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MEASUREMENT REPORT

FCC PART 15.247 WLAN 802.11b/g/n

FCC ID: YZZGVC3200

APPLICANT: Grandstream Networks, Inc.

Application Type: Certification

Product: Full HD Video Conferencing System

Model No.: GVC3200

Brand Name: Grandstream

FCC Classification: Digital Transmission System (DTS)

FCC Rule Part(s): Part 15.247

Test Procedure(s): ANSI C63.10-2009, KDB 558074 D01v03r02

Test Date: May 29 ~ June 07, 2015

Reviewed By : Robin Wu
(Robin Wu)

Approved By : Marlin Chen
(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 D01v03r02. 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.

Revision History

Report No.	Version	Description	Issue Date
1505RSU01901	Rev. 01	Initial report	06-09-2015

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§2.1033 General Information

Applicant:	Grandstream Networks, Inc.
Applicant Address:	5F, Bldg #1, No.2 Kefa Rd., Science & Technology Park, Shenzhen, China
Manufacturer:	Grandstream Networks, Inc.
Manufacturer Address:	5F, Bldg #1, No.2 Kefa Rd., Science & Technology Park, Shenzhen, China
Test Site:	MRT Technology (Suzhou) Co., Ltd
Test Site Address:	D8 Building, Youxin Industrial Park, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China
MRT Registration No.:	809388
FCC Rule Part(s):	Part 15.247
Model No.:	GVC3200
FCC ID:	YZZGVC3200
Test Device Serial No.:	N/A <input type="checkbox"/> Production <input checked="" type="checkbox"/> Pre-Production <input type="checkbox"/> Engineering
FCC Classification:	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	Full HD Video Conferencing System
Model No.	GVC3200
Frequency Range	802.11b/g/n-HT20: 2412 ~ 2462 MHz
Maximum Output Power	802.11b: 17.32dBm; 802.11g: 16.24dBm; 802.11n-HT20: 15.17dBm
Type of Modulation	802.11b: DSSS 802.11g/n: OFDM
Antenna Type	PCB Antenna
Antenna Gain	2.12dBi

Channel List for 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	N/A	N/A

2.2. Device Capabilities

This device contains the following capabilities:

2.4GHz WLAN (DTS), 5GHz WLAN (UNII), Bluetooth (v3.0+HS, v4.0).

Note: 2.4GHz WLAN (DTS) operation is possible in 20MHz. The maximum achievable duty cycles for all modes were determined based on measurements performed on a spectrum analyzer in zero-span mode with RBW = 8MHz, VBW = 50MHz, and detector = peak per the guidance of Section 6.0 b) of KDB 558074 D01v03r02. 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:

- 802.11b – 99.5%
- 802.11g – 98.2%
- 802.11n-HT20 – 98.0%

2.3. Test Configuration

The **Full HD Video Conferencing System FCC ID: YZZGVC3200** was tested per the guidance of KDB 558074 D01v03r02. ANSI C63.10-2009 was used to reference the appropriate EUT setup for radiated spurious emissions testing and AC line conducted testing.

2.4. EMI Suppression Device(s)/Modifications

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

2.5. 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 trade name and FCC ID must be displayed on the device per Section 15.19(a)(5). Please see attachment for FCC ID label and label location.

2.6. Test Software

The test utility software used during testing was engineering order by applicant.

3. DESCRIPTION OF TEST

3.1. Evaluation Procedure

The measurement procedures described in the American National Standard for Testing Unlicensed Wireless Devices (ANSI C63.10-2009), and the guidance provided in KDB 558074 D01v03r02 were used in the measurement of the **Full HD Video Conferencing System FCC ID: YZZGVC3200**.

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 were 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 C63.10-2009 at Clause 4.3.

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 was placed on top of the 0.8 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 BeamWidth 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 **Full HD Video Conferencing System** is **permanently attached**.
- There are no provisions for connection to an external antenna.

Conclusion:

The **Full HD Video Conferencing System** FCC ID: **YZZGVC3200** unit complies with the requirement of §15.203.

5. TEST EQUIPMENT CALIBRATION DATE

Conducted Emissions

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR7	MRTSUE06001	1 year	2015/11/07
Two-Line V-Network	R&S	ENV216	MRTSUE06002	1 year	2015/11/07
Two-Line V-Network	R&S	ENV216	MRTSUE06003	1 year	2015/11/07
Temperature/ Meter Humidity	Anymetre	TH101B	MRTSUE06047	1 year	2015/11/14

Radiated Emissions

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Spectrum Analyzer	Agilent	E4447A	MRTSUE06028	1 year	2015/10/09
EMI Test Receiver	R&S	ESR7	MRTSUE06001	1 year	2015/11/07
Preamplifier	Agilent	83017A	MRTSUE06020	1 year	2015/12/13
Loop Antenna	Schwarzbeck	FMZB1519	MRTSUE06025	1 year	2015/11/08
TRILOG Antenna	Schwarzbeck	VULB9162	MRTSUE06022	1 year	2015/11/08
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	MRTSUE06023	1 year	2015/11/08
Broadband Horn Antenna	Schwarzbeck	BBHA9170	MRTSUE06024	1 year	2016/01/05
Temperature/Humidity Meter	Anymetre	TH101B	MRTSUE06046	1 year	2015/11/14

Conducted Test Equipment

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Spectrum Analyzer	Agilent	N9020A	MRTSUE06106	1 year	2016/04/23
USB Wideband Power Sensor	Boonton	55006	MRTSUE06109	1 year	2015/10/15
Temperature/Humidity Meter	Anymetre	TH101B	MRTSUE06048	1 year	2015/11/14

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 $k = 2$.

AC Conducted Emission Measurement
Measuring Uncertainty for a Level of Confidence of 95% ($U=2U_{c(y)}$): 150kHz~30MHz: 3.46dB
Radiated Emission Measurement
Measuring Uncertainty for a Level of Confidence of 95% ($U=2U_{c(y)}$): 9kHz ~ 1GHz: 4.18dB 1GHz ~ 25GHz: 4.76dB

7. TEST RESULT

7.1. Summary

Company Name: Grandstream Networks, Inc.
FCC ID: YZZGVC3200
FCC Classification: Digital Transmission System (DTS)
Data Rate(s) 1Mbps ~ 11Mbps (b); 6Mbps ~ 54Mbps (g);
Tested: 6.5/7.2Mbps ~ 65/72.2Mbps (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	$\leq 1\text{Watt}$		Pass	Section 7.3
15.247(e)	Power Spectral Density	$\leq 8\text{dBm} / 3\text{kHz Band}$		Pass	Section 7.4
15.247(d)	Band Edge / Out-of-Band Emissions	$\geq 20\text{dBc(Peak)}$		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.

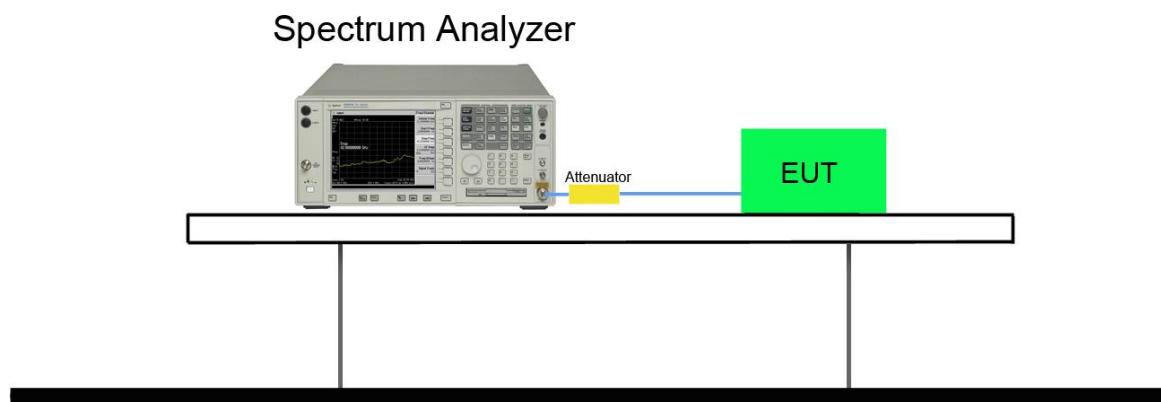
7.2.2. Test Procedure used

KDB 558074 D01v03r02 - Section 8.2 Option 2

7.2.3. Test Setting

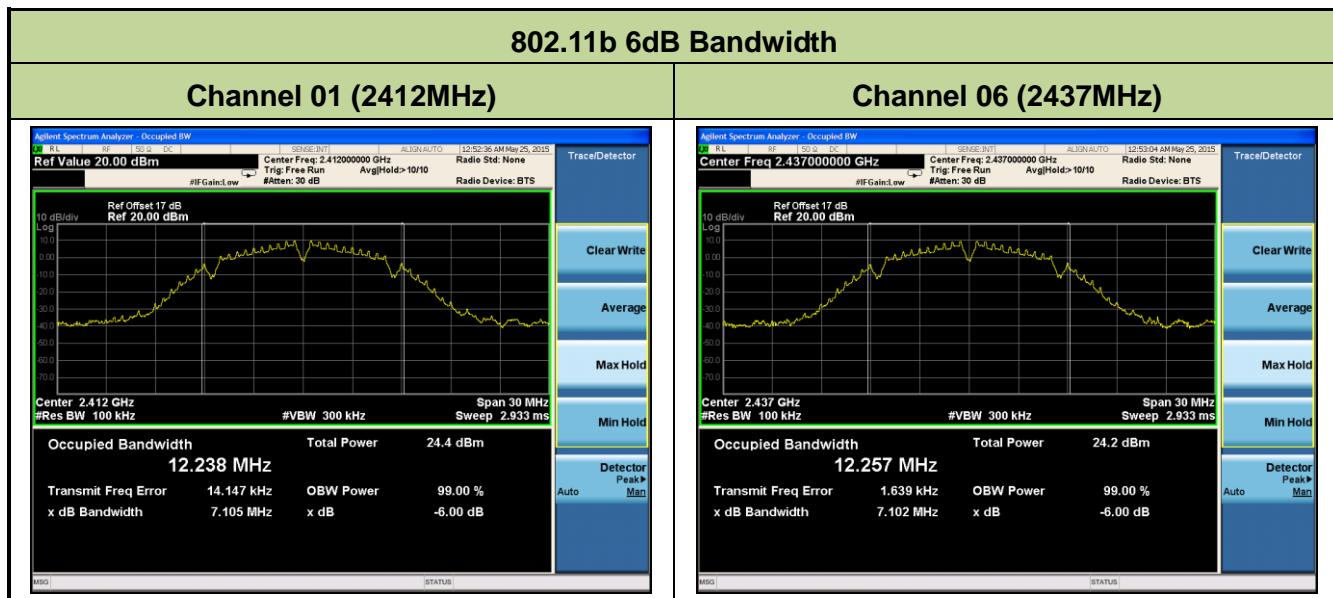
1. The Spectrum's automatic bandwidth measurement capability was used to perform the 6dB bandwidth measurement. The "X" dB bandwidth parameter was set to X = 6. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
2. Set RBW = 100 kHz
3. VBW $\geq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

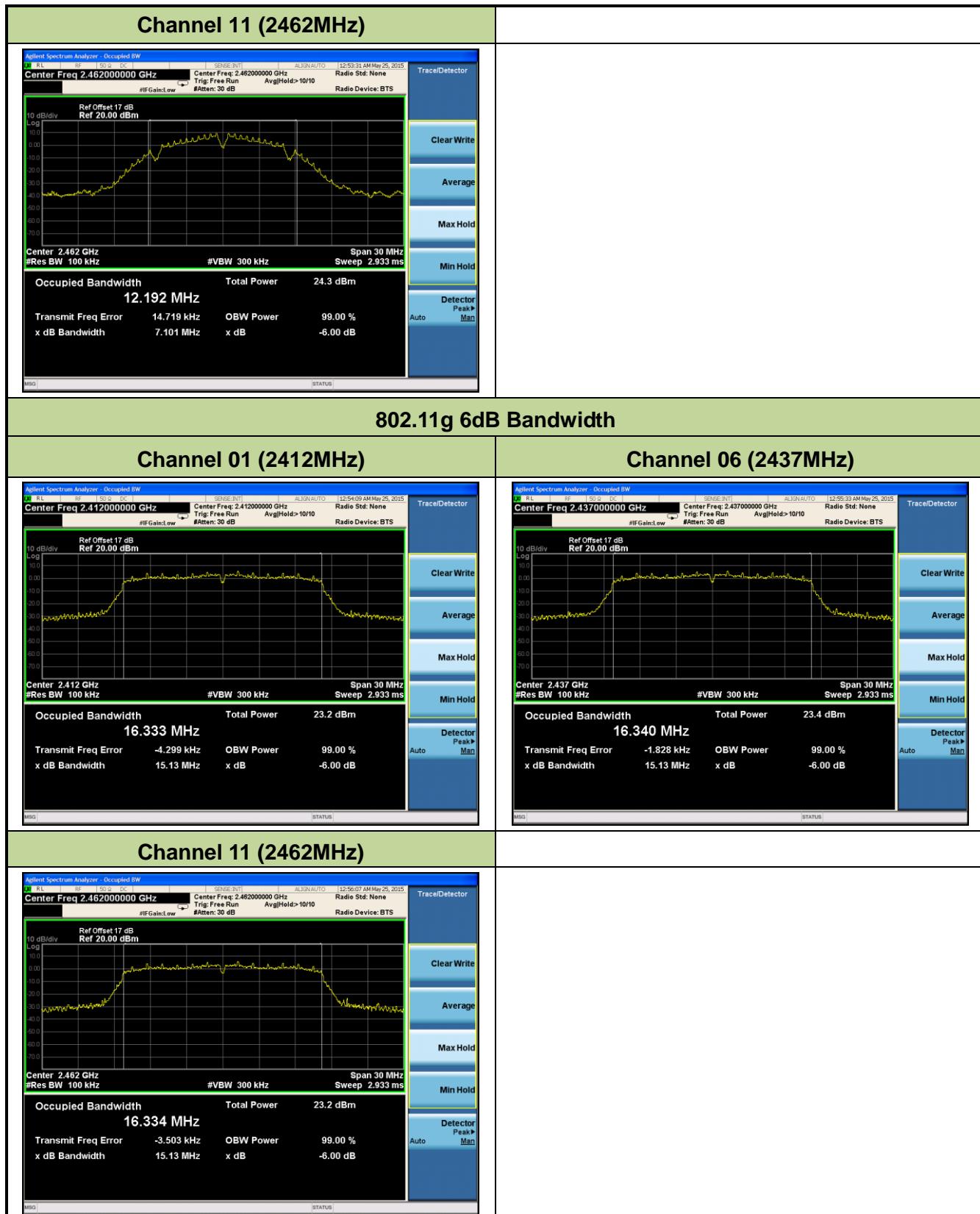
7.2.4. Test Setup



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	7.11	≥ 0.5	Pass
802.11b	1	06	2437	7.10	≥ 0.5	Pass
802.11b	1	11	2462	7.10	≥ 0.5	Pass
802.11g	6	01	2412	15.13	≥ 0.5	Pass
802.11g	6	06	2437	15.13	≥ 0.5	Pass
802.11g	6	11	2462	15.13	≥ 0.5	Pass
802.11n-HT20	6.5	01	2412	15.13	≥ 0.5	Pass
802.11n-HT20	6.5	06	2437	15.12	≥ 0.5	Pass
802.11n-HT20	6.5	11	2462	15.13	≥ 0.5	Pass





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 out power shall be less 1 Watt (30dBm).

7.3.2. Test Procedure Used

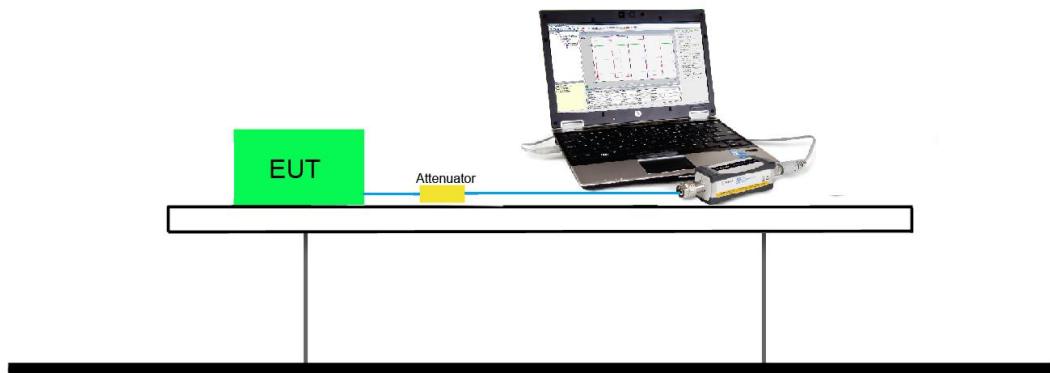
KDB 558074 D01v03r02 - Section 9.1.2 PKPM1 Peak Power Method (for signals with BW \leq 50MHz)

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

Test Result of Peak Output Power

Test Mode	Data Rate (Mbps)	Channel No.	Frequency (MHz)	Peak Power (dBm)	Limit (dBm)	Result
11b	1	1	2412	20.29	≤ 30	Pass
11b	1	6	2437	20.25	≤ 30	Pass
11b	1	11	2462	20.11	≤ 30	Pass
11g	6	1	2412	24.75	≤ 30	Pass
11g	6	6	2437	24.79	≤ 30	Pass
11g	6	11	2462	24.83	≤ 30	Pass
11n-HT20	6.5	1	2412	23.85	≤ 30	Pass
11n-HT20	6.5	6	2437	24.13	≤ 30	Pass
11n-HT20	6.5	11	2462	23.83	≤ 30	Pass

Test Result of Average Output Power (Reporting Only)

Test Mode	Data Rate (Mbps)	Channel No.	Frequency (MHz)	Average Power (dBm)	Limit (dBm)	Result
11b	1	1	2412	17.21	≤ 30	Pass
11b	1	6	2437	17.25	≤ 30	Pass
11b	1	11	2462	17.32	≤ 30	Pass
11g	6	1	2412	16.16	≤ 30	Pass
11g	6	6	2437	16.24	≤ 30	Pass
11g	6	11	2462	16.15	≤ 30	Pass
11n-HT20	6.5	1	2412	15.04	≤ 30	Pass
11n-HT20	6.5	6	2437	15.14	≤ 30	Pass
11n-HT20	6.5	11	2462	15.17	≤ 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.

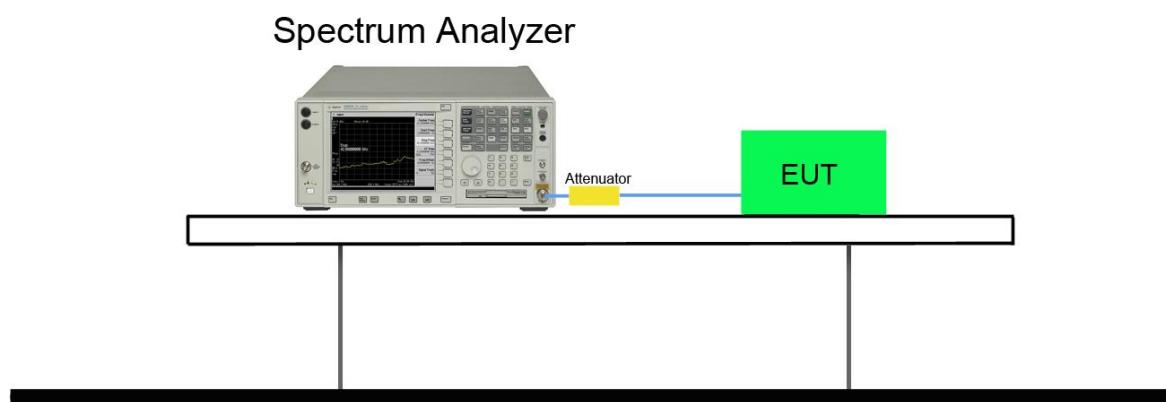
7.4.2. Test Procedure Used

KDB 558074 D01v03r02 - Section 10.2 Method PKPSD

7.4.3. Test Setting

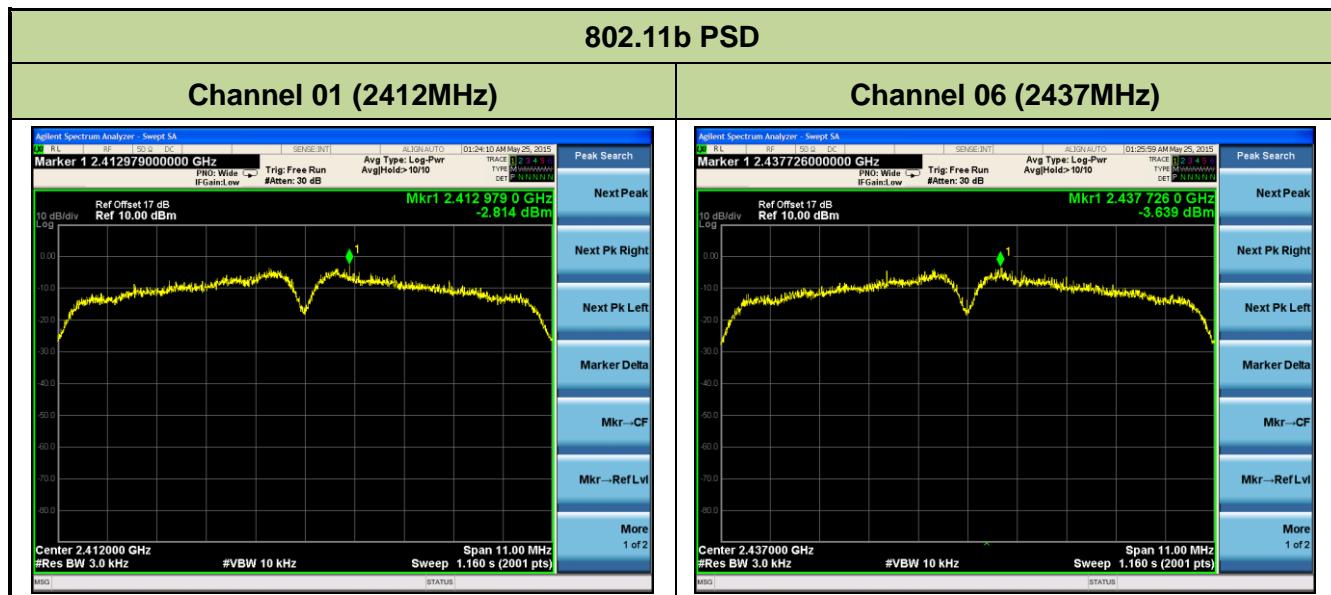
1. Analyzer was set to the center frequency of the DTS channel under investigation
2. Span = 1.5 times the DTS channel bandwidth
3. RBW = 3kHz
4. VBW = 10kHz
5. Detector = peak
6. Sweep time = auto couple
7. Trace mode = max hold
8. Trace was allowed to stabilize

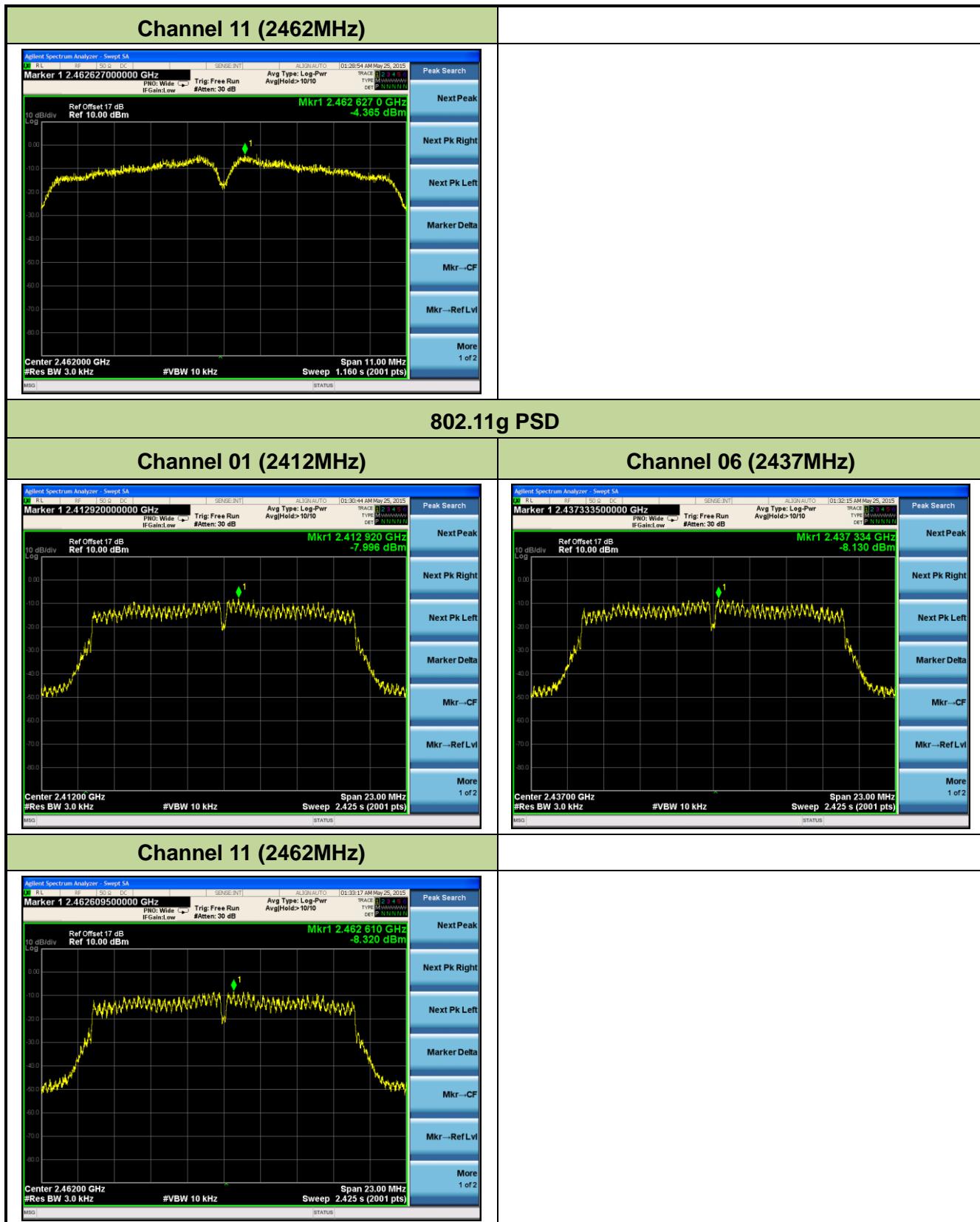
7.4.4. Test Setup



7.4.5. Test Result

Test Mode	Data Rate (Mbps)	Channel No.	Frequency (MHz)	PSD Result (dBm / 3kHz)	Limit (dBm / 3kHz)	Result
11b	1	1	2412	-2.81	≤ 8	Pass
11b	1	6	2437	-3.64	≤ 8	Pass
11b	1	11	2462	-4.37	≤ 8	Pass
11g	6	1	2412	-8.00	≤ 8	Pass
11g	6	6	2437	-8.13	≤ 8	Pass
11g	6	11	2462	-8.32	≤ 8	Pass
11n-HT20	6.5	1	2412	-9.64	≤ 8	Pass
11n-HT20	6.5	6	2437	-8.85	≤ 8	Pass
11n-HT20	6.5	11	2462	-8.86	≤ 8	Pass







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 100kHz bandwidth per the PSD procedure (Section 9.1).

7.5.2. Test Procedure Used

KDB 558074 D01v03r02 - Section 11.2 & Section 11.3

7.5.3. Test Setting

1. Reference level measurement

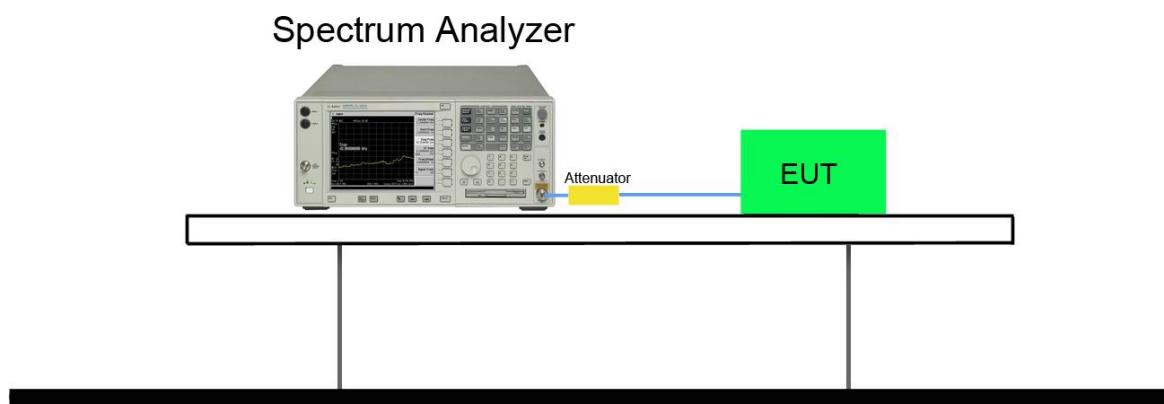
- (a) Set instrument center frequency to DTS channel center frequency
- (b) Set the span to \geq 1.5 times the DTS bandwidth
- (c) Set the RBW = 100 kHz
- (d) Set the VBW \geq 3 x RBW
- (e) Detector = peak
- (f) Sweep time = auto couple
- (g) Trace mode = max hold
- (h) Allow trace to fully stabilize

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) Number of sweep points \geq 2 x Span/RBW
- (f) Trace mode = max hold
- (g) Sweep time = auto couple

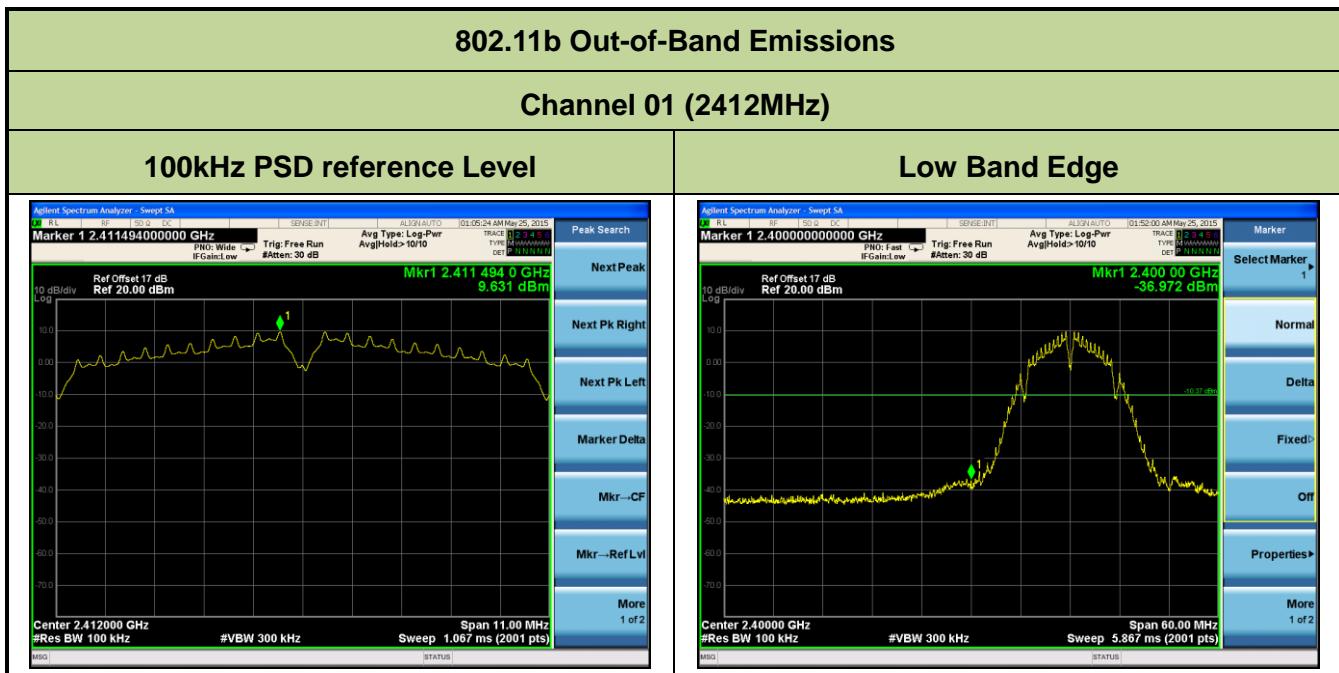
(h) The trace was allowed to stabilize

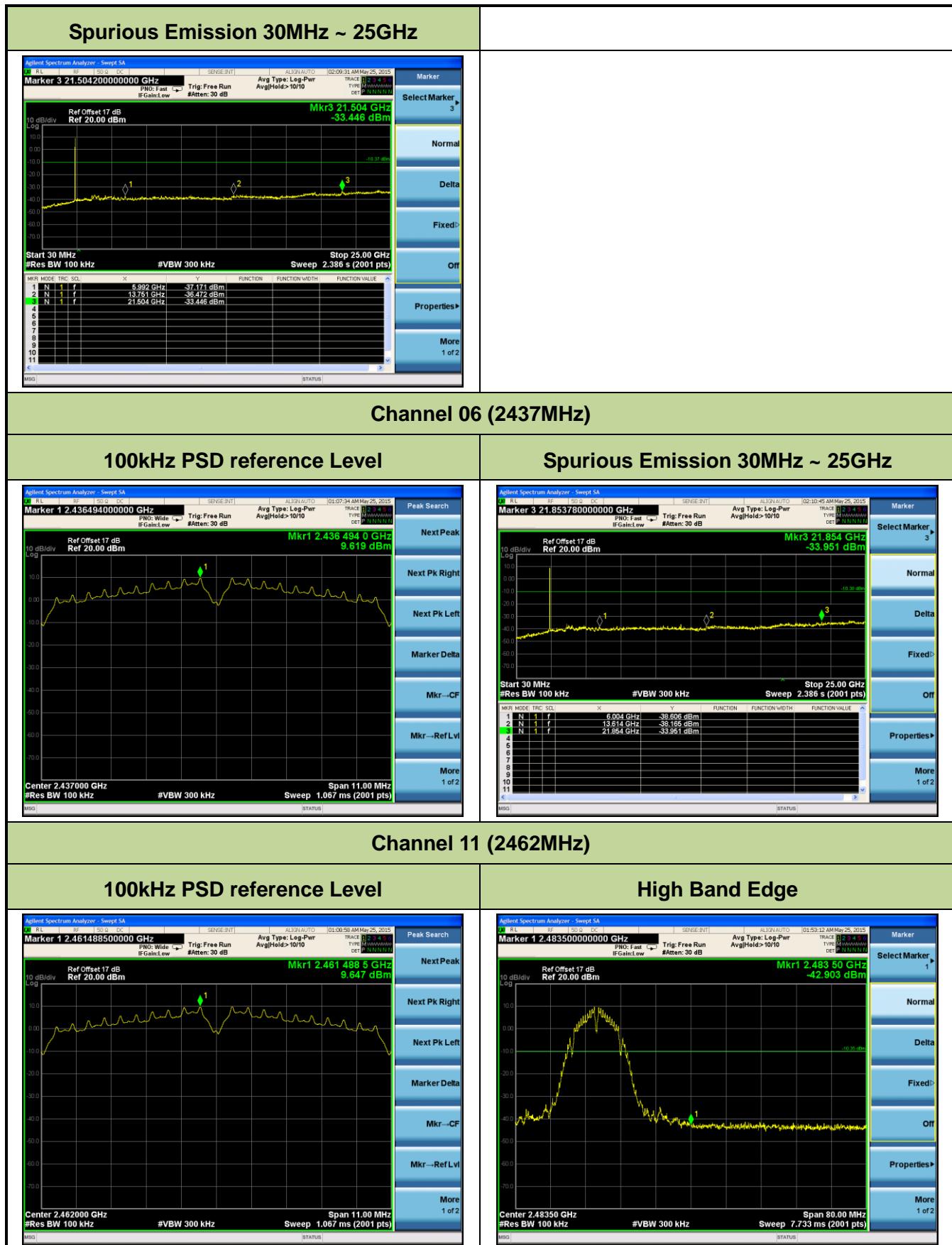
7.5.4. Test Setup



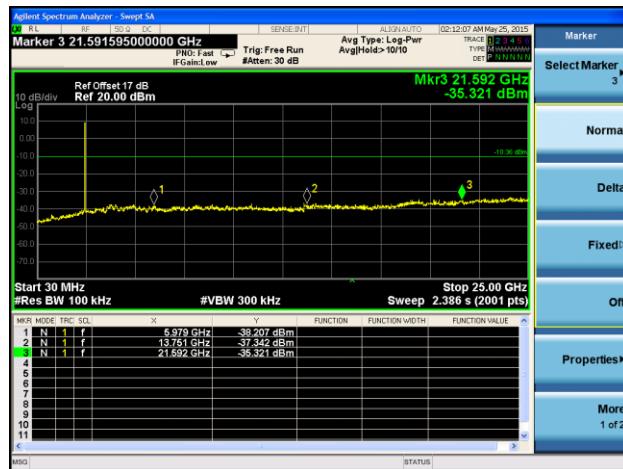
7.5.5. Test Result

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
11n-HT20	6.5	1	2412	20dBc	Pass
11n-HT20	6.5	6	2437	20dBc	Pass
11n-HT20	6.5	11	2462	20dBc	Pass





Spurious Emission 30MHz ~ 25GHz



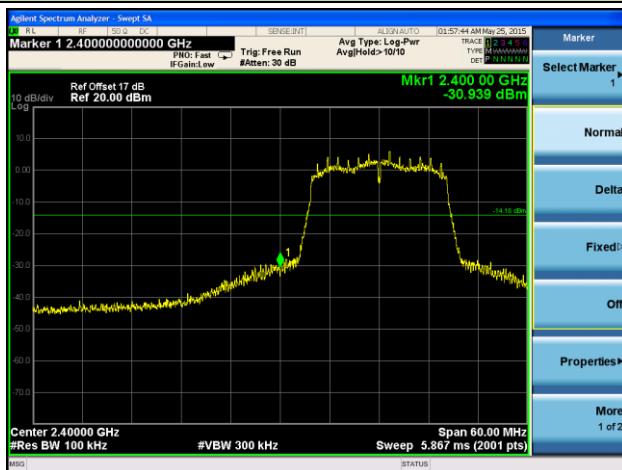
802.11g Out-of-Band Emissions

Channel 01 (2412MHz)

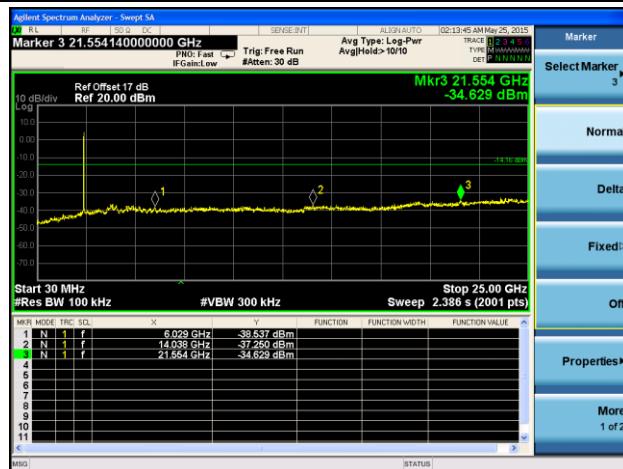
100kHz PSD reference Level

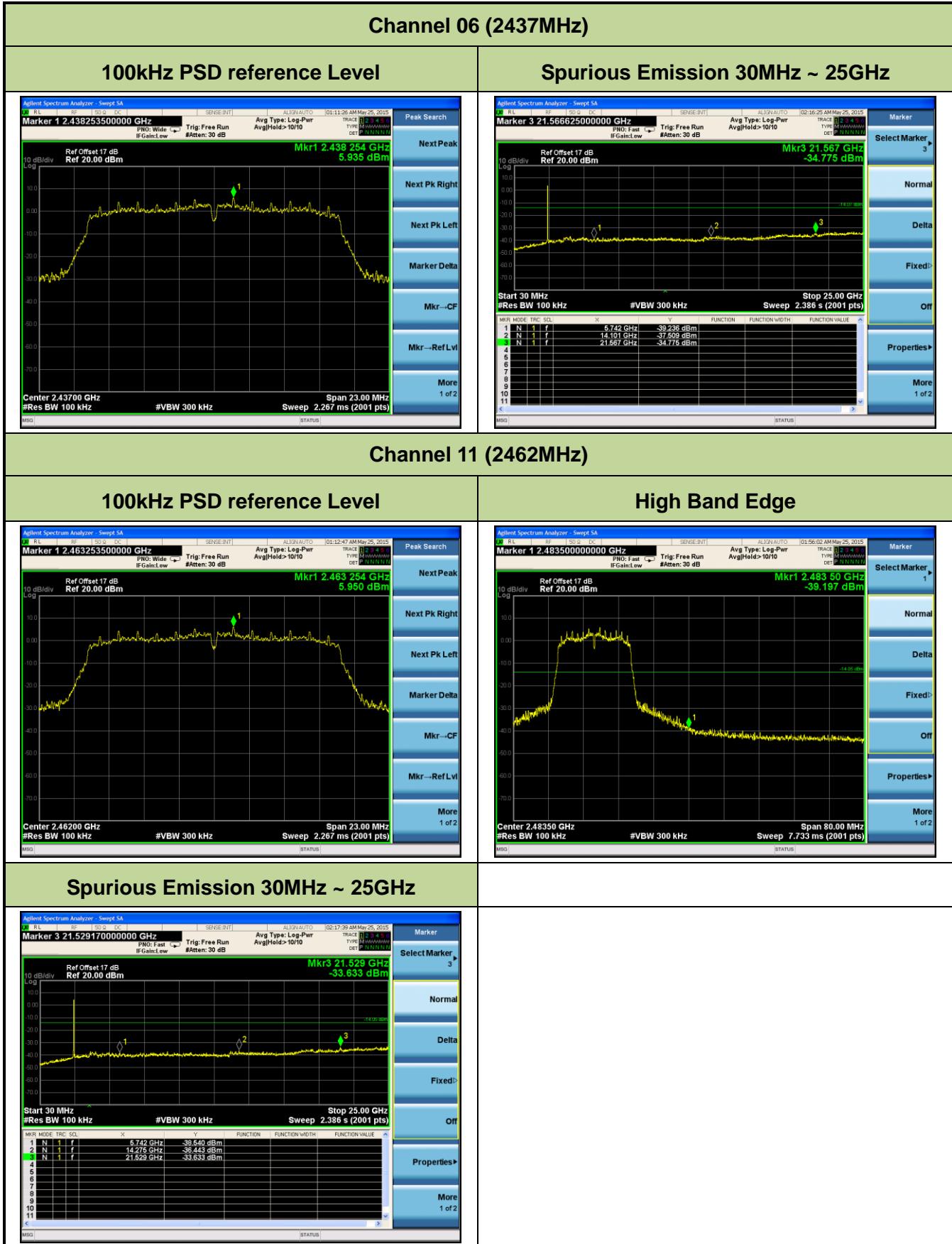


Low Band Edge



Spurious Emission 30MHz ~ 25GHz





802.11n-HT20 Out-of-Band Emissions

Channel 01 (2412MHz)

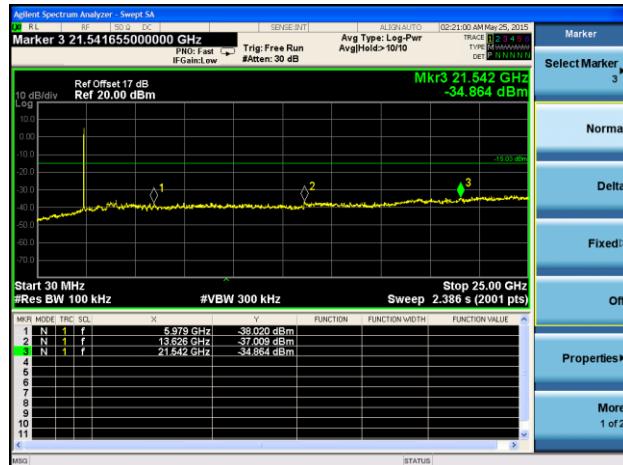
100kHz PSD reference Level



Low Band Edge



Spurious Emission 30MHz ~ 25GHz

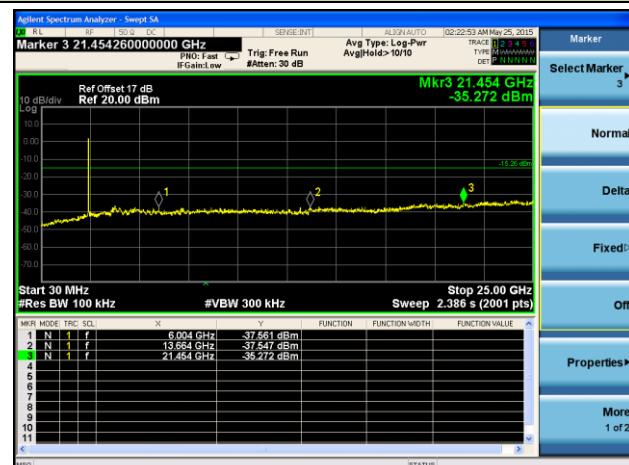


Channel 06 (2437MHz)

100kHz PSD reference Level



Spurious Emission 30MHz ~ 25GHz

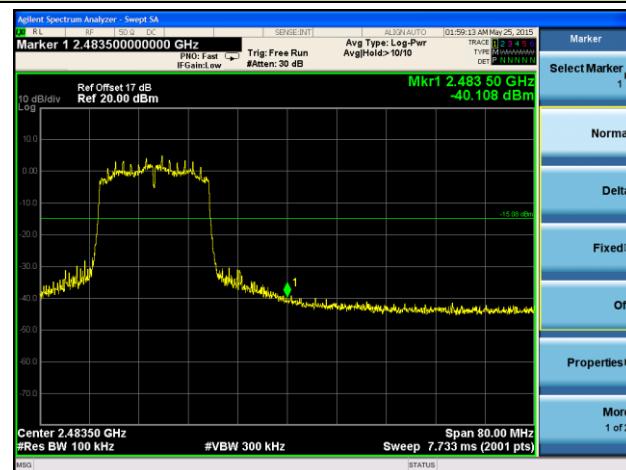


Channel 11 (2462MHz)

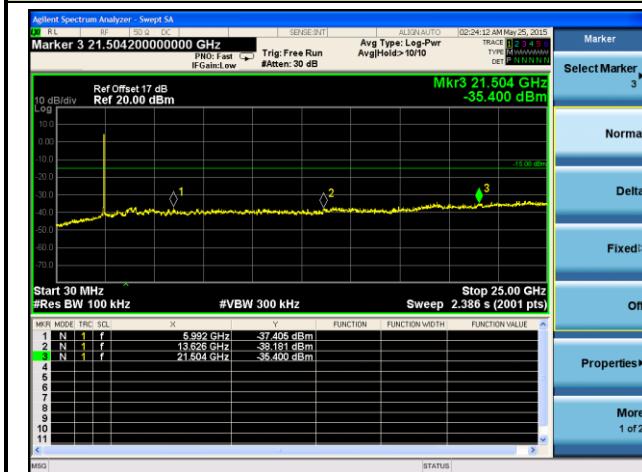
100kHz PSD reference Level



High Band Edge



Spurious Emission 30MHz ~ 25GHz



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 [V/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 D01v03r02 - Section 12.2.3 (quasi-peak measurements)

KDB 558074 D01v03r02 - Section 12.2.4 (peak power measurements)

KDB 558074 D01v03r02 - Section 12.2.5 (average power measurements)

7.6.3. Test Setting

Peak Field Strength Measurements per Section 12.2.4 of KDB 558074 D01v03r02

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

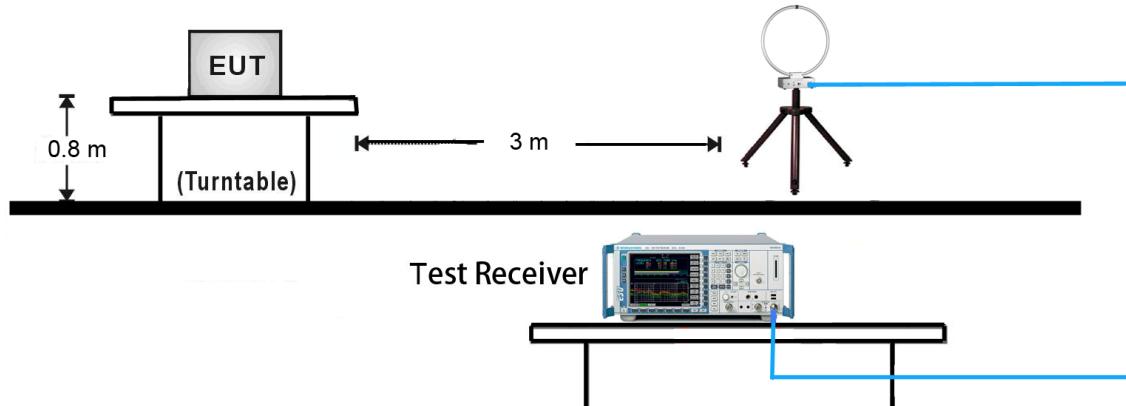
Frequency	RBW
9 ~ 150 kHz	200 ~ 300 Hz
0.15 ~ 30 MHz	9 ~ 10 kHz
30 ~ 1000 MHz	100 ~ 120 kHz
> 1000 MHz	1 MHz

Average Field Strength Measurements per Section 12.2.5.1 of KDB 558074 D01v03r02

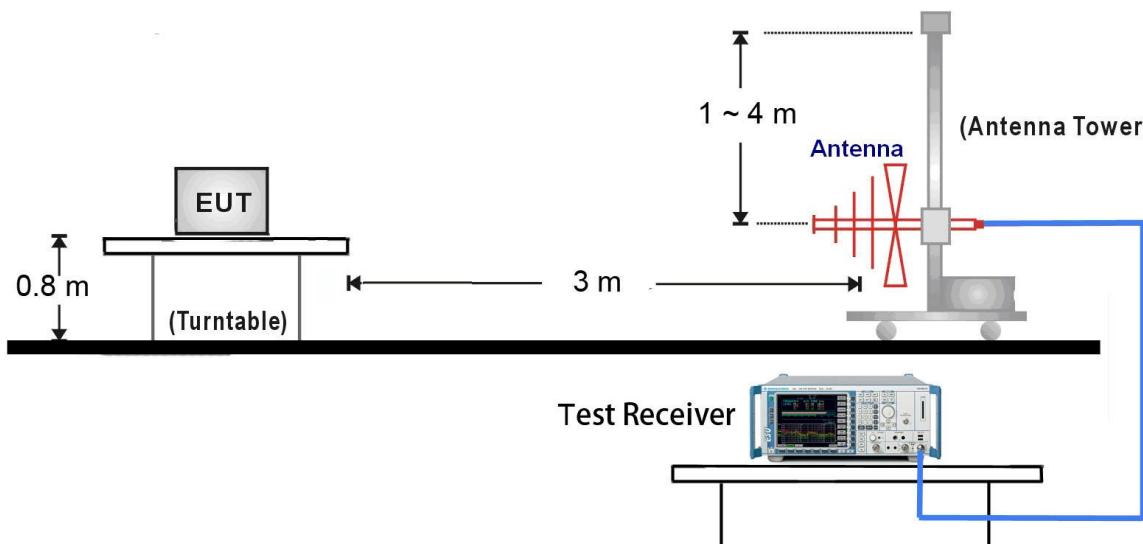
1. RBW = 1MHz.
2. VBW \geq 3 x RBW.
3. Detector = RMS, if span/(# of points in sweep) \leq (RBW/2). Satisfying this condition may require increasing the number of points in the sweep or reducing the span. If this condition cannot be satisfied, then the detector mode shall be set to peak.
4. Averaging type = power (*i.e.*, RMS).
 - As an alternative, the detector and averaging type may be set for linear voltage averaging.
 - Some instruments require linear display mode in order to use linear voltage averaging. Log or dB averaging shall not be used.
5. Sweep time = auto.
6. Perform a trace average of at least 100 traces.

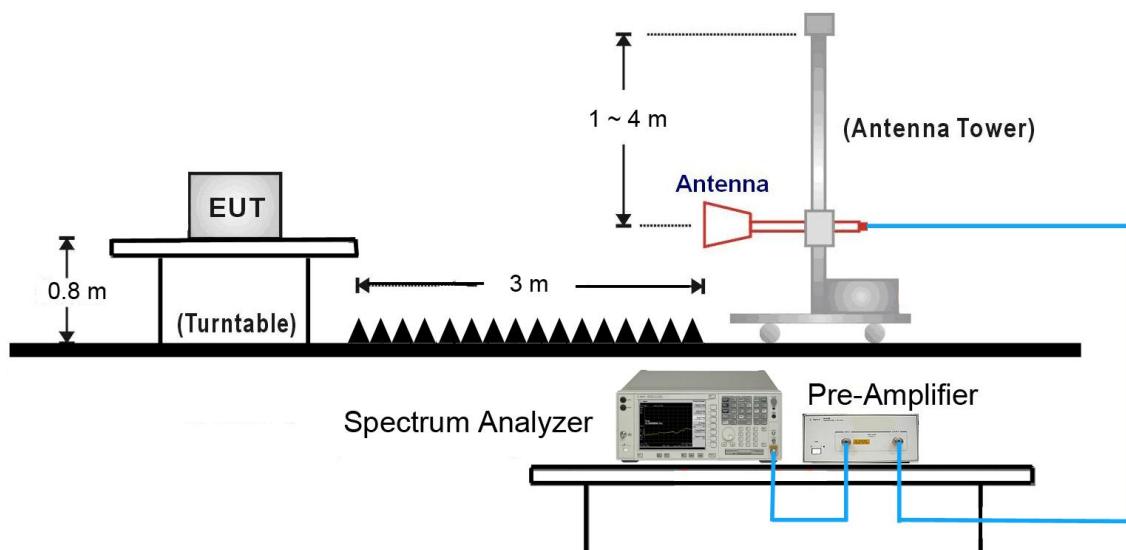
7.6.4. Test Setup

9kHz ~ 30MHz Test Setup:



30MHz ~ 1GHz Test Setup:



1GHz ~ 25GHz Test Setup:

7.6.5. Test Result

Test Mode:	802.11b	Test Site:	AC1
Test Channel:	01	Test Engineer:	Roy Cheng
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 μ V)	Factor (dB)	Measure Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector	Polarization
*	3456.5	40.3	-1.4	38.9	81.9	-43.0	Peak	Horizontal
*	4442.5	35.0	1.5	36.5	81.9	-45.4	Peak	Horizontal
	4825.0	43.2	2.7	45.9	74.0	-28.1	Peak	Horizontal
	7596.0	38.1	8.1	46.2	74.0	-27.8	Peak	Horizontal
*	3422.5	40.6	-1.6	39.0	81.9	-42.9	Peak	Vertical
*	3550.0	41.8	-0.9	40.9	81.9	-41.0	Peak	Vertical
	3618.0	47.8	-0.6	47.2	74.0	-26.8	Peak	Vertical
	4825.0	43.3	2.7	46.0	74.0	-28.0	Peak	Vertical

Note 1: “*” is not in restricted band, its limit is 20dBc of the fundamental emission level (101.9dB μ V/m).

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

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Mode:	802.11b	Test Site:	AC1
Test Channel:	06	Test Engineer:	Roy Cheng
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 μ V)	Factor (dB)	Measure Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector	Polarization
*	3405.5	39.1	-1.6	37.5	81.7	-44.2	Peak	Horizontal
*	3533.0	38.3	-1.0	37.3	81.7	-44.4	Peak	Horizontal
	3652.0	52.8	-0.6	52.2	74.0	-21.8	Peak	Horizontal
	4876.0	41.3	2.7	44.0	74.0	-30.0	Peak	Horizontal
*	3431.0	40.4	-1.5	38.9	81.7	-42.8	Peak	Vertical
*	3567.0	38.9	-0.8	38.1	81.7	-43.6	Peak	Vertical
	3652.0	47.4	-0.6	46.8	74.0	-27.2	Peak	Vertical
	4876.0	44.6	2.7	47.3	74.0	-26.7	Peak	Vertical

Note 1: “**” is not in restricted band, its limit is 20dBc of the fundamental emission level (101.7dB μ V/m).

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

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Mode:	802.11b	Test Site:	AC1
Test Channel:	11	Test Engineer:	Roy Cheng
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 μ V)	Factor (dB)	Measure Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector	Polarization
*	3482.0	39.2	-1.2	38.0	80.2	-42.2	Peak	Horizontal
*	3533.0	40.0	-1.0	39.0	80.2	-41.2	Peak	Horizontal
	3694.5	53.1	-0.6	52.5	74.0	-21.5	Peak	Horizontal
	4927.0	39.7	2.8	42.5	74.0	-31.5	Peak	Horizontal
*	3422.5	39.9	-1.6	38.3	80.2	-41.9	Peak	Vertical
*	3567.0	39.7	-0.8	38.9	80.2	-41.3	Peak	Vertical
	3694.5	46.2	-0.6	45.6	74.0	-28.4	Peak	Vertical
	4927.0	43.3	2.8	46.1	74.0	-27.9	Peak	Vertical

Note 1: “**” is not in restricted band, its limit is 20dBc of the fundamental emission level (100.2dB μ V/m).

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

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Mode:	802.11g	Test Site:	AC1
Test Channel:	01	Test Engineer:	Roy Cheng
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 μ V)	Factor (dB)	Measure Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector	Polarization
*	3448.0	39.4	-1.4	38.0	84.6	-46.6	Peak	Horizontal
*	3558.5	38.9	-0.8	38.1	84.6	-46.5	Peak	Horizontal
	3618.0	53.8	-0.6	53.2	74.0	-20.8	Peak	Horizontal
	4816.5	39.7	2.7	42.4	74.0	-31.6	Peak	Horizontal
*	3431.0	39.8	-1.5	38.3	84.6	-46.3	Peak	Vertical
*	3550.0	39.9	-0.9	39.0	84.6	-45.6	Peak	Vertical
	3618.0	48.8	-0.6	48.2	74.0	-25.8	Peak	Vertical
	4825.0	41.2	2.7	43.9	74.0	-30.1	Peak	Vertical

Note 1: “**” is not in restricted band, its limit is 20dBc of the fundamental emission level (104.6dB μ V/m).

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

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Mode:	802.11g	Test Site:	AC1
Test Channel:	06	Test Engineer:	Roy Cheng
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 μ V)	Factor (dB)	Measure Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector	Polarization
*	3405.5	39.5	-1.6	37.9	83.5	-45.6	Peak	Horizontal
*	3507.5	40.2	-1.1	39.1	83.5	-44.4	Peak	Horizontal
	3652.0	53.6	-0.6	53.0	74.0	-21.0	Peak	Horizontal
	4876.0	40.2	2.7	42.9	74.0	-31.1	Peak	Horizontal
*	3507.5	39.6	-1.1	38.5	83.5	-45.0	Peak	Vertical
*	3567.0	39.2	-0.8	38.4	83.5	-45.1	Peak	Vertical
	3652.0	47.8	-0.6	47.2	74.0	-26.8	Peak	Vertical
	4876.0	44.4	2.7	47.1	74.0	-26.9	Peak	Vertical

Note 1: “**” is not in restricted band, its limit is 20dBc of the fundamental emission level (103.5dB μ V/m).

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

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Mode:	802.11g	Test Site:	AC1
Test Channel:	11	Test Engineer:	Roy Cheng
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 μ V)	Factor (dB)	Measure Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector	Polarization
*	3422.5	39.7	-1.6	38.1	82.9	-44.8	Peak	Horizontal
*	3516.0	39.2	-1.1	38.1	82.9	-44.8	Peak	Horizontal
	3694.5	53.7	-0.6	53.1	74.0	-20.9	Peak	Horizontal
	4918.5	38.9	2.8	41.7	74.0	-32.3	Peak	Horizontal
*	3456.5	40.3	-1.4	38.9	82.9	-44.0	Peak	Vertical
*	3575.5	40.2	-0.8	39.4	82.9	-43.5	Peak	Vertical
	3694.5	46.7	-0.6	46.1	74.0	-27.9	Peak	Vertical
	4918.5	42.4	2.8	45.2	74.0	-28.8	Peak	Vertical

Note 1: “**” is not in restricted band, its limit is 20dBc of the fundamental emission level (102.9dB μ V/m).

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

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Mode:	802.11n-HT20	Test Site:	AC1
Test Channel:	01	Test Engineer:	Roy Cheng
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 μ V)	Factor (dB)	Measure Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector	Polarization
*	3473.5	39.4	-1.3	38.1	82.6	-44.5	Peak	Horizontal
*	3524.5	39.6	-1.0	38.6	82.6	-44.0	Peak	Horizontal
	3618.0	51.9	-0.6	51.3	74.0	-22.7	Peak	Horizontal
	4825.0	38.7	2.7	41.4	74.0	-32.6	Peak	Horizontal
*	3371.5	40.2	-1.8	38.4	82.6	-44.2	Peak	Vertical
*	3592.5	39.5	-0.7	38.8	82.6	-43.8	Peak	Vertical
	3618.0	45.9	-0.6	45.3	74.0	-28.7	Peak	Vertical
	4816.5	40.0	2.7	42.7	74.0	-31.3	Peak	Vertical

Note 1: “**” is not in restricted band, its limit is 20dBc of the fundamental emission level (102.6dB μ V/m).

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

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Mode:	802.11n-HT20	Test Site:	AC1
Test Channel:	06	Test Engineer:	Roy Cheng
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 μ V)	Factor (dB)	Measure Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector	Polarization
*	3431.0	39.0	-1.5	37.5	81.8	-44.3	Peak	Horizontal
*	3524.5	39.1	-1.0	38.1	81.8	-43.7	Peak	Horizontal
	3660.5	51.7	-0.6	51.1	74.0	-22.9	Peak	Horizontal
	4876.0	38.1	2.7	40.8	74.0	-33.2	Peak	Horizontal
*	3414.0	39.5	-1.6	37.9	81.8	-43.9	Peak	Vertical
*	3550.0	39.6	-0.9	38.7	81.8	-43.1	Peak	Vertical
	3652.0	46.4	-0.6	45.8	74.0	-28.2	Peak	Vertical
	4867.5	39.6	2.7	42.3	74.0	-31.7	Peak	Vertical

Note 1: “**” is not in restricted band, its limit is 20dBc of the fundamental emission level (101.8dB μ V/m).

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

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Mode:	802.11n-HT20	Test Site:	AC1
Test Channel:	11	Test Engineer:	Roy Cheng
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 μ V)	Factor (dB)	Measure Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector	Polarization
*	3431.0	38.6	-1.5	37.1	81.5	-44.4	Peak	Horizontal
*	3524.5	39.5	-1.0	38.5	81.5	-43.0	Peak	Horizontal
	3694.5	52.7	-0.6	52.1	74.0	-21.9	Peak	Horizontal
	4927.0	36.6	2.8	39.4	74.0	-34.6	Peak	Horizontal
*	3507.5	39.6	-1.1	38.5	81.5	-43.0	Peak	Vertical
*	3533.0	39.3	-1.0	38.3	81.5	-43.2	Peak	Vertical
	3694.5	44.9	-0.6	44.3	74.0	-29.7	Peak	Vertical
	4927.0	39.6	2.8	42.4	74.0	-31.6	Peak	Vertical

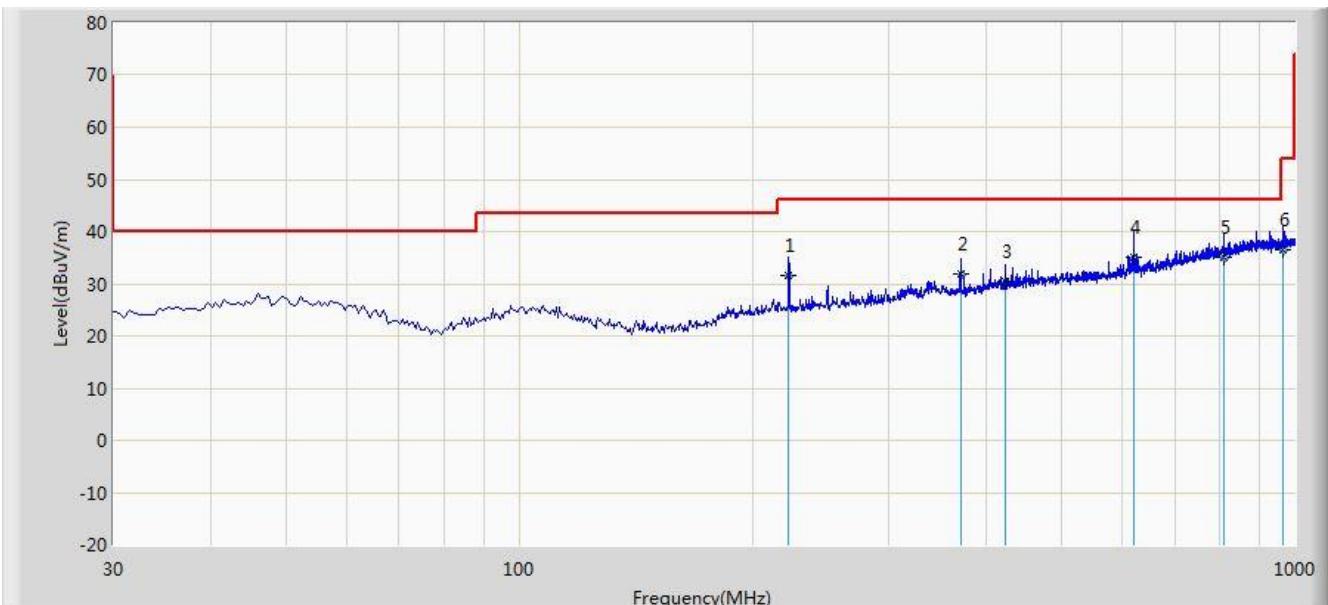
Note 1: “**” is not in restricted band, its limit is 20dBc of the fundamental emission level (101.5dB μ V/m).

Note 2: Measure Level (dB μ V/m) = Reading Level (dB μ 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: AC1	Time: 2015/06/07 - 19:04
Limit: FCC_Part15.209_RE(3m)	Engineer: Roy Cheng
Probe: VULB9162_0.03-8GHz	Polarity: Horizontal
EUT: Full HD Video Conferencing System	Power: AC 120V/60Hz
Worse Case Mode: Transmit at Channel 2412MHz by 802.11g	

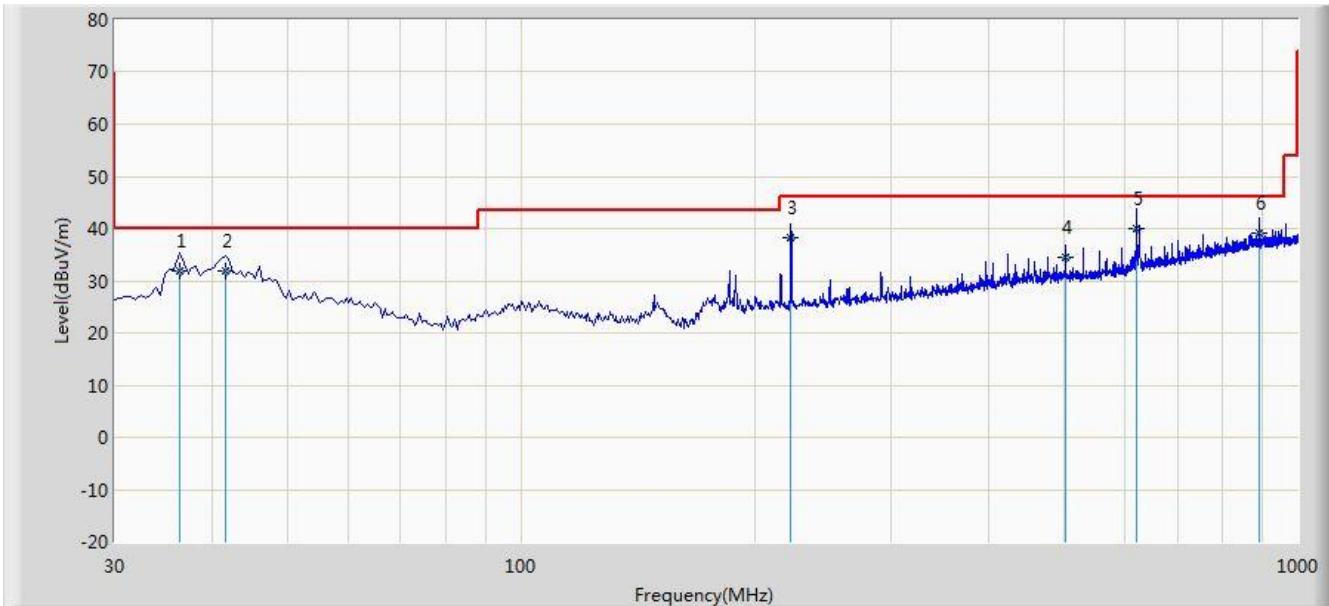


No	Flag	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Over Limit (dB)	Limit (dB μ V/m)	Factor (dB)	Type
1			222.542	31.647	18.955	-14.353	46.000	12.692	QP
2			371.420	31.960	15.860	-14.040	46.000	16.100	QP
3			423.354	30.525	13.540	-15.475	46.000	16.985	QP
4	*		619.754	35.072	14.854	-10.928	46.000	20.218	QP
5			809.562	35.021	12.144	-10.979	46.000	22.877	QP
6			965.080	36.535	12.054	-17.465	54.000	24.481	QP

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

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

Site: AC1	Time: 2015/06/07 - 19:34
Limit: FCC_Part15.209_RE(3m)	Engineer: Roy Cheng
Probe: VULB9162_0.03-8GHz	Polarity: Vertical
EUT: Full HD Video Conferencing System	Power: AC 120V/60Hz
Worse Case Mode: Transmit at Channel 2412MHz by 802.11g	

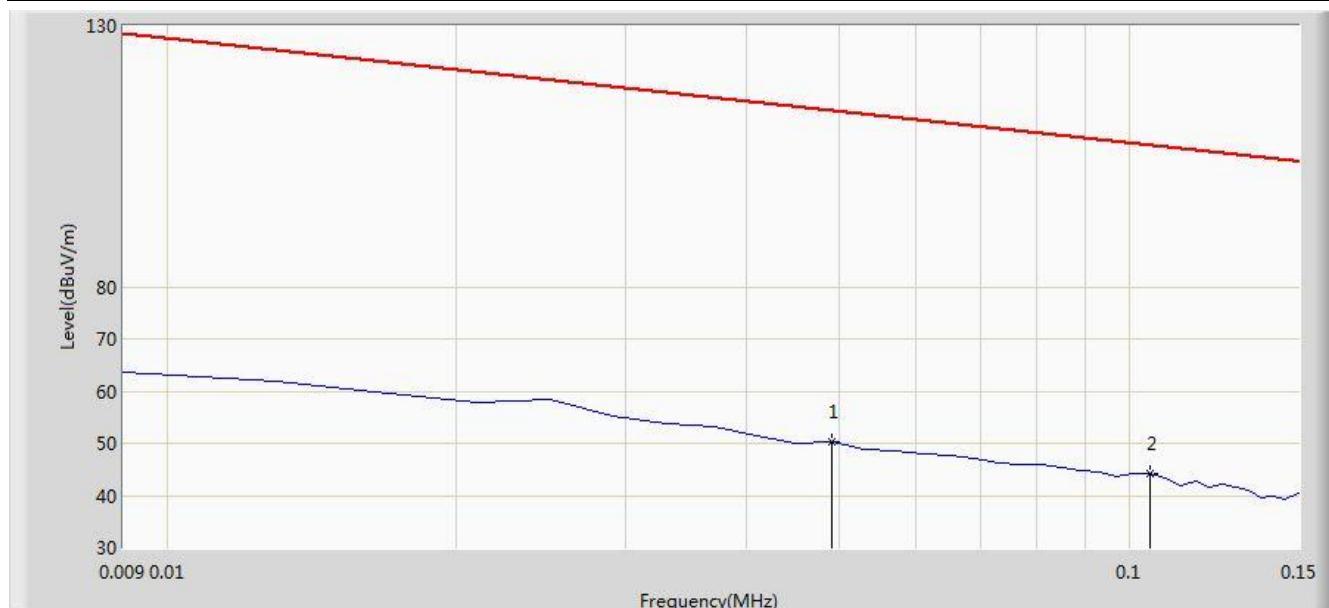


No	Flag	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			36.305	31.842	18.689	-8.158	40.000	13.153	QP
2			41.642	31.816	17.660	-8.184	40.000	14.156	QP
3			222.542	38.347	25.655	-7.653	46.000	12.692	QP
4			502.230	34.471	16.214	-11.529	46.000	18.257	QP
5		*	620.210	40.086	19.865	-5.914	46.000	20.221	QP
6			890.875	39.153	15.240	-6.847	46.000	23.913	QP

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

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

Site: AC1	Time: 2015/06/07 - 15:32
Limit: FCC_Part15.209_RE(3m)	Engineer: Roy Cheng
Probe: FMZB1519_0.009-30MHz	Polarity: Face On
EUT: Full HD Video Conferencing System	Power: AC 120V/60Hz
Note: There is the ambient noise within frequency range 9kHz~30MHz.	

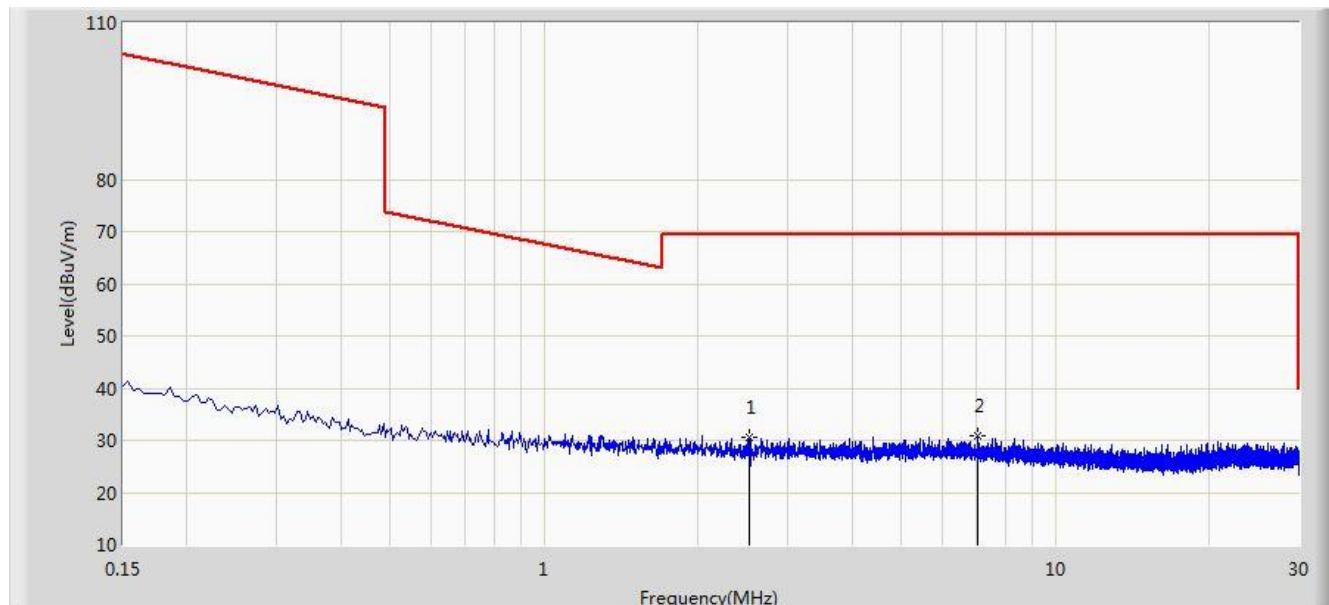


No	Flag	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			0.049	50.367	29.861	-63.422	113.789	20.505	QP
2		*	0.105	44.143	23.996	-63.029	107.173	20.147	QP

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

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

Site: AC1	Time: 2015/06/07 - 15:41
Limit: FCC_Part15.209_RE(3m)	Engineer: Roy Cheng
Probe: FMZB1519_0.009-30MHz	Polarity: Face On
EUT: Full HD Video Conferencing System	Power: AC 120V/60Hz
Note: There is the ambient noise within frequency range 9kHz~30MHz.	

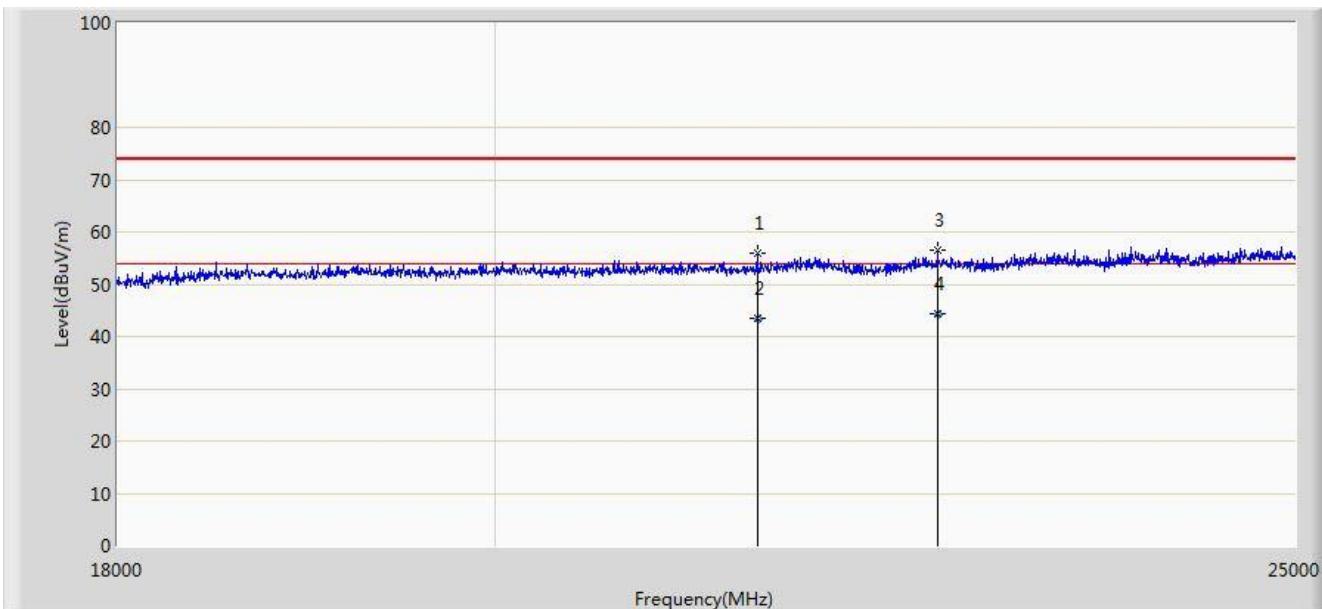


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2.513	30.495	10.336	-39.005	69.500	20.159	QP
2	*	*	7.041	30.974	10.579	-38.526	69.500	20.395	QP

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

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

Site: AC1	Time: 2015/06/07 - 15:45
Limit: FCC_Part15.209_RE(3m)	Engineer: Roy Cheng
Probe: BBHA9170_18-40GHz	Polarity: Horizontal
EUT: Full HD Video Conferencing System	Power: AC 120V/60Hz
Note: There is the ambient noise within frequency range 18 ~ 25GHz.	

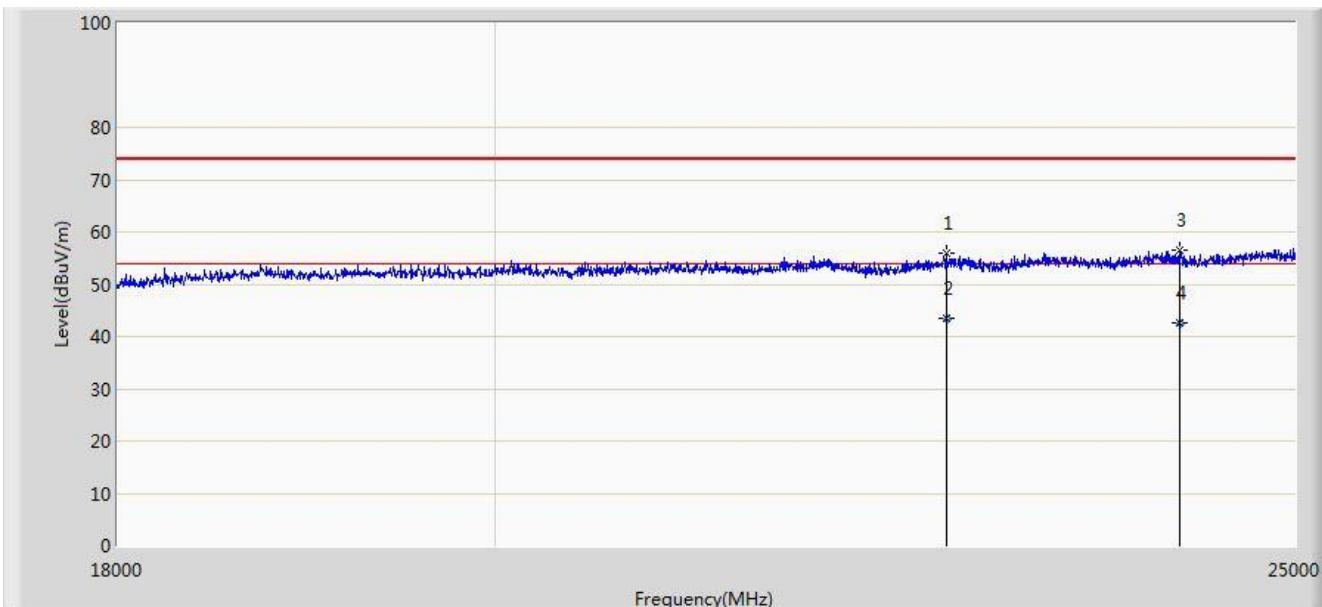


No	Flag	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			21517.500	55.869	17.883	-18.131	74.000	37.986	PK
2			21517.650	43.351	5.365	-10.649	54.000	37.986	AV
3			22630.500	56.509	18.223	-17.491	74.000	38.286	PK
4	*		22630.540	44.310	6.024	-9.690	54.000	38.286	AV

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

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

Site: AC1	Time: 2015/06/07 - 15:59
Limit: FCC_Part15.209_RE(3m)	Engineer: Roy Cheng
Probe: BBHA9170_18-40GHz	Polarity: Vertical
EUT: Full HD Video Conferencing System	Power: AC 120V/60Hz
Note: There is the ambient noise within frequency range 18 ~ 25GHz.	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			22686.500	55.811	17.457	-18.189	74.000	38.354	PK
2	*		22686.540	43.598	5.244	-10.402	54.000	38.354	AV
3			24205.500	56.430	17.607	-17.570	74.000	38.823	PK
4			24205.658	42.518	3.695	-11.482	54.000	38.823	AV

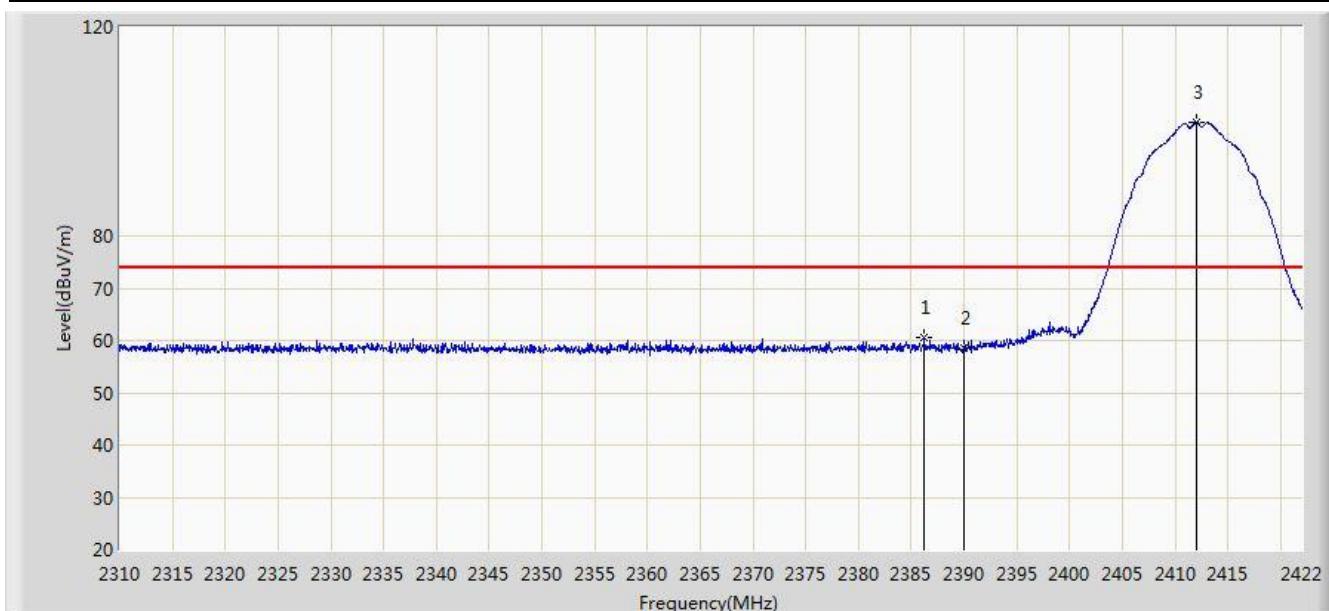
Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

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

7.7. Radiated Restricted Band Edge Measurement

7.7.1. Test Result

Site: AC1	Time: 2015/05/22 - 15:13
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Full HD Video Conferencing System	Power: AC 120V/60Hz
Test Mode: Transmit at Channel 2412MHz by 802.11b	

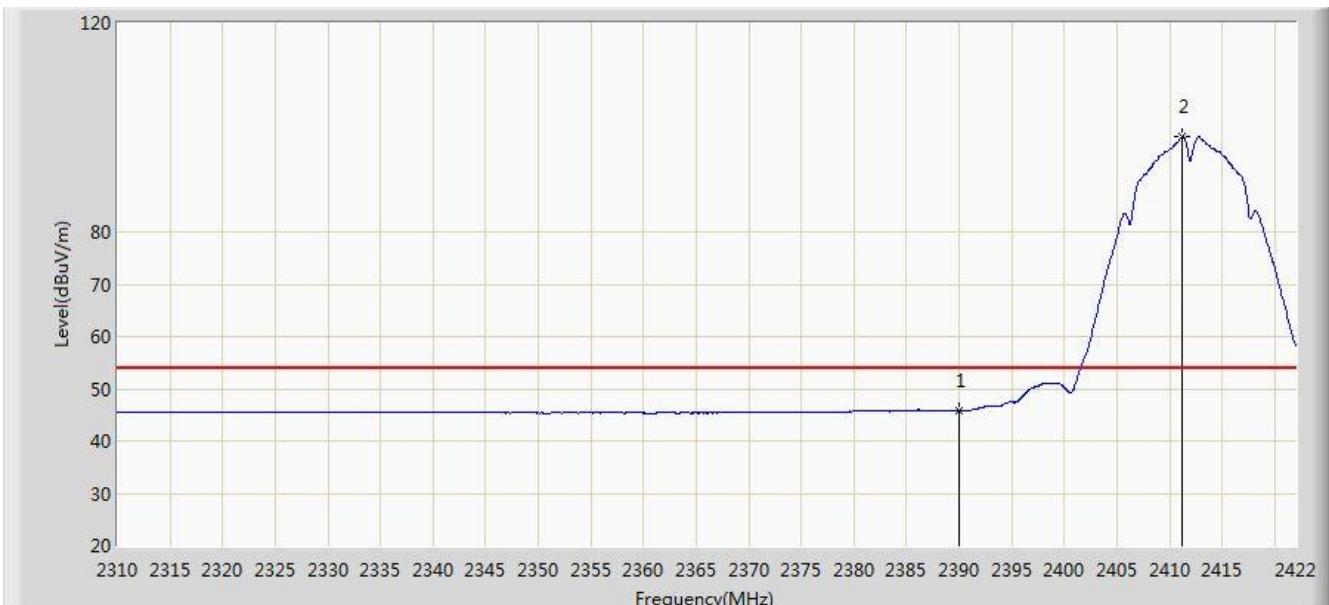


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2386.216	60.435	29.225	-13.565	74.000	31.210	PK
2			2390.000	58.481	27.278	-15.519	74.000	31.203	PK
3		*	2412.032	101.868	70.698	N/A	N/A	31.170	PK

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

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

Site: AC1	Time: 2015/05/22 - 15:32
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Full HD Video Conferencing System	Power: AC 120V/60Hz
Test Mode: Transmit at Channel 2412MHz by 802.11b	

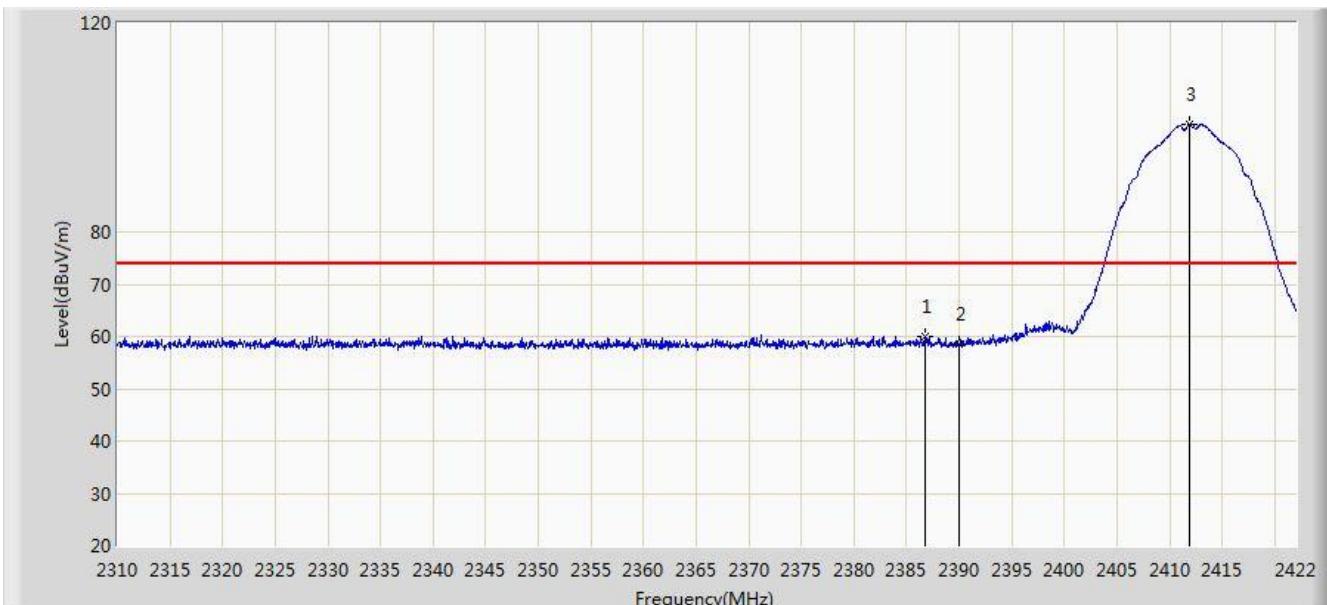


No	Flag	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Over Limit (dB)	Limit (dB μ V/m)	Factor (dB)	Type
1			2390.000	45.799	14.596	-8.201	54.000	31.203	AV
2		*	2411.136	98.126	66.955	N/A	N/A	31.171	AV

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

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

Site: AC1	Time: 2015/05/22 - 15:32
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Full HD Video Conferencing System	Power: AC 120V/60Hz
Test Mode: Transmit at Channel 2412MHz by 802.11b	

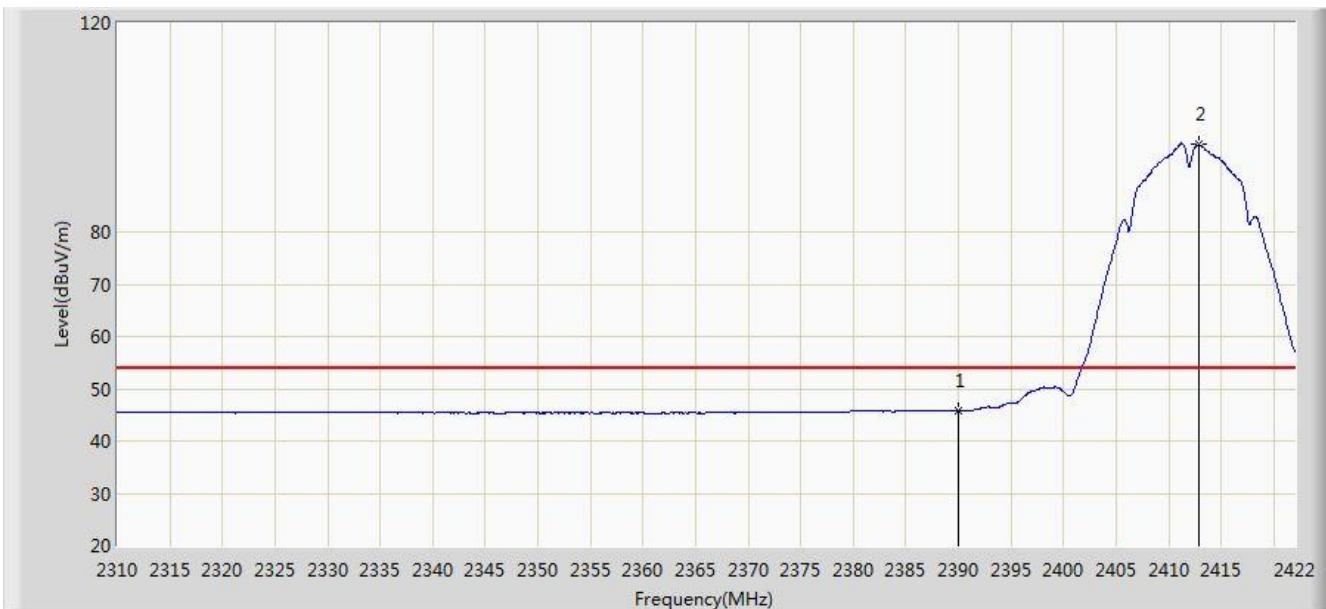


No	Flag	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2386.720	60.077	28.868	-13.923	74.000	31.208	PK
2			2390.000	58.460	27.257	-15.540	74.000	31.203	PK
3		*	2411.864	100.629	69.459	N/A	N/A	31.170	PK

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

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

Site: AC1	Time: 2015/05/22 - 15:34
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Full HD Video Conferencing System	Power: AC 120V/60Hz
Test Mode: Transmit at Channel 2412MHz by 802.11b	

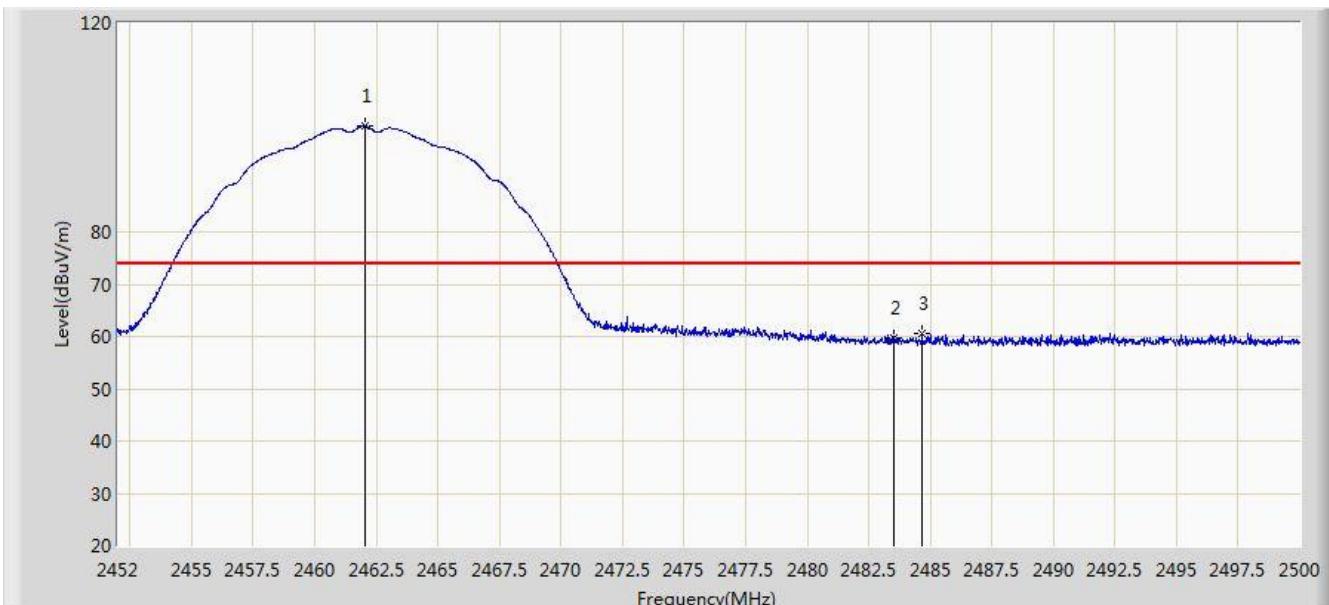


No	Flag	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Over Limit (dB)	Limit (dB μ V/m)	Factor (dB)	Type
1			2390.000	45.758	14.555	-8.242	54.000	31.203	AV
2		*	2412.872	96.920	65.752	N/A	N/A	31.168	AV

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

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

Site: AC1	Time: 2015/05/22 - 15:35
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Full HD Video Conferencing System	Power: AC 120V/60Hz
Test Mode: Transmit at Channel 2462MHz by 802.11b	

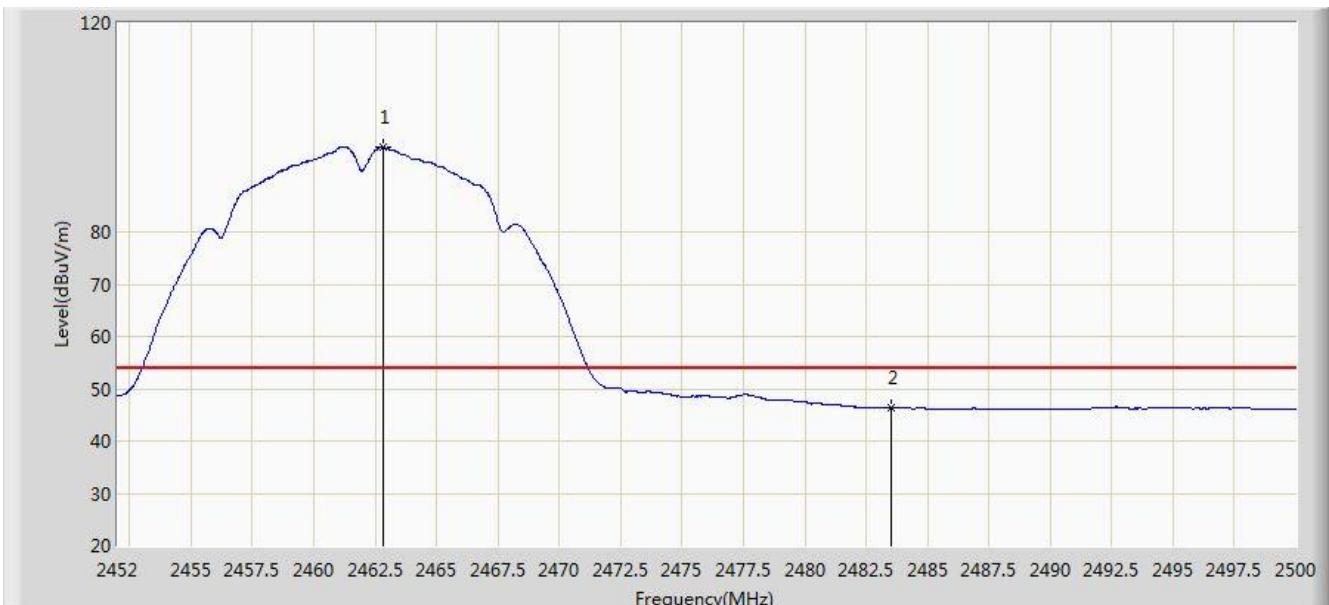


No	Flag	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2462.056	100.246	69.111	N/A	N/A	31.135	PK
2			2483.500	59.747	28.554	-14.253	74.000	31.194	PK
3			2484.664	60.478	29.282	-13.522	74.000	31.197	PK

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

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

Site: AC1	Time: 2015/05/22 - 15:37
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Full HD Video Conferencing System	Power: AC 120V/60Hz
Test Mode: Transmit at Channel 2462MHz by 802.11b	

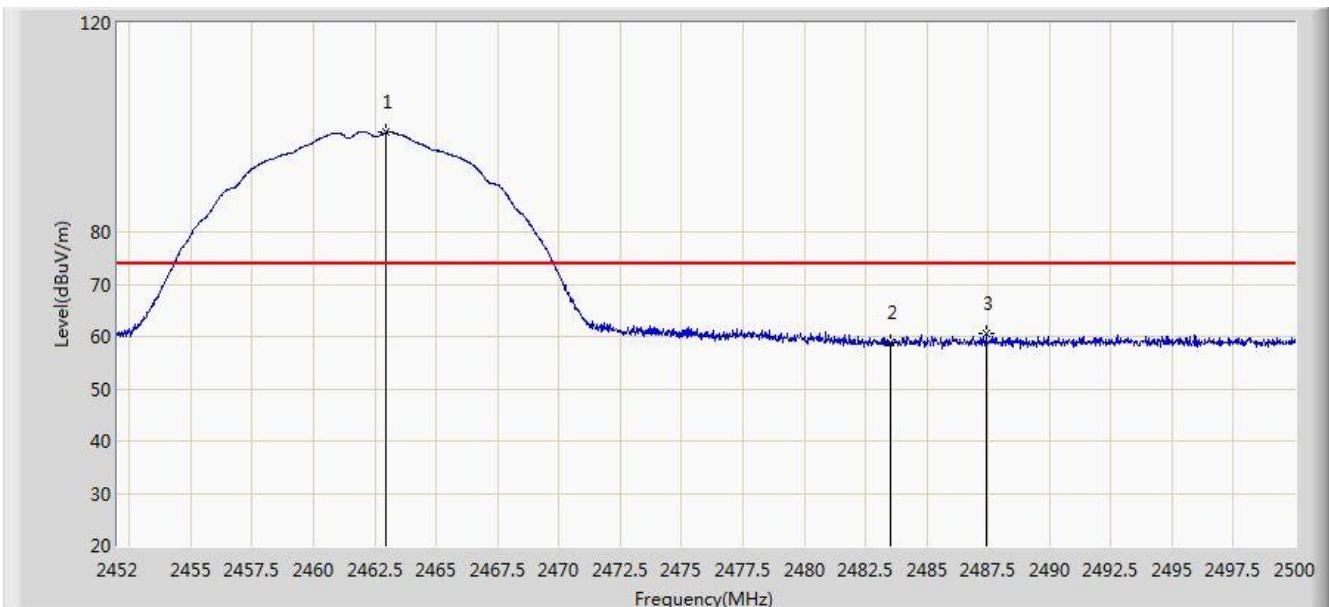


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2462.800	96.291	65.154	N/A	N/A	31.137	AV
2			2483.500	46.324	15.131	-7.676	54.000	31.194	AV

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

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

Site: AC1	Time: 2015/05/22 - 15:38
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Full HD Video Conferencing System	Power: AC 120V/60Hz
Test Mode: Transmit at Channel 2462MHz by 802.11b	

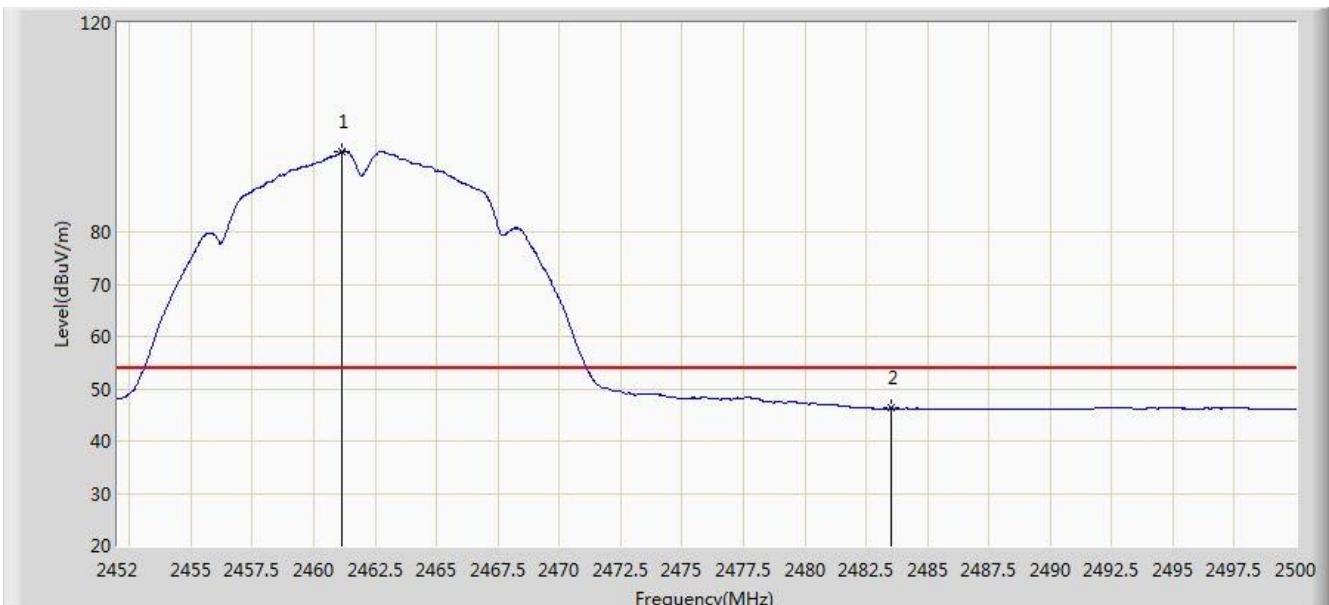


No	Flag	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2462.968	99.065	67.928	N/A	N/A	31.137	PK
2			2483.500	58.847	27.654	-15.153	74.000	31.194	PK
3			2487.424	60.624	29.420	-13.376	74.000	31.204	PK

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

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

Site: AC1	Time: 2015/05/22 - 15:39
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Full HD Video Conferencing System	Power: AC 120V/60Hz
Test Mode: Transmit at Channel 2462MHz by 802.11b	

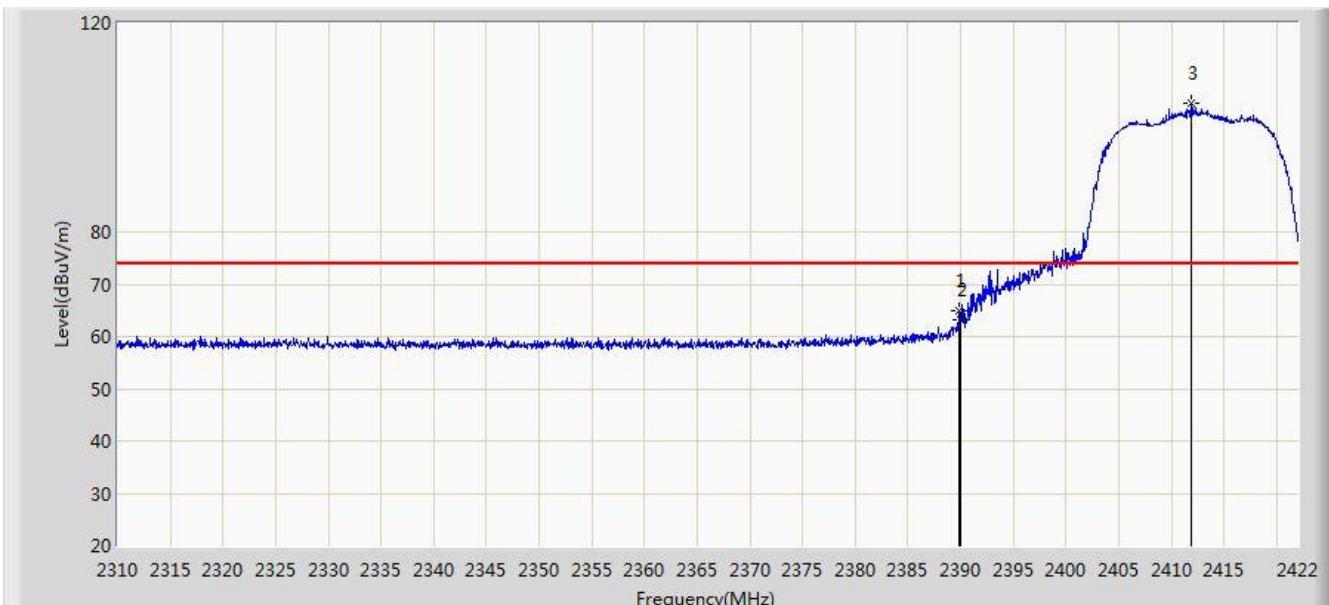


No	Flag	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Over Limit (dB)	Limit (dB μ V/m)	Factor (dB)	Type
1		*	2461.168	95.407	64.273	N/A	N/A	31.134	AV
2			2483.500	46.237	15.044	-7.763	54.000	31.194	AV

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

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

Site: AC1	Time: 2015/05/22 - 15:42
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Full HD Video Conferencing System	Power: AC 120V/60Hz
Test Mode: Transmit at Channel 2412MHz by 802.11g	

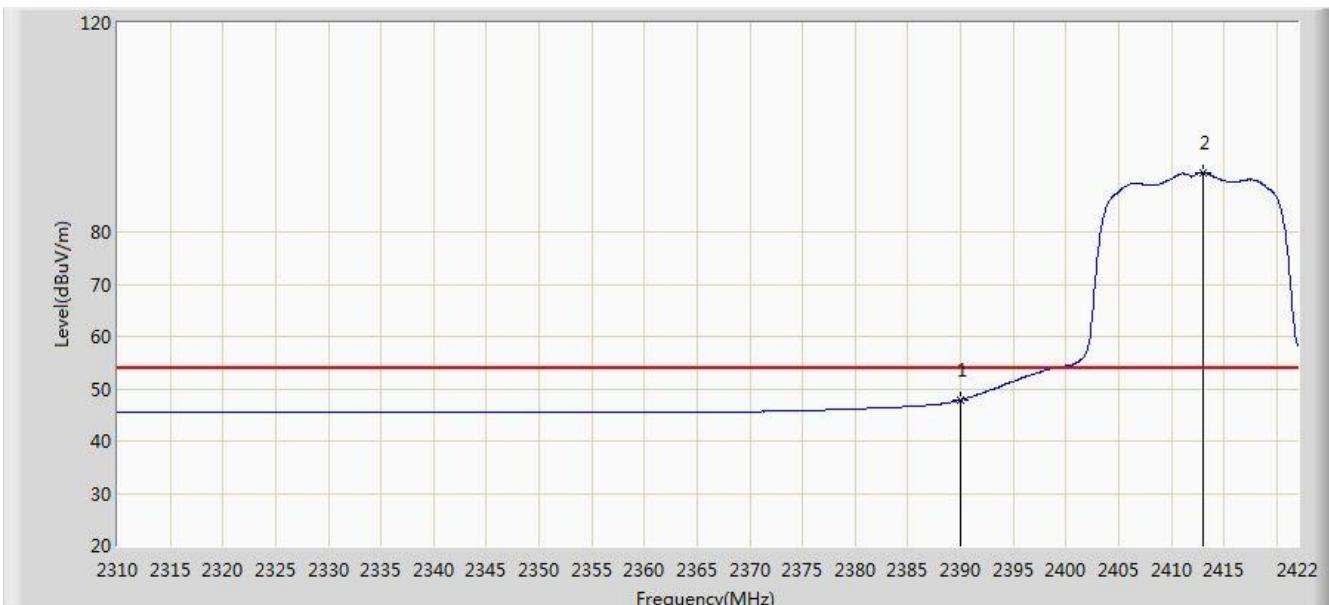


No	Flag	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2389.912	64.972	33.769	-9.028	74.000	31.203	PK
2			2390.000	63.320	32.117	-10.680	74.000	31.203	PK
3		*	2411.864	104.563	73.393	N/A	N/A	31.170	PK

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

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

Site: AC1	Time: 2015/05/22 - 15:44
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Full HD Video Conferencing System	Power: AC 120V/60Hz
Test Mode: Transmit at Channel 2412MHz by 802.11g	

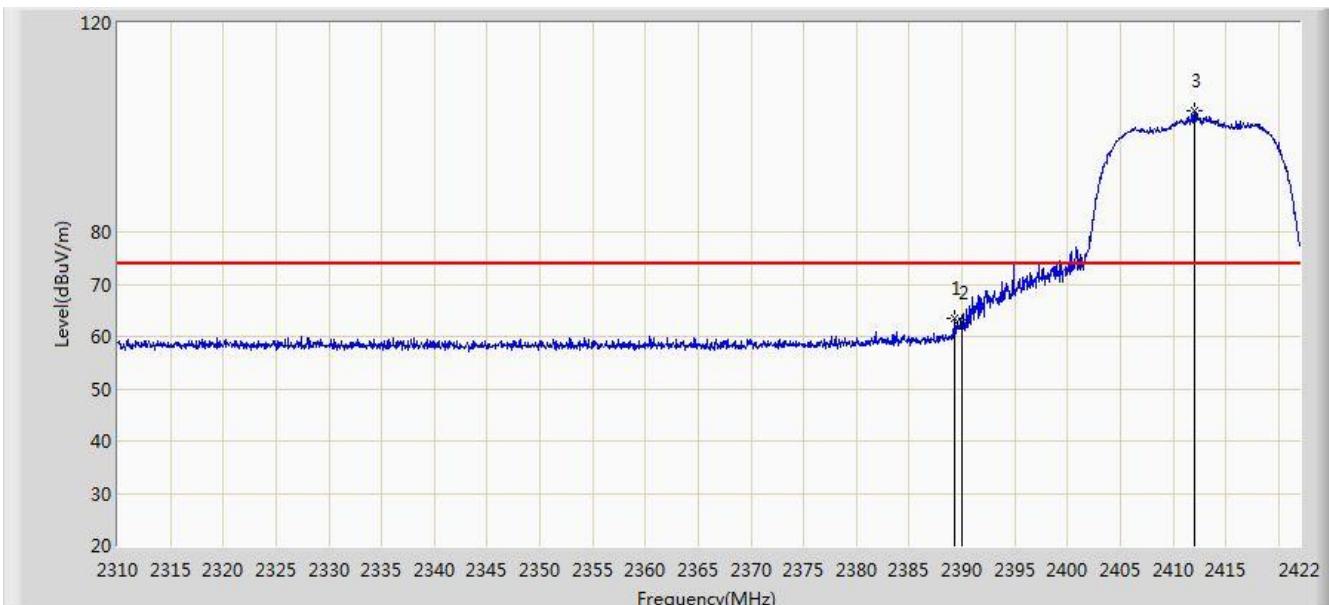


No	Flag	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Over Limit (dB)	Limit (dB μ V/m)	Factor (dB)	Type
1			2390.000	47.852	16.649	-6.148	54.000	31.203	AV
2	*		2413.040	91.359	60.191	N/A	N/A	31.167	AV

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

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

Site: AC1	Time: 2015/05/22 - 15:44
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Full HD Video Conferencing System	Power: AC 120V/60Hz
Test Mode: Transmit at Channel 2412MHz by 802.11g	

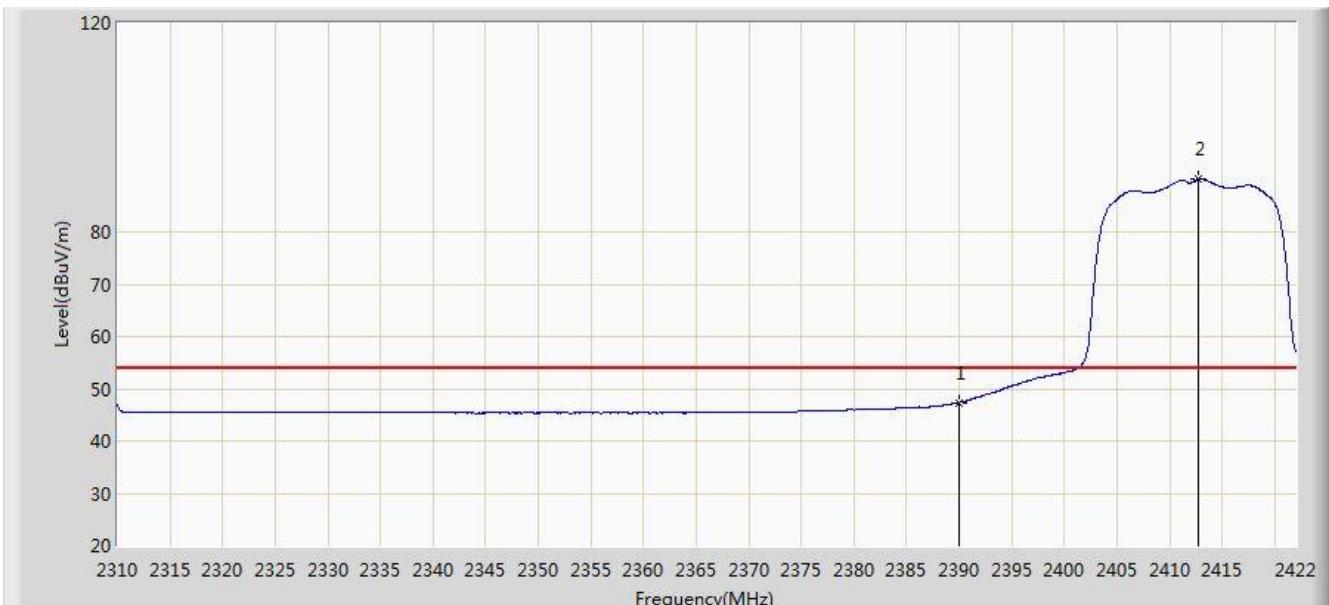


No	Flag	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2389.240	63.417	32.213	-10.583	74.000	31.204	PK
2			2390.000	62.639	31.436	-11.361	74.000	31.203	PK
3		*	2412.088	103.179	72.010	N/A	N/A	31.170	PK

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

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

Site: AC1	Time: 2015/05/22 - 15:45
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Full HD Video Conferencing System	Power: AC 120V/60Hz
Test Mode: Transmit at Channel 2412MHz by 802.11g	

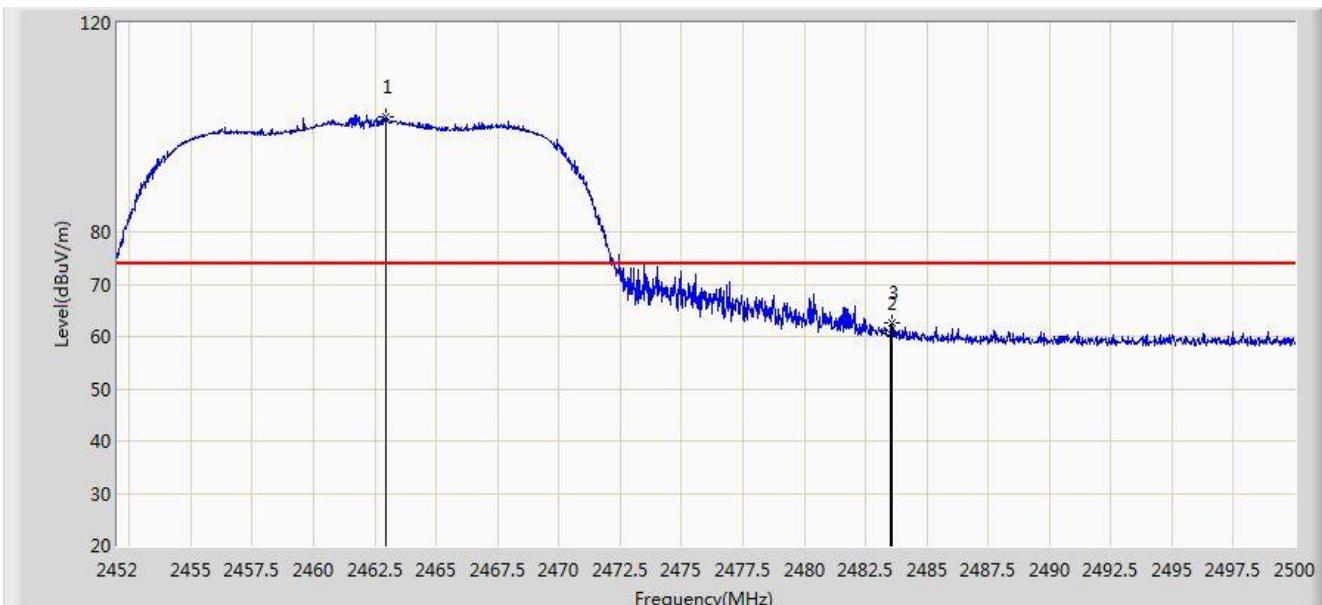


No	Flag	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2390.000	47.337	16.134	-6.663	54.000	31.203	AV
2		*	2412.704	90.091	58.923	N/A	N/A	31.168	AV

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

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

Site: AC1	Time: 2015/05/22 - 15:46
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Full HD Video Conferencing System	Power: AC 120V/60Hz
Test Mode: Transmit at Channel 2462MHz by 802.11g	

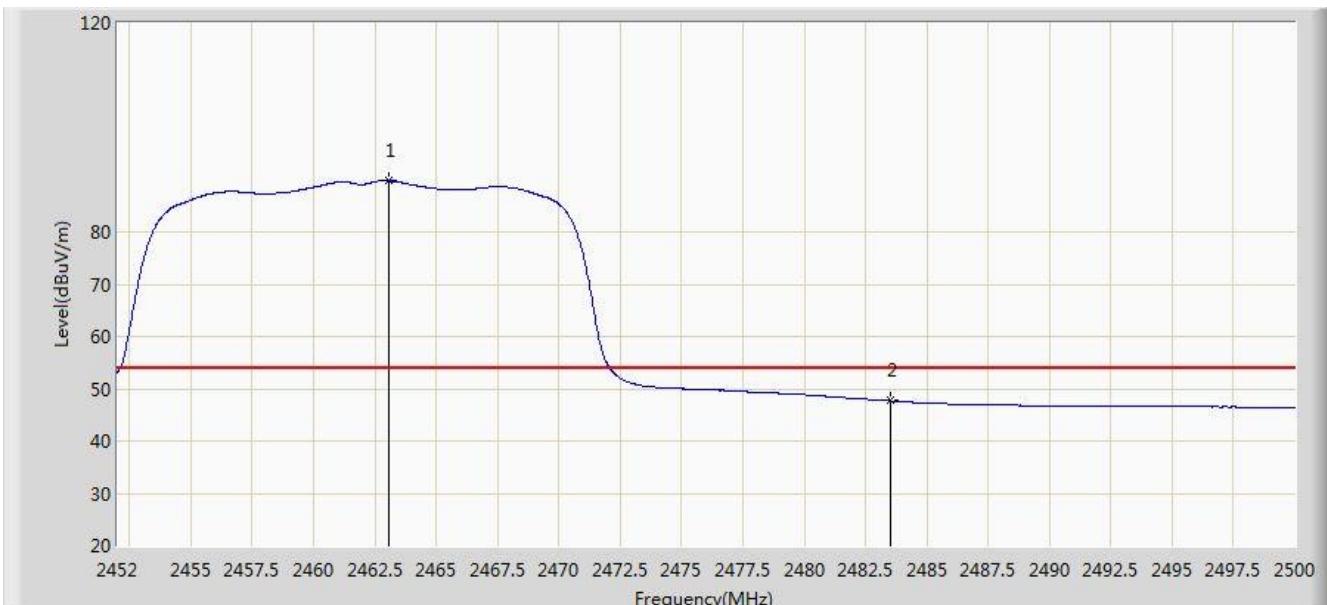


No	Flag	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Over Limit (dB)	Limit (dB μ V/m)	Factor (dB)	Type
1		*	2462.968	102.063	70.926	N/A	N/A	31.137	PK
2			2483.500	60.499	29.306	-13.501	74.000	31.194	PK
3			2483.584	62.598	31.404	-11.402	74.000	31.194	PK

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

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

Site: AC1	Time: 2015/05/22 - 15:48
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Full HD Video Conferencing System	Power: AC 120V/60Hz
Test Mode: Transmit at Channel 2462MHz by 802.11g	

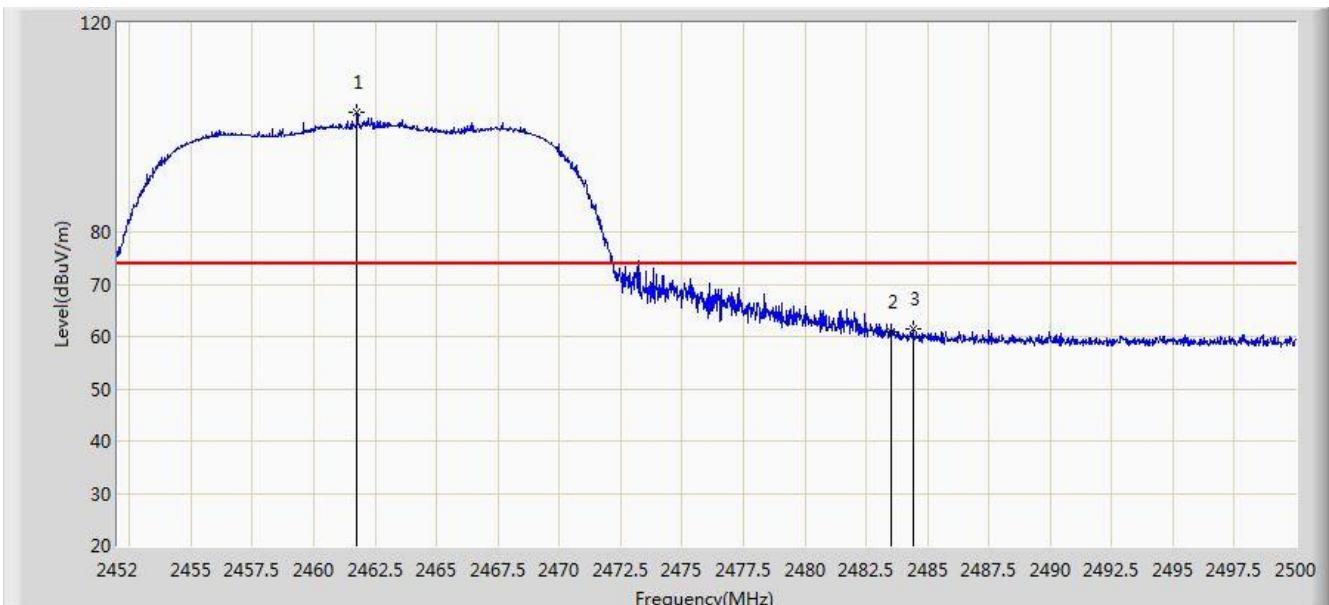


No	Flag	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Over Limit (dB)	Limit (dB μ V/m)	Factor (dB)	Type
1		*	2463.088	89.755	58.618	N/A	N/A	31.137	AV
2			2483.500	47.713	16.520	-6.287	54.000	31.194	AV

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

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

Site: AC1	Time: 2015/05/22 - 15:48
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Full HD Video Conferencing System	Power: AC 120V/60Hz
Test Mode: Transmit at Channel 2462MHz by 802.11g	

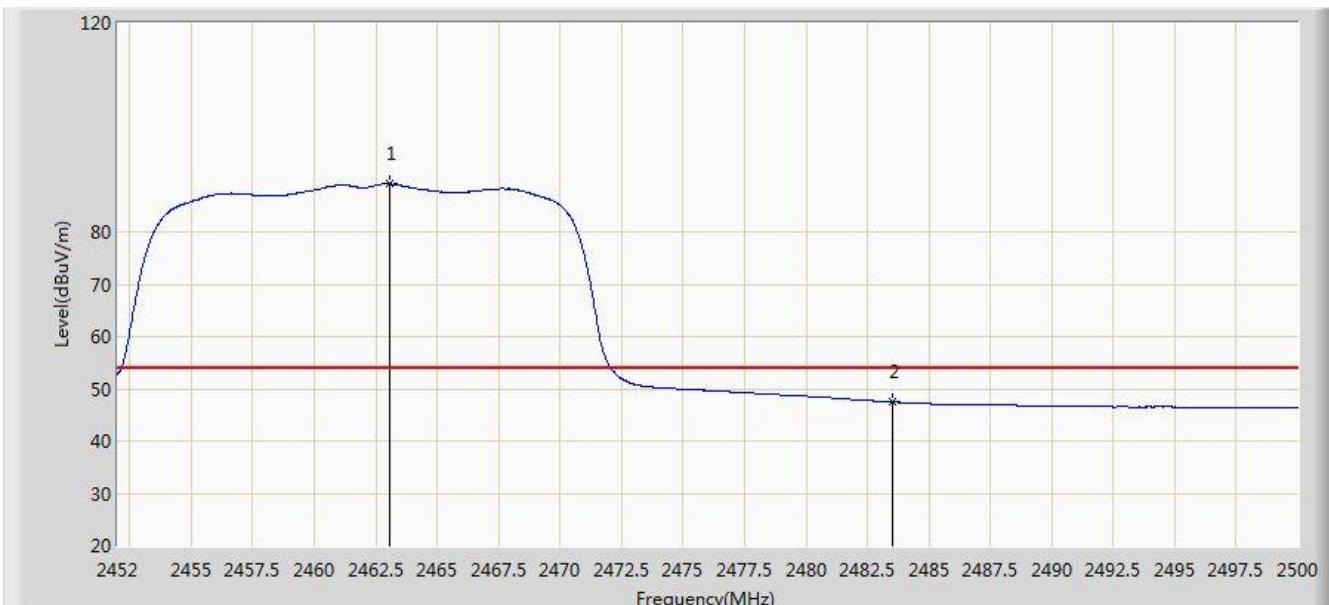


No	Flag	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2461.744	102.910	71.775	N/A	N/A	31.135	PK
2			2483.500	60.833	29.640	-13.167	74.000	31.194	PK
3			2484.424	61.471	30.275	-12.529	74.000	31.195	PK

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

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

Site: AC1	Time: 2015/05/22 - 15:50
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Full HD Video Conferencing System	Power: AC 120V/60Hz
Test Mode: Transmit at Channel 2462MHz by 802.11g	

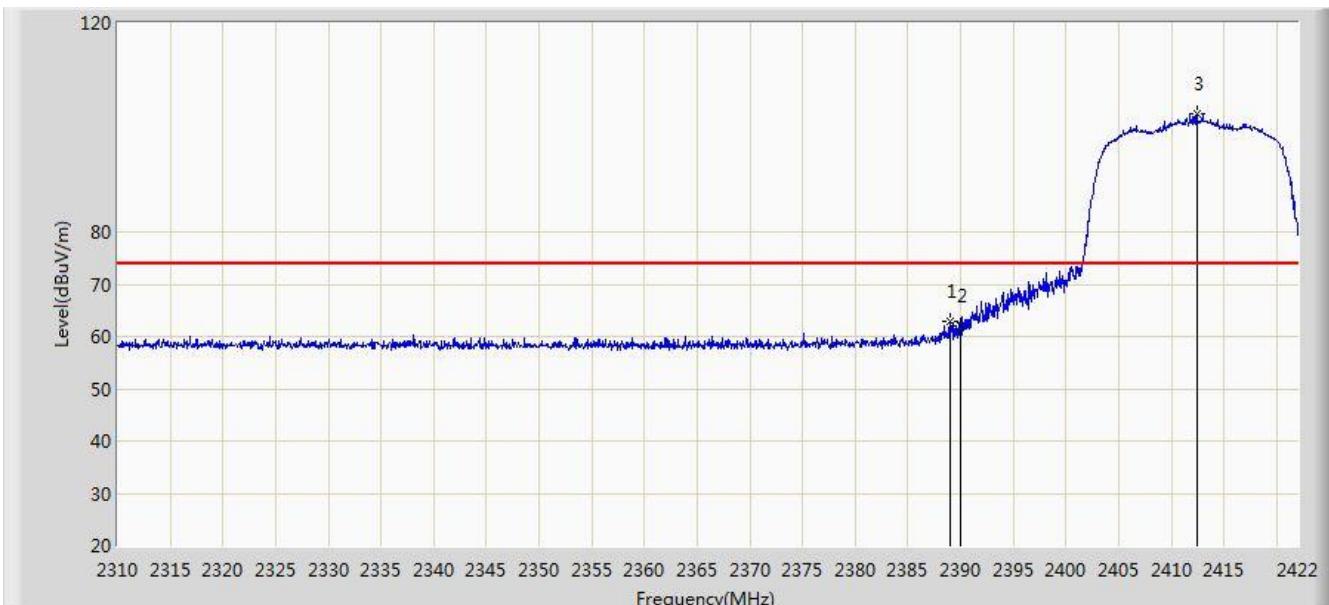


No	Flag	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Over Limit (dB)	Limit (dB μ V/m)	Factor (dB)	Type
1		*	2463.088	89.169	58.032	N/A	N/A	31.137	AV
2			2483.500	47.471	16.278	-6.529	54.000	31.194	AV

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

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

Site: AC1	Time: 2015/05/22 - 15:51
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Full HD Video Conferencing System	Power: AC 120V/60Hz
Test Mode: Transmit at Channel 2412MHz by 802.11n-HT20	

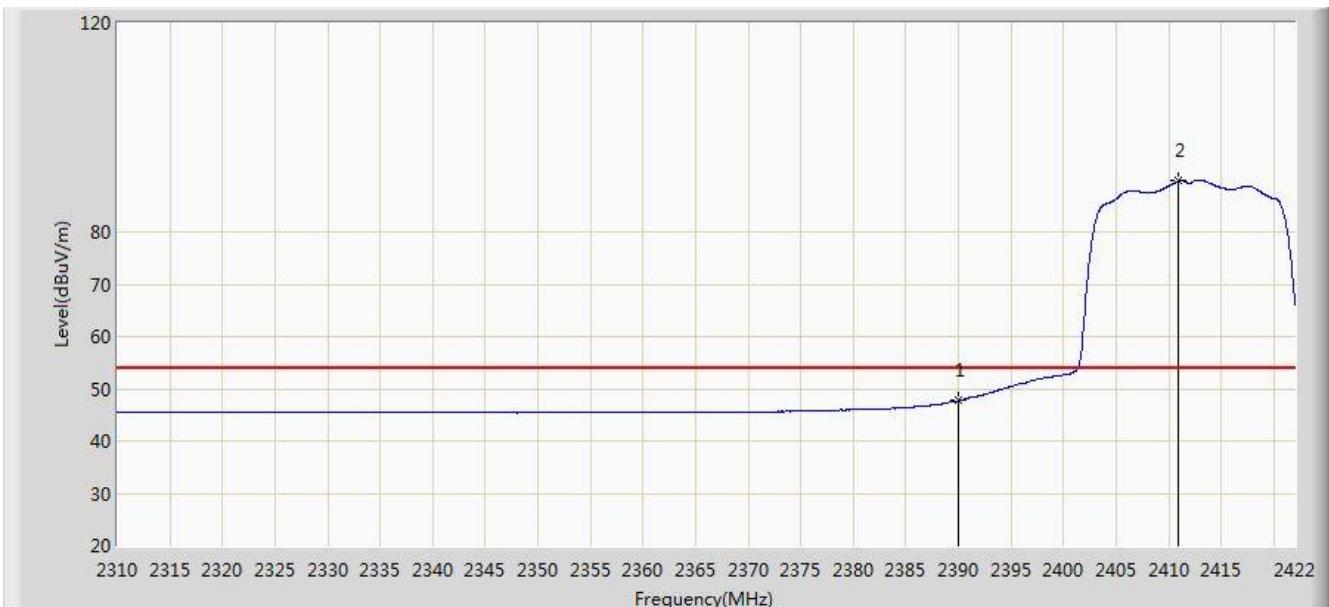


No	Flag	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2388.960	62.994	31.789	-11.006	74.000	31.204	PK
2			2390.000	61.916	30.713	-12.084	74.000	31.203	PK
3		*	2412.424	102.639	71.470	N/A	N/A	31.169	PK

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

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

Site: AC1	Time: 2015/05/22 - 15:53
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Full HD Video Conferencing System	Power: AC 120V/60Hz
Test Mode: Transmit at Channel 2412MHz by 802.11n-HT20	

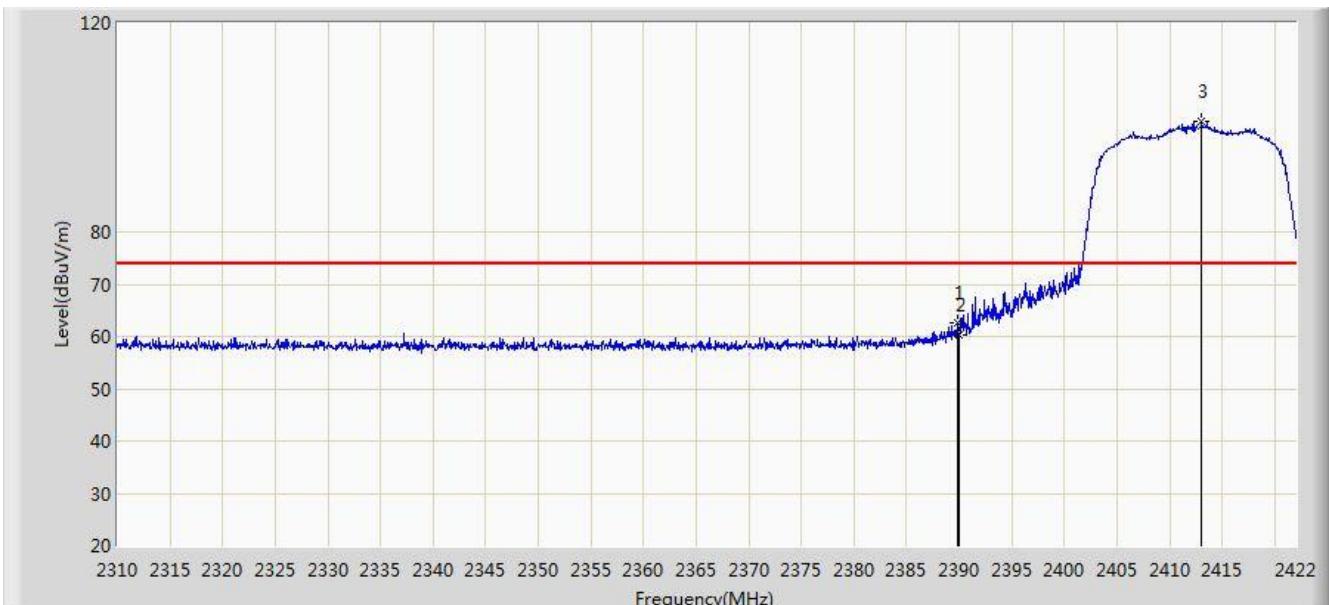


No	Flag	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2390.000	47.688	16.485	-6.312	54.000	31.203	AV
2		*	2410.968	89.757	58.586	N/A	N/A	31.171	AV

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

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

Site: AC1	Time: 2015/05/22 - 15:53
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Full HD Video Conferencing System	Power: AC 120V/60Hz
Test Mode: Transmit at Channel 2412MHz by 802.11n-HT20	

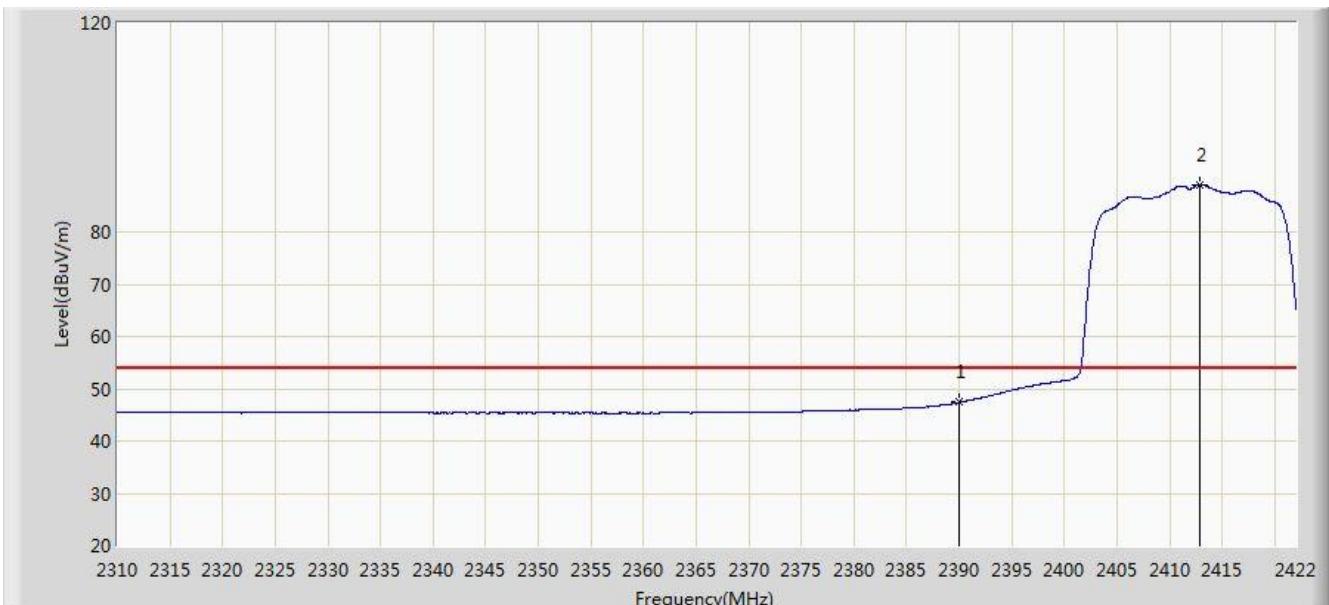


No	Flag	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2389.800	62.533	31.330	-11.467	74.000	31.203	PK
2			2390.000	60.226	29.023	-13.774	74.000	31.203	PK
3		*	2413.040	101.099	69.931	N/A	N/A	31.167	PK

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

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

Site: AC1	Time: 2015/05/22 - 15:55
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Full HD Video Conferencing System	Power: AC 120V/60Hz
Test Mode: Transmit at Channel 2412MHz by 802.11n-HT20	

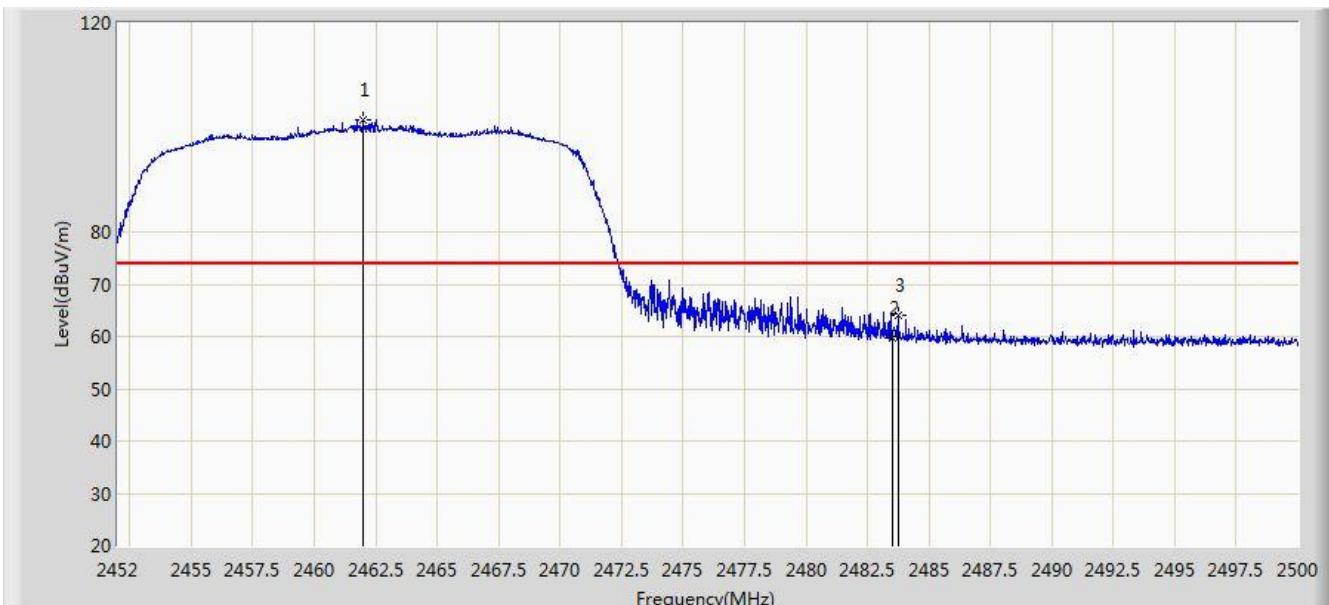


No	Flag	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2390.000	47.406	16.203	-6.594	54.000	31.203	AV
2		*	2412.872	89.002	57.834	N/A	N/A	31.168	AV

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

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

Site: AC1	Time: 2015/05/22 - 15:55
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Full HD Video Conferencing System	Power: AC 120V/60Hz
Test Mode: Transmit at Channel 2462MHz by 802.11n-HT20	

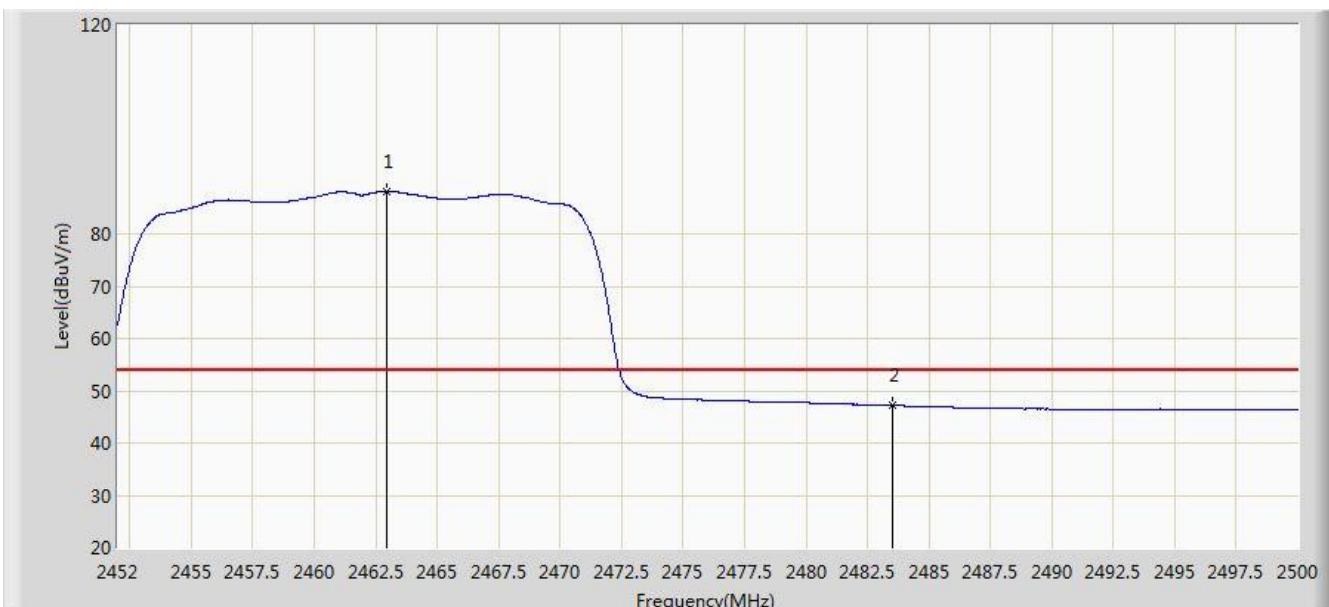


No	Flag	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2461.984	101.545	70.410	N/A	N/A	31.135	PK
2			2483.500	59.795	28.602	-14.205	74.000	31.194	PK
3			2483.752	64.127	32.933	-9.873	74.000	31.194	PK

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

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

Site: AC1	Time: 2015/05/22 - 15:58
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Full HD Video Conferencing System	Power: AC 120V/60Hz
Test Mode: Transmit at Channel 2462MHz by 802.11n-HT20	

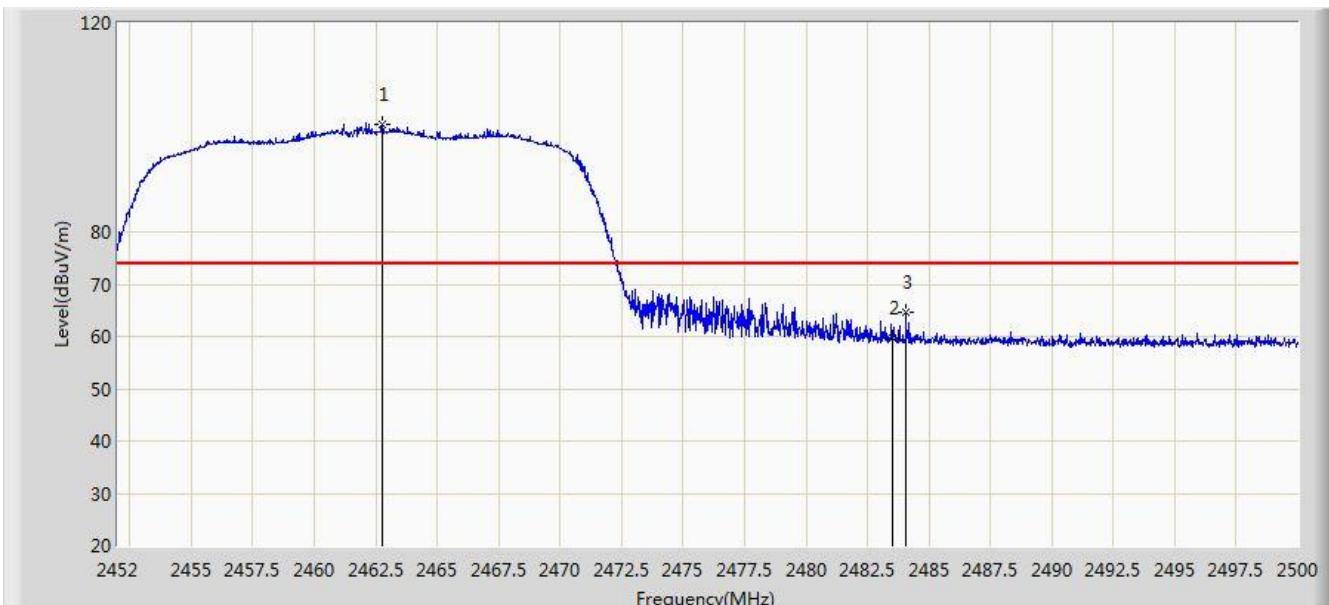


No	Flag	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Over Limit (dB)	Limit (dB μ V/m)	Factor (dB)	Type
1		*	2462.944	88.180	57.043	N/A	N/A	31.137	AV
2			2483.500	47.148	15.955	-6.852	54.000	31.194	AV

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

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

Site: AC1	Time: 2015/05/22 - 15:58
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Full HD Video Conferencing System	Power: AC 120V/60Hz
Test Mode: Transmit at Channel 2462MHz by 802.11n-HT20	

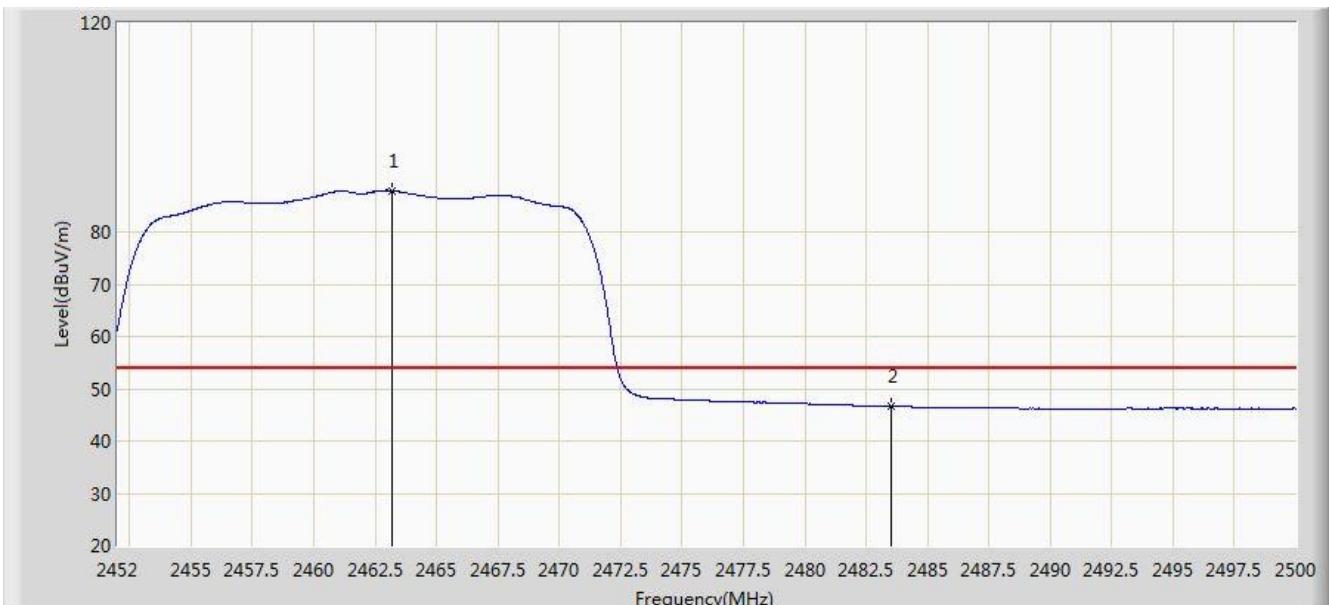


No	Flag	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2462.776	100.649	69.512	N/A	N/A	31.137	PK
2			2483.500	59.777	28.584	-14.223	74.000	31.194	PK
3			2484.064	64.697	33.502	-9.303	74.000	31.195	PK

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

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

Site: AC1	Time: 2015/05/22 - 15:59
Limit: FCC_Part15.209_RE(3m)	Engineer: Lewis Huang
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Full HD Video Conferencing System	Power: AC 120V/60Hz
Test Mode: Transmit at Channel 2462MHz by 802.11n-HT20	



No	Flag	Mark	Frequency (MHz)	Measure Level (dB μ V/m)	Reading Level (dB μ V)	Over Limit (dB)	Limit (dB μ V/m)	Factor (dB)	Type
1		*	2463.184	87.897	56.759	N/A	N/A	31.137	AV
2			2483.500	46.597	15.404	-7.403	54.000	31.194	AV

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

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

7.8. AC Conducted Emissions Measurement

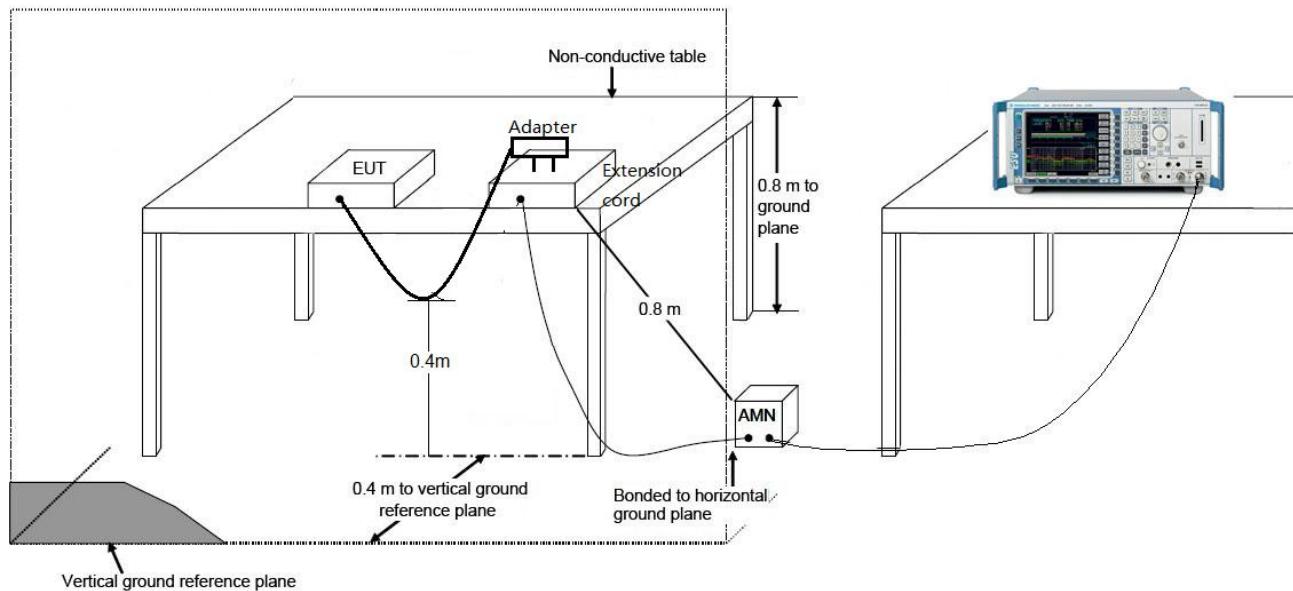
7.8.1. Test Limit

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.

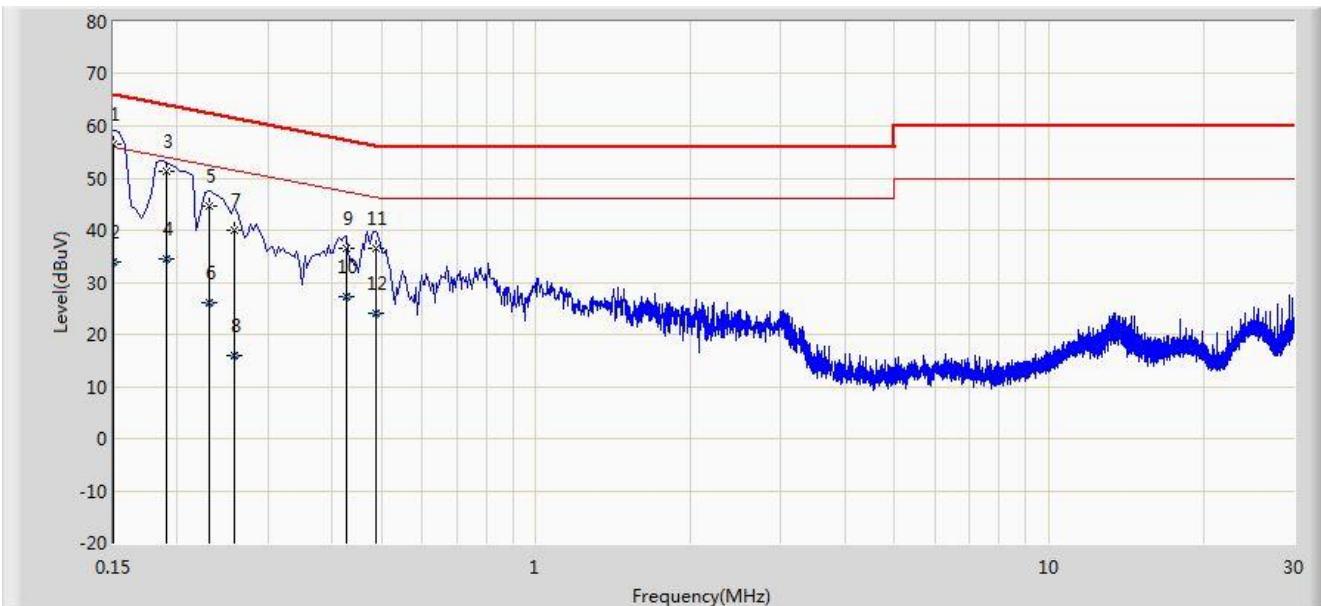
Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.

7.8.2. Test Setup



7.8.3. Test Result

Site: SR2	Time: 2015/06/07 - 18:30
Limit: FCC_Part15.207_CE_AC Power	Engineer: Roy Cheng
Probe: ENV216_101683_Filter On	Polarity: Line
EUT: Full HD Video Conferencing System	Power: AC 120V/60Hz
Note: Mode 1	

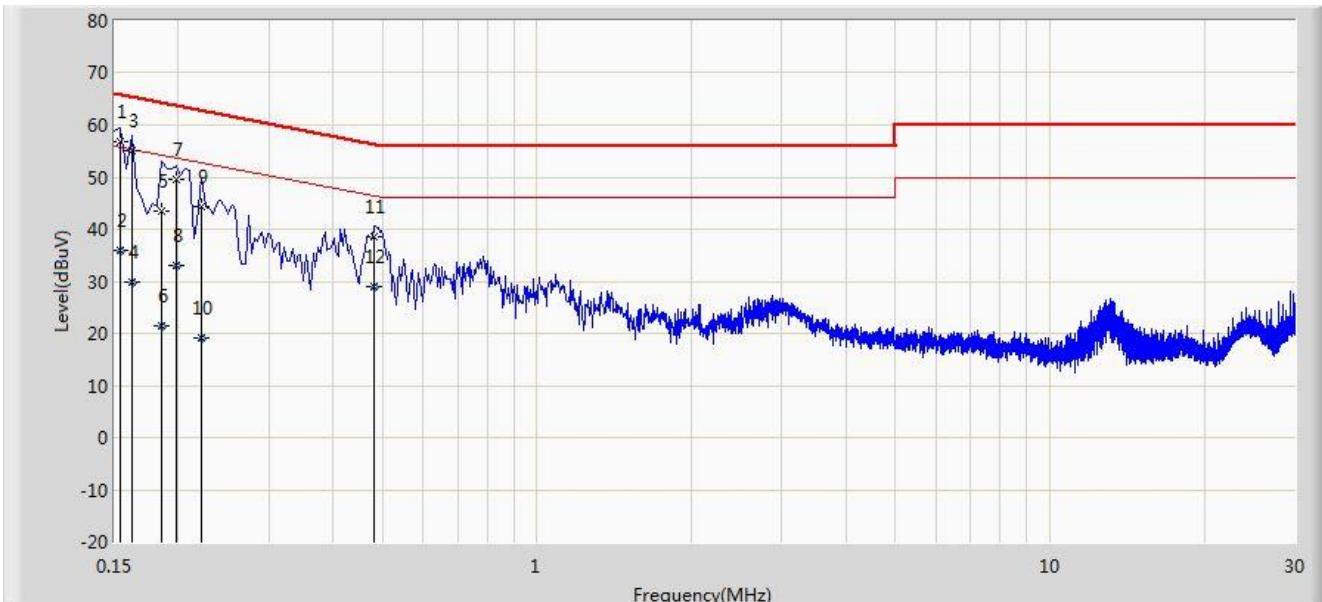


No	Flag	Mark	Frequency (MHz)	Measure Level (dB μ V)	Reading Level (dB μ V)	Over Limit (dB)	Limit (dB μ V)	Factor (dB)	Type
1		*	0.150	56.492	45.324	-9.508	66.000	11.168	QP
2			0.150	34.022	22.854	-21.978	56.000	11.168	AV
3			0.190	51.285	41.256	-12.751	64.037	10.029	QP
4			0.190	34.514	24.485	-19.522	54.037	10.029	AV
5			0.230	44.673	34.725	-17.777	62.450	9.947	QP
6			0.230	25.961	16.014	-26.488	52.450	9.947	AV
7			0.258	40.115	30.144	-21.381	61.496	9.970	QP
8			0.258	15.809	5.838	-35.687	51.496	9.970	AV
9			0.426	36.436	26.329	-20.894	57.330	10.107	QP
10			0.426	27.198	17.091	-20.132	47.330	10.107	AV
11			0.486	36.594	26.439	-19.642	56.236	10.155	QP
12			0.486	24.075	13.920	-22.161	46.236	10.155	AV

Note: Measure Level (dB μ V) = Reading Level (dB μ V) + Factor (dB)

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

Site: SR2	Time: 2015/06/07 - 18:37
Limit: FCC_Part15.207_CE_AC Power	Engineer: Roy Cheng
Probe: ENV216_101683_Filter On	Polarity: Neutral
EUT: Full HD Video Conferencing System	Power: AC 120V/60Hz
Note: Mode 1	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1		*	0.154	56.799	46.084	-8.982	65.781	10.716	QP
2			0.154	36.081	25.365	-19.700	55.781	10.716	AV
3			0.162	55.018	44.940	-10.343	65.361	10.078	QP
4			0.162	29.987	19.909	-25.373	55.361	10.078	AV
5			0.186	43.334	33.299	-20.879	64.213	10.035	QP
6			0.186	21.566	11.531	-32.647	54.213	10.035	AV
7			0.198	49.543	39.529	-14.151	63.694	10.015	QP
8			0.198	32.969	22.954	-20.725	53.694	10.015	AV
9			0.222	44.418	34.439	-18.325	62.744	9.980	QP
10			0.222	19.063	9.083	-33.681	52.744	9.980	AV
11			0.482	38.529	28.356	-17.776	56.305	10.173	QP
12			0.482	28.895	18.722	-17.409	46.305	10.173	AV

Note: Measure Level (dB μ V) = Reading Level (dB μ V) + 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 **Full HD Video Conferencing System FCC ID: YZZGVC3200** is in compliance with Part 15C of the FCC Rules.

The End
