



# MEASUREMENT REPORT

## FCC PART 15.247 802.11b/g/n

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**FCC ID:** 2AJ3WEBEQPZ09

**APPLICANT:** Hangzhou Eboylamp Electronics Co.,Ltd.

**Application Type:** Certification

**Product:** SMART LED LAMP

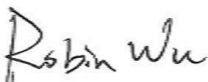
**Model No.:** EBE-QPZ09

**FCC Classification:** Digital Transmission System (DTS)


**FCC Rule Part(s):** Part 15.247

**Test Procedure(s):** ANSI C63.10-2013, KDB 558074 D01v03r05

**Test Date:** March 27 ~ April 17, 2017

Reviewed By : 

( Robin Wu )

Approved By : 

( Marlin Chen )



The test results relate only to the samples tested.

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in KDB 558074 D01v03r05. Test results reported herein relate only to the item(s) tested.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Suzhou) Co., Ltd.

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### Revision History

Report No.	Version	Description	Issue Date	Note
1703RSU03401	Rev. 01	Initial report	04-17-2017	Valid

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## CONTENTS

Description	Page
<b>§ 2.1033 General Information.....</b>	<b>5</b>
<b>1. INTRODUCTION .....</b>	<b>6</b>
1.1. Scope .....	6
1.2. MRT Test Location .....	6
<b>2. PRODUCT INFORMATION .....</b>	<b>7</b>
2.1. Equipment Description.....	7
2.2. Operation Frequency / Channel List .....	7
2.3. Test Mode .....	8
2.4. Test Software .....	8
2.5. Device Capabilities .....	9
2.6. Test Configuration .....	10
2.7. EMI Suppression Device(s)/Modifications.....	10
2.8. Labeling Requirements.....	10
<b>3. DESCRIPTION OF TEST .....</b>	<b>11</b>
3.1. Evaluation Procedure .....	11
3.2. AC Line Conducted Emissions .....	11
3.3. Radiated Emissions.....	12
<b>4. ANTENNA REQUIREMENTS.....</b>	<b>13</b>
<b>5. TEST EQUIPMENT CALIBRATION DATE.....</b>	<b>14</b>
<b>6. MEASUREMENT UNCERTAINTY.....</b>	<b>15</b>
<b>7. TEST RESULT .....</b>	<b>16</b>
7.1. Summary .....	16
7.2. 6dB Bandwidth Measurement.....	17
7.2.1. Test Limit .....	17
7.2.2. Test Procedure used.....	17
7.2.3. Test Setting.....	17
7.2.4. Test Setup.....	17
7.2.5. Test Result.....	18
7.3. Output Power Measurement.....	22
7.3.1. Test Limit .....	22
7.3.2. Test Procedure Used .....	22
7.3.3. Test Setting.....	22

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7.3.4.	Test Setup.....	22
7.3.5.	Test Result of Output Power .....	23
7.3.6.	Test Result of Average Output Power (Reporting Only).....	26
7.4.	Power Spectral Density Measurement .....	27
7.4.1.	Test Limit .....	27
7.4.2.	Test Procedure Used .....	27
7.4.3.	Test Setting.....	27
7.4.4.	Test Setup.....	27
7.4.5.	Test Result.....	28
7.5.	Conducted Band Edge and Out-of-Band Emissions.....	32
7.5.1.	Test Limit .....	32
7.5.2.	Test Procedure Used .....	32
7.5.3.	Test Setting.....	32
7.5.4.	Test Setup.....	33
7.5.5.	Test Result.....	34
7.6.	Radiated Spurious Emission Measurement .....	40
7.6.1.	Test Limit .....	40
7.6.2.	Test Procedure Used .....	40
7.6.3.	Test Setting.....	40
7.6.4.	Test Setup.....	42
7.6.5.	Test Result.....	44
7.7.	Radiated Restricted Band Edge Measurement .....	55
7.7.1.	Test Result.....	55
7.8.	AC Conducted Emissions Measurement.....	79
7.8.1.	Test Limit .....	79
7.8.2.	Test Setup.....	79
7.8.3.	Test Result.....	80
<b>8.</b>	<b>CONCLUSION.....</b>	<b>82</b>

## §2.1033 General Information

<b>Applicant:</b>	Hangzhou Eboylamp Electronics Co.,Ltd.
<b>Applicant Address:</b>	No.326Liangyun Street, Yuhang District, Hangzhou, Zhejiang
<b>Manufacturer:</b>	Hangzhou Eboylamp Electronics Co.,Ltd.
<b>Manufacturer Address:</b>	No.326Liangyun Street, Yuhang District, Hangzhou, Zhejiang
<b>Test Site:</b>	MRT Technology (Suzhou) Co., Ltd
<b>Test Site Address:</b>	D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China
<b>MRT Registration No.:</b>	809388
<b>FCC Rule Part(s):</b>	Part 15.247
<b>FCC ID:</b>	2AJ3WEBEQPZ09
<b>Test Device Serial No.:</b>	N/A <input type="checkbox"/> Production <input checked="" type="checkbox"/> Pre-Production <input type="checkbox"/> Engineering
<b>FCC Classification:</b>	Digital Transmission System (DTS)

### Test Facility / Accreditations

Measurements were performed at MRT Laboratory located in Tian'edang Rd., Suzhou, China.

- MRT facility is a FCC registered (MRT Reg. No. 809388) test facility with the site description report on file and has met all the requirements specified in Section 2.948 of the FCC Rules.
- MRT facility is an IC registered (MRT Reg. No. 11384A-1) test laboratory with the site description on file at Industry Canada.
- MRT facility is a VCCI registered (R-4179, G-814, C-4664, T-2206) test laboratory with the site description on file at VCCI Council.
- MRT Lab is accredited to ISO 17025 by the American Association for Laboratory Accreditation (A2LA) under the American Association for Laboratory Accreditation Program (A2LA Cert. No. 3628.01) in EMC, Telecommunications and Radio testing for FCC, Industry Canada, EU and TELEC Rules.



# 1. INTRODUCTION

## 1.1. Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Industry Canada Certification and Engineering Bureau.

## 1.2. MRT Test Location

The map below shows the location of the MRT LABORATORY, its proximity to the Taihu Lake. These measurement tests were conducted at the MRT Technology (Suzhou) Co., Ltd. Facility located at D8 Building, Youxin Industrial Park, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China. The detailed description of the measurement facility was found to be in compliance with the requirements of § 2.948 according to ANSI C63.4-2009 on September 30, 2013.



## 2. PRODUCT INFORMATION

### 2.1. Equipment Description

Product Name	SMART LED LAMP
Model No.	EBE-QPZ09
WLAN Specification	
Frequency Range	802.11b/g/n-HT20: 2412 ~ 2462 MHz
Maximum Peak Output Power	802.11b: 10.93dBm 802.11g: 19.27dBm 802.11n-HT20: 19.31dBm
Type of Modulation	802.11b: DSSS 802.11g/n: OFDM
Antenna Gain	3.0dBi

### 2.2. Operation Frequency / Channel List

802.11b/g/n-HT20

Channel	Frequency	Channel	Frequency	Channel	Frequency
01	2412 MHz	02	2417 MHz	03	2422 MHz
04	2427 MHz	05	2432 MHz	06	2437 MHz
07	2442 MHz	08	2447 MHz	09	2452 MHz
10	2457 MHz	11	2462 MHz	--	--

### 2.3. Test Mode

Test Mode	Mode 1: Transmit by 802.11b
	Mode 2: Transmit by 802.11g
	Mode 3: Transmit by 802.11n-HT20

### 2.4. Test Software

The test utility software used during testing was “SecureCRT”.



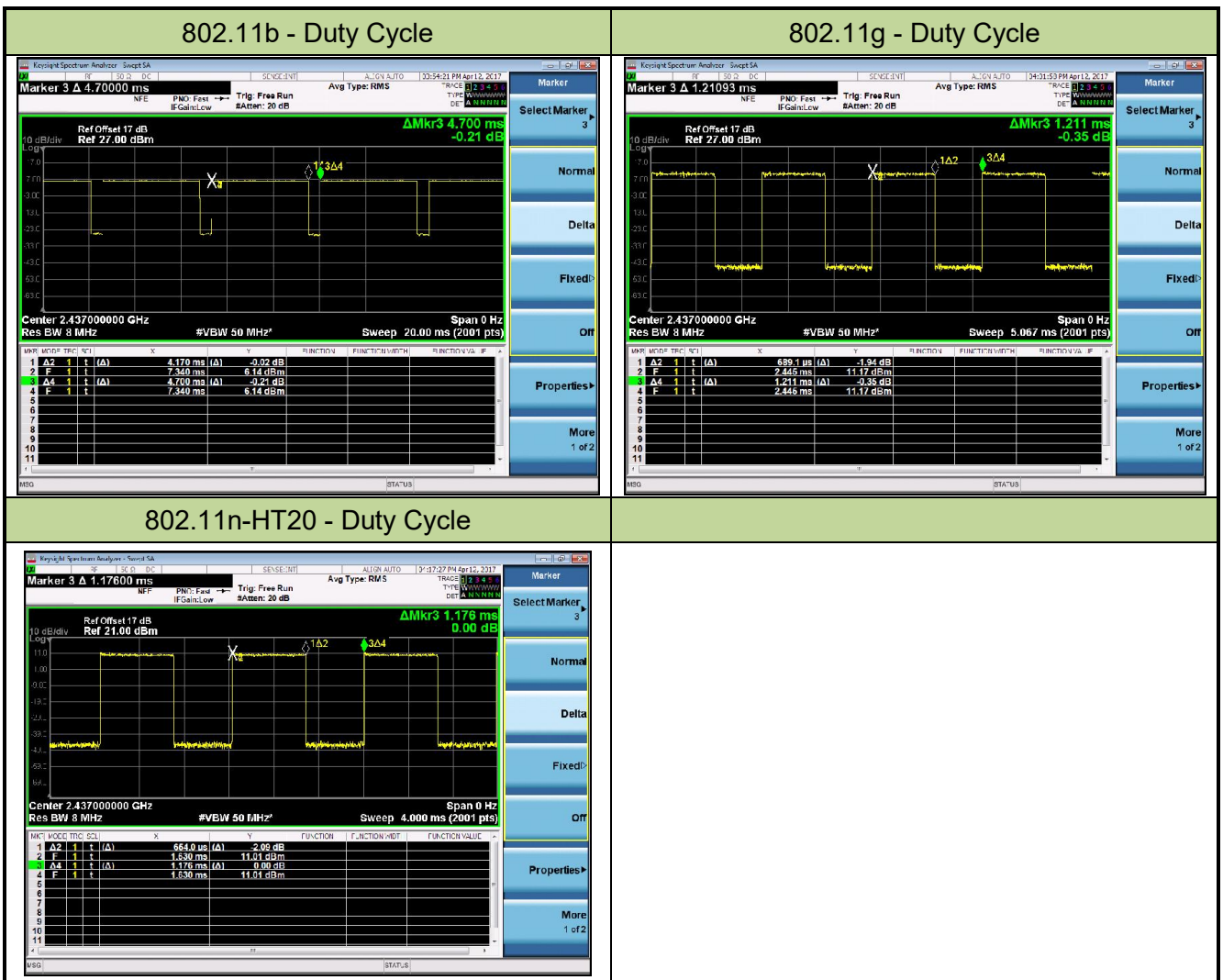
## 2.5. Device Capabilities

This device contains the following capabilities:

2.4GHz WLAN (DTS)

**Note:** 2.4GHz WLAN (DTS) operation is possible in 20MHz channel bandwidths. The maximum achievable duty cycle was determined based on measurements performed on a spectrum analyzer in zero-span mode with RBW = 8MHz, VBW = 50MHz. The RBW and VBW were both greater than 50/T, where T is the minimum transmission duration, and the number of sweep points across T was greater than 100. The duty cycles are as follows:

Test Mode	Duty Cycle
802.11b	88.7%
802.11g	56.9%
802.11n-HT20	55.6%



## 2.6. Test Configuration

The **SMART LED LAMP** was tested per the guidance of KDB 558074 D01v03r05. ANSI C63.10-2013 was used to reference the appropriate EUT setup for radiated spurious emissions testing and AC line conducted testing.

## 2.7. EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and/or no modifications were made during testing.

## 2.8. Labeling Requirements

Per 2.1074 & 15.19; Docket 95-19

The label shall be permanently affixed at a conspicuous location on the device; instruction manual or pamphlet supplied to the user and be readily visible to the purchaser at the time of purchase. However, when the device is so small wherein placement of the label with specified statement is not practical, only the FCC ID must be displayed on the device per Section 15.19(a)(5). Please see attachment for FCC ID label and label location.

### 3. DESCRIPTION OF TEST

#### 3.1. Evaluation Procedure

The measurement procedures described in the American National Standard for Testing Unlicensed Wireless Devices (ANSI C63.10-2013), and the guidance provided in KDB 558074 D01v03r05 were used in the measurement of the **SMART LED LAMP**.

**Deviation from measurement procedure.....None**

#### 3.2. AC Line Conducted Emissions

The line-conducted facility is located inside an 8'x4'x4' shielded enclosure. A 1m x 2m wooden table 80cm high is placed 40cm away from the vertical wall and 80cm away from the sidewall of the shielded room. Two 10kHz-30MHz, 50Ω/50uH Line-Impedance Stabilization Networks (LISNs) are bonded to the shielded room floor. Power to the LISNs is filtered by external high-current high-insertion loss power line filters. These filters attenuate ambient signal noise from entering the measurement lines. These filters are also bonded to the shielded enclosure.

The EUT is powered from one LISN and the support equipment is powered from the second LISN. All interconnecting cables more than 1 meter were shortened to a 1 meter length by non-inductive bundling (serpentine fashion) and draped over the back edge of the test table. All cables were at least 40cm above the horizontal reference ground-plane. Power cables for support equipment were routed down to the second LISN while ensuring that that cables were not draped over the second LISN.

Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The RF output of the LISN was connected to the receiver and exploratory measurements were made to determine the frequencies producing the maximum emission from the EUT. The receiver was scanned from 150kHz to 30MHz. The detector function was set to peak mode for exploratory measurements while the bandwidth of the analyzer was set to 9kHz. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Each emission was also maximized by varying: power lines, the mode of operation or data exchange speed, or support equipment whichever determined the worst-case emission. Once the worst case emissions have been identified, the one EUT cable configuration/arrangement and mode of operation that produced these emissions are used for final measurements on the same test site. The analyzer is set to CISPR quasi-peak and average detectors with a 9kHz resolution bandwidth for final measurements.

An extension cord was used to connect to a single LISN which powered by EUT. The extension cord was calibrated with LISN, the impedance and insertion loss are compliance with the requirements as stated in ANSI C63.10-2013.

Line conducted emissions test results are shown in Section 7.8.

### 3.3. Radiated Emissions

The radiated test facilities consisted of an indoor 3 meter semi-anechoic chamber used for final measurements and exploratory measurements, when necessary. The measurement area is contained within the semi-anechoic chamber which is shielded from any ambient interference. For measurements above 1GHz absorbers are arranged on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections. For measurements below 1GHz, the absorbers are removed. A MF Model 210SS turntable is used for radiated measurement. It is a continuously rotatable, remote controlled, metallic turntable and 2 meters (6.56 ft.) in diameter. The turn table is flush with the raised floor of the chamber in order to maintain its function as a ground plane. An 80cm high PVC support structure is placed on top of the turntable.

For all measurements, the spectrum was scanned through all EUT azimuths and from 1 to 4 meter receive antenna height using a broadband antenna from 30MHz up to the upper frequency shown in 15.33(b)(1) depending on the highest frequency generated or used in the device or on which the device operates or tunes. For frequencies above 1GHz, linearly polarized double ridge horn antennas were used. For frequencies below 30MHz, a calibrated loop antenna was used. When exploratory measurements were necessary, they were performed at 1 meter test distance inside the semi-anechoic chamber using broadband antennas, broadband amplifiers, and spectrum analyzers to determine the frequencies and modes producing the maximum emissions. Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The test set-up for frequencies below 1GHz was placed on top of the 0.8 meter high, 1 x 1.5 meter table; and test set-up for frequencies 1-25GHz was placed on top of the 1.5 meter high, 1 x 1.5 meter table. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Appropriate precaution was taken to ensure that all emissions from the EUT were maximized and investigated. The system configuration, clock speed, mode of operation or video resolution, if applicable, turntable azimuth, and receive antenna height was noted for each frequency found.

Final measurements were made in the semi-anechoic chamber using calibrated, linearly polarized broadband and horn antennas. The test setup was configured to the setup that produced the worst case emissions. The spectrum analyzer was set to investigate all frequencies required for testing to compare the highest radiated disturbances with respect to the specified limits. The turntable containing the EUT was rotated through 360 degrees and the height of the receive antenna was varied 1 to 4 meters and stopped at the azimuth and height producing the maximum emission. Each emission was maximized by changing the orientation of the EUT through three orthogonal planes and changing the polarity of the receive antenna, whichever produced the worst-case emissions. According to 3dB Beam-Width of horn antenna, the horn antenna should be always directed to the EUT when rising height.

## 4. ANTENNA REQUIREMENTS

### Excerpt from §15.203 of the FCC Rules/Regulations:

“An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.”

- The antenna of the **SMART LED LAMP** is **permanently attached**.
- There are no provisions for connection to an external antenna.

### **Conclusion:**

The **SMART LED LAMP FCC ID: 2AJ3WEBEQPZ09** unit complies with the requirement of §15.203.

## 5. TEST EQUIPMENT CALIBRATION DATE

### Conducted Emissions - SR2

Instrument	Manufacturer	Type No.	Serial No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR7	101209	1 year	2017/06/21
Two-Line V-Network	R&S	ENV216	101683	1 year	2017/06/21
Two-Line V-Network	R&S	ENV216	101684	1 year	2017/06/21
Temperature/Humidity Meter	Yuhuaze	N/A	N/A	1 year	2017/12/20
Shielding Anechoic Chamber	MIX-BEP	Chamber-SR2	N/A	1 year	2017/05/10

### Radiated Emission – AC2

Instrument	Manufacturer	Type No.	Serial No.	Cali. Interval	Cali. Due Date
EXA Signal Analyzer	Agilent	N9010A	MY56070124	1 year	2017/06/23
EMI Test Receiver	R&S	ESR7	101209	1 year	2017/06/21
Preamplifier	Agilent	83017A	MY52090106	1 year	2018/03/28
Broadband Coaxial Preamplifier	Schwarzbeck	BBV 9718	302	N/A	N/A
Loop Antenna	Schwarzbeck	FMZB1519	1519-041	1 year	2017/11/21
TRILOG Antenna	Schwarzbeck	VULB9162	9162-047	1 year	2017/10/22
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	9120D-1167	1 year	2017/10/22
Broadband Horn Antenna	Schwarzbeck	BBHA9170	BBHA9170549	1 year	2018/01/04
Digital Thermometer & Hygrometer	Minggao	N/A	N/A	1 year	2017/12/14
Anechoic Chamber	RIKEN	Chamber-AC2	N/A	1 year	2017/05/10

### Conducted Test Equipment - TR3

Instrument	Manufacturer	Type No.	Serial No.	Cali. Interval	Cali. Due Date
Spectrum Analyzer	Agilent	N9020A	MY52090106	1 year	2017/05/08
USB Wideband Power Sensor	Boonton	55006	8911	1 year	2017/05/08
Temperature/Humidity Meter	Yuhuaze	N/A	N/A	1 year	2017/12/20

Software	Version	Function
e3	V8.3.5	EMI Test Software

## 6. MEASUREMENT UNCERTAINTY

Where relevant, the following test uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of  $k = 2$ .

<b>AC Conducted Emission Measurement - SR2</b>
Measuring Uncertainty for a Level of Confidence of 95% ( $U=2Uc(y)$ ): 150kHz~30MHz: 3.46dB
<b>Radiated Emission Measurement – AC2</b>
Measuring Uncertainty for a Level of Confidence of 95% ( $U=2Uc(y)$ ): 9kHz ~ 1GHz: 4.18dB 1GHz ~ 25GHz: 4.76dB
<b>Spurious Emissions, Conducted - TR3</b>
Measuring Uncertainty for a Level of Confidence of 95% ( $U=2Uc(y)$ ): 0.78dB
<b>Output Power - TR3</b>
Measuring Uncertainty for a Level of Confidence of 95% ( $U=2Uc(y)$ ): 1.13dB
<b>Power Spectrum Density - TR3</b>
Measuring Uncertainty for a Level of Confidence of 95% ( $U=2Uc(y)$ ): 1.15dB
<b>Occupied Bandwidth - TR3</b>
Measuring Uncertainty for a Level of Confidence of 95% ( $U=2Uc(y)$ ): 0.28%

## 7. TEST RESULT

### 7.1. Summary

**Company Name:** Hangzhou Eboylamp Electronics Co.,Ltd.  
**FCC ID:** 2AJ3WEBEQPZ09  
**FCC Classification:** Digital Transmission System (DTS)  
**Data Rate(s) Tested:** 1Mbps ~ 11Mbps (b); 6Mbps ~ 54Mbps (g);  
6.5/7.2Mbps ~ 65.0/72.2Mbps (n-HT20);

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
15.247(a)(2)	6dB Bandwidth	$\geq 500\text{kHz}$	Conducted	Pass	Section 7.2
15.247(b)(3)	Output Power	$\leq 30\text{dBm}$		Pass	Section 7.3
15.247(e)	Power Spectral Density	$\leq 8\text{dBm}/3\text{kHz}$		Pass	Section 7.4
15.247(d)	Band Edge / Out-of-Band Emissions	$\geq 20\text{dBc}$		Pass	Section 7.5
15.205 15.209	General Field Strength Limits (Restricted Bands and Radiated Emission Limits)	Emissions in restricted bands must meet the radiated limits detailed in 15.209	Radiated	Pass	Section 7.6 & 7.7
15.207	AC Conducted Emissions 150kHz - 30MHz	< FCC 15.207 limits	Line Conducted	Pass	Section 7.8

#### Notes:

- 1) All modes of operation and data rates were investigated. For radiated emission test, every axis (X, Y, Z) was also verified. The test results shown in the following sections represent the worst case emissions.
- 2) The analyzer plots shown in this section were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables and attenuators used as part of the system to connect the EUT to the analyzer at all frequencies of interest.
- 3) All antenna port conducted emissions testing was performed on a test bench with the antenna port of the EUT connected to the spectrum analyzer through calibrated cables and attenuators.



## 7.2. 6dB Bandwidth Measurement

### 7.2.1. Test Limit

The minimum 6dB bandwidth shall be at least 500 kHz.

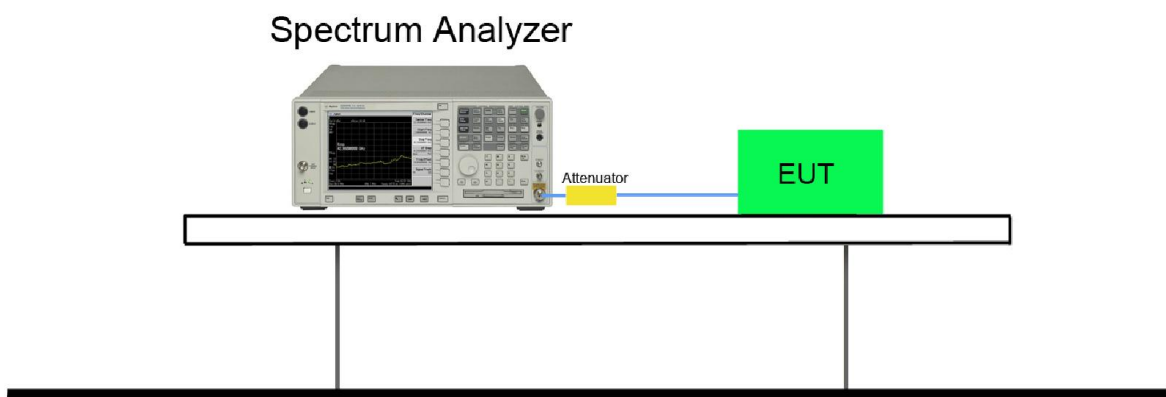
### 7.2.2. Test Procedure used

KDB 558074 D01v03r05 – Section 8.2 Option 2

### 7.2.3. Test Setting

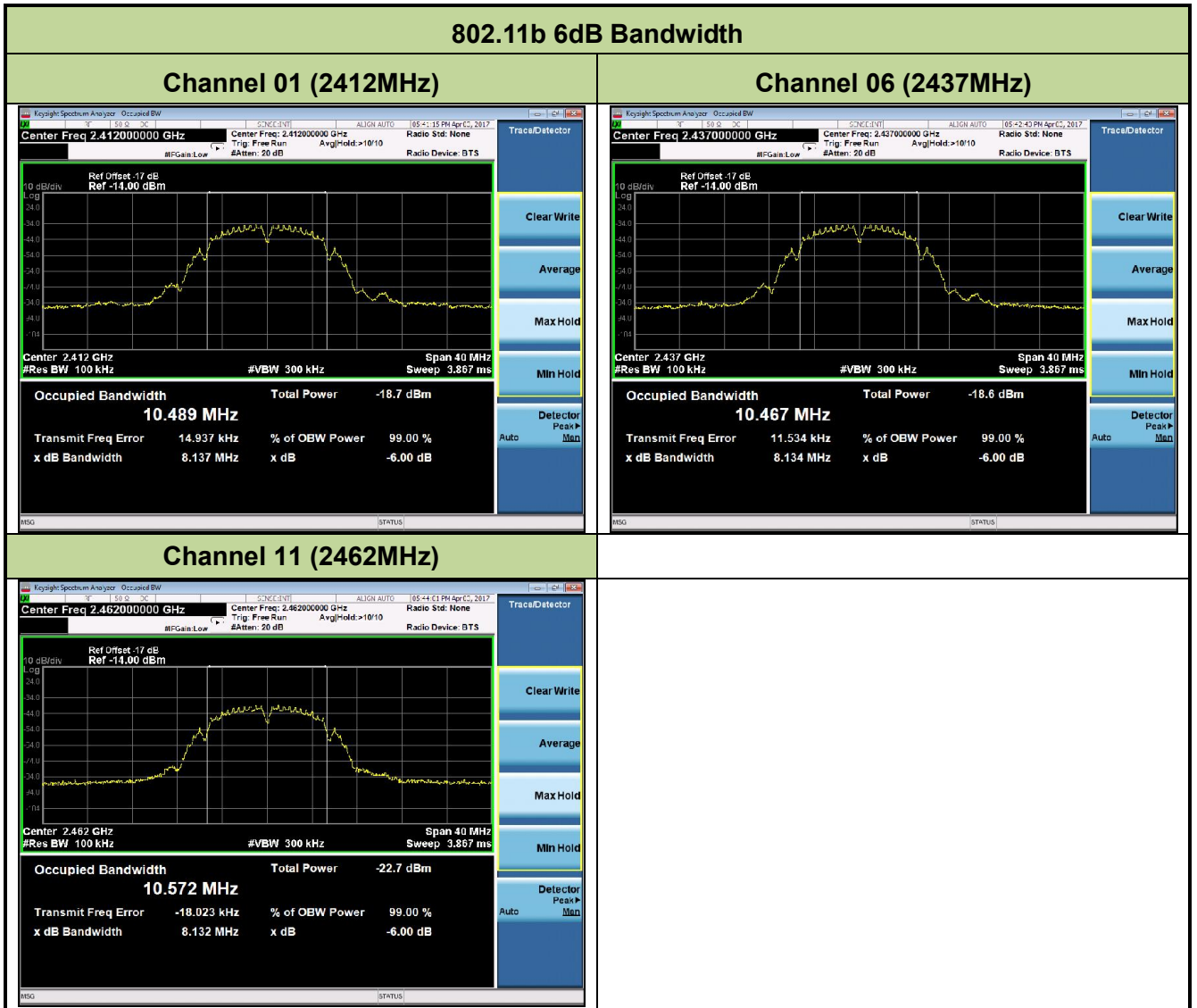
1. The Spectrum's automatic bandwidth measurement capability was used to perform the 6dB bandwidth measurement. The "X" dB bandwidth parameter was set to  $X = 6$ . The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
2. Set RBW = 100 kHz
3. VBW  $\geq 3 \times$  RBW
4. Detector = Peak
5. Trace mode = max hold
6. Sweep = auto couple
7. Allow the trace was allowed to stabilize

### 7.2.4. Test Setup



### 7.2.5. Test Result

Test Mode	Data Rate (Mbps)	Channel No.	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)	Result
802.11b	1	01	2412	8.14	≥0.5	Pass
802.11b	1	06	2437	8.13	≥0.5	Pass
802.11b	1	11	2462	8.13	≥0.5	Pass
802.11g	6	01	2412	16.38	≥0.5	Pass
802.11g	6	06	2437	16.37	≥0.5	Pass
802.11g	6	11	2462	16.38	≥0.5	Pass
802.11n-HT20	6.5	01	2412	17.62	≥0.5	Pass
802.11n-HT20	6.5	06	2437	17.61	≥0.5	Pass
802.11n-HT20	6.5	11	2462	17.60	≥0.5	Pass

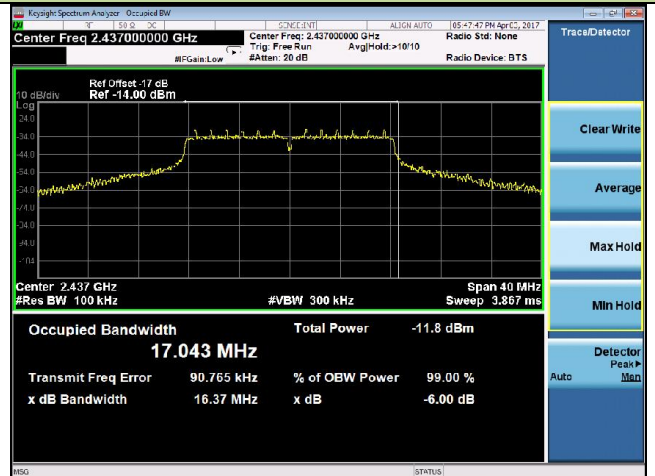


### 802.11g 6dB Bandwidth

#### Channel 01 (2412MHz)



#### Channel 06 (2437MHz)



#### Channel 11 (2462MHz)

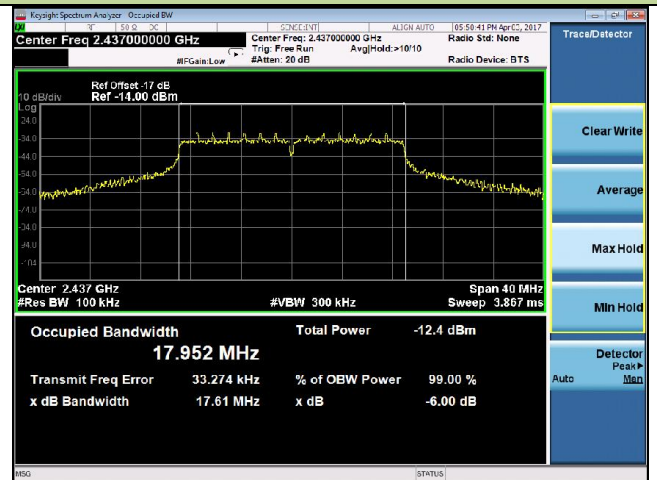


### 802.11n-HT20 6dB Bandwidth

#### Channel 01 (2412MHz)



#### Channel 06 (2437MHz)



#### Channel 11 (2462MHz)



## 7.3. Output Power Measurement

### 7.3.1. Test Limit

The maximum output power shall be less 1 Watt (30dBm).

### 7.3.2. Test Procedure Used

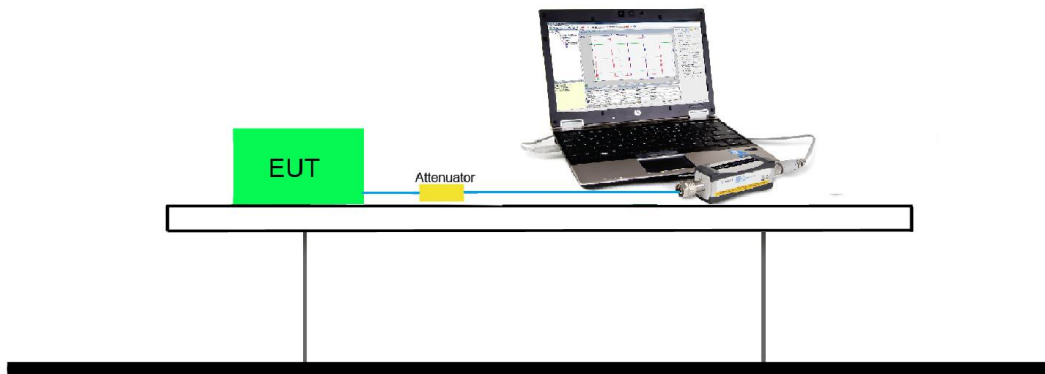
KDB 558074 D01v03r05 - Section 9.1.2 PKPM1 Peak Power Method (for signals with BW  $\leq$  50MHz)

### 7.3.3. Test Setting

#### **Method PKPM1 (Peak Power Measurement of Signals with DTS BW $\leq$ 50MHz)**

Peak power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The pulse sensor employs a VBW = 50MHz so this method was only used for signals whose DTS bandwidth was less than or equal to 50MHz.

### 7.3.4. Test Setup



### 7.3.5. Test Result of Output Power

Power output test was verified over all data rates of each mode shown as below, and then choose the maximum power output (yellow marker) for final test of each channel.

MCS Index for 802.11n	N <sub>TX</sub>	Data Rate (Mbps)			
		802.11b	802.11g	20MHz Bandwidth	
				800ns GI	400ns GI
0	1	1	6	6.5	7.2
1	1	2	9	13.0	14.4
2	1	5.5	12	19.5	21.7
3	1	11	18	26.0	28.9
4	1	--	24	39.0	43.3
5	1	--	36	52.0	57.8
6	1	--	48	58.5	65.0
7	1	--	54	65.0	72.2

**Output power at various data rates:**

Test Mode	Bandwidth (MHz)	Channel No.	Frequency (MHz)	Data Rate (Mbps)	Average Power (dBm)
802.11b	20	6	2437	1	6.03
				5.5	5.85
				11	5.61
802.11g	20	6	2437	6	10.81
				24	10.65
				54	10.35
802.11n	20	6	2437	6.5	10.60
				7.2	10.42
				26.0	10.30
				28.9	10.11
				65.0	9.84
				72.2	9.75



**Test Result of Peak Output Power**

Test Mode	Data Rate (Mbps)	Channel No.	Freq. (MHz)	Peak Power (dBm)	Limit (dBm)	Result
11b	1	1	2412	10.93	≤30	Pass
11b	1	6	2437	10.26	≤30	Pass
11b	1	11	2462	6.52	≤30	Pass
11g	6	1	2412	18.88	≤30	Pass
11g	6	6	2437	19.27	≤30	Pass
11g	6	11	2462	19.16	≤30	Pass
11n-HT20	6.5	1	2412	19.31	≤30	Pass
11n-HT20	6.5	6	2437	19.17	≤30	Pass
11n-HT20	6.5	11	2462	19.09	≤30	Pass

**7.3.6. Test Result of Average Output Power (Reporting Only)**

Test Mode	Data Rate (Mbps)	Channel No.	Freq. (MHz)	Average Power (dBm)	Limit (dBm)	Result
11b	1	1	2412	6.70	≤30	Pass
11b	1	6	2437	6.03	≤30	Pass
11b	1	11	2462	2.27	≤30	Pass
11g	6	1	2412	9.26	≤30	Pass
11g	6	6	2437	10.81	≤30	Pass
11g	6	11	2462	10.73	≤30	Pass
11n-HT20	6.5	1	2412	11.08	≤30	Pass
11n-HT20	6.5	6	2437	10.60	≤30	Pass
11n-HT20	6.5	11	2462	10.59	≤30	Pass

## 7.4. Power Spectral Density Measurement

### 7.4.1. Test Limit

The maximum permissible power spectral density is 8dBm in any 3 kHz band.

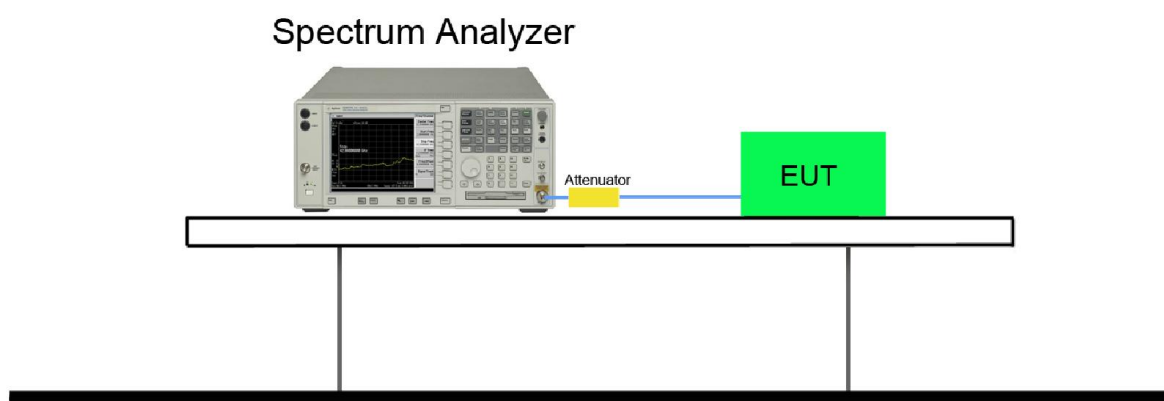
### 7.4.2. Test Procedure Used

KDB 558074 D01v03r05 - Section 10.2 Method PKPSD

### 7.4.3. Test Setting

1. Analyzer was set to the center frequency of the DTS channel under investigation
2. Span = 1.5 times the DTS channel bandwidth
3. RBW = 3kHz
4. VBW = 10kHz
5. Detector = peak
6. Sweep time = auto couple
7. Trace mode = max hold
8. Trace was allowed to stabilize

### 7.4.4. Test Setup



#### 7.4.5. Test Result

Test Mode	Data Rate (Mbps)	Channel No.	Frequency (MHz)	PSD (dBm / 3kHz)	Limit (dBm / 3kHz)	Result
11b	1	1	2412	-9.30	≤8.0	Pass
11b	1	6	2437	-9.80	≤8.0	Pass
11b	1	11	2462	-13.61	≤8.0	Pass
11g	6	1	2412	-9.53	≤8.0	Pass
11g	6	6	2437	-7.44	≤8.0	Pass
11g	6	11	2462	-7.06	≤8.0	Pass
11n-HT20	6.5	1	2412	-8.14	≤8.0	Pass
11n-HT20	6.5	6	2437	-7.30	≤8.0	Pass
11n-HT20	6.5	11	2462	-8.60	≤8.0	Pass

### 802.11b Peak PSD

#### Channel 01 (2412MHz)



#### Channel 06 (2437MHz)

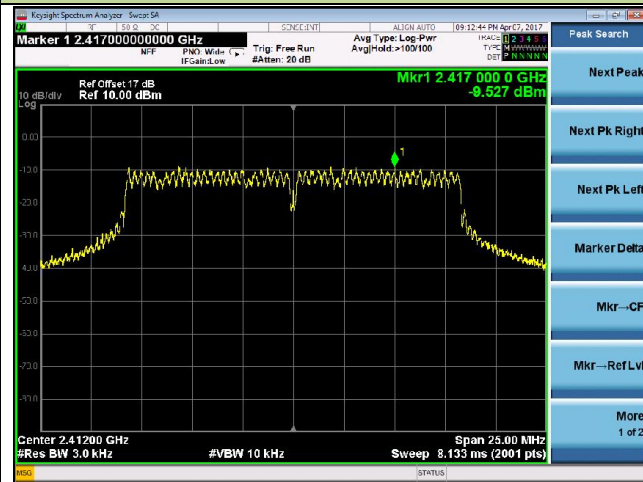


#### Channel 11 (2462MHz)

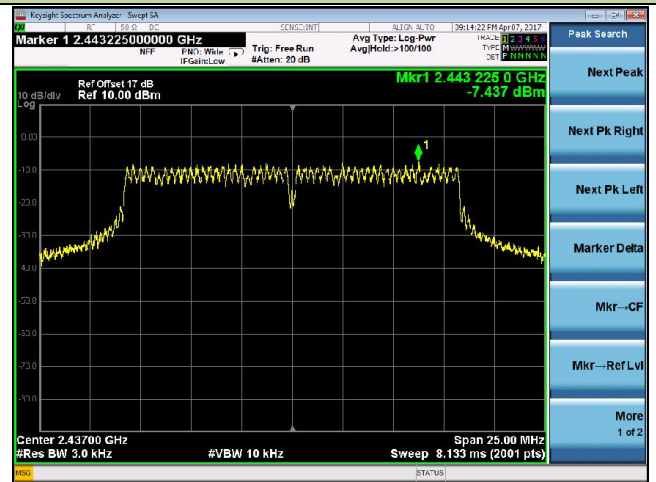


### 802.11g Peak PSD

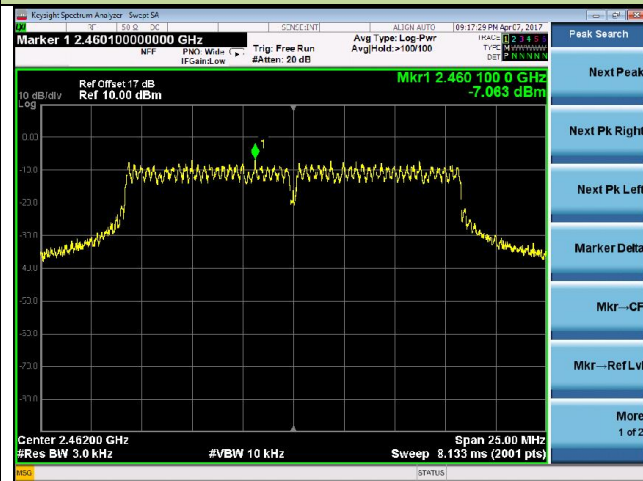
#### Channel 01 (2412MHz)



#### Channel 06 (2437MHz)

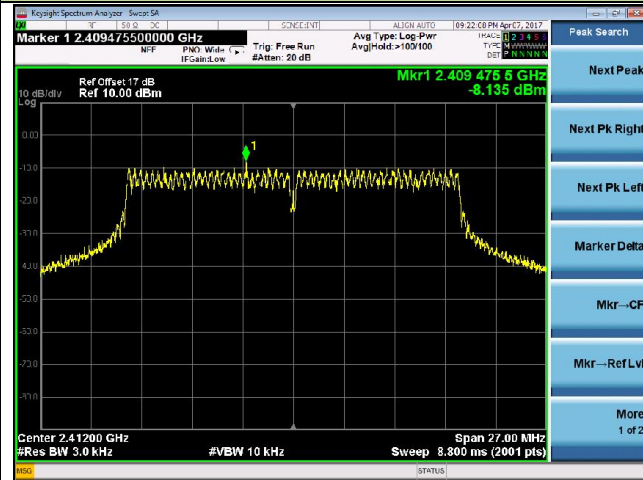


#### Channel 11 (2462MHz)

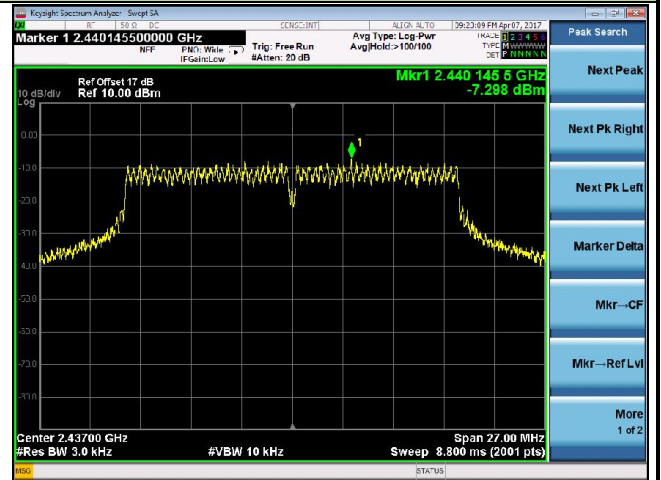


802.11n-HT20 Peak PSD

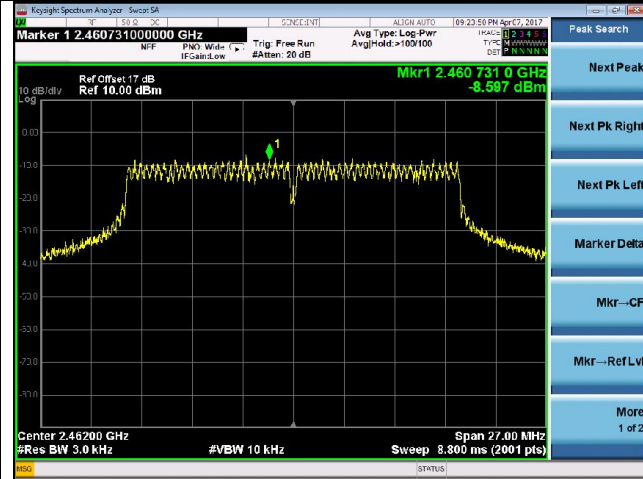
Channel 01 (2412MHz)



Channel 06 (2437MHz)



Channel 11 (2462MHz)



## **7.5. Conducted Band Edge and Out-of-Band Emissions**

### **7.5.1. Test Limit**

The limit for out-of-band spurious emissions at the band edge is 20dB below the fundamental emission level, as determined from the in-band power measurement of the DTS channel performed in a 100 kHz bandwidth per the PSD procedure.

### **7.5.2. Test Procedure Used**

KDB 558074 D01v03r05 - Section 11.2 & Section 11.3

### **7.5.3. Test Setting**

#### **1. Reference level measurement**

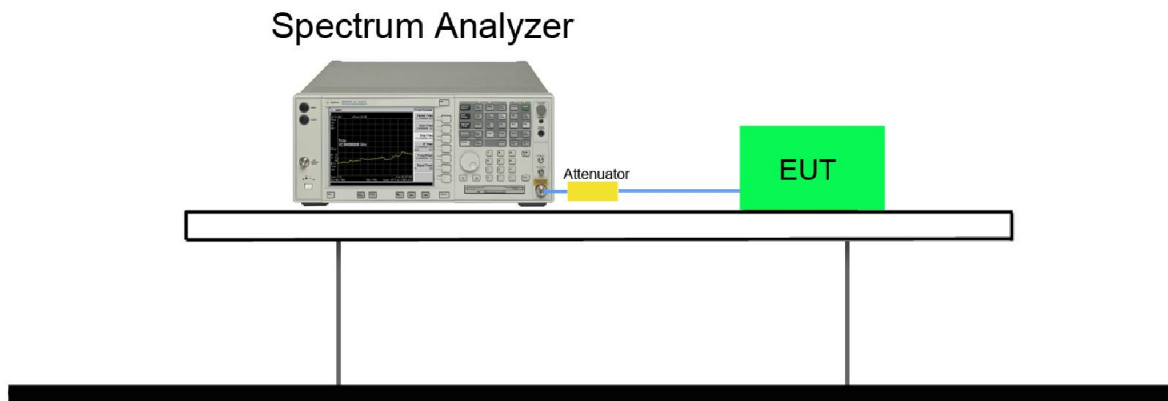
- (a) Set instrument center frequency to DTS channel center frequency
- (b) Set the span to  $\geq 1.5$  times the DTS bandwidth
- (c) Set the RBW = 100 kHz
- (d) Set the VBW  $\geq 3 \times$  RBW
- (e) Detector = peak
- (f) Sweep time = auto couple
- (g) Trace mode = max hold
- (h) Allow trace to fully stabilize

#### **2. Emission level measurement**

- (a) Set the center frequency and span to encompass frequency range to be measured
- (b) RBW = 100kHz
- (c) VBW = 300kHz
- (d) Detector = Peak
- (e) Trace mode = max hold
- (f) Sweep time = auto couple
- (g) The trace was allowed to stabilize



### 7.5.4. Test Setup



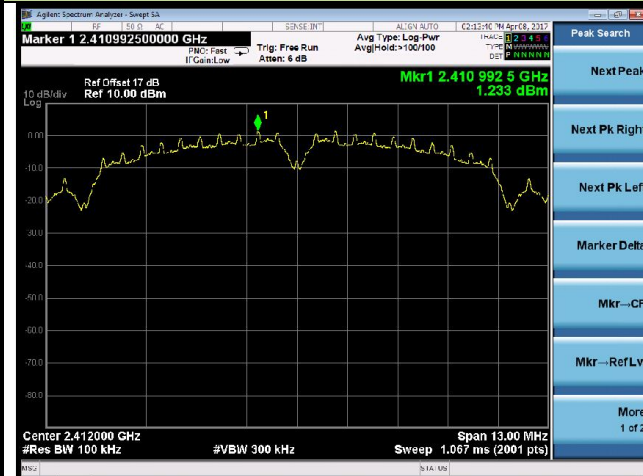
**7.5.5. Test Result**

Test Mode	Data Rate (Mbps)	Channel No.	Frequency (MHz)	Limit	Result
802.11b	1	01	2412	20dBc	Pass
802.11b	1	06	2437	20dBc	Pass
802.11b	1	11	2462	20dBc	Pass
802.11g	6	01	2412	20dBc	Pass
802.11g	6	06	2437	20dBc	Pass
802.11g	6	11	2462	20dBc	Pass
802.11n-HT20	6.5	01	2412	20dBc	Pass
802.11n-HT20	6.5	06	2437	20dBc	Pass
802.11n-HT20	6.5	11	2462	20dBc	Pass

### 802.11b Out-of-Band Emissions

#### Channel 01 (2412MHz)

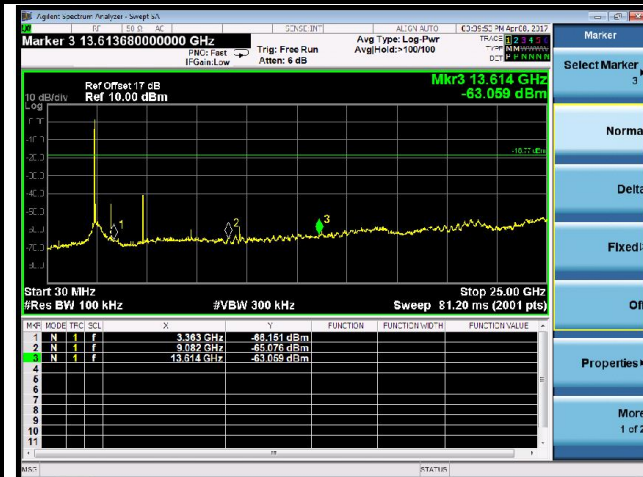
##### 100kHz PSD Reference Level



##### Low Band Edge



##### Spurious Emission

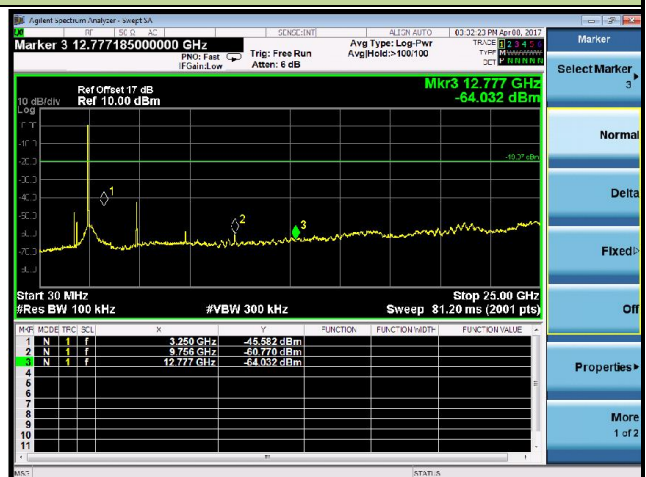


#### Channel 06 (2437MHz)

##### 100kHz PSD Reference Level



##### Spurious Emission

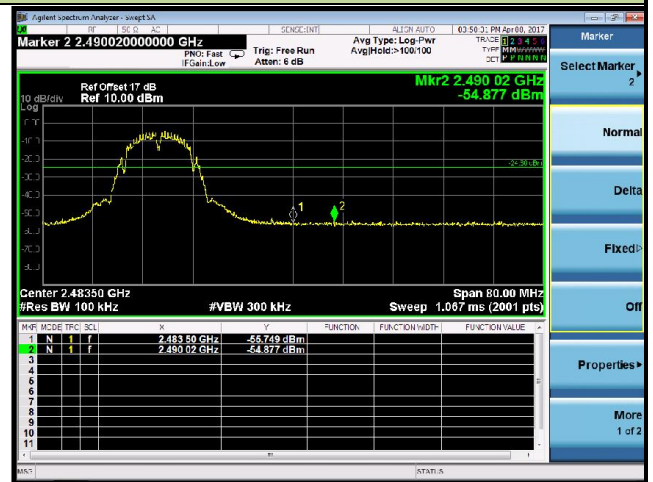


### Channel 11 (2462MHz)

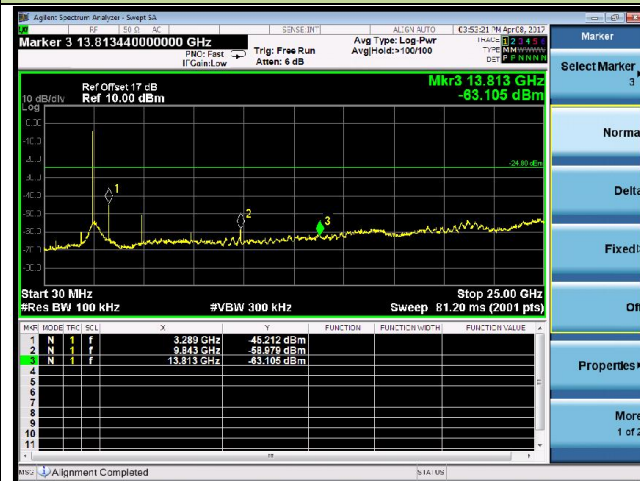
#### 100kHz PSD Reference Level



#### High Band Edge



#### Spurious Emission



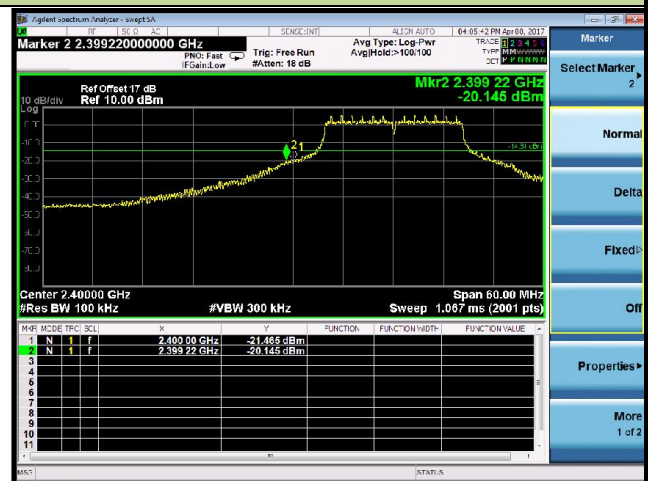
### 802.11g Out-of-Band Emissions

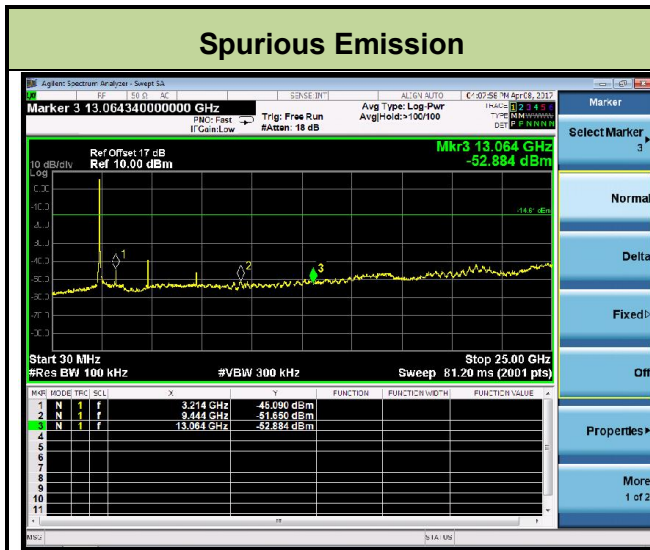
### Channel 01 (2412MHz)

#### 100kHz PSD Reference Level

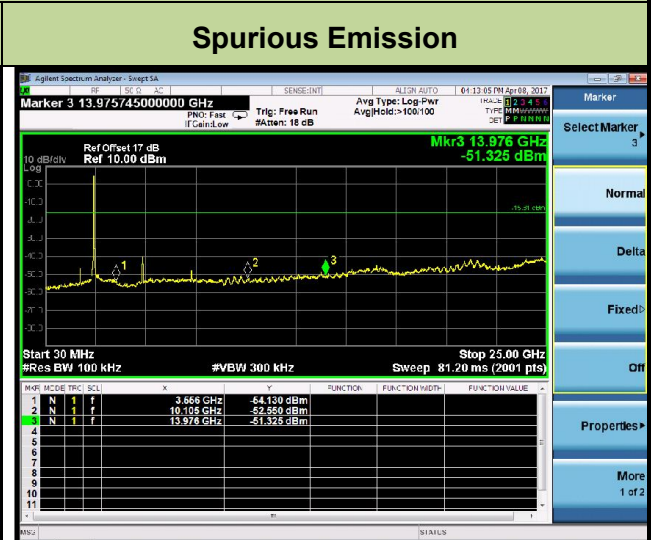
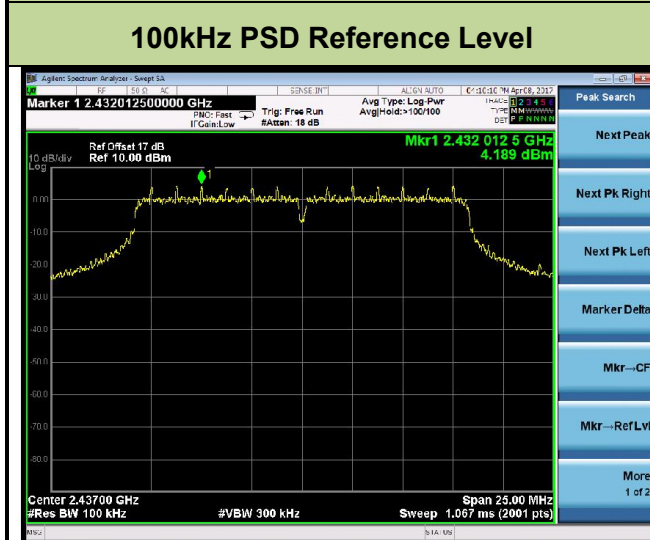


#### Low Band Edge

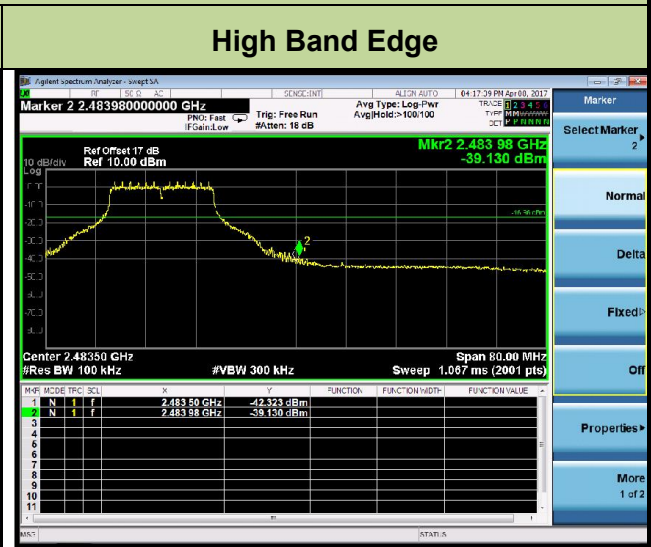
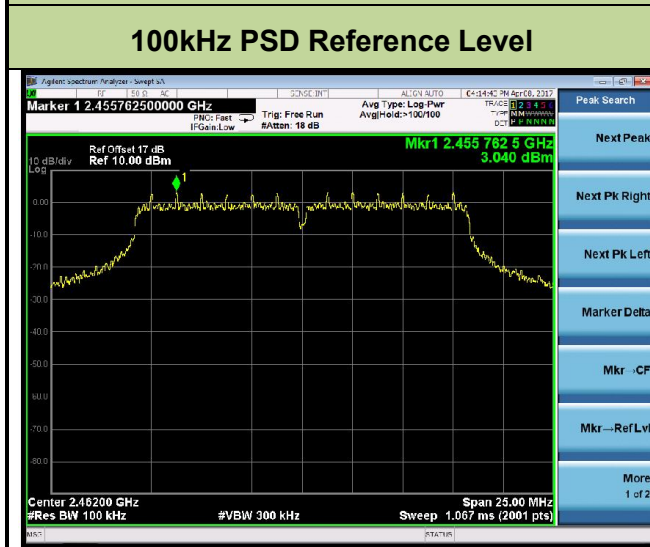




### Channel 06 (2437MHz)

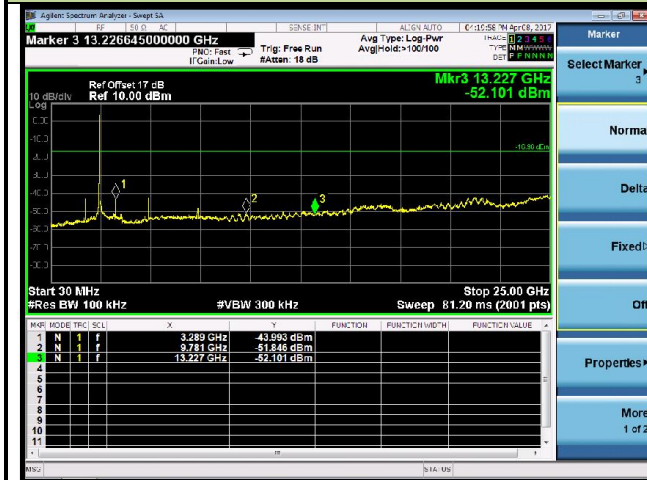


### Channel 11 (2462MHz)





### Spurious Emission



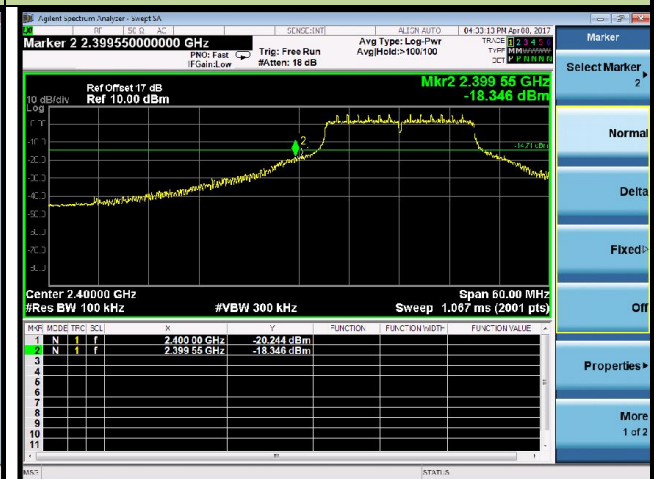
### 802.11n-HT20 Out-of-Band Emissions

#### Channel 01 (2412MHz)

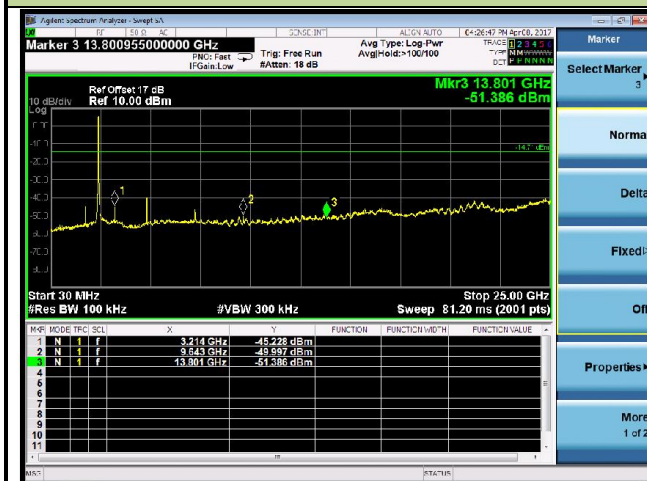
#### 100kHz PSD Reference Level



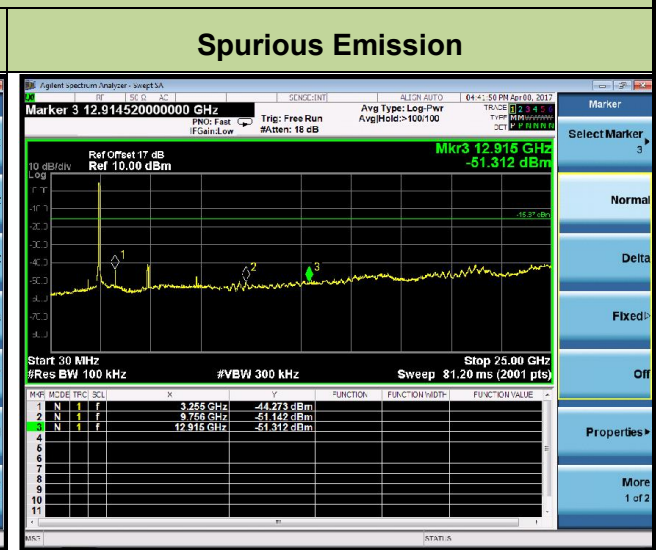
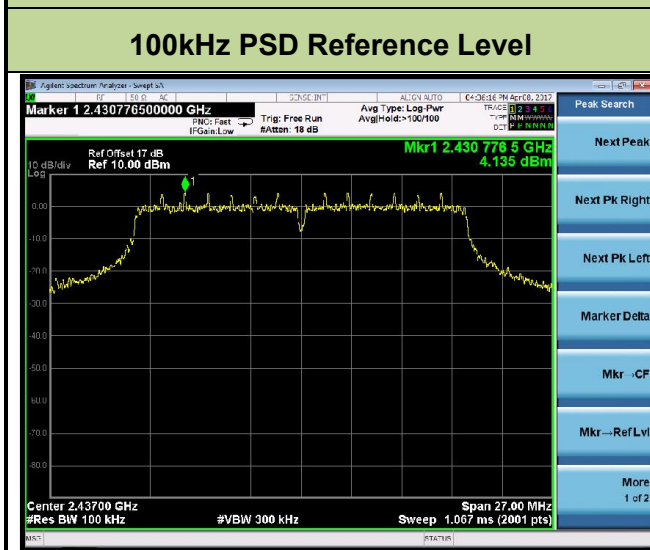
#### Low Band Edge



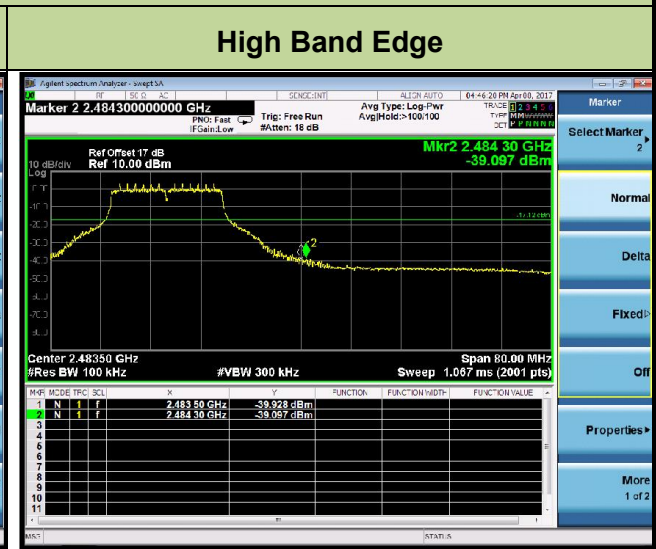
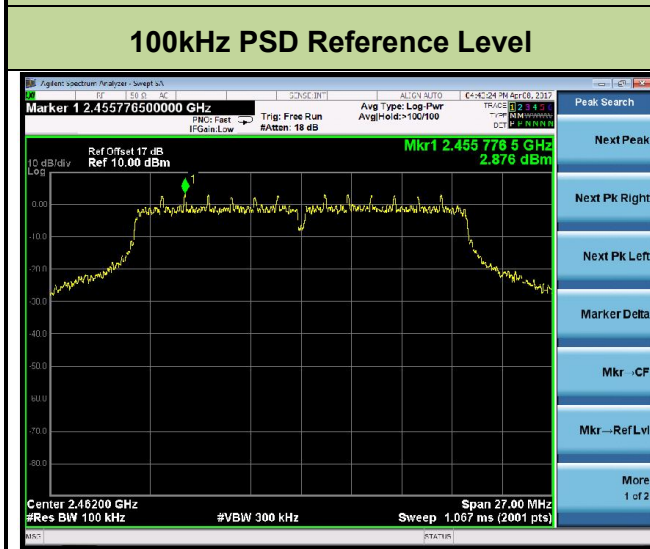
### Spurious Emission



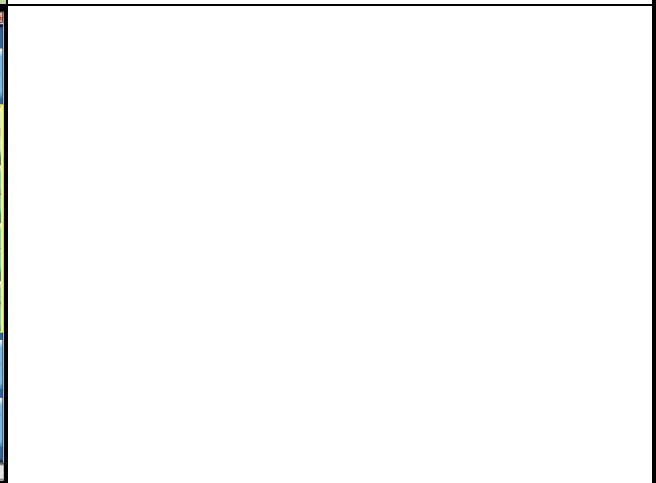
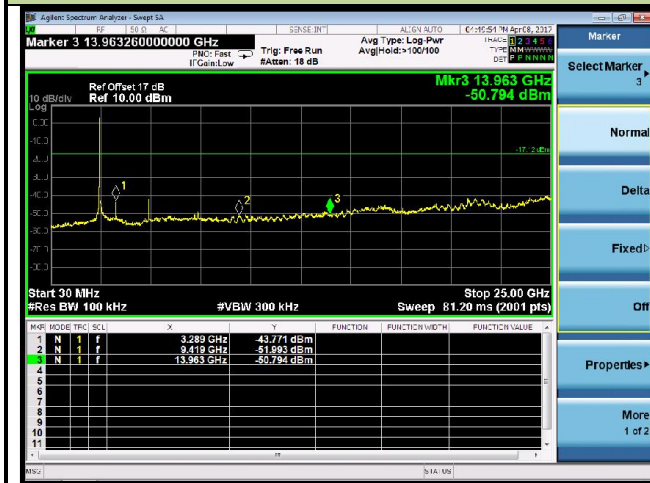
### Channel 06 (2437MHz)



### Channel 11 (2462MHz)



### Spurious Emission



## 7.6. Radiated Spurious Emission Measurement

### 7.6.1. Test Limit

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR must not exceed the limits shown in Table per Section 15.209.

FCC Part 15 Subpart C Paragraph 15.209		
Frequency [MHz]	Field Strength [uV/m]	Measured Distance [Meters]
0.009 – 0.490	2400/F (kHz)	300
0.490 – 1.705	24000/F (kHz)	30
1.705 - 30	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

### 7.6.2. Test Procedure Used

KDB 558074 D01v03r05 – Section 12.2.3 (quasi-peak measurements)

KDB 558074 D01v03r05 – Section 12.2.4 (peak power measurements)

KDB 558074 D01v03r05 – Section 12.2.5 (average power measurements)

### 7.6.3. Test Setting

#### Peak Field Strength Measurements per Section 12.2.4 of KDB 558074 D01v03r05

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = as specified in Table 1
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple



6. Trace mode = max hold
7. Trace was allowed to stabilize

**Table 1 - RBW as a function of frequency**

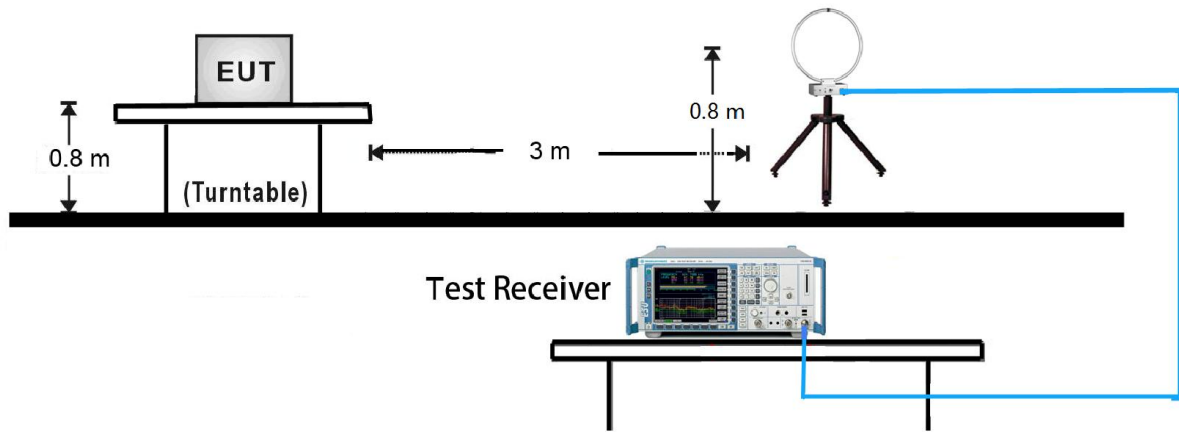
Frequency	RBW
9 ~ 150 kHz	200 ~ 300 Hz
0.15 ~ 30 MHz	9 ~ 10 kHz
30 ~ 1000 MHz	100 ~ 120 kHz
> 1000 MHz	1 MHz

**Average Field Strength Measurements per Section 12.2.5.3 of KDB 558074 D01v03r05**

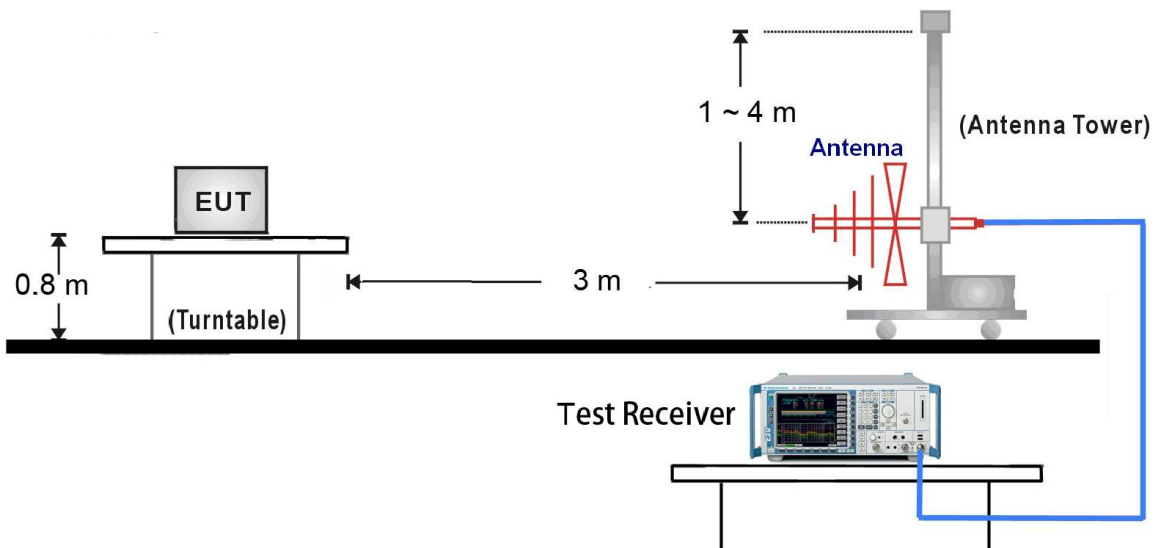
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW  $\geq 1/T$
4. De As an alternative, the instrument may be set to linear detector mode. Ensure that video filtering is applied in linear voltage domain (rather than in a log or dB domain). Some instruments require linear display mode in order to accomplish this. Others have a setting for Average-VBW Type, which can be set to "Voltage" regardless of the display mode
5. Detector = Peak
6. Sweep time = auto
7. Trace mode = max hold
8. Allow max hold to run for at least 50 times (1/duty cycle) traces

#### 7.6.4. Test Setup

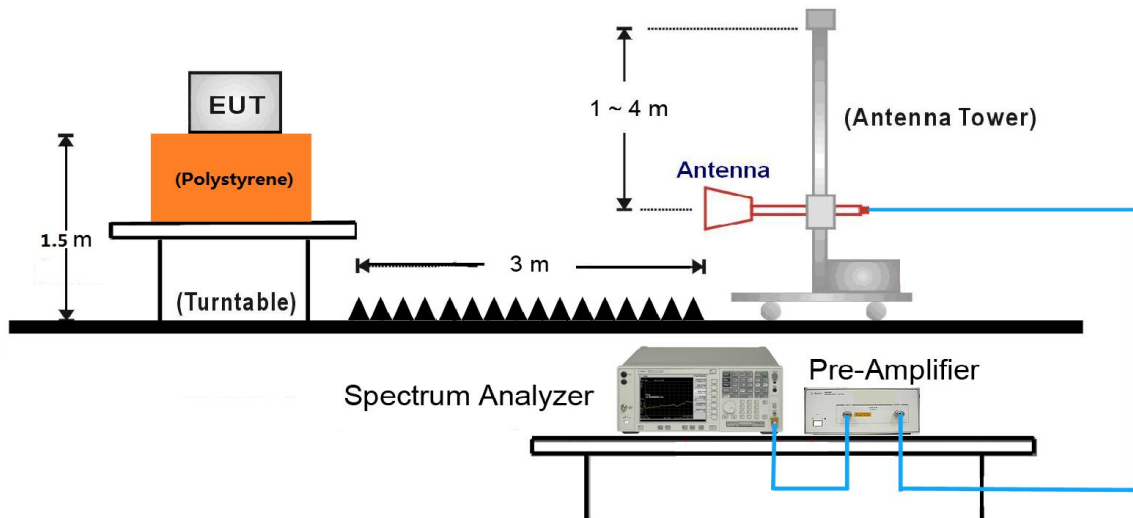
##### 9kHz ~ 30MHz Test Setup:



##### 30MHz ~ 1GHz Test Setup:



1GHz ~ 25GHz Test Setup:



### 7.6.5. Test Result

**Remark:** There are the ambient noise within frequency range 9 kHz ~ 30 MHz and 18GHz ~ 25GHz, the permissible value is not show in the report.

Test Mode:	802.11b	Test Site:	AC2
Test Channel:	01	Test Engineer:	Kevin Guo
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dB $\mu$ V)	Factor (dB)	Measure Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Detector	Polarization
	4824.0	50.9	2.6	53.5	54.0	-0.5	Average	Horizontal
	4825.0	55.0	2.7	57.7	74.0	-16.3	Peak	Horizontal
	7341.0	33.0	10.7	43.7	74.0	-30.3	Peak	Horizontal
	8718.0	33.3	11.4	44.7	76.5	-31.8	Peak	Horizontal
	9899.5	32.7	13.3	46.0	76.5	-30.5	Peak	Horizontal
	4824.0	47.4	2.6	50.0	54.0	-4.0	Average	Vertical
	4825.0	51.5	2.7	54.2	74.0	-19.8	Peak	Vertical
	7485.5	34.0	10.9	44.9	74.0	-29.1	Peak	Vertical
	8709.5	34.3	11.3	45.6	76.5	-30.9	Peak	Vertical
	10375.5	34.0	14.9	48.9	76.5	-27.6	Peak	Vertical

Note 1: "\*" is not in restricted band, its limit is 20dBc of the fundamental emission level (107.2dB $\mu$ V/m) or 15.209 which is higher.

Note 2: Measure Level (dB $\mu$ V/m) = Reading Level (dB $\mu$ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre\_Amplifier Gain (dB)

Test Mode:	802.11b	Test Site:	AC2
Test Channel:	06	Test Engineer:	Kevin Guo
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4874.1	50.8	2.6	53.4	54.0	-0.6	Average	Horizontal
	4876.0	55.3	2.6	57.9	74.0	-16.1	Peak	Horizontal
	7400.5	34.1	10.8	44.9	74.0	-29.1	Peak	Horizontal
	8531.0	34.4	11.0	45.4	76.5	-31.1	Peak	Horizontal
	10384.0	33.9	14.9	48.8	76.5	-27.7	Peak	Horizontal
	4874.0	47.7	2.6	50.3	54.0	-3.7	Average	Vertical
	4876.0	51.9	2.6	54.5	74.0	-19.5	Peak	Vertical
	7434.5	33.8	10.7	44.5	74.0	-29.5	Peak	Vertical
	8531.0	34.2	11.0	45.2	76.5	-31.3	Peak	Vertical
	9874.0	33.9	13.4	47.3	76.5	-29.2	Peak	Vertical

Note 1: "\*" is not in restricted band, its limit is 20dBc of the fundamental emission level (105.3dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre\_Amplifier Gain (dB)

Test Mode:	802.11b	Test Site:	AC2
Test Channel:	11	Test Engineer:	Kevin Guo
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dB $\mu$ V)	Factor (dB)	Measure Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Detector	Polarization
	4924.0	51.1	2.6	53.7	54.0	-0.3	Average	Horizontal
	4927.0	55.3	2.6	57.9	74.0	-16.1	Peak	Horizontal
	7451.5	32.7	10.9	43.6	74.0	-30.4	Peak	Horizontal
	8752.0	33.7	11.6	45.3	76.6	-31.3	Peak	Horizontal
	9568.0	35.0	13.0	48.0	76.6	-28.6	Peak	Horizontal
	4924.0	47.2	2.6	49.8	54.0	-4.2	Average	Vertical
	4927.0	51.1	2.6	53.7	74.0	-20.3	Peak	Vertical
	7732.0	36.0	10.5	46.5	74.0	-27.5	Peak	Vertical
	8930.5	34.9	11.7	46.6	76.6	-30.0	Peak	Vertical
	9840.0	33.6	13.5	47.1	76.6	-29.5	Peak	Vertical

Note 1: "\*" is not in restricted band, its limit is 20dBc of the fundamental emission level (104.0dB $\mu$ V/m) or 15.209 which is higher.

Note 2: Measure Level (dB $\mu$ V/m) = Reading Level (dB $\mu$ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre\_Amplifier Gain (dB)

Test Mode:	802.11g	Test Site:	AC2
Test Channel:	01	Test Engineer:	Kevin Guo
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4824.6	37.3	2.7	40.0	54.0	-14.0	Average	Horizontal
	4825.0	58.9	2.7	61.6	74.0	-12.4	Peak	Horizontal
	7239.0	37.3	10.6	47.9	74.0	-26.1	Peak	Horizontal
	8760.5	33.2	11.6	44.8	75.9	-31.1	Peak	Horizontal
	9840.0	33.5	13.5	47.0	75.9	-28.9	Peak	Horizontal
	4816.5	55.6	2.6	58.2	74.0	-15.8	Peak	Vertical
	4823.6	35.6	2.6	38.2	54.0	-15.8	Average	Vertical
	7239.0	38.3	10.6	48.9	74.0	-25.1	Peak	Vertical
	8616.0	33.2	11.2	44.4	75.9	-31.5	Peak	Vertical
	9789.0	34.5	12.9	47.4	75.9	-28.5	Peak	Vertical

Note 1: "\*" is not in restricted band, its limit is 20dBc of the fundamental emission level (106.7dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre\_Amplifier Gain (dB)

Test Mode:	802.11g	Test Site:	AC2
Test Channel:	06	Test Engineer:	Kevin Guo
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4867.5	59.1	2.6	61.7	74.0	-12.3	Peak	Horizontal
	4873.9	37.9	2.6	40.5	54.0	-13.5	Average	Horizontal
	7298.5	39.8	10.7	50.5	74.0	-23.5	Peak	Horizontal
	8582.0	34.2	11.0	45.2	75.5	-30.3	Peak	Horizontal
	10146.0	34.0	13.8	47.8	75.5	-27.7	Peak	Horizontal
	4874.3	36.3	2.6	38.9	54.0	-15.1	Average	Vertical
	4876.0	59.2	2.6	61.8	74.0	-12.2	Peak	Vertical
	7307.0	43.2	10.7	53.9	74.0	-20.1	Peak	Vertical
	7309.4	24.4	10.7	35.1	54.0	-18.9	Average	Vertical
	8607.5	35.3	11.1	46.4	75.5	-29.1	Peak	Vertical
	9755.0	35.8	13.0	48.8	75.5	-26.7	Peak	Vertical

Note 1: "\*" is not in restricted band, its limit is 20dBc of the fundamental emission level (106.1dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre\_Amplifier Gain (dB)



Test Mode:	802.11g	Test Site:	AC2
Test Channel:	11	Test Engineer:	Kevin Guo
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dB $\mu$ V)	Factor (dB)	Measure Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Detector	Polarization
	4924.0	40.7	2.6	43.3	54.0	-10.7	Average	Horizontal
	4927.0	64.7	2.6	67.3	74.0	-6.7	Peak	Horizontal
	7383.5	44.7	10.7	55.4	74.0	-18.6	Peak	Horizontal
	7386.2	25.1	10.7	35.8	54.0	-18.2	Average	Horizontal
	8769.0	34.1	11.8	45.9	75.0	-29.1	Peak	Horizontal
	9848.5	35.0	13.3	48.3	75.0	-26.7	Peak	Horizontal
	4923.9	38.2	2.6	40.8	54.0	-13.2	Average	Vertical
	4927.0	59.0	2.6	61.6	74.0	-12.4	Peak	Vertical
	7383.5	45.1	10.7	55.8	74.0	-18.2	Peak	Vertical
	7386.2	27.4	10.7	38.1	54.0	-15.9	Average	Vertical
	8777.5	33.6	11.9	45.5	75.0	-29.5	Peak	Vertical
	9840.0	35.5	13.5	49.0	75.0	-26.0	Peak	Vertical

Note 1: "\*" is not in restricted band, its limit is 20dBc of the fundamental emission level (106.4dB $\mu$ V/m) or 15.209 which is higher.

Note 2: Measure Level (dB $\mu$ V/m) = Reading Level (dB $\mu$ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre\_Amplifier Gain (dB)

Test Mode:	802.11n-HT20	Test Site:	AC2
Test Channel:	01	Test Engineer:	Kevin Guo
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4825.0	59.8	2.7	62.5	74.0	-11.5	Peak	Horizontal
	4825.1	36.9	2.7	39.6	54.0	-14.4	Average	Horizontal
	7239.0	41.0	10.6	51.6	74.0	-22.4	Peak	Horizontal
	8675.5	33.3	11.2	44.5	73.0	-28.5	Peak	Horizontal
	9636.0	34.1	12.9	47.0	73.0	-26.0	Peak	Horizontal
	4823.4	34.7	2.6	37.3	54.0	-16.7	Average	Vertical
	4825.0	57.2	2.7	59.9	74.0	-14.1	Peak	Vertical
	7247.5	39.1	10.7	49.8	74.0	-24.2	Peak	Vertical
	8845.5	34.1	11.7	45.8	73.0	-27.2	Peak	Vertical
	10180.0	33.7	14.3	48.0	73.0	-25.0	Peak	Vertical

Note 1: "\*" is not in restricted band, its limit is 20dBc of the fundamental emission level (103.5dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre\_Amplifier Gain (dB)

Test Mode:	802.11n-HT20	Test Site:	AC2
Test Channel:	06	Test Engineer:	Kevin Guo
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4874.1	37.8	2.6	40.4	54.0	-13.6	Average	Horizontal
	4876.0	61.0	2.6	63.6	74.0	-10.4	Peak	Horizontal
	7307.0	39.5	10.7	50.2	74.0	-23.8	Peak	Horizontal
	8539.5	35.0	11.0	46.0	73.5	-27.5	Peak	Horizontal
	9831.5	35.0	13.2	48.2	73.5	-25.3	Peak	Horizontal
	4875.8	36.1	2.6	38.7	54.0	-15.3	Average	Vertical
	4876.0	57.2	2.6	59.8	74.0	-14.2	Peak	Vertical
	7307.0	40.3	10.7	51.0	74.0	-23.0	Peak	Vertical
	8531.0	34.6	11.0	45.6	73.5	-27.9	Peak	Vertical
	9746.5	36.2	12.7	48.9	73.5	-24.6	Peak	Vertical

Note 1: "\*" is not in restricted band, its limit is 20dBc of the fundamental emission level (103.4dBμV/m) or 15.209 which is higher.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre\_Amplifier Gain (dB)

Test Mode:	802.11n-HT20	Test Site:	AC2
Test Channel:	11	Test Engineer:	Kevin Guo
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dB $\mu$ V)	Factor (dB)	Measure Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Detector	Polarization
	4922.9	38.9	2.6	41.5	54.0	-12.5	Average	Horizontal
	4927.0	62.6	2.6	65.2	74.0	-8.8	Peak	Horizontal
	7383.5	46.2	10.7	56.9	74.0	-17.1	Peak	Horizontal
	7386.4	24.9	10.7	35.6	54.0	-18.4	Average	Horizontal
	8573.5	34.4	11.0	45.4	74.0	-28.6	Peak	Horizontal
	9848.5	34.9	13.3	48.2	74.0	-25.8	Peak	Horizontal
	4927.0	59.0	2.6	61.6	74.0	-12.4	Peak	Vertical
	4929.9	36.9	2.7	39.6	54.0	-14.4	Average	Vertical
	7383.5	45.5	10.7	56.2	74.0	-17.8	Peak	Vertical
	7388.5	27.0	10.7	37.7	54.0	-16.3	Average	Vertical
	8658.5	33.5	11.1	44.6	74.0	-29.4	Peak	Vertical
	9840.0	36.8	13.5	50.3	74.0	-23.7	Peak	Vertical

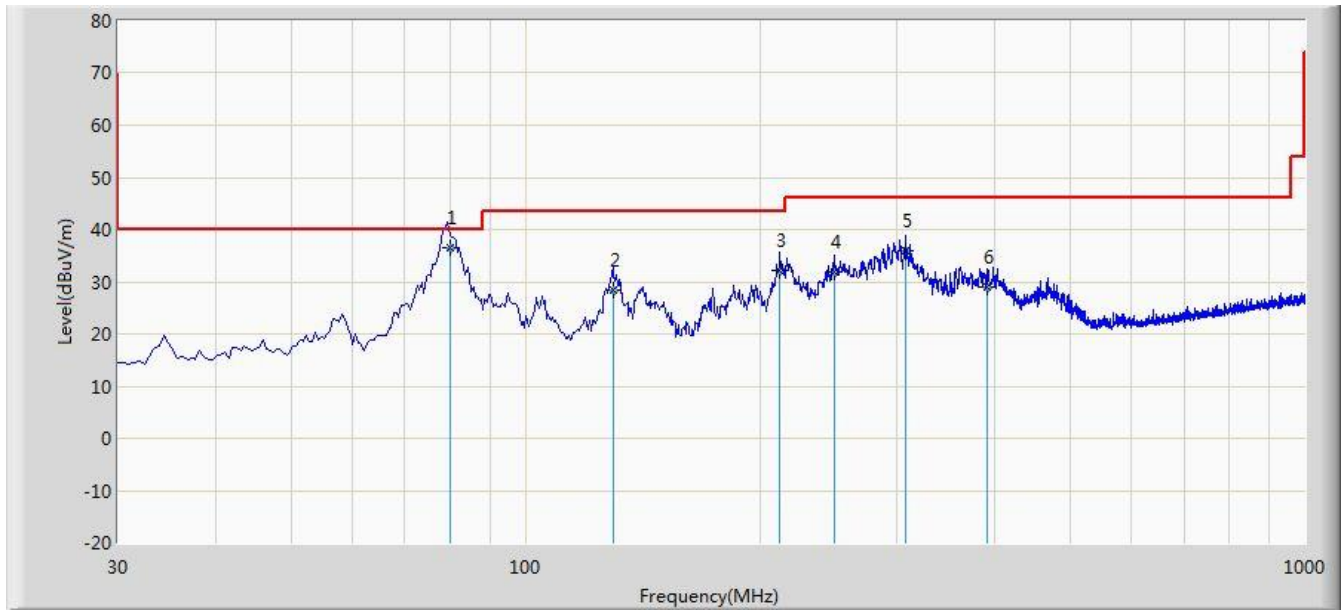
Note 1: “\*” is not in restricted band, its limit is 20dBc of the fundamental emission level (104.1dB $\mu$ V/m) or 15.209 which is higher.

Note 2: Measure Level (dB $\mu$ V/m) = Reading Level (dB $\mu$ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre\_Amplifier Gain (dB)

**The worst case of Radiated Emission below 1GHz:**

Site: AC2	Time: 2017/04/17 - 18:01
Limit: FCC_Part15.209_RE(3m)	Engineer: Jone Zhang
Probe: VULB9162_0.03-8GHz	Polarity: Horizontal
EUT: SMART LED LAMP	Power: AC 120V/60Hz
<b>Worse Case Mode:</b> Transmit by 802.11n-HT20 at Channel 2462MHz	

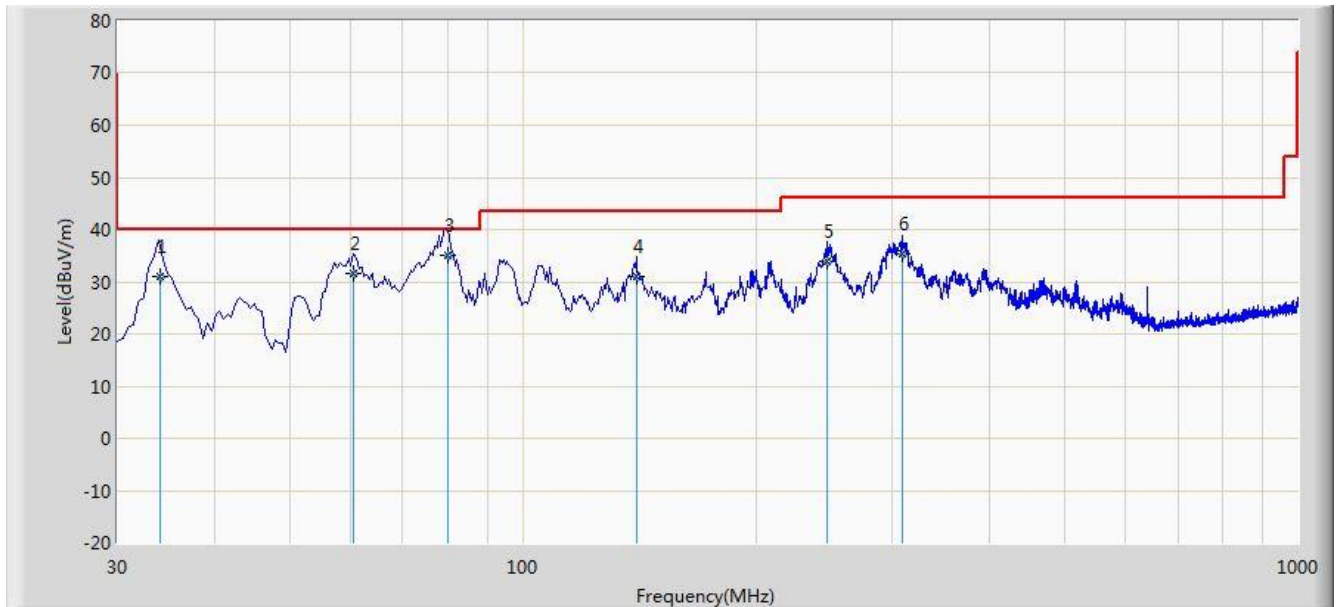


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			79.955	36.385	27.000	-3.615	40.000	9.385	QP
2			129.425	28.366	18.237	-15.134	43.500	10.129	QP
3			212.360	32.316	19.834	-11.184	43.500	12.482	QP
4			249.220	31.773	18.102	-14.227	46.000	13.671	QP
5			307.420	35.813	21.051	-10.187	46.000	14.763	QP
6			391.810	29.051	12.495	-16.949	46.000	16.556	QP

Note: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2017/04/17 - 18:07
Limit: FCC_Part15.209_RE(3m)	Engineer: Jone Zhang
Probe: VULB9162_0.03-8GHz	Polarity: Vertical
EUT: SMART LED LAMP	Power: AC 120V/60Hz
<b>Worse Case Mode:</b> Transmit by 802.11n-HT20 at Channel 2462MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			33.992	30.961	18.200	-9.039	40.000	12.761	QP
2			60.555	31.625	17.834	-8.375	40.000	13.791	QP
3			79.920	35.180	25.800	-4.820	40.000	9.380	QP
4			140.095	31.107	21.604	-12.393	43.500	9.503	QP
5			246.795	33.995	20.381	-12.005	46.000	13.614	QP
6			308.875	35.318	20.514	-10.682	46.000	14.804	QP

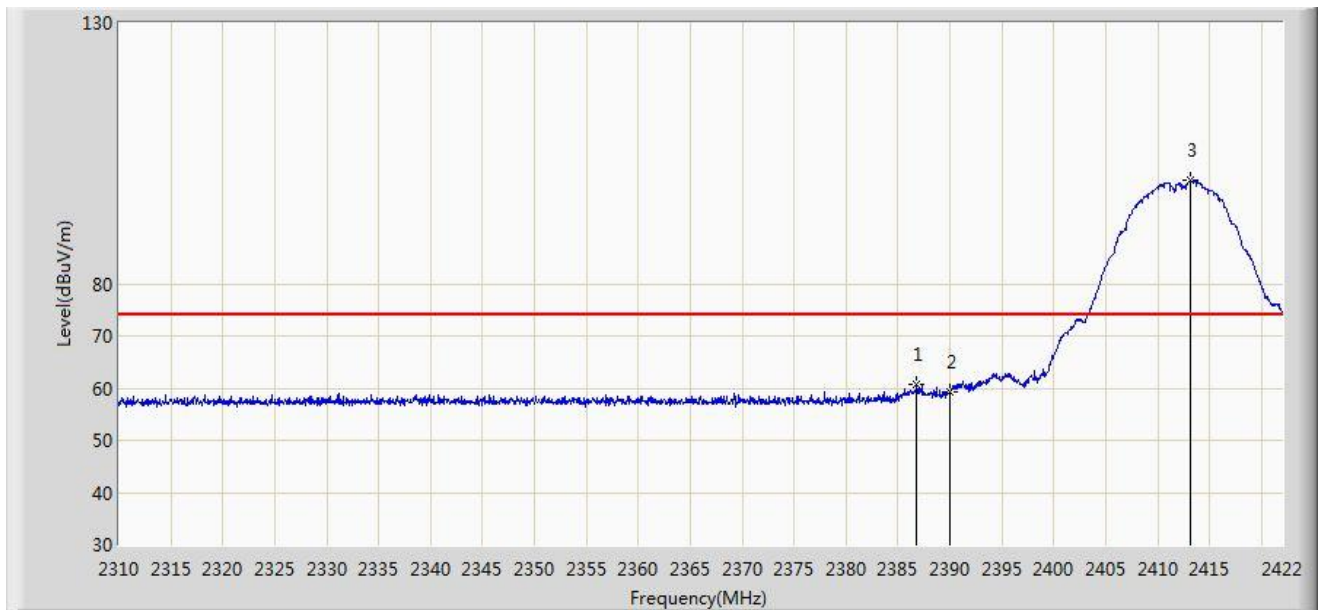
Note: Measure Level (dB $\mu$ V/m) = Reading Level (dB $\mu$ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

## 7.7. Radiated Restricted Band Edge Measurement

### 7.7.1. Test Result

Site: AC2	Time: 2017/03/29 - 16:10
Limit: FCC_Part15.209_RE(3m)	Engineer: Kevin Guo
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: SMART LED LAMP	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11b at Channel 2412MHz	

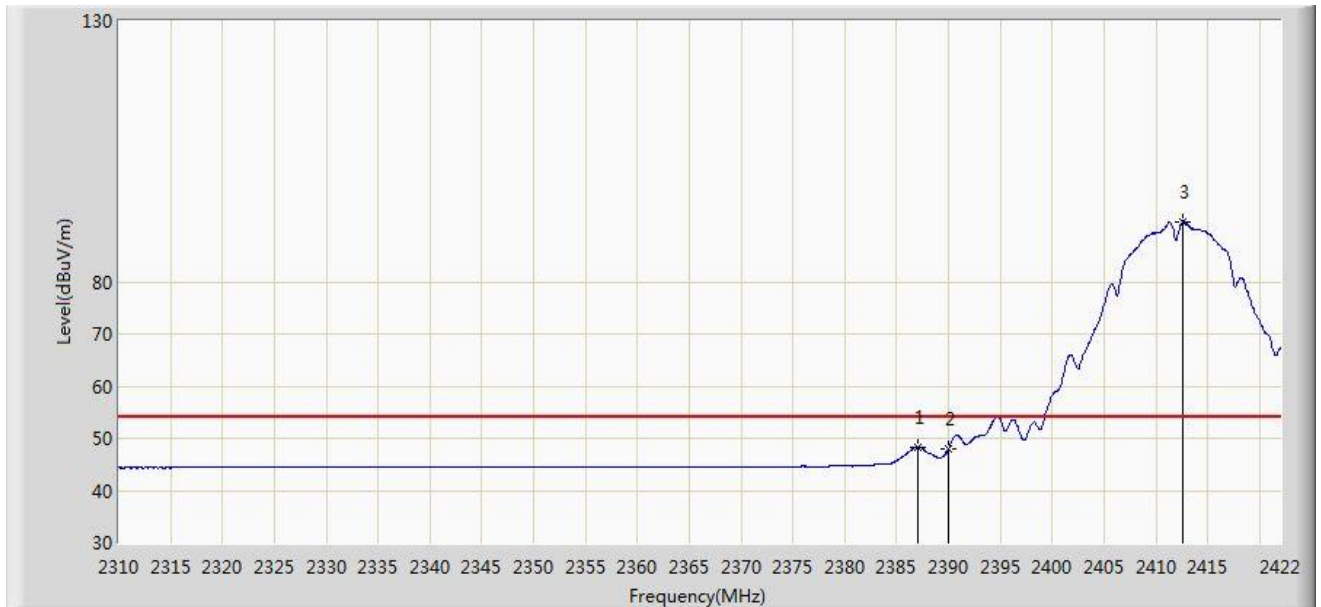


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2386.776	60.853	28.593	-13.147	74.000	32.260	PK
2			2390.000	59.311	27.033	-14.689	74.000	32.278	PK
3			2413.208	99.728	67.493	N/A	N/A	32.235	PK

Note: Measure Level (dB $\mu$ V/m) = Reading Level (dB $\mu$ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2017/03/29 - 16:13
Limit: FCC_Part15.209_RE(3m)	Engineer: Kevin Guo
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: SMART LED LAMP	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11b at Channel 2412MHz	



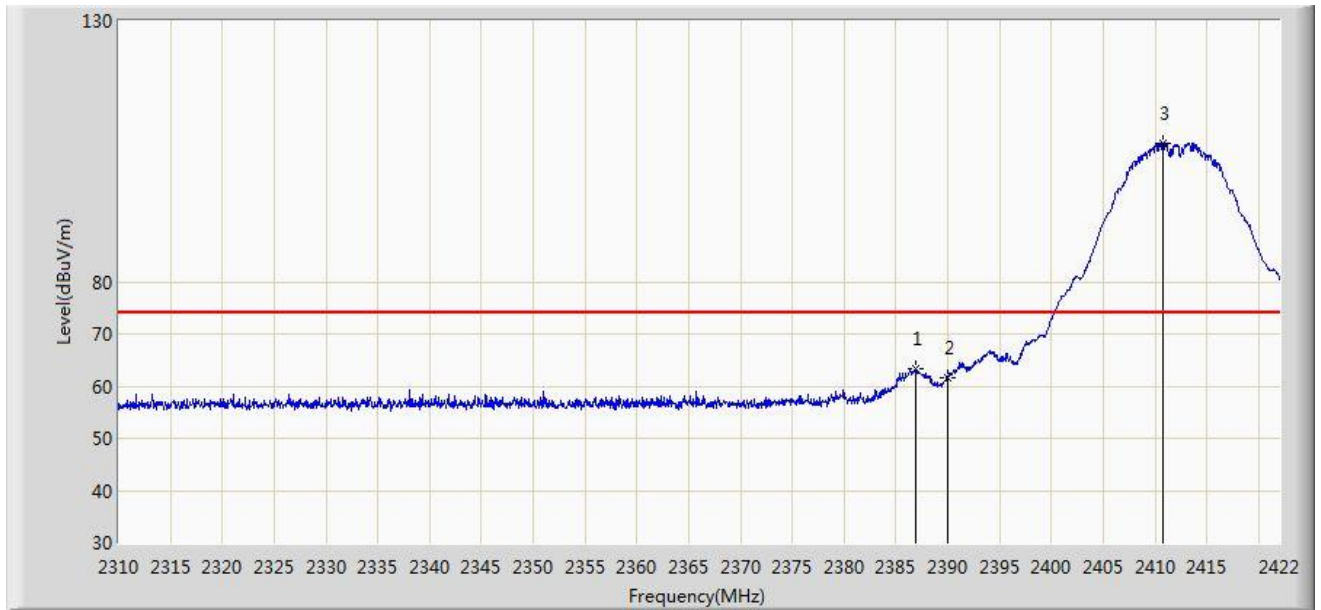
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2387.056	48.361	16.099	-5.639	54.000	32.261	AV
2			2390.000	47.936	15.658	-6.064	54.000	32.278	AV
3			2412.536	91.370	59.133	N/A	N/A	32.238	AV

Note: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)



Site: AC2	Time: 2017/03/29 - 16:05
Limit: FCC_Part15.209_RE(3m)	Engineer: Kevin Guo
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: SMART LED LAMP	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11b at Channel 2412MHz	

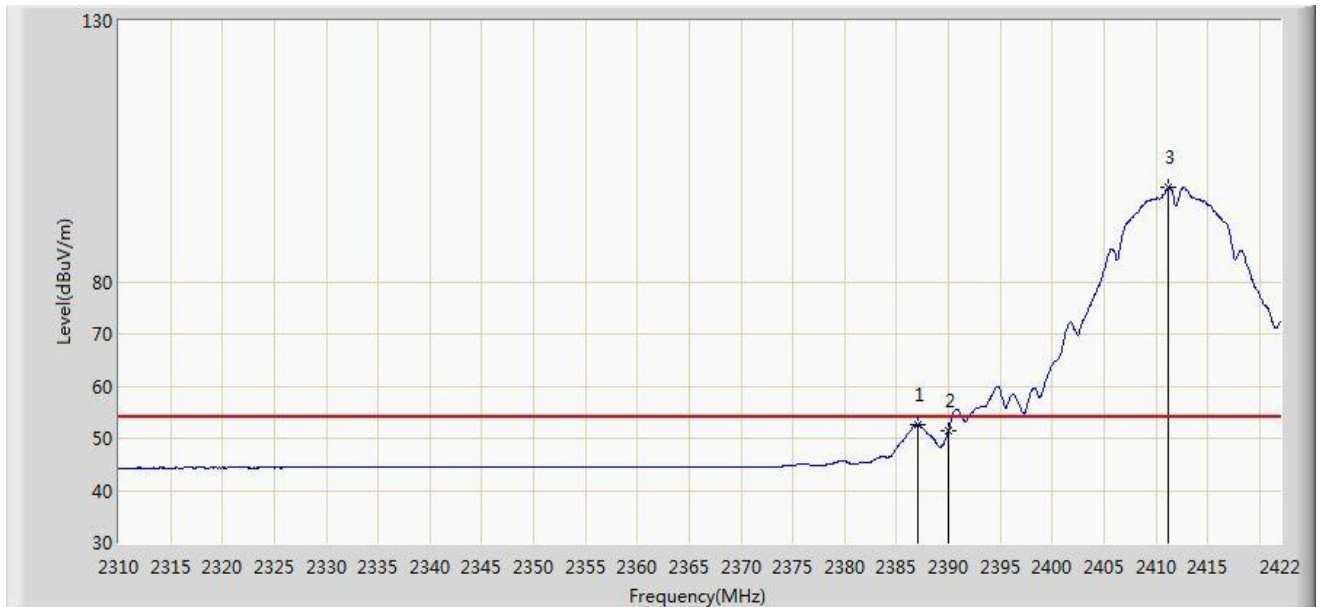


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2386.944	63.212	30.951	-10.788	74.000	32.261	PK
2			2390.000	61.564	29.286	-12.436	74.000	32.278	PK
3			2410.800	106.512	74.267	N/A	N/A	32.245	PK

Note: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2017/03/29 - 16:03
Limit: FCC_Part15.209_RE(3m)	Engineer: Kevin Guo
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: SMART LED LAMP	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11b at Channel 2412MHz	

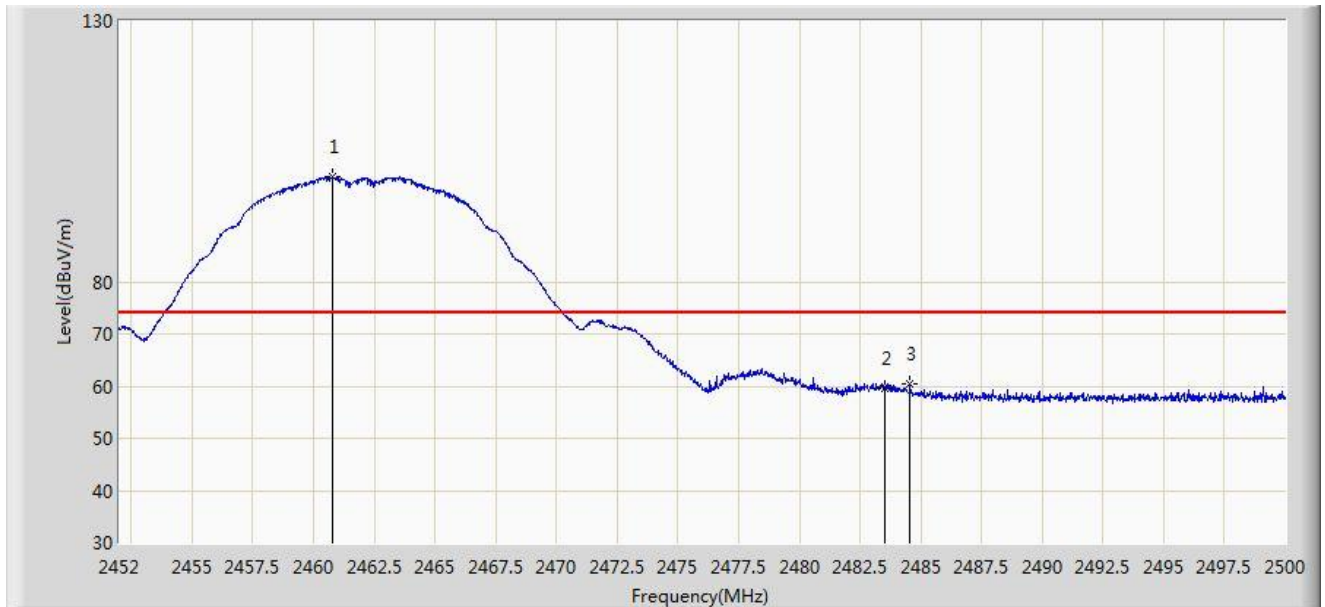


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2387.112	52.605	20.343	-1.395	54.000	32.262	AV
2			2390.000	51.589	19.311	-2.411	54.000	32.278	AV
3			2411.248	98.170	65.927	N/A	N/A	32.243	AV

Note: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2017/03/29 - 16:22
Limit: FCC_Part15.209_RE(3m)	Engineer: Kevin Guo
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: SMART LED LAMP	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11b at Channel 2462MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2460.808	100.052	67.819	N/A	N/A	32.233	PK
2			2483.500	59.516	27.235	-14.484	74.000	32.282	PK
3			2484.568	60.352	28.067	-13.648	74.000	32.285	PK

Note: Measure Level (dB $\mu$ V/m) = Reading Level (dB $\mu$ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2017/03/29 - 16:23
Limit: FCC_Part15.209_RE(3m)	Engineer: Kevin Guo
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: SMART LED LAMP	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11b at Channel 2462MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2462.704	92.272	60.033	N/A	N/A	32.239	AV
2			2483.500	49.012	16.731	-4.988	54.000	32.282	AV

Note: Measure Level (dB $\mu$ V/m) = Reading Level (dB $\mu$ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2017/03/29 - 16:20
Limit: FCC_Part15.209_RE(3m)	Engineer: Kevin Guo
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: SMART LED LAMP	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11b at Channel 2462MHz	

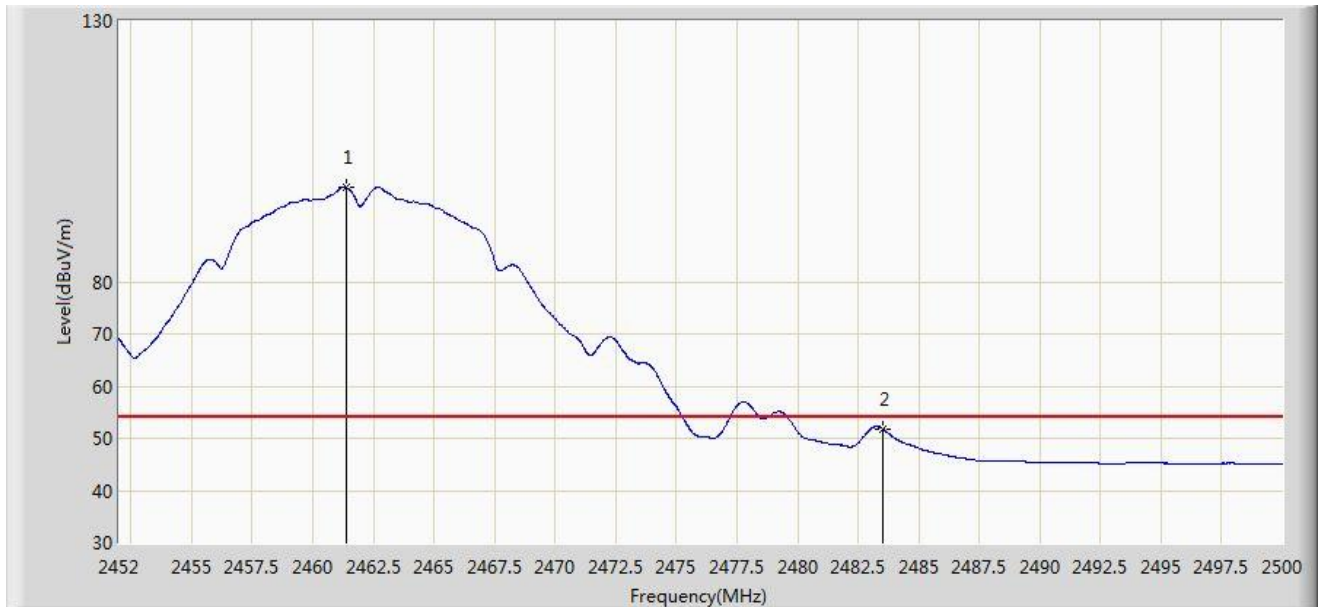


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2460.856	106.586	74.353	N/A	N/A	32.233	PK
2			2483.500	61.850	29.569	-12.150	74.000	32.282	PK
3			2485.168	62.535	30.248	-11.465	74.000	32.287	PK

Note: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2017/03/29 - 16:16
Limit: FCC_Part15.209_RE(3m)	Engineer: Kevin Guo
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: SMART LED LAMP	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11b at Channel 2462MHz	

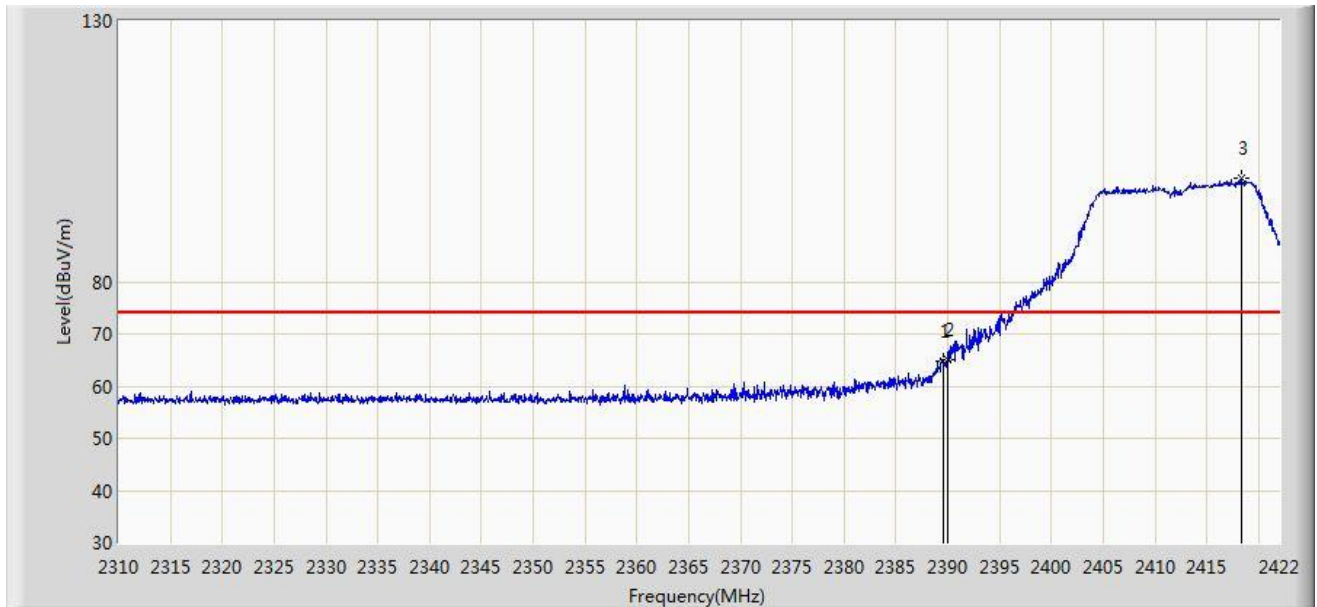


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2461.384	98.086	65.850	N/A	N/A	32.236	AV
2			2483.500	51.843	19.562	-2.157	54.000	32.282	AV

Note: Measure Level (dB $\mu$ V/m) = Reading Level (dB $\mu$ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2017/03/29 - 16:35
Limit: FCC_Part15.209_RE(3m)	Engineer: Kevin Guo
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: SMART LED LAMP	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11g at Channel 2412MHz	

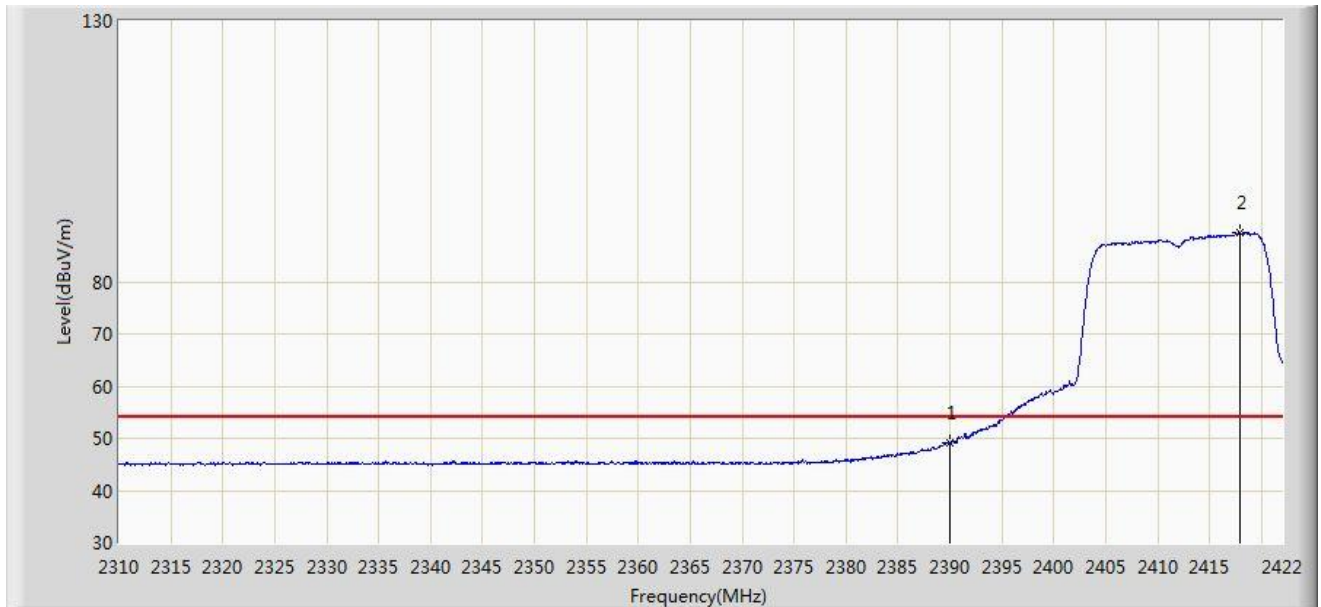


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2389.520	64.814	32.539	-9.186	74.000	32.275	PK
2			2390.000	65.202	32.924	-8.798	74.000	32.278	PK
3			2418.360	99.749	67.536	N/A	N/A	32.213	PK

Note: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2017/03/29 - 16:37
Limit: FCC_Part15.209_RE(3m)	Engineer: Kevin Guo
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: SMART LED LAMP	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11g at Channel 2412MHz	



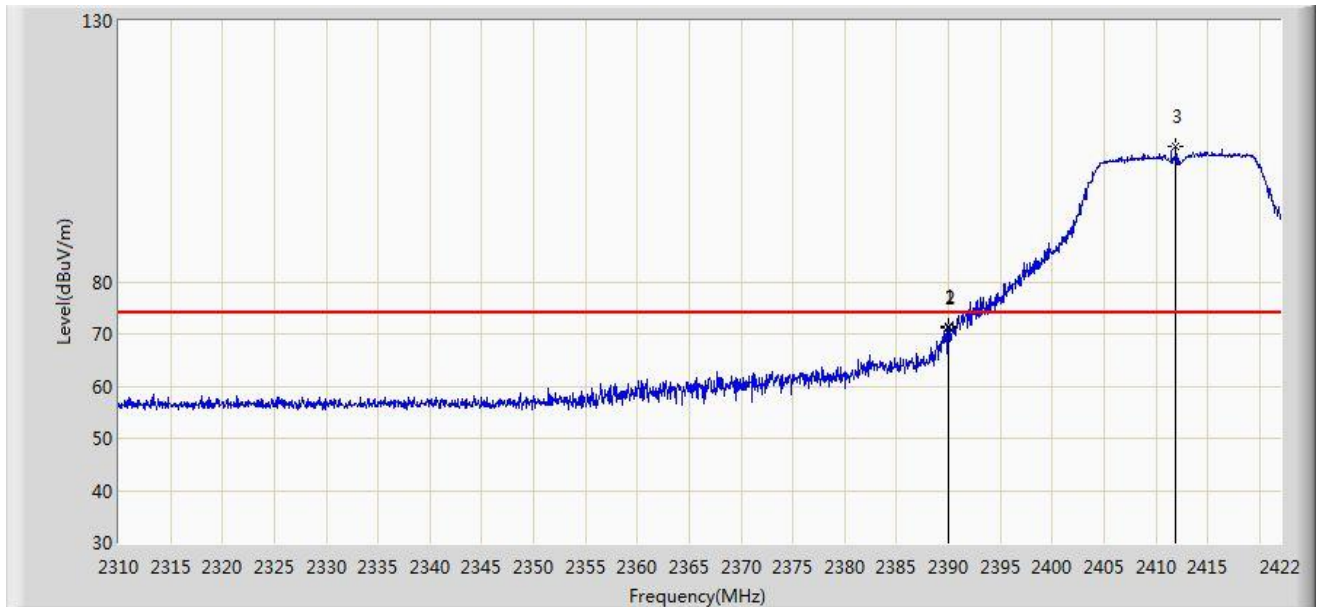
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2390.000	48.992	16.714	-5.008	54.000	32.278	AV
2			2417.912	89.407	57.192	N/A	N/A	32.215	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)



Site: AC2	Time: 2017/03/29 - 16:34
Limit: FCC_Part15.209_RE(3m)	Engineer: Kevin Guo
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: SMART LED LAMP	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11g at Channel 2412MHz	

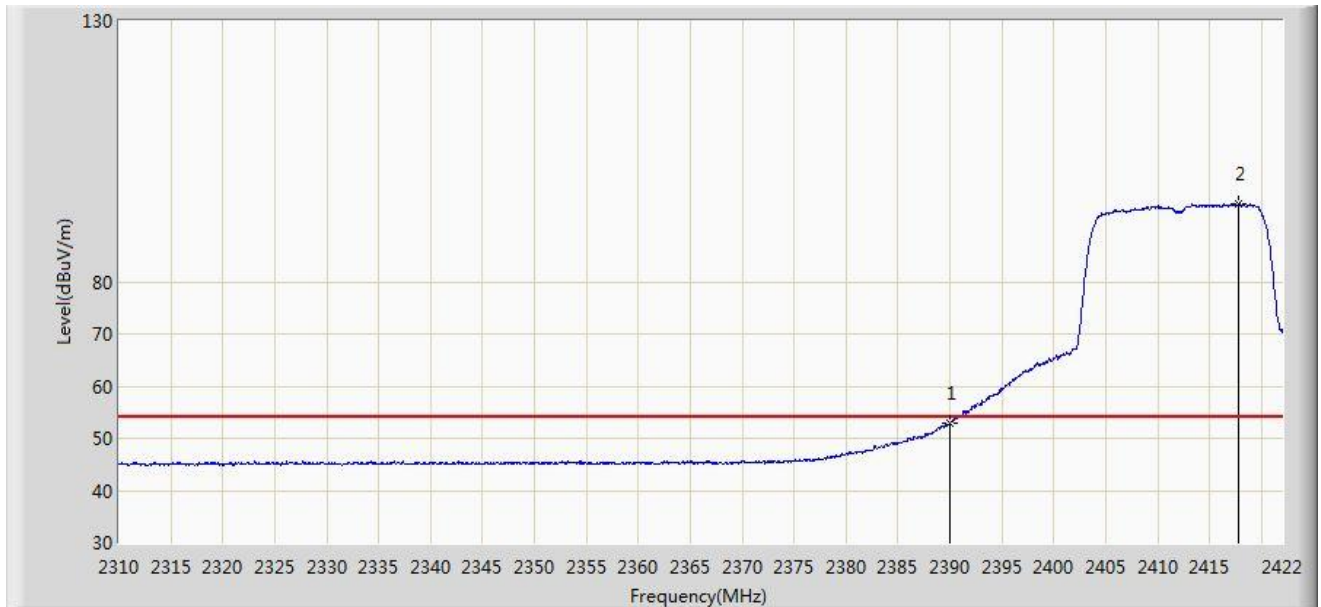


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2389.968	71.352	39.074	-2.648	74.000	32.278	PK
2			2390.000	71.179	38.901	-2.821	74.000	32.278	PK
3			2411.920	105.884	73.644	N/A	N/A	32.240	PK

Note: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2017/03/29 - 16:33
Limit: FCC_Part15.209_RE(3m)	Engineer: Kevin Guo
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: SMART LED LAMP	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11g at Channel 2412MHz	

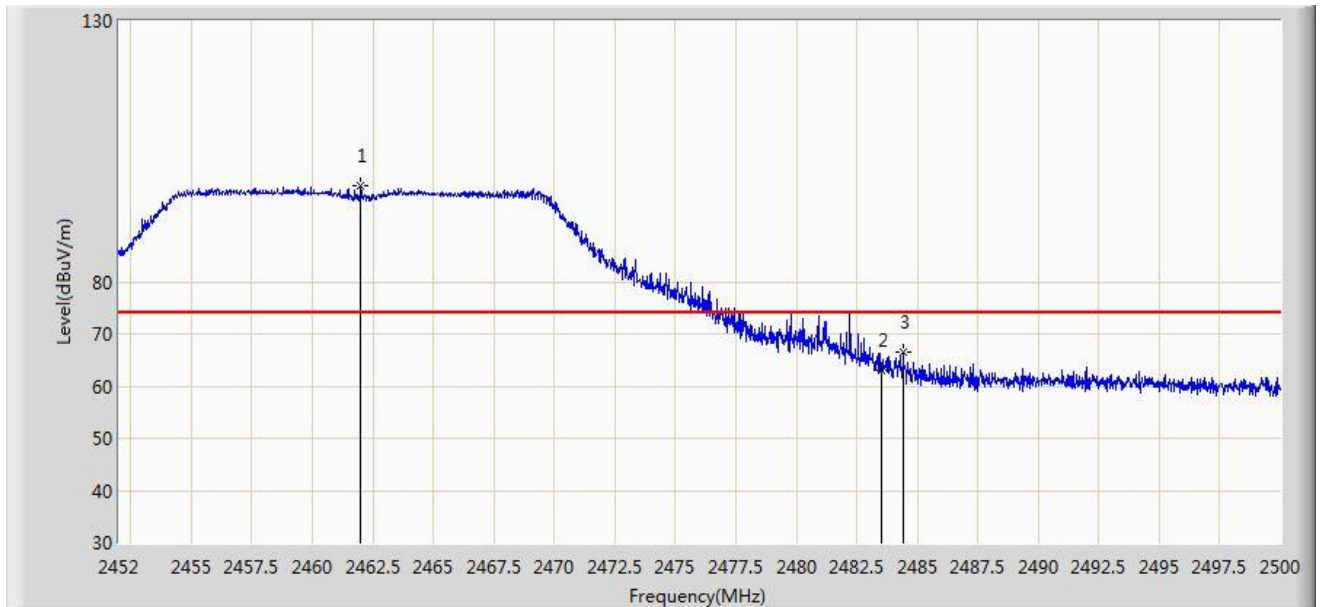


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2390.000	52.872	20.594	-1.128	54.000	32.278	AV
2			2417.856	94.943	62.728	N/A	N/A	32.215	AV

Note: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2017/03/29 - 16:41
Limit: FCC_Part15.209_RE(3m)	Engineer: Kevin Guo
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: SMART LED LAMP	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11g at Channel 2462MHz	

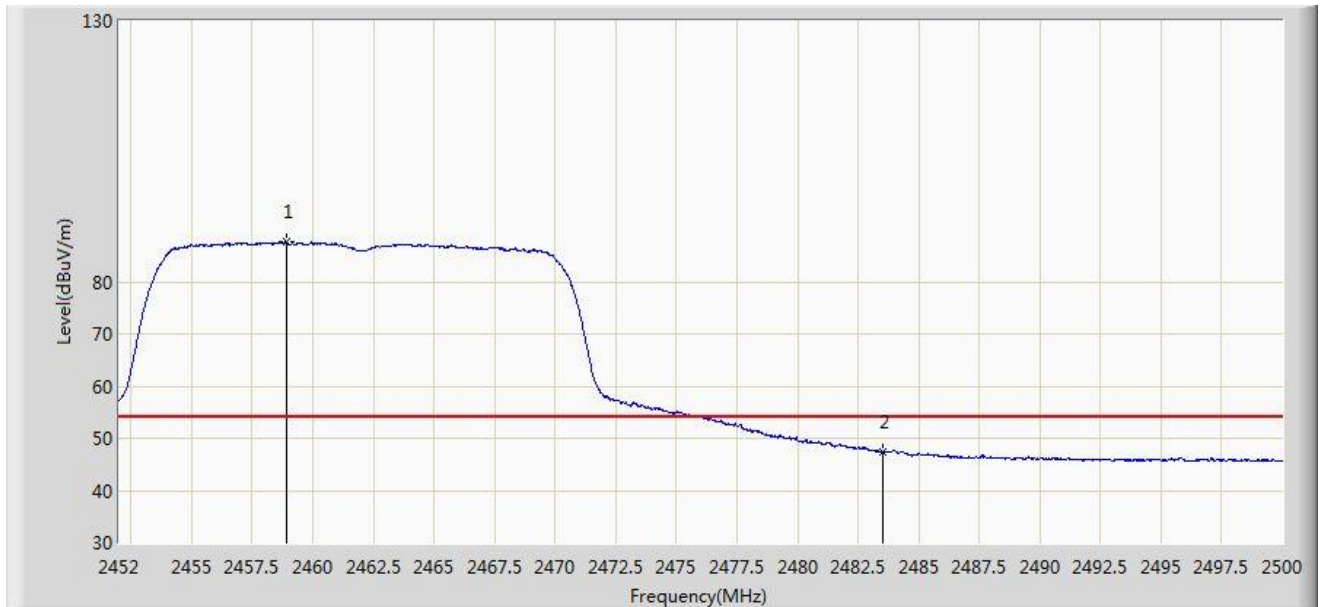


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2462.008	98.502	66.264	N/A	N/A	32.238	PK
2			2483.500	62.923	30.642	-11.077	74.000	32.282	PK
3			2484.424	66.658	34.374	-7.342	74.000	32.284	PK

Note: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2017/03/29 - 16:43
Limit: FCC_Part15.209_RE(3m)	Engineer: Kevin Guo
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: SMART LED LAMP	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11g at Channel 2462MHz	

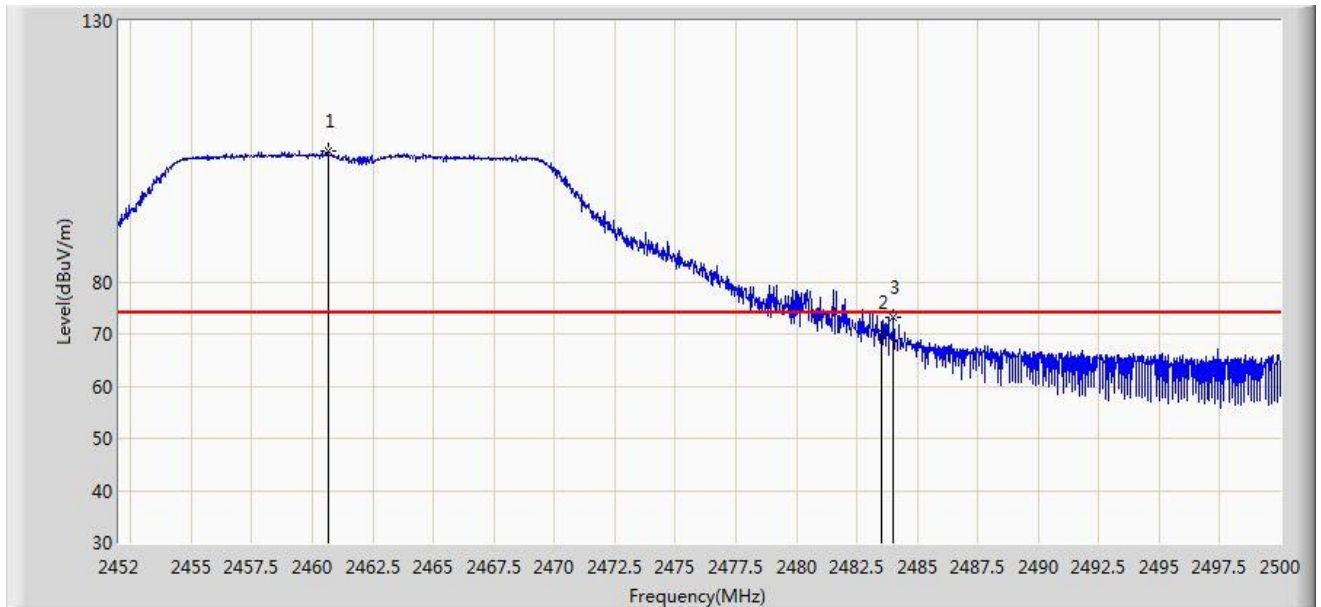


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2458.888	87.641	55.416	N/A	N/A	32.225	AV
2			2483.500	47.359	15.078	-6.641	54.000	32.282	AV

Note: Measure Level (dB $\mu$ V/m) = Reading Level (dB $\mu$ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2017/03/29 - 16:40
Limit: FCC_Part15.209_RE(3m)	Engineer: Kevin Guo
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: SMART LED LAMP	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11g at Channel 2462MHz	

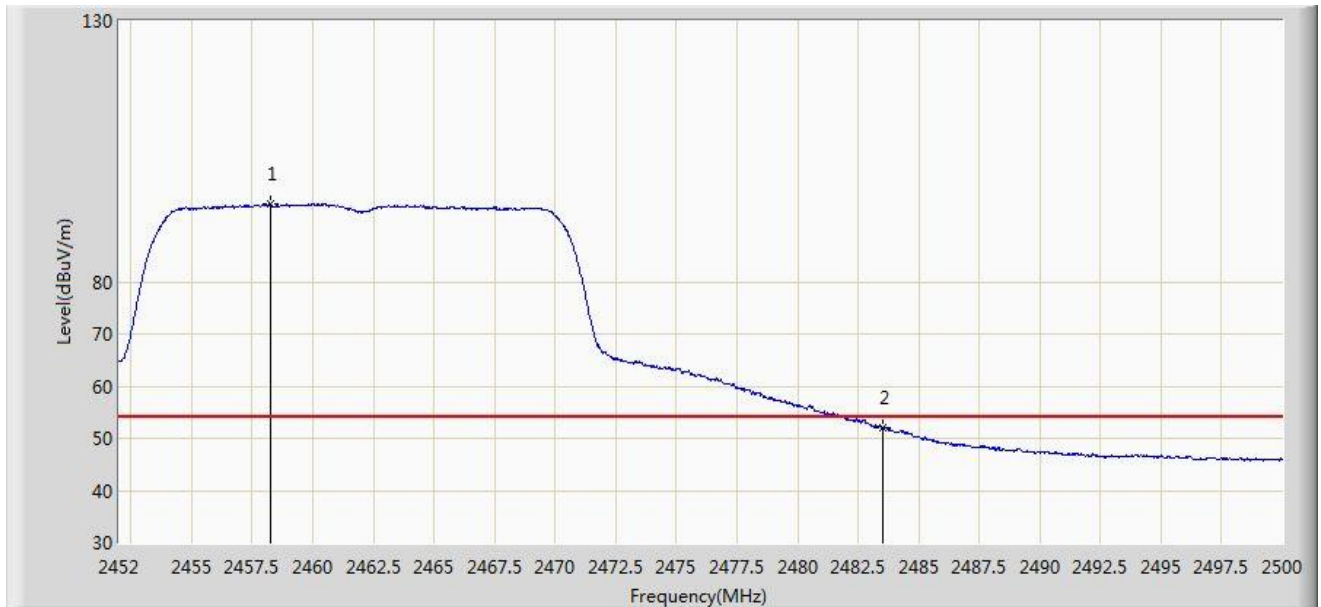


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2460.640	105.019	72.787	N/A	N/A	32.232	PK
2			2483.500	70.161	37.880	-3.839	74.000	32.282	PK
3			2484.016	73.093	40.810	-0.907	74.000	32.283	PK

Note: Measure Level (dB $\mu$ V/m) = Reading Level (dB $\mu$ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2017/03/29 - 16:38
Limit: FCC_Part15.209_RE(3m)	Engineer: Kevin Guo
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: SMART LED LAMP	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11g at Channel 2462MHz	

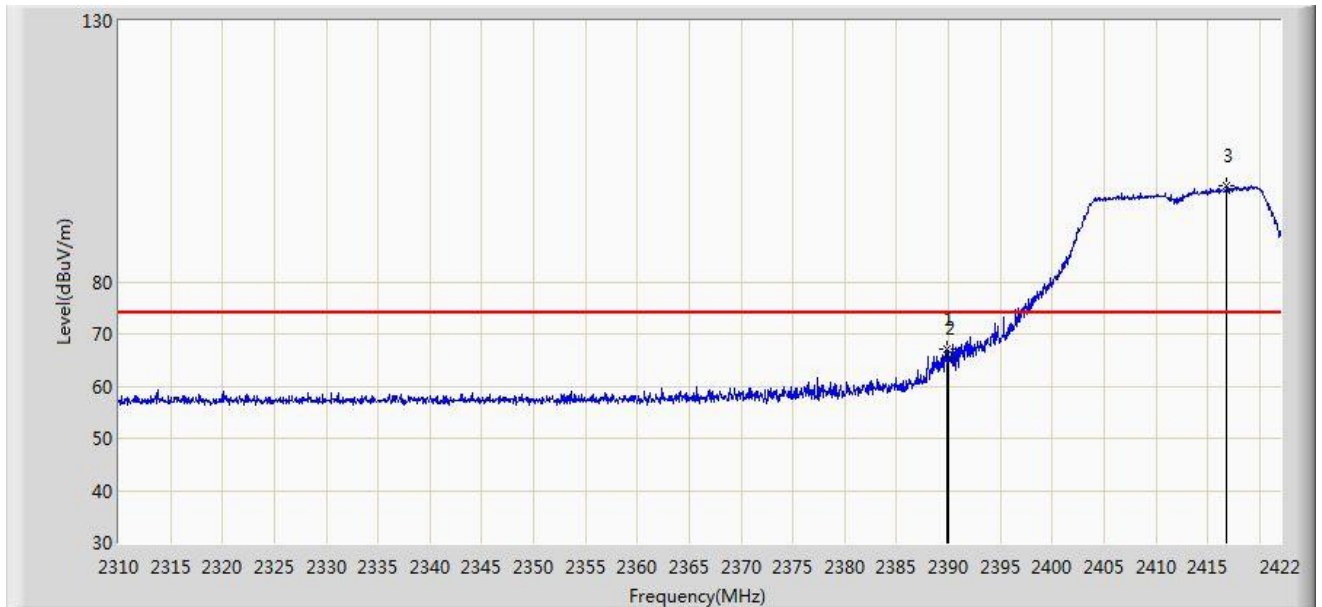


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2458.240	94.968	62.746	N/A	N/A	32.222	AV
2			2483.500	52.043	19.762	-1.957	54.000	32.282	AV

Note: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2017/03/29 - 16:52
Limit: FCC_Part15.209_RE(3m)	Engineer: Kevin Guo
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: SMART LED LAMP	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT20 at Channel 2412MHz	

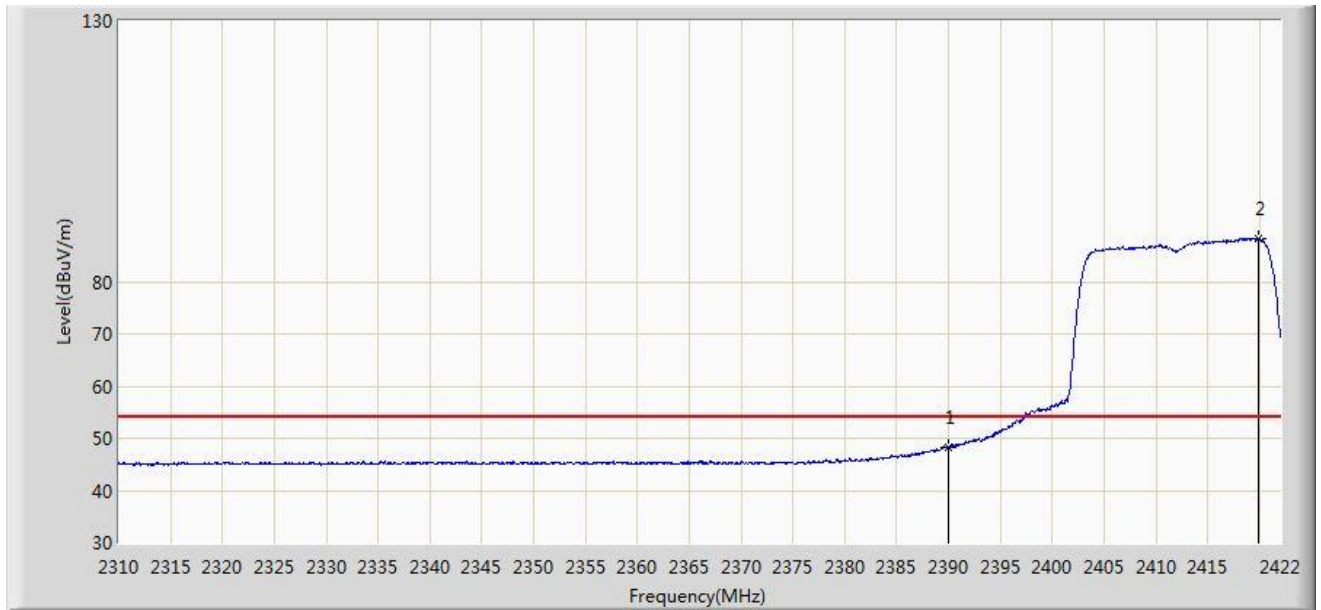


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2389.856	67.184	34.907	-6.816	74.000	32.277	PK
2			2390.000	65.471	33.193	-8.529	74.000	32.278	PK
3			2416.848	98.412	66.192	N/A	N/A	32.219	PK

Note: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2017/03/29 - 16:54
Limit: FCC_Part15.209_RE(3m)	Engineer: Kevin Guo
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: SMART LED LAMP	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT20 at Channel 2412MHz	



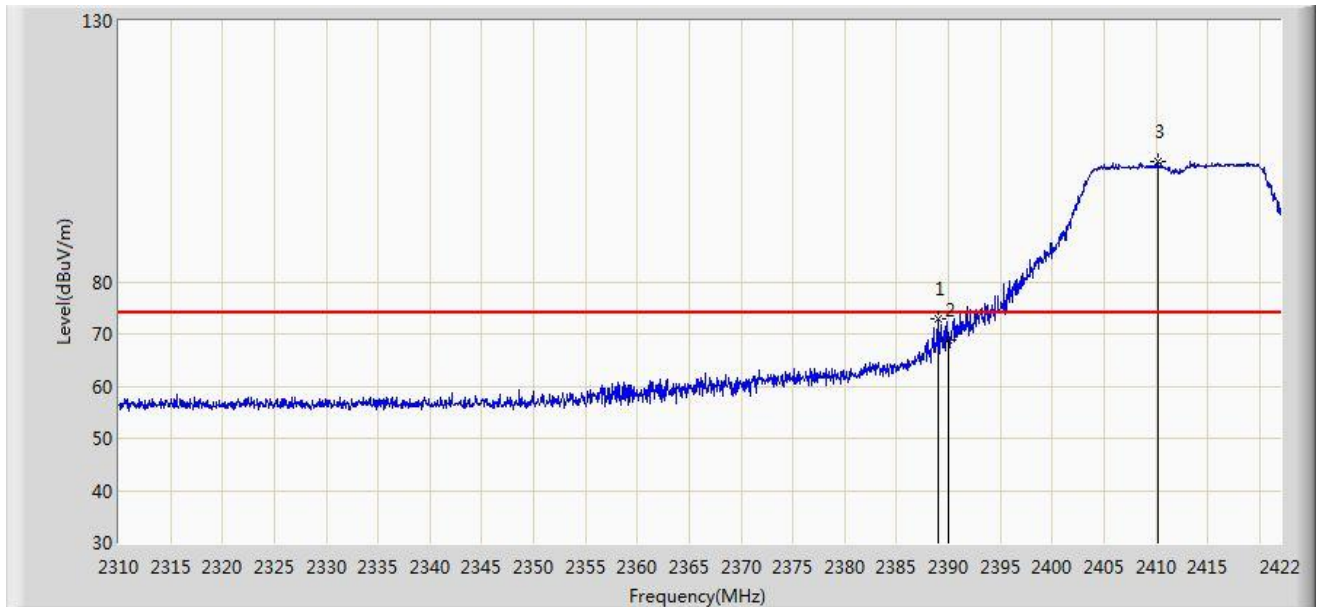
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2390.000	48.395	16.117	-5.605	54.000	32.278	AV
2			2419.872	88.389	56.182	N/A	N/A	32.207	AV

Note: Measure Level (dB $\mu$ V/m) = Reading Level (dB $\mu$ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)



Site: AC2	Time: 2017/03/29 - 16:52
Limit: FCC_Part15.209_RE(3m)	Engineer: Kevin Guo
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: SMART LED LAMP	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT20 at Channel 2412MHz	

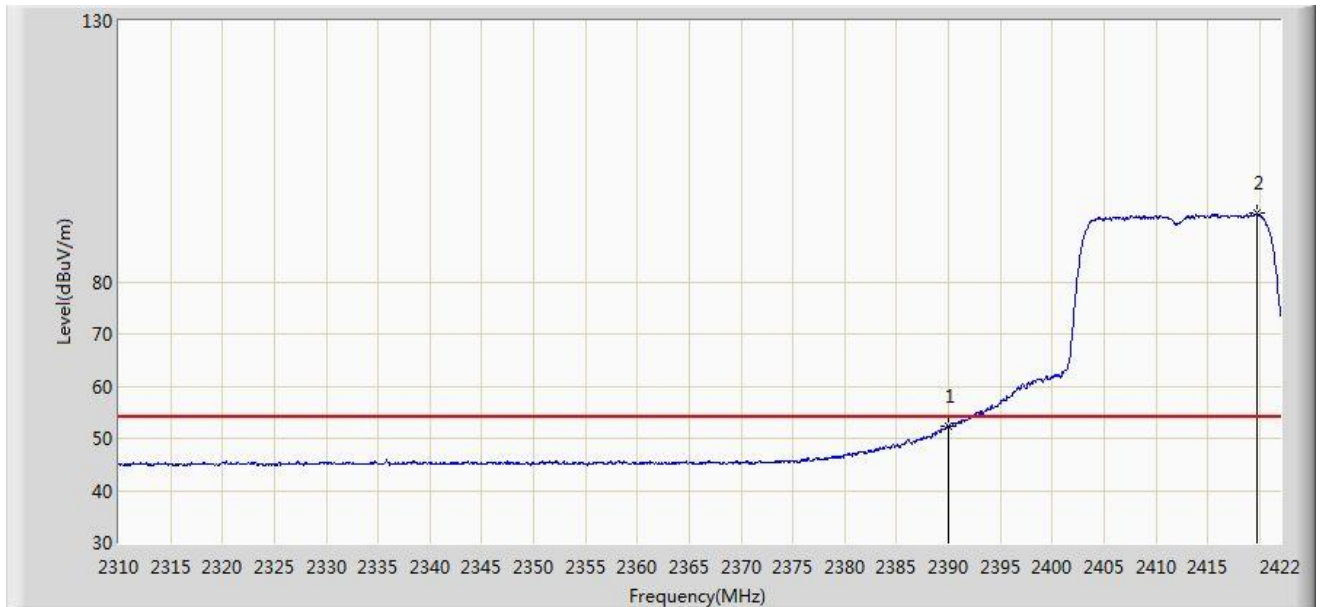


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2389.072	73.003	40.730	-0.997	74.000	32.273	PK
2			2390.000	68.956	36.678	-5.044	74.000	32.278	PK
3			2410.184	103.158	70.911	N/A	N/A	32.246	PK

Note: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2017/03/29 - 16:51
Limit: FCC_Part15.209_RE(3m)	Engineer: Kevin Guo
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: SMART LED LAMP	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT20 at Channel 2412MHz	

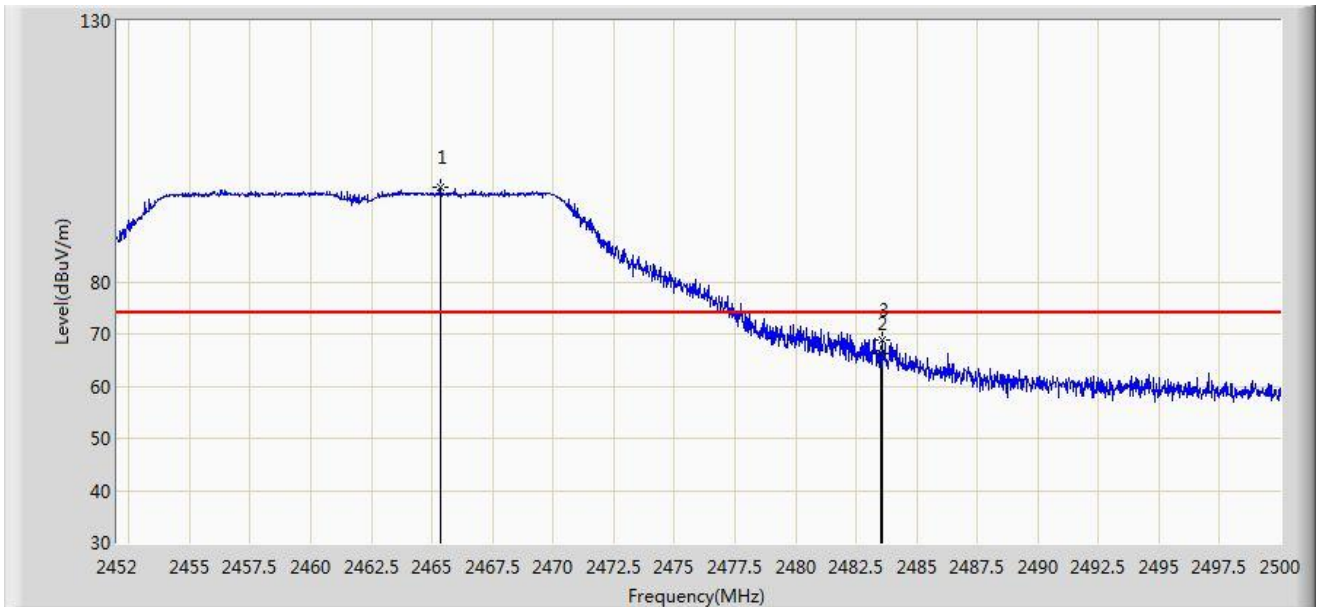


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2390.000	52.185	19.907	-1.815	54.000	32.278	AV
2			2419.760	93.044	60.837	N/A	N/A	32.208	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2017/03/29 - 16:59
Limit: FCC_Part15.209_RE(3m)	Engineer: Kevin Guo
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: SMART LED LAMP	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT20 at Channel 2462MHz	

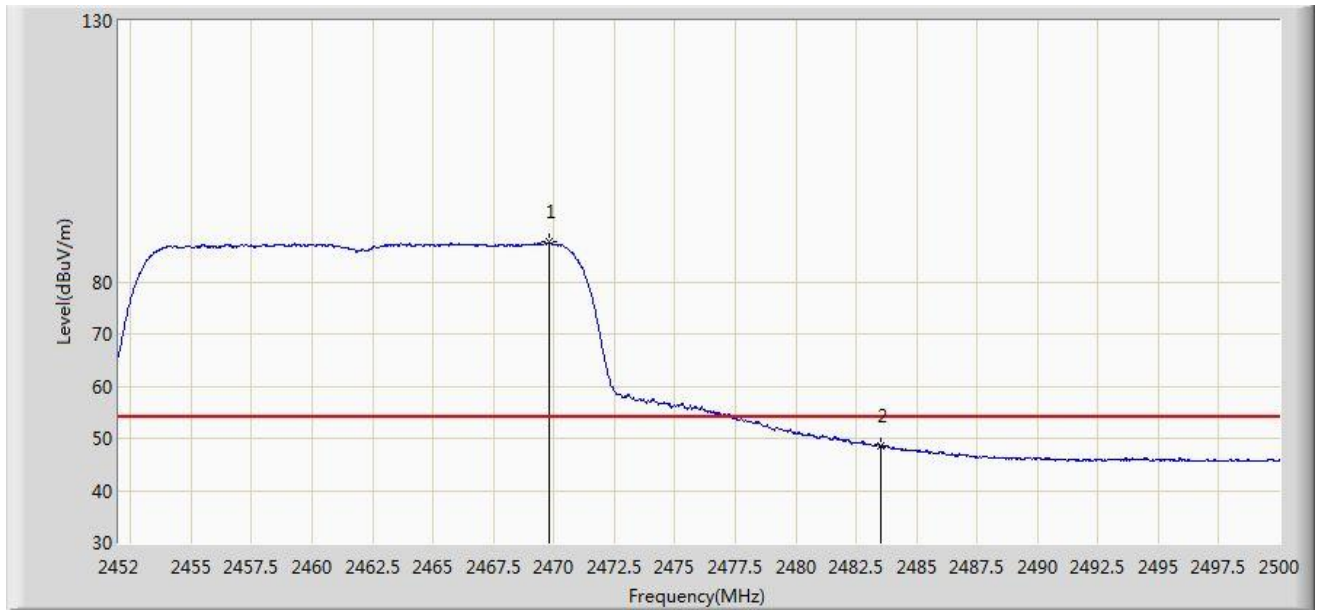


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2465.344	97.993	65.751	N/A	N/A	32.242	PK
2			2483.500	66.270	33.989	-7.730	74.000	32.282	PK
3			2483.608	68.905	36.623	-5.095	74.000	32.282	PK

Note: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2017/03/29 - 17:00
Limit: FCC_Part15.209_RE(3m)	Engineer: Kevin Guo
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: SMART LED LAMP	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT20 at Channel 2462MHz	

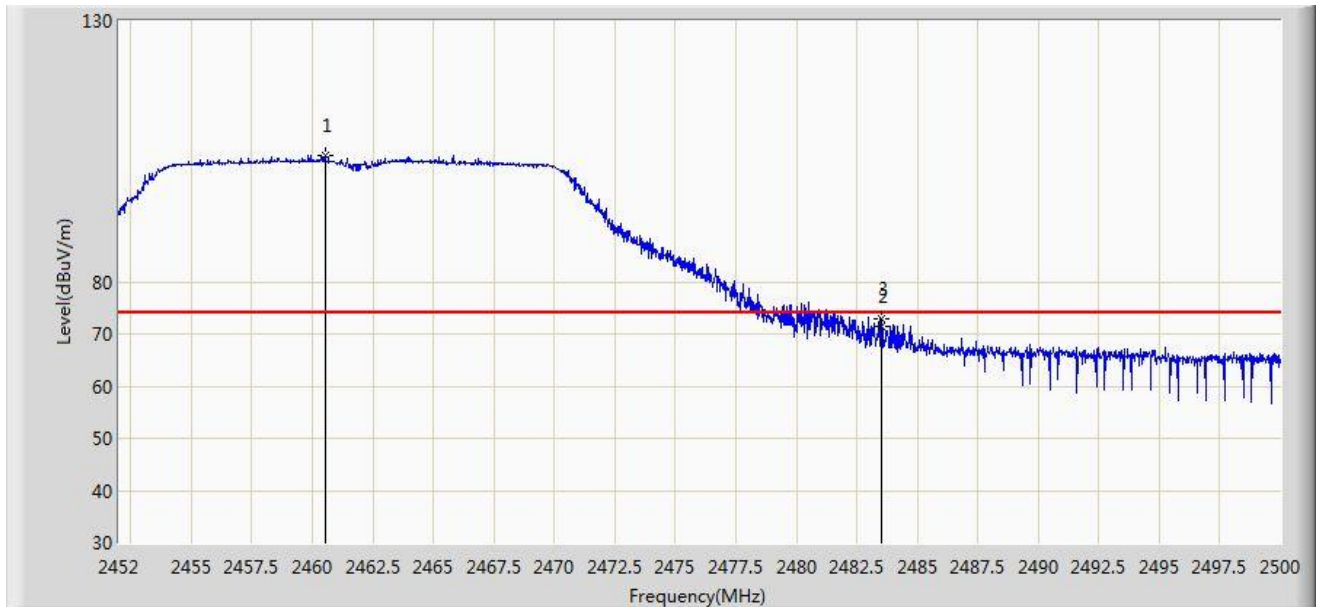


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2469.784	87.586	55.336	N/A	N/A	32.250	AV
2			2483.500	48.580	16.299	-5.420	54.000	32.282	AV

Note: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2017/03/29 - 16:58
Limit: FCC_Part15.209_RE(3m)	Engineer: Kevin Guo
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: SMART LED LAMP	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT20 at Channel 2462MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2460.520	104.117	71.885	N/A	N/A	32.232	PK
2			2483.500	71.415	39.134	-2.585	74.000	32.282	PK
3			2483.512	72.964	40.683	-1.036	74.000	32.282	PK

Note: Measure Level (dB $\mu$ V/m) = Reading Level (dB $\mu$ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: AC2	Time: 2017/03/29 - 16:55
Limit: FCC_Part15.209_RE(3m)	Engineer: Kevin Guo
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: SMART LED LAMP	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT20 at Channel 2462MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2460.544	93.764	61.532	N/A	N/A	32.232	AV
2			2483.500	50.566	18.285	-3.434	54.000	32.282	AV

Note: Measure Level (dB $\mu$ V/m) = Reading Level (dB $\mu$ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

## 7.8. AC Conducted Emissions Measurement

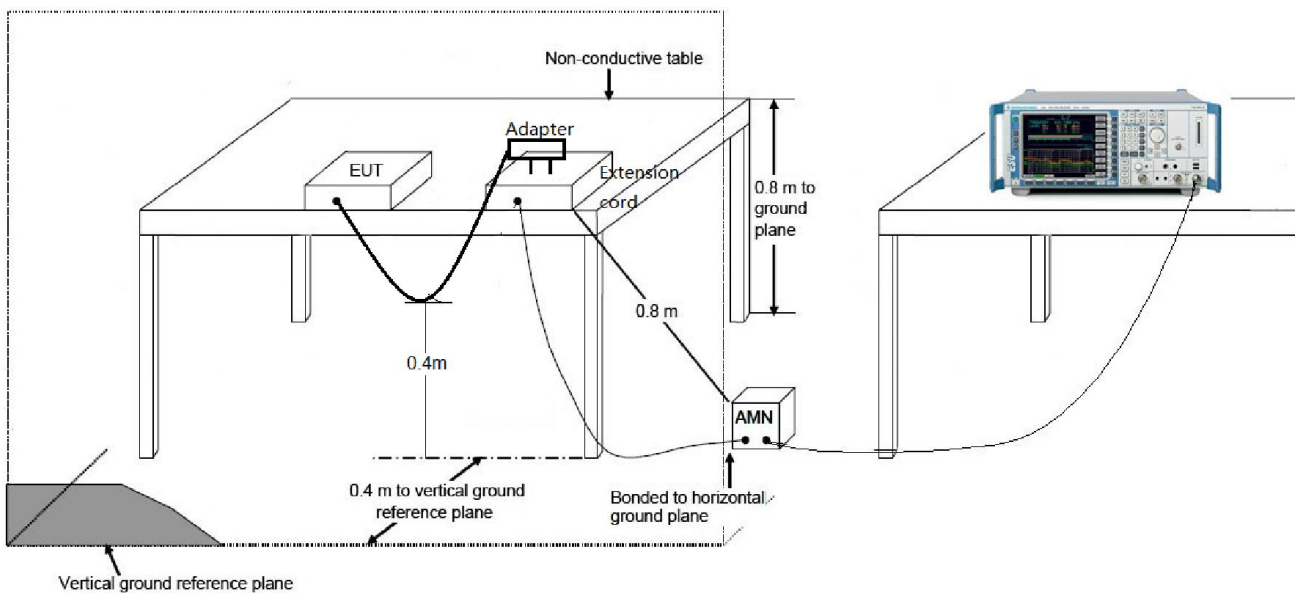
### 7.8.1. Test Limit

FCC Part 15 Subpart C Paragraph 15.207 Limits		
Frequency (MHz)	QP (dBuV)	AV (dBuV)
0.15 - 0.50	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30	60	50

Note 1: The lower limit shall apply at the transition frequencies.

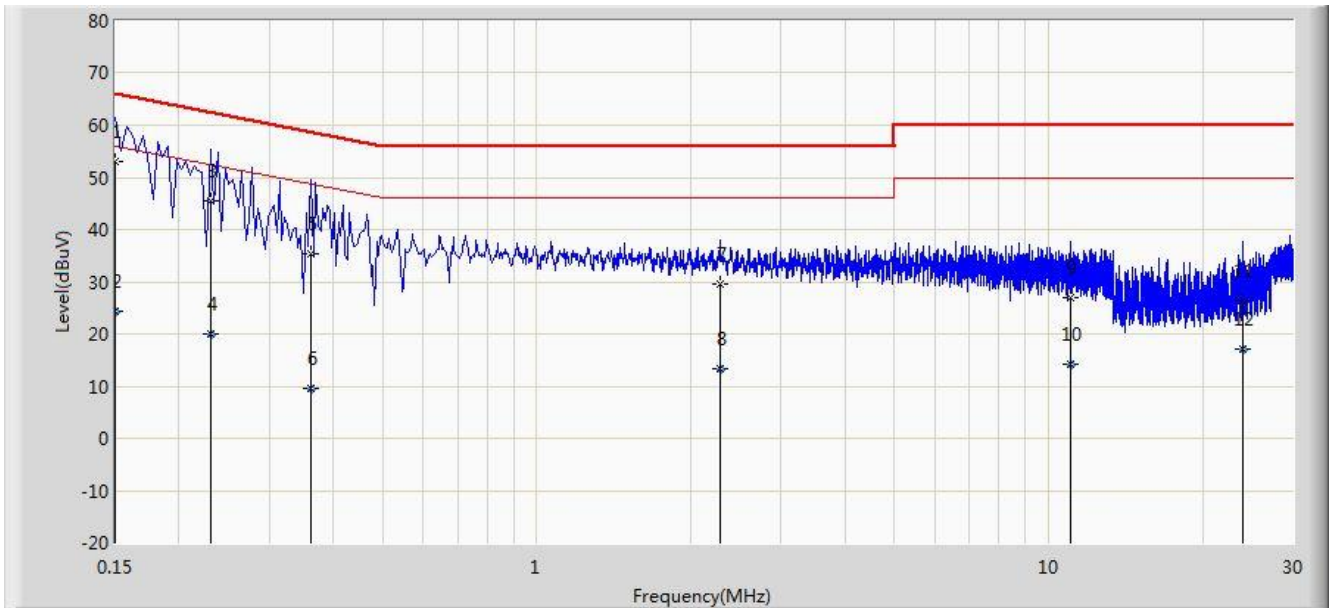
Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.

### 7.8.2. Test Setup



### 7.8.3. Test Result

Site: SR2	Time: 2017/03/31 - 15:33
Limit: FCC_Part15.207_CE_AC Power	Engineer: Kevin Guo
Probe: ENV216_101683_Filter On	Polarity: Line
EUT: SMART LED LAMP	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT20 at Channel 2462MHz	



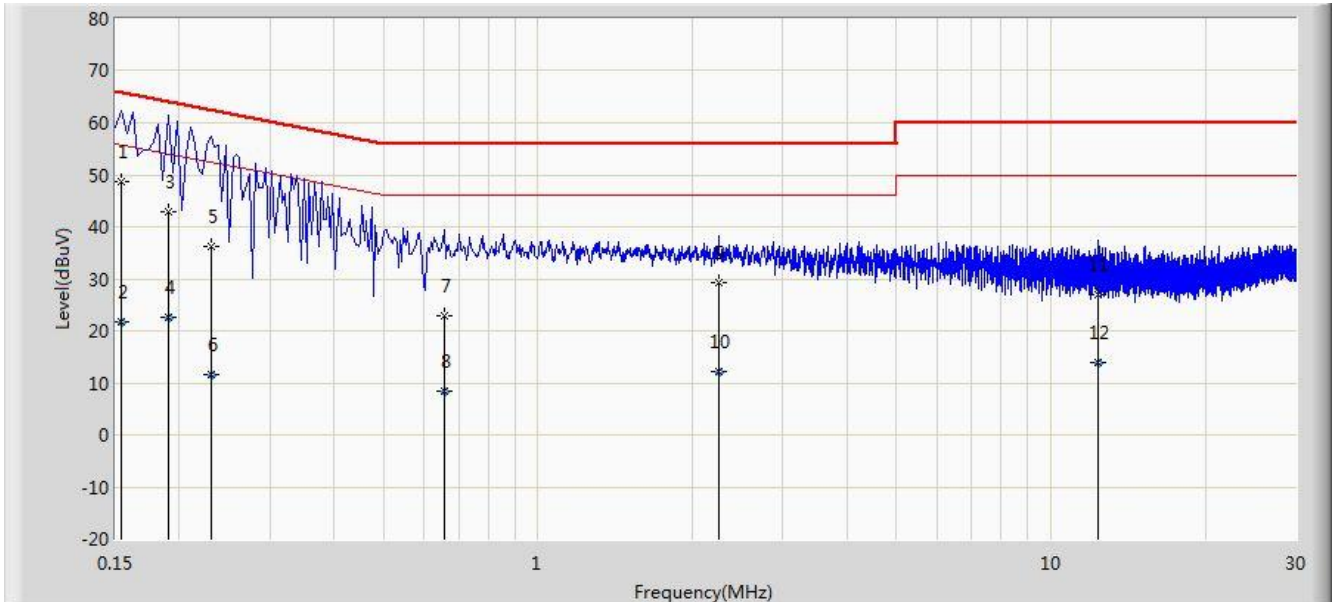
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1		*	0.150	53.168	42.000	-12.832	66.000	11.168	QP
2			0.150	24.268	13.100	-31.732	56.000	11.168	AV
3			0.230	45.647	35.700	-16.802	62.450	9.947	QP
4			0.230	19.947	10.000	-32.502	52.450	9.947	AV
5			0.362	35.399	25.344	-23.284	58.682	10.055	QP
6			0.362	9.612	-0.442	-39.070	48.682	10.055	AV
7			2.278	29.698	19.835	-26.302	56.000	9.863	QP
8			2.278	13.452	3.589	-32.548	46.000	9.863	AV
9			11.058	26.951	16.847	-33.049	60.000	10.104	QP
10			11.058	14.134	4.029	-35.866	50.000	10.104	AV
11			24.006	26.507	16.313	-33.493	60.000	10.194	QP
12			24.006	16.983	6.789	-33.017	50.000	10.194	AV

Note: Measure Level (dBμV) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + LISN Factor (dB)



Site: SR2	Time: 2017/03/31 - 15:45
Limit: FCC_Part15.207_CE_AC Power	Engineer: Kevin Guo
Probe: ENV216_101683_Filter On	Polarity: Neutral
EUT: SMART LED LAMP	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT20 at Channel 2462MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1		*	0.154	48.616	37.900	-17.166	65.781	10.716	QP
2			0.154	21.616	10.900	-34.166	55.781	10.716	AV
3			0.190	42.828	32.800	-21.209	64.037	10.028	QP
4			0.190	22.628	12.600	-31.409	54.037	10.028	AV
5			0.230	36.217	26.232	-26.232	62.450	9.985	QP
6			0.230	11.635	1.650	-40.814	52.450	9.985	AV
7			0.658	22.904	12.805	-33.096	56.000	10.099	QP
8			0.658	8.447	-1.652	-37.553	46.000	10.099	AV
9			2.246	29.304	19.436	-26.696	56.000	9.868	QP
10			2.246	12.185	2.317	-33.815	46.000	9.868	AV
11			12.378	26.862	16.752	-33.138	60.000	10.110	QP
12			12.378	14.036	3.926	-35.964	50.000	10.110	AV

Note: Measure Level (dBμV) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + LISN Factor (dB)

## 8. CONCLUSION

The data collected relate only the item(s) tested and show that the **SMART LED LAMP FCC ID: 2AJ3WEBEQPZ09** is in compliance with Part 15C of the FCC Rules.

————— The End —————