



# FCC TEST REPORT

Prepared For :	Hopeful Electric CO., LTD
Product Name:	MID
Model :	MID727A-RK326, A7, PTAB735, A7X, PTAB735X, MID727-RK326, MID727-RK326A, MID727-RK326B, MID727-RK326C, MID727B-RK326
Prepared By :	Shenzhen BATT Testing Technology Co., Ltd. 11F, Bldg.B, Xinbaoyuan, Xinnanhu Commercial city, Bao'an District, Shenzhen, Guangdong, China. Tel: 86-755-27753991 Fax: 86-755-27754182
Test Date:	April 18, 2014 to April 26, 2014
Date of Report :	April 28, 2014
Report No.:	BATT201404099FCC

**Note:** This report shall not be reproduced except in full, without the written approval of Shenzhen BATT Testing Technology Co., Ltd. This document may be altered or revised by Shenzhen BATT Testing Technology Co., Ltd. personnel only, and shall be noted in the revision section of the document. The test results in the report only apply to the tested sample



## TABLE OF CONTENTS

<b>1.0</b>	<b>TEST CERTIFICATION.....</b>	<b>3</b>
<b>2.0</b>	<b>Test Equipment.....</b>	<b>5</b>
<b>3.0</b>	<b>Technical Details.....</b>	<b>6</b>
<b>4.0</b>	<b>Test Lab Details.....</b>	<b>6</b>
<b>5.0</b>	<b>Power Line Conducted Emission Test.....</b>	<b>7</b>
<b>5.1</b>	<b>Schematics of the Test.....</b>	<b>7</b>
<b>5.2</b>	<b>Test Method and Test Procedure.....</b>	<b>7</b>
<b>5.3</b>	<b>Configuration of the EUT.....</b>	<b>7</b>
<b>5.4</b>	<b>EUT Operating Condition.....</b>	<b>8</b>
<b>5.5</b>	<b>Conducted Emission Limit.....</b>	<b>8</b>
<b>5.6</b>	<b>Test Result.....</b>	<b>8</b>
<b>6.0</b>	<b>Radiated Emission test.....</b>	<b>11</b>
<b>6.1</b>	<b>Test Method and Test Procedure.....</b>	<b>11</b>
<b>6.2</b>	<b>Configuration of the EUT.....</b>	<b>11</b>
<b>6.3</b>	<b>EUT Operation Condition.....</b>	<b>11</b>
<b>6.4</b>	<b>Radiated Emission Limit.....</b>	<b>12</b>
<b>7.0</b>	<b>6dB Bandwidth Measurement.....</b>	<b>36</b>
<b>8.0</b>	<b>Maximum Peak Output Power.....</b>	<b>54</b>
<b>9.0</b>	<b>Power Spectral Density Measurement.....</b>	<b>57</b>
<b>10.0</b>	<b>Out of Band Measurement.....</b>	<b>76</b>
<b>11.0</b>	<b>Antenna Requirement.....</b>	<b>87</b>
<b>12.0</b>	<b>FCC ID Label.....</b>	<b>88</b>
<b>13.0</b>	<b>Photo of Test Setup and EUT View.....</b>	<b>89</b>



## 1 TEST CERTIFICATION

<b>Product:</b>	MID
<b>Model:</b>	MID727A-RK326, A7, PTAB735, A7X, PTAB735X, MID727-RK326, MID727-RK326A, MID727-RK326B, MID727-RK326C, MID727B-RK326
<b>Applicant:</b>	Hopeful Electric CO., LTD 22 Floor, Changhong Building, Hi-Tech Park, Nanshan District, Shenzhen City, P.R.China
<b>Factory:</b>	Hopeful Electric CO., LTD / Guangdong Changhong Digital Technology Co., LTD 148, Ronggui Road (Mid), Ronggui Town, Shunde District, Foshan City, Guangdong Prov., China / Via Gramsci 19, 20881 Bernareggio (MB), Italy / 1, Xingye Road (North), Nantou Town, Zhongshan City, Guangdong Prov.
<b>Trade Mark:</b>	N/A
<b>Tested:</b>	April 18, 2014 to April 26, 2014
<b>Test Voltage:</b>	DC5V by power supply, 3.7V polymer lithium-ion battery
<b>Operational Frequency Range:</b>	IEEE 802.11b/g, 802.11n HT20: 2412-2462MHz IEEE 802.11n HT40 : 2422MHz-2452MHz
<b>Modulation Type:</b>	IEEE 802.11b : DSSS (CCK, DQPSK, DBPSK) IEEE 802.11g : OFDM (64QAM, 16AQM, QPSK, BPSK) IEEE 802.11n HT20/40 : OFDM (64QAM, 16QAM, QPSK, BPSK)
<b>Channel Spacing</b>	IEEE 802.11b/g/n: 5MHz
<b>Air Data Rate</b>	IEEE 802.11b : 11, 5.5, 2, 1 Mbps IEEE 802.11g : 54, 48, 36, 24, 18, 12, 9, 6 Mbps IEEE 802.11n HT20 : 150, 117, 104, 78, 65, 58.5, 52, 39, 26, 19.5, 13, 6 Mbps IEEE 802.11n HT40 : 150, 117, 104, 78, 65, 58.5, 52, 39, 26, 19.5, 13, 6 Mbps
<b>Frequency Selection</b>	By software
<b>Channel Number</b>	IEEE 802.11b/g, 802.11n HT20 : 11 Channels IEEE 802.11n HT40 : 7 Channels
<b>Antenna:</b>	Integral antenna with Gain 2.0 dBi
<b>Power Supply:</b>	Model No.: HP0515D2-NA Input: 100-240V, 0.3A, 50/60Hz; Output: +5V, 1.5A Max
<b>FCC ID:</b>	2AAQZMID727A-RK326
<b>Applicable Standards:</b>	FCC Part 15.247

The test report was prepared by Shenzhen BATT Testing Technology Co., Ltd. and found compliance with the requirements set forth in the technical standards mentioned above. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.



Prepared by :

*Hellen Xiao*

Hellen Xiao Assistant

Reviewer :

*Mike Yong*

Mike Yong/Supervisor

Approved & Authorized Signer :

*Jones Song*

Jones Song/ Manager

**2.0 Test Equipments**

Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
ESPI Test Receiver	ROHDE&SCHWA RZ	ESPI 3	100379	2013-08-27	2014-08-26
EMI Test Receiver	Rohde & Schwarz	ESU	1302.6005.26	2013-08-27	2014-08-26
Impuls-Begrenzer	ROHDE&SCHWA RZ	ESH3-Z2	100281	2013-08-27	2014-08-26
Loop Antenna	EMCO	6502	00042960	2013-06-25	2014-06-24
ESPI Test Receiver	ROHDE&SCHWA RZ	ESI26	838786/013	2013-08-27	2014-08-26
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170399	2013-09-15	2014-09-14
Horn Antenna	SCHWARZBECK	BBHA 9120	D143	2013-09-15	2014-09-14
Power meter	Anritsu	ML2487A	6K00003613	2013-08-27	2014-08-26
Power sensor	Anritsu	MA2491A	32263	2013-08-27	2014-08-26
Bilog Antenna	Schwarebeck	VULB916 3	9163/142	2013-12-13	2014-12-12
LISN (Three Phase)	Schwarebeck	NSLK 8126	8126453	2013-08-27	2014-08-26
9*6*6 Anechoic	--	--	N/A	2013-08-27	2014-08-26
EMI Test Receiver	RS	ESCS30	100139	2013-08-27	2014-08-26
LISN	RS	ESH2-Z5	100225	2013-08-27	2014-08-26
Pre-Amplifier	A.H.	PAM-0126	1415261	2013-07-25	2014-07-24



### 3.0 Technical Details

#### 3.1 Summary of test results

**The EUT has been tested according to the following specifications:**

Standard	Test Type	Result	Notes
FCC Part 15, Paragraph 15.107 & 15.207	Conducted Emission Test	PASS	Complies
FCC Part 15 Subpart C Paragraph 15.247(a)(2) Limit	Spectrum bandwidth of a Orthogonal Frequency Division Multiplex System Limit: 6dB bandwidth>500kHz	PASS	Complies
FCC Part 15, Paragraph 15.247(b)	Maximum peak output power Limit: max. 30dBm	PASS	Complies
FCC Part 15, Paragraph 15.109,15.205 & 15.209	Transmitter Radiated Emission Limit: Table 15.209	PASS	Complies
FCC Part 15, Paragraph 15.247(e)	Power Spectral Density Limit: max. 8dBm	PASS	Complies
FCC Part 15, Paragraph 15.247(d)	Out of Band Emission and Restricted Band Radiation Limit: 20dB less than peak value of fundamental frequency Restricted band limit: Table 15.209	PASS	Complies

### 4.0 Test LAB Details

All Tests Performed at

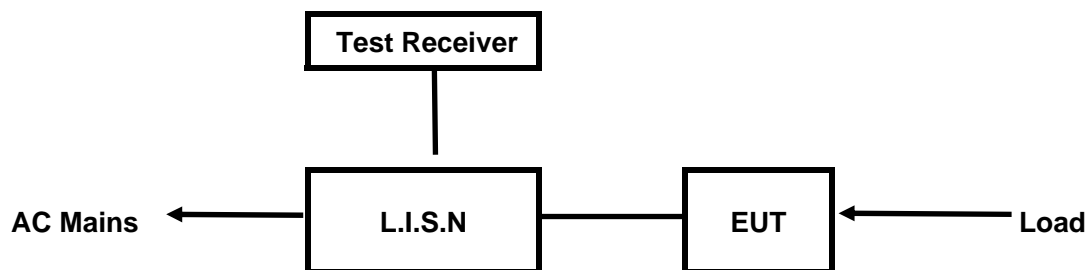
Name: Shenzhen Emtex Co., Ltd.

Address: Bldg. 69, Majialong Industry Zone,,Nanshan District,Shenzhen, Guangdong, 518052China

FCC Registration Number: 406365

## 5. Power Line Conducted Emission Test

### 5.1 Schematics of the test



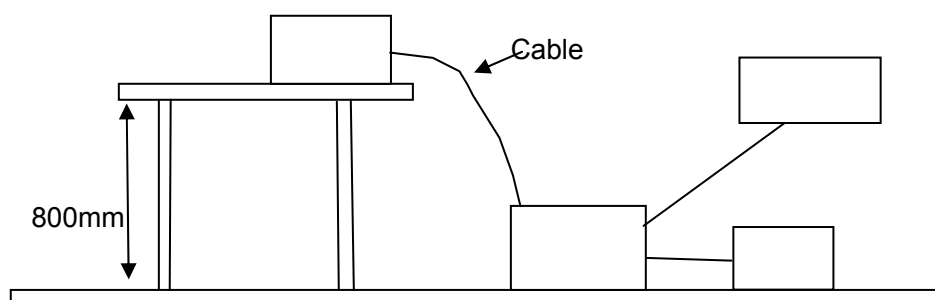
EUT: Equipment Under Test

### 5.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.4-2003. The Frequency spectrum From 0.15MHz to 30MHz was investigated. The LISN used was 50ohm/50uH as specified by section 5.1 of ANSI C63.4 –2003.

Test Voltage: 120V~, 60Hz

Block diagram of Test setup



### 5.3 Configuration of The EUT

The EUT was configured according to ANSI C63.4-2003. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

79 channels are provided to the EUT



## A. EUT

Device	Manufacturer	Model	FCC ID
MID	Hopeful Electric CO., LTD / Guangdong Changhong Digital Technology Co., LTD	MID727A-RK326, A7, PTAB735, A7X, PTAB735X, MID727-RK326, MID727-RK326A, MID727-RK326B, MID727-RK326C, MID727B-RK326	2AAQZMID727A- RK326

## B. Internal Device

Device	Manufacturer	Model	FCC ID/DOC
N/A			

## C. Peripherals

Device	Manufacturer	Model	FCC ID/DOC	Cable
--	--	--	--	--

## 5.4 EUT Operating Condition

Operating condition is according to ANSI C63.4 -2003.

A Setup the EUT and simulators as shown on follow

B Enable AF signal and confirm EUT active to normal condition

## 5.5 Power line conducted Emission Limit according to Paragraph 15.107, 15.207

Frequency (MHz)	Class A Limits (dBμV)		Class B Limits (dBμV)	
	Quasi-peak Level	Average Level	Quasi-peak Level	Average Level
0.15 ~ 0.50	79.0	66.0	66.0~56.0*	56.0~46.0*
0.50 ~ 5.00	73.0	60.0	56.0	46.0
5.00 ~ 30.00	73.0	60.0	60.0	50.0

Notes: 1. \*Decreasing linearly with logarithm of frequency.

2. The tighter limit shall apply at the transition frequencies

## 5.6 Test Results

The frequency spectrum from 0.15MHz to 30MHz was investigated. All reading are quasi-peak values with a resolution bandwidth of 9kHz.



**A: Conducted Emission on Live Terminal (150kHz to 30MHz)**

**EUT Operating Environment**

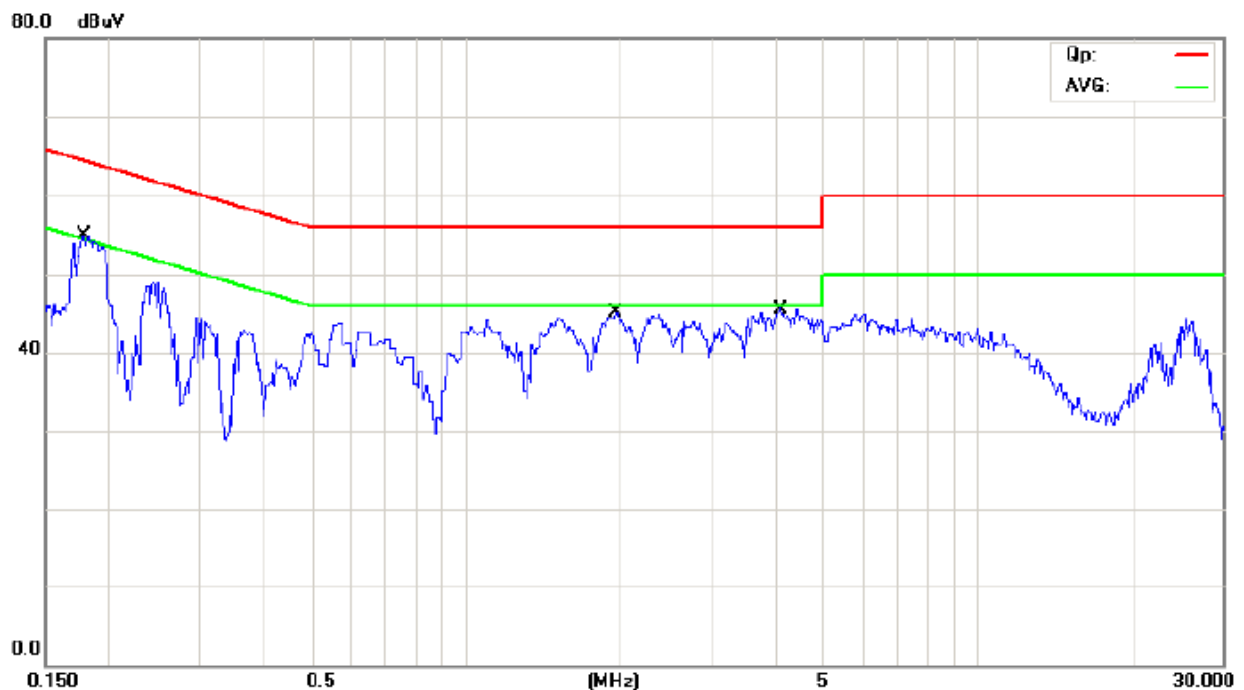
Temperature: 25°C Humidity: 75%RH Atmospheric Pressure: 101 KPa

**EUT set Condition: Keep WIFI Transmitting**

**Equipment Level: Class B**

**Results: Pass**

Please refer to following diagram for individual



No.	Mk.	Freq. MHz	Reading Level dBμV	Correct Factor dB	Measure- ment dBμV	Limit dBμV	Over dB	Detector	Comment
1		0.1778	41.50	11.03	52.53	64.59	-12.06	QP	
2		0.1778	19.00	11.03	30.03	54.59	-24.56	AVG	
3	*	1.9512	32.84	12.28	45.12	56.00	-10.88	QP	
4		1.9512	19.47	12.28	31.75	46.00	-14.25	AVG	
5		4.1111	31.46	13.14	44.60	56.00	-11.40	QP	
6		4.1111	18.54	13.14	31.68	46.00	-14.32	AVG	

**B: Conducted Emission on Neutral Terminal (150kHz to 30MHz)**

**EUT Operating Environment**

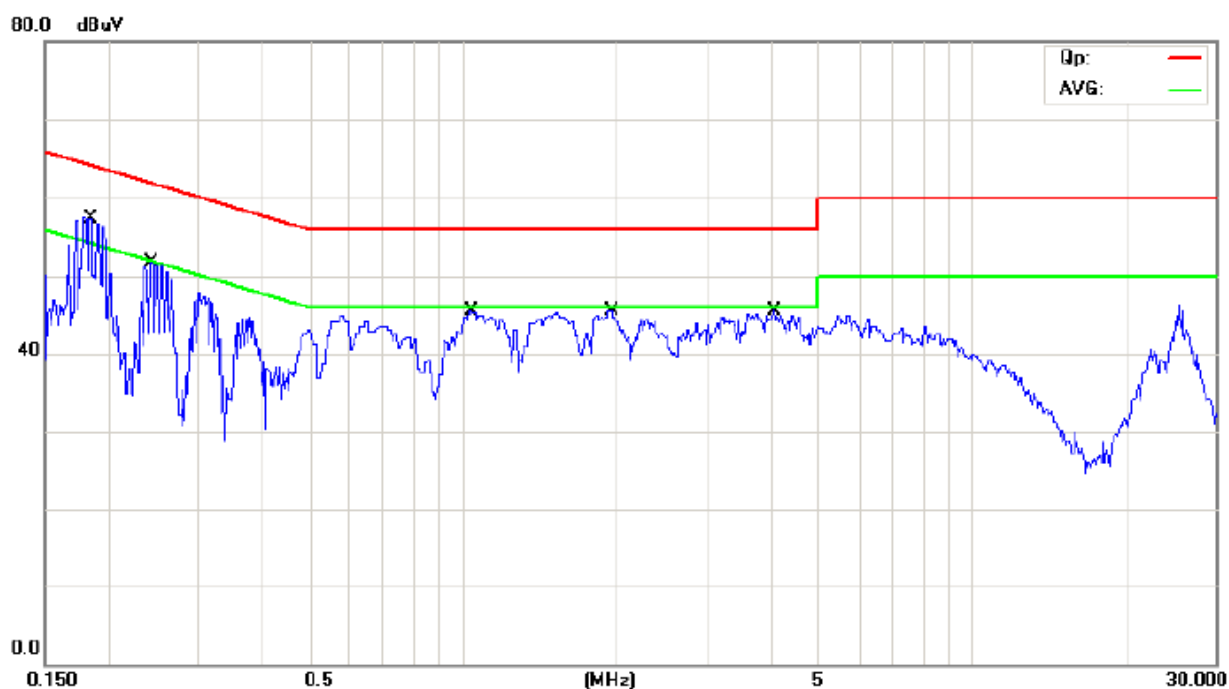
Temperature: 25°C Humidity: 75%RH Atmospheric Pressure: 101 KPa

**EUT set Condition: Keep WIFI Transmitting**

**Equipment Level: Class B**

**Results: Pass**

Please refer to following diagram for individual



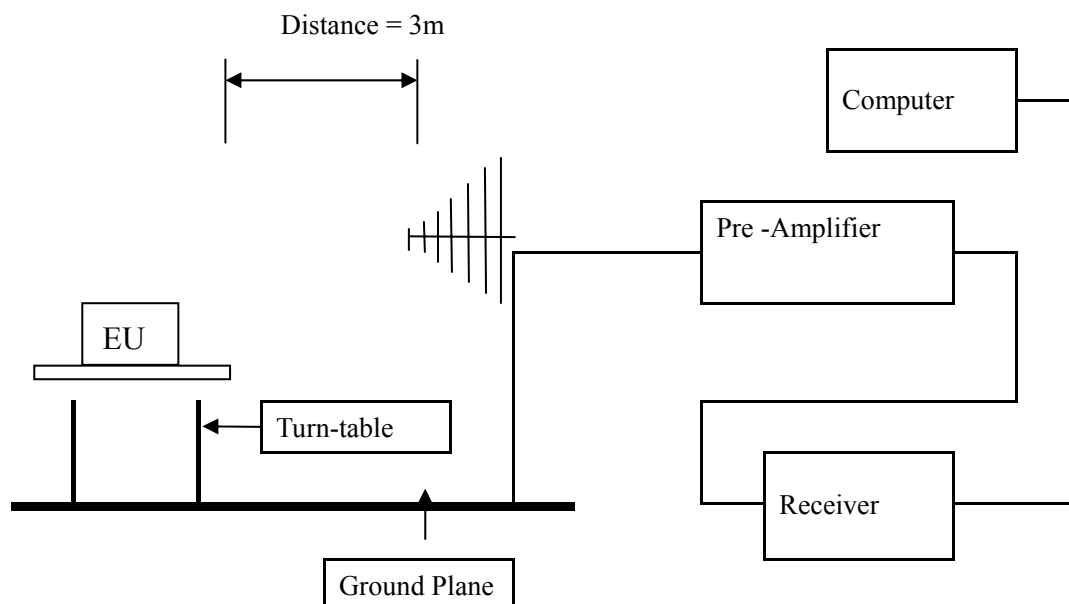
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	*	0.1847	45.40	11.04	56.44	64.27	-7.83	QP	
2		0.1847	31.90	11.04	42.94	54.27	-11.33	AVG	
3		0.2418	39.63	11.10	50.73	62.03	-11.30	QP	
4		0.2418	20.94	11.10	32.04	52.03	-19.99	AVG	
5		1.0287	30.59	11.91	42.50	56.00	-13.50	QP	
6		1.0287	19.45	11.91	31.36	46.00	-14.64	AVG	
7		1.9478	29.90	12.28	42.18	56.00	-13.82	QP	
8		1.9478	20.10	12.28	32.38	46.00	-13.62	AVG	
9		4.0550	31.48	13.12	44.60	56.00	-11.40	QP	
10		4.0550	20.46	13.12	33.58	46.00	-12.42	AVG	

## 6 Radiated Emission Test

### 6.1 Test Method and test Procedure:

- (1) The EUT was tested according to ANSI C63.4 –2003. The radiated test was performed at Shenzhen Emtek Co., Ltd.. This site is on file with the FCC laboratory division, Registration No.406365
- (2) The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, table high 0.8 m. All set up is according to ANSI C63.4-2003.
- (3) The frequency spectrum from 30 MHz to 25 GHz was investigated. All readings from 30 MHz to 1 GHz are Quasi-peak values with a resolution bandwidth of 120 kHz. For measurement above 1GHz, peak values with RBW=VBW=1MHz and PK detector. AV value with RBW=1MHz, VBW=10Hz and PK detector. Measurements were made at 3 meters.
- (4) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
- (5) Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance is with all installation combinations. All data was recorded in the peak detection mode. Quasi-peak readings was performed only when an emission was found to be marginal (within -4 dB of specification limit), and are distinguished with a "QP" in the data table.
- (6) The antenna polarization : Vertical polarization and Horizontal polarization.

#### Block diagram of Test setup



### 6.2 Configuration of The EUT

Same as section 5.3 of this report

### 6.3 EUT Operating Condition

Same as section 5.4 of this report.

#### 6.4 Radiated Emission Limit

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below:

**Frequencies in restricted band are complied to limit on Paragraph 15.209 and 15.109**

Frequency Range (MHz)	Distance (m)	Field strength (dB $\mu$ V/m)
30-88	3	40.0
88-216	3	43.5
216-960	3	46.0
Above 960	3	54.0

- Note:
1. RF Voltage (dBuV) = 20 log RF Voltage ( $\mu$ V)
  2. In the Above Table, the higher limit applies at the band edges.
  3. Distance refers to the distance in meters between the measuring instrument antenna and the EUT
  4. This is a handheld device. The radiated emissions should be tested under 3-axes position (Lying, Side, and Stand), After pre-test. It was found that the worse radiated emission was get at the lying position.

## Test result

### General Radiated Emission Data and Harmonics Radiated Emission Data

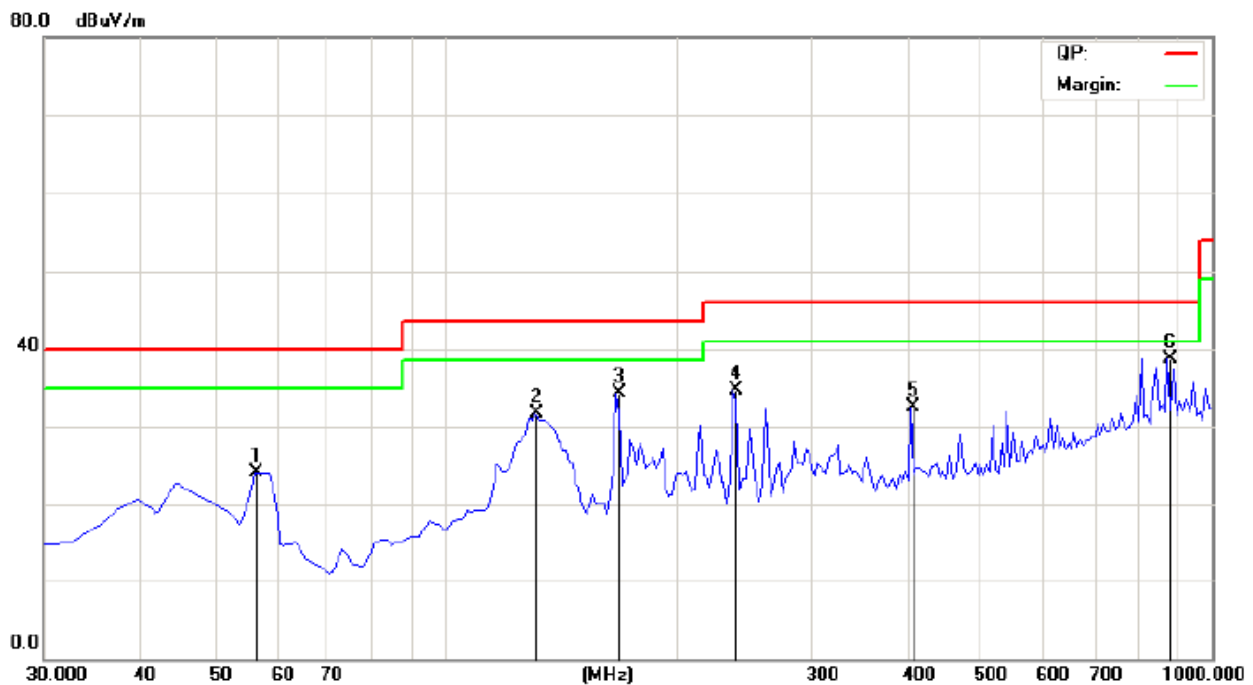
#### Radiated Emission In Horizontal (30MHz---1000MHz)

EUT set Condition: Keep Transmitting

Results: Pass

Test Figure:

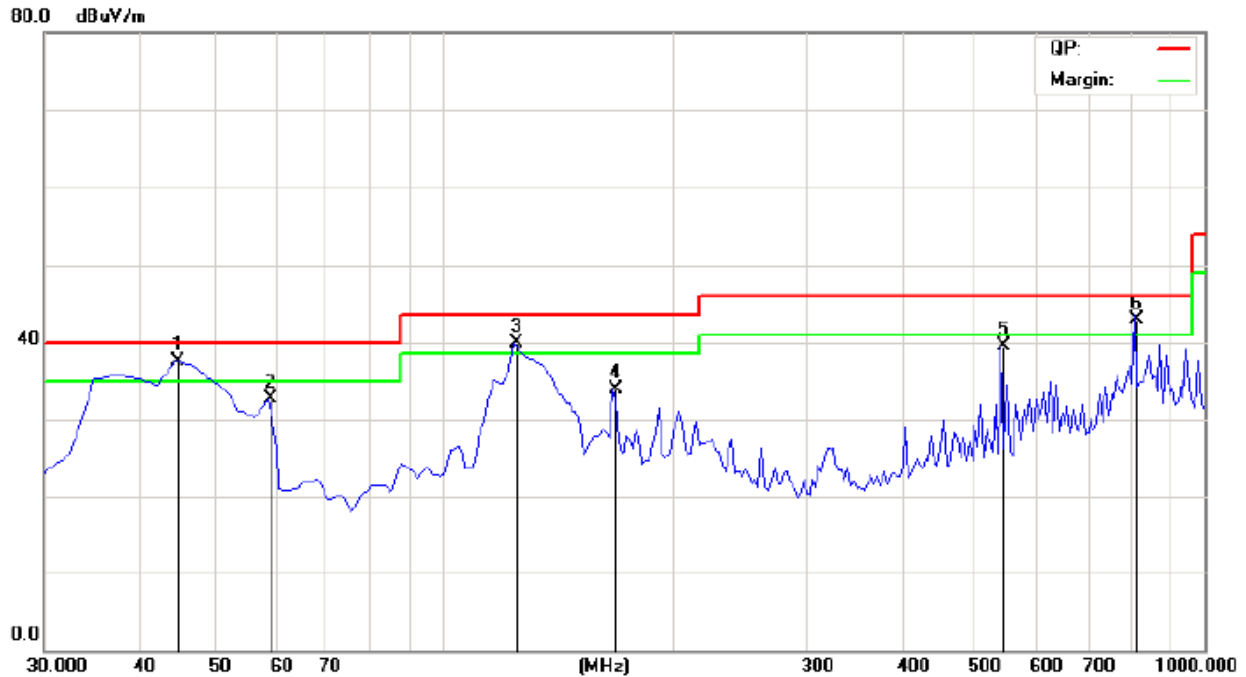
H



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1		56.6750	36.15	-11.95	24.20	40.00	-15.80	peak		
2		131.8500	46.55	-14.92	31.63	43.50	-11.87	peak		
3		168.2250	48.37	-14.03	34.34	43.50	-9.16	peak		
4		238.5500	44.65	-9.87	34.78	46.00	-11.22	peak		
5		408.3000	37.72	-5.13	32.59	46.00	-13.41	peak		
6	*	883.6000	34.62	4.01	38.63	46.00	-7.37	peak		

Test Figure:

V



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	44.5500	49.04	-11.56	37.48	40.00	-2.52	peak		
2		59.1000	44.76	-12.10	32.66	40.00	-7.34	peak		
3	!	124.5750	54.05	-14.19	39.86	43.50	-3.64	peak		
4		168.2250	47.95	-14.03	33.92	43.50	-9.58	peak		
5		544.1000	41.77	-2.26	39.51	46.00	-6.49	peak		
6	!	813.2750	40.10	2.73	42.83	46.00	-3.17	peak		

Operation Mode: Transmitting under CH01 for 11b at 11Mbps

Frequency (MHz)	Level@3m (dBμV/m)	Antenna Polarity	Limit@3m (dBμV/m)
2412.00	94.26 ( PK )	H	Fundamental Frequency
2412.00	95.26 ( PK )	V	
4824.00	46.32 ( PK )	H	--
4824.00	47.09 ( PK )	V	
7236.00	--	H/V	74(Peak)/ 54(AV)
9648.00	--	H/V	74(Peak)/ 54(AV)
12060	--	H/V	74(Peak)/ 54(AV)
14472	--	H/V	74(Peak)/ 54(AV)
16884	--	H/V	74(Peak)/ 54(AV)
19296	--	H/V	74(Peak)/ 54(AV)
21708	--	H/V	74(Peak)/ 54(AV)
24120	--	H/V	74(Peak)/ 54(AV)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

2. Remark "---" means that the emissions level is too low to be measured

3. For 802.11b mode at 11Mbps



Operation Mode: Transmitting under CH06 for 11b at 11Mbps

Frequency (MHz)	Level@3m (dBμV/m)	Antenna Polarity	Limit@3m (dBμV/m)
2437.00	94.12 (PK)	H	Fundamental Frequency
2437.00	95.03 (PK)	V	
4874.00	47.51 (PK)	H	--
4874.00	48.26 (PK)	V	
7311.00	--	H/V	74(Peak)/ 54(AV)
9748.00	--	H/V	74(Peak)/ 54(AV)
12185	--	H/V	74(Peak)/ 54(AV)
14622	--	H/V	74(Peak)/ 54(AV)
17059	--	H/V	74(Peak)/ 54(AV)
19496	--	H/V	74(Peak)/ 54(AV)
21933	--	H/V	74(Peak)/ 54(AV)
24370	--	H/V	74(Peak)/ 54(AV)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

2. Remark "---" means that the emissions level is too low to be measured

3. For 802.11b mode at 11Mbps



**Operation Mode: Transmitting under CH11 for 11b at 11Mbps**

Frequency (MHz)	Level@3m (dBμV/m)	Antenna Polarity	Limit@3m (dBμV/m)
2462.00	93.74 ( PK )	H	Fundamental Frequency
2462.00	95.17 ( PK )	V	
4924	46.79 ( PK )	H	--
4924	49.13 ( PK )	V	
7386	--	H/V	74(Peak)/ 54(AV)
9848	--	H/V	74(Peak)/ 54(AV)
12310	--	H/V	74(Peak)/ 54(AV)
14772	--	H/V	74(Peak)/ 54(AV)
17234	--	H/V	74(Peak)/ 54(AV)
19696	--	H/V	74(Peak)/ 54(AV)
22158	--	H/V	74(Peak)/ 54(AV)
24650	--	H/V	74(Peak)/ 54(AV)

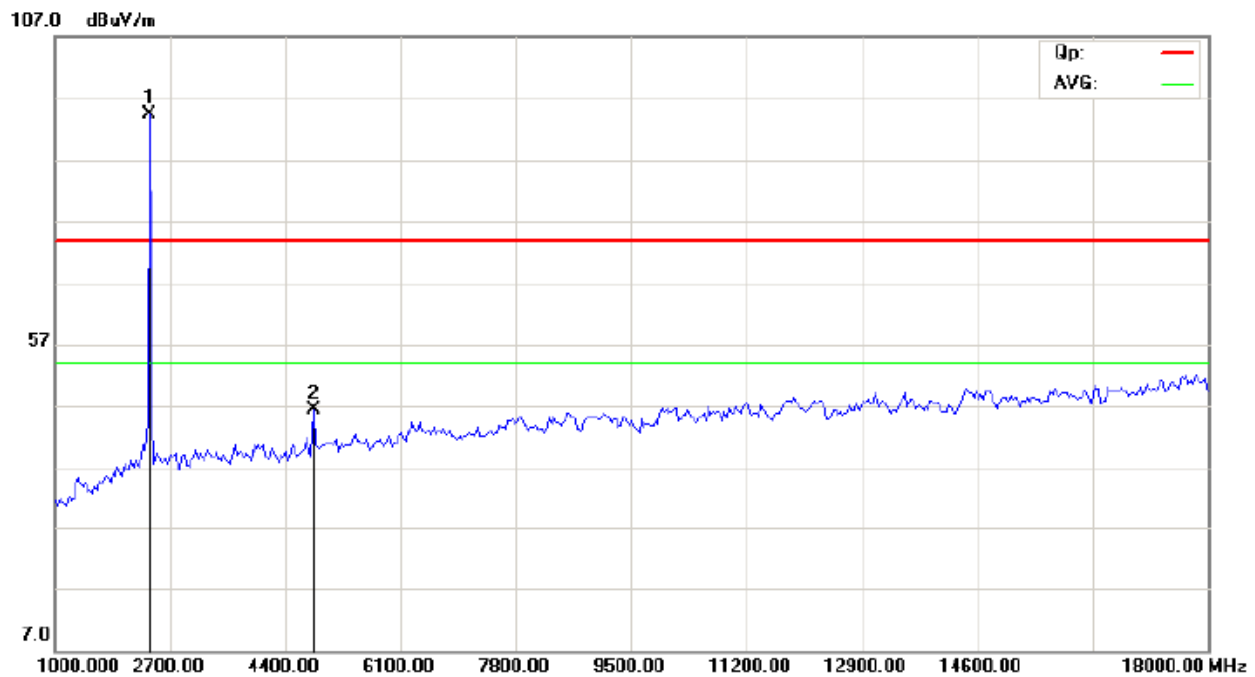
Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

2. Remark "---" means that the emissions level is too low to be measured

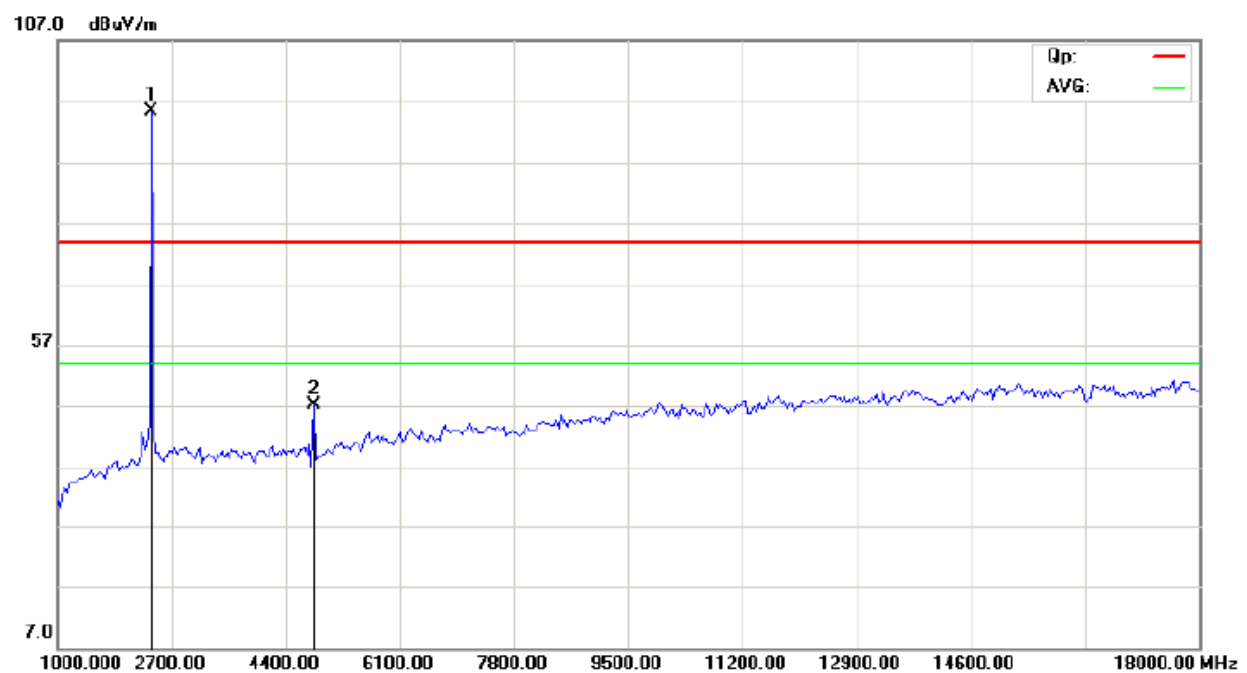
3. For 802.11b mode at 11Mbps

Please refer to the following test plots for details:

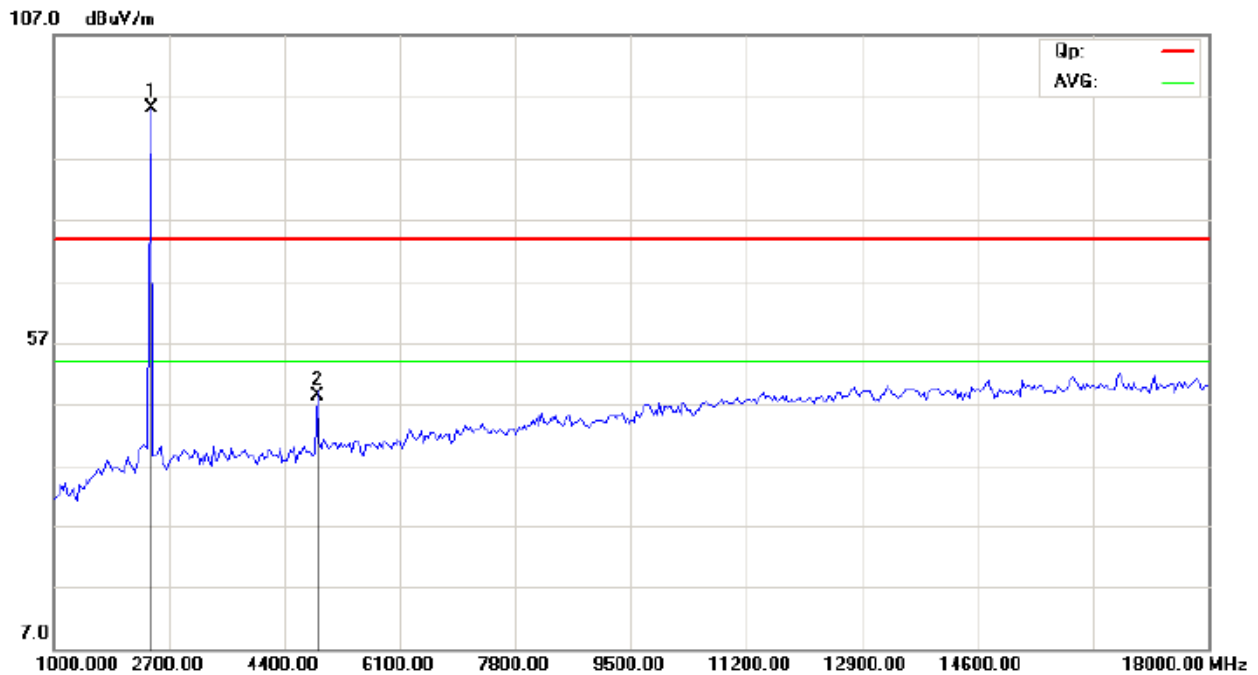
### CH01 at 11Mbps: Horizontal



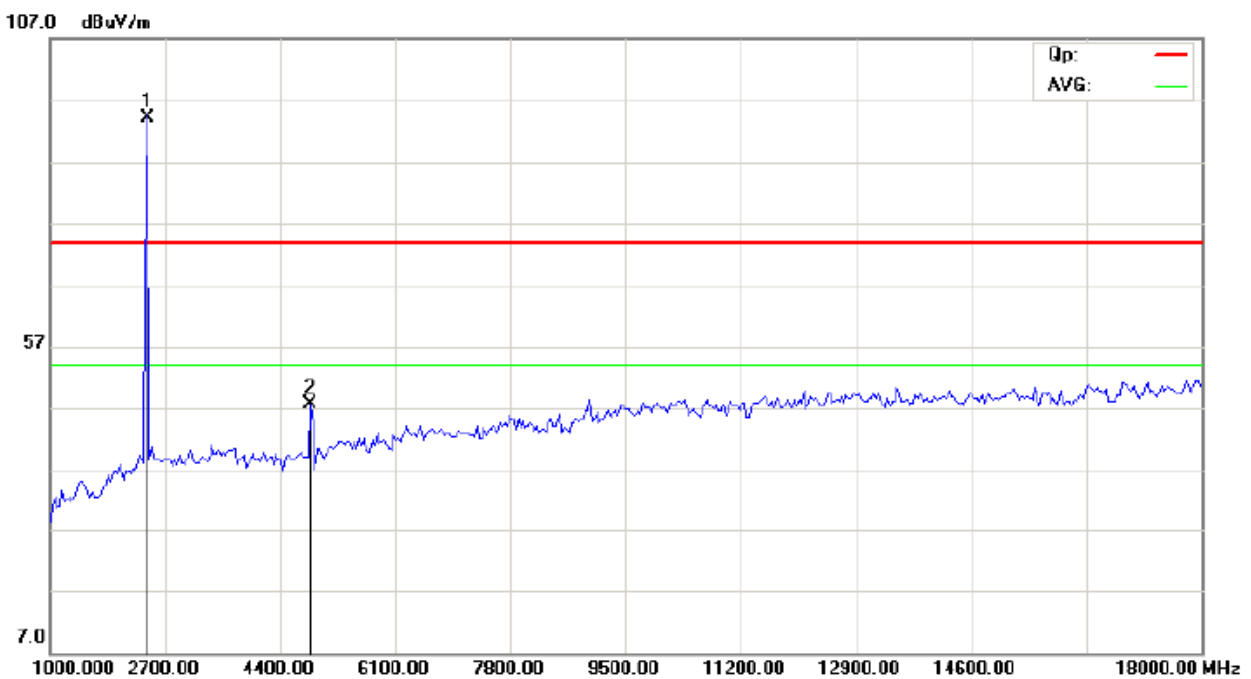
### CH01 at 11Mbps: Vertical



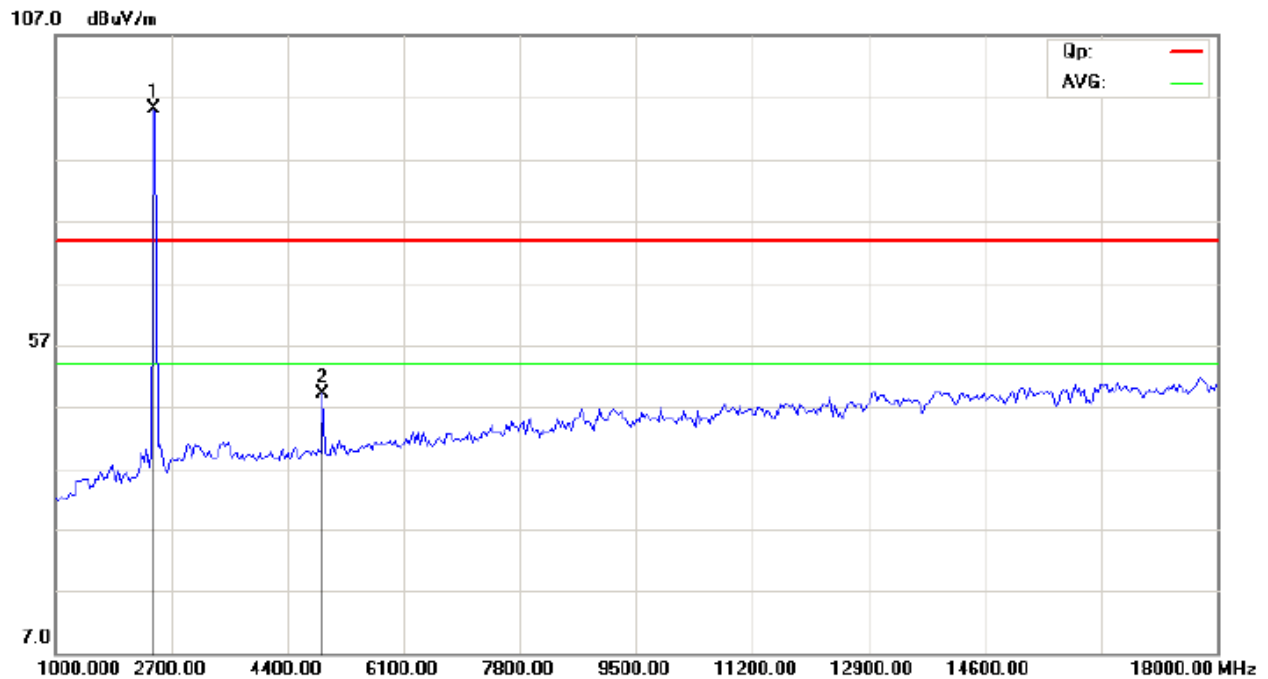
### CH06 at 11Mbps: Vertical



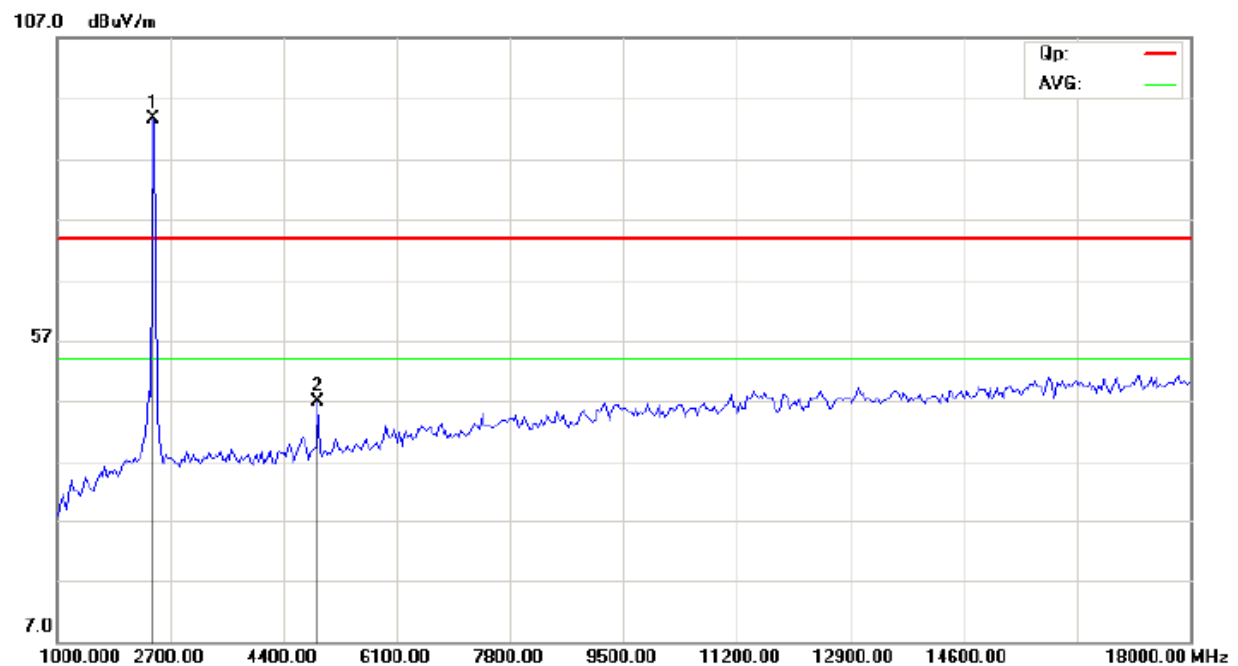
### CH06 at 11Mbps: Horizontal



### CH11 at 11Mbps: Vertical



### CH11at 11Mbps: Horizontal



Note: For radiated Emissions from 18-25GHz, it is only the floor noise.

**Operation Mode: Transmitting under CH01 for 11g at 54 Mbps**

Frequency (MHz)	Level@3m (dBμV/m)	Antenna Polarity	Limit@3m (dBμV/m)
2412.00	92.05 ( PK )	H	Fundamental Frequency
2412.00	93.88 ( PK )	V	
4824.00	47.51 ( PK )	H	74(Peak)/ 54(AV)
4824.00	48.25 ( PK )	V	74(Peak)/ 54(AV)
7236.00	--	H/V	74(Peak)/ 54(AV)
9648.00	--	H/V	74(Peak)/ 54(AV)
12060	--	H/V	74(Peak)/ 54(AV)
14472	--	H/V	74(Peak)/ 54(AV)
16684	--	H/V	74(Peak)/ 54(AV)
19296	--	H/V	74(Peak)/ 54(AV)
21708	--	H/V	74(Peak)/ 54(AV)
24120	--	H/V	74(Peak)/ 54(AV)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

2. Remark "---" means that the emissions level is too low to be measured

3. For 802.11g mode 54Mbps

**Operation Mode: Transmitting under CH06 for 11g at 54 Mbps**

Frequency (MHz)	Level@3m (dBμV/m)	Antenna Polarity	Limit@3m (dBμV/m)
2437.00	92.16 ( PK )	H	Fundamental Frequency
2437.00	93.63 ( PK )	V	
4874.00	46.15 ( PK )	H	--
4874.00	47.32 ( PK )	V	
7311.00	--	H/V	74(Peak)/ 54(AV)
9748.00	--	H/V	74(Peak)/ 54(AV)
12185	--	H/V	74(Peak)/ 54(AV)
14622	--	H/V	74(Peak)/ 54(AV)
17059	--	H/V	74(Peak)/ 54(AV)
19496	--	H/V	74(Peak)/ 54(AV)
21933	--	H/V	74(Peak)/ 54(AV)
24370	--	H/V	74(Peak)/ 54(AV)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

2. Remark "---" means that the emissions level is too low to be measured

3. For 802.11g mode 54Mbps

**Operation Mode: Transmitting under CH11 for 11g at 54 Mbps**

Frequency (MHz)	Level@3m (dBμV/m)	Antenna Polarity	Limit@3m (dBμV/m)
2462.00	92.82 ( PK )	H	Fundamental Frequency
2462.00	93.75 ( PK )	V	
4924	48.08 ( PK )	H	--
4924	47.64 ( PK )	V	
7386	--	H/V	74(Peak)/ 54(AV)
9848	--	H/V	74(Peak)/ 54(AV)
12310	--	H/V	74(Peak)/ 54(AV)
14772	--	H/V	74(Peak)/ 54(AV)
17234	--	H/V	74(Peak)/ 54(AV)
19696	--	H/V	74(Peak)/ 54(AV)
22158	--	H/V	74(Peak)/ 54(AV)
24650	--	H/V	74(Peak)/ 54(AV)

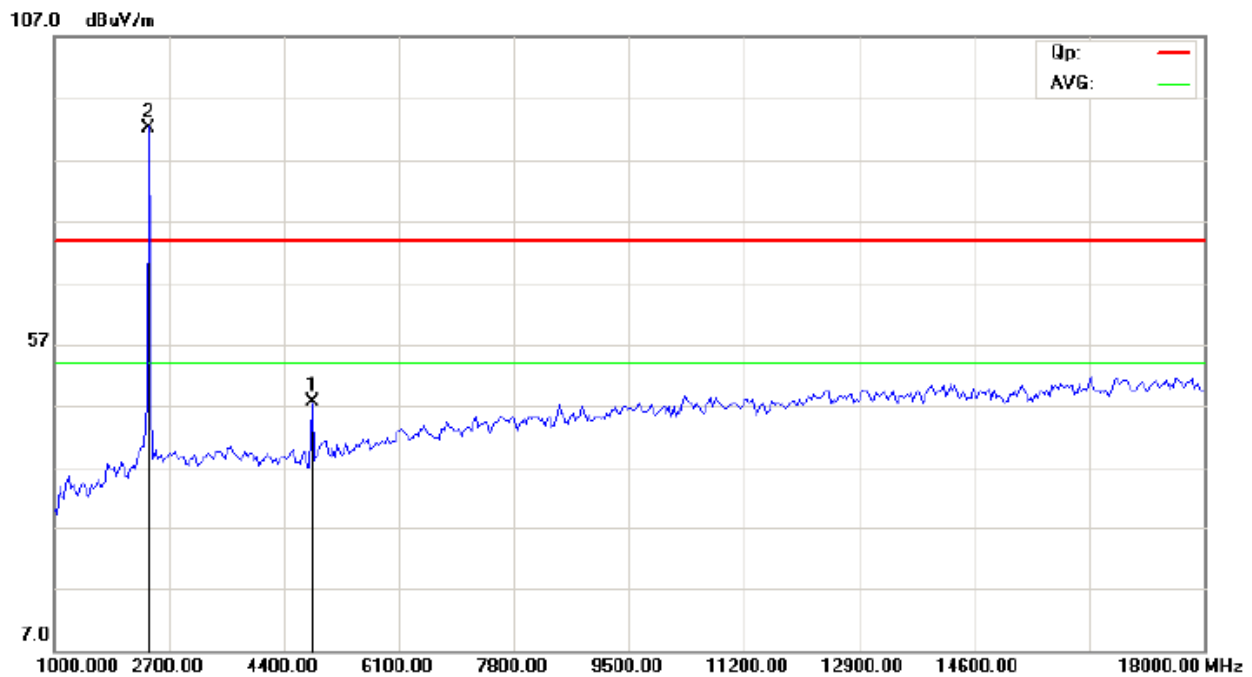
Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

2. Remark "---" means that the emissions level is too low to be measured

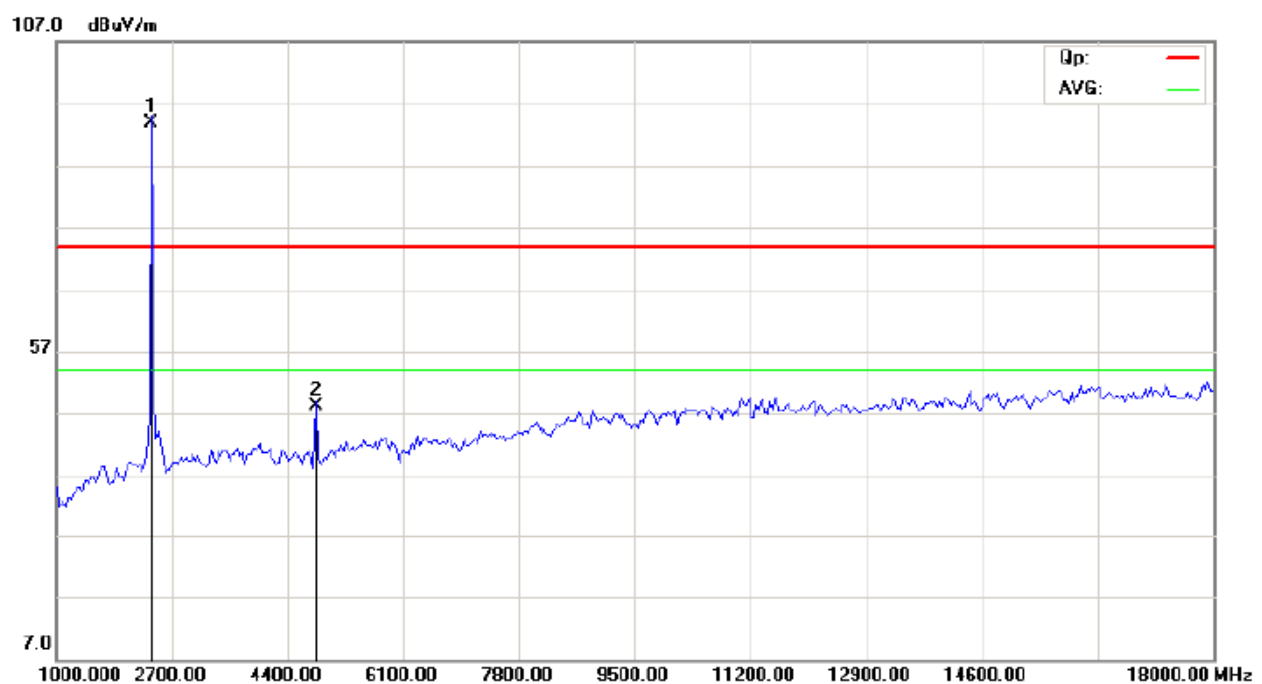
3. For 802.11g mode 54Mbps

Please refer to the following test plots for details:

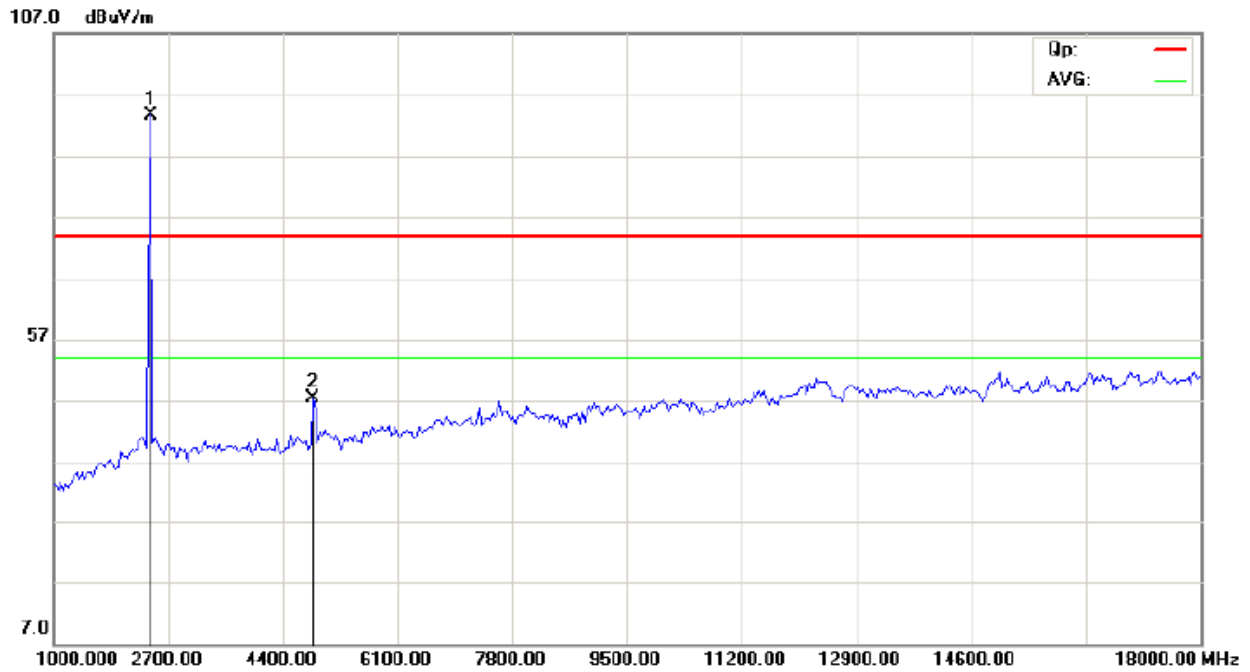
**CH01 at 54Mbps: Horizontal**



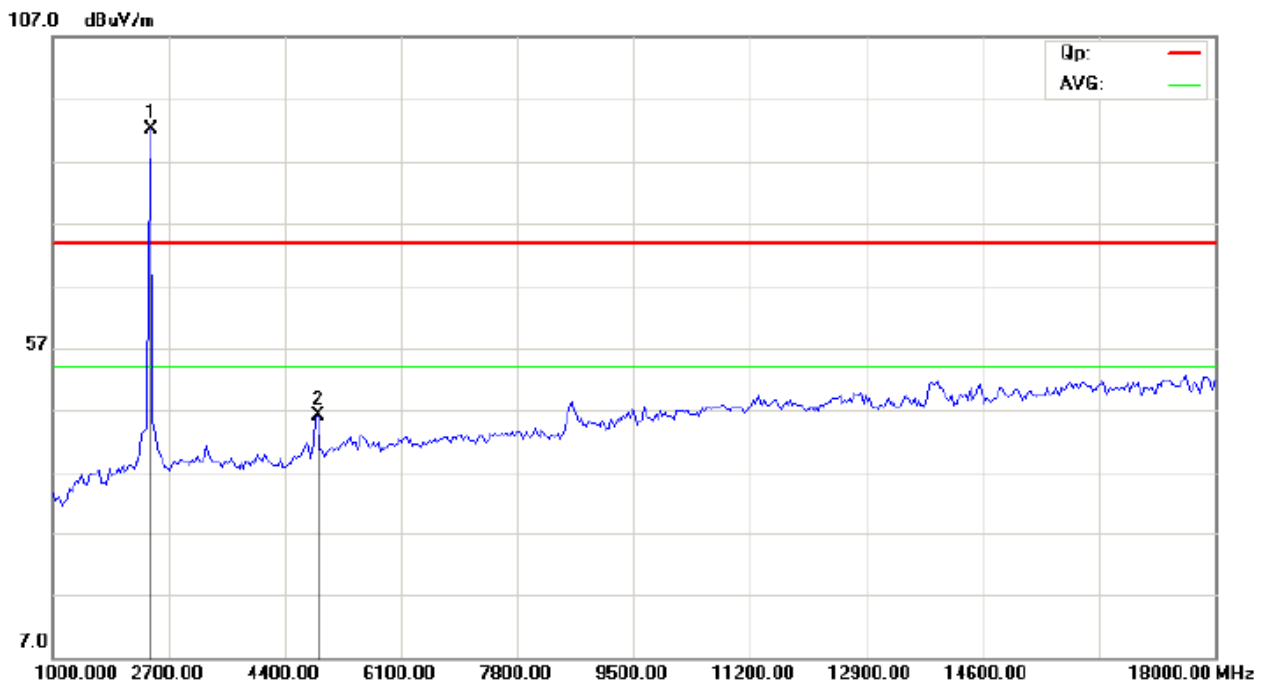
**CH01 at 54Mbps: Vertical**



### CH06 at 54Mbps: Vertical

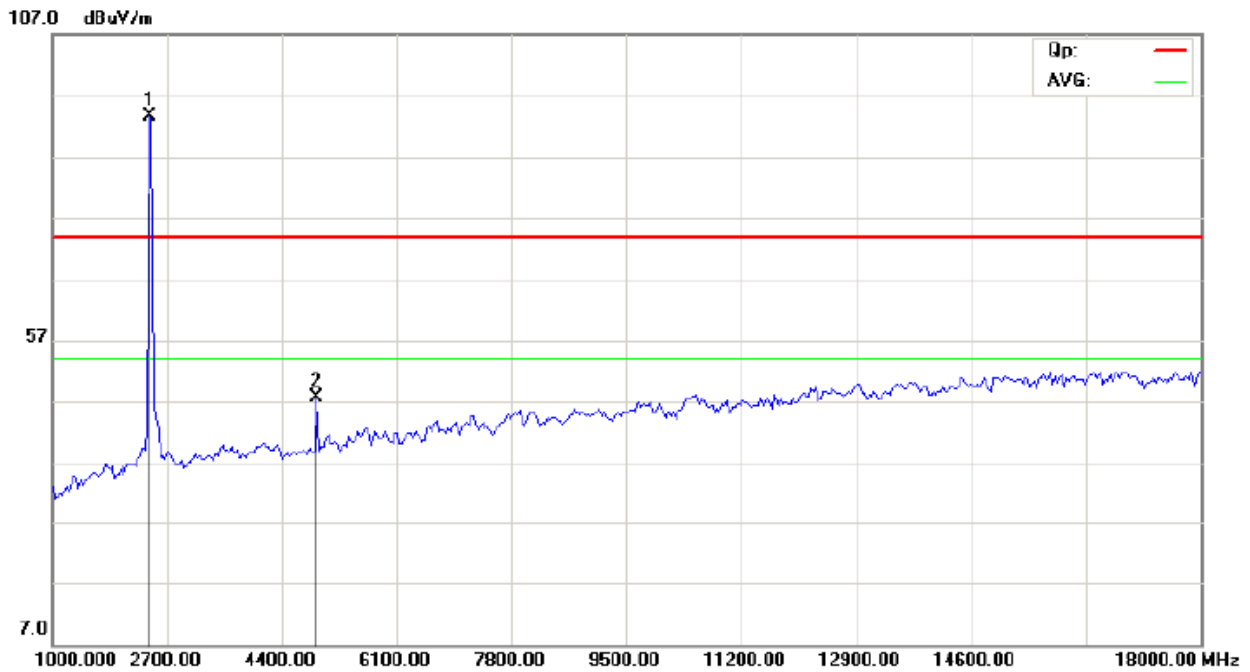


### CH06 at 54Mbps: Horizontal

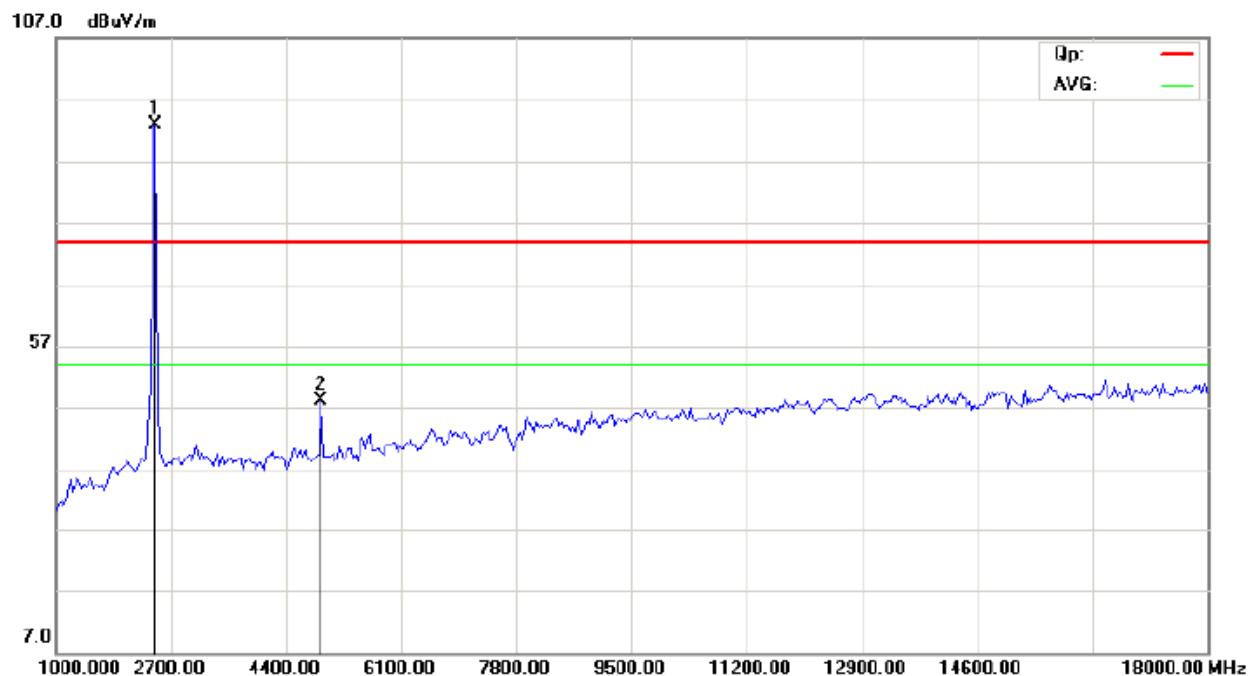




### CH11 at 54Mbps: Vertical



### CH11 at 54 Mbps: Horizontal



Note: For radiated Emissions from 18-25GHz, it is only the floor noise.

**Operation Mode: Transmitting under CH01 for 11n HT20 at 65Mbps**

Frequency (MHz)	Level@3m (dBμV/m)	Antenna Polarity	Limit@3m (dBμV/m)
2412.00	93.12 ( PK )	H	Fundamental Frequency
2412.00	93.42 ( PK )	V	
4824.00	48.35 ( PK )	H	74(Peak)/ 54(AV)
4824.00	49.09 ( PK )	V	74(Peak)/ 54(AV)
7236.00	--	H/V	74(Peak)/ 54(AV)
9648.00	--	H/V	74(Peak)/ 54(AV)
12060	--	H/V	74(Peak)/ 54(AV)
14472	--	H/V	74(Peak)/ 54(AV)
16684	--	H/V	74(Peak)/ 54(AV)
19296	--	H/V	74(Peak)/ 54(AV)
21708	--	H/V	74(Peak)/ 54(AV)
24120	--	H/V	74(Peak)/ 54(AV)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

2. Remark "---" means that the emissions level is too low to be measured

3. For 802.11n HT20 at 65Mbps

**Operation Mode: Transmitting under CH06 for 11n HT20 at 65Mbps**

Frequency (MHz)	Level@3m (dBμV/m)	Antenna Polarity	Limit@3m (dBμV/m)
2437.00	93.05 ( PK )	H	Fundamental Frequency
2437.00	94.51 ( PK )	V	
4874.00	46.04 ( PK )	H	74(Peak)/ 54(AV)
4874.00	47.88 ( PK )	V	74(Peak)/ 54(AV)
7311.00	--	H/V	74(Peak)/ 54(AV)
9748.00	--	H/V	74(Peak)/ 54(AV)
12185	--	H/V	74(Peak)/ 54(AV)
14622	--	H/V	74(Peak)/ 54(AV)
17059	--	H/V	74(Peak)/ 54(AV)
19496	--	H/V	74(Peak)/ 54(AV)
21933	--	H/V	74(Peak)/ 54(AV)
24370	--	H/V	74(Peak)/ 54(AV)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

2. Remark "---" means that the emissions level is too low to be measured

3. For 802. 11n HT20 at 65bps

**Operation Mode: Transmitting under CH11 for 11n HT20 at 65Mbps**

Frequency (MHz)	Level@3m (dBμV/m)	Antenna Polarity	Limit@3m (dBμV/m)
2462.00	93.12 ( PK )	H	Fundamental Frequency
2462.00	94.31 ( PK )	V	
4924	48.19 ( PK )	H	74(Peak)/ 54(AV)
4924	48.14 ( PK )	V	74(Peak)/ 54(AV)
7386	--	H/V	74(Peak)/ 54(AV)
9848	--	H/V	74(Peak)/ 54(AV)
12310	--	H/V	74(Peak)/ 54(AV)
14772	--	H/V	74(Peak)/ 54(AV)
17234	--	H/V	74(Peak)/ 54(AV)
19696	--	H/V	74(Peak)/ 54(AV)
22158	--	H/V	74(Peak)/ 54(AV)
24650	--	H/V	74(Peak)/ 54(AV)

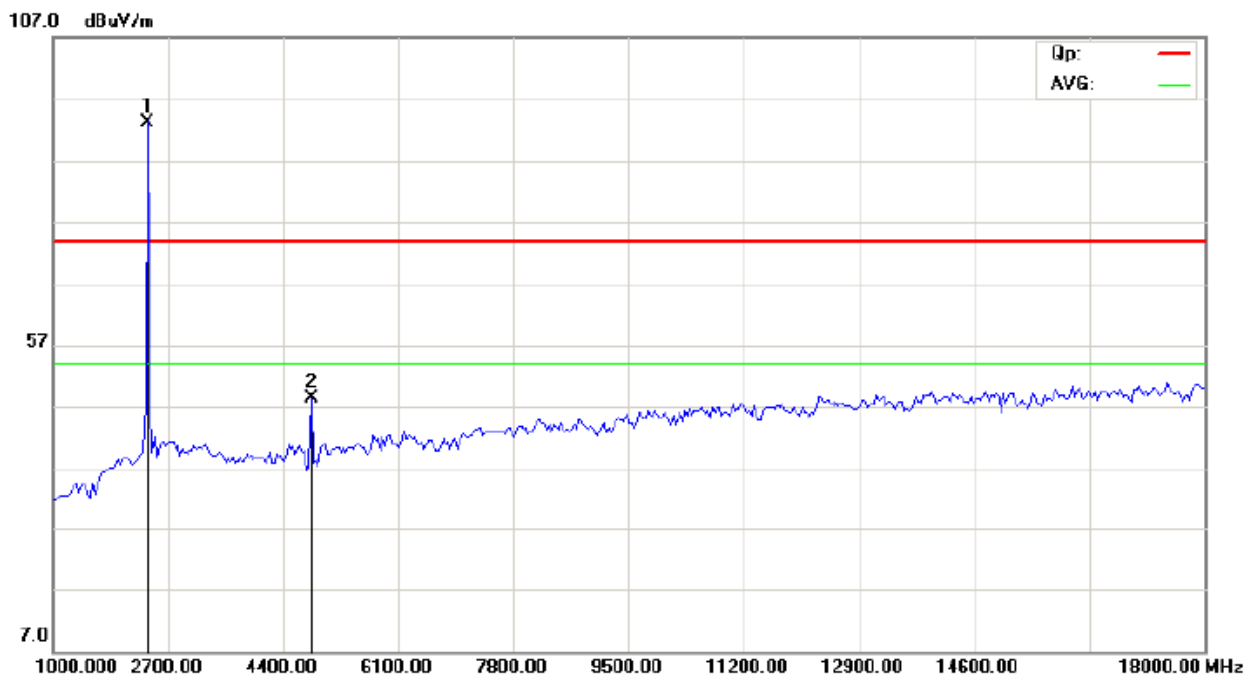
Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

2. Remark "---" means that the emissions level is too low to be measured

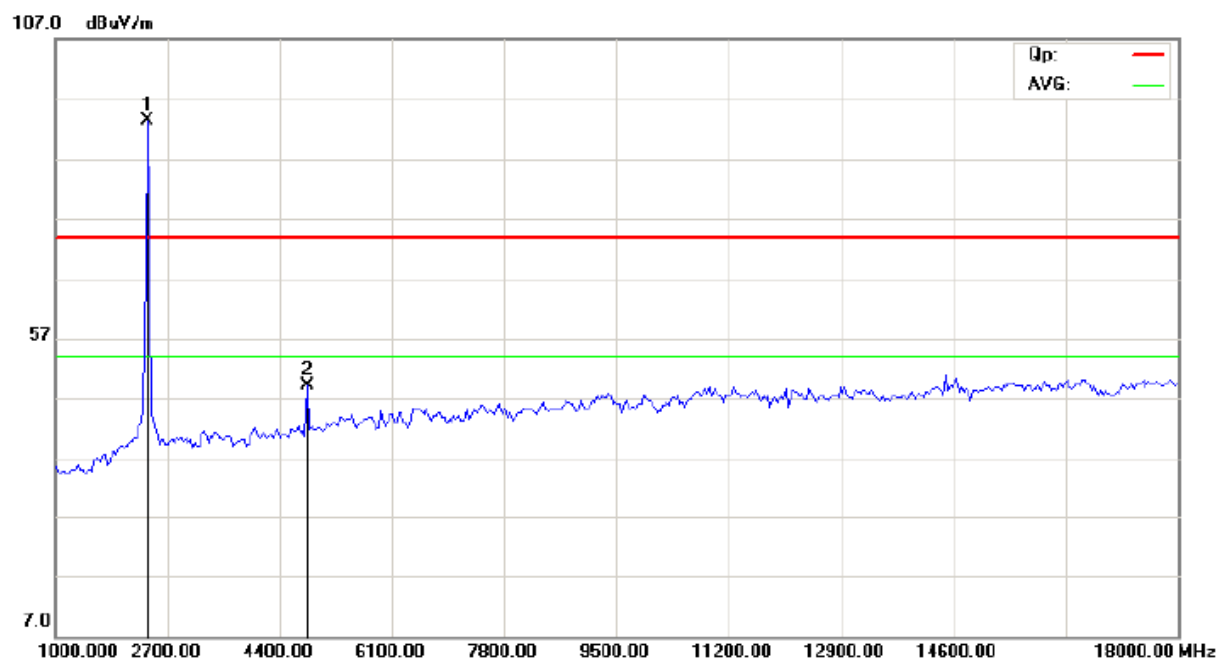
3. For 802. 11n HT20 at 65bps

Please refer to the following test plots for details:

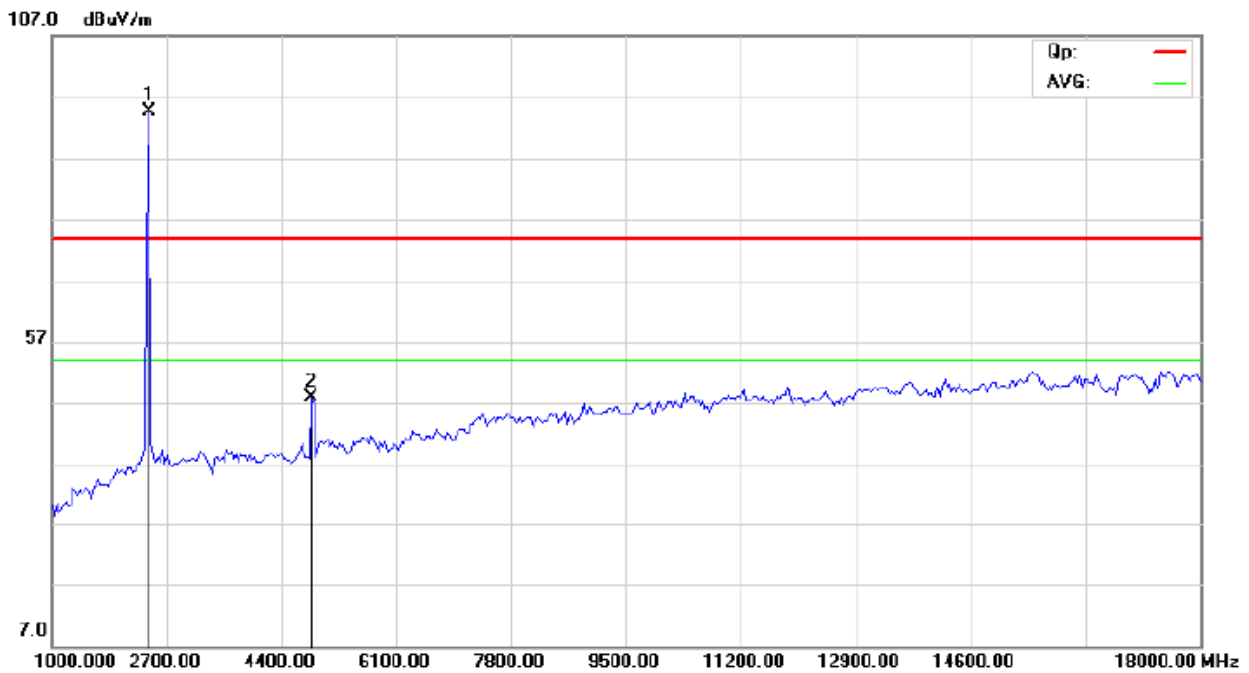
**CH01 at 11n HT20: Horizontal**



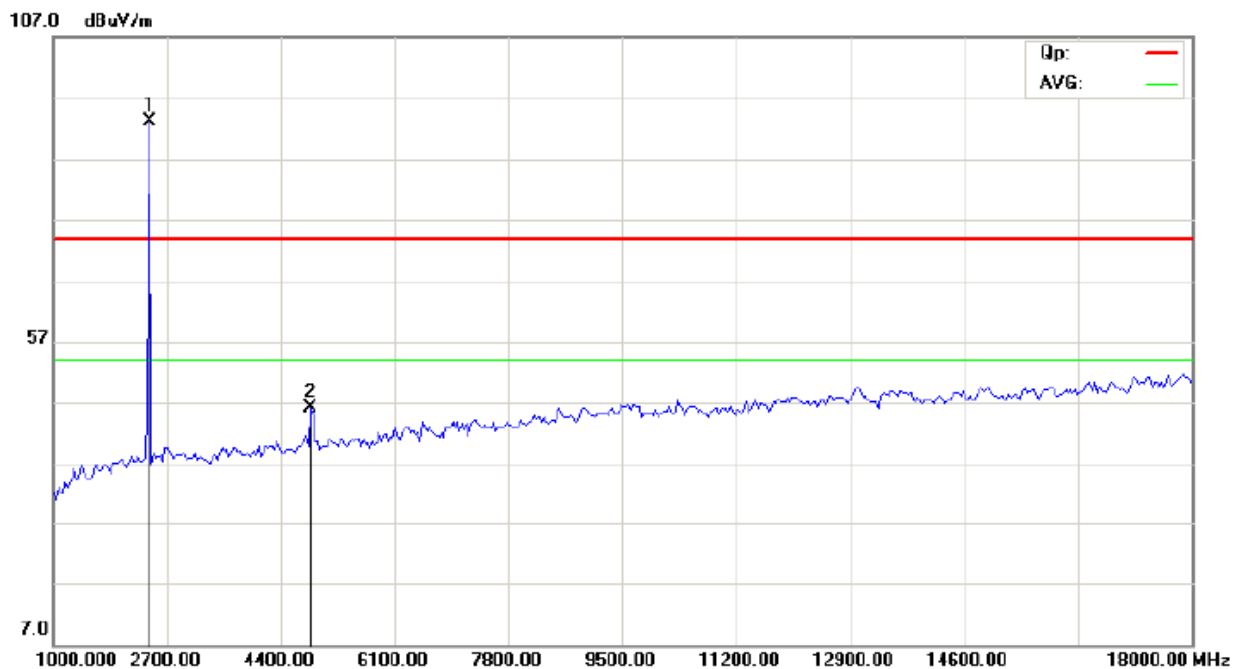
**CH01 at 11n HT20: Vertical**



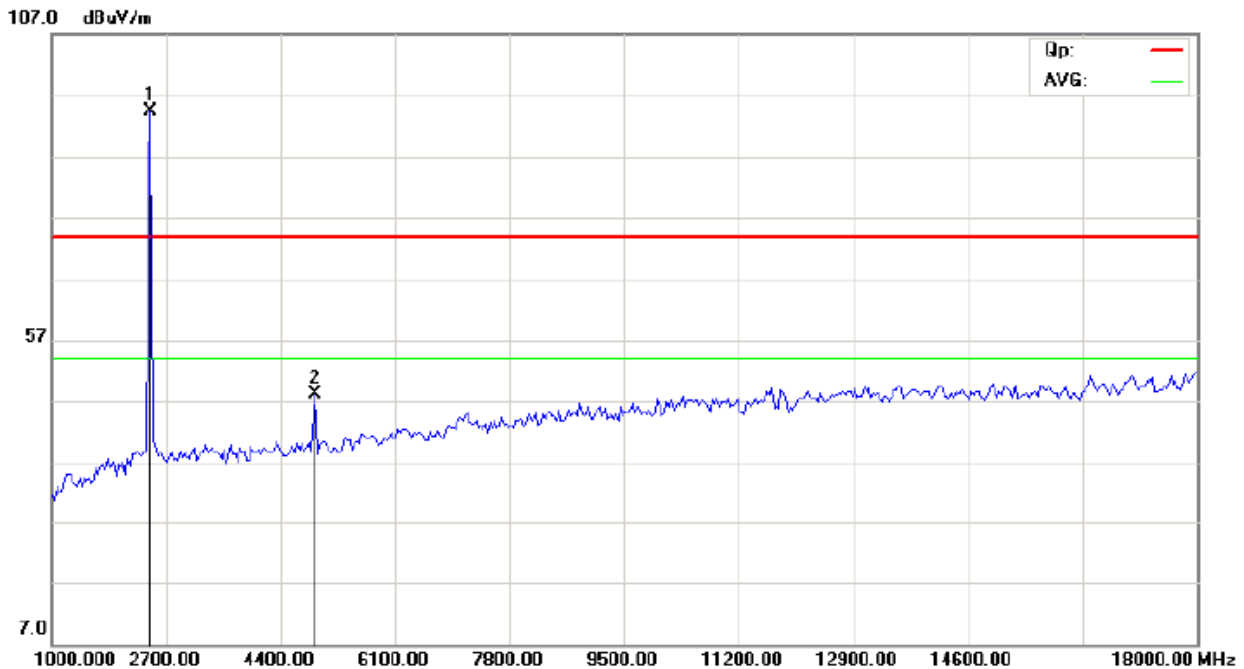
### CH06 at 11n HT20: Vertical



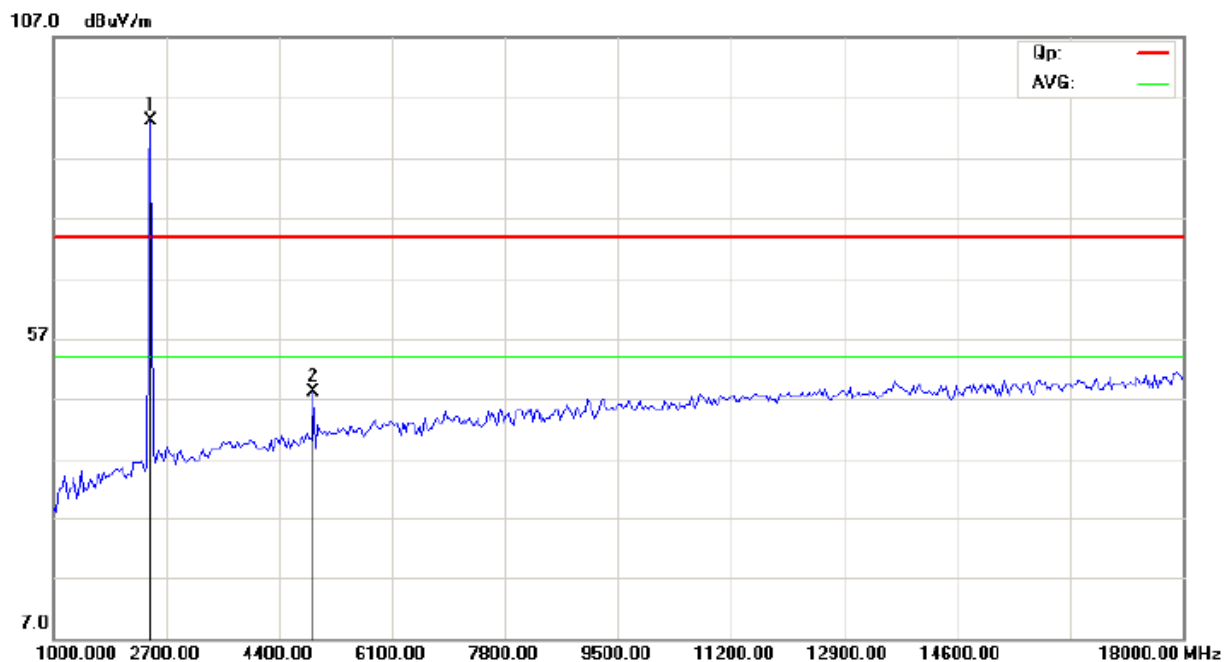
### CH06 at 11n HT20: Horizontal



### CH11 at 11n HT20: Vertical



### CH11 at 11n HT20: Horizontal



Note: For radiated Emissions from 18-25GHz, it is only the floor noise.

**Operation Mode: Transmitting under CH01 for 11n HT40 at 65Mbps**

Frequency (MHz)	Level@3m (dBμV/m)	Antenna Polarity	Limit@3m (dBμV/m)
2422.00	89.01 ( PK )	H	Fundamental Frequency
2422.00	91.46 ( PK )	V	
4844.00	45.51 ( PK )	H	--
4844.00	47.27 ( PK )	V	
7266.00	--	H/V	74(Peak)/ 54(AV)
9688.00	--	H/V	74(Peak)/ 54(AV)
12110	--	H/V	74(Peak)/ 54(AV)
14532	--	H/V	74(Peak)/ 54(AV)
16954	--	H/V	74(Peak)/ 54(AV)
19376	--	H/V	74(Peak)/ 54(AV)
21798	--	H/V	74(Peak)/ 54(AV)
24220	--	H/V	74(Peak)/ 54(AV)

- Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit  
2. Remark "---" means that the emissions level is too low to be measured  
3. For 802.11n HT40 at 65bps

**Operation Mode: Transmitting under CH04 for 11n HT40 at 65Mbps**

Frequency (MHz)	Level@3m (dBμV/m)	Antenna Polarity	Limit@3m (dBμV/m)
2437.00	90.72 ( PK )	H	Fundamental Frequency
2437.00	91.65 ( PK )	V	
4874.00	46.68 ( PK )	H	--
4874.00	47.53 ( PK )	V	
7311.00	--	H/V	74(Peak)/ 54(AV)
9748.00	--	H/V	74(Peak)/ 54(AV)
12185	--	H/V	74(Peak)/ 54(AV)
14622	--	H/V	74(Peak)/ 54(AV)
17059	--	H/V	74(Peak)/ 54(AV)
19496	--	H/V	74(Peak)/ 54(AV)
21933	--	H/V	74(Peak)/ 54(AV)
24370	--	H/V	74(Peak)/ 54(AV)

- Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit  
 2. Remark "---" means that the emissions level is too low to be measured  
 3. For 802. 11n HT40 at 65bps

**Operation Mode: Transmitting under CH7 for 11n HT40 at 65Mbps**

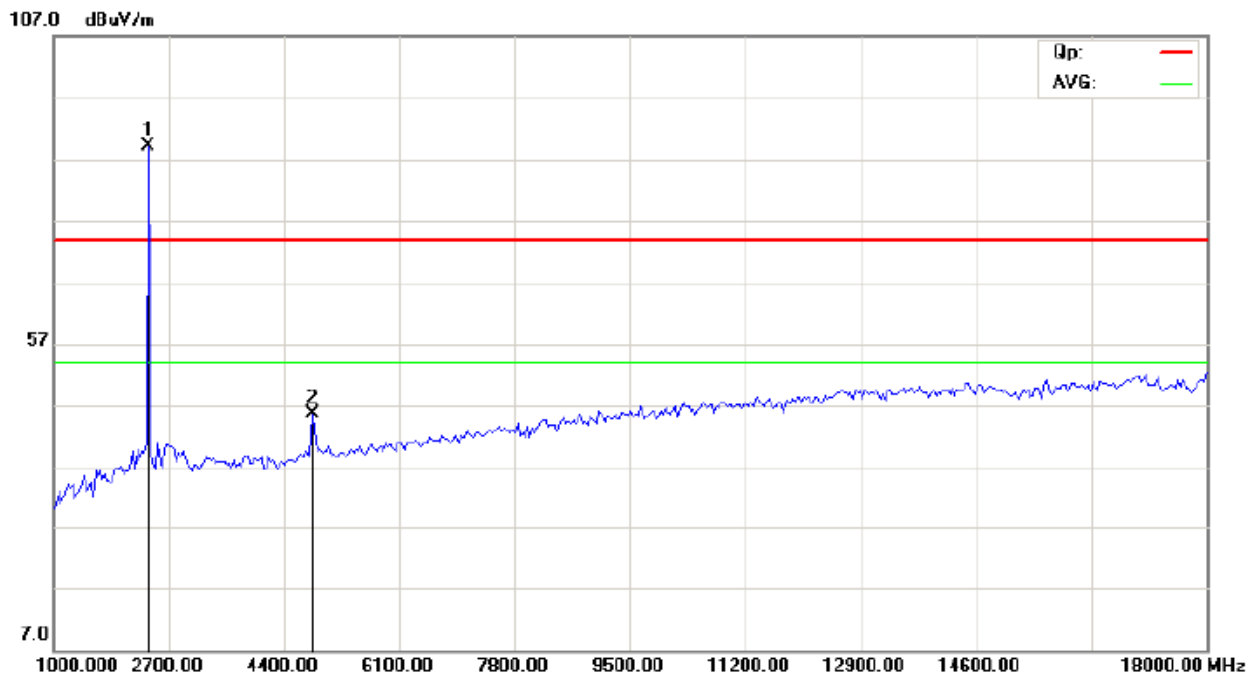
Frequency (MHz)	Level@3m (dBμV/m)	Antenna Polarity	Limit@3m (dBμV/m)
2452.00	89.85 ( PK )	H	Fundamental Frequency
2452.00	91.00 ( PK )	V	
4904	46.82 ( PK )	H	--
4904	47.08 ( PK )	V	
7356	--	H/V	74(Peak)/ 54(AV)
9808	--	H/V	74(Peak)/ 54(AV)
12260	--	H/V	74(Peak)/ 54(AV)
14712	--	H/V	74(Peak)/ 54(AV)
17164	--	H/V	74(Peak)/ 54(AV)
19616	--	H/V	74(Peak)/ 54(AV)
22068	--	H/V	74(Peak)/ 54(AV)
24520	--	H/V	74(Peak)/ 54(AV)

- Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit  
 2. Remark "---" means that the emissions level is too low to be measured  
 3. For 802. 11n HT40 at 65bps

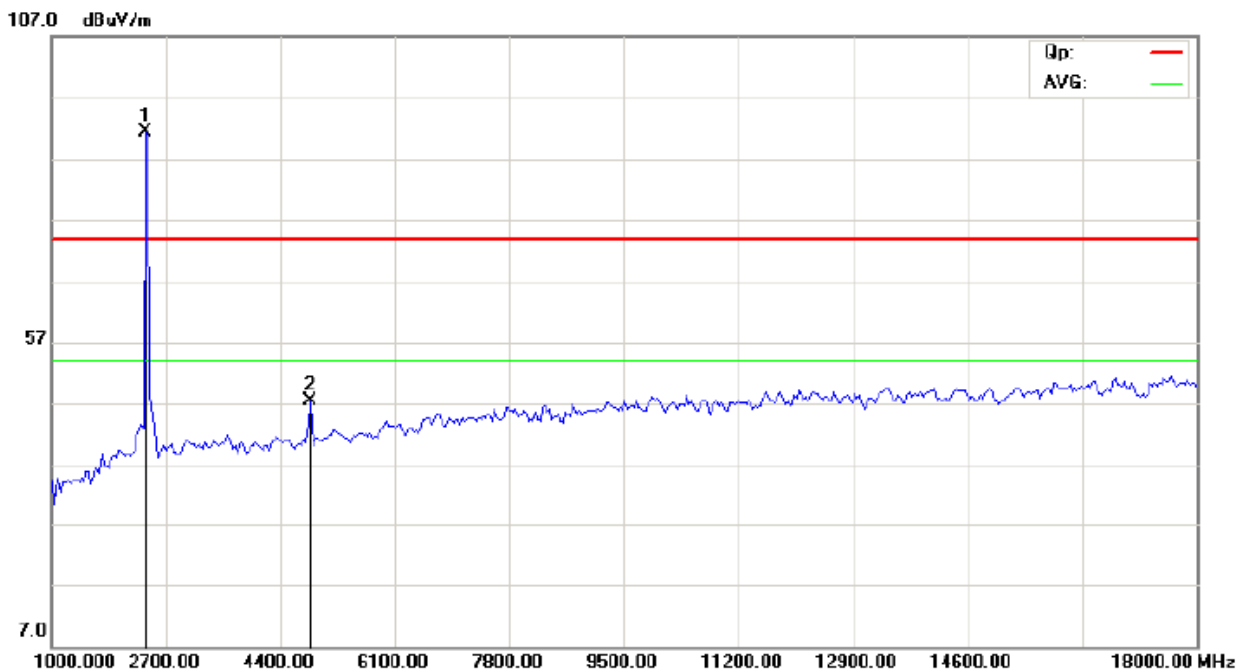


Please refer to the following test plots for details:

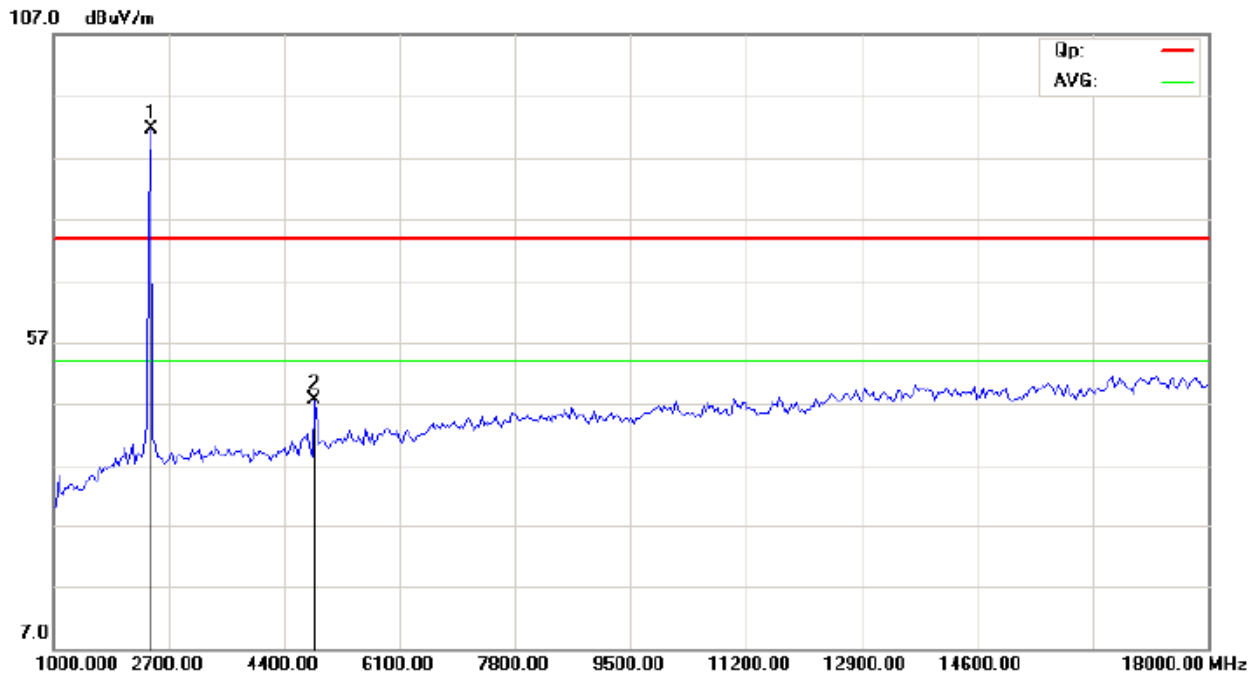
**CH01 at 11n HT40: Horizontal**



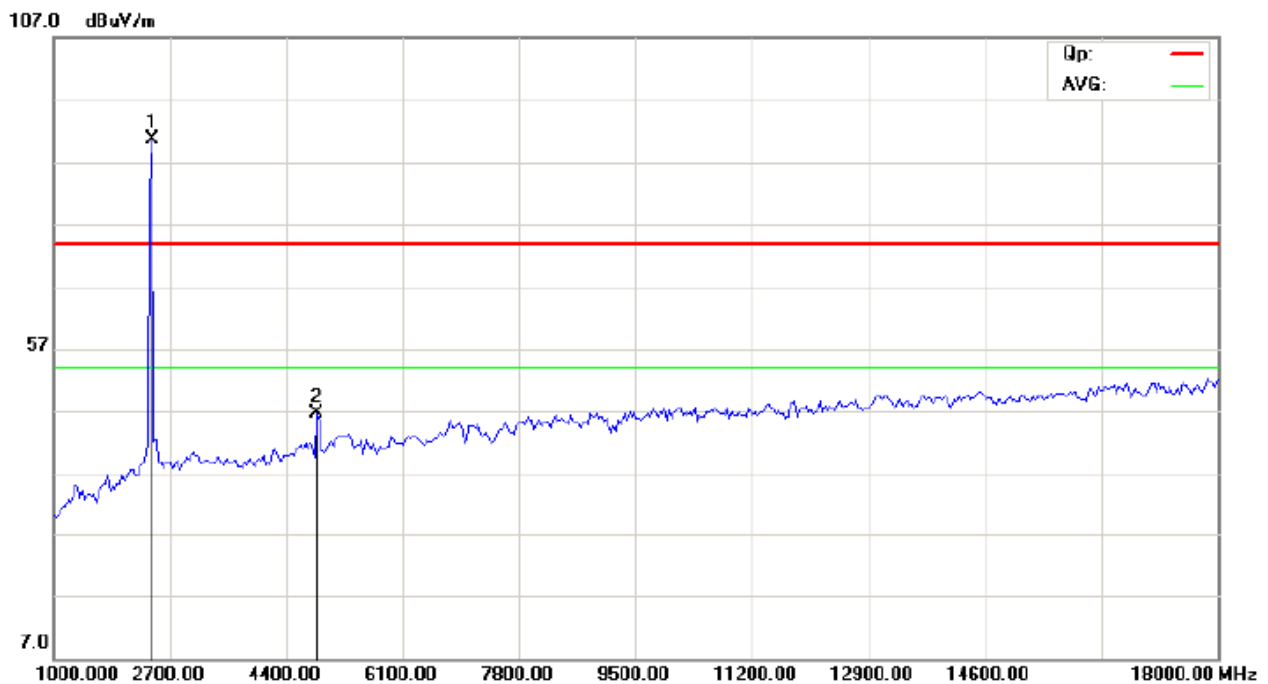
**CH01 at 11n HT40: Vertical**



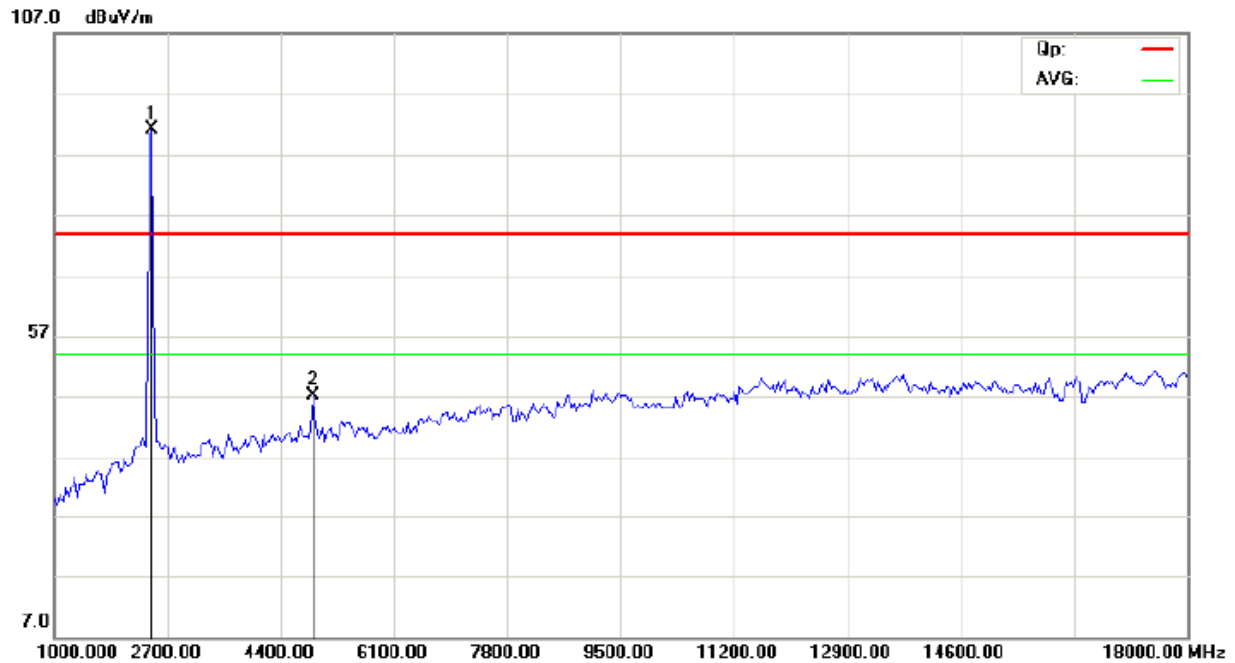
### CH04 at 11n HT40: Vertical



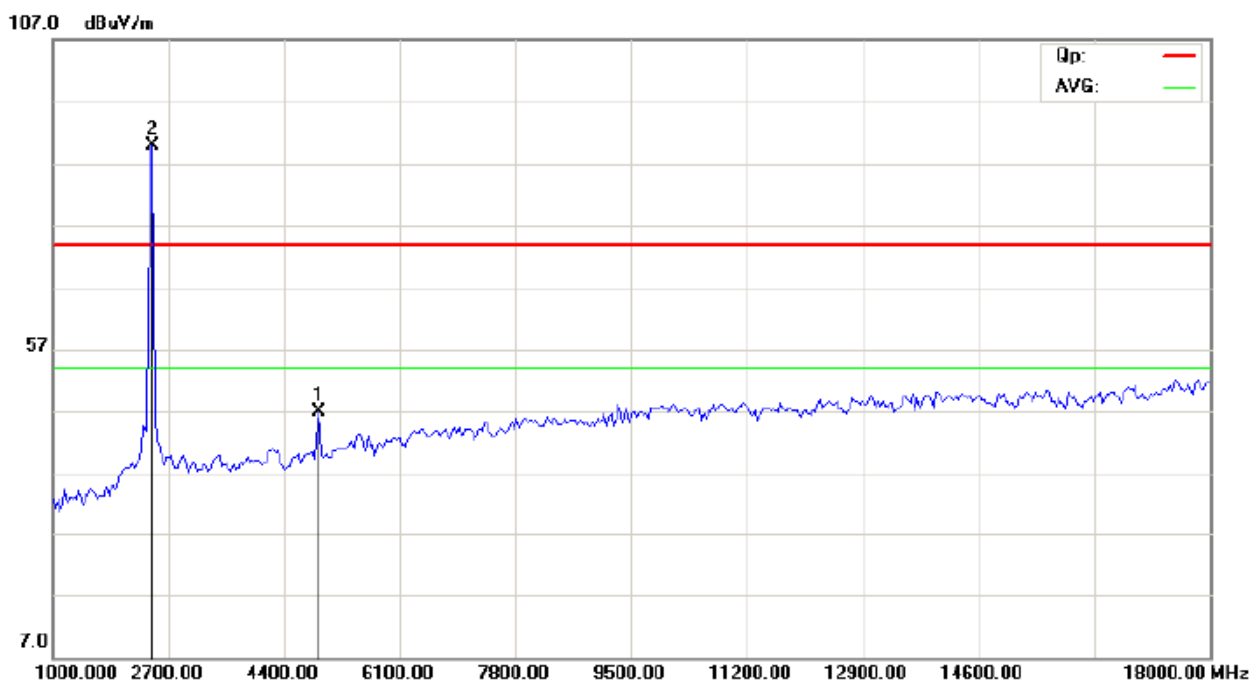
### CH04 at 11n HT40: Horizontal



### CH7 at 11n HT40: Vertical



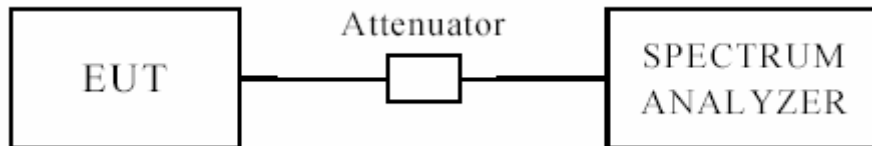
### CH7 at 11n HT40: Horizontal



Note: For radiated Emissions from 18-25GHz, it is only the floor noise.

## 7.0 6dB Bandwidth Measurement

### 7.1 Test Setup



### 7.2 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is >500kHz

### 7.3 Test Procedure

1. Set resolution bandwidth (RBW) = 100 kHz
2. Set the video bandwidth (VBW)  $\geq 3 \times$  RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

### 7.4 Test Result



EUT	MID		Model	MID727A-RK326	
Mode	802.11b		Input Voltage	120V~	
Temperature	24 deg. C,		Humidity	56% RH	
Channel	Channel Frequency (MHz)	Data Transfer Rate (Mbps)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass/ Fail
1	2412	1	10.08	0.5	Pass
6	2437	1	10.08	0.5	Pass
11	2462	1	10.08	0.5	Pass
1	2412	11	9.48	0.5	Pass
6	2437	11	9.48	0.5	Pass
11	2462	11	9.48	0.5	Pass

EUT	MID		Model	MID727A-RK326	
Mode	802.11g		Input Voltage	120V~	
Temperature	24 deg. C,		Humidity	56% RH	
Channel	Channel Frequency (MHz)	Data Transfer Rate (Mbps)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass/ Fail
1	2412	54	16.56	0.5	Pass
6	2437	54	16.56	0.5	Pass
11	2462	54	16.56	0.5	Pass



Shenzhen BATT Testing Technology Co., Ltd.

Report No.: BATT201404099FCC

EUT	MID		Model	MID727A-RK326	
Mode	802.11n		Input Voltage	120V~	
Temperature	24 deg. C,		Humidity	56% RH	
Channel	Channel Frequency (MHz)	Data Transfer Rate (Mbps)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass/ Fail
HT20					
1	2412	65	17.76	0.5	Pass
6	2437	65	17.76	0.5	Pass
11	2462	65	17.76	0.5	Pass
HT40					
1	2422	65	36.40	0.5	Pass
4	2437	65	36.40	0.5	Pass
7	2452	65	36.50	0.5	Pass

## 1. 802.11b at 1Mbps of CH01



DELTA MARKER 2

10.08 MHz

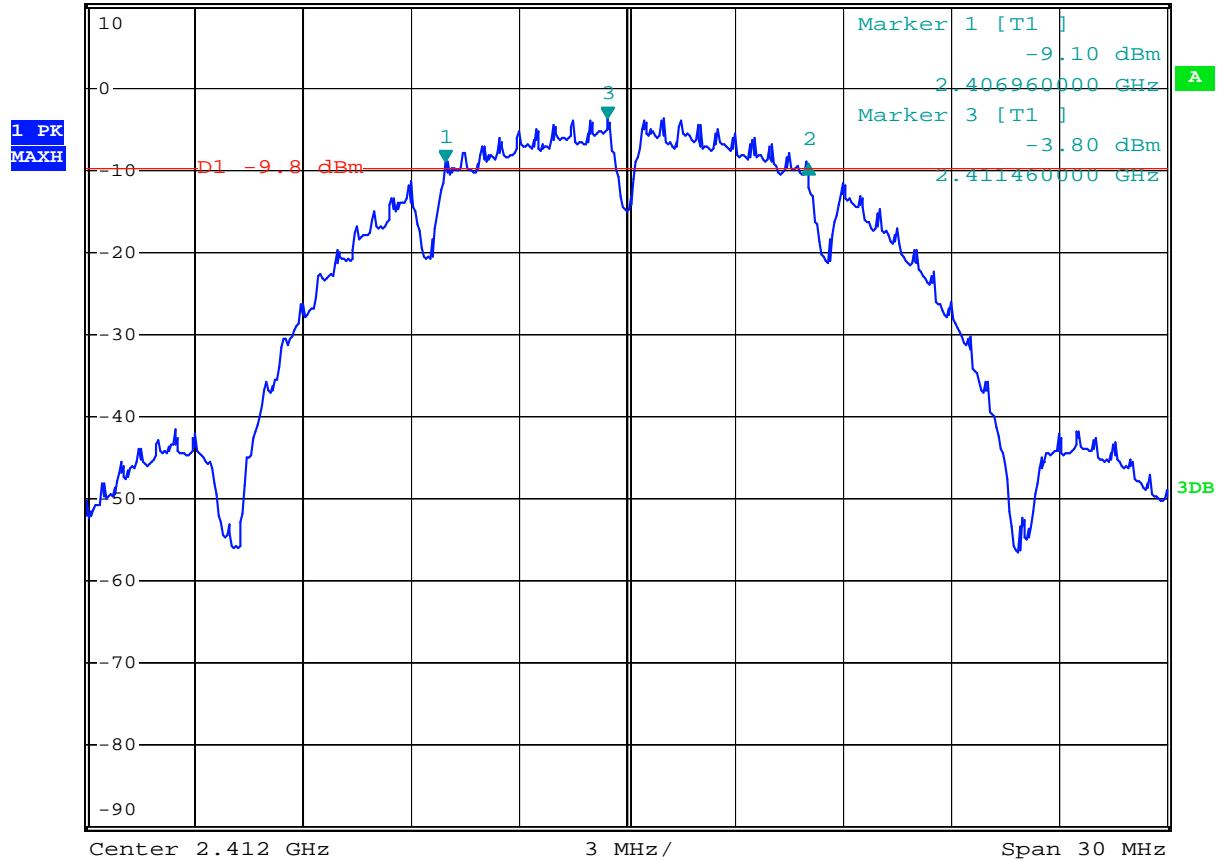
Ref 10 dBm

\* Att 20 dB

\* RBW 100 kHz Delta 2 [T1 ]

\* VBW 300 kHz -0.17 dB

\* SWT 5 ms 10.08000000 MHz



Date: 24.APR.2014 15:03:52

## 2. 802.11b at 1Mbps of CH06



DELTA MARKER 2

10.08 MHz

Ref 10 dBm

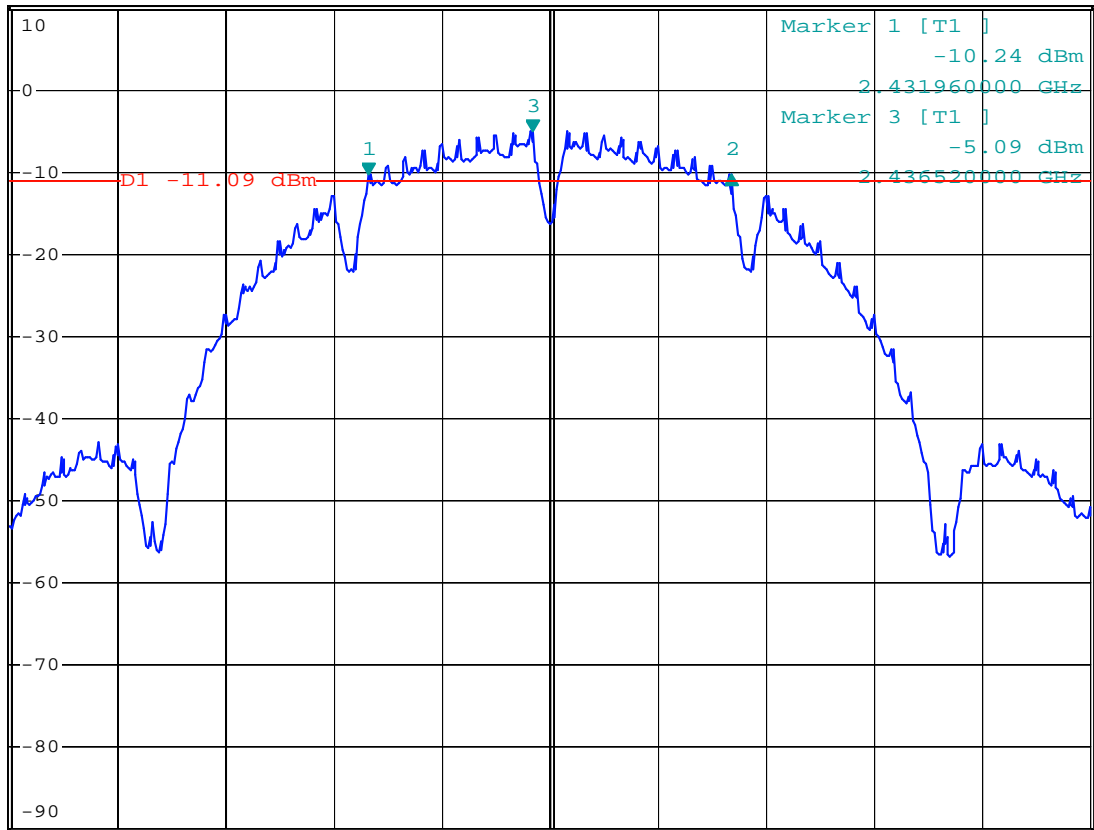
\* Att 20 dB

\* RBW 100 kHz Delta 2 [T1 ]

\* VBW 300 kHz -0.16 dB

\* SWT 5 ms 10.08000000 MHz

1 PK  
MAXH



Center 2.437 GHz

3 MHz /

Span 30 MHz

Date: 24.APR.2014 15:15:28



### 3. 802.11b at 1Mbps of CH11



DELTA MARKER 2

10.08 MHz

Ref 10 dBm

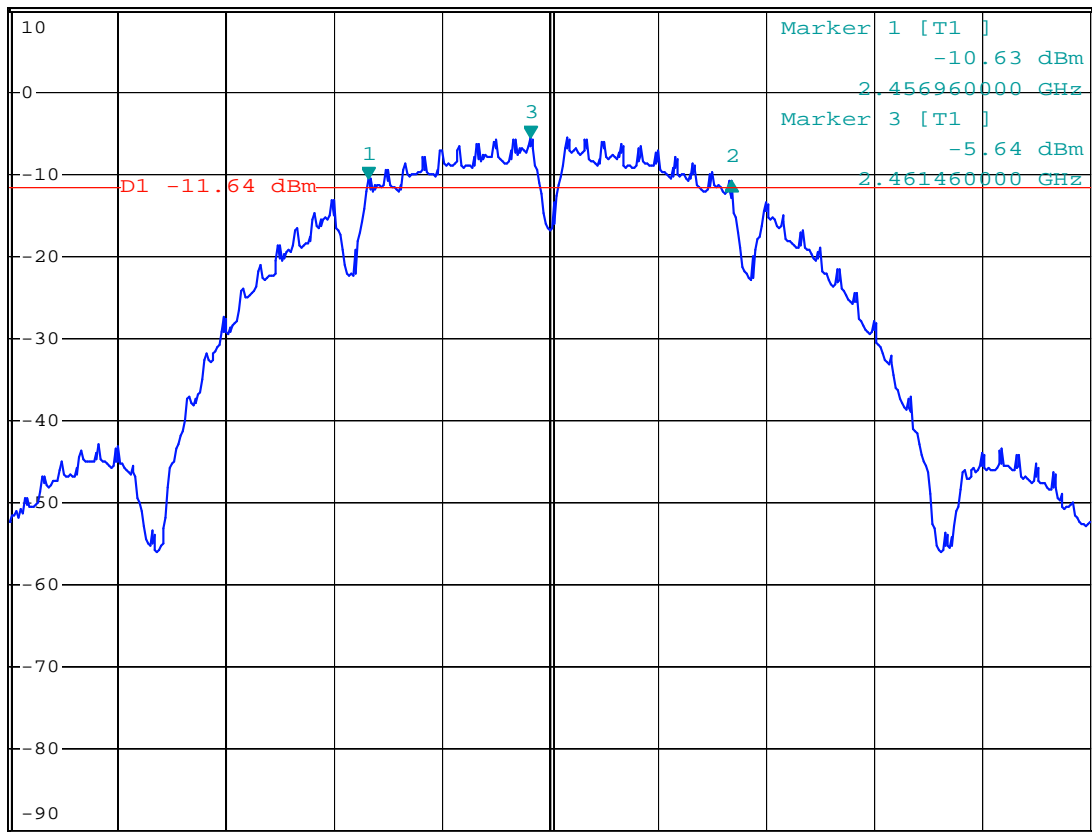
\* Att 20 dB

\* RBW 100 kHz Delta 2 [T1 ]

\* VBW 300 kHz -0.21 dB

\* SWT 5 ms 10.08000000 MHz

1 PK  
MAXH



Center 2.462 GHz

3 MHz /

Span 30 MHz

Date: 24.APR.2014 15:18:00

#### 4. 802.11b at 11Mbps of CH01



DELTA MARKER 2

9.48 MHz

Ref 10 dBm

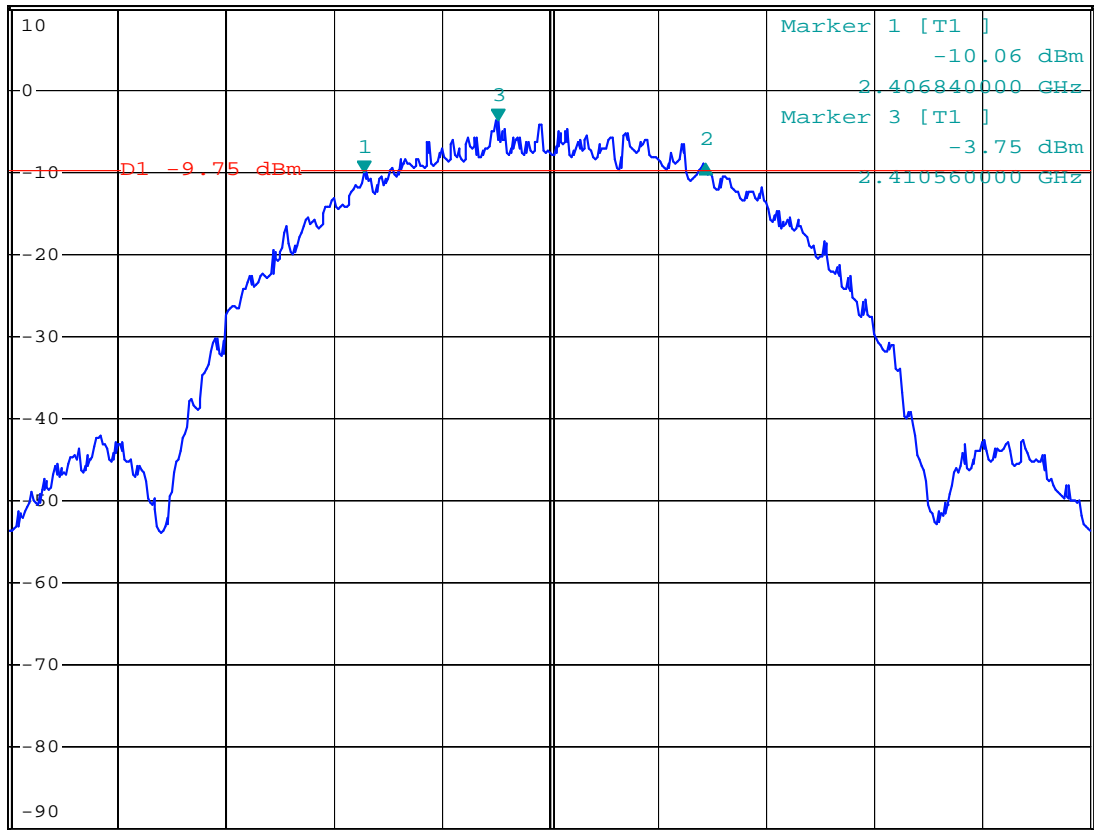
\* Att 20 dB

\* RBW 100 kHz Delta 2 [T1 ]

\* VBW 300 kHz 1.10 dB

\* SWT 5 ms 9.48000000 MHz

1 PK  
MAXH



Center 2.412 GHz

3 MHz /

Span 30 MHz

Date: 24.APR.2014 15:07:43

## 5. 802.11b at 11Mbps of CH06



DELTA MARKER 2

9.48 MHz

Ref 10 dBm

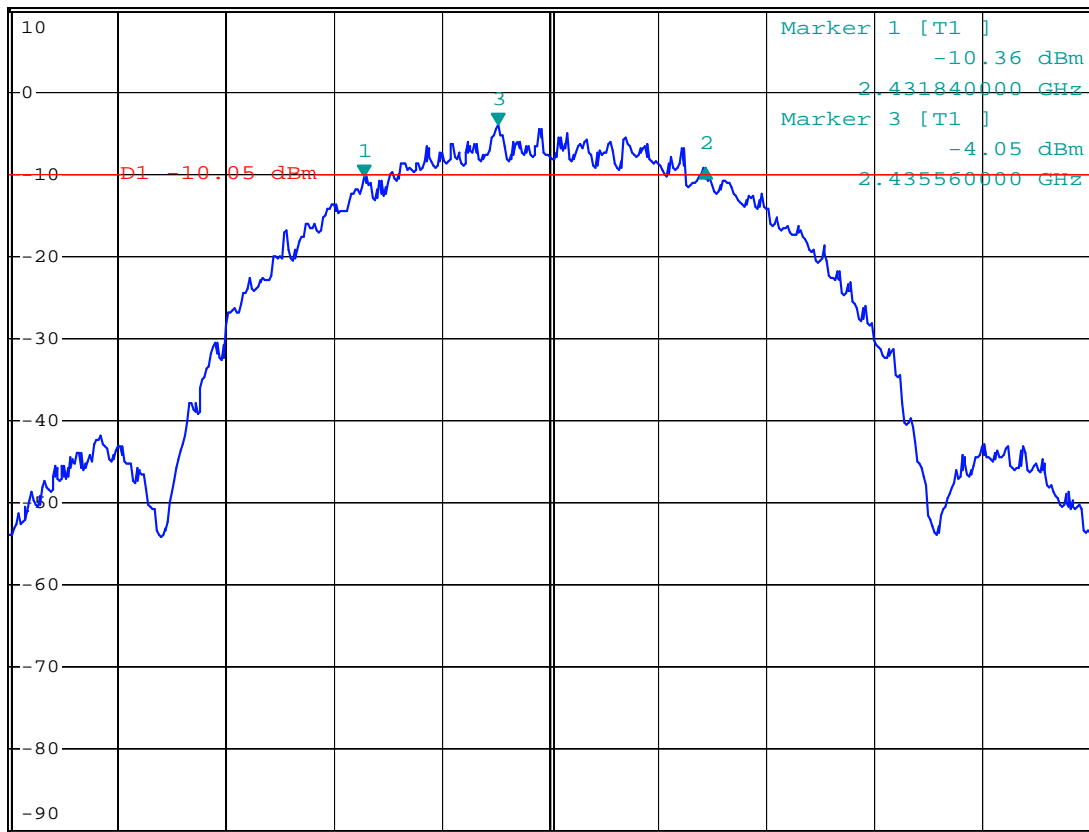
\* Att 20 dB

\* RBW 100 kHz Delta 2 [T1 ]

\* VBW 300 kHz 0.95 dB

\* SWT 5 ms 9.480000000 MHz

1 PK  
MAXH



Center 2.437 GHz

3 MHz /

Span 30 MHz

Date: 24.APR.2014 15:12:22

## 6. 802.11b at 11Mbps of CH11



DELTA MARKER 2

9.48 MHz

Ref 10 dBm

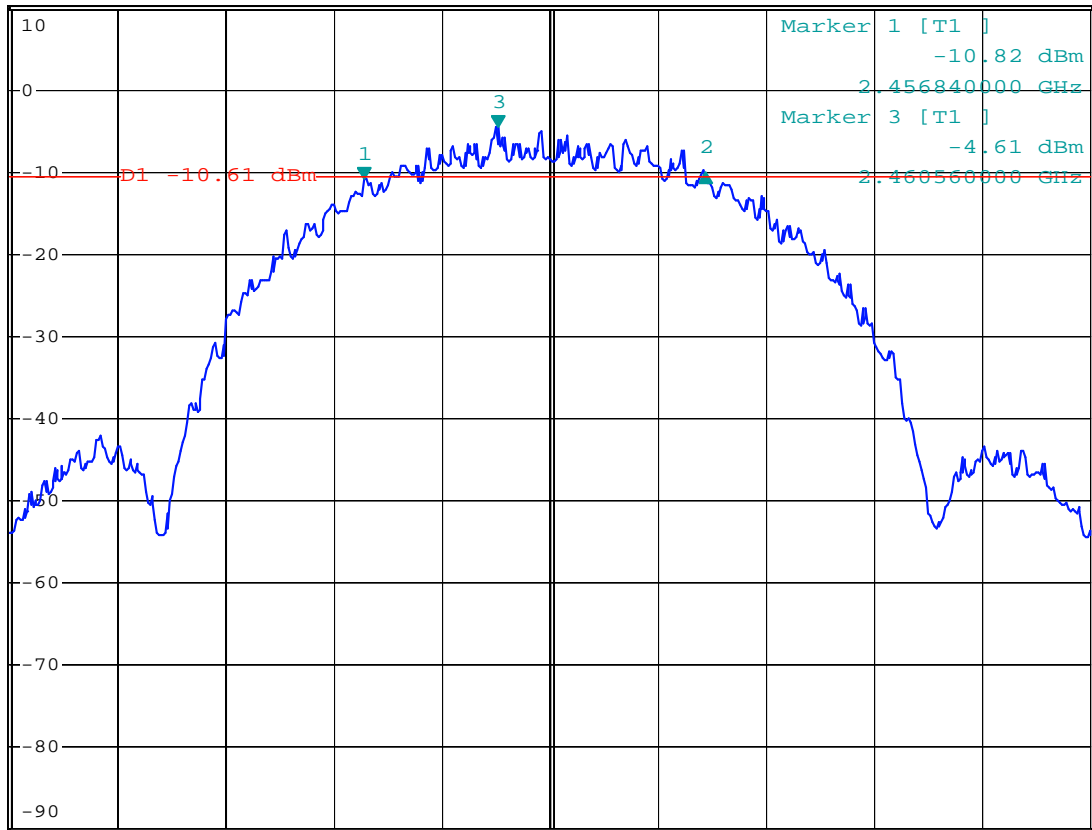
\* Att 20 dB

\* RBW 100 kHz Delta 2 [T1 ]

\* VBW 300 kHz 0.82 dB

\* SWT 5 ms 9.480000000 MHz

1 PK  
MAXH



Center 2.462 GHz

3 MHz /

Span 30 MHz

Date: 24.APR.2014 15:21:04

## 7. 802.11g at 54 Mbps of CH01



DELTA MARKER 2

16.56 MHz

Ref 10 dBm

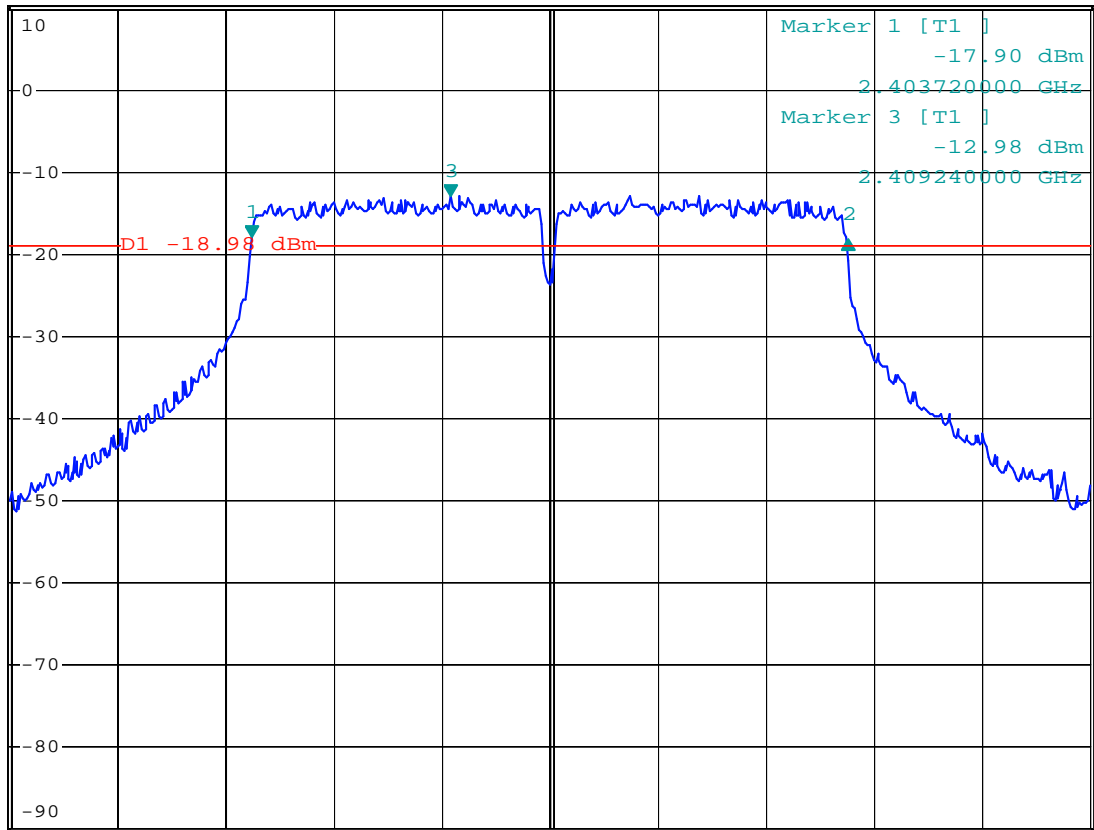
\* Att 20 dB

\* RBW 100 kHz Delta 2 [T1 ]

\* VBW 300 kHz -0.36 dB

\* SWT 5 ms 16.56000000 MHz

1 PK  
MAXH



Center 2.412 GHz

3 MHz /

Span 30 MHz

Date: 24.APR.2014 15:06:14

## 8. 802.11g at 54 Mbps of CH06



DELTA MARKER 2

16.56 MHz

Ref 10 dBm

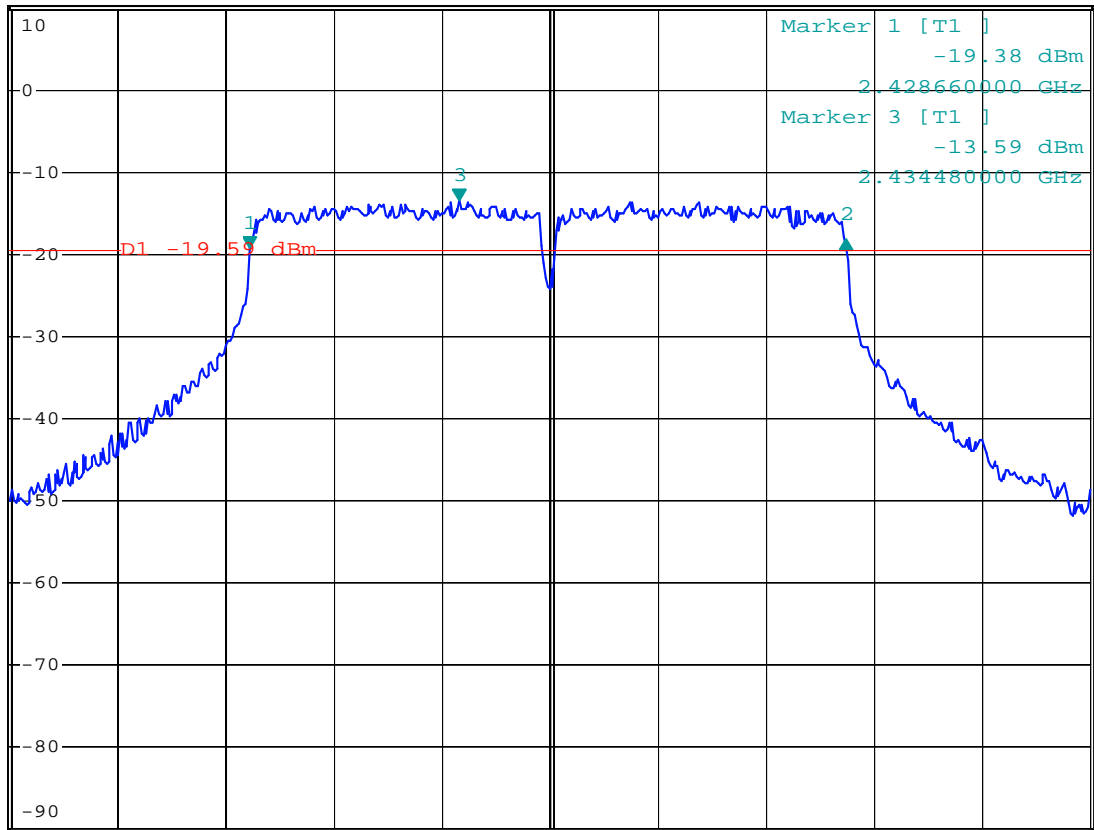
\* Att 20 dB

\* RBW 100 kHz Delta 2 [T1 ]

\* VBW 300 kHz 1.13 dB

\* SWT 5 ms 16.56000000 MHz

1 PK  
MAXH



Center 2.437 GHz

3 MHz /

Span 30 MHz

Date: 24.APR.2014 15:13:47

## 9. 802.11g at 54 Mbps of CH11



DELTA MARKER 2

16.56 MHz

Ref 10 dBm

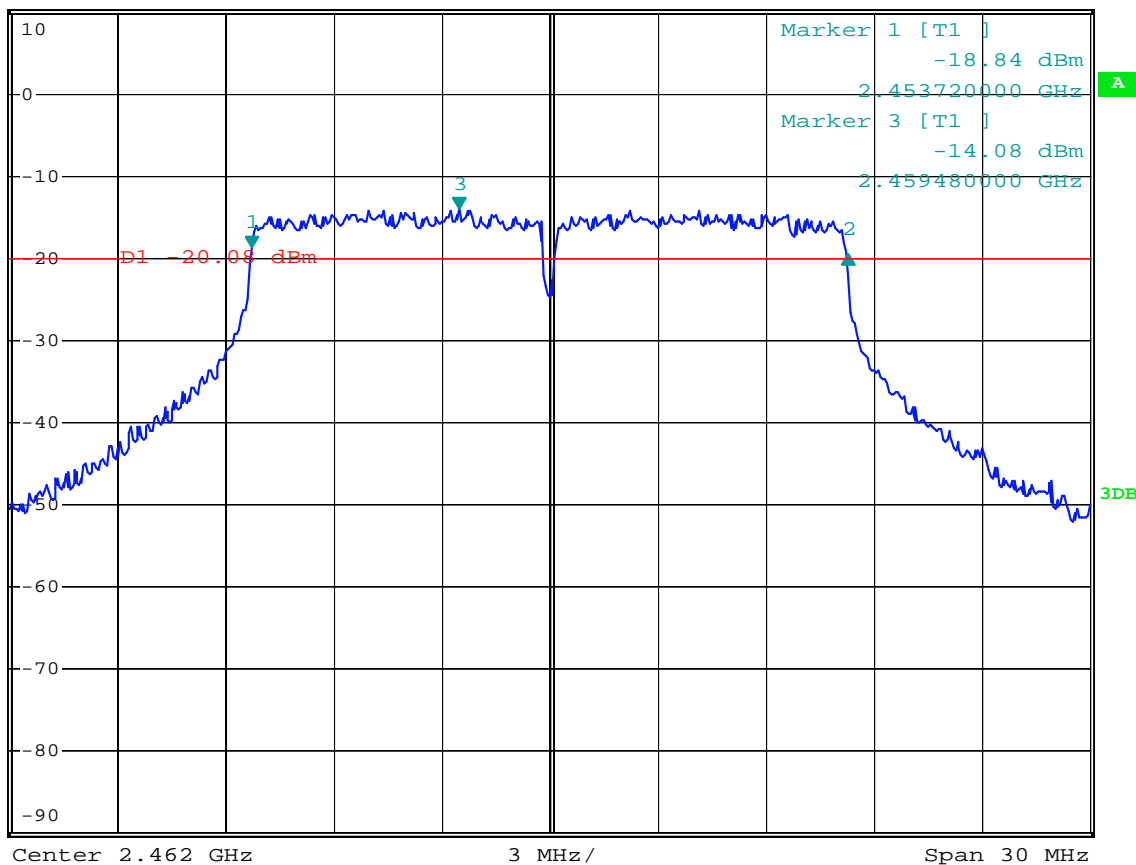
\* Att 20 dB

\* RBW 100 kHz Delta 2 [T1 ]

\* VBW 300 kHz -0.79 dB

\* SWT 5 ms 16.56000000 MHz

1 PK  
MAXH



Date: 24.APR.2014 15:19:19

## 10. 802.11n at HT20 of CH01



### DELTA MARKER 2

17.76 MHz

Ref 10 dBm

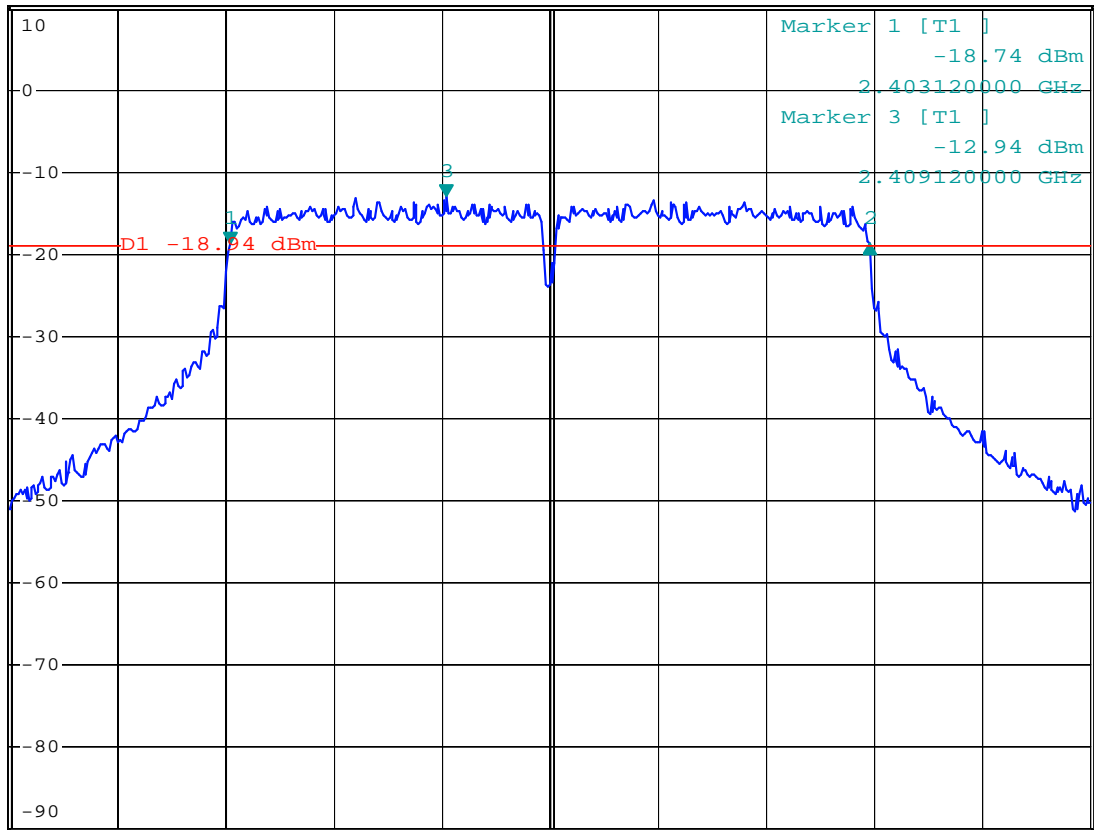
\* Att 20 dB

\* RBW 100 kHz Delta 2 [T1 ]

\* VBW 300 kHz 0.01 dB

\* SWT 5 ms 17.76000000 MHz

1 PK  
MAXH



Center 2.412 GHz

3 MHz /

Span 30 MHz

Date: 24.APR.2014 15:09:23



## 11. 802.11n at HT20 of CH06



### DELTA MARKER 2

17.76 MHz

Ref 10 dBm

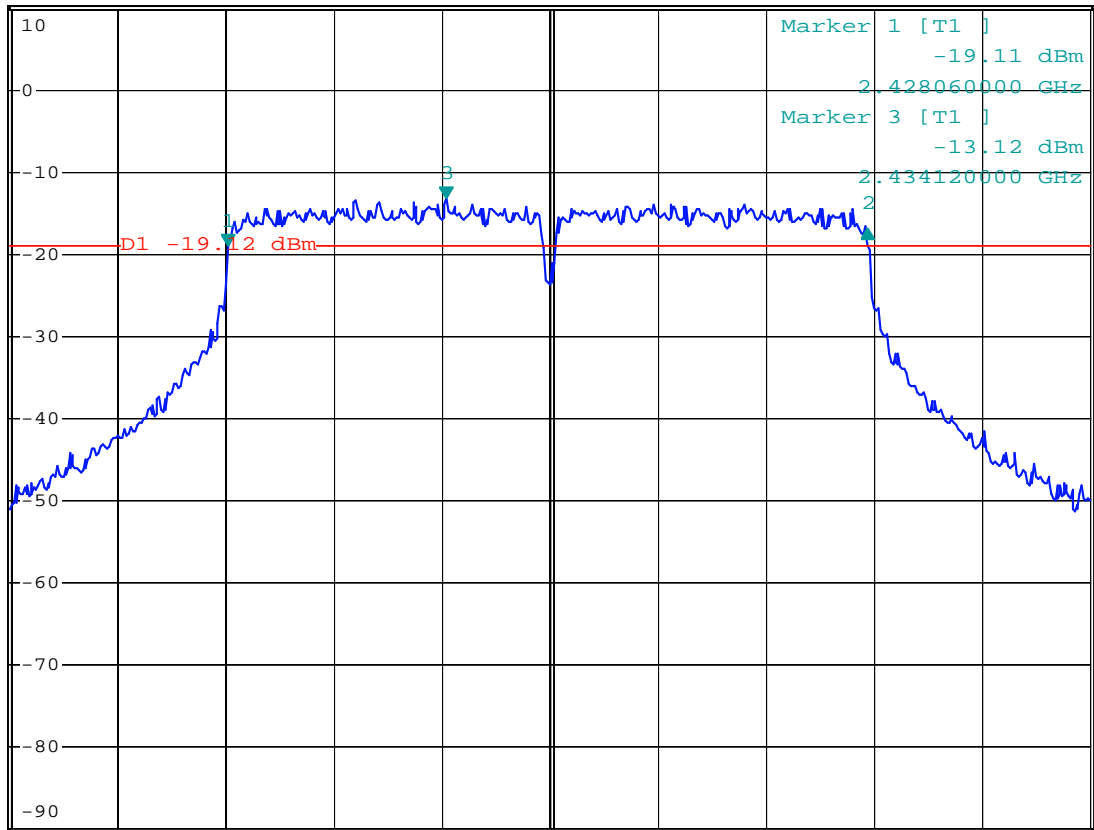
\* Att 20 dB

\* RBW 100 kHz Delta 2 [T1 ]

\* VBW 300 kHz 2.30 dB

\* SWT 5 ms 17.76000000 MHz

1 PK  
MAXH



Center 2.437 GHz

3 MHz /

Span 30 MHz

Date: 24.APR.2014 15:11:10

## 12. 802.11n at HT20 of CH11



DELTA MARKER 2

17.76 MHz

Ref 10 dBm

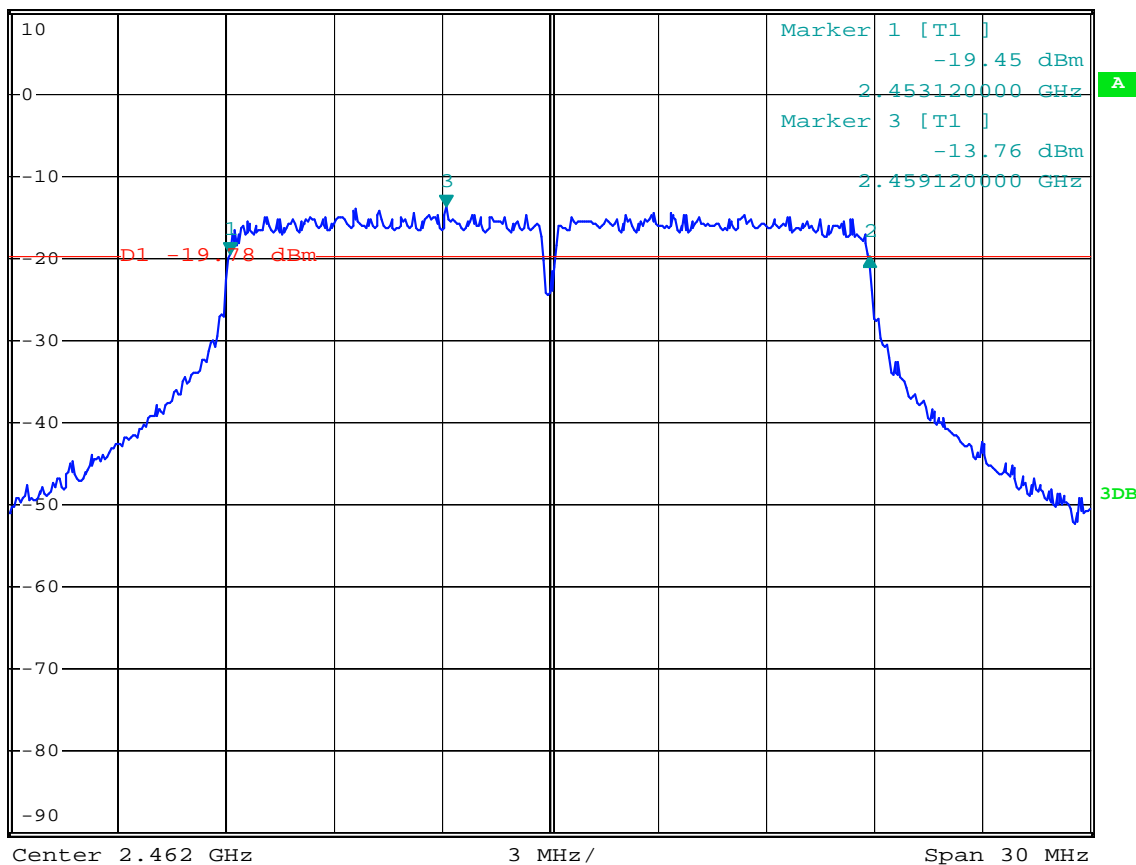
\* Att 20 dB

\* RBW 100 kHz Delta 2 [T1 ]

\* VBW 300 kHz -0.35 dB

\* SWT 5 ms 17.76000000 MHz

1 PK  
MAXH



Date: 24.APR.2014 15:22:12

### 13. 802.11n at HT40 of CH01



DELTA MARKER 2

36.4 MHz

Ref 10 dBm

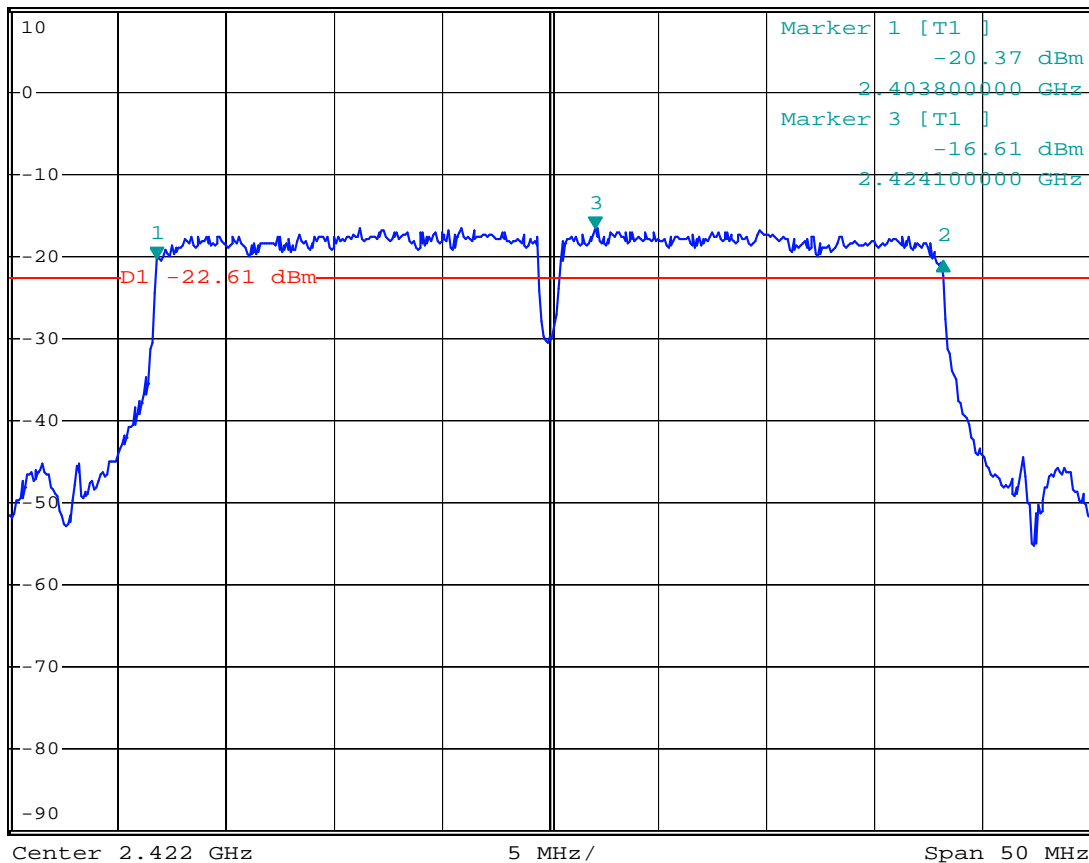
\* Att 20 dB

\* RBW 100 kHz Delta 2 [T1 ]

\* VBW 300 kHz -0.17 dB

\* SWT 5 ms 36.40000000 MHz

1 PK  
MAXH



Date: 24.APR.2014 15:23:27

#### 14. 802.11n at HT40 of CH04



DELTA MARKER 2

36.4 MHz

Ref 10 dBm

\* Att 20 dB

\* RBW 100 kHz

Delta 2 [T1 ]

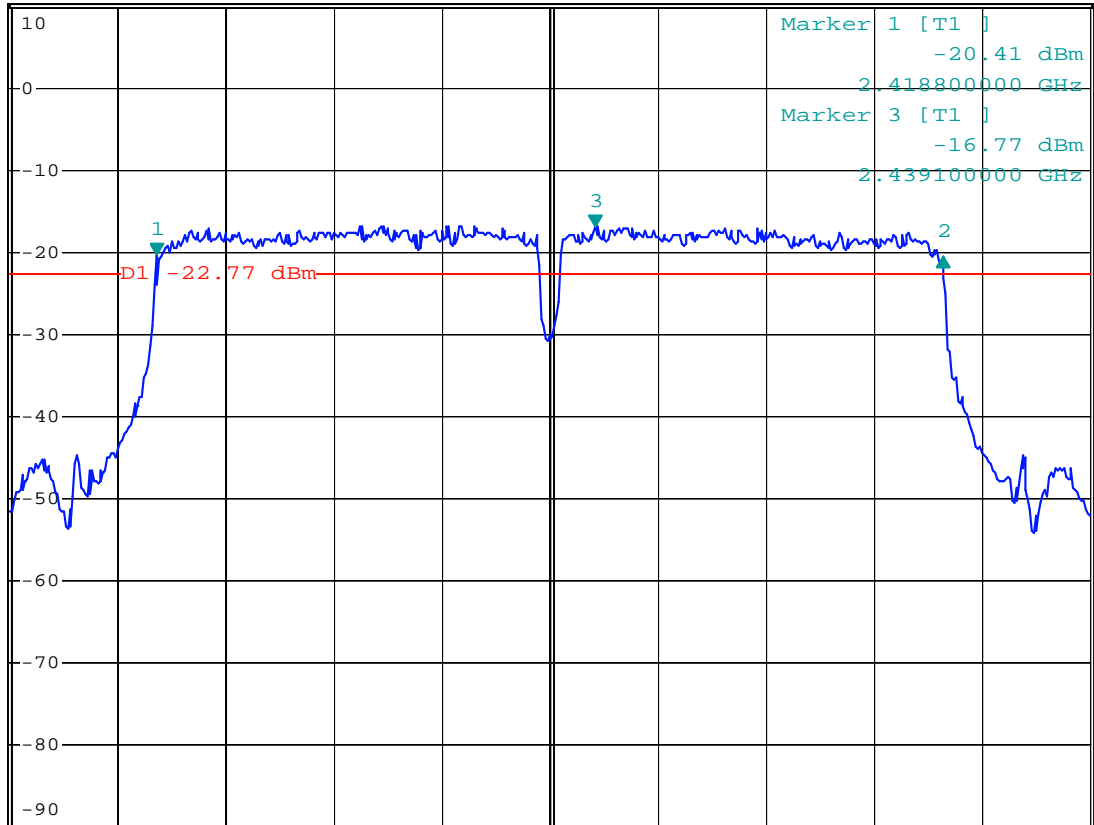
\* VBW 300 kHz

-0.27 dB

\* SWT 5 ms

36.40000000 MHz

1 PK  
MAXH



Center 2.437 GHz

5 MHz/

Span 50 MHz

Date: 24.APR.2014 15:24:58

# 15. 802.11n at HT40 of CH07



DELTA MARKER 2

36.5 MHz

Ref 10 dBm

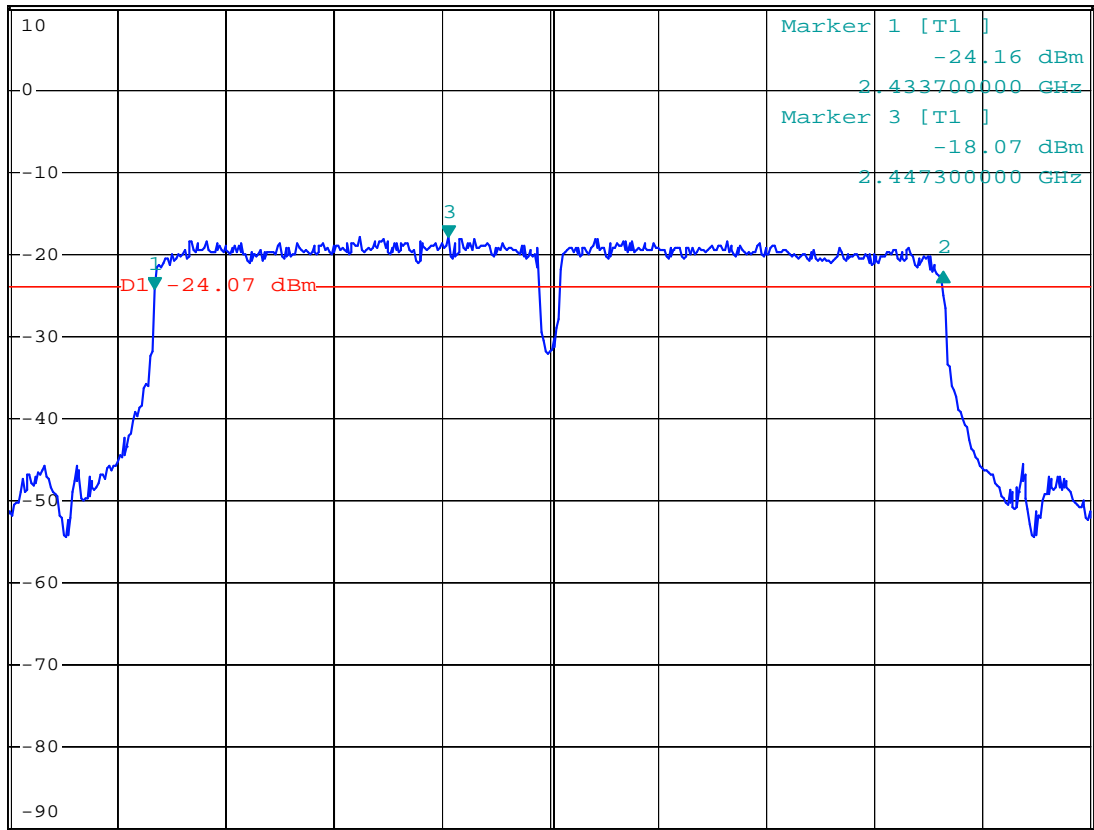
\* Att 20 dB

\* RBW 100 kHz Delta 2 [T1 ]

\* VBW 300 kHz 1.92 dB

\* SWT 5 ms 36.50000000 MHz

1 PK  
MAXH



Center 2.452 GHz

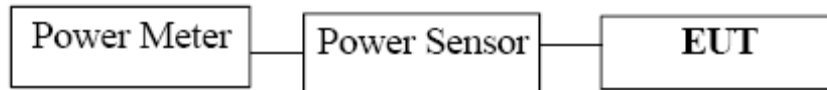
5 MHz /

Span 50 MHz

Date: 24.APR.2014 15:30:35

## 8. Maximum Peak Output Power

### 8.1 Test Setup



### 8.2 Limits of Maximum Peak Output Power

The Maximum Peak Output Power Measurement is 30dBm.

### 8.3 Test Procedure

The RF power output was measured with a Power meter connected to the RF Antenna connector ( conducted measurement ) while EUT was operating in transmit mode at the appropriate centre frequency.

**Note: the peak power was measured**

#### 8.4 Test Results

EUT	MID	Model	MID727A-RK326	
Mode	802.11b 11Mbps	Input Voltage	120V~	
Temperature	24 deg. C,	Humidity	56% RH	
Channel	Channel Frequency (MHz)	Peak Power Output (dBm)	Peak Power Limit (dBm)	Pass/ Fail
1	2412	9.05	30	Pass
6	2437	8.93	30	Pass
11	2462	8.63	30	Pass

Note: 1. At final test to get the worst-case emission at 11Mbps for CH01, CH06 and CH11

2. The result basic equation calculation as follow:

Peak Power Output = Peak Power Reading + Cable loss + Attenuator

EUT	MID	Model	MID727A-RK326	
Mode	802.11g	Input Voltage	120V~	
Temperature	24 deg. C,	Humidity	56% RH	
Channel	Channel Frequency (MHz)	Peak Power Output (dBm)	Peak Power Limit (dBm)	Pass/ Fail
1	2412	8.63	30	Pass
6	2437	8.48	30	Pass
11	2462	8.10	30	Pass

Note: 1. At final test to get the worst-case emission at 54Mbps for CH01, CH06 and CH11

2. The result basic equation calculation as follow:

Peak Power Output = Peak Power Reading + Cable loss + Attenuator

EUT	MID		Model	MID727A-RK326
Mode	802.11n HT20		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Channel	Channel Frequency (MHz)	Peak Power Output (dBm)	Peak Power Limit (dBm)	Pass/ Fail
1	2412	8.36	30	Pass
6	2437	8.23	30	Pass
11	2462	8.14	30	Pass

Note: 1. At final test to get the worst-case emission at 65Mbps for CH01, CH06 and CH11

2. The result basic equation calculation as follow:

Peak Power Output = Peak Power Reading + Cable loss + Attenuator

EUT	MID		Model	MID727A-RK326
Mode	802.11n HT40		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Channel	Channel Frequency (MHz)	Peak Power Output (dBm)	Peak Power Limit (dBm)	Pass/ Fail
1	2422	8.37	30	Pass
5	2437	8.27	30	Pass
7	2452	8.03	30	Pass

Note: 1. At final test to get the worst-case emission at 65Mbps for CH01, CH06 and CH11

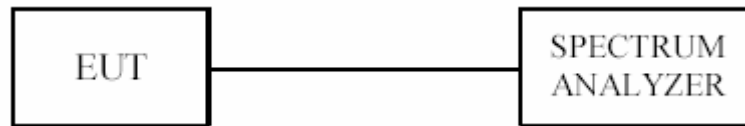
2. The result basic equation calculation as follow:

Peak Power Output = Peak Power Reading + Cable loss + Attenuator



## 9. Power Spectral Density Measurement

### 9.1 Test Setup



### 9.2 Limits of Power Spectral Density Measurement

The Maximum Power Spectral Density Measurement is 8dBm.

### 9.3 Test Procedure

1. Use this procedure when the maximum peak conducted output power in the fundamental emission is used to demonstrate compliance.
2. Set the RBW = 10 kHz.
3. Set the VBW  $\geq$  30 kHz.
4. Set the span to 1.5 times the DTS channel bandwidth.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.
11. The resulting peak PSD level must be  $\leq$  8 dBm.

**9.4 Test Result**

EUT	MID	Model	MID727A-RK326	
Mode	802.11b 1Mbps	Input Voltage	120V~	
Temperature	24 deg. C,	Humidity	56% RH	
Channel	Channel Frequency (MHz)	Final RF Power Level (dBm)	Maximum Limit (dBm)	Pass/ Fail
1Mbps				
1	2412	-15.57	8	Pass
6	2437	-15.60	8	Pass
11	2462	-16.07	8	Pass

**Note:** At final test to get the worst-case emission at 1Mbps for CH01, CH06 and CH11

EUT	MID	Model	MID727A-RK326	
Mode	802.11b 11Mbps	Input Voltage	120V~	
Temperature	24 deg. C,	Humidity	56% RH	
Channel	Channel Frequency (MHz)	Final RF Power Level (dBm)	Maximum Limit (dBm)	Pass/ Fail
11Mbps				
1	2412	-13.99	8	Pass
6	2437	-13.99	8	Pass
11	2462	-14.33	8	Pass

**Note:** At final test to get the worst-case emission at 11Mbps for CH01, CH06 and CH11



EUT		MID		Model	MID727A-RK326
Mode		802.11g		Input Voltage	120V~
Temperature		24 deg. C,		Humidity	56% RH
Channel	Channel Frequency (MHz)	Final RF Power Level (dBm)		Maximum Limit (dBm)	Pass/ Fail
54Mbps					
1	2412	-21.65		8	Pass
6	2437	-21.79		8	Pass
11	2462	-22.32		8	Pass

**Note:** At final test to get the worst-case emission at 54Mbps for CH01, CH06 and CH11

EUT		MID		Model	MID727A-RK326	
Mode		802.11n HT20		Input Voltage	120V~	
Temperature		24 deg. C,		Humidity	56% RH	
Channel	Channel Frequency (MHz)		Final RF Power Level (dBm)		Maximum Limit (dBm)	Pass/ Fail
11n HT20						
1	2412		-21.09		8	Pass
6	2437		-20.92		8	Pass
11	2462		-21.34		8	Pass

**Note:** At final test to get the worst-case emission at 65M for CH01, CH06 and CH11



EUT		MID		Model	MID727A-RK326
Mode		802.11n HT40		Input Voltage	120V~
Temperature		24 deg. C,		Humidity	56% RH
Channel	Channel Frequency (MHz)	Final RF Power Level (dBm)		Maximum Limit (dBm)	Pass/ Fail
11n HT40					
1	2422	-22.88		8	Pass
5	2437	-24.61		8	Pass
7	2452	-23.22		8	Pass

**Note:** At final test to get the worst-case emission at 65Mfor CH01, CH04 and CH07

## 9.5 Photo of Power Spectral Density Measurement

### 1. 802.11b at 1Mbps of CH01


**MARKER 1**

2.41266528 GHz

Ref 10 dBm

\* Att 20 dB

\* RBW 10 kHz

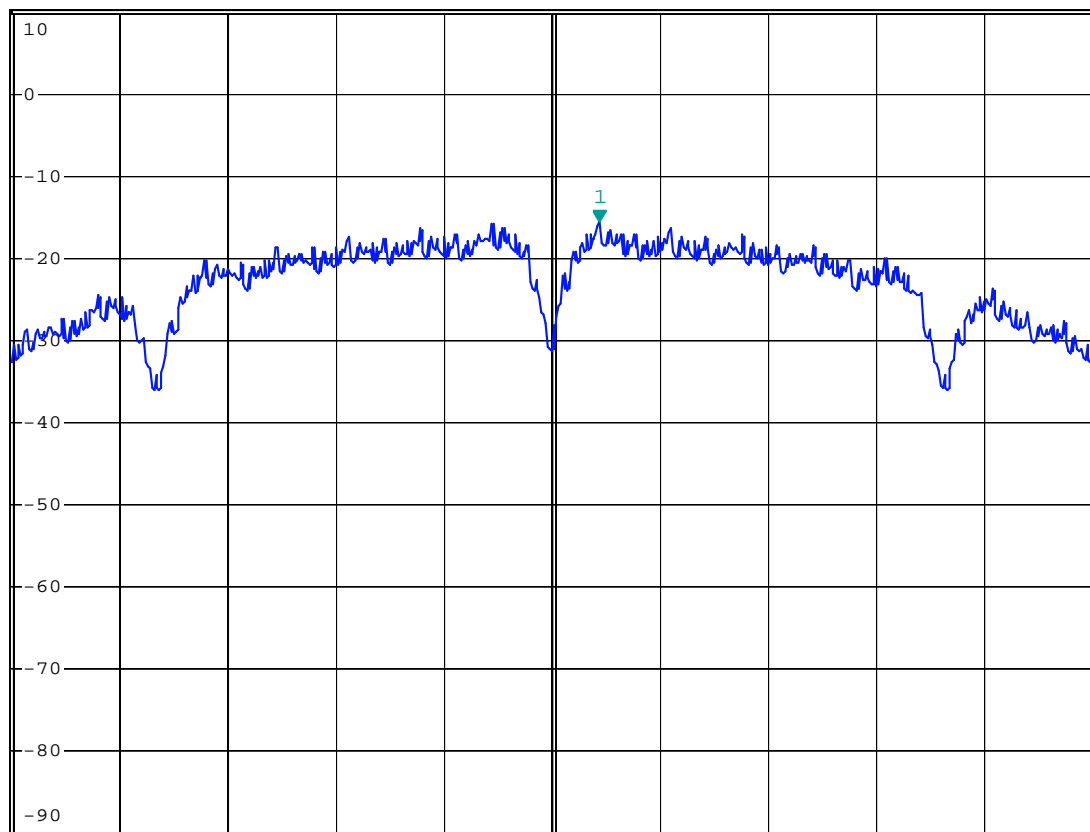
\* VBW 30 kHz

\* SWT 155 ms

Marker 1 [T1 ]

-15.57 dBm

2.412665280 GHz

1 PK  
MAXH


Center 2.412 GHz

1.512 MHz/

Span 15.12 MHz

Date: 24.APR.2014 15:43:54

2. 802.11b at 1Mbps of CH06



MARKER 1

2.43766528 GHz

Ref 10 dBm

\* Att 20 dB

\* RBW 10 kHz

\* VBW 30 kHz

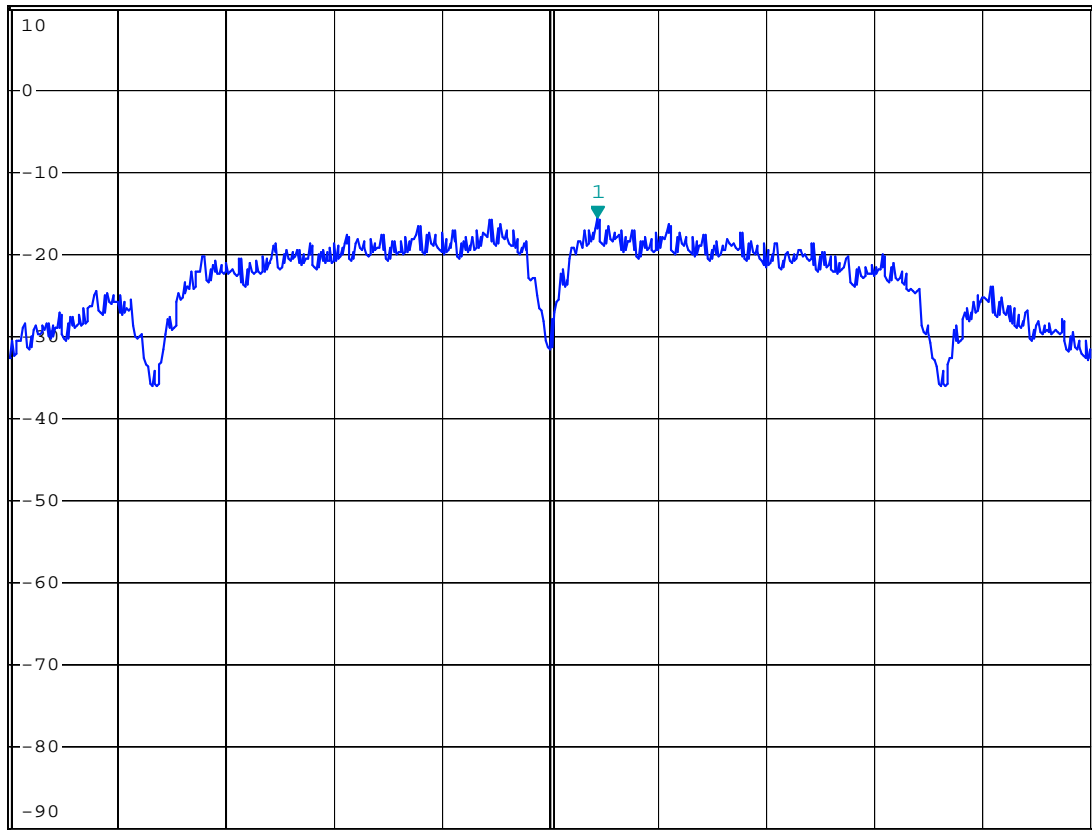
\* SWT 155 ms

Marker 1 [T1 ]

-15.60 dBm

2.437665280 GHz

1 PK  
MAXH



Center 2.437 GHz

1.512 MHz/

Span 15.12 MHz

Date: 24.APR.2014 15:44:27

### 3. 802.11b at 1Mbps of CH11



MARKER 1

2.46266528 GHz

Ref 10 dBm

\* Att 20 dB

\* RBW 10 kHz

\* VBW 30 kHz

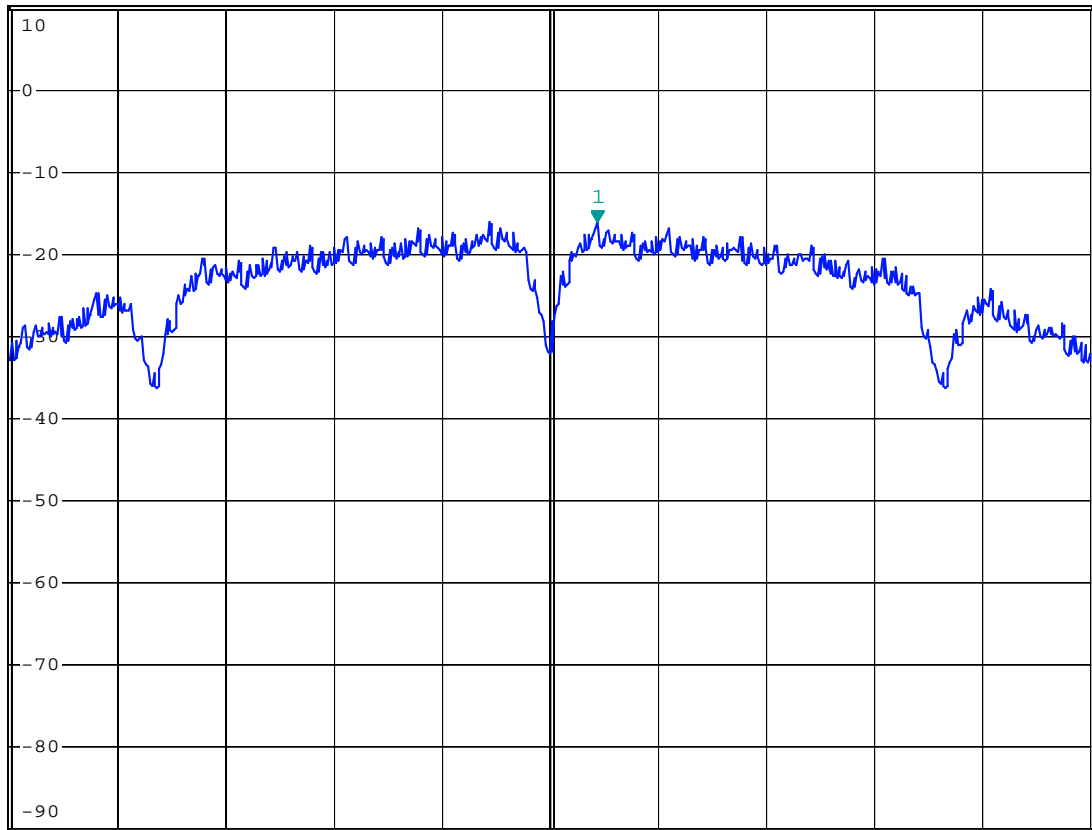
\* SWT 155 ms

Marker 1 [T1 ]

-16.07 dBm

2.462665280 GHz

1 PK  
MAXH



Center 2.462 GHz

1.512 MHz/

Span 15.12 MHz

Date: 24.APR.2014 15:45:13



4. 802.11b at 11Mbps of CH01



MARKER 1

2.41052112 GHz

Ref 10 dBm

\* Att 20 dB

\* RBW 10 kHz

\* VBW 30 kHz

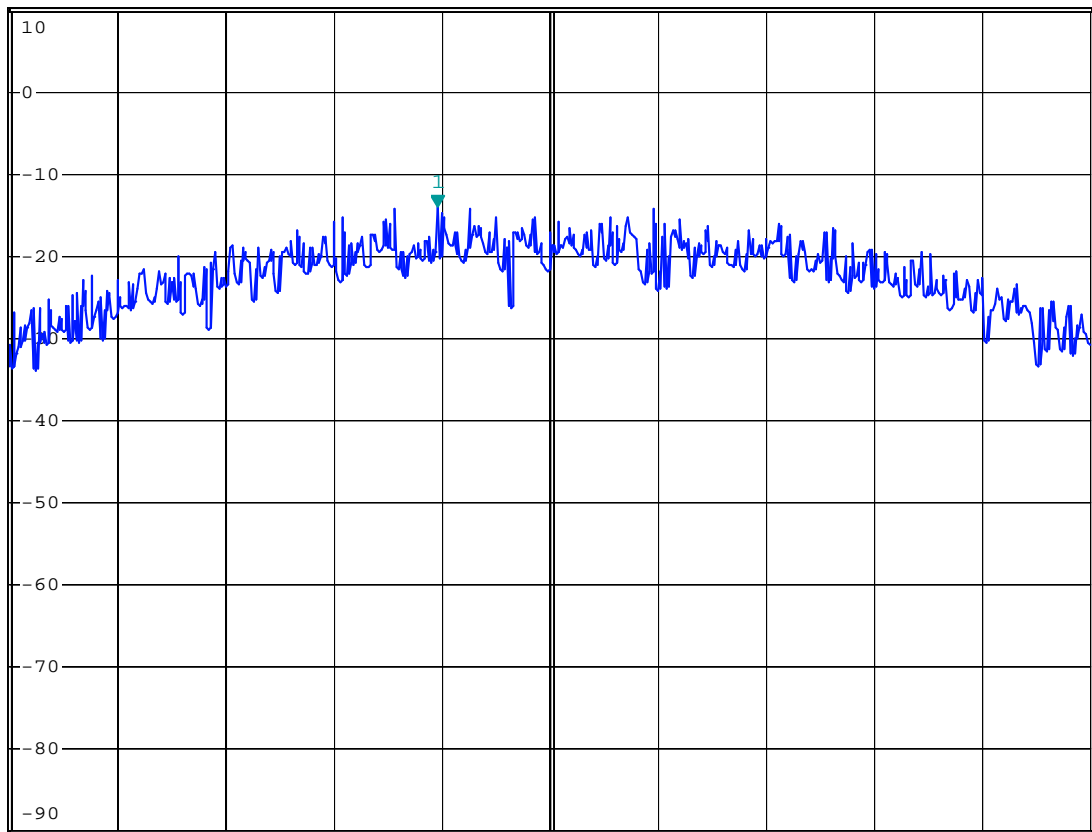
\* SWT 145 ms

Marker 1 [T1 ]

-13.99 dBm

2.410521120 GHz

1 PK  
MAXH



Center 2.412 GHz

1.422 MHz/

Span 14.22 MHz

Date: 24.APR.2014 15:48:49



5. 802.11b at 11Mbps of CH06



MARKER 1

2.43552112 GHz

Ref 10 dBm

\* Att 20 dB

\* RBW 10 kHz

\* VBW 30 kHz

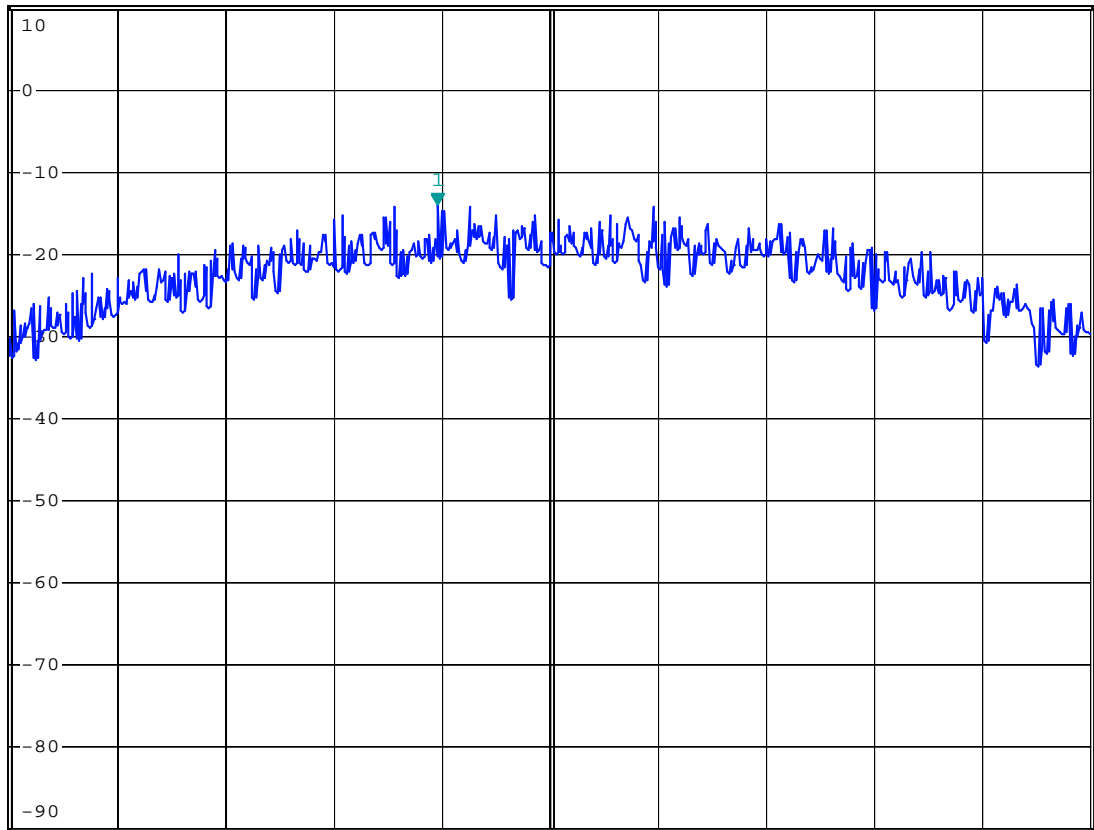
\* SWT 145 ms

Marker 1 [T1 ]

-13.99 dBm

2.435521120 GHz

1 PK  
MAXH



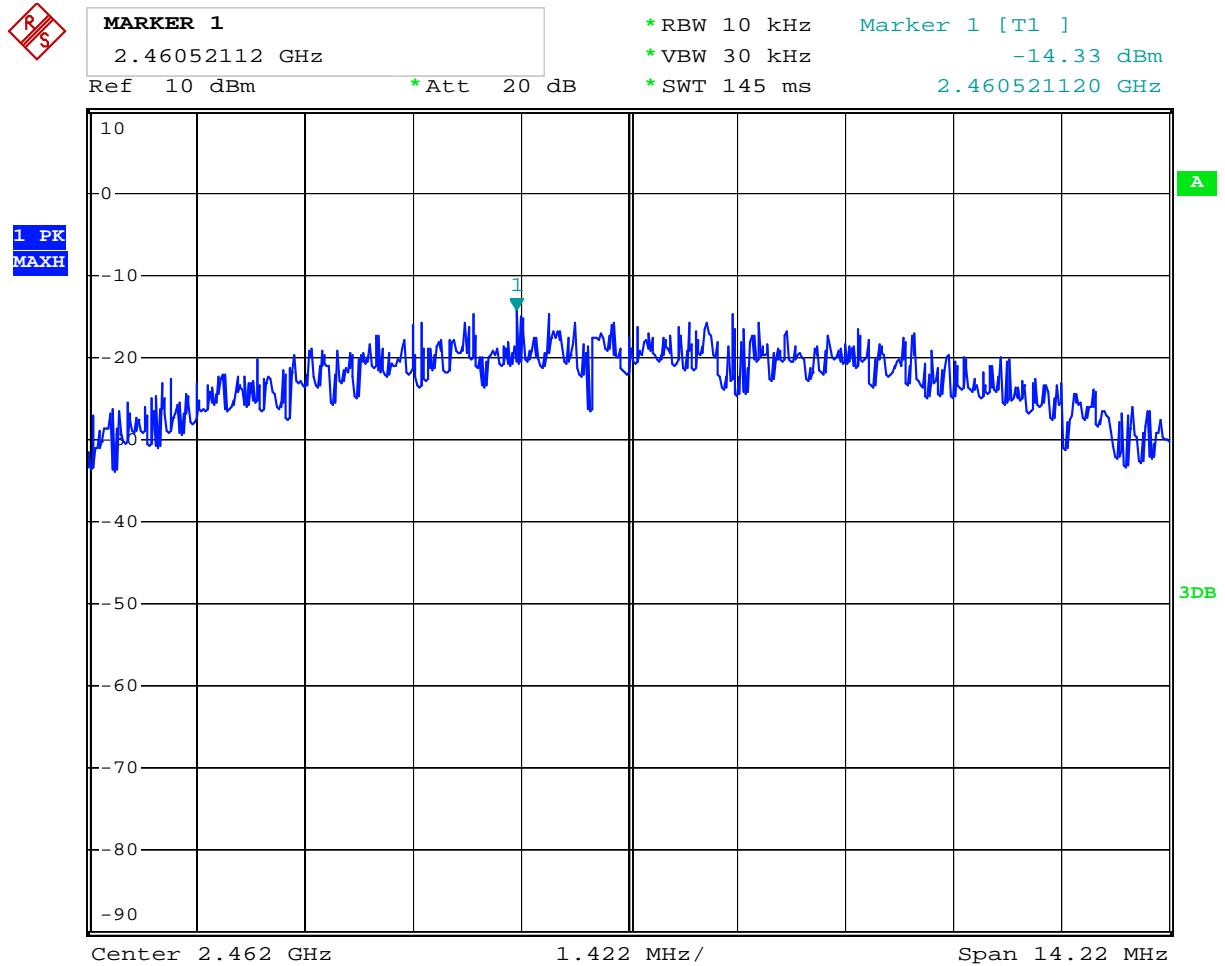
Center 2.437 GHz

1.422 MHz/

Span 14.22 MHz

Date: 24.APR.2014 15:49:51

6. 802.11b at 11Mbps of CH11



Date: 24.APR.2014 15:51:00

7. 802.11g at 54Mbps of CH1



MARKER 1

2.41766352 GHz

Ref 10 dBm

\* Att 20 dB

\* RBW 10 kHz

\* VBW 30 kHz

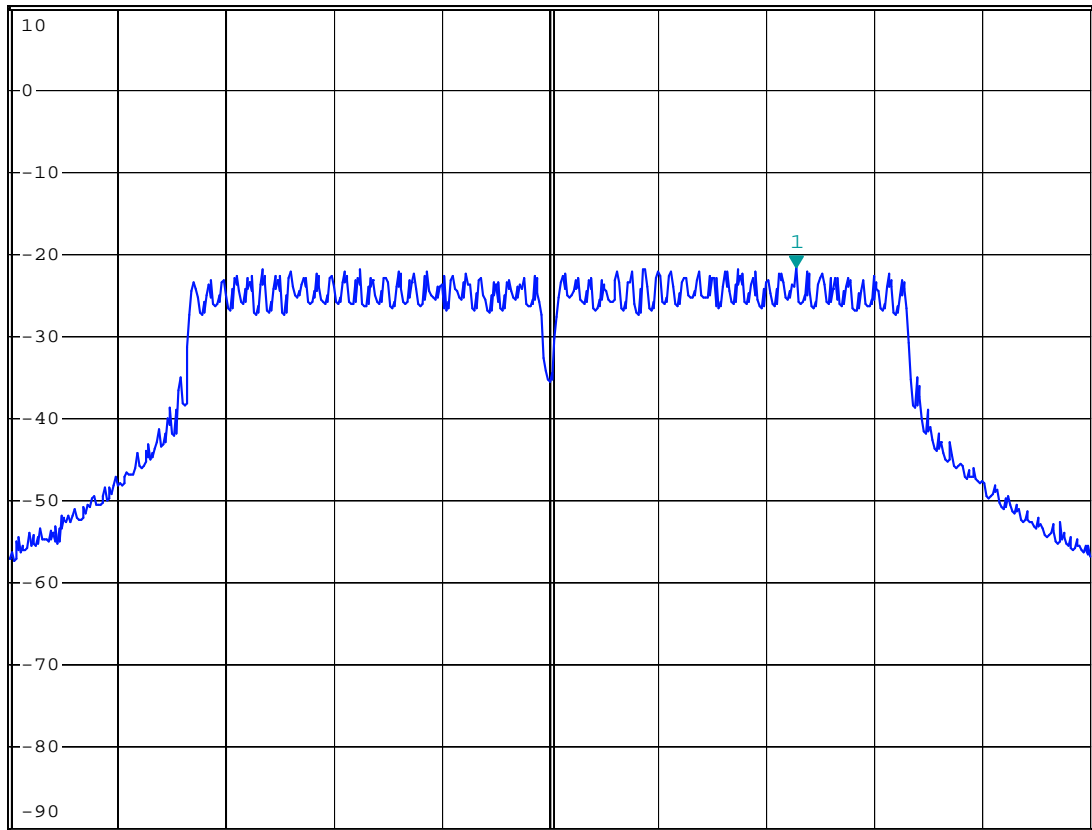
\* SWT 250 ms

Marker 1 [T1 ]

-21.65 dBm

2.417663520 GHz

1 PK  
MAXH



Date: 24.APR.2014 15:47:59

8. 802.11g at 54Mbps of CH6



MARKER 1

2.44266352 GHz

Ref 10 dBm

\* Att 20 dB

\* RBW 10 kHz

\* VBW 30 kHz

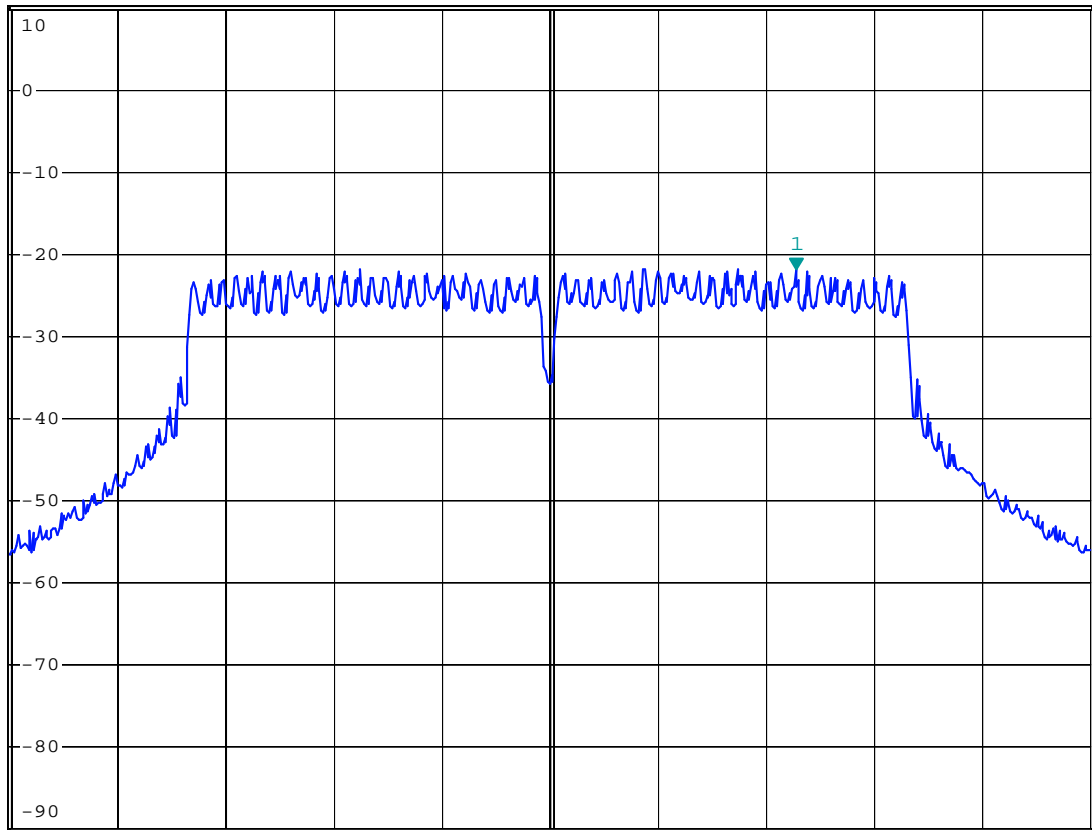
\* SWT 250 ms

Marker 1 [T1 ]

-21.79 dBm

2.442663520 GHz

1 PK  
MAXH



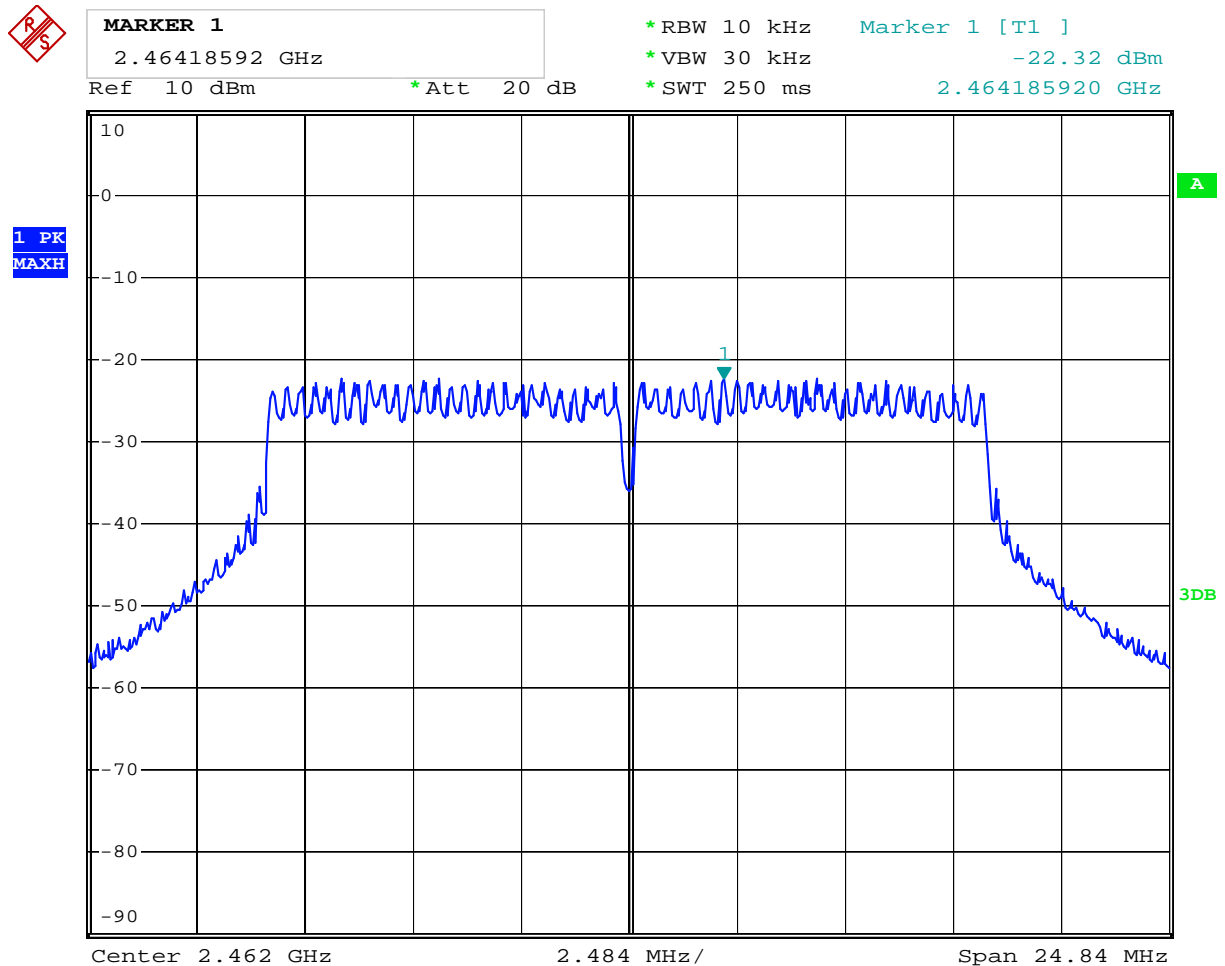
Center 2.437 GHz

2.484 MHz/

Span 24.84 MHz

Date: 24.APR.2014 15:47:11

9. 802.11g at 54Mbps of CH11



Date: 24.APR.2014 15:46:21

10. 802.11n at HT20 of CH01 65Mbps



MARKER 1

2.41482384 GHz

Ref 10 dBm

\* Att 20 dB

\* RBW 10 kHz

\* VBW 30 kHz

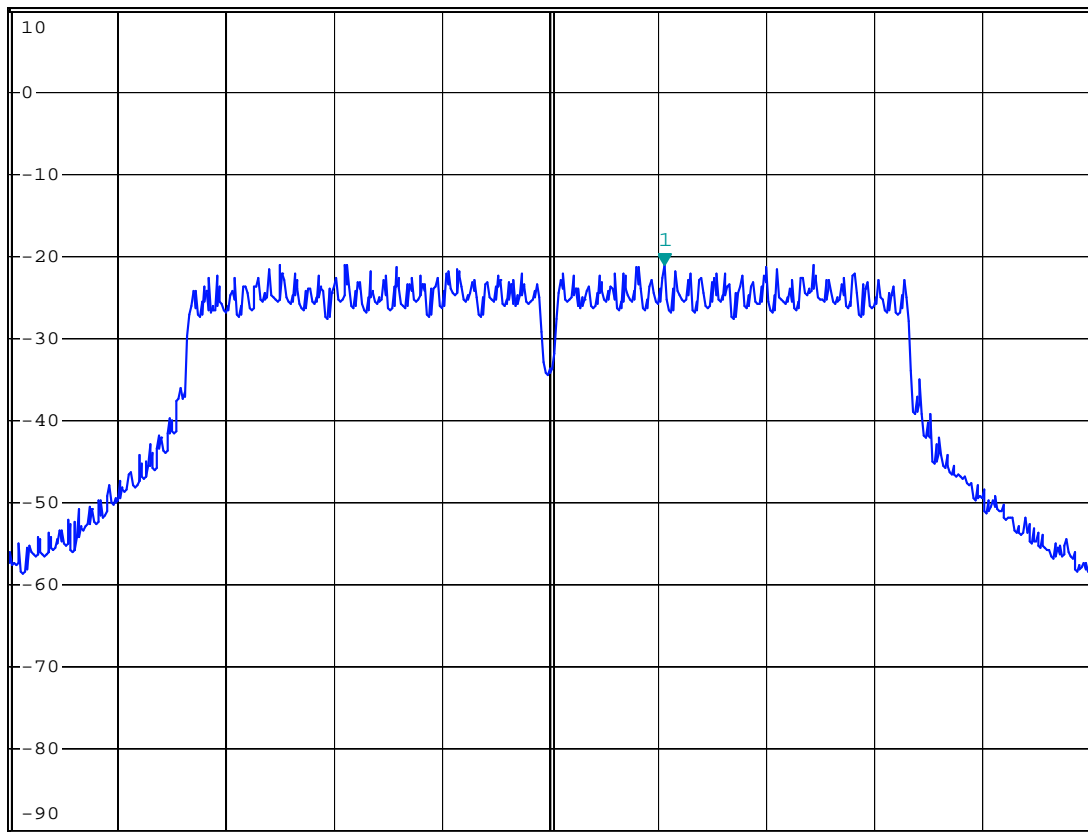
\* SWT 270 ms

Marker 1 [T1 ]

-21.09 dBm

2.414823840 GHz

1 PK  
MAXH



Center 2.412 GHz

2.664 MHz/

Span 26.64 MHz

Date: 24.APR.2014 15:42:45

11. 802.11n at HT20 of CH06 65Mbps



MARKER 1

2.4348688 GHz

Ref 10 dBm

\* Att 20 dB

\* RBW 10 kHz

\* VBW 30 kHz

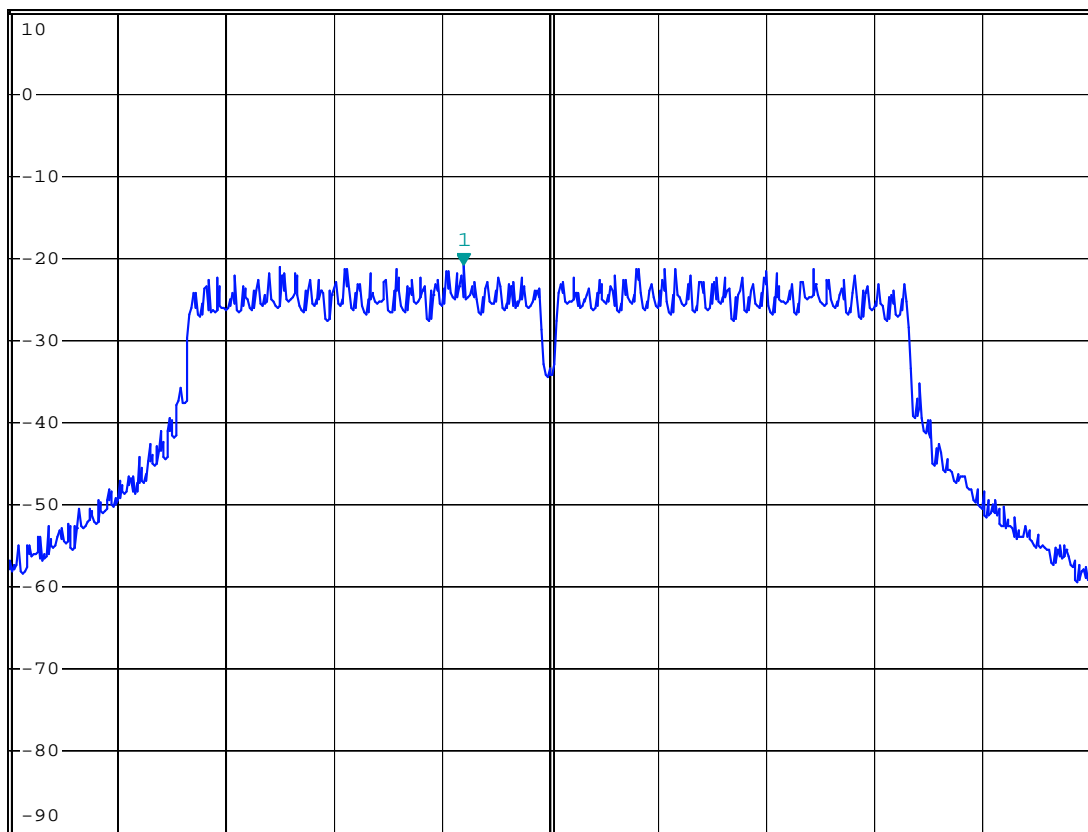
\* SWT 270 ms

Marker 1 [T1 ]

-20.92 dBm

2.434868800 GHz

1 PK  
MAXH



Center 2.437 GHz

2.664 MHz/

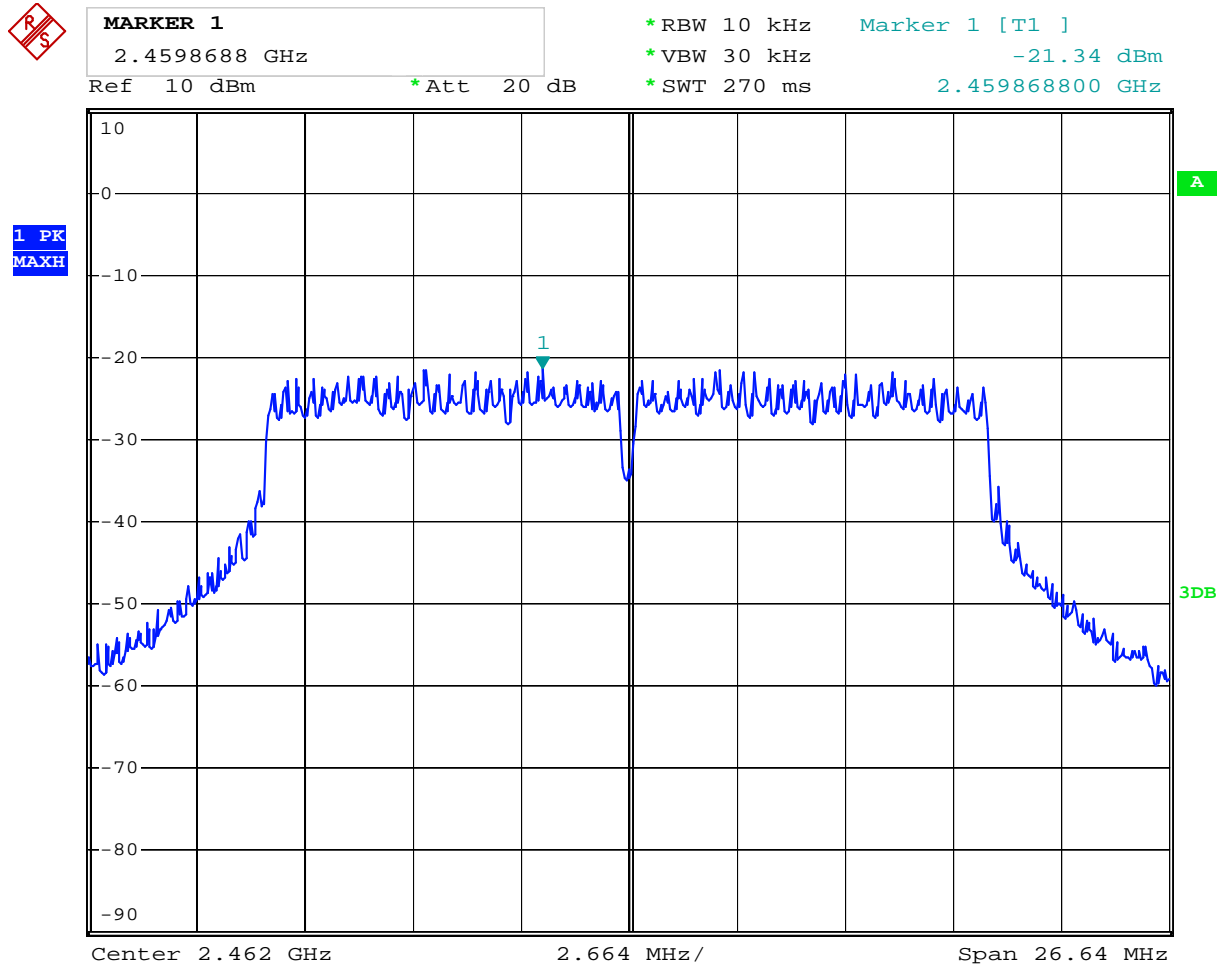
Span 26.64 MHz

A

3DB

Date: 24.APR.2014 15:42:07

12. 802.11n at HT20 of CH11 65Mbps



Date: 24.APR.2014 15:41:31



13. 802.11n at HT40 of CH01 65Mbps



MARKER 1

2.4253852 GHz

Ref 10 dBm

\* Att 20 dB

\* RBW 10 kHz

\* VBW 30 kHz

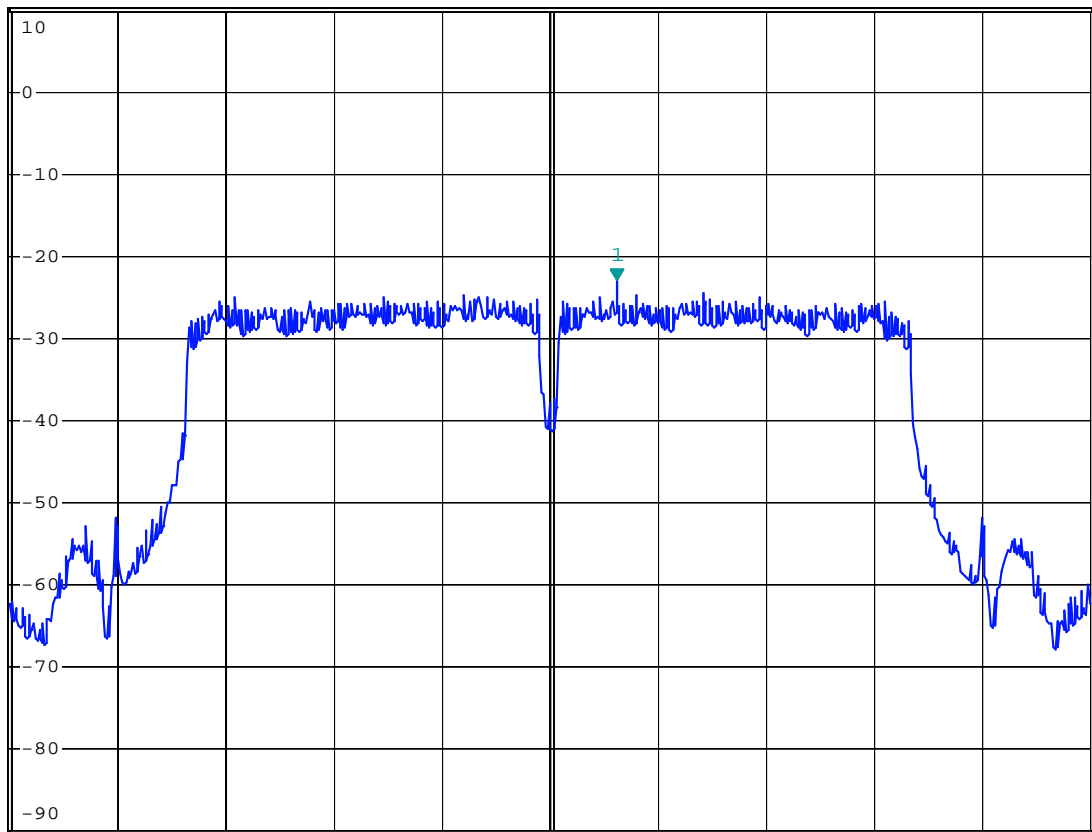
\* SWT 560 ms

Marker 1 [T1 ]

-22.88 dBm

2.425385200 GHz

1 PK  
MAXH



Date: 24.APR.2014 15:52:11



## 14. 802.11n at HT40 of CH04 65Mbps



MARKER 1

2.4335056 GHz

Ref 10 dBm

\* Att 20 dB

\* RBW 10 kHz

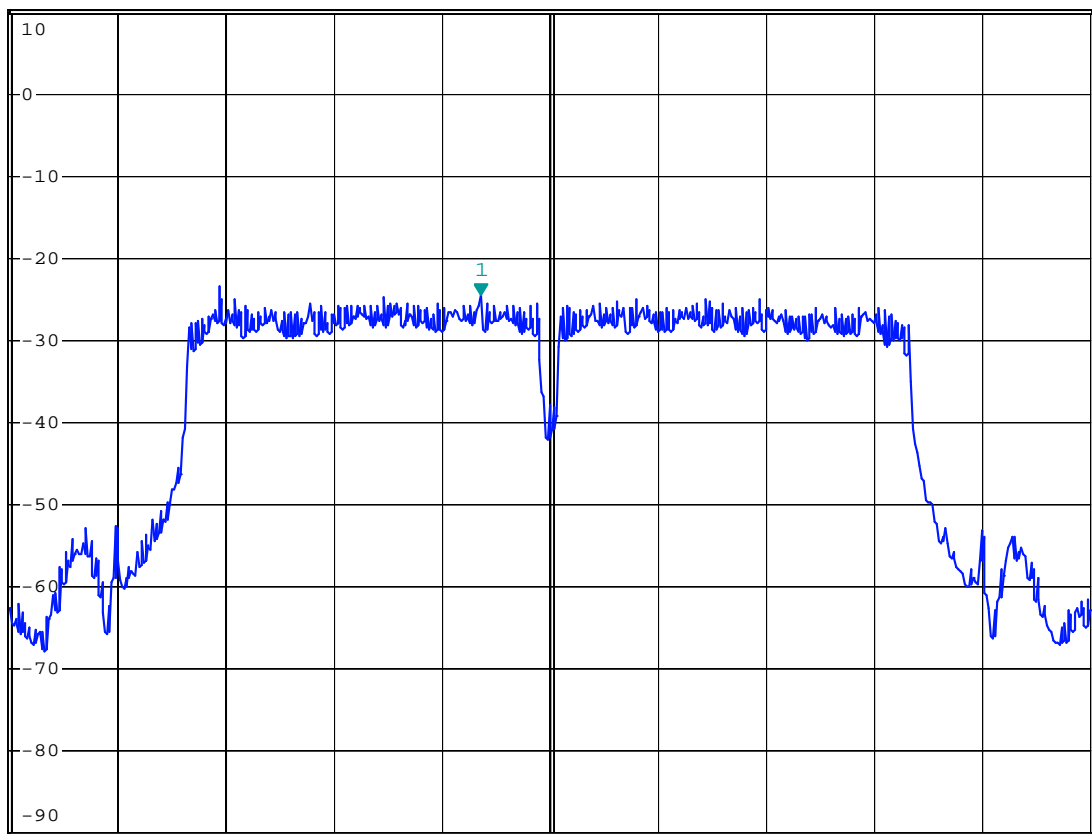
\* VBW 30 kHz

\* SWT 560 ms

Marker 1 [T1 ]

-24.61 dBm

2.433505600 GHz

1 PK  
MAXH

Center 2.437 GHz

5.46 MHz/

Span 54.6 MHz

Date: 24.APR.2014 15:52:51

15. 802.11n at HT40 of CH07 65Mbps



MARKER 1

2.4441376 GHz

Ref 10 dBm

\* Att 20 dB

\* RBW 10 kHz

\* VBW 30 kHz

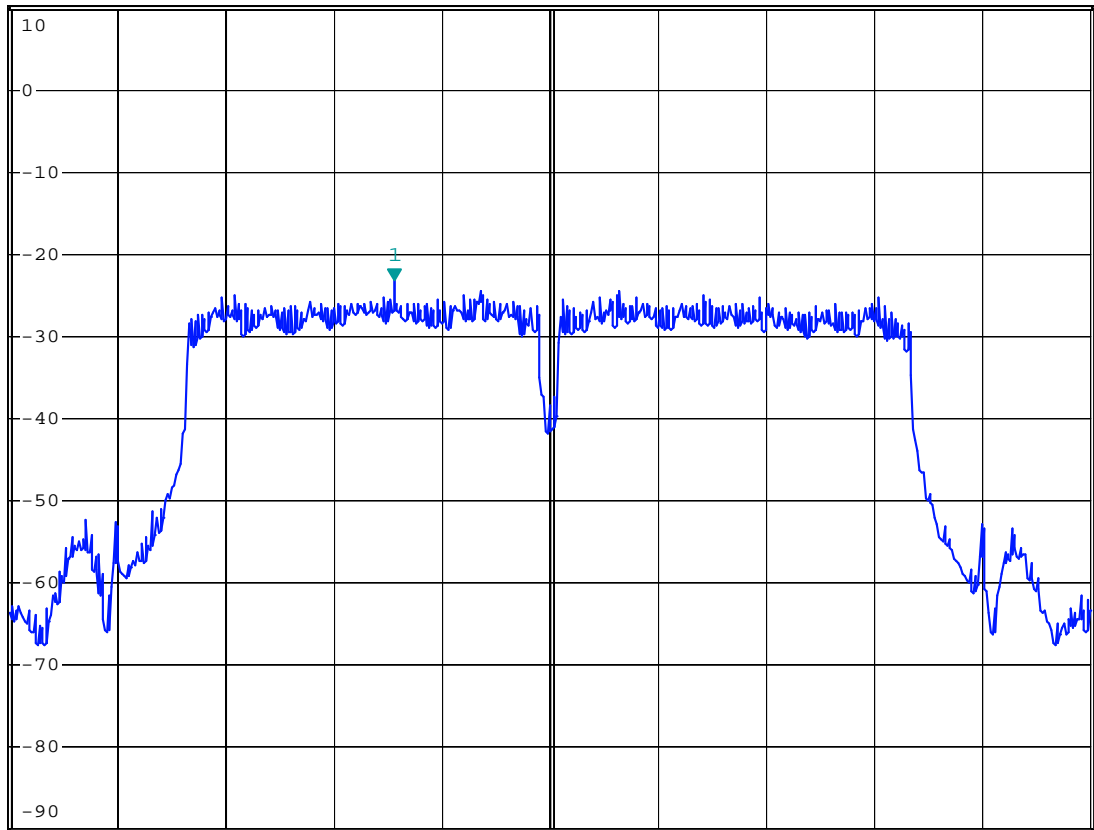
\* SWT 560 ms

Marker 1 [T1 ]

-23.22 dBm

2.444137600 GHz

1 PK  
MAXH



Center 2.452 GHz

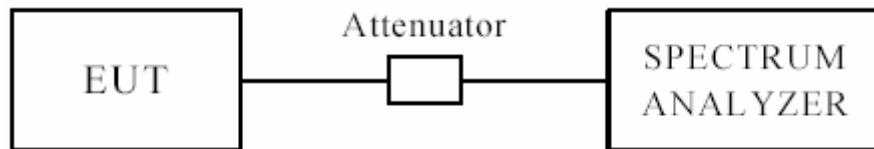
5.46 MHz/

Span 54.6 MHz

Date: 24.APR.2014 15:53:42

## 10 Out of Band Measurement

### 10.1 Test Setup for band edge



The restricted band requirement based on radiated emission test; please see the clause 6 for the test setup

### 10.2 Limits of Out of Band Emissions Measurement

1. Below  $-20\text{dB}$  of the highest emission level of operating band (in  $100\text{kHz}$  Resolution Bandwidth).
2. Fall in the restricted bands listed in section 15.205. The maximum permitted average field strength is listed in section 15.209.

### 10.3 Test Procedure

For signals in the restricted bands above and below the  $2.4\text{--}2.483\text{GHz}$  allocated band a measurement was made of radiated emission test. (Peak values with  $\text{RBW}=\text{VBW}=1\text{MHz}$  and PK detector. AV value with  $\text{RBW}=1\text{MHz}$ ,  $\text{VBW}=10\text{Hz}$  and PK detector)

For bandage test, the spectrum set as follows:  $\text{RBW}=100\text{kHz}$ ,  $\text{VBW}=300\text{ kHz}$ . A conducted measurement used

### 10.4 Test Result

Please see next pages

Note: 1. this is a handheld device. The radiated emissions should be tested under 3-axes position (Lying, Side, and Stand), after pre-test. It was found that the worse radiated emission was get at the lying position. the worse case was recorded

2. For band-edge measurement, the frequency from  $30\text{MHz}$ - $25\text{GHz}$  was tested. And It met the FCC rule.

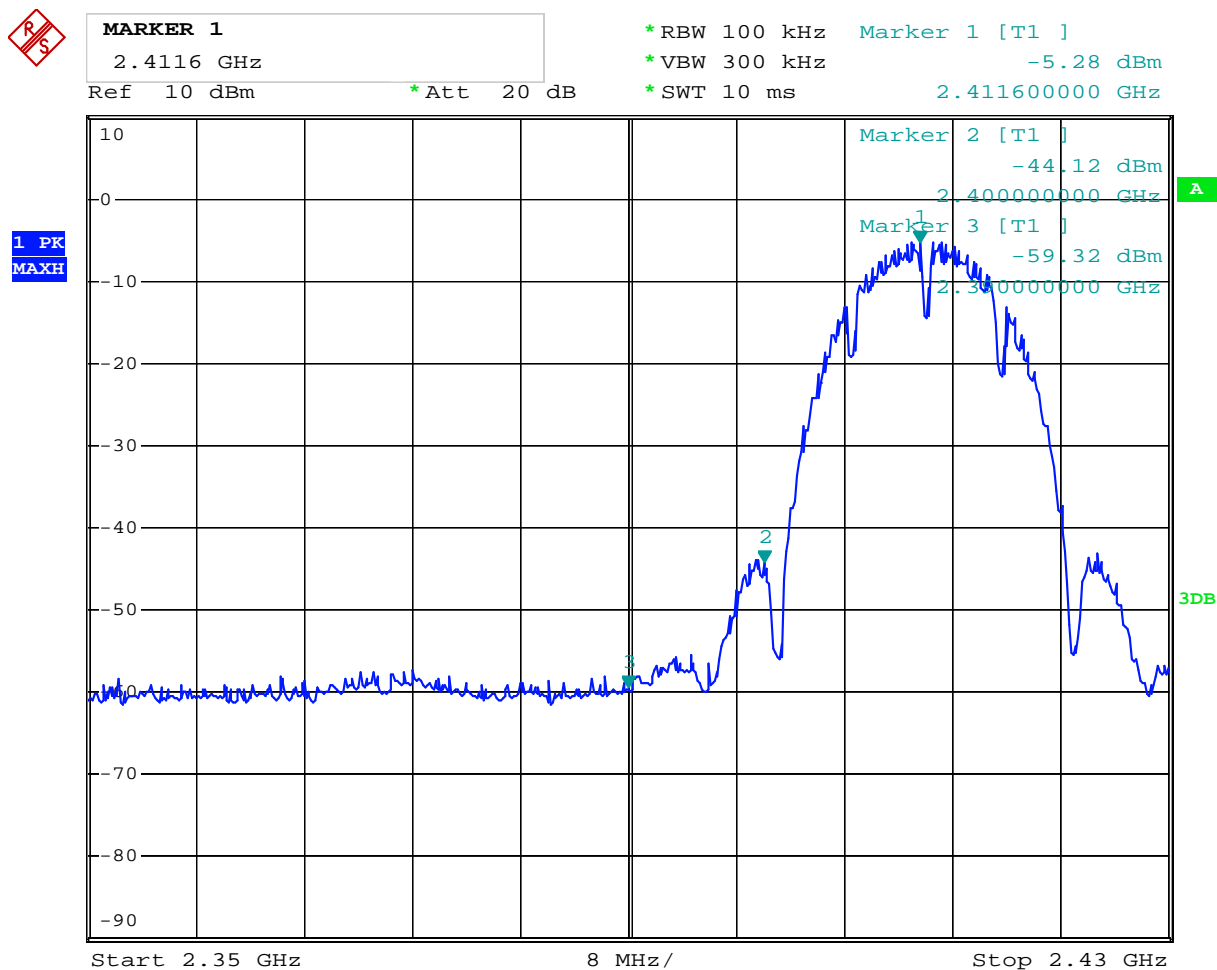
For 802.11b mode

CH01 at 1Mbps

#### 10.4 Band-edge Measurement

EUT	MID		Model	MID727A-RK326
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
2400MHz	PK (dBμV/m)	48.26	Limit	74(dBμV/m)
	AV (dBμV/m)	--		54(dBμV/m)
2390MHz	PK (dBμV/m)	36.62	Limit	74(dBμV/m)
	AV (dBμV/m)			54(dBμV/m)

Test Figure:



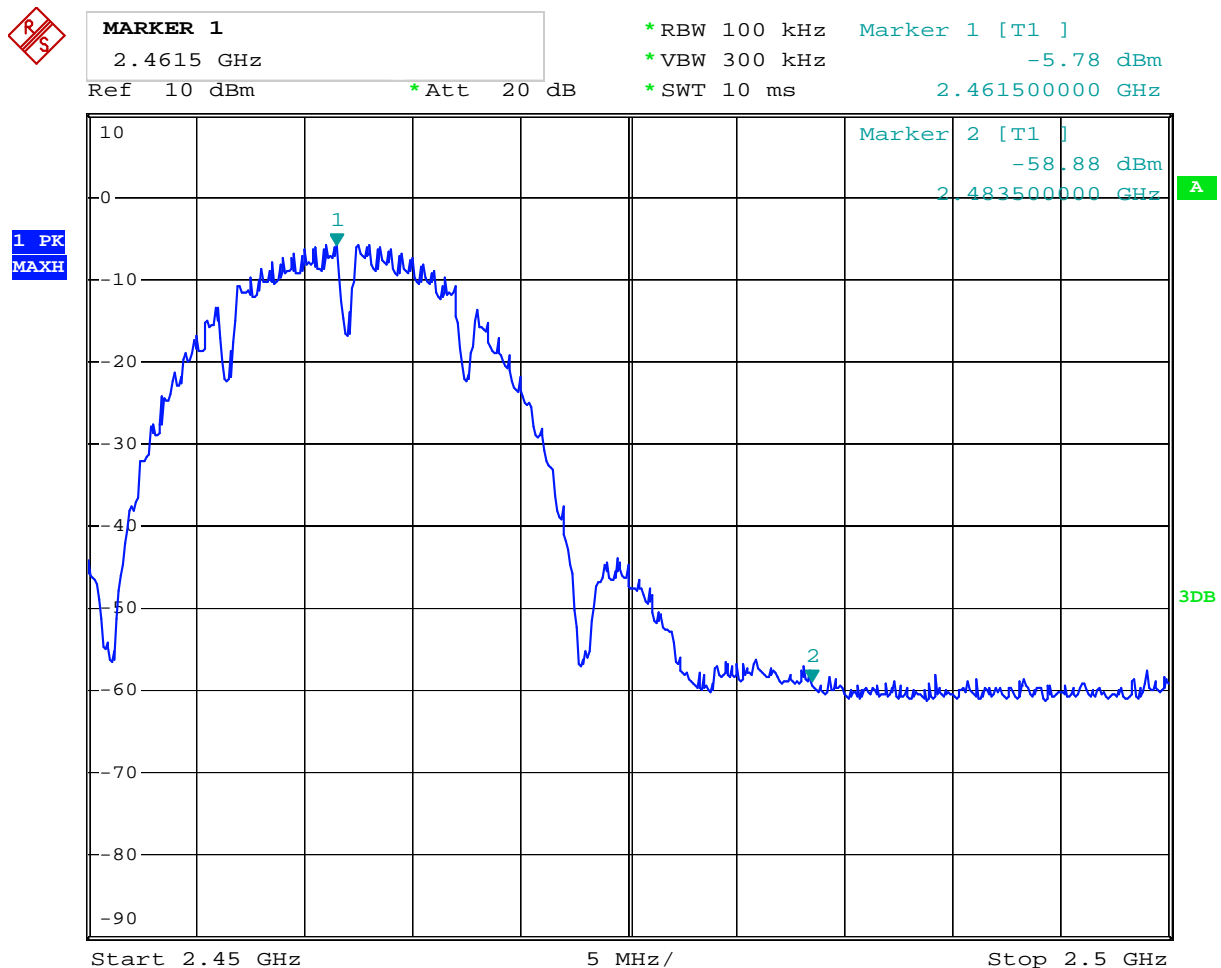
Date: 24.APR.2014 16:02:10

## CH11 at 1Mbps

### 10.4 Band-edge Measurement

EUT	MID		Model	MID727A-RK326
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
2483.5	PK (dBμV/m)	42.15	Limit	74(dBμV/m)
	AV (dBμV/m)	--		54(dBμV/m)

### Test Figure:



Date: 24.APR.2014 15:57:09

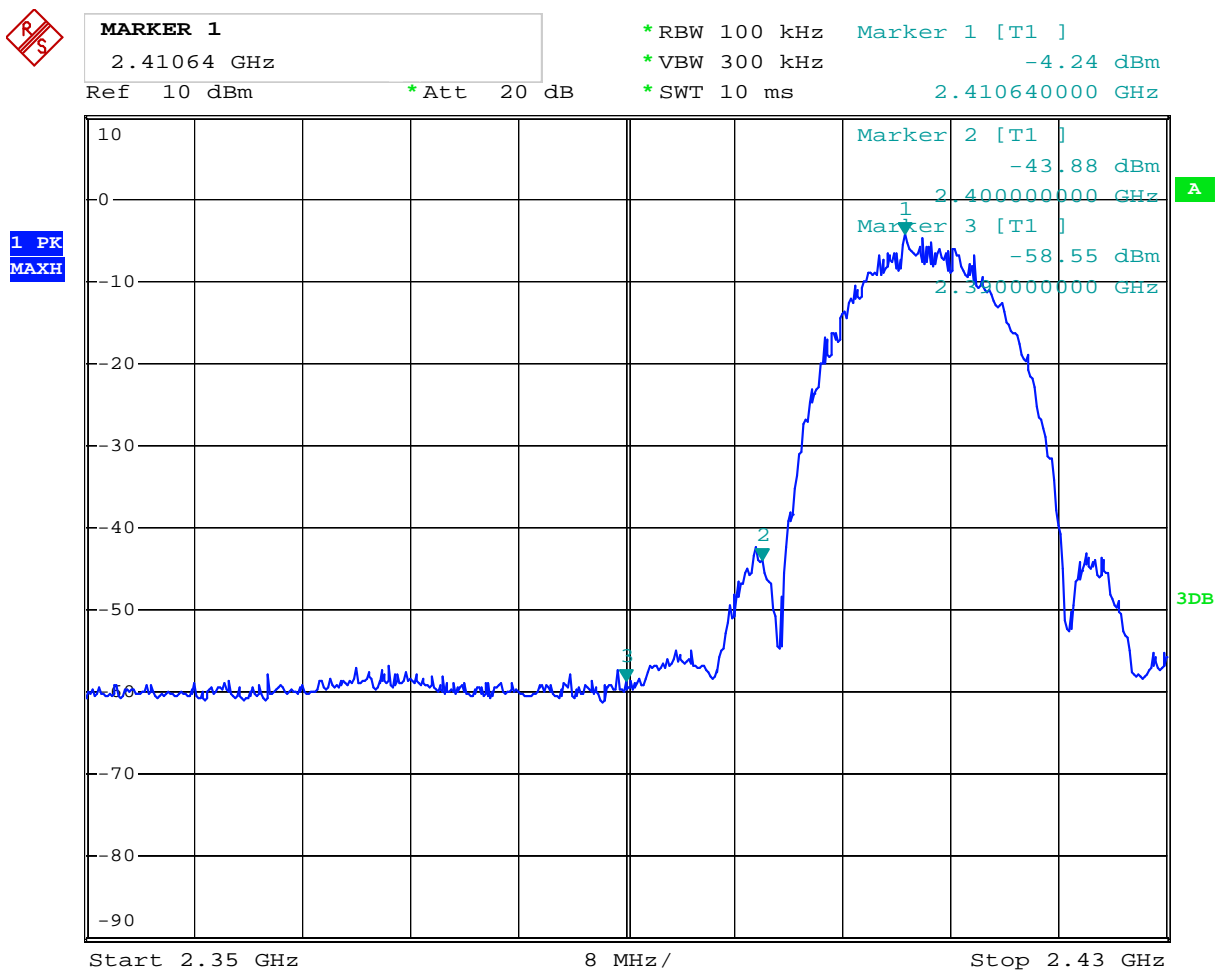
For 802.11b mode

CH01 at 11Mbps

#### 10.4 Band-edge Measurement

EUT	MID		Model	MID727A-RK326
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
2400MHz	PK (dBμV/m)	49.85	Limit	74(dBμV/m)
	AV (dBμV/m)	--		54(dBμV/m)
2390MHz	PK (dBμV/m)	37.08	Limit	74(dBμV/m)
	AV (dBμV/m)			54(dBμV/m)

Test Figure:



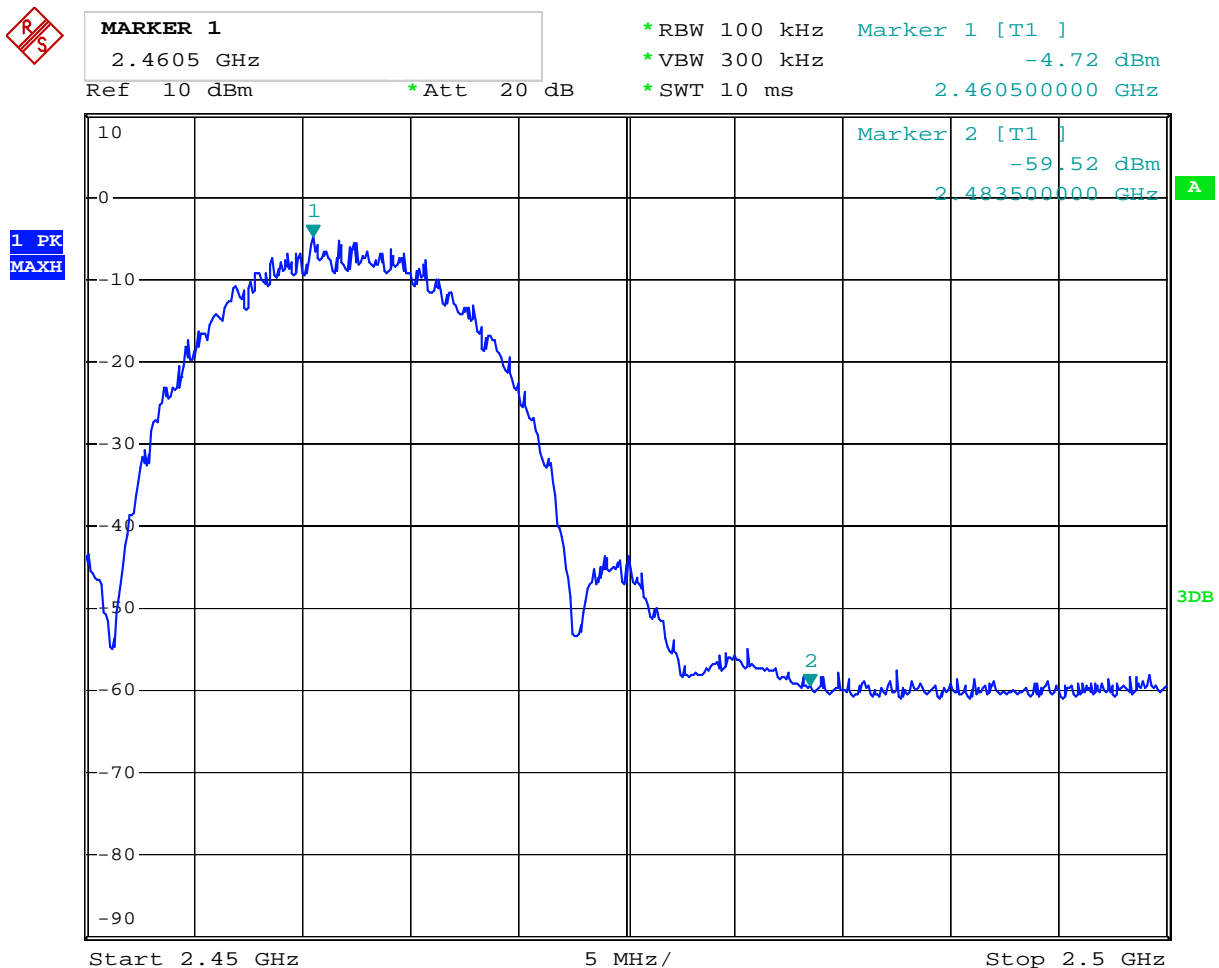
Date: 24.APR.2014 16:03:43

CH11 at 11Mbps

#### 10.4 Band-edge Measurement

EUT	MID		Model	MID727A-RK326
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
2483.5	PK (dBμV/m)	43.11	Limit	74(dBμV/m)
	AV (dBμV/m)	--		54(dBμV/m)

Test Figure:



Date: 24.APR.2014 15:58:48



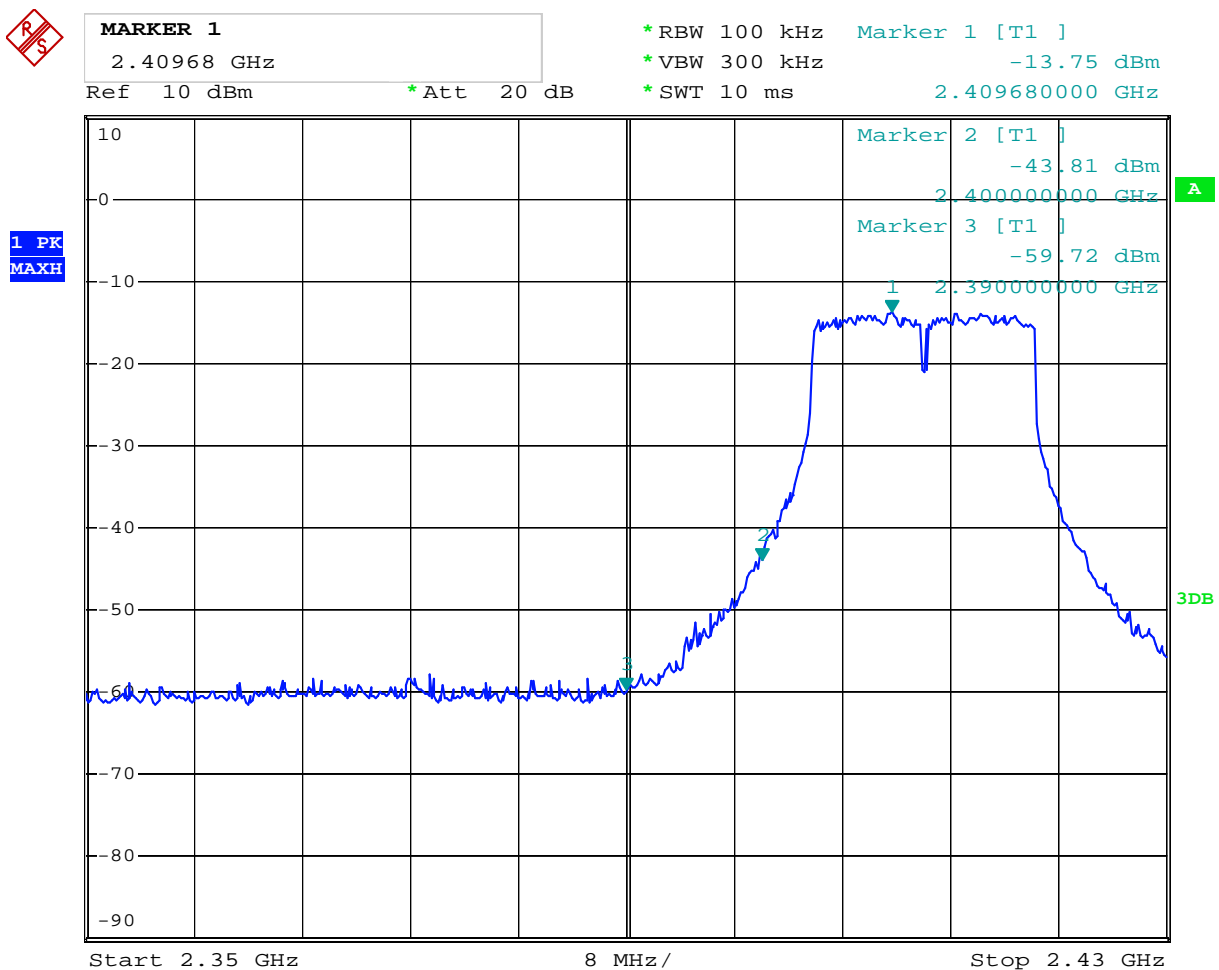
For 802.11g mode

CH01 at 54Mbps

#### 10.4 Band-edge Measurement

EUT	MID		Model	MID727A-RK326
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
2400MHz	PK (dBμV/m)	51.11	Limit	74(dBμV/m)
	AV (dBμV/m)	--		54(dBμV/m)
2390MHz	PK (dBμV/m)	39.07	Limit	74(dBμV/m)
	AV (dBμV/m)	--		54(dBμV/m)

Test Figure:



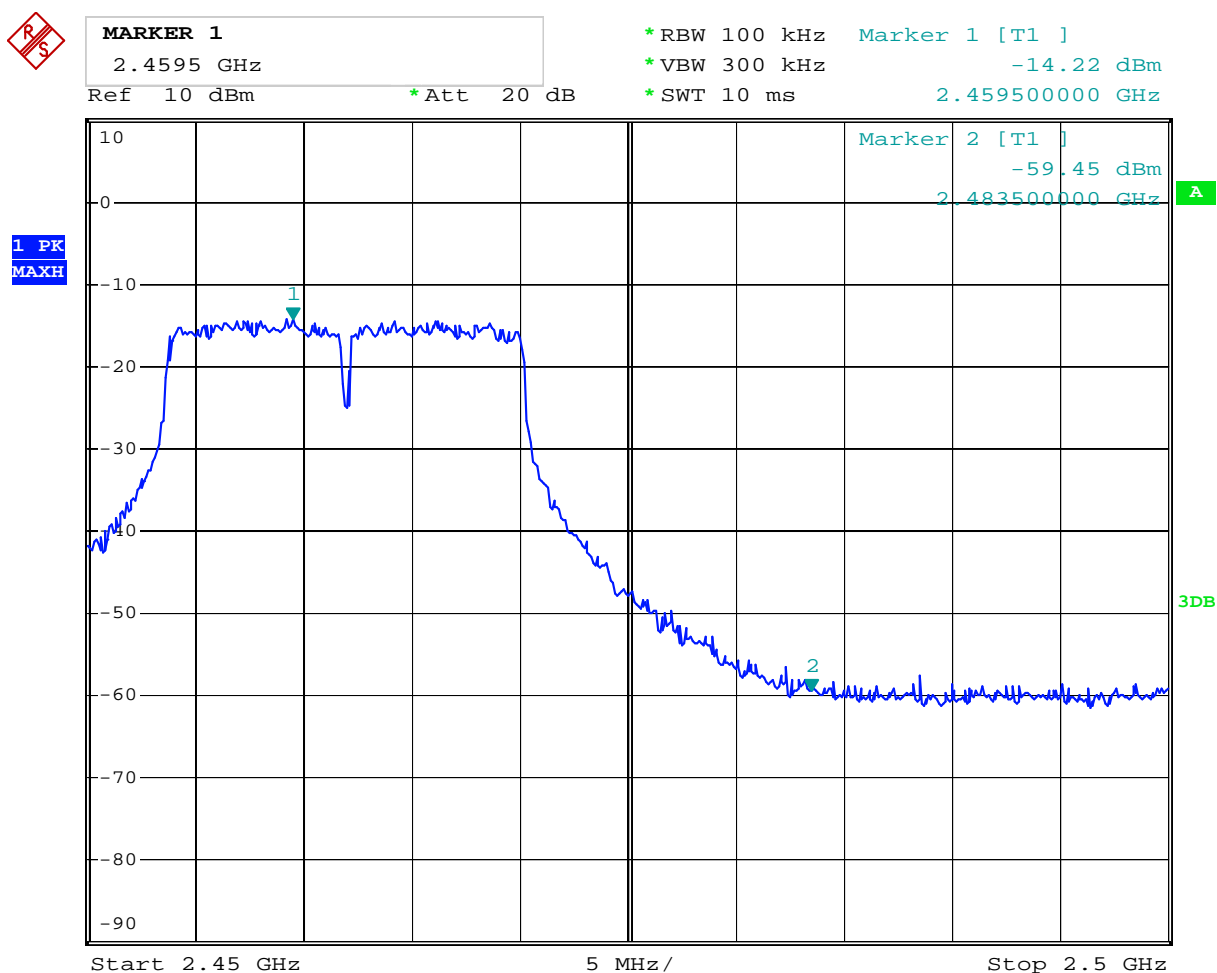
Date: 24.APR.2014 16:02:51

CH11 at 54Mbps

#### 10.4 Band-edge Measurement

EUT	MID		Model	MID727A-RK326
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
2483.5	PK (dBμV/m)	43.86	Limit	74(dBμV/m)
	AV (dBμV/m)	--		54(dBμV/m)

Test Figure:



Date: 24.APR.2014 15:58:02

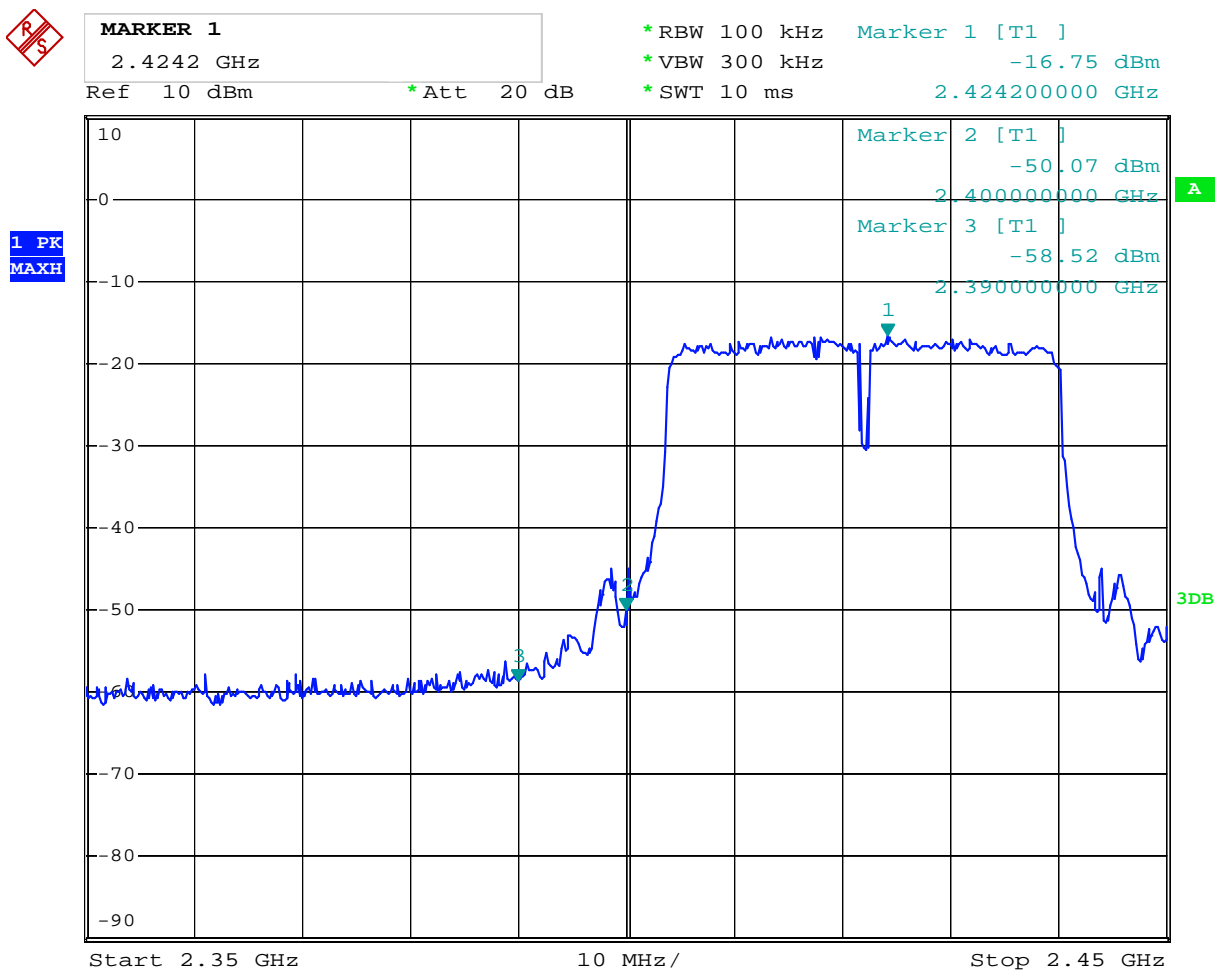
For 802.11n mode

CH01 at HT20 65Mbps

#### 10.4 Band-edge Measurement

EUT	MID		Model	MID727A-RK326
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
2400MHz	PK (dBμV/m)	51.12	Limit	74(dBμV/m)
	AV (dBμV/m)	--		54(dBμV/m)
2390MHz	PK (dBμV/m)	42.07	Limit	74(dBμV/m)
	AV (dBμV/m)	--		54(dBμV/m)

Test Figure:



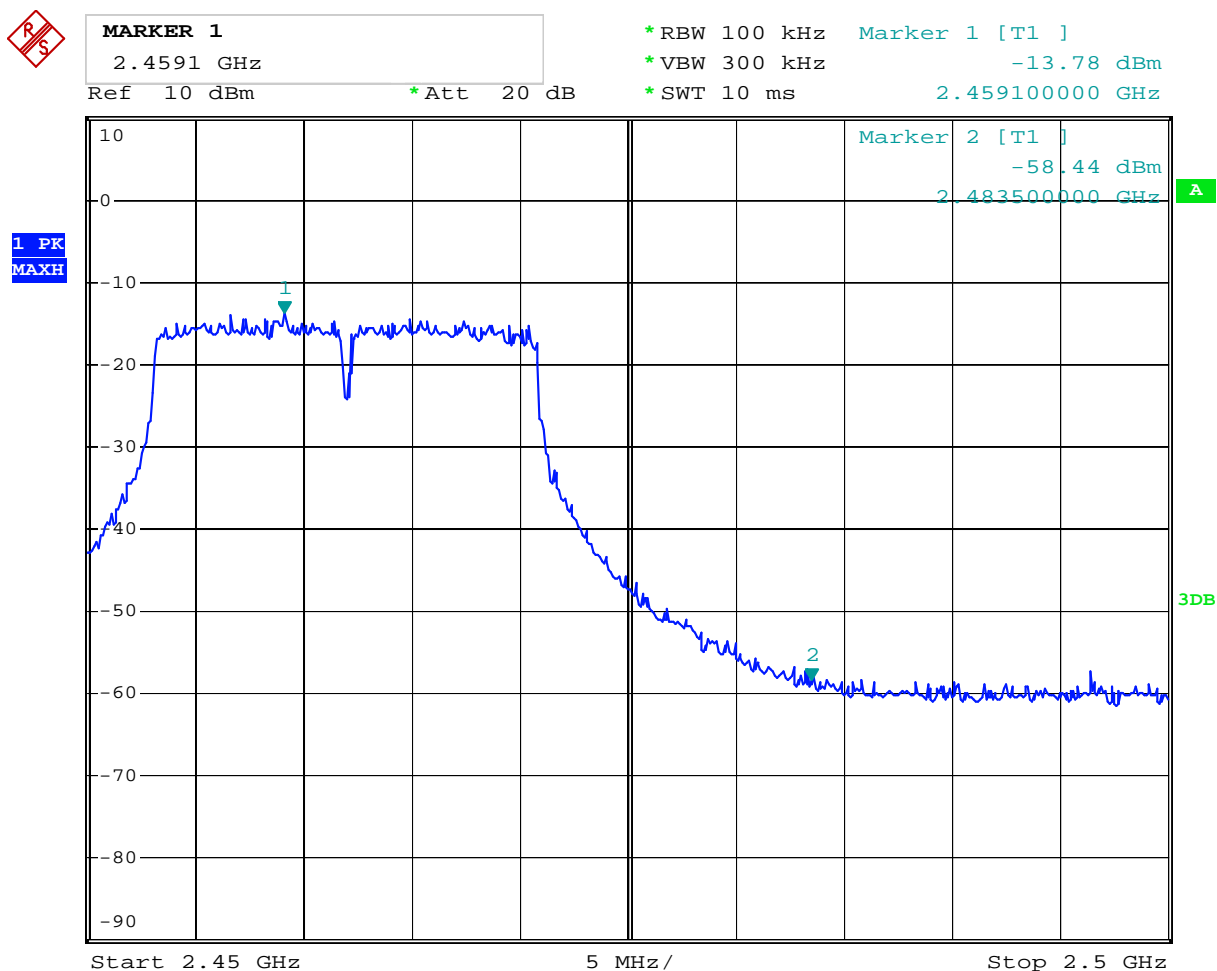
Date: 24.APR.2014 16:04:35

CH11 at HT20 65Mbps

#### 10.4 Band-edge Measurement

EUT	MID		Model	MID727A-RK326
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
2483.5	PK (dBμV/m)	43.72	Limit	74(dBμV/m)
	AV (dBμV/m)	--		54(dBμV/m)

#### Test Figure:



Date: 24.APR.2014 15:59:50

For 802.11n mode

CH01 at HT40 65Mbps

#### 10.4 Band-edge Measurement

EUT	MID		Model	MID727A-RK326
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
2400MHz	PK (dBμV/m)	46.67	Limit	74(dBμV/m)
	AV (dBμV/m)	--		54(dBμV/m)
2390MHz	PK (dBμV/m)	39.22	Limit	74(dBμV/m)
	AV (dBμV/m)	--		54(dBμV/m)

Test Figure:



MARKER 1

2.4174 GHz

Ref 10 dBm

\* Att 30 dB

\* RBW 100 kHz

\* VBW 300 kHz

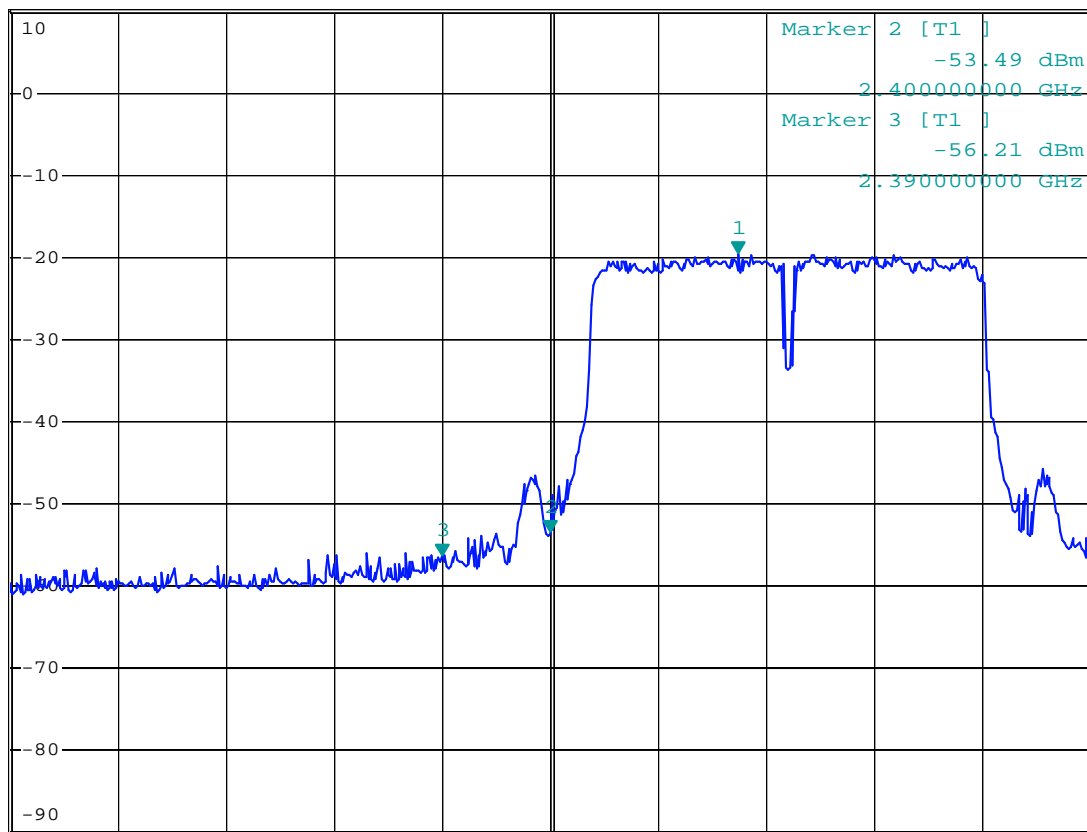
\* SWT 10 ms

Marker 1 [T1 ]

-19.61 dBm

2.417400000 GHz

1 PK  
MAXH



Start 2.35 GHz

10 MHz/

Stop 2.45 GHz

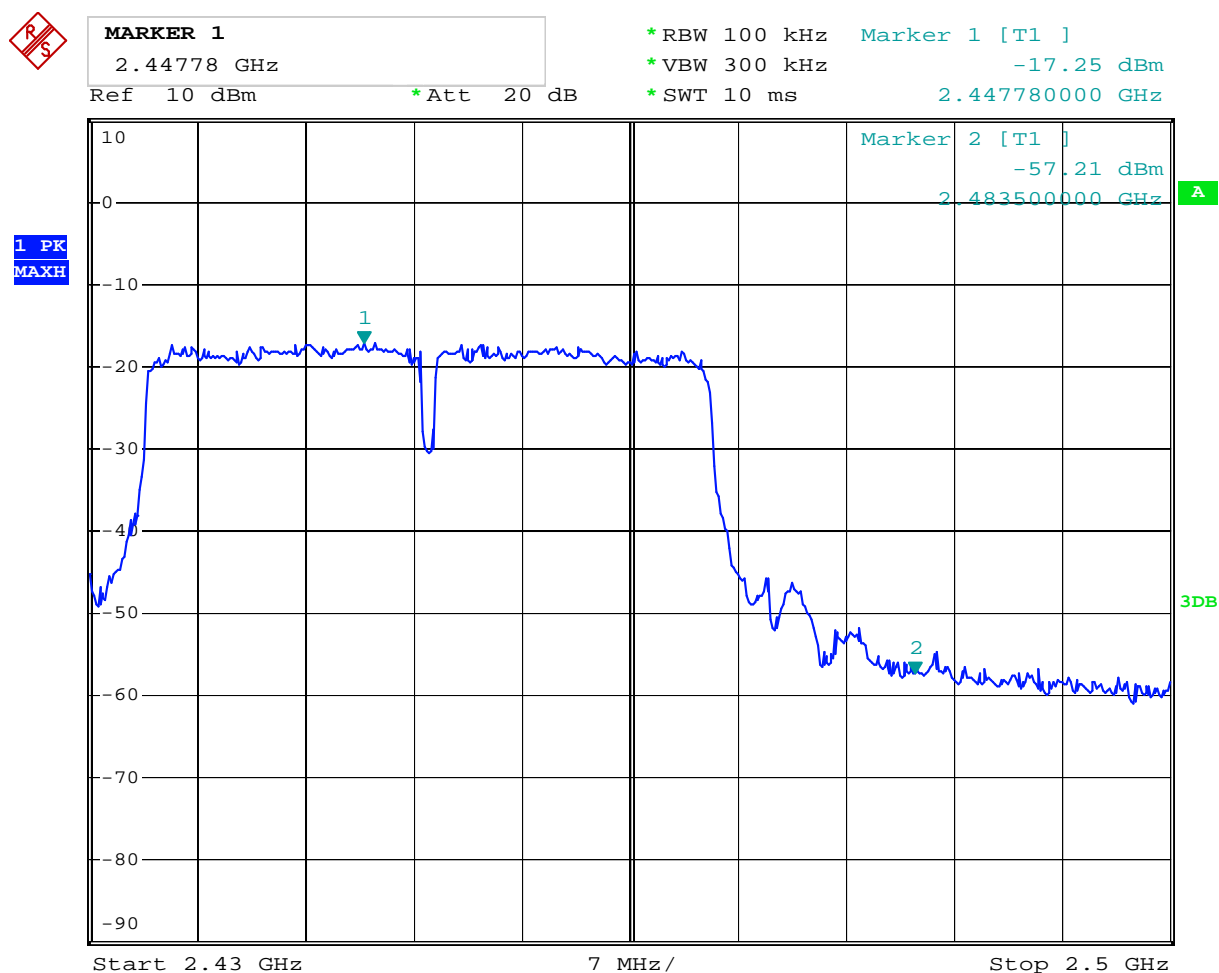
Date: 26.APR.2014 15:10:58

CH11 at HT40 65Mbps

#### 10.4 Band-edge Measurement

EUT	MID		Model	MID727A-RK326
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
2483.5	PK (dBμV/m)	45.23	Limit	74(dBμV/m)
	AV (dBμV/m)	--		54(dBμV/m)

#### Test Figure:



Date: 24.APR.2014 15:56:08



## **11.0 Antenna Requirement**

### **11.1 Standard Applicable**

For intentional device, according to FCC 47 CFR Section 15.203, 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.

And according to FCC 47 CFR Section 15.247 (b), if transmitter antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### **11.2 Antenna Connected construction**

Integral antenna used. The maximum Gain of the antennas is 2.0dBi.

**12.0 FCC ID Label****FCC ID: 2AAQZMID727A-RK326**

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The label must not be a stick-on paper label. The label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

**Mark Location:**

FCC ID Label Location

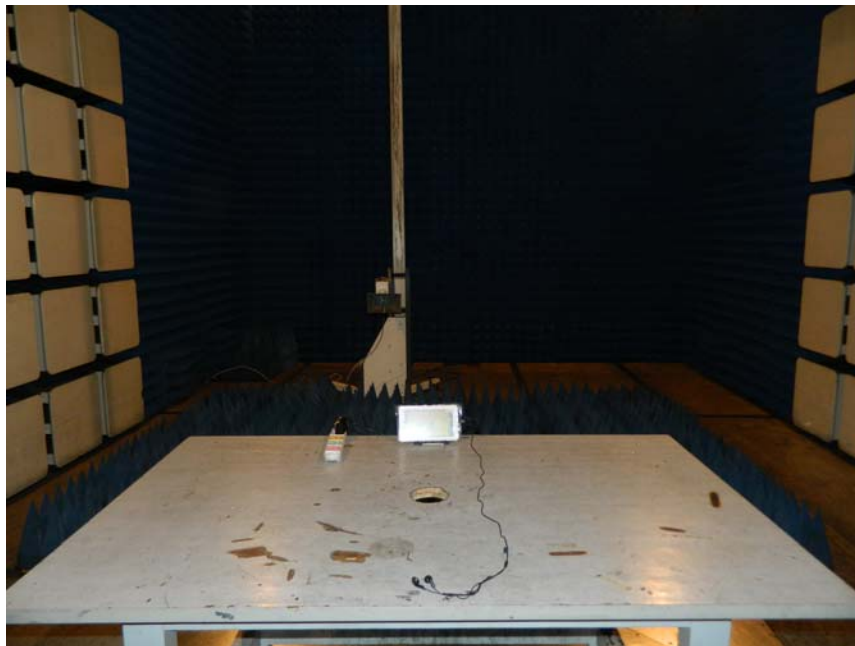
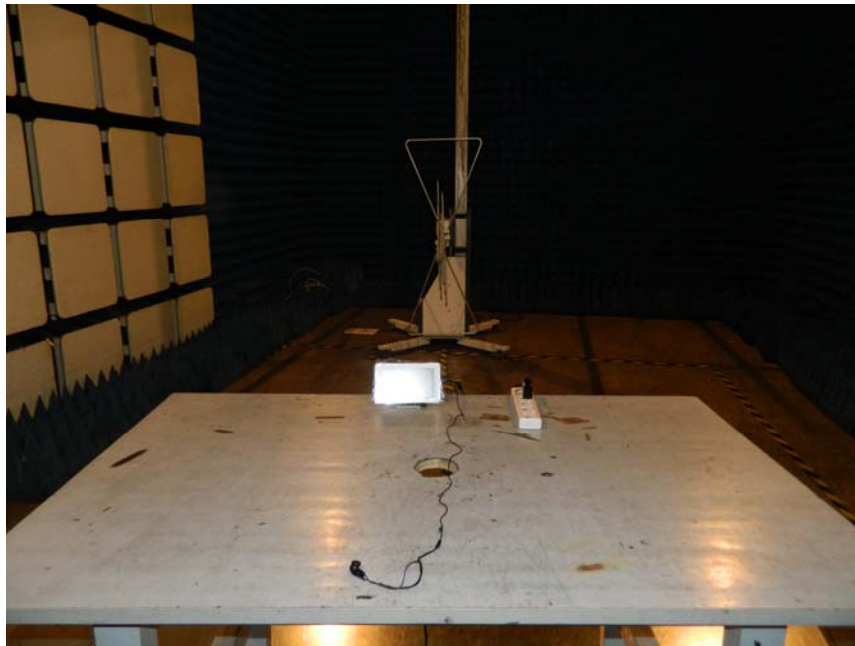


## 13 PHOTOGRAPHS OF THE TEST CONFIGURATION

### Conducted Emissions



### Radiated Emissions



## PHOTOGRAPHS OF EUT



Photo 1



Photo 2





Photo 3



Photo 4





Photo 5



Photo 6





Photo 7



Photo 8





Photo 9

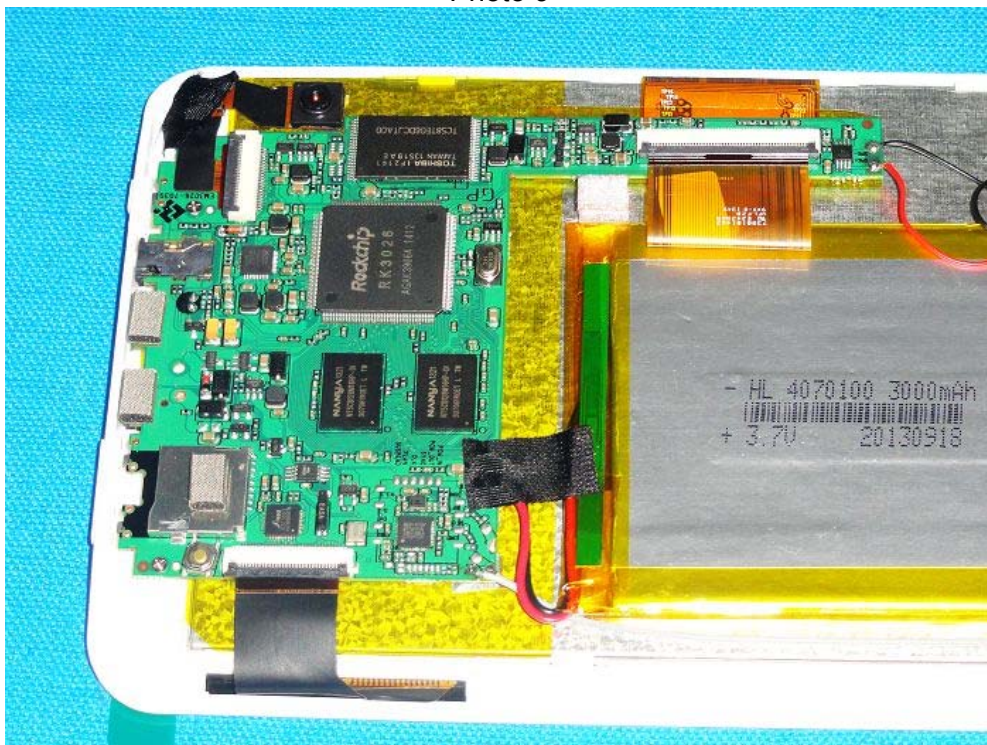


Photo 10



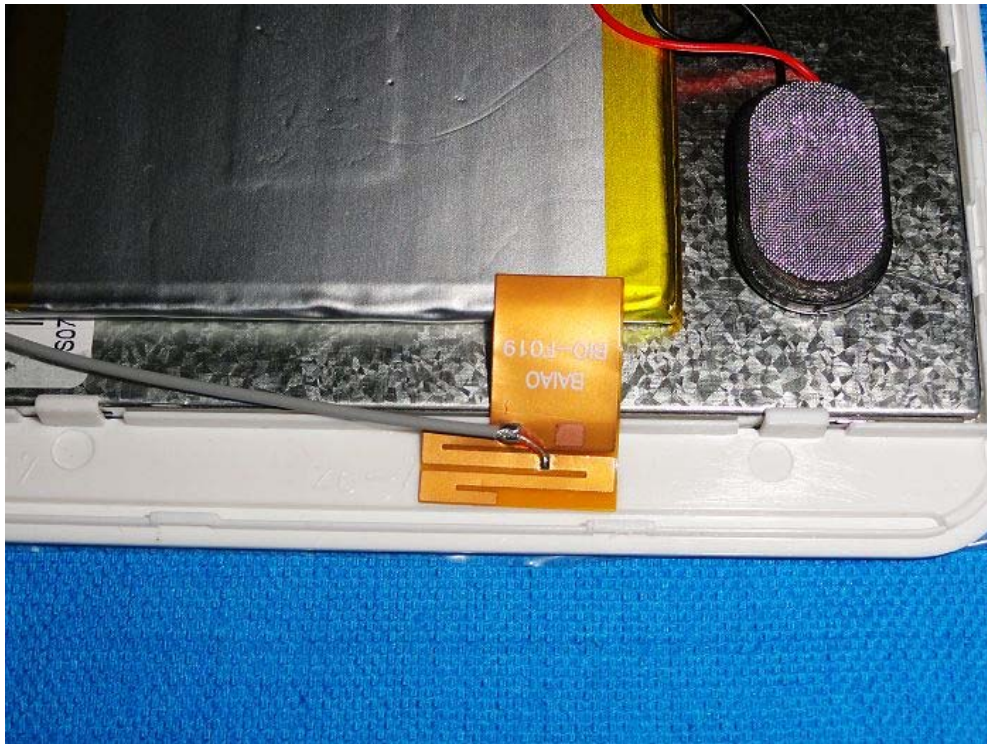


Photo 11



Photo 12



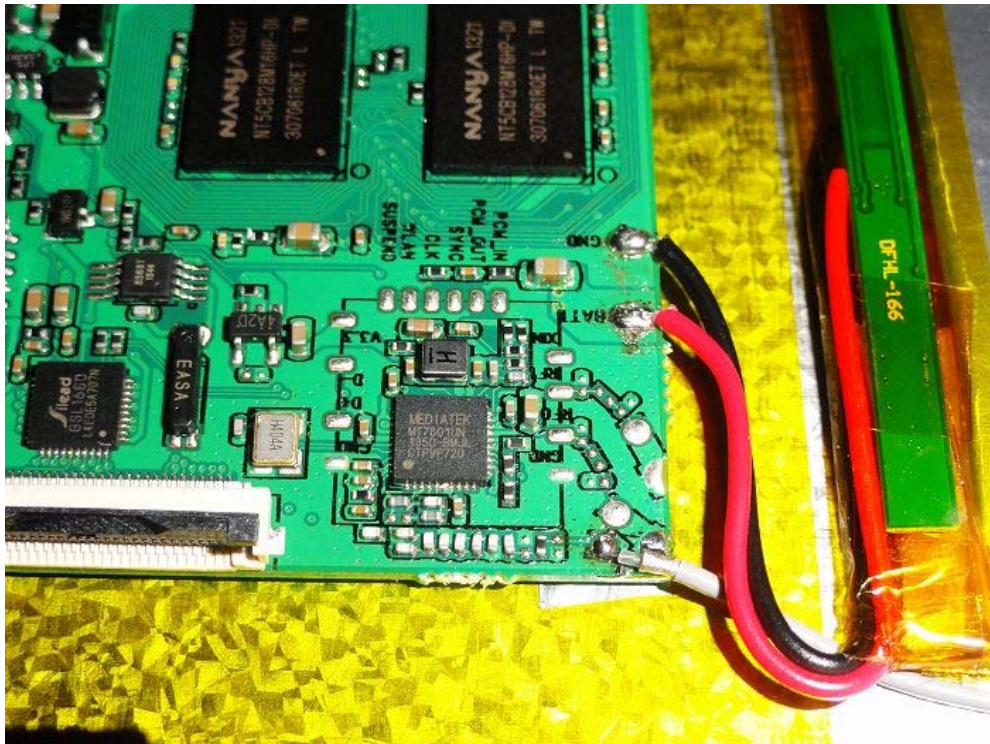


Photo 13

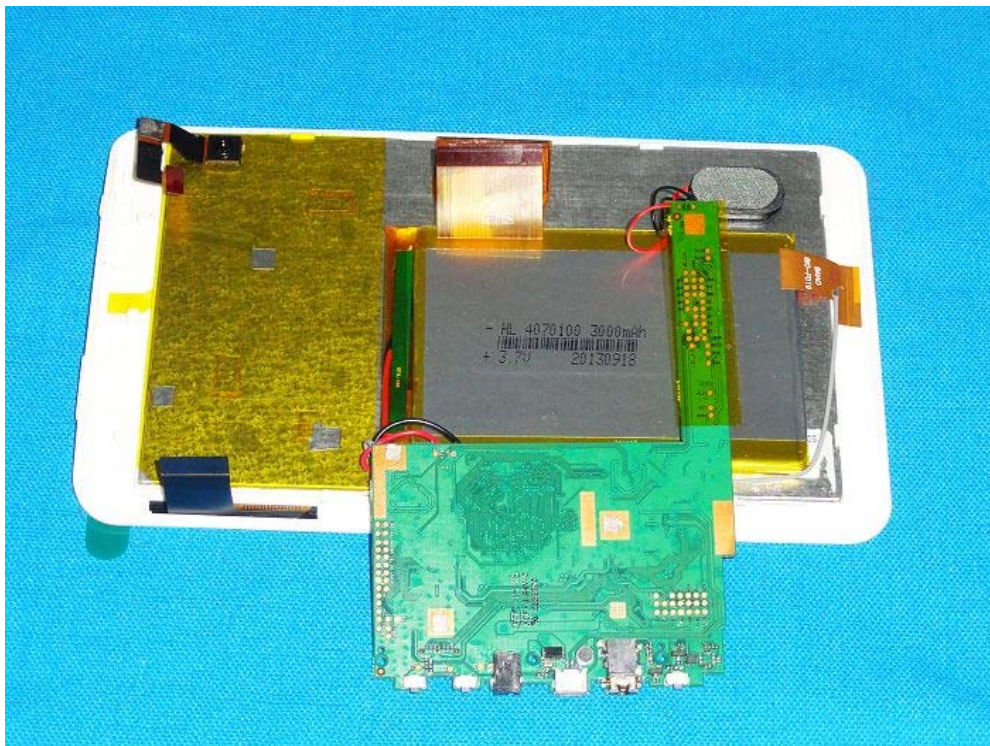


Photo 14



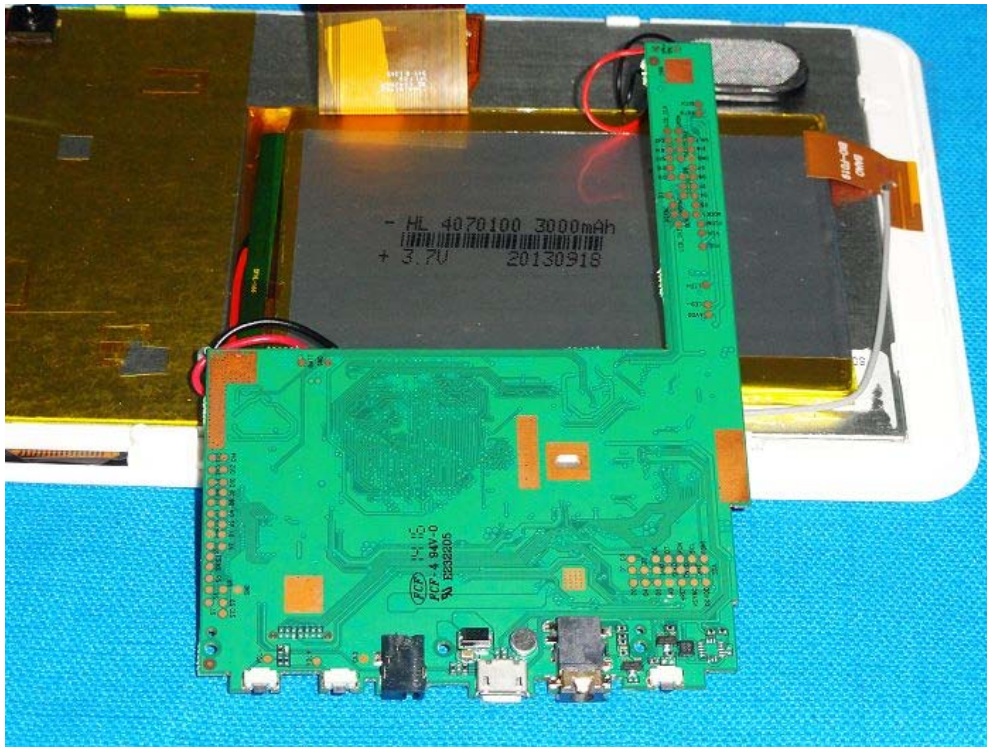


Photo 15



Photo 15 (Alternative Battery)

**The Report End**