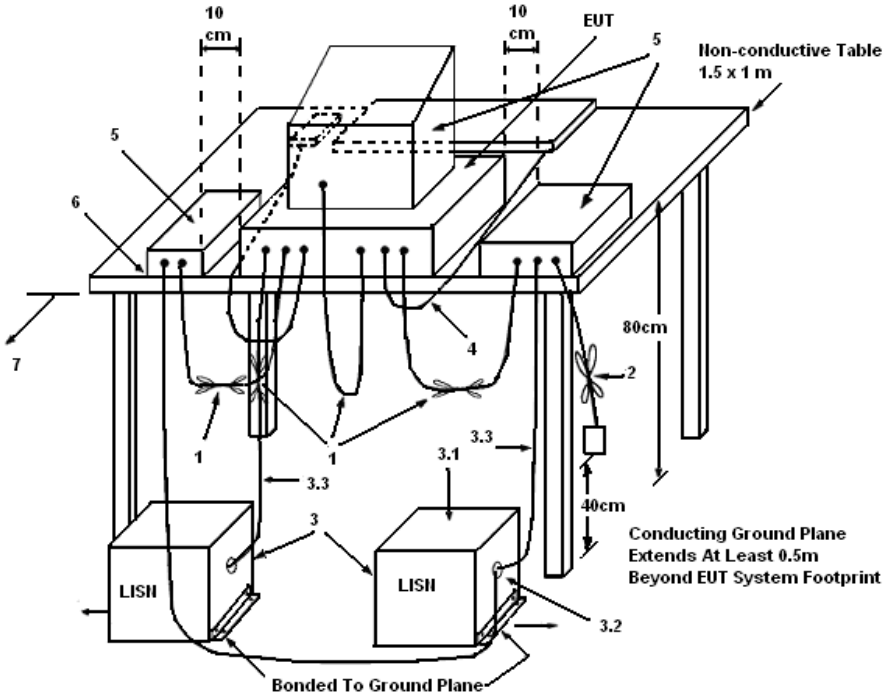
Please refer to section 5 of equipments list in this report. The following table is the setting of the receiver.

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

4.1.3. Test Procedures

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

4.1.4. Test Setup Layout



LEGEND:

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

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

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

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

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

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

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

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

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

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

4.1.5. Test Deviation

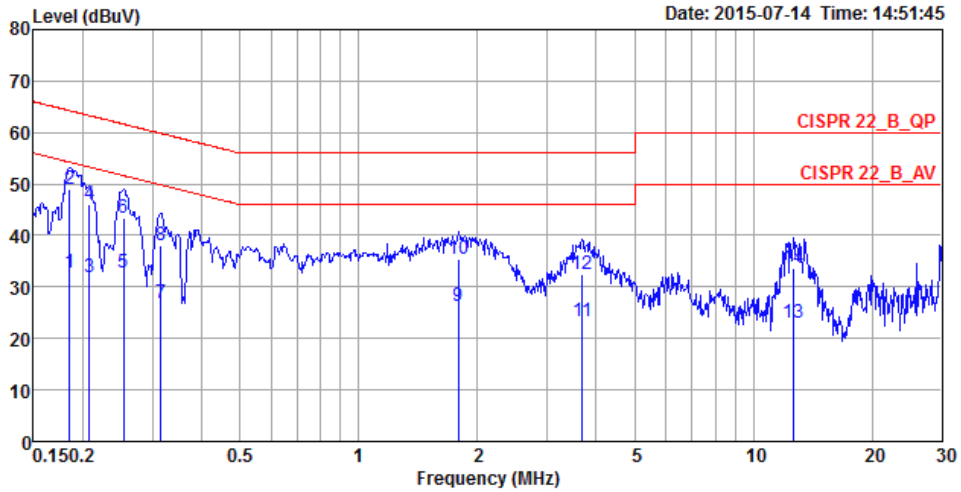
There is no deviation with the original standard.

4.1.6. EUT Operation during Test

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

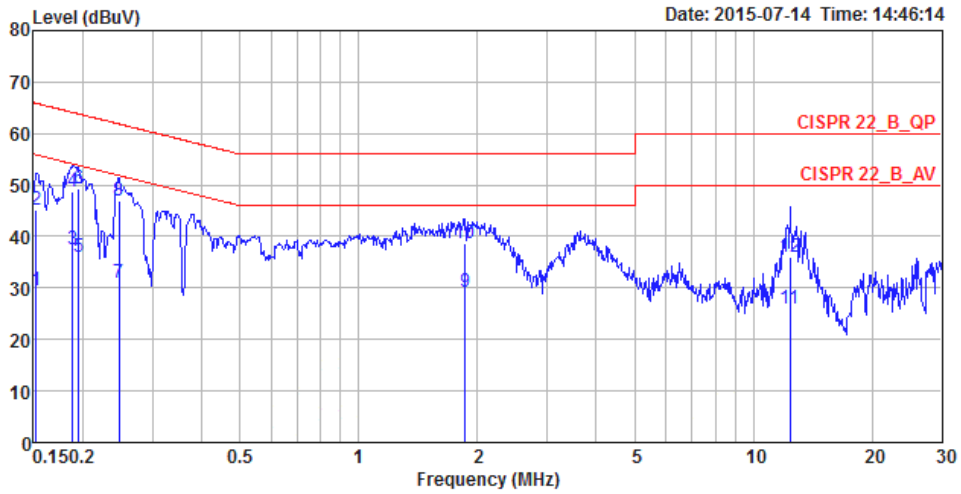
4.1.7. Results of AC Power Line Conducted Emissions Measurement

Temperature	22℃	Humidity	58%
Test Engineer	Ryo Fan	Phase	Line
Configuration	Normal Link	Test Mode	Mode 1



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.1854	32.82	-21.42	54.24	22.62	10.01	0.19	LINE	Average
2	0.1854	48.90	-15.34	64.24	38.70	10.01	0.19	LINE	QP
3	0.2072	31.85	-21.47	53.32	21.65	10.01	0.19	LINE	Average
4	0.2072	46.05	-17.27	63.32	35.85	10.01	0.19	LINE	QP
5	0.2535	32.71	-18.93	51.64	22.51	10.01	0.19	LINE	Average
6	0.2535	43.52	-18.12	61.64	33.32	10.01	0.19	LINE	QP
7	0.3149	26.93	-22.91	49.84	16.72	10.01	0.20	LINE	Average
8	0.3149	38.01	-21.83	59.84	27.80	10.01	0.20	LINE	QP
9	1.7905	26.25	-19.75	46.00	15.95	10.05	0.25	LINE	Average
10	1.7905	35.54	-20.46	56.00	25.24	10.05	0.25	LINE	QP
11	3.6806	23.43	-22.57	46.00	13.05	10.08	0.30	LINE	Average
12	3.6806	32.60	-23.40	56.00	22.22	10.08	0.30	LINE	QP
13	12.5821	22.96	-27.04	50.00	12.27	10.28	0.41	LINE	Average
14	12.5821	33.67	-26.33	60.00	22.98	10.28	0.41	LINE	QP

Temperature	22°C	Humidity	58%
Test Engineer	Ryo Fan	Phase	Neutral
Configuration	Normal Link	Test Mode	Mode 1



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.1524	29.49	-26.38	55.87	19.32	10.00	0.17	NEUTRAL	Average
2	0.1524	45.02	-20.85	65.87	34.85	10.00	0.17	NEUTRAL	QP
3	0.1884	37.43	-16.68	54.11	27.23	10.01	0.19	NEUTRAL	Average
4	0.1884	48.81	-15.30	64.11	38.61	10.01	0.19	NEUTRAL	QP
5	0.1955	35.97	-17.83	53.80	25.77	10.01	0.19	NEUTRAL	Average
6	0.1955	49.42	-14.38	63.80	39.22	10.01	0.19	NEUTRAL	QP
7	0.2468	30.90	-20.96	51.86	20.70	10.01	0.19	NEUTRAL	Average
8	0.2468	46.82	-15.04	61.86	36.62	10.01	0.19	NEUTRAL	QP
9	1.8581	29.22	-16.78	46.00	18.92	10.04	0.26	NEUTRAL	Average
10	1.8581	38.74	-17.26	56.00	28.44	10.04	0.26	NEUTRAL	QP
11	12.3837	25.97	-24.03	50.00	15.30	10.27	0.40	NEUTRAL	Average
12	12.3837	36.10	-23.90	60.00	25.43	10.27	0.40	NEUTRAL	QP

Note:

Level = Read Level + LISN Factor + Cable Loss

4.2. Maximum Conducted Output Power Measurement

4.2.1. Limit

The limit for output power is 30dBm.

4.2.2. Measuring Instruments and Setting

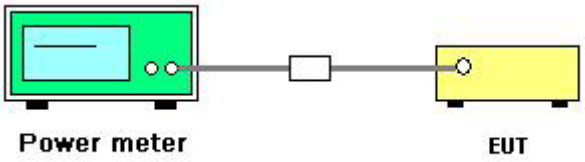
Please refer to section 5 of equipments list in this report. The following table is the setting of the power meter.

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

4.2.3. Test Procedures

1. Test procedures refer KDB558074 D01 v03r03 section 9.2.3.2 Measurement using a power meter (PM).
2. Multiple antenna systems was performed in accordance with KDB 662911 D01 v02r01 Emissions Testing of Transmitters with Multiple Outputs in the Same Band.
3. This procedure provides an alternative for determining the RMS output power using a broadband RF average power meter with a thermocouple detector.

4.2.4. Test Setup Layout



4.2.5. Test Deviation

There is no deviation with the original standard.

4.2.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.2.7. Test Result of Maximum Conducted Output Power

Temperature	25°C	Humidity	45%
Test Engineer	Roki Liu	Test Date	Jul. 20, 2015

For 2.4GHz Band

Mode	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1		
802.11b	2462 MHz	15.67	30.00	Complies

For 5GHz Band

Mode	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Chain 1	Chain 2	Total		
802.11n MCS0 HT40	5795 MHz	13.23	13.28	16.27	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

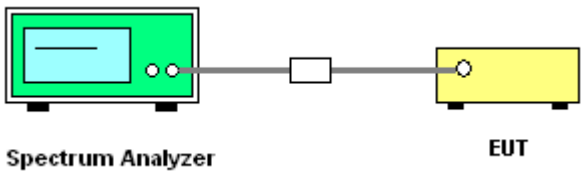
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

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 was performed in accordance with KDB558074 D01 v03r03 for Performing Compliance Measurements on Digital Transmission Systems (DTS) - section 10.2 Method PKPSD (peak PSD) and KDB 662911 D01 v02r01 section In-Band Power Spectral Density (PSD) Measurements option (b) Measure and sum spectral maximal across the outputs.
2. Use this procedure when the maximum conducted output power in the fundamental emission is used to demonstrate compliance. The EUT must be configured to transmit continuously at full power over the measurement duration.
3. Ensure that the number of measurement points in the sweep ≥ 2 x span/RBW (use of a greater number of measurement points than this minimum requirement is recommended).
4. Use the peak marker function to determine the maximum level in any 3 kHz band segment within the fundamental EBW.
5. The resulting PSD level must be ≤ 8 dBm.

4.3.4. Test Setup Layout



4.3.5. Test Deviation

There is no deviation with the original standard.

4.3.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.3.7. Test Result of Power Spectral Density

Temperature	25°C	Humidity	45%
Test Engineer	Roki Liu		

For 2.4GHz Band

Mode	Frequency	Power Density (dBm/3kHz)	Power Density Limit (dBm/3kHz)	Result
		Chain 1		
802.11b	2462 MHz	-8.14	8.00	Complies

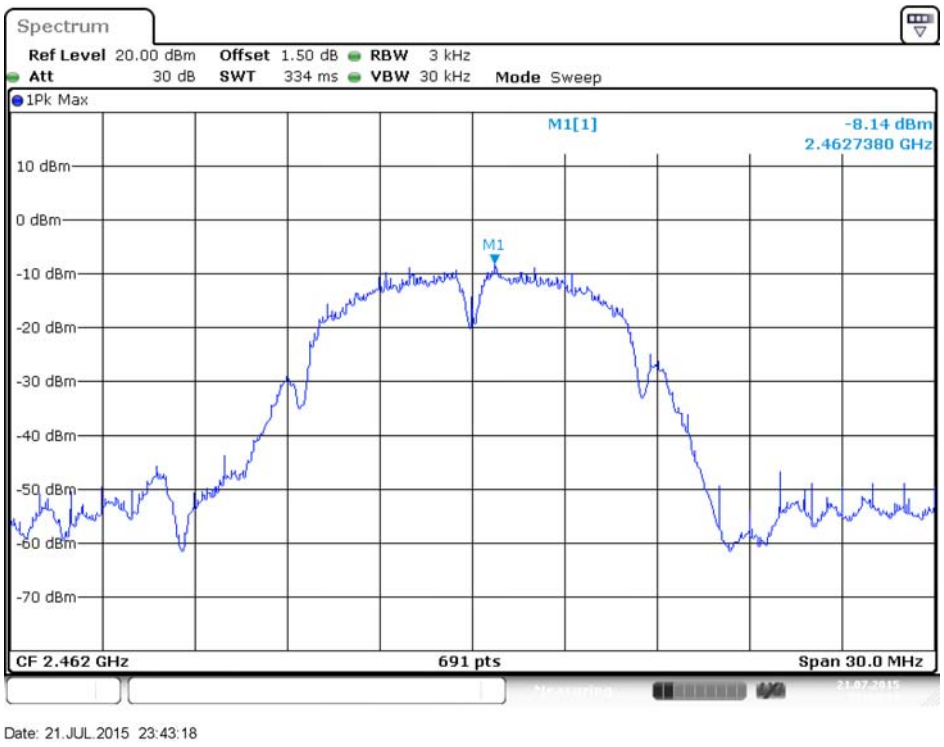
For 5GHz Band

Mode	Frequency	Power Density (dBm/3kHz)			Power Density Limit (dBm/3kHz)	Result
		Chain 1	Chain 2	Total		
802.11n MCS0 HT40	5755 MHz	-15.11	-15.53	-12.30	8.00	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =4.10dBi <6dBi, so the limit doesn't reduce.

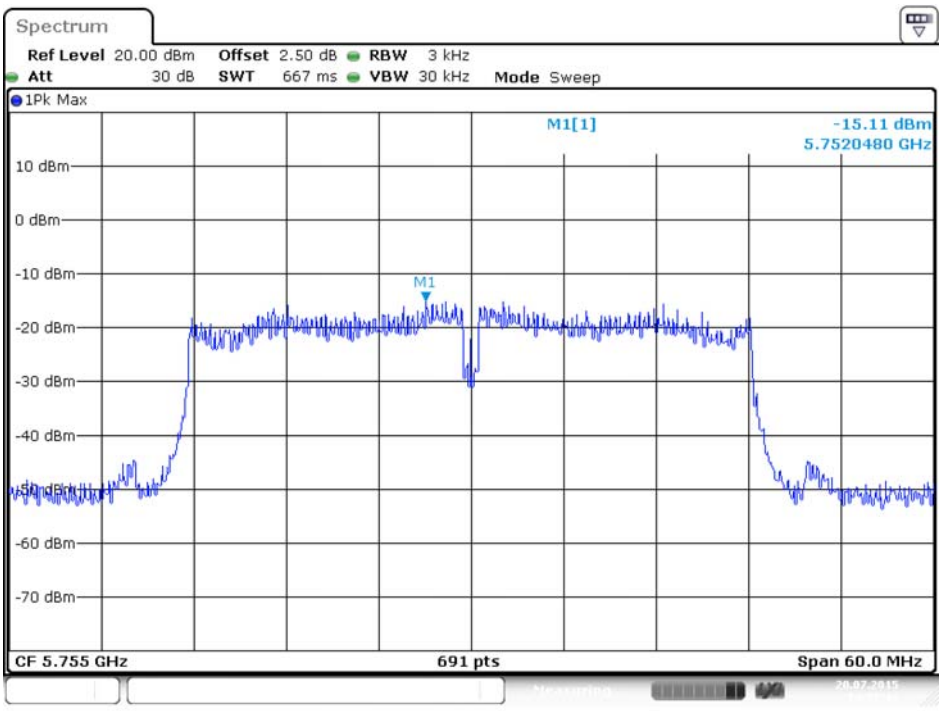
For 2.4GHz Band

Power Density Plot on Configuration IEEE 802.11b / 2462 MHz / Chain 1



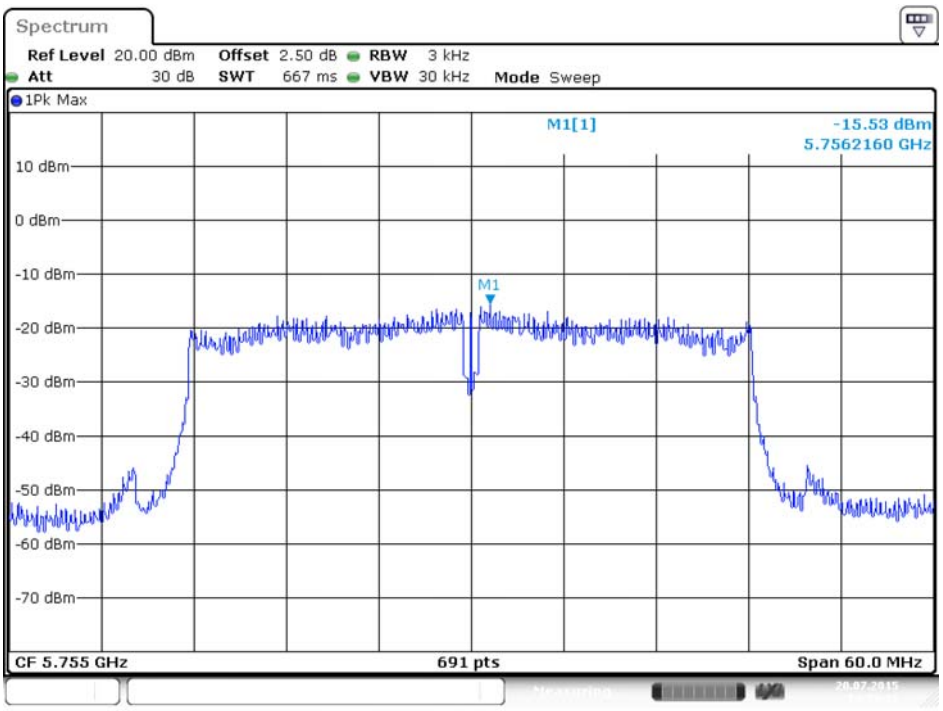
For 5GHz Band

Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / 5755 MHz / Chain 1



Date: 20.JUL.2015 14:57:41

Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / 5755 MHz / Chain 2



Date: 20.JUL.2015 14:59:11

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.

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

4.4.3. Test Procedures

1. The transmitter was radiated to the spectrum analyzer in peak hold mode.
2. Test was performed in accordance with KDB558074 D01 v03r03 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	25°C	Humidity	45%
Test Engineer	Roki Liu		

For 2.4GHz Band

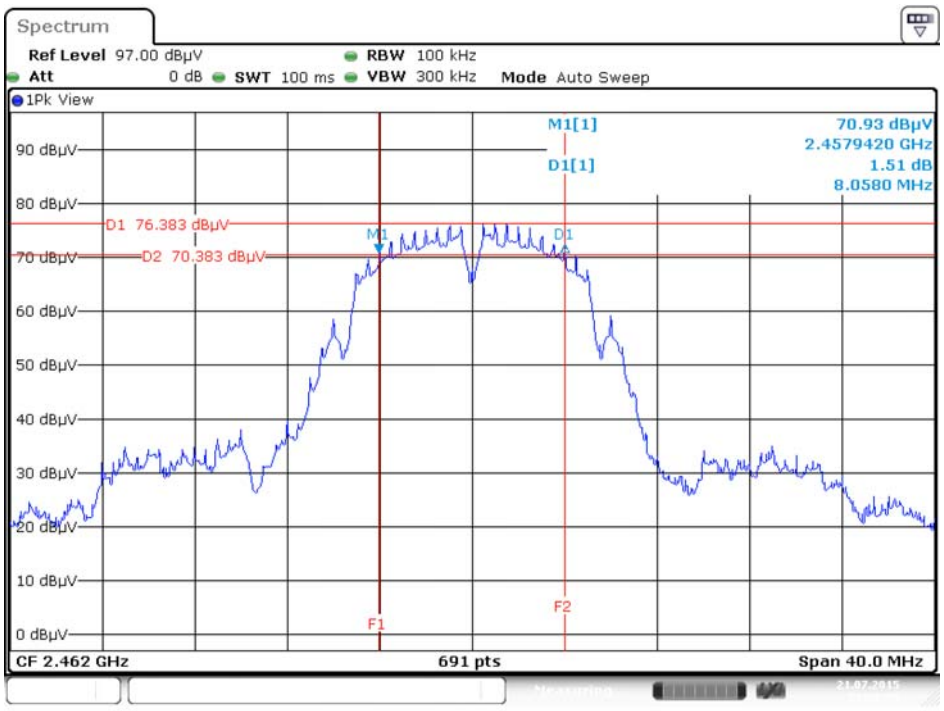
Mode	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
		Chain 1	Chain 1		
802.11b	2462 MHz	8.06	10.25	500	Complies

For 5GHz Band

Mode	Frequency	6dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)		Min. Limit (kHz)	Test Result
		Chain 1	Chain 2	Chain 1	Chain 2		
802.11n MCS0 HT40	5755 MHz	36.29	36.90	36.29	36.90	500	Complies

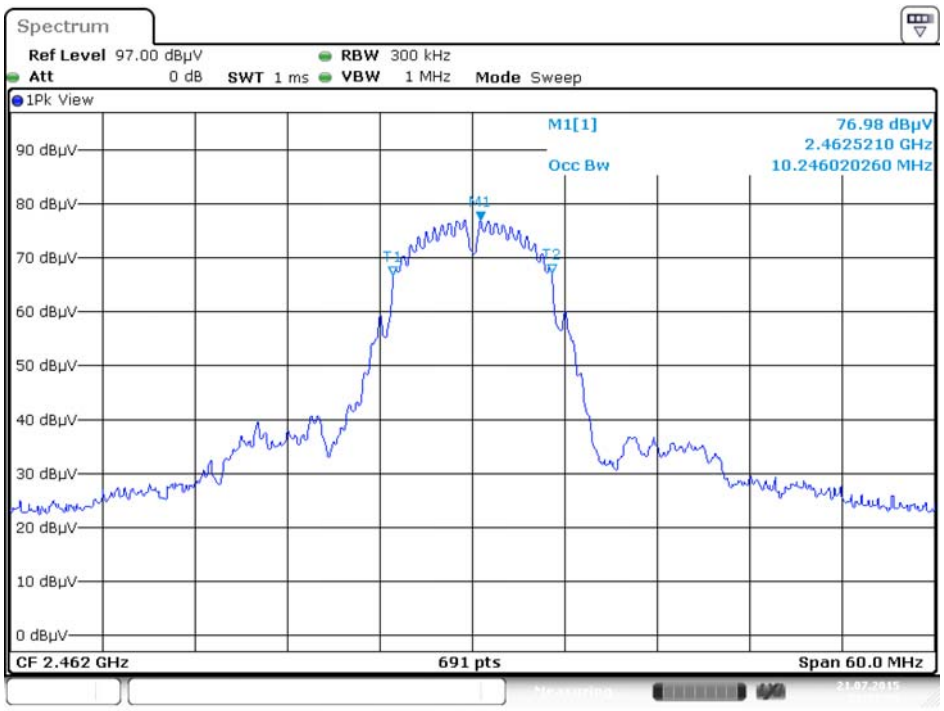
For 2.4GHz Band

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



Date: 21.JUL.2015 23:28:26

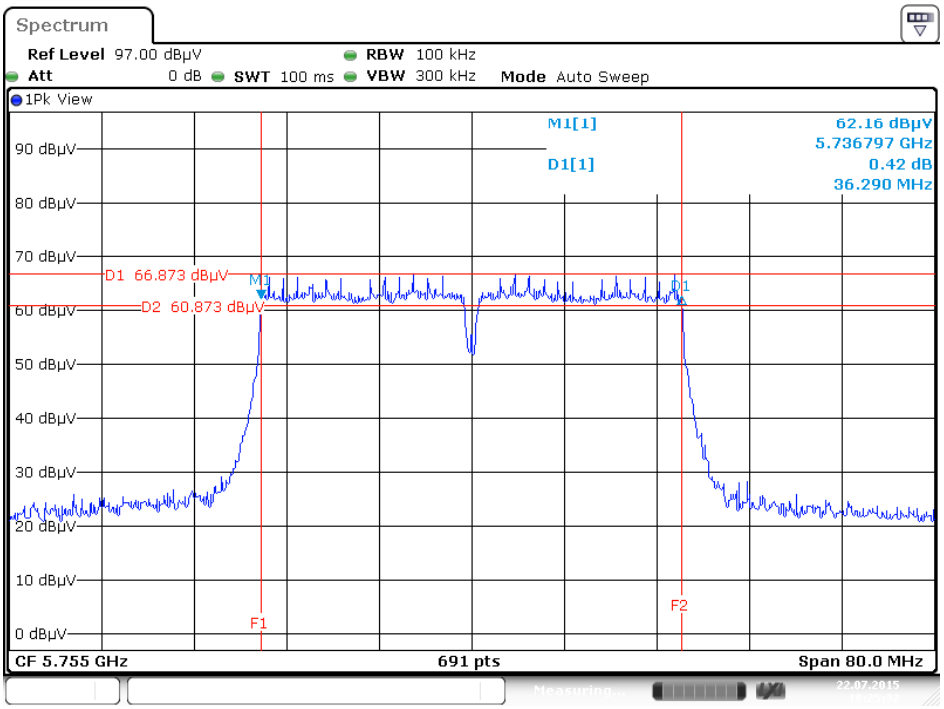
99% Occupied Bandwidth Plot on Configuration IEEE 802.11b / 2462 MHz / Chain 1



Date: 21.JUL.2015 23:37:26

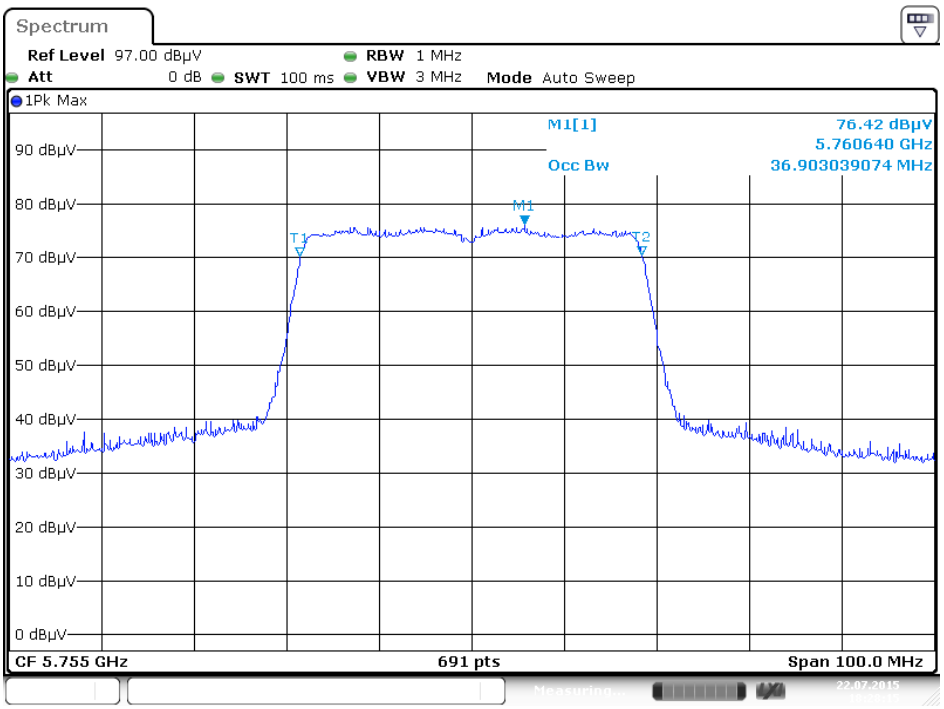
For 5GHz Band

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



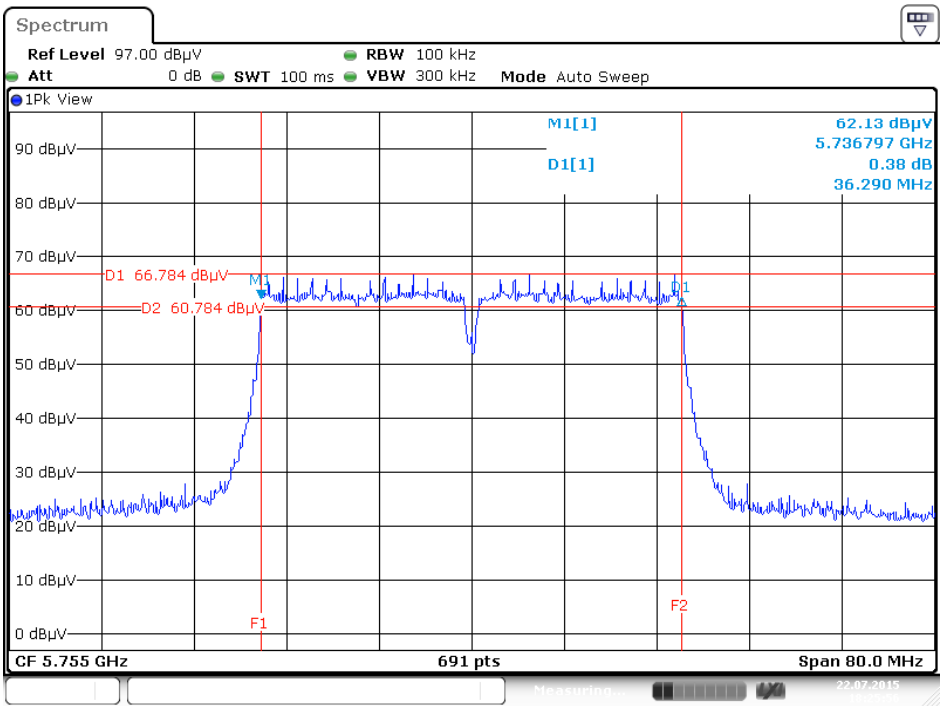
Date: 22.JUL.2015 18:25:32

99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT40 / 5755MHz / Chain 1



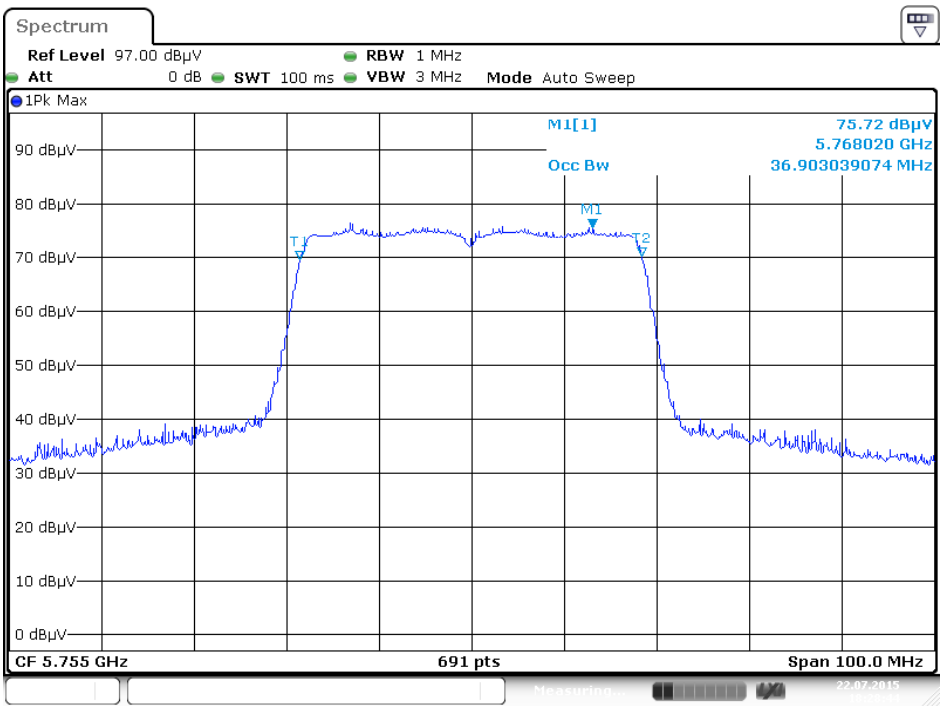
Date: 22.JUL.2015 18:28:15

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT40 / 5755MHz / Chain 2



Date: 22.JUL.2015 18:25:56

99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT40 / 5755MHz / Chain 2



Date: 22.JUL.2015 18:28:45

4.5. Radiated Emissions Measurement

4.5.1. Limit

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

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

4.5.2. Measuring Instruments and Setting

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

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

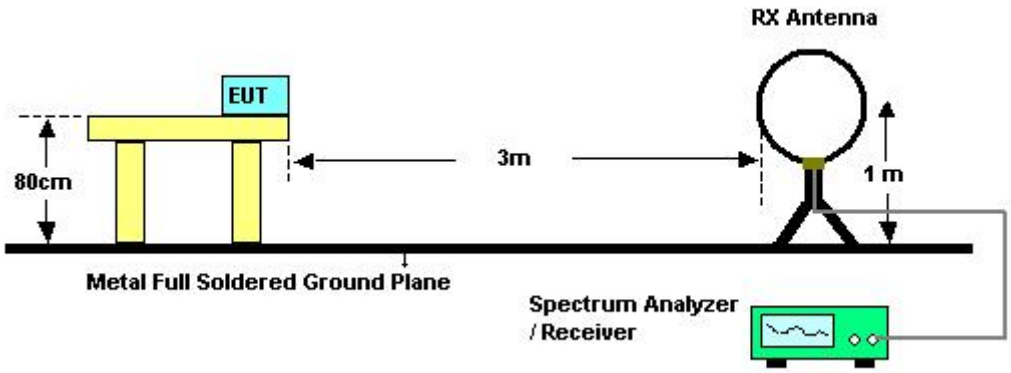
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RBW 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RBW 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RBW 120kHz for QP

4.5.3. Test Procedures

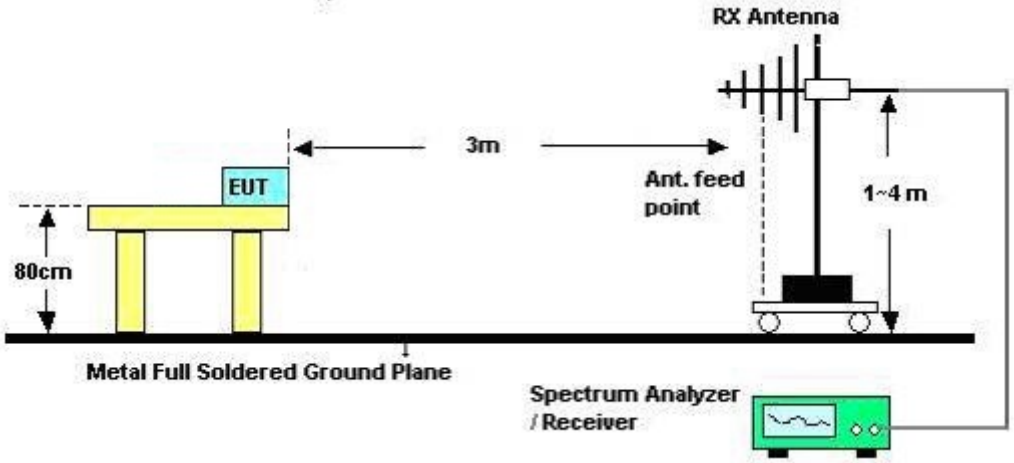
1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 1m & 3m far away from the turntable.
2. Power on the EUT and all the supporting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

4.5.4. Test Setup Layout

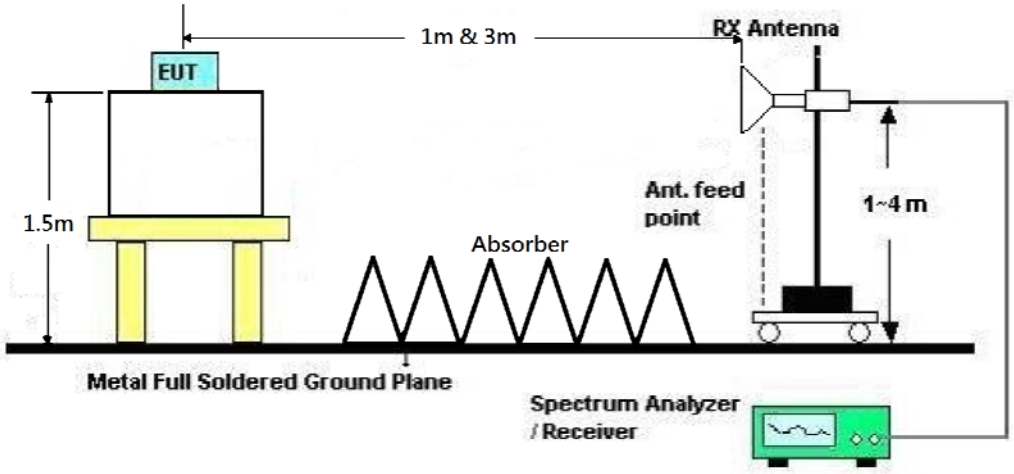
For Radiated Emissions: 9kHz ~30MHz



For Radiated Emissions: 30MHz~1GHz



For Radiated Emissions: Above 1GHz



4.5.5. Test Deviation

There is no deviation with the original standard.

4.5.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

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

Temperature	22°C	Humidity	64%
Test Engineer	Magic Lai	Configurations	Normal Link
Test Date	Jul. 16, 2015	Test Mode	Mode 1

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

Note:

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

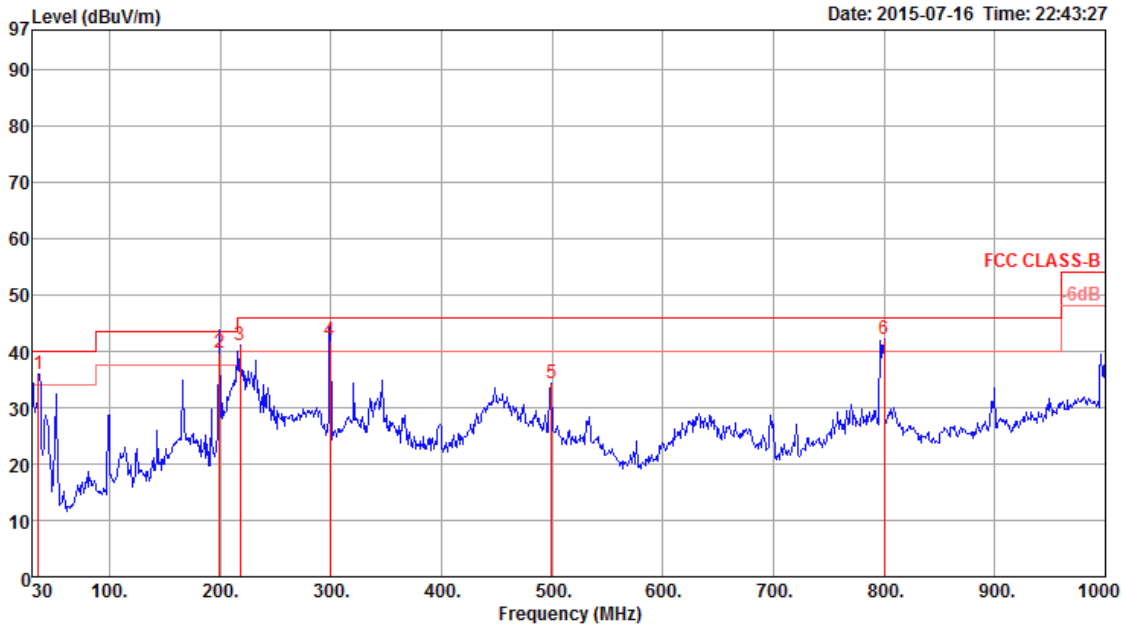
Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

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

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

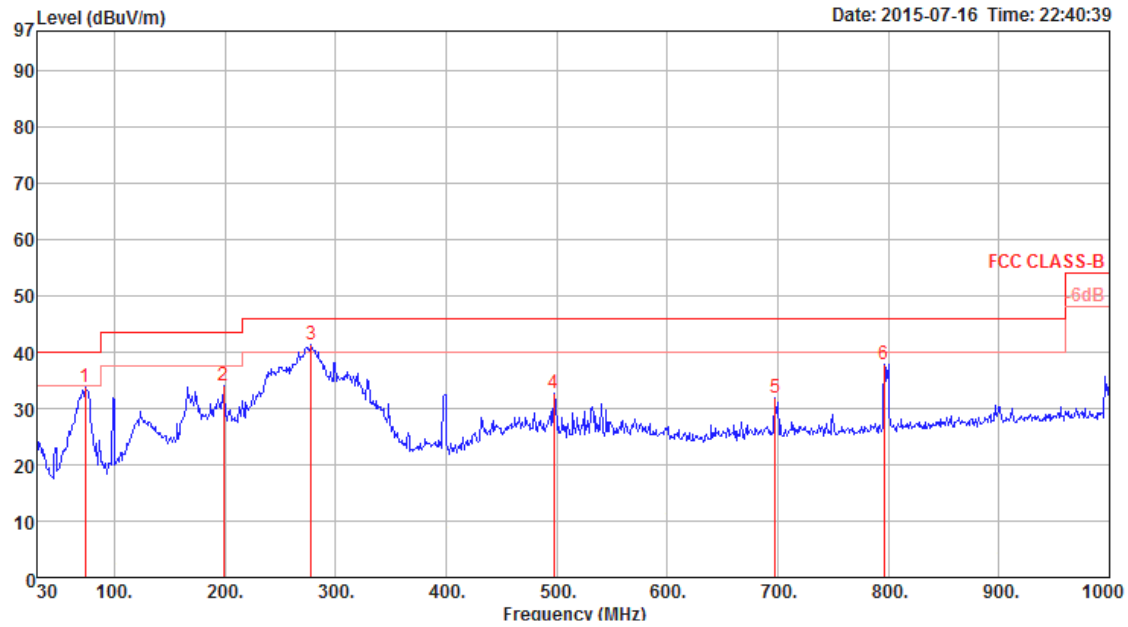
Temperature	22℃	Humidity	64%
Test Engineer	Magic Lai	Configurations	Normal Link
Test Mode	Mode 1		

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	35.82	36.01	40.00	-3.99	46.13	0.69	16.62	27.43	Peak	100	0	HORIZONTAL
2	199.75	39.83	43.50	-3.67	55.69	1.66	10.20	27.72	QP	121	51	HORIZONTAL
3	218.18	41.12	46.00	-4.88	56.46	1.70	10.64	27.68	Peak	100	0	HORIZONTAL
4	299.66	41.85	46.00	-4.15	53.40	2.03	13.90	27.48	QP	147	122	HORIZONTAL
5	499.48	34.32	46.00	-11.68	42.53	2.67	17.79	28.67	Peak	100	0	HORIZONTAL
6	800.18	42.23	46.00	-3.77	46.54	3.22	20.80	28.33	Peak	100	0	HORIZONTAL

Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	73.65	33.83	40.00	-6.17	54.19	0.94	7.09	28.39	Peak	400	0	VERTICAL
2	198.78	33.93	43.50	-9.57	49.87	1.66	10.13	27.73	Peak	400	0	VERTICAL
3	278.32	41.24	46.00	-4.76	53.25	1.92	13.60	27.53	Peak	400	0	VERTICAL
4	497.54	32.70	46.00	-13.30	40.95	2.66	17.76	28.67	Peak	400	0	VERTICAL
5	697.36	31.93	46.00	-14.07	37.75	3.09	19.69	28.60	Peak	400	0	VERTICAL
6	796.30	37.84	46.00	-8.16	42.22	3.22	20.75	28.35	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	22°C	Humidity	64%
Test Engineer	Magic Lai	Configurations	IEEE 802.11b CH 1 / Chain 1
Test Date	Jul. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4823.92	55.82	74.00	-18.18	53.55	4.10	32.69	34.52	312	114	Peak	HORIZONTAL
2	4823.95	53.52	54.00	-0.48	51.25	4.10	32.69	34.52	312	114	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4823.92	49.72	54.00	-4.28	47.45	4.10	32.69	34.52	146	126	Average	VERTICAL
2	4823.98	52.91	74.00	-21.09	50.64	4.10	32.69	34.52	146	126	Peak	VERTICAL

Temperature	22℃	Humidity	64%
Test Engineer	Magic Lai	Configurations	IEEE 802.11b CH 6 / Chain 1
Test Date	Jul. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4873.94	55.99	74.00	-18.01	53.59	4.13	32.78	34.51	311	125	Peak	HORIZONTAL
2	4873.95	53.96	54.00	-0.04	51.56	4.13	32.78	34.51	311	125	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4873.89	51.42	74.00	-22.58	49.02	4.13	32.78	34.51	151	154	Peak	VERTICAL
2	4873.94	47.75	54.00	-6.25	45.35	4.13	32.78	34.51	151	154	Average	VERTICAL

Temperature	22℃	Humidity	64%
Test Engineer	Magic Lai	Configurations	IEEE 802.11b CH 11 / Chain 1
Test Date	Jul. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4923.91	55.90	74.00	-18.10	53.36	4.15	32.88	34.49	313	137	Peak	HORIZONTAL
2	4923.96	53.56	54.00	-0.44	51.02	4.15	32.88	34.49	313	137	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4923.96	52.15	74.00	-21.85	49.61	4.15	32.88	34.49	3	136	Peak	VERTICAL
2	4923.96	48.52	54.00	-5.48	45.98	4.15	32.88	34.49	3	136	Average	VERTICAL

Temperature	22℃	Humidity	64%
Test Engineer	Magic Lai	Configurations	IEEE 802.11b CH 12 / Chain 1
Test Date	Jul. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4933.93	53.15	54.00	-0.85	50.61	4.15	32.88	34.49	312	141	Average	HORIZONTAL
2	4933.95	55.82	74.00	-18.18	53.28	4.15	32.88	34.49	312	141	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4933.97	53.48	74.00	-20.52	50.94	4.15	32.88	34.49	11	187	Peak	VERTICAL
2	4933.97	50.40	54.00	-3.60	47.86	4.15	32.88	34.49	11	187	Average	VERTICAL

Temperature	22℃	Humidity	64%
Test Engineer	Magic Lai	Configurations	IEEE 802.11b CH 13 / Chain 1
Test Date	Jul. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4943.98	45.99	54.00	-8.01	43.41	4.16	32.91	34.49	314	124	Average	HORIZONTAL
2	4943.99	50.62	74.00	-23.38	48.04	4.16	32.91	34.49	314	124	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4943.68	47.81	74.00	-26.19	45.23	4.16	32.91	34.49	83	162	Peak	VERTICAL
2	4943.96	41.11	54.00	-12.89	38.53	4.16	32.91	34.49	83	162	Average	VERTICAL

Temperature	22℃	Humidity	64%
Test Engineer	Magic Lai	Configurations	IEEE 802.11g CH 1 / Chain 1 + Chain 2
Test Date	Jul. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4823.62	58.27	74.00	-15.73	56.00	4.10	32.69	34.52	313	146	Peak	HORIZONTAL
2	4824.00	42.66	54.00	-11.34	40.39	4.10	32.69	34.52	313	146	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4823.76	41.19	54.00	-12.81	38.92	4.10	32.69	34.52	212	134	Average	VERTICAL
2	4824.91	57.59	74.00	-16.41	55.32	4.10	32.69	34.52	212	134	Peak	VERTICAL

Temperature	22℃	Humidity	64%
Test Engineer	Magic Lai	Configurations	IEEE 802.11g CH 6 / Chain 1 + Chain 2
Test Date	Jul. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4873.14	64.82	74.00	-9.18	62.42	4.13	32.78	34.51	312	139	Peak	HORIZONTAL
2	4873.23	51.28	54.00	-2.72	48.88	4.13	32.78	34.51	312	139	Average	HORIZONTAL
3	7311.05	43.02	54.00	-10.98	35.46	5.09	37.23	34.76	305	151	Average	HORIZONTAL
4	7311.82	55.51	74.00	-18.49	47.95	5.09	37.23	34.76	305	151	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4872.99	43.98	54.00	-10.02	41.58	4.13	32.78	34.51	328	144	Average	VERTICAL
2	4873.38	56.85	74.00	-17.15	54.45	4.13	32.78	34.51	328	144	Peak	VERTICAL
3	7306.48	57.35	74.00	-16.65	49.79	5.09	37.23	34.76	356	158	Peak	VERTICAL
4	7310.90	43.23	54.00	-10.77	35.67	5.09	37.23	34.76	356	158	Average	VERTICAL

Temperature	22℃	Humidity	64%
Test Engineer	Magic Lai	Configurations	IEEE 802.11g CH 11 / Chain 1 + Chain 2
Test Date	Jul. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4924.19	46.56	54.00	-7.44	44.02	4.15	32.88	34.49	314	114	Average	HORIZONTAL
2	4924.48	61.55	74.00	-12.45	59.01	4.15	32.88	34.49	314	114	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4924.10	57.35	74.00	-16.65	54.81	4.15	32.88	34.49	341	134	Peak	VERTICAL
2	4924.19	42.54	54.00	-11.46	40.00	4.15	32.88	34.49	341	134	Average	VERTICAL

Temperature	22℃	Humidity	64%
Test Engineer	Magic Lai	Configurations	IEEE 802.11g CH 12 / Chain 1 + Chain 2
Test Date	Jul. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4933.95	39.73	54.00	-14.27	37.19	4.15	32.88	34.49	314	144	Average	HORIZONTAL
2	4939.29	55.30	74.00	-18.70	52.72	4.16	32.91	34.49	314	144	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4934.39	38.30	54.00	-15.70	35.76	4.15	32.88	34.49	353	148	Average	VERTICAL
2	4934.48	53.67	74.00	-20.33	51.13	4.15	32.88	34.49	353	148	Peak	VERTICAL

Temperature	22℃	Humidity	64%
Test Engineer	Magic Lai	Configurations	IEEE 802.11g CH 13 / Chain 1 + Chain 2
Test Date	Jul. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4948.62	51.76	74.00	-22.24	49.18	4.16	32.91	34.49	315	163	Peak	HORIZONTAL
2	4948.86	35.57	54.00	-18.43	32.99	4.16	32.91	34.49	315	163	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4943.86	35.04	54.00	-18.96	32.46	4.16	32.91	34.49	354	159	Average	VERTICAL
2	4944.53	51.03	74.00	-22.97	48.45	4.16	32.91	34.49	354	159	Peak	VERTICAL

Temperature	22°C	Humidity	64%
Test Engineer	Magic Lai	Configurations	IEEE 802.11n MCS0 HT20 CH 1 / Chain 1 + Chain 2
Test Date	Jul. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4819.00	56.54	74.00	-17.46	54.27	4.10	32.69	34.52	314	155	Peak	HORIZONTAL
2	4823.76	41.39	54.00	-12.61	39.12	4.10	32.69	34.52	314	155	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4823.62	50.79	74.00	-23.21	48.52	4.10	32.69	34.52	342	174	Peak	VERTICAL
2	4823.90	36.06	54.00	-17.94	33.79	4.10	32.69	34.52	342	174	Average	VERTICAL

Temperature	22°C	Humidity	64%
Test Engineer	Magic Lai	Configurations	IEEE 802.11n MCS0 HT20 CH 6 / Chain 1 + Chain 2
Test Date	Jul. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4871.02	52.97	54.00	-1.03	50.57	4.13	32.78	34.51	313	143	Average	HORIZONTAL
2	4871.55	66.12	74.00	-7.88	63.72	4.13	32.78	34.51	313	143	Peak	HORIZONTAL
3	7310.81	44.13	54.00	-9.87	36.57	5.09	37.23	34.76	304	137	Average	HORIZONTAL
4	7311.00	57.04	74.00	-16.96	49.48	5.09	37.23	34.76	304	137	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4873.18	60.05	74.00	-13.95	57.65	4.13	32.78	34.51	358	133	Peak	VERTICAL
2	4875.59	46.61	54.00	-7.39	44.21	4.13	32.78	34.51	358	133	Average	VERTICAL
3	7304.03	57.66	74.00	-16.34	50.10	5.09	37.23	34.76	359	136	Peak	VERTICAL
4	7313.64	44.62	54.00	-9.38	37.06	5.09	37.23	34.76	359	136	Average	VERTICAL

Temperature	22°C	Humidity	64%
Test Engineer	Magic Lai	Configurations	IEEE 802.11n MCS0 HT20 CH 11 / Chain 1 + Chain 2
Test Date	Jul. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4924.10	55.75	74.00	-18.25	53.21	4.15	32.88	34.49	313	149	Peak	HORIZONTAL
2	4924.19	40.29	54.00	-13.71	37.75	4.15	32.88	34.49	313	149	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4924.00	52.03	74.00	-21.97	49.49	4.15	32.88	34.49	359	180	Peak	VERTICAL
2	4926.07	38.24	54.00	-15.76	35.70	4.15	32.88	34.49	359	180	Average	VERTICAL

Temperature	22℃	Humidity	64%
Test Engineer	Magic Lai	Configurations	IEEE 802.11n MCS0 HT20 CH 12 / Chain 1 + Chain 2
Test Date	Jul. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4934.29	53.11	74.00	-20.89	50.57	4.15	32.88	34.49	316	144	Peak	HORIZONTAL
2	4934.29	37.77	54.00	-16.23	35.23	4.15	32.88	34.49	316	144	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4934.10	37.43	54.00	-16.57	34.89	4.15	32.88	34.49	356	149	Average	VERTICAL
2	4934.19	50.06	74.00	-23.94	47.52	4.15	32.88	34.49	356	149	Peak	VERTICAL

Temperature	22℃	Humidity	64%
Test Engineer	Magic Lai	Configurations	IEEE 802.11n MCS0 HT20 CH 13 / Chain 1 + Chain 2
Test Date	Jul. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4943.90	34.87	54.00	-19.13	32.29	4.16	32.91	34.49	314	155	Average	HORIZONTAL
2	4951.07	49.10	74.00	-24.90	46.52	4.16	32.91	34.49	314	155	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4944.00	33.40	54.00	-20.60	30.82	4.16	32.91	34.49	260	169	Average	VERTICAL
2	4954.77	44.51	74.00	-29.49	41.89	4.17	32.94	34.49	260	169	Peak	VERTICAL

Temperature	22°C	Humidity	64%
Test Engineer	Magic Lai	Configurations	IEEE 802.11n MCS0 HT40 CH 3 / Chain 1 + Chain 2
Test Date	Jul. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4844.22	45.18	74.00	-28.82	42.86	4.11	32.72	34.51	234	153	Peak	HORIZONTAL
2	4844.26	33.17	54.00	-20.83	30.85	4.11	32.72	34.51	234	153	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4844.06	51.77	74.00	-22.23	49.45	4.11	32.72	34.51	148	118	Peak	VERTICAL
2	4844.10	36.69	54.00	-17.31	34.37	4.11	32.72	34.51	148	118	Average	VERTICAL

Temperature	22°C	Humidity	64%
Test Engineer	Magic Lai	Configurations	IEEE 802.11n MCS0 HT40 CH 6 / Chain 1 + Chain 2
Test Date	Jul. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4873.94	48.52	74.00	-25.48	46.12	4.13	32.78	34.51	281	139	Peak	HORIZONTAL
2	4874.22	34.92	54.00	-19.08	32.52	4.13	32.78	34.51	281	139	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4871.76	50.18	74.00	-23.82	47.78	4.13	32.78	34.51	300	120	Peak	VERTICAL
2	4874.03	36.52	54.00	-17.48	34.12	4.13	32.78	34.51	300	120	Average	VERTICAL

Temperature	22°C	Humidity	64%
Test Engineer	Magic Lai	Configurations	IEEE 802.11n MCS0 HT40 CH 9 / Chain 1 + Chain 2
Test Date	Jul. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4903.97	45.49	74.00	-28.51	43.01	4.14	32.84	34.50	231	113	Peak	HORIZONTAL
2	4904.03	32.38	54.00	-21.62	29.90	4.14	32.84	34.50	231	113	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4901.85	36.10	54.00	-17.90	33.62	4.14	32.84	34.50	157	116	Average	VERTICAL
2	4906.40	49.13	74.00	-24.87	46.65	4.14	32.84	34.50	157	116	Peak	VERTICAL

Temperature	22°C	Humidity	64%
Test Engineer	Magic Lai	Configurations	IEEE 802.11n MCS0 HT40 CH 10 / Chain 1 + Chain 2
Test Date	Jul. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4906.69	31.10	54.00	-22.90	28.62	4.14	32.84	34.50	144	139	Average	HORIZONTAL
2	4920.41	43.73	74.00	-30.27	41.19	4.15	32.88	34.49	144	139	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4914.13	35.98	54.00	-18.02	33.50	4.14	32.84	34.50	171	119	Average	VERTICAL
2	4916.47	49.84	74.00	-24.16	47.35	4.14	32.84	34.49	171	119	Peak	VERTICAL

Temperature	22°C	Humidity	64%
Test Engineer	Magic Lai	Configurations	IEEE 802.11n MCS0 HT40 CH 11 / Chain 1 + Chain 2
Test Date	Jul. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4924.16	31.63	54.00	-22.37	29.09	4.15	32.88	34.49	104	274	Average	HORIZONTAL
2	4931.69	44.26	74.00	-29.74	41.72	4.15	32.88	34.49	104	274	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4923.97	33.20	54.00	-20.80	30.66	4.15	32.88	34.49	298	103	Average	VERTICAL
2	4924.10	45.03	74.00	-28.97	42.49	4.15	32.88	34.49	298	103	Peak	VERTICAL

Temperature	22℃	Humidity	64%
Test Engineer	Magic Lai	Configurations	IEEE 802.11a CH 149 / Chain 1 + Chain 2
Test Date	Jul. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11485.21	39.94	54.00	-14.06	29.33	6.53	38.70	34.62	292	150	Average	HORIZONTAL
2	11491.28	53.58	74.00	-20.42	42.97	6.53	38.70	34.62	292	150	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11488.89	54.43	74.00	-19.57	43.82	6.53	38.70	34.62	264	150	Peak	VERTICAL
2	11494.90	39.83	54.00	-14.17	29.22	6.53	38.70	34.62	264	150	Average	VERTICAL

Temperature	22℃	Humidity	64%
Test Engineer	Magic Lai	Configurations	IEEE 802.11a CH 157 / Chain 1 + Chain 2
Test Date	Jul. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11567.36	39.57	54.00	-14.43	28.95	6.55	38.71	34.64	325	150	Average	HORIZONTAL
2	11568.43	52.71	74.00	-21.29	42.09	6.55	38.71	34.64	325	150	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11571.73	52.38	74.00	-21.62	41.77	6.55	38.71	34.65	333	150	Peak	VERTICAL
2	11571.96	39.66	54.00	-14.34	29.05	6.55	38.71	34.65	333	150	Average	VERTICAL

Temperature	22℃	Humidity	64%
Test Engineer	Magic Lai	Configurations	IEEE 802.11a CH 165 / Chain 1 + Chain 2
Test Date	Jul. 16, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11645.66	53.26	74.00	-20.74	42.64	6.56	38.73	34.67	250	150	Peak	HORIZONTAL
2	11647.58	39.64	54.00	-14.36	29.03	6.56	38.73	34.68	250	150	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11650.82	39.80	54.00	-14.20	29.19	6.56	38.73	34.68	281	150	Average	VERTICAL
2	11652.79	53.27	74.00	-20.73	42.66	6.56	38.73	34.68	281	150	Peak	VERTICAL

Temperature	22℃	Humidity	64%
Test Engineer	Magic Lai	Configurations	IEEE 802.11n MCS0 HT20 CH 149 / Chain 1 + Chain 2
Test Date	Jul. 17, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11485.03	40.09	54.00	-13.91	29.48	6.53	38.70	34.62	170	150	Average	HORIZONTAL
2	11487.84	53.50	74.00	-20.50	42.89	6.53	38.70	34.62	170	150	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11491.59	40.05	54.00	-13.95	29.44	6.53	38.70	34.62	202	150	Average	VERTICAL
2	11493.41	53.09	74.00	-20.91	42.48	6.53	38.70	34.62	202	150	Peak	VERTICAL

Temperature	22℃	Humidity	64%
Test Engineer	Magic Lai	Configurations	IEEE 802.11n MCS0 HT20 CH 157 / Chain 1 + Chain 2
Test Date	Jul. 17, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11571.96	39.84	54.00	-14.16	29.23	6.55	38.71	34.65	112	150	Average	HORIZONTAL
2	11574.38	52.36	74.00	-21.64	41.75	6.55	38.71	34.65	112	150	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11565.61	53.27	74.00	-20.73	42.65	6.55	38.71	34.64	150	150	Peak	VERTICAL
2	11571.25	39.66	54.00	-14.34	29.05	6.55	38.71	34.65	150	150	Average	VERTICAL

Temperature	22℃	Humidity	64%
Test Engineer	Magic Lai	Configurations	IEEE 802.11n MCS0 HT20 CH 165 / Chain 1 + Chain 2
Test Date	Jul. 17, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11651.36	39.80	54.00	-14.20	29.19	6.56	38.73	34.68	164	150	Average	HORIZONTAL
2	11652.88	53.41	74.00	-20.59	42.80	6.56	38.73	34.68	164	150	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11647.50	39.88	54.00	-14.12	29.27	6.56	38.73	34.68	146	150	Average	VERTICAL
2	11654.78	53.27	74.00	-20.73	42.66	6.56	38.73	34.68	146	150	Peak	VERTICAL

Temperature	22℃	Humidity	64%
Test Engineer	Magic Lai	Configurations	IEEE 802.11n MCS0 HT40 CH 151 / Chain 1 + Chain 2
Test Date	Jul. 17, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11505.50	53.06	74.00	-20.94	42.44	6.54	38.70	34.62	167	150	Peak	HORIZONTAL
2	11514.39	39.72	54.00	-14.28	29.10	6.54	38.70	34.62	167	150	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11508.33	39.84	54.00	-14.16	29.22	6.54	38.70	34.62	217	150	Average	VERTICAL
2	11512.12	52.60	74.00	-21.40	41.98	6.54	38.70	34.62	217	150	Peak	VERTICAL

Temperature	22℃	Humidity	64%
Test Engineer	Magic Lai	Configurations	IEEE 802.11n MCS0 HT40 CH 159 / Chain 1 + Chain 2
Test Date	Jul. 17, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11587.18	39.54	54.00	-14.46	28.92	6.55	38.72	34.65	135	150	Average	HORIZONTAL
2	11592.16	53.29	74.00	-20.71	42.67	6.55	38.72	34.65	135	150	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11591.65	52.65	74.00	-21.35	42.03	6.55	38.72	34.65	209	150	Peak	VERTICAL
2	11592.07	39.56	54.00	-14.44	28.94	6.55	38.72	34.65	209	150	Average	VERTICAL

Note:

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

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

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

4.6. Emissions Measurement

4.6.1. Limit

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

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

4.6.2. Measuring Instruments and Setting

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

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

4.6.3. Test Procedures

For Radiated band edges Measurement:

1. The test procedure is the same as section 4.5.3.

For Radiated Out of Band Emission Measurement:

1. Test was performed in accordance with KDB558074 D01 v03r03 for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247 section 10.1 Unwanted Emissions into Non-Restricted Frequency Bands Measurement Procedure

4.6.4. Test Setup Layout

For Radiated band edges Measurement:

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

For Radiated Out of Band Emission Measurement:

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

4.6.5. Test Deviation

There is no deviation with the original standard.

4.6.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.6.7. Test Result of Band Edge and Fundamental Emissions

Temperature	22°C	Humidity	64%
Test Engineer	Magic Lai	Configurations	IEEE 802.11b CH 1, 6, 11 / Chain 1
Test Date	Jul. 16, 2015		

Channel 1

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	2371.62	59.34	74.00	-14.66	28.32	2.85	28.17	0.00	68	182	Peak	VERTICAL
2	2390.00	48.08	54.00	-5.92	17.08	2.86	28.14	0.00	68	182	Average	VERTICAL
3	2412.80	102.35			71.36	2.87	28.12	0.00	68	182	Average	VERTICAL
4	2412.96	106.14			75.15	2.87	28.12	0.00	68	182	Peak	VERTICAL

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

Channel 6

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	2356.23	58.79	74.00	-15.21	27.77	2.83	28.19	0.00	355	192	Peak	VERTICAL
2	2357.51	46.75	54.00	-7.25	15.73	2.83	28.19	0.00	355	192	Average	VERTICAL
3	2436.04	105.86			74.88	2.88	28.10	0.00	355	192	Peak	VERTICAL
4	2436.36	102.14			71.16	2.88	28.10	0.00	355	192	Average	VERTICAL
5	2483.50	46.05	54.00	-7.95	15.12	2.91	28.02	0.00	355	192	Average	VERTICAL
6	2494.37	58.18	74.00	-15.82	27.26	2.92	28.00	0.00	355	192	Peak	VERTICAL

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

Channel 11

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	2461.04	104.97			74.02	2.90	28.05	0.00	56	206	Peak	VERTICAL
2	2461.20	101.34			70.39	2.90	28.05	0.00	56	206	Average	VERTICAL
3	2483.50	50.72	54.00	-3.28	19.79	2.91	28.02	0.00	56	206	Average	VERTICAL
4	2483.64	59.95	74.00	-14.05	29.02	2.91	28.02	0.00	56	206	Peak	VERTICAL

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

Note: Both antenna polarizations have been tested and only the worst case was recorded in test report.

Temperature	22°C	Humidity	64%
Test Engineer	Magic Lai	Configurations	IEEE 802.11b CH 12, 13 / Chain 1
Test Date	Jul. 16, 2015		

Channel 12

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	2467.80	101.27			70.32	2.90	28.05	0.00	55	200	Average	VERTICAL
2	2467.96	105.25			74.30	2.90	28.05	0.00	55	200	Peak	VERTICAL
3	2483.50	62.32	74.00	-11.68	31.39	2.91	28.02	0.00	55	200	Peak	VERTICAL
4	2483.50	53.88	54.00	-0.12	22.95	2.91	28.02	0.00	55	200	Average	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	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	2471.20	96.74			65.81	2.91	28.02	0.00	55	201	Average	VERTICAL
2	2472.96	100.52			69.59	2.91	28.02	0.00	55	201	Peak	VERTICAL
3	2484.18	51.28	54.00	-2.72	20.35	2.91	28.02	0.00	55	201	Average	VERTICAL
4	2484.50	62.49	74.00	-11.51	31.56	2.91	28.02	0.00	55	201	Peak	VERTICAL

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

Note: Both antenna polarizations have been tested and only the worst case was recorded in test report.

Temperature	22℃	Humidity	64%
Test Engineer	Magic Lai	Configurations	IEEE 802.11g CH 1, 6, 11 / Chain 1 + Chain 2
Test Date	Jul. 16, 2015		

Channel 1

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	2389.40	68.47	74.00	-5.53	37.47	2.86	28.14	0.00	29	175	Peak	VERTICAL
2	2390.00	50.81	54.00	-3.19	19.81	2.86	28.14	0.00	29	175	Average	VERTICAL
3	2410.24	107.17			76.18	2.87	28.12	0.00	29	175	Peak	VERTICAL
4	2410.72	97.04			66.05	2.87	28.12	0.00	29	175	Average	VERTICAL

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

Channel 6

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	2383.80	68.62	74.00	-5.38	37.60	2.85	28.17	0.00	219	131	Peak	VERTICAL
2	2389.56	51.92	54.00	-2.08	20.92	2.86	28.14	0.00	219	131	Average	VERTICAL
3	2437.96	103.43			72.47	2.89	28.07	0.00	219	131	Average	VERTICAL
4	2438.28	113.41			82.45	2.89	28.07	0.00	219	131	Peak	VERTICAL
5	2484.44	65.57	74.00	-8.43	34.64	2.91	28.02	0.00	219	131	Peak	VERTICAL
6	2484.76	50.16	54.00	-3.84	19.23	2.91	28.02	0.00	219	131	Average	VERTICAL

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

Channel 11

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	2462.96	108.01			77.06	2.90	28.05	0.00	137	100	Peak	VERTICAL
2	2462.96	98.28			67.33	2.90	28.05	0.00	137	100	Average	VERTICAL
3	2488.28	51.59	54.00	-2.41	20.67	2.92	28.00	0.00	137	100	Average	VERTICAL
4	2488.60	66.58	74.00	-7.42	35.66	2.92	28.00	0.00	137	100	Peak	VERTICAL

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

Note: Both antenna polarizations have been tested and only the worst case was recorded in test report.

Temperature	22℃	Humidity	64%
Test Engineer	Magic Lai	Configurations	IEEE 802.11g CH 12, 13 / Chain 1 + Chain 2
Test Date	Jul. 16, 2015		

Channel 12

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	2468.28	104.73			73.78	2.90	28.05	0.00	227	110	Peak	VERTICAL
2	2468.44	94.79			63.84	2.90	28.05	0.00	227	110	Average	VERTICAL
3	2490.08	62.44	74.00	-11.56	31.52	2.92	28.00	0.00	227	110	Peak	VERTICAL
4	2493.76	50.17	54.00	-3.83	19.25	2.92	28.00	0.00	227	110	Average	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	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	2473.28	103.33			72.40	2.91	28.02	0.00	121	112	Peak	VERTICAL
2	2473.28	93.16			62.23	2.91	28.02	0.00	121	112	Average	VERTICAL
3	2484.02	49.64	54.00	-4.36	18.71	2.91	28.02	0.00	121	112	Average	VERTICAL
4	2495.72	60.96	74.00	-13.04	30.04	2.92	28.00	0.00	121	112	Peak	VERTICAL

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

Note: Both antenna polarizations have been tested and only the worst case was recorded in test report.

Temperature	22°C	Humidity	64%
Test Engineer	Magic Lai	Configurations	IEEE 802.11n MCS0 HT20 CH 1, 6, 11 / Chain 1 + Chain 2
Test date	Jul. 16, 2015		

Channel 1

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	2382.83	66.52	74.00	-7.48	35.50	2.85	28.17	0.00	213	144	Peak	VERTICAL
2	2390.00	51.73	54.00	-2.27	20.73	2.86	28.14	0.00	213	144	Average	VERTICAL
3	2412.80	97.59			66.60	2.87	28.12	0.00	213	144	Average	VERTICAL
4	2413.12	107.56			76.57	2.87	28.12	0.00	213	144	Peak	VERTICAL

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

Channel 6

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	2385.72	67.73	74.00	-6.27	36.73	2.86	28.14	0.00	165	143	Peak	VERTICAL
2	2388.28	52.59	54.00	-1.41	21.59	2.86	28.14	0.00	165	143	Average	VERTICAL
3	2437.64	113.20			82.24	2.89	28.07	0.00	165	143	Peak	VERTICAL
4	2437.64	103.23			72.27	2.89	28.07	0.00	165	143	Average	VERTICAL
5	2483.50	53.13	54.00	-0.87	22.20	2.91	28.02	0.00	165	143	Average	VERTICAL
6	2485.40	65.42	74.00	-8.58	34.49	2.91	28.02	0.00	165	143	Peak	VERTICAL

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

Channel 11

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	2461.20	105.16			74.21	2.90	28.05	0.00	355	183	Peak	VERTICAL
2	2461.20	95.46			64.51	2.90	28.05	0.00	355	183	Average	VERTICAL
3	2483.64	50.56	54.00	-3.44	19.63	2.91	28.02	0.00	355	183	Average	VERTICAL
4	2487.80	62.78	74.00	-11.22	31.86	2.92	28.00	0.00	355	183	Peak	VERTICAL

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

Note: Both antenna polarizations have been tested and only the worst case was recorded in test report.

Temperature	22°C	Humidity	64%
Test Engineer	Magic Lai	Configurations	IEEE 802.11n MCS0 HT20 CH 12, 13 / Chain 1 + Chain 2
Test Date	Jul. 16, 2015		

Channel 12

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	2466.36	103.82			72.87	2.90	28.05	0.00	28	167	Peak	VERTICAL
2	2466.36	93.92			62.97	2.90	28.05	0.00	28	167	Average	VERTICAL
3	2483.50	50.21	54.00	-3.79	19.28	2.91	28.02	0.00	28	167	Average	VERTICAL
4	2483.67	63.24	74.00	-10.76	32.31	2.91	28.02	0.00	28	167	Peak	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	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	2471.20	100.92			69.99	2.91	28.02	0.00	355	175	Peak	VERTICAL
2	2471.20	90.82			59.89	2.91	28.02	0.00	355	175	Average	VERTICAL
3	2483.50	53.02	54.00	-0.98	22.09	2.91	28.02	0.00	355	175	Average	VERTICAL
4	2483.70	62.73	74.00	-11.27	31.80	2.91	28.02	0.00	355	175	Peak	VERTICAL

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

Note: Both antenna polarizations have been tested and only the worst case was recorded in test report.

Temperature	22℃	Humidity	64%
Test Engineer	Magic Lai	Configurations	IEEE 802.11n MCS0 HT40 CH 3, 6, 9 / Chain 1 + Chain 2
Test date	Jul. 16, 2015		

Channel 3

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	2380.65	67.48	74.00	-6.52	36.46	2.85	28.17	0.00	192	132	Peak	VERTICAL
2	2382.90	53.84	54.00	-0.16	22.82	2.85	28.17	0.00	192	132	Average	VERTICAL
3	2422.96	93.32			62.34	2.88	28.10	0.00	192	132	Average	VERTICAL
4	2423.28	102.29			71.31	2.88	28.10	0.00	192	132	Peak	VERTICAL

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

Channel 6

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	2388.28	61.72	74.00	-12.28	30.72	2.86	28.14	0.00	218	130	Peak	VERTICAL
2	2390.00	51.59	54.00	-2.41	20.59	2.86	28.14	0.00	218	130	Average	VERTICAL
3	2435.08	102.91			71.93	2.88	28.10	0.00	218	130	Peak	VERTICAL
4	2435.08	93.46			62.48	2.88	28.10	0.00	218	130	Average	VERTICAL
5	2483.50	49.49	54.00	-4.51	18.56	2.91	28.02	0.00	218	130	Average	VERTICAL
6	2487.64	60.21	74.00	-13.79	29.29	2.92	28.00	0.00	218	130	Peak	VERTICAL

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

Channel 9

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	2450.40	93.37			62.41	2.89	28.07	0.00	122	128	Average	VERTICAL
2	2453.28	103.03			72.07	2.89	28.07	0.00	122	128	Peak	VERTICAL
3	2492.39	62.75	74.00	-11.25	31.83	2.92	28.00	0.00	122	128	Peak	VERTICAL
4	2495.27	52.13	54.00	-1.87	21.21	2.92	28.00	0.00	122	128	Average	VERTICAL

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

Note: Both antenna polarizations have been tested and only the worst case was recorded in test report.

Temperature	22℃	Humidity	64%
Test Engineer	Magic Lai	Configurations	IEEE 802.11n MCS0 HT40 CH 10, 11 / Chain 1 + Chain 2
Test date	Jul. 16, 2015		

Channel 10

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	2445.14	102.12			71.16	2.89	28.07	0.00	135	102	Peak	VERTICAL
2	2445.14	92.22			61.26	2.89	28.07	0.00	135	102	Average	VERTICAL
3	2499.31	65.21	74.00	-8.79	34.29	2.92	28.00	0.00	135	102	Peak	VERTICAL
4	2499.63	51.91	54.00	-2.09	20.99	2.92	28.00	0.00	135	102	Average	VERTICAL

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

Channel 11

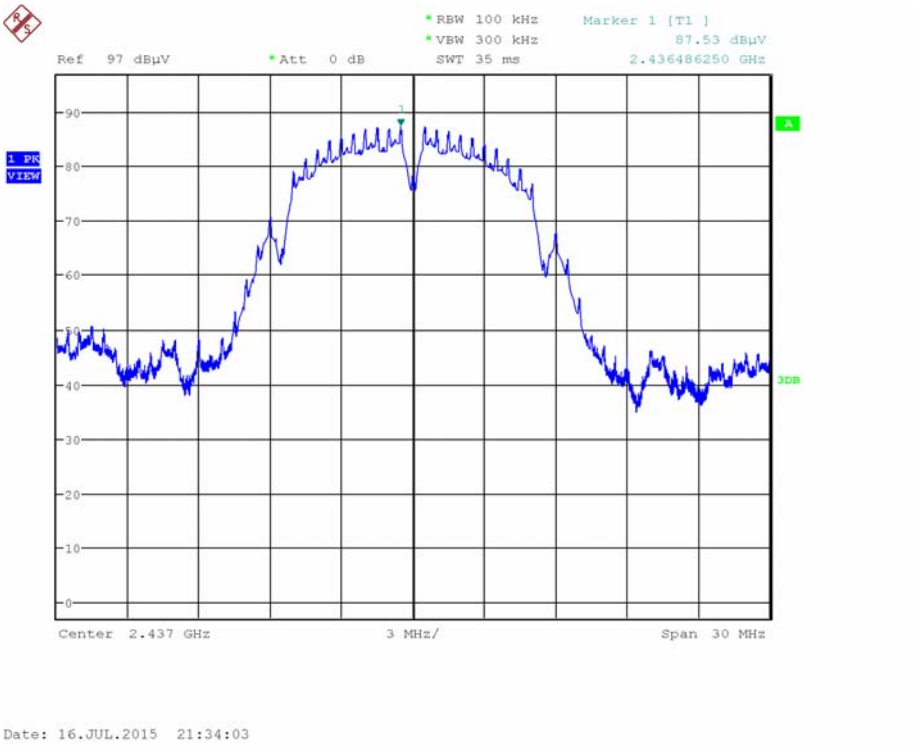
	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	2450.14	84.78			53.82	2.89	28.07	0.00	137	104	Average	VERTICAL
2	2460.40	94.02			63.07	2.90	28.05	0.00	137	104	Peak	VERTICAL
3	2484.76	51.52	54.00	-2.48	20.59	2.91	28.02	0.00	137	104	Average	VERTICAL
4	2485.40	61.18	74.00	-12.82	30.25	2.91	28.02	0.00	137	104	Peak	VERTICAL

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

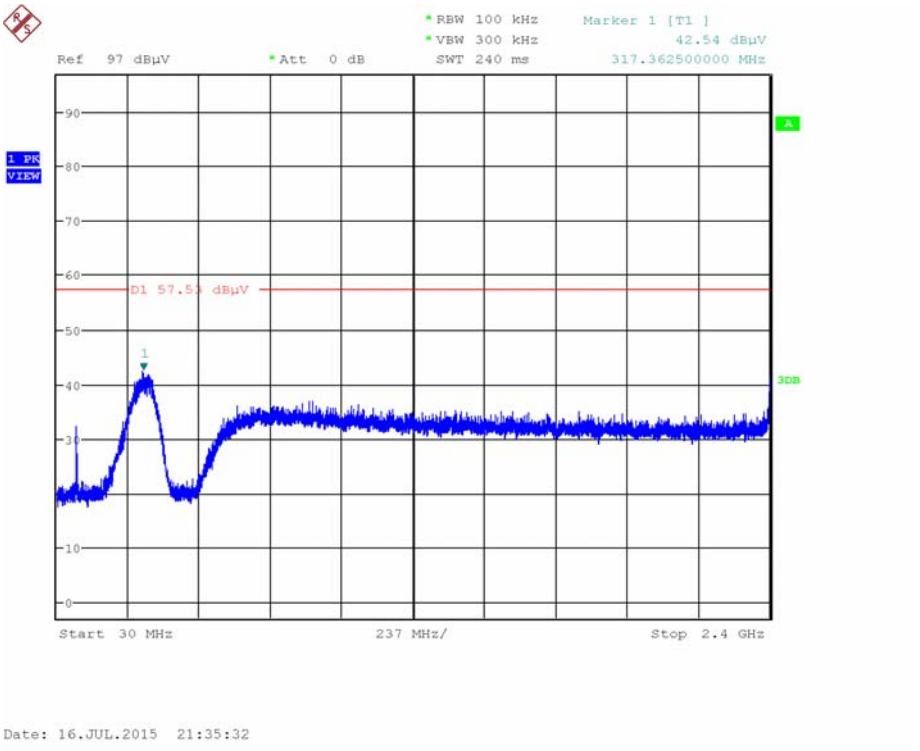
Note: Both antenna polarizations have been tested and only the worst case was recorded in test report.

For Emission not in Restricted Band

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

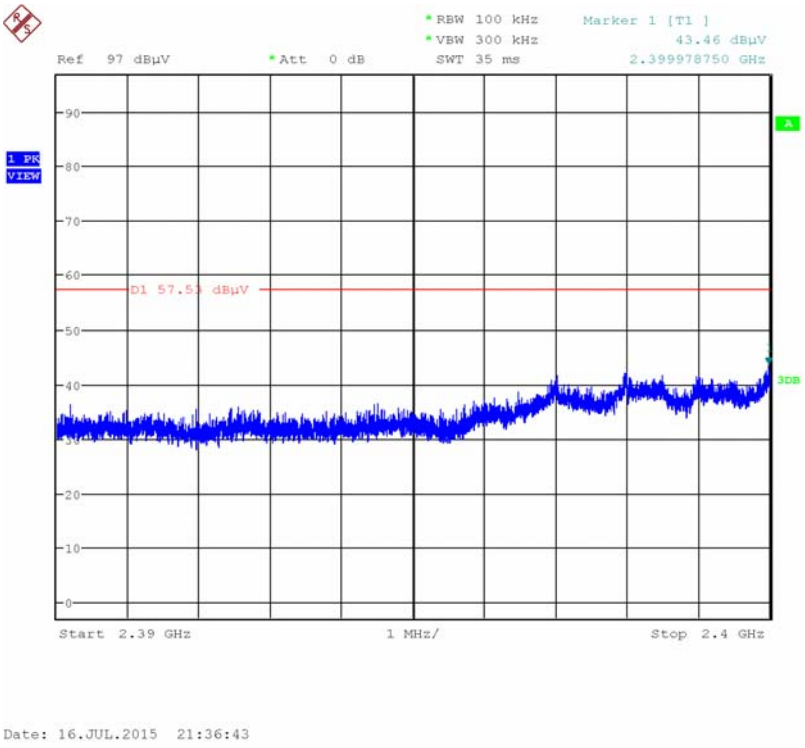


Plot on Configuration IEEE 802.11b / CH 1 / 30MHz~2400MHz (down 30dBc) (Vertical)

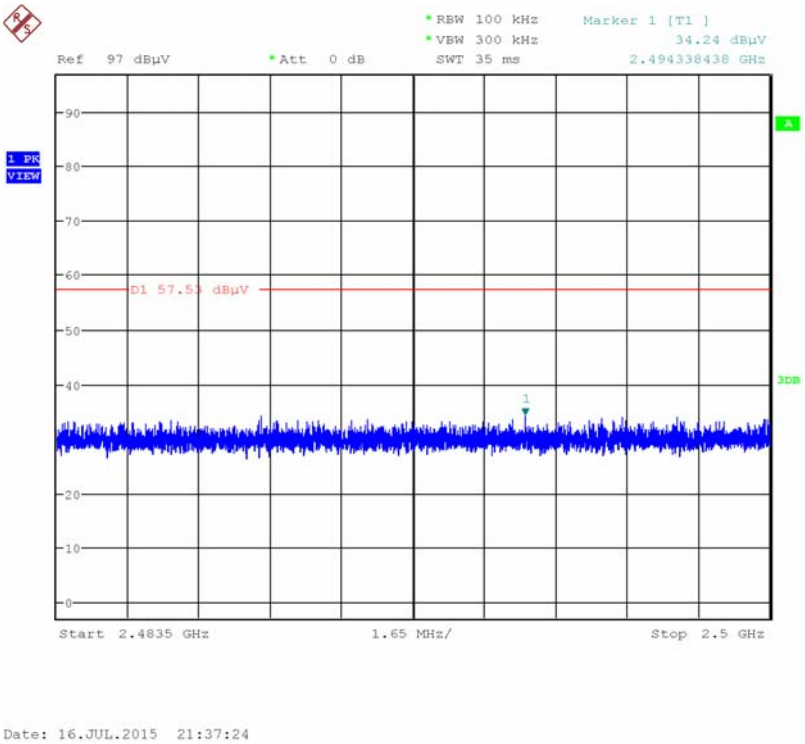


Note: Only the worse polarization (Vertical) is tested and recorded in test report.

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

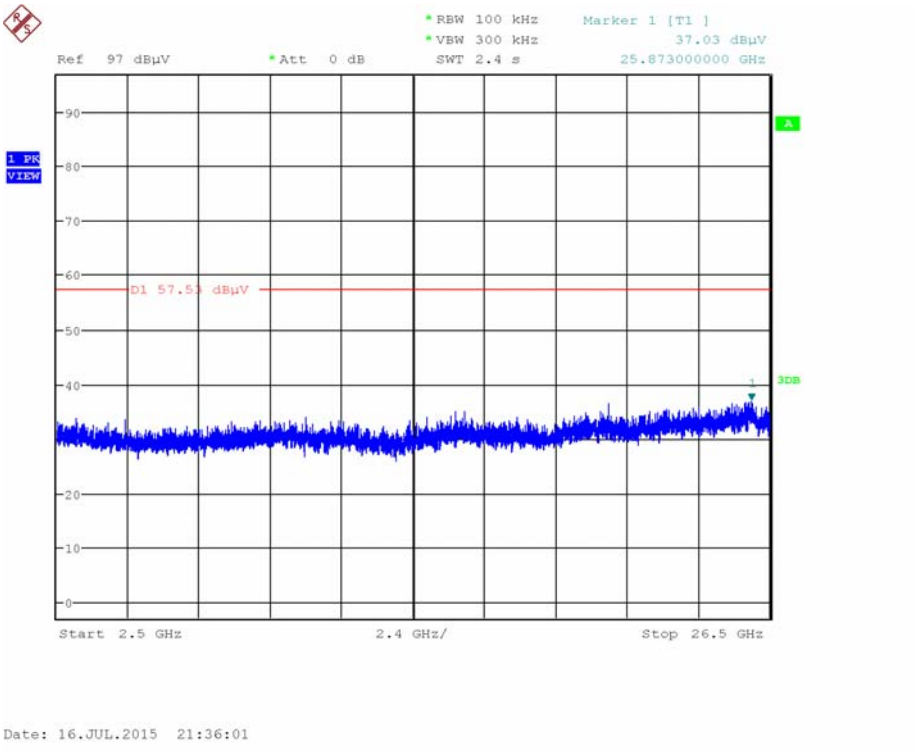


Plot on Configuration IEEE 802.11b / CH 1 / 2483.5MHz~2500MHz (down 30dBc) (Vertical)

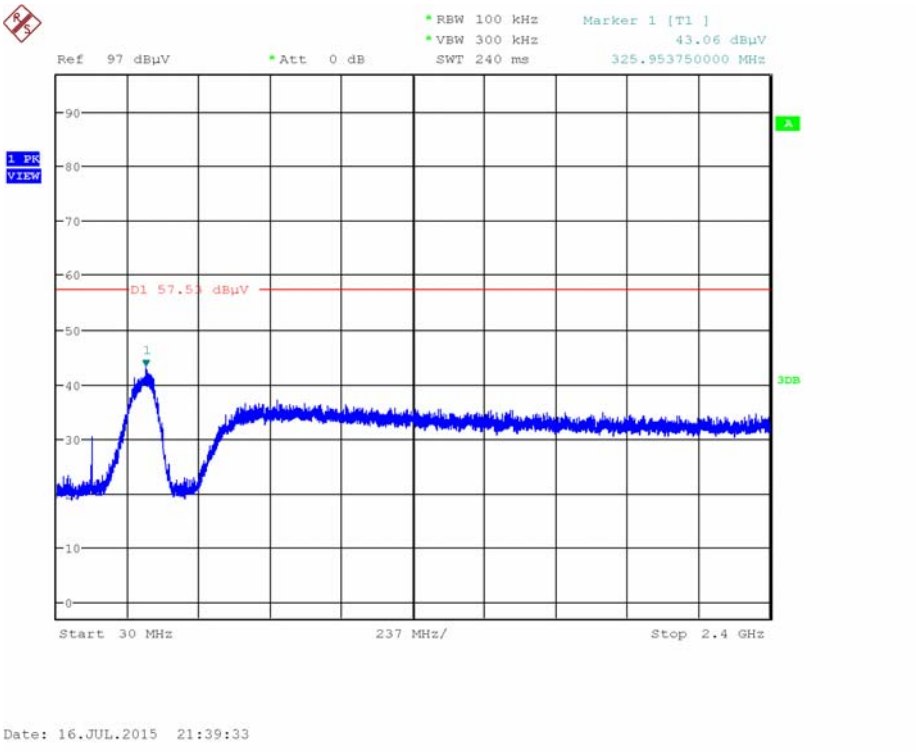


Note: Only the worse polarization (Vertical) is tested and recorded in test report.

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

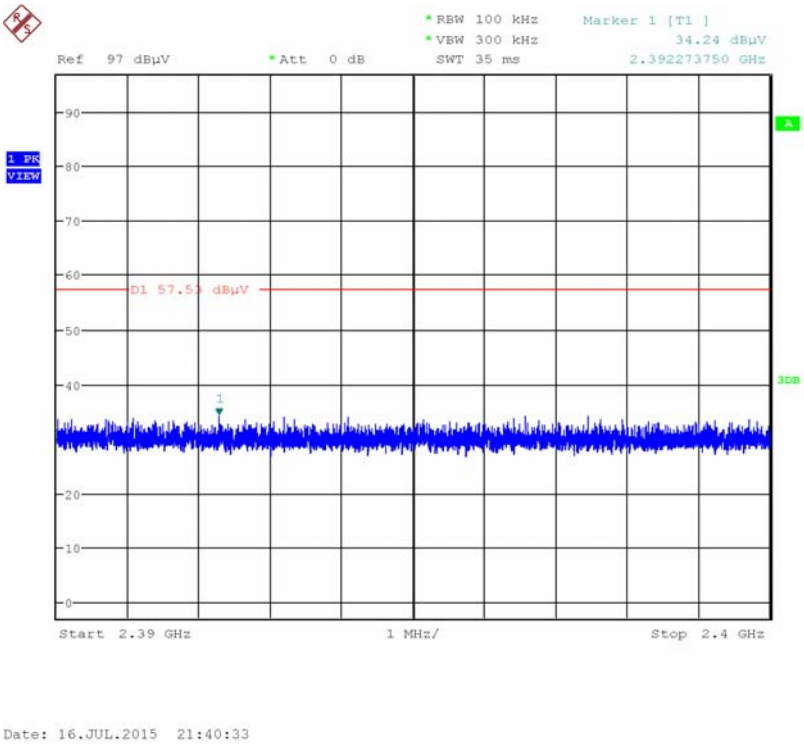


Plot on Configuration IEEE 802.11b / CH 11 / 30MHz~2400MHz (down 30dBc) (Vertical)

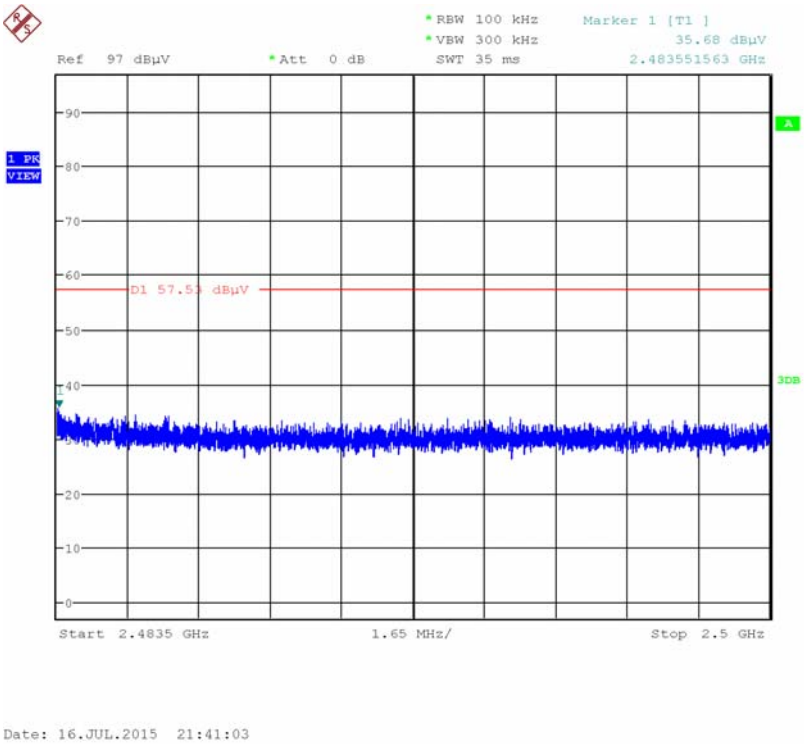


Note: Only the worse polarization (Vertical) is tested and recorded in test report.

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

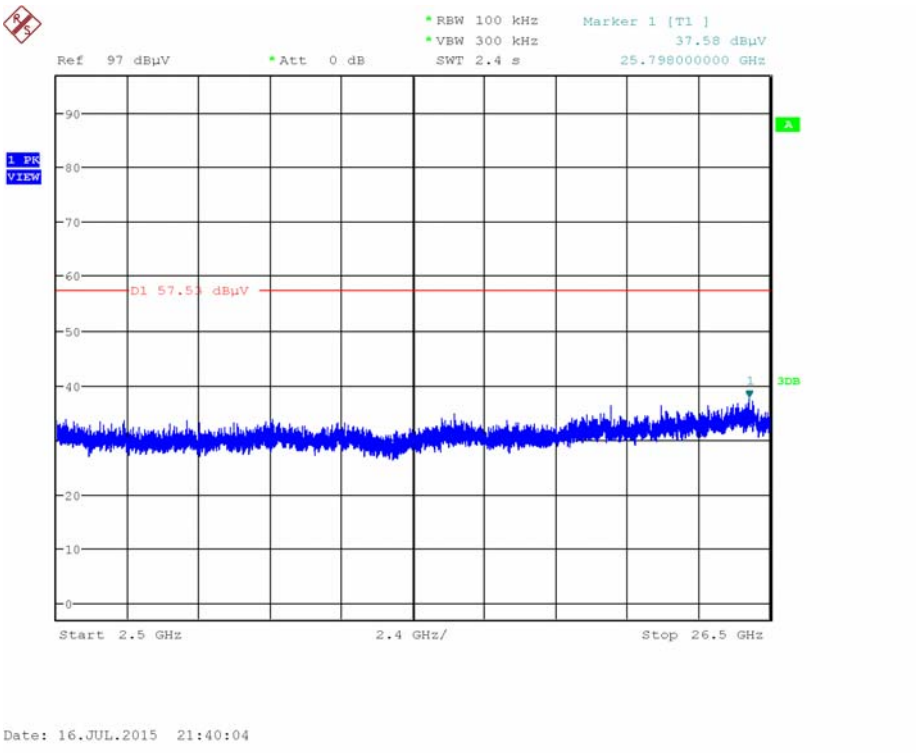


Plot on Configuration IEEE 802.11b / CH 11 / 2483.5MHz~2500MHz (down 30dBc) (Vertical)

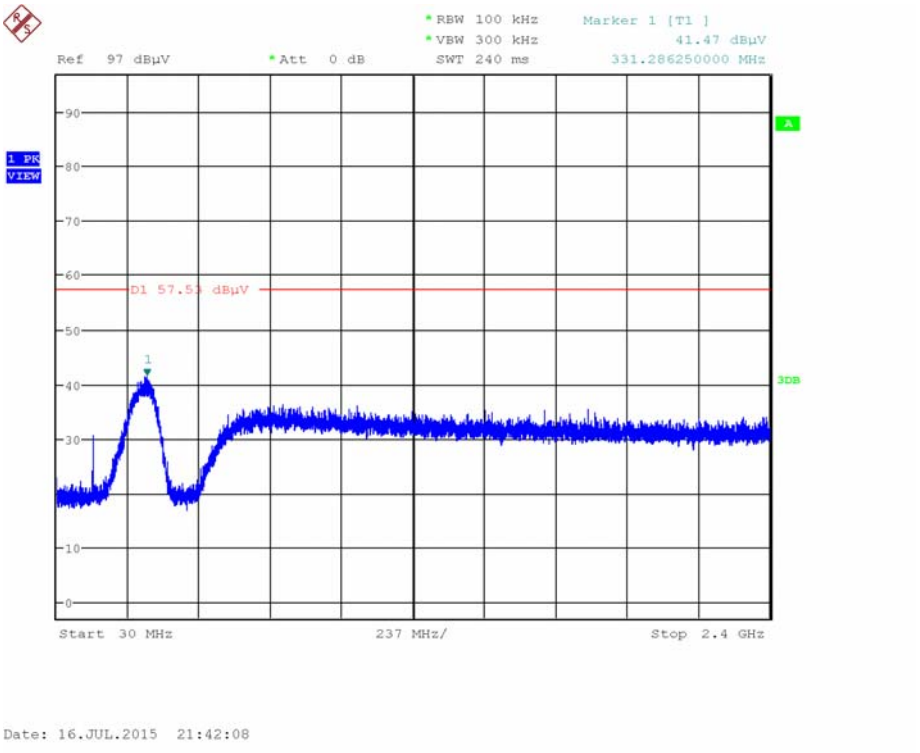


Note: Only the worse polarization (Vertical) is tested and recorded in test report.

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

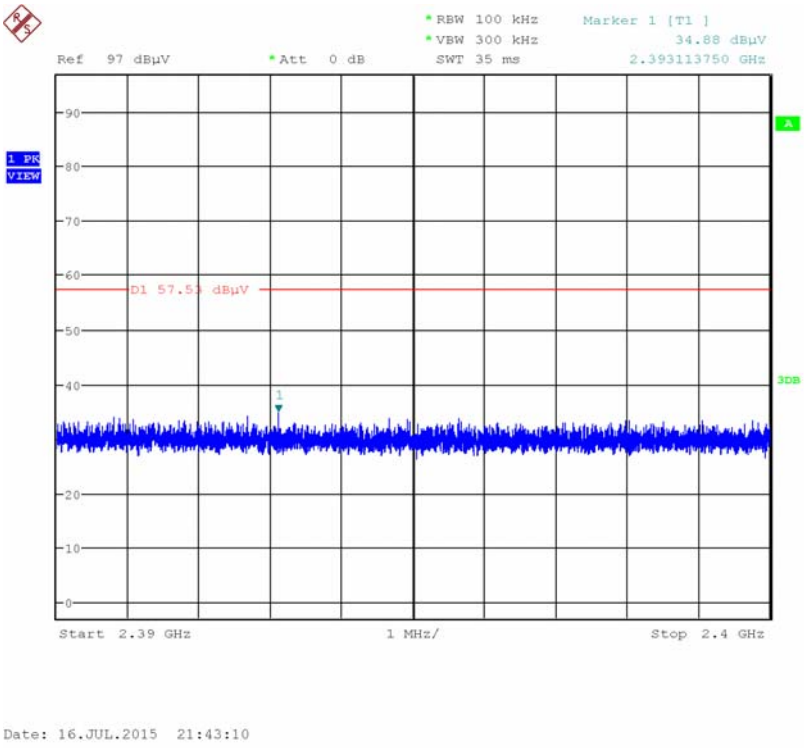


Plot on Configuration IEEE 802.11b / CH 12 / 30MHz~2400MHz (down 30dBc) (Vertical)

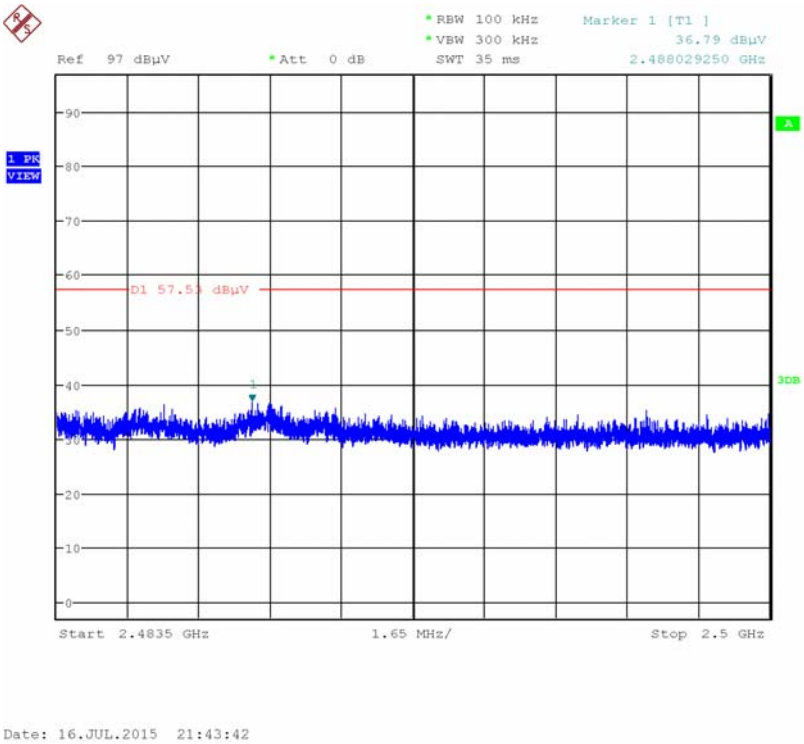


Note: Only the worse polarization (Vertical) is tested and recorded in test report.

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

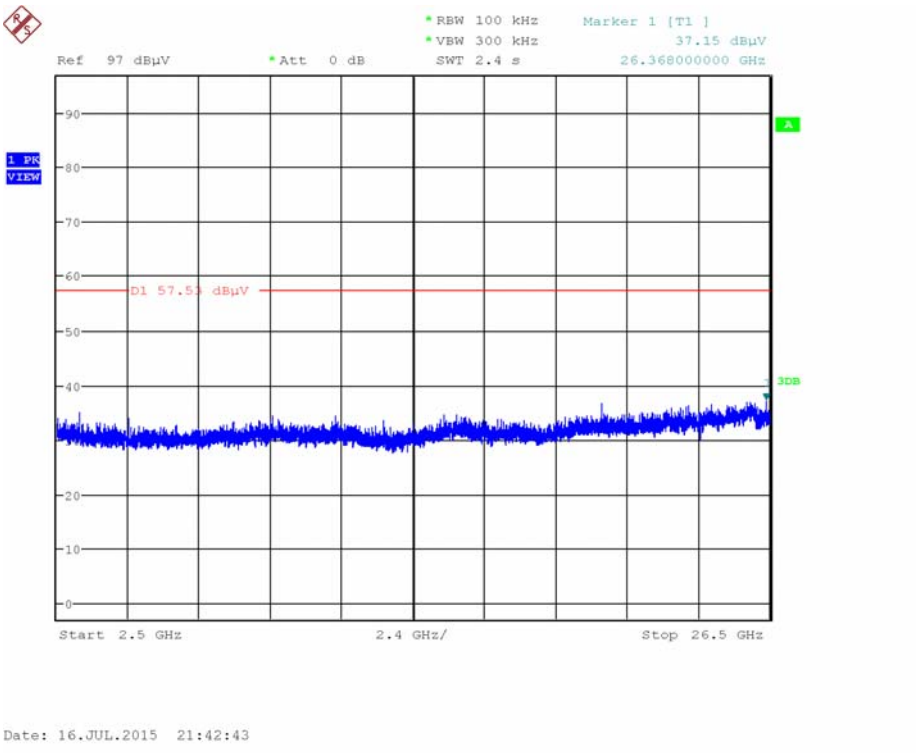


Plot on Configuration IEEE 802.11b / CH 12 / 2483.5MHz~2500MHz (down 30dBc) (Vertical)

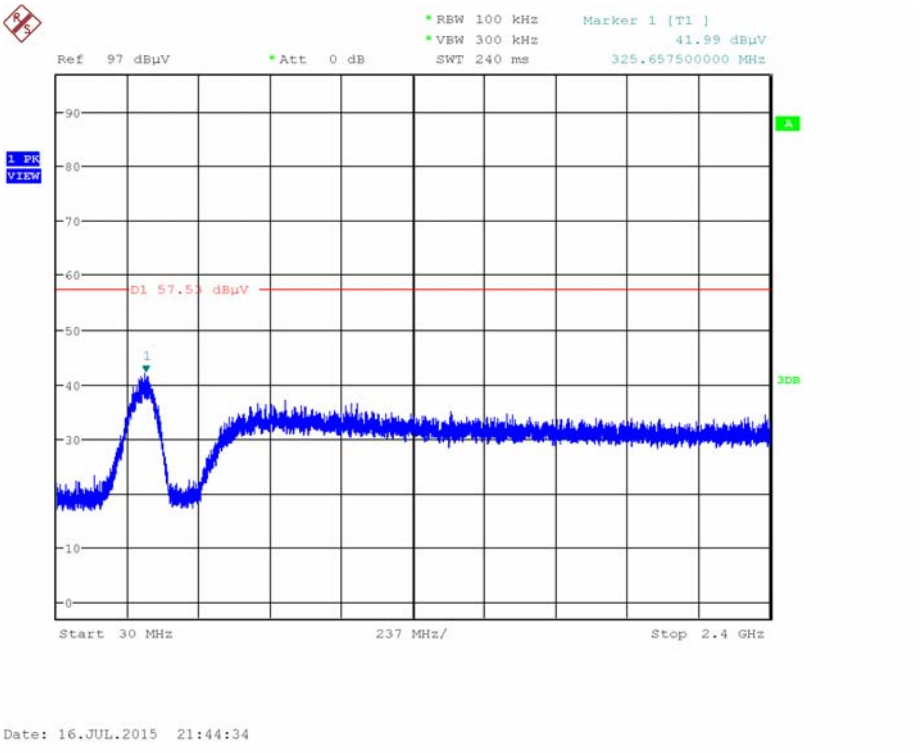


Note: Only the worse polarization (Vertical) is tested and recorded in test report.

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

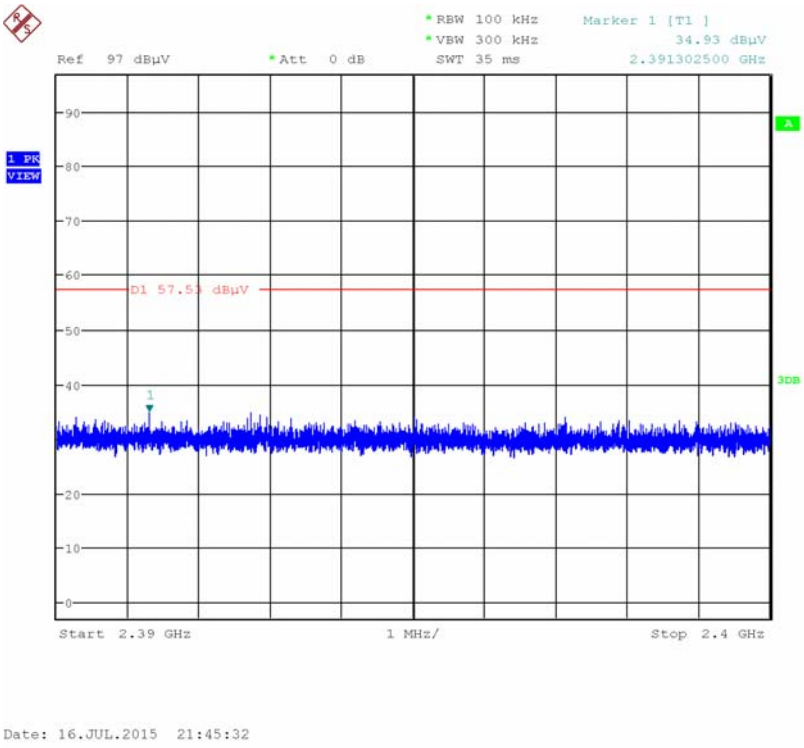


Plot on Configuration IEEE 802.11b / CH 13 / 30MHz~2400MHz (down 30dBc) (Vertical)

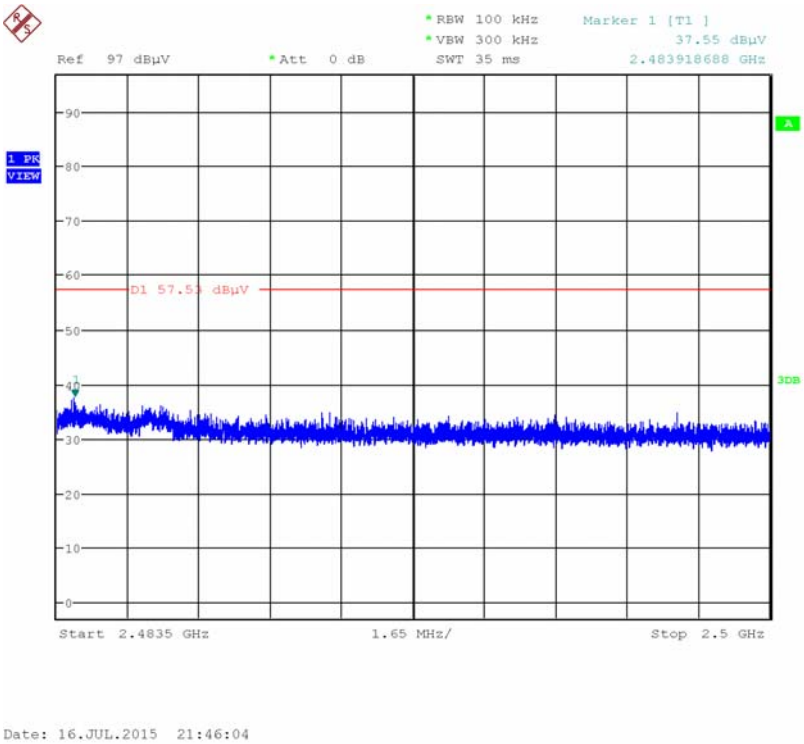


Note: Only the worse polarization (Vertical) is tested and recorded in test report.

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

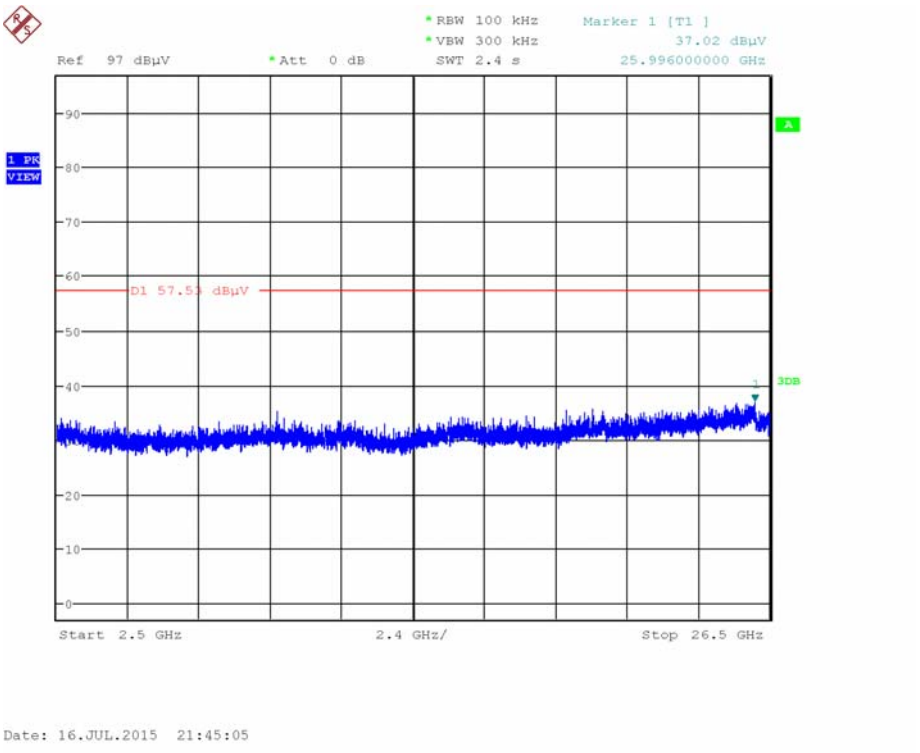


Plot on Configuration IEEE 802.11b / CH 13 / 2483.5MHz~2500MHz (down 30dBc) (Vertical)



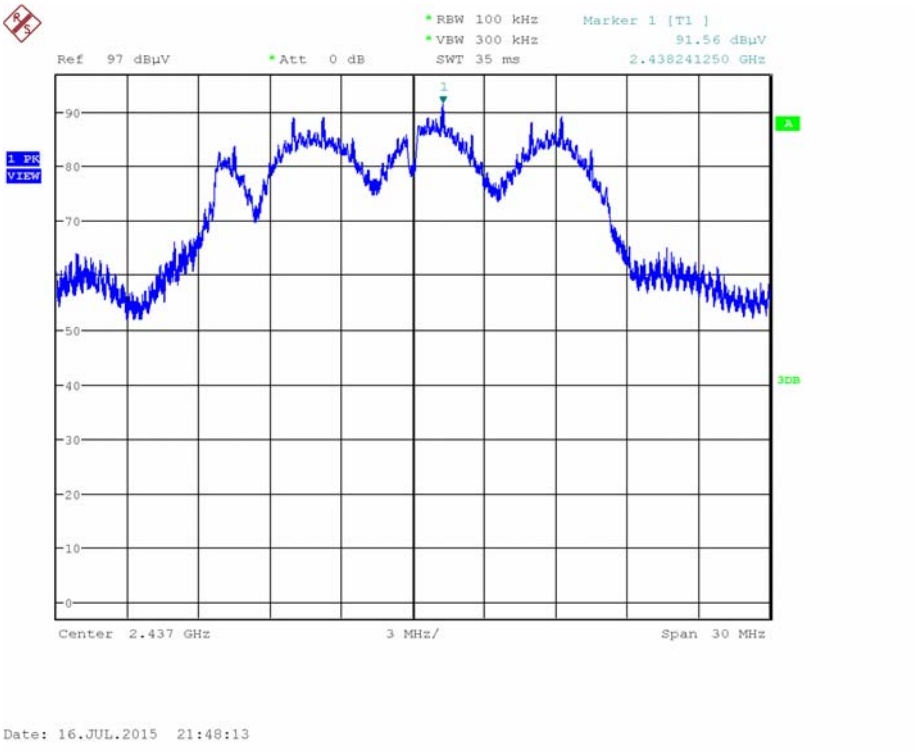
Note: Only the worse polarization (Vertical) is tested and recorded in test report.

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

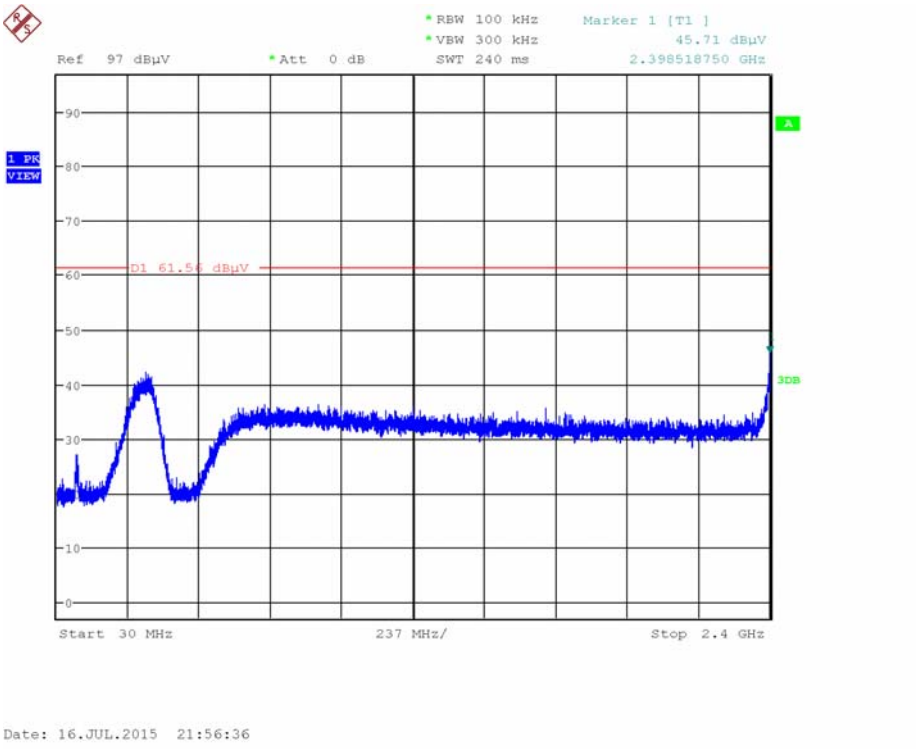


Note: Only the worse polarization (Vertical) is tested and recorded in test report.

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

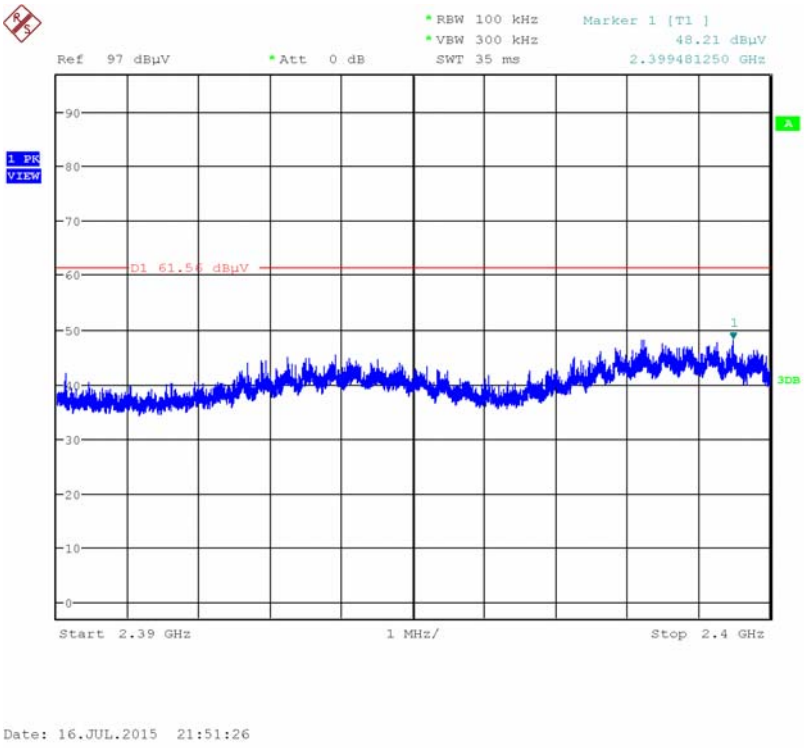


Plot on Configuration IEEE 802.11g / CH 1 / 30MHz~2400MHz (down 30dBc) (Vertical)

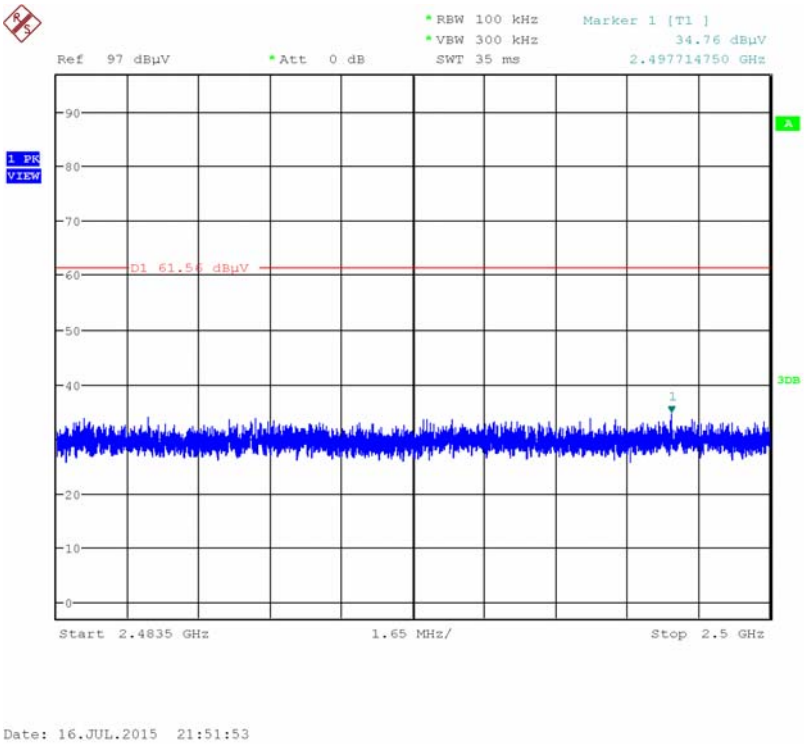


Note: Only the worse polarization (Vertical) is tested and recorded in test report.

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

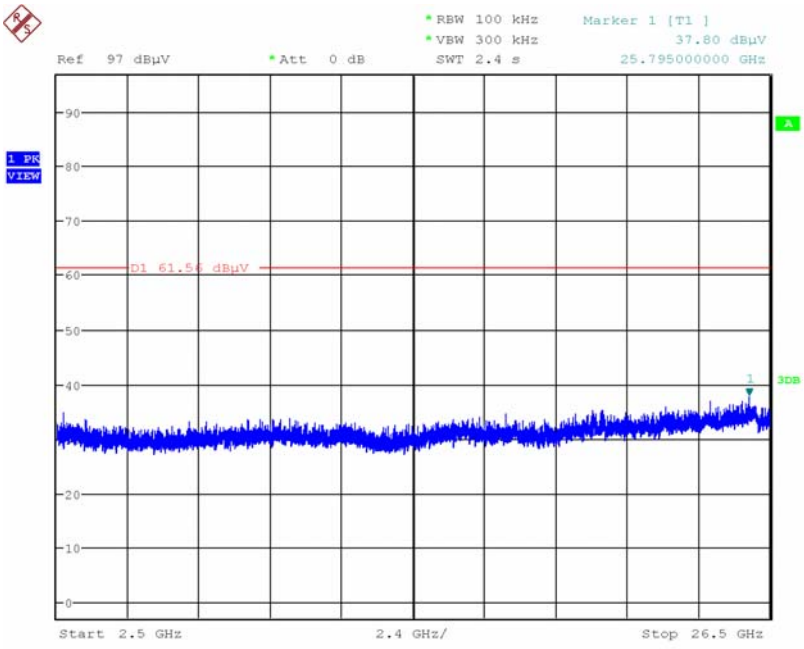


Plot on Configuration IEEE 802.11g / CH 1 / 2483.5MHz~2500MHz (down 30dBc) (Vertical)

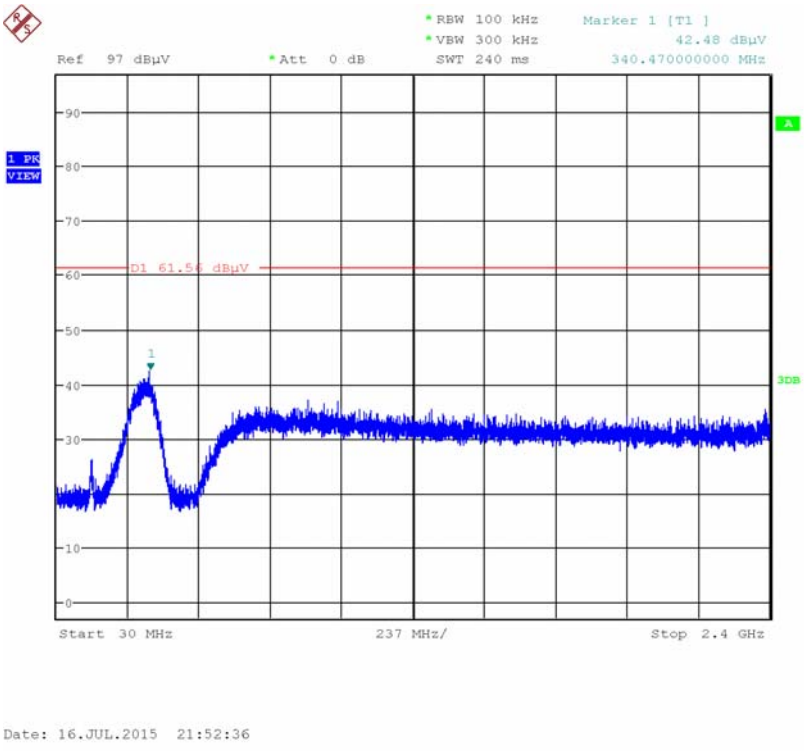


Note: Only the worse polarization (Vertical) is tested and recorded in test report.

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

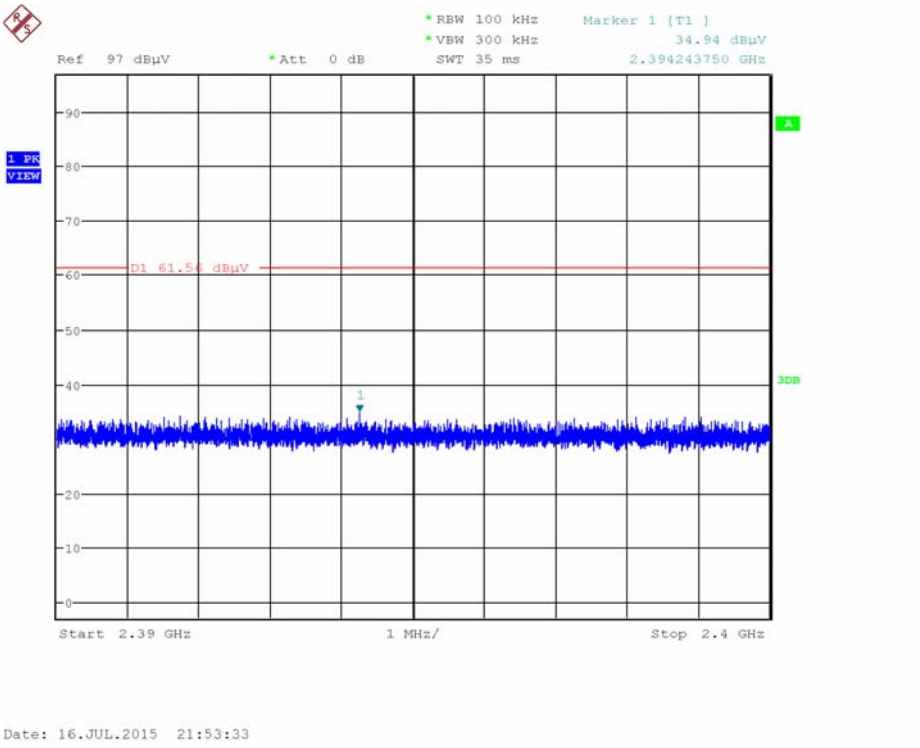


Plot on Configuration IEEE 802.11g / CH 11 / 30MHz~2400MHz (down 30dBc) (Vertical)

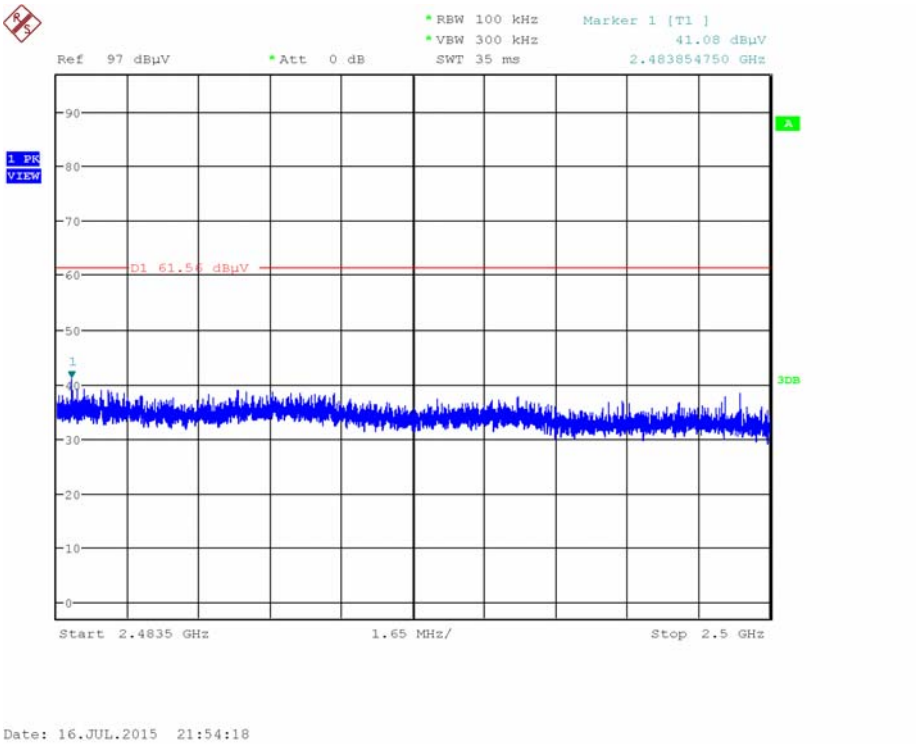


Note: Only the worse polarization (Vertical) is tested and recorded in test report.

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

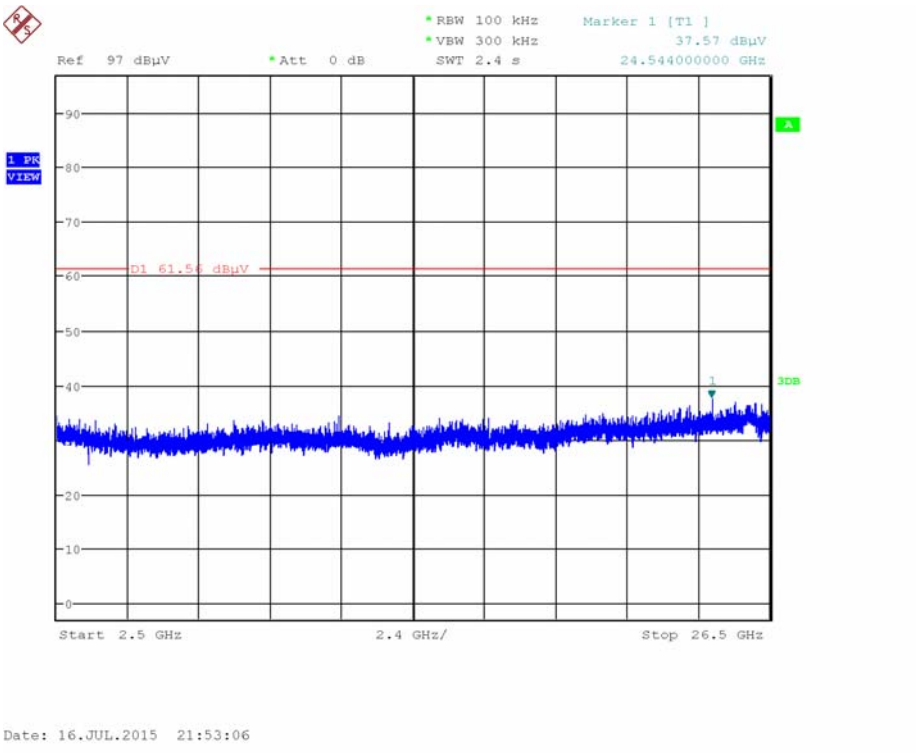


Plot on Configuration IEEE 802.11g / CH 11 / 2483.5MHz~2500MHz (down 30dBc) (Vertical)

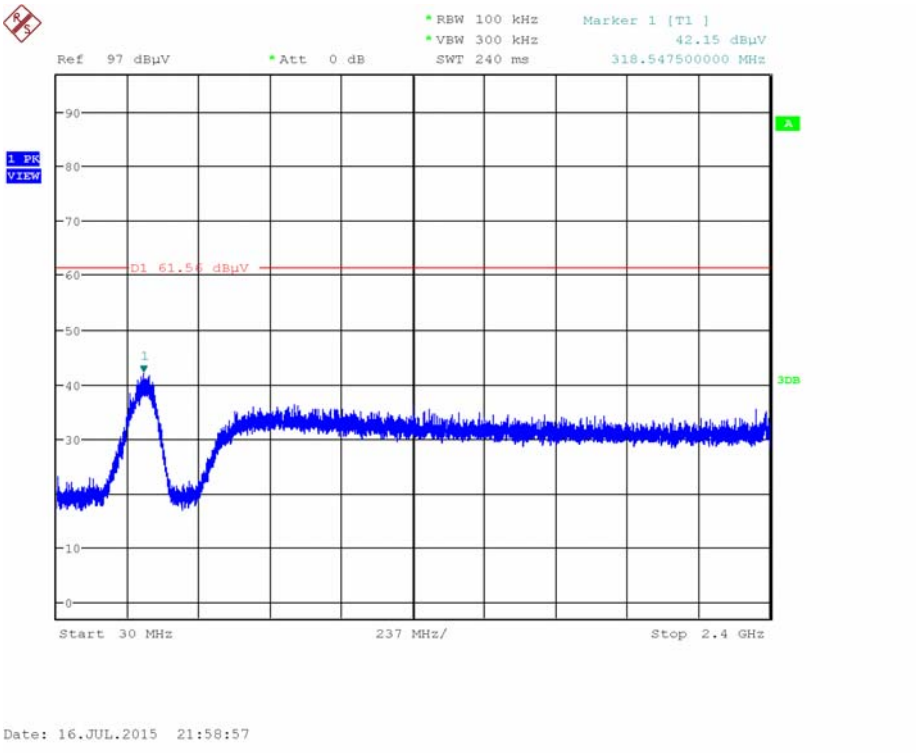


Note: Only the worse polarization (Vertical) is tested and recorded in test report.

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

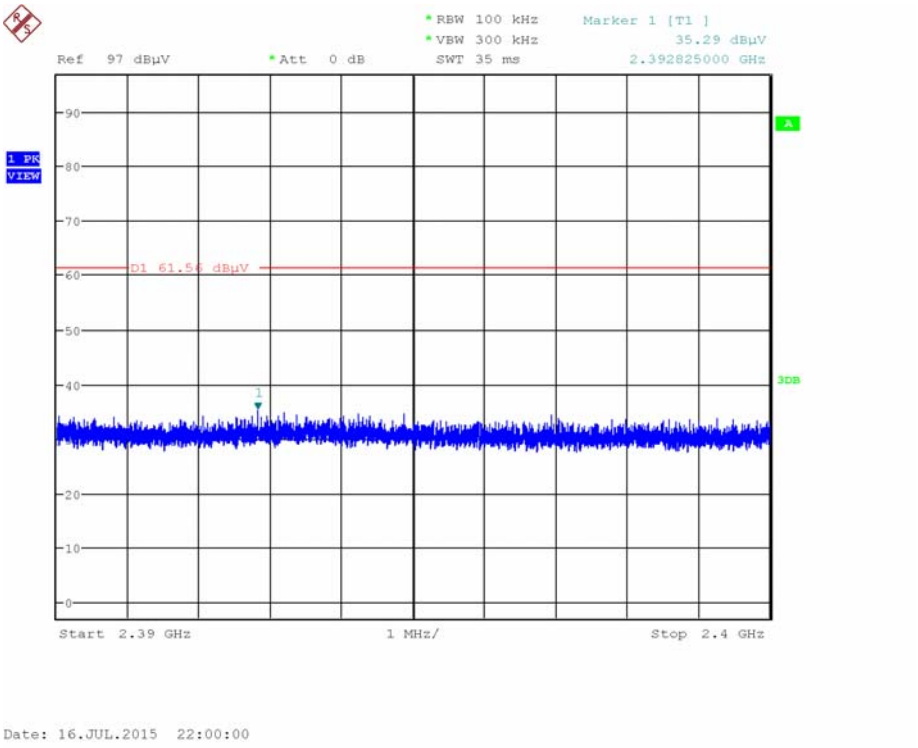


Plot on Configuration IEEE 802.11g / CH 12 / 30MHz~2400MHz (down 30dBc) (Vertical)

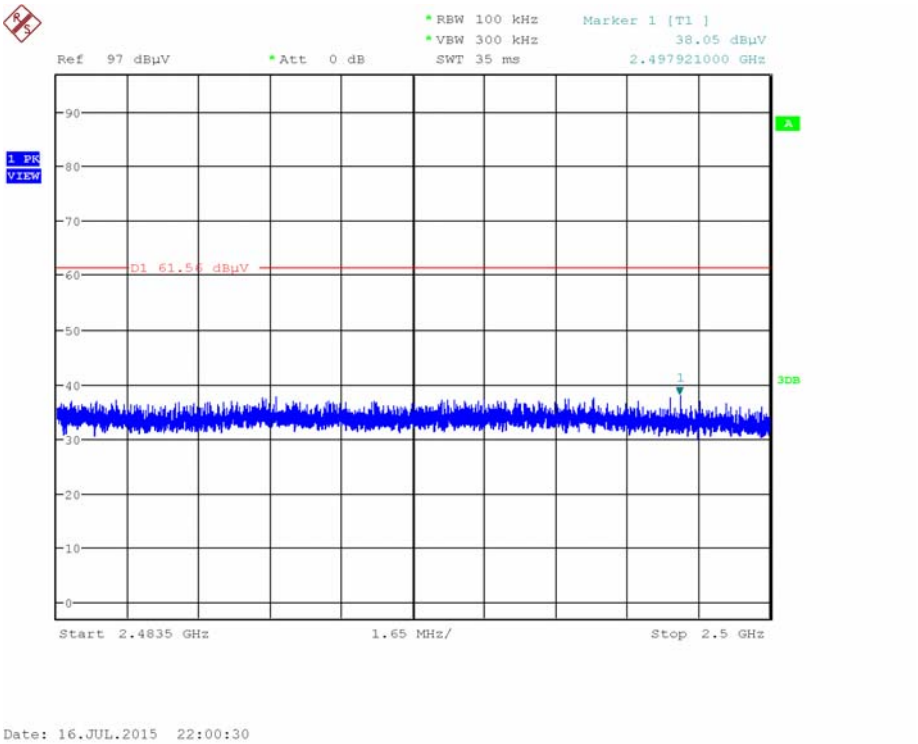


Note: Only the worse polarization (Vertical) is tested and recorded in test report.

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

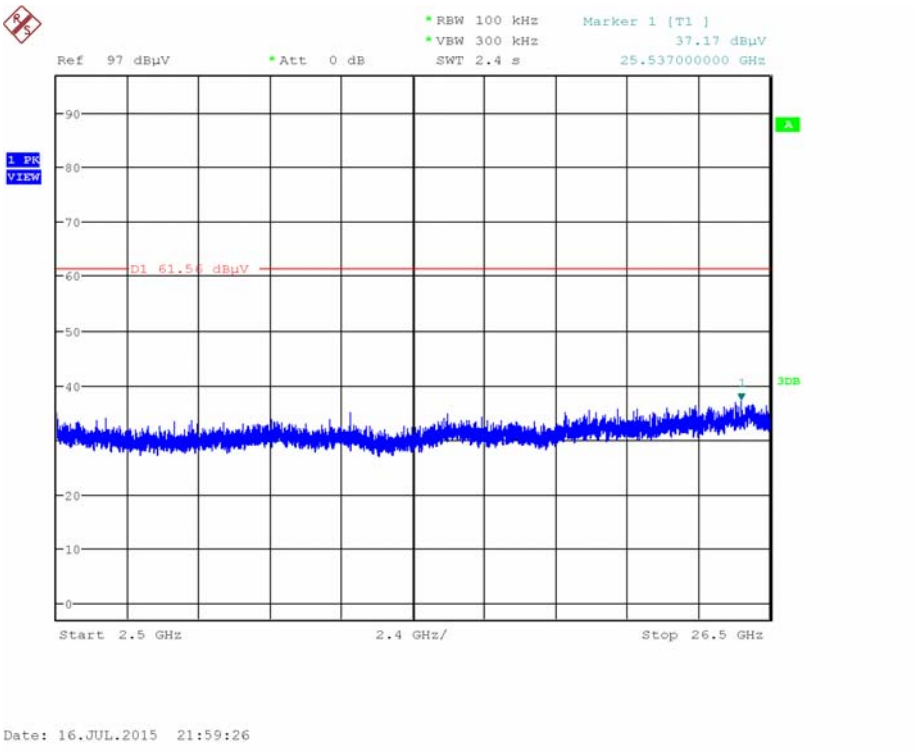


Plot on Configuration IEEE 802.11g / CH 12 / 2483.5MHz~2500MHz (down 30dBc) (Vertical)

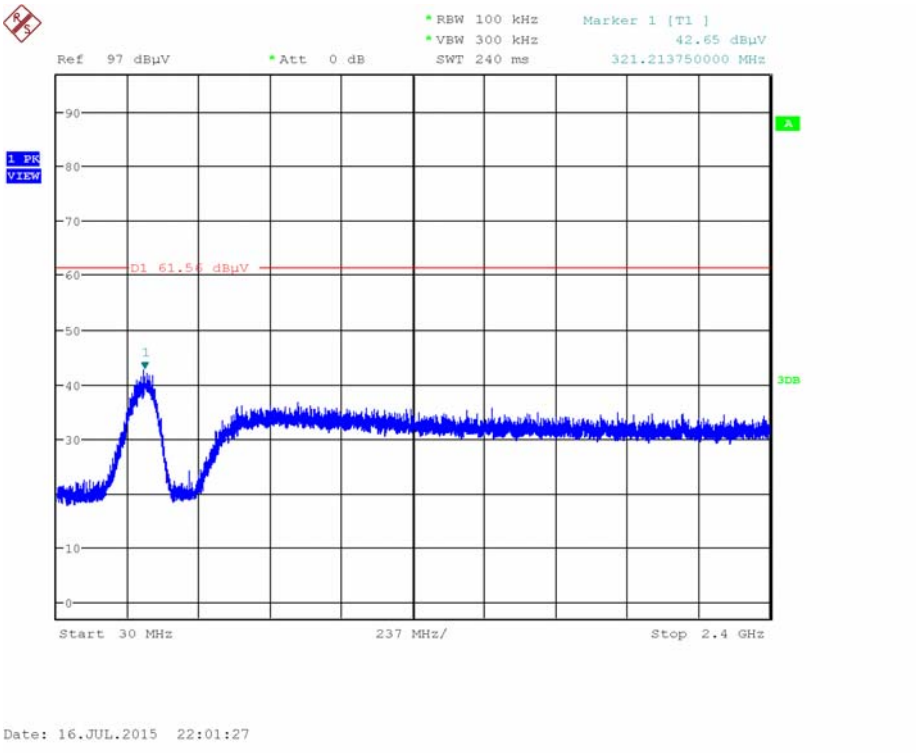


Note: Only the worse polarization (Vertical) is tested and recorded in test report.

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

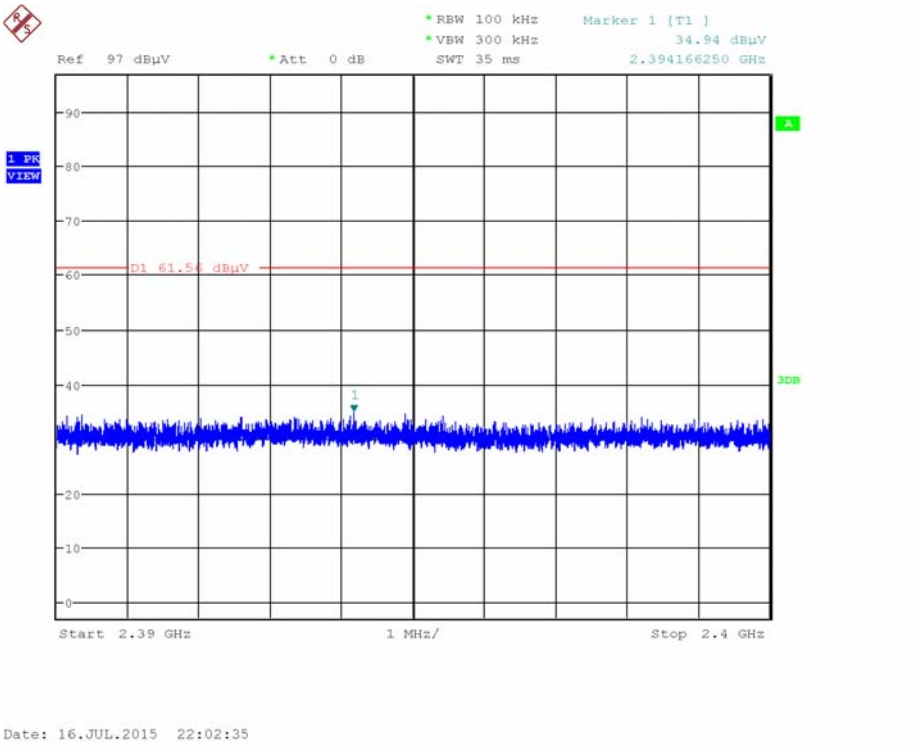


Plot on Configuration IEEE 802.11g / CH 13 / 30MHz~2400MHz (down 30dBc) (Vertical)

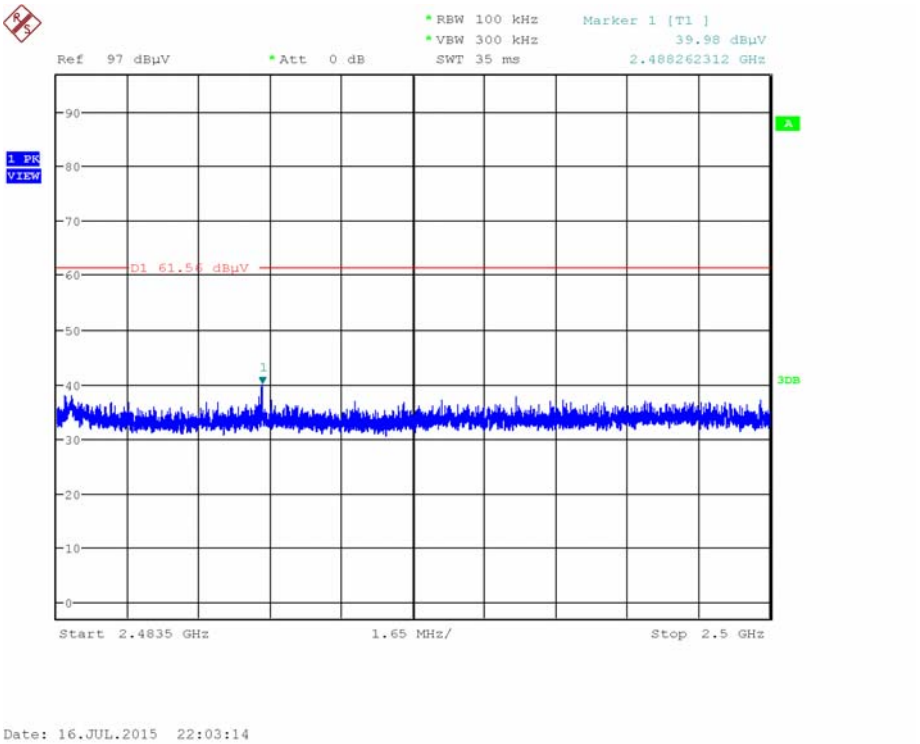


Note: Only the worse polarization (Vertical) is tested and recorded in test report.

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

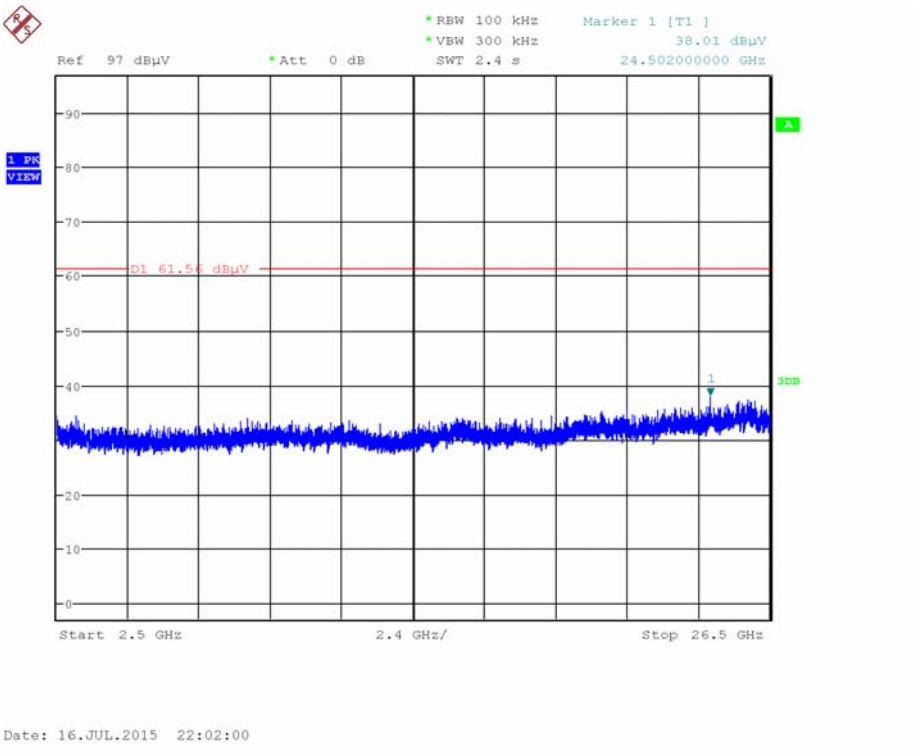


Plot on Configuration IEEE 802.11g / CH 13 / 2483.5MHz~2500MHz (down 30dBc) (Vertical)



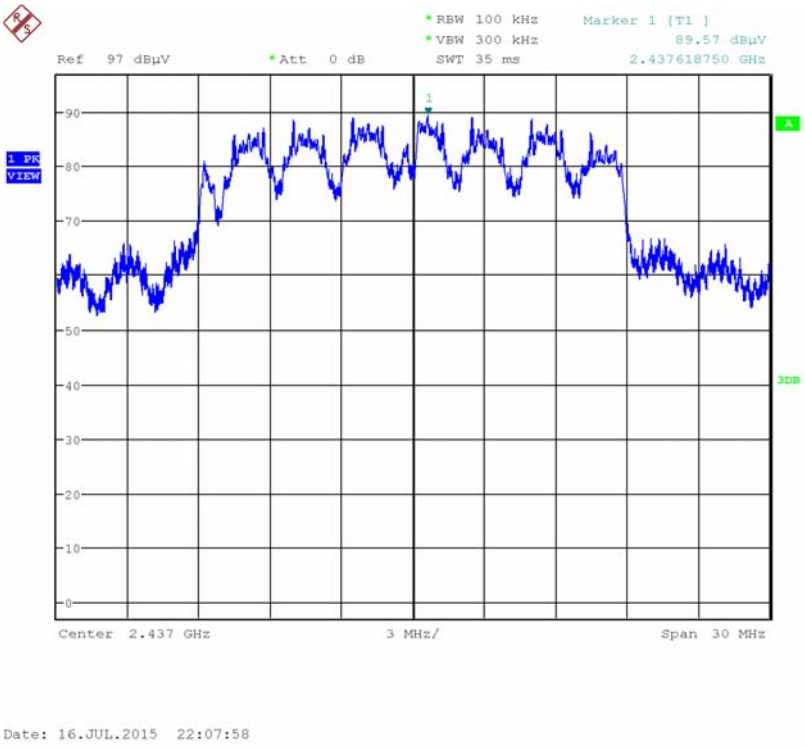
Note: Only the worse polarization (Vertical) is tested and recorded in test report.

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

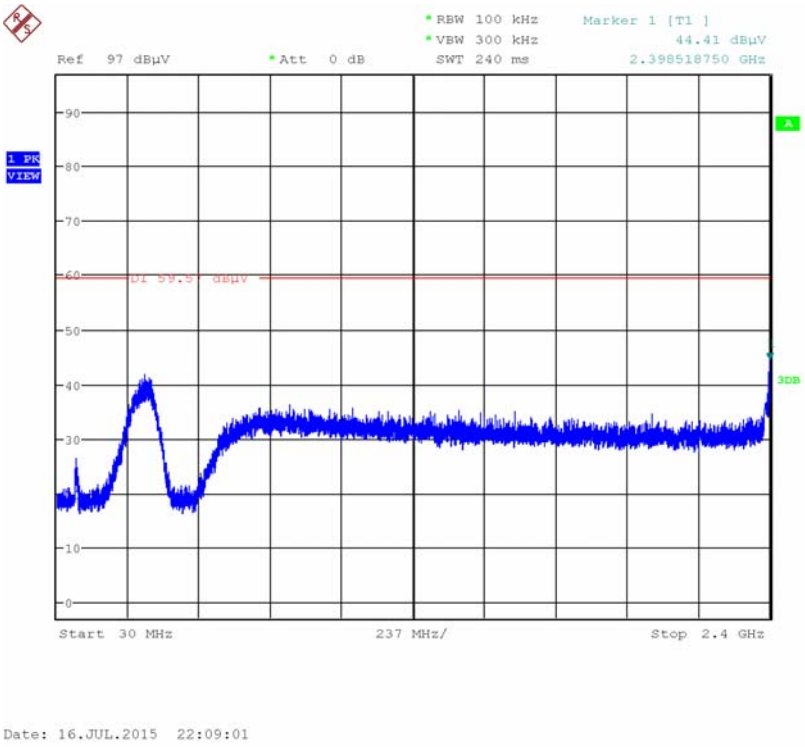


Note: Only the worse polarization (Vertical) is tested and recorded in test report.

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

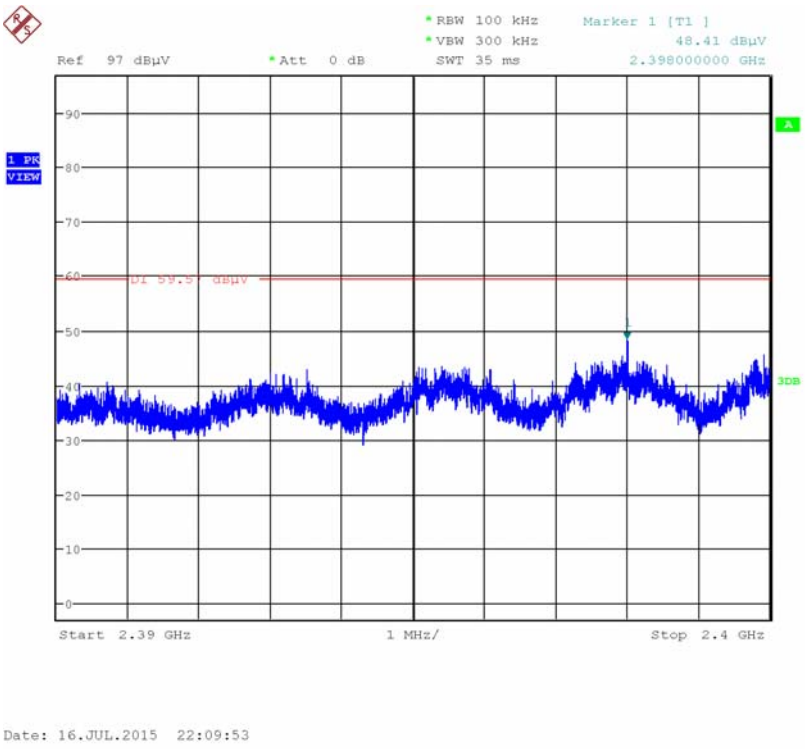


Plot on Configuration IEEE 802.11n MCS0 HT20 / CH 1 / 30MHz~2400MHz (down 30dBc) (Vertical)

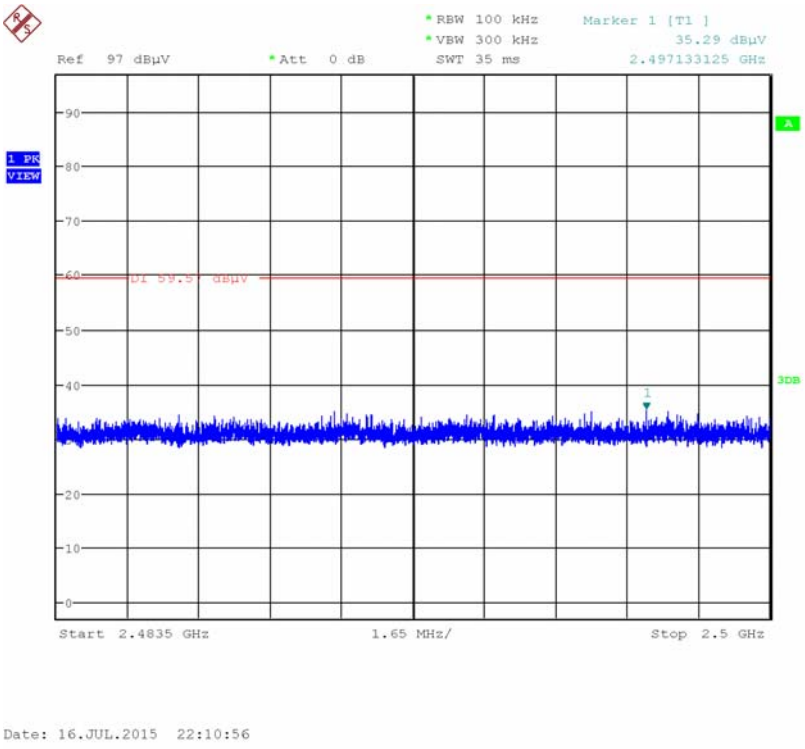


Note: Only the worse polarization (Vertical) is tested and recorded in test report.

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

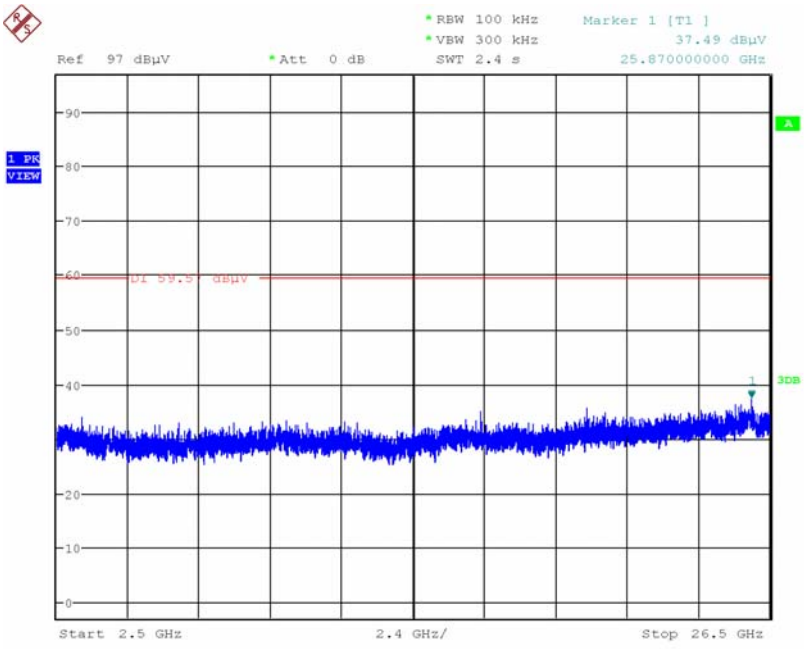


Plot on Configuration IEEE 802.11n MCS0 HT20 / CH 1 / 2483.5MHz~2500MHz (down 30dBc) (Vertical)

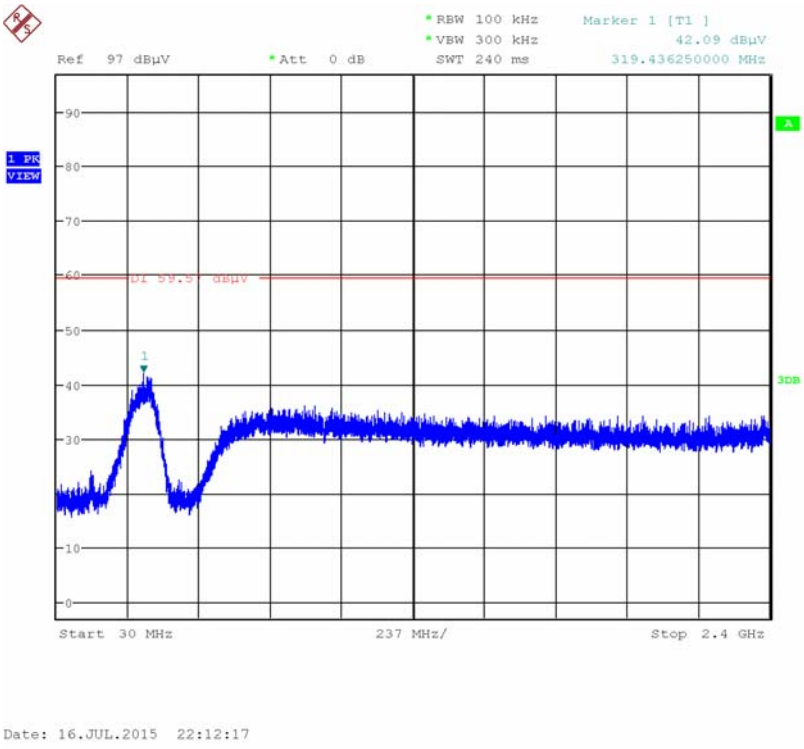


Note: Only the worse polarization (Vertical) is tested and recorded in test report.

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

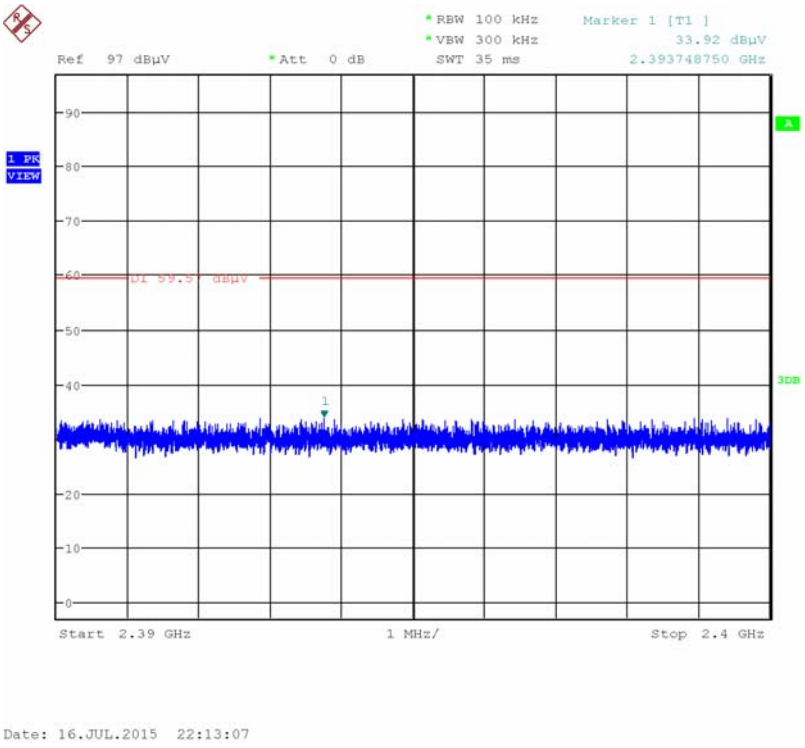


Plot on Configuration IEEE 802.11n MCS0 HT20 / CH 11 / 30MHz~2400MHz (down 30dBc) (Vertical)

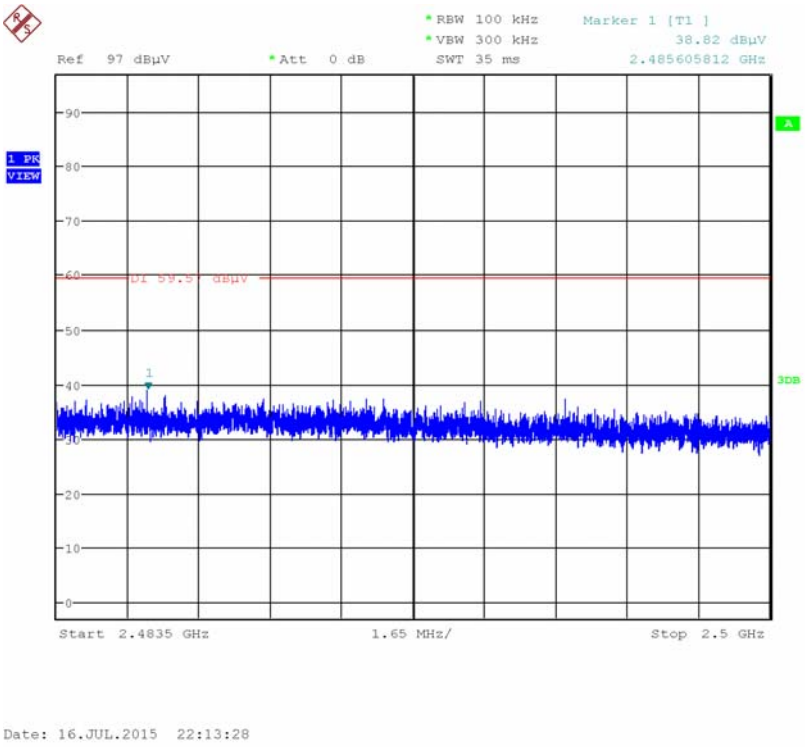


Note: Only the worse polarization (Vertical) is tested and recorded in test report.

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

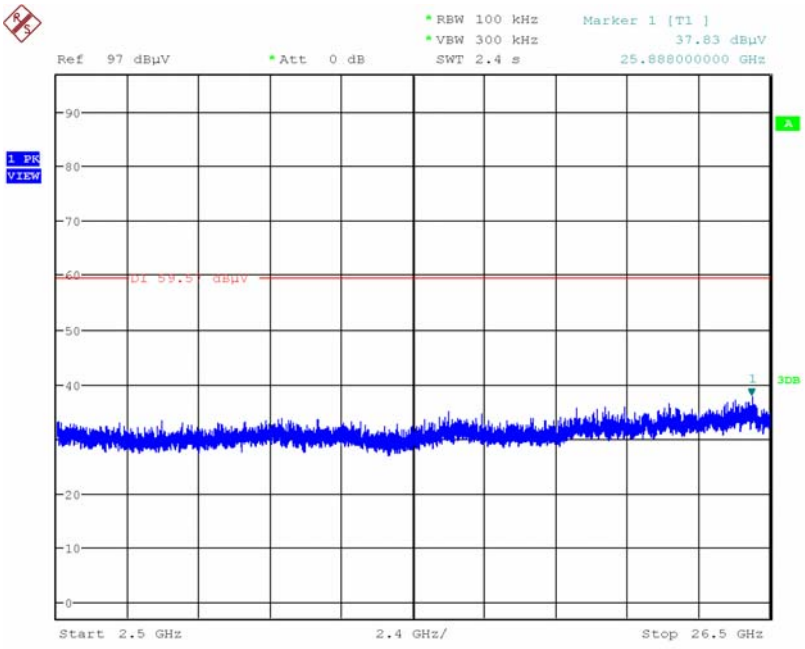


Plot on Configuration IEEE 802.11n MCS0 HT20 / CH 11 / 2483.5MHz~2500MHz (down 30dBc) (Vertical)

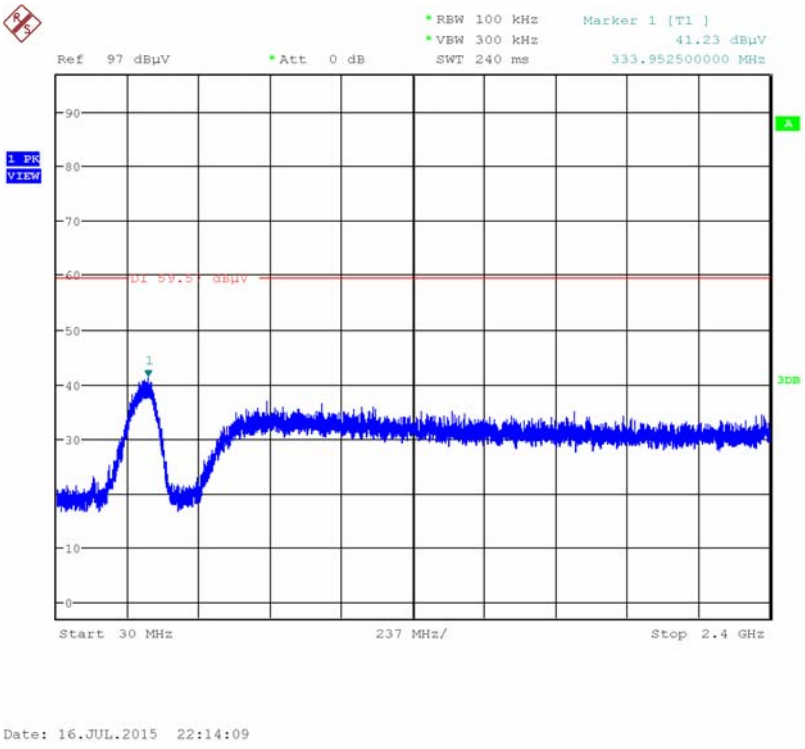


Note: Only the worse polarization (Vertical) is tested and recorded in test report.

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

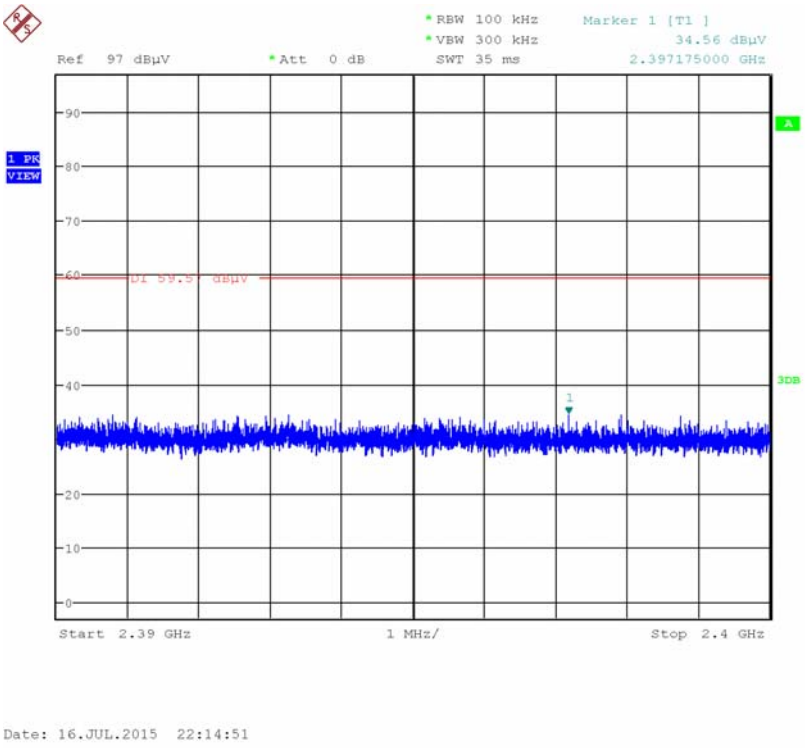


Plot on Configuration IEEE 802.11n MCS0 HT20 / CH 12 / 30MHz~2400MHz (down 30dBc) (Vertical)

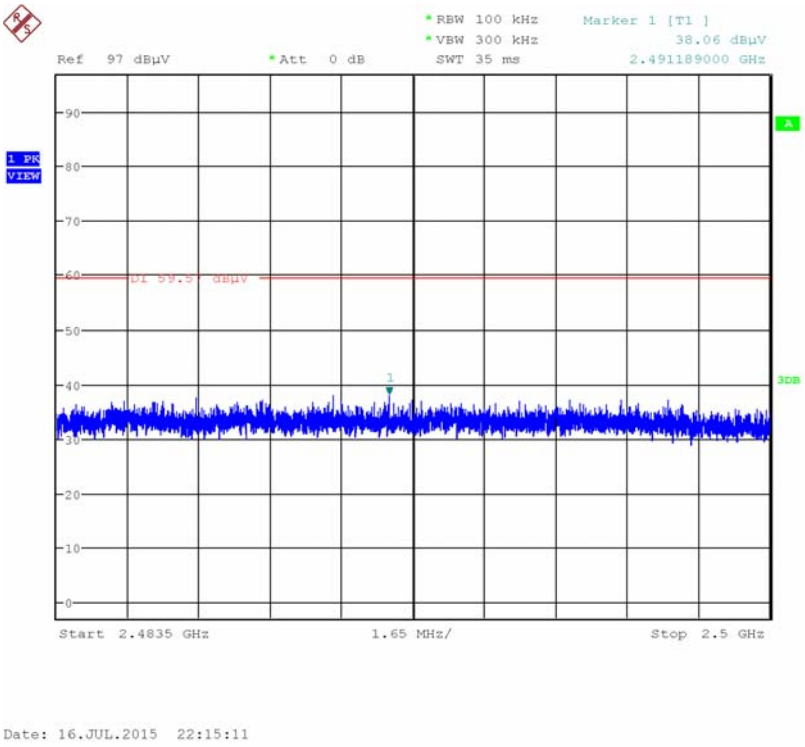


Note: Only the worse polarization (Vertical) is tested and recorded in test report.

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

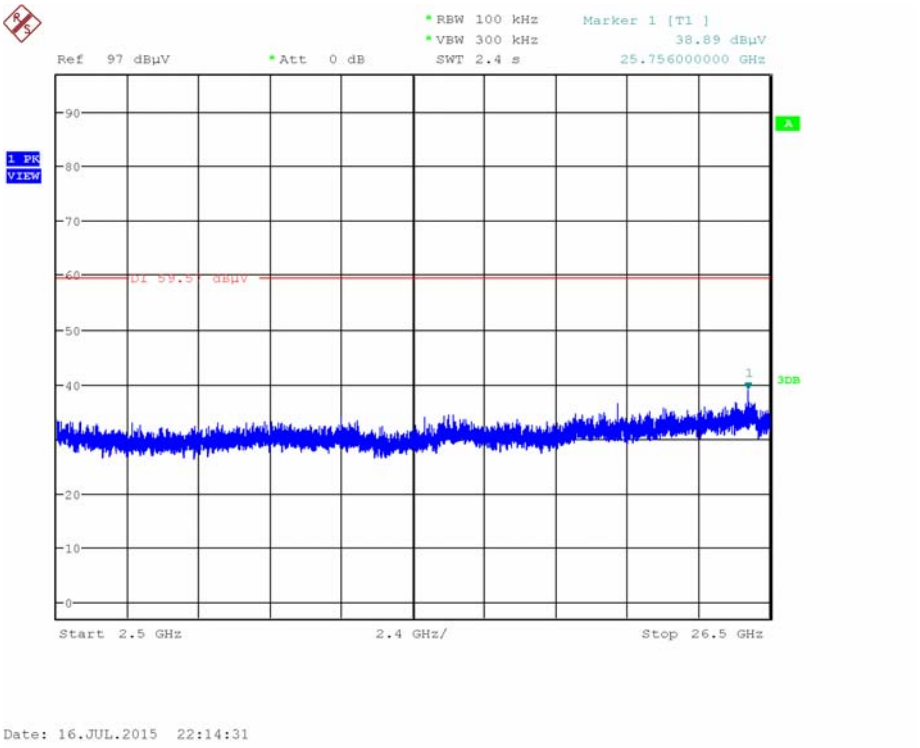


Plot on Configuration IEEE 802.11n MCS0 HT20 / CH 12 / 2483.5MHz~2500MHz (down 30dBc) (Vertical)

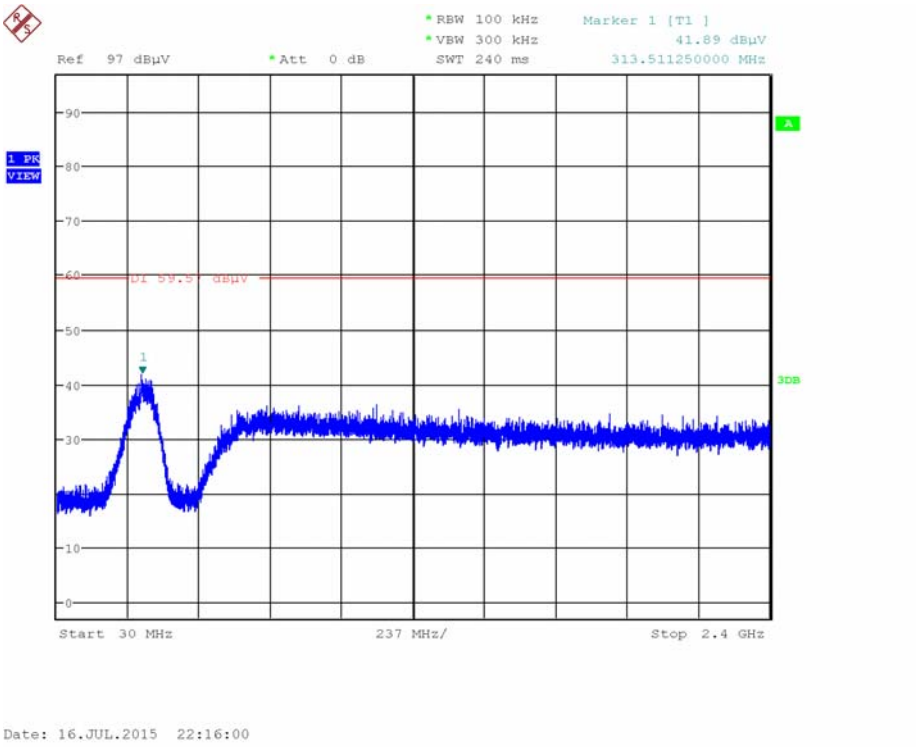


Note: Only the worse polarization (Vertical) is tested and recorded in test report.

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

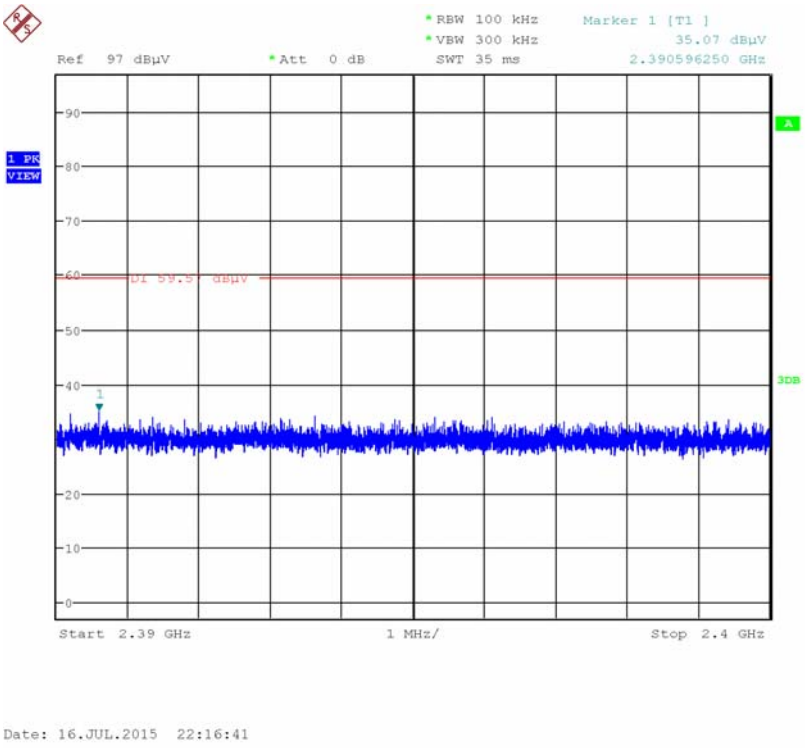


Plot on Configuration IEEE 802.11n MCS0 HT20 / CH 13 / 30MHz~2400MHz (down 30dBc) (Vertical)

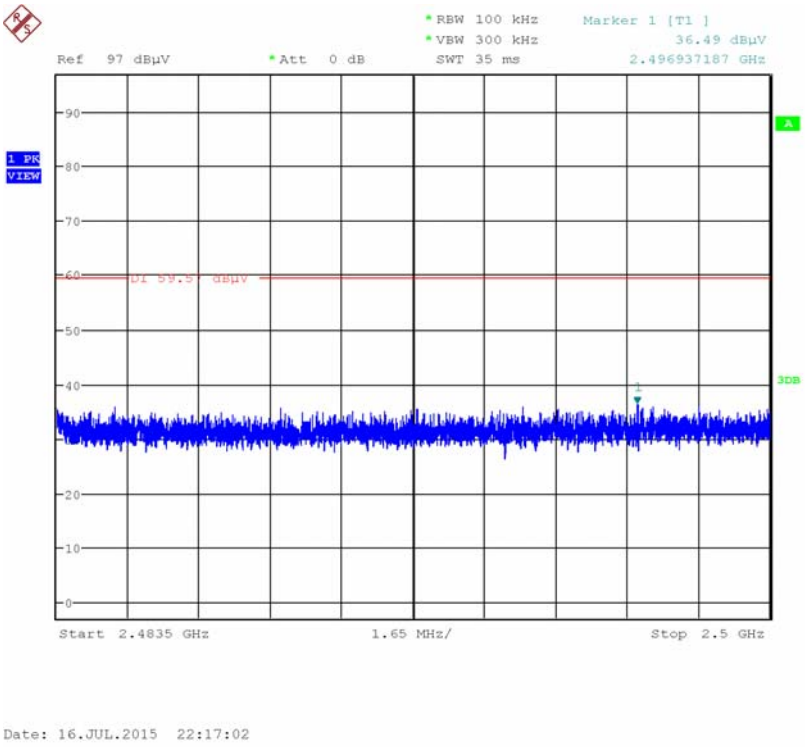


Note: Only the worse polarization (Vertical) is tested and recorded in test report.

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

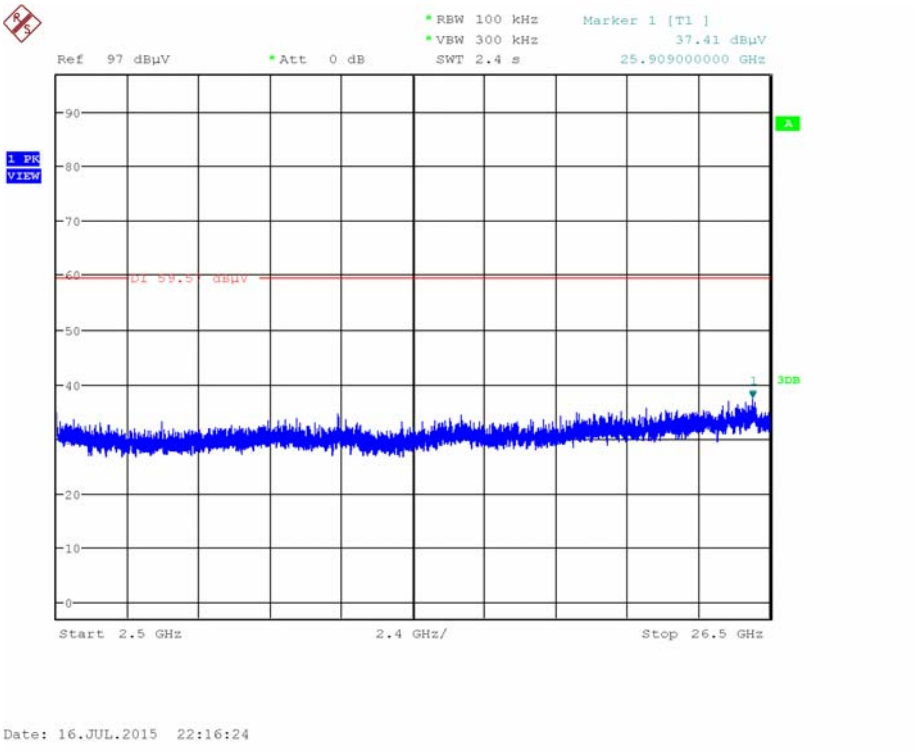


Plot on Configuration IEEE 802.11n MCS0 HT20 / CH 13 / 2483.5MHz~2500MHz (down 30dBc) (Vertical)



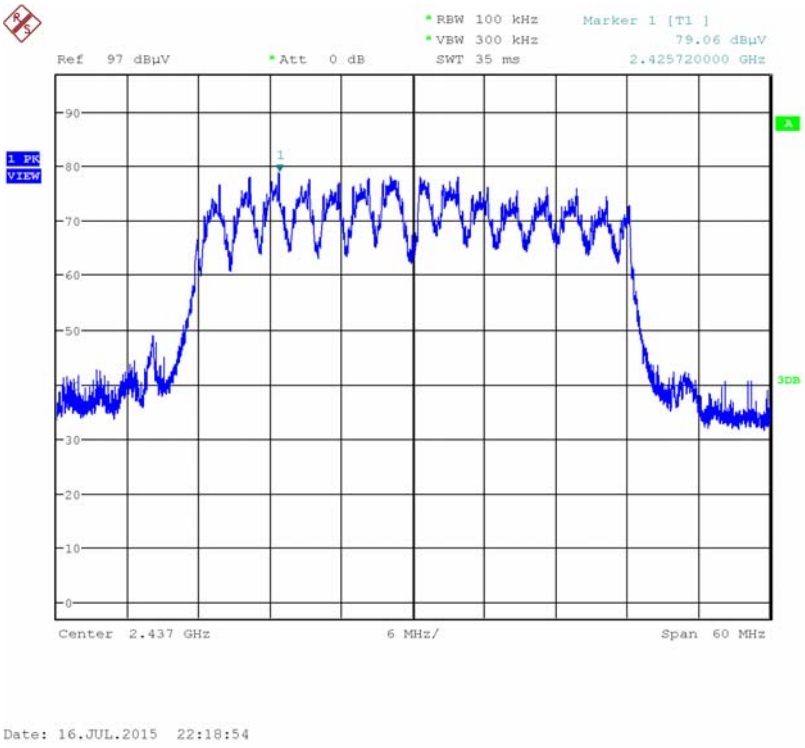
Note: Only the worse polarization (Vertical) is tested and recorded in test report.

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

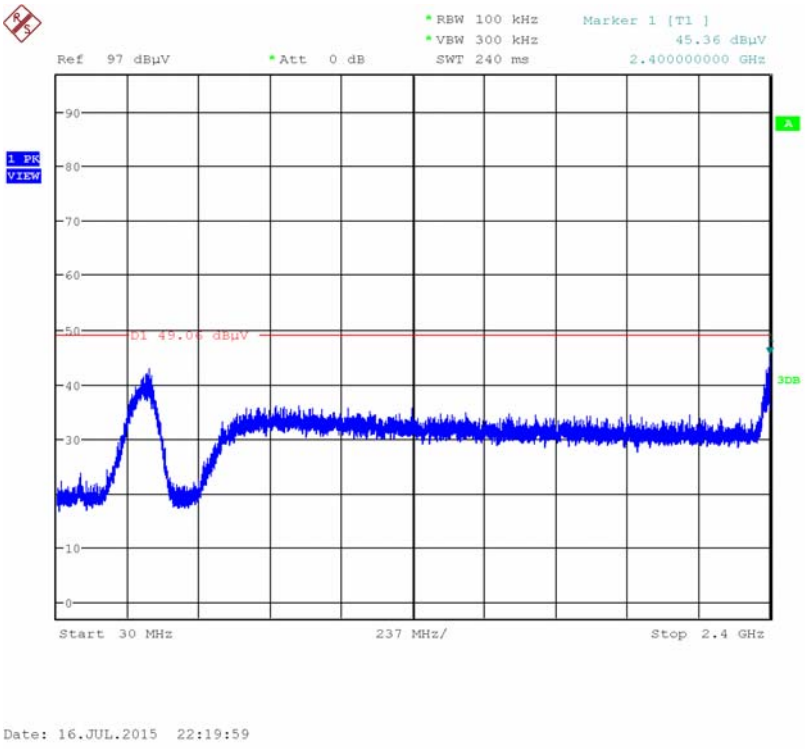


Note: Only the worse polarization (Vertical) is tested and recorded in test report.

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

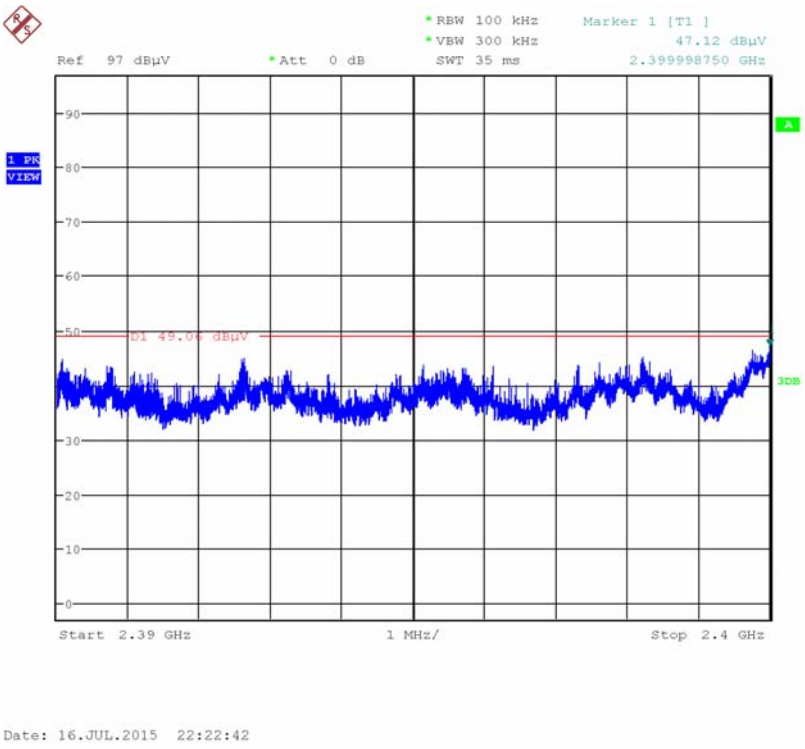


Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 3 / 30MHz~2400MHz (down 30dBc) (Vertical)

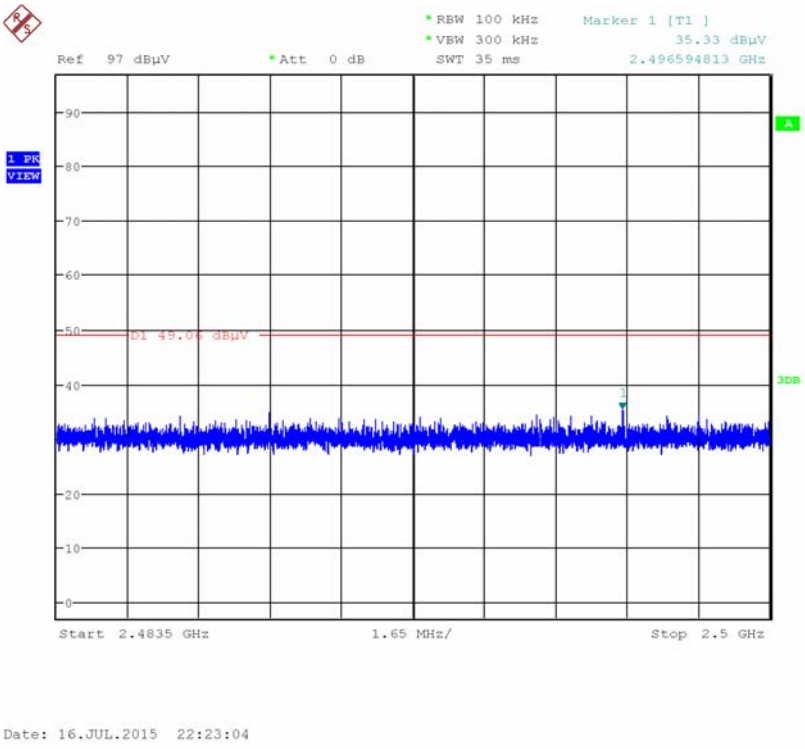


Note: Only the worse polarization (Vertical) is tested and recorded in test report.

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

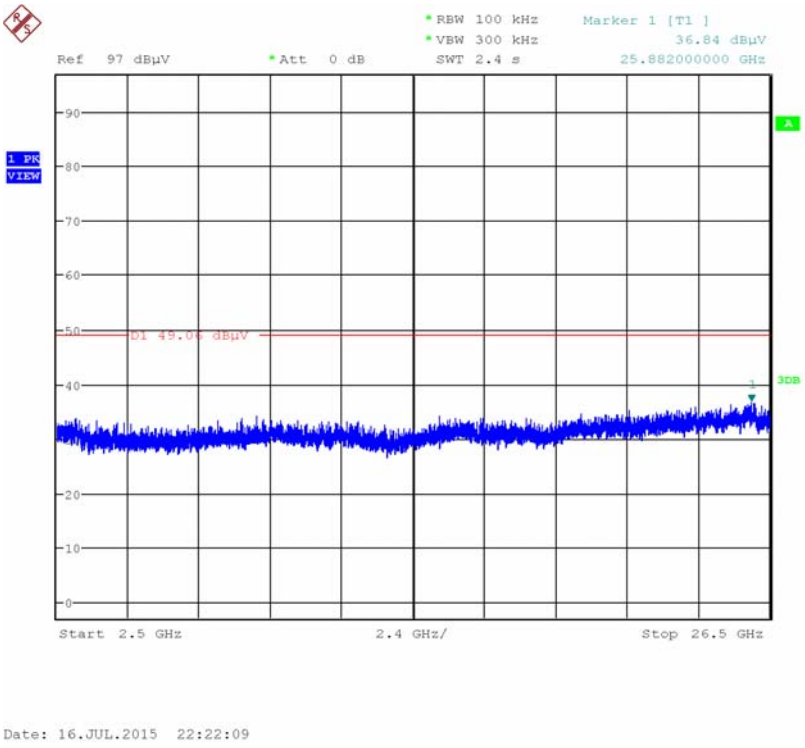


Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 3 / 2483.5MHz~2500MHz (down 30dBc) (Vertical)

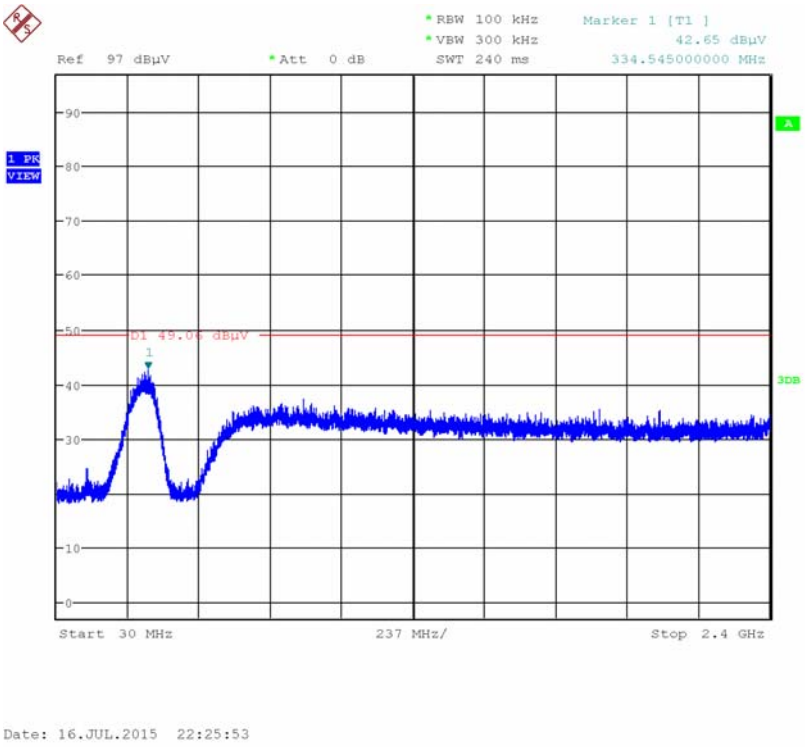


Note: Only the worse polarization (Vertical) is tested and recorded in test report.

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

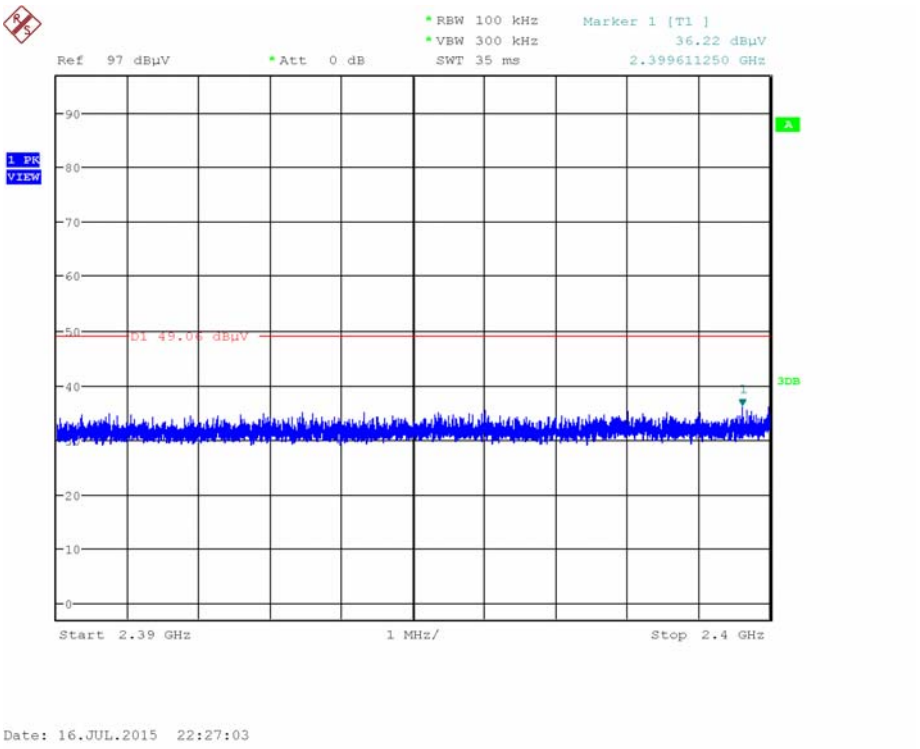


Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 9 / 30MHz~2400MHz (down 30dBc) (Vertical)

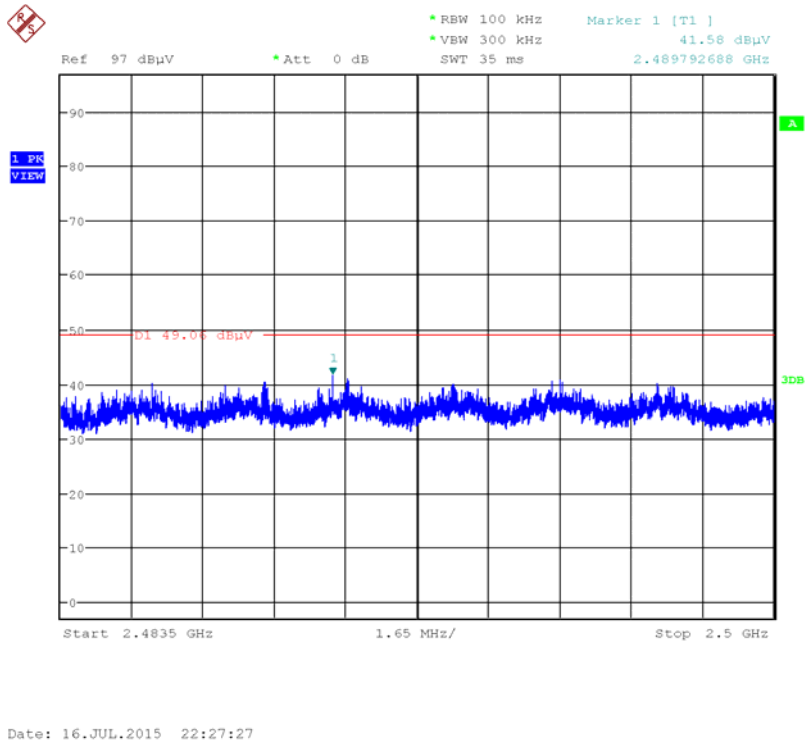


Note: Only the worse polarization (Vertical) is tested and recorded in test report.

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

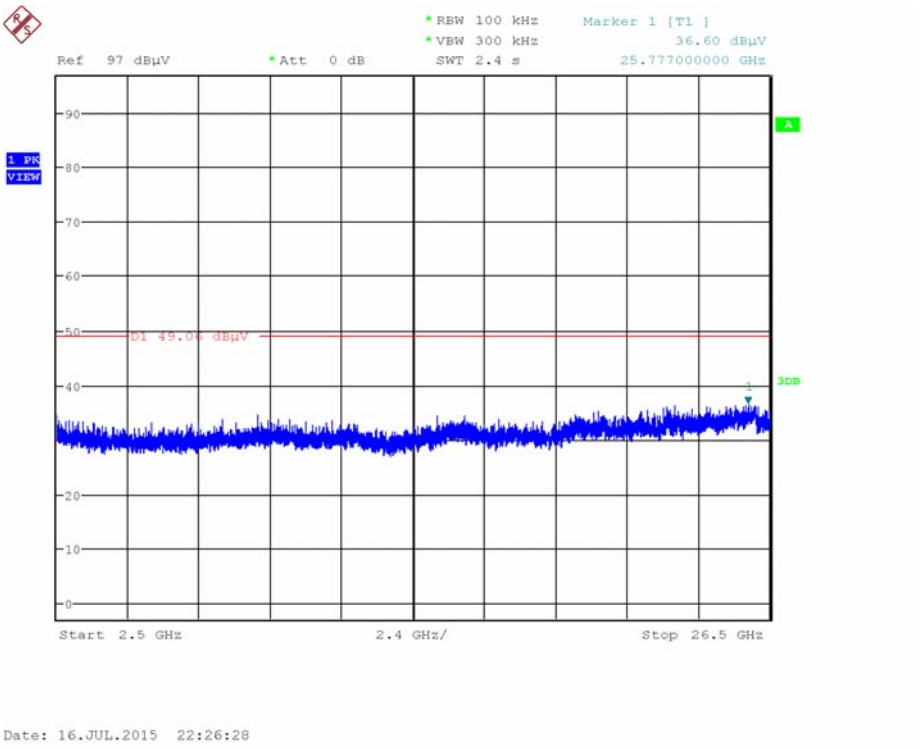


Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 9 / 2483.5MHz~2500MHz (down 30dBc) (Vertical)

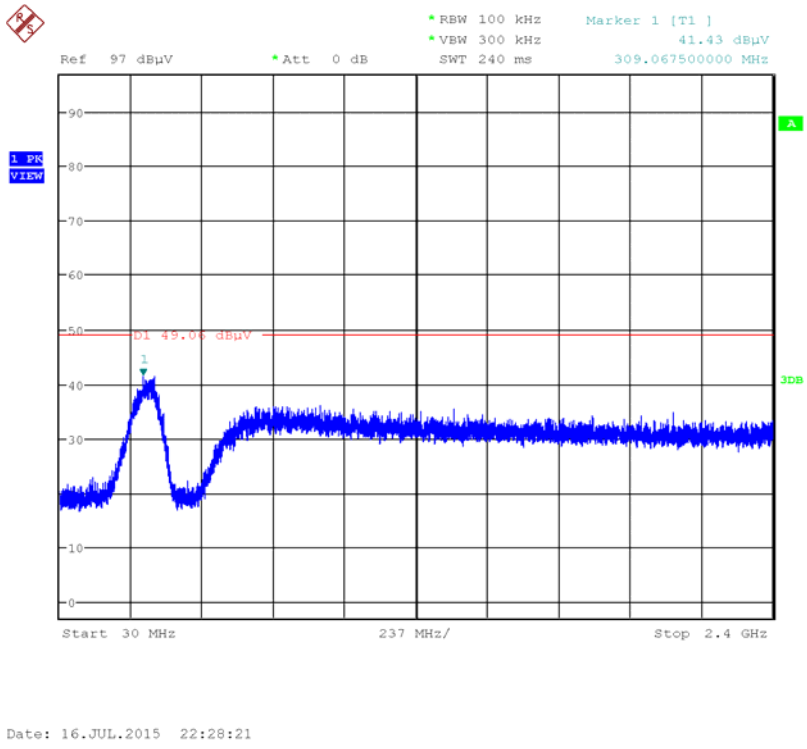


Note: Only the worse polarization (Vertical) is tested and recorded in test report.

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

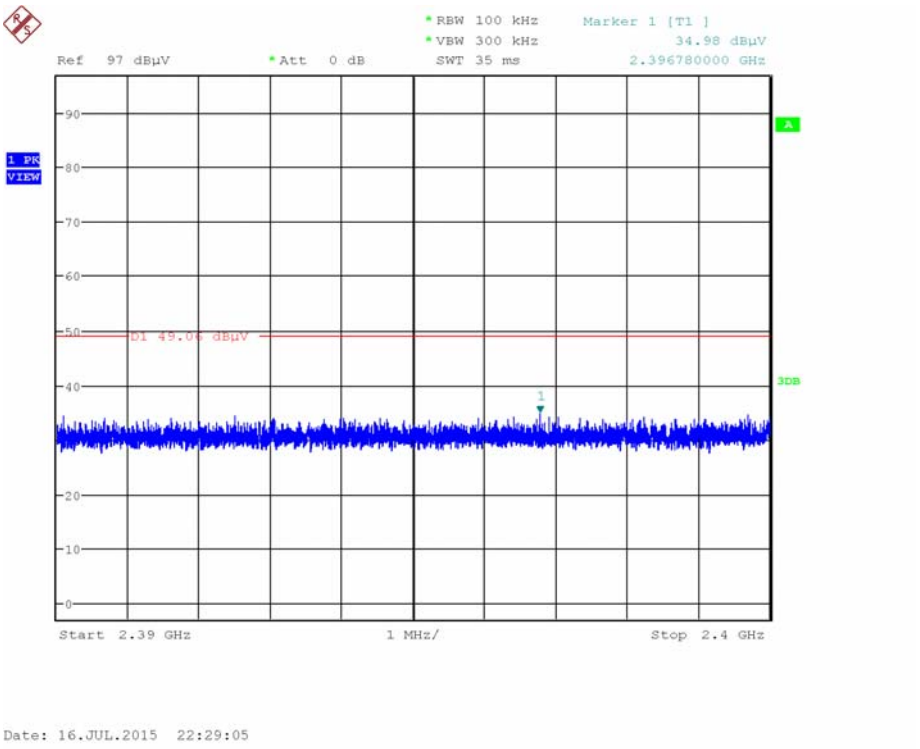


Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 10 / 30MHz~2400MHz (down 30dBc) (Vertical)

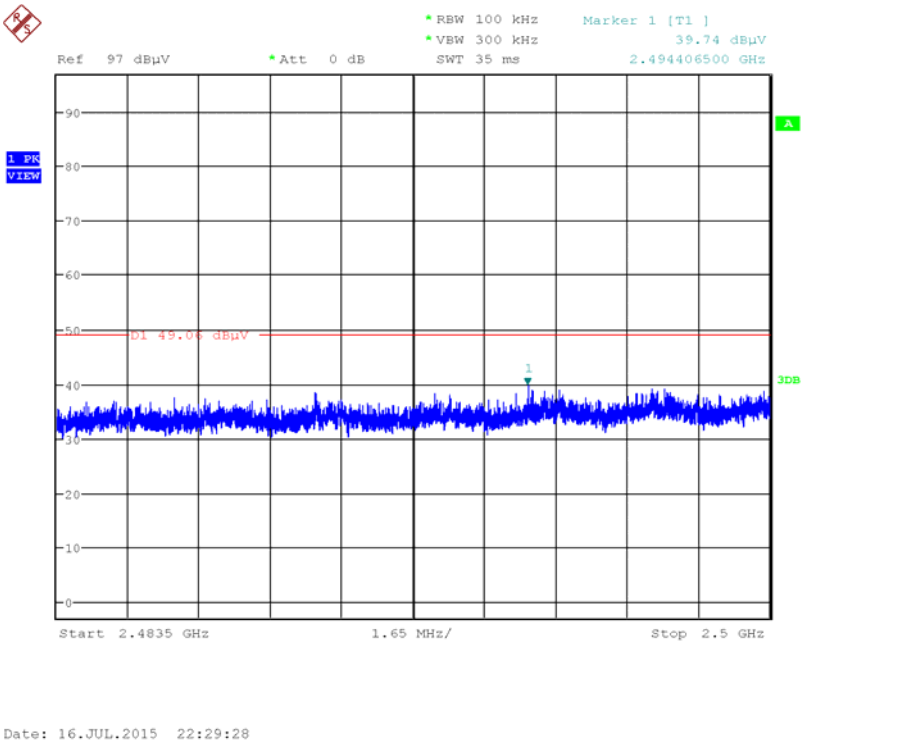


Note: Only the worse polarization (Vertical) is tested and recorded in test report.

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

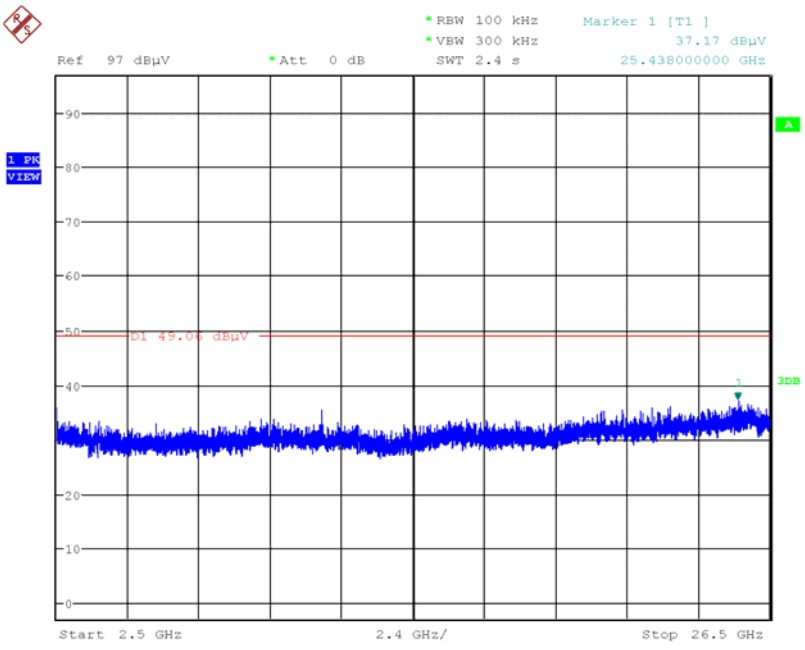


Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 10 / 2483.5MHz~2500MHz (down 30dBc) (Vertical)



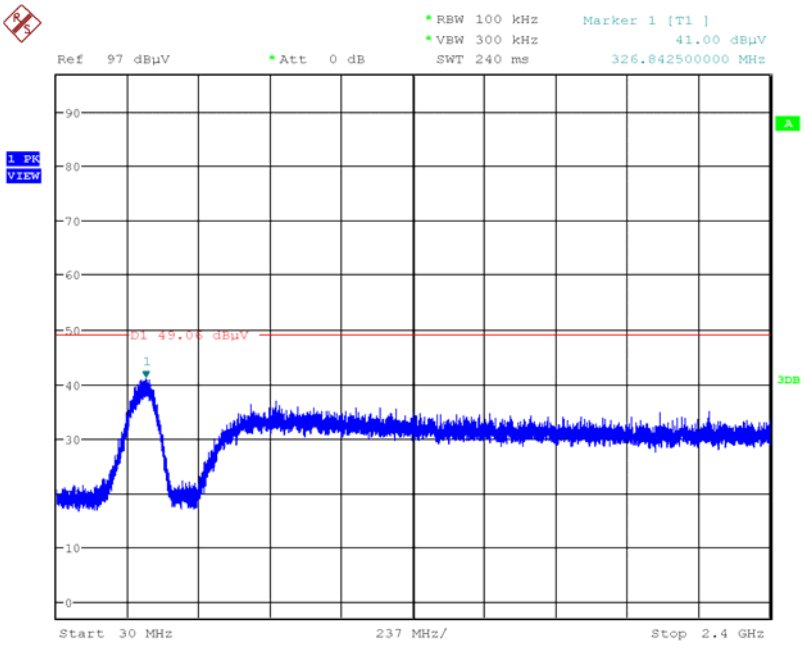
Note: Only the worse polarization (Vertical) is tested and recorded in test report.

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



Date: 16.JUL.2015 22:28:40

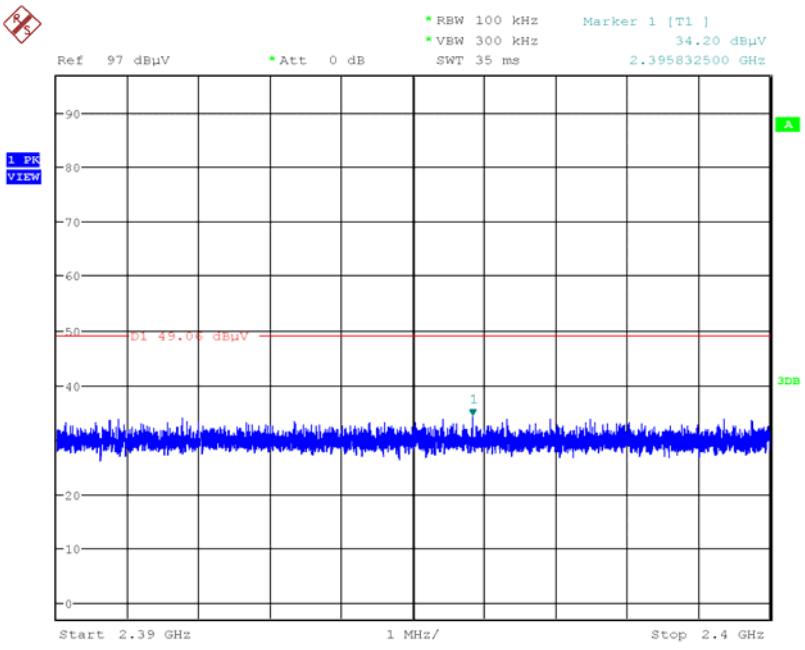
Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 11 / 30MHz~2400MHz (down 30dBc) (Vertical)



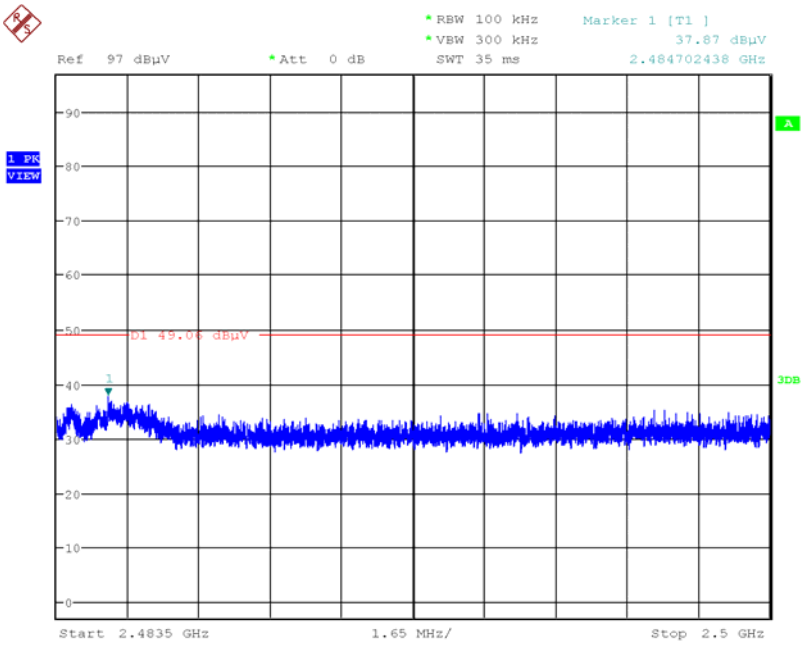
Date: 16.JUL.2015 22:30:07

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

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

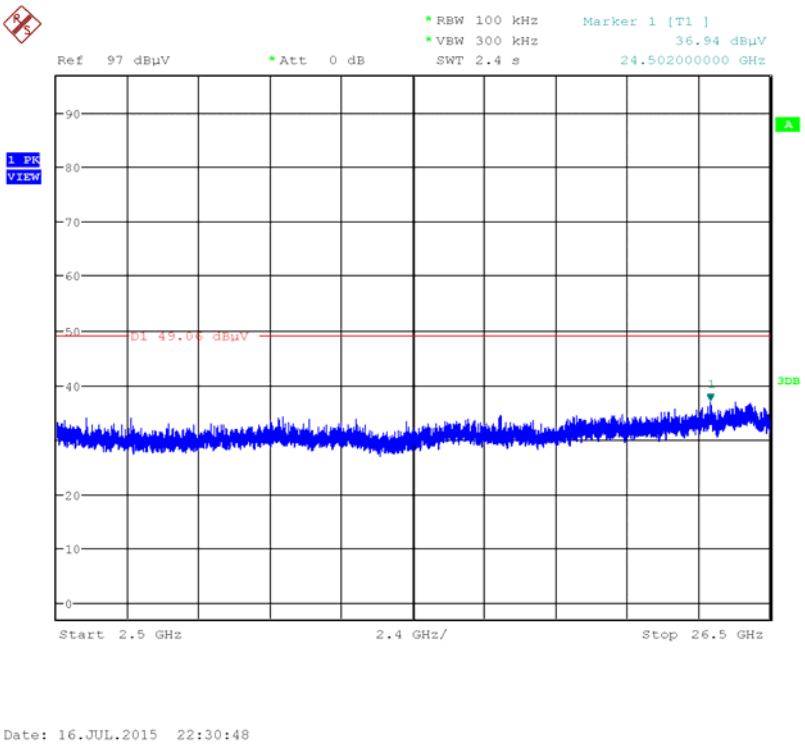


Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 11 / 2483.5MHz~2500MHz (down 30dBc) (Vertical)



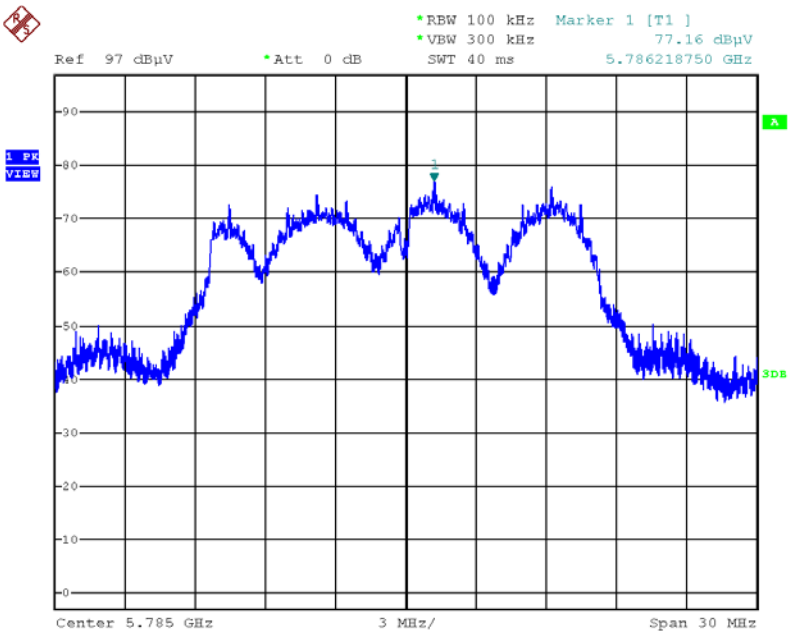
Note: Only the worse polarization (Vertical) is tested and recorded in test report.

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



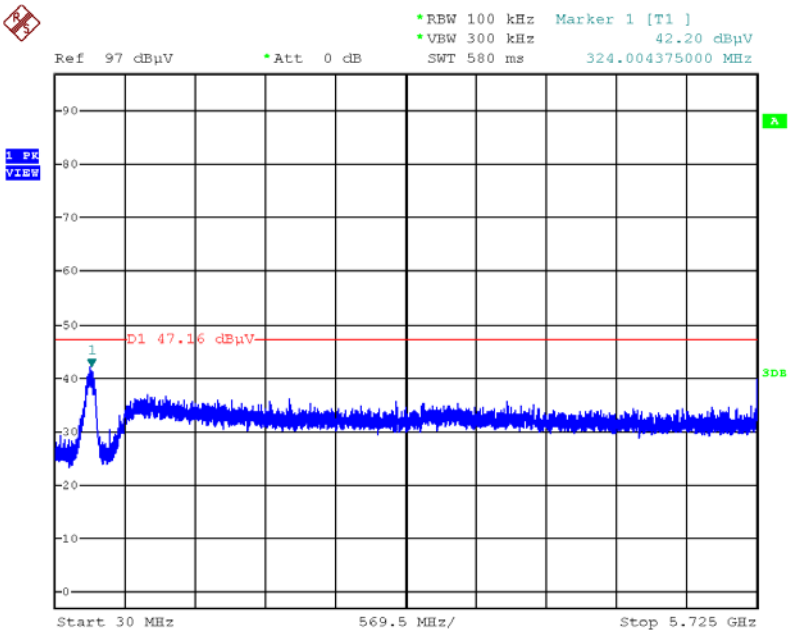
Note: Only the worse polarization (Vertical) is tested and recorded in test report.

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



Date: 17.JUL.2015 02:21:11

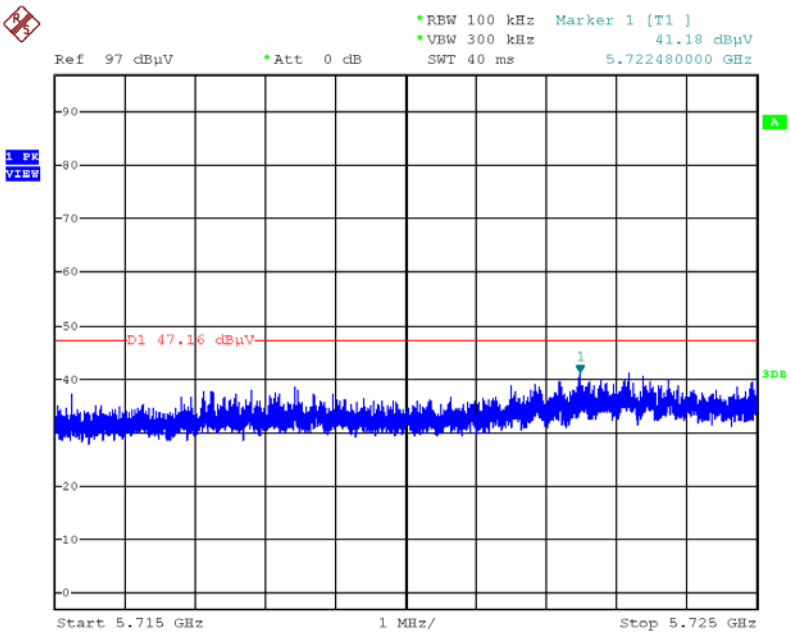
Plot on Configuration IEEE 802.11a / CH 149 / 30MHz~5725MHz (down 30dBc) (Vertical)



Date: 17.JUL.2015 02:22:46

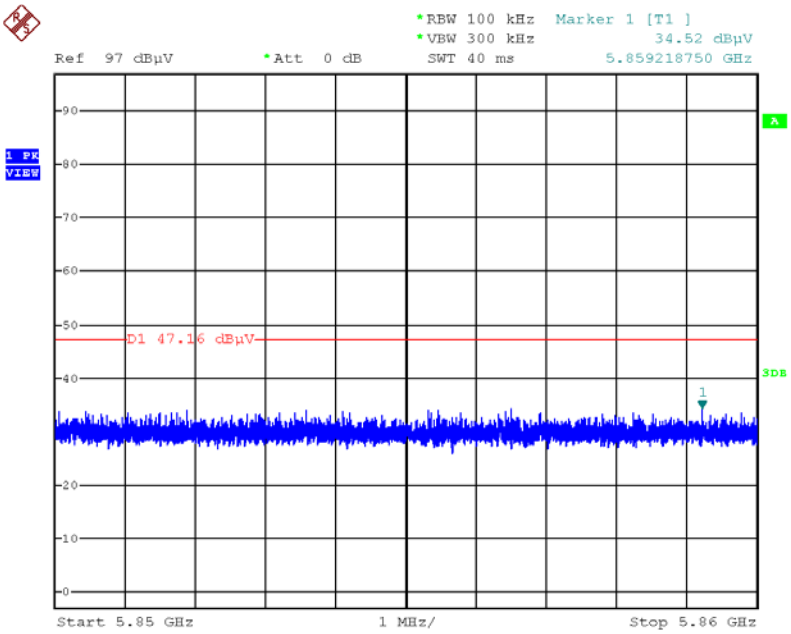
Note: Only the worse polarization (Vertical) is tested and recorded in test report.

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



Date: 17.JUL.2015 02:23:43

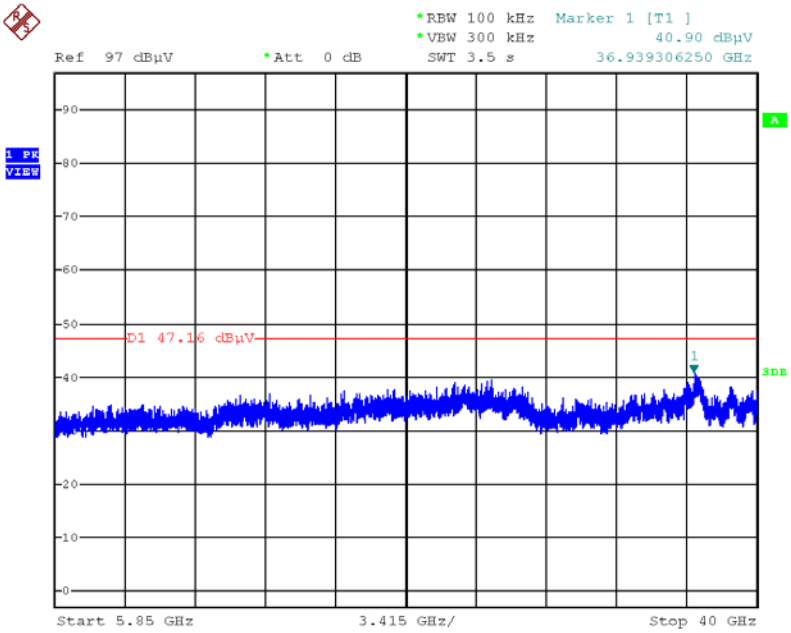
Plot on Configuration IEEE 802.11a / CH 149 / 5850MHz~5860MHz (down 30dBc) (Vertical)



Date: 17.JUL.2015 02:24:32

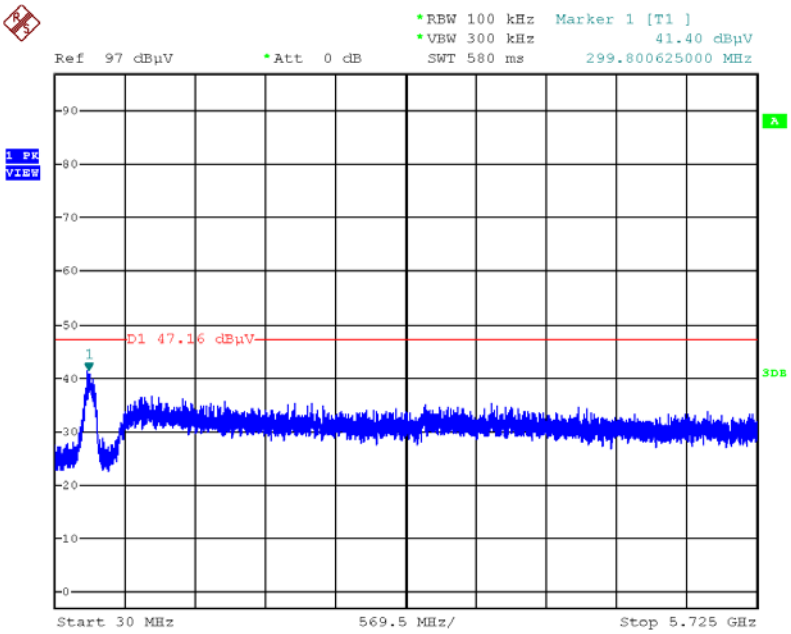
Note: Only the worse polarization (Vertical) is tested and recorded in test report.

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



Date: 17.JUL.2015 02:23:18

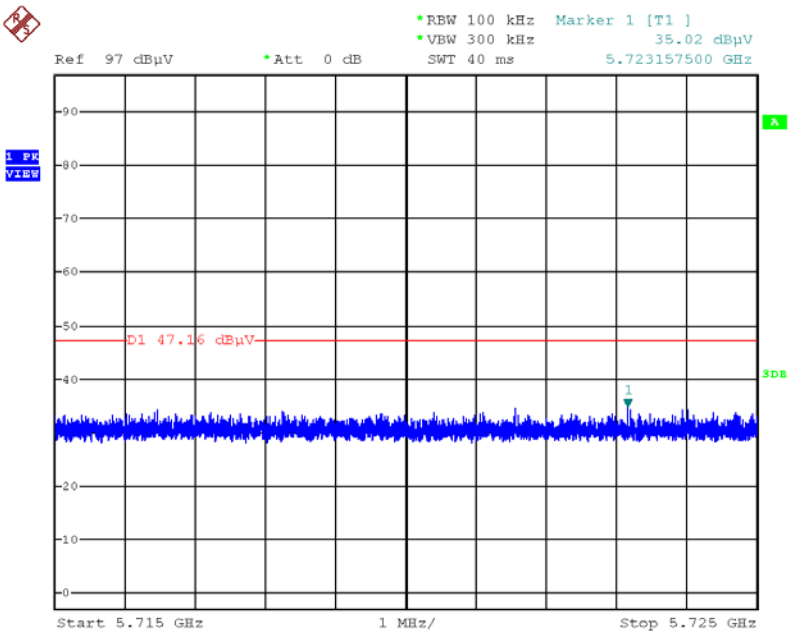
Plot on Configuration IEEE 802.11a / CH 165 / 30MHz~5725MHz (down 30dBc) (Vertical)



Date: 17.JUL.2015 02:25:19

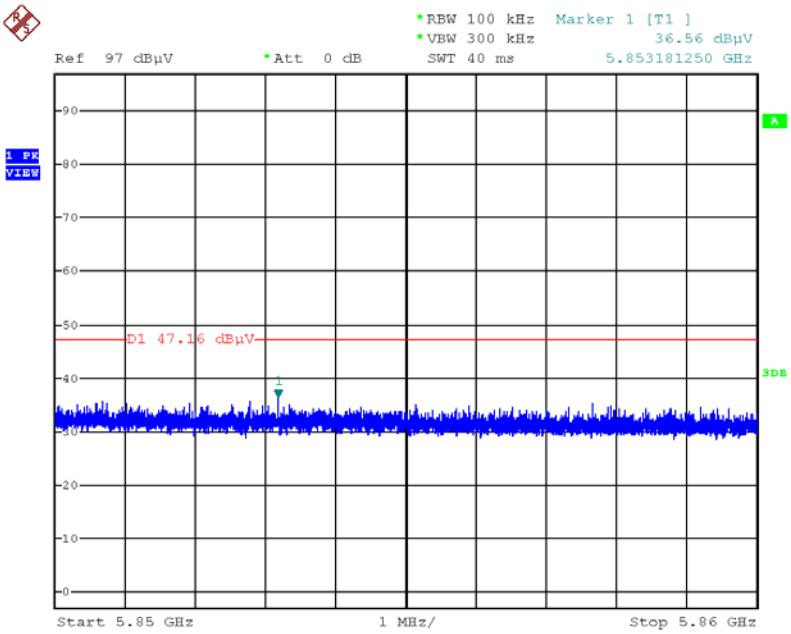
Note: Only the worse polarization (Vertical) is tested and recorded in test report.

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



Date: 17.JUL.2015 02:26:34

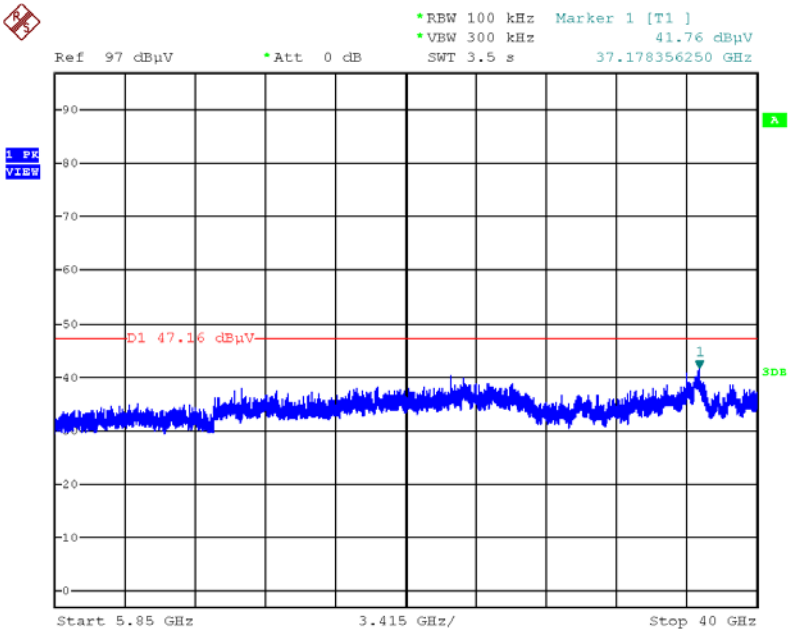
Plot on Configuration IEEE 802.11a / CH 165 / 5850MHz~5860MHz (down 30dBc) (Vertical)



Date: 17.JUL.2015 02:27:07

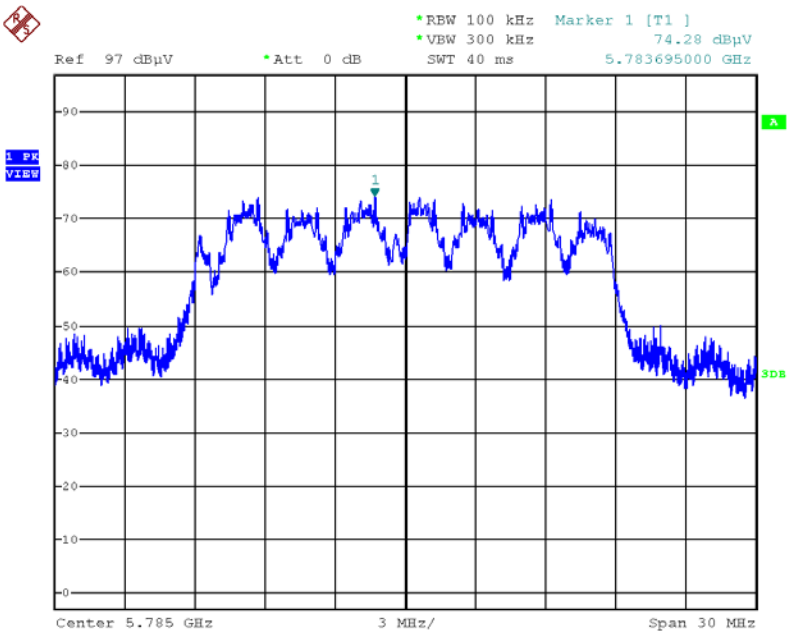
Note: Only the worse polarization (Vertical) is tested and recorded in test report.

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



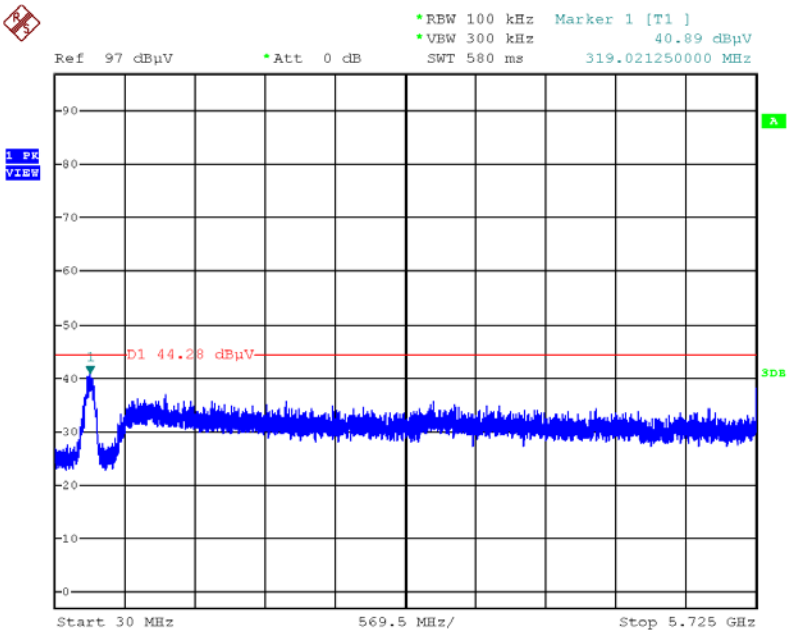
Note: Only the worse polarization (Vertical) is tested and recorded in test report.

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



Date: 17.JUL.2015 02:28:55

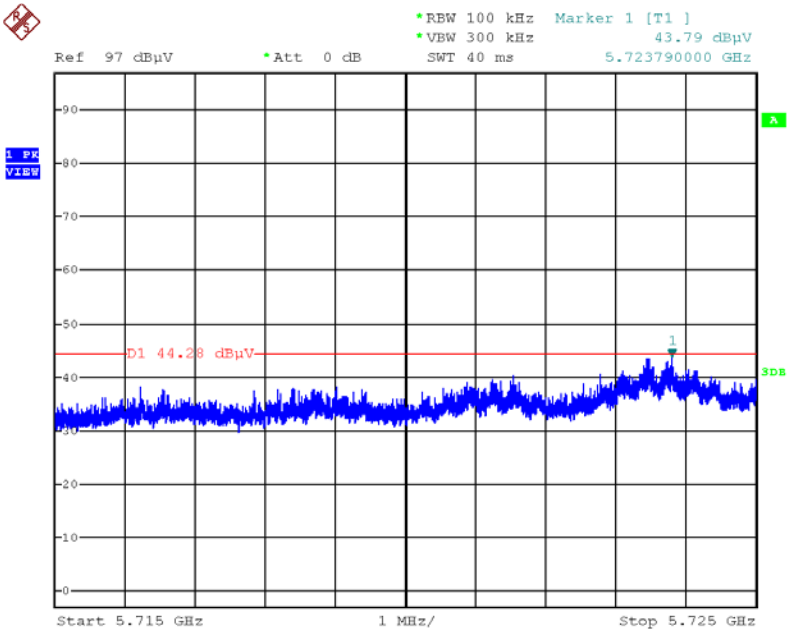
Plot on Configuration IEEE 802.11n MCS0 HT20 / CH 149 / 30MHz~5725MHz (down 30dBc) (Vertical)



Date: 17.JUL.2015 02:29:58

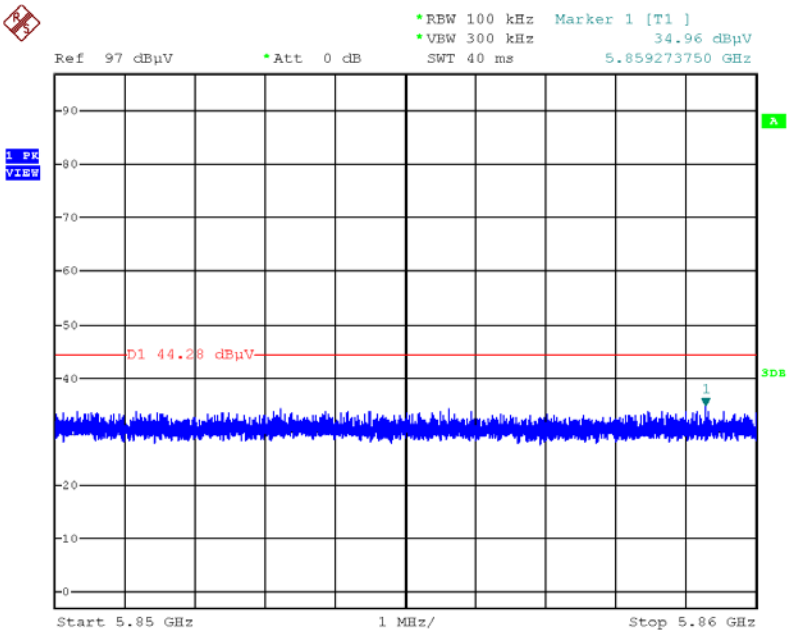
Note: Only the worse polarization (Vertical) is tested and recorded in test report.

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



Date: 17.JUL.2015 02:31:28

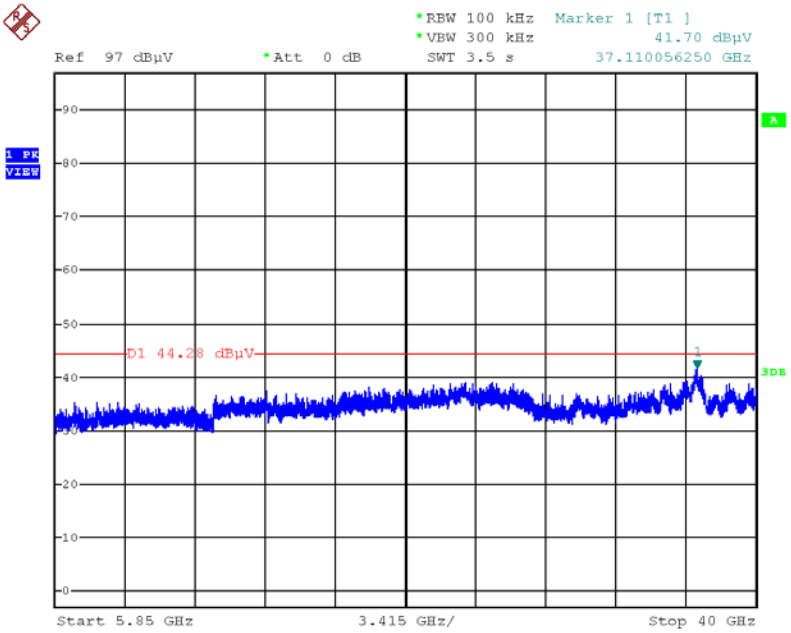
Plot on Configuration IEEE 802.11n MCS0 HT20 / CH 149 / 5850MHz~5860MHz (down 30dBc) (Vertical)



Date: 17.JUL.2015 02:32:12

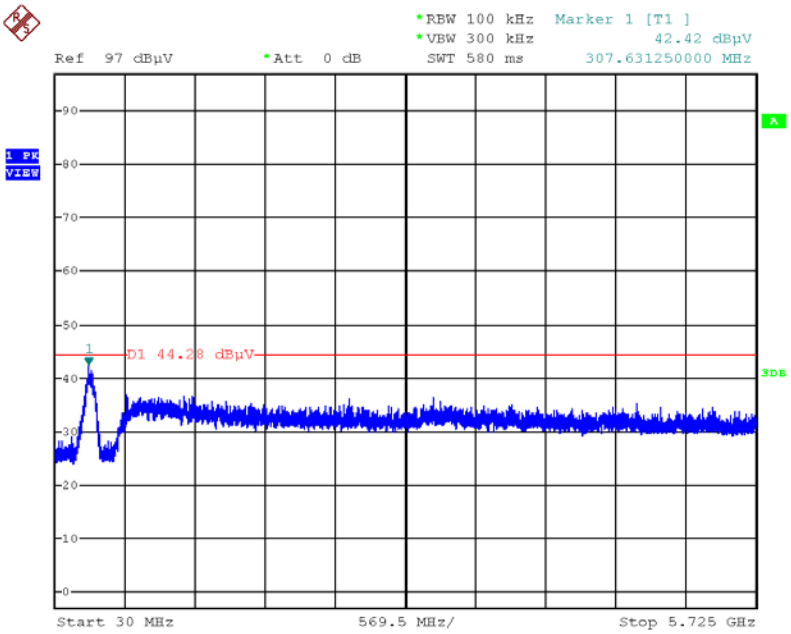
Note: Only the worse polarization (Vertical) is tested and recorded in test report.

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



Date: 17.JUL.2015 02:30:45

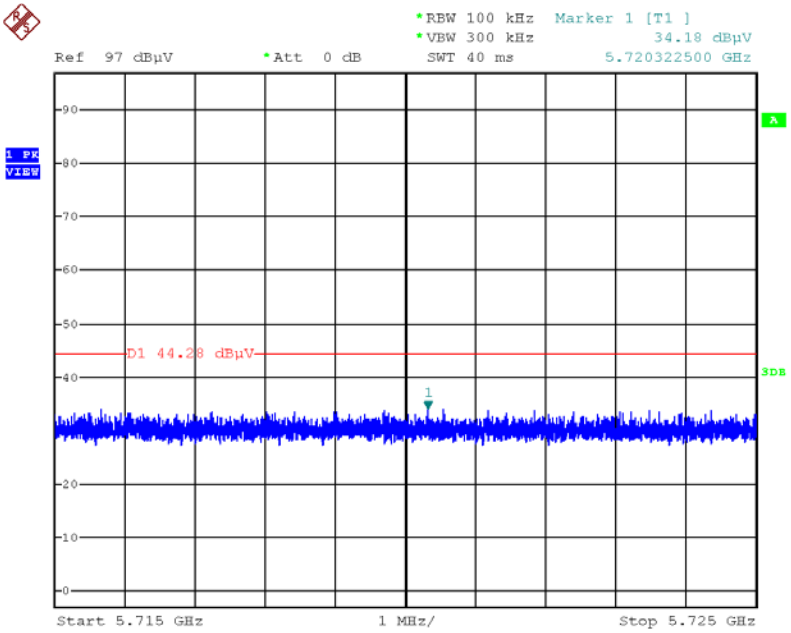
Plot on Configuration IEEE 802.11n MCS0 HT20 / CH 165 / 30MHz~5725MHz (down 30dBc) (Vertical)



Date: 17.JUL.2015 02:33:25

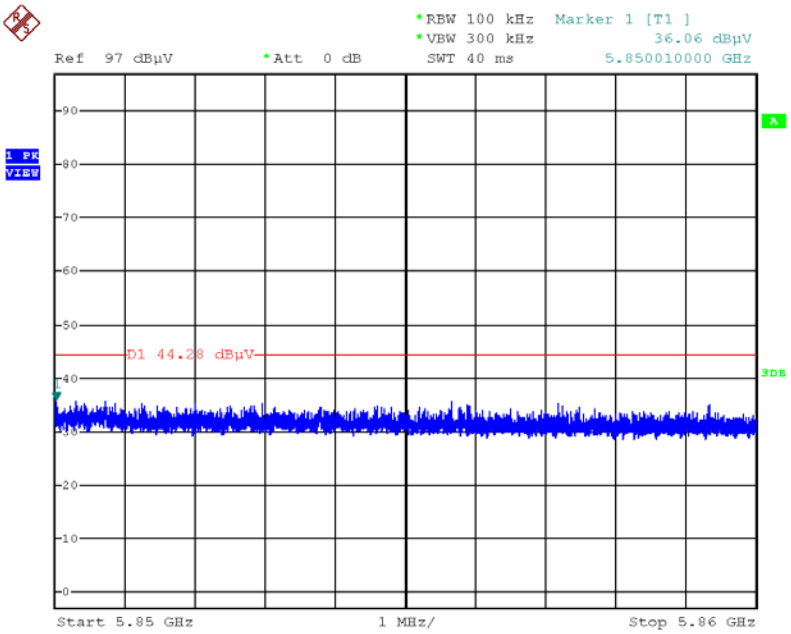
Note: Only the worse polarization (Vertical) is tested and recorded in test report.

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



Date: 17.JUL.2015 02:34:56

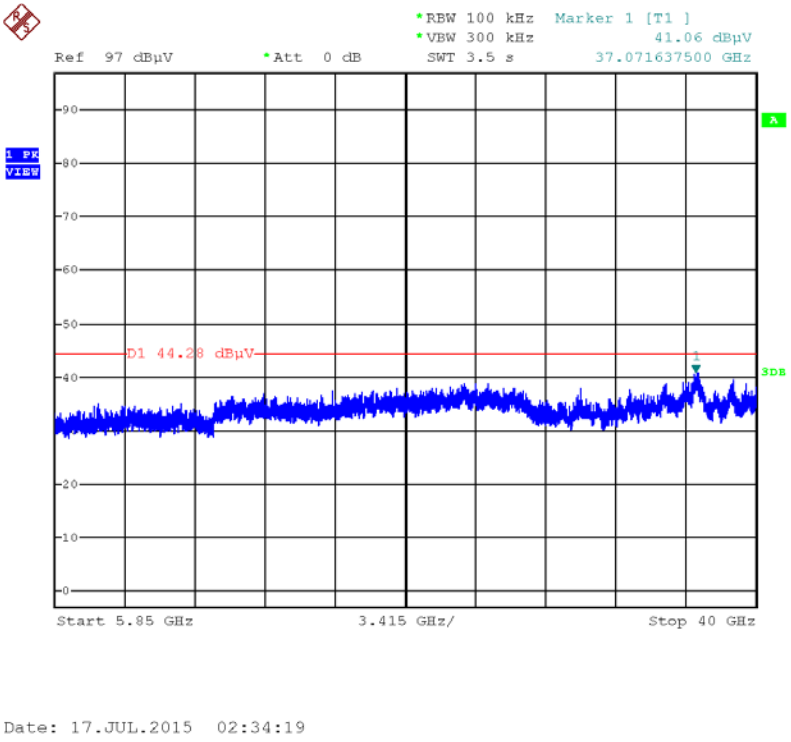
Plot on Configuration IEEE 802.11n MCS0 HT20 / CH 165 / 5850MHz~5860MHz (down 30dBc) (Vertical)



Date: 17.JUL.2015 02:35:32

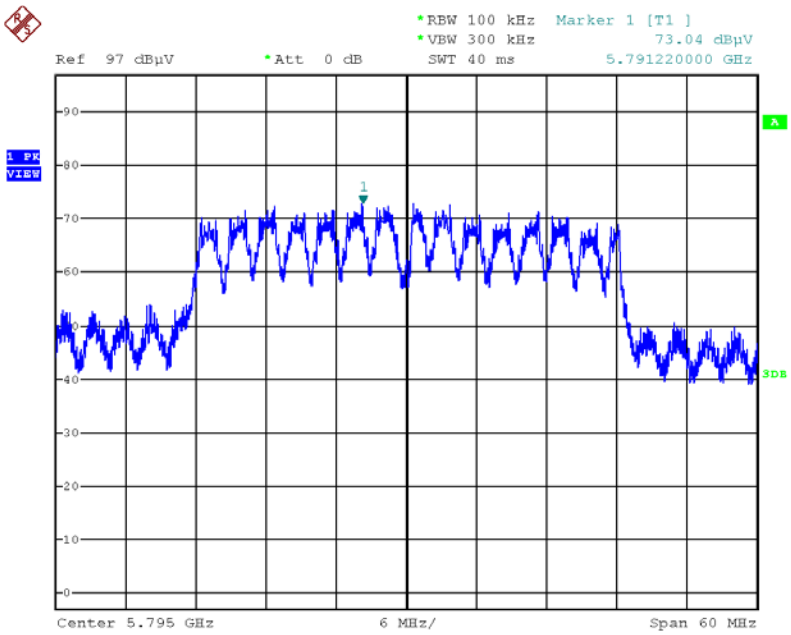
Note: Only the worse polarization (Vertical) is tested and recorded in test report.

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



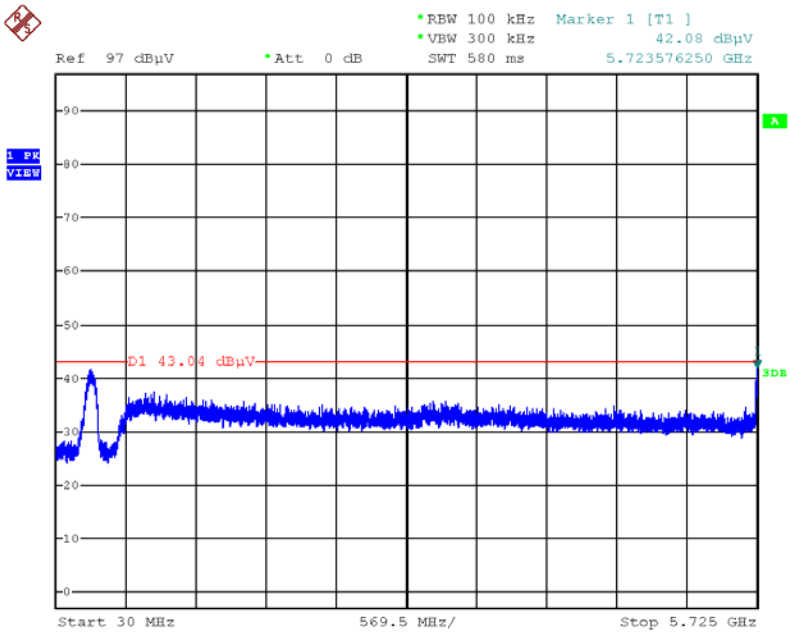
Note: Only the worse polarization (Vertical) is tested and recorded in test report.

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



Date: 17.JUL.2015 02:37:06

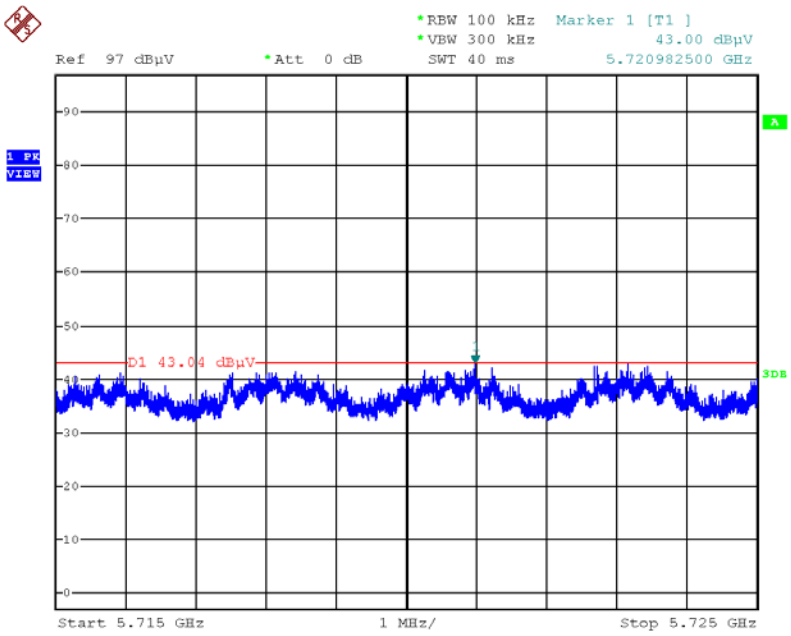
Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 151 / 30MHz~5725MHz (down 30dBc) (Vertical)



Date: 17.JUL.2015 02:43:17

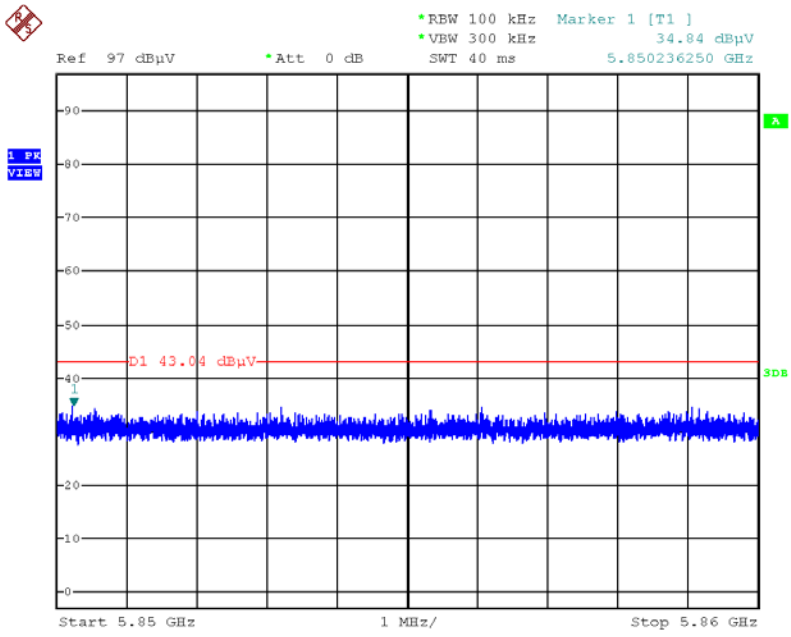
Note: Only the worse polarization (Vertical) is tested and recorded in test report.

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



Date: 17.JUL.2015 02:46:52

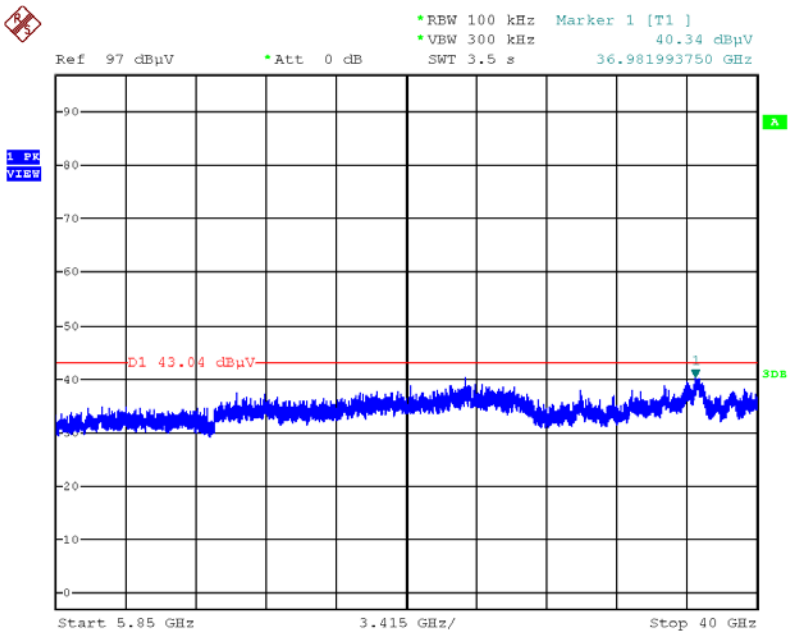
Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 151 / 5850MHz~5860MHz (down 30dBc) (Vertical)



Date: 17.JUL.2015 02:47:27

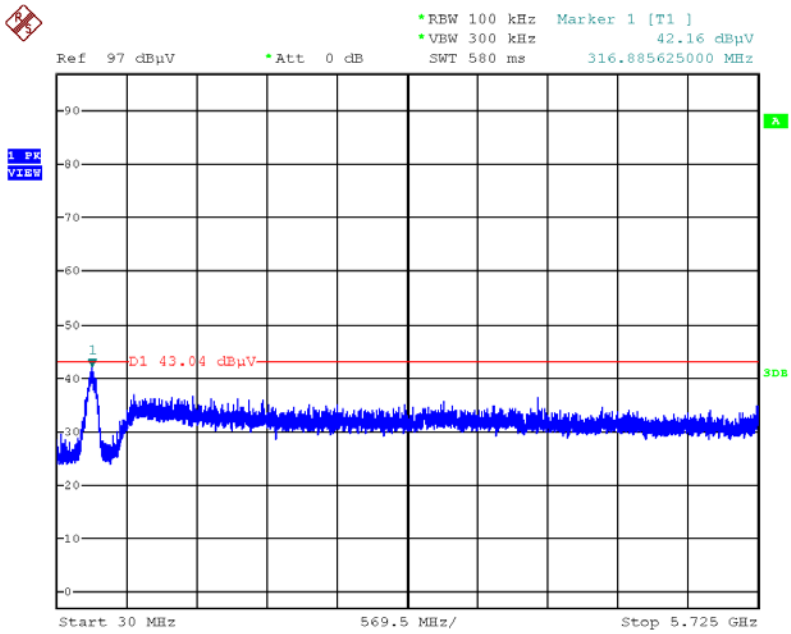
Note: Only the worse polarization (Vertical) is tested and recorded in test report.

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



Date: 17.JUL.2015 02:44:02

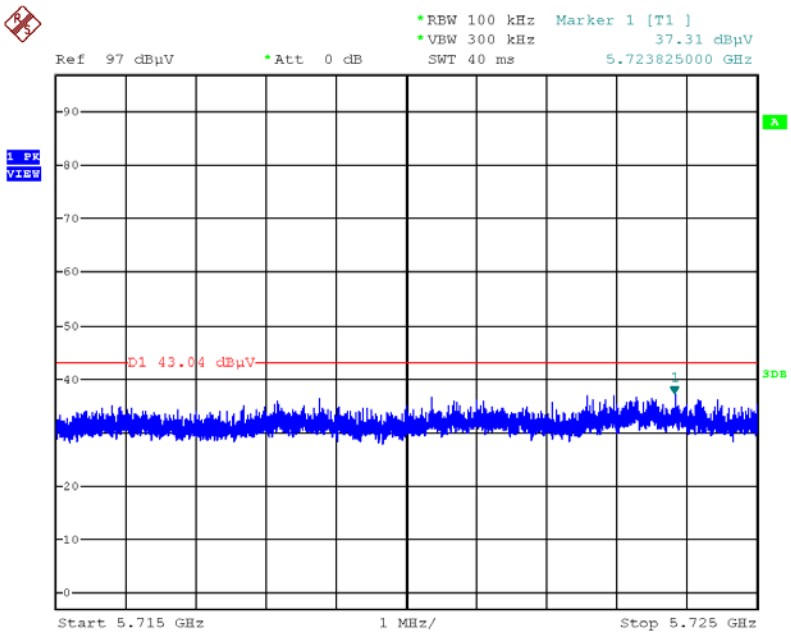
Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 159 / 30MHz~5725MHz (down 30dBc) (Vertical)



Date: 17.JUL.2015 02:38:56

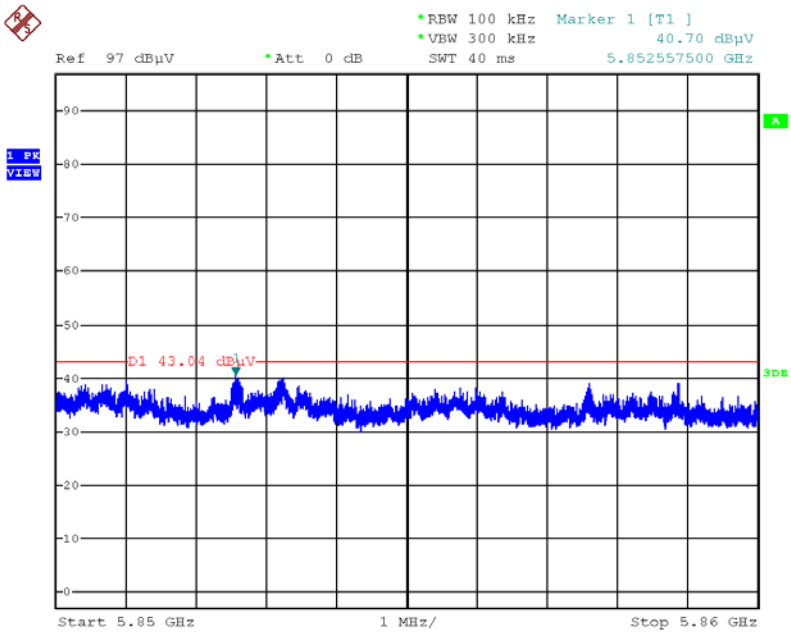
Note: Only the worse polarization (Vertical) is tested and recorded in test report.

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



Date: 17.JUL.2015 02:40:37

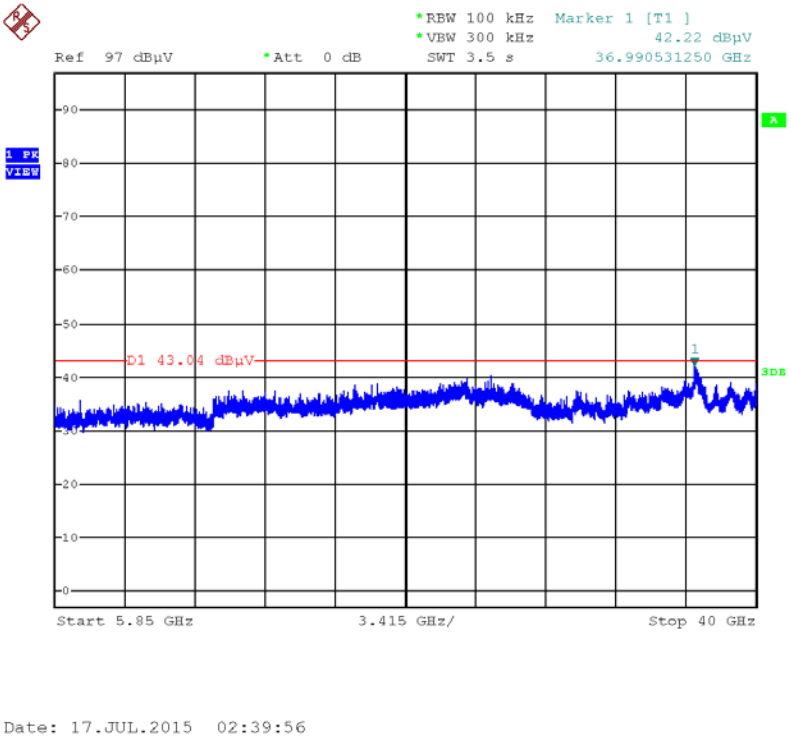
Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 159 / 5850MHz~5860MHz (down 30dBc) (Vertical)



Date: 17.JUL.2015 02:41:15

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

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



Note: Only the worse polarization (Vertical) 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	9kHz ~ 2.75GHz	Apr. 22, 2015	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150kHz ~ 100MHz	Dec. 02, 2014	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Dec. 02, 2014	Conduction (CO01-CB)
COND Cable	Woken	Cable	01	150kHz ~ 30MHz	Dec. 03, 2014	Conduction (CO01-CB)
Software	Audix	E3	5.410e	-	N.C.R.	Conduction (CO01-CB)
BILOG ANTENNA	Schaffner	CBL6112D	22021	20MHz ~ 2GHz	May 06, 2015	Radiation (03CH01-CB)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100315	9 kHz ~ 30 MHz	Jul. 28, 2014	Radiation (03CH01-CB
Horn Antenna	EMCO	3115	00075790	750MHz ~ 18GHz	Oct. 28, 2014	Radiation (03CH01-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Aug. 22, 2014	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8447D	2944A10991	0.1MHz ~ 1.3GHz	Feb. 24, 2015	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Jan. 12, 2015	Radiation (03CH01-CB)
Pre-Amplifier	WM	TF-130N-R1	923365	26GHz ~ 40GHz	Nov. 25, 2014	Radiation (03CH01-CB)
Spectrum Analyzer	R&S	FSP40	100056	9kHz ~ 40GHz	Nov. 06, 2014	Radiation (03CH01-CB)
EMI Receiver	Agilent	N9038A	MY52260123	9kHz ~ 8.4GHz	Jan. 21, 2015	Radiation (03CH01-CB)
RF Cable-low	Woken	Low Cable-1	N/A	30 MHz ~ 1 GHz	Nov. 15, 2014	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-16	N/A	1 GHz ~ 18 GHz	Nov. 15, 2014	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-17	N/A	1 GHz ~ 18 GHz	Nov. 15, 2014	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G-1	N/A	1 GHz ~ 40 GHz	Nov. 15, 2014	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G-2	N/A	1 GHz ~ 40 GHz	Nov. 15, 2014	Radiation (03CH01-CB)
Spectrum analyzer	R&S	FSV40	100979	9kHz~40GHz	Dec. 12, 2014	Conducted (TH01-CB)
Temp. and Humidity Chamber	Ten Billion	TTH-D3SP	TBN-931011	-30~100 degree	Jun. 02, 2015	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-7	1 GHz – 26.5 GHz	Nov. 15, 2014	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-8	1 GHz – 26.5 GHz	Nov. 15, 2014	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-9	1 GHz – 26.5 GHz	Nov. 15, 2014	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-10	1 GHz – 26.5 GHz	Nov. 15, 2014	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-6	1 GHz – 26.5 GHz	Nov. 15, 2014	Conducted (TH01-CB)

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Power Sensor	Agilent	U2021XA	MY53410001	50MHz~18GHz	Nov. 03, 2014	Conducted (TH01-CB)

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

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

6. MEASUREMENT UNCERTAINTY

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