

# FCC REPORT (WIFI)

**Applicant:** HI-SKY INTERNATIONAL S.A.S

**Address of Applicant:** Via 40 NO.54-58 Oficina 4 Parque Industrial La Maria,  
Barranquilla, Colombia

**Equipment Under Test (EUT)**

Product Name: Smart Phone

Model No.: MIGHTY

Trade mark: Hi Sky

**FCC ID:** 2AAIWMIGHTY

**Applicable standards:** FCC CFR Title 47 Part 15 Subpart C Section 15.247

**Date of sample receipt:** 03 Jul., 2014

**Date of Test:** 03 Jul., to 29 Jul., 2014

**Date of report issued:** 29 Jul., 2014

**Test Result:** PASS \*

\* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:



Bruce Zhang  
Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the CCIS product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

## 2 Version

Version No.	Date	Description
00	29 Jul., 2014	Original

Prepared by:

  
Report Clerk

Date:

29 Jul., 2014

Reviewed by:

  
Project Engineer

Date:

29 Jul., 2014

## 3 Contents

	Page
<b>1 COVER PAGE .....</b>	<b>1</b>
<b>2 VERSION .....</b>	<b>2</b>
<b>3 CONTENTS .....</b>	<b>3</b>
<b>4 TEST SUMMARY .....</b>	<b>4</b>
<b>5 GENERAL INFORMATION .....</b>	<b>5</b>
5.1 CLIENT INFORMATION .....	5
5.2 GENERAL DESCRIPTION OF E.U.T .....	5
5.3 TEST ENVIRONMENT AND MODE .....	7
5.4 LABORATORY FACILITY .....	8
5.5 LABORATORY LOCATION .....	8
5.6 TEST INSTRUMENTS LIST .....	9
<b>6 TEST RESULTS AND MEASUREMENT DATA .....</b>	<b>10</b>
6.1 ANTENNA REQUIREMENT: .....	10
6.2 CONDUCTED EMISSION .....	11
6.3 CONDUCTED OUTPUT POWER .....	14
6.4 OCCUPY BANDWIDTH .....	19
6.5 POWER SPECTRAL DENSITY .....	28
6.6 BAND EDGE .....	33
6.6.1 Conducted Emission Method .....	33
6.6.2 Radiated Emission Method .....	36
6.7 SPURIOUS EMISSION .....	53
6.7.1 Conducted Emission Method .....	53
6.7.2 Radiated Emission Method .....	60
<b>7 TEST SETUP PHOTO.....</b>	<b>68</b>
<b>8 EUT CONSTRUCTIONAL DETAILS.....</b>	<b>70</b>

## 4 Test Summary

Test Item	Section in CFR 47	Result
Antenna requirement	15.203/15.247 (c)	Pass
AC Power Line Conducted Emission	15.207	Pass
Conducted Peak Output Power	15.247 (b)(3)	Pass
6dB Emission Bandwidth 99% Occupied Bandwidth	15.247 (a)(2)	Pass
Power Spectral Density	15.247 (e)	Pass
Band Edge	15.247(d)	Pass
Spurious Emission	15.205/15.209	Pass

*Pass: The EUT complies with the essential requirements in the standard.*

## 5 General Information

### 5.1 Client Information

Applicant:	HI-SKY INTERNATIONAL S.A.S
Address of Applicant:	Via 40 NO.54-58 Oficina 4 Parque Industrial La Maria, Barranquilla, Colombia
Manufacturer :	Shenzhen Kleadtone Technology Co., Limited
Address of Manufacturer:	Room B201,Garden City Cyber Port,NO.1079 Nanhai Road Nanshan District Shenzhen,China

### 5.2 General Description of E.U.T.

Product Name:	Smart Phone
Model No.:	MIGHTY
Operation Frequency:	2412MHz~2462MHz (802.11b/802.11g/802.11n(H20)) 2422MHz~2452MHz (802.11n(H40))
Channel numbers:	11 for 802.11b/802.11g/802.11(H20) 7 for 802.11n(H40)
Channel separation:	5MHz
Modulation technology: (IEEE 802.11b)	Direct Sequence Spread Spectrum (DSSS)
Modulation technology: (IEEE 802.11g/802.11n)	Orthogonal Frequency Division Multiplexing(OFDM)
Data speed (IEEE 802.11b):	1Mbps, 2Mbps, 5.5Mbps, 11Mbps
Data speed (IEEE 802.11g):	6Mbps, 9Mbps, 12Mbps, 18Mbps, 24Mbps, 36Mbps, 48Mbps,54Mbps
Data speed (IEEE 802.11n):	Up to 150Mbps
Antenna Type:	Internal Antenna
Antenna gain:	-4.5 dBi
AC adapter:	MODEL:MIGHTY Input: AC 100-240V 50/60Hz 0.15A Output: DC 5V, 1000mA
Power supply:	Rechargeable Li-ion Battery DC3.7V-1900mAh

Operation Frequency each of channel For 802.11b/g/n(H20)							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2412MHz	4	2427MHz	7	2442MHz	10	2457MHz
2	2417MHz	5	2432MHz	8	2447MHz	11	2462MHz
3	2422MHz	6	2437MHz	9	2452MHz		

Operation Frequency each of channel For 802.11n(H40)							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
		4	2427MHz	7	2442MHz		
		5	2432MHz	8	2447MHz		
3	2422MHz	6	2437MHz	9	2452MHz		

**Note:**

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

**802.11b/802.11g/802.11n (H20)**

Channel	Frequency
The lowest channel	2412MHz
The middle channel	2437MHz
The Highest channel	2462MHz

**802.11n (H40)**

Channel	Frequency
The lowest channel	2422MHz
The middle channel	2437MHz
The Highest channel	2452MHz

## 5.3 Test environment and mode

<b>Operating Environment:</b>	
Temperature:	24.0 °C
Humidity:	54 % RH
Atmospheric Pressure:	1010 mbar
<b>Test mode:</b>	
Operation mode	Keep the EUT in continuous transmitting with modulation
The sample was placed 0.8m above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.	

We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:

**Per-scan all kind of data rate in lowest channel, and found the follow list which it was worst case.**

Mode	Data rate
802.11b	1Mbps
802.11g	6Mbps
802.11n(H20)	6.5Mbps
802.11n(H40)	13.5Mbps

### Final Test Mode:

According to ANSI C63.4 standards, the test results are both the “worst case” and “worst setup” 1Mbps for 802.11b, 6Mbps for 802.11g, 6.5Mbps for 802.11n(H20) and 13.5 Mbps for 802.11n(H40). Duty cycle setting during the transmission is 100% with maximum power setting for all modulations.

## 5.4 Laboratory Facility

The test facility is recognized, certified, or accredited by the following organizations:

● **FCC - Registration No.: 817957**

Shenzhen Zhongjian Nanfang Testing Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 817957, February 27, 2012.

● **IC - Registration No.: 10106A-1**

The 3m Semi-anechoic chamber of Shenzhen Zhongjian Nanfang Testing Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

● **CNAS - Registration No.: CNAS L6048**

Shenzhen Zhongjian Nanfang Testing Co., Ltd. is accredited to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L6048.

## 5.5 Laboratory Location

Shenzhen Zhongjian Nanfang Testing Co., Ltd.

Address: No.B-C, 1/F., Building 2, Laodong No.2 Industrial Park, Xixiang Road,  
Bao'an District, Shenzhen, Guangdong, China

Tel: +86-755-23118282

Fax: +86-755-23116366




## 5.6 Test Instruments list

Radiated Emission:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)
1	3m Semi- Anechoic Chamber	SAEMC	9(L)*6(W)* 6(H)	CCIS0001	July 09 2014	July 08 2015
2	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	CCIS0005	Jun., 25 2014	Jun., 24 2015
3	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	CCIS0006	Jun., 25 2014	Jun., 24 2015
4	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
5	Coaxial Cable	CCIS	N/A	CCIS0016	Apr. 01 2014	Mar. 31 2015
6	Coaxial Cable	CCIS	N/A	CCIS0017	Apr. 01 2014	Mar. 31 2015
7	Coaxial cable	CCIS	N/A	CCIS0018	Apr. 01 2014	Mar. 31 2015
8	Coaxial Cable	CCIS	N/A	CCIS0019	Apr. 01 2014	Mar. 31 2015
9	Coaxial Cable	CCIS	N/A	CCIS0087	Apr. 01 2014	Mar. 31 2015
10	Amplifier(10kHz-1.3GHz)	HP	8447D	CCIS0003	Apr. 01 2014	Mar. 31 2015
11	Amplifier(1GHz-18GHz)	Compliance Direction Systems Inc.	PAP-1G18	CCIS0011	July 09 2014	July 08 2015
12	Pre-amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	Apr. 01 2014	Mar. 31 2015
13	Horn Antenna	ETS-LINDGREN	3160	GTS217	Mar. 30 2014	Mar. 29 2015
14	Printer	HP	HP LaserJet P1007	N/A	N/A	N/A
15	Positioning Controller	UC	UC3000	CCIS0015	N/A	N/A
16	Spectrum analyzer 9k-30GHz	Rohde & Schwarz	FSP	CCIS0023	Jun., 25 2014	Jun., 24 2015
17	EMI Test Receiver	Rohde & Schwarz	ESPI	CCIS0022	Apr 01 2014	Mar. 31 2015
18	Loop antenna	Laplace instrument	RF300	EMC0701	Aug. 12 2013	Aug. 11 2014
19	Universal radio communication tester	Rhode & Schwarz	CMU200	CCIS0069	Jun., 25 2014	Jun., 24 2015
20	Signal Analyzer	Rohde & Schwarz	FSIQ3	CCIS0088	Jun., 25 2014	Jun., 24 2015

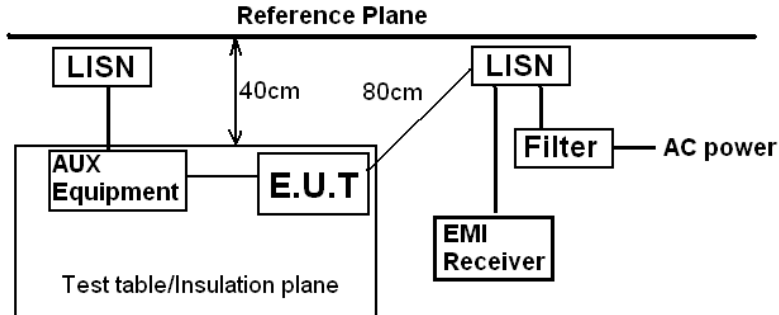
Conducted Emission:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)
1	Shielding Room	ZhongShuo Electron	11.0(L)x4.0(W)x3.0(H)	CCIS0061	July 09 2014	July 08 2015
2	EMI Test Receiver	Rohde & Schwarz	ESCI	CCIS0002	Jun., 25 2014	Jun., 24 2015
3	LISN	CHASE	MN2050D	CCIS0074	Apr 01 2014	Mar. 31 2015
4	Coaxial Cable	CCIS	N/A	CCIS0086	Apr. 01 2014	Mar. 31 2015
5	EMI Test Software	AUDIX	E3	N/A	N/A	N/A

## 6 Test results and Measurement Data

### 6.1 Antenna requirement:

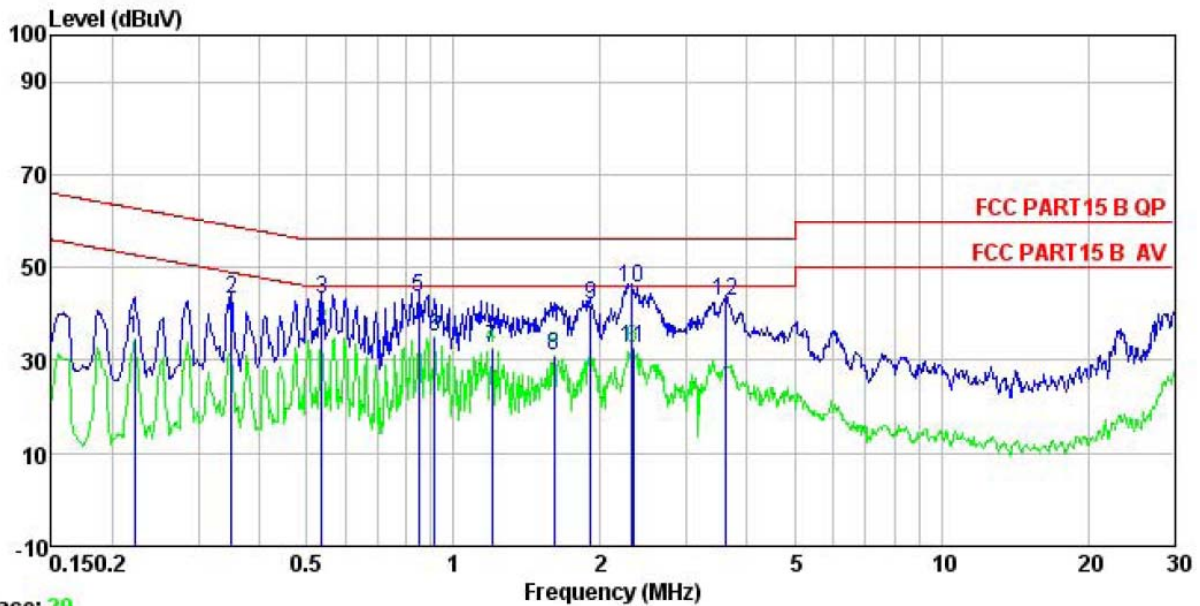
<b>Standard requirement:</b>	FCC Part15 C Section 15.203 /247(c)
<p><i>15.203 requirement:</i>  <i>An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.</i></p> <p><i>15.247(c) (1)(i) requirement:</i>  <i>(i) Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.</i></p>	
<b>E.U.T Antenna:</b>	
<p><i>The antenna is an internal antenna which cannot replace by end-user, the best case gain of the antenna is -4.5 dBi.</i></p>	
	

## 6.2 Conducted Emission

Test Requirement:	FCC Part15 C Section 15.207		
Test Method:	ANSI C63.4: 2003		
Test Frequency Range:	150 kHz to 30 MHz		
Class / Severity:	Class B		
Receiver setup:	RBW=9 kHz, VBW=30 kHz		
Limit:	Frequency range (MHz)	Limit (dBuV)	
		Quasi-peak	Average
	0.15-0.5	66 to 56*	56 to 46*
	0.5-5	56	46
	5-30	60	50
	* Decreases with the logarithm of the frequency.		
Test procedure	<ol style="list-style-type: none"> <li>1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.), which provides a 50ohm/50uH coupling impedance for the measuring equipment.</li> <li>2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs).</li> <li>3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2003 on conducted measurement.</li> </ol>		
Test setup:	 <p>Remark E.U.T: Equipment Under Test LISN: Line Impedance Stabilization Network Test table height=0.8m</p>		
Test Instruments:	Refer to section 5.6 for details		
Test mode:	Refer to section 5.3 for details		
Test results:	Passed		

### Measurement Data

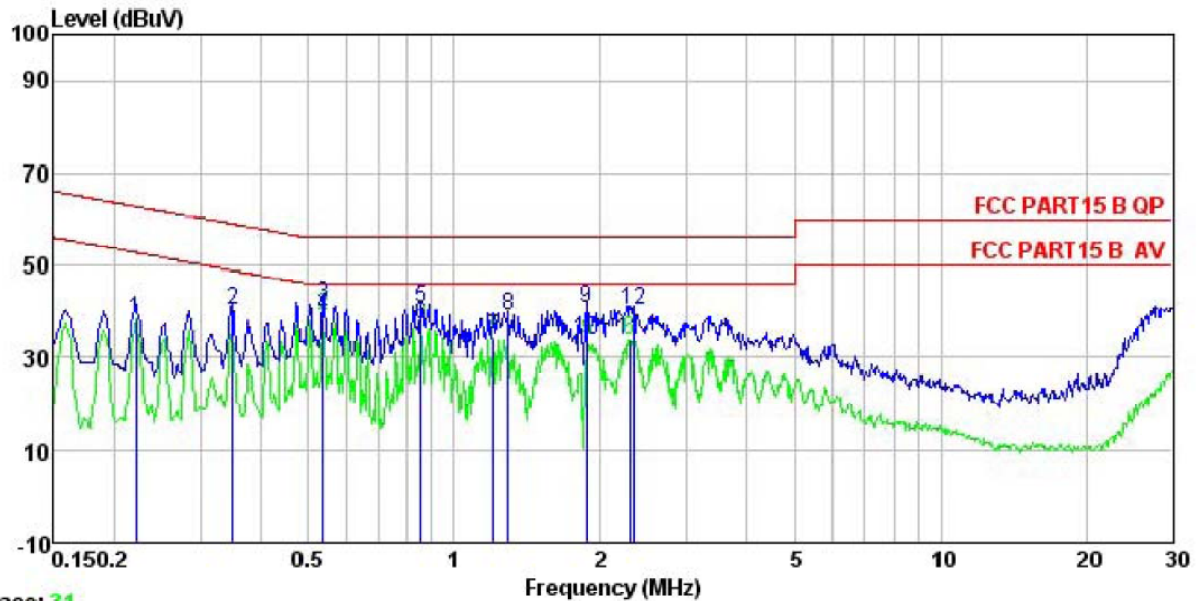
Neutral:



Site : CCIS Shielding Room  
 Condition : FCC PART15 B QP LISN NEUTRAL  
 Job No. : 521RF  
 EUT : Smartphone  
 Model : MIGHTY  
 Test Mode : WIFI Mode  
 Power Rating : AC120V/60Hz  
 Environment : Temp: 23 °C Humi:56% Atmos:101KPa  
 Test Engineer: Carey

	Read	LISN	Cable	Limit	Over	
Freq	Level	Factor	Loss	Line	Limit	Remark
-----	-----	-----	-----	-----	-----	-----
MHz	dBuV	dB	dB	dBuV	dBuV	dB
1	0.222	23.82	0.25	10.75	34.82	52.74 -17.92 Average
2	0.350	32.27	0.25	10.73	43.25	58.96 -15.71 QP
3	0.538	32.16	0.27	10.76	43.19	56.00 -12.81 QP
4	0.538	25.07	0.27	10.76	36.10	46.00 -9.90 Average
5	0.848	32.68	0.20	10.82	43.70	56.00 -12.30 QP
6	0.914	24.18	0.21	10.84	35.23	46.00 -10.77 Average
7	1.197	21.35	0.24	10.89	32.48	46.00 -13.52 Average
8	1.610	19.70	0.27	10.93	30.90	46.00 -15.10 Average
9	1.908	30.89	0.29	10.95	42.13	56.00 -13.87 QP
10	2.321	34.19	0.29	10.94	45.42	56.00 -10.58 QP
11	2.334	21.19	0.29	10.94	32.42	46.00 -13.58 Average
12	3.623	31.60	0.29	10.90	42.79	56.00 -13.21 QP

Line:



Trace: 31

Site : CCIS Shielding Room  
 Condition : FCC PART15 B QP LISN LINE  
 Job No. : 521RF  
 EUT : Smartphone  
 Model : MIGHTY  
 Test Mode : WIFI Mode  
 Power Rating : AC120V/60Hz  
 Environment : Temp: 23 °C Humi:56% Atmos:101KPa  
 Test Engineer: Carey

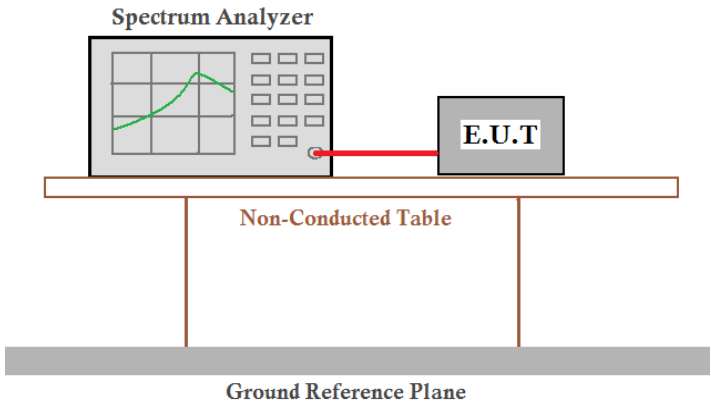
	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.222	27.25	0.27	10.75	38.27	52.74	-14.47	Average
2	0.350	29.46	0.27	10.73	40.46	58.96	-18.50	QP
3	0.538	30.56	0.28	10.76	41.60	56.00	-14.40	QP
4	0.538	27.98	0.28	10.76	39.02	46.00	-6.98	Average
5	0.853	29.67	0.24	10.83	40.74	56.00	-15.26	QP
6	0.853	26.05	0.24	10.83	37.12	46.00	-8.88	Average
7	1.203	23.02	0.25	10.89	34.16	46.00	-11.84	Average
8	1.296	27.96	0.25	10.90	39.11	56.00	-16.89	QP
9	1.868	29.56	0.26	10.95	40.77	56.00	-15.23	QP
10	1.878	22.56	0.26	10.95	33.77	46.00	-12.23	Average
11	2.297	22.69	0.26	10.95	33.90	46.00	-12.10	Average
12	2.334	29.14	0.26	10.94	40.34	56.00	-15.66	QP

Notes:

1. An initial pre-scan was performed on the live and neutral lines with peak detector.
2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3. Final Level =Receiver Read level + LISN Factor + Cable Loss



## 6.3 Conducted Output Power

Test Requirement:	FCC Part15 C Section 15.247 (b)(3)
Test Method:	ANSI C63.4:2003 and KDB558074
Limit:	30dBm
Test setup:	
Test Instruments:	Refer to section 5.6 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed
Remark:	Test method refer to KDB558074 (DTS Measure Guidance) section 8.2, option 1.

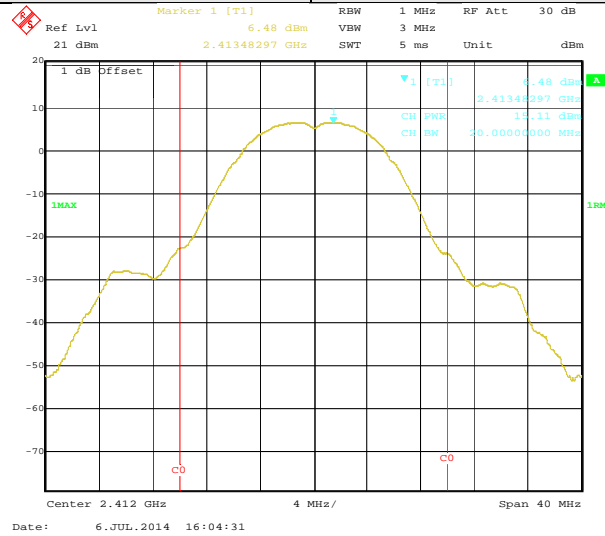
### Measurement Data

Test CH	Maximum Conducted Output Power (dBm)				Limit(dBm)	Result
	802.11b	802.11g	802.11n(H20)	802.11n(H40)		
Lowest	15.11	10.48	9.45	8.94	30.00	Pass
Middle	14.98	9.96	8.94	8.88		
Highest	14.61	9.13	8.16	8.38		

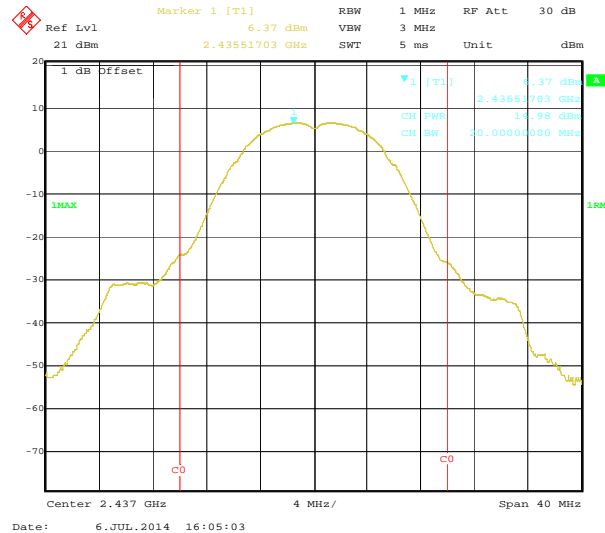
Test plot as follows:

Test mode:

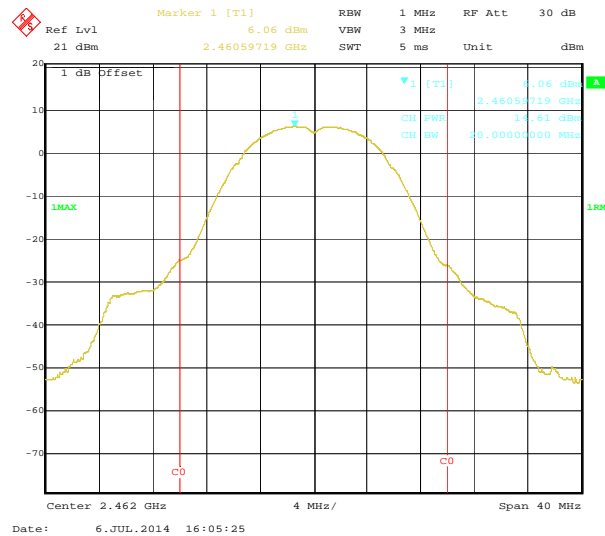
802.11b



Lowest channel



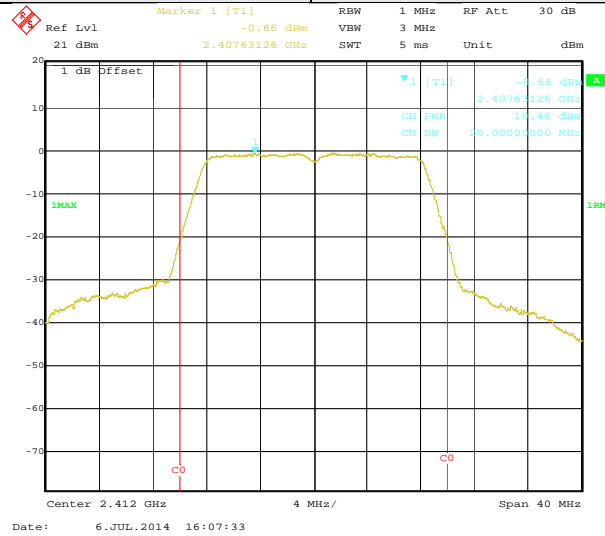
Middle channel



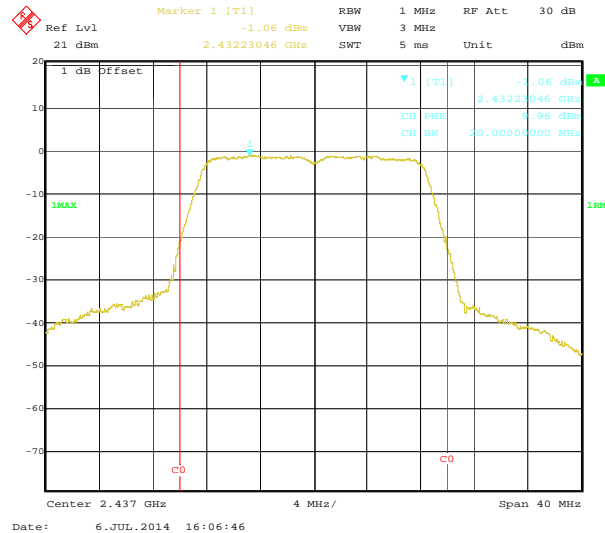
Highest channel

Test mode:

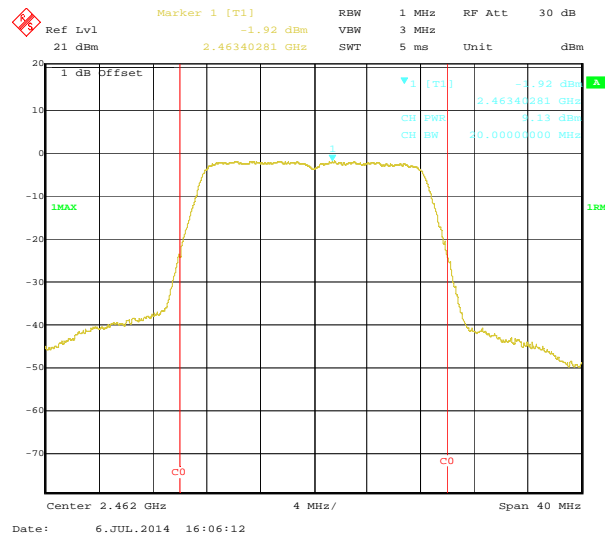
802.11g



### Lowest channel



### Middle channel

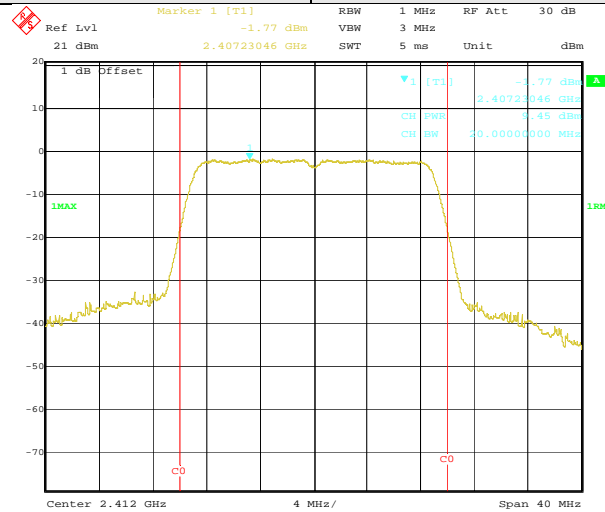


### Highest channel

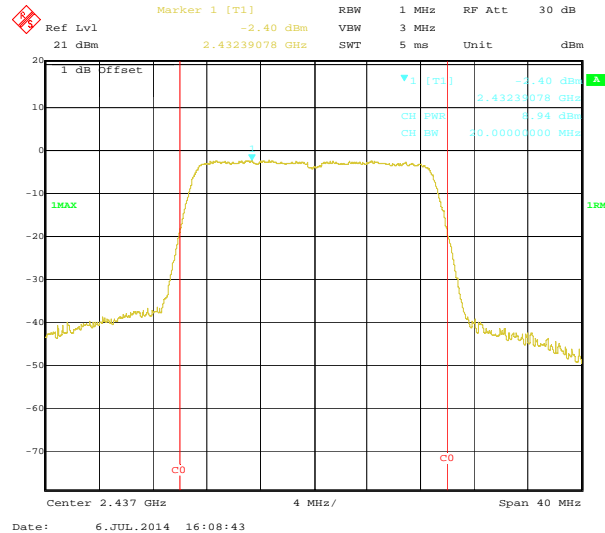


Test mode:

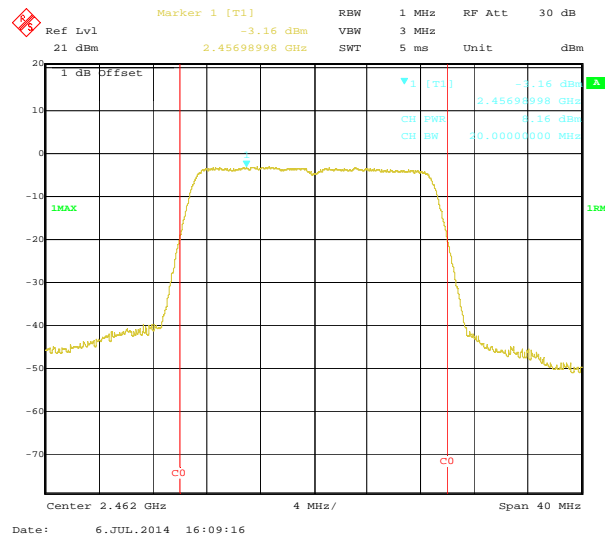
802.11n(H20)



### Lowest channel



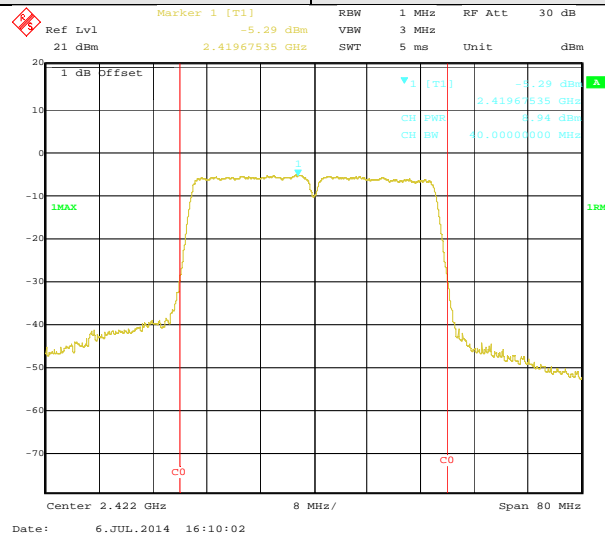
### Middle channel



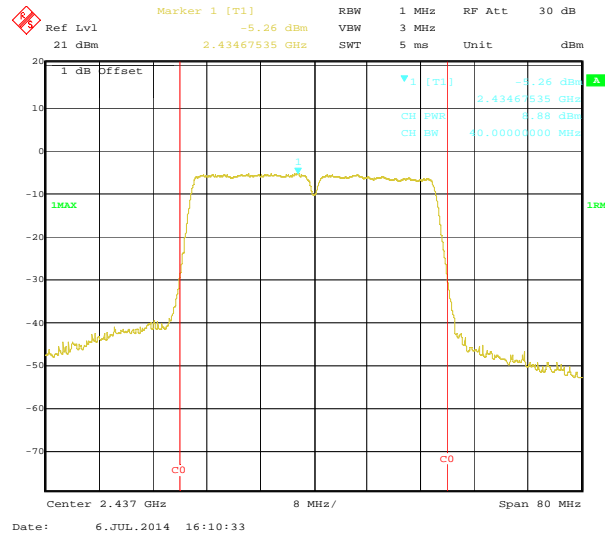
### Highest channel

Test mode:

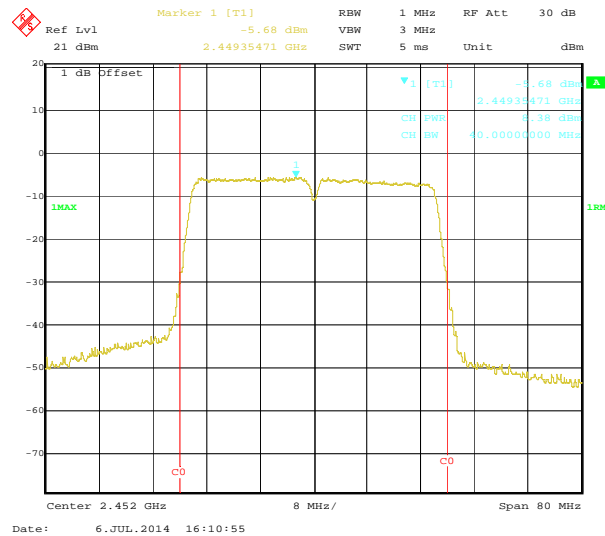
802.11n(H40)



### Lowest channel

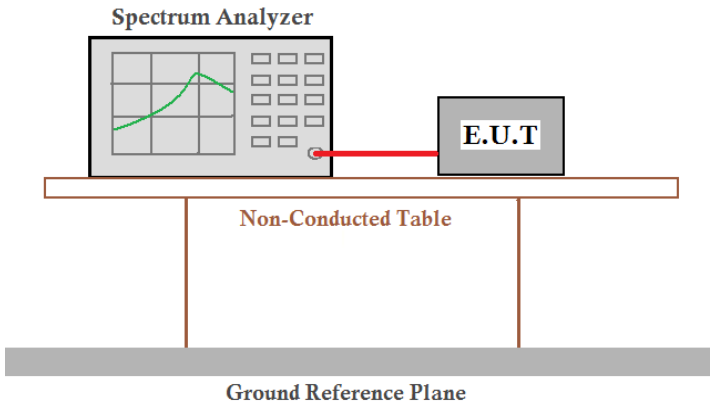


### Middle channel



### Highest channel

## 6.4 Occupy Bandwidth

Test Requirement:	FCC Part15 C Section 15.247 (a)(2)
Test Method:	ANSI C63.4:2003 and KDB558074
Limit:	>500kHz
Test setup:	
Test Instruments:	Refer to section 5.6 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

### Measurement Data

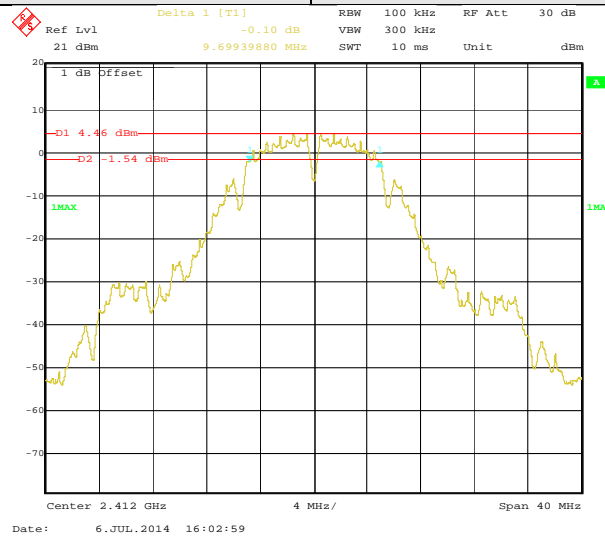
Test CH	6dB Emission Bandwidth (MHz)				Limit(kHz)	Result
	802.11b	802.11g	802.11n(H20)	802.11n(H40)		
Lowest	9.70	16.75	17.96	36.71	>500	Pass
Middle	9.38	16.75	17.96	36.71		
Highest	9.62	16.75	17.96	36.71		

Test CH	99% Occupy Bandwidth (MHz)				Limit(kHz)	Result
	802.11b	802.11g	802.11n(H20)	802.11n(H40)		
Lowest	13.07	16.59	17.80	36.23	N/A	N/A
Middle	12.99	16.59	17.72	36.23		
Highest	12.91	16.59	17.72	36.23		

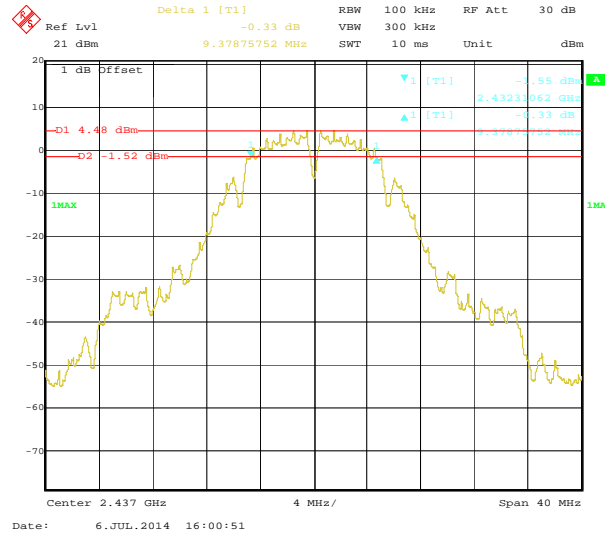
Test plot as follows:

Test mode: 6dB OBW

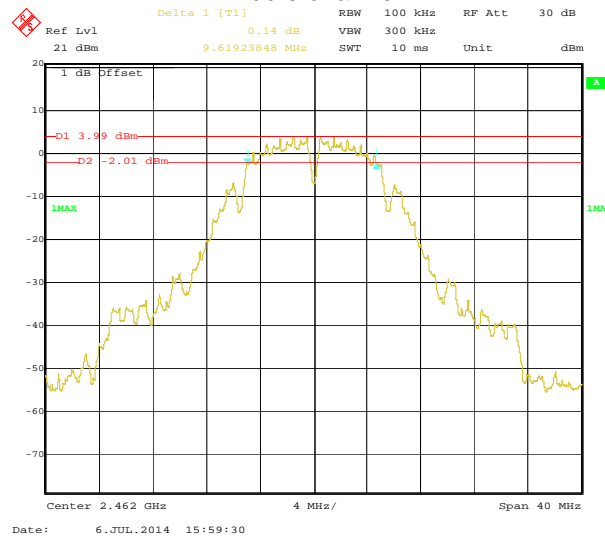
802.11b



### Lowest channel



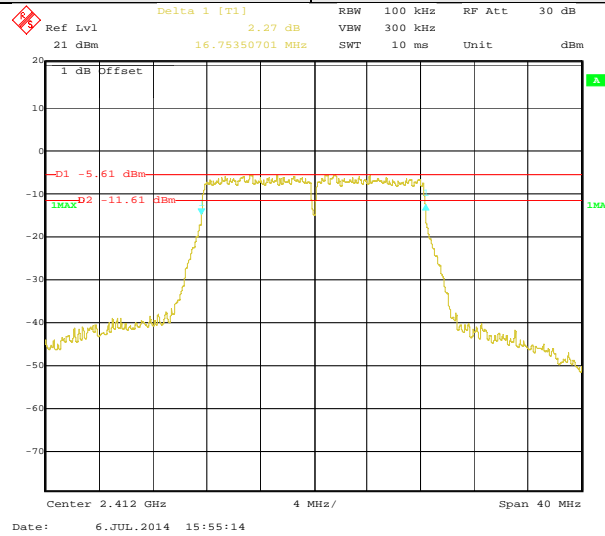
### Middle channel



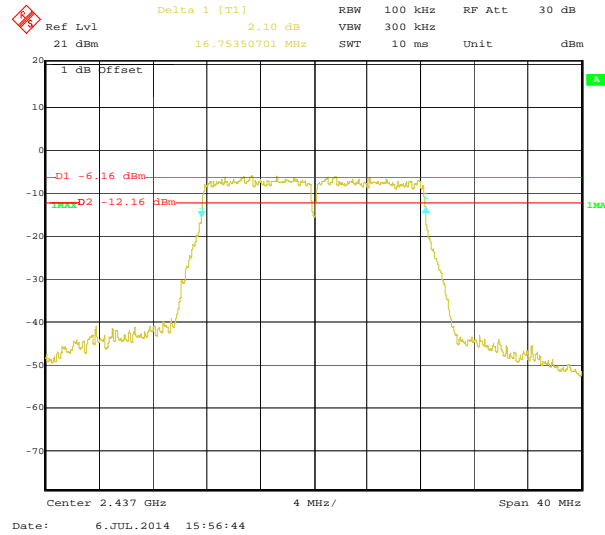
### Highest channel

Test mode: 6dB OBW

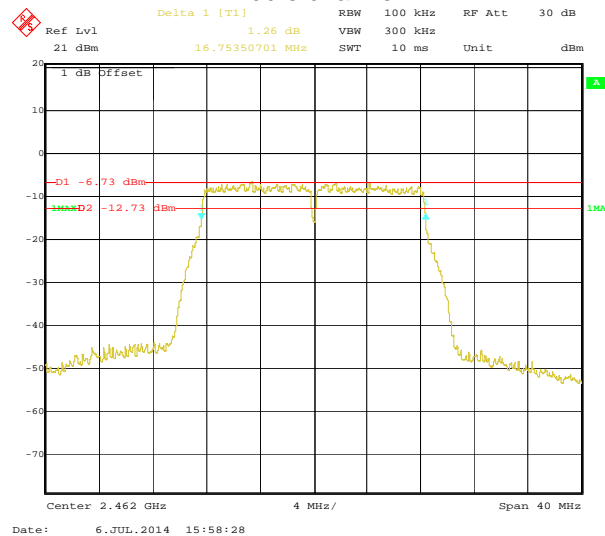
802.11g



### Lowest channel



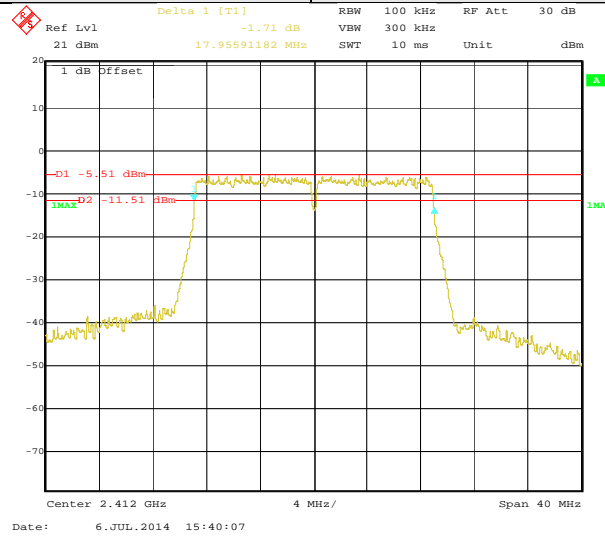
### Middle channel



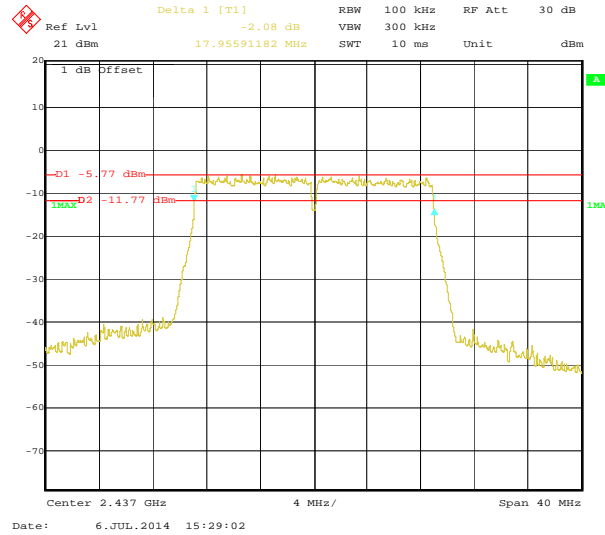
### Highest channel

Test mode: 6dB OBW

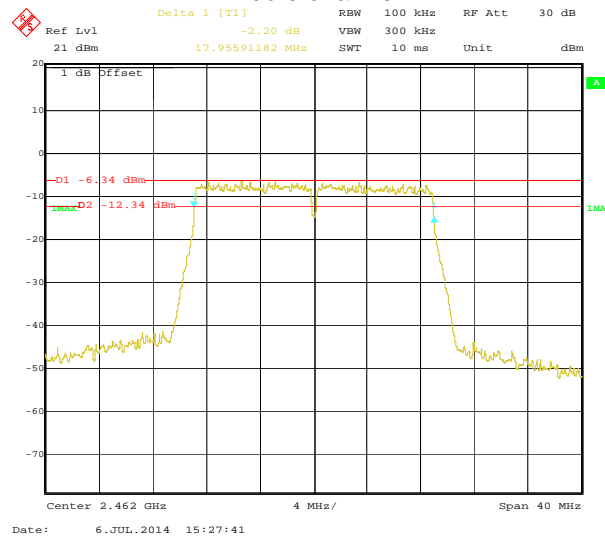
802.11n(H20)



### Lowest channel



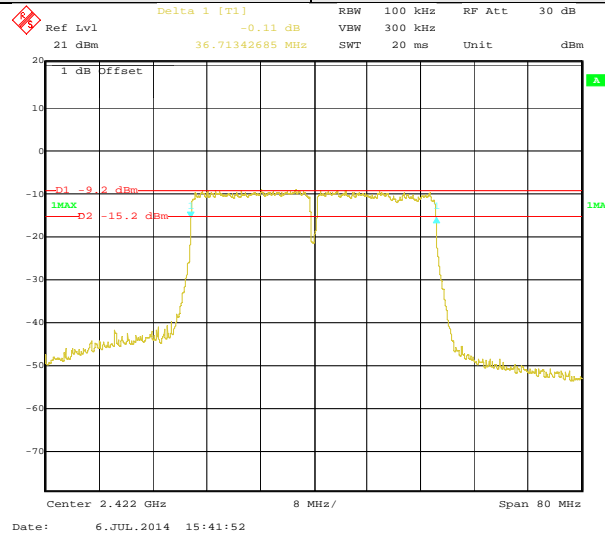
### Middle channel



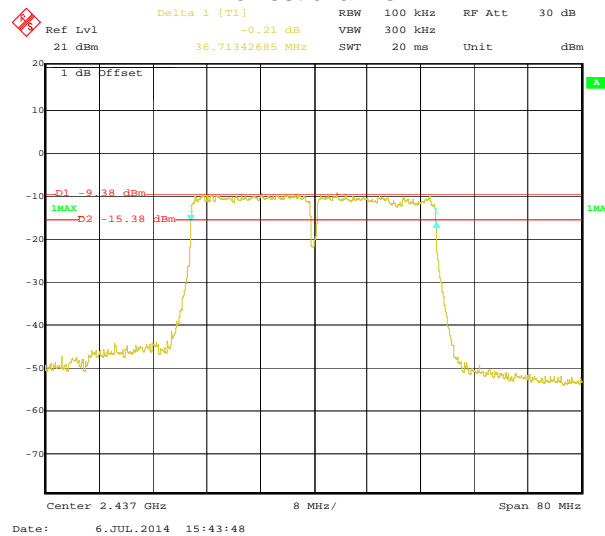
### Highest channel

Test mode: 6dB OBW

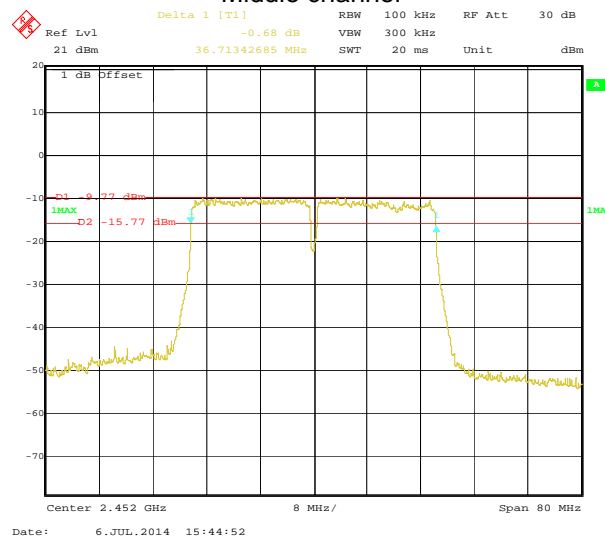
802.11n(H40)



### Lowest channel



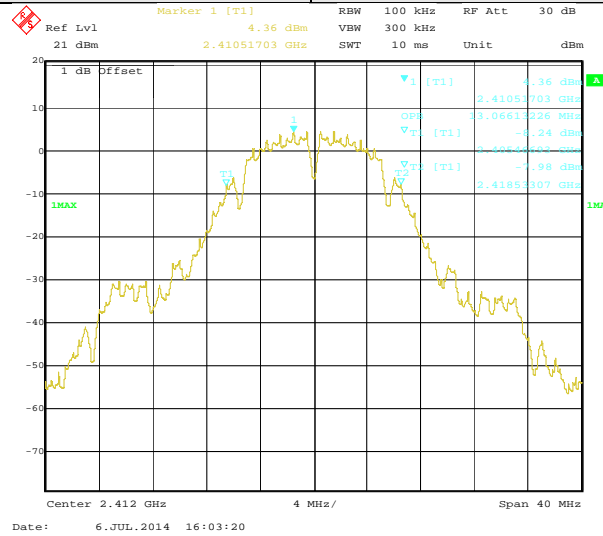
### Middle channel



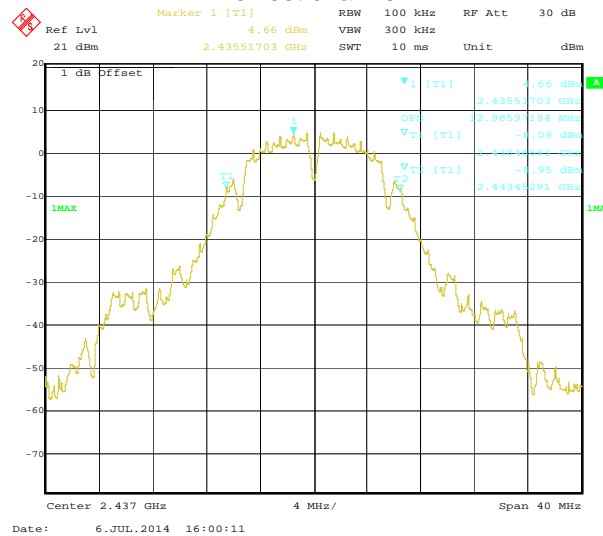
### Highest channel

Test mode: 99% OBW

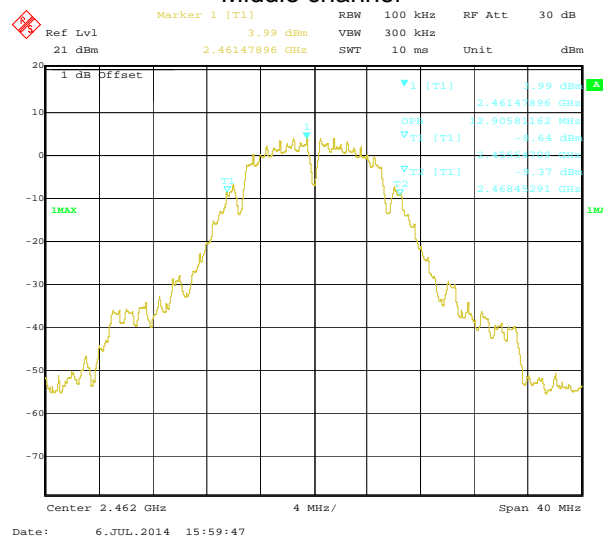
802.11b



### Lowest channel



### Middle channel

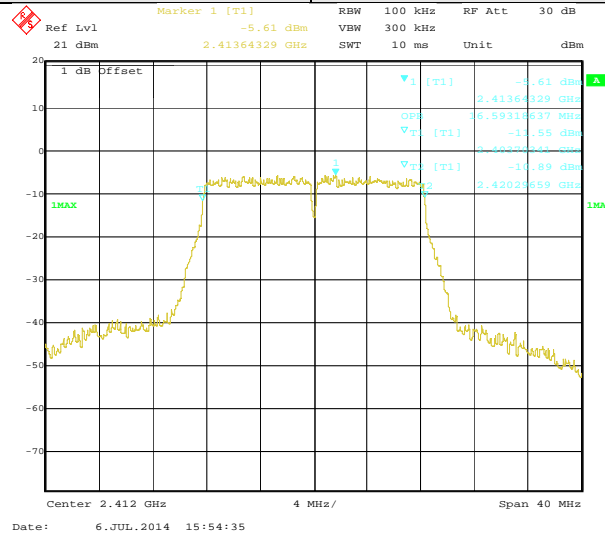


### Highest channel

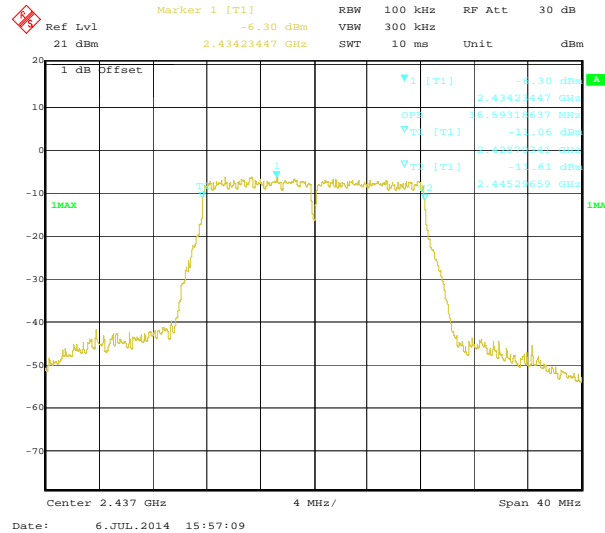


Test mode: 99% OBW

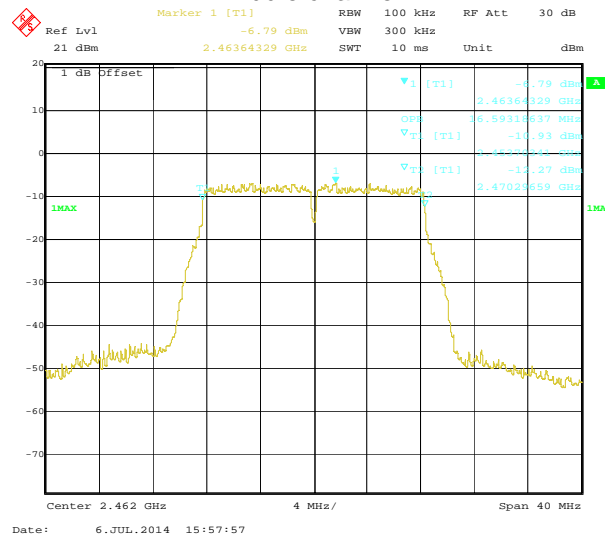
802.11g



### Lowest channel



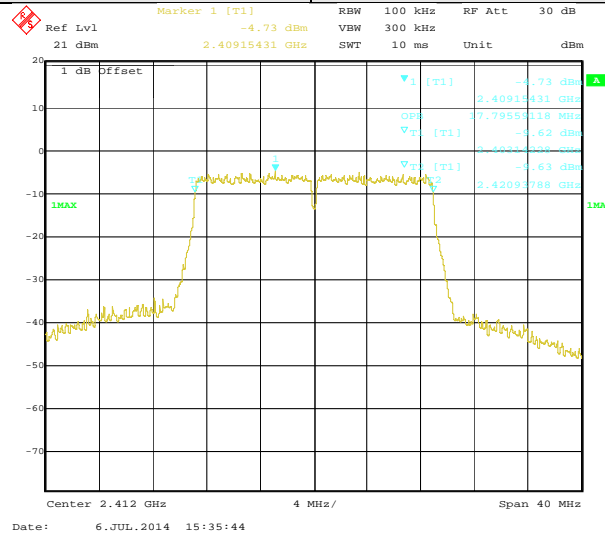
### Middle channel



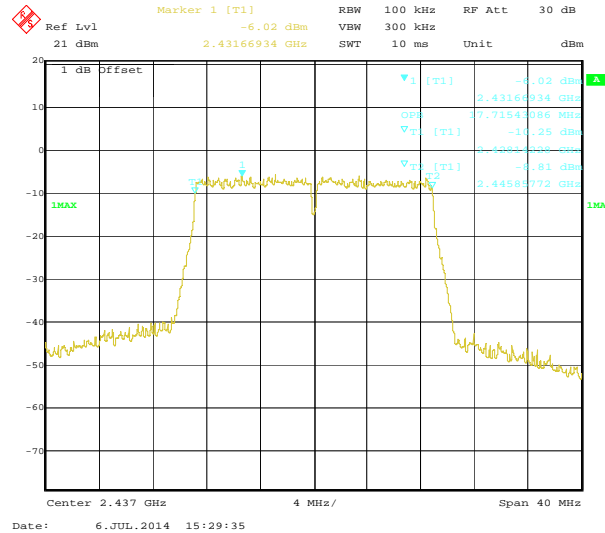
### Highest channel

Test mode: 99% OBW

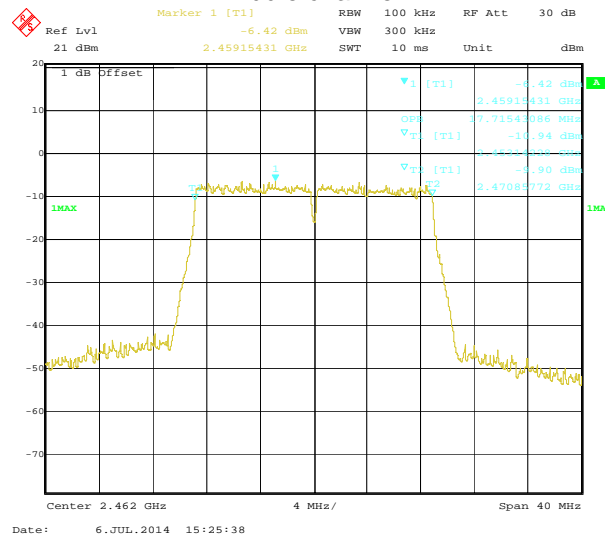
802.11n(H20)



### Lowest channel



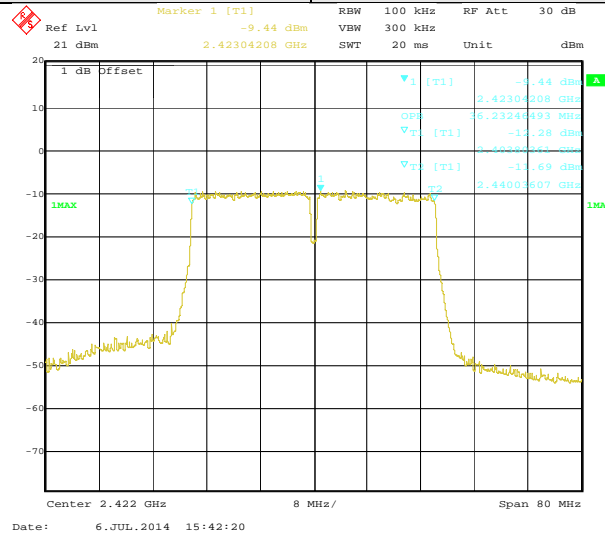
### Middle channel



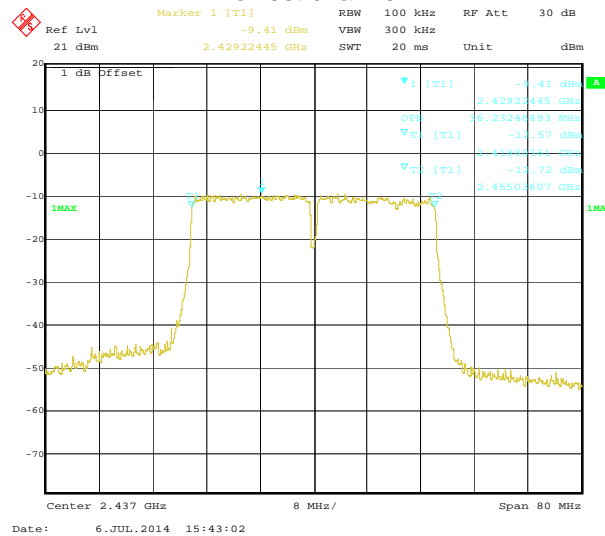
### Highest channel

Test mode: 99% OBW

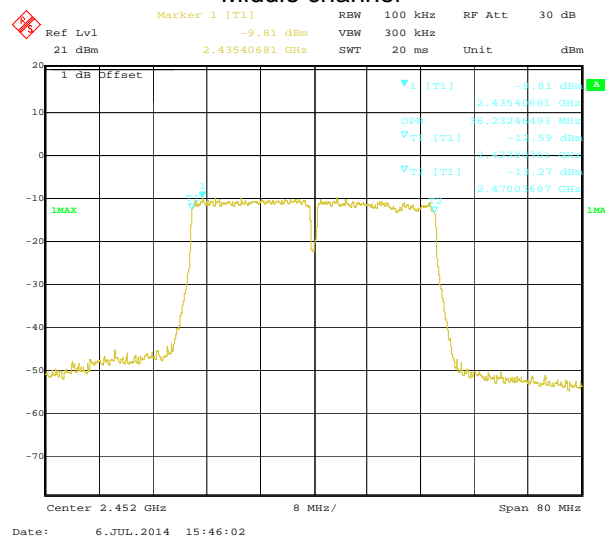
802.11n(H40)



### Lowest channel

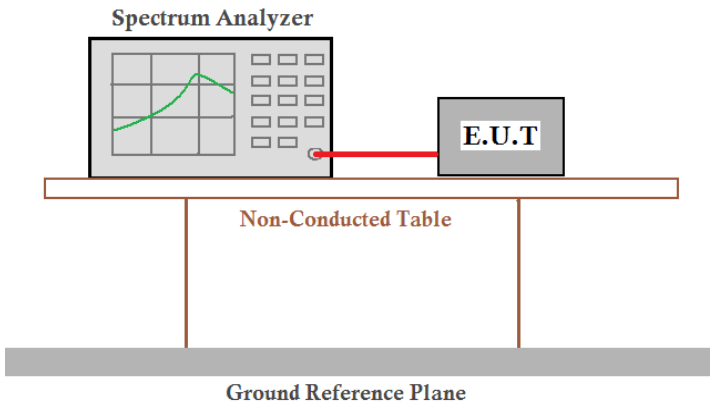


### Middle channel



### Highest channel

## 6.5 Power Spectral Density

Test Requirement:	FCC Part15 C Section 15.247 (e)
Test Method:	ANSI C63.4:2003 and KDB558074
Limit:	8dBm
Test setup:	
Test Instruments:	Refer to section 5.6 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

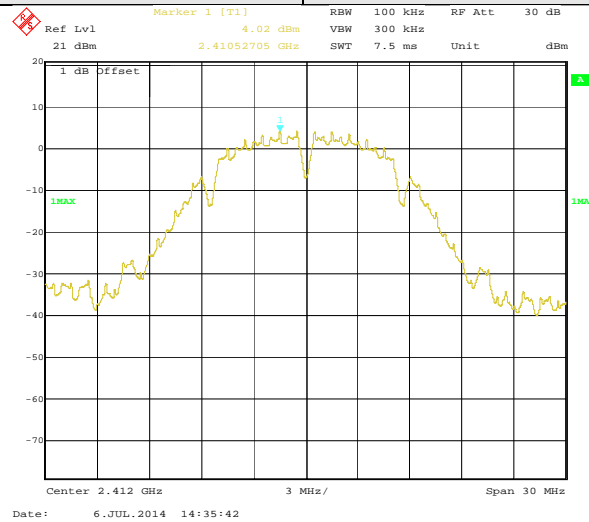
### Measurement Data

Test CH	Power Spectral Density (dBm)				Limit(dBm)	Result
	802.11b	802.11g	802.11n(H20)	802.11n(H40)		
Lowest	4.02	-4.10	-5.23	-8.54	8.00	Pass
Middle	3.86	-4.37	-5.55	-9.17		
Highest	3.23	-5.53	-6.39	-9.26		

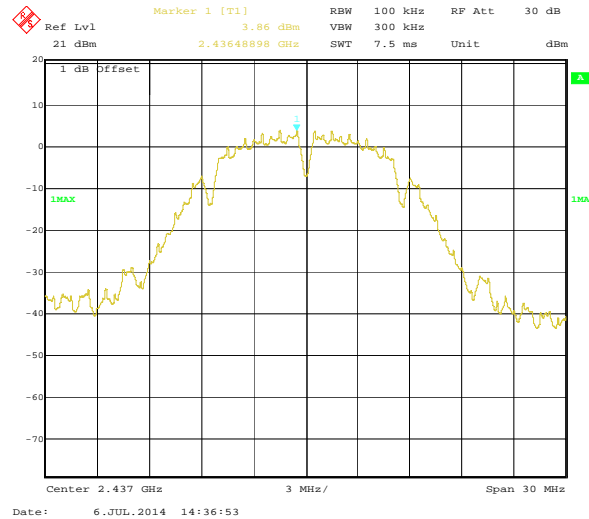
Test plot as follows:

Test mode:

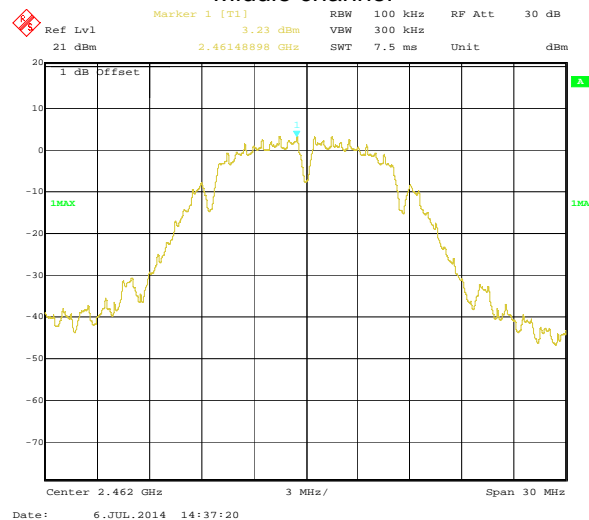
802.11b



## Lowest channel



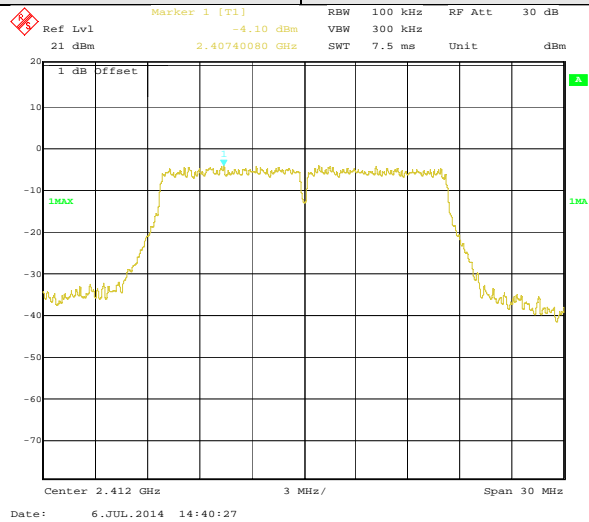
## Middle channel



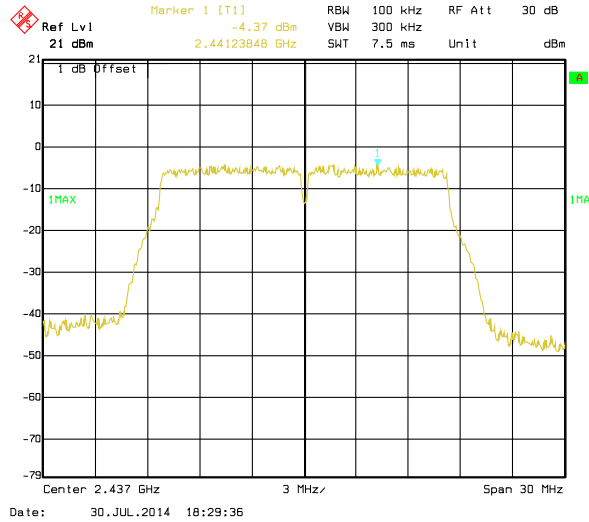
## Highest channel

Test mode:

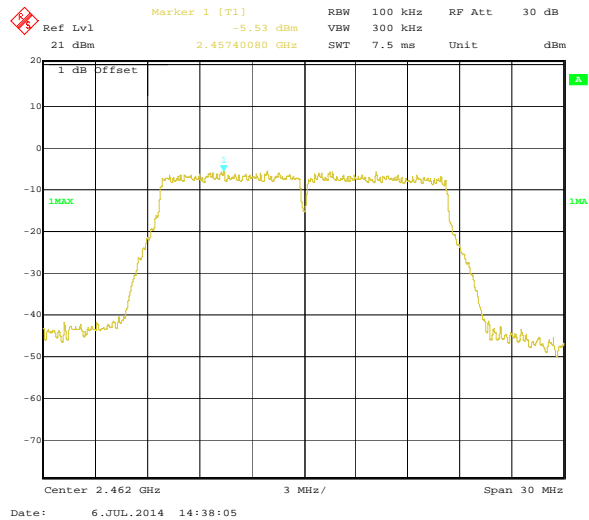
802.11g



## Lowest channel



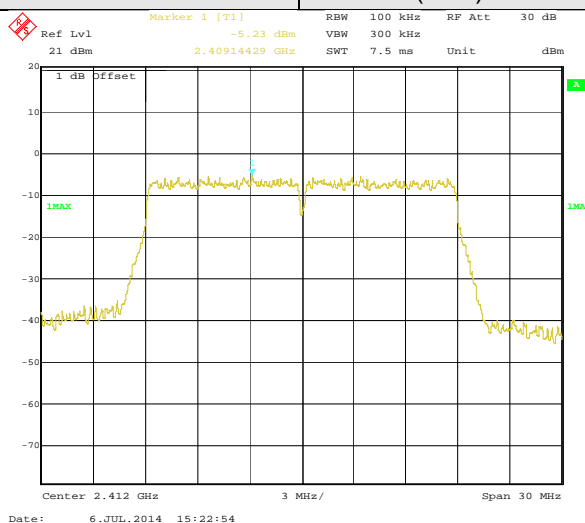
## Middle channel



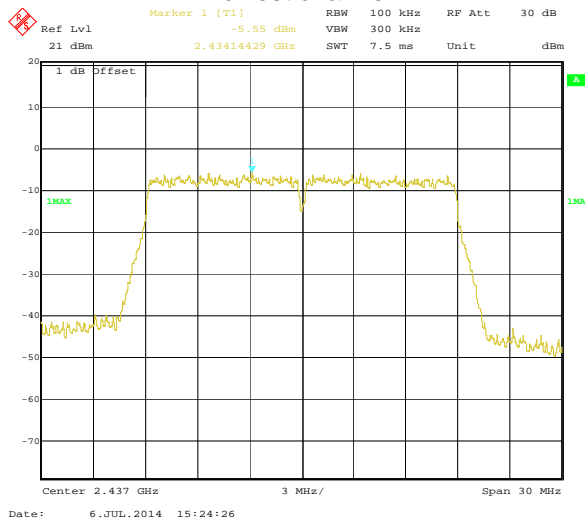
## Highest channel

Test mode:

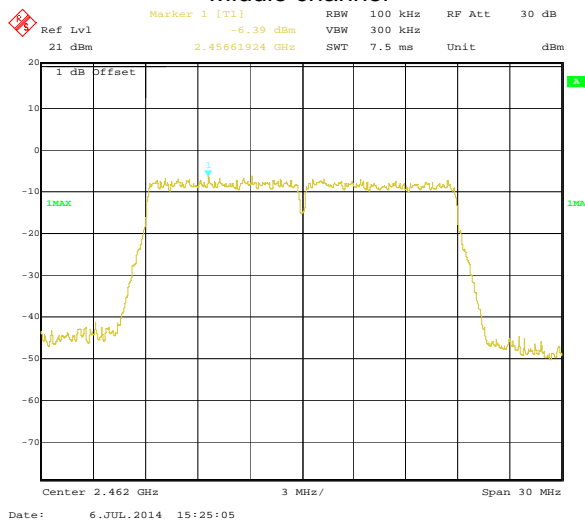
802.11n(H20)



## Lowest channel



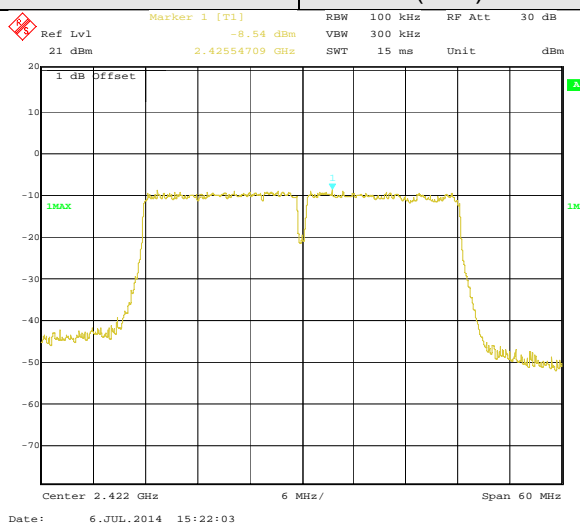
## Middle channel



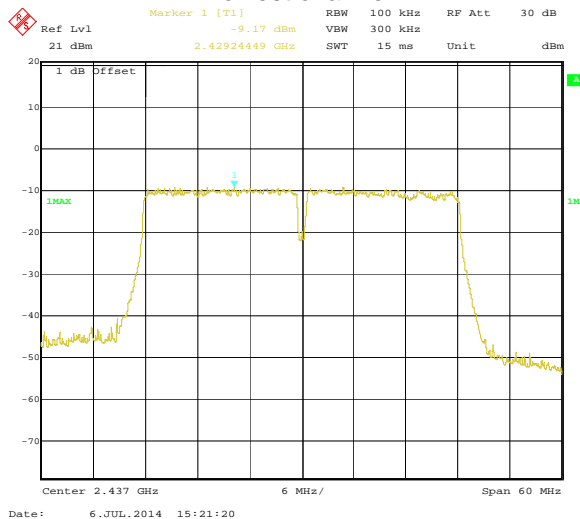
## Highest channel

Test mode:

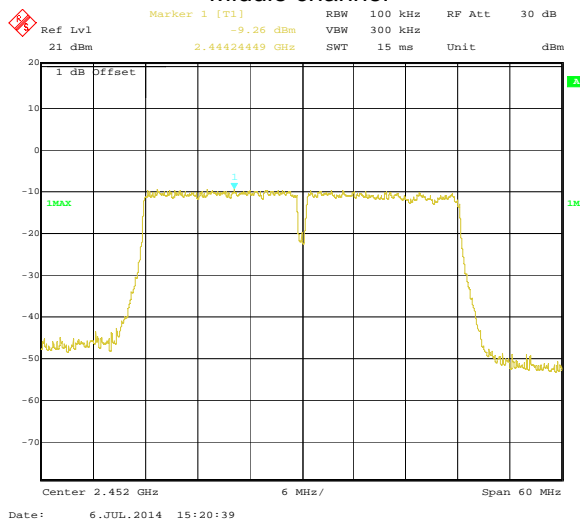
802.11n(H40)



## Lowest channel



## Middle channel

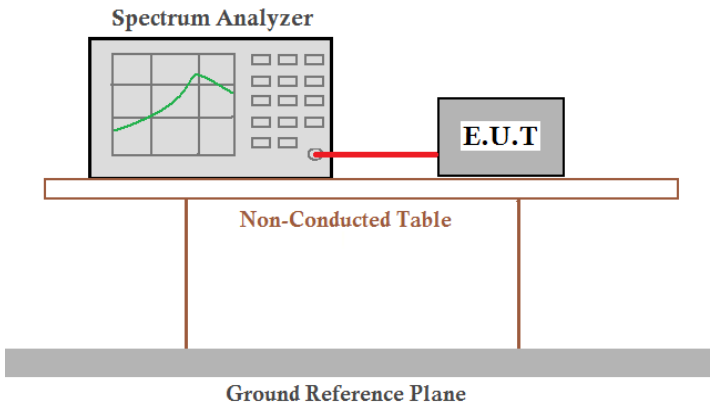


## Highest channel



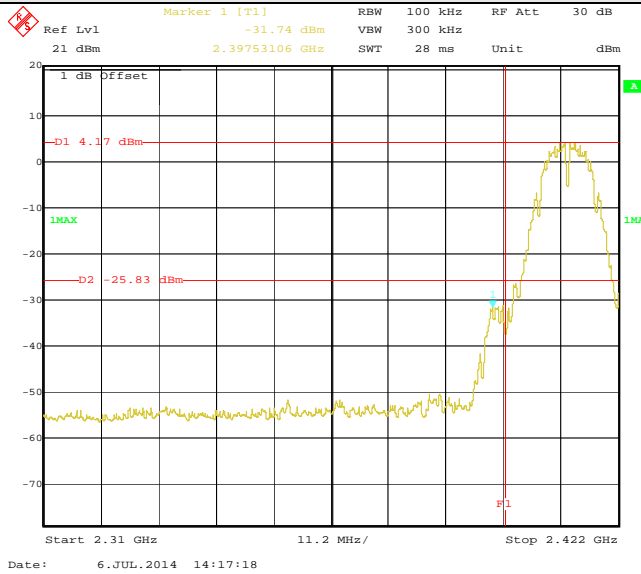
## 6.6 Band Edge

### 6.6.1 Conducted Emission Method

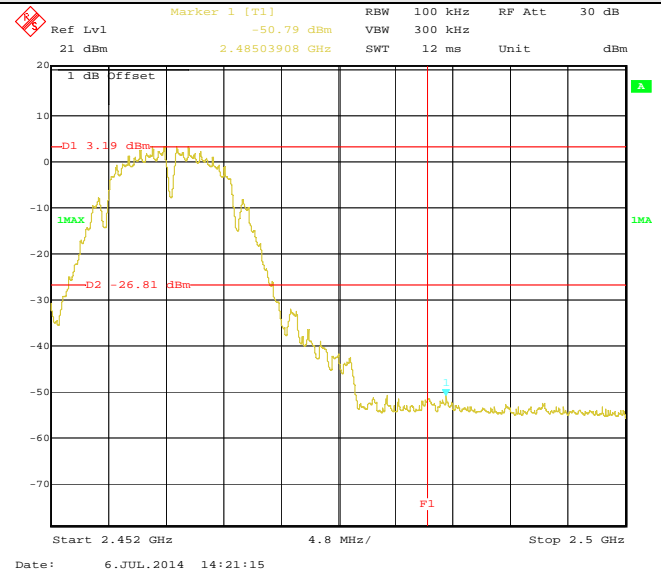
Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	ANSI C63.4:2003 and KDB558074
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 30 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.
Test setup:	 <p>The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T. (Equipment Under Test) via a red cable. Both the Spectrum Analyzer and the E.U.T. are placed on a Non-Conducted Table. The table is supported by two vertical legs and sits on a Ground Reference Plane.</p>
Test Instruments:	Refer to section 5.6 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Test plot as follows:

Test mode:	802.11b
------------	---------

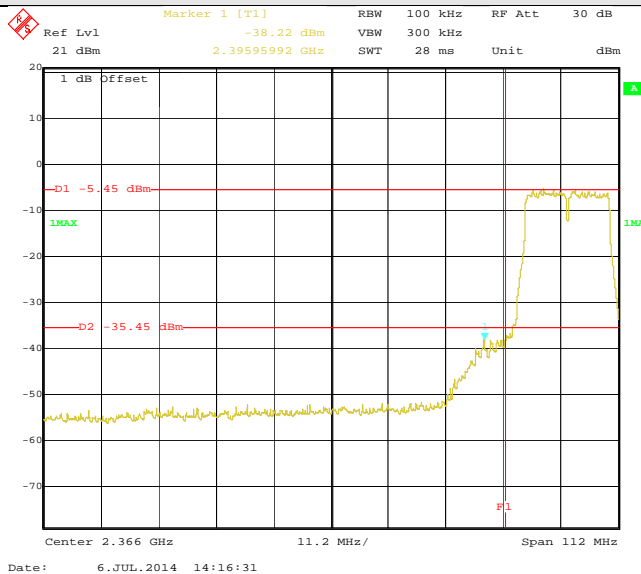


Lowest channel

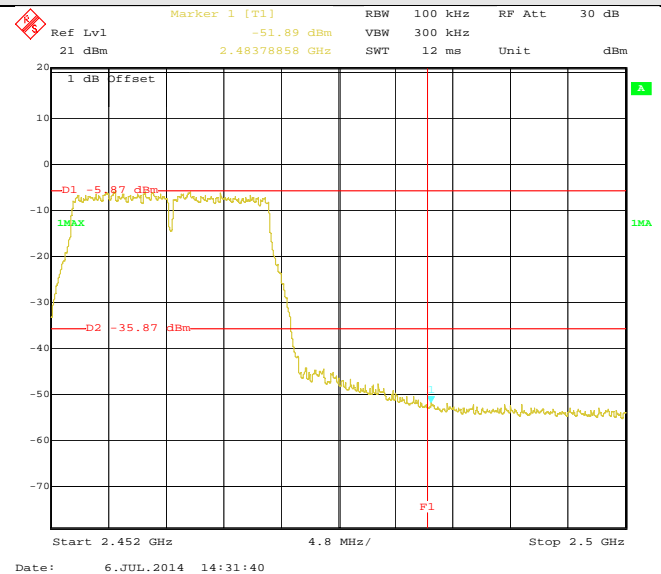


Highest channel

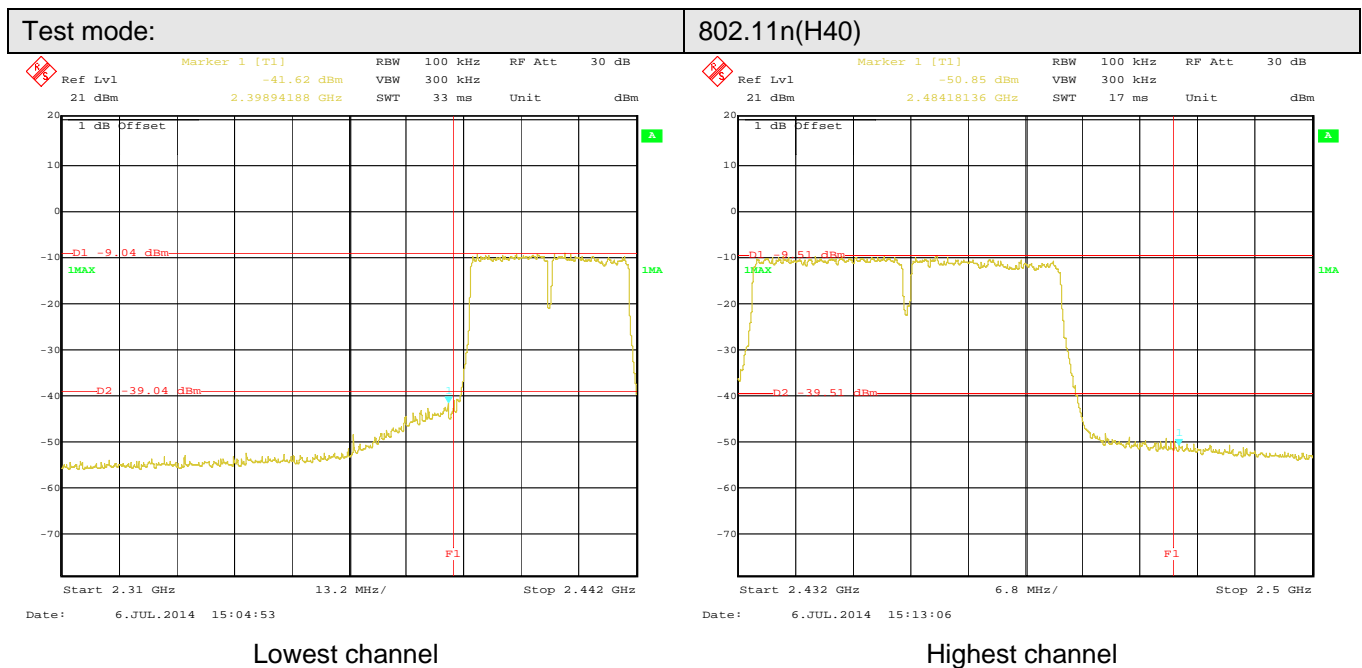
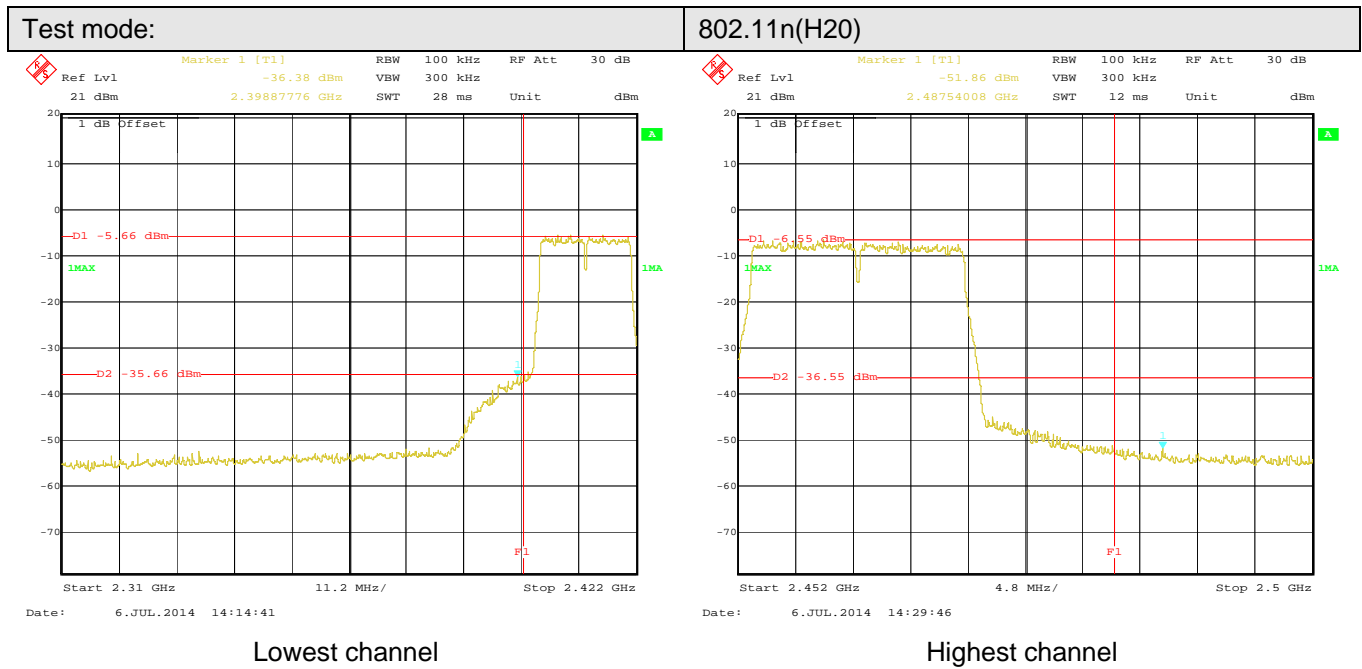
Test mode:	802.11g
------------	---------



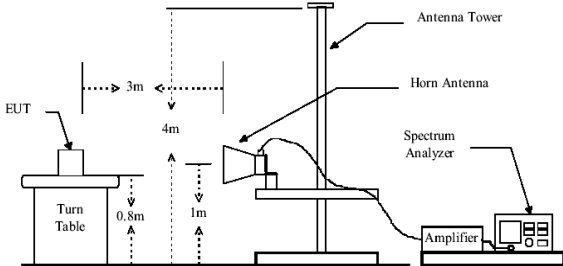
Lowest channel



Highest channel



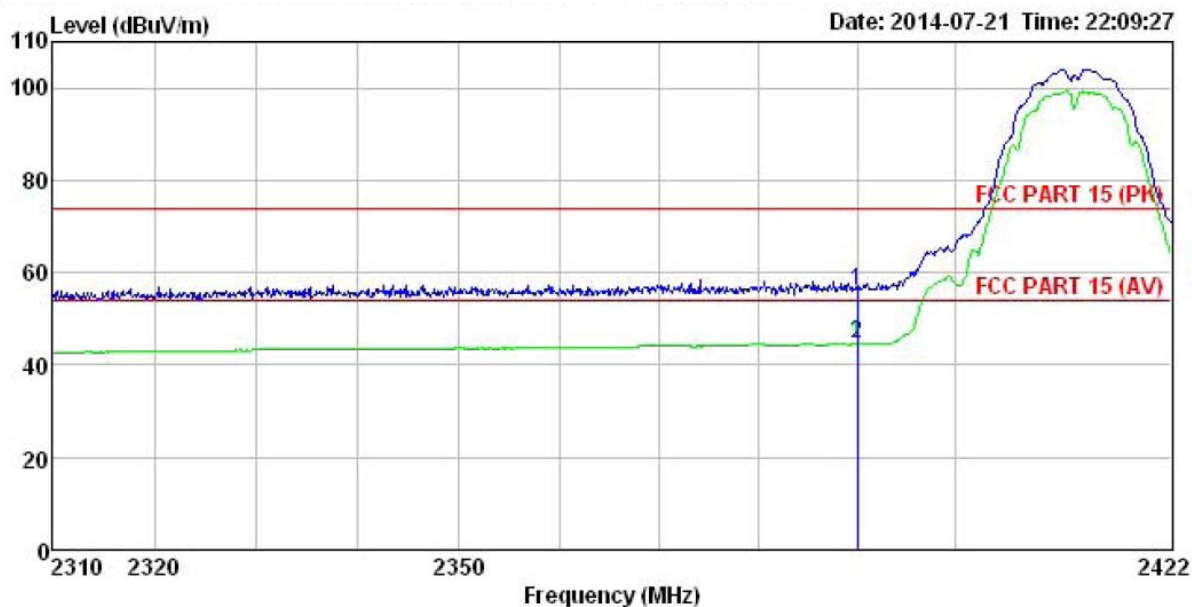
## 6.6.2 Radiated Emission Method

Test Requirement:	FCC Part15 C Section 15.209 and 15.205																		
Test Method:	ANSI C63.4: 2003																		
Test Frequency Range:	2.3GHz to 2.5GHz																		
Test site:	Measurement Distance: 3m																		
Receiver setup:	<table><tr><td>Frequency</td><td>Detector</td><td>RBW</td><td>VBW</td><td>Remark</td></tr><tr><td rowspan="2">Above 1GHz</td><td>Peak</td><td>1MHz</td><td>3MHz</td><td>Peak Value</td></tr><tr><td>Peak</td><td>1MHz</td><td>10Hz</td><td>Average Value</td></tr></table>					Frequency	Detector	RBW	VBW	Remark	Above 1GHz	Peak	1MHz	3MHz	Peak Value	Peak	1MHz	10Hz	Average Value
Frequency	Detector	RBW	VBW	Remark															
Above 1GHz	Peak	1MHz	3MHz	Peak Value															
	Peak	1MHz	10Hz	Average Value															
Limit:	<table><tr><td>Frequency</td><td>Limit (dBuV/m @3m)</td><td>Remark</td></tr><tr><td rowspan="2">Above 1GHz</td><td>54.00</td><td>Average Value</td></tr><tr><td>74.00</td><td>Peak Value</td></tr></table>					Frequency	Limit (dBuV/m @3m)	Remark	Above 1GHz	54.00	Average Value	74.00	Peak Value						
Frequency	Limit (dBuV/m @3m)	Remark																	
Above 1GHz	54.00	Average Value																	
	74.00	Peak Value																	
Test Procedure:	<div>1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.</div> <div>2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.</div> <div>3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.</div> <div>4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.</div> <div>5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</div> <div>6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.</div>																		
Test setup:																			
Test Instruments:	Refer to section 5.6 for details																		
Test mode:	Refer to section 5.3 for details																		
Test results:	Passed																		

802.11b

Test channel: Lowest

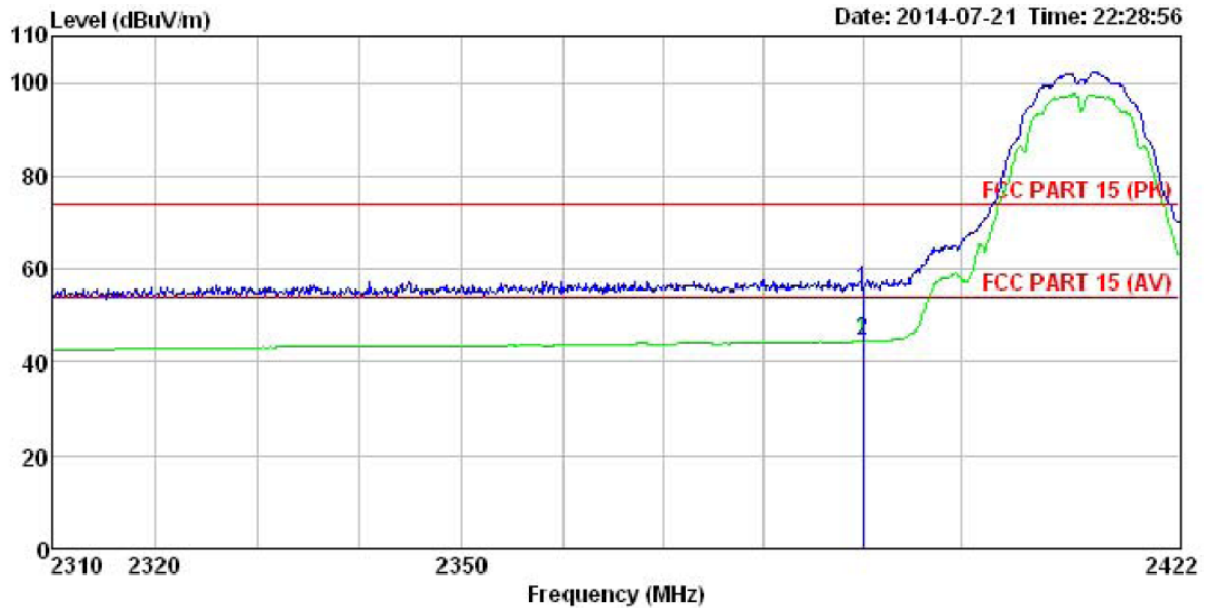
Horizontal:



Site : 3m chamber  
 Condition : FCC PART 15 (PK) 3m VULB9163(30M1G) HORIZONTAL  
 Pro : 521RF  
 EUT : Smartphone  
 Model : MIGHTY  
 Test mode : B-L mode  
 Power Rating : 120V/60Hz  
 Environment : Temp:25.5°C Humi:55%  
 Test Engineer: Carey  
 REMARK :

	Freq	Read	Antenna	Cable	Preamp	Level	Limit	Over	
	MHz	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2390.000	19.29	31.24	5.67	0.00	56.20	74.00	-17.80	Peak
2	2390.000	7.82	31.24	5.67	0.00	44.73	54.00	-9.27	Average

Vertical :

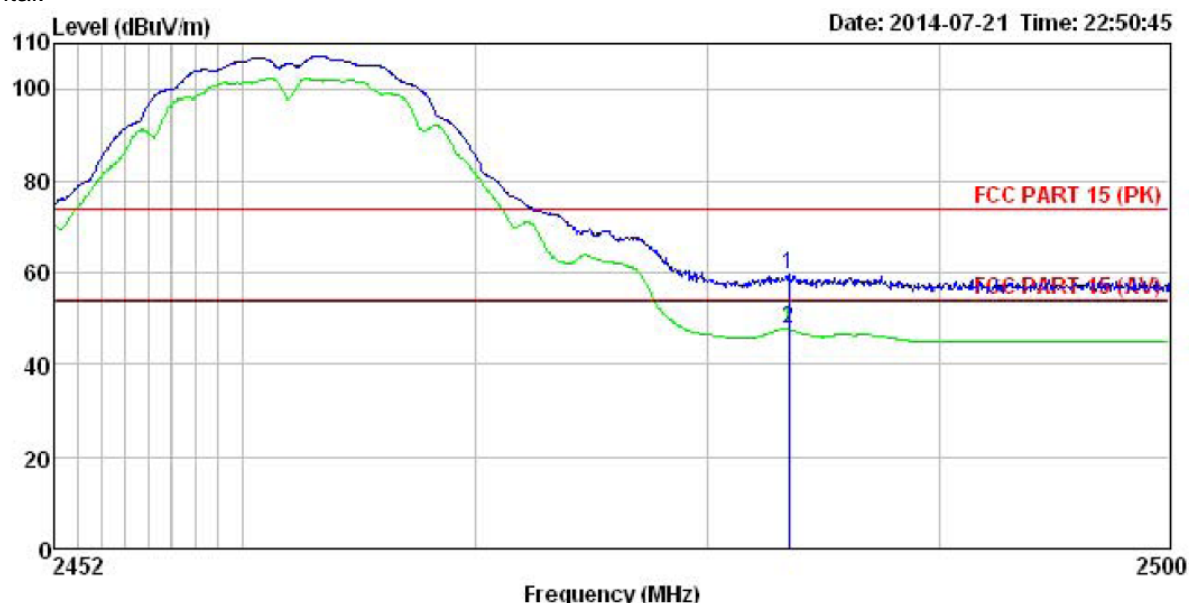


Site : 3m chamber  
 Condition : FCC PART 15 (PK) 3m VULB9163(30M1G) VERTICAL  
 Pro : 521RF  
 EUT : Smartphone  
 Model : MIGHTY  
 Test mode : B-L mode  
 Power Rating : 120V/60Hz  
 Environment : Temp:25.5°C Humi:55%  
 Test Engineer: Carey  
 REMARK :

		ReadAntenna	Cable	Preamp		Limit	Over	
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2390.000	18.79	31.24	5.67	0.00	55.70	74.00	-18.30 Peak
2	2390.000	7.72	31.24	5.67	0.00	44.63	54.00	-9.37 Average

Test channel: Highest

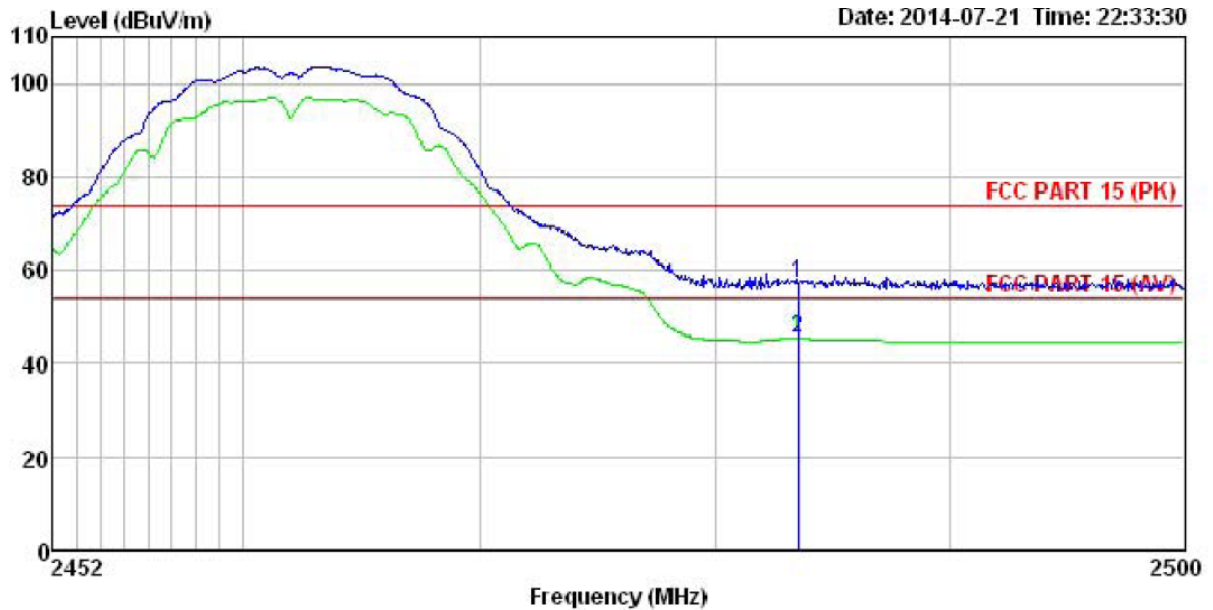
Horizontal:



Site : 3m chamber  
 Condition : FCC PART 15 (PK) 3m VULB9163(30M1G) HORIZONTAL  
 Pro : 521RF  
 EUT : Smartphone  
 Model : MIGHTY  
 Test mode : B-H mode  
 Power Rating : 120V/60Hz  
 Environment : Temp:25.5°C Humi:55%  
 Test Engineer: Carey  
 REMARK :

	Freq	ReadAntenna	Cable	Preamp	Level	Limit	Over	
	Level	Factor	Loss	Factor	Line	Limit	Remark	
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	2483.500	22.45	31.55	5.70	0.00	59.70	74.00	-14.30 Peak
2	2483.500	10.45	31.55	5.70	0.00	47.70	54.00	-6.30 Average

Vertical :



Site : 3m chamber  
 Condition : FCC PART 15 (PK) 3m VULB9163(30M1G) VERTICAL  
 Pro : 521RF  
 EUT : Smartphone  
 Model : MIGHTY  
 Test mode : B-H mode  
 Power Rating : 120V/60Hz  
 Environment : Temp:25.5'C Humi:55%  
 Test Engineer: Carey  
 REMARK :

	Freq	Read	Antenna	Cable	Preamp	Limit	Over	
		Level	Factor	Loss	Factor	Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	2483.500	19.94	31.55	5.70	0.00	57.19	74.00	-16.81 Peak
2	2483.500	8.26	31.55	5.70	0.00	45.51	54.00	-8.49 Average